

MHC-I Binding Prediction Results

 Method used: netmhcpan_el

| allele | seq_num | start | end | length | peptide | score |
|---------------------|---------|-------|------|--------|------------|----------|
| HLA-A*01:01 0.01 | 1 | 865 | 873 | 9 | LTDEMIAQY | 0.997196 |
| HLA-B*35:01 0.01 | 1 | 896 | 904 | 9 | IPFAMQMAY | 0.994479 |
| HLA-B*58:01 0.01 | 1 | 625 | 633 | 9 | HADQLTPTW | 0.990462 |
| HLA-B*35:01 0.01 | 1 | 84 | 92 | 9 | LPFNDGVYF | 0.984594 |
| HLA-B*44:03 0.01 | 1 | 1201 | 1209 | 9 | QELGKYEQY | 0.984568 |
| HLA-B*53:01 0.01 | 1 | 56 | 64 | 9 | LPFFSNVTW | 0.98139 |
| HLA-B*35:01 0.01 | 1 | 687 | 695 | 9 | VASQSIIAY | 0.979222 |
| HLA-A*03:01 0.01 | 1 | 454 | 462 | 9 | RLFRKSNLK | 0.978678 |
| HLA-B*40:01 0.01 | 1 | 1016 | 1024 | 9 | AEIRASANL | 0.976223 |
| HLA-A*68:02 0.01 | 1 | 777 | 785 | 9 | NTQEVFAQV | 0.975719 |
| HLA-A*02:03 0.01 | 1 | 976 | 984 | 9 | VLNDILSRL | 0.973205 |
| HLA-A*02:01 0.02 | 1 | 269 | 277 | 9 | YLQPRTFLL | 0.971198 |
| HLA-B*57:01 0.04 | 1 | 625 | 633 | 9 | HADQLTPTW | 0.970982 |
| HLA-B*44:02 0.01 | 1 | 1201 | 1209 | 9 | QELGKYEQY | 0.969971 |
| HLA-B*53:01 0.01 | 1 | 625 | 633 | 9 | HADQLTPTW | 0.966089 |
| HLA-A*01:01 0.01 | 1 | 864 | 873 | 10 | LLTDEMIAQY | 0.961805 |
| HLA-B*44:02 0.01 | 1 | 95 | 104 | 10 | TEKSNIIRGW | 0.955443 |
| HLA-B*57:01 0.06 | 1 | 344 | 353 | 10 | ATRFASVYAW | 0.954826 |
| HLA-A*24:02 0.01 | 1 | 1208 | 1216 | 9 | QYIKWPWYI | 0.951647 |
| HLA-B*44:03 0.02 | 1 | 95 | 104 | 10 | TEKSNIIRGW | 0.948122 |
| HLA-B*53:01 0.01 | 1 | 84 | 92 | 9 | LPFNDGVYF | 0.947976 |
| HLA-A*03:01 0.02 | 1 | 787 | 795 | 9 | QIYKTPPIK | 0.947791 |
| HLA-B*35:01 0.02 | 1 | 321 | 329 | 9 | QPTESIVRF | 0.947034 |
| HLA-A*68:01 0.04 | 1 | 725 | 733 | 9 | EILPVSMTK | 0.945141 |
| HLA-A*11:01 0.01 | 1 | 1065 | 1073 | 9 | VTYVPAQEK | 0.944416 |
| HLA-B*15:01 0.01 | 1 | 1264 | 1272 | 9 | VLKGVKLHY | 0.943479 |
| HLA-B*51:01 0.01 | 1 | 714 | 722 | 9 | IPTNFTISV | 0.942802 |
| HLA-A*23:01 0.01 | 1 | 1208 | 1216 | 9 | QYIKWPWYI | 0.942756 |
| HLA-A*68:01 0.04 | 1 | 394 | 403 | 10 | NVYADSFVIR | 0.939877 |
| HLA-A*02:01 0.03 | 1 | 976 | 984 | 9 | VLNDILSRL | 0.938498 |
| HLA-A*24:02 | 1 | 1066 | 1075 | 10 | TYVPAQEKNF | 0.936206 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|
| 0.02 | | | | | | | |
| HLA-A*31:01 | 1 | 458 | 466 | 9 | KSNLKPFER | 0.935717 | |
| 0.01 | | | | | | | |
| HLA-B*58:01 | 1 | 815 | 823 | 9 | RSFIEDLLF | 0.933645 | |
| 0.04 | | | | | | | |
| HLA-A*03:01 | 1 | 1065 | 1073 | 9 | VTYVPAQEK | 0.932408 | |
| 0.02 | | | | | | | |
| HLA-B*57:01 | 1 | 815 | 823 | 9 | RSFIEDLLF | 0.931244 | |
| 0.08 | | | | | | | |
| HLA-B*53:01 | 1 | 321 | 329 | 9 | QPTESIVRF | 0.930256 | |
| 0.02 | | | | | | | |
| HLA-A*31:01 | 1 | 1099 | 1107 | 9 | GTHWFVTQR | 0.927106 | |
| 0.01 | | | | | | | |
| HLA-A*03:01 | 1 | 302 | 310 | 9 | TLKSFTVEK | 0.926974 | |
| 0.02 | | | | | | | |
| HLA-A*24:02 | 1 | 635 | 643 | 9 | VYSTGSNVF | 0.925478 | |
| 0.02 | | | | | | | |
| HLA-A*68:02 | 1 | 718 | 726 | 9 | FTISVTTEI | 0.923585 | |
| 0.02 | | | | | | | |
| HLA-B*40:01 | 1 | 168 | 176 | 9 | FEYVSQPFL | 0.922159 | |
| 0.06 | | | | | | | |
| HLA-A*11:01 | 1 | 89 | 97 | 9 | GVYFASTEK | 0.920846 | |
| 0.01 | | | | | | | |
| HLA-A*31:01 | 1 | 349 | 357 | 9 | SVYAWNRKR | 0.919617 | |
| 0.02 | | | | | | | |
| HLA-B*07:02 | 1 | 680 | 688 | 9 | SPRRARVA | 0.918799 | |
| 0.04 | | | | | | | |
| HLA-A*03:01 | 1 | 89 | 97 | 9 | GVYFASTEK | 0.918399 | |
| 0.02 | | | | | | | |
| HLA-A*01:01 | 1 | 604 | 612 | 9 | TSNQVAVLY | 0.917927 | |
| 0.03 | | | | | | | |
| HLA-A*03:01 | 1 | 786 | 795 | 10 | KQIYKTPPIK | 0.916015 | |
| 0.03 | | | | | | | |
| HLA-A*02:01 | 1 | 109 | 117 | 9 | TLDSKTQSL | 0.914998 | |
| 0.03 | | | | | | | |
| HLA-A*23:01 | 1 | 1066 | 1075 | 10 | TYVPAQEKNF | 0.913776 | |
| 0.02 | | | | | | | |
| HLA-B*53:01 | 1 | 55 | 64 | 10 | FLPFFSNVTW | 0.912066 | |
| 0.02 | | | | | | | |
| HLA-B*57:01 | 1 | 878 | 886 | 9 | LAGTITSGW | 0.908875 | 0.1 |
| HLA-A*03:01 | 1 | 408 | 417 | 10 | RQIAPGQTGK | 0.904489 | |
| 0.03 | | | | | | | |
| HLA-B*58:01 | 1 | 878 | 886 | 9 | LAGTITSGW | 0.903533 | |
| 0.06 | | | | | | | |
| HLA-A*11:01 | 1 | 1020 | 1028 | 9 | ASANLAATK | 0.900268 | |
| 0.02 | | | | | | | |
| HLA-A*03:01 | 1 | 142 | 150 | 9 | GVYYHKNNK | 0.897956 | |
| 0.03 | | | | | | | |
| HLA-B*44:03 | 1 | 989 | 997 | 9 | AEVQIDRLI | 0.89662 | |
| 0.04 | | | | | | | |
| HLA-A*68:01 | 1 | 637 | 646 | 10 | STGSNVFQTR | 0.89597 | |
| 0.07 | | | | | | | |
| HLA-A*26:01 | 1 | 780 | 789 | 10 | EVFAQVKQIY | 0.895499 | |
| 0.02 | | | | | | | |
| HLA-A*24:02 | 1 | 159 | 168 | 10 | VYSSANNCTF | 0.895435 | |
| 0.03 | | | | | | | |
| HLA-B*08:01 | 1 | 269 | 277 | 9 | YLQPRTFLL | 0.894495 | |
| 0.02 | | | | | | | |
| HLA-A*31:01 | 1 | 36 | 44 | 9 | VYYPDKVFR | 0.892155 | |
| 0.03 | | | | | | | |
| HLA-A*68:01 | 1 | 1099 | 1107 | 9 | GTHWFVTQR | 0.890855 | |
| 0.08 | | | | | | | |
| HLA-A*24:02 | 1 | 368 | 377 | 10 | LYNSASFSTF | 0.890372 | |
| 0.03 | | | | | | | |
| HLA-A*02:03 | 1 | 821 | 829 | 9 | LLFNKVTLA | 0.890132 | |
| 0.03 | | | | | | | |

| | | | | | |
|---------------------|---|------|------|----|---------------------|
| HLA-A*02:06 0.04 | 1 | 269 | 277 | 9 | YLQPRTFLL 0.889523 |
| HLA-A*68:02 0.02 | 1 | 1168 | 1176 | 9 | DISGINASV 0.887294 |
| HLA-A*68:01 0.09 | 1 | 370 | 378 | 9 | NSASFSTFK 0.886711 |
| HLA-A*02:03 0.03 | 1 | 269 | 277 | 9 | YLQPRTFLL 0.886651 |
| HLA-B*58:01 0.07 | 1 | 624 | 633 | 10 | IHADQLTPTW 0.886293 |
| HLA-A*24:02 0.03 | 1 | 788 | 797 | 10 | IYKTPPIKDF 0.885207 |
| HLA-A*24:02 0.04 | 1 | 448 | 456 | 9 | NYNLYRLF 0.883164 |
| HLA-B*51:01 0.02 | 1 | 712 | 720 | 9 | IAIPTNFTI 0.879596 |
| HLA-A*31:01 0.04 | 1 | 677 | 685 | 9 | QTNSPRRAR 0.878824 |
| HLA-A*02:06 0.05 | 1 | 417 | 425 | 9 | KIADYNYKL 0.878545 |
| HLA-A*68:01 0.11 | 1 | 1173 | 1181 | 9 | NASVVNIQK 0.876119 |
| HLA-A*02:01 0.05 | 1 | 1000 | 1008 | 9 | RLQSLQTYV 0.87376 |
| HLA-A*26:01 0.03 | 1 | 192 | 200 | 9 | FVFKNIDGY 0.869689 |
| HLA-A*68:02 0.03 | 1 | 780 | 788 | 9 | EVFAQVKQI 0.865844 |
| HLA-A*02:01 0.05 | 1 | 417 | 425 | 9 | KIADYNYKL 0.864611 |
| HLA-A*03:01 0.05 | 1 | 41 | 49 | 9 | KVFRSSVLH 0.859868 |
| HLA-B*35:01 0.06 | 1 | 24 | 32 | 9 | LPPAYTNSF 0.85814 |
| HLA-A*68:01 0.14 | 1 | 349 | 357 | 9 | SVYAWNRKR 0.857726 |
| HLA-B*57:01 0.16 | 1 | 624 | 633 | 10 | IHADQLTPTW 0.853487 |
| HLA-B*51:01 0.02 | 1 | 1052 | 1060 | 9 | FPQSAPHGV 0.853165 |
| HLA-A*23:01 0.03 | 1 | 788 | 797 | 10 | IYKTPPIKDF 0.852007 |
| HLA-A*24:02 0.04 | 1 | 1137 | 1145 | 9 | VYDPLQPEL 0.851829 |
| HLA-B*15:01 0.04 | 1 | 634 | 643 | 10 | RVYSTGSNVF 0.851186 |
| HLA-A*02:06 0.06 | 1 | 1060 | 1068 | 9 | VVFLHVITYV 0.850041 |
| HLA-B*40:01 0.09 | 1 | 464 | 472 | 9 | FERDISTEI 0.84839 |
| HLA-B*35:01 0.06 | 1 | 343 | 351 | 9 | NATRFASVY 0.847454 |
| HLA-A*02:03 0.05 | 1 | 1048 | 1056 | 9 | HLMSFPQSA 0.845506 |
| HLA-A*02:03 0.05 | 1 | 958 | 966 | 9 | ALNTLVKQL 0.84284 |
| HLA-A*26:01 0.03 | 1 | 258 | 266 | 9 | WTAGAAAYY 0.842739 |
| HLA-A*24:02 0.04 | 1 | 144 | 152 | 9 | YYHKNNKSW 0.841714 |
| HLA-A*01:01 0.05 | 1 | 828 | 837 | 10 | LADAGFIKQY 0.840121 |
| HLA-B*53:01 0.03 | 1 | 250 | 258 | 9 | TPGDSSSGW 0.834377 |
| HLA-B*40:01 0.09 | 1 | 987 | 996 | 10 | VEAEVQIDRL 0.832715 |

| | | | | | | |
|---------------------|---|------|------|----|---------------------|-----|
| HLA-A*68:02 0.04 | 1 | 122 | 130 | 9 | NATNVVIKV 0.832699 | |
| HLA-B*44:02 0.04 | 1 | 989 | 997 | 9 | AEVQIDRLI 0.829103 | |
| HLA-B*44:03 0.07 | 1 | 339 | 347 | 9 | GEVFNATRF 0.828162 | |
| HLA-A*68:01 0.19 | 1 | 677 | 685 | 9 | QTNSPRRAR 0.828157 | |
| HLA-B*35:01 0.07 | 1 | 229 | 238 | 10 | LPIGINITRF 0.828081 | |
| HLA-A*11:01 0.06 | 1 | 975 | 983 | 9 | SVLNDILSR 0.826842 | |
| HLA-B*44:03 0.07 | 1 | 297 | 306 | 10 | SETKCTLKSF 0.825971 | |
| HLA-A*02:01 0.06 | 1 | 983 | 991 | 9 | RLDKVEAEV 0.825045 | |
| HLA-B*08:01 0.03 | 1 | 109 | 117 | 9 | TLDSKTQSL 0.824512 | |
| HLA-A*68:02 0.05 | 1 | 28 | 36 | 9 | YTNSFTRGV 0.823738 | |
| HLA-A*23:01 0.04 | 1 | 448 | 456 | 9 | NYNLYRLF 0.823695 | |
| HLA-A*68:01 0.19 | 1 | 1064 | 1073 | 10 | HVTYVPAQEK 0.821398 | |
| HLA-A*02:06 0.07 | 1 | 976 | 984 | 9 | VLNDILSRL 0.821222 | |
| HLA-A*11:01 0.07 | 1 | 787 | 795 | 9 | QIYKTPPIK 0.818509 | |
| HLA-B*15:01 0.06 | 1 | 962 | 970 | 9 | LVKQLSSNF 0.818281 | |
| HLA-A*11:01 0.07 | 1 | 302 | 310 | 9 | TLKSFTVEK 0.816787 | |
| HLA-B*58:01 0.11 | 1 | 1054 | 1062 | 9 | QSAPHGVSF 0.815153 | |
| HLA-A*01:01 0.06 | 1 | 258 | 266 | 9 | WTAGAAAYY 0.81389 | |
| HLA-A*26:01 0.04 | 1 | 361 | 369 | 9 | CVADYSVLY 0.813057 | |
| HLA-B*57:01 | 1 | 880 | 888 | 9 | GTITSGWTF 0.811974 | 0.2 |
| HLA-A*31:01 0.06 | 1 | 35 | 44 | 10 | GVYYPDKVFR 0.811444 | |
| HLA-B*53:01 0.03 | 1 | 229 | 238 | 10 | LPIGINITRF 0.811192 | |
| HLA-B*57:01 | 1 | 814 | 823 | 10 | KRSFIEDLLF 0.809729 | 0.2 |
| HLA-B*44:03 0.08 | 1 | 747 | 756 | 10 | TECSNLLLQY 0.808921 | |
| HLA-B*40:01 | 1 | 1181 | 1189 | 9 | KEIDRLNEV 0.808555 | 0.1 |
| HLA-A*68:01 | 1 | 975 | 983 | 9 | SVLNDILSR 0.808276 | 0.2 |
| HLA-B*57:01 | 1 | 1054 | 1062 | 9 | QSAPHGVSF 0.805824 | 0.2 |
| HLA-A*11:01 0.08 | 1 | 724 | 733 | 10 | TEILPVSMTK 0.805288 | |
| HLA-A*68:01 | 1 | 777 | 786 | 10 | NTQEVFAQVK 0.804955 | 0.2 |
| HLA-A*30:02 0.02 | 1 | 1264 | 1272 | 9 | VLKGVKLHY 0.804058 | |
| HLA-A*24:02 0.06 | 1 | 489 | 497 | 9 | YFPLQSYGF 0.80393 | |
| HLA-A*02:03 0.05 | 1 | 1060 | 1068 | 9 | VVFLHVTVY 0.803816 | |
| HLA-A*02:01 0.08 | 1 | 821 | 829 | 9 | LLFNKVTLA 0.803506 | |
| HLA-B*44:02 0.05 | 1 | 297 | 306 | 10 | SETKCTLKSF 0.803485 | |
| HLA-A*11:01 0.08 | 1 | 1099 | 1107 | 9 | GTHWFVTQR 0.802118 | |
| HLA-A*23:01 0.05 | 1 | 368 | 377 | 10 | LYNSASFSTF 0.801794 | |

| | | | | | | |
|---------------------|---|------|------|----|---------------------|-----|
| HLA-B*15:01 0.07 | 1 | 687 | 695 | 9 | VASQSIIAY 0.798942 | |
| HLA-A*30:02 0.02 | 1 | 604 | 612 | 9 | TSNQVAVLY 0.798698 | |
| HLA-A*02:01 0.08 | 1 | 1048 | 1056 | 9 | HLMSFPQSA 0.798454 | |
| HLA-A*23:01 0.05 | 1 | 635 | 643 | 9 | VYSTGSNVF 0.798231 | |
| HLA-B*35:01 0.08 | 1 | 56 | 64 | 9 | LPFFSNVTW 0.798144 | |
| HLA-A*02:06 0.08 | 1 | 718 | 726 | 9 | FTISVTTEI 0.796069 | |
| HLA-B*35:01 0.08 | 1 | 699 | 707 | 9 | LGAENSVAY 0.795492 | |
| HLA-A*68:01 0.21 | 1 | 1098 | 1107 | 10 | NGTHWFVTQR 0.794017 | |
| HLA-B*15:01 0.07 | 1 | 919 | 927 | 9 | NQKLIANQF 0.793418 | |
| HLA-A*68:01 0.21 | 1 | 228 | 237 | 10 | DLPIGINITR 0.793037 | |
| HLA-A*01:01 0.07 | 1 | 1197 | 1206 | 10 | LIDLQELGKY 0.791918 | |
| HLA-A*68:01 0.21 | 1 | 69 | 78 | 10 | HVSGTNGTKR 0.791522 | |
| HLA-A*23:01 0.05 | 1 | 1137 | 1145 | 9 | VYDPLQPEL 0.790353 | |
| HLA-B*15:01 0.08 | 1 | 413 | 421 | 9 | GQTGKIADY 0.790258 | |
| HLA-A*68:01 0.21 | 1 | 568 | 577 | 10 | DIADTTDAVR 0.789394 | |
| HLA-A*02:03 0.06 | 1 | 1185 | 1193 | 9 | RLNEVAKNL 0.788651 | |
| HLA-A*11:01 0.08 | 1 | 370 | 378 | 9 | NSASFSTFK 0.786812 | |
| HLA-A*31:01 0.07 | 1 | 558 | 567 | 10 | KFLPFQFGR 0.786339 | |
| HLA-A*03:01 | 1 | 1064 | 1073 | 10 | HVTYVPAQEK 0.781911 | 0.1 |
| HLA-B*44:03 0.09 | 1 | 1206 | 1214 | 9 | YEQYIKWPW 0.781402 | |
| HLA-A*11:01 0.09 | 1 | 725 | 733 | 9 | EILPVSMTK 0.780217 | |
| HLA-A*02:03 0.06 | 1 | 1000 | 1008 | 9 | RLQSLQTYV 0.779805 | |
| HLA-A*33:01 0.03 | 1 | 36 | 44 | 9 | VYYPDKVFR 0.779146 | |
| HLA-A*30:01 0.02 | 1 | 454 | 462 | 9 | RLFRKSNLK 0.774723 | |
| HLA-A*30:02 0.03 | 1 | 372 | 380 | 9 | ASFSTFKCY 0.77457 | |
| HLA-A*23:01 0.05 | 1 | 144 | 152 | 9 | YYHKNNKSW 0.77397 | |
| HLA-B*53:01 0.04 | 1 | 896 | 904 | 9 | IPFAMQMAY 0.771169 | |
| HLA-B*44:03 | 1 | 829 | 837 | 9 | ADAGFIKQY 0.769592 | 0.1 |
| HLA-A*30:01 0.02 | 1 | 302 | 310 | 9 | TLKSFTVEK 0.766302 | |
| HLA-B*44:03 | 1 | 1016 | 1024 | 9 | AEIRASANL 0.764604 | 0.1 |
| HLA-B*15:01 0.09 | 1 | 894 | 902 | 9 | LQIPFAMQM 0.763797 | |
| HLA-A*02:03 0.07 | 1 | 1220 | 1228 | 9 | FIAGLIAIV 0.76346 | |
| HLA-A*03:01 0.12 | 1 | 269 | 278 | 10 | YLQPRTFLLK 0.762757 | |
| HLA-A*03:01 0.12 | 1 | 724 | 733 | 10 | TEILPVSMTK 0.762384 | |
| HLA-A*02:03 | 1 | 109 | 117 | 9 | TLDSKTQSL 0.758786 | |

| | | | | | | | |
|-------------|---|------|------|----|-------------|----------|-----|
| 0.07 | | | | | | | |
| HLA-B*40:01 | 1 | 989 | 997 | 9 | AEVQIDRLI | 0.758249 | |
| 0.13 | | | | | | | |
| HLA-A*68:02 | 1 | 1136 | 1145 | 10 | TVYDPLQPEL | 0.758137 | |
| 0.06 | | | | | | | |
| HLA-B*57:01 | 1 | 1093 | 1102 | 10 | GVFVSNNGTHW | 0.757943 | |
| 0.25 | | | | | | | |
| HLA-A*31:01 | 1 | 319 | 328 | 10 | RVQPTESIVR | 0.756377 | |
| 0.08 | | | | | | | |
| HLA-B*15:01 | 1 | 698 | 707 | 10 | SLGAENSVAY | 0.756258 | 0.1 |
| HLA-A*26:01 | 1 | 191 | 200 | 10 | EFVFKNIDGY | 0.75517 | |
| 0.05 | | | | | | | |
| HLA-A*23:01 | 1 | 159 | 168 | 10 | VYSSANNCTF | 0.754859 | |
| 0.06 | | | | | | | |
| HLA-A*24:02 | 1 | 1094 | 1102 | 9 | VFVSNNGTHW | 0.754597 | |
| 0.07 | | | | | | | |
| HLA-B*44:02 | 1 | 1206 | 1214 | 9 | YEQYIKWPW | 0.754025 | |
| 0.08 | | | | | | | |
| HLA-B*35:01 | 1 | 162 | 170 | 9 | SANNCTFEY | 0.753348 | 0.1 |
| HLA-A*68:02 | 1 | 340 | 348 | 9 | EVFNATRFA | 0.751835 | |
| 0.07 | | | | | | | |
| HLA-A*23:01 | 1 | 1094 | 1102 | 9 | VFVSNNGTHW | 0.750957 | |
| 0.06 | | | | | | | |
| HLA-B*15:01 | 1 | 1054 | 1062 | 9 | QSAPHGVVF | 0.749927 | 0.1 |
| HLA-B*58:01 | 1 | 880 | 888 | 9 | GTITSGWTF | 0.748029 | |
| 0.15 | | | | | | | |
| HLA-A*01:01 | 1 | 603 | 612 | 10 | NTSNQVAVLY | 0.744843 | |
| 0.08 | | | | | | | |
| HLA-A*23:01 | 1 | 507 | 515 | 9 | PYRVVLSF | 0.742903 | |
| 0.07 | | | | | | | |
| HLA-A*68:01 | 1 | 35 | 44 | 10 | GVYYPDKVFR | 0.741864 | |
| 0.27 | | | | | | | |
| HLA-A*02:01 | 1 | 1060 | 1068 | 9 | VVFLHVTVY | 0.74167 | |
| 0.11 | | | | | | | |
| HLA-B*08:01 | 1 | 233 | 241 | 9 | INITRFQTL | 0.740901 | |
| 0.05 | | | | | | | |
| HLA-B*08:01 | 1 | 1262 | 1270 | 9 | EPVLKGVKL | 0.740861 | |
| 0.05 | | | | | | | |
| HLA-A*11:01 | 1 | 939 | 947 | 9 | SSTASALGK | 0.738311 | |
| 0.11 | | | | | | | |
| HLA-B*35:01 | 1 | 271 | 279 | 9 | QPRTFLLKY | 0.738211 | 0.1 |
| HLA-A*11:01 | 1 | 409 | 417 | 9 | QIAPGQTGK | 0.738116 | |
| 0.11 | | | | | | | |
| HLA-A*03:01 | 1 | 409 | 417 | 9 | QIAPGQTGK | 0.735412 | |
| 0.14 | | | | | | | |
| HLA-B*51:01 | 1 | 122 | 130 | 9 | NATNVVIKV | 0.734906 | |
| 0.06 | | | | | | | |
| HLA-A*68:01 | 1 | 1005 | 1014 | 10 | QTYVTQLIR | 0.734679 | |
| 0.27 | | | | | | | |
| HLA-B*58:01 | 1 | 344 | 353 | 10 | ATRFASVYAW | 0.733299 | |
| 0.16 | | | | | | | |
| HLA-A*30:01 | 1 | 344 | 352 | 9 | ATRFASVYA | 0.731415 | |
| 0.04 | | | | | | | |
| HLA-A*02:06 | 1 | 109 | 117 | 9 | TLDSKTQSL | 0.730577 | 0.1 |
| HLA-B*44:02 | 1 | 829 | 837 | 9 | ADAGFIKQY | 0.727507 | |
| 0.09 | | | | | | | |
| HLA-A*68:01 | 1 | 675 | 683 | 9 | QTQTNSPRR | 0.724704 | |
| 0.28 | | | | | | | |
| HLA-A*31:01 | 1 | 182 | 190 | 9 | KQGNFKNLR | 0.724634 | |
| 0.11 | | | | | | | |
| HLA-B*15:01 | 1 | 628 | 636 | 9 | QLTPTWRVY | 0.724015 | |
| 0.12 | | | | | | | |
| HLA-B*15:01 | 1 | 240 | 248 | 9 | TLLALHRSY | 0.72265 | |
| 0.12 | | | | | | | |
| HLA-B*15:01 | 1 | 212 | 220 | 9 | LVRDLPQGF | 0.72095 | |
| 0.12 | | | | | | | |

| | | | | | | |
|---------------------|---|------|------|----|---------------------|-----|
| HLA-B*44:02 0.09 | 1 | 339 | 347 | 9 | GEVFNATRF 0.720722 | |
| HLA-A*68:01 | 1 | 88 | 97 | 10 | DGVYFASTFK 0.718688 | 0.3 |
| HLA-B*15:01 0.12 | 1 | 686 | 695 | 10 | SVASQSIIAY 0.718454 | |
| HLA-B*58:01 0.17 | 1 | 814 | 823 | 10 | KRSFIEDLLF 0.718378 | |
| HLA-B*07:02 0.11 | 1 | 1261 | 1270 | 10 | SEPVKKGVKL 0.718257 | |
| HLA-A*68:01 | 1 | 1065 | 1073 | 9 | VTYVPAQEK 0.718109 | 0.3 |
| HLA-A*11:01 0.13 | 1 | 408 | 417 | 10 | RQIAPGQTGK 0.715172 | |
| HLA-A*31:01 0.12 | 1 | 975 | 983 | 9 | SVLNDILSR 0.713452 | |
| HLA-A*23:01 0.08 | 1 | 489 | 497 | 9 | YFPLQSYGF 0.712888 | |
| HLA-B*15:01 0.12 | 1 | 497 | 505 | 9 | FQPTNGVGY 0.712881 | |
| HLA-B*57:01 0.29 | 1 | 97 | 106 | 10 | KSNIIRGWIF 0.712739 | |
| HLA-A*24:02 0.09 | 1 | 507 | 515 | 9 | PYRVVLSF 0.711831 | |
| HLA-A*26:01 0.06 | 1 | 686 | 695 | 10 | SVASQSIIAY 0.710856 | |
| HLA-A*11:01 0.13 | 1 | 142 | 150 | 9 | GVYYHKNNK 0.70786 | |
| HLA-A*11:01 0.13 | 1 | 1064 | 1073 | 10 | HVTYVPAQEK 0.706779 | |
| HLA-A*02:03 | 1 | 975 | 984 | 10 | SVLNDILSRL 0.704355 | 0.1 |
| HLA-A*11:01 0.14 | 1 | 550 | 558 | 9 | GVLTESNKK 0.704285 | |
| HLA-B*35:01 0.12 | 1 | 895 | 904 | 10 | QIPFAMQMAY 0.702727 | |
| HLA-A*68:01 0.32 | 1 | 409 | 417 | 9 | QIAPGQTGK 0.702055 | |
| HLA-B*35:01 0.12 | 1 | 192 | 200 | 9 | FVFKNIDGY 0.69975 | |
| HLA-A*01:01 | 1 | 652 | 660 | 9 | GAEHVNNNSY 0.698791 | 0.1 |
| HLA-B*57:01 | 1 | 1203 | 1212 | 10 | LGKYEQYIKW 0.698299 | 0.3 |
| HLA-A*02:06 0.11 | 1 | 1220 | 1228 | 9 | FIAGLIAIV 0.697944 | |
| HLA-A*26:01 0.06 | 1 | 360 | 369 | 10 | NCVADYSVLY 0.696726 | |
| HLA-A*01:01 | 1 | 440 | 449 | 10 | NLDSKVGNGY 0.696259 | 0.1 |
| HLA-A*33:01 0.07 | 1 | 394 | 403 | 10 | NVYADSFVIR 0.695997 | |
| HLA-A*68:02 0.08 | 1 | 1060 | 1068 | 9 | VVFLHVITYV 0.693503 | |
| HLA-A*01:01 | 1 | 161 | 170 | 10 | SSANNCTFEY 0.691415 | 0.1 |
| HLA-B*40:01 0.16 | 1 | 1256 | 1265 | 10 | FDEDDSEPVL 0.691166 | |
| HLA-A*68:02 0.09 | 1 | 568 | 576 | 9 | DIADTTDAV 0.691027 | |
| HLA-B*58:01 0.19 | 1 | 604 | 612 | 9 | TSNQVAVLY 0.690801 | |
| HLA-A*02:06 0.11 | 1 | 691 | 699 | 9 | SIIAYTMSL 0.69038 | |
| HLA-B*57:01 0.31 | 1 | 879 | 888 | 10 | AGTITSGWTF 0.689438 | |
| HLA-B*35:01 0.13 | 1 | 898 | 906 | 9 | FAMQMAYRF 0.68794 | |
| HLA-A*23:01 0.09 | 1 | 1101 | 1109 | 9 | HWFVTQRNF 0.687107 | |
| HLA-A*33:01 0.08 | 1 | 349 | 357 | 9 | SVYAWNRKR 0.686387 | |
| HLA-A*24:02 | 1 | 169 | 177 | 9 | EYVSQPFLM 0.686017 | |

| | | | | | | | |
|-------------|---|------|------|----|----------------------|-----|--|
| 0.11 | | | | | | | |
| HLA-A*31:01 | 1 | 637 | 646 | 10 | STGSNVFQTR 0.683526 | | |
| 0.14 | | | | | | | |
| HLA-B*40:01 | 1 | 339 | 347 | 9 | GEVFNATRF 0.682004 | | |
| 0.16 | | | | | | | |
| HLA-B*07:02 | 1 | 526 | 534 | 9 | GPKKSTNLV 0.678799 | | |
| 0.13 | | | | | | | |
| HLA-A*03:01 | 1 | 1196 | 1205 | 10 | SLIDLQELGK 0.677463 | | |
| 0.18 | | | | | | | |
| HLA-A*02:06 | 1 | 1136 | 1145 | 10 | TVYDPLQPEL 0.677074 | | |
| 0.12 | | | | | | | |
| HLA-B*44:02 | 1 | 1016 | 1024 | 9 | AEIRASANL 0.676171 | | |
| 0.11 | | | | | | | |
| HLA-A*02:03 | 1 | 386 | 395 | 10 | KLNDLCFTNV 0.67519 | | |
| 0.11 | | | | | | | |
| HLA-B*51:01 | 1 | 8 | 16 | 9 | LPLVSSQCV 0.673254 | | |
| 0.09 | | | | | | | |
| HLA-A*31:01 | 1 | 346 | 355 | 10 | RFASVYAWNRR 0.672968 | | |
| 0.15 | | | | | | | |
| HLA-B*40:01 | 1 | 1261 | 1270 | 10 | SEPVLKGVKL 0.670789 | | |
| 0.17 | | | | | | | |
| HLA-A*11:01 | 1 | 454 | 462 | 9 | RLFRKSNLK 0.67072 | | |
| 0.16 | | | | | | | |
| HLA-A*03:01 | 1 | 349 | 357 | 9 | SVYAWNRRKR 0.668534 | | |
| 0.19 | | | | | | | |
| HLA-B*58:01 | 1 | 712 | 720 | 9 | IAIPTNFTI 0.668254 | | |
| 0.21 | | | | | | | |
| HLA-A*33:01 | 1 | 395 | 403 | 9 | VYADSFVIR 0.667693 | | |
| 0.08 | | | | | | | |
| HLA-B*57:01 | 1 | 49 | 58 | 10 | HSTQDLFLPF 0.665216 | | |
| 0.34 | | | | | | | |
| HLA-A*31:01 | 1 | 395 | 403 | 9 | VYADSFVIR 0.664791 | | |
| 0.16 | | | | | | | |
| HLA-A*01:01 | 1 | 28 | 37 | 10 | YTNSFTRGVY 0.661513 | 0.1 | |
| HLA-A*03:01 | 1 | 1020 | 1028 | 9 | ASANLAATK 0.660646 | 0.2 | |
| HLA-A*03:01 | 1 | 378 | 386 | 9 | KCYGVSPK 0.660274 | 0.2 | |
| HLA-A*33:01 | 1 | 677 | 685 | 9 | QTNSPRRAR 0.659706 | | |
| 0.08 | | | | | | | |
| HLA-A*30:01 | 1 | 378 | 386 | 9 | KCYGVSPK 0.659228 | | |
| 0.06 | | | | | | | |
| HLA-A*68:01 | 1 | 69 | 77 | 9 | HVSGTNGTK 0.658881 | | |
| 0.36 | | | | | | | |
| HLA-A*68:01 | 1 | 400 | 408 | 9 | FVIRGDEVR 0.658436 | | |
| 0.37 | | | | | | | |
| HLA-B*57:01 | 1 | 604 | 612 | 9 | TSNQVAVLY 0.657685 | | |
| 0.34 | | | | | | | |
| HLA-A*02:01 | 1 | 958 | 966 | 9 | ALNTLVKQL 0.657403 | | |
| 0.16 | | | | | | | |
| HLA-A*23:01 | 1 | 488 | 497 | 10 | CYFPLQSYGF 0.656733 | | |
| 0.09 | | | | | | | |
| HLA-A*24:02 | 1 | 1101 | 1109 | 9 | HWFVTQRNF 0.656466 | | |
| 0.12 | | | | | | | |
| HLA-A*31:01 | 1 | 150 | 158 | 9 | KSWMSEFR 0.653923 | | |
| 0.17 | | | | | | | |
| HLA-B*57:01 | 1 | 304 | 313 | 10 | KSFTVEKGIY 0.653254 | | |
| 0.34 | | | | | | | |
| HLA-A*02:01 | 1 | 1185 | 1193 | 9 | RLNEVAKNL 0.652653 | | |
| 0.16 | | | | | | | |
| HLA-A*30:01 | 1 | 1065 | 1073 | 9 | VTYVPAQEK 0.651559 | | |
| 0.06 | | | | | | | |
| HLA-B*51:01 | 1 | 1052 | 1061 | 10 | FPQSAPHGVV 0.65136 | | |
| 0.09 | | | | | | | |
| HLA-A*68:01 | 1 | 229 | 237 | 9 | LPIGINITR 0.651161 | | |
| 0.38 | | | | | | | |
| HLA-A*31:01 | 1 | 237 | 246 | 10 | RFQTLALHR 0.649947 | | |
| 0.18 | | | | | | | |

| | | | | | | |
|---------------------|---|------|------|----|---------------------|-----|
| HLA-B*57:01 0.35 | 1 | 249 | 258 | 10 | LTPGDSSSGW 0.6494 | |
| HLA-A*02:03 0.12 | 1 | 915 | 923 | 9 | VLYENQKLI 0.648983 | |
| HLA-B*35:01 0.14 | 1 | 56 | 65 | 10 | LPFFSNVTWF 0.648367 | |
| HLA-A*01:01 0.11 | 1 | 361 | 369 | 9 | CVADYSVLY 0.64603 | |
| HLA-A*23:01 | 1 | 1208 | 1217 | 10 | QYIKWPWYIW 0.645985 | 0.1 |
| HLA-A*24:02 0.13 | 1 | 488 | 497 | 10 | CYFPLQSYGF 0.645963 | |
| HLA-A*23:01 | 1 | 169 | 177 | 9 | EYVSQPFLM 0.644477 | 0.1 |
| HLA-A*30:02 0.08 | 1 | 781 | 789 | 9 | VFAQVKQIY 0.644353 | |
| HLA-A*03:01 0.21 | 1 | 805 | 814 | 10 | ILPDPSKPSK 0.643677 | |
| HLA-A*02:06 0.14 | 1 | 1000 | 1008 | 9 | RLQSLQTYV 0.64316 | |
| HLA-A*01:01 0.12 | 1 | 733 | 741 | 9 | KTSVDCTMY 0.642966 | |
| HLA-B*44:02 0.12 | 1 | 747 | 756 | 10 | TECSNLLLQY 0.642665 | |
| HLA-A*02:01 0.17 | 1 | 1220 | 1228 | 9 | FIAGLIAIV 0.641405 | |
| HLA-A*30:02 0.08 | 1 | 687 | 695 | 9 | VASQSIIAY 0.641131 | |
| HLA-B*51:01 | 1 | 574 | 582 | 9 | DAVRDPQTL 0.639281 | 0.1 |
| HLA-A*11:01 0.18 | 1 | 827 | 835 | 9 | TLADAGFIK 0.639216 | |
| HLA-A*33:01 0.09 | 1 | 265 | 273 | 9 | YYVGYLQPR 0.638012 | |
| HLA-A*24:02 0.13 | 1 | 143 | 152 | 10 | VYYHKNNKSW 0.637746 | |
| HLA-B*08:01 0.08 | 1 | 996 | 1004 | 9 | LITGRLQSL 0.63729 | |
| HLA-A*32:01 0.05 | 1 | 417 | 425 | 9 | KIADYNYKL 0.634457 | |
| HLA-A*24:02 0.13 | 1 | 203 | 212 | 10 | IYSKHTPINL 0.634064 | |
| HLA-B*57:01 0.36 | 1 | 877 | 886 | 10 | LLAGTITSGW 0.633888 | |
| HLA-B*53:01 0.07 | 1 | 83 | 92 | 10 | VLPFNDGVYF 0.63303 | |
| HLA-A*30:01 0.06 | 1 | 787 | 795 | 9 | QIYKTPPIK 0.631297 | |
| HLA-B*57:01 0.37 | 1 | 1209 | 1217 | 9 | YIKWPWYIW 0.630823 | |
| HLA-B*35:01 0.15 | 1 | 625 | 633 | 9 | HADQLTPTW 0.630203 | |
| HLA-A*31:01 0.21 | 1 | 264 | 273 | 10 | AYYVGYLQPR 0.627498 | |
| HLA-A*68:01 0.43 | 1 | 302 | 310 | 9 | TLKSFTVEK 0.623075 | |
| HLA-A*30:02 0.09 | 1 | 162 | 170 | 9 | SANNECTFEY 0.62244 | |
| HLA-A*02:01 0.18 | 1 | 857 | 865 | 9 | GLTVLPPLL 0.622173 | |
| HLA-B*35:01 0.15 | 1 | 478 | 486 | 9 | TPCNGVEGF 0.622163 | |
| HLA-B*53:01 0.07 | 1 | 24 | 32 | 9 | LPPAYTNSF 0.62158 | |
| HLA-A*30:01 0.07 | 1 | 142 | 150 | 9 | GVYYHKNNK 0.619445 | |
| HLA-B*15:01 | 1 | 35 | 43 | 9 | GVYYDPKVF 0.619435 | 0.2 |
| HLA-A*30:02 0.09 | 1 | 628 | 636 | 9 | QLTPTWRVY 0.619267 | |

| | | | | | | |
|---------------------|---|------|------|----|----------------------|-----|
| HLA-A*02:01 0.18 | 1 | 1192 | 1200 | 9 | NLNESLIDL 0.618877 | |
| HLA-A*02:06 0.15 | 1 | 777 | 785 | 9 | NTQEVFAQV 0.61807 | |
| HLA-B*35:01 0.15 | 1 | 604 | 612 | 9 | TSNQVAVLY 0.6179 | |
| HLA-A*30:02 | 1 | 733 | 741 | 9 | KTSVDCTMY 0.617596 | 0.1 |
| HLA-A*31:01 0.21 | 1 | 310 | 319 | 10 | KGITYQTSNFR 0.617169 | |
| HLA-A*01:01 0.13 | 1 | 196 | 204 | 9 | NIDGYFKIY 0.616114 | |
| HLA-A*02:06 0.15 | 1 | 894 | 902 | 9 | LQIPFAMQM 0.61392 | |
| HLA-A*24:02 0.14 | 1 | 1208 | 1217 | 10 | QYIKWPWYIW 0.613352 | |
| HLA-B*35:01 0.16 | 1 | 83 | 92 | 10 | VLPFNDGVYF 0.613298 | |
| HLA-B*53:01 0.07 | 1 | 320 | 329 | 10 | VQPTESIVRF 0.612597 | |
| HLA-A*68:01 0.45 | 1 | 347 | 355 | 9 | FASVYAWNR 0.611074 | |
| HLA-A*26:01 0.08 | 1 | 298 | 306 | 9 | ETKCTLKSF 0.610601 | |
| HLA-B*51:01 0.12 | 1 | 84 | 92 | 9 | LPFNDGVYF 0.610415 | |
| HLA-B*15:01 0.21 | 1 | 47 | 55 | 9 | VLHSTQDLF 0.609724 | |
| HLA-B*35:01 0.16 | 1 | 861 | 869 | 9 | LPPLLTDEM 0.608235 | |
| HLA-A*24:02 0.14 | 1 | 78 | 86 | 9 | RFDNPVLPF 0.606479 | |
| HLA-B*35:01 0.16 | 1 | 487 | 495 | 9 | NCYFPLQSY 0.605847 | |
| HLA-B*35:01 0.16 | 1 | 1054 | 1062 | 9 | QSAPHGVVF 0.605672 | |
| HLA-B*15:01 0.21 | 1 | 192 | 200 | 9 | FVFKNIDGY 0.603024 | |
| HLA-A*68:01 0.47 | 1 | 638 | 646 | 9 | TGSNVFQTR 0.603019 | |
| HLA-A*02:06 0.17 | 1 | 1048 | 1056 | 9 | HLMSFPQSA 0.601563 | |
| HLA-B*15:01 0.21 | 1 | 372 | 380 | 9 | ASFSTFKCY 0.599051 | |
| HLA-A*01:01 0.14 | 1 | 30 | 38 | 9 | NSFTRGVYY 0.597285 | |
| HLA-A*68:01 0.48 | 1 | 94 | 102 | 9 | STEKSNIIR 0.596515 | |
| HLA-A*02:06 0.17 | 1 | 133 | 141 | 9 | FQFCNDPFL 0.596191 | |
| HLA-A*11:01 0.21 | 1 | 349 | 357 | 9 | SVYAWNRKR 0.596094 | |
| HLA-B*58:01 0.25 | 1 | 710 | 718 | 9 | NSIAIPTNF 0.59572 | |
| HLA-A*23:01 0.11 | 1 | 143 | 152 | 10 | VYYHKNNKSW 0.595173 | |
| HLA-B*57:01 0.41 | 1 | 712 | 720 | 9 | IAIPTNFTI 0.593982 | |
| HLA-A*11:01 0.21 | 1 | 348 | 356 | 9 | ASVYAWNRK 0.59342 | |
| HLA-B*58:01 0.26 | 1 | 1093 | 1102 | 10 | GVFVSNGTHW 0.592182 | |
| HLA-B*40:01 0.21 | 1 | 1015 | 1024 | 10 | AAEIRASANL 0.591426 | |
| HLA-A*03:01 0.25 | 1 | 453 | 462 | 10 | YRLFRKSNLK 0.591204 | |
| HLA-A*32:01 | 1 | 634 | 643 | 10 | RVYSTGSNVF 0.589889 | |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|
| 0.06 | | | | | | | |
| HLA-A*11:01 | 1 | 529 | 537 | 9 | KSTNLVKNK | 0.588891 | |
| 0.21 | | | | | | | |
| HLA-A*11:01 | 1 | 292 | 300 | 9 | ALDPLSETK | 0.588815 | |
| 0.21 | | | | | | | |
| HLA-A*31:01 | 1 | 311 | 319 | 9 | GIYQTSNFR | 0.587274 | |
| 0.25 | | | | | | | |
| HLA-B*44:03 | 1 | 464 | 473 | 10 | FERDISTEY | 0.586808 | 0.2 |
| HLA-B*07:02 | 1 | 38 | 47 | 10 | YDPKVFSSV | 0.586215 | |
| 0.19 | | | | | | | |
| HLA-A*68:01 | 1 | 311 | 319 | 9 | GIYQTSNFR | 0.586097 | 0.5 |
| HLA-B*15:01 | 1 | 1059 | 1067 | 9 | GVVFLHVTY | 0.585418 | |
| 0.22 | | | | | | | |
| HLA-A*02:06 | 1 | 612 | 620 | 9 | YQDVNCTEV | 0.584332 | |
| 0.18 | | | | | | | |
| HLA-B*15:01 | 1 | 852 | 861 | 10 | AQKFNGTLVL | 0.584204 | |
| 0.22 | | | | | | | |
| HLA-A*03:01 | 1 | 529 | 537 | 9 | KSTNLVKNK | 0.581593 | |
| 0.26 | | | | | | | |
| HLA-B*35:01 | 1 | 329 | 338 | 10 | FPNITNLCPF | 0.581019 | |
| 0.18 | | | | | | | |
| HLA-A*68:02 | 1 | 717 | 726 | 10 | NFTISVTTEI | 0.580993 | |
| 0.14 | | | | | | | |
| HLA-A*02:01 | 1 | 691 | 699 | 9 | SIIAYTMSL | 0.580032 | |
| 0.21 | | | | | | | |
| HLA-A*30:01 | 1 | 786 | 795 | 10 | KQIYKTPPIK | 0.5792 | |
| 0.09 | | | | | | | |
| HLA-A*68:02 | 1 | 1188 | 1197 | 10 | EVAKNLNESL | 0.579163 | |
| 0.14 | | | | | | | |
| HLA-A*31:01 | 1 | 348 | 357 | 10 | ASVYAWNRKR | 0.578807 | |
| 0.26 | | | | | | | |
| HLA-B*57:01 | 1 | 710 | 718 | 9 | NSIAIPTNF | 0.578173 | |
| 0.43 | | | | | | | |
| HLA-A*31:01 | 1 | 454 | 462 | 9 | RLFRKSNLK | 0.576303 | |
| 0.26 | | | | | | | |
| HLA-A*02:03 | 1 | 995 | 1004 | 10 | RLITGRLQSL | 0.576159 | |
| 0.18 | | | | | | | |
| HLA-B*58:01 | 1 | 49 | 58 | 10 | HSTQDLFLPF | 0.575502 | |
| 0.27 | | | | | | | |
| HLA-A*30:02 | 1 | 304 | 313 | 10 | KSFTVEKGIY | 0.574093 | |
| 0.11 | | | | | | | |
| HLA-A*11:01 | 1 | 826 | 835 | 10 | VTLADAGFIK | 0.57408 | |
| 0.23 | | | | | | | |
| HLA-B*40:01 | 1 | 1257 | 1265 | 9 | DEDDSEPVL | 0.57095 | |
| 0.22 | | | | | | | |
| HLA-B*08:01 | 1 | 505 | 513 | 9 | YQPYRVVVL | 0.570928 | |
| 0.11 | | | | | | | |
| HLA-A*30:02 | 1 | 240 | 248 | 9 | TLLALHSY | 0.5709 | |
| 0.11 | | | | | | | |
| HLA-A*01:01 | 1 | 162 | 170 | 9 | SANNCTFEY | 0.570386 | |
| 0.15 | | | | | | | |
| HLA-B*57:01 | 1 | 372 | 380 | 9 | ASFSTFKCY | 0.567253 | |
| 0.44 | | | | | | | |
| HLA-A*11:01 | 1 | 35 | 44 | 10 | GVYYPDKVFR | 0.566756 | |
| 0.23 | | | | | | | |
| HLA-A*03:01 | 1 | 1264 | 1272 | 9 | VLKGVKLHY | 0.565504 | |
| 0.27 | | | | | | | |
| HLA-A*30:02 | 1 | 865 | 873 | 9 | LTDEMIAQY | 0.565227 | |
| 0.12 | | | | | | | |
| HLA-A*01:01 | 1 | 865 | 874 | 10 | LTDEMIAQYT | 0.563645 | |
| 0.16 | | | | | | | |
| HLA-A*30:02 | 1 | 30 | 38 | 9 | NSFTRGVYY | 0.563454 | |
| 0.12 | | | | | | | |
| HLA-B*53:01 | 1 | 898 | 906 | 9 | FAMQMAYRF | 0.56343 | 0.1 |
| HLA-A*02:03 | 1 | 417 | 425 | 9 | KIADYNYKL | 0.563133 | |
| 0.19 | | | | | | | |

| | | | | | | |
|---------------------|---|------|------|----|---------------------|-----|
| HLA-A*02:01 0.23 | 1 | 424 | 433 | 10 | KLPDDFTGCV 0.562841 | |
| HLA-A*02:06 0.19 | 1 | 983 | 991 | 9 | RLDKVEAEV 0.562526 | |
| HLA-A*30:02 0.12 | 1 | 444 | 453 | 10 | KVGGNYNYLY 0.561875 | |
| HLA-A*02:06 0.19 | 1 | 821 | 829 | 9 | LLFNKVTLA 0.560973 | |
| HLA-B*53:01 | 1 | 56 | 65 | 10 | LPFFSNVTWF 0.559641 | 0.1 |
| HLA-A*02:03 | 1 | 691 | 699 | 9 | SIIAYTMSL 0.55817 | 0.2 |
| HLA-A*02:03 | 1 | 424 | 433 | 10 | KLPDDFTGCV 0.556071 | 0.2 |
| HLA-B*53:01 | 1 | 249 | 258 | 10 | LTPGDSSSGW 0.555638 | 0.1 |
| HLA-A*03:01 0.28 | 1 | 827 | 835 | 9 | TLADAGFIK 0.555592 | |
| HLA-A*30:02 0.13 | 1 | 686 | 695 | 10 | SVASQSIIAY 0.555378 | |
| HLA-B*58:01 0.28 | 1 | 898 | 906 | 9 | FAMQMAYRF 0.55535 | |
| HLA-A*11:01 0.25 | 1 | 803 | 811 | 9 | SQILPDPSK 0.555075 | |
| HLA-A*32:01 0.07 | 1 | 202 | 210 | 9 | KIYSKHTPI 0.553766 | |
| HLA-A*68:01 0.55 | 1 | 974 | 983 | 10 | SSVLNDILSR 0.553501 | |
| HLA-B*07:02 0.21 | 1 | 1262 | 1270 | 9 | EPVLKGVKL 0.553414 | |
| HLA-A*68:01 0.55 | 1 | 198 | 206 | 9 | DGYFKIYSK 0.55328 | |
| HLA-B*57:01 0.47 | 1 | 50 | 59 | 10 | STQDLFLPFF 0.552122 | |
| HLA-A*32:01 0.08 | 1 | 880 | 888 | 9 | GTITSGWTF 0.550974 | |
| HLA-A*24:02 0.17 | 1 | 268 | 277 | 10 | GYLQPRTFLL 0.549374 | |
| HLA-B*07:02 0.21 | 1 | 208 | 216 | 9 | TPINLVRDL 0.548006 | |
| HLA-A*11:01 0.25 | 1 | 311 | 319 | 9 | GIYQTSNFR 0.547005 | |
| HLA-A*33:01 0.13 | 1 | 448 | 457 | 10 | NYNYLYRLFR 0.545544 | |
| HLA-A*33:01 0.13 | 1 | 449 | 457 | 9 | YNYLYRLFR 0.544741 | |
| HLA-A*23:01 0.14 | 1 | 78 | 86 | 9 | RFDNPVLPF 0.544699 | |
| HLA-A*30:01 | 1 | 634 | 642 | 9 | RVYSTGSNV 0.543326 | 0.1 |
| HLA-B*35:01 0.21 | 1 | 865 | 873 | 9 | LTDEMIAQY 0.541109 | |
| HLA-A*03:01 0.29 | 1 | 311 | 319 | 9 | GIYQTSNFR 0.540742 | |
| HLA-A*23:01 0.14 | 1 | 57 | 65 | 9 | PFFSNVTWF 0.540445 | |
| HLA-B*08:01 0.13 | 1 | 820 | 828 | 9 | DLLFNKVTL 0.539186 | |
| HLA-A*24:02 0.18 | 1 | 1094 | 1103 | 10 | VFVSNGTHWF 0.537769 | |
| HLA-A*31:01 0.31 | 1 | 676 | 685 | 10 | TQTNSPRRAR 0.536946 | |
| HLA-A*33:01 0.14 | 1 | 228 | 237 | 10 | DLPIGINITR 0.536875 | |
| HLA-A*31:01 0.31 | 1 | 991 | 1000 | 10 | VQIDRLITGR 0.536572 | |
| HLA-A*02:01 0.24 | 1 | 386 | 395 | 10 | KLNDLCFTNV 0.533416 | |
| HLA-A*02:06 0.21 | 1 | 424 | 433 | 10 | KLPDDFTGCV 0.532999 | |
| HLA-B*35:01 | 1 | 361 | 369 | 9 | CVADYSVLY 0.532646 | |

| | | | | | | | |
|-------------|---|------|------|----|----------------------|-----|--|
| 0.22 | | | | | | | |
| HLA-B*35:01 | 1 | 30 | 38 | 9 | NSFTRGVYY 0.532345 | | |
| 0.22 | | | | | | | |
| HLA-B*15:01 | 1 | 689 | 697 | 9 | SQSIIAYTM 0.532235 | | |
| 0.26 | | | | | | | |
| HLA-B*53:01 | 1 | 878 | 886 | 9 | LAGTITSGW 0.532125 | | |
| 0.12 | | | | | | | |
| HLA-B*51:01 | 1 | 923 | 931 | 9 | IANQFNSAI 0.531818 | | |
| 0.16 | | | | | | | |
| HLA-A*03:01 | 1 | 725 | 733 | 9 | EILPVSMTK 0.531629 | 0.3 | |
| HLA-B*58:01 | 1 | 249 | 258 | 10 | LTPGDSSSGW 0.530312 | 0.3 | |
| HLA-A*30:02 | 1 | 361 | 369 | 9 | CVADYSVLY 0.53021 | | |
| 0.15 | | | | | | | |
| HLA-A*03:01 | 1 | 924 | 933 | 10 | ANQFNSAIGK 0.530033 | 0.3 | |
| HLA-B*35:01 | 1 | 686 | 695 | 10 | SVASQSIIAY 0.529484 | | |
| 0.22 | | | | | | | |
| HLA-B*15:01 | 1 | 1113 | 1121 | 9 | QIITDNTF 0.529365 | | |
| 0.26 | | | | | | | |
| HLA-B*53:01 | 1 | 1139 | 1148 | 10 | DPLQPELDSF 0.526614 | | |
| 0.12 | | | | | | | |
| HLA-A*01:01 | 1 | 1039 | 1047 | 9 | RVDFCGKGY 0.526344 | | |
| 0.18 | | | | | | | |
| HLA-B*51:01 | 1 | 24 | 32 | 9 | LPPAYTNSF 0.52533 | | |
| 0.17 | | | | | | | |
| HLA-A*24:02 | 1 | 268 | 276 | 9 | GYLQPRTFL 0.523018 | | |
| 0.18 | | | | | | | |
| HLA-A*30:02 | 1 | 28 | 37 | 10 | YTNSFTRGVY 0.522409 | | |
| 0.16 | | | | | | | |
| HLA-A*03:01 | 1 | 292 | 300 | 9 | ALDPLSETK 0.52164 | | |
| 0.31 | | | | | | | |
| HLA-A*68:01 | 1 | 676 | 685 | 10 | TQTNSPRRAR 0.521378 | | |
| 0.61 | | | | | | | |
| HLA-B*15:01 | 1 | 320 | 329 | 10 | VQPTESIVRF 0.520314 | | |
| 0.27 | | | | | | | |
| HLA-B*57:01 | 1 | 239 | 248 | 10 | QTLLALHRSY 0.517764 | | |
| 0.52 | | | | | | | |
| HLA-A*24:02 | 1 | 312 | 320 | 9 | IYQTSNFRV 0.517604 | | |
| 0.18 | | | | | | | |
| HLA-A*31:01 | 1 | 638 | 646 | 9 | TGSNVFQTR 0.517116 | | |
| 0.34 | | | | | | | |
| HLA-A*03:01 | 1 | 310 | 319 | 10 | KGIYQTSNFR 0.516391 | | |
| 0.32 | | | | | | | |
| HLA-A*24:02 | 1 | 634 | 643 | 10 | RVYSTGSNVF 0.516328 | | |
| 0.18 | | | | | | | |
| HLA-A*32:01 | 1 | 344 | 353 | 10 | ATRFASVYAW 0.515027 | 0.1 | |
| HLA-A*32:01 | 1 | 50 | 58 | 9 | STQDLFLPF 0.51427 | 0.1 | |
| HLA-A*02:01 | 1 | 515 | 524 | 10 | FELLHAPATV 0.513156 | | |
| 0.26 | | | | | | | |
| HLA-A*32:01 | 1 | 1185 | 1193 | 9 | RLNEVAKNL 0.513013 | 0.1 | |
| HLA-A*68:02 | 1 | 704 | 712 | 9 | SVAYSNNSI 0.512883 | | |
| 0.18 | | | | | | | |
| HLA-A*23:01 | 1 | 268 | 277 | 10 | GYLQPRTFLL 0.512651 | | |
| 0.15 | | | | | | | |
| HLA-A*02:06 | 1 | 721 | 729 | 9 | SVTTEILPV 0.511187 | | |
| 0.24 | | | | | | | |
| HLA-A*30:02 | 1 | 1147 | 1155 | 9 | SFKEELDKY 0.508894 | | |
| 0.16 | | | | | | | |
| HLA-A*11:01 | 1 | 956 | 964 | 9 | AQALNTLVK 0.508732 | | |
| 0.29 | | | | | | | |
| HLA-B*15:01 | 1 | 270 | 279 | 10 | LQPRTFLLKY 0.508417 | | |
| 0.29 | | | | | | | |
| HLA-A*02:06 | 1 | 786 | 794 | 9 | KQIYKTPPI 0.50734 | | |
| 0.25 | | | | | | | |
| HLA-A*23:01 | 1 | 1094 | 1103 | 10 | VFVSNNGTHWF 0.506266 | | |
| 0.16 | | | | | | | |
| HLA-B*15:01 | 1 | 1200 | 1209 | 10 | LQELGKYEYQ 0.505374 | | |

| | | | | | | | |
|-------------|---|------|------|----|-------------|----------|-----|
| 0.29 | | | | | | | |
| HLA-B*08:01 | 1 | 241 | 249 | 9 | LLALHRSYL | 0.50463 | |
| 0.15 | | | | | | | |
| HLA-A*11:01 | 1 | 1196 | 1205 | 10 | SLIDLQELGK | 0.503672 | |
| 0.29 | | | | | | | |
| HLA-A*68:02 | 1 | 1220 | 1228 | 9 | FIAGLIAIV | 0.501049 | |
| 0.19 | | | | | | | |
| HLA-A*02:03 | 1 | 634 | 642 | 9 | RVYSTGSNV | 0.500517 | |
| 0.24 | | | | | | | |
| HLA-B*57:01 | 1 | 56 | 64 | 9 | LPFFSNVTW | 0.498723 | |
| 0.54 | | | | | | | |
| HLA-A*68:01 | 1 | 1020 | 1028 | 9 | ASANLAATK | 0.498553 | |
| 0.65 | | | | | | | |
| HLA-A*68:01 | 1 | 89 | 97 | 9 | GVYFASTEK | 0.497011 | |
| 0.65 | | | | | | | |
| HLA-B*07:02 | 1 | 1052 | 1060 | 9 | FPQSAPHGV | 0.496693 | |
| 0.25 | | | | | | | |
| HLA-A*30:01 | 1 | 529 | 537 | 9 | KSTNLVKNK | 0.495913 | |
| 0.14 | | | | | | | |
| HLA-A*02:01 | 1 | 915 | 923 | 9 | VLYENQLI | 0.495902 | |
| 0.26 | | | | | | | |
| HLA-B*51:01 | 1 | 321 | 329 | 9 | QPTESIVRF | 0.495863 | |
| 0.19 | | | | | | | |
| HLA-A*30:01 | 1 | 202 | 210 | 9 | KIYSKHTPI | 0.495841 | |
| 0.14 | | | | | | | |
| HLA-A*33:01 | 1 | 347 | 355 | 9 | FASVYAWNR | 0.494019 | |
| 0.16 | | | | | | | |
| HLA-B*57:01 | 1 | 898 | 906 | 9 | FAMQMAYRF | 0.49374 | |
| 0.54 | | | | | | | |
| HLA-B*58:01 | 1 | 56 | 64 | 9 | LPFFSNVTW | 0.49366 | |
| 0.33 | | | | | | | |
| HLA-A*31:01 | 1 | 457 | 466 | 10 | RKSNLKPFR | 0.493077 | |
| 0.37 | | | | | | | |
| HLA-A*26:01 | 1 | 30 | 38 | 9 | NSFTRGVYY | 0.492899 | |
| 0.12 | | | | | | | |
| HLA-A*11:01 | 1 | 41 | 49 | 9 | KVFRSSVLH | 0.492404 | 0.3 |
| HLA-A*31:01 | 1 | 302 | 310 | 9 | TLKSFTVEK | 0.491043 | |
| 0.38 | | | | | | | |
| HLA-A*30:02 | 1 | 258 | 266 | 9 | WTAGAAAYY | 0.490828 | |
| 0.18 | | | | | | | |
| HLA-A*68:02 | 1 | 62 | 70 | 9 | VTWFHAIHV | 0.489747 | 0.2 |
| HLA-B*58:01 | 1 | 687 | 695 | 9 | VASQSIIAY | 0.489747 | |
| 0.33 | | | | | | | |
| HLA-B*51:01 | 1 | 56 | 64 | 9 | LPFFSNVTW | 0.488507 | 0.2 |
| HLA-A*23:01 | 1 | 268 | 276 | 9 | GYLQPRFTL | 0.487874 | |
| 0.17 | | | | | | | |
| HLA-A*24:02 | 1 | 1211 | 1220 | 10 | KWPWYIWLGF | 0.48691 | 0.2 |
| HLA-A*03:01 | 1 | 1099 | 1107 | 9 | GTHWFVTQR | 0.486307 | |
| 0.36 | | | | | | | |
| HLA-A*23:01 | 1 | 1211 | 1220 | 10 | KWPWYIWLGF | 0.48608 | |
| 0.17 | | | | | | | |
| HLA-A*68:02 | 1 | 940 | 948 | 9 | STASALGKL | 0.485571 | |
| 0.21 | | | | | | | |
| HLA-A*01:01 | 1 | 651 | 660 | 10 | IGAHEVNNYSY | 0.485311 | 0.2 |
| HLA-A*30:02 | 1 | 357 | 365 | 9 | RISNCVADY | 0.484483 | |
| 0.18 | | | | | | | |
| HLA-A*26:01 | 1 | 583 | 592 | 10 | EILDITPCSF | 0.484378 | |
| 0.12 | | | | | | | |
| HLA-A*68:01 | 1 | 724 | 733 | 10 | TEILPVSMTK | 0.483356 | |
| 0.67 | | | | | | | |
| HLA-A*30:02 | 1 | 666 | 674 | 9 | IGAGICASY | 0.482045 | |
| 0.18 | | | | | | | |
| HLA-A*68:02 | 1 | 603 | 611 | 9 | NTSNQVAVL | 0.481301 | |
| 0.21 | | | | | | | |
| HLA-A*01:01 | 1 | 1146 | 1155 | 10 | DSFKEELDKY | 0.481064 | 0.2 |
| HLA-B*15:01 | 1 | 152 | 160 | 9 | WMESEFRVY | 0.480932 | |

| | | | | | | | |
|-------------|---|------|------|----|---------------------|-----|--|
| 0.32 | | | | | | | |
| HLA-B*58:01 | 1 | 879 | 888 | 10 | AGTITSGWTF 0.479615 | | |
| 0.34 | | | | | | | |
| HLA-A*32:01 | 1 | 815 | 823 | 9 | RSFIEDLLF 0.479418 | | |
| 0.11 | | | | | | | |
| HLA-B*08:01 | 1 | 1137 | 1145 | 9 | VYDPLQPEL 0.479112 | | |
| 0.16 | | | | | | | |
| HLA-A*03:01 | 1 | 35 | 44 | 10 | GVYYPDKVFR 0.477862 | | |
| 0.37 | | | | | | | |
| HLA-A*68:02 | 1 | 886 | 894 | 9 | WTFGAGAAL 0.477819 | | |
| 0.21 | | | | | | | |
| HLA-A*26:01 | 1 | 603 | 612 | 10 | NTSNQVAVLY 0.476654 | | |
| 0.12 | | | | | | | |
| HLA-B*57:01 | 1 | 267 | 275 | 9 | VGYLQPRTF 0.476575 | | |
| 0.56 | | | | | | | |
| HLA-A*68:01 | 1 | 827 | 835 | 9 | TLADAGFIK 0.476129 | | |
| 0.69 | | | | | | | |
| HLA-A*30:01 | 1 | 41 | 49 | 9 | KVFRSSVLH 0.474763 | | |
| 0.16 | | | | | | | |
| HLA-B*57:01 | 1 | 50 | 58 | 9 | STQDLFLPF 0.474382 | | |
| 0.56 | | | | | | | |
| HLA-A*30:01 | 1 | 408 | 417 | 10 | RQIAPGQTGK 0.473041 | | |
| 0.16 | | | | | | | |
| HLA-B*07:02 | 1 | 321 | 329 | 9 | QPTESIVRF 0.472976 | | |
| 0.27 | | | | | | | |
| HLA-B*07:02 | 1 | 714 | 722 | 9 | IPTNFTISV 0.472945 | | |
| 0.27 | | | | | | | |
| HLA-A*24:02 | 1 | 193 | 201 | 9 | VFKNIDGYF 0.472749 | | |
| 0.21 | | | | | | | |
| HLA-B*58:01 | 1 | 160 | 168 | 9 | YSSANNCTF 0.472573 | | |
| 0.34 | | | | | | | |
| HLA-A*11:01 | 1 | 757 | 765 | 9 | GSFCTQLNR 0.472002 | | |
| 0.33 | | | | | | | |
| HLA-A*30:01 | 1 | 1020 | 1028 | 9 | ASANLAATK 0.471795 | | |
| 0.16 | | | | | | | |
| HLA-A*03:01 | 1 | 1019 | 1028 | 10 | RASANLAATK 0.471098 | | |
| 0.38 | | | | | | | |
| HLA-B*15:01 | 1 | 366 | 374 | 9 | SVLYNSASF 0.470989 | | |
| 0.33 | | | | | | | |
| HLA-A*30:02 | 1 | 1039 | 1047 | 9 | RVDFCGKGY 0.470607 | 0.2 | |
| HLA-B*51:01 | 1 | 111 | 119 | 9 | DSKTQSLLI 0.470018 | | |
| 0.22 | | | | | | | |
| HLA-A*11:01 | 1 | 369 | 378 | 10 | YNSASFSTFK 0.469471 | | |
| 0.33 | | | | | | | |
| HLA-B*58:01 | 1 | 865 | 873 | 9 | LTDEMIAQY 0.467999 | | |
| 0.35 | | | | | | | |
| HLA-A*11:01 | 1 | 1019 | 1028 | 10 | RASANLAATK 0.466715 | | |
| 0.33 | | | | | | | |
| HLA-A*68:01 | 1 | 369 | 378 | 10 | YNSASFSTFK 0.465002 | | |
| 0.71 | | | | | | | |
| HLA-A*68:01 | 1 | 1031 | 1039 | 9 | ECVLGQSKR 0.464311 | | |
| 0.71 | | | | | | | |
| HLA-A*03:01 | 1 | 454 | 463 | 10 | RLFRKSNLKP 0.463635 | 0.4 | |
| HLA-A*30:02 | 1 | 161 | 170 | 10 | SSANNCTFEY 0.463277 | 0.2 | |
| HLA-A*30:01 | 1 | 19 | 27 | 9 | TTRTQLPPA 0.46289 | | |
| 0.17 | | | | | | | |
| HLA-B*35:01 | 1 | 1139 | 1148 | 10 | DPLQPELDSF 0.462749 | | |
| 0.25 | | | | | | | |
| HLA-B*15:01 | 1 | 852 | 860 | 9 | AQKFNGLTV 0.462676 | | |
| 0.35 | | | | | | | |
| HLA-B*35:01 | 1 | 892 | 900 | 9 | AALQIPFAM 0.462137 | | |
| 0.25 | | | | | | | |
| HLA-A*24:02 | 1 | 57 | 65 | 9 | PFFSNVTWF 0.462093 | | |
| 0.22 | | | | | | | |
| HLA-B*07:02 | 1 | 24 | 32 | 9 | LPPAYTNSF 0.461961 | | |
| 0.28 | | | | | | | |

| | | | | | | |
|---------------------|---|------|------|----|----------------------|-----|
| HLA-A*02:03 0.28 | 1 | 937 | 945 | 9 | SLSSTASAL 0.461783 | |
| HLA-A*30:01 0.17 | 1 | 89 | 97 | 9 | GVYFASTEK 0.460956 | |
| HLA-A*03:01 | 1 | 939 | 947 | 9 | SSTASALGK 0.460777 | 0.4 |
| HLA-B*15:01 0.35 | 1 | 464 | 473 | 10 | FERDISTEIIY 0.460469 | |
| HLA-A*23:01 0.19 | 1 | 193 | 201 | 9 | VFKNIDGYF 0.460029 | |
| HLA-B*15:01 0.35 | 1 | 604 | 612 | 9 | TSNQVAVLY 0.459562 | |
| HLA-A*11:01 0.35 | 1 | 924 | 933 | 10 | ANQFNSAIGK 0.459415 | |
| HLA-A*24:02 0.22 | 1 | 23 | 32 | 10 | QLPPAYTNSF 0.458879 | |
| HLA-A*31:01 0.43 | 1 | 449 | 457 | 9 | YNYLYRLFR 0.456877 | |
| HLA-B*15:01 0.36 | 1 | 361 | 369 | 9 | CVADYSVLY 0.456493 | |
| HLA-A*02:03 0.28 | 1 | 1047 | 1056 | 10 | YHLMSFPQSA 0.456118 | |
| HLA-B*53:01 0.16 | 1 | 329 | 338 | 10 | FPNITNLCPF 0.454515 | |
| HLA-A*30:02 0.21 | 1 | 413 | 421 | 9 | GQTGKIADY 0.454215 | |
| HLA-B*35:01 0.27 | 1 | 714 | 722 | 9 | IPTNFTISV 0.453722 | |
| HLA-A*03:01 | 1 | 550 | 558 | 9 | GVLTESNKK 0.452652 | 0.4 |
| HLA-A*02:03 0.28 | 1 | 947 | 956 | 10 | KLQDVVNQNA 0.452435 | |
| HLA-B*40:01 0.31 | 1 | 1194 | 1203 | 10 | NESLIDLQEL 0.4524 | |
| HLA-B*53:01 0.16 | 1 | 478 | 486 | 9 | TPCNGVEGF 0.45206 | |
| HLA-A*31:01 0.43 | 1 | 13 | 21 | 9 | SQCVNLTR 0.451954 | |
| HLA-B*07:02 0.29 | 1 | 506 | 515 | 10 | QPYRVVLSF 0.451783 | |
| HLA-A*68:02 0.23 | 1 | 907 | 915 | 9 | NGIGVTQNV 0.44936 | |
| HLA-A*30:02 0.22 | 1 | 195 | 204 | 10 | KNIDGYFKIY 0.445822 | |
| HLA-A*02:03 0.29 | 1 | 1136 | 1145 | 10 | TVYDPLQPEL 0.444648 | |
| HLA-B*08:01 | 1 | 342 | 350 | 9 | FNATRFASV 0.44423 | 0.2 |
| HLA-A*68:02 0.24 | 1 | 718 | 727 | 10 | FTISVTTEIL 0.443734 | |
| HLA-A*26:01 0.14 | 1 | 604 | 612 | 9 | TSNQVAVLY 0.442541 | |
| HLA-B*51:01 0.25 | 1 | 38 | 47 | 10 | YDPKVFSSV 0.4399 | |
| HLA-A*02:03 0.29 | 1 | 202 | 210 | 9 | KIYSKHTPI 0.439809 | |
| HLA-A*31:01 0.45 | 1 | 265 | 273 | 9 | YYVGYLQPR 0.439463 | |
| HLA-A*33:01 0.22 | 1 | 1006 | 1014 | 9 | TYVTQQLIR 0.439206 | |
| HLA-A*02:01 0.32 | 1 | 1047 | 1056 | 10 | YHLMSFPQSA 0.439192 | |
| HLA-A*30:02 0.23 | 1 | 496 | 505 | 10 | GFQPTNGVGY 0.438863 | |
| HLA-A*30:01 | 1 | 235 | 243 | 9 | ITRFQTLA 0.438742 | 0.2 |
| HLA-B*44:03 | 1 | 1181 | 1189 | 9 | KEIDRLNEV 0.438248 | 0.3 |
| HLA-B*08:01 | 1 | 554 | 562 | 9 | ESNKKFLPF 0.438191 | 0.2 |
| HLA-A*01:01 0.24 | 1 | 414 | 423 | 10 | QTGKIADYNY 0.437978 | |

| | | | | | | |
|---------------------|---|------|------|----|----------------------|-----|
| HLA-A*68:01 0.76 | 1 | 258 | 266 | 9 | WTAGAAAYY 0.437904 | |
| HLA-B*44:02 0.24 | 1 | 464 | 473 | 10 | FERDISTEIIY 0.437515 | |
| HLA-B*35:01 0.29 | 1 | 1052 | 1060 | 9 | FPQSAPHGV 0.437126 | |
| HLA-A*30:02 0.23 | 1 | 192 | 200 | 9 | FVFKNIDGY 0.435517 | |
| HLA-A*33:01 0.22 | 1 | 1098 | 1107 | 10 | NGTHWFVTQR 0.43473 | |
| HLA-B*15:01 | 1 | 893 | 902 | 10 | ALQIPFAMQM 0.434399 | 0.4 |
| HLA-B*40:01 0.33 | 1 | 818 | 826 | 9 | IEDLLFNKV 0.433395 | |
| HLA-B*58:01 0.38 | 1 | 877 | 886 | 10 | LLAGTITSGW 0.433085 | |
| HLA-A*02:06 0.34 | 1 | 424 | 432 | 9 | KLPDDFTGC 0.432817 | |
| HLA-A*26:01 0.15 | 1 | 1095 | 1103 | 9 | FVSNNGTHWF 0.431696 | |
| HLA-B*58:01 0.38 | 1 | 1094 | 1102 | 9 | VFVSNNGTHW 0.43061 | |
| HLA-B*15:01 | 1 | 880 | 888 | 9 | GTITSGWTF 0.430581 | 0.4 |
| HLA-A*30:02 0.24 | 1 | 261 | 269 | 9 | GAAAYYVGY 0.428567 | |
| HLA-A*30:02 0.24 | 1 | 487 | 495 | 9 | NCYFPLQSY 0.428278 | |
| HLA-A*23:01 | 1 | 203 | 212 | 10 | IYSKHTPINL 0.427799 | 0.2 |
| HLA-B*57:01 0.65 | 1 | 1086 | 1095 | 10 | KAHFPREGVF 0.426537 | |
| HLA-A*01:01 0.25 | 1 | 687 | 695 | 9 | VASQSIIAY 0.42647 | |
| HLA-A*02:06 0.35 | 1 | 783 | 791 | 9 | AQVKQIYKT 0.426345 | |
| HLA-A*03:01 0.44 | 1 | 975 | 983 | 9 | SVLNDILSR 0.424744 | |
| HLA-A*24:02 0.24 | 1 | 379 | 387 | 9 | CYGVSPTKL 0.424143 | |
| HLA-A*68:01 0.79 | 1 | 782 | 790 | 9 | FAQVKQIYK 0.423831 | |
| HLA-B*57:01 0.66 | 1 | 1094 | 1102 | 9 | VFVSNNGTHW 0.423598 | |
| HLA-B*44:02 0.25 | 1 | 1181 | 1189 | 9 | KEIDRLNEV 0.423281 | |
| HLA-A*02:06 0.35 | 1 | 62 | 70 | 9 | VTWFHAIHV 0.422331 | |
| HLA-A*33:01 0.25 | 1 | 1099 | 1107 | 9 | GTHWFVTQR 0.422018 | |
| HLA-A*02:06 0.35 | 1 | 634 | 642 | 9 | RVYSTGSNV 0.420746 | |
| HLA-A*11:01 0.39 | 1 | 925 | 933 | 9 | NQFNSAIGK 0.420485 | |
| HLA-B*44:02 0.25 | 1 | 553 | 562 | 10 | TESNKKFLPF 0.419839 | |
| HLA-A*26:01 0.16 | 1 | 865 | 873 | 9 | LTDEMIAQY 0.419837 | |
| HLA-B*57:01 0.66 | 1 | 687 | 695 | 9 | VASQSIIAY 0.418371 | |
| HLA-A*30:01 0.23 | 1 | 845 | 854 | 10 | AARDLICAQK 0.418143 | |
| HLA-A*02:03 0.32 | 1 | 718 | 726 | 9 | FTISVTTEI 0.41683 | |
| HLA-A*11:01 | 1 | 974 | 983 | 10 | SSVLNDILSR 0.416756 | 0.4 |
| HLA-A*68:01 0.81 | 1 | 817 | 825 | 9 | FIEDLLFNK 0.416738 | |
| HLA-B*57:01 0.67 | 1 | 212 | 220 | 9 | LVRDLPQGF 0.415931 | |

| | | | | | | |
|---------------------|---|------|------|----|---------------------|-----|
| HLA-A*02:03 0.32 | 1 | 515 | 524 | 10 | FELLHAPATV 0.415603 | |
| HLA-A*02:01 0.35 | 1 | 975 | 984 | 10 | SVLNDILSRL 0.415115 | |
| HLA-A*02:06 0.36 | 1 | 28 | 36 | 9 | YTNSFTRGV 0.415092 | |
| HLA-A*11:01 | 1 | 458 | 466 | 9 | KSNLKPFER 0.414632 | 0.4 |
| HLA-A*02:03 0.32 | 1 | 1192 | 1200 | 9 | NLNESLIDL 0.414566 | |
| HLA-A*68:01 0.81 | 1 | 30 | 38 | 9 | NSFTRGVYY 0.414371 | |
| HLA-A*11:01 | 1 | 786 | 795 | 10 | KQIYKTPPIK 0.414021 | 0.4 |
| HLA-B*57:01 0.68 | 1 | 1005 | 1013 | 9 | QTYVTQLI 0.413312 | |
| HLA-A*02:01 0.35 | 1 | 947 | 956 | 10 | KLQDVVNQNA 0.413308 | |
| HLA-A*02:06 0.36 | 1 | 1004 | 1012 | 9 | LQTYVTQQL 0.41247 | |
| HLA-B*15:01 0.42 | 1 | 699 | 707 | 9 | LGAENSVAY 0.412412 | |
| HLA-A*30:02 0.26 | 1 | 257 | 266 | 10 | GWTAGAAAYY 0.411498 | |
| HLA-B*57:01 0.69 | 1 | 304 | 312 | 9 | KSFTVEKGI 0.410858 | |
| HLA-A*01:01 0.26 | 1 | 135 | 144 | 10 | FCNDPFLGVY 0.410856 | |
| HLA-A*02:06 0.36 | 1 | 135 | 143 | 9 | FCNDPFLGV 0.410169 | |
| HLA-A*02:01 0.35 | 1 | 995 | 1004 | 10 | RLITGRLQSL 0.410041 | |
| HLA-A*01:01 0.26 | 1 | 152 | 160 | 9 | WMESEFRVY 0.410012 | |
| HLA-A*02:01 0.35 | 1 | 1136 | 1145 | 10 | TVYDPLQPEL 0.409155 | |
| HLA-A*01:01 0.26 | 1 | 136 | 145 | 10 | CNDPFLGVYY 0.407233 | |
| HLA-A*68:02 0.27 | 1 | 495 | 503 | 9 | YGFQPTNGV 0.406838 | |
| HLA-A*31:01 0.52 | 1 | 757 | 765 | 9 | GSFCTQLNR 0.406627 | |
| HLA-A*02:03 0.33 | 1 | 241 | 249 | 9 | LLALHRSYL 0.406562 | |
| HLA-A*24:02 0.26 | 1 | 755 | 763 | 9 | QYGSFCTQL 0.405495 | |
| HLA-B*53:01 0.18 | 1 | 624 | 633 | 10 | IHADQLTPTW 0.405424 | |
| HLA-A*11:01 0.42 | 1 | 319 | 328 | 10 | RVQPTESIVR 0.403998 | |
| HLA-A*02:03 0.34 | 1 | 983 | 991 | 9 | RLDKVEAEV 0.403746 | |
| HLA-A*26:01 0.17 | 1 | 780 | 788 | 9 | EVFAQVKQI 0.403279 | |
| HLA-B*35:01 0.32 | 1 | 574 | 582 | 9 | DAVRDPQTL 0.403245 | |
| HLA-A*68:01 0.84 | 1 | 501 | 509 | 9 | NGVGYQPYR 0.402687 | |
| HLA-A*02:06 0.37 | 1 | 975 | 984 | 10 | SVLNDILSRL 0.401932 | |
| HLA-B*15:01 0.43 | 1 | 496 | 505 | 10 | GFQPTNGVGY 0.401812 | |
| HLA-A*68:02 0.27 | 1 | 967 | 976 | 10 | SSNFGAISSV 0.40136 | |
| HLA-A*33:01 0.27 | 1 | 198 | 206 | 9 | DGYFKIYSK 0.401222 | |
| HLA-A*32:01 0.16 | 1 | 1209 | 1217 | 9 | YIKWPWYIW 0.401025 | |

| | | | | | | |
|---------------------|---|------|------|----|---------------------|-----|
| HLA-A*02:06 0.38 | 1 | 943 | 951 | 9 | SALGKLQDV 0.400622 | |
| HLA-A*01:01 0.27 | 1 | 732 | 741 | 10 | TKTSVDCTMY 0.400359 | |
| HLA-A*68:02 0.28 | 1 | 1128 | 1137 | 10 | VVIGIVNNTV 0.400091 | |
| HLA-B*35:01 0.32 | 1 | 55 | 64 | 10 | FLPFFSNVTW 0.399642 | |
| HLA-A*02:03 0.34 | 1 | 512 | 520 | 9 | VLSFELLHA 0.399 | |
| HLA-A*11:01 0.43 | 1 | 637 | 646 | 10 | STGSNVFQTR 0.398739 | |
| HLA-A*01:01 0.27 | 1 | 136 | 144 | 9 | CNDPFLGVY 0.398499 | |
| HLA-B*53:01 0.19 | 1 | 687 | 695 | 9 | VASQSIIAY 0.398403 | |
| HLA-A*02:06 0.38 | 1 | 626 | 635 | 10 | ADQLTPTWRV 0.398089 | |
| HLA-A*33:01 0.27 | 1 | 638 | 646 | 9 | TGSNVFQTR 0.397693 | |
| HLA-A*30:02 0.27 | 1 | 29 | 38 | 10 | TNSFTRGVVY 0.396487 | |
| HLA-A*02:06 0.39 | 1 | 505 | 513 | 9 | YQPYRVVVL 0.394518 | |
| HLA-A*68:02 0.28 | 1 | 691 | 699 | 9 | SIIAYTMSL 0.393935 | |
| HLA-A*02:06 0.39 | 1 | 1007 | 1015 | 9 | YVTQQLIRA 0.393796 | |
| HLA-A*02:06 | 1 | 852 | 861 | 10 | AQKFNGLTVL 0.391583 | 0.4 |
| HLA-A*26:01 0.18 | 1 | 28 | 37 | 10 | YTNSFTRGVY 0.391325 | |
| HLA-A*24:02 0.26 | 1 | 267 | 276 | 10 | VGYLQPRFTL 0.390779 | |
| HLA-B*44:03 0.33 | 1 | 553 | 562 | 10 | TESNKKFLPF 0.389745 | |
| HLA-A*02:06 | 1 | 1181 | 1189 | 9 | KEIDRLNEV 0.389617 | 0.4 |
| HLA-B*57:01 0.71 | 1 | 865 | 873 | 9 | LTDEMIAQY 0.387676 | |
| HLA-B*15:01 0.44 | 1 | 83 | 92 | 10 | VLPFNDGVYF 0.387438 | |
| HLA-B*35:01 0.33 | 1 | 1021 | 1029 | 9 | SANLAATKM 0.386751 | |
| HLA-A*03:01 0.51 | 1 | 956 | 964 | 9 | AQALNTLVK 0.385754 | |
| HLA-A*11:01 0.44 | 1 | 782 | 790 | 9 | FAQVKQIYK 0.38485 | |
| HLA-B*35:01 0.33 | 1 | 160 | 168 | 9 | YSSANNCTF 0.384582 | |
| HLA-A*30:02 0.28 | 1 | 445 | 453 | 9 | VGGNYNYLY 0.384149 | |
| HLA-B*15:01 0.45 | 1 | 961 | 970 | 10 | TLVKQLSSNF 0.383968 | |
| HLA-B*57:01 0.72 | 1 | 733 | 741 | 9 | KTSVDCTMY 0.38378 | |
| HLA-A*30:02 0.29 | 1 | 1059 | 1067 | 9 | GVVFLHVTY 0.383729 | |
| HLA-A*31:01 0.57 | 1 | 394 | 403 | 10 | NVYADSFVIR 0.383163 | |
| HLA-B*51:01 0.32 | 1 | 727 | 736 | 10 | LPVSMTKTSV 0.382919 | |
| HLA-B*07:02 0.36 | 1 | 620 | 629 | 10 | VPVAIHADQL 0.382634 | |
| HLA-A*02:03 0.36 | 1 | 762 | 770 | 9 | QLNRALTGI 0.38188 | |
| HLA-A*02:01 | 1 | 612 | 620 | 9 | YQDVNCTEV 0.380963 | 0.4 |
| HLA-B*53:01 | 1 | 1052 | 1060 | 9 | FPQSAPHGV 0.380916 | 0.2 |

| | | | | | | |
|---------------------|---|------|------|----|----------------------|-----|
| HLA-B*15:01 0.45 | 1 | 23 | 32 | 10 | QLPPAYTNSF 0.380664 | |
| HLA-B*35:01 0.34 | 1 | 748 | 756 | 9 | ECSNLLLQY 0.378678 | |
| HLA-A*03:01 0.53 | 1 | 69 | 77 | 9 | HVSGTNGTK 0.378657 | |
| HLA-B*58:01 0.43 | 1 | 304 | 313 | 10 | KSFTVEKGIY 0.378169 | |
| HLA-A*11:01 0.45 | 1 | 805 | 814 | 10 | ILPDPSKPSK 0.377972 | |
| HLA-A*68:01 | 1 | 787 | 795 | 9 | QIYKTPPIK 0.377952 | 0.9 |
| HLA-A*26:01 0.19 | 1 | 748 | 756 | 9 | ECSNLLLQY 0.37784 | |
| HLA-A*68:02 | 1 | 258 | 267 | 10 | WTAGAAAYYV 0.377231 | 0.3 |
| HLA-A*68:02 | 1 | 1175 | 1183 | 9 | SVVNIQKEI 0.376375 | 0.3 |
| HLA-B*15:01 0.46 | 1 | 1004 | 1012 | 9 | LQTYVTQQL 0.376088 | |
| HLA-A*02:01 | 1 | 718 | 726 | 9 | FTISVTTEI 0.375875 | 0.4 |
| HLA-B*08:01 0.26 | 1 | 453 | 461 | 9 | YRLFRKSNL 0.375792 | |
| HLA-B*53:01 0.21 | 1 | 271 | 279 | 9 | QPRTFLLKY 0.375619 | |
| HLA-A*11:01 0.46 | 1 | 301 | 310 | 10 | CTLKSFTVEK 0.374903 | |
| HLA-B*51:01 0.34 | 1 | 780 | 788 | 9 | EVFAQVKQI 0.374701 | |
| HLA-A*68:02 | 1 | 1095 | 1104 | 10 | FVSNNGTHWFV 0.374303 | 0.3 |
| HLA-A*30:02 0.31 | 1 | 371 | 380 | 10 | SASFSTFKCY 0.373767 | |
| HLA-A*68:01 0.91 | 1 | 780 | 789 | 10 | EVFAQVKQIY 0.373626 | |
| HLA-B*35:01 0.34 | 1 | 1095 | 1103 | 9 | FVSNNGTHWF 0.373487 | |
| HLA-B*15:01 0.47 | 1 | 1080 | 1089 | 10 | AICHDGKAHF 0.372469 | |
| HLA-B*07:02 0.37 | 1 | 1052 | 1061 | 10 | FPQSAPHGVV 0.372441 | |
| HLA-B*44:03 0.34 | 1 | 779 | 788 | 10 | QEVFAQVKQI 0.372218 | |
| HLA-B*51:01 0.34 | 1 | 1262 | 1270 | 9 | EPVLKGVKL 0.372046 | |
| HLA-A*68:01 0.91 | 1 | 192 | 200 | 9 | FVFKNIDGY 0.370407 | |
| HLA-B*35:01 0.35 | 1 | 481 | 489 | 9 | NGVEGFNCY 0.370024 | |
| HLA-B*35:01 0.35 | 1 | 1113 | 1121 | 9 | QIITTDNTF 0.369495 | |
| HLA-A*02:06 0.43 | 1 | 221 | 229 | 9 | SALEPLVDL 0.369483 | |
| HLA-A*02:01 0.41 | 1 | 133 | 141 | 9 | FQFCNDPFL 0.369084 | |
| HLA-A*01:01 0.29 | 1 | 257 | 266 | 10 | GWTAGAAAYY 0.366825 | |
| HLA-A*68:01 0.93 | 1 | 674 | 683 | 10 | YQTQTNSPRR 0.366818 | |
| HLA-A*68:02 0.32 | 1 | 1260 | 1268 | 9 | DSEPVKGV 0.365221 | |
| HLA-A*33:01 0.32 | 1 | 229 | 237 | 9 | LPIGINITR 0.364545 | |
| HLA-A*31:01 0.62 | 1 | 1005 | 1014 | 10 | QTYVTQLIR 0.362243 | |
| HLA-B*51:01 0.37 | 1 | 718 | 726 | 9 | FTISVTTEI 0.361993 | |
| HLA-A*02:03 | 1 | 869 | 877 | 9 | MIAQYTSAL 0.360459 | 0.4 |
| HLA-A*31:01 0.62 | 1 | 675 | 683 | 9 | QTQTNSPRR 0.360326 | |

| | | | | | | |
|---------------------|---|------|------|----|----------------------|-----|
| HLA-A*31:01 0.62 | 1 | 673 | 682 | 10 | SYQTQTNSPR 0.359865 | |
| HLA-A*30:02 0.33 | 1 | 41 | 49 | 9 | KVFRSSVLH 0.359703 | |
| HLA-A*03:01 0.54 | 1 | 319 | 328 | 10 | RVQPTESIVR 0.359462 | |
| HLA-B*40:01 0.42 | 1 | 168 | 177 | 10 | FEYV SQPFLM 0.359256 | |
| HLA-A*68:02 0.32 | 1 | 1005 | 1013 | 9 | QTYVTQQLI 0.359238 | |
| HLA-A*31:01 0.62 | 1 | 41 | 49 | 9 | KVFRSSVLH 0.358944 | |
| HLA-B*15:01 | 1 | 773 | 782 | 10 | EQDKNTQEVF 0.358662 | 0.5 |
| HLA-A*68:01 0.96 | 1 | 559 | 567 | 9 | FLPFQQFGR 0.358274 | |
| HLA-B*57:01 | 1 | 126 | 135 | 10 | VVIKVCEFAQF 0.357497 | 0.8 |
| HLA-B*58:01 0.46 | 1 | 372 | 380 | 9 | ASFSTFKCY 0.356723 | |
| HLA-A*68:02 0.33 | 1 | 516 | 524 | 9 | ELLHAPATV 0.356044 | |
| HLA-B*57:01 | 1 | 160 | 168 | 9 | YSSANNCTF 0.355521 | 0.8 |
| HLA-A*68:01 0.96 | 1 | 361 | 369 | 9 | CVADYSVLY 0.355209 | |
| HLA-A*30:02 0.33 | 1 | 151 | 160 | 10 | SWMESEFRVY 0.354502 | |
| HLA-A*68:02 0.33 | 1 | 1168 | 1177 | 10 | DISGINASVV 0.353851 | |
| HLA-B*57:01 | 1 | 55 | 64 | 10 | FLPFFSNVTW 0.353746 | 0.8 |
| HLA-A*01:01 0.31 | 1 | 499 | 508 | 10 | PTNGVGYQPY 0.353345 | |
| HLA-A*68:01 0.97 | 1 | 604 | 612 | 9 | TSNQVAVLY 0.352705 | |
| HLA-A*30:02 0.34 | 1 | 652 | 660 | 9 | GAEHVNNSY 0.352551 | |
| HLA-A*02:06 0.47 | 1 | 871 | 879 | 9 | AQYTSALLA 0.351816 | |
| HLA-A*02:06 0.47 | 1 | 712 | 720 | 9 | IAIPTNFTI 0.35167 | |
| HLA-A*68:01 0.97 | 1 | 992 | 1000 | 9 | QIDRLITGR 0.351529 | |
| HLA-B*15:01 0.51 | 1 | 50 | 58 | 9 | STQDLFLPF 0.351445 | |
| HLA-A*23:01 0.25 | 1 | 312 | 320 | 9 | IYQTSNFRV 0.350817 | |
| HLA-A*23:01 0.25 | 1 | 23 | 32 | 10 | QLPPAYTNSF 0.350772 | |
| HLA-A*02:01 0.45 | 1 | 512 | 520 | 9 | VLSFELLHA 0.350734 | |
| HLA-B*58:01 0.47 | 1 | 733 | 741 | 9 | KTSVDCTMY 0.34981 | |
| HLA-A*03:01 0.56 | 1 | 370 | 378 | 9 | NSASFSTFK 0.348642 | |
| HLA-B*51:01 | 1 | 208 | 216 | 9 | TPINLVRDL 0.348237 | 0.4 |
| HLA-B*15:01 0.52 | 1 | 30 | 38 | 9 | NSFTRGVY 0.347996 | |
| HLA-B*35:01 0.37 | 1 | 208 | 216 | 9 | TPINLVRDL 0.347963 | |
| HLA-B*35:01 0.37 | 1 | 652 | 660 | 9 | GAEHVNNSY 0.347109 | |
| HLA-A*26:01 0.21 | 1 | 710 | 718 | 9 | NSIAIPTNF 0.346315 | |
| HLA-A*01:01 0.31 | 1 | 360 | 369 | 10 | NCVADYSVLY 0.346028 | |
| HLA-A*02:03 0.42 | 1 | 28 | 36 | 9 | YTNSFTRGV 0.346 | |
| HLA-A*32:01 | 1 | 269 | 277 | 9 | YLQPRTFLL 0.345894 | |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|
| 0.21 | | | | | | | |
| HLA-A*30:01 | 1 | 683 | 691 | 9 | RARSVASQS | 0.345166 | |
| 0.33 | | | | | | | |
| HLA-A*32:01 | 1 | 366 | 374 | 9 | SVLYNSASF | 0.344581 | |
| 0.21 | | | | | | | |
| HLA-B*51:01 | 1 | 955 | 963 | 9 | NAQALNTLV | 0.344412 | 0.4 |
| HLA-A*26:01 | 1 | 50 | 58 | 9 | STQDLFLPF | 0.344143 | |
| 0.21 | | | | | | | |
| HLA-B*35:01 | 1 | 366 | 374 | 9 | SVLYNSASF | 0.343642 | |
| 0.38 | | | | | | | |
| HLA-A*33:01 | 1 | 637 | 646 | 10 | STGSNVFQTR | 0.343407 | |
| 0.35 | | | | | | | |
| HLA-A*02:06 | 1 | 1192 | 1200 | 9 | NLNESLIDL | 0.343239 | |
| 0.48 | | | | | | | |
| HLA-A*68:02 | 1 | 869 | 877 | 9 | MIAQYTSAL | 0.342602 | |
| 0.34 | | | | | | | |
| HLA-A*32:01 | 1 | 1054 | 1062 | 9 | QSAPHGVSF | 0.34191 | |
| 0.21 | | | | | | | |
| HLA-A*11:01 | 1 | 686 | 695 | 10 | SVASQSIIAY | 0.340989 | |
| 0.52 | | | | | | | |
| HLA-B*08:01 | 1 | 533 | 541 | 9 | LVKNKCVNF | 0.340377 | 0.3 |
| HLA-B*35:01 | 1 | 710 | 718 | 9 | NSIAIPTNF | 0.339725 | |
| 0.38 | | | | | | | |
| HLA-A*30:01 | 1 | 803 | 811 | 9 | SQILPDPSK | 0.339684 | |
| 0.34 | | | | | | | |
| HLA-A*68:02 | 1 | 968 | 976 | 9 | SNFGAISSV | 0.339107 | |
| 0.34 | | | | | | | |
| HLA-A*26:01 | 1 | 442 | 451 | 10 | DSKVGGNVNY | 0.337749 | |
| 0.21 | | | | | | | |
| HLA-A*32:01 | 1 | 691 | 699 | 9 | SIIAYTMSL | 0.337355 | |
| 0.21 | | | | | | | |
| HLA-A*11:01 | 1 | 269 | 278 | 10 | YLQPRTFLLK | 0.336981 | |
| 0.53 | | | | | | | |
| HLA-A*02:06 | 1 | 773 | 781 | 9 | EQDKNTQEV | 0.33688 | |
| 0.49 | | | | | | | |
| HLA-B*53:01 | 1 | 574 | 582 | 9 | DAVRDPQTL | 0.336628 | |
| 0.25 | | | | | | | |
| HLA-A*01:01 | 1 | 748 | 756 | 9 | ECSNLLLQY | 0.336613 | |
| 0.32 | | | | | | | |
| HLA-A*02:01 | 1 | 516 | 524 | 9 | ELLHAPATV | 0.336419 | |
| 0.48 | | | | | | | |
| HLA-B*07:02 | 1 | 869 | 877 | 9 | MIAQYTSAL | 0.33632 | |
| 0.43 | | | | | | | |
| HLA-A*68:01 | 1 | 399 | 408 | 10 | SFVIRGDEVV | 0.33592 | 1.1 |
| HLA-B*15:01 | 1 | 533 | 541 | 9 | LVKNKCVNF | 0.335721 | |
| 0.55 | | | | | | | |
| HLA-A*32:01 | 1 | 509 | 517 | 9 | RVVVLSFEL | 0.335124 | |
| 0.21 | | | | | | | |
| HLA-A*02:01 | 1 | 424 | 432 | 9 | KLPDDFTGC | 0.334903 | |
| 0.48 | | | | | | | |
| HLA-A*33:01 | 1 | 450 | 458 | 9 | NYLYRLFRK | 0.334458 | |
| 0.36 | | | | | | | |
| HLA-B*53:01 | 1 | 383 | 392 | 10 | SPTKLNLCF | 0.333453 | |
| 0.25 | | | | | | | |
| HLA-A*30:02 | 1 | 1101 | 1110 | 10 | HWFVTQRNFY | 0.333339 | |
| 0.36 | | | | | | | |
| HLA-A*26:01 | 1 | 718 | 726 | 9 | FTISVTTEI | 0.332779 | |
| 0.21 | | | | | | | |
| HLA-A*11:01 | 1 | 549 | 558 | 10 | TGVLTESNKK | 0.332729 | |
| 0.54 | | | | | | | |
| HLA-A*02:06 | 1 | 958 | 966 | 9 | ALNTLVKQL | 0.332633 | 0.5 |
| HLA-B*08:01 | 1 | 869 | 877 | 9 | MIAQYTSAL | 0.33241 | |
| 0.31 | | | | | | | |
| HLA-A*68:01 | 1 | 26 | 34 | 9 | PAYTNSFTR | 0.331881 | 1.1 |
| HLA-B*35:01 | 1 | 258 | 266 | 9 | WTAGAAAYY | 0.331721 | |
| 0.39 | | | | | | | |

| | | | | | | |
|---------------------|---|------|------|----|---------------------|-----|
| HLA-B*51:01 0.42 | 1 | 92 | 100 | 9 | FASTEKSNI 0.331413 | |
| HLA-B*15:01 0.56 | 1 | 864 | 873 | 10 | LLTDEMIAQY 0.330897 | |
| HLA-A*02:03 0.45 | 1 | 1171 | 1179 | 9 | GINASVVNI 0.330579 | |
| HLA-A*33:01 0.36 | 1 | 35 | 44 | 10 | GVYYDPKVFR 0.330452 | |
| HLA-B*58:01 | 1 | 1203 | 1212 | 10 | LGKYEQYIKW 0.33025 | 0.5 |
| HLA-B*08:01 0.31 | 1 | 691 | 699 | 9 | SIIAYTMSL 0.330189 | |
| HLA-A*30:01 0.35 | 1 | 575 | 584 | 10 | AVRDPQTLEI 0.330094 | |
| HLA-B*15:01 0.56 | 1 | 551 | 559 | 9 | VLTESNKKF 0.329933 | |
| HLA-B*07:02 0.43 | 1 | 84 | 92 | 9 | LPFNDGVYF 0.329782 | |
| HLA-B*57:01 0.86 | 1 | 809 | 817 | 9 | PSKPSKRSF 0.329605 | |
| HLA-B*51:01 0.43 | 1 | 229 | 238 | 10 | LPIGINITRF 0.329148 | |
| HLA-B*07:02 0.44 | 1 | 462 | 470 | 9 | KPFERDIST 0.328583 | |
| HLA-A*33:01 0.37 | 1 | 975 | 983 | 9 | SVLNDILSR 0.328563 | |
| HLA-B*51:01 0.43 | 1 | 896 | 904 | 9 | IPFAMQMAY 0.328521 | |
| HLA-B*58:01 0.52 | 1 | 50 | 58 | 9 | STQDLFLPF 0.327613 | |
| HLA-A*02:06 0.51 | 1 | 1185 | 1193 | 9 | RLNEVAKNL 0.327598 | |
| HLA-A*68:02 0.38 | 1 | 135 | 143 | 9 | FCNDPFLGV 0.327522 | |
| HLA-A*30:01 0.37 | 1 | 1064 | 1073 | 10 | HVTYVPAQEK 0.326791 | |
| HLA-B*51:01 0.43 | 1 | 425 | 433 | 9 | LPDDFTGCV 0.325956 | |
| HLA-B*35:01 0.39 | 1 | 320 | 329 | 10 | VQPTESIVRF 0.325631 | |
| HLA-A*31:01 0.71 | 1 | 12 | 21 | 10 | SSQCVNLTTR 0.325231 | |
| HLA-B*08:01 0.32 | 1 | 202 | 210 | 9 | KIYSKHTPI 0.324637 | |
| HLA-A*30:02 0.38 | 1 | 999 | 1007 | 9 | GRLQSLQTY 0.324253 | |
| HLA-A*30:02 0.38 | 1 | 651 | 660 | 10 | IGAELVNSY 0.324128 | |
| HLA-B*53:01 0.26 | 1 | 714 | 722 | 9 | IPTNFTISV 0.324037 | |
| HLA-B*08:01 0.32 | 1 | 833 | 841 | 9 | FIKQYGDCL 0.323762 | |
| HLA-B*57:01 0.87 | 1 | 962 | 970 | 9 | LVKQLSSNF 0.323546 | |
| HLA-A*30:02 0.38 | 1 | 603 | 612 | 10 | NTSNQVAVLY 0.323431 | |
| HLA-A*11:01 0.56 | 1 | 777 | 786 | 10 | NTQEVFAQVK 0.323299 | |
| HLA-A*02:06 0.52 | 1 | 386 | 395 | 10 | KLNDLCFTNV 0.323023 | |
| HLA-B*51:01 0.44 | 1 | 560 | 569 | 10 | LPFQQFGRDI 0.322585 | |
| HLA-B*15:01 0.58 | 1 | 334 | 342 | 9 | NLCPFGEVF 0.322517 | |
| HLA-B*58:01 0.52 | 1 | 97 | 106 | 10 | KSNIIRGWIF 0.322465 | |
| HLA-B*44:03 | 1 | 987 | 996 | 10 | VEAEVQIDRL 0.322031 | |

| | | | | | | | |
|-------------|---|------|------|----|---------------------|-----|--|
| 0.38 | | | | | | | |
| HLA-B*35:01 | 1 | 138 | 146 | 9 | DPFLGVVYH 0.321595 | 0.4 | |
| HLA-A*30:01 | 1 | 1019 | 1028 | 10 | RASANLAATK 0.321031 | | |
| 0.38 | | | | | | | |
| HLA-B*07:02 | 1 | 680 | 689 | 10 | SPRRARSVAS 0.321024 | | |
| 0.44 | | | | | | | |
| HLA-A*11:01 | 1 | 816 | 825 | 10 | SFIEDLLFNK 0.320943 | | |
| 0.56 | | | | | | | |
| HLA-A*01:01 | 1 | 29 | 38 | 10 | TNSFTRGVVY 0.320865 | | |
| 0.35 | | | | | | | |
| HLA-B*57:01 | 1 | 204 | 212 | 9 | YSKHTPINL 0.320589 | | |
| 0.87 | | | | | | | |
| HLA-B*07:02 | 1 | 588 | 597 | 10 | TPCSFGGVS 0.319415 | | |
| 0.45 | | | | | | | |
| HLA-B*51:01 | 1 | 324 | 332 | 9 | ESIVRFPNI 0.319087 | | |
| 0.44 | | | | | | | |
| HLA-B*44:02 | 1 | 779 | 788 | 10 | QEVFAQVKQI 0.31908 | | |
| 0.34 | | | | | | | |
| HLA-B*15:01 | 1 | 505 | 513 | 9 | YQPYRVVVL 0.318775 | | |
| 0.59 | | | | | | | |
| HLA-A*68:01 | 1 | 826 | 835 | 10 | VTLADAGFIK 0.317847 | 1.1 | |
| HLA-A*30:02 | 1 | 443 | 451 | 9 | SKVGGNYNY 0.31758 | | |
| 0.39 | | | | | | | |
| HLA-A*30:02 | 1 | 699 | 707 | 9 | LGAENSVAY 0.317344 | | |
| 0.39 | | | | | | | |
| HLA-A*02:03 | 1 | 516 | 524 | 9 | ELLHAPATV 0.317281 | | |
| 0.47 | | | | | | | |
| HLA-A*03:01 | 1 | 826 | 835 | 10 | VTLADAGFIK 0.317095 | | |
| 0.62 | | | | | | | |
| HLA-A*68:02 | 1 | 324 | 332 | 9 | ESIVRFPNI 0.316674 | | |
| 0.38 | | | | | | | |
| HLA-A*02:03 | 1 | 857 | 865 | 9 | GLTVLPELL 0.316428 | | |
| 0.47 | | | | | | | |
| HLA-A*26:01 | 1 | 554 | 562 | 9 | ESNKKFLPF 0.315557 | | |
| 0.23 | | | | | | | |
| HLA-A*26:01 | 1 | 487 | 495 | 9 | NCYFPLQSY 0.315549 | | |
| 0.23 | | | | | | | |
| HLA-A*02:06 | 1 | 1137 | 1145 | 9 | VYDPLQPEL 0.314486 | | |
| 0.54 | | | | | | | |
| HLA-A*02:06 | 1 | 995 | 1004 | 10 | RLITGRLQSL 0.313029 | | |
| 0.54 | | | | | | | |
| HLA-A*30:02 | 1 | 909 | 917 | 9 | IGVTQNVLY 0.312847 | | |
| 0.41 | | | | | | | |
| HLA-A*68:01 | 1 | 1050 | 1058 | 9 | MSFPQSAPH 0.312819 | 1.2 | |
| HLA-A*68:01 | 1 | 625 | 634 | 10 | HADQLTPTWR 0.312632 | 1.2 | |
| HLA-A*68:02 | 1 | 734 | 742 | 9 | TSVDCTMYI 0.312368 | | |
| 0.39 | | | | | | | |
| HLA-A*26:01 | 1 | 1146 | 1155 | 10 | DSFKEELDKY 0.312308 | | |
| 0.24 | | | | | | | |
| HLA-B*57:01 | 1 | 144 | 152 | 9 | YYHKNNKSW 0.311801 | | |
| 0.89 | | | | | | | |
| HLA-B*51:01 | 1 | 503 | 511 | 9 | VGYPYRVV 0.311555 | | |
| 0.44 | | | | | | | |
| HLA-A*30:02 | 1 | 19 | 28 | 10 | TTRTQLPPAY 0.311293 | | |
| 0.41 | | | | | | | |
| HLA-B*15:01 | 1 | 34 | 43 | 10 | RGVYYPDKVF 0.310843 | 0.6 | |
| HLA-A*23:01 | 1 | 267 | 276 | 10 | VGYLQPRFTL 0.310776 | | |
| 0.29 | | | | | | | |
| HLA-B*35:01 | 1 | 1089 | 1097 | 9 | FPREGVFS 0.310374 | | |
| 0.41 | | | | | | | |
| HLA-A*03:01 | 1 | 925 | 933 | 9 | NQFNSAIGK 0.310061 | | |
| 0.63 | | | | | | | |
| HLA-A*33:01 | 1 | 839 | 847 | 9 | DCLGDIAAR 0.309984 | | |
| 0.41 | | | | | | | |
| HLA-A*32:01 | 1 | 625 | 633 | 9 | HADQLTPTW 0.309795 | | |
| 0.24 | | | | | | | |

| | | | | | | |
|---------------------|---|------|------|----|---------------------|-----|
| HLA-A*03:01 0.64 | 1 | 104 | 113 | 10 | WIFGTTLDSK 0.309697 | |
| HLA-A*68:01 | 1 | 603 | 612 | 10 | NTSNQVAVLY 0.309036 | 1.2 |
| HLA-A*11:01 0.59 | 1 | 378 | 386 | 9 | KCYGVSPK 0.307895 | |
| HLA-A*24:02 0.33 | 1 | 269 | 277 | 9 | YLQPRTFLL 0.30782 | |
| HLA-A*30:01 0.41 | 1 | 1014 | 1022 | 9 | RAAEIRASA 0.307578 | |
| HLA-B*58:01 0.54 | 1 | 1005 | 1013 | 9 | QTYVTQLI 0.307506 | |
| HLA-A*11:01 0.59 | 1 | 817 | 825 | 9 | FIEDLLFNK 0.306918 | |
| HLA-B*08:01 0.34 | 1 | 40 | 48 | 9 | DKVFRSSVL 0.30644 | |
| HLA-B*51:01 0.45 | 1 | 495 | 503 | 9 | YGFQPTNGV 0.306067 | |
| HLA-A*26:01 0.24 | 1 | 125 | 133 | 9 | NVVIKVECF 0.305959 | |
| HLA-B*51:01 0.45 | 1 | 1060 | 1068 | 9 | VVFLHVTVV 0.305733 | |
| HLA-A*03:01 0.65 | 1 | 301 | 310 | 10 | CTLKSFTVEK 0.305624 | |
| HLA-A*32:01 0.25 | 1 | 1264 | 1272 | 9 | VLKGVKLHY 0.305119 | |
| HLA-A*33:01 0.42 | 1 | 673 | 682 | 10 | SYQTQNSPR 0.304197 | |
| HLA-B*15:01 0.62 | 1 | 261 | 269 | 9 | GAAAYVGY 0.303395 | |
| HLA-B*58:01 0.55 | 1 | 267 | 275 | 9 | VGYLQPRTF 0.303126 | |
| HLA-A*30:02 0.44 | 1 | 698 | 707 | 10 | SLGAENSVAY 0.302374 | |
| HLA-B*53:01 0.28 | 1 | 710 | 718 | 9 | NSIAIPTNF 0.302006 | |
| HLA-B*07:02 0.47 | 1 | 727 | 736 | 10 | LPVSMTKTSV 0.302005 | |
| HLA-A*26:01 0.25 | 1 | 687 | 695 | 9 | VASQSIIAY 0.301442 | |
| HLA-B*35:01 0.42 | 1 | 1262 | 1270 | 9 | EPVLKGVKL 0.300872 | |
| HLA-A*68:01 | 1 | 142 | 150 | 9 | GVYYHKNNK 0.300562 | 1.2 |
| HLA-A*31:01 0.77 | 1 | 446 | 454 | 9 | GGNYNYLYR 0.299786 | |
| HLA-A*11:01 | 1 | 604 | 612 | 9 | TSNQVAVLY 0.298663 | 0.6 |
| HLA-A*02:06 0.57 | 1 | 1095 | 1104 | 10 | FVSNQTHWFV 0.298254 | |
| HLA-A*68:01 | 1 | 986 | 995 | 10 | KVEAEVQIDR 0.297639 | 1.2 |
| HLA-A*01:01 0.38 | 1 | 372 | 380 | 9 | ASFSTFKCY 0.29699 | |
| HLA-A*30:01 0.43 | 1 | 1264 | 1272 | 9 | VLKGVKLHY 0.296719 | |
| HLA-B*15:01 0.65 | 1 | 258 | 266 | 9 | WTAGAAAYY 0.296637 | |
| HLA-A*02:06 0.58 | 1 | 857 | 865 | 9 | GLTVLPPLL 0.296351 | |
| HLA-A*26:01 0.25 | 1 | 212 | 220 | 9 | LVRDLPQGF 0.296027 | |
| HLA-A*11:01 | 1 | 1173 | 1181 | 9 | NASVVNIQK 0.296013 | 0.6 |
| HLA-B*53:01 0.29 | 1 | 712 | 720 | 9 | IAIPTNFTI 0.295888 | |
| HLA-A*68:01 | 1 | 757 | 765 | 9 | GSFCTQLNR 0.295552 | 1.2 |
| HLA-A*33:01 0.44 | 1 | 676 | 685 | 10 | TQTNSPRRAR 0.294137 | |
| HLA-B*35:01 0.43 | 1 | 1130 | 1138 | 9 | IGIVNNTVY 0.293947 | |

| | | | | | | |
|---------------------|---|------|------|----|---------------------|-----|
| HLA-A*01:01 0.38 | 1 | 19 | 28 | 10 | TTRTQLPPAY 0.292849 | |
| HLA-A*68:02 0.43 | 1 | 721 | 729 | 9 | SVTTEILPV 0.292756 | |
| HLA-A*33:01 0.44 | 1 | 568 | 577 | 10 | DIADTTDAVR 0.292483 | |
| HLA-B*51:01 0.47 | 1 | 56 | 65 | 10 | LPFFSNVTWF 0.292389 | |
| HLA-A*30:01 0.44 | 1 | 36 | 44 | 9 | VYYPDKVFR 0.292317 | |
| HLA-B*51:01 0.47 | 1 | 907 | 915 | 9 | NGIGVTQNV 0.292202 | |
| HLA-A*03:01 0.67 | 1 | 803 | 811 | 9 | SQILPDPSK 0.292136 | |
| HLA-A*31:01 | 1 | 974 | 983 | 10 | SSVLNDILSR 0.291596 | 0.8 |
| HLA-A*02:06 0.59 | 1 | 495 | 503 | 9 | YGFQPTNGV 0.291585 | |
| HLA-A*23:01 | 1 | 634 | 643 | 10 | RVYSTGSNVF 0.291524 | 0.3 |
| HLA-A*11:01 0.61 | 1 | 69 | 77 | 9 | HVSGTNGTK 0.290353 | |
| HLA-A*30:01 0.45 | 1 | 204 | 212 | 9 | YSKHTPINL 0.289951 | |
| HLA-A*31:01 | 1 | 193 | 202 | 10 | VFKNIDGYFK 0.289675 | 0.8 |
| HLA-A*30:01 0.45 | 1 | 956 | 964 | 9 | AQALNTLVK 0.28953 | |
| HLA-B*15:01 0.66 | 1 | 1053 | 1062 | 10 | PQSAPHGVVF 0.289148 | |
| HLA-B*15:01 0.67 | 1 | 666 | 674 | 9 | IGAGICASY 0.288348 | |
| HLA-B*07:02 0.49 | 1 | 411 | 419 | 9 | APGQTGKIA 0.288013 | |
| HLA-A*24:02 0.35 | 1 | 320 | 329 | 10 | VQPTESIVRF 0.287756 | |
| HLA-A*11:01 0.62 | 1 | 291 | 300 | 10 | CALDPLSETK 0.287543 | |
| HLA-A*30:02 0.49 | 1 | 239 | 248 | 10 | QTLLALHRSY 0.287342 | |
| HLA-B*57:01 0.96 | 1 | 634 | 643 | 10 | RVYSTGSNVF 0.287147 | |
| HLA-A*68:01 | 1 | 1146 | 1154 | 9 | DSFKEELDK 0.287008 | 1.2 |
| HLA-A*30:01 0.46 | 1 | 677 | 685 | 9 | QTNSPRRAR 0.286375 | |
| HLA-A*30:01 0.46 | 1 | 41 | 50 | 10 | KVFRSSVLHS 0.285798 | |
| HLA-A*68:02 0.46 | 1 | 108 | 117 | 10 | TTLDSKTQSL 0.284625 | |
| HLA-B*35:01 0.44 | 1 | 1056 | 1064 | 9 | APHGVVFLH 0.284317 | |
| HLA-A*23:01 | 1 | 269 | 277 | 9 | YLQPRTFLL 0.284271 | 0.3 |
| HLA-A*30:01 0.47 | 1 | 458 | 466 | 9 | KSNLKPFER 0.283834 | |
| HLA-B*51:01 0.49 | 1 | 861 | 869 | 9 | LPPLLTDEM 0.28356 | |
| HLA-B*40:01 0.48 | 1 | 167 | 176 | 10 | TFEYVSQPFL 0.282995 | |
| HLA-A*31:01 0.83 | 1 | 1006 | 1014 | 9 | TYVTQQLIR 0.282789 | |
| HLA-B*53:01 0.31 | 1 | 506 | 515 | 10 | QPYRVVLSF 0.282475 | |
| HLA-A*33:01 0.46 | 1 | 346 | 355 | 10 | RFASVYAWNR 0.281629 | |
| HLA-A*24:02 0.36 | 1 | 504 | 513 | 10 | GYQPYRVVVL 0.281479 | |
| HLA-B*35:01 0.45 | 1 | 506 | 515 | 10 | QPYRVVLSF 0.280366 | |
| HLA-B*08:01 | 1 | 929 | 938 | 10 | SAIGKIQDSL 0.280355 | |

| | | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|--|
| 0.38 | | | | | | | | |
| HLA-B*44:03 | 1 | 464 | 472 | 9 | FERDISTEI | 0.279929 | | |
| 0.44 | | | | | | | | |
| HLA-A*02:03 | 1 | 424 | 432 | 9 | KLPDDFTGC | 0.279804 | | |
| 0.53 | | | | | | | | |
| HLA-A*02:06 | 1 | 1128 | 1137 | 10 | VVIGIVNNTV | 0.27906 | | |
| 0.62 | | | | | | | | |
| HLA-A*26:01 | 1 | 1054 | 1062 | 9 | QSAPHGVVF | 0.278915 | | |
| 0.27 | | | | | | | | |
| HLA-B*51:01 | 1 | 898 | 906 | 9 | FAMQMAYRF | 0.278257 | | |
| 0.51 | | | | | | | | |
| HLA-A*33:01 | 1 | 138 | 147 | 10 | DPFLGVVYHK | 0.278058 | | |
| 0.47 | | | | | | | | |
| HLA-A*68:02 | 1 | 1054 | 1063 | 10 | QSAPHGVVFL | 0.27795 | | |
| 0.47 | | | | | | | | |
| HLA-B*58:01 | 1 | 1209 | 1217 | 9 | YIKWPWYIW | 0.27773 | | |
| 0.58 | | | | | | | | |
| HLA-A*24:02 | 1 | 706 | 714 | 9 | AYSNNSIAI | 0.277072 | | |
| 0.37 | | | | | | | | |
| HLA-A*11:01 | 1 | 270 | 278 | 9 | LQPRTFLLK | 0.276635 | | |
| 0.64 | | | | | | | | |
| HLA-B*44:03 | 1 | 1200 | 1209 | 10 | LQELGKYEYQ | 0.275884 | | |
| 0.44 | | | | | | | | |
| HLA-A*24:02 | 1 | 1147 | 1156 | 10 | SFKEELDKYF | 0.27577 | | |
| 0.37 | | | | | | | | |
| HLA-A*24:02 | 1 | 350 | 358 | 9 | VYAWNKRRI | 0.275566 | | |
| 0.37 | | | | | | | | |
| HLA-B*15:01 | 1 | 815 | 823 | 9 | RSFIEDLLF | 0.275422 | | |
| 0.69 | | | | | | | | |
| HLA-A*30:02 | 1 | 270 | 279 | 10 | LQPRTFLLKY | 0.273572 | | |
| 0.51 | | | | | | | | |
| HLA-B*15:01 | 1 | 487 | 495 | 9 | NCYFPLQSY | 0.273278 | 0.7 | |
| HLA-A*68:02 | 1 | 394 | 402 | 9 | NVYADSFVI | 0.272578 | | |
| 0.48 | | | | | | | | |
| HLA-A*68:01 | 1 | 449 | 457 | 9 | YNYLYRFR | 0.272458 | 1.3 | |
| HLA-B*15:01 | 1 | 754 | 763 | 10 | LQYGSFCTQL | 0.271912 | 0.7 | |
| HLA-A*23:01 | 1 | 755 | 763 | 9 | QYGSFCTQL | 0.271847 | | |
| 0.32 | | | | | | | | |
| HLA-B*08:01 | 1 | 1189 | 1197 | 9 | VAKNLNESL | 0.271283 | 0.4 | |
| HLA-A*02:01 | 1 | 109 | 118 | 10 | TLDSKTQSL | 0.270528 | 0.6 | |
| HLA-A*31:01 | 1 | 529 | 537 | 9 | KSTNLVKNK | 0.269413 | | |
| 0.88 | | | | | | | | |
| HLA-A*26:01 | 1 | 366 | 374 | 9 | SVLYNSASF | 0.269331 | | |
| 0.27 | | | | | | | | |
| HLA-A*33:01 | 1 | 725 | 733 | 9 | EILPVSMTK | 0.269327 | | |
| 0.49 | | | | | | | | |
| HLA-B*15:01 | 1 | 627 | 636 | 10 | DQLTPTWRVY | 0.267945 | | |
| 0.72 | | | | | | | | |
| HLA-B*44:03 | 1 | 618 | 626 | 9 | TEVPVAIHA | 0.267863 | | |
| 0.45 | | | | | | | | |
| HLA-B*44:03 | 1 | 1261 | 1270 | 10 | SEPVLKGVKL | 0.267357 | | |
| 0.45 | | | | | | | | |
| HLA-A*02:03 | 1 | 996 | 1004 | 9 | LITGRLQSL | 0.267247 | | |
| 0.58 | | | | | | | | |
| HLA-A*23:01 | 1 | 320 | 329 | 10 | VQPTESIVRF | 0.267127 | | |
| 0.33 | | | | | | | | |
| HLA-A*33:01 | 1 | 264 | 273 | 10 | AYYVGYLQPR | 0.267114 | 0.5 | |
| HLA-B*08:01 | 1 | 215 | 223 | 9 | DLPQGFSA | 0.267074 | | |
| 0.41 | | | | | | | | |
| HLA-A*02:06 | 1 | 122 | 130 | 9 | NATNVVIKV | 0.266729 | | |
| 0.66 | | | | | | | | |
| HLA-A*11:01 | 1 | 675 | 683 | 9 | QTQTNSPRR | 0.266054 | | |
| 0.67 | | | | | | | | |
| HLA-B*15:01 | 1 | 28 | 37 | 10 | YTNSFTRGVY | 0.265703 | | |
| 0.73 | | | | | | | | |
| HLA-B*07:02 | 1 | 1014 | 1022 | 9 | RAAEIRASA | 0.265516 | | |

| | | | | | | | |
|-------------|---|------|------|----|---------------------|-----|--|
| 0.53 | | | | | | | |
| HLA-B*57:01 | 1 | 28 | 37 | 10 | YTNSFTRGVY 0.264686 | 1.1 | |
| HLA-A*31:01 | 1 | 986 | 995 | 10 | KVEAEVQIDR 0.264587 | | |
| 0.89 | | | | | | | |
| HLA-A*01:01 | 1 | 686 | 695 | 10 | SVASQSIIAY 0.264392 | | |
| 0.43 | | | | | | | |
| HLA-A*11:01 | 1 | 94 | 102 | 9 | STEKSNIIIR 0.262783 | | |
| 0.68 | | | | | | | |
| HLA-B*15:01 | 1 | 151 | 160 | 10 | SWMESEFRVY 0.261622 | | |
| 0.74 | | | | | | | |
| HLA-A*31:01 | 1 | 1098 | 1107 | 10 | NGTHWFVTQR 0.261588 | 0.9 | |
| HLA-B*53:01 | 1 | 1262 | 1270 | 9 | EPVLKGVKL 0.261209 | | |
| 0.34 | | | | | | | |
| HLA-A*68:02 | 1 | 975 | 984 | 10 | SVLNDILSRL 0.261055 | | |
| 0.52 | | | | | | | |
| HLA-A*33:01 | 1 | 501 | 509 | 9 | NGVGYQPYR 0.260535 | | |
| 0.52 | | | | | | | |
| HLA-B*51:01 | 1 | 224 | 233 | 10 | EPLVDLPIGI 0.260506 | | |
| 0.55 | | | | | | | |
| HLA-A*02:06 | 1 | 689 | 697 | 9 | SQSIIAYTM 0.260231 | | |
| 0.68 | | | | | | | |
| HLA-B*15:01 | 1 | 781 | 789 | 9 | VFAQVKQIY 0.259272 | | |
| 0.74 | | | | | | | |
| HLA-A*02:06 | 1 | 869 | 877 | 9 | MIAQYTSAL 0.258663 | | |
| 0.68 | | | | | | | |
| HLA-A*01:01 | 1 | 371 | 380 | 10 | SASFSTFKCY 0.258439 | | |
| 0.44 | | | | | | | |
| HLA-A*68:01 | 1 | 360 | 369 | 10 | NCVADYSVLY 0.258357 | 1.4 | |
| HLA-B*44:02 | 1 | 1205 | 1214 | 10 | KYEQYIKWPW 0.25831 | 0.4 | |
| HLA-B*51:01 | 1 | 625 | 633 | 9 | HADQLTPTW 0.258269 | | |
| 0.56 | | | | | | | |
| HLA-B*15:01 | 1 | 557 | 565 | 9 | KKFLPFQF 0.258074 | | |
| 0.74 | | | | | | | |
| HLA-A*03:01 | 1 | 141 | 150 | 10 | LGVYYHKNNK 0.257763 | | |
| 0.76 | | | | | | | |
| HLA-B*53:01 | 1 | 861 | 869 | 9 | LPPLLTDEM 0.257301 | | |
| 0.34 | | | | | | | |
| HLA-A*32:01 | 1 | 786 | 794 | 9 | KQIYKTPPI 0.257299 | | |
| 0.29 | | | | | | | |
| HLA-A*30:02 | 1 | 1200 | 1209 | 10 | LQELGKYEQY 0.257181 | | |
| 0.56 | | | | | | | |
| HLA-A*32:01 | 1 | 240 | 248 | 9 | TLLALHRYSY 0.257068 | | |
| 0.29 | | | | | | | |
| HLA-A*32:01 | 1 | 35 | 43 | 9 | GVYYPDKVF 0.257 | | |
| 0.29 | | | | | | | |
| HLA-A*03:01 | 1 | 458 | 466 | 9 | KSNLKPFER 0.256861 | | |
| 0.76 | | | | | | | |
| HLA-B*51:01 | 1 | 1260 | 1268 | 9 | DSEPVKGV 0.256636 | | |
| 0.56 | | | | | | | |
| HLA-B*57:01 | 1 | 554 | 562 | 9 | ESNKKFLPF 0.255754 | 1.1 | |
| HLA-B*57:01 | 1 | 1208 | 1217 | 10 | QYIKWPWYIW 0.255204 | 1.1 | |
| HLA-B*51:01 | 1 | 1225 | 1233 | 9 | IAIVMTIM 0.254743 | | |
| 0.57 | | | | | | | |
| HLA-B*53:01 | 1 | 808 | 817 | 10 | DPSKPSKRSF 0.254678 | | |
| 0.35 | | | | | | | |
| HLA-A*32:01 | 1 | 34 | 43 | 10 | RGVYYPDKVF 0.254473 | 0.3 | |
| HLA-B*15:01 | 1 | 266 | 275 | 10 | YVGYLQPRTF 0.254437 | | |
| 0.75 | | | | | | | |
| HLA-A*68:01 | 1 | 839 | 847 | 9 | DCLGDIAAR 0.253468 | 1.4 | |
| HLA-A*02:01 | 1 | 108 | 117 | 10 | TTLDSKTQSL 0.252008 | | |
| 0.64 | | | | | | | |
| HLA-B*58:01 | 1 | 50 | 59 | 10 | STQDLFLPFF 0.251573 | | |
| 0.64 | | | | | | | |
| HLA-B*15:01 | 1 | 1130 | 1138 | 9 | IGIVNNTVY 0.251449 | | |
| 0.76 | | | | | | | |
| HLA-A*32:01 | 1 | 1093 | 1102 | 10 | GVFVSNGTHW 0.251174 | | |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|
| 0.31 | | | | | | | |
| HLA-A*32:01 | 1 | 976 | 984 | 9 | VLNDILSRL | 0.251163 | |
| 0.31 | | | | | | | |
| HLA-A*01:01 | 1 | 625 | 633 | 9 | HADQLTPTW | 0.249722 | |
| 0.45 | | | | | | | |
| HLA-A*24:02 | 1 | 167 | 175 | 9 | TFEYVSQPF | 0.249643 | 0.4 |
| HLA-B*15:01 | 1 | 83 | 91 | 9 | VLPFNDGVY | 0.249396 | |
| 0.76 | | | | | | | |
| HLA-B*15:01 | 1 | 584 | 592 | 9 | ILDITPCSF | 0.249095 | |
| 0.76 | | | | | | | |
| HLA-A*03:01 | 1 | 270 | 278 | 9 | LQPRTFLLK | 0.248104 | |
| 0.79 | | | | | | | |
| HLA-B*35:01 | 1 | 38 | 46 | 9 | YDPKVFSS | 0.247816 | |
| 0.52 | | | | | | | |
| HLA-A*30:02 | 1 | 196 | 204 | 9 | NIDGYFKIY | 0.247208 | |
| 0.57 | | | | | | | |
| HLA-A*02:03 | 1 | 721 | 729 | 9 | SVTTEILPV | 0.246775 | |
| 0.64 | | | | | | | |
| HLA-A*02:03 | 1 | 1003 | 1012 | 10 | SLQTYVTQQL | 0.246534 | |
| 0.65 | | | | | | | |
| HLA-A*68:02 | 1 | 467 | 475 | 9 | DISTEIYQA | 0.246138 | |
| 0.54 | | | | | | | |
| HLA-A*11:01 | 1 | 372 | 380 | 9 | ASFSTFKCY | 0.245745 | |
| 0.74 | | | | | | | |
| HLA-B*58:01 | 1 | 144 | 152 | 9 | YYHKNNKSW | 0.245629 | |
| 0.65 | | | | | | | |
| HLA-A*30:02 | 1 | 256 | 265 | 10 | SGWTAGAAAY | 0.245478 | |
| 0.57 | | | | | | | |
| HLA-A*30:02 | 1 | 152 | 160 | 9 | WMESEFRVY | 0.245251 | |
| 0.57 | | | | | | | |
| HLA-B*35:01 | 1 | 250 | 258 | 9 | TPGDSSSGW | 0.244026 | |
| 0.52 | | | | | | | |
| HLA-A*30:02 | 1 | 998 | 1007 | 10 | TGRLQSLQTY | 0.243931 | |
| 0.58 | | | | | | | |
| HLA-B*35:01 | 1 | 1212 | 1220 | 9 | WPWYIWLGF | 0.243619 | |
| 0.53 | | | | | | | |
| HLA-A*30:01 | 1 | 21 | 29 | 9 | RTQLPPAYT | 0.243422 | |
| 0.58 | | | | | | | |
| HLA-A*02:01 | 1 | 937 | 945 | 9 | SLSSTASAL | 0.243351 | |
| 0.66 | | | | | | | |
| HLA-A*68:02 | 1 | 1128 | 1136 | 9 | VVIGIVNNT | 0.242916 | |
| 0.55 | | | | | | | |
| HLA-B*44:03 | 1 | 1206 | 1215 | 10 | YEQYIKWPWY | 0.242872 | |
| 0.48 | | | | | | | |
| HLA-A*02:01 | 1 | 1191 | 1200 | 10 | KNLNESLIDL | 0.242825 | |
| 0.66 | | | | | | | |
| HLA-A*02:06 | 1 | 893 | 902 | 10 | ALQIPFAMQM | 0.242499 | |
| 0.72 | | | | | | | |
| HLA-B*15:01 | 1 | 1095 | 1103 | 9 | FVSNQTHWF | 0.242365 | |
| 0.79 | | | | | | | |
| HLA-A*32:01 | 1 | 212 | 220 | 9 | LVRDLPQGF | 0.242003 | |
| 0.32 | | | | | | | |
| HLA-A*68:01 | 1 | 1260 | 1269 | 10 | DSEPVKGVK | 0.241651 | 1.5 |
| HLA-B*44:02 | 1 | 1261 | 1270 | 10 | SEPVKGVKL | 0.241206 | |
| 0.43 | | | | | | | |
| HLA-A*68:01 | 1 | 121 | 129 | 9 | NNATNVVIK | 0.240736 | 1.5 |
| HLA-A*68:02 | 1 | 1055 | 1063 | 9 | SAPHGCVFL | 0.240578 | |
| 0.56 | | | | | | | |
| HLA-A*68:02 | 1 | 61 | 70 | 10 | NVTWFHAIHV | 0.240543 | |
| 0.56 | | | | | | | |
| HLA-A*68:01 | 1 | 686 | 695 | 10 | SVASQSIIAY | 0.240524 | 1.5 |
| HLA-B*53:01 | 1 | 208 | 216 | 9 | TPINLVRDL | 0.240126 | |
| 0.36 | | | | | | | |
| HLA-B*35:01 | 1 | 828 | 837 | 10 | LADAGFIKQY | 0.240025 | |
| 0.53 | | | | | | | |
| HLA-A*31:01 | 1 | 142 | 150 | 9 | GVYYHKNNK | 0.239853 | |

| | | | | | | | |
|-------------|---|------|------|----|----------------------|-----|--|
| 0.99 | | | | | | | |
| HLA-B*57:01 | 1 | 171 | 179 | 9 | VSQPFLMDL 0.239411 | 1.2 | |
| HLA-A*03:01 | 1 | 845 | 854 | 10 | AARDLICAQK 0.23921 | | |
| 0.82 | | | | | | | |
| HLA-A*02:06 | 1 | 947 | 956 | 10 | KLQDVVNQNA 0.238062 | | |
| 0.73 | | | | | | | |
| HLA-B*58:01 | 1 | 625 | 634 | 10 | HADQLTPTWR 0.237971 | | |
| 0.68 | | | | | | | |
| HLA-A*02:03 | 1 | 777 | 785 | 9 | NTQEVFAQV 0.237792 | | |
| 0.68 | | | | | | | |
| HLA-A*68:01 | 1 | 36 | 44 | 9 | VYYPDKVFR 0.237604 | 1.5 | |
| HLA-A*33:01 | 1 | 897 | 905 | 9 | PFAMQMAYR 0.237529 | | |
| 0.58 | | | | | | | |
| HLA-A*32:01 | 1 | 634 | 642 | 9 | RVYSTGSNV 0.23705 | | |
| 0.33 | | | | | | | |
| HLA-A*02:06 | 1 | 852 | 860 | 9 | AQKFNGLTV 0.23684 | | |
| 0.74 | | | | | | | |
| HLA-A*23:01 | 1 | 1100 | 1109 | 10 | THWFVTQRNF 0.235909 | | |
| 0.36 | | | | | | | |
| HLA-A*02:06 | 1 | 516 | 524 | 9 | ELLHAPATV 0.235463 | | |
| 0.74 | | | | | | | |
| HLA-A*26:01 | 1 | 1059 | 1067 | 9 | GVVFLHVTY 0.23535 | | |
| 0.31 | | | | | | | |
| HLA-A*24:02 | 1 | 1136 | 1145 | 10 | TVYDPLQPEL 0.235013 | | |
| 0.42 | | | | | | | |
| HLA-A*33:01 | 1 | 896 | 905 | 10 | IPFAMQMAYR 0.234993 | | |
| 0.59 | | | | | | | |
| HLA-B*44:03 | 1 | 96 | 104 | 9 | EKSNIIRGW 0.234727 | | |
| 0.49 | | | | | | | |
| HLA-A*23:01 | 1 | 1147 | 1156 | 10 | SFKEELDKYF 0.234713 | | |
| 0.37 | | | | | | | |
| HLA-B*57:01 | 1 | 688 | 697 | 10 | ASQSIIAYTM 0.234487 | 1.2 | |
| HLA-A*24:02 | 1 | 504 | 512 | 9 | GYQPYRVVV 0.234409 | | |
| 0.43 | | | | | | | |
| HLA-A*02:03 | 1 | 1095 | 1104 | 10 | FVSNNGTHWFV 0.233857 | | |
| 0.69 | | | | | | | |
| HLA-A*68:01 | 1 | 756 | 765 | 10 | YGSFCTQLNR 0.233375 | 1.5 | |
| HLA-B*44:03 | 1 | 988 | 997 | 10 | EAEVQIDRLI 0.233082 | 0.5 | |
| HLA-A*31:01 | 1 | 448 | 457 | 10 | NYNLYRLFR 0.233068 | 1.1 | |
| HLA-A*30:02 | 1 | 829 | 837 | 9 | ADAGFIKQY 0.233064 | | |
| 0.61 | | | | | | | |
| HLA-A*31:01 | 1 | 94 | 102 | 9 | STEKSNIIR 0.233044 | 1.1 | |
| HLA-A*01:01 | 1 | 192 | 200 | 9 | FVFKNIDGY 0.232971 | | |
| 0.49 | | | | | | | |
| HLA-B*35:01 | 1 | 666 | 674 | 9 | IGAGICASY 0.232493 | | |
| 0.55 | | | | | | | |
| HLA-A*02:01 | 1 | 1003 | 1012 | 10 | SLQTYVTQQL 0.231785 | 0.7 | |
| HLA-A*68:02 | 1 | 979 | 987 | 9 | DILSRLDKV 0.231698 | | |
| 0.58 | | | | | | | |
| HLA-A*68:02 | 1 | 950 | 958 | 9 | DVVNQNQAQA 0.231345 | | |
| 0.58 | | | | | | | |
| HLA-A*68:01 | 1 | 319 | 328 | 10 | RVQPTESIVR 0.231308 | 1.5 | |
| HLA-B*44:02 | 1 | 464 | 472 | 9 | FERDISTEI 0.23108 | | |
| 0.44 | | | | | | | |
| HLA-A*23:01 | 1 | 1207 | 1216 | 10 | EQYIKWPWYI 0.230704 | | |
| 0.37 | | | | | | | |
| HLA-A*02:06 | 1 | 996 | 1004 | 9 | LITGRLQSL 0.230647 | | |
| 0.76 | | | | | | | |
| HLA-A*02:03 | 1 | 921 | 930 | 10 | KLIANQFNFA 0.230215 | 0.7 | |
| HLA-A*30:02 | 1 | 634 | 643 | 10 | RVYSTGSNVF 0.229259 | | |
| 0.62 | | | | | | | |
| HLA-A*11:01 | 1 | 310 | 319 | 10 | KGIYQTSNFR 0.228911 | | |
| 0.79 | | | | | | | |
| HLA-A*31:01 | 1 | 1065 | 1073 | 9 | VTYVPAQEK 0.228311 | 1.1 | |
| HLA-B*07:02 | 1 | 109 | 117 | 9 | TLDSKTQSL 0.22804 | | |
| 0.61 | | | | | | | |

| | | | | | | |
|---------------------|---|------|------|----|----------------------|-----|
| HLA-B*40:01 0.59 | 1 | 155 | 163 | 9 | SEFRVYSSA 0.227546 | |
| HLA-B*58:01 | 1 | 304 | 312 | 9 | KSFTVEKGI 0.227535 | 0.7 |
| HLA-B*51:01 0.62 | 1 | 55 | 64 | 10 | FLPFFSNVTW 0.227511 | |
| HLA-A*02:01 0.71 | 1 | 777 | 785 | 9 | NTQEVFAQV 0.227439 | |
| HLA-A*11:01 | 1 | 677 | 685 | 9 | QTNSPRRAR 0.227172 | 0.8 |
| HLA-B*15:01 0.84 | 1 | 651 | 660 | 10 | IGAHEVNNNSY 0.227116 | |
| HLA-B*35:01 0.55 | 1 | 1059 | 1067 | 9 | GVVFLHVTY 0.226747 | |
| HLA-A*02:03 0.71 | 1 | 505 | 513 | 9 | YQPYRVVVL 0.22627 | |
| HLA-A*68:01 | 1 | 301 | 310 | 10 | CTLKSFTVEK 0.226237 | 1.5 |
| HLA-A*30:02 0.63 | 1 | 828 | 837 | 10 | LADAGFIKQY 0.226235 | |
| HLA-A*30:02 0.63 | 1 | 1101 | 1109 | 9 | HWFVTQRNF 0.2262 | |
| HLA-A*23:01 0.38 | 1 | 898 | 906 | 9 | FAMQMAYRF 0.226168 | |
| HLA-A*30:02 0.63 | 1 | 29 | 37 | 9 | TNSFTRGVY 0.226165 | |
| HLA-A*32:01 0.33 | 1 | 78 | 86 | 9 | RFDNPVLPF 0.226142 | |
| HLA-B*35:01 0.56 | 1 | 392 | 400 | 9 | FTNVYADSF 0.226061 | |
| HLA-B*57:01 | 1 | 70 | 79 | 10 | VSGTNGTKRF 0.225729 | 1.2 |
| HLA-A*30:02 0.63 | 1 | 135 | 144 | 10 | FCNDPFLGVY 0.225621 | |
| HLA-A*02:06 0.76 | 1 | 627 | 635 | 9 | DQLTPTWRV 0.225428 | |
| HLA-B*08:01 0.52 | 1 | 204 | 212 | 9 | YSKHTPINL 0.224922 | |
| HLA-A*68:01 | 1 | 939 | 947 | 9 | SSTASALGK 0.224904 | 1.5 |
| HLA-B*58:01 0.72 | 1 | 55 | 64 | 10 | FLPFFSNVTW 0.224581 | |
| HLA-A*30:01 0.65 | 1 | 939 | 947 | 9 | SSTASALGK 0.224407 | |
| HLA-A*30:02 0.63 | 1 | 20 | 28 | 9 | TRTQLPPAY 0.224364 | |
| HLA-A*68:01 | 1 | 1136 | 1144 | 9 | TVYDPLQPE 0.224317 | 1.5 |
| HLA-A*03:01 0.86 | 1 | 348 | 356 | 9 | ASVYAWNRK 0.224171 | |
| HLA-A*11:01 0.81 | 1 | 511 | 519 | 9 | VVLSFELLH 0.224126 | |
| HLA-B*57:01 | 1 | 143 | 152 | 10 | VYYHKNNKSW 0.224044 | 1.2 |
| HLA-A*30:01 0.66 | 1 | 575 | 583 | 9 | AVRDPQTL 0.224019 | |
| HLA-A*30:02 0.63 | 1 | 1137 | 1145 | 9 | VYDPLQPEL 0.223552 | |
| HLA-A*01:01 | 1 | 723 | 731 | 9 | TTEILPVSM 0.223455 | 0.5 |
| HLA-B*35:01 0.56 | 1 | 808 | 817 | 10 | DPSKPSKRSF 0.223158 | |
| HLA-A*30:01 0.66 | 1 | 187 | 195 | 9 | KNLREFVFK 0.223047 | |
| HLA-A*30:02 0.64 | 1 | 748 | 756 | 9 | ECSNLLLQY 0.223039 | |
| HLA-A*30:02 0.64 | 1 | 360 | 369 | 10 | NCVADYSVL 0.223004 | |
| HLA-A*02:06 0.77 | 1 | 512 | 520 | 9 | VLSFELLHA 0.222816 | |
| HLA-B*08:01 0.53 | 1 | 995 | 1004 | 10 | RLITGRLQSL 0.222331 | |
| HLA-A*23:01 0.39 | 1 | 168 | 177 | 10 | FEYVSQPFLM 0.222045 | |

| | | | | | | |
|---------------------|---|------|------|----|---------------------|-----|
| HLA-A*26:01 0.33 | 1 | 962 | 970 | 9 | LVKQLSSNF 0.221571 | |
| HLA-B*35:01 0.56 | 1 | 698 | 707 | 10 | SLGAENSVAY 0.221459 | |
| HLA-A*02:01 0.73 | 1 | 62 | 70 | 9 | VTWFHAIHV 0.221377 | |
| HLA-B*08:01 0.53 | 1 | 24 | 32 | 9 | LPPAYTNSF 0.22115 | |
| HLA-A*23:01 0.39 | 1 | 379 | 387 | 9 | CYGVSPTKL 0.221059 | |
| HLA-A*68:01 | 1 | 896 | 905 | 10 | IPFAMQMAYR 0.220739 | 1.6 |
| HLA-B*57:01 | 1 | 266 | 275 | 10 | YVGYLQPRTF 0.220323 | 1.2 |
| HLA-A*68:01 | 1 | 12 | 21 | 10 | SSQCVNLTTR 0.220122 | 1.6 |
| HLA-B*44:03 0.52 | 1 | 1205 | 1214 | 10 | KYEYIKWPW 0.219921 | |
| HLA-B*53:01 | 1 | 1054 | 1062 | 9 | QSAPHGVSF 0.219646 | 0.4 |
| HLA-A*30:01 0.68 | 1 | 319 | 328 | 10 | RVQPTESIVR 0.219084 | |
| HLA-A*01:01 | 1 | 584 | 592 | 9 | ILDITPCSF 0.218883 | 0.5 |
| HLA-B*07:02 0.64 | 1 | 1056 | 1065 | 10 | APHGVVFLHV 0.218375 | |
| HLA-A*11:01 0.83 | 1 | 361 | 369 | 9 | CVADYSVLY 0.218111 | |
| HLA-A*33:01 0.66 | 1 | 558 | 567 | 10 | KFLPFQFGR 0.218108 | |
| HLA-A*02:03 0.75 | 1 | 1062 | 1070 | 9 | FLHVTVYPA 0.218073 | |
| HLA-A*26:01 0.34 | 1 | 257 | 266 | 10 | GWTAGAAAYY 0.218071 | |
| HLA-A*68:01 | 1 | 291 | 300 | 10 | CALDPLSETK 0.217634 | 1.6 |
| HLA-A*30:01 0.68 | 1 | 69 | 77 | 9 | HVSGTNGTK 0.217572 | |
| HLA-A*01:01 | 1 | 698 | 707 | 10 | SLGAENSVAY 0.217529 | 0.5 |
| HLA-A*24:02 0.45 | 1 | 168 | 177 | 10 | FEYVSQPFLM 0.21741 | |
| HLA-A*68:01 | 1 | 191 | 200 | 10 | EFVFKNIDGY 0.217045 | 1.6 |
| HLA-A*02:01 0.74 | 1 | 721 | 729 | 9 | SVTTEILPV 0.216735 | |
| HLA-A*26:01 0.34 | 1 | 895 | 904 | 10 | QIPFAMQMAY 0.216558 | |
| HLA-B*35:01 0.57 | 1 | 240 | 248 | 9 | TLLALHRSY 0.216463 | |
| HLA-A*31:01 | 1 | 450 | 458 | 9 | NYLYRLFRK 0.216453 | 1.1 |
| HLA-A*02:03 0.76 | 1 | 852 | 860 | 9 | AQKFNGLTV 0.216247 | |
| HLA-B*51:01 0.65 | 1 | 267 | 275 | 9 | VGYLQPRTF 0.215711 | |
| HLA-B*51:01 0.65 | 1 | 777 | 785 | 9 | NTQEVFAQV 0.21545 | |
| HLA-A*68:02 0.62 | 1 | 1096 | 1104 | 9 | VSNGTHWFV 0.215427 | |
| HLA-A*30:02 0.66 | 1 | 237 | 245 | 9 | RFQTLALH 0.215343 | |
| HLA-B*58:01 0.74 | 1 | 392 | 400 | 9 | FTNVYADSF 0.215247 | |
| HLA-B*15:01 0.88 | 1 | 267 | 275 | 9 | VGYLQPRTF 0.214971 | |
| HLA-B*15:01 0.88 | 1 | 19 | 28 | 10 | TTRTQLPPAY 0.214493 | |
| HLA-B*08:01 0.55 | 1 | 125 | 133 | 9 | NVVIKVECF 0.213752 | |
| HLA-B*57:01 | 1 | 34 | 43 | 10 | RGVYYPDKVF 0.213728 | 1.3 |
| HLA-A*02:01 0.75 | 1 | 135 | 143 | 9 | FCNDPFLGV 0.213279 | |
| HLA-A*11:01 0.85 | 1 | 1005 | 1014 | 10 | QTYVTQLIR 0.212998 | |

| | | | | | | |
|---------------------|---|------|------|----|----------------------|-----|
| HLA-B*15:01 0.88 | 1 | 1207 | 1215 | 9 | EQYIKWPWY 0.212731 | |
| HLA-A*30:01 0.71 | 1 | 158 | 166 | 9 | RVYSSANNC 0.212565 | |
| HLA-A*02:01 0.75 | 1 | 1095 | 1104 | 10 | FVSNNGTHWFV 0.211982 | |
| HLA-A*68:01 | 1 | 348 | 357 | 10 | ASVYAWNRRK 0.211798 | 1.6 |
| HLA-A*30:01 0.71 | 1 | 348 | 356 | 9 | ASVYAWNRRK 0.21166 | |
| HLA-A*01:01 0.52 | 1 | 109 | 117 | 9 | TLDSKTQSL 0.211014 | |
| HLA-A*26:01 0.35 | 1 | 691 | 699 | 9 | SIIAYTMSL 0.211013 | |
| HLA-B*51:01 0.66 | 1 | 410 | 418 | 9 | IAPGQTGKI 0.210862 | |
| HLA-B*53:01 0.41 | 1 | 1095 | 1103 | 9 | FVSNNGTHWF 0.210819 | |
| HLA-B*35:01 0.59 | 1 | 261 | 269 | 9 | GAAAYVGY 0.210757 | |
| HLA-A*02:01 0.76 | 1 | 999 | 1008 | 10 | GRLQSLQTYV 0.210728 | |
| HLA-A*30:01 0.71 | 1 | 1086 | 1094 | 9 | KAHFPREGV 0.210683 | |
| HLA-A*68:02 0.64 | 1 | 614 | 622 | 9 | DVNCTEVPV 0.21059 | |
| HLA-A*02:06 0.83 | 1 | 509 | 517 | 9 | RVVLSFEL 0.210443 | |
| HLA-A*30:02 0.68 | 1 | 78 | 86 | 9 | RFDNPVLPF 0.210261 | |
| HLA-A*26:01 0.36 | 1 | 1136 | 1145 | 10 | TVYDPLQPEL 0.210208 | |
| HLA-A*30:02 0.68 | 1 | 1263 | 1272 | 10 | PVLKGVKLHY 0.209979 | |
| HLA-A*02:06 0.84 | 1 | 326 | 335 | 10 | IVRFPNITNL 0.209813 | |
| HLA-B*57:01 | 1 | 828 | 837 | 10 | LADAGFIKQY 0.209187 | 1.3 |
| HLA-A*23:01 0.41 | 1 | 880 | 888 | 9 | GTITSGWTF 0.209008 | |
| HLA-A*30:01 0.72 | 1 | 1099 | 1107 | 9 | GTHWFVTQR 0.208918 | |
| HLA-A*02:03 0.78 | 1 | 1059 | 1068 | 10 | GVVFLHVTVV 0.208408 | |
| HLA-A*03:01 | 1 | 369 | 378 | 10 | YNSASFSTFK 0.20814 | 0.9 |
| HLA-A*24:02 0.47 | 1 | 1207 | 1216 | 10 | EQYIKWPWYI 0.208094 | |
| HLA-A*32:01 0.37 | 1 | 995 | 1004 | 10 | RLITGRLQSL 0.208067 | |
| HLA-B*53:01 0.41 | 1 | 604 | 612 | 9 | TSNQVAVLY 0.207735 | |
| HLA-A*32:01 0.37 | 1 | 894 | 902 | 9 | LQIPFAMQM 0.20736 | |
| HLA-B*58:01 0.76 | 1 | 892 | 900 | 9 | AALQIPFAM 0.207038 | |
| HLA-B*15:01 0.91 | 1 | 710 | 718 | 9 | NSIAIPTNF 0.206745 | |
| HLA-A*03:01 | 1 | 511 | 519 | 9 | VVLSFELLH 0.206719 | 0.9 |
| HLA-B*57:01 | 1 | 625 | 634 | 10 | HADQLTPTWR 0.206705 | 1.3 |
| HLA-A*30:02 0.69 | 1 | 864 | 873 | 10 | LLTDEMIAQY 0.206589 | |
| HLA-A*30:01 0.73 | 1 | 270 | 278 | 9 | LQPRTFLLK 0.206441 | |
| HLA-B*15:01 0.92 | 1 | 1129 | 1138 | 10 | VIGIVNNTVY 0.205713 | |
| HLA-B*44:02 0.48 | 1 | 987 | 996 | 10 | VEAEVQIDRL 0.205553 | |
| HLA-A*30:02 | 1 | 908 | 917 | 10 | GIGVTQNVLY 0.205272 | |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|
| 0.69 | | | | | | | |
| HLA-A*68:02 | 1 | 936 | 944 | 9 | DSLSSTASA | 0.204883 | |
| 0.65 | | | | | | | |
| HLA-A*26:01 | 1 | 1058 | 1067 | 10 | HGVVFLHVTY | 0.204445 | |
| 0.37 | | | | | | | |
| HLA-A*30:02 | 1 | 199 | 207 | 9 | GYFKIYSKH | 0.204439 | |
| 0.69 | | | | | | | |
| HLA-A*02:06 | 1 | 915 | 923 | 9 | VLYENQCLI | 0.204357 | |
| 0.86 | | | | | | | |
| HLA-A*33:01 | 1 | 58 | 66 | 9 | FFSNVTWFH | 0.203952 | 0.7 |
| HLA-A*02:06 | 1 | 515 | 524 | 10 | FELLHAPATV | 0.203836 | |
| 0.86 | | | | | | | |
| HLA-A*68:02 | 1 | 259 | 267 | 9 | TAGAAAYYV | 0.203706 | |
| 0.65 | | | | | | | |
| HLA-A*02:06 | 1 | 202 | 210 | 9 | KIYSKHTPI | 0.203623 | |
| 0.86 | | | | | | | |
| HLA-A*01:01 | 1 | 442 | 451 | 10 | DSKVGGNINY | 0.203161 | |
| 0.54 | | | | | | | |
| HLA-A*02:06 | 1 | 817 | 826 | 10 | FIEDLLFNKV | 0.203002 | |
| 0.86 | | | | | | | |
| HLA-B*57:01 | 1 | 722 | 731 | 10 | VTTEILPVSM | 0.202918 | 1.3 |
| HLA-B*57:01 | 1 | 1054 | 1063 | 10 | QSAPHGVVFL | 0.202516 | 1.3 |
| HLA-A*26:01 | 1 | 886 | 894 | 9 | WTFGAGAAL | 0.202454 | |
| 0.37 | | | | | | | |
| HLA-B*51:01 | 1 | 1005 | 1013 | 9 | QTYVTQQLI | 0.202 | |
| 0.69 | | | | | | | |
| HLA-B*57:01 | 1 | 392 | 400 | 9 | FTNVYADSF | 0.201961 | 1.3 |
| HLA-A*30:01 | 1 | 782 | 790 | 9 | FAQVKQIYK | 0.2013 | |
| 0.76 | | | | | | | |
| HLA-A*32:01 | 1 | 1059 | 1067 | 9 | GVVFLHVTY | 0.200689 | |
| 0.38 | | | | | | | |
| HLA-A*30:02 | 1 | 815 | 823 | 9 | RSFIEDLLF | 0.200354 | |
| 0.71 | | | | | | | |
| HLA-A*31:01 | 1 | 237 | 245 | 9 | RFQTLALH | 0.200056 | 1.2 |
| HLA-A*33:01 | 1 | 559 | 567 | 9 | FLPFQQFGR | 0.200014 | |
| 0.72 | | | | | | | |
| HLA-A*30:02 | 1 | 415 | 423 | 9 | TGKIADYNY | 0.199774 | |
| 0.71 | | | | | | | |
| HLA-A*68:02 | 1 | 634 | 642 | 9 | RVYSTGSNV | 0.19938 | |
| 0.66 | | | | | | | |
| HLA-B*08:01 | 1 | 679 | 687 | 9 | NSPRRARSV | 0.199214 | |
| 0.59 | | | | | | | |
| HLA-A*23:01 | 1 | 624 | 633 | 10 | IHADQLTPTW | 0.199039 | |
| 0.43 | | | | | | | |
| HLA-A*11:01 | 1 | 548 | 557 | 10 | GTGVLTESNK | 0.198931 | |
| 0.89 | | | | | | | |
| HLA-A*23:01 | 1 | 504 | 513 | 10 | GYQPYRVVVL | 0.198821 | |
| 0.43 | | | | | | | |
| HLA-A*30:01 | 1 | 370 | 378 | 9 | NSASFSTFK | 0.198744 | |
| 0.78 | | | | | | | |
| HLA-B*51:01 | 1 | 888 | 896 | 9 | FGAGAALQI | 0.198673 | 0.7 |
| HLA-A*68:01 | 1 | 802 | 811 | 10 | FSQILPDPSK | 0.198649 | 1.7 |
| HLA-A*24:02 | 1 | 47 | 55 | 9 | VLHSTQDLF | 0.198612 | 0.5 |
| HLA-A*26:01 | 1 | 192 | 201 | 10 | FVFKNIDGYF | 0.198429 | |
| 0.38 | | | | | | | |
| HLA-B*35:01 | 1 | 664 | 672 | 9 | IPIGAGICA | 0.197698 | |
| 0.62 | | | | | | | |
| HLA-A*24:02 | 1 | 1205 | 1214 | 10 | KYEQYIKWPW | 0.197668 | 0.5 |
| HLA-A*68:01 | 1 | 1011 | 1019 | 9 | QLIRAAEIR | 0.197606 | 1.7 |
| HLA-A*68:02 | 1 | 882 | 890 | 9 | ITSGWTFGA | 0.197207 | |
| 0.67 | | | | | | | |
| HLA-B*51:01 | 1 | 320 | 329 | 10 | VQPTESIVRF | 0.196932 | |
| 0.71 | | | | | | | |
| HLA-B*58:01 | 1 | 1086 | 1095 | 10 | KAHFPREGVF | 0.196857 | |
| 0.79 | | | | | | | |
| HLA-A*33:01 | 1 | 675 | 683 | 9 | QTQTNSPRR | 0.196825 | |

| | | | | | | | |
|-------------|---|------|------|----|---------------------|-----|--|
| 0.73 | | | | | | | |
| HLA-A*23:01 | 1 | 897 | 906 | 10 | PFAMQMAYRF 0.196799 | | |
| 0.43 | | | | | | | |
| HLA-A*02:01 | 1 | 1137 | 1145 | 9 | VYDPLQPEL 0.196623 | 0.8 | |
| HLA-A*03:01 | 1 | 348 | 357 | 10 | ASVYAWNRKR 0.196612 | | |
| 0.94 | | | | | | | |
| HLA-B*44:02 | 1 | 96 | 104 | 9 | EKSNIIRGW 0.196463 | | |
| 0.49 | | | | | | | |
| HLA-B*07:02 | 1 | 951 | 959 | 9 | VVNQNAQAL 0.19621 | | |
| 0.69 | | | | | | | |
| HLA-A*68:01 | 1 | 149 | 158 | 10 | NKSWMESEFR 0.196163 | 1.7 | |
| HLA-B*15:01 | 1 | 865 | 873 | 9 | LTDEMIAQY 0.196122 | | |
| 0.96 | | | | | | | |
| HLA-A*02:03 | 1 | 786 | 794 | 9 | KQIYKTPPI 0.195951 | | |
| 0.82 | | | | | | | |
| HLA-B*35:01 | 1 | 869 | 877 | 9 | MIAQYTSAL 0.195648 | | |
| 0.63 | | | | | | | |
| HLA-A*02:06 | 1 | 1047 | 1056 | 10 | YHLMSFPQSA 0.195517 | 0.9 | |
| HLA-A*02:06 | 1 | 964 | 972 | 9 | KQLSSNFGA 0.195068 | 0.9 | |
| HLA-A*68:02 | 1 | 712 | 720 | 9 | IAIPTNFTI 0.195022 | | |
| 0.67 | | | | | | | |
| HLA-B*15:01 | 1 | 369 | 377 | 9 | YNSASFSTF 0.194905 | | |
| 0.96 | | | | | | | |
| HLA-A*30:01 | 1 | 409 | 417 | 9 | QIAPGQTGK 0.194595 | 0.8 | |
| HLA-A*02:03 | 1 | 135 | 143 | 9 | FCNDPFLGV 0.194572 | | |
| 0.83 | | | | | | | |
| HLA-B*35:01 | 1 | 152 | 160 | 9 | WMESEFRVY 0.19415 | | |
| 0.63 | | | | | | | |
| HLA-B*07:02 | 1 | 679 | 688 | 10 | NSPRRARSVA 0.19404 | 0.7 | |
| HLA-A*02:06 | 1 | 713 | 722 | 10 | AIPTNFTISV 0.194004 | | |
| 0.91 | | | | | | | |
| HLA-B*08:01 | 1 | 979 | 987 | 9 | DILSRLDKV 0.193997 | | |
| 0.61 | | | | | | | |
| HLA-B*35:01 | 1 | 196 | 204 | 9 | NIDGYFKIY 0.19387 | | |
| 0.63 | | | | | | | |
| HLA-B*51:01 | 1 | 526 | 534 | 9 | GPKKSTNLV 0.193726 | | |
| 0.72 | | | | | | | |
| HLA-A*31:01 | 1 | 992 | 1000 | 9 | QIDRLITGR 0.193633 | 1.2 | |
| HLA-B*15:01 | 1 | 46 | 55 | 10 | SVLHSTQDLF 0.193555 | | |
| 0.97 | | | | | | | |
| HLA-A*30:02 | 1 | 747 | 756 | 10 | TECSNLLLQY 0.193478 | | |
| 0.73 | | | | | | | |
| HLA-B*44:02 | 1 | 1200 | 1209 | 10 | LQELGKYEQY 0.193472 | | |
| 0.49 | | | | | | | |
| HLA-A*02:06 | 1 | 1070 | 1078 | 9 | AQEKNFTTA 0.193274 | | |
| 0.91 | | | | | | | |
| HLA-A*02:03 | 1 | 915 | 924 | 10 | VLYENQKLIA 0.193144 | | |
| 0.84 | | | | | | | |
| HLA-B*40:01 | 1 | 779 | 788 | 10 | QEVFAQVKQI 0.192899 | | |
| 0.66 | | | | | | | |
| HLA-B*57:01 | 1 | 892 | 900 | 9 | AALQIPFAM 0.192898 | 1.4 | |
| HLA-A*68:02 | 1 | 955 | 963 | 9 | NAQALNTLV 0.192653 | | |
| 0.68 | | | | | | | |
| HLA-B*51:01 | 1 | 870 | 878 | 9 | IAQYTSALL 0.192242 | | |
| 0.72 | | | | | | | |
| HLA-A*68:01 | 1 | 925 | 933 | 9 | NQFNSAIGK 0.192236 | 1.7 | |
| HLA-B*40:01 | 1 | 772 | 781 | 10 | VEQDKNTQEV 0.192215 | | |
| 0.66 | | | | | | | |
| HLA-A*03:01 | 1 | 686 | 695 | 10 | SVASQSIIAY 0.192055 | | |
| 0.96 | | | | | | | |
| HLA-A*32:01 | 1 | 47 | 55 | 9 | VLHSTQDLF 0.191875 | | |
| 0.39 | | | | | | | |
| HLA-A*30:02 | 1 | 1130 | 1138 | 9 | IGIVNNTVY 0.19184 | | |
| 0.74 | | | | | | | |
| HLA-A*30:01 | 1 | 349 | 357 | 9 | SVYAWNRKR 0.191813 | | |
| 0.82 | | | | | | | |

| | | | | | | |
|---------------------|---|------|------|----|---------------------|-----|
| HLA-A*68:02 0.69 | 1 | 224 | 233 | 10 | EPLVDLPIGI 0.191635 | |
| HLA-B*57:01 | 1 | 709 | 718 | 10 | NNSIAIPTNF 0.191608 | 1.4 |
| HLA-B*08:01 0.61 | 1 | 108 | 117 | 10 | TTLDSKTQSL 0.191602 | |
| HLA-A*11:01 0.91 | 1 | 150 | 158 | 9 | KSWMESEFR 0.191498 | |
| HLA-B*35:01 0.64 | 1 | 360 | 369 | 10 | NCVADYSVLY 0.19139 | |
| HLA-B*07:02 0.71 | 1 | 808 | 817 | 10 | DPSKPSKRSF 0.191222 | |
| HLA-B*07:02 0.71 | 1 | 229 | 238 | 10 | LPIGINITRF 0.190649 | |
| HLA-A*68:01 | 1 | 104 | 113 | 10 | WIFGTTLDSK 0.190537 | 1.7 |
| HLA-A*01:01 0.56 | 1 | 239 | 248 | 10 | QTLLALHRYS 0.190415 | |
| HLA-B*07:02 0.71 | 1 | 1051 | 1060 | 10 | SFPQSAPHGV 0.190097 | |
| HLA-A*33:01 0.78 | 1 | 302 | 310 | 9 | TLKSFTVEK 0.190074 | |
| HLA-A*31:01 | 1 | 347 | 355 | 9 | FASVYAWNR 0.190001 | 1.3 |
| HLA-A*31:01 | 1 | 69 | 78 | 10 | HVSGTNGTKR 0.189901 | 1.3 |
| HLA-A*02:01 0.84 | 1 | 505 | 513 | 9 | YQPYRVVVL 0.189014 | |
| HLA-A*24:02 0.53 | 1 | 1100 | 1109 | 10 | THWFVTQRNF 0.18888 | |
| HLA-A*11:01 0.92 | 1 | 938 | 947 | 10 | LSSTASALGK 0.188487 | |
| HLA-A*02:06 0.93 | 1 | 1128 | 1136 | 9 | VVIGIVNNT 0.188236 | |
| HLA-B*40:01 0.66 | 1 | 618 | 626 | 9 | TEVPVAIHA 0.188235 | |
| HLA-A*30:02 0.75 | 1 | 305 | 313 | 9 | SFTVEKGIY 0.188151 | |
| HLA-A*02:03 0.86 | 1 | 999 | 1008 | 10 | GRLQSLQTYV 0.187932 | |
| HLA-A*30:01 0.84 | 1 | 372 | 380 | 9 | ASFSTFKCY 0.18759 | |
| HLA-B*57:01 | 1 | 1264 | 1272 | 9 | VLKGVKLHY 0.187444 | 1.4 |
| HLA-B*57:01 | 1 | 30 | 38 | 9 | NSFTRGVYY 0.187242 | 1.4 |
| HLA-A*03:01 0.97 | 1 | 757 | 765 | 9 | GSFCTQLNR 0.186897 | |
| HLA-A*33:01 0.79 | 1 | 1005 | 1014 | 10 | QTYVTQQLIR 0.186861 | |
| HLA-A*11:01 0.93 | 1 | 162 | 170 | 9 | SANNTCFEY 0.186796 | |
| HLA-A*30:01 0.84 | 1 | 725 | 733 | 9 | EILPVSMTK 0.186542 | |
| HLA-A*01:01 0.57 | 1 | 1200 | 1209 | 10 | LQELGKYEYQ 0.186536 | |
| HLA-A*01:01 0.57 | 1 | 699 | 707 | 9 | LGAENSVAY 0.186283 | |
| HLA-A*32:01 0.42 | 1 | 877 | 886 | 10 | LLAGTITSGW 0.185323 | |
| HLA-B*07:02 0.72 | 1 | 56 | 64 | 9 | LPFFSNVTW 0.185093 | |
| HLA-A*68:02 0.71 | 1 | 254 | 262 | 9 | SSSGWTAGA 0.185088 | |
| HLA-B*58:01 0.82 | 1 | 685 | 693 | 9 | RSVASQSII 0.184963 | |
| HLA-B*44:03 | 1 | 1201 | 1210 | 10 | QELGKYEYQI 0.184741 | 0.6 |
| HLA-B*07:02 0.72 | 1 | 271 | 279 | 9 | QPRTFLLKY 0.18463 | |
| HLA-B*51:01 0.75 | 1 | 38 | 46 | 9 | YDPKVFRRS 0.184508 | |
| HLA-A*23:01 | 1 | 167 | 175 | 9 | TFEYVSQPF 0.1845 | |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|
| 0.46 | | | | | | | |
| HLA-A*02:06 | 1 | 968 | 976 | 9 | SNFGAISSV | 0.184062 | |
| 0.96 | | | | | | | |
| HLA-A*03:01 | 1 | 677 | 685 | 9 | QTNSPRRAR | 0.184046 | |
| 0.99 | | | | | | | |
| HLA-A*31:01 | 1 | 378 | 386 | 9 | KCYGVSPTK | 0.183958 | 1.3 |
| HLA-B*15:01 | 1 | 951 | 959 | 9 | VVNQNAQAL | 0.183417 | 1.1 |
| HLA-A*33:01 | 1 | 458 | 466 | 9 | KSNLKPFER | 0.183276 | 0.8 |
| HLA-B*53:01 | 1 | 1212 | 1220 | 9 | WPWYIWLGF | 0.182966 | |
| 0.47 | | | | | | | |
| HLA-A*68:02 | 1 | 697 | 705 | 9 | MSLGAENSV | 0.182621 | |
| 0.72 | | | | | | | |
| HLA-A*23:01 | 1 | 267 | 275 | 9 | VGYLQPRTF | 0.181837 | |
| 0.47 | | | | | | | |
| HLA-A*31:01 | 1 | 781 | 790 | 10 | VFAQVKQIYK | 0.181682 | 1.3 |
| HLA-A*02:06 | 1 | 1175 | 1183 | 9 | SVVNIQKEI | 0.181525 | |
| 0.98 | | | | | | | |
| HLA-B*35:01 | 1 | 896 | 905 | 10 | IPFAMQMAYR | 0.181143 | |
| 0.67 | | | | | | | |
| HLA-A*30:02 | 1 | 486 | 495 | 10 | FNCYFPLQSY | 0.180909 | |
| 0.78 | | | | | | | |
| HLA-A*68:01 | 1 | 1196 | 1205 | 10 | SLIDLQELGK | 0.180509 | 1.8 |
| HLA-A*31:01 | 1 | 816 | 825 | 10 | SFIEDLLFNK | 0.180354 | 1.3 |
| HLA-A*26:01 | 1 | 940 | 948 | 9 | STASALGKL | 0.180285 | |
| 0.41 | | | | | | | |
| HLA-B*15:01 | 1 | 1147 | 1155 | 9 | SFKEELDKY | 0.180121 | 1.1 |
| HLA-B*15:01 | 1 | 1185 | 1193 | 9 | RLNEVAKNL | 0.180033 | 1.1 |
| HLA-A*01:01 | 1 | 464 | 473 | 10 | FERDISTEII | 0.180022 | |
| 0.59 | | | | | | | |
| HLA-A*68:02 | 1 | 627 | 635 | 9 | DQLTPTWRV | 0.179954 | |
| 0.73 | | | | | | | |
| HLA-B*35:01 | 1 | 50 | 58 | 9 | STQDLFLPF | 0.179468 | |
| 0.67 | | | | | | | |
| HLA-A*30:01 | 1 | 852 | 860 | 9 | AQKFNGLTV | 0.179251 | |
| 0.87 | | | | | | | |
| HLA-A*30:01 | 1 | 42 | 50 | 9 | VFRSSVLHS | 0.179247 | |
| 0.87 | | | | | | | |
| HLA-A*11:01 | 1 | 30 | 38 | 9 | NSFTRGVYY | 0.178951 | |
| 0.96 | | | | | | | |
| HLA-A*30:02 | 1 | 780 | 789 | 10 | EVFAQVKQIY | 0.178935 | |
| 0.79 | | | | | | | |
| HLA-B*08:01 | 1 | 109 | 118 | 10 | TLDSKTQSLI | 0.178858 | |
| 0.66 | | | | | | | |
| HLA-B*44:02 | 1 | 1206 | 1215 | 10 | YEQYIKWPWY | 0.178832 | |
| 0.52 | | | | | | | |
| HLA-A*11:01 | 1 | 845 | 854 | 10 | AARDLICAQK | 0.17806 | |
| 0.96 | | | | | | | |
| HLA-A*30:01 | 1 | 903 | 911 | 9 | AYRFNGIGV | 0.177857 | |
| 0.88 | | | | | | | |
| HLA-B*15:01 | 1 | 162 | 170 | 9 | SANNCTFEY | 0.177855 | 1.1 |
| HLA-A*32:01 | 1 | 628 | 636 | 9 | QLTPTWRVY | 0.177798 | |
| 0.43 | | | | | | | |
| HLA-B*51:01 | 1 | 627 | 635 | 9 | DQLTPTWRV | 0.17779 | |
| 0.79 | | | | | | | |
| HLA-A*30:02 | 1 | 1050 | 1058 | 9 | MSFPQSAPH | 0.17776 | |
| 0.79 | | | | | | | |
| HLA-A*32:01 | 1 | 962 | 970 | 9 | LVKQLSSNF | 0.177684 | |
| 0.43 | | | | | | | |
| HLA-B*15:01 | 1 | 357 | 365 | 9 | RISNCVADY | 0.177421 | 1.1 |
| HLA-B*44:02 | 1 | 774 | 782 | 9 | QDKNTQEVF | 0.17733 | |
| 0.53 | | | | | | | |
| HLA-B*08:01 | 1 | 186 | 194 | 9 | FKNLREFVF | 0.177303 | |
| 0.66 | | | | | | | |
| HLA-A*26:01 | 1 | 196 | 204 | 9 | NIDGYFKIY | 0.177232 | |
| 0.42 | | | | | | | |
| HLA-A*30:02 | 1 | 1102 | 1110 | 9 | WFVTQRNFY | 0.177039 | 0.8 |

| | | | | | | |
|---------------------|---|------|------|----|---------------------|-----|
| HLA-B*07:02 0.75 | 1 | 329 | 338 | 10 | FPNITNLCPF 0.17679 | |
| HLA-A*68:02 0.74 | 1 | 204 | 213 | 10 | YSKHTPINLV 0.176583 | |
| HLA-A*30:02 | 1 | 497 | 505 | 9 | FQPTNGVGY 0.17655 | 0.8 |
| HLA-A*02:01 0.91 | 1 | 869 | 877 | 9 | MIAQYTSAL 0.176384 | |
| HLA-A*68:01 | 1 | 1172 | 1181 | 10 | INASVVNIQK 0.176047 | 1.8 |
| HLA-A*68:02 0.74 | 1 | 607 | 615 | 9 | QVAVLYQDV 0.176045 | |
| HLA-A*30:01 0.88 | 1 | 1060 | 1068 | 9 | VVFLHVTVY 0.175828 | |
| HLA-A*02:01 0.91 | 1 | 982 | 991 | 10 | SRLDKVEAEV 0.175298 | |
| HLA-A*32:01 0.44 | 1 | 345 | 353 | 9 | TRFASVYAW 0.175242 | |
| HLA-A*30:01 0.89 | 1 | 781 | 790 | 10 | VFAQVKQIYK 0.17505 | |
| HLA-B*40:01 | 1 | 1201 | 1209 | 9 | QELGKYEYQ 0.174746 | 0.7 |
| HLA-B*51:01 | 1 | 221 | 229 | 9 | SALEPLVDL 0.174634 | 0.8 |
| HLA-A*30:02 0.81 | 1 | 499 | 508 | 10 | PTNGVGYQPY 0.174336 | |
| HLA-B*51:01 | 1 | 83 | 92 | 10 | VLPFNDGVYF 0.173919 | 0.8 |
| HLA-B*58:01 0.86 | 1 | 634 | 643 | 10 | RVYSTGSNVF 0.173908 | |
| HLA-B*57:01 | 1 | 1096 | 1104 | 9 | VSNQTHWFV 0.173618 | 1.4 |
| HLA-A*02:01 0.91 | 1 | 944 | 952 | 9 | ALGKLQDVV 0.173341 | |
| HLA-A*68:02 0.75 | 1 | 121 | 130 | 10 | NNATNVVIKV 0.173319 | |
| HLA-B*57:01 | 1 | 371 | 380 | 10 | SASFSTFKCY 0.173262 | 1.4 |
| HLA-A*23:01 0.49 | 1 | 77 | 86 | 10 | KRFDNPVLPF 0.172932 | |
| HLA-B*35:01 0.68 | 1 | 212 | 220 | 9 | LVRDLPQGF 0.172692 | |
| HLA-B*07:02 0.77 | 1 | 1137 | 1145 | 9 | VYDPLQPEL 0.17267 | |
| HLA-B*35:01 0.68 | 1 | 1050 | 1058 | 9 | MSFPQSAPH 0.172413 | |
| HLA-A*32:01 0.44 | 1 | 689 | 697 | 9 | SQSIIAYTM 0.172387 | |
| HLA-A*02:01 0.92 | 1 | 786 | 794 | 9 | KQIYKTPPI 0.171701 | |
| HLA-B*58:01 0.87 | 1 | 1095 | 1103 | 9 | FVSNQTHWF 0.171624 | |
| HLA-A*32:01 0.44 | 1 | 915 | 923 | 9 | VLYENQKLI 0.171258 | |
| HLA-A*30:02 0.83 | 1 | 1054 | 1062 | 9 | QSAPHGVVF 0.170505 | |
| HLA-A*26:01 0.44 | 1 | 261 | 269 | 9 | GAAAYVGY 0.17041 | |
| HLA-A*30:02 0.83 | 1 | 260 | 269 | 10 | AGAAAYVGY 0.170264 | |
| HLA-A*68:01 | 1 | 955 | 964 | 10 | NAQALNTLVK 0.170247 | 1.9 |
| HLA-A*30:01 0.92 | 1 | 683 | 692 | 10 | RARSVASQSI 0.169968 | |
| HLA-B*53:01 | 1 | 865 | 873 | 9 | LTDEMIAQY 0.169613 | 0.5 |
| HLA-A*32:01 0.44 | 1 | 879 | 888 | 10 | AGTITSGWTF 0.169346 | |
| HLA-A*30:02 0.83 | 1 | 440 | 449 | 10 | NLDSKVGGNY 0.169114 | |
| HLA-B*08:01 | 1 | 951 | 959 | 9 | VVNQNAQAL 0.16908 | 0.7 |
| HLA-A*26:01 0.44 | 1 | 1113 | 1121 | 9 | QIITDNTF 0.168827 | |
| HLA-B*53:01 | 1 | 1094 | 1102 | 9 | VFVSNQTHW 0.168595 | 0.5 |
| HLA-A*23:01 | 1 | 47 | 55 | 9 | VLHSTQDLF 0.168296 | |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|
| 0.51 | | | | | | | |
| HLA-A*30:01 | 1 | 1154 | 1162 | 9 | KYFKNHTSP | 0.16826 | |
| 0.93 | | | | | | | |
| HLA-A*23:01 | 1 | 504 | 512 | 9 | GYQPYRVVV | 0.168123 | |
| 0.51 | | | | | | | |
| HLA-B*57:01 | 1 | 19 | 28 | 10 | TTRTQLPPAY | 0.168037 | 1.5 |
| HLA-A*30:02 | 1 | 257 | 265 | 9 | GWTAGAAAY | 0.168007 | |
| 0.84 | | | | | | | |
| HLA-B*15:01 | 1 | 304 | 313 | 10 | KSFTVEKGIY | 0.167617 | 1.1 |
| HLA-A*31:01 | 1 | 238 | 246 | 9 | FQTLALHR | 0.167265 | 1.4 |
| HLA-B*15:01 | 1 | 652 | 660 | 9 | GAEHVNNNSY | 0.166925 | 1.1 |
| HLA-B*35:01 | 1 | 383 | 392 | 10 | SPTKLNLCF | 0.166671 | 0.7 |
| HLA-B*58:01 | 1 | 718 | 726 | 9 | FTISVTTEI | 0.166326 | |
| 0.89 | | | | | | | |
| HLA-B*44:02 | 1 | 988 | 997 | 10 | EAEVQIDRLI | 0.166126 | |
| 0.54 | | | | | | | |
| HLA-A*23:01 | 1 | 506 | 515 | 10 | QPYRVVLSF | 0.166085 | |
| 0.51 | | | | | | | |
| HLA-A*30:02 | 1 | 136 | 144 | 9 | CNDPFLGVY | 0.166053 | |
| 0.85 | | | | | | | |
| HLA-B*15:01 | 1 | 895 | 904 | 10 | QIPFAMQMAY | 0.166019 | 1.1 |
| HLA-B*07:02 | 1 | 861 | 869 | 9 | LPPLTDEM | 0.165864 | |
| 0.79 | | | | | | | |
| HLA-A*68:01 | 1 | 310 | 319 | 10 | KGIYQTSNFR | 0.165845 | 1.9 |
| HLA-A*68:02 | 1 | 417 | 425 | 9 | KIADYNYKL | 0.165604 | |
| 0.78 | | | | | | | |
| HLA-A*68:01 | 1 | 549 | 558 | 10 | TGVLTESNKK | 0.165518 | 1.9 |
| HLA-A*32:01 | 1 | 958 | 966 | 9 | ALNTLVKQL | 0.165467 | |
| 0.46 | | | | | | | |
| HLA-A*32:01 | 1 | 1005 | 1013 | 9 | QTYVTQLI | 0.1653 | |
| 0.46 | | | | | | | |
| HLA-A*02:06 | 1 | 1096 | 1104 | 9 | VSNQTHWFV | 0.165292 | 1.1 |
| HLA-B*44:03 | 1 | 155 | 163 | 9 | SEFRVYSSA | 0.165115 | |
| 0.64 | | | | | | | |
| HLA-A*32:01 | 1 | 266 | 275 | 10 | YVGYLQPRTF | 0.164944 | |
| 0.46 | | | | | | | |
| HLA-A*02:06 | 1 | 1055 | 1063 | 9 | SAPHGVVFL | 0.164897 | 1.1 |
| HLA-A*01:01 | 1 | 829 | 837 | 9 | ADAGFIKQY | 0.164713 | |
| 0.64 | | | | | | | |
| HLA-A*02:01 | 1 | 634 | 642 | 9 | RVYSTGSNV | 0.164307 | |
| 0.97 | | | | | | | |
| HLA-A*68:01 | 1 | 306 | 314 | 9 | FTVEKGIYQ | 0.164299 | 1.9 |
| HLA-B*08:01 | 1 | 1261 | 1270 | 10 | SEPVKGVKL | 0.164286 | |
| 0.71 | | | | | | | |
| HLA-A*30:02 | 1 | 1038 | 1047 | 10 | KRVDFCGKGY | 0.164172 | |
| 0.86 | | | | | | | |
| HLA-B*15:01 | 1 | 310 | 318 | 9 | KGIYQTSNF | 0.164089 | 1.1 |
| HLA-A*33:01 | 1 | 1031 | 1039 | 9 | ECVLGQSKR | 0.16402 | |
| 0.88 | | | | | | | |
| HLA-A*03:01 | 1 | 782 | 790 | 9 | FAQVKQIYK | 0.163864 | 1.1 |
| HLA-B*57:01 | 1 | 29 | 38 | 10 | TNSFTRGVVY | 0.163644 | 1.5 |
| HLA-B*44:03 | 1 | 168 | 176 | 9 | FEYVSQPFL | 0.163636 | |
| 0.64 | | | | | | | |
| HLA-A*30:01 | 1 | 925 | 933 | 9 | NQFNSAIGK | 0.163623 | |
| 0.96 | | | | | | | |
| HLA-A*01:01 | 1 | 747 | 756 | 10 | TECSNLLQY | 0.163546 | |
| 0.64 | | | | | | | |
| HLA-A*23:01 | 1 | 1205 | 1214 | 10 | KYEYIKWPW | 0.163374 | |
| 0.52 | | | | | | | |
| HLA-B*57:01 | 1 | 166 | 175 | 10 | CTFEYVSQPF | 0.163322 | 1.5 |
| HLA-A*02:06 | 1 | 51 | 59 | 9 | TQDLFLPFF | 0.163301 | 1.1 |
| HLA-A*23:01 | 1 | 350 | 358 | 9 | VYAWNRKRI | 0.163273 | |
| 0.52 | | | | | | | |
| HLA-A*30:01 | 1 | 786 | 794 | 9 | KQIYKTPPI | 0.16302 | |
| 0.96 | | | | | | | |
| HLA-B*07:02 | 1 | 1089 | 1097 | 9 | FPREGVFVS | 0.162985 | 0.8 |

| | | | | | | |
|---------------------|---|------|------|----|----------------------|-----|
| HLA-A*11:01 | 1 | 986 | 995 | 10 | KVEAEVQIDR 0.162906 | 1.1 |
| HLA-A*26:01 0.45 | 1 | 777 | 785 | 9 | NTQEVFAQV 0.162889 | |
| HLA-A*32:01 0.46 | 1 | 712 | 720 | 9 | IAIPTNFTI 0.162816 | |
| HLA-A*24:02 | 1 | 880 | 888 | 9 | GTITSGWTF 0.162749 | 0.6 |
| HLA-A*24:02 | 1 | 378 | 387 | 10 | KCYGVSPTKL 0.162651 | 0.6 |
| HLA-B*58:01 0.91 | 1 | 1096 | 1104 | 9 | VSNGTHWFV 0.162543 | |
| HLA-A*30:02 0.86 | 1 | 1201 | 1209 | 9 | QELGKYEQY 0.162424 | |
| HLA-A*32:01 0.46 | 1 | 1060 | 1068 | 9 | VVFLHVTVY 0.162221 | |
| HLA-A*02:01 0.97 | 1 | 202 | 210 | 9 | KIYSKHTPI 0.161841 | |
| HLA-A*24:02 | 1 | 898 | 906 | 9 | FAMQMAYRF 0.161613 | 0.6 |
| HLA-B*07:02 0.81 | 1 | 683 | 692 | 10 | RARSVASQSI 0.161579 | |
| HLA-A*26:01 0.46 | 1 | 211 | 220 | 10 | NLVRDLPQGF 0.161478 | |
| HLA-A*31:01 | 1 | 206 | 214 | 9 | KHTPINLVR 0.161477 | 1.4 |
| HLA-A*26:01 0.46 | 1 | 1188 | 1197 | 10 | EVAKNLNESL 0.161403 | |
| HLA-B*58:01 0.92 | 1 | 162 | 170 | 9 | SANCTFEY 0.161339 | |
| HLA-A*30:02 0.86 | 1 | 343 | 351 | 9 | NATRFASVY 0.161119 | |
| HLA-A*68:02 | 1 | 306 | 315 | 10 | FTVEKGIYQT 0.161128 | 0.8 |
| HLA-A*02:06 | 1 | 584 | 592 | 9 | ILDITPCSF 0.16101 | 1.1 |
| HLA-A*31:01 | 1 | 36 | 45 | 10 | VYYPDKVFERS 0.160927 | 1.4 |
| HLA-A*30:02 0.87 | 1 | 50 | 58 | 9 | STQDLFLPF 0.160754 | |
| HLA-A*02:03 0.99 | 1 | 118 | 126 | 9 | LIVNNATNV 0.160333 | |
| HLA-A*23:01 0.53 | 1 | 50 | 58 | 9 | STQDLFLPF 0.160105 | |
| HLA-B*15:01 | 1 | 733 | 741 | 9 | KTSVDCTMY 0.159738 | 1.2 |
| HLA-A*30:02 0.87 | 1 | 414 | 423 | 10 | QTGKIADYNY 0.15935 | |
| HLA-A*24:02 0.61 | 1 | 624 | 633 | 10 | IHADQLTPTW 0.159035 | |
| HLA-A*24:02 0.62 | 1 | 897 | 906 | 10 | PFAMQMAYRF 0.15877 | |
| HLA-A*68:02 0.81 | 1 | 711 | 720 | 10 | SIAIPTNFTI 0.158742 | |
| HLA-B*51:01 0.88 | 1 | 294 | 303 | 10 | DPLSETKCTL 0.158238 | |
| HLA-A*02:06 | 1 | 118 | 126 | 9 | LIVNNATNV 0.15814 | 1.1 |
| HLA-A*26:01 0.47 | 1 | 343 | 351 | 9 | NATRFASVY 0.157811 | |
| HLA-B*51:01 0.89 | 1 | 425 | 434 | 10 | LPDDFTGCVI 0.157664 | |
| HLA-A*68:01 | 1 | 348 | 356 | 9 | ASVYAWNRK 0.157625 | 2.0 |
| HLA-A*26:01 0.47 | 1 | 698 | 707 | 10 | SLGAENSVAIY 0.157435 | |
| HLA-A*02:01 0.99 | 1 | 894 | 902 | 9 | LQIPFAMQM 0.157345 | |
| HLA-B*15:01 | 1 | 408 | 416 | 9 | RQIAPGQTG 0.157275 | 1.2 |
| HLA-B*08:01 0.75 | 1 | 324 | 332 | 9 | ESIVRFPNI 0.157242 | |
| HLA-A*01:01 0.65 | 1 | 387 | 396 | 10 | LNDLCFTNVY 0.156869 | |
| HLA-B*15:01 | 1 | 780 | 789 | 10 | EVFAQVKQIY 0.156419 | 1.2 |
| HLA-B*35:01 0.75 | 1 | 229 | 237 | 9 | LPIGINITR 0.156186 | |
| HLA-B*35:01 | 1 | 780 | 789 | 10 | EVFAQVKQIY 0.156066 | |

| | | | | | | | |
|-------------|---|------|------|----|-------------|----------|-----|
| 0.75 | | | | | | | |
| HLA-A*02:06 | 1 | 886 | 894 | 9 | WTFGAGAAL | 0.155965 | 1.2 |
| HLA-A*68:02 | 1 | 686 | 694 | 9 | SVASQSIIA | 0.155853 | |
| 0.82 | | | | | | | |
| HLA-B*35:01 | 1 | 806 | 814 | 9 | LPDPSKPSK | 0.155691 | |
| 0.75 | | | | | | | |
| HLA-B*57:01 | 1 | 46 | 55 | 10 | SVLHSTQDLF | 0.155609 | 1.5 |
| HLA-B*07:02 | 1 | 806 | 814 | 9 | LPDPSKPSK | 0.155359 | |
| 0.83 | | | | | | | |
| HLA-A*68:01 | 1 | 93 | 102 | 10 | ASTEKSNIIR | 0.155341 | 2.0 |
| HLA-A*02:03 | 1 | 1128 | 1137 | 10 | VVIGIVNNTV | 0.155171 | 1.1 |
| HLA-A*68:01 | 1 | 458 | 466 | 9 | KSNLKPFFER | 0.154993 | 2.0 |
| HLA-B*57:01 | 1 | 345 | 353 | 9 | TRFASVYAW | 0.15498 | 1.5 |
| HLA-A*30:02 | 1 | 1207 | 1215 | 9 | EQYIKWPWY | 0.15492 | 0.9 |
| HLA-A*26:01 | 1 | 19 | 28 | 10 | TRRTQLPPAY | 0.154691 | |
| 0.48 | | | | | | | |
| HLA-B*53:01 | 1 | 192 | 200 | 9 | FVFKNIDGY | 0.15465 | |
| 0.53 | | | | | | | |
| HLA-B*15:01 | 1 | 239 | 248 | 10 | QTLLALHRSY | 0.154646 | 1.2 |
| HLA-A*02:06 | 1 | 922 | 930 | 9 | LIANQFNNSA | 0.154605 | 1.2 |
| HLA-A*68:02 | 1 | 902 | 911 | 10 | MAYRFNGIGV | 0.154485 | |
| 0.82 | | | | | | | |
| HLA-A*01:01 | 1 | 1264 | 1272 | 9 | VLKGVKLHY | 0.154394 | |
| 0.67 | | | | | | | |
| HLA-A*30:01 | 1 | 319 | 327 | 9 | RVQPTESIV | 0.153865 | 1.1 |
| HLA-B*58:01 | 1 | 345 | 353 | 9 | TRFASVYAW | 0.153827 | |
| 0.95 | | | | | | | |
| HLA-B*08:01 | 1 | 919 | 927 | 9 | NQKLIANQF | 0.153602 | |
| 0.76 | | | | | | | |
| HLA-A*26:01 | 1 | 1264 | 1272 | 9 | VLKGVKLHY | 0.153447 | |
| 0.48 | | | | | | | |
| HLA-B*57:01 | 1 | 685 | 693 | 9 | RSVASQSII | 0.153385 | 1.6 |
| HLA-B*51:01 | 1 | 588 | 597 | 10 | TPCSFGGVSU | 0.15307 | |
| 0.91 | | | | | | | |
| HLA-A*30:01 | 1 | 805 | 814 | 10 | ILPDPSPKPSK | 0.15258 | 1.1 |
| HLA-A*02:03 | 1 | 713 | 722 | 10 | AIPTNFTISV | 0.152536 | 1.1 |
| HLA-A*33:01 | 1 | 69 | 78 | 10 | HVSGTNGTKR | 0.152515 | |
| 0.93 | | | | | | | |
| HLA-B*57:01 | 1 | 150 | 159 | 10 | KSWMSEFRV | 0.152447 | 1.6 |
| HLA-A*33:01 | 1 | 311 | 319 | 9 | GIYQTSNFR | 0.152359 | |
| 0.93 | | | | | | | |
| HLA-A*30:02 | 1 | 627 | 636 | 10 | DQLTPTWRVY | 0.152283 | |
| 0.91 | | | | | | | |
| HLA-A*02:06 | 1 | 754 | 763 | 10 | LQYGSFCTQL | 0.152248 | 1.2 |
| HLA-A*32:01 | 1 | 1000 | 1008 | 9 | RLQSLQTYV | 0.151972 | |
| 0.49 | | | | | | | |
| HLA-A*02:06 | 1 | 776 | 785 | 10 | KNTQEVFAQV | 0.151948 | 1.2 |
| HLA-B*44:02 | 1 | 1201 | 1210 | 10 | QELGKYEQYI | 0.151916 | |
| 0.57 | | | | | | | |
| HLA-A*02:06 | 1 | 444 | 452 | 9 | KVGGNYNYL | 0.151237 | 1.2 |
| HLA-B*58:01 | 1 | 204 | 212 | 9 | YSKHTPINL | 0.150859 | |
| 0.97 | | | | | | | |
| HLA-A*68:02 | 1 | 215 | 223 | 9 | DLPQGFSAI | 0.150618 | |
| 0.84 | | | | | | | |
| HLA-B*08:01 | 1 | 642 | 650 | 9 | VFQTRAGCL | 0.150601 | |
| 0.77 | | | | | | | |
| HLA-A*68:02 | 1 | 437 | 445 | 9 | NSNNLDSKV | 0.150579 | |
| 0.84 | | | | | | | |
| HLA-A*30:01 | 1 | 301 | 310 | 10 | CTLKSFTVEK | 0.150541 | 1.1 |
| HLA-A*02:03 | 1 | 119 | 127 | 9 | IVNNATNVV | 0.150496 | 1.1 |
| HLA-B*35:01 | 1 | 135 | 144 | 10 | FCNDPFLGVY | 0.150274 | |
| 0.77 | | | | | | | |
| HLA-A*31:01 | 1 | 408 | 417 | 10 | RQIAPGQTGK | 0.150179 | 1.5 |
| HLA-A*33:01 | 1 | 992 | 1000 | 9 | QIDRLITGR | 0.150132 | |
| 0.95 | | | | | | | |
| HLA-A*02:06 | 1 | 1171 | 1179 | 9 | GINASVVNI | 0.150026 | 1.2 |

| | | | | | | |
|---------------------|---|------|------|----|---------------------|-----|
| HLA-B*08:01 0.78 | 1 | 850 | 858 | 9 | ICAQKFNGL 0.149955 | |
| HLA-A*31:01 | 1 | 674 | 682 | 9 | YQTQTNSPR 0.149794 | 1.5 |
| HLA-B*53:01 0.55 | 1 | 1052 | 1061 | 10 | FPQSAPHGVV 0.149617 | |
| HLA-B*57:01 | 1 | 718 | 726 | 9 | FTISVTTEI 0.149404 | 1.6 |
| HLA-B*15:01 | 1 | 135 | 144 | 10 | FCNDPFLGVY 0.149331 | 1.2 |
| HLA-A*02:03 | 1 | 972 | 980 | 9 | AISSVLNDI 0.149198 | 1.1 |
| HLA-A*30:01 | 1 | 724 | 733 | 10 | TEILPVSMTK 0.14908 | 1.1 |
| HLA-A*02:01 | 1 | 1144 | 1152 | 9 | ELDSFKEEL 0.14897 | 1.1 |
| HLA-B*15:01 | 1 | 1058 | 1067 | 10 | HGVVFLHVTY 0.148881 | 1.2 |
| HLA-A*24:02 0.65 | 1 | 77 | 86 | 10 | KRFDNPVLPF 0.148604 | |
| HLA-B*15:01 | 1 | 995 | 1004 | 10 | RLITGRLQSL 0.14856 | 1.2 |
| HLA-B*57:01 | 1 | 414 | 423 | 10 | QTGKIADYNY 0.148306 | 1.6 |
| HLA-A*68:01 | 1 | 395 | 403 | 9 | VYADSFVIR 0.147925 | 2.0 |
| HLA-A*68:01 | 1 | 500 | 509 | 10 | TNGVGYQPYR 0.147921 | 2.0 |
| HLA-A*68:01 | 1 | 1077 | 1086 | 10 | TAPAICHGDK 0.147829 | 2.0 |
| HLA-A*32:01 0.51 | 1 | 710 | 718 | 9 | NSIAIPTNF 0.147604 | |
| HLA-A*01:01 0.69 | 1 | 392 | 400 | 9 | FTNVYADSF 0.147399 | |
| HLA-A*30:02 0.94 | 1 | 634 | 642 | 9 | RVYSTGSNV 0.147255 | |
| HLA-A*68:02 0.85 | 1 | 873 | 881 | 9 | YTSALLAGT 0.147206 | |
| HLA-B*58:01 0.99 | 1 | 171 | 179 | 9 | VSQPFLMDL 0.147022 | |
| HLA-B*15:01 | 1 | 937 | 945 | 9 | SLSSTASAL 0.146781 | 1.3 |
| HLA-B*51:01 0.96 | 1 | 1056 | 1065 | 10 | APHGVVFLHV 0.146766 | |
| HLA-B*08:01 0.79 | 1 | 1144 | 1152 | 9 | ELDSFKEEL 0.146731 | |
| HLA-B*07:02 0.87 | 1 | 713 | 722 | 10 | AIPTNFTISV 0.146567 | |
| HLA-A*68:02 0.86 | 1 | 234 | 242 | 9 | NITRFQTL 0.14654 | |
| HLA-A*26:01 0.51 | 1 | 869 | 877 | 9 | MIAQYTSAL 0.146479 | |
| HLA-A*33:01 0.97 | 1 | 237 | 246 | 10 | RFQTLALHR 0.146453 | |
| HLA-A*30:02 0.95 | 1 | 1129 | 1138 | 10 | VIGIVNNTVY 0.14624 | |
| HLA-A*30:01 | 1 | 269 | 278 | 10 | YLQPRTFLLK 0.146061 | 1.1 |
| HLA-B*15:01 | 1 | 998 | 1007 | 10 | TGRLQSLQTY 0.146055 | 1.3 |
| HLA-A*02:01 | 1 | 893 | 902 | 10 | ALQIPFAMQM 0.146048 | 1.1 |
| HLA-B*08:01 | 1 | 1048 | 1056 | 9 | HLMSFPQSA 0.145883 | 0.8 |
| HLA-B*44:03 0.67 | 1 | 774 | 782 | 9 | QDKNTQEVF 0.14572 | |
| HLA-A*24:02 0.66 | 1 | 369 | 377 | 9 | YNSASFSTF 0.145719 | |
| HLA-A*01:01 | 1 | 151 | 160 | 10 | SWMESEFRVY 0.145664 | 0.7 |
| HLA-B*07:02 0.87 | 1 | 326 | 335 | 10 | IVRFPNITNL 0.14564 | |
| HLA-A*24:02 0.66 | 1 | 420 | 429 | 10 | DYNYKLPDDF 0.145626 | |
| HLA-A*30:01 | 1 | 193 | 202 | 10 | VFKNIDGYFK 0.145542 | 1.1 |
| HLA-B*58:01 0.99 | 1 | 1137 | 1145 | 9 | VYDPLQPEL 0.145425 | |
| HLA-A*68:02 0.86 | 1 | 950 | 959 | 10 | DVVNQNAQAL 0.145076 | |
| HLA-A*31:01 | 1 | 187 | 195 | 9 | KNLREFVFK 0.144859 | 1.6 |
| HLA-A*26:01 0.51 | 1 | 321 | 329 | 9 | QPTESIVRF 0.144755 | |
| HLA-A*26:01 0.51 | 1 | 880 | 888 | 9 | GTITSGWTF 0.144614 | |

| | | | | | | |
|---------------------|---|------|------|----|---------------------|-----|
| HLA-A*02:03 | 1 | 1007 | 1015 | 9 | YVTQQLIRA 0.144564 | 1.1 |
| HLA-B*08:01 0.81 | 1 | 1010 | 1018 | 9 | QLLIRAAEI 0.144558 | |
| HLA-A*03:01 | 1 | 88 | 97 | 10 | DGVYFASTEK 0.144462 | 1.2 |
| HLA-B*57:01 | 1 | 628 | 636 | 9 | QLTPTWRVY 0.144035 | 1.6 |
| HLA-A*32:01 0.53 | 1 | 557 | 565 | 9 | KKFLPFQFQ 0.144021 | |
| HLA-A*02:03 | 1 | 901 | 909 | 9 | QMAYRFNGI 0.143578 | 1.1 |
| HLA-A*24:02 0.67 | 1 | 151 | 159 | 9 | SWMESEFRV 0.143557 | |
| HLA-B*51:01 0.98 | 1 | 711 | 720 | 10 | SIAIPTNFTI 0.143537 | |
| HLA-B*07:02 0.88 | 1 | 38 | 46 | 9 | YDPKVFRSS 0.143487 | |
| HLA-A*26:01 0.52 | 1 | 271 | 279 | 9 | QPRTFLLKY 0.143437 | |
| HLA-B*35:01 0.81 | 1 | 369 | 377 | 9 | YNSASFSTF 0.143158 | |
| HLA-B*53:01 0.57 | 1 | 84 | 93 | 10 | LPFNDGVYFA 0.143023 | |
| HLA-A*68:01 | 1 | 1182 | 1191 | 10 | EIDRLNEVAK 0.143001 | 2.1 |
| HLA-A*02:06 | 1 | 718 | 727 | 10 | FTISVTTEIL 0.142881 | 1.2 |
| HLA-B*44:03 0.68 | 1 | 1015 | 1024 | 10 | AAEIRASANL 0.142807 | |
| HLA-A*03:01 | 1 | 291 | 300 | 10 | CALDPLSETK 0.142644 | 1.2 |
| HLA-A*02:03 | 1 | 117 | 126 | 10 | LLIVNNATNV 0.142291 | 1.1 |
| HLA-B*15:01 | 1 | 909 | 917 | 9 | IGVTQNVLY 0.142148 | 1.3 |
| HLA-B*53:01 0.58 | 1 | 343 | 351 | 9 | NATRFASVY 0.14192 | |
| HLA-A*68:02 0.88 | 1 | 204 | 212 | 9 | YSKHTPINL 0.141698 | |
| HLA-A*02:03 | 1 | 109 | 118 | 10 | TLDSKTQSLI 0.141482 | 1.1 |
| HLA-A*02:06 | 1 | 1129 | 1137 | 9 | VIGIVNNTV 0.141087 | 1.3 |
| HLA-A*11:01 | 1 | 802 | 811 | 10 | FSQILPDPSK 0.140845 | 1.2 |
| HLA-B*35:01 0.82 | 1 | 584 | 592 | 9 | ILDITPCSF 0.140681 | |
| HLA-A*02:06 | 1 | 1114 | 1122 | 9 | IITTDNTFV 0.140494 | 1.3 |
| HLA-B*15:01 | 1 | 1086 | 1095 | 10 | KAHFPREGVF 0.140429 | 1.3 |
| HLA-B*51:01 0.99 | 1 | 394 | 402 | 9 | NVYADSFVI 0.140251 | |
| HLA-A*23:01 0.59 | 1 | 1136 | 1145 | 10 | TVYDPLQPEL 0.140073 | |
| HLA-B*15:01 | 1 | 976 | 984 | 9 | VLNDILSRL 0.13983 | 1.3 |
| HLA-B*15:01 | 1 | 211 | 220 | 10 | NLVRDLPQGF 0.139521 | 1.3 |
| HLA-B*07:02 0.89 | 1 | 896 | 904 | 9 | IPFAMQMAY 0.13949 | |
| HLA-B*58:01 | 1 | 212 | 220 | 9 | LVRDLPQGF 0.139309 | 1.1 |
| HLA-B*15:01 | 1 | 1263 | 1272 | 10 | PVLKGVKLHY 0.139279 | 1.3 |
| HLA-B*51:01 | 1 | 979 | 987 | 9 | DILSRLDKV 0.13925 | 1.0 |
| HLA-B*15:01 | 1 | 918 | 927 | 10 | ENQKLIANQF 0.139246 | 1.3 |
| HLA-B*08:01 0.84 | 1 | 574 | 582 | 9 | DAVRDPQTL 0.139207 | |
| HLA-A*24:02 0.68 | 1 | 1054 | 1062 | 9 | QSAPHGVVF 0.139083 | |
| HLA-A*02:01 | 1 | 268 | 277 | 10 | GYLQPRTFLL 0.139039 | 1.1 |
| HLA-A*01:01 0.72 | 1 | 441 | 449 | 9 | LDSKVGNGY 0.138863 | |
| HLA-B*35:01 0.84 | 1 | 23 | 32 | 10 | QLPPAYTNSF 0.138821 | |
| HLA-B*35:01 0.84 | 1 | 125 | 133 | 9 | NVVIKVFCE 0.138731 | |
| HLA-A*02:03 | 1 | 133 | 141 | 9 | FQFCNDPFL 0.138462 | 1.2 |
| HLA-A*03:01 | 1 | 68 | 77 | 10 | IHSVGTNGTK 0.13827 | 1.3 |
| HLA-A*02:03 | 1 | 922 | 930 | 9 | LIANQFNFA 0.138176 | 1.2 |
| HLA-A*02:03 | 1 | 944 | 952 | 9 | ALGKLDQDV 0.138026 | 1.2 |
| HLA-A*32:01 | 1 | 41 | 49 | 9 | KVFRSSVLH 0.137976 | |

| | | | | | | | |
|-------------|---|------|------|----|---------------------|-----|--|
| 0.55 | | | | | | | |
| HLA-A*01:01 | 1 | 108 | 117 | 10 | TTLDSKTQSL 0.137919 | | |
| 0.72 | | | | | | | |
| HLA-B*53:01 | 1 | 895 | 904 | 10 | QIPFAMQMAY 0.137889 | | |
| 0.59 | | | | | | | |
| HLA-A*11:01 | 1 | 104 | 113 | 10 | WIFGTTLDSK 0.137766 | 1.2 | |
| HLA-B*57:01 | 1 | 159 | 168 | 10 | VYSSANNCTF 0.137737 | 1.7 | |
| HLA-A*30:02 | 1 | 896 | 904 | 9 | IPFAMQMAY 0.137656 | 1.1 | |
| HLA-B*15:01 | 1 | 486 | 495 | 10 | FNCYFPLQSY 0.137621 | 1.3 | |
| HLA-B*51:01 | 1 | 1055 | 1063 | 9 | SAPHGVVFL 0.137533 | 1.1 | |
| HLA-B*08:01 | 1 | 808 | 817 | 10 | DPSKPSKRSF 0.137324 | | |
| 0.85 | | | | | | | |
| HLA-A*02:01 | 1 | 1171 | 1179 | 9 | GINASVVNI 0.137188 | 1.1 | |
| HLA-A*02:01 | 1 | 817 | 826 | 10 | FIEDLLFNKV 0.137077 | 1.1 | |
| HLA-B*15:01 | 1 | 786 | 794 | 9 | KQIYKTPPI 0.136999 | 1.3 | |
| HLA-A*68:02 | 1 | 868 | 877 | 10 | EMIAQYTSAL 0.136949 | | |
| 0.91 | | | | | | | |
| HLA-A*02:03 | 1 | 1191 | 1200 | 10 | KNLNESLIDL 0.136871 | 1.2 | |
| HLA-B*15:01 | 1 | 29 | 38 | 10 | TNSFTRGVVY 0.136711 | 1.3 | |
| HLA-A*23:01 | 1 | 815 | 823 | 9 | RSFIEDLLF 0.136681 | 0.6 | |
| HLA-A*30:02 | 1 | 1058 | 1067 | 10 | HGVVFLHVTY 0.136655 | 1.1 | |
| HLA-A*31:01 | 1 | 199 | 207 | 9 | GYFKIYSKH 0.13652 | 1.6 | |
| HLA-A*68:02 | 1 | 342 | 350 | 9 | FNATRFASV 0.136496 | | |
| 0.91 | | | | | | | |
| HLA-A*24:02 | 1 | 506 | 515 | 10 | QPYRVVLSF 0.136395 | | |
| 0.69 | | | | | | | |
| HLA-A*11:01 | 1 | 187 | 195 | 9 | KNLREFVFK 0.136332 | 1.2 | |
| HLA-B*57:01 | 1 | 298 | 306 | 9 | ETKCTLKSF 0.136148 | 1.7 | |
| HLA-B*35:01 | 1 | 781 | 789 | 9 | VFAQVKQIY 0.135507 | | |
| 0.85 | | | | | | | |
| HLA-A*30:02 | 1 | 895 | 904 | 10 | QIPFAMQMAY 0.135472 | 1.1 | |
| HLA-B*35:01 | 1 | 909 | 917 | 9 | IGVTQNVLY 0.135391 | | |
| 0.85 | | | | | | | |
| HLA-B*15:01 | 1 | 160 | 168 | 9 | YSSANNCTF 0.135228 | 1.3 | |
| HLA-A*32:01 | 1 | 267 | 275 | 9 | VGYLQPRTF 0.135118 | | |
| 0.57 | | | | | | | |
| HLA-A*30:02 | 1 | 557 | 565 | 9 | KKFLPFQFQ 0.135071 | 1.1 | |
| HLA-A*68:01 | 1 | 725 | 734 | 10 | EILPVSMTKT 0.134983 | 2.1 | |
| HLA-A*02:06 | 1 | 892 | 900 | 9 | AALQIPFAM 0.13494 | 1.3 | |
| HLA-A*30:01 | 1 | 1000 | 1008 | 9 | RLQSLQTYV 0.134691 | 1.2 | |
| HLA-A*26:01 | 1 | 628 | 636 | 9 | QLTPTWRVY 0.134514 | | |
| 0.54 | | | | | | | |
| HLA-A*23:01 | 1 | 369 | 377 | 9 | YNSASFSTF 0.134246 | 0.6 | |
| HLA-B*35:01 | 1 | 651 | 660 | 10 | IGAHEVNSY 0.134242 | | |
| 0.85 | | | | | | | |
| HLA-B*57:01 | 1 | 1137 | 1145 | 9 | VYDPLQPEL 0.134144 | 1.7 | |
| HLA-B*57:01 | 1 | 365 | 374 | 10 | YSVLYNSASF 0.133983 | 1.7 | |
| HLA-A*03:01 | 1 | 816 | 825 | 10 | SFIEDLLFNK 0.133924 | 1.3 | |
| HLA-A*24:02 | 1 | 83 | 92 | 10 | VLPFNDGVYF 0.133829 | 0.7 | |
| HLA-B*15:01 | 1 | 443 | 451 | 9 | SKVGGNYNY 0.13364 | 1.3 | |
| HLA-B*44:02 | 1 | 618 | 626 | 9 | TEVPVAIHA 0.133634 | | |
| 0.62 | | | | | | | |
| HLA-A*11:01 | 1 | 394 | 403 | 10 | NVYADSFVIR 0.133601 | 1.2 | |
| HLA-B*51:01 | 1 | 861 | 870 | 10 | LPPLLTDEMI 0.13331 | 1.1 | |
| HLA-A*32:01 | 1 | 55 | 64 | 10 | FLPFFSNVTW 0.133289 | | |
| 0.57 | | | | | | | |
| HLA-A*02:03 | 1 | 612 | 620 | 9 | YQDVNCTEV 0.133226 | 1.2 | |
| HLA-B*15:01 | 1 | 192 | 201 | 10 | FVFNIDGYF 0.132961 | 1.4 | |
| HLA-B*08:01 | 1 | 901 | 909 | 9 | QMAYRFNGI 0.132875 | | |
| 0.89 | | | | | | | |
| HLA-B*07:02 | 1 | 937 | 945 | 9 | SLSSTASAL 0.132635 | | |
| 0.92 | | | | | | | |
| HLA-A*68:01 | 1 | 340 | 348 | 9 | EVFNATRFA 0.132634 | 2.2 | |
| HLA-B*08:01 | 1 | 584 | 592 | 9 | ILDITPCSF 0.132332 | | |
| 0.89 | | | | | | | |
| HLA-B*15:01 | 1 | 51 | 59 | 9 | TQDLFLPFF 0.132311 | 1.4 | |

| | | | | | | |
|---------------------|---|------|------|----|---------------------|-----|
| HLA-B*35:01 0.85 | 1 | 628 | 636 | 9 | QLTPTWRVY 0.132293 | |
| HLA-B*57:01 | 1 | 310 | 318 | 9 | KGIYQTSNF 0.132287 | 1.7 |
| HLA-A*68:02 0.94 | 1 | 1052 | 1060 | 9 | FPQSAPHGV 0.132262 | |
| HLA-A*23:01 0.61 | 1 | 710 | 718 | 9 | NSIAIPTNF 0.131974 | |
| HLA-B*57:01 | 1 | 240 | 248 | 9 | TLLALHRSY 0.131867 | 1.7 |
| HLA-A*23:01 0.61 | 1 | 557 | 565 | 9 | KKFLPFQF 0.131498 | |
| HLA-A*02:01 | 1 | 626 | 635 | 10 | ADQLTPTWRV 0.131466 | 1.2 |
| HLA-A*68:02 0.95 | 1 | 326 | 335 | 10 | IVRFPNITNL 0.131428 | |
| HLA-A*02:01 | 1 | 584 | 592 | 9 | ILDITPCSF 0.131257 | 1.2 |
| HLA-A*01:01 0.77 | 1 | 746 | 754 | 9 | STECSNLLL 0.130971 | |
| HLA-A*68:02 0.95 | 1 | 53 | 62 | 10 | DLFLPFFSNV 0.130969 | |
| HLA-A*30:02 | 1 | 83 | 91 | 9 | VLPFNDGVY 0.130838 | 1.1 |
| HLA-A*31:01 | 1 | 501 | 509 | 9 | NGVGYPYR 0.130779 | 1.7 |
| HLA-B*08:01 | 1 | 1052 | 1060 | 9 | FPQSAPHGV 0.130118 | 0.9 |
| HLA-B*58:01 | 1 | 1054 | 1063 | 10 | QSAPHGVVFL 0.13002 | 1.1 |
| HLA-B*44:03 0.71 | 1 | 1194 | 1203 | 10 | NESLIDLQEL 0.129961 | |
| HLA-B*51:01 | 1 | 616 | 624 | 9 | NCTEVPVAI 0.129927 | 1.1 |
| HLA-B*53:01 0.63 | 1 | 160 | 168 | 9 | YSSANNCTF 0.12989 | |
| HLA-A*01:01 0.78 | 1 | 343 | 351 | 9 | NATRFASVY 0.129842 | |
| HLA-B*51:01 | 1 | 506 | 515 | 10 | QPYRVVLSF 0.129819 | 1.1 |
| HLA-A*23:01 0.62 | 1 | 420 | 429 | 10 | DYNYKLPPDF 0.129585 | |
| HLA-B*08:01 | 1 | 958 | 966 | 9 | ALNTLVKQL 0.129478 | 0.9 |
| HLA-B*51:01 | 1 | 710 | 718 | 9 | NSIAIPTNF 0.129456 | 1.1 |
| HLA-B*07:02 0.94 | 1 | 56 | 65 | 10 | LPFFSNVTWF 0.129353 | |
| HLA-A*01:01 0.78 | 1 | 1054 | 1062 | 9 | QSAPHGVV 0.129204 | |
| HLA-A*24:02 0.72 | 1 | 447 | 456 | 10 | GNYNLYRLF 0.129203 | |
| HLA-A*30:02 | 1 | 271 | 279 | 9 | QPRTFLLKY 0.129132 | 1.1 |
| HLA-A*30:02 | 1 | 356 | 365 | 10 | KRISNCVADY 0.128984 | 1.1 |
| HLA-A*26:01 0.55 | 1 | 1168 | 1176 | 9 | DISGINASV 0.128976 | |
| HLA-B*08:01 | 1 | 38 | 47 | 10 | YDPKVFRSSV 0.128958 | 0.9 |
| HLA-A*26:01 0.55 | 1 | 1067 | 1075 | 9 | YVPAQEKNF 0.12892 | |
| HLA-A*31:01 | 1 | 93 | 102 | 10 | ASTEKSNIIR 0.12882 | 1.7 |
| HLA-B*53:01 0.63 | 1 | 162 | 170 | 9 | SANNCTFEY 0.128624 | |
| HLA-A*68:02 0.96 | 1 | 1007 | 1015 | 9 | YVTQQLIRA 0.128584 | |
| HLA-B*44:03 0.72 | 1 | 919 | 927 | 9 | NQKLIANQF 0.128555 | |
| HLA-A*02:06 | 1 | 119 | 127 | 9 | IVNATNVV 0.1285 | 1.4 |
| HLA-A*02:03 | 1 | 1181 | 1189 | 9 | KEIDRLNEV 0.128305 | 1.2 |
| HLA-A*03:01 | 1 | 817 | 825 | 9 | FIEDLLFNK 0.12818 | 1.3 |
| HLA-A*01:01 0.79 | 1 | 1038 | 1047 | 10 | KRVDFCGKGY 0.127846 | |
| HLA-B*35:01 0.87 | 1 | 1052 | 1061 | 10 | FPQSAPHGVV 0.127726 | |
| HLA-A*24:02 0.72 | 1 | 51 | 59 | 9 | TQDLFLPFF 0.12762 | |
| HLA-A*02:06 | 1 | 967 | 976 | 10 | SSNFGAISSV 0.12749 | 1.4 |
| HLA-A*26:01 0.56 | 1 | 340 | 348 | 9 | EVFNATRFA 0.127215 | |

| | | | | | | |
|---------------------|---|------|------|----|---------------------|-----|
| HLA-A*23:01 0.64 | 1 | 51 | 59 | 9 | TQDLFLPFF 0.127155 | |
| HLA-B*35:01 0.87 | 1 | 84 | 93 | 10 | LPFNDGVYFA 0.127139 | |
| HLA-A*03:01 | 1 | 974 | 983 | 10 | SSVLNDILSR 0.127098 | 1.3 |
| HLA-A*02:03 | 1 | 610 | 618 | 9 | VLYQDVNCT 0.127067 | 1.2 |
| HLA-A*26:01 0.56 | 1 | 215 | 223 | 9 | DLPQGFSA 0.127024 | |
| HLA-B*53:01 0.63 | 1 | 144 | 152 | 9 | YYHKNNKSW 0.126997 | |
| HLA-A*03:01 | 1 | 240 | 248 | 9 | TLLALHRYS 0.126987 | 1.3 |
| HLA-A*30:02 | 1 | 212 | 220 | 9 | LVRDLPQGF 0.126888 | 1.1 |
| HLA-A*30:01 | 1 | 450 | 458 | 9 | NYLYRLEFR 0.126812 | 1.3 |
| HLA-A*68:01 | 1 | 138 | 147 | 10 | DPFLGVYYHK 0.12672 | 2.2 |
| HLA-A*03:01 | 1 | 1050 | 1058 | 9 | MSFPQSAPH 0.12661 | 1.3 |
| HLA-B*58:01 | 1 | 310 | 318 | 9 | KGIYQTSNF 0.126567 | 1.1 |
| HLA-A*24:02 0.73 | 1 | 267 | 275 | 9 | VGYLQPRTF 0.126536 | |
| HLA-B*08:01 0.92 | 1 | 1041 | 1049 | 9 | DFCGKGYHL 0.126254 | |
| HLA-A*26:01 0.56 | 1 | 162 | 170 | 9 | SANCTFEY 0.125883 | |
| HLA-A*02:06 | 1 | 1121 | 1129 | 9 | FVSGNCDVV 0.125727 | 1.4 |
| HLA-B*07:02 0.96 | 1 | 383 | 392 | 10 | SPTKLNLCF 0.125636 | |
| HLA-B*58:01 | 1 | 30 | 38 | 9 | NSFTRGVYY 0.125537 | 1.1 |
| HLA-B*15:01 | 1 | 958 | 966 | 9 | ALNTLVKQL 0.125388 | 1.4 |
| HLA-B*44:03 0.73 | 1 | 427 | 436 | 10 | DDFTGCVIAW 0.125152 | |
| HLA-B*51:01 | 1 | 943 | 951 | 9 | SALGKLQDV 0.125104 | 1.1 |
| HLA-A*32:01 0.61 | 1 | 372 | 380 | 9 | ASFSTFKCY 0.12503 | |
| HLA-A*24:02 0.73 | 1 | 50 | 58 | 9 | STQDLFLPF 0.124962 | |
| HLA-A*68:01 | 1 | 347 | 356 | 10 | FASVYAWNRK 0.124948 | 2.3 |
| HLA-B*44:02 0.64 | 1 | 625 | 633 | 9 | HADQLTPTW 0.124513 | |
| HLA-B*07:02 0.96 | 1 | 630 | 638 | 9 | TPTWRVYST 0.1245 | |
| HLA-A*30:01 | 1 | 326 | 335 | 10 | IVRFPNITNL 0.124493 | 1.3 |
| HLA-B*15:01 | 1 | 41 | 49 | 9 | KVFRSSVLH 0.124457 | 1.4 |
| HLA-A*68:02 0.99 | 1 | 1188 | 1196 | 9 | EVAKNLNES 0.12418 | |
| HLA-A*26:01 0.57 | 1 | 372 | 380 | 9 | ASFSTFKCY 0.123998 | |
| HLA-B*07:02 0.97 | 1 | 996 | 1004 | 9 | LITGRLQSL 0.123844 | |
| HLA-A*11:01 | 1 | 781 | 790 | 10 | VFAQVKQIYK 0.123821 | 1.3 |
| HLA-B*44:02 0.65 | 1 | 1015 | 1024 | 10 | AAEIRASANL 0.123771 | |
| HLA-B*15:01 | 1 | 1201 | 1209 | 9 | QELGKYEY 0.123534 | 1.4 |
| HLA-B*15:01 | 1 | 869 | 877 | 9 | MIAQYTSAL 0.123467 | 1.4 |
| HLA-A*02:06 | 1 | 46 | 54 | 9 | SVLHSTQDL 0.123447 | 1.4 |
| HLA-A*03:01 | 1 | 528 | 537 | 10 | KKSTNLVKNK 0.123368 | 1.4 |
| HLA-A*26:01 0.57 | 1 | 829 | 837 | 9 | ADAGFIKQY 0.123047 | |
| HLA-B*35:01 0.89 | 1 | 372 | 380 | 9 | ASFSTFKCY 0.123045 | |
| HLA-A*68:01 | 1 | 32 | 41 | 10 | FTRGVYYPDK 0.123026 | 2.3 |
| HLA-A*33:01 | 1 | 991 | 1000 | 10 | VQIDRLITGR 0.122963 | 1.2 |
| HLA-A*68:01 | 1 | 40 | 49 | 10 | DKVFRSSVLH 0.122889 | 2.3 |
| HLA-B*15:01 | 1 | 879 | 888 | 10 | AGTITSGWTF 0.122626 | 1.4 |
| HLA-A*11:01 | 1 | 992 | 1000 | 9 | QIDRLITGR 0.122556 | 1.3 |
| HLA-A*30:01 | 1 | 924 | 933 | 10 | ANQFNSAIGK 0.122549 | 1.4 |
| HLA-A*30:01 | 1 | 444 | 452 | 9 | KVGGNYNYL 0.122521 | 1.4 |
| HLA-B*15:01 | 1 | 184 | 192 | 9 | GNFKNLREF 0.122205 | 1.4 |

| | | | | | | |
|---------------------|---|------|------|----|---------------------|-----|
| HLA-A*30:01 | 1 | 634 | 643 | 10 | RVYSTGSNVF 0.122119 | 1.4 |
| HLA-B*40:01 0.86 | 1 | 1180 | 1189 | 10 | QKEIDRLNEV 0.122013 | |
| HLA-A*31:01 | 1 | 1020 | 1028 | 9 | ASANLAATK 0.121975 | 1.8 |
| HLA-A*11:01 | 1 | 1050 | 1058 | 9 | MSFPQSAPH 0.121954 | 1.3 |
| HLA-A*02:01 | 1 | 28 | 36 | 9 | YTNSFTRGV 0.121645 | 1.2 |
| HLA-A*02:06 | 1 | 951 | 959 | 9 | VVNQNAQAL 0.121617 | 1.4 |
| HLA-B*35:01 | 1 | 334 | 342 | 9 | NLCPFGEVF 0.121325 | 0.9 |
| HLA-B*15:01 | 1 | 908 | 917 | 10 | GIGVTQNVLY 0.121213 | 1.4 |
| HLA-A*26:01 0.58 | 1 | 1147 | 1155 | 9 | SFKEELDKY 0.121207 | |
| HLA-A*31:01 | 1 | 786 | 795 | 10 | KQIYKTPPIK 0.121172 | 1.8 |
| HLA-A*23:01 0.68 | 1 | 447 | 456 | 10 | GNYNLYRLF 0.121136 | |
| HLA-A*68:01 | 1 | 816 | 825 | 10 | SFIEDLLFNK 0.121057 | 2.3 |
| HLA-A*01:01 0.82 | 1 | 50 | 58 | 9 | STQDLFLPF 0.121002 | |
| HLA-A*30:01 | 1 | 1185 | 1193 | 9 | RLNEVAKNL 0.120991 | 1.4 |
| HLA-A*02:03 | 1 | 852 | 861 | 10 | AQKFNGLTVL 0.120948 | 1.3 |
| HLA-A*30:01 | 1 | 1050 | 1058 | 9 | MSFPQSAPH 0.120948 | 1.4 |
| HLA-A*02:03 | 1 | 214 | 223 | 10 | RDLPGGFSAL 0.120909 | 1.3 |
| HLA-B*58:01 | 1 | 126 | 135 | 10 | VVIKVCEFQF 0.120793 | 1.2 |
| HLA-B*35:01 0.91 | 1 | 886 | 894 | 9 | WTFGAGAAL 0.120732 | |
| HLA-A*68:02 | 1 | 1119 | 1128 | 10 | NTFVSGNCDV 0.120643 | 1.1 |
| HLA-A*68:01 | 1 | 748 | 756 | 9 | ECSNLLLQY 0.120623 | 2.3 |
| HLA-A*23:01 0.68 | 1 | 151 | 159 | 9 | SWMESEFRV 0.12055 | |
| HLA-B*53:01 0.65 | 1 | 38 | 47 | 10 | YDPKVFRRSSV 0.12054 | |
| HLA-A*02:03 | 1 | 943 | 951 | 9 | SALGKLQDV 0.120524 | 1.3 |
| HLA-A*30:01 | 1 | 995 | 1003 | 9 | RLITGRLQS 0.120496 | 1.4 |
| HLA-A*32:01 0.63 | 1 | 46 | 55 | 10 | SVLHSTQDLF 0.120446 | |
| HLA-B*57:01 | 1 | 1095 | 1103 | 9 | FVSNNGTHWF 0.120395 | 1.8 |
| HLA-A*02:06 | 1 | 510 | 518 | 9 | VVLSFELL 0.120332 | 1.4 |
| HLA-A*02:01 | 1 | 915 | 924 | 10 | VLYENQKLIA 0.12033 | 1.3 |
| HLA-A*68:02 | 1 | 745 | 753 | 9 | DSTECSNLL 0.120325 | 1.1 |
| HLA-A*02:06 | 1 | 195 | 203 | 9 | KNIDGYFKI 0.12028 | 1.4 |
| HLA-A*68:02 | 1 | 81 | 90 | 10 | NPVLPFNDGV 0.120157 | 1.1 |
| HLA-B*51:01 | 1 | 590 | 598 | 9 | CSFGGVSVI 0.120079 | 1.2 |
| HLA-A*02:03 | 1 | 108 | 117 | 10 | TTLDSKTQSL 0.120061 | 1.3 |
| HLA-A*02:06 | 1 | 319 | 327 | 9 | RVQPTESIV 0.120006 | 1.4 |
| HLA-B*53:01 0.66 | 1 | 620 | 629 | 10 | VPVAIHADQL 0.119963 | |
| HLA-A*02:06 | 1 | 575 | 584 | 10 | AVRDPQTLEI 0.119885 | 1.4 |
| HLA-A*02:03 | 1 | 871 | 879 | 9 | AQYTSALLA 0.119806 | 1.3 |
| HLA-A*02:06 | 1 | 1059 | 1068 | 10 | GVVFLHVTYV 0.119742 | 1.4 |
| HLA-A*23:01 0.69 | 1 | 706 | 714 | 9 | AYSNNSIAI 0.119669 | |
| HLA-A*02:03 | 1 | 326 | 335 | 10 | IVRFPNITNL 0.119618 | 1.3 |
| HLA-B*57:01 | 1 | 127 | 135 | 9 | VIKVCEFQF 0.11961 | 1.8 |
| HLA-B*44:03 0.76 | 1 | 625 | 633 | 9 | HADQLTPTW 0.11956 | |
| HLA-A*30:02 | 1 | 77 | 86 | 10 | KRFDNPVLPF 0.11953 | 1.2 |
| HLA-A*02:01 | 1 | 713 | 722 | 10 | AIPTNFTISV 0.119482 | 1.3 |
| HLA-B*15:01 | 1 | 333 | 342 | 10 | TNLCPFGEVF 0.119396 | 1.4 |
| HLA-A*30:02 | 1 | 880 | 888 | 9 | GTITSGWTF 0.119394 | 1.2 |
| HLA-A*03:01 | 1 | 372 | 380 | 9 | ASFSTFKCY 0.119345 | 1.4 |
| HLA-B*57:01 | 1 | 297 | 306 | 10 | SETKCTLKSF 0.119341 | 1.8 |
| HLA-A*11:01 | 1 | 1065 | 1074 | 10 | VTYVPAQEKD 0.119187 | 1.3 |
| HLA-A*02:03 | 1 | 575 | 584 | 10 | AVRDPQTLEI 0.11878 | 1.3 |
| HLA-A*68:01 | 1 | 150 | 158 | 9 | KSWESEFR 0.118762 | 2.3 |
| HLA-B*08:01 0.98 | 1 | 267 | 275 | 9 | VGYLQPRTF 0.118543 | |
| HLA-A*68:02 | 1 | 119 | 127 | 9 | IVNNATNVV 0.118534 | 1.1 |

| | | | | | | |
|---------------------|---|------|------|----|---------------------|-----|
| HLA-B*57:01 | 1 | 1206 | 1214 | 9 | YEQYIKWPW 0.118184 | 1.8 |
| HLA-A*23:01 | 1 | 1216 | 1224 | 9 | IWLGFIAGL 0.117938 | 0.7 |
| HLA-B*35:01 0.93 | 1 | 1225 | 1233 | 9 | IAIVMVTIM 0.117938 | |
| HLA-A*01:01 0.84 | 1 | 285 | 293 | 9 | ITDAVDCAL 0.11792 | |
| HLA-A*01:01 0.84 | 1 | 497 | 505 | 9 | FQPTNGVGY 0.117748 | |
| HLA-B*51:01 | 1 | 1139 | 1148 | 10 | DPLQPELDSF 0.117747 | 1.2 |
| HLA-B*35:01 0.93 | 1 | 1137 | 1145 | 9 | VYDPLQPEL 0.117639 | |
| HLA-A*02:03 | 1 | 976 | 985 | 10 | VLNDILSRLD 0.117628 | 1.3 |
| HLA-B*58:01 | 1 | 239 | 248 | 10 | QTLLALHRSY 0.117454 | 1.2 |
| HLA-B*40:01 0.88 | 1 | 689 | 697 | 9 | SQSIIAYTM 0.117371 | |
| HLA-B*40:01 0.88 | 1 | 852 | 861 | 10 | AQKFNGLTVL 0.117348 | |
| HLA-A*31:01 | 1 | 787 | 795 | 9 | QIYKTPPIK 0.117307 | 1.8 |
| HLA-B*58:01 | 1 | 161 | 170 | 10 | SSANNCTFEY 0.11728 | 1.2 |
| HLA-A*03:01 | 1 | 1005 | 1014 | 10 | QTYVTQQLIR 0.116991 | 1.4 |
| HLA-A*23:01 | 1 | 1054 | 1062 | 9 | QSAPHGVSF 0.116971 | 0.7 |
| HLA-B*15:01 | 1 | 371 | 380 | 10 | SASFSTFKCY 0.116911 | 1.5 |
| HLA-B*08:01 0.99 | 1 | 751 | 759 | 9 | NLLLQYGSF 0.116843 | |
| HLA-A*02:06 | 1 | 394 | 402 | 9 | NVYADSFVI 0.116712 | 1.5 |
| HLA-A*30:02 | 1 | 1197 | 1206 | 10 | LIDLQELGKY 0.116619 | 1.2 |
| HLA-A*02:01 | 1 | 47 | 56 | 10 | VLHSTQDLFL 0.116616 | 1.3 |
| HLA-B*57:01 | 1 | 235 | 244 | 10 | ITRFQTLAL 0.116495 | 1.8 |
| HLA-A*33:01 | 1 | 193 | 202 | 10 | VFKNIDGYFK 0.116352 | 1.2 |
| HLA-B*51:01 | 1 | 705 | 714 | 10 | VAYSNSIAI 0.116347 | 1.2 |
| HLA-B*40:01 0.89 | 1 | 660 | 668 | 9 | YECDIPIGA 0.116337 | |
| HLA-B*57:01 | 1 | 509 | 517 | 9 | RVVVSFEL 0.116301 | 1.8 |
| HLA-B*15:01 | 1 | 1264 | 1273 | 10 | VLKGVKLHYT 0.116185 | 1.5 |
| HLA-A*02:03 | 1 | 933 | 941 | 9 | KIQDLSST 0.116046 | 1.3 |
| HLA-A*26:01 | 1 | 497 | 505 | 9 | FQPTNGVGY 0.115996 | 0.6 |
| HLA-B*35:01 0.95 | 1 | 951 | 959 | 9 | VVNQAQAL 0.115992 | |
| HLA-A*02:01 | 1 | 225 | 233 | 9 | PLVDLPIGI 0.115844 | 1.3 |
| HLA-B*51:01 | 1 | 1137 | 1145 | 9 | VYDPLQPEL 0.115441 | 1.2 |
| HLA-B*51:01 | 1 | 259 | 267 | 9 | TAGAAAYV 0.115422 | 1.2 |
| HLA-B*53:01 0.68 | 1 | 625 | 634 | 10 | HADQLTPTWR 0.11496 | |
| HLA-B*44:02 0.66 | 1 | 919 | 927 | 9 | NQKLIANQF 0.114906 | |
| HLA-A*68:02 | 1 | 398 | 407 | 10 | DSFVIRGDEV 0.114458 | 1.1 |
| HLA-B*35:01 0.96 | 1 | 554 | 562 | 9 | ESNKKFLPF 0.1144 | |
| HLA-A*68:01 | 1 | 674 | 682 | 9 | YQTQTNSPR 0.114266 | 2.4 |
| HLA-A*68:01 | 1 | 519 | 528 | 10 | HAPATVCGPK 0.114105 | 2.4 |
| HLA-A*30:02 | 1 | 894 | 902 | 9 | LQIPFAMQM 0.114016 | 1.2 |
| HLA-A*32:01 0.66 | 1 | 144 | 152 | 9 | YYHKNNKSW 0.113763 | |
| HLA-A*01:01 0.86 | 1 | 50 | 59 | 10 | STQDLFLPFF 0.113715 | |
| HLA-A*26:01 0.61 | 1 | 23 | 32 | 10 | QLPPAYTNSF 0.113709 | |
| HLA-A*31:01 | 1 | 1011 | 1019 | 9 | QLIRAAEIR 0.113641 | 1.9 |
| HLA-A*68:02 | 1 | 868 | 876 | 9 | EMIAQY TSA 0.113585 | 1.1 |
| HLA-B*35:01 0.96 | 1 | 8 | 16 | 9 | LPLVSSQCV 0.11354 | |
| HLA-A*11:01 | 1 | 1172 | 1181 | 10 | INASVVNIQK 0.113471 | 1.3 |
| HLA-B*57:01 | 1 | 203 | 212 | 10 | IYSKHTPINL 0.113446 | 1.8 |
| HLA-A*11:01 | 1 | 687 | 695 | 9 | VASQSIIAY 0.113436 | 1.3 |
| HLA-B*44:02 0.67 | 1 | 1194 | 1203 | 10 | NESLIDLQEL 0.113397 | |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*30:01 | 1 | 35 | 44 | 10 | GVYYPDKVFR 0.113267 | 1.4 |
| HLA-B*35:01 | 1 | 497 | 505 | 9 | FQPTNGVGY 0.113242 | |
| 0.96 | | | | | | |
| HLA-A*31:01 | 1 | 70 | 78 | 9 | VSGTNGTKR 0.112912 | 1.9 |
| HLA-A*02:01 | 1 | 773 | 781 | 9 | EQDKNTQEV 0.112759 | 1.3 |
| HLA-A*02:06 | 1 | 894 | 903 | 10 | LQIPFAMQMA 0.112717 | 1.5 |
| HLA-B*53:01 | 1 | 392 | 400 | 9 | FTNVYADSF 0.112688 | |
| 0.69 | | | | | | |
| HLA-A*02:01 | 1 | 876 | 884 | 9 | ALLAGTITS 0.112596 | 1.3 |
| HLA-A*32:01 | 1 | 604 | 612 | 9 | TSNQVAVLY 0.112595 | |
| 0.67 | | | | | | |
| HLA-A*02:06 | 1 | 934 | 942 | 9 | IQDLSSTA 0.112514 | 1.5 |
| HLA-A*31:01 | 1 | 896 | 905 | 10 | IPFAMQMAYR 0.112345 | 1.9 |
| HLA-A*01:01 | 1 | 195 | 204 | 10 | KNIDGYFKIY 0.112135 | |
| 0.87 | | | | | | |
| HLA-A*02:06 | 1 | 1095 | 1103 | 9 | FVSNNGTHWF 0.112105 | 1.5 |
| HLA-B*07:02 | 1 | 691 | 699 | 9 | SIAYTMSL 0.112016 | 1.1 |
| HLA-A*31:01 | 1 | 399 | 408 | 10 | SFVIRGDEV R 0.112002 | 1.9 |
| HLA-A*02:06 | 1 | 108 | 117 | 10 | TTLDSKTQSL 0.111947 | 1.5 |
| HLA-B*15:01 | 1 | 360 | 369 | 10 | NCVADYSVLY 0.111904 | 1.5 |
| HLA-B*07:02 | 1 | 664 | 672 | 9 | IPIGAGICA 0.111847 | 1.1 |
| HLA-B*53:01 | 1 | 1113 | 1121 | 9 | QIITDNTF 0.111774 | 0.7 |
| HLA-B*08:01 | 1 | 630 | 638 | 9 | TPTWRVYST 0.111663 | 1.1 |
| HLA-A*02:03 | 1 | 933 | 942 | 10 | KIQDLSSTA 0.111573 | 1.4 |
| HLA-B*44:03 | 1 | 1180 | 1189 | 10 | QKEIDRLNEV 0.111421 | 0.8 |
| HLA-A*02:01 | 1 | 610 | 618 | 9 | VLYQDVNCT 0.11128 | 1.3 |
| HLA-B*57:01 | 1 | 603 | 612 | 10 | NTSNQVAVLY 0.111149 | 1.8 |
| HLA-A*32:01 | 1 | 62 | 70 | 9 | VTWFHAIHV 0.111084 | |
| 0.67 | | | | | | |
| HLA-B*57:01 | 1 | 35 | 43 | 9 | GVYYPDKVF 0.110943 | 1.8 |
| HLA-A*30:02 | 1 | 511 | 519 | 9 | VVLSFELLH 0.110882 | 1.3 |
| HLA-A*30:01 | 1 | 30 | 38 | 9 | NSFTRGVYY 0.110875 | 1.5 |
| HLA-A*68:01 | 1 | 845 | 854 | 10 | AARDLICAQK 0.110859 | 2.4 |
| HLA-B*51:01 | 1 | 620 | 629 | 10 | VPVAIHADQL 0.11074 | 1.2 |
| HLA-B*15:01 | 1 | 691 | 699 | 9 | SIAYTMSL 0.110696 | 1.5 |
| HLA-A*68:02 | 1 | 776 | 785 | 10 | KNTQEVFAQV 0.110637 | 1.1 |
| HLA-B*07:02 | 1 | 1054 | 1062 | 9 | QSAPHGVVF 0.110627 | 1.1 |
| HLA-A*02:06 | 1 | 933 | 941 | 9 | KIQDLSST 0.110339 | 1.5 |
| HLA-B*08:01 | 1 | 821 | 829 | 9 | LLFNKVTLA 0.110266 | 1.1 |
| HLA-B*07:02 | 1 | 1189 | 1197 | 9 | VAKNLNESL 0.110254 | 1.1 |
| HLA-A*68:02 | 1 | 392 | 401 | 10 | FTNVYADSFV 0.110216 | 1.1 |
| HLA-A*68:01 | 1 | 1075 | 1083 | 9 | FTTAPAICH 0.110207 | 2.4 |
| HLA-A*32:01 | 1 | 444 | 452 | 9 | KVGGNYNYL 0.110134 | |
| 0.68 | | | | | | |
| HLA-A*33:01 | 1 | 399 | 408 | 10 | SFVIRGDEV R 0.109992 | 1.3 |
| HLA-B*57:01 | 1 | 1059 | 1067 | 9 | GVVFLHVTY 0.109979 | 1.9 |
| HLA-A*02:03 | 1 | 1167 | 1176 | 10 | GDISGINASV 0.109972 | 1.4 |
| HLA-A*68:02 | 1 | 574 | 582 | 9 | DAVRDPQTL 0.109788 | 1.1 |
| HLA-B*57:01 | 1 | 1081 | 1089 | 9 | ICHDGKAHF 0.109483 | 1.9 |
| HLA-A*68:01 | 1 | 162 | 170 | 9 | SANNCTFEY 0.109429 | 2.4 |
| HLA-A*24:02 | 1 | 1067 | 1075 | 9 | YVPAQEKNF 0.10931 | |
| 0.81 | | | | | | |
| HLA-A*68:02 | 1 | 873 | 882 | 10 | YTSALLAGTI 0.109141 | 1.1 |
| HLA-A*68:01 | 1 | 1237 | 1245 | 9 | MTSCCCLK 0.109112 | 2.4 |
| HLA-B*07:02 | 1 | 250 | 258 | 9 | TPGDSSSGW 0.108966 | 1.1 |
| HLA-A*03:01 | 1 | 938 | 947 | 10 | LSSTASALGK 0.10892 | 1.5 |
| HLA-A*68:01 | 1 | 265 | 273 | 9 | YYVGYLQPR 0.108734 | 2.4 |
| HLA-A*31:01 | 1 | 782 | 790 | 9 | FAQVKQIYK 0.108721 | 1.9 |
| HLA-B*58:01 | 1 | 554 | 562 | 9 | ESNKKFLPF 0.108697 | 1.2 |
| HLA-A*11:01 | 1 | 1197 | 1205 | 9 | LIDLQELGK 0.108645 | 1.4 |
| HLA-B*51:01 | 1 | 1221 | 1229 | 9 | IAGLIAIVM 0.108632 | 1.3 |
| HLA-A*30:01 | 1 | 905 | 913 | 9 | RFNGIGVTV 0.10851 | 1.5 |
| HLA-A*02:06 | 1 | 921 | 930 | 10 | KLIANQFNQA 0.10843 | 1.5 |
| HLA-A*68:01 | 1 | 687 | 695 | 9 | VASQSIIAY 0.108278 | 2.4 |
| HLA-A*68:01 | 1 | 865 | 873 | 9 | LTDEMIAQY 0.108267 | 2.4 |
| HLA-B*44:03 | 1 | 1204 | 1212 | 9 | GKYEQYIKW 0.107938 | |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|
| 0.81 | | | | | | | |
| HLA-B*51:01 | 1 | 1021 | 1029 | 9 | SANLAATKM | 0.107925 | 1.3 |
| HLA-A*02:01 | 1 | 1215 | 1224 | 10 | YIWLGFIAGL | 0.107916 | 1.3 |
| HLA-A*30:01 | 1 | 975 | 983 | 9 | SVLNDILSR | 0.107832 | 1.5 |
| HLA-A*33:01 | 1 | 400 | 408 | 9 | FVIRGDEVR | 0.107654 | 1.3 |
| HLA-A*02:06 | 1 | 860 | 869 | 10 | VLPPLLTDEM | 0.107648 | 1.5 |
| HLA-B*15:01 | 1 | 125 | 133 | 9 | NVVIKVFCE | 0.107595 | 1.5 |
| HLA-B*53:01 | 1 | 791 | 800 | 10 | TPPIKDFGGF | 0.107444 | |
| 0.71 | | | | | | | |
| HLA-B*07:02 | 1 | 995 | 1004 | 10 | RLITGRLQSL | 0.107394 | 1.1 |
| HLA-B*44:02 | 1 | 155 | 163 | 9 | SEFRVYSSA | 0.107381 | 0.7 |
| HLA-B*53:01 | 1 | 1137 | 1145 | 9 | VYDPLQPEL | 0.107306 | |
| 0.71 | | | | | | | |
| HLA-A*02:06 | 1 | 972 | 980 | 9 | AISSVLNDI | 0.106959 | 1.6 |
| HLA-B*51:01 | 1 | 1089 | 1097 | 9 | FPREGVFVS | 0.106954 | 1.3 |
| HLA-B*58:01 | 1 | 709 | 718 | 10 | NNSIAIPTNF | 0.106908 | 1.2 |
| HLA-B*58:01 | 1 | 70 | 79 | 10 | VSGTNGTKRF | 0.106818 | 1.2 |
| HLA-B*08:01 | 1 | 208 | 216 | 9 | TPINLVRDL | 0.106751 | 1.1 |
| HLA-A*30:01 | 1 | 19 | 28 | 10 | TTRTQLPPAY | 0.106737 | 1.5 |
| HLA-A*31:01 | 1 | 1264 | 1272 | 9 | VLKGVKLHY | 0.106737 | 2.0 |
| HLA-B*15:01 | 1 | 1050 | 1058 | 9 | MSFPQSAPH | 0.106685 | 1.5 |
| HLA-B*15:01 | 1 | 269 | 277 | 9 | YLQPRTFLL | 0.106655 | 1.5 |
| HLA-A*23:01 | 1 | 625 | 633 | 9 | HADQLTPTW | 0.10665 | |
| 0.76 | | | | | | | |
| HLA-A*02:06 | 1 | 567 | 576 | 10 | RDIADTTDAV | 0.106538 | 1.6 |
| HLA-A*02:03 | 1 | 965 | 973 | 9 | QLSSNFGAI | 0.106335 | 1.4 |
| HLA-A*01:01 | 1 | 292 | 300 | 9 | ALDPLSETK | 0.106242 | 0.9 |
| HLA-A*26:01 | 1 | 240 | 248 | 9 | TLLALHRSY | 0.106224 | |
| 0.65 | | | | | | | |
| HLA-A*02:06 | 1 | 697 | 705 | 9 | MSLGAENSV | 0.105781 | 1.6 |
| HLA-A*32:01 | 1 | 584 | 592 | 9 | ILDITPCSF | 0.105454 | 0.7 |
| HLA-B*57:01 | 1 | 553 | 562 | 10 | TESNKKFLPF | 0.105402 | 1.9 |
| HLA-A*26:01 | 1 | 627 | 636 | 10 | DQLTPTWRVY | 0.105298 | |
| 0.66 | | | | | | | |
| HLA-B*35:01 | 1 | 1221 | 1229 | 9 | IAGLIAIVM | 0.10526 | 1.0 |
| HLA-B*51:01 | 1 | 578 | 587 | 10 | DPQTLEILDI | 0.105253 | 1.3 |
| HLA-B*44:03 | 1 | 701 | 709 | 9 | AENSVAYSN | 0.105047 | |
| 0.81 | | | | | | | |
| HLA-B*07:02 | 1 | 575 | 584 | 10 | AVRDPQTLEI | 0.104766 | 1.1 |
| HLA-A*23:01 | 1 | 345 | 353 | 9 | TRFASVYAW | 0.104733 | |
| 0.77 | | | | | | | |
| HLA-A*26:01 | 1 | 29 | 38 | 10 | TNSFTRGVYY | 0.104645 | |
| 0.67 | | | | | | | |
| HLA-A*24:02 | 1 | 584 | 592 | 9 | ILDITPCSF | 0.104593 | |
| 0.83 | | | | | | | |
| HLA-B*57:01 | 1 | 96 | 104 | 9 | EKSNIIRGW | 0.104425 | 1.9 |
| HLA-A*02:03 | 1 | 893 | 902 | 10 | ALQIPFAMQM | 0.104135 | 1.4 |
| HLA-B*58:01 | 1 | 973 | 981 | 9 | ISSVLNDIL | 0.104133 | 1.3 |
| HLA-B*53:01 | 1 | 212 | 220 | 9 | LVRDL PQGF | 0.104079 | |
| 0.74 | | | | | | | |
| HLA-B*51:01 | 1 | 664 | 672 | 9 | IPIGAGICA | 0.104029 | 1.3 |
| HLA-B*40:01 | 1 | 1201 | 1210 | 10 | QELGKYEQYI | 0.103899 | |
| 0.95 | | | | | | | |
| HLA-B*40:01 | 1 | 515 | 524 | 10 | FELLHAPATV | 0.103886 | |
| 0.95 | | | | | | | |
| HLA-B*53:01 | 1 | 748 | 756 | 9 | ECSNLLLQY | 0.103766 | |
| 0.74 | | | | | | | |
| HLA-A*02:06 | 1 | 306 | 315 | 10 | FTVEKGIYQT | 0.103669 | 1.6 |
| HLA-A*30:01 | 1 | 1026 | 1034 | 9 | ATKMSECVL | 0.103618 | 1.6 |
| HLA-A*68:02 | 1 | 1144 | 1152 | 9 | ELDSFKEEL | 0.103601 | 1.2 |
| HLA-A*68:02 | 1 | 1163 | 1172 | 10 | DVDLGDISGI | 0.103594 | 1.2 |
| HLA-B*53:01 | 1 | 8 | 16 | 9 | LPLVSSQCV | 0.103447 | |
| 0.74 | | | | | | | |
| HLA-B*57:01 | 1 | 1053 | 1062 | 10 | PQSAPHGVVF | 0.103259 | 1.9 |
| HLA-B*58:01 | 1 | 828 | 837 | 10 | LADAGFIKQY | 0.103253 | 1.3 |
| HLA-A*26:01 | 1 | 1207 | 1215 | 9 | EQYIKWPWY | 0.103084 | |

| | | | | | | | |
|-------------|---|------|------|----|---------------------|-----|--|
| 0.68 | | | | | | | |
| HLA-A*68:02 | 1 | 661 | 670 | 10 | ECDIPIGAGI 0.103039 | 1.2 | |
| HLA-A*26:01 | 1 | 568 | 576 | 9 | DIADTTDAV 0.102804 | | |
| 0.68 | | | | | | | |
| HLA-A*68:02 | 1 | 1195 | 1203 | 9 | ESLIDLQEL 0.102785 | 1.2 | |
| HLA-A*68:02 | 1 | 374 | 382 | 9 | FSTFKCYGV 0.102784 | 1.2 | |
| HLA-B*51:01 | 1 | 968 | 976 | 9 | SNFGAISSV 0.102718 | 1.3 | |
| HLA-A*02:03 | 1 | 311 | 320 | 10 | GIYQTSNFRV 0.102669 | 1.5 | |
| HLA-A*68:02 | 1 | 719 | 727 | 9 | TISVTTEIL 0.102376 | 1.2 | |
| HLA-B*51:01 | 1 | 697 | 705 | 9 | MSLGAENSV 0.102125 | 1.3 | |
| HLA-A*11:01 | 1 | 93 | 102 | 10 | ASTEKSNIIR 0.102087 | 1.4 | |
| HLA-B*15:01 | 1 | 257 | 266 | 10 | GWTAGAAAYY 0.102087 | 1.6 | |
| HLA-A*32:01 | 1 | 892 | 900 | 9 | AALQIPFAM 0.101981 | | |
| 0.72 | | | | | | | |
| HLA-B*07:02 | 1 | 241 | 249 | 9 | LLALHRSYL 0.101956 | 1.1 | |
| HLA-B*57:01 | 1 | 444 | 453 | 10 | KVGGNYNYLY 0.101934 | 1.9 | |
| HLA-B*51:01 | 1 | 1189 | 1197 | 9 | VAKNLNESL 0.101933 | 1.3 | |
| HLA-B*51:01 | 1 | 1168 | 1176 | 9 | DISGINASV 0.10192 | 1.3 | |
| HLA-B*35:01 | 1 | 712 | 720 | 9 | IAIPTNFTI 0.101895 | 1.1 | |
| HLA-A*31:01 | 1 | 269 | 278 | 10 | YLQPRTFLLK 0.101531 | 2.0 | |
| HLA-B*08:01 | 1 | 98 | 106 | 9 | SNIIRGWIF 0.101375 | 1.2 | |
| HLA-A*03:01 | 1 | 787 | 796 | 10 | QIYKTPPIKD 0.101338 | 1.5 | |
| HLA-A*68:02 | 1 | 616 | 624 | 9 | NCTEVPVAI 0.101225 | 1.2 | |
| HLA-A*01:01 | 1 | 444 | 453 | 10 | KVGGNYNYLY 0.101219 | | |
| 0.93 | | | | | | | |
| HLA-A*24:02 | 1 | 781 | 789 | 9 | VFAQVKQIY 0.101137 | | |
| 0.85 | | | | | | | |
| HLA-A*68:02 | 1 | 710 | 718 | 9 | NSIAIPTNF 0.10106 | 1.2 | |
| HLA-A*02:06 | 1 | 907 | 915 | 9 | NGIGVTQNV 0.101018 | 1.6 | |
| HLA-B*15:01 | 1 | 78 | 86 | 9 | RFDNPVLPF 0.100914 | 1.6 | |
| HLA-A*30:01 | 1 | 1008 | 1016 | 9 | VTQLIRAA 0.100811 | 1.6 | |
| HLA-A*32:01 | 1 | 51 | 59 | 9 | TQDLFLPFF 0.100742 | | |
| 0.73 | | | | | | | |
| HLA-B*58:01 | 1 | 143 | 152 | 10 | VYYHKNKSW 0.10074 | 1.3 | |
| HLA-A*30:01 | 1 | 827 | 835 | 9 | TLADAGFIK 0.100467 | 1.6 | |
| HLA-A*33:01 | 1 | 198 | 207 | 10 | DGYFKIYSKH 0.100392 | 1.3 | |
| HLA-A*32:01 | 1 | 551 | 559 | 9 | VLTESNKKF 0.100281 | | |
| 0.73 | | | | | | | |
| HLA-A*02:06 | 1 | 882 | 890 | 9 | ITSGWTFGA 0.100278 | 1.6 | |
| HLA-A*24:02 | 1 | 625 | 633 | 9 | HADQLTPTW 0.100215 | | |
| 0.85 | | | | | | | |
| HLA-B*35:01 | 1 | 583 | 592 | 10 | EILDITPCSF 0.100139 | 1.1 | |
| HLA-A*24:02 | 1 | 37 | 45 | 9 | YYPDKVFRS 0.100113 | | |
| 0.85 | | | | | | | |
| HLA-B*51:01 | 1 | 336 | 344 | 9 | CPFGEVFNA 0.100066 | 1.4 | |
| HLA-A*33:01 | 1 | 238 | 246 | 9 | FQTLALHR 0.099946 | 1.4 | |
| HLA-A*03:01 | 1 | 1065 | 1074 | 10 | VTYVPAQEKV 0.099914 | 1.5 | |
| HLA-A*68:02 | 1 | 596 | 604 | 9 | SVITPGTNT 0.099838 | 1.2 | |
| HLA-B*57:01 | 1 | 62 | 70 | 9 | VTWFHAIHV 0.099699 | 2.0 | |
| HLA-B*57:01 | 1 | 1204 | 1212 | 9 | GKYEQYIKW 0.099622 | 2.0 | |
| HLA-B*08:01 | 1 | 236 | 244 | 9 | TRFQTLAL 0.099582 | 1.2 | |
| HLA-A*30:02 | 1 | 465 | 473 | 9 | ERDISTEYI 0.099573 | 1.4 | |
| HLA-B*58:01 | 1 | 159 | 168 | 10 | VYSSANNCTF 0.09933 | 1.3 | |
| HLA-A*30:01 | 1 | 395 | 403 | 9 | VYADSFVIR 0.099157 | 1.6 | |
| HLA-A*02:03 | 1 | 1175 | 1183 | 9 | SVVNIQKEI 0.099047 | 1.5 | |
| HLA-A*68:01 | 1 | 991 | 1000 | 10 | VQIDRLITGR 0.098975 | 2.6 | |
| HLA-B*35:01 | 1 | 1146 | 1155 | 10 | DSFKEELDKY 0.098962 | 1.1 | |
| HLA-B*35:01 | 1 | 371 | 380 | 10 | SASFSTFKCY 0.098947 | 1.1 | |
| HLA-B*44:02 | 1 | 427 | 436 | 10 | DDFTGCVIAW 0.098936 | | |
| 0.73 | | | | | | | |
| HLA-B*15:01 | 1 | 828 | 837 | 10 | LADAGFIKQY 0.098899 | 1.6 | |
| HLA-A*02:01 | 1 | 1062 | 1070 | 9 | FLHVTVVPA 0.098767 | 1.4 | |
| HLA-A*31:01 | 1 | 26 | 34 | 9 | PAYTNSFTR 0.098631 | 2.1 | |
| HLA-A*01:01 | 1 | 628 | 636 | 9 | QLTPTWRVY 0.098631 | | |
| 0.94 | | | | | | | |
| HLA-A*24:02 | 1 | 710 | 718 | 9 | NSIAIPTNF 0.098605 | | |

| | | | | | | | |
|-------------|---|------|------|----|---------------------|-----|--|
| 0.86 | | | | | | | |
| HLA-B*57:01 | 1 | 162 | 170 | 9 | SANCTFEY 0.098558 | 2.0 | |
| HLA-A*68:02 | 1 | 722 | 731 | 10 | VTTEILPVSM 0.098539 | 1.2 | |
| HLA-B*44:02 | 1 | 168 | 176 | 9 | FEYVSQPFL 0.09852 | | |
| 0.73 | | | | | | | |
| HLA-A*30:02 | 1 | 962 | 970 | 9 | LVKQLSSNF 0.098497 | 1.4 | |
| HLA-B*35:01 | 1 | 425 | 433 | 9 | LPDDFTGCV 0.098428 | 1.1 | |
| HLA-B*58:01 | 1 | 909 | 917 | 9 | IGVTQNVLY 0.098365 | 1.3 | |
| HLA-B*08:01 | 1 | 1034 | 1042 | 9 | LGQSKRVDF 0.098328 | 1.2 | |
| HLA-A*02:01 | 1 | 996 | 1004 | 9 | LITGRLQSL 0.098152 | 1.4 | |
| HLA-A*02:03 | 1 | 894 | 902 | 9 | LQIPFAMQM 0.098131 | 1.5 | |
| HLA-A*02:03 | 1 | 7 | 16 | 10 | LLPLVSSQCV 0.098111 | 1.5 | |
| HLA-B*58:01 | 1 | 509 | 517 | 9 | RVVVLSEFEL 0.097903 | 1.3 | |
| HLA-A*26:01 | 1 | 896 | 904 | 9 | IPFAMQMAY 0.097881 | | |
| 0.71 | | | | | | | |
| HLA-A*02:06 | 1 | 150 | 159 | 10 | KSWMESEFRV 0.097651 | 1.7 | |
| HLA-A*32:01 | 1 | 1208 | 1216 | 9 | QYIKWPWYI 0.097636 | | |
| 0.75 | | | | | | | |
| HLA-B*51:01 | 1 | 84 | 93 | 10 | LPFNDGVYFA 0.097516 | 1.4 | |
| HLA-B*35:01 | 1 | 342 | 351 | 10 | FNATRFASVY 0.097473 | 1.1 | |
| HLA-A*30:02 | 1 | 310 | 318 | 9 | KGITYQTSNF 0.097309 | 1.4 | |
| HLA-A*03:01 | 1 | 361 | 369 | 9 | CVADYSVLY 0.097239 | 1.6 | |
| HLA-B*35:01 | 1 | 167 | 175 | 9 | TFEYVSQPF 0.097195 | 1.1 | |
| HLA-A*03:01 | 1 | 986 | 995 | 10 | KVEAEVQIDR 0.097093 | 1.6 | |
| HLA-B*08:01 | 1 | 1060 | 1068 | 9 | VVFLHVITYV 0.096943 | 1.2 | |
| HLA-B*15:01 | 1 | 343 | 351 | 9 | NATRFASVY 0.096835 | 1.7 | |
| HLA-B*08:01 | 1 | 680 | 688 | 9 | SPRRARVA 0.096805 | 1.2 | |
| HLA-A*30:02 | 1 | 1146 | 1155 | 10 | DSFKEELDKY 0.096744 | 1.4 | |
| HLA-A*30:02 | 1 | 417 | 425 | 9 | KIADYNYKL 0.096628 | 1.4 | |
| HLA-A*03:01 | 1 | 548 | 557 | 10 | GTGVLTESNK 0.096598 | 1.6 | |
| HLA-B*57:01 | 1 | 1205 | 1214 | 10 | KYEYQIKWPW 0.096595 | 2.0 | |
| HLA-A*30:01 | 1 | 1096 | 1104 | 9 | VSNGTHWFV 0.096442 | 1.7 | |
| HLA-B*15:01 | 1 | 1039 | 1047 | 9 | RVDFCGKGY 0.096389 | 1.7 | |
| HLA-A*02:06 | 1 | 929 | 938 | 10 | SAIGKIQDSL 0.096355 | 1.7 | |
| HLA-B*53:01 | 1 | 294 | 303 | 10 | DPLSETKCTL 0.096273 | | |
| 0.79 | | | | | | | |
| HLA-B*53:01 | 1 | 1056 | 1064 | 9 | APHGVVFLH 0.096087 | | |
| 0.79 | | | | | | | |
| HLA-B*44:02 | 1 | 1180 | 1189 | 10 | QKEIDRLNEV 0.096079 | | |
| 0.73 | | | | | | | |
| HLA-B*57:01 | 1 | 731 | 740 | 10 | MTKTSVDCTM 0.096073 | 2.0 | |
| HLA-A*01:01 | 1 | 160 | 168 | 9 | YSSANCTF 0.096027 | | |
| 0.97 | | | | | | | |
| HLA-A*68:02 | 1 | 976 | 984 | 9 | VLNDILSRL 0.09601 | 1.3 | |
| HLA-A*02:01 | 1 | 241 | 249 | 9 | LLALHRSYL 0.095947 | 1.4 | |
| HLA-B*57:01 | 1 | 815 | 824 | 10 | RSFIEDLLFN 0.095751 | 2.0 | |
| HLA-A*32:01 | 1 | 50 | 59 | 10 | STQDLFLPFF 0.095649 | | |
| 0.76 | | | | | | | |
| HLA-B*51:01 | 1 | 62 | 70 | 9 | VTWFHAIHV 0.095533 | 1.4 | |
| HLA-A*03:01 | 1 | 302 | 311 | 10 | TLKSFTVEKG 0.095465 | 1.6 | |
| HLA-A*68:02 | 1 | 221 | 229 | 9 | SALEPLVDL 0.09546 | 1.3 | |
| HLA-A*33:01 | 1 | 94 | 102 | 9 | STEKSNIIR 0.095423 | 1.4 | |
| HLA-B*08:01 | 1 | 353 | 361 | 9 | WNRKRISNC 0.095341 | 1.2 | |
| HLA-A*31:01 | 1 | 1176 | 1185 | 10 | VVNIQKEIDR 0.09534 | 2.1 | |
| HLA-B*35:01 | 1 | 880 | 888 | 9 | GTITSGWTF 0.095289 | 1.1 | |
| HLA-B*53:01 | 1 | 267 | 275 | 9 | VGYLQPRTF 0.095225 | | |
| 0.79 | | | | | | | |
| HLA-A*68:01 | 1 | 28 | 37 | 10 | YTNSFTRGVY 0.095037 | 2.6 | |
| HLA-B*40:01 | 1 | 223 | 231 | 9 | LEPLVDLPI 0.094994 | 1.0 | |
| HLA-A*02:03 | 1 | 62 | 70 | 9 | VTWFHAIHV 0.094925 | 1.5 | |
| HLA-A*33:01 | 1 | 13 | 21 | 9 | SQCWNLTTR 0.094825 | 1.4 | |
| HLA-A*24:02 | 1 | 185 | 194 | 10 | NFKNLREFVF 0.094824 | | |
| 0.88 | | | | | | | |
| HLA-A*30:02 | 1 | 58 | 66 | 9 | FFSNVTWFH 0.094797 | 1.4 | |
| HLA-B*51:01 | 1 | 329 | 338 | 10 | FPNITNLCPF 0.094779 | 1.4 | |
| HLA-A*02:01 | 1 | 416 | 425 | 10 | GKIADYNYKL 0.094732 | 1.5 | |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*15:01 | 1 | 896 | 904 | 9 | IPFAMQMAY 0.094725 | 1.7 |
| HLA-A*68:02 | 1 | 703 | 712 | 10 | NSVAYSNSI 0.094329 | 1.3 |
| HLA-A*30:02 | 1 | 47 | 55 | 9 | VLHSTQDLF 0.094313 | 1.4 |
| HLA-A*03:01 | 1 | 89 | 98 | 10 | GVYFASTEKS 0.094286 | 1.6 |
| HLA-A*03:01 | 1 | 604 | 612 | 9 | TSNQVAVLY 0.094238 | 1.6 |
| HLA-B*51:01 | 1 | 892 | 900 | 9 | AALQIPFAM 0.094203 | 1.4 |
| HLA-A*30:01 | 1 | 528 | 537 | 10 | KKSTNLVKNK 0.094179 | 1.7 |
| HLA-A*01:01 | 1 | 445 | 453 | 9 | VGGNYNYLY 0.094173 | |
| 0.98 | | | | | | |
| HLA-A*30:02 | 1 | 441 | 449 | 9 | LDSKVGNY 0.094139 | 1.4 |
| HLA-A*02:06 | 1 | 502 | 510 | 9 | GVGYQPYRV 0.094097 | 1.7 |
| HLA-A*26:01 | 1 | 392 | 400 | 9 | FTNVYADSF 0.094092 | |
| 0.73 | | | | | | |
| HLA-A*02:06 | 1 | 940 | 948 | 9 | STASALGKL 0.094075 | 1.7 |
| HLA-B*58:01 | 1 | 809 | 817 | 9 | PSKPSKRSF 0.094052 | 1.3 |
| HLA-A*32:01 | 1 | 444 | 453 | 10 | KVGGNYNYLY 0.093936 | |
| 0.77 | | | | | | |
| HLA-A*03:01 | 1 | 549 | 558 | 10 | TGVLTESNKK 0.093902 | 1.6 |
| HLA-B*53:01 | 1 | 23 | 32 | 10 | QLPPAYTNSF 0.093667 | |
| 0.79 | | | | | | |
| HLA-B*58:01 | 1 | 688 | 697 | 10 | ASQSIIAYTM 0.09363 | 1.3 |
| HLA-A*02:01 | 1 | 762 | 770 | 9 | QLNRALTGI 0.09359 | 1.5 |
| HLA-A*02:06 | 1 | 704 | 712 | 9 | SVAYSNSI 0.093432 | 1.7 |
| HLA-A*11:01 | 1 | 1264 | 1272 | 9 | VLKGVKLHY 0.093302 | 1.5 |
| HLA-B*07:02 | 1 | 207 | 216 | 10 | HTPINLVRDL 0.093299 | 1.2 |
| HLA-B*08:01 | 1 | 456 | 464 | 9 | FRKSNLKP 0.093246 | 1.3 |
| HLA-B*58:01 | 1 | 417 | 425 | 9 | KIADYNYKL 0.093187 | 1.3 |
| HLA-A*30:02 | 1 | 464 | 473 | 10 | FERDISTEY 0.093166 | 1.4 |
| HLA-A*32:01 | 1 | 898 | 906 | 9 | FAMQMAYRF 0.093132 | |
| 0.78 | | | | | | |
| HLA-B*44:03 | 1 | 1257 | 1265 | 9 | DEDDSEPV 0.092998 | |
| 0.85 | | | | | | |
| HLA-A*02:03 | 1 | 502 | 510 | 9 | GVGYQPYRV 0.092927 | 1.6 |
| HLA-A*02:03 | 1 | 567 | 576 | 10 | RDIADTTDAV 0.092883 | 1.6 |
| HLA-A*02:06 | 1 | 780 | 788 | 9 | EVFAQVKQI 0.092869 | 1.7 |
| HLA-A*02:03 | 1 | 451 | 459 | 9 | YLYRFRKS 0.092766 | 1.6 |
| HLA-B*57:01 | 1 | 383 | 392 | 10 | SPTKLNLCF 0.092763 | 2.0 |
| HLA-B*53:01 | 1 | 224 | 233 | 10 | EPLVDLPIGI 0.092709 | 0.8 |
| HLA-B*15:01 | 1 | 392 | 400 | 9 | FTNVYADSF 0.092674 | 1.7 |
| HLA-A*23:01 | 1 | 327 | 335 | 9 | VRFPNITNL 0.09246 | |
| 0.84 | | | | | | |
| HLA-A*23:01 | 1 | 781 | 789 | 9 | VFAQVKQIY 0.092432 | |
| 0.84 | | | | | | |
| HLA-A*31:01 | 1 | 674 | 683 | 10 | YQTQTNPRR 0.092382 | 2.1 |
| HLA-A*31:01 | 1 | 370 | 378 | 9 | NSASFSTFK 0.092151 | 2.1 |
| HLA-A*02:03 | 1 | 495 | 503 | 9 | YGFQPTNGV 0.092109 | 1.6 |
| HLA-B*51:01 | 1 | 915 | 923 | 9 | VLYENQKLI 0.092006 | 1.4 |
| HLA-A*68:02 | 1 | 914 | 922 | 9 | NVLYENQKL 0.091989 | 1.3 |
| HLA-A*30:01 | 1 | 871 | 879 | 9 | AQYTSALLA 0.091949 | 1.8 |
| HLA-B*58:01 | 1 | 258 | 266 | 9 | WTAGAAAYY 0.091869 | 1.3 |
| HLA-A*68:02 | 1 | 1014 | 1022 | 9 | RAAEIRASA 0.091842 | 1.3 |
| HLA-A*11:01 | 1 | 453 | 462 | 10 | YRFRKSNLK 0.091747 | 1.5 |
| HLA-B*35:01 | 1 | 723 | 731 | 9 | TTEILPVSM 0.091744 | 1.1 |
| HLA-A*31:01 | 1 | 845 | 854 | 10 | AARDLICAQK 0.091744 | 2.1 |
| HLA-B*53:01 | 1 | 877 | 886 | 10 | LLAGTITSGW 0.091718 | |
| 0.81 | | | | | | |
| HLA-A*31:01 | 1 | 139 | 147 | 9 | PFLGVYHYK 0.091717 | 2.1 |
| HLA-A*02:01 | 1 | 1007 | 1015 | 9 | YVTQQLIRA 0.091708 | 1.5 |
| HLA-B*15:01 | 1 | 1206 | 1215 | 10 | YEYIKWPWY 0.09164 | 1.7 |
| HLA-A*30:02 | 1 | 732 | 741 | 10 | TKTSVDCTMY 0.091554 | 1.4 |
| HLA-A*68:02 | 1 | 936 | 945 | 10 | DSLSSTASAL 0.091553 | 1.3 |
| HLA-B*57:01 | 1 | 711 | 720 | 10 | SIAIPTNFTI 0.09154 | 2.1 |
| HLA-B*57:01 | 1 | 1189 | 1197 | 9 | VAKNLNESL 0.091506 | 2.1 |
| HLA-A*02:01 | 1 | 943 | 951 | 9 | SALGKLQDV 0.091484 | 1.5 |
| HLA-B*08:01 | 1 | 868 | 876 | 9 | EMIAQY TSA 0.091382 | 1.3 |
| HLA-A*11:01 | 1 | 1059 | 1067 | 9 | GVVFLHVTY 0.091173 | 1.5 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*02:06 | 1 | 711 | 720 | 10 | SIAIPTNFTI 0.091131 | 1.8 |
| HLA-A*68:02 | 1 | 658 | 666 | 9 | NSYECDIPI 0.091115 | 1.3 |
| HLA-A*01:01 | 1 | 487 | 495 | 9 | NCYFPLQSY 0.091068 | 1.1 |
| HLA-B*51:01 | 1 | 204 | 212 | 9 | YSKHTPINL 0.091018 | 1.4 |
| HLA-B*51:01 | 1 | 81 | 90 | 10 | NPVLPFNDGV 0.090932 | 1.4 |
| HLA-A*02:03 | 1 | 1004 | 1012 | 9 | LQTYVVTQQL 0.090928 | 1.6 |
| HLA-A*30:01 | 1 | 326 | 334 | 9 | IVRFPNITN 0.090898 | 1.8 |
| HLA-A*33:01 | 1 | 777 | 786 | 10 | NTQEVFAQVK 0.090868 | 1.4 |
| HLA-B*35:01 | 1 | 962 | 970 | 9 | LVKQLSSNF 0.090831 | 1.1 |
| HLA-A*02:03 | 1 | 1223 | 1231 | 9 | GLIAIVMVT 0.09083 | 1.6 |
| HLA-A*68:02 | 1 | 510 | 518 | 9 | VVLSFELL 0.090822 | 1.3 |
| HLA-A*30:02 | 1 | 36 | 44 | 9 | VYYPKVFR 0.090794 | 1.5 |
| HLA-A*03:01 | 1 | 628 | 636 | 9 | QLTPTWRVY 0.090719 | 1.6 |
| HLA-A*24:02 | 1 | 815 | 823 | 9 | RSFIEDLLF 0.090686 | |
| 0.91 | | | | | | |
| HLA-A*03:01 | 1 | 781 | 790 | 10 | VFAQVKQIYK 0.090651 | 1.6 |
| HLA-A*33:01 | 1 | 816 | 825 | 10 | SFIEDLLFNK 0.090509 | 1.4 |
| HLA-B*40:01 | 1 | 853 | 861 | 9 | QKFNGLTVL 0.09049 | 1.1 |
| HLA-B*51:01 | 1 | 874 | 882 | 9 | TSALLAGTI 0.090363 | 1.4 |
| HLA-B*57:01 | 1 | 533 | 541 | 9 | LVKNKCVNF 0.09029 | 2.1 |
| HLA-A*02:03 | 1 | 201 | 210 | 10 | FKIYSKHTPI 0.090134 | 1.6 |
| HLA-A*30:01 | 1 | 268 | 276 | 9 | GYLQPRFTL 0.090064 | 1.8 |
| HLA-A*30:01 | 1 | 212 | 220 | 9 | LVRDLPQGF 0.089844 | 1.8 |
| HLA-A*68:02 | 1 | 1031 | 1040 | 10 | ECVLGQSKRV 0.089832 | 1.3 |
| HLA-A*68:02 | 1 | 60 | 68 | 9 | SNVTWFHAI 0.089812 | 1.3 |
| HLA-A*30:01 | 1 | 816 | 825 | 10 | SFIEDLLFNK 0.089713 | 1.8 |
| HLA-A*68:02 | 1 | 929 | 938 | 10 | SAIGKIQDSL 0.089654 | 1.3 |
| HLA-A*33:01 | 1 | 26 | 34 | 9 | PAYTNSFTR 0.089647 | 1.5 |
| HLA-A*26:01 | 1 | 166 | 175 | 10 | CTFEYVSQPF 0.089628 | |
| 0.76 | | | | | | |
| HLA-A*26:01 | 1 | 28 | 36 | 9 | YTNSFTRGV 0.089513 | |
| 0.76 | | | | | | |
| HLA-A*02:06 | 1 | 285 | 293 | 9 | ITDAVDCAL 0.089403 | 1.8 |
| HLA-B*57:01 | 1 | 258 | 266 | 9 | WTAGAAAYY 0.089373 | 2.1 |
| HLA-A*02:06 | 1 | 511 | 520 | 10 | VVLSFELLHA 0.089252 | 1.8 |
| HLA-B*08:01 | 1 | 78 | 86 | 9 | RFDNPVLPF 0.089229 | 1.3 |
| HLA-B*58:01 | 1 | 711 | 720 | 10 | SIAIPTNFTI 0.089145 | 1.4 |
| HLA-B*15:01 | 1 | 999 | 1007 | 9 | GRLQSLQTY 0.089142 | 1.7 |
| HLA-A*32:01 | 1 | 825 | 833 | 9 | KVTLADAGF 0.089062 | |
| 0.82 | | | | | | |
| HLA-A*11:01 | 1 | 12 | 21 | 10 | SSQCVNLTTR 0.089049 | 1.5 |
| HLA-A*02:01 | 1 | 1114 | 1122 | 9 | IITTDNTFV 0.088901 | 1.5 |
| HLA-A*30:02 | 1 | 267 | 275 | 9 | VGYLQPRTF 0.088785 | 1.5 |
| HLA-A*23:01 | 1 | 83 | 92 | 10 | VLPFNDGVYF 0.088747 | |
| 0.87 | | | | | | |
| HLA-B*08:01 | 1 | 327 | 335 | 9 | VRFPNITNL 0.088626 | 1.3 |
| HLA-A*11:01 | 1 | 88 | 97 | 10 | DGVYFASTK 0.088602 | 1.5 |
| HLA-B*07:02 | 1 | 202 | 210 | 9 | KIYSKHTPI 0.088574 | 1.3 |
| HLA-A*01:01 | 1 | 261 | 269 | 9 | GAAAYYVGY 0.088523 | 1.1 |
| HLA-B*57:01 | 1 | 78 | 86 | 9 | RFDNPVLPF 0.088435 | 2.1 |
| HLA-A*03:01 | 1 | 634 | 642 | 9 | RVYSTGSNV 0.088429 | 1.7 |
| HLA-A*26:01 | 1 | 961 | 970 | 10 | TLVKQLSSNF 0.08837 | |
| 0.77 | | | | | | |
| HLA-A*02:06 | 1 | 772 | 781 | 10 | VEQDKNTQEV 0.088291 | 1.8 |
| HLA-A*02:06 | 1 | 226 | 235 | 10 | LVDLPIGINI 0.088285 | 1.8 |
| HLA-A*68:01 | 1 | 806 | 815 | 10 | LPDPSKPSKR 0.088274 | 2.7 |
| HLA-A*03:01 | 1 | 30 | 38 | 9 | NSFTRGVY 0.088212 | 1.7 |
| HLA-A*02:03 | 1 | 868 | 876 | 9 | EMIAQYTSY 0.088175 | 1.6 |
| HLA-A*02:01 | 1 | 712 | 720 | 9 | IAIPTNFTI 0.088155 | 1.5 |
| HLA-B*40:01 | 1 | 297 | 306 | 10 | SETKCTLKSF 0.088083 | 1.1 |
| HLA-A*32:01 | 1 | 814 | 823 | 10 | KRSFIEDLLF 0.087869 | |
| 0.82 | | | | | | |
| HLA-A*68:01 | 1 | 70 | 78 | 9 | VSGTNGTKR 0.087831 | 2.7 |
| HLA-B*51:01 | 1 | 233 | 241 | 9 | INITRFQTL 0.087828 | 1.5 |
| HLA-A*31:01 | 1 | 181 | 190 | 10 | GKQGNFKNLR 0.087768 | 2.2 |
| HLA-A*23:01 | 1 | 56 | 65 | 10 | LPFFSNVTWF 0.087767 | |

| | | | | | | | |
|-------------|---|------|------|----|---------------------|-----|--|
| 0.88 | | | | | | | |
| HLA-A*26:01 | 1 | 950 | 959 | 10 | DVVNQNAQAL 0.087753 | | |
| 0.77 | | | | | | | |
| HLA-A*24:02 | 1 | 919 | 927 | 9 | NQKLIANQF 0.087728 | | |
| 0.92 | | | | | | | |
| HLA-A*02:01 | 1 | 326 | 335 | 10 | IVRFPNITNL 0.087718 | 1.5 | |
| HLA-A*02:03 | 1 | 1129 | 1137 | 9 | VIGIVNNTV 0.08769 | 1.6 | |
| HLA-A*23:01 | 1 | 919 | 927 | 9 | NQKLIANQF 0.087587 | | |
| 0.88 | | | | | | | |
| HLA-A*11:01 | 1 | 13 | 21 | 9 | SQCVNLTTR 0.087395 | 1.5 | |
| HLA-B*53:01 | 1 | 30 | 38 | 9 | NSFTRGVVY 0.087351 | | |
| 0.85 | | | | | | | |
| HLA-A*30:01 | 1 | 558 | 567 | 10 | KFLPFQQFGR 0.087226 | 1.8 | |
| HLA-A*30:01 | 1 | 550 | 558 | 9 | GVLTESNKK 0.08722 | 1.8 | |
| HLA-A*02:01 | 1 | 1181 | 1189 | 9 | KEIDRLNEV 0.087213 | 1.5 | |
| HLA-A*68:02 | 1 | 409 | 418 | 10 | QIAPGQTGKI 0.087157 | 1.3 | |
| HLA-A*32:01 | 1 | 304 | 312 | 9 | KSFTVEKGI 0.087125 | | |
| 0.83 | | | | | | | |
| HLA-B*35:01 | 1 | 270 | 279 | 10 | LQPRTFLLKY 0.086989 | 1.2 | |
| HLA-A*68:01 | 1 | 805 | 814 | 10 | ILPDPSKPSK 0.086959 | 2.7 | |
| HLA-A*02:06 | 1 | 761 | 770 | 10 | TQLNRALTGI 0.086895 | 1.8 | |
| HLA-B*57:01 | 1 | 95 | 104 | 10 | TEKSNIIRGW 0.086793 | 2.1 | |
| HLA-A*02:03 | 1 | 1264 | 1273 | 10 | VLKGVKLHYT 0.086618 | 1.6 | |
| HLA-A*68:02 | 1 | 723 | 731 | 9 | TTEILPVSM 0.086525 | 1.3 | |
| HLA-A*02:06 | 1 | 168 | 176 | 9 | FEYVSQPFL 0.086442 | 1.8 | |
| HLA-A*26:01 | 1 | 864 | 873 | 10 | LLTDEMIAQY 0.086359 | | |
| 0.78 | | | | | | | |
| HLA-A*02:01 | 1 | 502 | 510 | 9 | GVGYPYRV 0.086323 | 1.5 | |
| HLA-B*07:02 | 1 | 78 | 86 | 9 | RFDNPVLPF 0.086218 | 1.3 | |
| HLA-A*32:01 | 1 | 361 | 369 | 9 | CVADYSVLY 0.086206 | | |
| 0.84 | | | | | | | |
| HLA-A*23:01 | 1 | 584 | 592 | 9 | ILDITPCSF 0.086157 | 0.9 | |
| HLA-A*30:02 | 1 | 1264 | 1273 | 10 | VLKGVKLHYT 0.086153 | 1.5 | |
| HLA-B*08:01 | 1 | 943 | 951 | 9 | SALGKLQDV 0.086133 | 1.4 | |
| HLA-A*32:01 | 1 | 1094 | 1102 | 9 | VFVSNQTHW 0.086117 | | |
| 0.84 | | | | | | | |
| HLA-B*15:01 | 1 | 109 | 117 | 9 | TLDSKTQSL 0.085986 | 1.8 | |
| HLA-B*53:01 | 1 | 361 | 369 | 9 | CVADYSVLY 0.085907 | | |
| 0.86 | | | | | | | |
| HLA-A*30:01 | 1 | 1048 | 1056 | 9 | HMSFPQSA 0.085827 | 1.8 | |
| HLA-A*02:01 | 1 | 1129 | 1137 | 9 | VIGIVNNTV 0.085778 | 1.5 | |
| HLA-B*57:01 | 1 | 909 | 917 | 9 | IGVTQNVLY 0.0857 | 2.1 | |
| HLA-A*30:01 | 1 | 62 | 70 | 9 | VTWFHAIHV 0.085654 | 1.8 | |
| HLA-A*01:01 | 1 | 304 | 313 | 10 | KSFTVEKGIY 0.085632 | 1.1 | |
| HLA-B*53:01 | 1 | 792 | 800 | 9 | PPIKDFGGF 0.085533 | | |
| 0.87 | | | | | | | |
| HLA-A*11:01 | 1 | 733 | 741 | 9 | KTSVDCTMY 0.085481 | 1.6 | |
| HLA-A*30:01 | 1 | 28 | 36 | 9 | YTNSFTRGV 0.085467 | 1.8 | |
| HLA-A*30:01 | 1 | 32 | 41 | 10 | FTRGVYYPDK 0.085453 | 1.8 | |
| HLA-A*11:01 | 1 | 296 | 304 | 9 | LSETKCTLK 0.085411 | 1.6 | |
| HLA-A*01:01 | 1 | 269 | 277 | 9 | YLQPRTFLL 0.085329 | 1.1 | |
| HLA-A*32:01 | 1 | 1171 | 1179 | 9 | GINASVVNI 0.085324 | | |
| 0.84 | | | | | | | |
| HLA-A*02:06 | 1 | 937 | 945 | 9 | SLSSTASAL 0.085288 | 1.9 | |
| HLA-B*35:01 | 1 | 791 | 800 | 10 | TPPIKDFGGF 0.085243 | 1.2 | |
| HLA-A*03:01 | 1 | 187 | 195 | 9 | KNLREFVFK 0.085164 | 1.7 | |
| HLA-A*68:02 | 1 | 433 | 441 | 9 | VIAWNSNNL 0.08516 | 1.4 | |
| HLA-B*08:01 | 1 | 892 | 900 | 9 | AALQIPFAM 0.085134 | 1.4 | |
| HLA-B*07:02 | 1 | 212 | 220 | 9 | LVRDLPQGF 0.085115 | 1.3 | |
| HLA-B*51:01 | 1 | 464 | 472 | 9 | FERDISTEI 0.085061 | 1.5 | |
| HLA-A*23:01 | 1 | 185 | 194 | 10 | NFKNLREFV 0.085039 | | |
| 0.91 | | | | | | | |
| HLA-A*02:06 | 1 | 1144 | 1152 | 9 | ELDSFKEEL 0.085012 | 1.9 | |
| HLA-A*33:01 | 1 | 348 | 357 | 10 | ASVYAWNRRK 0.084921 | 1.5 | |
| HLA-B*15:01 | 1 | 365 | 374 | 10 | YSVLYNSASF 0.084899 | 1.8 | |
| HLA-A*02:01 | 1 | 852 | 861 | 10 | AQKFNGLTVL 0.084818 | 1.5 | |

| | | | | | | |
|---------------------|---|------|------|----|---------------------|-----|
| HLA-A*32:01 0.85 | 1 | 1113 | 1121 | 9 | QIITDNTF 0.084663 | |
| HLA-A*68:02 | 1 | 1048 | 1056 | 9 | HLMSFPQSA 0.084518 | 1.4 |
| HLA-B*57:01 | 1 | 161 | 170 | 10 | SSANNCTFEY 0.084504 | 2.2 |
| HLA-A*23:01 0.91 | 1 | 54 | 62 | 9 | LFLPFFSNV 0.084469 | |
| HLA-A*68:02 | 1 | 170 | 179 | 10 | YVSQPFLMDL 0.084409 | 1.4 |
| HLA-B*40:01 | 1 | 1181 | 1190 | 10 | KEIDRLNEVA 0.084381 | 1.1 |
| HLA-A*11:01 | 1 | 1237 | 1245 | 9 | MTSCCCLK 0.084378 | 1.6 |
| HLA-A*01:01 | 1 | 465 | 473 | 9 | ERDISTEY 0.08437 | 1.1 |
| HLA-A*02:06 | 1 | 1215 | 1224 | 10 | YIWLGFIAGL 0.084223 | 1.9 |
| HLA-A*23:01 0.91 | 1 | 551 | 559 | 9 | VLTESNKKF 0.084155 | |
| HLA-B*58:01 | 1 | 1204 | 1212 | 9 | GKYEQYIKW 0.084108 | 1.4 |
| HLA-B*08:01 | 1 | 962 | 970 | 9 | LVKQLSSNF 0.084059 | 1.4 |
| HLA-B*58:01 | 1 | 825 | 833 | 9 | KVTLADAGF 0.084023 | 1.4 |
| HLA-A*30:01 | 1 | 75 | 83 | 9 | GTKRFDNPV 0.084022 | 1.9 |
| HLA-B*57:01 | 1 | 477 | 486 | 10 | STPCNGVEGF 0.08401 | 2.2 |
| HLA-A*68:02 | 1 | 262 | 270 | 9 | AAAYVGYL 0.08391 | 1.4 |
| HLA-B*57:01 | 1 | 894 | 902 | 9 | LQIPFAMQM 0.08391 | 2.2 |
| HLA-A*24:02 0.94 | 1 | 557 | 565 | 9 | KKFLPFQF 0.083838 | |
| HLA-A*32:01 0.86 | 1 | 83 | 92 | 10 | VLFPNDGVYF 0.083809 | |
| HLA-A*02:03 | 1 | 968 | 976 | 9 | SNFGAISSV 0.083799 | 1.7 |
| HLA-A*68:01 | 1 | 487 | 495 | 9 | NCYFPLQSY 0.083731 | 2.8 |
| HLA-A*26:01 0.81 | 1 | 898 | 906 | 9 | FAMQMAYRF 0.083728 | |
| HLA-A*03:01 | 1 | 777 | 786 | 10 | NTQEVFAQVK 0.083723 | 1.7 |
| HLA-B*58:01 | 1 | 150 | 159 | 10 | KSWMESEFRV 0.083701 | 1.4 |
| HLA-B*53:01 0.88 | 1 | 583 | 592 | 10 | EILDITPCSF 0.083647 | |
| HLA-A*24:02 0.94 | 1 | 505 | 513 | 9 | YQPYRVVVL 0.083587 | |
| HLA-B*07:02 | 1 | 478 | 486 | 9 | TPCNGVEGF 0.083534 | 1.3 |
| HLA-A*30:02 | 1 | 689 | 697 | 9 | SQSIIAYTM 0.083497 | 1.6 |
| HLA-A*68:02 | 1 | 269 | 277 | 9 | YLQPRTFLL 0.083448 | 1.4 |
| HLA-A*30:01 | 1 | 784 | 792 | 9 | QVKQIYKTP 0.083432 | 1.9 |
| HLA-A*30:01 | 1 | 311 | 319 | 9 | GIYQTSNFR 0.083379 | 1.9 |
| HLA-B*15:01 | 1 | 898 | 906 | 9 | FAMQMAYRF 0.083373 | 1.8 |
| HLA-A*68:02 | 1 | 773 | 781 | 9 | EQDKNTQEV 0.08327 | 1.4 |
| HLA-A*30:02 | 1 | 584 | 592 | 9 | ILDITPCSF 0.083247 | 1.6 |
| HLA-A*02:03 | 1 | 1219 | 1228 | 10 | GFIAGLIAIV 0.083178 | 1.7 |
| HLA-A*02:06 | 1 | 109 | 118 | 10 | TLDSKTQSL 0.083155 | 1.9 |
| HLA-A*02:06 | 1 | 151 | 159 | 9 | SWMESEFRV 0.083099 | 1.9 |
| HLA-A*68:01 | 1 | 29 | 38 | 10 | TNSFTRGVY 0.082914 | 2.8 |
| HLA-A*68:01 | 1 | 550 | 558 | 9 | GVLTESNKK 0.082858 | 2.8 |
| HLA-A*68:02 | 1 | 1121 | 1129 | 9 | FVSGNCDVV 0.082735 | 1.4 |
| HLA-A*26:01 0.82 | 1 | 1050 | 1058 | 9 | MSFPQSAPH 0.082712 | |
| HLA-B*57:01 | 1 | 733 | 742 | 10 | KTSVDCTMYI 0.082694 | 2.2 |
| HLA-A*02:03 | 1 | 780 | 788 | 9 | EVFAQVKQI 0.082661 | 1.7 |
| HLA-A*33:01 | 1 | 12 | 21 | 10 | SSQCVNLTTR 0.082617 | 1.5 |
| HLA-A*68:01 | 1 | 269 | 278 | 10 | YLQPRTFLLK 0.082492 | 2.8 |
| HLA-A*31:01 | 1 | 559 | 567 | 9 | FLPFQFGR 0.082394 | 2.3 |
| HLA-B*58:01 | 1 | 47 | 55 | 9 | VLHSTQDLF 0.082358 | 1.4 |
| HLA-A*11:01 | 1 | 778 | 786 | 9 | TQEVFAQVK 0.082355 | 1.6 |
| HLA-B*58:01 | 1 | 722 | 731 | 10 | VTTEILPVSM 0.082279 | 1.4 |
| HLA-A*02:01 | 1 | 921 | 930 | 10 | KLIANQFNFA 0.082256 | 1.6 |
| HLA-A*33:01 | 1 | 337 | 346 | 10 | PFGEVFNATR 0.082203 | 1.6 |
| HLA-A*30:01 | 1 | 675 | 683 | 9 | QTQTNSPRR 0.082164 | 1.9 |
| HLA-A*11:01 | 1 | 528 | 537 | 10 | KKSTNLVKNK 0.082118 | 1.6 |
| HLA-B*07:02 | 1 | 8 | 16 | 9 | LPLVSSQCV 0.082048 | 1.3 |
| HLA-B*57:01 | 1 | 369 | 377 | 9 | YNSASFSTF 0.081995 | 2.2 |
| HLA-A*68:02 | 1 | 641 | 650 | 10 | NVFQTRAGCL 0.081987 | 1.4 |
| HLA-A*11:01 | 1 | 348 | 357 | 10 | ASVYAWNRKR 0.081972 | 1.6 |

| | | | | | | |
|---------------------|---|------|------|----|-----------------------|-----|
| HLA-B*53:01 0.89 | 1 | 892 | 900 | 9 | AALQIPFAM 0.081907 | |
| HLA-A*31:01 | 1 | 897 | 905 | 9 | PFAMQMAYR 0.081878 | 2.3 |
| HLA-B*15:01 | 1 | 871 | 879 | 9 | AQYTSALLA 0.08184 | 1.8 |
| HLA-A*02:06 | 1 | 606 | 615 | 10 | NQVAVLYQDV 0.081777 | 1.9 |
| HLA-B*57:01 | 1 | 417 | 425 | 9 | KIADYNYKL 0.081731 | 2.2 |
| HLA-B*44:03 0.93 | 1 | 1150 | 1159 | 10 | EELDKYFKNH 0.081679 | |
| HLA-A*31:01 | 1 | 400 | 408 | 9 | FVIRGDEVR 0.081671 | 2.3 |
| HLA-A*32:01 0.89 | 1 | 1175 | 1183 | 9 | SVVNIQKEI 0.081541 | |
| HLA-A*02:01 | 1 | 871 | 879 | 9 | AQYTSALLA 0.081449 | 1.6 |
| HLA-A*30:01 | 1 | 273 | 281 | 9 | RTFLLKYNE 0.08123 | 1.9 |
| HLA-B*40:01 | 1 | 577 | 585 | 9 | RDPQTLLEIL 0.081177 | 1.1 |
| HLA-A*30:02 | 1 | 481 | 489 | 9 | NGVEGFNCY 0.081024 | 1.6 |
| HLA-A*01:01 | 1 | 83 | 91 | 9 | VLPFNDGVY 0.081021 | 1.1 |
| HLA-A*68:01 | 1 | 442 | 451 | 10 | DSKVGGNVNY 0.081016 | 2.8 |
| HLA-B*58:01 | 1 | 34 | 43 | 10 | RGVYYPDKVF 0.080742 | 1.4 |
| HLA-A*30:01 | 1 | 182 | 190 | 9 | KQGNFKNLR 0.080726 | 1.9 |
| HLA-B*51:01 | 1 | 168 | 176 | 9 | FEYVSQPFL 0.08069 | 1.6 |
| HLA-A*23:01 0.94 | 1 | 1067 | 1075 | 9 | YVPAQEKNF 0.080527 | |
| HLA-B*15:01 | 1 | 444 | 453 | 10 | KVGGNINYLY 0.080436 | 1.9 |
| HLA-B*58:01 | 1 | 250 | 258 | 9 | TPGDSSSGW 0.080364 | 1.4 |
| HLA-B*40:01 | 1 | 214 | 223 | 10 | RDL PQGF SAL 0.080356 | 1.1 |
| HLA-B*15:01 | 1 | 1067 | 1075 | 9 | YVPAQEKNF 0.080325 | 1.9 |
| HLA-A*68:02 | 1 | 538 | 546 | 9 | CVNFNFNGL 0.08028 | 1.4 |
| HLA-B*53:01 | 1 | 487 | 495 | 9 | NCYFPLQSY 0.080269 | 0.9 |
| HLA-B*51:01 | 1 | 1051 | 1060 | 10 | SFPQSAPHGV 0.080248 | 1.6 |
| HLA-A*68:02 | 1 | 1127 | 1136 | 10 | DVVIGIVNNT 0.080238 | 1.4 |
| HLA-A*24:02 0.97 | 1 | 551 | 559 | 9 | VLTESNKKF 0.080213 | |
| HLA-A*01:01 | 1 | 137 | 145 | 9 | NDPFLGVYY 0.080147 | 1.2 |
| HLA-B*57:01 | 1 | 864 | 873 | 10 | LLTDEMIAQY 0.080092 | 2.2 |
| HLA-A*01:01 | 1 | 1198 | 1206 | 9 | IDLQELGKY 0.080022 | 1.2 |
| HLA-B*40:01 | 1 | 1143 | 1152 | 10 | PELDSFKEEL 0.079978 | 1.1 |
| HLA-B*35:01 | 1 | 894 | 902 | 9 | LQIPFAMQM 0.079929 | 1.2 |
| HLA-A*68:02 | 1 | 586 | 595 | 10 | DITPCSFGGV 0.079778 | 1.4 |
| HLA-A*30:01 | 1 | 454 | 463 | 10 | RLFRKSNLKP 0.0797 | 2.0 |
| HLA-A*23:01 0.95 | 1 | 378 | 387 | 10 | KCYGVSPTKL 0.079643 | |
| HLA-B*57:01 | 1 | 551 | 559 | 9 | VLTESNKKF 0.079553 | 2.2 |
| HLA-B*40:01 | 1 | 773 | 781 | 9 | EQDKNTQEV 0.079549 | 1.1 |
| HLA-A*11:01 | 1 | 161 | 170 | 10 | SSANNCTFEY 0.079331 | 1.6 |
| HLA-A*02:03 | 1 | 817 | 826 | 10 | FIEDLLFNKV 0.079304 | 1.8 |
| HLA-A*24:02 0.98 | 1 | 1095 | 1103 | 9 | FVSNNGTHWF 0.079257 | |
| HLA-A*02:06 | 1 | 158 | 166 | 9 | RVYSSANNC 0.079134 | 2.0 |
| HLA-A*02:03 | 1 | 1223 | 1232 | 10 | GLIAIVMVTI 0.079018 | 1.8 |
| HLA-B*35:01 | 1 | 78 | 86 | 9 | RFDNPVLPF 0.078969 | 1.2 |
| HLA-B*08:01 | 1 | 462 | 470 | 9 | KPFERDIST 0.078805 | 1.5 |
| HLA-B*07:02 | 1 | 1056 | 1064 | 9 | APHGVVFLH 0.078786 | 1.3 |
| HLA-A*30:01 | 1 | 644 | 653 | 10 | QTRAGCLIGA 0.078753 | 2.0 |
| HLA-A*02:03 | 1 | 47 | 56 | 10 | VLHSTQDLFL 0.078595 | 1.8 |
| HLA-A*26:01 0.85 | 1 | 828 | 837 | 10 | LADAGFIKQY 0.078576 | |
| HLA-A*68:01 | 1 | 408 | 417 | 10 | RQIAPGQTGK 0.078354 | 2.9 |
| HLA-A*02:06 | 1 | 1003 | 1012 | 10 | SLQTYVTQQL 0.078344 | 2.0 |
| HLA-B*35:01 | 1 | 1058 | 1067 | 10 | HGVVFLHVTY 0.078308 | 1.2 |
| HLA-B*07:02 | 1 | 320 | 329 | 10 | VQPTESIVRF 0.078161 | 1.3 |
| HLA-B*15:01 | 1 | 1081 | 1089 | 9 | ICHDGKAHF 0.07801 | 1.9 |
| HLA-A*30:02 | 1 | 366 | 374 | 9 | SVLYNSASF 0.077961 | 1.6 |
| HLA-A*68:02 | 1 | 590 | 598 | 9 | CSFGGVSVI 0.077939 | 1.4 |
| HLA-A*32:01 0.92 | 1 | 56 | 64 | 9 | LPFFSNVTW 0.077874 | |
| HLA-A*30:02 | 1 | 1185 | 1193 | 9 | RLNEVAKNL 0.077871 | 1.6 |

| | | | | | | |
|---------------------|---|------|------|----|---------------------|-----|
| HLA-A*32:01 0.92 | 1 | 718 | 726 | 9 | FTISVTTEI 0.077806 | |
| HLA-B*44:02 0.84 | 1 | 818 | 826 | 9 | IEDLLFNKV 0.077801 | |
| HLA-B*51:01 | 1 | 693 | 701 | 9 | IAYTMSLGA 0.077775 | 1.6 |
| HLA-A*02:03 | 1 | 820 | 829 | 10 | DLLFNKVTLA 0.077714 | 1.8 |
| HLA-A*68:01 | 1 | 1176 | 1185 | 10 | VVNIQKEIDR 0.077697 | 2.9 |
| HLA-A*68:02 | 1 | 939 | 948 | 10 | SSTASALGKL 0.077689 | 1.5 |
| HLA-A*24:02 0.99 | 1 | 1140 | 1148 | 9 | PLQPELDSF 0.077612 | |
| HLA-A*26:01 0.86 | 1 | 625 | 633 | 9 | HADQLTPTW 0.077516 | |
| HLA-A*02:01 | 1 | 1004 | 1012 | 9 | LQTYVTQQL 0.077489 | 1.6 |
| HLA-B*58:01 | 1 | 962 | 970 | 9 | LVKQLSSNF 0.077378 | 1.5 |
| HLA-A*68:01 | 1 | 529 | 537 | 9 | KSTNLVKNK 0.07719 | 2.9 |
| HLA-A*02:03 | 1 | 704 | 712 | 9 | SVAYSNNSI 0.077144 | 1.8 |
| HLA-A*02:03 | 1 | 773 | 781 | 9 | EQDKNTQEV 0.077128 | 1.8 |
| HLA-A*31:01 | 1 | 301 | 310 | 10 | CTLKSFTVEK 0.077049 | 2.4 |
| HLA-B*15:01 | 1 | 825 | 833 | 9 | KVTLADAGF 0.076949 | 1.9 |
| HLA-A*32:01 0.93 | 1 | 1095 | 1103 | 9 | FVSNQTHWF 0.076869 | |
| HLA-A*33:01 | 1 | 370 | 378 | 9 | NSASFSTFK 0.076827 | 1.6 |
| HLA-A*30:02 | 1 | 408 | 417 | 10 | RQIAPGQTGK 0.0768 | 1.7 |
| HLA-A*11:01 | 1 | 50 | 58 | 9 | STQDLFLPF 0.076739 | 1.7 |
| HLA-B*58:01 | 1 | 1208 | 1217 | 10 | QYIKWPWYIW 0.076729 | 1.5 |
| HLA-A*11:01 | 1 | 991 | 1000 | 10 | VQIDRLITGR 0.076681 | 1.7 |
| HLA-B*07:02 | 1 | 83 | 92 | 10 | VLFPNDGVYF 0.076666 | 1.4 |
| HLA-B*08:01 | 1 | 898 | 906 | 9 | FAMQMAYRF 0.076618 | 1.5 |
| HLA-B*58:01 | 1 | 96 | 104 | 9 | EKSNIIRGW 0.076599 | 1.5 |
| HLA-B*58:01 | 1 | 815 | 824 | 10 | RSFIEDLLFN 0.076581 | 1.5 |
| HLA-B*08:01 | 1 | 526 | 534 | 9 | GPKKSTNLV 0.076571 | 1.5 |
| HLA-A*33:01 | 1 | 674 | 682 | 9 | YQTQTNSPR 0.076568 | 1.6 |
| HLA-A*26:01 0.87 | 1 | 603 | 611 | 9 | NTSNQVAVL 0.076523 | |
| HLA-B*58:01 | 1 | 192 | 200 | 9 | FVFKNIDGY 0.076511 | 1.5 |
| HLA-B*53:01 0.94 | 1 | 1209 | 1217 | 9 | YIKWPWYIW 0.07638 | |
| HLA-A*02:01 | 1 | 1223 | 1231 | 9 | GLIAIVMVT 0.076364 | 1.6 |
| HLA-B*58:01 | 1 | 365 | 374 | 10 | YSVLYNSASF 0.076328 | 1.5 |
| HLA-B*07:02 | 1 | 23 | 32 | 10 | QLPPAYTNSF 0.07632 | 1.4 |
| HLA-A*26:01 0.87 | 1 | 477 | 486 | 10 | STPCNGVEGF 0.076294 | |
| HLA-B*57:01 | 1 | 183 | 192 | 10 | QGNFKNLREF 0.076292 | 2.3 |
| HLA-A*32:01 0.94 | 1 | 77 | 86 | 10 | KRFDNPVLPF 0.07624 | |
| HLA-A*32:01 0.94 | 1 | 687 | 695 | 9 | VASQSIIAY 0.076179 | |
| HLA-A*03:01 | 1 | 992 | 1000 | 9 | QIDRLITGR 0.076138 | 1.8 |
| HLA-A*02:06 | 1 | 342 | 350 | 9 | FNATRFASV 0.076085 | 2.0 |
| HLA-A*30:01 | 1 | 310 | 319 | 10 | KGIYQTSNFR 0.076077 | 2.1 |
| HLA-B*57:01 | 1 | 250 | 258 | 9 | TPGDSSSGW 0.076062 | 2.3 |
| HLA-A*32:01 0.94 | 1 | 1137 | 1145 | 9 | VYDPLQPEL 0.076056 | |
| HLA-A*68:01 | 1 | 338 | 346 | 9 | FGEVFNATR 0.075937 | 2.9 |
| HLA-A*26:01 0.88 | 1 | 239 | 248 | 10 | QTLALHRSY 0.075874 | |
| HLA-A*30:02 | 1 | 51 | 59 | 9 | TQDLFLPFF 0.075771 | 1.7 |
| HLA-A*30:02 | 1 | 327 | 335 | 9 | VRFPNITNL 0.075728 | 1.7 |
| HLA-B*08:01 | 1 | 1192 | 1200 | 9 | NLNESLIDL 0.075671 | 1.5 |
| HLA-B*08:01 | 1 | 976 | 984 | 9 | VLNDILSRL 0.075645 | 1.5 |
| HLA-A*02:03 | 1 | 967 | 976 | 10 | SSNFGAISSV 0.075553 | 1.8 |
| HLA-A*11:01 | 1 | 257 | 266 | 10 | GWTAGAAAYY 0.075479 | 1.7 |
| HLA-B*15:01 | 1 | 829 | 837 | 9 | ADAGFIKQY 0.075402 | 2.0 |
| HLA-B*15:01 | 1 | 204 | 212 | 9 | YSKHTPINL 0.075394 | 2.0 |
| HLA-B*57:01 | 1 | 41 | 49 | 9 | KVFRSSVLH 0.075291 | 2.3 |
| HLA-B*51:01 | 1 | 808 | 817 | 10 | DPSKPSKRSF 0.075268 | 1.7 |

| | | | | | | |
|---------------------|---|------|------|----|---------------------|-----|
| HLA-A*02:06 | 1 | 933 | 942 | 10 | KIQDLSSTA 0.075268 | 2.1 |
| HLA-B*44:02 0.85 | 1 | 701 | 709 | 9 | AENSVAYSN 0.075244 | |
| HLA-B*15:01 | 1 | 127 | 135 | 9 | VIKVCEFQF 0.075206 | 2.0 |
| HLA-A*24:02 | 1 | 55 | 64 | 10 | FLPFFSNVTW 0.075122 | 1.1 |
| HLA-B*51:01 | 1 | 1195 | 1203 | 9 | ESLIDLQEL 0.075044 | 1.7 |
| HLA-A*30:02 | 1 | 193 | 201 | 9 | VFKNIDGYF 0.074996 | 1.7 |
| HLA-A*02:06 | 1 | 2 | 10 | 9 | FVFLVLLPL 0.074891 | 2.1 |
| HLA-A*24:02 | 1 | 328 | 336 | 9 | RFPNITNLC 0.074831 | 1.1 |
| HLA-B*51:01 | 1 | 988 | 996 | 9 | EAEVQIDRL 0.074765 | 1.7 |
| HLA-B*57:01 | 1 | 366 | 374 | 9 | SVLYNSASF 0.074605 | 2.3 |
| HLA-B*08:01 | 1 | 232 | 241 | 10 | GINITRFQTL 0.074576 | 1.6 |
| HLA-B*15:01 | 1 | 339 | 347 | 9 | GEVFNATRF 0.074485 | 2.0 |
| HLA-B*08:01 | 1 | 714 | 722 | 9 | IPTNFTISV 0.074477 | 1.6 |
| HLA-B*40:01 | 1 | 505 | 513 | 9 | YQPYRVVVL 0.074392 | 1.2 |
| HLA-B*15:01 | 1 | 161 | 170 | 10 | SSANNCTFEY 0.074371 | 2.0 |
| HLA-A*02:06 | 1 | 625 | 633 | 9 | HADQLTPTW 0.074364 | 2.1 |
| HLA-A*30:01 | 1 | 685 | 693 | 9 | RSVASQSII 0.074348 | 2.1 |
| HLA-A*68:01 | 1 | 406 | 414 | 9 | EVQIAPGQ 0.074231 | 2.9 |
| HLA-A*30:02 | 1 | 50 | 59 | 10 | STQDLFLPFF 0.074215 | 1.7 |
| HLA-A*68:02 | 1 | 714 | 722 | 9 | IPTNFTISV 0.074184 | 1.5 |
| HLA-A*30:01 | 1 | 264 | 273 | 10 | AYYVGYLQPR 0.074061 | 2.1 |
| HLA-A*32:01 0.96 | 1 | 310 | 318 | 9 | KGIYQTSNF 0.074035 | |
| HLA-A*01:01 | 1 | 51 | 59 | 9 | TQDLFLPFF 0.074009 | 1.2 |
| HLA-B*53:01 0.96 | 1 | 425 | 433 | 9 | LPDDFTGCV 0.074003 | |
| HLA-B*44:02 0.86 | 1 | 773 | 782 | 10 | EQDKNTQEVF 0.073999 | |
| HLA-A*32:01 0.96 | 1 | 109 | 117 | 9 | TLDSKTQSL 0.073959 | |
| HLA-A*30:01 | 1 | 206 | 214 | 9 | KHTPINLVR 0.073932 | 2.1 |
| HLA-A*02:06 | 1 | 865 | 873 | 9 | LTDEMIAQY 0.07386 | 2.1 |
| HLA-A*24:02 | 1 | 144 | 153 | 10 | YYHKNNKSWM 0.073831 | 1.1 |
| HLA-A*30:02 | 1 | 442 | 451 | 10 | DSKVGGNVNY 0.073733 | 1.7 |
| HLA-A*02:03 | 1 | 268 | 277 | 10 | GYLQPRFLL 0.073723 | 1.8 |
| HLA-A*68:01 | 1 | 141 | 150 | 10 | LGVYYHKNNK 0.073697 | 2.9 |
| HLA-A*32:01 0.96 | 1 | 126 | 135 | 10 | VVIKVCEFQF 0.073676 | |
| HLA-A*02:03 | 1 | 460 | 468 | 9 | NLKPFERDI 0.073662 | 1.8 |
| HLA-A*30:02 | 1 | 1000 | 1008 | 9 | RLQSLQTYV 0.073649 | 1.7 |
| HLA-A*68:02 | 1 | 820 | 828 | 9 | DLLFNKVTL 0.073481 | 1.5 |
| HLA-A*26:01 0.89 | 1 | 868 | 877 | 10 | EMIAQYTSAL 0.073481 | |
| HLA-A*68:01 | 1 | 1058 | 1067 | 10 | HGVVFLHVTY 0.073432 | 3.0 |
| HLA-A*02:06 | 1 | 914 | 922 | 9 | NVLYENQKL 0.073308 | 2.1 |
| HLA-A*24:02 | 1 | 1041 | 1049 | 9 | DFCGKGYHL 0.073217 | 1.1 |
| HLA-A*02:01 | 1 | 1128 | 1137 | 10 | VVIGIVNNTV 0.073183 | 1.7 |
| HLA-A*02:06 | 1 | 891 | 899 | 9 | GAALQIPFA 0.073144 | 2.1 |
| HLA-A*02:06 | 1 | 610 | 618 | 9 | VLYQDVNCT 0.073132 | 2.1 |
| HLA-A*02:06 | 1 | 1014 | 1022 | 9 | RAAEIRASA 0.073096 | 2.1 |
| HLA-A*33:01 | 1 | 625 | 634 | 10 | HADQLTPTWR 0.073061 | 1.7 |
| HLA-B*57:01 | 1 | 184 | 192 | 9 | GNFKNLREF 0.073011 | 2.3 |
| HLA-B*35:01 | 1 | 627 | 636 | 10 | DQLTPTWRVY 0.07299 | 1.3 |
| HLA-B*07:02 | 1 | 294 | 303 | 10 | DPLSETKCTL 0.072963 | 1.4 |
| HLA-A*68:01 | 1 | 238 | 246 | 9 | FQTLALHR 0.072934 | 3.0 |
| HLA-A*68:02 | 1 | 530 | 539 | 10 | STNLVKNKCV 0.072892 | 1.5 |
| HLA-A*01:01 | 1 | 271 | 279 | 9 | QPRTFLLKY 0.07289 | 1.2 |
| HLA-A*33:01 | 1 | 782 | 790 | 9 | FAQVKQIYK 0.072667 | 1.7 |
| HLA-B*57:01 | 1 | 378 | 387 | 10 | KCYGVSPTKL 0.072638 | 2.3 |
| HLA-A*02:01 | 1 | 221 | 229 | 9 | SALEPLVDL 0.072588 | 1.7 |
| HLA-B*07:02 | 1 | 892 | 900 | 9 | AALQIPFAM 0.072532 | 1.4 |
| HLA-A*30:01 | 1 | 676 | 685 | 10 | TQTNSPRRAR 0.07246 | 2.1 |
| HLA-B*40:01 | 1 | 1004 | 1012 | 9 | LQTYVTQQL 0.072356 | 1.2 |
| HLA-B*53:01 0.99 | 1 | 50 | 58 | 9 | STQDLFLPF 0.072309 | |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*01:01 | 1 | 1137 | 1145 | 9 | VYDPLQPEL 0.072288 | 1.2 |
| HLA-A*30:02 | 1 | 269 | 277 | 9 | YLQPRTFLL 0.072188 | 1.7 |
| HLA-B*35:01 | 1 | 336 | 344 | 9 | CPFGEVFNA 0.072083 | 1.3 |
| HLA-A*11:01 | 1 | 261 | 269 | 9 | GAAAYVGY 0.072034 | 1.7 |
| HLA-B*57:01 | 1 | 781 | 789 | 9 | VFAQVKQIY 0.072025 | 2.4 |
| HLA-A*68:02 | 1 | 1224 | 1232 | 9 | LIAIVMVTI 0.072014 | 1.5 |
| HLA-B*53:01 | 1 | 38 | 46 | 9 | YPDKVFRSS 0.071906 | |
| 0.99 | | | | | | |
| HLA-A*26:01 | 1 | 266 | 275 | 10 | YVGYLQPRTF 0.071892 | |
| 0.91 | | | | | | |
| HLA-A*30:01 | 1 | 304 | 312 | 9 | KSFTVEKGI 0.071779 | 2.2 |
| HLA-A*68:01 | 1 | 1019 | 1028 | 10 | RASANLAATK 0.071699 | 3.0 |
| HLA-A*02:01 | 1 | 269 | 278 | 10 | YLQPRTFLLK 0.07169 | 1.7 |
| HLA-B*53:01 | 1 | 806 | 814 | 9 | LPDPSKPSK 0.071682 | |
| 0.99 | | | | | | |
| HLA-A*03:01 | 1 | 634 | 643 | 10 | RVYSTGSNVF 0.071674 | 1.8 |
| HLA-A*24:02 | 1 | 1216 | 1224 | 9 | IWLGFIAGL 0.071648 | 1.1 |
| HLA-B*58:01 | 1 | 1113 | 1121 | 9 | QIITTDNTF 0.071618 | 1.6 |
| HLA-A*01:01 | 1 | 780 | 789 | 10 | EVFAQVKQIY 0.071604 | 1.2 |
| HLA-A*02:06 | 1 | 220 | 229 | 10 | FSALEPLVDL 0.071597 | 2.1 |
| HLA-B*53:01 | 1 | 815 | 823 | 9 | RSFIEDLLF 0.071593 | |
| 0.99 | | | | | | |
| HLA-A*31:01 | 1 | 89 | 97 | 9 | GVYFASTEK 0.071535 | 2.5 |
| HLA-A*02:06 | 1 | 964 | 973 | 10 | KQLSSNFGAI 0.071511 | 2.1 |
| HLA-B*53:01 | 1 | 425 | 434 | 10 | LPDDFTGCVI 0.071472 | |
| 0.99 | | | | | | |
| HLA-B*44:03 | 1 | 818 | 826 | 9 | IEDLLFNKV 0.071437 | 1.0 |
| HLA-A*68:02 | 1 | 713 | 722 | 10 | AIPTNFTISV 0.07141 | 1.5 |
| HLA-A*03:01 | 1 | 1197 | 1205 | 9 | LIDLQELGK 0.071329 | 1.8 |
| HLA-A*32:01 | 1 | 869 | 877 | 9 | MIAQYTSAL 0.071272 | |
| 0.98 | | | | | | |
| HLA-A*02:06 | 1 | 170 | 179 | 10 | YVSQPFLMDL 0.071261 | 2.1 |
| HLA-A*68:01 | 1 | 781 | 790 | 10 | VFAQVKQIYK 0.071257 | 3.0 |
| HLA-A*68:02 | 1 | 602 | 610 | 9 | TNTSNQVAV 0.071173 | 1.5 |
| HLA-A*68:02 | 1 | 1136 | 1144 | 9 | TVYDPLQPE 0.071172 | 1.5 |
| HLA-A*68:02 | 1 | 874 | 882 | 9 | TSALLAGTI 0.071098 | 1.5 |
| HLA-B*58:01 | 1 | 1081 | 1089 | 9 | ICHDGKAHF 0.070984 | 1.6 |
| HLA-B*08:01 | 1 | 321 | 329 | 9 | QPTESIVRF 0.070937 | 1.6 |
| HLA-B*51:01 | 1 | 7 | 16 | 10 | LLPLVSSQCV 0.070895 | 1.7 |
| HLA-A*02:06 | 1 | 930 | 938 | 9 | AIGKIQDSL 0.070875 | 2.1 |
| HLA-B*58:01 | 1 | 78 | 86 | 9 | RFDNPVLPF 0.070873 | 1.6 |
| HLA-B*58:01 | 1 | 46 | 55 | 10 | SVLHSTQDLF 0.070855 | 1.6 |
| HLA-A*30:02 | 1 | 342 | 351 | 10 | FNATRFASVY 0.070844 | 1.8 |
| HLA-A*68:02 | 1 | 881 | 890 | 10 | TITSGWTFGA 0.070809 | 1.6 |
| HLA-A*33:01 | 1 | 974 | 983 | 10 | SSVLNDILSR 0.070802 | 1.7 |
| HLA-A*68:02 | 1 | 154 | 163 | 10 | ESEFRVYSSA 0.070762 | 1.6 |
| HLA-B*51:01 | 1 | 599 | 608 | 10 | TPGTNTSNQV 0.070672 | 1.7 |
| HLA-A*30:02 | 1 | 82 | 91 | 10 | PVLPFNDGVY 0.07064 | 1.8 |
| HLA-B*57:01 | 1 | 192 | 200 | 9 | FVFKNIDGY 0.070527 | 2.4 |
| HLA-A*30:01 | 1 | 141 | 150 | 10 | LGVYYHKNNK 0.070483 | 2.2 |
| HLA-A*02:01 | 1 | 122 | 130 | 9 | NATNVVIKV 0.070469 | 1.7 |
| HLA-B*51:01 | 1 | 679 | 687 | 9 | NSPRRARSV 0.070403 | 1.8 |
| HLA-B*15:01 | 1 | 1093 | 1102 | 10 | GVFVSNQTHW 0.070388 | 2.0 |
| HLA-A*33:01 | 1 | 1083 | 1091 | 9 | HDGKAHFPR 0.07036 | 1.7 |
| HLA-A*32:01 | 1 | 951 | 959 | 9 | VVNQNAQAL 0.070268 | |
| 0.99 | | | | | | |
| HLA-B*08:01 | 1 | 525 | 533 | 9 | CGPKKSTNL 0.070241 | 1.6 |
| HLA-B*51:01 | 1 | 745 | 753 | 9 | DSTECSNLL 0.070177 | 1.8 |
| HLA-B*15:01 | 1 | 256 | 265 | 10 | SGWTAGAAAY 0.070169 | 2.0 |
| HLA-B*15:01 | 1 | 195 | 204 | 10 | KNIDGYFKIY 0.070133 | 2.0 |
| HLA-A*02:01 | 1 | 860 | 869 | 10 | VLPLLLTDEM 0.070091 | 1.7 |
| HLA-A*26:01 | 1 | 486 | 495 | 10 | FNCYFPLQSY 0.070083 | |
| 0.93 | | | | | | |
| HLA-A*23:01 | 1 | 334 | 342 | 9 | NLCPFGEVF 0.070067 | 1.1 |
| HLA-A*68:01 | 1 | 1059 | 1067 | 9 | GVVFLHVTY 0.070066 | 3.0 |
| HLA-A*02:06 | 1 | 991 | 999 | 9 | VQIDRLITG 0.070036 | 2.2 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*30:02 | 1 | 191 | 200 | 10 | EFVFKNIDGY 0.070003 | 1.8 |
| HLA-A*02:06 | 1 | 10 | 18 | 9 | LVSSQCVNL 0.069718 | 2.2 |
| HLA-B*58:01 | 1 | 369 | 377 | 9 | YNSASFSTF 0.069645 | 1.6 |
| HLA-A*02:06 | 1 | 762 | 770 | 9 | QLNRALTGI 0.069537 | 2.2 |
| HLA-A*31:01 | 1 | 458 | 467 | 10 | KSNLKPFERD 0.069478 | 2.6 |
| HLA-A*23:01 | 1 | 1041 | 1049 | 9 | DFCGKGYHL 0.069386 | 1.1 |
| HLA-A*02:03 | 1 | 1121 | 1129 | 9 | FVSGNCDVV 0.069385 | 1.9 |
| HLA-A*30:02 | 1 | 976 | 984 | 9 | VLNDILSRL 0.069362 | 1.8 |
| HLA-A*31:01 | 1 | 625 | 634 | 10 | HADQLTPTWR 0.069322 | 2.6 |
| HLA-B*08:01 | 1 | 460 | 468 | 9 | NLKPFERDI 0.06931 | 1.7 |
| HLA-B*57:01 | 1 | 825 | 833 | 9 | KVTLADAGF 0.069201 | 2.4 |
| HLA-B*57:01 | 1 | 108 | 117 | 10 | TTLDSKTQSL 0.069178 | 2.4 |
| HLA-B*51:01 | 1 | 60 | 68 | 9 | SNVTWFHAI 0.069166 | 1.8 |
| HLA-B*40:01 | 1 | 464 | 473 | 10 | FERDISTEY 0.069085 | 1.2 |
| HLA-A*31:01 | 1 | 1208 | 1216 | 9 | QYIKWPWYI 0.069034 | 2.6 |
| HLA-A*23:01 | 1 | 1095 | 1103 | 9 | FVSNATHWF 0.069002 | 1.1 |
| HLA-A*33:01 | 1 | 319 | 328 | 10 | RVQPTESIVR 0.068996 | 1.8 |
| HLA-B*15:01 | 1 | 1101 | 1109 | 9 | HWFVTQRNF 0.068978 | 2.1 |
| HLA-A*30:01 | 1 | 981 | 989 | 9 | LSRLDKVEA 0.068956 | 2.2 |
| HLA-B*40:01 | 1 | 894 | 902 | 9 | LQIPFAMQM 0.068942 | 1.2 |
| HLA-A*01:01 | 1 | 604 | 613 | 10 | TSNQVAVLYQ 0.068861 | 1.3 |
| HLA-A*68:02 | 1 | 109 | 117 | 9 | TLDSKTQSL 0.06884 | 1.6 |
| HLA-B*58:01 | 1 | 584 | 592 | 9 | ILDITPCSF 0.068776 | 1.6 |
| HLA-A*30:01 | 1 | 417 | 425 | 9 | KIADYNYKL 0.068703 | 2.2 |
| HLA-A*32:01 | 1 | 102 | 110 | 9 | RGWIFGTTL 0.068382 | 1.1 |
| HLA-A*68:02 | 1 | 1095 | 1103 | 9 | FVSNATHWF 0.068358 | 1.6 |
| HLA-B*53:01 | 1 | 321 | 330 | 10 | QPTESIVRFP 0.068311 | 1.1 |
| HLA-A*68:01 | 1 | 13 | 21 | 9 | SQCVNLTTR 0.068297 | 3.1 |
| HLA-B*51:01 | 1 | 713 | 722 | 10 | AIPTNFTISV 0.068276 | 1.8 |
| HLA-B*51:01 | 1 | 271 | 279 | 9 | QPRTFLLKY 0.068267 | 1.8 |
| HLA-A*01:01 | 1 | 909 | 917 | 9 | IGVTQNVLY 0.068215 | 1.3 |
| HLA-A*68:02 | 1 | 711 | 719 | 9 | SIAIPTNFT 0.068188 | 1.6 |
| HLA-A*32:01 | 1 | 878 | 886 | 9 | LAGTITSGW 0.068117 | 1.1 |
| HLA-B*15:01 | 1 | 440 | 449 | 10 | NLDSKVGNGY 0.068063 | 2.1 |
| HLA-A*02:03 | 1 | 1114 | 1122 | 9 | IITTDNTFV 0.067991 | 1.9 |
| HLA-B*51:01 | 1 | 820 | 828 | 9 | DLLFNKVTL 0.067947 | 1.8 |
| HLA-A*30:01 | 1 | 369 | 378 | 10 | YNSASFSTFK 0.067895 | 2.3 |
| HLA-A*26:01 | 1 | 481 | 489 | 9 | NGVEGFNCY 0.067894 | |
| 0.95 | | | | | | |
| HLA-A*30:01 | 1 | 1005 | 1013 | 9 | QTYVTQQLI 0.067802 | 2.3 |
| HLA-B*53:01 | 1 | 428 | 436 | 9 | DFTGCVIAW 0.067792 | 1.1 |
| HLA-A*02:06 | 1 | 979 | 987 | 9 | DILSRLDKV 0.067781 | 2.2 |
| HLA-A*02:06 | 1 | 900 | 909 | 10 | MQMAYRFNGI 0.067771 | 2.2 |
| HLA-B*08:01 | 1 | 625 | 633 | 9 | HADQLTPTW 0.06773 | 1.7 |
| HLA-A*68:01 | 1 | 938 | 947 | 10 | LSSTASALGK 0.067705 | 3.1 |
| HLA-B*58:01 | 1 | 551 | 559 | 9 | VLTESNKKF 0.067677 | 1.6 |
| HLA-A*33:01 | 1 | 30 | 38 | 9 | NSFTRGVY 0.067628 | 1.8 |
| HLA-A*30:01 | 1 | 503 | 511 | 9 | VGYQPYRVV 0.06761 | 2.3 |
| HLA-B*58:01 | 1 | 371 | 380 | 10 | SASFSTFKCY 0.067404 | 1.6 |
| HLA-B*15:01 | 1 | 751 | 759 | 9 | NLLLQYGSF 0.067401 | 2.1 |
| HLA-A*30:02 | 1 | 625 | 633 | 9 | HADQLTPTW 0.067371 | 1.8 |
| HLA-A*03:01 | 1 | 637 | 646 | 10 | STGSNVFQTR 0.067264 | 1.9 |
| HLA-B*15:01 | 1 | 803 | 811 | 9 | SQILPDPSK 0.067207 | 2.1 |
| HLA-A*30:02 | 1 | 1198 | 1206 | 9 | IDLQELGKY 0.067188 | 1.8 |
| HLA-A*23:01 | 1 | 55 | 64 | 10 | FLPFFSNVTW 0.067153 | 1.1 |
| HLA-A*02:03 | 1 | 225 | 233 | 9 | PLVDLPIGI 0.067152 | 1.9 |
| HLA-B*51:01 | 1 | 630 | 638 | 9 | TPTWRVYST 0.067088 | 1.8 |
| HLA-A*23:01 | 1 | 712 | 720 | 9 | IAIPTNFTI 0.066898 | 1.1 |
| HLA-A*32:01 | 1 | 97 | 106 | 10 | KSNIIRGWIF 0.066886 | 1.1 |
| HLA-B*51:01 | 1 | 687 | 695 | 9 | VASQSIIAY 0.066765 | 1.8 |
| HLA-A*68:01 | 1 | 767 | 776 | 10 | LTGIAVEQDK 0.066756 | 3.1 |
| HLA-B*15:01 | 1 | 554 | 562 | 9 | ESNKKFLPF 0.066733 | 2.1 |
| HLA-A*24:02 | 1 | 334 | 342 | 9 | NLCPFGEVF 0.066719 | 1.1 |
| HLA-B*07:02 | 1 | 425 | 433 | 9 | LPDDFTGCV 0.066679 | 1.5 |
| HLA-A*01:01 | 1 | 627 | 636 | 10 | DQLTPTWRVY 0.066657 | 1.3 |
| HLA-A*30:01 | 1 | 1203 | 1211 | 9 | LGKYEQYIK 0.066609 | 2.3 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*68:02 | 1 | 220 | 229 | 10 | FSALEPLVDL 0.066543 | 1.6 |
| HLA-B*58:01 | 1 | 28 | 37 | 10 | YTNSFTRGVY 0.066429 | 1.6 |
| HLA-A*02:06 | 1 | 876 | 884 | 9 | ALLAGTITS 0.066405 | 2.2 |
| HLA-B*58:01 | 1 | 266 | 275 | 10 | YVGYLQPRTF 0.066331 | 1.6 |
| HLA-B*58:01 | 1 | 1059 | 1067 | 9 | GVVFLHVTY 0.066309 | 1.6 |
| HLA-B*57:01 | 1 | 1101 | 1109 | 9 | HWFVTQRNF 0.066303 | 2.5 |
| HLA-B*35:01 | 1 | 221 | 229 | 9 | SALEPLVDL 0.066247 | 1.4 |
| HLA-B*57:01 | 1 | 557 | 565 | 9 | KKFLPFQOF 0.066183 | 2.5 |
| HLA-A*30:01 | 1 | 504 | 512 | 9 | GYQPYRVVV 0.066092 | 2.3 |
| HLA-B*35:01 | 1 | 462 | 470 | 9 | KPFERDIST 0.066088 | 1.4 |
| HLA-B*08:01 | 1 | 111 | 119 | 9 | DSKTQSLLI 0.066052 | 1.7 |
| HLA-A*24:02 | 1 | 54 | 62 | 9 | LFLPFFSNV 0.066043 | 1.1 |
| HLA-A*02:03 | 1 | 319 | 327 | 9 | RVQPTESIV 0.066042 | 1.9 |
| HLA-A*02:03 | 1 | 821 | 830 | 10 | LLFNKVTLD 0.065868 | 1.9 |
| HLA-A*11:01 | 1 | 865 | 873 | 9 | LTDEMIAQY 0.065845 | 1.8 |
| HLA-B*53:01 | 1 | 880 | 888 | 9 | GTITSGWTF 0.06581 | 1.1 |
| HLA-A*30:01 | 1 | 44 | 52 | 9 | RSSVLHSTQ 0.065808 | 2.3 |
| HLA-A*02:03 | 1 | 696 | 705 | 10 | TMSLGAENSV 0.065801 | 1.9 |
| HLA-A*32:01 | 1 | 533 | 541 | 9 | LVKNKCVNF 0.065777 | 1.1 |
| HLA-A*30:01 | 1 | 995 | 1004 | 10 | RLITGRQLQSL 0.065768 | 2.3 |
| HLA-B*40:01 | 1 | 280 | 289 | 10 | NENGTITDAV 0.06576 | 1.2 |
| HLA-B*57:01 | 1 | 1058 | 1067 | 10 | HGVVFLHVTY 0.065604 | 2.5 |
| HLA-A*68:01 | 1 | 569 | 577 | 9 | IADTTDAVR 0.06556 | 3.1 |
| HLA-B*57:01 | 1 | 973 | 981 | 9 | ISSVLNDIL 0.065513 | 2.5 |
| HLA-A*30:02 | 1 | 136 | 145 | 10 | CNDPFLGVVY 0.065468 | 1.9 |
| HLA-A*68:02 | 1 | 344 | 352 | 9 | ATRFASVYA 0.065465 | 1.6 |
| HLA-A*23:01 | 1 | 366 | 374 | 9 | SVLYNSASF 0.065448 | 1.1 |
| HLA-A*68:01 | 1 | 806 | 814 | 9 | LPDPSKPSK 0.06539 | 3.1 |
| HLA-A*26:01 | 1 | 50 | 59 | 10 | STQDLFLPFF 0.065307 | |
| 0.99 | | | | | | |
| HLA-A*23:01 | 1 | 1093 | 1102 | 10 | GVFVSNNGTHW 0.065292 | 1.1 |
| HLA-A*30:01 | 1 | 13 | 21 | 9 | SQCVNLTTTR 0.065288 | 2.4 |
| HLA-A*23:01 | 1 | 1140 | 1148 | 9 | PLQPELDSF 0.065225 | 1.1 |
| HLA-B*35:01 | 1 | 635 | 643 | 9 | VYSTGSNVF 0.065153 | 1.4 |
| HLA-A*68:02 | 1 | 19 | 27 | 9 | TTRTQLPPA 0.065112 | 1.6 |
| HLA-B*57:01 | 1 | 1113 | 1121 | 9 | QIITTDNTF 0.065079 | 2.5 |
| HLA-A*24:02 | 1 | 1093 | 1102 | 10 | GVFVSNNGTHW 0.065076 | 1.2 |
| HLA-A*68:01 | 1 | 710 | 718 | 9 | NSIAIPTNF 0.065055 | 3.1 |
| HLA-B*44:03 | 1 | 627 | 636 | 10 | DQLTPTWRVY 0.064977 | 1.1 |
| HLA-A*31:01 | 1 | 205 | 214 | 10 | SKHTPINLVR 0.064964 | 2.7 |
| HLA-B*15:01 | 1 | 886 | 894 | 9 | WTFGAGAAL 0.064962 | 2.1 |
| HLA-B*08:01 | 1 | 1136 | 1145 | 10 | TVYDPLQPEL 0.0649 | 1.7 |
| HLA-B*58:01 | 1 | 628 | 636 | 9 | QLTPTWRVY 0.06488 | 1.6 |
| HLA-A*32:01 | 1 | 1136 | 1145 | 10 | TVYDPLQPEL 0.064869 | 1.1 |
| HLA-A*68:01 | 1 | 454 | 462 | 9 | RLFRKSNLK 0.064773 | 3.1 |
| HLA-A*30:01 | 1 | 199 | 207 | 9 | GYFKIYSKH 0.06459 | 2.4 |
| HLA-B*51:01 | 1 | 462 | 470 | 9 | KPFERDIST 0.064584 | 1.9 |
| HLA-A*01:01 | 1 | 1201 | 1209 | 9 | QELGKYEYQ 0.064452 | 1.3 |
| HLA-B*51:01 | 1 | 1054 | 1062 | 9 | QSAPHGVVF 0.064375 | 1.9 |
| HLA-B*57:01 | 1 | 1248 | 1256 | 9 | CSCGSCCKF 0.064371 | 2.5 |
| HLA-A*30:01 | 1 | 672 | 680 | 9 | ASYQTQTNK 0.064349 | 2.4 |
| HLA-A*68:01 | 1 | 292 | 300 | 9 | ALDPLSETK 0.064114 | 3.2 |
| HLA-A*33:01 | 1 | 149 | 158 | 10 | NKSWMESEFR 0.064064 | 1.9 |
| HLA-A*02:01 | 1 | 1059 | 1068 | 10 | GVVFLHVTYV 0.064038 | 1.8 |
| HLA-B*15:01 | 1 | 193 | 201 | 9 | VFKNIDGYF 0.064004 | 2.1 |
| HLA-A*32:01 | 1 | 1204 | 1212 | 9 | GKYEYIKW 0.063928 | 1.1 |
| HLA-A*02:03 | 1 | 951 | 959 | 9 | VVNQAQAL 0.063887 | 2.0 |
| HLA-A*30:01 | 1 | 691 | 699 | 9 | SIAYTMSL 0.063828 | 2.4 |
| HLA-A*02:06 | 1 | 944 | 952 | 9 | ALGKLQDVV 0.063781 | 2.3 |
| HLA-B*57:01 | 1 | 1195 | 1203 | 9 | ESLIDLQEL 0.063778 | 2.5 |
| HLA-A*31:01 | 1 | 349 | 358 | 10 | SVYAWNRKRI 0.063691 | 2.7 |
| HLA-A*32:01 | 1 | 865 | 873 | 9 | LTDEMIAQY 0.063629 | 1.1 |
| HLA-B*53:01 | 1 | 477 | 486 | 10 | STPCNGVEGF 0.063498 | 1.1 |
| HLA-A*01:01 | 1 | 815 | 823 | 9 | RSFIEDLLF 0.063491 | 1.3 |
| HLA-B*07:02 | 1 | 634 | 642 | 9 | RVYSTGSNV 0.063487 | 1.5 |
| HLA-B*51:01 | 1 | 135 | 143 | 9 | FCNDPFLGV 0.063421 | 1.9 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*30:01 | 1 | 453 | 462 | 10 | YRLFRKSNLK 0.063263 | 2.4 |
| HLA-A*30:01 | 1 | 940 | 948 | 9 | STASALGKL 0.063217 | 2.4 |
| HLA-B*53:01 | 1 | 138 | 146 | 9 | DPFLGVVYH 0.063197 | 1.1 |
| HLA-B*35:01 | 1 | 815 | 823 | 9 | RSFIEDLLF 0.063161 | 1.4 |
| HLA-A*30:02 | 1 | 500 | 508 | 9 | TNGVGYQPY 0.063102 | 1.9 |
| HLA-A*11:01 | 1 | 68 | 77 | 10 | IHVSGTNGTK 0.063061 | 1.8 |
| HLA-A*02:06 | 1 | 880 | 888 | 9 | GTITSGWTF 0.063021 | 2.3 |
| HLA-B*08:01 | 1 | 861 | 869 | 9 | LPPLLTDEM 0.062982 | 1.8 |
| HLA-A*02:03 | 1 | 860 | 869 | 10 | VLPPLLTDEM 0.062865 | 2.0 |
| HLA-B*57:01 | 1 | 487 | 495 | 9 | NCYFPLQSY 0.062821 | 2.6 |
| HLA-A*68:02 | 1 | 10 | 18 | 9 | LVSSQCVNL 0.062789 | 1.7 |
| HLA-B*58:01 | 1 | 1264 | 1272 | 9 | VLKGVKLHY 0.062666 | 1.7 |
| HLA-B*53:01 | 1 | 699 | 707 | 9 | LGAENSVAY 0.062614 | 1.2 |
| HLA-A*03:01 | 1 | 1173 | 1181 | 9 | NASVVNIQK 0.062584 | 2.0 |
| HLA-B*57:01 | 1 | 686 | 695 | 10 | SVASQSIAY 0.062534 | 2.6 |
| HLA-B*15:01 | 1 | 890 | 898 | 9 | AGAALQIPF 0.062467 | 2.2 |
| HLA-A*31:01 | 1 | 1050 | 1058 | 9 | MSFPQSAPH 0.062277 | 2.7 |
| HLA-A*32:01 | 1 | 192 | 200 | 9 | FVFKNIDGY 0.062246 | 1.2 |
| HLA-A*30:01 | 1 | 757 | 765 | 9 | GSFCTQLNR 0.062156 | 2.5 |
| HLA-B*35:01 | 1 | 38 | 47 | 10 | YDPKVFSSV 0.062155 | 1.4 |
| HLA-B*57:01 | 1 | 1004 | 1013 | 10 | LQTYVTQQLI 0.062054 | 2.6 |
| HLA-B*08:01 | 1 | 532 | 541 | 10 | NLVKKNKCVN 0.062038 | 1.8 |
| HLA-A*02:01 | 1 | 311 | 320 | 10 | GIYQTSNFRV 0.062031 | 1.9 |
| HLA-A*01:01 | 1 | 1147 | 1155 | 9 | SFKEELDKY 0.062029 | 1.3 |
| HLA-A*31:01 | 1 | 348 | 356 | 9 | ASVYAWNRK 0.062005 | 2.7 |
| HLA-A*31:01 | 1 | 500 | 509 | 10 | TNGVGYQPYR 0.061983 | 2.7 |
| HLA-A*02:06 | 1 | 54 | 62 | 9 | LFLPFFSNV 0.061905 | 2.4 |
| HLA-B*35:01 | 1 | 727 | 735 | 9 | LPVSMTKTS 0.061897 | 1.4 |
| HLA-B*51:01 | 1 | 936 | 944 | 9 | DSLSSTASA 0.061856 | 1.9 |
| HLA-A*02:06 | 1 | 1062 | 1070 | 9 | FLHVTYVPA 0.06185 | 2.4 |
| HLA-A*31:01 | 1 | 1064 | 1073 | 10 | HVTYVPAQEK 0.061837 | 2.7 |
| HLA-A*02:01 | 1 | 627 | 635 | 9 | DQLTPTWRV 0.061816 | 1.9 |
| HLA-A*02:06 | 1 | 416 | 425 | 10 | GKIADYNYKL 0.061786 | 2.4 |
| HLA-A*68:02 | 1 | 1086 | 1094 | 9 | KAHFPREGV 0.061734 | 1.7 |
| HLA-B*08:01 | 1 | 531 | 539 | 9 | TNLVKNKCV 0.061722 | 1.8 |
| HLA-B*07:02 | 1 | 886 | 894 | 9 | WTFGAGAAL 0.061704 | 1.6 |
| HLA-B*51:01 | 1 | 506 | 514 | 9 | QPYRVVVLS 0.0616 | 1.9 |
| HLA-B*58:01 | 1 | 366 | 374 | 9 | SVLYNSASF 0.061585 | 1.7 |
| HLA-A*68:01 | 1 | 68 | 77 | 10 | IHVSGTNGTK 0.06156 | 3.2 |
| HLA-A*24:02 | 1 | 712 | 720 | 9 | IAIPTNFTI 0.061505 | 1.2 |
| HLA-B*08:01 | 1 | 773 | 781 | 9 | EQDKNTQEV 0.061424 | 1.8 |
| HLA-A*02:03 | 1 | 433 | 441 | 9 | VIAWNSNNL 0.061385 | 2.0 |
| HLA-B*40:01 | 1 | 1206 | 1214 | 9 | YEQYIKWPW 0.061331 | 1.3 |
| HLA-A*30:02 | 1 | 788 | 797 | 10 | IYKTPPIKDF 0.061293 | 1.9 |
| HLA-A*24:02 | 1 | 1088 | 1096 | 9 | HFPREGVVF 0.061279 | 1.2 |
| HLA-A*02:01 | 1 | 292 | 301 | 10 | ALDPLSETKC 0.061214 | 1.9 |
| HLA-B*35:01 | 1 | 689 | 697 | 9 | SQSIIAYTM 0.061155 | 1.4 |
| HLA-B*08:01 | 1 | 489 | 497 | 9 | YFPLQSYGF 0.061107 | 1.8 |
| HLA-B*15:01 | 1 | 464 | 472 | 9 | FERDISTEI 0.061103 | 2.2 |
| HLA-B*15:01 | 1 | 271 | 279 | 9 | QPRTFLLKY 0.061098 | 2.2 |
| HLA-B*44:02 | 1 | 1257 | 1265 | 9 | DEDDSEPV 0.061026 | |
| 0.95 | | | | | | |
| HLA-A*30:02 | 1 | 202 | 210 | 9 | KIYSKHTPI 0.061021 | 1.9 |
| HLA-A*26:01 | 1 | 135 | 144 | 10 | FCNDPFLGVY 0.061017 | 1.1 |
| HLA-A*23:01 | 1 | 505 | 513 | 9 | YQPYRVVVL 0.061014 | 1.2 |
| HLA-A*24:02 | 1 | 1040 | 1049 | 10 | VDFCGKGYHL 0.060967 | 1.2 |
| HLA-A*30:01 | 1 | 962 | 970 | 9 | LVKQLSSNF 0.060844 | 2.5 |
| HLA-A*30:01 | 1 | 686 | 694 | 9 | SVASQSIIA 0.060802 | 2.5 |
| HLA-A*01:01 | 1 | 1095 | 1103 | 9 | FVSNGTHWF 0.060724 | 1.4 |
| HLA-B*53:01 | 1 | 1093 | 1102 | 10 | GVFVSNNGTHW 0.060695 | 1.2 |
| HLA-A*02:06 | 1 | 1136 | 1144 | 9 | TVYDPLQPE 0.06067 | 2.4 |
| HLA-A*30:02 | 1 | 1206 | 1215 | 10 | YEQYIKWPWY 0.060635 | 1.9 |
| HLA-B*53:01 | 1 | 1021 | 1029 | 9 | SANLAATKM 0.060629 | 1.2 |
| HLA-A*02:03 | 1 | 122 | 130 | 9 | NATNVVVIK 0.060551 | 2.0 |
| HLA-A*33:01 | 1 | 781 | 790 | 10 | VFAQVKQIYK 0.060452 | 2.0 |
| HLA-B*44:02 | 1 | 1204 | 1212 | 9 | GKYEQYIKW 0.060444 | |

0.96

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*35:01 | 1 | 464 | 473 | 10 | FERDISTEIIY 0.060404 | 1.4 |
| HLA-A*01:01 | 1 | 1144 | 1152 | 9 | ELDSFKEEL 0.060376 | 1.4 |
| HLA-B*44:03 | 1 | 1207 | 1215 | 9 | EQYIKWPWY 0.060353 | 1.2 |
| HLA-B*51:01 | 1 | 119 | 127 | 9 | IVNNATNVV 0.06027 | 1.9 |
| HLA-A*32:01 | 1 | 704 | 712 | 9 | SVAYSNNSI 0.060229 | 1.2 |
| HLA-B*35:01 | 1 | 329 | 337 | 9 | FPNITNLCP 0.060134 | 1.4 |
| HLA-A*30:02 | 1 | 710 | 718 | 9 | NSIAIPTNF 0.060122 | 2.0 |
| HLA-A*24:02 | 1 | 366 | 374 | 9 | SVLYNSASF 0.060109 | 1.2 |
| HLA-A*68:01 | 1 | 257 | 266 | 10 | GWTAGAAAYY 0.060041 | 3.2 |
| HLA-A*33:01 | 1 | 500 | 509 | 10 | TNGVGYQPYR 0.060027 | 2.0 |
| HLA-B*15:01 | 1 | 196 | 204 | 9 | NIDGYFKIY 0.060017 | 2.2 |
| HLA-A*03:01 | 1 | 357 | 365 | 9 | RISNCVADY 0.059989 | 2.0 |
| HLA-B*51:01 | 1 | 705 | 713 | 9 | VAYSNNSIA 0.059961 | 1.9 |
| HLA-A*02:03 | 1 | 876 | 884 | 9 | ALLAGTITS 0.059918 | 2.1 |
| HLA-A*01:01 | 1 | 486 | 495 | 10 | FNCYFPLQSY 0.059794 | 1.4 |
| HLA-A*02:03 | 1 | 711 | 720 | 10 | SIAIPTNFTI 0.059747 | 2.1 |
| HLA-B*58:01 | 1 | 444 | 453 | 10 | KVGGNYYLY 0.059716 | 1.7 |
| HLA-A*02:06 | 1 | 1226 | 1234 | 9 | AIVMVTIML 0.059715 | 2.4 |
| HLA-A*32:01 | 1 | 127 | 135 | 9 | VIKVEFQF 0.059619 | 1.2 |
| HLA-B*44:03 | 1 | 557 | 565 | 9 | KKFLPFQFQ 0.059615 | 1.2 |
| HLA-B*57:01 | 1 | 192 | 201 | 10 | FVFKNIDGYF 0.059547 | 2.6 |
| HLA-A*02:03 | 1 | 409 | 418 | 10 | QIAPGQTGKI 0.059539 | 2.1 |
| HLA-A*02:06 | 1 | 320 | 329 | 10 | VQPTESIVRF 0.059506 | 2.4 |
| HLA-A*30:01 | 1 | 1137 | 1145 | 9 | VYDPLQPEL 0.059485 | 2.5 |
| HLA-B*35:01 | 1 | 477 | 486 | 10 | STPCNGVEGF 0.059477 | 1.4 |
| HLA-A*01:01 | 1 | 908 | 917 | 10 | GIGVTQNVLY 0.05947 | 1.4 |
| HLA-B*15:01 | 1 | 634 | 642 | 9 | RVYSTGSNV 0.059418 | 2.2 |
| HLA-A*68:02 | 1 | 118 | 126 | 9 | LIVNNATNV 0.059381 | 1.7 |
| HLA-B*58:01 | 1 | 35 | 43 | 9 | GYYYPDKVF 0.059364 | 1.7 |
| HLA-A*68:02 | 1 | 617 | 626 | 10 | CTEVPVAIHA 0.059291 | 1.7 |
| HLA-A*32:01 | 1 | 1004 | 1012 | 9 | LQTYVTQQL 0.059284 | 1.2 |
| HLA-A*01:01 | 1 | 896 | 904 | 9 | IPFAMQMAY 0.059283 | 1.4 |
| HLA-A*30:02 | 1 | 454 | 462 | 9 | RLFRKSNLK 0.059282 | 2.0 |
| HLA-A*02:03 | 1 | 444 | 452 | 9 | KVGGNYYLY 0.05923 | 2.1 |
| HLA-B*07:02 | 1 | 269 | 277 | 9 | YLQPRFTLL 0.059175 | 1.6 |
| HLA-B*35:01 | 1 | 486 | 495 | 10 | FNCYFPLQSY 0.05917 | 1.4 |
| HLA-A*01:01 | 1 | 575 | 584 | 10 | AVRDPQTLEI 0.059037 | 1.4 |
| HLA-A*31:01 | 1 | 320 | 328 | 9 | VQPTESIVR 0.059025 | 2.8 |
| HLA-A*30:02 | 1 | 444 | 452 | 9 | KVGGNYYLY 0.059017 | 2.0 |
| HLA-A*26:01 | 1 | 161 | 170 | 10 | SSANNCTFEY 0.059002 | 1.1 |
| HLA-B*53:01 | 1 | 1206 | 1214 | 9 | YEQYIKWPW 0.058772 | 1.2 |
| HLA-B*07:02 | 1 | 1021 | 1029 | 9 | SANLAATKM 0.058724 | 1.6 |
| HLA-A*33:01 | 1 | 1011 | 1019 | 9 | QLIRAAEIR 0.058693 | 2.0 |
| HLA-B*53:01 | 1 | 584 | 592 | 9 | ILDITPCSF 0.05868 | 1.2 |
| HLA-A*24:02 | 1 | 705 | 714 | 10 | VAYSNNSIAI 0.058658 | 1.2 |
| HLA-A*23:01 | 1 | 266 | 275 | 10 | YVGYLQPRTF 0.058657 | 1.2 |
| HLA-A*33:01 | 1 | 338 | 346 | 9 | FGEVFNATR 0.058653 | 2.0 |
| HLA-B*57:01 | 1 | 590 | 598 | 9 | CSFGGVSVI 0.058652 | 2.7 |
| HLA-B*58:01 | 1 | 1206 | 1214 | 9 | YEQYIKWPW 0.058617 | 1.7 |
| HLA-A*32:01 | 1 | 454 | 462 | 9 | RLFRKSNLK 0.058595 | 1.2 |
| HLA-B*35:01 | 1 | 267 | 275 | 9 | VGYLQPRTF 0.058555 | 1.5 |
| HLA-B*07:02 | 1 | 634 | 643 | 10 | RVYSTGSNVF 0.058475 | 1.6 |
| HLA-A*23:01 | 1 | 1209 | 1217 | 9 | YIKWPWYIW 0.058475 | 1.2 |
| HLA-A*26:01 | 1 | 533 | 541 | 9 | LVKNKCVNF 0.058425 | 1.1 |
| HLA-A*68:01 | 1 | 803 | 811 | 9 | SQILPDPSK 0.058389 | 3.3 |
| HLA-A*01:01 | 1 | 773 | 782 | 10 | EQDKNTQEVF 0.058335 | 1.4 |
| HLA-B*57:01 | 1 | 535 | 543 | 9 | KNKCVNFNF 0.058281 | 2.7 |
| HLA-A*32:01 | 1 | 23 | 32 | 10 | QLPPAYTNSF 0.058266 | 1.2 |
| HLA-A*23:01 | 1 | 1087 | 1095 | 9 | AHFPREGVF 0.058204 | 1.2 |
| HLA-B*57:01 | 1 | 321 | 329 | 9 | QPTESIVRF 0.05818 | 2.7 |
| HLA-A*24:02 | 1 | 192 | 201 | 10 | FVFKNIDGYF 0.058157 | 1.2 |
| HLA-B*58:01 | 1 | 603 | 612 | 10 | NTSNQVAVLY 0.058034 | 1.7 |
| HLA-A*31:01 | 1 | 756 | 765 | 10 | YGSFCTQLNR 0.057999 | 2.9 |
| HLA-A*30:01 | 1 | 235 | 244 | 10 | ITRFQTLAL 0.057993 | 2.6 |
| HLA-A*11:01 | 1 | 29 | 38 | 10 | TNSFTRGVVY 0.05796 | 1.9 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*32:01 | 1 | 326 | 335 | 10 | IVRFPNITNL 0.057902 | 1.2 |
| HLA-B*08:01 | 1 | 1185 | 1193 | 9 | RLNEVAKNL 0.057899 | 1.9 |
| HLA-A*68:01 | 1 | 25 | 34 | 10 | PPAYTNSFTR 0.057875 | 3.3 |
| HLA-A*02:01 | 1 | 509 | 517 | 9 | RVVLSFEL 0.057848 | 1.9 |
| HLA-B*35:01 | 1 | 294 | 303 | 10 | DPLSETKCTL 0.057807 | 1.5 |
| HLA-B*44:02 | 1 | 847 | 855 | 9 | RDLICAQKF 0.057758 | |
| 0.99 | | | | | | |
| HLA-A*24:02 | 1 | 635 | 644 | 10 | VYSTGSNVFQ 0.057711 | 1.2 |
| HLA-A*02:06 | 1 | 835 | 844 | 10 | KQYGDCLGDI 0.057664 | 2.5 |
| HLA-A*32:01 | 1 | 204 | 212 | 9 | YSKHTPINL 0.057633 | 1.2 |
| HLA-A*02:06 | 1 | 1191 | 1200 | 10 | KNLNESLIDL 0.057621 | 2.5 |
| HLA-B*57:01 | 1 | 51 | 59 | 9 | TQDLFLPFF 0.057588 | 2.7 |
| HLA-A*32:01 | 1 | 1101 | 1109 | 9 | HWFVTQRNF 0.057572 | 1.2 |
| HLA-A*30:02 | 1 | 319 | 327 | 9 | RVQPTESIV 0.057521 | 2.0 |
| HLA-A*26:01 | 1 | 718 | 727 | 10 | FTISVTTEIL 0.05745 | 1.1 |
| HLA-A*32:01 | 1 | 1208 | 1217 | 10 | QYIKWPWYIW 0.057366 | 1.2 |
| HLA-A*02:06 | 1 | 1224 | 1232 | 9 | LIAIVMVTI 0.057362 | 2.5 |
| HLA-A*01:01 | 1 | 270 | 279 | 10 | LQPRTFLLKY 0.057353 | 1.4 |
| HLA-A*02:06 | 1 | 1010 | 1018 | 9 | QQLIRAAEI 0.057351 | 2.5 |
| HLA-B*15:01 | 1 | 1136 | 1145 | 10 | TVYDPLQPEL 0.05735 | 2.3 |
| HLA-B*58:01 | 1 | 1053 | 1062 | 10 | PQSAPHGVVF 0.057272 | 1.7 |
| HLA-B*15:01 | 1 | 688 | 697 | 10 | ASQSIIAYTM 0.057264 | 2.3 |
| HLA-B*58:01 | 1 | 29 | 38 | 10 | TNSFTRGVVY 0.057228 | 1.7 |
| HLA-A*31:01 | 1 | 270 | 278 | 9 | LQPRTFLLK 0.057163 | 2.9 |
| HLA-A*03:01 | 1 | 991 | 1000 | 10 | VQIDRLITGR 0.057123 | 2.1 |
| HLA-B*35:01 | 1 | 415 | 423 | 9 | TGKIADYNY 0.057107 | 1.5 |
| HLA-B*58:01 | 1 | 261 | 269 | 9 | GAAAYVVG 0.057085 | 1.7 |
| HLA-B*57:01 | 1 | 998 | 1007 | 10 | TGRLQSLQTY 0.057036 | 2.7 |
| HLA-A*11:01 | 1 | 192 | 200 | 9 | FVFKNIDGY 0.056904 | 1.9 |
| HLA-B*08:01 | 1 | 506 | 515 | 10 | QPYRVVLSF 0.0569 | 1.9 |
| HLA-B*15:01 | 1 | 550 | 559 | 10 | GLTESNKKF 0.056884 | 2.3 |
| HLA-B*07:02 | 1 | 204 | 212 | 9 | YSKHTPINL 0.056882 | 1.6 |
| HLA-A*33:01 | 1 | 1208 | 1216 | 9 | QYIKWPWYI 0.056858 | 2.0 |
| HLA-B*58:01 | 1 | 733 | 742 | 10 | KTSVDCTMYI 0.056836 | 1.7 |
| HLA-A*33:01 | 1 | 206 | 214 | 9 | KHTPINLVR 0.056817 | 2.1 |
| HLA-B*51:01 | 1 | 568 | 576 | 9 | DIADTTDAV 0.056696 | 2.0 |
| HLA-A*68:02 | 1 | 885 | 894 | 10 | GWTFGAGAAL 0.056632 | 1.8 |
| HLA-A*30:01 | 1 | 1173 | 1181 | 9 | NASVVNIQK 0.056626 | 2.6 |
| HLA-B*44:02 | 1 | 772 | 781 | 10 | VEQDKNTQEV 0.056612 | 1.0 |
| HLA-A*31:01 | 1 | 198 | 206 | 9 | DGYFKIYSK 0.056595 | 2.9 |
| HLA-A*24:02 | 1 | 494 | 503 | 10 | SYGFQPTNGV 0.056574 | 1.3 |
| HLA-A*02:01 | 1 | 1223 | 1232 | 10 | GLIAIVMVTI 0.056529 | 2.0 |
| HLA-B*51:01 | 1 | 985 | 993 | 9 | DKVEAEVQI 0.056503 | 2.0 |
| HLA-A*31:01 | 1 | 803 | 811 | 9 | SQILPDPSK 0.056488 | 2.9 |
| HLA-A*02:06 | 1 | 953 | 962 | 10 | NQNAQALNTL 0.056415 | 2.5 |
| HLA-B*51:01 | 1 | 227 | 235 | 9 | VDLPIGINI 0.056404 | 2.0 |
| HLA-A*02:06 | 1 | 204 | 212 | 9 | YSKHTPINL 0.056355 | 2.5 |
| HLA-A*32:01 | 1 | 554 | 562 | 9 | ESNKKFLPF 0.056321 | 1.2 |
| HLA-B*44:03 | 1 | 779 | 787 | 9 | QEVFAQVKQ 0.056297 | 1.2 |
| HLA-A*33:01 | 1 | 36 | 45 | 10 | VYYPDKVFRS 0.056266 | 2.1 |
| HLA-A*23:01 | 1 | 879 | 888 | 10 | AGTITSGWTF 0.056254 | 1.2 |
| HLA-A*68:01 | 1 | 1202 | 1211 | 10 | ELGKYEQYIK 0.05624 | 3.4 |
| HLA-B*58:01 | 1 | 590 | 598 | 9 | CSFGGVSVI 0.056222 | 1.8 |
| HLA-A*68:01 | 1 | 1135 | 1144 | 10 | NTVYDPLQPE 0.05621 | 3.4 |
| HLA-B*51:01 | 1 | 28 | 36 | 9 | YTNSFTRGV 0.056171 | 2.1 |
| HLA-A*30:01 | 1 | 1073 | 1081 | 9 | KNFTTAPAI 0.056159 | 2.7 |
| HLA-A*33:01 | 1 | 150 | 158 | 9 | KSWMESEFR 0.056122 | 2.1 |
| HLA-A*02:03 | 1 | 1014 | 1022 | 9 | RAAEIRASA 0.0561 | 2.2 |
| HLA-A*02:06 | 1 | 60 | 68 | 9 | SNVTFHAI 0.056069 | 2.5 |
| HLA-A*30:01 | 1 | 292 | 300 | 9 | ALDPLSETK 0.056024 | 2.7 |
| HLA-A*30:02 | 1 | 184 | 192 | 9 | GNFKNREF 0.056012 | 2.1 |
| HLA-A*23:01 | 1 | 3 | 11 | 9 | VFLVLLPLV 0.055977 | 1.2 |
| HLA-B*40:01 | 1 | 1071 | 1079 | 9 | QEKNFTTAP 0.055958 | 1.3 |
| HLA-B*53:01 | 1 | 718 | 726 | 9 | FTISVTTEI 0.055925 | 1.2 |
| HLA-A*30:01 | 1 | 237 | 245 | 9 | RFQTLALH 0.055911 | 2.7 |
| HLA-A*68:01 | 1 | 1064 | 1072 | 9 | HVTYVPAQE 0.055872 | 3.4 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*40:01 | 1 | 724 | 732 | 9 | TEILPVSMT 0.055851 | 1.3 |
| HLA-A*30:02 | 1 | 576 | 584 | 9 | VRDPQTLEI 0.055814 | 2.1 |
| HLA-B*53:01 | 1 | 345 | 353 | 9 | TRFASVYAW 0.055787 | 1.2 |
| HLA-A*30:02 | 1 | 109 | 117 | 9 | TLDSKTQSL 0.055771 | 2.1 |
| HLA-A*26:01 | 1 | 1201 | 1209 | 9 | QELGKYEYQ 0.055768 | 1.1 |
| HLA-A*31:01 | 1 | 511 | 519 | 9 | VVLSFELLH 0.05574 | 2.9 |
| HLA-B*51:01 | 1 | 797 | 805 | 9 | FGGFNFSQI 0.055683 | 2.1 |
| HLA-A*30:01 | 1 | 415 | 424 | 10 | TGKIADYNYK 0.05566 | 2.7 |
| HLA-A*30:01 | 1 | 826 | 835 | 10 | VTLADAGFIK 0.055644 | 2.7 |
| HLA-A*23:01 | 1 | 144 | 153 | 10 | YYHKNNKSWM 0.055593 | 1.2 |
| HLA-A*23:01 | 1 | 192 | 201 | 10 | FVFKNIDGYF 0.055577 | 1.2 |
| HLA-A*02:06 | 1 | 50 | 58 | 9 | STQDLFLPF 0.05555 | 2.5 |
| HLA-B*51:01 | 1 | 215 | 223 | 9 | DLPQGFSAL 0.055538 | 2.1 |
| HLA-A*23:01 | 1 | 576 | 584 | 9 | VRDPQTLEI 0.055455 | 1.2 |
| HLA-A*02:03 | 1 | 1224 | 1232 | 9 | LIAIVMVTI 0.055455 | 2.2 |
| HLA-B*44:03 | 1 | 773 | 782 | 10 | EQDKNTQEVF 0.055428 | 1.2 |
| HLA-A*68:02 | 1 | 914 | 923 | 10 | NVLYENQKLI 0.055377 | 1.8 |
| HLA-A*31:01 | 1 | 409 | 417 | 9 | QIAPGQTGK 0.055354 | 2.9 |
| HLA-A*30:02 | 1 | 204 | 212 | 9 | YSKHTPINL 0.055326 | 2.1 |
| HLA-B*35:01 | 1 | 28 | 37 | 10 | YTNSTTRGVY 0.055258 | 1.5 |
| HLA-A*68:01 | 1 | 453 | 462 | 10 | YRLFRRKSNLK 0.055226 | 3.4 |
| HLA-B*53:01 | 1 | 366 | 374 | 9 | SVLYNSASF 0.055224 | 1.3 |
| HLA-A*68:02 | 1 | 641 | 649 | 9 | NVFQTRAGC 0.055133 | 1.8 |
| HLA-B*51:01 | 1 | 329 | 337 | 9 | FPNITNLCP 0.055125 | 2.1 |
| HLA-A*31:01 | 1 | 725 | 733 | 9 | EILPVSMTK 0.055105 | 2.9 |
| HLA-A*32:01 | 1 | 319 | 327 | 9 | RVQPTESIV 0.0551 | 1.3 |
| HLA-A*30:01 | 1 | 601 | 609 | 9 | GTNTSNQVA 0.055064 | 2.7 |
| HLA-A*02:06 | 1 | 686 | 694 | 9 | SVASQSIIA 0.055059 | 2.5 |
| HLA-A*30:02 | 1 | 919 | 927 | 9 | NQKLIANQF 0.055049 | 2.1 |
| HLA-A*68:02 | 1 | 943 | 951 | 9 | SALGKLQDV 0.055012 | 1.9 |
| HLA-A*68:02 | 1 | 906 | 915 | 10 | FNGIGVTQNV 0.054998 | 1.9 |
| HLA-A*02:01 | 1 | 696 | 705 | 10 | TMSLGAENSV 0.054979 | 2.0 |
| HLA-A*30:02 | 1 | 905 | 913 | 9 | RFNGIGVTQ 0.054959 | 2.1 |
| HLA-B*51:01 | 1 | 269 | 277 | 9 | YLQPRTFLL 0.054916 | 2.1 |
| HLA-A*68:02 | 1 | 111 | 119 | 9 | DSKTQSLLI 0.05484 | 1.9 |
| HLA-A*31:01 | 1 | 229 | 237 | 9 | LPIGINITR 0.054833 | 2.9 |
| HLA-B*51:01 | 1 | 398 | 407 | 10 | DSFVIRGDEV 0.054805 | 2.1 |
| HLA-B*58:01 | 1 | 686 | 695 | 10 | SVASQSIIAY 0.054714 | 1.8 |
| HLA-A*68:02 | 1 | 494 | 503 | 10 | SYGFQPTNGV 0.054677 | 1.9 |
| HLA-A*02:03 | 1 | 1168 | 1176 | 9 | DISGINASV 0.054675 | 2.2 |
| HLA-A*30:02 | 1 | 46 | 55 | 10 | SVLHSTQDLF 0.054646 | 2.1 |
| HLA-A*02:03 | 1 | 754 | 763 | 10 | LQYGSFCTQL 0.054599 | 2.2 |
| HLA-B*44:02 | 1 | 773 | 781 | 9 | EQDKNTQEV 0.054567 | 1.1 |
| HLA-B*57:01 | 1 | 808 | 817 | 10 | DPSKPSKRSF 0.054565 | 2.8 |
| HLA-A*31:01 | 1 | 1019 | 1028 | 10 | RASANLAATK 0.054532 | 2.9 |
| HLA-A*26:01 | 1 | 975 | 984 | 10 | SVLNDILSRL 0.054531 | 1.2 |
| HLA-B*57:01 | 1 | 584 | 592 | 9 | ILDITPCSF 0.054501 | 2.8 |
| HLA-B*44:03 | 1 | 1071 | 1079 | 9 | QEKNFITAP 0.054434 | 1.2 |
| HLA-A*30:01 | 1 | 854 | 862 | 9 | KFNGLTVLP 0.05441 | 2.7 |
| HLA-B*08:01 | 1 | 233 | 242 | 10 | INITRFQTL 0.054362 | 2.0 |
| HLA-A*02:01 | 1 | 117 | 126 | 10 | LLIVNNATNV 0.054282 | 2.0 |
| HLA-A*68:02 | 1 | 723 | 732 | 10 | TTEILPVSMT 0.054163 | 1.9 |
| HLA-B*57:01 | 1 | 47 | 55 | 9 | VLHSTQDLF 0.054148 | 2.8 |
| HLA-A*30:01 | 1 | 968 | 976 | 9 | SNFGAISSV 0.054109 | 2.7 |
| HLA-A*01:01 | 1 | 109 | 118 | 10 | TLDSKTQSL 0.054094 | 1.5 |
| HLA-A*30:02 | 1 | 1065 | 1073 | 9 | VTYVPAQEK 0.05408 | 2.1 |
| HLA-A*68:01 | 1 | 1083 | 1091 | 9 | HDGKAHFPR 0.054079 | 3.4 |
| HLA-A*30:01 | 1 | 991 | 1000 | 10 | VQIDRLITGR 0.054062 | 2.7 |
| HLA-B*53:01 | 1 | 962 | 970 | 9 | LVKQLSSNF 0.054061 | 1.3 |
| HLA-B*08:01 | 1 | 969 | 977 | 9 | NFGAISSVL 0.05399 | 2.0 |
| HLA-A*02:06 | 1 | 214 | 223 | 10 | RDLPQGFSAL 0.053914 | 2.6 |
| HLA-B*44:03 | 1 | 772 | 781 | 10 | VEQDKNTQEV 0.053904 | 1.2 |
| HLA-A*68:02 | 1 | 2 | 10 | 9 | FVFLVLLPL 0.053887 | 1.9 |
| HLA-A*02:03 | 1 | 914 | 923 | 10 | NVLYENQKLI 0.05388 | 2.2 |
| HLA-A*26:01 | 1 | 725 | 733 | 9 | EILPVSMTK 0.053816 | 1.2 |
| HLA-B*44:03 | 1 | 847 | 855 | 9 | RDLICAQKF 0.053814 | 1.3 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*03:01 | 1 | 687 | 695 | 9 | VASQSIIAY 0.053728 | 2.1 |
| HLA-B*51:01 | 1 | 342 | 350 | 9 | FNATRFASV 0.053626 | 2.1 |
| HLA-A*01:01 | 1 | 357 | 365 | 9 | RISNCVADY 0.053611 | 1.5 |
| HLA-B*51:01 | 1 | 1175 | 1183 | 9 | SVVNIQKEI 0.053578 | 2.1 |
| HLA-A*01:01 | 1 | 29 | 37 | 9 | TNSFTRGVY 0.053516 | 1.5 |
| HLA-B*44:03 | 1 | 338 | 347 | 10 | FGEVFNATRF 0.053509 | 1.3 |
| HLA-B*08:01 | 1 | 240 | 249 | 10 | TLLALHRSYL 0.05348 | 2.0 |
| HLA-A*11:01 | 1 | 141 | 150 | 10 | LGVYYHKNNK 0.053346 | 2.0 |
| HLA-A*68:01 | 1 | 41 | 49 | 9 | KVFRSSVLH 0.05328 | 3.5 |
| HLA-A*30:01 | 1 | 557 | 565 | 9 | KKFLPFQF 0.053252 | 2.8 |
| HLA-B*08:01 | 1 | 294 | 303 | 10 | DPLSETKCTL 0.053249 | 2.0 |
| HLA-A*02:03 | 1 | 204 | 212 | 9 | YSKHTPINL 0.053246 | 2.3 |
| HLA-A*03:01 | 1 | 1172 | 1181 | 10 | INASVVNIQK 0.053178 | 2.1 |
| HLA-B*51:01 | 1 | 988 | 997 | 10 | EAEVQIDRLI 0.052993 | 2.1 |
| HLA-A*26:01 | 1 | 1060 | 1068 | 9 | VVFLHVTYV 0.052939 | 1.2 |
| HLA-B*35:01 | 1 | 718 | 726 | 9 | FTISVTTEI 0.052885 | 1.6 |
| HLA-B*08:01 | 1 | 937 | 945 | 9 | SLSSTASAL 0.052885 | 2.0 |
| HLA-B*58:01 | 1 | 445 | 453 | 9 | VGGNYNYLY 0.052878 | 1.8 |
| HLA-A*02:03 | 1 | 240 | 249 | 10 | TLLALHRSYL 0.052866 | 2.3 |
| HLA-B*15:01 | 1 | 1021 | 1029 | 9 | SANLAATKM 0.052831 | 2.4 |
| HLA-A*30:01 | 1 | 1012 | 1020 | 9 | LIRAAEIRA 0.052825 | 2.8 |
| HLA-A*26:01 | 1 | 46 | 55 | 10 | SVLHSTQDLF 0.052819 | 1.2 |
| HLA-B*58:01 | 1 | 95 | 104 | 10 | TEKSNIIRGW 0.052799 | 1.8 |
| HLA-B*40:01 | 1 | 110 | 118 | 9 | LDSKTQSLL 0.052798 | 1.3 |
| HLA-A*68:02 | 1 | 602 | 611 | 10 | TNTSNQVAVL 0.052718 | 1.9 |
| HLA-B*58:01 | 1 | 240 | 248 | 9 | TLLALHRSY 0.052674 | 1.8 |
| HLA-A*31:01 | 1 | 58 | 66 | 9 | FFSNVTWFH 0.052642 | 3.0 |
| HLA-A*02:03 | 1 | 1137 | 1145 | 9 | VYDPLQPEL 0.052632 | 2.3 |
| HLA-A*33:01 | 1 | 674 | 683 | 10 | YQTQTNSPRR 0.052596 | 2.1 |
| HLA-A*01:01 | 1 | 554 | 562 | 9 | ESNKKFLPF 0.052576 | 1.5 |
| HLA-A*31:01 | 1 | 1010 | 1019 | 10 | QLLIRAAEIR 0.052537 | 3.0 |
| HLA-B*51:01 | 1 | 894 | 902 | 9 | LQIPFAMQM 0.052499 | 2.2 |
| HLA-A*30:01 | 1 | 50 | 58 | 9 | STQDLFLPF 0.052491 | 2.8 |
| HLA-A*32:01 | 1 | 143 | 152 | 10 | VYYHKNNKSW 0.052483 | 1.3 |
| HLA-A*03:01 | 1 | 182 | 190 | 9 | KQGNFKNLR 0.052361 | 2.2 |
| HLA-A*03:01 | 1 | 394 | 403 | 10 | NVYADSFVIR 0.052286 | 2.2 |
| HLA-B*57:01 | 1 | 776 | 785 | 10 | KNTQEVFAQV 0.052252 | 2.8 |
| HLA-A*02:06 | 1 | 327 | 335 | 9 | VRFPNITNL 0.052149 | 2.6 |
| HLA-A*01:01 | 1 | 94 | 102 | 9 | STEKSNIIR 0.052132 | 1.5 |
| HLA-A*68:02 | 1 | 1059 | 1068 | 10 | GVVFLHVTYV 0.052108 | 1.9 |
| HLA-A*30:01 | 1 | 682 | 691 | 10 | RRARSVASQS 0.052068 | 2.8 |
| HLA-A*68:01 | 1 | 61 | 69 | 9 | NVTWFHAIH 0.052062 | 3.5 |
| HLA-B*58:01 | 1 | 864 | 873 | 10 | LLTDEMIAQY 0.051993 | 1.9 |
| HLA-B*08:01 | 1 | 1054 | 1062 | 9 | QSAPHGVVF 0.051989 | 2.0 |
| HLA-B*15:01 | 1 | 809 | 817 | 9 | PSKPSKRFS 0.051901 | 2.4 |
| HLA-B*07:02 | 1 | 1088 | 1097 | 10 | HFPREGVFS 0.051847 | 1.7 |
| HLA-A*30:01 | 1 | 1036 | 1045 | 10 | QSKRVDFCGK 0.051826 | 2.8 |
| HLA-A*02:06 | 1 | 311 | 320 | 10 | GIYQTSNFRV 0.0517 | 2.6 |
| HLA-A*31:01 | 1 | 269 | 277 | 9 | YLQPRTFLL 0.051699 | 3.0 |
| HLA-A*30:01 | 1 | 327 | 335 | 9 | VRFPNITNL 0.051678 | 2.8 |
| HLA-A*33:01 | 1 | 757 | 765 | 9 | GSFCTQLNR 0.051665 | 2.2 |
| HLA-B*57:01 | 1 | 1208 | 1216 | 9 | QYIKWPWYI 0.051619 | 2.8 |
| HLA-A*30:01 | 1 | 343 | 352 | 10 | NATRFASVYA 0.051592 | 2.8 |
| HLA-A*02:01 | 1 | 151 | 159 | 9 | SWMESEFRV 0.051566 | 2.1 |
| HLA-A*68:02 | 1 | 895 | 903 | 9 | QIPFAMQMA 0.051547 | 1.9 |
| HLA-A*68:01 | 1 | 1006 | 1014 | 9 | TYVTQQLIR 0.051547 | 3.5 |
| HLA-A*23:01 | 1 | 37 | 45 | 9 | YYPDKVFRS 0.05154 | 1.3 |
| HLA-B*40:01 | 1 | 515 | 523 | 9 | FELLHAPAT 0.051521 | 1.4 |
| HLA-B*15:01 | 1 | 415 | 423 | 9 | TGKIADYNY 0.051503 | 2.4 |
| HLA-A*02:03 | 1 | 979 | 987 | 9 | DILSRLDKV 0.05149 | 2.3 |
| HLA-A*68:01 | 1 | 780 | 788 | 9 | EVFAQVKQI 0.05148 | 3.5 |
| HLA-A*02:06 | 1 | 1008 | 1016 | 9 | VTQQLIRAA 0.051472 | 2.6 |
| HLA-A*30:02 | 1 | 448 | 456 | 9 | NYNYLYRLF 0.051447 | 2.2 |
| HLA-B*51:01 | 1 | 576 | 584 | 9 | VRDPQTLEI 0.051447 | 2.2 |
| HLA-B*53:01 | 1 | 125 | 133 | 9 | NVVIKVFCE 0.051417 | 1.3 |
| HLA-A*02:01 | 1 | 495 | 503 | 9 | YGFQPTNGV 0.051391 | 2.1 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|
| HLA-A*33:01 | 1 | 182 | 190 | 9 | KQGNFKNLR | 0.051339 | 2.2 |
| HLA-A*24:02 | 1 | 345 | 353 | 9 | TRFASVYAW | 0.051322 | 1.3 |
| HLA-A*30:02 | 1 | 635 | 643 | 9 | VYSTGSNVF | 0.051254 | 2.2 |
| HLA-A*30:01 | 1 | 97 | 105 | 9 | KSNIIIRGWI | 0.051246 | 2.8 |
| HLA-A*02:06 | 1 | 734 | 742 | 9 | TSVDCTMYI | 0.051239 | 2.6 |
| HLA-A*68:02 | 1 | 779 | 788 | 10 | QEVFAQVKQI | 0.051191 | 2.0 |
| HLA-B*58:01 | 1 | 321 | 329 | 9 | QPTESIVRF | 0.05118 | 1.9 |
| HLA-A*68:01 | 1 | 1146 | 1155 | 10 | DSFKEELDKY | 0.051149 | 3.5 |
| HLA-B*35:01 | 1 | 691 | 699 | 9 | SIIAYTMSL | 0.051143 | 1.6 |
| HLA-A*24:02 | 1 | 327 | 335 | 9 | VRFPNITNL | 0.051112 | 1.3 |
| HLA-A*30:01 | 1 | 435 | 444 | 10 | AWNSNNLDSK | 0.051089 | 2.9 |
| HLA-A*02:01 | 1 | 118 | 126 | 9 | LIVNNATNV | 0.051044 | 2.1 |
| HLA-A*02:03 | 1 | 215 | 223 | 9 | DLPQGFSAL | 0.051001 | 2.3 |
| HLA-A*01:01 | 1 | 617 | 625 | 9 | CTEVPVAIH | 0.050958 | 1.5 |
| HLA-A*26:01 | 1 | 169 | 177 | 9 | EYVSQPFLM | 0.050946 | 1.2 |
| HLA-A*30:02 | 1 | 21 | 29 | 9 | RTQLPPAYT | 0.050918 | 2.2 |
| HLA-A*01:01 | 1 | 240 | 248 | 9 | TLLALHRSY | 0.050875 | 1.5 |
| HLA-A*02:03 | 1 | 761 | 770 | 10 | TQLNRALTGI | 0.050859 | 2.3 |
| HLA-A*32:01 | 1 | 711 | 720 | 10 | SIAIPTNFTI | 0.050858 | 1.3 |
| HLA-A*68:02 | 1 | 162 | 171 | 10 | SANNCTFEYV | 0.050813 | 2.0 |
| HLA-A*68:02 | 1 | 725 | 734 | 10 | EILPVSMTKT | 0.050767 | 2.0 |
| HLA-B*08:01 | 1 | 16 | 24 | 9 | VNLTRTQQL | 0.050702 | 2.1 |
| HLA-A*02:06 | 1 | 596 | 604 | 9 | SVITPGTNT | 0.050675 | 2.7 |
| HLA-B*51:01 | 1 | 516 | 524 | 9 | ELLHAPATV | 0.050578 | 2.2 |
| HLA-A*30:02 | 1 | 786 | 794 | 9 | KQIYKTPPI | 0.050507 | 2.2 |
| HLA-A*24:02 | 1 | 503 | 512 | 10 | VGYPYRVVV | 0.050497 | 1.3 |
| HLA-A*24:02 | 1 | 576 | 584 | 9 | VRDPQTLEI | 0.050468 | 1.3 |
| HLA-B*15:01 | 1 | 892 | 900 | 9 | AALQIPFAM | 0.050454 | 2.4 |
| HLA-B*51:01 | 1 | 1096 | 1104 | 9 | VSNGTHWFV | 0.050421 | 2.2 |
| HLA-A*32:01 | 1 | 919 | 927 | 9 | NQKLIANQF | 0.050334 | 1.3 |
| HLA-B*57:01 | 1 | 261 | 269 | 9 | GAAAYYVGY | 0.05032 | 2.9 |
| HLA-B*57:01 | 1 | 666 | 674 | 9 | IGAGICASY | 0.05032 | 2.9 |
| HLA-B*44:03 | 1 | 345 | 353 | 9 | TRFASVYAW | 0.050312 | 1.3 |
| HLA-A*02:06 | 1 | 2 | 11 | 10 | FVFLVLLPLV | 0.050307 | 2.7 |
| HLA-A*01:01 | 1 | 342 | 351 | 10 | FNATRFASVY | 0.050212 | 1.5 |
| HLA-B*15:01 | 1 | 1140 | 1148 | 9 | PLQPELDSF | 0.050178 | 2.5 |
| HLA-A*30:01 | 1 | 509 | 517 | 9 | RVVLSFEL | 0.050139 | 2.9 |
| HLA-B*51:01 | 1 | 862 | 870 | 9 | PPLLTDEMI | 0.050098 | 2.2 |
| HLA-A*31:01 | 1 | 228 | 237 | 10 | DLPIGINITR | 0.050086 | 3.1 |
| HLA-A*31:01 | 1 | 202 | 210 | 9 | KIYSKHTPI | 0.050056 | 3.1 |
| HLA-A*02:06 | 1 | 576 | 584 | 9 | VRDPQTLEI | 0.050012 | 2.7 |
| HLA-A*33:01 | 1 | 806 | 815 | 10 | LPDPSKPSKR | 0.05001 | 2.2 |
| HLA-B*35:01 | 1 | 603 | 612 | 10 | NTSNQVAVLY | 0.049957 | 1.6 |
| HLA-B*15:01 | 1 | 408 | 417 | 10 | RQIAPGQTGK | 0.04994 | 2.5 |
| HLA-B*15:01 | 1 | 1197 | 1206 | 10 | LIDLQELGKY | 0.049902 | 2.5 |
| HLA-B*08:01 | 1 | 868 | 877 | 10 | EMIAQYTSAL | 0.049895 | 2.1 |
| HLA-A*68:02 | 1 | 869 | 878 | 10 | MIAQYTSALL | 0.049864 | 2.0 |
| HLA-A*68:01 | 1 | 987 | 995 | 9 | VEAEVQIDR | 0.049858 | 3.6 |
| HLA-A*68:01 | 1 | 372 | 380 | 9 | ASFSTFKCY | 0.049821 | 3.6 |
| HLA-B*57:01 | 1 | 326 | 335 | 10 | IVRFPNITNL | 0.049797 | 2.9 |
| HLA-B*35:01 | 1 | 1147 | 1155 | 9 | SFKEELDKY | 0.049787 | 1.6 |
| HLA-A*11:01 | 1 | 1029 | 1038 | 10 | MSECVLGQSK | 0.049722 | 2.1 |
| HLA-A*02:03 | 1 | 940 | 948 | 9 | STASALGKL | 0.049656 | 2.3 |
| HLA-A*02:06 | 1 | 225 | 233 | 9 | PLVDLPIGI | 0.049629 | 2.7 |
| HLA-A*02:01 | 1 | 444 | 452 | 9 | KVGGNYNYL | 0.049629 | 2.1 |
| HLA-B*58:01 | 1 | 361 | 369 | 9 | CVADYSVLV | 0.04961 | 1.9 |
| HLA-A*68:01 | 1 | 913 | 921 | 9 | QNVLYENQK | 0.049593 | 3.6 |
| HLA-A*26:01 | 1 | 84 | 92 | 9 | LPFNDGVYF | 0.049572 | 1.2 |
| HLA-A*02:01 | 1 | 976 | 985 | 10 | VLNDILSRLD | 0.049525 | 2.1 |
| HLA-A*02:03 | 1 | 726 | 734 | 9 | ILPVSMTKT | 0.049496 | 2.4 |
| HLA-B*15:01 | 1 | 481 | 489 | 9 | NGVEGFNCY | 0.049415 | 2.5 |
| HLA-B*58:01 | 1 | 184 | 192 | 9 | GNFKNLREF | 0.049392 | 1.9 |
| HLA-A*02:06 | 1 | 215 | 223 | 9 | DLPQGFSAL | 0.049314 | 2.7 |
| HLA-A*33:01 | 1 | 139 | 147 | 9 | PFLGVYYHK | 0.049295 | 2.2 |
| HLA-B*57:01 | 1 | 748 | 756 | 9 | ECSNLLLQY | 0.049295 | 2.9 |
| HLA-A*02:06 | 1 | 948 | 956 | 9 | LQDVVNQNA | 0.049256 | 2.7 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*44:03 | 1 | 1030 | 1038 | 9 | SECVLGQSK 0.049231 | 1.3 |
| HLA-A*32:01 | 1 | 239 | 248 | 10 | QTLLALHRYSY 0.049152 | 1.3 |
| HLA-B*51:01 | 1 | 856 | 864 | 9 | NGLTVLPPL 0.04915 | 2.3 |
| HLA-B*35:01 | 1 | 191 | 200 | 10 | EFVFKNIDGY 0.04914 | 1.6 |
| HLA-B*53:01 | 1 | 334 | 342 | 9 | NLCPFGEVF 0.049112 | 1.4 |
| HLA-B*57:01 | 1 | 361 | 369 | 9 | CVADYSVLY 0.049036 | 2.9 |
| HLA-B*57:01 | 1 | 683 | 692 | 10 | RARSVASQSI 0.049019 | 2.9 |
| HLA-A*68:01 | 1 | 896 | 904 | 9 | IPFAMQMAY 0.049018 | 3.6 |
| HLA-A*02:06 | 1 | 898 | 906 | 9 | FAMQMAYRF 0.048969 | 2.7 |
| HLA-B*57:01 | 1 | 1094 | 1103 | 10 | VFVSNGTHWF 0.048951 | 2.9 |
| HLA-A*02:03 | 1 | 1215 | 1224 | 10 | YIWLGFIAGL 0.048797 | 2.4 |
| HLA-A*31:01 | 1 | 445 | 454 | 10 | VGGNYNYLYR 0.048794 | 3.1 |
| HLA-A*68:02 | 1 | 725 | 733 | 9 | EILPVSMTK 0.048755 | 2.0 |
| HLA-A*24:02 | 1 | 56 | 65 | 10 | LPFFSNVTFW 0.048705 | 1.4 |
| HLA-A*68:02 | 1 | 583 | 591 | 9 | EILDITPCS 0.048685 | 2.0 |
| HLA-A*30:02 | 1 | 1208 | 1216 | 9 | QYIKWPWYI 0.048651 | 2.2 |
| HLA-A*01:01 | 1 | 1136 | 1145 | 10 | TVYDPLQPEL 0.048648 | 1.6 |
| HLA-B*40:01 | 1 | 133 | 141 | 9 | FQFCNDPFL 0.048608 | 1.4 |
| HLA-B*51:01 | 1 | 1136 | 1145 | 10 | TVYDPLQPEL 0.048578 | 2.3 |
| HLA-B*35:01 | 1 | 1264 | 1272 | 9 | VLKGVKLHY 0.048569 | 1.6 |
| HLA-B*58:01 | 1 | 781 | 789 | 9 | VFAQVKQIY 0.048566 | 1.9 |
| HLA-A*01:01 | 1 | 481 | 489 | 9 | NGVEGFNCY 0.04853 | 1.6 |
| HLA-A*68:01 | 1 | 50 | 58 | 9 | STQDLFLPF 0.04852 | 3.6 |
| HLA-A*24:02 | 1 | 969 | 977 | 9 | NFGAISSVL 0.048499 | 1.4 |
| HLA-A*31:01 | 1 | 449 | 458 | 10 | YNYLYRFRK 0.048455 | 3.2 |
| HLA-B*08:01 | 1 | 201 | 210 | 10 | FKIYSKHTPI 0.048453 | 2.1 |
| HLA-A*02:03 | 1 | 1128 | 1136 | 9 | VVIGIVNNT 0.048339 | 2.4 |
| HLA-B*40:01 | 1 | 51 | 59 | 9 | TQDLFLPFF 0.048321 | 1.4 |
| HLA-B*15:01 | 1 | 241 | 249 | 9 | LLALHRSYL 0.04832 | 2.5 |
| HLA-A*02:03 | 1 | 568 | 576 | 9 | DIADTTDAV 0.048227 | 2.4 |
| HLA-A*26:01 | 1 | 781 | 789 | 9 | VFAQVKQIY 0.048199 | 1.2 |
| HLA-A*68:02 | 1 | 27 | 36 | 10 | AYTNSFTRGV 0.048122 | 2.0 |
| HLA-A*11:01 | 1 | 182 | 190 | 9 | KQGNFKNLR 0.048085 | 2.1 |
| HLA-A*68:02 | 1 | 954 | 962 | 9 | QNAQALNTL 0.048079 | 2.0 |
| HLA-A*30:02 | 1 | 1014 | 1022 | 9 | RAAEIRASA 0.048068 | 2.3 |
| HLA-A*23:01 | 1 | 1040 | 1049 | 10 | VDFCGKGYHL 0.047961 | 1.3 |
| HLA-A*03:01 | 1 | 1093 | 1101 | 9 | GVFVSNGTH 0.047936 | 2.3 |
| HLA-B*08:01 | 1 | 1188 | 1197 | 10 | EVAKNLNESL 0.047936 | 2.1 |
| HLA-A*30:01 | 1 | 408 | 416 | 9 | RQIAPGQTG 0.047858 | 3.0 |
| HLA-A*32:01 | 1 | 1086 | 1095 | 10 | KAHFPREGVF 0.0478 | 1.4 |
| HLA-A*68:02 | 1 | 115 | 123 | 9 | QSLLIIVNNA 0.047795 | 2.0 |
| HLA-B*35:01 | 1 | 442 | 451 | 10 | DSKVGGNYNY 0.04778 | 1.7 |
| HLA-A*32:01 | 1 | 733 | 741 | 9 | KTSVDCTMY 0.047731 | 1.4 |
| HLA-A*26:01 | 1 | 371 | 380 | 10 | SASFSTFKCY 0.047674 | 1.3 |
| HLA-B*51:01 | 1 | 525 | 534 | 10 | CGPKKSTNLV 0.047667 | 2.3 |
| HLA-A*02:03 | 1 | 55 | 63 | 9 | FLPFFSNVT 0.047652 | 2.4 |
| HLA-A*02:03 | 1 | 342 | 350 | 9 | FNATRFASV 0.04764 | 2.4 |
| HLA-A*32:01 | 1 | 686 | 695 | 10 | SVASQSIIAY 0.047619 | 1.4 |
| HLA-B*15:01 | 1 | 1189 | 1197 | 9 | VAKNLNESL 0.047619 | 2.5 |
| HLA-A*68:02 | 1 | 1113 | 1122 | 10 | QIITTDNTFV 0.047586 | 2.1 |
| HLA-B*58:01 | 1 | 894 | 902 | 9 | LQIPFAMQM 0.047552 | 1.9 |
| HLA-A*30:02 | 1 | 533 | 541 | 9 | LVKNKCVNF 0.047527 | 2.3 |
| HLA-A*68:02 | 1 | 1137 | 1145 | 9 | VYDPLQPEL 0.047508 | 2.1 |
| HLA-A*30:01 | 1 | 1037 | 1045 | 9 | SKRVDFCGK 0.047471 | 3.0 |
| HLA-A*31:01 | 1 | 417 | 425 | 9 | KIADYNYKL 0.047461 | 3.2 |
| HLA-A*11:01 | 1 | 955 | 964 | 10 | NAQALNTLVK 0.047353 | 2.1 |
| HLA-A*30:02 | 1 | 940 | 948 | 9 | STASALGKL 0.047322 | 2.3 |
| HLA-A*68:01 | 1 | 1056 | 1064 | 9 | APHGVVFLH 0.04732 | 3.6 |
| HLA-A*30:01 | 1 | 1054 | 1062 | 9 | QSAPHGVVF 0.047239 | 3.0 |
| HLA-A*68:02 | 1 | 1208 | 1216 | 9 | QYIKWPWYI 0.047225 | 2.1 |
| HLA-B*35:01 | 1 | 620 | 629 | 10 | VPVAIHADQL 0.047215 | 1.7 |
| HLA-A*68:02 | 1 | 583 | 592 | 10 | EILDITPCSF 0.047173 | 2.1 |
| HLA-B*08:01 | 1 | 786 | 794 | 9 | KQIYKTPPI 0.047085 | 2.2 |
| HLA-A*30:01 | 1 | 638 | 646 | 9 | TGSNVFQTR 0.047011 | 3.0 |
| HLA-A*33:01 | 1 | 199 | 207 | 9 | GYFKIYSKH 0.046939 | 2.3 |
| HLA-A*68:02 | 1 | 253 | 262 | 10 | DSSSGWTAGA 0.046906 | 2.1 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*02:01 | 1 | 2 | 10 | 9 | FVFLVLLPL 0.046892 | 2.2 |
| HLA-A*33:01 | 1 | 1050 | 1058 | 9 | MSFPQSAPH 0.046875 | 2.3 |
| HLA-B*07:02 | 1 | 425 | 434 | 10 | LPDDFTGCVI 0.046859 | 1.8 |
| HLA-A*02:06 | 1 | 568 | 576 | 9 | DIADTTDAV 0.046821 | 2.8 |
| HLA-A*26:01 | 1 | 369 | 377 | 9 | YNSASFSTF 0.046804 | 1.3 |
| HLA-A*02:01 | 1 | 150 | 159 | 10 | KSWMESEFRV 0.046764 | 2.2 |
| HLA-B*15:01 | 1 | 1112 | 1121 | 10 | PQIITTDNTF 0.046758 | 2.6 |
| HLA-A*02:01 | 1 | 972 | 980 | 9 | AISSVLNDI 0.046737 | 2.2 |
| HLA-A*68:01 | 1 | 1029 | 1038 | 10 | MSECVLGQSK 0.046735 | 3.7 |
| HLA-B*15:01 | 1 | 214 | 223 | 10 | RDL PQGFSAL 0.046697 | 2.6 |
| HLA-B*08:01 | 1 | 212 | 220 | 9 | LVRDLPQGF 0.046628 | 2.2 |
| HLA-A*23:01 | 1 | 494 | 503 | 10 | SYGFQPTNGV 0.046618 | 1.3 |
| HLA-B*58:01 | 1 | 734 | 742 | 9 | TSVDCTMYI 0.046618 | 2.0 |
| HLA-A*68:02 | 1 | 1017 | 1025 | 9 | EIRASANLA 0.046593 | 2.1 |
| HLA-A*02:01 | 1 | 1121 | 1129 | 9 | FVSGNCDVV 0.046521 | 2.2 |
| HLA-A*11:01 | 1 | 69 | 78 | 10 | HVSGTNGTKR 0.046492 | 2.1 |
| HLA-A*68:02 | 1 | 92 | 100 | 9 | FASTEKSNI 0.046466 | 2.1 |
| HLA-A*01:01 | 1 | 773 | 781 | 9 | EQDKNTQEV 0.046416 | 1.6 |
| HLA-A*11:01 | 1 | 258 | 266 | 9 | WTAGAAAY 0.046414 | 2.1 |
| HLA-A*02:06 | 1 | 1168 | 1176 | 9 | DISGINASV 0.046411 | 2.8 |
| HLA-B*15:01 | 1 | 953 | 962 | 10 | NQNAQALNTL 0.04641 | 2.6 |
| HLA-A*30:02 | 1 | 852 | 860 | 9 | AQKFNGLTV 0.04639 | 2.3 |
| HLA-A*11:01 | 1 | 638 | 646 | 9 | TGSNVFQTR 0.046376 | 2.1 |
| HLA-A*33:01 | 1 | 1173 | 1181 | 9 | NASVVNIQK 0.046346 | 2.3 |
| HLA-B*51:01 | 1 | 773 | 781 | 9 | EQDKNTQEV 0.046238 | 2.4 |
| HLA-A*68:02 | 1 | 1129 | 1137 | 9 | VIGIVNNTV 0.046235 | 2.1 |
| HLA-A*01:01 | 1 | 78 | 86 | 9 | RFDNPVLPF 0.046225 | 1.6 |
| HLA-A*68:01 | 1 | 549 | 557 | 9 | TGVLTESNK 0.046172 | 3.7 |
| HLA-A*23:01 | 1 | 328 | 336 | 9 | RFPNITNLC 0.046162 | 1.3 |
| HLA-A*02:03 | 1 | 783 | 791 | 9 | AQVKQIYKT 0.046144 | 2.5 |
| HLA-B*15:01 | 1 | 877 | 886 | 10 | LLAGTITSGW 0.046137 | 2.6 |
| HLA-B*08:01 | 1 | 576 | 584 | 9 | VRDPQTLEI 0.046119 | 2.2 |
| HLA-A*11:01 | 1 | 198 | 206 | 9 | DGYFKIYSK 0.046051 | 2.1 |
| HLA-B*57:01 | 1 | 97 | 105 | 9 | KSNIIRGWI 0.046012 | 3.0 |
| HLA-A*30:02 | 1 | 814 | 823 | 10 | KRSFIEDLLF 0.045949 | 2.3 |
| HLA-B*15:01 | 1 | 603 | 612 | 10 | NTSNQVAVLY 0.045856 | 2.6 |
| HLA-B*51:01 | 1 | 505 | 513 | 9 | YQPYRVVVL 0.045845 | 2.4 |
| HLA-A*01:01 | 1 | 666 | 674 | 9 | IGAGICASY 0.045796 | 1.6 |
| HLA-B*08:01 | 1 | 38 | 46 | 9 | YDPKVFRSS 0.045752 | 2.2 |
| HLA-B*57:01 | 1 | 98 | 106 | 9 | SNIIRGWIF 0.045745 | 3.0 |
| HLA-A*30:01 | 1 | 203 | 212 | 10 | IYSKHTPINL 0.045735 | 3.1 |
| HLA-A*30:01 | 1 | 933 | 941 | 9 | KIQDSLST 0.045719 | 3.1 |
| HLA-A*68:02 | 1 | 1259 | 1268 | 10 | DDSEPVKGV 0.045707 | 2.1 |
| HLA-B*08:01 | 1 | 298 | 306 | 9 | ETKCTLKSF 0.045704 | 2.2 |
| HLA-A*32:01 | 1 | 334 | 342 | 9 | NLCPFGEVF 0.045633 | 1.4 |
| HLA-A*30:01 | 1 | 346 | 355 | 10 | RFASVYAWNR 0.045615 | 3.1 |
| HLA-A*30:02 | 1 | 803 | 811 | 9 | SQILPDPSK 0.045615 | 2.3 |
| HLA-B*40:01 | 1 | 1016 | 1025 | 10 | AEIRASANLA 0.045589 | 1.4 |
| HLA-B*07:02 | 1 | 235 | 244 | 10 | ITRFQTLAL 0.045568 | 1.8 |
| HLA-A*24:02 | 1 | 233 | 241 | 9 | INITRFQTL 0.045562 | 1.4 |
| HLA-B*40:01 | 1 | 557 | 565 | 9 | KKFLPFQF 0.045561 | 1.4 |
| HLA-B*08:01 | 1 | 178 | 186 | 9 | DLEGKQGNF 0.045546 | 2.2 |
| HLA-B*35:01 | 1 | 35 | 43 | 9 | GVYYPDKVF 0.045544 | 1.7 |
| HLA-A*11:01 | 1 | 1136 | 1144 | 9 | TVYDPLQPE 0.045543 | 2.2 |
| HLA-B*15:01 | 1 | 1003 | 1012 | 10 | SLQTYVTQQL 0.045528 | 2.6 |
| HLA-A*30:01 | 1 | 533 | 541 | 9 | LVKNKCVNF 0.04549 | 3.1 |
| HLA-A*01:01 | 1 | 191 | 200 | 10 | EFVFKNIDGY 0.04547 | 1.6 |
| HLA-A*02:01 | 1 | 711 | 720 | 10 | SIAIPTNFTI 0.045431 | 2.2 |
| HLA-B*57:01 | 1 | 102 | 110 | 9 | RGWIFGTTL 0.045374 | 3.0 |
| HLA-B*53:01 | 1 | 554 | 562 | 9 | ESNKKFLPF 0.045369 | 1.4 |
| HLA-B*15:01 | 1 | 1070 | 1078 | 9 | AQEKNFHTA 0.045359 | 2.6 |
| HLA-A*02:06 | 1 | 171 | 179 | 9 | VSQPFLMDL 0.045297 | 2.9 |
| HLA-A*02:01 | 1 | 575 | 584 | 10 | AVRDPQTLEI 0.045235 | 2.2 |
| HLA-B*58:01 | 1 | 1189 | 1197 | 9 | VAKNLNESL 0.04522 | 2.0 |
| HLA-B*07:02 | 1 | 221 | 229 | 9 | SALEPLVDL 0.045219 | 1.8 |
| HLA-B*07:02 | 1 | 929 | 938 | 10 | SAIGKIQDSL 0.045211 | 1.8 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*08:01 | 1 | 464 | 472 | 9 | FERDISTEI 0.045171 | 2.2 |
| HLA-A*23:01 | 1 | 428 | 436 | 9 | DFTGCVIAW 0.045149 | 1.4 |
| HLA-A*30:02 | 1 | 34 | 43 | 10 | RGVYYPDKVF 0.045016 | 2.4 |
| HLA-B*35:01 | 1 | 19 | 28 | 10 | TTRTQLPPAY 0.045 | 1.7 |
| HLA-A*26:01 | 1 | 894 | 902 | 9 | LQIPFAMQM 0.044922 | 1.3 |
| HLA-A*30:01 | 1 | 455 | 463 | 9 | LFRKSNLKP 0.044918 | 3.1 |
| HLA-B*15:01 | 1 | 298 | 306 | 9 | ETKCTLKSF 0.044901 | 2.6 |
| HLA-A*01:01 | 1 | 258 | 267 | 10 | WTAGAAAYV 0.044818 | 1.7 |
| HLA-B*15:01 | 1 | 342 | 351 | 10 | FNATRFASVY 0.044803 | 2.6 |
| HLA-B*15:01 | 1 | 166 | 175 | 10 | CTFEYVSQPF 0.044793 | 2.6 |
| HLA-A*68:02 | 1 | 471 | 479 | 9 | EIYQAGSTP 0.044737 | 2.1 |
| HLA-A*26:01 | 1 | 1175 | 1183 | 9 | SVVNIQKEI 0.044703 | 1.3 |
| HLA-B*35:01 | 1 | 161 | 170 | 10 | SSANNCTFEY 0.044678 | 1.7 |
| HLA-B*44:03 | 1 | 465 | 473 | 9 | ERDISTEY 0.044649 | 1.4 |
| HLA-A*31:01 | 1 | 724 | 733 | 10 | TEILPVSMTK 0.044626 | 3.3 |
| HLA-A*03:01 | 1 | 698 | 707 | 10 | SLGAENSVAY 0.044585 | 2.3 |
| HLA-B*57:01 | 1 | 21 | 30 | 10 | RTQLPPAYTN 0.044495 | 3.1 |
| HLA-A*32:01 | 1 | 349 | 357 | 9 | SVYAWNRKR 0.044475 | 1.4 |
| HLA-B*44:02 | 1 | 1150 | 1159 | 10 | EELDKYFKNH 0.044456 | 1.2 |
| HLA-B*35:01 | 1 | 864 | 873 | 10 | LLTDEMIQY 0.044426 | 1.7 |
| HLA-A*11:01 | 1 | 1020 | 1029 | 10 | ASANLAATKM 0.04432 | 2.2 |
| HLA-A*03:01 | 1 | 150 | 158 | 9 | KSWMESEFR 0.044298 | 2.4 |
| HLA-A*02:06 | 1 | 1086 | 1094 | 9 | KAHFPREGV 0.044211 | 2.9 |
| HLA-A*26:01 | 1 | 1055 | 1063 | 9 | SAPHGVVFL 0.044181 | 1.3 |
| HLA-B*15:01 | 1 | 50 | 59 | 10 | STQDLFLPFF 0.044137 | 2.6 |
| HLA-A*30:01 | 1 | 604 | 612 | 9 | TSNQVAVLY 0.044102 | 3.2 |
| HLA-A*68:02 | 1 | 1017 | 1026 | 10 | EIRASANLAA 0.04407 | 2.1 |
| HLA-A*30:02 | 1 | 1093 | 1101 | 9 | GVFVSNQTH 0.044061 | 2.4 |
| HLA-B*08:01 | 1 | 144 | 152 | 9 | YYHKNNKSW 0.044058 | 2.3 |
| HLA-A*32:01 | 1 | 195 | 203 | 9 | KNIDGYFKI 0.044013 | 1.4 |
| HLA-B*40:01 | 1 | 919 | 927 | 9 | NQKLIANQF 0.043945 | 1.4 |
| HLA-A*02:03 | 1 | 776 | 785 | 10 | KNTQEVFAQV 0.043883 | 2.6 |
| HLA-B*57:01 | 1 | 788 | 797 | 10 | IYKTPPIKDF 0.043862 | 3.1 |
| HLA-A*24:02 | 1 | 1087 | 1095 | 9 | AHFPREGVF 0.0438 | 1.4 |
| HLA-B*08:01 | 1 | 399 | 407 | 9 | SFVIRGDEV 0.043783 | 2.3 |
| HLA-A*68:01 | 1 | 343 | 351 | 9 | NATRFASVY 0.043698 | 3.8 |
| HLA-A*31:01 | 1 | 1177 | 1185 | 9 | VNIQKEIDR 0.043599 | 3.3 |
| HLA-A*02:06 | 1 | 433 | 441 | 9 | VIAWNSNNL 0.043597 | 3.0 |
| HLA-A*02:03 | 1 | 957 | 966 | 10 | QALNTLVKQL 0.043587 | 2.6 |
| HLA-A*30:01 | 1 | 198 | 206 | 9 | DGYFKIYSK 0.04356 | 3.2 |
| HLA-B*15:01 | 1 | 635 | 643 | 9 | VYSTGSNVF 0.043543 | 2.7 |
| HLA-A*30:01 | 1 | 1101 | 1109 | 9 | HWFVTQRNF 0.043517 | 3.2 |
| HLA-A*30:02 | 1 | 871 | 879 | 9 | AQYTSALLA 0.043513 | 2.4 |
| HLA-A*32:01 | 1 | 392 | 400 | 9 | FTNVYADSF 0.043499 | 1.5 |
| HLA-A*24:02 | 1 | 428 | 436 | 9 | DFTGCVIAW 0.043492 | 1.4 |
| HLA-A*30:02 | 1 | 458 | 466 | 9 | KSNLKPFR 0.043437 | 2.4 |
| HLA-B*08:01 | 1 | 1181 | 1189 | 9 | KEIDRLNEV 0.043351 | 2.3 |
| HLA-B*58:01 | 1 | 748 | 756 | 9 | ECSNLLLQY 0.043312 | 2.1 |
| HLA-B*58:01 | 1 | 1130 | 1138 | 9 | IGIVNNTVY 0.0433 | 2.1 |
| HLA-A*03:01 | 1 | 377 | 386 | 10 | FKCYGVSPTK 0.043299 | 2.4 |
| HLA-A*23:01 | 1 | 455 | 464 | 10 | LFRKSNLKP 0.043296 | 1.4 |
| HLA-B*07:02 | 1 | 599 | 608 | 10 | TPGTNTSNQV 0.043271 | 1.8 |
| HLA-A*11:01 | 1 | 89 | 98 | 10 | GVYFASTEKS 0.043213 | 2.2 |
| HLA-B*07:02 | 1 | 1136 | 1145 | 10 | TVYDPLQPEL 0.043172 | 1.9 |
| HLA-A*30:01 | 1 | 964 | 972 | 9 | KQLSSNFGA 0.043154 | 3.2 |
| HLA-A*24:02 | 1 | 417 | 425 | 9 | KIADYNYKL 0.04314 | 1.5 |
| HLA-B*53:01 | 1 | 369 | 377 | 9 | YNSASFSTF 0.043129 | 1.5 |
| HLA-A*68:02 | 1 | 281 | 289 | 9 | ENGTITDAV 0.043113 | 2.2 |
| HLA-B*57:01 | 1 | 651 | 660 | 10 | IGAHEVNNNSY 0.043109 | 3.1 |
| HLA-B*07:02 | 1 | 811 | 819 | 9 | KPSKRSFIE 0.043098 | 1.9 |
| HLA-B*58:01 | 1 | 1050 | 1058 | 9 | MSFPQSAPH 0.043057 | 2.1 |
| HLA-B*51:01 | 1 | 806 | 814 | 9 | LPDPSKPSK 0.043046 | 2.5 |
| HLA-B*57:01 | 1 | 195 | 204 | 10 | KNIDGYFKIY 0.043038 | 3.1 |
| HLA-B*58:01 | 1 | 195 | 203 | 9 | KNIDGYFKI 0.043038 | 2.1 |
| HLA-A*30:01 | 1 | 637 | 646 | 10 | STGSNVFQTR 0.043028 | 3.2 |
| HLA-A*30:01 | 1 | 205 | 213 | 9 | SKHTPINLV 0.043027 | 3.2 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*03:01 | 1 | 675 | 683 | 9 | QTQTNSPRR 0.043025 | 2.4 |
| HLA-A*32:01 | 1 | 158 | 166 | 9 | RVYSSANNC 0.043019 | 1.5 |
| HLA-A*30:02 | 1 | 535 | 543 | 9 | KNKCVNFNF 0.043001 | 2.4 |
| HLA-B*57:01 | 1 | 690 | 699 | 10 | QSIIAYTMSL 0.042983 | 3.1 |
| HLA-A*30:01 | 1 | 1171 | 1179 | 9 | GINASVVNI 0.042959 | 3.2 |
| HLA-A*32:01 | 1 | 49 | 58 | 10 | HSTQDLFLPF 0.04292 | 1.5 |
| HLA-B*57:01 | 1 | 271 | 279 | 9 | QPRTFLLKY 0.04288 | 3.1 |
| HLA-A*32:01 | 1 | 762 | 770 | 9 | QLNRALTGI 0.042874 | 1.5 |
| HLA-A*02:01 | 1 | 689 | 697 | 9 | SQSIIAYTM 0.042837 | 2.3 |
| HLA-B*15:01 | 1 | 84 | 92 | 9 | LPFNDGVYF 0.042809 | 2.7 |
| HLA-A*02:03 | 1 | 1144 | 1152 | 9 | ELDSFKEEL 0.042808 | 2.6 |
| HLA-A*01:01 | 1 | 895 | 904 | 10 | QIPFAMQMAY 0.042799 | 1.7 |
| HLA-B*44:03 | 1 | 724 | 732 | 9 | TEILPVSM 0.042792 | 1.4 |
| HLA-B*07:02 | 1 | 1086 | 1094 | 9 | KAHFPREGV 0.042762 | 1.9 |
| HLA-B*40:01 | 1 | 338 | 347 | 10 | FGEVFNATRF 0.042745 | 1.5 |
| HLA-B*51:01 | 1 | 92 | 101 | 10 | FASTEKSNI 0.042728 | 2.5 |
| HLA-A*68:01 | 1 | 1055 | 1064 | 10 | SAPHGVVFLH 0.042726 | 3.8 |
| HLA-B*51:01 | 1 | 1212 | 1220 | 9 | WPWYIWLGF 0.04272 | 2.5 |
| HLA-A*30:01 | 1 | 204 | 213 | 10 | YSKHTPINLV 0.042717 | 3.2 |
| HLA-A*26:01 | 1 | 919 | 927 | 9 | NQKLIANQF 0.042693 | 1.3 |
| HLA-A*02:06 | 1 | 291 | 299 | 9 | CALDPLSET 0.042685 | 3.0 |
| HLA-A*30:01 | 1 | 446 | 454 | 9 | GGNYNYLYR 0.042642 | 3.2 |
| HLA-B*57:01 | 1 | 550 | 559 | 10 | GVLTESNKKF 0.042615 | 3.1 |
| HLA-A*02:01 | 1 | 1167 | 1176 | 10 | GDISGINASV 0.042603 | 2.3 |
| HLA-A*30:01 | 1 | 254 | 262 | 9 | SSSGWTAGA 0.042557 | 3.2 |
| HLA-A*32:01 | 1 | 394 | 402 | 9 | NVYADSFVI 0.042545 | 1.5 |
| HLA-A*02:01 | 1 | 7 | 16 | 10 | LLPLVSSQCV 0.042536 | 2.3 |
| HLA-B*15:01 | 1 | 29 | 37 | 9 | TNSFTRGVY 0.042485 | 2.7 |
| HLA-B*15:01 | 1 | 625 | 633 | 9 | HADQLTPTW 0.042453 | 2.7 |
| HLA-A*68:02 | 1 | 637 | 645 | 9 | STGSNVFQT 0.042424 | 2.2 |
| HLA-A*23:01 | 1 | 1113 | 1121 | 9 | QIITTDNTF 0.042411 | 1.4 |
| HLA-A*02:03 | 1 | 686 | 694 | 9 | SVASQSIIA 0.042369 | 2.6 |
| HLA-B*57:01 | 1 | 723 | 731 | 9 | TTEILPVSM 0.042346 | 3.2 |
| HLA-A*11:01 | 1 | 446 | 454 | 9 | GGNYNYLYR 0.042336 | 2.3 |
| HLA-A*68:02 | 1 | 50 | 58 | 9 | STQDLFLPF 0.04227 | 2.2 |
| HLA-B*35:01 | 1 | 792 | 800 | 9 | PPIKDFGGF 0.04227 | 1.8 |
| HLA-B*15:01 | 1 | 260 | 269 | 10 | AGAAAYVGY 0.042208 | 2.7 |
| HLA-B*51:01 | 1 | 734 | 742 | 9 | TSVDCTMYI 0.042198 | 2.5 |
| HLA-B*15:01 | 1 | 202 | 210 | 9 | KIYSKHTPI 0.042138 | 2.7 |
| HLA-A*68:02 | 1 | 777 | 786 | 10 | NTQEVFAQVK 0.042135 | 2.2 |
| HLA-A*23:01 | 1 | 233 | 241 | 9 | INITRFQTL 0.042132 | 1.4 |
| HLA-A*26:01 | 1 | 929 | 938 | 10 | SAIGKIQDSL 0.042108 | 1.4 |
| HLA-A*03:01 | 1 | 1059 | 1067 | 9 | GVVFLHVTY 0.042086 | 2.4 |
| HLA-A*68:02 | 1 | 951 | 959 | 9 | VVNQNAQAL 0.042084 | 2.2 |
| HLA-B*58:01 | 1 | 62 | 70 | 9 | VTWFHAIHV 0.042061 | 2.1 |
| HLA-A*02:03 | 1 | 551 | 560 | 10 | VLTESNKKFL 0.04202 | 2.6 |
| HLA-B*08:01 | 1 | 689 | 697 | 9 | SQSIIAYTM 0.042013 | 2.4 |
| HLA-A*32:01 | 1 | 160 | 168 | 9 | YSSANNCTF 0.041969 | 1.5 |
| HLA-B*15:01 | 1 | 1033 | 1042 | 10 | VLGQSKRVDF 0.041953 | 2.7 |
| HLA-B*08:01 | 1 | 354 | 362 | 9 | NRKRISNCV 0.041945 | 2.4 |
| HLA-A*31:01 | 1 | 1060 | 1068 | 9 | VVFLHVTVY 0.041944 | 3.4 |
| HLA-A*02:06 | 1 | 366 | 374 | 9 | SVLYNSASF 0.041942 | 3.0 |
| HLA-A*31:01 | 1 | 805 | 814 | 10 | ILPDPSKPSK 0.041909 | 3.4 |
| HLA-A*68:01 | 1 | 446 | 454 | 9 | GGNYNYLYR 0.041845 | 3.8 |
| HLA-B*44:02 | 1 | 345 | 353 | 9 | TRFASVYAW 0.041842 | 1.3 |
| HLA-B*57:01 | 1 | 1050 | 1058 | 9 | MSFPQSAPH 0.041819 | 3.2 |
| HLA-B*57:01 | 1 | 84 | 92 | 9 | LPFNDGVYF 0.041732 | 3.2 |
| HLA-B*44:02 | 1 | 627 | 636 | 10 | DQLTPTWRVY 0.041727 | 1.3 |
| HLA-A*26:01 | 1 | 35 | 43 | 9 | GVYYPDKVF 0.041706 | 1.4 |
| HLA-B*15:01 | 1 | 1087 | 1095 | 9 | AHFPREGVF 0.041695 | 2.7 |
| HLA-B*51:01 | 1 | 1224 | 1232 | 9 | LIAIVMVTI 0.041689 | 2.5 |
| HLA-B*57:01 | 1 | 28 | 36 | 9 | YTNSFTRGV 0.041687 | 3.2 |
| HLA-A*03:01 | 1 | 69 | 78 | 10 | HVSGTNGTKR 0.04166 | 2.4 |
| HLA-A*02:01 | 1 | 240 | 249 | 10 | TLLALHRSYL 0.041635 | 2.4 |
| HLA-A*02:01 | 1 | 1096 | 1104 | 9 | VSNGTHWV 0.041631 | 2.4 |
| HLA-B*44:02 | 1 | 1071 | 1079 | 9 | QEKNFHTAP 0.041565 | 1.3 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*30:01 | 1 | 1016 | 1025 | 10 | AEIRASANLA 0.04155 | 3.3 |
| HLA-B*58:01 | 1 | 477 | 486 | 10 | STPCNGVEGF 0.041548 | 2.1 |
| HLA-B*08:01 | 1 | 1109 | 1117 | 9 | FYEPQIITT 0.041534 | 2.4 |
| HLA-B*57:01 | 1 | 1066 | 1075 | 10 | TYVPAQEKNF 0.041495 | 3.2 |
| HLA-A*68:01 | 1 | 178 | 187 | 10 | DLEGKQGNFK 0.04147 | 3.9 |
| HLA-B*51:01 | 1 | 1220 | 1228 | 9 | FIAGLIAIV 0.04146 | 2.6 |
| HLA-A*03:01 | 1 | 802 | 811 | 10 | FSQILPDPSK 0.041448 | 2.4 |
| HLA-B*35:01 | 1 | 1067 | 1075 | 9 | YVPAQEKNF 0.041412 | 1.8 |
| HLA-B*35:01 | 1 | 137 | 146 | 10 | NDPFLGVYYH 0.041393 | 1.8 |
| HLA-A*02:06 | 1 | 1208 | 1216 | 9 | QYIKWPWYI 0.041383 | 3.1 |
| HLA-A*02:06 | 1 | 982 | 991 | 10 | SRLDKVEAEV 0.041378 | 3.1 |
| HLA-A*30:01 | 1 | 1208 | 1216 | 9 | QYIKWPWYI 0.041361 | 3.3 |
| HLA-A*30:02 | 1 | 35 | 43 | 9 | GVVYPPDKVF 0.041358 | 2.5 |
| HLA-B*07:02 | 1 | 1086 | 1095 | 10 | KAHFPREGVF 0.041357 | 1.9 |
| HLA-A*11:01 | 1 | 912 | 921 | 10 | TONVLYENQK 0.04135 | 2.3 |
| HLA-B*58:01 | 1 | 1195 | 1203 | 9 | ESLIDLQEL 0.041331 | 2.1 |
| HLA-A*02:03 | 1 | 276 | 285 | 10 | LLKYNENGTI 0.04128 | 2.7 |
| HLA-A*32:01 | 1 | 1206 | 1214 | 9 | YEQYIKWPW 0.041226 | 1.5 |
| HLA-A*02:01 | 1 | 783 | 791 | 9 | AQVKQIYKT 0.041198 | 2.4 |
| HLA-A*30:01 | 1 | 304 | 313 | 10 | KSFTVEKGIY 0.041171 | 3.3 |
| HLA-A*33:01 | 1 | 310 | 319 | 10 | KGIYQTSNFR 0.04117 | 2.5 |
| HLA-A*03:01 | 1 | 733 | 741 | 9 | KTSVDCTMY 0.041155 | 2.4 |
| HLA-A*02:03 | 1 | 982 | 991 | 10 | SRLDKVEAEV 0.041148 | 2.7 |
| HLA-B*44:03 | 1 | 168 | 177 | 10 | FEYVSQPFLM 0.041137 | 1.4 |
| HLA-A*30:01 | 1 | 237 | 246 | 10 | RFQTLALHR 0.041137 | 3.3 |
| HLA-A*30:01 | 1 | 894 | 902 | 9 | LQIPFAMQM 0.041054 | 3.3 |
| HLA-A*24:02 | 1 | 926 | 934 | 9 | QFNSAIGKI 0.041051 | 1.5 |
| HLA-A*23:01 | 1 | 50 | 59 | 10 | STQDLFLPFF 0.041048 | 1.4 |
| HLA-A*68:01 | 1 | 346 | 355 | 10 | RFASVYAWNRR 0.041016 | 3.9 |
| HLA-A*03:01 | 1 | 1039 | 1047 | 9 | RVDFCGKGY 0.041 | 2.4 |
| HLA-A*30:01 | 1 | 150 | 158 | 9 | KSWMSESEFR 0.040999 | 3.3 |
| HLA-A*03:01 | 1 | 197 | 206 | 10 | IDGYFKIYSK 0.040897 | 2.4 |
| HLA-A*32:01 | 1 | 1096 | 1104 | 9 | VSNQTHWFV 0.040829 | 1.5 |
| HLA-A*68:01 | 1 | 377 | 386 | 10 | FKCYGVSPTK 0.04082 | 3.9 |
| HLA-A*31:01 | 1 | 677 | 686 | 10 | QTNSPRRARS 0.040818 | 3.4 |
| HLA-A*11:01 | 1 | 70 | 78 | 9 | VSGTNGTKR 0.04081 | 2.3 |
| HLA-A*33:01 | 1 | 448 | 456 | 9 | NYNLYRLF 0.040809 | 2.5 |
| HLA-B*35:01 | 1 | 20 | 28 | 9 | TRTQLPPAY 0.040807 | 1.8 |
| HLA-A*30:02 | 1 | 1039 | 1048 | 10 | RVDFCGKGYH 0.040781 | 2.5 |
| HLA-A*30:01 | 1 | 240 | 248 | 9 | TLLALHRSY 0.040762 | 3.3 |
| HLA-A*30:02 | 1 | 604 | 613 | 10 | TSNQVAVLYQ 0.040708 | 2.5 |
| HLA-B*51:01 | 1 | 658 | 666 | 9 | NSYECDIPI 0.040692 | 2.6 |
| HLA-A*11:01 | 1 | 676 | 685 | 10 | TQTNSPRRAR 0.040641 | 2.3 |
| HLA-A*26:01 | 1 | 178 | 186 | 9 | DLEGKQGNF 0.040619 | 1.4 |
| HLA-B*08:01 | 1 | 185 | 193 | 9 | NFKNLREFV 0.040601 | 2.4 |
| HLA-A*32:01 | 1 | 30 | 38 | 9 | NSFTRGVYY 0.040551 | 1.5 |
| HLA-A*23:01 | 1 | 98 | 106 | 9 | SNIIRGWIF 0.040532 | 1.4 |
| HLA-B*08:01 | 1 | 759 | 767 | 9 | FCTQLNRAL 0.040513 | 2.4 |
| HLA-B*58:01 | 1 | 41 | 49 | 9 | KVFRSSVLH 0.040482 | 2.1 |
| HLA-B*57:01 | 1 | 1174 | 1183 | 10 | ASVVNIQKEI 0.040448 | 3.2 |
| HLA-B*07:02 | 1 | 1185 | 1193 | 9 | RLNEVAKNL 0.040434 | 1.9 |
| HLA-A*30:02 | 1 | 344 | 352 | 9 | ATRFASVYA 0.040404 | 2.5 |
| HLA-A*26:01 | 1 | 464 | 473 | 10 | FERDISTEY 0.040393 | 1.4 |
| HLA-A*68:02 | 1 | 1171 | 1179 | 9 | GINASVVNI 0.040383 | 2.3 |
| HLA-A*30:01 | 1 | 688 | 696 | 9 | ASQSIIAYT 0.040366 | 3.4 |
| HLA-A*68:01 | 1 | 777 | 785 | 9 | NTQEVFAQV 0.040356 | 3.9 |
| HLA-A*02:01 | 1 | 1055 | 1063 | 9 | SAPHGVVFL 0.040315 | 2.4 |
| HLA-A*68:02 | 1 | 601 | 610 | 10 | GTNTSNQVAV 0.040309 | 2.3 |
| HLA-B*08:01 | 1 | 382 | 390 | 9 | VSPTKLNDL 0.040291 | 2.4 |
| HLA-A*24:02 | 1 | 391 | 400 | 10 | CFTNVYADSF 0.040283 | 1.5 |
| HLA-B*58:01 | 1 | 651 | 660 | 10 | IGAHEVNNYSY 0.040263 | 2.1 |
| HLA-A*02:06 | 1 | 943 | 952 | 10 | SALGKLQDVV 0.040258 | 3.1 |
| HLA-A*32:01 | 1 | 975 | 984 | 10 | SVLNDILSRL 0.040238 | 1.5 |
| HLA-A*03:01 | 1 | 1039 | 1048 | 10 | RVDFCGKGYH 0.040221 | 2.5 |
| HLA-A*30:01 | 1 | 291 | 300 | 10 | CALDPLSETK 0.040138 | 3.4 |
| HLA-A*68:02 | 1 | 633 | 642 | 10 | WRVYSTGSNV 0.040077 | 2.3 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*44:03 | 1 | 441 | 449 | 9 | LDSKVGNY 0.040071 | 1.5 |
| HLA-A*30:01 | 1 | 685 | 694 | 10 | RSVASQSIIA 0.040045 | 3.4 |
| HLA-A*31:01 | 1 | 1083 | 1091 | 9 | HDGKAHFPR 0.040035 | 3.4 |
| HLA-B*53:01 | 1 | 1195 | 1203 | 9 | ESLIDLQEL 0.040025 | 1.6 |
| HLA-A*02:01 | 1 | 214 | 223 | 10 | RDLPGGFSAL 0.039915 | 2.4 |
| HLA-A*02:06 | 1 | 915 | 924 | 10 | VLYENQKLIA 0.039906 | 3.1 |
| HLA-A*02:06 | 1 | 423 | 432 | 10 | YKLPPDFTGC 0.039875 | 3.1 |
| HLA-B*57:01 | 1 | 961 | 970 | 10 | TLVKQLSSNF 0.039836 | 3.3 |
| HLA-A*30:01 | 1 | 958 | 966 | 9 | ALNTLVKQL 0.039835 | 3.4 |
| HLA-B*44:03 | 1 | 1198 | 1206 | 9 | IDLQELGKY 0.039833 | 1.5 |
| HLA-A*24:02 | 1 | 1113 | 1121 | 9 | QIITDNTF 0.039804 | 1.5 |
| HLA-A*68:02 | 1 | 284 | 292 | 9 | TITDAVDCA 0.0398 | 2.3 |
| HLA-A*30:01 | 1 | 195 | 203 | 9 | KNIDGYFKI 0.039793 | 3.4 |
| HLA-A*26:01 | 1 | 349 | 357 | 9 | SVYAWNRKR 0.03977 | 1.4 |
| HLA-A*68:01 | 1 | 19 | 28 | 10 | TTRTQLPPAY 0.039753 | 4.0 |
| HLA-A*02:03 | 1 | 929 | 938 | 10 | SAIGKIQDSL 0.039704 | 2.7 |
| HLA-A*68:02 | 1 | 307 | 315 | 9 | TVEKGIYQT 0.039701 | 2.3 |
| HLA-A*23:01 | 1 | 36 | 44 | 9 | VYYPDKVFR 0.03966 | 1.4 |
| HLA-A*24:02 | 1 | 879 | 888 | 10 | AGTITSGWTF 0.03966 | 1.5 |
| HLA-A*01:01 | 1 | 781 | 789 | 9 | VFAQVKQIY 0.039625 | 1.8 |
| HLA-A*26:01 | 1 | 999 | 1007 | 9 | GRLQSLQTY 0.039618 | 1.4 |
| HLA-B*58:01 | 1 | 84 | 92 | 9 | LPFNDGVYF 0.039583 | 2.1 |
| HLA-A*30:01 | 1 | 1136 | 1144 | 9 | TVYDPLQPE 0.0395 | 3.4 |
| HLA-B*15:01 | 1 | 133 | 141 | 9 | FQFCNDPFL 0.039486 | 2.8 |
| HLA-A*30:02 | 1 | 892 | 900 | 9 | AALQIPFAM 0.039476 | 2.6 |
| HLA-A*32:01 | 1 | 685 | 693 | 9 | RSVASQSII 0.039398 | 1.6 |
| HLA-A*30:01 | 1 | 123 | 131 | 9 | ATNVVIKVC 0.039373 | 3.4 |
| HLA-B*35:01 | 1 | 1189 | 1197 | 9 | VAKNLNESL 0.039326 | 1.8 |
| HLA-A*02:01 | 1 | 394 | 402 | 9 | NVYADSFVI 0.039303 | 2.5 |
| HLA-A*02:06 | 1 | 868 | 876 | 9 | EMIAQY TSA 0.039299 | 3.2 |
| HLA-B*58:01 | 1 | 666 | 674 | 9 | IGAGICASY 0.039298 | 2.1 |
| HLA-B*07:02 | 1 | 625 | 633 | 9 | HADQLTPTW 0.039296 | 2.0 |
| HLA-A*30:02 | 1 | 1096 | 1104 | 9 | VSNGTHWFV 0.039292 | 2.6 |
| HLA-B*57:01 | 1 | 1020 | 1029 | 10 | ASANLAATKM 0.039255 | 3.3 |
| HLA-A*33:01 | 1 | 1177 | 1185 | 9 | VNIQKEIDR 0.039253 | 2.6 |
| HLA-B*08:01 | 1 | 8 | 16 | 9 | LPLVSSQCV 0.039245 | 2.5 |
| HLA-A*30:02 | 1 | 302 | 310 | 9 | TLKSFTVEK 0.039238 | 2.6 |
| HLA-A*30:01 | 1 | 1136 | 1145 | 10 | TVYDPLQPEL 0.039164 | 3.4 |
| HLA-A*32:01 | 1 | 320 | 329 | 10 | VQPTESIVRF 0.03909 | 1.6 |
| HLA-A*02:06 | 1 | 1207 | 1216 | 10 | EQYIKWPWYI 0.039077 | 3.2 |
| HLA-B*57:01 | 1 | 445 | 453 | 9 | VGGNYNYLY 0.039005 | 3.3 |
| HLA-A*68:01 | 1 | 371 | 380 | 10 | SASFSTFKCY 0.038975 | 4.0 |
| HLA-A*30:01 | 1 | 526 | 535 | 10 | GPKKSTNLVK 0.038975 | 3.5 |
| HLA-B*51:01 | 1 | 634 | 642 | 9 | RVYSTGSNV 0.038939 | 2.7 |
| HLA-B*57:01 | 1 | 1136 | 1145 | 10 | TVYDPLQPEL 0.038933 | 3.3 |
| HLA-A*26:01 | 1 | 443 | 451 | 9 | SKVGGNYNY 0.038884 | 1.4 |
| HLA-A*02:06 | 1 | 999 | 1008 | 10 | GRLQSLQTYV 0.038865 | 3.2 |
| HLA-A*68:02 | 1 | 340 | 349 | 10 | EVFNATRFAS 0.038861 | 2.3 |
| HLA-B*57:01 | 1 | 1146 | 1155 | 10 | DSFKEELDKY 0.038859 | 3.3 |
| HLA-A*02:03 | 1 | 158 | 166 | 9 | RVYSSANNC 0.038834 | 2.7 |
| HLA-B*07:02 | 1 | 366 | 374 | 9 | SVLYNSASF 0.038825 | 2.0 |
| HLA-B*57:01 | 1 | 368 | 377 | 10 | LYNSASFSTF 0.03882 | 3.3 |
| HLA-B*44:02 | 1 | 1207 | 1215 | 9 | EQYIKWPWY 0.038793 | 1.3 |
| HLA-A*02:06 | 1 | 1178 | 1186 | 9 | NIQKEIDRL 0.038769 | 3.2 |
| HLA-B*57:01 | 1 | 826 | 834 | 9 | VTLADAGFI 0.038749 | 3.3 |
| HLA-A*26:01 | 1 | 413 | 421 | 9 | GQTGKIADY 0.038659 | 1.4 |
| HLA-B*53:01 | 1 | 828 | 837 | 10 | LADAGFIKQY 0.038653 | 1.6 |
| HLA-B*44:02 | 1 | 321 | 329 | 9 | QPTESIVRF 0.038652 | 1.3 |
| HLA-B*58:01 | 1 | 166 | 175 | 10 | CTFEYVSQPF 0.038634 | 2.2 |
| HLA-B*44:03 | 1 | 773 | 781 | 9 | EQDKNTQEV 0.038632 | 1.5 |
| HLA-B*15:01 | 1 | 1094 | 1102 | 9 | VFVSNGTHW 0.038562 | 2.8 |
| HLA-A*03:01 | 1 | 676 | 685 | 10 | TQTNSPRRAR 0.038542 | 2.5 |
| HLA-B*07:02 | 1 | 1139 | 1148 | 10 | DPLQPELDSF 0.038529 | 2.0 |
| HLA-A*02:01 | 1 | 567 | 576 | 10 | RDIADTTDAV 0.038458 | 2.5 |
| HLA-B*44:03 | 1 | 689 | 697 | 9 | SQSIIAYTM 0.038442 | 1.5 |
| HLA-A*30:02 | 1 | 1086 | 1095 | 10 | KAHFPREGVF 0.03842 | 2.6 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*02:01 | 1 | 930 | 938 | 9 | AIGKIQDSL 0.038379 | 2.5 |
| HLA-A*24:02 | 1 | 1209 | 1217 | 9 | YIKWPWYIW 0.038375 | 1.5 |
| HLA-A*68:02 | 1 | 195 | 203 | 9 | KNIDGYFKI 0.038339 | 2.4 |
| HLA-A*02:06 | 1 | 233 | 241 | 9 | INITRFQTL 0.038273 | 3.2 |
| HLA-A*11:01 | 1 | 457 | 466 | 10 | RKSNLKPFER 0.038261 | 2.4 |
| HLA-A*11:01 | 1 | 1141 | 1149 | 9 | LQPELDSFK 0.038255 | 2.4 |
| HLA-A*30:01 | 1 | 344 | 353 | 10 | ATRFASVYAW 0.03823 | 3.5 |
| HLA-A*30:01 | 1 | 704 | 712 | 9 | SVAYSNSI 0.038216 | 3.5 |
| HLA-B*53:01 | 1 | 1146 | 1155 | 10 | DSFKEELDKY 0.038151 | 1.6 |
| HLA-A*68:02 | 1 | 75 | 83 | 9 | GTKRFDNPV 0.038118 | 2.4 |
| HLA-B*58:01 | 1 | 51 | 59 | 9 | TQDLFLPFF 0.038094 | 2.2 |
| HLA-A*03:01 | 1 | 41 | 50 | 10 | KVFRSSVLHS 0.038083 | 2.5 |
| HLA-A*02:03 | 1 | 517 | 525 | 9 | LLHAPATVC 0.03806 | 2.8 |
| HLA-A*33:01 | 1 | 138 | 146 | 9 | DPFLGVYYH 0.038035 | 2.6 |
| HLA-B*51:01 | 1 | 714 | 723 | 10 | IPTNFTISVT 0.038025 | 2.7 |
| HLA-A*68:02 | 1 | 166 | 174 | 9 | CTFEYVSQP 0.037983 | 2.4 |
| HLA-B*08:01 | 1 | 819 | 828 | 10 | EDLLFNKVTL 0.037922 | 2.5 |
| HLA-A*03:01 | 1 | 444 | 453 | 10 | KVGGNYNYLY 0.037896 | 2.5 |
| HLA-B*51:01 | 1 | 1073 | 1081 | 9 | KNFTTAPAI 0.037872 | 2.7 |
| HLA-A*33:01 | 1 | 88 | 97 | 10 | DGVYFASTEK 0.037858 | 2.6 |
| HLA-A*30:01 | 1 | 75 | 84 | 10 | GTKRFDNPVL 0.037847 | 3.5 |
| HLA-B*08:01 | 1 | 780 | 788 | 9 | EVFAQVKQI 0.037831 | 2.5 |
| HLA-A*03:01 | 1 | 202 | 210 | 9 | KIYSKHTPI 0.037826 | 2.5 |
| HLA-A*30:01 | 1 | 628 | 636 | 9 | QLTPTWRVY 0.03776 | 3.5 |
| HLA-B*40:01 | 1 | 227 | 235 | 9 | VDLPIGINI 0.037752 | 1.6 |
| HLA-A*24:02 | 1 | 455 | 464 | 10 | LFRKSNLKPF 0.037714 | 1.5 |
| HLA-A*30:02 | 1 | 235 | 243 | 9 | ITRFQTLA 0.03767 | 2.7 |
| HLA-A*32:01 | 1 | 893 | 902 | 10 | ALQIPFAMQM 0.037666 | 1.6 |
| HLA-B*07:02 | 1 | 791 | 800 | 10 | TPPIKDFGGF 0.037648 | 2.0 |
| HLA-B*44:03 | 1 | 51 | 59 | 9 | TQDLFLPFF 0.037644 | 1.5 |
| HLA-B*35:01 | 1 | 249 | 258 | 10 | LTPGDSSSGW 0.03763 | 1.9 |
| HLA-B*40:01 | 1 | 773 | 782 | 10 | EQDKNTQEVF 0.037596 | 1.6 |
| HLA-B*58:01 | 1 | 19 | 28 | 10 | TTRTQLPPAY 0.037589 | 2.2 |
| HLA-A*26:01 | 1 | 1220 | 1228 | 9 | FIAGLIAIV 0.037589 | 1.5 |
| HLA-A*30:01 | 1 | 102 | 110 | 9 | RGWIFGTTL 0.037572 | 3.6 |
| HLA-A*02:06 | 1 | 81 | 90 | 10 | NPVLPFNDGV 0.037567 | 3.2 |
| HLA-B*51:01 | 1 | 818 | 826 | 9 | IEDLLFNKV 0.037558 | 2.7 |
| HLA-B*53:01 | 1 | 229 | 237 | 9 | LPIGINITR 0.03746 | 1.6 |
| HLA-A*30:02 | 1 | 345 | 353 | 9 | TRFASVYAW 0.037437 | 2.7 |
| HLA-A*02:06 | 1 | 292 | 301 | 10 | ALDPLSETKC 0.037424 | 3.3 |
| HLA-A*23:01 | 1 | 195 | 203 | 9 | KNIDGYFKI 0.037405 | 1.5 |
| HLA-B*57:01 | 1 | 123 | 131 | 9 | ATNVVIKVC 0.037396 | 3.4 |
| HLA-A*30:02 | 1 | 1095 | 1103 | 9 | FVSNGTHWF 0.03739 | 2.7 |
| HLA-B*35:01 | 1 | 919 | 927 | 9 | NQKLIANQF 0.037381 | 1.9 |
| HLA-B*58:01 | 1 | 414 | 423 | 10 | QTGKIADYNY 0.037346 | 2.2 |
| HLA-A*30:01 | 1 | 1189 | 1197 | 9 | VAKNLNESL 0.037276 | 3.6 |
| HLA-A*33:01 | 1 | 1082 | 1091 | 10 | CHDGKAHFPR 0.037263 | 2.6 |
| HLA-A*02:01 | 1 | 964 | 972 | 9 | KQLSSNFGA 0.037259 | 2.5 |
| HLA-A*24:02 | 1 | 1147 | 1155 | 9 | SFKEELDKY 0.037258 | 1.6 |
| HLA-B*44:03 | 1 | 999 | 1007 | 9 | GRLQSLQTY 0.037255 | 1.5 |
| HLA-A*30:01 | 1 | 967 | 976 | 10 | SSNFGAISSV 0.037163 | 3.6 |
| HLA-A*68:01 | 1 | 548 | 557 | 10 | GTGVLTESNK 0.037157 | 4.1 |
| HLA-B*15:01 | 1 | 754 | 762 | 9 | LQYGSFCTQ 0.037144 | 2.9 |
| HLA-A*30:01 | 1 | 558 | 566 | 9 | KFLPFQFG 0.037139 | 3.6 |
| HLA-A*31:01 | 1 | 292 | 300 | 9 | ALDPLSETK 0.037133 | 3.5 |
| HLA-A*30:02 | 1 | 1136 | 1145 | 10 | TVYDPLQPEL 0.037104 | 2.7 |
| HLA-B*44:03 | 1 | 372 | 380 | 9 | ASFSTFKCY 0.037095 | 1.5 |
| HLA-A*26:01 | 1 | 634 | 643 | 10 | RVYSTGSNVF 0.037079 | 1.5 |
| HLA-A*01:01 | 1 | 612 | 620 | 9 | YQDVNCTEV 0.037062 | 1.8 |
| HLA-B*51:01 | 1 | 343 | 351 | 9 | NATRFASVY 0.03706 | 2.8 |
| HLA-A*11:01 | 1 | 444 | 453 | 10 | KVGGNYNYLY 0.037046 | 2.4 |
| HLA-B*53:01 | 1 | 122 | 130 | 9 | NATNVVIK 0.037035 | 1.6 |
| HLA-A*02:06 | 1 | 888 | 896 | 9 | FGAGAAIQI 0.03702 | 3.3 |
| HLA-A*02:01 | 1 | 1226 | 1234 | 9 | AIVMVTIML 0.036999 | 2.6 |
| HLA-B*58:01 | 1 | 652 | 660 | 9 | GAEHVNNSY 0.03698 | 2.2 |
| HLA-B*57:01 | 1 | 269 | 277 | 9 | YLQPRTFLL 0.036949 | 3.4 |

| | | | | | | |
|-------------|---|------|------|----|-----------------------|-----|
| HLA-B*44:03 | 1 | 167 | 176 | 10 | TFEYV SQPFL 0.036944 | 1.5 |
| HLA-A*02:06 | 1 | 1007 | 1016 | 10 | YVTQLIRAA 0.036918 | 3.3 |
| HLA-A*68:02 | 1 | 988 | 996 | 9 | EAEVQIDRL 0.036904 | 2.4 |
| HLA-A*11:01 | 1 | 767 | 776 | 10 | LTGIAVEQDK 0.036888 | 2.4 |
| HLA-A*26:01 | 1 | 723 | 731 | 9 | TTEILPVSM 0.036882 | 1.5 |
| HLA-A*02:03 | 1 | 1070 | 1078 | 9 | AQEKNF TTA 0.036861 | 2.8 |
| HLA-B*08:01 | 1 | 221 | 229 | 9 | SALEPLVDL 0.036844 | 2.6 |
| HLA-B*57:01 | 1 | 324 | 332 | 9 | ESIVRFPNI 0.036822 | 3.4 |
| HLA-A*30:02 | 1 | 1060 | 1068 | 9 | VVFLHVTVV 0.036783 | 2.7 |
| HLA-B*08:01 | 1 | 516 | 524 | 9 | ELLHAPATV 0.036753 | 2.6 |
| HLA-A*68:02 | 1 | 745 | 754 | 10 | DSTECSNLLL 0.036717 | 2.5 |
| HLA-B*15:01 | 1 | 748 | 756 | 9 | ECSNLLLQY 0.036691 | 2.9 |
| HLA-A*02:06 | 1 | 464 | 472 | 9 | FERDISTEI 0.036689 | 3.3 |
| HLA-A*30:02 | 1 | 1055 | 1064 | 10 | SAPHGVVFLH 0.036683 | 2.7 |
| HLA-A*68:02 | 1 | 1008 | 1016 | 9 | VTQQLIRAA 0.036677 | 2.5 |
| HLA-B*51:01 | 1 | 23 | 32 | 10 | QLPPAYTNSF 0.036589 | 2.8 |
| HLA-A*30:02 | 1 | 893 | 902 | 10 | ALQIPFAMQM 0.036557 | 2.7 |
| HLA-B*07:02 | 1 | 1068 | 1076 | 9 | VPAQEKNF T 0.03655 | 2.0 |
| HLA-B*07:02 | 1 | 584 | 592 | 9 | ILDITPCSF 0.036537 | 2.0 |
| HLA-B*58:01 | 1 | 697 | 705 | 9 | MSLGAENSV 0.036533 | 2.2 |
| HLA-A*02:03 | 1 | 2 | 10 | 9 | FVFLVLLPL 0.036514 | 2.8 |
| HLA-A*33:01 | 1 | 446 | 454 | 9 | GGNYNYLYR 0.036474 | 2.7 |
| HLA-B*58:01 | 1 | 343 | 351 | 9 | NATRFASVY 0.036466 | 2.2 |
| HLA-A*68:01 | 1 | 378 | 386 | 9 | KCYGVSP T K 0.036451 | 4.1 |
| HLA-A*23:01 | 1 | 391 | 400 | 10 | CFTNVYADSF 0.036408 | 1.5 |
| HLA-A*01:01 | 1 | 1263 | 1272 | 10 | PVLKGVKLHY 0.036367 | 1.9 |
| HLA-A*32:01 | 1 | 184 | 192 | 9 | GNFKNLREF 0.036352 | 1.6 |
| HLA-B*15:01 | 1 | 1093 | 1101 | 9 | GVFVSN GTH 0.036332 | 2.9 |
| HLA-B*53:01 | 1 | 266 | 275 | 10 | YVGYLQPRTF 0.036329 | 1.7 |
| HLA-B*58:01 | 1 | 1094 | 1103 | 10 | VFVSN GTHWF 0.036325 | 2.2 |
| HLA-A*30:02 | 1 | 786 | 795 | 10 | KQIYKTPPIK 0.03631 | 2.8 |
| HLA-A*33:01 | 1 | 269 | 278 | 10 | YLQPRTFLLK 0.0363 | 2.7 |
| HLA-A*30:01 | 1 | 139 | 147 | 9 | PFLGVYYHK 0.036295 | 3.6 |
| HLA-A*02:01 | 1 | 319 | 327 | 9 | RVQPTESIV 0.036291 | 2.6 |
| HLA-B*08:01 | 1 | 268 | 277 | 10 | GYLQPRTFLL 0.036286 | 2.6 |
| HLA-A*68:01 | 1 | 450 | 458 | 9 | NYLYRLF RK 0.036281 | 4.1 |
| HLA-A*02:03 | 1 | 886 | 894 | 9 | WTFGAGAAL 0.036216 | 2.9 |
| HLA-A*30:02 | 1 | 879 | 888 | 10 | AGTITSGWTF 0.036198 | 2.8 |
| HLA-B*58:01 | 1 | 826 | 834 | 9 | VTLADAGFI 0.036171 | 2.2 |
| HLA-A*68:02 | 1 | 587 | 595 | 9 | ITPCSF GGV 0.036148 | 2.5 |
| HLA-B*57:01 | 1 | 320 | 329 | 10 | VQPTESIVRF 0.036124 | 3.4 |
| HLA-A*30:01 | 1 | 29 | 38 | 10 | TNSFTRGVYY 0.036036 | 3.6 |
| HLA-B*15:01 | 1 | 1094 | 1103 | 10 | VFVSN GTHWF 0.035922 | 2.9 |
| HLA-A*02:06 | 1 | 259 | 267 | 9 | TAGAAAYYV 0.03591 | 3.4 |
| HLA-A*02:06 | 1 | 1054 | 1063 | 10 | QSAPHGVVFL 0.035907 | 3.4 |
| HLA-A*03:01 | 1 | 142 | 151 | 10 | GVYYHKNNKS 0.035903 | 2.6 |
| HLA-A*30:02 | 1 | 372 | 381 | 10 | ASFSTFKCYG 0.035888 | 2.8 |
| HLA-B*15:01 | 1 | 20 | 28 | 9 | TRTQLPPAY 0.035886 | 2.9 |
| HLA-A*26:01 | 1 | 699 | 707 | 9 | LGAENSVAY 0.035872 | 1.5 |
| HLA-A*30:01 | 1 | 777 | 786 | 10 | NTQEVFAQVK 0.035842 | 3.7 |
| HLA-A*26:01 | 1 | 1136 | 1144 | 9 | TVYDPLQPE 0.035786 | 1.5 |
| HLA-A*30:01 | 1 | 264 | 272 | 9 | AYYVGYLQP 0.035772 | 3.7 |
| HLA-A*02:01 | 1 | 852 | 860 | 9 | AQKFNGLTV 0.035721 | 2.6 |
| HLA-B*44:03 | 1 | 443 | 451 | 9 | SKVGGNYNY 0.035712 | 1.5 |
| HLA-A*30:02 | 1 | 677 | 685 | 9 | QTNSPRRAR 0.035678 | 2.8 |
| HLA-A*24:02 | 1 | 195 | 203 | 9 | KNIDGYFKI 0.035675 | 1.6 |
| HLA-A*30:01 | 1 | 1175 | 1183 | 9 | SVVNIQKEI 0.035633 | 3.7 |
| HLA-B*53:01 | 1 | 258 | 266 | 9 | WTAGAAAYY 0.035627 | 1.7 |
| HLA-B*44:03 | 1 | 724 | 733 | 10 | TEILPVSM T K 0.035608 | 1.5 |
| HLA-B*08:01 | 1 | 504 | 513 | 10 | GYQPYRVVVL 0.035598 | 2.7 |
| HLA-A*24:02 | 1 | 266 | 275 | 10 | YVGYLQPRTF 0.035591 | 1.6 |
| HLA-A*02:03 | 1 | 511 | 520 | 10 | VVLSFELLHA 0.035547 | 2.9 |
| HLA-A*33:01 | 1 | 169 | 177 | 9 | EYVSQPFLM 0.035528 | 2.7 |
| HLA-A*23:01 | 1 | 962 | 970 | 9 | LVKQLSSNF 0.035476 | 1.5 |
| HLA-A*30:02 | 1 | 1048 | 1056 | 9 | HLMSFPQSA 0.035475 | 2.8 |
| HLA-B*44:02 | 1 | 338 | 347 | 10 | FGEVFNATRF 0.035473 | 1.4 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*30:01 | 1 | 530 | 538 | 9 | STNLVKNKC 0.035466 | 3.7 |
| HLA-B*53:01 | 1 | 988 | 996 | 9 | EAEVQIDRL 0.035453 | 1.7 |
| HLA-B*40:01 | 1 | 553 | 562 | 10 | TESNKKFLPF 0.035451 | 1.6 |
| HLA-A*01:01 | 1 | 583 | 592 | 10 | EILDITPCSF 0.03542 | 1.9 |
| HLA-A*03:01 | 1 | 94 | 102 | 9 | STEKSNIIR 0.035418 | 2.6 |
| HLA-B*08:01 | 1 | 852 | 860 | 9 | AQKFNGLTV 0.0354 | 2.7 |
| HLA-B*57:01 | 1 | 1130 | 1138 | 9 | IGIVNNTVY 0.035395 | 3.5 |
| HLA-B*15:01 | 1 | 991 | 999 | 9 | VQIDRLITG 0.035394 | 2.9 |
| HLA-A*68:01 | 1 | 520 | 529 | 10 | APATVCGPKK 0.035393 | 4.2 |
| HLA-B*40:01 | 1 | 852 | 860 | 9 | AQKFNGLTV 0.035355 | 1.6 |
| HLA-A*02:03 | 1 | 698 | 706 | 9 | SLGAENVA 0.035348 | 2.9 |
| HLA-B*57:01 | 1 | 384 | 392 | 9 | PTKLNLCF 0.035342 | 3.5 |
| HLA-B*58:01 | 1 | 723 | 731 | 9 | TTEILPVSM 0.035333 | 2.3 |
| HLA-A*24:02 | 1 | 611 | 620 | 10 | LYQDVNCTEV 0.035332 | 1.6 |
| HLA-B*53:01 | 1 | 686 | 695 | 10 | SVASQSIIAY 0.035308 | 1.7 |
| HLA-A*02:01 | 1 | 551 | 560 | 10 | VLTESNKKFL 0.035282 | 2.6 |
| HLA-B*44:02 | 1 | 465 | 473 | 9 | ERDISTEY 0.035257 | 1.4 |
| HLA-B*51:01 | 1 | 461 | 470 | 10 | LKPFERDIST 0.035208 | 2.9 |
| HLA-A*32:01 | 1 | 505 | 513 | 9 | YQPYRVVVL 0.035204 | 1.7 |
| HLA-A*23:01 | 1 | 417 | 425 | 9 | KIADYNYKL 0.035175 | 1.5 |
| HLA-A*30:01 | 1 | 596 | 604 | 9 | SVITPGTNT 0.035171 | 3.7 |
| HLA-A*30:01 | 1 | 776 | 785 | 10 | KNTQEVFAQV 0.035141 | 3.7 |
| HLA-B*15:01 | 1 | 1044 | 1052 | 9 | GKGYHLMSF 0.035141 | 2.9 |
| HLA-A*68:02 | 1 | 207 | 216 | 10 | HTPINLVRLD 0.035128 | 2.5 |
| HLA-A*30:02 | 1 | 665 | 674 | 10 | PIGAGICASY 0.035118 | 2.8 |
| HLA-A*03:01 | 1 | 558 | 567 | 10 | KFLPFQFGR 0.035091 | 2.6 |
| HLA-A*30:01 | 1 | 457 | 466 | 10 | RKSNLKPFR 0.035086 | 3.7 |
| HLA-A*32:01 | 1 | 46 | 54 | 9 | SVLHSTQDL 0.035085 | 1.7 |
| HLA-A*31:01 | 1 | 1000 | 1008 | 9 | RLQSLQTYV 0.034955 | 3.6 |
| HLA-B*51:01 | 1 | 437 | 445 | 9 | NSNNLDSKV 0.034933 | 2.9 |
| HLA-B*51:01 | 1 | 121 | 130 | 10 | NNATNVVIKV 0.034871 | 2.9 |
| HLA-B*57:01 | 1 | 135 | 144 | 10 | FCNDPFLGVY 0.034847 | 3.5 |
| HLA-A*30:01 | 1 | 265 | 273 | 9 | YYVGYLQPR 0.034827 | 3.7 |
| HLA-A*02:03 | 1 | 718 | 727 | 10 | FTISVTTEIL 0.034825 | 2.9 |
| HLA-A*68:02 | 1 | 858 | 866 | 9 | LTVLPPLL 0.034818 | 2.5 |
| HLA-A*24:02 | 1 | 3 | 11 | 9 | VFLVLLPLV 0.034808 | 1.6 |
| HLA-B*51:01 | 1 | 250 | 258 | 9 | TPGDSSSGW 0.034787 | 2.9 |
| HLA-A*02:03 | 1 | 930 | 938 | 9 | AIGKIQDSL 0.034777 | 2.9 |
| HLA-A*26:01 | 1 | 365 | 374 | 10 | YSVLYNSASF 0.034753 | 1.5 |
| HLA-B*08:01 | 1 | 271 | 279 | 9 | QPRTFLLKY 0.034746 | 2.7 |
| HLA-B*51:01 | 1 | 727 | 735 | 9 | LPVSMTKTS 0.034714 | 2.9 |
| HLA-A*30:01 | 1 | 377 | 386 | 10 | FKCYGVSPTK 0.034698 | 3.7 |
| HLA-A*68:02 | 1 | 625 | 633 | 9 | HADQLTPTW 0.034672 | 2.5 |
| HLA-A*11:01 | 1 | 674 | 683 | 10 | YQTQTNSPRR 0.034665 | 2.5 |
| HLA-A*02:03 | 1 | 367 | 375 | 9 | VLYNSASF 0.034662 | 2.9 |
| HLA-B*44:03 | 1 | 1016 | 1025 | 10 | AEIRASANLA 0.034661 | 1.6 |
| HLA-A*02:06 | 1 | 643 | 651 | 9 | FQTRAGCLI 0.034631 | 3.4 |
| HLA-A*02:06 | 1 | 885 | 894 | 10 | GWTFGAGAAL 0.034629 | 3.4 |
| HLA-A*30:01 | 1 | 378 | 387 | 10 | KCYGVSPTKL 0.034627 | 3.7 |
| HLA-A*26:01 | 1 | 40 | 49 | 10 | DKVFRSSVLH 0.034613 | 1.5 |
| HLA-A*02:03 | 1 | 1055 | 1063 | 9 | SAPHGVVFL 0.034609 | 2.9 |
| HLA-A*02:01 | 1 | 820 | 828 | 9 | DLLFNKVTL 0.034579 | 2.6 |
| HLA-B*07:02 | 1 | 962 | 970 | 9 | LVKQLSSNF 0.034493 | 2.1 |
| HLA-A*68:02 | 1 | 509 | 517 | 9 | RVVLSFEL 0.034486 | 2.5 |
| HLA-B*15:01 | 1 | 583 | 592 | 10 | EILDITPCSF 0.03446 | 3.0 |
| HLA-A*30:01 | 1 | 673 | 682 | 10 | SYQTQTNSPR 0.034352 | 3.8 |
| HLA-B*51:01 | 1 | 171 | 179 | 9 | VSQPFLMDL 0.034322 | 2.9 |
| HLA-A*68:02 | 1 | 922 | 930 | 9 | LIANQFNVA 0.034317 | 2.5 |
| HLA-A*02:06 | 1 | 726 | 734 | 9 | ILPVSMTKT 0.034307 | 3.5 |
| HLA-A*02:06 | 1 | 497 | 505 | 9 | FQPTNGVGY 0.034278 | 3.5 |
| HLA-A*23:01 | 1 | 894 | 902 | 9 | LQIPFAMQM 0.034245 | 1.6 |
| HLA-A*31:01 | 1 | 149 | 158 | 10 | NKSWMESEFR 0.034108 | 3.7 |
| HLA-A*24:02 | 1 | 36 | 44 | 9 | VYYPDKVFR 0.034077 | 1.6 |
| HLA-A*26:01 | 1 | 574 | 582 | 9 | DAVRDPQTL 0.034044 | 1.6 |
| HLA-A*68:01 | 1 | 161 | 170 | 10 | SSANNCTFEY 0.034031 | 4.3 |
| HLA-B*08:01 | 1 | 366 | 374 | 9 | SVLYNSASF 0.034002 | 2.8 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*44:02 | 1 | 177 | 186 | 10 | MDLEGKQGNF 0.033996 | 1.4 |
| HLA-B*08:01 | 1 | 894 | 902 | 9 | LQIPFAMQM 0.033918 | 2.8 |
| HLA-B*51:01 | 1 | 54 | 62 | 9 | LFLPFFSNV 0.0339 | 2.9 |
| HLA-A*02:06 | 1 | 55 | 63 | 9 | FLPFFSNVT 0.033896 | 3.5 |
| HLA-A*02:06 | 1 | 192 | 200 | 9 | FVFKNIDGY 0.033877 | 3.5 |
| HLA-A*01:01 | 1 | 1059 | 1067 | 9 | GVVFLHVTY 0.033827 | 1.9 |
| HLA-B*35:01 | 1 | 923 | 931 | 9 | IANQFNSAI 0.033824 | 2.0 |
| HLA-A*26:01 | 1 | 1021 | 1029 | 9 | SANLAATKM 0.033817 | 1.6 |
| HLA-A*31:01 | 1 | 30 | 38 | 9 | NSFTRGVYY 0.033783 | 3.7 |
| HLA-B*51:01 | 1 | 490 | 499 | 10 | FPLQSYGFQP 0.033781 | 2.9 |
| HLA-A*30:02 | 1 | 781 | 790 | 10 | VFAQVKQIYK 0.033757 | 2.9 |
| HLA-A*02:06 | 1 | 1167 | 1176 | 10 | GDISGINASV 0.0337 | 3.5 |
| HLA-A*02:06 | 1 | 1223 | 1231 | 9 | GLIAIVMVT 0.03369 | 3.5 |
| HLA-B*15:01 | 1 | 126 | 135 | 10 | VVIKVFCEQF 0.033676 | 3.0 |
| HLA-B*57:01 | 1 | 1225 | 1233 | 9 | IAIVMVTIM 0.033666 | 3.5 |
| HLA-B*51:01 | 1 | 369 | 377 | 9 | YNSASFSTF 0.033662 | 2.9 |
| HLA-A*24:02 | 1 | 98 | 106 | 9 | SNIRGWIF 0.033644 | 1.6 |
| HLA-A*68:02 | 1 | 389 | 397 | 9 | DLCFTNVYA 0.033641 | 2.6 |
| HLA-A*02:06 | 1 | 1222 | 1230 | 9 | AGLIAIVMV 0.033629 | 3.5 |
| HLA-A*02:03 | 1 | 833 | 841 | 9 | FIKQYGDCL 0.033597 | 3.0 |
| HLA-A*26:01 | 1 | 440 | 449 | 10 | NLDSKVGQNY 0.033584 | 1.6 |
| HLA-B*51:01 | 1 | 936 | 945 | 10 | DSLSSSTASAL 0.033568 | 2.9 |
| HLA-B*53:01 | 1 | 250 | 259 | 10 | TPGDSSSGWT 0.033547 | 1.7 |
| HLA-B*08:01 | 1 | 856 | 864 | 9 | NGLTVLPL 0.033533 | 2.8 |
| HLA-A*30:01 | 1 | 68 | 77 | 10 | IHSVGTNGTK 0.033483 | 3.8 |
| HLA-A*32:01 | 1 | 940 | 948 | 9 | STASALGKL 0.033476 | 1.7 |
| HLA-A*33:01 | 1 | 1101 | 1110 | 10 | HWFVTQRNFY 0.033472 | 2.8 |
| HLA-A*30:01 | 1 | 340 | 348 | 9 | EVFNATRFA 0.033461 | 3.8 |
| HLA-A*30:01 | 1 | 687 | 695 | 9 | VASQSIIAY 0.033455 | 3.8 |
| HLA-A*02:06 | 1 | 1032 | 1040 | 9 | CVLGQSKRV 0.033453 | 3.5 |
| HLA-B*53:01 | 1 | 192 | 201 | 10 | FVFKNIDGYF 0.033438 | 1.7 |
| HLA-B*15:01 | 1 | 1026 | 1034 | 9 | ATKMSECVL 0.033428 | 3.0 |
| HLA-A*02:01 | 1 | 55 | 63 | 9 | FLPFFSNVT 0.033423 | 2.7 |
| HLA-A*02:06 | 1 | 551 | 559 | 9 | VLTESNKKF 0.033419 | 3.5 |
| HLA-B*15:01 | 1 | 853 | 861 | 9 | QKFNGLTVL 0.033417 | 3.0 |
| HLA-B*35:01 | 1 | 298 | 306 | 9 | ETKCTLKSF 0.033411 | 2.0 |
| HLA-A*26:01 | 1 | 20 | 28 | 9 | TRTQLPPAY 0.033401 | 1.6 |
| HLA-B*35:01 | 1 | 1257 | 1265 | 9 | DEDDSEPV 0.033385 | 2.0 |
| HLA-A*26:01 | 1 | 342 | 351 | 10 | FNATRFASVY 0.033372 | 1.6 |
| HLA-A*30:01 | 1 | 821 | 829 | 9 | LLFNKVTLA 0.033342 | 3.8 |
| HLA-A*24:02 | 1 | 50 | 59 | 10 | STQDLFLPFF 0.033338 | 1.6 |
| HLA-B*35:01 | 1 | 1201 | 1209 | 9 | QELGKYEY 0.033284 | 2.0 |
| HLA-A*30:02 | 1 | 958 | 966 | 9 | ALNTLVKQL 0.033257 | 2.9 |
| HLA-A*30:02 | 1 | 1211 | 1220 | 10 | KWPWYIWLGF 0.033251 | 2.9 |
| HLA-A*68:02 | 1 | 575 | 584 | 10 | AVRDPQTLEI 0.033243 | 2.6 |
| HLA-B*58:01 | 1 | 557 | 565 | 9 | KKFLPFQF 0.033231 | 2.4 |
| HLA-A*02:03 | 1 | 877 | 885 | 9 | LLAGTITSG 0.033137 | 3.0 |
| HLA-A*26:01 | 1 | 652 | 660 | 9 | GAEHVNNYSY 0.033134 | 1.6 |
| HLA-A*32:01 | 1 | 171 | 179 | 9 | VSQPFLMDL 0.033129 | 1.7 |
| HLA-A*30:02 | 1 | 368 | 377 | 10 | LYNSASFSTF 0.033115 | 2.9 |
| HLA-B*15:01 | 1 | 789 | 797 | 9 | YKTPPIKDF 0.033077 | 3.0 |
| HLA-B*44:02 | 1 | 1016 | 1025 | 10 | AEIRASANLA 0.033076 | 1.4 |
| HLA-B*44:03 | 1 | 660 | 668 | 9 | YECDIPIGA 0.033071 | 1.6 |
| HLA-A*03:01 | 1 | 40 | 49 | 10 | DKVFRSSVLH 0.033055 | 2.7 |
| HLA-A*68:02 | 1 | 192 | 200 | 9 | FVFKNIDGY 0.033045 | 2.6 |
| HLA-B*44:02 | 1 | 557 | 565 | 9 | KKFLPFQF 0.033042 | 1.4 |
| HLA-B*57:01 | 1 | 929 | 938 | 10 | SAIGKIQDSL 0.033003 | 3.6 |
| HLA-A*30:01 | 1 | 314 | 322 | 9 | QTSNFRVQP 0.032958 | 3.9 |
| HLA-B*58:01 | 1 | 192 | 201 | 10 | FVFKNIDGYF 0.032912 | 2.4 |
| HLA-A*01:01 | 1 | 496 | 505 | 10 | GFQPTNGVGY 0.032909 | 1.9 |
| HLA-B*53:01 | 1 | 723 | 731 | 9 | TTEILPVSM 0.03289 | 1.8 |
| HLA-A*32:01 | 1 | 304 | 313 | 10 | KSFTVEKGIY 0.032874 | 1.8 |
| HLA-A*68:01 | 1 | 511 | 519 | 9 | VVLSFELLH 0.032845 | 4.3 |
| HLA-B*15:01 | 1 | 49 | 58 | 10 | HSTQDLFLPF 0.032834 | 3.0 |
| HLA-B*08:01 | 1 | 612 | 620 | 9 | YQDVNCTEV 0.032817 | 2.8 |
| HLA-A*30:01 | 1 | 197 | 206 | 10 | IDGYFKIYSK 0.032794 | 3.9 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*57:01 | 1 | 957 | 966 | 10 | QALNTLVKQL 0.03273 | 3.6 |
| HLA-A*26:01 | 1 | 49 | 58 | 10 | HSTQDLFLPF 0.032701 | 1.6 |
| HLA-B*53:01 | 1 | 78 | 86 | 9 | RFDNPVLPF 0.0327 | 1.8 |
| HLA-A*30:02 | 1 | 349 | 357 | 9 | SVYAWNRRK 0.032688 | 3.0 |
| HLA-A*01:01 | 1 | 576 | 584 | 9 | VRDPQTLEI 0.032685 | 2.0 |
| HLA-B*35:01 | 1 | 465 | 473 | 9 | ERDISTEY 0.032674 | 2.0 |
| HLA-A*02:06 | 1 | 873 | 881 | 9 | YTSALLAGT 0.03264 | 3.5 |
| HLA-B*07:02 | 1 | 102 | 110 | 9 | RGWIFGTTL 0.032638 | 2.1 |
| HLA-A*30:01 | 1 | 449 | 458 | 10 | YNYLYRFRK 0.032634 | 3.9 |
| HLA-A*68:02 | 1 | 226 | 235 | 10 | LVDLPIGINI 0.03262 | 2.6 |
| HLA-B*44:03 | 1 | 604 | 612 | 9 | TSNQVAVLY 0.032613 | 1.6 |
| HLA-B*58:01 | 1 | 102 | 110 | 9 | RGWIFGTTL 0.032591 | 2.4 |
| HLA-B*53:01 | 1 | 1067 | 1075 | 9 | YVPAQEKNF 0.032587 | 1.8 |
| HLA-A*03:01 | 1 | 29 | 38 | 10 | TNSFTRGVVY 0.032573 | 2.7 |
| HLA-A*30:02 | 1 | 160 | 168 | 9 | YSSANCTF 0.032537 | 3.0 |
| HLA-A*01:01 | 1 | 1075 | 1083 | 9 | FTTAPAICH 0.032536 | 2.0 |
| HLA-B*35:01 | 1 | 365 | 374 | 10 | YSVLYNSASF 0.032507 | 2.0 |
| HLA-A*68:01 | 1 | 924 | 933 | 10 | ANQFNSAIGK 0.032506 | 4.3 |
| HLA-A*26:01 | 1 | 137 | 145 | 9 | NDPFLGVVY 0.0325 | 1.6 |
| HLA-A*23:01 | 1 | 969 | 977 | 9 | NFGAISSVL 0.032492 | 1.6 |
| HLA-B*51:01 | 1 | 886 | 894 | 9 | WTFGAGAAL 0.03247 | 3.0 |
| HLA-A*30:01 | 1 | 845 | 853 | 9 | AARDLICAQ 0.032452 | 3.9 |
| HLA-B*15:01 | 1 | 860 | 869 | 10 | VLPLLTDDEM 0.032442 | 3.0 |
| HLA-B*44:02 | 1 | 1094 | 1102 | 9 | VFVSNQTHW 0.032421 | 1.4 |
| HLA-A*30:02 | 1 | 1100 | 1109 | 10 | THWFVTQRNF 0.032418 | 3.0 |
| HLA-B*57:01 | 1 | 486 | 495 | 10 | FNCYFPLQSY 0.032411 | 3.6 |
| HLA-A*32:01 | 1 | 327 | 335 | 9 | VRFPNITNL 0.032318 | 1.8 |
| HLA-A*30:01 | 1 | 802 | 811 | 10 | FSQILPDPSK 0.032283 | 3.9 |
| HLA-B*44:02 | 1 | 1030 | 1038 | 9 | SECVLGQSK 0.032249 | 1.4 |
| HLA-A*02:06 | 1 | 241 | 249 | 9 | LLALHRSYL 0.032229 | 3.6 |
| HLA-A*26:01 | 1 | 229 | 238 | 10 | LPIGINITRF 0.032192 | 1.6 |
| HLA-A*02:01 | 1 | 6 | 15 | 10 | VLLPLVSSQC 0.032187 | 2.7 |
| HLA-A*68:02 | 1 | 484 | 492 | 9 | EGFNCYFPL 0.032181 | 2.7 |
| HLA-B*07:02 | 1 | 108 | 117 | 10 | TTLDSKTQSL 0.032157 | 2.2 |
| HLA-A*02:01 | 1 | 922 | 930 | 9 | LIANQFNFA 0.032153 | 2.7 |
| HLA-A*30:01 | 1 | 94 | 102 | 9 | STEKSNIR 0.032144 | 3.9 |
| HLA-A*30:02 | 1 | 395 | 403 | 9 | VYADSFVIR 0.032127 | 3.0 |
| HLA-A*68:02 | 1 | 1202 | 1210 | 9 | ELGKYEQYI 0.032114 | 2.7 |
| HLA-B*57:01 | 1 | 1263 | 1272 | 10 | PVLKGVKLHY 0.032112 | 3.6 |
| HLA-A*33:01 | 1 | 205 | 214 | 10 | SKHTPINLVR 0.032084 | 2.9 |
| HLA-B*51:01 | 1 | 478 | 486 | 9 | TPCNGVEGF 0.032075 | 3.0 |
| HLA-B*15:01 | 1 | 77 | 86 | 10 | KRFDNPVLPF 0.032074 | 3.1 |
| HLA-B*15:01 | 1 | 1048 | 1056 | 9 | HLMSFPQSA 0.032025 | 3.1 |
| HLA-B*57:01 | 1 | 940 | 948 | 9 | STASALGKL 0.032019 | 3.6 |
| HLA-B*57:01 | 1 | 488 | 497 | 10 | CYFPLQSYGF 0.03197 | 3.6 |
| HLA-A*30:02 | 1 | 691 | 699 | 9 | SIAYTMSL 0.031915 | 3.0 |
| HLA-A*02:03 | 1 | 869 | 878 | 10 | MIAQYTSALL 0.031915 | 3.1 |
| HLA-A*02:03 | 1 | 204 | 213 | 10 | YSKHTPINLV 0.031908 | 3.1 |
| HLA-B*15:01 | 1 | 956 | 964 | 9 | AQALNTLVK 0.031902 | 3.1 |
| HLA-B*35:01 | 1 | 630 | 638 | 9 | TPTWRVYST 0.031883 | 2.1 |
| HLA-A*68:02 | 1 | 1054 | 1062 | 9 | QSAPHGVVF 0.031853 | 2.7 |
| HLA-A*02:03 | 1 | 1096 | 1104 | 9 | VSNGTHWV 0.03185 | 3.1 |
| HLA-B*53:01 | 1 | 344 | 353 | 10 | ATRFASVYAW 0.031832 | 1.8 |
| HLA-A*68:02 | 1 | 679 | 687 | 9 | NSPRRARSV 0.031819 | 2.7 |
| HLA-A*02:06 | 1 | 340 | 348 | 9 | EVFNATRFA 0.031811 | 3.6 |
| HLA-A*32:01 | 1 | 624 | 633 | 10 | IHADQLTPTW 0.031802 | 1.8 |
| HLA-A*68:01 | 1 | 261 | 269 | 9 | GAAAYVGY 0.031773 | 4.4 |
| HLA-A*30:02 | 1 | 787 | 795 | 9 | QIYKTPPIK 0.031762 | 3.0 |
| HLA-A*30:01 | 1 | 1107 | 1116 | 10 | RNFYEQIIT 0.031757 | 4.0 |
| HLA-A*02:03 | 1 | 894 | 903 | 10 | LQIPFAMQMA 0.031748 | 3.1 |
| HLA-A*68:02 | 1 | 1262 | 1270 | 9 | EPVLKGVKL 0.031747 | 2.7 |
| HLA-B*58:01 | 1 | 269 | 277 | 9 | YLQPRFTLL 0.031736 | 2.4 |
| HLA-A*68:02 | 1 | 716 | 724 | 9 | TNFTISVTT 0.031717 | 2.7 |
| HLA-A*26:01 | 1 | 465 | 473 | 9 | ERDISTEY 0.031687 | 1.6 |
| HLA-A*01:01 | 1 | 880 | 888 | 9 | GTITSGWTF 0.031684 | 2.0 |
| HLA-B*35:01 | 1 | 634 | 643 | 10 | RVYSTGSNVF 0.031682 | 2.1 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*44:03 | 1 | 271 | 279 | 9 | QPRTFLLKY 0.03168 | 1.6 |
| HLA-A*30:01 | 1 | 310 | 318 | 9 | KGIVQTSNF 0.031672 | 4.0 |
| HLA-B*51:01 | 1 | 102 | 110 | 9 | RGWIFGTTL 0.031596 | 3.1 |
| HLA-A*02:01 | 1 | 776 | 785 | 10 | KNTQEVFAQV 0.031556 | 2.8 |
| HLA-A*03:01 | 1 | 296 | 304 | 9 | LSETKCTLK 0.031542 | 2.8 |
| HLA-A*30:01 | 1 | 933 | 942 | 10 | KIQDLSSTA 0.031511 | 4.0 |
| HLA-B*51:01 | 1 | 327 | 335 | 9 | VRFPNITNL 0.031468 | 3.1 |
| HLA-A*23:01 | 1 | 126 | 135 | 10 | VVIKVCDFQF 0.031427 | 1.6 |
| HLA-B*57:01 | 1 | 195 | 203 | 9 | KNIDGYFKI 0.031402 | 3.6 |
| HLA-A*31:01 | 1 | 372 | 380 | 9 | ASFSTFKCY 0.031388 | 3.8 |
| HLA-B*35:01 | 1 | 47 | 55 | 9 | VLHSTQDLF 0.031381 | 2.1 |
| HLA-A*68:02 | 1 | 502 | 510 | 9 | GVGYQPVRV 0.03136 | 2.7 |
| HLA-A*02:06 | 1 | 590 | 598 | 9 | CSFGGVSVI 0.031346 | 3.6 |
| HLA-A*23:01 | 1 | 1147 | 1155 | 9 | SFKEELDKY 0.031346 | 1.6 |
| HLA-A*30:02 | 1 | 23 | 32 | 10 | QLPPAYTNSF 0.031339 | 3.1 |
| HLA-A*30:01 | 1 | 639 | 647 | 9 | GSNVFQTRA 0.031271 | 4.0 |
| HLA-A*30:01 | 1 | 243 | 251 | 9 | ALHRSYLTP 0.031205 | 4.0 |
| HLA-A*02:06 | 1 | 447 | 455 | 9 | GNYNYLYRL 0.031195 | 3.6 |
| HLA-A*26:01 | 1 | 24 | 32 | 9 | LPPAYTNSF 0.031177 | 1.7 |
| HLA-A*31:01 | 1 | 32 | 41 | 10 | FTRGVYYPDK 0.031158 | 3.8 |
| HLA-A*30:01 | 1 | 449 | 457 | 9 | YNYLYRLFR 0.031148 | 4.0 |
| HLA-A*33:01 | 1 | 449 | 458 | 10 | YNYLYRLFRK 0.031144 | 2.9 |
| HLA-B*51:01 | 1 | 1261 | 1270 | 10 | SEPVLKGVKL 0.031137 | 3.1 |
| HLA-A*30:01 | 1 | 1141 | 1149 | 9 | LQPELDSFK 0.031133 | 4.0 |
| HLA-A*30:01 | 1 | 555 | 563 | 9 | SNKKFLPFQ 0.031102 | 4.0 |
| HLA-B*08:01 | 1 | 452 | 461 | 10 | LYRLFRKSNL 0.031098 | 2.9 |
| HLA-B*57:01 | 1 | 697 | 705 | 9 | MSLGAENSV 0.031085 | 3.7 |
| HLA-B*57:01 | 1 | 874 | 882 | 9 | TSALLAGTI 0.031083 | 3.7 |
| HLA-A*31:01 | 1 | 273 | 281 | 9 | RTFLLKYNE 0.03108 | 3.8 |
| HLA-A*02:06 | 1 | 1113 | 1121 | 9 | QIITDNTF 0.031037 | 3.7 |
| HLA-A*68:02 | 1 | 817 | 826 | 10 | FIEDLLFNKV 0.031004 | 2.7 |
| HLA-B*07:02 | 1 | 525 | 534 | 10 | CGPKKSTNLV 0.030986 | 2.2 |
| HLA-A*23:01 | 1 | 46 | 55 | 10 | SVLHSTQDLF 0.03094 | 1.6 |
| HLA-A*30:01 | 1 | 269 | 277 | 9 | YLQPRTFLL 0.030891 | 4.1 |
| HLA-A*02:01 | 1 | 511 | 520 | 10 | VVLSFELLHA 0.030888 | 2.8 |
| HLA-B*07:02 | 1 | 560 | 569 | 10 | LPFQFGRDI 0.030883 | 2.2 |
| HLA-A*30:01 | 1 | 815 | 823 | 9 | RSFIEDLLF 0.030883 | 4.1 |
| HLA-B*44:02 | 1 | 779 | 787 | 9 | QEVFAQVKQ 0.030876 | 1.5 |
| HLA-B*08:01 | 1 | 234 | 242 | 9 | NITRFQTL 0.030874 | 2.9 |
| HLA-B*40:01 | 1 | 612 | 620 | 9 | YQDVNCTEV 0.030874 | 1.7 |
| HLA-B*08:01 | 1 | 145 | 153 | 9 | YHKNNKSWM 0.030856 | 2.9 |
| HLA-A*33:01 | 1 | 756 | 765 | 10 | YGSFCTQLNR 0.030849 | 2.9 |
| HLA-B*08:01 | 1 | 603 | 611 | 9 | NTSNQVAVL 0.030833 | 2.9 |
| HLA-A*30:01 | 1 | 882 | 890 | 9 | ITSGWTFGA 0.030822 | 4.1 |
| HLA-A*30:01 | 1 | 119 | 127 | 9 | IVNNATNVV 0.030792 | 4.1 |
| HLA-A*26:01 | 1 | 83 | 91 | 9 | VLFPNDGVY 0.03079 | 1.7 |
| HLA-B*08:01 | 1 | 627 | 635 | 9 | DQLTPTWRV 0.030771 | 3.0 |
| HLA-A*30:02 | 1 | 206 | 214 | 9 | KHTPINLVR 0.03077 | 3.1 |
| HLA-A*23:01 | 1 | 212 | 220 | 9 | LVRDLPQGF 0.030767 | 1.7 |
| HLA-B*57:01 | 1 | 652 | 660 | 9 | GAEHVNNSY 0.030754 | 3.7 |
| HLA-A*68:02 | 1 | 134 | 143 | 10 | QFCNDPFLGV 0.030705 | 2.7 |
| HLA-A*68:01 | 1 | 558 | 567 | 10 | KFLPFQFGR 0.030693 | 4.4 |
| HLA-B*35:01 | 1 | 256 | 265 | 10 | SGWTAGAAAY 0.030673 | 2.1 |
| HLA-B*57:01 | 1 | 343 | 351 | 9 | NATRFASVY 0.030661 | 3.7 |
| HLA-A*02:01 | 1 | 1224 | 1232 | 9 | LIAIVMVTI 0.030623 | 2.8 |
| HLA-B*07:02 | 1 | 417 | 425 | 9 | KIADYNYKL 0.03062 | 2.2 |
| HLA-B*57:01 | 1 | 734 | 742 | 9 | TSVDCTMYI 0.030607 | 3.7 |
| HLA-A*30:01 | 1 | 339 | 348 | 10 | GEVFNATRYA 0.030606 | 4.1 |
| HLA-A*30:01 | 1 | 1059 | 1067 | 9 | GVVFLHVTY 0.030583 | 4.1 |
| HLA-A*02:06 | 1 | 374 | 382 | 9 | FSTFKCYGV 0.030574 | 3.7 |
| HLA-B*44:02 | 1 | 250 | 258 | 9 | TPGDSSSGW 0.030564 | 1.5 |
| HLA-B*35:01 | 1 | 109 | 117 | 9 | TLDSKTQSL 0.030559 | 2.1 |
| HLA-A*11:01 | 1 | 371 | 380 | 10 | SASFSTFKCY 0.030558 | 2.6 |
| HLA-B*58:01 | 1 | 487 | 495 | 9 | NCYFPLQSY 0.030515 | 2.4 |
| HLA-B*51:01 | 1 | 902 | 911 | 10 | MAYRFNGIGV 0.030509 | 3.1 |
| HLA-B*57:01 | 1 | 747 | 756 | 10 | TECSNLLLQY 0.030453 | 3.7 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*15:01 | 1 | 915 | 923 | 9 | VLYENQKLI 0.030433 | 3.2 |
| HLA-B*40:01 | 1 | 1137 | 1145 | 9 | VYDPLQPEL 0.030429 | 1.7 |
| HLA-B*57:01 | 1 | 257 | 266 | 10 | GWTAGAAAYY 0.030389 | 3.7 |
| HLA-A*31:01 | 1 | 827 | 835 | 9 | TLADAGFIK 0.030386 | 3.9 |
| HLA-A*68:01 | 1 | 239 | 248 | 10 | QTLLALHRSY 0.030383 | 4.5 |
| HLA-A*26:01 | 1 | 306 | 314 | 9 | FTVEKGIYQ 0.030368 | 1.7 |
| HLA-A*31:01 | 1 | 905 | 913 | 9 | RFNGIGVTQ 0.030367 | 3.9 |
| HLA-B*35:01 | 1 | 1055 | 1064 | 10 | SAPHGCVVFLH 0.03034 | 2.1 |
| HLA-B*08:01 | 1 | 60 | 68 | 9 | SNVTWFHAI 0.030319 | 3.0 |
| HLA-A*30:02 | 1 | 158 | 166 | 9 | RVYSSANNC 0.030316 | 3.1 |
| HLA-B*58:01 | 1 | 195 | 204 | 10 | KNIDGYFKIY 0.030306 | 2.4 |
| HLA-B*53:01 | 1 | 861 | 870 | 10 | LPPLLTDEMI 0.030306 | 1.9 |
| HLA-A*03:01 | 1 | 36 | 44 | 9 | VYYPDKVFR 0.030292 | 2.8 |
| HLA-A*02:06 | 1 | 722 | 731 | 10 | VTTEILPVM 0.030292 | 3.7 |
| HLA-A*02:01 | 1 | 718 | 727 | 10 | FTISVTTEIL 0.03028 | 2.8 |
| HLA-A*02:03 | 1 | 626 | 635 | 10 | ADQLTPTWRV 0.030279 | 3.2 |
| HLA-A*30:01 | 1 | 113 | 121 | 9 | KTQSLLIVN 0.030275 | 4.1 |
| HLA-A*68:01 | 1 | 448 | 457 | 10 | NYNLYRLFR 0.030236 | 4.5 |
| HLA-A*30:02 | 1 | 1020 | 1028 | 9 | ASANLAATK 0.030231 | 3.1 |
| HLA-A*30:02 | 1 | 378 | 386 | 9 | KCYGVSPK 0.030197 | 3.1 |
| HLA-B*08:01 | 1 | 1178 | 1186 | 9 | NIQKEIDRL 0.030197 | 3.0 |
| HLA-B*57:01 | 1 | 718 | 727 | 10 | FTISVTTEIL 0.030191 | 3.7 |
| HLA-A*24:02 | 1 | 160 | 168 | 9 | YSSANNCTF 0.030188 | 1.7 |
| HLA-B*35:01 | 1 | 773 | 782 | 10 | EQDKNTQEVF 0.030151 | 2.1 |
| HLA-A*30:01 | 1 | 143 | 151 | 9 | VYYHKNNKS 0.030142 | 4.1 |
| HLA-A*23:01 | 1 | 814 | 823 | 10 | KRSFIEDLLF 0.030109 | 1.7 |
| HLA-B*58:01 | 1 | 127 | 135 | 9 | VIKVCEFQF 0.030086 | 2.5 |
| HLA-B*44:03 | 1 | 388 | 396 | 9 | NDLCFTNVY 0.030078 | 1.7 |
| HLA-B*35:01 | 1 | 122 | 130 | 9 | NATNVVIKV 0.03007 | 2.1 |
| HLA-B*08:01 | 1 | 1257 | 1265 | 9 | DEDDSEPV 0.03006 | 3.0 |
| HLA-A*02:03 | 1 | 712 | 720 | 9 | IAIPTNFTI 0.030059 | 3.2 |
| HLA-A*03:01 | 1 | 162 | 170 | 9 | SANNCTFEY 0.03001 | 2.8 |
| HLA-A*68:01 | 1 | 370 | 379 | 10 | NSASFSTFKC 0.030009 | 4.5 |
| HLA-A*02:03 | 1 | 327 | 335 | 9 | VRFPNITNL 0.029988 | 3.2 |
| HLA-B*44:02 | 1 | 56 | 64 | 9 | LPFFSNVTW 0.029906 | 1.5 |
| HLA-A*68:01 | 1 | 768 | 776 | 9 | TGIAVEQDK 0.029894 | 4.5 |
| HLA-A*02:01 | 1 | 882 | 890 | 9 | ITSGWTFGA 0.029885 | 2.9 |
| HLA-A*24:02 | 1 | 1137 | 1146 | 10 | VYDPLQPELD 0.029879 | 1.8 |
| HLA-A*32:01 | 1 | 162 | 170 | 9 | SANNCTFEY 0.029867 | 1.9 |
| HLA-A*24:02 | 1 | 151 | 160 | 10 | SWMESEFRVY 0.02986 | 1.8 |
| HLA-A*11:01 | 1 | 240 | 248 | 9 | TLLALHRSY 0.029854 | 2.7 |
| HLA-B*57:01 | 1 | 334 | 342 | 9 | NLCPFGEV 0.029835 | 3.7 |
| HLA-A*30:02 | 1 | 1147 | 1156 | 10 | SFKEELDKYF 0.029832 | 3.2 |
| HLA-B*58:01 | 1 | 699 | 707 | 9 | LGAENSVAY 0.029802 | 2.5 |
| HLA-A*02:06 | 1 | 1005 | 1013 | 9 | QTYVTQLI 0.029801 | 3.7 |
| HLA-A*68:02 | 1 | 988 | 997 | 10 | EAEVQIDRLI 0.029798 | 2.8 |
| HLA-B*44:03 | 1 | 1150 | 1158 | 9 | EELDKYFKN 0.029753 | 1.7 |
| HLA-B*51:01 | 1 | 691 | 699 | 9 | SIIAYTMSL 0.02975 | 3.1 |
| HLA-A*30:01 | 1 | 938 | 947 | 10 | LSSTASALGK 0.029742 | 4.2 |
| HLA-A*68:01 | 1 | 975 | 984 | 10 | SVLNDILSRL 0.029729 | 4.5 |
| HLA-A*11:01 | 1 | 1098 | 1107 | 10 | NGTHWFVTQR 0.029704 | 2.7 |
| HLA-A*68:02 | 1 | 46 | 54 | 9 | SVLHSTQDL 0.029692 | 2.8 |
| HLA-A*30:02 | 1 | 1066 | 1075 | 10 | TYVPAQEKNF 0.029663 | 3.2 |
| HLA-B*44:03 | 1 | 177 | 186 | 10 | MDLEGKQGNF 0.029608 | 1.7 |
| HLA-A*30:01 | 1 | 78 | 86 | 9 | RFDNPVLPF 0.029603 | 4.2 |
| HLA-A*30:02 | 1 | 195 | 203 | 9 | KNIDGYFKI 0.0296 | 3.2 |
| HLA-B*58:01 | 1 | 1248 | 1256 | 9 | CSCGSCCKF 0.029597 | 2.5 |
| HLA-A*02:06 | 1 | 204 | 213 | 10 | YSKHTPINLV 0.029589 | 3.7 |
| HLA-A*30:01 | 1 | 27 | 36 | 10 | AYTNSFTRGV 0.029548 | 4.2 |
| HLA-A*68:02 | 1 | 343 | 352 | 10 | NATRFASVYA 0.02954 | 2.8 |
| HLA-B*53:01 | 1 | 481 | 489 | 9 | NGVEGFNCY 0.02954 | 1.9 |
| HLA-A*30:02 | 1 | 1154 | 1162 | 9 | KYFKNHTSP 0.029537 | 3.2 |
| HLA-A*02:01 | 1 | 119 | 127 | 9 | IVNNATNVV 0.029528 | 2.9 |
| HLA-A*02:03 | 1 | 54 | 62 | 9 | LFLPFFSNV 0.029518 | 3.2 |
| HLA-A*01:01 | 1 | 998 | 1007 | 10 | TGRLQSLQTY 0.02951 | 2.1 |
| HLA-A*11:01 | 1 | 1039 | 1047 | 9 | RVDFCGKGY 0.029503 | 2.7 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*02:01 | 1 | 1175 | 1183 | 9 | SVVNIQKEI 0.029493 | 2.9 |
| HLA-B*58:01 | 1 | 998 | 1007 | 10 | TGRLQSLQTY 0.02949 | 2.5 |
| HLA-A*30:02 | 1 | 28 | 36 | 9 | YTNSFTRGV 0.029481 | 3.2 |
| HLA-A*30:01 | 1 | 892 | 900 | 9 | AALQIPFAM 0.029473 | 4.2 |
| HLA-B*15:01 | 1 | 996 | 1004 | 9 | LITGRLQSL 0.029467 | 3.2 |
| HLA-B*08:01 | 1 | 896 | 904 | 9 | IPFAMQMAY 0.029368 | 3.1 |
| HLA-A*26:01 | 1 | 773 | 782 | 10 | EQDKNTQEVF 0.029333 | 1.7 |
| HLA-B*08:01 | 1 | 268 | 276 | 9 | GYLQPRTF 0.029327 | 3.1 |
| HLA-B*57:01 | 1 | 44 | 52 | 9 | RSSVLHSTQ 0.029294 | 3.8 |
| HLA-A*68:01 | 1 | 520 | 528 | 9 | APATVCGPK 0.029218 | 4.5 |
| HLA-A*30:01 | 1 | 158 | 167 | 10 | RVYSSANNCT 0.029217 | 4.2 |
| HLA-A*02:03 | 1 | 170 | 179 | 10 | YVSQPFLMDL 0.029209 | 3.2 |
| HLA-A*68:02 | 1 | 314 | 322 | 9 | QTSNFRVQP 0.029194 | 2.8 |
| HLA-B*35:01 | 1 | 443 | 451 | 9 | SKVGGNYNY 0.029168 | 2.2 |
| HLA-A*26:01 | 1 | 1093 | 1102 | 10 | GVFVSNGTHW 0.029167 | 1.7 |
| HLA-A*68:02 | 1 | 74 | 83 | 10 | NGTKRFDNPV 0.029166 | 2.8 |
| HLA-A*68:01 | 1 | 298 | 306 | 9 | ETKCTLKSF 0.029152 | 4.6 |
| HLA-A*02:06 | 1 | 719 | 727 | 9 | TISVTTEIL 0.029138 | 3.8 |
| HLA-A*68:01 | 1 | 1141 | 1149 | 9 | LQPELDSFK 0.029117 | 4.6 |
| HLA-A*02:06 | 1 | 1113 | 1122 | 10 | QIITTDNTFV 0.029104 | 3.8 |
| HLA-A*30:02 | 1 | 1087 | 1095 | 9 | AHFPREGVF 0.029103 | 3.2 |
| HLA-A*68:02 | 1 | 258 | 266 | 9 | WTAGAAAYY 0.029101 | 2.8 |
| HLA-B*53:01 | 1 | 1189 | 1197 | 9 | VAKNLNESL 0.029084 | 1.9 |
| HLA-A*02:06 | 1 | 83 | 92 | 10 | VLFPNDGVYF 0.029069 | 3.8 |
| HLA-B*51:01 | 1 | 111 | 120 | 10 | DSKTQSLIV 0.029065 | 3.2 |
| HLA-A*30:02 | 1 | 956 | 964 | 9 | AQALNTLVK 0.029059 | 3.2 |
| HLA-A*32:01 | 1 | 575 | 584 | 10 | AVRDPQTLEI 0.029051 | 1.9 |
| HLA-A*26:01 | 1 | 950 | 958 | 9 | DVVNQNAQA 0.029042 | 1.7 |
| HLA-A*30:02 | 1 | 951 | 959 | 9 | VVNQNAQAL 0.029024 | 3.2 |
| HLA-A*31:01 | 1 | 777 | 786 | 10 | NTQEVFAQVK 0.029021 | 4.0 |
| HLA-B*15:01 | 1 | 186 | 194 | 9 | FKNLREFVF 0.028986 | 3.2 |
| HLA-A*02:03 | 1 | 367 | 376 | 10 | VLYNSASFST 0.028985 | 3.2 |
| HLA-B*51:01 | 1 | 266 | 275 | 10 | YVGYLQPRTF 0.028951 | 3.2 |
| HLA-A*26:01 | 1 | 879 | 888 | 10 | AGTITSGWTF 0.02894 | 1.7 |
| HLA-A*30:02 | 1 | 1021 | 1029 | 9 | SANLAATKM 0.028938 | 3.2 |
| HLA-B*44:02 | 1 | 51 | 59 | 9 | TQDLFLPFF 0.028928 | 1.6 |
| HLA-A*01:01 | 1 | 82 | 91 | 10 | PVLPFNDGVY 0.028921 | 2.1 |
| HLA-B*15:01 | 1 | 297 | 306 | 10 | SETKCTLKSF 0.02888 | 3.2 |
| HLA-A*23:01 | 1 | 56 | 64 | 9 | LPFFSNVTW 0.028864 | 1.7 |
| HLA-A*68:02 | 1 | 393 | 402 | 10 | TNVYADSFVI 0.028857 | 2.8 |
| HLA-B*58:01 | 1 | 689 | 697 | 9 | SQSIIAYTM 0.028848 | 2.5 |
| HLA-A*68:02 | 1 | 688 | 696 | 9 | ASQSIIAYT 0.028782 | 2.8 |
| HLA-B*44:02 | 1 | 167 | 176 | 10 | TFEYVSQPFL 0.028777 | 1.6 |
| HLA-A*30:01 | 1 | 18 | 27 | 10 | LTRTQLPPA 0.028759 | 4.3 |
| HLA-B*57:01 | 1 | 204 | 213 | 10 | YSKHTPINLV 0.028748 | 3.8 |
| HLA-A*30:01 | 1 | 348 | 357 | 10 | ASVYAWNRKR 0.028728 | 4.3 |
| HLA-A*01:01 | 1 | 482 | 490 | 9 | GVEGFNCYF 0.028711 | 2.1 |
| HLA-A*02:03 | 1 | 7 | 15 | 9 | LLPLVSSQC 0.028651 | 3.3 |
| HLA-A*30:02 | 1 | 964 | 972 | 9 | KQLSSNFGA 0.028651 | 3.2 |
| HLA-B*15:01 | 1 | 191 | 200 | 10 | EFVFKNIDGY 0.028639 | 3.2 |
| HLA-A*02:01 | 1 | 423 | 432 | 10 | YKLPDDFTGC 0.028627 | 2.9 |
| HLA-A*31:01 | 1 | 338 | 346 | 9 | FGEVFNATR 0.028622 | 4.0 |
| HLA-A*30:02 | 1 | 369 | 377 | 9 | YNSASFSTF 0.02862 | 3.2 |
| HLA-B*44:03 | 1 | 56 | 64 | 9 | LPFFSNVTW 0.028609 | 1.7 |
| HLA-A*33:01 | 1 | 777 | 785 | 9 | NTQEVFAQV 0.028608 | 3.1 |
| HLA-A*33:01 | 1 | 987 | 995 | 9 | VEAEVQIDR 0.028583 | 3.1 |
| HLA-A*68:01 | 1 | 1099 | 1108 | 10 | GTHWFVTQRN 0.028552 | 4.6 |
| HLA-A*24:02 | 1 | 132 | 140 | 9 | EFQFCNDPF 0.028551 | 1.8 |
| HLA-A*26:01 | 1 | 499 | 508 | 10 | PTNGVGYPY 0.02853 | 1.8 |
| HLA-A*32:01 | 1 | 60 | 68 | 9 | SNVTWFHAI 0.028499 | 1.9 |
| HLA-B*57:01 | 1 | 1026 | 1034 | 9 | ATKMSECVL 0.028463 | 3.8 |
| HLA-A*68:02 | 1 | 1114 | 1122 | 9 | IITTDNTFV 0.028453 | 2.9 |
| HLA-A*30:01 | 1 | 1172 | 1181 | 10 | INASVVNIQK 0.028436 | 4.3 |
| HLA-B*57:01 | 1 | 510 | 518 | 9 | VVLSFELL 0.028428 | 3.8 |
| HLA-A*31:01 | 1 | 50 | 58 | 9 | STQDLFLPF 0.028419 | 4.0 |
| HLA-A*30:02 | 1 | 409 | 417 | 9 | QIAPGQTGK 0.028383 | 3.3 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*58:01 | 1 | 257 | 266 | 10 | GWTAGAAAYY 0.028365 | 2.5 |
| HLA-A*30:02 | 1 | 551 | 559 | 9 | VLTESNKKF 0.028356 | 3.3 |
| HLA-A*30:02 | 1 | 1008 | 1016 | 9 | VTQQLIRAA 0.028347 | 3.3 |
| HLA-A*03:01 | 1 | 1140 | 1149 | 10 | PLQPELDSFK 0.028345 | 2.9 |
| HLA-B*53:01 | 1 | 635 | 643 | 9 | VYSTGSNVF 0.028325 | 1.9 |
| HLA-B*51:01 | 1 | 869 | 877 | 9 | MIAQYTSAL 0.028309 | 3.3 |
| HLA-B*08:01 | 1 | 1087 | 1095 | 9 | AHFPREGVF 0.028307 | 3.1 |
| HLA-B*57:01 | 1 | 233 | 241 | 9 | INITRFQTL 0.028297 | 3.8 |
| HLA-A*68:01 | 1 | 895 | 904 | 10 | QIPFAMQMAY 0.028291 | 4.6 |
| HLA-A*02:06 | 1 | 254 | 262 | 9 | SSSGWTAGA 0.028247 | 3.9 |
| HLA-A*02:03 | 1 | 401 | 410 | 10 | VIRGDEVQRQI 0.028245 | 3.3 |
| HLA-A*30:01 | 1 | 267 | 275 | 9 | VGYLQPRTF 0.02823 | 4.3 |
| HLA-A*02:06 | 1 | 607 | 615 | 9 | QVAVLYQDV 0.02822 | 3.9 |
| HLA-A*23:01 | 1 | 503 | 512 | 10 | VGYPYRVVV 0.028218 | 1.7 |
| HLA-B*58:01 | 1 | 108 | 117 | 10 | TTLDSKTQSL 0.028199 | 2.6 |
| HLA-B*08:01 | 1 | 723 | 731 | 9 | TTEILPVSM 0.028179 | 3.1 |
| HLA-A*02:06 | 1 | 47 | 55 | 9 | VLHSTQDLF 0.028177 | 3.9 |
| HLA-B*35:01 | 1 | 878 | 886 | 9 | LAGTITSGW 0.02817 | 2.2 |
| HLA-B*07:02 | 1 | 1212 | 1220 | 9 | WPWYIWLGF 0.028144 | 2.3 |
| HLA-B*08:01 | 1 | 1026 | 1034 | 9 | ATKMSECVL 0.028118 | 3.1 |
| HLA-B*57:01 | 1 | 110 | 119 | 10 | LDSKTQSLLI 0.028094 | 3.8 |
| HLA-B*15:01 | 1 | 368 | 377 | 10 | LYNSASFSTF 0.028083 | 3.3 |
| HLA-B*35:01 | 1 | 29 | 38 | 10 | TNSFTRGVYY 0.028041 | 2.2 |
| HLA-B*44:03 | 1 | 20 | 28 | 9 | TRTQLPPAY 0.028014 | 1.8 |
| HLA-A*02:06 | 1 | 833 | 841 | 9 | FIKQYGDCL 0.027974 | 3.9 |
| HLA-A*02:01 | 1 | 226 | 235 | 10 | LVDLPIGINI 0.027966 | 3.0 |
| HLA-B*08:01 | 1 | 1052 | 1061 | 10 | FPQSAPHGVV 0.027956 | 3.2 |
| HLA-A*23:01 | 1 | 1088 | 1096 | 9 | HFPREGVVF 0.02794 | 1.7 |
| HLA-A*11:01 | 1 | 36 | 44 | 9 | VYYPDKVFR 0.027938 | 2.8 |
| HLA-A*32:01 | 1 | 1224 | 1232 | 9 | LIAIVMVTI 0.027919 | 1.9 |
| HLA-B*15:01 | 1 | 747 | 756 | 10 | TECSNLLLQY 0.027911 | 3.3 |
| HLA-B*58:01 | 1 | 44 | 52 | 9 | RSSVLHSTQ 0.027873 | 2.6 |
| HLA-B*51:01 | 1 | 929 | 938 | 10 | SAIGKIQDSL 0.027864 | 3.3 |
| HLA-B*15:01 | 1 | 482 | 490 | 9 | GVEGFNCYF 0.027817 | 3.3 |
| HLA-A*68:02 | 1 | 888 | 896 | 9 | FGAGAALQI 0.027804 | 2.9 |
| HLA-A*11:01 | 1 | 1145 | 1154 | 10 | LDSFKEELDK 0.0278 | 2.8 |
| HLA-A*23:01 | 1 | 321 | 329 | 9 | QPTESIVRF 0.027798 | 1.7 |
| HLA-A*02:06 | 1 | 696 | 705 | 10 | TMSLGAENSV 0.027743 | 3.9 |
| HLA-A*24:02 | 1 | 24 | 32 | 9 | LPPAYTNSF 0.027736 | 1.8 |
| HLA-A*30:02 | 1 | 488 | 497 | 10 | CYFPLQSYGF 0.027736 | 3.3 |
| HLA-B*51:01 | 1 | 138 | 146 | 9 | DPFLGVYYH 0.027734 | 3.3 |
| HLA-A*11:01 | 1 | 449 | 457 | 9 | YNYLYRFR 0.027659 | 2.8 |
| HLA-A*30:02 | 1 | 554 | 562 | 9 | ESNKKFLPF 0.027639 | 3.3 |
| HLA-A*02:06 | 1 | 102 | 110 | 9 | RGWIFGTTL 0.027627 | 3.9 |
| HLA-A*68:02 | 1 | 690 | 699 | 10 | QSIIAYTMSL 0.027611 | 2.9 |
| HLA-B*51:01 | 1 | 335 | 344 | 10 | LCPFGEVFNA 0.027603 | 3.3 |
| HLA-A*32:01 | 1 | 781 | 789 | 9 | VFAQVKQIY 0.027563 | 1.9 |
| HLA-A*02:01 | 1 | 921 | 929 | 9 | KLIANQFNS 0.027551 | 3.0 |
| HLA-B*58:01 | 1 | 221 | 229 | 9 | SALEPLVDL 0.027528 | 2.6 |
| HLA-B*08:01 | 1 | 1208 | 1216 | 9 | QYIKWPWYI 0.027509 | 3.2 |
| HLA-A*31:01 | 1 | 925 | 933 | 9 | NQFNSAIGK 0.027496 | 4.1 |
| HLA-A*03:01 | 1 | 32 | 41 | 10 | FTRGVYYPDK 0.027473 | 3.0 |
| HLA-B*57:01 | 1 | 125 | 133 | 9 | NVVIKVECF 0.027458 | 3.9 |
| HLA-B*07:02 | 1 | 46 | 54 | 9 | SVLHSTQDL 0.027445 | 2.3 |
| HLA-B*57:01 | 1 | 780 | 789 | 10 | EVFAQVKQIY 0.027433 | 3.9 |
| HLA-B*35:01 | 1 | 490 | 498 | 9 | FPLQSYGFQ 0.027417 | 2.2 |
| HLA-A*32:01 | 1 | 996 | 1004 | 9 | LITGRLQSL 0.027376 | 2.0 |
| HLA-A*01:01 | 1 | 413 | 421 | 9 | GQTGKIADY 0.02734 | 2.2 |
| HLA-A*30:02 | 1 | 933 | 941 | 9 | KIQDLSLST 0.027332 | 3.4 |
| HLA-A*02:01 | 1 | 933 | 942 | 10 | KIQDLSLSTA 0.027308 | 3.0 |
| HLA-A*02:03 | 1 | 995 | 1003 | 9 | RLITGRLQS 0.027304 | 3.4 |
| HLA-B*40:01 | 1 | 483 | 492 | 10 | VEGFNCYFPL 0.027298 | 1.8 |
| HLA-B*51:01 | 1 | 1257 | 1265 | 9 | DEDDSEPV 0.027298 | 3.3 |
| HLA-A*11:01 | 1 | 28 | 37 | 10 | YTNFTRGVY 0.027277 | 2.8 |
| HLA-A*02:01 | 1 | 285 | 293 | 9 | ITDAVDCAL 0.027266 | 3.0 |
| HLA-A*30:01 | 1 | 712 | 720 | 9 | IAIPTNFTI 0.027261 | 4.4 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*30:02 | 1 | 408 | 416 | 9 | RQIAPGQTG 0.027254 | 3.4 |
| HLA-A*33:01 | 1 | 269 | 277 | 9 | YLQPRTFLL 0.027249 | 3.1 |
| HLA-A*24:02 | 1 | 321 | 329 | 9 | QPTESIVRF 0.027221 | 1.9 |
| HLA-A*24:02 | 1 | 109 | 117 | 9 | TLDSKTQSL 0.027217 | 1.9 |
| HLA-A*26:01 | 1 | 709 | 718 | 10 | NNSIAIPTNF 0.027208 | 1.8 |
| HLA-A*02:01 | 1 | 933 | 941 | 9 | KIQDLSLST 0.0272 | 3.0 |
| HLA-B*15:01 | 1 | 417 | 425 | 9 | KIADYNYKL 0.027189 | 3.3 |
| HLA-A*23:01 | 1 | 151 | 160 | 10 | SWMESEFRVY 0.027185 | 1.8 |
| HLA-A*02:03 | 1 | 1048 | 1057 | 10 | HLMSEFPQSAP 0.027183 | 3.4 |
| HLA-B*53:01 | 1 | 780 | 788 | 9 | EVFAQVKQI 0.027169 | 2.0 |
| HLA-A*11:01 | 1 | 549 | 557 | 9 | TGVLTESNK 0.02716 | 2.8 |
| HLA-A*30:02 | 1 | 1005 | 1013 | 9 | QTYVTQQLI 0.027152 | 3.4 |
| HLA-A*02:06 | 1 | 262 | 270 | 9 | AAAYYVGYL 0.02712 | 4.0 |
| HLA-B*35:01 | 1 | 489 | 497 | 9 | YFPLQSYGF 0.027106 | 2.2 |
| HLA-B*57:01 | 1 | 83 | 92 | 10 | VLPFNDGVYF 0.027075 | 3.9 |
| HLA-B*44:03 | 1 | 624 | 633 | 10 | IHADQLTPTW 0.027075 | 1.8 |
| HLA-B*35:01 | 1 | 83 | 91 | 9 | VLPFNDGVY 0.027049 | 2.2 |
| HLA-A*26:01 | 1 | 160 | 168 | 9 | YSSANNCTF 0.027043 | 1.8 |
| HLA-B*57:01 | 1 | 552 | 560 | 9 | LTESNKKFL 0.027019 | 3.9 |
| HLA-A*02:03 | 1 | 394 | 402 | 9 | NVYADSFVI 0.027005 | 3.4 |
| HLA-A*31:01 | 1 | 634 | 642 | 9 | RVYSTGSNV 0.027005 | 4.1 |
| HLA-A*11:01 | 1 | 519 | 528 | 10 | HAPATVCGPK 0.026904 | 2.8 |
| HLA-A*68:01 | 1 | 1092 | 1101 | 10 | EGVFVSNATH 0.026904 | 4.7 |
| HLA-B*51:01 | 1 | 120 | 128 | 9 | VNATNVVI 0.026899 | 3.3 |
| HLA-B*44:02 | 1 | 441 | 449 | 9 | LDSKVGNGY 0.026891 | 1.6 |
| HLA-A*30:01 | 1 | 151 | 159 | 9 | SWMESEFRV 0.026838 | 4.5 |
| HLA-B*58:01 | 1 | 1020 | 1029 | 10 | ASANLAATKM 0.026802 | 2.6 |
| HLA-B*58:01 | 1 | 890 | 898 | 9 | AGAALQIPF 0.026726 | 2.6 |
| HLA-A*02:06 | 1 | 234 | 242 | 9 | NITRFQTL 0.026718 | 4.0 |
| HLA-B*51:01 | 1 | 1086 | 1094 | 9 | KAHFPREGV 0.026718 | 3.4 |
| HLA-B*51:01 | 1 | 229 | 237 | 9 | LPIGINITR 0.026714 | 3.4 |
| HLA-B*58:01 | 1 | 1146 | 1155 | 10 | DSFKEELDKY 0.026714 | 2.6 |
| HLA-A*68:01 | 1 | 673 | 682 | 10 | SYQTQNSPR 0.026688 | 4.7 |
| HLA-A*26:01 | 1 | 324 | 332 | 9 | ESIVRFPNI 0.026687 | 1.8 |
| HLA-A*02:03 | 1 | 423 | 432 | 10 | YKLPDDFTGC 0.026682 | 3.4 |
| HLA-A*01:01 | 1 | 746 | 755 | 10 | STECNLLLQ 0.026671 | 2.2 |
| HLA-A*02:06 | 1 | 7 | 15 | 9 | LLPLVSSQC 0.02667 | 4.0 |
| HLA-B*57:01 | 1 | 976 | 984 | 9 | VLNDILSRL 0.026662 | 4.0 |
| HLA-B*57:01 | 1 | 77 | 86 | 10 | KRFDNPVLPF 0.02664 | 4.0 |
| HLA-A*30:02 | 1 | 983 | 991 | 9 | RLDKVEAEV 0.026635 | 3.4 |
| HLA-A*11:01 | 1 | 357 | 365 | 9 | RISNCVADY 0.026623 | 2.8 |
| HLA-A*24:02 | 1 | 46 | 55 | 10 | SVLHSTQDLF 0.026608 | 1.9 |
| HLA-B*57:01 | 1 | 880 | 889 | 10 | GTITSGWTFG 0.026586 | 4.0 |
| HLA-A*32:01 | 1 | 28 | 36 | 9 | YTNSFTRGV 0.026583 | 2.0 |
| HLA-B*53:01 | 1 | 270 | 279 | 10 | LQPRTFLLKY 0.026577 | 2.0 |
| HLA-B*15:01 | 1 | 326 | 335 | 10 | IVRFPNITNL 0.026577 | 3.4 |
| HLA-B*08:01 | 1 | 317 | 326 | 10 | NFRVQPTESI 0.026576 | 3.3 |
| HLA-A*32:01 | 1 | 166 | 175 | 10 | CTFEYVSQPF 0.026567 | 2.0 |
| HLA-A*02:03 | 1 | 805 | 813 | 9 | ILPDPSKPS 0.026564 | 3.4 |
| HLA-A*30:02 | 1 | 1056 | 1064 | 9 | APHGVVFLH 0.026564 | 3.4 |
| HLA-A*32:01 | 1 | 999 | 1007 | 9 | GRLQSLQTY 0.026551 | 2.0 |
| HLA-A*68:01 | 1 | 305 | 314 | 10 | SFTVEKGIYQ 0.026549 | 4.7 |
| HLA-B*53:01 | 1 | 1221 | 1229 | 9 | IAGLIAIVM 0.02654 | 2.0 |
| HLA-A*02:06 | 1 | 47 | 56 | 10 | VLHSTQDLFL 0.026539 | 4.0 |
| HLA-A*68:01 | 1 | 270 | 278 | 9 | LQPRTFLLK 0.026539 | 4.7 |
| HLA-B*35:01 | 1 | 169 | 177 | 9 | EYVSQPFLM 0.026516 | 2.3 |
| HLA-A*68:02 | 1 | 1226 | 1234 | 9 | AIVMVTIML 0.026509 | 3.0 |
| HLA-A*32:01 | 1 | 1080 | 1089 | 10 | AICHDGKAHF 0.026501 | 2.0 |
| HLA-A*02:03 | 1 | 1032 | 1040 | 9 | CVLGQSKRV 0.026497 | 3.4 |
| HLA-A*02:06 | 1 | 381 | 390 | 10 | GVSPTKLNDL 0.026479 | 4.0 |
| HLA-A*02:03 | 1 | 584 | 592 | 9 | ILDITPCSF 0.026475 | 3.4 |
| HLA-A*30:02 | 1 | 292 | 300 | 9 | ALDPLSETK 0.026462 | 3.4 |
| HLA-A*02:03 | 1 | 224 | 233 | 10 | EPLVDLPIGI 0.026458 | 3.4 |
| HLA-A*30:01 | 1 | 42 | 51 | 10 | VFRSSVLHST 0.026411 | 4.5 |
| HLA-B*44:02 | 1 | 624 | 633 | 10 | IHADQLTPTW 0.026398 | 1.6 |
| HLA-A*33:01 | 1 | 61 | 69 | 9 | NVTWFHAIH 0.026386 | 3.2 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*53:01 | 1 | 727 | 736 | 10 | LPVSMTKTSV 0.02637 | 2.0 |
| HLA-A*02:03 | 1 | 609 | 618 | 10 | AVLYQDVNCT 0.026366 | 3.4 |
| HLA-A*31:01 | 1 | 1099 | 1108 | 10 | GTHWFVTQRN 0.026346 | 4.1 |
| HLA-A*01:01 | 1 | 47 | 55 | 9 | VLHSTQDLF 0.026329 | 2.2 |
| HLA-A*02:06 | 1 | 803 | 811 | 9 | SQILPDPSK 0.026326 | 4.0 |
| HLA-A*02:03 | 1 | 900 | 909 | 10 | MQMAYRFNGI 0.02632 | 3.4 |
| HLA-A*03:01 | 1 | 457 | 466 | 10 | RKSNLKPFR 0.026296 | 3.0 |
| HLA-B*44:02 | 1 | 999 | 1007 | 9 | GRLQSLQTY 0.026292 | 1.6 |
| HLA-B*35:01 | 1 | 192 | 201 | 10 | FVFKNIDGYF 0.026286 | 2.3 |
| HLA-A*68:02 | 1 | 371 | 379 | 9 | SASFSTFKC 0.026282 | 3.0 |
| HLA-A*30:02 | 1 | 151 | 159 | 9 | SWMESEFRV 0.026251 | 3.5 |
| HLA-A*23:01 | 1 | 1219 | 1227 | 9 | GFIAGLIAI 0.026247 | 1.8 |
| HLA-B*53:01 | 1 | 1203 | 1212 | 10 | LGKYEQYIKW 0.026196 | 2.0 |
| HLA-A*30:01 | 1 | 296 | 304 | 9 | LSETKCTLK 0.02619 | 4.5 |
| HLA-A*68:01 | 1 | 886 | 895 | 10 | WTFGAGAALQ 0.026187 | 4.7 |
| HLA-B*15:01 | 1 | 718 | 726 | 9 | FTISVTTEI 0.026183 | 3.4 |
| HLA-A*26:01 | 1 | 968 | 976 | 9 | SNFGAISSV 0.026183 | 1.9 |
| HLA-A*30:02 | 1 | 270 | 278 | 9 | LQPRTFLLK 0.026154 | 3.5 |
| HLA-A*26:01 | 1 | 1075 | 1083 | 9 | FTTAPAICH 0.026154 | 1.9 |
| HLA-A*02:01 | 1 | 54 | 62 | 9 | LFLPFFSNV 0.026152 | 3.1 |
| HLA-B*51:01 | 1 | 554 | 562 | 9 | ESNKKFLPF 0.026144 | 3.4 |
| HLA-B*53:01 | 1 | 329 | 337 | 9 | FPNITNLCP 0.026094 | 2.0 |
| HLA-B*15:01 | 1 | 774 | 782 | 9 | QDKNTQEVF 0.026094 | 3.4 |
| HLA-B*08:01 | 1 | 1024 | 1032 | 9 | LAATKMSEC 0.026093 | 3.3 |
| HLA-A*30:02 | 1 | 1080 | 1089 | 10 | AICHDGKAHF 0.026085 | 3.5 |
| HLA-A*24:02 | 1 | 1051 | 1060 | 10 | SFPQSAPHGV 0.02608 | 1.9 |
| HLA-B*58:01 | 1 | 378 | 387 | 10 | KCYGVSPTKL 0.026078 | 2.6 |
| HLA-A*23:01 | 1 | 160 | 168 | 9 | YSSANNCTF 0.026056 | 1.8 |
| HLA-A*02:01 | 1 | 886 | 894 | 9 | WTFGAGAAL 0.026042 | 3.1 |
| HLA-B*53:01 | 1 | 780 | 789 | 10 | EVFAQVKQIY 0.026023 | 2.0 |
| HLA-B*08:01 | 1 | 185 | 194 | 10 | NFKNLREFVF 0.026022 | 3.3 |
| HLA-A*31:01 | 1 | 956 | 964 | 9 | AQALNTLVK 0.02601 | 4.2 |
| HLA-A*26:01 | 1 | 975 | 983 | 9 | SVLNDILSR 0.026005 | 1.9 |
| HLA-A*02:03 | 1 | 188 | 197 | 10 | NLREFVFKNI 0.025988 | 3.4 |
| HLA-B*58:01 | 1 | 83 | 92 | 10 | VLFPNDGVYF 0.025974 | 2.6 |
| HLA-A*68:01 | 1 | 193 | 202 | 10 | VFKNIDGYFK 0.025952 | 4.8 |
| HLA-A*24:02 | 1 | 962 | 970 | 9 | LVKQLSSNF 0.025923 | 1.9 |
| HLA-A*68:01 | 1 | 1264 | 1272 | 9 | VLKGVKLHY 0.025916 | 4.8 |
| HLA-B*15:01 | 1 | 257 | 265 | 9 | GWTAGAAAY 0.025857 | 3.4 |
| HLA-B*15:01 | 1 | 1147 | 1156 | 10 | SFKEELDKYF 0.025831 | 3.4 |
| HLA-A*01:01 | 1 | 291 | 300 | 10 | CALDPLSETK 0.025815 | 2.2 |
| HLA-A*01:01 | 1 | 569 | 577 | 9 | IADTTDAVR 0.025813 | 2.2 |
| HLA-A*11:01 | 1 | 603 | 612 | 10 | NTSNQVAVLY 0.025812 | 2.9 |
| HLA-B*44:03 | 1 | 137 | 145 | 9 | NDPFLGVYY 0.025786 | 1.8 |
| HLA-A*26:01 | 1 | 258 | 267 | 10 | WTAGAAAYYV 0.025783 | 1.9 |
| HLA-B*08:01 | 1 | 56 | 64 | 9 | LPFFSNVTW 0.025748 | 3.3 |
| HLA-A*02:06 | 1 | 925 | 934 | 10 | NQFNSAIGKI 0.025747 | 4.1 |
| HLA-A*33:01 | 1 | 1060 | 1068 | 9 | VVFLHVTYV 0.025725 | 3.2 |
| HLA-A*01:01 | 1 | 296 | 304 | 9 | LSETKCTLK 0.025694 | 2.2 |
| HLA-A*68:02 | 1 | 287 | 296 | 10 | DAVDCALDPL 0.02567 | 3.0 |
| HLA-B*57:01 | 1 | 1175 | 1183 | 9 | SVVNIQKEI 0.025633 | 4.0 |
| HLA-B*15:01 | 1 | 833 | 841 | 9 | FIKQYGDCL 0.02561 | 3.4 |
| HLA-A*02:01 | 1 | 772 | 781 | 10 | VEQDKNTQEV 0.025594 | 3.1 |
| HLA-A*02:01 | 1 | 295 | 303 | 9 | PLSETKCTL 0.02557 | 3.1 |
| HLA-A*11:01 | 1 | 756 | 765 | 10 | YGSFCTQLNR 0.02553 | 2.9 |
| HLA-A*02:01 | 1 | 10 | 18 | 9 | LVSSQCVNL 0.025528 | 3.1 |
| HLA-B*51:01 | 1 | 287 | 296 | 10 | DAVDCALDPL 0.025525 | 3.5 |
| HLA-A*02:06 | 1 | 1227 | 1235 | 9 | IVMVTIMLC 0.025521 | 4.1 |
| HLA-A*30:02 | 1 | 825 | 833 | 9 | KVTLADAGF 0.025506 | 3.5 |
| HLA-B*57:01 | 1 | 689 | 697 | 9 | SQSIIAYTM 0.025499 | 4.1 |
| HLA-B*08:01 | 1 | 417 | 425 | 9 | KIADYNYKL 0.025494 | 3.4 |
| HLA-A*30:01 | 1 | 20 | 28 | 9 | TRTQLPPAY 0.025488 | 4.6 |
| HLA-A*02:06 | 1 | 805 | 813 | 9 | ILPDPSKPS 0.025461 | 4.1 |
| HLA-B*58:01 | 1 | 1066 | 1075 | 10 | TYVPAQEKNF 0.025449 | 2.7 |
| HLA-A*02:06 | 1 | 408 | 416 | 9 | RQIAPGQTG 0.025442 | 4.1 |
| HLA-A*03:01 | 1 | 257 | 266 | 10 | GWTAGAAAYY 0.02544 | 3.1 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*44:03 | 1 | 321 | 329 | 9 | QPTESIVRF 0.025437 | 1.8 |
| HLA-B*58:01 | 1 | 493 | 501 | 9 | QSYGFQPTN 0.025393 | 2.7 |
| HLA-B*35:01 | 1 | 806 | 815 | 10 | LPDPSKPSKR 0.025393 | 2.3 |
| HLA-A*02:06 | 1 | 906 | 915 | 10 | FNGIGVTQNV 0.025389 | 4.1 |
| HLA-A*02:03 | 1 | 10 | 18 | 9 | LVSSQCVNL 0.025388 | 3.5 |
| HLA-A*02:03 | 1 | 502 | 511 | 10 | GVGYQPYRVV 0.025371 | 3.5 |
| HLA-A*02:06 | 1 | 818 | 826 | 9 | IEDLLFNKV 0.025342 | 4.1 |
| HLA-B*51:01 | 1 | 510 | 518 | 9 | VVVLSEFEL 0.025341 | 3.5 |
| HLA-A*03:01 | 1 | 806 | 814 | 9 | LPDPSKPSK 0.025334 | 3.1 |
| HLA-A*30:01 | 1 | 341 | 349 | 9 | VFNATRFAS 0.025327 | 4.7 |
| HLA-A*26:01 | 1 | 406 | 414 | 9 | EVRQIAPGQ 0.025309 | 1.9 |
| HLA-B*08:01 | 1 | 180 | 189 | 10 | EGKQGNFKNL 0.025308 | 3.4 |
| HLA-A*30:02 | 1 | 890 | 898 | 9 | AGAALQIPF 0.025306 | 3.5 |
| HLA-A*02:06 | 1 | 61 | 70 | 10 | NVTWFHAIHV 0.025303 | 4.1 |
| HLA-A*30:02 | 1 | 268 | 276 | 9 | GYLQPRTFL 0.025292 | 3.5 |
| HLA-B*07:02 | 1 | 462 | 471 | 10 | KPFERDISTE 0.025286 | 2.4 |
| HLA-A*32:01 | 1 | 590 | 598 | 9 | CSFGGVSVI 0.025286 | 2.1 |
| HLA-A*01:01 | 1 | 1258 | 1266 | 9 | EDDSEPVLK 0.025282 | 2.3 |
| HLA-B*15:01 | 1 | 1049 | 1058 | 10 | LMSFPQSAPH 0.025256 | 3.4 |
| HLA-A*30:02 | 1 | 575 | 584 | 10 | AVRDPQTLEI 0.025235 | 3.5 |
| HLA-A*26:01 | 1 | 808 | 817 | 10 | DPSKPSKRSF 0.025218 | 1.9 |
| HLA-A*68:02 | 1 | 321 | 329 | 9 | QPTESIVRF 0.025184 | 3.1 |
| HLA-A*68:01 | 1 | 1177 | 1185 | 9 | VNIQKEIDR 0.025124 | 4.8 |
| HLA-B*57:01 | 1 | 635 | 643 | 9 | VYSTGSNVF 0.025109 | 4.1 |
| HLA-A*23:01 | 1 | 926 | 934 | 9 | QFNSAIGKI 0.025098 | 1.8 |
| HLA-A*68:01 | 1 | 940 | 948 | 9 | STASALGKL 0.025093 | 4.8 |
| HLA-A*03:01 | 1 | 13 | 21 | 9 | SQCVNLTRT 0.025083 | 3.1 |
| HLA-B*07:02 | 1 | 1068 | 1077 | 10 | VPAQEKNFRT 0.025078 | 2.4 |
| HLA-A*30:02 | 1 | 236 | 245 | 10 | TRFQTLALH 0.025074 | 3.6 |
| HLA-A*68:01 | 1 | 1036 | 1045 | 10 | QSKRVDFCGK 0.025068 | 4.8 |
| HLA-A*30:01 | 1 | 54 | 62 | 9 | LFLPFFSNV 0.025064 | 4.7 |
| HLA-B*53:01 | 1 | 781 | 789 | 9 | VFAQVKQIY 0.025054 | 2.0 |
| HLA-A*02:06 | 1 | 117 | 126 | 10 | LLIVNNATNV 0.025049 | 4.1 |
| HLA-A*31:01 | 1 | 337 | 346 | 10 | PFGEVFNATR 0.02502 | 4.2 |
| HLA-B*51:01 | 1 | 1208 | 1216 | 9 | QYIKWPWYI 0.025014 | 3.5 |
| HLA-A*26:01 | 1 | 951 | 959 | 9 | VVNQNAQAL 0.025004 | 1.9 |
| HLA-A*30:01 | 1 | 162 | 170 | 9 | SANNCTFEY 0.025002 | 4.7 |
| HLA-A*68:01 | 1 | 263 | 271 | 9 | AAYYVGYLQ 0.024951 | 4.8 |
| HLA-A*30:02 | 1 | 182 | 190 | 9 | KQGNFKNLR 0.024946 | 3.6 |
| HLA-A*02:01 | 1 | 951 | 959 | 9 | VVNQNAQAL 0.024928 | 3.2 |
| HLA-A*32:01 | 1 | 886 | 894 | 9 | WTFGAGAAL 0.024926 | 2.1 |
| HLA-A*01:01 | 1 | 500 | 508 | 9 | TNGVGYQPY 0.024921 | 2.3 |
| HLA-A*01:01 | 1 | 624 | 633 | 10 | IHADQLTPTW 0.02492 | 2.3 |
| HLA-A*30:01 | 1 | 1196 | 1205 | 10 | SLIDLQELGK 0.024902 | 4.7 |
| HLA-A*23:01 | 1 | 554 | 562 | 9 | ESNKKFLPF 0.024897 | 1.8 |
| HLA-B*57:01 | 1 | 499 | 508 | 10 | PTNGVGYQPY 0.024869 | 4.1 |
| HLA-B*57:01 | 1 | 221 | 229 | 9 | SALEPLVDL 0.024865 | 4.1 |
| HLA-A*30:02 | 1 | 1070 | 1078 | 9 | AQEKNFRTA 0.024855 | 3.6 |
| HLA-B*44:02 | 1 | 724 | 733 | 10 | TEILPVSMTK 0.024854 | 1.7 |
| HLA-A*32:01 | 1 | 930 | 938 | 9 | AIGKIQDSL 0.024811 | 2.1 |
| HLA-B*35:01 | 1 | 506 | 514 | 9 | QPVRVVVLS 0.02478 | 2.4 |
| HLA-B*35:01 | 1 | 998 | 1007 | 10 | TGRLQSLQTY 0.024746 | 2.4 |
| HLA-A*68:02 | 1 | 1207 | 1216 | 10 | EQYIKWPWYI 0.024735 | 3.1 |
| HLA-A*02:06 | 1 | 318 | 327 | 10 | FRVQPTESIV 0.024667 | 4.2 |
| HLA-B*35:01 | 1 | 1081 | 1089 | 9 | ICHDGKAHF 0.024638 | 2.4 |
| HLA-A*68:01 | 1 | 320 | 328 | 9 | VQPTESIVR 0.024627 | 4.9 |
| HLA-A*02:01 | 1 | 367 | 376 | 10 | VLYNSASFST 0.0246 | 3.2 |
| HLA-A*01:01 | 1 | 806 | 814 | 9 | LPDPSKPSK 0.024592 | 2.3 |
| HLA-A*01:01 | 1 | 1102 | 1110 | 9 | WFTVQRNFY 0.024584 | 2.3 |
| HLA-A*68:01 | 1 | 1188 | 1196 | 9 | EVAKNLNES 0.024563 | 4.9 |
| HLA-B*15:01 | 1 | 168 | 176 | 9 | FEYVSQPFL 0.02454 | 3.5 |
| HLA-A*03:01 | 1 | 1136 | 1144 | 9 | TVYDPLQPE 0.024536 | 3.1 |
| HLA-A*30:02 | 1 | 1004 | 1012 | 9 | LQTYVTQQL 0.024528 | 3.6 |
| HLA-A*33:01 | 1 | 32 | 41 | 10 | FTRGVYYPDK 0.024501 | 3.3 |
| HLA-A*32:01 | 1 | 433 | 441 | 9 | VIAWNSNNL 0.02449 | 2.1 |
| HLA-A*02:03 | 1 | 248 | 256 | 9 | YLTPGDSSS 0.024488 | 3.6 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*02:06 | 1 | 957 | 966 | 10 | QALNTLVKQL 0.024482 | 4.2 |
| HLA-A*68:02 | 1 | 821 | 829 | 9 | LLFNKVTLA 0.024481 | 3.1 |
| HLA-A*02:06 | 1 | 288 | 296 | 9 | AVDCALDPL 0.024479 | 4.2 |
| HLA-A*02:01 | 1 | 2 | 11 | 10 | FVFLVLLPLV 0.024478 | 3.2 |
| HLA-A*68:02 | 1 | 580 | 588 | 9 | QTLEILDIT 0.024469 | 3.1 |
| HLA-B*51:01 | 1 | 1025 | 1033 | 9 | AATKMSECV 0.024468 | 3.6 |
| HLA-B*58:01 | 1 | 49 | 57 | 9 | HSTQDLFLP 0.024466 | 2.7 |
| HLA-A*30:02 | 1 | 995 | 1004 | 10 | RLITGRLQSL 0.024453 | 3.6 |
| HLA-A*23:01 | 1 | 689 | 697 | 9 | SQSIIAYTM 0.024443 | 1.9 |
| HLA-B*15:01 | 1 | 1010 | 1018 | 9 | QQLIRAAEI 0.024443 | 3.5 |
| HLA-B*08:01 | 1 | 1089 | 1097 | 9 | FPREGVFVS 0.024415 | 3.4 |
| HLA-B*08:01 | 1 | 198 | 206 | 9 | DGYFKIYSK 0.024414 | 3.4 |
| HLA-A*33:01 | 1 | 1101 | 1109 | 9 | HWFVTQRNF 0.024411 | 3.4 |
| HLA-A*68:01 | 1 | 718 | 726 | 9 | FTISVTTEI 0.024392 | 4.9 |
| HLA-A*23:01 | 1 | 1216 | 1225 | 10 | IWLGFIAGLI 0.024366 | 1.9 |
| HLA-A*02:06 | 1 | 78 | 86 | 9 | RFDNPVLPF 0.024357 | 4.2 |
| HLA-A*02:01 | 1 | 215 | 223 | 9 | DLPQGFSAI 0.024332 | 3.2 |
| HLA-B*51:01 | 1 | 624 | 633 | 10 | IHADQLTPTW 0.024326 | 3.6 |
| HLA-A*30:02 | 1 | 144 | 152 | 9 | YYHKNNKSW 0.024321 | 3.6 |
| HLA-A*26:01 | 1 | 568 | 577 | 10 | DIADTTDAVR 0.024314 | 1.9 |
| HLA-A*03:01 | 1 | 158 | 166 | 9 | RVYSSANNC 0.024304 | 3.2 |
| HLA-A*26:01 | 1 | 976 | 984 | 9 | VLNDILSRL 0.024303 | 1.9 |
| HLA-A*02:06 | 1 | 19 | 27 | 9 | TRTQLPPA 0.024293 | 4.2 |
| HLA-B*58:01 | 1 | 1021 | 1029 | 9 | SANLAATKM 0.02428 | 2.7 |
| HLA-A*01:01 | 1 | 370 | 378 | 9 | NSASFSTFK 0.024278 | 2.3 |
| HLA-A*68:01 | 1 | 138 | 146 | 9 | DPFLGVYYH 0.024265 | 4.9 |
| HLA-B*58:01 | 1 | 874 | 882 | 9 | TSALLAGTI 0.024257 | 2.7 |
| HLA-A*68:02 | 1 | 704 | 713 | 10 | SVAYSNNSIA 0.02425 | 3.1 |
| HLA-B*08:01 | 1 | 813 | 821 | 9 | SKRSFIEDL 0.024201 | 3.5 |
| HLA-A*68:02 | 1 | 327 | 335 | 9 | VRFPNITNL 0.024195 | 3.1 |
| HLA-A*24:02 | 1 | 1055 | 1063 | 9 | SAPHGVVFL 0.024184 | 2.0 |
| HLA-A*03:01 | 1 | 575 | 583 | 9 | AVRDPQMLE 0.024175 | 3.2 |
| HLA-B*08:01 | 1 | 503 | 511 | 9 | VGYPYRVV 0.024143 | 3.5 |
| HLA-A*02:06 | 1 | 975 | 983 | 9 | SVLNDILSR 0.024132 | 4.2 |
| HLA-A*02:01 | 1 | 46 | 54 | 9 | SVLHSTQDL 0.024128 | 3.2 |
| HLA-A*30:01 | 1 | 1107 | 1115 | 9 | RNFYEPQII 0.024125 | 4.8 |
| HLA-B*15:01 | 1 | 55 | 64 | 10 | FLPFFSNVTW 0.024118 | 3.5 |
| HLA-A*68:02 | 1 | 284 | 293 | 10 | TITDAVDCAL 0.02409 | 3.1 |
| HLA-A*26:01 | 1 | 1102 | 1110 | 9 | WFVTQRNFY 0.024089 | 1.9 |
| HLA-A*24:02 | 1 | 1109 | 1117 | 9 | FYEPQIITT 0.024065 | 2.0 |
| HLA-A*30:02 | 1 | 1075 | 1083 | 9 | FTTAPAICH 0.024057 | 3.7 |
| HLA-A*26:01 | 1 | 1220 | 1229 | 10 | FIAGLIAIVM 0.024055 | 2.0 |
| HLA-B*53:01 | 1 | 427 | 436 | 10 | DDFTGCVIAW 0.024053 | 2.1 |
| HLA-A*11:01 | 1 | 121 | 129 | 9 | NNATNVVIK 0.02403 | 3.0 |
| HLA-B*35:01 | 1 | 568 | 576 | 9 | DIADTTDAV 0.024029 | 2.4 |
| HLA-A*68:02 | 1 | 202 | 210 | 9 | KIYSKHTPI 0.024021 | 3.1 |
| HLA-A*02:03 | 1 | 243 | 251 | 9 | ALHRSYLTP 0.024003 | 3.6 |
| HLA-B*58:01 | 1 | 1205 | 1214 | 10 | KYEQYIKWPW 0.023991 | 2.7 |
| HLA-A*02:06 | 1 | 494 | 503 | 10 | SYGFQPTNGV 0.023973 | 4.2 |
| HLA-A*11:01 | 1 | 347 | 356 | 10 | FASVYAWNRK 0.023972 | 3.0 |
| HLA-B*44:03 | 1 | 828 | 837 | 10 | LADAGFIKQY 0.023961 | 1.9 |
| HLA-B*07:02 | 1 | 805 | 814 | 10 | ILPDPSKPSK 0.023946 | 2.5 |
| HLA-B*08:01 | 1 | 54 | 62 | 9 | LFLPFFSNV 0.023937 | 3.5 |
| HLA-A*02:06 | 1 | 1219 | 1227 | 9 | GFIAGLIAI 0.023933 | 4.2 |
| HLA-A*02:06 | 1 | 7 | 16 | 10 | LLPLVSSQCV 0.023921 | 4.3 |
| HLA-B*07:02 | 1 | 1054 | 1063 | 10 | QSAPHGVVFL 0.023889 | 2.5 |
| HLA-A*30:02 | 1 | 97 | 106 | 10 | KSNIIRGWIF 0.023886 | 3.7 |
| HLA-A*68:02 | 1 | 54 | 62 | 9 | LFLPFFSNV 0.023868 | 3.2 |
| HLA-B*51:01 | 1 | 1161 | 1169 | 9 | SPDVDLGDI 0.023863 | 3.6 |
| HLA-A*68:02 | 1 | 298 | 306 | 9 | ETKCTLKSF 0.023848 | 3.2 |
| HLA-A*02:01 | 1 | 979 | 987 | 9 | DILSRLDKV 0.023845 | 3.2 |
| HLA-A*30:02 | 1 | 1181 | 1189 | 9 | KEIDRLNEV 0.023839 | 3.7 |
| HLA-A*26:01 | 1 | 1139 | 1148 | 10 | DLPQPELDSF 0.023816 | 2.0 |
| HLA-A*33:01 | 1 | 1065 | 1073 | 9 | VTYVPAQEK 0.023804 | 3.4 |
| HLA-B*53:01 | 1 | 1089 | 1097 | 9 | FPREGVFVS 0.023797 | 2.1 |
| HLA-A*68:01 | 1 | 296 | 304 | 9 | LSETKCTLK 0.023792 | 4.9 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*26:01 | 1 | 122 | 130 | 9 | NATNVVIVK 0.023781 | 2.0 |
| HLA-A*68:02 | 1 | 644 | 653 | 10 | QTRAGCLIGA 0.023779 | 3.2 |
| HLA-B*44:02 | 1 | 168 | 177 | 10 | FEYVSQPFLM 0.023775 | 1.7 |
| HLA-B*57:01 | 1 | 529 | 538 | 10 | KSTNLVKKNC 0.023767 | 4.2 |
| HLA-B*44:03 | 1 | 748 | 756 | 9 | ECSNLLLQY 0.023721 | 1.9 |
| HLA-B*53:01 | 1 | 92 | 100 | 9 | FASTEKSNI 0.023704 | 2.1 |
| HLA-A*30:01 | 1 | 686 | 695 | 10 | SVASQSIIAY 0.023691 | 4.9 |
| HLA-B*57:01 | 1 | 493 | 501 | 9 | QSYGFQPTN 0.023673 | 4.2 |
| HLA-A*30:01 | 1 | 511 | 519 | 9 | VVLSFELLH 0.023651 | 4.9 |
| HLA-A*02:01 | 1 | 222 | 231 | 10 | ALEPLVDLPI 0.02365 | 3.2 |
| HLA-B*58:01 | 1 | 1136 | 1145 | 10 | TVYDPLQPEL 0.023648 | 2.8 |
| HLA-A*68:01 | 1 | 349 | 358 | 10 | SVYAWNRKRI 0.023644 | 5.0 |
| HLA-B*53:01 | 1 | 372 | 380 | 9 | ASFSTFKCY 0.023643 | 2.1 |
| HLA-A*24:02 | 1 | 1154 | 1162 | 9 | KYFKNHTSP 0.023636 | 2.0 |
| HLA-A*02:06 | 1 | 513 | 522 | 10 | LSFELLHAPA 0.023632 | 4.3 |
| HLA-B*51:01 | 1 | 1024 | 1032 | 9 | LAATKMSEC 0.023618 | 3.6 |
| HLA-A*02:03 | 1 | 964 | 973 | 10 | KQLSSNFGAI 0.023596 | 3.6 |
| HLA-B*08:01 | 1 | 1155 | 1164 | 10 | YFKNHTSPDV 0.023581 | 3.5 |
| HLA-B*44:03 | 1 | 989 | 998 | 10 | AEVQIDRLIT 0.023574 | 1.9 |
| HLA-A*68:02 | 1 | 1167 | 1176 | 10 | GDISGINASV 0.023545 | 3.2 |
| HLA-A*01:01 | 1 | 1197 | 1205 | 9 | LIDLQELGK 0.023541 | 2.4 |
| HLA-A*23:01 | 1 | 310 | 318 | 9 | KGIYQTSNF 0.023525 | 1.9 |
| HLA-B*08:01 | 1 | 810 | 818 | 9 | SKPSKRSEFI 0.023519 | 3.5 |
| HLA-A*68:01 | 1 | 481 | 489 | 9 | NGVEGFNCY 0.023487 | 5.0 |
| HLA-B*15:01 | 1 | 24 | 32 | 9 | LPPAYTNSF 0.023472 | 3.6 |
| HLA-A*31:01 | 1 | 395 | 404 | 10 | VYADSFVIRG 0.023471 | 4.3 |
| HLA-A*30:01 | 1 | 1105 | 1113 | 9 | TQRNFYEPQ 0.023422 | 4.9 |
| HLA-A*11:01 | 1 | 26 | 34 | 9 | PAYTNSFTR 0.023414 | 3.0 |
| HLA-A*30:01 | 1 | 233 | 241 | 9 | INITRFQTL 0.023412 | 4.9 |
| HLA-A*30:02 | 1 | 44 | 52 | 9 | RSSVLHSTQ 0.023408 | 3.7 |
| HLA-A*02:03 | 1 | 416 | 425 | 10 | GKIADYNYKL 0.023393 | 3.6 |
| HLA-A*32:01 | 1 | 258 | 266 | 9 | WTAGAAAYY 0.023389 | 2.2 |
| HLA-A*30:01 | 1 | 891 | 899 | 9 | GAALQIPFA 0.023386 | 4.9 |
| HLA-A*02:03 | 1 | 1202 | 1210 | 9 | ELGKYEYI 0.023381 | 3.6 |
| HLA-A*02:01 | 1 | 892 | 900 | 9 | AALQIPFAM 0.023375 | 3.3 |
| HLA-B*53:01 | 1 | 47 | 55 | 9 | VLHSTQDLF 0.023368 | 2.1 |
| HLA-A*31:01 | 1 | 1137 | 1145 | 9 | VYDPLQPEL 0.023359 | 4.3 |
| HLA-B*57:01 | 1 | 513 | 521 | 9 | LSFELLHAP 0.023351 | 4.2 |
| HLA-A*30:01 | 1 | 852 | 861 | 10 | AQKFNGLTVL 0.023347 | 4.9 |
| HLA-A*11:01 | 1 | 360 | 369 | 10 | NCVADYSVLY 0.02333 | 3.0 |
| HLA-A*02:03 | 1 | 269 | 278 | 10 | YLQPRTFLLK 0.023328 | 3.6 |
| HLA-B*07:02 | 1 | 319 | 327 | 9 | RVQPTESIV 0.023322 | 2.5 |
| HLA-B*57:01 | 1 | 1147 | 1155 | 9 | SFKEELDKY 0.023321 | 4.2 |
| HLA-A*02:01 | 1 | 510 | 518 | 9 | VVLSFELL 0.023315 | 3.3 |
| HLA-B*53:01 | 1 | 1225 | 1233 | 9 | IATVMVTIM 0.023314 | 2.1 |
| HLA-A*68:02 | 1 | 1189 | 1197 | 9 | VAKNLNESL 0.023311 | 3.2 |
| HLA-A*02:01 | 1 | 224 | 233 | 10 | EPLVDLPIGI 0.023303 | 3.3 |
| HLA-A*02:06 | 1 | 292 | 300 | 9 | ALDPLSETK 0.023301 | 4.3 |
| HLA-A*68:02 | 1 | 361 | 369 | 9 | CVADYSVLY 0.023296 | 3.2 |
| HLA-A*68:01 | 1 | 1136 | 1145 | 10 | TVYDPLQPEL 0.023292 | 5.0 |
| HLA-A*68:02 | 1 | 530 | 538 | 9 | STNLVKKNC 0.023277 | 3.2 |
| HLA-A*32:01 | 1 | 487 | 495 | 9 | NCYFPLQSY 0.023271 | 2.2 |
| HLA-A*11:01 | 1 | 1182 | 1191 | 10 | EIDRLNEVAK 0.023249 | 3.0 |
| HLA-B*58:01 | 1 | 93 | 101 | 9 | ASTEKSNI 0.023241 | 2.8 |
| HLA-A*30:01 | 1 | 12 | 21 | 10 | SSQCVNLTTR 0.02323 | 4.9 |
| HLA-A*01:01 | 1 | 178 | 186 | 9 | DLEGKQGNF 0.02323 | 2.4 |
| HLA-A*30:02 | 1 | 387 | 396 | 10 | LNDLCFTNVY 0.023228 | 3.7 |
| HLA-B*58:01 | 1 | 635 | 643 | 9 | VYSTGSNVF 0.02322 | 2.8 |
| HLA-A*01:01 | 1 | 625 | 634 | 10 | HADQLTPTWR 0.023218 | 2.4 |
| HLA-A*68:02 | 1 | 1032 | 1040 | 9 | CVLGQSKRV 0.02321 | 3.2 |
| HLA-B*15:01 | 1 | 1139 | 1148 | 10 | DPLQPELDSF 0.023201 | 3.6 |
| HLA-B*07:02 | 1 | 55 | 64 | 10 | FLPFFSNVTW 0.023196 | 2.5 |
| HLA-A*68:02 | 1 | 59 | 67 | 9 | FSNVTWFHA 0.023192 | 3.2 |
| HLA-A*23:01 | 1 | 1053 | 1062 | 10 | PQSAPHGVVF 0.02319 | 1.9 |
| HLA-A*30:01 | 1 | 171 | 179 | 9 | VSQPFLMDL 0.023185 | 5.0 |
| HLA-B*53:01 | 1 | 96 | 104 | 9 | EKSNIIRGW 0.023178 | 2.1 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*53:01 | 1 | 1130 | 1138 | 9 | IGIVNNTVY 0.023164 | 2.1 |
| HLA-A*02:03 | 1 | 633 | 642 | 10 | WRVYSTGSNV 0.023158 | 3.7 |
| HLA-A*68:01 | 1 | 1095 | 1103 | 9 | FVSNNGTHWF 0.023157 | 5.0 |
| HLA-B*57:01 | 1 | 1039 | 1047 | 9 | RVDFCGKGY 0.023147 | 4.3 |
| HLA-B*08:01 | 1 | 806 | 814 | 9 | LPDPSKPSK 0.023142 | 3.5 |
| HLA-B*08:01 | 1 | 1004 | 1012 | 9 | LQTYVTQQL 0.023136 | 3.5 |
| HLA-B*15:01 | 1 | 497 | 506 | 10 | FQPTNGVGYQ 0.023123 | 3.6 |
| HLA-A*68:02 | 1 | 319 | 327 | 9 | RVQPTESIV 0.023118 | 3.2 |
| HLA-A*68:02 | 1 | 710 | 719 | 10 | NSIAIPTNFT 0.02311 | 3.2 |
| HLA-B*08:01 | 1 | 1101 | 1109 | 9 | HWFVTQRNF 0.023109 | 3.6 |
| HLA-A*01:01 | 1 | 1151 | 1159 | 9 | ELDKYFKNH 0.023091 | 2.4 |
| HLA-A*02:06 | 1 | 378 | 387 | 10 | KCYGVSPTKL 0.023086 | 4.3 |
| HLA-B*08:01 | 1 | 1055 | 1063 | 9 | SAPHGVVFL 0.023086 | 3.6 |
| HLA-A*03:01 | 1 | 895 | 904 | 10 | QIPFAMQMAY 0.02308 | 3.2 |
| HLA-A*30:02 | 1 | 1049 | 1058 | 10 | LMSFPQSAPH 0.023076 | 3.7 |
| HLA-A*32:01 | 1 | 780 | 788 | 9 | EVFAQVKQI 0.023074 | 2.2 |
| HLA-A*24:02 | 1 | 310 | 318 | 9 | KGIYQTSNF 0.023021 | 2.0 |
| HLA-A*32:01 | 1 | 378 | 386 | 9 | KCYGVSPTK 0.023014 | 2.2 |
| HLA-A*32:01 | 1 | 1099 | 1107 | 9 | GTHWFVTQR 0.023014 | 2.2 |
| HLA-A*02:06 | 1 | 5 | 13 | 9 | LVLLPLVSS 0.023011 | 4.4 |
| HLA-A*02:01 | 1 | 551 | 559 | 9 | VLTESNKKF 0.023008 | 3.3 |
| HLA-A*30:01 | 1 | 781 | 789 | 9 | VFAQVKQIY 0.023008 | 5.0 |
| HLA-A*02:06 | 1 | 902 | 911 | 10 | MAYRFNGIGV 0.022999 | 4.4 |
| HLA-A*24:02 | 1 | 894 | 902 | 9 | LQIPFAMQM 0.022996 | 2.0 |
| HLA-B*07:02 | 1 | 229 | 237 | 9 | LPIGINITR 0.022982 | 2.6 |
| HLA-A*31:01 | 1 | 197 | 206 | 10 | IDGYFKIYSK 0.022977 | 4.4 |
| HLA-A*30:01 | 1 | 778 | 786 | 9 | TQEVFAQVK 0.02297 | 5.0 |
| HLA-A*30:01 | 1 | 278 | 286 | 9 | KYNENGTIT 0.022969 | 5.0 |
| HLA-A*02:01 | 1 | 754 | 763 | 10 | LQYGSFCTQL 0.022955 | 3.3 |
| HLA-B*44:02 | 1 | 1198 | 1206 | 9 | IDLQELGKY 0.022953 | 1.7 |
| HLA-B*51:01 | 1 | 967 | 976 | 10 | SSNFGAISSV 0.022937 | 3.7 |
| HLA-B*57:01 | 1 | 896 | 904 | 9 | IPFAMQMAY 0.02293 | 4.3 |
| HLA-A*02:06 | 1 | 307 | 315 | 9 | TVEKGIYQT 0.022916 | 4.4 |
| HLA-A*30:02 | 1 | 647 | 655 | 9 | AGCLIGAEH 0.022911 | 3.8 |
| HLA-A*11:01 | 1 | 197 | 206 | 10 | IDGYFKIYSK 0.022897 | 3.0 |
| HLA-A*30:02 | 1 | 733 | 742 | 10 | KTSVDCTMYI 0.022896 | 3.8 |
| HLA-A*32:01 | 1 | 448 | 456 | 9 | NYNLYRLF 0.022884 | 2.2 |
| HLA-A*24:02 | 1 | 1053 | 1062 | 10 | PQSAPHGVVF 0.022873 | 2.0 |
| HLA-B*57:01 | 1 | 270 | 279 | 10 | LQPRTFLLKY 0.022855 | 4.3 |
| HLA-A*02:01 | 1 | 1202 | 1210 | 9 | ELGKYEYI 0.022851 | 3.3 |
| HLA-B*44:03 | 1 | 131 | 140 | 10 | CEFQFCNDPF 0.02284 | 1.9 |
| HLA-A*30:01 | 1 | 1086 | 1095 | 10 | KAHFPREGVF 0.022827 | 5.0 |
| HLA-A*02:06 | 1 | 513 | 521 | 9 | LSFELLHAP 0.022825 | 4.4 |
| HLA-A*32:01 | 1 | 482 | 490 | 9 | GVEGFNCYF 0.022817 | 2.2 |
| HLA-B*15:01 | 1 | 456 | 464 | 9 | FRKSNLKPF 0.022813 | 3.6 |
| HLA-A*26:01 | 1 | 666 | 674 | 9 | IGAGICASY 0.022811 | 2.0 |
| HLA-A*68:02 | 1 | 937 | 945 | 9 | SLSSTASAL 0.022793 | 3.2 |
| HLA-A*02:06 | 1 | 1219 | 1228 | 10 | GFIAGLIAIV 0.022781 | 4.4 |
| HLA-A*23:01 | 1 | 127 | 135 | 9 | VIKVCEFQF 0.022758 | 1.9 |
| HLA-A*32:01 | 1 | 857 | 865 | 9 | GLTVLPPLL 0.022738 | 2.2 |
| HLA-A*30:01 | 1 | 731 | 740 | 10 | MTKTSVDCTM 0.022735 | 5.0 |
| HLA-A*24:02 | 1 | 212 | 220 | 9 | LVRDLPQGF 0.022714 | 2.0 |
| HLA-B*57:01 | 1 | 890 | 898 | 9 | AGAALQIPF 0.022689 | 4.3 |
| HLA-A*68:01 | 1 | 677 | 686 | 10 | QTNSPRRARS 0.022685 | 5.0 |
| HLA-A*26:01 | 1 | 1092 | 1101 | 10 | EGVFVSNPTH 0.022679 | 2.0 |
| HLA-A*30:01 | 1 | 998 | 1007 | 10 | TGRLQSLQTY 0.022656 | 5.0 |
| HLA-A*30:01 | 1 | 967 | 975 | 9 | SSNFGAISS 0.022636 | 5.0 |
| HLA-A*26:01 | 1 | 108 | 117 | 10 | TTLDSKTQSL 0.022634 | 2.0 |
| HLA-A*02:01 | 1 | 1209 | 1218 | 10 | YIKWPWYIWL 0.022627 | 3.3 |
| HLA-B*57:01 | 1 | 93 | 101 | 9 | ASTEKSNII 0.022608 | 4.3 |
| HLA-B*07:02 | 1 | 1026 | 1034 | 9 | ATKMSECVL 0.022604 | 2.6 |
| HLA-A*32:01 | 1 | 1205 | 1214 | 10 | KYEQYIKWPW 0.022603 | 2.2 |
| HLA-A*68:02 | 1 | 1181 | 1189 | 9 | KEIDRLNEV 0.022595 | 3.3 |
| HLA-A*01:01 | 1 | 388 | 396 | 9 | NDLCFTNVY 0.022586 | 2.4 |
| HLA-B*44:03 | 1 | 553 | 561 | 9 | TESNKKFLP 0.02257 | 1.9 |
| HLA-B*57:01 | 1 | 220 | 229 | 10 | FSALEPLVDL 0.022563 | 4.3 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*02:01 | 1 | 51 | 59 | 9 | TQDLFLPFF 0.022555 | 3.3 |
| HLA-B*44:02 | 1 | 372 | 380 | 9 | ASFSTFKCY 0.022552 | 1.8 |
| HLA-B*44:02 | 1 | 689 | 697 | 9 | SQSIIAYTM 0.022545 | 1.8 |
| HLA-B*53:01 | 1 | 394 | 402 | 9 | NVYADSFVI 0.022543 | 2.2 |
| HLA-A*02:03 | 1 | 232 | 241 | 10 | GINITRFQTL 0.022535 | 3.7 |
| HLA-A*02:06 | 1 | 6 | 15 | 10 | VLLPLVSSQC 0.022527 | 4.4 |
| HLA-B*51:01 | 1 | 723 | 731 | 9 | TTEILPVSM 0.022527 | 3.7 |
| HLA-A*30:02 | 1 | 915 | 923 | 9 | VLYENQKLI 0.022515 | 3.8 |
| HLA-A*01:01 | 1 | 1050 | 1058 | 9 | MSFPQSAPH 0.022511 | 2.4 |
| HLA-A*68:02 | 1 | 780 | 789 | 10 | EVFAQVKQIY 0.022493 | 3.3 |
| HLA-B*07:02 | 1 | 505 | 513 | 9 | YQPYRVVVL 0.022491 | 2.6 |
| HLA-A*33:01 | 1 | 1041 | 1049 | 9 | DFCGKGYHL 0.022483 | 3.5 |
| HLA-A*02:03 | 1 | 596 | 604 | 9 | SVITPGTNT 0.02247 | 3.7 |
| HLA-A*31:01 | 1 | 453 | 462 | 10 | YRLFRRKSNLK 0.022457 | 4.4 |
| HLA-A*02:03 | 1 | 295 | 303 | 9 | PLSETKCTL 0.022441 | 3.7 |
| HLA-A*30:01 | 1 | 1017 | 1025 | 9 | EIRASANLA 0.022438 | 5.0 |
| HLA-A*03:01 | 1 | 1060 | 1068 | 9 | VVFLHVTVY 0.022431 | 3.2 |
| HLA-A*30:01 | 1 | 806 | 814 | 9 | LPDPSKPSK 0.022423 | 5.0 |
| HLA-A*02:03 | 1 | 53 | 62 | 10 | DLFLPFFSNV 0.02242 | 3.7 |
| HLA-A*32:01 | 1 | 1039 | 1047 | 9 | RVDFCGKGY 0.022419 | 2.2 |
| HLA-B*44:02 | 1 | 628 | 636 | 9 | QLTPTWRVY 0.022401 | 1.8 |
| HLA-A*01:01 | 1 | 1096 | 1104 | 9 | VSNGTHWFV 0.02238 | 2.4 |
| HLA-B*58:01 | 1 | 923 | 931 | 9 | IANQFNSAI 0.022369 | 2.8 |
| HLA-A*30:01 | 1 | 1054 | 1063 | 10 | QSAPHGVVFL 0.022363 | 5.1 |
| HLA-A*02:01 | 1 | 433 | 441 | 9 | VIAWNSNNL 0.022358 | 3.3 |
| HLA-B*08:01 | 1 | 915 | 923 | 9 | VLYENQKLI 0.022349 | 3.7 |
| HLA-B*08:01 | 1 | 914 | 922 | 9 | NVLYENQKL 0.022327 | 3.7 |
| HLA-B*07:02 | 1 | 574 | 582 | 9 | DAVRDPQTL 0.022319 | 2.6 |
| HLA-A*02:06 | 1 | 114 | 123 | 10 | TQSLLVNNA 0.022304 | 4.4 |
| HLA-A*03:01 | 1 | 192 | 200 | 9 | FVFKNIDGY 0.022298 | 3.3 |
| HLA-A*01:01 | 1 | 572 | 580 | 9 | TTDAVRDPQ 0.022295 | 2.4 |
| HLA-A*68:02 | 1 | 596 | 605 | 10 | SVITPGTNTS 0.022281 | 3.3 |
| HLA-A*23:01 | 1 | 1206 | 1214 | 9 | YEQYIKWPW 0.02228 | 2.0 |
| HLA-B*40:01 | 1 | 576 | 584 | 9 | VRDPQTLEI 0.022278 | 2.0 |
| HLA-A*30:01 | 1 | 1045 | 1053 | 9 | KGYHLMSFP 0.022255 | 5.1 |
| HLA-B*08:01 | 1 | 1139 | 1148 | 10 | DPLQPELDSF 0.022255 | 3.7 |
| HLA-A*32:01 | 1 | 28 | 37 | 10 | YTNSTFRGVY 0.022252 | 2.2 |
| HLA-A*30:01 | 1 | 21 | 30 | 10 | RTQLPPAYTN 0.022249 | 5.1 |
| HLA-A*32:01 | 1 | 1058 | 1067 | 10 | HGVVFLHVTV 0.022248 | 2.2 |
| HLA-B*15:01 | 1 | 532 | 541 | 10 | NLVKKNKCVNF 0.022247 | 3.7 |
| HLA-A*30:01 | 1 | 63 | 71 | 9 | TWFHAIHVS 0.022244 | 5.1 |
| HLA-A*02:03 | 1 | 972 | 981 | 10 | AISSVLNDIL 0.022242 | 3.7 |
| HLA-B*53:01 | 1 | 207 | 216 | 10 | HTPINLVRDL 0.022234 | 2.2 |
| HLA-A*30:02 | 1 | 646 | 655 | 10 | RAGCLIGAETH 0.022205 | 3.9 |
| HLA-B*15:01 | 1 | 319 | 327 | 9 | RVQPTESIV 0.022204 | 3.7 |
| HLA-B*44:02 | 1 | 724 | 732 | 9 | TEILPVSM 0.022203 | 1.8 |
| HLA-A*30:01 | 1 | 205 | 214 | 10 | SKHTPINLVR 0.022196 | 5.1 |
| HLA-A*31:01 | 1 | 268 | 276 | 9 | GYLQPRTF 0.022174 | 4.5 |
| HLA-A*01:01 | 1 | 1129 | 1138 | 10 | VIGIVNNTVY 0.022154 | 2.4 |
| HLA-B*07:02 | 1 | 806 | 815 | 10 | LPDPSKPSKR 0.022147 | 2.6 |
| HLA-A*68:02 | 1 | 474 | 483 | 10 | QAGSTPCNGV 0.02212 | 3.3 |
| HLA-A*68:01 | 1 | 1030 | 1039 | 10 | SECVLGQSKR 0.02212 | 5.1 |
| HLA-A*11:01 | 1 | 520 | 529 | 10 | APATVCGPKK 0.022104 | 3.1 |
| HLA-B*51:01 | 1 | 487 | 495 | 9 | NCYFPLQSY 0.022078 | 3.8 |
| HLA-A*02:03 | 1 | 234 | 242 | 9 | NITRFQTL 0.022067 | 3.8 |
| HLA-B*58:01 | 1 | 573 | 582 | 10 | TDAVRDPQTL 0.022065 | 2.9 |
| HLA-A*02:01 | 1 | 7 | 15 | 9 | LLPLVSSQC 0.022054 | 3.4 |
| HLA-B*51:01 | 1 | 513 | 521 | 9 | LSFELLHAP 0.022051 | 3.8 |
| HLA-A*68:01 | 1 | 1010 | 1019 | 10 | QLLIRAAEIR 0.022034 | 5.1 |
| HLA-A*02:06 | 1 | 192 | 201 | 10 | FVFKNIDGYF 0.022016 | 4.5 |
| HLA-A*02:06 | 1 | 451 | 459 | 9 | YLYRLFRRKS 0.022008 | 4.5 |
| HLA-A*30:01 | 1 | 912 | 921 | 10 | TQNVLYENQK 0.021996 | 5.1 |
| HLA-A*23:01 | 1 | 109 | 117 | 9 | TLDSKTQSL 0.021992 | 2.0 |
| HLA-A*30:02 | 1 | 704 | 712 | 9 | SVAYSNNSI 0.021991 | 3.9 |
| HLA-A*23:01 | 1 | 421 | 429 | 9 | YNYKLPDDF 0.021979 | 2.0 |
| HLA-A*30:02 | 1 | 30 | 39 | 10 | NSFTRGVYYP 0.021951 | 3.9 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*32:01 | 1 | 349 | 358 | 10 | SVYAWNRKRI 0.021944 | 2.2 |
| HLA-B*08:01 | 1 | 1021 | 1029 | 9 | SANLAATKM 0.021935 | 3.7 |
| HLA-B*57:01 | 1 | 193 | 201 | 9 | VFKNIDGYF 0.021934 | 4.4 |
| HLA-A*33:01 | 1 | 817 | 825 | 9 | FIEDLLFNK 0.021926 | 3.5 |
| HLA-A*23:01 | 1 | 24 | 32 | 9 | LPPAYTNSF 0.021922 | 2.0 |
| HLA-B*08:01 | 1 | 169 | 177 | 9 | EYVSQPFLM 0.021903 | 3.7 |
| HLA-A*02:06 | 1 | 304 | 312 | 9 | KSFTVEKGI 0.021899 | 4.5 |
| HLA-A*31:01 | 1 | 1036 | 1045 | 10 | QSKRVDFCGK 0.021872 | 4.5 |
| HLA-A*02:01 | 1 | 968 | 976 | 9 | SNFGAISSV 0.021855 | 3.4 |
| HLA-A*02:06 | 1 | 268 | 277 | 10 | GYLQPRTFLL 0.021834 | 4.5 |
| HLA-A*30:02 | 1 | 1093 | 1102 | 10 | GVFVSNGTHW 0.021831 | 3.9 |
| HLA-A*26:01 | 1 | 1056 | 1064 | 9 | APHGVVFLH 0.021829 | 2.1 |
| HLA-A*30:01 | 1 | 36 | 45 | 10 | VYYPDKVFRS 0.021814 | 5.1 |
| HLA-B*58:01 | 1 | 77 | 86 | 10 | KRFDNPVLPF 0.02181 | 2.9 |
| HLA-A*01:01 | 1 | 983 | 991 | 9 | RLDKVEAEV 0.021804 | 2.5 |
| HLA-A*30:01 | 1 | 706 | 714 | 9 | AYSNNSIAI 0.021801 | 5.1 |
| HLA-B*58:01 | 1 | 1225 | 1233 | 9 | IAIVMVTIM 0.021797 | 2.9 |
| HLA-A*26:01 | 1 | 152 | 160 | 9 | WMESEFRVY 0.021796 | 2.1 |
| HLA-A*03:01 | 1 | 304 | 313 | 10 | KSFTVEKGIY 0.021796 | 3.3 |
| HLA-B*08:01 | 1 | 641 | 650 | 10 | NVVFQTRAGCL 0.021794 | 3.7 |
| HLA-A*32:01 | 1 | 1048 | 1056 | 9 | HLMSFPQSA 0.021767 | 2.2 |
| HLA-A*02:06 | 1 | 1054 | 1062 | 9 | QSAPHGVVF 0.021763 | 4.5 |
| HLA-A*30:02 | 1 | 686 | 694 | 9 | SVASQSIIA 0.021757 | 3.9 |
| HLA-A*68:01 | 1 | 58 | 66 | 9 | FFSNVTWFH 0.021739 | 5.1 |
| HLA-A*68:02 | 1 | 820 | 829 | 10 | DLLFNKVTLA 0.021724 | 3.4 |
| HLA-A*31:01 | 1 | 924 | 933 | 10 | ANQFNSAIGK 0.021697 | 4.5 |
| HLA-A*24:02 | 1 | 554 | 562 | 9 | ESNKKFLPF 0.021691 | 2.1 |
| HLA-A*31:01 | 1 | 786 | 794 | 9 | KQIYKTPPI 0.021685 | 4.5 |
| HLA-A*68:01 | 1 | 415 | 424 | 10 | TGKIADYNYK 0.02168 | 5.1 |
| HLA-A*02:06 | 1 | 603 | 611 | 9 | NTSNQVAVL 0.021662 | 4.5 |
| HLA-A*68:01 | 1 | 449 | 458 | 10 | YNYLYRLEFRK 0.021655 | 5.1 |
| HLA-B*08:01 | 1 | 369 | 377 | 9 | YNSASFSTF 0.021648 | 3.7 |
| HLA-A*02:06 | 1 | 82 | 90 | 9 | PVLPFNDGV 0.021642 | 4.5 |
| HLA-A*68:01 | 1 | 1054 | 1062 | 9 | QSAPHGVVF 0.021641 | 5.1 |
| HLA-A*32:01 | 1 | 964 | 973 | 10 | KQLSSNFGAI 0.021632 | 2.3 |
| HLA-B*08:01 | 1 | 1014 | 1022 | 9 | RAAEIRASA 0.02163 | 3.7 |
| HLA-B*08:01 | 1 | 269 | 278 | 10 | YLQPRTFLLK 0.021628 | 3.7 |
| HLA-A*02:06 | 1 | 115 | 123 | 9 | QSLLIWNNA 0.021617 | 4.5 |
| HLA-A*02:06 | 1 | 1195 | 1203 | 9 | ESLIDLQEL 0.021549 | 4.5 |
| HLA-B*58:01 | 1 | 320 | 329 | 10 | VQPTESIVRF 0.021535 | 2.9 |
| HLA-A*02:06 | 1 | 693 | 701 | 9 | IAYTMSLGA 0.021531 | 4.5 |
| HLA-A*30:01 | 1 | 976 | 984 | 9 | VLNDILSRL 0.021525 | 5.2 |
| HLA-A*32:01 | 1 | 108 | 117 | 10 | TTLDSKTQSL 0.021522 | 2.3 |
| HLA-A*30:01 | 1 | 705 | 713 | 9 | VAYSNNSIA 0.021516 | 5.2 |
| HLA-B*44:02 | 1 | 144 | 152 | 9 | YYHKNNKSW 0.021506 | 1.8 |
| HLA-B*07:02 | 1 | 509 | 517 | 9 | RVVVLSEFL 0.021505 | 2.6 |
| HLA-A*01:01 | 1 | 1130 | 1138 | 9 | IGIVNNTVY 0.021503 | 2.5 |
| HLA-A*32:01 | 1 | 1050 | 1058 | 9 | MSFPQSAPH 0.021485 | 2.3 |
| HLA-B*51:01 | 1 | 392 | 400 | 9 | FTNVYADSF 0.021475 | 3.9 |
| HLA-A*02:01 | 1 | 726 | 734 | 9 | ILPVSMTKT 0.021475 | 3.4 |
| HLA-B*44:02 | 1 | 137 | 145 | 9 | NDPFLGVYY 0.021471 | 1.8 |
| HLA-A*30:02 | 1 | 169 | 177 | 9 | EYVSQPFLM 0.02147 | 3.9 |
| HLA-A*02:06 | 1 | 258 | 267 | 10 | WTAGAAAYYV 0.021462 | 4.5 |
| HLA-A*30:02 | 1 | 937 | 945 | 9 | SLSSTASAL 0.021455 | 3.9 |
| HLA-B*57:01 | 1 | 1060 | 1068 | 9 | VVFLHVTVY 0.021431 | 4.4 |
| HLA-B*57:01 | 1 | 1147 | 1156 | 10 | SFKEELDKYF 0.021428 | 4.4 |
| HLA-A*32:01 | 1 | 688 | 697 | 10 | ASQSIIAYTM 0.021425 | 2.3 |
| HLA-A*30:02 | 1 | 159 | 168 | 10 | VYSSANNCTF 0.021411 | 4.0 |
| HLA-B*08:01 | 1 | 84 | 92 | 9 | LPFNDGVYF 0.021365 | 3.8 |
| HLA-A*30:01 | 1 | 921 | 930 | 10 | KLIANQFNESA 0.021345 | 5.2 |
| HLA-B*57:01 | 1 | 573 | 582 | 10 | TDAVRDPQTL 0.021329 | 4.4 |
| HLA-A*26:01 | 1 | 996 | 1004 | 9 | LITGRLQSL 0.021327 | 2.1 |
| HLA-A*02:06 | 1 | 334 | 342 | 9 | NLCPFGEVF 0.021322 | 4.5 |
| HLA-B*51:01 | 1 | 878 | 886 | 9 | LAGTITSGW 0.021321 | 3.9 |
| HLA-A*32:01 | 1 | 852 | 860 | 9 | AQKFNGLTV 0.021317 | 2.3 |
| HLA-B*57:01 | 1 | 303 | 312 | 10 | LKSFTVEKGI 0.021315 | 4.4 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*68:02 | 1 | 968 | 977 | 10 | SNFGAISSVL 0.021301 | 3.4 |
| HLA-A*33:01 | 1 | 1176 | 1185 | 10 | VVNIQKEIDR 0.0213 | 3.6 |
| HLA-A*02:06 | 1 | 235 | 244 | 10 | ITRFQTLAL 0.021298 | 4.5 |
| HLA-A*26:01 | 1 | 414 | 423 | 10 | QTGKIADYNY 0.021292 | 2.1 |
| HLA-A*30:01 | 1 | 16 | 24 | 9 | VNLTRTQL 0.021275 | 5.2 |
| HLA-A*02:03 | 1 | 980 | 989 | 10 | ILSRLDKVEA 0.021238 | 3.8 |
| HLA-B*40:01 | 1 | 470 | 479 | 10 | TEIYQAGSTP 0.021225 | 2.0 |
| HLA-A*30:01 | 1 | 105 | 113 | 9 | IFGTTLDSK 0.021217 | 5.2 |
| HLA-A*68:02 | 1 | 996 | 1004 | 9 | LITGRLQSL 0.021215 | 3.4 |
| HLA-A*26:01 | 1 | 704 | 712 | 9 | SVAYSNNSI 0.021214 | 2.1 |
| HLA-A*02:01 | 1 | 451 | 459 | 9 | YLYRLEFRKS 0.021211 | 3.4 |
| HLA-B*58:01 | 1 | 21 | 30 | 10 | RTQLPPAYTN 0.021188 | 2.9 |
| HLA-B*53:01 | 1 | 1261 | 1270 | 10 | SEPVKLGVKL 0.021186 | 2.2 |
| HLA-A*26:01 | 1 | 733 | 741 | 9 | KTSVDCTMY 0.021182 | 2.1 |
| HLA-B*08:01 | 1 | 1062 | 1070 | 9 | FLHVTYVPA 0.02117 | 3.8 |
| HLA-A*31:01 | 1 | 1101 | 1109 | 9 | HWFVTQRNF 0.021164 | 4.5 |
| HLA-B*58:01 | 1 | 135 | 144 | 10 | FCNDPFLGVY 0.021161 | 2.9 |
| HLA-A*02:03 | 1 | 1170 | 1179 | 10 | SGINASVVNI 0.021147 | 3.8 |
| HLA-A*02:01 | 1 | 170 | 179 | 10 | YVSQPFMLDL 0.021113 | 3.4 |
| HLA-A*33:01 | 1 | 237 | 245 | 9 | RFQTLALH 0.021109 | 3.6 |
| HLA-A*01:01 | 1 | 552 | 560 | 9 | LTESNKKFL 0.021103 | 2.5 |
| HLA-A*26:01 | 1 | 1099 | 1107 | 9 | GTHWFVTQR 0.021083 | 2.1 |
| HLA-A*31:01 | 1 | 528 | 537 | 10 | KKSTNLVKNK 0.021065 | 4.5 |
| HLA-B*58:01 | 1 | 298 | 306 | 9 | ETKCTLKSF 0.02104 | 2.9 |
| HLA-B*57:01 | 1 | 211 | 220 | 10 | NLVRDLPOGF 0.021026 | 4.5 |
| HLA-A*02:06 | 1 | 409 | 418 | 10 | QIAPGQTGKI 0.021021 | 4.6 |
| HLA-A*02:06 | 1 | 1035 | 1043 | 9 | GQSKRVDFC 0.021015 | 4.6 |
| HLA-B*35:01 | 1 | 860 | 869 | 10 | VLPLLTDDEM 0.021014 | 2.6 |
| HLA-B*08:01 | 1 | 23 | 32 | 10 | QLPPAYTNSF 0.02101 | 3.8 |
| HLA-B*58:01 | 1 | 1185 | 1193 | 9 | RLNEVAKNL 0.020994 | 2.9 |
| HLA-A*01:01 | 1 | 30 | 39 | 10 | NSFTRGVYYP 0.020977 | 2.5 |
| HLA-A*02:06 | 1 | 720 | 729 | 10 | ISVTTEILPV 0.020968 | 4.6 |
| HLA-A*30:02 | 1 | 529 | 537 | 9 | KSTNLVKNK 0.020943 | 4.0 |
| HLA-B*08:01 | 1 | 168 | 176 | 9 | FEYVSQPFL 0.020936 | 3.8 |
| HLA-A*68:01 | 1 | 436 | 444 | 9 | WNSNNLDSK 0.020933 | 5.2 |
| HLA-B*51:01 | 1 | 262 | 270 | 9 | AAAYYVGYL 0.020925 | 3.9 |
| HLA-B*57:01 | 1 | 1185 | 1193 | 9 | RLNEVAKNL 0.020908 | 4.5 |
| HLA-A*26:01 | 1 | 979 | 987 | 9 | DILSRLDKV 0.020888 | 2.1 |
| HLA-A*30:01 | 1 | 108 | 117 | 10 | TTLDSKTQSL 0.020869 | 5.3 |
| HLA-B*57:01 | 1 | 75 | 84 | 10 | GTKRFDNPVL 0.020868 | 4.5 |
| HLA-A*24:02 | 1 | 689 | 697 | 9 | SQSIIAYTM 0.020862 | 2.1 |
| HLA-A*30:01 | 1 | 494 | 503 | 10 | SYGFQPTNGV 0.020847 | 5.3 |
| HLA-B*40:01 | 1 | 1070 | 1078 | 9 | AQEKNFHTTA 0.020841 | 2.1 |
| HLA-B*07:02 | 1 | 704 | 712 | 9 | SVAYSNNSI 0.02083 | 2.7 |
| HLA-A*30:02 | 1 | 805 | 814 | 10 | ILPDPSKPSK 0.020824 | 4.0 |
| HLA-A*32:01 | 1 | 975 | 983 | 9 | SVLNDILSR 0.020823 | 2.3 |
| HLA-A*24:02 | 1 | 421 | 429 | 9 | YNYKLPDDF 0.020821 | 2.1 |
| HLA-B*58:01 | 1 | 940 | 948 | 9 | STASALGKL 0.020809 | 2.9 |
| HLA-B*08:01 | 1 | 1262 | 1271 | 10 | EPVLKGVKLV 0.0208 | 3.8 |
| HLA-A*02:01 | 1 | 934 | 942 | 9 | IQDLSSTA 0.020779 | 3.5 |
| HLA-A*68:01 | 1 | 126 | 134 | 9 | VVIKVFCEQ 0.020777 | 5.2 |
| HLA-B*57:01 | 1 | 229 | 238 | 10 | LPIGINITRF 0.020774 | 4.5 |
| HLA-B*57:01 | 1 | 1080 | 1089 | 10 | AICHDGKAHF 0.020762 | 4.5 |
| HLA-A*68:02 | 1 | 1182 | 1190 | 9 | EIDRLNEVA 0.020751 | 3.4 |
| HLA-A*01:01 | 1 | 1116 | 1124 | 9 | TTDNTFVSG 0.020732 | 2.5 |
| HLA-A*30:02 | 1 | 162 | 171 | 10 | SANNCTFEYV 0.020727 | 4.0 |
| HLA-A*32:01 | 1 | 852 | 861 | 10 | AQKFNGLTVL 0.020715 | 2.3 |
| HLA-A*68:02 | 1 | 2 | 11 | 10 | FVFLVLLPLV 0.020714 | 3.4 |
| HLA-A*11:01 | 1 | 975 | 984 | 10 | SVLNDILSRL 0.020714 | 3.1 |
| HLA-B*51:01 | 1 | 603 | 611 | 9 | NTSNQVAVL 0.020713 | 4.0 |
| HLA-B*53:01 | 1 | 923 | 931 | 9 | IANQFNSAI 0.020691 | 2.2 |
| HLA-A*02:03 | 1 | 19 | 27 | 9 | TTRTQLPPA 0.020683 | 3.9 |
| HLA-A*68:01 | 1 | 886 | 894 | 9 | WTFGAGAAL 0.020672 | 5.2 |
| HLA-A*01:01 | 1 | 777 | 785 | 9 | NTQEVFAQV 0.020669 | 2.5 |
| HLA-A*33:01 | 1 | 185 | 193 | 9 | NFKNLREFV 0.020666 | 3.6 |
| HLA-B*44:02 | 1 | 553 | 561 | 9 | TESNKKFLP 0.020666 | 1.8 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*58:01 | 1 | 870 | 878 | 9 | IAQYTSALL 0.020662 | 2.9 |
| HLA-B*57:01 | 1 | 873 | 882 | 10 | YTSALLAGTI 0.020662 | 4.5 |
| HLA-B*58:01 | 1 | 976 | 984 | 9 | VLNDILSRL 0.020662 | 2.9 |
| HLA-A*68:02 | 1 | 165 | 174 | 10 | NCTFEYVSQP 0.020653 | 3.5 |
| HLA-A*02:01 | 1 | 83 | 92 | 10 | VLPFNDGVYF 0.020637 | 3.5 |
| HLA-A*02:01 | 1 | 1128 | 1136 | 9 | VVIGIVNNT 0.020633 | 3.5 |
| HLA-A*32:01 | 1 | 510 | 518 | 9 | VVLSFELL 0.02063 | 2.3 |
| HLA-A*02:06 | 1 | 492 | 500 | 9 | LQSYGFQPT 0.020621 | 4.6 |
| HLA-A*02:06 | 1 | 733 | 742 | 10 | KTSVDCTMYI 0.02062 | 4.6 |
| HLA-B*08:01 | 1 | 849 | 858 | 10 | LICAQKFNGL 0.020607 | 3.8 |
| HLA-A*26:01 | 1 | 269 | 277 | 9 | YLQPRTFLL 0.020602 | 2.1 |
| HLA-A*23:01 | 1 | 1213 | 1221 | 9 | PWYIWLGI 0.020599 | 2.0 |
| HLA-A*31:01 | 1 | 817 | 825 | 9 | FIEDLLFNK 0.020593 | 4.6 |
| HLA-A*68:02 | 1 | 336 | 344 | 9 | CPFGEVFNA 0.020591 | 3.5 |
| HLA-A*23:01 | 1 | 635 | 644 | 10 | VYSTGSNVFQ 0.020574 | 2.0 |
| HLA-B*07:02 | 1 | 214 | 223 | 10 | RDLPGGFSAL 0.020571 | 2.7 |
| HLA-B*58:01 | 1 | 1208 | 1216 | 9 | QYIKWPWYI 0.020538 | 3.0 |
| HLA-A*11:01 | 1 | 32 | 41 | 10 | FTRGVYYPDK 0.020522 | 3.2 |
| HLA-A*02:06 | 1 | 1052 | 1060 | 9 | FPQSAPHGV 0.020498 | 4.6 |
| HLA-B*07:02 | 1 | 464 | 472 | 9 | FERDISTEI 0.020494 | 2.7 |
| HLA-A*30:02 | 1 | 933 | 942 | 10 | KIQDLSLSTA 0.020475 | 4.0 |
| HLA-A*02:03 | 1 | 1008 | 1016 | 9 | VTQQLIRAA 0.020458 | 3.9 |
| HLA-A*23:01 | 1 | 794 | 802 | 9 | IKDFGGFNF 0.020452 | 2.0 |
| HLA-B*35:01 | 1 | 266 | 275 | 10 | YVGYLQPRTF 0.020448 | 2.6 |
| HLA-A*68:01 | 1 | 271 | 279 | 9 | QPRTFLLKY 0.020441 | 5.3 |
| HLA-A*68:01 | 1 | 940 | 949 | 10 | STASALGKLQ 0.020437 | 5.3 |
| HLA-B*08:01 | 1 | 988 | 996 | 9 | EAEVQIDRL 0.020428 | 3.9 |
| HLA-B*40:01 | 1 | 153 | 161 | 9 | MESEFRVYS 0.020417 | 2.1 |
| HLA-A*26:01 | 1 | 505 | 513 | 9 | YQPYRVVVL 0.020415 | 2.1 |
| HLA-A*68:02 | 1 | 235 | 243 | 9 | ITRFQTLA 0.020393 | 3.5 |
| HLA-A*02:06 | 1 | 688 | 696 | 9 | ASQSIIAYT 0.020388 | 4.6 |
| HLA-A*01:01 | 1 | 415 | 423 | 9 | TGKIADYNY 0.02037 | 2.6 |
| HLA-B*53:01 | 1 | 652 | 660 | 9 | GAEHVNNSY 0.020352 | 2.3 |
| HLA-A*32:01 | 1 | 357 | 365 | 9 | RISNCVADY 0.020342 | 2.3 |
| HLA-A*32:01 | 1 | 233 | 241 | 9 | INITRFQTL 0.020308 | 2.3 |
| HLA-B*51:01 | 1 | 712 | 721 | 10 | IAIPTNFTIS 0.020294 | 4.0 |
| HLA-A*32:01 | 1 | 937 | 945 | 9 | SLSSTASAL 0.020287 | 2.3 |
| HLA-B*07:02 | 1 | 477 | 486 | 10 | STPCNGVEGF 0.020285 | 2.7 |
| HLA-A*32:01 | 1 | 369 | 377 | 9 | YNSASFSTF 0.020279 | 2.3 |
| HLA-A*30:02 | 1 | 628 | 637 | 10 | QLTPTWRVYS 0.020271 | 4.1 |
| HLA-B*15:01 | 1 | 731 | 740 | 10 | MTKTSVDCTM 0.020231 | 3.8 |
| HLA-B*57:01 | 1 | 428 | 436 | 9 | DFTGCVIAW 0.020228 | 4.5 |
| HLA-B*44:03 | 1 | 144 | 152 | 9 | YYHKNNKSW 0.020212 | 2.0 |
| HLA-A*02:03 | 1 | 551 | 559 | 9 | VLTESNKKF 0.020211 | 3.9 |
| HLA-B*58:01 | 1 | 896 | 904 | 9 | IPFAMQMAY 0.02021 | 3.0 |
| HLA-A*31:01 | 1 | 1203 | 1211 | 9 | LGKYEQYIK 0.020197 | 4.6 |
| HLA-A*24:02 | 1 | 444 | 452 | 9 | KVGGNYNYL 0.020194 | 2.1 |
| HLA-A*02:01 | 1 | 234 | 242 | 9 | NITRFQTL 0.020172 | 3.5 |
| HLA-B*07:02 | 1 | 109 | 118 | 10 | TLDSKTQSL 0.020148 | 2.7 |
| HLA-B*15:01 | 1 | 1000 | 1008 | 9 | RLQSLQTYV 0.020146 | 3.9 |
| HLA-A*30:02 | 1 | 320 | 329 | 10 | VQPTESIVRF 0.020143 | 4.1 |
| HLA-A*32:01 | 1 | 972 | 980 | 9 | AISSVLNDI 0.020124 | 2.3 |
| HLA-A*32:01 | 1 | 249 | 258 | 10 | LTPGDSSSGW 0.020119 | 2.3 |
| HLA-A*02:06 | 1 | 637 | 645 | 9 | STGSNVFQT 0.020116 | 4.6 |
| HLA-A*68:02 | 1 | 108 | 116 | 9 | TTLDSKTQS 0.020108 | 3.5 |
| HLA-B*44:02 | 1 | 1054 | 1062 | 9 | QSAPHGVVF 0.020104 | 1.9 |
| HLA-A*30:02 | 1 | 119 | 127 | 9 | IVN NATNVV 0.0201 | 4.1 |
| HLA-A*32:01 | 1 | 195 | 204 | 10 | KNIDGYFKIY 0.020092 | 2.3 |
| HLA-A*23:01 | 1 | 705 | 714 | 10 | VAYSNNSIAI 0.020085 | 2.1 |
| HLA-A*02:03 | 1 | 590 | 598 | 9 | CSFGGVSVI 0.020084 | 3.9 |
| HLA-B*57:01 | 1 | 71 | 79 | 9 | SGTNGTKRF 0.020077 | 4.5 |
| HLA-A*02:03 | 1 | 1086 | 1094 | 9 | KAHPREGV 0.020069 | 3.9 |
| HLA-A*31:01 | 1 | 240 | 248 | 9 | TLLALHRSY 0.020056 | 4.6 |
| HLA-B*35:01 | 1 | 1195 | 1203 | 9 | ESLIDLQEL 0.020055 | 2.6 |
| HLA-B*35:01 | 1 | 727 | 736 | 10 | LPVSMTKTSV 0.020051 | 2.6 |
| HLA-A*32:01 | 1 | 983 | 991 | 9 | RLDKVEAEV 0.020045 | 2.4 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*02:03 | 1 | 1220 | 1229 | 10 | FIAGLIAIVM 0.020028 | 3.9 |
| HLA-B*51:01 | 1 | 50 | 58 | 9 | STQDLFLPF 0.020025 | 4.1 |
| HLA-B*51:01 | 1 | 220 | 229 | 10 | FSALEPLVDL 0.020009 | 4.1 |
| HLA-B*35:01 | 1 | 1075 | 1083 | 9 | FTTAPAICH 0.02 | 2.6 |
| HLA-A*68:01 | 1 | 182 | 190 | 9 | KQGNFKNLR 0.019996 | 5.3 |
| HLA-A*68:02 | 1 | 731 | 740 | 10 | MTKTSVDCTM 0.019993 | 3.5 |
| HLA-A*02:03 | 1 | 627 | 635 | 9 | DQLTPTWRV 0.01999 | 3.9 |
| HLA-A*11:01 | 1 | 1036 | 1045 | 10 | QSKRVDFCGK 0.019951 | 3.2 |
| HLA-A*26:01 | 1 | 677 | 685 | 9 | QTNSPRRAR 0.019937 | 2.2 |
| HLA-A*30:02 | 1 | 1099 | 1107 | 9 | GTHWFVTQR 0.019925 | 4.1 |
| HLA-B*07:02 | 1 | 683 | 691 | 9 | RARSVASQS 0.019901 | 2.7 |
| HLA-B*35:01 | 1 | 216 | 224 | 9 | LPQGFSALE 0.019899 | 2.6 |
| HLA-A*24:02 | 1 | 489 | 498 | 10 | YFPLQSYGFQ 0.019898 | 2.2 |
| HLA-B*44:03 | 1 | 153 | 161 | 9 | MESEFRVYS 0.019897 | 2.1 |
| HLA-A*68:01 | 1 | 414 | 423 | 10 | QTGKIADYNY 0.019893 | 5.3 |
| HLA-A*30:01 | 1 | 234 | 243 | 10 | NITRFQTLA 0.019883 | 5.5 |
| HLA-A*26:01 | 1 | 1005 | 1013 | 9 | QTYVTQQLI 0.019854 | 2.2 |
| HLA-A*30:01 | 1 | 689 | 697 | 9 | SQSIIAYTM 0.019843 | 5.5 |
| HLA-B*51:01 | 1 | 1169 | 1177 | 9 | ISGINASVV 0.019831 | 4.1 |
| HLA-B*35:01 | 1 | 394 | 402 | 9 | NVYADSFVI 0.019813 | 2.6 |
| HLA-A*02:06 | 1 | 23 | 31 | 9 | QLPPAYTNS 0.019808 | 4.7 |
| HLA-B*57:01 | 1 | 509 | 518 | 10 | RVVVLSEFEL 0.019806 | 4.6 |
| HLA-B*08:01 | 1 | 504 | 512 | 9 | GYQPYRVVV 0.019803 | 3.9 |
| HLA-B*44:02 | 1 | 828 | 837 | 10 | LADAGFIKQY 0.019803 | 1.9 |
| HLA-A*01:01 | 1 | 49 | 58 | 10 | HSTQDLFLPF 0.019771 | 2.6 |
| HLA-A*30:02 | 1 | 62 | 70 | 9 | VTWFHAIHV 0.01976 | 4.1 |
| HLA-A*30:02 | 1 | 495 | 503 | 9 | YGFQPTNGV 0.01975 | 4.1 |
| HLA-A*26:01 | 1 | 1188 | 1196 | 9 | EVAKNLNES 0.01974 | 2.2 |
| HLA-A*30:02 | 1 | 49 | 58 | 10 | HSTQDLFLPF 0.019715 | 4.1 |
| HLA-B*53:01 | 1 | 1081 | 1089 | 9 | ICHDGKAHF 0.019712 | 2.3 |
| HLA-B*58:01 | 1 | 1175 | 1183 | 9 | SVVNIQKEI 0.01971 | 3.0 |
| HLA-A*02:03 | 1 | 1226 | 1234 | 9 | AIVMVTIML 0.019707 | 4.0 |
| HLA-A*11:01 | 1 | 806 | 814 | 9 | LPDPSKPSK 0.019706 | 3.2 |
| HLA-A*02:06 | 1 | 991 | 1000 | 10 | VQIDRLITGR 0.0197 | 4.7 |
| HLA-A*02:06 | 1 | 1016 | 1024 | 9 | AEIRASANL 0.019695 | 4.7 |
| HLA-B*57:01 | 1 | 23 | 32 | 10 | QLPPAYTNSF 0.019684 | 4.6 |
| HLA-A*03:01 | 1 | 1028 | 1036 | 9 | KMSECVLQG 0.019677 | 3.5 |
| HLA-A*68:02 | 1 | 318 | 327 | 10 | FRVQPTESIV 0.019667 | 3.5 |
| HLA-A*30:01 | 1 | 590 | 598 | 9 | CSFGGVSVI 0.019667 | 5.5 |
| HLA-A*24:02 | 1 | 903 | 911 | 9 | AYRFNGIGV 0.019655 | 2.2 |
| HLA-B*08:01 | 1 | 1168 | 1176 | 9 | DISGINASV 0.019655 | 4.0 |
| HLA-B*57:01 | 1 | 333 | 342 | 10 | TNLCPFGEVF 0.019654 | 4.6 |
| HLA-A*68:02 | 1 | 393 | 401 | 9 | TNVYADSFV 0.019652 | 3.5 |
| HLA-B*44:03 | 1 | 413 | 421 | 9 | GQTGKIADY 0.019652 | 2.1 |
| HLA-A*68:02 | 1 | 696 | 705 | 10 | TMSLGAENSV 0.019651 | 3.5 |
| HLA-A*32:01 | 1 | 378 | 387 | 10 | KCYGVSPTKL 0.019647 | 2.4 |
| HLA-B*40:01 | 1 | 774 | 782 | 9 | QDKNTQEVF 0.019643 | 2.1 |
| HLA-A*03:01 | 1 | 193 | 202 | 10 | VFKNIDGYFK 0.019637 | 3.5 |
| HLA-A*02:01 | 1 | 1168 | 1176 | 9 | DISGINASV 0.019632 | 3.6 |
| HLA-B*35:01 | 1 | 588 | 597 | 10 | TPCSFGGVSV 0.019621 | 2.7 |
| HLA-B*15:01 | 1 | 233 | 241 | 9 | INITRFQTL 0.019615 | 3.9 |
| HLA-A*68:02 | 1 | 923 | 931 | 9 | IANQFNSAI 0.019612 | 3.5 |
| HLA-B*51:01 | 1 | 109 | 117 | 9 | TLDSKTQSL 0.019599 | 4.1 |
| HLA-A*31:01 | 1 | 1101 | 1110 | 10 | HWFVTQRNFY 0.019599 | 4.7 |
| HLA-A*03:01 | 1 | 821 | 829 | 9 | LLFNKVTLA 0.019584 | 3.5 |
| HLA-B*35:01 | 1 | 1129 | 1138 | 10 | VIGIVNNTVY 0.019577 | 2.7 |
| HLA-B*44:02 | 1 | 443 | 451 | 9 | SKVGGNYYN 0.01957 | 1.9 |
| HLA-A*68:02 | 1 | 208 | 216 | 9 | TPINLVRDL 0.019569 | 3.6 |
| HLA-A*26:01 | 1 | 138 | 146 | 9 | DPFLGVYYH 0.019545 | 2.2 |
| HLA-A*26:01 | 1 | 868 | 876 | 9 | EMIAQY TSA 0.019529 | 2.2 |
| HLA-A*30:01 | 1 | 549 | 557 | 9 | TGVLTESNK 0.019522 | 5.5 |
| HLA-B*08:01 | 1 | 76 | 84 | 9 | TKRFDNPVL 0.01952 | 4.0 |
| HLA-A*02:06 | 1 | 116 | 124 | 9 | SLLIVNNTV 0.01951 | 4.7 |
| HLA-A*01:01 | 1 | 1207 | 1215 | 9 | EQYIKWPWY 0.019501 | 2.6 |
| HLA-A*68:02 | 1 | 111 | 120 | 10 | DSKTQSL LIV 0.01946 | 3.6 |
| HLA-A*30:01 | 1 | 951 | 959 | 9 | VVNQNAQAL 0.019452 | 5.6 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*51:01 | 1 | 218 | 226 | 9 | QGFSALEPL 0.019444 | 4.1 |
| HLA-A*32:01 | 1 | 961 | 970 | 10 | TLVKQLSSNF 0.019432 | 2.4 |
| HLA-B*57:01 | 1 | 448 | 456 | 9 | NYNYLYRLF 0.01942 | 4.6 |
| HLA-B*58:01 | 1 | 929 | 938 | 10 | SAIGKIQDSL 0.01942 | 3.0 |
| HLA-B*35:01 | 1 | 988 | 996 | 9 | EAEVQIDRL 0.019419 | 2.7 |
| HLA-B*44:03 | 1 | 250 | 258 | 9 | TPGDSSSGW 0.019417 | 2.1 |
| HLA-B*44:02 | 1 | 271 | 279 | 9 | QPRTFLLKY 0.019413 | 1.9 |
| HLA-A*68:01 | 1 | 264 | 273 | 10 | AYYVGYLQPR 0.019409 | 5.4 |
| HLA-A*02:06 | 1 | 236 | 244 | 9 | TRFQTLAL 0.01939 | 4.7 |
| HLA-B*15:01 | 1 | 814 | 823 | 10 | KRSFIEDLLF 0.019387 | 3.9 |
| HLA-B*53:01 | 1 | 909 | 917 | 9 | IGVTQNVLY 0.019385 | 2.3 |
| HLA-A*33:01 | 1 | 827 | 835 | 9 | TLADAGFIK 0.019361 | 3.8 |
| HLA-B*57:01 | 1 | 923 | 931 | 9 | IANQFNSAI 0.019361 | 4.6 |
| HLA-B*15:01 | 1 | 441 | 449 | 9 | LDSKVGNGY 0.019348 | 3.9 |
| HLA-A*02:06 | 1 | 782 | 791 | 10 | FAQVKQIYKT 0.019348 | 4.8 |
| HLA-B*51:01 | 1 | 865 | 873 | 9 | LTDEMIAQY 0.019336 | 4.1 |
| HLA-A*26:01 | 1 | 394 | 403 | 10 | NVYADSFVIR 0.019316 | 2.2 |
| HLA-A*68:02 | 1 | 1000 | 1008 | 9 | RLQSLQTYV 0.019314 | 3.6 |
| HLA-B*08:01 | 1 | 853 | 861 | 9 | QKFNGLTVL 0.019309 | 4.0 |
| HLA-A*68:02 | 1 | 567 | 576 | 10 | RDIADTTDAV 0.019304 | 3.6 |
| HLA-B*57:01 | 1 | 878 | 887 | 10 | LAGTITSGWT 0.019304 | 4.6 |
| HLA-A*31:01 | 1 | 1185 | 1193 | 9 | RLNEVAKNL 0.019298 | 4.7 |
| HLA-A*33:01 | 1 | 457 | 466 | 10 | RKSNLKPFR 0.019287 | 3.8 |
| HLA-B*40:01 | 1 | 109 | 117 | 9 | TLDSKTQSL 0.019274 | 2.1 |
| HLA-A*30:02 | 1 | 617 | 625 | 9 | CTEVPVAIH 0.019266 | 4.2 |
| HLA-B*51:01 | 1 | 943 | 952 | 10 | SALGKLQDVV 0.019254 | 4.1 |
| HLA-B*35:01 | 1 | 890 | 898 | 9 | AGAALQIPF 0.019249 | 2.7 |
| HLA-A*03:01 | 1 | 865 | 873 | 9 | LTDEMIAQY 0.019248 | 3.5 |
| HLA-B*57:01 | 1 | 273 | 281 | 9 | RTFLLKYNE 0.019239 | 4.6 |
| HLA-B*40:01 | 1 | 893 | 902 | 10 | ALQIPFAMQM 0.019227 | 2.1 |
| HLA-A*68:02 | 1 | 972 | 980 | 9 | AISSVLNDI 0.019223 | 3.6 |
| HLA-B*58:01 | 1 | 513 | 521 | 9 | LSFELLHAP 0.019204 | 3.1 |
| HLA-B*07:02 | 1 | 940 | 948 | 9 | STASALGKL 0.019204 | 2.8 |
| HLA-B*44:03 | 1 | 1143 | 1152 | 10 | PELDSFKEEL 0.019196 | 2.1 |
| HLA-A*31:01 | 1 | 987 | 995 | 9 | VEAEVQIDR 0.019193 | 4.7 |
| HLA-B*40:01 | 1 | 327 | 335 | 9 | VRFPNITNL 0.01919 | 2.1 |
| HLA-A*30:01 | 1 | 77 | 86 | 10 | KRFDNPVLPF 0.019176 | 5.6 |
| HLA-A*68:01 | 1 | 229 | 238 | 10 | LPIGINITRF 0.019172 | 5.4 |
| HLA-B*15:01 | 1 | 929 | 938 | 10 | SAIGKIQDSL 0.019149 | 3.9 |
| HLA-A*68:02 | 1 | 892 | 900 | 9 | AALQIPFAM 0.019148 | 3.6 |
| HLA-A*68:02 | 1 | 513 | 522 | 10 | LSFELLHAPA 0.019146 | 3.6 |
| HLA-B*44:02 | 1 | 388 | 396 | 9 | NDLCFTNVY 0.019144 | 1.9 |
| HLA-A*03:01 | 1 | 1000 | 1008 | 9 | RLQSLQTYV 0.019123 | 3.5 |
| HLA-A*02:06 | 1 | 741 | 749 | 9 | YICGDSTEC 0.019117 | 4.8 |
| HLA-A*23:01 | 1 | 751 | 759 | 9 | NLLLQYGSF 0.019117 | 2.1 |
| HLA-A*26:01 | 1 | 320 | 329 | 10 | VQPTESIVRF 0.01911 | 2.2 |
| HLA-A*02:03 | 1 | 2 | 11 | 10 | FVFLVLLPLV 0.019104 | 4.0 |
| HLA-A*02:06 | 1 | 873 | 882 | 10 | YTSALLAGTI 0.019094 | 4.8 |
| HLA-B*57:01 | 1 | 967 | 976 | 10 | SSNFGAISSV 0.019086 | 4.6 |
| HLA-A*68:01 | 1 | 1197 | 1205 | 9 | LIDLQELGK 0.019082 | 5.4 |
| HLA-A*30:02 | 1 | 171 | 179 | 9 | VSQPFLMDL 0.019073 | 4.2 |
| HLA-B*08:01 | 1 | 300 | 308 | 9 | KCTLKSFTV 0.019056 | 4.1 |
| HLA-A*26:01 | 1 | 1209 | 1217 | 9 | YIKWPWYIW 0.019055 | 2.2 |
| HLA-A*02:01 | 1 | 327 | 335 | 9 | VRFPNITNL 0.019052 | 3.6 |
| HLA-B*51:01 | 1 | 202 | 210 | 9 | KIYSKHTPI 0.019029 | 4.2 |
| HLA-A*30:02 | 1 | 1216 | 1224 | 9 | IWLGFIAGL 0.01902 | 4.2 |
| HLA-A*02:06 | 1 | 1210 | 1218 | 9 | IKWPWYIWL 0.019014 | 4.8 |
| HLA-A*02:03 | 1 | 882 | 890 | 9 | ITSGWTFGA 0.018998 | 4.1 |
| HLA-A*30:02 | 1 | 269 | 278 | 10 | YLQPRTFLLK 0.018981 | 4.2 |
| HLA-A*68:02 | 1 | 82 | 90 | 9 | PVLPFNDGV 0.018955 | 3.6 |
| HLA-A*30:02 | 1 | 1113 | 1121 | 9 | QIITTDNTF 0.018954 | 4.2 |
| HLA-B*58:01 | 1 | 1101 | 1109 | 9 | HWFVTQRNF 0.018944 | 3.1 |
| HLA-B*08:01 | 1 | 930 | 938 | 9 | AIGKIQDSL 0.018941 | 4.1 |
| HLA-B*57:01 | 1 | 870 | 878 | 9 | IAQYTSALL 0.018938 | 4.7 |
| HLA-B*44:02 | 1 | 20 | 28 | 9 | TRTQLPPAY 0.018936 | 1.9 |
| HLA-A*68:02 | 1 | 444 | 452 | 9 | KVGGNYNYL 0.018929 | 3.6 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*53:01 | 1 | 240 | 248 | 9 | TLLALHRYSY 0.018918 | 2.3 |
| HLA-A*30:01 | 1 | 34 | 43 | 10 | RGVYYPDKVF 0.018914 | 5.7 |
| HLA-A*30:01 | 1 | 121 | 129 | 9 | NNATNVVIK 0.018911 | 5.7 |
| HLA-A*32:01 | 1 | 261 | 269 | 9 | GAAAYVGY 0.018911 | 2.4 |
| HLA-A*30:01 | 1 | 147 | 155 | 9 | KNNKSWMES 0.018907 | 5.7 |
| HLA-A*30:01 | 1 | 328 | 336 | 9 | RFPNITNLC 0.018907 | 5.7 |
| HLA-A*02:06 | 1 | 1196 | 1204 | 9 | SLIDLQELG 0.018904 | 4.8 |
| HLA-A*68:02 | 1 | 870 | 878 | 9 | IAQYTSALL 0.0189 | 3.6 |
| HLA-B*57:01 | 1 | 415 | 423 | 9 | TGKIADYNY 0.018892 | 4.7 |
| HLA-A*02:06 | 1 | 870 | 878 | 9 | IAQYTSALL 0.01888 | 4.8 |
| HLA-B*57:01 | 1 | 919 | 927 | 9 | NQKLIANQF 0.018879 | 4.7 |
| HLA-B*08:01 | 1 | 122 | 130 | 9 | NATNVVIKV 0.018873 | 4.1 |
| HLA-A*68:01 | 1 | 28 | 36 | 9 | YTNSFTRGV 0.018869 | 5.4 |
| HLA-B*08:01 | 1 | 266 | 275 | 10 | YVGYLQPRTF 0.018869 | 4.1 |
| HLA-B*07:02 | 1 | 923 | 931 | 9 | IANQFNSAI 0.018869 | 2.8 |
| HLA-A*23:01 | 1 | 1204 | 1212 | 9 | GKYEQYIKW 0.018864 | 2.1 |
| HLA-B*40:01 | 1 | 953 | 962 | 10 | NQNAQALNTL 0.018843 | 2.1 |
| HLA-A*33:01 | 1 | 395 | 404 | 10 | VYADSFVIRG 0.018836 | 3.8 |
| HLA-A*02:06 | 1 | 955 | 963 | 9 | NAQALNTLV 0.018836 | 4.8 |
| HLA-A*26:01 | 1 | 29 | 37 | 9 | TNSFTRGVY 0.018827 | 2.2 |
| HLA-A*31:01 | 1 | 1196 | 1205 | 10 | SLIDLQELGK 0.018825 | 4.8 |
| HLA-B*35:01 | 1 | 425 | 434 | 10 | LPDDFTGCVI 0.018812 | 2.7 |
| HLA-A*02:01 | 1 | 821 | 830 | 10 | LLFNKVTLAD 0.018805 | 3.6 |
| HLA-A*03:01 | 1 | 1049 | 1058 | 10 | LMSFPQSAPH 0.018801 | 3.5 |
| HLA-B*53:01 | 1 | 135 | 144 | 10 | FCNDPFLGVY 0.0188 | 2.4 |
| HLA-B*53:01 | 1 | 269 | 277 | 9 | YLQPRTFLL 0.0188 | 2.4 |
| HLA-B*51:01 | 1 | 951 | 959 | 9 | VVNQAQAL 0.0188 | 4.2 |
| HLA-A*02:06 | 1 | 587 | 595 | 9 | ITPCSFGGV 0.018799 | 4.8 |
| HLA-B*07:02 | 1 | 1055 | 1063 | 9 | SAPHGVVFL 0.018791 | 2.8 |
| HLA-A*68:01 | 1 | 173 | 182 | 10 | QPFLMDLEGK 0.018788 | 5.4 |
| HLA-A*03:01 | 1 | 198 | 206 | 9 | DGYFKIYSK 0.018788 | 3.5 |
| HLA-B*57:01 | 1 | 1065 | 1073 | 9 | VTYVPAQEK 0.018782 | 4.7 |
| HLA-A*03:01 | 1 | 1237 | 1245 | 9 | MTSCCCLK 0.018773 | 3.5 |
| HLA-B*53:01 | 1 | 196 | 204 | 9 | NIDGYFKIY 0.018768 | 2.4 |
| HLA-A*30:02 | 1 | 83 | 92 | 10 | VLFPNDGVYF 0.018766 | 4.3 |
| HLA-A*30:01 | 1 | 120 | 129 | 10 | VNNATNVVIK 0.01876 | 5.7 |
| HLA-A*30:01 | 1 | 1006 | 1014 | 9 | TYVTQLIR 0.018758 | 5.7 |
| HLA-B*58:01 | 1 | 220 | 229 | 10 | FSALEPLVDL 0.018757 | 3.1 |
| HLA-B*07:02 | 1 | 727 | 735 | 9 | LPVSMTKTS 0.018753 | 2.8 |
| HLA-A*02:01 | 1 | 512 | 521 | 10 | VLSFELLHAP 0.018743 | 3.6 |
| HLA-B*58:01 | 1 | 98 | 106 | 9 | SNIRGWIF 0.018739 | 3.1 |
| HLA-B*15:01 | 1 | 1016 | 1024 | 9 | AEIRASANL 0.018737 | 4.0 |
| HLA-B*44:02 | 1 | 604 | 612 | 9 | TSNQVAVLY 0.018735 | 1.9 |
| HLA-A*23:01 | 1 | 611 | 620 | 10 | LYQDVNCTEV 0.01873 | 2.1 |
| HLA-B*35:01 | 1 | 1102 | 1110 | 9 | WFVTQRNFY 0.018711 | 2.7 |
| HLA-A*26:01 | 1 | 1262 | 1270 | 9 | EPVLKGVKL 0.018705 | 2.3 |
| HLA-A*02:06 | 1 | 942 | 951 | 10 | ASALGKLQDV 0.018692 | 4.8 |
| HLA-A*02:06 | 1 | 318 | 326 | 9 | FRVQPTESI 0.018687 | 4.8 |
| HLA-A*26:01 | 1 | 731 | 740 | 10 | MTKTSVDCTM 0.018672 | 2.3 |
| HLA-A*24:02 | 1 | 976 | 984 | 9 | VLNDILSRL 0.01867 | 2.2 |
| HLA-B*08:01 | 1 | 923 | 931 | 9 | IANQFNSAI 0.018667 | 4.1 |
| HLA-A*68:01 | 1 | 829 | 837 | 9 | ADAGFIKQY 0.018658 | 5.4 |
| HLA-B*57:01 | 1 | 506 | 515 | 10 | QPYRVVLSF 0.018651 | 4.7 |
| HLA-A*30:02 | 1 | 1094 | 1102 | 9 | VFVSNGTHW 0.018649 | 4.3 |
| HLA-B*35:01 | 1 | 624 | 633 | 10 | IHADQLTPTW 0.018647 | 2.7 |
| HLA-A*32:01 | 1 | 787 | 795 | 9 | QIYKTPPIK 0.018644 | 2.4 |
| HLA-B*51:01 | 1 | 680 | 688 | 9 | SPRRARSVA 0.018643 | 4.2 |
| HLA-A*26:01 | 1 | 56 | 64 | 9 | LPFFSNVTW 0.018633 | 2.3 |
| HLA-B*08:01 | 1 | 1202 | 1210 | 9 | ELGKYEQYI 0.018628 | 4.1 |
| HLA-A*30:02 | 1 | 412 | 421 | 10 | PGQTGKIADY 0.018624 | 4.3 |
| HLA-A*30:01 | 1 | 416 | 424 | 9 | GKIADYNYK 0.01862 | 5.7 |
| HLA-A*02:06 | 1 | 1216 | 1224 | 9 | IWLGFIAGL 0.018619 | 4.9 |
| HLA-B*15:01 | 1 | 509 | 517 | 9 | RVVLSFEL 0.018615 | 4.0 |
| HLA-B*35:01 | 1 | 215 | 223 | 9 | DLPQGFSAL 0.018608 | 2.7 |
| HLA-A*26:01 | 1 | 417 | 425 | 9 | KIADYNYKL 0.018607 | 2.3 |
| HLA-B*53:01 | 1 | 894 | 902 | 9 | LQIPFAMQM 0.018602 | 2.4 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*26:01 | 1 | 334 | 342 | 9 | NLCPFGEVF 0.0186 | 2.3 |
| HLA-A*02:01 | 1 | 116 | 124 | 9 | SLLVNAT 0.018597 | 3.7 |
| HLA-A*33:01 | 1 | 1064 | 1073 | 10 | HVTYVPAQEK 0.018593 | 3.8 |
| HLA-A*30:01 | 1 | 268 | 277 | 10 | GYLQPRTFLL 0.018589 | 5.8 |
| HLA-B*40:01 | 1 | 817 | 826 | 10 | FIEDLLFNKV 0.018583 | 2.2 |
| HLA-A*26:01 | 1 | 270 | 279 | 10 | LQPRTFLLKY 0.018579 | 2.3 |
| HLA-A*30:01 | 1 | 312 | 320 | 9 | IYQTSNFRV 0.018579 | 5.8 |
| HLA-B*08:01 | 1 | 383 | 392 | 10 | SPTKLNLCF 0.018577 | 4.1 |
| HLA-A*30:02 | 1 | 319 | 328 | 10 | RVQPTESIVR 0.018576 | 4.3 |
| HLA-A*23:01 | 1 | 167 | 176 | 10 | TFEYVSQPFL 0.018558 | 2.1 |
| HLA-A*32:01 | 1 | 511 | 519 | 9 | VVLSFELLH 0.018549 | 2.4 |
| HLA-A*24:02 | 1 | 27 | 36 | 10 | AYTNSFTRGV 0.018547 | 2.2 |
| HLA-A*02:06 | 1 | 1189 | 1197 | 9 | VAKNLNESL 0.018523 | 4.9 |
| HLA-A*02:03 | 1 | 689 | 697 | 9 | SQSIIAYTM 0.018509 | 4.1 |
| HLA-A*31:01 | 1 | 369 | 378 | 10 | YNSASFSTFK 0.018504 | 4.8 |
| HLA-B*53:01 | 1 | 336 | 344 | 9 | CPFGEVFNA 0.0185 | 2.4 |
| HLA-A*02:03 | 1 | 512 | 521 | 10 | VLSFELLHAP 0.018496 | 4.1 |
| HLA-A*31:01 | 1 | 826 | 835 | 10 | VTLADAGFIK 0.018491 | 4.8 |
| HLA-B*58:01 | 1 | 1039 | 1047 | 9 | RVDFCGKGY 0.018489 | 3.1 |
| HLA-A*68:01 | 1 | 1262 | 1271 | 10 | EPVLKGVKHLH 0.018484 | 5.5 |
| HLA-B*08:01 | 1 | 620 | 629 | 10 | VPVAIHADQL 0.01848 | 4.1 |
| HLA-B*08:01 | 1 | 635 | 643 | 9 | VYSTGSNVF 0.018474 | 4.1 |
| HLA-B*58:01 | 1 | 552 | 560 | 9 | LTESNKKFL 0.018451 | 3.1 |
| HLA-A*68:01 | 1 | 628 | 636 | 9 | QLTPTWRVY 0.018451 | 5.5 |
| HLA-A*30:02 | 1 | 934 | 942 | 9 | IQDLSSTA 0.018446 | 4.3 |
| HLA-A*26:01 | 1 | 1181 | 1189 | 9 | KEIDRLNEV 0.018433 | 2.3 |
| HLA-B*44:03 | 1 | 1094 | 1102 | 9 | VFVSNQTHW 0.01843 | 2.1 |
| HLA-A*30:01 | 1 | 777 | 785 | 9 | NTQEVFAQV 0.018428 | 5.8 |
| HLA-B*15:01 | 1 | 414 | 423 | 10 | QTGKIADYNY 0.0184 | 4.0 |
| HLA-A*31:01 | 1 | 141 | 150 | 10 | LGVYYHKNNK 0.018399 | 4.8 |
| HLA-B*35:01 | 1 | 464 | 472 | 9 | FERDISTEI 0.018389 | 2.8 |
| HLA-B*58:01 | 1 | 510 | 518 | 9 | VVLSFELL 0.018386 | 3.1 |
| HLA-A*02:06 | 1 | 658 | 666 | 9 | NSYECDIPI 0.018372 | 4.9 |
| HLA-B*15:01 | 1 | 321 | 329 | 9 | QPTESIVRF 0.018369 | 4.0 |
| HLA-A*68:02 | 1 | 733 | 742 | 10 | KTSVDCTMYI 0.018369 | 3.7 |
| HLA-B*44:03 | 1 | 280 | 289 | 10 | NENGTITDAV 0.018364 | 2.1 |
| HLA-A*02:06 | 1 | 3 | 11 | 9 | VFLVLLPLV 0.018351 | 4.9 |
| HLA-B*57:01 | 1 | 207 | 216 | 10 | HTPINLVRDL 0.01835 | 4.8 |
| HLA-A*30:01 | 1 | 999 | 1007 | 9 | GRLQSLQTY 0.01835 | 5.8 |
| HLA-B*53:01 | 1 | 221 | 229 | 9 | SALEPLVDL 0.018345 | 2.4 |
| HLA-B*51:01 | 1 | 160 | 168 | 9 | YSSANNCTF 0.018341 | 4.3 |
| HLA-B*08:01 | 1 | 1264 | 1272 | 9 | VLKGVKLHY 0.018341 | 4.1 |
| HLA-B*53:01 | 1 | 169 | 177 | 9 | EYVSQPFLM 0.018336 | 2.4 |
| HLA-A*68:01 | 1 | 206 | 214 | 9 | KHTPINLVR 0.018335 | 5.5 |
| HLA-A*30:01 | 1 | 381 | 390 | 10 | GVSPTKLNLD 0.018327 | 5.8 |
| HLA-A*26:01 | 1 | 195 | 204 | 10 | KNIDGYFKIY 0.018315 | 2.3 |
| HLA-B*51:01 | 1 | 976 | 984 | 9 | VLNDILSRL 0.018312 | 4.3 |
| HLA-A*02:01 | 1 | 820 | 829 | 10 | DLLFNKVTLA 0.018307 | 3.7 |
| HLA-A*02:01 | 1 | 47 | 55 | 9 | VLHSTQDLF 0.0183 | 3.7 |
| HLA-A*02:06 | 1 | 467 | 475 | 9 | DISTEIYQA 0.018299 | 4.9 |
| HLA-B*15:01 | 1 | 885 | 894 | 10 | GWTFGAGAAL 0.018299 | 4.0 |
| HLA-B*08:01 | 1 | 1042 | 1050 | 9 | FCGKGYHLM 0.018297 | 4.2 |
| HLA-A*68:02 | 1 | 1088 | 1096 | 9 | HFPREGVFN 0.018297 | 3.7 |
| HLA-A*11:01 | 1 | 1075 | 1083 | 9 | FTTAPAICH 0.01829 | 3.3 |
| HLA-B*57:01 | 1 | 975 | 984 | 10 | SVLNDILSRL 0.018288 | 4.8 |
| HLA-B*07:02 | 1 | 1161 | 1169 | 9 | SPDVLGDI 0.018272 | 2.8 |
| HLA-A*02:03 | 1 | 318 | 327 | 10 | FRVQPTESIV 0.018268 | 4.1 |
| HLA-A*68:02 | 1 | 366 | 374 | 9 | SVLYNSASF 0.018262 | 3.7 |
| HLA-B*58:01 | 1 | 123 | 131 | 9 | ATNVVIKVC 0.018254 | 3.1 |
| HLA-A*23:01 | 1 | 1211 | 1219 | 9 | KWPWYIWLG 0.018246 | 2.1 |
| HLA-A*68:01 | 1 | 205 | 214 | 10 | SKHTPINLVR 0.018241 | 5.5 |
| HLA-A*01:01 | 1 | 284 | 293 | 10 | TITDAVDCAL 0.018238 | 2.7 |
| HLA-B*51:01 | 1 | 93 | 101 | 9 | ASTEKSNI 0.018234 | 4.3 |
| HLA-B*53:01 | 1 | 1055 | 1064 | 10 | SAPHGVVFLH 0.018231 | 2.4 |
| HLA-A*68:01 | 1 | 240 | 248 | 9 | TLLALHSY 0.01822 | 5.5 |
| HLA-A*03:01 | 1 | 1185 | 1193 | 9 | RLNEVAKNL 0.018207 | 3.6 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*51:01 | 1 | 614 | 622 | 9 | DVNCTEVPV 0.018203 | 4.3 |
| HLA-A*68:02 | 1 | 901 | 909 | 9 | QMAYRFNGI 0.018203 | 3.7 |
| HLA-B*08:01 | 1 | 144 | 153 | 10 | YYHKNNKSWM 0.0182 | 4.2 |
| HLA-B*57:01 | 1 | 1002 | 1010 | 9 | QSLQTYVTQ 0.018198 | 4.8 |
| HLA-B*15:01 | 1 | 575 | 584 | 10 | AVRDPQTLEI 0.018191 | 4.0 |
| HLA-A*03:01 | 1 | 295 | 304 | 10 | PLSETKCTLK 0.018169 | 3.6 |
| HLA-A*26:01 | 1 | 722 | 731 | 10 | VTTEILPVSM 0.018158 | 2.3 |
| HLA-B*08:01 | 1 | 791 | 800 | 10 | TPPIKDFGGF 0.018156 | 4.2 |
| HLA-B*40:01 | 1 | 553 | 561 | 9 | TESNKKFLP 0.018135 | 2.2 |
| HLA-B*08:01 | 1 | 852 | 861 | 10 | AQKFNGLTVL 0.018132 | 4.2 |
| HLA-A*31:01 | 1 | 69 | 77 | 9 | HVSGTNGTK 0.01812 | 4.8 |
| HLA-A*02:03 | 1 | 907 | 915 | 9 | NGIGVTQNV 0.01811 | 4.2 |
| HLA-A*02:03 | 1 | 922 | 931 | 10 | LIANQFNSAI 0.018099 | 4.2 |
| HLA-A*02:03 | 1 | 623 | 632 | 10 | AIHADQLTPT 0.018095 | 4.2 |
| HLA-B*58:01 | 1 | 1221 | 1229 | 9 | IAGLIAIVM 0.018094 | 3.2 |
| HLA-A*02:01 | 1 | 914 | 923 | 10 | NVLYENQKLI 0.018093 | 3.7 |
| HLA-A*32:01 | 1 | 535 | 543 | 9 | KNKCVNFNF 0.018092 | 2.5 |
| HLA-A*02:06 | 1 | 921 | 929 | 9 | KLIANQFNS 0.018073 | 4.9 |
| HLA-A*03:01 | 1 | 378 | 387 | 10 | KCYGVSPTKL 0.018071 | 3.6 |
| HLA-A*30:02 | 1 | 968 | 976 | 9 | SNFGAISSV 0.018067 | 4.4 |
| HLA-A*68:02 | 1 | 1178 | 1186 | 9 | NIQKEIDRL 0.018067 | 3.7 |
| HLA-A*68:02 | 1 | 907 | 916 | 10 | NGIGVTQNVL 0.018065 | 3.7 |
| HLA-B*44:02 | 1 | 748 | 756 | 9 | ECSNLLLQY 0.01806 | 2.0 |
| HLA-A*02:06 | 1 | 1220 | 1229 | 10 | FIAGLIAIVM 0.018059 | 4.9 |
| HLA-A*02:01 | 1 | 1000 | 1009 | 10 | RLQSLQTYVT 0.018051 | 3.7 |
| HLA-A*01:01 | 1 | 718 | 726 | 9 | FTISVTTEI 0.018038 | 2.7 |
| HLA-A*02:01 | 1 | 1208 | 1216 | 9 | QYIKWPWYI 0.018036 | 3.7 |
| HLA-B*44:02 | 1 | 918 | 927 | 10 | ENQKLIANQF 0.018033 | 2.0 |
| HLA-A*11:01 | 1 | 239 | 248 | 10 | QTLALHRSY 0.018031 | 3.3 |
| HLA-A*33:01 | 1 | 780 | 788 | 9 | EVFAQVKQI 0.01802 | 3.9 |
| HLA-A*30:02 | 1 | 1086 | 1094 | 9 | KAHFPREGV 0.018019 | 4.4 |
| HLA-A*01:01 | 1 | 805 | 814 | 10 | ILPDPSKPSK 0.018013 | 2.7 |
| HLA-A*68:02 | 1 | 291 | 299 | 9 | CALDPLSET 0.018008 | 3.7 |
| HLA-A*30:02 | 1 | 266 | 275 | 10 | YVGYLQPRTF 0.018005 | 4.4 |
| HLA-B*51:01 | 1 | 383 | 392 | 10 | SPTKLNLDLFC 0.018004 | 4.3 |
| HLA-A*30:02 | 1 | 509 | 517 | 9 | RVVVLSFEL 0.017994 | 4.4 |
| HLA-A*68:01 | 1 | 400 | 409 | 10 | FVIRGDEVRQ 0.017989 | 5.5 |
| HLA-A*32:01 | 1 | 890 | 898 | 9 | AGAALQIPF 0.017984 | 2.5 |
| HLA-B*08:01 | 1 | 557 | 565 | 9 | KKFLPFQQF 0.017977 | 4.2 |
| HLA-A*11:01 | 1 | 1077 | 1086 | 10 | TAPAICHDGK 0.017963 | 3.4 |
| HLA-A*30:01 | 1 | 974 | 983 | 10 | SSVLNDILSR 0.017957 | 5.9 |
| HLA-A*33:01 | 1 | 454 | 462 | 9 | RLFRKSNLK 0.017956 | 3.9 |
| HLA-A*32:01 | 1 | 302 | 310 | 9 | TLKSFTVEK 0.017927 | 2.5 |
| HLA-B*15:01 | 1 | 553 | 562 | 10 | TESNKKFLPF 0.017919 | 4.0 |
| HLA-A*30:01 | 1 | 998 | 1006 | 9 | TGRLQSLQT 0.017917 | 5.9 |
| HLA-B*57:01 | 1 | 575 | 584 | 10 | AVRDPQTLEI 0.017916 | 4.8 |
| HLA-A*26:01 | 1 | 204 | 212 | 9 | YSKHTPINL 0.017914 | 2.3 |
| HLA-B*40:01 | 1 | 323 | 332 | 10 | TESIVRFPNI 0.017912 | 2.2 |
| HLA-A*02:01 | 1 | 292 | 300 | 9 | ALDPLSETK 0.01791 | 3.7 |
| HLA-B*51:01 | 1 | 1107 | 1115 | 9 | RNFYEPQII 0.017909 | 4.3 |
| HLA-A*02:06 | 1 | 1188 | 1197 | 10 | EVAKNLNESL 0.017895 | 5.0 |
| HLA-B*08:01 | 1 | 318 | 326 | 9 | FRVQPTESI 0.017894 | 4.2 |
| HLA-A*23:01 | 1 | 976 | 984 | 9 | VLNDILSRL 0.017888 | 2.2 |
| HLA-A*32:01 | 1 | 236 | 244 | 9 | TRFQTLAL 0.017887 | 2.5 |
| HLA-A*30:02 | 1 | 482 | 490 | 9 | GVEGFNCYF 0.017886 | 4.4 |
| HLA-A*02:01 | 1 | 780 | 788 | 9 | EVFAQVKQI 0.01787 | 3.7 |
| HLA-A*30:01 | 1 | 1019 | 1027 | 9 | RASANLAAT 0.017866 | 5.9 |
| HLA-B*08:01 | 1 | 200 | 208 | 9 | YFKIYSKHT 0.017865 | 4.2 |
| HLA-A*30:01 | 1 | 880 | 888 | 9 | GTITSGWTF 0.017864 | 5.9 |
| HLA-A*32:01 | 1 | 241 | 249 | 9 | LLALHRSYL 0.017852 | 2.5 |
| HLA-A*01:01 | 1 | 28 | 36 | 9 | YTNSFTRGV 0.017849 | 2.7 |
| HLA-A*68:01 | 1 | 554 | 562 | 9 | ESNKKFLPF 0.017838 | 5.5 |
| HLA-B*53:01 | 1 | 383 | 391 | 9 | SPTKLNLDLFC 0.017835 | 2.4 |
| HLA-B*08:01 | 1 | 1225 | 1233 | 9 | IAIVMVTIM 0.017835 | 4.2 |
| HLA-A*02:06 | 1 | 820 | 828 | 9 | DLLFNKVTL 0.017834 | 5.0 |
| HLA-B*35:01 | 1 | 1207 | 1215 | 9 | EQYIKWPWY 0.017825 | 2.8 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*53:01 | 1 | 628 | 636 | 9 | QLTPTWRVY 0.017803 | 2.4 |
| HLA-B*40:01 | 1 | 871 | 879 | 9 | AQYTSALLA 0.017803 | 2.2 |
| HLA-A*33:01 | 1 | 409 | 417 | 9 | QIAPGQTGK 0.017799 | 3.9 |
| HLA-A*02:03 | 1 | 221 | 229 | 9 | SALEPLVDL 0.017783 | 4.2 |
| HLA-B*07:02 | 1 | 433 | 441 | 9 | VIAWNSNNL 0.017765 | 2.9 |
| HLA-A*30:02 | 1 | 264 | 273 | 10 | AYYVGYLQPR 0.017759 | 4.4 |
| HLA-A*30:01 | 1 | 26 | 34 | 9 | PAYTNSFTR 0.017756 | 5.9 |
| HLA-B*58:01 | 1 | 371 | 379 | 9 | SASFSTFKC 0.017752 | 3.2 |
| HLA-A*02:01 | 1 | 1219 | 1228 | 10 | GFIAGLIAIV 0.01774 | 3.7 |
| HLA-A*02:06 | 1 | 711 | 719 | 9 | SIAIPTNFT 0.017739 | 5.0 |
| HLA-B*53:01 | 1 | 869 | 877 | 9 | MIAQYTSAL 0.017735 | 2.4 |
| HLA-B*15:01 | 1 | 1102 | 1110 | 9 | WFVTQRNFY 0.017727 | 4.1 |
| HLA-B*44:03 | 1 | 628 | 636 | 9 | QLTPTWRVY 0.017725 | 2.2 |
| HLA-A*02:06 | 1 | 895 | 903 | 9 | QIPFAMQMA 0.017711 | 5.0 |
| HLA-B*53:01 | 1 | 870 | 878 | 9 | IAQYTSALL 0.01771 | 2.4 |
| HLA-A*30:02 | 1 | 507 | 515 | 9 | PYRVVLSF 0.017707 | 4.4 |
| HLA-A*68:02 | 1 | 1056 | 1065 | 10 | APHGVVFLHV 0.017696 | 3.8 |
| HLA-A*11:01 | 1 | 415 | 424 | 10 | TGKIADYNYK 0.017677 | 3.4 |
| HLA-B*44:02 | 1 | 280 | 289 | 10 | NENGTITDAV 0.017647 | 2.0 |
| HLA-B*40:01 | 1 | 1040 | 1049 | 10 | VDFCGKGYHL 0.017646 | 2.2 |
| HLA-A*24:02 | 1 | 395 | 403 | 9 | VYADSFVIR 0.017626 | 2.3 |
| HLA-A*24:02 | 1 | 150 | 159 | 10 | KSWMESEFRV 0.017622 | 2.3 |
| HLA-B*57:01 | 1 | 825 | 834 | 10 | KVTLADAGFI 0.017609 | 4.8 |
| HLA-B*08:01 | 1 | 326 | 335 | 10 | IVRFPNITNL 0.017604 | 4.3 |
| HLA-B*51:01 | 1 | 207 | 216 | 10 | HTPINLVRDL 0.017598 | 4.4 |
| HLA-A*33:01 | 1 | 40 | 49 | 10 | DKVFRSSVLH 0.017596 | 4.0 |
| HLA-A*02:01 | 1 | 1070 | 1078 | 9 | AQEKNFTTA 0.017594 | 3.8 |
| HLA-A*31:01 | 1 | 569 | 577 | 9 | IADTTDAVR 0.017586 | 4.9 |
| HLA-B*53:01 | 1 | 1056 | 1065 | 10 | APHGVVFLHV 0.017564 | 2.5 |
| HLA-A*30:01 | 1 | 1065 | 1074 | 10 | VTYVPAQEKN 0.017561 | 6.0 |
| HLA-A*30:02 | 1 | 854 | 862 | 9 | KFNGLTVLP 0.017554 | 4.4 |
| HLA-A*30:01 | 1 | 535 | 543 | 9 | KNKCVNFNF 0.017552 | 6.0 |
| HLA-A*02:06 | 1 | 710 | 718 | 9 | NSIAIPTNF 0.017548 | 5.0 |
| HLA-B*53:01 | 1 | 666 | 674 | 9 | IGAGICASY 0.017538 | 2.5 |
| HLA-B*58:01 | 1 | 1174 | 1183 | 10 | ASVUNIQKEI 0.017531 | 3.2 |
| HLA-A*30:01 | 1 | 246 | 255 | 10 | RSYLTGDS 0.017511 | 6.0 |
| HLA-B*40:01 | 1 | 786 | 794 | 9 | KQIYKTPPI 0.017504 | 2.2 |
| HLA-B*08:01 | 1 | 678 | 687 | 10 | TNSPRRARSV 0.0175 | 4.3 |
| HLA-A*01:01 | 1 | 999 | 1007 | 9 | GRLQSLQTY 0.017495 | 2.7 |
| HLA-A*02:06 | 1 | 634 | 643 | 10 | RVYSTGSNVF 0.017488 | 5.0 |
| HLA-A*31:01 | 1 | 151 | 159 | 9 | SWMESEFRV 0.017487 | 4.9 |
| HLA-B*57:01 | 1 | 1221 | 1229 | 9 | IAGLIAIVM 0.017484 | 4.8 |
| HLA-A*02:03 | 1 | 381 | 390 | 10 | GVSPKLNLDL 0.017483 | 4.2 |
| HLA-A*30:01 | 1 | 115 | 123 | 9 | QSLLVNNA 0.017482 | 6.0 |
| HLA-B*51:01 | 1 | 226 | 235 | 10 | LVDLPIGINI 0.017476 | 4.4 |
| HLA-A*33:01 | 1 | 1056 | 1064 | 9 | APHGVVFLH 0.017475 | 4.0 |
| HLA-B*44:02 | 1 | 1264 | 1272 | 9 | VLKGVKLHY 0.017473 | 2.0 |
| HLA-A*03:01 | 1 | 409 | 418 | 10 | QIAPGQTGKI 0.017451 | 3.7 |
| HLA-B*57:01 | 1 | 699 | 707 | 9 | LGAENSVAY 0.017448 | 4.9 |
| HLA-B*44:02 | 1 | 413 | 421 | 9 | GQTGKIADY 0.017437 | 2.0 |
| HLA-A*30:01 | 1 | 185 | 193 | 9 | NFKNLREFV 0.017436 | 6.0 |
| HLA-A*30:01 | 1 | 788 | 796 | 9 | IYKTPPIKD 0.017432 | 6.0 |
| HLA-A*30:01 | 1 | 202 | 211 | 10 | KIYSKHTPIN 0.017424 | 6.0 |
| HLA-A*23:01 | 1 | 1109 | 1117 | 9 | FYEPQIITT 0.017417 | 2.2 |
| HLA-B*53:01 | 1 | 298 | 306 | 9 | ETKCTLKSF 0.017415 | 2.5 |
| HLA-B*08:01 | 1 | 353 | 362 | 10 | WNRKRISNCV 0.017411 | 4.3 |
| HLA-B*07:02 | 1 | 895 | 904 | 10 | QIPFAMQMAY 0.017409 | 2.9 |
| HLA-A*03:01 | 1 | 510 | 519 | 10 | VVLSFELLH 0.017394 | 3.7 |
| HLA-B*08:01 | 1 | 1015 | 1024 | 10 | AAEIRASANL 0.017393 | 4.3 |
| HLA-B*07:02 | 1 | 268 | 276 | 9 | GYLQPRFTL 0.017384 | 2.9 |
| HLA-A*30:02 | 1 | 687 | 696 | 10 | VASQSIIAYT 0.017382 | 4.5 |
| HLA-A*30:02 | 1 | 167 | 175 | 9 | TFEYVSQPF 0.017366 | 4.5 |
| HLA-A*30:02 | 1 | 142 | 150 | 9 | GYYHKNK 0.017359 | 4.5 |
| HLA-B*15:01 | 1 | 1101 | 1110 | 10 | HWFVTQRNFY 0.017355 | 4.1 |
| HLA-B*07:02 | 1 | 1089 | 1098 | 10 | FPREGVFSVN 0.017352 | 2.9 |
| HLA-B*58:01 | 1 | 1058 | 1067 | 10 | HGVVFLHVTY 0.017348 | 3.2 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*24:02 | 1 | 1219 | 1227 | 9 | GFIAGLIAI 0.017336 | 2.3 |
| HLA-B*58:01 | 1 | 383 | 392 | 10 | SPTKLNDLCF 0.017314 | 3.2 |
| HLA-B*07:02 | 1 | 215 | 223 | 9 | DLPQGFSAL 0.017313 | 2.9 |
| HLA-B*07:02 | 1 | 424 | 433 | 10 | KLPDDFTGCV 0.017286 | 2.9 |
| HLA-B*58:01 | 1 | 576 | 584 | 9 | VRDPQTLEI 0.017264 | 3.2 |
| HLA-A*26:01 | 1 | 228 | 237 | 10 | DLPIGINITR 0.017232 | 2.4 |
| HLA-A*02:06 | 1 | 803 | 812 | 10 | SQILPDPSPK 0.01723 | 5.1 |
| HLA-B*51:01 | 1 | 573 | 582 | 10 | TDAVRDPQTL 0.017229 | 4.4 |
| HLA-A*02:06 | 1 | 1223 | 1232 | 10 | GLIAIVMVTI 0.017217 | 5.1 |
| HLA-A*32:01 | 1 | 1226 | 1234 | 9 | AIVMVTIML 0.017217 | 2.6 |
| HLA-A*02:03 | 1 | 464 | 472 | 9 | FERDISTEI 0.017216 | 4.3 |
| HLA-A*30:02 | 1 | 35 | 44 | 10 | GVYYPDKVFR 0.017212 | 4.5 |
| HLA-A*30:01 | 1 | 355 | 363 | 9 | RKRISNCVA 0.017211 | 6.0 |
| HLA-B*57:01 | 1 | 503 | 511 | 9 | VGYPYRVV 0.017185 | 4.9 |
| HLA-B*15:01 | 1 | 750 | 759 | 10 | SNLLLQYGSF 0.017178 | 4.1 |
| HLA-A*68:02 | 1 | 84 | 93 | 10 | LPFNDGVYFA 0.017172 | 3.8 |
| HLA-A*30:01 | 1 | 721 | 729 | 9 | SVTTEILPV 0.017172 | 6.1 |
| HLA-A*02:01 | 1 | 576 | 584 | 9 | VRDPQTLEI 0.017161 | 3.8 |
| HLA-B*08:01 | 1 | 46 | 54 | 9 | SVLHSTQDL 0.017155 | 4.3 |
| HLA-B*15:01 | 1 | 356 | 365 | 10 | KRISNCVADY 0.017121 | 4.1 |
| HLA-B*57:01 | 1 | 1067 | 1075 | 9 | YVPAQEKNF 0.017117 | 4.9 |
| HLA-A*68:01 | 1 | 625 | 633 | 9 | HADQLTPTW 0.017111 | 5.6 |
| HLA-A*68:02 | 1 | 1192 | 1200 | 9 | NLNESLIDL 0.01711 | 3.8 |
| HLA-A*68:02 | 1 | 1013 | 1022 | 10 | IRAAEIRASA 0.017099 | 3.8 |
| HLA-A*30:01 | 1 | 1147 | 1155 | 9 | SFKEELDKY 0.017091 | 6.1 |
| HLA-B*08:01 | 1 | 524 | 533 | 10 | VCGPKKSTNL 0.017088 | 4.4 |
| HLA-A*26:01 | 1 | 747 | 756 | 10 | TECSNLLLQY 0.017083 | 2.4 |
| HLA-B*51:01 | 1 | 30 | 38 | 9 | NSFTRGVYY 0.01708 | 4.4 |
| HLA-A*68:01 | 1 | 1168 | 1176 | 9 | DISGINASV 0.017062 | 5.6 |
| HLA-B*57:01 | 1 | 113 | 121 | 9 | KTQSLLIVN 0.017054 | 4.9 |
| HLA-B*15:01 | 1 | 1209 | 1217 | 9 | YIKWPWYIW 0.017051 | 4.1 |
| HLA-A*02:03 | 1 | 75 | 83 | 9 | GTKRFDNPV 0.017046 | 4.3 |
| HLA-A*23:01 | 1 | 184 | 192 | 9 | GNFKNLREF 0.017039 | 2.2 |
| HLA-A*30:01 | 1 | 644 | 652 | 9 | QTRAGCLIG 0.017027 | 6.1 |
| HLA-A*30:02 | 1 | 672 | 680 | 9 | ASYQTQTNB 0.017026 | 4.5 |
| HLA-B*51:01 | 1 | 1014 | 1022 | 9 | RAAEIRASA 0.01702 | 4.4 |
| HLA-A*33:01 | 1 | 70 | 78 | 9 | VSGTNGTKR 0.017018 | 4.0 |
| HLA-A*02:06 | 1 | 1124 | 1132 | 9 | GNCDDVIGI 0.017014 | 5.1 |
| HLA-A*32:01 | 1 | 125 | 133 | 9 | NVVIKVFCE 0.01701 | 2.6 |
| HLA-A*30:02 | 1 | 1094 | 1103 | 10 | VFVSNQTHWF 0.017009 | 4.5 |
| HLA-A*02:01 | 1 | 568 | 576 | 9 | DIADTTDAV 0.017007 | 3.8 |
| HLA-A*24:02 | 1 | 751 | 759 | 9 | NLLLQYGSF 0.017001 | 2.3 |
| HLA-B*57:01 | 1 | 170 | 179 | 10 | YVSQPFLMDL 0.016986 | 4.9 |
| HLA-A*30:02 | 1 | 19 | 27 | 9 | TTRTQLPPA 0.016978 | 4.5 |
| HLA-A*26:01 | 1 | 260 | 269 | 10 | AGAAAYYVGY 0.016962 | 2.4 |
| HLA-B*44:03 | 1 | 1054 | 1062 | 9 | QSAPHGVVF 0.016949 | 2.2 |
| HLA-A*30:01 | 1 | 246 | 254 | 9 | RSYLTPGDS 0.016947 | 6.1 |
| HLA-A*02:06 | 1 | 21 | 29 | 9 | RTQLPPAYT 0.016939 | 5.1 |
| HLA-A*31:01 | 1 | 626 | 634 | 9 | ADQLTPTWR 0.016928 | 5.0 |
| HLA-A*26:01 | 1 | 1080 | 1089 | 10 | AICHDGKAHF 0.016917 | 2.4 |
| HLA-A*02:06 | 1 | 53 | 62 | 10 | DLFLPFFSNV 0.016916 | 5.1 |
| HLA-B*51:01 | 1 | 962 | 970 | 9 | LVKQLSSNF 0.016912 | 4.5 |
| HLA-A*33:01 | 1 | 1137 | 1145 | 9 | VYDPLQPEL 0.016906 | 4.0 |
| HLA-A*30:02 | 1 | 455 | 464 | 10 | LFRKSNLKPF 0.016901 | 4.5 |
| HLA-A*32:01 | 1 | 901 | 909 | 9 | QMAYRFNGI 0.016888 | 2.6 |
| HLA-B*15:01 | 1 | 1137 | 1145 | 9 | VYDPLQPEL 0.016887 | 4.2 |
| HLA-A*30:01 | 1 | 1181 | 1189 | 9 | KEIDRLNEV 0.016877 | 6.1 |
| HLA-A*31:01 | 1 | 1173 | 1181 | 9 | NASVVNIQK 0.016874 | 5.0 |
| HLA-A*30:02 | 1 | 601 | 609 | 9 | GTNTSNQVA 0.016873 | 4.6 |
| HLA-A*31:01 | 1 | 628 | 636 | 9 | QLTPTWRVY 0.016866 | 5.0 |
| HLA-B*58:01 | 1 | 747 | 756 | 10 | TECSNLLLQY 0.016864 | 3.3 |
| HLA-A*30:01 | 1 | 366 | 374 | 9 | SVLYNSASF 0.016862 | 6.1 |
| HLA-A*32:01 | 1 | 1065 | 1073 | 9 | VTYVPAQEK 0.016848 | 2.6 |
| HLA-A*02:06 | 1 | 35 | 43 | 9 | GVYYPDKVF 0.016846 | 5.1 |
| HLA-A*26:01 | 1 | 1055 | 1064 | 10 | SAPHGVVFLH 0.016837 | 2.4 |
| HLA-A*30:01 | 1 | 104 | 113 | 10 | WIFGTTLDSK 0.016836 | 6.1 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*30:02 | 1 | 378 | 387 | 10 | KCYGVSPTKL 0.016834 | 4.6 |
| HLA-B*44:02 | 1 | 131 | 140 | 10 | CEFQFCNDPF 0.016829 | 2.1 |
| HLA-A*01:01 | 1 | 260 | 269 | 10 | AGAAAYVGVY 0.016816 | 2.8 |
| HLA-B*08:01 | 1 | 102 | 110 | 9 | RGWIFGTTL 0.016811 | 4.4 |
| HLA-B*35:01 | 1 | 680 | 688 | 9 | SPRRARSVA 0.016803 | 2.9 |
| HLA-A*32:01 | 1 | 447 | 455 | 9 | GNYNLYRL 0.016759 | 2.6 |
| HLA-A*30:01 | 1 | 77 | 85 | 9 | KRFDNPVLP 0.016753 | 6.2 |
| HLA-A*68:01 | 1 | 1258 | 1266 | 9 | EDDSEPVLK 0.016751 | 5.7 |
| HLA-A*30:01 | 1 | 955 | 964 | 10 | NAQALNTLVK 0.016749 | 6.2 |
| HLA-B*58:01 | 1 | 731 | 740 | 10 | MTKTSVDCTM 0.016728 | 3.3 |
| HLA-B*58:01 | 1 | 553 | 562 | 10 | TESNKKFLPF 0.016719 | 3.3 |
| HLA-B*51:01 | 1 | 584 | 592 | 9 | ILDITPCSF 0.016694 | 4.5 |
| HLA-A*31:01 | 1 | 182 | 191 | 10 | KQGNFKNLRE 0.016692 | 5.0 |
| HLA-A*30:01 | 1 | 519 | 528 | 10 | HAPATVCGPK 0.016692 | 6.2 |
| HLA-A*30:02 | 1 | 137 | 145 | 9 | NDPFLGVY 0.016688 | 4.6 |
| HLA-A*02:03 | 1 | 1113 | 1122 | 10 | QIITTDNTFV 0.016686 | 4.3 |
| HLA-A*02:03 | 1 | 835 | 844 | 10 | KQYGDCLGDI 0.016679 | 4.3 |
| HLA-A*01:01 | 1 | 710 | 718 | 9 | NSIAIPTNF 0.016676 | 2.8 |
| HLA-A*31:01 | 1 | 1082 | 1091 | 10 | CHDGKAHFPR 0.016674 | 5.1 |
| HLA-B*51:01 | 1 | 1004 | 1012 | 9 | LQTYVTQQL 0.016669 | 4.5 |
| HLA-A*68:02 | 1 | 318 | 326 | 9 | FRVQPTESI 0.016664 | 3.9 |
| HLA-A*11:01 | 1 | 698 | 707 | 10 | SLGAENSVAY 0.016655 | 3.4 |
| HLA-A*02:03 | 1 | 1007 | 1016 | 10 | YVTQQLIRAA 0.016654 | 4.4 |
| HLA-B*57:01 | 1 | 1021 | 1029 | 9 | SANLAATKM 0.016654 | 5.0 |
| HLA-A*02:03 | 1 | 340 | 348 | 9 | EVFNATRFA 0.016641 | 4.4 |
| HLA-A*02:01 | 1 | 168 | 176 | 9 | FEYVSPFL 0.016638 | 3.9 |
| HLA-B*57:01 | 1 | 889 | 898 | 10 | GAGAALQIPF 0.016632 | 5.0 |
| HLA-B*44:03 | 1 | 918 | 927 | 10 | ENQKLIANQF 0.016626 | 2.2 |
| HLA-A*26:01 | 1 | 1197 | 1206 | 10 | LIDLQELGKY 0.016617 | 2.4 |
| HLA-B*51:01 | 1 | 298 | 306 | 9 | ETKCTLKSF 0.016614 | 4.5 |
| HLA-A*30:02 | 1 | 46 | 54 | 9 | SVLHSTQDL 0.016601 | 4.6 |
| HLA-B*44:03 | 1 | 894 | 902 | 9 | LQIPFAMQM 0.016601 | 2.2 |
| HLA-B*44:02 | 1 | 660 | 668 | 9 | YECDIPIGA 0.016592 | 2.1 |
| HLA-B*51:01 | 1 | 792 | 800 | 9 | PPIKDFGGF 0.016571 | 4.5 |
| HLA-B*51:01 | 1 | 212 | 220 | 9 | LVRDLPQGF 0.016569 | 4.5 |
| HLA-A*26:01 | 1 | 1195 | 1203 | 9 | ESLIDLQEL 0.016561 | 2.4 |
| HLA-B*07:02 | 1 | 860 | 869 | 10 | VLPPLLTDEM 0.016555 | 3.0 |
| HLA-A*33:01 | 1 | 781 | 789 | 9 | VFAQVKQIY 0.01652 | 4.1 |
| HLA-A*68:02 | 1 | 471 | 480 | 10 | EIYQAGSTPC 0.016519 | 3.9 |
| HLA-B*15:01 | 1 | 445 | 453 | 9 | VGGNYNYLY 0.016515 | 4.2 |
| HLA-A*68:01 | 1 | 636 | 644 | 9 | YSTGSNVFQ 0.016514 | 5.7 |
| HLA-A*68:01 | 1 | 828 | 837 | 10 | LADAGFIKQY 0.016514 | 5.7 |
| HLA-B*44:03 | 1 | 323 | 332 | 10 | TESIVRFPNI 0.016508 | 2.2 |
| HLA-B*15:01 | 1 | 504 | 513 | 10 | GYQPYRVVVL 0.016498 | 4.2 |
| HLA-B*58:01 | 1 | 683 | 692 | 10 | RARVASQSI 0.016488 | 3.3 |
| HLA-A*03:01 | 1 | 778 | 786 | 9 | TQEVFAQVK 0.016473 | 3.8 |
| HLA-B*35:01 | 1 | 603 | 611 | 9 | NTSNQVAVL 0.01647 | 2.9 |
| HLA-B*15:01 | 1 | 1060 | 1068 | 9 | VVFLHVTYV 0.016467 | 4.2 |
| HLA-A*26:01 | 1 | 489 | 497 | 9 | YFPLQSYGF 0.016461 | 2.4 |
| HLA-A*33:01 | 1 | 1030 | 1039 | 10 | SECVLGQSKR 0.016443 | 4.1 |
| HLA-A*30:01 | 1 | 718 | 726 | 9 | FTISVTTEI 0.016442 | 6.2 |
| HLA-B*51:01 | 1 | 704 | 712 | 9 | SVAYSNNIS 0.016434 | 4.5 |
| HLA-A*02:06 | 1 | 75 | 83 | 9 | GTKRFDNPV 0.016423 | 5.2 |
| HLA-A*24:02 | 1 | 1211 | 1219 | 9 | KWPWYIWLG 0.016416 | 2.4 |
| HLA-B*53:01 | 1 | 806 | 815 | 10 | LPDPSKPSKR 0.016409 | 2.6 |
| HLA-A*30:02 | 1 | 1204 | 1212 | 9 | GKYEYIKW 0.016394 | 4.6 |
| HLA-B*08:01 | 1 | 167 | 175 | 9 | TFEYVSQPF 0.016393 | 4.5 |
| HLA-A*30:01 | 1 | 1039 | 1048 | 10 | RVDFCGKGYH 0.016389 | 6.3 |
| HLA-A*31:01 | 1 | 939 | 947 | 9 | SSTASALGK 0.016375 | 5.1 |
| HLA-B*51:01 | 1 | 689 | 697 | 9 | SQSIIAYTM 0.016373 | 4.5 |
| HLA-A*03:01 | 1 | 258 | 266 | 9 | WTAGAAAYY 0.016369 | 3.8 |
| HLA-A*32:01 | 1 | 550 | 559 | 10 | GVLTESNKKF 0.016367 | 2.6 |
| HLA-B*53:01 | 1 | 551 | 559 | 9 | VLTESNKKF 0.016363 | 2.6 |
| HLA-A*30:02 | 1 | 925 | 933 | 9 | NQFNSAIGK 0.016363 | 4.6 |
| HLA-B*53:01 | 1 | 651 | 660 | 10 | IGAHEVNNYSY 0.016353 | 2.6 |
| HLA-B*51:01 | 1 | 685 | 693 | 9 | RSVASQSII 0.016349 | 4.5 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*26:01 | 1 | 908 | 917 | 10 | GIGVTQNVLY 0.016346 | 2.4 |
| HLA-B*51:01 | 1 | 319 | 327 | 9 | RVQPTESIV 0.016341 | 4.5 |
| HLA-B*07:02 | 1 | 869 | 878 | 10 | MIAQYTSALL 0.01634 | 3.0 |
| HLA-A*68:02 | 1 | 663 | 672 | 10 | DIPIGAGICA 0.016337 | 3.9 |
| HLA-A*23:01 | 1 | 395 | 403 | 9 | VYADSFVIR 0.016323 | 2.3 |
| HLA-B*15:01 | 1 | 709 | 718 | 10 | NNSIAIPTNF 0.016307 | 4.2 |
| HLA-B*57:01 | 1 | 529 | 537 | 9 | KSTNLVKNK 0.016301 | 5.0 |
| HLA-A*01:01 | 1 | 828 | 836 | 9 | LADAGFIKQ 0.016301 | 2.9 |
| HLA-A*11:01 | 1 | 625 | 634 | 10 | HADQLTPTWR 0.0163 | 3.5 |
| HLA-A*33:01 | 1 | 121 | 129 | 9 | NNATNVVVK 0.016298 | 4.1 |
| HLA-B*51:01 | 1 | 1222 | 1230 | 9 | AGLIAIVMV 0.016293 | 4.5 |
| HLA-A*02:03 | 1 | 943 | 952 | 10 | SALGKLQDVV 0.016289 | 4.4 |
| HLA-A*03:01 | 1 | 1036 | 1045 | 10 | QSKRVDFCGK 0.016286 | 3.8 |
| HLA-B*57:01 | 1 | 915 | 923 | 9 | VLYENQKLI 0.016285 | 5.0 |
| HLA-B*57:01 | 1 | 444 | 452 | 9 | KVGGNYNYL 0.016279 | 5.0 |
| HLA-A*30:02 | 1 | 237 | 246 | 10 | RFQTLALHR 0.016278 | 4.6 |
| HLA-B*53:01 | 1 | 1066 | 1075 | 10 | TYVPAQEKNF 0.016268 | 2.6 |
| HLA-A*68:02 | 1 | 501 | 510 | 10 | NGVGYPYRV 0.016259 | 3.9 |
| HLA-A*23:01 | 1 | 915 | 923 | 9 | VLYENQKLI 0.016248 | 2.3 |
| HLA-B*15:01 | 1 | 442 | 451 | 10 | DSKVGGNVNY 0.016247 | 4.3 |
| HLA-B*53:01 | 1 | 360 | 369 | 10 | NCVADYSVLY 0.016242 | 2.6 |
| HLA-A*32:01 | 1 | 192 | 201 | 10 | FVFKNIDGYF 0.016225 | 2.6 |
| HLA-A*31:01 | 1 | 78 | 86 | 9 | RFDNPVLPF 0.016221 | 5.1 |
| HLA-A*02:01 | 1 | 1196 | 1204 | 9 | SLIDLQELG 0.016217 | 3.9 |
| HLA-B*35:01 | 1 | 870 | 878 | 9 | IAQYTSALL 0.016203 | 2.9 |
| HLA-B*08:01 | 1 | 755 | 763 | 9 | QYGSFCTQL 0.016199 | 4.5 |
| HLA-B*08:01 | 1 | 1195 | 1203 | 9 | ESLIDLQEL 0.016196 | 4.5 |
| HLA-A*01:01 | 1 | 369 | 377 | 9 | YNSASFSTF 0.016193 | 2.9 |
| HLA-A*68:01 | 1 | 619 | 628 | 10 | EVPVAIHADQ 0.016193 | 5.8 |
| HLA-A*24:02 | 1 | 860 | 869 | 10 | VLPLLTDEM 0.016191 | 2.4 |
| HLA-B*35:01 | 1 | 151 | 160 | 10 | SWMESEFRVY 0.01619 | 2.9 |
| HLA-A*30:01 | 1 | 302 | 311 | 10 | TLKSFTVEKG 0.01619 | 6.3 |
| HLA-A*26:01 | 1 | 751 | 759 | 9 | NLLLQYGSF 0.016182 | 2.4 |
| HLA-B*07:02 | 1 | 930 | 938 | 9 | ATGKIQDSL 0.016176 | 3.0 |
| HLA-B*51:01 | 1 | 318 | 326 | 9 | FRVQPTESI 0.016172 | 4.6 |
| HLA-A*03:01 | 1 | 995 | 1003 | 9 | RLITGRLOS 0.016168 | 3.8 |
| HLA-A*03:01 | 1 | 6 | 14 | 9 | VLLPLVSSQ 0.016165 | 3.8 |
| HLA-A*31:01 | 1 | 138 | 147 | 10 | DPFLGVYYHK 0.016161 | 5.1 |
| HLA-A*68:02 | 1 | 1051 | 1060 | 10 | SFPQSAPHGV 0.016154 | 4.0 |
| HLA-A*30:01 | 1 | 693 | 701 | 9 | IAYTMSLGA 0.016152 | 6.3 |
| HLA-A*30:02 | 1 | 254 | 262 | 9 | SSSGWTAGA 0.016144 | 4.7 |
| HLA-B*44:03 | 1 | 308 | 316 | 9 | VEKGIYQTS 0.016142 | 2.3 |
| HLA-A*02:03 | 1 | 503 | 511 | 9 | VGYPYRVV 0.016141 | 4.4 |
| HLA-B*15:01 | 1 | 1054 | 1063 | 10 | QSAPHGVVFL 0.016139 | 4.3 |
| HLA-B*35:01 | 1 | 1055 | 1063 | 9 | SAPHGVVFL 0.016136 | 2.9 |
| HLA-B*53:01 | 1 | 951 | 959 | 9 | VVNQNAQAL 0.016087 | 2.6 |
| HLA-B*51:01 | 1 | 791 | 800 | 10 | TPPIKDFGGF 0.01608 | 4.6 |
| HLA-A*68:02 | 1 | 554 | 562 | 9 | ESNKKFLPF 0.016079 | 4.0 |
| HLA-A*02:06 | 1 | 59 | 67 | 9 | FSNVTWFHA 0.016075 | 5.3 |
| HLA-B*44:03 | 1 | 184 | 192 | 9 | GNFKNLREF 0.016075 | 2.3 |
| HLA-B*44:02 | 1 | 323 | 332 | 10 | TESIVRFPNI 0.016073 | 2.1 |
| HLA-A*23:01 | 1 | 533 | 541 | 9 | LVKNKCVNF 0.016073 | 2.3 |
| HLA-A*68:02 | 1 | 233 | 241 | 9 | INITRFQTL 0.016062 | 4.0 |
| HLA-A*33:01 | 1 | 54 | 62 | 9 | LFLPFFSNV 0.016055 | 4.1 |
| HLA-A*68:02 | 1 | 1007 | 1016 | 10 | YVTQQLIRAA 0.016051 | 4.0 |
| HLA-B*53:01 | 1 | 371 | 380 | 10 | SASFSTFKCY 0.016045 | 2.6 |
| HLA-A*02:06 | 1 | 923 | 931 | 9 | IANQFNSAI 0.016033 | 5.3 |
| HLA-B*53:01 | 1 | 51 | 59 | 9 | TQDLFLPFF 0.016032 | 2.6 |
| HLA-A*68:01 | 1 | 897 | 905 | 9 | PFAMQMAYR 0.016031 | 5.8 |
| HLA-A*11:01 | 1 | 628 | 636 | 9 | QLTPTWRVY 0.01603 | 3.5 |
| HLA-B*35:01 | 1 | 137 | 145 | 9 | NDPFLGVYY 0.016028 | 3.0 |
| HLA-A*30:01 | 1 | 46 | 54 | 9 | SVLHSTQDL 0.016024 | 6.3 |
| HLA-B*53:01 | 1 | 1264 | 1272 | 9 | VLKGVKLHY 0.016016 | 2.6 |
| HLA-A*03:01 | 1 | 955 | 964 | 10 | NAQALNTLVK 0.016014 | 3.8 |
| HLA-B*44:02 | 1 | 1150 | 1158 | 9 | EELDKYFKN 0.016014 | 2.1 |
| HLA-A*30:01 | 1 | 300 | 309 | 10 | KCTLKSFTVE 0.016011 | 6.3 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*11:01 | 1 | 510 | 519 | 10 | VVLSFELLH 0.016008 | 3.5 |
| HLA-B*07:02 | 1 | 870 | 878 | 9 | IAQYTSALL 0.016003 | 3.1 |
| HLA-A*30:02 | 1 | 102 | 110 | 9 | RGWIFGTTL 0.016 | 4.7 |
| HLA-B*53:01 | 1 | 773 | 782 | 10 | EQDKNTQEVF 0.015999 | 2.6 |
| HLA-A*31:01 | 1 | 509 | 517 | 9 | RVVLSFEL 0.015993 | 5.1 |
| HLA-B*44:02 | 1 | 1087 | 1095 | 9 | AHFPREGVF 0.015986 | 2.1 |
| HLA-A*30:02 | 1 | 510 | 519 | 10 | VVLSFELLH 0.015984 | 4.7 |
| HLA-A*33:01 | 1 | 1102 | 1110 | 9 | WFVTQRNFY 0.015983 | 4.1 |
| HLA-A*24:02 | 1 | 814 | 823 | 10 | KRSFIEDLLF 0.015975 | 2.4 |
| HLA-A*26:01 | 1 | 1039 | 1047 | 9 | RVDFCGKGY 0.015975 | 2.5 |
| HLA-A*68:02 | 1 | 1025 | 1033 | 9 | AATKMSECV 0.015974 | 4.0 |
| HLA-A*02:01 | 1 | 752 | 760 | 9 | LLLQYGSFC 0.015968 | 4.0 |
| HLA-A*68:02 | 1 | 722 | 730 | 9 | VTTEILPVS 0.015952 | 4.0 |
| HLA-A*26:01 | 1 | 557 | 565 | 9 | KKFLPFQOF 0.015945 | 2.5 |
| HLA-A*26:01 | 1 | 111 | 119 | 9 | DSKTQSLLI 0.015938 | 2.5 |
| HLA-B*15:01 | 1 | 1225 | 1233 | 9 | IAIVMVTIM 0.015937 | 4.3 |
| HLA-A*68:01 | 1 | 666 | 674 | 9 | IGAGICASY 0.01592 | 5.8 |
| HLA-A*02:03 | 1 | 762 | 771 | 10 | QLNRALTGIA 0.015912 | 4.5 |
| HLA-A*32:01 | 1 | 923 | 931 | 9 | IANQFNSAI 0.0159 | 2.7 |
| HLA-A*68:01 | 1 | 583 | 592 | 10 | EILDITPCSF 0.015897 | 5.8 |
| HLA-A*68:02 | 1 | 30 | 38 | 9 | NSFTRGVYY 0.015887 | 4.0 |
| HLA-A*23:01 | 1 | 510 | 518 | 9 | VVLSFELL 0.015884 | 2.3 |
| HLA-A*32:01 | 1 | 583 | 592 | 10 | EILDITPCSF 0.015882 | 2.7 |
| HLA-A*24:02 | 1 | 794 | 802 | 9 | IKDFGGFNF 0.01588 | 2.4 |
| HLA-B*44:03 | 1 | 339 | 348 | 10 | GEVFNATRFA 0.015863 | 2.3 |
| HLA-A*30:01 | 1 | 108 | 116 | 9 | TTLDSKTQS 0.01585 | 6.4 |
| HLA-A*68:02 | 1 | 254 | 263 | 10 | SSSGWTAGAA 0.01585 | 4.0 |
| HLA-A*68:02 | 1 | 505 | 513 | 9 | YQPYRVVVL 0.015849 | 4.0 |
| HLA-B*08:01 | 1 | 950 | 959 | 10 | DVVNQNAQAL 0.015834 | 4.6 |
| HLA-B*51:01 | 1 | 1129 | 1137 | 9 | VIGIVNNTV 0.015831 | 4.6 |
| HLA-B*40:01 | 1 | 236 | 244 | 9 | TRFQTLAL 0.015827 | 2.3 |
| HLA-A*02:03 | 1 | 510 | 518 | 9 | VVLSFELL 0.015824 | 4.5 |
| HLA-A*02:03 | 1 | 254 | 262 | 9 | SSSGWTAGA 0.015821 | 4.5 |
| HLA-B*57:01 | 1 | 226 | 235 | 10 | LVDLPIGINI 0.015817 | 5.1 |
| HLA-A*30:01 | 1 | 444 | 453 | 10 | KVGGNYNYLY 0.015795 | 6.4 |
| HLA-A*30:01 | 1 | 236 | 244 | 9 | TRFQTLAL 0.015784 | 6.4 |
| HLA-A*11:01 | 1 | 674 | 682 | 9 | YQTQNSPR 0.01578 | 3.5 |
| HLA-B*08:01 | 1 | 364 | 372 | 9 | DYSVLYNSA 0.015775 | 4.6 |
| HLA-A*02:01 | 1 | 248 | 256 | 9 | YLTPGDSSS 0.015762 | 4.0 |
| HLA-A*02:03 | 1 | 934 | 942 | 9 | IQDLSLSTA 0.015754 | 4.5 |
| HLA-A*02:06 | 1 | 224 | 233 | 10 | EPLVDLPIGI 0.015749 | 5.3 |
| HLA-B*08:01 | 1 | 30 | 38 | 9 | NSFTRGVYY 0.015747 | 4.6 |
| HLA-B*57:01 | 1 | 829 | 837 | 9 | ADAGFIKQY 0.015745 | 5.1 |
| HLA-A*30:01 | 1 | 677 | 686 | 10 | QTNSPRRARS 0.015739 | 6.4 |
| HLA-B*57:01 | 1 | 939 | 948 | 10 | SSTASALGKL 0.015739 | 5.1 |
| HLA-B*44:03 | 1 | 987 | 995 | 9 | VEAEVQIDR 0.015736 | 2.3 |
| HLA-A*68:01 | 1 | 187 | 195 | 9 | KNLREFVFK 0.015729 | 5.8 |
| HLA-A*02:03 | 1 | 1000 | 1009 | 10 | RLQSLQTYVT 0.015728 | 4.5 |
| HLA-B*35:01 | 1 | 239 | 248 | 10 | QTLLALHRSY 0.015725 | 3.0 |
| HLA-A*30:02 | 1 | 1064 | 1073 | 10 | HVTYVPAQEK 0.015725 | 4.7 |
| HLA-A*02:06 | 1 | 218 | 226 | 9 | QGFSALEPL 0.015722 | 5.3 |
| HLA-A*30:01 | 1 | 241 | 249 | 9 | LLALHRSYL 0.015712 | 6.4 |
| HLA-A*26:01 | 1 | 126 | 135 | 10 | VVIKVCEFQF 0.01571 | 2.5 |
| HLA-B*51:01 | 1 | 467 | 475 | 9 | DISTEIQYA 0.01571 | 4.6 |
| HLA-A*02:06 | 1 | 512 | 521 | 10 | VLSFELLHAP 0.015688 | 5.3 |
| HLA-B*35:01 | 1 | 173 | 181 | 9 | QPFLMDLEG 0.015686 | 3.0 |
| HLA-B*44:02 | 1 | 1137 | 1145 | 9 | VYDPLQPEL 0.015686 | 2.1 |
| HLA-B*44:03 | 1 | 1087 | 1095 | 9 | AHFPREGVF 0.015678 | 2.3 |
| HLA-A*30:01 | 1 | 349 | 358 | 10 | SVYAWNKRKI 0.015669 | 6.4 |
| HLA-A*30:01 | 1 | 495 | 503 | 9 | YGFQPTNGV 0.015668 | 6.4 |
| HLA-B*07:02 | 1 | 833 | 841 | 9 | FIKQYGDCL 0.015658 | 3.1 |
| HLA-A*02:06 | 1 | 723 | 731 | 9 | TTEILPVSM 0.015643 | 5.4 |
| HLA-A*02:03 | 1 | 891 | 899 | 9 | GAALQIPFA 0.015642 | 4.5 |
| HLA-A*31:01 | 1 | 1030 | 1039 | 10 | SECVLGQSKR 0.015642 | 5.2 |
| HLA-A*33:01 | 1 | 780 | 789 | 10 | EVFAQVKQIY 0.015641 | 4.2 |
| HLA-A*02:06 | 1 | 162 | 171 | 10 | SANNCTFEYV 0.01563 | 5.4 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|----------|-----|
| HLA-B*08:01 | 1 | 2 | 10 | 9 | FVFLVLLPL | 0.015627 | 4.6 |
| HLA-A*02:01 | 1 | 1178 | 1186 | 9 | NIQKEIDRL | 0.015623 | 4.0 |
| HLA-A*02:06 | 1 | 212 | 220 | 9 | LVRDLPQGF | 0.015621 | 5.4 |
| HLA-A*30:01 | 1 | 676 | 684 | 9 | TQTNSPRRA | 0.01562 | 6.5 |
| HLA-A*33:01 | 1 | 340 | 348 | 9 | EVFNATRFA | 0.015618 | 4.2 |
| HLA-B*35:01 | 1 | 820 | 828 | 9 | DLLFNKVTL | 0.015616 | 3.0 |
| HLA-A*68:02 | 1 | 588 | 597 | 10 | TPCSFGGVSU | 0.015609 | 4.0 |
| HLA-B*53:01 | 1 | 689 | 697 | 9 | SQSIIAYTM | 0.015607 | 2.6 |
| HLA-A*30:02 | 1 | 975 | 983 | 9 | SVLNDILSR | 0.015603 | 4.8 |
| HLA-A*30:01 | 1 | 271 | 279 | 9 | QPRTFLLKY | 0.0156 | 6.5 |
| HLA-A*68:02 | 1 | 332 | 341 | 10 | ITNLCPFGEV | 0.015597 | 4.0 |
| HLA-B*15:01 | 1 | 98 | 106 | 9 | SNIIRGWIF | 0.01559 | 4.3 |
| HLA-B*08:01 | 1 | 968 | 976 | 9 | SNFGAISSV | 0.015581 | 4.6 |
| HLA-A*30:01 | 1 | 70 | 78 | 9 | VSGTNGTKR | 0.015571 | 6.5 |
| HLA-A*30:02 | 1 | 624 | 633 | 10 | IHADQLTPTW | 0.015567 | 4.8 |
| HLA-A*24:02 | 1 | 533 | 541 | 9 | LVKNKCVNF | 0.015564 | 2.4 |
| HLA-B*58:01 | 1 | 1002 | 1010 | 9 | QSLQTYVTQ | 0.015549 | 3.4 |
| HLA-A*30:01 | 1 | 915 | 923 | 9 | VLYENQKLI | 0.015548 | 6.5 |
| HLA-A*30:02 | 1 | 1175 | 1183 | 9 | SVVNIQKEI | 0.01554 | 4.8 |
| HLA-A*30:02 | 1 | 69 | 77 | 9 | HVSGTNGTK | 0.015522 | 4.8 |
| HLA-B*40:01 | 1 | 222 | 231 | 10 | ALEPLVDLPI | 0.01552 | 2.4 |
| HLA-A*30:02 | 1 | 1263 | 1271 | 9 | PVLKGVKLH | 0.015518 | 4.8 |
| HLA-A*30:02 | 1 | 809 | 817 | 9 | PSKPSKRSF | 0.0155 | 4.8 |
| HLA-A*02:06 | 1 | 50 | 59 | 10 | STQDLFLPFF | 0.015497 | 5.4 |
| HLA-A*30:02 | 1 | 304 | 312 | 9 | KSFTVEKEGI | 0.015488 | 4.8 |
| HLA-B*58:01 | 1 | 235 | 244 | 10 | ITRFQTLAL | 0.015487 | 3.4 |
| HLA-A*32:01 | 1 | 268 | 276 | 9 | GYLQPRTFL | 0.015486 | 2.7 |
| HLA-A*68:01 | 1 | 956 | 964 | 9 | AQALNTLVK | 0.01548 | 5.9 |
| HLA-B*44:02 | 1 | 1147 | 1155 | 9 | SFKEELDKY | 0.015477 | 2.1 |
| HLA-A*26:01 | 1 | 78 | 86 | 9 | RFDNPVLPF | 0.015475 | 2.5 |
| HLA-A*02:03 | 1 | 459 | 468 | 10 | SNLKPFERDI | 0.015475 | 4.6 |
| HLA-B*58:01 | 1 | 271 | 279 | 9 | QPRTFLLKY | 0.015467 | 3.4 |
| HLA-A*68:02 | 1 | 1092 | 1100 | 9 | EGVFVSNGT | 0.015444 | 4.1 |
| HLA-A*30:02 | 1 | 326 | 335 | 10 | IVRFPNITNL | 0.015429 | 4.8 |
| HLA-B*08:01 | 1 | 954 | 962 | 9 | QNAQALNTL | 0.015426 | 4.7 |
| HLA-A*30:01 | 1 | 1005 | 1014 | 10 | QTYVTQQLIR | 0.015426 | 6.5 |
| HLA-B*58:01 | 1 | 368 | 377 | 10 | LYNSASFSTF | 0.015419 | 3.4 |
| HLA-B*57:01 | 1 | 202 | 210 | 9 | KIYSKHTPI | 0.015418 | 5.1 |
| HLA-A*02:06 | 1 | 466 | 475 | 10 | RDISTEIIYQA | 0.015409 | 5.4 |
| HLA-A*30:01 | 1 | 221 | 229 | 9 | SALEPLVDL | 0.015408 | 6.5 |
| HLA-A*02:06 | 1 | 601 | 610 | 10 | GTNTSNQVAV | 0.015388 | 5.4 |
| HLA-B*15:01 | 1 | 934 | 942 | 9 | IQDLSSTA | 0.015382 | 4.3 |
| HLA-A*31:01 | 1 | 1059 | 1067 | 9 | GVVFLHVTY | 0.01538 | 5.3 |
| HLA-B*57:01 | 1 | 507 | 515 | 9 | PYRVVLSF | 0.015376 | 5.1 |
| HLA-B*53:01 | 1 | 49 | 58 | 10 | HSTQDLFLPF | 0.015368 | 2.6 |
| HLA-A*02:06 | 1 | 538 | 546 | 9 | CVNFNFNGL | 0.015362 | 5.4 |
| HLA-B*53:01 | 1 | 745 | 753 | 9 | DSTECSNLL | 0.015361 | 2.6 |
| HLA-B*15:01 | 1 | 167 | 175 | 9 | TFEYVSQPF | 0.015354 | 4.3 |
| HLA-A*02:01 | 1 | 378 | 387 | 10 | KCYGVSPTKL | 0.015333 | 4.0 |
| HLA-A*30:01 | 1 | 943 | 951 | 9 | SALGKLQDV | 0.015333 | 6.5 |
| HLA-A*02:03 | 1 | 1052 | 1061 | 10 | FPQSAPHGVV | 0.015328 | 4.6 |
| HLA-B*15:01 | 1 | 783 | 791 | 9 | AQVKQIYKT | 0.015323 | 4.4 |
| HLA-A*03:01 | 1 | 435 | 444 | 10 | AWNSNNLDSK | 0.015309 | 3.9 |
| HLA-B*07:02 | 1 | 792 | 800 | 9 | PPIKDFGGF | 0.015305 | 3.1 |
| HLA-A*33:01 | 1 | 569 | 577 | 9 | IADTTDAVR | 0.015295 | 4.2 |
| HLA-B*08:01 | 1 | 1003 | 1012 | 10 | SLQTYVTQQL | 0.015289 | 4.7 |
| HLA-A*32:01 | 1 | 119 | 127 | 9 | IVNNAITNVV | 0.015288 | 2.7 |
| HLA-B*08:01 | 1 | 616 | 624 | 9 | NCTEVPVAI | 0.015286 | 4.7 |
| HLA-B*08:01 | 1 | 1095 | 1103 | 9 | FVSNNGTHWF | 0.015275 | 4.7 |
| HLA-B*58:01 | 1 | 535 | 543 | 9 | KNKCVNFNF | 0.015273 | 3.5 |
| HLA-A*68:02 | 1 | 290 | 299 | 10 | DCALDPLSET | 0.015271 | 4.1 |
| HLA-B*58:01 | 1 | 829 | 837 | 9 | ADAGFIKQC | 0.01527 | 3.5 |
| HLA-A*02:06 | 1 | 609 | 617 | 9 | AVLYQDVNC | 0.015255 | 5.4 |
| HLA-B*40:01 | 1 | 842 | 850 | 9 | GDIAARDLI | 0.015255 | 2.4 |
| HLA-A*30:01 | 1 | 1002 | 1010 | 9 | QSLQTYVTQ | 0.015255 | 6.6 |
| HLA-B*08:01 | 1 | 1084 | 1092 | 9 | DGKAHFPRE | 0.015243 | 4.7 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*23:01 | 1 | 1154 | 1162 | 9 | KYFKNHTSP 0.015243 | 2.4 |
| HLA-B*35:01 | 1 | 461 | 470 | 10 | LKPFERDIST 0.015215 | 3.0 |
| HLA-A*02:01 | 1 | 704 | 712 | 9 | SVAYSNSI 0.015214 | 4.1 |
| HLA-A*30:02 | 1 | 783 | 791 | 9 | AQVKQIYKT 0.015209 | 4.8 |
| HLA-B*35:01 | 1 | 186 | 194 | 9 | FKNLREFVF 0.015208 | 3.0 |
| HLA-A*02:06 | 1 | 853 | 861 | 9 | QKFNGLTVL 0.015177 | 5.5 |
| HLA-A*02:01 | 1 | 914 | 922 | 9 | NVLYENQKL 0.015177 | 4.1 |
| HLA-B*58:01 | 1 | 1004 | 1013 | 10 | LQTYVTQQLI 0.015175 | 3.5 |
| HLA-A*03:01 | 1 | 912 | 921 | 10 | TQNVLYENQK 0.01517 | 3.9 |
| HLA-A*68:02 | 1 | 1185 | 1193 | 9 | RLNEVAKNL 0.015154 | 4.1 |
| HLA-A*30:01 | 1 | 893 | 902 | 10 | ALQIPFAMQM 0.015152 | 6.6 |
| HLA-A*30:02 | 1 | 777 | 785 | 9 | NTQEVFAQV 0.015148 | 4.8 |
| HLA-B*58:01 | 1 | 193 | 201 | 9 | VFKNIDGYF 0.015142 | 3.5 |
| HLA-B*58:01 | 1 | 334 | 342 | 9 | NLCPFGEVF 0.015128 | 3.5 |
| HLA-A*30:01 | 1 | 1128 | 1136 | 9 | VVIGIVNNT 0.015119 | 6.6 |
| HLA-A*32:01 | 1 | 235 | 244 | 10 | ITRFQTLAL 0.015117 | 2.7 |
| HLA-B*58:01 | 1 | 71 | 79 | 9 | SGTNGTKRF 0.015114 | 3.5 |
| HLA-A*02:06 | 1 | 344 | 352 | 9 | ATRFASVYA 0.015114 | 5.5 |
| HLA-A*23:01 | 1 | 150 | 159 | 10 | KSWMSEFRV 0.015099 | 2.4 |
| HLA-B*44:03 | 1 | 497 | 505 | 9 | FQPTNGVGY 0.01509 | 2.3 |
| HLA-B*53:01 | 1 | 1059 | 1067 | 9 | GVVFLHVTY 0.015089 | 2.7 |
| HLA-A*30:02 | 1 | 447 | 455 | 9 | GNYNLYRL 0.015085 | 4.9 |
| HLA-A*30:01 | 1 | 788 | 797 | 10 | IYKTPPIKDF 0.015084 | 6.6 |
| HLA-A*30:02 | 1 | 688 | 696 | 9 | ASQSIIAYT 0.015073 | 4.9 |
| HLA-A*33:01 | 1 | 25 | 34 | 10 | PPAYTNSFTR 0.015071 | 4.2 |
| HLA-A*03:01 | 1 | 559 | 567 | 9 | FLPFQFGR 0.015064 | 3.9 |
| HLA-B*35:01 | 1 | 269 | 277 | 9 | YLQPRTFLL 0.015058 | 3.0 |
| HLA-B*51:01 | 1 | 798 | 806 | 9 | GGFNFSQIL 0.015051 | 4.7 |
| HLA-B*07:02 | 1 | 1257 | 1265 | 9 | DEDDSEPVL 0.01505 | 3.2 |
| HLA-B*53:01 | 1 | 709 | 718 | 10 | NNSIAIPTNF 0.015049 | 2.7 |
| HLA-A*30:02 | 1 | 1055 | 1063 | 9 | SAPHGVVFL 0.015046 | 4.9 |
| HLA-A*02:03 | 1 | 1178 | 1186 | 9 | NIQKEIDRL 0.015046 | 4.6 |
| HLA-B*35:01 | 1 | 1094 | 1102 | 9 | VFVSNQTHW 0.015041 | 3.0 |
| HLA-B*53:01 | 1 | 46 | 55 | 10 | SVLHSTQDLF 0.015031 | 2.7 |
| HLA-A*33:01 | 1 | 724 | 733 | 10 | TEILPVSMTK 0.015031 | 4.3 |
| HLA-B*08:01 | 1 | 1221 | 1229 | 9 | IAGLIAIVM 0.015027 | 4.7 |
| HLA-A*24:02 | 1 | 204 | 212 | 9 | YSKHTPINL 0.015022 | 2.4 |
| HLA-A*11:01 | 1 | 634 | 642 | 9 | RVYSTGSNV 0.015018 | 3.6 |
| HLA-B*51:01 | 1 | 204 | 213 | 10 | YSKHTPINLV 0.015005 | 4.7 |
| HLA-A*31:01 | 1 | 806 | 815 | 10 | LPDPSKPSKR 0.014991 | 5.3 |
| HLA-B*58:01 | 1 | 690 | 699 | 10 | QSIIAYTMSL 0.014986 | 3.5 |
| HLA-A*02:03 | 1 | 262 | 270 | 9 | AAAYVGYL 0.014982 | 4.6 |
| HLA-A*30:02 | 1 | 1019 | 1028 | 10 | RASANLAATK 0.01498 | 4.9 |
| HLA-A*24:02 | 1 | 1216 | 1225 | 10 | IWLGFIAGLI 0.014975 | 2.4 |
| HLA-A*02:06 | 1 | 901 | 909 | 9 | QMAYRFNGI 0.014966 | 5.5 |
| HLA-A*68:01 | 1 | 122 | 130 | 9 | NATNVVIKV 0.014958 | 6.0 |
| HLA-A*31:01 | 1 | 781 | 789 | 9 | VFAQVKQIY 0.014932 | 5.3 |
| HLA-B*51:01 | 1 | 1189 | 1198 | 10 | VAKNLNESLI 0.01493 | 4.8 |
| HLA-A*02:03 | 1 | 1005 | 1013 | 9 | QTYVTQQLI 0.01492 | 4.7 |
| HLA-B*58:01 | 1 | 183 | 192 | 10 | QGNFKNREF 0.014918 | 3.5 |
| HLA-A*68:01 | 1 | 733 | 741 | 9 | KTSVDCTMY 0.014911 | 6.0 |
| HLA-A*68:01 | 1 | 457 | 466 | 10 | RKSNLKPFER 0.01491 | 6.0 |
| HLA-A*30:01 | 1 | 1055 | 1063 | 9 | SAPHGVVFL 0.01491 | 6.7 |
| HLA-B*35:01 | 1 | 445 | 453 | 9 | VGGNYNYLY 0.014909 | 3.0 |
| HLA-A*02:03 | 1 | 719 | 727 | 9 | TISVTTEIL 0.014906 | 4.7 |
| HLA-B*07:02 | 1 | 1015 | 1024 | 10 | AAEIRASANL 0.014886 | 3.2 |
| HLA-A*68:02 | 1 | 59 | 68 | 10 | FSNVTWFHAI 0.014885 | 4.1 |
| HLA-A*23:01 | 1 | 132 | 140 | 9 | EFQFCNDPF 0.014878 | 2.4 |
| HLA-B*44:02 | 1 | 989 | 998 | 10 | AEVQIDRLIT 0.014877 | 2.2 |
| HLA-A*01:01 | 1 | 722 | 731 | 10 | VTTEILPVSM 0.014875 | 3.0 |
| HLA-B*35:01 | 1 | 1136 | 1145 | 10 | TVYDPLQPEL 0.014874 | 3.0 |
| HLA-A*24:02 | 1 | 754 | 763 | 10 | LQYGSFCTQL 0.014868 | 2.5 |
| HLA-A*30:02 | 1 | 236 | 244 | 9 | TRFQTLAL 0.01486 | 4.9 |
| HLA-B*44:03 | 1 | 470 | 479 | 10 | TEIYQAGSTP 0.014849 | 2.3 |
| HLA-A*11:01 | 1 | 1146 | 1154 | 9 | DSFKEELDK 0.014843 | 3.6 |
| HLA-A*30:02 | 1 | 596 | 604 | 9 | SVITPGTNT 0.014838 | 4.9 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*30:01 | 1 | 325 | 334 | 10 | SIVRFPNITN 0.014837 | 6.7 |
| HLA-A*02:01 | 1 | 868 | 876 | 9 | EMIAQY TSA 0.014837 | 4.1 |
| HLA-A*32:01 | 1 | 221 | 229 | 9 | SALEPLVDL 0.014827 | 2.8 |
| HLA-B*51:01 | 1 | 815 | 823 | 9 | RSFIEDLLF 0.014817 | 4.8 |
| HLA-B*51:01 | 1 | 996 | 1004 | 9 | LITGRLQSL 0.014813 | 4.8 |
| HLA-A*30:02 | 1 | 852 | 861 | 10 | AQKFNGLTVL 0.014805 | 4.9 |
| HLA-A*33:01 | 1 | 265 | 274 | 10 | YYVGYLQPR T 0.014804 | 4.3 |
| HLA-A*30:02 | 1 | 21 | 30 | 10 | RTQLPPAYTN 0.0148 | 4.9 |
| HLA-B*15:01 | 1 | 313 | 321 | 9 | YQTSNFRVQ 0.014793 | 4.4 |
| HLA-A*02:01 | 1 | 698 | 706 | 9 | SLGAEN SVA 0.014786 | 4.1 |
| HLA-A*30:01 | 1 | 300 | 308 | 9 | KCTLKSFTV 0.014784 | 6.7 |
| HLA-A*33:01 | 1 | 820 | 828 | 9 | DLLFNKVTL 0.014776 | 4.3 |
| HLA-B*15:01 | 1 | 687 | 696 | 10 | VASQSIIAYT 0.014774 | 4.4 |
| HLA-A*30:02 | 1 | 41 | 50 | 10 | KVFRSSVLHS 0.014768 | 4.9 |
| HLA-B*58:01 | 1 | 788 | 797 | 10 | IYKTPPIKDF 0.014766 | 3.5 |
| HLA-A*68:02 | 1 | 285 | 293 | 9 | ITDAVDCAL 0.014765 | 4.1 |
| HLA-A*68:02 | 1 | 954 | 963 | 10 | QNAQALNTLV 0.014753 | 4.1 |
| HLA-B*58:01 | 1 | 1067 | 1075 | 9 | YVPAQEKNF 0.014748 | 3.5 |
| HLA-B*51:01 | 1 | 602 | 610 | 9 | TNTSNQVAV 0.014739 | 4.8 |
| HLA-A*30:02 | 1 | 794 | 802 | 9 | IKDFGGFNF 0.014738 | 4.9 |
| HLA-A*30:02 | 1 | 456 | 464 | 9 | FRKSNLKPF 0.014728 | 4.9 |
| HLA-A*33:01 | 1 | 57 | 66 | 10 | PFFSNVTWFH 0.014721 | 4.3 |
| HLA-A*23:01 | 1 | 1137 | 1146 | 10 | VYDPLQPELD 0.014712 | 2.4 |
| HLA-A*32:01 | 1 | 458 | 466 | 9 | KSNLKPFER 0.014706 | 2.8 |
| HLA-B*51:01 | 1 | 503 | 512 | 10 | VGYPYRVVV 0.014692 | 4.8 |
| HLA-B*35:01 | 1 | 759 | 767 | 9 | FCTQLNRAL 0.014692 | 3.1 |
| HLA-B*58:01 | 1 | 939 | 948 | 10 | SSTASALGKL 0.014684 | 3.5 |
| HLA-A*30:01 | 1 | 1216 | 1224 | 9 | IWLGFIAGL 0.014675 | 6.7 |
| HLA-A*30:01 | 1 | 554 | 562 | 9 | ESNKKFLPF 0.01467 | 6.7 |
| HLA-B*08:01 | 1 | 777 | 785 | 9 | NTQEVFAQV 0.014665 | 4.8 |
| HLA-A*33:01 | 1 | 236 | 245 | 10 | TRFQTLALH 0.014664 | 4.3 |
| HLA-B*51:01 | 1 | 683 | 692 | 10 | RARSVASQSI 0.014657 | 4.8 |
| HLA-A*02:06 | 1 | 919 | 927 | 9 | NQKLIANQF 0.014651 | 5.6 |
| HLA-A*31:01 | 1 | 150 | 159 | 10 | KSWMESEFRV 0.014643 | 5.4 |
| HLA-A*30:02 | 1 | 961 | 970 | 10 | TLVKQLSSNF 0.014641 | 4.9 |
| HLA-A*24:02 | 1 | 127 | 135 | 9 | VIKVEFQF 0.014637 | 2.5 |
| HLA-A*11:01 | 1 | 880 | 888 | 9 | GTITSGWTF 0.01463 | 3.6 |
| HLA-B*57:01 | 1 | 999 | 1007 | 9 | GRLQSLQTY 0.014629 | 5.2 |
| HLA-A*30:01 | 1 | 733 | 741 | 9 | KTSVDCTMY 0.014622 | 6.7 |
| HLA-A*03:01 | 1 | 449 | 457 | 9 | YNYLYR LFR 0.014621 | 4.0 |
| HLA-B*57:01 | 1 | 958 | 966 | 9 | ALNTLVKQL 0.014617 | 5.2 |
| HLA-B*53:01 | 1 | 664 | 672 | 9 | IPIGAGICA 0.014615 | 2.7 |
| HLA-A*30:01 | 1 | 447 | 455 | 9 | GNYNYLYRL 0.014612 | 6.7 |
| HLA-A*30:01 | 1 | 501 | 509 | 9 | NGVGYQP YR 0.014601 | 6.8 |
| HLA-A*68:02 | 1 | 513 | 521 | 9 | LSFELLHAP 0.0146 | 4.2 |
| HLA-A*30:01 | 1 | 403 | 411 | 9 | RGDEV RQIA 0.014578 | 6.8 |
| HLA-B*51:01 | 1 | 195 | 203 | 9 | KNIDGYFKI 0.014572 | 4.8 |
| HLA-A*26:01 | 1 | 400 | 408 | 9 | FVIRGDEV R 0.014562 | 2.6 |
| HLA-B*58:01 | 1 | 718 | 727 | 10 | FTISVTTEIL 0.014554 | 3.5 |
| HLA-A*02:06 | 1 | 690 | 699 | 10 | QSIIAYTMSL 0.014546 | 5.6 |
| HLA-A*26:01 | 1 | 732 | 741 | 10 | TKTSVDCTMY 0.01454 | 2.6 |
| HLA-A*30:02 | 1 | 13 | 21 | 9 | SQCVNLTTR 0.014537 | 4.9 |
| HLA-A*02:03 | 1 | 545 | 553 | 9 | GLTGTGVLT 0.014536 | 4.7 |
| HLA-A*30:02 | 1 | 61 | 69 | 9 | NVTWFHAIH 0.014511 | 5.0 |
| HLA-B*57:01 | 1 | 1050 | 1059 | 10 | MSFPQSAPHG 0.014509 | 5.3 |
| HLA-A*02:06 | 1 | 166 | 174 | 9 | CTFEYVSQP 0.014504 | 5.6 |
| HLA-B*15:01 | 1 | 465 | 473 | 9 | ERDISTE IY 0.014503 | 4.5 |
| HLA-B*35:01 | 1 | 620 | 628 | 9 | VPVAIHADQ 0.014502 | 3.1 |
| HLA-A*26:01 | 1 | 651 | 660 | 10 | IGA EHVNSY 0.014491 | 2.6 |
| HLA-A*30:02 | 1 | 685 | 693 | 9 | RSVASQSII 0.01449 | 5.0 |
| HLA-A*02:01 | 1 | 865 | 873 | 9 | LTDEMIAQY 0.014489 | 4.1 |
| HLA-A*02:03 | 1 | 873 | 882 | 10 | YTSALLAGTI 0.014487 | 4.7 |
| HLA-A*02:01 | 1 | 697 | 705 | 9 | MSLGAEN SV 0.014481 | 4.1 |
| HLA-B*51:01 | 1 | 1095 | 1103 | 9 | FVSN GTHWF 0.014476 | 4.8 |
| HLA-A*30:01 | 1 | 90 | 98 | 9 | VYFAST EKS 0.014474 | 6.8 |
| HLA-A*30:02 | 1 | 370 | 378 | 9 | NSASFSTFK 0.014465 | 5.0 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*30:01 | 1 | 991 | 999 | 9 | VQIDRLITG 0.014465 | 6.8 |
| HLA-B*35:01 | 1 | 937 | 945 | 9 | SLSSTASAL 0.014462 | 3.1 |
| HLA-B*07:02 | 1 | 723 | 731 | 9 | TTEILPVSM 0.014458 | 3.2 |
| HLA-A*30:01 | 1 | 263 | 271 | 9 | AAYYVGYLQ 0.014455 | 6.8 |
| HLA-A*68:01 | 1 | 781 | 789 | 9 | VFAQVKQIY 0.014455 | 6.0 |
| HLA-B*08:01 | 1 | 583 | 592 | 10 | EILDITPCSF 0.014452 | 4.8 |
| HLA-B*51:01 | 1 | 544 | 552 | 9 | NGLTGTGVL 0.014446 | 4.8 |
| HLA-A*23:01 | 1 | 333 | 342 | 10 | TNLCPFGEVF 0.014441 | 2.4 |
| HLA-B*51:01 | 1 | 340 | 348 | 9 | EVFNATRFA 0.014441 | 4.8 |
| HLA-A*02:06 | 1 | 722 | 730 | 9 | VTTEILPVS 0.014434 | 5.6 |
| HLA-A*68:02 | 1 | 1052 | 1061 | 10 | FPQSAPHGVV 0.014432 | 4.2 |
| HLA-A*68:02 | 1 | 819 | 828 | 10 | EDLLFNKVTL 0.014431 | 4.2 |
| HLA-B*07:02 | 1 | 506 | 514 | 9 | QPYRVVVL 0.014421 | 3.2 |
| HLA-B*08:01 | 1 | 809 | 817 | 9 | PSKPSKRSF 0.01442 | 4.8 |
| HLA-B*57:01 | 1 | 574 | 582 | 9 | DAVRDPQTL 0.014414 | 5.3 |
| HLA-A*30:01 | 1 | 576 | 584 | 9 | VRDPQTLEI 0.014402 | 6.8 |
| HLA-A*24:02 | 1 | 773 | 782 | 10 | EQDKNTQEVF 0.014399 | 2.5 |
| HLA-A*02:06 | 1 | 972 | 981 | 10 | AISSVLNDIL 0.014386 | 5.6 |
| HLA-A*68:02 | 1 | 894 | 902 | 9 | LQIPFAMQM 0.014384 | 4.2 |
| HLA-A*02:03 | 1 | 1207 | 1216 | 10 | EQYIKWPWYI 0.014381 | 4.7 |
| HLA-B*57:01 | 1 | 634 | 642 | 9 | RVYSTGSNV 0.014379 | 5.3 |
| HLA-B*44:03 | 1 | 487 | 495 | 9 | NCYFPLQSY 0.014376 | 2.4 |
| HLA-B*35:01 | 1 | 1101 | 1109 | 9 | HWFVTQRNF 0.014375 | 3.1 |
| HLA-B*15:01 | 1 | 119 | 127 | 9 | IVNNAATNVV 0.014374 | 4.5 |
| HLA-B*53:01 | 1 | 560 | 569 | 10 | LPFQQFGRDI 0.014351 | 2.7 |
| HLA-A*26:01 | 1 | 83 | 92 | 10 | VLPFNDGVYF 0.014323 | 2.6 |
| HLA-A*24:02 | 1 | 167 | 176 | 10 | TFEYVSQPFL 0.014322 | 2.5 |
| HLA-A*03:01 | 1 | 446 | 454 | 9 | GGNYNYLYR 0.014321 | 4.0 |
| HLA-A*02:01 | 1 | 805 | 813 | 9 | ILPDPSPKPS 0.014318 | 4.2 |
| HLA-B*57:01 | 1 | 235 | 243 | 9 | ITRFQTLA 0.014314 | 5.3 |
| HLA-A*26:01 | 1 | 789 | 797 | 9 | YKTPPIKDF 0.014311 | 2.6 |
| HLA-B*35:01 | 1 | 829 | 837 | 9 | ADAGFIKQY 0.014298 | 3.1 |
| HLA-A*30:01 | 1 | 919 | 927 | 9 | NQKLIANQF 0.014296 | 6.8 |
| HLA-B*53:01 | 1 | 616 | 624 | 9 | NCTEVPVAI 0.01429 | 2.7 |
| HLA-A*30:02 | 1 | 898 | 906 | 9 | FAMQMAYRF 0.01429 | 5.0 |
| HLA-B*51:01 | 1 | 1181 | 1189 | 9 | KEIDRLNEV 0.014285 | 4.9 |
| HLA-B*58:01 | 1 | 550 | 559 | 10 | GVLTESNKKF 0.014272 | 3.6 |
| HLA-A*68:02 | 1 | 20 | 29 | 10 | TRTQLPPAYT 0.014267 | 4.2 |
| HLA-B*35:01 | 1 | 664 | 673 | 10 | IPIGAGICAS 0.014258 | 3.1 |
| HLA-A*02:03 | 1 | 6 | 15 | 10 | VLLPLVSSQC 0.014257 | 4.8 |
| HLA-B*58:01 | 1 | 97 | 105 | 9 | KSNIIRGWI 0.014245 | 3.6 |
| HLA-B*53:01 | 1 | 860 | 869 | 10 | VLPPLLTDEM 0.014233 | 2.8 |
| HLA-A*68:02 | 1 | 151 | 159 | 9 | SWMESEFRV 0.014221 | 4.2 |
| HLA-A*33:01 | 1 | 1010 | 1019 | 10 | QLLIRAAEIR 0.014215 | 4.4 |
| HLA-B*08:01 | 1 | 961 | 970 | 10 | TLVKQLSSNF 0.014207 | 4.9 |
| HLA-A*02:01 | 1 | 625 | 633 | 9 | HADQLTPTW 0.014204 | 4.2 |
| HLA-A*30:01 | 1 | 261 | 269 | 9 | GAAAYYVGY 0.014202 | 6.9 |
| HLA-B*44:03 | 1 | 687 | 695 | 9 | VASQSIIAY 0.0142 | 2.4 |
| HLA-B*51:01 | 1 | 870 | 879 | 10 | IAQYTSALLA 0.0142 | 4.9 |
| HLA-A*02:03 | 1 | 344 | 352 | 9 | ATRFASVYA 0.014191 | 4.8 |
| HLA-A*33:01 | 1 | 511 | 519 | 9 | VVLSFELLH 0.014178 | 4.4 |
| HLA-B*08:01 | 1 | 193 | 201 | 9 | VFKNIDGYF 0.014161 | 4.9 |
| HLA-A*30:02 | 1 | 258 | 267 | 10 | WTAGAAAYYV 0.014157 | 5.0 |
| HLA-A*02:06 | 1 | 256 | 264 | 9 | SGWTAGAAA 0.014149 | 5.7 |
| HLA-A*03:01 | 1 | 725 | 734 | 10 | EILPVSMTKT 0.014149 | 4.0 |
| HLA-B*57:01 | 1 | 45 | 54 | 10 | SSVLHSTQDL 0.014146 | 5.3 |
| HLA-B*58:01 | 1 | 28 | 36 | 9 | YTNSFTRGV 0.014132 | 3.6 |
| HLA-A*68:02 | 1 | 21 | 29 | 9 | RTQLPPAYT 0.014126 | 4.3 |
| HLA-B*08:01 | 1 | 712 | 720 | 9 | IAIPTNFTI 0.014121 | 4.9 |
| HLA-A*31:01 | 1 | 1216 | 1224 | 9 | IWLGFIAGL 0.014117 | 5.5 |
| HLA-A*26:01 | 1 | 721 | 729 | 9 | SVTTEILPV 0.014114 | 2.6 |
| HLA-A*11:01 | 1 | 895 | 904 | 10 | QIPFAMQMAY 0.014114 | 3.7 |
| HLA-B*44:03 | 1 | 1264 | 1272 | 9 | VKGVKLHY 0.014105 | 2.4 |
| HLA-A*31:01 | 1 | 691 | 699 | 9 | SIIAYTMSL 0.014094 | 5.5 |
| HLA-A*26:01 | 1 | 634 | 642 | 9 | RVYSTGSNV 0.014093 | 2.6 |
| HLA-A*32:01 | 1 | 1067 | 1075 | 9 | YVPAQEKNF 0.014088 | 2.9 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*03:01 | 1 | 261 | 269 | 9 | GAAAYVGY 0.014081 | 4.0 |
| HLA-A*32:01 | 1 | 683 | 692 | 10 | RARSVASQSI 0.014076 | 2.9 |
| HLA-B*07:02 | 1 | 576 | 584 | 9 | VRDPQTLEI 0.01407 | 3.3 |
| HLA-A*30:02 | 1 | 348 | 356 | 9 | ASVYAWNRK 0.014069 | 5.1 |
| HLA-A*30:02 | 1 | 558 | 567 | 10 | KFLPFQFGR 0.014063 | 5.1 |
| HLA-B*53:01 | 1 | 896 | 905 | 10 | IPFAMQMAYR 0.014062 | 2.8 |
| HLA-B*51:01 | 1 | 919 | 927 | 9 | NQKLIANQF 0.014062 | 4.9 |
| HLA-A*02:03 | 1 | 47 | 55 | 9 | VLHSTQDLF 0.014061 | 4.8 |
| HLA-A*01:01 | 1 | 256 | 265 | 10 | SGWTAGAAAY 0.014061 | 3.1 |
| HLA-A*02:03 | 1 | 4 | 12 | 9 | FLVLLPLVS 0.014056 | 4.8 |
| HLA-B*51:01 | 1 | 1212 | 1221 | 10 | WPWYIWLGFI 0.014044 | 4.9 |
| HLA-A*26:01 | 1 | 326 | 335 | 10 | IVRFPNITNL 0.014042 | 2.6 |
| HLA-A*26:01 | 1 | 69 | 77 | 9 | HVSGTNGTK 0.014039 | 2.6 |
| HLA-A*02:01 | 1 | 964 | 973 | 10 | KQLSSNFGAI 0.014033 | 4.2 |
| HLA-A*30:01 | 1 | 60 | 68 | 9 | SNVTWFHAI 0.014032 | 6.9 |
| HLA-A*03:01 | 1 | 487 | 495 | 9 | NCYFPLQSY 0.014023 | 4.0 |
| HLA-A*24:02 | 1 | 215 | 223 | 9 | DLPQGFSAI 0.014014 | 2.5 |
| HLA-B*35:01 | 1 | 207 | 216 | 10 | HTPINLVRDL 0.014013 | 3.1 |
| HLA-A*30:01 | 1 | 921 | 929 | 9 | KLIANQFNS 0.014008 | 6.9 |
| HLA-B*15:01 | 1 | 412 | 421 | 10 | PGQTGKIADY 0.014004 | 4.5 |
| HLA-A*30:02 | 1 | 127 | 135 | 9 | VIKVCEFQF 0.013996 | 5.1 |
| HLA-A*30:01 | 1 | 763 | 771 | 9 | LNRLTGTIA 0.013996 | 6.9 |
| HLA-A*11:01 | 1 | 302 | 311 | 10 | TLKSFTVEKG 0.013985 | 3.7 |
| HLA-B*51:01 | 1 | 1056 | 1064 | 9 | APHGVVFLH 0.013977 | 4.9 |
| HLA-A*02:06 | 1 | 870 | 879 | 10 | IAQYTSALLA 0.013975 | 5.7 |
| HLA-B*40:01 | 1 | 954 | 962 | 9 | QNAQALNTL 0.013974 | 2.5 |
| HLA-B*53:01 | 1 | 1101 | 1109 | 9 | HWFVTQRNF 0.013971 | 2.8 |
| HLA-A*02:01 | 1 | 719 | 727 | 9 | TISVTTEIL 0.013969 | 4.2 |
| HLA-A*30:02 | 1 | 192 | 201 | 10 | FVFKNIDGYF 0.013966 | 5.1 |
| HLA-A*02:06 | 1 | 248 | 256 | 9 | YLTPGDSSS 0.013965 | 5.7 |
| HLA-B*40:01 | 1 | 582 | 590 | 9 | LEILDITPC 0.013965 | 2.5 |
| HLA-A*26:01 | 1 | 109 | 117 | 9 | TLDSKTQSL 0.013951 | 2.7 |
| HLA-B*51:01 | 1 | 53 | 62 | 10 | DLFLPFFSNV 0.013941 | 4.9 |
| HLA-A*02:06 | 1 | 509 | 518 | 10 | RVVVLSEFEL 0.013941 | 5.7 |
| HLA-A*02:01 | 1 | 158 | 166 | 9 | RVYSSANNC 0.01394 | 4.2 |
| HLA-A*30:02 | 1 | 71 | 79 | 9 | SGTNGTKRF 0.01393 | 5.1 |
| HLA-B*15:01 | 1 | 383 | 392 | 10 | SPTKLNLCF 0.013929 | 4.6 |
| HLA-B*15:01 | 1 | 732 | 741 | 10 | TKTSVDCTMY 0.013927 | 4.6 |
| HLA-A*30:01 | 1 | 267 | 276 | 10 | VGYLQPRFTL 0.013919 | 6.9 |
| HLA-B*57:01 | 1 | 891 | 900 | 10 | GAALQIPFAM 0.013919 | 5.4 |
| HLA-A*31:01 | 1 | 634 | 643 | 10 | RVYSTGSNVF 0.013916 | 5.5 |
| HLA-B*53:01 | 1 | 464 | 473 | 10 | FERDITEIY 0.013907 | 2.8 |
| HLA-A*68:01 | 1 | 366 | 374 | 9 | SVLYNSASF 0.0139 | 6.1 |
| HLA-B*58:01 | 1 | 158 | 166 | 9 | RVYSSANNC 0.013894 | 3.6 |
| HLA-A*02:06 | 1 | 240 | 249 | 10 | TLLALHRSYL 0.013892 | 5.7 |
| HLA-B*53:01 | 1 | 711 | 720 | 10 | SIAIPTNFTI 0.013878 | 2.8 |
| HLA-A*03:01 | 1 | 449 | 458 | 10 | YNYLYRLFRK 0.013873 | 4.1 |
| HLA-A*30:01 | 1 | 809 | 817 | 9 | PSKPSKRSF 0.01387 | 7.0 |
| HLA-B*57:01 | 1 | 1008 | 1016 | 9 | VTQQLIRAA 0.013867 | 5.4 |
| HLA-A*03:01 | 1 | 1029 | 1038 | 10 | MSECVLGQSK 0.013867 | 4.1 |
| HLA-A*02:03 | 1 | 46 | 54 | 9 | SVLHSTQDL 0.013848 | 4.8 |
| HLA-A*26:01 | 1 | 1098 | 1107 | 10 | NGTHWFVTQR 0.013836 | 2.7 |
| HLA-A*23:01 | 1 | 773 | 782 | 10 | EQDKNTQEVF 0.013833 | 2.5 |
| HLA-B*53:01 | 1 | 578 | 587 | 10 | DPQTLEILDI 0.01383 | 2.8 |
| HLA-B*15:01 | 1 | 1146 | 1155 | 10 | DSFKEELDKY 0.013829 | 4.6 |
| HLA-B*51:01 | 1 | 326 | 335 | 10 | IVRFPNITNL 0.013827 | 5.0 |
| HLA-A*68:02 | 1 | 604 | 612 | 9 | TSNQVAVLY 0.01382 | 4.3 |
| HLA-A*31:01 | 1 | 976 | 984 | 9 | VLNDILSRL 0.013818 | 5.5 |
| HLA-B*07:02 | 1 | 526 | 535 | 10 | GPKKSTNLVK 0.013797 | 3.3 |
| HLA-B*58:01 | 1 | 326 | 335 | 10 | IVRFPNITNL 0.013785 | 3.6 |
| HLA-B*08:01 | 1 | 240 | 248 | 9 | TLLALHRSY 0.01378 | 5.0 |
| HLA-B*53:01 | 1 | 204 | 212 | 9 | YSKHTPINL 0.013779 | 2.8 |
| HLA-B*57:01 | 1 | 530 | 538 | 9 | STNLVKKNC 0.013772 | 5.4 |
| HLA-A*32:01 | 1 | 365 | 374 | 10 | YSVLYNSASF 0.013765 | 2.9 |
| HLA-A*30:01 | 1 | 884 | 892 | 9 | SGWTFGAGA 0.013763 | 7.0 |
| HLA-A*02:01 | 1 | 1095 | 1103 | 9 | FVSNNGTHWF 0.013763 | 4.3 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*30:02 | 1 | 723 | 731 | 9 | TTEILPVSM 0.013747 | 5.1 |
| HLA-A*26:01 | 1 | 184 | 192 | 9 | GNFKNLREF 0.013743 | 2.7 |
| HLA-A*68:02 | 1 | 891 | 899 | 9 | GAALQIPFA 0.013741 | 4.3 |
| HLA-A*33:01 | 1 | 986 | 995 | 10 | KVEAEVQIDR 0.013733 | 4.5 |
| HLA-B*53:01 | 1 | 919 | 927 | 9 | NQKLIANQF 0.013731 | 2.8 |
| HLA-A*32:01 | 1 | 1073 | 1081 | 9 | KNFTTAPAI 0.013721 | 2.9 |
| HLA-A*33:01 | 1 | 345 | 353 | 9 | TRFASVYAW 0.013718 | 4.5 |
| HLA-A*68:02 | 1 | 229 | 237 | 9 | LPIGINITR 0.013713 | 4.3 |
| HLA-A*30:02 | 1 | 392 | 400 | 9 | FTNVYADSF 0.013691 | 5.2 |
| HLA-B*08:01 | 1 | 764 | 772 | 9 | NRALTGIAV 0.01369 | 5.0 |
| HLA-A*68:02 | 1 | 990 | 999 | 10 | EVQIDRLITG 0.01369 | 4.3 |
| HLA-A*23:01 | 1 | 1051 | 1060 | 10 | SFQOSAPHGV 0.013689 | 2.5 |
| HLA-A*02:01 | 1 | 4 | 12 | 9 | FLVLLPLVS 0.013687 | 4.3 |
| HLA-A*01:01 | 1 | 369 | 378 | 10 | YNSASFSTFK 0.013686 | 3.2 |
| HLA-A*02:03 | 1 | 509 | 517 | 9 | RVVLSFEL 0.013686 | 4.9 |
| HLA-B*40:01 | 1 | 339 | 348 | 10 | GEVFNATRFA 0.013679 | 2.5 |
| HLA-A*02:01 | 1 | 980 | 989 | 10 | ILSRLDKVEA 0.013667 | 4.3 |
| HLA-B*57:01 | 1 | 1055 | 1064 | 10 | SAPHGVVFLH 0.01366 | 5.4 |
| HLA-A*30:02 | 1 | 724 | 733 | 10 | TEILPVSMTK 0.013658 | 5.2 |
| HLA-A*02:06 | 1 | 616 | 624 | 9 | NCTEVPVAI 0.013655 | 5.8 |
| HLA-A*68:02 | 1 | 915 | 923 | 9 | VLYENQKLI 0.013646 | 4.3 |
| HLA-B*35:01 | 1 | 383 | 391 | 9 | SPTKLNDLC 0.013643 | 3.2 |
| HLA-B*58:01 | 1 | 229 | 238 | 10 | LPIGINITRF 0.013637 | 3.6 |
| HLA-B*44:03 | 1 | 280 | 288 | 9 | NENGTITDA 0.013633 | 2.4 |
| HLA-B*08:01 | 1 | 351 | 359 | 9 | YAWNKRKRI 0.01362 | 5.0 |
| HLA-A*01:01 | 1 | 1005 | 1013 | 9 | QTYVTQQLI 0.013616 | 3.2 |
| HLA-B*44:02 | 1 | 184 | 192 | 9 | GNFKNLREF 0.013613 | 2.3 |
| HLA-A*68:02 | 1 | 235 | 244 | 10 | ITRFQTLAL 0.013612 | 4.3 |
| HLA-A*33:01 | 1 | 301 | 310 | 10 | CTLKSFTVEK 0.013607 | 4.5 |
| HLA-A*30:01 | 1 | 1093 | 1101 | 9 | GVFVSNQTH 0.013602 | 7.0 |
| HLA-A*02:06 | 1 | 995 | 1003 | 9 | RLITGRLQS 0.013598 | 5.8 |
| HLA-A*02:06 | 1 | 596 | 605 | 10 | SVITPGTNTS 0.01359 | 5.8 |
| HLA-A*02:01 | 1 | 175 | 183 | 9 | FLMDLEGKQ 0.013587 | 4.3 |
| HLA-A*30:01 | 1 | 297 | 306 | 10 | SETKCTLKSF 0.013585 | 7.0 |
| HLA-A*68:01 | 1 | 340 | 349 | 10 | EVFNATRFAS 0.013585 | 6.2 |
| HLA-A*26:01 | 1 | 478 | 486 | 9 | TPCNGVEGF 0.013585 | 2.7 |
| HLA-B*57:01 | 1 | 49 | 57 | 9 | HSTQDLFLP 0.013577 | 5.4 |
| HLA-A*23:01 | 1 | 139 | 147 | 9 | PFLGVYYHK 0.013574 | 2.5 |
| HLA-A*68:02 | 1 | 1004 | 1012 | 9 | LQTYVTQQL 0.013574 | 4.4 |
| HLA-A*11:01 | 1 | 399 | 408 | 10 | SFVIRGDEVV 0.013567 | 3.7 |
| HLA-A*31:01 | 1 | 151 | 160 | 10 | SWMESEFRVY 0.013565 | 5.6 |
| HLA-B*53:01 | 1 | 588 | 597 | 10 | TPCSFGGVSU 0.013564 | 2.8 |
| HLA-A*68:01 | 1 | 603 | 611 | 9 | NTSNQVAVL 0.013564 | 6.2 |
| HLA-B*35:01 | 1 | 929 | 938 | 10 | SAIGKIQDSL 0.013564 | 3.2 |
| HLA-B*51:01 | 1 | 914 | 923 | 10 | NVLYENQKLI 0.013548 | 5.0 |
| HLA-A*30:01 | 1 | 733 | 742 | 10 | KTSVDCTMYI 0.013544 | 7.1 |
| HLA-B*58:01 | 1 | 428 | 436 | 9 | DFTGCVIAW 0.013539 | 3.7 |
| HLA-A*32:01 | 1 | 98 | 106 | 9 | SNIIRGWIF 0.013536 | 2.9 |
| HLA-B*51:01 | 1 | 205 | 213 | 9 | SKHTPINLV 0.013533 | 5.0 |
| HLA-B*57:01 | 1 | 777 | 785 | 9 | NTQEVFAQV 0.013522 | 5.4 |
| HLA-B*53:01 | 1 | 1136 | 1145 | 10 | TVYDPLQPEL 0.013511 | 2.8 |
| HLA-A*30:01 | 1 | 239 | 248 | 10 | QTLALHRSY 0.013505 | 7.1 |
| HLA-A*02:06 | 1 | 856 | 864 | 9 | NGLTVLPPL 0.013496 | 5.8 |
| HLA-B*57:01 | 1 | 455 | 464 | 10 | LFRKSNLKPF 0.013492 | 5.5 |
| HLA-A*30:01 | 1 | 846 | 854 | 9 | ARDLICAQK 0.013491 | 7.1 |
| HLA-B*15:01 | 1 | 178 | 186 | 9 | DLEGKQGNF 0.013488 | 4.6 |
| HLA-A*23:01 | 1 | 84 | 92 | 9 | LPFNDGVYF 0.013484 | 2.5 |
| HLA-A*11:01 | 1 | 120 | 129 | 10 | VNNATNVVIK 0.013482 | 3.7 |
| HLA-B*35:01 | 1 | 733 | 741 | 9 | KTSVDCTMY 0.013481 | 3.2 |
| HLA-A*30:02 | 1 | 240 | 249 | 10 | TLLALHRSYL 0.013475 | 5.2 |
| HLA-A*24:02 | 1 | 392 | 400 | 9 | FTNVYADSF 0.013475 | 2.6 |
| HLA-A*26:01 | 1 | 918 | 927 | 10 | ENQKLIANQF 0.013475 | 2.7 |
| HLA-A*02:03 | 1 | 100 | 108 | 9 | IIRGWIFGT 0.013474 | 4.9 |
| HLA-B*08:01 | 1 | 334 | 342 | 9 | NLCPFGEV 0.013473 | 5.0 |
| HLA-A*01:01 | 1 | 665 | 674 | 10 | PIGAGICASY 0.013473 | 3.2 |
| HLA-B*08:01 | 1 | 341 | 350 | 10 | VFNATRFASV 0.013469 | 5.0 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*02:03 | 1 | 1011 | 1020 | 10 | QLIRAAEIRA 0.013462 | 4.9 |
| HLA-A*68:02 | 1 | 1135 | 1144 | 10 | NTVYDPLQPE 0.013459 | 4.4 |
| HLA-A*68:02 | 1 | 898 | 906 | 9 | FAMQMAYRF 0.013456 | 4.4 |
| HLA-A*02:06 | 1 | 858 | 866 | 9 | LTVLPPLLT 0.013446 | 5.8 |
| HLA-A*02:03 | 1 | 692 | 701 | 10 | IIAYTMSLGA 0.013445 | 4.9 |
| HLA-A*01:01 | 1 | 898 | 906 | 9 | FAMQMAYRF 0.013441 | 3.2 |
| HLA-A*24:02 | 1 | 333 | 342 | 10 | TNLCPFGEVF 0.01344 | 2.6 |
| HLA-A*68:02 | 1 | 1021 | 1029 | 9 | SANLAATKM 0.013435 | 4.4 |
| HLA-A*30:01 | 1 | 59 | 67 | 9 | FSNVTWFHA 0.013431 | 7.1 |
| HLA-A*11:01 | 1 | 558 | 567 | 10 | KFLPFQFGR 0.013419 | 3.7 |
| HLA-A*23:01 | 1 | 264 | 272 | 9 | AYYVGYLQP 0.013415 | 2.5 |
| HLA-A*24:02 | 1 | 126 | 135 | 10 | VVIKVCEQFQ 0.013414 | 2.6 |
| HLA-A*26:01 | 1 | 361 | 370 | 10 | CVADYSVLYN 0.013411 | 2.7 |
| HLA-B*51:01 | 1 | 371 | 379 | 9 | SASFSTFKC 0.013398 | 5.1 |
| HLA-A*68:02 | 1 | 1170 | 1179 | 10 | SGINASVNI 0.013398 | 4.4 |
| HLA-A*03:01 | 1 | 781 | 789 | 9 | VFAQVKQIY 0.013395 | 4.1 |
| HLA-A*02:03 | 1 | 958 | 967 | 10 | ALNTLVKQLS 0.013392 | 4.9 |
| HLA-A*02:06 | 1 | 1209 | 1218 | 10 | YIKWPWYIWL 0.013392 | 5.9 |
| HLA-A*68:01 | 1 | 486 | 495 | 10 | FNCYFPLQSY 0.013376 | 6.2 |
| HLA-A*30:02 | 1 | 575 | 583 | 9 | AVRDPQTL 0.013369 | 5.2 |
| HLA-A*30:01 | 1 | 527 | 535 | 9 | PKKSTNLVK 0.013368 | 7.1 |
| HLA-A*26:01 | 1 | 77 | 86 | 10 | KRFDNPVLPF 0.013362 | 2.7 |
| HLA-A*32:01 | 1 | 895 | 904 | 10 | QIPFAMQMAY 0.013355 | 3.0 |
| HLA-A*30:01 | 1 | 394 | 403 | 10 | NVYADSFVIR 0.01333 | 7.1 |
| HLA-A*26:01 | 1 | 717 | 726 | 10 | NFTISVTTEI 0.013328 | 2.7 |
| HLA-B*15:01 | 1 | 712 | 720 | 9 | IAIPTNFTI 0.013322 | 4.6 |
| HLA-A*30:01 | 1 | 186 | 195 | 10 | FKNLREFVFK 0.013321 | 7.1 |
| HLA-A*02:03 | 1 | 118 | 127 | 10 | LIVNNATNVV 0.01332 | 4.9 |
| HLA-A*02:03 | 1 | 222 | 231 | 10 | ALEPLVDLPI 0.01332 | 4.9 |
| HLA-A*02:03 | 1 | 1184 | 1193 | 10 | DRLNEVAKNL 0.013316 | 4.9 |
| HLA-A*30:01 | 1 | 674 | 682 | 9 | YQTQTNSPR 0.013314 | 7.1 |
| HLA-A*26:01 | 1 | 914 | 922 | 9 | NVLYENQKL 0.013306 | 2.8 |
| HLA-A*02:06 | 1 | 269 | 278 | 10 | YLQPRTFLLK 0.013302 | 5.9 |
| HLA-B*15:01 | 1 | 930 | 938 | 9 | AIGKIQDSL 0.0133 | 4.7 |
| HLA-A*68:02 | 1 | 1124 | 1132 | 9 | GNCDVVIGI 0.01329 | 4.4 |
| HLA-B*08:01 | 1 | 1033 | 1042 | 10 | VLGQSKRVDF 0.013289 | 5.1 |
| HLA-A*02:01 | 1 | 4 | 13 | 10 | FLVLLPLVSS 0.01328 | 4.3 |
| HLA-A*23:01 | 1 | 186 | 194 | 9 | FKNLREFVF 0.013279 | 2.5 |
| HLA-A*02:06 | 1 | 618 | 626 | 9 | TEVPVAIHA 0.013272 | 5.9 |
| HLA-A*30:01 | 1 | 502 | 511 | 10 | GVGYQPYRVV 0.013269 | 7.1 |
| HLA-A*02:03 | 1 | 1185 | 1194 | 10 | RLNEVAKNLN 0.013268 | 4.9 |
| HLA-A*02:03 | 1 | 1049 | 1057 | 9 | LMSFPQSAP 0.013267 | 4.9 |
| HLA-A*33:01 | 1 | 298 | 306 | 9 | ETKCTLKSF 0.013263 | 4.5 |
| HLA-B*44:03 | 1 | 1181 | 1190 | 10 | KEIDRLNEVA 0.013255 | 2.5 |
| HLA-A*03:01 | 1 | 28 | 37 | 10 | YTNSFTRGVY 0.013253 | 4.2 |
| HLA-B*51:01 | 1 | 304 | 312 | 9 | KSFTVEKGI 0.01325 | 5.1 |
| HLA-A*02:06 | 1 | 562 | 570 | 9 | FQQFGRDIA 0.013241 | 5.9 |
| HLA-B*40:01 | 1 | 934 | 942 | 9 | IQDLSSTA 0.013241 | 2.5 |
| HLA-B*35:01 | 1 | 421 | 429 | 9 | YNYKLPDDF 0.013237 | 3.2 |
| HLA-A*24:02 | 1 | 56 | 64 | 9 | LPFFSNVTW 0.013231 | 2.6 |
| HLA-B*51:01 | 1 | 234 | 242 | 9 | NITRFQTL 0.013227 | 5.1 |
| HLA-A*02:06 | 1 | 232 | 241 | 10 | GINITRFQTL 0.013226 | 5.9 |
| HLA-A*30:01 | 1 | 710 | 718 | 9 | NSIAIPTNF 0.013224 | 7.2 |
| HLA-B*08:01 | 1 | 718 | 726 | 9 | FTISVTTEI 0.013224 | 5.1 |
| HLA-B*51:01 | 1 | 421 | 429 | 9 | YNYKLPDDF 0.013223 | 5.1 |
| HLA-B*08:01 | 1 | 907 | 915 | 9 | NGIGVTQNV 0.013222 | 5.1 |
| HLA-B*40:01 | 1 | 988 | 997 | 10 | EAEVQIDRLI 0.013222 | 2.5 |
| HLA-B*53:01 | 1 | 186 | 194 | 9 | FKNLREFVF 0.013221 | 2.9 |
| HLA-B*57:01 | 1 | 583 | 592 | 10 | EILDITPCSF 0.013216 | 5.5 |
| HLA-A*33:01 | 1 | 787 | 795 | 9 | QIYKTPPIK 0.013214 | 4.5 |
| HLA-B*57:01 | 1 | 427 | 436 | 10 | DDFTGCVIAW 0.013213 | 5.5 |
| HLA-A*30:02 | 1 | 321 | 329 | 9 | QPTESIVRF 0.013212 | 5.3 |
| HLA-A*26:01 | 1 | 1101 | 1109 | 9 | HWFVTQRNF 0.013206 | 2.8 |
| HLA-A*31:01 | 1 | 1039 | 1048 | 10 | RVDFCGKGYH 0.013198 | 5.6 |
| HLA-A*30:02 | 1 | 789 | 797 | 9 | YKTPPIKDF 0.013192 | 5.3 |
| HLA-B*08:01 | 1 | 773 | 782 | 10 | EQDKNTQEVF 0.013187 | 5.1 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*44:03 | 1 | 789 | 797 | 9 | YKTPPIKDF 0.013185 | 2.5 |
| HLA-A*02:03 | 1 | 306 | 315 | 10 | FTVEKGIYQT 0.013183 | 5.0 |
| HLA-A*30:01 | 1 | 100 | 108 | 9 | IIRGWIFGT 0.013167 | 7.2 |
| HLA-A*02:03 | 1 | 690 | 699 | 10 | QSIIAYTMSL 0.013149 | 5.0 |
| HLA-B*15:01 | 1 | 821 | 829 | 9 | LLFNKVTTLA 0.013147 | 4.7 |
| HLA-A*23:01 | 1 | 204 | 212 | 9 | YSKHTPINL 0.013142 | 2.5 |
| HLA-B*51:01 | 1 | 460 | 468 | 9 | NLKPFERDI 0.013142 | 5.1 |
| HLA-B*15:01 | 1 | 1204 | 1212 | 9 | GKYEQYIKW 0.013142 | 4.7 |
| HLA-A*11:01 | 1 | 725 | 734 | 10 | EILPVSMTKT 0.013137 | 3.8 |
| HLA-A*30:01 | 1 | 548 | 557 | 10 | GTGVLTESNK 0.013133 | 7.2 |
| HLA-B*51:01 | 1 | 125 | 133 | 9 | NVVIKVFCE 0.013125 | 5.1 |
| HLA-A*24:02 | 1 | 510 | 518 | 9 | VVVLSEFELL 0.013106 | 2.6 |
| HLA-B*58:01 | 1 | 808 | 817 | 10 | DPSKPSKRSF 0.013102 | 3.7 |
| HLA-B*08:01 | 1 | 203 | 212 | 10 | IYSKHTPINL 0.013091 | 5.1 |
| HLA-B*57:01 | 1 | 267 | 276 | 10 | VGYLQPRTF 0.013089 | 5.5 |
| HLA-A*02:06 | 1 | 503 | 511 | 9 | VGYPYRVV 0.013085 | 6.0 |
| HLA-B*15:01 | 1 | 305 | 313 | 9 | SFTVEKGIY 0.013079 | 4.7 |
| HLA-B*35:01 | 1 | 505 | 513 | 9 | YQPYRVVVL 0.013073 | 3.2 |
| HLA-B*40:01 | 1 | 1185 | 1193 | 9 | RLNEVAKNL 0.013069 | 2.5 |
| HLA-A*32:01 | 1 | 754 | 763 | 10 | LQYGSFCTQL 0.013067 | 3.0 |
| HLA-A*02:06 | 1 | 6 | 14 | 9 | VLLPLVSSQ 0.013056 | 6.0 |
| HLA-A*01:01 | 1 | 1206 | 1215 | 10 | YEQYIKWPWY 0.013055 | 3.3 |
| HLA-A*33:01 | 1 | 1264 | 1272 | 9 | VLKGVKLHY 0.013052 | 4.5 |
| HLA-B*51:01 | 1 | 860 | 869 | 10 | VLPLLLTDEM 0.013051 | 5.1 |
| HLA-A*30:02 | 1 | 688 | 697 | 10 | ASQSIIAYTM 0.013048 | 5.3 |
| HLA-A*32:01 | 1 | 408 | 417 | 10 | RQIAPGQTGK 0.013042 | 3.0 |
| HLA-A*30:01 | 1 | 1183 | 1191 | 9 | IDRLNEVAK 0.013029 | 7.2 |
| HLA-B*57:01 | 1 | 115 | 123 | 9 | QSLLVNNA 0.013025 | 5.6 |
| HLA-A*01:01 | 1 | 269 | 278 | 10 | YLQPRFLLK 0.013017 | 3.3 |
| HLA-A*30:02 | 1 | 991 | 1000 | 10 | VQIDRLITGR 0.01301 | 5.3 |
| HLA-A*02:01 | 1 | 53 | 62 | 10 | DLFLPFSSNV 0.013006 | 4.4 |
| HLA-B*15:01 | 1 | 421 | 429 | 9 | YNYKLPDF 0.013003 | 4.7 |
| HLA-B*08:01 | 1 | 267 | 276 | 10 | VGYLQPRTF 0.012998 | 5.1 |
| HLA-A*02:01 | 1 | 835 | 844 | 10 | KQYGDCLGDI 0.012975 | 4.4 |
| HLA-A*26:01 | 1 | 249 | 258 | 10 | LTPGDSSSGW 0.012969 | 2.8 |
| HLA-A*11:01 | 1 | 559 | 567 | 9 | FLPFQQFGR 0.012968 | 3.8 |
| HLA-A*30:01 | 1 | 765 | 773 | 9 | RALTGIAVE 0.012968 | 7.2 |
| HLA-A*68:01 | 1 | 1173 | 1182 | 10 | NASVVNIQKE 0.012966 | 6.3 |
| HLA-A*30:01 | 1 | 673 | 681 | 9 | SYQTQTNSP 0.01296 | 7.2 |
| HLA-A*02:03 | 1 | 1060 | 1069 | 10 | VVFLHVITYVP 0.012957 | 5.0 |
| HLA-A*01:01 | 1 | 806 | 815 | 10 | LPDPSKPSKR 0.01294 | 3.3 |
| HLA-B*57:01 | 1 | 260 | 269 | 10 | AGAAAYVGY 0.012932 | 5.6 |
| HLA-A*02:03 | 1 | 4 | 13 | 10 | FLVLLPLVSS 0.012926 | 5.0 |
| HLA-B*40:01 | 1 | 747 | 756 | 10 | TECSNLLLQY 0.012908 | 2.6 |
| HLA-B*35:01 | 1 | 1087 | 1095 | 9 | AHFPREGVF 0.012904 | 3.3 |
| HLA-B*57:01 | 1 | 378 | 386 | 9 | KCYGVSPTK 0.012899 | 5.6 |
| HLA-B*08:01 | 1 | 922 | 930 | 9 | LIANQFNVA 0.012896 | 5.1 |
| HLA-A*02:01 | 1 | 967 | 976 | 10 | SSNFGAISSV 0.012896 | 4.4 |
| HLA-B*35:01 | 1 | 687 | 696 | 10 | VASQSIIAYT 0.012894 | 3.3 |
| HLA-A*68:01 | 1 | 786 | 795 | 10 | KQIYKTPPIK 0.012892 | 6.3 |
| HLA-A*02:03 | 1 | 840 | 849 | 10 | CLGDIAARDL 0.012865 | 5.0 |
| HLA-B*15:01 | 1 | 1181 | 1189 | 9 | KEIDRLNEV 0.012862 | 4.7 |
| HLA-A*32:01 | 1 | 509 | 518 | 10 | RVVLSFELL 0.012861 | 3.0 |
| HLA-B*35:01 | 1 | 51 | 59 | 9 | TQDLFLPFF 0.012856 | 3.3 |
| HLA-A*03:01 | 1 | 237 | 245 | 9 | RFQTLALH 0.012856 | 4.2 |
| HLA-A*68:02 | 1 | 447 | 455 | 9 | GNYNLYRL 0.012856 | 4.5 |
| HLA-B*58:01 | 1 | 113 | 121 | 9 | KTQSLLIVN 0.012835 | 3.8 |
| HLA-A*31:01 | 1 | 268 | 277 | 10 | GYLQPRFLL 0.012818 | 5.7 |
| HLA-B*44:02 | 1 | 846 | 855 | 10 | ARDLICAQKF 0.012817 | 2.3 |
| HLA-A*01:01 | 1 | 1065 | 1073 | 9 | VTYVPAQEK 0.012815 | 3.3 |
| HLA-B*08:01 | 1 | 1216 | 1224 | 9 | IWLGFIAGL 0.012815 | 5.2 |
| HLA-B*57:01 | 1 | 24 | 32 | 9 | LPPAYTNSF 0.012799 | 5.6 |
| HLA-B*51:01 | 1 | 40 | 48 | 9 | DKVFRSSVL 0.012794 | 5.2 |
| HLA-B*08:01 | 1 | 329 | 338 | 10 | FPNITNLCPF 0.012794 | 5.2 |
| HLA-A*33:01 | 1 | 50 | 58 | 9 | STQDLFLPF 0.01279 | 4.6 |
| HLA-B*53:01 | 1 | 489 | 497 | 9 | YFPLQSYGF 0.012784 | 2.9 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*68:02 | 1 | 306 | 314 | 9 | FTVEKGIYQ 0.012781 | 4.5 |
| HLA-A*30:02 | 1 | 683 | 691 | 9 | RARSVASQS 0.012778 | 5.4 |
| HLA-A*23:01 | 1 | 236 | 244 | 9 | TRFQTLAL 0.012773 | 2.6 |
| HLA-B*15:01 | 1 | 788 | 797 | 10 | IYKTPPIKDF 0.012773 | 4.7 |
| HLA-A*32:01 | 1 | 2 | 10 | 9 | FVFLVLLPL 0.012757 | 3.0 |
| HLA-A*02:01 | 1 | 220 | 229 | 10 | FSALEPLVDL 0.012724 | 4.4 |
| HLA-A*02:03 | 1 | 27 | 36 | 10 | AYTNSFTRGV 0.012716 | 5.1 |
| HLA-B*08:01 | 1 | 229 | 238 | 10 | LPIGINITRF 0.012716 | 5.2 |
| HLA-A*02:06 | 1 | 580 | 589 | 10 | QTLEILDITP 0.012715 | 6.1 |
| HLA-A*68:01 | 1 | 912 | 921 | 10 | TONVLYENQK 0.012714 | 6.3 |
| HLA-B*51:01 | 1 | 957 | 966 | 10 | QALNTLVKQL 0.012714 | 5.2 |
| HLA-B*35:01 | 1 | 29 | 37 | 9 | TNSFTRGVY 0.012711 | 3.3 |
| HLA-B*53:01 | 1 | 1161 | 1169 | 9 | SPDVDLGDI 0.012695 | 2.9 |
| HLA-A*02:03 | 1 | 711 | 719 | 9 | SIAIPTNFT 0.012693 | 5.1 |
| HLA-B*35:01 | 1 | 999 | 1007 | 9 | GRLQSLQTY 0.012692 | 3.3 |
| HLA-B*35:01 | 1 | 557 | 565 | 9 | KKFLPFQQF 0.012691 | 3.3 |
| HLA-A*02:06 | 1 | 976 | 985 | 10 | VLNDILSRLD 0.012688 | 6.1 |
| HLA-A*68:01 | 1 | 1060 | 1068 | 9 | VVFLHVTVY 0.012686 | 6.3 |
| HLA-A*31:01 | 1 | 62 | 70 | 9 | VTWFHAIHV 0.012677 | 5.7 |
| HLA-B*44:03 | 1 | 95 | 103 | 9 | TEKSNIIRG 0.012674 | 2.5 |
| HLA-A*02:06 | 1 | 22 | 31 | 10 | TQLPPAYTNS 0.012665 | 6.1 |
| HLA-A*30:01 | 1 | 315 | 323 | 9 | TSNFRVQPT 0.012663 | 7.3 |
| HLA-A*02:03 | 1 | 772 | 781 | 10 | VEQDKNTQEV 0.012663 | 5.1 |
| HLA-A*02:03 | 1 | 538 | 546 | 9 | CVNFNFNGL 0.012652 | 5.1 |
| HLA-A*26:01 | 1 | 61 | 69 | 9 | NVTWFHAIH 0.012642 | 2.8 |
| HLA-A*33:01 | 1 | 320 | 328 | 9 | VQPTESIVR 0.01264 | 4.6 |
| HLA-A*24:02 | 1 | 887 | 896 | 10 | TFGAGAALQI 0.01264 | 2.7 |
| HLA-A*30:02 | 1 | 1006 | 1014 | 9 | TYVTQQLIR 0.012638 | 5.4 |
| HLA-B*15:01 | 1 | 1198 | 1206 | 9 | IDLQELGKY 0.012634 | 4.8 |
| HLA-B*44:02 | 1 | 280 | 288 | 9 | NENGTITDA 0.012632 | 2.4 |
| HLA-A*32:01 | 1 | 1086 | 1094 | 9 | KAHFPPREGV 0.012631 | 3.1 |
| HLA-B*51:01 | 1 | 321 | 330 | 10 | QPTESIVRFP 0.012626 | 5.2 |
| HLA-A*30:02 | 1 | 1151 | 1159 | 9 | ELDKYFKNH 0.012624 | 5.4 |
| HLA-B*53:01 | 1 | 603 | 612 | 10 | NTSNQVAVLY 0.012623 | 2.9 |
| HLA-A*33:01 | 1 | 626 | 634 | 9 | ADQLTPTWR 0.012621 | 4.6 |
| HLA-A*31:01 | 1 | 25 | 34 | 10 | PPAYTNSFTR 0.012609 | 5.8 |
| HLA-A*02:01 | 1 | 609 | 618 | 10 | AVLYQDVNCT 0.012604 | 4.5 |
| HLA-A*01:01 | 1 | 572 | 581 | 10 | TTDAVRDPQT 0.012603 | 3.4 |
| HLA-B*51:01 | 1 | 525 | 533 | 9 | CGPKKSTNL 0.0126 | 5.2 |
| HLA-B*57:01 | 1 | 1042 | 1050 | 9 | FCGKGYHLM 0.012595 | 5.6 |
| HLA-A*31:01 | 1 | 604 | 612 | 9 | TSNQVAVLY 0.012592 | 5.8 |
| HLA-B*08:01 | 1 | 10 | 18 | 9 | LVSSQCVNL 0.012588 | 5.2 |
| HLA-A*31:01 | 1 | 327 | 335 | 9 | VRFPNITNL 0.012576 | 5.8 |
| HLA-A*02:03 | 1 | 302 | 310 | 9 | TLKSFTVEK 0.012573 | 5.1 |
| HLA-B*51:01 | 1 | 1067 | 1075 | 9 | YVPAQEKNF 0.012565 | 5.3 |
| HLA-B*44:03 | 1 | 1137 | 1145 | 9 | VYDPLQPEL 0.012564 | 2.5 |
| HLA-A*30:02 | 1 | 1054 | 1063 | 10 | QSAPHGVVFL 0.01256 | 5.4 |
| HLA-A*02:06 | 1 | 850 | 858 | 9 | ICAQKFNGL 0.012556 | 6.1 |
| HLA-A*33:01 | 1 | 627 | 635 | 9 | DQLTPTWRV 0.012554 | 4.6 |
| HLA-B*44:03 | 1 | 227 | 235 | 9 | VDLPIGINI 0.012546 | 2.5 |
| HLA-B*35:01 | 1 | 49 | 58 | 10 | HSTQDLFLPF 0.01254 | 3.3 |
| HLA-B*53:01 | 1 | 143 | 152 | 10 | VYYHKNNKSW 0.01254 | 3.0 |
| HLA-A*02:06 | 1 | 1260 | 1268 | 9 | DSEPVLKGV 0.01254 | 6.1 |
| HLA-A*02:03 | 1 | 1010 | 1018 | 9 | QQLIRAAEI 0.012538 | 5.1 |
| HLA-A*02:03 | 1 | 607 | 615 | 9 | QVAVLYQDV 0.012532 | 5.1 |
| HLA-B*57:01 | 1 | 732 | 741 | 10 | TKTSVDCTMY 0.012526 | 5.7 |
| HLA-A*03:01 | 1 | 93 | 102 | 10 | ASTEKSNIIR 0.01252 | 4.3 |
| HLA-A*30:02 | 1 | 503 | 511 | 9 | VGYQPYRVV 0.012516 | 5.5 |
| HLA-B*51:01 | 1 | 133 | 141 | 9 | FQFCNDPFL 0.012515 | 5.3 |
| HLA-A*30:02 | 1 | 265 | 273 | 9 | YYVGYLQPR 0.012502 | 5.5 |
| HLA-A*30:02 | 1 | 1073 | 1081 | 9 | KNFTTAPAI 0.012501 | 5.5 |
| HLA-A*02:06 | 1 | 27 | 36 | 10 | AYTNSFTRGV 0.0125 | 6.1 |
| HLA-A*26:01 | 1 | 627 | 635 | 9 | DQLTPTWRV 0.0125 | 2.9 |
| HLA-A*02:01 | 1 | 907 | 915 | 9 | NGIGVTQNV 0.012498 | 4.5 |
| HLA-A*30:01 | 1 | 270 | 279 | 10 | LQPRTFLLKY 0.012492 | 7.4 |
| HLA-A*02:06 | 1 | 714 | 722 | 9 | IPTNFTISV 0.012492 | 6.1 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*08:01 | 1 | 211 | 220 | 10 | NLVRDLPQGF 0.01249 | 5.2 |
| HLA-A*68:01 | 1 | 698 | 707 | 10 | SLGAENSVAY 0.012486 | 6.4 |
| HLA-B*53:01 | 1 | 35 | 43 | 9 | GYYYPDKVF 0.012485 | 3.0 |
| HLA-A*02:03 | 1 | 378 | 387 | 10 | KCYGVSPTKL 0.012481 | 5.1 |
| HLA-A*30:02 | 1 | 675 | 683 | 9 | QTQTNSPRR 0.012477 | 5.5 |
| HLA-A*02:06 | 1 | 508 | 517 | 10 | YRVVLSFEL 0.012471 | 6.1 |
| HLA-A*02:03 | 1 | 606 | 615 | 10 | NQVAVLYQDV 0.01247 | 5.1 |
| HLA-A*68:02 | 1 | 1121 | 1130 | 10 | FVSGNCDVVI 0.012463 | 4.5 |
| HLA-A*30:01 | 1 | 232 | 240 | 9 | GINITRFQT 0.012462 | 7.4 |
| HLA-A*30:02 | 1 | 947 | 955 | 9 | KLQDVVNQN 0.012457 | 5.5 |
| HLA-A*30:01 | 1 | 317 | 325 | 9 | NFRVQPTES 0.012449 | 7.4 |
| HLA-A*23:01 | 1 | 489 | 498 | 10 | YFPLQSYGFQ 0.012447 | 2.6 |
| HLA-A*68:01 | 1 | 691 | 699 | 9 | SIAYTMSL 0.012447 | 6.4 |
| HLA-A*30:01 | 1 | 902 | 911 | 10 | MAYRFNGIGV 0.012447 | 7.4 |
| HLA-A*26:01 | 1 | 496 | 505 | 10 | GFQPTNGVGY 0.012444 | 2.9 |
| HLA-B*15:01 | 1 | 6 | 14 | 9 | VLLPLVSSQ 0.012437 | 4.8 |
| HLA-B*07:02 | 1 | 81 | 90 | 10 | NPVLPFNDGV 0.01243 | 3.4 |
| HLA-B*35:01 | 1 | 136 | 144 | 9 | CNDPFLGVY 0.012416 | 3.3 |
| HLA-A*23:01 | 1 | 1264 | 1272 | 9 | VLKGVKLHY 0.01241 | 2.6 |
| HLA-A*33:01 | 1 | 925 | 933 | 9 | NQFNSAIGK 0.012394 | 4.7 |
| HLA-A*68:02 | 1 | 1099 | 1107 | 9 | GTHWFVTQR 0.012394 | 4.5 |
| HLA-A*33:01 | 1 | 271 | 279 | 9 | QPRTFLLKY 0.012393 | 4.7 |
| HLA-A*24:02 | 1 | 230 | 238 | 9 | PIGINITRF 0.012392 | 2.7 |
| HLA-A*02:06 | 1 | 408 | 417 | 10 | RQIAPGQTGK 0.012388 | 6.2 |
| HLA-B*53:01 | 1 | 576 | 584 | 9 | VRDPQTLEI 0.012383 | 3.0 |
| HLA-A*68:01 | 1 | 139 | 147 | 9 | PFLGVYYHK 0.012382 | 6.4 |
| HLA-A*03:01 | 1 | 1075 | 1083 | 9 | FTTAPAICH 0.012375 | 4.3 |
| HLA-A*30:02 | 1 | 211 | 220 | 10 | NLVRDLPQGF 0.012373 | 5.5 |
| HLA-A*26:01 | 1 | 1198 | 1206 | 9 | IDLQELGKY 0.012369 | 2.9 |
| HLA-A*26:01 | 1 | 297 | 306 | 10 | SETKCTLKSF 0.012366 | 2.9 |
| HLA-A*02:03 | 1 | 23 | 31 | 9 | QLPPAYTNS 0.012363 | 5.1 |
| HLA-A*31:01 | 1 | 162 | 170 | 9 | SANNCTFEY 0.012363 | 5.8 |
| HLA-A*68:02 | 1 | 762 | 770 | 9 | QLNRALTGI 0.012363 | 4.6 |
| HLA-A*31:01 | 1 | 975 | 984 | 10 | SVLNDILSRL 0.01236 | 5.8 |
| HLA-B*44:03 | 1 | 865 | 873 | 9 | LTDEMIAQY 0.012355 | 2.6 |
| HLA-A*68:02 | 1 | 158 | 166 | 9 | RVYSSANNC 0.012353 | 4.6 |
| HLA-A*02:01 | 1 | 545 | 553 | 9 | GLTGTGVLV 0.012351 | 4.5 |
| HLA-B*51:01 | 1 | 604 | 612 | 9 | TSNQVAVLY 0.012351 | 5.3 |
| HLA-A*32:01 | 1 | 929 | 938 | 10 | SAIGKIQDSL 0.012349 | 3.1 |
| HLA-B*15:01 | 1 | 975 | 984 | 10 | SVLNDILSRL 0.012349 | 4.8 |
| HLA-B*51:01 | 1 | 895 | 904 | 10 | QIPFAMQMAY 0.012348 | 5.3 |
| HLA-A*33:01 | 1 | 142 | 150 | 9 | GYYHKNK 0.012346 | 4.7 |
| HLA-A*30:01 | 1 | 711 | 719 | 9 | SIAIPTNFT 0.012342 | 7.5 |
| HLA-B*35:01 | 1 | 1144 | 1152 | 9 | ELDSFKEEL 0.012339 | 3.3 |
| HLA-A*02:06 | 1 | 580 | 588 | 9 | QTLFIELDIT 0.012338 | 6.2 |
| HLA-A*32:01 | 1 | 386 | 395 | 10 | KLNDLCFTNV 0.012331 | 3.1 |
| HLA-A*01:01 | 1 | 361 | 370 | 10 | CVADYSVLVN 0.012329 | 3.4 |
| HLA-B*07:02 | 1 | 232 | 241 | 10 | GINITRFQTL 0.012328 | 3.5 |
| HLA-B*15:01 | 1 | 46 | 54 | 9 | SVLHSTQDL 0.012322 | 4.8 |
| HLA-A*26:01 | 1 | 482 | 490 | 9 | GVEGFNCYF 0.01232 | 2.9 |
| HLA-A*02:01 | 1 | 891 | 899 | 9 | GAALQIPFA 0.012319 | 4.5 |
| HLA-B*58:01 | 1 | 203 | 212 | 10 | IYSKHTPINL 0.012314 | 3.8 |
| HLA-B*07:02 | 1 | 976 | 984 | 9 | VLNDILSRL 0.012313 | 3.5 |
| HLA-A*68:02 | 1 | 218 | 226 | 9 | QGFSALEPL 0.012308 | 4.6 |
| HLA-A*31:01 | 1 | 550 | 558 | 9 | GVLTESNKK 0.012308 | 5.8 |
| HLA-A*30:01 | 1 | 262 | 270 | 9 | AAAYYVGYL 0.012304 | 7.5 |
| HLA-A*02:06 | 1 | 869 | 878 | 10 | MIAQYTSALL 0.012302 | 6.2 |
| HLA-A*32:01 | 1 | 635 | 643 | 9 | VYSTGSNVF 0.01229 | 3.1 |
| HLA-B*35:01 | 1 | 168 | 176 | 9 | FEYVSPFL 0.012288 | 3.3 |
| HLA-A*23:01 | 1 | 903 | 911 | 9 | AYRFNGIGV 0.012279 | 2.6 |
| HLA-B*35:01 | 1 | 773 | 781 | 9 | EQDKNTQEV 0.012277 | 3.3 |
| HLA-A*30:01 | 1 | 1101 | 1110 | 10 | HWFVTQRNFY 0.012271 | 7.5 |
| HLA-A*26:01 | 1 | 262 | 270 | 9 | AAAYYVGYL 0.012267 | 2.9 |
| HLA-B*44:03 | 1 | 1147 | 1155 | 9 | SFKEELDKY 0.012262 | 2.6 |
| HLA-A*30:01 | 1 | 1105 | 1114 | 10 | TQRNFYEPQI 0.01226 | 7.5 |
| HLA-B*44:03 | 1 | 659 | 668 | 10 | SYECDIPIGA 0.012259 | 2.6 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*68:01 | 1 | 196 | 204 | 9 | NIDGYFKIY 0.012256 | 6.4 |
| HLA-A*68:01 | 1 | 1103 | 1111 | 9 | FVTQRNFYE 0.012252 | 6.4 |
| HLA-A*32:01 | 1 | 1207 | 1215 | 9 | EQYIKWPWY 0.012244 | 3.1 |
| HLA-B*51:01 | 1 | 1218 | 1227 | 10 | LGFIAGLIAI 0.012244 | 5.3 |
| HLA-A*26:01 | 1 | 409 | 417 | 9 | QIAPGQTGK 0.012238 | 2.9 |
| HLA-B*57:01 | 1 | 158 | 166 | 9 | RVYSSANNC 0.012233 | 5.7 |
| HLA-A*30:01 | 1 | 507 | 515 | 9 | PYRVVLSF 0.012231 | 7.5 |
| HLA-A*02:03 | 1 | 151 | 159 | 9 | SWMESEFRV 0.012228 | 5.1 |
| HLA-B*08:01 | 1 | 576 | 585 | 10 | VRDPQTLEIL 0.012224 | 5.3 |
| HLA-A*26:01 | 1 | 506 | 515 | 10 | QPYRVVLSF 0.01222 | 2.9 |
| HLA-A*30:02 | 1 | 725 | 733 | 9 | EILPVSMTK 0.012207 | 5.5 |
| HLA-B*58:01 | 1 | 915 | 923 | 9 | VLYENQKLI 0.012204 | 3.8 |
| HLA-A*02:01 | 1 | 875 | 884 | 10 | SALLAGTITS 0.012192 | 4.5 |
| HLA-A*30:01 | 1 | 352 | 360 | 9 | AWNKRKRN 0.01219 | 7.5 |
| HLA-A*68:01 | 1 | 314 | 322 | 9 | QTSNFRVQP 0.012189 | 6.4 |
| HLA-A*31:01 | 1 | 1211 | 1220 | 10 | KWPWYIWLGF 0.012183 | 5.8 |
| HLA-A*31:01 | 1 | 1172 | 1181 | 10 | INASVVNIQK 0.012175 | 5.8 |
| HLA-B*53:01 | 1 | 464 | 472 | 9 | FERDISTEI 0.012164 | 3.0 |
| HLA-B*53:01 | 1 | 879 | 888 | 10 | AGTITSGWTF 0.012162 | 3.0 |
| HLA-B*57:01 | 1 | 56 | 65 | 10 | LPFFSNVTWF 0.012161 | 5.7 |
| HLA-A*33:01 | 1 | 364 | 372 | 9 | DYSVLYNSA 0.012151 | 4.7 |
| HLA-B*15:01 | 1 | 517 | 525 | 9 | LLHAPATVC 0.01215 | 4.8 |
| HLA-A*32:01 | 1 | 321 | 329 | 9 | QPTESIVRF 0.012147 | 3.1 |
| HLA-B*08:01 | 1 | 993 | 1001 | 9 | IDRLITGRL 0.012147 | 5.3 |
| HLA-A*02:01 | 1 | 195 | 203 | 9 | KNIDGYFKI 0.012146 | 4.5 |
| HLA-B*58:01 | 1 | 574 | 582 | 9 | DAVRDPQTL 0.012138 | 3.8 |
| HLA-A*02:06 | 1 | 594 | 602 | 9 | GVSVITPGT 0.012137 | 6.2 |
| HLA-A*33:01 | 1 | 488 | 497 | 10 | CYFPLQSYGF 0.012131 | 4.7 |
| HLA-A*02:06 | 1 | 815 | 823 | 9 | RSFIEDLLF 0.012116 | 6.2 |
| HLA-A*30:01 | 1 | 320 | 328 | 9 | VQPTESIVR 0.012115 | 7.6 |
| HLA-A*30:01 | 1 | 975 | 984 | 10 | SVLNDILSRL 0.012114 | 7.6 |
| HLA-A*11:01 | 1 | 377 | 386 | 10 | FKCYGVSPTK 0.012103 | 3.9 |
| HLA-A*33:01 | 1 | 144 | 152 | 9 | YYHKNNKSW 0.012097 | 4.7 |
| HLA-A*68:02 | 1 | 150 | 159 | 10 | KSWMESEFRV 0.012097 | 4.6 |
| HLA-A*26:01 | 1 | 41 | 49 | 9 | KVFRSSVLH 0.012094 | 2.9 |
| HLA-B*57:01 | 1 | 482 | 490 | 9 | GVEGFNCYF 0.012088 | 5.8 |
| HLA-A*30:01 | 1 | 35 | 43 | 9 | GYYYPDKVF 0.012085 | 7.6 |
| HLA-A*01:01 | 1 | 396 | 404 | 9 | YADSFVIRG 0.012078 | 3.4 |
| HLA-B*51:01 | 1 | 1010 | 1018 | 9 | QLLIRAAEI 0.012078 | 5.4 |
| HLA-A*30:01 | 1 | 817 | 825 | 9 | FIEDLLFNK 0.012076 | 7.6 |
| HLA-A*30:01 | 1 | 401 | 410 | 10 | VIRGDEVRI 0.012075 | 7.6 |
| HLA-A*02:06 | 1 | 1073 | 1081 | 9 | KNFTTAPAI 0.01207 | 6.2 |
| HLA-B*53:01 | 1 | 1050 | 1058 | 9 | MSFPQSAPH 0.012068 | 3.0 |
| HLA-B*07:02 | 1 | 50 | 58 | 9 | STQDLFLPF 0.012064 | 3.5 |
| HLA-A*02:03 | 1 | 1196 | 1204 | 9 | SLIDLQELG 0.012048 | 5.2 |
| HLA-A*02:03 | 1 | 1095 | 1103 | 9 | FVSNGTWTF 0.012046 | 5.2 |
| HLA-A*01:01 | 1 | 20 | 28 | 9 | TRTQLPPAY 0.012038 | 3.4 |
| HLA-A*26:01 | 1 | 193 | 201 | 9 | VFKNIDGYF 0.012038 | 2.9 |
| HLA-B*15:01 | 1 | 455 | 464 | 10 | LFRKSNLKP 0.012038 | 4.8 |
| HLA-A*32:01 | 1 | 268 | 277 | 10 | GYLQPRFLL 0.012036 | 3.1 |
| HLA-A*33:01 | 1 | 487 | 495 | 9 | NCYFPLQSY 0.012023 | 4.7 |
| HLA-A*32:01 | 1 | 896 | 904 | 9 | IPFAMQMAY 0.012022 | 3.1 |
| HLA-A*11:01 | 1 | 347 | 355 | 9 | FASVYAWNR 0.012021 | 3.9 |
| HLA-A*02:01 | 1 | 856 | 865 | 10 | NGLTVLPLLL 0.012007 | 4.5 |
| HLA-A*68:02 | 1 | 930 | 938 | 9 | AIGKIQDSL 0.011993 | 4.6 |
| HLA-B*07:02 | 1 | 1211 | 1220 | 10 | KWPWYIWLGF 0.011992 | 3.5 |
| HLA-B*40:01 | 1 | 308 | 316 | 9 | VEKGIYQTS 0.01199 | 2.6 |
| HLA-B*58:01 | 1 | 324 | 332 | 9 | ESIVRFPNI 0.011985 | 3.9 |
| HLA-B*08:01 | 1 | 155 | 163 | 9 | SEFRVYSSA 0.011978 | 5.4 |
| HLA-B*53:01 | 1 | 1204 | 1212 | 9 | GKYEQYIKW 0.011974 | 3.0 |
| HLA-A*02:01 | 1 | 61 | 70 | 10 | NVTWFHAIHV 0.011963 | 4.6 |
| HLA-A*31:01 | 1 | 435 | 444 | 10 | AWNSNNLDSK 0.011961 | 5.9 |
| HLA-A*32:01 | 1 | 1147 | 1155 | 9 | SFKEELDKY 0.011957 | 3.2 |
| HLA-A*30:01 | 1 | 549 | 558 | 10 | TGVLTESNKK 0.011954 | 7.6 |
| HLA-A*26:01 | 1 | 124 | 133 | 10 | TNVVIKVCEF 0.011949 | 2.9 |
| HLA-A*11:01 | 1 | 450 | 458 | 9 | NYLYRLFRK 0.011941 | 3.9 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*15:01 | 1 | 477 | 486 | 10 | STPCNGVEGF 0.011941 | 4.9 |
| HLA-A*24:02 | 1 | 915 | 923 | 9 | VLYENQKLI 0.01194 | 2.7 |
| HLA-A*24:02 | 1 | 37 | 46 | 10 | YYPDKVFRSS 0.011939 | 2.7 |
| HLA-A*30:01 | 1 | 375 | 383 | 9 | STFKCYGVS 0.011938 | 7.6 |
| HLA-A*24:02 | 1 | 642 | 650 | 9 | VFQTRAGCL 0.011936 | 2.7 |
| HLA-B*53:01 | 1 | 1257 | 1265 | 9 | DEDDSEPVL 0.01193 | 3.1 |
| HLA-A*02:06 | 1 | 859 | 868 | 10 | TVLPPLLTDE 0.011927 | 6.3 |
| HLA-A*03:01 | 1 | 1141 | 1149 | 9 | LQPELDSFK 0.011926 | 4.4 |
| HLA-A*26:01 | 1 | 136 | 144 | 9 | CNDPFLGVY 0.011923 | 2.9 |
| HLA-A*02:06 | 1 | 475 | 483 | 9 | AGSTPCNGV 0.011919 | 6.3 |
| HLA-B*57:01 | 1 | 342 | 351 | 10 | FNATRFASVY 0.011914 | 5.8 |
| HLA-A*24:02 | 1 | 561 | 569 | 9 | PFQQFGRDI 0.01191 | 2.7 |
| HLA-A*30:02 | 1 | 865 | 874 | 10 | LTDEMIAQYT 0.01191 | 5.6 |
| HLA-A*30:01 | 1 | 111 | 119 | 9 | DSKTQSLLI 0.011907 | 7.6 |
| HLA-A*33:01 | 1 | 191 | 200 | 10 | EFVFKNIDGY 0.011904 | 4.7 |
| HLA-A*32:01 | 1 | 1003 | 1012 | 10 | SLQTYVTTQL 0.011901 | 3.2 |
| HLA-A*01:01 | 1 | 321 | 329 | 9 | QPTESIVRF 0.011898 | 3.5 |
| HLA-A*68:02 | 1 | 192 | 201 | 10 | FVFKNIDGYF 0.011888 | 4.6 |
| HLA-B*57:01 | 1 | 1189 | 1198 | 10 | VAKNLNESLI 0.011886 | 5.8 |
| HLA-A*23:01 | 1 | 1005 | 1013 | 9 | QTYVTQQLI 0.011883 | 2.7 |
| HLA-A*23:01 | 1 | 1086 | 1095 | 10 | KAHFPREGVF 0.011879 | 2.7 |
| HLA-B*08:01 | 1 | 214 | 223 | 10 | RDLPGQFSAL 0.011867 | 5.4 |
| HLA-B*35:01 | 1 | 616 | 624 | 9 | NCTEVPVAI 0.011862 | 3.4 |
| HLA-B*15:01 | 1 | 1080 | 1088 | 9 | AICHDGKAH 0.011862 | 4.9 |
| HLA-B*07:02 | 1 | 267 | 275 | 9 | VGYLQPRTF 0.011856 | 3.5 |
| HLA-A*68:01 | 1 | 675 | 684 | 10 | QTQTNSPRRA 0.011856 | 6.5 |
| HLA-A*30:02 | 1 | 975 | 984 | 10 | SVLNDILSRL 0.011856 | 5.6 |
| HLA-A*32:01 | 1 | 1055 | 1063 | 9 | SAPHGVVFL 0.011854 | 3.2 |
| HLA-A*11:01 | 1 | 575 | 583 | 9 | AVRDPQTLE 0.01185 | 3.9 |
| HLA-B*58:01 | 1 | 776 | 785 | 10 | KNTQEVFAQV 0.011833 | 3.9 |
| HLA-A*68:02 | 1 | 1220 | 1229 | 10 | FIAGLIAIVM 0.011823 | 4.7 |
| HLA-A*11:01 | 1 | 787 | 796 | 10 | QIYKTPPIKD 0.011791 | 3.9 |
| HLA-A*11:01 | 1 | 400 | 408 | 9 | FVIRGDEVR 0.011789 | 3.9 |
| HLA-A*31:01 | 1 | 1031 | 1039 | 9 | ECVLGQSKR 0.011789 | 5.9 |
| HLA-B*07:02 | 1 | 958 | 966 | 9 | ALNTLVKQL 0.011781 | 3.5 |
| HLA-A*03:01 | 1 | 105 | 113 | 9 | IFGTTLDK 0.011758 | 4.4 |
| HLA-A*68:01 | 1 | 1078 | 1086 | 9 | APAICHDGK 0.011755 | 6.5 |
| HLA-A*33:01 | 1 | 1075 | 1083 | 9 | FTTAPAICH 0.01175 | 4.8 |
| HLA-B*51:01 | 1 | 1130 | 1138 | 9 | IGIVNNTVY 0.011739 | 5.4 |
| HLA-B*44:03 | 1 | 1256 | 1265 | 10 | FDEDDSEPVL 0.011738 | 2.6 |
| HLA-A*30:01 | 1 | 505 | 513 | 9 | YQPYRVVVL 0.011735 | 7.7 |
| HLA-A*26:01 | 1 | 1094 | 1103 | 10 | VFVSNGTHWF 0.011735 | 2.9 |
| HLA-B*15:01 | 1 | 808 | 817 | 10 | DPSKPSKRSF 0.011734 | 4.9 |
| HLA-B*53:01 | 1 | 955 | 963 | 9 | NAQALNTLV 0.011724 | 3.1 |
| HLA-B*44:02 | 1 | 1143 | 1152 | 10 | PELDSFKEEL 0.011724 | 2.5 |
| HLA-A*68:01 | 1 | 778 | 786 | 9 | TQEVFAQVK 0.011718 | 6.5 |
| HLA-A*30:01 | 1 | 682 | 690 | 9 | RRARSVASQ 0.011717 | 7.7 |
| HLA-B*35:01 | 1 | 2 | 10 | 9 | FVFLVLLPL 0.01171 | 3.4 |
| HLA-A*02:03 | 1 | 467 | 475 | 9 | DISTEIYQA 0.011708 | 5.2 |
| HLA-B*57:01 | 1 | 511 | 519 | 9 | VVLSFELLH 0.011708 | 5.9 |
| HLA-A*30:02 | 1 | 108 | 117 | 10 | TTLDSKTQSL 0.011703 | 5.7 |
| HLA-A*30:02 | 1 | 712 | 720 | 9 | IAIPTNFTI 0.011698 | 5.7 |
| HLA-B*15:01 | 1 | 102 | 110 | 9 | RGWIFGTTL 0.011693 | 4.9 |
| HLA-A*31:01 | 1 | 296 | 304 | 9 | LSETKCTLK 0.011691 | 5.9 |
| HLA-A*68:02 | 1 | 432 | 441 | 10 | CVIAWNSNNL 0.011689 | 4.7 |
| HLA-B*07:02 | 1 | 1078 | 1087 | 10 | APAICHDGKA 0.011688 | 3.6 |
| HLA-B*57:01 | 1 | 886 | 894 | 9 | WTFGAGAAL 0.011687 | 5.9 |
| HLA-A*02:01 | 1 | 517 | 525 | 9 | LLHAPATVC 0.011678 | 4.6 |
| HLA-A*30:02 | 1 | 1081 | 1089 | 9 | ICHDGKAHF 0.011678 | 5.7 |
| HLA-B*57:01 | 1 | 372 | 381 | 10 | ASFSTFKCYG 0.011674 | 5.9 |
| HLA-A*30:01 | 1 | 704 | 713 | 10 | SVAYSNNNSIA 0.011673 | 7.7 |
| HLA-A*23:01 | 1 | 444 | 452 | 9 | KVGGNYNYL 0.01167 | 2.7 |
| HLA-B*07:02 | 1 | 520 | 528 | 9 | APATVCGPK 0.01167 | 3.6 |
| HLA-A*02:03 | 1 | 868 | 877 | 10 | EMIAQYTSAL 0.011666 | 5.3 |
| HLA-A*26:01 | 1 | 167 | 175 | 9 | TFEYVSQPF 0.011664 | 2.9 |
| HLA-A*32:01 | 1 | 1107 | 1115 | 9 | RNFYEPQII 0.011653 | 3.2 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*58:01 | 1 | 889 | 898 | 10 | GAGAALQIPF 0.011652 | 3.9 |
| HLA-A*30:01 | 1 | 947 | 956 | 10 | KLQDVVNQNA 0.01165 | 7.7 |
| HLA-A*32:01 | 1 | 786 | 795 | 10 | KQIYKTPPIK 0.011643 | 3.2 |
| HLA-B*51:01 | 1 | 198 | 206 | 9 | DGYFKIYSK 0.011639 | 5.5 |
| HLA-A*33:01 | 1 | 1151 | 1159 | 9 | ELDKYFKNH 0.011633 | 4.8 |
| HLA-A*23:01 | 1 | 718 | 726 | 9 | FTISVTTEI 0.011628 | 2.7 |
| HLA-A*31:01 | 1 | 105 | 113 | 9 | IFGTTLDSK 0.011626 | 5.9 |
| HLA-A*24:02 | 1 | 264 | 272 | 9 | AYYVGYLQP 0.011623 | 2.7 |
| HLA-B*57:01 | 1 | 847 | 855 | 9 | RDLICAQKF 0.011621 | 5.9 |
| HLA-A*30:02 | 1 | 869 | 877 | 9 | MIAQYTSAL 0.011618 | 5.7 |
| HLA-B*51:01 | 1 | 907 | 916 | 10 | NGIGVTQNVL 0.011613 | 5.5 |
| HLA-B*58:01 | 1 | 285 | 293 | 9 | ITDAVDCAL 0.01161 | 3.9 |
| HLA-A*02:03 | 1 | 779 | 788 | 10 | QEVFAQVKQI 0.011605 | 5.3 |
| HLA-A*30:01 | 1 | 780 | 788 | 9 | EVFAQVKQI 0.011588 | 7.7 |
| HLA-A*26:01 | 1 | 1263 | 1272 | 10 | PVLKGVKLHY 0.011579 | 3.0 |
| HLA-A*68:02 | 1 | 304 | 312 | 9 | KSFTVEKGI 0.011576 | 4.7 |
| HLA-A*02:06 | 1 | 1109 | 1117 | 9 | FYEPQIITT 0.011576 | 6.4 |
| HLA-A*26:01 | 1 | 1163 | 1172 | 10 | DVDLGDISGI 0.011573 | 3.0 |
| HLA-A*68:01 | 1 | 880 | 888 | 9 | GTITSGWTF 0.011572 | 6.5 |
| HLA-A*32:01 | 1 | 666 | 674 | 9 | IGAGICASY 0.011549 | 3.2 |
| HLA-A*30:02 | 1 | 773 | 782 | 10 | EQDKNTQEVF 0.011543 | 5.7 |
| HLA-A*26:01 | 1 | 47 | 55 | 9 | VLHSTQDLF 0.011541 | 3.0 |
| HLA-A*68:02 | 1 | 360 | 369 | 10 | NCVADYSVLY 0.011539 | 4.7 |
| HLA-A*02:03 | 1 | 895 | 903 | 9 | QIPFAMQMA 0.011535 | 5.3 |
| HLA-B*08:01 | 1 | 1041 | 1050 | 10 | DFCGKGYHLM 0.011535 | 5.5 |
| HLA-A*31:01 | 1 | 557 | 565 | 9 | KKFLPFQF 0.011534 | 6.0 |
| HLA-A*31:01 | 1 | 995 | 1004 | 10 | RLITGRLQSL 0.011534 | 6.0 |
| HLA-A*02:01 | 1 | 367 | 375 | 9 | VLYSASF 0.011533 | 4.6 |
| HLA-A*02:03 | 1 | 820 | 828 | 9 | DLLFNKVTL 0.011533 | 5.3 |
| HLA-B*51:01 | 1 | 745 | 754 | 10 | DSTECSNLLL 0.01153 | 5.5 |
| HLA-A*03:01 | 1 | 1263 | 1272 | 10 | PVLKGVKLHY 0.01153 | 4.4 |
| HLA-B*53:01 | 1 | 1005 | 1013 | 9 | QTYVTQQLI 0.011528 | 3.1 |
| HLA-A*02:06 | 1 | 929 | 937 | 9 | SAIGKIQDS 0.011527 | 6.4 |
| HLA-B*44:02 | 1 | 958 | 966 | 9 | ALNTLVKQL 0.011527 | 2.5 |
| HLA-A*02:03 | 1 | 1219 | 1227 | 9 | GFIAGLIAI 0.011524 | 5.3 |
| HLA-A*11:01 | 1 | 193 | 202 | 10 | VFKNIDGYFK 0.011523 | 3.9 |
| HLA-B*51:01 | 1 | 1054 | 1063 | 10 | QSAPHGVVFL 0.011523 | 5.5 |
| HLA-A*02:03 | 1 | 885 | 894 | 10 | GWTFGAGAAL 0.01152 | 5.3 |
| HLA-A*33:01 | 1 | 1147 | 1155 | 9 | SFKEELDKY 0.011519 | 4.8 |
| HLA-A*02:01 | 1 | 1048 | 1057 | 10 | HLMSFPQSAP 0.011518 | 4.6 |
| HLA-A*02:06 | 1 | 227 | 235 | 9 | VDLPIGINI 0.011516 | 6.4 |
| HLA-A*26:01 | 1 | 441 | 449 | 9 | LDSKVGGNY 0.011516 | 3.0 |
| HLA-A*02:01 | 1 | 275 | 284 | 10 | FLLKYNENGT 0.011515 | 4.6 |
| HLA-B*58:01 | 1 | 634 | 642 | 9 | RVYSTGSNV 0.011512 | 4.0 |
| HLA-B*07:02 | 1 | 759 | 767 | 9 | FCTQLNRAL 0.011507 | 3.6 |
| HLA-B*44:03 | 1 | 297 | 305 | 9 | SETKCTLKS 0.011506 | 2.6 |
| HLA-A*02:06 | 1 | 23 | 32 | 10 | QLPPAYTNSF 0.011505 | 6.4 |
| HLA-B*58:01 | 1 | 23 | 32 | 10 | QLPPAYTNSF 0.011504 | 4.0 |
| HLA-B*51:01 | 1 | 612 | 620 | 9 | YQDVNCTEV 0.011503 | 5.5 |
| HLA-A*03:01 | 1 | 871 | 879 | 9 | AQYTSALLA 0.011497 | 4.4 |
| HLA-A*30:02 | 1 | 40 | 49 | 10 | DKVFRSSVLH 0.011491 | 5.8 |
| HLA-A*33:01 | 1 | 1216 | 1224 | 9 | IWLGFIAGL 0.011488 | 4.8 |
| HLA-A*68:01 | 1 | 699 | 707 | 9 | LGAENSVAY 0.011485 | 6.5 |
| HLA-B*51:01 | 1 | 1128 | 1137 | 10 | VVIGIVNNTV 0.011484 | 5.5 |
| HLA-A*24:02 | 1 | 448 | 457 | 10 | NYNYLYRLFR 0.011481 | 2.8 |
| HLA-A*01:01 | 1 | 934 | 942 | 9 | IQDLSSTA 0.011479 | 3.5 |
| HLA-B*08:01 | 1 | 556 | 565 | 10 | NKKFLPFQF 0.011475 | 5.5 |
| HLA-A*30:02 | 1 | 666 | 675 | 10 | IGAGICASYQ 0.011474 | 5.8 |
| HLA-A*23:01 | 1 | 1055 | 1063 | 9 | SAPHGVVFL 0.011474 | 2.7 |
| HLA-A*26:01 | 1 | 1094 | 1102 | 9 | VFVSNNGTHW 0.011473 | 3.0 |
| HLA-A*02:06 | 1 | 324 | 332 | 9 | ESIVRFPNI 0.011464 | 6.4 |
| HLA-A*68:02 | 1 | 339 | 348 | 10 | GEVFNATRFA 0.011463 | 4.7 |
| HLA-A*26:01 | 1 | 151 | 160 | 10 | SWMESEFRVY 0.011458 | 3.0 |
| HLA-B*51:01 | 1 | 236 | 244 | 9 | TRFQTLAL 0.011454 | 5.5 |
| HLA-A*31:01 | 1 | 1055 | 1064 | 10 | SAPHGVVFLH 0.011448 | 6.0 |
| HLA-A*33:01 | 1 | 604 | 612 | 9 | TSNQVAVLY 0.011445 | 4.8 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*58:01 | 1 | 444 | 452 | 9 | KVGGNYNYL 0.011441 | 4.0 |
| HLA-A*30:01 | 1 | 672 | 681 | 10 | ASYQTQTNSP 0.011436 | 7.8 |
| HLA-A*33:01 | 1 | 93 | 102 | 10 | ASTEKSNIIR 0.011434 | 4.8 |
| HLA-B*58:01 | 1 | 488 | 497 | 10 | CYFPLQSYGF 0.011432 | 4.0 |
| HLA-A*01:01 | 1 | 46 | 55 | 10 | SVLHSTQDLF 0.011428 | 3.5 |
| HLA-B*53:01 | 1 | 109 | 117 | 9 | TLDSKTQSL 0.011428 | 3.1 |
| HLA-A*32:01 | 1 | 1010 | 1018 | 9 | QLLIRAAEI 0.011425 | 3.2 |
| HLA-A*31:01 | 1 | 958 | 966 | 9 | ALNTLVKQL 0.011422 | 6.0 |
| HLA-A*68:01 | 1 | 627 | 636 | 10 | DQLTPTWRVY 0.011421 | 6.6 |
| HLA-A*02:01 | 1 | 1113 | 1122 | 10 | QIITTDNTFV 0.011417 | 4.7 |
| HLA-A*23:01 | 1 | 1041 | 1050 | 10 | DFCGKGYHLM 0.011415 | 2.7 |
| HLA-B*53:01 | 1 | 95 | 104 | 10 | TEKSNIIRGW 0.011411 | 3.1 |
| HLA-A*31:01 | 1 | 415 | 424 | 10 | TGKIADYNYK 0.011408 | 6.0 |
| HLA-A*26:01 | 1 | 1260 | 1268 | 9 | DSEPVLKGV 0.011408 | 3.0 |
| HLA-A*68:02 | 1 | 1003 | 1012 | 10 | SLQTYVTQQL 0.011402 | 4.7 |
| HLA-B*08:01 | 1 | 820 | 829 | 10 | DLLFNKVTLA 0.011401 | 5.6 |
| HLA-B*15:01 | 1 | 556 | 565 | 10 | NKKFLPFQQF 0.011399 | 5.0 |
| HLA-A*30:01 | 1 | 256 | 264 | 9 | SGWTAGAAA 0.011395 | 7.8 |
| HLA-A*11:01 | 1 | 634 | 643 | 10 | RVYSTGSNVF 0.011394 | 3.9 |
| HLA-A*68:02 | 1 | 349 | 357 | 9 | SVYAWNRKR 0.01139 | 4.7 |
| HLA-A*24:02 | 1 | 1264 | 1272 | 9 | VLKGVKLHY 0.01139 | 2.8 |
| HLA-A*26:01 | 1 | 551 | 559 | 9 | VLTESNKKF 0.011383 | 3.0 |
| HLA-B*15:01 | 1 | 1038 | 1047 | 10 | KRVDFCGKGY 0.011375 | 5.0 |
| HLA-A*24:02 | 1 | 125 | 133 | 9 | NVVIKVFCE 0.011374 | 2.8 |
| HLA-A*02:06 | 1 | 717 | 726 | 10 | NFTISVTTEI 0.01137 | 6.4 |
| HLA-B*51:01 | 1 | 574 | 583 | 10 | DAVRDPQTLE 0.011365 | 5.6 |
| HLA-A*24:02 | 1 | 1041 | 1050 | 10 | DFCGKGYHLM 0.011365 | 2.8 |
| HLA-A*23:01 | 1 | 230 | 238 | 9 | PIGINITRF 0.011362 | 2.7 |
| HLA-B*57:01 | 1 | 227 | 235 | 9 | VDLPIGINI 0.011358 | 5.9 |
| HLA-B*07:02 | 1 | 603 | 611 | 9 | NTSNQVAVL 0.011345 | 3.6 |
| HLA-A*24:02 | 1 | 1213 | 1221 | 9 | PWYIWLGFI 0.011337 | 2.8 |
| HLA-B*58:01 | 1 | 957 | 966 | 10 | QALNTLVKQL 0.011328 | 4.0 |
| HLA-A*30:01 | 1 | 596 | 605 | 10 | SVITPGTNTS 0.011323 | 7.8 |
| HLA-B*44:02 | 1 | 781 | 789 | 9 | VFAQVKQIY 0.011319 | 2.5 |
| HLA-A*30:01 | 1 | 28 | 37 | 10 | YTNSFTRGVY 0.011314 | 7.8 |
| HLA-A*03:01 | 1 | 908 | 917 | 10 | GIGVTQNVLY 0.011314 | 4.5 |
| HLA-A*30:02 | 1 | 489 | 497 | 9 | YFPLQSYGF 0.01131 | 5.8 |
| HLA-B*40:01 | 1 | 408 | 416 | 9 | RQIAPGQTG 0.011307 | 2.7 |
| HLA-B*35:01 | 1 | 936 | 944 | 9 | DSLSSTASA 0.011306 | 3.5 |
| HLA-B*44:02 | 1 | 1070 | 1079 | 10 | AQEKNFTTAP 0.011304 | 2.5 |
| HLA-A*01:01 | 1 | 652 | 661 | 10 | GAEHVNNSEY 0.0113 | 3.6 |
| HLA-A*30:02 | 1 | 297 | 306 | 10 | SETKCTLKSF 0.011295 | 5.8 |
| HLA-A*01:01 | 1 | 204 | 212 | 9 | YSKHTPINL 0.011287 | 3.6 |
| HLA-A*02:06 | 1 | 759 | 767 | 9 | FCTQLNRAL 0.011285 | 6.5 |
| HLA-A*31:01 | 1 | 291 | 300 | 10 | CALDPLSETK 0.01128 | 6.0 |
| HLA-B*53:01 | 1 | 862 | 870 | 9 | PPLLTDEMI 0.011279 | 3.1 |
| HLA-A*23:01 | 1 | 344 | 353 | 10 | ATRFASVYAW 0.011278 | 2.7 |
| HLA-B*08:01 | 1 | 433 | 441 | 9 | VIAWNSNNL 0.011254 | 5.6 |
| HLA-A*30:02 | 1 | 1026 | 1034 | 9 | ATKMSECVL 0.011249 | 5.8 |
| HLA-A*26:01 | 1 | 1137 | 1145 | 9 | VYDPLQPEL 0.011249 | 3.0 |
| HLA-A*24:02 | 1 | 1206 | 1214 | 9 | YEQYIKWPW 0.011249 | 2.8 |
| HLA-A*68:02 | 1 | 194 | 203 | 10 | FKNIDGYFKI 0.011248 | 4.8 |
| HLA-A*11:01 | 1 | 449 | 458 | 10 | YNYLYRLEFRK 0.011241 | 4.0 |
| HLA-A*68:02 | 1 | 677 | 685 | 9 | QTNSPRRAR 0.011234 | 4.8 |
| HLA-A*02:06 | 1 | 688 | 697 | 10 | ASQSIIAYTM 0.011232 | 6.5 |
| HLA-A*02:06 | 1 | 1257 | 1265 | 9 | DEDDSEPVL 0.011222 | 6.5 |
| HLA-A*68:02 | 1 | 1123 | 1132 | 10 | SGNCDVVIGI 0.01122 | 4.8 |
| HLA-A*68:02 | 1 | 826 | 834 | 9 | VLADAGFI 0.011214 | 4.8 |
| HLA-B*15:01 | 1 | 144 | 152 | 9 | YYHKNNKSW 0.011212 | 5.0 |
| HLA-A*03:01 | 1 | 269 | 277 | 9 | YLQPRTFLL 0.011212 | 4.5 |
| HLA-A*68:01 | 1 | 197 | 206 | 10 | IDGYFKIYSK 0.011209 | 6.6 |
| HLA-B*51:01 | 1 | 759 | 767 | 9 | FCTQLNRAL 0.011209 | 5.6 |
| HLA-A*30:01 | 1 | 357 | 365 | 9 | RISNCVADY 0.011207 | 7.8 |
| HLA-A*30:02 | 1 | 930 | 938 | 9 | AIGKIQDSL 0.011205 | 5.8 |
| HLA-A*02:03 | 1 | 1023 | 1032 | 10 | NLAATKMSEC 0.011194 | 5.4 |
| HLA-B*53:01 | 1 | 152 | 160 | 9 | WMESEFRVY 0.011193 | 3.1 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*68:02 | 1 | 958 | 966 | 9 | ALNTLVKQL 0.011188 | 4.8 |
| HLA-A*01:01 | 1 | 879 | 888 | 10 | AGTITSGWTF 0.011181 | 3.6 |
| HLA-A*30:01 | 1 | 50 | 59 | 10 | STQDLFLPFF 0.011176 | 7.9 |
| HLA-A*32:01 | 1 | 777 | 785 | 9 | NTQEVFAQV 0.011164 | 3.3 |
| HLA-A*68:02 | 1 | 1006 | 1015 | 10 | TYVTQQLIRA 0.011163 | 4.8 |
| HLA-A*32:01 | 1 | 10 | 18 | 9 | LVSSQCVNL 0.011161 | 3.3 |
| HLA-A*01:01 | 1 | 384 | 392 | 9 | PTKLNLCF 0.011157 | 3.6 |
| HLA-A*68:01 | 1 | 859 | 868 | 10 | TVLPPLLTDE 0.011156 | 6.6 |
| HLA-A*31:01 | 1 | 29 | 38 | 10 | TNSFTRGVVY 0.011144 | 6.1 |
| HLA-B*51:01 | 1 | 144 | 152 | 9 | YYHKNNKSW 0.011143 | 5.6 |
| HLA-A*11:01 | 1 | 435 | 444 | 10 | AWNSNNLDSK 0.011143 | 4.0 |
| HLA-A*02:01 | 1 | 334 | 342 | 9 | NLCPFGEVF 0.011141 | 4.7 |
| HLA-B*51:01 | 1 | 494 | 503 | 10 | SYGFQPTNGV 0.011139 | 5.6 |
| HLA-A*11:01 | 1 | 370 | 379 | 10 | NSASFSTFKC 0.011135 | 4.0 |
| HLA-A*11:01 | 1 | 1055 | 1064 | 10 | SAPHGVVFLH 0.011134 | 4.0 |
| HLA-A*68:02 | 1 | 746 | 754 | 9 | STECNLLL 0.011128 | 4.8 |
| HLA-A*30:02 | 1 | 947 | 956 | 10 | KLQDVVNQNA 0.011124 | 5.9 |
| HLA-A*02:01 | 1 | 840 | 849 | 10 | CLGDIAARDL 0.011123 | 4.7 |
| HLA-A*68:01 | 1 | 120 | 129 | 10 | VNNATNVVIK 0.011114 | 6.6 |
| HLA-A*01:01 | 1 | 477 | 486 | 10 | STPCNGVEGF 0.011111 | 3.6 |
| HLA-B*40:01 | 1 | 214 | 222 | 9 | RDLPGGFS 0.011105 | 2.7 |
| HLA-A*30:02 | 1 | 637 | 646 | 10 | STGSNVFQTR 0.011098 | 5.9 |
| HLA-A*33:01 | 1 | 796 | 804 | 9 | DFGGFNFSQ 0.011097 | 4.9 |
| HLA-A*26:01 | 1 | 309 | 318 | 10 | EKGIYQTSNF 0.011096 | 3.0 |
| HLA-B*35:01 | 1 | 1262 | 1271 | 10 | EPVLKGVKLV 0.011095 | 3.5 |
| HLA-A*26:01 | 1 | 327 | 335 | 9 | VRFPNITNL 0.011087 | 3.0 |
| HLA-A*24:02 | 1 | 717 | 726 | 10 | NFTISVTTEI 0.011087 | 2.8 |
| HLA-A*02:01 | 1 | 857 | 866 | 10 | GLTVLPPLLT 0.011086 | 4.7 |
| HLA-A*68:01 | 1 | 1065 | 1074 | 10 | VTYVPAQEKN 0.011084 | 6.6 |
| HLA-A*32:01 | 1 | 214 | 223 | 10 | RDLPGGFSAL 0.011077 | 3.3 |
| HLA-A*02:06 | 1 | 884 | 892 | 9 | SGWTFGAGA 0.011076 | 6.5 |
| HLA-B*58:01 | 1 | 421 | 429 | 9 | YNYKLPDDF 0.011067 | 4.0 |
| HLA-B*51:01 | 1 | 118 | 126 | 9 | LIVNNATNV 0.011063 | 5.6 |
| HLA-A*23:01 | 1 | 789 | 797 | 9 | YKTPPIKDF 0.011058 | 2.8 |
| HLA-A*02:03 | 1 | 704 | 713 | 10 | SVAYSNNNSIA 0.011057 | 5.4 |
| HLA-B*08:01 | 1 | 544 | 552 | 9 | NGLTGTGVL 0.011047 | 5.7 |
| HLA-A*02:06 | 1 | 783 | 792 | 10 | AQVKQIYKTP 0.01104 | 6.5 |
| HLA-A*30:02 | 1 | 506 | 515 | 10 | QPYRVVLSF 0.011038 | 5.9 |
| HLA-B*57:01 | 1 | 1129 | 1138 | 10 | VIGIVNNTVY 0.01103 | 6.0 |
| HLA-A*32:01 | 1 | 477 | 486 | 10 | STPCNGVEGF 0.011024 | 3.3 |
| HLA-A*31:01 | 1 | 802 | 811 | 10 | FSQILPDPSK 0.011023 | 6.1 |
| HLA-B*58:01 | 1 | 530 | 538 | 9 | STNLVKKNC 0.011019 | 4.1 |
| HLA-B*15:01 | 1 | 643 | 651 | 9 | FQTRAGCLI 0.011012 | 5.0 |
| HLA-B*51:01 | 1 | 294 | 302 | 9 | DPLSETKCT 0.011005 | 5.7 |
| HLA-B*53:01 | 1 | 368 | 377 | 10 | LYNSASFSTF 0.011005 | 3.1 |
| HLA-B*51:01 | 1 | 224 | 232 | 9 | EPLVDLPIG 0.011004 | 5.7 |
| HLA-B*35:01 | 1 | 914 | 922 | 9 | NVLYENQKL 0.011003 | 3.5 |
| HLA-B*08:01 | 1 | 1207 | 1216 | 10 | EQYIKWPWYI 0.011001 | 5.7 |
| HLA-B*15:01 | 1 | 177 | 186 | 10 | MDLEGKQGNF 0.010997 | 5.0 |
| HLA-B*15:01 | 1 | 82 | 91 | 10 | PVLPFNDGVY 0.010994 | 5.0 |
| HLA-B*40:01 | 1 | 754 | 763 | 10 | LQYGSFCTQL 0.010993 | 2.8 |
| HLA-A*02:03 | 1 | 587 | 595 | 9 | ITPCSFGGV 0.010992 | 5.4 |
| HLA-A*30:01 | 1 | 537 | 546 | 10 | KCVNFNFNGL 0.01099 | 7.9 |
| HLA-B*51:01 | 1 | 721 | 729 | 9 | SVTTEILPV 0.010989 | 5.7 |
| HLA-B*07:02 | 1 | 664 | 673 | 10 | IPIGAGICAS 0.010985 | 3.7 |
| HLA-A*26:01 | 1 | 357 | 365 | 9 | RISNCVADY 0.01098 | 3.0 |
| HLA-A*26:01 | 1 | 516 | 524 | 9 | ELLHAPATV 0.010976 | 3.0 |
| HLA-A*30:01 | 1 | 813 | 821 | 9 | SKRSFIEDL 0.010972 | 8.0 |
| HLA-A*30:02 | 1 | 298 | 306 | 9 | ETKCTLKSF 0.010969 | 5.9 |
| HLA-A*24:02 | 1 | 477 | 486 | 10 | STPCNGVEGF 0.010962 | 2.8 |
| HLA-A*30:02 | 1 | 718 | 726 | 9 | FTISVTTEI 0.010957 | 5.9 |
| HLA-B*57:01 | 1 | 1004 | 1012 | 9 | LQTYVTQQL 0.010955 | 6.1 |
| HLA-A*32:01 | 1 | 142 | 150 | 9 | GYYYHKNNK 0.010953 | 3.3 |
| HLA-A*30:02 | 1 | 1206 | 1214 | 9 | YEQYIKWPW 0.010946 | 5.9 |
| HLA-A*33:01 | 1 | 677 | 686 | 10 | QTNSPRRARS 0.010941 | 4.9 |
| HLA-A*02:01 | 1 | 833 | 841 | 9 | FIKQYGDCL 0.010941 | 4.8 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*35:01 | 1 | 747 | 756 | 10 | TECSNLLLQY 0.01094 | 3.6 |
| HLA-B*58:01 | 1 | 1065 | 1073 | 9 | VTYVPAQEK 0.010938 | 4.1 |
| HLA-A*31:01 | 1 | 77 | 86 | 10 | KRFDNPVLPF 0.010933 | 6.1 |
| HLA-B*58:01 | 1 | 672 | 680 | 9 | ASYQTQTN5 0.010933 | 4.1 |
| HLA-A*03:01 | 1 | 976 | 984 | 9 | VLNDILSRL 0.010933 | 4.5 |
| HLA-A*02:03 | 1 | 576 | 584 | 9 | VRDPQTLEI 0.010927 | 5.4 |
| HLA-B*07:02 | 1 | 383 | 391 | 9 | SPTKLNDLC 0.010926 | 3.7 |
| HLA-B*51:01 | 1 | 151 | 159 | 9 | SWMESEFRV 0.010924 | 5.7 |
| HLA-A*30:01 | 1 | 371 | 380 | 10 | SASFSTFKCY 0.010924 | 8.0 |
| HLA-A*26:01 | 1 | 229 | 237 | 9 | LPIGINITR 0.010918 | 3.0 |
| HLA-B*08:01 | 1 | 392 | 400 | 9 | FTNVYADSF 0.010918 | 5.7 |
| HLA-A*24:02 | 1 | 809 | 817 | 9 | PSKPSKRSF 0.010916 | 2.8 |
| HLA-B*08:01 | 1 | 710 | 718 | 9 | NSIAIPTNF 0.010912 | 5.7 |
| HLA-B*51:01 | 1 | 471 | 479 | 9 | EIYQAGSTP 0.010911 | 5.7 |
| HLA-A*68:02 | 1 | 693 | 701 | 9 | IAYTMSLGA 0.010911 | 4.8 |
| HLA-A*02:06 | 1 | 1025 | 1033 | 9 | AATKMSECV 0.01091 | 6.6 |
| HLA-A*32:01 | 1 | 776 | 785 | 10 | KNTQEVFAQV 0.010908 | 3.3 |
| HLA-A*30:02 | 1 | 221 | 229 | 9 | SALEPLVDL 0.010905 | 5.9 |
| HLA-A*68:01 | 1 | 467 | 475 | 9 | DISTEIYQA 0.0109 | 6.7 |
| HLA-B*58:01 | 1 | 880 | 889 | 10 | GTITSGWTFG 0.0109 | 4.1 |
| HLA-A*01:01 | 1 | 177 | 186 | 10 | MDLEGKQGNF 0.010897 | 3.6 |
| HLA-B*51:01 | 1 | 382 | 390 | 9 | VSPTKLNDL 0.010893 | 5.7 |
| HLA-A*33:01 | 1 | 28 | 36 | 9 | YTNSFTRGV 0.010892 | 4.9 |
| HLA-B*44:02 | 1 | 153 | 161 | 9 | MESEFRVYS 0.010883 | 2.6 |
| HLA-B*53:01 | 1 | 929 | 938 | 10 | SAIGKIQDSL 0.010881 | 3.2 |
| HLA-B*44:02 | 1 | 95 | 103 | 9 | TEKSNIIIRG 0.01088 | 2.6 |
| HLA-B*57:01 | 1 | 604 | 613 | 10 | TSNQVAVLYQ 0.01088 | 6.1 |
| HLA-A*26:01 | 1 | 1147 | 1156 | 10 | SFKEELDKYF 0.010864 | 3.1 |
| HLA-A*30:02 | 1 | 89 | 97 | 9 | GVYFASTEK 0.010859 | 6.0 |
| HLA-A*02:01 | 1 | 965 | 973 | 9 | QLSSNFGAI 0.010857 | 4.8 |
| HLA-A*01:01 | 1 | 1101 | 1110 | 10 | HWFVTQRNFY 0.010847 | 3.6 |
| HLA-B*51:01 | 1 | 484 | 492 | 9 | EGFNCFYPL 0.01084 | 5.7 |
| HLA-A*11:01 | 1 | 344 | 352 | 9 | ATRFASVYA 0.010831 | 4.0 |
| HLA-B*40:01 | 1 | 653 | 662 | 10 | AEHVNNSEYEC 0.010828 | 2.8 |
| HLA-A*02:03 | 1 | 849 | 858 | 10 | LICAQKFNGL 0.010828 | 5.5 |
| HLA-B*40:01 | 1 | 989 | 998 | 10 | AEVQIDRLIT 0.010814 | 2.8 |
| HLA-B*15:01 | 1 | 327 | 335 | 9 | VRFPNITNL 0.01081 | 5.1 |
| HLA-B*35:01 | 1 | 211 | 220 | 10 | NLVRDLPQGF 0.010804 | 3.6 |
| HLA-B*44:03 | 1 | 627 | 635 | 9 | DQLTPTWRV 0.010802 | 2.7 |
| HLA-A*26:01 | 1 | 892 | 900 | 9 | AALQIPFAM 0.010799 | 3.1 |
| HLA-A*23:01 | 1 | 392 | 400 | 9 | FTNVYADSF 0.010792 | 2.8 |
| HLA-A*11:01 | 1 | 263 | 271 | 9 | AAYYVGYLQ 0.010791 | 4.0 |
| HLA-A*32:01 | 1 | 698 | 707 | 10 | SLGAENSVAY 0.010786 | 3.3 |
| HLA-A*03:01 | 1 | 1020 | 1029 | 10 | ASANLAATKM 0.010785 | 4.6 |
| HLA-A*23:01 | 1 | 1101 | 1110 | 10 | HWFVTQRNFY 0.010777 | 2.8 |
| HLA-B*51:01 | 1 | 383 | 391 | 9 | SPTKLNDLC 0.010775 | 5.7 |
| HLA-A*23:01 | 1 | 199 | 207 | 9 | GYFKIYSKH 0.010769 | 2.8 |
| HLA-B*53:01 | 1 | 886 | 894 | 9 | WTFGAGAAL 0.010769 | 3.2 |
| HLA-A*03:01 | 1 | 195 | 204 | 10 | KNIDGYFKIY 0.010765 | 4.6 |
| HLA-A*30:02 | 1 | 334 | 342 | 9 | NLCPFGEVF 0.010761 | 6.0 |
| HLA-A*68:02 | 1 | 38 | 47 | 10 | YPDKVFRSSV 0.010755 | 4.9 |
| HLA-B*08:01 | 1 | 1153 | 1161 | 9 | DKYFKNHTS 0.01075 | 5.8 |
| HLA-B*07:02 | 1 | 37 | 46 | 10 | YYPDKVFRSS 0.01074 | 3.7 |
| HLA-A*30:01 | 1 | 504 | 513 | 10 | GYQPYRVVVL 0.010732 | 8.1 |
| HLA-B*08:01 | 1 | 50 | 58 | 9 | STQDLFLPF 0.010729 | 5.8 |
| HLA-B*07:02 | 1 | 285 | 293 | 9 | ITDAVDCAL 0.010724 | 3.7 |
| HLA-B*58:01 | 1 | 1159 | 1167 | 9 | HTSPDVDLG 0.010721 | 4.1 |
| HLA-A*02:06 | 1 | 1256 | 1265 | 10 | FDEDDSEPVL 0.01072 | 6.6 |
| HLA-A*02:06 | 1 | 1180 | 1189 | 10 | QKEIDRLNEV 0.010719 | 6.6 |
| HLA-A*02:03 | 1 | 953 | 962 | 10 | NQNAQALNTL 0.010715 | 5.5 |
| HLA-B*15:01 | 1 | 499 | 508 | 10 | PTNGVGYQPY 0.010697 | 5.1 |
| HLA-B*07:02 | 1 | 1055 | 1064 | 10 | SAPHGVVFLH 0.010692 | 3.7 |
| HLA-A*30:02 | 1 | 381 | 390 | 10 | GVSPTKLNDL 0.01069 | 6.0 |
| HLA-A*11:01 | 1 | 304 | 313 | 10 | KSFTVEKGIY 0.010687 | 4.0 |
| HLA-A*68:02 | 1 | 410 | 418 | 9 | IAPGQTGKI 0.010681 | 4.9 |
| HLA-A*33:01 | 1 | 69 | 77 | 9 | HVSGTNGTK 0.010674 | 5.0 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*53:01 | 1 | 168 | 176 | 9 | FEYVSQPFL 0.010674 | 3.2 |
| HLA-B*40:01 | 1 | 1087 | 1095 | 9 | AHFPREGVF 0.010667 | 2.8 |
| HLA-B*08:01 | 1 | 425 | 433 | 9 | LPDDFTGCV 0.010666 | 5.8 |
| HLA-A*24:02 | 1 | 718 | 726 | 9 | FTISVTTEI 0.010664 | 2.8 |
| HLA-A*23:01 | 1 | 535 | 543 | 9 | KNKCVNFNF 0.010657 | 2.8 |
| HLA-A*02:03 | 1 | 1264 | 1272 | 9 | VLKGVKLHY 0.010656 | 5.5 |
| HLA-A*32:01 | 1 | 381 | 390 | 10 | GVSPTKLNDL 0.010653 | 3.4 |
| HLA-A*31:01 | 1 | 1096 | 1104 | 9 | VSNGTHWV 0.01065 | 6.2 |
| HLA-B*35:01 | 1 | 178 | 186 | 9 | DLEGKQGNF 0.010645 | 3.6 |
| HLA-A*30:01 | 1 | 768 | 776 | 9 | TGIAVEQDK 0.010643 | 8.1 |
| HLA-B*53:01 | 1 | 211 | 220 | 10 | NLVRDLPQGF 0.010641 | 3.2 |
| HLA-A*68:02 | 1 | 1165 | 1174 | 10 | DLGDISGINA 0.010641 | 4.9 |
| HLA-A*30:01 | 1 | 3 | 11 | 9 | VFLVLLPLV 0.010639 | 8.1 |
| HLA-A*02:01 | 1 | 869 | 878 | 10 | MIAQYTSALL 0.010639 | 4.8 |
| HLA-B*51:01 | 1 | 583 | 592 | 10 | EILDITPCSF 0.010636 | 5.8 |
| HLA-A*33:01 | 1 | 896 | 904 | 9 | IPFAMQMAY 0.010635 | 5.0 |
| HLA-A*03:01 | 1 | 349 | 358 | 10 | SVYAWNRKRI 0.010625 | 4.6 |
| HLA-A*01:01 | 1 | 166 | 175 | 10 | CTFEYVSQPF 0.010623 | 3.7 |
| HLA-B*44:03 | 1 | 917 | 925 | 9 | YENQKLIAN 0.010621 | 2.7 |
| HLA-B*35:01 | 1 | 224 | 233 | 10 | EPLVDLPIGI 0.010614 | 3.6 |
| HLA-A*30:02 | 1 | 995 | 1003 | 9 | RLITGRLQS 0.010609 | 6.1 |
| HLA-B*44:02 | 1 | 487 | 495 | 9 | NCYFPLQSY 0.0106 | 2.6 |
| HLA-B*53:01 | 1 | 627 | 636 | 10 | DQLTPTWRVY 0.010595 | 3.2 |
| HLA-A*02:01 | 1 | 342 | 350 | 9 | FNATRFASV 0.010585 | 4.8 |
| HLA-B*51:01 | 1 | 366 | 374 | 9 | SVLYNSASF 0.010579 | 5.8 |
| HLA-B*08:01 | 1 | 918 | 927 | 10 | ENQKLIANQF 0.010569 | 5.8 |
| HLA-B*51:01 | 1 | 1125 | 1133 | 9 | NCDVVIGIV 0.010568 | 5.8 |
| HLA-B*51:01 | 1 | 290 | 299 | 10 | DCALDPLSET 0.010565 | 5.8 |
| HLA-A*03:01 | 1 | 292 | 301 | 10 | ALDPLSETKC 0.010565 | 4.6 |
| HLA-A*30:01 | 1 | 1237 | 1245 | 9 | MTSCCCLK 0.010562 | 8.1 |
| HLA-B*35:01 | 1 | 321 | 330 | 10 | QPTESIVRFP 0.010552 | 3.6 |
| HLA-A*68:02 | 1 | 169 | 177 | 9 | EYVSQPFLM 0.01055 | 4.9 |
| HLA-A*30:01 | 1 | 1070 | 1078 | 9 | AQEKNFHTTA 0.010546 | 8.1 |
| HLA-A*03:01 | 1 | 360 | 369 | 10 | NCVADYSVLY 0.010544 | 4.6 |
| HLA-A*01:01 | 1 | 84 | 92 | 9 | LPFNQGVYF 0.010538 | 3.7 |
| HLA-B*08:01 | 1 | 818 | 826 | 9 | IEDLLFNKV 0.010537 | 5.8 |
| HLA-A*24:02 | 1 | 1005 | 1013 | 9 | QTYVTQQLI 0.010536 | 2.9 |
| HLA-A*68:01 | 1 | 1102 | 1110 | 9 | WFVTQRNFY 0.010536 | 6.8 |
| HLA-A*26:01 | 1 | 51 | 59 | 9 | TQDLFLPFF 0.010534 | 3.1 |
| HLA-A*26:01 | 1 | 394 | 402 | 9 | NVYADSFVI 0.010532 | 3.1 |
| HLA-A*26:01 | 1 | 877 | 886 | 10 | LLAGTITSGW 0.010532 | 3.1 |
| HLA-A*02:03 | 1 | 873 | 881 | 9 | YTSALLAGT 0.010527 | 5.5 |
| HLA-B*51:01 | 1 | 267 | 276 | 10 | VGYLQPRTF 0.010525 | 5.8 |
| HLA-A*30:02 | 1 | 24 | 32 | 9 | LPPAYTNSF 0.010514 | 6.1 |
| HLA-A*68:01 | 1 | 56 | 64 | 9 | LPFFSNVTW 0.010499 | 6.8 |
| HLA-B*58:01 | 1 | 967 | 976 | 10 | SSNFGAISSV 0.010498 | 4.2 |
| HLA-A*30:01 | 1 | 415 | 423 | 9 | TGKIADYNY 0.010495 | 8.2 |
| HLA-B*08:01 | 1 | 869 | 878 | 10 | MIAQYTSALL 0.010494 | 5.8 |
| HLA-B*57:01 | 1 | 1055 | 1063 | 9 | SAPHGVVFL 0.010491 | 6.2 |
| HLA-B*35:01 | 1 | 428 | 436 | 9 | DFTGCVIAW 0.010479 | 3.7 |
| HLA-B*40:01 | 1 | 1054 | 1062 | 9 | QSAPHGVVF 0.01047 | 2.8 |
| HLA-A*02:01 | 1 | 1011 | 1020 | 10 | QLIRAAEIRA 0.010461 | 4.9 |
| HLA-A*02:06 | 1 | 222 | 231 | 10 | ALEPLVDLPI 0.010458 | 6.7 |
| HLA-B*51:01 | 1 | 922 | 931 | 10 | LIANQFNSAI 0.010458 | 5.8 |
| HLA-A*30:01 | 1 | 523 | 531 | 9 | TVCGPKKST 0.010457 | 8.2 |
| HLA-A*31:01 | 1 | 54 | 62 | 9 | LFLPFFSNV 0.010453 | 6.2 |
| HLA-A*30:02 | 1 | 268 | 277 | 10 | GYLQPRTFLL 0.010451 | 6.1 |
| HLA-B*51:01 | 1 | 51 | 59 | 9 | TQDLFLPFF 0.01045 | 5.9 |
| HLA-A*02:03 | 1 | 921 | 929 | 9 | KLIANQFNS 0.010443 | 5.6 |
| HLA-A*02:06 | 1 | 517 | 525 | 9 | LLHAPATVC 0.010441 | 6.7 |
| HLA-A*30:02 | 1 | 1020 | 1029 | 10 | ASANLAATKM 0.010437 | 6.1 |
| HLA-B*44:02 | 1 | 240 | 248 | 9 | TLLALHRYS 0.010434 | 2.6 |
| HLA-B*15:01 | 1 | 159 | 168 | 10 | VYSSANNCTF 0.010431 | 5.2 |
| HLA-A*30:02 | 1 | 480 | 489 | 10 | CNGVEGFNCY 0.010431 | 6.1 |
| HLA-B*53:01 | 1 | 167 | 175 | 9 | TFEYVSQPF 0.010425 | 3.2 |
| HLA-B*08:01 | 1 | 379 | 387 | 9 | CYGVSPTKL 0.010422 | 5.9 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*30:01 | 1 | 637 | 645 | 9 | STGSNVFQT 0.010421 | 8.2 |
| HLA-B*35:01 | 1 | 204 | 212 | 9 | YSKHTPINL 0.010419 | 3.7 |
| HLA-B*51:01 | 1 | 115 | 123 | 9 | QSLLIWNNA 0.010413 | 5.9 |
| HLA-A*30:02 | 1 | 344 | 353 | 10 | ATRFASVYAW 0.010407 | 6.1 |
| HLA-B*51:01 | 1 | 169 | 177 | 9 | EYVSQPFLM 0.010406 | 5.9 |
| HLA-A*68:02 | 1 | 1050 | 1058 | 9 | MSFPQSAPH 0.010403 | 5.0 |
| HLA-B*58:01 | 1 | 1014 | 1022 | 9 | RAAEIRASA 0.010398 | 4.2 |
| HLA-B*44:03 | 1 | 893 | 902 | 10 | ALQIPFAMQM 0.01039 | 2.8 |
| HLA-A*68:02 | 1 | 333 | 341 | 9 | TNLCPFGEV 0.010383 | 5.0 |
| HLA-B*44:03 | 1 | 77 | 86 | 10 | KRFDNPVLPF 0.010377 | 2.8 |
| HLA-A*02:06 | 1 | 392 | 401 | 10 | FTNVYADSFV 0.010376 | 6.7 |
| HLA-B*44:03 | 1 | 154 | 163 | 10 | ESEFRVYSSA 0.010362 | 2.8 |
| HLA-A*02:01 | 1 | 901 | 909 | 9 | QMAYRFNGI 0.010361 | 4.9 |
| HLA-A*30:02 | 1 | 683 | 692 | 10 | RARSVASQSI 0.010359 | 6.1 |
| HLA-A*30:02 | 1 | 706 | 714 | 9 | AYSNNIAI 0.010357 | 6.1 |
| HLA-A*30:01 | 1 | 688 | 697 | 10 | ASQSIIAYTM 0.010355 | 8.2 |
| HLA-B*44:03 | 1 | 162 | 170 | 9 | SANNCTFEY 0.010346 | 2.8 |
| HLA-A*32:01 | 1 | 150 | 159 | 10 | KSWMESEFRV 0.010344 | 3.4 |
| HLA-A*02:06 | 1 | 798 | 806 | 9 | GGFNFSQIL 0.01034 | 6.8 |
| HLA-B*35:01 | 1 | 1261 | 1270 | 10 | SEPVLKGVKL 0.010337 | 3.7 |
| HLA-A*30:01 | 1 | 996 | 1004 | 9 | LITGRLQSL 0.010328 | 8.2 |
| HLA-A*23:01 | 1 | 125 | 133 | 9 | NVVIKVECF 0.010325 | 2.9 |
| HLA-A*23:01 | 1 | 36 | 45 | 10 | VYYPDKVFRS 0.010318 | 2.9 |
| HLA-A*31:01 | 1 | 236 | 245 | 10 | TRFQTLALH 0.010311 | 6.3 |
| HLA-A*30:01 | 1 | 762 | 770 | 9 | QLNRALTGI 0.010311 | 8.3 |
| HLA-B*35:01 | 1 | 789 | 797 | 9 | YKTPPIKDF 0.010311 | 3.7 |
| HLA-A*30:01 | 1 | 903 | 912 | 10 | AYRFNGIGVT 0.01031 | 8.3 |
| HLA-A*02:03 | 1 | 693 | 701 | 9 | IAYTMSLGA 0.010309 | 5.6 |
| HLA-A*02:03 | 1 | 1136 | 1144 | 9 | TVYDPLQPE 0.010307 | 5.6 |
| HLA-A*33:01 | 1 | 37 | 45 | 9 | YYPDKVFRS 0.010304 | 5.0 |
| HLA-A*30:01 | 1 | 1029 | 1038 | 10 | MSECVLGQSK 0.010303 | 8.3 |
| HLA-A*02:03 | 1 | 226 | 235 | 10 | LVDLPIGINI 0.010302 | 5.6 |
| HLA-A*32:01 | 1 | 84 | 92 | 9 | LPFNDGVYF 0.0103 | 3.5 |
| HLA-A*02:03 | 1 | 601 | 610 | 10 | GTNTSNQVAV 0.010294 | 5.6 |
| HLA-A*03:01 | 1 | 905 | 913 | 9 | RFNGIGVTQ 0.010291 | 4.7 |
| HLA-A*02:06 | 1 | 557 | 565 | 9 | KKFLPFQFQ 0.01029 | 6.8 |
| HLA-B*08:01 | 1 | 727 | 736 | 10 | LPVSMTKTSV 0.010288 | 5.9 |
| HLA-A*02:06 | 1 | 160 | 168 | 9 | YSSANNCTF 0.010285 | 6.8 |
| HLA-A*30:02 | 1 | 433 | 441 | 9 | VIAWNSNNL 0.010283 | 6.2 |
| HLA-A*11:01 | 1 | 292 | 301 | 10 | ALDPLSETKC 0.010278 | 4.1 |
| HLA-B*07:02 | 1 | 16 | 24 | 9 | VNLTRTQQL 0.010277 | 3.8 |
| HLA-B*44:02 | 1 | 687 | 695 | 9 | VASQSIIAY 0.010273 | 2.6 |
| HLA-A*03:01 | 1 | 237 | 246 | 10 | RFQTLALHR 0.01027 | 4.7 |
| HLA-B*15:01 | 1 | 940 | 948 | 9 | STASALGKL 0.01027 | 5.2 |
| HLA-A*02:01 | 1 | 1014 | 1022 | 9 | RAAEIRASA 0.010269 | 4.9 |
| HLA-B*51:01 | 1 | 1048 | 1056 | 9 | HLMSPQSA 0.010269 | 5.9 |
| HLA-B*15:01 | 1 | 240 | 249 | 10 | TLLALHRSYL 0.010263 | 5.2 |
| HLA-B*51:01 | 1 | 1202 | 1210 | 9 | ELGKYEYI 0.010258 | 5.9 |
| HLA-A*32:01 | 1 | 968 | 976 | 9 | SNFGAISSV 0.010257 | 3.5 |
| HLA-B*53:01 | 1 | 1147 | 1155 | 9 | SFKEELDKY 0.010255 | 3.3 |
| HLA-B*08:01 | 1 | 495 | 503 | 9 | YGFQPTNGV 0.010251 | 5.9 |
| HLA-B*58:01 | 1 | 688 | 696 | 9 | ASQSIIAYT 0.010239 | 4.2 |
| HLA-B*53:01 | 1 | 1201 | 1209 | 9 | QELGKYEY 0.010238 | 3.3 |
| HLA-B*58:01 | 1 | 533 | 541 | 9 | LVKNKCVNF 0.010234 | 4.2 |
| HLA-B*58:01 | 1 | 122 | 130 | 9 | NATNVVIKV 0.010224 | 4.2 |
| HLA-B*15:01 | 1 | 136 | 144 | 9 | CNDPFLGVY 0.010224 | 5.2 |
| HLA-A*68:01 | 1 | 1147 | 1155 | 9 | SFKEELDKY 0.010219 | 6.8 |
| HLA-A*68:02 | 1 | 1113 | 1121 | 9 | QIITDNTF 0.010214 | 5.0 |
| HLA-A*11:01 | 1 | 1140 | 1149 | 10 | PLQPELDSFK 0.01021 | 4.1 |
| HLA-A*03:01 | 1 | 78 | 86 | 9 | RFDNPVLPF 0.010208 | 4.7 |
| HLA-B*58:01 | 1 | 873 | 882 | 10 | YTSALLAGTI 0.010207 | 4.2 |
| HLA-A*24:02 | 1 | 786 | 794 | 9 | KQIYKTPPI 0.010192 | 2.9 |
| HLA-A*30:01 | 1 | 97 | 106 | 10 | KSNIIRGWIF 0.010191 | 8.3 |
| HLA-B*15:01 | 1 | 590 | 598 | 9 | CSFGVSVI 0.01019 | 5.2 |
| HLA-A*02:01 | 1 | 1207 | 1216 | 10 | EQYIKWPWYI 0.010189 | 4.9 |
| HLA-A*02:01 | 1 | 1220 | 1229 | 10 | FIAGLIAIVM 0.010189 | 4.9 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*57:01 | 1 | 1020 | 1028 | 9 | ASANLAATK 0.010188 | 6.3 |
| HLA-B*08:01 | 1 | 151 | 159 | 9 | SWMESEFRV 0.01018 | 6.0 |
| HLA-A*02:06 | 1 | 306 | 314 | 9 | FTVEKGIYQ 0.010173 | 6.8 |
| HLA-A*03:01 | 1 | 1056 | 1064 | 9 | APHGVVFLH 0.010171 | 4.7 |
| HLA-B*44:02 | 1 | 339 | 348 | 10 | GEVFNATRFA 0.010168 | 2.6 |
| HLA-A*30:02 | 1 | 639 | 647 | 9 | GSNVFQTRA 0.010166 | 6.2 |
| HLA-A*30:01 | 1 | 1021 | 1029 | 9 | SANLAATKM 0.010165 | 8.3 |
| HLA-A*11:01 | 1 | 768 | 776 | 9 | TGIAVEQDK 0.010163 | 4.1 |
| HLA-B*40:01 | 1 | 320 | 329 | 10 | VQPTESIVRF 0.01016 | 2.8 |
| HLA-B*15:01 | 1 | 500 | 508 | 9 | TNGVGYQPY 0.010159 | 5.2 |
| HLA-A*30:01 | 1 | 1039 | 1047 | 9 | RVDFCGKGY 0.010154 | 8.3 |
| HLA-B*51:01 | 1 | 2 | 10 | 9 | FVFLVLLPL 0.010147 | 6.0 |
| HLA-B*57:01 | 1 | 150 | 158 | 9 | KSWMESEFR 0.010146 | 6.3 |
| HLA-A*68:02 | 1 | 168 | 176 | 9 | FEYVSQPFL 0.010144 | 5.0 |
| HLA-A*03:01 | 1 | 958 | 966 | 9 | ALNTLVKQL 0.010142 | 4.7 |
| HLA-A*30:01 | 1 | 307 | 316 | 10 | TVEKGIYQTS 0.010125 | 8.3 |
| HLA-A*02:01 | 1 | 306 | 315 | 10 | FTVEKGIYQT 0.010124 | 4.9 |
| HLA-B*35:01 | 1 | 149 | 157 | 9 | NKSWMESEF 0.010122 | 3.7 |
| HLA-A*30:02 | 1 | 187 | 195 | 9 | KNLREFVFK 0.010121 | 6.2 |
| HLA-B*58:01 | 1 | 720 | 728 | 9 | ISVTTEILP 0.010116 | 4.2 |
| HLA-B*40:01 | 1 | 318 | 326 | 9 | FRVQPTESI 0.010108 | 2.8 |
| HLA-A*02:03 | 1 | 902 | 911 | 10 | MAYRFNGIGV 0.010108 | 5.6 |
| HLA-B*15:01 | 1 | 215 | 223 | 9 | DLPQGFSAL 0.010104 | 5.2 |
| HLA-A*03:01 | 1 | 1003 | 1011 | 9 | SLQTYVTQQ 0.010103 | 4.7 |
| HLA-A*01:01 | 1 | 1039 | 1048 | 10 | RVDFCGKGYH 0.010103 | 3.8 |
| HLA-A*02:03 | 1 | 991 | 999 | 9 | VQIDRLITG 0.010099 | 5.6 |
| HLA-B*44:03 | 1 | 846 | 855 | 10 | ARDLICAQKF 0.010098 | 2.8 |
| HLA-B*53:01 | 1 | 914 | 922 | 9 | NVLYENQKL 0.010097 | 3.3 |
| HLA-A*30:01 | 1 | 386 | 395 | 10 | KLNDLCFTNV 0.010096 | 8.3 |
| HLA-A*31:01 | 1 | 1056 | 1064 | 9 | APHGVVFLH 0.010094 | 6.3 |
| HLA-A*32:01 | 1 | 371 | 380 | 10 | SASFSTFKCY 0.010084 | 3.5 |
| HLA-A*03:01 | 1 | 691 | 699 | 9 | SIIAYTMSL 0.010084 | 4.7 |
| HLA-A*30:02 | 1 | 773 | 781 | 9 | EQDKNTQEV 0.010081 | 6.3 |
| HLA-A*68:02 | 1 | 728 | 736 | 9 | PVSMTKTSV 0.010075 | 5.1 |
| HLA-A*68:01 | 1 | 583 | 591 | 9 | EILDITPCS 0.010074 | 6.9 |
| HLA-A*30:02 | 1 | 1107 | 1115 | 9 | RNFYEPQII 0.010074 | 6.3 |
| HLA-A*03:01 | 1 | 1182 | 1191 | 10 | EIDRLNEVAK 0.010074 | 4.7 |
| HLA-B*44:03 | 1 | 781 | 789 | 9 | VFAQVKQIY 0.010061 | 2.8 |
| HLA-A*32:01 | 1 | 19 | 28 | 10 | TTRTQLPPAY 0.010056 | 3.5 |
| HLA-A*68:02 | 1 | 1135 | 1143 | 9 | NTVYDPLQP 0.010054 | 5.1 |
| HLA-A*02:06 | 1 | 413 | 421 | 9 | GQTGKIADY 0.010052 | 6.9 |
| HLA-A*03:01 | 1 | 896 | 904 | 9 | IPFAMQMAY 0.010052 | 4.7 |
| HLA-A*03:01 | 1 | 50 | 58 | 9 | STQDLFLPF 0.010048 | 4.7 |
| HLA-A*02:06 | 1 | 284 | 293 | 10 | TITDAVDCAL 0.010042 | 6.9 |
| HLA-B*15:01 | 1 | 889 | 898 | 10 | GAGAALQIPF 0.010038 | 5.3 |
| HLA-A*02:03 | 1 | 233 | 241 | 9 | INITRFQTL 0.010037 | 5.7 |
| HLA-B*44:02 | 1 | 1181 | 1190 | 10 | KEIDRLNEVA 0.010032 | 2.6 |
| HLA-A*26:01 | 1 | 1151 | 1159 | 9 | ELDKYFKNH 0.01003 | 3.2 |
| HLA-B*35:01 | 1 | 388 | 396 | 9 | NDLCFTNVY 0.010028 | 3.7 |
| HLA-A*26:01 | 1 | 221 | 229 | 9 | SALEPLVDL 0.010024 | 3.2 |
| HLA-A*02:06 | 1 | 4 | 13 | 10 | FLVLLPLVSS 0.010023 | 6.9 |
| HLA-A*01:01 | 1 | 576 | 585 | 10 | VRDPQTLEIL 0.010018 | 3.8 |
| HLA-B*35:01 | 1 | 285 | 293 | 9 | ITDAVDCAL 0.010014 | 3.7 |
| HLA-B*08:01 | 1 | 784 | 792 | 9 | QVKQIYKTP 0.010011 | 6.0 |
| HLA-A*26:01 | 1 | 745 | 753 | 9 | DSTECSNLL 0.01001 | 3.2 |
| HLA-A*68:01 | 1 | 194 | 202 | 9 | FKNIDGYFK 0.010006 | 6.9 |
| HLA-A*26:01 | 1 | 236 | 244 | 9 | TRFQTLAL 0.010004 | 3.2 |
| HLA-B*15:01 | 1 | 124 | 133 | 10 | TNVVIKCEF 0.010002 | 5.3 |
| HLA-B*51:01 | 1 | 891 | 899 | 9 | GAALQIPFA 0.01 | 6.0 |
| HLA-A*01:01 | 1 | 745 | 754 | 10 | DSTECSNLLL 0.009995 | 3.8 |
| HLA-A*30:02 | 1 | 576 | 585 | 10 | VRDPQTLEIL 0.009993 | 6.3 |
| HLA-B*57:01 | 1 | 468 | 476 | 9 | ISTEIQAG 0.009986 | 6.3 |
| HLA-A*30:02 | 1 | 42 | 50 | 9 | VFRSSVLHS 0.009984 | 6.3 |
| HLA-B*40:01 | 1 | 968 | 976 | 9 | SNFGAISSV 0.009974 | 2.9 |
| HLA-A*02:06 | 1 | 859 | 867 | 9 | TVLPPLD 0.009969 | 6.9 |
| HLA-A*02:01 | 1 | 204 | 212 | 9 | YSKHTPINL 0.009968 | 5.0 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*51:01 | 1 | 1113 | 1121 | 9 | QIITDNTF 0.009966 | 6.0 |
| HLA-B*53:01 | 1 | 137 | 146 | 10 | NDPFLGVYYH 0.00996 | 3.3 |
| HLA-B*57:01 | 1 | 1043 | 1052 | 10 | CGKGYHLSMF 0.00996 | 6.3 |
| HLA-B*51:01 | 1 | 10 | 18 | 9 | LVSSQCVNL 0.009956 | 6.0 |
| HLA-B*44:02 | 1 | 497 | 505 | 9 | FQPTNGVGY 0.009956 | 2.6 |
| HLA-B*58:01 | 1 | 1060 | 1068 | 9 | VVFLHVTVY 0.009955 | 4.3 |
| HLA-B*35:01 | 1 | 805 | 814 | 10 | ILPDPSPKPSK 0.009946 | 3.7 |
| HLA-B*53:01 | 1 | 1144 | 1152 | 9 | ELDSFKEEL 0.009945 | 3.3 |
| HLA-A*68:01 | 1 | 137 | 145 | 9 | NDPFLGVYY 0.009942 | 6.9 |
| HLA-A*24:02 | 1 | 452 | 461 | 10 | LYRFLRKSNL 0.009941 | 2.9 |
| HLA-B*35:01 | 1 | 751 | 759 | 9 | NLLLQYGSF 0.009941 | 3.7 |
| HLA-B*07:02 | 1 | 410 | 419 | 10 | IAPGQTGKIA 0.009938 | 3.9 |
| HLA-A*30:02 | 1 | 638 | 646 | 9 | TGSNVFQTR 0.009935 | 6.3 |
| HLA-A*01:01 | 1 | 58 | 66 | 9 | FFSNVTWFH 0.009928 | 3.8 |
| HLA-A*32:01 | 1 | 89 | 97 | 9 | GYYFASTEK 0.009927 | 3.5 |
| HLA-A*68:01 | 1 | 1203 | 1211 | 9 | LGKYEQYIK 0.009922 | 6.9 |
| HLA-A*11:01 | 1 | 908 | 917 | 10 | GIGVTQNVLY 0.009921 | 4.2 |
| HLA-B*44:02 | 1 | 789 | 797 | 9 | YKTPPIKDF 0.009919 | 2.6 |
| HLA-A*02:03 | 1 | 116 | 124 | 9 | SLLIIVNNAT 0.00991 | 5.7 |
| HLA-B*35:01 | 1 | 490 | 499 | 10 | FPLQSYGFQP 0.00991 | 3.7 |
| HLA-A*02:06 | 1 | 1121 | 1130 | 10 | FVSGNCDVVI 0.0099 | 6.9 |
| HLA-B*35:01 | 1 | 1039 | 1047 | 9 | RVDFCGKGY 0.009899 | 3.7 |
| HLA-A*01:01 | 1 | 988 | 996 | 9 | EAEVQIDRL 0.009898 | 3.8 |
| HLA-B*40:01 | 1 | 993 | 1001 | 9 | IDRLITGRL 0.009895 | 2.9 |
| HLA-A*26:01 | 1 | 1066 | 1075 | 10 | TYVPAQEKNF 0.009893 | 3.2 |
| HLA-B*53:01 | 1 | 126 | 135 | 10 | VVIKVCEFQF 0.009891 | 3.3 |
| HLA-B*53:01 | 1 | 173 | 181 | 9 | QPFLMDLEG 0.009881 | 3.3 |
| HLA-A*30:01 | 1 | 503 | 512 | 10 | VGYPYRVVV 0.009878 | 8.4 |
| HLA-B*08:01 | 1 | 295 | 303 | 9 | PLSETKCTL 0.009876 | 6.0 |
| HLA-A*32:01 | 1 | 133 | 141 | 9 | FQFCNDPFL 0.009875 | 3.5 |
| HLA-A*02:06 | 1 | 785 | 794 | 10 | VKQIYKTPPI 0.009875 | 6.9 |
| HLA-A*68:02 | 1 | 1160 | 1169 | 10 | TSPDVDLGDII 0.009874 | 5.1 |
| HLA-B*40:01 | 1 | 1003 | 1012 | 10 | SLQTYVTQQL 0.009861 | 2.9 |
| HLA-B*58:01 | 1 | 529 | 538 | 10 | KSTNLVKKNC 0.009852 | 4.3 |
| HLA-B*53:01 | 1 | 1058 | 1067 | 10 | HGVVFLHVTV 0.009852 | 3.3 |
| HLA-A*30:02 | 1 | 505 | 513 | 9 | YQPYRVVVL 0.009851 | 6.3 |
| HLA-A*30:01 | 1 | 1104 | 1112 | 9 | VTQRNFYEP 0.009851 | 8.4 |
| HLA-A*24:02 | 1 | 36 | 45 | 10 | VYYPDKVFRS 0.009847 | 2.9 |
| HLA-A*68:01 | 1 | 869 | 877 | 9 | MIAQYTSAL 0.009828 | 6.9 |
| HLA-B*07:02 | 1 | 554 | 562 | 9 | ESNKKFLPF 0.009826 | 3.9 |
| HLA-A*32:01 | 1 | 211 | 220 | 10 | NLVRDLPQGF 0.009824 | 3.5 |
| HLA-A*24:02 | 1 | 1004 | 1012 | 9 | LQTYVTQQL 0.009817 | 3.0 |
| HLA-A*26:01 | 1 | 596 | 604 | 9 | SVITPGTNT 0.009813 | 3.3 |
| HLA-A*02:01 | 1 | 929 | 938 | 10 | SAIGKIQDSL 0.009811 | 5.0 |
| HLA-A*02:06 | 1 | 623 | 632 | 10 | AIHADQLTPT 0.00981 | 6.9 |
| HLA-A*30:02 | 1 | 903 | 911 | 9 | AYRFNGIGV 0.00981 | 6.3 |
| HLA-A*30:01 | 1 | 247 | 255 | 9 | SYLTPGDSS 0.009808 | 8.5 |
| HLA-B*51:01 | 1 | 1068 | 1076 | 9 | VPAQEKNF 0.009806 | 6.1 |
| HLA-A*02:01 | 1 | 1219 | 1227 | 9 | GFIAGLIAI 0.009798 | 5.0 |
| HLA-A*31:01 | 1 | 195 | 203 | 9 | KNIDGYFKI 0.009796 | 6.4 |
| HLA-B*07:02 | 1 | 76 | 84 | 9 | TKRFDNPVL 0.009784 | 3.9 |
| HLA-A*68:02 | 1 | 205 | 213 | 9 | SKHTPINLV 0.009783 | 5.1 |
| HLA-A*02:03 | 1 | 1024 | 1033 | 10 | LAATKMSECV 0.009782 | 5.7 |
| HLA-A*02:06 | 1 | 155 | 163 | 9 | SEFRVYSSA 0.00978 | 7.0 |
| HLA-B*40:01 | 1 | 659 | 668 | 10 | SYECDIPIGA 0.009777 | 2.9 |
| HLA-A*26:01 | 1 | 1128 | 1136 | 9 | VVIGIVNNT 0.009772 | 3.3 |
| HLA-B*15:01 | 1 | 433 | 441 | 9 | VIAWSNNL 0.009766 | 5.3 |
| HLA-B*51:01 | 1 | 851 | 860 | 10 | CAQKFNGLTV 0.009764 | 6.1 |
| HLA-B*57:01 | 1 | 1100 | 1109 | 10 | THWFVTQRNF 0.009764 | 6.4 |
| HLA-B*35:01 | 1 | 1168 | 1176 | 9 | DISGINASV 0.009762 | 3.8 |
| HLA-A*33:01 | 1 | 1207 | 1216 | 10 | EQYIKWPWYI 0.009756 | 5.2 |
| HLA-A*01:01 | 1 | 1260 | 1268 | 9 | DSEPVLKGV 0.009753 | 3.8 |
| HLA-A*32:01 | 1 | 368 | 377 | 10 | LYNSASFSTF 0.009737 | 3.5 |
| HLA-A*23:01 | 1 | 583 | 592 | 10 | EILDITPCSF 0.009733 | 3.0 |
| HLA-A*32:01 | 1 | 333 | 342 | 10 | TNLCPFGEVF 0.009725 | 3.5 |
| HLA-B*44:02 | 1 | 308 | 316 | 9 | VEKGIYQTS 0.009724 | 2.7 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*30:02 | 1 | 814 | 822 | 9 | KRSFIEDLL 0.009721 | 6.4 |
| HLA-B*58:01 | 1 | 319 | 327 | 9 | RVQPTESIV 0.009718 | 4.3 |
| HLA-B*58:01 | 1 | 1147 | 1156 | 10 | SFKEELDKYF 0.009718 | 4.3 |
| HLA-A*30:01 | 1 | 722 | 730 | 9 | VTEILPVS 0.009713 | 8.5 |
| HLA-A*30:01 | 1 | 93 | 102 | 10 | ASTEKSNIIR 0.009706 | 8.5 |
| HLA-A*02:06 | 1 | 77 | 86 | 10 | KRFDNPVLPF 0.009704 | 7.0 |
| HLA-B*57:01 | 1 | 1014 | 1022 | 9 | RAAEIRASA 0.009699 | 6.4 |
| HLA-A*01:01 | 1 | 1020 | 1028 | 9 | ASANLAATK 0.009699 | 3.8 |
| HLA-A*31:01 | 1 | 1154 | 1162 | 9 | KYFKNHTSP 0.009698 | 6.4 |
| HLA-A*31:01 | 1 | 892 | 900 | 9 | AALQIPFAM 0.009686 | 6.4 |
| HLA-A*26:01 | 1 | 456 | 464 | 9 | FRKSNLKP 0.009681 | 3.3 |
| HLA-A*02:03 | 1 | 603 | 611 | 9 | NTSNQVAVL 0.009681 | 5.8 |
| HLA-A*26:01 | 1 | 1052 | 1060 | 9 | FPQSAPHGV 0.009677 | 3.3 |
| HLA-A*01:01 | 1 | 1058 | 1067 | 10 | HGVVFLHVTY 0.009674 | 3.9 |
| HLA-A*02:01 | 1 | 409 | 418 | 10 | QIAPGTGKI 0.009673 | 5.1 |
| HLA-A*02:06 | 1 | 641 | 649 | 9 | NVFQTRAGC 0.009672 | 7.0 |
| HLA-A*02:06 | 1 | 963 | 972 | 10 | VKQLSSNFGA 0.009671 | 7.0 |
| HLA-A*02:06 | 1 | 1060 | 1069 | 10 | VVFLHVITYVP 0.009671 | 7.0 |
| HLA-B*51:01 | 1 | 396 | 404 | 9 | YADSFVIRG 0.009669 | 6.1 |
| HLA-B*51:01 | 1 | 661 | 670 | 10 | ECDIPIGAGI 0.009667 | 6.1 |
| HLA-B*58:01 | 1 | 1107 | 1115 | 9 | RNFYEPQII 0.009666 | 4.4 |
| HLA-A*32:01 | 1 | 234 | 242 | 9 | NITRFQTL 0.009662 | 3.6 |
| HLA-A*01:01 | 1 | 782 | 790 | 9 | FAQVKQIYK 0.009662 | 3.9 |
| HLA-B*57:01 | 1 | 603 | 611 | 9 | NTSNQVAVL 0.00966 | 6.4 |
| HLA-A*68:02 | 1 | 1215 | 1224 | 10 | YIWLGFIAGL 0.00966 | 5.2 |
| HLA-A*31:01 | 1 | 533 | 541 | 9 | LVKNKCVNF 0.009659 | 6.4 |
| HLA-A*02:03 | 1 | 175 | 183 | 9 | FLMDLEGKQ 0.009657 | 5.8 |
| HLA-A*30:01 | 1 | 675 | 684 | 10 | QTQTNPRRA 0.009657 | 8.5 |
| HLA-B*57:01 | 1 | 421 | 429 | 9 | YNYKLPDDF 0.009654 | 6.4 |
| HLA-A*31:01 | 1 | 444 | 452 | 9 | KVGGNYNYL 0.009654 | 6.4 |
| HLA-B*58:01 | 1 | 92 | 100 | 9 | FASTEKSNI 0.009653 | 4.4 |
| HLA-A*33:01 | 1 | 1208 | 1217 | 10 | QYIKWPWYIW 0.009653 | 5.2 |
| HLA-A*30:01 | 1 | 212 | 221 | 10 | LVRDLPQGF 0.009651 | 8.5 |
| HLA-A*02:01 | 1 | 466 | 475 | 10 | RDISTEIQYA 0.009645 | 5.1 |
| HLA-B*15:01 | 1 | 1014 | 1022 | 9 | RAAEIRASA 0.009643 | 5.4 |
| HLA-A*24:02 | 1 | 1204 | 1212 | 9 | GKYEQYIKW 0.00964 | 3.0 |
| HLA-B*51:01 | 1 | 914 | 922 | 9 | NVLYENQKL 0.009633 | 6.1 |
| HLA-A*68:02 | 1 | 705 | 713 | 9 | VAYSNNNSIA 0.00963 | 5.2 |
| HLA-A*01:01 | 1 | 480 | 489 | 10 | CNGVEGFNCY 0.009625 | 3.9 |
| HLA-A*30:02 | 1 | 109 | 118 | 10 | TLDSKTQSL 0.009624 | 6.4 |
| HLA-A*02:06 | 1 | 687 | 695 | 9 | VASQSIIAY 0.009617 | 7.0 |
| HLA-A*03:01 | 1 | 19 | 28 | 10 | TTRTQLPPAY 0.009615 | 4.8 |
| HLA-B*08:01 | 1 | 788 | 797 | 10 | IYKTPPIKDF 0.009615 | 6.1 |
| HLA-A*68:02 | 1 | 1108 | 1116 | 9 | NFYEPQIIT 0.009611 | 5.2 |
| HLA-A*30:02 | 1 | 98 | 106 | 9 | SNIIRGWIF 0.00961 | 6.4 |
| HLA-A*02:06 | 1 | 725 | 733 | 9 | EILPVSMTK 0.00961 | 7.0 |
| HLA-A*23:01 | 1 | 60 | 68 | 9 | SNVTWFHAI 0.009607 | 3.0 |
| HLA-B*44:02 | 1 | 1093 | 1102 | 10 | GVFVSNNGTHW 0.009602 | 2.7 |
| HLA-A*02:06 | 1 | 133 | 142 | 10 | FQFCNDPFLG 0.009598 | 7.0 |
| HLA-A*30:02 | 1 | 711 | 719 | 9 | SIAIPTNFT 0.009598 | 6.4 |
| HLA-A*30:02 | 1 | 821 | 829 | 9 | LLFNKVTLA 0.009598 | 6.4 |
| HLA-A*33:01 | 1 | 1136 | 1144 | 9 | TVYDPLQPE 0.009598 | 5.2 |
| HLA-A*30:02 | 1 | 1128 | 1136 | 9 | VVIGIVNNT 0.009597 | 6.4 |
| HLA-B*35:01 | 1 | 144 | 152 | 9 | YYHKNNKSW 0.009596 | 3.8 |
| HLA-B*51:01 | 1 | 1163 | 1172 | 10 | DVDLGDISGI 0.009594 | 6.1 |
| HLA-A*31:01 | 1 | 21 | 29 | 9 | RTQLPPAYT 0.009593 | 6.5 |
| HLA-A*01:01 | 1 | 23 | 32 | 10 | QLPPAYTNSF 0.009589 | 3.9 |
| HLA-A*24:02 | 1 | 139 | 147 | 9 | PFLGVYYHK 0.009586 | 3.0 |
| HLA-A*24:02 | 1 | 758 | 767 | 10 | SFCTQLNRAL 0.009583 | 3.0 |
| HLA-A*02:01 | 1 | 686 | 694 | 9 | SVASQSIIA 0.009581 | 5.1 |
| HLA-B*40:01 | 1 | 1144 | 1152 | 9 | ELDSFKEEL 0.009579 | 2.9 |
| HLA-A*02:06 | 1 | 864 | 873 | 10 | LLTDEMIAQY 0.009575 | 7.0 |
| HLA-A*02:06 | 1 | 205 | 213 | 9 | SKHTPINLV 0.009574 | 7.0 |
| HLA-A*30:01 | 1 | 151 | 160 | 10 | SWMSEFRVY 0.009567 | 8.6 |
| HLA-B*15:01 | 1 | 723 | 731 | 9 | TTEILPVSM 0.009566 | 5.4 |
| HLA-A*68:02 | 1 | 957 | 966 | 10 | QALNTLVKQL 0.009562 | 5.2 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*57:01 | 1 | 122 | 130 | 9 | NATNVVIKV 0.009561 | 6.5 |
| HLA-B*44:03 | 1 | 30 | 38 | 9 | NSFTRGVYY 0.009559 | 2.9 |
| HLA-B*57:01 | 1 | 458 | 466 | 9 | KSNLKPFER 0.009559 | 6.5 |
| HLA-A*26:01 | 1 | 773 | 781 | 9 | EQDKNTQEV 0.009553 | 3.3 |
| HLA-B*40:01 | 1 | 280 | 288 | 9 | NENGTITDA 0.009549 | 2.9 |
| HLA-B*08:01 | 1 | 421 | 429 | 9 | YNYKLPDDF 0.009547 | 6.1 |
| HLA-B*51:01 | 1 | 16 | 24 | 9 | VNLTRTQL 0.009545 | 6.2 |
| HLA-A*02:06 | 1 | 218 | 227 | 10 | QGFSALEPLV 0.009537 | 7.1 |
| HLA-B*58:01 | 1 | 1080 | 1089 | 10 | AICHDGKAHF 0.00953 | 4.4 |
| HLA-A*30:01 | 1 | 679 | 688 | 10 | NSPRRARSVA 0.009528 | 8.6 |
| HLA-A*68:02 | 1 | 508 | 517 | 10 | YRVVLSFEL 0.009525 | 5.2 |
| HLA-B*07:02 | 1 | 35 | 43 | 9 | GVYYPDKVF 0.009524 | 4.0 |
| HLA-A*30:01 | 1 | 633 | 642 | 10 | WRVYSTGSNV 0.009522 | 8.6 |
| HLA-B*58:01 | 1 | 115 | 123 | 9 | QSLLVNNA 0.009521 | 4.4 |
| HLA-A*32:01 | 1 | 1094 | 1103 | 10 | VFVSNGTHWF 0.00952 | 3.6 |
| HLA-A*30:01 | 1 | 150 | 159 | 10 | KSWMESEFRV 0.009519 | 8.6 |
| HLA-A*30:01 | 1 | 93 | 101 | 9 | ASTEKSNII 0.009517 | 8.6 |
| HLA-A*68:02 | 1 | 1184 | 1193 | 10 | DRLNEVAKNL 0.009515 | 5.2 |
| HLA-A*11:01 | 1 | 346 | 355 | 10 | RFASVYAWNR 0.009509 | 4.2 |
| HLA-B*58:01 | 1 | 1055 | 1063 | 9 | SAPHGVVFL 0.009503 | 4.4 |
| HLA-B*08:01 | 1 | 1147 | 1156 | 10 | SFKEELDKYF 0.009503 | 6.2 |
| HLA-B*51:01 | 1 | 505 | 514 | 10 | YQPYRVVLS 0.009501 | 6.2 |
| HLA-A*68:02 | 1 | 618 | 626 | 9 | TEVPVAIHA 0.0095 | 5.2 |
| HLA-B*51:01 | 1 | 218 | 227 | 10 | QGFSALEPLV 0.009498 | 6.2 |
| HLA-A*02:03 | 1 | 1188 | 1197 | 10 | EVAKNLNESL 0.009493 | 5.8 |
| HLA-A*30:01 | 1 | 194 | 202 | 9 | FKNIDGYFK 0.009492 | 8.6 |
| HLA-B*51:01 | 1 | 34 | 42 | 9 | RGVYYPDKV 0.009487 | 6.2 |
| HLA-A*33:01 | 1 | 554 | 562 | 9 | ESNKKFLPF 0.009487 | 5.2 |
| HLA-A*68:01 | 1 | 898 | 906 | 9 | FAMQMAYRF 0.009485 | 7.0 |
| HLA-B*07:02 | 1 | 236 | 244 | 9 | TRFQTLAL 0.009484 | 4.0 |
| HLA-A*30:01 | 1 | 926 | 934 | 9 | QFNSAIGKI 0.009482 | 8.6 |
| HLA-A*01:01 | 1 | 1260 | 1269 | 10 | DSEPVKGVK 0.009474 | 3.9 |
| HLA-B*53:01 | 1 | 1211 | 1220 | 10 | KWPWYIWLGF 0.009468 | 3.4 |
| HLA-A*30:02 | 1 | 926 | 934 | 9 | QFNSAIGKI 0.009464 | 6.5 |
| HLA-A*68:01 | 1 | 882 | 890 | 9 | ITSGWTFGA 0.009461 | 7.0 |
| HLA-A*01:01 | 1 | 1029 | 1038 | 10 | MSECVLGQSK 0.009459 | 3.9 |
| HLA-B*51:01 | 1 | 880 | 888 | 9 | GTITSGWTF 0.009458 | 6.2 |
| HLA-B*57:01 | 1 | 59 | 68 | 10 | FSNVTWFHAI 0.009455 | 6.5 |
| HLA-A*30:01 | 1 | 324 | 332 | 9 | ESIVRFPNI 0.009452 | 8.6 |
| HLA-B*44:03 | 1 | 1093 | 1102 | 10 | GVFVSNGTHW 0.009451 | 2.9 |
| HLA-A*02:03 | 1 | 494 | 503 | 10 | SYGFQPTNGV 0.00945 | 5.8 |
| HLA-A*68:01 | 1 | 212 | 220 | 9 | LVRDLPQGF 0.009449 | 7.1 |
| HLA-A*26:01 | 1 | 637 | 646 | 10 | STGSNVFQTR 0.009448 | 3.3 |
| HLA-B*57:01 | 1 | 1107 | 1115 | 9 | RNFYEPQII 0.009447 | 6.5 |
| HLA-A*30:02 | 1 | 143 | 152 | 10 | VYYHKNNKSW 0.009444 | 6.5 |
| HLA-A*30:02 | 1 | 886 | 894 | 9 | WTFGAGAAL 0.009436 | 6.5 |
| HLA-B*58:01 | 1 | 858 | 866 | 9 | LTVLPPLLT 0.009426 | 4.4 |
| HLA-A*30:02 | 1 | 346 | 355 | 10 | RFASVYAWNR 0.009425 | 6.5 |
| HLA-A*02:06 | 1 | 660 | 668 | 9 | YECDIPIGA 0.009418 | 7.1 |
| HLA-B*51:01 | 1 | 1259 | 1268 | 10 | DDSEPVKGV 0.009415 | 6.2 |
| HLA-B*08:01 | 1 | 960 | 968 | 9 | NLTVKQLSS 0.009409 | 6.2 |
| HLA-A*30:02 | 1 | 558 | 566 | 9 | KFLPFQFG 0.009408 | 6.5 |
| HLA-A*11:01 | 1 | 815 | 823 | 9 | RSFIEDLLF 0.009405 | 4.3 |
| HLA-A*30:01 | 1 | 298 | 306 | 9 | ETKCTLKSF 0.0094 | 8.7 |
| HLA-A*26:01 | 1 | 1262 | 1271 | 10 | EPVLKGVKLN 0.009393 | 3.3 |
| HLA-A*02:01 | 1 | 995 | 1003 | 9 | RLITGRLQS 0.009392 | 5.1 |
| HLA-A*26:01 | 1 | 444 | 453 | 10 | KVGGNYNYLY 0.00939 | 3.3 |
| HLA-A*01:01 | 1 | 249 | 258 | 10 | LTPGDSSSWG 0.009385 | 3.9 |
| HLA-A*26:01 | 1 | 689 | 697 | 9 | SQSIIAYTM 0.009383 | 3.3 |
| HLA-B*58:01 | 1 | 1042 | 1050 | 9 | FCGKGYHLM 0.009382 | 4.4 |
| HLA-B*07:02 | 1 | 544 | 552 | 9 | NGLTGTGVL 0.00938 | 4.0 |
| HLA-A*68:02 | 1 | 185 | 193 | 9 | NFKNLREFV 0.009379 | 5.2 |
| HLA-B*35:01 | 1 | 719 | 727 | 9 | TISVTTEIL 0.009378 | 3.8 |
| HLA-B*58:01 | 1 | 233 | 241 | 9 | INITRFQTL 0.009376 | 4.4 |
| HLA-B*53:01 | 1 | 1208 | 1217 | 10 | QYIKWPWYIW 0.009373 | 3.4 |
| HLA-A*01:01 | 1 | 616 | 625 | 10 | NCTEVPVAIH 0.009372 | 3.9 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*33:01 | 1 | 240 | 248 | 9 | TLLALHRSY 0.00937 | 5.2 |
| HLA-A*01:01 | 1 | 733 | 742 | 10 | KTSVDCTMYI 0.009368 | 3.9 |
| HLA-A*26:01 | 1 | 1168 | 1177 | 10 | DISGINASVV 0.009364 | 3.3 |
| HLA-B*58:01 | 1 | 24 | 32 | 9 | LPPAYTNSF 0.009363 | 4.4 |
| HLA-B*53:01 | 1 | 490 | 499 | 10 | FPLQSYGFQP 0.009363 | 3.4 |
| HLA-A*33:01 | 1 | 258 | 266 | 9 | WTAGAAAYY 0.009362 | 5.2 |
| HLA-A*30:01 | 1 | 1055 | 1064 | 10 | SAPHGVVFLH 0.009358 | 8.7 |
| HLA-A*68:02 | 1 | 349 | 358 | 10 | SVYAWNRKRI 0.009357 | 5.2 |
| HLA-B*15:01 | 1 | 919 | 928 | 10 | NQKLIANQFN 0.009357 | 5.4 |
| HLA-A*11:01 | 1 | 673 | 682 | 10 | SYQTQTNSPR 0.009351 | 4.3 |
| HLA-A*03:01 | 1 | 638 | 646 | 9 | TGSNVFQTR 0.009348 | 4.8 |
| HLA-B*15:01 | 1 | 773 | 781 | 9 | EQDKNTQEV 0.009344 | 5.4 |
| HLA-A*30:02 | 1 | 782 | 790 | 9 | FAQVKQIYK 0.00934 | 6.6 |
| HLA-B*44:02 | 1 | 162 | 170 | 9 | SANNCTFEY 0.009337 | 2.7 |
| HLA-A*68:02 | 1 | 949 | 958 | 10 | QDVVNQNAQA 0.009336 | 5.3 |
| HLA-B*57:01 | 1 | 1086 | 1094 | 9 | KAHFPREGV 0.009336 | 6.6 |
| HLA-A*11:01 | 1 | 238 | 246 | 9 | FQTLALHR 0.009325 | 4.3 |
| HLA-B*08:01 | 1 | 51 | 59 | 9 | TQDLFLPFF 0.009323 | 6.2 |
| HLA-B*44:02 | 1 | 227 | 235 | 9 | VDPILGINI 0.009311 | 2.7 |
| HLA-A*01:01 | 1 | 817 | 825 | 9 | FIEDLLFNK 0.009309 | 3.9 |
| HLA-A*03:01 | 1 | 893 | 901 | 9 | ALQIPFAMQ 0.009307 | 4.9 |
| HLA-B*51:01 | 1 | 973 | 981 | 9 | ISSVLNDIL 0.009304 | 6.3 |
| HLA-B*53:01 | 1 | 789 | 797 | 9 | YKTPPIKDF 0.009299 | 3.4 |
| HLA-A*03:01 | 1 | 161 | 170 | 10 | SSANNCTFEY 0.009297 | 4.9 |
| HLA-B*08:01 | 1 | 1184 | 1193 | 10 | DRLNEVAKNL 0.009292 | 6.2 |
| HLA-B*15:01 | 1 | 489 | 497 | 9 | YFPLQSYGF 0.00929 | 5.4 |
| HLA-A*31:01 | 1 | 839 | 847 | 9 | DCLGDIAAR 0.009282 | 6.5 |
| HLA-A*03:01 | 1 | 520 | 529 | 10 | APATVCGPKK 0.00928 | 4.9 |
| HLA-A*32:01 | 1 | 1026 | 1034 | 9 | ATKMSECVL 0.009278 | 3.6 |
| HLA-A*30:02 | 1 | 312 | 320 | 9 | IYQTSNFRV 0.009277 | 6.6 |
| HLA-A*02:06 | 1 | 844 | 852 | 9 | IAARDLICA 0.009277 | 7.2 |
| HLA-B*08:01 | 1 | 719 | 727 | 9 | TISVTTEIL 0.009276 | 6.2 |
| HLA-A*02:06 | 1 | 266 | 274 | 9 | YVGYLQPRV 0.009269 | 7.2 |
| HLA-A*30:01 | 1 | 193 | 201 | 9 | VFKNIDGYF 0.009268 | 8.7 |
| HLA-A*30:01 | 1 | 493 | 501 | 9 | QSYGFQPTN 0.009259 | 8.7 |
| HLA-B*08:01 | 1 | 857 | 865 | 9 | GLTVLPPLL 0.009252 | 6.3 |
| HLA-A*02:06 | 1 | 221 | 230 | 10 | SALEPLVDLP 0.009247 | 7.2 |
| HLA-B*58:01 | 1 | 482 | 490 | 9 | GVEGFNCYF 0.009243 | 4.4 |
| HLA-B*51:01 | 1 | 249 | 258 | 10 | LTPGDSSSGW 0.009238 | 6.3 |
| HLA-A*01:01 | 1 | 489 | 497 | 9 | YFPLQSYGF 0.009237 | 4.0 |
| HLA-A*01:01 | 1 | 93 | 102 | 10 | ASTEKSNIIR 0.009236 | 4.0 |
| HLA-A*01:01 | 1 | 305 | 313 | 9 | SFTVEKGIY 0.009233 | 4.0 |
| HLA-A*30:02 | 1 | 754 | 763 | 10 | LQYGSFCTQL 0.009232 | 6.6 |
| HLA-A*32:01 | 1 | 751 | 759 | 9 | NLLLQYGSF 0.009228 | 3.6 |
| HLA-B*44:03 | 1 | 240 | 248 | 9 | TLLALHRSY 0.009226 | 2.9 |
| HLA-A*30:01 | 1 | 1087 | 1096 | 10 | AHFPREGV 0.009225 | 8.8 |
| HLA-A*68:02 | 1 | 375 | 384 | 10 | STFKCYGVSP 0.009224 | 5.3 |
| HLA-B*57:01 | 1 | 111 | 119 | 9 | DSKTQSLLI 0.009222 | 6.6 |
| HLA-B*08:01 | 1 | 507 | 515 | 9 | PYRVVLSF 0.009222 | 6.3 |
| HLA-A*30:01 | 1 | 88 | 97 | 10 | DGVYFASTEK 0.009215 | 8.8 |
| HLA-A*30:01 | 1 | 787 | 796 | 10 | QIYKTPPIKD 0.009206 | 8.8 |
| HLA-A*68:02 | 1 | 1173 | 1181 | 9 | NASVVNIQK 0.009206 | 5.3 |
| HLA-A*30:02 | 1 | 924 | 933 | 10 | ANQFNSAIGK 0.009199 | 6.6 |
| HLA-A*68:02 | 1 | 171 | 179 | 9 | VSQPFLMDL 0.009193 | 5.3 |
| HLA-A*33:01 | 1 | 489 | 497 | 9 | YFPLQSYGF 0.009193 | 5.3 |
| HLA-A*01:01 | 1 | 443 | 451 | 9 | SKVGGNINY 0.00919 | 4.0 |
| HLA-A*31:01 | 1 | 568 | 577 | 10 | DIADTTDAVR 0.00919 | 6.6 |
| HLA-A*02:03 | 1 | 942 | 951 | 10 | ASALGKLQDV 0.00919 | 5.9 |
| HLA-A*02:01 | 1 | 6 | 14 | 9 | VLLPLVSSQ 0.009187 | 5.2 |
| HLA-A*02:06 | 1 | 978 | 987 | 10 | NDILSRLDKV 0.009185 | 7.2 |
| HLA-B*57:01 | 1 | 882 | 890 | 9 | ITSGWTFGA 0.009181 | 6.6 |
| HLA-B*58:01 | 1 | 712 | 721 | 10 | IAIPTNFTIS 0.009178 | 4.5 |
| HLA-B*57:01 | 1 | 1159 | 1167 | 9 | HTSPDVDLG 0.009178 | 6.6 |
| HLA-A*02:06 | 1 | 752 | 760 | 9 | LLLQYGSFC 0.009176 | 7.2 |
| HLA-A*30:02 | 1 | 494 | 503 | 10 | SYGFQPTNGV 0.009174 | 6.6 |
| HLA-A*30:01 | 1 | 142 | 151 | 10 | GVYYHKNNKS 0.009173 | 8.8 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*02:06 | 1 | 1202 | 1210 | 9 | ELGKYEQYI 0.009166 | 7.2 |
| HLA-A*24:02 | 1 | 214 | 223 | 10 | RDLPQGFSA 0.009164 | 3.0 |
| HLA-A*02:01 | 1 | 894 | 903 | 10 | LQIPFAMQMA 0.009163 | 5.2 |
| HLA-B*58:01 | 1 | 891 | 900 | 10 | GAALQIPFAM 0.00916 | 4.5 |
| HLA-B*57:01 | 1 | 750 | 759 | 10 | SNLLLQYGSF 0.009159 | 6.6 |
| HLA-B*15:01 | 1 | 794 | 802 | 9 | IKDFGGFNF 0.009155 | 5.5 |
| HLA-A*68:02 | 1 | 241 | 249 | 9 | LLALHRSYL 0.009143 | 5.3 |
| HLA-A*26:01 | 1 | 471 | 479 | 9 | EIYQAGSTP 0.009141 | 3.4 |
| HLA-B*08:01 | 1 | 1137 | 1146 | 10 | VYDPLQPELD 0.009134 | 6.3 |
| HLA-A*02:06 | 1 | 805 | 814 | 10 | ILPDPSKPSK 0.009131 | 7.2 |
| HLA-A*11:01 | 1 | 1203 | 1211 | 9 | LGKYEQYIK 0.009129 | 4.3 |
| HLA-A*23:01 | 1 | 754 | 763 | 10 | LQYGSFCTQL 0.009127 | 3.1 |
| HLA-B*15:01 | 1 | 923 | 931 | 9 | IANQFNSAI 0.009127 | 5.5 |
| HLA-B*53:01 | 1 | 888 | 896 | 9 | FGAGAALQI 0.009124 | 3.4 |
| HLA-A*03:01 | 1 | 346 | 355 | 10 | RFASVYAWN 0.009123 | 4.9 |
| HLA-A*33:01 | 1 | 406 | 414 | 9 | EVQRQIAPGQ 0.009121 | 5.3 |
| HLA-A*11:01 | 1 | 454 | 463 | 10 | RLFRKSNLKP 0.00912 | 4.3 |
| HLA-A*24:02 | 1 | 90 | 98 | 9 | VYFASTSKS 0.009118 | 3.1 |
| HLA-A*23:01 | 1 | 35 | 43 | 9 | GVVYDPKVF 0.009106 | 3.1 |
| HLA-B*15:01 | 1 | 1175 | 1183 | 9 | SVNVIQKEI 0.009106 | 5.5 |
| HLA-B*51:01 | 1 | 1218 | 1226 | 9 | LGFIAGLIA 0.009106 | 6.3 |
| HLA-A*31:01 | 1 | 444 | 453 | 10 | KVGGNYNYLY 0.009104 | 6.6 |
| HLA-B*08:01 | 1 | 573 | 582 | 10 | TDAVRDPQTL 0.009103 | 6.3 |
| HLA-A*30:01 | 1 | 316 | 324 | 9 | SNFRVQPT 0.009102 | 8.8 |
| HLA-B*51:01 | 1 | 1072 | 1081 | 10 | EKNFTTAPAI 0.009102 | 6.3 |
| HLA-B*53:01 | 1 | 159 | 168 | 10 | VYSSANNCTF 0.009098 | 3.4 |
| HLA-B*58:01 | 1 | 125 | 133 | 9 | NVVIKVFCE 0.009095 | 4.5 |
| HLA-A*30:01 | 1 | 783 | 792 | 10 | AQVKQIYKTP 0.009091 | 8.8 |
| HLA-B*08:01 | 1 | 789 | 797 | 9 | YKTPPIKDF 0.009084 | 6.3 |
| HLA-A*26:01 | 1 | 55 | 64 | 10 | FLPFFSNVTW 0.009082 | 3.4 |
| HLA-A*68:02 | 1 | 311 | 320 | 10 | GIYQTSNFRV 0.00908 | 5.3 |
| HLA-A*26:01 | 1 | 88 | 97 | 10 | DGVYFASTSK 0.009074 | 3.4 |
| HLA-A*68:02 | 1 | 109 | 118 | 10 | TLDSKTQSL 0.009066 | 5.3 |
| HLA-A*68:01 | 1 | 617 | 625 | 9 | CTEVPVAIH 0.009066 | 7.2 |
| HLA-A*03:01 | 1 | 603 | 612 | 10 | NTSNQVAVLY 0.009064 | 4.9 |
| HLA-B*57:01 | 1 | 858 | 866 | 9 | LTVLPLLLT 0.009064 | 6.6 |
| HLA-B*08:01 | 1 | 448 | 456 | 9 | NVNYLYRLF 0.009062 | 6.3 |
| HLA-A*02:06 | 1 | 551 | 560 | 10 | VLTESNKKFL 0.009061 | 7.3 |
| HLA-B*15:01 | 1 | 1148 | 1156 | 9 | FKEELDKYF 0.009061 | 5.5 |
| HLA-A*30:01 | 1 | 980 | 989 | 10 | ILSRLDKVEA 0.00906 | 8.8 |
| HLA-A*02:06 | 1 | 1024 | 1032 | 9 | LAATKMSEC 0.00906 | 7.3 |
| HLA-A*23:01 | 1 | 215 | 223 | 9 | DLPQGFSA 0.009053 | 3.1 |
| HLA-B*57:01 | 1 | 319 | 327 | 9 | RVQPTESIV 0.009052 | 6.6 |
| HLA-A*30:01 | 1 | 69 | 78 | 10 | HVSGTNGTKR 0.009048 | 8.9 |
| HLA-B*58:01 | 1 | 415 | 423 | 9 | TGKIADYNY 0.009044 | 4.5 |
| HLA-A*11:01 | 1 | 395 | 403 | 9 | VYADSFVIR 0.009038 | 4.3 |
| HLA-A*26:01 | 1 | 58 | 66 | 9 | FFSNVTWFH 0.009036 | 3.4 |
| HLA-B*08:01 | 1 | 943 | 952 | 10 | SALGKLQDVV 0.009031 | 6.3 |
| HLA-A*02:01 | 1 | 3 | 11 | 9 | VFLVLLPLV 0.00903 | 5.2 |
| HLA-B*15:01 | 1 | 894 | 903 | 10 | LQIPFAMQMA 0.009028 | 5.5 |
| HLA-A*02:03 | 1 | 720 | 729 | 10 | ISVTTEILPV 0.009023 | 6.0 |
| HLA-A*03:01 | 1 | 1137 | 1145 | 9 | VYDPLQPEL 0.009018 | 4.9 |
| HLA-A*30:02 | 1 | 94 | 102 | 9 | STESNIIIR 0.009015 | 6.7 |
| HLA-A*68:02 | 1 | 748 | 756 | 9 | ECSNLLLQY 0.009011 | 5.3 |
| HLA-B*51:01 | 1 | 291 | 299 | 9 | CALDPLSET 0.009008 | 6.4 |
| HLA-B*53:01 | 1 | 526 | 534 | 9 | GPKKSTNLV 0.009008 | 3.5 |
| HLA-A*68:02 | 1 | 394 | 403 | 10 | NVYADSFVIR 0.009002 | 5.3 |
| HLA-B*07:02 | 1 | 954 | 962 | 9 | QNAQALNTL 0.009002 | 4.0 |
| HLA-A*30:01 | 1 | 1088 | 1097 | 10 | HFPREGVFSV 0.009002 | 8.9 |
| HLA-B*58:01 | 1 | 45 | 54 | 10 | SSVLHSTQDL 0.009001 | 4.5 |
| HLA-B*44:02 | 1 | 865 | 873 | 9 | LTDEMIAQY 0.009001 | 2.8 |
| HLA-A*02:03 | 1 | 936 | 945 | 10 | DSLSSTASAL 0.008999 | 6.0 |
| HLA-B*57:01 | 1 | 897 | 906 | 10 | PFAMQMAYRF 0.008998 | 6.7 |
| HLA-A*02:01 | 1 | 972 | 981 | 10 | AISSVLNDIL 0.008993 | 5.2 |
| HLA-A*32:01 | 1 | 725 | 733 | 9 | EILPVSMTK 0.008992 | 3.7 |
| HLA-A*30:02 | 1 | 447 | 456 | 10 | GNYNYLYRLF 0.008987 | 6.7 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*23:01 | 1 | 809 | 817 | 9 | PSKPSKRSF 0.008987 | 3.1 |
| HLA-A*30:02 | 1 | 676 | 685 | 10 | TQTNSPRRAR 0.008982 | 6.7 |
| HLA-A*02:01 | 1 | 864 | 873 | 10 | LLTDEMIAQY 0.008977 | 5.2 |
| HLA-B*51:01 | 1 | 1225 | 1234 | 10 | IAIVMVTIML 0.008975 | 6.4 |
| HLA-A*26:01 | 1 | 69 | 78 | 10 | HVSGTNGTKR 0.008974 | 3.4 |
| HLA-A*24:02 | 1 | 836 | 844 | 9 | QYGDCLGDI 0.008974 | 3.1 |
| HLA-B*57:01 | 1 | 493 | 502 | 10 | QSYGFQPTNG 0.008972 | 6.7 |
| HLA-A*68:02 | 1 | 580 | 589 | 10 | QTLEILDITP 0.008969 | 5.4 |
| HLA-A*02:06 | 1 | 965 | 973 | 9 | QLSSNFGAI 0.008969 | 7.3 |
| HLA-B*35:01 | 1 | 287 | 296 | 10 | DAVDCALDPL 0.008967 | 3.9 |
| HLA-B*44:03 | 1 | 98 | 106 | 9 | SNIRGWIF 0.008966 | 3.0 |
| HLA-B*08:01 | 1 | 205 | 213 | 9 | SKHTPINLV 0.008966 | 6.4 |
| HLA-A*01:01 | 1 | 298 | 306 | 9 | ETKCTLKSF 0.008966 | 4.0 |
| HLA-A*30:02 | 1 | 1189 | 1197 | 9 | VAKNLNESL 0.008964 | 6.7 |
| HLA-A*68:02 | 1 | 155 | 163 | 9 | SEFRVYSSA 0.008963 | 5.4 |
| HLA-A*31:01 | 1 | 447 | 455 | 9 | GNYNYLYRL 0.008955 | 6.7 |
| HLA-A*31:01 | 1 | 846 | 854 | 9 | ARDLICAQK 0.008947 | 6.7 |
| HLA-B*53:01 | 1 | 421 | 429 | 9 | YNYKLPDDF 0.008946 | 3.5 |
| HLA-A*30:01 | 1 | 929 | 938 | 10 | SAIGKIQDSL 0.008945 | 8.9 |
| HLA-B*53:01 | 1 | 261 | 269 | 9 | GAAYYVGY 0.008941 | 3.5 |
| HLA-B*07:02 | 1 | 635 | 643 | 9 | VYSTGSNVF 0.008941 | 4.1 |
| HLA-B*15:01 | 1 | 1171 | 1179 | 9 | GINASVUNI 0.008939 | 5.5 |
| HLA-A*02:06 | 1 | 367 | 376 | 10 | VLYNSASFST 0.008937 | 7.3 |
| HLA-B*08:01 | 1 | 447 | 455 | 9 | GNYNYLYRL 0.008934 | 6.4 |
| HLA-B*57:01 | 1 | 1065 | 1074 | 10 | VTYVPAQEK 0.008927 | 6.7 |
| HLA-A*02:01 | 1 | 78 | 86 | 9 | RFDNPVLPF 0.008923 | 5.2 |
| HLA-A*30:02 | 1 | 477 | 486 | 10 | STPCNGVEGF 0.008919 | 6.8 |
| HLA-B*58:01 | 1 | 227 | 235 | 9 | VDLPIGINI 0.008914 | 4.5 |
| HLA-A*02:03 | 1 | 1012 | 1020 | 9 | LIRAAEIRA 0.008912 | 6.0 |
| HLA-B*57:01 | 1 | 580 | 589 | 10 | QTLEILDITP 0.008905 | 6.7 |
| HLA-A*32:01 | 1 | 270 | 279 | 10 | LQPRTFLLKY 0.008901 | 3.7 |
| HLA-A*30:02 | 1 | 1044 | 1052 | 9 | GKGYHLMSF 0.008899 | 6.8 |
| HLA-B*53:01 | 1 | 462 | 470 | 9 | KPFERDIST 0.008897 | 3.5 |
| HLA-B*07:02 | 1 | 714 | 723 | 10 | IPTNFTISVT 0.008894 | 4.1 |
| HLA-A*11:01 | 1 | 50 | 59 | 10 | STQDLFLPFF 0.008886 | 4.3 |
| HLA-A*01:01 | 1 | 111 | 119 | 9 | DSKTQSLLI 0.008882 | 4.0 |
| HLA-A*01:01 | 1 | 226 | 235 | 10 | LVDLPIGINI 0.008882 | 4.0 |
| HLA-A*03:01 | 1 | 674 | 682 | 9 | YQTQTNSPR 0.008882 | 4.9 |
| HLA-B*44:02 | 1 | 780 | 789 | 10 | EVFAQVKQIY 0.008882 | 2.8 |
| HLA-A*68:01 | 1 | 596 | 604 | 9 | SVITPGTNT 0.008879 | 7.2 |
| HLA-A*24:02 | 1 | 84 | 92 | 9 | LPFNDGVYF 0.008871 | 3.1 |
| HLA-A*26:01 | 1 | 1129 | 1138 | 10 | VIGIVNNTVY 0.008871 | 3.4 |
| HLA-B*15:01 | 1 | 964 | 973 | 10 | KQLSSNFGAI 0.008869 | 5.5 |
| HLA-A*01:01 | 1 | 334 | 342 | 9 | NLCPFGEVF 0.008864 | 4.0 |
| HLA-A*23:01 | 1 | 717 | 726 | 10 | NFTISVTTEI 0.008856 | 3.1 |
| HLA-A*11:01 | 1 | 19 | 28 | 10 | TRTQLPPAY 0.008852 | 4.3 |
| HLA-A*30:01 | 1 | 731 | 739 | 9 | MTKTSVDCT 0.008852 | 9.0 |
| HLA-B*35:01 | 1 | 1068 | 1076 | 9 | VPAQEKNFT 0.008847 | 3.9 |
| HLA-A*03:01 | 1 | 344 | 352 | 9 | ATRFASVYA 0.008846 | 5.0 |
| HLA-B*58:01 | 1 | 427 | 436 | 10 | DDFTGCVIAW 0.008845 | 4.5 |
| HLA-A*68:02 | 1 | 1004 | 1013 | 10 | LQTYVTQQLI 0.008845 | 5.4 |
| HLA-A*30:02 | 1 | 846 | 855 | 10 | ARDLICAQKF 0.008842 | 6.8 |
| HLA-B*15:01 | 1 | 56 | 64 | 9 | LPFFSNVTW 0.008839 | 5.6 |
| HLA-A*02:03 | 1 | 276 | 284 | 9 | LLKYNENGT 0.008839 | 6.1 |
| HLA-A*02:03 | 1 | 339 | 348 | 10 | GEVFNATRFA 0.008837 | 6.1 |
| HLA-A*30:02 | 1 | 922 | 930 | 9 | LIANQFNSA 0.008837 | 6.8 |
| HLA-B*57:01 | 1 | 442 | 451 | 10 | DSKVGGNYY 0.008834 | 6.7 |
| HLA-A*02:06 | 1 | 633 | 642 | 10 | WRVYSTGSNV 0.00883 | 7.4 |
| HLA-B*35:01 | 1 | 950 | 959 | 10 | DVVNQNAQAL 0.008821 | 3.9 |
| HLA-A*26:01 | 1 | 1054 | 1063 | 10 | QSAPHGVVFL 0.008809 | 3.5 |
| HLA-B*58:01 | 1 | 204 | 213 | 10 | YSKHTPINLV 0.008807 | 4.6 |
| HLA-A*30:01 | 1 | 452 | 461 | 10 | LYRLFRKSNL 0.008807 | 9.0 |
| HLA-B*51:01 | 1 | 786 | 794 | 9 | KQIYKTPPI 0.008807 | 6.5 |
| HLA-A*30:01 | 1 | 5 | 13 | 9 | LVLLPLVSS 0.008803 | 9.0 |
| HLA-A*32:01 | 1 | 1129 | 1137 | 9 | VIGIVNNTV 0.008802 | 3.7 |
| HLA-B*58:01 | 1 | 847 | 855 | 9 | RDLICAQKF 0.008801 | 4.6 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*68:02 | 1 | 1064 | 1072 | 9 | HVTYVPAQE 0.008793 | 5.4 |
| HLA-A*02:03 | 1 | 734 | 742 | 9 | TSVDCTMYI 0.008788 | 6.1 |
| HLA-A*02:03 | 1 | 1217 | 1225 | 9 | WLGFIAGLI 0.008787 | 6.1 |
| HLA-B*15:01 | 1 | 70 | 79 | 10 | VSGTNGTKRF 0.008786 | 5.6 |
| HLA-A*68:02 | 1 | 370 | 379 | 10 | NSASFSTFKC 0.008782 | 5.4 |
| HLA-B*51:01 | 1 | 666 | 674 | 9 | IGAGICASY 0.008782 | 6.5 |
| HLA-B*44:03 | 1 | 344 | 353 | 10 | ATRFASVYAW 0.008779 | 3.0 |
| HLA-A*68:01 | 1 | 1207 | 1215 | 9 | EQYIKWPWY 0.008778 | 7.2 |
| HLA-A*32:01 | 1 | 96 | 104 | 9 | EKSNIIRGW 0.008776 | 3.7 |
| HLA-B*07:02 | 1 | 119 | 127 | 9 | IVNNATNVV 0.008773 | 4.1 |
| HLA-A*02:06 | 1 | 211 | 220 | 10 | NLVRDLPQGF 0.008773 | 7.4 |
| HLA-A*26:01 | 1 | 820 | 828 | 9 | DLLFNKVTL 0.008761 | 3.5 |
| HLA-A*30:02 | 1 | 1171 | 1179 | 9 | GINASVVNI 0.00876 | 6.8 |
| HLA-A*02:06 | 1 | 92 | 100 | 9 | FASTEKSNI 0.008759 | 7.4 |
| HLA-A*26:01 | 1 | 998 | 1007 | 10 | TGRLQSLQTY 0.008756 | 3.5 |
| HLA-B*07:02 | 1 | 19 | 27 | 9 | TTRTQLPPA 0.00875 | 4.1 |
| HLA-A*02:03 | 1 | 466 | 475 | 10 | RDISTEIQQA 0.008748 | 6.1 |
| HLA-A*02:03 | 1 | 964 | 972 | 9 | KQLSSNFGA 0.008748 | 6.1 |
| HLA-A*30:01 | 1 | 601 | 610 | 10 | GTNTSNQVAV 0.008747 | 9.0 |
| HLA-B*51:01 | 1 | 662 | 670 | 9 | CDIPIGAGI 0.008745 | 6.5 |
| HLA-B*53:01 | 1 | 448 | 456 | 9 | NYNLYRLF 0.008743 | 3.5 |
| HLA-A*30:02 | 1 | 203 | 212 | 10 | IYSKHTPINL 0.00874 | 6.8 |
| HLA-B*40:01 | 1 | 803 | 811 | 9 | SQILPDPSK 0.008734 | 3.0 |
| HLA-A*68:02 | 1 | 381 | 390 | 10 | GVSPTKLNDL 0.008732 | 5.5 |
| HLA-A*68:01 | 1 | 575 | 583 | 9 | AVRDPQMLE 0.008732 | 7.3 |
| HLA-B*57:01 | 1 | 357 | 365 | 9 | RISNCVADY 0.00873 | 6.8 |
| HLA-B*58:01 | 1 | 1050 | 1059 | 10 | MSFPQSAPHG 0.008721 | 4.6 |
| HLA-A*11:01 | 1 | 691 | 699 | 9 | SIAYTMSL 0.008715 | 4.4 |
| HLA-A*01:01 | 1 | 976 | 984 | 9 | VLNDILSRL 0.008715 | 4.1 |
| HLA-A*30:02 | 1 | 84 | 92 | 9 | LPFNDGVYF 0.008713 | 6.9 |
| HLA-B*08:01 | 1 | 680 | 689 | 10 | SPRRARSVAS 0.00871 | 6.5 |
| HLA-A*32:01 | 1 | 809 | 817 | 9 | PSKPSKRSF 0.008708 | 3.7 |
| HLA-B*08:01 | 1 | 92 | 100 | 9 | FASTEKSNI 0.008704 | 6.5 |
| HLA-A*30:01 | 1 | 109 | 117 | 9 | TLDSKTQSL 0.008704 | 9.0 |
| HLA-B*15:01 | 1 | 704 | 712 | 9 | SVAYSNNSI 0.0087 | 5.6 |
| HLA-B*53:01 | 1 | 28 | 37 | 10 | YTNSFTRGVY 0.008697 | 3.5 |
| HLA-B*07:02 | 1 | 270 | 279 | 10 | LQPTFLLKY 0.008695 | 4.1 |
| HLA-A*31:01 | 1 | 689 | 697 | 9 | SQSIIAYTM 0.008695 | 6.7 |
| HLA-B*53:01 | 1 | 719 | 727 | 9 | TISVTTEIL 0.008693 | 3.5 |
| HLA-A*32:01 | 1 | 20 | 28 | 9 | TRTQLPPAY 0.008691 | 3.8 |
| HLA-B*51:01 | 1 | 1007 | 1015 | 9 | YVTQQLIRA 0.008691 | 6.5 |
| HLA-A*68:02 | 1 | 218 | 227 | 10 | QGFSALEPLV 0.008689 | 5.5 |
| HLA-A*26:01 | 1 | 791 | 800 | 10 | TPPIKDFGGF 0.008688 | 3.5 |
| HLA-A*30:02 | 1 | 150 | 159 | 10 | KSWMESEFRV 0.008687 | 6.9 |
| HLA-A*30:01 | 1 | 361 | 369 | 9 | CVADYSVLY 0.008685 | 9.0 |
| HLA-A*30:02 | 1 | 967 | 975 | 9 | SSNFGAISS 0.008681 | 6.9 |
| HLA-B*44:03 | 1 | 1070 | 1079 | 10 | AQEKNFITAP 0.00868 | 3.0 |
| HLA-A*26:01 | 1 | 665 | 674 | 10 | PIGAGICASY 0.008675 | 3.5 |
| HLA-B*40:01 | 1 | 77 | 86 | 10 | KRFDNVLPF 0.008671 | 3.0 |
| HLA-B*53:01 | 1 | 634 | 643 | 10 | RVYSTGSNVF 0.008671 | 3.5 |
| HLA-A*26:01 | 1 | 575 | 584 | 10 | AVRDPQMLEI 0.00867 | 3.5 |
| HLA-B*44:03 | 1 | 958 | 966 | 9 | ALNTLVKQL 0.008666 | 3.0 |
| HLA-A*01:01 | 1 | 362 | 370 | 9 | VADYSVLYN 0.008664 | 4.1 |
| HLA-A*01:01 | 1 | 940 | 948 | 9 | STASALGKL 0.008664 | 4.1 |
| HLA-A*33:01 | 1 | 806 | 814 | 9 | LPDPSKPSK 0.00866 | 5.4 |
| HLA-B*35:01 | 1 | 705 | 713 | 9 | VAYSNNNSIA 0.008658 | 3.9 |
| HLA-B*44:02 | 1 | 987 | 995 | 9 | VEAEVQIDR 0.008658 | 2.8 |
| HLA-B*57:01 | 1 | 124 | 133 | 10 | TNVVIKVECF 0.008655 | 6.8 |
| HLA-A*02:01 | 1 | 957 | 966 | 10 | QALNTLVKQL 0.008655 | 5.3 |
| HLA-A*68:02 | 1 | 227 | 235 | 9 | VDLPIGINI 0.008654 | 5.5 |
| HLA-B*08:01 | 1 | 242 | 250 | 9 | LALHRSYLT 0.008654 | 6.5 |
| HLA-B*44:02 | 1 | 344 | 353 | 10 | ATRFASVYAW 0.008652 | 2.8 |
| HLA-B*07:02 | 1 | 262 | 270 | 9 | AAAYYVGYL 0.008649 | 4.1 |
| HLA-A*30:02 | 1 | 754 | 762 | 9 | LQYGSFCTQ 0.008648 | 6.9 |
| HLA-A*30:01 | 1 | 858 | 866 | 9 | LTVLPPLLT 0.008647 | 9.1 |
| HLA-A*68:02 | 1 | 541 | 549 | 9 | FNFNGLTGT 0.008643 | 5.5 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*32:01 | 1 | 488 | 497 | 10 | CYFPLQSYGF 0.00863 | 3.8 |
| HLA-B*15:01 | 1 | 229 | 238 | 10 | LPIGINITRF 0.008623 | 5.6 |
| HLA-B*35:01 | 1 | 551 | 559 | 9 | VLTESNKKF 0.008623 | 4.0 |
| HLA-A*03:01 | 1 | 767 | 776 | 10 | LTGIAVEQDK 0.00862 | 5.0 |
| HLA-A*33:01 | 1 | 62 | 70 | 9 | VTWFHAIHV 0.008618 | 5.4 |
| HLA-B*08:01 | 1 | 551 | 559 | 9 | VLTESNKKF 0.008609 | 6.5 |
| HLA-A*02:01 | 1 | 983 | 992 | 10 | RLDKVEAEVQ 0.008607 | 5.3 |
| HLA-A*31:01 | 1 | 894 | 902 | 9 | LQIPFAMQM 0.008597 | 6.8 |
| HLA-A*30:02 | 1 | 328 | 336 | 9 | RFPNITNLC 0.008591 | 6.9 |
| HLA-A*26:01 | 1 | 1144 | 1152 | 9 | ELDSFKEEL 0.008586 | 3.5 |
| HLA-A*68:01 | 1 | 344 | 352 | 9 | ATRFASVYA 0.008585 | 7.3 |
| HLA-A*30:01 | 1 | 711 | 720 | 10 | SIAIPTNFTI 0.008581 | 9.1 |
| HLA-B*57:01 | 1 | 151 | 160 | 10 | SWMESEFRVY 0.008577 | 6.8 |
| HLA-A*02:03 | 1 | 925 | 934 | 10 | NQFNLSAIGKI 0.008574 | 6.1 |
| HLA-A*30:02 | 1 | 16 | 24 | 9 | VNLTRTQL 0.008571 | 6.9 |
| HLA-B*07:02 | 1 | 1144 | 1152 | 9 | ELDSFKEEL 0.008571 | 4.1 |
| HLA-A*23:01 | 1 | 49 | 58 | 10 | HSTQDLFLPF 0.008567 | 3.2 |
| HLA-B*15:01 | 1 | 97 | 106 | 10 | KSNIIRGWIF 0.008567 | 5.6 |
| HLA-B*15:01 | 1 | 444 | 452 | 9 | KVGGNYNYL 0.008567 | 5.6 |
| HLA-A*33:01 | 1 | 838 | 847 | 10 | GDCLGDIAAR 0.008567 | 5.4 |
| HLA-A*30:02 | 1 | 550 | 559 | 10 | GVLTESNKKF 0.008564 | 6.9 |
| HLA-A*30:01 | 1 | 623 | 631 | 9 | AIHADQLTP 0.008563 | 9.1 |
| HLA-A*02:01 | 1 | 259 | 267 | 9 | TAGAAAYYV 0.008561 | 5.3 |
| HLA-A*02:01 | 1 | 276 | 285 | 10 | LLKYNENGTI 0.008561 | 5.3 |
| HLA-B*08:01 | 1 | 315 | 323 | 9 | TSNFRVQPT 0.008561 | 6.5 |
| HLA-B*58:01 | 1 | 11 | 20 | 10 | VSSQCVNLTT 0.00856 | 4.6 |
| HLA-A*30:01 | 1 | 520 | 528 | 9 | APATVCGPK 0.00856 | 9.1 |
| HLA-A*02:03 | 1 | 454 | 463 | 10 | RLFRKSNLKP 0.008559 | 6.1 |
| HLA-B*08:01 | 1 | 1044 | 1052 | 9 | GKGYHLMSF 0.008559 | 6.5 |
| HLA-B*15:01 | 1 | 338 | 347 | 10 | FGEVFNATRF 0.008558 | 5.6 |
| HLA-A*32:01 | 1 | 788 | 797 | 10 | IYKTPPIKDF 0.008558 | 3.8 |
| HLA-A*02:06 | 1 | 1001 | 1009 | 9 | LQSLQTYVT 0.008558 | 7.5 |
| HLA-A*68:01 | 1 | 1128 | 1136 | 9 | VVIGIVNNT 0.00855 | 7.3 |
| HLA-B*51:01 | 1 | 1227 | 1235 | 9 | IVMVTIMLC 0.008548 | 6.6 |
| HLA-A*30:02 | 1 | 697 | 705 | 9 | MSLGAENSV 0.008546 | 6.9 |
| HLA-A*31:01 | 1 | 1136 | 1145 | 10 | TVYDPLQPEL 0.00854 | 6.8 |
| HLA-A*02:06 | 1 | 371 | 379 | 9 | SASFSTFKC 0.008538 | 7.5 |
| HLA-B*57:01 | 1 | 1005 | 1014 | 10 | QTYVTQQLIR 0.008537 | 6.8 |
| HLA-B*44:02 | 1 | 576 | 584 | 9 | VRDPQTLEI 0.008535 | 2.9 |
| HLA-A*33:01 | 1 | 41 | 49 | 9 | KVFRSSVLH 0.008531 | 5.5 |
| HLA-A*26:01 | 1 | 893 | 902 | 10 | ALQIPFAMQM 0.00853 | 3.5 |
| HLA-B*40:01 | 1 | 627 | 635 | 9 | DQLTPTWRV 0.008523 | 3.1 |
| HLA-B*51:01 | 1 | 336 | 345 | 10 | CPFGEVFNAT 0.008522 | 6.6 |
| HLA-B*58:01 | 1 | 384 | 392 | 9 | PTKLNDLCF 0.008521 | 4.6 |
| HLA-A*68:02 | 1 | 983 | 991 | 9 | RLDKVEAEV 0.008518 | 5.5 |
| HLA-B*53:01 | 1 | 864 | 873 | 10 | LLTDEMIAQY 0.008512 | 3.6 |
| HLA-B*35:01 | 1 | 360 | 368 | 9 | NCVADYSVL 0.008509 | 4.0 |
| HLA-B*15:01 | 1 | 1066 | 1075 | 10 | TYVPAQEKNF 0.008509 | 5.7 |
| HLA-A*30:02 | 1 | 403 | 411 | 9 | RGDEVQRQA 0.008507 | 6.9 |
| HLA-B*51:01 | 1 | 717 | 726 | 10 | NFTISVTTEI 0.008507 | 6.6 |
| HLA-A*68:02 | 1 | 314 | 323 | 10 | QTSNFRVQPT 0.008504 | 5.5 |
| HLA-A*30:02 | 1 | 778 | 786 | 9 | TQEVFAQVK 0.008503 | 6.9 |
| HLA-A*31:01 | 1 | 838 | 847 | 10 | GDCLGDIAAR 0.008499 | 6.8 |
| HLA-A*30:01 | 1 | 1004 | 1012 | 9 | LQTYVTQQL 0.008499 | 9.1 |
| HLA-A*33:01 | 1 | 1048 | 1056 | 9 | HLMSFPQSA 0.008498 | 5.5 |
| HLA-A*68:02 | 1 | 689 | 697 | 9 | SQSIIAYTM 0.008496 | 5.5 |
| HLA-B*07:02 | 1 | 712 | 720 | 9 | IAIPTNFTI 0.008495 | 4.2 |
| HLA-A*02:06 | 1 | 773 | 782 | 10 | EQDKNTQEVF 0.008488 | 7.5 |
| HLA-A*02:06 | 1 | 502 | 511 | 10 | GVGYPYRVV 0.008486 | 7.5 |
| HLA-A*68:02 | 1 | 212 | 220 | 9 | LVRDLPQGF 0.008485 | 5.5 |
| HLA-A*30:02 | 1 | 882 | 890 | 9 | ITSGWTFGA 0.00848 | 7.0 |
| HLA-A*30:01 | 1 | 734 | 742 | 9 | TSVDCTMYI 0.008478 | 9.2 |
| HLA-A*02:06 | 1 | 954 | 962 | 9 | QNAALNTL 0.008475 | 7.5 |
| HLA-A*23:01 | 1 | 97 | 106 | 10 | KSNIIRGWIF 0.008474 | 3.2 |
| HLA-A*02:03 | 1 | 888 | 896 | 9 | FGAGAALQI 0.008473 | 6.2 |
| HLA-B*44:02 | 1 | 77 | 86 | 10 | KRFDNPVLPF 0.008472 | 2.9 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*58:01 | 1 | 499 | 508 | 10 | PTNGVGYQPY 0.008472 | 4.6 |
| HLA-B*07:02 | 1 | 520 | 529 | 10 | APATVCGPKK 0.008471 | 4.2 |
| HLA-A*02:06 | 1 | 300 | 308 | 9 | KCTLKSFTV 0.00847 | 7.5 |
| HLA-B*58:01 | 1 | 958 | 966 | 9 | ALNTLVKQL 0.008469 | 4.6 |
| HLA-A*03:01 | 1 | 417 | 425 | 9 | KIADYNYKL 0.008468 | 5.0 |
| HLA-A*68:01 | 1 | 254 | 262 | 9 | SSSGWTAGA 0.008466 | 7.4 |
| HLA-B*35:01 | 1 | 533 | 541 | 9 | LVKNKCVNF 0.008463 | 4.0 |
| HLA-A*11:01 | 1 | 487 | 495 | 9 | NCYFPLQSY 0.008462 | 4.4 |
| HLA-A*02:03 | 1 | 857 | 866 | 10 | GLTVLPLLT 0.008462 | 6.2 |
| HLA-A*30:01 | 1 | 790 | 798 | 9 | KTPPIKDFG 0.008452 | 9.2 |
| HLA-B*35:01 | 1 | 368 | 377 | 10 | LYNSASFSTF 0.008449 | 4.0 |
| HLA-A*26:01 | 1 | 170 | 179 | 10 | YVSQPFLMDL 0.008444 | 3.5 |
| HLA-A*68:02 | 1 | 424 | 433 | 10 | KLPDDFTGCV 0.008444 | 5.5 |
| HLA-B*08:01 | 1 | 517 | 525 | 9 | LLHAPATVC 0.00844 | 6.6 |
| HLA-A*01:01 | 1 | 24 | 32 | 9 | LPPAYTNSF 0.008439 | 4.1 |
| HLA-B*15:01 | 1 | 510 | 518 | 9 | VVLSFELL 0.008439 | 5.7 |
| HLA-A*02:03 | 1 | 1222 | 1231 | 10 | AGLIAIVMVT 0.008434 | 6.2 |
| HLA-A*24:02 | 1 | 184 | 192 | 9 | GNFKNLREF 0.008431 | 3.2 |
| HLA-B*57:01 | 1 | 780 | 788 | 9 | EVFAQVKQI 0.008431 | 6.9 |
| HLA-A*68:02 | 1 | 606 | 615 | 10 | NQVAVLYQDV 0.008422 | 5.6 |
| HLA-A*23:01 | 1 | 477 | 486 | 10 | STPCNGVEGF 0.008416 | 3.2 |
| HLA-A*30:01 | 1 | 76 | 84 | 9 | TKRFDNPVL 0.00841 | 9.2 |
| HLA-A*02:03 | 1 | 205 | 213 | 9 | SKHTPINLV 0.008408 | 6.2 |
| HLA-A*03:01 | 1 | 62 | 70 | 9 | VTWFHAIHV 0.008405 | 5.1 |
| HLA-A*23:01 | 1 | 860 | 869 | 10 | VLPLLTDDEM 0.008405 | 3.2 |
| HLA-A*31:01 | 1 | 102 | 110 | 9 | RGWIFGTTL 0.008404 | 6.8 |
| HLA-A*02:01 | 1 | 606 | 615 | 10 | NQVAVLYQDV 0.0084 | 5.4 |
| HLA-A*68:01 | 1 | 572 | 580 | 9 | TTDAVRDPQ 0.008393 | 7.4 |
| HLA-A*24:02 | 1 | 1086 | 1095 | 10 | KAHFPREGVF 0.008389 | 3.2 |
| HLA-A*11:01 | 1 | 320 | 328 | 9 | VQPTESIVR 0.008388 | 4.4 |
| HLA-B*07:02 | 1 | 461 | 470 | 10 | LKPFERDIST 0.008386 | 4.2 |
| HLA-A*68:01 | 1 | 827 | 836 | 10 | TLADAGFIKQ 0.008386 | 7.4 |
| HLA-B*15:01 | 1 | 320 | 328 | 9 | VQPTESIVR 0.008383 | 5.7 |
| HLA-A*01:01 | 1 | 167 | 175 | 9 | TFEYVSQPF 0.008381 | 4.2 |
| HLA-A*68:02 | 1 | 1108 | 1117 | 10 | NFYEQIITT 0.00838 | 5.6 |
| HLA-A*30:01 | 1 | 455 | 464 | 10 | LFRKSNLKPFP 0.008378 | 9.2 |
| HLA-B*53:01 | 1 | 727 | 735 | 9 | LPVSMTKTS 0.008374 | 3.6 |
| HLA-A*23:01 | 1 | 1004 | 1012 | 9 | LQTYVTQQL 0.008373 | 3.2 |
| HLA-A*03:01 | 1 | 827 | 836 | 10 | TLADAGFIKQ 0.008368 | 5.1 |
| HLA-B*15:01 | 1 | 535 | 543 | 9 | KNKCVNFNF 0.008362 | 5.7 |
| HLA-A*30:01 | 1 | 1222 | 1230 | 9 | AGLIAIVMV 0.008358 | 9.2 |
| HLA-A*30:01 | 1 | 529 | 538 | 10 | KSTNLVKKNC 0.008355 | 9.2 |
| HLA-B*51:01 | 1 | 1168 | 1177 | 10 | DISGINASVV 0.008348 | 6.6 |
| HLA-A*30:01 | 1 | 203 | 211 | 9 | IYSKHTPIN 0.008346 | 9.3 |
| HLA-A*30:01 | 1 | 1219 | 1227 | 9 | GFIAGLIAI 0.008343 | 9.3 |
| HLA-B*57:01 | 1 | 995 | 1004 | 10 | RLITGRLQSL 0.008337 | 6.9 |
| HLA-A*02:01 | 1 | 171 | 179 | 9 | VSQPFLMDL 0.008336 | 5.4 |
| HLA-A*02:06 | 1 | 367 | 375 | 9 | VLYNSASFS 0.008336 | 7.6 |
| HLA-B*57:01 | 1 | 1194 | 1203 | 10 | NESLIDLQEL 0.008336 | 6.9 |
| HLA-B*08:01 | 1 | 467 | 475 | 9 | DISTEIYQA 0.008334 | 6.6 |
| HLA-B*15:01 | 1 | 71 | 79 | 9 | SGTNGTKRF 0.008333 | 5.7 |
| HLA-A*01:01 | 1 | 939 | 947 | 9 | SSTASALGK 0.008333 | 4.2 |
| HLA-B*08:01 | 1 | 568 | 576 | 9 | DIADTTDAV 0.008328 | 6.6 |
| HLA-A*11:01 | 1 | 195 | 204 | 10 | KNIDGYFKIY 0.008327 | 4.4 |
| HLA-A*30:01 | 1 | 798 | 806 | 9 | GGFNFSQIL 0.008323 | 9.3 |
| HLA-A*11:01 | 1 | 1093 | 1101 | 9 | GVFVSNATH 0.008323 | 4.4 |
| HLA-B*51:01 | 1 | 1144 | 1152 | 9 | ELDSFKEEL 0.008323 | 6.7 |
| HLA-B*51:01 | 1 | 24 | 33 | 10 | LPPAYTNSFT 0.008318 | 6.7 |
| HLA-B*58:01 | 1 | 975 | 984 | 10 | SVLNDILSRL 0.008316 | 4.7 |
| HLA-B*57:01 | 1 | 144 | 153 | 10 | YYHKNNKSWM 0.008311 | 6.9 |
| HLA-A*02:06 | 1 | 1021 | 1029 | 9 | SANLAATKM 0.008306 | 7.6 |
| HLA-A*02:06 | 1 | 201 | 210 | 10 | FKIYSKHTPI 0.008298 | 7.6 |
| HLA-A*03:01 | 1 | 12 | 21 | 10 | SSQCVNLTR 0.008297 | 5.1 |
| HLA-A*02:06 | 1 | 583 | 592 | 10 | EILDITPCSF 0.008297 | 7.6 |
| HLA-A*02:06 | 1 | 393 | 402 | 10 | TNVYADSFVI 0.008291 | 7.6 |
| HLA-B*53:01 | 1 | 557 | 565 | 9 | KKFLPFQOF 0.008288 | 3.6 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*23:01 | 1 | 1215 | 1224 | 10 | YIWLGFIAGL 0.008286 | 3.2 |
| HLA-A*68:01 | 1 | 135 | 144 | 10 | FCNDPFLGVY 0.008285 | 7.4 |
| HLA-B*51:01 | 1 | 1081 | 1089 | 9 | ICHDGKAHF 0.008285 | 6.7 |
| HLA-A*02:06 | 1 | 992 | 1001 | 10 | QIDRLITGRL 0.008284 | 7.6 |
| HLA-A*30:02 | 1 | 63 | 71 | 9 | TWFHAIHVS 0.008283 | 7.1 |
| HLA-A*30:01 | 1 | 368 | 376 | 9 | LYNSASFST 0.008282 | 9.3 |
| HLA-B*44:03 | 1 | 1257 | 1266 | 10 | DEDDSEPVLK 0.008282 | 3.1 |
| HLA-A*02:03 | 1 | 978 | 987 | 10 | NDILSRDLKV 0.008279 | 6.2 |
| HLA-A*32:01 | 1 | 829 | 837 | 9 | ADAGFIKQY 0.008272 | 3.8 |
| HLA-A*30:01 | 1 | 40 | 49 | 10 | DKVFRSSVLH 0.008266 | 9.3 |
| HLA-A*33:01 | 1 | 710 | 718 | 9 | NSIAIPTNF 0.008266 | 5.5 |
| HLA-B*15:01 | 1 | 925 | 933 | 9 | NQFNSAIGK 0.008265 | 5.7 |
| HLA-A*68:02 | 1 | 416 | 425 | 10 | GKIADYNYKL 0.008264 | 5.6 |
| HLA-A*68:01 | 1 | 125 | 133 | 9 | NVVIKVFCE 0.008263 | 7.4 |
| HLA-A*02:06 | 1 | 4 | 12 | 9 | FLVLLPLVS 0.008256 | 7.6 |
| HLA-A*23:01 | 1 | 846 | 855 | 10 | ARDLICAQKF 0.008254 | 3.2 |
| HLA-A*30:01 | 1 | 937 | 945 | 9 | SLSSTASAL 0.008254 | 9.3 |
| HLA-A*30:01 | 1 | 214 | 222 | 9 | RDLPQGFSFA 0.008249 | 9.3 |
| HLA-A*30:02 | 1 | 676 | 684 | 9 | TQTNSPRRA 0.008242 | 7.1 |
| HLA-A*68:02 | 1 | 464 | 472 | 9 | FERDISTEI 0.008241 | 5.6 |
| HLA-B*44:02 | 1 | 297 | 305 | 9 | SETKCTLKS 0.00824 | 2.9 |
| HLA-A*23:01 | 1 | 229 | 238 | 10 | LPIGINITRF 0.008238 | 3.2 |
| HLA-B*35:01 | 1 | 780 | 788 | 9 | EVFAQVKQI 0.008233 | 4.0 |
| HLA-A*33:01 | 1 | 979 | 987 | 9 | DILSRDLKV 0.008231 | 5.5 |
| HLA-B*51:01 | 1 | 1188 | 1197 | 10 | EVAKNL NESL 0.008229 | 6.7 |
| HLA-B*51:01 | 1 | 3 | 11 | 9 | VFLVLLPLV 0.008226 | 6.7 |
| HLA-B*57:01 | 1 | 951 | 959 | 9 | VVNQNAQAL 0.008225 | 7.0 |
| HLA-A*23:01 | 1 | 450 | 458 | 9 | NYLYRLFRK 0.008224 | 3.2 |
| HLA-B*08:01 | 1 | 345 | 353 | 9 | TRFASVYAW 0.008222 | 6.7 |
| HLA-B*51:01 | 1 | 1101 | 1109 | 9 | HWFVTQRNF 0.008217 | 6.7 |
| HLA-B*51:01 | 1 | 954 | 962 | 9 | QNAQALNTL 0.008216 | 6.7 |
| HLA-A*30:02 | 1 | 311 | 319 | 9 | GIYQTSNFR 0.008215 | 7.1 |
| HLA-A*30:01 | 1 | 94 | 103 | 10 | STEKSNIIRG 0.008213 | 9.4 |
| HLA-B*58:01 | 1 | 1147 | 1155 | 9 | SFKEELDKY 0.008212 | 4.7 |
| HLA-B*44:02 | 1 | 109 | 117 | 9 | TLDSKTQSL 0.008201 | 2.9 |
| HLA-A*24:02 | 1 | 199 | 207 | 9 | GYFKIYSKH 0.008198 | 3.2 |
| HLA-A*03:01 | 1 | 864 | 873 | 10 | LLTDEMIAQY 0.008198 | 5.1 |
| HLA-A*30:01 | 1 | 754 | 762 | 9 | LQYGSFCTQ 0.008196 | 9.4 |
| HLA-A*02:03 | 1 | 168 | 176 | 9 | FEYVSQPFL 0.008195 | 6.3 |
| HLA-A*02:06 | 1 | 676 | 684 | 9 | TQTNSPRRA 0.008195 | 7.6 |
| HLA-A*68:01 | 1 | 941 | 949 | 9 | TASALGKLQ 0.008193 | 7.4 |
| HLA-A*02:01 | 1 | 943 | 952 | 10 | SALGKLQDVV 0.008193 | 5.5 |
| HLA-A*30:02 | 1 | 921 | 930 | 10 | KLIANQFNFA 0.00819 | 7.1 |
| HLA-A*32:01 | 1 | 152 | 160 | 9 | WMESEFRVY 0.008185 | 3.9 |
| HLA-A*68:02 | 1 | 865 | 873 | 9 | LTDEMIAQY 0.008184 | 5.6 |
| HLA-A*02:01 | 1 | 318 | 327 | 10 | FRVQPTESIV 0.008181 | 5.5 |
| HLA-A*23:01 | 1 | 488 | 496 | 9 | CYFPLQSYG 0.008179 | 3.2 |
| HLA-A*33:01 | 1 | 306 | 314 | 9 | FTVEKGIYQ 0.008176 | 5.5 |
| HLA-A*32:01 | 1 | 1207 | 1216 | 10 | EQYIKWPWYI 0.008175 | 3.9 |
| HLA-A*30:01 | 1 | 229 | 237 | 9 | LPIGINITR 0.008174 | 9.4 |
| HLA-B*53:01 | 1 | 1086 | 1095 | 10 | KAHFPREGVF 0.008171 | 3.6 |
| HLA-B*08:01 | 1 | 1000 | 1008 | 9 | RLQSLQTYV 0.008169 | 6.7 |
| HLA-B*08:01 | 1 | 886 | 894 | 9 | WTFGAGAAL 0.008168 | 6.7 |
| HLA-A*33:01 | 1 | 868 | 876 | 9 | EMIAQY TSA 0.008165 | 5.5 |
| HLA-A*30:02 | 1 | 243 | 251 | 9 | ALHRSYLTP 0.008161 | 7.1 |
| HLA-B*08:01 | 1 | 588 | 597 | 10 | TPCSFGGVS 0.00816 | 6.7 |
| HLA-B*15:01 | 1 | 235 | 244 | 10 | ITRFQTL LAL 0.008157 | 5.8 |
| HLA-B*15:01 | 1 | 302 | 310 | 9 | TLKSFTVEK 0.008154 | 5.8 |
| HLA-A*02:01 | 1 | 1005 | 1013 | 9 | QTYVTQQLI 0.008154 | 5.5 |
| HLA-A*23:01 | 1 | 133 | 141 | 9 | FQFCNDPFL 0.008153 | 3.2 |
| HLA-B*08:01 | 1 | 1086 | 1095 | 10 | KAHFPREGVF 0.008151 | 6.7 |
| HLA-B*40:01 | 1 | 131 | 140 | 10 | CEFQFCNDPF 0.00815 | 3.1 |
| HLA-B*51:01 | 1 | 875 | 883 | 9 | SALLAGTIT 0.008147 | 6.7 |
| HLA-A*30:01 | 1 | 942 | 951 | 10 | ASALGKLQDV 0.008147 | 9.4 |
| HLA-B*51:01 | 1 | 869 | 878 | 10 | MIAQYTSALL 0.008146 | 6.7 |
| HLA-B*08:01 | 1 | 1088 | 1096 | 9 | HFPREGV FV 0.008146 | 6.7 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*31:01 | 1 | 328 | 336 | 9 | RFPNITNLC 0.008143 | 6.9 |
| HLA-A*26:01 | 1 | 2 | 10 | 9 | FVFLVLLPL 0.008142 | 3.6 |
| HLA-A*68:02 | 1 | 370 | 378 | 9 | NSASFSTFK 0.008142 | 5.6 |
| HLA-B*53:01 | 1 | 20 | 28 | 9 | TRTQLPPAY 0.00814 | 3.6 |
| HLA-A*30:01 | 1 | 375 | 384 | 10 | STFKCYGVSP 0.008137 | 9.4 |
| HLA-A*31:01 | 1 | 575 | 583 | 9 | AVRDPQTL 0.008129 | 6.9 |
| HLA-B*15:01 | 1 | 793 | 802 | 10 | PIKDFGGFN 0.008129 | 5.8 |
| HLA-A*30:01 | 1 | 526 | 534 | 9 | GPCKSTNLV 0.008127 | 9.4 |
| HLA-A*68:02 | 1 | 191 | 200 | 10 | EFVFKNIDGY 0.008126 | 5.6 |
| HLA-A*03:01 | 1 | 311 | 320 | 10 | GIYQTSNFRV 0.008124 | 5.1 |
| HLA-B*15:01 | 1 | 628 | 637 | 10 | QLTPTWRVYS 0.008124 | 5.8 |
| HLA-A*30:01 | 1 | 810 | 818 | 9 | SKPSKRSFI 0.008123 | 9.4 |
| HLA-A*30:02 | 1 | 150 | 158 | 9 | KSWMESEFR 0.008122 | 7.2 |
| HLA-A*01:01 | 1 | 777 | 786 | 10 | NTQEVFAQVK 0.008118 | 4.2 |
| HLA-B*51:01 | 1 | 699 | 707 | 9 | LGAENSVAY 0.008117 | 6.7 |
| HLA-B*58:01 | 1 | 486 | 495 | 10 | FNCYFPLQSY 0.008116 | 4.7 |
| HLA-A*68:02 | 1 | 475 | 483 | 9 | AGSTPCNGV 0.008115 | 5.6 |
| HLA-B*58:01 | 1 | 878 | 887 | 10 | LAGTITSGWT 0.008114 | 4.7 |
| HLA-B*40:01 | 1 | 269 | 277 | 9 | YLQPRTFLL 0.008108 | 3.1 |
| HLA-B*53:01 | 1 | 465 | 473 | 9 | ERDISTEY 0.008102 | 3.7 |
| HLA-A*30:02 | 1 | 60 | 68 | 9 | SNVTFWHAI 0.008101 | 7.2 |
| HLA-A*02:01 | 1 | 381 | 390 | 10 | GVSPTKLNLD 0.008099 | 5.5 |
| HLA-A*02:03 | 1 | 876 | 885 | 10 | ALLAGTITSG 0.008093 | 6.3 |
| HLA-A*11:01 | 1 | 1011 | 1019 | 9 | QLIRAAEIR 0.008091 | 4.5 |
| HLA-A*02:06 | 1 | 134 | 143 | 10 | QFCNDPFLGV 0.00809 | 7.7 |
| HLA-A*23:01 | 1 | 452 | 461 | 10 | LYRLFRKSNL 0.00809 | 3.2 |
| HLA-A*02:06 | 1 | 123 | 131 | 9 | ATNVVIKVC 0.008088 | 7.7 |
| HLA-A*02:06 | 1 | 132 | 141 | 10 | EFQFCNDPFL 0.008087 | 7.7 |
| HLA-A*30:01 | 1 | 134 | 143 | 10 | QFCNDPFLGV 0.008087 | 9.4 |
| HLA-A*68:01 | 1 | 732 | 741 | 10 | TKTSVDCTMY 0.008078 | 7.5 |
| HLA-A*24:02 | 1 | 450 | 458 | 9 | NYLYRLFRK 0.00807 | 3.2 |
| HLA-B*57:01 | 1 | 1247 | 1256 | 10 | CCSCGSCCKF 0.008069 | 7.0 |
| HLA-A*26:01 | 1 | 46 | 54 | 9 | SVLHSTQDL 0.008067 | 3.6 |
| HLA-A*02:03 | 1 | 292 | 301 | 10 | ALDPLSETKC 0.008065 | 6.3 |
| HLA-A*68:02 | 1 | 731 | 739 | 9 | MTKTSVDCT 0.008064 | 5.7 |
| HLA-B*07:02 | 1 | 820 | 828 | 9 | DLLFNKVTL 0.008063 | 4.3 |
| HLA-B*57:01 | 1 | 893 | 902 | 10 | ALQIPFAMQM 0.008063 | 7.0 |
| HLA-B*35:01 | 1 | 1089 | 1098 | 10 | FPREGVFVSN 0.008063 | 4.1 |
| HLA-A*02:06 | 1 | 284 | 292 | 9 | TITDAVDCA 0.008058 | 7.7 |
| HLA-A*33:01 | 1 | 369 | 378 | 10 | YNSASFSTFK 0.008058 | 5.6 |
| HLA-B*40:01 | 1 | 221 | 229 | 9 | SALEPLVDL 0.008056 | 3.1 |
| HLA-A*30:02 | 1 | 205 | 213 | 9 | SKHTPINLV 0.008053 | 7.2 |
| HLA-A*02:06 | 1 | 826 | 834 | 9 | VTLADAGFI 0.008052 | 7.7 |
| HLA-A*26:01 | 1 | 936 | 945 | 10 | DSLSSTASAL 0.008052 | 3.7 |
| HLA-A*31:01 | 1 | 1014 | 1022 | 9 | RAAEIRASA 0.008052 | 7.0 |
| HLA-A*23:01 | 1 | 509 | 517 | 9 | RVVVLSEFL 0.008045 | 3.3 |
| HLA-B*07:02 | 1 | 84 | 93 | 10 | LPFNDGVYFA 0.008041 | 4.3 |
| HLA-A*24:02 | 1 | 317 | 326 | 10 | NFRVQPTESI 0.008039 | 3.3 |
| HLA-B*08:01 | 1 | 797 | 805 | 9 | FGGFNFSQI 0.008039 | 6.8 |
| HLA-A*30:01 | 1 | 78 | 87 | 10 | RFDNPVLPFN 0.008036 | 9.5 |
| HLA-A*02:06 | 1 | 1004 | 1013 | 10 | LQTYVTQQLI 0.008036 | 7.7 |
| HLA-A*03:01 | 1 | 1048 | 1056 | 9 | HLMSEFPQSA 0.008036 | 5.1 |
| HLA-A*26:01 | 1 | 1128 | 1137 | 10 | VVIGIVNNTV 0.008034 | 3.7 |
| HLA-A*68:02 | 1 | 234 | 243 | 10 | NITRFQTLA 0.008031 | 5.7 |
| HLA-A*30:02 | 1 | 943 | 951 | 9 | SALGKLQDV 0.008031 | 7.2 |
| HLA-A*26:01 | 1 | 250 | 258 | 9 | TPGDSSSGW 0.008029 | 3.7 |
| HLA-B*07:02 | 1 | 1095 | 1103 | 9 | FVSNQTHWF 0.008029 | 4.3 |
| HLA-A*30:01 | 1 | 530 | 539 | 10 | STNLVKNKCV 0.008028 | 9.5 |
| HLA-A*23:01 | 1 | 90 | 98 | 9 | VYFASTEKS 0.008024 | 3.3 |
| HLA-B*08:01 | 1 | 553 | 562 | 10 | TESNKKFLPF 0.008021 | 6.8 |
| HLA-B*15:01 | 1 | 1020 | 1029 | 10 | ASANLAATKM 0.008018 | 5.8 |
| HLA-B*58:01 | 1 | 56 | 65 | 10 | LPFFSNVTWF 0.008017 | 4.8 |
| HLA-A*30:01 | 1 | 997 | 1006 | 10 | ITGRLQSLQT 0.008017 | 9.5 |
| HLA-B*58:01 | 1 | 378 | 386 | 9 | KCYGVSPTK 0.008014 | 4.8 |
| HLA-B*53:01 | 1 | 50 | 59 | 10 | STQDLFLPFF 0.008013 | 3.7 |
| HLA-B*07:02 | 1 | 344 | 352 | 9 | ATRFASVYA 0.008007 | 4.3 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*24:02 | 1 | 642 | 651 | 10 | VFQTRAGCLI 0.008007 | 3.3 |
| HLA-A*02:01 | 1 | 102 | 110 | 9 | RGWIFGTTL 0.007997 | 5.5 |
| HLA-B*40:01 | 1 | 886 | 894 | 9 | WTFGAGAAL 0.007992 | 3.1 |
| HLA-A*68:02 | 1 | 614 | 623 | 10 | DVNCTEVPVA 0.007991 | 5.7 |
| HLA-A*23:01 | 1 | 1112 | 1121 | 10 | PQIITTDNTF 0.00799 | 3.3 |
| HLA-A*03:01 | 1 | 271 | 279 | 9 | QPRTFLLKY 0.007986 | 5.1 |
| HLA-B*57:01 | 1 | 1033 | 1042 | 10 | VLGQSKRVDF 0.007983 | 7.1 |
| HLA-B*51:01 | 1 | 216 | 224 | 9 | LPQGFSALE 0.007977 | 6.8 |
| HLA-A*24:02 | 1 | 368 | 376 | 9 | LYNSASFST 0.007971 | 3.3 |
| HLA-A*32:01 | 1 | 722 | 731 | 10 | VTTEILPVSM 0.007971 | 3.9 |
| HLA-A*32:01 | 1 | 803 | 811 | 9 | SQILPDPSK 0.007967 | 3.9 |
| HLA-B*07:02 | 1 | 329 | 337 | 9 | FPNITNLCP 0.007964 | 4.3 |
| HLA-A*30:01 | 1 | 659 | 668 | 10 | SYECDIPIGA 0.007963 | 9.5 |
| HLA-A*01:01 | 1 | 814 | 823 | 10 | KRSFIEDLLF 0.007961 | 4.3 |
| HLA-A*32:01 | 1 | 29 | 38 | 10 | TNSFTRGVYY 0.00796 | 3.9 |
| HLA-A*68:01 | 1 | 1030 | 1038 | 9 | SECVLGQSK 0.007959 | 7.5 |
| HLA-A*23:01 | 1 | 497 | 505 | 9 | FQPTNGVGY 0.007954 | 3.3 |
| HLA-B*58:01 | 1 | 888 | 896 | 9 | FGAGAALQI 0.007953 | 4.8 |
| HLA-A*23:01 | 1 | 27 | 36 | 10 | AYTNSFTRGV 0.007951 | 3.3 |
| HLA-A*02:06 | 1 | 1067 | 1075 | 9 | YVPAQEKNF 0.007947 | 7.8 |
| HLA-B*07:02 | 1 | 687 | 695 | 9 | VASQSIIAY 0.007944 | 4.3 |
| HLA-A*32:01 | 1 | 489 | 497 | 9 | YFPLQSYGF 0.007938 | 3.9 |
| HLA-B*51:01 | 1 | 826 | 834 | 9 | VTLADAGFI 0.007937 | 6.8 |
| HLA-A*02:01 | 1 | 243 | 251 | 9 | ALHRSYLTP 0.007936 | 5.6 |
| HLA-A*02:03 | 1 | 1054 | 1063 | 10 | QSAPHGCVFL 0.007936 | 6.4 |
| HLA-A*23:01 | 1 | 1210 | 1218 | 9 | IKWPWYIWL 0.007934 | 3.3 |
| HLA-B*51:01 | 1 | 59 | 68 | 10 | FSNVTWFHAI 0.00793 | 6.8 |
| HLA-A*02:06 | 1 | 361 | 369 | 9 | CVADYSVLY 0.00793 | 7.8 |
| HLA-A*31:01 | 1 | 686 | 695 | 10 | SVASQSIIAY 0.00793 | 7.0 |
| HLA-B*51:01 | 1 | 1008 | 1016 | 9 | VTQQLIRAA 0.007928 | 6.8 |
| HLA-A*68:02 | 1 | 118 | 127 | 10 | LIVNNATNVV 0.007926 | 5.7 |
| HLA-B*51:01 | 1 | 868 | 876 | 9 | EMIAQY TSA 0.007923 | 6.8 |
| HLA-A*03:01 | 1 | 109 | 117 | 9 | TLDSKTQSL 0.00792 | 5.2 |
| HLA-A*26:01 | 1 | 1007 | 1015 | 9 | YVTQQLIRA 0.007917 | 3.7 |
| HLA-B*35:01 | 1 | 1048 | 1056 | 9 | HLMSFPQSA 0.007914 | 4.1 |
| HLA-B*44:03 | 1 | 369 | 377 | 9 | YNSASFSTF 0.007909 | 3.2 |
| HLA-A*01:01 | 1 | 1054 | 1063 | 10 | QSAPHGCVFL 0.007909 | 4.3 |
| HLA-A*26:01 | 1 | 1127 | 1136 | 10 | DVVIGIVNNT 0.007909 | 3.7 |
| HLA-B*44:02 | 1 | 30 | 38 | 9 | NSFTRGVYY 0.007905 | 3.0 |
| HLA-A*02:06 | 1 | 908 | 916 | 9 | GIGVTQNVL 0.007904 | 7.8 |
| HLA-A*03:01 | 1 | 239 | 248 | 10 | QTLALHRSY 0.007903 | 5.2 |
| HLA-A*02:01 | 1 | 877 | 885 | 9 | LLAGTITSG 0.007902 | 5.6 |
| HLA-B*58:01 | 1 | 825 | 834 | 10 | KVTLADAGFI 0.007901 | 4.8 |
| HLA-A*68:02 | 1 | 443 | 452 | 10 | SKVGGNYNYL 0.007895 | 5.7 |
| HLA-A*02:01 | 1 | 753 | 761 | 9 | LLQYGSFCT 0.007895 | 5.6 |
| HLA-B*57:01 | 1 | 691 | 699 | 9 | SIIAYTMSL 0.007893 | 7.1 |
| HLA-A*02:03 | 1 | 1189 | 1197 | 9 | VAKNLNESL 0.007893 | 6.4 |
| HLA-B*07:02 | 1 | 267 | 276 | 10 | VGYLQPRFTL 0.007891 | 4.3 |
| HLA-B*51:01 | 1 | 312 | 320 | 9 | IYQTSNFRV 0.007888 | 6.8 |
| HLA-B*08:01 | 1 | 575 | 584 | 10 | AVRDPQTLEI 0.007888 | 6.8 |
| HLA-A*30:02 | 1 | 113 | 121 | 9 | KTQSLLIVN 0.007887 | 7.3 |
| HLA-A*32:01 | 1 | 820 | 828 | 9 | DLLFNKVTL 0.007882 | 4.0 |
| HLA-B*53:01 | 1 | 820 | 828 | 9 | DLLFNKVTL 0.007882 | 3.7 |
| HLA-B*44:02 | 1 | 470 | 479 | 10 | TEIYQAGSTP 0.007879 | 3.0 |
| HLA-A*68:02 | 1 | 163 | 171 | 9 | ANNCTFEYV 0.007877 | 5.7 |
| HLA-A*30:02 | 1 | 731 | 740 | 10 | MTKTSVDCTM 0.007877 | 7.3 |
| HLA-A*30:01 | 1 | 674 | 683 | 10 | YQTQTNsprr 0.007876 | 9.6 |
| HLA-A*30:01 | 1 | 247 | 256 | 10 | SYLTPGDSSS 0.007875 | 9.6 |
| HLA-A*11:01 | 1 | 939 | 948 | 10 | SSTASALGKL 0.007874 | 4.5 |
| HLA-A*31:01 | 1 | 344 | 352 | 9 | ATRFASVYA 0.007873 | 7.0 |
| HLA-A*03:01 | 1 | 395 | 403 | 9 | VYADSFVIR 0.007873 | 5.2 |
| HLA-B*44:03 | 1 | 747 | 755 | 9 | TECSNLLLQ 0.007873 | 3.2 |
| HLA-A*11:01 | 1 | 1060 | 1068 | 9 | VVFLHVTVY 0.007871 | 4.5 |
| HLA-A*33:01 | 1 | 1168 | 1176 | 9 | DISGINASV 0.007871 | 5.6 |
| HLA-A*30:02 | 1 | 421 | 429 | 9 | YNYKLPDDF 0.00787 | 7.3 |
| HLA-B*08:01 | 1 | 699 | 707 | 9 | LGAENSVAY 0.007861 | 6.9 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*30:01 | 1 | 893 | 901 | 9 | ALQIPFAMQ 0.007861 | 9.6 |
| HLA-A*32:01 | 1 | 1054 | 1063 | 10 | QSAPHGVVFL 0.007861 | 4.0 |
| HLA-A*68:01 | 1 | 1074 | 1083 | 10 | NFTTAPAICH 0.007857 | 7.5 |
| HLA-A*31:01 | 1 | 880 | 888 | 9 | GTITSGWTF 0.007856 | 7.0 |
| HLA-B*15:01 | 1 | 183 | 192 | 10 | QGNFKNLREF 0.007855 | 5.9 |
| HLA-A*30:01 | 1 | 876 | 884 | 9 | ALLAGTITS 0.007855 | 9.6 |
| HLA-A*30:01 | 1 | 854 | 863 | 10 | KFNGLTVLPP 0.007854 | 9.6 |
| HLA-A*24:02 | 1 | 60 | 68 | 9 | SNVTWFHAI 0.007853 | 3.3 |
| HLA-A*68:01 | 1 | 321 | 329 | 9 | QPTESIVRF 0.007852 | 7.5 |
| HLA-A*02:01 | 1 | 1052 | 1060 | 9 | FPQSAPHGV 0.007851 | 5.6 |
| HLA-B*35:01 | 1 | 891 | 900 | 10 | GAALQIPFAM 0.007849 | 4.1 |
| HLA-A*30:02 | 1 | 54 | 62 | 9 | LFLPFFSNV 0.007842 | 7.3 |
| HLA-A*26:01 | 1 | 1101 | 1110 | 10 | HWFVTQRNFY 0.007833 | 3.7 |
| HLA-A*30:02 | 1 | 1136 | 1144 | 9 | TVYDPLQPE 0.007823 | 7.3 |
| HLA-B*08:01 | 1 | 1081 | 1089 | 9 | ICHDGKAHF 0.007819 | 6.9 |
| HLA-A*33:01 | 1 | 151 | 159 | 9 | SWMESEFRV 0.007816 | 5.7 |
| HLA-A*30:01 | 1 | 502 | 510 | 9 | GVGYQPYRV 0.007815 | 9.6 |
| HLA-A*30:01 | 1 | 1018 | 1026 | 9 | IRASANLAA 0.00781 | 9.6 |
| HLA-B*53:01 | 1 | 490 | 498 | 9 | FPLQSYGFQ 0.007809 | 3.7 |
| HLA-A*26:01 | 1 | 370 | 378 | 9 | NSASFSTFK 0.007804 | 3.7 |
| HLA-B*07:02 | 1 | 1188 | 1197 | 10 | EVAKNLNESL 0.0078 | 4.3 |
| HLA-A*02:01 | 1 | 734 | 742 | 9 | TSVDCTMYI 0.007797 | 5.6 |
| HLA-B*58:01 | 1 | 333 | 342 | 10 | TNLCPFGEVF 0.007795 | 4.8 |
| HLA-B*35:01 | 1 | 1088 | 1097 | 10 | HFPREGVFSV 0.007795 | 4.1 |
| HLA-A*03:01 | 1 | 371 | 380 | 10 | SASFSTFKCY 0.007789 | 5.2 |
| HLA-A*02:01 | 1 | 900 | 909 | 10 | MQMAYRFNGI 0.007788 | 5.6 |
| HLA-B*58:01 | 1 | 639 | 647 | 9 | GSNVFQTRA 0.007782 | 4.8 |
| HLA-A*23:01 | 1 | 691 | 699 | 9 | SIIAYTMSL 0.00778 | 3.3 |
| HLA-B*58:01 | 1 | 1026 | 1034 | 9 | ATKMSECVL 0.007779 | 4.8 |
| HLA-B*53:01 | 1 | 1055 | 1063 | 9 | SAPHGVVFL 0.007777 | 3.7 |
| HLA-B*35:01 | 1 | 1014 | 1022 | 9 | RAAEIRASA 0.007775 | 4.1 |
| HLA-A*30:01 | 1 | 960 | 968 | 9 | NTLVKQLSS 0.007774 | 9.7 |
| HLA-A*11:01 | 1 | 746 | 755 | 10 | STECSNLLLQ 0.007772 | 4.6 |
| HLA-B*51:01 | 1 | 208 | 217 | 10 | TPINLVRDLP 0.007771 | 6.9 |
| HLA-A*30:01 | 1 | 200 | 208 | 9 | YFKIYSKHT 0.007769 | 9.7 |
| HLA-A*02:03 | 1 | 60 | 68 | 9 | SNVTWFHAI 0.007768 | 6.4 |
| HLA-A*02:06 | 1 | 219 | 227 | 9 | GFSALEPLV 0.007767 | 7.9 |
| HLA-A*68:01 | 1 | 1014 | 1022 | 9 | RAAEIRASA 0.007764 | 7.6 |
| HLA-A*23:01 | 1 | 448 | 457 | 10 | NYNYLYRLFR 0.007762 | 3.3 |
| HLA-A*32:01 | 1 | 1216 | 1224 | 9 | IWLGFIAGL 0.007759 | 4.0 |
| HLA-A*02:03 | 1 | 212 | 220 | 9 | LVRDLPQGF 0.007752 | 6.4 |
| HLA-B*57:01 | 1 | 371 | 379 | 9 | SASFSTFKC 0.00775 | 7.2 |
| HLA-B*57:01 | 1 | 360 | 369 | 10 | NCVADYSVLY 0.007743 | 7.2 |
| HLA-A*02:06 | 1 | 541 | 549 | 9 | FNFNGLTGT 0.007739 | 7.9 |
| HLA-A*02:01 | 1 | 940 | 948 | 9 | STASALGKL 0.007739 | 5.7 |
| HLA-A*33:01 | 1 | 1074 | 1083 | 10 | NFTTAPAICH 0.007739 | 5.7 |
| HLA-B*08:01 | 1 | 1070 | 1078 | 9 | AQEKNFHTA 0.007738 | 6.9 |
| HLA-B*57:01 | 1 | 720 | 729 | 10 | ISVTTEILPV 0.007736 | 7.2 |
| HLA-B*08:01 | 1 | 93 | 101 | 9 | ASTEKSNII 0.007734 | 6.9 |
| HLA-A*30:02 | 1 | 264 | 272 | 9 | AYYVGYLQP 0.007733 | 7.4 |
| HLA-A*33:01 | 1 | 53 | 62 | 10 | DLFLPFFSNV 0.007732 | 5.7 |
| HLA-B*44:03 | 1 | 1030 | 1039 | 10 | SECVLGQSKR 0.00773 | 3.2 |
| HLA-A*32:01 | 1 | 167 | 175 | 9 | TFEYVSQPF 0.007727 | 4.0 |
| HLA-A*02:06 | 1 | 989 | 997 | 9 | AEVQIDRLI 0.007724 | 7.9 |
| HLA-A*30:02 | 1 | 705 | 713 | 9 | VAYSNNSIA 0.007716 | 7.4 |
| HLA-B*08:01 | 1 | 465 | 473 | 9 | ERDISTEYI 0.007711 | 6.9 |
| HLA-B*08:01 | 1 | 515 | 523 | 9 | FELLHAPAT 0.007704 | 6.9 |
| HLA-A*32:01 | 1 | 576 | 584 | 9 | VRDPQTLEI 0.007704 | 4.0 |
| HLA-A*30:02 | 1 | 597 | 605 | 9 | VITPGTNTS 0.007704 | 7.4 |
| HLA-A*30:02 | 1 | 1209 | 1217 | 9 | YIKWPWYIW 0.007704 | 7.4 |
| HLA-A*02:06 | 1 | 825 | 833 | 9 | KVTLADAGF 0.007701 | 7.9 |
| HLA-B*35:01 | 1 | 1173 | 1181 | 9 | NASVVNIQK 0.007698 | 4.2 |
| HLA-B*35:01 | 1 | 92 | 100 | 9 | FASTEKSNII 0.007697 | 4.2 |
| HLA-A*02:06 | 1 | 581 | 590 | 10 | TLEILDITPC 0.007697 | 7.9 |
| HLA-A*32:01 | 1 | 733 | 742 | 10 | KTSVDCTMYI 0.007697 | 4.0 |
| HLA-B*08:01 | 1 | 983 | 991 | 9 | RLDKVEAEV 0.007697 | 6.9 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*02:01 | 1 | 1216 | 1224 | 9 | IWLGFIAGL 0.007697 | 5.7 |
| HLA-B*51:01 | 1 | 91 | 100 | 10 | YFASTEKSNI 0.007696 | 6.9 |
| HLA-A*68:02 | 1 | 612 | 620 | 9 | YQDVNCTEV 0.007696 | 5.8 |
| HLA-B*08:01 | 1 | 1113 | 1121 | 9 | QIITTDNTF 0.007691 | 6.9 |
| HLA-A*24:02 | 1 | 535 | 543 | 9 | KNKCVNFNF 0.007689 | 3.3 |
| HLA-A*02:06 | 1 | 922 | 931 | 10 | LIANQFNSAI 0.007688 | 7.9 |
| HLA-B*51:01 | 1 | 906 | 915 | 10 | FNGIGVTQNV 0.007684 | 6.9 |
| HLA-B*58:01 | 1 | 1004 | 1012 | 9 | LQTYVTQQL 0.007684 | 4.9 |
| HLA-A*68:01 | 1 | 626 | 634 | 9 | ADQLTPTWR 0.007683 | 7.6 |
| HLA-A*02:06 | 1 | 611 | 620 | 10 | LYQDVNCTEV 0.007668 | 7.9 |
| HLA-B*15:01 | 1 | 665 | 674 | 10 | PIGAGICASY 0.007668 | 5.9 |
| HLA-B*44:03 | 1 | 780 | 789 | 10 | EVFAQVKQIY 0.007668 | 3.2 |
| HLA-A*02:03 | 1 | 92 | 100 | 9 | FASTEKSNI 0.007663 | 6.5 |
| HLA-A*26:01 | 1 | 641 | 650 | 10 | NVFQTRAGCL 0.007663 | 3.8 |
| HLA-A*02:01 | 1 | 761 | 770 | 10 | TQLNRALTGI 0.007661 | 5.7 |
| HLA-A*23:01 | 1 | 326 | 335 | 10 | IVRFPNITNL 0.007657 | 3.4 |
| HLA-A*30:01 | 1 | 869 | 877 | 9 | MIAQYTSAL 0.007656 | 9.8 |
| HLA-A*24:02 | 1 | 185 | 193 | 9 | NFKNLREFV 0.007646 | 3.3 |
| HLA-A*30:01 | 1 | 758 | 766 | 9 | SFCTQLNRA 0.007644 | 9.8 |
| HLA-A*68:02 | 1 | 686 | 695 | 10 | SVASQSIIAY 0.007637 | 5.8 |
| HLA-A*30:02 | 1 | 504 | 512 | 9 | GYQPYRVVV 0.007634 | 7.4 |
| HLA-A*68:02 | 1 | 576 | 584 | 9 | VRDPQTLEI 0.007634 | 5.8 |
| HLA-A*68:01 | 1 | 968 | 976 | 9 | SNFGAISSV 0.007634 | 7.6 |
| HLA-A*23:01 | 1 | 1081 | 1089 | 9 | ICHDGKAHF 0.007633 | 3.4 |
| HLA-A*30:02 | 1 | 502 | 510 | 9 | GVGYPYR 0.007628 | 7.5 |
| HLA-B*44:02 | 1 | 1149 | 1157 | 9 | KEELDKYFK 0.007628 | 3.0 |
| HLA-B*51:01 | 1 | 402 | 410 | 9 | IRGDEVQR 0.007623 | 7.0 |
| HLA-A*02:01 | 1 | 460 | 468 | 9 | NLKPFERDI 0.007623 | 5.7 |
| HLA-A*68:01 | 1 | 571 | 580 | 10 | DTTDAVRDPQ 0.007623 | 7.6 |
| HLA-A*30:01 | 1 | 697 | 705 | 9 | MSLGAENSV 0.007622 | 9.8 |
| HLA-A*30:02 | 1 | 320 | 328 | 9 | VQPTESIVR 0.00762 | 7.5 |
| HLA-B*08:01 | 1 | 1256 | 1265 | 10 | FDEDDSEPV 0.007618 | 7.0 |
| HLA-A*02:01 | 1 | 219 | 227 | 9 | GFSALEPLV 0.007617 | 5.7 |
| HLA-B*07:02 | 1 | 327 | 335 | 9 | VRFPNITNL 0.007617 | 4.4 |
| HLA-B*51:01 | 1 | 618 | 626 | 9 | TEVPVAIHA 0.007616 | 7.0 |
| HLA-B*08:01 | 1 | 843 | 851 | 9 | DIAARDLIC 0.007615 | 7.0 |
| HLA-A*30:01 | 1 | 923 | 931 | 9 | IANQFNSAI 0.007615 | 9.8 |
| HLA-A*26:01 | 1 | 1065 | 1073 | 9 | VTYVPAQEK 0.007608 | 3.8 |
| HLA-A*68:01 | 1 | 186 | 195 | 10 | FKNLREFVFK 0.007602 | 7.6 |
| HLA-A*02:06 | 1 | 804 | 812 | 9 | QILPDPSKP 0.0076 | 7.9 |
| HLA-B*08:01 | 1 | 936 | 945 | 10 | DSLSSTASAL 0.0076 | 7.0 |
| HLA-A*02:03 | 1 | 1208 | 1216 | 9 | QYIKWPWYI 0.0076 | 6.5 |
| HLA-A*02:06 | 1 | 332 | 341 | 10 | ITNLCPFGEV 0.007599 | 7.9 |
| HLA-A*03:01 | 1 | 1011 | 1019 | 9 | QLIRAAEIR 0.007599 | 5.3 |
| HLA-A*01:01 | 1 | 59 | 67 | 9 | FSNVTWFHA 0.007598 | 4.4 |
| HLA-A*33:01 | 1 | 20 | 28 | 9 | TRTQLPPAY 0.007597 | 5.7 |
| HLA-B*57:01 | 1 | 285 | 293 | 9 | ITDAVDCAL 0.007594 | 7.3 |
| HLA-A*30:02 | 1 | 816 | 825 | 10 | SFIEDLLFNK 0.007591 | 7.5 |
| HLA-A*68:02 | 1 | 1115 | 1123 | 9 | ITTDNTFVS 0.007587 | 5.8 |
| HLA-B*40:01 | 1 | 829 | 837 | 9 | ADAGFIKQY 0.007581 | 3.2 |
| HLA-B*15:01 | 1 | 612 | 620 | 9 | YQDVNCTEV 0.007576 | 6.0 |
| HLA-B*57:01 | 1 | 1034 | 1042 | 9 | LGQSKRVDF 0.007574 | 7.3 |
| HLA-A*32:01 | 1 | 1189 | 1197 | 9 | VAKNLNESL 0.007574 | 4.0 |
| HLA-B*58:01 | 1 | 951 | 959 | 9 | VVNQNAQAL 0.007573 | 4.9 |
| HLA-A*30:02 | 1 | 827 | 835 | 9 | TLADAGFIK 0.007572 | 7.5 |
| HLA-A*02:06 | 1 | 766 | 774 | 9 | ALTGIAVEQ 0.007571 | 8.0 |
| HLA-B*40:01 | 1 | 892 | 900 | 9 | AALQIPFAM 0.00757 | 3.2 |
| HLA-A*03:01 | 1 | 1145 | 1154 | 10 | LDSFKEELDK 0.00757 | 5.3 |
| HLA-B*57:01 | 1 | 447 | 456 | 10 | GNYNYLYRLF 0.007569 | 7.3 |
| HLA-A*02:06 | 1 | 1052 | 1061 | 10 | FPQSAPHGVV 0.00756 | 8.0 |
| HLA-B*58:01 | 1 | 509 | 518 | 10 | RVVLSFELL 0.007559 | 4.9 |
| HLA-A*30:02 | 1 | 22 | 30 | 9 | TQLPPAYTN 0.007553 | 7.5 |
| HLA-B*53:01 | 1 | 506 | 514 | 9 | QPYRVVVLS 0.00755 | 3.8 |
| HLA-A*68:02 | 1 | 228 | 237 | 10 | DLPIGINITR 0.007548 | 5.9 |
| HLA-A*02:01 | 1 | 948 | 956 | 9 | LQDVVNQNA 0.007548 | 5.7 |
| HLA-A*30:01 | 1 | 506 | 515 | 10 | QPYRVVVLSF 0.007544 | 9.9 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*31:01 | 1 | 755 | 763 | 9 | QYGSFCTQL 0.007542 | 7.2 |
| HLA-A*30:02 | 1 | 553 | 562 | 10 | TESNKKFLPF 0.007534 | 7.5 |
| HLA-A*68:01 | 1 | 1188 | 1197 | 10 | EVAKNLNESL 0.007532 | 7.6 |
| HLA-A*68:02 | 1 | 552 | 560 | 9 | LTESNKKFL 0.00753 | 5.9 |
| HLA-A*30:02 | 1 | 721 | 729 | 9 | SVTTEILPV 0.00753 | 7.5 |
| HLA-A*30:02 | 1 | 1107 | 1116 | 10 | RNFYEPQIIT 0.007529 | 7.5 |
| HLA-B*08:01 | 1 | 1209 | 1218 | 10 | YIKWPWYIWL 0.007527 | 7.0 |
| HLA-A*26:01 | 1 | 1064 | 1073 | 10 | HVTYVPAQEK 0.007523 | 3.8 |
| HLA-B*51:01 | 1 | 162 | 170 | 9 | SANNTCFEY 0.007522 | 7.0 |
| HLA-A*30:02 | 1 | 596 | 605 | 10 | SVITPGTNTS 0.00752 | 7.5 |
| HLA-A*02:03 | 1 | 923 | 931 | 9 | IANQFNSAI 0.007516 | 6.5 |
| HLA-A*30:01 | 1 | 351 | 359 | 9 | YAWNRRKRIS 0.007514 | 9.9 |
| HLA-A*11:01 | 1 | 237 | 246 | 10 | RFQTLALHR 0.007513 | 4.6 |
| HLA-A*30:02 | 1 | 105 | 113 | 9 | IFGTTLDSK 0.007512 | 7.5 |
| HLA-B*51:01 | 1 | 844 | 852 | 9 | IAARDLICA 0.00751 | 7.0 |
| HLA-A*24:02 | 1 | 364 | 372 | 9 | DYSVLYNSA 0.007507 | 3.4 |
| HLA-B*08:01 | 1 | 47 | 55 | 9 | VLHSTQDLF 0.007503 | 7.0 |
| HLA-A*02:03 | 1 | 908 | 916 | 9 | GIGVTQNVL 0.007501 | 6.5 |
| HLA-A*32:01 | 1 | 553 | 562 | 10 | TESNKKFLPF 0.0075 | 4.1 |
| HLA-A*23:01 | 1 | 58 | 66 | 9 | FFSNVTWFH 0.007495 | 3.4 |
| HLA-A*30:01 | 1 | 1013 | 1022 | 10 | IRAAEIRASA 0.007495 | 9.9 |
| HLA-A*30:02 | 1 | 193 | 202 | 10 | VFKNIDGYFK 0.007494 | 7.5 |
| HLA-A*23:01 | 1 | 887 | 896 | 10 | TFGAGAALQI 0.007492 | 3.4 |
| HLA-A*68:02 | 1 | 662 | 670 | 9 | CDIPIGAGI 0.007491 | 5.9 |
| HLA-A*30:01 | 1 | 986 | 995 | 10 | KVEAEVQIDR 0.007491 | 9.9 |
| HLA-A*33:01 | 1 | 453 | 462 | 10 | YRLFRRKSNLK 0.007482 | 5.7 |
| HLA-A*02:03 | 1 | 1174 | 1183 | 10 | ASVVNIQKEI 0.007481 | 6.5 |
| HLA-A*11:01 | 1 | 105 | 113 | 9 | IFGTTLDSK 0.007479 | 4.6 |
| HLA-A*30:01 | 1 | 520 | 529 | 10 | APATVCGPKK 0.007478 | 9.9 |
| HLA-A*68:02 | 1 | 880 | 888 | 9 | GTITSGWTF 0.007478 | 5.9 |
| HLA-A*11:01 | 1 | 829 | 837 | 9 | ADAGFIKQY 0.007476 | 4.6 |
| HLA-B*51:01 | 1 | 270 | 279 | 10 | LQPRTFLLKY 0.007474 | 7.0 |
| HLA-A*01:01 | 1 | 425 | 433 | 9 | LPDDFTGCV 0.007472 | 4.4 |
| HLA-B*07:02 | 1 | 444 | 452 | 9 | KVGGNYNYL 0.007472 | 4.4 |
| HLA-A*02:03 | 1 | 697 | 705 | 9 | MSLGAENSV 0.007472 | 6.5 |
| HLA-A*30:02 | 1 | 972 | 980 | 9 | AISSVLNDI 0.007464 | 7.6 |
| HLA-B*53:01 | 1 | 81 | 90 | 10 | NPVLPFNDGV 0.00746 | 3.8 |
| HLA-B*53:01 | 1 | 285 | 293 | 9 | ITDAVDCAL 0.00746 | 3.8 |
| HLA-B*35:01 | 1 | 955 | 963 | 9 | NAQALNTLV 0.007459 | 4.2 |
| HLA-A*68:02 | 1 | 843 | 852 | 10 | DIAARDLICA 0.007458 | 5.9 |
| HLA-A*30:01 | 1 | 905 | 914 | 10 | RFNGIGVTQN 0.007458 | 9.9 |
| HLA-A*30:01 | 1 | 448 | 457 | 10 | NYNLYRFR 0.007457 | 9.9 |
| HLA-A*02:06 | 1 | 118 | 127 | 10 | LIVNNATNVV 0.007455 | 8.0 |
| HLA-A*02:01 | 1 | 188 | 197 | 10 | NLREFVFKNI 0.00745 | 5.7 |
| HLA-B*35:01 | 1 | 448 | 456 | 9 | NYNLYRFL 0.007448 | 4.2 |
| HLA-A*26:01 | 1 | 467 | 475 | 9 | DISTEIIYQA 0.00744 | 3.8 |
| HLA-B*57:01 | 1 | 381 | 390 | 10 | GVSPTKLNDL 0.007437 | 7.4 |
| HLA-B*15:01 | 1 | 108 | 117 | 10 | TTLDSKTQSL 0.007436 | 6.0 |
| HLA-A*68:01 | 1 | 604 | 613 | 10 | TSNQVAVLYQ 0.007436 | 7.7 |
| HLA-A*30:02 | 1 | 388 | 396 | 9 | NDLCFTNVY 0.007434 | 7.6 |
| HLA-A*30:01 | 1 | 354 | 362 | 9 | NRKRISNCV 0.007433 | 9.9 |
| HLA-B*07:02 | 1 | 1087 | 1095 | 9 | AHFPREGVF 0.007433 | 4.4 |
| HLA-A*68:02 | 1 | 125 | 133 | 9 | NVVIKVECF 0.007432 | 5.9 |
| HLA-A*30:02 | 1 | 357 | 366 | 10 | RISNCVADYS 0.007432 | 7.6 |
| HLA-A*24:02 | 1 | 496 | 505 | 10 | GFQPTNGVGY 0.007432 | 3.4 |
| HLA-A*23:01 | 1 | 496 | 505 | 10 | GFQPTNGVGY 0.007431 | 3.4 |
| HLA-B*53:01 | 1 | 19 | 28 | 10 | TTRTQLPPAY 0.00743 | 3.8 |
| HLA-A*24:02 | 1 | 91 | 100 | 10 | YFASTEKSNI 0.007425 | 3.4 |
| HLA-B*57:01 | 1 | 637 | 646 | 10 | STGSNVFQTR 0.007424 | 7.4 |
| HLA-A*02:03 | 1 | 134 | 143 | 10 | QFCNDPFLGV 0.00742 | 6.6 |
| HLA-A*23:01 | 1 | 627 | 635 | 9 | DQLTPTWRV 0.00742 | 3.4 |
| HLA-A*32:01 | 1 | 292 | 300 | 9 | ALDPLSETK 0.007419 | 4.1 |
| HLA-A*68:02 | 1 | 236 | 244 | 9 | TRFQTLAL 0.007416 | 5.9 |
| HLA-B*58:01 | 1 | 511 | 519 | 9 | VVLSFELLH 0.007413 | 5.0 |
| HLA-A*31:01 | 1 | 912 | 921 | 10 | TQNVLYENQK 0.007413 | 7.2 |
| HLA-B*08:01 | 1 | 37 | 45 | 9 | YYPDKVFRS 0.007412 | 7.1 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*44:03 | 1 | 896 | 904 | 9 | IPFAMQMAY 0.007412 | 3.3 |
| HLA-A*32:01 | 1 | 1014 | 1022 | 9 | RAAEIRASA 0.007411 | 4.1 |
| HLA-A*68:02 | 1 | 503 | 511 | 9 | VGYPYRVV 0.007409 | 5.9 |
| HLA-A*11:01 | 1 | 158 | 166 | 9 | RVYSSANNC 0.007406 | 4.6 |
| HLA-B*44:03 | 1 | 1056 | 1064 | 9 | APHGVVFLH 0.007405 | 3.3 |
| HLA-B*08:01 | 1 | 900 | 909 | 10 | MQMAYRFNGI 0.007403 | 7.1 |
| HLA-B*57:01 | 1 | 677 | 685 | 9 | QTNSPRRAR 0.007395 | 7.4 |
| HLA-B*57:01 | 1 | 1225 | 1234 | 10 | IAIVMVTIML 0.00739 | 7.4 |
| HLA-A*01:01 | 1 | 171 | 179 | 9 | VSQPFLMDL 0.007384 | 4.5 |
| HLA-A*01:01 | 1 | 675 | 683 | 9 | QTQTNSPRR 0.007383 | 4.5 |
| HLA-A*26:01 | 1 | 234 | 242 | 9 | NITRFQTL 0.007381 | 3.8 |
| HLA-B*58:01 | 1 | 273 | 281 | 9 | RTFLLKYNE 0.007378 | 5.0 |
| HLA-B*08:01 | 1 | 953 | 962 | 10 | NQNAQALNTL 0.007376 | 7.1 |
| HLA-B*15:01 | 1 | 674 | 682 | 9 | YQTQTNSPR 0.007375 | 6.1 |
| HLA-A*30:01 | 1 | 255 | 263 | 9 | SSGWTAGAA 0.007372 | 10 |
| HLA-A*32:01 | 1 | 273 | 281 | 9 | RTFLLKYNE 0.00737 | 4.1 |
| HLA-A*32:01 | 1 | 1128 | 1137 | 10 | VVIGIVNNTV 0.007369 | 4.1 |
| HLA-A*30:02 | 1 | 6 | 14 | 9 | VLLPLVSSQ 0.007368 | 7.6 |
| HLA-A*24:02 | 1 | 673 | 681 | 9 | SYQTQTNSP 0.007367 | 3.4 |
| HLA-B*07:02 | 1 | 1048 | 1056 | 9 | HLMSFPQSA 0.007356 | 4.5 |
| HLA-B*58:01 | 1 | 1263 | 1272 | 10 | PVLKGVKLHY 0.007354 | 5.0 |
| HLA-A*32:01 | 1 | 1020 | 1028 | 9 | ASANLAATK 0.007353 | 4.1 |
| HLA-A*02:01 | 1 | 690 | 699 | 10 | QSIIAYTMSL 0.007348 | 5.8 |
| HLA-A*26:01 | 1 | 954 | 962 | 9 | QNAQALNTL 0.007348 | 3.9 |
| HLA-A*03:01 | 1 | 121 | 129 | 9 | NNATNVVVK 0.007346 | 5.3 |
| HLA-A*02:03 | 1 | 1209 | 1218 | 10 | YIKWPWYIWL 0.007346 | 6.6 |
| HLA-A*68:01 | 1 | 1113 | 1121 | 9 | QIITTDNTF 0.007345 | 7.7 |
| HLA-A*32:01 | 1 | 97 | 105 | 9 | KSNIIRGWI 0.007344 | 4.1 |
| HLA-B*57:01 | 1 | 1209 | 1218 | 10 | YIKWPWYIWL 0.007344 | 7.4 |
| HLA-A*01:01 | 1 | 1182 | 1190 | 9 | EIDRLNEVA 0.007341 | 4.5 |
| HLA-B*44:02 | 1 | 659 | 668 | 10 | SYECDIPIGA 0.007339 | 3.1 |
| HLA-B*57:01 | 1 | 722 | 730 | 9 | VTTEILPVS 0.007339 | 7.4 |
| HLA-B*44:02 | 1 | 894 | 902 | 9 | LQIPFAMQM 0.007336 | 3.1 |
| HLA-A*11:01 | 1 | 1054 | 1062 | 9 | QSAPHGVVF 0.007336 | 4.7 |
| HLA-A*02:03 | 1 | 1216 | 1224 | 9 | IWLGFIAGL 0.007332 | 6.6 |
| HLA-A*26:01 | 1 | 815 | 823 | 9 | RSFIEDLLF 0.007327 | 3.9 |
| HLA-A*02:06 | 1 | 820 | 829 | 10 | DLLFNKVTLA 0.007327 | 8.1 |
| HLA-A*26:01 | 1 | 967 | 976 | 10 | SSNFGAISSV 0.007327 | 3.9 |
| HLA-B*44:03 | 1 | 829 | 838 | 10 | ADAGFIKQYG 0.007321 | 3.3 |
| HLA-A*03:01 | 1 | 975 | 984 | 10 | SVLNDILSRL 0.00732 | 5.3 |
| HLA-A*01:01 | 1 | 437 | 445 | 9 | NSNNLDSKV 0.007317 | 4.5 |
| HLA-A*30:02 | 1 | 806 | 814 | 9 | LPDPSKPSK 0.007315 | 7.6 |
| HLA-A*32:01 | 1 | 1201 | 1209 | 9 | QELGKYEYQ 0.007315 | 4.1 |
| HLA-A*68:01 | 1 | 497 | 505 | 9 | FQPTNGVGY 0.007313 | 7.7 |
| HLA-A*03:01 | 1 | 519 | 528 | 10 | HAPATVCGPK 0.007309 | 5.3 |
| HLA-B*35:01 | 1 | 1206 | 1214 | 9 | YEQYIKWPW 0.007303 | 4.3 |
| HLA-B*57:01 | 1 | 997 | 1005 | 9 | ITGRLQSLQ 0.0073 | 7.4 |
| HLA-A*30:01 | 1 | 1007 | 1015 | 9 | YVTQQLIRA 0.007298 | 11 |
| HLA-A*68:01 | 1 | 273 | 281 | 9 | RTFLLKYNE 0.007297 | 7.7 |
| HLA-A*02:06 | 1 | 99 | 108 | 10 | NIIRGWIFGT 0.007292 | 8.1 |
| HLA-B*15:01 | 1 | 413 | 422 | 10 | GQTGKIADYN 0.007291 | 6.1 |
| HLA-B*53:01 | 1 | 365 | 374 | 10 | YSVLYNSASF 0.00729 | 3.8 |
| HLA-B*58:01 | 1 | 777 | 785 | 9 | NTQEVFAQV 0.007289 | 5.0 |
| HLA-A*03:01 | 1 | 196 | 204 | 9 | NIDGYFKIY 0.007288 | 5.3 |
| HLA-A*32:01 | 1 | 706 | 714 | 9 | AYSNNSIAI 0.007288 | 4.1 |
| HLA-B*53:01 | 1 | 442 | 451 | 10 | DSKVGGNYNY 0.007281 | 3.8 |
| HLA-B*57:01 | 1 | 327 | 335 | 9 | VRFPNITNL 0.00728 | 7.4 |
| HLA-A*24:02 | 1 | 789 | 797 | 9 | YKTPPIKDF 0.00728 | 3.4 |
| HLA-A*02:06 | 1 | 1011 | 1020 | 10 | QLIRAAEIRA 0.007279 | 8.1 |
| HLA-A*01:01 | 1 | 338 | 347 | 10 | FGEVFNATRF 0.007278 | 4.5 |
| HLA-A*31:01 | 1 | 1141 | 1149 | 9 | LQPELDSFK 0.007273 | 7.3 |
| HLA-B*35:01 | 1 | 745 | 753 | 9 | DSTECSNLL 0.00727 | 4.3 |
| HLA-B*51:01 | 1 | 1004 | 1013 | 10 | LQTYVTQQLI 0.007269 | 7.1 |
| HLA-A*32:01 | 1 | 47 | 56 | 10 | VLHSTQDLFL 0.007265 | 4.1 |
| HLA-B*08:01 | 1 | 1054 | 1063 | 10 | QSAPHGVVFL 0.007265 | 7.1 |
| HLA-B*08:01 | 1 | 1209 | 1217 | 9 | YIKWPWYIW 0.007264 | 7.1 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*01:01 | 1 | 62 | 70 | 9 | VTWFHAIHV 0.007257 | 4.5 |
| HLA-A*23:01 | 1 | 918 | 927 | 10 | ENQKLIANQF 0.007243 | 3.5 |
| HLA-A*30:01 | 1 | 67 | 75 | 9 | AIHVSQTNG 0.007237 | 11 |
| HLA-A*03:01 | 1 | 120 | 129 | 10 | VNNATNVVVK 0.00723 | 5.4 |
| HLA-A*02:06 | 1 | 100 | 108 | 9 | IIRGWIFGT 0.007229 | 8.1 |
| HLA-B*53:01 | 1 | 573 | 582 | 10 | TDAVRDPQTL 0.007229 | 3.9 |
| HLA-A*68:02 | 1 | 1174 | 1183 | 10 | ASVVNIQKEI 0.007228 | 6.0 |
| HLA-A*02:06 | 1 | 243 | 251 | 9 | ALHRSYLTP 0.007226 | 8.1 |
| HLA-B*08:01 | 1 | 1207 | 1215 | 9 | EQYIKWPWY 0.007222 | 7.2 |
| HLA-A*68:02 | 1 | 620 | 629 | 10 | VPVAIHADQL 0.007217 | 6.0 |
| HLA-B*08:01 | 1 | 77 | 86 | 10 | KRFDNPVLPF 0.007216 | 7.2 |
| HLA-A*32:01 | 1 | 690 | 699 | 10 | QSIIAYTMSL 0.00721 | 4.1 |
| HLA-B*15:01 | 1 | 1220 | 1229 | 10 | FIAGLIAIVM 0.00721 | 6.1 |
| HLA-B*57:01 | 1 | 1019 | 1028 | 10 | RASANLAATK 0.007204 | 7.5 |
| HLA-A*30:01 | 1 | 679 | 687 | 9 | NSPRRARSV 0.007203 | 11 |
| HLA-B*51:01 | 1 | 1050 | 1058 | 9 | MSFPQSAPH 0.007203 | 7.2 |
| HLA-A*02:03 | 1 | 325 | 333 | 9 | SIVRFPNIT 0.007202 | 6.7 |
| HLA-B*51:01 | 1 | 1089 | 1098 | 10 | FPREGVFVSN 0.007202 | 7.2 |
| HLA-A*30:02 | 1 | 70 | 79 | 10 | VSGTNGTKRF 0.0072 | 7.7 |
| HLA-B*40:01 | 1 | 205 | 213 | 9 | SKHTPINLV 0.007196 | 3.2 |
| HLA-A*30:02 | 1 | 233 | 241 | 9 | INITRFQTL 0.007195 | 7.7 |
| HLA-A*30:02 | 1 | 255 | 263 | 9 | SSGWTAGAA 0.007189 | 7.7 |
| HLA-B*58:01 | 1 | 583 | 592 | 10 | EILDITPCSF 0.007187 | 5.0 |
| HLA-A*30:02 | 1 | 1080 | 1088 | 9 | AICHDGKAH 0.007187 | 7.7 |
| HLA-A*30:02 | 1 | 987 | 995 | 9 | VEAEVQIDR 0.007184 | 7.7 |
| HLA-A*30:02 | 1 | 1003 | 1012 | 10 | SLQTYVTQQL 0.00718 | 7.7 |
| HLA-A*33:01 | 1 | 1041 | 1050 | 10 | DFCGKGYHLM 0.007179 | 5.9 |
| HLA-A*02:03 | 1 | 334 | 342 | 9 | NLCPFGEVF 0.007174 | 6.7 |
| HLA-B*15:01 | 1 | 13 | 21 | 9 | SQCVNLTTTR 0.007169 | 6.2 |
| HLA-A*11:01 | 1 | 501 | 509 | 9 | NGVGYQPYR 0.007167 | 4.7 |
| HLA-B*44:02 | 1 | 852 | 860 | 9 | AQKFNGLTV 0.007165 | 3.1 |
| HLA-B*08:01 | 1 | 687 | 695 | 9 | VASQSIIAY 0.007162 | 7.2 |
| HLA-B*08:01 | 1 | 870 | 878 | 9 | IAQYTSALL 0.00716 | 7.2 |
| HLA-A*68:01 | 1 | 1049 | 1058 | 10 | LMSFPQSAPH 0.007156 | 7.8 |
| HLA-B*08:01 | 1 | 811 | 819 | 9 | KPSKRSFIE 0.007154 | 7.2 |
| HLA-A*30:01 | 1 | 195 | 204 | 10 | KNIDGYFKIY 0.007153 | 11 |
| HLA-A*33:01 | 1 | 349 | 358 | 10 | SVYAWNKRRI 0.007153 | 5.9 |
| HLA-A*02:06 | 1 | 971 | 980 | 10 | GAISSVLNDI 0.00715 | 8.2 |
| HLA-A*30:02 | 1 | 262 | 270 | 9 | AAAYYVGYL 0.007149 | 7.7 |
| HLA-B*57:01 | 1 | 344 | 352 | 9 | ATRFASVYA 0.007148 | 7.5 |
| HLA-A*24:02 | 1 | 497 | 505 | 9 | FQPTNGVGY 0.007147 | 3.4 |
| HLA-A*26:01 | 1 | 939 | 948 | 10 | SSTASALGKL 0.007147 | 3.9 |
| HLA-A*26:01 | 1 | 481 | 490 | 10 | NGVEGFNCYF 0.007145 | 3.9 |
| HLA-A*30:01 | 1 | 37 | 45 | 9 | YYPDKVFRS 0.007142 | 11 |
| HLA-A*02:06 | 1 | 1174 | 1183 | 10 | ASVVNIQKEI 0.00714 | 8.2 |
| HLA-A*30:01 | 1 | 192 | 200 | 9 | FVFKNIDGY 0.007137 | 11 |
| HLA-A*30:01 | 1 | 254 | 263 | 10 | SSSGWTAGAA 0.007137 | 11 |
| HLA-B*35:01 | 1 | 335 | 344 | 10 | LCPFGEVFNA 0.007135 | 4.3 |
| HLA-A*02:06 | 1 | 609 | 618 | 10 | AVLYQDVNCT 0.007134 | 8.2 |
| HLA-B*53:01 | 1 | 481 | 490 | 10 | NGVEGFNCYF 0.007133 | 3.9 |
| HLA-A*30:02 | 1 | 1053 | 1062 | 10 | PQSAPHGVVF 0.007132 | 7.8 |
| HLA-B*57:01 | 1 | 1064 | 1073 | 10 | HVTYVPAQEK 0.007132 | 7.5 |
| HLA-A*01:01 | 1 | 110 | 118 | 9 | LDSKTQSL 0.00713 | 4.5 |
| HLA-A*02:06 | 1 | 194 | 203 | 10 | FKNIDGYFKI 0.007128 | 8.2 |
| HLA-A*68:02 | 1 | 50 | 59 | 10 | STQDLFLPFF 0.007127 | 6.0 |
| HLA-A*03:01 | 1 | 206 | 214 | 9 | KHTPINLVR 0.007126 | 5.4 |
| HLA-B*07:02 | 1 | 969 | 977 | 9 | NFGAISSVL 0.007126 | 4.5 |
| HLA-A*01:01 | 1 | 992 | 1000 | 9 | QIDRLITGR 0.007126 | 4.5 |
| HLA-B*51:01 | 1 | 481 | 489 | 9 | NGVEGFNCY 0.007123 | 7.2 |
| HLA-A*31:01 | 1 | 854 | 862 | 9 | KFNGLTVLP 0.007123 | 7.3 |
| HLA-A*01:01 | 1 | 1140 | 1148 | 9 | PLQPELDSF 0.007123 | 4.5 |
| HLA-A*68:02 | 1 | 603 | 612 | 10 | NTSNQVAVLY 0.007122 | 6.0 |
| HLA-A*68:01 | 1 | 962 | 970 | 9 | LVKQLSSNF 0.007122 | 7.8 |
| HLA-B*08:01 | 1 | 538 | 546 | 9 | CVNFNFNGL 0.007118 | 7.2 |
| HLA-A*32:01 | 1 | 445 | 453 | 9 | VGGNYNYLY 0.007116 | 4.2 |
| HLA-B*07:02 | 1 | 689 | 697 | 9 | SQSIIAYTM 0.007116 | 4.5 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*15:01 | 1 | 511 | 519 | 9 | VVLSFELLH 0.007115 | 6.2 |
| HLA-A*30:02 | 1 | 95 | 104 | 10 | TEKSNIIRGW 0.007113 | 7.8 |
| HLA-A*24:02 | 1 | 311 | 320 | 10 | GIYQTSNFRV 0.00711 | 3.5 |
| HLA-B*58:01 | 1 | 506 | 515 | 10 | QPYRVVLSF 0.00711 | 5.1 |
| HLA-A*23:01 | 1 | 786 | 794 | 9 | KQIYKTPPI 0.007107 | 3.5 |
| HLA-A*23:01 | 1 | 999 | 1007 | 9 | GRLQSLQTY 0.007107 | 3.5 |
| HLA-A*32:01 | 1 | 1144 | 1152 | 9 | ELDSFKEEL 0.007105 | 4.2 |
| HLA-B*07:02 | 1 | 77 | 86 | 10 | KRFDNPVLPF 0.007104 | 4.5 |
| HLA-B*08:01 | 1 | 127 | 135 | 9 | VIKVCEFQF 0.007101 | 7.2 |
| HLA-A*30:01 | 1 | 144 | 152 | 9 | YYHKNNKSW 0.007099 | 11 |
| HLA-A*02:03 | 1 | 937 | 946 | 10 | SLSSTASALG 0.007097 | 6.7 |
| HLA-B*51:01 | 1 | 216 | 225 | 10 | LPQGFSALEP 0.007094 | 7.2 |
| HLA-B*15:01 | 1 | 857 | 865 | 9 | GLTVLPPLL 0.007092 | 6.2 |
| HLA-A*02:06 | 1 | 1080 | 1089 | 10 | AICHDGKAHF 0.007092 | 8.2 |
| HLA-A*32:01 | 1 | 1211 | 1220 | 10 | KWPWYIWLGF 0.007091 | 4.2 |
| HLA-B*58:01 | 1 | 919 | 927 | 9 | NQKLIANQF 0.007079 | 5.1 |
| HLA-B*08:01 | 1 | 317 | 325 | 9 | NFRVQPTES 0.007078 | 7.2 |
| HLA-B*07:02 | 1 | 575 | 583 | 9 | AVRDPQTLE 0.007078 | 4.5 |
| HLA-A*68:02 | 1 | 965 | 973 | 9 | QLSSNFGAI 0.007078 | 6.1 |
| HLA-A*02:06 | 1 | 925 | 933 | 9 | NQFNSAIGK 0.007068 | 8.2 |
| HLA-A*01:01 | 1 | 1248 | 1256 | 9 | CSCGSCCKF 0.007068 | 4.6 |
| HLA-B*07:02 | 1 | 1226 | 1234 | 9 | AIVMVTIML 0.007061 | 4.6 |
| HLA-A*30:01 | 1 | 1025 | 1034 | 10 | AATKMSECVL 0.00706 | 11 |
| HLA-A*01:01 | 1 | 511 | 519 | 9 | VVLSFELLH 0.007059 | 4.6 |
| HLA-A*31:01 | 1 | 158 | 166 | 9 | RVYSSANNC 0.007058 | 7.3 |
| HLA-A*68:02 | 1 | 45 | 54 | 10 | SSVLHSTQDL 0.007057 | 6.1 |
| HLA-A*30:02 | 1 | 685 | 694 | 10 | RSVASQSIIA 0.007057 | 7.8 |
| HLA-A*68:02 | 1 | 1065 | 1073 | 9 | VTYVPAQEK 0.007057 | 6.1 |
| HLA-B*57:01 | 1 | 136 | 144 | 9 | CNDPFLGVY 0.007055 | 7.5 |
| HLA-A*11:01 | 1 | 569 | 577 | 9 | IADTTDAVR 0.007052 | 4.7 |
| HLA-B*15:01 | 1 | 158 | 166 | 9 | RVYSSANNC 0.007051 | 6.2 |
| HLA-A*02:03 | 1 | 83 | 92 | 10 | VLPFNDGVYF 0.007049 | 6.7 |
| HLA-B*40:01 | 1 | 724 | 733 | 10 | TEILPVSMTK 0.007049 | 3.3 |
| HLA-B*57:01 | 1 | 759 | 767 | 9 | FCTQLNRAL 0.007047 | 7.5 |
| HLA-A*32:01 | 1 | 1081 | 1089 | 9 | ICHDGKAHF 0.007041 | 4.2 |
| HLA-A*30:02 | 1 | 1140 | 1148 | 9 | PLQPELDSF 0.007038 | 7.8 |
| HLA-A*33:01 | 1 | 137 | 146 | 10 | NDPFLGVYHY 0.007035 | 5.9 |
| HLA-B*07:02 | 1 | 170 | 179 | 10 | YVSQPFLMDL 0.007034 | 4.6 |
| HLA-A*30:02 | 1 | 125 | 133 | 9 | NVVIKVCEF 0.007033 | 7.8 |
| HLA-B*53:01 | 1 | 497 | 505 | 9 | FQPTNGVGY 0.007033 | 3.9 |
| HLA-A*11:01 | 1 | 78 | 86 | 9 | RFDNPVLPF 0.007031 | 4.7 |
| HLA-A*23:01 | 1 | 561 | 569 | 9 | PFQQFGRDI 0.007029 | 3.5 |
| HLA-A*68:02 | 1 | 198 | 206 | 9 | DGYFKIYSK 0.007028 | 6.1 |
| HLA-A*02:06 | 1 | 349 | 357 | 9 | SVYAWNRKR 0.007027 | 8.3 |
| HLA-B*40:01 | 1 | 625 | 633 | 9 | HADQLTPTW 0.007026 | 3.3 |
| HLA-B*57:01 | 1 | 315 | 324 | 10 | TSNFRVQPTE 0.007025 | 7.5 |
| HLA-A*32:01 | 1 | 319 | 328 | 10 | RVQPTESIVR 0.007025 | 4.2 |
| HLA-A*01:01 | 1 | 135 | 143 | 9 | FCNDPFLGV 0.007024 | 4.6 |
| HLA-A*26:01 | 1 | 532 | 541 | 10 | NLVKNKCVNF 0.007023 | 3.9 |
| HLA-B*57:01 | 1 | 942 | 951 | 10 | ASALGKLQDV 0.007018 | 7.5 |
| HLA-A*02:06 | 1 | 947 | 955 | 9 | KLQDVVNQN 0.007017 | 8.3 |
| HLA-A*32:01 | 1 | 413 | 421 | 9 | GQTGKIADY 0.007013 | 4.2 |
| HLA-B*35:01 | 1 | 1148 | 1156 | 9 | FKEELDKYF 0.007013 | 4.3 |
| HLA-B*08:01 | 1 | 1226 | 1234 | 9 | AIVMVTIML 0.007013 | 7.3 |
| HLA-B*57:01 | 1 | 996 | 1004 | 9 | LITGRLQSL 0.007012 | 7.5 |
| HLA-A*30:01 | 1 | 263 | 272 | 10 | AAYYVGYLQP 0.00701 | 11 |
| HLA-A*31:01 | 1 | 13 | 22 | 10 | SQCVNLTRRT 0.007006 | 7.4 |
| HLA-A*23:01 | 1 | 211 | 220 | 10 | NLVRDLPGF 0.007002 | 3.5 |
| HLA-A*11:01 | 1 | 1039 | 1048 | 10 | RVDFCGKGYH 0.007001 | 4.7 |
| HLA-A*68:01 | 1 | 838 | 847 | 10 | GDCLGDIAAR 0.006999 | 7.8 |
| HLA-A*30:02 | 1 | 122 | 130 | 9 | NATNVVIVK 0.006996 | 7.9 |
| HLA-B*40:01 | 1 | 1204 | 1212 | 9 | GKYEQYIKW 0.006996 | 3.3 |
| HLA-B*07:02 | 1 | 233 | 241 | 9 | INITRFQTL 0.006992 | 4.6 |
| HLA-A*01:01 | 1 | 306 | 314 | 9 | FTVEKGIYQ 0.00699 | 4.6 |
| HLA-A*02:06 | 1 | 545 | 553 | 9 | GLTGTGVLT 0.006986 | 8.3 |
| HLA-A*68:01 | 1 | 29 | 37 | 9 | TNSFTRGVY 0.006983 | 7.8 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*30:01 | 1 | 1264 | 1273 | 10 | VLKGVKLHYT 0.006983 | 11 |
| HLA-A*68:02 | 1 | 942 | 951 | 10 | ASALGKLQDV 0.006979 | 6.1 |
| HLA-B*35:01 | 1 | 133 | 141 | 9 | FQFCNDPFL 0.006978 | 4.3 |
| HLA-B*57:01 | 1 | 684 | 693 | 10 | ARSVASQSII 0.006974 | 7.6 |
| HLA-B*08:01 | 1 | 1067 | 1075 | 9 | YVPAQEKNF 0.006974 | 7.3 |
| HLA-A*02:03 | 1 | 374 | 382 | 9 | FSTFKCYGV 0.006972 | 6.8 |
| HLA-A*02:06 | 1 | 175 | 183 | 9 | FLMDLEGKQ 0.00697 | 8.3 |
| HLA-B*07:02 | 1 | 852 | 860 | 9 | AQKFNGLTV 0.00697 | 4.6 |
| HLA-A*30:01 | 1 | 947 | 955 | 9 | KLQDVVNQN 0.006969 | 11 |
| HLA-A*02:06 | 1 | 125 | 133 | 9 | NVVIKVCEF 0.006966 | 8.3 |
| HLA-A*23:01 | 1 | 576 | 585 | 10 | VRDPQTLEIL 0.006963 | 3.5 |
| HLA-A*02:01 | 1 | 302 | 310 | 9 | TLKSFTVEK 0.00696 | 5.9 |
| HLA-B*58:01 | 1 | 1020 | 1028 | 9 | ASANLAATK 0.006956 | 5.1 |
| HLA-A*31:01 | 1 | 488 | 497 | 10 | CYFPLQSYGF 0.006955 | 7.4 |
| HLA-A*26:01 | 1 | 584 | 592 | 9 | ILDITPCSF 0.006955 | 4.0 |
| HLA-A*26:01 | 1 | 724 | 733 | 10 | TEILPVSMTK 0.006953 | 4.0 |
| HLA-A*02:06 | 1 | 875 | 884 | 10 | SALLAGTITS 0.006953 | 8.3 |
| HLA-B*57:01 | 1 | 300 | 308 | 9 | KCTLKSFTV 0.006947 | 7.6 |
| HLA-A*02:03 | 1 | 258 | 267 | 10 | WTAGAAAYYV 0.006945 | 6.8 |
| HLA-A*30:02 | 1 | 845 | 854 | 10 | AARDLICAQK 0.006942 | 7.9 |
| HLA-A*68:02 | 1 | 487 | 495 | 9 | NCYFPLQSY 0.00694 | 6.1 |
| HLA-A*23:01 | 1 | 961 | 970 | 10 | TLVKQLSSNF 0.006933 | 3.5 |
| HLA-A*68:01 | 1 | 1101 | 1110 | 10 | HWFVTQRNFY 0.00693 | 7.8 |
| HLA-B*44:02 | 1 | 710 | 718 | 9 | NSIAIPTNF 0.006927 | 3.2 |
| HLA-A*68:01 | 1 | 499 | 508 | 10 | PTNGVGYPY 0.006925 | 7.9 |
| HLA-A*02:06 | 1 | 1105 | 1114 | 10 | TQRNFYEPQI 0.006925 | 8.3 |
| HLA-B*44:02 | 1 | 652 | 660 | 9 | GAEHVNNSY 0.006923 | 3.2 |
| HLA-B*57:01 | 1 | 11 | 20 | 10 | VSSQCVLTT 0.006922 | 7.6 |
| HLA-B*51:01 | 1 | 490 | 498 | 9 | FPLQSYGFQ 0.006922 | 7.3 |
| HLA-A*30:01 | 1 | 890 | 898 | 9 | AGAALQIPF 0.006922 | 11 |
| HLA-A*32:01 | 1 | 193 | 201 | 9 | VFKNIDGYF 0.006919 | 4.2 |
| HLA-B*44:02 | 1 | 98 | 106 | 9 | SNIRGWIF 0.006917 | 3.2 |
| HLA-A*30:02 | 1 | 674 | 682 | 9 | YQTQTNSPR 0.006917 | 7.9 |
| HLA-B*40:01 | 1 | 95 | 104 | 10 | TEKSNIIRGW 0.006914 | 3.3 |
| HLA-B*51:01 | 1 | 950 | 958 | 9 | DVVNQNAQA 0.006914 | 7.3 |
| HLA-B*51:01 | 1 | 168 | 177 | 10 | FEYVSQPFLM 0.006912 | 7.3 |
| HLA-A*01:01 | 1 | 192 | 201 | 10 | FVFKNIDGYF 0.006912 | 4.6 |
| HLA-A*02:03 | 1 | 292 | 300 | 9 | ALDPLSETK 0.006912 | 6.8 |
| HLA-B*07:02 | 1 | 336 | 344 | 9 | CPFGEVFNA 0.006912 | 4.6 |
| HLA-B*35:01 | 1 | 228 | 237 | 10 | DLPIGINITR 0.006906 | 4.4 |
| HLA-A*30:02 | 1 | 939 | 947 | 9 | SSTASALGK 0.006902 | 7.9 |
| HLA-A*68:01 | 1 | 864 | 873 | 10 | LLTDEMIAQY 0.0069 | 7.9 |
| HLA-B*51:01 | 1 | 940 | 948 | 9 | STASALGKL 0.006897 | 7.3 |
| HLA-B*35:01 | 1 | 879 | 888 | 10 | AGTITSGWTF 0.006896 | 4.4 |
| HLA-A*24:02 | 1 | 265 | 273 | 9 | YYVGYLQPR 0.006894 | 3.5 |
| HLA-B*57:01 | 1 | 314 | 322 | 9 | QTSNFRVQP 0.006891 | 7.6 |
| HLA-A*01:01 | 1 | 383 | 392 | 10 | SPTKLNLCF 0.006888 | 4.6 |
| HLA-B*35:01 | 1 | 440 | 449 | 10 | NLDSKVGNY 0.006888 | 4.4 |
| HLA-B*15:01 | 1 | 877 | 885 | 9 | LLAGTITSG 0.006887 | 6.2 |
| HLA-A*02:03 | 1 | 366 | 375 | 10 | SVLYNSASF 0.00688 | 6.8 |
| HLA-B*58:01 | 1 | 780 | 788 | 9 | EVFAQVKQI 0.006877 | 5.1 |
| HLA-A*26:01 | 1 | 233 | 241 | 9 | INITRFQTL 0.006874 | 4.0 |
| HLA-B*51:01 | 1 | 1086 | 1095 | 10 | KAHFPREGVF 0.006874 | 7.3 |
| HLA-A*23:01 | 1 | 37 | 46 | 10 | YYPDKVFRSS 0.006872 | 3.5 |
| HLA-A*23:01 | 1 | 885 | 894 | 10 | GWTFGAGAAL 0.006871 | 3.5 |
| HLA-A*30:01 | 1 | 625 | 634 | 10 | HADQLTPTWR 0.006869 | 11 |
| HLA-A*02:06 | 1 | 295 | 303 | 9 | PLSETKCTL 0.006868 | 8.4 |
| HLA-B*40:01 | 1 | 987 | 995 | 9 | VEAEVQIDR 0.006866 | 3.3 |
| HLA-A*32:01 | 1 | 1203 | 1212 | 10 | LGKYEYIKW 0.006864 | 4.2 |
| HLA-A*26:01 | 1 | 860 | 869 | 10 | VLPLLTDDEM 0.006862 | 4.0 |
| HLA-B*58:01 | 1 | 448 | 456 | 9 | NYNYLYRLF 0.00686 | 5.1 |
| HLA-A*01:01 | 1 | 77 | 86 | 10 | KRFDNVPLPF 0.006858 | 4.6 |
| HLA-B*58:01 | 1 | 357 | 365 | 9 | RISNCVADY 0.006853 | 5.1 |
| HLA-A*02:06 | 1 | 41 | 49 | 9 | KVFRSSVLH 0.006845 | 8.4 |
| HLA-A*30:01 | 1 | 372 | 381 | 10 | ASFSTFKCYG 0.006844 | 11 |
| HLA-B*57:01 | 1 | 273 | 282 | 10 | RTFLLKYNEN 0.006842 | 7.6 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*02:01 | 1 | 1007 | 1016 | 10 | YVTQQLIRAA 0.006842 | 6.0 |
| HLA-B*08:01 | 1 | 19 | 27 | 9 | TTRTQLPPA 0.006839 | 7.4 |
| HLA-B*53:01 | 1 | 603 | 611 | 9 | NTSNQVAVL 0.006839 | 4.0 |
| HLA-B*51:01 | 1 | 37 | 46 | 10 | YYPDKVFRSS 0.006838 | 7.4 |
| HLA-A*30:01 | 1 | 509 | 518 | 10 | RVVVLSEFELL 0.006837 | 11 |
| HLA-A*30:01 | 1 | 122 | 130 | 9 | NATNVVIVK 0.006832 | 11 |
| HLA-A*68:02 | 1 | 1041 | 1049 | 9 | DFCGKGYHL 0.006832 | 6.2 |
| HLA-B*51:01 | 1 | 1109 | 1117 | 9 | FYEPQIIT 0.006832 | 7.4 |
| HLA-A*01:01 | 1 | 774 | 782 | 9 | QDKNTQEVF 0.006829 | 4.6 |
| HLA-A*30:02 | 1 | 70 | 78 | 9 | VSGTNGTKR 0.006827 | 8.0 |
| HLA-B*58:01 | 1 | 604 | 613 | 10 | TSNQVAVLYQ 0.006825 | 5.2 |
| HLA-B*08:01 | 1 | 690 | 699 | 10 | QSIIAYTMSL 0.006822 | 7.4 |
| HLA-B*15:01 | 1 | 956 | 965 | 10 | AQALNTLVKQ 0.006822 | 6.3 |
| HLA-A*30:02 | 1 | 178 | 186 | 9 | DLEGKQGNF 0.00682 | 8.0 |
| HLA-B*57:01 | 1 | 1201 | 1209 | 9 | QELGKYEY 0.00682 | 7.6 |
| HLA-A*30:02 | 1 | 278 | 286 | 9 | KYNENGTIT 0.006819 | 8.0 |
| HLA-A*30:01 | 1 | 453 | 461 | 9 | YRLFRRKSNL 0.006819 | 11 |
| HLA-B*58:01 | 1 | 468 | 476 | 9 | ISTEIQAG 0.006819 | 5.2 |
| HLA-A*26:01 | 1 | 576 | 584 | 9 | VRDPQTLEI 0.006818 | 4.0 |
| HLA-B*35:01 | 1 | 1004 | 1012 | 9 | LQTYVTQQL 0.006816 | 4.4 |
| HLA-A*02:06 | 1 | 482 | 490 | 9 | GVEGFNCYF 0.00681 | 8.4 |
| HLA-A*30:01 | 1 | 255 | 264 | 10 | SSGWTAGAAA 0.006805 | 11 |
| HLA-A*30:01 | 1 | 352 | 361 | 10 | AWNRRKRISNC 0.006804 | 11 |
| HLA-B*53:01 | 1 | 805 | 814 | 10 | ILPDPSKPSK 0.006804 | 4.0 |
| HLA-B*08:01 | 1 | 965 | 973 | 9 | QLSSNFGAI 0.006803 | 7.4 |
| HLA-A*33:01 | 1 | 361 | 369 | 9 | CVADYSVLY 0.006801 | 6.0 |
| HLA-A*11:01 | 1 | 417 | 425 | 9 | KIADYNYKL 0.0068 | 4.8 |
| HLA-A*30:02 | 1 | 1059 | 1068 | 10 | GVVFLHVTYV 0.006797 | 8.0 |
| HLA-A*02:01 | 1 | 201 | 210 | 10 | FKIYSKHTPI 0.006795 | 6.0 |
| HLA-A*33:01 | 1 | 151 | 160 | 10 | SWMESEFRVY 0.006794 | 6.0 |
| HLA-B*15:01 | 1 | 506 | 515 | 10 | QPYRVVLSF 0.006785 | 6.3 |
| HLA-B*40:01 | 1 | 1070 | 1079 | 10 | AQEKNFTTAP 0.006781 | 3.3 |
| HLA-A*02:06 | 1 | 956 | 964 | 9 | AQALNTLVK 0.00678 | 8.4 |
| HLA-A*30:01 | 1 | 201 | 210 | 10 | FKIYSKHTPI 0.006777 | 11 |
| HLA-A*30:01 | 1 | 487 | 495 | 9 | NCYFPLQSY 0.006777 | 11 |
| HLA-A*30:01 | 1 | 935 | 944 | 10 | QDLSSTASA 0.006775 | 11 |
| HLA-B*51:01 | 1 | 1087 | 1095 | 9 | AHFPREGVF 0.006775 | 7.4 |
| HLA-B*08:01 | 1 | 1007 | 1015 | 9 | YVTQQLIRA 0.006771 | 7.4 |
| HLA-A*68:02 | 1 | 943 | 952 | 10 | SALGKLQDVV 0.00677 | 6.2 |
| HLA-A*30:01 | 1 | 316 | 325 | 10 | SNFRVQPTE 0.006767 | 11 |
| HLA-A*11:01 | 1 | 273 | 281 | 9 | RTFLLKYNE 0.006761 | 4.8 |
| HLA-B*44:02 | 1 | 893 | 902 | 10 | ALQIPFAMQM 0.006761 | 3.2 |
| HLA-A*02:01 | 1 | 447 | 455 | 9 | GNYNYLYRL 0.00676 | 6.0 |
| HLA-A*30:01 | 1 | 922 | 930 | 9 | LIANQFNFA 0.00676 | 11 |
| HLA-A*24:02 | 1 | 576 | 585 | 10 | VRDPQTLEIL 0.006759 | 3.5 |
| HLA-A*23:01 | 1 | 1212 | 1220 | 9 | WPWYIWLGF 0.006756 | 3.6 |
| HLA-A*03:01 | 1 | 1264 | 1273 | 10 | VLKGVKLHYT 0.006756 | 5.5 |
| HLA-A*32:01 | 1 | 864 | 873 | 10 | LLTDEMIAQY 0.006753 | 4.3 |
| HLA-B*57:01 | 1 | 918 | 927 | 10 | ENQKLIANQF 0.006753 | 7.7 |
| HLA-A*30:01 | 1 | 708 | 716 | 9 | SNNSIAIPT 0.006752 | 11 |
| HLA-A*33:01 | 1 | 1207 | 1215 | 9 | EQYIKWPWY 0.006751 | 6.0 |
| HLA-B*57:01 | 1 | 672 | 680 | 9 | ASYQTQTN 0.006748 | 7.7 |
| HLA-B*44:03 | 1 | 1142 | 1151 | 10 | QPELDSFKEE 0.006748 | 3.4 |
| HLA-A*03:01 | 1 | 526 | 535 | 10 | GPKKSTNLVK 0.006743 | 5.5 |
| HLA-A*30:02 | 1 | 967 | 976 | 10 | SSNFGAISSV 0.006741 | 8.0 |
| HLA-A*02:03 | 1 | 195 | 203 | 9 | KNIDGYFKI 0.00674 | 6.9 |
| HLA-A*68:02 | 1 | 1067 | 1075 | 9 | YVPAQEKNF 0.00674 | 6.2 |
| HLA-A*02:03 | 1 | 220 | 229 | 10 | FSALEPLVDL 0.006737 | 6.9 |
| HLA-A*68:02 | 1 | 1024 | 1033 | 10 | LAATKMSECV 0.006736 | 6.2 |
| HLA-A*01:01 | 1 | 1196 | 1205 | 10 | SLIDLQELGK 0.006732 | 4.7 |
| HLA-A*31:01 | 1 | 212 | 220 | 9 | LVRDLPQGF 0.00673 | 7.5 |
| HLA-A*32:01 | 1 | 677 | 685 | 9 | QTNSPRRAR 0.006727 | 4.3 |
| HLA-A*01:01 | 1 | 1182 | 1191 | 10 | EIDRLNEVAK 0.006725 | 4.7 |
| HLA-A*30:01 | 1 | 784 | 793 | 10 | QVKQIYKTPP 0.006724 | 11 |
| HLA-A*30:01 | 1 | 803 | 812 | 10 | SQILPDPSKP 0.006722 | 11 |
| HLA-A*02:06 | 1 | 987 | 996 | 10 | VEAEVQIDRL 0.006717 | 8.5 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*68:01 | 1 | 108 | 116 | 9 | TTLDSKTQS 0.006716 | 7.9 |
| HLA-B*44:03 | 1 | 710 | 718 | 9 | NSIAIPTNF 0.006716 | 3.4 |
| HLA-A*30:01 | 1 | 522 | 530 | 9 | ATVCGPKKS 0.006711 | 11 |
| HLA-B*51:01 | 1 | 409 | 418 | 10 | QIAPGQTGKI 0.006709 | 7.4 |
| HLA-A*33:01 | 1 | 919 | 927 | 9 | NQKLIANQF 0.006706 | 6.0 |
| HLA-B*15:01 | 1 | 1043 | 1052 | 10 | CGKGYHLMSF 0.006705 | 6.3 |
| HLA-B*44:03 | 1 | 576 | 584 | 9 | VRDPQTLEI 0.006702 | 3.4 |
| HLA-A*03:01 | 1 | 756 | 765 | 10 | YGSFCTQLNR 0.006702 | 5.5 |
| HLA-B*58:01 | 1 | 886 | 894 | 9 | WTFGAGAAL 0.006697 | 5.2 |
| HLA-B*44:02 | 1 | 1030 | 1039 | 10 | SECVLGQSKR 0.006696 | 3.2 |
| HLA-A*02:01 | 1 | 616 | 624 | 9 | NCTEVPVAI 0.006693 | 6.0 |
| HLA-A*02:06 | 1 | 754 | 762 | 9 | LQYGSFCTQ 0.006689 | 8.5 |
| HLA-B*15:01 | 1 | 995 | 1003 | 9 | RLITGRLQS 0.006689 | 6.3 |
| HLA-A*33:01 | 1 | 327 | 335 | 9 | VRFPNITNL 0.006687 | 6.0 |
| HLA-A*01:01 | 1 | 1053 | 1062 | 10 | PQSAPHGVVF 0.006687 | 4.7 |
| HLA-B*40:01 | 1 | 497 | 505 | 9 | FQPTNGVGY 0.006686 | 3.3 |
| HLA-A*26:01 | 1 | 82 | 91 | 10 | PVLPFNDGVY 0.006682 | 4.1 |
| HLA-A*30:02 | 1 | 183 | 192 | 10 | QGNFKNLREF 0.006682 | 8.1 |
| HLA-A*26:01 | 1 | 635 | 643 | 9 | VYSTGSNVF 0.006682 | 4.1 |
| HLA-A*33:01 | 1 | 187 | 195 | 9 | KNLREFVFK 0.00668 | 6.0 |
| HLA-A*32:01 | 1 | 723 | 731 | 9 | TTEILPVSM 0.00668 | 4.3 |
| HLA-B*08:01 | 1 | 509 | 517 | 9 | RVVLSFEL 0.006676 | 7.5 |
| HLA-B*51:01 | 1 | 748 | 756 | 9 | ECSNLLLQY 0.006674 | 7.4 |
| HLA-A*24:02 | 1 | 1101 | 1110 | 10 | HWFVTQRNFY 0.006674 | 3.6 |
| HLA-A*26:01 | 1 | 344 | 353 | 10 | ATRFASVYAW 0.006673 | 4.1 |
| HLA-B*07:02 | 1 | 249 | 258 | 10 | LTPGDSSSGW 0.006667 | 4.7 |
| HLA-A*02:06 | 1 | 704 | 713 | 10 | SVAYSNNNSIA 0.006664 | 8.5 |
| HLA-B*58:01 | 1 | 1086 | 1094 | 9 | KAHFPREGV 0.006664 | 5.2 |
| HLA-A*02:03 | 1 | 235 | 244 | 10 | ITRFQTLAL 0.006659 | 6.9 |
| HLA-A*68:01 | 1 | 746 | 755 | 10 | STECNLLLQ 0.006659 | 8.0 |
| HLA-A*02:06 | 1 | 1099 | 1107 | 9 | GTHWFVTQR 0.006659 | 8.5 |
| HLA-A*30:02 | 1 | 246 | 255 | 10 | RSYLTPGDSS 0.006658 | 8.1 |
| HLA-B*40:01 | 1 | 744 | 752 | 9 | GDSTECSNL 0.006657 | 3.3 |
| HLA-B*51:01 | 1 | 334 | 342 | 9 | NLCPFGEVF 0.006654 | 7.5 |
| HLA-A*33:01 | 1 | 1182 | 1191 | 10 | EIDRLNEVAK 0.006654 | 6.0 |
| HLA-A*02:01 | 1 | 81 | 90 | 10 | NPVLPFNDGV 0.006652 | 6.1 |
| HLA-B*53:01 | 1 | 1262 | 1271 | 10 | EPVLKGVKLH 0.006647 | 4.0 |
| HLA-A*02:06 | 1 | 705 | 713 | 9 | VAYSNNNSIA 0.006645 | 8.5 |
| HLA-A*68:01 | 1 | 237 | 246 | 10 | RFQTLALHR 0.006644 | 8.0 |
| HLA-B*07:02 | 1 | 10 | 18 | 9 | LVSSQCVNL 0.006643 | 4.7 |
| HLA-A*33:01 | 1 | 445 | 454 | 10 | VGGNYNYLYR 0.006642 | 6.0 |
| HLA-A*01:01 | 1 | 603 | 611 | 9 | NTSNQVAVL 0.006642 | 4.7 |
| HLA-B*44:03 | 1 | 653 | 662 | 10 | AEHVNNSEYEC 0.006638 | 3.4 |
| HLA-A*24:02 | 1 | 1081 | 1089 | 9 | ICHDGKAHF 0.006638 | 3.6 |
| HLA-A*30:02 | 1 | 365 | 374 | 10 | YSVLYNSASF 0.006631 | 8.1 |
| HLA-A*32:01 | 1 | 169 | 177 | 9 | EYVSQPFLM 0.006629 | 4.3 |
| HLA-A*68:01 | 1 | 415 | 423 | 9 | TGKIADYNY 0.006628 | 8.0 |
| HLA-B*44:02 | 1 | 1256 | 1265 | 10 | FDEDDSEPV 0.006626 | 3.2 |
| HLA-A*01:01 | 1 | 83 | 92 | 10 | VLPFNDGVYF 0.006614 | 4.7 |
| HLA-B*57:01 | 1 | 152 | 160 | 9 | WMESEFRVY 0.006613 | 7.8 |
| HLA-A*68:02 | 1 | 568 | 577 | 10 | DIADTTDAVR 0.00661 | 6.3 |
| HLA-B*53:01 | 1 | 415 | 423 | 9 | TGKIADYNY 0.006605 | 4.0 |
| HLA-A*02:03 | 1 | 634 | 643 | 10 | RVYSTGSNVF 0.006605 | 6.9 |
| HLA-A*24:02 | 1 | 171 | 179 | 9 | VSQPFLMDL 0.006603 | 3.6 |
| HLA-B*35:01 | 1 | 481 | 490 | 10 | NGVEGFNCYF 0.006601 | 4.5 |
| HLA-A*32:01 | 1 | 506 | 515 | 10 | QPYRVVLSF 0.0066 | 4.3 |
| HLA-A*02:01 | 1 | 888 | 896 | 9 | FGAGAAIQI 0.006599 | 6.1 |
| HLA-B*58:01 | 1 | 1008 | 1016 | 9 | VTQLLIRA 0.006597 | 5.2 |
| HLA-A*30:02 | 1 | 1007 | 1015 | 9 | YVTQLLIRA 0.006595 | 8.2 |
| HLA-A*30:01 | 1 | 510 | 518 | 9 | VVVLSFELL 0.006591 | 11 |
| HLA-A*02:06 | 1 | 255 | 264 | 10 | SSGWTAGAAA 0.006589 | 8.5 |
| HLA-B*53:01 | 1 | 998 | 1007 | 10 | TGRLQSLQTY 0.006589 | 4.0 |
| HLA-B*35:01 | 1 | 526 | 534 | 9 | GPKKSTNLV 0.006588 | 4.5 |
| HLA-A*26:01 | 1 | 825 | 833 | 9 | KVTLADAGF 0.006586 | 4.1 |
| HLA-B*51:01 | 1 | 242 | 250 | 9 | LALHRSYLT 0.006585 | 7.5 |
| HLA-A*31:01 | 1 | 454 | 463 | 10 | RLFRKSNLKP 0.006585 | 7.5 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*30:01 | 1 | 448 | 456 | 9 | NYNYLYRLF 0.006576 | 11 |
| HLA-A*11:01 | 1 | 1056 | 1064 | 9 | APHGVVFLH 0.006575 | 4.9 |
| HLA-A*68:01 | 1 | 723 | 731 | 9 | TTEILPVSM 0.006573 | 8.0 |
| HLA-A*03:01 | 1 | 26 | 34 | 9 | PAYTNSFTR 0.00657 | 5.6 |
| HLA-A*31:01 | 1 | 1048 | 1056 | 9 | HLMSFPQSA 0.00657 | 7.5 |
| HLA-B*07:02 | 1 | 1262 | 1271 | 10 | EPVLKGVKHL 0.006569 | 4.7 |
| HLA-A*32:01 | 1 | 761 | 770 | 10 | TQLNRALTGI 0.006567 | 4.3 |
| HLA-A*30:01 | 1 | 127 | 135 | 9 | VIKVCEFQF 0.006566 | 11 |
| HLA-A*01:01 | 1 | 458 | 466 | 9 | KSNLKPFR 0.006552 | 4.8 |
| HLA-B*53:01 | 1 | 133 | 141 | 9 | FQFCNDPFL 0.00655 | 4.0 |
| HLA-A*02:06 | 1 | 34 | 42 | 9 | RGVYYPDKV 0.006547 | 8.5 |
| HLA-B*57:01 | 1 | 1104 | 1112 | 9 | VTQRNFYEP 0.006547 | 7.8 |
| HLA-B*51:01 | 1 | 719 | 727 | 9 | TISVTTEIL 0.006546 | 7.5 |
| HLA-B*35:01 | 1 | 612 | 620 | 9 | YQDVNCTEV 0.006545 | 4.5 |
| HLA-A*24:02 | 1 | 349 | 358 | 10 | SVYAWNKRRI 0.006544 | 3.6 |
| HLA-A*32:01 | 1 | 226 | 235 | 10 | LVDLPIGINI 0.006538 | 4.3 |
| HLA-A*03:01 | 1 | 893 | 902 | 10 | ALQIPFAMQM 0.006538 | 5.6 |
| HLA-A*24:02 | 1 | 186 | 194 | 9 | FKNLREFVF 0.006535 | 3.6 |
| HLA-B*07:02 | 1 | 1080 | 1089 | 10 | AICHDGKAHF 0.006534 | 4.7 |
| HLA-A*68:01 | 1 | 510 | 519 | 10 | VVLSFELLH 0.006533 | 8.0 |
| HLA-A*02:06 | 1 | 1164 | 1172 | 9 | VDLGDISGI 0.006533 | 8.6 |
| HLA-A*68:02 | 1 | 727 | 736 | 10 | LPVSMTKTSV 0.006532 | 6.3 |
| HLA-A*03:01 | 1 | 999 | 1007 | 9 | GRLQSLQTY 0.006532 | 5.6 |
| HLA-B*15:01 | 1 | 1192 | 1200 | 9 | NLNESLIDL 0.006532 | 6.4 |
| HLA-B*08:01 | 1 | 1220 | 1228 | 9 | FIAGLIAIV 0.006532 | 7.6 |
| HLA-A*02:03 | 1 | 275 | 284 | 10 | FLLKYNENGT 0.00653 | 7.0 |
| HLA-A*26:01 | 1 | 538 | 546 | 9 | CVNFNFNGL 0.00653 | 4.1 |
| HLA-A*23:01 | 1 | 709 | 718 | 10 | NNSIAIPTNF 0.006529 | 3.6 |
| HLA-A*30:02 | 1 | 310 | 319 | 10 | KGITYQTSNFR 0.006525 | 8.2 |
| HLA-B*57:01 | 1 | 1101 | 1110 | 10 | HWFVTQRNFY 0.006524 | 7.8 |
| HLA-A*02:01 | 1 | 23 | 31 | 9 | QLPPAYTNS 0.00652 | 6.1 |
| HLA-A*32:01 | 1 | 414 | 423 | 10 | QTGKIADYNY 0.006519 | 4.3 |
| HLA-B*44:02 | 1 | 551 | 559 | 9 | VLTESNKKF 0.006519 | 3.2 |
| HLA-B*57:01 | 1 | 789 | 797 | 9 | YKTPPIKDF 0.006519 | 7.8 |
| HLA-A*68:02 | 1 | 92 | 101 | 10 | FASTEKSNI 0.006515 | 6.3 |
| HLA-B*15:01 | 1 | 344 | 353 | 10 | ATRFASVYAW 0.006515 | 6.4 |
| HLA-A*32:01 | 1 | 93 | 101 | 9 | ASTEKSNI 0.006514 | 4.3 |
| HLA-A*68:02 | 1 | 225 | 233 | 9 | PLVDLPIGI 0.006513 | 6.3 |
| HLA-A*32:01 | 1 | 721 | 729 | 9 | SVTTEILPV 0.006512 | 4.3 |
| HLA-B*07:02 | 1 | 576 | 585 | 10 | VRDPQTLEIL 0.00651 | 4.7 |
| HLA-A*02:01 | 1 | 233 | 241 | 9 | INITRFQTL 0.006509 | 6.1 |
| HLA-A*68:01 | 1 | 950 | 958 | 9 | DVVNQNAQA 0.006508 | 8.0 |
| HLA-A*32:01 | 1 | 967 | 976 | 10 | SSNFGAISSV 0.006506 | 4.3 |
| HLA-B*51:01 | 1 | 1068 | 1077 | 10 | VPAQEKNF 0.006504 | 7.5 |
| HLA-A*31:01 | 1 | 733 | 741 | 9 | KTSVDCTMY 0.006501 | 7.6 |
| HLA-A*02:03 | 1 | 471 | 479 | 9 | EIYQAGSTP 0.006495 | 7.0 |
| HLA-A*01:01 | 1 | 1021 | 1029 | 9 | SANLAATKM 0.006491 | 4.8 |
| HLA-B*51:01 | 1 | 333 | 341 | 9 | TNLCPFGEV 0.006489 | 7.6 |
| HLA-B*08:01 | 1 | 903 | 911 | 9 | AYRFNGIGV 0.006488 | 7.6 |
| HLA-A*02:06 | 1 | 914 | 923 | 10 | NVLYENQKLI 0.006488 | 8.6 |
| HLA-A*24:02 | 1 | 143 | 151 | 9 | VYYHKNNKS 0.006487 | 3.6 |
| HLA-A*02:06 | 1 | 339 | 348 | 10 | GEVFNATRFA 0.006486 | 8.6 |
| HLA-A*33:01 | 1 | 197 | 206 | 10 | IDGYFKIYSK 0.006484 | 6.1 |
| HLA-A*11:01 | 1 | 892 | 900 | 9 | AALQIPFAM 0.006484 | 4.9 |
| HLA-B*44:03 | 1 | 1149 | 1157 | 9 | KEELDKYFK 0.006478 | 3.5 |
| HLA-A*02:01 | 1 | 467 | 475 | 9 | DISTEIIYQA 0.006474 | 6.1 |
| HLA-A*11:01 | 1 | 409 | 418 | 10 | QIAPGQTGKI 0.006471 | 4.9 |
| HLA-B*15:01 | 1 | 149 | 157 | 9 | NKSWMESEF 0.00647 | 6.4 |
| HLA-B*08:01 | 1 | 218 | 226 | 9 | QGFSALEPL 0.00647 | 7.6 |
| HLA-B*08:01 | 1 | 782 | 790 | 9 | FAQVKQIYK 0.006467 | 7.6 |
| HLA-A*33:01 | 1 | 192 | 200 | 9 | FVFKNIDGY 0.006464 | 6.1 |
| HLA-B*07:02 | 1 | 992 | 1001 | 10 | QIDRLITGRL 0.006459 | 4.8 |
| HLA-A*33:01 | 1 | 1260 | 1269 | 10 | DSEPVLKGVK 0.006459 | 6.1 |
| HLA-A*30:02 | 1 | 487 | 496 | 10 | NCYFPLQSYG 0.006457 | 8.3 |
| HLA-B*44:02 | 1 | 1071 | 1080 | 10 | QEKNF 0.006457 | 3.3 |
| HLA-A*23:01 | 1 | 365 | 374 | 10 | YSVLYNSASF 0.006456 | 3.7 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*08:01 | 1 | 998 | 1006 | 9 | TGRLQSLQT 0.006456 | 7.6 |
| HLA-A*30:02 | 1 | 235 | 244 | 10 | ITRFQTLLAL 0.006452 | 8.3 |
| HLA-A*02:01 | 1 | 1210 | 1218 | 9 | IKWPWYIWL 0.006452 | 6.2 |
| HLA-B*07:02 | 1 | 894 | 902 | 9 | LQIPFAMQM 0.006451 | 4.8 |
| HLA-A*68:02 | 1 | 688 | 697 | 10 | ASQSIIAYTM 0.006442 | 6.4 |
| HLA-B*40:01 | 1 | 880 | 888 | 9 | GTITSGWTF 0.006439 | 3.4 |
| HLA-A*02:01 | 1 | 1227 | 1235 | 9 | IVMVTIMLC 0.006439 | 6.2 |
| HLA-A*24:02 | 1 | 846 | 855 | 10 | ARDLICAQKF 0.006437 | 3.6 |
| HLA-A*02:06 | 1 | 860 | 868 | 9 | VLPELLTDE 0.006436 | 8.6 |
| HLA-A*23:01 | 1 | 102 | 110 | 9 | RGWIFGTTL 0.006435 | 3.7 |
| HLA-A*30:02 | 1 | 246 | 254 | 9 | RSYLTGDS 0.006432 | 8.3 |
| HLA-A*11:01 | 1 | 827 | 836 | 10 | TLADAGFIKQ 0.006429 | 4.9 |
| HLA-A*03:01 | 1 | 1055 | 1064 | 10 | SAPHGVVFLH 0.006427 | 5.6 |
| HLA-B*08:01 | 1 | 664 | 672 | 9 | IPIGAGICA 0.006423 | 7.6 |
| HLA-A*68:02 | 1 | 797 | 805 | 9 | FGGFNFSQI 0.006423 | 6.4 |
| HLA-A*26:01 | 1 | 345 | 353 | 9 | TRFASVYAW 0.006422 | 4.1 |
| HLA-A*32:01 | 1 | 1100 | 1109 | 10 | THWFVTQRNF 0.00642 | 4.4 |
| HLA-A*02:01 | 1 | 1264 | 1273 | 10 | VLKGVKLHYT 0.00642 | 6.2 |
| HLA-A*02:03 | 1 | 676 | 684 | 9 | TQTNSPRRA 0.006417 | 7.0 |
| HLA-B*57:01 | 1 | 1140 | 1148 | 9 | PLQPELDSF 0.006417 | 7.9 |
| HLA-A*33:01 | 1 | 236 | 244 | 9 | TRFQTLLAL 0.006416 | 6.1 |
| HLA-A*02:01 | 1 | 1032 | 1040 | 9 | CVLGQSKRV 0.006416 | 6.2 |
| HLA-B*57:01 | 1 | 92 | 100 | 9 | FASTEKSNI 0.006411 | 7.9 |
| HLA-B*57:01 | 1 | 786 | 794 | 9 | KQIYKTPPI 0.006411 | 7.9 |
| HLA-B*57:01 | 1 | 895 | 904 | 10 | QIPFAMQMAY 0.006411 | 7.9 |
| HLA-A*02:06 | 1 | 275 | 283 | 9 | FLLKYNENG 0.006404 | 8.7 |
| HLA-B*53:01 | 1 | 1208 | 1216 | 9 | QYIKWPWYI 0.006404 | 4.1 |
| HLA-B*08:01 | 1 | 1175 | 1183 | 9 | SVVNIQKEI 0.006401 | 7.7 |
| HLA-A*11:01 | 1 | 206 | 214 | 9 | KHTPINLVR 0.0064 | 4.9 |
| HLA-A*02:03 | 1 | 679 | 687 | 9 | NSPRRARSV 0.006394 | 7.0 |
| HLA-B*58:01 | 1 | 21 | 29 | 9 | RTQLPPAYT 0.006393 | 5.3 |
| HLA-A*68:01 | 1 | 638 | 647 | 10 | TGSNVFQTRA 0.006393 | 8.1 |
| HLA-B*08:01 | 1 | 602 | 610 | 9 | TNTSNQVAV 0.00639 | 7.7 |
| HLA-A*03:01 | 1 | 673 | 682 | 10 | SYQTQTNSPR 0.006389 | 5.6 |
| HLA-B*07:02 | 1 | 890 | 898 | 9 | AGAALQIPF 0.006389 | 4.8 |
| HLA-A*02:01 | 1 | 1222 | 1230 | 9 | AGLIAIVMV 0.006388 | 6.2 |
| HLA-A*02:06 | 1 | 410 | 418 | 9 | IAPGQTGKI 0.006387 | 8.7 |
| HLA-B*15:01 | 1 | 868 | 877 | 10 | EMIAQYTSAL 0.006385 | 6.4 |
| HLA-A*02:06 | 1 | 157 | 166 | 10 | FRVYSSANNC 0.006382 | 8.7 |
| HLA-A*30:02 | 1 | 774 | 782 | 9 | QDKNTQEVF 0.006381 | 8.3 |
| HLA-A*23:01 | 1 | 265 | 273 | 9 | YYVGYLQPR 0.006379 | 3.7 |
| HLA-B*15:01 | 1 | 1059 | 1068 | 10 | GVVFLHVITYV 0.006379 | 6.4 |
| HLA-B*53:01 | 1 | 1188 | 1197 | 10 | EVAKNLNESL 0.006376 | 4.1 |
| HLA-B*35:01 | 1 | 138 | 147 | 10 | DPFLGVVYHK 0.006375 | 4.5 |
| HLA-B*08:01 | 1 | 1224 | 1232 | 9 | LIAIVMVTI 0.006375 | 7.7 |
| HLA-A*30:01 | 1 | 1226 | 1234 | 9 | AIVMVTIML 0.006371 | 11 |
| HLA-A*02:06 | 1 | 746 | 754 | 9 | STECSNLL 0.00637 | 8.7 |
| HLA-A*26:01 | 1 | 590 | 598 | 9 | CSFGGVSVI 0.006364 | 4.2 |
| HLA-A*30:01 | 1 | 1261 | 1269 | 9 | SEPVLKGVK 0.006363 | 11 |
| HLA-A*02:03 | 1 | 727 | 736 | 10 | LPVSMTKTSV 0.006358 | 7.0 |
| HLA-B*58:01 | 1 | 270 | 279 | 10 | LQPRTFLLKY 0.006357 | 5.3 |
| HLA-A*68:02 | 1 | 400 | 408 | 9 | FVIRGDEV 0.006356 | 6.4 |
| HLA-A*30:01 | 1 | 885 | 894 | 10 | GWTFGAGAAL 0.006356 | 11 |
| HLA-B*57:01 | 1 | 167 | 175 | 9 | TFEYVSQPF 0.006355 | 8.0 |
| HLA-A*30:02 | 1 | 755 | 763 | 9 | QYGSFCTQL 0.006352 | 8.3 |
| HLA-B*51:01 | 1 | 989 | 997 | 9 | AEVQIDRLI 0.006351 | 7.7 |
| HLA-A*31:01 | 1 | 204 | 212 | 9 | YSKHTPINL 0.006349 | 7.7 |
| HLA-B*08:01 | 1 | 160 | 168 | 9 | YSSANCTF 0.006348 | 7.7 |
| HLA-A*30:01 | 1 | 443 | 451 | 9 | SKVGGNYNY 0.006348 | 11 |
| HLA-A*68:01 | 1 | 686 | 694 | 9 | SVASQSIIA 0.006348 | 8.1 |
| HLA-B*08:01 | 1 | 1047 | 1056 | 10 | YHLMSFPQSA 0.006347 | 7.7 |
| HLA-B*57:01 | 1 | 1116 | 1124 | 9 | TTDNTFVSG 0.006347 | 8.0 |
| HLA-A*24:02 | 1 | 961 | 970 | 10 | TLVKQLSSNF 0.006346 | 3.7 |
| HLA-A*11:01 | 1 | 999 | 1007 | 9 | GRLQSLQTY 0.006344 | 4.9 |
| HLA-B*15:01 | 1 | 1206 | 1214 | 9 | YEQYIKWPW 0.006344 | 6.5 |
| HLA-A*68:02 | 1 | 228 | 236 | 9 | DLPIGINIT 0.006342 | 6.4 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*15:01 | 1 | 1055 | 1063 | 9 | SAPHGVVFL 0.006339 | 6.5 |
| HLA-B*53:01 | 1 | 599 | 608 | 10 | TPGTNTSNQV 0.006338 | 4.1 |
| HLA-A*03:01 | 1 | 70 | 78 | 9 | VSGTNGTKR 0.006336 | 5.6 |
| HLA-B*40:01 | 1 | 772 | 780 | 9 | VEQDKNTQE 0.006336 | 3.4 |
| HLA-A*68:02 | 1 | 1062 | 1070 | 9 | FLHVTVVPA 0.006335 | 6.4 |
| HLA-B*51:01 | 1 | 1121 | 1129 | 9 | FVSGNCDVV 0.006335 | 7.7 |
| HLA-B*15:01 | 1 | 47 | 56 | 10 | VLHSTQDLFL 0.006331 | 6.5 |
| HLA-A*32:01 | 1 | 271 | 279 | 9 | QPRTFLLKY 0.006328 | 4.4 |
| HLA-B*53:01 | 1 | 224 | 232 | 9 | EPLVDLPIG 0.006327 | 4.1 |
| HLA-A*02:03 | 1 | 752 | 760 | 9 | LLLQYGSFC 0.006322 | 7.1 |
| HLA-A*02:01 | 1 | 885 | 894 | 10 | GWTFGAGAAL 0.006322 | 6.2 |
| HLA-A*68:01 | 1 | 94 | 103 | 10 | STEKSNIIRG 0.006319 | 8.1 |
| HLA-B*58:01 | 1 | 394 | 402 | 9 | NVYADSFVI 0.006318 | 5.4 |
| HLA-A*01:01 | 1 | 1146 | 1154 | 9 | DSFKEELDK 0.006318 | 4.9 |
| HLA-B*35:01 | 1 | 500 | 508 | 9 | TNGVGYQPY 0.006314 | 4.6 |
| HLA-A*01:01 | 1 | 196 | 205 | 10 | NIDGYFKIYS 0.006308 | 4.9 |
| HLA-B*15:01 | 1 | 719 | 727 | 9 | TISVTTEIL 0.006308 | 6.5 |
| HLA-A*30:02 | 1 | 853 | 861 | 9 | QKFNGLTVL 0.006307 | 8.4 |
| HLA-A*33:01 | 1 | 29 | 38 | 10 | TNSFTRGVVY 0.006306 | 6.1 |
| HLA-A*30:01 | 1 | 680 | 688 | 9 | SPRRARVA 0.006304 | 11 |
| HLA-A*02:01 | 1 | 1010 | 1018 | 9 | QLLIRAAEI 0.006297 | 6.2 |
| HLA-B*53:01 | 1 | 191 | 200 | 10 | EFVFKNIDGY 0.006291 | 4.1 |
| HLA-A*30:01 | 1 | 22 | 30 | 9 | TQLPPAYTN 0.006286 | 11 |
| HLA-B*35:01 | 1 | 46 | 55 | 10 | SVLHSTQDLF 0.006286 | 4.6 |
| HLA-A*30:01 | 1 | 936 | 944 | 9 | DSLSSTASA 0.006284 | 11 |
| HLA-B*51:01 | 1 | 173 | 181 | 9 | QPFLMDLEG 0.006283 | 7.7 |
| HLA-B*40:01 | 1 | 779 | 787 | 9 | QEVFAQVKQ 0.006283 | 3.4 |
| HLA-A*02:06 | 1 | 924 | 933 | 10 | ANQFNSAIGK 0.006283 | 8.7 |
| HLA-B*07:02 | 1 | 381 | 390 | 10 | GVSPTKLNDL 0.006282 | 4.8 |
| HLA-A*30:02 | 1 | 1067 | 1075 | 9 | YVPAQEKNF 0.00628 | 8.4 |
| HLA-B*44:03 | 1 | 684 | 692 | 9 | ARSVASQSI 0.006279 | 3.5 |
| HLA-B*40:01 | 1 | 1136 | 1145 | 10 | TVYDPLQPEL 0.006279 | 3.4 |
| HLA-B*08:01 | 1 | 679 | 688 | 10 | NSPRRARSVA 0.006275 | 7.7 |
| HLA-A*30:02 | 1 | 145 | 153 | 9 | YHKNNKSWM 0.006272 | 8.4 |
| HLA-B*57:01 | 1 | 954 | 962 | 9 | QNAQALNTL 0.006271 | 8.0 |
| HLA-A*02:06 | 1 | 648 | 656 | 9 | GCLIGAHEV 0.006268 | 8.7 |
| HLA-B*15:01 | 1 | 803 | 812 | 10 | SQILPDPSKP 0.006268 | 6.5 |
| HLA-A*23:01 | 1 | 214 | 223 | 10 | RDL PQGFSAL 0.006267 | 3.7 |
| HLA-A*68:02 | 1 | 720 | 729 | 10 | ISVTTEILPV 0.006262 | 6.4 |
| HLA-B*44:03 | 1 | 867 | 875 | 9 | DEMIAQYTS 0.006259 | 3.5 |
| HLA-A*30:02 | 1 | 929 | 938 | 10 | SAIGKIQDSL 0.006257 | 8.4 |
| HLA-B*40:01 | 1 | 233 | 241 | 9 | INITRFQTL 0.006253 | 3.4 |
| HLA-B*08:01 | 1 | 514 | 522 | 9 | SFELLHAPA 0.006252 | 7.8 |
| HLA-A*30:02 | 1 | 57 | 65 | 9 | PFFSNVTWF 0.006248 | 8.4 |
| HLA-A*30:01 | 1 | 62 | 71 | 10 | VTWFHAIHVS 0.006248 | 11 |
| HLA-B*51:01 | 1 | 318 | 327 | 10 | FRVQPTESIV 0.006248 | 7.7 |
| HLA-B*53:01 | 1 | 1148 | 1156 | 9 | FKEELDKYF 0.006248 | 4.1 |
| HLA-B*57:01 | 1 | 688 | 696 | 9 | ASQSIIAYT 0.006247 | 8.0 |
| HLA-A*68:02 | 1 | 833 | 841 | 9 | FIKQYGDCL 0.006247 | 6.5 |
| HLA-B*44:02 | 1 | 917 | 925 | 9 | YENQKLIAN 0.006247 | 3.3 |
| HLA-A*33:01 | 1 | 1055 | 1064 | 10 | SAPHGVVFLH 0.006243 | 6.2 |
| HLA-A*02:06 | 1 | 46 | 55 | 10 | SVLHSTQDLF 0.006242 | 8.8 |
| HLA-A*31:01 | 1 | 195 | 204 | 10 | KNIDGYFKIY 0.006241 | 7.7 |
| HLA-B*15:01 | 1 | 968 | 976 | 9 | SNFGAISSV 0.006239 | 6.5 |
| HLA-A*68:02 | 1 | 629 | 637 | 9 | LTPTWRVYS 0.006235 | 6.5 |
| HLA-B*35:01 | 1 | 37 | 46 | 10 | YYPDKVFRSS 0.006234 | 4.6 |
| HLA-A*02:06 | 1 | 939 | 948 | 10 | SSTASALGKL 0.006234 | 8.8 |
| HLA-B*51:01 | 1 | 852 | 860 | 9 | AQKFNGLTV 0.00623 | 7.7 |
| HLA-B*58:01 | 1 | 1055 | 1064 | 10 | SAPHGVVFLH 0.00623 | 5.4 |
| HLA-A*11:01 | 1 | 196 | 204 | 9 | NIDGYFKIY 0.006229 | 5.0 |
| HLA-B*44:03 | 1 | 880 | 888 | 9 | GTITSGWTF 0.006229 | 3.6 |
| HLA-A*01:01 | 1 | 1256 | 1265 | 10 | FDEDDSEPVL 0.006229 | 4.9 |
| HLA-A*30:02 | 1 | 198 | 207 | 10 | DGYFKIYSKH 0.006228 | 8.4 |
| HLA-B*44:02 | 1 | 1257 | 1266 | 10 | DEDDSEPVLK 0.006228 | 3.3 |
| HLA-B*58:01 | 1 | 691 | 699 | 9 | SIIAYTMSL 0.006223 | 5.4 |
| HLA-B*57:01 | 1 | 21 | 29 | 9 | RTQLPPAYT 0.006221 | 8.0 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*08:01 | 1 | 207 | 216 | 10 | HTPINLVRDL 0.006221 | 7.8 |
| HLA-A*02:01 | 1 | 417 | 426 | 10 | KIADYNYKLP 0.006221 | 6.3 |
| HLA-B*51:01 | 1 | 853 | 861 | 9 | QKFNGLTVL 0.00622 | 7.7 |
| HLA-A*26:01 | 1 | 198 | 206 | 9 | DGYFKIYSK 0.006219 | 4.2 |
| HLA-A*23:01 | 1 | 317 | 326 | 10 | NFRVQPTESI 0.006219 | 3.7 |
| HLA-B*15:01 | 1 | 1070 | 1079 | 10 | AQEKNFTTAP 0.006215 | 6.5 |
| HLA-B*51:01 | 1 | 575 | 584 | 10 | AVRDPQTLEI 0.006214 | 7.7 |
| HLA-A*26:01 | 1 | 1017 | 1025 | 9 | EIRASANLA 0.006214 | 4.2 |
| HLA-A*11:01 | 1 | 62 | 70 | 9 | VTWFHAIHV 0.00621 | 5.0 |
| HLA-B*44:03 | 1 | 320 | 329 | 10 | VQPTESIVRF 0.00621 | 3.6 |
| HLA-A*02:06 | 1 | 325 | 333 | 9 | SIVRFPNIT 0.00621 | 8.8 |
| HLA-B*08:01 | 1 | 56 | 65 | 10 | LPFFSNVTWF 0.006208 | 7.8 |
| HLA-B*58:01 | 1 | 11 | 19 | 9 | VSSQCVNLT 0.006204 | 5.4 |
| HLA-A*26:01 | 1 | 448 | 456 | 9 | NYNYLYRLF 0.006203 | 4.2 |
| HLA-B*35:01 | 1 | 833 | 841 | 9 | FIKQYGDCL 0.006202 | 4.6 |
| HLA-B*40:01 | 1 | 463 | 472 | 10 | PFERDISTEI 0.006201 | 3.4 |
| HLA-B*07:02 | 1 | 719 | 727 | 9 | TISVTTEIL 0.006201 | 4.8 |
| HLA-B*57:01 | 1 | 790 | 798 | 9 | KTPPIKDFG 0.006198 | 8.1 |
| HLA-A*30:01 | 1 | 399 | 407 | 9 | SFVIRGDEV 0.006195 | 11 |
| HLA-A*26:01 | 1 | 869 | 878 | 10 | MIAQYTSALL 0.006195 | 4.2 |
| HLA-A*31:01 | 1 | 1237 | 1245 | 9 | MTSCCCLK 0.006191 | 7.8 |
| HLA-A*68:02 | 1 | 883 | 892 | 10 | TSGWTFGAGA 0.00619 | 6.5 |
| HLA-B*35:01 | 1 | 1197 | 1206 | 10 | LIDLQELGKY 0.00619 | 4.6 |
| HLA-B*53:01 | 1 | 111 | 119 | 9 | DSKTQSLLI 0.006189 | 4.1 |
| HLA-A*02:03 | 1 | 717 | 726 | 10 | NFTISVTTEI 0.006188 | 7.1 |
| HLA-B*08:01 | 1 | 184 | 192 | 9 | GNFKNLREF 0.006187 | 7.8 |
| HLA-B*44:03 | 1 | 652 | 660 | 9 | GAEHVNNSY 0.006187 | 3.6 |
| HLA-B*44:02 | 1 | 1185 | 1193 | 9 | RLNEVAKNL 0.006186 | 3.3 |
| HLA-A*68:02 | 1 | 705 | 714 | 10 | VAYSNNISIAI 0.006185 | 6.5 |
| HLA-B*57:01 | 1 | 513 | 522 | 10 | LSFELLHAPA 0.006184 | 8.1 |
| HLA-A*23:01 | 1 | 642 | 650 | 9 | VFQTRAGCL 0.006183 | 3.7 |
| HLA-A*30:01 | 1 | 341 | 350 | 10 | VFNATRFASV 0.006182 | 11 |
| HLA-A*26:01 | 1 | 1038 | 1047 | 10 | KRVDFCGKGY 0.00618 | 4.2 |
| HLA-A*31:01 | 1 | 1147 | 1155 | 9 | SFKEELDKY 0.00618 | 7.8 |
| HLA-B*08:01 | 1 | 138 | 146 | 9 | DPFLGVYYH 0.006179 | 7.8 |
| HLA-B*57:01 | 1 | 323 | 332 | 10 | TESIVRFPNI 0.006179 | 8.1 |
| HLA-A*30:01 | 1 | 1051 | 1060 | 10 | SFPQSAPHGV 0.006179 | 11 |
| HLA-A*24:02 | 1 | 583 | 592 | 10 | EILDITPCSF 0.006178 | 3.7 |
| HLA-A*03:01 | 1 | 1098 | 1107 | 10 | NGTHWFVTQR 0.006178 | 5.7 |
| HLA-B*57:01 | 1 | 464 | 473 | 10 | FERDISTEII 0.006167 | 8.1 |
| HLA-A*30:01 | 1 | 632 | 640 | 9 | TWRVYSTGS 0.006167 | 11 |
| HLA-A*30:01 | 1 | 723 | 731 | 9 | TTEILPVSM 0.006167 | 11 |
| HLA-A*26:01 | 1 | 510 | 518 | 9 | VVLSFELL 0.006165 | 4.2 |
| HLA-A*30:02 | 1 | 673 | 682 | 10 | SYQTQTNSPR 0.006164 | 8.5 |
| HLA-A*32:01 | 1 | 298 | 306 | 9 | ETKCTLKSF 0.006162 | 4.5 |
| HLA-A*01:01 | 1 | 356 | 365 | 10 | KRISNCVADY 0.006162 | 4.9 |
| HLA-A*68:02 | 1 | 23 | 31 | 9 | QLPPAYTNS 0.006157 | 6.5 |
| HLA-A*23:01 | 1 | 20 | 28 | 9 | TRTQLPPAY 0.006154 | 3.7 |
| HLA-A*30:01 | 1 | 406 | 414 | 9 | EVRQIAPGQ 0.006154 | 11 |
| HLA-A*30:01 | 1 | 513 | 521 | 9 | LSFELLHAP 0.006154 | 11 |
| HLA-A*26:01 | 1 | 937 | 945 | 9 | SLSSTASAL 0.006153 | 4.2 |
| HLA-A*01:01 | 1 | 365 | 374 | 10 | YSVLYNSASF 0.006151 | 5.0 |
| HLA-A*30:02 | 1 | 999 | 1008 | 10 | GRLQSLQTYV 0.006149 | 8.5 |
| HLA-B*51:01 | 1 | 1032 | 1040 | 9 | CVLGQSKRV 0.006147 | 7.8 |
| HLA-B*15:01 | 1 | 243 | 251 | 9 | ALHRSYLTP 0.006146 | 6.5 |
| HLA-B*53:01 | 1 | 630 | 638 | 9 | TPTWRVYST 0.006143 | 4.1 |
| HLA-A*02:03 | 1 | 851 | 860 | 10 | CAQKFNGLTV 0.006143 | 7.1 |
| HLA-A*02:03 | 1 | 23 | 32 | 10 | QLPPAYTNSF 0.00614 | 7.1 |
| HLA-A*31:01 | 1 | 40 | 49 | 10 | DKVFRSSVLH 0.006139 | 7.8 |
| HLA-A*24:02 | 1 | 627 | 635 | 9 | DQLTPTWRV 0.006139 | 3.7 |
| HLA-A*26:01 | 1 | 936 | 944 | 9 | DSLSSTASA 0.006139 | 4.2 |
| HLA-B*57:01 | 1 | 717 | 726 | 10 | NFTISVTTEI 0.006137 | 8.1 |
| HLA-A*30:01 | 1 | 629 | 637 | 9 | LTPTWRVYS 0.006135 | 11 |
| HLA-B*08:01 | 1 | 444 | 452 | 9 | KVGGNYNYL 0.006133 | 7.9 |
| HLA-A*32:01 | 1 | 151 | 160 | 10 | SWMESEFRVY 0.006129 | 4.5 |
| HLA-A*02:06 | 1 | 313 | 322 | 10 | YQTSNFRVQP 0.006129 | 8.8 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*02:06 | 1 | 59 | 68 | 10 | FSNVTWFHAI 0.006128 | 8.8 |
| HLA-A*30:02 | 1 | 158 | 167 | 10 | RVYSSANNCT 0.006125 | 8.5 |
| HLA-A*11:01 | 1 | 1136 | 1145 | 10 | TVYDPLQPEL 0.006123 | 5.0 |
| HLA-A*02:03 | 1 | 235 | 243 | 9 | ITRFQTLA 0.00612 | 7.2 |
| HLA-A*02:01 | 1 | 733 | 742 | 10 | KTSVDCTMYI 0.00612 | 6.3 |
| HLA-A*11:01 | 1 | 1030 | 1038 | 9 | SECVLGQSK 0.00612 | 5.0 |
| HLA-B*08:01 | 1 | 28 | 36 | 9 | YTNSFTRGV 0.006118 | 7.9 |
| HLA-A*02:03 | 1 | 698 | 707 | 10 | SLGAENSVAY 0.006116 | 7.2 |
| HLA-A*32:01 | 1 | 780 | 789 | 10 | EVFAQVKQIY 0.006115 | 4.5 |
| HLA-A*11:01 | 1 | 803 | 812 | 10 | SQILPDPSKP 0.006114 | 5.0 |
| HLA-B*08:01 | 1 | 455 | 464 | 10 | LFRKSNLKP 0.006112 | 7.9 |
| HLA-B*51:01 | 1 | 108 | 117 | 10 | TTLDSKTQSL 0.006109 | 7.8 |
| HLA-A*02:06 | 1 | 382 | 390 | 9 | VSPTKLNDL 0.006105 | 8.8 |
| HLA-A*33:01 | 1 | 215 | 223 | 9 | DLPGQFSAL 0.006103 | 6.2 |
| HLA-B*35:01 | 1 | 1086 | 1095 | 10 | KAHFPREGVF 0.006096 | 4.6 |
| HLA-A*30:02 | 1 | 214 | 223 | 10 | RDLPGQFSAL 0.006094 | 8.5 |
| HLA-A*01:01 | 1 | 637 | 645 | 9 | STGSNVFQT 0.006093 | 5.0 |
| HLA-A*32:01 | 1 | 486 | 495 | 10 | FNCYFPLQSY 0.006092 | 4.5 |
| HLA-A*03:01 | 1 | 327 | 335 | 9 | VRFPNITNL 0.00609 | 5.7 |
| HLA-B*08:01 | 1 | 510 | 518 | 9 | VVLSFELL 0.00609 | 7.9 |
| HLA-A*30:01 | 1 | 1207 | 1215 | 9 | EQYIKWPWY 0.00609 | 12 |
| HLA-A*30:01 | 1 | 1227 | 1235 | 9 | IVMVTIMLC 0.006085 | 12 |
| HLA-A*30:01 | 1 | 1020 | 1029 | 10 | ASANLAATKM 0.006084 | 12 |
| HLA-A*01:01 | 1 | 689 | 697 | 9 | SQSIIAYTM 0.006083 | 5.0 |
| HLA-A*02:06 | 1 | 238 | 247 | 10 | FQTLALHRS 0.00608 | 8.9 |
| HLA-B*58:01 | 1 | 732 | 741 | 10 | TKTSVDCTMY 0.006076 | 5.5 |
| HLA-A*03:01 | 1 | 178 | 187 | 10 | DLEGKQGNFK 0.006075 | 5.7 |
| HLA-B*53:01 | 1 | 77 | 86 | 10 | KRFDNPVLPF 0.006072 | 4.2 |
| HLA-A*68:01 | 1 | 526 | 535 | 10 | GPKKSTNLVK 0.006072 | 8.2 |
| HLA-B*15:01 | 1 | 236 | 244 | 9 | TRFQTLAL 0.006071 | 6.6 |
| HLA-A*30:01 | 1 | 328 | 337 | 10 | RFPNITNLCP 0.006071 | 12 |
| HLA-A*30:01 | 1 | 684 | 692 | 9 | ARSVASQSI 0.006071 | 12 |
| HLA-A*03:01 | 1 | 815 | 823 | 9 | RSFIEDLLF 0.006066 | 5.7 |
| HLA-A*30:01 | 1 | 886 | 894 | 9 | WTFGAGAAL 0.006066 | 12 |
| HLA-B*15:01 | 1 | 575 | 583 | 9 | AVRDPQTL 0.006065 | 6.6 |
| HLA-A*02:06 | 1 | 1024 | 1033 | 10 | LAATKMSECV 0.006065 | 8.9 |
| HLA-A*31:01 | 1 | 555 | 563 | 9 | SNKKFLPFQ 0.006062 | 7.8 |
| HLA-A*32:01 | 1 | 697 | 705 | 9 | MSLGAENSV 0.006062 | 4.5 |
| HLA-A*68:02 | 1 | 1072 | 1081 | 10 | EKNFTTAPAI 0.006061 | 6.6 |
| HLA-A*30:01 | 1 | 31 | 39 | 9 | SFTRGVYYP 0.006059 | 12 |
| HLA-A*30:02 | 1 | 857 | 865 | 9 | GLTVLPPLL 0.006054 | 8.6 |
| HLA-A*30:01 | 1 | 783 | 791 | 9 | AQVKQIYKT 0.006052 | 12 |
| HLA-A*26:01 | 1 | 992 | 1000 | 9 | QIDRLITGR 0.006052 | 4.3 |
| HLA-A*02:01 | 1 | 908 | 916 | 9 | GIGVTQNVL 0.006051 | 6.3 |
| HLA-A*02:06 | 1 | 877 | 885 | 9 | LLAGTITSG 0.00605 | 8.9 |
| HLA-B*15:01 | 1 | 1136 | 1144 | 9 | TVYDPLQPE 0.00605 | 6.6 |
| HLA-B*57:01 | 1 | 720 | 728 | 9 | ISVTTEILP 0.006047 | 8.1 |
| HLA-B*58:01 | 1 | 999 | 1007 | 9 | GRLQSLQTY 0.006042 | 5.5 |
| HLA-A*30:02 | 1 | 722 | 731 | 10 | VTTEILPVSM 0.006041 | 8.6 |
| HLA-B*58:01 | 1 | 685 | 694 | 10 | RSVASQSIIA 0.00604 | 5.5 |
| HLA-A*02:06 | 1 | 968 | 977 | 10 | SNFGAISSVL 0.00604 | 8.9 |
| HLA-B*53:01 | 1 | 814 | 823 | 10 | KRSFIEDLLF 0.006039 | 4.2 |
| HLA-A*30:01 | 1 | 232 | 241 | 10 | GINITRFQTL 0.006035 | 12 |
| HLA-A*30:01 | 1 | 239 | 247 | 9 | QTLLALHRS 0.006034 | 12 |
| HLA-A*33:01 | 1 | 324 | 332 | 9 | ESIVRFPNI 0.006034 | 6.3 |
| HLA-A*02:03 | 1 | 192 | 200 | 9 | FVFKNIDGY 0.006032 | 7.2 |
| HLA-A*31:01 | 1 | 666 | 674 | 9 | IGAGICASY 0.00603 | 7.8 |
| HLA-B*15:01 | 1 | 624 | 633 | 10 | IHADQLTPTW 0.006027 | 6.6 |
| HLA-B*58:01 | 1 | 961 | 970 | 10 | TLVKQLSSNF 0.006026 | 5.5 |
| HLA-B*57:01 | 1 | 1227 | 1235 | 9 | IVMVTIMLC 0.006026 | 8.1 |
| HLA-A*23:01 | 1 | 1139 | 1148 | 10 | DPLQPELDSF 0.006025 | 3.8 |
| HLA-B*51:01 | 1 | 98 | 106 | 9 | SNIIRGWIF 0.006024 | 7.9 |
| HLA-B*51:01 | 1 | 797 | 806 | 10 | FGGFNFSQIL 0.006023 | 7.9 |
| HLA-A*30:02 | 1 | 870 | 879 | 10 | IAQYTSALLA 0.006022 | 8.6 |
| HLA-A*02:06 | 1 | 45 | 54 | 10 | SSVLHSTQDL 0.00602 | 8.9 |
| HLA-B*58:01 | 1 | 260 | 269 | 10 | AGAAAYVGY 0.00602 | 5.5 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|
| HLA-A*26:01 | 1 | 96 | 104 | 9 | EKSNIIRGW | 0.006019 | 4.3 |
| HLA-A*02:06 | 1 | 1264 | 1272 | 9 | VLKGVKLHY | 0.006019 | 8.9 |
| HLA-A*02:03 | 1 | 971 | 980 | 10 | GAISSVLNDI | 0.006017 | 7.2 |
| HLA-B*57:01 | 1 | 746 | 754 | 9 | STECSNLLL | 0.006016 | 8.1 |
| HLA-B*40:01 | 1 | 951 | 959 | 9 | VVNQAQAL | 0.006016 | 3.5 |
| HLA-A*30:01 | 1 | 1062 | 1070 | 9 | FLHVTVVPA | 0.006016 | 12 |
| HLA-B*57:01 | 1 | 1049 | 1058 | 10 | LMSFPQSAPH | 0.006015 | 8.1 |
| HLA-B*15:01 | 1 | 983 | 991 | 9 | RLDKVEAEV | 0.006013 | 6.6 |
| HLA-B*57:01 | 1 | 1073 | 1081 | 9 | KNFTTAPAI | 0.006009 | 8.1 |
| HLA-A*02:03 | 1 | 175 | 184 | 10 | FLMDLEGKQG | 0.006008 | 7.2 |
| HLA-B*15:01 | 1 | 168 | 177 | 10 | FEYVSQPFLM | 0.006004 | 6.6 |
| HLA-A*30:01 | 1 | 327 | 336 | 10 | VRFPNITNLC | 0.006004 | 12 |
| HLA-B*15:01 | 1 | 964 | 972 | 9 | KQLSSNFGA | 0.006004 | 6.6 |
| HLA-A*02:03 | 1 | 392 | 401 | 10 | FTNVYADSFV | 0.006001 | 7.2 |
| HLA-B*07:02 | 1 | 620 | 628 | 9 | VPVAIHADQ | 0.006001 | 4.9 |
| HLA-B*08:01 | 1 | 982 | 991 | 10 | SRLDKVEAEV | 0.005998 | 7.9 |
| HLA-B*58:01 | 1 | 262 | 270 | 9 | AAAYYVGYL | 0.005996 | 5.5 |
| HLA-B*08:01 | 1 | 135 | 143 | 9 | FCNDPFLGV | 0.005994 | 7.9 |
| HLA-B*15:01 | 1 | 1226 | 1234 | 9 | AIVMVTIML | 0.005994 | 6.6 |
| HLA-B*58:01 | 1 | 1122 | 1130 | 9 | VSGNCDVVI | 0.005991 | 5.5 |
| HLA-A*02:03 | 1 | 875 | 884 | 10 | SALLAGTITS | 0.005989 | 7.2 |
| HLA-B*53:01 | 1 | 533 | 541 | 9 | LVKNKCVNF | 0.005985 | 4.2 |
| HLA-B*44:03 | 1 | 852 | 860 | 9 | AQKFNGLTV | 0.005984 | 3.6 |
| HLA-A*68:01 | 1 | 169 | 177 | 9 | EYVSQPFLM | 0.005983 | 8.3 |
| HLA-B*51:01 | 1 | 47 | 55 | 9 | VLHSTQDLF | 0.005979 | 7.9 |
| HLA-A*31:01 | 1 | 1208 | 1217 | 10 | QYIKWPWYIW | 0.005977 | 7.9 |
| HLA-B*44:03 | 1 | 701 | 710 | 10 | AENSVAYSNN | 0.005976 | 3.7 |
| HLA-A*01:01 | 1 | 725 | 733 | 9 | EILPVSMTK | 0.005974 | 5.0 |
| HLA-B*15:01 | 1 | 798 | 806 | 9 | GGFNFSQIL | 0.005972 | 6.6 |
| HLA-B*15:01 | 1 | 56 | 65 | 10 | LPFFSNVTWF | 0.005968 | 6.6 |
| HLA-A*68:02 | 1 | 523 | 531 | 9 | TVCGPKKST | 0.005967 | 6.6 |
| HLA-A*30:02 | 1 | 1196 | 1205 | 10 | SLIDLQELGK | 0.005967 | 8.6 |
| HLA-A*02:06 | 1 | 698 | 706 | 9 | SLGAENVA | 0.005965 | 8.9 |
| HLA-B*08:01 | 1 | 235 | 244 | 10 | ITRFQTLAL | 0.00596 | 8.0 |
| HLA-A*30:02 | 1 | 314 | 322 | 9 | QTSNFRVQP | 0.00596 | 8.7 |
| HLA-A*68:02 | 1 | 317 | 326 | 10 | NFRVQPTESI | 0.00596 | 6.6 |
| HLA-A*01:01 | 1 | 793 | 802 | 10 | PIKDFGGFNF | 0.005959 | 5.1 |
| HLA-B*08:01 | 1 | 1094 | 1102 | 9 | VFVSNGTHW | 0.005957 | 8.0 |
| HLA-A*01:01 | 1 | 1042 | 1050 | 9 | FCGKGYHLM | 0.005956 | 5.1 |
| HLA-B*57:01 | 1 | 1095 | 1104 | 10 | FVSNGTHWFV | 0.005956 | 8.2 |
| HLA-B*44:03 | 1 | 803 | 811 | 9 | SQILPDPSK | 0.005953 | 3.7 |
| HLA-A*02:01 | 1 | 766 | 774 | 9 | ALTGIAVEQ | 0.00595 | 6.4 |
| HLA-A*30:01 | 1 | 1043 | 1051 | 9 | CGKGYHLMS | 0.005947 | 12 |
| HLA-B*08:01 | 1 | 171 | 179 | 9 | VSQPFLMDL | 0.005946 | 8.0 |
| HLA-A*11:01 | 1 | 882 | 890 | 9 | ITSGWTFGA | 0.005946 | 5.1 |
| HLA-A*31:01 | 1 | 50 | 59 | 10 | STQDLFLPFF | 0.005944 | 7.9 |
| HLA-A*23:01 | 1 | 227 | 235 | 9 | VDLPIGINI | 0.005944 | 3.8 |
| HLA-B*51:01 | 1 | 1207 | 1216 | 10 | EQYIKWPWYI | 0.00594 | 7.9 |
| HLA-B*35:01 | 1 | 260 | 269 | 10 | AGAAAYYVGY | 0.005939 | 4.7 |
| HLA-A*01:01 | 1 | 772 | 781 | 10 | VEQDKNTQEV | 0.005939 | 5.1 |
| HLA-A*30:01 | 1 | 1059 | 1068 | 10 | GVVFLHVTVV | 0.005938 | 12 |
| HLA-B*35:01 | 1 | 482 | 490 | 9 | GVEGFNCYF | 0.005937 | 4.7 |
| HLA-B*44:03 | 1 | 1261 | 1269 | 9 | SEPVLKGVK | 0.005937 | 3.7 |
| HLA-A*02:06 | 1 | 417 | 426 | 10 | KIADYNYKLP | 0.005934 | 8.9 |
| HLA-A*01:01 | 1 | 818 | 826 | 9 | IEDLLFNKV | 0.005934 | 5.1 |
| HLA-A*30:02 | 1 | 1034 | 1042 | 9 | LGQSKRVDF | 0.00593 | 8.7 |
| HLA-A*30:02 | 1 | 97 | 105 | 9 | KSNIIRGWI | 0.005928 | 8.7 |
| HLA-B*51:01 | 1 | 110 | 118 | 9 | LDSKTQSL | 0.005928 | 8.0 |
| HLA-A*24:02 | 1 | 709 | 718 | 10 | NNSIAIPTNF | 0.005928 | 3.8 |
| HLA-B*51:01 | 1 | 896 | 905 | 10 | IPFAMQMAYR | 0.005928 | 8.0 |
| HLA-B*44:02 | 1 | 653 | 662 | 10 | AEHVNNSYEC | 0.005926 | 3.4 |
| HLA-B*08:01 | 1 | 1212 | 1220 | 9 | WPWYIWLGF | 0.005926 | 8.0 |
| HLA-B*51:01 | 1 | 285 | 293 | 9 | ITDAVDCAL | 0.005923 | 8.0 |
| HLA-A*03:01 | 1 | 413 | 421 | 9 | GQTGKIADY | 0.005922 | 5.8 |
| HLA-A*30:02 | 1 | 870 | 878 | 9 | IAQYTSALL | 0.005922 | 8.7 |
| HLA-B*44:02 | 1 | 154 | 163 | 10 | ESEFRVYSSA | 0.005917 | 3.4 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|
| HLA-A*32:01 | 1 | 54 | 62 | 9 | LFLPFFSNV | 0.005916 | 4.6 |
| HLA-A*02:03 | 1 | 850 | 858 | 9 | ICAQKFNGL | 0.005916 | 7.3 |
| HLA-A*30:01 | 1 | 799 | 807 | 9 | GFNFSQILP | 0.005912 | 12 |
| HLA-A*33:01 | 1 | 378 | 386 | 9 | KCYGVSPTK | 0.005911 | 6.3 |
| HLA-A*02:03 | 1 | 914 | 922 | 9 | NVLYENQKL | 0.00591 | 7.3 |
| HLA-A*30:01 | 1 | 110 | 119 | 10 | LDSKTQSLLI | 0.005909 | 12 |
| HLA-A*68:01 | 1 | 342 | 351 | 10 | FNATRFASVY | 0.005909 | 8.3 |
| HLA-B*44:02 | 1 | 829 | 838 | 10 | ADAGFIKQYG | 0.005908 | 3.4 |
| HLA-A*30:02 | 1 | 186 | 194 | 9 | FKNLREFVF | 0.005907 | 8.7 |
| HLA-B*44:03 | 1 | 84 | 92 | 9 | LPFNDGVYF | 0.005902 | 3.7 |
| HLA-A*32:01 | 1 | 882 | 890 | 9 | ITSGWTFGA | 0.005901 | 4.6 |
| HLA-B*15:01 | 1 | 1075 | 1083 | 9 | FTTAPAICH | 0.005901 | 6.6 |
| HLA-B*15:01 | 1 | 199 | 207 | 9 | GYFKIYSKH | 0.0059 | 6.6 |
| HLA-A*68:02 | 1 | 201 | 210 | 10 | FKIYSKHTPI | 0.0059 | 6.7 |
| HLA-A*68:02 | 1 | 687 | 695 | 9 | VASQSIIAY | 0.005898 | 6.7 |
| HLA-A*30:02 | 1 | 776 | 785 | 10 | KNTQEVFAQV | 0.005898 | 8.7 |
| HLA-A*01:01 | 1 | 827 | 835 | 9 | TLADAGFIK | 0.005897 | 5.1 |
| HLA-A*02:03 | 1 | 291 | 299 | 9 | CALDPLSET | 0.005891 | 7.3 |
| HLA-A*32:01 | 1 | 603 | 612 | 10 | NTSNQVAVLY | 0.005887 | 4.6 |
| HLA-A*68:02 | 1 | 84 | 92 | 9 | LPFNDGVYF | 0.005883 | 6.7 |
| HLA-A*32:01 | 1 | 603 | 611 | 9 | NTSNQVAVL | 0.005881 | 4.6 |
| HLA-A*02:03 | 1 | 1061 | 1070 | 10 | VFLHVTVVPA | 0.00588 | 7.3 |
| HLA-B*08:01 | 1 | 957 | 966 | 10 | QALNTLVKQL | 0.005878 | 8.0 |
| HLA-B*53:01 | 1 | 29 | 38 | 10 | TNSFTRGVVY | 0.005876 | 4.2 |
| HLA-A*31:01 | 1 | 60 | 68 | 9 | SNVTWFHAI | 0.005873 | 7.9 |
| HLA-A*02:01 | 1 | 82 | 90 | 9 | PVLPFNDGV | 0.005872 | 6.4 |
| HLA-A*02:03 | 1 | 241 | 250 | 10 | LLALHRSYLT | 0.005872 | 7.3 |
| HLA-B*08:01 | 1 | 505 | 514 | 10 | YQPYRVVVL | 0.00587 | 8.0 |
| HLA-A*30:02 | 1 | 835 | 844 | 10 | KQYGDCLGDI | 0.00587 | 8.7 |
| HLA-A*68:01 | 1 | 528 | 537 | 10 | KKSTNLVKNK | 0.005869 | 8.3 |
| HLA-A*02:06 | 1 | 1170 | 1179 | 10 | SGINASVVNI | 0.005869 | 9.0 |
| HLA-A*30:01 | 1 | 1108 | 1116 | 9 | NFYEQIIT | 0.005868 | 12 |
| HLA-A*33:01 | 1 | 122 | 130 | 9 | NATNVVIKV | 0.005867 | 6.3 |
| HLA-B*51:01 | 1 | 515 | 524 | 10 | FELLHAPATV | 0.005867 | 8.0 |
| HLA-A*68:02 | 1 | 637 | 646 | 10 | STGSNVFQTR | 0.005865 | 6.7 |
| HLA-B*35:01 | 1 | 731 | 740 | 10 | MTKTSVDCTM | 0.005864 | 4.7 |
| HLA-B*08:01 | 1 | 1177 | 1186 | 10 | VNIQKEIDRL | 0.005862 | 8.0 |
| HLA-A*30:02 | 1 | 512 | 520 | 9 | VLSFELLHA | 0.00586 | 8.7 |
| HLA-A*30:02 | 1 | 877 | 886 | 10 | LLAGTITSGW | 0.00586 | 8.7 |
| HLA-A*24:02 | 1 | 382 | 390 | 9 | VSPTKLNDL | 0.005859 | 3.8 |
| HLA-B*35:01 | 1 | 576 | 584 | 9 | VRDPQTLEI | 0.005859 | 4.7 |
| HLA-B*35:01 | 1 | 193 | 201 | 9 | VFKNIDGYF | 0.005857 | 4.7 |
| HLA-A*23:01 | 1 | 318 | 326 | 9 | FRVQPTESI | 0.005852 | 3.8 |
| HLA-A*68:01 | 1 | 1145 | 1154 | 10 | LDSFKEELDK | 0.00585 | 8.3 |
| HLA-A*03:01 | 1 | 1146 | 1154 | 9 | DSFKEELDK | 0.00585 | 5.8 |
| HLA-A*31:01 | 1 | 448 | 456 | 9 | NYNLYRLF | 0.005849 | 8.0 |
| HLA-B*15:01 | 1 | 384 | 392 | 9 | PTKLNDLCF | 0.005848 | 6.7 |
| HLA-A*32:01 | 1 | 1140 | 1148 | 9 | PLQPELDSF | 0.005847 | 4.6 |
| HLA-A*68:02 | 1 | 953 | 962 | 10 | NQNAQALNTL | 0.005846 | 6.7 |
| HLA-B*58:01 | 1 | 1024 | 1032 | 9 | LAATKMSEC | 0.005845 | 5.5 |
| HLA-A*02:06 | 1 | 1048 | 1057 | 10 | HLMSFPQSAP | 0.005845 | 9.0 |
| HLA-A*24:02 | 1 | 1112 | 1121 | 10 | PQIITDNTF | 0.005845 | 3.8 |
| HLA-A*01:01 | 1 | 254 | 262 | 9 | SSSGWTAGA | 0.005841 | 5.1 |
| HLA-A*68:01 | 1 | 936 | 944 | 9 | DSLSSTASA | 0.005841 | 8.3 |
| HLA-A*30:01 | 1 | 1088 | 1096 | 9 | HFPREGVVF | 0.005841 | 12 |
| HLA-A*02:06 | 1 | 22 | 30 | 9 | TQLPPAYTN | 0.005838 | 9.0 |
| HLA-A*26:01 | 1 | 675 | 683 | 9 | QTQTNSPRR | 0.005838 | 4.4 |
| HLA-A*01:01 | 1 | 1000 | 1008 | 9 | RLQSLQTYV | 0.005837 | 5.1 |
| HLA-B*08:01 | 1 | 62 | 70 | 9 | VTWFHAIHV | 0.005828 | 8.1 |
| HLA-A*30:01 | 1 | 231 | 239 | 9 | IGINITRFQ | 0.005828 | 12 |
| HLA-B*40:01 | 1 | 1200 | 1209 | 10 | LQELGKYEYQ | 0.005828 | 3.5 |
| HLA-A*03:01 | 1 | 674 | 683 | 10 | YQTQTNSPRR | 0.005827 | 5.8 |
| HLA-A*68:02 | 1 | 660 | 668 | 9 | YECDIPIGA | 0.005825 | 6.7 |
| HLA-B*57:01 | 1 | 850 | 858 | 9 | ICAQKFNGL | 0.005825 | 8.3 |
| HLA-A*23:01 | 1 | 890 | 898 | 9 | AGAALQIPF | 0.005825 | 3.8 |
| HLA-B*57:01 | 1 | 489 | 497 | 9 | YFPLQSYGF | 0.005822 | 8.3 |

| | | | | | | |
|-------------|---|------|------|----|-----------------------|-----|
| HLA-A*01:01 | 1 | 288 | 296 | 9 | AVDCALDPL 0.005818 | 5.1 |
| HLA-B*44:02 | 1 | 867 | 876 | 10 | DEMIAQYTS A 0.005818 | 3.4 |
| HLA-A*03:01 | 1 | 549 | 557 | 9 | TGVLTESNK 0.005811 | 5.8 |
| HLA-A*30:02 | 1 | 367 | 375 | 9 | VLYNSASF S 0.00581 | 8.8 |
| HLA-B*51:01 | 1 | 411 | 419 | 9 | APGQTGKIA 0.00581 | 8.0 |
| HLA-A*30:01 | 1 | 522 | 531 | 10 | ATVCGPKKST 0.00581 | 12 |
| HLA-A*33:01 | 1 | 233 | 241 | 9 | INITRFQTL 0.005809 | 6.3 |
| HLA-A*68:02 | 1 | 922 | 931 | 10 | LIANQFN SAI 0.005808 | 6.7 |
| HLA-A*68:02 | 1 | 502 | 511 | 10 | GVGYQPYRVV 0.005807 | 6.7 |
| HLA-B*07:02 | 1 | 218 | 226 | 9 | QGFSALEPL 0.005804 | 5.0 |
| HLA-A*24:02 | 1 | 1185 | 1193 | 9 | RLNEVAKNL 0.005802 | 3.8 |
| HLA-A*02:06 | 1 | 214 | 222 | 9 | RDL PQGFSA 0.005801 | 9.1 |
| HLA-B*57:01 | 1 | 358 | 367 | 10 | ISNCVADYSV 0.005801 | 8.3 |
| HLA-A*31:01 | 1 | 304 | 313 | 10 | KSFTVEKGIY 0.005797 | 8.0 |
| HLA-B*51:01 | 1 | 557 | 565 | 9 | KKFLPFQ QF 0.005797 | 8.0 |
| HLA-B*35:01 | 1 | 218 | 226 | 9 | QGFSALEPL 0.005796 | 4.7 |
| HLA-B*07:02 | 1 | 557 | 565 | 9 | KKFLPFQ QF 0.005795 | 5.0 |
| HLA-A*31:01 | 1 | 558 | 566 | 9 | KFLPFQ QFG 0.005792 | 8.0 |
| HLA-A*02:03 | 1 | 870 | 879 | 10 | IAQYTSALLA 0.005792 | 7.4 |
| HLA-A*68:02 | 1 | 294 | 303 | 10 | DPLSE TKCTL 0.005789 | 6.7 |
| HLA-A*68:01 | 1 | 30 | 39 | 10 | NSFTRGVYYP 0.005787 | 8.4 |
| HLA-B*08:01 | 1 | 196 | 204 | 9 | NIDGYFKIY 0.005787 | 8.1 |
| HLA-B*40:01 | 1 | 1257 | 1266 | 10 | DEDDSEPV LK 0.005786 | 3.5 |
| HLA-B*51:01 | 1 | 533 | 541 | 9 | LVKNKCVNF 0.005785 | 8.0 |
| HLA-B*58:01 | 1 | 580 | 589 | 10 | QTLEILDITP 0.005785 | 5.6 |
| HLA-B*44:02 | 1 | 880 | 888 | 9 | GTITSGWTF 0.005784 | 3.4 |
| HLA-A*30:02 | 1 | 1019 | 1027 | 9 | RASANLAAT 0.005783 | 8.8 |
| HLA-A*01:01 | 1 | 70 | 79 | 10 | VSGTNGTKRF 0.005777 | 5.2 |
| HLA-A*30:02 | 1 | 603 | 611 | 9 | NTSNQVAVL 0.005777 | 8.8 |
| HLA-A*02:01 | 1 | 275 | 283 | 9 | FLLKYNENG 0.005775 | 6.5 |
| HLA-B*57:01 | 1 | 171 | 180 | 10 | VSQPFLMDLE 0.005774 | 8.3 |
| HLA-B*58:01 | 1 | 722 | 730 | 9 | VTTEILPVS 0.005774 | 5.6 |
| HLA-A*32:01 | 1 | 151 | 159 | 9 | SWMESEFRV 0.005771 | 4.6 |
| HLA-B*08:01 | 1 | 250 | 258 | 9 | TPGDSSSGW 0.00577 | 8.1 |
| HLA-A*02:06 | 1 | 41 | 50 | 10 | KVFRSSVLHS 0.005767 | 9.1 |
| HLA-B*58:01 | 1 | 170 | 179 | 10 | YVSQPFLMDL 0.005764 | 5.6 |
| HLA-A*68:01 | 1 | 443 | 451 | 9 | SKVGGNYNY 0.005763 | 8.4 |
| HLA-A*68:02 | 1 | 506 | 514 | 9 | QPYRVV VLS 0.005763 | 6.7 |
| HLA-A*01:01 | 1 | 894 | 902 | 9 | LQIPFAMQM 0.00576 | 5.2 |
| HLA-B*15:01 | 1 | 454 | 462 | 9 | RLFRKSNLK 0.005759 | 6.7 |
| HLA-A*33:01 | 1 | 1209 | 1217 | 9 | YIKWPWYIW 0.005759 | 6.4 |
| HLA-B*58:01 | 1 | 780 | 789 | 10 | EVFAQVKQIY 0.005757 | 5.6 |
| HLA-A*24:02 | 1 | 488 | 496 | 9 | CYFPLQSYG 0.005756 | 3.8 |
| HLA-A*02:01 | 1 | 1185 | 1194 | 10 | RLNEVAKNLN 0.005756 | 6.5 |
| HLA-A*30:01 | 1 | 371 | 379 | 9 | SASFSTFKC 0.005754 | 12 |
| HLA-A*02:01 | 1 | 741 | 749 | 9 | YICGDSTEC 0.005754 | 6.5 |
| HLA-A*30:01 | 1 | 10 | 18 | 9 | LVSSQC VNL 0.005752 | 12 |
| HLA-A*32:01 | 1 | 503 | 511 | 9 | VGYPYRVV 0.005752 | 4.6 |
| HLA-A*30:01 | 1 | 1155 | 1164 | 10 | YFKNHTSPDV 0.005752 | 12 |
| HLA-B*44:03 | 1 | 205 | 213 | 9 | SKHTPINLV 0.005748 | 3.7 |
| HLA-A*30:02 | 1 | 847 | 855 | 9 | RDLICAQKF 0.005748 | 8.9 |
| HLA-A*68:02 | 1 | 49 | 58 | 10 | HSTQDLFLPF 0.005747 | 6.7 |
| HLA-A*02:01 | 1 | 805 | 814 | 10 | ILPDPSKPSK 0.005744 | 6.5 |
| HLA-A*30:02 | 1 | 637 | 645 | 9 | STGSNVFQT 0.005743 | 8.9 |
| HLA-B*44:03 | 1 | 1071 | 1080 | 10 | QEKNF T TAPA 0.005742 | 3.7 |
| HLA-B*51:01 | 1 | 926 | 934 | 9 | QFN SAI GKI 0.00574 | 8.1 |
| HLA-A*32:01 | 1 | 914 | 922 | 9 | NVLYENQKL 0.005739 | 4.6 |
| HLA-B*35:01 | 1 | 24 | 33 | 10 | LPPAYTNSFT 0.005738 | 4.7 |
| HLA-A*01:01 | 1 | 802 | 811 | 10 | FSQILPDPSK 0.005737 | 5.2 |
| HLA-B*53:01 | 1 | 1004 | 1012 | 9 | LQTYVTQQL 0.005737 | 4.3 |
| HLA-A*26:01 | 1 | 62 | 70 | 9 | VTWFHAIHV 0.005733 | 4.4 |
| HLA-A*02:03 | 1 | 906 | 915 | 10 | FNGIGVTQNV 0.005728 | 7.4 |
| HLA-B*57:01 | 1 | 169 | 177 | 9 | EYVSQPFLM 0.005726 | 8.3 |
| HLA-A*30:02 | 1 | 68 | 77 | 10 | IHVSGTNGTK 0.005724 | 8.9 |
| HLA-B*08:01 | 1 | 1040 | 1049 | 10 | VDFCGKGYHL 0.005722 | 8.2 |
| HLA-A*02:06 | 1 | 302 | 310 | 9 | TLKSFTVEK 0.00572 | 9.1 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|
| HLA-A*24:02 | 1 | 48 | 56 | 9 | LHSTQDLFL | 0.005719 | 3.8 |
| HLA-A*01:01 | 1 | 212 | 220 | 9 | LVRDLPQGF | 0.005719 | 5.2 |
| HLA-A*02:06 | 1 | 13 | 21 | 9 | SQCVNLTR | 0.005714 | 9.1 |
| HLA-B*58:01 | 1 | 150 | 158 | 9 | KSWMESEFR | 0.00571 | 5.6 |
| HLA-A*30:01 | 1 | 394 | 402 | 9 | NVYADSFVI | 0.00571 | 12 |
| HLA-A*02:01 | 1 | 1264 | 1272 | 9 | VLKGVKLHY | 0.00571 | 6.5 |
| HLA-A*68:02 | 1 | 709 | 718 | 10 | NNSIAIPTNF | 0.005709 | 6.7 |
| HLA-A*31:01 | 1 | 57 | 66 | 10 | PFFSNVTWFH | 0.005705 | 8.0 |
| HLA-A*24:02 | 1 | 472 | 480 | 9 | IYQAGSTPC | 0.005705 | 3.8 |
| HLA-B*08:01 | 1 | 758 | 767 | 10 | SFCTQLNRAL | 0.005705 | 8.2 |
| HLA-A*02:01 | 1 | 1255 | 1264 | 10 | KFDEDDSEPV | 0.005705 | 6.5 |
| HLA-A*03:01 | 1 | 205 | 214 | 10 | SKHTPINLVR | 0.005704 | 5.9 |
| HLA-A*30:01 | 1 | 900 | 908 | 9 | MQMAYRFNG | 0.005699 | 12 |
| HLA-A*02:06 | 1 | 962 | 970 | 9 | LVKQLSSNF | 0.005699 | 9.1 |
| HLA-A*31:01 | 1 | 777 | 785 | 9 | NTQEVFAQV | 0.005698 | 8.0 |
| HLA-B*35:01 | 1 | 697 | 705 | 9 | MSLGAENSV | 0.005696 | 4.7 |
| HLA-A*33:01 | 1 | 181 | 190 | 10 | GKQGNFKNLR | 0.005695 | 6.4 |
| HLA-B*35:01 | 1 | 411 | 419 | 9 | APGQTGKIA | 0.005692 | 4.7 |
| HLA-A*30:01 | 1 | 1003 | 1011 | 9 | SLQTYVTQQ | 0.005692 | 12 |
| HLA-A*30:02 | 1 | 214 | 222 | 9 | RDLPPQGFSA | 0.005691 | 8.9 |
| HLA-A*26:01 | 1 | 318 | 326 | 9 | FRVQPTESI | 0.005689 | 4.4 |
| HLA-B*44:02 | 1 | 627 | 635 | 9 | DQLTPTWRV | 0.005689 | 3.5 |
| HLA-B*57:01 | 1 | 11 | 19 | 9 | VSSQCVNLT | 0.005687 | 8.3 |
| HLA-A*02:06 | 1 | 891 | 900 | 10 | GAALQIPFAM | 0.005685 | 9.1 |
| HLA-A*26:01 | 1 | 734 | 742 | 9 | TSVDCTMYI | 0.005683 | 4.4 |
| HLA-A*01:01 | 1 | 636 | 644 | 9 | YSTGNSVFI | 0.005682 | 5.2 |
| HLA-A*30:01 | 1 | 496 | 505 | 10 | GFQPTNGVGY | 0.00568 | 12 |
| HLA-A*01:01 | 1 | 154 | 162 | 9 | ESEFRVYSS | 0.005678 | 5.2 |
| HLA-A*68:02 | 1 | 409 | 417 | 9 | QIAPGQTGK | 0.005678 | 6.8 |
| HLA-B*58:01 | 1 | 1201 | 1209 | 9 | QELGKYEQY | 0.005678 | 5.6 |
| HLA-B*57:01 | 1 | 239 | 247 | 9 | QTLALHRS | 0.005675 | 8.3 |
| HLA-A*68:02 | 1 | 7 | 16 | 10 | LLPLVSSQCV | 0.005673 | 6.8 |
| HLA-A*30:01 | 1 | 1049 | 1058 | 10 | LMSFPQSAPH | 0.005671 | 12 |
| HLA-B*44:02 | 1 | 772 | 780 | 9 | VEQDKNTQE | 0.005669 | 3.5 |
| HLA-A*02:06 | 1 | 168 | 177 | 10 | FEYVSQPFLM | 0.005668 | 9.1 |
| HLA-A*30:01 | 1 | 625 | 633 | 9 | HADQLTPTW | 0.005668 | 12 |
| HLA-B*53:01 | 1 | 825 | 833 | 9 | KVTLADAGF | 0.005668 | 4.3 |
| HLA-A*02:06 | 1 | 505 | 514 | 10 | YQPYRVVLS | 0.005667 | 9.1 |
| HLA-B*51:01 | 1 | 971 | 980 | 10 | GAISSVLNDI | 0.005666 | 8.1 |
| HLA-A*32:01 | 1 | 1087 | 1095 | 9 | AHFPRGVF | 0.005666 | 4.7 |
| HLA-B*07:02 | 1 | 868 | 877 | 10 | EMIAQYTSAL | 0.005665 | 5.1 |
| HLA-B*40:01 | 1 | 184 | 192 | 9 | GNFKNLREF | 0.005662 | 3.6 |
| HLA-B*51:01 | 1 | 841 | 849 | 9 | LGDI AARDL | 0.005661 | 8.1 |
| HLA-A*24:02 | 1 | 509 | 517 | 9 | RVVLSFEL | 0.00566 | 3.9 |
| HLA-A*68:01 | 1 | 909 | 917 | 9 | IGVTQNVLY | 0.00566 | 8.4 |
| HLA-A*33:01 | 1 | 718 | 726 | 9 | FTISVTTEI | 0.005658 | 6.4 |
| HLA-A*02:06 | 1 | 849 | 858 | 10 | LICAQKFNGL | 0.005658 | 9.2 |
| HLA-A*24:02 | 1 | 78 | 87 | 10 | RFDNPVLPFN | 0.005656 | 3.9 |
| HLA-A*68:01 | 1 | 1055 | 1063 | 9 | SAPHGVVFL | 0.005653 | 8.4 |
| HLA-A*68:02 | 1 | 1085 | 1094 | 10 | GKAHFPRGV | 0.005653 | 6.8 |
| HLA-B*58:01 | 1 | 672 | 681 | 10 | ASYQTQTNSP | 0.005652 | 5.6 |
| HLA-A*01:01 | 1 | 745 | 753 | 9 | DSTECSNLL | 0.00565 | 5.2 |
| HLA-A*02:06 | 1 | 401 | 410 | 10 | VIRGDEVRI | 0.005649 | 9.2 |
| HLA-A*30:01 | 1 | 1056 | 1064 | 9 | APHGVVFLH | 0.005649 | 12 |
| HLA-B*57:01 | 1 | 911 | 919 | 9 | VTQNVLYEN | 0.005646 | 8.4 |
| HLA-A*68:02 | 1 | 392 | 400 | 9 | FTNVYADSF | 0.005645 | 6.8 |
| HLA-A*02:01 | 1 | 1003 | 1011 | 9 | SLQTYVTQQ | 0.005645 | 6.5 |
| HLA-B*51:01 | 1 | 830 | 838 | 9 | DAGFIKQYG | 0.005641 | 8.2 |
| HLA-A*30:02 | 1 | 908 | 916 | 9 | GIGVTQNVL | 0.005641 | 8.9 |
| HLA-A*02:03 | 1 | 1024 | 1032 | 9 | LAATKMSEC | 0.005641 | 7.5 |
| HLA-A*02:03 | 1 | 961 | 970 | 10 | TLVKQLSSNF | 0.005639 | 7.5 |
| HLA-A*33:01 | 1 | 748 | 756 | 9 | ECSNLLLQY | 0.005638 | 6.4 |
| HLA-A*30:01 | 1 | 929 | 937 | 9 | SAIGKIQDS | 0.005638 | 12 |
| HLA-B*51:01 | 1 | 192 | 200 | 9 | FVFNIDGY | 0.005636 | 8.2 |
| HLA-B*15:01 | 1 | 908 | 916 | 9 | GIGVTQNVL | 0.005634 | 6.8 |
| HLA-A*26:01 | 1 | 958 | 966 | 9 | ALNTLVKQL | 0.005633 | 4.4 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*57:01 | 1 | 757 | 765 | 9 | GSFCTQLNR 0.005628 | 8.4 |
| HLA-A*02:01 | 1 | 720 | 729 | 10 | ISVTTEILPV 0.005627 | 6.5 |
| HLA-B*58:01 | 1 | 720 | 729 | 10 | ISVTTEILPV 0.005625 | 5.6 |
| HLA-A*33:01 | 1 | 1136 | 1145 | 10 | TVYDPLQPEL 0.005621 | 6.4 |
| HLA-A*03:01 | 1 | 1136 | 1145 | 10 | TVYDPLQPEL 0.005616 | 5.9 |
| HLA-A*01:01 | 1 | 41 | 49 | 9 | KVFRSSVLH 0.005614 | 5.2 |
| HLA-A*32:01 | 1 | 502 | 510 | 9 | GVGYQPYRV 0.005614 | 4.7 |
| HLA-A*30:01 | 1 | 258 | 266 | 9 | WTAGAAAYY 0.005611 | 12 |
| HLA-B*57:01 | 1 | 1025 | 1034 | 10 | AATKMSECVL 0.00561 | 8.4 |
| HLA-A*02:01 | 1 | 818 | 826 | 9 | IEDLLFNKV 0.005606 | 6.6 |
| HLA-A*02:03 | 1 | 643 | 651 | 9 | FQTRAGCLI 0.005605 | 7.5 |
| HLA-B*51:01 | 1 | 784 | 792 | 9 | QVKQIYKTP 0.005603 | 8.2 |
| HLA-B*44:03 | 1 | 867 | 876 | 10 | DEMIAQYTS 0.005603 | 3.8 |
| HLA-A*24:02 | 1 | 365 | 374 | 10 | YSLYNSASF 0.005601 | 3.9 |
| HLA-A*30:01 | 1 | 367 | 375 | 9 | VLYNSASF 0.005601 | 12 |
| HLA-A*03:01 | 1 | 766 | 774 | 9 | ALTGIAVEQ 0.005601 | 5.9 |
| HLA-A*30:01 | 1 | 6 | 14 | 9 | VLLPLVSSQ 0.0056 | 12 |
| HLA-A*02:06 | 1 | 1264 | 1273 | 10 | VLKGVKLHYT 0.0056 | 9.2 |
| HLA-A*33:01 | 1 | 603 | 612 | 10 | NTSNQVAVLY 0.005599 | 6.5 |
| HLA-A*30:02 | 1 | 326 | 334 | 9 | IIVRFPNITN 0.005594 | 9.0 |
| HLA-B*08:01 | 1 | 1151 | 1159 | 9 | ELDKYFKNH 0.005594 | 8.2 |
| HLA-A*03:01 | 1 | 995 | 1004 | 10 | RLITGRLQSL 0.005592 | 5.9 |
| HLA-A*02:03 | 1 | 513 | 522 | 10 | LSFELLHAPA 0.005587 | 7.5 |
| HLA-A*30:02 | 1 | 60 | 69 | 10 | SNVTWFHAIH 0.005586 | 9.0 |
| HLA-B*15:01 | 1 | 2 | 10 | 9 | FVFLVLLPL 0.005582 | 6.8 |
| HLA-A*03:01 | 1 | 915 | 923 | 9 | VLYENQKLI 0.005582 | 5.9 |
| HLA-A*32:01 | 1 | 36 | 44 | 9 | VYYPKVFR 0.00558 | 4.7 |
| HLA-A*33:01 | 1 | 185 | 194 | 10 | NFKNLREFVF 0.005579 | 6.5 |
| HLA-A*33:01 | 1 | 428 | 436 | 9 | DFTGCVIAW 0.005575 | 6.5 |
| HLA-B*57:01 | 1 | 858 | 867 | 10 | LTVLPPLTD 0.005575 | 8.4 |
| HLA-A*32:01 | 1 | 1191 | 1200 | 10 | KNLNEIDL 0.005572 | 4.7 |
| HLA-B*35:01 | 1 | 310 | 318 | 9 | KGIYQTSNF 0.005566 | 4.8 |
| HLA-A*30:02 | 1 | 115 | 123 | 9 | QSLIVNNA 0.005565 | 9.0 |
| HLA-B*08:01 | 1 | 781 | 789 | 9 | VFAQVKQIY 0.005564 | 8.3 |
| HLA-A*26:01 | 1 | 1140 | 1148 | 9 | PLQPELDSF 0.005564 | 4.5 |
| HLA-A*02:06 | 1 | 881 | 890 | 10 | TITSGWTFGA 0.005563 | 9.2 |
| HLA-A*68:01 | 1 | 1175 | 1183 | 9 | SVVNIQKEI 0.005563 | 8.5 |
| HLA-A*26:01 | 1 | 208 | 216 | 9 | TPINLVRDL 0.005562 | 4.5 |
| HLA-A*03:01 | 1 | 347 | 356 | 10 | FASVYAWNRK 0.005562 | 5.9 |
| HLA-B*57:01 | 1 | 59 | 67 | 9 | FSNVTWFHA 0.005561 | 8.4 |
| HLA-A*11:01 | 1 | 366 | 374 | 9 | SVLYNSASF 0.005561 | 5.2 |
| HLA-B*08:01 | 1 | 936 | 944 | 9 | DSLSTASA 0.005561 | 8.3 |
| HLA-B*51:01 | 1 | 950 | 959 | 10 | DVVNQNAQAL 0.005561 | 8.2 |
| HLA-A*30:02 | 1 | 991 | 999 | 9 | VQIDRLITG 0.00556 | 9.0 |
| HLA-A*01:01 | 1 | 38 | 46 | 9 | YPDKVFRSS 0.005559 | 5.3 |
| HLA-A*33:01 | 1 | 148 | 156 | 9 | NNKSWMESE 0.005559 | 6.5 |
| HLA-B*15:01 | 1 | 869 | 878 | 10 | MIAQYTSALL 0.005559 | 6.8 |
| HLA-A*68:01 | 1 | 369 | 377 | 9 | YNSASFSTF 0.005557 | 8.5 |
| HLA-A*11:01 | 1 | 1260 | 1269 | 10 | DSEPVKGVK 0.005557 | 5.2 |
| HLA-A*02:01 | 1 | 211 | 220 | 10 | NLVRDLPQGF 0.005554 | 6.6 |
| HLA-A*24:02 | 1 | 211 | 220 | 10 | NLVRDLPQGF 0.005554 | 3.9 |
| HLA-B*44:02 | 1 | 701 | 710 | 10 | AENSVAYSNN 0.005554 | 3.5 |
| HLA-A*02:03 | 1 | 211 | 220 | 10 | NLVRDLPQGF 0.005553 | 7.5 |
| HLA-A*30:01 | 1 | 366 | 375 | 10 | SVLYNSASF 0.005552 | 12 |
| HLA-A*26:01 | 1 | 135 | 143 | 9 | FCNDPFLGV 0.005551 | 4.5 |
| HLA-B*51:01 | 1 | 1256 | 1265 | 10 | FDEDDSEVPL 0.00555 | 8.2 |
| HLA-B*44:03 | 1 | 1185 | 1193 | 9 | RLNEVAKNL 0.005548 | 3.8 |
| HLA-A*01:01 | 1 | 162 | 171 | 10 | SANNCTFEYV 0.005547 | 5.3 |
| HLA-B*08:01 | 1 | 1086 | 1094 | 9 | KAHFPREGV 0.005545 | 8.3 |
| HLA-A*33:01 | 1 | 60 | 68 | 9 | SNVTWFHAI 0.005544 | 6.5 |
| HLA-B*15:01 | 1 | 137 | 145 | 9 | NDPFLGVYY 0.005544 | 6.8 |
| HLA-B*58:01 | 1 | 300 | 308 | 9 | KCTLKSFTV 0.005543 | 5.7 |
| HLA-A*02:03 | 1 | 596 | 605 | 10 | SVITPGTNTS 0.005541 | 7.5 |
| HLA-A*30:01 | 1 | 169 | 177 | 9 | EYVSQPFLM 0.005537 | 12 |
| HLA-B*53:01 | 1 | 734 | 742 | 9 | TSVDCTMYI 0.005537 | 4.3 |
| HLA-B*40:01 | 1 | 76 | 84 | 9 | TKRFDNPVL 0.005534 | 3.6 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*01:01 | 1 | 882 | 890 | 9 | ITSGWTFGA 0.005528 | 5.3 |
| HLA-A*68:02 | 1 | 133 | 141 | 9 | FQFCNDPFL 0.005526 | 6.9 |
| HLA-A*11:01 | 1 | 1258 | 1266 | 9 | EDDSEPVLK 0.005526 | 5.2 |
| HLA-A*30:02 | 1 | 56 | 64 | 9 | LPFFSNVTW 0.005525 | 9.1 |
| HLA-B*58:01 | 1 | 59 | 67 | 9 | FSNVTWFHA 0.005524 | 5.7 |
| HLA-A*02:03 | 1 | 733 | 742 | 10 | KTSVDCTMYI 0.005523 | 7.5 |
| HLA-A*23:01 | 1 | 758 | 767 | 10 | SFCTQLNRAL 0.00552 | 3.9 |
| HLA-A*24:02 | 1 | 97 | 106 | 10 | KSNIIRGWIF 0.005518 | 3.9 |
| HLA-A*26:01 | 1 | 464 | 472 | 9 | FERDISTEI 0.005517 | 4.5 |
| HLA-B*57:01 | 1 | 712 | 721 | 10 | IAIPTNFTIS 0.005517 | 8.4 |
| HLA-B*53:01 | 1 | 486 | 495 | 10 | FNCYFPLQSY 0.005512 | 4.3 |
| HLA-A*31:01 | 1 | 510 | 519 | 10 | VVLSFELLH 0.005511 | 8.1 |
| HLA-B*40:01 | 1 | 794 | 802 | 9 | IKDFGGFNF 0.005511 | 3.6 |
| HLA-A*24:02 | 1 | 178 | 186 | 9 | DLEGKQGNF 0.00551 | 3.9 |
| HLA-B*15:01 | 1 | 851 | 860 | 10 | CAQKFNGLTV 0.005508 | 6.8 |
| HLA-A*30:01 | 1 | 167 | 176 | 10 | TFEYVSQPFL 0.005503 | 12 |
| HLA-A*30:01 | 1 | 552 | 560 | 9 | LTESNKKFL 0.005501 | 12 |
| HLA-B*58:01 | 1 | 603 | 611 | 9 | NTSNQVAVL 0.005501 | 5.7 |
| HLA-A*02:03 | 1 | 932 | 941 | 10 | GKIQDLSLST 0.005501 | 7.6 |
| HLA-A*30:02 | 1 | 569 | 577 | 9 | IADTTDAVR 0.005499 | 9.1 |
| HLA-B*07:02 | 1 | 160 | 168 | 9 | YSSANNCTF 0.005497 | 5.1 |
| HLA-B*57:01 | 1 | 774 | 782 | 9 | QDKNTQEVF 0.005497 | 8.5 |
| HLA-B*40:01 | 1 | 1010 | 1018 | 9 | QLLIRAAEI 0.005496 | 3.6 |
| HLA-B*51:01 | 1 | 1094 | 1102 | 9 | VFVSNGTHW 0.005495 | 8.3 |
| HLA-A*68:02 | 1 | 69 | 77 | 9 | HVSGTNGTK 0.005494 | 6.9 |
| HLA-B*08:01 | 1 | 981 | 989 | 9 | LSRLDKVEA 0.005491 | 8.3 |
| HLA-A*24:02 | 1 | 227 | 235 | 9 | VDLPIGINI 0.005488 | 3.9 |
| HLA-A*01:01 | 1 | 327 | 335 | 9 | VRFPNITNL 0.005487 | 5.3 |
| HLA-A*30:02 | 1 | 915 | 924 | 10 | VLYENQKLIA 0.005486 | 9.1 |
| HLA-B*51:01 | 1 | 779 | 788 | 10 | QEVFAQVKQI 0.005484 | 8.3 |
| HLA-B*40:01 | 1 | 573 | 582 | 10 | TDAVRDPQTL 0.005482 | 3.6 |
| HLA-B*35:01 | 1 | 336 | 345 | 10 | CPFGEVFNAT 0.005478 | 4.8 |
| HLA-A*32:01 | 1 | 538 | 546 | 9 | CVNFNFNGL 0.005478 | 4.7 |
| HLA-B*57:01 | 1 | 809 | 818 | 10 | PSKPSKRSFI 0.005473 | 8.5 |
| HLA-B*35:01 | 1 | 625 | 634 | 10 | HADQLTPTWR 0.00547 | 4.8 |
| HLA-B*40:01 | 1 | 783 | 791 | 9 | AQVKQIYKT 0.00547 | 3.6 |
| HLA-A*32:01 | 1 | 874 | 882 | 9 | TSALLAGTI 0.005467 | 4.7 |
| HLA-A*11:01 | 1 | 265 | 273 | 9 | YYVGYLQPR 0.005466 | 5.2 |
| HLA-B*51:01 | 1 | 709 | 718 | 10 | NNSIAIPTNF 0.005466 | 8.3 |
| HLA-B*35:01 | 1 | 345 | 353 | 9 | TRFASVYAW 0.005465 | 4.8 |
| HLA-B*44:03 | 1 | 496 | 505 | 10 | GFQPTNGVGY 0.005465 | 3.8 |
| HLA-A*30:01 | 1 | 930 | 938 | 9 | AIGKIQDSL 0.005465 | 12 |
| HLA-B*57:01 | 1 | 974 | 983 | 10 | SSVLNDILSR 0.005464 | 8.5 |
| HLA-B*51:01 | 1 | 1262 | 1271 | 10 | EPVLKGVKLV 0.005462 | 8.3 |
| HLA-A*02:06 | 1 | 913 | 922 | 10 | QNVLYENQKL 0.00546 | 9.3 |
| HLA-A*03:01 | 1 | 1236 | 1245 | 10 | CMTSCCCLK 0.00546 | 6.0 |
| HLA-A*24:02 | 1 | 102 | 110 | 9 | RGWIFGTTL 0.005458 | 3.9 |
| HLA-A*24:02 | 1 | 691 | 699 | 9 | SIIAYTMSL 0.005456 | 3.9 |
| HLA-A*02:06 | 1 | 779 | 788 | 10 | QEVFAQVKQI 0.005456 | 9.3 |
| HLA-A*02:03 | 1 | 61 | 70 | 10 | NVTWFHAIHV 0.005453 | 7.6 |
| HLA-A*68:02 | 1 | 153 | 161 | 9 | MESEFRVYS 0.005448 | 6.9 |
| HLA-B*35:01 | 1 | 339 | 347 | 9 | GEVFNATRF 0.005445 | 4.9 |
| HLA-A*68:01 | 1 | 873 | 881 | 9 | YTSALLAGT 0.005433 | 8.6 |
| HLA-A*30:02 | 1 | 435 | 444 | 10 | AWNSNNLDSK 0.005431 | 9.2 |
| HLA-A*30:02 | 1 | 1000 | 1009 | 10 | RLQSLQTYVT 0.005429 | 9.2 |
| HLA-A*68:01 | 1 | 192 | 201 | 10 | FVFKNIDGYF 0.005427 | 8.6 |
| HLA-A*01:01 | 1 | 1257 | 1265 | 9 | DEDDSEPVL 0.005427 | 5.3 |
| HLA-A*33:01 | 1 | 845 | 854 | 10 | AARDLICAQK 0.005426 | 6.5 |
| HLA-B*07:02 | 1 | 24 | 33 | 10 | LPPAYTNSFT 0.005425 | 5.2 |
| HLA-A*30:01 | 1 | 488 | 496 | 9 | CYFPLQSYG 0.005424 | 12 |
| HLA-B*07:02 | 1 | 686 | 694 | 9 | SVASQSIIA 0.005424 | 5.2 |
| HLA-B*40:01 | 1 | 574 | 582 | 9 | DAVRDPQTL 0.00542 | 3.6 |
| HLA-B*57:01 | 1 | 268 | 276 | 9 | GYLQPRFTL 0.005418 | 8.5 |
| HLA-A*02:01 | 1 | 953 | 962 | 10 | NQNAQALNLT 0.005417 | 6.7 |
| HLA-A*68:01 | 1 | 574 | 583 | 10 | DAVRDPQTL 0.005413 | 8.6 |
| HLA-B*40:01 | 1 | 968 | 977 | 10 | SNFGAISSVL 0.005413 | 3.6 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*02:06 | 1 | 735 | 743 | 9 | SVDCTMYIC 0.005412 | 9.3 |
| HLA-A*68:02 | 1 | 784 | 792 | 9 | QVKQIYKTP 0.005412 | 6.9 |
| HLA-A*31:01 | 1 | 535 | 543 | 9 | KNKCVNFNF 0.005411 | 8.2 |
| HLA-B*57:01 | 1 | 1200 | 1209 | 10 | LQELGKYEYQ 0.005411 | 8.5 |
| HLA-A*23:01 | 1 | 171 | 179 | 9 | VSQPFLMDL 0.00541 | 3.9 |
| HLA-A*03:01 | 1 | 270 | 279 | 10 | LQPRTFLLKY 0.005408 | 6.0 |
| HLA-B*58:01 | 1 | 297 | 306 | 10 | SETKCTLKSF 0.005408 | 5.7 |
| HLA-A*30:01 | 1 | 1051 | 1059 | 9 | SFPQSAPHG 0.005408 | 12 |
| HLA-B*07:02 | 1 | 224 | 233 | 10 | EPLVDLPIGI 0.005407 | 5.2 |
| HLA-A*30:01 | 1 | 347 | 356 | 10 | FASVYAWNRRK 0.005407 | 12 |
| HLA-A*32:01 | 1 | 250 | 258 | 9 | TPGDSSSGW 0.005404 | 4.8 |
| HLA-B*51:01 | 1 | 531 | 539 | 9 | TNLVKNKCV 0.005402 | 8.3 |
| HLA-A*24:02 | 1 | 49 | 58 | 10 | HSTQDLFLPF 0.005396 | 3.9 |
| HLA-A*33:01 | 1 | 89 | 97 | 9 | GVYFASTEK 0.005396 | 6.5 |
| HLA-B*57:01 | 1 | 551 | 560 | 10 | VLTESNKKFL 0.005396 | 8.6 |
| HLA-B*35:01 | 1 | 1209 | 1217 | 9 | YIKWPWYIW 0.005392 | 4.9 |
| HLA-B*51:01 | 1 | 808 | 816 | 9 | DPSKPSKRS 0.00539 | 8.3 |
| HLA-A*31:01 | 1 | 20 | 28 | 9 | TRTQLPPAY 0.005389 | 8.2 |
| HLA-A*30:02 | 1 | 626 | 635 | 10 | ADQLTPTWRV 0.005388 | 9.2 |
| HLA-A*30:01 | 1 | 1030 | 1038 | 9 | SECVLGQSK 0.005386 | 12 |
| HLA-A*32:01 | 1 | 1219 | 1227 | 9 | GFIAGLIAI 0.005386 | 4.8 |
| HLA-A*02:06 | 1 | 1132 | 1141 | 10 | IVNNTVYDPL 0.005383 | 9.3 |
| HLA-B*07:02 | 1 | 1081 | 1089 | 9 | ICHDGKAHF 0.005382 | 5.2 |
| HLA-A*02:03 | 1 | 688 | 696 | 9 | ASQSIIAYT 0.00538 | 7.6 |
| HLA-A*30:01 | 1 | 757 | 766 | 10 | GSFCTQLNRA 0.00538 | 12 |
| HLA-A*02:03 | 1 | 1168 | 1177 | 10 | DISGINASVV 0.00538 | 7.6 |
| HLA-B*07:02 | 1 | 1113 | 1121 | 9 | QIITTDNTF 0.005379 | 5.2 |
| HLA-B*35:01 | 1 | 132 | 140 | 9 | EFQFCNDPF 0.005376 | 4.9 |
| HLA-B*57:01 | 1 | 1211 | 1220 | 10 | KWPWYIWLGF 0.005376 | 8.6 |
| HLA-A*68:02 | 1 | 860 | 869 | 10 | VLPPLLTDEM 0.005375 | 7.0 |
| HLA-A*02:06 | 1 | 1255 | 1264 | 10 | KFDEDDSEPV 0.005375 | 9.3 |
| HLA-A*32:01 | 1 | 507 | 515 | 9 | PYRVVLSF 0.005374 | 4.8 |
| HLA-B*57:01 | 1 | 802 | 811 | 10 | FSQILPDPSK 0.005373 | 8.6 |
| HLA-B*51:01 | 1 | 418 | 426 | 9 | IADYNYKLP 0.005372 | 8.3 |
| HLA-B*57:01 | 1 | 1099 | 1107 | 9 | GTHWFVTQR 0.005372 | 8.6 |
| HLA-A*30:01 | 1 | 1128 | 1137 | 10 | VVIGIVNNTV 0.005371 | 12 |
| HLA-B*51:01 | 1 | 428 | 436 | 9 | DFTGCVIAW 0.005369 | 8.3 |
| HLA-A*01:01 | 1 | 505 | 513 | 9 | YQPYRVVVL 0.005369 | 5.4 |
| HLA-A*02:06 | 1 | 437 | 445 | 9 | NSNNLDSKV 0.005368 | 9.3 |
| HLA-A*33:01 | 1 | 442 | 451 | 10 | DSKVGGNYY 0.005366 | 6.6 |
| HLA-A*30:01 | 1 | 968 | 977 | 10 | SNFGAISSVL 0.005365 | 12 |
| HLA-A*30:02 | 1 | 449 | 457 | 9 | YNYLYRLFR 0.005362 | 9.2 |
| HLA-B*44:02 | 1 | 143 | 152 | 10 | VYYHKNNKSW 0.005359 | 3.6 |
| HLA-A*33:01 | 1 | 805 | 814 | 10 | ILPDPSKPSK 0.005358 | 6.6 |
| HLA-B*53:01 | 1 | 178 | 186 | 9 | DLEGKQGNF 0.005357 | 4.4 |
| HLA-B*53:01 | 1 | 239 | 248 | 10 | QTLLALHRSY 0.005356 | 4.4 |
| HLA-B*44:02 | 1 | 369 | 377 | 9 | YNSASFSTF 0.005354 | 3.6 |
| HLA-A*68:01 | 1 | 568 | 576 | 9 | DIADTTDAV 0.005353 | 8.6 |
| HLA-A*02:03 | 1 | 705 | 713 | 9 | VAYSNNSIA 0.005353 | 7.6 |
| HLA-A*30:01 | 1 | 964 | 973 | 10 | KQLSSNFGAI 0.005353 | 12 |
| HLA-B*51:01 | 1 | 35 | 43 | 9 | GVYYPDKVF 0.005351 | 8.4 |
| HLA-A*03:01 | 1 | 228 | 237 | 10 | DLPIGINITR 0.005351 | 6.0 |
| HLA-A*30:02 | 1 | 1141 | 1149 | 9 | LQPELDSFK 0.005351 | 9.2 |
| HLA-A*01:01 | 1 | 634 | 643 | 10 | RVYSTGSNVF 0.00535 | 5.4 |
| HLA-B*15:01 | 1 | 965 | 973 | 9 | QLSSNFGAI 0.00535 | 6.9 |
| HLA-A*02:03 | 1 | 6 | 14 | 9 | VLLPLVSSQ 0.005349 | 7.6 |
| HLA-B*57:01 | 1 | 391 | 400 | 10 | CFTNVYADSF 0.005347 | 8.6 |
| HLA-B*44:03 | 1 | 871 | 879 | 9 | AQYTSALLA 0.005341 | 3.9 |
| HLA-A*32:01 | 1 | 447 | 456 | 10 | GNYNYLYRLF 0.005338 | 4.8 |
| HLA-B*51:01 | 1 | 1058 | 1066 | 9 | HGVVFLHVT 0.005337 | 8.4 |
| HLA-B*51:01 | 1 | 1088 | 1096 | 9 | HFPREGVVF 0.005337 | 8.4 |
| HLA-A*31:01 | 1 | 41 | 50 | 10 | KVFRSSVLHS 0.005335 | 8.2 |
| HLA-B*51:01 | 1 | 635 | 643 | 9 | VYSTGSNVF 0.005335 | 8.4 |
| HLA-B*40:01 | 1 | 576 | 585 | 10 | VRDPQTLEIL 0.005334 | 3.7 |
| HLA-B*44:02 | 1 | 780 | 788 | 9 | EVFAQVKQI 0.005333 | 3.6 |
| HLA-B*15:01 | 1 | 212 | 221 | 10 | LVRDLPOGFS 0.005332 | 6.9 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*30:01 | 1 | 853 | 861 | 9 | QKFNGLTVL 0.005331 | 12 |
| HLA-A*02:01 | 1 | 235 | 244 | 10 | ITRFQTLAL 0.00533 | 6.7 |
| HLA-A*30:02 | 1 | 550 | 558 | 9 | GLTESNKK 0.00533 | 9.3 |
| HLA-A*32:01 | 1 | 699 | 707 | 9 | LGAENSVAY 0.00533 | 4.8 |
| HLA-B*08:01 | 1 | 119 | 127 | 9 | IVNNATNVV 0.005329 | 8.5 |
| HLA-A*11:01 | 1 | 1058 | 1067 | 10 | HGVVFLHVTY 0.005329 | 5.3 |
| HLA-B*44:02 | 1 | 78 | 86 | 9 | RFDNPVLPF 0.005328 | 3.6 |
| HLA-B*51:01 | 1 | 310 | 318 | 9 | KGIYQTSNF 0.00532 | 8.4 |
| HLA-B*51:01 | 1 | 703 | 712 | 10 | NSVAYSNNSI 0.005319 | 8.4 |
| HLA-A*02:01 | 1 | 1136 | 1144 | 9 | TVYDPLQPE 0.005319 | 6.7 |
| HLA-A*01:01 | 1 | 270 | 278 | 9 | LQPRTFLLK 0.005318 | 5.4 |
| HLA-A*01:01 | 1 | 731 | 740 | 10 | MTKTSVDCM 0.005318 | 5.4 |
| HLA-B*15:01 | 1 | 991 | 1000 | 10 | VQIDRLITGR 0.005318 | 6.9 |
| HLA-B*44:03 | 1 | 1004 | 1012 | 9 | LQTYVTQQL 0.005318 | 3.9 |
| HLA-A*68:01 | 1 | 36 | 45 | 10 | VYYPDKVFRS 0.005316 | 8.6 |
| HLA-A*26:01 | 1 | 144 | 152 | 9 | YYHKNNKSW 0.005316 | 4.6 |
| HLA-B*57:01 | 1 | 705 | 714 | 10 | VAYSNNISIAI 0.005314 | 8.6 |
| HLA-A*31:01 | 1 | 962 | 970 | 9 | LVKQLSSNF 0.005314 | 8.2 |
| HLA-A*68:01 | 1 | 747 | 756 | 10 | TECSNLLLQY 0.005312 | 8.6 |
| HLA-A*30:01 | 1 | 33 | 41 | 9 | TRGVYYPDK 0.005311 | 12 |
| HLA-A*32:01 | 1 | 847 | 855 | 9 | RDLICAQKF 0.005311 | 4.8 |
| HLA-B*57:01 | 1 | 512 | 521 | 10 | VLSFELLHAP 0.005309 | 8.6 |
| HLA-B*15:01 | 1 | 76 | 84 | 9 | TKRFDNPVL 0.005306 | 7.0 |
| HLA-A*68:01 | 1 | 596 | 605 | 10 | SVITPGTNTS 0.005306 | 8.6 |
| HLA-B*15:01 | 1 | 722 | 731 | 10 | VTTEILPVSM 0.005306 | 7.0 |
| HLA-A*68:01 | 1 | 105 | 113 | 9 | IFGTTLDSK 0.005305 | 8.6 |
| HLA-B*57:01 | 1 | 975 | 983 | 9 | SVLNDILSR 0.005304 | 8.6 |
| HLA-A*30:01 | 1 | 15 | 23 | 9 | CVNLTRRTQ 0.005303 | 12 |
| HLA-B*35:01 | 1 | 61 | 69 | 9 | NVTWFHAIH 0.005302 | 4.9 |
| HLA-A*03:01 | 1 | 264 | 273 | 10 | AYYVGYLQPR 0.005301 | 6.0 |
| HLA-A*26:01 | 1 | 339 | 347 | 9 | GEVFNATRF 0.0053 | 4.6 |
| HLA-A*68:01 | 1 | 999 | 1007 | 9 | GRLQSLQTY 0.0053 | 8.6 |
| HLA-A*26:01 | 1 | 909 | 917 | 9 | IGVTQNVLY 0.005299 | 4.6 |
| HLA-A*30:02 | 1 | 652 | 661 | 10 | GAEHVNNSYE 0.005298 | 9.3 |
| HLA-B*53:01 | 1 | 976 | 984 | 9 | VLNDILSRL 0.005297 | 4.4 |
| HLA-A*02:03 | 1 | 219 | 227 | 9 | GFSALEPLV 0.005296 | 7.7 |
| HLA-B*58:01 | 1 | 109 | 117 | 9 | TLDSKTQSL 0.005295 | 5.8 |
| HLA-B*57:01 | 1 | 291 | 300 | 10 | CALDPLSETK 0.005294 | 8.6 |
| HLA-A*30:02 | 1 | 590 | 598 | 9 | CSFGGVSVI 0.005294 | 9.3 |
| HLA-B*35:01 | 1 | 1188 | 1197 | 10 | EVAKNLNESL 0.005291 | 4.9 |
| HLA-A*24:02 | 1 | 885 | 894 | 10 | GWTFGAGAAL 0.00529 | 4.0 |
| HLA-B*53:01 | 1 | 417 | 425 | 9 | KIADYNYKL 0.005289 | 4.4 |
| HLA-A*11:01 | 1 | 781 | 789 | 9 | VFAQVKQIY 0.005289 | 5.3 |
| HLA-A*30:01 | 1 | 273 | 282 | 10 | RTFLLKYNEN 0.005288 | 12 |
| HLA-B*40:01 | 1 | 1030 | 1038 | 9 | SECVLGQSK 0.005288 | 3.7 |
| HLA-A*30:01 | 1 | 58 | 66 | 9 | FFSNVTWFH 0.005283 | 12 |
| HLA-A*02:03 | 1 | 166 | 174 | 9 | CTFEYVSQP 0.005283 | 7.7 |
| HLA-A*33:01 | 1 | 292 | 300 | 9 | ALDPLSETK 0.005283 | 6.6 |
| HLA-A*01:01 | 1 | 421 | 429 | 9 | YNYKLPDDF 0.005283 | 5.4 |
| HLA-A*01:01 | 1 | 734 | 742 | 9 | TSVDCTMYI 0.005282 | 5.4 |
| HLA-B*07:02 | 1 | 588 | 596 | 9 | TPCSFGGVS 0.005281 | 5.2 |
| HLA-A*11:01 | 1 | 699 | 707 | 9 | LGAENSVAY 0.005281 | 5.3 |
| HLA-A*30:01 | 1 | 754 | 763 | 10 | LQYGSFCTQL 0.005281 | 12 |
| HLA-A*11:01 | 1 | 306 | 314 | 9 | FTVEKGIYQ 0.005275 | 5.3 |
| HLA-A*68:02 | 1 | 114 | 123 | 10 | TQSLLVNNA 0.005273 | 7.0 |
| HLA-A*31:01 | 1 | 806 | 814 | 9 | LPDPSKPSK 0.005273 | 8.3 |
| HLA-B*44:02 | 1 | 50 | 58 | 9 | STQDLFLPF 0.005272 | 3.6 |
| HLA-B*57:01 | 1 | 627 | 636 | 10 | DQLTPTWRVY 0.005272 | 8.6 |
| HLA-B*58:01 | 1 | 226 | 235 | 10 | LVDLPIGINI 0.005268 | 5.8 |
| HLA-A*02:03 | 1 | 939 | 948 | 10 | SSTASALGKL 0.005267 | 7.7 |
| HLA-A*30:01 | 1 | 1106 | 1114 | 9 | QRNFYEPQI 0.005267 | 12 |
| HLA-A*01:01 | 1 | 826 | 835 | 10 | VLADAGFIK 0.005265 | 5.4 |
| HLA-A*30:01 | 1 | 934 | 942 | 9 | IQDLSLSTA 0.005265 | 12 |
| HLA-B*08:01 | 1 | 360 | 368 | 9 | NCVADYSVL 0.005263 | 8.5 |
| HLA-A*30:02 | 1 | 954 | 962 | 9 | QNAQALNTL 0.005263 | 9.3 |
| HLA-A*26:01 | 1 | 421 | 429 | 9 | YNYKLPDDF 0.005261 | 4.6 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*51:01 | 1 | 607 | 615 | 9 | QVAVLYQDV 0.00526 | 8.4 |
| HLA-B*44:03 | 1 | 998 | 1007 | 10 | TGRLQSLQTY 0.005255 | 3.9 |
| HLA-B*15:01 | 1 | 221 | 229 | 9 | SALEPLVDL 0.00525 | 7.0 |
| HLA-A*26:01 | 1 | 968 | 977 | 10 | SNFGAISSVL 0.00525 | 4.6 |
| HLA-A*02:01 | 1 | 1222 | 1231 | 10 | AGLIAIVMVT 0.00525 | 6.8 |
| HLA-B*57:01 | 1 | 908 | 917 | 10 | GIGVTQNVLY 0.005249 | 8.7 |
| HLA-A*26:01 | 1 | 1200 | 1209 | 10 | LQELGKYEYQ 0.005249 | 4.6 |
| HLA-A*68:02 | 1 | 23 | 32 | 10 | QLPPAYTNSF 0.005247 | 7.0 |
| HLA-A*33:01 | 1 | 162 | 170 | 9 | SANNCTFEY 0.005246 | 6.6 |
| HLA-B*58:01 | 1 | 327 | 335 | 9 | VRFPNITNL 0.005246 | 5.8 |
| HLA-A*23:01 | 1 | 447 | 455 | 9 | GNYNLYRL 0.005245 | 4.0 |
| HLA-A*31:01 | 1 | 1029 | 1038 | 10 | MSECVLGQSK 0.005242 | 8.3 |
| HLA-A*26:01 | 1 | 1016 | 1024 | 9 | AEIRASANL 0.005241 | 4.6 |
| HLA-A*02:06 | 1 | 268 | 276 | 9 | GYLQPRTF 0.005239 | 9.5 |
| HLA-A*68:02 | 1 | 687 | 696 | 10 | VASQSIIAYT 0.005238 | 7.0 |
| HLA-A*33:01 | 1 | 63 | 71 | 9 | TWFHAIHVS 0.005237 | 6.6 |
| HLA-A*68:02 | 1 | 324 | 333 | 10 | ESIVRFPNIT 0.005237 | 7.0 |
| HLA-A*30:01 | 1 | 342 | 350 | 9 | FNATRFASV 0.005236 | 12 |
| HLA-A*30:02 | 1 | 126 | 135 | 10 | VVIKVCFFQF 0.005235 | 9.4 |
| HLA-A*68:02 | 1 | 395 | 403 | 9 | VYADSFVIR 0.005234 | 7.0 |
| HLA-A*31:01 | 1 | 712 | 720 | 9 | IAIPTNFTI 0.005232 | 8.3 |
| HLA-A*01:01 | 1 | 962 | 970 | 9 | LVKQLSSNF 0.005231 | 5.4 |
| HLA-B*57:01 | 1 | 349 | 358 | 10 | SVYAWNRKRI 0.005229 | 8.7 |
| HLA-B*07:02 | 1 | 240 | 249 | 10 | TLLALHRSYL 0.005226 | 5.2 |
| HLA-A*68:01 | 1 | 957 | 965 | 9 | QALNTLVKQ 0.005226 | 8.7 |
| HLA-A*02:06 | 1 | 400 | 408 | 9 | FVIRGDEV 0.005225 | 9.5 |
| HLA-B*53:01 | 1 | 590 | 598 | 9 | CSFGGVSVI 0.005225 | 4.5 |
| HLA-B*15:01 | 1 | 786 | 795 | 10 | KQIYKTPPIK 0.005222 | 7.0 |
| HLA-A*02:06 | 1 | 817 | 825 | 9 | FIEDLLFNK 0.005219 | 9.5 |
| HLA-A*02:03 | 1 | 1035 | 1043 | 9 | GQSKRVD 0.005219 | 7.7 |
| HLA-B*15:01 | 1 | 407 | 416 | 10 | VRQIAPGQTG 0.005218 | 7.0 |
| HLA-B*51:01 | 1 | 433 | 441 | 9 | VIAWNSNNL 0.005217 | 8.5 |
| HLA-A*02:03 | 1 | 454 | 462 | 9 | RLFRKSNLK 0.005216 | 7.7 |
| HLA-A*68:01 | 1 | 616 | 625 | 10 | NCTEVPVAIH 0.005216 | 8.7 |
| HLA-A*02:01 | 1 | 1054 | 1063 | 10 | QSAPHGVVFL 0.005213 | 6.8 |
| HLA-A*02:01 | 1 | 374 | 382 | 9 | FSTFKCYGV 0.005212 | 6.8 |
| HLA-B*53:01 | 1 | 794 | 802 | 9 | IKDFGGFN 0.005212 | 4.5 |
| HLA-B*08:01 | 1 | 525 | 534 | 10 | CGPKKSTNLV 0.005208 | 8.6 |
| HLA-B*53:01 | 1 | 216 | 224 | 9 | LPQGFSALE 0.005206 | 4.5 |
| HLA-A*30:02 | 1 | 241 | 249 | 9 | LLALHRSYL 0.005206 | 9.4 |
| HLA-A*30:02 | 1 | 348 | 357 | 10 | ASVYAWNRKR 0.005206 | 9.4 |
| HLA-B*53:01 | 1 | 488 | 497 | 10 | CYFPLQSYGF 0.005205 | 4.5 |
| HLA-A*11:01 | 1 | 666 | 674 | 9 | IGAGICASY 0.005205 | 5.3 |
| HLA-B*15:01 | 1 | 802 | 811 | 10 | FSQILPDPSK 0.005205 | 7.0 |
| HLA-A*31:01 | 1 | 815 | 823 | 9 | RSFIEDLLF 0.005205 | 8.3 |
| HLA-B*40:01 | 1 | 948 | 956 | 9 | LQDVVNQNA 0.005202 | 3.7 |
| HLA-A*03:01 | 1 | 367 | 375 | 9 | VLYNSASFS 0.0052 | 6.1 |
| HLA-B*07:02 | 1 | 852 | 861 | 10 | AQKFNGLTVL 0.005199 | 5.3 |
| HLA-B*44:02 | 1 | 440 | 449 | 10 | NLDSKVGNGY 0.005197 | 3.6 |
| HLA-A*32:01 | 1 | 821 | 829 | 9 | LLFNKVTLA 0.005197 | 4.9 |
| HLA-B*07:02 | 1 | 1175 | 1183 | 9 | SVVNIQKEI 0.005197 | 5.3 |
| HLA-A*68:01 | 1 | 392 | 400 | 9 | FTNVYADSF 0.005196 | 8.7 |
| HLA-A*30:01 | 1 | 594 | 602 | 9 | GVSVITPGT 0.005196 | 12 |
| HLA-A*03:01 | 1 | 625 | 634 | 10 | HADQLTPTWR 0.005196 | 6.1 |
| HLA-A*02:06 | 1 | 550 | 559 | 10 | GVLTESNKKF 0.005195 | 9.5 |
| HLA-B*51:01 | 1 | 235 | 243 | 9 | ITRFQTLA 0.005194 | 8.5 |
| HLA-A*33:01 | 1 | 583 | 592 | 10 | EILDITPCSF 0.005192 | 6.7 |
| HLA-A*32:01 | 1 | 95 | 104 | 10 | TEKSNIIRGW 0.005189 | 4.9 |
| HLA-B*51:01 | 1 | 821 | 829 | 9 | LLFNKVTLA 0.005189 | 8.5 |
| HLA-A*11:01 | 1 | 229 | 237 | 9 | LPIGINITR 0.005188 | 5.3 |
| HLA-A*26:01 | 1 | 777 | 786 | 10 | NTQEVFAQVK 0.005187 | 4.7 |
| HLA-B*53:01 | 1 | 1175 | 1183 | 9 | SVVNIQKEI 0.005186 | 4.5 |
| HLA-A*02:06 | 1 | 698 | 707 | 10 | SLGAENSVAY 0.005184 | 9.5 |
| HLA-A*30:01 | 1 | 1070 | 1079 | 10 | AQEKNFITAP 0.005182 | 13 |
| HLA-A*01:01 | 1 | 919 | 927 | 9 | NQKLIANQF 0.005181 | 5.5 |
| HLA-A*03:01 | 1 | 77 | 86 | 10 | KRFDNPVLPF 0.005179 | 6.1 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|
| HLA-A*31:01 | 1 | 361 | 369 | 9 | CVADYSVLY | 0.005179 | 8.3 |
| HLA-B*51:01 | 1 | 716 | 724 | 9 | TNFTISVTT | 0.005179 | 8.5 |
| HLA-A*02:06 | 1 | 378 | 386 | 9 | KCYGVSPTK | 0.005178 | 9.5 |
| HLA-B*07:02 | 1 | 885 | 894 | 10 | GWTFGAGAAL | 0.005178 | 5.3 |
| HLA-A*02:06 | 1 | 93 | 101 | 9 | ASTEKSNII | 0.005177 | 9.5 |
| HLA-A*68:01 | 1 | 652 | 660 | 9 | GAEHVNNSY | 0.005176 | 8.7 |
| HLA-A*68:02 | 1 | 386 | 395 | 10 | KLNDLCFTNV | 0.005175 | 7.1 |
| HLA-B*58:01 | 1 | 1104 | 1112 | 9 | VTQRNFYEP | 0.005172 | 5.9 |
| HLA-A*33:01 | 1 | 204 | 212 | 9 | YSKHTPINL | 0.005171 | 6.7 |
| HLA-B*57:01 | 1 | 263 | 271 | 9 | AAYYVGYLQ | 0.005167 | 8.7 |
| HLA-B*44:03 | 1 | 653 | 661 | 9 | AEHVNNSYE | 0.005167 | 3.9 |
| HLA-A*68:01 | 1 | 978 | 986 | 9 | NDILSRLDK | 0.005167 | 8.7 |
| HLA-B*07:02 | 1 | 167 | 175 | 9 | TFEYVSQPF | 0.005166 | 5.3 |
| HLA-B*07:02 | 1 | 318 | 326 | 9 | FRVQPTESI | 0.005165 | 5.3 |
| HLA-A*32:01 | 1 | 262 | 270 | 9 | AAAYYVGYL | 0.005163 | 4.9 |
| HLA-A*30:01 | 1 | 755 | 763 | 9 | QYGSFCTQL | 0.005162 | 13 |
| HLA-B*58:01 | 1 | 773 | 782 | 10 | EQDKNTQEVF | 0.005162 | 5.9 |
| HLA-B*35:01 | 1 | 413 | 421 | 9 | GQTGKIADY | 0.005161 | 5.0 |
| HLA-B*51:01 | 1 | 718 | 727 | 10 | FTISVTTEIL | 0.00516 | 8.5 |
| HLA-B*07:02 | 1 | 975 | 984 | 10 | SVLNDILSRL | 0.00516 | 5.3 |
| HLA-A*01:01 | 1 | 1116 | 1125 | 10 | TTDNTFVSGN | 0.00516 | 5.5 |
| HLA-A*32:01 | 1 | 909 | 917 | 9 | IGVTQNVLY | 0.005159 | 4.9 |
| HLA-A*23:01 | 1 | 63 | 71 | 9 | TWFHAIHVS | 0.005158 | 4.0 |
| HLA-B*44:02 | 1 | 653 | 661 | 9 | AEHVNNSYE | 0.005157 | 3.6 |
| HLA-B*57:01 | 1 | 971 | 980 | 10 | GAISSVLNDI | 0.005157 | 8.7 |
| HLA-B*07:02 | 1 | 453 | 461 | 9 | YRLFRKSNL | 0.005155 | 5.3 |
| HLA-A*68:02 | 1 | 154 | 162 | 9 | ESEFRVYSS | 0.005152 | 7.1 |
| HLA-A*33:01 | 1 | 555 | 563 | 9 | SNKKFLPFQ | 0.005149 | 6.7 |
| HLA-A*30:01 | 1 | 1061 | 1069 | 9 | VFLHVTYVP | 0.005148 | 13 |
| HLA-B*53:01 | 1 | 691 | 699 | 9 | SIIAYTMSL | 0.005146 | 4.5 |
| HLA-B*57:01 | 1 | 10 | 18 | 9 | LVSSQCVNL | 0.005143 | 8.7 |
| HLA-A*02:01 | 1 | 464 | 472 | 9 | FERDISTEI | 0.005142 | 6.8 |
| HLA-A*30:02 | 1 | 143 | 151 | 9 | VYYHKNNKS | 0.005137 | 9.5 |
| HLA-A*68:02 | 1 | 856 | 864 | 9 | NGLTVLPPL | 0.005135 | 7.1 |
| HLA-A*68:01 | 1 | 704 | 712 | 9 | SVAYSNNSI | 0.005133 | 8.7 |
| HLA-A*02:03 | 1 | 349 | 358 | 10 | SVYAWNRKRI | 0.005132 | 7.8 |
| HLA-A*30:01 | 1 | 452 | 460 | 9 | LYRLFRKSN | 0.005132 | 13 |
| HLA-A*02:01 | 1 | 958 | 967 | 10 | ALNTLVKQLS | 0.005132 | 6.8 |
| HLA-B*58:01 | 1 | 1019 | 1028 | 10 | RASANLAATK | 0.00513 | 5.9 |
| HLA-A*02:03 | 1 | 475 | 483 | 9 | AGSTPCNGV | 0.005129 | 7.8 |
| HLA-B*44:02 | 1 | 803 | 811 | 9 | SQILPDPSK | 0.005129 | 3.6 |
| HLA-B*57:01 | 1 | 1087 | 1095 | 9 | AHFPREGVF | 0.005128 | 8.8 |
| HLA-A*32:01 | 1 | 835 | 844 | 10 | KQYGDCLGDI | 0.005124 | 4.9 |
| HLA-A*31:01 | 1 | 1136 | 1144 | 9 | TVYDPLQPE | 0.005124 | 8.4 |
| HLA-A*30:02 | 1 | 75 | 83 | 9 | GTKRFDNPV | 0.005123 | 9.5 |
| HLA-A*33:01 | 1 | 1096 | 1104 | 9 | VSNGTHWVF | 0.005123 | 6.7 |
| HLA-B*51:01 | 1 | 281 | 289 | 9 | ENGTITDAV | 0.005122 | 8.6 |
| HLA-A*30:01 | 1 | 1058 | 1067 | 10 | HGVVFLHVTY | 0.005121 | 13 |
| HLA-B*08:01 | 1 | 92 | 101 | 10 | FASTEKSNII | 0.005119 | 8.6 |
| HLA-B*44:03 | 1 | 440 | 449 | 10 | NLDSKVGNGY | 0.005118 | 4.0 |
| HLA-B*08:01 | 1 | 1210 | 1218 | 9 | IKWPWYIWL | 0.005118 | 8.6 |
| HLA-A*23:01 | 1 | 892 | 900 | 9 | AALQIPFAM | 0.005116 | 4.0 |
| HLA-B*57:01 | 1 | 394 | 402 | 9 | NVYADSFVI | 0.005115 | 8.8 |
| HLA-A*31:01 | 1 | 687 | 695 | 9 | VASQSIIAY | 0.005114 | 8.4 |
| HLA-A*33:01 | 1 | 270 | 278 | 9 | LQPRTFLLK | 0.005113 | 6.7 |
| HLA-A*68:01 | 1 | 1002 | 1010 | 9 | QSLQTYVTQ | 0.005113 | 8.8 |
| HLA-B*15:01 | 1 | 109 | 118 | 10 | TLDSKTQSLI | 0.00511 | 7.1 |
| HLA-B*44:02 | 1 | 24 | 32 | 9 | LPPAYTNSF | 0.005106 | 3.7 |
| HLA-B*51:01 | 1 | 560 | 568 | 9 | LPFQFGRD | 0.005105 | 8.6 |
| HLA-A*31:01 | 1 | 310 | 318 | 9 | KGIYQTSNF | 0.005104 | 8.4 |
| HLA-B*57:01 | 1 | 27 | 36 | 10 | AYTNSFTRGV | 0.005103 | 8.8 |
| HLA-A*11:01 | 1 | 859 | 868 | 10 | TVLPPLLTDE | 0.005102 | 5.4 |
| HLA-B*58:01 | 1 | 1025 | 1033 | 9 | AATKMSECV | 0.005101 | 5.9 |
| HLA-A*32:01 | 1 | 1129 | 1138 | 10 | VIGIVNNTVY | 0.005101 | 4.9 |
| HLA-B*57:01 | 1 | 1207 | 1215 | 9 | EQYIKWPWY | 0.005101 | 8.8 |
| HLA-A*33:01 | 1 | 691 | 699 | 9 | SIIAYTMSL | 0.005099 | 6.7 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*53:01 | 1 | 999 | 1007 | 9 | GRLQSLQTY 0.005099 | 4.5 |
| HLA-A*02:01 | 1 | 192 | 200 | 9 | FVFKNIDGY 0.005094 | 6.9 |
| HLA-B*40:01 | 1 | 1107 | 1115 | 9 | RNFYEPQII 0.005094 | 3.7 |
| HLA-B*08:01 | 1 | 706 | 714 | 9 | AYSNNSIAI 0.005093 | 8.7 |
| HLA-A*30:02 | 1 | 709 | 718 | 10 | NNSIAIPTNF 0.005092 | 9.6 |
| HLA-A*31:01 | 1 | 1075 | 1083 | 9 | FTTAPAICH 0.005092 | 8.4 |
| HLA-A*30:01 | 1 | 1010 | 1018 | 9 | QLLIRAAEI 0.00509 | 13 |
| HLA-B*51:01 | 1 | 909 | 917 | 9 | IGVTQNVLY 0.005087 | 8.6 |
| HLA-B*58:01 | 1 | 1065 | 1074 | 10 | VTYVPAQEKN 0.005085 | 5.9 |
| HLA-B*57:01 | 1 | 1122 | 1130 | 9 | VSGNCDVVI 0.005085 | 8.8 |
| HLA-B*08:01 | 1 | 43 | 51 | 9 | FRSSVLHST 0.005084 | 8.7 |
| HLA-A*68:02 | 1 | 695 | 704 | 10 | YTMSLGAENS 0.005084 | 7.1 |
| HLA-B*35:01 | 1 | 236 | 244 | 9 | TRFQTLAL 0.005083 | 5.0 |
| HLA-A*68:01 | 1 | 20 | 28 | 9 | TRTQLPPAY 0.005082 | 8.8 |
| HLA-B*08:01 | 1 | 20 | 28 | 9 | TRTQLPPAY 0.005082 | 8.7 |
| HLA-A*30:01 | 1 | 373 | 381 | 9 | SFSTFKCYG 0.005082 | 13 |
| HLA-B*08:01 | 1 | 374 | 382 | 9 | FSTFKCYGV 0.005082 | 8.7 |
| HLA-A*68:02 | 1 | 122 | 131 | 10 | NATNVVIKVC 0.005079 | 7.1 |
| HLA-B*08:01 | 1 | 478 | 486 | 9 | TPCNGVEGF 0.005079 | 8.7 |
| HLA-A*30:01 | 1 | 901 | 909 | 9 | QMAYRFNGI 0.005079 | 13 |
| HLA-A*03:01 | 1 | 44 | 52 | 9 | RSSVLHSTQ 0.005078 | 6.1 |
| HLA-A*02:01 | 1 | 232 | 241 | 10 | GINITRFQTL 0.005078 | 6.9 |
| HLA-A*03:01 | 1 | 238 | 246 | 9 | FQTLALHR 0.005075 | 6.1 |
| HLA-B*51:01 | 1 | 789 | 797 | 9 | YKTPPIKDF 0.005075 | 8.6 |
| HLA-A*30:02 | 1 | 454 | 463 | 10 | RLFRKSNLKP 0.005071 | 9.6 |
| HLA-B*57:01 | 1 | 530 | 539 | 10 | STNLVKNKCV 0.005071 | 8.8 |
| HLA-A*68:02 | 1 | 406 | 415 | 10 | EVQRAPGQT 0.00507 | 7.1 |
| HLA-A*33:01 | 1 | 178 | 187 | 10 | DLEGKQGNFK 0.005062 | 6.7 |
| HLA-A*23:01 | 1 | 642 | 651 | 10 | VFQTRAGCLI 0.005062 | 4.1 |
| HLA-A*30:01 | 1 | 317 | 326 | 10 | NFRVQPTESI 0.00506 | 13 |
| HLA-B*15:01 | 1 | 683 | 692 | 10 | RARSVASQSI 0.00506 | 7.1 |
| HLA-A*01:01 | 1 | 951 | 959 | 9 | VVNQNAQAL 0.00506 | 5.5 |
| HLA-B*40:01 | 1 | 1071 | 1080 | 10 | QEKNFTTAPA 0.005059 | 3.7 |
| HLA-A*30:02 | 1 | 383 | 392 | 10 | SPTKLNLCF 0.005058 | 9.6 |
| HLA-A*11:01 | 1 | 260 | 269 | 10 | AGAAAYVGY 0.005055 | 5.4 |
| HLA-A*32:01 | 1 | 750 | 759 | 10 | SNLLQYGSF 0.005055 | 5.0 |
| HLA-B*44:03 | 1 | 772 | 780 | 9 | VEQDKNTQE 0.005055 | 4.0 |
| HLA-A*33:01 | 1 | 1030 | 1038 | 9 | SECVLGQSK 0.005055 | 6.7 |
| HLA-A*23:01 | 1 | 1185 | 1193 | 9 | RLNEVAKNL 0.005053 | 4.1 |
| HLA-A*30:02 | 1 | 1208 | 1217 | 10 | QYIKWPWYIW 0.005053 | 9.6 |
| HLA-A*30:01 | 1 | 401 | 409 | 9 | VIRGDEVRF 0.00505 | 13 |
| HLA-B*15:01 | 1 | 1034 | 1042 | 9 | LGQSKRVDF 0.005049 | 7.1 |
| HLA-A*02:03 | 1 | 259 | 267 | 9 | TAGAAAYVY 0.005048 | 7.9 |
| HLA-B*51:01 | 1 | 1146 | 1155 | 10 | DSFKEELDKY 0.005048 | 8.6 |
| HLA-A*32:01 | 1 | 798 | 806 | 9 | GGFNFSQIL 0.005044 | 5.0 |
| HLA-A*33:01 | 1 | 628 | 636 | 9 | QLTPTWRVY 0.005038 | 6.7 |
| HLA-A*32:01 | 1 | 1192 | 1200 | 9 | NLNESLIDL 0.005038 | 5.0 |
| HLA-A*30:01 | 1 | 961 | 970 | 10 | TLVKQLSSNF 0.005035 | 13 |
| HLA-A*68:02 | 1 | 157 | 166 | 10 | FRVYSSANNC 0.005034 | 7.2 |
| HLA-A*24:02 | 1 | 202 | 210 | 9 | KIYSKHTPI 0.005034 | 4.1 |
| HLA-B*51:01 | 1 | 925 | 934 | 10 | NQFNSAIGKI 0.005033 | 8.6 |
| HLA-A*30:02 | 1 | 205 | 214 | 10 | SKHTPINLVR 0.005031 | 9.6 |
| HLA-A*32:01 | 1 | 497 | 505 | 9 | FQPTNGVGY 0.005031 | 5.0 |
| HLA-A*31:01 | 1 | 169 | 177 | 9 | EYVSQPFLM 0.00503 | 8.4 |
| HLA-B*51:01 | 1 | 424 | 433 | 10 | KLPDDFTGCV 0.005029 | 8.6 |
| HLA-B*15:01 | 1 | 1105 | 1113 | 9 | TQRNFYEPQ 0.005029 | 7.1 |
| HLA-A*02:06 | 1 | 576 | 585 | 10 | VRDPQTLEIL 0.005028 | 9.6 |
| HLA-A*02:06 | 1 | 879 | 888 | 10 | AGTITSGWTF 0.005026 | 9.6 |
| HLA-A*24:02 | 1 | 58 | 66 | 9 | FFSNVTWFH 0.005023 | 4.1 |
| HLA-B*44:02 | 1 | 896 | 904 | 9 | IPFAMQMAY 0.005018 | 3.7 |
| HLA-A*02:03 | 1 | 739 | 747 | 9 | TMYICGDST 0.005016 | 7.9 |
| HLA-A*68:02 | 1 | 975 | 983 | 9 | SVLNDILSR 0.005016 | 7.2 |
| HLA-B*08:01 | 1 | 302 | 310 | 9 | TLKSFTVEK 0.005015 | 8.7 |
| HLA-A*01:01 | 1 | 948 | 956 | 9 | LQDVVNQNA 0.005013 | 5.6 |
| HLA-B*44:02 | 1 | 320 | 329 | 10 | VQPTESIVRF 0.005012 | 3.7 |
| HLA-A*30:02 | 1 | 263 | 271 | 9 | AAYYVGYLQ 0.005011 | 9.7 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*07:02 | 1 | 369 | 377 | 9 | YNSASFSTF 0.005011 | 5.4 |
| HLA-A*68:02 | 1 | 601 | 609 | 9 | GTNTSNQVA 0.005011 | 7.2 |
| HLA-B*53:01 | 1 | 698 | 707 | 10 | SLGAENSVAY 0.00501 | 4.6 |
| HLA-A*02:06 | 1 | 275 | 284 | 10 | FLLKYNENGT 0.005007 | 9.7 |
| HLA-A*68:02 | 1 | 636 | 645 | 10 | YSTGSNVFQT 0.005005 | 7.2 |
| HLA-A*30:02 | 1 | 530 | 538 | 9 | STNLVKKNC 0.005004 | 9.7 |
| HLA-B*07:02 | 1 | 15 | 24 | 10 | CVNLTTRTQL 0.005003 | 5.4 |
| HLA-A*02:03 | 1 | 284 | 293 | 10 | TITDAVDCAL 0.004998 | 7.9 |
| HLA-B*07:02 | 1 | 718 | 726 | 9 | FTISVTTEI 0.004998 | 5.4 |
| HLA-A*68:02 | 1 | 1120 | 1129 | 10 | TFVSGNCDVV 0.004998 | 7.2 |
| HLA-A*33:01 | 1 | 865 | 873 | 9 | LTDEMIAQY 0.004997 | 6.8 |
| HLA-B*15:01 | 1 | 718 | 727 | 10 | FTISVTTEIL 0.004996 | 7.1 |
| HLA-B*57:01 | 1 | 60 | 68 | 9 | SNVTWFHAI 0.004995 | 8.9 |
| HLA-A*68:02 | 1 | 657 | 666 | 10 | NNSYECDIPI 0.004994 | 7.2 |
| HLA-A*03:01 | 1 | 894 | 902 | 9 | LQIPFAMQM 0.004993 | 6.2 |
| HLA-B*57:01 | 1 | 233 | 242 | 10 | INITRFQTL 0.004991 | 8.9 |
| HLA-A*03:01 | 1 | 846 | 854 | 9 | ARDLICAQK 0.00499 | 6.2 |
| HLA-B*51:01 | 1 | 112 | 120 | 9 | SKTQSLIV 0.004988 | 8.6 |
| HLA-A*02:06 | 1 | 980 | 989 | 10 | ILSRLDKVEA 0.004987 | 9.7 |
| HLA-A*26:01 | 1 | 265 | 273 | 9 | YYVGYLQPR 0.004985 | 4.8 |
| HLA-A*30:01 | 1 | 457 | 465 | 9 | RKSNLKPFE 0.004984 | 13 |
| HLA-A*23:01 | 1 | 298 | 306 | 9 | ETKCTLKSF 0.004982 | 4.1 |
| HLA-A*31:01 | 1 | 311 | 320 | 10 | GIYQTSNFRV 0.004981 | 8.5 |
| HLA-A*01:01 | 1 | 827 | 836 | 10 | TLADAGFIKQ 0.00498 | 5.6 |
| HLA-A*30:02 | 1 | 453 | 462 | 10 | YRLFRRKSNLK 0.004979 | 9.7 |
| HLA-A*02:06 | 1 | 504 | 513 | 10 | GYQPYRVVVL 0.004977 | 9.7 |
| HLA-A*30:02 | 1 | 780 | 788 | 9 | EVFAQVKQI 0.004975 | 9.7 |
| HLA-B*51:01 | 1 | 806 | 815 | 10 | LPDPSKPSKR 0.004975 | 8.7 |
| HLA-A*68:02 | 1 | 425 | 433 | 9 | LPDDFTGCV 0.004973 | 7.2 |
| HLA-A*32:01 | 1 | 627 | 635 | 9 | DQLTPTWRV 0.004973 | 5.0 |
| HLA-A*30:02 | 1 | 996 | 1004 | 9 | LITGRLQSL 0.004971 | 9.7 |
| HLA-B*07:02 | 1 | 599 | 607 | 9 | TPGTNTSNQ 0.004969 | 5.4 |
| HLA-B*53:01 | 1 | 874 | 882 | 9 | TSALLAGTI 0.004969 | 4.6 |
| HLA-A*32:01 | 1 | 159 | 168 | 10 | VYSSANNCTF 0.004968 | 5.0 |
| HLA-A*31:01 | 1 | 386 | 395 | 10 | KLNDLCFTNV 0.004968 | 8.5 |
| HLA-A*30:01 | 1 | 511 | 520 | 10 | VVLSFELLHA 0.004968 | 13 |
| HLA-A*01:01 | 1 | 635 | 643 | 9 | VYSTGSNVF 0.004967 | 5.6 |
| HLA-A*02:01 | 1 | 300 | 308 | 9 | KCTLKSFTV 0.004963 | 7.0 |
| HLA-A*31:01 | 1 | 326 | 335 | 10 | IVRFPNITNL 0.004962 | 8.5 |
| HLA-A*03:01 | 1 | 320 | 328 | 9 | VQPTESIVR 0.004959 | 6.2 |
| HLA-A*23:01 | 1 | 364 | 372 | 9 | DYSVLYNSA 0.004959 | 4.1 |
| HLA-B*58:01 | 1 | 342 | 351 | 10 | FNATRFASVY 0.004958 | 6.0 |
| HLA-A*30:02 | 1 | 802 | 811 | 10 | FSQILPDPSK 0.004957 | 9.7 |
| HLA-B*53:01 | 1 | 193 | 201 | 9 | VFKNIDGYF 0.004956 | 4.6 |
| HLA-B*15:01 | 1 | 1005 | 1013 | 9 | QTYVTQQLI 0.004955 | 7.2 |
| HLA-A*30:02 | 1 | 623 | 631 | 9 | AIHADQLTP 0.004954 | 9.7 |
| HLA-A*11:01 | 1 | 305 | 314 | 10 | SFTVEKGIYQ 0.004949 | 5.4 |
| HLA-B*57:01 | 1 | 580 | 588 | 9 | QTLIELDIT 0.004949 | 8.9 |
| HLA-A*24:02 | 1 | 890 | 898 | 9 | AGAALQIPF 0.004948 | 4.1 |
| HLA-A*30:01 | 1 | 238 | 246 | 9 | FQTLALHR 0.004946 | 13 |
| HLA-A*30:02 | 1 | 361 | 370 | 10 | CVADYSVLYN 0.004945 | 9.7 |
| HLA-B*58:01 | 1 | 765 | 774 | 10 | RALTGIAVEQ 0.004945 | 6.0 |
| HLA-B*57:01 | 1 | 537 | 546 | 10 | KCVNFNFNGL 0.004944 | 8.9 |
| HLA-A*23:01 | 1 | 166 | 175 | 10 | CTFEYVSQPF 0.004942 | 4.1 |
| HLA-A*68:02 | 1 | 255 | 264 | 10 | SSGWTAGAAA 0.004942 | 7.2 |
| HLA-B*53:01 | 1 | 149 | 157 | 9 | NKSWMESEF 0.00494 | 4.6 |
| HLA-B*08:01 | 1 | 262 | 270 | 9 | AAAYYVGYL 0.004935 | 8.8 |
| HLA-B*07:02 | 1 | 853 | 861 | 9 | QKFNGLTVL 0.004935 | 5.4 |
| HLA-B*53:01 | 1 | 1140 | 1148 | 9 | PLQPELDSF 0.004933 | 4.6 |
| HLA-B*57:01 | 1 | 1169 | 1177 | 9 | ISGINASVV 0.004932 | 8.9 |
| HLA-A*68:01 | 1 | 1201 | 1209 | 9 | QELGKYEYQ 0.004932 | 8.8 |
| HLA-A*30:02 | 1 | 1005 | 1014 | 10 | QTYVTQQLIR 0.00493 | 9.8 |
| HLA-B*51:01 | 1 | 374 | 382 | 9 | FSTFKCYGV 0.004927 | 8.7 |
| HLA-B*44:02 | 1 | 808 | 817 | 10 | DPSKPSKRSF 0.004927 | 3.7 |
| HLA-A*01:01 | 1 | 21 | 29 | 9 | RTQLPPAYT 0.004926 | 5.6 |
| HLA-B*35:01 | 1 | 257 | 265 | 9 | GWTAGAAAY 0.004926 | 5.1 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*02:01 | 1 | 819 | 828 | 10 | EDLLFNKVTL 0.004925 | 7.0 |
| HLA-A*02:01 | 1 | 870 | 878 | 9 | IAQYTSALL 0.004925 | 7.0 |
| HLA-A*30:01 | 1 | 1009 | 1017 | 9 | TQQLIRAAE 0.004924 | 13 |
| HLA-A*03:01 | 1 | 139 | 147 | 9 | PFLGVYYHK 0.004922 | 6.2 |
| HLA-B*51:01 | 1 | 489 | 497 | 9 | YFPLQSYGF 0.004922 | 8.7 |
| HLA-A*30:02 | 1 | 762 | 770 | 9 | QLNRALTGI 0.004921 | 9.8 |
| HLA-B*53:01 | 1 | 773 | 781 | 9 | EQDKNTQEV 0.00492 | 4.6 |
| HLA-B*08:01 | 1 | 975 | 984 | 10 | SVLNDILSRL 0.00492 | 8.8 |
| HLA-B*57:01 | 1 | 1075 | 1083 | 9 | FTTAPAICH 0.004919 | 8.9 |
| HLA-B*51:01 | 1 | 1166 | 1174 | 9 | LGDISGINA 0.004918 | 8.7 |
| HLA-A*02:01 | 1 | 603 | 611 | 9 | NTSNQVAVL 0.004915 | 7.0 |
| HLA-A*11:01 | 1 | 871 | 879 | 9 | AQYTSALLA 0.004912 | 5.4 |
| HLA-A*30:02 | 1 | 238 | 246 | 9 | FQTLALHR 0.004906 | 9.8 |
| HLA-A*30:01 | 1 | 666 | 674 | 9 | IGAGICASY 0.004906 | 13 |
| HLA-A*68:01 | 1 | 711 | 719 | 9 | SIAIPTNFT 0.004905 | 8.9 |
| HLA-B*15:01 | 1 | 871 | 880 | 10 | AQYTSALLAG 0.004904 | 7.2 |
| HLA-B*51:01 | 1 | 1065 | 1073 | 9 | VTYVPAQEK 0.004903 | 8.7 |
| HLA-A*30:01 | 1 | 1046 | 1054 | 9 | GYHLMSFPQ 0.004902 | 13 |
| HLA-B*08:01 | 1 | 1068 | 1077 | 10 | VPAQEKNFST 0.004902 | 8.8 |
| HLA-A*01:01 | 1 | 366 | 374 | 9 | SVLYNSASF 0.004901 | 5.6 |
| HLA-A*01:01 | 1 | 417 | 425 | 9 | KIADYNYKL 0.004899 | 5.6 |
| HLA-A*68:01 | 1 | 695 | 703 | 9 | YTMSLGAEN 0.004895 | 8.9 |
| HLA-A*68:02 | 1 | 678 | 687 | 10 | TNSPRRARSV 0.004892 | 7.3 |
| HLA-B*58:01 | 1 | 997 | 1005 | 9 | ITGRLQSLQ 0.004892 | 6.0 |
| HLA-A*01:01 | 1 | 1048 | 1056 | 9 | HLMSPQSA 0.004892 | 5.6 |
| HLA-A*02:01 | 1 | 581 | 590 | 10 | TLEILDITPC 0.004891 | 7.0 |
| HLA-A*68:01 | 1 | 722 | 731 | 10 | VTTEILPVSM 0.004891 | 8.9 |
| HLA-A*68:01 | 1 | 1005 | 1013 | 9 | QTYVTQQLI 0.004891 | 8.9 |
| HLA-A*01:01 | 1 | 1113 | 1121 | 9 | QIITDNTF 0.004889 | 5.6 |
| HLA-B*51:01 | 1 | 427 | 436 | 10 | DDFTGCVIAW 0.004888 | 8.7 |
| HLA-B*35:01 | 1 | 856 | 864 | 9 | NGLTVLPPL 0.004888 | 5.1 |
| HLA-B*44:03 | 1 | 50 | 58 | 9 | STQDLFLPF 0.004887 | 4.0 |
| HLA-B*58:01 | 1 | 111 | 119 | 9 | DSKTQSLLI 0.004886 | 6.0 |
| HLA-A*68:02 | 1 | 477 | 486 | 10 | STPCNGVEGF 0.004884 | 7.3 |
| HLA-A*26:01 | 1 | 304 | 313 | 10 | KSFTVEKGIY 0.004883 | 4.8 |
| HLA-A*02:01 | 1 | 975 | 983 | 9 | SVLNDILSR 0.004883 | 7.0 |
| HLA-A*68:02 | 1 | 844 | 852 | 9 | IAARDLICA 0.004879 | 7.3 |
| HLA-B*58:01 | 1 | 1173 | 1181 | 9 | NASVVNIQK 0.004878 | 6.0 |
| HLA-B*35:01 | 1 | 1220 | 1229 | 10 | FIAGLIAIVM 0.004877 | 5.1 |
| HLA-A*31:01 | 1 | 496 | 505 | 10 | GFQPTNGVGY 0.004875 | 8.6 |
| HLA-A*33:01 | 1 | 1202 | 1211 | 10 | ELGKYEQYIK 0.004875 | 6.8 |
| HLA-A*01:01 | 1 | 339 | 347 | 9 | GEVFNATRF 0.004874 | 5.6 |
| HLA-B*57:01 | 1 | 602 | 611 | 10 | TNTSNQVAVL 0.004874 | 9.0 |
| HLA-A*30:01 | 1 | 184 | 192 | 9 | GNFKNLREF 0.004873 | 13 |
| HLA-A*32:01 | 1 | 257 | 266 | 10 | GWTAGAAAYY 0.00487 | 5.0 |
| HLA-A*31:01 | 1 | 1046 | 1054 | 9 | GYHLMSFPQ 0.004868 | 8.6 |
| HLA-B*15:01 | 1 | 685 | 693 | 9 | RSVASQSII 0.004867 | 7.2 |
| HLA-A*03:01 | 1 | 235 | 243 | 9 | ITRFQTLA 0.004866 | 6.2 |
| HLA-A*26:01 | 1 | 311 | 319 | 9 | GIYQTSNFR 0.004866 | 4.9 |
| HLA-A*68:01 | 1 | 62 | 70 | 9 | VTWFHAIHV 0.004864 | 8.9 |
| HLA-A*26:01 | 1 | 1005 | 1014 | 10 | QTYVTQQLIR 0.004861 | 4.9 |
| HLA-A*31:01 | 1 | 186 | 195 | 10 | FKNLREFVFK 0.004858 | 8.6 |
| HLA-B*57:01 | 1 | 262 | 270 | 9 | AAAYYVGYL 0.004858 | 9.0 |
| HLA-B*15:01 | 1 | 762 | 770 | 9 | QLNRALTGI 0.004858 | 7.2 |
| HLA-B*07:02 | 1 | 850 | 858 | 9 | ICAQKFNGL 0.004858 | 5.4 |
| HLA-A*03:01 | 1 | 1054 | 1062 | 9 | QSAPHGVVF 0.004857 | 6.2 |
| HLA-B*53:01 | 1 | 342 | 351 | 10 | FNATRFASVY 0.004856 | 4.6 |
| HLA-A*02:03 | 1 | 77 | 85 | 9 | KRFDNPVLP 0.004855 | 8.0 |
| HLA-A*68:02 | 1 | 123 | 131 | 9 | ATNVVIKVC 0.004855 | 7.3 |
| HLA-A*32:01 | 1 | 870 | 878 | 9 | IAQYTSALL 0.004854 | 5.1 |
| HLA-A*33:01 | 1 | 846 | 854 | 9 | ARDLICAQK 0.004849 | 6.8 |
| HLA-A*02:03 | 1 | 1028 | 1037 | 10 | KMSECVLGQS 0.004846 | 8.0 |
| HLA-A*02:03 | 1 | 513 | 521 | 9 | LSFELLHAP 0.004845 | 8.0 |
| HLA-B*07:02 | 1 | 1000 | 1008 | 9 | RLQSLQTYV 0.004845 | 5.4 |
| HLA-B*08:01 | 1 | 982 | 990 | 9 | SRLDKVEAE 0.004844 | 8.9 |
| HLA-B*53:01 | 1 | 1094 | 1103 | 10 | VFVSNQTHWF 0.004843 | 4.6 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*58:01 | 1 | 1194 | 1203 | 10 | NESLIDLQEL 0.004843 | 6.1 |
| HLA-B*57:01 | 1 | 672 | 681 | 10 | ASYQTQTNSP 0.004842 | 9.0 |
| HLA-A*33:01 | 1 | 1146 | 1155 | 10 | DSFKEELDKY 0.004842 | 6.8 |
| HLA-B*08:01 | 1 | 907 | 916 | 10 | NGIGVTQNVL 0.004841 | 8.9 |
| HLA-B*15:01 | 1 | 870 | 878 | 9 | IAQYTSALL 0.004836 | 7.2 |
| HLA-A*02:06 | 1 | 597 | 605 | 9 | VITPGTNTS 0.004834 | 9.8 |
| HLA-A*31:01 | 1 | 265 | 274 | 10 | YYVGYLQPRT 0.004833 | 8.6 |
| HLA-A*30:01 | 1 | 218 | 226 | 9 | QGFSALEPL 0.004832 | 13 |
| HLA-A*03:01 | 1 | 1203 | 1211 | 9 | LGKYEQYIK 0.004832 | 6.2 |
| HLA-A*02:06 | 1 | 321 | 329 | 9 | OPTESIVRF 0.004831 | 9.8 |
| HLA-A*02:01 | 1 | 23 | 32 | 10 | QLPPAYTNSF 0.00483 | 7.0 |
| HLA-A*68:02 | 1 | 166 | 175 | 10 | CTFEYVSQPF 0.004829 | 7.3 |
| HLA-A*30:02 | 1 | 108 | 116 | 9 | TTLDSKTQS 0.004828 | 9.9 |
| HLA-A*02:03 | 1 | 581 | 590 | 10 | TLEILDITPC 0.004827 | 8.0 |
| HLA-A*02:06 | 1 | 1006 | 1015 | 10 | TYVTQQLIRA 0.004826 | 9.8 |
| HLA-A*26:01 | 1 | 550 | 559 | 10 | GVLTESNKKF 0.004823 | 4.9 |
| HLA-B*15:01 | 1 | 1003 | 1011 | 9 | SLQTYVTQQ 0.004823 | 7.2 |
| HLA-B*35:01 | 1 | 1042 | 1050 | 9 | FCGKGYHLM 0.004823 | 5.1 |
| HLA-A*01:01 | 1 | 1056 | 1064 | 9 | APHGVVFLH 0.004822 | 5.7 |
| HLA-B*57:01 | 1 | 382 | 390 | 9 | VSPTKLNDL 0.004819 | 9.0 |
| HLA-A*33:01 | 1 | 627 | 636 | 10 | DQLTPTWRVY 0.004817 | 6.9 |
| HLA-B*57:01 | 1 | 888 | 896 | 9 | FGAGAALQI 0.004817 | 9.0 |
| HLA-A*32:01 | 1 | 161 | 170 | 10 | SSANNCTFEY 0.004816 | 5.1 |
| HLA-A*33:01 | 1 | 193 | 201 | 9 | VFKNIDGYF 0.004816 | 6.9 |
| HLA-B*51:01 | 1 | 277 | 285 | 9 | LKYNENGTI 0.004815 | 8.8 |
| HLA-A*26:01 | 1 | 368 | 377 | 10 | LYNSASFSTF 0.004813 | 4.9 |
| HLA-A*31:01 | 1 | 28 | 36 | 9 | YTNSFTRGV 0.004812 | 8.6 |
| HLA-B*15:01 | 1 | 1100 | 1109 | 10 | THWFVTQRNF 0.004812 | 7.2 |
| HLA-A*26:01 | 1 | 60 | 68 | 9 | SNVTWFHAI 0.004811 | 4.9 |
| HLA-A*30:01 | 1 | 761 | 769 | 9 | TQLNRALTG 0.004811 | 13 |
| HLA-A*68:02 | 1 | 93 | 101 | 9 | ASTEKSNI 0.004808 | 7.3 |
| HLA-B*40:01 | 1 | 701 | 709 | 9 | AENSVAYSN 0.004808 | 3.8 |
| HLA-B*08:01 | 1 | 865 | 873 | 9 | LTDEMIAQY 0.004808 | 8.9 |
| HLA-B*40:01 | 1 | 662 | 670 | 9 | CDIPIGAGI 0.004807 | 3.8 |
| HLA-B*51:01 | 1 | 256 | 264 | 9 | SGWTAGAAA 0.004806 | 8.8 |
| HLA-B*57:01 | 1 | 794 | 802 | 9 | IKDFGGFNF 0.004806 | 9.0 |
| HLA-A*30:01 | 1 | 859 | 868 | 10 | TVLPPLLTDE 0.004806 | 13 |
| HLA-A*30:01 | 1 | 870 | 879 | 10 | IAQYTSALLA 0.004806 | 13 |
| HLA-B*35:01 | 1 | 441 | 449 | 9 | LDSKVGGNY 0.004804 | 5.1 |
| HLA-B*58:01 | 1 | 622 | 631 | 10 | VAIHADQLTP 0.004804 | 6.1 |
| HLA-A*02:06 | 1 | 1019 | 1027 | 9 | RASANLAAT 0.004804 | 9.9 |
| HLA-A*30:02 | 1 | 964 | 973 | 10 | KQLSSNFGAI 0.004803 | 9.9 |
| HLA-A*68:02 | 1 | 786 | 794 | 9 | KQIYKTPPI 0.004798 | 7.3 |
| HLA-A*26:01 | 1 | 614 | 622 | 9 | DVNCTEVPV 0.004796 | 4.9 |
| HLA-A*23:01 | 1 | 91 | 100 | 10 | YFASTEKSNI 0.004791 | 4.2 |
| HLA-A*23:01 | 1 | 34 | 43 | 10 | RGVYYPDKVF 0.00479 | 4.2 |
| HLA-B*07:02 | 1 | 1004 | 1012 | 9 | LQTYVTQQL 0.00479 | 5.5 |
| HLA-A*32:01 | 1 | 1130 | 1138 | 9 | IGIVNNTVY 0.004788 | 5.1 |
| HLA-A*33:01 | 1 | 342 | 350 | 9 | FNATRFASV 0.004787 | 6.9 |
| HLA-B*44:02 | 1 | 878 | 886 | 9 | LAGTITSGW 0.004787 | 3.8 |
| HLA-A*23:01 | 1 | 219 | 227 | 9 | GFSALEPLV 0.004786 | 4.2 |
| HLA-A*31:01 | 1 | 377 | 386 | 10 | FKCYGVSPTK 0.004785 | 8.6 |
| HLA-A*01:01 | 1 | 469 | 477 | 9 | STEIYQAGS 0.004783 | 5.7 |
| HLA-A*26:01 | 1 | 1041 | 1050 | 10 | DFCGKGYHLM 0.004783 | 4.9 |
| HLA-B*57:01 | 1 | 1198 | 1206 | 9 | IDLQELGKY 0.00478 | 9.1 |
| HLA-A*30:02 | 1 | 583 | 592 | 10 | EILDITPCSF 0.004778 | 10 |
| HLA-A*02:03 | 1 | 803 | 812 | 10 | SQILPDPSKP 0.004776 | 8.0 |
| HLA-A*30:01 | 1 | 89 | 98 | 10 | GYYFASTEKS 0.004775 | 13 |
| HLA-B*08:01 | 1 | 484 | 492 | 9 | EGFNCFYPL 0.004775 | 9.0 |
| HLA-B*58:01 | 1 | 1073 | 1081 | 9 | KNFTTAPAI 0.004775 | 6.1 |
| HLA-A*31:01 | 1 | 1030 | 1038 | 9 | SECVLGQSK 0.004774 | 8.6 |
| HLA-A*32:01 | 1 | 516 | 524 | 9 | ELLHAPATV 0.004773 | 5.1 |
| HLA-B*58:01 | 1 | 575 | 584 | 10 | AVRDPQTLEI 0.004773 | 6.1 |
| HLA-A*30:01 | 1 | 972 | 980 | 9 | AISSVLNDI 0.004773 | 13 |
| HLA-B*35:01 | 1 | 774 | 782 | 9 | QDKNTQEVF 0.00477 | 5.2 |
| HLA-B*58:01 | 1 | 314 | 322 | 9 | QTSNFRVQP 0.004766 | 6.1 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|
| HLA-A*26:01 | 1 | 511 | 519 | 9 | VVLSFELLH | 0.004765 | 4.9 |
| HLA-A*33:01 | 1 | 533 | 541 | 9 | LVKNKCVNF | 0.004765 | 6.9 |
| HLA-A*33:01 | 1 | 821 | 829 | 9 | LLFNKVTLA | 0.004765 | 6.9 |
| HLA-B*51:01 | 1 | 901 | 909 | 9 | QMAYRFNGI | 0.004764 | 8.9 |
| HLA-B*40:01 | 1 | 1207 | 1215 | 9 | EQYIKWPWY | 0.004758 | 3.8 |
| HLA-A*02:06 | 1 | 222 | 230 | 9 | ALEPLVDLP | 0.004757 | 9.9 |
| HLA-A*11:01 | 1 | 846 | 854 | 9 | ARDLICAQK | 0.004757 | 5.5 |
| HLA-B*40:01 | 1 | 1164 | 1172 | 9 | VDLGDISGI | 0.004756 | 3.8 |
| HLA-A*68:02 | 1 | 315 | 323 | 9 | TSNFRVQPT | 0.004755 | 7.4 |
| HLA-A*30:02 | 1 | 673 | 681 | 9 | SYQTQTNSP | 0.004754 | 10 |
| HLA-B*44:02 | 1 | 771 | 780 | 10 | AVEQDKNTQE | 0.004754 | 3.8 |
| HLA-B*44:02 | 1 | 205 | 213 | 9 | SKHTPINLV | 0.004749 | 3.8 |
| HLA-A*30:02 | 1 | 36 | 45 | 10 | VYYPDKVFRS | 0.004748 | 10 |
| HLA-B*58:01 | 1 | 360 | 369 | 10 | NCVADYSVLY | 0.004747 | 6.1 |
| HLA-B*07:02 | 1 | 596 | 604 | 9 | SVITPGTNT | 0.004747 | 5.5 |
| HLA-A*02:06 | 1 | 1042 | 1050 | 9 | FCGKGYHLM | 0.004747 | 9.9 |
| HLA-A*30:02 | 1 | 204 | 213 | 10 | YSKHTPINLV | 0.004745 | 10 |
| HLA-A*30:02 | 1 | 379 | 387 | 9 | CYGVSPTKL | 0.004743 | 10 |
| HLA-A*31:01 | 1 | 778 | 786 | 9 | TQEVFAQVK | 0.004743 | 8.7 |
| HLA-A*30:02 | 1 | 944 | 952 | 9 | ALGKLQDVV | 0.004743 | 10 |
| HLA-B*57:01 | 1 | 938 | 946 | 9 | LSSTASALG | 0.004742 | 9.1 |
| HLA-B*58:01 | 1 | 942 | 951 | 10 | ASALGKLQDV | 0.004742 | 6.1 |
| HLA-A*11:01 | 1 | 264 | 273 | 10 | AYYVGYLQPR | 0.004741 | 5.5 |
| HLA-A*02:06 | 1 | 443 | 452 | 10 | SKVGGNYNYL | 0.004741 | 9.9 |
| HLA-B*40:01 | 1 | 77 | 85 | 9 | KRFDNPVLP | 0.004739 | 3.8 |
| HLA-B*40:01 | 1 | 847 | 855 | 9 | RDLICAQKF | 0.004737 | 3.8 |
| HLA-A*03:01 | 1 | 450 | 458 | 9 | NYLYRLFRK | 0.004736 | 6.3 |
| HLA-A*26:01 | 1 | 878 | 886 | 9 | LAGTITSGW | 0.004736 | 4.9 |
| HLA-B*57:01 | 1 | 1025 | 1033 | 9 | AATKMSECV | 0.004736 | 9.1 |
| HLA-B*40:01 | 1 | 917 | 925 | 9 | YENQKLIAN | 0.004735 | 3.8 |
| HLA-B*57:01 | 1 | 492 | 501 | 10 | LQSYGFQPTN | 0.004733 | 9.1 |
| HLA-A*32:01 | 1 | 537 | 546 | 10 | KCVNFNFNGL | 0.004732 | 5.1 |
| HLA-A*68:01 | 1 | 846 | 854 | 9 | ARDLICAQK | 0.004732 | 9.0 |
| HLA-B*08:01 | 1 | 188 | 197 | 10 | NLREFVFKNI | 0.004731 | 9.0 |
| HLA-A*02:01 | 1 | 490 | 499 | 10 | FPLQSYGFQP | 0.004731 | 7.1 |
| HLA-A*30:02 | 1 | 413 | 422 | 10 | GQTGKIADYN | 0.00473 | 10 |
| HLA-A*68:01 | 1 | 1054 | 1063 | 10 | QSAPHGVVFL | 0.004729 | 9.0 |
| HLA-A*11:01 | 1 | 1236 | 1245 | 10 | CMTSCCCLK | 0.004729 | 5.5 |
| HLA-A*31:01 | 1 | 504 | 512 | 9 | GYQPYRVVV | 0.004728 | 8.7 |
| HLA-B*15:01 | 1 | 10 | 18 | 9 | LVSSQCVNL | 0.004727 | 7.3 |
| HLA-A*30:02 | 1 | 1173 | 1181 | 9 | NASVVNIQK | 0.004727 | 10 |
| HLA-B*53:01 | 1 | 495 | 503 | 9 | YGFQPTNGV | 0.004726 | 4.7 |
| HLA-B*07:02 | 1 | 7 | 16 | 10 | LLPLVSSQCV | 0.004725 | 5.5 |
| HLA-B*58:01 | 1 | 110 | 118 | 9 | LDSKTQSLL | 0.004725 | 6.1 |
| HLA-B*53:01 | 1 | 1087 | 1095 | 9 | AHFPREGVF | 0.004725 | 4.7 |
| HLA-A*01:01 | 1 | 553 | 562 | 10 | TESNKKFLPF | 0.004724 | 5.7 |
| HLA-A*68:02 | 1 | 526 | 534 | 9 | GPKKSTNLV | 0.004723 | 7.4 |
| HLA-A*68:02 | 1 | 764 | 772 | 9 | NRALTGIAV | 0.004723 | 7.4 |
| HLA-A*01:01 | 1 | 794 | 802 | 9 | IKDFGGFNF | 0.004723 | 5.7 |
| HLA-A*02:06 | 1 | 644 | 653 | 10 | QTRAGCLIGA | 0.004722 | 9.9 |
| HLA-A*01:01 | 1 | 778 | 786 | 9 | TQEVFAQVK | 0.004716 | 5.8 |
| HLA-A*68:02 | 1 | 1 | 10 | 10 | MFVFLVLLPL | 0.004715 | 7.4 |
| HLA-A*24:02 | 1 | 1139 | 1148 | 10 | DPLQPELDSF | 0.004714 | 4.2 |
| HLA-B*53:01 | 1 | 498 | 507 | 10 | QPTNGVGYPQ | 0.004713 | 4.7 |
| HLA-A*30:01 | 1 | 1045 | 1054 | 10 | KGYHLMSFPQ | 0.004713 | 13 |
| HLA-A*32:01 | 1 | 186 | 194 | 9 | FKNLREFVF | 0.004712 | 5.1 |
| HLA-A*30:01 | 1 | 475 | 483 | 9 | AGSTPCNGV | 0.004711 | 13 |
| HLA-A*01:01 | 1 | 817 | 826 | 10 | FIEDLLFNKV | 0.004711 | 5.8 |
| HLA-A*03:01 | 1 | 575 | 584 | 10 | AVRDPQTLEI | 0.004708 | 6.3 |
| HLA-A*30:01 | 1 | 1077 | 1086 | 10 | TAPAICHGDK | 0.004708 | 13 |
| HLA-A*68:02 | 1 | 160 | 168 | 9 | YSSANNCTF | 0.004707 | 7.4 |
| HLA-A*30:01 | 1 | 350 | 358 | 9 | VYAWNRKRI | 0.004706 | 13 |
| HLA-B*15:01 | 1 | 478 | 486 | 9 | TPCNGVEGF | 0.004705 | 7.3 |
| HLA-A*30:01 | 1 | 690 | 699 | 10 | QSIAYTMSL | 0.004705 | 13 |
| HLA-A*31:01 | 1 | 357 | 365 | 9 | RISNCVADY | 0.004704 | 8.7 |
| HLA-A*30:01 | 1 | 1146 | 1154 | 9 | DSFKEELDK | 0.004704 | 13 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*30:02 | 1 | 305 | 314 | 10 | SFTVEKGIYQ 0.004703 | 11 |
| HLA-A*03:01 | 1 | 496 | 505 | 10 | GFQPTNGVGY 0.004699 | 6.3 |
| HLA-A*30:02 | 1 | 567 | 576 | 10 | RDIADTTDAV 0.004699 | 11 |
| HLA-A*30:01 | 1 | 939 | 948 | 10 | SSTASALGKL 0.004694 | 13 |
| HLA-B*51:01 | 1 | 372 | 380 | 9 | ASFSTFKCY 0.004693 | 9.0 |
| HLA-A*68:02 | 1 | 962 | 970 | 9 | LVKQLSSNF 0.004692 | 7.4 |
| HLA-B*57:01 | 1 | 54 | 62 | 9 | LFLPFFSNV 0.004691 | 9.1 |
| HLA-B*57:01 | 1 | 773 | 782 | 10 | EQDKNTQEVF 0.004691 | 9.1 |
| HLA-A*02:01 | 1 | 714 | 722 | 9 | IPTNFTISV 0.00469 | 7.1 |
| HLA-A*32:01 | 1 | 954 | 962 | 9 | QNAQALNTL 0.004689 | 5.1 |
| HLA-A*30:02 | 1 | 734 | 742 | 9 | TSVDCTMYI 0.004686 | 11 |
| HLA-A*02:01 | 1 | 1256 | 1265 | 10 | FDEDDSEPVL 0.004686 | 7.1 |
| HLA-B*58:01 | 1 | 358 | 367 | 10 | ISNCVADYSV 0.004685 | 6.2 |
| HLA-A*02:03 | 1 | 332 | 341 | 10 | ITNLCPFGEV 0.004682 | 8.1 |
| HLA-A*30:02 | 1 | 256 | 264 | 9 | SGWTAGAAA 0.004681 | 11 |
| HLA-A*24:02 | 1 | 918 | 927 | 10 | ENQKLIANQF 0.004681 | 4.2 |
| HLA-B*57:01 | 1 | 1224 | 1232 | 9 | LIAIVMVTI 0.004681 | 9.2 |
| HLA-B*35:01 | 1 | 467 | 475 | 9 | DISTEIYQA 0.00468 | 5.2 |
| HLA-A*02:06 | 1 | 392 | 400 | 9 | FTNVYADSF 0.004678 | 10 |
| HLA-A*68:02 | 1 | 599 | 608 | 10 | TPGTNTSNQV 0.004677 | 7.4 |
| HLA-A*03:01 | 1 | 803 | 812 | 10 | SQILPDPSKP 0.00467 | 6.3 |
| HLA-A*30:01 | 1 | 627 | 635 | 9 | DQLTPTWRV 0.004669 | 13 |
| HLA-A*02:06 | 1 | 797 | 805 | 9 | FGGFNFSQI 0.004669 | 10 |
| HLA-B*08:01 | 1 | 1008 | 1016 | 9 | VTQQLIRAA 0.004664 | 9.1 |
| HLA-A*68:02 | 1 | 360 | 368 | 9 | NCVADYSVL 0.004662 | 7.4 |
| HLA-A*23:01 | 1 | 836 | 844 | 9 | QYGDCLGDI 0.004662 | 4.2 |
| HLA-A*24:02 | 1 | 877 | 886 | 10 | LLAGTITSGW 0.004658 | 4.2 |
| HLA-A*31:01 | 1 | 203 | 212 | 10 | IYSKHTPINL 0.004656 | 8.7 |
| HLA-B*58:01 | 1 | 684 | 693 | 10 | ARSVASQSII 0.004656 | 6.2 |
| HLA-A*33:01 | 1 | 1108 | 1116 | 9 | NFYEQIIT 0.004656 | 6.9 |
| HLA-A*02:06 | 1 | 266 | 275 | 10 | YVGYLQPRTF 0.004655 | 10 |
| HLA-A*68:02 | 1 | 850 | 858 | 9 | ICAQKFNGL 0.004655 | 7.4 |
| HLA-A*01:01 | 1 | 1055 | 1064 | 10 | SAPHGVVFLH 0.004655 | 5.8 |
| HLA-A*02:03 | 1 | 1016 | 1025 | 10 | AEIRASANLA 0.004654 | 8.1 |
| HLA-A*02:06 | 1 | 1135 | 1144 | 10 | NTVYDPLQPE 0.004654 | 10 |
| HLA-B*51:01 | 1 | 1221 | 1230 | 10 | IAGLIAIVMV 0.004654 | 9.0 |
| HLA-A*30:02 | 1 | 139 | 147 | 9 | PFLGVYYHK 0.004651 | 11 |
| HLA-A*02:06 | 1 | 283 | 292 | 10 | GTITDAVDCA 0.004651 | 10 |
| HLA-B*35:01 | 1 | 1142 | 1150 | 9 | QPELDSFKE 0.004651 | 5.2 |
| HLA-B*58:01 | 1 | 211 | 220 | 10 | NLVRDLPQGF 0.00465 | 6.2 |
| HLA-B*57:01 | 1 | 234 | 242 | 9 | NITRFQTL 0.004648 | 9.2 |
| HLA-A*30:02 | 1 | 1248 | 1256 | 9 | CSCGSCCKF 0.004648 | 11 |
| HLA-A*26:01 | 1 | 98 | 106 | 9 | SNIIRGWIF 0.004647 | 5.0 |
| HLA-B*53:01 | 1 | 1260 | 1268 | 9 | DSEPVKGV 0.004647 | 4.7 |
| HLA-A*30:02 | 1 | 858 | 866 | 9 | LTVLPPLLT 0.004645 | 11 |
| HLA-A*30:01 | 1 | 907 | 915 | 9 | NGIGVTQNV 0.004643 | 13 |
| HLA-A*33:01 | 1 | 1262 | 1271 | 10 | EPVLKGVKHL 0.004643 | 7.0 |
| HLA-A*31:01 | 1 | 267 | 276 | 10 | VGYLQPRTF 0.004642 | 8.7 |
| HLA-B*08:01 | 1 | 704 | 712 | 9 | SVAYSNSI 0.00464 | 9.1 |
| HLA-A*33:01 | 1 | 1020 | 1028 | 9 | ASANLAATK 0.004634 | 7.0 |
| HLA-A*31:01 | 1 | 345 | 353 | 9 | TRFASVYAW 0.004632 | 8.7 |
| HLA-A*30:01 | 1 | 451 | 459 | 9 | YLYRFRKS 0.004632 | 13 |
| HLA-B*44:02 | 1 | 195 | 204 | 10 | KNIDGYFKIY 0.004629 | 3.8 |
| HLA-A*11:01 | 1 | 1099 | 1108 | 10 | GTHWFVTQRN 0.004626 | 5.6 |
| HLA-A*30:01 | 1 | 166 | 174 | 9 | CTFEYVSQP 0.004625 | 13 |
| HLA-B*08:01 | 1 | 926 | 934 | 9 | QFNSAIGKI 0.004623 | 9.1 |
| HLA-B*58:01 | 1 | 938 | 946 | 9 | LSSTASALG 0.004623 | 6.2 |
| HLA-A*31:01 | 1 | 1205 | 1214 | 10 | KYEYQIKWPW 0.004622 | 8.7 |
| HLA-A*02:06 | 1 | 184 | 192 | 9 | GNFKNLREF 0.00462 | 10 |
| HLA-A*31:01 | 1 | 788 | 797 | 10 | IYKTPPIKDF 0.00462 | 8.7 |
| HLA-B*44:03 | 1 | 327 | 335 | 9 | VRFPNITNL 0.004619 | 4.1 |
| HLA-B*44:03 | 1 | 1038 | 1047 | 10 | KRVDFCGKGY 0.004619 | 4.1 |
| HLA-A*68:01 | 1 | 311 | 320 | 10 | GIYQTSNFRV 0.004618 | 9.1 |
| HLA-A*30:02 | 1 | 1049 | 1057 | 9 | LMSFPQSAP 0.004617 | 11 |
| HLA-A*01:01 | 1 | 688 | 697 | 10 | ASQSIIAYTM 0.004616 | 5.8 |
| HLA-A*24:02 | 1 | 1096 | 1104 | 9 | VSNGTHWFV 0.004613 | 4.3 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*51:01 | 1 | 565 | 573 | 9 | FGRDIADTT 0.004611 | 9.0 |
| HLA-B*53:01 | 1 | 168 | 177 | 10 | FEYVSQPFLM 0.00461 | 4.8 |
| HLA-A*31:01 | 1 | 710 | 718 | 9 | NSIAIPTNF 0.00461 | 8.8 |
| HLA-A*30:01 | 1 | 1170 | 1179 | 10 | SGINASVVNI 0.00461 | 13 |
| HLA-A*68:01 | 1 | 445 | 454 | 10 | VGGNYNYLYR 0.004609 | 9.1 |
| HLA-B*08:01 | 1 | 774 | 782 | 9 | QDKNTQEVF 0.004609 | 9.1 |
| HLA-B*35:01 | 1 | 1140 | 1148 | 9 | PLQPELDSF 0.004609 | 5.2 |
| HLA-B*57:01 | 1 | 256 | 265 | 10 | SGWTAGAAAY 0.004607 | 9.2 |
| HLA-B*15:01 | 1 | 292 | 300 | 9 | ALDPLSETK 0.004607 | 7.4 |
| HLA-B*51:01 | 1 | 59 | 67 | 9 | FSNVTWFHA 0.004605 | 9.0 |
| HLA-B*57:01 | 1 | 347 | 355 | 9 | FASVYAWNR 0.004602 | 9.2 |
| HLA-B*07:02 | 1 | 993 | 1001 | 9 | IDRLITGRL 0.004601 | 5.6 |
| HLA-A*31:01 | 1 | 239 | 248 | 10 | QTLALHRSY 0.004599 | 8.8 |
| HLA-A*01:01 | 1 | 292 | 301 | 10 | ALDPLSETKC 0.004599 | 5.8 |
| HLA-A*31:01 | 1 | 185 | 193 | 9 | NFKNLREFV 0.004598 | 8.8 |
| HLA-A*23:01 | 1 | 558 | 566 | 9 | KFLPFQFG 0.004597 | 4.3 |
| HLA-B*35:01 | 1 | 224 | 232 | 9 | EPLVDLPIG 0.004595 | 5.2 |
| HLA-B*08:01 | 1 | 798 | 806 | 9 | GGFNFSQIL 0.004594 | 9.1 |
| HLA-B*51:01 | 1 | 796 | 805 | 10 | DFGGFNFSQI 0.004593 | 9.1 |
| HLA-A*02:03 | 1 | 21 | 29 | 9 | RTQLPPAYT 0.00459 | 8.2 |
| HLA-B*44:03 | 1 | 780 | 788 | 9 | EVFAQVKQI 0.004587 | 4.1 |
| HLA-B*58:01 | 1 | 493 | 502 | 10 | QSYGFQPTNG 0.004585 | 6.2 |
| HLA-B*57:01 | 1 | 685 | 694 | 10 | RSVASQSIIA 0.004583 | 9.2 |
| HLA-B*58:01 | 1 | 1087 | 1095 | 9 | AHFPREGVF 0.004581 | 6.2 |
| HLA-B*07:02 | 1 | 158 | 166 | 9 | RVYSSANNC 0.004577 | 5.6 |
| HLA-B*35:01 | 1 | 825 | 833 | 9 | KVTLADAGF 0.004574 | 5.3 |
| HLA-A*30:02 | 1 | 93 | 101 | 9 | ASTEKSNII 0.00457 | 11 |
| HLA-A*68:01 | 1 | 718 | 727 | 10 | FTISVTTEIL 0.004568 | 9.1 |
| HLA-A*68:02 | 1 | 759 | 767 | 9 | FCTQLNRAL 0.004568 | 7.5 |
| HLA-A*02:03 | 1 | 162 | 171 | 10 | SANNCTFEYV 0.004567 | 8.2 |
| HLA-B*58:01 | 1 | 529 | 537 | 9 | KSTNLVKNK 0.004567 | 6.2 |
| HLA-B*57:01 | 1 | 779 | 788 | 10 | QEVFAQVKQI 0.004566 | 9.3 |
| HLA-A*26:01 | 1 | 1135 | 1144 | 10 | NTVYDPLQPE 0.004566 | 5.0 |
| HLA-A*30:01 | 1 | 1263 | 1272 | 10 | PVLKGVKLHY 0.004565 | 13 |
| HLA-A*30:02 | 1 | 255 | 264 | 10 | SSGWTAGAAA 0.004564 | 11 |
| HLA-A*02:01 | 1 | 454 | 463 | 10 | RLFRKSNLKP 0.004564 | 7.2 |
| HLA-B*07:02 | 1 | 773 | 781 | 9 | EQDKNTQEV 0.004564 | 5.6 |
| HLA-A*02:06 | 1 | 1059 | 1067 | 9 | GVVFLHVTY 0.004564 | 11 |
| HLA-A*24:02 | 1 | 229 | 238 | 10 | LPIGINITRF 0.004563 | 4.3 |
| HLA-A*01:01 | 1 | 617 | 626 | 10 | CTEVPVAIHA 0.004562 | 5.9 |
| HLA-A*02:03 | 1 | 1052 | 1060 | 9 | FPQSAPHGV 0.00456 | 8.2 |
| HLA-B*07:02 | 1 | 403 | 411 | 9 | RGDEVQRQA 0.004558 | 5.7 |
| HLA-B*15:01 | 1 | 835 | 844 | 10 | KQYGDCLGDI 0.004558 | 7.4 |
| HLA-A*02:06 | 1 | 855 | 864 | 10 | FNGLTVLPLP 0.004557 | 11 |
| HLA-A*26:01 | 1 | 56 | 65 | 10 | LPFFSNVTWF 0.004556 | 5.0 |
| HLA-B*58:01 | 1 | 859 | 867 | 9 | TVLPPLLD 0.004555 | 6.2 |
| HLA-A*02:01 | 1 | 992 | 1001 | 10 | QIDRLITGRL 0.004555 | 7.2 |
| HLA-A*30:02 | 1 | 493 | 501 | 9 | QSYGFQPTN 0.004554 | 11 |
| HLA-B*58:01 | 1 | 169 | 177 | 9 | EYVSQPFLM 0.004553 | 6.2 |
| HLA-B*44:02 | 1 | 1056 | 1064 | 9 | APHGVVFLH 0.00455 | 3.9 |
| HLA-A*02:06 | 1 | 563 | 572 | 10 | QQFGRDIADT 0.004547 | 11 |
| HLA-A*23:01 | 1 | 78 | 87 | 10 | RFDNPVLPFN 0.004544 | 4.3 |
| HLA-A*26:01 | 1 | 148 | 157 | 10 | NNKSWMESEF 0.004544 | 5.0 |
| HLA-A*68:02 | 1 | 313 | 322 | 10 | YQTSNFRVQP 0.004544 | 7.5 |
| HLA-B*57:01 | 1 | 1197 | 1206 | 10 | LIDLQELGKY 0.004544 | 9.3 |
| HLA-A*32:01 | 1 | 885 | 894 | 10 | GWTFGAGAAL 0.004543 | 5.2 |
| HLA-A*02:03 | 1 | 324 | 332 | 9 | ESIVRFPNI 0.004541 | 8.2 |
| HLA-B*51:01 | 1 | 856 | 865 | 10 | NGLTVLPPLL 0.004539 | 9.1 |
| HLA-A*02:01 | 1 | 895 | 903 | 9 | QIPFAMQMA 0.004536 | 7.2 |
| HLA-A*24:02 | 1 | 35 | 43 | 9 | GVYYPDKVF 0.004535 | 4.3 |
| HLA-B*51:01 | 1 | 287 | 295 | 9 | DAVDCALDP 0.004534 | 9.1 |
| HLA-A*26:01 | 1 | 267 | 275 | 9 | VGYLQPRTF 0.004532 | 5.1 |
| HLA-A*68:01 | 1 | 344 | 353 | 10 | ATRFASVYAW 0.004532 | 9.1 |
| HLA-B*15:01 | 1 | 1065 | 1073 | 9 | VTYVPAQEK 0.004532 | 7.4 |
| HLA-B*15:01 | 1 | 394 | 402 | 9 | NVYADSFVI 0.004531 | 7.4 |
| HLA-A*26:01 | 1 | 388 | 396 | 9 | NDLCFTNVY 0.00453 | 5.1 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*03:01 | 1 | 21 | 29 | 9 | RTQLPPAYT 0.004528 | 6.4 |
| HLA-B*51:01 | 1 | 88 | 96 | 9 | DGVYFASTE 0.004525 | 9.1 |
| HLA-B*57:01 | 1 | 348 | 356 | 9 | ASVYAWNRK 0.004525 | 9.3 |
| HLA-B*57:01 | 1 | 943 | 951 | 9 | SALGKLQDV 0.004524 | 9.3 |
| HLA-A*02:06 | 1 | 1188 | 1196 | 9 | EVAKNLNES 0.004524 | 11 |
| HLA-A*68:02 | 1 | 30 | 39 | 10 | NSFTRGVYYP 0.004521 | 7.6 |
| HLA-B*53:01 | 1 | 747 | 756 | 10 | TECSNLLLQY 0.004521 | 4.8 |
| HLA-A*33:01 | 1 | 936 | 944 | 9 | DSLSSTASA 0.004521 | 7.0 |
| HLA-B*58:01 | 1 | 202 | 210 | 9 | KIYSKHTPI 0.004519 | 6.3 |
| HLA-B*57:01 | 1 | 687 | 696 | 10 | VASQSIIAYT 0.004519 | 9.3 |
| HLA-B*35:01 | 1 | 828 | 836 | 9 | LADAGFIKQ 0.004517 | 5.3 |
| HLA-A*01:01 | 1 | 1052 | 1060 | 9 | FPQSAPHGV 0.004516 | 5.9 |
| HLA-B*35:01 | 1 | 357 | 365 | 9 | RISNCVADY 0.004514 | 5.3 |
| HLA-A*23:01 | 1 | 1061 | 1069 | 9 | VFLHVTTYVP 0.004514 | 4.3 |
| HLA-A*23:01 | 1 | 178 | 186 | 9 | DLEGKQGNF 0.004513 | 4.3 |
| HLA-A*02:03 | 1 | 853 | 861 | 9 | QKFNGLTVL 0.004512 | 8.3 |
| HLA-A*02:03 | 1 | 1003 | 1011 | 9 | SLQTYVTQQ 0.004512 | 8.3 |
| HLA-B*15:01 | 1 | 95 | 104 | 10 | TEKSNIIRGW 0.004511 | 7.5 |
| HLA-A*33:01 | 1 | 268 | 276 | 9 | GYLQPRTF 0.004511 | 7.0 |
| HLA-B*07:02 | 1 | 504 | 512 | 9 | GYQPYRVVV 0.004511 | 5.7 |
| HLA-A*32:01 | 1 | 1028 | 1036 | 9 | KMSECVLGQ 0.004511 | 5.2 |
| HLA-A*31:01 | 1 | 1054 | 1062 | 9 | QSAPHGVVF 0.00451 | 8.8 |
| HLA-A*30:02 | 1 | 905 | 914 | 10 | RFNGIGVTQN 0.004509 | 11 |
| HLA-B*53:01 | 1 | 907 | 915 | 9 | NGIGVTQNV 0.004509 | 4.8 |
| HLA-A*02:06 | 1 | 1108 | 1117 | 10 | NFYEQIITT 0.004508 | 11 |
| HLA-B*15:01 | 1 | 1141 | 1149 | 9 | LQPELDSFK 0.004507 | 7.5 |
| HLA-B*15:01 | 1 | 1004 | 1013 | 10 | LQTYVTQQLI 0.004506 | 7.5 |
| HLA-A*01:01 | 1 | 1109 | 1117 | 9 | FYEQIITT 0.004504 | 5.9 |
| HLA-B*58:01 | 1 | 1189 | 1198 | 10 | VAKNLNESLI 0.004504 | 6.3 |
| HLA-A*02:01 | 1 | 204 | 213 | 10 | YSKHTPINLV 0.004503 | 7.2 |
| HLA-B*40:01 | 1 | 447 | 455 | 9 | GNYNLYRL 0.004503 | 3.9 |
| HLA-A*30:02 | 1 | 1106 | 1114 | 9 | QRNFYEPQI 0.004503 | 11 |
| HLA-A*68:02 | 1 | 325 | 333 | 9 | SIVRFPNIT 0.0045 | 7.6 |
| HLA-B*51:01 | 1 | 345 | 353 | 9 | TRFASVYAW 0.0045 | 9.2 |
| HLA-B*40:01 | 1 | 195 | 203 | 9 | KNIDGYFKI 0.004498 | 3.9 |
| HLA-A*32:01 | 1 | 626 | 635 | 10 | ADQLTPTWRV 0.004496 | 5.3 |
| HLA-B*51:01 | 1 | 850 | 858 | 9 | ICAQKFNGL 0.004495 | 9.2 |
| HLA-A*23:01 | 1 | 48 | 56 | 9 | LHSTQDLFL 0.004494 | 4.3 |
| HLA-A*30:01 | 1 | 1011 | 1020 | 10 | QLIRAAEIRA 0.004493 | 13 |
| HLA-A*68:01 | 1 | 417 | 425 | 9 | KIADYNYKL 0.004488 | 9.1 |
| HLA-B*51:01 | 1 | 364 | 372 | 9 | DYSVLYNSA 0.004487 | 9.2 |
| HLA-A*03:01 | 1 | 956 | 965 | 10 | AQALNTLVKQ 0.004487 | 6.4 |
| HLA-B*57:01 | 1 | 1128 | 1137 | 10 | VVIGIVNNTV 0.004487 | 9.3 |
| HLA-A*30:01 | 1 | 266 | 275 | 10 | YVGYLQPRTF 0.004484 | 13 |
| HLA-A*68:02 | 1 | 542 | 551 | 10 | NFNGLTGTGV 0.004484 | 7.6 |
| HLA-B*08:01 | 1 | 806 | 815 | 10 | LPDPSKPSKR 0.004484 | 9.3 |
| HLA-B*44:02 | 1 | 84 | 92 | 9 | LPFNDGVYF 0.004481 | 3.9 |
| HLA-B*51:01 | 1 | 481 | 490 | 10 | NGVEGFNCYF 0.00448 | 9.2 |
| HLA-A*31:01 | 1 | 44 | 52 | 9 | RSSVLHSTQ 0.004479 | 8.8 |
| HLA-A*31:01 | 1 | 494 | 503 | 10 | SYGFQPTNGV 0.004479 | 8.8 |
| HLA-A*30:02 | 1 | 34 | 42 | 9 | RGVYYPDKV 0.004478 | 11 |
| HLA-B*51:01 | 1 | 417 | 425 | 9 | KIADYNYKL 0.004478 | 9.2 |
| HLA-A*30:02 | 1 | 556 | 565 | 10 | NKKFLPFQF 0.004477 | 11 |
| HLA-A*32:01 | 1 | 794 | 802 | 9 | IKDFGGFNF 0.004477 | 5.3 |
| HLA-A*68:02 | 1 | 24 | 32 | 9 | LPPAYTNSF 0.004475 | 7.6 |
| HLA-A*23:01 | 1 | 202 | 210 | 9 | KIYSKHTPI 0.004475 | 4.3 |
| HLA-B*44:03 | 1 | 236 | 244 | 9 | TRFQTLAL 0.004475 | 4.2 |
| HLA-B*15:01 | 1 | 230 | 238 | 9 | PIGINITRF 0.004474 | 7.5 |
| HLA-A*31:01 | 1 | 261 | 269 | 9 | GAAAYYVGY 0.004474 | 8.8 |
| HLA-B*08:01 | 1 | 229 | 237 | 9 | LPIGINITR 0.004472 | 9.3 |
| HLA-A*32:01 | 1 | 1200 | 1209 | 10 | LQELGKYEYQ 0.004471 | 5.3 |
| HLA-A*68:02 | 1 | 302 | 310 | 9 | TLKSFTVEK 0.00447 | 7.6 |
| HLA-A*32:01 | 1 | 828 | 837 | 10 | LADAGFIKQY 0.00447 | 5.3 |
| HLA-A*30:02 | 1 | 27 | 36 | 10 | AYTNSFTRGV 0.004467 | 11 |
| HLA-A*30:02 | 1 | 684 | 692 | 9 | ARSVASQSI 0.004467 | 11 |
| HLA-A*02:06 | 1 | 721 | 730 | 10 | SVTTEILPVS 0.004465 | 11 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*02:06 | 1 | 890 | 899 | 10 | AGAALQIPFA 0.004465 | 11 |
| HLA-B*40:01 | 1 | 1206 | 1215 | 10 | YEQYIKWPWY 0.004465 | 3.9 |
| HLA-B*51:01 | 1 | 223 | 231 | 9 | LEPLVDLPI 0.004464 | 9.2 |
| HLA-A*30:02 | 1 | 672 | 681 | 10 | ASYQTQTNSP 0.004464 | 11 |
| HLA-A*01:01 | 1 | 886 | 894 | 9 | WTFGAGAAL 0.004463 | 5.9 |
| HLA-A*32:01 | 1 | 1263 | 1272 | 10 | PVLKGVKLHY 0.004463 | 5.3 |
| HLA-B*53:01 | 1 | 697 | 705 | 9 | MSLGAENSV 0.004461 | 4.8 |
| HLA-A*11:01 | 1 | 21 | 29 | 9 | RTQLPPAYT 0.004459 | 5.6 |
| HLA-A*30:02 | 1 | 757 | 765 | 9 | GSFCTQLNR 0.004458 | 11 |
| HLA-B*35:01 | 1 | 969 | 977 | 9 | NFGAISSVL 0.004457 | 5.3 |
| HLA-B*44:03 | 1 | 1194 | 1202 | 9 | NESLIDLQE 0.004457 | 4.2 |
| HLA-A*30:02 | 1 | 457 | 466 | 10 | RKSNLKPFER 0.004456 | 11 |
| HLA-A*30:02 | 1 | 1003 | 1011 | 9 | SLQTYVTQQ 0.004454 | 11 |
| HLA-B*44:03 | 1 | 551 | 559 | 9 | VLTESNKKF 0.004453 | 4.2 |
| HLA-A*30:01 | 1 | 877 | 886 | 10 | LLAGTITSGW 0.004453 | 4.3 |
| HLA-A*02:01 | 1 | 1008 | 1016 | 9 | VTQQLIRAA 0.004453 | 7.3 |
| HLA-A*30:02 | 1 | 751 | 759 | 9 | NLLLQYGSF 0.004452 | 11 |
| HLA-A*68:01 | 1 | 19 | 27 | 9 | TTRTQLPPA 0.004449 | 9.2 |
| HLA-A*32:01 | 1 | 311 | 319 | 9 | GIYQTSNFR 0.004449 | 5.3 |
| HLA-A*02:01 | 1 | 401 | 410 | 10 | VIRGDEVRFI 0.004449 | 7.3 |
| HLA-B*08:01 | 1 | 1264 | 1273 | 10 | VLKGVKLHYT 0.004449 | 9.3 |
| HLA-A*30:02 | 1 | 443 | 452 | 10 | SKVGGNYNYL 0.004447 | 11 |
| HLA-B*51:01 | 1 | 360 | 368 | 9 | NCVADYSVL 0.004446 | 9.2 |
| HLA-A*02:03 | 1 | 1121 | 1130 | 10 | FVSGNCDVVI 0.004445 | 8.3 |
| HLA-B*08:01 | 1 | 832 | 841 | 10 | GFIKQYGDCL 0.004444 | 9.3 |
| HLA-A*11:01 | 1 | 864 | 873 | 10 | LLTDEMIAQY 0.004444 | 5.6 |
| HLA-A*31:01 | 1 | 198 | 207 | 10 | DGYFKIYSKH 0.004443 | 8.9 |
| HLA-A*02:01 | 1 | 722 | 731 | 10 | VTTEILPVSM 0.00444 | 7.3 |
| HLA-A*02:03 | 1 | 410 | 418 | 9 | IAPGQTGKI 0.004439 | 8.3 |
| HLA-A*02:06 | 1 | 686 | 695 | 10 | SVASQSIIAY 0.004439 | 11 |
| HLA-A*23:01 | 1 | 750 | 759 | 10 | SNLLLQYGSF 0.004439 | 4.3 |
| HLA-A*02:06 | 1 | 77 | 85 | 9 | KRFDNPVLP 0.004434 | 11 |
| HLA-B*57:01 | 1 | 136 | 145 | 10 | CNDPFLGVVY 0.004432 | 9.4 |
| HLA-A*30:01 | 1 | 257 | 266 | 10 | GWTAGAAAYY 0.004432 | 14 |
| HLA-B*40:01 | 1 | 1189 | 1197 | 9 | VAKNLNESL 0.004432 | 4.0 |
| HLA-B*40:01 | 1 | 78 | 86 | 9 | RFDNPVLPF 0.004431 | 4.0 |
| HLA-B*57:01 | 1 | 957 | 965 | 9 | QALNTLVKQ 0.004431 | 9.4 |
| HLA-B*51:01 | 1 | 782 | 790 | 9 | FAQVKQIYK 0.004429 | 9.2 |
| HLA-A*68:02 | 1 | 613 | 622 | 10 | QDVNCTEVPV 0.004427 | 7.6 |
| HLA-B*07:02 | 1 | 641 | 650 | 10 | NVFQTRAGCL 0.004427 | 5.8 |
| HLA-A*02:06 | 1 | 685 | 694 | 10 | RSVASQSIIA 0.004425 | 11 |
| HLA-B*15:01 | 1 | 805 | 814 | 10 | ILPDPSKPSK 0.004424 | 7.5 |
| HLA-B*40:01 | 1 | 1167 | 1176 | 10 | GDISGINASV 0.004424 | 4.0 |
| HLA-A*02:01 | 1 | 596 | 604 | 9 | SVITPGTNT 0.004423 | 7.3 |
| HLA-A*30:01 | 1 | 161 | 170 | 10 | SSANNCTFEY 0.004422 | 14 |
| HLA-A*30:01 | 1 | 135 | 143 | 9 | FCNDPFLGV 0.004421 | 14 |
| HLA-A*02:06 | 1 | 121 | 130 | 10 | NNATNVVIKV 0.004419 | 11 |
| HLA-B*15:01 | 1 | 787 | 795 | 9 | QIYKTPPIK 0.004419 | 7.5 |
| HLA-B*40:01 | 1 | 1053 | 1062 | 10 | PQSAPHGVVF 0.004419 | 4.0 |
| HLA-B*58:01 | 1 | 705 | 714 | 10 | VAYSNNSIAI 0.004416 | 6.4 |
| HLA-A*30:01 | 1 | 306 | 314 | 9 | FTVEKGIYQ 0.004415 | 14 |
| HLA-B*58:01 | 1 | 1140 | 1148 | 9 | PLQPELDSF 0.004413 | 6.4 |
| HLA-A*31:01 | 1 | 821 | 829 | 9 | LLFNKVTLA 0.004412 | 8.9 |
| HLA-A*02:03 | 1 | 119 | 128 | 10 | IVNNATNVVI 0.004411 | 8.3 |
| HLA-B*58:01 | 1 | 1169 | 1177 | 9 | ISGINASVV 0.004411 | 6.4 |
| HLA-A*02:06 | 1 | 602 | 610 | 9 | TNTSNQVAV 0.00441 | 11 |
| HLA-A*02:01 | 1 | 134 | 143 | 10 | QFCNDPFLGV 0.004407 | 7.3 |
| HLA-B*15:01 | 1 | 155 | 163 | 9 | SEFRVYSSA 0.004405 | 7.5 |
| HLA-A*02:06 | 1 | 1140 | 1148 | 9 | PLQPELDSF 0.004405 | 11 |
| HLA-A*68:02 | 1 | 37 | 45 | 9 | YYPDKVFRS 0.004403 | 7.7 |
| HLA-A*01:01 | 1 | 159 | 168 | 10 | VYSSANNCTF 0.004403 | 6.0 |
| HLA-A*01:01 | 1 | 809 | 817 | 9 | PSKPSKRSF 0.004402 | 6.0 |
| HLA-A*02:01 | 1 | 1086 | 1094 | 9 | KAHFPREGV 0.004402 | 7.3 |
| HLA-A*30:01 | 1 | 909 | 917 | 9 | IGVTQNVLY 0.004399 | 14 |
| HLA-B*58:01 | 1 | 110 | 119 | 10 | LDSKTQSLLI 0.004398 | 6.4 |
| HLA-A*02:06 | 1 | 196 | 204 | 9 | NIDGYFKIY 0.004398 | 11 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*57:01 | 1 | 443 | 451 | 9 | SKVGGNYNY 0.004398 | 9.4 |
| HLA-A*31:01 | 1 | 1209 | 1217 | 9 | YIKWPWYIW 0.004398 | 8.9 |
| HLA-B*35:01 | 1 | 119 | 127 | 9 | IVNATNVV 0.004397 | 5.4 |
| HLA-B*57:01 | 1 | 177 | 186 | 10 | MDLEGKQGNF 0.004397 | 9.4 |
| HLA-B*35:01 | 1 | 569 | 577 | 9 | IADTTDAVR 0.004394 | 5.4 |
| HLA-B*58:01 | 1 | 908 | 917 | 10 | GIGVTQNVLY 0.004388 | 6.4 |
| HLA-A*32:01 | 1 | 150 | 158 | 9 | KSWMESEFR 0.004387 | 5.3 |
| HLA-A*30:01 | 1 | 22 | 31 | 10 | TQLPPAYTNS 0.004386 | 14 |
| HLA-B*08:01 | 1 | 312 | 320 | 9 | IYQTSNFRV 0.004386 | 9.4 |
| HLA-B*44:03 | 1 | 195 | 204 | 10 | KNIDGYFKIY 0.004385 | 4.2 |
| HLA-A*68:01 | 1 | 204 | 212 | 9 | YSKHTPINL 0.004385 | 9.2 |
| HLA-A*31:01 | 1 | 1086 | 1094 | 9 | KAHFPREGV 0.004385 | 8.9 |
| HLA-A*23:01 | 1 | 143 | 151 | 9 | VYYHKNNKS 0.004382 | 4.4 |
| HLA-B*51:01 | 1 | 828 | 837 | 10 | LADAGFIKQY 0.00438 | 9.3 |
| HLA-B*51:01 | 1 | 873 | 882 | 10 | YTSALLAGTI 0.00438 | 9.3 |
| HLA-A*68:02 | 1 | 1060 | 1069 | 10 | VVFLHVITYVP 0.004379 | 7.7 |
| HLA-B*51:01 | 1 | 192 | 201 | 10 | FVFKNIDGYF 0.004377 | 9.3 |
| HLA-B*57:01 | 1 | 1002 | 1011 | 10 | QSLQTYVTQQ 0.004375 | 9.4 |
| HLA-A*01:01 | 1 | 481 | 490 | 10 | NGVEGFNCYF 0.004374 | 6.0 |
| HLA-A*02:06 | 1 | 211 | 219 | 9 | NLVRDLPGQ 0.004371 | 11 |
| HLA-A*01:01 | 1 | 250 | 258 | 9 | TPGDSSSGW 0.004371 | 6.0 |
| HLA-A*26:01 | 1 | 853 | 861 | 9 | QKFNGLTVL 0.004371 | 5.1 |
| HLA-A*11:01 | 1 | 44 | 52 | 9 | RSSVLHSTQ 0.00437 | 5.7 |
| HLA-A*30:02 | 1 | 1041 | 1049 | 9 | DFCGKGYHL 0.004367 | 11 |
| HLA-A*31:01 | 1 | 1093 | 1101 | 9 | GVFVSNQTH 0.004366 | 8.9 |
| HLA-A*30:02 | 1 | 878 | 886 | 9 | LAGTITSGW 0.004365 | 11 |
| HLA-A*03:01 | 1 | 20 | 28 | 9 | TRTQLPPAY 0.004363 | 6.5 |
| HLA-A*68:01 | 1 | 651 | 660 | 10 | IGAHEVNNNSY 0.004363 | 9.2 |
| HLA-A*02:06 | 1 | 692 | 701 | 10 | IIAYTMSLGA 0.004363 | 11 |
| HLA-A*32:01 | 1 | 1066 | 1075 | 10 | TYVPAQEKNF 0.004362 | 5.3 |
| HLA-A*68:02 | 1 | 1059 | 1067 | 9 | GVVFLHVTY 0.00436 | 7.7 |
| HLA-B*40:01 | 1 | 958 | 966 | 9 | ALNTLVKQL 0.004355 | 4.0 |
| HLA-A*68:02 | 1 | 55 | 63 | 9 | FLPFFSNVT 0.004349 | 7.7 |
| HLA-A*30:02 | 1 | 921 | 929 | 9 | KLIANQFNS 0.004349 | 11 |
| HLA-A*24:02 | 1 | 750 | 759 | 10 | SNLLLQYGSF 0.004348 | 4.4 |
| HLA-A*01:01 | 1 | 637 | 646 | 10 | STGSNVFQTR 0.004347 | 6.0 |
| HLA-A*30:02 | 1 | 198 | 206 | 9 | DGYFKIYSK 0.004346 | 11 |
| HLA-A*30:01 | 1 | 413 | 421 | 9 | GQTGKIADY 0.004344 | 14 |
| HLA-A*01:01 | 1 | 150 | 158 | 9 | KSWMESEFR 0.004342 | 6.0 |
| HLA-A*30:01 | 1 | 2 | 10 | 9 | FVFLVLLPL 0.004338 | 14 |
| HLA-B*57:01 | 1 | 16 | 24 | 9 | VNLTRTQQL 0.004336 | 9.5 |
| HLA-A*01:01 | 1 | 412 | 421 | 10 | PGQTGKIADY 0.004336 | 6.0 |
| HLA-A*32:01 | 1 | 227 | 235 | 9 | VDLPIGINI 0.004335 | 5.4 |
| HLA-A*30:01 | 1 | 865 | 873 | 9 | LTDEMIAQY 0.004334 | 14 |
| HLA-A*01:01 | 1 | 1020 | 1029 | 10 | ASANLAATKM 0.004334 | 6.0 |
| HLA-B*58:01 | 1 | 59 | 68 | 10 | FSNVTWFHAI 0.004333 | 6.4 |
| HLA-A*68:02 | 1 | 239 | 247 | 9 | QTLALHRS 0.004332 | 7.7 |
| HLA-A*11:01 | 1 | 228 | 237 | 10 | DLPIGINITR 0.004331 | 5.7 |
| HLA-A*11:01 | 1 | 909 | 917 | 9 | IGVTQNVLY 0.00433 | 5.7 |
| HLA-B*51:01 | 1 | 393 | 402 | 10 | TNVYADSFVI 0.004329 | 9.3 |
| HLA-A*30:02 | 1 | 12 | 21 | 10 | SSQCVNLTTR 0.004328 | 11 |
| HLA-A*32:01 | 1 | 709 | 718 | 10 | NNSIAIPTNF 0.004326 | 5.4 |
| HLA-A*68:01 | 1 | 709 | 718 | 10 | NNSIAIPTNF 0.004326 | 9.3 |
| HLA-A*68:02 | 1 | 1219 | 1228 | 10 | GFIAGLIAIV 0.004326 | 7.7 |
| HLA-A*68:02 | 1 | 16 | 24 | 9 | VNLTRTQQL 0.004325 | 7.7 |
| HLA-B*57:01 | 1 | 57 | 65 | 9 | PFFSNVTFW 0.004322 | 9.5 |
| HLA-A*24:02 | 1 | 236 | 244 | 9 | TRFQTLAL 0.004318 | 4.4 |
| HLA-A*33:01 | 1 | 968 | 976 | 9 | SNFGAISSV 0.004318 | 7.2 |
| HLA-B*57:01 | 1 | 745 | 753 | 9 | DSTECSNLL 0.004315 | 9.5 |
| HLA-B*51:01 | 1 | 1042 | 1050 | 9 | FCGKGYHLM 0.004315 | 9.4 |
| HLA-A*32:01 | 1 | 724 | 733 | 10 | TEILPVSMTK 0.004313 | 5.4 |
| HLA-A*02:06 | 1 | 821 | 830 | 10 | LLFNKVTLAD 0.004312 | 11 |
| HLA-B*51:01 | 1 | 833 | 841 | 9 | FIKQYGDCL 0.004311 | 9.4 |
| HLA-A*02:01 | 1 | 947 | 955 | 9 | KLQDVVNQN 0.004311 | 7.4 |
| HLA-B*08:01 | 1 | 552 | 560 | 9 | LTESNKKFL 0.00431 | 9.5 |
| HLA-A*11:01 | 1 | 20 | 28 | 9 | TRTQLPPAY 0.004309 | 5.7 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*30:02 | 1 | 57 | 66 | 10 | PFFSNVTWFH 0.004309 | 11 |
| HLA-A*68:02 | 1 | 298 | 307 | 10 | ETKCTLKSFT 0.004308 | 7.7 |
| HLA-B*57:01 | 1 | 478 | 486 | 9 | TPCNGVEGF 0.004306 | 9.5 |
| HLA-A*24:02 | 1 | 558 | 566 | 9 | KFLPFQFG 0.004304 | 4.4 |
| HLA-A*24:02 | 1 | 145 | 153 | 9 | YHKNNKSWM 0.004303 | 4.4 |
| HLA-A*30:02 | 1 | 339 | 347 | 9 | GEVFNATRF 0.004302 | 11 |
| HLA-A*68:01 | 1 | 1257 | 1266 | 10 | DEDDSEPVLK 0.004302 | 9.3 |
| HLA-A*24:02 | 1 | 298 | 306 | 9 | ETKCTLKSF 0.004301 | 4.4 |
| HLA-B*08:01 | 1 | 893 | 902 | 10 | ALQIPFAMQM 0.004301 | 9.5 |
| HLA-A*68:02 | 1 | 893 | 902 | 10 | ALQIPFAMQM 0.004298 | 7.8 |
| HLA-A*11:01 | 1 | 913 | 921 | 9 | QNVLYENQK 0.004298 | 5.7 |
| HLA-B*53:01 | 1 | 310 | 318 | 9 | KGITYQTSNF 0.004294 | 4.9 |
| HLA-B*07:02 | 1 | 34 | 43 | 10 | RGVYYPDKVF 0.004293 | 5.8 |
| HLA-B*15:01 | 1 | 1105 | 1114 | 10 | TQRNFYEPQI 0.004292 | 7.6 |
| HLA-A*30:01 | 1 | 1209 | 1217 | 9 | YIKWPWYIW 0.004292 | 14 |
| HLA-A*02:06 | 1 | 641 | 650 | 10 | NVFQTRAGCL 0.004291 | 11 |
| HLA-B*44:02 | 1 | 747 | 755 | 9 | TECSNLLLQ 0.004291 | 4.0 |
| HLA-B*53:01 | 1 | 713 | 722 | 10 | AIPTNFTISV 0.004289 | 4.9 |
| HLA-B*51:01 | 1 | 48 | 56 | 9 | LHSTQDLFL 0.004287 | 9.4 |
| HLA-A*68:01 | 1 | 84 | 92 | 9 | LPFNDGVYF 0.004284 | 9.3 |
| HLA-A*68:02 | 1 | 886 | 895 | 10 | WTFGAGAALQ 0.004284 | 7.8 |
| HLA-A*68:01 | 1 | 258 | 267 | 10 | WTAGAAAYYV 0.004283 | 9.3 |
| HLA-A*26:01 | 1 | 690 | 699 | 10 | QSIIAYTMSL 0.004283 | 5.2 |
| HLA-A*02:03 | 1 | 728 | 736 | 9 | PVSMTKTSV 0.004283 | 8.5 |
| HLA-A*30:02 | 1 | 296 | 304 | 9 | LSEKTKTLK 0.004281 | 11 |
| HLA-B*15:01 | 1 | 576 | 584 | 9 | VRDPQTLEI 0.004281 | 7.6 |
| HLA-B*35:01 | 1 | 166 | 175 | 10 | CTFEYVSQPF 0.00428 | 5.4 |
| HLA-A*68:01 | 1 | 50 | 59 | 10 | STQDLFLPFF 0.004279 | 9.3 |
| HLA-A*30:01 | 1 | 219 | 227 | 9 | GFSALEPLV 0.004277 | 14 |
| HLA-B*15:01 | 1 | 626 | 635 | 10 | ADQLTPTWRV 0.004274 | 7.6 |
| HLA-B*08:01 | 1 | 170 | 179 | 10 | YVSQPFMDL 0.004273 | 9.5 |
| HLA-B*57:01 | 1 | 109 | 117 | 9 | TLDSKTQSL 0.004271 | 9.6 |
| HLA-B*51:01 | 1 | 968 | 977 | 10 | SNFGAISSVL 0.00427 | 9.4 |
| HLA-B*58:01 | 1 | 637 | 645 | 9 | STGSNVFQT 0.004269 | 6.5 |
| HLA-A*24:02 | 1 | 344 | 353 | 10 | ATRFASVYAW 0.004268 | 4.4 |
| HLA-B*53:01 | 1 | 510 | 518 | 9 | VVLSFELL 0.004268 | 4.9 |
| HLA-A*11:01 | 1 | 896 | 904 | 9 | IPFAMQMAY 0.004268 | 5.7 |
| HLA-B*51:01 | 1 | 1024 | 1033 | 10 | LAATKMSECV 0.004268 | 9.4 |
| HLA-A*02:01 | 1 | 658 | 666 | 9 | NSYECDIPI 0.004266 | 7.4 |
| HLA-A*26:01 | 1 | 885 | 894 | 10 | GWTFGAGAAL 0.004264 | 5.2 |
| HLA-A*30:01 | 1 | 678 | 686 | 9 | TNSPRRARS 0.004263 | 14 |
| HLA-A*11:01 | 1 | 1006 | 1014 | 9 | TYVTQQLIR 0.004263 | 5.7 |
| HLA-B*08:01 | 1 | 762 | 770 | 9 | QLNRALTGI 0.00426 | 9.5 |
| HLA-A*03:01 | 1 | 415 | 424 | 10 | TGKIADYNYK 0.004259 | 6.6 |
| HLA-A*02:03 | 1 | 114 | 123 | 10 | TQSLLIVNNA 0.004258 | 8.5 |
| HLA-A*68:02 | 1 | 853 | 861 | 9 | QKFNGLTVL 0.004258 | 7.8 |
| HLA-A*02:06 | 1 | 865 | 874 | 10 | LTDEMQIYV 0.004257 | 11 |
| HLA-B*58:01 | 1 | 1129 | 1138 | 10 | VIGIVNNTVY 0.004257 | 6.5 |
| HLA-B*58:01 | 1 | 489 | 497 | 9 | YFPLQSYGF 0.004255 | 6.5 |
| HLA-A*02:06 | 1 | 163 | 171 | 9 | ANNCTFEYV 0.004254 | 11 |
| HLA-A*30:02 | 1 | 147 | 155 | 9 | KNNKSWMES 0.004253 | 11 |
| HLA-A*02:03 | 1 | 318 | 326 | 9 | FRVQPTESI 0.004253 | 8.5 |
| HLA-A*30:01 | 1 | 1032 | 1040 | 9 | CVLGQSKRV 0.004252 | 14 |
| HLA-A*33:01 | 1 | 56 | 64 | 9 | LPFFSNVTW 0.00425 | 7.2 |
| HLA-A*30:02 | 1 | 1104 | 1112 | 9 | VTQRNFYEP 0.00425 | 11 |
| HLA-A*01:01 | 1 | 320 | 329 | 10 | VQPTESIVRF 0.004249 | 6.1 |
| HLA-B*44:02 | 1 | 684 | 692 | 9 | ARSVASQSI 0.004246 | 4.0 |
| HLA-A*30:02 | 1 | 69 | 78 | 10 | HVSGTNGTKR 0.004245 | 11 |
| HLA-A*30:02 | 1 | 612 | 620 | 9 | YQDVNCTEV 0.004245 | 11 |
| HLA-A*68:02 | 1 | 913 | 922 | 10 | QNVLYENQKL 0.004245 | 7.8 |
| HLA-A*31:01 | 1 | 999 | 1007 | 9 | GRLQSLQTY 0.004242 | 9.0 |
| HLA-A*02:06 | 1 | 575 | 583 | 9 | AVRDPQTL 0.00424 | 11 |
| HLA-A*02:01 | 1 | 288 | 296 | 9 | AVDCALDPL 0.004239 | 7.5 |
| HLA-A*01:01 | 1 | 837 | 845 | 9 | YGDCLG DIA 0.004239 | 6.1 |
| HLA-A*23:01 | 1 | 456 | 464 | 9 | FRKSNLKP 0.004237 | 4.4 |
| HLA-A*02:06 | 1 | 1123 | 1132 | 10 | SGNCDVVI 0.004237 | 11 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*01:01 | 1 | 235 | 243 | 9 | ITRFQTLA 0.004235 | 6.1 |
| HLA-B*51:01 | 1 | 969 | 977 | 9 | NFGAISSVL 0.004235 | 9.5 |
| HLA-A*31:01 | 1 | 6 | 14 | 9 | VLLPLVSSQ 0.004234 | 9.0 |
| HLA-A*23:01 | 1 | 240 | 248 | 9 | TLLALHRSY 0.004233 | 4.4 |
| HLA-A*23:01 | 1 | 185 | 193 | 9 | NFKNLREFV 0.004232 | 4.4 |
| HLA-B*40:01 | 1 | 1055 | 1063 | 9 | SAPHGVVFL 0.004232 | 4.0 |
| HLA-A*30:01 | 1 | 992 | 1000 | 9 | QIDRLITGR 0.00423 | 14 |
| HLA-A*30:02 | 1 | 78 | 87 | 10 | RFDNPVLPFN 0.004229 | 11 |
| HLA-A*32:01 | 1 | 956 | 964 | 9 | AQALNTLVK 0.004229 | 5.4 |
| HLA-A*30:02 | 1 | 409 | 418 | 10 | QIAPGQTGKI 0.004228 | 11 |
| HLA-B*58:01 | 1 | 774 | 782 | 9 | QDKNTQEVF 0.004228 | 6.5 |
| HLA-A*68:01 | 1 | 1020 | 1029 | 10 | ASANLAATKM 0.004228 | 9.4 |
| HLA-A*24:02 | 1 | 1215 | 1224 | 10 | YIWLGFIAGL 0.004226 | 4.4 |
| HLA-A*31:01 | 1 | 1207 | 1215 | 9 | EQYIKWPWY 0.004223 | 9.1 |
| HLA-A*30:01 | 1 | 512 | 520 | 9 | VLSFELLHA 0.004221 | 14 |
| HLA-A*02:06 | 1 | 617 | 626 | 10 | CTEVPVAIHA 0.004221 | 11 |
| HLA-B*07:02 | 1 | 378 | 387 | 10 | KCYGVSPTKL 0.004219 | 5.9 |
| HLA-B*35:01 | 1 | 961 | 970 | 10 | TLVKQLSSNF 0.004219 | 5.4 |
| HLA-A*02:06 | 1 | 1181 | 1190 | 10 | KEIDRLNEVA 0.004219 | 11 |
| HLA-A*68:02 | 1 | 573 | 582 | 10 | TDAVRDPQTL 0.004218 | 7.8 |
| HLA-B*58:01 | 1 | 636 | 644 | 9 | YSTGSNVFQ 0.004218 | 6.5 |
| HLA-B*08:01 | 1 | 320 | 329 | 10 | VQPTESIVRF 0.004217 | 9.6 |
| HLA-A*02:06 | 1 | 827 | 835 | 9 | TLADAGFIK 0.004215 | 11 |
| HLA-A*26:01 | 1 | 839 | 847 | 9 | DCLGDIAAR 0.004215 | 5.3 |
| HLA-A*33:01 | 1 | 125 | 133 | 9 | NVVIKVFCE 0.004214 | 7.2 |
| HLA-A*31:01 | 1 | 344 | 353 | 10 | ATRFASVYAW 0.004214 | 9.1 |
| HLA-A*68:02 | 1 | 266 | 274 | 9 | YVGYLQPRT 0.004213 | 7.8 |
| HLA-B*08:01 | 1 | 133 | 141 | 9 | FQFCNDPFL 0.004212 | 9.6 |
| HLA-B*58:01 | 1 | 930 | 938 | 9 | AIGKIQDSL 0.00421 | 6.5 |
| HLA-B*35:01 | 1 | 1200 | 1209 | 10 | LQELGKYEY 0.00421 | 5.4 |
| HLA-A*32:01 | 1 | 449 | 457 | 9 | YNYLYRFR 0.004208 | 5.4 |
| HLA-A*30:01 | 1 | 890 | 899 | 10 | AGAALQIPFA 0.004205 | 14 |
| HLA-A*31:01 | 1 | 19 | 28 | 10 | TTRTQLPPAY 0.004202 | 9.1 |
| HLA-B*08:01 | 1 | 1215 | 1224 | 10 | YIWLGFIAGL 0.0042 | 9.6 |
| HLA-A*02:01 | 1 | 925 | 934 | 10 | NQFNSAIGKI 0.004199 | 7.5 |
| HLA-B*51:01 | 1 | 722 | 731 | 10 | VTTEILPVSM 0.004198 | 9.5 |
| HLA-A*30:01 | 1 | 913 | 921 | 9 | QNVLYENQK 0.004198 | 14 |
| HLA-A*32:01 | 1 | 119 | 128 | 10 | IVNNATNVVI 0.004197 | 5.4 |
| HLA-B*51:01 | 1 | 221 | 230 | 10 | SALEPLVDLP 0.004196 | 9.5 |
| HLA-B*40:01 | 1 | 1190 | 1198 | 9 | AKNLNESLI 0.004196 | 4.0 |
| HLA-B*35:01 | 1 | 340 | 348 | 9 | EVFNATRFA 0.004194 | 5.4 |
| HLA-A*32:01 | 1 | 428 | 436 | 9 | DFTGCVIAW 0.004194 | 5.4 |
| HLA-A*30:02 | 1 | 273 | 281 | 9 | RTFLLKYNE 0.004192 | 11 |
| HLA-B*51:01 | 1 | 323 | 332 | 10 | TESIVRFPNI 0.004187 | 9.5 |
| HLA-A*30:02 | 1 | 450 | 458 | 9 | NYLYRFRK 0.004187 | 11 |
| HLA-A*02:03 | 1 | 150 | 159 | 10 | KSWMESEFRV 0.004186 | 8.5 |
| HLA-B*57:01 | 1 | 575 | 583 | 9 | AVRDPQTL 0.004186 | 9.7 |
| HLA-B*57:01 | 1 | 639 | 647 | 9 | GSNVFTQRA 0.004184 | 9.7 |
| HLA-A*26:01 | 1 | 1173 | 1181 | 9 | NASVVNIQK 0.004183 | 5.3 |
| HLA-B*08:01 | 1 | 1201 | 1209 | 9 | QELGKYEY 0.004182 | 9.6 |
| HLA-A*02:03 | 1 | 881 | 890 | 10 | TITSGWTFGA 0.004181 | 8.5 |
| HLA-B*08:01 | 1 | 1129 | 1137 | 9 | VIGIVNNTV 0.004181 | 9.6 |
| HLA-A*11:01 | 1 | 1183 | 1191 | 9 | IDRLNEVAK 0.004181 | 5.8 |
| HLA-A*01:01 | 1 | 858 | 866 | 9 | LTVLPPLLT 0.004179 | 6.2 |
| HLA-A*03:01 | 1 | 876 | 884 | 9 | ALLAGTITS 0.004178 | 6.6 |
| HLA-A*30:02 | 1 | 904 | 913 | 10 | YRFNGIGVTQ 0.004178 | 11 |
| HLA-A*03:01 | 1 | 151 | 160 | 10 | SWMESEFRVY 0.004174 | 6.6 |
| HLA-B*57:01 | 1 | 885 | 894 | 10 | GWTFGAGAAL 0.004174 | 9.7 |
| HLA-A*31:01 | 1 | 915 | 923 | 9 | VLYENQKLI 0.004173 | 9.1 |
| HLA-A*02:03 | 1 | 393 | 402 | 10 | TNVYADSFVI 0.004172 | 8.6 |
| HLA-A*31:01 | 1 | 61 | 69 | 9 | NVTWFHAIH 0.004169 | 9.1 |
| HLA-A*31:01 | 1 | 647 | 655 | 9 | AGCLIGAEH 0.004167 | 9.1 |
| HLA-A*26:01 | 1 | 1208 | 1216 | 9 | QYIKWPWYI 0.004167 | 5.3 |
| HLA-A*68:01 | 1 | 269 | 277 | 9 | YLQPRTFLL 0.004165 | 9.4 |
| HLA-B*58:01 | 1 | 789 | 797 | 9 | YKTPPIKDF 0.004164 | 6.6 |
| HLA-A*32:01 | 1 | 203 | 212 | 10 | IYSKHTPINL 0.004162 | 5.4 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*15:01 | 1 | 603 | 611 | 9 | NTSNQVAVL 0.004161 | 7.7 |
| HLA-B*51:01 | 1 | 1192 | 1200 | 9 | NLNESLIDL 0.004161 | 9.5 |
| HLA-B*57:01 | 1 | 576 | 584 | 9 | VRDPQTLEI 0.00416 | 9.7 |
| HLA-A*68:01 | 1 | 892 | 900 | 9 | AALQIPFAM 0.004158 | 9.4 |
| HLA-A*03:01 | 1 | 1080 | 1088 | 9 | AICHDGKAH 0.004158 | 6.6 |
| HLA-A*30:02 | 1 | 234 | 242 | 9 | NITRFQTL 0.004156 | 11 |
| HLA-B*35:01 | 1 | 414 | 423 | 10 | QTGKIADYNY 0.004155 | 5.5 |
| HLA-B*57:01 | 1 | 745 | 754 | 10 | DSTECSNLLL 0.004154 | 9.7 |
| HLA-A*03:01 | 1 | 199 | 207 | 9 | GYFKIYSKH 0.004153 | 6.6 |
| HLA-B*35:01 | 1 | 305 | 313 | 9 | SFTVEKGIY 0.004153 | 5.5 |
| HLA-B*57:01 | 1 | 36 | 44 | 9 | VYYPDKVFR 0.004152 | 9.7 |
| HLA-A*24:02 | 1 | 219 | 227 | 9 | GFSALEPLV 0.004152 | 4.5 |
| HLA-A*23:01 | 1 | 825 | 833 | 9 | KVTLADAGF 0.00415 | 4.5 |
| HLA-A*68:01 | 1 | 782 | 791 | 10 | FAQVKQIYKT 0.004149 | 9.4 |
| HLA-A*03:01 | 1 | 1202 | 1211 | 10 | ELGKYEQYIK 0.004148 | 6.6 |
| HLA-B*15:01 | 1 | 870 | 879 | 10 | IAQYTSALLA 0.004147 | 7.7 |
| HLA-A*30:02 | 1 | 510 | 518 | 9 | VVLSFELL 0.004146 | 11 |
| HLA-B*35:01 | 1 | 1161 | 1169 | 9 | SPDVLGDI 0.004144 | 5.5 |
| HLA-B*51:01 | 1 | 122 | 131 | 10 | NATNVVIKVC 0.004141 | 9.6 |
| HLA-B*58:01 | 1 | 698 | 707 | 10 | SLGAENSVAY 0.004141 | 6.6 |
| HLA-B*44:02 | 1 | 1147 | 1156 | 10 | SFKEELDKYF 0.004141 | 4.1 |
| HLA-A*30:02 | 1 | 59 | 67 | 9 | FSNVTWFHA 0.004139 | 11 |
| HLA-A*01:01 | 1 | 307 | 315 | 9 | TVEKGIYQT 0.004139 | 6.2 |
| HLA-B*58:01 | 1 | 882 | 890 | 9 | ITSGWTFGA 0.004139 | 6.6 |
| HLA-A*30:01 | 1 | 456 | 464 | 9 | FRKSNLKPF 0.004137 | 14 |
| HLA-B*51:01 | 1 | 805 | 814 | 10 | ILPDPSKPSK 0.004137 | 9.6 |
| HLA-A*30:02 | 1 | 90 | 98 | 9 | VYFASTEKS 0.004136 | 11 |
| HLA-A*02:01 | 1 | 590 | 598 | 9 | CSFGGVSVI 0.004136 | 7.5 |
| HLA-A*68:01 | 1 | 125 | 134 | 10 | NVVIKVFCEQ 0.004135 | 9.4 |
| HLA-B*35:01 | 1 | 271 | 280 | 10 | QPRTFLLKYN 0.004135 | 5.5 |
| HLA-A*26:01 | 1 | 661 | 670 | 10 | ECDIPIGAGI 0.004134 | 5.3 |
| HLA-B*44:03 | 1 | 515 | 524 | 10 | FELLHAPATV 0.004133 | 4.3 |
| HLA-A*30:01 | 1 | 857 | 865 | 9 | GLTVLPPLL 0.004132 | 14 |
| HLA-A*03:01 | 1 | 443 | 451 | 9 | SKVGGNYNY 0.00413 | 6.6 |
| HLA-B*57:01 | 1 | 62 | 71 | 10 | VTWFHAIHVS 0.004129 | 9.7 |
| HLA-A*30:02 | 1 | 267 | 276 | 10 | VGYLQPRTF 0.004129 | 11 |
| HLA-B*35:01 | 1 | 127 | 135 | 9 | VIKVCEQF 0.004126 | 5.5 |
| HLA-B*15:01 | 1 | 968 | 977 | 10 | SNFGAISSVL 0.004124 | 7.7 |
| HLA-A*33:01 | 1 | 291 | 300 | 10 | CALDPLSETK 0.004118 | 7.3 |
| HLA-B*58:01 | 1 | 458 | 466 | 9 | KSNLKPFER 0.004117 | 6.6 |
| HLA-A*32:01 | 1 | 504 | 512 | 9 | GYQPYRVVV 0.004116 | 5.5 |
| HLA-B*58:01 | 1 | 1000 | 1008 | 9 | RLQSLQTYV 0.004115 | 6.6 |
| HLA-A*02:03 | 1 | 804 | 812 | 9 | QILPDPSKP 0.004114 | 8.6 |
| HLA-A*26:01 | 1 | 1192 | 1200 | 9 | NLNESLIDL 0.004112 | 5.3 |
| HLA-B*44:02 | 1 | 1113 | 1121 | 9 | QIITDNTF 0.004111 | 4.1 |
| HLA-B*51:01 | 1 | 615 | 624 | 10 | VNCTEVPVAI 0.00411 | 9.6 |
| HLA-A*26:01 | 1 | 1178 | 1186 | 9 | NIQKEIDRL 0.004109 | 5.3 |
| HLA-B*35:01 | 1 | 709 | 718 | 10 | NNSIAIPTNF 0.004108 | 5.5 |
| HLA-A*03:01 | 1 | 416 | 424 | 9 | GKIADYNYK 0.004107 | 6.6 |
| HLA-B*53:01 | 1 | 936 | 945 | 10 | DSLSSTASAL 0.004107 | 5.0 |
| HLA-B*44:03 | 1 | 515 | 523 | 9 | FELLHAPAT 0.004106 | 4.3 |
| HLA-B*44:02 | 1 | 214 | 223 | 10 | RDL PQGFSAL 0.004105 | 4.1 |
| HLA-B*35:01 | 1 | 159 | 168 | 10 | VYSSANNCTF 0.004104 | 5.5 |
| HLA-A*30:01 | 1 | 184 | 193 | 10 | GNFKNLREFV 0.004104 | 14 |
| HLA-A*30:02 | 1 | 369 | 378 | 10 | YNSASFSTFK 0.004102 | 11 |
| HLA-A*26:01 | 1 | 559 | 567 | 9 | FLPFQQFGR 0.004102 | 5.4 |
| HLA-A*02:01 | 1 | 693 | 701 | 9 | IAYTMSLGA 0.004101 | 7.6 |
| HLA-A*26:01 | 1 | 990 | 999 | 10 | EVQIDRLITG 0.004101 | 5.4 |
| HLA-A*26:01 | 1 | 1226 | 1234 | 9 | AIVMVTIML 0.004101 | 5.4 |
| HLA-B*15:01 | 1 | 270 | 278 | 9 | LQPRTFLLK 0.0041 | 7.8 |
| HLA-B*15:01 | 1 | 495 | 503 | 9 | YGFQPTNGV 0.0041 | 7.8 |
| HLA-A*02:06 | 1 | 674 | 682 | 9 | YQTQTNSPR 0.004099 | 11 |
| HLA-B*57:01 | 1 | 972 | 981 | 10 | AISSVLNDIL 0.004099 | 9.8 |
| HLA-A*30:02 | 1 | 625 | 634 | 10 | HADQLTPTWR 0.004096 | 11 |
| HLA-B*35:01 | 1 | 1256 | 1265 | 10 | FDEDDSEPV 0.004095 | 5.5 |
| HLA-A*23:01 | 1 | 145 | 153 | 9 | YHKNNKSWM 0.004093 | 4.5 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*26:01 | 1 | 774 | 782 | 9 | QDKNTQEVF 0.004093 | 5.4 |
| HLA-B*53:01 | 1 | 360 | 368 | 9 | NCVADYSVL 0.004091 | 5.0 |
| HLA-A*32:01 | 1 | 991 | 1000 | 10 | VQIDRLITGR 0.004091 | 5.5 |
| HLA-A*68:02 | 1 | 28 | 37 | 10 | YTNFTRGVY 0.00409 | 7.9 |
| HLA-A*26:01 | 1 | 302 | 310 | 9 | TLKSFTVEK 0.00409 | 5.4 |
| HLA-B*57:01 | 1 | 1000 | 1008 | 9 | RLQSLQTYV 0.00409 | 9.8 |
| HLA-A*23:01 | 1 | 951 | 959 | 9 | VVNQNAQAL 0.004087 | 4.5 |
| HLA-A*01:01 | 1 | 1095 | 1104 | 10 | FVSNQTHWFV 0.004087 | 6.2 |
| HLA-A*68:02 | 1 | 638 | 646 | 9 | TGSNVFQTR 0.004084 | 7.9 |
| HLA-A*30:02 | 1 | 885 | 894 | 10 | GWTFGAGAAL 0.004084 | 11 |
| HLA-A*32:01 | 1 | 998 | 1007 | 10 | TGRLQSLQTY 0.004082 | 5.5 |
| HLA-A*02:03 | 1 | 1013 | 1022 | 10 | IRAAEIRASA 0.004082 | 8.6 |
| HLA-A*31:01 | 1 | 964 | 972 | 9 | KQLSSNFGA 0.004081 | 9.2 |
| HLA-A*68:02 | 1 | 307 | 316 | 10 | TVEKGIYQTS 0.00408 | 8.0 |
| HLA-B*51:01 | 1 | 634 | 643 | 10 | RVYSTGSNVF 0.00408 | 9.6 |
| HLA-A*33:01 | 1 | 1108 | 1117 | 10 | NFYEQIITT 0.004079 | 7.3 |
| HLA-A*68:02 | 1 | 240 | 249 | 10 | TLLALHRSYL 0.004078 | 8.0 |
| HLA-B*58:01 | 1 | 503 | 511 | 9 | VGYPYRVV 0.004078 | 6.6 |
| HLA-A*26:01 | 1 | 342 | 350 | 9 | FNATRFASV 0.004074 | 5.4 |
| HLA-B*58:01 | 1 | 858 | 867 | 10 | LTVLPPLTD 0.004074 | 6.6 |
| HLA-A*02:03 | 1 | 685 | 694 | 10 | RSVASQSIIA 0.004072 | 8.6 |
| HLA-B*44:02 | 1 | 1010 | 1018 | 9 | QLLIRAAEI 0.00407 | 4.1 |
| HLA-A*24:02 | 1 | 399 | 407 | 9 | SFVIRGDEV 0.004066 | 4.5 |
| HLA-A*26:01 | 1 | 809 | 817 | 9 | PSKPSKRSF 0.004066 | 5.4 |
| HLA-B*58:01 | 1 | 911 | 919 | 9 | VTQNVLYEN 0.004065 | 6.6 |
| HLA-A*11:01 | 1 | 138 | 147 | 10 | DPFLGVYYHK 0.004064 | 5.9 |
| HLA-A*02:06 | 1 | 1065 | 1073 | 9 | VTYVPAQEK 0.004063 | 11 |
| HLA-B*44:02 | 1 | 496 | 505 | 10 | GFQPTNGVGY 0.004061 | 4.1 |
| HLA-A*02:03 | 1 | 93 | 101 | 9 | ASTEKSNI 0.004058 | 8.7 |
| HLA-A*26:01 | 1 | 409 | 418 | 10 | QIAPGQTGKI 0.004057 | 5.4 |
| HLA-A*30:01 | 1 | 916 | 924 | 9 | LYENQKLI 0.004057 | 14 |
| HLA-B*51:01 | 1 | 643 | 651 | 9 | FQTRAGCLI 0.004056 | 9.7 |
| HLA-A*02:06 | 1 | 730 | 738 | 9 | SMTKTSVDC 0.004055 | 11 |
| HLA-A*02:06 | 1 | 238 | 246 | 9 | FQTLALHR 0.004053 | 11 |
| HLA-A*30:02 | 1 | 711 | 720 | 10 | SIIPTNFTI 0.004053 | 11 |
| HLA-A*30:01 | 1 | 870 | 878 | 9 | IAQYTSALL 0.004052 | 14 |
| HLA-B*15:01 | 1 | 232 | 241 | 10 | GINITRFQTL 0.004051 | 7.8 |
| HLA-A*68:02 | 1 | 597 | 605 | 9 | VITPGTNTS 0.004049 | 8.0 |
| HLA-B*51:01 | 1 | 155 | 163 | 9 | SEFRVYSSA 0.004048 | 9.7 |
| HLA-A*33:01 | 1 | 625 | 633 | 9 | HADQLTPTW 0.004048 | 7.3 |
| HLA-B*07:02 | 1 | 1256 | 1265 | 10 | FDEDDSEPV 0.004048 | 6.0 |
| HLA-A*02:06 | 1 | 857 | 866 | 10 | GLTVLPPLT 0.004046 | 11 |
| HLA-B*57:01 | 1 | 765 | 774 | 10 | RALTGIAVEQ 0.004045 | 9.8 |
| HLA-B*08:01 | 1 | 328 | 336 | 9 | RFPNITNLC 0.004044 | 9.8 |
| HLA-A*30:01 | 1 | 1260 | 1269 | 10 | DSEPVKGVK 0.004044 | 14 |
| HLA-A*30:01 | 1 | 45 | 54 | 10 | SSVLHSTQDL 0.004043 | 14 |
| HLA-B*58:01 | 1 | 622 | 630 | 9 | VAIHADQLT 0.004043 | 6.7 |
| HLA-B*15:01 | 1 | 480 | 489 | 10 | CNGVEGFNCY 0.004042 | 7.8 |
| HLA-A*11:01 | 1 | 526 | 535 | 10 | GPKKSTNLVK 0.004042 | 5.9 |
| HLA-A*02:01 | 1 | 637 | 645 | 9 | STGSNVFQT 0.004042 | 7.6 |
| HLA-A*30:01 | 1 | 85 | 93 | 9 | PFNDGVYFA 0.004041 | 14 |
| HLA-B*40:01 | 1 | 204 | 212 | 9 | YSKHTPINL 0.004041 | 4.1 |
| HLA-B*44:03 | 1 | 361 | 369 | 9 | CVADYSVLY 0.004038 | 4.4 |
| HLA-B*08:01 | 1 | 1056 | 1065 | 10 | APHGVVFLHV 0.004036 | 9.8 |
| HLA-A*26:01 | 1 | 1093 | 1101 | 9 | GVFVSNQTH 0.004036 | 5.4 |
| HLA-A*32:01 | 1 | 1033 | 1042 | 10 | VLGQSKRVDF 0.004035 | 5.5 |
| HLA-B*57:01 | 1 | 729 | 738 | 10 | VSMTKTSVDC 0.004034 | 9.8 |
| HLA-B*57:01 | 1 | 113 | 122 | 10 | KTQSLLIVNN 0.004033 | 9.8 |
| HLA-A*02:01 | 1 | 236 | 244 | 9 | TRFQTLAL 0.004033 | 7.6 |
| HLA-A*02:03 | 1 | 844 | 852 | 9 | IAARDLICA 0.004032 | 8.7 |
| HLA-A*01:01 | 1 | 1195 | 1203 | 9 | ESLIDLQEL 0.004032 | 6.3 |
| HLA-B*57:01 | 1 | 943 | 952 | 10 | SALGKLQDVV 0.004031 | 9.8 |
| HLA-A*68:01 | 1 | 1183 | 1191 | 9 | IDRLNEVAK 0.004031 | 9.5 |
| HLA-A*68:02 | 1 | 1020 | 1029 | 10 | ASANLAATKM 0.00403 | 8.0 |
| HLA-B*07:02 | 1 | 908 | 916 | 9 | GIGVTQNVL 0.004028 | 6.0 |
| HLA-A*68:01 | 1 | 409 | 418 | 10 | QIAPGQTGKI 0.004027 | 9.5 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*68:02 | 1 | 36 | 44 | 9 | VYYPDKVFR 0.004026 | 8.0 |
| HLA-A*23:01 | 1 | 339 | 347 | 9 | GEVFNATRF 0.004026 | 4.5 |
| HLA-B*51:01 | 1 | 663 | 672 | 10 | DIPIGAGICA 0.004024 | 9.7 |
| HLA-A*68:02 | 1 | 283 | 292 | 10 | GTITDAVDCA 0.004023 | 8.0 |
| HLA-A*02:06 | 1 | 802 | 811 | 10 | FSQILPDPSK 0.004022 | 11 |
| HLA-B*58:01 | 1 | 259 | 267 | 9 | TAGAAAYV 0.004021 | 6.7 |
| HLA-B*44:02 | 1 | 554 | 562 | 9 | ESNKKFLPF 0.004021 | 4.1 |
| HLA-A*31:01 | 1 | 144 | 152 | 9 | YYHKNNKSW 0.004019 | 9.2 |
| HLA-A*02:06 | 1 | 425 | 433 | 9 | LPDDFTGCV 0.004019 | 11 |
| HLA-A*30:01 | 1 | 603 | 611 | 9 | NTSNQVAVL 0.004018 | 14 |
| HLA-B*51:01 | 1 | 241 | 249 | 9 | LLALHRSYL 0.004017 | 9.7 |
| HLA-A*68:02 | 1 | 594 | 602 | 9 | GVSVITPGT 0.004017 | 8.0 |
| HLA-B*44:02 | 1 | 1175 | 1183 | 9 | SVVNIQKEI 0.004017 | 4.1 |
| HLA-A*68:02 | 1 | 1047 | 1056 | 10 | YHLMSPQSA 0.004016 | 8.0 |
| HLA-A*30:01 | 1 | 466 | 475 | 10 | RDISTEIQQA 0.004014 | 14 |
| HLA-B*57:01 | 1 | 683 | 691 | 9 | RARSVASQS 0.004014 | 9.9 |
| HLA-A*11:01 | 1 | 894 | 902 | 9 | LQIPFAMQM 0.004012 | 5.9 |
| HLA-A*32:01 | 1 | 779 | 788 | 10 | QEVFAQVKQI 0.004009 | 5.5 |
| HLA-A*11:01 | 1 | 416 | 424 | 9 | GKIADYNYK 0.004006 | 5.9 |
| HLA-B*58:01 | 1 | 704 | 712 | 9 | SVAYSNNSI 0.004006 | 6.7 |
| HLA-A*24:02 | 1 | 134 | 143 | 10 | QFCNDPFLGV 0.004005 | 4.5 |
| HLA-A*32:01 | 1 | 182 | 190 | 9 | KQGNFKNLR 0.004004 | 5.5 |
| HLA-A*24:02 | 1 | 1006 | 1014 | 9 | TYVTQQLIR 0.004003 | 4.5 |
| HLA-B*51:01 | 1 | 1173 | 1181 | 9 | NASVVNIQK 0.004003 | 9.8 |
| HLA-B*57:01 | 1 | 20 | 28 | 9 | TRTQLPPAY 0.004 | 9.9 |
| HLA-A*30:01 | 1 | 181 | 190 | 10 | GKQGNFKNLR 0.004 | 14 |
| HLA-A*23:01 | 1 | 820 | 828 | 9 | DLLFNKVTL 0.003999 | 4.6 |
| HLA-A*30:02 | 1 | 291 | 300 | 10 | CALDPLSETK 0.003998 | 12 |
| HLA-B*07:02 | 1 | 898 | 906 | 9 | FAMQMAYRF 0.003998 | 6.0 |
| HLA-A*02:06 | 1 | 37 | 45 | 9 | YYPDKVFRS 0.003997 | 11 |
| HLA-B*51:01 | 1 | 696 | 705 | 10 | TMSLGAENSV 0.003997 | 9.8 |
| HLA-B*35:01 | 1 | 599 | 607 | 9 | TPGTNTSNQ 0.003996 | 5.6 |
| HLA-A*30:01 | 1 | 915 | 924 | 10 | VLYENQKLIA 0.003996 | 14 |
| HLA-A*68:02 | 1 | 1116 | 1124 | 9 | TTDNTFVSG 0.003996 | 8.0 |
| HLA-A*26:01 | 1 | 1204 | 1212 | 9 | GKYEQYIKW 0.003996 | 5.4 |
| HLA-A*31:01 | 1 | 193 | 201 | 9 | VFKNIDGYF 0.003995 | 9.3 |
| HLA-B*15:01 | 1 | 1056 | 1064 | 9 | APHGVVFLH 0.003995 | 7.9 |
| HLA-B*58:01 | 1 | 291 | 300 | 10 | CALDPLSETK 0.003994 | 6.7 |
| HLA-B*44:03 | 1 | 1148 | 1156 | 9 | FKEELDKYF 0.003994 | 4.4 |
| HLA-B*51:01 | 1 | 1171 | 1179 | 9 | GINASVVNI 0.003994 | 9.8 |
| HLA-A*24:02 | 1 | 327 | 336 | 10 | VRFPNITNLC 0.003993 | 4.5 |
| HLA-A*32:01 | 1 | 196 | 204 | 9 | NIDGYFKIY 0.003992 | 5.5 |
| HLA-A*02:06 | 1 | 16 | 24 | 9 | VNLTRTQQL 0.003991 | 11 |
| HLA-A*01:01 | 1 | 168 | 177 | 10 | FEYVSQPFLM 0.003991 | 6.3 |
| HLA-A*68:02 | 1 | 498 | 507 | 10 | QPTNGVGYQP 0.003988 | 8.0 |
| HLA-A*23:01 | 1 | 1102 | 1110 | 9 | WFVTQRNFY 0.003988 | 4.6 |
| HLA-A*31:01 | 1 | 60 | 69 | 10 | SNVTWFHAIH 0.003986 | 9.3 |
| HLA-B*53:01 | 1 | 7 | 16 | 10 | LLPLVSSQCV 0.003984 | 5.1 |
| HLA-B*40:01 | 1 | 865 | 873 | 9 | LTDEMIAQY 0.003984 | 4.1 |
| HLA-B*53:01 | 1 | 1051 | 1060 | 10 | SFPQSAPHGV 0.003984 | 5.1 |
| HLA-A*11:01 | 1 | 500 | 509 | 10 | TNGVGYQPYP 0.003983 | 5.9 |
| HLA-A*30:02 | 1 | 798 | 806 | 9 | GGFNFSQIL 0.003982 | 12 |
| HLA-A*31:01 | 1 | 893 | 901 | 9 | ALQIPFAMQ 0.003982 | 9.3 |
| HLA-A*11:01 | 1 | 1137 | 1145 | 9 | VYDPLQPEL 0.003982 | 5.9 |
| HLA-A*30:01 | 1 | 43 | 51 | 9 | FRSSVLHST 0.003981 | 14 |
| HLA-B*57:01 | 1 | 221 | 230 | 10 | SALEPLVDLP 0.003981 | 9.9 |
| HLA-B*07:02 | 1 | 710 | 718 | 9 | NSIAIPTNF 0.003981 | 6.0 |
| HLA-B*40:01 | 1 | 1148 | 1156 | 9 | FKEELDKYF 0.00398 | 4.1 |
| HLA-B*53:01 | 1 | 57 | 65 | 9 | PFFSNVTFW 0.003979 | 5.1 |
| HLA-A*23:01 | 1 | 57 | 66 | 10 | PFFSNVTFWH 0.003978 | 4.6 |
| HLA-A*30:02 | 1 | 455 | 463 | 9 | LFRKSNLKP 0.003978 | 12 |
| HLA-A*03:01 | 1 | 666 | 674 | 9 | IGAGICASY 0.003978 | 6.7 |
| HLA-A*31:01 | 1 | 554 | 562 | 9 | ESNKKFLPF 0.003977 | 9.3 |
| HLA-A*02:06 | 1 | 38 | 47 | 10 | YDPKVFSSV 0.003976 | 11 |
| HLA-A*26:01 | 1 | 712 | 720 | 9 | IAIPTNFTI 0.003976 | 5.4 |
| HLA-A*30:02 | 1 | 704 | 713 | 10 | SVAYSNNZIA 0.003975 | 12 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*11:01 | 1 | 617 | 625 | 9 | CTEVPVAIH 0.003974 | 5.9 |
| HLA-B*08:01 | 1 | 368 | 377 | 10 | LYNSASFSTF 0.003973 | 9.9 |
| HLA-A*30:01 | 1 | 943 | 952 | 10 | SALGKLQDVV 0.003972 | 14 |
| HLA-A*68:02 | 1 | 571 | 579 | 9 | DTTDAVRDP 0.003971 | 8.0 |
| HLA-A*30:02 | 1 | 777 | 786 | 10 | NTQEVFAQVK 0.00397 | 12 |
| HLA-A*31:01 | 1 | 893 | 902 | 10 | ALQIPFAMQM 0.00397 | 9.3 |
| HLA-B*53:01 | 1 | 973 | 981 | 9 | ISSVLNDIL 0.00397 | 5.1 |
| HLA-B*58:01 | 1 | 263 | 271 | 9 | AAYVYGYLQ 0.003969 | 6.7 |
| HLA-B*57:01 | 1 | 930 | 938 | 9 | ATGKIQDSL 0.003968 | 9.9 |
| HLA-B*15:01 | 1 | 647 | 655 | 9 | AGCLIGAHEH 0.003967 | 7.9 |
| HLA-A*03:01 | 1 | 326 | 335 | 10 | IVRFPNITNL 0.003966 | 6.7 |
| HLA-A*68:02 | 1 | 1180 | 1189 | 10 | QKEIDRLNEV 0.003965 | 8.0 |
| HLA-A*23:01 | 1 | 481 | 490 | 10 | NGVEGFNCYF 0.003964 | 4.6 |
| HLA-B*51:01 | 1 | 622 | 630 | 9 | VAIHADQLT 0.003963 | 9.8 |
| HLA-B*58:01 | 1 | 954 | 962 | 9 | QNAQALNTL 0.003962 | 6.7 |
| HLA-B*08:01 | 1 | 53 | 62 | 10 | DLFLPFFSNV 0.003961 | 10 |
| HLA-B*53:01 | 1 | 161 | 170 | 10 | SSANNCTFEY 0.003961 | 5.1 |
| HLA-A*30:01 | 1 | 15 | 24 | 10 | CVNLTRTRQL 0.00396 | 14 |
| HLA-A*30:02 | 1 | 386 | 395 | 10 | KLNDLCFTNV 0.00396 | 12 |
| HLA-A*02:01 | 1 | 902 | 911 | 10 | MAYRFNGIGV 0.00396 | 7.7 |
| HLA-B*44:02 | 1 | 110 | 118 | 9 | LDSKTQSL 0.003959 | 4.2 |
| HLA-A*30:01 | 1 | 260 | 269 | 10 | AGAAAYYVGY 0.003959 | 14 |
| HLA-A*30:02 | 1 | 674 | 683 | 10 | YQTQTNSPRR 0.003959 | 12 |
| HLA-A*02:06 | 1 | 254 | 263 | 10 | SSSGWTAGAA 0.003956 | 11 |
| HLA-B*35:01 | 1 | 573 | 582 | 10 | TDAVRDPQTL 0.003956 | 5.6 |
| HLA-A*31:01 | 1 | 143 | 152 | 10 | VYYHKNNKSW 0.003954 | 9.3 |
| HLA-A*03:01 | 1 | 34 | 43 | 10 | RGVYYPDKVF 0.003952 | 6.7 |
| HLA-A*30:02 | 1 | 168 | 177 | 10 | FEYVSQPFLM 0.003952 | 12 |
| HLA-B*44:02 | 1 | 1038 | 1047 | 10 | KRVDFCGKGY 0.003951 | 4.2 |
| HLA-B*57:01 | 1 | 349 | 357 | 9 | SVYAWNRKR 0.00395 | 9.9 |
| HLA-A*01:01 | 1 | 1055 | 1063 | 9 | SAPHGVVFL 0.003944 | 6.4 |
| HLA-A*02:06 | 1 | 13 | 22 | 10 | SQCVNLTRTR 0.003943 | 11 |
| HLA-A*02:01 | 1 | 320 | 329 | 10 | VQPTESIVRF 0.003943 | 7.7 |
| HLA-B*15:01 | 1 | 345 | 353 | 9 | TRFASVYAW 0.003943 | 7.9 |
| HLA-B*35:01 | 1 | 417 | 425 | 9 | KIADYNYKL 0.003943 | 5.6 |
| HLA-B*08:01 | 1 | 451 | 459 | 9 | YLYRLFRRKS 0.003943 | 10 |
| HLA-A*68:02 | 1 | 1064 | 1073 | 10 | HVTYVPAQEK 0.003942 | 8.1 |
| HLA-A*02:03 | 1 | 236 | 244 | 9 | TRFQTLAL 0.003941 | 8.8 |
| HLA-B*08:01 | 1 | 177 | 186 | 10 | MDLEGKQGNF 0.00394 | 10 |
| HLA-A*30:02 | 1 | 219 | 227 | 9 | GFSALEPLV 0.00394 | 12 |
| HLA-A*68:02 | 1 | 543 | 551 | 9 | FNGLTGTGV 0.003938 | 8.1 |
| HLA-A*02:03 | 1 | 870 | 878 | 9 | IAQYTSALL 0.003938 | 8.8 |
| HLA-A*03:01 | 1 | 1171 | 1179 | 9 | GINASVVNI 0.003938 | 6.8 |
| HLA-A*30:01 | 1 | 1006 | 1015 | 10 | TYVTQQLIRA 0.003937 | 14 |
| HLA-A*30:01 | 1 | 1080 | 1089 | 10 | AICHDGKAHF 0.003937 | 14 |
| HLA-A*30:02 | 1 | 746 | 754 | 9 | STECSNLLL 0.003936 | 12 |
| HLA-B*35:01 | 1 | 907 | 915 | 9 | NGIGVTQNV 0.003936 | 5.6 |
| HLA-A*02:01 | 1 | 50 | 58 | 9 | STQDLFLPF 0.003935 | 7.7 |
| HLA-A*30:02 | 1 | 719 | 727 | 9 | TISVTTEIL 0.003933 | 12 |
| HLA-A*23:01 | 1 | 1096 | 1104 | 9 | VSNGTHWFV 0.003933 | 4.6 |
| HLA-A*02:06 | 1 | 460 | 468 | 9 | NLKPFERDI 0.00393 | 11 |
| HLA-B*07:02 | 1 | 706 | 714 | 9 | AYSNNISIAI 0.003928 | 6.1 |
| HLA-B*07:02 | 1 | 266 | 275 | 10 | YVGYLQPRTF 0.003927 | 6.1 |
| HLA-B*57:01 | 1 | 710 | 719 | 10 | NSIAIPTNFT 0.003927 | 10 |
| HLA-A*26:01 | 1 | 257 | 265 | 9 | GWTAGAAAY 0.003926 | 5.5 |
| HLA-A*30:01 | 1 | 422 | 430 | 9 | NYKLPDDFT 0.003926 | 14 |
| HLA-A*24:02 | 1 | 951 | 959 | 9 | VVNQAQAL 0.003926 | 4.5 |
| HLA-B*51:01 | 1 | 138 | 147 | 10 | DPFLGVYYHK 0.003925 | 9.8 |
| HLA-A*32:01 | 1 | 421 | 429 | 9 | YNYKLPDDF 0.003924 | 5.6 |
| HLA-A*02:01 | 1 | 5 | 13 | 9 | LVLLPLVSS 0.003921 | 7.7 |
| HLA-B*51:01 | 1 | 887 | 896 | 10 | TFGAGAALQI 0.003921 | 9.8 |
| HLA-A*30:01 | 1 | 34 | 42 | 9 | RGVYYPDKV 0.003919 | 14 |
| HLA-B*57:01 | 1 | 326 | 334 | 9 | IVRFPNITN 0.003919 | 10 |
| HLA-B*53:01 | 1 | 333 | 342 | 10 | TNLCPFGEVF 0.003919 | 5.1 |
| HLA-B*35:01 | 1 | 462 | 471 | 10 | KPFERDISTE 0.003919 | 5.6 |
| HLA-B*58:01 | 1 | 580 | 588 | 9 | QTLEILDIT 0.003919 | 6.8 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*58:01 | 1 | 381 | 390 | 10 | GVSPTKLNLDL 0.003918 | 6.8 |
| HLA-A*03:01 | 1 | 1151 | 1159 | 9 | ELDKYFKNH 0.003918 | 6.8 |
| HLA-A*68:01 | 1 | 166 | 175 | 10 | CTFEYVSQPF 0.003916 | 9.6 |
| HLA-A*26:01 | 1 | 224 | 233 | 10 | EPLVDLPIGI 0.003915 | 5.5 |
| HLA-A*02:03 | 1 | 304 | 312 | 9 | KSFTVEKGI 0.003913 | 8.8 |
| HLA-A*02:01 | 1 | 1170 | 1179 | 10 | SGINASVVNI 0.003912 | 7.7 |
| HLA-B*53:01 | 1 | 151 | 160 | 10 | SWMESEFRVY 0.003911 | 5.1 |
| HLA-B*40:01 | 1 | 976 | 984 | 9 | VLNDILSRL 0.00391 | 4.1 |
| HLA-A*23:01 | 1 | 368 | 376 | 9 | LYNSASFST 0.003909 | 4.6 |
| HLA-B*40:01 | 1 | 815 | 823 | 9 | RSFIEDLLF 0.003909 | 4.1 |
| HLA-A*02:03 | 1 | 644 | 653 | 10 | QTRAGCLIGA 0.003908 | 8.8 |
| HLA-A*24:02 | 1 | 1061 | 1069 | 9 | VFLHVITYVP 0.003907 | 4.6 |
| HLA-A*24:02 | 1 | 1201 | 1209 | 9 | QELGKYEYQ 0.003906 | 4.6 |
| HLA-A*30:01 | 1 | 433 | 441 | 9 | VIAWNSNNL 0.003905 | 14 |
| HLA-B*07:02 | 1 | 983 | 991 | 9 | RLDKVEAEV 0.003905 | 6.1 |
| HLA-A*33:01 | 1 | 1094 | 1102 | 9 | VFVSNQTHW 0.003905 | 7.5 |
| HLA-A*30:02 | 1 | 26 | 34 | 9 | PAYTNSFTR 0.003904 | 12 |
| HLA-B*15:01 | 1 | 89 | 97 | 9 | GVYFASTEK 0.003904 | 7.9 |
| HLA-A*31:01 | 1 | 302 | 311 | 10 | TLKSFTVEKG 0.003904 | 9.3 |
| HLA-A*26:01 | 1 | 433 | 441 | 9 | VIAWNSNNL 0.003903 | 5.5 |
| HLA-A*68:01 | 1 | 1093 | 1101 | 9 | GVFVSNQTH 0.003903 | 9.6 |
| HLA-A*26:01 | 1 | 1087 | 1095 | 9 | AHFPPREGVF 0.003902 | 5.5 |
| HLA-A*30:02 | 1 | 375 | 383 | 9 | STFKCYGVS 0.0039 | 12 |
| HLA-A*30:02 | 1 | 693 | 701 | 9 | IAYTMSLGA 0.0039 | 12 |
| HLA-A*30:01 | 1 | 305 | 314 | 10 | SFTVEKGIYQ 0.003898 | 14 |
| HLA-A*68:02 | 1 | 721 | 730 | 10 | SVTTEILPVS 0.003898 | 8.1 |
| HLA-A*68:02 | 1 | 261 | 270 | 10 | GAAAYVGYL 0.003897 | 8.1 |
| HLA-B*15:01 | 1 | 372 | 381 | 10 | ASFSTFKCYG 0.003896 | 7.9 |
| HLA-A*30:01 | 1 | 699 | 707 | 9 | LGAENSVAY 0.003896 | 14 |
| HLA-B*53:01 | 1 | 1173 | 1181 | 9 | NASVVNIQK 0.003896 | 5.1 |
| HLA-A*11:01 | 1 | 1176 | 1185 | 10 | VVNIQKEIDR 0.003896 | 6.0 |
| HLA-B*51:01 | 1 | 1156 | 1164 | 9 | FKNHTSPDV 0.003893 | 9.9 |
| HLA-B*35:01 | 1 | 1198 | 1206 | 9 | IDLQELGKY 0.003893 | 5.6 |
| HLA-A*30:02 | 1 | 10 | 18 | 9 | LVSSQCVNL 0.003892 | 12 |
| HLA-A*01:01 | 1 | 98 | 106 | 9 | SNIIRGWIF 0.003891 | 6.4 |
| HLA-B*58:01 | 1 | 152 | 160 | 9 | WMESEFRVY 0.00389 | 6.8 |
| HLA-B*35:01 | 1 | 257 | 266 | 10 | GWTAGAAAYY 0.00389 | 5.6 |
| HLA-B*57:01 | 1 | 679 | 687 | 9 | NSPRRARSV 0.00389 | 10 |
| HLA-B*53:01 | 1 | 71 | 79 | 9 | SGTNGTKRF 0.003889 | 5.1 |
| HLA-B*44:03 | 1 | 853 | 861 | 9 | QKFNGLTVL 0.003889 | 4.4 |
| HLA-B*40:01 | 1 | 999 | 1007 | 9 | GRLQSLQTY 0.003888 | 4.1 |
| HLA-B*08:01 | 1 | 285 | 293 | 9 | ITDAVDCAL 0.003887 | 10 |
| HLA-A*02:03 | 1 | 641 | 650 | 10 | NVFQTRAGCL 0.003887 | 8.8 |
| HLA-B*40:01 | 1 | 814 | 822 | 9 | KRSFIEDLL 0.003886 | 4.1 |
| HLA-A*11:01 | 1 | 940 | 948 | 9 | STASALGKL 0.003886 | 6.0 |
| HLA-B*58:01 | 1 | 972 | 981 | 10 | AISSVLNDIL 0.003884 | 6.8 |
| HLA-A*02:06 | 1 | 685 | 693 | 9 | RSVASQSII 0.003883 | 11 |
| HLA-A*30:02 | 1 | 968 | 977 | 10 | SNFGAISSVL 0.003883 | 12 |
| HLA-A*02:03 | 1 | 623 | 631 | 9 | AIHADQLTP 0.003882 | 8.8 |
| HLA-A*68:02 | 1 | 58 | 67 | 10 | FFSNVTWFHA 0.00388 | 8.1 |
| HLA-A*31:01 | 1 | 192 | 200 | 9 | FVFKNIDGY 0.00388 | 9.3 |
| HLA-A*68:02 | 1 | 211 | 220 | 10 | NLVRDLPQGF 0.003879 | 8.1 |
| HLA-A*02:06 | 1 | 973 | 981 | 9 | ISSVLNDIL 0.003879 | 11 |
| HLA-A*68:02 | 1 | 119 | 128 | 10 | IVNNATNVVI 0.003878 | 8.1 |
| HLA-A*68:01 | 1 | 435 | 444 | 10 | AWNSNNLDSK 0.003874 | 9.6 |
| HLA-B*51:01 | 1 | 728 | 736 | 9 | PVSMTKTSV 0.003874 | 9.9 |
| HLA-B*57:01 | 1 | 865 | 874 | 10 | LTDEMIAQYT 0.003873 | 10 |
| HLA-B*40:01 | 1 | 84 | 92 | 9 | LPFNDGVYF 0.003872 | 4.2 |
| HLA-B*57:01 | 1 | 845 | 854 | 10 | AARDLICAQK 0.003872 | 10 |
| HLA-A*02:06 | 1 | 827 | 836 | 10 | TLADAGFIKQ 0.00387 | 11 |
| HLA-A*33:01 | 1 | 372 | 380 | 9 | ASFSTFKCY 0.003869 | 7.5 |
| HLA-B*15:01 | 1 | 22 | 30 | 9 | TQLPPAYTN 0.003868 | 8.0 |
| HLA-B*40:01 | 1 | 181 | 189 | 9 | GKQGNFKNL 0.003868 | 4.2 |
| HLA-A*02:06 | 1 | 1177 | 1186 | 10 | VNIQKEIDRL 0.003868 | 11 |
| HLA-B*07:02 | 1 | 216 | 225 | 10 | LPQGFSALEP 0.003867 | 6.1 |
| HLA-B*51:01 | 1 | 958 | 966 | 9 | ALNTLVKQL 0.003867 | 9.9 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*33:01 | 1 | 1146 | 1154 | 9 | DSFKEELDK 0.003867 | 7.5 |
| HLA-A*01:01 | 1 | 372 | 381 | 10 | ASFSTFKCYG 0.003866 | 6.5 |
| HLA-A*02:01 | 1 | 601 | 610 | 10 | GTNTSNQVAV 0.003866 | 7.8 |
| HLA-A*02:06 | 1 | 1225 | 1233 | 9 | IAIVMVTIM 0.003865 | 11 |
| HLA-A*30:02 | 1 | 475 | 483 | 9 | AGSTPCNGV 0.003864 | 12 |
| HLA-B*35:01 | 1 | 794 | 802 | 9 | IKDFGGFNF 0.003862 | 5.7 |
| HLA-A*24:02 | 1 | 326 | 335 | 10 | IVRFPNITNL 0.00386 | 4.6 |
| HLA-A*32:01 | 1 | 965 | 973 | 9 | QLSSNFGAI 0.003859 | 5.6 |
| HLA-B*44:02 | 1 | 212 | 220 | 9 | LVRDLPQGF 0.003856 | 4.2 |
| HLA-A*11:01 | 1 | 436 | 444 | 9 | WNSNNLDSK 0.003855 | 6.0 |
| HLA-A*30:01 | 1 | 138 | 147 | 10 | DPFLGVVYHK 0.003854 | 14 |
| HLA-B*35:01 | 1 | 498 | 506 | 9 | QPTNGVGYQ 0.003853 | 5.7 |
| HLA-A*30:02 | 1 | 1087 | 1096 | 10 | AHFREGV FV 0.003851 | 12 |
| HLA-B*40:01 | 1 | 470 | 478 | 9 | TEIYQAGST 0.00385 | 4.2 |
| HLA-B*58:01 | 1 | 246 | 255 | 10 | RSYLTPGDSS 0.003844 | 6.9 |
| HLA-A*30:02 | 1 | 912 | 921 | 10 | TQNVLYENQK 0.003843 | 12 |
| HLA-A*30:01 | 1 | 1149 | 1157 | 9 | KEELDKYFK 0.003843 | 15 |
| HLA-A*01:01 | 1 | 1159 | 1167 | 9 | HTSPDVLG 0.003843 | 6.5 |
| HLA-B*08:01 | 1 | 192 | 201 | 10 | FVFKNIDGYF 0.003842 | 11 |
| HLA-A*32:01 | 1 | 324 | 332 | 9 | ESIVRFPNI 0.003841 | 5.7 |
| HLA-A*30:01 | 1 | 765 | 774 | 10 | RALTGIAVEQ 0.003841 | 15 |
| HLA-B*44:03 | 1 | 1010 | 1018 | 9 | QLLIRAAEI 0.003841 | 4.4 |
| HLA-B*58:01 | 1 | 370 | 378 | 9 | NSASFSTFK 0.00384 | 6.9 |
| HLA-A*30:01 | 1 | 161 | 169 | 9 | SSANNCTFE 0.003839 | 15 |
| HLA-A*32:01 | 1 | 183 | 192 | 10 | QGNFKNREF 0.003838 | 5.7 |
| HLA-A*01:01 | 1 | 551 | 559 | 9 | VLTESNKKF 0.003838 | 6.5 |
| HLA-B*53:01 | 1 | 24 | 33 | 10 | LPPAYTNSFT 0.003837 | 5.2 |
| HLA-A*32:01 | 1 | 109 | 118 | 10 | TLDSKTQSL 0.003837 | 5.7 |
| HLA-A*23:01 | 1 | 311 | 320 | 10 | GIYQTSNFRV 0.003837 | 4.6 |
| HLA-B*40:01 | 1 | 16 | 24 | 9 | VNLTRTQL 0.003835 | 4.2 |
| HLA-A*02:03 | 1 | 610 | 619 | 10 | VLYQDVNCTE 0.003835 | 8.9 |
| HLA-B*07:02 | 1 | 125 | 133 | 9 | NVVIKVECF 0.003832 | 6.1 |
| HLA-A*30:01 | 1 | 376 | 384 | 9 | TFKCYGVSP 0.003832 | 15 |
| HLA-A*68:02 | 1 | 971 | 980 | 10 | GAISSVLNDI 0.003832 | 8.2 |
| HLA-B*08:01 | 1 | 991 | 999 | 9 | VQIDRLITG 0.003832 | 11 |
| HLA-B*35:01 | 1 | 996 | 1004 | 9 | LITGRLQSL 0.003831 | 5.7 |
| HLA-A*02:06 | 1 | 1003 | 1011 | 9 | SLQTYVTQ 0.003831 | 11 |
| HLA-B*15:01 | 1 | 778 | 786 | 9 | TQEVFAQVK 0.003829 | 8.0 |
| HLA-B*15:01 | 1 | 237 | 245 | 9 | RFQTLALH 0.003827 | 8.0 |
| HLA-B*07:02 | 1 | 368 | 377 | 10 | LYNSASFSTF 0.003823 | 6.1 |
| HLA-A*26:01 | 1 | 1031 | 1040 | 10 | ECVLGQSKRV 0.003823 | 5.5 |
| HLA-A*11:01 | 1 | 496 | 505 | 10 | GFQPTNGVGY 0.003822 | 6.0 |
| HLA-A*02:03 | 1 | 1004 | 1013 | 10 | LQTYVTQQLI 0.003822 | 8.9 |
| HLA-B*53:01 | 1 | 1168 | 1176 | 9 | DISGINASV 0.003822 | 5.2 |
| HLA-B*51:01 | 1 | 1170 | 1179 | 10 | SGINASVNI 0.003821 | 10 |
| HLA-A*01:01 | 1 | 723 | 732 | 10 | TTEILPVSM 0.00382 | 6.5 |
| HLA-B*15:01 | 1 | 783 | 792 | 10 | AQVKQIYKTP 0.003819 | 8.0 |
| HLA-B*35:01 | 1 | 1066 | 1075 | 10 | TYVPAQKNF 0.003819 | 5.7 |
| HLA-A*26:01 | 1 | 641 | 649 | 9 | NVFQTRAGC 0.003818 | 5.6 |
| HLA-A*30:02 | 1 | 893 | 901 | 9 | ALQIPFAMQ 0.003818 | 12 |
| HLA-B*15:01 | 1 | 962 | 971 | 10 | LVKQLSSNFG 0.003818 | 8.0 |
| HLA-A*26:01 | 1 | 168 | 176 | 9 | FEYVSQPFL 0.003817 | 5.6 |
| HLA-A*33:01 | 1 | 467 | 475 | 9 | DISTEIQQA 0.003815 | 7.5 |
| HLA-A*03:01 | 1 | 806 | 815 | 10 | LPDPSKPSKR 0.003815 | 6.8 |
| HLA-A*24:02 | 1 | 1087 | 1096 | 10 | AHFREGV FV 0.003815 | 4.6 |
| HLA-A*68:02 | 1 | 424 | 432 | 9 | KLPDDFTGC 0.003813 | 8.2 |
| HLA-A*02:01 | 1 | 978 | 987 | 10 | NDILSRLDKV 0.003812 | 7.8 |
| HLA-A*32:01 | 1 | 300 | 308 | 9 | KCTLKSFTV 0.003811 | 5.7 |
| HLA-A*02:01 | 1 | 1132 | 1141 | 10 | IVNNTVYDPL 0.00381 | 7.8 |
| HLA-B*07:02 | 1 | 216 | 224 | 9 | LPQGFSALE 0.003809 | 6.2 |
| HLA-A*02:03 | 1 | 864 | 873 | 10 | LLTDEMIAQY 0.003809 | 8.9 |
| HLA-B*08:01 | 1 | 111 | 120 | 10 | DSKTQSLLIV 0.003808 | 11 |
| HLA-A*30:02 | 1 | 166 | 175 | 10 | CTFEYVSQPF 0.003808 | 12 |
| HLA-A*68:02 | 1 | 972 | 981 | 10 | AISSVLNDIL 0.003805 | 8.2 |
| HLA-B*51:01 | 1 | 19 | 27 | 9 | TTRTQLPPA 0.003804 | 10 |
| HLA-A*30:01 | 1 | 641 | 649 | 9 | NVFQTRAGC 0.003804 | 15 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|
| HLA-A*03:01 | 1 | 58 | 66 | 9 | FFSNVTWFH | 0.003798 | 6.9 |
| HLA-B*35:01 | 1 | 888 | 896 | 9 | FGAGAALQI | 0.003797 | 5.7 |
| HLA-A*30:02 | 1 | 1010 | 1018 | 9 | QLLIRAAEI | 0.003796 | 12 |
| HLA-A*32:01 | 1 | 240 | 249 | 10 | TLLALHRSYL | 0.003794 | 5.7 |
| HLA-A*33:01 | 1 | 755 | 763 | 9 | QYGSFCTQL | 0.003794 | 7.5 |
| HLA-B*08:01 | 1 | 1148 | 1156 | 9 | FKEELDKYF | 0.003793 | 11 |
| HLA-A*02:06 | 1 | 583 | 591 | 9 | EILDITPCS | 0.003792 | 11 |
| HLA-B*35:01 | 1 | 81 | 89 | 9 | NPVLPFNDG | 0.003791 | 5.7 |
| HLA-A*26:01 | 1 | 788 | 797 | 10 | IYKTPPIKDF | 0.003791 | 5.6 |
| HLA-A*02:01 | 1 | 222 | 230 | 9 | ALEPLVDLP | 0.00379 | 7.8 |
| HLA-A*24:02 | 1 | 270 | 279 | 10 | LQPRTFLLKY | 0.00379 | 4.6 |
| HLA-A*23:01 | 1 | 1201 | 1209 | 9 | QELGKYEYQ | 0.00379 | 4.7 |
| HLA-A*24:02 | 1 | 63 | 71 | 9 | TWFHAIHVS | 0.003789 | 4.6 |
| HLA-A*01:01 | 1 | 956 | 964 | 9 | AQALNTLVK | 0.003789 | 6.6 |
| HLA-A*02:06 | 1 | 336 | 344 | 9 | CPFGEVFN | 0.003788 | 11 |
| HLA-B*35:01 | 1 | 1068 | 1077 | 10 | VPAQEKNF | 0.003788 | 5.7 |
| HLA-A*30:01 | 1 | 1109 | 1117 | 9 | FYEPQIITT | 0.003786 | 15 |
| HLA-A*33:01 | 1 | 296 | 304 | 9 | LSETKCTLK | 0.003785 | 7.5 |
| HLA-B*08:01 | 1 | 167 | 176 | 10 | TFEYVSPFL | 0.003783 | 11 |
| HLA-B*44:03 | 1 | 1059 | 1067 | 9 | GVVFLHVTY | 0.003783 | 4.5 |
| HLA-A*30:01 | 1 | 879 | 888 | 10 | AGTITSGWF | 0.003782 | 15 |
| HLA-A*30:02 | 1 | 37 | 45 | 9 | YYPDKVFRS | 0.003781 | 12 |
| HLA-A*30:02 | 1 | 804 | 812 | 9 | QILPDPSKP | 0.003778 | 12 |
| HLA-B*15:01 | 1 | 878 | 886 | 9 | LAGTITSGW | 0.003778 | 8.0 |
| HLA-A*68:02 | 1 | 990 | 998 | 9 | EVQIDRLIT | 0.003778 | 8.2 |
| HLA-B*40:01 | 1 | 964 | 972 | 9 | KQLSSNFGA | 0.003777 | 4.2 |
| HLA-A*11:01 | 1 | 806 | 815 | 10 | LPDPSKPSKR | 0.003776 | 6.0 |
| HLA-A*68:01 | 1 | 195 | 204 | 10 | KNIDGYFKIY | 0.003775 | 9.7 |
| HLA-B*53:01 | 1 | 339 | 347 | 9 | GEVFNATRF | 0.003775 | 5.2 |
| HLA-B*44:03 | 1 | 662 | 670 | 9 | CDIPIGAGI | 0.003775 | 4.5 |
| HLA-B*58:01 | 1 | 995 | 1004 | 10 | RLITGRLQSL | 0.003775 | 6.9 |
| HLA-B*58:01 | 1 | 442 | 451 | 10 | DSKVGGNINY | 0.003774 | 6.9 |
| HLA-B*15:01 | 1 | 617 | 625 | 9 | CTEVPVAIH | 0.003773 | 8.1 |
| HLA-B*07:02 | 1 | 1025 | 1034 | 10 | AATKMSECVL | 0.003773 | 6.2 |
| HLA-B*53:01 | 1 | 482 | 490 | 9 | GVEGFNCYF | 0.003772 | 5.2 |
| HLA-A*33:01 | 1 | 58 | 67 | 10 | FFSNVTWFHA | 0.003771 | 7.6 |
| HLA-A*03:01 | 1 | 829 | 837 | 9 | ADAGFIKQY | 0.003771 | 6.9 |
| HLA-B*07:02 | 1 | 914 | 922 | 9 | NVLYENQKL | 0.003769 | 6.2 |
| HLA-A*30:02 | 1 | 986 | 995 | 10 | KVEAEVQIDR | 0.003767 | 12 |
| HLA-B*57:01 | 1 | 914 | 922 | 9 | NVLYENQKL | 0.003765 | 11 |
| HLA-B*57:01 | 1 | 319 | 328 | 10 | RVQPTESIVR | 0.003764 | 11 |
| HLA-A*24:02 | 1 | 1102 | 1110 | 9 | WFVTQRNFY | 0.003763 | 4.6 |
| HLA-A*30:01 | 1 | 1061 | 1070 | 10 | VFLHVTYVPA | 0.003762 | 15 |
| HLA-A*30:02 | 1 | 981 | 989 | 9 | LSRLDKVEA | 0.003761 | 12 |
| HLA-B*57:01 | 1 | 135 | 143 | 9 | FCNDPFLGV | 0.00376 | 11 |
| HLA-A*68:01 | 1 | 1209 | 1217 | 9 | YIKWPWYIW | 0.00376 | 9.7 |
| HLA-A*26:01 | 1 | 488 | 497 | 10 | CYFPLQSYGF | 0.003757 | 5.6 |
| HLA-A*33:01 | 1 | 1055 | 1063 | 9 | SAPHGVVFL | 0.003757 | 7.6 |
| HLA-A*30:01 | 1 | 155 | 163 | 9 | SEFRVYSSA | 0.003756 | 15 |
| HLA-B*07:02 | 1 | 495 | 503 | 9 | YGFQPTNGV | 0.003756 | 6.2 |
| HLA-A*68:01 | 1 | 260 | 269 | 10 | AGAAAYYVGY | 0.003755 | 9.7 |
| HLA-A*32:01 | 1 | 13 | 21 | 9 | SQCVNLTR | 0.003752 | 5.7 |
| HLA-B*07:02 | 1 | 321 | 330 | 10 | QPTESIVRFP | 0.003752 | 6.2 |
| HLA-B*51:01 | 1 | 46 | 54 | 9 | SVLHSTQDL | 0.003749 | 10 |
| HLA-A*26:01 | 1 | 1048 | 1056 | 9 | HLMSFPQSA | 0.003749 | 5.6 |
| HLA-A*32:01 | 1 | 360 | 369 | 10 | NCVADYSVLY | 0.003748 | 5.7 |
| HLA-B*51:01 | 1 | 410 | 419 | 10 | IAPGQTGKIA | 0.003746 | 10 |
| HLA-A*02:01 | 1 | 607 | 615 | 9 | QVAVLYQDV | 0.003744 | 7.9 |
| HLA-B*15:01 | 1 | 381 | 390 | 10 | GVSPTKLNDL | 0.003743 | 8.1 |
| HLA-A*30:02 | 1 | 948 | 956 | 9 | LQDVVNQNA | 0.003743 | 12 |
| HLA-A*68:01 | 1 | 444 | 453 | 10 | KVGGNINYLY | 0.003742 | 9.7 |
| HLA-A*68:02 | 1 | 982 | 991 | 10 | SRLDKVEAEV | 0.003742 | 8.3 |
| HLA-A*30:01 | 1 | 301 | 309 | 9 | CTLKSFTVE | 0.003741 | 15 |
| HLA-B*44:03 | 1 | 617 | 626 | 10 | CTEVPVAIHA | 0.003741 | 4.5 |
| HLA-A*01:01 | 1 | 674 | 683 | 10 | YQTQTNSPRR | 0.003741 | 6.6 |
| HLA-A*30:02 | 1 | 784 | 792 | 9 | QVKQIYKTP | 0.003741 | 12 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*03:01 | 1 | 273 | 281 | 9 | RTFLLKYNE 0.00374 | 6.9 |
| HLA-B*35:01 | 1 | 1136 | 1144 | 9 | TVYDPLQPE 0.00374 | 5.7 |
| HLA-B*53:01 | 1 | 445 | 453 | 9 | VGGNYNYLY 0.003738 | 5.2 |
| HLA-A*11:01 | 1 | 1093 | 1102 | 10 | GVFVSNQTHW 0.003738 | 6.0 |
| HLA-B*53:01 | 1 | 774 | 782 | 9 | QDKNTQEVF 0.003737 | 5.2 |
| HLA-A*02:01 | 1 | 880 | 888 | 9 | GTITSGWTF 0.003735 | 7.9 |
| HLA-A*30:01 | 1 | 20 | 29 | 10 | TRTQLPPAYT 0.003734 | 15 |
| HLA-A*02:03 | 1 | 35 | 43 | 9 | GVVYPPDKVF 0.003733 | 9.0 |
| HLA-A*33:01 | 1 | 167 | 175 | 9 | TFEYVSQPF 0.003733 | 7.6 |
| HLA-A*02:06 | 1 | 261 | 270 | 10 | GAAAYYVGYL 0.003733 | 12 |
| HLA-B*58:01 | 1 | 315 | 324 | 10 | TSNFRVQPT 0.003731 | 7.0 |
| HLA-B*08:01 | 1 | 955 | 963 | 9 | NAQALNTLV 0.003729 | 11 |
| HLA-A*02:06 | 1 | 757 | 766 | 10 | GSFCTQLNRA 0.003728 | 12 |
| HLA-A*02:01 | 1 | 366 | 374 | 9 | SVLYNSASF 0.003727 | 7.9 |
| HLA-A*68:02 | 1 | 925 | 934 | 10 | NQFNSAIGKI 0.003727 | 8.3 |
| HLA-B*58:01 | 1 | 601 | 609 | 9 | GTNTSNQVA 0.003724 | 7.0 |
| HLA-A*01:01 | 1 | 1139 | 1148 | 10 | DPLQPELDSF 0.003724 | 6.6 |
| HLA-A*02:01 | 1 | 643 | 651 | 9 | FQTRAGCLI 0.003723 | 7.9 |
| HLA-A*30:02 | 1 | 939 | 948 | 10 | SSTASALGKL 0.003722 | 12 |
| HLA-B*08:01 | 1 | 183 | 192 | 10 | QGNFKNLREF 0.003721 | 11 |
| HLA-A*30:01 | 1 | 957 | 965 | 9 | QALNTLVKQ 0.003721 | 15 |
| HLA-A*32:01 | 1 | 24 | 32 | 9 | LPPAYTNSF 0.00372 | 5.8 |
| HLA-A*02:01 | 1 | 873 | 882 | 10 | YTSALLAGTI 0.00372 | 7.9 |
| HLA-A*30:02 | 1 | 992 | 1000 | 9 | QIDRLITGR 0.00372 | 12 |
| HLA-B*08:01 | 1 | 17 | 25 | 9 | NLTTTRTQLP 0.003719 | 11 |
| HLA-A*02:03 | 1 | 1017 | 1025 | 9 | EIRASANLA 0.003717 | 9.0 |
| HLA-A*30:02 | 1 | 285 | 293 | 9 | ITDAVDCAL 0.003716 | 12 |
| HLA-B*35:01 | 1 | 936 | 945 | 10 | DSLSSTASAL 0.003716 | 5.8 |
| HLA-A*02:01 | 1 | 509 | 518 | 10 | RVVLSFELL 0.003715 | 7.9 |
| HLA-A*30:01 | 1 | 591 | 599 | 9 | SFGGVSVIT 0.003714 | 15 |
| HLA-A*11:01 | 1 | 748 | 756 | 9 | ECSNLLLQY 0.003713 | 6.1 |
| HLA-B*51:01 | 1 | 1000 | 1008 | 9 | RLQSLQTYV 0.003713 | 11 |
| HLA-A*68:02 | 1 | 1109 | 1117 | 9 | FYEPQIITT 0.003712 | 8.3 |
| HLA-A*68:02 | 1 | 229 | 238 | 10 | LPIGINITRF 0.003711 | 8.3 |
| HLA-A*11:01 | 1 | 139 | 147 | 9 | PFLGVYYHK 0.00371 | 6.1 |
| HLA-B*15:01 | 1 | 1052 | 1061 | 10 | FPQSAPHGVV 0.00371 | 8.1 |
| HLA-B*53:01 | 1 | 759 | 767 | 9 | FCTQLNRAL 0.003709 | 5.2 |
| HLA-A*30:01 | 1 | 399 | 408 | 10 | SFVIRGDEV 0.003708 | 15 |
| HLA-A*02:06 | 1 | 543 | 551 | 9 | FNGLTGTGV 0.003708 | 12 |
| HLA-A*01:01 | 1 | 992 | 1001 | 10 | QIDRLITGRL 0.003707 | 6.6 |
| HLA-B*58:01 | 1 | 1174 | 1182 | 9 | ASVVNIQKE 0.003707 | 7.0 |
| HLA-A*02:01 | 1 | 1121 | 1130 | 10 | FVSGNCDVVI 0.003704 | 7.9 |
| HLA-B*51:01 | 1 | 101 | 110 | 10 | IRGWIFGTTL 0.003703 | 11 |
| HLA-A*23:01 | 1 | 169 | 178 | 10 | EYVSQPFLMD 0.003703 | 4.7 |
| HLA-A*23:01 | 1 | 628 | 636 | 9 | QLTPTWRVY 0.003703 | 4.7 |
| HLA-A*30:01 | 1 | 513 | 522 | 10 | LSFELLHAPA 0.003701 | 15 |
| HLA-B*57:01 | 1 | 784 | 792 | 9 | QVKQIYKTP 0.0037 | 11 |
| HLA-A*26:01 | 1 | 340 | 349 | 10 | EVFNATRFAS 0.003699 | 5.7 |
| HLA-A*24:02 | 1 | 968 | 977 | 10 | SNFGAISSVL 0.003699 | 4.6 |
| HLA-A*30:01 | 1 | 1135 | 1144 | 10 | NTVYDPLQPE 0.003699 | 15 |
| HLA-A*02:01 | 1 | 1035 | 1043 | 9 | GQSKRVDFC 0.003698 | 7.9 |
| HLA-A*30:02 | 1 | 876 | 884 | 9 | ALLAGTITS 0.003697 | 12 |
| HLA-A*26:01 | 1 | 1044 | 1052 | 9 | GKGYHLMSF 0.003694 | 5.7 |
| HLA-A*01:01 | 1 | 168 | 176 | 9 | FEYVSQPFL 0.003693 | 6.7 |
| HLA-B*08:01 | 1 | 1017 | 1025 | 9 | EIRASANLA 0.003693 | 11 |
| HLA-B*53:01 | 1 | 127 | 135 | 9 | VIKVCEFQF 0.00369 | 5.2 |
| HLA-A*24:02 | 1 | 525 | 533 | 9 | CGPKKSTNL 0.00369 | 4.7 |
| HLA-B*08:01 | 1 | 841 | 849 | 9 | LGDIARDL 0.003689 | 11 |
| HLA-B*35:01 | 1 | 496 | 505 | 10 | GFQPTNGVGY 0.003688 | 5.8 |
| HLA-A*30:02 | 1 | 1028 | 1036 | 9 | KMSECVLQG 0.003687 | 12 |
| HLA-A*68:02 | 1 | 639 | 647 | 9 | GSNVFQTRA 0.003686 | 8.3 |
| HLA-A*01:01 | 1 | 1148 | 1156 | 9 | FKEELDKYF 0.003686 | 6.7 |
| HLA-A*68:01 | 1 | 137 | 146 | 10 | NDPFLGVYYH 0.003685 | 9.8 |
| HLA-A*23:01 | 1 | 857 | 865 | 9 | GLTVLPLLL 0.003685 | 4.7 |
| HLA-A*68:02 | 1 | 99 | 108 | 10 | NIIRGWIFGT 0.003684 | 8.3 |
| HLA-B*08:01 | 1 | 985 | 993 | 9 | DKVEAEVQI 0.003684 | 11 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*35:01 | 1 | 732 | 740 | 9 | TKTSVDCTM 0.003682 | 5.8 |
| HLA-A*02:03 | 1 | 562 | 570 | 9 | FQQFGRDIA 0.003681 | 9.0 |
| HLA-A*24:02 | 1 | 481 | 490 | 10 | NGVEGFNCYF 0.00368 | 4.7 |
| HLA-B*51:01 | 1 | 8 | 17 | 10 | LPLVSSQCVN 0.003678 | 11 |
| HLA-A*32:01 | 1 | 254 | 262 | 9 | SSSGWTAGA 0.003678 | 5.8 |
| HLA-B*35:01 | 1 | 663 | 672 | 10 | DIPIGAGICA 0.003678 | 5.8 |
| HLA-A*68:02 | 1 | 515 | 524 | 10 | FELLHAPATV 0.003674 | 8.3 |
| HLA-B*57:01 | 1 | 859 | 867 | 9 | TVLPLLLTD 0.003673 | 11 |
| HLA-B*08:01 | 1 | 683 | 692 | 10 | RARSVASQSI 0.003672 | 11 |
| HLA-A*68:01 | 1 | 256 | 265 | 10 | SGWTAGAAAY 0.00367 | 9.8 |
| HLA-A*11:01 | 1 | 295 | 304 | 10 | PLSETKCTLK 0.00367 | 6.1 |
| HLA-A*01:01 | 1 | 677 | 685 | 9 | QTNSPRRAR 0.00367 | 6.7 |
| HLA-A*32:01 | 1 | 748 | 756 | 9 | ECSNLLLQY 0.003669 | 5.8 |
| HLA-A*30:02 | 1 | 956 | 965 | 10 | AQALNTLVKQ 0.003669 | 12 |
| HLA-A*02:03 | 1 | 222 | 230 | 9 | ALEPLVDLP 0.003667 | 9.1 |
| HLA-A*02:01 | 1 | 508 | 517 | 10 | YRVVLSFEL 0.003667 | 7.9 |
| HLA-B*44:03 | 1 | 815 | 823 | 9 | RSFIEDLLF 0.003667 | 4.5 |
| HLA-A*33:01 | 1 | 417 | 425 | 9 | KIADYNYKL 0.003666 | 7.6 |
| HLA-A*30:01 | 1 | 27 | 35 | 9 | AYTNSFTRG 0.003664 | 15 |
| HLA-A*30:01 | 1 | 240 | 249 | 10 | TLLALHRSYL 0.003664 | 15 |
| HLA-B*57:01 | 1 | 375 | 384 | 10 | STFKCYGVSP 0.003662 | 11 |
| HLA-B*07:02 | 1 | 919 | 927 | 9 | NQKLIANQF 0.003661 | 6.3 |
| HLA-A*01:01 | 1 | 464 | 472 | 9 | FERDISTEI 0.00366 | 6.7 |
| HLA-B*53:01 | 1 | 287 | 296 | 10 | DAVDCALDPL 0.003659 | 5.3 |
| HLA-A*02:01 | 1 | 730 | 738 | 9 | SMTKTSVDC 0.003659 | 8.0 |
| HLA-A*02:06 | 1 | 1207 | 1215 | 9 | EQYIKWPWY 0.003658 | 12 |
| HLA-A*01:01 | 1 | 1257 | 1266 | 10 | DEDDSEPVLK 0.003658 | 6.7 |
| HLA-A*02:06 | 1 | 477 | 486 | 10 | STPCNGVEGF 0.003655 | 12 |
| HLA-A*01:01 | 1 | 122 | 130 | 9 | NATNVVIVK 0.003654 | 6.7 |
| HLA-A*30:02 | 1 | 1033 | 1042 | 10 | VLGQSKRVDF 0.003654 | 12 |
| HLA-A*30:02 | 1 | 929 | 937 | 9 | SAIGKIQDS 0.003653 | 12 |
| HLA-A*68:01 | 1 | 894 | 902 | 9 | LQIPFAMQM 0.003652 | 9.8 |
| HLA-A*68:02 | 1 | 15 | 24 | 10 | CVNLTRTRQL 0.00365 | 8.4 |
| HLA-A*68:01 | 1 | 108 | 117 | 10 | TTLDSKTQSL 0.003649 | 9.8 |
| HLA-B*53:01 | 1 | 137 | 145 | 9 | NDPFLGVYY 0.003649 | 5.3 |
| HLA-A*30:01 | 1 | 642 | 650 | 9 | VFQTRAGCL 0.003649 | 15 |
| HLA-A*33:01 | 1 | 962 | 970 | 9 | LVKQLSSNF 0.003649 | 7.7 |
| HLA-A*68:01 | 1 | 15 | 23 | 9 | CVNLTRTRQ 0.003646 | 9.8 |
| HLA-B*08:01 | 1 | 731 | 740 | 10 | MTKTSVDCTM 0.003646 | 11 |
| HLA-A*02:06 | 1 | 705 | 714 | 10 | VAYSNNSIAI 0.003644 | 12 |
| HLA-A*30:01 | 1 | 940 | 949 | 10 | STASALGKLQ 0.003644 | 15 |
| HLA-B*51:01 | 1 | 53 | 61 | 9 | DLFLPFFSN 0.003643 | 11 |
| HLA-B*44:03 | 1 | 78 | 86 | 9 | RFDNPVLPF 0.003642 | 4.5 |
| HLA-B*44:03 | 1 | 143 | 152 | 10 | VYYHKNKSW 0.003642 | 4.5 |
| HLA-A*32:01 | 1 | 285 | 293 | 9 | ITDAVDCAL 0.003641 | 5.8 |
| HLA-A*31:01 | 1 | 1003 | 1011 | 9 | SLQTYVTQQ 0.003637 | 9.6 |
| HLA-A*30:02 | 1 | 261 | 270 | 10 | GAAAYVGYL 0.003636 | 12 |
| HLA-A*68:02 | 1 | 626 | 635 | 10 | ADQLTPTWRV 0.003636 | 8.4 |
| HLA-A*23:01 | 1 | 1107 | 1115 | 9 | RNFYEPQII 0.003636 | 4.8 |
| HLA-A*33:01 | 1 | 898 | 906 | 9 | FAMQMAYRF 0.003634 | 7.7 |
| HLA-A*24:02 | 1 | 270 | 278 | 9 | LQPRTFLLK 0.00363 | 4.7 |
| HLA-A*02:06 | 1 | 639 | 647 | 9 | GSNVFQTRA 0.00363 | 12 |
| HLA-A*32:01 | 1 | 900 | 909 | 10 | MQMAYRFNGI 0.00363 | 5.8 |
| HLA-A*26:01 | 1 | 995 | 1004 | 10 | RLITGRLQSL 0.00363 | 5.7 |
| HLA-A*30:01 | 1 | 1130 | 1138 | 9 | IGIVNNTVY 0.003629 | 15 |
| HLA-B*08:01 | 1 | 721 | 729 | 9 | SVTTEILPV 0.003628 | 11 |
| HLA-B*51:01 | 1 | 764 | 772 | 9 | NRALTGIIV 0.003628 | 11 |
| HLA-A*02:03 | 1 | 955 | 963 | 9 | NAQALNTLV 0.003628 | 9.1 |
| HLA-A*02:03 | 1 | 962 | 970 | 9 | LVKQLSSNF 0.003624 | 9.1 |
| HLA-B*35:01 | 1 | 58 | 66 | 9 | FFSNVTWFH 0.003623 | 5.8 |
| HLA-B*58:01 | 1 | 746 | 754 | 9 | STECNLLL 0.003623 | 7.1 |
| HLA-A*68:01 | 1 | 1021 | 1029 | 9 | SANLAATKM 0.003623 | 9.8 |
| HLA-A*03:01 | 1 | 780 | 789 | 10 | EVFAQVKQIY 0.003622 | 7.0 |
| HLA-B*57:01 | 1 | 1029 | 1038 | 10 | MSECVLGQSK 0.003622 | 11 |
| HLA-A*03:01 | 1 | 584 | 592 | 9 | ILDITPCSF 0.003621 | 7.0 |
| HLA-A*02:03 | 1 | 171 | 179 | 9 | VSQPFLMDL 0.00362 | 9.1 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*03:01 | 1 | 1147 | 1155 | 9 | SFKEELDKY 0.00362 | 7.0 |
| HLA-A*30:02 | 1 | 177 | 186 | 10 | MDLEGKQGNF 0.003617 | 12 |
| HLA-A*31:01 | 1 | 638 | 647 | 10 | TGSNVFQTRA 0.003617 | 9.6 |
| HLA-A*33:01 | 1 | 267 | 275 | 9 | VGYLQPRTF 0.003614 | 7.7 |
| HLA-A*30:01 | 1 | 1026 | 1035 | 10 | ATKMSECVLG 0.003614 | 15 |
| HLA-A*02:06 | 1 | 1051 | 1060 | 10 | SFPQSAPHGV 0.003611 | 12 |
| HLA-A*30:02 | 1 | 627 | 635 | 9 | DQLTPTWRV 0.00361 | 12 |
| HLA-A*23:01 | 1 | 327 | 336 | 10 | VRFPNITNLC 0.003609 | 4.8 |
| HLA-A*30:01 | 1 | 814 | 823 | 10 | KRSFIEDLLF 0.003608 | 15 |
| HLA-A*02:06 | 1 | 432 | 441 | 10 | CVIAWNSNLL 0.003607 | 12 |
| HLA-B*07:02 | 1 | 583 | 592 | 10 | EILDITPCSF 0.003606 | 6.3 |
| HLA-A*02:01 | 1 | 1196 | 1205 | 10 | SLIDLQELGK 0.003606 | 8.0 |
| HLA-A*33:01 | 1 | 50 | 59 | 10 | STQDLFLPFF 0.003605 | 7.7 |
| HLA-A*02:06 | 1 | 1013 | 1022 | 10 | IRAAEIRASA 0.003605 | 12 |
| HLA-A*23:01 | 1 | 168 | 176 | 9 | FEYVSPFL 0.003603 | 4.8 |
| HLA-B*35:01 | 1 | 41 | 49 | 9 | KVFRSSVLH 0.003602 | 5.8 |
| HLA-A*23:01 | 1 | 270 | 278 | 9 | LQPRTFLLK 0.003602 | 4.8 |
| HLA-A*02:06 | 1 | 713 | 721 | 9 | AIPTNFTIS 0.003602 | 12 |
| HLA-B*44:02 | 1 | 998 | 1007 | 10 | TGRLQSLQTY 0.003602 | 4.4 |
| HLA-B*15:01 | 1 | 820 | 828 | 9 | DLLFNKVTL 0.003601 | 8.2 |
| HLA-A*68:02 | 1 | 861 | 869 | 9 | LPPLLTDEM 0.003601 | 8.4 |
| HLA-B*57:01 | 1 | 968 | 976 | 9 | SNFGAISSV 0.0036 | 11 |
| HLA-A*02:03 | 1 | 81 | 90 | 10 | NPVLPFNDGV 0.003599 | 9.1 |
| HLA-B*08:01 | 1 | 1108 | 1116 | 9 | NFYEQIIT 0.003599 | 11 |
| HLA-A*30:02 | 1 | 135 | 143 | 9 | FCNDPFLGV 0.003598 | 12 |
| HLA-A*02:06 | 1 | 365 | 374 | 10 | YSVLYNSASF 0.003598 | 12 |
| HLA-A*01:01 | 1 | 1070 | 1078 | 9 | AQEKNFTTA 0.003598 | 6.8 |
| HLA-A*24:02 | 1 | 628 | 636 | 9 | QLTPTWRVY 0.003597 | 4.7 |
| HLA-A*32:01 | 1 | 232 | 241 | 10 | GINITRFQTL 0.003595 | 5.8 |
| HLA-B*15:01 | 1 | 507 | 515 | 9 | PYRVVLSF 0.003595 | 8.2 |
| HLA-A*31:01 | 1 | 1107 | 1116 | 10 | RNFYEQIIT 0.003595 | 9.6 |
| HLA-A*30:01 | 1 | 1209 | 1218 | 10 | YIKWPWYIWL 0.003595 | 15 |
| HLA-B*58:01 | 1 | 794 | 802 | 9 | IKDFGGFNF 0.003594 | 7.1 |
| HLA-B*15:01 | 1 | 1001 | 1010 | 10 | LQSLQTYVTQ 0.003592 | 8.2 |
| HLA-A*30:02 | 1 | 371 | 379 | 9 | SASFSTFKC 0.003591 | 12 |
| HLA-A*30:01 | 1 | 678 | 687 | 10 | TNSPRRARSV 0.003589 | 15 |
| HLA-B*58:01 | 1 | 790 | 798 | 9 | KTPPIKDFG 0.003588 | 7.1 |
| HLA-B*35:01 | 1 | 184 | 192 | 9 | GNFKNLREF 0.003586 | 5.8 |
| HLA-A*30:01 | 1 | 763 | 772 | 10 | LNRRALTGIIV 0.003586 | 15 |
| HLA-A*02:01 | 1 | 1184 | 1193 | 10 | DRLNEVAKNL 0.003585 | 8.0 |
| HLA-B*57:01 | 1 | 798 | 806 | 9 | GGFNFSQIL 0.003584 | 11 |
| HLA-A*31:01 | 1 | 1049 | 1058 | 10 | LMSFPQSAPH 0.003584 | 9.6 |
| HLA-B*07:02 | 1 | 498 | 507 | 10 | QPTNGVGYP 0.003582 | 6.3 |
| HLA-A*02:03 | 1 | 741 | 749 | 9 | YICGDSTEC 0.00358 | 9.1 |
| HLA-B*58:01 | 1 | 1225 | 1234 | 10 | IAIVMVTIML 0.00358 | 7.1 |
| HLA-A*31:01 | 1 | 267 | 275 | 9 | VGYLQPRTF 0.003578 | 9.6 |
| HLA-B*58:01 | 1 | 221 | 230 | 10 | SALEPLVDLP 0.003576 | 7.1 |
| HLA-B*57:01 | 1 | 408 | 417 | 10 | RQIAPGQTGK 0.003576 | 11 |
| HLA-B*07:02 | 1 | 234 | 242 | 9 | NITRFQTL 0.003575 | 6.3 |
| HLA-A*02:06 | 1 | 574 | 582 | 9 | DAVRDPQTL 0.003574 | 12 |
| HLA-A*30:01 | 1 | 514 | 522 | 9 | SFELLHAPA 0.003573 | 15 |
| HLA-A*30:01 | 1 | 1014 | 1023 | 10 | RAAEIRASAN 0.003573 | 15 |
| HLA-A*68:02 | 1 | 110 | 118 | 9 | LDSKTQSL 0.003572 | 8.5 |
| HLA-A*30:02 | 1 | 247 | 255 | 9 | SYLTPGDSS 0.003571 | 12 |
| HLA-B*35:01 | 1 | 77 | 86 | 10 | KRFDNPVLPF 0.00357 | 5.9 |
| HLA-A*02:03 | 1 | 447 | 455 | 9 | GNYNLYRL 0.00357 | 9.2 |
| HLA-B*53:01 | 1 | 777 | 785 | 9 | NTQEVFAQV 0.00357 | 5.3 |
| HLA-B*57:01 | 1 | 981 | 989 | 9 | LSRLDKVEA 0.003569 | 11 |
| HLA-A*30:01 | 1 | 353 | 361 | 9 | WNRKRISNC 0.003568 | 15 |
| HLA-A*30:01 | 1 | 1140 | 1149 | 10 | PLQPELDSFK 0.003568 | 15 |
| HLA-A*02:01 | 1 | 60 | 68 | 9 | SNVTWFHAI 0.003566 | 8.1 |
| HLA-B*53:01 | 1 | 461 | 470 | 10 | LKPFERDIST 0.003566 | 5.3 |
| HLA-A*32:01 | 1 | 529 | 537 | 9 | KSTNLVKNK 0.003566 | 5.9 |
| HLA-A*32:01 | 1 | 1008 | 1016 | 9 | VTQQLIRAA 0.003565 | 5.9 |
| HLA-A*32:01 | 1 | 409 | 418 | 10 | QIAPGQTGKI 0.003564 | 5.9 |
| HLA-A*11:01 | 1 | 652 | 660 | 9 | GAEHVNSY 0.003564 | 6.2 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*33:01 | 1 | 666 | 674 | 9 | IGAGICASY 0.003564 | 7.7 |
| HLA-B*57:01 | 1 | 186 | 194 | 9 | FKNLREFVF 0.003563 | 11 |
| HLA-A*01:01 | 1 | 306 | 315 | 10 | FTVEKGIYQT 0.003563 | 6.8 |
| HLA-A*68:01 | 1 | 337 | 346 | 10 | PFGEVFNATR 0.003562 | 9.9 |
| HLA-A*02:06 | 1 | 1218 | 1227 | 10 | LGFIAGLIAI 0.003561 | 12 |
| HLA-A*01:01 | 1 | 152 | 161 | 10 | WMESEFRVYS 0.003559 | 6.8 |
| HLA-B*08:01 | 1 | 487 | 495 | 9 | NCYFPLQSY 0.003559 | 11 |
| HLA-B*53:01 | 1 | 1207 | 1215 | 9 | EQYIKWPWY 0.003559 | 5.3 |
| HLA-A*02:01 | 1 | 262 | 270 | 9 | AAAYYVGYL 0.003558 | 8.1 |
| HLA-A*26:01 | 1 | 207 | 216 | 10 | HTPINLVRDL 0.003557 | 5.8 |
| HLA-A*30:02 | 1 | 891 | 899 | 9 | GAALQIPFA 0.003557 | 12 |
| HLA-A*02:03 | 1 | 929 | 937 | 9 | SAIGKIQDS 0.003557 | 9.2 |
| HLA-B*57:01 | 1 | 191 | 200 | 10 | EFVFKNIDGY 0.003556 | 11 |
| HLA-A*68:02 | 1 | 935 | 944 | 10 | QDLSSTASA 0.003556 | 8.5 |
| HLA-A*08:02 | 1 | 1002 | 1010 | 9 | QSLQTYVTQ 0.003556 | 12 |
| HLA-B*08:01 | 1 | 1096 | 1104 | 9 | VSNATHWFV 0.003556 | 11 |
| HLA-B*57:01 | 1 | 1173 | 1181 | 9 | NASVVNIQK 0.003556 | 11 |
| HLA-A*02:06 | 1 | 1 | 10 | 10 | MFVFLVLLPL 0.003555 | 12 |
| HLA-B*51:01 | 1 | 162 | 171 | 10 | SANNCTFEYV 0.003555 | 11 |
| HLA-B*08:01 | 1 | 1051 | 1060 | 10 | SFPQSAPHGV 0.003554 | 11 |
| HLA-A*01:01 | 1 | 1173 | 1181 | 9 | NASVVNIQK 0.003554 | 6.8 |
| HLA-A*02:01 | 1 | 100 | 108 | 9 | IIRGWIFGT 0.003552 | 8.1 |
| HLA-B*51:01 | 1 | 201 | 210 | 10 | FKIYSKHTPI 0.003552 | 11 |
| HLA-B*44:02 | 1 | 867 | 875 | 9 | DEMIAQYTS 0.003552 | 4.4 |
| HLA-A*68:02 | 1 | 88 | 97 | 10 | DGVYFASTEK 0.003551 | 8.5 |
| HLA-A*68:01 | 1 | 304 | 313 | 10 | KSFTVEKGIY 0.003551 | 9.9 |
| HLA-A*30:01 | 1 | 651 | 659 | 9 | IGAELVNNNS 0.003549 | 15 |
| HLA-B*57:01 | 1 | 46 | 54 | 9 | SVLHSTQDL 0.003548 | 11 |
| HLA-B*44:02 | 1 | 1142 | 1151 | 10 | QPELDSFKEE 0.003548 | 4.4 |
| HLA-B*57:01 | 1 | 616 | 624 | 9 | NCTEVPVAI 0.003547 | 11 |
| HLA-B*57:01 | 1 | 12 | 21 | 10 | SSQCVNLTTTR 0.003546 | 11 |
| HLA-A*02:01 | 1 | 698 | 707 | 10 | SLGAENSVAY 0.003546 | 8.1 |
| HLA-A*32:01 | 1 | 35 | 44 | 10 | GVYYPDKVFR 0.003544 | 5.9 |
| HLA-A*31:01 | 1 | 1094 | 1102 | 9 | VFVSNGTHW 0.003544 | 9.7 |
| HLA-A*02:06 | 1 | 530 | 538 | 9 | STNLVKKNC 0.003543 | 12 |
| HLA-A*31:01 | 1 | 865 | 873 | 9 | LTDEMAIQY 0.003543 | 9.7 |
| HLA-B*08:01 | 1 | 761 | 770 | 10 | TQLNRALTGI 0.003541 | 11 |
| HLA-A*24:02 | 1 | 954 | 962 | 9 | QNAQALNTL 0.003541 | 4.8 |
| HLA-A*02:06 | 1 | 623 | 631 | 9 | AIHADQLTP 0.003538 | 12 |
| HLA-B*44:03 | 1 | 556 | 565 | 10 | NKKFLPFQF 0.003537 | 4.6 |
| HLA-A*02:03 | 1 | 408 | 417 | 10 | RQIAPGQTGK 0.003535 | 9.2 |
| HLA-A*02:03 | 1 | 504 | 513 | 10 | GYQPYRVVVL 0.003535 | 9.2 |
| HLA-A*02:01 | 1 | 258 | 267 | 10 | WTAGAAAYYV 0.003534 | 8.1 |
| HLA-B*57:01 | 1 | 437 | 445 | 9 | NSNNLDSKV 0.003534 | 11 |
| HLA-A*68:02 | 1 | 818 | 826 | 9 | IEDLLFNKV 0.003533 | 8.5 |
| HLA-B*57:01 | 1 | 1015 | 1024 | 10 | AAEIRASANL 0.003533 | 11 |
| HLA-A*26:01 | 1 | 30 | 39 | 10 | NSFTRGVYYP 0.003531 | 5.8 |
| HLA-A*24:02 | 1 | 169 | 178 | 10 | EYVSQPFLMD 0.003531 | 4.8 |
| HLA-B*44:03 | 1 | 852 | 861 | 10 | AQKFNGLTVL 0.003531 | 4.6 |
| HLA-A*30:02 | 1 | 923 | 931 | 9 | IANQFNLSAI 0.003531 | 12 |
| HLA-A*30:02 | 1 | 20 | 29 | 10 | TRTQLPPAYT 0.00353 | 12 |
| HLA-A*68:01 | 1 | 179 | 187 | 9 | LEGKQGNFK 0.00353 | 9.9 |
| HLA-A*30:01 | 1 | 226 | 235 | 10 | LVDLPIGINI 0.003528 | 15 |
| HLA-B*51:01 | 1 | 551 | 559 | 9 | VLTESNKKF 0.003528 | 11 |
| HLA-B*44:02 | 1 | 1004 | 1012 | 9 | LQTYVTQQL 0.003528 | 4.4 |
| HLA-A*02:06 | 1 | 333 | 342 | 10 | TNLCPFGEVF 0.003526 | 12 |
| HLA-A*26:01 | 1 | 1031 | 1039 | 9 | ECVLGQSKR 0.003526 | 5.8 |
| HLA-A*02:06 | 1 | 595 | 604 | 10 | VSVITPGTNT 0.003525 | 12 |
| HLA-A*31:01 | 1 | 1028 | 1036 | 9 | KMSECVLGQ 0.003525 | 9.7 |
| HLA-A*26:01 | 1 | 34 | 43 | 10 | RGVYYPDKVF 0.003524 | 5.8 |
| HLA-A*31:01 | 1 | 312 | 320 | 9 | IYQTSNFRV 0.003523 | 9.7 |
| HLA-B*51:01 | 1 | 78 | 86 | 9 | RFDNPVLPF 0.003521 | 11 |
| HLA-A*01:01 | 1 | 204 | 213 | 10 | YSKHTPINLV 0.003519 | 6.9 |
| HLA-A*32:01 | 1 | 789 | 797 | 9 | YKTPPIKDF 0.003519 | 5.9 |
| HLA-A*01:01 | 1 | 1099 | 1107 | 9 | GTHWFVTQR 0.003518 | 6.9 |
| HLA-A*02:01 | 1 | 898 | 906 | 9 | FAMQMAYRF 0.003517 | 8.1 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*40:01 | 1 | 417 | 425 | 9 | KIADYNYKL 0.003516 | 4.3 |
| HLA-B*15:01 | 1 | 1179 | 1187 | 9 | IQKEIDRLN 0.003516 | 8.3 |
| HLA-A*31:01 | 1 | 319 | 327 | 9 | RVQPTESIV 0.003515 | 9.7 |
| HLA-B*57:01 | 1 | 1139 | 1148 | 10 | DPLQPELDSF 0.003515 | 11 |
| HLA-A*30:01 | 1 | 1224 | 1232 | 9 | LIAIVMVTI 0.003515 | 15 |
| HLA-A*02:03 | 1 | 625 | 633 | 9 | HADQLTPTW 0.003513 | 9.2 |
| HLA-B*07:02 | 1 | 690 | 699 | 10 | QSIIAYTMSL 0.003513 | 6.4 |
| HLA-B*40:01 | 1 | 1073 | 1081 | 9 | KNFTTAPAI 0.003513 | 4.3 |
| HLA-A*30:01 | 1 | 1153 | 1162 | 10 | DKYFKNHTSP 0.003513 | 15 |
| HLA-A*26:01 | 1 | 356 | 365 | 10 | KRISNCVADY 0.003512 | 5.8 |
| HLA-A*68:02 | 1 | 865 | 874 | 10 | LTDEMIAQYT 0.003512 | 8.5 |
| HLA-A*02:06 | 1 | 691 | 700 | 10 | SIAYTMSLG 0.003511 | 12 |
| HLA-A*30:02 | 1 | 808 | 817 | 10 | DPSKPSKRSF 0.003511 | 12 |
| HLA-A*30:02 | 1 | 845 | 853 | 9 | AARDLICAQ 0.003511 | 12 |
| HLA-A*01:01 | 1 | 1060 | 1068 | 9 | VVFLHVITYV 0.003509 | 6.9 |
| HLA-B*15:01 | 1 | 318 | 326 | 9 | FRVQPTESI 0.003508 | 8.3 |
| HLA-B*57:01 | 1 | 1024 | 1032 | 9 | LAATKMSEC 0.003508 | 11 |
| HLA-B*08:01 | 1 | 55 | 64 | 10 | FLPFFSNVTW 0.003507 | 11 |
| HLA-B*53:01 | 1 | 890 | 898 | 9 | AGAALQIPF 0.003507 | 5.4 |
| HLA-A*30:02 | 1 | 909 | 918 | 10 | IGVTQNVLYE 0.003505 | 12 |
| HLA-B*15:01 | 1 | 925 | 934 | 10 | NQFNSAIGKI 0.003505 | 8.3 |
| HLA-A*01:01 | 1 | 975 | 983 | 9 | SVLNDILSR 0.003505 | 6.9 |
| HLA-B*44:02 | 1 | 1144 | 1152 | 9 | ELDSFKEEL 0.003505 | 4.4 |
| HLA-A*30:01 | 1 | 538 | 546 | 9 | CVNFNFNGL 0.003504 | 15 |
| HLA-A*33:01 | 1 | 141 | 150 | 10 | LGVYYHKNNK 0.003503 | 7.8 |
| HLA-B*08:01 | 1 | 1180 | 1189 | 10 | QKEIDRLNEV 0.003503 | 11 |
| HLA-A*02:01 | 1 | 349 | 357 | 9 | SVYAWNRKR 0.003502 | 8.1 |
| HLA-A*02:03 | 1 | 784 | 792 | 9 | QVKQIYKTP 0.003502 | 9.2 |
| HLA-A*02:03 | 1 | 805 | 814 | 10 | ILPDPSKPSK 0.003502 | 9.2 |
| HLA-A*24:02 | 1 | 20 | 28 | 9 | TRTQLPPAY 0.003501 | 4.8 |
| HLA-A*02:03 | 1 | 537 | 546 | 10 | KCVNFNFNGL 0.003501 | 9.2 |
| HLA-A*24:02 | 1 | 166 | 175 | 10 | CTFEYVSQPF 0.003499 | 4.8 |
| HLA-A*30:02 | 1 | 47 | 56 | 10 | VLHSTQDLFL 0.003498 | 12 |
| HLA-A*33:01 | 1 | 105 | 113 | 9 | IFGTTLDSK 0.003498 | 7.8 |
| HLA-A*30:01 | 1 | 597 | 605 | 9 | VITPGTNTS 0.003498 | 15 |
| HLA-B*44:02 | 1 | 852 | 861 | 10 | AQKFNGLTVL 0.003498 | 4.4 |
| HLA-A*01:01 | 1 | 1147 | 1156 | 10 | SFKEELDKYF 0.003497 | 6.9 |
| HLA-A*01:01 | 1 | 56 | 64 | 9 | LPFFSNVTW 0.003496 | 6.9 |
| HLA-A*01:01 | 1 | 808 | 817 | 10 | DPSKPSKRSF 0.003495 | 6.9 |
| HLA-A*02:01 | 1 | 955 | 963 | 9 | NAQALNTLV 0.003495 | 8.1 |
| HLA-A*30:01 | 1 | 1028 | 1036 | 9 | KMSECVLGO 0.003493 | 15 |
| HLA-A*32:01 | 1 | 456 | 464 | 9 | FRKSNLKPF 0.003492 | 5.9 |
| HLA-A*02:03 | 1 | 1026 | 1034 | 9 | ATKMSECVL 0.003492 | 9.2 |
| HLA-B*44:02 | 1 | 1095 | 1103 | 9 | FVSNNGTHWF 0.003492 | 4.4 |
| HLA-A*30:01 | 1 | 646 | 655 | 10 | RAGCLIGAEH 0.003491 | 15 |
| HLA-A*68:01 | 1 | 416 | 424 | 9 | GKIADYNYK 0.00349 | 10 |
| HLA-A*30:02 | 1 | 1108 | 1116 | 9 | NFYEQIIT 0.00349 | 12 |
| HLA-A*01:01 | 1 | 870 | 878 | 9 | IAQYTSALL 0.003488 | 6.9 |
| HLA-A*01:01 | 1 | 1094 | 1103 | 10 | VFVSNNGTHWF 0.003487 | 6.9 |
| HLA-A*68:01 | 1 | 394 | 402 | 9 | NVYADSFVI 0.003486 | 10 |
| HLA-B*51:01 | 1 | 754 | 763 | 10 | LQYGSFCTQL 0.003486 | 11 |
| HLA-A*01:01 | 1 | 878 | 886 | 9 | LAGTITSGW 0.003484 | 6.9 |
| HLA-B*57:01 | 1 | 1096 | 1105 | 10 | VSNNGTHWFVT 0.003482 | 11 |
| HLA-B*51:01 | 1 | 954 | 963 | 10 | QNAQALNTLV 0.003481 | 11 |
| HLA-A*02:01 | 1 | 1124 | 1132 | 9 | GNCDVVIGI 0.003479 | 8.1 |
| HLA-A*31:01 | 1 | 133 | 141 | 9 | FQFCNDPFL 0.003477 | 9.7 |
| HLA-B*57:01 | 1 | 401 | 410 | 10 | VIRGDEVRI 0.003476 | 11 |
| HLA-A*26:01 | 1 | 686 | 694 | 9 | SVASQSIIA 0.003476 | 5.9 |
| HLA-B*58:01 | 1 | 798 | 806 | 9 | GGFNFSQIL 0.003475 | 7.2 |
| HLA-B*15:01 | 1 | 784 | 792 | 9 | QVKQIYKTP 0.003473 | 8.3 |
| HLA-B*57:01 | 1 | 41 | 50 | 10 | KVFRSSVLHS 0.003472 | 11 |
| HLA-B*08:01 | 1 | 684 | 692 | 9 | ARSVASQSI 0.003472 | 11 |
| HLA-A*33:01 | 1 | 886 | 894 | 9 | WTFGAGAAL 0.003471 | 7.8 |
| HLA-A*03:01 | 1 | 1207 | 1215 | 9 | EQYIKWPWY 0.00347 | 7.1 |
| HLA-A*30:01 | 1 | 826 | 834 | 9 | VTLADAGFI 0.003468 | 15 |
| HLA-B*15:01 | 1 | 249 | 258 | 10 | LTPGDSSSWG 0.003467 | 8.3 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*24:02 | 1 | 1181 | 1189 | 9 | KEIDRLNEV 0.003467 | 4.8 |
| HLA-A*01:01 | 1 | 392 | 401 | 10 | FTNVYADSFV 0.003464 | 6.9 |
| HLA-A*32:01 | 1 | 871 | 879 | 9 | AQYTSALLA 0.003464 | 5.9 |
| HLA-B*35:01 | 1 | 81 | 90 | 10 | NPVLPFNDGV 0.003463 | 5.9 |
| HLA-B*51:01 | 1 | 509 | 517 | 9 | RVVVSFEL 0.003463 | 11 |
| HLA-B*58:01 | 1 | 239 | 247 | 9 | QTLALHRS 0.003459 | 7.3 |
| HLA-B*07:02 | 1 | 1221 | 1229 | 9 | IAGLIAIVM 0.003457 | 6.4 |
| HLA-A*68:02 | 1 | 664 | 672 | 9 | IPIGAGICA 0.003456 | 8.6 |
| HLA-A*02:06 | 1 | 537 | 546 | 10 | KCVNFNFNGL 0.003455 | 12 |
| HLA-A*30:01 | 1 | 859 | 867 | 9 | TVLPPLLD 0.003455 | 15 |
| HLA-A*30:01 | 1 | 1083 | 1092 | 10 | HDGKAHPRE 0.003455 | 15 |
| HLA-A*33:01 | 1 | 1172 | 1181 | 10 | INASVVNIQK 0.003455 | 7.8 |
| HLA-A*02:06 | 1 | 601 | 609 | 9 | GTNTSNQVA 0.003454 | 12 |
| HLA-A*02:06 | 1 | 610 | 619 | 10 | VLYQDVNCTE 0.003451 | 12 |
| HLA-B*57:01 | 1 | 646 | 655 | 10 | RAGCLIGAEH 0.003447 | 11 |
| HLA-B*15:01 | 1 | 596 | 604 | 9 | SVITPGTNT 0.003445 | 8.3 |
| HLA-A*33:01 | 1 | 520 | 528 | 9 | APATVCGPK 0.003444 | 7.8 |
| HLA-B*53:01 | 1 | 568 | 576 | 9 | DIADTTDAV 0.003444 | 5.4 |
| HLA-A*02:03 | 1 | 785 | 794 | 10 | VKQIYKTPPI 0.003443 | 9.3 |
| HLA-A*24:02 | 1 | 1107 | 1115 | 9 | RNFYEQII 0.003442 | 4.8 |
| HLA-B*57:01 | 1 | 846 | 855 | 10 | ARDLICAQKF 0.003441 | 11 |
| HLA-A*03:01 | 1 | 859 | 868 | 10 | TVLPPLLD 0.003441 | 7.1 |
| HLA-A*30:02 | 1 | 1210 | 1218 | 9 | IKWPWYIWL 0.003441 | 13 |
| HLA-A*26:01 | 1 | 500 | 508 | 9 | TNGVGYQPY 0.003439 | 5.9 |
| HLA-B*35:01 | 1 | 98 | 106 | 9 | SNIIRGWIF 0.003438 | 6.0 |
| HLA-A*02:06 | 1 | 471 | 479 | 9 | EIYQAGSTP 0.003437 | 12 |
| HLA-A*33:01 | 1 | 1109 | 1117 | 9 | FYEQIITT 0.003437 | 7.8 |
| HLA-B*58:01 | 1 | 218 | 226 | 9 | QGFSALEPL 0.003436 | 7.3 |
| HLA-B*35:01 | 1 | 1101 | 1110 | 10 | HWFVTQRNFY 0.003436 | 6.0 |
| HLA-A*26:01 | 1 | 619 | 628 | 10 | EVPVAIHADQ 0.003435 | 5.9 |
| HLA-A*30:02 | 1 | 914 | 922 | 9 | NVLYENQKL 0.003435 | 13 |
| HLA-B*44:02 | 1 | 662 | 670 | 9 | CDIPIGAGI 0.003434 | 4.5 |
| HLA-A*31:01 | 1 | 754 | 762 | 9 | LQYGSFCTQ 0.003434 | 9.8 |
| HLA-A*30:02 | 1 | 965 | 973 | 9 | QLSSNFGAI 0.003434 | 13 |
| HLA-B*08:01 | 1 | 1025 | 1034 | 10 | AATKMSECVL 0.003434 | 11 |
| HLA-A*30:01 | 1 | 356 | 365 | 10 | KRISNCVADY 0.003432 | 15 |
| HLA-A*30:02 | 1 | 528 | 537 | 10 | KKSTNLVKNK 0.003432 | 13 |
| HLA-A*02:03 | 1 | 991 | 1000 | 10 | VQIDRLITGR 0.003432 | 9.3 |
| HLA-A*33:01 | 1 | 689 | 697 | 9 | SQSIIAYTM 0.00343 | 7.8 |
| HLA-B*08:01 | 1 | 350 | 358 | 9 | VYAWNKRRI 0.003429 | 11 |
| HLA-A*33:01 | 1 | 447 | 455 | 9 | GNYNYLYRL 0.003429 | 7.8 |
| HLA-A*02:03 | 1 | 950 | 958 | 9 | DVVNQNAQA 0.003429 | 9.3 |
| HLA-B*07:02 | 1 | 256 | 264 | 9 | SGWTAGAAA 0.003428 | 6.5 |
| HLA-B*44:02 | 1 | 1066 | 1075 | 10 | TYVPAQEKNF 0.003427 | 4.5 |
| HLA-A*68:02 | 1 | 1209 | 1218 | 10 | YIKWPWYIWL 0.003427 | 8.6 |
| HLA-A*11:01 | 1 | 41 | 50 | 10 | KVFRSSVLHS 0.003426 | 6.3 |
| HLA-A*30:02 | 1 | 318 | 326 | 9 | FRVQPTESI 0.003426 | 13 |
| HLA-B*53:01 | 1 | 988 | 997 | 10 | EAEVQIDRLI 0.003426 | 5.4 |
| HLA-A*02:06 | 1 | 999 | 1007 | 9 | GRLQSLQTY 0.003426 | 12 |
| HLA-A*30:01 | 1 | 29 | 37 | 9 | TNSFTRGVY 0.003425 | 15 |
| HLA-A*68:02 | 1 | 1087 | 1096 | 10 | AHFPREGV FV 0.003425 | 8.6 |
| HLA-B*15:01 | 1 | 785 | 794 | 10 | VKQIYKTPPI 0.003424 | 8.4 |
| HLA-B*51:01 | 1 | 1207 | 1215 | 9 | EQYIKWPWY 0.003424 | 11 |
| HLA-A*30:01 | 1 | 346 | 354 | 9 | RFASVYAWN 0.003423 | 15 |
| HLA-A*03:01 | 1 | 672 | 680 | 9 | ASYQTQTN S 0.003422 | 7.1 |
| HLA-A*31:01 | 1 | 63 | 71 | 9 | TWFHAIHVS 0.00342 | 9.8 |
| HLA-A*02:06 | 1 | 829 | 837 | 9 | ADAGFIKQY 0.00342 | 12 |
| HLA-B*08:01 | 1 | 181 | 189 | 9 | GKQGNFKNL 0.003419 | 11 |
| HLA-A*11:01 | 1 | 186 | 195 | 10 | FKNLREFVFK 0.003418 | 6.3 |
| HLA-B*35:01 | 1 | 495 | 503 | 9 | YGFQPTNGV 0.003417 | 6.0 |
| HLA-B*58:01 | 1 | 46 | 54 | 9 | SVLHSTQDL 0.003416 | 7.3 |
| HLA-B*53:01 | 1 | 166 | 175 | 10 | CTFEYVSQPF 0.003416 | 5.4 |
| HLA-B*35:01 | 1 | 456 | 464 | 9 | FRKSNLKPF 0.003416 | 6.0 |
| HLA-A*02:03 | 1 | 616 | 624 | 9 | NCTEVPVAI 0.003416 | 9.3 |
| HLA-A*30:02 | 1 | 313 | 321 | 9 | YQTSNFRVQ 0.003415 | 13 |
| HLA-A*68:02 | 1 | 572 | 581 | 10 | TTDAVRDPQT 0.003415 | 8.6 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*44:03 | 1 | 723 | 732 | 10 | TTEILPVSM T 0.003415 | 4.7 |
| HLA-A*30:02 | 1 | 446 | 454 | 9 | GGNYNYLYR 0.003414 | 13 |
| HLA-A*23:01 | 1 | 507 | 516 | 10 | PYRVVLSFE 0.003413 | 4.9 |
| HLA-B*15:01 | 1 | 868 | 876 | 9 | EMIAQYTSA 0.003413 | 8.4 |
| HLA-B*35:01 | 1 | 168 | 177 | 10 | FEYVSQPFLM 0.003411 | 6.0 |
| HLA-A*68:02 | 1 | 509 | 518 | 10 | RVVLSFELL 0.003411 | 8.6 |
| HLA-A*68:02 | 1 | 859 | 867 | 9 | TVLPPL LTD 0.003411 | 8.6 |
| HLA-A*24:02 | 1 | 820 | 828 | 9 | DLLFNKVTL 0.00341 | 4.8 |
| HLA-B*58:01 | 1 | 495 | 503 | 9 | YGFQPTNGV 0.003409 | 7.3 |
| HLA-A*68:02 | 1 | 926 | 934 | 9 | QFNSAIGKI 0.003409 | 8.6 |
| HLA-A*02:06 | 1 | 235 | 243 | 9 | ITRFQTL LA 0.003406 | 12 |
| HLA-B*57:01 | 1 | 254 | 262 | 9 | SSSGW TAGA 0.003406 | 11 |
| HLA-A*02:01 | 1 | 291 | 299 | 9 | CALDPLSET 0.003406 | 8.2 |
| HLA-B*35:01 | 1 | 50 | 59 | 10 | STQDLFLPFF 0.003403 | 6.0 |
| HLA-A*02:03 | 1 | 158 | 167 | 10 | RVYSSANNCT 0.003403 | 9.3 |
| HLA-B*57:01 | 1 | 196 | 204 | 9 | NIDGYFKIY 0.0034 | 11 |
| HLA-B*53:01 | 1 | 215 | 223 | 9 | DLPQGFSA L 0.0034 | 5.4 |
| HLA-B*07:02 | 1 | 317 | 326 | 10 | NFRVQPTESI 0.003399 | 6.5 |
| HLA-B*15:01 | 1 | 503 | 511 | 9 | VGYPYRVV 0.003398 | 8.4 |
| HLA-B*08:01 | 1 | 860 | 869 | 10 | VLPLLTDEM 0.003398 | 11 |
| HLA-A*02:06 | 1 | 530 | 539 | 10 | STNLVKNKCV 0.003397 | 12 |
| HLA-A*31:01 | 1 | 126 | 134 | 9 | VVIKVCEFQ 0.003392 | 9.8 |
| HLA-B*15:01 | 1 | 170 | 179 | 10 | YVSQPFLMDL 0.003391 | 8.4 |
| HLA-A*01:01 | 1 | 424 | 433 | 10 | KLPDDFTGCV 0.003391 | 7.0 |
| HLA-B*15:01 | 1 | 845 | 853 | 9 | AARDLICAQ 0.003391 | 8.4 |
| HLA-A*26:01 | 1 | 974 | 983 | 10 | SSVLNDILSR 0.00339 | 5.9 |
| HLA-A*31:01 | 1 | 688 | 696 | 9 | ASQSIIAYT 0.003389 | 9.8 |
| HLA-B*40:01 | 1 | 35 | 43 | 9 | GVYYPDKVF 0.003388 | 4.4 |
| HLA-A*30:01 | 1 | 1147 | 1156 | 10 | SFKEELDKYF 0.003387 | 15 |
| HLA-A*30:01 | 1 | 1124 | 1132 | 9 | GNCDVVIGI 0.003386 | 15 |
| HLA-A*30:02 | 1 | 110 | 118 | 9 | LDSKTQSL L 0.003384 | 13 |
| HLA-B*08:01 | 1 | 621 | 629 | 9 | PVAIHADQL 0.003384 | 11 |
| HLA-B*07:02 | 1 | 110 | 118 | 9 | LDSKTQSL L 0.003383 | 6.5 |
| HLA-A*30:01 | 1 | 112 | 120 | 9 | SKTQSL LIV 0.003383 | 15 |
| HLA-A*31:01 | 1 | 233 | 241 | 9 | INITRFQTL 0.003383 | 9.9 |
| HLA-A*68:01 | 1 | 302 | 311 | 10 | TLKSFTVEKG 0.003381 | 11 |
| HLA-A*68:01 | 1 | 262 | 271 | 10 | AAAYYVGYLQ 0.00338 | 11 |
| HLA-A*03:01 | 1 | 1058 | 1067 | 10 | HGVVFLHVTY 0.00338 | 7.2 |
| HLA-B*53:01 | 1 | 1068 | 1077 | 10 | VPAQEKNF TT 0.003379 | 5.5 |
| HLA-A*31:01 | 1 | 51 | 59 | 9 | TQDLFLPFF 0.003377 | 9.9 |
| HLA-B*40:01 | 1 | 297 | 305 | 9 | SETKCTLKS 0.003377 | 4.4 |
| HLA-B*51:01 | 1 | 228 | 237 | 10 | DLPIGINITR 0.003376 | 11 |
| HLA-A*30:01 | 1 | 1043 | 1052 | 10 | CGKGYHLM SF 0.003376 | 15 |
| HLA-A*02:06 | 1 | 725 | 734 | 10 | EILPVSM TKT 0.003375 | 12 |
| HLA-A*32:01 | 1 | 21 | 30 | 10 | RTQLPPAYTN 0.003374 | 6.0 |
| HLA-B*51:01 | 1 | 462 | 471 | 10 | KPFERDISTE 0.003374 | 11 |
| HLA-B*15:01 | 1 | 574 | 582 | 9 | DAVRDPQTL 0.00337 | 8.4 |
| HLA-A*03:01 | 1 | 1260 | 1269 | 10 | DSEPVLKGVK 0.003369 | 7.2 |
| HLA-A*02:03 | 1 | 594 | 602 | 9 | GVSVITPGT 0.003368 | 9.4 |
| HLA-A*03:01 | 1 | 1038 | 1047 | 10 | KRVDFCGKGY 0.003368 | 7.2 |
| HLA-A*30:01 | 1 | 1174 | 1182 | 9 | ASVUNIQKE 0.003368 | 15 |
| HLA-B*35:01 | 1 | 693 | 701 | 9 | IAYTMSLGA 0.003367 | 6.0 |
| HLA-B*58:01 | 1 | 1075 | 1083 | 9 | FTTAPAICH 0.003366 | 7.4 |
| HLA-A*68:01 | 1 | 1017 | 1025 | 9 | EIRASANLA 0.003365 | 11 |
| HLA-A*23:01 | 1 | 1080 | 1089 | 10 | AICHDGKAHF 0.003365 | 4.9 |
| HLA-B*51:01 | 1 | 361 | 369 | 9 | CVADYSVLY 0.003364 | 11 |
| HLA-A*01:01 | 1 | 860 | 869 | 10 | VLPLLTDEM 0.003362 | 7.1 |
| HLA-B*08:01 | 1 | 3 | 11 | 9 | VFLVLLPLV 0.003361 | 11 |
| HLA-A*02:01 | 1 | 284 | 293 | 10 | TITDAVDCAL 0.00336 | 8.3 |
| HLA-A*02:01 | 1 | 906 | 915 | 10 | FNGIGVTQNV 0.003358 | 8.3 |
| HLA-A*02:01 | 1 | 610 | 619 | 10 | VLYQDVNCTE 0.003356 | 8.3 |
| HLA-B*15:01 | 1 | 35 | 44 | 10 | GVYYPDKVFR 0.003355 | 8.5 |
| HLA-A*30:02 | 1 | 464 | 472 | 9 | FERDISTEI 0.003355 | 13 |
| HLA-A*24:02 | 1 | 1033 | 1042 | 10 | VLGQSKRVDF 0.003355 | 4.9 |
| HLA-B*58:01 | 1 | 705 | 713 | 9 | VAYSNN SIA 0.003354 | 7.4 |
| HLA-A*68:02 | 1 | 1024 | 1032 | 9 | LAATKMSEC 0.003353 | 8.7 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*31:01 | 1 | 882 | 890 | 9 | ITSGWTFGA 0.003349 | 9.9 |
| HLA-A*02:03 | 1 | 1180 | 1189 | 10 | QKEIDRLNEV 0.003348 | 9.4 |
| HLA-A*30:01 | 1 | 23 | 31 | 9 | QLPPAYTNS 0.003347 | 16 |
| HLA-A*02:06 | 1 | 1119 | 1128 | 10 | NTFVSGNCDV 0.003345 | 12 |
| HLA-A*26:01 | 1 | 168 | 177 | 10 | FEYVSQPFLM 0.003344 | 6.0 |
| HLA-B*53:01 | 1 | 1068 | 1076 | 9 | VPAQEKNT 0.003344 | 5.5 |
| HLA-A*03:01 | 1 | 61 | 69 | 9 | NVTWFHAIH 0.003343 | 7.2 |
| HLA-B*35:01 | 1 | 71 | 79 | 9 | SGTNGTKRF 0.003342 | 6.0 |
| HLA-B*44:03 | 1 | 421 | 429 | 9 | YNYKLPDDF 0.003342 | 4.8 |
| HLA-B*44:03 | 1 | 408 | 416 | 9 | RQIAPGQTG 0.003341 | 4.8 |
| HLA-B*53:01 | 1 | 98 | 106 | 9 | SNIRGWIF 0.003339 | 5.5 |
| HLA-A*30:02 | 1 | 699 | 708 | 10 | LGAENSVAYS 0.003339 | 13 |
| HLA-A*32:01 | 1 | 827 | 835 | 9 | TLADAGFIK 0.003339 | 6.0 |
| HLA-B*44:02 | 1 | 151 | 160 | 10 | SWMESEFRVY 0.003338 | 4.5 |
| HLA-B*58:01 | 1 | 177 | 186 | 10 | MDLEGKQGNF 0.003338 | 7.4 |
| HLA-A*24:02 | 1 | 857 | 865 | 9 | GLTVLPPLL 0.003338 | 4.9 |
| HLA-B*57:01 | 1 | 936 | 945 | 10 | DSLSSSTASAL 0.003338 | 11 |
| HLA-A*26:01 | 1 | 824 | 833 | 10 | NKVTLADAGF 0.003337 | 6.0 |
| HLA-A*33:01 | 1 | 976 | 984 | 9 | VLNDILSRL 0.003337 | 7.9 |
| HLA-A*01:01 | 1 | 892 | 900 | 9 | AALQIPFAM 0.003336 | 7.1 |
| HLA-A*02:03 | 1 | 947 | 955 | 9 | KLQDVVNQN 0.003336 | 9.4 |
| HLA-A*31:01 | 1 | 416 | 424 | 9 | GKIADYNYK 0.003335 | 9.9 |
| HLA-A*24:02 | 1 | 825 | 833 | 9 | KVTLADAGF 0.003335 | 4.9 |
| HLA-A*02:06 | 1 | 490 | 499 | 10 | FPLQSYGFQP 0.003334 | 12 |
| HLA-B*58:01 | 1 | 759 | 767 | 9 | FCTQLNRL 0.003334 | 7.4 |
| HLA-B*08:01 | 1 | 1016 | 1024 | 9 | AEIRASANL 0.003334 | 11 |
| HLA-A*68:01 | 1 | 1048 | 1056 | 9 | HLMSFPQSA 0.003334 | 11 |
| HLA-A*30:01 | 1 | 1050 | 1059 | 10 | MSFPQSAPHG 0.003333 | 16 |
| HLA-A*30:02 | 1 | 451 | 459 | 9 | YLYRLEFRKS 0.003331 | 13 |
| HLA-B*51:01 | 1 | 664 | 673 | 10 | IPIGAGICAS 0.003331 | 11 |
| HLA-A*31:01 | 1 | 271 | 279 | 9 | QPRTFLLKY 0.003333 | 9.9 |
| HLA-A*01:01 | 1 | 601 | 609 | 9 | GTNTSNQVA 0.003333 | 7.1 |
| HLA-A*02:06 | 1 | 1196 | 1205 | 10 | SLIDLQELGK 0.003333 | 12 |
| HLA-B*58:01 | 1 | 60 | 68 | 9 | SNVTWFHAI 0.003329 | 7.4 |
| HLA-B*15:01 | 1 | 893 | 901 | 9 | ALQIPFAMQ 0.003329 | 8.5 |
| HLA-A*24:02 | 1 | 447 | 455 | 9 | GNYNLYRL 0.003328 | 4.9 |
| HLA-A*30:02 | 1 | 907 | 915 | 9 | NGIGVTQNV 0.003328 | 13 |
| HLA-A*30:01 | 1 | 983 | 991 | 9 | RLDKVEAEV 0.003328 | 16 |
| HLA-A*32:01 | 1 | 344 | 352 | 9 | ATRFASVYA 0.003327 | 6.0 |
| HLA-A*68:02 | 1 | 369 | 377 | 9 | YNSASFSTF 0.003326 | 8.7 |
| HLA-A*23:01 | 1 | 270 | 279 | 10 | LQPRTFLLKY 0.003325 | 5.0 |
| HLA-A*02:06 | 1 | 961 | 970 | 10 | TLVKQLSSNF 0.003325 | 12 |
| HLA-A*31:01 | 1 | 3 | 11 | 9 | VFLVLLPLV 0.003324 | 9.9 |
| HLA-A*23:01 | 1 | 249 | 258 | 10 | LTPGDSSSGW 0.003324 | 5.0 |
| HLA-B*51:01 | 1 | 1013 | 1022 | 10 | IRAAEIRASA 0.003324 | 11 |
| HLA-A*30:01 | 1 | 12 | 20 | 9 | SSQCVNLTT 0.003323 | 16 |
| HLA-B*15:01 | 1 | 686 | 694 | 9 | SVASQSIIA 0.003323 | 8.5 |
| HLA-A*02:01 | 1 | 711 | 719 | 9 | SIAIPTNFT 0.003323 | 8.3 |
| HLA-B*58:01 | 1 | 1100 | 1109 | 10 | THWFVTQRNF 0.003323 | 7.4 |
| HLA-A*26:01 | 1 | 310 | 318 | 9 | KGITYQTSNF 0.003322 | 6.0 |
| HLA-A*26:01 | 1 | 1095 | 1104 | 10 | FVSNNGTHWFV 0.003321 | 6.0 |
| HLA-A*11:01 | 1 | 1147 | 1155 | 9 | SFKEELDKY 0.003322 | 6.3 |
| HLA-A*68:02 | 1 | 871 | 879 | 9 | AQYTSALLA 0.003319 | 8.7 |
| HLA-A*11:01 | 1 | 757 | 766 | 10 | GSFCTQLNRA 0.003318 | 6.3 |
| HLA-A*23:01 | 1 | 995 | 1004 | 10 | RLITGRLQSL 0.003318 | 5.0 |
| HLA-B*53:01 | 1 | 1089 | 1098 | 10 | FPREGVFNVS 0.003318 | 5.5 |
| HLA-A*32:01 | 1 | 755 | 763 | 9 | QYGSFCTQL 0.003317 | 6.1 |
| HLA-A*02:03 | 1 | 1165 | 1174 | 10 | DLGDISGINA 0.003317 | 9.4 |
| HLA-B*08:01 | 1 | 310 | 318 | 9 | KGITYQTSNF 0.003316 | 11 |
| HLA-A*26:01 | 1 | 787 | 795 | 9 | QIYKTPPIK 0.003316 | 6.0 |
| HLA-A*32:01 | 1 | 1019 | 1028 | 10 | RASANLAATK 0.003316 | 6.1 |
| HLA-A*23:01 | 1 | 673 | 681 | 9 | SYQTQTNSP 0.003315 | 5.0 |
| HLA-B*15:01 | 1 | 705 | 714 | 10 | VAYSNSIAI 0.003315 | 8.5 |
| HLA-A*02:01 | 1 | 389 | 397 | 9 | DLCFTNVYA 0.003313 | 8.3 |
| HLA-A*31:01 | 1 | 776 | 785 | 10 | KNTQEVFAQV 0.003313 | 9.9 |
| HLA-A*68:01 | 1 | 1082 | 1091 | 10 | CHDGKAHFPR 0.003313 | 11 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*02:06 | 1 | 624 | 633 | 10 | IHADQLTPTW 0.003312 | 12 |
| HLA-A*30:02 | 1 | 806 | 815 | 10 | LPDPSKPSKR 0.00331 | 13 |
| HLA-A*01:01 | 1 | 973 | 981 | 9 | ISSVLNDIL 0.00331 | 7.1 |
| HLA-A*02:01 | 1 | 494 | 503 | 10 | SYGFQPTNGV 0.003309 | 8.3 |
| HLA-A*30:01 | 1 | 1182 | 1191 | 10 | EIDRLNEVAK 0.003309 | 16 |
| HLA-A*26:01 | 1 | 118 | 126 | 9 | LIVNNATNV 0.003308 | 6.0 |
| HLA-B*07:02 | 1 | 40 | 48 | 9 | DKVFRSSVL 0.003307 | 6.6 |
| HLA-A*26:01 | 1 | 895 | 903 | 9 | QIPFAMQMA 0.003307 | 6.0 |
| HLA-A*02:06 | 1 | 1056 | 1065 | 10 | APHGVVFLHV 0.003307 | 12 |
| HLA-A*68:01 | 1 | 198 | 207 | 10 | DGYFKIYSKH 0.003305 | 11 |
| HLA-B*35:01 | 1 | 294 | 302 | 9 | DPLSETKCT 0.003305 | 6.1 |
| HLA-A*26:01 | 1 | 89 | 97 | 9 | GVYFASTEK 0.003304 | 6.0 |
| HLA-B*53:01 | 1 | 335 | 344 | 10 | LCPFGEVFN 0.003304 | 5.5 |
| HLA-A*68:02 | 1 | 358 | 367 | 10 | ISNCVADYSV 0.003304 | 8.8 |
| HLA-B*53:01 | 1 | 424 | 433 | 10 | KLPDDFTGCV 0.003304 | 5.5 |
| HLA-B*53:01 | 1 | 733 | 741 | 9 | KTSVDCTMY 0.003303 | 5.5 |
| HLA-B*58:01 | 1 | 893 | 902 | 10 | ALQIPFAMQM 0.003302 | 7.4 |
| HLA-B*53:01 | 1 | 338 | 347 | 10 | FGEVFNATRF 0.003301 | 5.5 |
| HLA-A*01:01 | 1 | 70 | 78 | 9 | VSGTNGTKR 0.0033 | 7.1 |
| HLA-B*58:01 | 1 | 971 | 980 | 10 | GAISSVLNDI 0.0033 | 7.4 |
| HLA-A*30:01 | 1 | 698 | 707 | 10 | SLGAENSVAY 0.003296 | 16 |
| HLA-A*30:01 | 1 | 806 | 815 | 10 | LPDPSKPSKR 0.003295 | 16 |
| HLA-A*32:01 | 1 | 408 | 416 | 9 | RQIAPGQTG 0.003293 | 6.1 |
| HLA-A*02:01 | 1 | 873 | 881 | 9 | YTSALLAGT 0.003293 | 8.3 |
| HLA-A*01:01 | 1 | 169 | 177 | 9 | EYVSQPFLM 0.003291 | 7.1 |
| HLA-B*44:03 | 1 | 214 | 223 | 10 | RDLPPQGSAL 0.003289 | 4.8 |
| HLA-A*68:02 | 1 | 399 | 407 | 9 | SFVIRGDEV 0.003289 | 8.8 |
| HLA-B*53:01 | 1 | 731 | 740 | 10 | MTKTSVDCTM 0.003289 | 5.5 |
| HLA-A*30:02 | 1 | 340 | 348 | 9 | EVFNATRFA 0.003288 | 13 |
| HLA-A*30:01 | 1 | 1094 | 1102 | 9 | VFVSNNGTHW 0.003287 | 16 |
| HLA-A*26:01 | 1 | 428 | 436 | 9 | DFTGCVIAW 0.003286 | 6.0 |
| HLA-B*40:01 | 1 | 789 | 797 | 9 | YKTPPIKDF 0.003286 | 4.5 |
| HLA-B*15:01 | 1 | 1248 | 1256 | 9 | CSCGSCCKF 0.003286 | 8.5 |
| HLA-B*57:01 | 1 | 18 | 26 | 9 | LTRTQLP 0.003285 | 11 |
| HLA-B*08:01 | 1 | 39 | 47 | 9 | PDKVFRSSV 0.003285 | 11 |
| HLA-A*68:02 | 1 | 615 | 624 | 10 | VNCTEVPVAI 0.003285 | 8.8 |
| HLA-A*30:01 | 1 | 120 | 128 | 9 | VNNATNVVI 0.003284 | 16 |
| HLA-A*30:01 | 1 | 143 | 152 | 10 | VYYHKNNKSW 0.003284 | 16 |
| HLA-A*02:06 | 1 | 454 | 463 | 10 | RLFRKSNLKP 0.00328 | 12 |
| HLA-A*02:06 | 1 | 1026 | 1034 | 9 | ATKMSECVL 0.003279 | 12 |
| HLA-B*58:01 | 1 | 1064 | 1073 | 10 | HVTYVPAQEK 0.003279 | 7.4 |
| HLA-A*30:01 | 1 | 1179 | 1187 | 9 | IQKEIDRLN 0.003277 | 16 |
| HLA-A*31:01 | 1 | 109 | 117 | 9 | TLDSKTQSL 0.003275 | 10 |
| HLA-A*11:01 | 1 | 271 | 279 | 9 | QPRTFLLKY 0.003275 | 6.4 |
| HLA-A*02:06 | 1 | 1012 | 1020 | 9 | LIRAAEIRA 0.003275 | 12 |
| HLA-A*32:01 | 1 | 1181 | 1189 | 9 | KEIDRLNEV 0.003275 | 6.1 |
| HLA-A*26:01 | 1 | 1212 | 1220 | 9 | WPWYIWLGF 0.003275 | 6.1 |
| HLA-A*02:03 | 1 | 157 | 166 | 10 | FRVYSSANNC 0.003273 | 9.5 |
| HLA-B*07:02 | 1 | 677 | 685 | 9 | QTNSPRRAR 0.003273 | 6.6 |
| HLA-B*51:01 | 1 | 809 | 817 | 9 | PSKPSKRFS 0.003273 | 11 |
| HLA-A*26:01 | 1 | 256 | 265 | 10 | SGWTAGAAAY 0.003272 | 6.1 |
| HLA-A*68:01 | 1 | 731 | 740 | 10 | MTKTSVDCTM 0.003272 | 11 |
| HLA-A*02:01 | 1 | 46 | 55 | 10 | SVLHSTQDLF 0.003271 | 8.4 |
| HLA-A*26:01 | 1 | 865 | 874 | 10 | LTDEMIAQYT 0.00327 | 6.1 |
| HLA-A*30:01 | 1 | 1075 | 1083 | 9 | FTTAPAICH 0.00327 | 16 |
| HLA-B*58:01 | 1 | 967 | 975 | 9 | SSNFGAISS 0.003268 | 7.5 |
| HLA-B*44:03 | 1 | 1146 | 1155 | 10 | DSFKEELDKY 0.003268 | 4.8 |
| HLA-B*07:02 | 1 | 171 | 179 | 9 | VSQPFLMDL 0.003266 | 6.6 |
| HLA-B*15:01 | 1 | 924 | 933 | 10 | ANQFNSAIGK 0.003266 | 8.5 |
| HLA-A*24:02 | 1 | 788 | 796 | 9 | IYKTPPIKD 0.003264 | 4.9 |
| HLA-A*68:02 | 1 | 56 | 64 | 9 | LPFFSNVTW 0.003263 | 8.8 |
| HLA-B*57:01 | 1 | 1038 | 1047 | 10 | KRVDFCGKGY 0.003263 | 11 |
| HLA-B*08:01 | 1 | 39 | 48 | 10 | PDKVFRSSVL 0.003262 | 11 |
| HLA-A*23:01 | 1 | 183 | 192 | 10 | QGNFKNLREF 0.003261 | 5.0 |
| HLA-B*07:02 | 1 | 1067 | 1075 | 9 | YVPAQEKNF 0.003261 | 6.6 |
| HLA-A*33:01 | 1 | 196 | 204 | 9 | NIDGYFKIY 0.00326 | 8.0 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*01:01 | 1 | 257 | 265 | 9 | GWTAGAAAY 0.00326 | 7.2 |
| HLA-A*11:01 | 1 | 1257 | 1266 | 10 | DEDDSEPVLK 0.003259 | 6.4 |
| HLA-B*53:01 | 1 | 627 | 635 | 9 | DQLTPTWRV 0.003258 | 5.5 |
| HLA-A*11:01 | 1 | 1149 | 1157 | 9 | KEELDKYFK 0.003258 | 6.4 |
| HLA-A*02:01 | 1 | 254 | 262 | 9 | SSSGWTAGA 0.003257 | 8.4 |
| HLA-A*02:03 | 1 | 1105 | 1114 | 10 | TQRNFYEPQI 0.003256 | 9.5 |
| HLA-A*68:01 | 1 | 908 | 917 | 10 | GIGVTQNVLY 0.003255 | 11 |
| HLA-B*44:02 | 1 | 1261 | 1269 | 9 | SEPVKKGVK 0.003255 | 4.6 |
| HLA-B*53:01 | 1 | 725 | 733 | 9 | EILPVSMTK 0.003254 | 5.6 |
| HLA-B*58:01 | 1 | 957 | 965 | 9 | QALNTLVKQ 0.003254 | 7.5 |
| HLA-A*30:01 | 1 | 311 | 320 | 10 | GIYQTSNFRV 0.003253 | 16 |
| HLA-A*11:01 | 1 | 688 | 696 | 9 | ASQSIIAYT 0.003253 | 6.4 |
| HLA-A*23:01 | 1 | 349 | 358 | 10 | SVYAWNRKRI 0.003252 | 5.0 |
| HLA-A*02:01 | 1 | 827 | 835 | 9 | TLADAGFIK 0.003252 | 8.4 |
| HLA-A*02:03 | 1 | 877 | 886 | 10 | LLAGTITSGW 0.003252 | 9.5 |
| HLA-A*02:03 | 1 | 1080 | 1089 | 10 | AICHDGKAHF 0.003251 | 9.5 |
| HLA-A*32:01 | 1 | 443 | 451 | 9 | SKVGGNYNY 0.00325 | 6.1 |
| HLA-A*11:01 | 1 | 445 | 453 | 9 | VGGNYNYLY 0.003249 | 6.4 |
| HLA-B*51:01 | 1 | 399 | 407 | 9 | SFVIRGDEV 0.003248 | 11 |
| HLA-A*68:02 | 1 | 511 | 520 | 10 | VVLSFELLHA 0.003248 | 8.9 |
| HLA-B*44:03 | 1 | 195 | 203 | 9 | KNIDGYFKI 0.003247 | 4.8 |
| HLA-A*33:01 | 1 | 19 | 27 | 9 | TTRTQLPPA 0.003246 | 8.0 |
| HLA-B*57:01 | 1 | 622 | 631 | 10 | VAIHADQLTP 0.003246 | 11 |
| HLA-B*57:01 | 1 | 902 | 911 | 10 | MAYRFNGIGV 0.003246 | 11 |
| HLA-B*15:01 | 1 | 761 | 770 | 10 | TQLNRALTGI 0.003245 | 8.6 |
| HLA-B*07:02 | 1 | 880 | 888 | 9 | GTITSGWTF 0.003245 | 6.7 |
| HLA-A*26:01 | 1 | 53 | 62 | 10 | DLFLPFFSNV 0.003244 | 6.1 |
| HLA-A*30:02 | 1 | 402 | 410 | 9 | IRGDEVRFI 0.003244 | 13 |
| HLA-A*24:02 | 1 | 1210 | 1218 | 9 | IKWPWYIWL 0.003244 | 5.0 |
| HLA-A*01:01 | 1 | 362 | 371 | 10 | VADYSVLVNS 0.003243 | 7.2 |
| HLA-A*11:01 | 1 | 1048 | 1056 | 9 | HLMSFPQSA 0.003243 | 6.4 |
| HLA-A*33:01 | 1 | 1059 | 1067 | 9 | GVVFLHVTY 0.003243 | 8.0 |
| HLA-A*30:01 | 1 | 1129 | 1137 | 9 | VIGIVNNTV 0.003242 | 16 |
| HLA-A*31:01 | 1 | 120 | 129 | 10 | VNNATNVVVK 0.003241 | 10 |
| HLA-A*33:01 | 1 | 229 | 238 | 10 | LPIGINITRF 0.003241 | 8.0 |
| HLA-A*68:02 | 1 | 973 | 981 | 9 | ISSVLNDIL 0.003241 | 8.9 |
| HLA-B*08:01 | 1 | 1158 | 1166 | 9 | NHTSPDVDL 0.00324 | 11 |
| HLA-A*68:02 | 1 | 120 | 128 | 9 | VNNATNVVI 0.003239 | 8.9 |
| HLA-B*58:01 | 1 | 844 | 852 | 9 | IAARDLICA 0.003239 | 7.5 |
| HLA-B*57:01 | 1 | 75 | 83 | 9 | GTRKFDNPV 0.003238 | 11 |
| HLA-A*30:02 | 1 | 1116 | 1124 | 9 | TTDNTFVSG 0.003238 | 13 |
| HLA-A*68:02 | 1 | 373 | 382 | 10 | SFSTFKCYGV 0.003237 | 8.9 |
| HLA-A*30:02 | 1 | 969 | 977 | 9 | NFGAISSVL 0.003237 | 13 |
| HLA-B*44:03 | 1 | 1147 | 1156 | 10 | SFKEELDKYF 0.003237 | 4.8 |
| HLA-A*23:01 | 1 | 472 | 480 | 9 | IYQAGSTPC 0.003236 | 5.0 |
| HLA-A*03:01 | 1 | 229 | 237 | 9 | LPIGINITR 0.003235 | 7.3 |
| HLA-B*57:01 | 1 | 589 | 598 | 10 | PCSFGGVSVI 0.003235 | 11 |
| HLA-B*51:01 | 1 | 81 | 89 | 9 | NPVLPFNDG 0.003234 | 11 |
| HLA-A*23:01 | 1 | 134 | 143 | 10 | QFCNDPFLGV 0.003234 | 5.0 |
| HLA-A*02:06 | 1 | 454 | 462 | 9 | RLFRKSNLK 0.003234 | 12 |
| HLA-A*68:02 | 1 | 1015 | 1024 | 10 | AAEIRASANL 0.003234 | 8.9 |
| HLA-B*58:01 | 1 | 303 | 312 | 10 | LKSFTVEKGI 0.003233 | 7.5 |
| HLA-B*07:02 | 1 | 92 | 100 | 9 | FASTEKSNI 0.003232 | 6.7 |
| HLA-B*57:01 | 1 | 495 | 503 | 9 | YGFQPTNGV 0.00323 | 11 |
| HLA-A*30:01 | 1 | 1104 | 1113 | 10 | VTQRNFYEPQ 0.00323 | 16 |
| HLA-B*35:01 | 1 | 96 | 104 | 9 | EKSNIIRGW 0.003229 | 6.2 |
| HLA-B*57:01 | 1 | 638 | 646 | 9 | TGSNVFQTR 0.003228 | 11 |
| HLA-A*02:06 | 1 | 1215 | 1223 | 9 | YIWLGFIAG 0.003228 | 12 |
| HLA-A*33:01 | 1 | 212 | 220 | 9 | LVRDLPQGF 0.003227 | 8.0 |
| HLA-B*57:01 | 1 | 268 | 277 | 10 | GYLQPRTFLL 0.003225 | 11 |
| HLA-A*33:01 | 1 | 955 | 964 | 10 | NAQALNTLVK 0.003225 | 8.0 |
| HLA-B*40:01 | 1 | 186 | 194 | 9 | FKNLREFVF 0.003223 | 4.5 |
| HLA-B*15:01 | 1 | 933 | 942 | 10 | KIQDLSSTA 0.003222 | 8.6 |
| HLA-A*68:01 | 1 | 868 | 876 | 9 | EMIAQY TSA 0.003221 | 11 |
| HLA-B*08:01 | 1 | 1130 | 1138 | 9 | IGIVNNTVY 0.003221 | 11 |
| HLA-A*30:01 | 1 | 47 | 55 | 9 | VLHSTQDLF 0.00322 | 16 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*24:02 | 1 | 133 | 141 | 9 | FQFCNDPFL 0.00322 | 5.0 |
| HLA-A*30:01 | 1 | 345 | 353 | 9 | TRFASVYAW 0.00322 | 16 |
| HLA-B*57:01 | 1 | 698 | 707 | 10 | SLGAENSVAY 0.003219 | 11 |
| HLA-B*58:01 | 1 | 410 | 418 | 9 | IAPGQTGKI 0.003218 | 7.5 |
| HLA-A*02:03 | 1 | 641 | 649 | 9 | NVFQTRAGC 0.003218 | 9.6 |
| HLA-B*44:03 | 1 | 110 | 118 | 9 | LDSKTQSLL 0.003215 | 4.8 |
| HLA-A*30:01 | 1 | 187 | 196 | 10 | KNLREFVFKN 0.003214 | 16 |
| HLA-A*01:01 | 1 | 409 | 417 | 9 | QIAPGQTGK 0.003214 | 7.2 |
| HLA-B*57:01 | 1 | 166 | 174 | 9 | CTFEYVSQP 0.003213 | 11 |
| HLA-B*08:01 | 1 | 888 | 896 | 9 | FGAGAALQI 0.003213 | 11 |
| HLA-A*11:01 | 1 | 1049 | 1058 | 10 | LMSFPQSAPH 0.003213 | 6.4 |
| HLA-A*30:01 | 1 | 472 | 480 | 9 | IYQAGSTPC 0.003212 | 16 |
| HLA-B*40:01 | 1 | 684 | 692 | 9 | ARSVASQSI 0.003212 | 4.5 |
| HLA-A*02:03 | 1 | 856 | 865 | 10 | NGLTVLPLL 0.00321 | 9.6 |
| HLA-B*15:01 | 1 | 1257 | 1265 | 9 | DEDDSEPVL 0.00321 | 8.6 |
| HLA-B*40:01 | 1 | 413 | 421 | 9 | GQTGKIADY 0.003209 | 4.5 |
| HLA-B*44:03 | 1 | 986 | 995 | 10 | KVEAEVQIDR 0.003207 | 4.8 |
| HLA-A*03:01 | 1 | 557 | 565 | 9 | KKFLPFQFQ 0.003206 | 7.4 |
| HLA-A*68:02 | 1 | 436 | 445 | 10 | WNSNNLDSKV 0.003205 | 8.9 |
| HLA-B*57:01 | 1 | 725 | 733 | 9 | EILPVSMTK 0.003204 | 11 |
| HLA-A*68:02 | 1 | 985 | 993 | 9 | DKVEAEVQI 0.003204 | 8.9 |
| HLA-A*31:01 | 1 | 28 | 37 | 10 | YTNSFTRGVY 0.003203 | 11 |
| HLA-A*30:01 | 1 | 51 | 59 | 9 | TQDLFLPFF 0.003203 | 16 |
| HLA-A*32:01 | 1 | 734 | 742 | 9 | TSVDCTMYI 0.003202 | 6.2 |
| HLA-A*01:01 | 1 | 38 | 47 | 10 | YDPKVFRRSV 0.003201 | 7.3 |
| HLA-B*40:01 | 1 | 1110 | 1118 | 9 | YEPQIITTD 0.003201 | 4.5 |
| HLA-A*32:01 | 1 | 1210 | 1218 | 9 | IKWPWYIWL 0.0032 | 6.2 |
| HLA-A*01:01 | 1 | 869 | 877 | 9 | MIAQYTSAL 0.003199 | 7.3 |
| HLA-B*51:01 | 1 | 178 | 186 | 9 | DLEGKQGNF 0.003198 | 11 |
| HLA-B*15:01 | 1 | 1049 | 1057 | 9 | LMSFPQSAP 0.003198 | 8.6 |
| HLA-B*51:01 | 1 | 1206 | 1214 | 9 | YEQYIKWPW 0.003198 | 11 |
| HLA-A*02:06 | 1 | 864 | 872 | 9 | LLTDEMIAQ 0.003197 | 12 |
| HLA-A*02:01 | 1 | 1028 | 1036 | 9 | KMSECVLGQ 0.003197 | 8.4 |
| HLA-A*33:01 | 1 | 360 | 369 | 10 | NCVADYSVLY 0.003196 | 8.1 |
| HLA-A*30:02 | 1 | 555 | 563 | 9 | SNKKFLPFQ 0.003196 | 13 |
| HLA-A*26:01 | 1 | 586 | 595 | 10 | DITPCSFQGV 0.003194 | 6.1 |
| HLA-B*08:01 | 1 | 394 | 402 | 9 | NVYADSFVI 0.003192 | 12 |
| HLA-B*53:01 | 1 | 218 | 226 | 9 | QGFSALEPL 0.003191 | 5.6 |
| HLA-B*57:01 | 1 | 481 | 490 | 10 | NGVEGFNCYF 0.003191 | 11 |
| HLA-A*02:06 | 1 | 1108 | 1116 | 9 | NFYEQIIT 0.003191 | 12 |
| HLA-B*57:01 | 1 | 658 | 666 | 9 | NSYECDIPI 0.003188 | 11 |
| HLA-A*30:01 | 1 | 779 | 788 | 10 | QEVFAQVKQI 0.003188 | 16 |
| HLA-B*57:01 | 1 | 1172 | 1181 | 10 | INASVVNIQK 0.003188 | 11 |
| HLA-B*51:01 | 1 | 486 | 495 | 10 | FNCYFPLQSY 0.003187 | 11 |
| HLA-A*01:01 | 1 | 997 | 1005 | 9 | ITGRLQSLQ 0.003187 | 7.3 |
| HLA-B*35:01 | 1 | 333 | 342 | 10 | TNLCPFGEVF 0.003186 | 6.2 |
| HLA-A*32:01 | 1 | 826 | 834 | 9 | VTLADAGFI 0.003186 | 6.2 |
| HLA-B*44:02 | 1 | 819 | 828 | 10 | EDLLFNKVTL 0.003185 | 4.6 |
| HLA-B*51:01 | 1 | 884 | 892 | 9 | SGWTFGAGA 0.003185 | 11 |
| HLA-A*02:06 | 1 | 1049 | 1057 | 9 | LMSFPQSAP 0.003185 | 12 |
| HLA-B*08:01 | 1 | 48 | 56 | 9 | LHSTQDLFL 0.003184 | 12 |
| HLA-B*51:01 | 1 | 110 | 119 | 10 | LDSKTQSLLI 0.003182 | 11 |
| HLA-B*57:01 | 1 | 601 | 610 | 10 | GTNTSNQVAV 0.003182 | 11 |
| HLA-B*44:02 | 1 | 327 | 335 | 9 | VRFPNITNL 0.00318 | 4.6 |
| HLA-A*30:01 | 1 | 896 | 905 | 10 | IPFAMQMAYR 0.00318 | 16 |
| HLA-A*30:01 | 1 | 1017 | 1026 | 10 | EIRASANLAA 0.00318 | 16 |
| HLA-A*24:02 | 1 | 1212 | 1220 | 9 | WPWYIWLGF 0.00318 | 5.0 |
| HLA-B*44:02 | 1 | 55 | 64 | 10 | FLPFFSNVTW 0.003179 | 4.6 |
| HLA-A*33:01 | 1 | 60 | 69 | 10 | SNVTWFHAIH 0.003178 | 8.1 |
| HLA-A*30:02 | 1 | 1144 | 1152 | 9 | ELDSFKEEL 0.003177 | 13 |
| HLA-B*08:01 | 1 | 110 | 118 | 9 | LDSKTQSLL 0.003176 | 12 |
| HLA-A*30:02 | 1 | 793 | 802 | 10 | PIKDFGGFNF 0.003176 | 13 |
| HLA-A*11:01 | 1 | 1083 | 1091 | 9 | HDGKAHFFR 0.003174 | 6.4 |
| HLA-B*40:01 | 1 | 369 | 377 | 9 | YNSASFST 0.003172 | 4.5 |
| HLA-B*35:01 | 1 | 853 | 861 | 9 | QKFNGLTVL 0.003172 | 6.2 |
| HLA-B*44:02 | 1 | 1059 | 1067 | 9 | GVVFLHVTY 0.003172 | 4.6 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*02:06 | 1 | 1104 | 1112 | 9 | VTQRNFYEP 0.003172 | 12 |
| HLA-A*30:01 | 1 | 1179 | 1188 | 10 | IQKEIDRLNE 0.003172 | 16 |
| HLA-A*02:06 | 1 | 1204 | 1212 | 9 | GKYEQYIKW 0.003172 | 12 |
| HLA-A*32:01 | 1 | 393 | 402 | 10 | TNVYADSFVI 0.00317 | 6.2 |
| HLA-A*30:01 | 1 | 1093 | 1102 | 10 | GVFVSNNGTHW 0.00317 | 16 |
| HLA-A*02:06 | 1 | 267 | 275 | 9 | VGYLQPRTF 0.003169 | 12 |
| HLA-A*68:01 | 1 | 306 | 315 | 10 | FTVEKGIYQT 0.003168 | 11 |
| HLA-A*11:01 | 1 | 987 | 995 | 9 | VEAEVQIDR 0.003168 | 6.4 |
| HLA-A*30:01 | 1 | 1003 | 1012 | 10 | SLQTYVTQQL 0.003168 | 16 |
| HLA-B*08:01 | 1 | 220 | 229 | 10 | FSALEPLVDL 0.003167 | 12 |
| HLA-A*02:01 | 1 | 864 | 872 | 9 | LLTDEMIAQ 0.003167 | 8.5 |
| HLA-A*30:01 | 1 | 350 | 359 | 10 | VYAWNKRKRIS 0.003166 | 16 |
| HLA-A*03:01 | 1 | 263 | 271 | 9 | AAYVYGYLQ 0.003165 | 7.4 |
| HLA-A*30:02 | 1 | 997 | 1005 | 9 | ITGRLQSLQ 0.003165 | 13 |
| HLA-B*53:01 | 1 | 234 | 242 | 9 | NITRFQTL 0.003164 | 5.6 |
| HLA-A*02:01 | 1 | 513 | 522 | 10 | LSFELLHAPA 0.003164 | 8.5 |
| HLA-B*58:01 | 1 | 1198 | 1206 | 9 | IDLQELGKY 0.003164 | 7.6 |
| HLA-B*07:02 | 1 | 1019 | 1027 | 9 | RASANLAAT 0.003163 | 6.8 |
| HLA-B*57:01 | 1 | 110 | 118 | 9 | LDSKTQSL 0.003162 | 11 |
| HLA-B*07:02 | 1 | 533 | 541 | 9 | LVKNKCVNF 0.003162 | 6.8 |
| HLA-B*08:01 | 1 | 551 | 560 | 10 | VLTESNKKFL 0.003162 | 12 |
| HLA-B*53:01 | 1 | 37 | 46 | 10 | YYPDKVFRSS 0.003159 | 5.6 |
| HLA-B*53:01 | 1 | 478 | 487 | 10 | TPCNGVEGFN 0.003158 | 5.6 |
| HLA-A*03:01 | 1 | 212 | 220 | 9 | LVRDLPPGF 0.003156 | 7.4 |
| HLA-B*58:01 | 1 | 1095 | 1104 | 10 | FVSNNGTHWFV 0.003156 | 7.6 |
| HLA-A*30:01 | 1 | 386 | 394 | 9 | KLNDLCFTN 0.003155 | 16 |
| HLA-B*51:01 | 1 | 1178 | 1186 | 9 | NIQKEIDRL 0.003155 | 11 |
| HLA-B*08:01 | 1 | 1260 | 1268 | 9 | DSEPVKGV 0.003155 | 12 |
| HLA-B*07:02 | 1 | 208 | 217 | 10 | TPINLVRDLP 0.003154 | 6.8 |
| HLA-B*44:03 | 1 | 470 | 478 | 9 | TEIYQAGST 0.003153 | 4.9 |
| HLA-B*51:01 | 1 | 1106 | 1114 | 9 | QRNFYEPQI 0.003153 | 11 |
| HLA-A*02:03 | 1 | 46 | 55 | 10 | SVLHSTQDLF 0.003152 | 9.7 |
| HLA-A*02:01 | 1 | 752 | 761 | 10 | LLLQYGSFCT 0.003152 | 8.5 |
| HLA-B*35:01 | 1 | 198 | 206 | 9 | DGYFKIYSK 0.003151 | 6.2 |
| HLA-A*02:06 | 1 | 868 | 877 | 10 | EMIAQYTSAL 0.003151 | 12 |
| HLA-B*15:01 | 1 | 933 | 941 | 9 | KIQDLSLST 0.00315 | 8.7 |
| HLA-A*01:01 | 1 | 1166 | 1174 | 9 | LGDISGINA 0.003148 | 7.3 |
| HLA-A*11:01 | 1 | 414 | 423 | 10 | QTGKIADYNY 0.003147 | 6.4 |
| HLA-A*24:02 | 1 | 324 | 332 | 9 | ESIVRFPNI 0.003146 | 5.0 |
| HLA-B*07:02 | 1 | 685 | 693 | 9 | RSVASQSII 0.003145 | 6.8 |
| HLA-B*15:01 | 1 | 954 | 962 | 9 | QNAQALNTL 0.003145 | 8.7 |
| HLA-A*01:01 | 1 | 982 | 991 | 10 | SRLDKVEAEV 0.003144 | 7.3 |
| HLA-B*15:01 | 1 | 148 | 157 | 10 | NNKSWMESEF 0.003143 | 8.7 |
| HLA-A*02:06 | 1 | 399 | 407 | 9 | SFVIRGDEV 0.003143 | 13 |
| HLA-B*35:01 | 1 | 1211 | 1220 | 10 | KWPWYIWLGF 0.003143 | 6.2 |
| HLA-A*30:02 | 1 | 758 | 766 | 9 | SFCTQLNRA 0.003142 | 13 |
| HLA-A*26:01 | 1 | 136 | 145 | 10 | CNDPFLGVVY 0.003141 | 6.2 |
| HLA-A*01:01 | 1 | 266 | 275 | 10 | YVGYLQPRTF 0.003141 | 7.3 |
| HLA-A*24:02 | 1 | 433 | 441 | 9 | VIAWNSNNL 0.003141 | 5.0 |
| HLA-B*15:01 | 1 | 705 | 713 | 9 | VAYSNNNSIA 0.00314 | 8.7 |
| HLA-B*57:01 | 1 | 860 | 869 | 10 | VLPLLLTDEM 0.00314 | 12 |
| HLA-A*30:02 | 1 | 974 | 983 | 10 | SSVLNDILSR 0.00314 | 13 |
| HLA-B*44:02 | 1 | 699 | 707 | 9 | LGAENSVAY 0.003139 | 4.7 |
| HLA-B*35:01 | 1 | 1121 | 1129 | 9 | FVSGNCDVV 0.003139 | 6.2 |
| HLA-A*31:01 | 1 | 19 | 27 | 9 | TTRTQLPPA 0.003138 | 11 |
| HLA-B*51:01 | 1 | 194 | 203 | 10 | FKNIDGYFKI 0.003138 | 11 |
| HLA-B*51:01 | 1 | 498 | 507 | 10 | QPTNGVGYQP 0.003138 | 11 |
| HLA-B*44:03 | 1 | 1070 | 1078 | 9 | AQEKNFTTA 0.003138 | 4.9 |
| HLA-A*30:02 | 1 | 750 | 759 | 10 | SNLLLQYGSF 0.003137 | 13 |
| HLA-A*02:06 | 1 | 856 | 865 | 10 | NGLTVLPLLL 0.003137 | 13 |
| HLA-A*30:01 | 1 | 144 | 153 | 10 | YYHKNNKSWM 0.003136 | 16 |
| HLA-A*02:03 | 1 | 41 | 50 | 10 | KVFRSSVLHS 0.003135 | 9.7 |
| HLA-A*68:01 | 1 | 49 | 58 | 10 | HSTQDLFLPF 0.003135 | 11 |
| HLA-B*51:01 | 1 | 1185 | 1193 | 9 | RLNEVAKNL 0.003135 | 11 |
| HLA-A*03:01 | 1 | 35 | 43 | 9 | GVYYPDKVF 0.003134 | 7.4 |
| HLA-A*30:01 | 1 | 716 | 724 | 9 | TNFTISVTT 0.003134 | 16 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*24:02 | 1 | 278 | 286 | 9 | KYNENGTIT 0.003132 | 5.0 |
| HLA-A*68:01 | 1 | 327 | 335 | 9 | VRFPNITNL 0.003132 | 11 |
| HLA-B*44:02 | 1 | 635 | 643 | 9 | VYSTGSNVF 0.003131 | 4.7 |
| HLA-B*58:01 | 1 | 765 | 773 | 9 | RALTGIAVE 0.003131 | 7.6 |
| HLA-B*53:01 | 1 | 1042 | 1050 | 9 | FCGKGYHLM 0.003131 | 5.7 |
| HLA-B*58:01 | 1 | 20 | 28 | 9 | TRTQLPPAY 0.003129 | 7.6 |
| HLA-A*02:03 | 1 | 497 | 505 | 9 | FQPTNGVGY 0.003129 | 9.7 |
| HLA-A*03:01 | 1 | 529 | 538 | 10 | KSTNLVKNKC 0.003129 | 7.4 |
| HLA-A*02:01 | 1 | 559 | 567 | 9 | FLPFQFGR 0.003128 | 8.5 |
| HLA-A*68:02 | 1 | 359 | 367 | 9 | SNCVADYSV 0.003124 | 9.0 |
| HLA-A*30:02 | 1 | 884 | 892 | 9 | SGWTFGAGA 0.003124 | 13 |
| HLA-B*40:01 | 1 | 154 | 163 | 10 | ESEFRVYSSA 0.003122 | 4.6 |
| HLA-A*02:03 | 1 | 17 | 25 | 9 | NLTTTRTQLP 0.003121 | 9.7 |
| HLA-A*26:01 | 1 | 907 | 915 | 9 | NGIGVTQNV 0.003121 | 6.2 |
| HLA-A*02:03 | 1 | 320 | 329 | 10 | VQPTESIVRF 0.00312 | 9.7 |
| HLA-A*11:01 | 1 | 443 | 451 | 9 | SKVGGNYNY 0.00312 | 6.5 |
| HLA-A*30:02 | 1 | 846 | 854 | 9 | ARDLICAQK 0.003119 | 13 |
| HLA-B*07:02 | 1 | 1016 | 1024 | 9 | AEIRASANL 0.003119 | 6.8 |
| HLA-B*15:01 | 1 | 238 | 246 | 9 | FQTLALHR 0.003118 | 8.7 |
| HLA-B*44:03 | 1 | 343 | 351 | 9 | NATRFASVY 0.003118 | 4.9 |
| HLA-A*23:01 | 1 | 453 | 461 | 9 | YRLFRKSNL 0.003118 | 5.1 |
| HLA-B*08:01 | 1 | 454 | 462 | 9 | RLFRKSNLK 0.003117 | 12 |
| HLA-A*23:01 | 1 | 788 | 796 | 9 | IYKTPPIKD 0.003117 | 5.1 |
| HLA-B*08:01 | 1 | 890 | 898 | 9 | AGAALQIPF 0.003116 | 12 |
| HLA-B*07:02 | 1 | 45 | 54 | 10 | SSVLHSTQDL 0.003115 | 6.8 |
| HLA-B*08:01 | 1 | 235 | 243 | 9 | ITRFQTLA 0.003114 | 12 |
| HLA-A*30:02 | 1 | 445 | 454 | 10 | VGGNYNYLYR 0.003114 | 13 |
| HLA-B*44:03 | 1 | 554 | 562 | 9 | ESNKKFLPF 0.003114 | 4.9 |
| HLA-A*01:01 | 1 | 639 | 647 | 9 | GSNVFQTRA 0.003114 | 7.4 |
| HLA-B*15:01 | 1 | 1009 | 1017 | 9 | TQQLIRAAE 0.003112 | 8.7 |
| HLA-A*26:01 | 1 | 1081 | 1089 | 9 | ICHDGKAHF 0.003112 | 6.2 |
| HLA-B*58:01 | 1 | 464 | 473 | 10 | FERDISTEY 0.003111 | 7.6 |
| HLA-A*68:02 | 1 | 1073 | 1081 | 9 | KNFTTAPAI 0.003111 | 9.1 |
| HLA-A*11:01 | 1 | 940 | 949 | 10 | STASALGKLQ 0.003109 | 6.5 |
| HLA-A*26:01 | 1 | 1185 | 1193 | 9 | RLNEVAKNL 0.003109 | 6.2 |
| HLA-A*01:01 | 1 | 44 | 52 | 9 | RSSVLHSTQ 0.003107 | 7.4 |
| HLA-A*26:01 | 1 | 444 | 452 | 9 | KVGGNYNYL 0.003107 | 6.2 |
| HLA-A*02:06 | 1 | 1107 | 1115 | 9 | RNFYEPQII 0.003107 | 13 |
| HLA-B*57:01 | 1 | 370 | 379 | 10 | NSASFSTFKC 0.003106 | 12 |
| HLA-A*26:01 | 1 | 383 | 392 | 10 | SPTKLNLCF 0.003106 | 6.2 |
| HLA-A*30:01 | 1 | 931 | 939 | 9 | IGKIQDSLS 0.003106 | 16 |
| HLA-A*03:01 | 1 | 983 | 991 | 9 | RLDKVEAEV 0.003105 | 7.5 |
| HLA-A*30:01 | 1 | 325 | 333 | 9 | SIVRFPNIT 0.003104 | 16 |
| HLA-A*31:01 | 1 | 921 | 929 | 9 | KLIANQFNS 0.003104 | 11 |
| HLA-A*02:06 | 1 | 727 | 736 | 10 | LPVSMTKTSV 0.003103 | 13 |
| HLA-B*58:01 | 1 | 1102 | 1110 | 9 | WFVTQRNFY 0.003103 | 7.7 |
| HLA-A*02:06 | 1 | 162 | 170 | 9 | SANNCTFEY 0.003102 | 13 |
| HLA-B*40:01 | 1 | 321 | 329 | 9 | QPTESIVRF 0.003102 | 4.6 |
| HLA-A*68:01 | 1 | 1093 | 1102 | 10 | GVFVSNGTHW 0.003102 | 11 |
| HLA-A*31:01 | 1 | 903 | 911 | 9 | AYRFNGIGV 0.0031 | 11 |
| HLA-A*02:06 | 1 | 953 | 961 | 9 | NQNAQALNT 0.0031 | 13 |
| HLA-B*40:01 | 1 | 252 | 260 | 9 | GDSSSGWTA 0.003099 | 4.6 |
| HLA-A*68:02 | 1 | 1225 | 1233 | 9 | IAIVMVTIM 0.003099 | 9.1 |
| HLA-A*31:01 | 1 | 1102 | 1110 | 9 | WFVTQRNFY 0.003098 | 11 |
| HLA-B*07:02 | 1 | 552 | 560 | 9 | LTESNKKFL 0.003097 | 6.8 |
| HLA-B*51:01 | 1 | 751 | 759 | 9 | NLLLQYGSF 0.003097 | 11 |
| HLA-A*02:03 | 1 | 722 | 731 | 10 | VTTEILPVSM 0.003094 | 9.8 |
| HLA-A*68:02 | 1 | 760 | 768 | 9 | CTQLNRALT 0.003094 | 9.1 |
| HLA-B*53:01 | 1 | 108 | 117 | 10 | TTLDSKTQSL 0.003093 | 5.7 |
| HLA-A*02:01 | 1 | 870 | 879 | 10 | IAQYTSALLA 0.003093 | 8.5 |
| HLA-B*07:02 | 1 | 288 | 296 | 9 | AVDCALDPL 0.003092 | 6.8 |
| HLA-A*24:02 | 1 | 773 | 781 | 9 | EQDKNTQEV 0.003092 | 5.0 |
| HLA-A*03:01 | 1 | 962 | 970 | 9 | LVKQLSSNF 0.003092 | 7.5 |
| HLA-A*30:02 | 1 | 254 | 263 | 10 | SSSGWTAGAA 0.003091 | 13 |
| HLA-B*44:02 | 1 | 343 | 351 | 9 | NATRFASVY 0.00309 | 4.7 |
| HLA-B*08:01 | 1 | 1080 | 1089 | 10 | AICHDGKAHF 0.00309 | 12 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*33:01 | 1 | 1196 | 1205 | 10 | SLIDLQELGK 0.003089 | 8.2 |
| HLA-A*03:01 | 1 | 356 | 365 | 10 | KRISNCVADY 0.003088 | 7.5 |
| HLA-A*30:02 | 1 | 516 | 524 | 9 | ELLHAPATV 0.003088 | 13 |
| HLA-A*68:01 | 1 | 151 | 160 | 10 | SWMESEFRVY 0.003087 | 11 |
| HLA-B*15:01 | 1 | 471 | 479 | 9 | EIYQAGSTP 0.003087 | 8.7 |
| HLA-B*57:01 | 1 | 270 | 278 | 9 | LQPRTFLLK 0.003086 | 12 |
| HLA-A*68:02 | 1 | 504 | 512 | 9 | GYQPYRVVV 0.003086 | 9.1 |
| HLA-A*68:02 | 1 | 867 | 876 | 10 | DEMIAQY TSA 0.003086 | 9.1 |
| HLA-A*68:02 | 1 | 312 | 320 | 9 | IYQTSNFRV 0.003085 | 9.1 |
| HLA-A*23:01 | 1 | 1181 | 1189 | 9 | KEIDRLNEV 0.003084 | 5.1 |
| HLA-B*58:01 | 1 | 186 | 194 | 9 | FKNLREFV 0.003082 | 7.7 |
| HLA-A*02:06 | 1 | 1000 | 1009 | 10 | RLQSLQTYVT 0.003082 | 13 |
| HLA-B*07:02 | 1 | 1003 | 1012 | 10 | SLQTYVTQQL 0.003082 | 6.8 |
| HLA-A*31:01 | 1 | 194 | 202 | 9 | FKNIDGYFK 0.003081 | 11 |
| HLA-A*30:02 | 1 | 394 | 402 | 9 | NVYADSFVI 0.003081 | 13 |
| HLA-B*51:01 | 1 | 627 | 636 | 10 | DQLTPTWRVY 0.003081 | 11 |
| HLA-A*32:01 | 1 | 719 | 727 | 9 | TISVTTEIL 0.003081 | 6.3 |
| HLA-B*44:03 | 1 | 808 | 817 | 10 | DPSKPSKRSF 0.003079 | 5.0 |
| HLA-A*01:01 | 1 | 918 | 927 | 10 | ENQKLIANQF 0.003078 | 7.4 |
| HLA-A*30:02 | 1 | 918 | 927 | 10 | ENQKLIANQF 0.003078 | 13 |
| HLA-B*51:01 | 1 | 725 | 733 | 9 | EILPVSM TK 0.003077 | 11 |
| HLA-B*57:01 | 1 | 338 | 347 | 10 | FGEVFNATRF 0.003076 | 12 |
| HLA-A*26:01 | 1 | 1148 | 1156 | 9 | FKEELDKYF 0.003076 | 6.3 |
| HLA-A*26:01 | 1 | 556 | 565 | 10 | NKKFLPFQF 0.003075 | 6.3 |
| HLA-A*32:01 | 1 | 409 | 417 | 9 | QIAPGQTGK 0.003074 | 6.3 |
| HLA-A*68:02 | 1 | 978 | 987 | 10 | NDILSRLDKV 0.003074 | 9.1 |
| HLA-A*33:01 | 1 | 77 | 86 | 10 | KRFDNPVLPF 0.003073 | 8.2 |
| HLA-A*02:01 | 1 | 497 | 505 | 9 | FQPTNGVGY 0.003073 | 8.5 |
| HLA-B*15:01 | 1 | 891 | 900 | 10 | GAALQIPFAM 0.003072 | 8.7 |
| HLA-A*68:02 | 1 | 1159 | 1167 | 9 | HTSPDVDLG 0.003072 | 9.1 |
| HLA-A*01:01 | 1 | 551 | 560 | 10 | VLTESNKKFL 0.003071 | 7.4 |
| HLA-A*33:01 | 1 | 1006 | 1015 | 10 | TYVTQQLIRA 0.003071 | 8.2 |
| HLA-B*58:01 | 1 | 370 | 379 | 10 | NSASFSTFKC 0.00307 | 7.7 |
| HLA-A*68:02 | 1 | 512 | 520 | 9 | VLSFELLHA 0.00307 | 9.1 |
| HLA-B*57:01 | 1 | 532 | 541 | 10 | NLVKNKCVNF 0.003069 | 12 |
| HLA-A*01:01 | 1 | 933 | 942 | 10 | KIQDLSLSTA 0.003069 | 7.4 |
| HLA-A*33:01 | 1 | 1103 | 1111 | 9 | FVTQRNFYE 0.003068 | 8.2 |
| HLA-B*51:01 | 1 | 1210 | 1218 | 9 | IKWPWYIWL 0.003068 | 11 |
| HLA-B*08:01 | 1 | 1106 | 1114 | 9 | QRNFYEPQI 0.003066 | 12 |
| HLA-A*03:01 | 1 | 138 | 147 | 10 | DPFLGVYH K 0.003065 | 7.5 |
| HLA-A*01:01 | 1 | 267 | 275 | 9 | VGYLQPRTF 0.003065 | 7.4 |
| HLA-B*07:02 | 1 | 525 | 533 | 9 | CGPKKSTNL 0.003065 | 6.9 |
| HLA-A*31:01 | 1 | 829 | 837 | 9 | ADAGFIKQY 0.003065 | 11 |
| HLA-A*32:01 | 1 | 1223 | 1232 | 10 | GLIAIVMVTI 0.003063 | 6.3 |
| HLA-A*33:01 | 1 | 905 | 913 | 9 | RFNGIGVTQ 0.003062 | 8.3 |
| HLA-A*03:01 | 1 | 28 | 36 | 9 | YTNSFTRG 0.003061 | 7.5 |
| HLA-A*31:01 | 1 | 121 | 129 | 9 | NNATNVVIK 0.003061 | 11 |
| HLA-B*44:03 | 1 | 1066 | 1075 | 10 | TYVPAQEKNF 0.003061 | 5.0 |
| HLA-B*57:01 | 1 | 410 | 418 | 9 | IAPGQTGKI 0.003059 | 12 |
| HLA-B*53:01 | 1 | 788 | 797 | 10 | IYKTPPIKDF 0.003059 | 5.7 |
| HLA-A*26:01 | 1 | 19 | 27 | 9 | TRTQLPPA 0.003058 | 6.3 |
| HLA-B*51:01 | 1 | 167 | 176 | 10 | TFEYVSQPFL 0.003058 | 12 |
| HLA-B*08:01 | 1 | 992 | 1001 | 10 | QIDRLITGRL 0.003058 | 12 |
| HLA-A*31:01 | 1 | 1183 | 1191 | 9 | IDRLNEVAK 0.003058 | 11 |
| HLA-A*33:01 | 1 | 687 | 695 | 9 | VASQSIIAY 0.003057 | 8.3 |
| HLA-A*30:01 | 1 | 954 | 962 | 9 | QNAQALNTL 0.003057 | 16 |
| HLA-A*03:01 | 1 | 440 | 449 | 10 | NLDSKVG GNY 0.003056 | 7.5 |
| HLA-B*44:03 | 1 | 151 | 160 | 10 | SWMESEFRVY 0.003054 | 5.0 |
| HLA-A*26:01 | 1 | 159 | 168 | 10 | VYSSANNCTF 0.003052 | 6.3 |
| HLA-B*35:01 | 1 | 306 | 314 | 9 | FTVEKGIYQ 0.00305 | 6.3 |
| HLA-A*03:01 | 1 | 754 | 762 | 9 | LQYGSFCTQ 0.00305 | 7.5 |
| HLA-A*01:01 | 1 | 241 | 249 | 9 | LLALHRSYL 0.003049 | 7.5 |
| HLA-A*30:02 | 1 | 888 | 896 | 9 | FGAGAALQI 0.003047 | 13 |
| HLA-A*03:01 | 1 | 319 | 327 | 9 | RVQPTESIV 0.003046 | 7.5 |
| HLA-A*26:01 | 1 | 10 | 18 | 9 | LVSSQCVNL 0.003045 | 6.3 |
| HLA-B*57:01 | 1 | 765 | 773 | 9 | RALTGI AVE 0.003043 | 12 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*31:01 | 1 | 1005 | 1013 | 9 | QTYVVTQQLI 0.003043 | 11 |
| HLA-B*15:01 | 1 | 1221 | 1229 | 9 | IAGLIAIVM 0.003041 | 8.8 |
| HLA-A*02:03 | 1 | 123 | 131 | 9 | ATNVVIVKVC 0.003038 | 9.8 |
| HLA-A*30:01 | 1 | 707 | 715 | 9 | YSNNSIAIP 0.003038 | 16 |
| HLA-A*02:03 | 1 | 443 | 452 | 10 | SKVGGNYNYL 0.003037 | 9.8 |
| HLA-A*68:02 | 1 | 969 | 977 | 9 | NFGAISSVL 0.003037 | 9.2 |
| HLA-B*53:01 | 1 | 208 | 217 | 10 | TPINLVRDLP 0.003036 | 5.7 |
| HLA-A*02:03 | 1 | 968 | 977 | 10 | SNFGAISSVL 0.003036 | 9.8 |
| HLA-A*02:03 | 1 | 399 | 407 | 9 | SFVIRGDEV 0.003035 | 9.8 |
| HLA-A*24:02 | 1 | 1051 | 1059 | 9 | SFPQSAPHG 0.003035 | 5.1 |
| HLA-A*68:02 | 1 | 506 | 515 | 10 | QPYRVVLSF 0.003034 | 9.2 |
| HLA-A*02:06 | 1 | 814 | 822 | 9 | KRSFIEDLL 0.003034 | 13 |
| HLA-A*30:02 | 1 | 133 | 141 | 9 | FQFCNDPFL 0.003033 | 13 |
| HLA-B*44:02 | 1 | 871 | 879 | 9 | AQYTSALLA 0.003033 | 4.7 |
| HLA-A*30:01 | 1 | 214 | 223 | 10 | RDLPGGFSAL 0.003032 | 16 |
| HLA-B*58:01 | 1 | 677 | 685 | 9 | QTNSPRRAR 0.003032 | 7.7 |
| HLA-B*08:01 | 1 | 934 | 942 | 9 | IQDLSSTA 0.003032 | 12 |
| HLA-A*01:01 | 1 | 93 | 101 | 9 | ASTEKSNI 0.003031 | 7.5 |
| HLA-A*23:01 | 1 | 556 | 565 | 10 | NKKFLPFQF 0.003031 | 5.2 |
| HLA-A*31:01 | 1 | 968 | 976 | 9 | SNFGAISSV 0.00303 | 11 |
| HLA-A*31:01 | 1 | 938 | 947 | 10 | LSSTASALGK 0.003028 | 11 |
| HLA-A*02:01 | 1 | 991 | 999 | 9 | VQIDRLITG 0.003028 | 8.6 |
| HLA-B*57:01 | 1 | 793 | 802 | 10 | PIKDFGGFNF 0.003027 | 12 |
| HLA-B*35:01 | 1 | 509 | 517 | 9 | RVVLSFEL 0.003026 | 6.3 |
| HLA-B*07:02 | 1 | 810 | 819 | 10 | SKPSKRSFIE 0.003026 | 6.9 |
| HLA-B*07:02 | 1 | 981 | 989 | 9 | LSRLDKVEA 0.003025 | 6.9 |
| HLA-A*02:01 | 1 | 1257 | 1265 | 9 | DEDDSEPV 0.003024 | 8.6 |
| HLA-A*02:01 | 1 | 340 | 348 | 9 | EVFNATRFA 0.003023 | 8.6 |
| HLA-B*44:03 | 1 | 239 | 248 | 10 | QTLALHRSY 0.003022 | 5.0 |
| HLA-A*32:01 | 1 | 453 | 461 | 9 | YRLFRRKSNL 0.003022 | 6.3 |
| HLA-B*51:01 | 1 | 477 | 486 | 10 | STPCNGVEGF 0.003021 | 12 |
| HLA-B*35:01 | 1 | 777 | 785 | 9 | NTQEVFAQV 0.003021 | 6.3 |
| HLA-B*53:01 | 1 | 1100 | 1109 | 10 | THWFVTQRNF 0.003021 | 5.7 |
| HLA-A*30:02 | 1 | 818 | 826 | 9 | IEDLLFNKV 0.00302 | 13 |
| HLA-B*53:01 | 1 | 829 | 837 | 9 | ADAGFIKQY 0.003019 | 5.7 |
| HLA-A*02:06 | 1 | 240 | 248 | 9 | TLLALHRSY 0.003018 | 13 |
| HLA-B*51:01 | 1 | 1164 | 1172 | 9 | VDLGDISGI 0.003018 | 12 |
| HLA-A*68:01 | 1 | 689 | 697 | 9 | SQSIIAYTM 0.003017 | 11 |
| HLA-B*53:01 | 1 | 996 | 1004 | 9 | LITGRLQSL 0.003017 | 5.7 |
| HLA-A*30:02 | 1 | 67 | 75 | 9 | AIHVSGTNG 0.003016 | 13 |
| HLA-B*58:01 | 1 | 267 | 276 | 10 | VGYLQPRTF 0.003015 | 7.8 |
| HLA-A*02:03 | 1 | 530 | 539 | 10 | STNLVKKNCV 0.003015 | 9.9 |
| HLA-B*44:02 | 1 | 249 | 258 | 10 | LTPGDSSSGW 0.003014 | 4.8 |
| HLA-A*23:01 | 1 | 402 | 410 | 9 | IRGDEVQR 0.003014 | 5.2 |
| HLA-A*01:01 | 1 | 687 | 696 | 10 | VASQSIIAYT 0.003014 | 7.5 |
| HLA-B*58:01 | 1 | 891 | 899 | 9 | GAALQIPFA 0.003014 | 7.8 |
| HLA-B*07:02 | 1 | 503 | 511 | 9 | VGYPYRVV 0.003013 | 6.9 |
| HLA-A*01:01 | 1 | 955 | 963 | 9 | NAQALNTLV 0.003012 | 7.5 |
| HLA-B*58:01 | 1 | 513 | 522 | 10 | LSFELLHAPA 0.003011 | 7.8 |
| HLA-B*51:01 | 1 | 119 | 128 | 10 | IVNNATNVVI 0.00301 | 12 |
| HLA-B*58:01 | 1 | 1224 | 1232 | 9 | LIAIVMVTI 0.00301 | 7.8 |
| HLA-A*33:01 | 1 | 494 | 503 | 10 | SYGFQPTNGV 0.003008 | 8.3 |
| HLA-B*15:01 | 1 | 1073 | 1081 | 9 | KNFTTAPAI 0.003008 | 8.8 |
| HLA-A*68:02 | 1 | 132 | 141 | 10 | EFQFCNDPFL 0.003007 | 9.2 |
| HLA-A*33:01 | 1 | 234 | 242 | 9 | NITRFQTL 0.003007 | 8.3 |
| HLA-A*30:02 | 1 | 123 | 131 | 9 | ATNVVIVKVC 0.003006 | 13 |
| HLA-B*07:02 | 1 | 612 | 620 | 9 | YQDVNCTEV 0.003006 | 6.9 |
| HLA-B*08:01 | 1 | 794 | 802 | 9 | IKDFGGFNF 0.003006 | 12 |
| HLA-A*30:02 | 1 | 1043 | 1052 | 10 | CGKGYHLMSF 0.003006 | 13 |
| HLA-A*02:06 | 1 | 158 | 167 | 10 | RVYSSANNCT 0.003005 | 13 |
| HLA-A*30:01 | 1 | 904 | 913 | 10 | YRFNGIGVTQ 0.003005 | 16 |
| HLA-B*08:01 | 1 | 1043 | 1052 | 10 | CGKGYHLMSF 0.003005 | 12 |
| HLA-B*51:01 | 1 | 1209 | 1217 | 9 | YIKWPWYIW 0.003005 | 12 |
| HLA-A*02:01 | 1 | 1060 | 1069 | 10 | VVFLHVTYVP 0.003003 | 8.6 |
| HLA-A*30:02 | 1 | 5 | 13 | 9 | LVLLPLVSS 0.003002 | 13 |
| HLA-A*26:01 | 1 | 676 | 685 | 10 | TQTNSPRRAR 0.003002 | 6.3 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*51:01 | 1 | 780 | 789 | 10 | EVFAQVKQIY 0.003 | 12 |
| HLA-A*23:01 | 1 | 793 | 802 | 10 | PIKDFGGFNF 0.003 | 5.2 |
| HLA-A*30:02 | 1 | 935 | 944 | 10 | QDLSSTASA 0.003 | 13 |
| HLA-B*57:01 | 1 | 370 | 378 | 9 | NSASFSTFK 0.002999 | 12 |
| HLA-A*30:01 | 1 | 635 | 643 | 9 | VYSTGSNVF 0.002999 | 16 |
| HLA-B*51:01 | 1 | 773 | 782 | 10 | EQDKNTQEVF 0.002999 | 12 |
| HLA-B*40:01 | 1 | 813 | 821 | 9 | SKRSFIEDL 0.002999 | 4.6 |
| HLA-A*30:02 | 1 | 826 | 835 | 10 | VTLADAGFIK 0.002999 | 13 |
| HLA-B*57:01 | 1 | 870 | 879 | 10 | IAQYTSALLA 0.002999 | 12 |
| HLA-A*30:01 | 1 | 680 | 689 | 10 | SPRRARSVAS 0.002998 | 16 |
| HLA-A*02:03 | 1 | 1108 | 1117 | 10 | NFYEQIITT 0.002998 | 9.9 |
| HLA-B*15:01 | 1 | 69 | 77 | 9 | HVSGTNGTK 0.002997 | 8.8 |
| HLA-A*68:02 | 1 | 703 | 711 | 9 | NSVAYSNNS 0.002997 | 9.3 |
| HLA-B*44:03 | 1 | 371 | 380 | 10 | SASFSTFKCY 0.002996 | 5.0 |
| HLA-A*26:01 | 1 | 583 | 591 | 9 | EILDITPCS 0.002996 | 6.3 |
| HLA-B*35:01 | 1 | 588 | 596 | 9 | TPCSFGGVS 0.002996 | 6.4 |
| HLA-B*44:03 | 1 | 878 | 886 | 9 | LAGTITSGW 0.002996 | 5.0 |
| HLA-A*02:01 | 1 | 1195 | 1203 | 9 | ESLIDLQEL 0.002996 | 8.6 |
| HLA-A*24:02 | 1 | 318 | 326 | 9 | FRVQPTESI 0.002994 | 5.1 |
| HLA-B*07:02 | 1 | 705 | 713 | 9 | VAYSNNNSIA 0.002994 | 6.9 |
| HLA-B*07:02 | 1 | 1017 | 1026 | 10 | EIRASANLAA 0.002994 | 6.9 |
| HLA-A*68:02 | 1 | 12 | 20 | 9 | SSQCVNLTT 0.002992 | 9.3 |
| HLA-B*35:01 | 1 | 618 | 626 | 9 | TEVPVAIHA 0.002992 | 6.4 |
| HLA-A*32:01 | 1 | 1212 | 1220 | 9 | WPWYIWLGF 0.002992 | 6.4 |
| HLA-A*02:06 | 1 | 1256 | 1264 | 9 | FDEDDSEPV 0.002991 | 13 |
| HLA-B*35:01 | 1 | 1094 | 1103 | 10 | VFVSNNGTHWF 0.00299 | 6.4 |
| HLA-B*08:01 | 1 | 1219 | 1227 | 9 | GFIAGLIAI 0.00299 | 12 |
| HLA-B*07:02 | 1 | 336 | 345 | 10 | CPFGEVFNAT 0.002989 | 6.9 |
| HLA-A*24:02 | 1 | 1066 | 1074 | 9 | TYVPAQEKD 0.002989 | 5.1 |
| HLA-A*02:06 | 1 | 559 | 567 | 9 | FLPFQQFGR 0.002988 | 13 |
| HLA-A*03:01 | 1 | 236 | 245 | 10 | TRFQTLALH 0.002987 | 7.6 |
| HLA-B*57:01 | 1 | 1001 | 1010 | 10 | LQSLQTYVTQ 0.002987 | 12 |
| HLA-B*15:01 | 1 | 488 | 497 | 10 | CYFPLQSYGF 0.002986 | 8.9 |
| HLA-A*02:06 | 1 | 511 | 519 | 9 | VVLSFELLH 0.002986 | 13 |
| HLA-A*03:01 | 1 | 1030 | 1038 | 9 | SECVLGQSK 0.002985 | 7.6 |
| HLA-A*02:06 | 1 | 363 | 372 | 10 | ADYSVLYNSA 0.002984 | 13 |
| HLA-A*33:01 | 1 | 1147 | 1156 | 10 | SFKEELDKYF 0.002984 | 8.3 |
| HLA-B*51:01 | 1 | 622 | 631 | 10 | VAIHADQLTP 0.002983 | 12 |
| HLA-B*57:01 | 1 | 496 | 505 | 10 | GFQPTNGVGY 0.002982 | 12 |
| HLA-B*44:02 | 1 | 428 | 436 | 9 | DFTGCVIAW 0.002981 | 4.8 |
| HLA-B*57:01 | 1 | 782 | 790 | 9 | FAQVKQIYK 0.002981 | 12 |
| HLA-A*02:01 | 1 | 1143 | 1152 | 10 | PELDSFKDEL 0.002981 | 8.7 |
| HLA-B*07:02 | 1 | 943 | 951 | 9 | SALGKLQDV 0.00298 | 7.0 |
| HLA-B*58:01 | 1 | 806 | 814 | 9 | LPDPSKPSK 0.002979 | 7.8 |
| HLA-A*24:02 | 1 | 818 | 826 | 9 | IEDLLFNKV 0.002979 | 5.1 |
| HLA-A*31:01 | 1 | 646 | 655 | 10 | RAGCLIGAETH 0.002978 | 11 |
| HLA-A*33:01 | 1 | 894 | 902 | 9 | LQIPFAMQM 0.002978 | 8.4 |
| HLA-B*07:02 | 1 | 936 | 945 | 10 | DSLSTASAL 0.002978 | 7.0 |
| HLA-B*57:01 | 1 | 119 | 127 | 9 | IVNNATNVV 0.002977 | 12 |
| HLA-B*58:01 | 1 | 802 | 811 | 10 | FSQILPDPSK 0.002977 | 7.8 |
| HLA-A*26:01 | 1 | 602 | 611 | 10 | TNTSNQVAVL 0.002975 | 6.4 |
| HLA-A*30:01 | 1 | 445 | 453 | 9 | VGGNYNYLY 0.002974 | 16 |
| HLA-B*44:03 | 1 | 985 | 993 | 9 | DKVEAEVQI 0.002974 | 5.0 |
| HLA-A*02:03 | 1 | 1054 | 1062 | 9 | QSAPHGVVF 0.002974 | 9.9 |
| HLA-A*68:02 | 1 | 117 | 126 | 10 | LLIVNNATNV 0.002973 | 9.3 |
| HLA-A*11:01 | 1 | 28 | 36 | 9 | YTNSFTRGV 0.002972 | 6.6 |
| HLA-B*07:02 | 1 | 298 | 306 | 9 | ETKCTLKSF 0.002972 | 7.0 |
| HLA-A*11:01 | 1 | 181 | 190 | 10 | GKQGNFKNLR 0.002971 | 6.6 |
| HLA-B*57:01 | 1 | 447 | 455 | 9 | GNYNYLYRL 0.002971 | 12 |
| HLA-A*68:01 | 1 | 1007 | 1015 | 9 | YVTQQLIRA 0.002971 | 11 |
| HLA-B*58:01 | 1 | 1034 | 1042 | 9 | LGQSKRVDF 0.00297 | 7.8 |
| HLA-A*68:01 | 1 | 627 | 635 | 9 | DQLTPTWRV 0.002967 | 11 |
| HLA-B*51:01 | 1 | 1211 | 1220 | 10 | KWPWYIWLGF 0.002967 | 12 |
| HLA-A*33:01 | 1 | 1049 | 1058 | 10 | LMSFPQSAPH 0.002966 | 8.4 |
| HLA-A*02:06 | 1 | 119 | 128 | 10 | IVNNATNVVI 0.002965 | 13 |
| HLA-B*57:01 | 1 | 218 | 226 | 9 | QGFSALEPL 0.002965 | 12 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*57:01 | 1 | 845 | 853 | 9 | AARDLICAQ 0.002965 | 12 |
| HLA-A*30:01 | 1 | 899 | 907 | 9 | AMQMAYRFN 0.002965 | 16 |
| HLA-A*32:01 | 1 | 925 | 933 | 9 | NQFNSAIGK 0.002965 | 6.4 |
| HLA-B*15:01 | 1 | 16 | 24 | 9 | VNLTTRTQL 0.002964 | 8.9 |
| HLA-B*08:01 | 1 | 428 | 436 | 9 | DFTGCVIAW 0.002964 | 12 |
| HLA-A*02:03 | 1 | 597 | 605 | 9 | VITPGTNTS 0.002964 | 10 |
| HLA-A*30:01 | 1 | 569 | 577 | 9 | IADTTDAVR 0.002963 | 16 |
| HLA-A*30:02 | 1 | 829 | 838 | 10 | ADAGFIKQYG 0.002963 | 14 |
| HLA-A*68:01 | 1 | 554 | 563 | 10 | ESNKKFLPFQ 0.002962 | 11 |
| HLA-A*32:01 | 1 | 853 | 861 | 9 | QKFNGLTVL 0.002962 | 6.4 |
| HLA-B*57:01 | 1 | 242 | 250 | 9 | LALHRSYLT 0.002961 | 12 |
| HLA-A*30:01 | 1 | 978 | 986 | 9 | NDILSRLDK 0.00296 | 16 |
| HLA-A*68:02 | 1 | 5 | 13 | 9 | LVLLPLVSS 0.002959 | 9.3 |
| HLA-A*68:01 | 1 | 881 | 890 | 10 | TITSGWTFGA 0.002958 | 11 |
| HLA-B*58:01 | 1 | 939 | 947 | 9 | SSTASALGK 0.002958 | 7.9 |
| HLA-A*02:06 | 1 | 402 | 410 | 9 | IRGDEVRQI 0.002957 | 13 |
| HLA-A*11:01 | 1 | 509 | 517 | 9 | RVVLSFEL 0.002957 | 6.6 |
| HLA-B*58:01 | 1 | 136 | 145 | 10 | CNDPFLGVVY 0.002956 | 7.9 |
| HLA-B*08:01 | 1 | 143 | 152 | 10 | YYYHKNNKSW 0.002956 | 12 |
| HLA-B*58:01 | 1 | 707 | 715 | 9 | YSNNSIAIP 0.002956 | 7.9 |
| HLA-A*32:01 | 1 | 297 | 306 | 10 | SETKCTLKSF 0.002955 | 6.4 |
| HLA-A*30:01 | 1 | 555 | 564 | 10 | SNKKFLPFQQ 0.002955 | 16 |
| HLA-B*51:01 | 1 | 387 | 395 | 9 | LNDLCFTNV 0.002954 | 12 |
| HLA-A*01:01 | 1 | 418 | 426 | 9 | IADYNYKLP 0.002954 | 7.6 |
| HLA-B*57:01 | 1 | 826 | 835 | 10 | VTLADAGFIK 0.002952 | 12 |
| HLA-A*02:03 | 1 | 1155 | 1164 | 10 | YFKNHTSPDV 0.002952 | 10 |
| HLA-B*58:01 | 1 | 234 | 242 | 9 | NITRFQTL 0.002951 | 7.9 |
| HLA-A*01:01 | 1 | 1067 | 1075 | 9 | YVPAQEKNF 0.002951 | 7.6 |
| HLA-A*32:01 | 1 | 1206 | 1215 | 10 | YEQYIKWPWY 0.00295 | 6.4 |
| HLA-B*08:01 | 1 | 1133 | 1141 | 9 | VNNTVYDPL 0.002949 | 12 |
| HLA-B*58:01 | 1 | 196 | 204 | 9 | NIDGYFKIY 0.002946 | 7.9 |
| HLA-B*58:01 | 1 | 256 | 265 | 10 | SGWTAGAAAY 0.002946 | 7.9 |
| HLA-A*11:01 | 1 | 445 | 454 | 10 | VGGNYNYLYR 0.002946 | 6.6 |
| HLA-B*57:01 | 1 | 704 | 712 | 9 | SVAYSNNSI 0.002946 | 12 |
| HLA-A*33:01 | 1 | 2 | 10 | 9 | FVFLVLLPL 0.002945 | 8.4 |
| HLA-A*02:01 | 1 | 21 | 29 | 9 | RTQLPPAYT 0.002945 | 8.7 |
| HLA-A*30:02 | 1 | 761 | 769 | 9 | TQLNRALTG 0.002945 | 14 |
| HLA-A*02:06 | 1 | 369 | 377 | 9 | YNSASFSTF 0.002944 | 13 |
| HLA-A*30:01 | 1 | 1154 | 1163 | 10 | KYFKNHTSPD 0.002944 | 16 |
| HLA-A*30:01 | 1 | 647 | 655 | 9 | AGCLIGAHE 0.002943 | 17 |
| HLA-A*01:01 | 1 | 1064 | 1073 | 10 | HVTYVPAQEK 0.002943 | 7.6 |
| HLA-A*02:01 | 1 | 393 | 402 | 10 | TNVYADSFVI 0.002941 | 8.7 |
| HLA-B*35:01 | 1 | 498 | 507 | 10 | QPTNGVGYQP 0.00294 | 6.4 |
| HLA-A*33:01 | 1 | 43 | 51 | 9 | FRSSVLHST 0.002939 | 8.4 |
| HLA-A*30:02 | 1 | 820 | 828 | 9 | DLLFNKVTL 0.002939 | 14 |
| HLA-B*07:02 | 1 | 1067 | 1076 | 10 | YVPAQEKNFT 0.002939 | 7.0 |
| HLA-A*32:01 | 1 | 170 | 179 | 10 | YVSQPFLMDL 0.002938 | 6.4 |
| HLA-A*01:01 | 1 | 1115 | 1123 | 9 | ITTDNTFVS 0.002938 | 7.6 |
| HLA-A*23:01 | 1 | 399 | 407 | 9 | SFVIRGDEV 0.002937 | 5.2 |
| HLA-B*07:02 | 1 | 1192 | 1200 | 9 | NLNESLIDL 0.002937 | 7.0 |
| HLA-A*26:01 | 1 | 119 | 127 | 9 | IVNNATNVV 0.002936 | 6.4 |
| HLA-A*03:01 | 1 | 1099 | 1108 | 10 | GTHWFVTQRN 0.002936 | 7.6 |
| HLA-B*44:03 | 1 | 574 | 582 | 9 | DAVRDPQTL 0.002935 | 5.1 |
| HLA-A*31:01 | 1 | 487 | 495 | 9 | NCYFPLQSY 0.002933 | 11 |
| HLA-B*40:01 | 1 | 190 | 198 | 9 | REFVFKNID 0.002932 | 4.7 |
| HLA-A*26:01 | 1 | 202 | 210 | 9 | KIYSKHTPI 0.002932 | 6.4 |
| HLA-A*23:01 | 1 | 954 | 962 | 9 | QNAQALNTL 0.002931 | 5.2 |
| HLA-B*08:01 | 1 | 74 | 83 | 10 | NGTKRFDPNV 0.00293 | 12 |
| HLA-A*03:01 | 1 | 501 | 509 | 9 | NGVGYQPYP 0.002927 | 7.6 |
| HLA-B*53:01 | 1 | 718 | 727 | 10 | FTISVTTEIL 0.002927 | 5.8 |
| HLA-A*30:01 | 1 | 313 | 321 | 9 | YQTSNFRVQ 0.002926 | 17 |
| HLA-A*03:01 | 1 | 937 | 945 | 9 | SLSSTASAL 0.002926 | 7.6 |
| HLA-B*58:01 | 1 | 943 | 951 | 9 | SALGKLQDV 0.002926 | 7.9 |
| HLA-A*26:01 | 1 | 833 | 841 | 9 | FIKQYGDCL 0.002925 | 6.4 |
| HLA-B*44:02 | 1 | 1136 | 1145 | 10 | TVYDPLQPEL 0.002925 | 4.8 |
| HLA-B*15:01 | 1 | 409 | 417 | 9 | QIAPGQTGK 0.002924 | 8.9 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*31:01 | 1 | 1037 | 1045 | 9 | SKRVDFCGK 0.002924 | 11 |
| HLA-A*30:02 | 1 | 1129 | 1137 | 9 | VIGIVNNTV 0.002923 | 14 |
| HLA-B*58:01 | 1 | 160 | 169 | 10 | YSSANNCTFE 0.002922 | 7.9 |
| HLA-A*02:03 | 1 | 1051 | 1060 | 10 | SFPQSAPHG 0.002922 | 10 |
| HLA-B*51:01 | 1 | 934 | 942 | 9 | IQDLSSTA 0.002921 | 12 |
| HLA-B*15:01 | 1 | 152 | 161 | 10 | WMESEFRVYS 0.002919 | 9.0 |
| HLA-B*57:01 | 1 | 185 | 194 | 10 | NFKNLREFV 0.002918 | 12 |
| HLA-A*30:02 | 1 | 22 | 31 | 10 | TQLPPAYTNS 0.002917 | 14 |
| HLA-A*30:01 | 1 | 242 | 250 | 9 | LALHRSYLT 0.002916 | 17 |
| HLA-B*44:03 | 1 | 686 | 695 | 10 | SVASQSIIAY 0.002916 | 5.1 |
| HLA-B*58:01 | 1 | 996 | 1004 | 9 | LITGRLQSL 0.002916 | 7.9 |
| HLA-B*08:01 | 1 | 908 | 916 | 9 | GIGVTQNV 0.002915 | 12 |
| HLA-A*02:03 | 1 | 892 | 900 | 9 | AALQIPFAM 0.002914 | 10 |
| HLA-A*30:01 | 1 | 200 | 209 | 10 | YFKIYSKHTP 0.002913 | 17 |
| HLA-B*35:01 | 1 | 102 | 110 | 9 | RGWIFGTTL 0.002912 | 6.4 |
| HLA-A*02:06 | 1 | 577 | 585 | 9 | RDPQTLEIL 0.002909 | 13 |
| HLA-B*57:01 | 1 | 724 | 733 | 10 | TEILPVSMTK 0.002909 | 12 |
| HLA-A*03:01 | 1 | 1006 | 1014 | 9 | TYVTQQLIR 0.002909 | 7.7 |
| HLA-B*35:01 | 1 | 732 | 741 | 10 | TKTSVDCTMY 0.002907 | 6.5 |
| HLA-B*35:01 | 1 | 1109 | 1117 | 9 | FYEPQIITT 0.002907 | 6.5 |
| HLA-A*26:01 | 1 | 95 | 104 | 10 | TEKSNIIRGW 0.002906 | 6.4 |
| HLA-A*02:03 | 1 | 228 | 236 | 9 | DLPIGINIT 0.002905 | 10 |
| HLA-B*07:02 | 1 | 573 | 582 | 10 | TDAVRDPQTL 0.002905 | 7.0 |
| HLA-B*35:01 | 1 | 718 | 727 | 10 | FTISVTTEIL 0.002905 | 6.5 |
| HLA-A*02:03 | 1 | 766 | 774 | 9 | ALTGIAVEQ 0.002905 | 10 |
| HLA-B*57:01 | 1 | 637 | 645 | 9 | STGSNVFQT 0.002904 | 12 |
| HLA-B*15:01 | 1 | 378 | 387 | 10 | KCYGVSPTKL 0.002903 | 9.0 |
| HLA-A*01:01 | 1 | 220 | 229 | 10 | FSALEPLVDL 0.002901 | 7.7 |
| HLA-A*68:01 | 1 | 1140 | 1149 | 10 | PLQPELDSFK 0.002901 | 11 |
| HLA-A*11:01 | 1 | 828 | 837 | 10 | LADAGFIKQY 0.0029 | 6.6 |
| HLA-A*33:01 | 1 | 907 | 915 | 9 | NGIGVTQNV 0.0029 | 8.5 |
| HLA-A*11:01 | 1 | 94 | 103 | 10 | STEKSNIIRG 0.002899 | 6.6 |
| HLA-A*26:01 | 1 | 305 | 313 | 9 | SFTVEKGIY 0.002899 | 6.4 |
| HLA-A*26:01 | 1 | 793 | 802 | 10 | PIKDFGGFNF 0.002899 | 6.4 |
| HLA-A*30:02 | 1 | 1016 | 1024 | 9 | AEIRASANL 0.002898 | 14 |
| HLA-B*40:01 | 1 | 102 | 110 | 9 | RGWIFGTTL 0.002897 | 4.7 |
| HLA-A*02:03 | 1 | 115 | 123 | 9 | QSLLVNNA 0.002897 | 11 |
| HLA-B*44:02 | 1 | 515 | 524 | 10 | FELLHAPATV 0.002897 | 4.8 |
| HLA-B*44:03 | 1 | 19 | 28 | 10 | TTRTQLPPAY 0.002896 | 5.1 |
| HLA-B*57:01 | 1 | 246 | 255 | 10 | RSYLTPGDSS 0.002896 | 12 |
| HLA-B*57:01 | 1 | 259 | 267 | 9 | TAGAAAYV 0.002896 | 12 |
| HLA-B*51:01 | 1 | 587 | 595 | 9 | ITPCSFGGV 0.002896 | 12 |
| HLA-A*68:02 | 1 | 852 | 860 | 9 | AQKFNGLTV 0.002896 | 9.4 |
| HLA-B*44:03 | 1 | 1101 | 1109 | 9 | HWFVTQRNF 0.002896 | 5.1 |
| HLA-B*44:02 | 1 | 1194 | 1202 | 9 | NESLIDLQE 0.002895 | 4.8 |
| HLA-B*53:01 | 1 | 507 | 515 | 9 | PYRVVVLFS 0.002894 | 5.8 |
| HLA-B*53:01 | 1 | 809 | 817 | 9 | PSKPSKRSF 0.002894 | 5.8 |
| HLA-A*23:01 | 1 | 878 | 886 | 9 | LAGTITSGW 0.002894 | 5.3 |
| HLA-B*51:01 | 1 | 76 | 84 | 9 | TKRFDNPVL 0.002893 | 12 |
| HLA-A*26:01 | 1 | 410 | 418 | 9 | IAPGQTGKI 0.002893 | 6.5 |
| HLA-A*02:03 | 1 | 541 | 549 | 9 | FNFNGLTGT 0.002893 | 11 |
| HLA-B*07:02 | 1 | 773 | 782 | 10 | EQDKNTQEVF 0.002893 | 7.1 |
| HLA-A*30:02 | 1 | 803 | 812 | 10 | SQILPDPSKP 0.002891 | 14 |
| HLA-B*51:01 | 1 | 1031 | 1040 | 10 | ECVLGQSKRV 0.002891 | 12 |
| HLA-A*01:01 | 1 | 958 | 966 | 9 | ALNTLVKQL 0.00289 | 7.7 |
| HLA-B*07:02 | 1 | 856 | 864 | 9 | NGLTVLPPL 0.002889 | 7.1 |
| HLA-A*33:01 | 1 | 1058 | 1067 | 10 | HGVVFLHVTY 0.002889 | 8.5 |
| HLA-A*01:01 | 1 | 1093 | 1102 | 10 | GVFVSNGTHW 0.002889 | 7.7 |
| HLA-B*58:01 | 1 | 135 | 143 | 9 | FCNDPFLGV 0.002888 | 7.9 |
| HLA-B*07:02 | 1 | 642 | 650 | 9 | VFQTRAGCL 0.002888 | 7.1 |
| HLA-A*24:02 | 1 | 532 | 541 | 10 | NLVKNKCVNF 0.002887 | 5.2 |
| HLA-A*02:03 | 1 | 858 | 866 | 9 | LTVLPPLL 0.002886 | 11 |
| HLA-A*30:01 | 1 | 1046 | 1055 | 10 | GYHLMSFPQS 0.002885 | 17 |
| HLA-A*30:01 | 1 | 1007 | 1016 | 10 | YVTQQLIRAA 0.002884 | 17 |
| HLA-A*02:01 | 1 | 307 | 315 | 9 | TVEKGIYQT 0.002883 | 8.8 |
| HLA-A*26:01 | 1 | 574 | 583 | 10 | DAVRDPQTL 0.002883 | 6.5 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*58:01 | 1 | 729 | 738 | 10 | VSMTKTSVDC 0.002883 | 8.0 |
| HLA-A*31:01 | 1 | 127 | 135 | 9 | VIKVCEFQF 0.002882 | 11 |
| HLA-B*51:01 | 1 | 196 | 204 | 9 | NIDGYFKIY 0.002882 | 12 |
| HLA-B*40:01 | 1 | 744 | 753 | 10 | GDSTECSNLL 0.002881 | 4.7 |
| HLA-A*30:01 | 1 | 1087 | 1095 | 9 | AHFPREGVF 0.002881 | 17 |
| HLA-A*02:03 | 1 | 492 | 500 | 9 | LQSYGFQPT 0.002879 | 11 |
| HLA-A*24:02 | 1 | 1080 | 1089 | 10 | AIChDgKAHF 0.002878 | 5.2 |
| HLA-A*32:01 | 1 | 1147 | 1156 | 10 | SFKEELDKYF 0.002878 | 6.5 |
| HLA-A*68:02 | 1 | 180 | 189 | 10 | EGKQGNFKNL 0.002877 | 9.4 |
| HLA-A*24:02 | 1 | 1144 | 1152 | 9 | ELDSFKEEL 0.002876 | 5.2 |
| HLA-A*30:01 | 1 | 332 | 341 | 10 | ITNLCPFGEV 0.002875 | 17 |
| HLA-A*30:02 | 1 | 1205 | 1214 | 10 | KYEQYIKWPW 0.002875 | 14 |
| HLA-A*68:02 | 1 | 638 | 647 | 10 | TGSNVFQTRA 0.002873 | 9.4 |
| HLA-A*23:01 | 1 | 1203 | 1212 | 10 | LGKYEQYIKW 0.002873 | 5.3 |
| HLA-B*53:01 | 1 | 10 | 18 | 9 | LVSSQCVNL 0.002872 | 5.9 |
| HLA-A*30:01 | 1 | 163 | 171 | 9 | ANNCTFEYV 0.002872 | 17 |
| HLA-A*02:03 | 1 | 797 | 805 | 9 | FGGFNFSQI 0.002872 | 11 |
| HLA-A*11:01 | 1 | 956 | 965 | 10 | AQALNTLVKQ 0.002872 | 6.7 |
| HLA-A*23:01 | 1 | 773 | 781 | 9 | EQDKNTQEV 0.002871 | 5.3 |
| HLA-A*30:01 | 1 | 804 | 812 | 9 | QILPDPSKP 0.002871 | 17 |
| HLA-A*30:02 | 1 | 437 | 445 | 9 | NSNNLDSKV 0.002869 | 14 |
| HLA-A*01:01 | 1 | 937 | 945 | 9 | SLSSTASAL 0.002869 | 7.7 |
| HLA-A*30:02 | 1 | 1032 | 1040 | 9 | CVLQSKRV 0.002869 | 14 |
| HLA-B*07:02 | 1 | 504 | 513 | 10 | GYQPYRVVVL 0.002868 | 7.1 |
| HLA-A*02:06 | 1 | 753 | 761 | 9 | LLQYGSFCT 0.002868 | 13 |
| HLA-A*31:01 | 1 | 371 | 380 | 10 | SASFSTFKCY 0.002866 | 11 |
| HLA-A*30:01 | 1 | 626 | 635 | 10 | ADQLTPTWRV 0.002864 | 17 |
| HLA-B*58:01 | 1 | 658 | 666 | 9 | NSYECDIPI 0.002864 | 8.0 |
| HLA-B*51:01 | 1 | 365 | 374 | 10 | YSVLYNSASF 0.002863 | 12 |
| HLA-A*26:01 | 1 | 35 | 44 | 10 | GYYYPDKVFR 0.002862 | 6.5 |
| HLA-A*24:02 | 1 | 240 | 248 | 9 | TLLALHRSY 0.002862 | 5.2 |
| HLA-B*44:02 | 1 | 334 | 342 | 9 | NLCPFGEVF 0.002862 | 4.9 |
| HLA-B*44:02 | 1 | 448 | 456 | 9 | NYNYLYRLF 0.00286 | 4.9 |
| HLA-B*44:03 | 1 | 448 | 456 | 9 | NYNYLYRLF 0.00286 | 5.1 |
| HLA-B*08:01 | 1 | 750 | 759 | 10 | SNLLLYQGSF 0.00286 | 12 |
| HLA-A*30:01 | 1 | 815 | 824 | 10 | RSFIEDLLFN 0.00286 | 17 |
| HLA-B*44:02 | 1 | 307 | 316 | 10 | TVEKGIYQTS 0.002858 | 4.9 |
| HLA-B*58:01 | 1 | 693 | 701 | 9 | IAYTMSLGA 0.002858 | 8.0 |
| HLA-A*33:01 | 1 | 486 | 495 | 10 | FNCYFPLQSY 0.002857 | 8.5 |
| HLA-B*57:01 | 1 | 693 | 701 | 9 | IAYTMSLGA 0.002857 | 12 |
| HLA-B*40:01 | 1 | 712 | 720 | 9 | IAIPTNFTI 0.002857 | 4.7 |
| HLA-A*02:06 | 1 | 1088 | 1096 | 9 | HFPREGVfV 0.002857 | 13 |
| HLA-B*58:01 | 1 | 447 | 455 | 9 | GNYNYLYRL 0.002856 | 8.0 |
| HLA-A*31:01 | 1 | 270 | 279 | 10 | LQPRTFLLKY 0.002855 | 11 |
| HLA-A*01:01 | 1 | 829 | 838 | 10 | ADAGFIKQYG 0.002855 | 7.8 |
| HLA-B*51:01 | 1 | 1114 | 1122 | 9 | IITTDNTFV 0.002854 | 12 |
| HLA-A*31:01 | 1 | 264 | 272 | 9 | AYVGYLQP 0.002853 | 11 |
| HLA-A*68:01 | 1 | 345 | 353 | 9 | TRFASVYAW 0.002853 | 11 |
| HLA-B*35:01 | 1 | 233 | 241 | 9 | INITRFQTL 0.002852 | 6.5 |
| HLA-B*51:01 | 1 | 589 | 598 | 10 | PCSFggVSVI 0.002852 | 12 |
| HLA-A*24:02 | 1 | 249 | 258 | 10 | LTPGDSSSGW 0.00285 | 5.2 |
| HLA-B*07:02 | 1 | 1078 | 1086 | 9 | APAICHDGK 0.002849 | 7.1 |
| HLA-B*44:02 | 1 | 298 | 306 | 9 | ETKCTLKSF 0.002847 | 4.9 |
| HLA-B*08:01 | 1 | 968 | 977 | 10 | SNFGAISSVL 0.002847 | 12 |
| HLA-B*44:03 | 1 | 1175 | 1183 | 9 | SVVNIQKEI 0.002847 | 5.1 |
| HLA-B*58:01 | 1 | 447 | 456 | 10 | GNYNYLYRLF 0.002846 | 8.0 |
| HLA-A*02:06 | 1 | 936 | 944 | 9 | DSLSSTASA 0.002845 | 13 |
| HLA-A*68:02 | 1 | 288 | 296 | 9 | AVDCALDPL 0.002843 | 9.5 |
| HLA-A*02:06 | 1 | 679 | 687 | 9 | NSPRRARSV 0.002843 | 13 |
| HLA-A*30:01 | 1 | 1 | 10 | 10 | MFVFLVLLPL 0.002841 | 17 |
| HLA-B*58:01 | 1 | 338 | 347 | 10 | FGEVFNATRf 0.002841 | 8.0 |
| HLA-A*68:02 | 1 | 884 | 892 | 9 | SGWTFGAGA 0.002841 | 9.5 |
| HLA-A*33:01 | 1 | 268 | 277 | 10 | GYLQPRTFLL 0.002839 | 8.5 |
| HLA-A*68:02 | 1 | 987 | 996 | 10 | VEAEVQIDRL 0.002839 | 9.5 |
| HLA-B*51:01 | 1 | 1122 | 1130 | 9 | VSGNCDVVI 0.002839 | 12 |
| HLA-A*68:02 | 1 | 1026 | 1034 | 9 | ATKMSECVL 0.002838 | 9.5 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*68:01 | 1 | 250 | 258 | 9 | TPGDSSSGW 0.002837 | 11 |
| HLA-B*15:01 | 1 | 921 | 930 | 10 | KLIANQFNFA 0.002837 | 9.0 |
| HLA-B*08:01 | 1 | 929 | 937 | 9 | SAIGKIQDS 0.002836 | 12 |
| HLA-B*07:02 | 1 | 950 | 959 | 10 | DVNVQNAQAL 0.002836 | 7.1 |
| HLA-B*51:01 | 1 | 300 | 308 | 9 | KCTLKSFTV 0.002833 | 12 |
| HLA-A*30:02 | 1 | 325 | 333 | 9 | SIVRFPNIT 0.002833 | 14 |
| HLA-A*02:01 | 1 | 1189 | 1197 | 9 | VAKNLNESL 0.002833 | 8.9 |
| HLA-A*24:02 | 1 | 463 | 472 | 10 | PFERDISTEI 0.002832 | 5.2 |
| HLA-A*30:01 | 1 | 746 | 754 | 9 | STECNLLL 0.002832 | 17 |
| HLA-A*68:02 | 1 | 929 | 937 | 9 | SAIGKIQDS 0.002832 | 9.5 |
| HLA-B*15:01 | 1 | 1151 | 1159 | 9 | ELDKYFKNH 0.002832 | 9.0 |
| HLA-A*02:01 | 1 | 266 | 274 | 9 | YVGYLQPRF 0.002831 | 8.9 |
| HLA-A*23:01 | 1 | 1087 | 1096 | 10 | AHFREGVVF 0.002831 | 5.3 |
| HLA-A*01:01 | 1 | 97 | 106 | 10 | KSNIIRGWIF 0.00283 | 7.8 |
| HLA-B*44:03 | 1 | 442 | 451 | 10 | DSKVGNYNY 0.00283 | 5.2 |
| HLA-A*33:01 | 1 | 882 | 890 | 9 | ITSGWTFGA 0.00283 | 8.5 |
| HLA-B*07:02 | 1 | 968 | 976 | 9 | SNFGAISSV 0.00283 | 7.1 |
| HLA-B*08:01 | 1 | 1155 | 1163 | 9 | YFKNHTSPD 0.00283 | 12 |
| HLA-A*02:03 | 1 | 408 | 416 | 9 | RQIAPGQTG 0.002829 | 11 |
| HLA-B*57:01 | 1 | 757 | 766 | 10 | GFSCTQLNRA 0.002829 | 12 |
| HLA-A*68:02 | 1 | 1107 | 1115 | 9 | RNFYEPQII 0.002828 | 9.5 |
| HLA-A*68:02 | 1 | 872 | 881 | 10 | QYTSALLAGT 0.002827 | 9.5 |
| HLA-B*58:01 | 1 | 687 | 696 | 10 | VASQSIIAYT 0.002826 | 8.0 |
| HLA-B*07:02 | 1 | 211 | 220 | 10 | NLVRDLPQGF 0.002825 | 7.1 |
| HLA-A*01:01 | 1 | 939 | 948 | 10 | SSTASALGKL 0.002825 | 7.8 |
| HLA-A*02:01 | 1 | 388 | 397 | 10 | NDLCFTNVYA 0.002824 | 8.9 |
| HLA-B*51:01 | 1 | 625 | 634 | 10 | HADQLTPTWR 0.002824 | 12 |
| HLA-A*30:02 | 1 | 532 | 541 | 10 | NLVKNKCVNF 0.002823 | 14 |
| HLA-A*68:02 | 1 | 621 | 629 | 9 | PVAIHADQL 0.002823 | 9.5 |
| HLA-A*02:01 | 1 | 881 | 890 | 10 | TITSGWTFGA 0.002823 | 8.9 |
| HLA-B*57:01 | 1 | 1056 | 1064 | 9 | APHGVVFLH 0.002823 | 12 |
| HLA-B*51:01 | 1 | 704 | 713 | 10 | SVAYSNNNSIA 0.002822 | 12 |
| HLA-B*51:01 | 1 | 71 | 79 | 9 | SGTNGTKRF 0.00282 | 12 |
| HLA-A*30:01 | 1 | 211 | 220 | 10 | NLVRDLPQGF 0.00282 | 17 |
| HLA-A*30:01 | 1 | 46 | 55 | 10 | SVLHSTQDLF 0.002819 | 17 |
| HLA-A*32:01 | 1 | 57 | 65 | 9 | PFFSNVTF 0.002819 | 6.5 |
| HLA-B*58:01 | 1 | 437 | 445 | 9 | NSNNLDSKV 0.002819 | 8.0 |
| HLA-A*68:02 | 1 | 675 | 684 | 10 | QTQTNSPRRA 0.002819 | 9.5 |
| HLA-A*11:01 | 1 | 1207 | 1215 | 9 | EQYIKWPWY 0.002818 | 6.7 |
| HLA-A*30:01 | 1 | 47 | 56 | 10 | VLHSTQDLFL 0.002817 | 17 |
| HLA-B*07:02 | 1 | 794 | 802 | 9 | IKDFGGFNF 0.002817 | 7.1 |
| HLA-A*02:01 | 1 | 1201 | 1210 | 10 | QELGKYEYI 0.002817 | 8.9 |
| HLA-B*15:01 | 1 | 218 | 226 | 9 | QGFSALEPL 0.002816 | 9.1 |
| HLA-A*68:01 | 1 | 234 | 242 | 9 | NITRFQTL 0.002816 | 11 |
| HLA-B*08:01 | 1 | 276 | 285 | 10 | LLKYNENGTI 0.002816 | 12 |
| HLA-B*35:01 | 1 | 627 | 635 | 9 | DQLTPTWRV 0.002816 | 6.6 |
| HLA-A*11:01 | 1 | 1003 | 1011 | 9 | SLQTYVTQQ 0.002816 | 6.7 |
| HLA-A*32:01 | 1 | 1021 | 1029 | 9 | SANLAATKM 0.002815 | 6.5 |
| HLA-B*07:02 | 1 | 122 | 130 | 9 | NATNVVIVK 0.002814 | 7.1 |
| HLA-A*33:01 | 1 | 505 | 513 | 9 | YQPYRVVVL 0.002814 | 8.5 |
| HLA-B*07:02 | 1 | 1034 | 1042 | 9 | LGQSKRVDF 0.002814 | 7.1 |
| HLA-A*03:01 | 1 | 748 | 756 | 9 | ECSNLLLQY 0.002813 | 7.8 |
| HLA-A*30:01 | 1 | 713 | 722 | 10 | AIPTNFTISV 0.002812 | 17 |
| HLA-A*30:02 | 1 | 144 | 153 | 10 | YYHKNNKSWM 0.002811 | 14 |
| HLA-B*44:03 | 1 | 267 | 275 | 9 | VGYLQPRTF 0.002811 | 5.2 |
| HLA-A*32:01 | 1 | 495 | 503 | 9 | YGFQPTNGV 0.002811 | 6.6 |
| HLA-B*58:01 | 1 | 786 | 794 | 9 | KQIYKTPPI 0.002811 | 8.0 |
| HLA-A*26:01 | 1 | 1086 | 1095 | 10 | KAHFREGVVF 0.002811 | 6.6 |
| HLA-A*30:02 | 1 | 168 | 176 | 9 | FEYVSPFL 0.002809 | 14 |
| HLA-A*24:02 | 1 | 995 | 1004 | 10 | RLITGRLQSL 0.002809 | 5.3 |
| HLA-A*02:06 | 1 | 55 | 64 | 10 | FLPFFSNVTW 0.002808 | 13 |
| HLA-A*26:01 | 1 | 480 | 489 | 10 | CNGVEGFNCY 0.002807 | 6.6 |
| HLA-A*30:01 | 1 | 1211 | 1219 | 9 | KWPWYIWL 0.002807 | 17 |
| HLA-A*30:01 | 1 | 462 | 470 | 9 | KPFERDIST 0.002806 | 17 |
| HLA-A*23:01 | 1 | 968 | 977 | 10 | SNFGAISSVL 0.002806 | 5.3 |
| HLA-A*30:02 | 1 | 1203 | 1211 | 9 | LGKYEYQYIK 0.002805 | 14 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*15:01 | 1 | 262 | 270 | 9 | AAAYVGYL 0.002804 | 9.1 |
| HLA-A*68:02 | 1 | 1222 | 1230 | 9 | AGLIAIVMV 0.002804 | 9.5 |
| HLA-B*51:01 | 1 | 937 | 945 | 9 | SLSSTASAL 0.002803 | 12 |
| HLA-A*30:01 | 1 | 338 | 346 | 9 | FGEVFNATR 0.002801 | 17 |
| HLA-B*51:01 | 1 | 447 | 455 | 9 | GNYNLYRL 0.002801 | 12 |
| HLA-A*02:06 | 1 | 787 | 795 | 9 | QIYKTPPIK 0.0028 | 13 |
| HLA-A*24:02 | 1 | 577 | 585 | 9 | RDPQTLEIL 0.002799 | 5.3 |
| HLA-A*02:06 | 1 | 110 | 118 | 9 | LDSKTQSL 0.002798 | 13 |
| HLA-A*30:02 | 1 | 722 | 730 | 9 | VTTEILPVS 0.002798 | 14 |
| HLA-B*44:02 | 1 | 954 | 962 | 9 | QNAQALNTL 0.002798 | 4.9 |
| HLA-B*15:01 | 1 | 1008 | 1016 | 9 | VTQQLIRAA 0.002798 | 9.1 |
| HLA-A*32:01 | 1 | 718 | 727 | 10 | FTISVTTEIL 0.002797 | 6.6 |
| HLA-B*57:01 | 1 | 790 | 799 | 10 | KTPPIKDFGG 0.002797 | 12 |
| HLA-A*02:06 | 1 | 794 | 802 | 9 | IKDFGGFNF 0.002797 | 13 |
| HLA-A*68:01 | 1 | 997 | 1005 | 9 | ITGRLQSLQ 0.002797 | 11 |
| HLA-B*58:01 | 1 | 235 | 243 | 9 | ITRFQTLA 0.002796 | 8.1 |
| HLA-A*30:01 | 1 | 162 | 171 | 10 | SANNCTFEYV 0.002794 | 17 |
| HLA-B*15:01 | 1 | 295 | 303 | 9 | PLSETKCTL 0.002794 | 9.1 |
| HLA-B*51:01 | 1 | 501 | 510 | 10 | NGVGYQPYRV 0.002794 | 12 |
| HLA-A*68:02 | 1 | 519 | 527 | 9 | HAPATVCGP 0.002793 | 9.6 |
| HLA-B*07:02 | 1 | 896 | 905 | 10 | IPFAMQMAYR 0.002793 | 7.2 |
| HLA-B*07:02 | 1 | 808 | 816 | 9 | DPSKPSKRS 0.002792 | 7.2 |
| HLA-A*24:02 | 1 | 796 | 805 | 10 | DFGGFNFSQI 0.002791 | 5.3 |
| HLA-A*02:06 | 1 | 1050 | 1058 | 9 | MSFPQSAPH 0.002791 | 13 |
| HLA-B*51:01 | 1 | 1160 | 1169 | 10 | TSPDVLGDI 0.00279 | 12 |
| HLA-A*02:03 | 1 | 192 | 201 | 10 | FVFKNIDGYF 0.002788 | 11 |
| HLA-A*68:01 | 1 | 477 | 486 | 10 | STPCNGVEGF 0.002788 | 11 |
| HLA-B*35:01 | 1 | 686 | 694 | 9 | SVASQSIIA 0.002788 | 6.6 |
| HLA-A*02:06 | 1 | 1085 | 1094 | 10 | GKAHFPREGV 0.002787 | 13 |
| HLA-B*58:01 | 1 | 443 | 451 | 9 | SKVGGNYYN 0.002786 | 8.1 |
| HLA-A*01:01 | 1 | 893 | 902 | 10 | ALQIPFAMQM 0.002786 | 7.9 |
| HLA-A*26:01 | 1 | 914 | 923 | 10 | NVLYENQKLI 0.002786 | 6.6 |
| HLA-A*31:01 | 1 | 1128 | 1136 | 9 | VVIGIVNNT 0.002785 | 11 |
| HLA-A*01:01 | 1 | 125 | 133 | 9 | NVVIKVECF 0.002784 | 7.9 |
| HLA-A*68:02 | 1 | 460 | 468 | 9 | NLKPFERDI 0.002784 | 9.6 |
| HLA-A*02:03 | 1 | 714 | 722 | 9 | IPTNFTISV 0.002784 | 11 |
| HLA-A*02:06 | 1 | 739 | 747 | 9 | TMYICGDST 0.002784 | 13 |
| HLA-A*02:01 | 1 | 991 | 1000 | 10 | VQIDRLITGR 0.002783 | 9.0 |
| HLA-B*15:01 | 1 | 136 | 145 | 10 | CNDPFLGVYY 0.002782 | 9.1 |
| HLA-B*57:01 | 1 | 82 | 91 | 10 | PVLPFNDGVY 0.002781 | 12 |
| HLA-B*35:01 | 1 | 725 | 733 | 9 | EILPVSMTK 0.002781 | 6.6 |
| HLA-A*31:01 | 1 | 263 | 271 | 9 | AAAYVGYLQ 0.00278 | 11 |
| HLA-B*51:01 | 1 | 975 | 984 | 10 | SVLNDILSRL 0.00278 | 12 |
| HLA-A*32:01 | 1 | 269 | 278 | 10 | YLQPRTFLLK 0.002779 | 6.6 |
| HLA-B*58:01 | 1 | 512 | 521 | 10 | VLSFELLHAP 0.002779 | 8.1 |
| HLA-A*30:02 | 1 | 333 | 342 | 10 | TNLCPFGEVF 0.002778 | 14 |
| HLA-A*30:01 | 1 | 1064 | 1072 | 9 | HVTYVPAQE 0.002778 | 17 |
| HLA-A*30:02 | 1 | 111 | 119 | 9 | DSKTQSLLI 0.002777 | 14 |
| HLA-A*02:03 | 1 | 437 | 445 | 9 | NSNNLDSKV 0.002777 | 11 |
| HLA-B*51:01 | 1 | 519 | 527 | 9 | HAPATVCGP 0.002776 | 12 |
| HLA-B*44:03 | 1 | 1100 | 1109 | 10 | THWFVTQRNF 0.002775 | 5.2 |
| HLA-A*32:01 | 1 | 235 | 243 | 9 | ITRFQTLA 0.002774 | 6.6 |
| HLA-A*26:01 | 1 | 1130 | 1138 | 9 | IGIVNNTVY 0.002774 | 6.6 |
| HLA-B*57:01 | 1 | 1174 | 1182 | 9 | ASVVNIQKE 0.002774 | 12 |
| HLA-A*30:02 | 1 | 877 | 885 | 9 | LLAGTITSG 0.002773 | 14 |
| HLA-A*30:02 | 1 | 633 | 642 | 10 | WRVYSTGSNV 0.002772 | 14 |
| HLA-A*26:01 | 1 | 254 | 262 | 9 | SSSGWTAGA 0.00277 | 6.6 |
| HLA-B*15:01 | 1 | 492 | 500 | 9 | LQSYGFQPT 0.00277 | 9.1 |
| HLA-A*33:01 | 1 | 904 | 913 | 10 | YRFNGIGVTQ 0.00277 | 8.6 |
| HLA-B*44:03 | 1 | 192 | 200 | 9 | FVFKNIDGY 0.002768 | 5.2 |
| HLA-A*24:02 | 1 | 410 | 418 | 9 | IAPGQTGKI 0.002768 | 5.3 |
| HLA-A*30:01 | 1 | 640 | 649 | 10 | SNVFQTRAGC 0.002768 | 17 |
| HLA-A*30:01 | 1 | 851 | 860 | 10 | CAQKFNGLTV 0.002768 | 17 |
| HLA-B*44:02 | 1 | 853 | 861 | 9 | QKFNGLTVL 0.002768 | 4.9 |
| HLA-A*23:01 | 1 | 1006 | 1014 | 9 | TYVTQQLIR 0.002768 | 5.4 |
| HLA-A*30:02 | 1 | 1172 | 1181 | 10 | INASVVNIQK 0.002768 | 14 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*30:02 | 1 | 394 | 403 | 10 | NVYADSFVIR 0.002767 | 14 |
| HLA-A*02:01 | 1 | 587 | 595 | 9 | ITPCSFGGV 0.002766 | 9.0 |
| HLA-A*01:01 | 1 | 1181 | 1189 | 9 | KEIDRLNEV 0.002766 | 7.9 |
| HLA-A*02:03 | 1 | 51 | 59 | 9 | TQDLFLPFF 0.002765 | 11 |
| HLA-A*01:01 | 1 | 55 | 64 | 10 | FLPFFSNVTW 0.002765 | 7.9 |
| HLA-B*07:02 | 1 | 861 | 870 | 10 | LPPLLTDEMI 0.002765 | 7.2 |
| HLA-B*08:01 | 1 | 224 | 233 | 10 | EPLVDLPIGI 0.002764 | 12 |
| HLA-A*30:01 | 1 | 314 | 323 | 10 | QTSNFRVQPT 0.002762 | 17 |
| HLA-A*30:01 | 1 | 499 | 507 | 9 | PTNGVGYQP 0.002761 | 17 |
| HLA-B*44:03 | 1 | 55 | 64 | 10 | FLPFFSNVTW 0.00276 | 5.2 |
| HLA-A*30:02 | 1 | 659 | 668 | 10 | SYECDIPIGA 0.00276 | 14 |
| HLA-B*53:01 | 1 | 950 | 959 | 10 | DVVNQNAQAL 0.00276 | 6.0 |
| HLA-A*30:02 | 1 | 1030 | 1038 | 9 | SECVLGQSK 0.00276 | 14 |
| HLA-A*68:01 | 1 | 181 | 190 | 10 | GKQGNFKNLR 0.002759 | 11 |
| HLA-A*30:02 | 1 | 534 | 543 | 10 | VKNKCVNFNF 0.002758 | 14 |
| HLA-B*51:01 | 1 | 987 | 996 | 10 | VEAEVQIDRL 0.002758 | 12 |
| HLA-A*26:01 | 1 | 1041 | 1049 | 9 | DFCGKGYHL 0.002758 | 6.6 |
| HLA-A*26:01 | 1 | 471 | 480 | 10 | EIYQAGSTPC 0.002757 | 6.6 |
| HLA-B*44:02 | 1 | 686 | 695 | 10 | SVASQSIIAY 0.002757 | 5.0 |
| HLA-A*30:01 | 1 | 127 | 135 | 9 | VIKVFQF 0.002756 | 6.6 |
| HLA-A*02:06 | 1 | 89 | 97 | 9 | GVYFASTEK 0.002755 | 13 |
| HLA-B*51:01 | 1 | 843 | 851 | 9 | DIAARDLIC 0.002755 | 12 |
| HLA-A*02:01 | 1 | 1113 | 1121 | 9 | QIITTDNTF 0.002755 | 9.0 |
| HLA-A*02:03 | 1 | 9 | 18 | 10 | PLVSSQCVNL 0.002754 | 11 |
| HLA-A*23:01 | 1 | 384 | 392 | 9 | PTKLNLCF 0.002754 | 5.4 |
| HLA-B*08:01 | 1 | 398 | 407 | 10 | DSFVIRGDEV 0.002754 | 12 |
| HLA-A*23:01 | 1 | 577 | 585 | 9 | RDPQTLLEIL 0.002754 | 5.4 |
| HLA-B*57:01 | 1 | 696 | 705 | 10 | TMSLGAENSV 0.002754 | 12 |
| HLA-A*01:01 | 1 | 877 | 886 | 10 | LLAGTITSGW 0.002754 | 7.9 |
| HLA-A*68:01 | 1 | 326 | 335 | 10 | IVRFPNITNL 0.002752 | 11 |
| HLA-A*02:01 | 1 | 850 | 858 | 9 | ICAQKFNGL 0.002752 | 9.0 |
| HLA-B*08:01 | 1 | 1009 | 1018 | 10 | TQQLIRAAEI 0.002751 | 12 |
| HLA-A*30:02 | 1 | 218 | 226 | 9 | QGFSALEPL 0.00275 | 14 |
| HLA-A*02:06 | 1 | 34 | 43 | 10 | RGVYYPDKVF 0.002749 | 13 |
| HLA-A*68:02 | 1 | 595 | 604 | 10 | VSVITPGTNT 0.002749 | 9.6 |
| HLA-B*08:01 | 1 | 761 | 769 | 9 | TQLNRALTG 0.002749 | 12 |
| HLA-A*30:01 | 1 | 318 | 326 | 9 | FRVQPTESI 0.002748 | 17 |
| HLA-A*30:01 | 1 | 823 | 831 | 9 | FNKVTLADA 0.002748 | 17 |
| HLA-A*02:06 | 1 | 1015 | 1024 | 10 | AAEIRASANL 0.002748 | 13 |
| HLA-A*30:01 | 1 | 1218 | 1226 | 9 | LGFIAGLIA 0.002748 | 17 |
| HLA-B*51:01 | 1 | 707 | 715 | 9 | YSNNSIAIP 0.002747 | 12 |
| HLA-B*57:01 | 1 | 348 | 357 | 10 | ASVYAWNRKR 0.002746 | 12 |
| HLA-B*07:02 | 1 | 891 | 900 | 10 | GAALQIPFAM 0.002745 | 7.2 |
| HLA-B*44:02 | 1 | 1146 | 1155 | 10 | DSFKEELDKY 0.002745 | 5.0 |
| HLA-A*32:01 | 1 | 21 | 29 | 9 | RTQLPPAYT 0.002744 | 6.6 |
| HLA-B*07:02 | 1 | 295 | 303 | 9 | PLSETKCTL 0.002744 | 7.2 |
| HLA-A*23:01 | 1 | 814 | 822 | 9 | KRSFIEDLL 0.002744 | 5.4 |
| HLA-B*53:01 | 1 | 961 | 970 | 10 | TLVKQLSSNF 0.002744 | 6.0 |
| HLA-A*68:02 | 1 | 221 | 230 | 10 | SALEPLVDLP 0.002743 | 9.6 |
| HLA-A*30:02 | 1 | 549 | 557 | 9 | TGVLTESNK 0.002743 | 14 |
| HLA-A*30:02 | 1 | 682 | 690 | 9 | RRARSVASQ 0.002743 | 14 |
| HLA-A*30:02 | 1 | 695 | 703 | 9 | YTMSLGAEN 0.002743 | 14 |
| HLA-A*31:01 | 1 | 1263 | 1272 | 10 | PVLKGVKLHY 0.002743 | 11 |
| HLA-A*32:01 | 1 | 71 | 79 | 9 | SGTNGTKRF 0.002742 | 6.6 |
| HLA-A*01:01 | 1 | 119 | 127 | 9 | IVNNATNVV 0.002742 | 8.0 |
| HLA-B*07:02 | 1 | 144 | 152 | 9 | YYHKNNKSW 0.002742 | 7.2 |
| HLA-A*30:01 | 1 | 323 | 332 | 10 | TESIVRFPNI 0.002742 | 17 |
| HLA-A*02:06 | 1 | 950 | 958 | 9 | DVVNQNAQA 0.002741 | 13 |
| HLA-B*58:01 | 1 | 968 | 976 | 9 | SNFGAISSV 0.002741 | 8.1 |
| HLA-A*30:01 | 1 | 1060 | 1069 | 10 | VVFLHVITYVP 0.002741 | 17 |
| HLA-A*02:01 | 1 | 268 | 276 | 9 | GYLQPRFTL 0.00274 | 9.0 |
| HLA-B*08:01 | 1 | 411 | 419 | 9 | APGQTGKIA 0.00274 | 12 |
| HLA-B*15:01 | 1 | 473 | 481 | 9 | YQAGSTPCN 0.00274 | 9.2 |
| HLA-A*23:01 | 1 | 525 | 533 | 9 | CGPKKSTNL 0.00274 | 5.4 |
| HLA-B*40:01 | 1 | 177 | 186 | 10 | MDLEGKQGNF 0.002739 | 4.8 |
| HLA-A*02:03 | 1 | 382 | 390 | 9 | VSPTKLNLDL 0.002738 | 11 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*08:01 | 1 | 152 | 160 | 9 | WMESEFRVY 0.002737 | 12 |
| HLA-A*01:01 | 1 | 178 | 187 | 10 | DLEGKQGNFK 0.002737 | 8.0 |
| HLA-A*30:01 | 1 | 460 | 468 | 9 | NLKPFFERDI 0.002737 | 17 |
| HLA-A*33:01 | 1 | 638 | 647 | 10 | TGSNVFQTRA 0.002737 | 8.7 |
| HLA-B*44:02 | 1 | 361 | 369 | 9 | CVADYSVLY 0.002736 | 5.0 |
| HLA-A*30:01 | 1 | 825 | 833 | 9 | KVTLADAGF 0.002735 | 17 |
| HLA-B*08:01 | 1 | 420 | 429 | 10 | DYNYKLPDDF 0.002734 | 12 |
| HLA-A*03:01 | 1 | 520 | 528 | 9 | APATVCGPK 0.002734 | 7.9 |
| HLA-B*35:01 | 1 | 968 | 976 | 9 | SNFGAISSV 0.002734 | 6.6 |
| HLA-A*02:03 | 1 | 1260 | 1268 | 9 | DSEPVKGV 0.002734 | 11 |
| HLA-A*24:02 | 1 | 892 | 900 | 9 | AALQIPFAM 0.002733 | 5.3 |
| HLA-A*31:01 | 1 | 257 | 266 | 10 | GWTAGAAAYY 0.002732 | 11 |
| HLA-A*68:02 | 1 | 655 | 664 | 10 | HVNNSYECDI 0.002732 | 9.7 |
| HLA-A*30:01 | 1 | 722 | 731 | 10 | VTTEILPVSM 0.002731 | 17 |
| HLA-A*32:01 | 1 | 1132 | 1141 | 10 | IVNNTVYDPL 0.002731 | 6.6 |
| HLA-A*33:01 | 1 | 53 | 61 | 9 | DLFLPFFSN 0.00273 | 8.7 |
| HLA-A*30:01 | 1 | 813 | 822 | 10 | SKRSFIEDLL 0.002729 | 17 |
| HLA-B*51:01 | 1 | 61 | 70 | 10 | NVTWFHAIHV 0.002728 | 12 |
| HLA-B*44:02 | 1 | 1081 | 1089 | 9 | ICHDGKAHF 0.002728 | 5.0 |
| HLA-B*57:01 | 1 | 806 | 814 | 9 | LPDPSKPSK 0.002727 | 12 |
| HLA-A*33:01 | 1 | 78 | 86 | 9 | RFDNPVLPF 0.002726 | 8.7 |
| HLA-A*68:01 | 1 | 506 | 514 | 9 | QPYRVVVL 0.002726 | 11 |
| HLA-B*15:01 | 1 | 1047 | 1056 | 10 | YHLMSFPQSA 0.002726 | 9.2 |
| HLA-A*68:01 | 1 | 1067 | 1075 | 9 | YVPAQEKNF 0.002726 | 11 |
| HLA-A*02:01 | 1 | 227 | 235 | 9 | VDLPIGINI 0.002725 | 9.0 |
| HLA-A*11:01 | 1 | 256 | 265 | 10 | SGWTAGAAAY 0.002725 | 6.8 |
| HLA-A*31:01 | 1 | 625 | 633 | 9 | HADQLTPTW 0.002725 | 11 |
| HLA-B*58:01 | 1 | 974 | 983 | 10 | SSVLNDILSR 0.002725 | 8.2 |
| HLA-A*01:01 | 1 | 709 | 718 | 10 | NNSIAIPTNF 0.002724 | 8.0 |
| HLA-A*68:02 | 1 | 1132 | 1141 | 10 | IVNNTVYDPL 0.002724 | 9.7 |
| HLA-A*02:06 | 1 | 188 | 197 | 10 | NLREFVFKNI 0.002722 | 13 |
| HLA-A*30:02 | 1 | 660 | 668 | 9 | YECDIPIGA 0.002722 | 14 |
| HLA-A*11:01 | 1 | 780 | 789 | 10 | EVFAQVKQIY 0.002722 | 6.8 |
| HLA-A*02:01 | 1 | 1049 | 1057 | 9 | LMSFPQSAP 0.002722 | 9.0 |
| HLA-A*30:01 | 1 | 557 | 566 | 10 | KKFLPFQQFG 0.00272 | 17 |
| HLA-B*51:01 | 1 | 993 | 1001 | 9 | IDRLITGRL 0.00272 | 12 |
| HLA-B*51:01 | 1 | 1088 | 1097 | 10 | HFPREGVFVS 0.002718 | 12 |
| HLA-A*32:01 | 1 | 1004 | 1013 | 10 | LQTYVTQQLI 0.002717 | 6.6 |
| HLA-A*11:01 | 1 | 205 | 214 | 10 | SKHTPINLVR 0.002716 | 6.8 |
| HLA-A*02:03 | 1 | 1109 | 1117 | 9 | FYEPQIITT 0.002715 | 11 |
| HLA-A*02:01 | 1 | 502 | 511 | 10 | GVGYPYRVV 0.002714 | 9.0 |
| HLA-A*30:02 | 1 | 249 | 258 | 10 | LTPGDSSSGW 0.002713 | 14 |
| HLA-B*15:01 | 1 | 268 | 276 | 9 | GYLQPRFTL 0.002713 | 9.2 |
| HLA-A*02:03 | 1 | 753 | 761 | 9 | LLQYGSFCT 0.002712 | 11 |
| HLA-A*23:01 | 1 | 532 | 541 | 10 | NLVKNKCVNF 0.002711 | 5.4 |
| HLA-A*30:01 | 1 | 379 | 387 | 9 | CYGVSPTKL 0.00271 | 17 |
| HLA-A*23:01 | 1 | 1060 | 1068 | 9 | VVFLHVTVY 0.00271 | 5.4 |
| HLA-B*53:01 | 1 | 620 | 628 | 9 | VPVAIHADQ 0.002709 | 6.0 |
| HLA-A*68:01 | 1 | 629 | 637 | 9 | LTPTWRVYS 0.002708 | 11 |
| HLA-B*08:01 | 1 | 1073 | 1081 | 9 | KNFTTAPAI 0.002708 | 12 |
| HLA-B*44:03 | 1 | 307 | 316 | 10 | TVEKGIYQTS 0.002707 | 5.2 |
| HLA-B*15:01 | 1 | 319 | 328 | 10 | RVQPTESIVR 0.002707 | 9.2 |
| HLA-A*03:01 | 1 | 47 | 55 | 9 | VLHSTQDLF 0.002705 | 7.9 |
| HLA-A*31:01 | 1 | 783 | 791 | 9 | AQVKQIYKT 0.002705 | 11 |
| HLA-A*32:01 | 1 | 652 | 660 | 9 | GAEHVNNSY 0.002704 | 6.6 |
| HLA-B*53:01 | 1 | 722 | 731 | 10 | VTTEILPVSM 0.002703 | 6.0 |
| HLA-B*53:01 | 1 | 918 | 927 | 10 | ENQKLIANQF 0.002703 | 6.0 |
| HLA-B*07:02 | 1 | 1050 | 1058 | 9 | MSFPQSAPH 0.002702 | 7.3 |
| HLA-A*24:02 | 1 | 132 | 141 | 10 | EFQFCNDPFL 0.002701 | 5.4 |
| HLA-A*33:01 | 1 | 788 | 797 | 10 | IYKTPPIKDF 0.002701 | 8.7 |
| HLA-A*02:06 | 1 | 819 | 828 | 10 | EDLLFNKVTL 0.002701 | 13 |
| HLA-A*33:01 | 1 | 143 | 152 | 10 | VYYHKNKSW 0.0027 | 8.7 |
| HLA-A*01:01 | 1 | 748 | 757 | 10 | ECSNLLLQYG 0.002699 | 8.0 |
| HLA-A*23:01 | 1 | 958 | 966 | 9 | ALNTLVKQL 0.002699 | 5.4 |
| HLA-A*02:01 | 1 | 623 | 632 | 10 | AIHADQLTPT 0.002698 | 9.1 |
| HLA-A*01:01 | 1 | 478 | 486 | 9 | TPCNGVEGF 0.002697 | 8.0 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*68:02 | 1 | 590 | 599 | 10 | CSFGGVSVIT 0.002697 | 9.7 |
| HLA-A*03:01 | 1 | 933 | 941 | 9 | KIQDLSLST 0.002697 | 7.9 |
| HLA-B*58:01 | 1 | 75 | 84 | 10 | GTKRFDNPVL 0.002696 | 8.2 |
| HLA-A*11:01 | 1 | 237 | 245 | 9 | RFQTLALH 0.002696 | 6.8 |
| HLA-A*02:03 | 1 | 639 | 647 | 9 | GSNVQTRA 0.002696 | 11 |
| HLA-A*30:01 | 1 | 1011 | 1019 | 9 | QLIRAAEIR 0.002696 | 17 |
| HLA-A*30:01 | 1 | 1044 | 1052 | 9 | GKGYHLMSF 0.002696 | 17 |
| HLA-B*51:01 | 1 | 543 | 551 | 9 | FNGLTGTGV 0.002695 | 12 |
| HLA-A*24:02 | 1 | 71 | 79 | 9 | SGTNGTKRF 0.002694 | 5.4 |
| HLA-A*68:01 | 1 | 905 | 913 | 9 | RFNGIGVTQ 0.002694 | 11 |
| HLA-A*33:01 | 1 | 913 | 921 | 9 | QNVLYENQK 0.002693 | 8.7 |
| HLA-A*30:02 | 1 | 982 | 991 | 10 | SRLDKVEAEV 0.002692 | 14 |
| HLA-A*02:01 | 1 | 1165 | 1174 | 10 | DLGDISGINA 0.002692 | 9.1 |
| HLA-B*40:01 | 1 | 567 | 576 | 10 | RDIADTTDAV 0.002691 | 4.8 |
| HLA-A*32:01 | 1 | 637 | 646 | 10 | STGSNVFQTR 0.002691 | 6.7 |
| HLA-A*02:06 | 1 | 1221 | 1229 | 9 | IAGLIAIVM 0.002691 | 13 |
| HLA-B*40:01 | 1 | 937 | 945 | 9 | SLSSTASAL 0.00269 | 4.8 |
| HLA-A*30:02 | 1 | 194 | 202 | 9 | FKNIDGYFK 0.002689 | 14 |
| HLA-A*02:01 | 1 | 723 | 731 | 9 | TTEILPVSM 0.002689 | 9.1 |
| HLA-B*58:01 | 1 | 814 | 822 | 9 | KRSFIEDLL 0.002689 | 8.2 |
| HLA-B*51:01 | 1 | 922 | 930 | 9 | LIANQFNSA 0.002688 | 12 |
| HLA-A*02:06 | 1 | 43 | 51 | 9 | FRSSVLHST 0.002687 | 13 |
| HLA-A*03:01 | 1 | 617 | 625 | 9 | CTEVPVAIH 0.002686 | 7.9 |
| HLA-A*02:03 | 1 | 691 | 700 | 10 | SIIAYTMSLG 0.002686 | 11 |
| HLA-A*23:01 | 1 | 803 | 811 | 9 | SQILPDPSK 0.002685 | 5.4 |
| HLA-A*11:01 | 1 | 202 | 210 | 9 | KIYSKHTPI 0.002684 | 6.8 |
| HLA-B*58:01 | 1 | 734 | 743 | 10 | TSVDCTMYIC 0.002684 | 8.2 |
| HLA-A*30:01 | 1 | 760 | 768 | 9 | CTQLNRALT 0.002683 | 17 |
| HLA-A*02:06 | 1 | 84 | 92 | 9 | LPFNDGVYF 0.002682 | 13 |
| HLA-B*51:01 | 1 | 633 | 642 | 10 | WRVYSTGSNV 0.002682 | 12 |
| HLA-A*02:06 | 1 | 662 | 670 | 9 | CDIPIGAGI 0.002682 | 13 |
| HLA-A*31:01 | 1 | 445 | 453 | 9 | VGGNYNYLY 0.002681 | 11 |
| HLA-A*30:02 | 1 | 815 | 824 | 10 | RSFIEDLLFN 0.002681 | 14 |
| HLA-B*51:01 | 1 | 819 | 828 | 10 | EDLLFNKVTL 0.00268 | 12 |
| HLA-B*51:01 | 1 | 170 | 179 | 10 | YVSQPFLMDL 0.002679 | 12 |
| HLA-B*07:02 | 1 | 968 | 977 | 10 | SNFGAISSVL 0.002679 | 7.3 |
| HLA-A*30:01 | 1 | 1191 | 1200 | 10 | KNLNESLIDL 0.002679 | 17 |
| HLA-A*02:01 | 1 | 304 | 312 | 9 | KSFTVEKGI 0.002678 | 9.1 |
| HLA-B*35:01 | 1 | 327 | 335 | 9 | VRFPNITNL 0.002677 | 6.7 |
| HLA-B*58:01 | 1 | 18 | 26 | 9 | LTRTQLPP 0.002676 | 8.2 |
| HLA-B*44:03 | 1 | 783 | 791 | 9 | AQVKQIYKT 0.002676 | 5.3 |
| HLA-A*30:02 | 1 | 799 | 807 | 9 | GFNFSQILP 0.002676 | 14 |
| HLA-A*02:06 | 1 | 1009 | 1018 | 10 | TQQLIRAAEI 0.002676 | 13 |
| HLA-B*08:01 | 1 | 634 | 642 | 9 | RVYSTGSNV 0.002671 | 13 |
| HLA-A*30:02 | 1 | 601 | 610 | 10 | GTNTSNQVAV 0.00267 | 14 |
| HLA-A*26:01 | 1 | 624 | 633 | 10 | IHADQLTPTW 0.00267 | 6.8 |
| HLA-A*02:03 | 1 | 637 | 645 | 9 | STGSNVFQT 0.00267 | 11 |
| HLA-A*02:06 | 1 | 1163 | 1172 | 10 | DVDLGDISGI 0.00267 | 13 |
| HLA-A*11:01 | 1 | 178 | 187 | 10 | DLEGKQGNFK 0.002669 | 6.8 |
| HLA-B*58:01 | 1 | 382 | 390 | 9 | VSPTKLNDL 0.002669 | 8.3 |
| HLA-A*01:01 | 1 | 718 | 727 | 10 | FTISVTTEIL 0.002669 | 8.1 |
| HLA-A*30:01 | 1 | 956 | 965 | 10 | AQALNTLVKQ 0.002669 | 17 |
| HLA-B*44:02 | 1 | 573 | 582 | 10 | TDAVRDPQTL 0.002668 | 5.0 |
| HLA-B*35:01 | 1 | 918 | 927 | 10 | ENQKLIANQF 0.002666 | 6.7 |
| HLA-A*30:02 | 1 | 185 | 194 | 10 | NFKNLREFVF 0.002665 | 14 |
| HLA-B*07:02 | 1 | 490 | 498 | 9 | FPLQSYGFQ 0.002665 | 7.3 |
| HLA-B*58:01 | 1 | 10 | 18 | 9 | LVSSQCVNL 0.002663 | 8.3 |
| HLA-B*53:01 | 1 | 327 | 335 | 9 | VRFPNITNL 0.002663 | 6.0 |
| HLA-B*51:01 | 1 | 1148 | 1156 | 9 | FKEELDKYF 0.002663 | 12 |
| HLA-B*51:01 | 1 | 317 | 326 | 10 | NFRVQPTESI 0.002662 | 12 |
| HLA-B*35:01 | 1 | 1139 | 1147 | 9 | DPLQPELDS 0.002662 | 6.7 |
| HLA-A*02:03 | 1 | 155 | 163 | 9 | SEFRVYSSA 0.002661 | 11 |
| HLA-A*11:01 | 1 | 686 | 694 | 9 | SVASQSIIA 0.00266 | 6.8 |
| HLA-B*40:01 | 1 | 30 | 38 | 9 | NSFTRGVYY 0.002659 | 4.9 |
| HLA-A*33:01 | 1 | 1084 | 1092 | 9 | DGKAHFPRE 0.002659 | 8.7 |
| HLA-B*51:01 | 1 | 1124 | 1132 | 9 | GNCDVVIGI 0.002659 | 12 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*58:01 | 1 | 151 | 160 | 10 | SWMESEFRVY 0.002658 | 8.3 |
| HLA-A*68:01 | 1 | 211 | 220 | 10 | NLVRDLPQGF 0.002658 | 11 |
| HLA-B*44:03 | 1 | 771 | 780 | 10 | AVEQDKNTQE 0.002658 | 5.3 |
| HLA-B*08:01 | 1 | 1056 | 1064 | 9 | APHGVVFLH 0.002658 | 13 |
| HLA-A*23:01 | 1 | 503 | 511 | 9 | VGYPYRVV 0.002657 | 5.5 |
| HLA-B*58:01 | 1 | 717 | 726 | 10 | NFTISVTTEI 0.002657 | 8.3 |
| HLA-B*07:02 | 1 | 809 | 817 | 9 | PSKPSKRSF 0.002657 | 7.4 |
| HLA-A*01:01 | 1 | 1080 | 1089 | 10 | AICHDGKAHF 0.002657 | 8.1 |
| HLA-A*30:01 | 1 | 373 | 382 | 10 | SFSTFKCYGV 0.002655 | 17 |
| HLA-A*68:01 | 1 | 1151 | 1159 | 9 | ELDKYFKNH 0.002655 | 11 |
| HLA-B*58:01 | 1 | 136 | 144 | 9 | CNDPFLGVY 0.002654 | 8.3 |
| HLA-A*33:01 | 1 | 1201 | 1209 | 9 | QELGKYEYQ 0.002654 | 8.8 |
| HLA-A*02:06 | 1 | 239 | 247 | 9 | QTLLALHRS 0.002653 | 14 |
| HLA-B*07:02 | 1 | 138 | 146 | 9 | DPFLGVVYH 0.002652 | 7.4 |
| HLA-A*03:01 | 1 | 265 | 273 | 9 | YYVGYLQPR 0.002652 | 8.0 |
| HLA-B*08:01 | 1 | 381 | 390 | 10 | GVSPTKLNDL 0.002652 | 13 |
| HLA-B*58:01 | 1 | 697 | 706 | 10 | MSLGAENSV 0.002652 | 8.3 |
| HLA-A*68:02 | 1 | 203 | 212 | 10 | IYSKHTPINL 0.002651 | 9.8 |
| HLA-B*53:01 | 1 | 484 | 492 | 9 | EGFNCFYFPL 0.002651 | 6.1 |
| HLA-A*32:01 | 1 | 493 | 501 | 9 | QSYGFQPTN 0.002651 | 6.7 |
| HLA-A*33:01 | 1 | 803 | 811 | 9 | SQILPDPSK 0.002651 | 8.8 |
| HLA-B*07:02 | 1 | 903 | 911 | 9 | AYRFNGIGV 0.002651 | 7.4 |
| HLA-B*15:01 | 1 | 753 | 762 | 10 | LLQYGSFCTQ 0.002649 | 9.3 |
| HLA-A*68:02 | 1 | 995 | 1004 | 10 | RLITGRLQSL 0.002649 | 9.8 |
| HLA-B*44:03 | 1 | 483 | 492 | 10 | VEGFNCFYFPL 0.002648 | 5.3 |
| HLA-B*57:01 | 1 | 988 | 997 | 10 | EAEVQIDRLI 0.002648 | 12 |
| HLA-A*01:01 | 1 | 193 | 201 | 9 | VFKNIDGYF 0.002647 | 8.1 |
| HLA-B*35:01 | 1 | 34 | 43 | 10 | RGVYYPDKVF 0.002646 | 6.8 |
| HLA-B*57:01 | 1 | 441 | 449 | 9 | LDSKVGNGY 0.002646 | 12 |
| HLA-A*32:01 | 1 | 805 | 814 | 10 | ILPDPSKPSK 0.002646 | 6.7 |
| HLA-A*32:01 | 1 | 869 | 878 | 10 | MIAQYTSALL 0.002646 | 6.7 |
| HLA-A*02:06 | 1 | 462 | 470 | 9 | KPFERDIST 0.002645 | 14 |
| HLA-A*11:01 | 1 | 109 | 117 | 9 | TLDSKTQSL 0.002642 | 6.9 |
| HLA-A*01:01 | 1 | 154 | 163 | 10 | ESEFRVYSSA 0.002642 | 8.1 |
| HLA-A*31:01 | 1 | 258 | 266 | 9 | WTAGAAAYY 0.002642 | 11 |
| HLA-B*57:01 | 1 | 939 | 947 | 9 | SSTASALGK 0.002642 | 12 |
| HLA-B*44:02 | 1 | 1070 | 1078 | 9 | AQEKNFTTA 0.002641 | 5.0 |
| HLA-A*30:02 | 1 | 1178 | 1186 | 9 | NIQKEIDRL 0.00264 | 14 |
| HLA-B*08:01 | 1 | 7 | 15 | 9 | LLPLVSSQC 0.002639 | 13 |
| HLA-A*02:06 | 1 | 126 | 135 | 10 | VVIKVCEQF 0.002639 | 14 |
| HLA-A*01:01 | 1 | 12 | 21 | 10 | SSQCVNLTR 0.002637 | 8.2 |
| HLA-B*44:02 | 1 | 1101 | 1109 | 9 | HWFVTQRNF 0.002637 | 5.1 |
| HLA-A*68:02 | 1 | 1133 | 1141 | 9 | VNNTVYDPL 0.002637 | 9.8 |
| HLA-A*68:02 | 1 | 43 | 51 | 9 | FRSSVLHST 0.002636 | 9.8 |
| HLA-B*58:01 | 1 | 254 | 262 | 9 | SSSGWTAGA 0.002636 | 8.3 |
| HLA-A*30:02 | 1 | 77 | 85 | 9 | KRFDNPVLP 0.002635 | 14 |
| HLA-A*11:01 | 1 | 550 | 559 | 10 | GVLTESNKKF 0.002635 | 6.9 |
| HLA-A*32:01 | 1 | 1064 | 1073 | 10 | HVTYVPAQEK 0.002635 | 6.7 |
| HLA-A*02:03 | 1 | 757 | 766 | 10 | GSFCTQLNRA 0.002634 | 11 |
| HLA-B*53:01 | 1 | 818 | 826 | 9 | IEDLLFNKV 0.002634 | 6.1 |
| HLA-A*30:02 | 1 | 1001 | 1009 | 9 | LQSLQTYVT 0.002634 | 14 |
| HLA-A*30:01 | 1 | 766 | 774 | 9 | ALTGIAVEQ 0.002633 | 17 |
| HLA-A*24:02 | 1 | 774 | 782 | 9 | QDKNTQEVF 0.002632 | 5.4 |
| HLA-B*58:01 | 1 | 975 | 983 | 9 | SVLNDILSR 0.002632 | 8.3 |
| HLA-B*57:01 | 1 | 1036 | 1045 | 10 | QSKRVDFCGK 0.002631 | 12 |
| HLA-B*08:01 | 1 | 96 | 104 | 9 | EKSNIIRGW 0.00263 | 13 |
| HLA-B*51:01 | 1 | 1139 | 1147 | 9 | DPLQPELDS 0.00263 | 12 |
| HLA-B*08:01 | 1 | 45 | 54 | 10 | SSVLHSTQDL 0.002629 | 13 |
| HLA-A*24:02 | 1 | 456 | 464 | 9 | FRKSNLKPFP 0.002629 | 5.4 |
| HLA-A*03:01 | 1 | 1197 | 1206 | 10 | LIDLQELGKY 0.002629 | 8.0 |
| HLA-A*30:02 | 1 | 12 | 20 | 9 | SSQCVNLTT 0.002628 | 14 |
| HLA-B*35:01 | 1 | 1056 | 1065 | 10 | APHGVVFLHV 0.002628 | 6.8 |
| HLA-A*30:01 | 1 | 1189 | 1198 | 10 | VAKNLNESLI 0.002628 | 17 |
| HLA-A*01:01 | 1 | 688 | 696 | 9 | ASQSIIAYT 0.002627 | 8.2 |
| HLA-A*24:02 | 1 | 203 | 211 | 9 | IYSKHTPIN 0.002626 | 5.4 |
| HLA-A*02:06 | 1 | 389 | 397 | 9 | DLCFTNVYA 0.002626 | 14 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*30:02 | 1 | 810 | 818 | 9 | SKPSKRSFI 0.002626 | 14 |
| HLA-B*58:01 | 1 | 57 | 65 | 9 | PFFSNVTWF 0.002625 | 8.3 |
| HLA-A*30:02 | 1 | 23 | 31 | 9 | QLPPAYTNS 0.002624 | 14 |
| HLA-B*08:01 | 1 | 996 | 1005 | 10 | LITGRLQSLQ 0.002624 | 13 |
| HLA-A*68:02 | 1 | 1227 | 1235 | 9 | IVMVTIMLC 0.002624 | 9.8 |
| HLA-B*53:01 | 1 | 228 | 237 | 10 | DLPIGINITR 0.002623 | 6.1 |
| HLA-A*01:01 | 1 | 344 | 353 | 10 | ATRFASVYAW 0.002623 | 8.2 |
| HLA-B*40:01 | 1 | 443 | 451 | 9 | SKVGGNYNY 0.002623 | 4.9 |
| HLA-B*40:01 | 1 | 820 | 828 | 9 | DLLFNKVTL 0.002623 | 4.9 |
| HLA-B*35:01 | 1 | 396 | 404 | 9 | YADSFVIRG 0.002622 | 6.8 |
| HLA-A*33:01 | 1 | 109 | 117 | 9 | TLDSKTQSL 0.002621 | 8.8 |
| HLA-B*40:01 | 1 | 416 | 425 | 10 | GKIADYNYKL 0.00262 | 4.9 |
| HLA-B*08:01 | 1 | 462 | 471 | 10 | KPFERDISTE 0.002619 | 13 |
| HLA-A*26:01 | 1 | 852 | 861 | 10 | AQKFNGLTVL 0.002619 | 6.8 |
| HLA-A*02:03 | 1 | 919 | 927 | 9 | NQKLIANQF 0.002619 | 11 |
| HLA-A*30:01 | 1 | 553 | 562 | 10 | TESNKKFLPF 0.002618 | 17 |
| HLA-B*57:01 | 1 | 615 | 624 | 10 | VNCTEVPVAI 0.002618 | 12 |
| HLA-A*02:06 | 1 | 786 | 795 | 10 | KQIYKTPPIK 0.002618 | 14 |
| HLA-A*31:01 | 1 | 1149 | 1157 | 9 | KEELDKYFK 0.002618 | 11 |
| HLA-A*02:01 | 1 | 212 | 220 | 9 | LVRDLPQGF 0.002616 | 9.2 |
| HLA-B*40:01 | 1 | 983 | 991 | 9 | RLDKVEAEV 0.002616 | 4.9 |
| HLA-A*02:03 | 1 | 1132 | 1141 | 10 | IVNNTVYDPL 0.002616 | 11 |
| HLA-A*01:01 | 1 | 49 | 57 | 9 | HSTQDLFLP 0.002615 | 8.2 |
| HLA-A*01:01 | 1 | 1007 | 1015 | 9 | YVTQQLIRA 0.002615 | 8.2 |
| HLA-A*03:01 | 1 | 366 | 374 | 9 | SVLYNSASF 0.002614 | 8.0 |
| HLA-B*08:01 | 1 | 461 | 470 | 10 | LKPFERDIST 0.002613 | 13 |
| HLA-A*30:01 | 1 | 690 | 698 | 9 | QSIAYTMS 0.002613 | 17 |
| HLA-A*30:01 | 1 | 894 | 903 | 10 | LQIPFAMQMA 0.002613 | 17 |
| HLA-B*40:01 | 1 | 443 | 452 | 10 | SKVGGNYNYL 0.002612 | 4.9 |
| HLA-A*30:02 | 1 | 953 | 962 | 10 | NQNAQALNTL 0.002612 | 15 |
| HLA-A*30:01 | 1 | 133 | 141 | 9 | FQFCNDPFL 0.002611 | 17 |
| HLA-A*26:01 | 1 | 915 | 923 | 9 | VLYENQKLI 0.002611 | 6.8 |
| HLA-A*32:01 | 1 | 773 | 782 | 10 | EQDKNTQEVF 0.00261 | 6.7 |
| HLA-B*15:01 | 1 | 922 | 930 | 9 | LIANQFNSA 0.00261 | 9.4 |
| HLA-A*02:01 | 1 | 1108 | 1117 | 10 | NFYEQIITT 0.00261 | 9.2 |
| HLA-A*30:01 | 1 | 436 | 444 | 9 | WNSNNLDSK 0.002609 | 17 |
| HLA-A*24:02 | 1 | 999 | 1007 | 9 | GRLQSLQTY 0.002609 | 5.5 |
| HLA-A*31:01 | 1 | 104 | 113 | 10 | WIFGTTLDSK 0.002608 | 11 |
| HLA-B*53:01 | 1 | 171 | 179 | 9 | VSQPFLMDL 0.002608 | 6.1 |
| HLA-B*35:01 | 1 | 216 | 225 | 10 | LPQGFSALEP 0.002608 | 6.8 |
| HLA-A*03:01 | 1 | 939 | 948 | 10 | SSTASALGKL 0.002608 | 8.0 |
| HLA-B*07:02 | 1 | 1013 | 1022 | 10 | IRAAEIRASA 0.002608 | 7.4 |
| HLA-B*44:02 | 1 | 23 | 32 | 10 | QLPPAYTNSF 0.002607 | 5.1 |
| HLA-A*02:01 | 1 | 942 | 951 | 10 | ASALGKLQDV 0.002606 | 9.2 |
| HLA-A*33:01 | 1 | 1237 | 1245 | 9 | MTSCCCLK 0.002606 | 8.8 |
| HLA-A*68:02 | 1 | 214 | 223 | 10 | RDLPQGFSAL 0.002605 | 9.9 |
| HLA-A*68:02 | 1 | 406 | 414 | 9 | EVRQIAPGQ 0.002605 | 9.9 |
| HLA-A*02:03 | 1 | 284 | 292 | 9 | TITDAVDCA 0.002604 | 11 |
| HLA-A*68:02 | 1 | 343 | 351 | 9 | NATRFASVY 0.002604 | 9.9 |
| HLA-A*31:01 | 1 | 1058 | 1067 | 10 | HGVVFLHVTY 0.002603 | 11 |
| HLA-B*53:01 | 1 | 1147 | 1156 | 10 | SFKEELDKYF 0.002603 | 6.1 |
| HLA-A*03:01 | 1 | 550 | 559 | 10 | GVLTESNKKF 0.002602 | 8.0 |
| HLA-B*08:01 | 1 | 1147 | 1155 | 9 | SFKEELDKY 0.002602 | 13 |
| HLA-A*33:01 | 1 | 348 | 356 | 9 | ASVYAWNRK 0.002601 | 8.8 |
| HLA-A*32:01 | 1 | 310 | 319 | 10 | KGIYQTSNFR 0.0026 | 6.8 |
| HLA-A*31:01 | 1 | 34 | 43 | 10 | RGVYYPDKVF 0.002599 | 11 |
| HLA-B*58:01 | 1 | 166 | 174 | 9 | CTFEYVSQP 0.002598 | 8.4 |
| HLA-A*68:02 | 1 | 268 | 276 | 9 | GYLQPRFLL 0.002598 | 9.9 |
| HLA-A*02:01 | 1 | 611 | 620 | 10 | LYQDVNCTEV 0.002598 | 9.2 |
| HLA-A*03:01 | 1 | 786 | 794 | 9 | KQIYKTPPI 0.002598 | 8.0 |
| HLA-B*57:01 | 1 | 675 | 683 | 9 | QTQTNSPRR 0.002597 | 13 |
| HLA-B*15:01 | 1 | 766 | 774 | 9 | ALTGIAVEQ 0.002597 | 9.4 |
| HLA-A*32:01 | 1 | 860 | 869 | 10 | VLPLLTDDEM 0.002597 | 6.8 |
| HLA-A*33:01 | 1 | 1100 | 1109 | 10 | THWVFTQRNF 0.002597 | 8.8 |
| HLA-A*31:01 | 1 | 68 | 77 | 10 | IHVSGTNGTK 0.002596 | 11 |
| HLA-B*35:01 | 1 | 510 | 518 | 9 | VVLSFELL 0.002596 | 6.8 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*30:02 | 1 | 1007 | 1016 | 10 | YVTQQLIRAA 0.002596 | 15 |
| HLA-B*51:01 | 1 | 448 | 456 | 9 | NYNYLYRLF 0.002595 | 12 |
| HLA-B*51:01 | 1 | 755 | 763 | 9 | QYGSFCTQL 0.002594 | 12 |
| HLA-A*02:03 | 1 | 819 | 828 | 10 | EDLLFNKVTL 0.002593 | 11 |
| HLA-A*30:01 | 1 | 1047 | 1056 | 10 | YHLMSFPQSA 0.002593 | 17 |
| HLA-A*11:01 | 1 | 672 | 680 | 9 | ASYQTQTNS 0.002592 | 6.9 |
| HLA-A*30:02 | 1 | 901 | 909 | 9 | QMAYRFNGI 0.002592 | 15 |
| HLA-A*02:01 | 1 | 35 | 43 | 9 | GVYYPDKVF 0.002591 | 9.2 |
| HLA-A*31:01 | 1 | 575 | 584 | 10 | AVRDPQTLEI 0.002591 | 11 |
| HLA-B*51:01 | 1 | 706 | 714 | 9 | AYSNNSIAI 0.002591 | 12 |
| HLA-A*68:01 | 1 | 1261 | 1269 | 9 | SEPVLKGVK 0.002591 | 11 |
| HLA-A*31:01 | 1 | 504 | 513 | 10 | GYQPYRVVVL 0.00259 | 11 |
| HLA-A*68:02 | 1 | 62 | 71 | 10 | VTWFHAIHVS 0.002589 | 9.9 |
| HLA-A*31:01 | 1 | 306 | 314 | 9 | FTVEKGIYQ 0.002589 | 11 |
| HLA-B*44:03 | 1 | 334 | 342 | 9 | NLCPFGEVF 0.002589 | 5.3 |
| HLA-B*35:01 | 1 | 511 | 519 | 9 | VVLSFELLH 0.002588 | 6.8 |
| HLA-B*51:01 | 1 | 552 | 560 | 9 | LTESNKKFL 0.002587 | 12 |
| HLA-A*01:01 | 1 | 222 | 230 | 9 | ALEPLVDLP 0.002586 | 8.3 |
| HLA-A*33:01 | 1 | 1095 | 1103 | 9 | FVSNGTWVF 0.002586 | 8.9 |
| HLA-A*23:01 | 1 | 818 | 826 | 9 | IEDLLFNKV 0.002585 | 5.5 |
| HLA-A*68:02 | 1 | 478 | 486 | 9 | TPCNGVEGF 0.002584 | 9.9 |
| HLA-A*02:03 | 1 | 509 | 518 | 10 | RVVLSFELL 0.002584 | 11 |
| HLA-B*57:01 | 1 | 528 | 537 | 10 | KKSTNLVKNK 0.002582 | 13 |
| HLA-A*02:06 | 1 | 828 | 837 | 10 | LADAGFIKQY 0.002582 | 14 |
| HLA-B*08:01 | 1 | 772 | 781 | 10 | VEQDKNTQEV 0.002581 | 13 |
| HLA-A*11:01 | 1 | 879 | 888 | 10 | AGTITSGWTF 0.002581 | 6.9 |
| HLA-A*01:01 | 1 | 974 | 983 | 10 | SSVLNDILSR 0.002581 | 8.3 |
| HLA-B*57:01 | 1 | 1102 | 1110 | 9 | WFVTQRNFY 0.002581 | 13 |
| HLA-A*31:01 | 1 | 1105 | 1113 | 9 | TQRNFYEPQ 0.002581 | 11 |
| HLA-B*08:01 | 1 | 35 | 43 | 9 | GVYYPDKVF 0.00258 | 13 |
| HLA-A*68:01 | 1 | 89 | 98 | 10 | GVYFASTEKS 0.00258 | 11 |
| HLA-B*08:01 | 1 | 515 | 524 | 10 | FELLHAPATV 0.00258 | 13 |
| HLA-B*35:01 | 1 | 318 | 326 | 9 | FRVQPTESI 0.002578 | 6.8 |
| HLA-B*08:01 | 1 | 365 | 374 | 10 | YSVLYNSASF 0.002576 | 13 |
| HLA-A*32:01 | 1 | 1044 | 1052 | 9 | GKGYHLMSF 0.002576 | 6.8 |
| HLA-A*02:01 | 1 | 9 | 18 | 10 | PLVSSQCYNL 0.002575 | 9.2 |
| HLA-B*53:01 | 1 | 138 | 147 | 10 | DPFLGVYYHK 0.002575 | 6.1 |
| HLA-B*08:01 | 1 | 214 | 222 | 9 | RDLPQGFSA 0.002575 | 13 |
| HLA-A*02:03 | 1 | 254 | 263 | 10 | SSSGWTAGAA 0.002575 | 11 |
| HLA-B*07:02 | 1 | 780 | 788 | 9 | EVFAQVKQI 0.002575 | 7.5 |
| HLA-B*58:01 | 1 | 1211 | 1220 | 10 | KWPWYIWLGF 0.002575 | 8.4 |
| HLA-A*32:01 | 1 | 651 | 660 | 10 | IGAHEVNNYSY 0.002574 | 6.8 |
| HLA-A*02:01 | 1 | 1016 | 1024 | 9 | AEIRASANL 0.002573 | 9.3 |
| HLA-A*24:02 | 1 | 35 | 44 | 10 | GVYYPDKVFR 0.002572 | 5.5 |
| HLA-A*01:01 | 1 | 626 | 634 | 9 | ADQLTPTWR 0.002572 | 8.3 |
| HLA-A*11:01 | 1 | 520 | 528 | 9 | APATVCGPK 0.002571 | 6.9 |
| HLA-B*08:01 | 1 | 999 | 1007 | 9 | GRLQSLQTY 0.002571 | 13 |
| HLA-A*68:02 | 1 | 91 | 100 | 10 | YFASTEKSNI 0.00257 | 9.9 |
| HLA-B*51:01 | 1 | 1066 | 1075 | 10 | TYVPAQEKNF 0.00257 | 12 |
| HLA-B*07:02 | 1 | 464 | 473 | 10 | FERDISTEY 0.002568 | 7.5 |
| HLA-A*33:01 | 1 | 19 | 28 | 10 | TTRTQLPPAY 0.002566 | 8.9 |
| HLA-B*44:02 | 1 | 19 | 28 | 10 | TTRTQLPPAY 0.002566 | 5.1 |
| HLA-B*07:02 | 1 | 75 | 84 | 10 | GTKRFDNPVL 0.002565 | 7.5 |
| HLA-A*31:01 | 1 | 167 | 176 | 10 | TFEYVSQPFL 0.002564 | 11 |
| HLA-A*31:01 | 1 | 368 | 377 | 10 | LYNSASFSTF 0.002564 | 11 |
| HLA-B*35:01 | 1 | 808 | 816 | 9 | DPSKPSKRS 0.002564 | 6.8 |
| HLA-B*07:02 | 1 | 922 | 930 | 9 | LIANQFNFA 0.002564 | 7.5 |
| HLA-A*03:01 | 1 | 940 | 948 | 9 | STASALGKL 0.002564 | 8.1 |
| HLA-B*40:01 | 1 | 1014 | 1022 | 9 | RAAEIRASA 0.002564 | 5.0 |
| HLA-A*68:02 | 1 | 1146 | 1155 | 10 | DSFKEELDKY 0.002564 | 9.9 |
| HLA-A*24:02 | 1 | 109 | 118 | 10 | TLDSKTQSL 0.002563 | 5.5 |
| HLA-B*08:01 | 1 | 402 | 410 | 9 | IRGDEVQR 0.002563 | 13 |
| HLA-B*53:01 | 1 | 505 | 513 | 9 | YQPYRVVVL 0.002563 | 6.2 |
| HLA-B*58:01 | 1 | 918 | 927 | 10 | ENQKLIANQF 0.002563 | 8.4 |
| HLA-A*01:01 | 1 | 938 | 947 | 10 | LSSTASALGK 0.002563 | 8.3 |
| HLA-A*30:01 | 1 | 1205 | 1214 | 10 | KYEQYIKWPW 0.002563 | 18 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*11:01 | 1 | 413 | 421 | 9 | GQTGKIADY 0.002562 | 6.9 |
| HLA-A*23:01 | 1 | 553 | 562 | 10 | TESNKKFLPF 0.002562 | 5.6 |
| HLA-A*31:01 | 1 | 1039 | 1047 | 9 | RVDFCGKGY 0.002562 | 11 |
| HLA-A*02:03 | 1 | 730 | 738 | 9 | SMTKTSVDC 0.002561 | 11 |
| HLA-A*02:03 | 1 | 954 | 962 | 9 | QNAQALNTL 0.00256 | 11 |
| HLA-A*01:01 | 1 | 1094 | 1102 | 9 | VFVSNQTHW 0.00256 | 8.3 |
| HLA-B*58:01 | 1 | 1096 | 1105 | 10 | VSNGTHWFVT 0.00256 | 8.4 |
| HLA-A*30:02 | 1 | 227 | 235 | 9 | VDLPIGINI 0.002559 | 15 |
| HLA-B*58:01 | 1 | 974 | 982 | 9 | SSVLNDILS 0.002559 | 8.4 |
| HLA-A*30:02 | 1 | 301 | 310 | 10 | CTLKSFTVEK 0.002557 | 15 |
| HLA-B*58:01 | 1 | 601 | 610 | 10 | GTNTSNQVAV 0.002557 | 8.4 |
| HLA-A*30:02 | 1 | 504 | 513 | 10 | GYQPYRVVVL 0.002556 | 15 |
| HLA-A*32:01 | 1 | 921 | 929 | 9 | KLIANQFNS 0.002554 | 6.8 |
| HLA-A*33:01 | 1 | 1066 | 1075 | 10 | TYVPAQEKNF 0.002554 | 8.9 |
| HLA-B*07:02 | 1 | 933 | 941 | 9 | KIQDSLST 0.002552 | 7.5 |
| HLA-A*33:01 | 1 | 1150 | 1159 | 10 | EELDKYFKNH 0.002552 | 8.9 |
| HLA-A*68:02 | 1 | 184 | 193 | 10 | GNFKNLREFV 0.002551 | 10 |
| HLA-A*30:01 | 1 | 256 | 265 | 10 | SGWTAGAAAY 0.002551 | 18 |
| HLA-B*58:01 | 1 | 372 | 381 | 10 | ASFSTFKCYG 0.002551 | 8.4 |
| HLA-A*01:01 | 1 | 184 | 192 | 9 | GNFKNLREF 0.00255 | 8.3 |
| HLA-B*15:01 | 1 | 610 | 618 | 9 | VLYQDVNCT 0.00255 | 9.5 |
| HLA-A*01:01 | 1 | 712 | 720 | 9 | IAIPTNFTI 0.00255 | 8.3 |
| HLA-B*57:01 | 1 | 814 | 822 | 9 | KRSFIEDLL 0.00255 | 13 |
| HLA-B*51:01 | 1 | 817 | 826 | 10 | FIEDLLFNKV 0.00255 | 12 |
| HLA-A*24:02 | 1 | 847 | 855 | 9 | RDLICAQKF 0.00255 | 5.5 |
| HLA-A*24:02 | 1 | 1054 | 1063 | 10 | QSAPHGVVFL 0.00255 | 5.5 |
| HLA-A*33:01 | 1 | 507 | 515 | 9 | PYRVVLSF 0.002549 | 8.9 |
| HLA-B*08:01 | 1 | 149 | 157 | 9 | NKSWMESEF 0.002548 | 13 |
| HLA-A*03:01 | 1 | 370 | 379 | 10 | NSASFSTFKC 0.002548 | 8.1 |
| HLA-A*30:01 | 1 | 1095 | 1104 | 10 | FVSNGTHWFV 0.002548 | 18 |
| HLA-B*51:01 | 1 | 600 | 608 | 9 | PGTNTSNQV 0.002547 | 12 |
| HLA-A*30:01 | 1 | 609 | 617 | 9 | AVLYQDVNC 0.002547 | 18 |
| HLA-A*30:01 | 1 | 1098 | 1107 | 10 | NGTHWFVTQR 0.002547 | 18 |
| HLA-A*68:02 | 1 | 659 | 668 | 10 | SYECDIPIGA 0.002546 | 10 |
| HLA-A*02:01 | 1 | 922 | 931 | 10 | LIANQFNLSAI 0.002545 | 9.3 |
| HLA-B*51:01 | 1 | 515 | 523 | 9 | FELLHAPAT 0.002544 | 12 |
| HLA-A*31:01 | 1 | 627 | 635 | 9 | DQLTPTWRV 0.002544 | 11 |
| HLA-A*26:01 | 1 | 794 | 802 | 9 | IKDFGGFNF 0.002544 | 6.9 |
| HLA-A*30:02 | 1 | 1219 | 1227 | 9 | GFIAGLIAI 0.002544 | 15 |
| HLA-A*31:01 | 1 | 37 | 45 | 9 | YYPDKVFRS 0.002542 | 11 |
| HLA-B*08:01 | 1 | 1206 | 1214 | 9 | YEQYIKWPW 0.002542 | 13 |
| HLA-A*68:02 | 1 | 334 | 342 | 9 | NLCPFGEVF 0.002541 | 10 |
| HLA-A*03:01 | 1 | 1101 | 1110 | 10 | HWFVTQRNFY 0.002541 | 8.1 |
| HLA-A*32:01 | 1 | 168 | 176 | 9 | FEYVSQPFL 0.00254 | 6.8 |
| HLA-B*58:01 | 1 | 1200 | 1209 | 10 | LQELGKYEYQ 0.00254 | 8.5 |
| HLA-A*02:06 | 1 | 628 | 636 | 9 | QLTPTWRVY 0.002539 | 14 |
| HLA-B*44:02 | 1 | 1021 | 1029 | 9 | SANLAATKM 0.002539 | 5.2 |
| HLA-A*03:01 | 1 | 921 | 929 | 9 | KLIANQFNS 0.002537 | 8.1 |
| HLA-A*32:01 | 1 | 83 | 91 | 9 | VLPFNDGVY 0.002536 | 6.8 |
| HLA-A*24:02 | 1 | 611 | 619 | 9 | LYQDVNCTE 0.002536 | 5.5 |
| HLA-B*58:01 | 1 | 167 | 175 | 9 | TFEYVSQPF 0.002535 | 8.5 |
| HLA-B*08:01 | 1 | 329 | 337 | 9 | FPNITNLCP 0.002534 | 13 |
| HLA-A*30:02 | 1 | 955 | 964 | 10 | NAQALNTLVK 0.002532 | 15 |
| HLA-B*57:01 | 1 | 1112 | 1121 | 10 | PQIITTDNTF 0.002532 | 13 |
| HLA-B*51:01 | 1 | 504 | 512 | 9 | GYQPYRVVV 0.00253 | 12 |
| HLA-A*26:01 | 1 | 688 | 697 | 10 | ASQSIIAYTM 0.002529 | 6.9 |
| HLA-A*02:03 | 1 | 818 | 826 | 9 | IEDLLFNKV 0.002529 | 11 |
| HLA-A*30:01 | 1 | 493 | 502 | 10 | QSYGFQPTNG 0.002528 | 18 |
| HLA-B*15:01 | 1 | 562 | 570 | 9 | FQQFGRDIA 0.002528 | 9.5 |
| HLA-A*30:01 | 1 | 213 | 222 | 10 | VRDLPQGFSA 0.002527 | 18 |
| HLA-A*31:01 | 1 | 1219 | 1227 | 9 | GFIAGLIAI 0.002527 | 11 |
| HLA-A*26:01 | 1 | 991 | 1000 | 10 | VQIDRLITGR 0.002526 | 6.9 |
| HLA-A*03:01 | 1 | 186 | 195 | 10 | FKNLREFVFK 0.002525 | 8.1 |
| HLA-B*51:01 | 1 | 186 | 194 | 9 | FKNLREFV 0.002525 | 12 |
| HLA-A*02:06 | 1 | 313 | 321 | 9 | YQTSNFRVQ 0.002525 | 14 |
| HLA-B*57:01 | 1 | 844 | 852 | 9 | IAARDLICA 0.002525 | 13 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*44:02 | 1 | 50 | 59 | 10 | STQDLFLPFF 0.002524 | 5.2 |
| HLA-B*08:01 | 1 | 1094 | 1103 | 10 | VFVSNQTHWF 0.002524 | 13 |
| HLA-B*07:02 | 1 | 961 | 970 | 10 | TLVKQLSSNF 0.002523 | 7.5 |
| HLA-A*02:01 | 1 | 576 | 585 | 10 | VRDPQTLEIL 0.002522 | 9.3 |
| HLA-A*02:06 | 1 | 672 | 680 | 9 | ASYQTQTN 0.002522 | 14 |
| HLA-A*68:02 | 1 | 697 | 706 | 10 | MSLGAENSV 0.002522 | 10 |
| HLA-A*30:01 | 1 | 982 | 991 | 10 | SRLDKVEAEV 0.002522 | 18 |
| HLA-B*58:01 | 1 | 1025 | 1034 | 10 | AATKMSECVL 0.002522 | 8.5 |
| HLA-A*01:01 | 1 | 724 | 733 | 10 | TEILPVSMTK 0.00252 | 8.4 |
| HLA-A*68:01 | 1 | 1096 | 1104 | 9 | VSNQTHWFV 0.00252 | 11 |
| HLA-A*68:02 | 1 | 960 | 968 | 9 | NLTKQLSS 0.002519 | 10 |
| HLA-A*30:02 | 1 | 1102 | 1111 | 10 | WFVTQRNFYE 0.002518 | 15 |
| HLA-A*30:01 | 1 | 145 | 153 | 9 | YHKNNKSWM 0.002516 | 18 |
| HLA-A*30:01 | 1 | 829 | 837 | 9 | ADAGFIKQY 0.002516 | 18 |
| HLA-A*33:01 | 1 | 273 | 281 | 9 | RTFLLKYNE 0.002515 | 9.0 |
| HLA-B*07:02 | 1 | 786 | 794 | 9 | KQIYKTPPI 0.002515 | 7.5 |
| HLA-B*15:01 | 1 | 1220 | 1228 | 9 | FIAGLIAIV 0.002515 | 9.5 |
| HLA-A*02:06 | 1 | 207 | 216 | 10 | HTPINLVRDL 0.002514 | 14 |
| HLA-B*44:02 | 1 | 267 | 275 | 9 | VGYLQPRTF 0.002514 | 5.2 |
| HLA-A*30:02 | 1 | 1192 | 1200 | 9 | NLNESLIDL 0.002514 | 15 |
| HLA-A*26:01 | 1 | 553 | 562 | 10 | TESNKKFLPF 0.002513 | 6.9 |
| HLA-A*68:02 | 1 | 69 | 78 | 10 | HVSGTNGTKR 0.002511 | 11 |
| HLA-A*68:02 | 1 | 685 | 693 | 9 | RSVASQSII 0.002511 | 11 |
| HLA-A*32:01 | 1 | 757 | 765 | 9 | GSFCTQLNR 0.002511 | 6.9 |
| HLA-B*08:01 | 1 | 15 | 24 | 10 | CVNLTRTQL 0.00251 | 13 |
| HLA-A*68:02 | 1 | 261 | 269 | 9 | GAAAYVGY 0.00251 | 11 |
| HLA-A*32:01 | 1 | 41 | 50 | 10 | KVFRSSVLHS 0.002509 | 6.9 |
| HLA-B*51:01 | 1 | 235 | 244 | 10 | ITRFQTLAL 0.002509 | 13 |
| HLA-B*08:01 | 1 | 241 | 250 | 10 | LLALHRSYLT 0.002509 | 13 |
| HLA-A*32:01 | 1 | 499 | 508 | 10 | PTNGVGYQPY 0.002509 | 6.9 |
| HLA-A*02:01 | 1 | 118 | 127 | 10 | LIVNATNVV 0.002507 | 9.3 |
| HLA-B*35:01 | 1 | 722 | 731 | 10 | VTTEILPVM 0.002506 | 6.9 |
| HLA-A*30:01 | 1 | 856 | 864 | 9 | NGLTVLPPL 0.002506 | 18 |
| HLA-A*26:01 | 1 | 988 | 996 | 9 | EAEVQIDRL 0.002506 | 7.0 |
| HLA-A*02:06 | 1 | 1221 | 1230 | 10 | IAGLIAIVMV 0.002506 | 14 |
| HLA-A*68:02 | 1 | 887 | 896 | 10 | TFGAGAALQI 0.002504 | 11 |
| HLA-B*44:03 | 1 | 954 | 962 | 9 | QNAQALNTL 0.002504 | 5.4 |
| HLA-A*01:01 | 1 | 1185 | 1193 | 9 | RLNEVAKNL 0.002504 | 8.4 |
| HLA-B*44:02 | 1 | 35 | 43 | 9 | GVYYPDKVF 0.002503 | 5.2 |
| HLA-A*03:01 | 1 | 386 | 395 | 10 | KLNDLCFTNV 0.002502 | 8.1 |
| HLA-A*11:01 | 1 | 596 | 604 | 9 | SVITPGTNT 0.002502 | 7.0 |
| HLA-B*08:01 | 1 | 1058 | 1066 | 9 | HGVVFLHVT 0.002502 | 13 |
| HLA-A*23:01 | 1 | 192 | 200 | 9 | FVFKNIDGY 0.002501 | 5.6 |
| HLA-B*44:02 | 1 | 239 | 248 | 10 | QTLALHRSY 0.002501 | 5.2 |
| HLA-A*24:02 | 1 | 31 | 39 | 9 | SFTRGVYYP 0.0025 | 5.6 |
| HLA-A*68:01 | 1 | 357 | 365 | 9 | RISNCVADY 0.0025 | 12 |
| HLA-B*44:02 | 1 | 815 | 823 | 9 | RSFIEDLLF 0.0025 | 5.2 |
| HLA-B*35:01 | 1 | 400 | 408 | 9 | FVIRGDEVR 0.002499 | 6.9 |
| HLA-B*08:01 | 1 | 823 | 831 | 9 | FNKVTLADA 0.002499 | 13 |
| HLA-A*30:02 | 1 | 957 | 966 | 10 | QALNTLVKQL 0.002499 | 15 |
| HLA-A*02:06 | 1 | 30 | 38 | 9 | NSFTRGVYY 0.002498 | 14 |
| HLA-A*30:02 | 1 | 307 | 315 | 9 | TVEKGIYQT 0.002498 | 15 |
| HLA-A*02:06 | 1 | 1020 | 1029 | 10 | ASANLAATKM 0.002498 | 14 |
| HLA-A*30:02 | 1 | 1191 | 1200 | 10 | KNLNESLIDL 0.002498 | 15 |
| HLA-A*03:01 | 1 | 699 | 707 | 9 | LGAENSVAY 0.002497 | 8.1 |
| HLA-A*30:02 | 1 | 3 | 11 | 9 | VFLVLLPLV 0.002495 | 15 |
| HLA-A*03:01 | 1 | 1183 | 1191 | 9 | IDRLNEVAK 0.002495 | 8.1 |
| HLA-A*31:01 | 1 | 1151 | 1159 | 9 | ELDKYFKNH 0.002494 | 12 |
| HLA-A*68:02 | 1 | 265 | 273 | 9 | YYVGYLQPR 0.002493 | 11 |
| HLA-B*58:01 | 1 | 455 | 464 | 10 | LFRKSNLKPF 0.002493 | 8.5 |
| HLA-A*30:01 | 1 | 1022 | 1030 | 9 | ANLAATKMS 0.002493 | 18 |
| HLA-A*02:03 | 1 | 1196 | 1205 | 10 | SLIDLQELGK 0.002493 | 11 |
| HLA-A*02:03 | 1 | 366 | 374 | 9 | SVLYNSASF 0.002491 | 11 |
| HLA-B*57:01 | 1 | 300 | 309 | 10 | KCTLKSFTVE 0.002488 | 13 |
| HLA-B*15:01 | 1 | 481 | 490 | 10 | NGVEGFNCYF 0.002487 | 9.6 |
| HLA-A*30:02 | 1 | 538 | 546 | 9 | CVNFNFNGL 0.002487 | 15 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*32:01 | 1 | 926 | 934 | 9 | QFNSAIGKI 0.002487 | 6.9 |
| HLA-B*08:01 | 1 | 1066 | 1075 | 10 | TYVPAQEKNF 0.002487 | 13 |
| HLA-A*30:01 | 1 | 236 | 245 | 10 | TRFQTLALH 0.002485 | 18 |
| HLA-A*26:01 | 1 | 36 | 44 | 9 | VYYPDKVFR 0.002484 | 7.0 |
| HLA-A*31:01 | 1 | 1066 | 1075 | 10 | TYVPAQEKNF 0.002484 | 12 |
| HLA-A*30:02 | 1 | 478 | 486 | 9 | TPCNGVEGF 0.002483 | 15 |
| HLA-A*31:01 | 1 | 304 | 312 | 9 | KSFTVEKGI 0.002482 | 12 |
| HLA-A*30:01 | 1 | 705 | 714 | 10 | VAYSNSIAI 0.002482 | 18 |
| HLA-A*02:01 | 1 | 1073 | 1081 | 9 | KNFTTAPAI 0.002482 | 9.4 |
| HLA-A*26:01 | 1 | 1225 | 1233 | 9 | IAIVMVTIM 0.002482 | 7.0 |
| HLA-B*15:01 | 1 | 1020 | 1028 | 9 | ASANLAATK 0.002481 | 9.6 |
| HLA-B*44:02 | 1 | 366 | 374 | 9 | SVLYNSASF 0.00248 | 5.2 |
| HLA-A*23:01 | 1 | 852 | 860 | 9 | AQKFNGLTV 0.002479 | 5.6 |
| HLA-B*51:01 | 1 | 1041 | 1049 | 9 | DFCGKGYHL 0.002479 | 13 |
| HLA-A*23:01 | 1 | 424 | 432 | 9 | KLPDDFTGC 0.002478 | 5.6 |
| HLA-A*24:02 | 1 | 34 | 43 | 10 | RGVYYPDKVF 0.002477 | 5.6 |
| HLA-A*32:01 | 1 | 75 | 83 | 9 | GTKRFDNPV 0.002477 | 6.9 |
| HLA-A*01:01 | 1 | 1192 | 1200 | 9 | NLNESLIDL 0.002476 | 8.5 |
| HLA-B*15:01 | 1 | 30 | 39 | 10 | NSFTRGVYYP 0.002475 | 9.6 |
| HLA-B*51:01 | 1 | 137 | 146 | 10 | NDPFLGVYYH 0.002475 | 13 |
| HLA-B*51:01 | 1 | 890 | 898 | 9 | AGAALQIPF 0.002475 | 13 |
| HLA-A*24:02 | 1 | 257 | 265 | 9 | GWTAGAAAY 0.002474 | 5.6 |
| HLA-B*15:01 | 1 | 876 | 884 | 9 | ALLAGTITS 0.002474 | 9.6 |
| HLA-A*30:01 | 1 | 37 | 46 | 10 | YYPDKVFRSS 0.002472 | 18 |
| HLA-B*35:01 | 1 | 108 | 117 | 10 | TTLDSKTQSL 0.002472 | 6.9 |
| HLA-A*11:01 | 1 | 721 | 729 | 9 | SVTTEILPV 0.002472 | 7.0 |
| HLA-B*57:01 | 1 | 892 | 901 | 10 | AALQIPFAMQ 0.002472 | 13 |
| HLA-A*31:01 | 1 | 1006 | 1015 | 10 | TYVTQQLIRA 0.002472 | 12 |
| HLA-A*02:01 | 1 | 454 | 462 | 9 | RLFRKSNLK 0.002471 | 9.4 |
| HLA-A*30:01 | 1 | 626 | 634 | 9 | ADQLTPTWR 0.00247 | 18 |
| HLA-A*33:01 | 1 | 186 | 195 | 10 | FKNLREFVFK 0.002469 | 9.1 |
| HLA-A*68:01 | 1 | 1137 | 1145 | 9 | VYDPLQPEL 0.002469 | 12 |
| HLA-B*44:03 | 1 | 635 | 643 | 9 | VYSTGSNVF 0.002468 | 5.4 |
| HLA-A*68:02 | 1 | 449 | 457 | 9 | YNYLYRLFR 0.002467 | 11 |
| HLA-A*01:01 | 1 | 1005 | 1014 | 10 | QTYVTQQLIR 0.002466 | 8.5 |
| HLA-A*32:01 | 1 | 974 | 983 | 10 | SSVLNDILSR 0.002465 | 6.9 |
| HLA-A*26:01 | 1 | 199 | 207 | 9 | GYFKIYSKH 0.002464 | 7.0 |
| HLA-A*02:06 | 1 | 874 | 882 | 9 | TSALLAGTI 0.002464 | 14 |
| HLA-B*07:02 | 1 | 1024 | 1032 | 9 | LAATKMSEC 0.002464 | 7.6 |
| HLA-A*68:02 | 1 | 707 | 716 | 10 | YSNNSIAIPT 0.002463 | 11 |
| HLA-A*32:01 | 1 | 747 | 756 | 10 | TECSNLLLQY 0.002463 | 6.9 |
| HLA-B*08:01 | 1 | 856 | 865 | 10 | NGLTVLPPLL 0.002463 | 13 |
| HLA-B*15:01 | 1 | 1055 | 1064 | 10 | SAPHGVVFLH 0.002462 | 9.6 |
| HLA-B*07:02 | 1 | 711 | 720 | 10 | SIAIPTNFTI 0.002461 | 7.6 |
| HLA-A*30:02 | 1 | 120 | 128 | 9 | VNNATNVVI 0.00246 | 15 |
| HLA-A*02:03 | 1 | 867 | 876 | 10 | DEMIAQY TSA 0.00246 | 11 |
| HLA-A*24:02 | 1 | 958 | 966 | 9 | ALNTLVKQL 0.002459 | 5.6 |
| HLA-A*32:01 | 1 | 1170 | 1179 | 10 | SGINASVNI 0.002459 | 6.9 |
| HLA-B*08:01 | 1 | 673 | 681 | 9 | SYQTQTN SP 0.002457 | 13 |
| HLA-A*24:02 | 1 | 940 | 948 | 9 | STASALGKL 0.002457 | 5.6 |
| HLA-A*02:06 | 1 | 349 | 358 | 10 | SVYAWNRKRI 0.002456 | 14 |
| HLA-B*15:01 | 1 | 761 | 769 | 9 | TQLNRALTG 0.002456 | 9.6 |
| HLA-B*51:01 | 1 | 1136 | 1144 | 9 | TVYDPLQPE 0.002456 | 13 |
| HLA-A*30:01 | 1 | 160 | 168 | 9 | YSSANNCTF 0.002455 | 18 |
| HLA-A*01:01 | 1 | 333 | 342 | 10 | TNLCPFGEVF 0.002455 | 8.5 |
| HLA-A*30:01 | 1 | 795 | 803 | 9 | KDFGGFNFS 0.002455 | 18 |
| HLA-B*58:01 | 1 | 492 | 501 | 10 | LQSYGFQPTN 0.002454 | 8.6 |
| HLA-B*15:01 | 1 | 627 | 635 | 9 | DQLTPTWRV 0.002454 | 9.6 |
| HLA-B*57:01 | 1 | 92 | 101 | 10 | FASTEKSNI 0.002453 | 13 |
| HLA-B*44:02 | 1 | 556 | 565 | 10 | NKKFLPFQF 0.002453 | 5.3 |
| HLA-B*58:01 | 1 | 1049 | 1058 | 10 | LMSFPQSAPH 0.002453 | 8.6 |
| HLA-B*53:01 | 1 | 324 | 332 | 9 | ESIVRFPNI 0.002452 | 6.3 |
| HLA-A*24:02 | 1 | 503 | 511 | 9 | VGYPYRVV 0.002451 | 5.6 |
| HLA-A*30:02 | 1 | 537 | 546 | 10 | KCVNFNFNGL 0.002451 | 15 |
| HLA-A*26:01 | 1 | 852 | 860 | 9 | AQKFNGLTV 0.002451 | 7.0 |
| HLA-A*01:01 | 1 | 936 | 944 | 9 | DSLSSSTASA 0.00245 | 8.5 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*57:01 | 1 | 3 | 11 | 9 | VFLVLLPLV 0.002449 | 13 |
| HLA-A*02:06 | 1 | 258 | 266 | 9 | WTAGAAAYY 0.002449 | 14 |
| HLA-A*30:02 | 1 | 497 | 506 | 10 | FQPTNGVGYQ 0.002449 | 15 |
| HLA-A*30:02 | 1 | 502 | 511 | 10 | GVGYQPYRVV 0.002448 | 15 |
| HLA-B*51:01 | 1 | 166 | 174 | 9 | CTFEYVSQP 0.002447 | 13 |
| HLA-B*51:01 | 1 | 641 | 649 | 9 | NVFQTRAGC 0.002447 | 13 |
| HLA-A*33:01 | 1 | 377 | 386 | 10 | FKCYGVSPTK 0.002446 | 9.1 |
| HLA-A*30:02 | 1 | 860 | 869 | 10 | VLPLLTDDEM 0.002446 | 15 |
| HLA-B*35:01 | 1 | 1067 | 1076 | 10 | YVPAQEKNT 0.002446 | 7.0 |
| HLA-A*26:01 | 1 | 846 | 855 | 10 | ARDLICAQKF 0.002445 | 7.0 |
| HLA-B*51:01 | 1 | 1184 | 1193 | 10 | DRLNEVAKNL 0.002445 | 13 |
| HLA-A*68:02 | 1 | 167 | 176 | 10 | TFEYVSQPFL 0.002443 | 11 |
| HLA-B*57:01 | 1 | 913 | 922 | 10 | QNVLYENQKL 0.002443 | 13 |
| HLA-A*26:01 | 1 | 1020 | 1029 | 10 | ASANLAATKM 0.002443 | 7.0 |
| HLA-A*26:01 | 1 | 94 | 102 | 9 | STEKSNIIR 0.002442 | 7.0 |
| HLA-B*51:01 | 1 | 371 | 380 | 10 | SASFSTFKCY 0.002442 | 13 |
| HLA-B*07:02 | 1 | 382 | 390 | 9 | VSPTKLNLD 0.002442 | 7.6 |
| HLA-A*24:02 | 1 | 870 | 878 | 9 | IAQYTSALL 0.002442 | 5.6 |
| HLA-B*15:01 | 1 | 947 | 955 | 9 | KLQDVVNQN 0.002442 | 9.7 |
| HLA-B*35:01 | 1 | 1051 | 1060 | 10 | SFPQSAPHGV 0.002442 | 7.0 |
| HLA-A*01:01 | 1 | 1264 | 1273 | 10 | VLKGVKLHYT 0.002442 | 8.5 |
| HLA-A*11:01 | 1 | 142 | 151 | 10 | GVYYHKNNKS 0.002441 | 7.0 |
| HLA-A*02:06 | 1 | 409 | 417 | 9 | QIAPGQTGK 0.002441 | 14 |
| HLA-B*53:01 | 1 | 443 | 451 | 9 | SKVGGNyny 0.00244 | 6.3 |
| HLA-A*02:03 | 1 | 1006 | 1015 | 10 | TYVTQQLIRA 0.00244 | 11 |
| HLA-B*58:01 | 1 | 1115 | 1123 | 9 | ITTDNTFVS 0.002439 | 8.6 |
| HLA-A*31:01 | 1 | 1210 | 1218 | 9 | IKWPWYIWL 0.002439 | 12 |
| HLA-B*53:01 | 1 | 259 | 267 | 9 | TAGAAAYYV 0.002437 | 6.3 |
| HLA-B*40:01 | 1 | 1021 | 1029 | 9 | SANLAATKM 0.002437 | 5.1 |
| HLA-A*68:02 | 1 | 1067 | 1076 | 10 | YVPAQEKNT 0.002437 | 11 |
| HLA-A*32:01 | 1 | 924 | 933 | 10 | ANQFNSAIGK 0.002436 | 7.0 |
| HLA-A*68:02 | 1 | 1016 | 1024 | 9 | AEIRASANL 0.002436 | 11 |
| HLA-B*58:01 | 1 | 344 | 352 | 9 | ATRFASVYA 0.002435 | 8.6 |
| HLA-B*51:01 | 1 | 576 | 585 | 10 | VRDPQTLEIL 0.002434 | 13 |
| HLA-B*15:01 | 1 | 987 | 996 | 10 | VEAEVQIDRL 0.002434 | 9.7 |
| HLA-B*15:01 | 1 | 516 | 524 | 9 | ELLHAPATV 0.002433 | 9.7 |
| HLA-A*02:03 | 1 | 575 | 583 | 9 | AVRDPQTLE 0.002433 | 11 |
| HLA-B*44:02 | 1 | 196 | 204 | 9 | NIDGYFKIY 0.002432 | 5.3 |
| HLA-A*31:01 | 1 | 549 | 557 | 9 | TGVLTESNK 0.002432 | 12 |
| HLA-B*08:01 | 1 | 618 | 626 | 9 | TEVPVAIHA 0.002432 | 13 |
| HLA-A*01:01 | 1 | 1178 | 1186 | 9 | NIQKEIDRL 0.002431 | 8.6 |
| HLA-A*30:02 | 1 | 149 | 157 | 9 | NKSWMESEF 0.00243 | 15 |
| HLA-A*31:01 | 1 | 955 | 964 | 10 | NAQALNTLVK 0.00243 | 12 |
| HLA-B*57:01 | 1 | 230 | 238 | 9 | PIGINITRF 0.002429 | 13 |
| HLA-A*30:01 | 1 | 494 | 502 | 9 | SYGFQPTNG 0.002429 | 18 |
| HLA-A*32:01 | 1 | 705 | 714 | 10 | VAYSNNSIAI 0.002429 | 7.0 |
| HLA-A*31:01 | 1 | 940 | 948 | 9 | STASALGKL 0.002429 | 12 |
| HLA-A*68:02 | 1 | 341 | 350 | 10 | VFNATRFASV 0.002428 | 11 |
| HLA-B*51:01 | 1 | 403 | 411 | 9 | RGDEVQRQA 0.002428 | 13 |
| HLA-A*30:02 | 1 | 817 | 825 | 9 | FIEDLLFNK 0.002428 | 15 |
| HLA-A*68:02 | 1 | 900 | 909 | 10 | MQMAYRFNGI 0.002428 | 11 |
| HLA-B*58:01 | 1 | 1171 | 1179 | 9 | GINASVVNI 0.002428 | 8.6 |
| HLA-A*30:01 | 1 | 764 | 772 | 9 | NRALTGIIV 0.002427 | 18 |
| HLA-A*30:02 | 1 | 511 | 520 | 10 | VVLSFELLHA 0.002426 | 15 |
| HLA-A*30:02 | 1 | 772 | 781 | 10 | VEQDKNTQEV 0.002426 | 15 |
| HLA-B*51:01 | 1 | 891 | 900 | 10 | GAAALQIPFAM 0.002426 | 13 |
| HLA-A*30:02 | 1 | 56 | 65 | 10 | LPFFSNVTWF 0.002425 | 15 |
| HLA-A*02:01 | 1 | 868 | 877 | 10 | EMIAQYTSAL 0.002425 | 9.5 |
| HLA-A*30:02 | 1 | 1105 | 1113 | 9 | TQRNFYEPQ 0.002424 | 15 |
| HLA-B*44:02 | 1 | 574 | 582 | 9 | DAVRDPQTL 0.002422 | 5.3 |
| HLA-A*02:06 | 1 | 825 | 834 | 10 | KVTLADAGFI 0.002422 | 14 |
| HLA-A*02:03 | 1 | 1124 | 1132 | 9 | GNCDVVIGI 0.002422 | 11 |
| HLA-A*31:01 | 1 | 626 | 635 | 10 | ADQLTPTWRV 0.002421 | 12 |
| HLA-A*23:01 | 1 | 463 | 472 | 10 | PFERDISTEI 0.00242 | 5.7 |
| HLA-B*07:02 | 1 | 490 | 499 | 10 | FPLQSYGFQP 0.00242 | 7.7 |
| HLA-A*68:01 | 1 | 634 | 643 | 10 | RVYSTGSNVF 0.00242 | 12 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*57:01 | 1 | 857 | 865 | 9 | GLTVLPPLL 0.00242 | 13 |
| HLA-A*30:02 | 1 | 1221 | 1229 | 9 | IAGLIAIVM 0.00242 | 15 |
| HLA-B*44:03 | 1 | 223 | 231 | 9 | LEPLVDLPI 0.002419 | 5.5 |
| HLA-B*07:02 | 1 | 310 | 318 | 9 | KGITYQTSNF 0.002419 | 7.7 |
| HLA-A*31:01 | 1 | 505 | 513 | 9 | YQPYRVVVL 0.002419 | 12 |
| HLA-A*68:02 | 1 | 754 | 763 | 10 | LQYGSFCTQL 0.002418 | 11 |
| HLA-A*33:01 | 1 | 1054 | 1063 | 10 | QSAPHGVVFL 0.002418 | 9.2 |
| HLA-A*11:01 | 1 | 1096 | 1104 | 9 | VSNGTHWV 0.002418 | 7.1 |
| HLA-B*51:01 | 1 | 983 | 991 | 9 | RLDKVEAEV 0.002417 | 13 |
| HLA-A*68:02 | 1 | 915 | 924 | 10 | VLYENQKLIA 0.002416 | 11 |
| HLA-A*30:01 | 1 | 179 | 187 | 9 | LEGKQGNFK 0.002415 | 18 |
| HLA-B*15:01 | 1 | 378 | 386 | 9 | KCYGVSPVK 0.002415 | 9.7 |
| HLA-A*68:02 | 1 | 1124 | 1133 | 10 | GNCDDVIGIV 0.002415 | 11 |
| HLA-A*33:01 | 1 | 1206 | 1214 | 9 | YEQYIKWPW 0.002415 | 9.2 |
| HLA-A*02:06 | 1 | 552 | 560 | 9 | LTESNKKFL 0.002414 | 14 |
| HLA-A*02:01 | 1 | 876 | 885 | 10 | ALLAGTITSG 0.002414 | 9.5 |
| HLA-A*03:01 | 1 | 765 | 774 | 10 | RALTGIAVEQ 0.002413 | 8.2 |
| HLA-B*58:01 | 1 | 1002 | 1011 | 10 | QSLQTYVTQQ 0.002413 | 8.7 |
| HLA-A*23:01 | 1 | 1144 | 1152 | 9 | ELDSFKEEL 0.002413 | 5.7 |
| HLA-B*07:02 | 1 | 21 | 29 | 9 | RTQLPPAYT 0.002411 | 7.7 |
| HLA-B*58:01 | 1 | 120 | 128 | 9 | VNATNVVI 0.002411 | 8.7 |
| HLA-B*51:01 | 1 | 871 | 879 | 9 | AQYTSALLA 0.002411 | 13 |
| HLA-A*68:01 | 1 | 918 | 926 | 9 | ENQKLIANQ 0.002411 | 12 |
| HLA-A*68:02 | 1 | 323 | 332 | 10 | TESIVRFPN 0.00241 | 11 |
| HLA-A*26:01 | 1 | 901 | 909 | 9 | QMAYRFNGI 0.00241 | 7.1 |
| HLA-B*08:01 | 1 | 1154 | 1162 | 9 | KYFKNHTSP 0.00241 | 13 |
| HLA-A*30:01 | 1 | 790 | 799 | 10 | KTPPIKDFGG 0.002409 | 18 |
| HLA-A*30:01 | 1 | 414 | 423 | 10 | QTGKIADYNY 0.002408 | 18 |
| HLA-A*30:02 | 1 | 96 | 104 | 9 | EKSNIIRGW 0.002407 | 15 |
| HLA-A*02:06 | 1 | 1124 | 1133 | 10 | GNCDDVIGIV 0.002407 | 14 |
| HLA-A*30:02 | 1 | 1109 | 1117 | 9 | FYEPQIITT 0.002406 | 15 |
| HLA-A*68:02 | 1 | 1098 | 1107 | 10 | NGTHWFVTQR 0.002405 | 11 |
| HLA-A*68:01 | 1 | 160 | 168 | 9 | YSSANNCTF 0.002404 | 12 |
| HLA-B*44:02 | 1 | 976 | 984 | 9 | VLNDILSRL 0.002404 | 5.3 |
| HLA-A*30:01 | 1 | 1056 | 1065 | 10 | APHGVVFLHV 0.002404 | 18 |
| HLA-A*30:01 | 1 | 1102 | 1110 | 9 | WFVTQRNFY 0.002404 | 18 |
| HLA-A*31:01 | 1 | 378 | 387 | 10 | KCYGVSPVKL 0.002403 | 12 |
| HLA-A*30:01 | 1 | 1096 | 1105 | 10 | VSNGTHWVFT 0.002403 | 18 |
| HLA-B*44:02 | 1 | 192 | 200 | 9 | FVFKNIDGY 0.002402 | 5.3 |
| HLA-A*30:01 | 1 | 218 | 227 | 10 | QGFSALEPLV 0.002402 | 18 |
| HLA-A*30:01 | 1 | 1038 | 1047 | 10 | KRVDFCGKGY 0.002402 | 18 |
| HLA-B*07:02 | 1 | 1017 | 1025 | 9 | EIRASANLA 0.002401 | 7.7 |
| HLA-A*02:03 | 1 | 697 | 706 | 10 | MSLGAENSV 0.0024 | 11 |
| HLA-B*44:02 | 1 | 698 | 707 | 10 | SLGAENSVAY 0.0024 | 5.3 |
| HLA-A*02:01 | 1 | 739 | 747 | 9 | TMYICGDST 0.0024 | 9.5 |
| HLA-B*51:01 | 1 | 427 | 435 | 9 | DDFTGCVIA 0.002399 | 13 |
| HLA-A*02:06 | 1 | 335 | 344 | 10 | LCPFGEVFN 0.002397 | 14 |
| HLA-B*58:01 | 1 | 638 | 646 | 9 | TGSNVFQTR 0.002397 | 8.7 |
| HLA-A*11:01 | 1 | 149 | 158 | 10 | NKSWMSEFR 0.002396 | 7.1 |
| HLA-A*26:01 | 1 | 725 | 734 | 10 | EILPVSMTK 0.002396 | 7.1 |
| HLA-A*30:02 | 1 | 62 | 71 | 10 | VTWFHAIHVS 0.002394 | 15 |
| HLA-A*01:01 | 1 | 170 | 179 | 10 | YVSQPFLMDL 0.002394 | 8.6 |
| HLA-A*02:06 | 1 | 523 | 531 | 9 | TVCGPKKST 0.002394 | 14 |
| HLA-B*51:01 | 1 | 686 | 694 | 9 | SVASQSIIA 0.002394 | 13 |
| HLA-B*44:02 | 1 | 1080 | 1089 | 10 | AICHDGKAHF 0.002394 | 5.3 |
| HLA-B*51:01 | 1 | 1128 | 1136 | 9 | VVIGIVNNT 0.002394 | 13 |
| HLA-B*57:01 | 1 | 306 | 314 | 9 | FTVEKGIYQ 0.002393 | 13 |
| HLA-A*30:02 | 1 | 377 | 386 | 10 | FKCYGVSPVK 0.002393 | 15 |
| HLA-A*31:01 | 1 | 241 | 249 | 9 | LLALHRSYL 0.002392 | 12 |
| HLA-B*08:01 | 1 | 792 | 800 | 9 | PPIKDFGGF 0.002392 | 13 |
| HLA-A*32:01 | 1 | 1053 | 1062 | 10 | PQSAPHGVVF 0.002392 | 7.0 |
| HLA-B*44:03 | 1 | 212 | 220 | 9 | LVRDLPQGF 0.002391 | 5.5 |
| HLA-A*02:01 | 1 | 634 | 643 | 10 | RVYSTGSNVF 0.002391 | 9.5 |
| HLA-A*02:06 | 1 | 1087 | 1096 | 10 | AHFPREGVVF 0.00239 | 14 |
| HLA-B*51:01 | 1 | 1108 | 1116 | 9 | NFYEPQIIT 0.00239 | 13 |
| HLA-A*30:01 | 1 | 576 | 585 | 10 | VRDPQTLEIL 0.002389 | 18 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*30:01 | 1 | 957 | 966 | 10 | QALNTLVKQL 0.002389 | 18 |
| HLA-A*33:01 | 1 | 1014 | 1022 | 9 | RAAEIRASA 0.002389 | 9.2 |
| HLA-A*30:02 | 1 | 1226 | 1234 | 9 | AIVMVTIML 0.002389 | 15 |
| HLA-B*57:01 | 1 | 409 | 418 | 10 | QIAPGQTGKI 0.002388 | 13 |
| HLA-A*02:03 | 1 | 307 | 315 | 9 | TVEKGIYQT 0.002387 | 11 |
| HLA-A*33:01 | 1 | 453 | 461 | 9 | YRLFRRKSNL 0.002387 | 9.2 |
| HLA-A*02:01 | 1 | 759 | 767 | 9 | FCTQLNRAL 0.002387 | 9.5 |
| HLA-A*30:02 | 1 | 707 | 715 | 9 | YSNNSIAIP 0.002386 | 15 |
| HLA-A*32:01 | 1 | 225 | 233 | 9 | PLVDLPIGI 0.002385 | 7.0 |
| HLA-A*68:02 | 1 | 256 | 264 | 9 | SGWTAGAAA 0.002385 | 11 |
| HLA-A*30:02 | 1 | 415 | 424 | 10 | TGKIADYNYK 0.002384 | 15 |
| HLA-A*30:01 | 1 | 500 | 509 | 10 | TNGVGYQPYR 0.002384 | 18 |
| HLA-A*68:02 | 1 | 442 | 451 | 10 | DSKVGGNINY 0.002382 | 11 |
| HLA-A*02:03 | 1 | 992 | 1001 | 10 | QIDRLITGRL 0.002382 | 11 |
| HLA-A*26:01 | 1 | 638 | 646 | 9 | TGSNVFQTR 0.00238 | 7.1 |
| HLA-A*02:03 | 1 | 685 | 693 | 9 | RSVASQSII 0.00238 | 11 |
| HLA-B*08:01 | 1 | 754 | 763 | 10 | LQYGSFCTQL 0.00238 | 13 |
| HLA-B*51:01 | 1 | 507 | 515 | 9 | PYRVVLSF 0.002379 | 13 |
| HLA-A*30:02 | 1 | 1040 | 1048 | 9 | VDFCGKGYH 0.002379 | 15 |
| HLA-B*44:03 | 1 | 1053 | 1062 | 10 | PQSAPHGVVF 0.002379 | 5.5 |
| HLA-A*68:01 | 1 | 46 | 55 | 10 | SVLHSTQDLF 0.002378 | 12 |
| HLA-A*11:01 | 1 | 235 | 243 | 9 | ITRFQTLA 0.002378 | 7.1 |
| HLA-A*11:01 | 1 | 1028 | 1036 | 9 | KMSECVLGQ 0.002378 | 7.1 |
| HLA-A*01:01 | 1 | 1206 | 1214 | 9 | YEQYIKWPW 0.002378 | 8.7 |
| HLA-A*02:03 | 1 | 432 | 441 | 10 | CVIAWNSNNL 0.002377 | 11 |
| HLA-B*08:01 | 1 | 200 | 209 | 10 | YFKIYSKHTP 0.002376 | 13 |
| HLA-B*57:01 | 1 | 1171 | 1179 | 9 | GINASVVNI 0.002376 | 13 |
| HLA-A*11:01 | 1 | 77 | 86 | 10 | KRFDNPVLPF 0.002375 | 7.1 |
| HLA-A*11:01 | 1 | 270 | 279 | 10 | LQPRTFLLKY 0.002375 | 7.1 |
| HLA-B*57:01 | 1 | 777 | 786 | 10 | NTQEVFAQVK 0.002375 | 13 |
| HLA-B*15:01 | 1 | 690 | 699 | 10 | QSIAYTMSL 0.002374 | 9.8 |
| HLA-A*33:01 | 1 | 975 | 984 | 10 | SVLNDILSRL 0.002374 | 9.2 |
| HLA-B*51:01 | 1 | 1067 | 1076 | 10 | YVPAQEKNT 0.002374 | 13 |
| HLA-A*30:01 | 1 | 1174 | 1183 | 10 | ASVVNIQKEI 0.002374 | 18 |
| HLA-A*11:01 | 1 | 61 | 69 | 9 | NVTWFHAIH 0.002373 | 7.1 |
| HLA-A*30:01 | 1 | 234 | 242 | 9 | NITRFQTL 0.002373 | 18 |
| HLA-B*58:01 | 1 | 382 | 391 | 10 | VSPTKLNLDLC 0.002372 | 8.8 |
| HLA-B*51:01 | 1 | 393 | 401 | 9 | TNVYADSFV 0.002371 | 13 |
| HLA-B*15:01 | 1 | 512 | 520 | 9 | VLSFELLHA 0.002371 | 9.8 |
| HLA-A*02:01 | 1 | 1140 | 1148 | 9 | PLQPELDSF 0.00237 | 9.6 |
| HLA-A*02:03 | 1 | 59 | 67 | 9 | FSNVTWFHA 0.002369 | 11 |
| HLA-A*33:01 | 1 | 239 | 248 | 10 | QTLALHRSY 0.002369 | 9.2 |
| HLA-A*68:02 | 1 | 619 | 627 | 9 | EVVVAIHAD 0.002369 | 11 |
| HLA-A*31:01 | 1 | 995 | 1003 | 9 | RLITGRLQS 0.002369 | 12 |
| HLA-B*35:01 | 1 | 10 | 18 | 9 | LVSSQCVNL 0.002367 | 7.1 |
| HLA-B*44:03 | 1 | 892 | 900 | 9 | AALQIPFAM 0.002366 | 5.5 |
| HLA-B*07:02 | 1 | 168 | 176 | 9 | FEYVSQPFL 0.002365 | 7.8 |
| HLA-B*53:01 | 1 | 396 | 404 | 9 | YADSFVIRG 0.002365 | 6.4 |
| HLA-B*44:03 | 1 | 50 | 59 | 10 | STQDLFLPFF 0.002364 | 5.5 |
| HLA-A*31:01 | 1 | 161 | 170 | 10 | SSANNCTFEY 0.002364 | 12 |
| HLA-A*02:01 | 1 | 55 | 64 | 10 | FLPFFSNVTW 0.002363 | 9.6 |
| HLA-A*03:01 | 1 | 1263 | 1271 | 9 | PVLKGVKLH 0.002363 | 8.3 |
| HLA-A*68:02 | 1 | 35 | 44 | 10 | GVYYPDKVFR 0.002361 | 11 |
| HLA-A*32:01 | 1 | 454 | 463 | 10 | RLFRKSNLKP 0.002361 | 7.1 |
| HLA-A*68:01 | 1 | 464 | 473 | 10 | FERDISTEY 0.002361 | 12 |
| HLA-A*02:03 | 1 | 759 | 767 | 9 | FCTQLNRAL 0.002361 | 11 |
| HLA-B*51:01 | 1 | 347 | 355 | 9 | FASVYAWNR 0.00236 | 13 |
| HLA-A*32:01 | 1 | 964 | 972 | 9 | KQLSSNFGA 0.002359 | 7.1 |
| HLA-B*51:01 | 1 | 1057 | 1065 | 9 | PHGVVFLHV 0.002359 | 13 |
| HLA-A*30:02 | 1 | 1074 | 1083 | 10 | NFTTAPAICH 0.002359 | 15 |
| HLA-A*02:03 | 1 | 202 | 211 | 10 | KIYSKHTPIN 0.002358 | 11 |
| HLA-B*51:01 | 1 | 475 | 483 | 9 | AGSTPCNGV 0.002358 | 13 |
| HLA-A*11:01 | 1 | 1002 | 1010 | 9 | QSLQTYVTQ 0.002358 | 7.1 |
| HLA-A*24:02 | 1 | 149 | 157 | 9 | NKSWMESEF 0.002357 | 5.7 |
| HLA-A*30:02 | 1 | 602 | 610 | 9 | TNTSNQVAV 0.002357 | 15 |
| HLA-A*26:01 | 1 | 806 | 815 | 10 | LPDPSKPSKR 0.002357 | 7.2 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*03:01 | 1 | 1129 | 1138 | 10 | VIGIVNNTVY 0.002357 | 8.3 |
| HLA-B*07:02 | 1 | 699 | 707 | 9 | LGAENSVAY 0.002356 | 7.8 |
| HLA-B*08:01 | 1 | 1194 | 1203 | 10 | NESLIDLQEL 0.002354 | 13 |
| HLA-B*51:01 | 1 | 772 | 781 | 10 | VEQDKNTQEV 0.002353 | 13 |
| HLA-A*30:01 | 1 | 347 | 355 | 9 | FASVYAWNR 0.002352 | 18 |
| HLA-A*02:03 | 1 | 948 | 956 | 9 | LQDVVNQNA 0.002352 | 11 |
| HLA-B*57:01 | 1 | 968 | 977 | 10 | SNFGAISSVL 0.002351 | 13 |
| HLA-B*44:02 | 1 | 1164 | 1172 | 9 | VDLGDISGI 0.002351 | 5.4 |
| HLA-B*53:01 | 1 | 1178 | 1186 | 9 | NIQKEIDRL 0.002351 | 6.4 |
| HLA-B*53:01 | 1 | 1256 | 1265 | 10 | FDEDDSEPVL 0.002351 | 6.4 |
| HLA-A*02:01 | 1 | 513 | 521 | 9 | LSFELLHAP 0.00235 | 9.6 |
| HLA-B*35:01 | 1 | 599 | 608 | 10 | TPGTNTSNQV 0.00235 | 7.1 |
| HLA-B*15:01 | 1 | 618 | 626 | 9 | TEVPVAIHA 0.00235 | 9.8 |
| HLA-B*44:02 | 1 | 421 | 429 | 9 | YNYKLPDDF 0.002349 | 5.4 |
| HLA-A*01:01 | 1 | 1163 | 1172 | 10 | DVDLGDISGI 0.002349 | 8.7 |
| HLA-A*32:01 | 1 | 218 | 226 | 9 | QGFSALEPL 0.002348 | 7.1 |
| HLA-B*58:01 | 1 | 750 | 759 | 10 | SNLLLQYGSF 0.002348 | 8.8 |
| HLA-A*23:01 | 1 | 893 | 902 | 10 | ALQIPFAMQM 0.002348 | 5.8 |
| HLA-B*53:01 | 1 | 1142 | 1150 | 9 | QPELDSFKE 0.002348 | 6.4 |
| HLA-A*30:02 | 1 | 152 | 161 | 10 | WMESEFRVYS 0.002345 | 15 |
| HLA-B*58:01 | 1 | 375 | 384 | 10 | STFKCYGVSP 0.002345 | 8.8 |
| HLA-A*02:01 | 1 | 503 | 511 | 9 | VGYPYRVV 0.002345 | 9.6 |
| HLA-A*26:01 | 1 | 306 | 315 | 10 | FTVEKGIYQT 0.002344 | 7.2 |
| HLA-B*57:01 | 1 | 1207 | 1216 | 10 | EQYIKWPWYI 0.002344 | 13 |
| HLA-A*01:01 | 1 | 319 | 327 | 9 | RVQPTESIV 0.002343 | 8.7 |
| HLA-A*32:01 | 1 | 343 | 351 | 9 | NATRFASVY 0.002343 | 7.1 |
| HLA-A*30:01 | 1 | 1108 | 1117 | 10 | NFYEQIITT 0.002342 | 18 |
| HLA-B*53:01 | 1 | 1205 | 1214 | 10 | KYEYQIKWPW 0.002342 | 6.4 |
| HLA-A*24:02 | 1 | 402 | 410 | 9 | IRGDEVRI 0.00234 | 5.7 |
| HLA-B*51:01 | 1 | 592 | 600 | 9 | FGGVSVITP 0.00234 | 13 |
| HLA-A*11:01 | 1 | 1078 | 1086 | 9 | APAICHGDK 0.00234 | 7.1 |
| HLA-A*30:01 | 1 | 363 | 372 | 10 | ADYSVLYNSA 0.002339 | 18 |
| HLA-B*57:01 | 1 | 859 | 868 | 10 | TVLPPLLTDE 0.002339 | 13 |
| HLA-B*44:02 | 1 | 29 | 37 | 9 | TNSFTRGVY 0.002338 | 5.4 |
| HLA-B*51:01 | 1 | 629 | 638 | 10 | LTPTWRVYST 0.002338 | 13 |
| HLA-B*44:02 | 1 | 661 | 670 | 10 | ECDIPIGAGI 0.002337 | 5.4 |
| HLA-B*58:01 | 1 | 757 | 765 | 9 | GSFCTQLNR 0.002337 | 8.8 |
| HLA-A*02:01 | 1 | 1217 | 1225 | 9 | WLGFIAGLI 0.002337 | 9.6 |
| HLA-A*30:01 | 1 | 872 | 880 | 9 | QYTSALLAG 0.002336 | 18 |
| HLA-B*08:01 | 1 | 83 | 92 | 10 | VLPFNDGVYF 0.002335 | 13 |
| HLA-A*02:06 | 1 | 112 | 120 | 9 | SKTQSLIIV 0.002335 | 14 |
| HLA-A*02:01 | 1 | 817 | 825 | 9 | FIEDLLFNK 0.002335 | 9.6 |
| HLA-B*07:02 | 1 | 1181 | 1189 | 9 | KEIDRLNEV 0.002335 | 7.8 |
| HLA-B*07:02 | 1 | 524 | 533 | 10 | VCGPKKSTNL 0.002334 | 7.8 |
| HLA-B*51:01 | 1 | 474 | 483 | 10 | QAGSTPCNGV 0.002333 | 13 |
| HLA-A*68:01 | 1 | 1101 | 1109 | 9 | HWFVTQRNF 0.002333 | 12 |
| HLA-B*40:01 | 1 | 688 | 697 | 10 | ASQSIIAYTM 0.002331 | 5.2 |
| HLA-B*35:01 | 1 | 868 | 877 | 10 | EMIAQYTSAL 0.002331 | 7.1 |
| HLA-A*26:01 | 1 | 1064 | 1072 | 9 | HVTYVPAQE 0.002331 | 7.2 |
| HLA-B*51:01 | 1 | 1084 | 1092 | 9 | DGKAHFPRE 0.002331 | 13 |
| HLA-A*33:01 | 1 | 3 | 11 | 9 | VFLVLLPLV 0.00233 | 9.3 |
| HLA-A*02:06 | 1 | 276 | 285 | 10 | LLKYNENGTI 0.00233 | 14 |
| HLA-A*33:01 | 1 | 686 | 695 | 10 | SVASQSIIAY 0.00233 | 9.3 |
| HLA-A*23:01 | 1 | 774 | 782 | 9 | QDKNTQEVF 0.00233 | 5.8 |
| HLA-A*23:01 | 1 | 575 | 584 | 10 | AVRDPQTLEI 0.002329 | 5.8 |
| HLA-B*51:01 | 1 | 1119 | 1128 | 10 | NTFVSGNCDV 0.002329 | 13 |
| HLA-A*02:01 | 1 | 240 | 248 | 9 | TLLALHRYS 0.002328 | 9.6 |
| HLA-B*51:01 | 1 | 918 | 927 | 10 | ENQKLIANQF 0.002328 | 13 |
| HLA-A*30:02 | 1 | 1042 | 1050 | 9 | FCGKGYHLM 0.002328 | 15 |
| HLA-A*02:03 | 1 | 100 | 109 | 10 | IIRGWIFGTT 0.002327 | 12 |
| HLA-A*68:02 | 1 | 347 | 355 | 9 | FASVYAWNR 0.002327 | 11 |
| HLA-B*51:01 | 1 | 351 | 359 | 9 | YAWNRKRIS 0.002327 | 13 |
| HLA-B*44:02 | 1 | 1053 | 1062 | 10 | PQSAPHGVVF 0.002327 | 5.4 |
| HLA-A*24:02 | 1 | 168 | 176 | 9 | FEYVSQPFL 0.002325 | 5.7 |
| HLA-A*01:01 | 1 | 297 | 306 | 10 | SETKCTLKSF 0.002325 | 8.8 |
| HLA-A*02:03 | 1 | 1016 | 1024 | 9 | AEIRASANL 0.002325 | 12 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*03:01 | 1 | 1093 | 1102 | 10 | GVFVSNGTHW 0.002324 | 8.4 |
| HLA-A*02:01 | 1 | 1109 | 1117 | 9 | FYEPQIITT 0.002324 | 9.6 |
| HLA-A*68:01 | 1 | 634 | 642 | 9 | RVYSTGSNV 0.002323 | 12 |
| HLA-A*24:02 | 1 | 793 | 802 | 10 | PIKDFGGFN 0.002323 | 5.7 |
| HLA-A*23:01 | 1 | 1057 | 1065 | 9 | PHGVVFLHV 0.002323 | 5.8 |
| HLA-A*02:01 | 1 | 99 | 108 | 10 | NIIRGWIFGT 0.002322 | 9.6 |
| HLA-B*07:02 | 1 | 203 | 212 | 10 | IYSKHTPINL 0.002322 | 7.8 |
| HLA-B*53:01 | 1 | 410 | 418 | 9 | IAPGQTGKI 0.002322 | 6.4 |
| HLA-B*57:01 | 1 | 454 | 462 | 9 | RLFRKSNLK 0.002322 | 13 |
| HLA-B*08:01 | 1 | 624 | 633 | 10 | IHADQLTPTW 0.002322 | 13 |
| HLA-A*02:03 | 1 | 1073 | 1081 | 9 | KNFTTAPAI 0.002322 | 12 |
| HLA-A*11:01 | 1 | 626 | 634 | 9 | ADQLTPTWR 0.002321 | 7.2 |
| HLA-A*32:01 | 1 | 58 | 66 | 9 | FFSNVTWFH 0.00232 | 7.1 |
| HLA-B*35:01 | 1 | 544 | 552 | 9 | NGLTGTGVL 0.00232 | 7.1 |
| HLA-A*02:06 | 1 | 312 | 320 | 9 | IYQTSNFRV 0.002318 | 14 |
| HLA-A*02:06 | 1 | 328 | 336 | 9 | RFPNITNLC 0.002318 | 14 |
| HLA-B*57:01 | 1 | 787 | 795 | 9 | QIYKTPPIK 0.002318 | 13 |
| HLA-B*44:02 | 1 | 408 | 416 | 9 | RQIAPGQTG 0.002317 | 5.4 |
| HLA-A*02:03 | 1 | 470 | 479 | 10 | TEIYQAGSTP 0.002317 | 12 |
| HLA-A*02:06 | 1 | 1094 | 1102 | 9 | VFVSNGTHW 0.002317 | 14 |
| HLA-A*01:01 | 1 | 391 | 400 | 10 | CFTNVYADSF 0.002316 | 8.8 |
| HLA-B*53:01 | 1 | 745 | 754 | 10 | DSTECSNLLL 0.002316 | 6.4 |
| HLA-A*31:01 | 1 | 852 | 860 | 9 | AQKFNGLTV 0.002316 | 12 |
| HLA-A*03:01 | 1 | 1077 | 1086 | 10 | TAPAICHGDK 0.002316 | 8.4 |
| HLA-A*68:02 | 1 | 162 | 170 | 9 | SANNCTFEY 0.002315 | 11 |
| HLA-A*01:01 | 1 | 338 | 346 | 9 | FGEVFNATR 0.002315 | 8.8 |
| HLA-B*57:01 | 1 | 382 | 391 | 10 | VSPTKLNLC 0.002315 | 13 |
| HLA-A*68:01 | 1 | 717 | 726 | 10 | NFTISVTTEI 0.002315 | 12 |
| HLA-A*30:01 | 1 | 18 | 26 | 9 | LTRTQLPP 0.002314 | 18 |
| HLA-A*30:01 | 1 | 49 | 58 | 10 | HSTQDLFLPF 0.002313 | 18 |
| HLA-A*30:02 | 1 | 306 | 314 | 9 | FTVEKGIYQ 0.002313 | 15 |
| HLA-A*26:01 | 1 | 395 | 403 | 9 | VYADSFVIR 0.002313 | 7.2 |
| HLA-A*30:02 | 1 | 761 | 770 | 10 | TQLNRALTGI 0.002313 | 15 |
| HLA-A*02:03 | 1 | 827 | 835 | 9 | TLADAGFIK 0.002313 | 12 |
| HLA-A*30:02 | 1 | 594 | 602 | 9 | GVSVITPGT 0.002312 | 15 |
| HLA-A*26:01 | 1 | 719 | 727 | 9 | TISVTTEIL 0.002311 | 7.2 |
| HLA-B*44:03 | 1 | 428 | 436 | 9 | DFTGCVIAW 0.00231 | 5.6 |
| HLA-B*58:01 | 1 | 782 | 790 | 9 | FAQVKQIYK 0.002309 | 8.9 |
| HLA-A*31:01 | 1 | 236 | 244 | 9 | TRFQTLAL 0.002308 | 12 |
| HLA-B*57:01 | 1 | 301 | 310 | 10 | CTLKSFTVEK 0.002308 | 13 |
| HLA-A*32:01 | 1 | 348 | 357 | 10 | ASVYAWNRKR 0.002308 | 7.1 |
| HLA-A*26:01 | 1 | 495 | 503 | 9 | YGFQPTNGV 0.002308 | 7.3 |
| HLA-A*02:01 | 1 | 648 | 656 | 9 | GCLIGAEHV 0.002308 | 9.7 |
| HLA-A*23:01 | 1 | 847 | 855 | 9 | RDLICAQKF 0.002308 | 5.8 |
| HLA-A*31:01 | 1 | 879 | 888 | 10 | AGTITSGWTF 0.002307 | 12 |
| HLA-B*15:01 | 1 | 948 | 956 | 9 | LQDVVNQNA 0.002307 | 9.9 |
| HLA-B*07:02 | 1 | 2 | 10 | 9 | FVFLVLLPL 0.002305 | 7.8 |
| HLA-A*26:01 | 1 | 287 | 296 | 10 | DAVDCALDPL 0.002305 | 7.3 |
| HLA-A*26:01 | 1 | 617 | 625 | 9 | CTEVPVAIH 0.002305 | 7.3 |
| HLA-B*35:01 | 1 | 954 | 962 | 9 | QNAQALNTL 0.002305 | 7.2 |
| HLA-A*30:02 | 1 | 55 | 64 | 10 | FLPFFSNVTW 0.002304 | 16 |
| HLA-A*02:01 | 1 | 798 | 806 | 9 | GGFNFSQIL 0.002304 | 9.7 |
| HLA-B*53:01 | 1 | 1075 | 1083 | 9 | FTTAPAICH 0.002304 | 6.5 |
| HLA-A*02:03 | 1 | 1222 | 1230 | 9 | AGLIAIVMV 0.002304 | 12 |
| HLA-A*68:01 | 1 | 6 | 14 | 9 | VLLPLVSSQ 0.002303 | 12 |
| HLA-B*40:01 | 1 | 462 | 470 | 9 | KPFERDIST 0.002303 | 5.2 |
| HLA-B*51:01 | 1 | 684 | 692 | 9 | ARSVASQSI 0.002303 | 13 |
| HLA-A*30:01 | 1 | 1010 | 1019 | 10 | QQLIRAAEIR 0.002303 | 18 |
| HLA-B*51:01 | 1 | 184 | 192 | 9 | GNFKNLREF 0.002302 | 13 |
| HLA-B*07:02 | 1 | 1225 | 1233 | 9 | IAIVMVTIM 0.002301 | 7.8 |
| HLA-B*15:01 | 1 | 604 | 613 | 10 | TSNQVAVLYQ 0.0023 | 9.9 |
| HLA-A*26:01 | 1 | 1004 | 1012 | 9 | LQTYVTQQL 0.0023 | 7.3 |
| HLA-A*11:01 | 1 | 269 | 277 | 9 | YLQPRTFLL 0.002299 | 7.2 |
| HLA-A*02:06 | 1 | 504 | 512 | 9 | GYQPYRVVV 0.002299 | 14 |
| HLA-B*40:01 | 1 | 687 | 695 | 9 | VASQSIIAY 0.002299 | 5.2 |
| HLA-B*15:01 | 1 | 304 | 312 | 9 | KSFTVEKGI 0.002298 | 9.9 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*15:01 | 1 | 880 | 889 | 10 | GTITSGWTFG 0.002298 | 9.9 |
| HLA-A*02:01 | 1 | 1051 | 1060 | 10 | SFPQSAPHGV 0.002298 | 9.7 |
| HLA-A*02:06 | 1 | 1115 | 1123 | 9 | ITTDNTFVS 0.002298 | 14 |
| HLA-B*51:01 | 1 | 401 | 410 | 10 | VIRGDEVROI 0.002297 | 13 |
| HLA-B*15:01 | 1 | 772 | 781 | 10 | VEQDKNTQEV 0.002297 | 9.9 |
| HLA-B*57:01 | 1 | 869 | 877 | 9 | MIAQYTSAL 0.002297 | 13 |
| HLA-A*30:02 | 1 | 250 | 258 | 9 | TPGDSSSGW 0.002296 | 16 |
| HLA-B*51:01 | 1 | 722 | 730 | 9 | VTTEILPVS 0.002296 | 13 |
| HLA-B*58:01 | 1 | 857 | 865 | 9 | GLTVLPPLL 0.002296 | 8.9 |
| HLA-B*44:02 | 1 | 160 | 168 | 9 | YSSANNCTF 0.002295 | 5.4 |
| HLA-B*53:01 | 1 | 216 | 225 | 10 | LPQGFSALEP 0.002295 | 6.5 |
| HLA-A*68:02 | 1 | 734 | 743 | 10 | TSVDCTMYIC 0.002295 | 11 |
| HLA-A*01:01 | 1 | 967 | 975 | 9 | SSNFGAISS 0.002295 | 8.9 |
| HLA-B*15:01 | 1 | 205 | 213 | 9 | SKHTPINLV 0.002294 | 9.9 |
| HLA-A*30:02 | 1 | 758 | 767 | 10 | SFCTQLNRAL 0.002294 | 16 |
| HLA-B*15:01 | 1 | 947 | 956 | 10 | KLQDVVNQNA 0.002294 | 9.9 |
| HLA-A*03:01 | 1 | 347 | 355 | 9 | FASVYAWNR 0.002293 | 8.4 |
| HLA-B*40:01 | 1 | 747 | 755 | 9 | TECSNLLLQ 0.002293 | 5.2 |
| HLA-B*40:01 | 1 | 819 | 828 | 10 | EDLLFNKVTL 0.002293 | 5.2 |
| HLA-B*15:01 | 1 | 967 | 976 | 10 | SSNFGAISSV 0.002293 | 9.9 |
| HLA-A*31:01 | 1 | 347 | 356 | 10 | FASVYAWNRK 0.002291 | 12 |
| HLA-A*30:01 | 1 | 400 | 408 | 9 | FVIRGDEV 0.002291 | 18 |
| HLA-B*51:01 | 1 | 464 | 473 | 10 | FERDISTEY 0.002291 | 13 |
| HLA-A*30:02 | 1 | 513 | 521 | 9 | LSFELLHAP 0.002291 | 16 |
| HLA-B*51:01 | 1 | 651 | 660 | 10 | IGAHEVNNSY 0.00229 | 13 |
| HLA-A*23:01 | 1 | 940 | 948 | 9 | STASALGKL 0.00229 | 5.8 |
| HLA-B*44:03 | 1 | 196 | 204 | 9 | NIDGYFKIY 0.002287 | 5.6 |
| HLA-A*01:01 | 1 | 568 | 576 | 9 | DIADTTDAV 0.002287 | 8.9 |
| HLA-A*11:01 | 1 | 977 | 986 | 10 | LNDILSRDLK 0.002287 | 7.2 |
| HLA-B*58:01 | 1 | 696 | 705 | 10 | TMSLGAENSV 0.002285 | 8.9 |
| HLA-A*30:01 | 1 | 910 | 918 | 9 | GVTQNVLYE 0.002285 | 19 |
| HLA-A*30:01 | 1 | 119 | 128 | 10 | IVNNATNVVI 0.002284 | 19 |
| HLA-A*24:02 | 1 | 814 | 822 | 9 | KRSFIEDLL 0.002284 | 5.8 |
| HLA-A*31:01 | 1 | 1055 | 1063 | 9 | SAPHGVVFL 0.002284 | 12 |
| HLA-A*32:01 | 1 | 6 | 14 | 9 | VLLPLVSSQ 0.002283 | 7.2 |
| HLA-B*57:01 | 1 | 30 | 39 | 10 | NSFTRGVYYP 0.002283 | 13 |
| HLA-B*53:01 | 1 | 318 | 326 | 9 | FRVQPTESI 0.002283 | 6.5 |
| HLA-A*02:01 | 1 | 1228 | 1236 | 9 | VMVTIMLCC 0.002283 | 9.7 |
| HLA-A*02:01 | 1 | 408 | 417 | 10 | RQIAPGQTGK 0.002282 | 9.7 |
| HLA-B*51:01 | 1 | 858 | 866 | 9 | LTVLPPLL 0.002282 | 13 |
| HLA-B*44:03 | 1 | 1113 | 1121 | 9 | QIITTDNTF 0.002282 | 5.6 |
| HLA-A*23:01 | 1 | 71 | 79 | 9 | SGTNGTKRF 0.002281 | 5.8 |
| HLA-B*35:01 | 1 | 46 | 54 | 9 | SVLHSTQDL 0.00228 | 7.2 |
| HLA-A*02:06 | 1 | 184 | 193 | 10 | GNFKNLREFV 0.00228 | 14 |
| HLA-A*68:01 | 1 | 879 | 888 | 10 | AGTITSGWTF 0.00228 | 12 |
| HLA-A*68:01 | 1 | 1149 | 1157 | 9 | KEELDKYFK 0.00228 | 12 |
| HLA-A*11:01 | 1 | 311 | 320 | 10 | GIYQTSNFRV 0.002279 | 7.2 |
| HLA-A*03:01 | 1 | 444 | 452 | 9 | KVGGNYNYL 0.002279 | 8.4 |
| HLA-B*08:01 | 1 | 634 | 643 | 10 | RVYSTGSNVF 0.002279 | 13 |
| HLA-B*44:02 | 1 | 223 | 231 | 9 | LEPLVDLPI 0.002278 | 5.5 |
| HLA-B*44:02 | 1 | 470 | 478 | 9 | TEIYQAGST 0.002278 | 5.5 |
| HLA-A*02:01 | 1 | 538 | 546 | 9 | CVNFNFNGL 0.002278 | 9.7 |
| HLA-A*33:01 | 1 | 717 | 725 | 9 | NFTISVTTE 0.002278 | 9.4 |
| HLA-A*02:03 | 1 | 803 | 811 | 9 | SQILPDPSK 0.002278 | 12 |
| HLA-B*57:01 | 1 | 803 | 811 | 9 | SQILPDPSK 0.002278 | 13 |
| HLA-A*02:06 | 1 | 871 | 880 | 10 | AQYTSALLAG 0.002278 | 14 |
| HLA-A*30:02 | 1 | 1168 | 1176 | 9 | DISGINASV 0.002278 | 16 |
| HLA-A*30:01 | 1 | 64 | 72 | 9 | WFHAIHVS 0.002277 | 19 |
| HLA-B*57:01 | 1 | 705 | 713 | 9 | VAYSNNNSIA 0.002277 | 13 |
| HLA-A*30:02 | 1 | 1030 | 1039 | 10 | SECVLGQSKR 0.002277 | 16 |
| HLA-B*53:01 | 1 | 751 | 759 | 9 | NLLLQYGSF 0.002276 | 6.5 |
| HLA-A*30:02 | 1 | 229 | 237 | 9 | LPIGINITR 0.002275 | 16 |
| HLA-A*68:02 | 1 | 630 | 638 | 9 | TPTWRVYST 0.002275 | 11 |
| HLA-A*24:02 | 1 | 854 | 862 | 9 | KFNGLTVLP 0.002275 | 5.8 |
| HLA-B*44:02 | 1 | 986 | 995 | 10 | KVEAEVQIDR 0.002275 | 5.5 |
| HLA-A*30:01 | 1 | 1000 | 1009 | 10 | RLQSLQTYVT 0.002275 | 19 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|----------|-----|
| HLA-A*01:01 | 1 | 1008 | 1016 | 9 | VTQQLIRAA | 0.002275 | 8.9 |
| HLA-A*01:01 | 1 | 497 | 506 | 10 | FQPTNGVGYQ | 0.002274 | 8.9 |
| HLA-B*58:01 | 1 | 981 | 989 | 9 | LSRLDKVEA | 0.002274 | 9.0 |
| HLA-B*58:01 | 1 | 144 | 153 | 10 | YYHKNNKSWM | 0.002273 | 9.0 |
| HLA-B*44:03 | 1 | 298 | 306 | 9 | ETKCTLKSF | 0.002272 | 5.6 |
| HLA-A*68:01 | 1 | 509 | 517 | 9 | RVVVLSFEL | 0.002272 | 12 |
| HLA-A*68:01 | 1 | 530 | 538 | 9 | STNLVKKNC | 0.002272 | 12 |
| HLA-A*33:01 | 1 | 51 | 59 | 9 | TQDLFLPFF | 0.002271 | 9.4 |
| HLA-A*30:01 | 1 | 402 | 410 | 9 | IRGDEVRQI | 0.002271 | 19 |
| HLA-A*26:01 | 1 | 714 | 722 | 9 | IPTNFTISV | 0.002271 | 7.3 |
| HLA-A*31:01 | 1 | 718 | 726 | 9 | FTISVTTEI | 0.002271 | 12 |
| HLA-A*02:03 | 1 | 533 | 541 | 9 | LVKNKCVNF | 0.00227 | 12 |
| HLA-A*30:02 | 1 | 618 | 626 | 9 | TEVPVAIHA | 0.00227 | 16 |
| HLA-A*30:01 | 1 | 814 | 822 | 9 | KRSFIEDLL | 0.00227 | 19 |
| HLA-A*23:01 | 1 | 1051 | 1059 | 9 | SFPQSAPHG | 0.00227 | 5.9 |
| HLA-B*35:01 | 1 | 1138 | 1147 | 10 | YDPLQPELDS | 0.00227 | 7.2 |
| HLA-A*11:01 | 1 | 343 | 351 | 9 | NATRFASVY | 0.002269 | 7.2 |
| HLA-B*58:01 | 1 | 637 | 646 | 10 | STGSNVFQTR | 0.002269 | 9.0 |
| HLA-A*30:02 | 1 | 239 | 247 | 9 | QTLLALHRS | 0.002268 | 16 |
| HLA-A*01:01 | 1 | 368 | 377 | 10 | LYNSASFSTF | 0.002268 | 8.9 |
| HLA-A*30:01 | 1 | 497 | 505 | 9 | FQPTNGVGY | 0.002268 | 19 |
| HLA-B*57:01 | 1 | 1036 | 1044 | 9 | QSKRVDFCG | 0.002268 | 13 |
| HLA-A*03:01 | 1 | 882 | 890 | 9 | ITSGWTFGA | 0.002267 | 8.5 |
| HLA-A*23:01 | 1 | 465 | 473 | 9 | ERDISTEII | 0.002266 | 5.9 |
| HLA-A*30:01 | 1 | 896 | 904 | 9 | IPFAMQMAI | 0.002266 | 19 |
| HLA-B*07:02 | 1 | 145 | 153 | 9 | YHKNNKSWM | 0.002265 | 7.9 |
| HLA-B*08:01 | 1 | 154 | 162 | 9 | ESEFRVYSS | 0.002265 | 14 |
| HLA-A*03:01 | 1 | 256 | 265 | 10 | SGWTAGAAAY | 0.002265 | 8.5 |
| HLA-A*01:01 | 1 | 923 | 931 | 9 | IANQFNSAI | 0.002265 | 8.9 |
| HLA-A*02:03 | 1 | 5 | 13 | 9 | LVLLPLVSS | 0.002264 | 12 |
| HLA-B*51:01 | 1 | 240 | 248 | 9 | TLLALHRSY | 0.002264 | 13 |
| HLA-A*68:02 | 1 | 335 | 344 | 10 | LCPFGEVFNA | 0.002264 | 11 |
| HLA-A*26:01 | 1 | 415 | 423 | 9 | TGKIADYNY | 0.002263 | 7.3 |
| HLA-A*33:01 | 1 | 950 | 958 | 9 | DVVNQNAQA | 0.002263 | 9.4 |
| HLA-B*08:01 | 1 | 628 | 636 | 9 | QLTPTWRVY | 0.002262 | 14 |
| HLA-B*57:01 | 1 | 1115 | 1124 | 10 | ITDNTFVSG | 0.002262 | 13 |
| HLA-A*02:06 | 1 | 640 | 649 | 10 | SNVVFQTRAGC | 0.002261 | 14 |
| HLA-B*44:03 | 1 | 153 | 162 | 10 | MESEFRVYSS | 0.00226 | 5.6 |
| HLA-A*11:01 | 1 | 254 | 262 | 9 | SSSGWTAGA | 0.00226 | 7.2 |
| HLA-B*58:01 | 1 | 408 | 417 | 10 | RQIAPGQTGK | 0.00226 | 9.0 |
| HLA-A*31:01 | 1 | 1171 | 1179 | 9 | GINASVVNI | 0.00226 | 12 |
| HLA-B*08:01 | 1 | 503 | 512 | 10 | VGYQPYRVVV | 0.002258 | 14 |
| HLA-A*30:01 | 1 | 728 | 736 | 9 | PVSMTKTSV | 0.002258 | 19 |
| HLA-B*57:01 | 1 | 148 | 157 | 10 | NNKSWMESEF | 0.002257 | 13 |
| HLA-B*44:02 | 1 | 179 | 187 | 9 | LEGKQGNFK | 0.002257 | 5.5 |
| HLA-A*26:01 | 1 | 596 | 605 | 10 | SVITPGTNTS | 0.002257 | 7.3 |
| HLA-A*30:02 | 1 | 854 | 863 | 10 | KFNGLTVLPP | 0.002257 | 16 |
| HLA-A*68:02 | 1 | 1261 | 1270 | 10 | SEPVKGVKL | 0.002257 | 11 |
| HLA-B*44:03 | 1 | 160 | 168 | 9 | YSSANNCTF | 0.002255 | 5.7 |
| HLA-B*57:01 | 1 | 505 | 513 | 9 | YQPYRVVVL | 0.002255 | 13 |
| HLA-A*26:01 | 1 | 882 | 890 | 9 | ITSGWTFGA | 0.002255 | 7.3 |
| HLA-A*32:01 | 1 | 267 | 276 | 10 | VGYLQPRFLL | 0.002254 | 7.2 |
| HLA-A*01:01 | 1 | 302 | 310 | 9 | TLKSFTVEK | 0.002254 | 9.0 |
| HLA-A*31:01 | 1 | 366 | 374 | 9 | SVLYNSASF | 0.002254 | 12 |
| HLA-A*31:01 | 1 | 415 | 423 | 9 | TGKIADYNY | 0.002254 | 12 |
| HLA-A*24:02 | 1 | 553 | 562 | 10 | TESNKKFLPF | 0.002254 | 5.8 |
| HLA-A*02:06 | 1 | 35 | 44 | 10 | GYYYPDKVFR | 0.002253 | 14 |
| HLA-A*30:02 | 1 | 134 | 143 | 10 | QFCNDPFLGV | 0.002253 | 16 |
| HLA-B*07:02 | 1 | 813 | 821 | 9 | SKRSFIEDL | 0.002253 | 7.9 |
| HLA-A*30:01 | 1 | 874 | 882 | 9 | TSALLAGTI | 0.002253 | 19 |
| HLA-B*51:01 | 1 | 965 | 973 | 9 | QLSSNFGAI | 0.002253 | 13 |
| HLA-B*08:01 | 1 | 599 | 608 | 10 | TPGTNTSNQV | 0.002252 | 14 |
| HLA-A*30:01 | 1 | 900 | 909 | 10 | MQMAYRFNGI | 0.002252 | 19 |
| HLA-A*31:01 | 1 | 1140 | 1149 | 10 | PLQPELDSFK | 0.002251 | 12 |
| HLA-A*02:01 | 1 | 725 | 733 | 9 | EILPVSMTK | 0.00225 | 9.8 |
| HLA-B*15:01 | 1 | 780 | 788 | 9 | EVFAQVKQI | 0.00225 | 10 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*30:02 | 1 | 868 | 876 | 9 | EMIAQY TSA 0.00225 | 16 |
| HLA-A*30:01 | 1 | 409 | 418 | 10 | QIAPGQTGKI 0.002248 | 19 |
| HLA-B*08:01 | 1 | 497 | 505 | 9 | FQPTNGVGY 0.002247 | 14 |
| HLA-A*02:03 | 1 | 798 | 806 | 9 | GGFNFSQIL 0.002245 | 12 |
| HLA-A*68:02 | 1 | 89 | 97 | 9 | GYYFASTEK 0.002244 | 11 |
| HLA-A*24:02 | 1 | 507 | 516 | 10 | PYRVVLSFE 0.002244 | 5.8 |
| HLA-A*01:01 | 1 | 627 | 635 | 9 | DQLTPTWRV 0.002244 | 9.0 |
| HLA-A*33:01 | 1 | 892 | 900 | 9 | AALQIPFAM 0.002244 | 9.4 |
| HLA-A*02:06 | 1 | 1103 | 1111 | 9 | FVTQRNFYE 0.002244 | 15 |
| HLA-A*24:02 | 1 | 198 | 206 | 9 | DGYFKIYSK 0.002243 | 5.8 |
| HLA-B*58:01 | 1 | 507 | 515 | 9 | PYRVVLSF 0.002243 | 9.0 |
| HLA-A*68:02 | 1 | 894 | 903 | 10 | LQIPFAMQMA 0.002243 | 11 |
| HLA-A*33:01 | 1 | 495 | 503 | 9 | YGFQPTNGV 0.002242 | 9.4 |
| HLA-B*08:01 | 1 | 1005 | 1013 | 9 | QTYVVTQQLI 0.002242 | 14 |
| HLA-A*30:02 | 1 | 45 | 54 | 10 | SSVLHSTQDL 0.002241 | 16 |
| HLA-B*44:02 | 1 | 71 | 79 | 9 | SGTNGTKRF 0.002241 | 5.5 |
| HLA-A*30:02 | 1 | 1045 | 1053 | 9 | KGYHLMSFP 0.002241 | 16 |
| HLA-B*57:01 | 1 | 129 | 137 | 9 | KVCEFQFCN 0.00224 | 13 |
| HLA-A*02:03 | 1 | 300 | 308 | 9 | KCTLKSFTV 0.00224 | 12 |
| HLA-A*30:01 | 1 | 465 | 473 | 9 | ERDISTEY 0.00224 | 19 |
| HLA-A*02:03 | 1 | 516 | 525 | 10 | ELLHAPATVC 0.00224 | 12 |
| HLA-A*02:06 | 1 | 270 | 278 | 9 | LQPRTFLLK 0.002239 | 15 |
| HLA-A*30:01 | 1 | 521 | 529 | 9 | PATVCGPKK 0.002239 | 19 |
| HLA-B*58:01 | 1 | 1056 | 1064 | 9 | APHGVVFLH 0.002239 | 9.0 |
| HLA-B*08:01 | 1 | 481 | 489 | 9 | NGVEGFNCY 0.002238 | 14 |
| HLA-A*02:03 | 1 | 78 | 86 | 9 | RFDNPVLPF 0.002237 | 12 |
| HLA-A*02:01 | 1 | 162 | 171 | 10 | SANNCTFEYV 0.002236 | 9.8 |
| HLA-B*08:01 | 1 | 705 | 713 | 9 | VAYSNNISIA 0.002236 | 14 |
| HLA-A*02:06 | 1 | 932 | 941 | 10 | GKIQDSLST 0.002235 | 15 |
| HLA-A*33:01 | 1 | 28 | 37 | 10 | YTNSFTRGVY 0.002233 | 9.5 |
| HLA-A*23:01 | 1 | 427 | 436 | 10 | DDFTGCVIAW 0.002233 | 5.9 |
| HLA-A*68:01 | 1 | 641 | 649 | 9 | NVFQTRAGC 0.002233 | 12 |
| HLA-B*58:01 | 1 | 207 | 216 | 10 | HTPINLVRDL 0.002232 | 9.0 |
| HLA-A*68:01 | 1 | 637 | 645 | 9 | STGSNVFQT 0.002232 | 12 |
| HLA-A*30:01 | 1 | 758 | 767 | 10 | SFCTQLNRAL 0.002232 | 19 |
| HLA-A*30:02 | 1 | 1040 | 1049 | 10 | VDFCGKGYHL 0.002232 | 16 |
| HLA-A*03:01 | 1 | 880 | 888 | 9 | GTITSGWTF 0.002231 | 8.5 |
| HLA-B*44:02 | 1 | 292 | 300 | 9 | ALDPLSETK 0.00223 | 5.5 |
| HLA-B*35:01 | 1 | 1192 | 1200 | 9 | NLNESLIDL 0.002227 | 7.3 |
| HLA-A*68:02 | 1 | 1216 | 1224 | 9 | IWLGFIAGL 0.002227 | 11 |
| HLA-A*02:01 | 1 | 1108 | 1116 | 9 | NFYEQIIT 0.002226 | 9.8 |
| HLA-A*30:01 | 1 | 174 | 182 | 9 | PFLMDLEK 0.002223 | 19 |
| HLA-B*51:01 | 1 | 368 | 377 | 10 | LYNSASFSTF 0.002223 | 13 |
| HLA-A*30:02 | 1 | 714 | 722 | 9 | IPTNFTISV 0.002223 | 16 |
| HLA-B*51:01 | 1 | 972 | 980 | 9 | AISSVLNDI 0.002223 | 13 |
| HLA-A*31:01 | 1 | 27 | 36 | 10 | AYTNSFTRGV 0.002222 | 12 |
| HLA-B*51:01 | 1 | 34 | 43 | 10 | RGVYYPDKVF 0.002222 | 13 |
| HLA-B*07:02 | 1 | 758 | 767 | 10 | SFCTQLNRAL 0.002222 | 8.0 |
| HLA-A*03:01 | 1 | 1176 | 1185 | 10 | VVNIQKEIDR 0.002222 | 8.5 |
| HLA-A*68:02 | 1 | 992 | 1001 | 10 | QIDRLITGRL 0.002221 | 11 |
| HLA-A*02:03 | 1 | 1025 | 1033 | 9 | AATKMSECV 0.002221 | 12 |
| HLA-A*33:01 | 1 | 1183 | 1191 | 9 | IDRLNEVAK 0.002221 | 9.5 |
| HLA-A*01:01 | 1 | 69 | 77 | 9 | HVSGTNGTK 0.002219 | 9.1 |
| HLA-B*35:01 | 1 | 699 | 708 | 10 | LGAENSVAYS 0.002218 | 7.3 |
| HLA-A*33:01 | 1 | 167 | 176 | 10 | TFEYVSQPFL 0.002217 | 9.5 |
| HLA-A*33:01 | 1 | 1092 | 1101 | 10 | EGVFVSNATH 0.002217 | 9.5 |
| HLA-B*08:01 | 1 | 281 | 289 | 9 | ENGTITDAV 0.002216 | 14 |
| HLA-A*30:01 | 1 | 369 | 377 | 9 | YNSASFSTF 0.002216 | 19 |
| HLA-A*32:01 | 1 | 464 | 472 | 9 | FERDISTEI 0.002216 | 7.3 |
| HLA-A*30:02 | 1 | 826 | 834 | 9 | VTLADAGFI 0.002216 | 16 |
| HLA-A*01:01 | 1 | 967 | 976 | 10 | SSNFGAISSV 0.002216 | 9.1 |
| HLA-A*02:06 | 1 | 394 | 403 | 10 | NVYADSFVIR 0.002214 | 15 |
| HLA-B*35:01 | 1 | 497 | 506 | 10 | FQPTNGVGYQ 0.002214 | 7.3 |
| HLA-A*31:01 | 1 | 768 | 776 | 9 | TGIAVEQDK 0.002214 | 12 |
| HLA-A*68:01 | 1 | 766 | 774 | 9 | ALTGIAVEQ 0.002213 | 12 |
| HLA-A*02:06 | 1 | 1141 | 1149 | 9 | LQPELDSFK 0.002213 | 15 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*02:01 | 1 | 77 | 86 | 10 | KRFDNPVLPF 0.002211 | 9.9 |
| HLA-B*08:01 | 1 | 168 | 177 | 10 | FEYVSPFLM 0.002211 | 14 |
| HLA-A*30:01 | 1 | 574 | 583 | 10 | DAVRDPQTL 0.002211 | 19 |
| HLA-A*30:01 | 1 | 227 | 235 | 9 | VDLPIGINI 0.00221 | 19 |
| HLA-A*30:02 | 1 | 771 | 779 | 9 | AVEQDKNTQ 0.00221 | 16 |
| HLA-A*11:01 | 1 | 782 | 791 | 10 | FAQVKQIYKT 0.00221 | 7.3 |
| HLA-A*31:01 | 1 | 576 | 584 | 9 | VRDPQTLEI 0.002209 | 12 |
| HLA-A*31:01 | 1 | 21 | 30 | 10 | RTQLPPAYTN 0.002208 | 12 |
| HLA-A*31:01 | 1 | 549 | 558 | 10 | TGVLTESNKK 0.002208 | 12 |
| HLA-A*30:02 | 1 | 552 | 560 | 9 | LTESNKKFL 0.002208 | 16 |
| HLA-B*44:03 | 1 | 925 | 933 | 9 | NQFNSAIGK 0.002208 | 5.7 |
| HLA-A*68:01 | 1 | 951 | 959 | 9 | VVNQNAQAL 0.002208 | 12 |
| HLA-A*30:02 | 1 | 972 | 981 | 10 | AISSVLNDIL 0.002207 | 16 |
| HLA-B*08:01 | 1 | 148 | 157 | 10 | NNKSWMESEF 0.002206 | 14 |
| HLA-B*57:01 | 1 | 940 | 949 | 10 | STASALGKLQ 0.002206 | 14 |
| HLA-A*02:06 | 1 | 1070 | 1079 | 10 | AQEKNFTTAP 0.002206 | 15 |
| HLA-A*02:01 | 1 | 475 | 483 | 9 | AGSTPCNGV 0.002205 | 9.9 |
| HLA-B*44:02 | 1 | 584 | 592 | 9 | ILDITPCSF 0.002205 | 5.6 |
| HLA-A*30:01 | 1 | 1085 | 1094 | 10 | GKAHFPREGV 0.002205 | 19 |
| HLA-A*30:02 | 1 | 453 | 461 | 9 | YRLFRRKSNL 0.002204 | 16 |
| HLA-B*57:01 | 1 | 707 | 715 | 9 | YSNNSIAIP 0.002204 | 14 |
| HLA-B*07:02 | 1 | 865 | 873 | 9 | LTDEMIAQY 0.002204 | 8.0 |
| HLA-A*01:01 | 1 | 1104 | 1112 | 9 | VTQRNFYEP 0.002203 | 9.1 |
| HLA-A*32:01 | 1 | 318 | 326 | 9 | FRVQPTESI 0.002202 | 7.3 |
| HLA-B*51:01 | 1 | 1224 | 1233 | 10 | LIAIVMVTIM 0.002202 | 13 |
| HLA-A*03:01 | 1 | 23 | 32 | 10 | QLPPAYTNSF 0.002201 | 8.6 |
| HLA-A*68:02 | 1 | 503 | 512 | 10 | VGYPYRVVV 0.002201 | 11 |
| HLA-A*30:02 | 1 | 1051 | 1060 | 10 | SFPQSAPHGV 0.002201 | 16 |
| HLA-A*01:01 | 1 | 634 | 642 | 9 | RVYSTGSNV 0.0022 | 9.1 |
| HLA-A*30:02 | 1 | 942 | 951 | 10 | ASALGKLQDV 0.0022 | 16 |
| HLA-B*08:01 | 1 | 64 | 72 | 9 | WFHAIHVS 0.002199 | 14 |
| HLA-B*08:01 | 1 | 508 | 517 | 10 | YRVVLSFEL 0.002199 | 14 |
| HLA-A*02:03 | 1 | 1216 | 1225 | 10 | IWLGFIAGLI 0.002199 | 12 |
| HLA-B*58:01 | 1 | 12 | 21 | 10 | SSQCVNLTTR 0.002198 | 9.1 |
| HLA-B*44:02 | 1 | 723 | 732 | 10 | TTEILPVSM 0.002198 | 5.6 |
| HLA-A*30:01 | 1 | 1157 | 1166 | 10 | KNHTSPDVL 0.002198 | 19 |
| HLA-A*02:03 | 1 | 67 | 76 | 10 | AIHVSGTNGT 0.002196 | 12 |
| HLA-B*07:02 | 1 | 235 | 243 | 9 | ITRFQTLA 0.002195 | 8.1 |
| HLA-B*08:01 | 1 | 343 | 351 | 9 | NATRFASVY 0.002195 | 14 |
| HLA-B*07:02 | 1 | 456 | 464 | 9 | FRKSNLKP 0.002195 | 8.1 |
| HLA-A*02:01 | 1 | 1192 | 1201 | 10 | NLNESLIDLQ 0.002195 | 9.9 |
| HLA-A*68:02 | 1 | 640 | 649 | 10 | SNVFQTRAGC 0.002194 | 11 |
| HLA-A*02:01 | 1 | 827 | 836 | 10 | TLADAGFIKQ 0.002194 | 9.9 |
| HLA-B*57:01 | 1 | 481 | 489 | 9 | NGVEGFNCY 0.002192 | 14 |
| HLA-B*44:03 | 1 | 699 | 707 | 9 | LGAENSVAY 0.002192 | 5.7 |
| HLA-A*02:06 | 1 | 724 | 733 | 10 | TEILPVSM 0.002192 | 15 |
| HLA-A*68:01 | 1 | 845 | 853 | 9 | AARDLICAQ 0.002191 | 12 |
| HLA-A*32:01 | 1 | 972 | 981 | 10 | AISSVLNDIL 0.002191 | 7.3 |
| HLA-B*40:01 | 1 | 95 | 103 | 9 | TEKSNIIRG 0.00219 | 5.3 |
| HLA-A*33:01 | 1 | 516 | 524 | 9 | ELLHAPATV 0.00219 | 9.5 |
| HLA-A*02:06 | 1 | 261 | 269 | 9 | GAAAYVGY 0.002189 | 15 |
| HLA-A*01:01 | 1 | 1081 | 1089 | 9 | ICHDGKAHF 0.002189 | 9.1 |
| HLA-A*26:01 | 1 | 347 | 355 | 9 | FASVYAWNR 0.002188 | 7.5 |
| HLA-B*57:01 | 1 | 409 | 417 | 9 | QIAPGQTGK 0.002188 | 14 |
| HLA-B*08:01 | 1 | 713 | 722 | 10 | AIPTNFTISV 0.002188 | 14 |
| HLA-B*57:01 | 1 | 936 | 944 | 9 | DSLSTASA 0.002188 | 14 |
| HLA-B*51:01 | 1 | 1203 | 1212 | 10 | LGKYEQYIKW 0.002188 | 13 |
| HLA-A*02:06 | 1 | 283 | 291 | 9 | GTITDAVC 0.002187 | 15 |
| HLA-B*51:01 | 1 | 378 | 387 | 10 | KCYGVSPTKL 0.002187 | 13 |
| HLA-B*58:01 | 1 | 465 | 473 | 9 | ERDISTEY 0.002187 | 9.1 |
| HLA-A*30:02 | 1 | 850 | 858 | 9 | ICAQKFNGL 0.002187 | 16 |
| HLA-A*30:01 | 1 | 897 | 905 | 9 | PFAMQMAYR 0.002187 | 19 |
| HLA-A*02:06 | 1 | 1156 | 1164 | 9 | FKNHTSPDV 0.002187 | 15 |
| HLA-B*07:02 | 1 | 1168 | 1176 | 9 | DISGINASV 0.002187 | 8.1 |
| HLA-B*15:01 | 1 | 915 | 924 | 10 | VLYENQLIA 0.002186 | 11 |
| HLA-B*15:01 | 1 | 1191 | 1200 | 10 | KNLNESLIDL 0.002186 | 11 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*68:01 | 1 | 77 | 86 | 10 | KRFDNPVLPF 0.002185 | 12 |
| HLA-B*57:01 | 1 | 534 | 543 | 10 | VKNKCVNFNF 0.002184 | 14 |
| HLA-B*08:01 | 1 | 867 | 876 | 10 | DEMIAQY TSA 0.002184 | 14 |
| HLA-A*30:02 | 1 | 93 | 102 | 10 | ASTEKSNIIR 0.002183 | 16 |
| HLA-A*30:02 | 1 | 384 | 392 | 9 | PTKLNDLCF 0.002183 | 16 |
| HLA-A*02:03 | 1 | 726 | 735 | 10 | ILPVSMTKTS 0.002183 | 12 |
| HLA-B*51:01 | 1 | 1194 | 1203 | 10 | NESLIDLQEL 0.002183 | 13 |
| HLA-A*68:01 | 1 | 23 | 32 | 10 | QLPPAYTNSF 0.002182 | 12 |
| HLA-A*02:03 | 1 | 55 | 64 | 10 | FLPFFSNVTW 0.002182 | 12 |
| HLA-B*15:01 | 1 | 344 | 352 | 9 | ATRFASVYA 0.002182 | 11 |
| HLA-B*57:01 | 1 | 13 | 21 | 9 | SQCVNL TTR 0.002181 | 14 |
| HLA-A*68:02 | 1 | 46 | 55 | 10 | SVLHSTQDLF 0.002181 | 11 |
| HLA-A*30:01 | 1 | 159 | 167 | 9 | VYSSANNCT 0.002181 | 19 |
| HLA-A*26:01 | 1 | 329 | 338 | 10 | FPNITNLCPF 0.002181 | 7.5 |
| HLA-A*30:01 | 1 | 697 | 706 | 10 | MSLGAEN SVA 0.002181 | 19 |
| HLA-A*26:01 | 1 | 779 | 788 | 10 | QEVFAQVKQI 0.002181 | 7.5 |
| HLA-B*07:02 | 1 | 284 | 293 | 10 | TITDAVDCAL 0.00218 | 8.1 |
| HLA-B*53:01 | 1 | 1096 | 1104 | 9 | VSNGTHWFV 0.00218 | 6.6 |
| HLA-B*58:01 | 1 | 1227 | 1235 | 9 | IVMVTIMLC 0.00218 | 9.1 |
| HLA-A*02:01 | 1 | 1232 | 1240 | 9 | IMLCCMTSC 0.00218 | 9.9 |
| HLA-A*68:02 | 1 | 35 | 43 | 9 | GVYYPDKVF 0.002179 | 11 |
| HLA-B*51:01 | 1 | 379 | 387 | 9 | CYGVSP TKL 0.002179 | 13 |
| HLA-B*58:01 | 1 | 478 | 486 | 9 | TPCNGVEGF 0.002179 | 9.1 |
| HLA-B*51:01 | 1 | 502 | 511 | 10 | GVGYQPYRVV 0.002179 | 13 |
| HLA-B*07:02 | 1 | 679 | 687 | 9 | NSPRRARSV 0.002178 | 8.1 |
| HLA-A*02:03 | 1 | 703 | 712 | 10 | NSVAYSNSI 0.002178 | 12 |
| HLA-A*02:03 | 1 | 1123 | 1132 | 10 | SGNCDV VIGI 0.002178 | 12 |
| HLA-A*26:01 | 1 | 205 | 213 | 9 | SKHTPINLV 0.002177 | 7.5 |
| HLA-B*44:02 | 1 | 481 | 489 | 9 | NGVEGFNCY 0.002177 | 5.6 |
| HLA-A*24:02 | 1 | 494 | 502 | 9 | SYGFQPTNG 0.002177 | 5.9 |
| HLA-A*68:02 | 1 | 849 | 858 | 10 | LICAQKFNGL 0.002177 | 11 |
| HLA-A*23:01 | 1 | 1000 | 1008 | 9 | RLQSLQTYV 0.002177 | 6.0 |
| HLA-B*07:02 | 1 | 1101 | 1109 | 9 | HWFVTQRNF 0.002177 | 8.1 |
| HLA-A*11:01 | 1 | 194 | 202 | 9 | FKNIDGYFK 0.002176 | 7.3 |
| HLA-A*30:01 | 1 | 517 | 525 | 9 | LLHAPATVC 0.002176 | 19 |
| HLA-A*30:01 | 1 | 822 | 831 | 10 | LFNKVTLADA 0.002176 | 19 |
| HLA-A*68:02 | 1 | 859 | 868 | 10 | TVLP LLTDE 0.002176 | 11 |
| HLA-B*57:01 | 1 | 1188 | 1197 | 10 | EVAKNLNESL 0.002176 | 14 |
| HLA-B*58:01 | 1 | 1197 | 1206 | 10 | LIDLQELGKY 0.002175 | 9.1 |
| HLA-A*33:01 | 1 | 1203 | 1211 | 9 | LGKYEYQIK 0.002175 | 9.6 |
| HLA-A*03:01 | 1 | 947 | 956 | 10 | KLQDVVNQNA 0.002174 | 8.6 |
| HLA-A*30:01 | 1 | 63 | 72 | 10 | TWFHAIH VSG 0.002173 | 19 |
| HLA-B*08:01 | 1 | 384 | 392 | 9 | PTKLNDLCF 0.002173 | 14 |
| HLA-B*08:01 | 1 | 1229 | 1237 | 9 | MVTIMLCCM 0.002173 | 14 |
| HLA-A*02:03 | 1 | 3 | 11 | 9 | VFLVLLPLV 0.002172 | 12 |
| HLA-A*30:02 | 1 | 42 | 51 | 10 | VFRSSVLHST 0.002172 | 16 |
| HLA-A*02:06 | 1 | 319 | 328 | 10 | RVQPTESIVR 0.002172 | 15 |
| HLA-A*68:01 | 1 | 324 | 332 | 9 | ESIVRFPNI 0.002172 | 12 |
| HLA-B*08:01 | 1 | 376 | 384 | 9 | TFKCYGVSP 0.002172 | 14 |
| HLA-A*30:01 | 1 | 602 | 610 | 9 | TNTSNQVAV 0.002172 | 19 |
| HLA-B*58:01 | 1 | 897 | 906 | 10 | PFAMQMAYRF 0.002172 | 9.1 |
| HLA-A*68:01 | 1 | 559 | 568 | 10 | FLPFQQFGRD 0.002171 | 12 |
| HLA-A*30:02 | 1 | 1197 | 1205 | 9 | LIDLQELGK 0.002171 | 16 |
| HLA-B*44:03 | 1 | 155 | 164 | 10 | SEFRVYSSAN 0.00217 | 5.8 |
| HLA-A*68:01 | 1 | 538 | 546 | 9 | CVNFNFNGL 0.00217 | 12 |
| HLA-A*30:01 | 1 | 756 | 765 | 10 | YGSFCTQLNR 0.00217 | 19 |
| HLA-A*26:01 | 1 | 922 | 930 | 9 | LIANQFNSA 0.00217 | 7.5 |
| HLA-A*33:01 | 1 | 1064 | 1072 | 9 | HVTYVPAQE 0.002169 | 9.6 |
| HLA-B*15:01 | 1 | 1107 | 1115 | 9 | RNFYEPQII 0.002169 | 11 |
| HLA-A*03:01 | 1 | 305 | 314 | 10 | SFTVEKGIYQ 0.002168 | 8.6 |
| HLA-A*30:02 | 1 | 911 | 919 | 9 | VTQNVLYEN 0.002168 | 16 |
| HLA-B*58:01 | 1 | 171 | 180 | 10 | VSQPFLMDLE 0.002167 | 9.2 |
| HLA-A*68:02 | 1 | 724 | 733 | 10 | TEILPVSM TK 0.002167 | 11 |
| HLA-B*15:01 | 1 | 781 | 790 | 10 | VFAQVKQIYK 0.002167 | 11 |
| HLA-A*68:02 | 1 | 1225 | 1234 | 10 | IAIVMVTIML 0.002167 | 11 |
| HLA-A*30:01 | 1 | 364 | 372 | 9 | DYSVLYNSA 0.002166 | 19 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*44:03 | 1 | 152 | 160 | 9 | WMESEFRVY 0.002165 | 5.8 |
| HLA-B*58:01 | 1 | 441 | 449 | 9 | LDSKVGNGY 0.002165 | 9.2 |
| HLA-A*02:01 | 1 | 923 | 931 | 9 | IANQFNSAI 0.002165 | 9.9 |
| HLA-B*58:01 | 1 | 1015 | 1024 | 10 | AAEIRASANL 0.002165 | 9.2 |
| HLA-A*30:02 | 1 | 416 | 424 | 9 | GKIADYNYK 0.002164 | 16 |
| HLA-A*26:01 | 1 | 1053 | 1062 | 10 | PQSAPHGVVF 0.002164 | 7.5 |
| HLA-B*44:02 | 1 | 1148 | 1156 | 9 | FKEELDKYF 0.002164 | 5.6 |
| HLA-B*58:01 | 1 | 16 | 24 | 9 | VNLTRTQL 0.002162 | 9.2 |
| HLA-A*02:03 | 1 | 505 | 514 | 10 | YQPYRVVVL 0.002161 | 12 |
| HLA-B*58:01 | 1 | 745 | 753 | 9 | DSTECSNLL 0.002161 | 9.2 |
| HLA-B*57:01 | 1 | 546 | 554 | 9 | LTGTGVLTE 0.00216 | 14 |
| HLA-B*57:01 | 1 | 734 | 743 | 10 | TSVDCTMYIC 0.00216 | 14 |
| HLA-B*35:01 | 1 | 1147 | 1156 | 10 | SFKEELDKYF 0.00216 | 7.4 |
| HLA-A*30:02 | 1 | 324 | 332 | 9 | ESIVRFPNI 0.002158 | 16 |
| HLA-A*68:02 | 1 | 365 | 374 | 10 | YSVLYNSASF 0.002158 | 11 |
| HLA-A*31:01 | 1 | 489 | 497 | 9 | YFPLQSYGF 0.002158 | 12 |
| HLA-B*57:01 | 1 | 697 | 706 | 10 | MSLGAENVA 0.002158 | 14 |
| HLA-A*03:01 | 1 | 683 | 691 | 9 | RARVASQS 0.002157 | 8.6 |
| HLA-B*44:02 | 1 | 195 | 203 | 9 | KNIDGYFKI 0.002156 | 5.6 |
| HLA-B*08:01 | 1 | 342 | 351 | 10 | FNATRFASVY 0.002156 | 14 |
| HLA-B*58:01 | 1 | 497 | 505 | 9 | FQPTNGVGY 0.002156 | 9.2 |
| HLA-A*02:03 | 1 | 1021 | 1029 | 9 | SANLAATKM 0.002156 | 12 |
| HLA-A*30:01 | 1 | 1207 | 1216 | 10 | EQYIKWPWYI 0.002156 | 19 |
| HLA-A*23:01 | 1 | 35 | 44 | 10 | GVYYPDKVFR 0.002154 | 6.0 |
| HLA-A*30:01 | 1 | 761 | 770 | 10 | TQLNRALTGI 0.002154 | 19 |
| HLA-A*30:01 | 1 | 868 | 876 | 9 | EMIAQY TSA 0.002154 | 19 |
| HLA-A*30:02 | 1 | 894 | 903 | 10 | LQIPFAMQMA 0.002154 | 16 |
| HLA-B*57:01 | 1 | 19 | 27 | 9 | TTRTQLPPA 0.002153 | 14 |
| HLA-A*30:02 | 1 | 167 | 176 | 10 | TFEYVSQPFL 0.002153 | 16 |
| HLA-B*40:01 | 1 | 465 | 473 | 9 | ERDISTEYI 0.002153 | 5.4 |
| HLA-A*02:01 | 1 | 803 | 811 | 9 | SQILPDPSK 0.002153 | 10 |
| HLA-B*57:01 | 1 | 503 | 512 | 10 | VGYPYRVVV 0.002152 | 14 |
| HLA-A*33:01 | 1 | 529 | 537 | 9 | KSTNLVKNK 0.002152 | 9.6 |
| HLA-B*07:02 | 1 | 731 | 740 | 10 | MTKTSVDCTM 0.002152 | 8.2 |
| HLA-A*02:06 | 1 | 893 | 901 | 9 | ALQIPFAMQ 0.002152 | 15 |
| HLA-B*51:01 | 1 | 1095 | 1104 | 10 | FVSNTHWFV 0.002152 | 13 |
| HLA-B*57:01 | 1 | 907 | 915 | 9 | NGIGVTQNV 0.002151 | 14 |
| HLA-A*33:01 | 1 | 1212 | 1220 | 9 | WPWYIWLGF 0.002151 | 9.6 |
| HLA-A*11:01 | 1 | 896 | 905 | 10 | IPFAMQMAYR 0.002149 | 7.3 |
| HLA-A*68:02 | 1 | 1104 | 1112 | 9 | VTQRNFYEP 0.002149 | 11 |
| HLA-A*30:01 | 1 | 636 | 644 | 9 | YSTGSNVFQ 0.002148 | 19 |
| HLA-A*33:01 | 1 | 1036 | 1045 | 10 | QSKRVDFCGK 0.002148 | 9.6 |
| HLA-B*51:01 | 1 | 1087 | 1096 | 10 | AHFPREGV FV 0.002148 | 13 |
| HLA-A*24:02 | 1 | 1148 | 1156 | 9 | FKEELDKYF 0.002148 | 5.9 |
| HLA-A*24:02 | 1 | 247 | 255 | 9 | SYLTPGDSS 0.002147 | 5.9 |
| HLA-A*33:01 | 1 | 347 | 356 | 10 | FASVYAWNRK 0.002147 | 9.6 |
| HLA-A*31:01 | 1 | 413 | 421 | 9 | GQTGKIADY 0.002147 | 12 |
| HLA-A*11:01 | 1 | 1005 | 1013 | 9 | QTYVTQLI 0.002147 | 7.3 |
| HLA-B*57:01 | 1 | 263 | 272 | 10 | AAYYVGYLQP 0.002146 | 14 |
| HLA-A*02:01 | 1 | 594 | 602 | 9 | GVSVITPGT 0.002146 | 10 |
| HLA-A*68:02 | 1 | 724 | 732 | 9 | TEILPVSM T 0.002146 | 11 |
| HLA-A*33:01 | 1 | 869 | 877 | 9 | MIAQY TSA 0.002146 | 9.6 |
| HLA-A*02:03 | 1 | 203 | 212 | 10 | IYSKHTPINL 0.002145 | 12 |
| HLA-B*53:01 | 1 | 297 | 306 | 10 | SETKCTLKSF 0.002145 | 6.6 |
| HLA-A*30:02 | 1 | 496 | 504 | 9 | GFQPTNGVG 0.002145 | 16 |
| HLA-A*32:01 | 1 | 973 | 981 | 9 | ISSVLNDIL 0.002145 | 7.4 |
| HLA-A*02:03 | 1 | 15 | 24 | 10 | CVNLTRTQL 0.002144 | 12 |
| HLA-B*53:01 | 1 | 48 | 56 | 9 | LHSTQDLFL 0.002144 | 6.6 |
| HLA-A*30:02 | 1 | 1124 | 1132 | 9 | GNCDV VIGI 0.002144 | 16 |
| HLA-A*30:02 | 1 | 48 | 56 | 9 | LHSTQDLFL 0.002143 | 16 |
| HLA-A*68:02 | 1 | 827 | 835 | 9 | TLADAGFIK 0.002143 | 11 |
| HLA-B*57:01 | 1 | 212 | 221 | 10 | LVRDLPQGF S 0.002142 | 14 |
| HLA-A*02:03 | 1 | 294 | 303 | 10 | DPLSETKCT L 0.002142 | 12 |
| HLA-A*01:01 | 1 | 845 | 854 | 10 | AARDLICAQK 0.002142 | 9.2 |
| HLA-A*01:01 | 1 | 846 | 855 | 10 | ARDLICAQK F 0.002142 | 9.2 |
| HLA-A*30:02 | 1 | 675 | 684 | 10 | QTQTNSPRRA 0.002141 | 16 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*02:01 | 1 | 688 | 696 | 9 | ASQSIIAYT 0.002141 | 10 |
| HLA-B*35:01 | 1 | 782 | 790 | 9 | FAQVKQIYK 0.002141 | 7.4 |
| HLA-A*30:01 | 1 | 971 | 980 | 10 | GAISSVLNDI 0.002141 | 19 |
| HLA-A*02:06 | 1 | 291 | 300 | 10 | CALDPLSETK 0.00214 | 15 |
| HLA-B*07:02 | 1 | 957 | 966 | 10 | QALNTLVKQL 0.00214 | 8.2 |
| HLA-B*57:01 | 1 | 812 | 821 | 10 | PSKRSFIEDL 0.002138 | 14 |
| HLA-A*24:02 | 1 | 159 | 167 | 9 | VYSSANNCT 0.002136 | 6.0 |
| HLA-A*01:01 | 1 | 296 | 305 | 10 | LSETKCTLKS 0.002136 | 9.2 |
| HLA-A*30:01 | 1 | 767 | 776 | 10 | LTGIAVEQDK 0.002136 | 19 |
| HLA-A*23:01 | 1 | 1033 | 1042 | 10 | VLGQSKRVDF 0.002136 | 6.0 |
| HLA-A*32:01 | 1 | 1220 | 1228 | 9 | FIAGLIAIV 0.002136 | 7.4 |
| HLA-A*02:03 | 1 | 99 | 108 | 10 | NIIRGWIFGT 0.002135 | 12 |
| HLA-A*68:01 | 1 | 395 | 404 | 10 | VYADSFVIRG 0.002135 | 12 |
| HLA-B*58:01 | 1 | 546 | 554 | 9 | LTGTGVLTE 0.002135 | 9.2 |
| HLA-A*68:02 | 1 | 611 | 620 | 10 | LYQDVNCTEV 0.002135 | 11 |
| HLA-A*01:01 | 1 | 721 | 729 | 9 | SVTTEILPV 0.002135 | 9.2 |
| HLA-B*08:01 | 1 | 728 | 736 | 9 | PVSMTKTSV 0.002135 | 14 |
| HLA-A*32:01 | 1 | 815 | 824 | 10 | RSFIEDLLFN 0.002134 | 7.4 |
| HLA-A*03:01 | 1 | 828 | 837 | 10 | LADAGFIKQY 0.002133 | 8.6 |
| HLA-A*02:03 | 1 | 1227 | 1235 | 9 | IWMVTIMLC 0.002133 | 12 |
| HLA-A*01:01 | 1 | 144 | 152 | 9 | YYHKNNKSW 0.002132 | 9.3 |
| HLA-A*01:01 | 1 | 234 | 242 | 9 | NITRFQTL 0.002132 | 9.3 |
| HLA-A*68:01 | 1 | 500 | 508 | 9 | TNGVGYQPY 0.002132 | 12 |
| HLA-A*68:01 | 1 | 510 | 518 | 9 | VVLSFELL 0.002132 | 12 |
| HLA-A*68:02 | 1 | 891 | 900 | 10 | GAALQIPFAM 0.002132 | 11 |
| HLA-B*58:01 | 1 | 393 | 402 | 10 | TNVYADSFVI 0.002131 | 9.2 |
| HLA-A*33:01 | 1 | 481 | 489 | 9 | NGVEGFNCY 0.002131 | 9.7 |
| HLA-A*02:03 | 1 | 550 | 559 | 10 | GVLTESNKKF 0.002131 | 12 |
| HLA-A*30:01 | 1 | 618 | 626 | 9 | TEVPVAIHA 0.002131 | 19 |
| HLA-B*07:02 | 1 | 686 | 695 | 10 | SVASQSIIAY 0.002131 | 8.2 |
| HLA-A*03:01 | 1 | 947 | 955 | 9 | KLQDVVNQN 0.002131 | 8.7 |
| HLA-A*23:01 | 1 | 1066 | 1074 | 9 | TYVPAQEK 0.002131 | 6.0 |
| HLA-A*01:01 | 1 | 324 | 332 | 9 | ESIVRFPNI 0.00213 | 9.3 |
| HLA-A*23:01 | 1 | 95 | 104 | 10 | TEKSNIIRGW 0.002129 | 6.0 |
| HLA-B*44:02 | 1 | 261 | 269 | 9 | GAAAYVVG 0.002129 | 5.6 |
| HLA-A*33:01 | 1 | 826 | 835 | 10 | VTLADAGFIK 0.002129 | 9.7 |
| HLA-B*44:02 | 1 | 892 | 900 | 9 | AALQIPFAM 0.002129 | 5.6 |
| HLA-B*15:01 | 1 | 732 | 740 | 9 | TKTSVDCTM 0.002128 | 11 |
| HLA-B*40:01 | 1 | 408 | 417 | 10 | RQIAPGQTGK 0.002127 | 5.4 |
| HLA-A*11:01 | 1 | 893 | 901 | 9 | ALQIPFAMQ 0.002127 | 7.4 |
| HLA-B*51:01 | 1 | 588 | 596 | 9 | TPCSFGGVS 0.002126 | 13 |
| HLA-A*30:02 | 1 | 874 | 882 | 9 | TSALLAGTI 0.002126 | 16 |
| HLA-A*03:01 | 1 | 998 | 1007 | 10 | TGRLQSLQTY 0.002125 | 8.7 |
| HLA-A*24:02 | 1 | 384 | 392 | 9 | PTKLNDLCF 0.002124 | 6.0 |
| HLA-B*40:01 | 1 | 803 | 812 | 10 | SQILPDPSPK 0.002124 | 5.4 |
| HLA-B*15:01 | 1 | 309 | 318 | 10 | EKGIYQTSNF 0.002123 | 11 |
| HLA-A*30:02 | 1 | 368 | 376 | 9 | LYNSASFST 0.002122 | 16 |
| HLA-B*58:01 | 1 | 396 | 404 | 9 | YADSFVIRG 0.002122 | 9.3 |
| HLA-A*31:01 | 1 | 635 | 643 | 9 | VYSTGSNVF 0.002122 | 12 |
| HLA-A*24:02 | 1 | 108 | 117 | 10 | TTLDSKTQSL 0.002121 | 6.0 |
| HLA-B*57:01 | 1 | 160 | 169 | 10 | YSSANNCTFE 0.002121 | 14 |
| HLA-B*08:01 | 1 | 717 | 726 | 10 | NFTISVTTEI 0.002121 | 14 |
| HLA-B*44:03 | 1 | 1095 | 1103 | 9 | FVSNGTHWF 0.002121 | 5.8 |
| HLA-A*30:01 | 1 | 100 | 109 | 10 | IIRGWIFGTT 0.00212 | 19 |
| HLA-A*30:02 | 1 | 155 | 163 | 9 | SEFRVYSSA 0.00212 | 16 |
| HLA-B*57:01 | 1 | 101 | 110 | 10 | IRGWIFGTTL 0.002119 | 14 |
| HLA-A*02:06 | 1 | 487 | 495 | 9 | NCYFPLQSY 0.002116 | 15 |
| HLA-A*30:01 | 1 | 259 | 267 | 9 | TAGAAAYV 0.002115 | 19 |
| HLA-B*51:01 | 1 | 453 | 461 | 9 | YRFRKSNL 0.002115 | 14 |
| HLA-B*58:01 | 1 | 481 | 489 | 9 | NGVEGFNCY 0.002114 | 9.3 |
| HLA-A*02:03 | 1 | 783 | 792 | 10 | AQVKQIYKTP 0.002114 | 12 |
| HLA-A*68:01 | 1 | 998 | 1007 | 10 | TGRLQSLQTY 0.002114 | 12 |
| HLA-A*26:01 | 1 | 1008 | 1016 | 9 | VTQLLIRAA 0.002114 | 7.6 |
| HLA-A*30:01 | 1 | 1100 | 1109 | 10 | THWFVTQRNF 0.002114 | 19 |
| HLA-B*07:02 | 1 | 1206 | 1214 | 9 | YEQYIKWPW 0.002114 | 8.2 |
| HLA-A*02:06 | 1 | 320 | 328 | 9 | VQPTESIVR 0.002113 | 15 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*33:01 | 1 | 484 | 492 | 9 | EGFNCFYFPL 0.002113 | 9.7 |
| HLA-A*02:06 | 1 | 851 | 860 | 10 | CAQKFNGLTV 0.002113 | 15 |
| HLA-B*07:02 | 1 | 516 | 524 | 9 | ELLHAPATV 0.002112 | 8.2 |
| HLA-A*30:01 | 1 | 992 | 1001 | 10 | QIDRLITGRL 0.002112 | 19 |
| HLA-B*35:01 | 1 | 304 | 313 | 10 | KSFTVEKGIY 0.002111 | 7.4 |
| HLA-A*33:01 | 1 | 415 | 424 | 10 | TGKIADYNYK 0.002111 | 9.7 |
| HLA-B*15:01 | 1 | 813 | 821 | 9 | SKRSFIEDL 0.002111 | 11 |
| HLA-A*30:01 | 1 | 1145 | 1154 | 10 | LDSFKEELDK 0.002111 | 19 |
| HLA-A*02:01 | 1 | 115 | 123 | 9 | QSLLVNNA 0.002111 | 11 |
| HLA-A*11:01 | 1 | 557 | 565 | 9 | KKFLPFQF 0.002111 | 7.4 |
| HLA-B*51:01 | 1 | 981 | 989 | 9 | LSRLDKVEA 0.002111 | 14 |
| HLA-B*53:01 | 1 | 184 | 192 | 9 | GNFKNLREF 0.002109 | 6.7 |
| HLA-B*58:01 | 1 | 12 | 20 | 9 | SSQCVNLTT 0.002108 | 9.3 |
| HLA-A*02:01 | 1 | 633 | 642 | 10 | WRVYSTGSNV 0.002108 | 11 |
| HLA-B*40:01 | 1 | 634 | 643 | 10 | RVYSTGSNVF 0.002108 | 5.4 |
| HLA-B*58:01 | 1 | 914 | 922 | 9 | NVLYENQKL 0.002108 | 9.3 |
| HLA-B*35:01 | 1 | 976 | 984 | 9 | VLNDILSRL 0.002108 | 7.4 |
| HLA-B*53:01 | 1 | 1060 | 1068 | 9 | VVFLHVTYV 0.002108 | 6.7 |
| HLA-A*68:02 | 1 | 3 | 11 | 9 | VFLVLLPLV 0.002107 | 11 |
| HLA-A*24:02 | 1 | 70 | 79 | 10 | VSGTNGTKRF 0.002107 | 6.0 |
| HLA-A*33:01 | 1 | 510 | 519 | 10 | VVLSFELLH 0.002107 | 9.7 |
| HLA-A*68:01 | 1 | 688 | 696 | 9 | ASQSIIAYT 0.002107 | 12 |
| HLA-A*03:01 | 1 | 1005 | 1013 | 9 | QTYVTQLI 0.002107 | 8.7 |
| HLA-B*44:03 | 1 | 318 | 326 | 9 | FRVQPTESI 0.002106 | 5.8 |
| HLA-A*01:01 | 1 | 454 | 462 | 9 | RLFRKSNLK 0.002106 | 9.3 |
| HLA-A*30:01 | 1 | 651 | 660 | 10 | IGAHEVNNYSY 0.002106 | 19 |
| HLA-A*23:01 | 1 | 796 | 805 | 10 | DFGGFNFSQI 0.002106 | 6.0 |
| HLA-B*44:03 | 1 | 1203 | 1212 | 10 | LGKYEQYIKW 0.002106 | 5.8 |
| HLA-A*30:01 | 1 | 1177 | 1185 | 9 | VNIQKEIDR 0.002105 | 19 |
| HLA-B*44:02 | 1 | 1262 | 1270 | 9 | EPVLKGVKL 0.002105 | 5.7 |
| HLA-B*44:03 | 1 | 819 | 828 | 10 | EDLLFNKVTL 0.002104 | 5.8 |
| HLA-A*68:02 | 1 | 1120 | 1128 | 9 | TFVSGNCDV 0.002104 | 11 |
| HLA-A*03:01 | 1 | 909 | 917 | 9 | IGVTQNVLY 0.002103 | 8.7 |
| HLA-B*07:02 | 1 | 51 | 59 | 9 | TQDLFLPFF 0.002102 | 8.2 |
| HLA-B*57:01 | 1 | 786 | 795 | 10 | KQIYKTPPIK 0.002102 | 14 |
| HLA-A*26:01 | 1 | 195 | 203 | 9 | KNIDGYFKI 0.002101 | 7.6 |
| HLA-A*02:06 | 1 | 372 | 380 | 9 | ASFSTFKCY 0.002101 | 15 |
| HLA-A*30:01 | 1 | 895 | 904 | 10 | QIPFAMQMAY 0.002101 | 19 |
| HLA-A*30:02 | 1 | 15 | 23 | 9 | CVNLTRRTQ 0.002101 | 16 |
| HLA-B*15:01 | 1 | 75 | 84 | 10 | GTKRFDNPVL 0.002101 | 11 |
| HLA-B*53:01 | 1 | 102 | 110 | 9 | RGWIFGTTL 0.002101 | 6.7 |
| HLA-B*15:01 | 1 | 329 | 338 | 10 | FPNITNLCPF 0.002101 | 11 |
| HLA-A*68:01 | 1 | 895 | 903 | 9 | QIPFAMQMA 0.002101 | 12 |
| HLA-A*02:03 | 1 | 1108 | 1116 | 9 | NFYEQIIT 0.002101 | 12 |
| HLA-A*30:02 | 1 | 75 | 84 | 10 | GTKRFDNPVL 0.002098 | 16 |
| HLA-A*02:01 | 1 | 1042 | 1050 | 9 | FCGKGYHLM 0.002098 | 11 |
| HLA-B*44:03 | 1 | 214 | 222 | 9 | RDLPQGFSA 0.002097 | 5.8 |
| HLA-B*58:01 | 1 | 348 | 356 | 9 | ASVYAWNRK 0.002097 | 9.3 |
| HLA-A*03:01 | 1 | 512 | 520 | 9 | VLSFELLHA 0.002097 | 8.7 |
| HLA-A*02:01 | 1 | 692 | 701 | 10 | IIAYTMSLGA 0.002097 | 11 |
| HLA-A*02:06 | 1 | 1081 | 1089 | 9 | ICHDGKAHF 0.002097 | 15 |
| HLA-A*26:01 | 1 | 509 | 517 | 9 | RVVVLSFEL 0.002096 | 7.6 |
| HLA-A*24:02 | 1 | 803 | 811 | 9 | SQILPDPSK 0.002096 | 6.0 |
| HLA-B*51:01 | 1 | 349 | 358 | 10 | SVYAWNRKRI 0.002095 | 14 |
| HLA-A*24:02 | 1 | 453 | 461 | 9 | YRLFRKSNL 0.002095 | 6.0 |
| HLA-B*53:01 | 1 | 693 | 701 | 9 | IAYTMSLGA 0.002094 | 6.7 |
| HLA-A*23:01 | 1 | 896 | 904 | 9 | IPFAMQMAY 0.002094 | 6.1 |
| HLA-A*68:02 | 1 | 707 | 715 | 9 | YSNNSIAIP 0.002093 | 11 |
| HLA-A*02:01 | 1 | 877 | 886 | 10 | LLAGTITSGW 0.002093 | 11 |
| HLA-B*07:02 | 1 | 328 | 337 | 10 | RFPNITNLCP 0.002092 | 8.3 |
| HLA-A*30:02 | 1 | 501 | 509 | 9 | NGVGYQPYP 0.002092 | 16 |
| HLA-A*02:01 | 1 | 856 | 864 | 9 | NGLTVLPLP 0.002092 | 11 |
| HLA-A*33:01 | 1 | 880 | 888 | 9 | GTITSGWTF 0.002092 | 9.7 |
| HLA-B*53:01 | 1 | 34 | 43 | 10 | RGVYYPDKVF 0.002091 | 6.7 |
| HLA-B*08:01 | 1 | 554 | 563 | 10 | ESNKKFLPFQ 0.002091 | 14 |
| HLA-B*35:01 | 1 | 811 | 819 | 9 | KPSKRSFIE 0.002091 | 7.5 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*26:01 | 1 | 1206 | 1215 | 10 | YEQYIKWPWY 0.002091 | 7.6 |
| HLA-A*68:02 | 1 | 8 | 16 | 9 | LPLVSSQC 0.00209 | 11 |
| HLA-A*30:01 | 1 | 445 | 454 | 10 | VGGNYNYLYR 0.00209 | 19 |
| HLA-B*35:01 | 1 | 173 | 182 | 10 | QPFLMDLEGK 0.002089 | 7.5 |
| HLA-B*44:03 | 1 | 1021 | 1029 | 9 | SANLAATKM 0.002089 | 5.8 |
| HLA-A*30:01 | 1 | 488 | 497 | 10 | CYFPLQSYGF 0.002088 | 19 |
| HLA-A*30:01 | 1 | 638 | 647 | 10 | TGSNVFQTRA 0.002088 | 19 |
| HLA-A*32:01 | 1 | 814 | 822 | 9 | KRSFIEDLL 0.002088 | 7.5 |
| HLA-B*57:01 | 1 | 119 | 128 | 10 | IVNNATNVVI 0.002087 | 14 |
| HLA-A*02:06 | 1 | 403 | 411 | 9 | RGDEVRIA 0.002087 | 15 |
| HLA-A*33:01 | 1 | 1135 | 1144 | 10 | NTVYDPLQPE 0.002087 | 9.7 |
| HLA-B*44:02 | 1 | 1190 | 1198 | 9 | AKNLNESLI 0.002087 | 5.7 |
| HLA-A*30:02 | 1 | 179 | 187 | 9 | LEGKQGNFK 0.002085 | 16 |
| HLA-B*57:01 | 1 | 869 | 878 | 10 | MIAQYTSALL 0.002085 | 14 |
| HLA-B*15:01 | 1 | 1001 | 1009 | 9 | LQSLQTYVT 0.002085 | 11 |
| HLA-A*03:01 | 1 | 135 | 144 | 10 | FCNDPFLGVY 0.002084 | 8.7 |
| HLA-A*02:06 | 1 | 533 | 541 | 9 | LVKNKCVNF 0.002083 | 15 |
| HLA-A*31:01 | 1 | 688 | 697 | 10 | ASQSIIAYTM 0.002083 | 12 |
| HLA-A*01:01 | 1 | 803 | 811 | 9 | SQILPDPSK 0.002083 | 9.4 |
| HLA-A*02:06 | 1 | 876 | 885 | 10 | ALLAGTITSG 0.002083 | 15 |
| HLA-A*26:01 | 1 | 1127 | 1135 | 9 | DVVIIGIVNN 0.002083 | 7.6 |
| HLA-B*44:02 | 1 | 371 | 380 | 10 | SASFSTFKCY 0.002082 | 5.7 |
| HLA-A*11:01 | 1 | 625 | 633 | 9 | HADQLTPTW 0.002082 | 7.4 |
| HLA-B*40:01 | 1 | 818 | 827 | 10 | IEDLLFNKVT 0.002082 | 5.5 |
| HLA-A*02:01 | 1 | 175 | 184 | 10 | FLMDLEGKQG 0.002081 | 11 |
| HLA-B*57:01 | 1 | 241 | 249 | 9 | LLALHRSYL 0.002081 | 14 |
| HLA-B*53:01 | 1 | 1102 | 1110 | 9 | WFVTQRNFY 0.002081 | 6.7 |
| HLA-A*02:06 | 1 | 883 | 892 | 10 | TSGWTFGAGA 0.00208 | 15 |
| HLA-A*68:02 | 1 | 364 | 372 | 9 | DYSVLYNSA 0.002079 | 11 |
| HLA-A*30:02 | 1 | 788 | 796 | 9 | IYKTPPIKD 0.002079 | 16 |
| HLA-B*58:01 | 1 | 895 | 904 | 10 | QIPFAMQMAY 0.002079 | 9.3 |
| HLA-A*01:01 | 1 | 991 | 1000 | 10 | VQIDRLITGR 0.002079 | 9.4 |
| HLA-B*08:01 | 1 | 642 | 651 | 10 | VFQTRAGCLI 0.002078 | 14 |
| HLA-A*32:01 | 1 | 713 | 722 | 10 | AIPTNFTISV 0.002078 | 7.5 |
| HLA-A*02:01 | 1 | 1188 | 1197 | 10 | EVAKNLNESL 0.002078 | 11 |
| HLA-A*02:03 | 1 | 389 | 397 | 9 | DLCFTNVYA 0.002077 | 12 |
| HLA-B*08:01 | 1 | 846 | 855 | 10 | ARDLICAQKF 0.002077 | 14 |
| HLA-B*44:02 | 1 | 214 | 222 | 9 | RDLPGGFSA 0.002076 | 5.7 |
| HLA-B*57:01 | 1 | 240 | 249 | 10 | TLLALHRSYL 0.002076 | 14 |
| HLA-A*02:03 | 1 | 705 | 714 | 10 | VAYSNNSIAI 0.002076 | 12 |
| HLA-A*30:01 | 1 | 955 | 963 | 9 | NAQALNTLV 0.002076 | 19 |
| HLA-A*02:06 | 1 | 1165 | 1174 | 10 | DLGDISGINA 0.002076 | 15 |
| HLA-A*11:01 | 1 | 604 | 613 | 10 | TSNQVAVLYQ 0.002075 | 7.4 |
| HLA-A*02:06 | 1 | 789 | 797 | 9 | YKTPPIKDF 0.002074 | 15 |
| HLA-A*03:01 | 1 | 896 | 905 | 10 | IPFAMQMAYR 0.002074 | 8.7 |
| HLA-A*31:01 | 1 | 1054 | 1063 | 10 | QSAPHGVVFL 0.002074 | 12 |
| HLA-A*23:01 | 1 | 382 | 390 | 9 | VSPTKLNLD 0.002073 | 6.1 |
| HLA-A*68:02 | 1 | 470 | 479 | 10 | TEIYQAGSTP 0.002073 | 11 |
| HLA-B*08:01 | 1 | 410 | 418 | 9 | IAPGQTGKI 0.002072 | 14 |
| HLA-A*11:01 | 1 | 732 | 741 | 10 | TKTSVDCTMY 0.002072 | 7.4 |
| HLA-B*35:01 | 1 | 934 | 942 | 9 | IQDLSSTA 0.002072 | 7.5 |
| HLA-B*35:01 | 1 | 126 | 135 | 10 | VVIKVCDFQF 0.002071 | 7.5 |
| HLA-A*24:02 | 1 | 395 | 404 | 10 | VYADSFVIRG 0.002071 | 6.0 |
| HLA-A*02:06 | 1 | 51 | 60 | 10 | TQDLFLPFFS 0.00207 | 15 |
| HLA-A*24:02 | 1 | 878 | 886 | 9 | LAGTITSGW 0.00207 | 6.0 |
| HLA-B*15:01 | 1 | 900 | 909 | 10 | MQMAYRFNGI 0.00207 | 11 |
| HLA-B*44:03 | 1 | 179 | 187 | 9 | LEGKQGNFK 0.002068 | 5.9 |
| HLA-A*32:01 | 1 | 383 | 392 | 10 | SPTKLNLDLCF 0.002068 | 7.5 |
| HLA-A*32:01 | 1 | 504 | 513 | 10 | GYQPYRVVVL 0.002068 | 7.5 |
| HLA-A*11:01 | 1 | 40 | 49 | 10 | DKVFRSSVLH 0.002067 | 7.4 |
| HLA-B*35:01 | 1 | 908 | 917 | 10 | GIGVTQNVLY 0.002067 | 7.5 |
| HLA-A*30:01 | 1 | 118 | 126 | 9 | LIVNNATNV 0.002066 | 19 |
| HLA-B*44:03 | 1 | 934 | 942 | 9 | IQDLSSTA 0.002066 | 5.9 |
| HLA-B*57:01 | 1 | 43 | 52 | 10 | FRSSVLHSTQ 0.002065 | 14 |
| HLA-A*02:01 | 1 | 550 | 559 | 10 | GVLTESNKKF 0.002065 | 11 |
| HLA-A*68:02 | 1 | 708 | 716 | 9 | SNNSIAIPT 0.002065 | 11 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*31:01 | 1 | 16 | 24 | 9 | VNLTRTQL 0.002064 | 12 |
| HLA-B*53:01 | 1 | 658 | 666 | 9 | NSYECDIPI 0.002063 | 6.7 |
| HLA-B*44:03 | 1 | 478 | 486 | 9 | TPCNGVEGF 0.002062 | 5.9 |
| HLA-A*01:01 | 1 | 533 | 541 | 9 | LVKNKCVNF 0.002062 | 9.4 |
| HLA-B*35:01 | 1 | 1054 | 1063 | 10 | QSAPHGVVFL 0.002062 | 7.5 |
| HLA-A*02:03 | 1 | 503 | 512 | 10 | VGYPYRVVV 0.002061 | 12 |
| HLA-A*30:02 | 1 | 591 | 599 | 9 | SFGGVSVIT 0.002061 | 17 |
| HLA-B*08:01 | 1 | 215 | 224 | 10 | DLPQGFSALE 0.00206 | 14 |
| HLA-B*07:02 | 1 | 1039 | 1047 | 9 | RVDFCGKGY 0.00206 | 8.3 |
| HLA-A*30:02 | 1 | 1065 | 1074 | 10 | VTYVPAQEK 0.00206 | 17 |
| HLA-A*01:01 | 1 | 1135 | 1143 | 9 | NTVYDPLQP 0.00206 | 9.5 |
| HLA-B*15:01 | 1 | 725 | 733 | 9 | EILPVSMTK 0.002059 | 11 |
| HLA-A*31:01 | 1 | 1147 | 1156 | 10 | SFKEELDKYF 0.002059 | 12 |
| HLA-A*24:02 | 1 | 1207 | 1215 | 9 | EQYIKWPWY 0.002059 | 6.0 |
| HLA-B*35:01 | 1 | 40 | 48 | 9 | DKVFRSSVL 0.002057 | 7.5 |
| HLA-A*26:01 | 1 | 284 | 293 | 10 | TITDAVDCAL 0.002057 | 7.7 |
| HLA-B*15:01 | 1 | 676 | 685 | 10 | TQTNSPRRAR 0.002057 | 11 |
| HLA-A*68:02 | 1 | 817 | 825 | 9 | FIEDLLFNK 0.002057 | 12 |
| HLA-B*58:01 | 1 | 870 | 879 | 10 | IAQYTSALLA 0.002057 | 9.4 |
| HLA-B*51:01 | 1 | 359 | 367 | 9 | SNCVADYSV 0.002056 | 14 |
| HLA-B*07:02 | 1 | 517 | 525 | 9 | LLHAPATVC 0.002054 | 8.3 |
| HLA-A*68:02 | 1 | 219 | 227 | 9 | GFSALEPLV 0.002053 | 12 |
| HLA-A*33:01 | 1 | 557 | 565 | 9 | KKFLPFQF 0.002053 | 9.8 |
| HLA-A*02:03 | 1 | 787 | 795 | 9 | QIYKTPPIK 0.002053 | 12 |
| HLA-A*68:02 | 1 | 852 | 861 | 10 | AQKFNGLTVL 0.002053 | 12 |
| HLA-A*30:02 | 1 | 993 | 1001 | 9 | IDRLITGRL 0.002053 | 17 |
| HLA-B*57:01 | 1 | 214 | 223 | 10 | RDLPGGSAL 0.002052 | 14 |
| HLA-A*68:02 | 1 | 365 | 373 | 9 | YSVLYNSAS 0.002052 | 12 |
| HLA-B*58:01 | 1 | 749 | 757 | 9 | CSNLLLQYG 0.002052 | 9.4 |
| HLA-A*24:02 | 1 | 556 | 565 | 10 | NKKFLPFQF 0.002051 | 6.1 |
| HLA-A*23:01 | 1 | 410 | 418 | 9 | IAPGQTGKI 0.00205 | 6.1 |
| HLA-A*30:02 | 1 | 889 | 898 | 10 | GAGAALQIPF 0.00205 | 17 |
| HLA-A*33:01 | 1 | 134 | 143 | 10 | QFCNDPFLGV 0.002048 | 9.8 |
| HLA-B*44:03 | 1 | 408 | 417 | 10 | RQIAPGQTGK 0.002048 | 5.9 |
| HLA-A*30:01 | 1 | 773 | 781 | 9 | EQDKNTQEV 0.002048 | 19 |
| HLA-A*68:01 | 1 | 954 | 962 | 9 | QNAQALNTL 0.002048 | 12 |
| HLA-A*02:06 | 1 | 1222 | 1231 | 10 | AGLIAIVMVT 0.002048 | 15 |
| HLA-A*68:01 | 1 | 523 | 531 | 9 | TVCGPKKST 0.002047 | 12 |
| HLA-A*03:01 | 1 | 306 | 314 | 9 | FTVEKGIYQ 0.002045 | 8.8 |
| HLA-A*30:01 | 1 | 312 | 321 | 10 | IYQTSNFRVQ 0.002045 | 19 |
| HLA-A*26:01 | 1 | 1189 | 1197 | 9 | VAKNLNESL 0.002045 | 7.7 |
| HLA-A*02:03 | 1 | 860 | 868 | 9 | VLPLLTDTE 0.002044 | 12 |
| HLA-B*58:01 | 1 | 595 | 603 | 9 | VSVITPGTN 0.002043 | 9.4 |
| HLA-A*02:03 | 1 | 683 | 692 | 10 | RARSVASQSI 0.002043 | 12 |
| HLA-B*15:01 | 1 | 1228 | 1237 | 10 | VMVTIMLCCM 0.002042 | 11 |
| HLA-A*33:01 | 1 | 108 | 117 | 10 | TTLDSKTQSL 0.002041 | 9.8 |
| HLA-A*02:01 | 1 | 609 | 617 | 9 | AVLYQDVNC 0.00204 | 11 |
| HLA-B*07:02 | 1 | 841 | 849 | 9 | LGDIAARDL 0.00204 | 8.4 |
| HLA-B*15:01 | 1 | 1035 | 1043 | 9 | GQSKRVDFC 0.00204 | 11 |
| HLA-A*30:01 | 1 | 911 | 919 | 9 | VTQNVLYEN 0.002039 | 19 |
| HLA-B*51:01 | 1 | 189 | 197 | 9 | LREFVFKNI 0.002038 | 14 |
| HLA-B*40:01 | 1 | 504 | 513 | 10 | GYQPYRVVV 0.002036 | 5.5 |
| HLA-A*26:01 | 1 | 571 | 580 | 10 | DTTDAVRDPQ 0.002036 | 7.7 |
| HLA-A*30:02 | 1 | 936 | 944 | 9 | DSLSSTASA 0.002036 | 17 |
| HLA-A*11:01 | 1 | 978 | 986 | 9 | NDILSRLDK 0.002036 | 7.5 |
| HLA-A*30:02 | 1 | 417 | 426 | 10 | KIADYNYKLP 0.002035 | 17 |
| HLA-B*57:01 | 1 | 703 | 712 | 10 | NSVAYSNNIS 0.002035 | 14 |
| HLA-A*33:01 | 1 | 725 | 734 | 10 | EILPVSMTKT 0.002035 | 9.8 |
| HLA-A*02:01 | 1 | 849 | 858 | 10 | LICAQKFNGL 0.002035 | 11 |
| HLA-A*02:01 | 1 | 133 | 142 | 10 | FQFCNDPFLG 0.002034 | 11 |
| HLA-A*26:01 | 1 | 142 | 150 | 9 | GVYYHKNNK 0.002034 | 7.7 |
| HLA-A*68:01 | 1 | 235 | 243 | 9 | ITRFQTLA 0.002034 | 12 |
| HLA-A*24:02 | 1 | 612 | 620 | 9 | YQDVNCTEV 0.002034 | 6.1 |
| HLA-A*32:01 | 1 | 627 | 636 | 10 | DQLTPTWRVY 0.002034 | 7.6 |
| HLA-B*40:01 | 1 | 653 | 661 | 9 | AEHVNNSE 0.002034 | 5.5 |
| HLA-A*30:01 | 1 | 635 | 644 | 10 | VYSTGSNVFQ 0.002033 | 20 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*30:02 | 1 | 973 | 981 | 9 | ISSVLNDIL 0.002033 | 17 |
| HLA-A*30:01 | 1 | 1225 | 1233 | 9 | IAIVMTIM 0.002033 | 20 |
| HLA-A*02:06 | 1 | 890 | 898 | 9 | AGAALQIPF 0.002031 | 15 |
| HLA-B*57:01 | 1 | 356 | 365 | 10 | KRISNCVADY 0.00203 | 14 |
| HLA-A*30:01 | 1 | 565 | 573 | 9 | FGRDIADTT 0.00203 | 20 |
| HLA-B*51:01 | 1 | 690 | 699 | 10 | QSIAYTMSL 0.00203 | 14 |
| HLA-A*68:01 | 1 | 1148 | 1157 | 10 | FKEELDKYFK 0.00203 | 12 |
| HLA-A*11:01 | 1 | 6 | 14 | 9 | VLLPLVSSQ 0.002029 | 7.5 |
| HLA-A*24:02 | 1 | 83 | 91 | 9 | VLPFNDGVY 0.002029 | 6.1 |
| HLA-A*30:01 | 1 | 168 | 176 | 9 | FEYVSQPFL 0.002029 | 20 |
| HLA-A*02:03 | 1 | 504 | 512 | 9 | GYQPYRVVV 0.002029 | 12 |
| HLA-B*35:01 | 1 | 520 | 528 | 9 | APATVCGPK 0.002029 | 7.6 |
| HLA-A*23:01 | 1 | 558 | 567 | 10 | KFLPFQFGR 0.002029 | 6.1 |
| HLA-A*03:01 | 1 | 50 | 59 | 10 | STQDLFLPFF 0.002028 | 8.8 |
| HLA-A*30:02 | 1 | 957 | 965 | 9 | QALNTLVKQ 0.002028 | 17 |
| HLA-A*32:01 | 1 | 455 | 464 | 10 | LFRKSNLKP 0.002026 | 7.6 |
| HLA-B*44:02 | 1 | 575 | 584 | 10 | AVRDPQTLEI 0.002026 | 5.8 |
| HLA-B*57:01 | 1 | 1260 | 1268 | 9 | DSEPVLKGV 0.002026 | 14 |
| HLA-A*33:01 | 1 | 168 | 177 | 10 | FEYVSQPFLM 0.002025 | 9.9 |
| HLA-A*02:06 | 1 | 242 | 250 | 9 | LALHRSYLT 0.002025 | 15 |
| HLA-B*57:01 | 1 | 347 | 356 | 10 | FASVYAWNRR 0.002025 | 14 |
| HLA-A*30:02 | 1 | 460 | 468 | 9 | NLKPFERDI 0.002025 | 17 |
| HLA-A*33:01 | 1 | 1008 | 1016 | 9 | VTQQLIRAA 0.002025 | 9.9 |
| HLA-B*15:01 | 1 | 1086 | 1094 | 9 | KAHPREGV 0.002025 | 11 |
| HLA-A*30:01 | 1 | 188 | 197 | 10 | NLREFVFKNI 0.002024 | 20 |
| HLA-A*68:01 | 1 | 496 | 505 | 10 | GFQPTNGVGY 0.002024 | 12 |
| HLA-B*51:01 | 1 | 720 | 728 | 9 | ISVTTEILP 0.002024 | 14 |
| HLA-A*30:01 | 1 | 962 | 971 | 10 | LVKQLSSNFG 0.002024 | 20 |
| HLA-A*01:01 | 1 | 1026 | 1034 | 9 | ATKMSECVL 0.002024 | 9.6 |
| HLA-A*23:01 | 1 | 1148 | 1156 | 9 | FKEELDKYF 0.002024 | 6.1 |
| HLA-B*51:01 | 1 | 258 | 266 | 9 | WTAGAAAYY 0.002023 | 14 |
| HLA-A*23:01 | 1 | 478 | 486 | 9 | TPCNGVEGF 0.002023 | 6.1 |
| HLA-A*11:01 | 1 | 521 | 529 | 9 | PATVCGPKK 0.002023 | 7.5 |
| HLA-B*58:01 | 1 | 719 | 727 | 9 | TISVTTEIL 0.002023 | 9.5 |
| HLA-A*32:01 | 1 | 995 | 1003 | 9 | RLITGRLQS 0.002023 | 7.6 |
| HLA-A*02:06 | 1 | 489 | 497 | 9 | YFPLQSYG 0.002022 | 15 |
| HLA-A*68:02 | 1 | 1169 | 1177 | 9 | ISGINASVV 0.002021 | 12 |
| HLA-A*33:01 | 1 | 143 | 151 | 9 | VYYHKNNKS 0.00202 | 9.9 |
| HLA-A*30:01 | 1 | 181 | 189 | 9 | GKQGNFKNL 0.00202 | 20 |
| HLA-B*51:01 | 1 | 333 | 342 | 10 | TNLCPFGEVF 0.00202 | 14 |
| HLA-B*53:01 | 1 | 937 | 945 | 9 | SLSSTASAL 0.00202 | 6.8 |
| HLA-A*01:01 | 1 | 975 | 984 | 10 | SVLNDILSRL 0.00202 | 9.6 |
| HLA-B*53:01 | 1 | 135 | 143 | 9 | FCNDPFLGV 0.002019 | 6.8 |
| HLA-A*31:01 | 1 | 919 | 927 | 9 | NQKLIANQF 0.002019 | 12 |
| HLA-B*51:01 | 1 | 1016 | 1024 | 9 | AEIRASANL 0.002019 | 14 |
| HLA-B*07:02 | 1 | 1060 | 1068 | 9 | VVFLHVTVV 0.002019 | 8.4 |
| HLA-A*30:01 | 1 | 367 | 376 | 10 | VLYNSASFST 0.002018 | 20 |
| HLA-B*44:02 | 1 | 515 | 523 | 9 | FELLHAPAT 0.002018 | 5.8 |
| HLA-A*02:01 | 1 | 884 | 892 | 9 | SGWTFGAGA 0.002018 | 11 |
| HLA-A*68:02 | 1 | 804 | 812 | 9 | QILPDPSPK 0.002017 | 12 |
| HLA-A*30:01 | 1 | 171 | 180 | 10 | VSQPFLMDLE 0.002016 | 20 |
| HLA-B*44:03 | 1 | 603 | 612 | 10 | NTSNQVAVLY 0.002016 | 5.9 |
| HLA-A*68:02 | 1 | 96 | 104 | 9 | EKSNIIRGW 0.002015 | 12 |
| HLA-B*44:02 | 1 | 152 | 160 | 9 | WMESEFRVY 0.002015 | 5.8 |
| HLA-A*33:01 | 1 | 317 | 325 | 9 | NFRVQPTES 0.002015 | 9.9 |
| HLA-B*51:01 | 1 | 343 | 352 | 10 | NATRFASVYA 0.002015 | 14 |
| HLA-B*51:01 | 1 | 127 | 135 | 9 | VIKVFQFQ 0.002014 | 14 |
| HLA-A*68:02 | 1 | 857 | 865 | 9 | GLTVLPPLL 0.002014 | 12 |
| HLA-B*53:01 | 1 | 940 | 948 | 9 | STASALGKL 0.002014 | 6.8 |
| HLA-A*02:01 | 1 | 1028 | 1037 | 10 | KMSECVLGQS 0.002014 | 11 |
| HLA-A*32:01 | 1 | 229 | 238 | 10 | LPIGINITRF 0.002013 | 7.6 |
| HLA-A*02:03 | 1 | 725 | 734 | 10 | EILPVSMTKT 0.002013 | 12 |
| HLA-B*07:02 | 1 | 1195 | 1203 | 9 | ESLIDLQEL 0.002013 | 8.4 |
| HLA-B*44:03 | 1 | 1262 | 1270 | 9 | EPVLKGVKL 0.002013 | 5.9 |
| HLA-B*58:01 | 1 | 34 | 42 | 9 | RGVYYPDKV 0.002012 | 9.5 |
| HLA-A*02:06 | 1 | 954 | 963 | 10 | QNAQALNTLV 0.002012 | 15 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*15:01 | 1 | 171 | 179 | 9 | VSQPFLMDL 0.002011 | 11 |
| HLA-B*58:01 | 1 | 1124 | 1132 | 9 | GNCDVVIGI 0.002011 | 9.5 |
| HLA-B*53:01 | 1 | 1197 | 1206 | 10 | LIDLQELGKY 0.00201 | 6.8 |
| HLA-A*02:06 | 1 | 1228 | 1236 | 9 | VMVTIMLCC 0.00201 | 15 |
| HLA-B*35:01 | 1 | 1229 | 1237 | 9 | MVTIMLCCM 0.00201 | 7.6 |
| HLA-B*44:02 | 1 | 478 | 486 | 9 | TPCNGVEGF 0.002009 | 5.8 |
| HLA-A*30:02 | 1 | 1211 | 1219 | 9 | KWPWYIWLG 0.002009 | 17 |
| HLA-A*01:01 | 1 | 444 | 452 | 9 | KVGGNYNYL 0.002008 | 9.6 |
| HLA-B*08:01 | 1 | 124 | 133 | 10 | TNVVIKVECF 0.002007 | 14 |
| HLA-A*30:01 | 1 | 170 | 179 | 10 | YVSQPFLMDL 0.002007 | 20 |
| HLA-A*33:01 | 1 | 186 | 194 | 9 | FKNLREFVF 0.002007 | 9.9 |
| HLA-A*26:01 | 1 | 427 | 436 | 10 | DDFTGCVIAW 0.002007 | 7.8 |
| HLA-A*30:01 | 1 | 611 | 619 | 9 | LYQDVNCTE 0.002007 | 20 |
| HLA-A*33:01 | 1 | 829 | 837 | 9 | ADAGFIKQY 0.002007 | 9.9 |
| HLA-A*31:01 | 1 | 890 | 898 | 9 | AGAALQIPF 0.002007 | 12 |
| HLA-B*15:01 | 1 | 677 | 685 | 9 | QTNSPRRAR 0.002006 | 11 |
| HLA-A*24:02 | 1 | 808 | 817 | 10 | DPSKPSKRSF 0.002004 | 6.1 |
| HLA-B*07:02 | 1 | 1136 | 1144 | 9 | TVYDPLQPE 0.002004 | 8.4 |
| HLA-A*32:01 | 1 | 424 | 432 | 9 | KLPDDFTGC 0.002003 | 7.6 |
| HLA-B*40:01 | 1 | 929 | 938 | 10 | SAIGKIQDSL 0.002003 | 5.6 |
| HLA-B*53:01 | 1 | 58 | 66 | 9 | FFSNVTWFH 0.002002 | 6.8 |
| HLA-B*58:01 | 1 | 119 | 127 | 9 | IVNATNVV 0.002002 | 9.5 |
| HLA-B*51:01 | 1 | 135 | 144 | 10 | FCNDPFLGVY 0.002002 | 14 |
| HLA-B*07:02 | 1 | 510 | 518 | 9 | VVLSFELL 0.002002 | 8.4 |
| HLA-A*33:01 | 1 | 778 | 786 | 9 | TQEVFAQVK 0.002002 | 9.9 |
| HLA-B*07:02 | 1 | 489 | 497 | 9 | YFPLQSYGF 0.002001 | 8.4 |
| HLA-A*30:01 | 1 | 1004 | 1013 | 10 | LQTYVTQQLI 0.002001 | 20 |
| HLA-A*02:06 | 1 | 1147 | 1155 | 9 | SFKEELDKY 0.002001 | 15 |
| HLA-B*44:03 | 1 | 169 | 177 | 9 | EYVSQPFLM 0.002 | 5.9 |
| HLA-B*15:01 | 1 | 957 | 966 | 10 | QALNTLVKQL 0.001999 | 11 |
| HLA-B*53:01 | 1 | 957 | 966 | 10 | QALNTLVKQL 0.001999 | 6.8 |
| HLA-A*02:03 | 1 | 34 | 42 | 9 | RGVYYPDKV 0.001998 | 12 |
| HLA-A*30:01 | 1 | 308 | 316 | 9 | VEKGIYQTS 0.001998 | 20 |
| HLA-A*11:01 | 1 | 1197 | 1206 | 10 | LIDLQELGKY 0.001998 | 7.5 |
| HLA-A*68:02 | 1 | 280 | 289 | 10 | NENGTITDAV 0.001997 | 12 |
| HLA-B*51:01 | 1 | 746 | 754 | 9 | STECSNLLL 0.001997 | 14 |
| HLA-A*02:03 | 1 | 1163 | 1172 | 10 | DVDLGDISGI 0.001997 | 12 |
| HLA-B*57:01 | 1 | 236 | 244 | 9 | TRFQTLAL 0.001996 | 14 |
| HLA-B*15:01 | 1 | 62 | 70 | 9 | VTWFHAIHV 0.001994 | 11 |
| HLA-B*35:01 | 1 | 135 | 143 | 9 | FCNDPFLGV 0.001994 | 7.6 |
| HLA-B*57:01 | 1 | 269 | 278 | 10 | YLQPRTFLLK 0.001994 | 14 |
| HLA-B*07:02 | 1 | 718 | 727 | 10 | FTISVTTEIL 0.001994 | 8.5 |
| HLA-B*57:01 | 1 | 935 | 944 | 10 | QDLSSTASA 0.001994 | 14 |
| HLA-A*24:02 | 1 | 57 | 66 | 10 | PFFSNVTWFH 0.001992 | 6.1 |
| HLA-A*11:01 | 1 | 151 | 160 | 10 | SWMESEFRVY 0.001992 | 7.6 |
| HLA-A*30:02 | 1 | 221 | 230 | 10 | SALEPLVDLP 0.001991 | 17 |
| HLA-A*02:06 | 1 | 949 | 958 | 10 | QDVVNQNAQA 0.001991 | 15 |
| HLA-B*44:03 | 1 | 1003 | 1012 | 10 | SLQTYVTQQL 0.001991 | 5.9 |
| HLA-A*02:01 | 1 | 1025 | 1033 | 9 | AATKMSECV 0.001991 | 11 |
| HLA-B*53:01 | 1 | 1192 | 1200 | 9 | NLNESLIDL 0.00199 | 6.9 |
| HLA-A*30:01 | 1 | 159 | 168 | 10 | VYSSANNCTF 0.001989 | 20 |
| HLA-B*40:01 | 1 | 421 | 429 | 9 | YNYKLPDDF 0.001989 | 5.6 |
| HLA-B*08:01 | 1 | 560 | 569 | 10 | LPFQFGRDI 0.001989 | 14 |
| HLA-A*31:01 | 1 | 235 | 243 | 9 | ITRFQTLA 0.001988 | 13 |
| HLA-B*51:01 | 1 | 493 | 501 | 9 | QSYGFQPTN 0.001988 | 14 |
| HLA-A*68:02 | 1 | 575 | 583 | 9 | AVRDPQTL 0.001988 | 12 |
| HLA-B*40:01 | 1 | 617 | 626 | 10 | CTEVPVAIHA 0.001988 | 5.6 |
| HLA-A*02:06 | 1 | 1151 | 1159 | 9 | ELDKYFKNH 0.001988 | 15 |
| HLA-A*26:01 | 1 | 576 | 585 | 10 | VRDPQTLLEIL 0.001987 | 7.8 |
| HLA-B*51:01 | 1 | 676 | 684 | 9 | TQTNSPRRA 0.001987 | 14 |
| HLA-B*44:03 | 1 | 1136 | 1145 | 10 | TVYDPLQPEL 0.001987 | 5.9 |
| HLA-A*30:02 | 1 | 197 | 206 | 10 | IDGYFKIYSK 0.001986 | 17 |
| HLA-B*57:01 | 1 | 413 | 421 | 9 | GQTGKIADY 0.001986 | 14 |
| HLA-A*30:01 | 1 | 464 | 472 | 9 | FERDISTEI 0.001986 | 20 |
| HLA-A*68:01 | 1 | 939 | 948 | 10 | SSTASALGKL 0.001986 | 12 |
| HLA-A*30:01 | 1 | 953 | 961 | 9 | NQNAQALNT 0.001986 | 20 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*53:01 | 1 | 177 | 186 | 10 | MDLEGKQGNF 0.001985 | 6.9 |
| HLA-B*51:01 | 1 | 309 | 318 | 10 | EKGIIQTSNF 0.001985 | 14 |
| HLA-B*15:01 | 1 | 1042 | 1050 | 9 | FCGKGYHLM 0.001985 | 11 |
| HLA-B*15:01 | 1 | 28 | 36 | 9 | YNSFTRGV 0.001983 | 11 |
| HLA-A*03:01 | 1 | 83 | 92 | 10 | VLPFNDGVYF 0.001983 | 8.9 |
| HLA-A*32:01 | 1 | 693 | 701 | 9 | IAYTMSLGA 0.001983 | 7.6 |
| HLA-B*44:02 | 1 | 985 | 993 | 9 | DKVEAEVQI 0.001983 | 5.9 |
| HLA-A*02:06 | 1 | 716 | 724 | 9 | TNFTISVTT 0.001982 | 15 |
| HLA-A*02:01 | 1 | 858 | 866 | 9 | LTVLPPLL 0.001982 | 11 |
| HLA-A*68:02 | 1 | 94 | 102 | 9 | STEKSNIIIR 0.001981 | 12 |
| HLA-A*02:01 | 1 | 192 | 201 | 10 | FVFKNIDGYF 0.001981 | 11 |
| HLA-A*01:01 | 1 | 697 | 705 | 9 | MSLGAENSV 0.001981 | 9.7 |
| HLA-B*51:01 | 1 | 843 | 852 | 10 | DIAARDLICA 0.001981 | 14 |
| HLA-A*02:03 | 1 | 874 | 882 | 9 | TSALLAGTI 0.001981 | 12 |
| HLA-A*30:01 | 1 | 199 | 208 | 10 | GYFKIYSKHT 0.00198 | 20 |
| HLA-A*68:02 | 1 | 629 | 638 | 10 | LTPTWRVYST 0.00198 | 12 |
| HLA-B*08:01 | 1 | 204 | 213 | 10 | YSKHTPINLV 0.001979 | 14 |
| HLA-A*02:06 | 1 | 503 | 512 | 10 | VGYPYRVVV 0.001979 | 15 |
| HLA-A*31:01 | 1 | 1100 | 1109 | 10 | THWFVTQRNF 0.001979 | 13 |
| HLA-A*30:02 | 1 | 341 | 349 | 9 | VFNATRFAS 0.001978 | 17 |
| HLA-B*44:02 | 1 | 442 | 451 | 10 | DSKVGGNYNY 0.001978 | 5.9 |
| HLA-B*40:01 | 1 | 718 | 726 | 9 | FTISVTTEI 0.001978 | 5.6 |
| HLA-B*07:02 | 1 | 1008 | 1016 | 9 | VTQQLIRAA 0.001978 | 8.5 |
| HLA-B*07:02 | 1 | 19 | 28 | 10 | TTRTQLPPAY 0.001977 | 8.5 |
| HLA-B*53:01 | 1 | 110 | 118 | 9 | LDSKTQSL 0.001977 | 6.9 |
| HLA-A*23:01 | 1 | 206 | 214 | 9 | KHTPINLVR 0.001977 | 6.2 |
| HLA-A*30:02 | 1 | 229 | 238 | 10 | LPIGINITRF 0.001977 | 17 |
| HLA-A*26:01 | 1 | 333 | 342 | 10 | TNLCPFGEVF 0.001977 | 7.8 |
| HLA-A*02:06 | 1 | 569 | 577 | 9 | IADTTDAVR 0.001977 | 15 |
| HLA-B*40:01 | 1 | 643 | 651 | 9 | FQTRAGCLI 0.001977 | 5.6 |
| HLA-A*26:01 | 1 | 943 | 951 | 9 | SALGKLQDV 0.001977 | 7.8 |
| HLA-A*68:01 | 1 | 1127 | 1136 | 10 | DVVIGIVNNT 0.001977 | 12 |
| HLA-A*33:01 | 1 | 23 | 32 | 10 | QLPPAYTNSF 0.001976 | 9.9 |
| HLA-B*53:01 | 1 | 704 | 712 | 9 | SVAYSNNSI 0.001976 | 6.9 |
| HLA-A*01:01 | 1 | 707 | 715 | 9 | YSNNSIAIP 0.001976 | 9.7 |
| HLA-B*40:01 | 1 | 918 | 927 | 10 | ENQKLIANQF 0.001976 | 5.6 |
| HLA-A*02:01 | 1 | 59 | 67 | 9 | FSNVTWFHA 0.001975 | 11 |
| HLA-B*57:01 | 1 | 168 | 177 | 10 | FEYVSQPFLM 0.001975 | 14 |
| HLA-B*57:01 | 1 | 369 | 378 | 10 | YNSASFSTFK 0.001975 | 14 |
| HLA-A*26:01 | 1 | 447 | 455 | 9 | GNYNLYRL 0.001974 | 7.8 |
| HLA-A*26:01 | 1 | 445 | 453 | 9 | VGGNYNYLY 0.001973 | 7.8 |
| HLA-A*01:01 | 1 | 751 | 759 | 9 | NLLLQYGSF 0.001973 | 9.7 |
| HLA-B*53:01 | 1 | 550 | 559 | 10 | GVLTESNKKF 0.001972 | 6.9 |
| HLA-A*26:01 | 1 | 745 | 754 | 10 | DSTECSNLLL 0.001972 | 7.8 |
| HLA-A*01:01 | 1 | 821 | 829 | 9 | LLFNKVTLA 0.001971 | 9.7 |
| HLA-A*68:02 | 1 | 940 | 949 | 10 | STASALGKLQ 0.001971 | 12 |
| HLA-B*35:01 | 1 | 220 | 229 | 10 | FSALEPLVDL 0.00197 | 7.7 |
| HLA-B*08:01 | 1 | 453 | 462 | 10 | YRLFRRSNLK 0.00197 | 14 |
| HLA-A*24:02 | 1 | 424 | 432 | 9 | KLPDDFTGC 0.001969 | 6.2 |
| HLA-B*07:02 | 1 | 530 | 538 | 9 | STNLVKKNC 0.001969 | 8.5 |
| HLA-A*01:01 | 1 | 568 | 577 | 10 | DIADTTDAVR 0.001969 | 9.7 |
| HLA-A*30:01 | 1 | 729 | 738 | 10 | VSMTKTSVDC 0.001969 | 20 |
| HLA-A*30:02 | 1 | 790 | 798 | 9 | KTPPIKDFG 0.001969 | 17 |
| HLA-A*30:01 | 1 | 1073 | 1082 | 10 | KNFTTAPAIC 0.001968 | 20 |
| HLA-A*32:01 | 1 | 1136 | 1144 | 9 | TVYDPLQPE 0.001968 | 7.7 |
| HLA-B*58:01 | 1 | 1048 | 1056 | 9 | HLMSFPQSA 0.001967 | 9.6 |
| HLA-A*02:06 | 1 | 1194 | 1203 | 10 | NESLIDLQEL 0.001967 | 15 |
| HLA-A*02:03 | 1 | 1201 | 1210 | 10 | QELGKYEYI 0.001967 | 12 |
| HLA-B*07:02 | 1 | 28 | 36 | 9 | YNSFTRGV 0.001966 | 8.5 |
| HLA-B*51:01 | 1 | 46 | 55 | 10 | SVLHSTQDLF 0.001966 | 14 |
| HLA-B*57:01 | 1 | 556 | 565 | 10 | NKKFLPFQOF 0.001966 | 14 |
| HLA-B*58:01 | 1 | 803 | 811 | 9 | SQILPDPSK 0.001966 | 9.6 |
| HLA-B*53:01 | 1 | 954 | 962 | 9 | QNAQALNTL 0.001966 | 6.9 |
| HLA-A*02:03 | 1 | 45 | 54 | 10 | SSVLHSTQDL 0.001965 | 12 |
| HLA-A*68:02 | 1 | 266 | 275 | 10 | YVGYLQPRTF 0.001965 | 12 |
| HLA-A*02:01 | 1 | 779 | 788 | 10 | QEVFAQVKQI 0.001965 | 11 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*35:01 | 1 | 868 | 876 | 9 | EMIAQY TSA 0.001965 | 7.7 |
| HLA-B*44:02 | 1 | 1100 | 1109 | 10 | THW FVTQRNF 0.001965 | 5.9 |
| HLA-B*51:01 | 1 | 620 | 628 | 9 | VPVAIHADQ 0.001964 | 14 |
| HLA-B*40:01 | 1 | 985 | 993 | 9 | DKVEAEVQI 0.001964 | 5.6 |
| HLA-B*44:02 | 1 | 236 | 244 | 9 | TRFQTL LAL 0.001963 | 5.9 |
| HLA-B*44:03 | 1 | 261 | 269 | 9 | GAAAYV VGY 0.001963 | 6.0 |
| HLA-B*35:01 | 1 | 1053 | 1062 | 10 | PQSAPHGV VF 0.001963 | 7.7 |
| HLA-A*68:01 | 1 | 911 | 920 | 10 | VTQNVLYENQ 0.001962 | 12 |
| HLA-A*68:02 | 1 | 1229 | 1237 | 9 | MVTIMLCCM 0.001962 | 12 |
| HLA-A*32:01 | 1 | 918 | 927 | 10 | ENQKLIANQF 0.001961 | 7.7 |
| HLA-A*02:01 | 1 | 19 | 27 | 9 | TTRTQLPPA 0.00196 | 11 |
| HLA-B*44:02 | 1 | 153 | 162 | 10 | MESEFRVYSS 0.00196 | 5.9 |
| HLA-B*51:01 | 1 | 180 | 189 | 10 | EGKQGNFKNL 0.001959 | 14 |
| HLA-A*03:01 | 1 | 181 | 190 | 10 | GKQGNFKNLR 0.001959 | 8.9 |
| HLA-A*26:01 | 1 | 827 | 835 | 9 | TLADAGFIK 0.001959 | 7.9 |
| HLA-B*44:02 | 1 | 1203 | 1212 | 10 | LGKYEQYIKW 0.001959 | 5.9 |
| HLA-B*51:01 | 1 | 1216 | 1224 | 9 | IWLGFIAGL 0.001959 | 14 |
| HLA-B*51:01 | 1 | 50 | 59 | 10 | STQDLFLPFF 0.001958 | 14 |
| HLA-B*35:01 | 1 | 433 | 441 | 9 | VIAWNSNNL 0.001958 | 7.7 |
| HLA-B*07:02 | 1 | 624 | 633 | 10 | IHADQLTPTW 0.001958 | 8.6 |
| HLA-A*30:02 | 1 | 449 | 458 | 10 | YNYLYRLF RK 0.001957 | 17 |
| HLA-B*15:01 | 1 | 711 | 720 | 10 | SIAIPTNF TI 0.001957 | 11 |
| HLA-B*53:01 | 1 | 856 | 864 | 9 | NGLTVLPPL 0.001957 | 6.9 |
| HLA-A*30:01 | 1 | 895 | 903 | 9 | QIPFAMQMA 0.001957 | 20 |
| HLA-A*31:01 | 1 | 909 | 917 | 9 | IGVTQNVLY 0.001957 | 13 |
| HLA-A*31:01 | 1 | 143 | 151 | 9 | VYYHKNNKS 0.001955 | 13 |
| HLA-A*02:03 | 1 | 341 | 350 | 10 | VFNATRFASV 0.001955 | 12 |
| HLA-A*02:06 | 1 | 620 | 629 | 10 | VPVAIHADQL 0.001955 | 15 |
| HLA-B*07:02 | 1 | 705 | 714 | 10 | VAYSNN SIAI 0.001955 | 8.6 |
| HLA-A*31:01 | 1 | 913 | 921 | 9 | QNVLYENQK 0.001955 | 13 |
| HLA-A*32:01 | 1 | 968 | 977 | 10 | SNFGAISSVL 0.001955 | 7.7 |
| HLA-A*02:06 | 1 | 233 | 242 | 10 | INITRFQTL L 0.001954 | 15 |
| HLA-A*24:02 | 1 | 193 | 202 | 10 | VFKNIDGYFK 0.001953 | 6.2 |
| HLA-B*08:01 | 1 | 355 | 363 | 9 | RKRISNCVA 0.001953 | 14 |
| HLA-A*30:02 | 1 | 203 | 211 | 9 | IYSKHTPIN 0.001952 | 17 |
| HLA-B*57:01 | 1 | 749 | 757 | 9 | CSNLLLQYG 0.001952 | 14 |
| HLA-A*01:01 | 1 | 871 | 879 | 9 | AQYTSALLA 0.001952 | 9.8 |
| HLA-B*08:01 | 1 | 81 | 90 | 10 | NPVLPFNDGV 0.001951 | 15 |
| HLA-A*30:02 | 1 | 350 | 358 | 9 | VYAWNRKRI 0.001951 | 17 |
| HLA-B*57:01 | 1 | 374 | 382 | 9 | FSTFKCYGV 0.001949 | 14 |
| HLA-A*26:01 | 1 | 1020 | 1028 | 9 | ASANLAATK 0.001949 | 7.9 |
| HLA-A*03:01 | 1 | 158 | 167 | 10 | RVYSSANNCT 0.001948 | 9.0 |
| HLA-A*33:01 | 1 | 506 | 515 | 10 | QPYRVVLSF 0.001948 | 10 |
| HLA-A*30:01 | 1 | 850 | 858 | 9 | ICAQKFNGL 0.001948 | 20 |
| HLA-A*30:02 | 1 | 989 | 997 | 9 | AEVQIDRLI 0.001948 | 17 |
| HLA-A*02:01 | 1 | 392 | 401 | 10 | FTNVYADSFV 0.001946 | 11 |
| HLA-A*11:01 | 1 | 126 | 134 | 9 | VVIKVC EFQ 0.001945 | 7.6 |
| HLA-A*68:02 | 1 | 1076 | 1084 | 9 | TTAPAICH D 0.001945 | 12 |
| HLA-B*08:01 | 1 | 336 | 344 | 9 | CPFGEVFNA 0.001944 | 15 |
| HLA-A*01:01 | 1 | 987 | 996 | 10 | VEAEVQIDRL 0.001943 | 9.8 |
| HLA-A*30:02 | 1 | 170 | 179 | 10 | YVSQPFLMDL 0.001942 | 17 |
| HLA-B*07:02 | 1 | 410 | 418 | 9 | IAPGQTGKI 0.001942 | 8.6 |
| HLA-A*03:01 | 1 | 686 | 694 | 9 | SVASQSIIA 0.001942 | 9.0 |
| HLA-A*02:03 | 1 | 285 | 293 | 9 | ITDAVDCAL 0.001941 | 12 |
| HLA-A*32:01 | 1 | 415 | 423 | 9 | TGKIADYNY 0.001941 | 7.7 |
| HLA-A*30:01 | 1 | 780 | 789 | 10 | EVFAQVKQIY 0.001941 | 20 |
| HLA-B*44:02 | 1 | 809 | 817 | 9 | PSKPSKR SF 0.001941 | 5.9 |
| HLA-A*33:01 | 1 | 1144 | 1152 | 9 | ELDSFKEEL 0.001941 | 10 |
| HLA-B*53:01 | 1 | 233 | 241 | 9 | INITRFQTL 0.00194 | 6.9 |
| HLA-B*58:01 | 1 | 757 | 766 | 10 | GSFCTQLNRA 0.00194 | 9.7 |
| HLA-A*68:01 | 1 | 1263 | 1272 | 10 | PVLKGVKLHY 0.00194 | 12 |
| HLA-B*40:01 | 1 | 846 | 855 | 10 | ARDLICAQKF 0.001939 | 5.6 |
| HLA-A*01:01 | 1 | 1141 | 1149 | 9 | LQPELDSFK 0.001939 | 9.8 |
| HLA-A*02:01 | 1 | 318 | 326 | 9 | FRVQPTESI 0.001938 | 11 |
| HLA-A*01:01 | 1 | 574 | 582 | 9 | DAVRDPQTL 0.001938 | 9.8 |
| HLA-A*01:01 | 1 | 382 | 390 | 9 | VSPTKLN DL 0.001937 | 9.8 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*07:02 | 1 | 1020 | 1029 | 10 | ASANLAATKM 0.001937 | 8.6 |
| HLA-A*24:02 | 1 | 1057 | 1065 | 9 | PHGVVFLHV 0.001937 | 6.2 |
| HLA-B*57:01 | 1 | 1076 | 1084 | 9 | TTAPAICHD 0.001937 | 14 |
| HLA-A*02:06 | 1 | 1232 | 1240 | 9 | IMLCCMTSC 0.001937 | 15 |
| HLA-B*15:01 | 1 | 1178 | 1186 | 9 | NIQKEIDRL 0.001936 | 11 |
| HLA-A*11:01 | 1 | 1202 | 1211 | 10 | ELGKYEQYIK 0.001936 | 7.6 |
| HLA-B*08:01 | 1 | 227 | 235 | 9 | VDLPIGINI 0.001935 | 15 |
| HLA-A*30:02 | 1 | 549 | 558 | 10 | TGVLTESNKK 0.001934 | 17 |
| HLA-B*57:01 | 1 | 617 | 626 | 10 | CTEVPVAIHA 0.001933 | 14 |
| HLA-A*02:03 | 1 | 490 | 499 | 10 | FPLQSYGFQP 0.001932 | 12 |
| HLA-A*68:02 | 1 | 798 | 806 | 9 | GGFNFSQIL 0.001932 | 12 |
| HLA-A*32:01 | 1 | 850 | 858 | 9 | ICAQKFNGL 0.001932 | 7.7 |
| HLA-B*51:01 | 1 | 225 | 233 | 9 | PLVDLPIGI 0.001931 | 14 |
| HLA-B*57:01 | 1 | 292 | 300 | 9 | ALDPLSETK 0.00193 | 14 |
| HLA-B*44:03 | 1 | 463 | 472 | 10 | PFERDISTEI 0.001929 | 6.0 |
| HLA-A*26:01 | 1 | 873 | 881 | 9 | YTSALLAGT 0.001929 | 7.9 |
| HLA-B*44:02 | 1 | 47 | 55 | 9 | VLHSTQDLF 0.001928 | 5.9 |
| HLA-B*44:02 | 1 | 956 | 964 | 9 | AQALNTLVK 0.001928 | 5.9 |
| HLA-A*30:02 | 1 | 1149 | 1157 | 9 | KEELDKYFK 0.001928 | 17 |
| HLA-B*44:03 | 1 | 1190 | 1198 | 9 | AKNLNESLI 0.001928 | 6.0 |
| HLA-B*15:01 | 1 | 185 | 194 | 10 | NFKNLREFVF 0.001926 | 11 |
| HLA-A*32:01 | 1 | 206 | 214 | 9 | KHTPINLVR 0.001926 | 7.8 |
| HLA-B*35:01 | 1 | 136 | 145 | 10 | CNDPFLGVYY 0.001925 | 7.7 |
| HLA-A*02:03 | 1 | 628 | 636 | 9 | QLTPTWRVY 0.001925 | 12 |
| HLA-B*58:01 | 1 | 1099 | 1107 | 9 | GTHWFVTQR 0.001925 | 9.7 |
| HLA-A*02:06 | 1 | 1028 | 1036 | 9 | KMSECVLQG 0.001924 | 15 |
| HLA-A*02:03 | 1 | 1107 | 1115 | 9 | RNFYEPQII 0.001924 | 12 |
| HLA-B*57:01 | 1 | 1148 | 1156 | 9 | FKEELDKYF 0.001924 | 14 |
| HLA-A*33:01 | 1 | 415 | 423 | 9 | TGKIADYNY 0.001923 | 10 |
| HLA-A*32:01 | 1 | 880 | 889 | 10 | GTITSGWTFG 0.001922 | 7.8 |
| HLA-A*68:02 | 1 | 1020 | 1028 | 9 | ASANLAATK 0.001922 | 12 |
| HLA-A*31:01 | 1 | 1045 | 1054 | 10 | KGYHLMSFPQ 0.001922 | 13 |
| HLA-A*01:01 | 1 | 89 | 97 | 9 | GVYFASTEK 0.001921 | 9.9 |
| HLA-A*01:01 | 1 | 852 | 860 | 9 | AQKFNGLTV 0.001921 | 9.9 |
| HLA-B*08:01 | 1 | 880 | 888 | 9 | GTITSGWTF 0.001921 | 15 |
| HLA-B*07:02 | 1 | 726 | 735 | 10 | ILPVSMTKTS 0.00192 | 8.6 |
| HLA-B*15:01 | 1 | 306 | 314 | 9 | FTVEKGIYQ 0.001919 | 11 |
| HLA-A*02:06 | 1 | 604 | 612 | 9 | TSNQVAVLY 0.001919 | 15 |
| HLA-A*23:01 | 1 | 816 | 825 | 10 | SFIEDLLFNK 0.001919 | 6.3 |
| HLA-A*02:03 | 1 | 266 | 274 | 9 | YVGYLQPRT 0.001918 | 12 |
| HLA-B*51:01 | 1 | 679 | 688 | 10 | NSPRRARSVA 0.001918 | 14 |
| HLA-B*58:01 | 1 | 806 | 815 | 10 | LPDPSKPSKR 0.001918 | 9.7 |
| HLA-B*51:01 | 1 | 1220 | 1229 | 10 | FIAGLIAIVM 0.001918 | 14 |
| HLA-A*33:01 | 1 | 1141 | 1149 | 9 | LQPELDSFK 0.001917 | 10 |
| HLA-B*15:01 | 1 | 44 | 52 | 9 | RSSVLHSTQ 0.001915 | 11 |
| HLA-A*30:02 | 1 | 181 | 189 | 9 | GKQGNFKNL 0.001915 | 17 |
| HLA-B*08:01 | 1 | 506 | 514 | 9 | QPYRVVVLS 0.001915 | 15 |
| HLA-B*44:03 | 1 | 778 | 787 | 10 | TQEVFAQVKQ 0.001915 | 6.0 |
| HLA-B*07:02 | 1 | 893 | 902 | 10 | ALQIPFAMQM 0.001915 | 8.7 |
| HLA-B*57:01 | 1 | 997 | 1006 | 10 | ITGRLQSLQT 0.001915 | 14 |
| HLA-B*57:01 | 1 | 1181 | 1189 | 9 | KEIDRLNEV 0.001915 | 14 |
| HLA-B*51:01 | 1 | 517 | 525 | 9 | LLHAPATVC 0.001914 | 14 |
| HLA-B*57:01 | 1 | 396 | 404 | 9 | YADSFVIRG 0.001913 | 14 |
| HLA-A*31:01 | 1 | 520 | 528 | 9 | APATVCGPK 0.001913 | 13 |
| HLA-A*30:02 | 1 | 112 | 120 | 9 | SKTQSLIIV 0.001912 | 17 |
| HLA-A*01:01 | 1 | 686 | 694 | 9 | SVASQSIIA 0.001912 | 9.9 |
| HLA-B*08:01 | 1 | 577 | 585 | 9 | RDPQTLEIL 0.001911 | 15 |
| HLA-A*68:01 | 1 | 734 | 742 | 9 | TSVDCTMYI 0.001911 | 13 |
| HLA-A*02:03 | 1 | 865 | 873 | 9 | LTDEMIAYQ 0.001911 | 12 |
| HLA-A*30:01 | 1 | 888 | 896 | 9 | FGAGAALQI 0.001911 | 20 |
| HLA-A*02:06 | 1 | 1182 | 1190 | 9 | EIDRLNEVA 0.001911 | 16 |
| HLA-A*23:01 | 1 | 132 | 141 | 10 | EFQFCNDPFL 0.00191 | 6.3 |
| HLA-A*68:02 | 1 | 574 | 583 | 10 | DAVRDPQTL 0.00191 | 12 |
| HLA-B*58:01 | 1 | 828 | 836 | 9 | LADAGFIKQ 0.00191 | 9.7 |
| HLA-A*26:01 | 1 | 711 | 720 | 10 | SIAIPTNFTI 0.001909 | 8.0 |
| HLA-B*44:02 | 1 | 806 | 814 | 9 | LPDPSKPSK 0.001908 | 6.0 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*30:02 | 1 | 315 | 323 | 9 | TSNFRVQPT 0.001907 | 17 |
| HLA-A*33:01 | 1 | 368 | 377 | 10 | LYNSASFSTF 0.001907 | 11 |
| HLA-A*02:01 | 1 | 717 | 726 | 10 | NFTISVTTEI 0.001907 | 11 |
| HLA-B*57:01 | 1 | 746 | 755 | 10 | STECSNLLLQ 0.001907 | 14 |
| HLA-A*68:01 | 1 | 929 | 938 | 10 | SAIGKIQDSL 0.001907 | 13 |
| HLA-A*33:01 | 1 | 104 | 113 | 10 | WIFGTTLDSK 0.001906 | 11 |
| HLA-B*53:01 | 1 | 326 | 335 | 10 | IVRFPNITNL 0.001906 | 7.0 |
| HLA-A*30:02 | 1 | 938 | 946 | 9 | LSSTASALG 0.001906 | 17 |
| HLA-B*40:01 | 1 | 995 | 1004 | 10 | RLITGRLQSL 0.001906 | 5.7 |
| HLA-B*51:01 | 1 | 1055 | 1064 | 10 | SAPHGVVFLH 0.001905 | 14 |
| HLA-A*02:03 | 1 | 22 | 31 | 10 | TQLPPAYTNS 0.001904 | 12 |
| HLA-A*30:01 | 1 | 382 | 390 | 9 | VSPTKLNDL 0.001904 | 20 |
| HLA-A*68:01 | 1 | 695 | 704 | 10 | YTMSLGAENS 0.001904 | 13 |
| HLA-A*30:02 | 1 | 473 | 481 | 9 | YQAGSTPCN 0.001903 | 17 |
| HLA-A*02:03 | 1 | 50 | 58 | 9 | STQDLFLPF 0.001902 | 12 |
| HLA-A*31:01 | 1 | 548 | 557 | 10 | GTGVLTESNK 0.001902 | 13 |
| HLA-A*68:01 | 1 | 828 | 836 | 9 | LADAGFIKQ 0.001902 | 13 |
| HLA-B*44:03 | 1 | 29 | 37 | 9 | TNSFTRGVY 0.001901 | 6.1 |
| HLA-A*26:01 | 1 | 177 | 186 | 10 | MDLEGKQGNF 0.001901 | 8.0 |
| HLA-A*30:02 | 1 | 349 | 358 | 10 | SVYAWNRRKRI 0.001901 | 17 |
| HLA-A*30:02 | 1 | 940 | 949 | 10 | STASALGKLQ 0.001901 | 17 |
| HLA-A*30:01 | 1 | 113 | 122 | 10 | KTQSLLIVNN 0.0019 | 20 |
| HLA-B*53:01 | 1 | 382 | 391 | 10 | VSPTKLNDLC 0.0019 | 7.0 |
| HLA-B*57:01 | 1 | 873 | 881 | 9 | YTSALLAGT 0.0019 | 14 |
| HLA-A*68:01 | 1 | 1172 | 1180 | 9 | INASVVNIQ 0.0019 | 13 |
| HLA-B*07:02 | 1 | 965 | 973 | 9 | QLSSNFGAI 0.001898 | 8.7 |
| HLA-A*02:01 | 1 | 803 | 812 | 10 | SQILPDPSKP 0.001897 | 11 |
| HLA-B*57:01 | 1 | 1115 | 1123 | 9 | ITTDNTFVS 0.001897 | 15 |
| HLA-A*24:02 | 1 | 558 | 567 | 10 | KFLPFQFGR 0.001896 | 6.3 |
| HLA-B*40:01 | 1 | 575 | 584 | 10 | AVRDPQTLEI 0.001896 | 5.7 |
| HLA-A*11:01 | 1 | 486 | 495 | 10 | FNCYFPLQSY 0.001895 | 7.7 |
| HLA-B*35:01 | 1 | 658 | 666 | 9 | NSYECDIPI 0.001895 | 7.8 |
| HLA-A*30:01 | 1 | 30 | 39 | 10 | NSFTRGVYYP 0.001894 | 20 |
| HLA-B*40:01 | 1 | 509 | 517 | 9 | RVVLSFEL 0.001894 | 5.7 |
| HLA-B*51:01 | 1 | 686 | 695 | 10 | SVASQSIIAY 0.001894 | 14 |
| HLA-A*26:01 | 1 | 792 | 800 | 9 | PPIKDFGGF 0.001894 | 8.0 |
| HLA-B*08:01 | 1 | 1140 | 1148 | 9 | PLQPELDSF 0.001894 | 15 |
| HLA-B*44:03 | 1 | 1187 | 1195 | 9 | NEVAKNLNE 0.001894 | 6.1 |
| HLA-B*08:01 | 1 | 101 | 110 | 10 | IRGWIFGTTL 0.001893 | 15 |
| HLA-A*26:01 | 1 | 803 | 811 | 9 | SQILPDPSK 0.001893 | 8.0 |
| HLA-A*01:01 | 1 | 874 | 882 | 9 | TSALLAGTI 0.001893 | 10 |
| HLA-B*57:01 | 1 | 631 | 639 | 9 | PTWRVYSTG 0.001892 | 15 |
| HLA-A*68:02 | 1 | 706 | 714 | 9 | AYSNNSIAI 0.001892 | 12 |
| HLA-A*30:01 | 1 | 1048 | 1057 | 10 | HLMSFPQSAP 0.001892 | 20 |
| HLA-B*15:01 | 1 | 448 | 456 | 9 | NYNYLYRLF 0.001891 | 11 |
| HLA-A*26:01 | 1 | 607 | 615 | 9 | QVAVLYQDV 0.001891 | 8.0 |
| HLA-B*51:01 | 1 | 726 | 735 | 10 | ILPVSMTKTS 0.001891 | 14 |
| HLA-A*23:01 | 1 | 854 | 862 | 9 | KFNGLTVLP 0.001891 | 6.3 |
| HLA-A*32:01 | 1 | 1248 | 1256 | 9 | CSCGSCCKF 0.001891 | 7.8 |
| HLA-B*08:01 | 1 | 71 | 79 | 9 | SGTNGTKRF 0.00189 | 15 |
| HLA-B*53:01 | 1 | 336 | 345 | 10 | CPFGEVFNAT 0.00189 | 7.0 |
| HLA-A*24:02 | 1 | 339 | 347 | 9 | GEVFNATRF 0.00189 | 6.3 |
| HLA-A*30:01 | 1 | 556 | 565 | 10 | NKKFLPFQF 0.00189 | 20 |
| HLA-A*02:01 | 1 | 132 | 141 | 10 | EFQFCNDPFL 0.001889 | 11 |
| HLA-A*01:01 | 1 | 183 | 192 | 10 | QGNFKNLREF 0.001889 | 10 |
| HLA-A*11:01 | 1 | 905 | 913 | 9 | RFNGIGVTQ 0.001889 | 7.7 |
| HLA-A*02:06 | 1 | 910 | 918 | 9 | GVTQNVLYE 0.001889 | 16 |
| HLA-A*30:02 | 1 | 1029 | 1038 | 10 | MSECVLGQSK 0.001889 | 17 |
| HLA-A*30:01 | 1 | 1115 | 1123 | 9 | ITTDNTFVS 0.001889 | 20 |
| HLA-A*30:01 | 1 | 1123 | 1132 | 10 | SGNCDVVIGI 0.001889 | 20 |
| HLA-B*07:02 | 1 | 1264 | 1272 | 9 | VLKGVKLHY 0.001889 | 8.7 |
| HLA-B*07:02 | 1 | 379 | 387 | 9 | CYGVSPTKL 0.001888 | 8.7 |
| HLA-A*30:01 | 1 | 424 | 432 | 9 | KLPDDFTGC 0.001888 | 20 |
| HLA-B*08:01 | 1 | 641 | 649 | 9 | NVFQTRAGC 0.001888 | 15 |
| HLA-A*68:01 | 1 | 1127 | 1135 | 9 | DVVIGIVNN 0.001888 | 13 |
| HLA-B*53:01 | 1 | 891 | 900 | 10 | GAALQIPFAM 0.001887 | 7.0 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*57:01 | 1 | 1210 | 1218 | 9 | IKWPWYIWL 0.001887 | 15 |
| HLA-A*68:02 | 1 | 1219 | 1227 | 9 | GFIAGLIAI 0.001887 | 12 |
| HLA-A*01:01 | 1 | 675 | 684 | 10 | QTQTNSPRRA 0.001886 | 10 |
| HLA-A*30:01 | 1 | 881 | 890 | 10 | TITSGWTFGA 0.001886 | 20 |
| HLA-B*53:01 | 1 | 227 | 235 | 9 | VDLPIGINI 0.001885 | 7.0 |
| HLA-A*11:01 | 1 | 25 | 34 | 10 | PPAYTNSFTR 0.001884 | 7.7 |
| HLA-A*02:01 | 1 | 425 | 433 | 9 | LPDDFTGCV 0.001884 | 11 |
| HLA-B*07:02 | 1 | 825 | 833 | 9 | KVTLADAGF 0.001884 | 8.7 |
| HLA-B*08:01 | 1 | 91 | 100 | 10 | YFASTEKSNI 0.001883 | 15 |
| HLA-A*68:01 | 1 | 1129 | 1138 | 10 | VIGIVNNTVY 0.001883 | 13 |
| HLA-A*02:03 | 1 | 1 | 10 | 10 | MFVFLVLLPL 0.001882 | 12 |
| HLA-A*02:03 | 1 | 233 | 242 | 10 | INITRFQTL 0.001882 | 12 |
| HLA-B*58:01 | 1 | 1247 | 1256 | 10 | CCSCGSCCKF 0.001882 | 9.8 |
| HLA-A*01:01 | 1 | 36 | 44 | 9 | VYYPDKVFR 0.001881 | 10 |
| HLA-B*40:01 | 1 | 109 | 118 | 10 | TLDSKTQSL 0.001881 | 5.7 |
| HLA-B*57:01 | 1 | 229 | 237 | 9 | LPIGINITR 0.001881 | 15 |
| HLA-A*01:01 | 1 | 425 | 434 | 10 | LPDDFTGCVI 0.001881 | 10 |
| HLA-A*01:01 | 1 | 915 | 923 | 9 | VLYENQKLI 0.001881 | 10 |
| HLA-A*02:01 | 1 | 961 | 970 | 10 | TLVKQLSSNF 0.001881 | 11 |
| HLA-A*02:06 | 1 | 1093 | 1102 | 10 | GVFVSNGTHW 0.001881 | 16 |
| HLA-B*53:01 | 1 | 511 | 519 | 9 | VVLSFELLH 0.00188 | 7.0 |
| HLA-A*11:01 | 1 | 893 | 902 | 10 | ALQIPFAMQM 0.00188 | 7.7 |
| HLA-B*40:01 | 1 | 723 | 732 | 10 | TTEILPVSMT 0.001879 | 5.7 |
| HLA-A*30:02 | 1 | 230 | 238 | 9 | PIGINITRF 0.001878 | 17 |
| HLA-A*01:01 | 1 | 512 | 520 | 9 | VLSFELLHA 0.001878 | 10 |
| HLA-A*01:01 | 1 | 704 | 712 | 9 | SVAYSNNSI 0.001878 | 10 |
| HLA-A*30:01 | 1 | 706 | 715 | 10 | AYSNNSIAIP 0.001878 | 20 |
| HLA-A*30:01 | 1 | 997 | 1005 | 9 | ITGRLQSLQ 0.001878 | 20 |
| HLA-A*31:01 | 1 | 998 | 1007 | 10 | TGRLQSLQTY 0.001878 | 13 |
| HLA-A*31:01 | 1 | 1077 | 1086 | 10 | TAPAICHGDK 0.001878 | 13 |
| HLA-B*44:03 | 1 | 1208 | 1217 | 10 | QYIKWPWYIW 0.001878 | 6.1 |
| HLA-B*51:01 | 1 | 167 | 175 | 9 | TFEYVSQPF 0.001877 | 14 |
| HLA-B*51:01 | 1 | 228 | 236 | 9 | DLPIGINIT 0.001876 | 14 |
| HLA-B*40:01 | 1 | 50 | 59 | 10 | STQDLFLPFF 0.001875 | 5.7 |
| HLA-A*32:01 | 1 | 256 | 265 | 10 | SGWTAGAAAY 0.001875 | 7.8 |
| HLA-A*30:02 | 1 | 813 | 821 | 9 | SKRSFIEDL 0.001875 | 17 |
| HLA-A*30:02 | 1 | 828 | 836 | 9 | LADAGFIKQ 0.001875 | 17 |
| HLA-B*51:01 | 1 | 1093 | 1102 | 10 | GVFVSNGTHW 0.001875 | 14 |
| HLA-B*44:03 | 1 | 1144 | 1152 | 9 | ELDSFKEEL 0.001875 | 6.1 |
| HLA-A*30:02 | 1 | 1207 | 1216 | 10 | EQYIKWPWYI 0.001875 | 17 |
| HLA-A*31:01 | 1 | 171 | 179 | 9 | VSQPFLMDL 0.001874 | 13 |
| HLA-A*02:06 | 1 | 314 | 322 | 9 | QTSNFRVQP 0.001874 | 16 |
| HLA-A*31:01 | 1 | 519 | 528 | 10 | HAPATVCGPK 0.001874 | 13 |
| HLA-B*40:01 | 1 | 723 | 731 | 9 | TTEILPVSM 0.001874 | 5.7 |
| HLA-A*02:01 | 1 | 378 | 386 | 9 | KCYGVSPTK 0.001873 | 11 |
| HLA-B*15:01 | 1 | 676 | 684 | 9 | TQTNSPRRA 0.001873 | 11 |
| HLA-A*30:01 | 1 | 714 | 722 | 9 | IPNFTISV 0.001873 | 20 |
| HLA-B*58:01 | 1 | 124 | 133 | 10 | TNVVIKVCFE 0.001872 | 9.8 |
| HLA-A*30:01 | 1 | 228 | 237 | 10 | DLPIGINITR 0.001872 | 20 |
| HLA-A*30:01 | 1 | 979 | 987 | 9 | DILSRLDKV 0.001872 | 20 |
| HLA-A*11:01 | 1 | 1038 | 1047 | 10 | KRVDFCGKGY 0.001872 | 7.7 |
| HLA-B*44:02 | 1 | 408 | 417 | 10 | RQIAPGQTGK 0.001871 | 6.0 |
| HLA-A*03:01 | 1 | 83 | 91 | 9 | VLPFNDGVY 0.00187 | 9.1 |
| HLA-B*53:01 | 1 | 509 | 517 | 9 | RVVLSFEL 0.00187 | 7.0 |
| HLA-A*31:01 | 1 | 1073 | 1081 | 9 | KNFTTAPAI 0.00187 | 13 |
| HLA-A*32:01 | 1 | 230 | 238 | 9 | PIGINITRF 0.001869 | 7.9 |
| HLA-A*23:01 | 1 | 278 | 286 | 9 | KYNENGTIT 0.001869 | 6.4 |
| HLA-B*58:01 | 1 | 292 | 300 | 9 | ALDPLSETK 0.001869 | 9.8 |
| HLA-A*33:01 | 1 | 334 | 342 | 9 | NLCPFGEVF 0.001869 | 11 |
| HLA-A*03:01 | 1 | 399 | 408 | 10 | SFVIRGDEV 0.001869 | 9.1 |
| HLA-A*68:01 | 1 | 471 | 479 | 9 | EIYQAGSTP 0.001869 | 13 |
| HLA-A*23:01 | 1 | 1 | 10 | 10 | MFVFLVLLPL 0.001868 | 6.4 |
| HLA-A*30:02 | 1 | 1012 | 1020 | 9 | LIRAAEIRA 0.001868 | 17 |
| HLA-A*02:03 | 1 | 349 | 357 | 9 | SVYAWNRKR 0.001866 | 12 |
| HLA-B*44:02 | 1 | 783 | 791 | 9 | AQVKQIYKT 0.001866 | 6.0 |
| HLA-A*01:01 | 1 | 961 | 970 | 10 | TLVKQLSSNF 0.001866 | 10 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*30:02 | 1 | 1050 | 1059 | 10 | MSFPQSAPHG 0.001866 | 17 |
| HLA-A*68:02 | 1 | 1125 | 1133 | 9 | NCDVVIGIV 0.001866 | 12 |
| HLA-A*30:02 | 1 | 1225 | 1233 | 9 | IAIVMVTIM 0.001866 | 17 |
| HLA-B*08:01 | 1 | 201 | 209 | 9 | FKIYSKHTP 0.001865 | 15 |
| HLA-A*02:01 | 1 | 623 | 631 | 9 | AIHADQLTP 0.001865 | 11 |
| HLA-A*33:01 | 1 | 519 | 528 | 10 | HAPATVCGPK 0.001864 | 11 |
| HLA-A*02:03 | 1 | 650 | 659 | 10 | LIGAEHVNNS 0.001864 | 12 |
| HLA-A*26:01 | 1 | 487 | 496 | 10 | NCYFPLQSYG 0.001863 | 8.1 |
| HLA-A*30:01 | 1 | 368 | 377 | 10 | LYNSASFSTF 0.001862 | 20 |
| HLA-A*30:02 | 1 | 616 | 625 | 10 | NCTEVPVAIH 0.001862 | 17 |
| HLA-A*02:03 | 1 | 1113 | 1121 | 9 | QIITTDNTF 0.001862 | 12 |
| HLA-A*23:01 | 1 | 264 | 273 | 10 | AYYVGYLQPR 0.001861 | 6.4 |
| HLA-A*32:01 | 1 | 731 | 740 | 10 | MTKTSVDCTM 0.001861 | 7.9 |
| HLA-B*15:01 | 1 | 914 | 922 | 9 | NVLYENQKL 0.001861 | 11 |
| HLA-B*44:03 | 1 | 917 | 926 | 10 | YENQKLIANQ 0.001861 | 6.1 |
| HLA-B*57:01 | 1 | 108 | 116 | 9 | TTLDSKTQS 0.00186 | 15 |
| HLA-B*51:01 | 1 | 233 | 242 | 10 | INITRFQTL 0.00186 | 14 |
| HLA-B*58:01 | 1 | 391 | 400 | 10 | CFTNVYADSF 0.00186 | 9.9 |
| HLA-B*53:01 | 1 | 612 | 620 | 9 | YQDVNCTEV 0.00186 | 7.1 |
| HLA-A*02:06 | 1 | 1261 | 1270 | 10 | SEPVLKGVKL 0.00186 | 16 |
| HLA-B*57:01 | 1 | 1128 | 1136 | 9 | VVIGIVNNT 0.001859 | 15 |
| HLA-A*02:01 | 1 | 114 | 123 | 10 | TQSLLVNNA 0.001858 | 11 |
| HLA-B*51:01 | 1 | 261 | 269 | 9 | GAAAYVGY 0.001858 | 14 |
| HLA-A*68:01 | 1 | 533 | 541 | 9 | LVKNKCVNF 0.001857 | 13 |
| HLA-A*68:02 | 1 | 1019 | 1027 | 9 | RASANLAAT 0.001857 | 12 |
| HLA-B*15:01 | 1 | 203 | 212 | 10 | IYSKHTPINL 0.001856 | 11 |
| HLA-B*58:01 | 1 | 306 | 314 | 9 | FTVEKGIYQ 0.001856 | 9.9 |
| HLA-B*58:01 | 1 | 595 | 604 | 10 | VSVITPGTNT 0.001855 | 9.9 |
| HLA-B*51:01 | 1 | 868 | 877 | 10 | EMIAQYTSAL 0.001855 | 14 |
| HLA-B*44:02 | 1 | 917 | 926 | 10 | YENQKLIANQ 0.001855 | 6.0 |
| HLA-A*68:01 | 1 | 270 | 279 | 10 | LQPRTFLLKY 0.001854 | 13 |
| HLA-A*01:01 | 1 | 342 | 350 | 9 | FNATRFASV 0.001854 | 11 |
| HLA-B*57:01 | 1 | 379 | 387 | 9 | CYGVSPTKL 0.001854 | 15 |
| HLA-B*44:03 | 1 | 661 | 670 | 10 | ECDIPIGAGI 0.001854 | 6.1 |
| HLA-A*01:01 | 1 | 873 | 881 | 9 | YTSALLAGT 0.001854 | 11 |
| HLA-B*15:01 | 1 | 1256 | 1265 | 10 | FDEDDSEPV 0.001854 | 11 |
| HLA-A*30:02 | 1 | 1260 | 1268 | 9 | DSEPVLKGV 0.001854 | 18 |
| HLA-B*15:01 | 1 | 181 | 189 | 9 | GKQGNFKNL 0.001852 | 11 |
| HLA-A*23:01 | 1 | 170 | 179 | 10 | YVSQPFLMDL 0.001851 | 6.4 |
| HLA-A*02:03 | 1 | 211 | 219 | 9 | NLVRDLPQG 0.00185 | 13 |
| HLA-A*68:02 | 1 | 890 | 899 | 10 | AGAALQIPFA 0.00185 | 12 |
| HLA-A*32:01 | 1 | 908 | 917 | 10 | GIGVTQNVLY 0.00185 | 7.9 |
| HLA-B*08:01 | 1 | 40 | 49 | 10 | DKVFRSSVLH 0.001849 | 15 |
| HLA-A*30:01 | 1 | 354 | 363 | 10 | NRKRISNCVA 0.001849 | 20 |
| HLA-A*30:01 | 1 | 645 | 653 | 9 | TRAGCLIGA 0.001849 | 20 |
| HLA-A*11:01 | 1 | 710 | 718 | 9 | NSIAIPTNF 0.001849 | 7.8 |
| HLA-A*33:01 | 1 | 6 | 14 | 9 | VLLPLVSSQ 0.001847 | 11 |
| HLA-A*11:01 | 1 | 327 | 335 | 9 | VRFPNITNL 0.001847 | 7.8 |
| HLA-A*31:01 | 1 | 1093 | 1102 | 10 | GVFVSNGTHW 0.001847 | 13 |
| HLA-A*30:01 | 1 | 1097 | 1105 | 9 | SNGTHWFVT 0.001847 | 20 |
| HLA-B*53:01 | 1 | 525 | 534 | 10 | CGPKKSTNLV 0.001846 | 7.1 |
| HLA-B*15:01 | 1 | 905 | 913 | 9 | RFNGIGVTO 0.001846 | 11 |
| HLA-A*01:01 | 1 | 988 | 997 | 10 | EAEVQIDRLI 0.001846 | 11 |
| HLA-B*58:01 | 1 | 58 | 66 | 9 | FFSNVTWFH 0.001845 | 9.9 |
| HLA-A*30:02 | 1 | 307 | 316 | 10 | TVEKGIYQTS 0.001845 | 18 |
| HLA-A*02:03 | 1 | 618 | 626 | 9 | TEVPVAIHA 0.001845 | 13 |
| HLA-A*02:06 | 1 | 636 | 645 | 10 | YSTGSNVFQT 0.001845 | 16 |
| HLA-B*57:01 | 1 | 719 | 727 | 9 | TISVTTEIL 0.001845 | 15 |
| HLA-B*58:01 | 1 | 943 | 952 | 10 | SALGKLQDVV 0.001845 | 9.9 |
| HLA-A*30:02 | 1 | 979 | 987 | 9 | DILSRLDKV 0.001845 | 18 |
| HLA-A*23:01 | 1 | 996 | 1004 | 9 | LITGRLQSL 0.001845 | 6.4 |
| HLA-B*08:01 | 1 | 1103 | 1111 | 9 | FVTQRNFYE 0.001845 | 15 |
| HLA-B*44:02 | 1 | 222 | 231 | 10 | ALEPLVDLPI 0.001844 | 6.0 |
| HLA-A*23:01 | 1 | 324 | 332 | 9 | ESIVRFPNI 0.001844 | 6.4 |
| HLA-B*44:02 | 1 | 1139 | 1148 | 10 | DPLQPELDSF 0.001844 | 6.0 |
| HLA-A*30:01 | 1 | 1204 | 1212 | 9 | GKYEQYIKW 0.001844 | 20 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*68:01 | 1 | 166 | 174 | 9 | CTFEYVSQP 0.001843 | 13 |
| HLA-A*30:02 | 1 | 1128 | 1137 | 10 | VVIGIVNNTV 0.001843 | 18 |
| HLA-A*31:01 | 1 | 97 | 106 | 10 | KSNIRGWIF 0.001842 | 13 |
| HLA-B*44:03 | 1 | 270 | 279 | 10 | LQPRTFLLKY 0.001842 | 6.2 |
| HLA-A*01:01 | 1 | 348 | 356 | 9 | ASVYAWNRK 0.001842 | 11 |
| HLA-B*08:01 | 1 | 611 | 620 | 10 | LYQDVNCTEV 0.001842 | 15 |
| HLA-A*02:01 | 1 | 27 | 36 | 10 | AYTNSFTRGV 0.001841 | 11 |
| HLA-A*26:01 | 1 | 280 | 289 | 10 | NENGTITDAV 0.001841 | 8.1 |
| HLA-A*33:01 | 1 | 321 | 329 | 9 | QPTESIVRF 0.001841 | 11 |
| HLA-A*24:02 | 1 | 394 | 403 | 10 | NVYADSFVIR 0.001841 | 6.3 |
| HLA-A*30:02 | 1 | 481 | 490 | 10 | NGVEGFNCYF 0.001841 | 18 |
| HLA-A*30:01 | 1 | 595 | 604 | 10 | VSVITPGTNT 0.001841 | 20 |
| HLA-A*68:01 | 1 | 1003 | 1011 | 9 | SLQTYVTQQ 0.001841 | 13 |
| HLA-B*07:02 | 1 | 1209 | 1217 | 9 | YIKWPWYIW 0.001841 | 8.8 |
| HLA-B*57:01 | 1 | 12 | 20 | 9 | SSQCVNLTT 0.00184 | 15 |
| HLA-B*15:01 | 1 | 45 | 54 | 10 | SSVLHSTQDL 0.00184 | 11 |
| HLA-A*33:01 | 1 | 155 | 163 | 9 | SEFRVYSSA 0.00184 | 11 |
| HLA-B*57:01 | 1 | 721 | 730 | 10 | SVTTEILPVS 0.00184 | 15 |
| HLA-A*30:01 | 1 | 999 | 1008 | 10 | GRLQSLQTYV 0.00184 | 20 |
| HLA-A*02:03 | 1 | 1119 | 1128 | 10 | NTFVSGNCDV 0.00184 | 13 |
| HLA-A*26:01 | 1 | 618 | 626 | 9 | TEVPVAIHA 0.001839 | 8.1 |
| HLA-A*32:01 | 1 | 1196 | 1205 | 10 | SLIDLQELGK 0.001839 | 7.9 |
| HLA-A*68:01 | 1 | 361 | 370 | 10 | CVADYSVLYN 0.001838 | 13 |
| HLA-B*40:01 | 1 | 366 | 374 | 9 | SVLYNSASF 0.001838 | 5.8 |
| HLA-A*01:01 | 1 | 947 | 956 | 10 | KLQDVVNQNA 0.001838 | 11 |
| HLA-A*23:01 | 1 | 1106 | 1114 | 9 | QRNFYEPQI 0.001838 | 6.4 |
| HLA-A*11:01 | 1 | 1129 | 1138 | 10 | VIGIVNNTVY 0.001838 | 7.8 |
| HLA-A*30:02 | 1 | 424 | 432 | 9 | KLPDDFTGC 0.001837 | 18 |
| HLA-A*30:02 | 1 | 116 | 124 | 9 | SLLIVNNTAT 0.001836 | 18 |
| HLA-A*01:01 | 1 | 211 | 220 | 10 | NLVRDLPQGF 0.001836 | 11 |
| HLA-B*40:01 | 1 | 50 | 58 | 9 | STQDLFLPF 0.001835 | 5.8 |
| HLA-B*44:02 | 1 | 221 | 229 | 9 | SALEPLVDL 0.001835 | 6.1 |
| HLA-A*30:01 | 1 | 257 | 265 | 9 | GWTAGAAAY 0.001835 | 20 |
| HLA-A*02:01 | 1 | 344 | 352 | 9 | ATRFASVYA 0.001835 | 11 |
| HLA-B*15:01 | 1 | 1039 | 1048 | 10 | RVDFCGKGYH 0.001835 | 11 |
| HLA-A*26:01 | 1 | 1100 | 1109 | 10 | THWFVTQRNF 0.001835 | 8.1 |
| HLA-B*51:01 | 1 | 1133 | 1141 | 9 | VNNTVYDPL 0.001835 | 14 |
| HLA-A*02:06 | 1 | 375 | 384 | 10 | STFKCYGVSP 0.001834 | 16 |
| HLA-B*51:01 | 1 | 624 | 632 | 9 | IHADQLTPT 0.001834 | 14 |
| HLA-B*35:01 | 1 | 704 | 712 | 9 | SVAYSNNSI 0.001834 | 7.9 |
| HLA-B*51:01 | 1 | 879 | 888 | 10 | AGTITSGWTF 0.001834 | 14 |
| HLA-A*02:01 | 1 | 366 | 375 | 10 | SVLYNSASF 0.001833 | 11 |
| HLA-B*57:01 | 1 | 714 | 722 | 9 | IPTNFTISV 0.001833 | 15 |
| HLA-A*02:06 | 1 | 387 | 395 | 9 | LNDLCFTNV 0.001832 | 16 |
| HLA-A*30:01 | 1 | 1205 | 1213 | 9 | KYEQYIKWP 0.001832 | 20 |
| HLA-B*44:03 | 1 | 109 | 117 | 9 | TLDSKTQSL 0.001831 | 6.2 |
| HLA-B*44:02 | 1 | 463 | 472 | 10 | PFERDISTEI 0.001831 | 6.1 |
| HLA-A*32:01 | 1 | 921 | 930 | 10 | KLIANQFNSA 0.001831 | 7.9 |
| HLA-A*32:01 | 1 | 1056 | 1064 | 9 | APHGVVFLH 0.001831 | 7.9 |
| HLA-A*32:01 | 1 | 1195 | 1203 | 9 | ESLIDLQEL 0.001831 | 7.9 |
| HLA-B*58:01 | 1 | 268 | 276 | 9 | GYLQPRTFL 0.00183 | 9.9 |
| HLA-B*15:01 | 1 | 361 | 370 | 10 | CVADYSVLYN 0.00183 | 11 |
| HLA-B*08:01 | 1 | 159 | 168 | 10 | VYSSANNCTF 0.001829 | 15 |
| HLA-A*30:02 | 1 | 488 | 496 | 9 | CYFPLQSYG 0.001829 | 18 |
| HLA-B*40:01 | 1 | 925 | 934 | 10 | NQFNSAIGKI 0.001829 | 5.8 |
| HLA-B*40:01 | 1 | 279 | 288 | 10 | YNENGTITDA 0.001828 | 5.8 |
| HLA-A*02:03 | 1 | 559 | 567 | 9 | FLPFQQFGR 0.001828 | 13 |
| HLA-B*44:02 | 1 | 842 | 850 | 9 | GDIAARDLI 0.001828 | 6.1 |
| HLA-B*15:01 | 1 | 846 | 855 | 10 | ARDLICAQKF 0.001828 | 11 |
| HLA-A*01:01 | 1 | 1004 | 1012 | 9 | LQTYVTQQL 0.001828 | 11 |
| HLA-A*01:01 | 1 | 95 | 104 | 10 | TEKSNIIRGW 0.001827 | 11 |
| HLA-B*53:01 | 1 | 151 | 159 | 9 | SWMESEFRV 0.001827 | 7.1 |
| HLA-A*24:02 | 1 | 183 | 192 | 10 | QGNFKNLREF 0.001827 | 6.4 |
| HLA-B*57:01 | 1 | 497 | 505 | 9 | FQPTNGVGY 0.001827 | 15 |
| HLA-A*68:02 | 1 | 695 | 703 | 9 | YTMSLGAEN 0.001827 | 12 |
| HLA-B*58:01 | 1 | 865 | 874 | 10 | LTDEMIAQYT 0.001827 | 9.9 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*02:03 | 1 | 1019 | 1027 | 9 | RASANLAAT 0.001827 | 13 |
| HLA-A*30:02 | 1 | 1047 | 1056 | 10 | YHLMSFPQSA 0.001827 | 18 |
| HLA-B*58:01 | 1 | 242 | 250 | 9 | LALHRSYLT 0.001825 | 10 |
| HLA-B*44:03 | 1 | 618 | 627 | 10 | TEVPVAIHAD 0.001825 | 6.2 |
| HLA-A*68:02 | 1 | 622 | 630 | 9 | VAIHADQLT 0.001824 | 12 |
| HLA-B*53:01 | 1 | 309 | 318 | 10 | EKGIYQTSNF 0.001823 | 7.1 |
| HLA-B*44:03 | 1 | 360 | 369 | 10 | NCVADYSVLY 0.001823 | 6.2 |
| HLA-B*51:01 | 1 | 1017 | 1025 | 9 | EIRASANLA 0.001823 | 14 |
| HLA-A*02:03 | 1 | 163 | 171 | 9 | ANNCTFEYV 0.001822 | 13 |
| HLA-A*24:02 | 1 | 905 | 913 | 9 | RFNGIGVTQ 0.001822 | 6.4 |
| HLA-A*30:02 | 1 | 955 | 963 | 9 | NAQALNTLV 0.001822 | 18 |
| HLA-B*08:01 | 1 | 472 | 480 | 9 | IYQAGSTPC 0.001821 | 15 |
| HLA-A*30:02 | 1 | 766 | 774 | 9 | ALTGIAVEQ 0.001821 | 18 |
| HLA-B*44:02 | 1 | 1106 | 1114 | 9 | QRNFYEQPI 0.001821 | 6.1 |
| HLA-B*08:01 | 1 | 115 | 123 | 9 | QSLLVNNA 0.00182 | 15 |
| HLA-A*68:02 | 1 | 354 | 362 | 9 | NRKRISNCV 0.00182 | 12 |
| HLA-A*68:02 | 1 | 462 | 470 | 9 | KPFERDIST 0.00182 | 12 |
| HLA-A*26:01 | 1 | 1017 | 1026 | 10 | EIRASANLAA 0.00182 | 8.2 |
| HLA-B*58:01 | 1 | 551 | 560 | 10 | VLTESNKKFL 0.001819 | 10 |
| HLA-B*57:01 | 1 | 636 | 644 | 9 | YSTGSNVFQ 0.001819 | 15 |
| HLA-A*30:02 | 1 | 764 | 772 | 9 | NRALTGIAV 0.001819 | 18 |
| HLA-B*15:01 | 1 | 989 | 997 | 9 | AEVQIDRLI 0.001819 | 11 |
| HLA-A*26:01 | 1 | 806 | 814 | 9 | LPDPSKPSK 0.001818 | 8.2 |
| HLA-A*02:06 | 1 | 840 | 849 | 10 | CLGDIAARDL 0.001818 | 16 |
| HLA-A*02:01 | 1 | 860 | 868 | 9 | VLPLLTDDE 0.001818 | 11 |
| HLA-A*33:01 | 1 | 1099 | 1108 | 10 | GTHWFVTQRN 0.001818 | 11 |
| HLA-B*57:01 | 1 | 218 | 227 | 10 | QGFSALEPLV 0.001817 | 15 |
| HLA-A*01:01 | 1 | 230 | 238 | 9 | PIGINITRF 0.001817 | 11 |
| HLA-B*44:02 | 1 | 953 | 962 | 10 | NQNAQALNTL 0.001817 | 6.1 |
| HLA-A*32:01 | 1 | 658 | 666 | 9 | NSYECDIPI 0.001816 | 7.9 |
| HLA-A*30:01 | 1 | 1012 | 1021 | 10 | LIRAAEIRAS 0.001816 | 20 |
| HLA-A*03:01 | 1 | 1149 | 1157 | 9 | KEELDKYFK 0.001816 | 9.2 |
| HLA-A*24:02 | 1 | 464 | 472 | 9 | FERDISTEI 0.001815 | 6.4 |
| HLA-A*30:02 | 1 | 517 | 525 | 9 | LLHAPATVC 0.001815 | 18 |
| HLA-A*02:06 | 1 | 573 | 582 | 10 | TDAVRDPQTL 0.001815 | 16 |
| HLA-B*35:01 | 1 | 338 | 347 | 10 | FGEVFNATRF 0.001814 | 7.9 |
| HLA-A*30:02 | 1 | 466 | 475 | 10 | RDISTEIIYQA 0.001814 | 18 |
| HLA-B*15:01 | 1 | 1144 | 1152 | 9 | ELDSFKEEL 0.001814 | 11 |
| HLA-B*44:02 | 1 | 1208 | 1217 | 10 | QYIKWPWYIW 0.001814 | 6.1 |
| HLA-B*15:01 | 1 | 250 | 258 | 9 | TPGDSSSGW 0.001813 | 11 |
| HLA-A*02:06 | 1 | 612 | 621 | 10 | YQDVNCTEVP 0.001813 | 16 |
| HLA-A*68:01 | 1 | 904 | 913 | 10 | YRFNGIGVTQ 0.001813 | 13 |
| HLA-B*58:01 | 1 | 1001 | 1010 | 10 | LQSLQTYVTQ 0.001813 | 10 |
| HLA-B*58:01 | 1 | 859 | 868 | 10 | TVLPLLTDDE 0.001812 | 10 |
| HLA-B*08:01 | 1 | 37 | 46 | 10 | YYPDKVFRSS 0.001811 | 15 |
| HLA-B*35:01 | 1 | 144 | 153 | 10 | YYHKNNKSWM 0.001811 | 7.9 |
| HLA-A*68:02 | 1 | 692 | 701 | 10 | IIAYTMSLGA 0.001811 | 12 |
| HLA-A*68:02 | 1 | 843 | 851 | 9 | DIAARDLIC 0.001811 | 12 |
| HLA-B*44:03 | 1 | 956 | 964 | 9 | AQALNTLVK 0.001811 | 6.2 |
| HLA-A*24:02 | 1 | 85 | 93 | 9 | PFNDGVYFA 0.00181 | 6.4 |
| HLA-B*15:01 | 1 | 142 | 150 | 9 | GVYYHKNNK 0.00181 | 11 |
| HLA-B*07:02 | 1 | 268 | 277 | 10 | GYLQPRTFLL 0.00181 | 8.9 |
| HLA-B*58:01 | 1 | 413 | 421 | 9 | GQTGKIADY 0.00181 | 10 |
| HLA-B*08:01 | 1 | 722 | 731 | 10 | VTTEILPVSM 0.001809 | 15 |
| HLA-A*31:01 | 1 | 320 | 329 | 10 | VQPTESIVRF 0.001807 | 13 |
| HLA-A*33:01 | 1 | 369 | 377 | 9 | YNSASFSTF 0.001807 | 11 |
| HLA-A*31:01 | 1 | 495 | 503 | 9 | YGFQPTNGV 0.001807 | 13 |
| HLA-A*31:01 | 1 | 871 | 879 | 9 | AQYTSALLA 0.001807 | 13 |
| HLA-A*31:01 | 1 | 1002 | 1010 | 9 | QSLQTYVTQ 0.001807 | 13 |
| HLA-A*01:01 | 1 | 1049 | 1058 | 10 | LMSFPQSAPH 0.001806 | 11 |
| HLA-B*44:03 | 1 | 29 | 38 | 10 | TNSFTRGVVY 0.001805 | 6.2 |
| HLA-A*32:01 | 1 | 416 | 425 | 10 | GKIADYNYKL 0.001805 | 8.0 |
| HLA-A*02:03 | 1 | 1188 | 1196 | 9 | EVAKNLNES 0.001805 | 13 |
| HLA-B*40:01 | 1 | 710 | 718 | 9 | NSIAIPTNF 0.001803 | 5.8 |
| HLA-A*68:01 | 1 | 1039 | 1047 | 9 | RVDFCGKGY 0.001803 | 13 |
| HLA-B*35:01 | 1 | 1161 | 1170 | 10 | SPDVLDGDIS 0.001803 | 7.9 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*02:06 | 1 | 1168 | 1177 | 10 | DISGINASVV 0.001803 | 16 |
| HLA-A*02:03 | 1 | 268 | 276 | 9 | GYLQPRFTL 0.001802 | 13 |
| HLA-B*08:01 | 1 | 783 | 791 | 9 | AQVKQIYKT 0.001802 | 15 |
| HLA-A*01:01 | 1 | 71 | 79 | 9 | SGTNGTKRF 0.001801 | 11 |
| HLA-A*02:06 | 1 | 75 | 84 | 10 | GTKRFDNPVL 0.001801 | 16 |
| HLA-A*32:01 | 1 | 502 | 511 | 10 | GVGYQPYRVV 0.001801 | 8.0 |
| HLA-B*15:01 | 1 | 1113 | 1122 | 10 | QIITTDNTFV 0.001801 | 11 |
| HLA-B*58:01 | 1 | 1207 | 1215 | 9 | EQYIKWPWY 0.001801 | 10 |
| HLA-B*08:01 | 1 | 425 | 434 | 10 | LPDDFTGCVI 0.0018 | 15 |
| HLA-A*68:01 | 1 | 441 | 449 | 9 | LDSKVGNGY 0.0018 | 13 |
| HLA-B*07:02 | 1 | 722 | 731 | 10 | VTTEILPVSM 0.0018 | 8.9 |
| HLA-A*23:01 | 1 | 1044 | 1052 | 9 | GKGYHLMSF 0.0018 | 6.5 |
| HLA-A*01:01 | 1 | 1087 | 1095 | 9 | AHFREGVF 0.0018 | 11 |
| HLA-A*02:03 | 1 | 234 | 243 | 10 | NITRFQTLA 0.001797 | 13 |
| HLA-B*35:01 | 1 | 513 | 521 | 9 | LSFELLHAP 0.001797 | 7.9 |
| HLA-B*51:01 | 1 | 929 | 937 | 9 | SAIGKIQDS 0.001797 | 15 |
| HLA-B*15:01 | 1 | 683 | 691 | 9 | RARSVASQS 0.001796 | 11 |
| HLA-A*26:01 | 1 | 1180 | 1189 | 10 | QKEIDRLNEV 0.001796 | 8.2 |
| HLA-B*44:03 | 1 | 481 | 489 | 9 | NGVEGFNCY 0.001795 | 6.2 |
| HLA-B*44:02 | 1 | 577 | 585 | 9 | RDPQTLEIL 0.001795 | 6.1 |
| HLA-A*24:02 | 1 | 673 | 682 | 10 | SYQTQTNSPR 0.001795 | 6.4 |
| HLA-A*30:01 | 1 | 1047 | 1055 | 9 | YHLMSFPQS 0.001795 | 21 |
| HLA-A*03:01 | 1 | 509 | 517 | 9 | RVVLSFEL 0.001794 | 9.3 |
| HLA-B*51:01 | 1 | 143 | 152 | 10 | VYYHKNNKSW 0.001793 | 15 |
| HLA-A*68:01 | 1 | 199 | 207 | 9 | GYFKIYSKH 0.001793 | 13 |
| HLA-B*08:01 | 1 | 698 | 707 | 10 | SLGAENSVAY 0.001793 | 15 |
| HLA-B*35:01 | 1 | 714 | 723 | 10 | IPTNFTISVT 0.001793 | 7.9 |
| HLA-A*01:01 | 1 | 979 | 987 | 9 | DILSRLDKV 0.001793 | 11 |
| HLA-B*08:01 | 1 | 1035 | 1043 | 9 | GQSKRVDFC 0.001793 | 15 |
| HLA-A*23:01 | 1 | 1207 | 1215 | 9 | EQYIKWPWY 0.001793 | 6.5 |
| HLA-A*03:01 | 1 | 576 | 584 | 9 | VRDPQTLEI 0.001792 | 9.3 |
| HLA-A*01:01 | 1 | 1237 | 1245 | 9 | MTSCCCLK 0.001792 | 11 |
| HLA-B*58:01 | 1 | 627 | 636 | 10 | DQLTPTWRVY 0.001791 | 11 |
| HLA-A*23:01 | 1 | 711 | 720 | 10 | SIAIPTNFTI 0.001791 | 6.5 |
| HLA-A*02:01 | 1 | 1080 | 1089 | 10 | AICHDGKAHF 0.00179 | 11 |
| HLA-A*68:01 | 1 | 2 | 10 | 9 | FVFLVLLPL 0.001789 | 13 |
| HLA-A*30:02 | 1 | 141 | 150 | 10 | LGVYYHKNNK 0.001789 | 18 |
| HLA-A*02:06 | 1 | 182 | 190 | 9 | KQGNFKNLR 0.001789 | 16 |
| HLA-A*02:03 | 1 | 275 | 283 | 9 | FLLKYNENG 0.001789 | 13 |
| HLA-A*01:01 | 1 | 448 | 456 | 9 | NYNLYRLF 0.001789 | 11 |
| HLA-A*01:01 | 1 | 573 | 582 | 10 | TDAVRDPQTL 0.001788 | 11 |
| HLA-B*58:01 | 1 | 710 | 719 | 10 | NSIAIPTNFT 0.001788 | 11 |
| HLA-A*30:02 | 1 | 1017 | 1025 | 9 | EIRASANLA 0.001788 | 18 |
| HLA-B*44:03 | 1 | 514 | 523 | 10 | SFELLHAPAT 0.001787 | 6.3 |
| HLA-A*30:02 | 1 | 690 | 699 | 10 | QSIIAYTMSL 0.001787 | 18 |
| HLA-B*58:01 | 1 | 1172 | 1181 | 10 | INASVVNIQK 0.001787 | 11 |
| HLA-B*44:03 | 1 | 573 | 582 | 10 | TDAVRDPQTL 0.001786 | 6.3 |
| HLA-B*35:01 | 1 | 82 | 91 | 10 | PVLPFNDGVY 0.001785 | 8.0 |
| HLA-A*24:02 | 1 | 206 | 214 | 9 | KHTPINLVR 0.001785 | 6.4 |
| HLA-A*11:01 | 1 | 530 | 538 | 9 | STNLVKKNC 0.001784 | 7.9 |
| HLA-B*44:03 | 1 | 575 | 584 | 10 | AVRDPQTLEI 0.001784 | 6.3 |
| HLA-A*02:03 | 1 | 1062 | 1071 | 10 | FLHVTVVPAQ 0.001784 | 13 |
| HLA-A*68:02 | 1 | 188 | 197 | 10 | NLREFVFKNI 0.001783 | 12 |
| HLA-A*01:01 | 1 | 695 | 703 | 9 | YTMSLGAEN 0.001783 | 11 |
| HLA-B*58:01 | 1 | 826 | 835 | 10 | VTLADAGFIK 0.001783 | 11 |
| HLA-B*35:01 | 1 | 889 | 898 | 10 | GAGAALQIPF 0.001783 | 8.0 |
| HLA-A*30:01 | 1 | 498 | 507 | 10 | QPTNGVGYQP 0.001782 | 21 |
| HLA-A*30:02 | 1 | 611 | 619 | 9 | LYQDVNCTE 0.001782 | 18 |
| HLA-A*01:01 | 1 | 314 | 322 | 9 | QTSNFRVQP 0.001781 | 11 |
| HLA-A*68:02 | 1 | 372 | 380 | 9 | ASFSTFKCY 0.001781 | 12 |
| HLA-A*68:02 | 1 | 1031 | 1039 | 9 | ECVLGQSKR 0.001781 | 12 |
| HLA-A*03:01 | 1 | 569 | 577 | 9 | IADTTDAVR 0.00178 | 9.3 |
| HLA-A*31:01 | 1 | 857 | 865 | 9 | GLTVLPPLL 0.00178 | 13 |
| HLA-B*44:03 | 1 | 35 | 43 | 9 | GYYYPDKVF 0.001779 | 6.3 |
| HLA-A*31:01 | 1 | 134 | 143 | 10 | QFCNDPFLGV 0.001779 | 13 |
| HLA-A*01:01 | 1 | 954 | 962 | 9 | QNAQALNTL 0.001779 | 11 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*68:02 | 1 | 1070 | 1078 | 9 | AQEKNFTTA 0.001779 | 12 |
| HLA-B*08:01 | 1 | 1087 | 1096 | 10 | AHFPREGVVF 0.001779 | 15 |
| HLA-A*02:03 | 1 | 266 | 275 | 10 | YVGYLQPRTF 0.001778 | 13 |
| HLA-A*30:02 | 1 | 509 | 518 | 10 | RVVVLSEFELL 0.001778 | 18 |
| HLA-A*31:01 | 1 | 852 | 861 | 10 | AQKFNGLTVL 0.001778 | 13 |
| HLA-A*02:03 | 1 | 75 | 84 | 10 | GTKRFDNPVL 0.001776 | 13 |
| HLA-B*44:02 | 1 | 617 | 626 | 10 | CTEVPVAIHA 0.001776 | 6.1 |
| HLA-A*30:01 | 1 | 1263 | 1271 | 9 | PVLKGVKLH 0.001776 | 21 |
| HLA-B*08:01 | 1 | 118 | 126 | 9 | LIVNNATNV 0.001775 | 15 |
| HLA-A*24:02 | 1 | 234 | 242 | 9 | NITRFQTL 0.001775 | 6.4 |
| HLA-B*51:01 | 1 | 1174 | 1183 | 10 | ASVVNIQKEI 0.001775 | 15 |
| HLA-A*68:01 | 1 | 35 | 43 | 9 | GVYYPDKVF 0.001774 | 13 |
| HLA-A*02:01 | 1 | 762 | 771 | 10 | QLNRALTGIA 0.001774 | 11 |
| HLA-B*57:01 | 1 | 120 | 128 | 9 | VNNATNVVI 0.001773 | 15 |
| HLA-A*24:02 | 1 | 427 | 436 | 10 | DDFTGCVIAW 0.001773 | 6.4 |
| HLA-A*26:01 | 1 | 204 | 213 | 10 | YSKHTPINLV 0.001772 | 8.3 |
| HLA-A*02:01 | 1 | 773 | 782 | 10 | EQDKNTQEVF 0.001772 | 11 |
| HLA-A*02:06 | 1 | 974 | 983 | 10 | SSVLNDILSR 0.001772 | 16 |
| HLA-B*07:02 | 1 | 684 | 692 | 9 | ARSVASQSI 0.001771 | 9.0 |
| HLA-B*53:01 | 1 | 969 | 977 | 9 | NFGAISSVL 0.00177 | 7.2 |
| HLA-A*30:02 | 1 | 1137 | 1146 | 10 | VYDPLQPELD 0.00177 | 18 |
| HLA-A*02:01 | 1 | 722 | 730 | 9 | VTTEILPVS 0.001769 | 11 |
| HLA-A*02:06 | 1 | 956 | 965 | 10 | AQALNTLVKQ 0.001769 | 16 |
| HLA-A*24:02 | 1 | 1042 | 1050 | 9 | FCGKGYHLM 0.001769 | 6.5 |
| HLA-B*08:01 | 1 | 75 | 84 | 10 | GTKRFDNPVL 0.001768 | 15 |
| HLA-A*02:01 | 1 | 166 | 174 | 9 | CTFEYVSQP 0.001768 | 11 |
| HLA-A*33:01 | 1 | 192 | 201 | 10 | FVFKNIDGYF 0.001768 | 11 |
| HLA-A*23:01 | 1 | 257 | 265 | 9 | GWTAGAAAY 0.001768 | 6.5 |
| HLA-B*44:03 | 1 | 577 | 585 | 9 | RDPQTLLEIL 0.001768 | 6.3 |
| HLA-A*68:01 | 1 | 721 | 729 | 9 | SVTTEILPV 0.001768 | 13 |
| HLA-A*30:01 | 1 | 825 | 834 | 10 | KVTLADAGFI 0.001768 | 21 |
| HLA-A*02:06 | 1 | 217 | 226 | 10 | PQGFSALEPL 0.001767 | 16 |
| HLA-B*08:01 | 1 | 401 | 410 | 10 | VIRGDEVQRQI 0.001767 | 15 |
| HLA-A*30:02 | 1 | 1148 | 1156 | 9 | FKEELDKYF 0.001767 | 18 |
| HLA-A*02:03 | 1 | 402 | 410 | 9 | IRGDEVQRQI 0.001766 | 13 |
| HLA-A*23:01 | 1 | 870 | 878 | 9 | IAQYTSALL 0.001766 | 6.5 |
| HLA-B*08:01 | 1 | 1107 | 1115 | 9 | RNFYEPQII 0.001766 | 15 |
| HLA-A*11:01 | 1 | 199 | 207 | 9 | GYFKIYSKH 0.001765 | 7.9 |
| HLA-A*31:01 | 1 | 520 | 529 | 10 | APATVCGPKK 0.001765 | 13 |
| HLA-B*15:01 | 1 | 623 | 631 | 9 | AIHADQLTP 0.001765 | 12 |
| HLA-B*08:01 | 1 | 917 | 925 | 9 | YENQKLIAN 0.001765 | 15 |
| HLA-B*53:01 | 1 | 1212 | 1221 | 10 | WPWYIWLGFII 0.001765 | 7.2 |
| HLA-A*02:06 | 1 | 1169 | 1177 | 9 | ISGINASVV 0.001763 | 16 |
| HLA-A*31:01 | 1 | 859 | 868 | 10 | TVLPPLLTDE 0.001761 | 13 |
| HLA-B*08:01 | 1 | 1171 | 1179 | 9 | GINASVVNI 0.001761 | 15 |
| HLA-A*68:01 | 1 | 641 | 650 | 10 | NVFQTRAGCL 0.00176 | 13 |
| HLA-B*51:01 | 1 | 1201 | 1209 | 9 | QELGKYEQY 0.00176 | 15 |
| HLA-A*02:06 | 1 | 169 | 177 | 9 | EYVSQPFLM 0.001759 | 16 |
| HLA-A*11:01 | 1 | 497 | 505 | 9 | FQPTNGVGY 0.001759 | 7.9 |
| HLA-B*15:01 | 1 | 311 | 319 | 9 | GIYQTSNFR 0.001758 | 12 |
| HLA-A*33:01 | 1 | 343 | 351 | 9 | NATRFASVY 0.001758 | 11 |
| HLA-A*03:01 | 1 | 533 | 541 | 9 | LVKNKCVNF 0.001758 | 9.3 |
| HLA-A*30:02 | 1 | 765 | 773 | 9 | RALTGIAVE 0.001758 | 18 |
| HLA-B*35:01 | 1 | 869 | 878 | 10 | MIAQYTSALL 0.001758 | 8.0 |
| HLA-A*68:01 | 1 | 1236 | 1245 | 10 | CMTSCCCLK 0.001758 | 13 |
| HLA-A*68:02 | 1 | 1256 | 1264 | 9 | FDEDDSEPV 0.001758 | 12 |
| HLA-B*44:02 | 1 | 402 | 410 | 9 | IRGDEVQRQI 0.001757 | 6.2 |
| HLA-B*35:01 | 1 | 1060 | 1068 | 9 | VVFLHVTYV 0.001757 | 8.0 |
| HLA-B*08:01 | 1 | 192 | 200 | 9 | FVFKNIDGY 0.001756 | 15 |
| HLA-A*02:03 | 1 | 409 | 417 | 9 | QIAPGQTGK 0.001756 | 13 |
| HLA-A*30:01 | 1 | 881 | 889 | 9 | TITSGWTFG 0.001756 | 21 |
| HLA-A*02:01 | 1 | 1023 | 1032 | 10 | NLAATKMSEC 0.001756 | 11 |
| HLA-B*51:01 | 1 | 512 | 521 | 10 | VLSFELLHAP 0.001755 | 15 |
| HLA-A*31:01 | 1 | 42 | 50 | 9 | VFRSSVLHS 0.001754 | 13 |
| HLA-A*30:02 | 1 | 382 | 390 | 9 | VSPTKLNLDL 0.001754 | 18 |
| HLA-A*32:01 | 1 | 612 | 620 | 9 | YQDVNCTEV 0.001754 | 8.1 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*26:01 | 1 | 625 | 634 | 10 | HADQLTPTWR 0.001754 | 8.3 |
| HLA-A*26:01 | 1 | 336 | 344 | 9 | CPFGEVFNA 0.001753 | 8.3 |
| HLA-A*33:01 | 1 | 808 | 817 | 10 | DPSKPSKRSF 0.001753 | 11 |
| HLA-B*58:01 | 1 | 857 | 866 | 10 | GLTVLPPLL 0.001753 | 11 |
| HLA-A*01:01 | 1 | 1209 | 1217 | 9 | YIKWPWYIW 0.001753 | 11 |
| HLA-A*24:02 | 1 | 478 | 486 | 9 | TPCNGVEGF 0.001752 | 6.5 |
| HLA-A*32:01 | 1 | 943 | 951 | 9 | SALGKLQDV 0.001752 | 8.1 |
| HLA-B*44:03 | 1 | 1112 | 1121 | 10 | PQIITDNTF 0.001752 | 6.3 |
| HLA-B*40:01 | 1 | 132 | 141 | 10 | EFQFCNDPFL 0.001751 | 5.9 |
| HLA-A*01:01 | 1 | 601 | 610 | 10 | GTNTSNQVAV 0.001751 | 11 |
| HLA-A*68:01 | 1 | 5 | 14 | 10 | LVLLPLVSSQ 0.00175 | 13 |
| HLA-A*23:01 | 1 | 250 | 258 | 9 | TPGDSSSGW 0.00175 | 6.5 |
| HLA-A*30:01 | 1 | 437 | 445 | 9 | NSNNLDSKV 0.00175 | 21 |
| HLA-A*33:01 | 1 | 514 | 522 | 9 | SFELLHAPA 0.00175 | 11 |
| HLA-B*08:01 | 1 | 607 | 615 | 9 | QVAVLYQDV 0.00175 | 15 |
| HLA-B*58:01 | 1 | 616 | 624 | 9 | NCTEVPVAI 0.00175 | 11 |
| HLA-A*30:02 | 1 | 1255 | 1263 | 9 | KFDEDDSEP 0.00175 | 18 |
| HLA-B*15:01 | 1 | 724 | 733 | 10 | TEILPVSMTK 0.001749 | 12 |
| HLA-B*51:01 | 1 | 770 | 778 | 9 | IAVEQDKNT 0.001749 | 15 |
| HLA-A*24:02 | 1 | 872 | 880 | 9 | QYTSALLAG 0.001749 | 6.5 |
| HLA-B*08:01 | 1 | 1017 | 1026 | 10 | EIRASANLAA 0.001749 | 15 |
| HLA-A*02:06 | 1 | 683 | 692 | 10 | RARSVASQSI 0.001747 | 16 |
| HLA-A*30:02 | 1 | 1203 | 1212 | 10 | LGKYEQYIKW 0.001747 | 18 |
| HLA-A*26:01 | 1 | 987 | 995 | 9 | VEAEVQIDR 0.001746 | 8.3 |
| HLA-A*03:01 | 1 | 596 | 604 | 9 | SVITPGTNT 0.001745 | 9.4 |
| HLA-A*31:01 | 1 | 256 | 265 | 10 | SGWTAGAAAY 0.001744 | 13 |
| HLA-A*30:01 | 1 | 315 | 324 | 10 | TSNFRVQPT 0.001744 | 21 |
| HLA-A*01:01 | 1 | 349 | 357 | 9 | SVYAWNRKR 0.001744 | 11 |
| HLA-B*44:03 | 1 | 698 | 707 | 10 | SLGAENSVAY 0.001744 | 6.3 |
| HLA-B*53:01 | 1 | 83 | 91 | 9 | VLPFNDGVY 0.001743 | 7.3 |
| HLA-A*30:02 | 1 | 1139 | 1148 | 10 | DPLQPELDSF 0.001743 | 18 |
| HLA-B*08:01 | 1 | 686 | 694 | 9 | SVASQSIIA 0.001742 | 15 |
| HLA-B*07:02 | 1 | 697 | 705 | 9 | MSLGAENSV 0.001742 | 9.0 |
| HLA-A*33:01 | 1 | 1029 | 1038 | 10 | MSECVLGQSK 0.001742 | 11 |
| HLA-B*51:01 | 1 | 1204 | 1212 | 9 | GKYEQYIKW 0.001742 | 15 |
| HLA-A*02:06 | 1 | 15 | 24 | 10 | CVNLTRTQL 0.001741 | 16 |
| HLA-A*03:01 | 1 | 152 | 160 | 9 | WMESEFRVY 0.001741 | 9.4 |
| HLA-A*26:01 | 1 | 166 | 174 | 9 | CTFEYVSQP 0.001741 | 8.3 |
| HLA-B*08:01 | 1 | 678 | 686 | 9 | TNSPRRARS 0.001741 | 15 |
| HLA-A*24:02 | 1 | 27 | 35 | 9 | AYTNSFTRG 0.00174 | 6.5 |
| HLA-A*26:01 | 1 | 183 | 192 | 10 | QGNFKNREF 0.00174 | 8.3 |
| HLA-A*32:01 | 1 | 260 | 269 | 10 | AGAAAYVGY 0.00174 | 8.1 |
| HLA-B*58:01 | 1 | 744 | 753 | 10 | GDSTECSNLL 0.00174 | 11 |
| HLA-B*53:01 | 1 | 1054 | 1063 | 10 | QSAPHGVVFL 0.00174 | 7.3 |
| HLA-B*44:03 | 1 | 842 | 850 | 9 | GDIAARDLI 0.001739 | 6.3 |
| HLA-B*58:01 | 1 | 1005 | 1014 | 10 | QTYVVTQLIR 0.001739 | 11 |
| HLA-A*01:01 | 1 | 1125 | 1133 | 9 | NCDVVIGIV 0.001739 | 11 |
| HLA-B*35:01 | 1 | 1178 | 1186 | 9 | NIQKEIDRL 0.001739 | 8.0 |
| HLA-B*57:01 | 1 | 1212 | 1220 | 9 | WPWYIWLGF 0.001739 | 15 |
| HLA-A*26:01 | 1 | 399 | 408 | 10 | SFVIRGDEV 0.001738 | 8.3 |
| HLA-B*51:01 | 1 | 810 | 818 | 9 | SKPSKRSFI 0.001738 | 15 |
| HLA-A*26:01 | 1 | 1215 | 1224 | 10 | YIWLGFIAGL 0.001738 | 8.3 |
| HLA-A*68:01 | 1 | 239 | 247 | 9 | QTLALHRS 0.001737 | 13 |
| HLA-A*02:06 | 1 | 900 | 908 | 9 | MQMAYRFNG 0.001737 | 16 |
| HLA-A*24:02 | 1 | 575 | 584 | 10 | AVRDPQTLEI 0.001736 | 6.5 |
| HLA-B*51:01 | 1 | 762 | 770 | 9 | QLNRALTGI 0.001736 | 15 |
| HLA-B*51:01 | 1 | 5 | 13 | 9 | LVLLPLVSS 0.001734 | 15 |
| HLA-A*30:01 | 1 | 982 | 990 | 9 | SRLDKVEAE 0.001734 | 21 |
| HLA-B*51:01 | 1 | 268 | 276 | 9 | GYLQPRTF 0.001733 | 15 |
| HLA-B*58:01 | 1 | 409 | 418 | 10 | QIAPGQTGKI 0.001733 | 11 |
| HLA-B*51:01 | 1 | 652 | 660 | 9 | GAEHVNNSY 0.001732 | 15 |
| HLA-B*40:01 | 1 | 857 | 865 | 9 | GLTVLPPLL 0.001732 | 5.9 |
| HLA-A*03:01 | 1 | 747 | 756 | 10 | TECSNLLLQY 0.001731 | 9.4 |
| HLA-B*51:01 | 1 | 1113 | 1122 | 10 | QIITDNTFV 0.001731 | 15 |
| HLA-A*02:06 | 1 | 36 | 44 | 9 | VYYPDKVFR 0.00173 | 16 |
| HLA-A*23:01 | 1 | 482 | 490 | 9 | GVEGFNCYF 0.00173 | 6.6 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*51:01 | 1 | 628 | 636 | 9 | QLTPTWRVY 0.00173 | 15 |
| HLA-B*51:01 | 1 | 203 | 212 | 10 | IYSKHTPINL 0.001729 | 15 |
| HLA-B*53:01 | 1 | 220 | 229 | 10 | FSALEPLVDL 0.001728 | 7.3 |
| HLA-A*02:03 | 1 | 651 | 659 | 9 | IGAHEVNNS 0.001728 | 13 |
| HLA-A*33:01 | 1 | 504 | 512 | 9 | GYQPYRVVV 0.001727 | 11 |
| HLA-A*68:02 | 1 | 796 | 805 | 10 | DFGGFNFSQI 0.001727 | 12 |
| HLA-B*51:01 | 1 | 188 | 197 | 10 | NLREFVFKNI 0.001725 | 15 |
| HLA-A*23:01 | 1 | 395 | 404 | 10 | VYADSFVIRG 0.001725 | 6.6 |
| HLA-B*07:02 | 1 | 401 | 410 | 10 | VIRGDEVRQI 0.001725 | 9.1 |
| HLA-A*32:01 | 1 | 908 | 916 | 9 | GIGVTQNVL 0.001725 | 8.2 |
| HLA-A*02:06 | 1 | 1230 | 1238 | 9 | VTIMLCCMT 0.001725 | 16 |
| HLA-A*11:01 | 1 | 338 | 346 | 9 | FGEVFNATR 0.001724 | 8.0 |
| HLA-A*30:02 | 1 | 642 | 650 | 9 | VFQTRAGCL 0.001724 | 18 |
| HLA-A*11:01 | 1 | 747 | 756 | 10 | TECSNLLLQY 0.001724 | 8.0 |
| HLA-B*35:01 | 1 | 1206 | 1215 | 10 | YEQYIKWPWY 0.001724 | 8.1 |
| HLA-A*30:01 | 1 | 1078 | 1086 | 9 | APAICHGDK 0.001723 | 21 |
| HLA-A*03:01 | 1 | 15 | 23 | 9 | CVNLTRRTQ 0.001722 | 9.4 |
| HLA-B*15:01 | 1 | 513 | 521 | 9 | LSFELLHAP 0.001722 | 12 |
| HLA-A*02:06 | 1 | 228 | 236 | 9 | DLPIGINIT 0.001721 | 16 |
| HLA-A*11:01 | 1 | 651 | 660 | 10 | IGAHEVNNSY 0.001721 | 8.0 |
| HLA-A*30:02 | 1 | 891 | 900 | 10 | GAALQIPFAM 0.001721 | 18 |
| HLA-B*51:01 | 1 | 1104 | 1112 | 9 | VTQRNFYEP 0.001721 | 15 |
| HLA-A*30:02 | 1 | 748 | 757 | 10 | ECSNLLLQYG 0.00172 | 18 |
| HLA-A*68:01 | 1 | 1260 | 1268 | 9 | DSEPVKGV 0.00172 | 13 |
| HLA-B*08:01 | 1 | 916 | 924 | 9 | LYENQKLI 0.001719 | 15 |
| HLA-A*32:01 | 1 | 270 | 278 | 9 | LQPRTFLLK 0.001718 | 8.2 |
| HLA-A*30:01 | 1 | 370 | 379 | 10 | NSASFSTFKC 0.001718 | 21 |
| HLA-B*58:01 | 1 | 725 | 733 | 9 | EILPVSMTK 0.001718 | 11 |
| HLA-A*68:02 | 1 | 961 | 970 | 10 | TLVKQLSSNF 0.001718 | 12 |
| HLA-A*68:02 | 1 | 38 | 46 | 9 | YDPKVFRRS 0.001717 | 12 |
| HLA-A*02:03 | 1 | 602 | 610 | 9 | TNTSNQVAV 0.001717 | 13 |
| HLA-B*58:01 | 1 | 273 | 282 | 10 | RTFLLKYNEN 0.001716 | 11 |
| HLA-A*33:01 | 1 | 1000 | 1008 | 9 | RLQSLQTYV 0.001716 | 11 |
| HLA-A*68:02 | 1 | 170 | 178 | 9 | YVSQPFLMD 0.001715 | 12 |
| HLA-A*23:01 | 1 | 634 | 642 | 9 | RVYSTGSNV 0.001715 | 6.6 |
| HLA-A*02:06 | 1 | 728 | 736 | 9 | PVSMTKTSV 0.001715 | 16 |
| HLA-A*33:01 | 1 | 1077 | 1086 | 10 | TAPAICHGDK 0.001715 | 11 |
| HLA-A*01:01 | 1 | 226 | 234 | 9 | LVDLPIGIN 0.001714 | 11 |
| HLA-A*30:01 | 1 | 233 | 242 | 10 | INITRFQTL 0.001714 | 21 |
| HLA-A*02:03 | 1 | 413 | 421 | 9 | GQTGKIADY 0.001714 | 13 |
| HLA-A*30:02 | 1 | 987 | 996 | 10 | VEAEVQIDRL 0.001714 | 18 |
| HLA-A*33:01 | 1 | 1262 | 1270 | 9 | EPVLKGVKL 0.001714 | 11 |
| HLA-B*07:02 | 1 | 155 | 163 | 9 | SEFRVYSSA 0.001712 | 9.1 |
| HLA-A*02:06 | 1 | 1107 | 1116 | 10 | RNFYEQIIT 0.001712 | 16 |
| HLA-A*01:01 | 1 | 530 | 538 | 9 | STNLVKNKC 0.001711 | 11 |
| HLA-A*68:01 | 1 | 807 | 815 | 9 | PDPSKPSKR 0.001711 | 13 |
| HLA-A*68:02 | 1 | 320 | 329 | 10 | VQPTESIVRF 0.00171 | 13 |
| HLA-B*57:01 | 1 | 393 | 402 | 10 | TNVYADSFVI 0.00171 | 15 |
| HLA-B*15:01 | 1 | 646 | 655 | 10 | RAGCLIGAEH 0.00171 | 12 |
| HLA-A*30:02 | 1 | 713 | 722 | 10 | AIPTNFTISV 0.00171 | 18 |
| HLA-B*35:01 | 1 | 1100 | 1109 | 10 | THWFVTQRNF 0.00171 | 8.1 |
| HLA-B*58:01 | 1 | 191 | 200 | 10 | EFVFKNIDGY 0.001709 | 11 |
| HLA-B*58:01 | 1 | 646 | 655 | 10 | RAGCLIGAEH 0.001709 | 11 |
| HLA-A*24:02 | 1 | 780 | 789 | 10 | EVFAQVKQIY 0.001709 | 6.6 |
| HLA-B*08:01 | 1 | 1023 | 1031 | 9 | NLAATKMSE 0.001709 | 15 |
| HLA-B*08:01 | 1 | 716 | 724 | 9 | TNFTISVTT 0.001708 | 15 |
| HLA-A*02:03 | 1 | 184 | 193 | 10 | GNFKNLREFV 0.001707 | 13 |
| HLA-B*15:01 | 1 | 460 | 468 | 9 | NLKPFERDI 0.001707 | 12 |
| HLA-B*57:01 | 1 | 35 | 44 | 10 | GVYYPDKVFR 0.001706 | 15 |
| HLA-A*02:03 | 1 | 59 | 68 | 10 | FSNVTWFHAI 0.001706 | 13 |
| HLA-B*08:01 | 1 | 132 | 140 | 9 | EFQFCNDPF 0.001706 | 15 |
| HLA-A*33:01 | 1 | 344 | 352 | 9 | ATRFASVYA 0.001706 | 11 |
| HLA-A*68:01 | 1 | 521 | 529 | 9 | PATVCGPKK 0.001706 | 13 |
| HLA-B*44:02 | 1 | 417 | 425 | 9 | KIADYNYKL 0.001705 | 6.3 |
| HLA-B*07:02 | 1 | 551 | 559 | 9 | VLTESNKKF 0.001705 | 9.1 |
| HLA-B*40:01 | 1 | 732 | 740 | 9 | TKTSVDCTM 0.001705 | 5.9 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*02:06 | 1 | 761 | 769 | 9 | TQLNRALTG 0.001705 | 16 |
| HLA-A*33:01 | 1 | 918 | 926 | 9 | ENQKLIANQ 0.001705 | 11 |
| HLA-A*02:01 | 1 | 1004 | 1013 | 10 | LQTYVTQQLI 0.001705 | 12 |
| HLA-A*33:01 | 1 | 389 | 397 | 9 | DLCFTNVYA 0.001704 | 11 |
| HLA-A*32:01 | 1 | 825 | 834 | 10 | KVTLADAGFI 0.001704 | 8.2 |
| HLA-A*30:02 | 1 | 1262 | 1270 | 9 | EPVLKGVKL 0.001704 | 18 |
| HLA-A*68:02 | 1 | 75 | 84 | 10 | GTKRFDNPVL 0.001703 | 13 |
| HLA-B*08:01 | 1 | 725 | 733 | 9 | EILPVSMTK 0.001703 | 15 |
| HLA-B*57:01 | 1 | 29 | 37 | 9 | TNSFTRGVY 0.001702 | 15 |
| HLA-A*68:01 | 1 | 555 | 563 | 9 | SNKKFLPFQ 0.001702 | 13 |
| HLA-A*23:01 | 1 | 611 | 619 | 9 | LYQDVNCTE 0.001702 | 6.6 |
| HLA-B*57:01 | 1 | 941 | 949 | 9 | TASALGKLQ 0.001702 | 15 |
| HLA-A*23:01 | 1 | 1108 | 1117 | 10 | NFYEQIITT 0.001702 | 6.6 |
| HLA-B*07:02 | 1 | 652 | 660 | 9 | GAEHVNNSY 0.001701 | 9.1 |
| HLA-A*32:01 | 1 | 691 | 700 | 10 | SIAYTMSLG 0.001701 | 12 |
| HLA-A*01:01 | 1 | 735 | 743 | 9 | SVDCTMYIC 0.001701 | 11 |
| HLA-A*30:01 | 1 | 320 | 329 | 10 | VQPTESIVRF 0.0017 | 21 |
| HLA-A*30:02 | 1 | 386 | 394 | 9 | KLNDLCFTN 0.0017 | 18 |
| HLA-A*11:01 | 1 | 718 | 726 | 9 | FTISVTTEI 0.0017 | 8.0 |
| HLA-A*68:01 | 1 | 815 | 823 | 9 | RSFIEDLLF 0.0017 | 13 |
| HLA-A*30:02 | 1 | 212 | 221 | 10 | LVRDLPQGF5 0.001699 | 18 |
| HLA-A*26:01 | 1 | 319 | 327 | 9 | RVQPTESIV 0.001699 | 8.4 |
| HLA-B*07:02 | 1 | 452 | 461 | 10 | LYRLEFRKSNL 0.001699 | 9.1 |
| HLA-A*30:02 | 1 | 871 | 880 | 10 | AQYTSALLAG 0.001699 | 18 |
| HLA-B*40:01 | 1 | 1005 | 1013 | 9 | QTYVTQQLI 0.001699 | 5.9 |
| HLA-A*32:01 | 1 | 1174 | 1183 | 10 | ASVUNIQKEI 0.001699 | 8.2 |
| HLA-A*23:01 | 1 | 16 | 24 | 9 | VNLTTRTQL 0.001698 | 6.6 |
| HLA-A*33:01 | 1 | 21 | 29 | 9 | RTQLPPAYT 0.001698 | 11 |
| HLA-A*02:06 | 1 | 525 | 533 | 9 | CGPKKSTNL 0.001698 | 16 |
| HLA-B*51:01 | 1 | 953 | 962 | 10 | NQNAQALNTL 0.001698 | 15 |
| HLA-B*51:01 | 1 | 1026 | 1034 | 9 | ATKMSECVL 0.001698 | 15 |
| HLA-A*33:01 | 1 | 1215 | 1224 | 10 | YIWLGFIAGL 0.001698 | 11 |
| HLA-A*02:03 | 1 | 388 | 397 | 10 | NDLCFTNVYA 0.001697 | 13 |
| HLA-B*35:01 | 1 | 1080 | 1089 | 10 | AICHDGKAHF 0.001697 | 8.1 |
| HLA-A*30:02 | 1 | 1114 | 1122 | 9 | IITTDNTFV 0.001697 | 18 |
| HLA-A*30:01 | 1 | 510 | 519 | 10 | VVLSFELLH 0.001696 | 21 |
| HLA-A*68:02 | 1 | 741 | 749 | 9 | YICGDSTEC 0.001694 | 13 |
| HLA-B*15:01 | 1 | 22 | 31 | 10 | TQLPPAYTNS 0.001693 | 12 |
| HLA-B*08:01 | 1 | 65 | 73 | 9 | FHAIHVSQT 0.001693 | 15 |
| HLA-B*44:02 | 1 | 505 | 513 | 9 | YQPYRVVVL 0.001693 | 6.3 |
| HLA-A*68:01 | 1 | 712 | 720 | 9 | IAIPTNFTI 0.001693 | 13 |
| HLA-A*31:01 | 1 | 845 | 853 | 9 | AARDLICAQ 0.001693 | 13 |
| HLA-A*68:02 | 1 | 1196 | 1204 | 9 | SLIDLQELG 0.001693 | 13 |
| HLA-A*30:02 | 1 | 1220 | 1228 | 9 | FIAGLIAIV 0.001693 | 18 |
| HLA-B*40:01 | 1 | 153 | 162 | 10 | MESEFRVYSS 0.001692 | 5.9 |
| HLA-B*44:02 | 1 | 634 | 643 | 10 | RVYSTGSNVF 0.001692 | 6.3 |
| HLA-A*03:01 | 1 | 913 | 921 | 9 | QNVLYENQK 0.001692 | 9.5 |
| HLA-A*11:01 | 1 | 998 | 1007 | 10 | TGRLQSLQTY 0.001692 | 8.0 |
| HLA-A*30:02 | 1 | 1070 | 1079 | 10 | AQEKNFTTAP 0.001692 | 18 |
| HLA-A*02:01 | 1 | 1151 | 1159 | 9 | ELDKYFKNH 0.001692 | 12 |
| HLA-A*01:01 | 1 | 1165 | 1174 | 10 | DLGDISGINA 0.001692 | 11 |
| HLA-A*02:03 | 1 | 1217 | 1226 | 10 | WLGFIAGLIA 0.001692 | 13 |
| HLA-A*68:02 | 1 | 232 | 241 | 10 | GINITRFQTL 0.001691 | 13 |
| HLA-B*15:01 | 1 | 235 | 243 | 9 | ITRFQTLA 0.001691 | 12 |
| HLA-A*33:01 | 1 | 366 | 374 | 9 | SVLYNSASF 0.001691 | 11 |
| HLA-A*31:01 | 1 | 526 | 535 | 10 | GPKKSTNLVK 0.001691 | 13 |
| HLA-A*26:01 | 1 | 679 | 687 | 9 | NSPRRARSV 0.001691 | 8.4 |
| HLA-B*07:02 | 1 | 764 | 772 | 9 | NRALTGIIV 0.001691 | 9.1 |
| HLA-B*57:01 | 1 | 1129 | 1137 | 9 | VIGIVNNTV 0.001691 | 15 |
| HLA-A*68:01 | 1 | 1130 | 1138 | 9 | IGIVNNTVY 0.001691 | 13 |
| HLA-A*32:01 | 1 | 75 | 84 | 10 | GTKRFDNPVL 0.00169 | 8.3 |
| HLA-A*68:02 | 1 | 879 | 888 | 10 | AGTITSGWTF 0.00169 | 13 |
| HLA-B*44:03 | 1 | 1081 | 1089 | 9 | ICHDGKAHF 0.00169 | 6.4 |
| HLA-B*57:01 | 1 | 1135 | 1143 | 9 | NTVYDPLQP 0.00169 | 15 |
| HLA-A*32:01 | 1 | 56 | 65 | 10 | LPFFSNVTWF 0.001689 | 8.3 |
| HLA-B*57:01 | 1 | 502 | 511 | 10 | GVGYQPYRVV 0.001689 | 15 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*02:03 | 1 | 563 | 572 | 10 | QQFGRDIADT 0.001689 | 13 |
| HLA-A*32:01 | 1 | 16 | 24 | 9 | VNLTRTQL 0.001688 | 8.3 |
| HLA-A*68:02 | 1 | 34 | 42 | 9 | RGVYYPDKV 0.001688 | 13 |
| HLA-A*30:01 | 1 | 98 | 106 | 9 | SNIIRGWIF 0.001688 | 21 |
| HLA-B*44:02 | 1 | 269 | 277 | 9 | YLQPRTFLL 0.001688 | 6.3 |
| HLA-A*30:02 | 1 | 632 | 640 | 9 | TWRVYSTGS 0.001688 | 18 |
| HLA-B*57:01 | 1 | 744 | 753 | 10 | GDSTECSNLL 0.001688 | 15 |
| HLA-A*68:02 | 1 | 625 | 634 | 10 | HADQLTPTWR 0.001687 | 13 |
| HLA-A*68:02 | 1 | 672 | 680 | 9 | ASYQTQTNS 0.001687 | 13 |
| HLA-A*23:01 | 1 | 433 | 441 | 9 | VIAWSNNL 0.001686 | 6.6 |
| HLA-A*02:06 | 1 | 446 | 455 | 10 | GGNYNYLYRL 0.001686 | 16 |
| HLA-B*40:01 | 1 | 514 | 523 | 10 | SFELLHAPAT 0.001686 | 5.9 |
| HLA-B*51:01 | 1 | 29 | 38 | 10 | TNSFTRGVVY 0.001685 | 15 |
| HLA-A*11:01 | 1 | 349 | 358 | 10 | SVYAWNRKRI 0.001685 | 8.0 |
| HLA-A*02:06 | 1 | 784 | 792 | 9 | QVKQIYKTP 0.001685 | 16 |
| HLA-B*58:01 | 1 | 892 | 901 | 10 | AALQIPFAMQ 0.001685 | 11 |
| HLA-A*30:01 | 1 | 721 | 730 | 10 | SVTTEILPVS 0.001684 | 21 |
| HLA-B*53:01 | 1 | 132 | 140 | 9 | EFQFCNDPF 0.001683 | 7.4 |
| HLA-A*68:01 | 1 | 316 | 324 | 9 | SNFRVQPT 0.001683 | 13 |
| HLA-A*30:02 | 1 | 366 | 375 | 10 | SVLYNSASFS 0.001683 | 18 |
| HLA-B*35:01 | 1 | 973 | 981 | 9 | ISSVLNDIL 0.001683 | 8.1 |
| HLA-B*57:01 | 1 | 47 | 56 | 10 | VLHSTQDLFL 0.001682 | 15 |
| HLA-B*58:01 | 1 | 206 | 214 | 9 | KHTPINLVR 0.001682 | 11 |
| HLA-B*51:01 | 1 | 338 | 347 | 10 | FGEVFNATRF 0.001682 | 15 |
| HLA-B*07:02 | 1 | 498 | 506 | 9 | QPTNGVGYQ 0.001681 | 9.2 |
| HLA-B*07:02 | 1 | 907 | 916 | 10 | NGIGVTQNVL 0.001681 | 9.2 |
| HLA-B*44:03 | 1 | 1164 | 1172 | 9 | VDLGDISGI 0.001681 | 6.4 |
| HLA-A*26:01 | 1 | 241 | 249 | 9 | LLALHRSYL 0.00168 | 8.5 |
| HLA-B*15:01 | 1 | 827 | 835 | 9 | TLADAGFIK 0.00168 | 12 |
| HLA-B*57:01 | 1 | 510 | 519 | 10 | VVLSFELLH 0.001679 | 15 |
| HLA-A*32:01 | 1 | 746 | 754 | 9 | STECSNLLL 0.001679 | 8.3 |
| HLA-A*31:01 | 1 | 807 | 815 | 9 | PDPSKPSKR 0.001679 | 13 |
| HLA-A*68:01 | 1 | 976 | 984 | 9 | VLNDILSRL 0.001679 | 13 |
| HLA-A*33:01 | 1 | 137 | 145 | 9 | NDPFLGVYY 0.001678 | 11 |
| HLA-B*57:01 | 1 | 332 | 341 | 10 | ITNLCPFGEV 0.001678 | 15 |
| HLA-A*30:01 | 1 | 443 | 452 | 10 | SKVGGNYNYL 0.001678 | 21 |
| HLA-A*26:01 | 1 | 604 | 613 | 10 | TSNQVAVLYQ 0.001678 | 8.5 |
| HLA-B*44:03 | 1 | 794 | 802 | 9 | IKDFGGFNF 0.001678 | 6.4 |
| HLA-A*02:03 | 1 | 82 | 90 | 9 | PVLPFNDGV 0.001677 | 13 |
| HLA-A*30:02 | 1 | 401 | 409 | 9 | VIRGDEVQR 0.001677 | 18 |
| HLA-A*68:02 | 1 | 1075 | 1083 | 9 | FTTAPAICH 0.001677 | 13 |
| HLA-B*07:02 | 1 | 271 | 280 | 10 | QPRTFLLKYN 0.001676 | 9.2 |
| HLA-B*58:01 | 1 | 41 | 50 | 10 | KVFRSSVLHS 0.001675 | 11 |
| HLA-A*30:01 | 1 | 466 | 474 | 9 | RDISTEIQ 0.001675 | 21 |
| HLA-A*30:02 | 1 | 698 | 706 | 9 | SLGAENVA 0.001675 | 18 |
| HLA-A*30:01 | 1 | 713 | 721 | 9 | AIPTNFTIS 0.001675 | 21 |
| HLA-A*30:02 | 1 | 1061 | 1069 | 9 | VFLHVTVYP 0.001675 | 18 |
| HLA-B*58:01 | 1 | 168 | 176 | 9 | FEYVSQPFL 0.001674 | 11 |
| HLA-A*33:01 | 1 | 194 | 202 | 9 | FKNIDGYFK 0.001674 | 11 |
| HLA-A*31:01 | 1 | 486 | 495 | 10 | FNCYFPLQSY 0.001674 | 13 |
| HLA-A*01:01 | 1 | 771 | 779 | 9 | AVEQDKNTQ 0.001674 | 11 |
| HLA-A*33:01 | 1 | 802 | 811 | 10 | FSQILPDPK 0.001674 | 11 |
| HLA-A*30:02 | 1 | 1179 | 1187 | 9 | IQKEIDRLN 0.001674 | 18 |
| HLA-A*30:02 | 1 | 557 | 566 | 10 | KKFLPFQFG 0.001673 | 18 |
| HLA-B*57:01 | 1 | 911 | 920 | 10 | VTQNVLYENQ 0.001673 | 15 |
| HLA-B*08:01 | 1 | 112 | 120 | 9 | SKTQSLLIV 0.001672 | 16 |
| HLA-A*30:01 | 1 | 1084 | 1092 | 9 | DGKAHFPRE 0.001672 | 21 |
| HLA-A*30:01 | 1 | 1197 | 1205 | 9 | LIDLQELGK 0.001672 | 21 |
| HLA-A*31:01 | 1 | 596 | 604 | 9 | SVITPGTNT 0.001671 | 13 |
| HLA-B*08:01 | 1 | 813 | 822 | 10 | SKRSFIEDLL 0.001671 | 16 |
| HLA-A*23:01 | 1 | 852 | 861 | 10 | AQKFNGLTVL 0.001671 | 6.7 |
| HLA-A*02:06 | 1 | 1225 | 1234 | 10 | IAIVMTIML 0.001671 | 16 |
| HLA-B*08:01 | 1 | 55 | 63 | 9 | FLPFFSNVT 0.00167 | 16 |
| HLA-B*51:01 | 1 | 253 | 261 | 9 | DSSSGWTAG 0.00167 | 15 |
| HLA-B*35:01 | 1 | 560 | 569 | 10 | LPFQQFGRDI 0.00167 | 8.2 |
| HLA-A*23:01 | 1 | 574 | 582 | 9 | DAVRDPQTL 0.00167 | 6.7 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|
| HLA-B*08:01 | 1 | 940 | 948 | 9 | STASALGKL | 0.00167 | 16 |
| HLA-B*53:01 | 1 | 1014 | 1022 | 9 | RAAEIRASA | 0.00167 | 7.4 |
| HLA-A*30:01 | 1 | 1081 | 1089 | 9 | ICHDGKAHF | 0.00167 | 21 |
| HLA-B*58:01 | 1 | 347 | 355 | 9 | FASVYAWN | 0.001669 | 11 |
| HLA-A*68:02 | 1 | 783 | 791 | 9 | AQVKQIYKT | 0.001669 | 13 |
| HLA-A*30:01 | 1 | 805 | 813 | 9 | ILPDPSKPS | 0.001669 | 21 |
| HLA-B*58:01 | 1 | 942 | 950 | 9 | ASALGKLQD | 0.001669 | 11 |
| HLA-B*51:01 | 1 | 1047 | 1056 | 10 | YHLMSFPQSA | 0.001669 | 15 |
| HLA-B*08:01 | 1 | 323 | 332 | 10 | TESIVRFPNI | 0.001668 | 16 |
| HLA-B*07:02 | 1 | 721 | 729 | 9 | SVTTEILPV | 0.001668 | 9.2 |
| HLA-A*02:01 | 1 | 804 | 812 | 9 | QILPDPSKP | 0.001668 | 12 |
| HLA-B*08:01 | 1 | 1068 | 1076 | 9 | VPAQEKFT | 0.001668 | 16 |
| HLA-B*57:01 | 1 | 433 | 441 | 9 | VIAWNSNNL | 0.001667 | 15 |
| HLA-B*53:01 | 1 | 462 | 471 | 10 | KPFERDISTE | 0.001667 | 7.4 |
| HLA-A*30:02 | 1 | 651 | 659 | 9 | IGAHEVNS | 0.001667 | 18 |
| HLA-A*30:02 | 1 | 1112 | 1121 | 10 | PQIITDNTF | 0.001666 | 18 |
| HLA-B*58:01 | 1 | 1139 | 1148 | 10 | DPLQPELDSF | 0.001666 | 11 |
| HLA-A*68:02 | 1 | 255 | 263 | 9 | SSGWTAGAA | 0.001665 | 13 |
| HLA-A*02:03 | 1 | 827 | 836 | 10 | TLADAGFIKQ | 0.001665 | 13 |
| HLA-B*44:03 | 1 | 83 | 92 | 10 | VLFPNDGVYF | 0.001664 | 6.5 |
| HLA-B*57:01 | 1 | 755 | 763 | 9 | QYGSFCTQL | 0.001664 | 15 |
| HLA-A*30:01 | 1 | 1103 | 1111 | 9 | FVTQRNFYE | 0.001664 | 21 |
| HLA-A*02:06 | 1 | 267 | 276 | 10 | VGYLQPRFTL | 0.001663 | 16 |
| HLA-A*02:01 | 1 | 312 | 320 | 9 | IYQTSNFRV | 0.001663 | 12 |
| HLA-A*30:01 | 1 | 458 | 467 | 10 | KSNLKPFERD | 0.001662 | 21 |
| HLA-A*33:01 | 1 | 716 | 724 | 9 | TNFTISVTT | 0.001662 | 11 |
| HLA-B*57:01 | 1 | 754 | 763 | 10 | LQYGSFCTQL | 0.001662 | 15 |
| HLA-A*02:03 | 1 | 1088 | 1096 | 9 | HFPREGVVFV | 0.001662 | 13 |
| HLA-A*26:01 | 1 | 1260 | 1269 | 10 | DSEPVLKGVK | 0.001662 | 8.5 |
| HLA-B*07:02 | 1 | 93 | 101 | 9 | ASTEKSNI | 0.001661 | 9.2 |
| HLA-A*30:01 | 1 | 182 | 191 | 10 | KQGNFKNLRE | 0.001661 | 21 |
| HLA-B*51:01 | 1 | 569 | 577 | 9 | IADTTDAVR | 0.001661 | 15 |
| HLA-B*51:01 | 1 | 96 | 104 | 9 | EKSNIIRGW | 0.00166 | 15 |
| HLA-B*08:01 | 1 | 132 | 141 | 10 | EFQFCNDPFL | 0.00166 | 16 |
| HLA-B*57:01 | 1 | 676 | 685 | 10 | TQTNSPRRAR | 0.00166 | 15 |
| HLA-A*26:01 | 1 | 861 | 869 | 9 | LPPLLTDEM | 0.00166 | 8.5 |
| HLA-B*58:01 | 1 | 955 | 963 | 9 | NAQALNTLV | 0.00166 | 11 |
| HLA-A*03:01 | 1 | 497 | 505 | 9 | FQPTNGVGY | 0.001659 | 9.5 |
| HLA-A*32:01 | 1 | 312 | 320 | 9 | IYQTSNFRV | 0.001658 | 8.3 |
| HLA-A*30:01 | 1 | 486 | 495 | 10 | FNCYFPLQSY | 0.001658 | 21 |
| HLA-A*26:01 | 1 | 111 | 120 | 10 | DSKTQSLIIV | 0.001657 | 8.5 |
| HLA-B*51:01 | 1 | 596 | 604 | 9 | SVITPGTNT | 0.001657 | 15 |
| HLA-A*68:02 | 1 | 645 | 653 | 9 | TRAGCLIGA | 0.001657 | 13 |
| HLA-A*30:02 | 1 | 1262 | 1271 | 10 | EPVLKGVKHL | 0.001657 | 19 |
| HLA-B*35:01 | 1 | 370 | 378 | 9 | NSASFSTFK | 0.001656 | 8.2 |
| HLA-A*30:02 | 1 | 400 | 408 | 9 | FVIRGDEVR | 0.001656 | 19 |
| HLA-A*68:01 | 1 | 488 | 497 | 10 | CYFPLQSYGF | 0.001656 | 13 |
| HLA-B*51:01 | 1 | 611 | 620 | 10 | LYQDVNCTEV | 0.001656 | 15 |
| HLA-A*33:01 | 1 | 999 | 1007 | 9 | GRLQSLQTY | 0.001656 | 11 |
| HLA-A*31:01 | 1 | 1204 | 1212 | 9 | GKYEQYIKW | 0.001656 | 13 |
| HLA-A*26:01 | 1 | 171 | 179 | 9 | VSQPFLMDL | 0.001655 | 8.5 |
| HLA-A*30:02 | 1 | 311 | 320 | 10 | GIYQTSNFRV | 0.001655 | 19 |
| HLA-B*57:01 | 1 | 791 | 800 | 10 | TPPIKDFGGF | 0.001655 | 15 |
| HLA-B*15:01 | 1 | 975 | 983 | 9 | SVLNDILSR | 0.001655 | 12 |
| HLA-A*01:01 | 1 | 35 | 43 | 9 | GVYYPDKVF | 0.001654 | 11 |
| HLA-B*57:01 | 1 | 306 | 315 | 10 | FTVEKGIYQT | 0.001654 | 15 |
| HLA-A*30:01 | 1 | 395 | 404 | 10 | VYADSFVIRG | 0.001654 | 21 |
| HLA-A*24:02 | 1 | 996 | 1004 | 9 | LITGRLQSL | 0.001654 | 6.6 |
| HLA-A*30:02 | 1 | 266 | 274 | 9 | YVGYLQPR | 0.001653 | 19 |
| HLA-A*02:06 | 1 | 501 | 510 | 10 | NGVGYQPYRV | 0.001653 | 16 |
| HLA-B*44:02 | 1 | 514 | 523 | 10 | SFELLHAPAT | 0.001653 | 6.4 |
| HLA-A*30:02 | 1 | 1157 | 1166 | 10 | KNHTSPDVL | 0.001653 | 19 |
| HLA-B*07:02 | 1 | 220 | 229 | 10 | FSALEPLVDL | 0.001652 | 9.2 |
| HLA-A*26:01 | 1 | 454 | 462 | 9 | RLFRKSNLK | 0.001652 | 8.6 |
| HLA-A*02:03 | 1 | 530 | 538 | 9 | STNLVKNKC | 0.001652 | 13 |
| HLA-B*57:01 | 1 | 762 | 770 | 9 | QLNRALTGI | 0.001652 | 15 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*30:01 | 1 | 1169 | 1177 | 9 | ISGINASVV 0.001652 | 21 |
| HLA-A*01:01 | 1 | 816 | 825 | 10 | SFIEDLLFNK 0.001651 | 11 |
| HLA-A*03:01 | 1 | 933 | 942 | 10 | KIQDLSLSTA 0.001651 | 9.6 |
| HLA-A*30:02 | 1 | 1188 | 1196 | 9 | EVAKNLNES 0.001651 | 19 |
| HLA-B*08:01 | 1 | 75 | 83 | 9 | GTKRFDNPV 0.00165 | 16 |
| HLA-B*15:01 | 1 | 596 | 605 | 10 | SVITPGTNTS 0.00165 | 12 |
| HLA-A*03:01 | 1 | 194 | 202 | 9 | FKNIDGYFK 0.001649 | 9.6 |
| HLA-A*30:02 | 1 | 291 | 299 | 9 | CALDPLSET 0.001649 | 19 |
| HLA-B*08:01 | 1 | 512 | 520 | 9 | VLSFELLHA 0.001649 | 16 |
| HLA-A*02:01 | 1 | 1177 | 1186 | 10 | VNIQKEIDRL 0.001649 | 12 |
| HLA-A*02:06 | 1 | 687 | 696 | 10 | VASQSIIAYT 0.001648 | 16 |
| HLA-A*30:02 | 1 | 1048 | 1057 | 10 | HLMSFPQSAP 0.001648 | 19 |
| HLA-B*15:01 | 1 | 57 | 65 | 9 | PFFSNVTWF 0.001647 | 12 |
| HLA-A*03:01 | 1 | 260 | 269 | 10 | AGAAAYYVGY 0.001647 | 9.6 |
| HLA-B*08:01 | 1 | 693 | 701 | 9 | IAYTMSLGA 0.001647 | 16 |
| HLA-B*15:01 | 1 | 1261 | 1270 | 10 | SEPVKGVKL 0.001647 | 12 |
| HLA-A*30:02 | 1 | 765 | 774 | 10 | RALTGIAVEQ 0.001646 | 19 |
| HLA-A*02:01 | 1 | 787 | 795 | 9 | QIYKTPPIK 0.001646 | 12 |
| HLA-A*01:01 | 1 | 137 | 146 | 10 | NDPFLGVYYH 0.001645 | 11 |
| HLA-A*01:01 | 1 | 301 | 310 | 10 | CTLKSFTVEK 0.001645 | 11 |
| HLA-A*26:01 | 1 | 432 | 441 | 10 | CVIAWNSNLL 0.001645 | 8.6 |
| HLA-A*68:01 | 1 | 465 | 473 | 9 | ERDISTEYI 0.001644 | 13 |
| HLA-A*68:02 | 1 | 512 | 521 | 10 | VLSFELLHAP 0.001644 | 13 |
| HLA-A*31:01 | 1 | 780 | 789 | 10 | EVFAQVKQIY 0.001644 | 13 |
| HLA-A*33:01 | 1 | 807 | 815 | 9 | PDPSKPSKR 0.001644 | 11 |
| HLA-A*01:01 | 1 | 847 | 855 | 9 | RDLICAQKF 0.001644 | 11 |
| HLA-A*68:02 | 1 | 870 | 879 | 10 | IAQYTSALLA 0.001644 | 13 |
| HLA-A*30:01 | 1 | 1024 | 1032 | 9 | LAATKMSEC 0.001644 | 21 |
| HLA-B*53:01 | 1 | 92 | 101 | 10 | FASTEKSNI 0.001643 | 7.5 |
| HLA-B*58:01 | 1 | 92 | 101 | 10 | FASTEKSNI 0.001643 | 11 |
| HLA-A*30:01 | 1 | 492 | 500 | 9 | LQSYGFQPT 0.001643 | 21 |
| HLA-B*35:01 | 1 | 1181 | 1189 | 9 | KEIDRLNEV 0.001643 | 8.2 |
| HLA-A*30:01 | 1 | 49 | 57 | 9 | HSTQDLFLP 0.001642 | 21 |
| HLA-B*44:02 | 1 | 1151 | 1159 | 9 | ELDKYFKNH 0.001642 | 6.4 |
| HLA-A*02:06 | 1 | 1226 | 1235 | 10 | AIVMVTIMLC 0.001642 | 16 |
| HLA-A*11:01 | 1 | 568 | 577 | 10 | DIADTTDAVR 0.001641 | 8.1 |
| HLA-B*57:01 | 1 | 1170 | 1179 | 10 | SGINASVNI 0.001641 | 16 |
| HLA-B*57:01 | 1 | 2 | 10 | 9 | FVFLVLLPL 0.00164 | 16 |
| HLA-B*40:01 | 1 | 453 | 461 | 9 | YRLFRKSNL 0.00164 | 6.0 |
| HLA-A*23:01 | 1 | 1010 | 1018 | 9 | QLLIRAAEI 0.00164 | 6.7 |
| HLA-B*08:01 | 1 | 97 | 106 | 10 | KSNIRGWIF 0.001639 | 16 |
| HLA-A*30:02 | 1 | 148 | 157 | 10 | NNKSWMESEF 0.001639 | 19 |
| HLA-B*57:01 | 1 | 1003 | 1012 | 10 | SLQTYVTQQL 0.001638 | 16 |
| HLA-B*07:02 | 1 | 41 | 49 | 9 | KVFRSSVLH 0.001637 | 9.3 |
| HLA-A*02:03 | 1 | 218 | 227 | 10 | QGFSALEPLV 0.001637 | 13 |
| HLA-B*44:03 | 1 | 712 | 720 | 9 | IAIPTNFTI 0.001637 | 6.5 |
| HLA-A*30:01 | 1 | 762 | 771 | 10 | QLNRALTGIA 0.001637 | 21 |
| HLA-B*15:01 | 1 | 912 | 920 | 9 | TQNVLYENQ 0.001637 | 12 |
| HLA-A*02:01 | 1 | 1 | 10 | 10 | MFVFLVLLPL 0.001636 | 12 |
| HLA-A*32:01 | 1 | 3 | 11 | 9 | VFLVLLPLV 0.001636 | 8.4 |
| HLA-A*31:01 | 1 | 108 | 117 | 10 | TTLDSKTQSL 0.001636 | 13 |
| HLA-B*51:01 | 1 | 163 | 171 | 9 | ANNCTFEYV 0.001636 | 15 |
| HLA-A*68:02 | 1 | 233 | 242 | 10 | INITRFQTL 0.001636 | 13 |
| HLA-B*08:01 | 1 | 805 | 814 | 10 | ILPDPSKPSK 0.001636 | 16 |
| HLA-A*26:01 | 1 | 1032 | 1040 | 9 | CVLGQSKRV 0.001636 | 8.6 |
| HLA-A*32:01 | 1 | 201 | 210 | 10 | FKIYSKHTPI 0.001635 | 8.4 |
| HLA-A*01:01 | 1 | 344 | 352 | 9 | ATRFASVYA 0.001635 | 11 |
| HLA-A*02:03 | 1 | 826 | 834 | 9 | VTLADAGFI 0.001635 | 13 |
| HLA-A*33:01 | 1 | 895 | 904 | 10 | QIPFAMQMAY 0.001635 | 11 |
| HLA-B*57:01 | 1 | 644 | 652 | 9 | QTRAGCLIG 0.001634 | 16 |
| HLA-A*01:01 | 1 | 1003 | 1012 | 10 | SLQTYVTQQL 0.001634 | 11 |
| HLA-A*68:01 | 1 | 175 | 183 | 9 | FLMDLEGKQ 0.001633 | 13 |
| HLA-A*68:01 | 1 | 236 | 245 | 10 | TRFQTLALH 0.001633 | 13 |
| HLA-A*26:01 | 1 | 384 | 392 | 9 | PTKLNDFCF 0.001633 | 8.6 |
| HLA-A*02:01 | 1 | 516 | 525 | 10 | ELLHAPATVC 0.001632 | 12 |
| HLA-A*30:02 | 1 | 595 | 604 | 10 | VSVITPGTNT 0.001632 | 19 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|
| HLA-B*15:01 | 1 | 672 | 680 | 9 | ASYQTQTN | 0.001632 | 12 |
| HLA-B*15:01 | 1 | 901 | 909 | 9 | QMAYRFNGI | 0.001632 | 12 |
| HLA-A*02:06 | 1 | 166 | 175 | 10 | CTFEYVSQPF | 0.001631 | 17 |
| HLA-A*02:06 | 1 | 358 | 367 | 10 | ISNCVADYSV | 0.001631 | 17 |
| HLA-A*68:02 | 1 | 516 | 525 | 10 | ELLHAPATVC | 0.001631 | 13 |
| HLA-B*51:01 | 1 | 774 | 782 | 9 | QDKNTQEVF | 0.001631 | 15 |
| HLA-A*32:01 | 1 | 243 | 251 | 9 | ALHRSYLTP | 0.00163 | 8.4 |
| HLA-A*31:01 | 1 | 341 | 349 | 9 | VFNATRFAS | 0.00163 | 13 |
| HLA-A*30:02 | 1 | 163 | 171 | 9 | ANNCTFEYV | 0.001629 | 19 |
| HLA-A*02:06 | 1 | 333 | 341 | 9 | TNLCPFGEV | 0.001629 | 17 |
| HLA-B*08:01 | 1 | 718 | 727 | 10 | FTISVTTEIL | 0.001629 | 16 |
| HLA-B*07:02 | 1 | 774 | 782 | 9 | QDKNTQEVF | 0.001629 | 9.3 |
| HLA-A*32:01 | 1 | 45 | 54 | 10 | SSVLHSTQDL | 0.001628 | 8.4 |
| HLA-A*26:01 | 1 | 526 | 534 | 9 | GPKKSTNLV | 0.001628 | 8.6 |
| HLA-B*51:01 | 1 | 526 | 535 | 10 | GPKKSTNLVK | 0.001628 | 15 |
| HLA-A*31:01 | 1 | 46 | 55 | 10 | SVLHSTQDLF | 0.001627 | 13 |
| HLA-A*23:01 | 1 | 101 | 110 | 10 | IRGWIFGTTL | 0.001627 | 6.8 |
| HLA-B*40:01 | 1 | 212 | 220 | 9 | LVRDLPQGF | 0.001627 | 6.0 |
| HLA-A*33:01 | 1 | 603 | 611 | 9 | NTSNQVAVL | 0.001627 | 11 |
| HLA-B*57:01 | 1 | 622 | 630 | 9 | VAIHADQLT | 0.001627 | 16 |
| HLA-B*44:03 | 1 | 809 | 817 | 9 | PSKPSKRSF | 0.001627 | 6.6 |
| HLA-A*02:06 | 1 | 797 | 806 | 10 | FGGFNFSQIL | 0.001626 | 17 |
| HLA-A*68:01 | 1 | 907 | 915 | 9 | NGIGVTQNV | 0.001626 | 13 |
| HLA-A*02:03 | 1 | 975 | 983 | 9 | SVLNDILSR | 0.001626 | 13 |
| HLA-A*24:02 | 1 | 250 | 258 | 9 | TPGDSSSGW | 0.001625 | 6.7 |
| HLA-A*02:03 | 1 | 713 | 721 | 9 | AIPTNFTIS | 0.001625 | 13 |
| HLA-A*68:01 | 1 | 919 | 927 | 9 | NQKLIANQF | 0.001625 | 13 |
| HLA-A*68:02 | 1 | 49 | 57 | 9 | HSTQDLFLP | 0.001624 | 13 |
| HLA-A*32:01 | 1 | 123 | 131 | 9 | ATNVVIKVC | 0.001624 | 8.4 |
| HLA-A*02:01 | 1 | 333 | 342 | 10 | TNLCPFGEVF | 0.001624 | 12 |
| HLA-A*01:01 | 1 | 846 | 854 | 9 | ARDLICAQK | 0.001624 | 11 |
| HLA-B*15:01 | 1 | 1012 | 1020 | 9 | LIRAAEIRA | 0.001624 | 12 |
| HLA-A*30:02 | 1 | 1115 | 1123 | 9 | ITTDNTFVS | 0.001624 | 19 |
| HLA-B*57:01 | 1 | 601 | 609 | 9 | GTNTSNQVA | 0.001623 | 16 |
| HLA-B*08:01 | 1 | 660 | 668 | 9 | YECDIPIGA | 0.001623 | 16 |
| HLA-A*02:01 | 1 | 844 | 852 | 9 | IAARDLICA | 0.001623 | 12 |
| HLA-A*11:01 | 1 | 29 | 37 | 9 | TNSFTRGVY | 0.001622 | 8.1 |
| HLA-A*02:01 | 1 | 319 | 328 | 10 | RVQPTESIVR | 0.001622 | 12 |
| HLA-B*15:01 | 1 | 538 | 546 | 9 | CVNFNFNGL | 0.001622 | 12 |
| HLA-B*15:01 | 1 | 349 | 357 | 9 | SVYAWNRKR | 0.001621 | 12 |
| HLA-A*30:02 | 1 | 805 | 813 | 9 | ILPDPSKPS | 0.001621 | 19 |
| HLA-A*30:02 | 1 | 1195 | 1203 | 9 | ESLIDLQEL | 0.001621 | 19 |
| HLA-A*03:01 | 1 | 46 | 55 | 10 | SVLHSTQDLF | 0.00162 | 9.6 |
| HLA-A*68:01 | 1 | 136 | 145 | 10 | CNDPFLGVY | 0.00162 | 13 |
| HLA-A*30:02 | 1 | 199 | 208 | 10 | GYFKIYSKHT | 0.00162 | 19 |
| HLA-A*30:02 | 1 | 626 | 634 | 9 | ADQLTPTWR | 0.00162 | 19 |
| HLA-A*30:02 | 1 | 938 | 947 | 10 | LSSTASALGK | 0.00162 | 19 |
| HLA-A*26:01 | 1 | 965 | 973 | 9 | QLSSNFGAI | 0.00162 | 8.6 |
| HLA-B*08:01 | 1 | 123 | 131 | 9 | ATNVVIKVC | 0.001619 | 16 |
| HLA-B*53:01 | 1 | 136 | 144 | 9 | CNDPFLGVY | 0.001619 | 7.5 |
| HLA-B*51:01 | 1 | 149 | 157 | 9 | NKSWMESEF | 0.001619 | 15 |
| HLA-B*58:01 | 1 | 349 | 357 | 9 | SVYAWNRKR | 0.001619 | 11 |
| HLA-B*35:01 | 1 | 471 | 479 | 9 | EIYQAGSTP | 0.001619 | 8.3 |
| HLA-B*57:01 | 1 | 94 | 102 | 9 | STESNIIR | 0.001617 | 16 |
| HLA-A*68:01 | 1 | 716 | 724 | 9 | TNFTISVTT | 0.001617 | 13 |
| HLA-A*68:02 | 1 | 967 | 975 | 9 | SSNFGAISS | 0.001617 | 13 |
| HLA-B*57:01 | 1 | 1014 | 1023 | 10 | RAAEIRASAN | 0.001617 | 16 |
| HLA-A*24:02 | 1 | 482 | 490 | 9 | GVEGFNCYF | 0.001616 | 6.7 |
| HLA-A*02:03 | 1 | 595 | 604 | 10 | VSVITPGTNT | 0.001616 | 13 |
| HLA-A*02:03 | 1 | 89 | 97 | 9 | GVYFASTEK | 0.001615 | 13 |
| HLA-B*44:03 | 1 | 149 | 157 | 9 | NKSWMESEF | 0.001615 | 6.6 |
| HLA-A*68:02 | 1 | 267 | 276 | 10 | VGYLQPRFTL | 0.001615 | 13 |
| HLA-B*40:01 | 1 | 1052 | 1060 | 9 | FPQSAPHGV | 0.001615 | 6.1 |
| HLA-A*30:01 | 1 | 25 | 34 | 10 | PPAYTNSFTR | 0.001614 | 22 |
| HLA-B*44:02 | 1 | 29 | 38 | 10 | TNSFTRGVY | 0.001614 | 6.4 |
| HLA-A*30:01 | 1 | 125 | 133 | 9 | NVVIKVC | 0.001614 | 22 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*30:01 | 1 | 126 | 134 | 9 | VVIKVFCEFQ 0.001614 | 22 |
| HLA-B*51:01 | 1 | 2 | 11 | 10 | FVFLVLLPLV 0.001613 | 15 |
| HLA-A*02:06 | 1 | 311 | 319 | 9 | GIYQTSNFR 0.001613 | 17 |
| HLA-A*33:01 | 1 | 465 | 473 | 9 | ERDISTEY 0.001613 | 11 |
| HLA-B*40:01 | 1 | 660 | 669 | 10 | YECDIPIGAG 0.001613 | 6.1 |
| HLA-B*51:01 | 1 | 660 | 668 | 9 | YECDIPIGA 0.001613 | 15 |
| HLA-B*07:02 | 1 | 953 | 962 | 10 | NQNAQALNTL 0.001613 | 9.4 |
| HLA-A*26:01 | 1 | 137 | 146 | 10 | NDPFLGVYYH 0.001612 | 8.7 |
| HLA-B*44:03 | 1 | 1080 | 1089 | 10 | AICHDGKAHF 0.001612 | 6.6 |
| HLA-A*02:01 | 1 | 256 | 264 | 9 | SGWTAGAAA 0.001611 | 12 |
| HLA-A*30:01 | 1 | 640 | 648 | 9 | SNVFTQTRAG 0.001611 | 22 |
| HLA-A*11:01 | 1 | 910 | 918 | 9 | GVTQNVLYE 0.001611 | 8.1 |
| HLA-B*07:02 | 1 | 240 | 248 | 9 | TLLALHRSY 0.00161 | 9.4 |
| HLA-A*01:01 | 1 | 387 | 395 | 9 | LNDLCFTNV 0.00161 | 11 |
| HLA-A*30:01 | 1 | 146 | 154 | 9 | HKNNKSWME 0.001609 | 22 |
| HLA-A*02:03 | 1 | 261 | 270 | 10 | GAAAYVGYL 0.001609 | 13 |
| HLA-A*30:02 | 1 | 1088 | 1096 | 9 | HFPREGVVF 0.001609 | 19 |
| HLA-A*31:01 | 1 | 298 | 306 | 9 | ETKCTLKSF 0.001608 | 13 |
| HLA-A*02:06 | 1 | 496 | 505 | 10 | GFQPTNGVGY 0.001608 | 17 |
| HLA-A*31:01 | 1 | 23 | 32 | 10 | QLPPAYTNSF 0.001607 | 13 |
| HLA-A*01:01 | 1 | 403 | 411 | 9 | RGDEVQRQA 0.001607 | 11 |
| HLA-B*07:02 | 1 | 487 | 495 | 9 | NCYFPLQSY 0.001607 | 9.4 |
| HLA-A*24:02 | 1 | 832 | 841 | 10 | GFIKQYGDCL 0.001607 | 6.7 |
| HLA-A*02:01 | 1 | 925 | 933 | 9 | NQFNSAIGK 0.001607 | 12 |
| HLA-A*31:01 | 1 | 49 | 58 | 10 | HSTQDLFLPF 0.001606 | 13 |
| HLA-A*33:01 | 1 | 98 | 106 | 9 | SNIIRGWIF 0.001606 | 11 |
| HLA-A*68:01 | 1 | 262 | 270 | 9 | AAAYVGYL 0.001606 | 13 |
| HLA-B*57:01 | 1 | 208 | 216 | 9 | TPINLVRDL 0.001605 | 16 |
| HLA-A*32:01 | 1 | 379 | 387 | 9 | CYGVSPTKL 0.001605 | 8.5 |
| HLA-A*02:06 | 1 | 614 | 622 | 9 | DVNCTEVPV 0.001605 | 17 |
| HLA-B*51:01 | 1 | 841 | 850 | 10 | LGDIARDLI 0.001605 | 15 |
| HLA-A*30:02 | 1 | 859 | 867 | 9 | TVLPPLD 0.001605 | 19 |
| HLA-A*68:02 | 1 | 933 | 942 | 10 | KIQDSLSTTA 0.001605 | 13 |
| HLA-B*57:01 | 1 | 938 | 947 | 10 | LSSTASALGK 0.001605 | 16 |
| HLA-A*33:01 | 1 | 978 | 986 | 9 | NDILSRDLK 0.001605 | 11 |
| HLA-A*26:01 | 1 | 138 | 147 | 10 | DPFLGVYYHK 0.001604 | 8.7 |
| HLA-B*08:01 | 1 | 610 | 618 | 9 | VLYQDVNCT 0.001604 | 16 |
| HLA-A*30:01 | 1 | 828 | 837 | 10 | LADAGFIKQY 0.001604 | 22 |
| HLA-A*30:02 | 1 | 873 | 881 | 9 | YTSALLAGT 0.001604 | 19 |
| HLA-A*68:02 | 1 | 896 | 904 | 9 | IPFAMQMAY 0.001604 | 13 |
| HLA-A*30:02 | 1 | 1064 | 1072 | 9 | HVTYVPAQE 0.001604 | 19 |
| HLA-A*01:01 | 1 | 1150 | 1159 | 10 | EELDKYFKNH 0.001604 | 11 |
| HLA-B*35:01 | 1 | 155 | 163 | 9 | SEFRVYSSA 0.001603 | 8.3 |
| HLA-A*31:01 | 1 | 196 | 204 | 9 | NIDGYFKIY 0.001602 | 14 |
| HLA-A*01:01 | 1 | 584 | 593 | 10 | ILDITPCSF 0.001602 | 11 |
| HLA-B*51:01 | 1 | 1058 | 1067 | 10 | HGVVFLHVTY 0.001602 | 15 |
| HLA-B*15:01 | 1 | 366 | 375 | 10 | SVLYNSASFS 0.001601 | 12 |
| HLA-A*02:06 | 1 | 458 | 466 | 9 | KSNLKPFR 0.001601 | 17 |
| HLA-A*30:01 | 1 | 1211 | 1220 | 10 | KWPWYIWLGF 0.001601 | 22 |
| HLA-A*02:03 | 1 | 77 | 86 | 10 | KRFDNPVLPF 0.0016 | 13 |
| HLA-A*30:02 | 1 | 471 | 479 | 9 | EIYQAGSTP 0.0016 | 19 |
| HLA-A*33:01 | 1 | 1054 | 1062 | 9 | QSAPHGVVF 0.0016 | 11 |
| HLA-B*08:01 | 1 | 1204 | 1212 | 9 | GKYEYIKW 0.0016 | 16 |
| HLA-B*51:01 | 1 | 37 | 45 | 9 | YYPDKVFRS 0.001599 | 15 |
| HLA-B*57:01 | 1 | 145 | 153 | 9 | YHKNNKSWM 0.001599 | 16 |
| HLA-A*31:01 | 1 | 603 | 612 | 10 | NTSNQVAVLY 0.001599 | 14 |
| HLA-A*31:01 | 1 | 617 | 625 | 9 | CTEVPVAIH 0.001599 | 14 |
| HLA-B*08:01 | 1 | 1023 | 1032 | 10 | NLAATKMSEC 0.001599 | 16 |
| HLA-B*35:01 | 1 | 861 | 870 | 10 | LPPLDDEMI 0.001598 | 8.3 |
| HLA-A*30:02 | 1 | 100 | 108 | 9 | IIRGWIFGT 0.001597 | 19 |
| HLA-B*40:01 | 1 | 652 | 660 | 9 | GAEHVNSY 0.001597 | 6.1 |
| HLA-A*11:01 | 1 | 1010 | 1019 | 10 | QLLIRAAEIR 0.001597 | 8.2 |
| HLA-B*44:02 | 1 | 258 | 266 | 9 | WTAGAAAY 0.001596 | 6.5 |
| HLA-B*07:02 | 1 | 1012 | 1020 | 9 | LIRAAEIRA 0.001596 | 9.4 |
| HLA-B*57:01 | 1 | 94 | 103 | 10 | STEKSNIIRG 0.001595 | 16 |
| HLA-A*23:01 | 1 | 464 | 472 | 9 | FERDISTEI 0.001595 | 6.8 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*15:01 | 1 | 944 | 952 | 9 | ALGKQLQDVV 0.001595 | 12 |
| HLA-A*02:01 | 1 | 50 | 59 | 10 | STQDLFLPFF 0.001594 | 12 |
| HLA-B*08:01 | 1 | 775 | 783 | 9 | DKNTQEVFA 0.001594 | 16 |
| HLA-A*68:02 | 1 | 1005 | 1014 | 10 | QTYVTQQLIR 0.001594 | 13 |
| HLA-A*68:02 | 1 | 1257 | 1265 | 9 | DEDDSEPVL 0.001594 | 13 |
| HLA-A*33:01 | 1 | 132 | 141 | 10 | EFQFCNDPFL 0.001593 | 11 |
| HLA-A*02:01 | 1 | 1024 | 1032 | 9 | LAATKMSEC 0.001593 | 12 |
| HLA-B*40:01 | 1 | 1044 | 1052 | 9 | GKGYHLMSF 0.001593 | 6.1 |
| HLA-A*02:06 | 1 | 1075 | 1083 | 9 | FTTAPAICH 0.001593 | 17 |
| HLA-A*01:01 | 1 | 47 | 56 | 10 | VLHSTQDLFL 0.001592 | 12 |
| HLA-A*23:01 | 1 | 62 | 70 | 9 | VTWFHAIHV 0.001592 | 6.8 |
| HLA-A*68:01 | 1 | 389 | 397 | 9 | DLCFTNVYA 0.001592 | 13 |
| HLA-A*32:01 | 1 | 478 | 486 | 9 | TPCNGVEGF 0.001592 | 8.5 |
| HLA-B*07:02 | 1 | 616 | 624 | 9 | NCTEVPVAI 0.001592 | 9.4 |
| HLA-A*30:01 | 1 | 1072 | 1080 | 9 | EKNFTTAPA 0.001592 | 22 |
| HLA-A*01:01 | 1 | 1160 | 1169 | 10 | TSPDVDLGD I 0.001592 | 12 |
| HLA-B*51:01 | 1 | 1180 | 1189 | 10 | QKEIDRLNEV 0.001591 | 15 |
| HLA-B*51:01 | 1 | 1264 | 1272 | 9 | VLKGVKLHY 0.001591 | 15 |
| HLA-A*02:03 | 1 | 543 | 551 | 9 | FNGLTGTGV 0.00159 | 13 |
| HLA-B*40:01 | 1 | 602 | 610 | 9 | TNTSNQVAV 0.00159 | 6.1 |
| HLA-A*30:01 | 1 | 981 | 990 | 10 | LSRLDKVEAE 0.00159 | 22 |
| HLA-A*33:01 | 1 | 267 | 276 | 10 | VGYLQPRTF L 0.001589 | 11 |
| HLA-A*03:01 | 1 | 869 | 877 | 9 | MIAQYTSAL 0.001589 | 9.7 |
| HLA-A*68:01 | 1 | 1095 | 1104 | 10 | FVSNNGTHWFV 0.001589 | 13 |
| HLA-A*30:02 | 1 | 247 | 256 | 10 | SYLTPGDSSS 0.001588 | 19 |
| HLA-B*35:01 | 1 | 387 | 396 | 10 | LNDLCFTNVY 0.001588 | 8.3 |
| HLA-A*33:01 | 1 | 1005 | 1013 | 9 | QTYVTQQLI 0.001588 | 11 |
| HLA-A*32:01 | 1 | 1055 | 1064 | 10 | SAPHGVVFLH 0.001587 | 8.5 |
| HLA-A*01:01 | 1 | 1188 | 1197 | 10 | EVAKNLNESL 0.001587 | 12 |
| HLA-A*31:01 | 1 | 35 | 43 | 9 | GVYYPDKVF 0.001586 | 14 |
| HLA-A*32:01 | 1 | 496 | 505 | 10 | GFQPTNGVGY 0.001586 | 8.5 |
| HLA-A*68:02 | 1 | 857 | 866 | 10 | GLTVLPLLLT 0.001586 | 13 |
| HLA-B*07:02 | 1 | 409 | 418 | 10 | QIAPGQTGKI 0.001585 | 9.4 |
| HLA-A*02:03 | 1 | 601 | 609 | 9 | GTNTSNQVA 0.001585 | 13 |
| HLA-A*01:01 | 1 | 1168 | 1176 | 9 | DISGINASV 0.001585 | 12 |
| HLA-B*51:01 | 1 | 720 | 729 | 10 | ISVTTEILPV 0.001584 | 15 |
| HLA-B*15:01 | 1 | 1196 | 1204 | 9 | SLIDLQELG 0.001584 | 12 |
| HLA-A*02:06 | 1 | 327 | 336 | 10 | VRFPNITNLC 0.001583 | 17 |
| HLA-B*40:01 | 1 | 1194 | 1202 | 9 | NESLIDLQE 0.001583 | 6.1 |
| HLA-A*68:01 | 1 | 1262 | 1270 | 9 | EPVLKGVKL 0.001583 | 13 |
| HLA-A*23:01 | 1 | 96 | 104 | 9 | EKSNIIRGW 0.001582 | 6.8 |
| HLA-B*08:01 | 1 | 1108 | 1117 | 10 | NFYEPQIITT 0.001582 | 16 |
| HLA-A*30:02 | 1 | 1196 | 1204 | 9 | SLIDLQELG 0.001582 | 19 |
| HLA-A*30:01 | 1 | 1202 | 1211 | 10 | ELGKYEQYIK 0.001582 | 22 |
| HLA-A*24:02 | 1 | 659 | 668 | 10 | SYECDIPIGA 0.001581 | 6.7 |
| HLA-A*11:01 | 1 | 777 | 785 | 9 | NTQEVFAQV 0.001581 | 8.2 |
| HLA-A*02:03 | 1 | 302 | 311 | 10 | TLKSFTVEKG 0.00158 | 13 |
| HLA-A*33:01 | 1 | 583 | 591 | 9 | EILDITPCS 0.00158 | 11 |
| HLA-A*68:01 | 1 | 967 | 976 | 10 | SSNFGAISSV 0.00158 | 13 |
| HLA-A*33:01 | 1 | 100 | 108 | 9 | IIRGWIFGT 0.001579 | 11 |
| HLA-B*57:01 | 1 | 511 | 520 | 10 | VVLSFELLHA 0.001579 | 16 |
| HLA-B*40:01 | 1 | 634 | 642 | 9 | RVYSTGSNV 0.001579 | 6.1 |
| HLA-B*57:01 | 1 | 1124 | 1132 | 9 | GNCVVIGI 0.001579 | 16 |
| HLA-A*30:01 | 1 | 1132 | 1140 | 9 | IVNNTVYDP 0.001579 | 22 |
| HLA-A*30:02 | 1 | 120 | 129 | 10 | VNNATNVVIK 0.001578 | 19 |
| HLA-B*51:01 | 1 | 136 | 144 | 9 | CNDPFLGVY 0.001578 | 15 |
| HLA-A*02:03 | 1 | 574 | 582 | 9 | DAVRDPQTL 0.001578 | 13 |
| HLA-A*02:01 | 1 | 853 | 861 | 9 | QKFNGLTVL 0.001578 | 12 |
| HLA-A*26:01 | 1 | 13 | 21 | 9 | SQCVNLTR 0.001577 | 8.7 |
| HLA-A*23:01 | 1 | 149 | 157 | 9 | NKSWMESEF 0.001577 | 6.8 |
| HLA-B*07:02 | 1 | 214 | 222 | 9 | RDLPQGFSA 0.001576 | 9.5 |
| HLA-A*30:02 | 1 | 401 | 410 | 10 | VIRGDEV RQI 0.001576 | 19 |
| HLA-A*02:01 | 1 | 410 | 418 | 9 | IAPGQTGKI 0.001576 | 12 |
| HLA-A*26:01 | 1 | 674 | 682 | 9 | YQTQNSPR 0.001576 | 8.7 |
| HLA-B*44:03 | 1 | 505 | 513 | 9 | YQPYRVVVL 0.001575 | 6.6 |
| HLA-B*40:01 | 1 | 917 | 926 | 10 | YENQKLIANQ 0.001575 | 6.1 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*51:01 | 1 | 998 | 1007 | 10 | TGRLQSLQTY 0.001575 | 15 |
| HLA-B*15:01 | 1 | 58 | 66 | 9 | FFSNVTWFH 0.001574 | 12 |
| HLA-A*30:02 | 1 | 375 | 384 | 10 | STFKCYGVSP 0.001574 | 19 |
| HLA-A*02:06 | 1 | 1106 | 1114 | 9 | QRNFYEPQI 0.001574 | 17 |
| HLA-A*01:01 | 1 | 94 | 103 | 10 | STEKSNIIRG 0.001573 | 12 |
| HLA-B*08:01 | 1 | 120 | 128 | 9 | VNNATNVVI 0.001573 | 16 |
| HLA-B*15:01 | 1 | 182 | 190 | 9 | KQGNFKNLR 0.001573 | 12 |
| HLA-A*33:01 | 1 | 969 | 977 | 9 | NFGAISSVL 0.001573 | 11 |
| HLA-B*44:02 | 1 | 169 | 177 | 9 | EYVSQPFLM 0.001572 | 6.5 |
| HLA-A*26:01 | 1 | 198 | 207 | 10 | DGYFKIYSKH 0.001571 | 8.8 |
| HLA-B*15:01 | 1 | 276 | 285 | 10 | LLKYNENGTI 0.001571 | 12 |
| HLA-A*03:01 | 1 | 400 | 408 | 9 | FVIRGDEVR 0.001571 | 9.7 |
| HLA-B*58:01 | 1 | 745 | 754 | 10 | DSTECSNLLL 0.001571 | 11 |
| HLA-A*30:01 | 1 | 809 | 818 | 10 | PSKPSKRFSFI 0.001571 | 22 |
| HLA-A*02:06 | 1 | 814 | 823 | 10 | KRSFIEDLLF 0.001571 | 17 |
| HLA-A*33:01 | 1 | 211 | 220 | 10 | NLVRDLPQGF 0.00157 | 11 |
| HLA-B*53:01 | 1 | 226 | 235 | 10 | LVDLPIGINI 0.00157 | 7.6 |
| HLA-A*11:01 | 1 | 575 | 584 | 10 | AVRDPQTLEI 0.00157 | 8.2 |
| HLA-B*51:01 | 1 | 641 | 650 | 10 | NVFQTRAGCL 0.00157 | 15 |
| HLA-B*44:03 | 1 | 676 | 684 | 9 | TQTNSPRRA 0.00157 | 6.7 |
| HLA-B*57:01 | 1 | 955 | 963 | 9 | NAQALNTLV 0.00157 | 16 |
| HLA-B*51:01 | 1 | 7 | 15 | 9 | LLPLVSSQC 0.001569 | 15 |
| HLA-A*30:02 | 1 | 523 | 531 | 9 | TVCGPKKST 0.001569 | 19 |
| HLA-A*01:01 | 1 | 557 | 565 | 9 | KKFLPFQQF 0.001569 | 12 |
| HLA-A*68:02 | 1 | 565 | 573 | 9 | FGRDIADTT 0.001569 | 13 |
| HLA-A*02:06 | 1 | 1120 | 1129 | 10 | TFVSGNCDVV 0.001569 | 17 |
| HLA-A*30:02 | 1 | 226 | 235 | 10 | LVDLPIGINI 0.001568 | 19 |
| HLA-A*03:01 | 1 | 768 | 776 | 9 | TGIAVEQDK 0.001568 | 9.8 |
| HLA-A*68:01 | 1 | 55 | 64 | 10 | FLPFFSNVTW 0.001567 | 13 |
| HLA-B*57:01 | 1 | 109 | 118 | 10 | TLDSKTQSLL 0.001567 | 16 |
| HLA-A*23:01 | 1 | 203 | 211 | 9 | IYSKHTPIN 0.001567 | 6.9 |
| HLA-B*58:01 | 1 | 695 | 703 | 9 | YTMSLGAEN 0.001567 | 11 |
| HLA-A*68:02 | 1 | 805 | 813 | 9 | ILPDPSKPS 0.001567 | 13 |
| HLA-A*01:01 | 1 | 960 | 968 | 9 | NTLVKQLSS 0.001567 | 12 |
| HLA-B*35:01 | 1 | 234 | 242 | 9 | NITRFQTL 0.001566 | 8.4 |
| HLA-A*30:01 | 1 | 516 | 524 | 9 | ELLHAPATV 0.001566 | 22 |
| HLA-A*24:02 | 1 | 777 | 785 | 9 | NTQEVFAVQ 0.001566 | 6.7 |
| HLA-A*02:01 | 1 | 937 | 946 | 10 | SLSSTASALG 0.001566 | 12 |
| HLA-A*26:01 | 1 | 57 | 65 | 9 | PFFSNVTWF 0.001565 | 8.8 |
| HLA-A*31:01 | 1 | 443 | 451 | 9 | SKVGGNYNY 0.001565 | 14 |
| HLA-B*57:01 | 1 | 465 | 473 | 9 | ERDISTEYI 0.001565 | 16 |
| HLA-A*33:01 | 1 | 506 | 514 | 9 | QPYRVVVL 0.001565 | 11 |
| HLA-A*68:02 | 1 | 514 | 522 | 9 | SFELLHAPA 0.001564 | 13 |
| HLA-A*02:06 | 1 | 613 | 622 | 10 | QDVNCTEVPV 0.001564 | 17 |
| HLA-A*01:01 | 1 | 661 | 670 | 10 | ECDIPIGAGI 0.001564 | 12 |
| HLA-B*44:03 | 1 | 77 | 85 | 9 | KRFDNPVLP 0.001563 | 6.7 |
| HLA-A*02:03 | 1 | 111 | 119 | 9 | DSKTQSLLI 0.001563 | 13 |
| HLA-A*02:06 | 1 | 175 | 184 | 10 | FLMDLEGKQG 0.001563 | 17 |
| HLA-A*30:02 | 1 | 185 | 193 | 9 | NFKNLREFV 0.001563 | 19 |
| HLA-A*02:01 | 1 | 218 | 227 | 10 | QGFSALEPLV 0.001563 | 12 |
| HLA-B*44:03 | 1 | 258 | 266 | 9 | WTAGAAAYY 0.001563 | 6.7 |
| HLA-A*31:01 | 1 | 503 | 511 | 9 | VGYPYRVV 0.001563 | 14 |
| HLA-B*51:01 | 1 | 654 | 662 | 9 | EHVNSYEC 0.001563 | 15 |
| HLA-A*24:02 | 1 | 1189 | 1197 | 9 | VAKNLNESL 0.001563 | 6.7 |
| HLA-A*68:01 | 1 | 295 | 304 | 10 | PLSETKCTLK 0.001562 | 13 |
| HLA-A*33:01 | 1 | 305 | 314 | 10 | SFTVEKGIYQ 0.001562 | 11 |
| HLA-A*24:02 | 1 | 312 | 321 | 10 | IYQTSNFRVQ 0.001562 | 6.7 |
| HLA-A*01:01 | 1 | 602 | 610 | 9 | TNTSNQVAV 0.001562 | 12 |
| HLA-B*51:01 | 1 | 1034 | 1042 | 9 | LGQSKRVDF 0.001562 | 15 |
| HLA-B*15:01 | 1 | 1099 | 1107 | 9 | GTHWFVTQR 0.001562 | 12 |
| HLA-A*01:01 | 1 | 552 | 561 | 10 | LTESNKKFLP 0.001561 | 12 |
| HLA-B*07:02 | 1 | 845 | 853 | 9 | AARDLICAQ 0.001561 | 9.5 |
| HLA-A*30:02 | 1 | 58 | 67 | 10 | FFSNVTWFHA 0.00156 | 19 |
| HLA-B*51:01 | 1 | 857 | 865 | 9 | GLTVLPLLL 0.00156 | 15 |
| HLA-A*23:01 | 1 | 905 | 913 | 9 | RFNGIGVTQ 0.00156 | 6.9 |
| HLA-B*51:01 | 1 | 1182 | 1190 | 9 | EIDRLNEVA 0.00156 | 15 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|
| HLA-A*33:01 | 1 | 341 | 349 | 9 | VFNATRFAS | 0.001559 | 11 |
| HLA-B*51:01 | 1 | 497 | 505 | 9 | FQPTNGVGY | 0.001559 | 15 |
| HLA-B*08:01 | 1 | 1071 | 1079 | 9 | QEKNFATTAP | 0.001559 | 16 |
| HLA-A*30:01 | 1 | 107 | 116 | 10 | GTTLDSKTQS | 0.001557 | 22 |
| HLA-A*30:01 | 1 | 185 | 194 | 10 | NFKNLREFVF | 0.001557 | 22 |
| HLA-A*02:01 | 1 | 402 | 410 | 9 | IRGDEVRFQI | 0.001557 | 12 |
| HLA-A*02:06 | 1 | 621 | 629 | 9 | PVAIHADQL | 0.001557 | 17 |
| HLA-A*03:01 | 1 | 964 | 972 | 9 | KQLSSNFGA | 0.001557 | 9.8 |
| HLA-B*57:01 | 1 | 1226 | 1234 | 9 | AIVMVTIML | 0.001557 | 16 |
| HLA-A*68:01 | 1 | 343 | 352 | 10 | NATRFASVYA | 0.001556 | 13 |
| HLA-A*30:01 | 1 | 605 | 613 | 9 | SNQVAVLYQ | 0.001556 | 22 |
| HLA-A*33:01 | 1 | 723 | 731 | 9 | TTEILPVSM | 0.001556 | 11 |
| HLA-A*32:01 | 1 | 6 | 15 | 10 | VLLPLVSSQC | 0.001555 | 8.6 |
| HLA-B*57:01 | 1 | 206 | 214 | 9 | KHTPINLVR | 0.001555 | 16 |
| HLA-A*30:01 | 1 | 307 | 315 | 9 | TVEKGIYQT | 0.001555 | 22 |
| HLA-B*51:01 | 1 | 513 | 522 | 10 | LSFELLHAPA | 0.001555 | 15 |
| HLA-A*03:01 | 1 | 1078 | 1086 | 9 | APAICHGDK | 0.001555 | 9.8 |
| HLA-B*58:01 | 1 | 54 | 62 | 9 | LFLPFFSNV | 0.001554 | 11 |
| HLA-A*30:02 | 1 | 530 | 539 | 10 | STNLVKNKCV | 0.001554 | 19 |
| HLA-B*57:01 | 1 | 1160 | 1169 | 10 | TSPVDLGDGI | 0.001554 | 16 |
| HLA-B*58:01 | 1 | 270 | 278 | 9 | LQPRTFLLK | 0.001553 | 11 |
| HLA-A*31:01 | 1 | 98 | 106 | 9 | SNIRGWIF | 0.001552 | 14 |
| HLA-B*53:01 | 1 | 144 | 153 | 10 | YYHKNNKSWM | 0.001552 | 7.7 |
| HLA-A*02:03 | 1 | 669 | 678 | 10 | GICASYQTQT | 0.001552 | 13 |
| HLA-A*23:01 | 1 | 808 | 817 | 10 | DPSKPSKRSF | 0.001552 | 6.9 |
| HLA-B*57:01 | 1 | 168 | 176 | 9 | FEYVSPFL | 0.001551 | 16 |
| HLA-B*44:02 | 1 | 483 | 492 | 10 | VEGFNCYFPL | 0.001551 | 6.5 |
| HLA-A*32:01 | 1 | 876 | 884 | 9 | ALLAGTITS | 0.001551 | 8.6 |
| HLA-B*07:02 | 1 | 888 | 896 | 9 | FGAGAALQI | 0.001551 | 9.6 |
| HLA-B*07:02 | 1 | 1137 | 1146 | 10 | VYDPLQPELD | 0.001551 | 9.6 |
| HLA-A*02:01 | 1 | 241 | 250 | 10 | LLALHRSYLT | 0.00155 | 12 |
| HLA-A*68:02 | 1 | 559 | 567 | 9 | FLPFQQFGR | 0.00155 | 13 |
| HLA-A*02:01 | 1 | 75 | 83 | 9 | GTKRFDNPV | 0.001549 | 12 |
| HLA-B*35:01 | 1 | 1093 | 1102 | 10 | GVFVSNGTHW | 0.001549 | 8.4 |
| HLA-A*30:02 | 1 | 424 | 433 | 10 | KLPDDFTGCV | 0.001548 | 19 |
| HLA-A*26:01 | 1 | 575 | 583 | 9 | AVRDPQTL | 0.001548 | 8.8 |
| HLA-A*68:01 | 1 | 922 | 930 | 9 | LIANQFNSA | 0.001548 | 13 |
| HLA-A*31:01 | 1 | 933 | 941 | 9 | KIQDLSST | 0.001548 | 14 |
| HLA-A*02:03 | 1 | 1085 | 1094 | 10 | GKAHFREGV | 0.001548 | 14 |
| HLA-A*02:03 | 1 | 43 | 51 | 9 | FRSSVLHST | 0.001547 | 14 |
| HLA-A*68:02 | 1 | 85 | 93 | 9 | PFNDGVYFA | 0.001547 | 13 |
| HLA-A*26:01 | 1 | 1229 | 1237 | 9 | MVTIMLCCM | 0.001547 | 8.8 |
| HLA-A*02:01 | 1 | 41 | 49 | 9 | KVFRSSVLH | 0.001546 | 12 |
| HLA-B*57:01 | 1 | 891 | 899 | 9 | GAALQIPFA | 0.001545 | 16 |
| HLA-B*44:02 | 1 | 1039 | 1047 | 9 | RVDFCGKGY | 0.001545 | 6.5 |
| HLA-B*57:01 | 1 | 1123 | 1132 | 10 | SGNCDVVIGI | 0.001545 | 16 |
| HLA-B*51:01 | 1 | 415 | 423 | 9 | TGKIADYNY | 0.001544 | 16 |
| HLA-A*26:01 | 1 | 149 | 157 | 9 | NKSWMESEF | 0.001543 | 8.8 |
| HLA-A*68:01 | 1 | 1208 | 1216 | 9 | QYIKWPWYI | 0.001543 | 13 |
| HLA-A*30:02 | 1 | 609 | 617 | 9 | AVLYQDVNC | 0.001542 | 19 |
| HLA-B*51:01 | 1 | 692 | 701 | 10 | IIAYTMSLGA | 0.001542 | 16 |
| HLA-A*01:01 | 1 | 229 | 238 | 10 | LPIGINITRF | 0.001541 | 12 |
| HLA-A*31:01 | 1 | 507 | 515 | 9 | PYRVVLSF | 0.001541 | 14 |
| HLA-B*53:01 | 1 | 1053 | 1062 | 10 | PQSAPHGVVF | 0.001541 | 7.7 |
| HLA-A*30:01 | 1 | 1095 | 1103 | 9 | FVSNGTHWF | 0.001541 | 22 |
| HLA-B*51:01 | 1 | 1105 | 1114 | 10 | TQRNFYEQI | 0.001541 | 16 |
| HLA-A*01:01 | 1 | 559 | 567 | 9 | FLPFQQFGR | 0.00154 | 12 |
| HLA-B*35:01 | 1 | 713 | 722 | 10 | AIPTNFTISV | 0.00154 | 8.4 |
| HLA-A*30:01 | 1 | 717 | 726 | 10 | NFTISVTTEI | 0.00154 | 22 |
| HLA-A*30:01 | 1 | 1201 | 1209 | 9 | QELGKYEQY | 0.00154 | 22 |
| HLA-A*33:01 | 1 | 408 | 417 | 10 | RQIAPGQTGK | 0.001539 | 12 |
| HLA-A*01:01 | 1 | 691 | 699 | 9 | SIIAYTMSL | 0.001539 | 12 |
| HLA-A*26:01 | 1 | 1121 | 1129 | 9 | FVSGNCDVV | 0.001539 | 8.8 |
| HLA-A*23:01 | 1 | 247 | 255 | 9 | SYLTPGDSS | 0.001538 | 6.9 |
| HLA-A*31:01 | 1 | 1008 | 1016 | 9 | VTQQLIRAA | 0.001538 | 14 |
| HLA-A*23:01 | 1 | 1042 | 1050 | 9 | FCGKGYHLM | 0.001538 | 6.9 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*02:06 | 1 | 473 | 481 | 9 | YQAGSTPCN 0.001537 | 17 |
| HLA-A*30:01 | 1 | 883 | 892 | 10 | TSGWTFGAGA 0.001537 | 22 |
| HLA-B*35:01 | 1 | 1007 | 1015 | 9 | YVTQQLIRA 0.001537 | 8.5 |
| HLA-B*08:01 | 1 | 1222 | 1230 | 9 | AGLIAIVMV 0.001537 | 16 |
| HLA-A*31:01 | 1 | 47 | 55 | 9 | VLHSTQDLF 0.001536 | 14 |
| HLA-B*51:01 | 1 | 615 | 623 | 9 | VNCTEVPVA 0.001536 | 16 |
| HLA-A*30:02 | 1 | 718 | 727 | 10 | FTISVTTEIL 0.001536 | 19 |
| HLA-A*02:01 | 1 | 815 | 823 | 9 | RSFIEDLLF 0.001536 | 12 |
| HLA-B*08:01 | 1 | 1050 | 1058 | 9 | MSFPQSAPH 0.001536 | 16 |
| HLA-A*32:01 | 1 | 1101 | 1110 | 10 | HWFVTQRNFY 0.001535 | 8.6 |
| HLA-B*44:02 | 1 | 211 | 220 | 10 | NLVRDL PQGF 0.001534 | 6.6 |
| HLA-B*58:01 | 1 | 1116 | 1124 | 9 | TTDNTFVSG 0.001534 | 11 |
| HLA-A*23:01 | 1 | 494 | 502 | 9 | SYGFQPTNG 0.001533 | 6.9 |
| HLA-A*30:02 | 1 | 783 | 792 | 10 | AQVKQIYKTP 0.001533 | 19 |
| HLA-B*44:03 | 1 | 968 | 976 | 9 | SNFGAISSV 0.001533 | 6.7 |
| HLA-A*32:01 | 1 | 1106 | 1114 | 9 | QRNFYEPQI 0.001533 | 8.7 |
| HLA-A*01:01 | 1 | 1208 | 1216 | 9 | QYIKWPWYI 0.001532 | 12 |
| HLA-B*07:02 | 1 | 411 | 420 | 10 | APGQTGKIAD 0.001531 | 9.6 |
| HLA-B*07:02 | 1 | 471 | 479 | 9 | EIYQAGSTP 0.001531 | 9.6 |
| HLA-A*02:03 | 1 | 672 | 680 | 9 | ASYQTQTN 0.001531 | 14 |
| HLA-B*57:01 | 1 | 805 | 814 | 10 | ILPDPSKPSK 0.001531 | 16 |
| HLA-A*02:01 | 1 | 211 | 219 | 9 | NLVRDL PQG 0.00153 | 12 |
| HLA-A*68:01 | 1 | 44 | 52 | 9 | RSSVLHSTQ 0.001528 | 13 |
| HLA-A*30:01 | 1 | 71 | 79 | 9 | SGTNGTKRF 0.001528 | 22 |
| HLA-B*57:01 | 1 | 751 | 759 | 9 | NLLLQYGSF 0.001528 | 16 |
| HLA-A*30:01 | 1 | 875 | 883 | 9 | SALLAGTIT 0.001528 | 22 |
| HLA-A*33:01 | 1 | 1188 | 1197 | 10 | EVAKNLNESL 0.001527 | 12 |
| HLA-B*51:01 | 1 | 280 | 289 | 10 | NENGTITDAV 0.001526 | 16 |
| HLA-B*53:01 | 1 | 440 | 449 | 10 | NLDSKVG GNY 0.001526 | 7.7 |
| HLA-B*57:01 | 1 | 695 | 703 | 9 | YTMSLGAEN 0.001526 | 16 |
| HLA-A*68:01 | 1 | 787 | 796 | 10 | QIYKTPPIKD 0.001526 | 13 |
| HLA-A*26:01 | 1 | 817 | 825 | 9 | FIEDLLFNK 0.001526 | 8.9 |
| HLA-B*15:01 | 1 | 60 | 68 | 9 | SNVTWFHAI 0.001525 | 12 |
| HLA-B*51:01 | 1 | 276 | 285 | 10 | LLKYNENGTI 0.001525 | 16 |
| HLA-A*02:06 | 1 | 339 | 347 | 9 | GEVFNATRF 0.001525 | 17 |
| HLA-B*53:01 | 1 | 705 | 714 | 10 | VAYSNSNSIAI 0.001525 | 7.7 |
| HLA-A*31:01 | 1 | 706 | 714 | 9 | AYSNSNSIAI 0.001525 | 14 |
| HLA-B*15:01 | 1 | 1128 | 1137 | 10 | VVIGIVNNTV 0.001525 | 12 |
| HLA-B*51:01 | 1 | 49 | 58 | 10 | HSTQDLFLPF 0.001524 | 16 |
| HLA-B*51:01 | 1 | 77 | 86 | 10 | KRFDNPVLPF 0.001524 | 16 |
| HLA-B*35:01 | 1 | 124 | 133 | 10 | TNVVIKVC EF 0.001524 | 8.5 |
| HLA-B*07:02 | 1 | 226 | 235 | 10 | LVDLPIGINI 0.001524 | 9.6 |
| HLA-B*07:02 | 1 | 365 | 374 | 10 | YSVLYNSASF 0.001524 | 9.6 |
| HLA-B*51:01 | 1 | 859 | 867 | 9 | TVLPPLLD 0.001524 | 16 |
| HLA-A*02:01 | 1 | 971 | 980 | 10 | GAISSVLNDI 0.001524 | 12 |
| HLA-A*30:02 | 1 | 992 | 1001 | 10 | QIDRLITGRL 0.001524 | 19 |
| HLA-A*02:03 | 1 | 1017 | 1026 | 10 | EIRASANLAA 0.001524 | 14 |
| HLA-B*15:01 | 1 | 847 | 855 | 9 | RDLICAQKF 0.001523 | 12 |
| HLA-A*32:01 | 1 | 933 | 941 | 9 | KIQDSLST 0.001523 | 8.7 |
| HLA-B*57:01 | 1 | 1216 | 1224 | 9 | IWLGFIAGL 0.001523 | 16 |
| HLA-A*23:01 | 1 | 108 | 117 | 10 | TTLDSKTQSL 0.001522 | 6.9 |
| HLA-B*15:01 | 1 | 145 | 153 | 9 | YHKNNKSWM 0.001522 | 12 |
| HLA-A*02:03 | 1 | 1031 | 1040 | 10 | ECVLGQSKRV 0.001522 | 14 |
| HLA-B*08:01 | 1 | 47 | 56 | 10 | VLHSTQDLFL 0.001521 | 16 |
| HLA-B*08:01 | 1 | 530 | 538 | 9 | STNLVKNKC 0.001521 | 16 |
| HLA-B*40:01 | 1 | 604 | 612 | 9 | TSNQVAVLY 0.001521 | 6.2 |
| HLA-B*40:01 | 1 | 1262 | 1270 | 9 | EPVLKGVKL 0.001521 | 6.2 |
| HLA-A*32:01 | 1 | 510 | 519 | 10 | VVLSFELLH 0.00152 | 8.7 |
| HLA-B*15:01 | 1 | 684 | 692 | 9 | ARSVASQSI 0.00152 | 12 |
| HLA-B*58:01 | 1 | 869 | 877 | 9 | MIAQYTSAL 0.00152 | 11 |
| HLA-B*08:01 | 1 | 891 | 900 | 10 | GAALQIPFAM 0.00152 | 16 |
| HLA-B*57:01 | 1 | 967 | 975 | 9 | SSNFGAISS 0.001519 | 16 |
| HLA-A*32:01 | 1 | 1041 | 1049 | 9 | DFCGKGYHL 0.001519 | 8.7 |
| HLA-A*02:01 | 1 | 1059 | 1067 | 9 | GVVFLHVTY 0.001519 | 12 |
| HLA-A*30:02 | 1 | 1082 | 1090 | 9 | CHDGKAHFP 0.001519 | 19 |
| HLA-B*08:01 | 1 | 116 | 124 | 9 | SLLIVNNAT 0.001518 | 16 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*57:01 | 1 | 898 | 907 | 10 | FAMQMAYRFN 0.001518 | 16 |
| HLA-B*57:01 | 1 | 983 | 991 | 9 | RLDKVEAEV 0.001518 | 16 |
| HLA-B*44:02 | 1 | 1040 | 1049 | 10 | VDFCGKGYHL 0.001518 | 6.6 |
| HLA-B*51:01 | 1 | 1121 | 1130 | 10 | FVSGNCDVVI 0.001518 | 16 |
| HLA-B*40:01 | 1 | 1150 | 1159 | 10 | EELDKYFKNH 0.001518 | 6.2 |
| HLA-A*31:01 | 1 | 1197 | 1205 | 9 | LIDLQELGK 0.001518 | 14 |
| HLA-A*30:02 | 1 | 222 | 230 | 9 | ALEPLVDLP 0.001517 | 19 |
| HLA-A*33:01 | 1 | 235 | 243 | 9 | ITRFQTLA 0.001517 | 12 |
| HLA-A*24:02 | 1 | 1000 | 1008 | 9 | RLQSLQTYV 0.001517 | 6.8 |
| HLA-A*30:01 | 1 | 1066 | 1074 | 9 | TYVPAQEK 0.001517 | 22 |
| HLA-A*24:02 | 1 | 264 | 273 | 10 | AYYVGYLQPR 0.001516 | 6.8 |
| HLA-A*30:02 | 1 | 328 | 337 | 10 | RFPNITNLCP 0.001516 | 19 |
| HLA-A*68:02 | 1 | 806 | 814 | 9 | LPDPSKPSK 0.001516 | 13 |
| HLA-A*23:01 | 1 | 109 | 118 | 10 | TLDSKTQSLL 0.001515 | 7.0 |
| HLA-B*57:01 | 1 | 350 | 358 | 9 | VYAWNKRRI 0.001515 | 16 |
| HLA-A*01:01 | 1 | 942 | 951 | 10 | ASALGKLQDV 0.001515 | 12 |
| HLA-A*23:01 | 1 | 1054 | 1063 | 10 | QSAPHGVVFL 0.001515 | 7.0 |
| HLA-B*51:01 | 1 | 166 | 175 | 10 | CTFEYVSQPF 0.001514 | 16 |
| HLA-A*02:01 | 1 | 218 | 226 | 9 | QGFSALEPL 0.001514 | 12 |
| HLA-A*03:01 | 1 | 852 | 860 | 9 | AQKFNGLTV 0.001514 | 9.9 |
| HLA-B*44:03 | 1 | 700 | 709 | 10 | GAENSVAYS 0.001513 | 6.8 |
| HLA-A*02:06 | 1 | 602 | 611 | 10 | TNTSNQVAVL 0.001512 | 17 |
| HLA-A*30:02 | 1 | 607 | 615 | 9 | QVAVLYQDV 0.001512 | 19 |
| HLA-B*44:03 | 1 | 47 | 55 | 9 | VLHSTQDLF 0.001511 | 6.8 |
| HLA-B*57:01 | 1 | 58 | 66 | 9 | FFSNVTWFH 0.001511 | 16 |
| HLA-B*35:01 | 1 | 111 | 119 | 9 | DSKTQSLLI 0.001511 | 8.5 |
| HLA-A*30:02 | 1 | 327 | 336 | 10 | VRFPNITNLC 0.001511 | 19 |
| HLA-A*68:01 | 1 | 334 | 342 | 9 | NLCPFGEVF 0.001511 | 14 |
| HLA-A*30:01 | 1 | 941 | 949 | 9 | TASALGKLQ 0.001511 | 22 |
| HLA-A*68:01 | 1 | 495 | 503 | 9 | YGFQPTNGV 0.001511 | 14 |
| HLA-A*33:01 | 1 | 820 | 829 | 10 | DLLFNKVTLA 0.001511 | 12 |
| HLA-A*68:02 | 1 | 851 | 860 | 10 | CAQKFNGLTV 0.001511 | 13 |
| HLA-B*08:01 | 1 | 950 | 958 | 9 | DVVNQNAQA 0.001511 | 16 |
| HLA-B*58:01 | 1 | 220 | 228 | 9 | FSALEPLVD 0.001509 | 11 |
| HLA-B*35:01 | 1 | 590 | 598 | 9 | CSFGGVSVI 0.001509 | 8.5 |
| HLA-A*32:01 | 1 | 1032 | 1040 | 9 | CVLGQSKRV 0.001509 | 8.7 |
| HLA-A*02:06 | 1 | 782 | 790 | 9 | FAQVKQIYK 0.001508 | 17 |
| HLA-B*08:01 | 1 | 914 | 923 | 10 | NVLYENQKLI 0.001508 | 16 |
| HLA-A*01:01 | 1 | 1115 | 1124 | 10 | ITTDNTFVSG 0.001508 | 12 |
| HLA-A*02:06 | 1 | 104 | 112 | 9 | WIFGTTLDS 0.001507 | 17 |
| HLA-A*02:06 | 1 | 907 | 916 | 10 | NGIGVTQNVL 0.001507 | 17 |
| HLA-A*30:01 | 1 | 1049 | 1057 | 9 | LMSFPQSAP 0.001507 | 22 |
| HLA-A*31:01 | 1 | 1207 | 1216 | 10 | EQYIKWPWYI 0.001507 | 14 |
| HLA-A*01:01 | 1 | 12 | 20 | 9 | SSQCVNLT 0.001506 | 12 |
| HLA-B*58:01 | 1 | 36 | 44 | 9 | VYYPKVFR 0.001506 | 11 |
| HLA-B*53:01 | 1 | 170 | 179 | 10 | YVSQPFMLDL 0.001506 | 7.8 |
| HLA-A*33:01 | 1 | 202 | 210 | 9 | KIYSKHTPI 0.001506 | 12 |
| HLA-A*30:02 | 1 | 636 | 644 | 9 | YSTGSNVFQ 0.001506 | 19 |
| HLA-B*51:01 | 1 | 820 | 829 | 10 | DLLFNKVTLA 0.001506 | 16 |
| HLA-A*01:01 | 1 | 968 | 976 | 9 | SNFGAISSV 0.001506 | 12 |
| HLA-A*02:03 | 1 | 1107 | 1116 | 10 | RNFYEPQIIT 0.001506 | 14 |
| HLA-A*01:01 | 1 | 1169 | 1177 | 9 | ISGINASVV 0.001506 | 12 |
| HLA-A*32:01 | 1 | 1209 | 1218 | 10 | YIKWPWYIWL 0.001506 | 8.7 |
| HLA-A*30:02 | 1 | 292 | 301 | 10 | ALDPLSETKC 0.001505 | 19 |
| HLA-A*01:01 | 1 | 841 | 849 | 9 | LGDIAARDL 0.001505 | 12 |
| HLA-B*51:01 | 1 | 984 | 993 | 10 | LDKVEAEVQI 0.001505 | 16 |
| HLA-A*33:01 | 1 | 1098 | 1106 | 9 | NGTHWFVTQ 0.001505 | 12 |
| HLA-A*24:02 | 1 | 170 | 179 | 10 | YVSQPFMLDL 0.001504 | 6.9 |
| HLA-A*68:02 | 1 | 382 | 390 | 9 | VSPTKLNDL 0.001504 | 13 |
| HLA-A*32:01 | 1 | 925 | 934 | 10 | NQFNSAIGKI 0.001504 | 8.7 |
| HLA-A*30:02 | 1 | 960 | 968 | 9 | NTLVKQLSS 0.001504 | 19 |
| HLA-A*30:01 | 1 | 1035 | 1043 | 9 | GQSKRVDFC 0.001504 | 22 |
| HLA-A*30:02 | 1 | 1255 | 1264 | 10 | KFDEDDSEPV 0.001504 | 19 |
| HLA-B*08:01 | 1 | 198 | 207 | 10 | DGYFKIYSKH 0.001503 | 16 |
| HLA-A*02:06 | 1 | 396 | 404 | 9 | YADSFVIRG 0.001503 | 17 |
| HLA-B*57:01 | 1 | 595 | 603 | 9 | VSVITPGTN 0.001503 | 16 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*68:02 | 1 | 1195 | 1204 | 10 | ESLIDLQELG 0.001503 | 13 |
| HLA-A*30:02 | 1 | 11 | 19 | 9 | VSSQCVNLT 0.001502 | 19 |
| HLA-B*44:02 | 1 | 83 | 92 | 10 | VLFPNDGVYF 0.001502 | 6.6 |
| HLA-A*30:01 | 1 | 435 | 443 | 9 | AWNSNNLDS 0.001502 | 22 |
| HLA-B*07:02 | 1 | 819 | 828 | 10 | EDLLFNKVTL 0.001502 | 9.7 |
| HLA-A*30:01 | 1 | 1066 | 1075 | 10 | TYVPAQEKNF 0.001502 | 22 |
| HLA-B*57:01 | 1 | 89 | 97 | 9 | GVYFASTEK 0.001501 | 16 |
| HLA-A*68:01 | 1 | 161 | 169 | 9 | SSANNCTFE 0.001501 | 14 |
| HLA-A*68:01 | 1 | 236 | 244 | 9 | TRFQTLAL 0.001501 | 14 |
| HLA-B*08:01 | 1 | 455 | 463 | 9 | LFRKSNLKP 0.001501 | 16 |
| HLA-A*30:02 | 1 | 1183 | 1191 | 9 | IDRLNEVAK 0.001501 | 19 |
| HLA-A*01:01 | 1 | 499 | 507 | 9 | PTNGVGYQP 0.0015 | 12 |
| HLA-A*30:02 | 1 | 768 | 776 | 9 | TGIAVEQDK 0.0015 | 19 |
| HLA-A*33:01 | 1 | 42 | 50 | 9 | VFRSSVLHS 0.001499 | 12 |
| HLA-B*08:01 | 1 | 57 | 65 | 9 | PFFSNVTFW 0.001499 | 16 |
| HLA-B*15:01 | 1 | 118 | 126 | 9 | LIVNNATNV 0.001499 | 12 |
| HLA-B*44:02 | 1 | 178 | 186 | 9 | DLEGKQGNF 0.001499 | 6.6 |
| HLA-B*57:01 | 1 | 595 | 604 | 10 | VSVITPGTNT 0.001499 | 16 |
| HLA-A*11:01 | 1 | 766 | 774 | 9 | ALTGIAVEQ 0.001499 | 8.4 |
| HLA-B*40:01 | 1 | 1087 | 1096 | 10 | AHFPREGVFV 0.001499 | 6.3 |
| HLA-A*02:03 | 1 | 417 | 426 | 10 | KIADYNYKLP 0.001498 | 14 |
| HLA-A*68:02 | 1 | 469 | 478 | 10 | STEIYQAGST 0.001498 | 13 |
| HLA-A*24:02 | 1 | 711 | 720 | 10 | SIAIPTNFTI 0.001498 | 6.9 |
| HLA-A*02:03 | 1 | 1232 | 1240 | 9 | IMLCCMTSC 0.001498 | 14 |
| HLA-A*32:01 | 1 | 69 | 77 | 9 | HVSGTNGTK 0.001497 | 8.8 |
| HLA-A*32:01 | 1 | 70 | 79 | 10 | VSGTNGTKRF 0.001497 | 8.8 |
| HLA-B*57:01 | 1 | 70 | 78 | 9 | VSGTNGTKR 0.001497 | 16 |
| HLA-A*30:02 | 1 | 339 | 348 | 10 | GEVFNATRFA 0.001497 | 20 |
| HLA-A*02:06 | 1 | 1058 | 1066 | 9 | HGVVFLHVT 0.001497 | 17 |
| HLA-A*31:01 | 1 | 1201 | 1209 | 9 | QELGKYEYQ 0.001497 | 14 |
| HLA-A*01:01 | 1 | 92 | 100 | 9 | FASTEKSNI 0.001496 | 12 |
| HLA-B*15:01 | 1 | 388 | 396 | 9 | NDLCFTNVY 0.001496 | 12 |
| HLA-B*57:01 | 1 | 569 | 577 | 9 | IADTTDAVR 0.001496 | 16 |
| HLA-A*33:01 | 1 | 740 | 748 | 9 | MYICGDSTE 0.001496 | 12 |
| HLA-B*44:03 | 1 | 898 | 906 | 9 | FAMQMAYRF 0.001495 | 6.8 |
| HLA-B*07:02 | 1 | 1109 | 1117 | 9 | FYEPQIITT 0.001495 | 9.7 |
| HLA-B*40:01 | 1 | 215 | 223 | 9 | DLPQGFSAI 0.001494 | 6.3 |
| HLA-A*02:06 | 1 | 270 | 279 | 10 | LQPRTFLLKY 0.001494 | 17 |
| HLA-B*58:01 | 1 | 454 | 462 | 9 | RLFRKSNLK 0.001494 | 11 |
| HLA-A*02:06 | 1 | 723 | 732 | 10 | TTEILPVSM 0.001494 | 17 |
| HLA-A*26:01 | 1 | 805 | 814 | 10 | ILPDPSKPSK 0.001494 | 8.9 |
| HLA-A*30:02 | 1 | 1004 | 1013 | 10 | LQTYVTQQLI 0.001494 | 20 |
| HLA-B*07:02 | 1 | 777 | 785 | 9 | NTQEVFAQV 0.001493 | 9.7 |
| HLA-A*68:02 | 1 | 782 | 791 | 10 | FAQVKQIYKT 0.001493 | 13 |
| HLA-A*01:01 | 1 | 789 | 797 | 9 | YKTPPIKDF 0.001493 | 12 |
| HLA-B*58:01 | 1 | 983 | 991 | 9 | RLDKVEAEV 0.001493 | 11 |
| HLA-A*33:01 | 1 | 996 | 1004 | 9 | LITGRLQSL 0.001493 | 12 |
| HLA-A*30:01 | 1 | 1196 | 1204 | 9 | SLIDLQELG 0.001493 | 22 |
| HLA-B*08:01 | 1 | 458 | 466 | 9 | KSNLKPFER 0.001492 | 16 |
| HLA-A*30:01 | 1 | 525 | 533 | 9 | CGPKKSTNL 0.001492 | 22 |
| HLA-B*58:01 | 1 | 966 | 974 | 9 | LSSNFGAIS 0.001492 | 11 |
| HLA-A*31:01 | 1 | 1003 | 1012 | 10 | SLQTYVTQQL 0.001492 | 14 |
| HLA-A*26:01 | 1 | 1014 | 1022 | 9 | RAAEIRASA 0.001492 | 9.0 |
| HLA-B*40:01 | 1 | 47 | 55 | 9 | VLHSTQDLF 0.001491 | 6.3 |
| HLA-A*02:01 | 1 | 332 | 341 | 10 | ITNLCPFGEV 0.001491 | 12 |
| HLA-B*53:01 | 1 | 575 | 584 | 10 | AVRDPQTLEI 0.001491 | 7.8 |
| HLA-B*40:01 | 1 | 1113 | 1121 | 9 | QIITTDNTF 0.001491 | 6.3 |
| HLA-B*35:01 | 1 | 291 | 299 | 9 | CALDPLSET 0.00149 | 8.5 |
| HLA-A*30:02 | 1 | 492 | 500 | 9 | LQSYGFQPT 0.00149 | 20 |
| HLA-A*02:01 | 1 | 746 | 754 | 9 | STECNLLL 0.00149 | 12 |
| HLA-B*15:01 | 1 | 268 | 277 | 10 | GYLQPRTFLL 0.001489 | 12 |
| HLA-A*26:01 | 1 | 754 | 763 | 10 | LQYGSFCTQL 0.001489 | 9.0 |
| HLA-A*31:01 | 1 | 1263 | 1271 | 9 | PVLKGVKHL 0.001489 | 14 |
| HLA-B*53:01 | 1 | 498 | 506 | 9 | QPTNGVGYQ 0.001488 | 7.8 |
| HLA-B*58:01 | 1 | 537 | 546 | 10 | KCVNFNFNGL 0.001488 | 11 |
| HLA-B*58:01 | 1 | 885 | 894 | 10 | GWTFGAGAAL 0.001488 | 11 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*01:01 | 1 | 1086 | 1095 | 10 | KAHFPREGVF 0.001488 | 12 |
| HLA-A*30:02 | 1 | 1098 | 1107 | 10 | NGTHWFVTQR 0.001488 | 20 |
| HLA-B*58:01 | 1 | 1128 | 1137 | 10 | VVIGIVNNTV 0.001488 | 11 |
| HLA-B*35:01 | 1 | 1220 | 1228 | 9 | FIAGLIAIV 0.001488 | 8.6 |
| HLA-B*08:01 | 1 | 42 | 50 | 9 | VFRSSVLHS 0.001487 | 16 |
| HLA-B*44:02 | 1 | 155 | 164 | 10 | SEFRVYSSAN 0.001487 | 6.7 |
| HLA-B*40:01 | 1 | 345 | 353 | 9 | TRFASVYAW 0.001487 | 6.3 |
| HLA-A*68:02 | 1 | 903 | 911 | 9 | AYRFNGIGV 0.001487 | 13 |
| HLA-A*01:01 | 1 | 111 | 120 | 10 | DSKTQSLLIV 0.001486 | 12 |
| HLA-A*30:01 | 1 | 153 | 161 | 9 | MESEFRVYS 0.001486 | 22 |
| HLA-A*01:01 | 1 | 161 | 169 | 9 | SSANNCTFE 0.001486 | 12 |
| HLA-A*30:02 | 1 | 629 | 637 | 9 | LTPTWRVYS 0.001486 | 20 |
| HLA-A*02:01 | 1 | 859 | 867 | 9 | TVLPPLD 0.001486 | 12 |
| HLA-A*26:01 | 1 | 925 | 933 | 9 | NQFNSAIGK 0.001486 | 9.0 |
| HLA-B*35:01 | 1 | 950 | 958 | 9 | DVFNQNAQA 0.001486 | 8.6 |
| HLA-B*44:02 | 1 | 962 | 970 | 9 | LVKQLSSNF 0.001486 | 6.7 |
| HLA-A*01:01 | 1 | 987 | 995 | 9 | VEAEVQIDR 0.001486 | 12 |
| HLA-A*30:01 | 1 | 295 | 304 | 10 | PLSETKCTLK 0.001485 | 22 |
| HLA-B*58:01 | 1 | 683 | 691 | 9 | RARSVASQS 0.001485 | 11 |
| HLA-B*58:01 | 1 | 907 | 915 | 9 | NGIGVTQNV 0.001485 | 11 |
| HLA-A*31:01 | 1 | 1051 | 1060 | 10 | SFPQSAPHGV 0.001485 | 14 |
| HLA-A*23:01 | 1 | 780 | 789 | 10 | EVFAQVKQIY 0.001484 | 7.0 |
| HLA-B*57:01 | 1 | 231 | 239 | 9 | IGINITRFQ 0.001483 | 16 |
| HLA-A*03:01 | 1 | 321 | 329 | 9 | QPTESIVRF 0.001483 | 9.9 |
| HLA-A*30:01 | 1 | 546 | 554 | 9 | LTGTGVLTE 0.001483 | 22 |
| HLA-A*68:02 | 1 | 755 | 763 | 9 | QYGSFCTLQ 0.001483 | 13 |
| HLA-A*30:01 | 1 | 442 | 451 | 10 | DSKVGGNYNY 0.001482 | 22 |
| HLA-A*68:02 | 1 | 993 | 1001 | 9 | IDRLITGRL 0.001482 | 13 |
| HLA-A*30:02 | 1 | 1082 | 1091 | 10 | CHDGKAHFPR 0.001482 | 20 |
| HLA-A*30:01 | 1 | 221 | 230 | 10 | SALEPLVDLP 0.001481 | 22 |
| HLA-A*30:01 | 1 | 564 | 573 | 10 | QFGRDIADTT 0.001481 | 22 |
| HLA-A*68:01 | 1 | 722 | 730 | 9 | VTTEILPVS 0.001481 | 14 |
| HLA-A*30:02 | 1 | 732 | 740 | 9 | TKTSVDCTM 0.001481 | 20 |
| HLA-A*32:01 | 1 | 774 | 782 | 9 | QDKNTQEVF 0.001481 | 8.8 |
| HLA-A*30:01 | 1 | 99 | 107 | 9 | NIIRGWIFG 0.00148 | 23 |
| HLA-A*26:01 | 1 | 186 | 194 | 9 | FKNLREFVF 0.00148 | 9.0 |
| HLA-A*01:01 | 1 | 1114 | 1122 | 9 | IITDNTFV 0.00148 | 12 |
| HLA-B*40:01 | 1 | 1261 | 1269 | 9 | SEPVKGVK 0.00148 | 6.3 |
| HLA-A*24:02 | 1 | 852 | 860 | 9 | AQKFNGLTV 0.001479 | 6.9 |
| HLA-A*02:01 | 1 | 936 | 945 | 10 | DSLSSTASAL 0.001479 | 12 |
| HLA-B*08:01 | 1 | 944 | 952 | 9 | ALGKLQDVV 0.001479 | 16 |
| HLA-B*35:01 | 1 | 1175 | 1183 | 9 | SVVNIQKEI 0.001479 | 8.6 |
| HLA-A*11:01 | 1 | 46 | 55 | 10 | SVLHSTQDLF 0.001478 | 8.4 |
| HLA-A*33:01 | 1 | 96 | 104 | 9 | EKSNIIRGW 0.001478 | 12 |
| HLA-A*23:01 | 1 | 111 | 119 | 9 | DSKTQSLLI 0.001478 | 7.0 |
| HLA-A*23:01 | 1 | 865 | 873 | 9 | LTDEMIAQY 0.001478 | 7.0 |
| HLA-B*53:01 | 1 | 1138 | 1147 | 10 | YDPLQPELDS 0.001478 | 7.9 |
| HLA-A*68:01 | 1 | 21 | 29 | 9 | RTQLPPAYT 0.001477 | 14 |
| HLA-A*01:01 | 1 | 776 | 785 | 10 | KNTQEVFAQV 0.001477 | 12 |
| HLA-A*24:02 | 1 | 816 | 825 | 10 | SFIEDLLFNK 0.001477 | 6.9 |
| HLA-B*57:01 | 1 | 1222 | 1230 | 9 | AGLIAIVMV 0.001477 | 16 |
| HLA-A*31:01 | 1 | 126 | 135 | 10 | VVIKVCDFQF 0.001476 | 14 |
| HLA-A*33:01 | 1 | 611 | 619 | 9 | LYQDVNCTE 0.001476 | 12 |
| HLA-A*33:01 | 1 | 635 | 643 | 9 | VYSTGSNVF 0.001476 | 12 |
| HLA-A*02:03 | 1 | 936 | 944 | 9 | DSLSSTASA 0.001476 | 14 |
| HLA-A*68:01 | 1 | 1002 | 1011 | 10 | QSLQTYVTQQ 0.001476 | 14 |
| HLA-A*02:03 | 1 | 1042 | 1050 | 9 | FCGKGYHLM 0.001476 | 14 |
| HLA-B*57:01 | 1 | 1206 | 1215 | 10 | YEQYIKWPWY 0.001476 | 16 |
| HLA-A*68:01 | 1 | 1220 | 1228 | 9 | FIAGLIAIV 0.001476 | 14 |
| HLA-B*53:01 | 1 | 183 | 192 | 10 | QGNFKNLREF 0.001475 | 7.9 |
| HLA-A*02:06 | 1 | 471 | 480 | 10 | EIYQAGSTPC 0.001475 | 17 |
| HLA-B*58:01 | 1 | 869 | 878 | 10 | MIAQYTSALL 0.001475 | 11 |
| HLA-A*30:01 | 1 | 914 | 922 | 9 | NVLYENQKL 0.001475 | 23 |
| HLA-B*51:01 | 1 | 1226 | 1234 | 9 | AIVMVTIML 0.001475 | 16 |
| HLA-A*30:02 | 1 | 364 | 372 | 9 | DYSVLNSA 0.001474 | 20 |
| HLA-B*15:01 | 1 | 19 | 27 | 9 | TTRTQLPPA 0.001473 | 12 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*33:01 | 1 | 126 | 134 | 9 | VVIKVCFEQ 0.001473 | 12 |
| HLA-A*31:01 | 1 | 381 | 390 | 10 | GVSPTKLNDL 0.001473 | 14 |
| HLA-B*44:03 | 1 | 221 | 229 | 9 | SALEPLVDL 0.001472 | 6.8 |
| HLA-A*30:02 | 1 | 231 | 239 | 9 | IGINITRFQ 0.001472 | 20 |
| HLA-A*33:01 | 1 | 574 | 583 | 10 | DAVRDPQTL 0.001472 | 12 |
| HLA-B*58:01 | 1 | 805 | 814 | 10 | ILPDPSKPSK 0.001472 | 11 |
| HLA-B*51:01 | 1 | 530 | 538 | 9 | STNLVKNKC 0.001471 | 16 |
| HLA-A*02:06 | 1 | 699 | 707 | 9 | LGAENSVAY 0.001471 | 17 |
| HLA-A*68:02 | 1 | 759 | 768 | 10 | FCTQLNRALT 0.001471 | 13 |
| HLA-A*30:01 | 1 | 925 | 934 | 10 | NQFNSAIGKI 0.001471 | 23 |
| HLA-A*03:01 | 1 | 1014 | 1022 | 9 | RAAEIRASA 0.001471 | 9.9 |
| HLA-A*30:02 | 1 | 1036 | 1045 | 10 | QSKRVDFCGK 0.001471 | 20 |
| HLA-A*30:01 | 1 | 1116 | 1124 | 9 | TTDNTFVSG 0.001471 | 23 |
| HLA-B*57:01 | 1 | 1137 | 1146 | 10 | VYDPLQPELD 0.001471 | 16 |
| HLA-B*58:01 | 1 | 283 | 291 | 9 | GTITDAVDC 0.00147 | 11 |
| HLA-B*57:01 | 1 | 861 | 869 | 9 | LPPLLTDEM 0.00147 | 16 |
| HLA-A*68:01 | 1 | 878 | 886 | 9 | LAGTITSGW 0.00147 | 14 |
| HLA-A*02:03 | 1 | 1056 | 1065 | 10 | APHGVVFLHV 0.00147 | 14 |
| HLA-A*01:01 | 1 | 262 | 270 | 9 | AAAYVGYL 0.001469 | 12 |
| HLA-A*68:02 | 1 | 268 | 277 | 10 | GYLQPTFLL 0.001469 | 13 |
| HLA-B*58:01 | 1 | 409 | 417 | 9 | QIAPGQTGK 0.001469 | 11 |
| HLA-A*68:02 | 1 | 7 | 15 | 9 | LLPLVSSQC 0.001468 | 13 |
| HLA-A*02:03 | 1 | 312 | 320 | 9 | IYQTSNFRV 0.001468 | 14 |
| HLA-B*51:01 | 1 | 794 | 802 | 9 | IKDFGGFNF 0.001468 | 16 |
| HLA-B*58:01 | 1 | 935 | 944 | 10 | QDLSSTASA 0.001468 | 11 |
| HLA-A*02:01 | 1 | 1168 | 1177 | 10 | DISGINASVV 0.001468 | 12 |
| HLA-A*01:01 | 1 | 222 | 231 | 10 | ALEPLVDLPI 0.001467 | 12 |
| HLA-A*02:06 | 1 | 208 | 216 | 9 | TPINLVRDL 0.001466 | 17 |
| HLA-A*68:02 | 1 | 378 | 387 | 10 | KCYGVSPTKL 0.001466 | 13 |
| HLA-A*26:01 | 1 | 408 | 417 | 10 | RQIAPGQTGK 0.001466 | 9.0 |
| HLA-B*57:01 | 1 | 464 | 472 | 9 | FERDISTEI 0.001466 | 16 |
| HLA-A*23:01 | 1 | 1175 | 1183 | 9 | SVVNIQKEI 0.001466 | 7.1 |
| HLA-A*02:01 | 1 | 641 | 650 | 10 | NVFQTRAGCL 0.001465 | 12 |
| HLA-B*58:01 | 1 | 703 | 712 | 10 | NSVAYSNNSI 0.001465 | 11 |
| HLA-A*02:01 | 1 | 704 | 713 | 10 | SVAYSNNNSIA 0.001465 | 12 |
| HLA-A*30:01 | 1 | 720 | 728 | 9 | ISVTTEILP 0.001465 | 23 |
| HLA-A*33:01 | 1 | 371 | 380 | 10 | SASFSTFKCY 0.001464 | 12 |
| HLA-A*01:01 | 1 | 626 | 635 | 10 | ADQLTPTWRV 0.001464 | 12 |
| HLA-A*02:01 | 1 | 38 | 47 | 10 | YDPKVFRRSSV 0.001463 | 12 |
| HLA-A*31:01 | 1 | 1038 | 1047 | 10 | KRVDFCGKGY 0.001463 | 14 |
| HLA-A*31:01 | 1 | 1080 | 1089 | 10 | AICHDGKAHF 0.001463 | 14 |
| HLA-B*44:03 | 1 | 1106 | 1114 | 9 | QRNFYEPQI 0.001463 | 6.9 |
| HLA-B*57:01 | 1 | 1145 | 1154 | 10 | LDSFKEELDK 0.001463 | 16 |
| HLA-A*33:01 | 1 | 49 | 58 | 10 | HSTQDLFLPF 0.001462 | 12 |
| HLA-B*57:01 | 1 | 61 | 70 | 10 | NVTWFHAIHV 0.001462 | 16 |
| HLA-A*33:01 | 1 | 326 | 335 | 10 | IVRFPNITNL 0.001462 | 12 |
| HLA-A*02:03 | 1 | 508 | 517 | 10 | YRVVLSFEL 0.001462 | 14 |
| HLA-B*08:01 | 1 | 814 | 822 | 9 | KRSFIEDLL 0.001462 | 17 |
| HLA-B*07:02 | 1 | 409 | 417 | 9 | QIAPGQTGK 0.001461 | 9.8 |
| HLA-A*30:01 | 1 | 532 | 541 | 10 | NLVKNKCVNF 0.001461 | 23 |
| HLA-A*02:03 | 1 | 890 | 899 | 10 | AGAALQIPFA 0.001461 | 14 |
| HLA-A*02:06 | 1 | 1201 | 1209 | 9 | QELGKYEQY 0.001461 | 17 |
| HLA-B*15:01 | 1 | 169 | 177 | 9 | EYVSQPFLM 0.00146 | 12 |
| HLA-B*53:01 | 1 | 119 | 127 | 9 | IVNATNVV 0.001459 | 7.9 |
| HLA-A*03:01 | 1 | 486 | 495 | 10 | FNCYFPLQSY 0.001459 | 10 |
| HLA-A*32:01 | 1 | 532 | 541 | 10 | NLVKNKCVNF 0.001459 | 8.9 |
| HLA-A*02:03 | 1 | 782 | 791 | 10 | FAQVKQIYKT 0.001459 | 14 |
| HLA-A*03:01 | 1 | 1010 | 1019 | 10 | QQLIRAAEIR 0.001458 | 10 |
| HLA-B*07:02 | 1 | 47 | 55 | 9 | VLHSTQDLF 0.001457 | 9.8 |
| HLA-A*23:01 | 1 | 177 | 186 | 10 | MDLEGKQGNF 0.001457 | 7.1 |
| HLA-A*02:03 | 1 | 240 | 248 | 9 | TLLALHRYS 0.001457 | 14 |
| HLA-A*30:02 | 1 | 346 | 354 | 9 | RFASVYAWN 0.001457 | 20 |
| HLA-A*01:01 | 1 | 108 | 116 | 9 | TTLDSKTQS 0.001456 | 12 |
| HLA-A*23:01 | 1 | 265 | 274 | 10 | YYVGYLQPR 0.001456 | 7.1 |
| HLA-A*30:02 | 1 | 300 | 308 | 9 | KCTLKSFTV 0.001456 | 20 |
| HLA-A*11:01 | 1 | 191 | 200 | 10 | EFVFKNIDGY 0.001455 | 8.4 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*15:01 | 1 | 258 | 267 | 10 | WTAGAAAYV 0.001455 | 12 |
| HLA-A*01:01 | 1 | 408 | 417 | 10 | RQIAPGQTGK 0.001455 | 12 |
| HLA-A*30:01 | 1 | 603 | 612 | 10 | NTSNQVAVLY 0.001455 | 23 |
| HLA-A*32:01 | 1 | 939 | 948 | 10 | SSTASALGKL 0.001455 | 8.9 |
| HLA-B*44:03 | 1 | 976 | 984 | 9 | VLNDILSRL 0.001455 | 6.9 |
| HLA-A*11:01 | 1 | 1000 | 1008 | 9 | RLQSLQTYV 0.001455 | 8.4 |
| HLA-B*57:01 | 1 | 1076 | 1085 | 10 | TTAPAICHDG 0.001455 | 16 |
| HLA-B*58:01 | 1 | 1144 | 1152 | 9 | ELDSFKEEL 0.001454 | 11 |
| HLA-A*68:02 | 1 | 772 | 781 | 10 | VEQDKNTQEV 0.001453 | 13 |
| HLA-A*32:01 | 1 | 957 | 966 | 10 | QALNTLVKQL 0.001453 | 8.9 |
| HLA-A*23:01 | 1 | 1108 | 1116 | 9 | NFYEQIIT 0.001453 | 7.1 |
| HLA-B*07:02 | 1 | 1178 | 1186 | 9 | NIQKEIDRL 0.001453 | 9.8 |
| HLA-B*07:02 | 1 | 162 | 170 | 9 | SANNCTFEY 0.001452 | 9.8 |
| HLA-A*02:06 | 1 | 443 | 451 | 9 | SKVGGNYNY 0.001452 | 17 |
| HLA-A*26:01 | 1 | 71 | 79 | 9 | SGTNGTKRF 0.001451 | 9.1 |
| HLA-A*68:02 | 1 | 121 | 129 | 9 | NNATNVVIK 0.001451 | 13 |
| HLA-B*07:02 | 1 | 342 | 350 | 9 | FNATRFASV 0.001451 | 9.8 |
| HLA-B*44:03 | 1 | 366 | 374 | 9 | SVLYNSASF 0.001451 | 6.9 |
| HLA-A*30:01 | 1 | 785 | 794 | 10 | VKQIYKTPPI 0.001451 | 23 |
| HLA-A*68:01 | 1 | 136 | 144 | 9 | CNDPFLGVY 0.00145 | 14 |
| HLA-B*57:01 | 1 | 329 | 338 | 10 | FPNITNLCPF 0.00145 | 16 |
| HLA-A*68:02 | 1 | 401 | 410 | 10 | VIRGDEVQRQI 0.00145 | 13 |
| HLA-A*30:01 | 1 | 884 | 893 | 10 | SGWTFGAGAA 0.00145 | 23 |
| HLA-B*53:01 | 1 | 1067 | 1076 | 10 | YVPAQEKNFT 0.00145 | 7.9 |
| HLA-B*57:01 | 1 | 93 | 102 | 10 | ASTEKSNIIR 0.001449 | 16 |
| HLA-A*23:01 | 1 | 193 | 202 | 10 | VFKNIDGYFK 0.001449 | 7.1 |
| HLA-A*02:03 | 1 | 248 | 257 | 10 | YLTPGDSSSG 0.001449 | 14 |
| HLA-A*68:02 | 1 | 303 | 312 | 10 | LKSFTVEKGI 0.001449 | 13 |
| HLA-A*68:02 | 1 | 1194 | 1203 | 10 | NESLIDLQEL 0.001449 | 13 |
| HLA-A*31:01 | 1 | 1211 | 1219 | 9 | KWPWYIWLG 0.001449 | 14 |
| HLA-B*44:03 | 1 | 24 | 32 | 9 | LPPAYTNSF 0.001448 | 6.9 |
| HLA-B*44:03 | 1 | 71 | 79 | 9 | SGTNGTKRF 0.001448 | 6.9 |
| HLA-A*30:02 | 1 | 679 | 687 | 9 | NSPRRARSV 0.001448 | 20 |
| HLA-B*07:02 | 1 | 934 | 942 | 9 | IQDLSLSTA 0.001448 | 9.8 |
| HLA-A*02:06 | 1 | 1160 | 1169 | 10 | TSPDVDLGGDI 0.001448 | 17 |
| HLA-A*01:01 | 1 | 1259 | 1268 | 10 | DDSEPVKGV 0.001448 | 12 |
| HLA-B*57:01 | 1 | 468 | 477 | 10 | ISTEIQAGS 0.001447 | 16 |
| HLA-A*32:01 | 1 | 575 | 583 | 9 | AVRDPQTL 0.001447 | 8.9 |
| HLA-A*02:06 | 1 | 672 | 681 | 10 | ASYQTQTN 0.001447 | 17 |
| HLA-A*02:01 | 1 | 893 | 901 | 9 | ALQIPFAMQ 0.001447 | 12 |
| HLA-A*30:02 | 1 | 998 | 1006 | 9 | TGRLQSLQT 0.001447 | 20 |
| HLA-A*30:01 | 1 | 1034 | 1042 | 9 | LGQSKRVDF 0.001447 | 23 |
| HLA-B*40:01 | 1 | 1091 | 1100 | 10 | REGVFVSN 0.001447 | 6.4 |
| HLA-A*02:03 | 1 | 1135 | 1144 | 10 | NTVYDPLQPE 0.001447 | 14 |
| HLA-A*68:01 | 1 | 60 | 69 | 10 | SNVTWFHAIH 0.001446 | 14 |
| HLA-B*15:01 | 1 | 93 | 101 | 9 | ASTEKSNI 0.001446 | 12 |
| HLA-B*35:01 | 1 | 297 | 306 | 10 | SETKCTLKS 0.001446 | 8.6 |
| HLA-A*01:01 | 1 | 319 | 328 | 10 | RVQPTESIVR 0.001446 | 12 |
| HLA-B*53:01 | 1 | 574 | 583 | 10 | DAVRDPQTL 0.001446 | 7.9 |
| HLA-B*51:01 | 1 | 577 | 585 | 9 | RDPQTL 0.001446 | 16 |
| HLA-B*51:01 | 1 | 787 | 795 | 9 | QIYKTPPIK 0.001446 | 16 |
| HLA-A*68:02 | 1 | 921 | 930 | 10 | KLIANQFN 0.001446 | 13 |
| HLA-A*01:01 | 1 | 936 | 945 | 10 | DSLSSTASAL 0.001446 | 12 |
| HLA-A*23:01 | 1 | 320 | 328 | 9 | VQPTESIVR 0.001444 | 7.1 |
| HLA-B*58:01 | 1 | 1260 | 1268 | 9 | DSEPVKGV 0.001444 | 12 |
| HLA-A*30:01 | 1 | 147 | 156 | 10 | KNNKSWMESE 0.001443 | 23 |
| HLA-B*15:01 | 1 | 401 | 410 | 10 | VIRGDEVQRQI 0.001443 | 12 |
| HLA-B*51:01 | 1 | 571 | 579 | 9 | DTTDAVRDP 0.001443 | 16 |
| HLA-A*33:01 | 1 | 688 | 696 | 9 | ASQSIIAYT 0.001443 | 12 |
| HLA-B*44:02 | 1 | 951 | 959 | 9 | VVNQNAQAL 0.001443 | 6.8 |
| HLA-A*30:02 | 1 | 232 | 240 | 9 | GINITRFQT 0.001442 | 20 |
| HLA-B*53:01 | 1 | 869 | 878 | 10 | MIAQYTSALL 0.001442 | 7.9 |
| HLA-B*51:01 | 1 | 342 | 351 | 10 | FNATRFASVY 0.001441 | 16 |
| HLA-B*44:02 | 1 | 360 | 369 | 10 | NCVADYSVLY 0.001441 | 6.8 |
| HLA-A*03:01 | 1 | 925 | 934 | 10 | NQFN 0.001441 | 10 |
| HLA-B*51:01 | 1 | 1100 | 1109 | 10 | THWFVTQRNF 0.001441 | 16 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*01:01 | 1 | 60 | 68 | 9 | SNVTWFHAI 0.00144 | 12 |
| HLA-B*40:01 | 1 | 145 | 153 | 9 | YHKNNKSWM 0.00144 | 6.4 |
| HLA-B*58:01 | 1 | 263 | 272 | 10 | AAYYVGYLQP 0.00144 | 12 |
| HLA-A*30:01 | 1 | 485 | 493 | 9 | GFNCYFPLQ 0.00144 | 23 |
| HLA-A*30:02 | 1 | 503 | 512 | 10 | VGYPYRVVV 0.00144 | 20 |
| HLA-A*02:06 | 1 | 615 | 624 | 10 | VNCTEVPVAI 0.00144 | 17 |
| HLA-A*02:06 | 1 | 1039 | 1047 | 9 | RVDFCGKGY 0.00144 | 17 |
| HLA-A*02:01 | 1 | 284 | 292 | 9 | TITDAVDCA 0.001439 | 12 |
| HLA-A*02:01 | 1 | 361 | 369 | 9 | CVADYSVLY 0.001439 | 12 |
| HLA-B*57:01 | 1 | 781 | 790 | 10 | VFAQVKQIYK 0.001439 | 16 |
| HLA-B*07:02 | 1 | 874 | 882 | 9 | TSALLAGTI 0.001439 | 9.9 |
| HLA-A*68:02 | 1 | 933 | 941 | 9 | KIQDLSLST 0.001439 | 13 |
| HLA-B*57:01 | 1 | 1136 | 1144 | 9 | TVYDPLQPE 0.001439 | 16 |
| HLA-B*35:01 | 1 | 263 | 271 | 10 | AAYYVGYLQ 0.001438 | 8.6 |
| HLA-A*26:01 | 1 | 886 | 895 | 10 | WTFGAGAALQ 0.001438 | 9.1 |
| HLA-A*01:01 | 1 | 993 | 1001 | 9 | IDRLITGRL 0.001438 | 12 |
| HLA-A*31:01 | 1 | 1004 | 1012 | 9 | LQTYVTQQL 0.001438 | 14 |
| HLA-A*32:01 | 1 | 1038 | 1047 | 10 | KRVDFCGKGY 0.001438 | 8.9 |
| HLA-B*53:01 | 1 | 28 | 36 | 9 | YTNSFTRGV 0.001437 | 7.9 |
| HLA-B*57:01 | 1 | 690 | 698 | 9 | QSIAYTMS 0.001437 | 16 |
| HLA-A*32:01 | 1 | 1225 | 1233 | 9 | IAIVMVTIM 0.001437 | 8.9 |
| HLA-A*11:01 | 1 | 49 | 58 | 10 | HSTQDLFLPF 0.001436 | 8.5 |
| HLA-B*51:01 | 1 | 158 | 166 | 9 | RVYSSANNC 0.001436 | 16 |
| HLA-A*31:01 | 1 | 240 | 249 | 10 | TLLALHRSYL 0.001436 | 14 |
| HLA-A*68:01 | 1 | 440 | 449 | 10 | NLDSKVGGNV 0.001436 | 14 |
| HLA-A*02:06 | 1 | 647 | 656 | 10 | AGCLIGAHEV 0.001436 | 17 |
| HLA-A*30:02 | 1 | 1132 | 1140 | 9 | IVNNTVYDP 0.001436 | 20 |
| HLA-B*58:01 | 1 | 1135 | 1143 | 9 | NTVYDPLQP 0.001436 | 12 |
| HLA-A*32:01 | 1 | 1215 | 1224 | 10 | YIWLGFIAGL 0.001436 | 8.9 |
| HLA-A*32:01 | 1 | 311 | 320 | 10 | GIYQTSNFRV 0.001435 | 8.9 |
| HLA-B*57:01 | 1 | 620 | 629 | 10 | VPVAIHADQL 0.001435 | 16 |
| HLA-A*03:01 | 1 | 652 | 660 | 9 | GAEHVNNNSY 0.001435 | 11 |
| HLA-A*03:01 | 1 | 677 | 686 | 10 | QTNSPRRARS 0.001435 | 11 |
| HLA-A*01:01 | 1 | 787 | 795 | 9 | QIYKTPPIK 0.001435 | 12 |
| HLA-A*02:01 | 1 | 826 | 834 | 9 | VTLADAGFI 0.001435 | 12 |
| HLA-A*31:01 | 1 | 75 | 83 | 9 | GTKRFDNPV 0.001434 | 14 |
| HLA-B*57:01 | 1 | 346 | 355 | 10 | RFASVYAWN 0.001434 | 16 |
| HLA-A*30:01 | 1 | 658 | 666 | 9 | NSYECDIPI 0.001434 | 23 |
| HLA-A*68:01 | 1 | 731 | 739 | 9 | MTKTSVDCT 0.001434 | 14 |
| HLA-A*11:01 | 1 | 1030 | 1039 | 10 | SECVLGQSKR 0.001434 | 8.5 |
| HLA-A*02:06 | 1 | 359 | 367 | 9 | SNCVADYSV 0.001433 | 17 |
| HLA-B*35:01 | 1 | 556 | 565 | 10 | NKKFLPFQF 0.001433 | 8.7 |
| HLA-B*08:01 | 1 | 904 | 912 | 9 | YRFNGIGVT 0.001433 | 17 |
| HLA-B*08:01 | 1 | 1009 | 1017 | 9 | TQQLIRAAE 0.001433 | 17 |
| HLA-B*53:01 | 1 | 2 | 10 | 9 | FVFLVLLPL 0.001432 | 8.0 |
| HLA-B*57:01 | 1 | 457 | 466 | 10 | RKSNLKPFR 0.001432 | 16 |
| HLA-A*02:06 | 1 | 638 | 646 | 9 | TGSNVFQTR 0.001432 | 17 |
| HLA-A*02:03 | 1 | 658 | 666 | 9 | NSYECDIPI 0.001432 | 14 |
| HLA-B*44:02 | 1 | 817 | 826 | 10 | FIEDLLFNKV 0.001432 | 6.8 |
| HLA-A*02:06 | 1 | 62 | 71 | 10 | VTWFHAIHVS 0.001431 | 17 |
| HLA-B*40:01 | 1 | 98 | 106 | 9 | SNIIRGWIF 0.00143 | 6.4 |
| HLA-A*02:03 | 1 | 313 | 322 | 10 | YQTSNFRVQP 0.00143 | 14 |
| HLA-A*23:01 | 1 | 394 | 402 | 9 | NVYADSFVI 0.00143 | 7.1 |
| HLA-B*15:01 | 1 | 447 | 456 | 10 | GNYNLYRLF 0.00143 | 12 |
| HLA-A*02:01 | 1 | 688 | 697 | 10 | ASQSIIAYTM 0.00143 | 12 |
| HLA-B*08:01 | 1 | 780 | 789 | 10 | EVFAQVKQIY 0.00143 | 17 |
| HLA-A*68:01 | 1 | 301 | 309 | 9 | CTLKSFTVE 0.001429 | 14 |
| HLA-A*02:01 | 1 | 580 | 589 | 10 | QTLIILDITP 0.001429 | 12 |
| HLA-B*08:01 | 1 | 614 | 622 | 9 | DVNCTEVPV 0.001429 | 17 |
| HLA-B*40:01 | 1 | 627 | 636 | 10 | DQLTPTWRVY 0.001429 | 6.4 |
| HLA-A*32:01 | 1 | 1093 | 1101 | 9 | GVFVSNGTH 0.001429 | 9.0 |
| HLA-A*68:02 | 1 | 1209 | 1217 | 9 | YIKWPWYIW 0.001429 | 13 |
| HLA-B*15:01 | 1 | 1263 | 1271 | 9 | PVLKGVKHL 0.001429 | 12 |
| HLA-B*35:01 | 1 | 57 | 65 | 9 | PFFSNVTWF 0.001428 | 8.7 |
| HLA-B*58:01 | 1 | 369 | 378 | 10 | YNSASFSTFK 0.001428 | 12 |
| HLA-A*32:01 | 1 | 873 | 882 | 10 | YTSALLAGTI 0.001428 | 9.0 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*02:06 | 1 | 470 | 479 | 10 | TEIQAGSTP 0.001427 | 17 |
| HLA-A*68:01 | 1 | 598 | 607 | 10 | ITPGTNTSNQ 0.001427 | 14 |
| HLA-A*30:02 | 1 | 966 | 974 | 9 | LSSNFGAIS 0.001427 | 20 |
| HLA-A*03:01 | 1 | 651 | 660 | 10 | IGAHEVNNNSY 0.001426 | 11 |
| HLA-A*31:01 | 1 | 814 | 823 | 10 | KRSFIEDLLF 0.001426 | 14 |
| HLA-A*30:02 | 1 | 880 | 889 | 10 | GTITSGWTFG 0.001426 | 20 |
| HLA-B*58:01 | 1 | 1029 | 1038 | 10 | MSECVLGQSK 0.001426 | 12 |
| HLA-B*08:01 | 1 | 6 | 14 | 9 | VLLPLVSSQ 0.001425 | 17 |
| HLA-B*08:01 | 1 | 243 | 251 | 9 | ALHRSYLTP 0.001425 | 17 |
| HLA-B*53:01 | 1 | 371 | 379 | 9 | SASFSTFKC 0.001425 | 8.0 |
| HLA-A*24:02 | 1 | 574 | 582 | 9 | DAVRDPQTL 0.001425 | 7.0 |
| HLA-A*02:06 | 1 | 684 | 692 | 9 | ARSVASQSI 0.001425 | 17 |
| HLA-A*30:01 | 1 | 157 | 166 | 10 | FRVYSSANNC 0.001424 | 23 |
| HLA-A*01:01 | 1 | 227 | 235 | 9 | VDLPIGINI 0.001424 | 12 |
| HLA-B*58:01 | 1 | 434 | 442 | 9 | IAWNSNLD 0.001424 | 12 |
| HLA-A*30:01 | 1 | 844 | 852 | 9 | IAARDLICA 0.001424 | 23 |
| HLA-A*02:06 | 1 | 38 | 46 | 9 | YPDKVFRSS 0.001423 | 17 |
| HLA-B*07:02 | 1 | 250 | 259 | 10 | TPGDSSSGWT 0.001423 | 9.9 |
| HLA-B*51:01 | 1 | 471 | 480 | 10 | EIQAGSTPC 0.001423 | 16 |
| HLA-A*24:02 | 1 | 1034 | 1042 | 9 | LGQSKRVDF 0.001423 | 7.0 |
| HLA-A*24:02 | 1 | 1203 | 1212 | 10 | LGKYEYIKW 0.001423 | 7.0 |
| HLA-A*30:01 | 1 | 207 | 216 | 10 | HTPINLVRDL 0.001422 | 23 |
| HLA-A*68:01 | 1 | 1017 | 1026 | 10 | EIRASANLAA 0.001422 | 14 |
| HLA-B*57:01 | 1 | 123 | 132 | 10 | ATNVVIVKCE 0.001421 | 16 |
| HLA-B*07:02 | 1 | 465 | 473 | 9 | ERDISTEY 0.001421 | 9.9 |
| HLA-B*44:02 | 1 | 94 | 103 | 10 | STEKSNIIIRG 0.00142 | 6.8 |
| HLA-A*30:02 | 1 | 367 | 376 | 10 | VLYNSASFST 0.00142 | 20 |
| HLA-A*02:06 | 1 | 745 | 753 | 9 | DSTECSNLL 0.00142 | 17 |
| HLA-A*02:01 | 1 | 504 | 512 | 9 | GYQPYRVVV 0.001419 | 12 |
| HLA-A*31:01 | 1 | 506 | 515 | 10 | QPYRVVLSF 0.001419 | 14 |
| HLA-B*07:02 | 1 | 1094 | 1102 | 9 | VFVSNGTHW 0.001419 | 9.9 |
| HLA-A*23:01 | 1 | 85 | 93 | 9 | PFNDGVYFA 0.001418 | 7.2 |
| HLA-A*01:01 | 1 | 465 | 474 | 10 | ERDISTEYQ 0.001418 | 12 |
| HLA-B*53:01 | 1 | 553 | 562 | 10 | TESNKKFLPF 0.001418 | 8.0 |
| HLA-B*57:01 | 1 | 638 | 647 | 10 | TGSNVFQTRA 0.001418 | 17 |
| HLA-A*02:03 | 1 | 722 | 730 | 9 | VTTEILPVS 0.001418 | 14 |
| HLA-A*30:01 | 1 | 912 | 920 | 9 | TQNVLYENQ 0.001418 | 23 |
| HLA-A*01:01 | 1 | 268 | 277 | 10 | GYLQPRTFLL 0.001417 | 12 |
| HLA-A*68:02 | 1 | 1189 | 1198 | 10 | VAKNLNESLI 0.001417 | 14 |
| HLA-A*01:01 | 1 | 1202 | 1210 | 9 | ELGKYEYI 0.001417 | 12 |
| HLA-B*57:01 | 1 | 15 | 24 | 10 | CVNLTRTQL 0.001416 | 17 |
| HLA-A*23:01 | 1 | 31 | 39 | 9 | SFTRGVYYP 0.001416 | 7.2 |
| HLA-A*01:01 | 1 | 186 | 194 | 9 | FKNLREFVF 0.001416 | 12 |
| HLA-B*58:01 | 1 | 790 | 799 | 10 | KTPPIKDFGG 0.001416 | 12 |
| HLA-A*68:02 | 1 | 947 | 956 | 10 | KLQDVVNQNA 0.001416 | 14 |
| HLA-A*68:01 | 1 | 10 | 18 | 9 | LVSSQCVNL 0.001415 | 14 |
| HLA-A*32:01 | 1 | 348 | 356 | 9 | ASVYAWNRK 0.001415 | 9.0 |
| HLA-B*58:01 | 1 | 481 | 490 | 10 | NGVEGFNCYF 0.001415 | 12 |
| HLA-A*23:01 | 1 | 612 | 620 | 9 | YQDVNCTEV 0.001415 | 7.2 |
| HLA-A*30:01 | 1 | 816 | 824 | 9 | SFIEDLLFN 0.001415 | 23 |
| HLA-B*08:01 | 1 | 1189 | 1198 | 10 | VAKNLNESLI 0.001415 | 17 |
| HLA-A*02:06 | 1 | 135 | 144 | 10 | FCNDPFLGVY 0.001414 | 17 |
| HLA-B*51:01 | 1 | 150 | 159 | 10 | KSWMSEFRV 0.001414 | 16 |
| HLA-B*07:02 | 1 | 227 | 235 | 9 | VDLPIGINI 0.001414 | 9.9 |
| HLA-B*35:01 | 1 | 292 | 300 | 9 | ALDPLSETK 0.001414 | 8.7 |
| HLA-B*53:01 | 1 | 915 | 923 | 9 | VLYENQKLI 0.001414 | 8.0 |
| HLA-B*08:01 | 1 | 1161 | 1169 | 9 | SPDVLGDI 0.001414 | 17 |
| HLA-B*58:01 | 1 | 787 | 795 | 9 | QIYKTPPIK 0.001413 | 12 |
| HLA-A*02:01 | 1 | 1174 | 1183 | 10 | ASVNIQKEI 0.001413 | 12 |
| HLA-B*44:02 | 1 | 626 | 635 | 10 | ADQLTPTWRV 0.001412 | 6.8 |
| HLA-A*02:01 | 1 | 628 | 636 | 9 | QLTPTWRVY 0.001412 | 12 |
| HLA-B*44:02 | 1 | 125 | 133 | 9 | NVVIVKCEF 0.001411 | 6.8 |
| HLA-A*68:01 | 1 | 950 | 959 | 10 | DVVVNQAQAL 0.001411 | 14 |
| HLA-B*53:01 | 1 | 569 | 577 | 9 | IADTTDAVR 0.00141 | 8.0 |
| HLA-B*08:01 | 1 | 748 | 756 | 9 | ECSNLLLQY 0.00141 | 17 |
| HLA-A*32:01 | 1 | 953 | 962 | 10 | NQNAQALNLT 0.00141 | 9.0 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*26:01 | 1 | 214 | 223 | 10 | RDLPGGFSAL 0.001409 | 9.2 |
| HLA-B*58:01 | 1 | 1076 | 1084 | 9 | TTAPAICHD 0.001409 | 12 |
| HLA-B*53:01 | 1 | 1185 | 1193 | 9 | RLNEVAKNL 0.001409 | 8.0 |
| HLA-B*40:01 | 1 | 20 | 28 | 9 | TRTQLPPAY 0.001408 | 6.5 |
| HLA-B*15:01 | 1 | 75 | 83 | 9 | GTKRFDNPV 0.001407 | 13 |
| HLA-A*01:01 | 1 | 133 | 141 | 9 | FQFCNDPFL 0.001407 | 12 |
| HLA-A*02:01 | 1 | 157 | 166 | 10 | FRVYSSANNC 0.001407 | 12 |
| HLA-B*44:03 | 1 | 249 | 258 | 10 | LTPGDSSSWG 0.001407 | 7.0 |
| HLA-A*30:02 | 1 | 428 | 436 | 9 | DFTGCVIAW 0.001407 | 20 |
| HLA-B*44:03 | 1 | 1091 | 1099 | 9 | REGVFSVNG 0.001407 | 7.0 |
| HLA-A*23:01 | 1 | 53 | 62 | 10 | DLFLPFFSNV 0.001406 | 7.2 |
| HLA-B*44:03 | 1 | 895 | 904 | 10 | QIPFAMQMAY 0.001406 | 7.0 |
| HLA-A*68:02 | 1 | 999 | 1008 | 10 | GRLQSLQTYV 0.001406 | 14 |
| HLA-A*23:01 | 1 | 832 | 841 | 10 | GFIKQYGDCL 0.001405 | 7.2 |
| HLA-B*07:02 | 1 | 335 | 344 | 10 | LCPFGEVFNA 0.001404 | 10 |
| HLA-B*07:02 | 1 | 630 | 639 | 10 | TPTWRVYSTG 0.001404 | 10 |
| HLA-A*33:01 | 1 | 1199 | 1207 | 9 | DLQELGKYE 0.001404 | 12 |
| HLA-B*08:01 | 1 | 602 | 611 | 10 | TNTSNQVAVL 0.001403 | 17 |
| HLA-B*57:01 | 1 | 756 | 765 | 10 | YGSFCTQLNR 0.001403 | 17 |
| HLA-B*08:01 | 1 | 1102 | 1110 | 9 | WFVTQRNFY 0.001403 | 17 |
| HLA-A*33:01 | 1 | 312 | 320 | 9 | IYQTSNFRV 0.001402 | 12 |
| HLA-B*51:01 | 1 | 109 | 118 | 10 | TLDSKTQSLI 0.001401 | 16 |
| HLA-A*30:01 | 1 | 652 | 660 | 9 | GAEHVNNSY 0.001401 | 23 |
| HLA-B*15:01 | 1 | 699 | 708 | 10 | LGAENSVAYS 0.001401 | 13 |
| HLA-A*24:02 | 1 | 16 | 24 | 9 | VNLTRTQL 0.0014 | 7.0 |
| HLA-A*33:01 | 1 | 132 | 140 | 9 | EFQFCNDPF 0.0014 | 12 |
| HLA-A*68:01 | 1 | 51 | 59 | 9 | TQDLFLPFF 0.001399 | 14 |
| HLA-A*68:01 | 1 | 111 | 119 | 9 | DSKTQSLLI 0.001399 | 14 |
| HLA-A*02:01 | 1 | 221 | 230 | 10 | SALEPLVDLP 0.001399 | 13 |
| HLA-A*01:01 | 1 | 233 | 241 | 9 | INITRFQTL 0.001399 | 12 |
| HLA-B*08:01 | 1 | 535 | 543 | 9 | KNKCVNFNF 0.001399 | 17 |
| HLA-B*40:01 | 1 | 40 | 48 | 9 | DKVFRSSVL 0.001398 | 6.5 |
| HLA-B*08:01 | 1 | 861 | 870 | 10 | LPPLLTDEMI 0.001398 | 17 |
| HLA-A*24:02 | 1 | 1010 | 1018 | 9 | QLLIRAAEI 0.001398 | 7.0 |
| HLA-A*01:01 | 1 | 1066 | 1075 | 10 | TYVPAQEKNF 0.001398 | 12 |
| HLA-A*30:02 | 1 | 1092 | 1101 | 10 | EGVFSVNGTH 0.001398 | 20 |
| HLA-A*68:02 | 1 | 1106 | 1114 | 9 | QRNFYEPQI 0.001398 | 14 |
| HLA-A*33:01 | 1 | 1188 | 1196 | 9 | EVAKNLNES 0.001398 | 12 |
| HLA-B*15:01 | 1 | 1219 | 1227 | 9 | GFIAGLIAI 0.001398 | 13 |
| HLA-A*11:01 | 1 | 19 | 27 | 9 | TTRTQLPPA 0.001397 | 8.6 |
| HLA-A*03:01 | 1 | 204 | 212 | 9 | YSKHTPINL 0.001397 | 11 |
| HLA-B*53:01 | 1 | 262 | 270 | 9 | AAAYVGYL 0.001397 | 8.1 |
| HLA-B*08:01 | 1 | 464 | 473 | 10 | FERDISTEYI 0.001397 | 17 |
| HLA-A*02:01 | 1 | 618 | 626 | 9 | TEVPVAIHA 0.001397 | 13 |
| HLA-A*02:01 | 1 | 863 | 871 | 9 | PLLTDEMIA 0.001397 | 13 |
| HLA-B*08:01 | 1 | 1100 | 1109 | 10 | THWFVTQRNF 0.001397 | 17 |
| HLA-A*30:01 | 1 | 1200 | 1209 | 10 | LQELGKYEQY 0.001397 | 23 |
| HLA-B*08:01 | 1 | 309 | 318 | 10 | EKGIYQTSNF 0.001396 | 17 |
| HLA-A*01:01 | 1 | 757 | 765 | 9 | GSFCTQLNR 0.001396 | 12 |
| HLA-A*31:01 | 1 | 895 | 904 | 10 | QIPFAMQMAY 0.001396 | 14 |
| HLA-A*32:01 | 1 | 1128 | 1136 | 9 | VVIGIVNNT 0.001396 | 9.0 |
| HLA-B*15:01 | 1 | 563 | 572 | 10 | QQFGRDIADT 0.001395 | 13 |
| HLA-A*02:03 | 1 | 471 | 480 | 10 | EIYQAGSTPC 0.001394 | 14 |
| HLA-A*33:01 | 1 | 619 | 628 | 10 | EVPVAIHADQ 0.001394 | 12 |
| HLA-A*01:01 | 1 | 837 | 846 | 10 | YGDCLGDIAA 0.001394 | 12 |
| HLA-A*24:02 | 1 | 1060 | 1068 | 9 | VVFLHVTYV 0.001394 | 7.0 |
| HLA-B*51:01 | 1 | 1092 | 1100 | 9 | EGVFSVNGT 0.001394 | 16 |
| HLA-A*01:01 | 1 | 1256 | 1264 | 9 | FDEDDSEPV 0.001394 | 12 |
| HLA-A*68:01 | 1 | 506 | 515 | 10 | QPYRVVLSF 0.001393 | 14 |
| HLA-A*02:03 | 1 | 926 | 934 | 9 | QFNSAIGKI 0.001393 | 14 |
| HLA-A*31:01 | 1 | 1175 | 1183 | 9 | SVVNIQKEI 0.001393 | 14 |
| HLA-B*51:01 | 1 | 589 | 597 | 9 | PCSFQGVSV 0.001392 | 16 |
| HLA-A*23:01 | 1 | 780 | 788 | 9 | EVFAQVKQI 0.001392 | 7.2 |
| HLA-B*51:01 | 1 | 895 | 903 | 9 | QIPFAMQMA 0.001392 | 16 |
| HLA-B*35:01 | 1 | 1182 | 1190 | 9 | EIDRLNEVA 0.001392 | 8.8 |
| HLA-A*02:03 | 1 | 121 | 130 | 10 | NNATNVVIVK 0.001391 | 14 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*30:01 | 1 | 291 | 299 | 9 | CALDPLSET 0.001391 | 23 |
| HLA-A*24:02 | 1 | 328 | 337 | 10 | RFPNITNLCP 0.001391 | 7.0 |
| HLA-A*23:01 | 1 | 383 | 392 | 10 | SPTKLNLCF 0.001391 | 7.2 |
| HLA-B*15:01 | 1 | 386 | 395 | 10 | KLNDLCFTNV 0.001391 | 13 |
| HLA-B*08:01 | 1 | 745 | 753 | 9 | DSTECSNLL 0.001391 | 17 |
| HLA-B*08:01 | 1 | 1153 | 1162 | 10 | DKYFKNHTSP 0.001391 | 17 |
| HLA-B*40:01 | 1 | 1158 | 1166 | 9 | NHTSPDVDL 0.001391 | 6.5 |
| HLA-B*35:01 | 1 | 177 | 186 | 10 | MDLEGKQGNF 0.00139 | 8.8 |
| HLA-B*57:01 | 1 | 498 | 507 | 10 | QPTNGVGYP 0.00139 | 17 |
| HLA-A*02:03 | 1 | 102 | 110 | 9 | RGWIFGTTL 0.001389 | 14 |
| HLA-A*33:01 | 1 | 306 | 315 | 10 | FTVEKGIYQT 0.001389 | 12 |
| HLA-A*33:01 | 1 | 535 | 543 | 9 | KNKCVNFNF 0.001389 | 12 |
| HLA-A*33:01 | 1 | 712 | 720 | 9 | IAIPTNFTI 0.001389 | 12 |
| HLA-B*07:02 | 1 | 798 | 806 | 9 | GGFNFSQIL 0.001389 | 10 |
| HLA-A*30:01 | 1 | 820 | 828 | 9 | DLLFNKVTL 0.001389 | 23 |
| HLA-A*30:01 | 1 | 1195 | 1203 | 9 | ESLIDLQEL 0.001389 | 23 |
| HLA-A*02:06 | 1 | 1231 | 1239 | 9 | TIMLCCMTS 0.001389 | 18 |
| HLA-A*30:02 | 1 | 76 | 84 | 9 | TKRFDNPVL 0.001388 | 20 |
| HLA-B*51:01 | 1 | 159 | 168 | 10 | VYSSANNCTF 0.001388 | 16 |
| HLA-A*01:01 | 1 | 214 | 223 | 10 | RDLPGQFSAL 0.001388 | 12 |
| HLA-A*24:02 | 1 | 914 | 922 | 9 | NVLYENQKL 0.001388 | 7.0 |
| HLA-A*33:01 | 1 | 1017 | 1025 | 9 | EIRASANLA 0.001388 | 12 |
| HLA-B*58:01 | 1 | 1128 | 1136 | 9 | VVIGIVNNT 0.001388 | 12 |
| HLA-A*31:01 | 1 | 88 | 97 | 10 | DGVYFASTEK 0.001387 | 14 |
| HLA-A*26:01 | 1 | 40 | 48 | 9 | DKVFRSSVL 0.001386 | 9.3 |
| HLA-A*68:01 | 1 | 1031 | 1040 | 10 | ECVLGQSKRV 0.001386 | 14 |
| HLA-B*08:01 | 1 | 1201 | 1210 | 10 | QELGKYEQYI 0.001386 | 17 |
| HLA-A*68:02 | 1 | 522 | 531 | 10 | ATVCGPKKST 0.001385 | 14 |
| HLA-A*02:01 | 1 | 583 | 592 | 10 | EILDITPCSF 0.001385 | 13 |
| HLA-A*11:01 | 1 | 675 | 684 | 10 | QTQTNSPRRA 0.001385 | 8.6 |
| HLA-A*30:01 | 1 | 871 | 880 | 10 | AQYTSALLAG 0.001385 | 23 |
| HLA-B*53:01 | 1 | 1016 | 1024 | 9 | AEIRASANL 0.001385 | 8.1 |
| HLA-B*53:01 | 1 | 1139 | 1147 | 9 | DPLQPELDS 0.001385 | 8.1 |
| HLA-A*02:06 | 1 | 1259 | 1268 | 10 | DDSEPVLKGV 0.001385 | 18 |
| HLA-A*03:01 | 1 | 47 | 56 | 10 | VLHSTQDLFL 0.001384 | 11 |
| HLA-A*31:01 | 1 | 659 | 668 | 10 | SYECDIPIGA 0.001384 | 14 |
| HLA-A*68:02 | 1 | 1230 | 1238 | 9 | VTIMLCCMT 0.001384 | 14 |
| HLA-A*31:01 | 1 | 1264 | 1273 | 10 | VLKGVKLHYT 0.001384 | 14 |
| HLA-B*44:02 | 1 | 233 | 241 | 9 | INITRFQTL 0.001383 | 6.9 |
| HLA-A*02:06 | 1 | 516 | 525 | 10 | ELLHAPATVC 0.001383 | 18 |
| HLA-A*30:01 | 1 | 719 | 727 | 9 | TISVTTEIL 0.001383 | 23 |
| HLA-B*58:01 | 1 | 850 | 858 | 9 | ICAQKFNGL 0.001383 | 12 |
| HLA-A*02:06 | 1 | 1143 | 1152 | 10 | PELDSFKEEL 0.001383 | 18 |
| HLA-B*51:01 | 1 | 214 | 223 | 10 | RDLPGQFSAL 0.001382 | 16 |
| HLA-A*03:01 | 1 | 310 | 318 | 9 | KGTYQTSNF 0.001382 | 11 |
| HLA-B*53:01 | 1 | 420 | 429 | 10 | DYNYKLPDDF 0.001382 | 8.1 |
| HLA-B*35:01 | 1 | 427 | 436 | 10 | DDFTGCVIAW 0.001382 | 8.8 |
| HLA-B*15:01 | 1 | 551 | 560 | 10 | VLTESNKKFL 0.001382 | 13 |
| HLA-B*51:01 | 1 | 614 | 623 | 10 | DVNCTEVPVA 0.001382 | 16 |
| HLA-A*02:06 | 1 | 877 | 886 | 10 | LLAGTITSGW 0.001382 | 18 |
| HLA-B*15:01 | 1 | 1064 | 1073 | 10 | HVTYVPAQEK 0.001382 | 13 |
| HLA-A*68:01 | 1 | 1195 | 1203 | 9 | ESLIDLQEL 0.001382 | 14 |
| HLA-A*01:01 | 1 | 1255 | 1264 | 10 | KFDEDDSEPV 0.001382 | 12 |
| HLA-B*15:01 | 1 | 175 | 183 | 9 | FLMDLEGKQ 0.001381 | 13 |
| HLA-A*01:01 | 1 | 285 | 294 | 10 | ITDAVDCALD 0.001381 | 12 |
| HLA-A*30:01 | 1 | 811 | 820 | 10 | KPSKRSFIED 0.001381 | 23 |
| HLA-B*44:02 | 1 | 877 | 886 | 10 | LLAGTITSGW 0.001381 | 6.9 |
| HLA-A*24:02 | 1 | 1106 | 1114 | 9 | QRNFYEQI 0.001381 | 7.1 |
| HLA-A*30:02 | 1 | 1185 | 1194 | 10 | RLNEVAKNLN 0.001381 | 20 |
| HLA-A*02:06 | 1 | 84 | 93 | 10 | LPFNDGVYFA 0.00138 | 18 |
| HLA-A*02:06 | 1 | 474 | 483 | 10 | QAGSTPCNGV 0.00138 | 18 |
| HLA-B*08:01 | 1 | 542 | 551 | 10 | NFNGLTGTGV 0.00138 | 17 |
| HLA-B*44:02 | 1 | 676 | 684 | 9 | TQTNSPRRA 0.00138 | 6.9 |
| HLA-B*07:02 | 1 | 751 | 759 | 9 | NLLLQYGSF 0.00138 | 10 |
| HLA-B*44:03 | 1 | 817 | 826 | 10 | FIEDLLFNKV 0.00138 | 7.0 |
| HLA-B*44:02 | 1 | 898 | 906 | 9 | FAMQMAYRF 0.00138 | 6.9 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*30:02 | 1 | 795 | 803 | 9 | KDFGGFNFS 0.001379 | 20 |
| HLA-A*33:01 | 1 | 1199 | 1208 | 10 | DLQELGKYEQ 0.001379 | 12 |
| HLA-A*23:01 | 1 | 394 | 403 | 10 | NVYADSFVIR 0.001378 | 7.3 |
| HLA-A*30:02 | 1 | 1096 | 1105 | 10 | VSNNGTHWFVT 0.001378 | 20 |
| HLA-A*30:01 | 1 | 1210 | 1218 | 9 | IKWPWYIWL 0.001378 | 23 |
| HLA-B*15:01 | 1 | 96 | 104 | 9 | EKSNIIRGW 0.001377 | 13 |
| HLA-A*32:01 | 1 | 199 | 207 | 9 | GYFKIYSKH 0.001376 | 9.1 |
| HLA-A*30:02 | 1 | 232 | 241 | 10 | GINITRFQTL 0.001376 | 20 |
| HLA-B*08:01 | 1 | 604 | 612 | 9 | TSNQVAVLY 0.001376 | 17 |
| HLA-A*02:01 | 1 | 687 | 695 | 9 | VASQSIIAY 0.001376 | 13 |
| HLA-A*24:02 | 1 | 865 | 873 | 9 | LTDEMIAQY 0.001376 | 7.1 |
| HLA-A*30:01 | 1 | 1008 | 1017 | 10 | VTQQLIRAAE 0.001376 | 23 |
| HLA-A*24:02 | 1 | 465 | 473 | 9 | ERDISTEIIY 0.001375 | 7.1 |
| HLA-A*30:01 | 1 | 1168 | 1176 | 9 | DISGINASV 0.001375 | 23 |
| HLA-A*02:06 | 1 | 49 | 58 | 10 | HSTQDLFLPF 0.001374 | 18 |
| HLA-A*30:02 | 1 | 271 | 280 | 10 | QPRTFLLKYN 0.001374 | 20 |
| HLA-A*26:01 | 1 | 814 | 823 | 10 | KRSFIEDLLF 0.001374 | 9.3 |
| HLA-A*02:01 | 1 | 1012 | 1020 | 9 | LIRAAEIRA 0.001374 | 13 |
| HLA-B*57:01 | 1 | 48 | 57 | 10 | LHSTQDLFLP 0.001373 | 17 |
| HLA-A*30:02 | 1 | 644 | 653 | 10 | QTRAGCLIGA 0.001373 | 20 |
| HLA-B*44:03 | 1 | 803 | 812 | 10 | SQILPDPSKP 0.001373 | 7.0 |
| HLA-A*30:01 | 1 | 835 | 844 | 10 | KQYGDCLGDI 0.001373 | 23 |
| HLA-A*01:01 | 1 | 1121 | 1129 | 9 | FVSGNCDVV 0.001372 | 13 |
| HLA-B*58:01 | 1 | 233 | 242 | 10 | INITRFQTL 0.001371 | 12 |
| HLA-A*01:01 | 1 | 259 | 267 | 9 | TAGAAAYV 0.001371 | 13 |
| HLA-A*30:01 | 1 | 1002 | 1011 | 10 | QSLQTYVTQQ 0.001371 | 23 |
| HLA-A*02:03 | 1 | 218 | 226 | 9 | QGFSALEPL 0.00137 | 14 |
| HLA-B*53:01 | 1 | 384 | 392 | 9 | PTKLNDFCF 0.00137 | 8.1 |
| HLA-A*33:01 | 1 | 115 | 123 | 9 | QSLLVNNA 0.001369 | 12 |
| HLA-A*02:01 | 1 | 399 | 407 | 9 | SFVIRGDEV 0.001369 | 13 |
| HLA-A*30:02 | 1 | 448 | 457 | 10 | NYNYLYRFR 0.001369 | 20 |
| HLA-B*07:02 | 1 | 810 | 818 | 9 | SKPSKRSFI 0.001369 | 11 |
| HLA-B*08:01 | 1 | 134 | 143 | 10 | QFCNDPFLGV 0.001368 | 17 |
| HLA-A*30:01 | 1 | 567 | 576 | 10 | RDIADTTDAV 0.001368 | 23 |
| HLA-A*30:02 | 1 | 635 | 644 | 10 | VYSTGSNVFQ 0.001368 | 20 |
| HLA-B*53:01 | 1 | 975 | 984 | 10 | SVLNDILSRL 0.001368 | 8.1 |
| HLA-B*51:01 | 1 | 1123 | 1132 | 10 | SGNCDVVIGI 0.001368 | 16 |
| HLA-B*40:01 | 1 | 551 | 559 | 9 | VLTESNKKF 0.001367 | 6.6 |
| HLA-A*02:06 | 1 | 835 | 843 | 9 | KQYGDCLGD 0.001367 | 18 |
| HLA-A*68:01 | 1 | 914 | 922 | 9 | NVLYENQKL 0.001367 | 14 |
| HLA-A*01:01 | 1 | 45 | 54 | 10 | SSVLHSTQDL 0.001366 | 13 |
| HLA-A*68:01 | 1 | 96 | 104 | 9 | EKSNIIRGW 0.001366 | 14 |
| HLA-A*11:01 | 1 | 195 | 203 | 9 | KNIDGYFKI 0.001366 | 8.6 |
| HLA-A*30:02 | 1 | 410 | 418 | 9 | IAPGQTGKI 0.001366 | 20 |
| HLA-A*02:06 | 1 | 652 | 660 | 9 | GAEHVNSY 0.001366 | 18 |
| HLA-B*57:01 | 1 | 986 | 995 | 10 | KVEAEVQIDR 0.001366 | 17 |
| HLA-B*58:01 | 1 | 43 | 52 | 10 | FRSSVLHSTQ 0.001365 | 12 |
| HLA-A*02:03 | 1 | 611 | 620 | 10 | LYQDVNCTEV 0.001365 | 14 |
| HLA-A*30:02 | 1 | 887 | 895 | 9 | TFGAGAALQ 0.001365 | 20 |
| HLA-A*30:01 | 1 | 892 | 901 | 10 | AALQIPFAMQ 0.001365 | 23 |
| HLA-B*53:01 | 1 | 433 | 441 | 9 | VIAWNSNNL 0.001364 | 8.1 |
| HLA-B*44:02 | 1 | 477 | 486 | 10 | STPCNGVEGF 0.001364 | 6.9 |
| HLA-A*33:01 | 1 | 556 | 564 | 9 | NKKFLPFQ 0.001364 | 12 |
| HLA-A*30:02 | 1 | 697 | 706 | 10 | MSLGAENVA 0.001364 | 20 |
| HLA-B*57:01 | 1 | 1159 | 1168 | 10 | HTSPDVDLGD 0.001364 | 17 |
| HLA-B*53:01 | 1 | 1198 | 1206 | 9 | IDLQELGKY 0.001364 | 8.1 |
| HLA-A*33:01 | 1 | 1260 | 1268 | 9 | DSEPVKGV 0.001364 | 12 |
| HLA-A*01:01 | 1 | 433 | 441 | 9 | VIAWNSNNL 0.001363 | 13 |
| HLA-A*68:02 | 1 | 782 | 790 | 9 | FAQVKQIYK 0.001363 | 14 |
| HLA-A*68:02 | 1 | 1058 | 1067 | 10 | HGVVFLHVTY 0.001363 | 14 |
| HLA-A*02:03 | 1 | 1236 | 1244 | 9 | CMTSCCSCL 0.001363 | 14 |
| HLA-B*57:01 | 1 | 494 | 503 | 10 | SYGFQPTNGV 0.001362 | 17 |
| HLA-A*01:01 | 1 | 638 | 646 | 9 | TGSNVFQTR 0.001362 | 13 |
| HLA-A*68:02 | 1 | 1040 | 1049 | 10 | VDFCGKGYHL 0.001362 | 14 |
| HLA-A*33:01 | 1 | 1210 | 1218 | 9 | IKWPWYIWL 0.001362 | 12 |
| HLA-A*30:02 | 1 | 498 | 507 | 10 | QPTNGVGYP 0.001361 | 20 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|
| HLA-A*68:02 | 1 | 1089 | 1097 | 9 | FPREGVFVS | 0.001361 | 14 |
| HLA-A*26:01 | 1 | 1257 | 1265 | 9 | DEDDSEPVL | 0.001361 | 9.4 |
| HLA-A*02:01 | 1 | 233 | 242 | 10 | INITRFQTL | 0.00136 | 13 |
| HLA-B*40:01 | 1 | 268 | 276 | 9 | GYLQPRTF | 0.00136 | 6.6 |
| HLA-B*53:01 | 1 | 907 | 916 | 10 | NGIGVTQNV | 0.00136 | 8.1 |
| HLA-B*58:01 | 1 | 941 | 949 | 9 | TASALGKLQ | 0.00136 | 12 |
| HLA-B*53:01 | 1 | 388 | 396 | 9 | NDLCFTNVY | 0.001359 | 8.1 |
| HLA-B*44:02 | 1 | 603 | 612 | 10 | NTSNQVAVL | 0.001359 | 6.9 |
| HLA-A*68:01 | 1 | 796 | 804 | 9 | DFGGFNFSQ | 0.001359 | 14 |
| HLA-B*08:01 | 1 | 1220 | 1229 | 10 | FIAGLIAIVM | 0.001359 | 17 |
| HLA-A*30:02 | 1 | 118 | 126 | 9 | LIVNNATNV | 0.001358 | 20 |
| HLA-B*07:02 | 1 | 173 | 181 | 9 | QPFLMDLEG | 0.001358 | 11 |
| HLA-A*24:02 | 1 | 241 | 249 | 9 | LLALHRSYL | 0.001358 | 7.1 |
| HLA-A*26:01 | 1 | 786 | 794 | 9 | KQIYKTPPI | 0.001358 | 9.4 |
| HLA-A*23:01 | 1 | 234 | 242 | 9 | NITRFQTL | 0.001357 | 7.3 |
| HLA-B*44:03 | 1 | 402 | 410 | 9 | IRGDEVRQI | 0.001357 | 7.1 |
| HLA-A*33:01 | 1 | 559 | 568 | 10 | FLPFQQFGR | 0.001357 | 12 |
| HLA-A*30:02 | 1 | 610 | 618 | 9 | VLYQDVNCT | 0.001357 | 20 |
| HLA-A*26:01 | 1 | 633 | 642 | 10 | WRVYSTGSNV | 0.001357 | 9.4 |
| HLA-A*23:01 | 1 | 1059 | 1067 | 9 | GVVFLHVTY | 0.001357 | 7.3 |
| HLA-A*30:02 | 1 | 731 | 739 | 9 | MTKTSVDCT | 0.001356 | 20 |
| HLA-A*02:03 | 1 | 880 | 888 | 9 | GTITSGWTF | 0.001356 | 14 |
| HLA-A*30:01 | 1 | 950 | 958 | 9 | DVNVQNAQA | 0.001356 | 23 |
| HLA-A*30:02 | 1 | 1001 | 1010 | 10 | LQSLQTYVTQ | 0.001356 | 20 |
| HLA-A*02:01 | 1 | 92 | 100 | 9 | FASTEKSN | 0.001355 | 13 |
| HLA-A*26:01 | 1 | 292 | 300 | 9 | ALDPLSETK | 0.001355 | 9.4 |
| HLA-A*30:01 | 1 | 473 | 481 | 9 | YQAGSTPCN | 0.001355 | 23 |
| HLA-A*32:01 | 1 | 714 | 722 | 9 | IPTNFTISV | 0.001355 | 9.2 |
| HLA-A*02:03 | 1 | 725 | 733 | 9 | EILPVSMTK | 0.001355 | 14 |
| HLA-A*03:01 | 1 | 1096 | 1104 | 9 | VSNGTHWV | 0.001355 | 11 |
| HLA-A*68:02 | 1 | 537 | 546 | 10 | KCVNFNFNGL | 0.001354 | 14 |
| HLA-A*01:01 | 1 | 602 | 611 | 10 | TNTSNQVAVL | 0.001354 | 13 |
| HLA-A*02:06 | 1 | 1020 | 1028 | 9 | ASANLAATK | 0.001354 | 18 |
| HLA-A*02:06 | 1 | 1206 | 1214 | 9 | YEQYIKWPW | 0.001354 | 18 |
| HLA-A*68:02 | 1 | 56 | 65 | 10 | LPFFSNVTF | 0.001353 | 14 |
| HLA-B*51:01 | 1 | 185 | 193 | 9 | NFKNLREFV | 0.001353 | 16 |
| HLA-A*68:02 | 1 | 481 | 490 | 10 | NGVEGFNCYF | 0.001353 | 14 |
| HLA-A*03:01 | 1 | 343 | 351 | 9 | NATRFASVY | 0.001352 | 11 |
| HLA-A*68:02 | 1 | 387 | 395 | 9 | LNDLCFTNV | 0.001352 | 14 |
| HLA-A*33:01 | 1 | 496 | 505 | 10 | GFQPTNGVGY | 0.001352 | 12 |
| HLA-A*02:01 | 1 | 859 | 868 | 10 | TVLPPLLTDE | 0.001352 | 13 |
| HLA-B*15:01 | 1 | 1200 | 1208 | 9 | LQELGKYEQ | 0.001352 | 13 |
| HLA-A*02:01 | 1 | 45 | 54 | 10 | SSVLHSTQDL | 0.001351 | 13 |
| HLA-B*40:01 | 1 | 267 | 275 | 9 | VGYLQPRTF | 0.001351 | 6.6 |
| HLA-A*30:02 | 1 | 519 | 528 | 10 | HAPATVCGPK | 0.001351 | 21 |
| HLA-B*58:01 | 1 | 558 | 566 | 9 | KFLPFQQFG | 0.00135 | 12 |
| HLA-B*51:01 | 1 | 731 | 740 | 10 | MTKTSVDCTM | 0.00135 | 16 |
| HLA-A*30:02 | 1 | 792 | 800 | 9 | PPIKDFGGF | 0.00135 | 21 |
| HLA-A*02:01 | 1 | 1052 | 1061 | 10 | FPQSAPHGVV | 0.00135 | 13 |
| HLA-A*30:02 | 1 | 1133 | 1141 | 9 | VNNTVYDPL | 0.00135 | 21 |
| HLA-A*32:01 | 1 | 1221 | 1229 | 9 | IAGLIAIVM | 0.00135 | 9.2 |
| HLA-A*24:02 | 1 | 95 | 104 | 10 | TEKSNIIRGW | 0.001349 | 7.1 |
| HLA-B*35:01 | 1 | 145 | 153 | 9 | YHKNNKSWM | 0.001349 | 8.9 |
| HLA-A*01:01 | 1 | 658 | 666 | 9 | NSYECDIPI | 0.001349 | 13 |
| HLA-A*24:02 | 1 | 888 | 896 | 9 | FGAGAALQI | 0.001349 | 7.1 |
| HLA-A*02:03 | 1 | 1195 | 1203 | 9 | ESLIDLQEL | 0.001349 | 14 |
| HLA-A*68:02 | 1 | 1264 | 1272 | 9 | VLKGVKLHY | 0.001349 | 14 |
| HLA-A*31:01 | 1 | 510 | 518 | 9 | VVLSFELL | 0.001348 | 14 |
| HLA-A*30:01 | 1 | 580 | 588 | 9 | QTLEILDIT | 0.001348 | 23 |
| HLA-A*23:01 | 1 | 777 | 785 | 9 | NTQEVFAQV | 0.001348 | 7.3 |
| HLA-B*44:02 | 1 | 803 | 812 | 10 | SQILPDPSKP | 0.001348 | 7.0 |
| HLA-B*53:01 | 1 | 46 | 54 | 9 | SVLHSTQDL | 0.001347 | 8.2 |
| HLA-B*51:01 | 1 | 638 | 646 | 9 | TGSNVFQTR | 0.001347 | 16 |
| HLA-A*02:06 | 1 | 707 | 715 | 9 | YSNNSIAIP | 0.001347 | 18 |
| HLA-B*07:02 | 1 | 849 | 858 | 10 | LICAQKFNGL | 0.001347 | 11 |
| HLA-A*30:01 | 1 | 1185 | 1194 | 10 | RLNEVAKNLN | 0.001347 | 23 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*35:01 | 1 | 262 | 270 | 9 | AAAYVGYL 0.001346 | 8.9 |
| HLA-A*02:06 | 1 | 453 | 461 | 9 | YRLFRRSNL 0.001346 | 18 |
| HLA-B*51:01 | 1 | 538 | 546 | 9 | CVNFFNGL 0.001346 | 16 |
| HLA-A*11:01 | 1 | 637 | 645 | 9 | STGSNVFQT 0.001346 | 8.7 |
| HLA-A*30:01 | 1 | 641 | 650 | 10 | NVFQTRAGCL 0.001346 | 23 |
| HLA-B*35:01 | 1 | 845 | 853 | 9 | AARDLICAQ 0.001346 | 8.9 |
| HLA-A*30:01 | 1 | 84 | 93 | 10 | LPFNDGVYFA 0.001345 | 23 |
| HLA-A*02:03 | 1 | 361 | 369 | 9 | CVADYSVLY 0.001345 | 14 |
| HLA-B*07:02 | 1 | 818 | 826 | 9 | IEDLLFNKV 0.001345 | 11 |
| HLA-B*08:01 | 1 | 885 | 894 | 10 | GWTFGAGAAL 0.001345 | 17 |
| HLA-B*44:02 | 1 | 136 | 144 | 9 | CNDPFLGVY 0.001344 | 7.0 |
| HLA-B*57:01 | 1 | 1203 | 1211 | 9 | LGKYEQYIK 0.001344 | 17 |
| HLA-B*58:01 | 1 | 108 | 116 | 9 | TTLDSKTQS 0.001343 | 12 |
| HLA-A*01:01 | 1 | 229 | 237 | 9 | LPIGINITR 0.001343 | 13 |
| HLA-A*01:01 | 1 | 510 | 519 | 10 | VVLSFELLH 0.001343 | 13 |
| HLA-B*07:02 | 1 | 628 | 636 | 9 | QLTPTWRVY 0.001343 | 11 |
| HLA-B*08:01 | 1 | 1001 | 1009 | 9 | LQSLQTYVT 0.001343 | 17 |
| HLA-A*01:01 | 1 | 1101 | 1109 | 9 | HWFVTQRNF 0.001343 | 13 |
| HLA-A*30:01 | 1 | 136 | 144 | 9 | CNDPFLGVY 0.001342 | 23 |
| HLA-A*11:01 | 1 | 314 | 322 | 9 | QTSNFRVQP 0.001342 | 8.7 |
| HLA-B*07:02 | 1 | 789 | 797 | 9 | YKTPPIKDF 0.001342 | 11 |
| HLA-B*58:01 | 1 | 162 | 171 | 10 | SANNCTFEYV 0.001341 | 12 |
| HLA-A*01:01 | 1 | 221 | 230 | 10 | SALEPLVDLP 0.001341 | 13 |
| HLA-A*02:06 | 1 | 227 | 236 | 10 | VDLPIGINIT 0.001341 | 18 |
| HLA-B*57:01 | 1 | 1144 | 1152 | 9 | ELDSFKEEL 0.001341 | 17 |
| HLA-A*30:01 | 1 | 977 | 986 | 10 | LNDILSRDK 0.00134 | 24 |
| HLA-A*32:01 | 1 | 1075 | 1083 | 9 | FTTAPAICH 0.00134 | 9.2 |
| HLA-A*26:01 | 1 | 1108 | 1116 | 9 | NFYEQIIT 0.00134 | 9.4 |
| HLA-A*68:02 | 1 | 138 | 147 | 10 | DPFLGVYHYK 0.001339 | 14 |
| HLA-A*68:02 | 1 | 803 | 811 | 9 | SQILPDPSK 0.001339 | 14 |
| HLA-A*01:01 | 1 | 1019 | 1028 | 10 | RASANLAATK 0.001339 | 13 |
| HLA-B*44:02 | 1 | 268 | 276 | 9 | GYLQPRFTL 0.001338 | 7.0 |
| HLA-B*35:01 | 1 | 680 | 689 | 10 | SPRRARSVAS 0.001338 | 8.9 |
| HLA-A*30:01 | 1 | 692 | 701 | 10 | IIAYTMSLGA 0.001338 | 24 |
| HLA-A*32:01 | 1 | 1005 | 1014 | 10 | QTYVTQLIR 0.001338 | 9.2 |
| HLA-B*08:01 | 1 | 1024 | 1033 | 10 | LAATKMSECV 0.001338 | 17 |
| HLA-B*15:01 | 1 | 1028 | 1036 | 9 | KMSECVLQG 0.001338 | 13 |
| HLA-B*40:01 | 1 | 1175 | 1183 | 9 | SVVNIQKEI 0.001338 | 6.6 |
| HLA-B*44:02 | 1 | 1187 | 1195 | 9 | NEVAKNLNE 0.001338 | 7.0 |
| HLA-A*30:02 | 1 | 15 | 24 | 10 | CVNLTRTQL 0.001337 | 21 |
| HLA-A*02:06 | 1 | 67 | 76 | 10 | AIHVSNGTGT 0.001337 | 18 |
| HLA-A*01:01 | 1 | 148 | 157 | 10 | NNKSWMESEF 0.001337 | 13 |
| HLA-A*30:01 | 1 | 482 | 490 | 9 | GVEGFNCYF 0.001337 | 24 |
| HLA-B*08:01 | 1 | 978 | 987 | 10 | NDILSRDKV 0.001337 | 17 |
| HLA-B*44:03 | 1 | 292 | 300 | 9 | ALDPLSETK 0.001336 | 7.1 |
| HLA-B*08:01 | 1 | 307 | 315 | 9 | TVEKGIYQT 0.001336 | 17 |
| HLA-A*33:01 | 1 | 488 | 496 | 9 | CYFPLQSYG 0.001336 | 12 |
| HLA-B*58:01 | 1 | 679 | 687 | 9 | NSPRRARSV 0.001336 | 12 |
| HLA-A*30:01 | 1 | 684 | 693 | 10 | ARSVASQSII 0.001336 | 24 |
| HLA-A*02:06 | 1 | 1009 | 1017 | 9 | TQLLIRAAE 0.001336 | 18 |
| HLA-B*15:01 | 1 | 1071 | 1079 | 9 | QEKNFITAP 0.001336 | 13 |
| HLA-B*07:02 | 1 | 394 | 402 | 9 | NVYADSFVI 0.001335 | 11 |
| HLA-B*08:01 | 1 | 815 | 823 | 9 | RSFIEDLLF 0.001335 | 17 |
| HLA-B*44:02 | 1 | 1094 | 1103 | 10 | VFVSNGTHWF 0.001335 | 7.0 |
| HLA-B*58:01 | 1 | 1181 | 1189 | 9 | KEIDRLNEV 0.001335 | 12 |
| HLA-A*02:06 | 1 | 108 | 116 | 9 | TTLDSKTQS 0.001334 | 18 |
| HLA-A*32:01 | 1 | 122 | 130 | 9 | NATNVVIKV 0.001334 | 9.2 |
| HLA-B*15:01 | 1 | 845 | 854 | 10 | AARDLICAQK 0.001334 | 13 |
| HLA-B*15:01 | 1 | 534 | 543 | 10 | VKNKCVNFFN 0.001333 | 13 |
| HLA-A*23:01 | 1 | 1189 | 1197 | 9 | VAKNLNESL 0.001333 | 7.4 |
| HLA-A*33:01 | 1 | 111 | 119 | 9 | DSKTQSLLI 0.001332 | 12 |
| HLA-B*44:02 | 1 | 794 | 802 | 9 | IKDFGGFNF 0.001332 | 7.0 |
| HLA-B*51:01 | 1 | 803 | 811 | 9 | SQILPDPSK 0.001332 | 17 |
| HLA-A*26:01 | 1 | 1096 | 1104 | 9 | VSNGTHWFV 0.001332 | 9.5 |
| HLA-A*02:03 | 1 | 1156 | 1164 | 9 | FKNHTSPDV 0.001332 | 14 |
| HLA-A*02:06 | 1 | 1166 | 1174 | 9 | LGDISGINA 0.001332 | 18 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*11:01 | 1 | 35 | 43 | 9 | GVYYPDKVF 0.001331 | 8.7 |
| HLA-A*31:01 | 1 | 83 | 92 | 10 | VLFPNDGVYF 0.001331 | 14 |
| HLA-A*26:01 | 1 | 319 | 328 | 10 | RVQPTESIVR 0.001331 | 9.5 |
| HLA-A*30:01 | 1 | 811 | 819 | 9 | KPSKRSFIE 0.00133 | 24 |
| HLA-B*15:01 | 1 | 40 | 49 | 10 | DKVFRSSVLH 0.001329 | 13 |
| HLA-B*15:01 | 1 | 138 | 146 | 9 | DPFLGVYYH 0.001329 | 13 |
| HLA-B*15:01 | 1 | 248 | 256 | 9 | YLTPGDSSS 0.001329 | 13 |
| HLA-B*57:01 | 1 | 458 | 467 | 10 | KSNLKPFFERD 0.001329 | 17 |
| HLA-A*32:01 | 1 | 556 | 565 | 10 | NKKFLPFQF 0.001329 | 9.2 |
| HLA-A*30:01 | 1 | 789 | 797 | 9 | YKTPPIKDF 0.001329 | 24 |
| HLA-A*33:01 | 1 | 195 | 204 | 10 | KNIDGYFKIY 0.001328 | 12 |
| HLA-B*51:01 | 1 | 442 | 451 | 10 | DSKVGGNYNY 0.001328 | 17 |
| HLA-A*68:02 | 1 | 522 | 530 | 9 | ATVCGPKKS 0.001328 | 14 |
| HLA-B*44:03 | 1 | 634 | 643 | 10 | RVYSTGSNVF 0.001328 | 7.1 |
| HLA-B*07:02 | 1 | 907 | 915 | 9 | NGIGVTQNV 0.001328 | 11 |
| HLA-B*15:01 | 1 | 1025 | 1034 | 10 | AATKMSECVL 0.001328 | 13 |
| HLA-B*57:01 | 1 | 6 | 15 | 10 | VLLPLVSSQC 0.001327 | 17 |
| HLA-A*11:01 | 1 | 58 | 66 | 9 | FFSNVTWFH 0.001327 | 8.7 |
| HLA-A*03:01 | 1 | 445 | 453 | 9 | VGGNYNYLY 0.001327 | 11 |
| HLA-B*44:02 | 1 | 612 | 620 | 9 | YQDVNCTEV 0.001327 | 7.0 |
| HLA-A*23:01 | 1 | 627 | 636 | 10 | DQLTPTWRVY 0.001327 | 7.4 |
| HLA-A*68:02 | 1 | 757 | 766 | 10 | GSFCTQLNRA 0.001327 | 14 |
| HLA-B*51:01 | 1 | 761 | 770 | 10 | TQLNRALTGI 0.001327 | 17 |
| HLA-A*68:01 | 1 | 1008 | 1016 | 9 | VTQQLIRAA 0.001327 | 14 |
| HLA-A*30:01 | 1 | 381 | 389 | 9 | GVSPTKLN 0.001326 | 24 |
| HLA-A*31:01 | 1 | 509 | 518 | 10 | RVVLSFELL 0.001326 | 14 |
| HLA-A*11:01 | 1 | 572 | 580 | 9 | TTDAVRDPQ 0.001326 | 8.7 |
| HLA-A*02:01 | 1 | 963 | 972 | 10 | VKQLSSNFGA 0.001326 | 13 |
| HLA-A*01:01 | 1 | 1015 | 1024 | 10 | AAEIRASANL 0.001326 | 13 |
| HLA-A*31:01 | 1 | 174 | 182 | 9 | PFLMDLEGG 0.001325 | 14 |
| HLA-A*68:02 | 1 | 453 | 461 | 9 | YRLFRRKSNL 0.001325 | 14 |
| HLA-A*30:01 | 1 | 525 | 534 | 10 | CGPKKSTNLV 0.001325 | 24 |
| HLA-A*31:01 | 1 | 947 | 956 | 10 | KLQDVVNQNA 0.001325 | 14 |
| HLA-A*31:01 | 1 | 1181 | 1189 | 9 | KEIDRLNEV 0.001325 | 14 |
| HLA-A*32:01 | 1 | 120 | 128 | 9 | VNATNVVI 0.001324 | 9.2 |
| HLA-B*07:02 | 1 | 137 | 146 | 10 | NDPFLGVYYH 0.001324 | 11 |
| HLA-A*24:02 | 1 | 292 | 300 | 9 | ALDPLSETK 0.001324 | 7.2 |
| HLA-A*02:03 | 1 | 864 | 872 | 9 | LLTDEMIAQ 0.001324 | 14 |
| HLA-A*03:01 | 1 | 1037 | 1045 | 9 | SKRVDFCGK 0.001324 | 11 |
| HLA-B*08:01 | 1 | 1169 | 1177 | 9 | ISGINASVV 0.001324 | 17 |
| HLA-A*02:06 | 1 | 1137 | 1146 | 10 | VYDPLQPELD 0.001323 | 18 |
| HLA-B*51:01 | 1 | 1138 | 1147 | 10 | YDPLQPELDS 0.001323 | 17 |
| HLA-A*02:06 | 1 | 24 | 32 | 9 | LPPAYTNSF 0.001322 | 18 |
| HLA-B*08:01 | 1 | 146 | 154 | 9 | HKNNKSWME 0.001322 | 17 |
| HLA-A*32:01 | 1 | 215 | 223 | 9 | DLPQGFSA 0.001322 | 9.2 |
| HLA-B*15:01 | 1 | 451 | 459 | 9 | YLYRLFRRK 0.001322 | 13 |
| HLA-A*26:01 | 1 | 697 | 705 | 9 | MSLGAENSV 0.001322 | 9.5 |
| HLA-A*33:01 | 1 | 939 | 947 | 9 | SSTASALGK 0.001322 | 12 |
| HLA-B*57:01 | 1 | 114 | 123 | 10 | TQSLLIVNNA 0.001321 | 17 |
| HLA-A*68:01 | 1 | 398 | 406 | 9 | DSFVIRGDE 0.001321 | 14 |
| HLA-A*30:02 | 1 | 896 | 905 | 10 | IPFAMQMAYR 0.001321 | 21 |
| HLA-A*30:01 | 1 | 993 | 1001 | 9 | IDRLITGRL 0.001321 | 24 |
| HLA-B*44:02 | 1 | 167 | 175 | 9 | TFEYVSQPF 0.00132 | 7.1 |
| HLA-A*31:01 | 1 | 221 | 229 | 9 | SALEPLVDL 0.00132 | 14 |
| HLA-B*58:01 | 1 | 312 | 320 | 9 | IYQTSNFRV 0.00132 | 12 |
| HLA-A*68:02 | 1 | 375 | 383 | 9 | STFKCYGVS 0.00132 | 14 |
| HLA-A*02:01 | 1 | 545 | 554 | 10 | GLTGTGVLTE 0.00132 | 13 |
| HLA-A*02:03 | 1 | 723 | 731 | 9 | TTEILPVSM 0.00132 | 14 |
| HLA-B*58:01 | 1 | 48 | 56 | 9 | LHSTQDLFL 0.001319 | 12 |
| HLA-A*68:02 | 1 | 257 | 266 | 10 | GWTAGAAAYY 0.001319 | 14 |
| HLA-B*35:01 | 1 | 371 | 379 | 9 | SASFSTFKC 0.001319 | 9.0 |
| HLA-A*30:01 | 1 | 584 | 592 | 9 | ILDITPCSF 0.001319 | 24 |
| HLA-B*08:01 | 1 | 1199 | 1207 | 9 | DLQELGKYE 0.001319 | 17 |
| HLA-A*30:02 | 1 | 295 | 303 | 9 | PLSETKCTL 0.001318 | 21 |
| HLA-A*01:01 | 1 | 719 | 727 | 9 | TISVTTEIL 0.001318 | 13 |
| HLA-B*44:02 | 1 | 788 | 797 | 10 | IYKTPPIKDF 0.001318 | 7.1 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|
| HLA-A*30:01 | 1 | 965 | 973 | 9 | QLSSNFGAI | 0.001318 | 24 |
| HLA-B*51:01 | 1 | 1158 | 1166 | 9 | NHTSPDVDL | 0.001318 | 17 |
| HLA-B*08:01 | 1 | 195 | 203 | 9 | KNIDGYFKI | 0.001317 | 17 |
| HLA-A*24:02 | 1 | 221 | 229 | 9 | SALEPLVDL | 0.001317 | 7.2 |
| HLA-A*03:01 | 1 | 243 | 251 | 9 | ALHRSYLTP | 0.001317 | 11 |
| HLA-B*44:03 | 1 | 323 | 331 | 9 | TESIVRFPN | 0.001317 | 7.2 |
| HLA-B*44:03 | 1 | 506 | 515 | 10 | QPYRVVLSF | 0.001317 | 7.2 |
| HLA-A*68:01 | 1 | 1041 | 1049 | 9 | DFCGKGYHL | 0.001317 | 14 |
| HLA-A*32:01 | 1 | 15 | 24 | 10 | CVNLTRTQL | 0.001316 | 9.3 |
| HLA-A*02:06 | 1 | 167 | 176 | 10 | TFEYVSPFL | 0.001316 | 18 |
| HLA-B*57:01 | 1 | 305 | 313 | 9 | SFTVEKGIY | 0.001316 | 17 |
| HLA-B*08:01 | 1 | 711 | 720 | 10 | SIAIPTNFTI | 0.001316 | 17 |
| HLA-A*26:01 | 1 | 782 | 790 | 9 | FAQVKQIYK | 0.001316 | 9.5 |
| HLA-B*35:01 | 1 | 28 | 36 | 9 | YTNSFTRGV | 0.001315 | 9.0 |
| HLA-B*08:01 | 1 | 121 | 130 | 10 | NNATNVVIVK | 0.001315 | 17 |
| HLA-A*01:01 | 1 | 254 | 263 | 10 | SSSGWTAGAA | 0.001315 | 13 |
| HLA-B*57:01 | 1 | 262 | 271 | 10 | AAAYYVGYLQ | 0.001315 | 17 |
| HLA-A*03:01 | 1 | 1258 | 1266 | 9 | EDDSEPVLK | 0.001315 | 11 |
| HLA-B*58:01 | 1 | 119 | 128 | 10 | IVNATNVVI | 0.001314 | 12 |
| HLA-A*30:01 | 1 | 305 | 313 | 9 | SFTVEKGIY | 0.001314 | 24 |
| HLA-B*44:02 | 1 | 968 | 976 | 9 | SNFGAISSV | 0.001314 | 7.1 |
| HLA-B*44:02 | 1 | 191 | 200 | 10 | EFVFKNIDGY | 0.001313 | 7.1 |
| HLA-B*58:01 | 1 | 300 | 309 | 10 | KCTLKSFTVE | 0.001313 | 12 |
| HLA-A*11:01 | 1 | 997 | 1005 | 9 | ITGRLQSLQ | 0.001313 | 8.7 |
| HLA-B*35:01 | 1 | 1016 | 1024 | 9 | AEIRASANL | 0.001312 | 9.0 |
| HLA-A*02:06 | 1 | 1148 | 1156 | 9 | FKEELDKYF | 0.001312 | 18 |
| HLA-A*26:01 | 1 | 437 | 445 | 9 | NSNNLDSKV | 0.001311 | 9.5 |
| HLA-A*01:01 | 1 | 590 | 598 | 9 | CSFGGVSVI | 0.00131 | 13 |
| HLA-A*68:02 | 1 | 934 | 942 | 9 | IQDLSLSTA | 0.00131 | 14 |
| HLA-B*44:03 | 1 | 953 | 962 | 10 | NQNAQALNTL | 0.00131 | 7.2 |
| HLA-B*08:01 | 1 | 143 | 151 | 9 | VYYHKNNKS | 0.001309 | 17 |
| HLA-A*11:01 | 1 | 554 | 562 | 9 | ESNKKFLPF | 0.001309 | 8.7 |
| HLA-A*02:06 | 1 | 622 | 630 | 9 | VAIHADQLT | 0.001309 | 18 |
| HLA-A*31:01 | 1 | 1086 | 1095 | 10 | KAHFPREGVF | 0.001309 | 14 |
| HLA-A*26:01 | 1 | 1206 | 1214 | 9 | YEQYIKWPW | 0.001309 | 9.5 |
| HLA-B*57:01 | 1 | 151 | 159 | 9 | SWMESEFRV | 0.001308 | 17 |
| HLA-A*02:06 | 1 | 310 | 318 | 9 | KGITYQTSNF | 0.001308 | 18 |
| HLA-A*30:02 | 1 | 756 | 765 | 10 | YGSFCTQLNR | 0.001308 | 21 |
| HLA-B*53:01 | 1 | 808 | 816 | 9 | DPSKPSKRS | 0.001308 | 8.3 |
| HLA-A*30:02 | 1 | 816 | 824 | 9 | SFIEDLLFN | 0.001308 | 21 |
| HLA-A*03:01 | 1 | 915 | 924 | 10 | VLYENQKLIA | 0.001308 | 11 |
| HLA-A*30:02 | 1 | 953 | 961 | 9 | NQNAQALNT | 0.001308 | 21 |
| HLA-B*58:01 | 1 | 973 | 982 | 10 | ISSVLNDILS | 0.001308 | 12 |
| HLA-A*23:01 | 1 | 1034 | 1042 | 9 | LGQSKRVDF | 0.001308 | 7.4 |
| HLA-A*30:02 | 1 | 196 | 205 | 10 | NIDGYFKIYS | 0.001307 | 21 |
| HLA-B*08:01 | 1 | 403 | 411 | 9 | RGDEVQRQA | 0.001307 | 17 |
| HLA-A*03:01 | 1 | 414 | 423 | 10 | QTGKIADYNY | 0.001307 | 11 |
| HLA-A*23:01 | 1 | 550 | 559 | 10 | GVLTESNKKF | 0.001307 | 7.4 |
| HLA-B*07:02 | 1 | 568 | 576 | 9 | DIADTTDAV | 0.001307 | 11 |
| HLA-A*24:02 | 1 | 603 | 611 | 9 | NTSNQVAVL | 0.001307 | 7.2 |
| HLA-A*30:02 | 1 | 643 | 651 | 9 | FQTRAGCLI | 0.001307 | 21 |
| HLA-B*15:01 | 1 | 759 | 767 | 9 | FCTQLNRL | 0.001307 | 13 |
| HLA-A*30:01 | 1 | 1083 | 1091 | 9 | HDGKAHFPR | 0.001307 | 24 |
| HLA-A*02:01 | 1 | 123 | 131 | 9 | ATNVVIVKVC | 0.001306 | 13 |
| HLA-A*02:06 | 1 | 152 | 160 | 9 | WMESEFRVY | 0.001306 | 18 |
| HLA-B*08:01 | 1 | 319 | 327 | 9 | RVQPTESIV | 0.001306 | 17 |
| HLA-A*30:01 | 1 | 615 | 623 | 9 | VNCTEVPVA | 0.001306 | 24 |
| HLA-A*01:01 | 1 | 888 | 896 | 9 | FGAGAALQI | 0.001306 | 13 |
| HLA-A*03:01 | 1 | 968 | 976 | 9 | SNFGAISSV | 0.001306 | 11 |
| HLA-B*35:01 | 1 | 48 | 56 | 9 | LHSTQDLFL | 0.001305 | 9.0 |
| HLA-B*07:02 | 1 | 169 | 177 | 9 | EYVSQPFLM | 0.001305 | 11 |
| HLA-A*02:01 | 1 | 196 | 204 | 9 | NIDGYFKIY | 0.001305 | 13 |
| HLA-B*53:01 | 1 | 256 | 265 | 10 | SGWTAGAAAY | 0.001305 | 8.3 |
| HLA-B*35:01 | 1 | 259 | 267 | 9 | TAGAAAYYV | 0.001305 | 9.0 |
| HLA-A*02:01 | 1 | 339 | 348 | 10 | GEVFNATRFA | 0.001305 | 13 |
| HLA-B*40:01 | 1 | 896 | 904 | 9 | IPFAMQMAY | 0.001305 | 6.7 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*44:03 | 1 | 183 | 192 | 10 | QGNFKNLREF 0.001304 | 7.2 |
| HLA-A*03:01 | 1 | 267 | 275 | 9 | VGYLQPRTF 0.001304 | 11 |
| HLA-A*30:01 | 1 | 32 | 40 | 9 | FTRGVYYPD 0.001303 | 24 |
| HLA-A*23:01 | 1 | 191 | 200 | 10 | EFVFKNIDGY 0.001303 | 7.5 |
| HLA-B*40:01 | 1 | 780 | 788 | 9 | EVFAQVKQI 0.001303 | 6.7 |
| HLA-A*31:01 | 1 | 795 | 804 | 10 | KDFGGFNFSQ 0.001303 | 14 |
| HLA-A*30:02 | 1 | 983 | 992 | 10 | RLDKVEAEVQ 0.001303 | 21 |
| HLA-B*57:01 | 1 | 991 | 1000 | 10 | VQIDRLITGR 0.001303 | 17 |
| HLA-A*01:01 | 1 | 1189 | 1197 | 9 | VAKNLNESL 0.001303 | 13 |
| HLA-B*15:01 | 1 | 509 | 518 | 10 | RVVLSFELL 0.001302 | 13 |
| HLA-A*26:01 | 1 | 1074 | 1083 | 10 | NFTTAPAICH 0.001302 | 9.6 |
| HLA-B*58:01 | 1 | 30 | 39 | 10 | NSFTRGVYYP 0.001301 | 12 |
| HLA-B*07:02 | 1 | 641 | 649 | 9 | NVFQTRAGC 0.001301 | 11 |
| HLA-A*31:01 | 1 | 754 | 763 | 10 | LQYGSFCTQL 0.001301 | 14 |
| HLA-A*32:01 | 1 | 933 | 942 | 10 | KIQDLSSTA 0.001301 | 9.3 |
| HLA-A*30:01 | 1 | 969 | 977 | 9 | NFGAISSVL 0.001301 | 24 |
| HLA-A*02:03 | 1 | 981 | 989 | 9 | LSRLDKVEA 0.001301 | 14 |
| HLA-B*07:02 | 1 | 178 | 186 | 9 | DLEGKQGNF 0.0013 | 11 |
| HLA-B*51:01 | 1 | 678 | 687 | 10 | TNSPRRARSV 0.0013 | 17 |
| HLA-A*02:01 | 1 | 1088 | 1096 | 9 | HFPREGVVF 0.0013 | 13 |
| HLA-A*01:01 | 1 | 1261 | 1270 | 10 | SEPVLKGVKL 0.0013 | 13 |
| HLA-A*03:01 | 1 | 236 | 244 | 9 | TRFQTLAL 0.001299 | 11 |
| HLA-A*33:01 | 1 | 328 | 336 | 9 | RFPNITNLC 0.001299 | 12 |
| HLA-A*02:01 | 1 | 443 | 452 | 10 | SKVGGNYNYL 0.001299 | 13 |
| HLA-A*31:01 | 1 | 898 | 906 | 9 | FAMQMAYRF 0.001299 | 14 |
| HLA-A*01:01 | 1 | 747 | 755 | 9 | TECSNLLLQ 0.001298 | 13 |
| HLA-B*44:02 | 1 | 506 | 515 | 10 | QPYRVVLSF 0.001297 | 7.1 |
| HLA-A*68:02 | 1 | 634 | 643 | 10 | RVYSTGSNVF 0.001297 | 14 |
| HLA-A*30:01 | 1 | 1155 | 1163 | 9 | YFKNHTSPD 0.001297 | 24 |
| HLA-A*01:01 | 1 | 236 | 244 | 9 | TRFQTLAL 0.001296 | 13 |
| HLA-B*08:01 | 1 | 280 | 289 | 10 | NENGTITDAV 0.001296 | 17 |
| HLA-A*31:01 | 1 | 414 | 423 | 10 | QTGKIADYNY 0.001296 | 15 |
| HLA-B*57:01 | 1 | 524 | 533 | 10 | VCGPKKSTNL 0.001296 | 17 |
| HLA-B*44:02 | 1 | 1005 | 1013 | 9 | QTYVTQLI 0.001296 | 7.1 |
| HLA-A*30:01 | 1 | 541 | 549 | 9 | FNFNGLTGT 0.001295 | 24 |
| HLA-A*02:03 | 1 | 640 | 649 | 10 | SNVFQTRAGC 0.001295 | 14 |
| HLA-B*07:02 | 1 | 955 | 963 | 9 | NAQALNTLV 0.001295 | 11 |
| HLA-A*02:01 | 1 | 641 | 649 | 9 | NVFQTRAGC 0.001294 | 13 |
| HLA-A*68:01 | 1 | 704 | 713 | 10 | SVAYSNNSIA 0.001294 | 14 |
| HLA-A*31:01 | 1 | 1080 | 1088 | 9 | AICHDGKAH 0.001294 | 15 |
| HLA-A*30:02 | 1 | 1130 | 1139 | 10 | IGIVNNTVYD 0.001294 | 21 |
| HLA-B*15:01 | 1 | 1179 | 1188 | 10 | IQKEIDRLNE 0.001294 | 13 |
| HLA-B*57:01 | 1 | 301 | 309 | 9 | CTLKSFTVE 0.001293 | 17 |
| HLA-B*08:01 | 1 | 352 | 361 | 10 | AWNKRKISNC 0.001293 | 17 |
| HLA-A*26:01 | 1 | 821 | 829 | 9 | LLFNKVTLA 0.001293 | 9.6 |
| HLA-A*32:01 | 1 | 457 | 466 | 10 | RKSNLKPFER 0.001292 | 9.3 |
| HLA-A*32:01 | 1 | 793 | 802 | 10 | PIKDFGGFNF 0.001292 | 9.3 |
| HLA-A*02:06 | 1 | 983 | 992 | 10 | RLDKVEAEVQ 0.001292 | 18 |
| HLA-A*30:02 | 1 | 161 | 169 | 9 | SSANNCTFE 0.001291 | 21 |
| HLA-B*35:01 | 1 | 505 | 514 | 10 | YQPYRVVLS 0.001291 | 9.1 |
| HLA-A*30:01 | 1 | 551 | 559 | 9 | VLTESNKKF 0.001291 | 24 |
| HLA-B*35:01 | 1 | 877 | 886 | 10 | LLAGTITSGW 0.001291 | 9.1 |
| HLA-A*26:01 | 1 | 1261 | 1270 | 10 | SEPVLKGVKL 0.001291 | 9.6 |
| HLA-A*32:01 | 1 | 59 | 68 | 10 | FSNVTWFHAI 0.00129 | 9.3 |
| HLA-A*68:02 | 1 | 83 | 92 | 10 | VLPFNDGVYF 0.00129 | 14 |
| HLA-A*31:01 | 1 | 408 | 416 | 9 | RQIAPGQTG 0.00129 | 15 |
| HLA-A*02:06 | 1 | 515 | 523 | 9 | FELLHAPAT 0.00129 | 18 |
| HLA-A*03:01 | 1 | 19 | 27 | 9 | TTRTQLPPA 0.001289 | 11 |
| HLA-B*53:01 | 1 | 304 | 313 | 10 | KSFTVEKGIY 0.001289 | 8.3 |
| HLA-B*08:01 | 1 | 565 | 573 | 9 | FGRDIADTT 0.001289 | 17 |
| HLA-A*02:01 | 1 | 581 | 589 | 9 | TLEILDITP 0.001289 | 13 |
| HLA-B*40:01 | 1 | 933 | 942 | 10 | KIQDLSSTA 0.001289 | 6.7 |
| HLA-A*68:01 | 1 | 83 | 91 | 9 | VLPFNDGVY 0.001288 | 14 |
| HLA-A*31:01 | 1 | 254 | 262 | 9 | SSSGWTAGA 0.001288 | 15 |
| HLA-A*01:01 | 1 | 955 | 964 | 10 | NAQALNTLVK 0.001288 | 13 |
| HLA-A*02:03 | 1 | 1028 | 1036 | 9 | KMSECVLGQ 0.001288 | 15 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*02:06 | 1 | 21 | 30 | 10 | RTQLPPAYTN 0.001287 | 18 |
| HLA-B*58:01 | 1 | 433 | 441 | 9 | VIAWNSNNL 0.001287 | 12 |
| HLA-A*68:02 | 1 | 466 | 475 | 10 | RDISTEIIYQA 0.001287 | 14 |
| HLA-B*51:01 | 1 | 877 | 886 | 10 | LLAGTITSGW 0.001287 | 17 |
| HLA-B*57:01 | 1 | 926 | 934 | 9 | QFNSAIGKI 0.001287 | 17 |
| HLA-B*44:02 | 1 | 934 | 942 | 9 | IQDLSSTA 0.001287 | 7.1 |
| HLA-B*15:01 | 1 | 1188 | 1197 | 10 | EVAKNLNESL 0.001287 | 13 |
| HLA-A*02:06 | 1 | 58 | 67 | 10 | FFSNVTWFHA 0.001286 | 18 |
| HLA-A*01:01 | 1 | 69 | 78 | 10 | HVSGTNGTKR 0.001286 | 13 |
| HLA-A*30:01 | 1 | 607 | 615 | 9 | QVAVLYQDV 0.001286 | 24 |
| HLA-B*15:01 | 1 | 972 | 980 | 9 | AISSVLNDI 0.001286 | 13 |
| HLA-B*57:01 | 1 | 972 | 980 | 9 | AISSVLNDI 0.001286 | 17 |
| HLA-B*57:01 | 1 | 1026 | 1035 | 10 | ATKMSECVLG 0.001286 | 17 |
| HLA-B*51:01 | 1 | 242 | 251 | 10 | LALHRSYLT 0.001285 | 17 |
| HLA-A*30:01 | 1 | 471 | 479 | 9 | EIYQAGSTP 0.001285 | 24 |
| HLA-B*35:01 | 1 | 484 | 492 | 9 | EGFNCFYFPL 0.001285 | 9.1 |
| HLA-A*03:01 | 1 | 568 | 577 | 10 | DIADTTDAVR 0.001285 | 11 |
| HLA-A*02:06 | 1 | 581 | 589 | 9 | TLEILDITP 0.001285 | 18 |
| HLA-B*51:01 | 1 | 1219 | 1227 | 9 | GFIAGLIAI 0.001285 | 17 |
| HLA-B*44:03 | 1 | 417 | 425 | 9 | KIADYNYKL 0.001284 | 7.2 |
| HLA-A*02:03 | 1 | 453 | 462 | 10 | YRLFRRKSNLK 0.001284 | 15 |
| HLA-B*58:01 | 1 | 671 | 679 | 9 | CASYQTQTN 0.001284 | 12 |
| HLA-B*44:03 | 1 | 778 | 786 | 9 | TQEVFAQVK 0.001284 | 7.2 |
| HLA-B*53:01 | 1 | 833 | 841 | 9 | FIKQYGDCL 0.001284 | 8.4 |
| HLA-A*01:01 | 1 | 929 | 938 | 10 | SAIGKIQDSL 0.001284 | 13 |
| HLA-B*51:01 | 1 | 1069 | 1077 | 9 | PAQEKNF 0.001284 | 17 |
| HLA-A*68:01 | 1 | 1098 | 1106 | 9 | NGTHWFVTQ 0.001284 | 14 |
| HLA-A*26:01 | 1 | 1196 | 1205 | 10 | SLIDLQELGK 0.001284 | 9.6 |
| HLA-A*02:03 | 1 | 288 | 296 | 9 | AVDCALDPL 0.001283 | 15 |
| HLA-B*53:01 | 1 | 441 | 449 | 9 | LDSKVGNGY 0.001283 | 8.4 |
| HLA-A*30:02 | 1 | 514 | 522 | 9 | SFELLHAPA 0.001283 | 21 |
| HLA-A*31:01 | 1 | 138 | 146 | 9 | DPFLGVYYH 0.001282 | 15 |
| HLA-B*58:01 | 1 | 408 | 416 | 9 | RQIAPGQTG 0.001282 | 12 |
| HLA-A*33:01 | 1 | 1128 | 1136 | 9 | VVIGIVNNT 0.001282 | 12 |
| HLA-A*02:06 | 1 | 1262 | 1270 | 9 | EPVLKGVKL 0.001282 | 18 |
| HLA-A*01:01 | 1 | 13 | 21 | 9 | SQCVNLTR 0.001281 | 13 |
| HLA-A*24:02 | 1 | 110 | 118 | 9 | LDSKTQSL 0.001281 | 7.3 |
| HLA-B*57:01 | 1 | 309 | 318 | 10 | EKGIYQTSNF 0.001281 | 17 |
| HLA-A*01:01 | 1 | 347 | 355 | 9 | FASVYAWNR 0.001281 | 13 |
| HLA-A*31:01 | 1 | 767 | 776 | 10 | LTGIAVEQDK 0.001281 | 15 |
| HLA-A*02:06 | 1 | 1087 | 1095 | 9 | AHFPREGVF 0.001281 | 18 |
| HLA-A*23:01 | 1 | 83 | 91 | 9 | VLPFNDGVY 0.00128 | 7.5 |
| HLA-A*03:01 | 1 | 921 | 930 | 10 | KLIANQFN 0.00128 | 11 |
| HLA-A*33:01 | 1 | 960 | 968 | 9 | NLTKQLSS 0.00128 | 12 |
| HLA-A*30:01 | 1 | 966 | 974 | 9 | LSSNFGAIS 0.00128 | 24 |
| HLA-A*68:01 | 1 | 968 | 977 | 10 | SNFGAISSVL 0.00128 | 14 |
| HLA-A*68:02 | 1 | 685 | 694 | 10 | RSVASQSI 0.001279 | 14 |
| HLA-A*33:01 | 1 | 1004 | 1012 | 9 | LQTYVTQQL 0.001279 | 12 |
| HLA-B*58:01 | 1 | 230 | 238 | 9 | PIGINITRF 0.001278 | 12 |
| HLA-B*51:01 | 1 | 648 | 656 | 9 | GCLIGAHEV 0.001278 | 17 |
| HLA-A*23:01 | 1 | 70 | 79 | 10 | VSGTNGTKRF 0.001277 | 7.5 |
| HLA-A*03:01 | 1 | 173 | 182 | 10 | QPFLMDLE 0.001277 | 11 |
| HLA-A*33:01 | 1 | 200 | 208 | 9 | YFKIYSKHT 0.001277 | 12 |
| HLA-A*02:01 | 1 | 294 | 303 | 10 | DPLSETKCT 0.001277 | 13 |
| HLA-A*68:02 | 1 | 311 | 319 | 9 | GIYQTSNFR 0.001277 | 14 |
| HLA-A*02:01 | 1 | 336 | 344 | 9 | CPFGEVFNA 0.001277 | 13 |
| HLA-B*58:01 | 1 | 636 | 645 | 10 | YSTGSNVFQT 0.001277 | 12 |
| HLA-B*08:01 | 1 | 638 | 646 | 9 | TGSNVFQTR 0.001277 | 18 |
| HLA-A*30:01 | 1 | 873 | 881 | 9 | YTSALLAGT 0.001277 | 24 |
| HLA-B*58:01 | 1 | 1033 | 1042 | 10 | VLGQSKRVDF 0.001277 | 12 |
| HLA-B*53:01 | 1 | 1041 | 1049 | 9 | DFCGKGYHL 0.001277 | 8.4 |
| HLA-B*15:01 | 1 | 601 | 609 | 9 | GTNTSNQVA 0.001276 | 13 |
| HLA-A*01:01 | 1 | 628 | 637 | 10 | QLTPTWRVYS 0.001276 | 13 |
| HLA-A*31:01 | 1 | 675 | 684 | 10 | QTQTNSPRRA 0.001276 | 15 |
| HLA-A*30:01 | 1 | 718 | 727 | 10 | FTISVTTEIL 0.001276 | 24 |
| HLA-A*03:01 | 1 | 1080 | 1089 | 10 | AICHDGKAHF 0.001276 | 11 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*58:01 | 1 | 113 | 122 | 10 | KTQSL LIVNN 0.001275 | 12 |
| HLA-A*68:01 | 1 | 167 | 175 | 9 | TFEYVSQPF 0.001275 | 14 |
| HLA-A*32:01 | 1 | 494 | 503 | 10 | SYGFQPTNGV 0.001275 | 9.4 |
| HLA-A*24:02 | 1 | 964 | 973 | 10 | KQLSSNFGAI 0.001275 | 7.3 |
| HLA-A*30:01 | 1 | 1132 | 1141 | 10 | IVNNTVYDPL 0.001275 | 24 |
| HLA-A*31:01 | 1 | 1200 | 1209 | 10 | LQELGKYEYQ 0.001275 | 15 |
| HLA-A*03:01 | 1 | 1226 | 1234 | 9 | AIVMVTIML 0.001275 | 11 |
| HLA-A*30:02 | 1 | 869 | 878 | 10 | MIAQYTSALL 0.001274 | 21 |
| HLA-A*30:01 | 1 | 274 | 282 | 9 | TFLLKYNEN 0.001273 | 24 |
| HLA-A*23:01 | 1 | 659 | 668 | 10 | SYECDIPIGA 0.001273 | 7.5 |
| HLA-A*33:01 | 1 | 717 | 726 | 10 | NFTISVTTEI 0.001273 | 12 |
| HLA-B*44:03 | 1 | 1151 | 1159 | 9 | ELDKYFKNH 0.001273 | 7.2 |
| HLA-A*02:01 | 1 | 22 | 31 | 10 | TQLPPAYTNS 0.001272 | 13 |
| HLA-B*07:02 | 1 | 815 | 823 | 9 | RSFIEDLLF 0.001272 | 11 |
| HLA-B*51:01 | 1 | 847 | 855 | 9 | RDLICAQKF 0.001272 | 17 |
| HLA-A*01:01 | 1 | 983 | 992 | 10 | RLDKVEAEVQ 0.001272 | 13 |
| HLA-B*44:02 | 1 | 1091 | 1099 | 9 | REGV FVSNG 0.001272 | 7.2 |
| HLA-A*30:02 | 1 | 309 | 318 | 10 | EKGIYQTSNF 0.001271 | 21 |
| HLA-A*11:01 | 1 | 378 | 387 | 10 | KCYGVSPTKL 0.001271 | 8.8 |
| HLA-A*30:01 | 1 | 506 | 514 | 9 | QPYRVVVL 0.001271 | 24 |
| HLA-B*15:01 | 1 | 567 | 576 | 10 | RDIADTTDAV 0.001271 | 13 |
| HLA-B*57:01 | 1 | 806 | 815 | 10 | LPDPSKPSKR 0.001271 | 17 |
| HLA-A*68:01 | 1 | 24 | 32 | 9 | LPPAYTNSF 0.00127 | 14 |
| HLA-A*26:01 | 1 | 230 | 238 | 9 | PIGINITRF 0.00127 | 9.7 |
| HLA-A*30:01 | 1 | 450 | 459 | 10 | NYLYRLF RKS 0.00127 | 24 |
| HLA-A*02:06 | 1 | 950 | 959 | 10 | DVNVNQAQAL 0.00127 | 18 |
| HLA-B*07:02 | 1 | 1005 | 1013 | 9 | QTYV TQQLI 0.00127 | 11 |
| HLA-A*02:06 | 1 | 1040 | 1049 | 10 | VDFCGKGYHL 0.00127 | 18 |
| HLA-B*15:01 | 1 | 61 | 69 | 9 | NVTWFHAIH 0.001269 | 13 |
| HLA-B*07:02 | 1 | 144 | 153 | 10 | YYHKNNKSWM 0.001269 | 11 |
| HLA-B*51:01 | 1 | 291 | 300 | 10 | CALDPLSETK 0.001269 | 17 |
| HLA-B*58:01 | 1 | 323 | 332 | 10 | TESIVRFPNI 0.001269 | 12 |
| HLA-B*08:01 | 1 | 378 | 387 | 10 | KCYGVSPTKL 0.001269 | 18 |
| HLA-A*68:02 | 1 | 525 | 534 | 10 | CGPKKSTNLV 0.001269 | 14 |
| HLA-A*30:01 | 1 | 1106 | 1115 | 10 | QRNFYEPQII 0.001269 | 24 |
| HLA-A*01:01 | 1 | 86 | 94 | 9 | FNDGVYFAS 0.001268 | 13 |
| HLA-A*30:02 | 1 | 121 | 129 | 9 | NNATNVV I K 0.001268 | 21 |
| HLA-B*57:01 | 1 | 162 | 171 | 10 | SANNCTFEYV 0.001268 | 17 |
| HLA-A*30:02 | 1 | 202 | 211 | 10 | KIYSKHTPIN 0.001268 | 21 |
| HLA-A*30:02 | 1 | 347 | 355 | 9 | FASVYAWNR 0.001268 | 21 |
| HLA-B*58:01 | 1 | 505 | 513 | 9 | YQPYRVVVL 0.001268 | 12 |
| HLA-B*35:01 | 1 | 940 | 948 | 9 | STASALGKL 0.001268 | 9.1 |
| HLA-B*57:01 | 1 | 960 | 968 | 9 | NTLVKQLSS 0.001268 | 17 |
| HLA-A*32:01 | 1 | 370 | 378 | 9 | NSASFSTFK 0.001267 | 9.4 |
| HLA-A*02:03 | 1 | 893 | 901 | 9 | ALQIPFAMQ 0.001267 | 15 |
| HLA-A*31:01 | 1 | 921 | 930 | 10 | KLIANQFN SA 0.001267 | 15 |
| HLA-A*30:01 | 1 | 1013 | 1021 | 9 | IRAAEIRAS 0.001267 | 24 |
| HLA-A*02:06 | 1 | 186 | 194 | 9 | FKNLREFVF 0.001266 | 18 |
| HLA-A*02:03 | 1 | 255 | 264 | 10 | SSGWTAGAAA 0.001266 | 15 |
| HLA-B*58:01 | 1 | 496 | 505 | 10 | GFQPTNGVGY 0.001266 | 12 |
| HLA-B*57:01 | 1 | 502 | 510 | 9 | GVGYQPYRV 0.001266 | 17 |
| HLA-A*02:01 | 1 | 1260 | 1268 | 9 | DSEPV LKGV 0.001266 | 13 |
| HLA-A*68:01 | 1 | 78 | 86 | 9 | RFDNPVLPF 0.001265 | 14 |
| HLA-A*31:01 | 1 | 260 | 269 | 10 | AGAAAYYVGY 0.001265 | 15 |
| HLA-B*07:02 | 1 | 408 | 416 | 9 | RQIAPGQTG 0.001265 | 11 |
| HLA-B*44:02 | 1 | 778 | 786 | 9 | TQEVFAQVK 0.001265 | 7.2 |
| HLA-B*51:01 | 1 | 948 | 956 | 9 | LQDVVNQNA 0.001265 | 17 |
| HLA-A*68:02 | 1 | 987 | 995 | 9 | VEAEVQIDR 0.001265 | 14 |
| HLA-A*30:02 | 1 | 1108 | 1117 | 10 | NFYEPQIITT 0.001265 | 21 |
| HLA-B*51:01 | 1 | 49 | 57 | 9 | HSTQDLFLP 0.001264 | 17 |
| HLA-B*15:01 | 1 | 123 | 131 | 9 | ATNVV I KVC 0.001264 | 13 |
| HLA-A*30:02 | 1 | 308 | 316 | 9 | VEKGIYQTS 0.001264 | 21 |
| HLA-B*15:01 | 1 | 367 | 375 | 9 | VLYNSASFS 0.001264 | 13 |
| HLA-A*01:01 | 1 | 467 | 475 | 9 | DISTE IYQA 0.001264 | 13 |
| HLA-A*03:01 | 1 | 746 | 755 | 10 | STEC SNLLLQ 0.001264 | 11 |
| HLA-A*31:01 | 1 | 1065 | 1074 | 10 | VTYVPAQ EKN 0.001264 | 15 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*53:01 | 1 | 236 | 244 | 9 | TRFQTLAL 0.001263 | 8.4 |
| HLA-B*51:01 | 1 | 444 | 452 | 9 | KVGGNYNYL 0.001263 | 17 |
| HLA-B*51:01 | 1 | 586 | 595 | 10 | DITPCSFGGV 0.001263 | 17 |
| HLA-A*30:01 | 1 | 953 | 962 | 10 | NQNAQALNTL 0.001263 | 24 |
| HLA-B*51:01 | 1 | 1015 | 1024 | 10 | AAEIRASANL 0.001262 | 17 |
| HLA-A*02:03 | 1 | 1099 | 1107 | 9 | GTHWFVTQR 0.001262 | 15 |
| HLA-A*30:02 | 1 | 101 | 110 | 10 | IRGWIFGTTL 0.001261 | 21 |
| HLA-A*26:01 | 1 | 674 | 683 | 10 | YQTQTNsprr 0.001261 | 9.7 |
| HLA-A*23:01 | 1 | 684 | 692 | 9 | ARSVASQSI 0.001261 | 7.5 |
| HLA-A*30:02 | 1 | 875 | 883 | 9 | SALLAGTIT 0.001261 | 21 |
| HLA-A*32:01 | 1 | 177 | 186 | 10 | MDLEGKQGNF 0.00126 | 9.4 |
| HLA-A*68:01 | 1 | 714 | 722 | 9 | IPTNFTISV 0.00126 | 14 |
| HLA-B*51:01 | 1 | 263 | 272 | 10 | AAYVYGYLQP 0.001259 | 17 |
| HLA-A*01:01 | 1 | 305 | 314 | 10 | SFTVEKGIYQ 0.001259 | 13 |
| HLA-A*68:01 | 1 | 336 | 344 | 9 | CPFGEVFN 0.001259 | 14 |
| HLA-A*26:01 | 1 | 989 | 997 | 9 | AEVQIDRLI 0.001259 | 9.7 |
| HLA-A*02:03 | 1 | 1169 | 1177 | 9 | ISGINASVV 0.001259 | 15 |
| HLA-A*31:01 | 1 | 90 | 98 | 9 | VYFASTKS 0.001258 | 15 |
| HLA-A*24:02 | 1 | 177 | 186 | 10 | MDLEGKQGNF 0.001258 | 7.3 |
| HLA-B*44:03 | 1 | 190 | 198 | 9 | REFVFNID 0.001258 | 7.3 |
| HLA-A*30:02 | 1 | 215 | 223 | 9 | DLPQGFSAL 0.001258 | 21 |
| HLA-A*02:03 | 1 | 1070 | 1079 | 10 | AQEKNFTTAP 0.001258 | 15 |
| HLA-B*53:01 | 1 | 1129 | 1138 | 10 | VIGIVNNTVY 0.001258 | 8.4 |
| HLA-A*30:01 | 1 | 11 | 19 | 9 | VSSQCVNLT 0.001257 | 24 |
| HLA-B*44:03 | 1 | 23 | 32 | 10 | QLPPAYTNSF 0.001257 | 7.3 |
| HLA-A*30:01 | 1 | 126 | 135 | 10 | VVIKVFQF 0.001257 | 24 |
| HLA-B*51:01 | 1 | 137 | 145 | 9 | NDPFLGVY 0.001257 | 17 |
| HLA-A*02:01 | 1 | 324 | 332 | 9 | ESIVRFPNI 0.001257 | 13 |
| HLA-B*08:01 | 1 | 998 | 1007 | 10 | TGRLQSLQTY 0.001257 | 18 |
| HLA-A*68:02 | 1 | 47 | 56 | 10 | VLHSTQDLFL 0.001256 | 14 |
| HLA-B*51:01 | 1 | 75 | 83 | 9 | GTKRFDNPV 0.001256 | 17 |
| HLA-B*15:01 | 1 | 424 | 433 | 10 | KLPDDFTGCV 0.001256 | 13 |
| HLA-A*30:02 | 1 | 1016 | 1025 | 10 | AEIRASANLA 0.001256 | 21 |
| HLA-A*30:02 | 1 | 399 | 407 | 9 | SFVIRGDEV 0.001255 | 21 |
| HLA-A*02:01 | 1 | 413 | 421 | 9 | GQTGKIADY 0.001255 | 13 |
| HLA-A*30:01 | 1 | 114 | 123 | 10 | TQSLIVNNA 0.001254 | 24 |
| HLA-B*57:01 | 1 | 590 | 599 | 10 | CSFGVSVIT 0.001254 | 18 |
| HLA-A*02:03 | 1 | 710 | 718 | 9 | NSIAIPTNF 0.001254 | 15 |
| HLA-A*68:01 | 1 | 979 | 987 | 9 | DILSRLDKV 0.001254 | 14 |
| HLA-A*31:01 | 1 | 1182 | 1191 | 10 | EIDRLNEVAK 0.001254 | 15 |
| HLA-B*51:01 | 1 | 183 | 192 | 10 | QGNFKNREF 0.001253 | 17 |
| HLA-B*51:01 | 1 | 303 | 312 | 10 | LKSFTVEKGI 0.001253 | 17 |
| HLA-A*33:01 | 1 | 450 | 459 | 10 | NYLYRLFRKS 0.001253 | 13 |
| HLA-A*30:01 | 1 | 629 | 638 | 10 | LTPTWRVYST 0.001253 | 24 |
| HLA-B*08:01 | 1 | 562 | 570 | 9 | FQQFGRDIA 0.001252 | 18 |
| HLA-A*30:01 | 1 | 1036 | 1044 | 9 | QSKRVDFCG 0.001252 | 24 |
| HLA-B*53:01 | 1 | 516 | 524 | 9 | ELLHAPATV 0.001251 | 8.5 |
| HLA-B*35:01 | 1 | 574 | 583 | 10 | DAVRDPQTL 0.001251 | 9.2 |
| HLA-B*40:01 | 1 | 940 | 948 | 9 | STASALGKL 0.001251 | 6.8 |
| HLA-A*68:02 | 1 | 300 | 308 | 9 | KCTLKSFTV 0.00125 | 14 |
| HLA-B*58:01 | 1 | 569 | 577 | 9 | IADTTDAVR 0.00125 | 12 |
| HLA-B*15:01 | 1 | 697 | 705 | 9 | MSLGAENS 0.00125 | 13 |
| HLA-B*58:01 | 1 | 875 | 884 | 10 | SALLAGTITS 0.00125 | 12 |
| HLA-B*58:01 | 1 | 362 | 370 | 9 | VADYSVLYN 0.001249 | 12 |
| HLA-B*07:02 | 1 | 399 | 407 | 9 | SFVIRGDEV 0.001249 | 11 |
| HLA-B*15:01 | 1 | 706 | 714 | 9 | AYSNNIAI 0.001249 | 13 |
| HLA-A*30:01 | 1 | 730 | 739 | 10 | SMTKTSVDCT 0.001249 | 24 |
| HLA-A*02:06 | 1 | 886 | 895 | 10 | WTFGAGALQ 0.001249 | 18 |
| HLA-B*57:01 | 1 | 1195 | 1204 | 10 | ESLIDLQELG 0.001249 | 18 |
| HLA-A*11:01 | 1 | 356 | 365 | 10 | KRISNCVADY 0.001248 | 8.9 |
| HLA-B*15:01 | 1 | 1009 | 1018 | 10 | TQQLIRAAEI 0.001248 | 13 |
| HLA-B*57:01 | 1 | 134 | 143 | 10 | QFCNDPFLGV 0.001247 | 18 |
| HLA-A*32:01 | 1 | 168 | 177 | 10 | FEYVSQPFLM 0.001247 | 9.5 |
| HLA-A*31:01 | 1 | 257 | 265 | 9 | GWTAGAAAY 0.001247 | 15 |
| HLA-B*51:01 | 1 | 382 | 391 | 10 | VSPTKLNLC 0.001247 | 17 |
| HLA-A*32:01 | 1 | 905 | 913 | 9 | RFNGIGVTQ 0.001247 | 9.5 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|
| HLA-B*35:01 | 1 | 957 | 965 | 9 | QALNTLVKQ | 0.001247 | 9.2 |
| HLA-A*30:01 | 1 | 1041 | 1049 | 9 | DFCGKGYHL | 0.001247 | 24 |
| HLA-A*31:01 | 1 | 1064 | 1072 | 9 | HVTYVPAQE | 0.001247 | 15 |
| HLA-A*30:01 | 1 | 1172 | 1180 | 9 | INASVVNIQ | 0.001247 | 24 |
| HLA-A*01:01 | 1 | 46 | 54 | 9 | SVLHSTQDL | 0.001246 | 13 |
| HLA-A*02:03 | 1 | 152 | 161 | 10 | WMESEFRVYS | 0.001246 | 15 |
| HLA-A*30:01 | 1 | 168 | 177 | 10 | FEYVSQPFLM | 0.001246 | 24 |
| HLA-A*24:02 | 1 | 192 | 200 | 9 | FVFKNIDGY | 0.001246 | 7.4 |
| HLA-B*35:01 | 1 | 798 | 806 | 9 | GGFNFSQIL | 0.001246 | 9.2 |
| HLA-A*30:02 | 1 | 881 | 889 | 9 | TITSGWTFG | 0.001246 | 21 |
| HLA-A*30:02 | 1 | 897 | 905 | 9 | PFAMQMAYR | 0.001246 | 21 |
| HLA-A*30:02 | 1 | 941 | 949 | 9 | TASALGKLQ | 0.001246 | 21 |
| HLA-A*11:01 | 1 | 135 | 144 | 10 | FCNDPFLGVY | 0.001245 | 8.9 |
| HLA-A*32:01 | 1 | 676 | 685 | 10 | TQTNSPRRAR | 0.001245 | 9.5 |
| HLA-A*30:01 | 1 | 1159 | 1167 | 9 | HTSPDVDLG | 0.001245 | 24 |
| HLA-B*53:01 | 1 | 81 | 89 | 9 | NPVLPFNDG | 0.001244 | 8.5 |
| HLA-B*44:03 | 1 | 181 | 189 | 9 | GKQGNFKNL | 0.001244 | 7.3 |
| HLA-A*01:01 | 1 | 530 | 539 | 10 | STNLVKNKCV | 0.001244 | 13 |
| HLA-A*02:01 | 1 | 1107 | 1116 | 10 | RNFYEQIIT | 0.001244 | 13 |
| HLA-B*40:01 | 1 | 208 | 216 | 9 | TPINLVRDL | 0.001243 | 6.8 |
| HLA-A*24:02 | 1 | 684 | 692 | 9 | ARSVASQSI | 0.001243 | 7.4 |
| HLA-A*31:01 | 1 | 869 | 877 | 9 | MIAQYTSAL | 0.001243 | 15 |
| HLA-A*68:01 | 1 | 1050 | 1059 | 10 | MSFPQSAPHG | 0.001243 | 14 |
| HLA-A*02:03 | 1 | 1177 | 1186 | 10 | VNIQKEIDRL | 0.001243 | 15 |
| HLA-B*51:01 | 1 | 211 | 220 | 10 | NLVRDLPQGF | 0.001242 | 17 |
| HLA-A*68:01 | 1 | 307 | 315 | 9 | TVEKGIYQT | 0.001242 | 14 |
| HLA-B*40:01 | 1 | 328 | 336 | 9 | RFPNITNLC | 0.001242 | 6.9 |
| HLA-B*57:01 | 1 | 636 | 645 | 10 | YSTGSNVFQT | 0.001242 | 18 |
| HLA-A*32:01 | 1 | 846 | 855 | 10 | ARDLICAQKF | 0.001242 | 9.5 |
| HLA-A*68:02 | 1 | 878 | 886 | 9 | LAGTITSGW | 0.001242 | 14 |
| HLA-B*57:01 | 1 | 914 | 923 | 10 | NVLYENQKLI | 0.001242 | 18 |
| HLA-A*68:02 | 1 | 919 | 927 | 9 | NQKLIANQF | 0.001242 | 14 |
| HLA-A*26:01 | 1 | 930 | 938 | 9 | AIGKIQDSL | 0.001242 | 9.8 |
| HLA-A*30:01 | 1 | 186 | 194 | 9 | FKNLREFVF | 0.001241 | 24 |
| HLA-A*23:01 | 1 | 198 | 206 | 9 | DGYFKIYSK | 0.001241 | 7.6 |
| HLA-A*31:01 | 1 | 214 | 223 | 10 | RDLPQGFSAL | 0.001241 | 15 |
| HLA-A*30:01 | 1 | 410 | 418 | 9 | IAPGQTGKI | 0.001241 | 24 |
| HLA-B*07:02 | 1 | 629 | 638 | 10 | LTPTWRVYST | 0.001241 | 11 |
| HLA-B*08:01 | 1 | 803 | 811 | 9 | SQILPDPSK | 0.001241 | 18 |
| HLA-A*30:02 | 1 | 903 | 912 | 10 | AYRFNGIGVT | 0.001241 | 21 |
| HLA-A*68:01 | 1 | 478 | 486 | 9 | TPCNGVEGF | 0.00124 | 14 |
| HLA-B*51:01 | 1 | 1153 | 1161 | 9 | DKYFKNHTS | 0.00124 | 17 |
| HLA-A*03:01 | 1 | 113 | 121 | 9 | KTQSLLIIVN | 0.001238 | 11 |
| HLA-A*02:06 | 1 | 144 | 152 | 9 | YYHKNNKSW | 0.001238 | 18 |
| HLA-A*31:01 | 1 | 159 | 168 | 10 | VYSSANNCTF | 0.001238 | 15 |
| HLA-A*32:01 | 1 | 346 | 355 | 10 | RFASVYAWN | 0.001238 | 9.5 |
| HLA-B*58:01 | 1 | 846 | 855 | 10 | ARDLICAQKF | 0.001238 | 12 |
| HLA-B*51:01 | 1 | 852 | 861 | 10 | AQKFNGLTVL | 0.001238 | 17 |
| HLA-A*30:02 | 1 | 943 | 952 | 10 | SALGKLQDVV | 0.001238 | 21 |
| HLA-A*03:01 | 1 | 987 | 995 | 9 | VEAEVQIDR | 0.001238 | 11 |
| HLA-A*30:02 | 1 | 1158 | 1166 | 9 | NHTSPDVDL | 0.001238 | 21 |
| HLA-B*08:01 | 1 | 7 | 16 | 10 | LLPLVSSQCV | 0.001237 | 18 |
| HLA-B*07:02 | 1 | 326 | 334 | 9 | IVRFPNITN | 0.001237 | 11 |
| HLA-B*08:01 | 1 | 1007 | 1016 | 10 | YVTQQLIRAA | 0.001237 | 18 |
| HLA-A*31:01 | 1 | 1226 | 1234 | 9 | AIVMVTIML | 0.001237 | 15 |
| HLA-A*30:02 | 1 | 213 | 222 | 10 | VRDLPQGFS | 0.001236 | 21 |
| HLA-A*31:01 | 1 | 683 | 691 | 9 | RARSVASQS | 0.001236 | 15 |
| HLA-A*01:01 | 1 | 881 | 890 | 10 | TITSGWTFGA | 0.001236 | 13 |
| HLA-A*30:01 | 1 | 1030 | 1039 | 10 | SECVLGQSKR | 0.001236 | 24 |
| HLA-A*68:02 | 1 | 168 | 177 | 10 | FEYVSQPFLM | 0.001235 | 14 |
| HLA-B*44:03 | 1 | 333 | 342 | 10 | TNLCPFGEVF | 0.001235 | 7.3 |
| HLA-A*32:01 | 1 | 643 | 651 | 9 | FQTRAGCLI | 0.001235 | 9.5 |
| HLA-A*01:01 | 1 | 914 | 922 | 9 | NVLYENQKL | 0.001235 | 13 |
| HLA-A*30:01 | 1 | 987 | 995 | 9 | VEAEVQIDR | 0.001235 | 24 |
| HLA-A*02:01 | 1 | 36 | 44 | 9 | VYYPDKVFR | 0.001234 | 13 |
| HLA-B*58:01 | 1 | 129 | 137 | 9 | KVCEFQFCN | 0.001234 | 12 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*30:02 | 1 | 332 | 341 | 10 | ITNLCPFGEV 0.001234 | 21 |
| HLA-B*51:01 | 1 | 20 | 28 | 9 | TRTQLPPAY 0.001233 | 17 |
| HLA-A*31:01 | 1 | 125 | 133 | 9 | NVVIKVCVF 0.001233 | 15 |
| HLA-A*02:03 | 1 | 614 | 622 | 9 | DVNCTEVPV 0.001233 | 15 |
| HLA-A*33:01 | 1 | 675 | 684 | 10 | QTQTNSPRRA 0.001233 | 13 |
| HLA-A*02:06 | 1 | 689 | 698 | 10 | SQSIIAYTMS 0.001233 | 18 |
| HLA-A*02:01 | 1 | 783 | 792 | 10 | AQVKQIYKTP 0.001233 | 13 |
| HLA-B*35:01 | 1 | 803 | 811 | 9 | SQILPDPSK 0.001233 | 9.2 |
| HLA-B*40:01 | 1 | 1081 | 1089 | 9 | ICHDGKAHF 0.001233 | 6.9 |
| HLA-A*02:03 | 1 | 1218 | 1227 | 10 | LGFIAGLIAI 0.001233 | 15 |
| HLA-B*07:02 | 1 | 360 | 368 | 9 | NCVADYSVL 0.001232 | 11 |
| HLA-A*30:01 | 1 | 550 | 559 | 10 | GVLTESNKKF 0.001232 | 24 |
| HLA-A*02:06 | 1 | 637 | 646 | 10 | STGSNVFQTR 0.001232 | 18 |
| HLA-B*44:02 | 1 | 925 | 933 | 9 | NQFNSAIGK 0.001232 | 7.3 |
| HLA-B*40:01 | 1 | 1106 | 1114 | 9 | QRNFYEPQI 0.001232 | 6.9 |
| HLA-A*68:02 | 1 | 944 | 952 | 9 | ALGKLQDVV 0.001231 | 14 |
| HLA-A*68:01 | 1 | 53 | 61 | 9 | DLFLPFFSN 0.00123 | 14 |
| HLA-A*02:03 | 1 | 92 | 101 | 10 | FASTEKSNII 0.00123 | 15 |
| HLA-B*57:01 | 1 | 339 | 347 | 9 | GEVFNATRF 0.00123 | 18 |
| HLA-A*30:02 | 1 | 399 | 408 | 10 | SFVIRGDEVR 0.00123 | 22 |
| HLA-A*26:01 | 1 | 507 | 515 | 9 | PYRVVLSF 0.00123 | 9.9 |
| HLA-A*68:02 | 1 | 675 | 683 | 9 | QTQTNSPRR 0.00123 | 14 |
| HLA-A*03:01 | 1 | 857 | 865 | 9 | GLTVLPPLL 0.00123 | 11 |
| HLA-A*11:01 | 1 | 976 | 984 | 9 | VLNDILSRL 0.00123 | 8.9 |
| HLA-A*33:01 | 1 | 241 | 249 | 9 | LLALHRSYL 0.001229 | 13 |
| HLA-B*57:01 | 1 | 310 | 319 | 10 | KGTYQTSNFR 0.001229 | 18 |
| HLA-B*08:01 | 1 | 333 | 342 | 10 | TNLCPFGEVF 0.001229 | 18 |
| HLA-A*30:01 | 1 | 376 | 385 | 10 | TFKCYGVSPT 0.001229 | 24 |
| HLA-A*01:01 | 1 | 930 | 938 | 9 | AIGKIQDSL 0.001229 | 13 |
| HLA-A*02:03 | 1 | 38 | 47 | 10 | YDPKVFRRSSV 0.001228 | 15 |
| HLA-B*51:01 | 1 | 445 | 453 | 9 | VGGNYNYLY 0.001228 | 17 |
| HLA-A*11:01 | 1 | 639 | 647 | 9 | GSNVFQTRA 0.001228 | 8.9 |
| HLA-A*01:01 | 1 | 802 | 810 | 9 | FSQILPDPS 0.001228 | 13 |
| HLA-A*30:02 | 1 | 887 | 896 | 10 | TFGAGAALQI 0.001228 | 22 |
| HLA-B*15:01 | 1 | 1053 | 1061 | 9 | PQSAPHGVV 0.001228 | 13 |
| HLA-B*15:01 | 1 | 401 | 409 | 9 | VIRGDEVRQ 0.001227 | 13 |
| HLA-B*44:02 | 1 | 909 | 917 | 9 | IGVTQNVLY 0.001227 | 7.3 |
| HLA-A*30:02 | 1 | 1051 | 1059 | 9 | SFPQSAPHG 0.001227 | 22 |
| HLA-B*58:01 | 1 | 70 | 78 | 9 | VSGTNGTKR 0.001226 | 12 |
| HLA-A*32:01 | 1 | 386 | 394 | 9 | KLNDLCFTN 0.001226 | 9.6 |
| HLA-B*44:02 | 1 | 677 | 685 | 9 | QTNSPRRAR 0.001226 | 7.3 |
| HLA-A*30:02 | 1 | 844 | 852 | 9 | IAARDLICA 0.001226 | 22 |
| HLA-A*26:01 | 1 | 1056 | 1065 | 10 | APHGVVFLHV 0.001226 | 9.9 |
| HLA-A*30:01 | 1 | 61 | 70 | 10 | NVTWFHAIHV 0.001225 | 24 |
| HLA-A*24:02 | 1 | 269 | 278 | 10 | YLQPRTFLK 0.001225 | 7.4 |
| HLA-A*68:02 | 1 | 676 | 685 | 10 | TQTNSPRRAR 0.001225 | 14 |
| HLA-A*31:01 | 1 | 780 | 788 | 9 | EVFAQVKQI 0.001225 | 15 |
| HLA-B*57:01 | 1 | 973 | 982 | 10 | ISSVLNDILS 0.001225 | 18 |
| HLA-A*30:01 | 1 | 1220 | 1228 | 9 | FIAGLIAIIV 0.001225 | 24 |
| HLA-B*57:01 | 1 | 133 | 141 | 9 | FQFCNDPFL 0.001224 | 18 |
| HLA-B*40:01 | 1 | 603 | 611 | 9 | NTSNQVAVL 0.001224 | 6.9 |
| HLA-A*26:01 | 1 | 1000 | 1008 | 9 | RLQSLQTYV 0.001224 | 9.9 |
| HLA-A*30:01 | 1 | 313 | 322 | 10 | YQTSNFRVQP 0.001223 | 24 |
| HLA-A*11:01 | 1 | 458 | 467 | 10 | KSNLKPFERD 0.001223 | 8.9 |
| HLA-B*58:01 | 1 | 675 | 683 | 9 | QTQTNSPRR 0.001223 | 12 |
| HLA-A*32:01 | 1 | 686 | 694 | 9 | SVASQSIIA 0.001223 | 9.6 |
| HLA-A*24:02 | 1 | 852 | 861 | 10 | AQKFNGLTVL 0.001223 | 7.4 |
| HLA-B*15:01 | 1 | 1229 | 1237 | 9 | MVTIMLCCM 0.001223 | 13 |
| HLA-B*58:01 | 1 | 29 | 37 | 9 | TNSFTRGVY 0.001222 | 12 |
| HLA-B*07:02 | 1 | 292 | 300 | 9 | ALDPLSETK 0.001222 | 11 |
| HLA-A*32:01 | 1 | 295 | 303 | 9 | PLSETKCTL 0.001222 | 9.6 |
| HLA-A*33:01 | 1 | 344 | 353 | 10 | ATRFASVYAW 0.001222 | 13 |
| HLA-A*01:01 | 1 | 457 | 466 | 10 | RKSNLKPFER 0.001222 | 13 |
| HLA-B*08:01 | 1 | 732 | 740 | 9 | TKTSVDCTM 0.001222 | 18 |
| HLA-A*26:01 | 1 | 132 | 140 | 9 | EFQFCNDPF 0.001221 | 9.9 |
| HLA-A*68:01 | 1 | 221 | 229 | 9 | SALEPLVDL 0.001221 | 14 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*01:01 | 1 | 295 | 304 | 10 | PLSETKCTLK 0.001221 | 13 |
| HLA-A*68:02 | 1 | 495 | 504 | 10 | YGFQPTNGVG 0.001221 | 14 |
| HLA-A*30:01 | 1 | 1058 | 1066 | 9 | HGVVFLHVT 0.001221 | 24 |
| HLA-A*01:01 | 1 | 134 | 143 | 10 | QFCNDPFLGV 0.00122 | 13 |
| HLA-A*30:02 | 1 | 259 | 267 | 9 | TAGAAAYV 0.00122 | 22 |
| HLA-B*57:01 | 1 | 558 | 566 | 9 | KFLPFQQFG 0.00122 | 18 |
| HLA-A*31:01 | 1 | 184 | 192 | 9 | GNFKNLREF 0.001219 | 15 |
| HLA-A*02:01 | 1 | 386 | 394 | 9 | KLNDLCFTN 0.001219 | 13 |
| HLA-B*08:01 | 1 | 902 | 911 | 10 | MAYRFNGIGV 0.001219 | 18 |
| HLA-A*01:01 | 1 | 940 | 949 | 10 | STASALGKLQ 0.001219 | 13 |
| HLA-A*30:01 | 1 | 1015 | 1024 | 10 | AAEIRASANL 0.001219 | 24 |
| HLA-A*32:01 | 1 | 1178 | 1186 | 9 | NIQKEIDRL 0.001219 | 9.6 |
| HLA-A*31:01 | 1 | 1260 | 1269 | 10 | DSEPVKGVK 0.001219 | 15 |
| HLA-A*24:02 | 1 | 62 | 70 | 9 | VTWFHAIHV 0.001218 | 7.4 |
| HLA-A*01:01 | 1 | 237 | 245 | 9 | RFQTLALH 0.001218 | 13 |
| HLA-B*51:01 | 1 | 688 | 697 | 10 | ASQSIIAYTM 0.001218 | 17 |
| HLA-A*02:06 | 1 | 706 | 714 | 9 | AYSNNIAI 0.001218 | 19 |
| HLA-B*57:01 | 1 | 851 | 860 | 10 | CAQKFNGLTV 0.001218 | 18 |
| HLA-A*32:01 | 1 | 947 | 956 | 10 | KLQDVVNQNA 0.001218 | 9.6 |
| HLA-B*53:01 | 1 | 173 | 182 | 10 | QPFLMDLEGK 0.001217 | 8.6 |
| HLA-A*24:02 | 1 | 305 | 313 | 9 | SFTVEKGIY 0.001217 | 7.4 |
| HLA-A*01:01 | 1 | 638 | 647 | 10 | TGSNVFQTRA 0.001217 | 13 |
| HLA-B*40:01 | 1 | 915 | 923 | 9 | VLYENQLI 0.001217 | 6.9 |
| HLA-B*58:01 | 1 | 133 | 141 | 9 | FQFCNDPFL 0.001216 | 12 |
| HLA-A*30:02 | 1 | 138 | 146 | 9 | DPFLGVVYH 0.001216 | 22 |
| HLA-A*23:01 | 1 | 346 | 355 | 10 | RFASVYAWN 0.001216 | 7.6 |
| HLA-A*30:02 | 1 | 420 | 429 | 10 | DYNYKLPDDF 0.001216 | 22 |
| HLA-B*07:02 | 1 | 732 | 740 | 9 | TKTSVDCTM 0.001216 | 11 |
| HLA-A*33:01 | 1 | 1149 | 1157 | 9 | KEELDKYFK 0.001216 | 13 |
| HLA-A*23:01 | 1 | 47 | 56 | 10 | VLHSTQDLFL 0.001215 | 7.6 |
| HLA-B*57:01 | 1 | 107 | 115 | 9 | GTTLDSTQ 0.001215 | 18 |
| HLA-A*30:01 | 1 | 417 | 426 | 10 | KIADYNYKLP 0.001215 | 24 |
| HLA-A*24:02 | 1 | 422 | 430 | 9 | NYKLPDDFT 0.001215 | 7.4 |
| HLA-B*44:03 | 1 | 626 | 635 | 10 | ADQLTPTWRV 0.001215 | 7.4 |
| HLA-B*57:01 | 1 | 758 | 767 | 10 | SFCTQLNRAL 0.001215 | 18 |
| HLA-A*30:01 | 1 | 772 | 781 | 10 | VEQDKNTQEV 0.001215 | 24 |
| HLA-A*31:01 | 1 | 943 | 951 | 9 | SALGKLQDV 0.001215 | 15 |
| HLA-A*24:02 | 1 | 1108 | 1117 | 10 | NFYEQIITT 0.001215 | 7.4 |
| HLA-B*44:03 | 1 | 186 | 194 | 9 | FKNLREFVF 0.001214 | 7.4 |
| HLA-A*26:01 | 1 | 750 | 759 | 10 | SNLLLQYGSF 0.001214 | 9.9 |
| HLA-B*58:01 | 1 | 236 | 244 | 9 | TRFQTLAL 0.001213 | 12 |
| HLA-B*58:01 | 1 | 339 | 347 | 9 | GEVFNATRF 0.001213 | 12 |
| HLA-B*08:01 | 1 | 344 | 352 | 9 | ATRFASVYA 0.001213 | 18 |
| HLA-A*68:02 | 1 | 499 | 507 | 9 | PTNGVGYQP 0.001213 | 14 |
| HLA-A*24:02 | 1 | 869 | 877 | 9 | MIAQYTSAL 0.001213 | 7.5 |
| HLA-A*68:02 | 1 | 989 | 997 | 9 | AEVQIDRLI 0.001213 | 14 |
| HLA-A*30:02 | 1 | 1140 | 1149 | 10 | PLQPELDSFK 0.001213 | 22 |
| HLA-B*15:01 | 1 | 1224 | 1233 | 10 | LIAIVMVTIM 0.001213 | 13 |
| HLA-A*24:02 | 1 | 47 | 56 | 10 | VLHSTQDLFL 0.001212 | 7.5 |
| HLA-B*08:01 | 1 | 58 | 66 | 9 | FFSNVTWFH 0.001212 | 18 |
| HLA-B*35:01 | 1 | 499 | 508 | 10 | PTNGVGYQPY 0.001212 | 9.3 |
| HLA-A*23:01 | 1 | 975 | 984 | 10 | SVLNDILSRL 0.001212 | 7.6 |
| HLA-A*31:01 | 1 | 1061 | 1069 | 9 | VFLHVTVYP 0.001212 | 15 |
| HLA-B*07:02 | 1 | 1171 | 1179 | 9 | GINASVUNI 0.001212 | 11 |
| HLA-B*15:01 | 1 | 119 | 128 | 10 | IVNATNVVI 0.001211 | 13 |
| HLA-B*51:01 | 1 | 154 | 163 | 10 | ESEFRVYSSA 0.001211 | 17 |
| HLA-B*08:01 | 1 | 443 | 452 | 10 | SKVGGNYNYL 0.001211 | 18 |
| HLA-A*02:03 | 1 | 961 | 969 | 9 | TLVKQLSSN 0.001211 | 15 |
| HLA-A*01:01 | 1 | 1014 | 1022 | 9 | RAAEIRASA 0.001211 | 13 |
| HLA-A*02:03 | 1 | 1053 | 1061 | 9 | PQSAPHGVV 0.001211 | 15 |
| HLA-A*02:01 | 1 | 1054 | 1062 | 9 | QSAPHGVVF 0.001211 | 13 |
| HLA-A*68:01 | 1 | 1092 | 1100 | 9 | EGVFSNGT 0.001211 | 14 |
| HLA-A*01:01 | 1 | 19 | 27 | 9 | TTRTQLPPA 0.00121 | 13 |
| HLA-A*02:01 | 1 | 596 | 605 | 10 | SVITPGTNTS 0.00121 | 13 |
| HLA-A*02:06 | 1 | 712 | 721 | 10 | IAIPTNFTIS 0.00121 | 19 |
| HLA-A*02:06 | 1 | 828 | 836 | 9 | LADAGFIKQ 0.00121 | 19 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*58:01 | 1 | 971 | 979 | 9 | GAISSVLND 0.00121 | 12 |
| HLA-A*30:02 | 1 | 1083 | 1091 | 9 | HDGKAHFPR 0.00121 | 22 |
| HLA-B*58:01 | 1 | 168 | 177 | 10 | FEYVSQPFLM 0.001209 | 12 |
| HLA-A*68:02 | 1 | 802 | 811 | 10 | FSQILPDPSK 0.001209 | 14 |
| HLA-A*03:01 | 1 | 977 | 986 | 10 | LNDILSRLDK 0.001209 | 11 |
| HLA-A*02:01 | 1 | 77 | 85 | 9 | KRFDNPVLP 0.001208 | 13 |
| HLA-A*31:01 | 1 | 122 | 130 | 9 | NATNVVIKV 0.001208 | 15 |
| HLA-B*15:01 | 1 | 143 | 152 | 10 | VYYHKNNKSW 0.001208 | 13 |
| HLA-B*35:01 | 1 | 444 | 453 | 10 | KVGGNYNYLY 0.001208 | 9.3 |
| HLA-B*44:02 | 1 | 700 | 709 | 10 | GAENSVAYSN 0.001208 | 7.3 |
| HLA-A*68:02 | 1 | 787 | 795 | 9 | QIYKTPPIK 0.001208 | 14 |
| HLA-A*03:01 | 1 | 852 | 861 | 10 | AQKFNGLTVL 0.001208 | 11 |
| HLA-A*30:02 | 1 | 1041 | 1050 | 10 | DFCGKGYHLM 0.001208 | 22 |
| HLA-B*57:01 | 1 | 1191 | 1200 | 10 | KNLNESLIDL 0.001208 | 18 |
| HLA-B*51:01 | 1 | 39 | 47 | 9 | PDKVFRSSV 0.001207 | 17 |
| HLA-A*68:01 | 1 | 60 | 68 | 9 | SNVTWFHAI 0.001207 | 14 |
| HLA-A*30:02 | 1 | 104 | 113 | 10 | WIFGTTLDSK 0.001207 | 22 |
| HLA-B*44:02 | 1 | 626 | 634 | 9 | ADQLTPTWR 0.001207 | 7.3 |
| HLA-A*02:01 | 1 | 685 | 694 | 10 | RSVASQSIIA 0.001207 | 13 |
| HLA-A*26:01 | 1 | 713 | 722 | 10 | AIPTNFTISV 0.001207 | 9.9 |
| HLA-B*08:01 | 1 | 797 | 806 | 10 | FGGFNFSQIL 0.001207 | 18 |
| HLA-B*53:01 | 1 | 847 | 855 | 9 | RDLICAQKF 0.001207 | 8.6 |
| HLA-B*51:01 | 1 | 893 | 902 | 10 | ALQIPFAMQM 0.001207 | 17 |
| HLA-A*02:01 | 1 | 1105 | 1114 | 10 | TQRNFYEQI 0.001207 | 13 |
| HLA-A*30:01 | 1 | 1176 | 1185 | 10 | VVNIQKEIDR 0.001207 | 25 |
| HLA-A*68:01 | 1 | 1226 | 1234 | 9 | AIVMVTIML 0.001207 | 14 |
| HLA-B*44:03 | 1 | 131 | 139 | 9 | CEFQFCNDP 0.001206 | 7.4 |
| HLA-B*57:01 | 1 | 312 | 320 | 9 | IYQTSNFRV 0.001206 | 18 |
| HLA-B*07:02 | 1 | 334 | 342 | 9 | NLCPFGEVF 0.001206 | 11 |
| HLA-A*02:03 | 1 | 363 | 372 | 10 | ADYSVLYNSA 0.001206 | 15 |
| HLA-B*15:01 | 1 | 220 | 229 | 10 | FSALEPLVDL 0.001205 | 13 |
| HLA-A*33:01 | 1 | 340 | 349 | 10 | EVFNATRFAS 0.001205 | 13 |
| HLA-A*03:01 | 1 | 1135 | 1144 | 10 | NTVYDPLQPE 0.001205 | 11 |
| HLA-A*02:01 | 1 | 492 | 500 | 9 | LQSYGFQPT 0.001204 | 13 |
| HLA-B*08:01 | 1 | 1156 | 1164 | 9 | FKNHTSPDV 0.001204 | 18 |
| HLA-A*03:01 | 1 | 381 | 390 | 10 | GVSPTKLNDL 0.001203 | 11 |
| HLA-A*33:01 | 1 | 435 | 444 | 10 | AWNSNNLDSK 0.001203 | 13 |
| HLA-A*01:01 | 1 | 714 | 722 | 9 | IPTNFTISV 0.001203 | 14 |
| HLA-B*51:01 | 1 | 957 | 965 | 9 | QALNTLVKQ 0.001203 | 17 |
| HLA-A*68:02 | 1 | 29 | 38 | 10 | TNSFTRGVVY 0.001202 | 15 |
| HLA-A*02:03 | 1 | 207 | 216 | 10 | HTPINLVRDL 0.001202 | 15 |
| HLA-B*44:02 | 1 | 252 | 260 | 9 | GDSSSGWTA 0.001202 | 7.4 |
| HLA-B*40:01 | 1 | 584 | 592 | 9 | ILDITPCSF 0.001202 | 6.9 |
| HLA-A*68:02 | 1 | 1164 | 1172 | 9 | VDLGDISGI 0.001202 | 15 |
| HLA-B*53:01 | 1 | 1194 | 1203 | 10 | NESLIDLQEL 0.001202 | 8.6 |
| HLA-A*30:01 | 1 | 123 | 132 | 10 | ATNVVIVKVE 0.001201 | 25 |
| HLA-A*01:01 | 1 | 550 | 559 | 10 | GVLTESNKKF 0.001201 | 14 |
| HLA-B*53:01 | 1 | 824 | 833 | 10 | NKVTLADAGF 0.001201 | 8.6 |
| HLA-A*32:01 | 1 | 888 | 896 | 9 | FGAGAALQI 0.001201 | 9.7 |
| HLA-A*31:01 | 1 | 218 | 226 | 9 | QGFSALEPL 0.0012 | 15 |
| HLA-A*01:01 | 1 | 513 | 521 | 9 | LSFELLHAP 0.0012 | 14 |
| HLA-A*02:03 | 1 | 621 | 629 | 9 | PVAIHADQL 0.0012 | 15 |
| HLA-B*58:01 | 1 | 724 | 733 | 10 | TEILPVSMTK 0.0012 | 13 |
| HLA-B*58:01 | 1 | 1115 | 1124 | 10 | ITTDNTFVSG 0.0012 | 13 |
| HLA-A*32:01 | 1 | 530 | 538 | 9 | STNLVKNKC 0.001199 | 9.7 |
| HLA-B*51:01 | 1 | 621 | 629 | 9 | PVAIHADQL 0.001199 | 17 |
| HLA-B*44:03 | 1 | 879 | 888 | 10 | AGTITSGWTF 0.001199 | 7.4 |
| HLA-A*02:06 | 1 | 1023 | 1032 | 10 | NLAATKMSEC 0.001199 | 19 |
| HLA-B*58:01 | 1 | 1159 | 1168 | 10 | HTSPDVLGD 0.001199 | 13 |
| HLA-B*35:01 | 1 | 95 | 104 | 10 | TEKSNIIRGW 0.001198 | 9.3 |
| HLA-B*51:01 | 1 | 118 | 127 | 10 | LIVNNATNVV 0.001198 | 17 |
| HLA-A*30:02 | 1 | 225 | 233 | 9 | PLVDLPIGI 0.001198 | 22 |
| HLA-A*02:06 | 1 | 360 | 369 | 10 | NCVADYSVLV 0.001198 | 19 |
| HLA-B*15:01 | 1 | 721 | 729 | 9 | SVTTEILPV 0.001198 | 13 |
| HLA-A*30:02 | 1 | 881 | 890 | 10 | TITSGWTFGA 0.001198 | 22 |
| HLA-B*08:01 | 1 | 1088 | 1097 | 10 | HFPREGVFSV 0.001198 | 18 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*07:02 | 1 | 1201 | 1209 | 9 | QELGKYEQY 0.001198 | 11 |
| HLA-A*01:01 | 1 | 495 | 503 | 9 | YGFQPTNGV 0.001197 | 14 |
| HLA-A*30:01 | 1 | 512 | 521 | 10 | VLSFELLHAP 0.001197 | 25 |
| HLA-A*68:02 | 1 | 715 | 724 | 10 | PTNFTISVTT 0.001197 | 15 |
| HLA-A*11:01 | 1 | 1135 | 1144 | 10 | NTVYDPLQPE 0.001197 | 9.0 |
| HLA-A*33:01 | 1 | 37 | 46 | 10 | YYPDKVFRSS 0.001196 | 13 |
| HLA-A*30:02 | 1 | 562 | 570 | 9 | FQQFGRDIA 0.001196 | 22 |
| HLA-A*26:01 | 1 | 616 | 625 | 10 | NCTEVPVAIH 0.001196 | 10 |
| HLA-A*01:01 | 1 | 861 | 869 | 9 | LPPLLTDEM 0.001196 | 14 |
| HLA-B*53:01 | 1 | 989 | 997 | 9 | AEVQIDRLI 0.001196 | 8.6 |
| HLA-A*30:02 | 1 | 1257 | 1265 | 9 | DEDDSEPVL 0.001196 | 22 |
| HLA-A*24:02 | 1 | 265 | 274 | 10 | YYVGYLQPR 0.001195 | 7.5 |
| HLA-B*08:01 | 1 | 297 | 306 | 10 | SETKCTLKSF 0.001195 | 18 |
| HLA-B*15:01 | 1 | 387 | 396 | 10 | LNDLCFTNVY 0.001195 | 13 |
| HLA-B*15:01 | 1 | 409 | 418 | 10 | QIAPGQTGKI 0.001195 | 13 |
| HLA-B*53:01 | 1 | 411 | 419 | 9 | APGQTGKIA 0.001195 | 8.6 |
| HLA-A*33:01 | 1 | 1052 | 1060 | 9 | FPQSAPHGV 0.001195 | 13 |
| HLA-B*57:01 | 1 | 126 | 134 | 9 | VVIKVCFEQ 0.001194 | 18 |
| HLA-A*26:01 | 1 | 154 | 163 | 10 | ESEFRVYSSA 0.001194 | 10 |
| HLA-A*30:01 | 1 | 723 | 732 | 10 | TTEILPVSM 0.001194 | 25 |
| HLA-B*51:01 | 1 | 828 | 836 | 9 | LADAGFIKQ 0.001194 | 17 |
| HLA-B*58:01 | 1 | 860 | 869 | 10 | VLPLLTDEM 0.001194 | 13 |
| HLA-A*30:01 | 1 | 72 | 80 | 9 | GTNGTKRFD 0.001193 | 25 |
| HLA-A*31:01 | 1 | 173 | 182 | 10 | QPFLMDLEG 0.001193 | 15 |
| HLA-A*31:01 | 1 | 305 | 314 | 10 | SFTVEKGIY 0.001193 | 15 |
| HLA-A*32:01 | 1 | 395 | 403 | 9 | VYADSFVIR 0.001193 | 9.7 |
| HLA-B*58:01 | 1 | 777 | 786 | 10 | NTQEVFAQV 0.001193 | 13 |
| HLA-B*53:01 | 1 | 987 | 996 | 10 | VEAEVQIDR 0.001193 | 8.6 |
| HLA-A*11:01 | 1 | 1171 | 1179 | 9 | GINASVVNI 0.001193 | 9.0 |
| HLA-A*68:01 | 1 | 1198 | 1206 | 9 | IDLQELGKY 0.001193 | 15 |
| HLA-A*68:01 | 1 | 115 | 123 | 9 | QSLLVNNA 0.001192 | 15 |
| HLA-A*02:03 | 1 | 125 | 133 | 9 | NVVIKVCFE 0.001192 | 15 |
| HLA-A*01:01 | 1 | 212 | 221 | 10 | LVRDLPQGF 0.001192 | 14 |
| HLA-A*02:06 | 1 | 347 | 355 | 9 | FASVYAWNR 0.001192 | 19 |
| HLA-B*53:01 | 1 | 599 | 607 | 9 | TPGTNTSNT 0.001192 | 8.6 |
| HLA-B*57:01 | 1 | 723 | 732 | 10 | TTEILPVSM 0.001192 | 18 |
| HLA-B*57:01 | 1 | 792 | 800 | 9 | PPIKDFGGF 0.001192 | 18 |
| HLA-B*40:01 | 1 | 964 | 973 | 10 | KQLSSNFGA 0.001192 | 7.0 |
| HLA-B*57:01 | 1 | 992 | 1001 | 10 | QIDRLITGR 0.001192 | 18 |
| HLA-A*01:01 | 1 | 1074 | 1083 | 10 | NFTTAPAICH 0.001192 | 14 |
| HLA-A*30:01 | 1 | 58 | 67 | 10 | FFSNVTWFH 0.001191 | 25 |
| HLA-B*51:01 | 1 | 543 | 552 | 10 | FNGLTGTGV 0.001191 | 17 |
| HLA-A*23:01 | 1 | 590 | 598 | 9 | CSFGGVSVI 0.001191 | 7.7 |
| HLA-B*53:01 | 1 | 705 | 713 | 9 | VAYSNNNSI 0.001191 | 8.6 |
| HLA-B*44:02 | 1 | 879 | 888 | 10 | AGTITSGWF 0.001191 | 7.4 |
| HLA-A*68:02 | 1 | 1042 | 1050 | 9 | FCGKGYHLM 0.001191 | 15 |
| HLA-B*08:01 | 1 | 1121 | 1129 | 9 | FVSGNCDVV 0.001191 | 18 |
| HLA-A*01:01 | 1 | 1140 | 1149 | 10 | PLQPELDSF 0.001191 | 14 |
| HLA-A*26:01 | 1 | 1207 | 1216 | 10 | EQYIKWPWY 0.001191 | 10 |
| HLA-B*44:02 | 1 | 1209 | 1217 | 9 | YIKWPWYIW 0.001191 | 7.4 |
| HLA-A*30:02 | 1 | 132 | 140 | 9 | EFQFCNDPF 0.00119 | 22 |
| HLA-B*51:01 | 1 | 132 | 141 | 10 | EFQFCNDPF 0.00119 | 17 |
| HLA-B*44:03 | 1 | 136 | 144 | 9 | CNDPFLGVY 0.00119 | 7.4 |
| HLA-B*57:01 | 1 | 237 | 245 | 9 | RFQTLALH 0.00119 | 18 |
| HLA-A*01:01 | 1 | 253 | 262 | 10 | DSSSGWTAG 0.00119 | 14 |
| HLA-B*44:02 | 1 | 550 | 559 | 10 | GVLTESNKK 0.00119 | 7.4 |
| HLA-A*02:06 | 1 | 804 | 813 | 10 | QILPDPSKP 0.00119 | 19 |
| HLA-A*01:01 | 1 | 1002 | 1010 | 9 | QSLQTYVTQ 0.00119 | 14 |
| HLA-B*58:01 | 1 | 1188 | 1197 | 10 | EVAKNLNES 0.00119 | 13 |
| HLA-A*31:01 | 1 | 100 | 108 | 9 | IIRGWIFGT 0.001189 | 15 |
| HLA-B*44:03 | 1 | 222 | 231 | 10 | ALEPLVDLPI 0.001189 | 7.4 |
| HLA-A*68:02 | 1 | 253 | 261 | 9 | DSSSGWTAG 0.001189 | 15 |
| HLA-A*33:01 | 1 | 445 | 453 | 9 | VGGNYNYLY 0.001189 | 13 |
| HLA-B*58:01 | 1 | 729 | 737 | 9 | VSMTKTSVD 0.001189 | 13 |
| HLA-B*53:01 | 1 | 985 | 993 | 9 | DKVEAEVQI 0.001189 | 8.6 |
| HLA-B*57:01 | 1 | 989 | 997 | 9 | AEVQIDRLI 0.001189 | 18 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*32:01 | 1 | 992 | 1000 | 9 | QIDRLITGR 0.001189 | 9.7 |
| HLA-A*31:01 | 1 | 1209 | 1218 | 10 | YIKWPWYIWL 0.001189 | 15 |
| HLA-A*23:01 | 1 | 237 | 245 | 9 | RFQTLALH 0.001188 | 7.7 |
| HLA-A*23:01 | 1 | 341 | 350 | 10 | VFNATRFASV 0.001188 | 7.7 |
| HLA-A*68:02 | 1 | 366 | 375 | 10 | SVLYNSASFS 0.001188 | 15 |
| HLA-B*51:01 | 1 | 902 | 910 | 9 | MAYRFNGIG 0.001188 | 17 |
| HLA-B*08:01 | 1 | 1053 | 1062 | 10 | PQSAPHGVVF 0.001188 | 18 |
| HLA-A*03:01 | 1 | 1257 | 1266 | 10 | DEDDSEPVLK 0.001188 | 11 |
| HLA-A*03:01 | 1 | 29 | 37 | 9 | TNSFTRGVY 0.001187 | 11 |
| HLA-A*30:02 | 1 | 343 | 352 | 10 | NATRFASVYA 0.001187 | 22 |
| HLA-B*08:01 | 1 | 471 | 479 | 9 | EIYQAGSTP 0.001187 | 18 |
| HLA-A*02:03 | 1 | 586 | 595 | 10 | DITPCSFGGV 0.001187 | 15 |
| HLA-B*58:01 | 1 | 635 | 644 | 10 | VYSTGSNVFQ 0.001187 | 13 |
| HLA-A*02:06 | 1 | 765 | 773 | 9 | RALTGIAVE 0.001187 | 19 |
| HLA-B*08:01 | 1 | 1074 | 1082 | 9 | NFTTAPAIC 0.001187 | 18 |
| HLA-B*07:02 | 1 | 344 | 353 | 10 | ATRFASVYAW 0.001186 | 11 |
| HLA-B*57:01 | 1 | 954 | 963 | 10 | QNAQALNTLV 0.001186 | 18 |
| HLA-B*44:02 | 1 | 183 | 192 | 10 | QGNFKNLREF 0.001185 | 7.4 |
| HLA-B*15:01 | 1 | 234 | 242 | 9 | NITRFQTL 0.001185 | 14 |
| HLA-B*35:01 | 1 | 410 | 418 | 9 | IAPGQTGKI 0.001185 | 9.4 |
| HLA-B*08:01 | 1 | 948 | 956 | 9 | LQDVVNQNA 0.001185 | 18 |
| HLA-A*30:02 | 1 | 1174 | 1183 | 10 | ASVVNIQKEI 0.001185 | 22 |
| HLA-B*57:01 | 1 | 1221 | 1230 | 10 | IAGLIAIVMV 0.001185 | 18 |
| HLA-A*02:06 | 1 | 9 | 18 | 10 | PLVSSQCVNL 0.001184 | 19 |
| HLA-B*51:01 | 1 | 30 | 39 | 10 | NSFTRGVYYP 0.001184 | 17 |
| HLA-A*33:01 | 1 | 568 | 576 | 9 | DIADTTDAV 0.001184 | 13 |
| HLA-A*30:01 | 1 | 611 | 620 | 10 | LYQDVNCTEV 0.001184 | 25 |
| HLA-A*30:01 | 1 | 1192 | 1200 | 9 | NLNESLIDL 0.001184 | 25 |
| HLA-A*68:02 | 1 | 55 | 64 | 10 | FLPFFSNVTW 0.001183 | 15 |
| HLA-B*44:03 | 1 | 269 | 277 | 9 | YLQPRTFLL 0.001183 | 7.4 |
| HLA-A*30:02 | 1 | 526 | 534 | 9 | GPKKSTNLV 0.001183 | 22 |
| HLA-B*58:01 | 1 | 530 | 539 | 10 | STNLVKNKCV 0.001183 | 13 |
| HLA-A*30:01 | 1 | 617 | 625 | 9 | CTEVPVAIH 0.001183 | 25 |
| HLA-A*68:01 | 1 | 644 | 653 | 10 | QTRAGCLIGA 0.001183 | 15 |
| HLA-A*02:03 | 1 | 1065 | 1073 | 9 | VTYVPAQEK 0.001183 | 15 |
| HLA-B*35:01 | 1 | 1158 | 1166 | 9 | NHTSPDVDL 0.001183 | 9.4 |
| HLA-A*68:02 | 1 | 1221 | 1229 | 9 | IAGLIAIVM 0.001183 | 15 |
| HLA-A*32:01 | 1 | 237 | 245 | 9 | RFQTLALH 0.001182 | 9.7 |
| HLA-A*30:02 | 1 | 294 | 303 | 10 | DPLSETKCTL 0.001182 | 22 |
| HLA-B*07:02 | 1 | 507 | 515 | 9 | PYRVVLSF 0.001182 | 11 |
| HLA-B*58:01 | 1 | 770 | 779 | 10 | IAVEQDKNTQ 0.001182 | 13 |
| HLA-B*57:01 | 1 | 852 | 861 | 10 | AQKFNGLTVL 0.001182 | 18 |
| HLA-A*02:06 | 1 | 170 | 178 | 9 | YVSQPFLMD 0.001181 | 19 |
| HLA-A*33:01 | 1 | 256 | 265 | 10 | SGWTAGAAAY 0.001181 | 13 |
| HLA-B*58:01 | 1 | 418 | 426 | 9 | IADYNYKLP 0.001181 | 13 |
| HLA-A*68:01 | 1 | 574 | 582 | 9 | DAVRDPQTL 0.001181 | 15 |
| HLA-B*08:01 | 1 | 1012 | 1020 | 9 | LIRAAEIRA 0.001181 | 18 |
| HLA-A*02:01 | 1 | 1215 | 1223 | 9 | YIWLGFIAG 0.001181 | 13 |
| HLA-A*01:01 | 1 | 221 | 229 | 9 | SALEPLVDL 0.00118 | 14 |
| HLA-A*30:02 | 1 | 263 | 272 | 10 | AAYYVGYLQP 0.00118 | 22 |
| HLA-A*03:01 | 1 | 500 | 509 | 10 | TNGVGYQPYR 0.00118 | 11 |
| HLA-A*02:03 | 1 | 752 | 761 | 10 | LLLQYGSFCT 0.00118 | 15 |
| HLA-B*35:01 | 1 | 818 | 826 | 9 | IEDLLFNKV 0.00118 | 9.4 |
| HLA-A*26:01 | 1 | 940 | 949 | 10 | STASALGKLQ 0.00118 | 11 |
| HLA-B*44:03 | 1 | 1040 | 1049 | 10 | VDFCGKGYHL 0.00118 | 7.5 |
| HLA-A*11:01 | 1 | 1263 | 1272 | 10 | PVLKGVKLHY 0.00118 | 9.1 |
| HLA-A*02:06 | 1 | 92 | 101 | 10 | FASTEKSNI 0.001179 | 19 |
| HLA-A*68:02 | 1 | 102 | 110 | 9 | RGWIFGTTL 0.001179 | 15 |
| HLA-A*02:06 | 1 | 120 | 128 | 9 | VNNATNVVI 0.001179 | 19 |
| HLA-A*68:02 | 1 | 551 | 560 | 10 | VLTESNKKFL 0.001179 | 15 |
| HLA-A*02:06 | 1 | 697 | 706 | 10 | MSLGAENVA 0.001179 | 19 |
| HLA-A*68:01 | 1 | 719 | 727 | 9 | TISVTTEIL 0.001179 | 15 |
| HLA-B*58:01 | 1 | 754 | 763 | 10 | LQYGSFCTL 0.001179 | 13 |
| HLA-B*58:01 | 1 | 968 | 977 | 10 | SNFGAISSVL 0.001179 | 13 |
| HLA-B*08:01 | 1 | 228 | 236 | 9 | DLPIGINIT 0.001178 | 18 |
| HLA-B*58:01 | 1 | 464 | 472 | 9 | FERDISTEI 0.001178 | 13 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*08:01 | 1 | 494 | 503 | 10 | SYGFQPTNGV 0.001178 | 18 |
| HLA-A*68:01 | 1 | 745 | 753 | 9 | DSTECSNLL 0.001178 | 15 |
| HLA-A*31:01 | 1 | 901 | 909 | 9 | QMAYRFNGI 0.001178 | 15 |
| HLA-B*57:01 | 1 | 964 | 973 | 10 | KQLSSNFGAI 0.001178 | 18 |
| HLA-A*02:06 | 1 | 1064 | 1072 | 9 | HVTYVPAQE 0.001178 | 19 |
| HLA-B*58:01 | 1 | 62 | 71 | 10 | VTWFHAIHVS 0.001177 | 13 |
| HLA-B*44:03 | 1 | 122 | 130 | 9 | NATNVVIKV 0.001177 | 7.5 |
| HLA-B*08:01 | 1 | 502 | 510 | 9 | GVGYQPYRV 0.001177 | 18 |
| HLA-B*07:02 | 1 | 857 | 865 | 9 | GLTVLPPLL 0.001177 | 11 |
| HLA-A*32:01 | 1 | 1034 | 1042 | 9 | LGQSKRVDF 0.001177 | 9.7 |
| HLA-A*26:01 | 1 | 1146 | 1154 | 9 | DSFKEELDK 0.001177 | 11 |
| HLA-B*57:01 | 1 | 69 | 77 | 9 | HVSGTNGTK 0.001176 | 18 |
| HLA-A*24:02 | 1 | 1108 | 1116 | 9 | NFYEQIIT 0.001176 | 7.6 |
| HLA-A*26:01 | 1 | 1109 | 1117 | 9 | FYEQIITT 0.001176 | 11 |
| HLA-A*30:01 | 1 | 1208 | 1217 | 10 | QYIKWPWYIW 0.001176 | 25 |
| HLA-A*30:02 | 1 | 181 | 190 | 10 | GKQGNFKNLR 0.001175 | 22 |
| HLA-A*01:01 | 1 | 310 | 318 | 9 | KGIYQTSNF 0.001175 | 14 |
| HLA-A*24:02 | 1 | 341 | 350 | 10 | VFNATRFASV 0.001175 | 7.6 |
| HLA-B*35:01 | 1 | 943 | 951 | 9 | SALGKLQDV 0.001175 | 9.4 |
| HLA-A*26:01 | 1 | 1112 | 1121 | 10 | PQIITDNTF 0.001175 | 11 |
| HLA-B*35:01 | 1 | 1151 | 1159 | 9 | ELDKYFKNH 0.001175 | 9.4 |
| HLA-A*03:01 | 1 | 554 | 562 | 9 | ESNKKFLPF 0.001174 | 11 |
| HLA-B*44:03 | 1 | 584 | 592 | 9 | ILDITPCSF 0.001174 | 7.5 |
| HLA-B*57:01 | 1 | 767 | 776 | 10 | LTGIAVEQDK 0.001174 | 18 |
| HLA-B*08:01 | 1 | 851 | 860 | 10 | CAQKFNGLTV 0.001174 | 18 |
| HLA-B*44:03 | 1 | 1029 | 1038 | 10 | MSECVLGQSK 0.001174 | 7.5 |
| HLA-A*31:01 | 1 | 1094 | 1103 | 10 | VFVSNGTHWF 0.001174 | 15 |
| HLA-B*58:01 | 1 | 779 | 788 | 10 | QEVFAQVKQI 0.001173 | 13 |
| HLA-A*02:06 | 1 | 935 | 944 | 10 | QDLSSTASA 0.001173 | 19 |
| HLA-A*11:01 | 1 | 21 | 30 | 10 | RTQLPPAYTN 0.001172 | 9.1 |
| HLA-B*51:01 | 1 | 82 | 90 | 9 | PVLPFNDGV 0.001172 | 17 |
| HLA-A*11:01 | 1 | 136 | 144 | 9 | CNDPFLGVY 0.001172 | 9.1 |
| HLA-A*23:01 | 1 | 330 | 338 | 9 | PNITNLCPF 0.001172 | 7.7 |
| HLA-B*08:01 | 1 | 340 | 348 | 9 | EVFNATRFA 0.001172 | 18 |
| HLA-B*44:02 | 1 | 814 | 823 | 10 | KRSFIEDLLF 0.001172 | 7.4 |
| HLA-B*44:02 | 1 | 993 | 1001 | 9 | IDRLITGRL 0.001172 | 7.4 |
| HLA-A*31:01 | 1 | 57 | 65 | 9 | PFFSNVTWF 0.001171 | 15 |
| HLA-B*58:01 | 1 | 1038 | 1047 | 10 | KRVDFCGKGY 0.001171 | 13 |
| HLA-A*68:02 | 1 | 1223 | 1232 | 10 | GLIAIVMVTI 0.001171 | 15 |
| HLA-A*01:01 | 1 | 618 | 626 | 9 | TEVPVAIHA 0.00117 | 14 |
| HLA-B*15:01 | 1 | 285 | 293 | 9 | ITDAVDALC 0.001169 | 14 |
| HLA-A*24:02 | 1 | 295 | 303 | 9 | PLSETKCTL 0.001169 | 7.6 |
| HLA-A*03:01 | 1 | 458 | 467 | 10 | KSNLKPFERD 0.001169 | 11 |
| HLA-B*57:01 | 1 | 675 | 684 | 10 | QTQTNSPRRA 0.001169 | 18 |
| HLA-B*08:01 | 1 | 1168 | 1177 | 10 | DISGINASVV 0.001169 | 18 |
| HLA-B*15:01 | 1 | 144 | 153 | 10 | YYHKNNKSWM 0.001168 | 14 |
| HLA-B*08:01 | 1 | 294 | 302 | 9 | DPLSETKCT 0.001168 | 18 |
| HLA-A*68:02 | 1 | 726 | 734 | 9 | ILPVSMTKT 0.001168 | 15 |
| HLA-B*44:03 | 1 | 732 | 741 | 10 | TKTSVDCTMY 0.001168 | 7.5 |
| HLA-B*08:01 | 1 | 796 | 805 | 10 | DFGGFNFSQI 0.001168 | 18 |
| HLA-A*02:03 | 1 | 804 | 813 | 10 | QILPDPSPKPS 0.001168 | 15 |
| HLA-B*15:01 | 1 | 861 | 869 | 9 | LPPLLTDEM 0.001168 | 14 |
| HLA-A*31:01 | 1 | 864 | 873 | 10 | LLTDEMIAQY 0.001168 | 15 |
| HLA-B*57:01 | 1 | 1093 | 1101 | 9 | GVFVSNGTH 0.001168 | 18 |
| HLA-B*57:01 | 1 | 112 | 121 | 10 | SKTQSLIIVN 0.001167 | 18 |
| HLA-A*01:01 | 1 | 469 | 478 | 10 | STEIYQAGST 0.001167 | 14 |
| HLA-B*35:01 | 1 | 705 | 714 | 10 | VAYSNSIAI 0.001167 | 9.4 |
| HLA-A*68:02 | 1 | 328 | 336 | 9 | RFPNITNLC 0.001166 | 15 |
| HLA-A*02:03 | 1 | 953 | 961 | 9 | NQNAQALNT 0.001166 | 15 |
| HLA-A*33:01 | 1 | 1039 | 1048 | 10 | RVDFCGKGYH 0.001166 | 13 |
| HLA-A*24:02 | 1 | 1178 | 1186 | 9 | NIQKEIDRL 0.001166 | 7.6 |
| HLA-B*15:01 | 1 | 195 | 203 | 9 | KNIDGYFKI 0.001165 | 14 |
| HLA-A*30:01 | 1 | 794 | 802 | 9 | IKDFGGFNF 0.001165 | 25 |
| HLA-A*02:03 | 1 | 825 | 834 | 10 | KVTLADAGFI 0.001165 | 15 |
| HLA-B*53:01 | 1 | 897 | 906 | 10 | PFAMQMAYRF 0.001165 | 8.7 |
| HLA-A*02:03 | 1 | 58 | 67 | 10 | FFSNVTWFHA 0.001164 | 15 |

| | | | | | | |
|-------------|---|------|------|----|-----------------------|-----|
| HLA-A*30:02 | 1 | 494 | 502 | 9 | SYGFQPTNG 0.001164 | 22 |
| HLA-B*57:01 | 1 | 630 | 639 | 10 | TPTWRVYSTG 0.001164 | 18 |
| HLA-A*32:01 | 1 | 717 | 726 | 10 | NFTISVTTEI 0.001164 | 9.8 |
| HLA-A*30:02 | 1 | 822 | 831 | 10 | LFNKVTLADA 0.001164 | 22 |
| HLA-A*30:02 | 1 | 1010 | 1019 | 10 | QQLIRAAEIR 0.001164 | 22 |
| HLA-B*57:01 | 1 | 111 | 120 | 10 | DSKTQSLLIV 0.001163 | 18 |
| HLA-A*01:01 | 1 | 167 | 176 | 10 | TFEYV SQPFL 0.001163 | 14 |
| HLA-A*30:02 | 1 | 825 | 834 | 10 | KVTLADAGFI 0.001163 | 22 |
| HLA-B*58:01 | 1 | 902 | 911 | 10 | MAYRFNGIGV 0.001163 | 13 |
| HLA-A*02:01 | 1 | 987 | 996 | 10 | VEAEVQIDRL 0.001163 | 14 |
| HLA-B*08:01 | 1 | 1105 | 1114 | 10 | TQRNFYEPQI 0.001163 | 18 |
| HLA-A*01:01 | 1 | 621 | 629 | 9 | PVAIHADQL 0.001162 | 14 |
| HLA-A*33:01 | 1 | 940 | 948 | 9 | STASALGKL 0.001162 | 13 |
| HLA-B*57:01 | 1 | 988 | 996 | 9 | EAEVQIDRL 0.001162 | 18 |
| HLA-A*23:01 | 1 | 998 | 1007 | 10 | TGRLQSLQTY 0.001162 | 7.7 |
| HLA-A*02:01 | 1 | 1056 | 1065 | 10 | APHGVVFLHV 0.001162 | 14 |
| HLA-B*35:01 | 1 | 1260 | 1268 | 9 | DSEPV LKGV 0.001162 | 9.5 |
| HLA-A*02:01 | 1 | 119 | 128 | 10 | IVNNATNVVI 0.001161 | 14 |
| HLA-A*68:02 | 1 | 345 | 353 | 9 | TRFASVYAW 0.001161 | 15 |
| HLA-A*02:06 | 1 | 724 | 732 | 9 | TEILPV SMT 0.001161 | 19 |
| HLA-A*33:01 | 1 | 13 | 22 | 10 | SQCVNL TTRT 0.00116 | 13 |
| HLA-A*30:01 | 1 | 135 | 144 | 10 | FCNDPFLGVY 0.00116 | 25 |
| HLA-A*33:01 | 1 | 257 | 265 | 9 | GWTAGAAAY 0.00116 | 13 |
| HLA-A*02:06 | 1 | 265 | 273 | 9 | YYVGYLQPR 0.00116 | 19 |
| HLA-A*26:01 | 1 | 291 | 300 | 10 | CALDPLSE TK 0.00116 | 11 |
| HLA-A*31:01 | 1 | 698 | 707 | 10 | SLGAEN SVAY 0.00116 | 15 |
| HLA-A*31:01 | 1 | 711 | 720 | 10 | SIAIPTNF TI 0.00116 | 15 |
| HLA-A*02:06 | 1 | 905 | 913 | 9 | RFNGIGVTQ 0.00116 | 19 |
| HLA-B*58:01 | 1 | 48 | 57 | 10 | LHSTQDLFLP 0.001159 | 13 |
| HLA-A*02:06 | 1 | 127 | 135 | 9 | VIKVCE FQF 0.001159 | 19 |
| HLA-B*51:01 | 1 | 152 | 160 | 9 | WMESEFRVY 0.001159 | 17 |
| HLA-A*68:01 | 1 | 154 | 163 | 10 | ESEFRVYSSA 0.001159 | 15 |
| HLA-A*02:01 | 1 | 214 | 222 | 9 | RDL PQGFSA 0.001159 | 14 |
| HLA-A*02:03 | 1 | 660 | 668 | 9 | YECDIPIGA 0.001159 | 15 |
| HLA-A*32:01 | 1 | 684 | 692 | 9 | ARSVASQSI 0.001159 | 9.8 |
| HLA-B*15:01 | 1 | 972 | 981 | 10 | AISSVLNDIL 0.001159 | 14 |
| HLA-A*02:01 | 1 | 371 | 379 | 9 | SASFSTFKC 0.001158 | 14 |
| HLA-B*07:02 | 1 | 567 | 576 | 10 | RDIADTTDAV 0.001158 | 11 |
| HLA-B*08:01 | 1 | 681 | 689 | 9 | PRRARSVAS 0.001158 | 18 |
| HLA-B*58:01 | 1 | 809 | 818 | 10 | PSKPSKRSFI 0.001158 | 13 |
| HLA-A*02:06 | 1 | 863 | 871 | 9 | PLLTDE MIA 0.001158 | 19 |
| HLA-A*02:03 | 1 | 1009 | 1018 | 10 | TQQLIRAAEI 0.001158 | 15 |
| HLA-B*08:01 | 1 | 1025 | 1033 | 9 | AATKMSECV 0.001158 | 18 |
| HLA-B*15:01 | 1 | 1062 | 1070 | 9 | FLHV TYVPA 0.001158 | 14 |
| HLA-B*15:01 | 1 | 41 | 50 | 10 | KVFRSSVLHS 0.001157 | 14 |
| HLA-B*57:01 | 1 | 158 | 167 | 10 | RVYSSANNCT 0.001157 | 18 |
| HLA-B*58:01 | 1 | 214 | 223 | 10 | RDL PQGFSA L 0.001157 | 13 |
| HLA-A*02:06 | 1 | 232 | 240 | 9 | GINITRFQT 0.001157 | 19 |
| HLA-B*07:02 | 1 | 497 | 505 | 9 | FQPTNGVGY 0.001157 | 11 |
| HLA-A*30:02 | 1 | 708 | 716 | 9 | SNNSIAIPT 0.001157 | 22 |
| HLA-A*30:01 | 1 | 746 | 755 | 10 | STEC SNLLLQ 0.001157 | 25 |
| HLA-A*31:01 | 1 | 747 | 756 | 10 | TECSNLLLQY 0.001157 | 15 |
| HLA-B*35:01 | 1 | 1034 | 1042 | 9 | LGQSKRVDF 0.001157 | 9.5 |
| HLA-B*51:01 | 1 | 1106 | 1115 | 10 | QRNFYEPQII 0.001157 | 18 |
| HLA-B*53:01 | 1 | 1112 | 1121 | 10 | PQIITTDNTF 0.001157 | 8.8 |
| HLA-B*44:02 | 1 | 181 | 189 | 9 | GKQGNFKNL 0.001156 | 7.5 |
| HLA-A*24:02 | 1 | 207 | 216 | 10 | HTPINLV RDL 0.001156 | 7.6 |
| HLA-A*30:02 | 1 | 1011 | 1019 | 9 | QLIRAAEIR 0.001156 | 22 |
| HLA-B*57:01 | 1 | 1262 | 1270 | 9 | EPV LKGVKL 0.001156 | 18 |
| HLA-B*07:02 | 1 | 167 | 176 | 10 | TFEYV SQPFL 0.001155 | 11 |
| HLA-A*68:02 | 1 | 1221 | 1230 | 10 | IAGLIAIVMV 0.001155 | 15 |
| HLA-B*40:01 | 1 | 112 | 120 | 9 | SKTQSLLIV 0.001154 | 7.1 |
| HLA-A*11:01 | 1 | 444 | 452 | 9 | KVGGNYNYL 0.001154 | 9.1 |
| HLA-A*02:06 | 1 | 703 | 712 | 10 | NSVAYSNN SI 0.001154 | 19 |
| HLA-A*33:01 | 1 | 784 | 792 | 9 | QVKQIYKTP 0.001154 | 13 |
| HLA-B*58:01 | 1 | 875 | 883 | 9 | SALLAGTIT 0.001154 | 13 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*53:01 | 1 | 437 | 445 | 9 | NSNNLDSKV 0.001153 | 8.8 |
| HLA-A*02:01 | 1 | 562 | 570 | 9 | FQQFGRDIA 0.001153 | 14 |
| HLA-A*68:02 | 1 | 1093 | 1102 | 10 | GVFVSNNGTHW 0.001153 | 15 |
| HLA-A*01:01 | 1 | 1151 | 1160 | 10 | ELDKYFKNHT 0.001153 | 14 |
| HLA-A*02:03 | 1 | 112 | 120 | 9 | SKTQSLIV 0.001152 | 15 |
| HLA-A*02:03 | 1 | 628 | 637 | 10 | QLTPTWRVYS 0.001152 | 15 |
| HLA-B*15:01 | 1 | 983 | 992 | 10 | RLDKVEAEVQ 0.001152 | 14 |
| HLA-B*53:01 | 1 | 1224 | 1232 | 9 | LIAIVMVTI 0.001152 | 8.8 |
| HLA-B*57:01 | 1 | 6 | 14 | 9 | VLLPLVSSQ 0.001151 | 18 |
| HLA-B*15:01 | 1 | 7 | 15 | 9 | LLPLVSSQC 0.001151 | 14 |
| HLA-A*02:06 | 1 | 165 | 174 | 10 | NCTFEYVSQP 0.001151 | 19 |
| HLA-A*68:01 | 1 | 405 | 414 | 10 | DEVQRQIAPGQ 0.001151 | 15 |
| HLA-A*32:01 | 1 | 947 | 955 | 9 | KLQDVVNQN 0.001151 | 9.9 |
| HLA-A*33:01 | 1 | 135 | 144 | 10 | FCNDPFLGVY 0.00115 | 13 |
| HLA-A*01:01 | 1 | 160 | 169 | 10 | YSSANNCTFE 0.00115 | 14 |
| HLA-A*32:01 | 1 | 191 | 200 | 10 | EFVFKNIDGY 0.00115 | 9.9 |
| HLA-A*30:02 | 1 | 759 | 767 | 9 | FCTQLNRAL 0.00115 | 22 |
| HLA-A*24:02 | 1 | 805 | 814 | 10 | ILPDPSKPSK 0.00115 | 7.6 |
| HLA-A*31:01 | 1 | 1041 | 1049 | 9 | DFCGKGYHL 0.00115 | 15 |
| HLA-A*30:02 | 1 | 43 | 51 | 9 | FRSSVHST 0.001149 | 22 |
| HLA-A*02:01 | 1 | 58 | 67 | 10 | FFSNVTWFHA 0.001149 | 14 |
| HLA-B*08:01 | 1 | 488 | 497 | 10 | CYFPLQSYGF 0.001149 | 18 |
| HLA-B*58:01 | 1 | 690 | 698 | 9 | QSIIAYTMS 0.001149 | 13 |
| HLA-B*58:01 | 1 | 714 | 722 | 9 | IPTNFTISV 0.001149 | 13 |
| HLA-A*01:01 | 1 | 11 | 19 | 9 | VSSQCVNLT 0.001148 | 14 |
| HLA-A*68:02 | 1 | 11 | 19 | 9 | VSSQCVNLT 0.001148 | 15 |
| HLA-A*23:01 | 1 | 77 | 85 | 9 | KRFDPVLP 0.001148 | 7.8 |
| HLA-A*32:01 | 1 | 339 | 347 | 9 | GEVFNATRF 0.001148 | 9.9 |
| HLA-A*02:06 | 1 | 484 | 492 | 9 | EGFNCFYPL 0.001148 | 19 |
| HLA-A*30:01 | 1 | 668 | 677 | 10 | AGICASYQTQ 0.001148 | 25 |
| HLA-A*30:01 | 1 | 1071 | 1080 | 10 | QEKNFHTTAPA 0.001148 | 25 |
| HLA-A*68:02 | 1 | 1139 | 1148 | 10 | DPLQPELDSF 0.001148 | 15 |
| HLA-B*57:01 | 1 | 1229 | 1237 | 9 | MVTIMLCCM 0.001148 | 18 |
| HLA-B*08:01 | 1 | 4 | 12 | 9 | FLVLLPLVS 0.001147 | 19 |
| HLA-A*30:01 | 1 | 353 | 362 | 10 | WNRKRISNCV 0.001147 | 25 |
| HLA-B*15:01 | 1 | 470 | 479 | 10 | TEIYQAGSTP 0.001147 | 14 |
| HLA-A*02:06 | 1 | 545 | 554 | 10 | GLTGTGVLTE 0.001147 | 19 |
| HLA-A*30:02 | 1 | 682 | 691 | 10 | RRARSVASQS 0.001147 | 22 |
| HLA-A*68:02 | 1 | 1158 | 1166 | 9 | NHTSPDVDL 0.001147 | 15 |
| HLA-B*08:01 | 1 | 980 | 989 | 10 | ILSRLDKVEA 0.001146 | 19 |
| HLA-B*57:01 | 1 | 1032 | 1040 | 9 | CVLGQSKRV 0.001146 | 18 |
| HLA-A*32:01 | 1 | 1 | 10 | 10 | MFVFLVLLPL 0.001145 | 9.9 |
| HLA-A*33:01 | 1 | 254 | 262 | 9 | SSSGWTAGA 0.001145 | 13 |
| HLA-B*44:02 | 1 | 383 | 392 | 10 | SPTKLNDLFC 0.001145 | 7.5 |
| HLA-A*02:03 | 1 | 602 | 611 | 10 | TNTSNQVAVL 0.001145 | 15 |
| HLA-A*30:02 | 1 | 763 | 771 | 9 | LNRAITGIA 0.001145 | 22 |
| HLA-A*30:01 | 1 | 1016 | 1024 | 9 | AEIRASANL 0.001145 | 25 |
| HLA-B*58:01 | 1 | 1129 | 1137 | 9 | VIGIVNNTV 0.001145 | 13 |
| HLA-B*15:01 | 1 | 1132 | 1141 | 10 | IVNNTVYDPL 0.001145 | 14 |
| HLA-B*07:02 | 1 | 1158 | 1166 | 9 | NHTSPDVDL 0.001145 | 11 |
| HLA-B*57:01 | 1 | 22 | 30 | 9 | TQLPPAYTN 0.001144 | 18 |
| HLA-A*33:01 | 1 | 57 | 65 | 9 | PFFSNVTWF 0.001144 | 13 |
| HLA-A*24:02 | 1 | 237 | 245 | 9 | RFQTLALH 0.001144 | 7.7 |
| HLA-B*08:01 | 1 | 299 | 308 | 10 | TKCTLKSFTV 0.001144 | 19 |
| HLA-A*30:02 | 1 | 616 | 624 | 9 | NCTEVPVAI 0.001144 | 22 |
| HLA-A*01:01 | 1 | 790 | 798 | 9 | KTPPIKDFG 0.001144 | 14 |
| HLA-B*58:01 | 1 | 45 | 53 | 9 | SSVLHSTQD 0.001143 | 13 |
| HLA-A*30:02 | 1 | 470 | 479 | 10 | TEIYQAGSTP 0.001143 | 22 |
| HLA-A*03:01 | 1 | 626 | 634 | 9 | ADQLTPTWR 0.001143 | 11 |
| HLA-A*01:01 | 1 | 679 | 687 | 9 | NSPRRARSV 0.001143 | 14 |
| HLA-B*08:01 | 1 | 697 | 705 | 9 | MSLGAENSV 0.001143 | 19 |
| HLA-A*31:01 | 1 | 884 | 892 | 9 | SGWTFGAGA 0.001143 | 15 |
| HLA-B*35:01 | 1 | 907 | 916 | 10 | NGIGVTQNVL 0.001143 | 9.5 |
| HLA-A*26:01 | 1 | 1216 | 1224 | 9 | IWLGFIAGL 0.001143 | 11 |
| HLA-B*08:01 | 1 | 1265 | 1273 | 9 | LKGVKLHYT 0.001143 | 19 |
| HLA-A*68:01 | 1 | 26 | 35 | 10 | PAYTNSFTRG 0.001142 | 15 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*58:01 | 1 | 185 | 194 | 10 | NFKNLREFVF 0.001142 | 13 |
| HLA-A*31:01 | 1 | 231 | 239 | 9 | IGINITRFQ 0.001142 | 15 |
| HLA-A*11:01 | 1 | 1130 | 1138 | 9 | IGIVNNTVY 0.001142 | 9.2 |
| HLA-A*30:02 | 1 | 861 | 869 | 9 | LPPLLTDLM 0.001141 | 22 |
| HLA-A*03:01 | 1 | 1101 | 1109 | 9 | HWFVTQRNF 0.001141 | 11 |
| HLA-B*44:03 | 1 | 1158 | 1166 | 9 | NHTSPDVDL 0.001141 | 7.6 |
| HLA-B*57:01 | 1 | 1177 | 1186 | 10 | VNIQKEIDRL 0.001141 | 18 |
| HLA-A*33:01 | 1 | 61 | 70 | 10 | NVTWFHAIHV 0.00114 | 13 |
| HLA-A*31:01 | 1 | 305 | 313 | 9 | SFTVEKGIY 0.00114 | 15 |
| HLA-A*02:06 | 1 | 400 | 409 | 10 | FVIRGDEVQR 0.00114 | 19 |
| HLA-A*02:06 | 1 | 695 | 704 | 10 | YTMSLGAENS 0.00114 | 19 |
| HLA-A*68:02 | 1 | 761 | 770 | 10 | TQLNRALTGI 0.00114 | 15 |
| HLA-B*57:01 | 1 | 797 | 806 | 10 | FGGFNFSQIL 0.00114 | 18 |
| HLA-B*58:01 | 1 | 804 | 812 | 9 | QILPDPSPK 0.00114 | 13 |
| HLA-B*07:02 | 1 | 135 | 143 | 9 | FCNDPFLGV 0.001139 | 12 |
| HLA-A*30:02 | 1 | 900 | 908 | 9 | MQMAYRFNG 0.001139 | 22 |
| HLA-A*30:02 | 1 | 936 | 945 | 10 | DSLSSSTASAL 0.001139 | 22 |
| HLA-A*26:01 | 1 | 1184 | 1193 | 10 | DRLNEVAKNL 0.001139 | 11 |
| HLA-A*02:01 | 1 | 121 | 130 | 10 | NNATNVVIKV 0.001138 | 14 |
| HLA-A*30:01 | 1 | 602 | 611 | 10 | TNTSNQVAVL 0.001138 | 25 |
| HLA-B*51:01 | 1 | 788 | 797 | 10 | IYKTPPIKDF 0.001138 | 18 |
| HLA-A*30:02 | 1 | 31 | 39 | 9 | SFTRGVVYYP 0.001137 | 22 |
| HLA-B*40:01 | 1 | 691 | 699 | 9 | SIAYTMSL 0.001137 | 7.1 |
| HLA-B*44:02 | 1 | 712 | 720 | 9 | IAIPTNFTI 0.001137 | 7.6 |
| HLA-A*02:01 | 1 | 929 | 937 | 9 | SAIGKIQDS 0.001137 | 14 |
| HLA-A*33:01 | 1 | 203 | 212 | 10 | IYSKHTPINL 0.001136 | 13 |
| HLA-A*01:01 | 1 | 214 | 222 | 9 | RDLPGGFSA 0.001136 | 14 |
| HLA-A*01:01 | 1 | 220 | 228 | 9 | FSALEPLVD 0.001136 | 14 |
| HLA-A*31:01 | 1 | 424 | 432 | 9 | KLPDDFTGC 0.001136 | 15 |
| HLA-B*57:01 | 1 | 459 | 468 | 10 | SNLKPFERDI 0.001136 | 18 |
| HLA-A*31:01 | 1 | 530 | 538 | 9 | STNLVKKNC 0.001136 | 15 |
| HLA-A*30:02 | 1 | 1037 | 1045 | 9 | SKRVDFCGK 0.001136 | 22 |
| HLA-A*33:01 | 1 | 1051 | 1060 | 10 | SFPQSAPHGV 0.001136 | 13 |
| HLA-A*02:03 | 1 | 1067 | 1075 | 9 | YVPAQEKNF 0.001136 | 15 |
| HLA-A*23:01 | 1 | 1073 | 1081 | 9 | KNFTTAPAI 0.001136 | 7.8 |
| HLA-A*32:01 | 1 | 1227 | 1235 | 9 | IVMVTIMLC 0.001136 | 9.9 |
| HLA-A*02:03 | 1 | 221 | 230 | 10 | SALEPLVDLP 0.001135 | 15 |
| HLA-A*02:06 | 1 | 345 | 353 | 9 | TRFASVYAW 0.001135 | 19 |
| HLA-B*57:01 | 1 | 576 | 585 | 10 | VRDPQTLEIL 0.001135 | 18 |
| HLA-A*26:01 | 1 | 616 | 624 | 9 | NCTEVPVAI 0.001135 | 11 |
| HLA-A*30:01 | 1 | 628 | 637 | 10 | QLTPTWRVYS 0.001135 | 25 |
| HLA-B*51:01 | 1 | 724 | 732 | 9 | TEILPVSMT 0.001135 | 18 |
| HLA-B*40:01 | 1 | 334 | 342 | 9 | NLCPFGEVF 0.001134 | 7.1 |
| HLA-A*23:01 | 1 | 487 | 496 | 10 | NCYFPLQSYG 0.001134 | 7.8 |
| HLA-A*68:02 | 1 | 501 | 509 | 9 | NGVGYQPYP 0.001134 | 15 |
| HLA-A*31:01 | 1 | 748 | 756 | 9 | ECSNLLLQY 0.001134 | 15 |
| HLA-A*31:01 | 1 | 983 | 991 | 9 | RLDKVEAEV 0.001134 | 15 |
| HLA-A*02:01 | 1 | 1099 | 1107 | 9 | GTHWFVTQR 0.001134 | 14 |
| HLA-A*68:01 | 1 | 53 | 62 | 10 | DLFLPFFSNV 0.001133 | 15 |
| HLA-A*02:01 | 1 | 89 | 97 | 9 | GVYFASTEK 0.001133 | 14 |
| HLA-A*01:01 | 1 | 215 | 223 | 9 | DLPQGFSAL 0.001133 | 14 |
| HLA-B*51:01 | 1 | 350 | 358 | 9 | VYAWNRRKI 0.001133 | 18 |
| HLA-A*33:01 | 1 | 686 | 694 | 9 | SVASQSIIA 0.001133 | 13 |
| HLA-A*30:01 | 1 | 808 | 817 | 10 | DPSKPSKRSF 0.001133 | 25 |
| HLA-A*02:01 | 1 | 913 | 922 | 10 | QNVLYENQKL 0.001133 | 14 |
| HLA-A*02:03 | 1 | 267 | 276 | 10 | VGYLQPRFTL 0.001132 | 15 |
| HLA-A*68:02 | 1 | 856 | 865 | 10 | NGLTVLPLLL 0.001132 | 15 |
| HLA-A*30:01 | 1 | 857 | 866 | 10 | GLTVLPLLLT 0.001132 | 25 |
| HLA-A*68:02 | 1 | 925 | 933 | 9 | NQFNLSAIGK 0.001132 | 15 |
| HLA-B*58:01 | 1 | 44 | 53 | 10 | RSSVLHSTQD 0.001131 | 13 |
| HLA-A*02:01 | 1 | 541 | 549 | 9 | FNFNGLTGT 0.001131 | 14 |
| HLA-A*30:01 | 1 | 627 | 636 | 10 | DQLTPTWRVY 0.001131 | 25 |
| HLA-B*08:01 | 1 | 871 | 879 | 9 | AQYTSALLA 0.001131 | 19 |
| HLA-A*26:01 | 1 | 896 | 905 | 10 | IPFAMQMAYR 0.001131 | 11 |
| HLA-B*44:03 | 1 | 94 | 103 | 10 | STEKSNIIIRG 0.00113 | 7.6 |
| HLA-A*32:01 | 1 | 328 | 336 | 9 | RFPNITNLC 0.00113 | 9.9 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*30:02 | 1 | 757 | 766 | 10 | GSFCTQLNRA 0.00113 | 22 |
| HLA-A*03:01 | 1 | 762 | 770 | 9 | QLNRALTGI 0.00113 | 12 |
| HLA-A*31:01 | 1 | 896 | 904 | 9 | IPFAMQMAY 0.001129 | 15 |
| HLA-A*03:01 | 1 | 21 | 30 | 10 | RTQLPPAYTN 0.001128 | 12 |
| HLA-B*40:01 | 1 | 526 | 534 | 9 | GPKKSTNLV 0.001128 | 7.1 |
| HLA-B*44:02 | 1 | 1260 | 1268 | 9 | DSEPVLKGV 0.001128 | 7.6 |
| HLA-A*33:01 | 1 | 56 | 65 | 10 | LPFFSNVTFW 0.001127 | 13 |
| HLA-A*30:01 | 1 | 173 | 182 | 10 | QPFLMDLEGG 0.001127 | 25 |
| HLA-A*02:03 | 1 | 227 | 236 | 10 | VDLPIGINIT 0.001127 | 15 |
| HLA-A*32:01 | 1 | 432 | 441 | 10 | CVIAWNSNLI 0.001127 | 10 |
| HLA-B*07:02 | 1 | 538 | 546 | 9 | CVNFNFNGL 0.001127 | 12 |
| HLA-A*30:02 | 1 | 813 | 822 | 10 | SKRSFIEDLL 0.001127 | 22 |
| HLA-B*57:01 | 1 | 886 | 895 | 10 | WTFGAGAALQ 0.001127 | 18 |
| HLA-A*02:01 | 1 | 408 | 416 | 9 | RQIAPGQTG 0.001126 | 14 |
| HLA-B*57:01 | 1 | 525 | 533 | 9 | CGPKKSTNL 0.001126 | 18 |
| HLA-B*07:02 | 1 | 1073 | 1081 | 9 | KNFTTAPAI 0.001126 | 12 |
| HLA-A*68:02 | 1 | 1146 | 1154 | 9 | DSFKEELDK 0.001126 | 15 |
| HLA-A*68:01 | 1 | 1192 | 1201 | 10 | NLNESLIDLQ 0.001126 | 15 |
| HLA-A*02:06 | 1 | 1200 | 1209 | 10 | LQELGKYEQY 0.001126 | 19 |
| HLA-A*11:01 | 1 | 499 | 508 | 10 | PTNGVGYQPY 0.001125 | 9.2 |
| HLA-B*51:01 | 1 | 663 | 671 | 9 | DIPIGAGIC 0.001125 | 18 |
| HLA-A*23:01 | 1 | 888 | 896 | 9 | FGAGAALQI 0.001125 | 7.8 |
| HLA-A*26:01 | 1 | 972 | 980 | 9 | AISSVLNDI 0.001125 | 11 |
| HLA-A*26:01 | 1 | 1171 | 1179 | 9 | GINASVVNI 0.001125 | 11 |
| HLA-B*44:03 | 1 | 229 | 238 | 10 | LPIGINITRF 0.001124 | 7.6 |
| HLA-B*07:02 | 1 | 455 | 464 | 10 | LFRKSNLKPF 0.001124 | 12 |
| HLA-A*02:01 | 1 | 660 | 668 | 9 | YECDIPIGA 0.001124 | 14 |
| HLA-A*01:01 | 1 | 826 | 834 | 9 | VTLADAGFI 0.001124 | 14 |
| HLA-A*01:01 | 1 | 833 | 841 | 9 | FIKQYGDCL 0.001124 | 14 |
| HLA-B*57:01 | 1 | 887 | 896 | 10 | TFGAGAALQI 0.001124 | 18 |
| HLA-B*51:01 | 1 | 903 | 911 | 9 | AYRFNGIGV 0.001124 | 18 |
| HLA-B*57:01 | 1 | 255 | 264 | 10 | SSGWTAGAAA 0.001123 | 18 |
| HLA-A*30:02 | 1 | 1222 | 1230 | 9 | AGLIAIVMV 0.001123 | 22 |
| HLA-A*24:02 | 1 | 46 | 54 | 9 | SVLHSTQDL 0.001122 | 7.7 |
| HLA-A*30:01 | 1 | 213 | 221 | 9 | VRDLPQGF 0.001122 | 25 |
| HLA-B*51:01 | 1 | 781 | 789 | 9 | VFAQVKQIY 0.001122 | 18 |
| HLA-B*35:01 | 1 | 814 | 823 | 10 | KRSFIEDLLF 0.001122 | 9.6 |
| HLA-A*30:02 | 1 | 1025 | 1034 | 10 | AATKMSECVL 0.001122 | 22 |
| HLA-A*33:01 | 1 | 10 | 18 | 9 | LVSSQCVNL 0.001121 | 13 |
| HLA-A*30:02 | 1 | 312 | 321 | 10 | IYQTSNFRVQ 0.001121 | 22 |
| HLA-A*32:01 | 1 | 453 | 462 | 10 | YRLFRKSNLK 0.001121 | 10 |
| HLA-A*30:02 | 1 | 559 | 567 | 9 | FLPFQFGR 0.001121 | 22 |
| HLA-A*68:01 | 1 | 821 | 829 | 9 | LLFNKVTLA 0.001121 | 15 |
| HLA-B*44:02 | 1 | 318 | 326 | 9 | FRVQPTESI 0.00112 | 7.6 |
| HLA-A*31:01 | 1 | 334 | 342 | 9 | NLCPFGEVF 0.00112 | 15 |
| HLA-A*02:03 | 1 | 523 | 531 | 9 | TVCGPKKST 0.00112 | 15 |
| HLA-A*01:01 | 1 | 525 | 533 | 9 | CGPKKSTNL 0.00112 | 14 |
| HLA-B*58:01 | 1 | 972 | 980 | 9 | AISSVLNDI 0.00112 | 13 |
| HLA-A*30:02 | 1 | 1006 | 1015 | 10 | TYVTQQLIRA 0.00112 | 22 |
| HLA-A*02:01 | 1 | 504 | 513 | 10 | GYQPYRVVVL 0.001119 | 14 |
| HLA-B*57:01 | 1 | 1099 | 1108 | 10 | GTHWFVTQRN 0.001119 | 18 |
| HLA-B*08:01 | 1 | 1227 | 1235 | 9 | IVMVTIMLC 0.001119 | 19 |
| HLA-B*40:01 | 1 | 41 | 49 | 9 | KVFRSSVLH 0.001118 | 7.2 |
| HLA-A*30:02 | 1 | 644 | 652 | 9 | QTRAGCLIG 0.001118 | 22 |
| HLA-B*58:01 | 1 | 762 | 770 | 9 | QLNRALTGI 0.001118 | 13 |
| HLA-B*07:02 | 1 | 71 | 79 | 9 | SGTNGTKRF 0.001117 | 12 |
| HLA-A*30:01 | 1 | 183 | 191 | 9 | QGNFKNLRE 0.001117 | 25 |
| HLA-A*02:03 | 1 | 185 | 193 | 9 | NFKNLRFV 0.001117 | 15 |
| HLA-B*58:01 | 1 | 602 | 611 | 10 | TNTSNQVAVL 0.001117 | 13 |
| HLA-B*51:01 | 1 | 630 | 639 | 10 | TPTWRVYSTG 0.001117 | 18 |
| HLA-B*07:02 | 1 | 1010 | 1018 | 9 | QLLIRAAEI 0.001117 | 12 |
| HLA-B*08:01 | 1 | 1069 | 1077 | 9 | PAQEKNFVT 0.001117 | 19 |
| HLA-B*08:01 | 1 | 1089 | 1098 | 10 | FPREGVFSVN 0.001117 | 19 |
| HLA-A*11:01 | 1 | 1261 | 1269 | 9 | SEPVLKGVK 0.001117 | 9.2 |
| HLA-A*33:01 | 1 | 68 | 77 | 10 | IHSVGTNGTK 0.001116 | 13 |
| HLA-A*30:01 | 1 | 617 | 626 | 10 | CTEVPVAIHA 0.001116 | 25 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*30:02 | 1 | 1077 | 1086 | 10 | TAPAICHGDK 0.001116 | 23 |
| HLA-B*53:01 | 1 | 1181 | 1189 | 9 | KEIDRLNEV 0.001116 | 8.9 |
| HLA-A*01:01 | 1 | 48 | 56 | 9 | LHSTQDLFL 0.001115 | 14 |
| HLA-A*26:01 | 1 | 510 | 519 | 10 | VVVLSEFELLH 0.001115 | 11 |
| HLA-A*01:01 | 1 | 943 | 951 | 9 | SALGKLQDV 0.001115 | 14 |
| HLA-B*58:01 | 1 | 1207 | 1216 | 10 | EQYIKWPWYI 0.001115 | 13 |
| HLA-A*01:01 | 1 | 40 | 49 | 10 | DKVFRSSVLH 0.001114 | 14 |
| HLA-B*58:01 | 1 | 66 | 74 | 9 | HAIHVSGTN 0.001114 | 13 |
| HLA-A*01:01 | 1 | 151 | 159 | 9 | SWMESEFRV 0.001114 | 14 |
| HLA-B*58:01 | 1 | 268 | 277 | 10 | GYLQPRTFLL 0.001114 | 13 |
| HLA-B*35:01 | 1 | 520 | 529 | 10 | APATVCGPKK 0.001114 | 9.6 |
| HLA-B*08:01 | 1 | 543 | 552 | 10 | FNGLTGTGVL 0.001114 | 19 |
| HLA-B*51:01 | 1 | 726 | 734 | 9 | ILPVSMTKT 0.001114 | 18 |
| HLA-B*44:02 | 1 | 786 | 794 | 9 | KQIYKTPPI 0.001114 | 7.6 |
| HLA-A*31:01 | 1 | 1040 | 1049 | 10 | VDFCGKGYHL 0.001114 | 15 |
| HLA-A*30:02 | 1 | 1095 | 1104 | 10 | FVSNNGTHWFV 0.001114 | 23 |
| HLA-B*51:01 | 1 | 1111 | 1120 | 10 | EPQIITDNT 0.001114 | 18 |
| HLA-B*35:01 | 1 | 1204 | 1212 | 9 | GKYEYIKW 0.001114 | 9.6 |
| HLA-B*57:01 | 1 | 38 | 47 | 10 | YDPKVFSSV 0.001113 | 18 |
| HLA-B*40:01 | 1 | 149 | 157 | 9 | NKSWMESEF 0.001113 | 7.2 |
| HLA-A*30:01 | 1 | 424 | 433 | 10 | KLPDDFTGCV 0.001113 | 25 |
| HLA-B*53:01 | 1 | 505 | 514 | 10 | YQPYRVVVL 0.001113 | 8.9 |
| HLA-A*30:02 | 1 | 690 | 698 | 9 | QSIIAYTMS 0.001113 | 23 |
| HLA-A*68:01 | 1 | 961 | 970 | 10 | TLVKQLSSNF 0.001113 | 15 |
| HLA-A*24:02 | 1 | 383 | 392 | 10 | SPTKLNLCF 0.001112 | 7.7 |
| HLA-A*31:01 | 1 | 892 | 901 | 10 | AALQIPFAMQ 0.001112 | 15 |
| HLA-B*07:02 | 1 | 943 | 952 | 10 | SALGKLQDVV 0.001112 | 12 |
| HLA-A*30:01 | 1 | 90 | 99 | 10 | VYFASTEKSN 0.001111 | 25 |
| HLA-A*30:02 | 1 | 363 | 372 | 10 | ADYSVLYNSA 0.001111 | 23 |
| HLA-A*30:02 | 1 | 899 | 907 | 9 | AMQMAYRFN 0.001111 | 23 |
| HLA-A*31:01 | 1 | 929 | 938 | 10 | SAIGKIQDSL 0.001111 | 15 |
| HLA-A*23:01 | 1 | 46 | 54 | 9 | SVLHSTQDL 0.001111 | 7.9 |
| HLA-A*01:01 | 1 | 409 | 418 | 10 | QIAPGQTGKI 0.001111 | 14 |
| HLA-A*30:01 | 1 | 459 | 468 | 10 | SNLKPFERDI 0.001111 | 25 |
| HLA-B*08:01 | 1 | 1003 | 1011 | 9 | SLQTYVTQQ 0.001111 | 19 |
| HLA-A*31:01 | 1 | 1189 | 1197 | 9 | VAKNLNESL 0.001111 | 15 |
| HLA-A*24:02 | 1 | 111 | 119 | 9 | DSKTQSLLI 0.001109 | 7.7 |
| HLA-B*57:01 | 1 | 115 | 124 | 10 | QSLLI VNNAT 0.001109 | 18 |
| HLA-A*30:02 | 1 | 207 | 216 | 10 | HTPINLVRDL 0.001109 | 23 |
| HLA-B*44:03 | 1 | 405 | 414 | 10 | DEVQR IAPGQ 0.001109 | 7.7 |
| HLA-B*58:01 | 1 | 414 | 422 | 9 | QTGKIADYN 0.001109 | 13 |
| HLA-A*02:01 | 1 | 437 | 445 | 9 | NSNNLDSKV 0.001109 | 14 |
| HLA-A*30:02 | 1 | 623 | 632 | 10 | AIHADQLTPT 0.001109 | 23 |
| HLA-A*11:01 | 1 | 689 | 697 | 9 | SQSIIAYTM 0.001109 | 9.3 |
| HLA-A*26:01 | 1 | 748 | 757 | 10 | ECSNLLLQYG 0.001109 | 11 |
| HLA-B*07:02 | 1 | 788 | 797 | 10 | IYKTPPIKDF 0.001109 | 12 |
| HLA-A*68:02 | 1 | 135 | 144 | 10 | FCNDPFLGVY 0.001108 | 15 |
| HLA-A*11:01 | 1 | 204 | 212 | 9 | YSKHTPINL 0.001108 | 9.3 |
| HLA-A*02:03 | 1 | 576 | 585 | 10 | VRDPQTLEIL 0.001108 | 15 |
| HLA-A*11:01 | 1 | 711 | 719 | 9 | SIIPTNFT 0.001108 | 9.3 |
| HLA-A*32:01 | 1 | 785 | 794 | 10 | VKQIYKTPPI 0.001108 | 11 |
| HLA-A*01:01 | 1 | 953 | 962 | 10 | NQNAQALNTL 0.001108 | 14 |
| HLA-A*30:01 | 1 | 1148 | 1157 | 10 | FKEELDKYFK 0.001108 | 25 |
| HLA-B*44:02 | 1 | 109 | 118 | 10 | TLDSKTQSLL 0.001107 | 7.7 |
| HLA-B*57:01 | 1 | 232 | 241 | 10 | GINITRFQTL 0.001107 | 18 |
| HLA-A*30:01 | 1 | 559 | 567 | 9 | FLPFQFQGR 0.001107 | 25 |
| HLA-B*44:02 | 1 | 866 | 875 | 10 | TDEMIAQYTS 0.001107 | 7.7 |
| HLA-A*68:01 | 1 | 910 | 918 | 9 | GVTQNVLYE 0.001107 | 15 |
| HLA-B*08:01 | 1 | 915 | 924 | 10 | VLYENQKLIA 0.001107 | 19 |
| HLA-B*51:01 | 1 | 1059 | 1067 | 9 | GVVFLHVTY 0.001107 | 18 |
| HLA-A*30:02 | 1 | 706 | 715 | 10 | AYSNNSIAIP 0.001106 | 23 |
| HLA-A*26:01 | 1 | 890 | 898 | 9 | AGAALQIPF 0.001106 | 11 |
| HLA-B*35:01 | 1 | 922 | 930 | 9 | LIANQFNFA 0.001106 | 9.6 |
| HLA-A*33:01 | 1 | 958 | 966 | 9 | ALNTLVKQL 0.001106 | 13 |
| HLA-B*58:01 | 1 | 1226 | 1234 | 9 | AIVMVTIML 0.001106 | 13 |
| HLA-B*44:02 | 1 | 270 | 279 | 10 | LQPRTFLLKY 0.001105 | 7.7 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*44:02 | 1 | 333 | 342 | 10 | TNLCPFGEVF 0.001105 | 7.7 |
| HLA-B*51:01 | 1 | 804 | 812 | 9 | QILPDPSKP 0.001105 | 18 |
| HLA-B*44:03 | 1 | 135 | 144 | 10 | FCNDPFLGVY 0.001104 | 7.7 |
| HLA-B*44:03 | 1 | 206 | 214 | 9 | KHTPINLVR 0.001104 | 7.7 |
| HLA-A*26:01 | 1 | 235 | 244 | 10 | ITRFQTLAL 0.001104 | 11 |
| HLA-A*31:01 | 1 | 455 | 464 | 10 | LFRKSNLKPF 0.001104 | 15 |
| HLA-A*02:01 | 1 | 489 | 497 | 9 | YFPLQSYGF 0.001104 | 14 |
| HLA-A*30:02 | 1 | 526 | 535 | 10 | GPKKSTNLVK 0.001104 | 23 |
| HLA-A*30:02 | 1 | 912 | 920 | 9 | TQNVLYENQ 0.001104 | 23 |
| HLA-B*57:01 | 1 | 922 | 931 | 10 | LIANQFNLSAI 0.001104 | 19 |
| HLA-B*07:02 | 1 | 995 | 1003 | 9 | RLITGRLQS 0.001104 | 12 |
| HLA-B*58:01 | 1 | 1043 | 1052 | 10 | CGKGYHLMSF 0.001104 | 13 |
| HLA-B*44:03 | 1 | 1139 | 1148 | 10 | DPLQPELDSF 0.001104 | 7.7 |
| HLA-A*33:01 | 1 | 257 | 266 | 10 | GWTAGAAAYY 0.001103 | 13 |
| HLA-B*35:01 | 1 | 309 | 318 | 10 | EKGIYQTSNF 0.001103 | 9.6 |
| HLA-A*02:06 | 1 | 554 | 562 | 9 | ESNKKFLPF 0.001103 | 19 |
| HLA-B*58:01 | 1 | 871 | 879 | 9 | AQYTSALLA 0.001103 | 13 |
| HLA-B*08:01 | 1 | 1048 | 1057 | 10 | HLMSFPQSAP 0.001103 | 19 |
| HLA-A*68:01 | 1 | 1263 | 1271 | 9 | PVLKGVKHL 0.001103 | 15 |
| HLA-A*02:06 | 1 | 386 | 394 | 9 | KLNDLCFTN 0.001102 | 19 |
| HLA-A*30:02 | 1 | 468 | 476 | 9 | ISTEIQAG 0.001102 | 23 |
| HLA-A*30:01 | 1 | 547 | 555 | 9 | TGTGVLTES 0.001102 | 25 |
| HLA-B*58:01 | 1 | 576 | 585 | 10 | VRDPQTLEIL 0.001102 | 13 |
| HLA-B*44:03 | 1 | 866 | 875 | 10 | TDEMIAQYTS 0.001102 | 7.7 |
| HLA-A*68:02 | 1 | 1012 | 1020 | 9 | LIRAAEIRA 0.001102 | 15 |
| HLA-A*02:03 | 1 | 1255 | 1264 | 10 | KFDEDDSEPV 0.001102 | 15 |
| HLA-A*31:01 | 1 | 168 | 177 | 10 | FEYVSQPFLM 0.001101 | 15 |
| HLA-A*02:01 | 1 | 266 | 275 | 10 | YVGYLQPRTF 0.001101 | 14 |
| HLA-B*40:01 | 1 | 626 | 635 | 10 | ADQLTPTWRV 0.001101 | 7.2 |
| HLA-B*15:01 | 1 | 674 | 683 | 10 | YQTQTNPRR 0.001101 | 14 |
| HLA-A*68:01 | 1 | 757 | 766 | 10 | GSFCTQLNRA 0.001101 | 15 |
| HLA-A*01:01 | 1 | 780 | 788 | 9 | EVFAQVKQI 0.001101 | 14 |
| HLA-A*24:02 | 1 | 781 | 790 | 10 | VFAQVKQIYK 0.001101 | 7.8 |
| HLA-A*23:01 | 1 | 312 | 321 | 10 | IYQTSNFRVQ 0.0011 | 7.9 |
| HLA-A*30:02 | 1 | 726 | 734 | 9 | ILPVSMTKT 0.0011 | 23 |
| HLA-A*30:02 | 1 | 925 | 934 | 10 | NQFNLSAIGKI 0.0011 | 23 |
| HLA-A*01:01 | 1 | 1137 | 1146 | 10 | VYDPLQPELD 0.0011 | 14 |
| HLA-B*51:01 | 1 | 1256 | 1264 | 9 | FDEDDSEPV 0.0011 | 18 |
| HLA-A*01:01 | 1 | 110 | 119 | 10 | LDSKTQSLLI 0.001099 | 14 |
| HLA-B*44:03 | 1 | 191 | 200 | 10 | EFVFKNIDGY 0.001099 | 7.7 |
| HLA-B*58:01 | 1 | 241 | 249 | 9 | LLALHRSYL 0.001099 | 13 |
| HLA-B*08:01 | 1 | 292 | 300 | 9 | ALDPLSETK 0.001099 | 19 |
| HLA-A*23:01 | 1 | 781 | 790 | 10 | VFAQVKQIYK 0.001099 | 7.9 |
| HLA-B*08:01 | 1 | 1032 | 1040 | 9 | CVLGQSKRV 0.001099 | 19 |
| HLA-A*32:01 | 1 | 1059 | 1068 | 10 | GVVFLHVTYV 0.001099 | 11 |
| HLA-A*68:01 | 1 | 148 | 156 | 9 | NNKSWMESE 0.001098 | 15 |
| HLA-A*30:02 | 1 | 222 | 231 | 10 | ALEPLVDLPI 0.001098 | 23 |
| HLA-A*01:01 | 1 | 240 | 249 | 10 | TLLALHRSYL 0.001098 | 14 |
| HLA-A*68:01 | 1 | 266 | 275 | 10 | YVGYLQPRTF 0.001098 | 15 |
| HLA-A*01:01 | 1 | 516 | 524 | 9 | ELLHAPATV 0.001098 | 14 |
| HLA-B*58:01 | 1 | 988 | 996 | 9 | EAEVQIDRL 0.001098 | 13 |
| HLA-A*68:02 | 1 | 531 | 539 | 9 | TNLVKNKCV 0.001097 | 15 |
| HLA-B*57:01 | 1 | 554 | 563 | 10 | ESNKKFLPFQ 0.001097 | 19 |
| HLA-A*26:01 | 1 | 658 | 666 | 9 | NSYECDIPI 0.001097 | 11 |
| HLA-A*24:02 | 1 | 688 | 697 | 10 | ASQSIIAYTM 0.001097 | 7.8 |
| HLA-B*08:01 | 1 | 867 | 875 | 9 | DEMIAQYTS 0.001097 | 19 |
| HLA-B*57:01 | 1 | 1060 | 1069 | 10 | VVFLHVTYVP 0.001097 | 19 |
| HLA-B*15:01 | 1 | 21 | 30 | 10 | RTQLPPAYTN 0.001096 | 14 |
| HLA-A*02:01 | 1 | 41 | 50 | 10 | KVFRSSVLHS 0.001096 | 14 |
| HLA-B*58:01 | 1 | 589 | 598 | 10 | PCSFSGVSVI 0.001096 | 13 |
| HLA-A*31:01 | 1 | 798 | 806 | 9 | GGFNFSQIL 0.001096 | 15 |
| HLA-B*15:01 | 1 | 1196 | 1205 | 10 | SLIDLQELGK 0.001096 | 14 |
| HLA-A*02:06 | 1 | 12 | 20 | 9 | SSQCVNLTT 0.001095 | 19 |
| HLA-A*33:01 | 1 | 127 | 135 | 9 | VIKVCEFQF 0.001095 | 13 |
| HLA-A*26:01 | 1 | 133 | 141 | 9 | FQFCNDPFL 0.001095 | 11 |
| HLA-A*31:01 | 1 | 446 | 455 | 10 | GGNYNYLYRL 0.001095 | 15 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*11:01 | 1 | 448 | 457 | 10 | NYNYLYRLFR 0.001095 | 9.3 |
| HLA-A*30:01 | 1 | 875 | 884 | 10 | SALLAGTITS 0.001095 | 26 |
| HLA-A*02:06 | 1 | 988 | 996 | 9 | EAEVQIDRL 0.001095 | 19 |
| HLA-B*51:01 | 1 | 123 | 131 | 9 | ATNVVIKVC 0.001094 | 18 |
| HLA-B*57:01 | 1 | 254 | 263 | 10 | SSSGWTAGAA 0.001094 | 19 |
| HLA-A*02:01 | 1 | 462 | 470 | 9 | KPFERDIST 0.001094 | 14 |
| HLA-B*07:02 | 1 | 577 | 585 | 9 | RDPQTLEIL 0.001094 | 12 |
| HLA-A*30:02 | 1 | 747 | 755 | 9 | TECSNLLLQ 0.001094 | 23 |
| HLA-B*58:01 | 1 | 751 | 759 | 9 | NLLLQYGSF 0.001094 | 13 |
| HLA-A*68:01 | 1 | 1052 | 1060 | 9 | FPQSAPHGV 0.001094 | 15 |
| HLA-B*08:01 | 1 | 817 | 826 | 10 | FIEDLLFNKV 0.001093 | 19 |
| HLA-A*02:03 | 1 | 903 | 911 | 9 | AYRFNGIGV 0.001093 | 16 |
| HLA-A*31:01 | 1 | 1109 | 1117 | 9 | FYEPQIITT 0.001093 | 15 |
| HLA-A*30:01 | 1 | 1218 | 1227 | 10 | LGFIAGLIAI 0.001093 | 26 |
| HLA-A*68:01 | 1 | 168 | 176 | 9 | FEYVSQPFL 0.001092 | 15 |
| HLA-A*31:01 | 1 | 235 | 244 | 10 | ITRFQTLAL 0.001092 | 15 |
| HLA-A*02:03 | 1 | 557 | 565 | 9 | KKFLPFQOF 0.001092 | 16 |
| HLA-A*02:06 | 1 | 762 | 771 | 10 | QLNRALTGIA 0.001092 | 19 |
| HLA-B*57:01 | 1 | 1154 | 1162 | 9 | KYFKNHTSP 0.001092 | 19 |
| HLA-B*15:01 | 1 | 1203 | 1212 | 10 | LGKYEYIKW 0.001092 | 14 |
| HLA-A*68:01 | 1 | 936 | 945 | 10 | DSLSSTASAL 0.001091 | 15 |
| HLA-A*02:01 | 1 | 1061 | 1070 | 10 | VFLHVTVVPA 0.001091 | 14 |
| HLA-A*30:02 | 1 | 341 | 350 | 10 | VFNATRFASV 0.00109 | 23 |
| HLA-A*02:06 | 1 | 674 | 683 | 10 | YQTQTNSPRR 0.00109 | 19 |
| HLA-B*44:02 | 1 | 777 | 785 | 9 | NTQEVFAQV 0.00109 | 7.7 |
| HLA-A*33:01 | 1 | 1003 | 1011 | 9 | SLQTYVTQO 0.00109 | 13 |
| HLA-B*57:01 | 1 | 242 | 251 | 10 | LALHRSYLTP 0.001089 | 19 |
| HLA-A*02:06 | 1 | 263 | 272 | 10 | AAYYVGYLQP 0.001089 | 19 |
| HLA-B*58:01 | 1 | 319 | 328 | 10 | RVQPTESIVR 0.001089 | 13 |
| HLA-B*15:01 | 1 | 400 | 408 | 9 | FVIRGDEVR 0.001089 | 14 |
| HLA-B*57:01 | 1 | 617 | 625 | 9 | CTEVPVAIH 0.001089 | 19 |
| HLA-A*31:01 | 1 | 629 | 637 | 9 | LTPTWRVYS 0.001089 | 15 |
| HLA-A*03:01 | 1 | 711 | 719 | 9 | SIAIPTNFT 0.001089 | 12 |
| HLA-A*30:01 | 1 | 749 | 757 | 9 | CSNLLLQYG 0.001089 | 26 |
| HLA-A*02:06 | 1 | 990 | 999 | 10 | EVQIDRLITG 0.001089 | 19 |
| HLA-A*33:01 | 1 | 1088 | 1096 | 9 | HFPREGVIV 0.001089 | 13 |
| HLA-B*07:02 | 1 | 1208 | 1216 | 9 | QYIKWPWYI 0.001089 | 12 |
| HLA-B*51:01 | 1 | 66 | 74 | 9 | HAIHVSBTN 0.001088 | 18 |
| HLA-B*07:02 | 1 | 509 | 518 | 10 | RVVLSFELL 0.001088 | 12 |
| HLA-A*01:01 | 1 | 672 | 680 | 9 | ASYQTQTN 0.001088 | 14 |
| HLA-A*02:03 | 1 | 37 | 45 | 9 | YYPDKVFRS 0.001087 | 16 |
| HLA-B*51:01 | 1 | 157 | 166 | 10 | FRVYSSANNC 0.001087 | 18 |
| HLA-B*57:01 | 1 | 258 | 267 | 10 | WTAGAAAYV 0.001087 | 19 |
| HLA-A*02:01 | 1 | 785 | 794 | 10 | VKQIYKTPPI 0.001087 | 14 |
| HLA-A*68:01 | 1 | 1174 | 1182 | 9 | ASVWNIQKE 0.001087 | 15 |
| HLA-A*33:01 | 1 | 373 | 382 | 10 | SFSTFKCYGV 0.001086 | 13 |
| HLA-B*57:01 | 1 | 414 | 422 | 9 | QTGKIADYN 0.001086 | 19 |
| HLA-B*57:01 | 1 | 981 | 990 | 10 | LSRLDKVEAE 0.001086 | 19 |
| HLA-A*33:01 | 1 | 173 | 182 | 10 | QPFLMDLEBK 0.001085 | 13 |
| HLA-B*07:02 | 1 | 472 | 480 | 9 | IYQAGSTPC 0.001085 | 12 |
| HLA-B*35:01 | 1 | 614 | 622 | 9 | DVNCTEVPV 0.001085 | 9.7 |
| HLA-B*07:02 | 1 | 688 | 697 | 10 | ASQSIIAYTM 0.001085 | 12 |
| HLA-A*68:01 | 1 | 754 | 762 | 9 | LQYGSFCTQ 0.001085 | 15 |
| HLA-B*07:02 | 1 | 1059 | 1067 | 9 | GVVFLHVTY 0.001085 | 12 |
| HLA-A*02:06 | 1 | 1103 | 1112 | 10 | FVTQRNFYEP 0.001085 | 19 |
| HLA-A*01:01 | 1 | 20 | 29 | 10 | TRTQLPPAYT 0.001084 | 14 |
| HLA-A*32:01 | 1 | 135 | 144 | 10 | FCNDPFLGVY 0.001084 | 11 |
| HLA-A*01:01 | 1 | 866 | 874 | 9 | TDEMIAQYT 0.001084 | 14 |
| HLA-A*32:01 | 1 | 1016 | 1024 | 9 | AEIRASANL 0.001084 | 11 |
| HLA-B*53:01 | 1 | 714 | 723 | 10 | IPTNFTISVT 0.001083 | 9.0 |
| HLA-A*30:02 | 1 | 859 | 868 | 10 | TVLPPLLTDE 0.001083 | 23 |
| HLA-B*07:02 | 1 | 933 | 942 | 10 | KIQDLSSTA 0.001083 | 12 |
| HLA-B*15:01 | 1 | 510 | 519 | 10 | VVLSFELLH 0.001082 | 14 |
| HLA-B*53:01 | 1 | 576 | 585 | 10 | VRDPQTLEIL 0.001082 | 9.0 |
| HLA-B*57:01 | 1 | 644 | 653 | 10 | QTRAGCLIGA 0.001082 | 19 |
| HLA-A*02:03 | 1 | 672 | 681 | 10 | ASYQTQTN 0.001082 | 16 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*23:01 | 1 | 792 | 800 | 9 | PPIKDFGGF 0.001082 | 8.0 |
| HLA-B*57:01 | 1 | 902 | 910 | 9 | MAYRFNGIG 0.001082 | 19 |
| HLA-B*15:01 | 1 | 903 | 911 | 9 | AYRFNGIGV 0.001082 | 14 |
| HLA-A*01:01 | 1 | 1040 | 1049 | 10 | VDFCGKGYHL 0.001082 | 14 |
| HLA-A*01:01 | 1 | 96 | 104 | 9 | EKSNIIRGW 0.001081 | 14 |
| HLA-B*57:01 | 1 | 187 | 195 | 9 | KNLREFVFK 0.001081 | 19 |
| HLA-A*30:01 | 1 | 231 | 240 | 10 | IGINITRFQT 0.001081 | 26 |
| HLA-A*02:01 | 1 | 511 | 519 | 9 | VVLSFELLH 0.001081 | 14 |
| HLA-A*32:01 | 1 | 558 | 567 | 10 | KFLPFQFGR 0.001081 | 11 |
| HLA-B*35:01 | 1 | 1024 | 1032 | 9 | LAATKMSEC 0.001081 | 9.7 |
| HLA-A*30:02 | 1 | 1188 | 1197 | 10 | EVAKNLNESL 0.001081 | 23 |
| HLA-A*26:01 | 1 | 109 | 118 | 10 | TLDSKTQSL 0.00108 | 11 |
| HLA-A*30:01 | 1 | 562 | 570 | 9 | FQQFGRDIA 0.00108 | 26 |
| HLA-A*68:02 | 1 | 576 | 585 | 10 | VRDPQTLEIL 0.00108 | 15 |
| HLA-A*68:02 | 1 | 828 | 837 | 10 | LADAGFIKQY 0.00108 | 15 |
| HLA-A*30:01 | 1 | 1052 | 1060 | 9 | FPQSAPHGV 0.00108 | 26 |
| HLA-A*01:01 | 1 | 320 | 328 | 9 | VQPTESIVR 0.001079 | 14 |
| HLA-B*53:01 | 1 | 414 | 423 | 10 | QTGKIADYNY 0.001079 | 9.0 |
| HLA-B*07:02 | 1 | 618 | 626 | 9 | TEVPVAIHA 0.001079 | 12 |
| HLA-A*24:02 | 1 | 755 | 764 | 10 | QYGSFCTQLN 0.001079 | 7.8 |
| HLA-B*58:01 | 1 | 77 | 85 | 9 | KRFDNPVLP 0.001078 | 13 |
| HLA-A*03:01 | 1 | 499 | 508 | 10 | PTNGVGYQPY 0.001078 | 12 |
| HLA-B*44:03 | 1 | 814 | 823 | 10 | KRSFIEDLLF 0.001078 | 7.8 |
| HLA-B*08:01 | 1 | 921 | 930 | 10 | KLIANQFNFA 0.001078 | 19 |
| HLA-A*02:03 | 1 | 1023 | 1031 | 9 | NLAATKMSE 0.001078 | 16 |
| HLA-A*02:01 | 1 | 1163 | 1172 | 10 | DVDLGDISGI 0.001078 | 14 |
| HLA-A*30:02 | 1 | 89 | 98 | 10 | GVYFASTEKS 0.001077 | 23 |
| HLA-A*32:01 | 1 | 233 | 242 | 10 | INITRFQTL 0.001077 | 11 |
| HLA-A*33:01 | 1 | 394 | 402 | 9 | NVYADSFVI 0.001077 | 13 |
| HLA-A*32:01 | 1 | 402 | 410 | 9 | IRGDEVRQI 0.001077 | 11 |
| HLA-A*68:01 | 1 | 448 | 456 | 9 | NYNLYRLF 0.001077 | 15 |
| HLA-A*30:01 | 1 | 470 | 479 | 10 | TEIYQAGSTP 0.001077 | 26 |
| HLA-A*24:02 | 1 | 791 | 800 | 10 | TPPIKDFGGF 0.001077 | 7.8 |
| HLA-A*02:03 | 1 | 854 | 862 | 9 | KFNGLTVLP 0.001077 | 16 |
| HLA-B*35:01 | 1 | 171 | 179 | 9 | VSQPFLMDL 0.001076 | 9.7 |
| HLA-A*68:01 | 1 | 858 | 866 | 9 | LTVLPLLT 0.001076 | 15 |
| HLA-A*30:01 | 1 | 880 | 889 | 10 | GTITSGWTFG 0.001076 | 26 |
| HLA-A*02:06 | 1 | 884 | 893 | 10 | SGWTFGAGAA 0.001076 | 19 |
| HLA-B*53:01 | 1 | 889 | 898 | 10 | GAGAALQIPF 0.001076 | 9.0 |
| HLA-A*01:01 | 1 | 954 | 963 | 10 | QNAQALNTLV 0.001076 | 14 |
| HLA-A*02:06 | 1 | 89 | 98 | 10 | GVYFASTEKS 0.001075 | 19 |
| HLA-A*02:03 | 1 | 474 | 483 | 10 | QAGSTPCNGV 0.001075 | 16 |
| HLA-B*07:02 | 1 | 514 | 522 | 9 | SFELLHAPA 0.001075 | 12 |
| HLA-B*07:02 | 1 | 698 | 707 | 10 | SLGAENSVAY 0.001075 | 12 |
| HLA-A*68:02 | 1 | 1058 | 1066 | 9 | HGVVFLHVT 0.001075 | 15 |
| HLA-B*07:02 | 1 | 341 | 350 | 10 | VFNATRFASV 0.001074 | 12 |
| HLA-A*32:01 | 1 | 401 | 410 | 10 | VIRGDEVRQI 0.001074 | 11 |
| HLA-A*26:01 | 1 | 406 | 415 | 10 | EVQRQIAPGQT 0.001074 | 11 |
| HLA-A*11:01 | 1 | 447 | 455 | 9 | GNYNLYRL 0.001074 | 9.4 |
| HLA-B*51:01 | 1 | 673 | 681 | 9 | SYQTQTNSP 0.001074 | 18 |
| HLA-A*31:01 | 1 | 757 | 766 | 10 | GSFCTQLNRA 0.001074 | 16 |
| HLA-B*40:01 | 1 | 798 | 806 | 9 | GGFNFSQIL 0.001074 | 7.3 |
| HLA-A*02:01 | 1 | 1087 | 1096 | 10 | AHFPREGVFN 0.001074 | 14 |
| HLA-A*23:01 | 1 | 221 | 229 | 9 | SALEPLVDL 0.001073 | 8.0 |
| HLA-A*68:02 | 1 | 586 | 594 | 9 | DITPCSFVG 0.001073 | 15 |
| HLA-B*08:01 | 1 | 785 | 794 | 10 | VKQIYKTPPI 0.001073 | 19 |
| HLA-A*02:03 | 1 | 243 | 252 | 10 | ALHRSYLTPG 0.001072 | 16 |
| HLA-A*01:01 | 1 | 398 | 407 | 10 | DSFVIRGDEV 0.001072 | 14 |
| HLA-A*30:01 | 1 | 407 | 415 | 9 | VRQIAPGQT 0.001072 | 26 |
| HLA-A*30:01 | 1 | 447 | 456 | 10 | GNYNLYRLF 0.001072 | 26 |
| HLA-A*31:01 | 1 | 651 | 660 | 10 | IGAHEVNNYS 0.001072 | 16 |
| HLA-A*11:01 | 1 | 1201 | 1209 | 9 | QELGKYEY 0.001072 | 9.4 |
| HLA-B*08:01 | 1 | 24 | 33 | 10 | LPPAYTNSFT 0.001071 | 19 |
| HLA-A*31:01 | 1 | 314 | 322 | 9 | QTSNFRVQP 0.001071 | 16 |
| HLA-A*68:01 | 1 | 885 | 894 | 10 | GWTFGAGAAL 0.001071 | 15 |
| HLA-A*30:01 | 1 | 887 | 895 | 9 | TFGAGAALQ 0.001071 | 26 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*08:01 | 1 | 1143 | 1152 | 10 | PELDSFKEEL 0.001071 | 19 |
| HLA-A*11:01 | 1 | 83 | 91 | 9 | VLFPNDGVY 0.00107 | 9.4 |
| HLA-A*30:01 | 1 | 196 | 204 | 9 | NIDGYFKIY 0.00107 | 26 |
| HLA-A*03:01 | 1 | 344 | 353 | 10 | ATRFASVYAW 0.00107 | 12 |
| HLA-A*11:01 | 1 | 344 | 353 | 10 | ATRFASVYAW 0.00107 | 9.4 |
| HLA-B*44:02 | 1 | 583 | 592 | 10 | EILDITPCSF 0.00107 | 7.8 |
| HLA-A*01:01 | 1 | 629 | 637 | 9 | LTPTWRVYS 0.00107 | 14 |
| HLA-A*33:01 | 1 | 714 | 722 | 9 | IPNTFTISV 0.00107 | 13 |
| HLA-B*15:01 | 1 | 864 | 872 | 9 | LLTDEMIAQ 0.00107 | 14 |
| HLA-A*30:01 | 1 | 1206 | 1214 | 9 | YEQYIKWPW 0.00107 | 26 |
| HLA-B*58:01 | 1 | 218 | 227 | 10 | QGFSALEPLV 0.001069 | 13 |
| HLA-B*07:02 | 1 | 503 | 512 | 10 | VGYPYRVVV 0.001069 | 12 |
| HLA-B*35:01 | 1 | 553 | 562 | 10 | TESNKKFLPF 0.001069 | 9.8 |
| HLA-A*32:01 | 1 | 773 | 781 | 9 | EQDKNTQEV 0.001069 | 11 |
| HLA-A*01:01 | 1 | 825 | 833 | 9 | KVTLADAGF 0.001069 | 14 |
| HLA-B*58:01 | 1 | 1123 | 1132 | 10 | SGNCDVVIGI 0.001069 | 13 |
| HLA-A*02:06 | 1 | 1184 | 1193 | 10 | DRLNEVAKNL 0.001069 | 19 |
| HLA-B*51:01 | 1 | 134 | 143 | 10 | QFCNDPFLGV 0.001068 | 18 |
| HLA-A*30:02 | 1 | 342 | 350 | 9 | FNATRFASV 0.001068 | 23 |
| HLA-A*30:01 | 1 | 604 | 613 | 10 | TSNQVAVLYQ 0.001068 | 26 |
| HLA-B*35:01 | 1 | 941 | 949 | 9 | TASALGKLQ 0.001068 | 9.8 |
| HLA-A*01:01 | 1 | 986 | 995 | 10 | KVEAEVQIDR 0.001068 | 14 |
| HLA-B*44:03 | 1 | 1005 | 1013 | 9 | QTYVTQLI 0.001068 | 7.8 |
| HLA-A*02:03 | 1 | 41 | 49 | 9 | KVFRSSVLH 0.001067 | 16 |
| HLA-B*44:03 | 1 | 356 | 365 | 10 | KRISNCVADY 0.001067 | 7.8 |
| HLA-A*02:06 | 1 | 526 | 534 | 9 | GPKKSTNLV 0.001067 | 20 |
| HLA-A*30:02 | 1 | 580 | 588 | 9 | QTLEILDIT 0.001067 | 23 |
| HLA-A*30:01 | 1 | 655 | 664 | 10 | HVNNSYECDI 0.001067 | 26 |
| HLA-B*53:01 | 1 | 664 | 673 | 10 | IPIGAGICAS 0.001067 | 9.1 |
| HLA-A*30:02 | 1 | 692 | 700 | 9 | IIAYTMSLG 0.001067 | 23 |
| HLA-A*03:01 | 1 | 718 | 726 | 9 | FTISVTTEI 0.001067 | 12 |
| HLA-A*68:01 | 1 | 66 | 74 | 9 | HAIHVSMTN 0.001066 | 15 |
| HLA-A*30:01 | 1 | 591 | 600 | 10 | SFGGVSIVTP 0.001066 | 26 |
| HLA-A*30:02 | 1 | 730 | 738 | 9 | SMTKTSVDC 0.001066 | 23 |
| HLA-A*24:02 | 1 | 1003 | 1012 | 10 | SLQTYVTQQL 0.001066 | 7.9 |
| HLA-A*26:01 | 1 | 218 | 226 | 9 | QGFSALEPL 0.001065 | 11 |
| HLA-A*68:01 | 1 | 284 | 292 | 9 | TITDAVDCA 0.001065 | 15 |
| HLA-A*32:01 | 1 | 394 | 403 | 10 | NVYADSFVIR 0.001065 | 11 |
| HLA-A*02:03 | 1 | 721 | 730 | 10 | SVTTEILPVS 0.001065 | 16 |
| HLA-B*57:01 | 1 | 857 | 866 | 10 | GLTVLPPLLT 0.001065 | 19 |
| HLA-A*30:02 | 1 | 333 | 341 | 9 | TNLCPFGEV 0.001064 | 23 |
| HLA-B*53:01 | 1 | 958 | 966 | 9 | ALNTLVKQL 0.001064 | 9.1 |
| HLA-A*24:02 | 1 | 1006 | 1015 | 10 | TYVTQQLIRA 0.001064 | 7.9 |
| HLA-B*35:01 | 1 | 516 | 524 | 9 | ELLHAPATV 0.001063 | 9.8 |
| HLA-A*01:01 | 1 | 781 | 790 | 10 | VFAQVKQIYK 0.001063 | 14 |
| HLA-A*68:02 | 1 | 981 | 989 | 9 | LSRLDKVEA 0.001063 | 15 |
| HLA-B*15:01 | 1 | 15 | 24 | 10 | CVNLTRTQL 0.001062 | 14 |
| HLA-A*02:06 | 1 | 18 | 27 | 10 | LTRTQLPPA 0.001062 | 20 |
| HLA-B*44:03 | 1 | 489 | 497 | 9 | YFPLQSYGF 0.001062 | 7.8 |
| HLA-A*30:01 | 1 | 695 | 703 | 9 | YTMSLGAEN 0.001062 | 26 |
| HLA-B*08:01 | 1 | 763 | 772 | 10 | LNRLTGIIV 0.001062 | 19 |
| HLA-A*30:02 | 1 | 1028 | 1037 | 10 | KMSECVLGQS 0.001062 | 23 |
| HLA-A*02:03 | 1 | 1120 | 1129 | 10 | TFVSGNCDVV 0.001062 | 16 |
| HLA-B*58:01 | 1 | 27 | 36 | 10 | AYTNSFTRGV 0.001061 | 13 |
| HLA-A*33:01 | 1 | 218 | 226 | 9 | QGFSALEPL 0.001061 | 13 |
| HLA-B*57:01 | 1 | 345 | 354 | 10 | TRFASVYAWN 0.001061 | 19 |
| HLA-A*11:01 | 1 | 925 | 934 | 10 | NQFNSAIGKI 0.001061 | 9.4 |
| HLA-A*02:06 | 1 | 1132 | 1140 | 9 | IVNNTVYDP 0.001061 | 20 |
| HLA-A*11:01 | 1 | 1226 | 1234 | 9 | AIVMVTIML 0.001061 | 9.4 |
| HLA-A*30:01 | 1 | 243 | 252 | 10 | ALHRSYLTPG 0.00106 | 26 |
| HLA-A*33:01 | 1 | 532 | 541 | 10 | NLVKNKCVNF 0.00106 | 13 |
| HLA-B*40:01 | 1 | 581 | 590 | 10 | TLEILDITPC 0.00106 | 7.3 |
| HLA-A*01:01 | 1 | 616 | 624 | 9 | NCTEVPVAI 0.00106 | 15 |
| HLA-B*58:01 | 1 | 686 | 694 | 9 | SVASQSIIA 0.00106 | 13 |
| HLA-A*02:01 | 1 | 919 | 927 | 9 | NQKLIANQF 0.00106 | 14 |
| HLA-A*02:01 | 1 | 35 | 44 | 10 | GVYYPDKVFR 0.001059 | 14 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*07:02 | 1 | 46 | 55 | 10 | SVLHSTQDLF 0.001059 | 12 |
| HLA-A*02:06 | 1 | 101 | 110 | 10 | IRGWIFGTTL 0.001059 | 20 |
| HLA-B*07:02 | 1 | 523 | 531 | 9 | TVCGPKKST 0.001059 | 12 |
| HLA-A*68:01 | 1 | 977 | 986 | 10 | LNDILSRLDK 0.001059 | 15 |
| HLA-B*44:03 | 1 | 178 | 186 | 9 | DLEGKQGNF 0.001058 | 7.8 |
| HLA-B*08:01 | 1 | 371 | 379 | 9 | SASFSTFKC 0.001058 | 19 |
| HLA-B*08:01 | 1 | 987 | 996 | 10 | VEAEVQIDRL 0.001058 | 19 |
| HLA-A*02:06 | 1 | 20 | 29 | 10 | TRTQLPPAYT 0.001057 | 20 |
| HLA-B*51:01 | 1 | 173 | 182 | 10 | QPFMLDLEGK 0.001057 | 18 |
| HLA-B*40:01 | 1 | 372 | 380 | 9 | ASFSTFKCY 0.001057 | 7.3 |
| HLA-A*02:06 | 1 | 666 | 674 | 9 | IGAGICASY 0.001057 | 20 |
| HLA-B*44:02 | 1 | 709 | 718 | 10 | NNSIAIPTNF 0.001057 | 7.8 |
| HLA-B*35:01 | 1 | 754 | 762 | 9 | LQYGSFCTQ 0.001057 | 9.8 |
| HLA-A*31:01 | 1 | 809 | 817 | 9 | PSKPSKRSF 0.001057 | 16 |
| HLA-A*23:01 | 1 | 872 | 880 | 9 | QYTSALLAG 0.001057 | 8.0 |
| HLA-A*32:01 | 1 | 1102 | 1110 | 9 | WFVTQRNFY 0.001057 | 11 |
| HLA-B*58:01 | 1 | 1106 | 1114 | 9 | QRNFYEPQI 0.001057 | 13 |
| HLA-A*02:03 | 1 | 18 | 27 | 10 | LTRTQLPPA 0.001056 | 16 |
| HLA-A*33:01 | 1 | 23 | 31 | 9 | QLPPAYTNS 0.001056 | 13 |
| HLA-A*02:01 | 1 | 34 | 42 | 9 | RGVYYPDKV 0.001056 | 14 |
| HLA-A*03:01 | 1 | 42 | 50 | 9 | VFRSSVLHS 0.001055 | 12 |
| HLA-A*01:01 | 1 | 206 | 214 | 9 | KHTPINLVR 0.001055 | 15 |
| HLA-A*02:03 | 1 | 532 | 541 | 10 | NLVKNKCVNF 0.001055 | 16 |
| HLA-B*08:01 | 1 | 709 | 718 | 10 | NNSIAIPTNF 0.001055 | 19 |
| HLA-A*30:01 | 1 | 983 | 992 | 10 | RLDKVEAEVQ 0.001055 | 26 |
| HLA-B*51:01 | 1 | 1062 | 1070 | 9 | FLHVTVVPA 0.001055 | 18 |
| HLA-A*68:01 | 1 | 5 | 13 | 9 | LVLLPLVSS 0.001054 | 15 |
| HLA-A*30:01 | 1 | 76 | 85 | 10 | TKRFDNPVLP 0.001054 | 26 |
| HLA-B*57:01 | 1 | 142 | 150 | 9 | GVYYHKNNK 0.001054 | 19 |
| HLA-A*01:01 | 1 | 288 | 297 | 10 | AVDCALDPLS 0.001054 | 15 |
| HLA-B*57:01 | 1 | 316 | 324 | 9 | SNFRVQPT 0.001054 | 19 |
| HLA-B*58:01 | 1 | 498 | 507 | 10 | QPTNGVGYP 0.001054 | 13 |
| HLA-A*26:01 | 1 | 577 | 585 | 9 | RDPQTLLEIL 0.001054 | 11 |
| HLA-A*26:01 | 1 | 820 | 829 | 10 | DLLFNKVTLA 0.001054 | 11 |
| HLA-A*30:02 | 1 | 884 | 893 | 10 | SGWTFGAGAA 0.001054 | 23 |
| HLA-A*30:02 | 1 | 1035 | 1043 | 9 | GQSKRVDFC 0.001054 | 23 |
| HLA-A*26:01 | 1 | 1088 | 1096 | 9 | HFPREGVVF 0.001054 | 11 |
| HLA-A*31:01 | 1 | 2 | 10 | 9 | FVFLVLLPL 0.001053 | 16 |
| HLA-B*07:02 | 1 | 97 | 105 | 9 | KSNIIRGWI 0.001053 | 12 |
| HLA-B*35:01 | 1 | 195 | 204 | 10 | KNIDGYFKIY 0.001053 | 9.8 |
| HLA-A*32:01 | 1 | 513 | 521 | 9 | LSFELLHAP 0.001053 | 11 |
| HLA-B*57:01 | 1 | 522 | 531 | 10 | ATVCGPKKST 0.001053 | 19 |
| HLA-B*35:01 | 1 | 568 | 577 | 10 | DIADTTDAVR 0.001053 | 9.8 |
| HLA-B*44:02 | 1 | 1067 | 1075 | 9 | YVPAQEKNF 0.001053 | 7.8 |
| HLA-A*23:01 | 1 | 1209 | 1218 | 10 | YIKWPWYIWL 0.001053 | 8.1 |
| HLA-A*30:02 | 1 | 124 | 133 | 10 | TNVVIKVCFF 0.001052 | 23 |
| HLA-B*51:01 | 1 | 358 | 367 | 10 | ISNCVADYSV 0.001052 | 18 |
| HLA-A*02:06 | 1 | 377 | 386 | 10 | FKCYGVSPTK 0.001052 | 20 |
| HLA-A*23:01 | 1 | 454 | 462 | 9 | RLFRKSNLK 0.001052 | 8.1 |
| HLA-A*68:01 | 1 | 501 | 510 | 10 | NGVGYQPYRV 0.001052 | 15 |
| HLA-A*68:01 | 1 | 929 | 937 | 9 | SAIGKIQDS 0.001052 | 15 |
| HLA-A*01:01 | 1 | 1030 | 1038 | 9 | SECVLGQSK 0.001052 | 15 |
| HLA-A*23:01 | 1 | 1218 | 1227 | 10 | LGFIAGLIAI 0.001052 | 8.1 |
| HLA-B*44:02 | 1 | 77 | 85 | 9 | KRFDNPVLP 0.001051 | 7.8 |
| HLA-B*44:02 | 1 | 96 | 105 | 10 | EKSNIIRGWI 0.001051 | 7.8 |
| HLA-A*68:01 | 1 | 614 | 622 | 9 | DVNCTEVPV 0.001051 | 15 |
| HLA-A*02:06 | 1 | 981 | 989 | 9 | LSRLDKVEA 0.001051 | 20 |
| HLA-A*30:02 | 1 | 1190 | 1198 | 9 | AKNLNESLI 0.001051 | 23 |
| HLA-A*02:01 | 1 | 13 | 21 | 9 | SQCVNLTR 0.00105 | 14 |
| HLA-A*30:01 | 1 | 188 | 196 | 9 | NLREFVFKN 0.00105 | 26 |
| HLA-A*30:02 | 1 | 542 | 550 | 9 | NFNGLTGTG 0.00105 | 23 |
| HLA-B*08:01 | 1 | 629 | 638 | 10 | LTPTWRVYST 0.00105 | 19 |
| HLA-A*02:06 | 1 | 651 | 659 | 9 | IGAHEVNSN 0.00105 | 20 |
| HLA-B*08:01 | 1 | 676 | 684 | 9 | TQTNSPRRA 0.00105 | 19 |
| HLA-B*57:01 | 1 | 721 | 729 | 9 | SVTTEILPV 0.00105 | 19 |
| HLA-A*03:01 | 1 | 753 | 762 | 10 | LLQYGSFCTQ 0.00105 | 12 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*58:01 | 1 | 960 | 968 | 9 | NTLVKQLSS 0.00105 | 13 |
| HLA-A*02:06 | 1 | 992 | 1000 | 9 | QIDRLITGR 0.00105 | 20 |
| HLA-A*26:01 | 1 | 1208 | 1217 | 10 | QYIKWPWYIW 0.00105 | 11 |
| HLA-A*26:01 | 1 | 155 | 163 | 9 | SEFRVYSSA 0.001049 | 11 |
| HLA-A*23:01 | 1 | 484 | 492 | 9 | EGFNCFYFPL 0.001049 | 8.1 |
| HLA-B*08:01 | 1 | 654 | 662 | 9 | EHVNNSYEC 0.001049 | 19 |
| HLA-B*35:01 | 1 | 1008 | 1016 | 9 | VTQQLIRAA 0.001049 | 9.8 |
| HLA-B*51:01 | 1 | 1053 | 1062 | 10 | PQSAPHGVVF 0.001049 | 18 |
| HLA-A*24:02 | 1 | 1195 | 1203 | 9 | ESLIDLQEL 0.001049 | 7.9 |
| HLA-A*03:01 | 1 | 1227 | 1235 | 9 | IVMVTIMLC 0.001049 | 12 |
| HLA-A*23:01 | 1 | 297 | 306 | 10 | SETKCTLKSF 0.001048 | 8.1 |
| HLA-A*01:01 | 1 | 744 | 753 | 10 | GDSTECSNLL 0.001047 | 15 |
| HLA-B*51:01 | 1 | 802 | 811 | 10 | FSQILPDPSPK 0.001047 | 18 |
| HLA-B*15:01 | 1 | 912 | 921 | 10 | TQNVLYENQK 0.001047 | 14 |
| HLA-B*07:02 | 1 | 939 | 948 | 10 | SSTASALGKL 0.001047 | 12 |
| HLA-B*35:01 | 1 | 985 | 993 | 9 | DKVEAEVQI 0.001047 | 9.8 |
| HLA-A*30:02 | 1 | 1071 | 1079 | 9 | QEKNFHTTAP 0.001047 | 23 |
| HLA-B*58:01 | 1 | 1101 | 1110 | 10 | HWFVTQRNFY 0.001047 | 13 |
| HLA-A*02:06 | 1 | 1185 | 1194 | 10 | RLNEVAKNLN 0.001047 | 20 |
| HLA-A*01:01 | 1 | 1201 | 1210 | 10 | QELGKYEQYI 0.001047 | 15 |
| HLA-A*03:01 | 1 | 179 | 187 | 9 | LEGKQGNFK 0.001046 | 12 |
| HLA-B*08:01 | 1 | 280 | 288 | 9 | NENGTITDA 0.001046 | 19 |
| HLA-A*68:02 | 1 | 292 | 300 | 9 | ALDPLSETK 0.001046 | 15 |
| HLA-B*07:02 | 1 | 343 | 351 | 9 | NATRFASVY 0.001046 | 12 |
| HLA-B*58:01 | 1 | 359 | 367 | 9 | SNCVADYSV 0.001046 | 13 |
| HLA-A*68:01 | 1 | 693 | 701 | 9 | IAYTMSLGA 0.001046 | 15 |
| HLA-A*30:01 | 1 | 887 | 896 | 10 | TFGAGAALQI 0.001046 | 26 |
| HLA-A*24:02 | 1 | 893 | 902 | 10 | ALQIPFAMQM 0.001046 | 7.9 |
| HLA-A*26:01 | 1 | 953 | 962 | 10 | NQNAQALNLT 0.001046 | 11 |
| HLA-A*02:03 | 1 | 1087 | 1096 | 10 | AHFPREGVFV 0.001046 | 16 |
| HLA-B*35:01 | 1 | 1142 | 1151 | 10 | QPELDSFKEE 0.001046 | 9.9 |
| HLA-A*11:01 | 1 | 1146 | 1155 | 10 | DSFKEELDKY 0.001046 | 9.5 |
| HLA-B*44:03 | 1 | 1197 | 1206 | 10 | LIDLQELGKY 0.001046 | 7.8 |
| HLA-A*01:01 | 1 | 213 | 222 | 10 | VRDLPQGFSA 0.001045 | 15 |
| HLA-A*68:01 | 1 | 215 | 223 | 9 | DLPQGFSA 0.001045 | 15 |
| HLA-A*33:01 | 1 | 1095 | 1104 | 10 | FVSNGTHWFV 0.001045 | 13 |
| HLA-B*35:01 | 1 | 1150 | 1159 | 10 | EELDKYFKNH 0.001045 | 9.9 |
| HLA-A*30:01 | 1 | 333 | 341 | 9 | TNLCPFGEV 0.001044 | 26 |
| HLA-A*01:01 | 1 | 374 | 382 | 9 | FSTFKCYGV 0.001044 | 15 |
| HLA-B*07:02 | 1 | 972 | 981 | 10 | AISSVLNDIL 0.001044 | 12 |
| HLA-B*58:01 | 1 | 1148 | 1156 | 9 | FKEELDKYF 0.001044 | 13 |
| HLA-A*02:06 | 1 | 1174 | 1182 | 9 | ASVVNIQKE 0.001044 | 20 |
| HLA-B*40:01 | 1 | 48 | 56 | 9 | LHSTQDLFL 0.001043 | 7.4 |
| HLA-A*11:01 | 1 | 150 | 159 | 10 | KSWMESEFRV 0.001043 | 9.5 |
| HLA-A*03:01 | 1 | 202 | 211 | 10 | KIYSKHTPIN 0.001043 | 12 |
| HLA-A*68:01 | 1 | 342 | 350 | 9 | FNATRFASV 0.001043 | 15 |
| HLA-A*30:01 | 1 | 406 | 415 | 10 | EVQRQIAPGQT 0.001043 | 26 |
| HLA-B*53:01 | 1 | 456 | 464 | 9 | FRKSNLKPF 0.001043 | 9.2 |
| HLA-A*02:01 | 1 | 735 | 743 | 9 | SVDCTMYIC 0.001043 | 14 |
| HLA-A*33:01 | 1 | 1214 | 1222 | 9 | WYIWLGFIA 0.001043 | 14 |
| HLA-A*01:01 | 1 | 34 | 43 | 10 | RGVYYPDKVF 0.001042 | 15 |
| HLA-A*02:03 | 1 | 232 | 240 | 9 | GINITRFQT 0.001042 | 16 |
| HLA-A*33:01 | 1 | 297 | 306 | 10 | SETKCTLKSF 0.001042 | 14 |
| HLA-A*32:01 | 1 | 427 | 436 | 10 | DDFTGCVIAW 0.001042 | 11 |
| HLA-A*03:01 | 1 | 521 | 529 | 9 | PATVCGPKK 0.001042 | 12 |
| HLA-B*51:01 | 1 | 813 | 821 | 9 | SKRSFIEDL 0.001042 | 18 |
| HLA-A*30:01 | 1 | 1094 | 1103 | 10 | VFVSNGTHWF 0.001042 | 26 |
| HLA-B*15:01 | 1 | 1129 | 1137 | 9 | VIGIVNNTV 0.001042 | 14 |
| HLA-A*30:02 | 1 | 1181 | 1190 | 10 | KEIDRLNEVA 0.001042 | 23 |
| HLA-B*57:01 | 1 | 122 | 131 | 10 | NATNVVIKVC 0.001041 | 19 |
| HLA-B*07:02 | 1 | 754 | 763 | 10 | LQYGSFCTQL 0.001041 | 12 |
| HLA-A*02:06 | 1 | 777 | 786 | 10 | NTQEVFAQVK 0.001041 | 20 |
| HLA-A*02:06 | 1 | 1094 | 1103 | 10 | VFVSNGTHWF 0.001041 | 20 |
| HLA-A*68:02 | 1 | 1127 | 1135 | 9 | DVVIGIVNN 0.001041 | 15 |
| HLA-A*30:02 | 1 | 1201 | 1210 | 10 | QELGKYEQYI 0.001041 | 23 |
| HLA-A*23:01 | 1 | 27 | 35 | 9 | AYTNSFTRG 0.00104 | 8.1 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*15:01 | 1 | 236 | 245 | 10 | TRFQTLALH 0.00104 | 14 |
| HLA-A*33:01 | 1 | 641 | 650 | 10 | NVFQTRAGCL 0.00104 | 14 |
| HLA-B*15:01 | 1 | 693 | 701 | 9 | IAYTMSLGA 0.00104 | 14 |
| HLA-B*57:01 | 1 | 856 | 865 | 10 | NGLTVLPPLL 0.00104 | 19 |
| HLA-B*44:03 | 1 | 1044 | 1052 | 9 | GKGYHLMSF 0.00104 | 7.9 |
| HLA-A*68:01 | 1 | 1197 | 1206 | 10 | LIDLQELGKY 0.00104 | 15 |
| HLA-B*07:02 | 1 | 101 | 110 | 10 | IRGWIFGTTL 0.001039 | 12 |
| HLA-A*01:01 | 1 | 115 | 123 | 9 | QSLLIIVNNA 0.001039 | 15 |
| HLA-A*11:01 | 1 | 179 | 187 | 9 | LEGKQGNFK 0.001039 | 9.5 |
| HLA-A*68:02 | 1 | 363 | 372 | 10 | ADYSVLYNSA 0.001039 | 15 |
| HLA-B*57:01 | 1 | 434 | 442 | 9 | IAWNSNLD 0.001039 | 19 |
| HLA-A*32:01 | 1 | 460 | 468 | 9 | NLKPFERDI 0.001039 | 11 |
| HLA-A*02:06 | 1 | 645 | 653 | 9 | TRAGCLIGA 0.001039 | 20 |
| HLA-B*44:02 | 1 | 159 | 168 | 10 | VYSSANNCTF 0.001038 | 7.9 |
| HLA-B*15:01 | 1 | 326 | 334 | 9 | IVRFPNITN 0.001038 | 14 |
| HLA-B*57:01 | 1 | 504 | 513 | 10 | GYQPYRVVVL 0.001038 | 19 |
| HLA-A*02:03 | 1 | 545 | 554 | 10 | GLTGTGVLTE 0.001038 | 16 |
| HLA-A*24:02 | 1 | 643 | 651 | 9 | FQTRAGCLI 0.001038 | 8.0 |
| HLA-A*68:01 | 1 | 1094 | 1102 | 9 | VFVSNQTHW 0.001038 | 15 |
| HLA-A*01:01 | 1 | 1194 | 1203 | 10 | NESLIDLQEL 0.001038 | 15 |
| HLA-A*68:01 | 1 | 912 | 920 | 9 | TQNVLYENQ 0.001037 | 15 |
| HLA-A*30:02 | 1 | 1105 | 1114 | 10 | TQRNFYEPQI 0.001037 | 23 |
| HLA-A*03:01 | 1 | 1175 | 1183 | 9 | SVVNIQKEI 0.001037 | 12 |
| HLA-A*24:02 | 1 | 1175 | 1183 | 9 | SVVNIQKEI 0.001037 | 8.0 |
| HLA-A*33:01 | 1 | 1205 | 1214 | 10 | KYEQYIKWPW 0.001037 | 14 |
| HLA-A*68:01 | 1 | 388 | 396 | 9 | NDLCFNTVY 0.001036 | 15 |
| HLA-A*02:01 | 1 | 459 | 468 | 10 | SNLKPFERDI 0.001036 | 14 |
| HLA-A*02:06 | 1 | 875 | 883 | 9 | SALLAGTIT 0.001036 | 20 |
| HLA-B*57:01 | 1 | 875 | 884 | 10 | SALLAGTITS 0.001036 | 19 |
| HLA-A*23:01 | 1 | 1006 | 1015 | 10 | TYVTQQLIRA 0.001036 | 8.1 |
| HLA-A*31:01 | 1 | 1095 | 1103 | 9 | FVSNQTHWF 0.001036 | 16 |
| HLA-B*51:01 | 1 | 1147 | 1155 | 9 | SFKEELDKY 0.001036 | 18 |
| HLA-B*51:01 | 1 | 95 | 104 | 10 | TEKSNIIRGW 0.001035 | 18 |
| HLA-A*30:01 | 1 | 183 | 192 | 10 | QGNFKNLREF 0.001035 | 26 |
| HLA-A*33:01 | 1 | 618 | 626 | 9 | TEVPVAIHA 0.001035 | 14 |
| HLA-A*30:01 | 1 | 712 | 721 | 10 | IAIPTNFTIS 0.001035 | 26 |
| HLA-A*30:01 | 1 | 1190 | 1198 | 9 | AKNLNESLI 0.001035 | 26 |
| HLA-A*23:01 | 1 | 1195 | 1203 | 9 | ESLIDLQEL 0.001035 | 8.1 |
| HLA-A*02:01 | 1 | 382 | 390 | 9 | VSPTKLNDL 0.001034 | 14 |
| HLA-B*51:01 | 1 | 389 | 397 | 9 | DLCFTNVYA 0.001034 | 18 |
| HLA-A*33:01 | 1 | 637 | 645 | 9 | STGSNVFQT 0.001034 | 14 |
| HLA-A*02:06 | 1 | 659 | 668 | 10 | SYECDIPIGA 0.001034 | 20 |
| HLA-A*32:01 | 1 | 913 | 922 | 10 | QNVLYENQKL 0.001034 | 11 |
| HLA-A*30:01 | 1 | 948 | 956 | 9 | LQDVVNQNA 0.001034 | 26 |
| HLA-A*02:03 | 1 | 1140 | 1148 | 9 | PLQPELDSF 0.001034 | 16 |
| HLA-B*58:01 | 1 | 231 | 239 | 9 | IGINITRFQ 0.001033 | 13 |
| HLA-A*02:01 | 1 | 697 | 706 | 10 | MSLGAENSVA 0.001033 | 14 |
| HLA-B*07:02 | 1 | 704 | 713 | 10 | SVAYSNNSIA 0.001033 | 12 |
| HLA-A*30:01 | 1 | 720 | 729 | 10 | ISVTTEILPV 0.001033 | 26 |
| HLA-B*51:01 | 1 | 725 | 734 | 10 | EILPVSMTKT 0.001033 | 18 |
| HLA-A*30:02 | 1 | 961 | 969 | 9 | TLVKQLSSN 0.001033 | 23 |
| HLA-A*68:01 | 1 | 1128 | 1137 | 10 | VVIGIVNNTV 0.001033 | 15 |
| HLA-B*58:01 | 1 | 1170 | 1179 | 10 | SGINASVVNI 0.001033 | 13 |
| HLA-B*07:02 | 1 | 60 | 68 | 9 | SNVTWFHAI 0.001032 | 12 |
| HLA-B*58:01 | 1 | 107 | 115 | 9 | GTTLDSTQ 0.001032 | 13 |
| HLA-A*02:06 | 1 | 203 | 212 | 10 | IYSKHTPINL 0.001032 | 20 |
| HLA-A*26:01 | 1 | 723 | 732 | 10 | TTEILPVSMT 0.001032 | 11 |
| HLA-A*26:01 | 1 | 955 | 963 | 9 | NAQALNTLV 0.001032 | 11 |
| HLA-A*02:01 | 1 | 973 | 981 | 9 | ISSVLNDIL 0.001032 | 14 |
| HLA-A*23:01 | 1 | 1016 | 1024 | 9 | AEIRASANL 0.001032 | 8.1 |
| HLA-A*02:06 | 1 | 1031 | 1040 | 10 | ECVLGQSKRV 0.001032 | 20 |
| HLA-B*58:01 | 1 | 1222 | 1230 | 9 | AGLIAIVMV 0.001032 | 13 |
| HLA-A*68:01 | 1 | 152 | 160 | 9 | WMESEFRVY 0.001031 | 15 |
| HLA-A*11:01 | 1 | 212 | 220 | 9 | LVRDLPQGF 0.001031 | 9.5 |
| HLA-B*07:02 | 1 | 392 | 400 | 9 | FTNVYADSF 0.001031 | 12 |
| HLA-A*68:02 | 1 | 126 | 135 | 10 | VVIKVCEQF 0.00103 | 15 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*02:01 | 1 | 238 | 246 | 9 | FQTLALHR 0.00103 | 14 |
| HLA-B*15:01 | 1 | 367 | 376 | 10 | VLYNSASFST 0.00103 | 14 |
| HLA-A*02:01 | 1 | 705 | 713 | 9 | VAYSNNSIA 0.00103 | 14 |
| HLA-A*30:01 | 1 | 725 | 734 | 10 | EILPVSMTKT 0.00103 | 26 |
| HLA-A*02:06 | 1 | 1055 | 1064 | 10 | SAPHGVVFLH 0.00103 | 20 |
| HLA-B*51:01 | 1 | 1094 | 1103 | 10 | VFVSNGTHWF 0.00103 | 18 |
| HLA-A*30:01 | 1 | 1223 | 1231 | 9 | GLIAIVMVT 0.00103 | 26 |
| HLA-A*30:01 | 1 | 111 | 120 | 10 | DSKTQSLLIV 0.001029 | 26 |
| HLA-A*30:02 | 1 | 114 | 122 | 9 | TQSLLIVNN 0.001029 | 23 |
| HLA-B*15:01 | 1 | 330 | 338 | 9 | PNITNLCPF 0.001029 | 14 |
| HLA-A*33:01 | 1 | 647 | 655 | 9 | AGCLIGAHE 0.001029 | 14 |
| HLA-A*02:01 | 1 | 43 | 51 | 9 | FRSSVLHST 0.001028 | 14 |
| HLA-A*02:03 | 1 | 311 | 319 | 9 | GIYQTSNFR 0.001028 | 16 |
| HLA-A*31:01 | 1 | 502 | 510 | 9 | GVGYPYRV 0.001028 | 16 |
| HLA-B*35:01 | 1 | 515 | 523 | 9 | FELLHAPAT 0.001028 | 9.9 |
| HLA-B*08:01 | 1 | 533 | 542 | 10 | LVKNKCVNFN 0.001028 | 19 |
| HLA-A*30:01 | 1 | 542 | 550 | 9 | NFNGLTGTG 0.001028 | 26 |
| HLA-A*68:02 | 1 | 158 | 167 | 10 | RVYSSANNCT 0.001027 | 15 |
| HLA-A*02:01 | 1 | 168 | 177 | 10 | FEYVSQPFLM 0.001027 | 14 |
| HLA-A*01:01 | 1 | 248 | 256 | 9 | YLTPGDSSS 0.001027 | 15 |
| HLA-A*68:01 | 1 | 433 | 441 | 9 | VIAWNSNLL 0.001027 | 15 |
| HLA-A*02:06 | 1 | 752 | 761 | 10 | LLLQYGSFCT 0.001027 | 20 |
| HLA-A*32:01 | 1 | 859 | 867 | 9 | TVLPPLLD 0.001027 | 11 |
| HLA-A*30:02 | 1 | 1009 | 1017 | 9 | TQQLIRAAE 0.001027 | 23 |
| HLA-A*30:01 | 1 | 109 | 118 | 10 | TLDSKTQSLL 0.001026 | 26 |
| HLA-A*68:01 | 1 | 110 | 118 | 9 | LDSKTQSLL 0.001026 | 15 |
| HLA-A*02:06 | 1 | 280 | 289 | 10 | NENGTITDAV 0.001026 | 20 |
| HLA-B*57:01 | 1 | 402 | 410 | 9 | IRGDEVRQI 0.001026 | 19 |
| HLA-A*24:02 | 1 | 550 | 559 | 10 | GVLTESNKKF 0.001026 | 8.0 |
| HLA-A*23:01 | 1 | 643 | 651 | 9 | FQTRAGCLI 0.001026 | 8.1 |
| HLA-A*30:02 | 1 | 895 | 903 | 9 | QIPFAMQMA 0.001026 | 23 |
| HLA-B*58:01 | 1 | 966 | 975 | 10 | LSSNFGAISS 0.001026 | 13 |
| HLA-B*35:01 | 1 | 40 | 49 | 10 | DKVFRSSVLH 0.001025 | 9.9 |
| HLA-B*15:01 | 1 | 454 | 463 | 10 | RLFRKSNLKP 0.001025 | 14 |
| HLA-A*02:03 | 1 | 884 | 892 | 9 | SGWTFGAGA 0.001025 | 16 |
| HLA-A*02:06 | 1 | 1017 | 1025 | 9 | EIRASANLA 0.001025 | 20 |
| HLA-B*58:01 | 1 | 1019 | 1027 | 9 | RASANLAAT 0.001025 | 13 |
| HLA-A*26:01 | 1 | 26 | 34 | 9 | PAYTNSFTR 0.001024 | 11 |
| HLA-B*44:02 | 1 | 46 | 55 | 10 | SVLHSTQDLF 0.001024 | 7.9 |
| HLA-B*07:02 | 1 | 159 | 168 | 10 | VYSSANNCTF 0.001024 | 12 |
| HLA-A*02:01 | 1 | 306 | 314 | 9 | FTVEKGIYQ 0.001024 | 14 |
| HLA-B*08:01 | 1 | 526 | 535 | 10 | GPKKSTNLVK 0.001024 | 19 |
| HLA-A*30:02 | 1 | 916 | 924 | 9 | LYENQKLIA 0.001024 | 23 |
| HLA-A*03:01 | 1 | 940 | 949 | 10 | STASALGKLQ 0.001024 | 12 |
| HLA-A*02:03 | 1 | 949 | 958 | 10 | QDVVNQNAQA 0.001024 | 16 |
| HLA-A*30:02 | 1 | 1047 | 1055 | 9 | YHLMSFPQS 0.001024 | 23 |
| HLA-B*35:01 | 1 | 256 | 264 | 9 | SGWTAGAAA 0.001023 | 10 |
| HLA-A*30:01 | 1 | 476 | 484 | 9 | GSTPCNGVE 0.001023 | 26 |
| HLA-B*15:01 | 1 | 504 | 512 | 9 | GYQPYRVVV 0.001023 | 14 |
| HLA-A*32:01 | 1 | 607 | 615 | 9 | QVAVLYQDV 0.001023 | 11 |
| HLA-A*03:01 | 1 | 685 | 694 | 10 | RSVASQSIIA 0.001023 | 12 |
| HLA-A*02:03 | 1 | 686 | 695 | 10 | SVASQSIIAY 0.001023 | 16 |
| HLA-A*24:02 | 1 | 983 | 991 | 9 | RLDKVEAEV 0.001023 | 8.0 |
| HLA-A*23:01 | 1 | 328 | 337 | 10 | RFPNITNLCP 0.001022 | 8.2 |
| HLA-A*30:01 | 1 | 340 | 349 | 10 | EVFNATRFAS 0.001022 | 26 |
| HLA-A*31:01 | 1 | 497 | 505 | 9 | FQPTNGVGY 0.001022 | 16 |
| HLA-B*07:02 | 1 | 803 | 811 | 9 | SQILPDPSK 0.001022 | 12 |
| HLA-A*03:01 | 1 | 951 | 959 | 9 | VVNQNAQAL 0.001022 | 12 |
| HLA-A*26:01 | 1 | 993 | 1001 | 9 | IDRLITGRL 0.001022 | 11 |
| HLA-A*02:01 | 1 | 1006 | 1015 | 10 | TYVTQQLIRA 0.001022 | 14 |
| HLA-A*68:02 | 1 | 90 | 98 | 9 | VYFASTEKS 0.001021 | 15 |
| HLA-B*08:01 | 1 | 437 | 445 | 9 | NSNNLDSKV 0.001021 | 19 |
| HLA-B*08:01 | 1 | 530 | 539 | 10 | STNLVKNKCV 0.001021 | 19 |
| HLA-B*53:01 | 1 | 706 | 714 | 9 | AYSNNNSIAI 0.001021 | 9.2 |
| HLA-A*32:01 | 1 | 922 | 931 | 10 | LIANQFNSAI 0.001021 | 11 |
| HLA-A*02:06 | 1 | 958 | 967 | 10 | ALNTLVKQLS 0.001021 | 20 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*02:06 | 1 | 985 | 993 | 9 | DKVEAEVQI 0.001021 | 20 |
| HLA-A*01:01 | 1 | 1145 | 1154 | 10 | LDSFKEELDK 0.001021 | 15 |
| HLA-B*57:01 | 1 | 283 | 291 | 9 | GTITDAVDC 0.00102 | 19 |
| HLA-A*02:03 | 1 | 328 | 336 | 9 | RFPNITNLC 0.00102 | 16 |
| HLA-A*68:01 | 1 | 590 | 598 | 9 | CSFGGVSVI 0.00102 | 15 |
| HLA-A*02:03 | 1 | 843 | 852 | 10 | DIAARDLICA 0.00102 | 16 |
| HLA-A*23:01 | 1 | 983 | 991 | 9 | RLDKVEAEV 0.00102 | 8.2 |
| HLA-A*30:01 | 1 | 1040 | 1049 | 10 | VDFCGKGYHL 0.00102 | 26 |
| HLA-B*15:01 | 1 | 698 | 706 | 9 | SLGAENSV 0.001019 | 14 |
| HLA-A*32:01 | 1 | 944 | 952 | 9 | ALGKLQDVV 0.001019 | 11 |
| HLA-A*03:01 | 1 | 1105 | 1113 | 9 | TQRNFYEPQ 0.001019 | 12 |
| HLA-B*57:01 | 1 | 1224 | 1233 | 10 | LIAIVMVTIM 0.001019 | 19 |
| HLA-B*08:01 | 1 | 59 | 68 | 10 | FSNVTWFHAI 0.001018 | 19 |
| HLA-B*08:01 | 1 | 415 | 423 | 9 | TGKIADYNY 0.001018 | 19 |
| HLA-B*57:01 | 1 | 828 | 836 | 9 | LADAGFIKQ 0.001018 | 19 |
| HLA-B*53:01 | 1 | 878 | 887 | 10 | LAGTITSGWT 0.001018 | 9.3 |
| HLA-A*02:01 | 1 | 999 | 1007 | 9 | GRLQSLQTY 0.001018 | 14 |
| HLA-A*30:02 | 1 | 1013 | 1022 | 10 | IRAAEIRASA 0.001018 | 24 |
| HLA-B*44:03 | 1 | 1258 | 1266 | 9 | EDDSEPVLK 0.001018 | 7.9 |
| HLA-A*30:02 | 1 | 66 | 74 | 9 | HAIHVSBTN 0.001017 | 24 |
| HLA-A*30:02 | 1 | 119 | 128 | 10 | IVNNATNVVI 0.001017 | 24 |
| HLA-A*33:01 | 1 | 659 | 668 | 10 | SYECDIPIGA 0.001017 | 14 |
| HLA-A*33:01 | 1 | 718 | 727 | 10 | FTISVTTEIL 0.001017 | 14 |
| HLA-A*32:01 | 1 | 859 | 868 | 10 | TVLPPLLTDE 0.001017 | 11 |
| HLA-A*31:01 | 1 | 886 | 894 | 9 | WTFGAGAAL 0.001017 | 16 |
| HLA-B*53:01 | 1 | 936 | 944 | 9 | DSLSSTASA 0.001017 | 9.3 |
| HLA-B*58:01 | 1 | 989 | 997 | 9 | AEVQIDRLI 0.001017 | 14 |
| HLA-B*57:01 | 1 | 1007 | 1015 | 9 | YVTQQLIRA 0.001017 | 19 |
| HLA-B*57:01 | 1 | 1264 | 1273 | 10 | VLKGVKLHYT 0.001017 | 19 |
| HLA-B*57:01 | 1 | 26 | 34 | 9 | PAYTNSFTR 0.001016 | 19 |
| HLA-B*44:02 | 1 | 60 | 68 | 9 | SNVTWFHAI 0.001016 | 7.9 |
| HLA-B*58:01 | 1 | 83 | 91 | 9 | VLPFNDGVY 0.001016 | 14 |
| HLA-A*68:02 | 1 | 214 | 222 | 9 | RDLPGGFSA 0.001016 | 16 |
| HLA-A*02:01 | 1 | 580 | 588 | 9 | QTLIELDIT 0.001016 | 14 |
| HLA-A*02:03 | 1 | 688 | 697 | 10 | ASQSIIAYTM 0.001016 | 16 |
| HLA-B*08:01 | 1 | 995 | 1003 | 9 | RLITGRLQS 0.001016 | 19 |
| HLA-A*01:01 | 1 | 1143 | 1152 | 10 | PELDSFKEEL 0.001016 | 15 |
| HLA-A*68:01 | 1 | 1189 | 1197 | 9 | VAKNLNESL 0.001016 | 15 |
| HLA-B*40:01 | 1 | 120 | 128 | 9 | VNNATNVVI 0.001015 | 7.5 |
| HLA-B*35:01 | 1 | 250 | 259 | 10 | TPGDSSSGWT 0.001015 | 10 |
| HLA-A*31:01 | 1 | 340 | 348 | 9 | EVFNATRFA 0.001015 | 16 |
| HLA-B*53:01 | 1 | 688 | 697 | 10 | ASQSIIAYTM 0.001015 | 9.3 |
| HLA-B*51:01 | 1 | 837 | 845 | 9 | YGDCLGDIA 0.001015 | 18 |
| HLA-A*02:03 | 1 | 120 | 128 | 9 | VNNATNVVI 0.001014 | 16 |
| HLA-A*03:01 | 1 | 254 | 262 | 9 | SSSGWTAGA 0.001014 | 12 |
| HLA-A*31:01 | 1 | 926 | 934 | 9 | QFNSAIGKI 0.001014 | 16 |
| HLA-A*32:01 | 1 | 1020 | 1029 | 10 | ASANLAATKM 0.001014 | 11 |
| HLA-B*51:01 | 1 | 1053 | 1061 | 9 | PQSAPHGVV 0.001014 | 18 |
| HLA-A*30:01 | 1 | 1188 | 1197 | 10 | EVAKNLNESL 0.001014 | 26 |
| HLA-A*26:01 | 1 | 61 | 70 | 10 | NVTWFHAIHV 0.001013 | 11 |
| HLA-A*30:02 | 1 | 85 | 93 | 9 | PFNDGVYFA 0.001013 | 24 |
| HLA-A*30:01 | 1 | 393 | 402 | 10 | TNVYADSFVI 0.001013 | 26 |
| HLA-B*35:01 | 1 | 583 | 591 | 9 | EILDITPCS 0.001013 | 10 |
| HLA-A*30:01 | 1 | 669 | 677 | 9 | GICASYQTQ 0.001013 | 26 |
| HLA-A*31:01 | 1 | 685 | 693 | 9 | RSVASQSII 0.001013 | 16 |
| HLA-A*23:01 | 1 | 869 | 877 | 9 | MIAQYTSAL 0.001013 | 8.2 |
| HLA-A*30:01 | 1 | 972 | 981 | 10 | AISSVLNDIL 0.001013 | 26 |
| HLA-B*08:01 | 1 | 101 | 101 | 10 | MFVFLVLLPL 0.001012 | 20 |
| HLA-A*02:06 | 1 | 63 | 71 | 9 | TWFHAIHVS 0.001012 | 20 |
| HLA-A*03:01 | 1 | 451 | 459 | 9 | YLYRFRKS 0.001012 | 12 |
| HLA-B*40:01 | 1 | 556 | 565 | 10 | NKKFLPFQF 0.001012 | 7.5 |
| HLA-A*30:02 | 1 | 577 | 585 | 9 | RDPQTLEIL 0.001012 | 24 |
| HLA-B*57:01 | 1 | 731 | 739 | 9 | MTKTSVDCT 0.001012 | 19 |
| HLA-B*58:01 | 1 | 786 | 795 | 10 | KQIYKTPPIK 0.001012 | 14 |
| HLA-B*15:01 | 1 | 805 | 813 | 9 | ILPDPSKPS 0.001012 | 14 |
| HLA-A*30:02 | 1 | 876 | 885 | 10 | ALLAGTITSG 0.001012 | 24 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*44:03 | 1 | 909 | 917 | 9 | IGVTQNVLY 0.001012 | 7.9 |
| HLA-A*24:02 | 1 | 937 | 945 | 9 | SLSSTASAL 0.001012 | 8.0 |
| HLA-A*02:03 | 1 | 950 | 959 | 10 | DVVNQNAQAL 0.001012 | 16 |
| HLA-B*58:01 | 1 | 987 | 996 | 10 | VEAEVQIDRL 0.001012 | 14 |
| HLA-B*08:01 | 1 | 727 | 735 | 9 | LPVSMTKTS 0.001011 | 20 |
| HLA-A*02:06 | 1 | 961 | 969 | 9 | TLVKQLSSN 0.001011 | 20 |
| HLA-B*35:01 | 1 | 1111 | 1119 | 9 | EPQIITTDN 0.001011 | 10 |
| HLA-B*51:01 | 1 | 1259 | 1267 | 9 | DDSEPVLKG 0.001011 | 19 |
| HLA-B*35:01 | 1 | 66 | 74 | 9 | HAIHVSBTN 0.00101 | 10 |
| HLA-B*44:02 | 1 | 489 | 497 | 9 | YFPLQSYGF 0.00101 | 7.9 |
| HLA-B*07:02 | 1 | 784 | 792 | 9 | QVKQIYKTP 0.00101 | 12 |
| HLA-A*02:01 | 1 | 956 | 964 | 9 | AQALNTLVK 0.00101 | 14 |
| HLA-B*57:01 | 1 | 1008 | 1017 | 10 | VTQQLIRAAE 0.00101 | 19 |
| HLA-B*40:01 | 1 | 60 | 68 | 9 | SNVTWFHAI 0.001009 | 7.5 |
| HLA-A*30:02 | 1 | 142 | 151 | 10 | GVYYHKNNKS 0.001009 | 24 |
| HLA-B*51:01 | 1 | 583 | 591 | 9 | EILDITPCS 0.001009 | 19 |
| HLA-A*30:02 | 1 | 641 | 649 | 9 | NVFQTRAGC 0.001009 | 24 |
| HLA-A*02:01 | 1 | 1067 | 1075 | 9 | YVPAQEKNF 0.001009 | 14 |
| HLA-B*44:02 | 1 | 1102 | 1110 | 9 | WFVTQRNFY 0.001009 | 7.9 |
| HLA-A*31:01 | 1 | 10 | 18 | 9 | LVSSQCVNL 0.001008 | 16 |
| HLA-A*32:01 | 1 | 101 | 110 | 10 | IRGWIFGTTL 0.001008 | 11 |
| HLA-B*58:01 | 1 | 229 | 237 | 9 | LPIGINITR 0.001008 | 14 |
| HLA-B*35:01 | 1 | 437 | 445 | 9 | NSNNLDSKV 0.001008 | 10 |
| HLA-B*08:01 | 1 | 440 | 449 | 10 | NLDSKVGNGY 0.001008 | 20 |
| HLA-A*23:01 | 1 | 604 | 612 | 9 | TSNQVAVLY 0.001008 | 8.2 |
| HLA-A*02:03 | 1 | 983 | 992 | 10 | RLDKVEAEVQ 0.001008 | 16 |
| HLA-B*07:02 | 1 | 1209 | 1218 | 10 | YIKWPWYIWL 0.001008 | 12 |
| HLA-B*58:01 | 1 | 82 | 91 | 10 | PVLPFNDGVY 0.001007 | 14 |
| HLA-B*44:03 | 1 | 229 | 237 | 9 | LPIGINITR 0.001007 | 8.0 |
| HLA-A*30:01 | 1 | 383 | 392 | 10 | SPTKLNLCF 0.001007 | 26 |
| HLA-A*26:01 | 1 | 443 | 452 | 10 | SKVGGNYNYL 0.001007 | 11 |
| HLA-A*33:01 | 1 | 489 | 498 | 10 | YFPLQSYGFQ 0.001007 | 14 |
| HLA-A*30:01 | 1 | 583 | 591 | 9 | EILDITPCS 0.001007 | 26 |
| HLA-A*68:01 | 1 | 47 | 55 | 9 | VLHSTQDLF 0.001006 | 15 |
| HLA-A*24:02 | 1 | 346 | 355 | 10 | RFASVYAWNR 0.001006 | 8.1 |
| HLA-B*08:01 | 1 | 543 | 551 | 9 | FNGLTGTGV 0.001006 | 20 |
| HLA-B*57:01 | 1 | 552 | 561 | 10 | LTESNKKFLP 0.001006 | 19 |
| HLA-A*33:01 | 1 | 641 | 649 | 9 | NVFQTRAGC 0.001006 | 14 |
| HLA-A*26:01 | 1 | 874 | 882 | 9 | TSALLAGTI 0.001006 | 11 |
| HLA-A*30:01 | 1 | 886 | 895 | 10 | WTFGAGAALQ 0.001006 | 26 |
| HLA-A*02:01 | 1 | 924 | 933 | 10 | ANQFNSAIGK 0.001006 | 14 |
| HLA-B*57:01 | 1 | 154 | 163 | 10 | ESEFRVYSSA 0.001005 | 19 |
| HLA-B*08:01 | 1 | 513 | 521 | 9 | LSFELLHAP 0.001005 | 20 |
| HLA-A*31:01 | 1 | 721 | 729 | 9 | SVTTEILPV 0.001005 | 16 |
| HLA-B*57:01 | 1 | 1045 | 1053 | 9 | KGYHLMSFP 0.001005 | 19 |
| HLA-A*68:02 | 1 | 1055 | 1064 | 10 | SAPHGVVFLH 0.001005 | 16 |
| HLA-A*31:01 | 1 | 555 | 564 | 10 | SNKKFLPFQQ 0.001004 | 16 |
| HLA-A*30:02 | 1 | 580 | 589 | 10 | QTLILDITP 0.001004 | 24 |
| HLA-B*44:03 | 1 | 786 | 794 | 9 | KQIYKTPPI 0.001004 | 8.0 |
| HLA-A*24:02 | 1 | 930 | 938 | 9 | AIGKIQDSL 0.001004 | 8.1 |
| HLA-A*30:01 | 1 | 1025 | 1033 | 9 | AATKMSECV 0.001004 | 26 |
| HLA-B*44:03 | 1 | 1143 | 1151 | 9 | PELDSFKEE 0.001004 | 8.0 |
| HLA-B*40:01 | 1 | 1192 | 1200 | 9 | NLNESLIDL 0.001004 | 7.5 |
| HLA-A*02:01 | 1 | 321 | 329 | 9 | QPTESIVRF 0.001003 | 14 |
| HLA-B*15:01 | 1 | 487 | 496 | 10 | NCYFPLQSYG 0.001003 | 14 |
| HLA-B*07:02 | 1 | 811 | 820 | 10 | KPSKRSFIED 0.001003 | 12 |
| HLA-A*11:01 | 1 | 958 | 966 | 9 | ALNTLVKQL 0.001003 | 9.6 |
| HLA-A*02:06 | 1 | 960 | 968 | 9 | NTLVKQLSS 0.001003 | 20 |
| HLA-B*35:01 | 1 | 1065 | 1073 | 9 | VTYVPAQEK 0.001003 | 10 |
| HLA-A*31:01 | 1 | 1130 | 1138 | 9 | IGIVNNTVY 0.001003 | 16 |
| HLA-B*57:01 | 1 | 1218 | 1227 | 10 | LGFIAGLIAI 0.001003 | 19 |
| HLA-A*30:01 | 1 | 1219 | 1228 | 10 | GFIAGLIAIV 0.001003 | 27 |
| HLA-A*02:01 | 1 | 37 | 45 | 9 | YYPDKVFRS 0.001002 | 14 |
| HLA-A*30:01 | 1 | 318 | 327 | 10 | FRVQPTESIV 0.001002 | 27 |
| HLA-A*02:01 | 1 | 505 | 514 | 10 | YQPYRVVVL 0.001002 | 14 |
| HLA-A*23:01 | 1 | 673 | 682 | 10 | SYQTQTNSPR 0.001002 | 8.2 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*57:01 | 1 | 907 | 916 | 10 | NGIGVTQNVL 0.001002 | 19 |
| HLA-B*15:01 | 1 | 1128 | 1136 | 9 | VVIGIVNNT 0.001002 | 14 |
| HLA-A*30:01 | 1 | 580 | 589 | 10 | QTLEILDITP 0.001001 | 27 |
| HLA-A*32:01 | 1 | 991 | 999 | 9 | VQIDRLITG 0.001001 | 11 |
| HLA-B*40:01 | 1 | 1095 | 1103 | 9 | FVSNGTHWF 0.001001 | 7.5 |
| HLA-A*32:01 | 1 | 1139 | 1148 | 10 | DPLQPELDSF 0.001001 | 11 |
| HLA-B*58:01 | 1 | 1196 | 1204 | 9 | SLIDLQELG 0.001001 | 14 |
| HLA-B*58:01 | 1 | 109 | 118 | 10 | TLDSKTQSL 0.001 | 14 |
| HLA-B*44:02 | 1 | 122 | 130 | 9 | NATNVVIKV 0.001 | 8.0 |
| HLA-B*51:01 | 1 | 193 | 201 | 9 | VFKNIDGYF 0.001 | 19 |
| HLA-B*57:01 | 1 | 456 | 464 | 9 | FRKSNLKP 0.001 | 19 |
| HLA-A*26:01 | 1 | 1049 | 1058 | 10 | LMSFPQSAPH 0.001 | 11 |
| HLA-B*58:01 | 1 | 22 | 30 | 9 | TQLPPAYTN 0.000999 | 14 |
| HLA-B*53:01 | 1 | 62 | 70 | 9 | VTWFHAIHV 0.000999 | 9.3 |
| HLA-A*02:06 | 1 | 273 | 281 | 9 | RTFLLKYNE 0.000999 | 20 |
| HLA-A*26:01 | 1 | 298 | 307 | 10 | ETKCTLKSFT 0.000999 | 11 |
| HLA-A*23:01 | 1 | 953 | 962 | 10 | NQNAQALNTL 0.000999 | 8.2 |
| HLA-B*57:01 | 1 | 987 | 996 | 10 | VEAEVQIDRL 0.000999 | 19 |
| HLA-B*44:03 | 1 | 1110 | 1118 | 9 | YEPQIITD 0.000999 | 8.0 |
| HLA-B*53:01 | 1 | 26 | 34 | 9 | PAYTNSFTR 0.000998 | 9.3 |
| HLA-B*08:01 | 1 | 189 | 197 | 9 | LREFVFKNI 0.000998 | 20 |
| HLA-B*35:01 | 1 | 488 | 497 | 10 | CYFPLQSYGF 0.000998 | 10 |
| HLA-A*68:02 | 1 | 763 | 772 | 10 | LNRAITGI 0.000998 | 16 |
| HLA-A*30:01 | 1 | 74 | 83 | 10 | NGTKRFDNPV 0.000997 | 27 |
| HLA-A*68:02 | 1 | 77 | 86 | 10 | KRFDNPVLPF 0.000997 | 16 |
| HLA-A*23:01 | 1 | 295 | 303 | 9 | PLSETKCTL 0.000997 | 8.2 |
| HLA-B*58:01 | 1 | 746 | 755 | 10 | STECSNLLLQ 0.000997 | 14 |
| HLA-B*08:01 | 1 | 905 | 913 | 9 | RFNGIGVTQ 0.000997 | 20 |
| HLA-B*40:01 | 1 | 137 | 145 | 9 | NDPFLGVYY 0.000996 | 7.5 |
| HLA-A*33:01 | 1 | 250 | 258 | 9 | TPGDSSSGW 0.000996 | 14 |
| HLA-B*07:02 | 1 | 408 | 417 | 10 | RQIAPGQTGK 0.000996 | 12 |
| HLA-A*26:01 | 1 | 453 | 461 | 9 | YRLFRKSNL 0.000996 | 11 |
| HLA-B*58:01 | 1 | 721 | 729 | 9 | SVTTEILPV 0.000996 | 14 |
| HLA-A*31:01 | 1 | 828 | 837 | 10 | LADAGFIKQY 0.000996 | 16 |
| HLA-B*15:01 | 1 | 850 | 858 | 9 | ICAQKFNGL 0.000996 | 14 |
| HLA-A*31:01 | 1 | 937 | 945 | 9 | SLSSTASAL 0.000996 | 16 |
| HLA-A*31:01 | 1 | 951 | 959 | 9 | VVNQNAQAL 0.000996 | 16 |
| HLA-B*40:01 | 1 | 956 | 964 | 9 | AQALNTLVK 0.000996 | 7.5 |
| HLA-A*11:01 | 1 | 1185 | 1193 | 9 | RLNEVAKNL 0.000996 | 9.6 |
| HLA-A*02:06 | 1 | 1218 | 1226 | 9 | LGFIAGLIA 0.000996 | 20 |
| HLA-A*01:01 | 1 | 546 | 554 | 9 | LTGTGVLTE 0.000995 | 15 |
| HLA-B*07:02 | 1 | 596 | 605 | 10 | SVITPGTNTS 0.000995 | 12 |
| HLA-A*30:01 | 1 | 61 | 69 | 9 | NVTWFHAIH 0.000994 | 27 |
| HLA-A*26:01 | 1 | 449 | 457 | 9 | YNYLYRFR 0.000994 | 11 |
| HLA-A*33:01 | 1 | 510 | 518 | 9 | VVLSFELL 0.000994 | 14 |
| HLA-B*51:01 | 1 | 657 | 666 | 10 | NNSYECDIPI 0.000994 | 19 |
| HLA-A*30:02 | 1 | 795 | 804 | 10 | KDFGGFNFSQ 0.000994 | 24 |
| HLA-A*30:01 | 1 | 908 | 916 | 9 | GIGVTQNVL 0.000994 | 27 |
| HLA-B*15:01 | 1 | 1030 | 1038 | 9 | SECVLGQSK 0.000994 | 15 |
| HLA-A*24:02 | 1 | 367 | 376 | 10 | VLYNSASFST 0.000993 | 8.1 |
| HLA-A*30:01 | 1 | 687 | 696 | 10 | VASQSIIAYT 0.000993 | 27 |
| HLA-A*03:01 | 1 | 814 | 823 | 10 | KRSFIEDLLF 0.000993 | 12 |
| HLA-A*31:01 | 1 | 46 | 54 | 9 | SVLHSTQDL 0.000992 | 16 |
| HLA-A*26:01 | 1 | 369 | 378 | 10 | YNSASFSTFK 0.000992 | 11 |
| HLA-A*01:01 | 1 | 857 | 865 | 9 | GLTVLPPLL 0.000992 | 15 |
| HLA-B*51:01 | 1 | 1111 | 1119 | 9 | EPQIITTDN 0.000992 | 19 |
| HLA-B*57:01 | 1 | 302 | 310 | 9 | TLKSFTVEK 0.000991 | 19 |
| HLA-A*03:01 | 1 | 304 | 312 | 9 | KSFTVEKGI 0.000991 | 12 |
| HLA-B*08:01 | 1 | 481 | 490 | 10 | NGVEGFNCYF 0.000991 | 20 |
| HLA-A*02:03 | 1 | 617 | 626 | 10 | CTEVPVAIHA 0.000991 | 16 |
| HLA-A*02:06 | 1 | 806 | 814 | 9 | LPDPSKPSK 0.000991 | 20 |
| HLA-A*02:03 | 1 | 813 | 821 | 9 | SKRSFIEDL 0.000991 | 16 |
| HLA-A*23:01 | 1 | 1003 | 1012 | 10 | SLQTYVTQQL 0.000991 | 8.3 |
| HLA-A*01:01 | 1 | 1016 | 1024 | 9 | AEIRASANL 0.000991 | 15 |
| HLA-A*01:01 | 1 | 1034 | 1042 | 9 | LGQSKRVDF 0.000991 | 15 |
| HLA-A*68:02 | 1 | 1258 | 1266 | 9 | EDDSEPVLK 0.000991 | 16 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*35:01 | 1 | 1263 | 1272 | 10 | PVLKGVKLHY 0.000991 | 11 |
| HLA-A*02:03 | 1 | 314 | 322 | 9 | QTSNFRVQP 0.00099 | 16 |
| HLA-B*57:01 | 1 | 340 | 348 | 9 | EVFNATRFA 0.00099 | 19 |
| HLA-A*24:02 | 1 | 445 | 453 | 9 | VGGNYNYLY 0.00099 | 8.1 |
| HLA-B*08:01 | 1 | 627 | 636 | 10 | DQLTPTWRVY 0.00099 | 20 |
| HLA-B*07:02 | 1 | 711 | 719 | 9 | SIAIPTNFT 0.00099 | 12 |
| HLA-B*51:01 | 1 | 26 | 34 | 9 | PAYTNSFTR 0.000989 | 19 |
| HLA-A*68:02 | 1 | 97 | 105 | 9 | KSNIIRGWI 0.000989 | 16 |
| HLA-B*51:01 | 1 | 315 | 323 | 9 | TSNFRVQPT 0.000989 | 19 |
| HLA-A*11:01 | 1 | 529 | 538 | 10 | KSTNLVKKNC 0.000989 | 9.6 |
| HLA-A*03:01 | 1 | 627 | 636 | 10 | DQLTPTWRVY 0.000989 | 12 |
| HLA-B*58:01 | 1 | 638 | 647 | 10 | TGSNVFQTRA 0.000989 | 14 |
| HLA-B*35:01 | 1 | 660 | 668 | 9 | YECDIPIGA 0.000989 | 11 |
| HLA-A*68:02 | 1 | 738 | 747 | 10 | CTMYICGDST 0.000989 | 16 |
| HLA-B*58:01 | 1 | 1045 | 1053 | 9 | KGYHLMSFP 0.000989 | 14 |
| HLA-A*68:02 | 1 | 1103 | 1111 | 9 | FVTQRNFYE 0.000989 | 16 |
| HLA-B*07:02 | 1 | 1121 | 1129 | 9 | FVSGNCDVV 0.000989 | 12 |
| HLA-A*02:01 | 1 | 1123 | 1132 | 10 | SGNCDVVIIGI 0.000989 | 14 |
| HLA-B*53:01 | 1 | 1200 | 1209 | 10 | LQELGKYEYQ 0.000989 | 9.4 |
| HLA-A*68:02 | 1 | 63 | 71 | 9 | TWFHAIHVS 0.000988 | 16 |
| HLA-A*33:01 | 1 | 317 | 326 | 10 | NFRVQPTESI 0.000988 | 14 |
| HLA-B*51:01 | 1 | 1040 | 1049 | 10 | VDFCGKGYHL 0.000988 | 19 |
| HLA-B*08:01 | 1 | 226 | 235 | 10 | LVDLPIGINI 0.000987 | 20 |
| HLA-A*32:01 | 1 | 350 | 358 | 9 | VYAWNKRRI 0.000987 | 11 |
| HLA-A*30:02 | 1 | 545 | 553 | 9 | GLTGTGVL 0.000987 | 24 |
| HLA-B*57:01 | 1 | 783 | 792 | 10 | AQVKQIYKTP 0.000987 | 20 |
| HLA-B*57:01 | 1 | 318 | 326 | 9 | FRVQPTESI 0.000986 | 20 |
| HLA-A*26:01 | 1 | 535 | 543 | 9 | KNKCVNFNF 0.000986 | 11 |
| HLA-B*53:01 | 1 | 552 | 560 | 9 | LTESNKKFL 0.000986 | 9.4 |
| HLA-A*32:01 | 1 | 889 | 898 | 10 | GAGAALQIPF 0.000986 | 11 |
| HLA-B*07:02 | 1 | 111 | 119 | 9 | DSKTQSLLI 0.000985 | 12 |
| HLA-A*01:01 | 1 | 150 | 159 | 10 | KSWMESEFRV 0.000985 | 15 |
| HLA-A*26:01 | 1 | 185 | 194 | 10 | NFKNLREFVF 0.000985 | 11 |
| HLA-B*53:01 | 1 | 294 | 302 | 9 | DPLSETKCT 0.000985 | 9.4 |
| HLA-B*57:01 | 1 | 321 | 330 | 10 | QPTESIVRFP 0.000985 | 20 |
| HLA-B*35:01 | 1 | 507 | 515 | 9 | PYRVVLSF 0.000985 | 11 |
| HLA-A*02:01 | 1 | 597 | 605 | 9 | VITPGTNTS 0.000985 | 14 |
| HLA-A*03:01 | 1 | 892 | 900 | 9 | AALQIPFAM 0.000985 | 12 |
| HLA-A*30:02 | 1 | 32 | 41 | 10 | FTRGVYYPDK 0.000984 | 24 |
| HLA-A*32:01 | 1 | 44 | 52 | 9 | RSSLVHSTQ 0.000984 | 11 |
| HLA-A*31:01 | 1 | 295 | 304 | 10 | PLSETKCTLK 0.000984 | 16 |
| HLA-A*03:01 | 1 | 445 | 454 | 10 | VGGNYNYLYR 0.000984 | 12 |
| HLA-A*33:01 | 1 | 584 | 592 | 9 | ILDITPCSF 0.000984 | 14 |
| HLA-B*57:01 | 1 | 849 | 858 | 10 | LICAQKFNGL 0.000984 | 20 |
| HLA-A*03:01 | 1 | 1002 | 1010 | 9 | QSLQTYVTQ 0.000984 | 12 |
| HLA-B*53:01 | 1 | 124 | 133 | 10 | TNVVIKVICEF 0.000983 | 9.4 |
| HLA-A*30:02 | 1 | 551 | 560 | 10 | VLTESNKKFL 0.000983 | 24 |
| HLA-B*44:03 | 1 | 576 | 585 | 10 | VRDPQTLEIL 0.000983 | 8.1 |
| HLA-A*33:01 | 1 | 747 | 756 | 10 | TECSNLLLQY 0.000983 | 14 |
| HLA-A*30:02 | 1 | 779 | 788 | 10 | QEVFAQVKQI 0.000983 | 24 |
| HLA-A*68:02 | 1 | 96 | 105 | 10 | EKSNIIRGWI 0.000982 | 16 |
| HLA-A*30:02 | 1 | 318 | 327 | 10 | FRVQPTESIV 0.000982 | 24 |
| HLA-A*26:01 | 1 | 338 | 347 | 10 | FGEVFNATRF 0.000982 | 11 |
| HLA-B*40:01 | 1 | 624 | 633 | 10 | IHADQLTPTW 0.000982 | 7.6 |
| HLA-A*01:01 | 1 | 660 | 668 | 9 | YECDIPIGA 0.000982 | 15 |
| HLA-B*44:02 | 1 | 937 | 945 | 9 | SLSSTASAL 0.000982 | 8.0 |
| HLA-B*51:01 | 1 | 36 | 44 | 9 | VYYPDKVFR 0.000981 | 19 |
| HLA-B*08:01 | 1 | 74 | 82 | 9 | NGTKRFDPN 0.000981 | 20 |
| HLA-A*30:01 | 1 | 446 | 455 | 10 | GGNYNYLYRL 0.000981 | 27 |
| HLA-B*58:01 | 1 | 494 | 503 | 10 | SYGFQPTNGV 0.000981 | 14 |
| HLA-B*15:01 | 1 | 576 | 585 | 10 | VRDPQTLEIL 0.000981 | 15 |
| HLA-B*07:02 | 1 | 597 | 605 | 9 | VITPGTNTS 0.000981 | 12 |
| HLA-A*68:02 | 1 | 839 | 847 | 9 | DCLGDIAAR 0.000981 | 16 |
| HLA-B*58:01 | 1 | 955 | 964 | 10 | NAQALNTLVK 0.000981 | 14 |
| HLA-B*44:03 | 1 | 1087 | 1096 | 10 | AHFPREGVFN 0.000981 | 8.1 |
| HLA-A*02:06 | 1 | 366 | 375 | 10 | SVLYNSASF 0.00098 | 20 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*02:06 | 1 | 731 | 740 | 10 | MTKTSVDCTM 0.00098 | 20 |
| HLA-B*51:01 | 1 | 1190 | 1198 | 9 | AKNLNESLI 0.00098 | 19 |
| HLA-A*68:02 | 1 | 544 | 552 | 9 | NGLTGTGVL 0.000979 | 16 |
| HLA-B*44:03 | 1 | 962 | 970 | 9 | LVKQLSSNF 0.000979 | 8.1 |
| HLA-A*68:02 | 1 | 1107 | 1116 | 10 | RNFYEQIIT 0.000979 | 16 |
| HLA-A*68:02 | 1 | 78 | 86 | 9 | RFDNPVLPF 0.000978 | 16 |
| HLA-A*03:01 | 1 | 241 | 249 | 9 | LLALHRSYL 0.000978 | 12 |
| HLA-A*23:01 | 1 | 269 | 278 | 10 | YLQPRTFLLK 0.000978 | 8.3 |
| HLA-A*11:01 | 1 | 482 | 490 | 9 | GVEGFNCYF 0.000978 | 9.6 |
| HLA-A*31:01 | 1 | 538 | 546 | 9 | CVNFNFNGL 0.000978 | 16 |
| HLA-A*26:01 | 1 | 416 | 425 | 10 | GKIADYNYKL 0.000977 | 11 |
| HLA-A*68:02 | 1 | 167 | 175 | 9 | TFEYVSQPF 0.000976 | 16 |
| HLA-B*51:01 | 1 | 541 | 549 | 9 | FNFNGLTGT 0.000976 | 19 |
| HLA-B*51:01 | 1 | 939 | 948 | 10 | SSTASALGKL 0.000976 | 19 |
| HLA-B*40:01 | 1 | 991 | 999 | 9 | VQIDRLITG 0.000976 | 7.6 |
| HLA-B*51:01 | 1 | 1167 | 1176 | 10 | GDISGINASV 0.000976 | 19 |
| HLA-A*26:01 | 1 | 1209 | 1218 | 10 | YIKWPWYIWL 0.000976 | 11 |
| HLA-A*68:01 | 1 | 107 | 115 | 9 | GTTLDSKTQ 0.000975 | 15 |
| HLA-B*44:02 | 1 | 135 | 144 | 10 | FCNDPFLGVY 0.000975 | 8.1 |
| HLA-A*30:02 | 1 | 338 | 346 | 9 | FGEVFNATR 0.000975 | 24 |
| HLA-B*35:01 | 1 | 480 | 489 | 10 | CNGVEGFNCY 0.000975 | 11 |
| HLA-A*33:01 | 1 | 55 | 64 | 10 | FLPFFSNVTW 0.000974 | 14 |
| HLA-A*02:01 | 1 | 400 | 408 | 9 | FVIRGDEVV 0.000974 | 15 |
| HLA-A*02:03 | 1 | 425 | 433 | 9 | LPDDFTGCV 0.000974 | 16 |
| HLA-A*30:01 | 1 | 877 | 885 | 9 | LLAGTITSG 0.000974 | 27 |
| HLA-A*01:01 | 1 | 1083 | 1091 | 9 | HDGKAHFPR 0.000974 | 15 |
| HLA-A*68:02 | 1 | 1260 | 1269 | 10 | DSEPVKLGVK 0.000974 | 16 |
| HLA-B*44:03 | 1 | 167 | 175 | 9 | TFEYVSQPF 0.000973 | 8.1 |
| HLA-B*07:02 | 1 | 205 | 213 | 9 | SKHTPINLV 0.000973 | 12 |
| HLA-A*23:01 | 1 | 422 | 431 | 10 | NYKLPDDFTG 0.000973 | 8.3 |
| HLA-B*51:01 | 1 | 562 | 570 | 9 | FQQFGRDIA 0.000973 | 19 |
| HLA-A*11:01 | 1 | 995 | 1003 | 9 | RLITGRLQS 0.000973 | 9.6 |
| HLA-B*15:01 | 1 | 1224 | 1232 | 9 | LIAIVMVTI 0.000973 | 15 |
| HLA-A*02:06 | 1 | 395 | 403 | 9 | VYADSFVIR 0.000972 | 20 |
| HLA-A*30:01 | 1 | 484 | 492 | 9 | EGFNCFYFL 0.000972 | 27 |
| HLA-A*01:01 | 1 | 502 | 510 | 9 | GVGYPYRVL 0.000972 | 15 |
| HLA-B*44:02 | 1 | 691 | 699 | 9 | SIIAYTMSL 0.000972 | 8.1 |
| HLA-A*01:01 | 1 | 693 | 701 | 9 | IAYTMSLGA 0.000972 | 15 |
| HLA-A*02:03 | 1 | 758 | 766 | 9 | SFCTQLNRA 0.000972 | 16 |
| HLA-A*31:01 | 1 | 964 | 973 | 10 | KQLSSNFGAI 0.000972 | 16 |
| HLA-B*40:01 | 1 | 1054 | 1063 | 10 | QSAPHGVVFL 0.000972 | 7.6 |
| HLA-B*07:02 | 1 | 1220 | 1228 | 9 | FIAGLIAIV 0.000972 | 12 |
| HLA-A*30:01 | 1 | 146 | 155 | 10 | HKNNKSWMES 0.000971 | 27 |
| HLA-B*57:01 | 1 | 386 | 395 | 10 | KLNDLCFTNV 0.000971 | 20 |
| HLA-A*02:01 | 1 | 409 | 417 | 9 | QIAPGQTGK 0.000971 | 15 |
| HLA-A*32:01 | 1 | 410 | 418 | 9 | IAPGQTGKI 0.000971 | 11 |
| HLA-A*02:01 | 1 | 679 | 687 | 9 | NSPRRARSV 0.000971 | 15 |
| HLA-B*44:02 | 1 | 41 | 49 | 9 | KVFRSSVLH 0.00097 | 8.1 |
| HLA-B*51:01 | 1 | 57 | 65 | 9 | PFFSNVTWF 0.00097 | 19 |
| HLA-B*51:01 | 1 | 145 | 153 | 9 | YHKNNKSWM 0.00097 | 19 |
| HLA-A*24:02 | 1 | 278 | 287 | 10 | KYNENGTITD 0.00097 | 8.2 |
| HLA-A*23:01 | 1 | 534 | 543 | 10 | VKNKCVNFN 0.00097 | 8.3 |
| HLA-B*51:01 | 1 | 602 | 611 | 10 | TNTSNQVAVL 0.00097 | 19 |
| HLA-A*33:01 | 1 | 305 | 313 | 9 | SFTVEKGIY 0.000969 | 14 |
| HLA-B*40:01 | 1 | 495 | 503 | 9 | YGFQPTNGV 0.000969 | 7.6 |
| HLA-A*30:02 | 1 | 520 | 529 | 10 | APATVCGPKK 0.000969 | 24 |
| HLA-A*30:01 | 1 | 610 | 619 | 10 | VLYQDVNCTE 0.000969 | 27 |
| HLA-B*57:01 | 1 | 628 | 637 | 10 | QLTPTWRVYS 0.000969 | 20 |
| HLA-A*02:03 | 1 | 692 | 700 | 9 | IIAYTMSLG 0.000969 | 16 |
| HLA-B*51:01 | 1 | 1020 | 1029 | 10 | ASANLAATKM 0.000969 | 19 |
| HLA-A*30:01 | 1 | 623 | 632 | 10 | AIHADQLTPT 0.000968 | 27 |
| HLA-B*44:02 | 1 | 651 | 660 | 10 | IGAHEVNNNSY 0.000968 | 8.1 |
| HLA-B*15:01 | 1 | 1015 | 1024 | 10 | AAEIRASANL 0.000968 | 15 |
| HLA-B*44:02 | 1 | 1195 | 1203 | 9 | ESLIDLQEL 0.000968 | 8.1 |
| HLA-A*02:03 | 1 | 16 | 24 | 9 | VNLTRTQL 0.000967 | 16 |
| HLA-A*02:01 | 1 | 325 | 333 | 9 | SIVRFPNIT 0.000967 | 15 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|
| HLA-B*44:03 | 1 | 777 | 785 | 9 | NTQEVFAQV | 0.000967 | 8.1 |
| HLA-A*03:01 | 1 | 5 | 13 | 9 | LVLLPLVSS | 0.000966 | 12 |
| HLA-A*68:02 | 1 | 53 | 61 | 9 | DLFLPFFSN | 0.000966 | 16 |
| HLA-A*30:01 | 1 | 853 | 862 | 10 | QKFNGLTVLP | 0.000966 | 27 |
| HLA-A*26:01 | 1 | 1051 | 1060 | 10 | SFPQSAPHGV | 0.000966 | 11 |
| HLA-A*31:01 | 1 | 1222 | 1230 | 9 | AGLIAIVMV | 0.000966 | 16 |
| HLA-A*31:01 | 1 | 185 | 194 | 10 | NFKNLREFVF | 0.000965 | 16 |
| HLA-A*68:02 | 1 | 610 | 618 | 9 | VLYQDVNCT | 0.000965 | 16 |
| HLA-A*30:01 | 1 | 624 | 632 | 9 | IHADQLTPT | 0.000965 | 27 |
| HLA-A*02:01 | 1 | 814 | 822 | 9 | KRSFIEDLL | 0.000965 | 15 |
| HLA-A*01:01 | 1 | 996 | 1004 | 9 | LITGRLQSL | 0.000965 | 15 |
| HLA-B*44:02 | 1 | 1052 | 1060 | 9 | FPQSAPHGV | 0.000965 | 8.1 |
| HLA-B*08:01 | 1 | 1182 | 1190 | 9 | EIDRLNEVA | 0.000965 | 20 |
| HLA-B*51:01 | 1 | 1201 | 1210 | 10 | QELGKYEQYI | 0.000965 | 19 |
| HLA-A*68:02 | 1 | 10 | 19 | 10 | LVSSQCVNLT | 0.000964 | 16 |
| HLA-B*51:01 | 1 | 580 | 589 | 10 | QTLEILDITP | 0.000964 | 19 |
| HLA-A*02:01 | 1 | 932 | 941 | 10 | GKIQDSLSST | 0.000964 | 15 |
| HLA-A*33:01 | 1 | 998 | 1007 | 10 | TGRLQSLQTY | 0.000964 | 14 |
| HLA-B*51:01 | 1 | 126 | 135 | 10 | VVIKVCFFQF | 0.000963 | 19 |
| HLA-A*68:01 | 1 | 710 | 719 | 10 | NSIAIPTNFT | 0.000963 | 16 |
| HLA-A*26:01 | 1 | 746 | 754 | 9 | STECNLLL | 0.000963 | 11 |
| HLA-B*57:01 | 1 | 856 | 864 | 9 | NGLTVLPPL | 0.000963 | 20 |
| HLA-A*11:01 | 1 | 967 | 975 | 9 | SSNFGAISS | 0.000963 | 9.7 |
| HLA-A*31:01 | 1 | 967 | 976 | 10 | SSNFGAISSV | 0.000963 | 16 |
| HLA-A*01:01 | 1 | 977 | 986 | 10 | LNDILSRDLK | 0.000963 | 15 |
| HLA-B*58:01 | 1 | 1007 | 1015 | 9 | YVTQLLIRA | 0.000963 | 14 |
| HLA-A*24:02 | 1 | 1044 | 1052 | 9 | GKGYHLMSF | 0.000963 | 8.2 |
| HLA-A*11:01 | 1 | 1095 | 1103 | 9 | FVSNGTHWF | 0.000963 | 9.7 |
| HLA-A*26:01 | 1 | 1113 | 1122 | 10 | QIITDNTFV | 0.000963 | 11 |
| HLA-A*68:01 | 1 | 1115 | 1123 | 9 | ITTDNTFVS | 0.000963 | 16 |
| HLA-A*23:01 | 1 | 1261 | 1270 | 10 | SEPVLKGVKL | 0.000963 | 8.3 |
| HLA-A*33:01 | 1 | 270 | 279 | 10 | LQPRTFLLKY | 0.000962 | 14 |
| HLA-B*07:02 | 1 | 319 | 328 | 10 | RVQPTESIVR | 0.000962 | 12 |
| HLA-A*30:02 | 1 | 568 | 576 | 9 | DIADTTDAV | 0.000962 | 24 |
| HLA-B*35:01 | 1 | 711 | 720 | 10 | SIAIPTNFTI | 0.000962 | 11 |
| HLA-A*33:01 | 1 | 751 | 759 | 9 | NLLLQYGSF | 0.000962 | 14 |
| HLA-A*02:03 | 1 | 859 | 867 | 9 | TVLPPLTLD | 0.000962 | 16 |
| HLA-A*68:02 | 1 | 22 | 31 | 10 | TQLPPAYTNS | 0.000961 | 16 |
| HLA-A*68:02 | 1 | 26 | 34 | 9 | PAYTNSFTR | 0.000961 | 16 |
| HLA-B*44:02 | 1 | 149 | 157 | 9 | NKSWMESEF | 0.000961 | 8.1 |
| HLA-A*32:01 | 1 | 276 | 285 | 10 | LLKYNENGTI | 0.000961 | 11 |
| HLA-A*30:02 | 1 | 347 | 356 | 10 | FASVYAWNRR | 0.000961 | 24 |
| HLA-A*30:01 | 1 | 556 | 564 | 9 | NKKFLPFQ | 0.000961 | 27 |
| HLA-B*40:01 | 1 | 616 | 624 | 9 | NCTEVPVAI | 0.000961 | 7.6 |
| HLA-B*51:01 | 1 | 747 | 756 | 10 | TECSNLLLQY | 0.000961 | 19 |
| HLA-A*31:01 | 1 | 1059 | 1068 | 10 | GVVFLHVTVY | 0.000961 | 16 |
| HLA-A*03:01 | 1 | 1181 | 1189 | 9 | KEIDRLNEV | 0.000961 | 12 |
| HLA-A*68:02 | 1 | 4 | 13 | 10 | FLVLLPLVSS | 0.00096 | 16 |
| HLA-A*30:02 | 1 | 37 | 46 | 10 | YYPDKVFRSS | 0.00096 | 24 |
| HLA-B*51:01 | 1 | 45 | 54 | 10 | SSVLHSTQDL | 0.00096 | 19 |
| HLA-A*33:01 | 1 | 59 | 67 | 9 | FSNVTWFHA | 0.00096 | 14 |
| HLA-A*11:01 | 1 | 108 | 116 | 9 | TTLDSKTQS | 0.00096 | 9.7 |
| HLA-B*15:01 | 1 | 201 | 210 | 10 | FKIYSKHTPI | 0.00096 | 15 |
| HLA-A*31:01 | 1 | 234 | 242 | 9 | NITRFQTL | 0.00096 | 16 |
| HLA-A*68:01 | 1 | 371 | 379 | 9 | SASFSTFKC | 0.00096 | 16 |
| HLA-A*03:01 | 1 | 646 | 655 | 10 | RAGCLIGAHE | 0.00096 | 12 |
| HLA-A*30:01 | 1 | 1113 | 1121 | 9 | QIITDNTF | 0.00096 | 27 |
| HLA-B*44:03 | 1 | 1208 | 1216 | 9 | QYIKWPWYI | 0.00096 | 8.1 |
| HLA-B*08:01 | 1 | 36 | 44 | 9 | VYYPDKVFR | 0.000959 | 20 |
| HLA-A*31:01 | 1 | 312 | 321 | 10 | IYQTSNFRVQ | 0.000959 | 16 |
| HLA-B*51:01 | 1 | 495 | 504 | 10 | YGFQPTNGVG | 0.000959 | 19 |
| HLA-B*08:01 | 1 | 891 | 899 | 9 | GAALQIPFA | 0.000959 | 20 |
| HLA-A*33:01 | 1 | 897 | 906 | 10 | PFAMQMAYRF | 0.000959 | 14 |
| HLA-A*24:02 | 1 | 901 | 909 | 9 | QMAYRFNGI | 0.000959 | 8.2 |
| HLA-A*11:01 | 1 | 962 | 970 | 9 | LVKQLSSNF | 0.000959 | 9.7 |
| HLA-B*08:01 | 1 | 1047 | 1055 | 9 | YHLMSFPQS | 0.000959 | 20 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*32:01 | 1 | 382 | 390 | 9 | VSPTKLNLDL 0.000958 | 11 |
| HLA-B*53:01 | 1 | 817 | 825 | 9 | FIEDLLFNK 0.000958 | 9.5 |
| HLA-B*58:01 | 1 | 913 | 922 | 10 | QNVLYENQKL 0.000958 | 14 |
| HLA-B*57:01 | 1 | 947 | 955 | 9 | KLQDVVNQN 0.000958 | 20 |
| HLA-A*33:01 | 1 | 954 | 962 | 9 | QNAQALNTL 0.000958 | 14 |
| HLA-A*68:02 | 1 | 992 | 1000 | 9 | QIDRLITGR 0.000958 | 16 |
| HLA-B*58:01 | 1 | 1003 | 1012 | 10 | SLQTYVTQQL 0.000958 | 14 |
| HLA-A*30:01 | 1 | 1135 | 1143 | 9 | NTVYDPLQP 0.000958 | 27 |
| HLA-A*23:01 | 1 | 1178 | 1186 | 9 | NIQKEIDRL 0.000958 | 8.4 |
| HLA-A*33:01 | 1 | 136 | 145 | 10 | CNDPFLGVYY 0.000957 | 14 |
| HLA-A*03:01 | 1 | 191 | 200 | 10 | EFVFKNIDGY 0.000957 | 12 |
| HLA-A*02:06 | 1 | 206 | 214 | 9 | KHTPINLVR 0.000957 | 20 |
| HLA-A*30:01 | 1 | 321 | 329 | 9 | QPTESIVRF 0.000957 | 27 |
| HLA-B*08:01 | 1 | 409 | 418 | 10 | QIAPGQTGKI 0.000957 | 20 |
| HLA-B*08:01 | 1 | 874 | 882 | 9 | TSALLAGTI 0.000957 | 20 |
| HLA-B*57:01 | 1 | 1048 | 1056 | 9 | HLMSFPQSA 0.000957 | 20 |
| HLA-A*31:01 | 1 | 1128 | 1137 | 10 | VVIGIVNNTV 0.000957 | 16 |
| HLA-B*58:01 | 1 | 91 | 100 | 10 | YFASTEKSNI 0.000956 | 14 |
| HLA-A*30:02 | 1 | 182 | 191 | 10 | KQGNFKNLRE 0.000956 | 24 |
| HLA-B*51:01 | 1 | 732 | 740 | 9 | TKTSVDCTM 0.000956 | 19 |
| HLA-A*02:06 | 1 | 778 | 786 | 9 | TQEVFAQVK 0.000956 | 20 |
| HLA-A*30:02 | 1 | 827 | 836 | 10 | TLADAGFIKQ 0.000956 | 24 |
| HLA-A*02:01 | 1 | 855 | 864 | 10 | FNGLTVLPPL 0.000956 | 15 |
| HLA-B*57:01 | 1 | 1146 | 1154 | 9 | DSFKEELDK 0.000956 | 20 |
| HLA-A*30:01 | 1 | 13 | 22 | 10 | SQCVNLTRRT 0.000955 | 27 |
| HLA-A*26:01 | 1 | 27 | 36 | 10 | AYTNSFTRGV 0.000955 | 12 |
| HLA-A*68:01 | 1 | 672 | 680 | 9 | ASYQTQTNL 0.000955 | 16 |
| HLA-A*68:01 | 1 | 967 | 975 | 9 | SSNFGAISS 0.000955 | 16 |
| HLA-B*44:02 | 1 | 1003 | 1012 | 10 | SLQTYVTQQL 0.000955 | 8.1 |
| HLA-B*44:03 | 1 | 1094 | 1103 | 10 | VFVSNGTHWF 0.000955 | 8.2 |
| HLA-B*53:01 | 1 | 1101 | 1110 | 10 | HWFVTQRNFY 0.000955 | 9.5 |
| HLA-A*30:01 | 1 | 1119 | 1128 | 10 | NTFVSGNCDV 0.000955 | 27 |
| HLA-A*33:01 | 1 | 1211 | 1220 | 10 | KWPWYIWLGF 0.000955 | 14 |
| HLA-A*23:01 | 1 | 1214 | 1222 | 9 | WYIWLGFIA 0.000955 | 8.4 |
| HLA-B*44:02 | 1 | 208 | 216 | 9 | TPINLVRDL 0.000954 | 8.1 |
| HLA-B*53:01 | 1 | 271 | 280 | 10 | QPRTFLLKYN 0.000954 | 9.5 |
| HLA-B*44:02 | 1 | 915 | 923 | 9 | VLYENQKLI 0.000954 | 8.1 |
| HLA-A*31:01 | 1 | 996 | 1004 | 9 | LITGRLQSL 0.000954 | 16 |
| HLA-A*02:06 | 1 | 1017 | 1026 | 10 | EIRASANLAA 0.000954 | 20 |
| HLA-B*57:01 | 1 | 1040 | 1049 | 10 | VDFCGKGYHL 0.000954 | 20 |
| HLA-A*23:01 | 1 | 1043 | 1052 | 10 | CGKGYHLMSF 0.000954 | 8.4 |
| HLA-B*44:02 | 1 | 193 | 201 | 9 | VFKNIDGYF 0.000953 | 8.1 |
| HLA-A*02:01 | 1 | 335 | 344 | 10 | LCPFGEVFNA 0.000953 | 15 |
| HLA-A*01:01 | 1 | 345 | 353 | 9 | TRFASVYAW 0.000953 | 15 |
| HLA-A*01:01 | 1 | 532 | 541 | 10 | NLVKNKCVNF 0.000953 | 15 |
| HLA-A*30:02 | 1 | 728 | 736 | 9 | PVSMTKTSV 0.000953 | 24 |
| HLA-A*26:01 | 1 | 784 | 792 | 9 | QVKQIYKTP 0.000953 | 12 |
| HLA-A*03:01 | 1 | 858 | 866 | 9 | LTVLPPLL 0.000953 | 12 |
| HLA-A*30:01 | 1 | 891 | 900 | 10 | GAALQIPFAM 0.000953 | 27 |
| HLA-A*33:01 | 1 | 1040 | 1049 | 10 | VDFCGKGYHL 0.000953 | 14 |
| HLA-A*33:01 | 1 | 575 | 583 | 9 | AVRDPQTL 0.000952 | 14 |
| HLA-A*02:01 | 1 | 727 | 736 | 10 | LPVSMTKTSV 0.000952 | 15 |
| HLA-A*24:02 | 1 | 780 | 788 | 9 | EVFAQVKQI 0.000952 | 8.3 |
| HLA-A*30:01 | 1 | 963 | 972 | 10 | VKQLSSNFGA 0.000952 | 27 |
| HLA-B*58:01 | 1 | 1160 | 1169 | 10 | TSPDVDLGGI 0.000952 | 14 |
| HLA-A*32:01 | 1 | 27 | 36 | 10 | AYTNSFTRGV 0.000951 | 11 |
| HLA-A*11:01 | 1 | 113 | 121 | 9 | KTQSLLIVN 0.000951 | 9.7 |
| HLA-A*02:03 | 1 | 620 | 629 | 10 | VPVAIHADQL 0.000951 | 16 |
| HLA-A*33:01 | 1 | 629 | 637 | 9 | LTPTWRVYS 0.000951 | 14 |
| HLA-A*30:02 | 1 | 638 | 647 | 10 | TGSNVFQTRA 0.000951 | 24 |
| HLA-B*07:02 | 1 | 755 | 763 | 9 | QYGSFCTQL 0.000951 | 12 |
| HLA-A*30:01 | 1 | 833 | 841 | 9 | FIKQYGDCL 0.000951 | 27 |
| HLA-A*02:06 | 1 | 854 | 862 | 9 | KFNGLTVLP 0.000951 | 20 |
| HLA-B*57:01 | 1 | 1007 | 1016 | 10 | YVTQQLIRAA 0.000951 | 20 |
| HLA-B*51:01 | 1 | 1070 | 1078 | 9 | AQEKNFTTA 0.000951 | 19 |
| HLA-A*26:01 | 1 | 1182 | 1191 | 10 | EIDRLNEVAK 0.000951 | 12 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*15:01 | 1 | 1209 | 1218 | 10 | YIKWPWYIWL 0.000951 | 15 |
| HLA-A*68:02 | 1 | 161 | 170 | 10 | SSANNCTFEY 0.00095 | 16 |
| HLA-A*01:01 | 1 | 567 | 576 | 10 | RDIADTTDAV 0.00095 | 15 |
| HLA-A*30:02 | 1 | 883 | 892 | 10 | TSGWTFGAGA 0.00095 | 24 |
| HLA-A*30:01 | 1 | 954 | 963 | 10 | QNAQALNTLV 0.00095 | 27 |
| HLA-B*57:01 | 1 | 974 | 982 | 9 | SSVLNDILS 0.00095 | 20 |
| HLA-B*58:01 | 1 | 237 | 245 | 9 | RFQTLALH 0.000949 | 14 |
| HLA-A*31:01 | 1 | 485 | 493 | 9 | GFNCYFPLQ 0.000949 | 16 |
| HLA-A*68:01 | 1 | 489 | 497 | 9 | YFPLQSYGF 0.000949 | 16 |
| HLA-B*07:02 | 1 | 746 | 754 | 9 | STECSNLLL 0.000949 | 12 |
| HLA-B*57:01 | 1 | 956 | 964 | 9 | AQALNTLVK 0.000949 | 20 |
| HLA-B*57:01 | 1 | 44 | 53 | 10 | RSSVLHSTQD 0.000948 | 20 |
| HLA-A*02:03 | 1 | 91 | 100 | 10 | YFASTEKSNI 0.000948 | 16 |
| HLA-A*01:01 | 1 | 127 | 135 | 9 | VIKVCEFQF 0.000948 | 15 |
| HLA-A*33:01 | 1 | 161 | 170 | 10 | SSANNCTFEY 0.000948 | 14 |
| HLA-B*51:01 | 1 | 360 | 369 | 10 | NCVADYSVLY 0.000948 | 19 |
| HLA-A*30:02 | 1 | 391 | 400 | 10 | CFTNVYADSF 0.000948 | 24 |
| HLA-B*15:01 | 1 | 1048 | 1057 | 10 | HLMSEFPQSAP 0.000948 | 15 |
| HLA-A*11:01 | 1 | 1055 | 1063 | 9 | SAPHGVVFL 0.000948 | 9.7 |
| HLA-B*15:01 | 1 | 36 | 44 | 9 | VYYPDKVFR 0.000947 | 15 |
| HLA-A*01:01 | 1 | 61 | 69 | 9 | NVTWFHAIH 0.000947 | 15 |
| HLA-A*11:01 | 1 | 173 | 182 | 10 | QPFLMDLEGK 0.000947 | 9.7 |
| HLA-B*07:02 | 1 | 173 | 182 | 10 | QPFLMDLEGK 0.000947 | 12 |
| HLA-A*31:01 | 1 | 699 | 707 | 9 | LGAENSVAY 0.000947 | 16 |
| HLA-B*44:03 | 1 | 806 | 814 | 9 | LPDPSKPSK 0.000947 | 8.2 |
| HLA-A*26:01 | 1 | 987 | 996 | 10 | VEAEVQIDRL 0.000947 | 12 |
| HLA-B*44:03 | 1 | 211 | 220 | 10 | NLVRDLPQGF 0.000946 | 8.2 |
| HLA-A*02:03 | 1 | 378 | 386 | 9 | KCYGVSPTK 0.000946 | 16 |
| HLA-A*26:01 | 1 | 447 | 456 | 10 | GNYNLYRLF 0.000946 | 12 |
| HLA-B*57:01 | 1 | 956 | 965 | 10 | AQALNTLVKQ 0.000946 | 20 |
| HLA-A*02:03 | 1 | 54 | 63 | 10 | LFLPFFSNVT 0.000945 | 16 |
| HLA-A*11:01 | 1 | 221 | 229 | 9 | SALEPLVDL 0.000945 | 9.8 |
| HLA-B*57:01 | 1 | 980 | 989 | 10 | ILSRLDKVEA 0.000945 | 20 |
| HLA-B*44:03 | 1 | 993 | 1001 | 9 | IDRLITGRL 0.000945 | 8.2 |
| HLA-B*44:03 | 1 | 1039 | 1047 | 9 | RVDFCGKGY 0.000945 | 8.2 |
| HLA-B*44:03 | 1 | 1067 | 1075 | 9 | YVPAQEKNF 0.000945 | 8.2 |
| HLA-A*68:02 | 1 | 1255 | 1264 | 10 | KFDEDDSEPV 0.000945 | 16 |
| HLA-B*51:01 | 1 | 43 | 51 | 9 | FRSSVLHST 0.000944 | 19 |
| HLA-B*58:01 | 1 | 332 | 341 | 10 | ITNLCPFGEV 0.000944 | 14 |
| HLA-B*58:01 | 1 | 623 | 631 | 9 | AIHADQLTP 0.000944 | 14 |
| HLA-A*26:01 | 1 | 829 | 838 | 10 | ADAGFIKQYG 0.000944 | 12 |
| HLA-A*32:01 | 1 | 1060 | 1069 | 10 | VVFLHVTYVP 0.000944 | 11 |
| HLA-B*51:01 | 1 | 1069 | 1078 | 10 | PAQEKNFTTA 0.000944 | 19 |
| HLA-B*07:02 | 1 | 1161 | 1170 | 10 | SPDVDLGDIS 0.000944 | 12 |
| HLA-A*30:01 | 1 | 129 | 137 | 9 | KVCEFQFCN 0.000943 | 27 |
| HLA-A*23:01 | 1 | 159 | 167 | 9 | VYSSANNCT 0.000943 | 8.4 |
| HLA-A*32:01 | 1 | 808 | 817 | 10 | DPSKPSKRSF 0.000943 | 11 |
| HLA-A*30:02 | 1 | 1053 | 1061 | 9 | PQSAPHGVV 0.000943 | 24 |
| HLA-A*33:01 | 1 | 368 | 376 | 9 | LYNSASFST 0.000942 | 14 |
| HLA-A*02:03 | 1 | 542 | 551 | 10 | NFNGLTGTGV 0.000942 | 16 |
| HLA-A*26:01 | 1 | 703 | 712 | 10 | NSVAYSNNSI 0.000942 | 12 |
| HLA-A*30:01 | 1 | 795 | 804 | 10 | KDFGGFNFSQ 0.000942 | 27 |
| HLA-A*01:01 | 1 | 1003 | 1011 | 9 | SLQTYVTQQ 0.000942 | 16 |
| HLA-B*57:01 | 1 | 167 | 176 | 10 | TFEYVSQPFL 0.000941 | 20 |
| HLA-A*31:01 | 1 | 266 | 275 | 10 | YVGYLQPRTF 0.000941 | 16 |
| HLA-A*68:01 | 1 | 413 | 421 | 9 | GQTGKIADY 0.000941 | 16 |
| HLA-A*11:01 | 1 | 576 | 584 | 9 | VRDPQTLEI 0.000941 | 9.8 |
| HLA-B*57:01 | 1 | 83 | 91 | 9 | VLFPNDGVY 0.00094 | 20 |
| HLA-A*24:02 | 1 | 191 | 200 | 10 | EFVFKNIDGY 0.00094 | 8.3 |
| HLA-B*15:01 | 1 | 308 | 316 | 9 | VEKGIYQTS 0.00094 | 15 |
| HLA-A*23:01 | 1 | 338 | 347 | 10 | FGEVFNATRF 0.00094 | 8.4 |
| HLA-B*57:01 | 1 | 377 | 386 | 10 | FKCYGVSPTK 0.00094 | 20 |
| HLA-A*68:02 | 1 | 481 | 489 | 9 | NGVEGFNCY 0.00094 | 16 |
| HLA-A*31:01 | 1 | 635 | 644 | 10 | VYSTGSNVFQ 0.00094 | 16 |
| HLA-A*03:01 | 1 | 682 | 690 | 9 | RRARSVASQ 0.00094 | 12 |
| HLA-A*02:03 | 1 | 696 | 704 | 9 | TMSLGAENS 0.00094 | 16 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|----------|-----|
| HLA-A*30:01 | 1 | 974 | 982 | 9 | SSVLNDILS | 0.00094 | 27 |
| HLA-A*30:02 | 1 | 1261 | 1269 | 9 | SEPVLKGVK | 0.00094 | 25 |
| HLA-A*02:06 | 1 | 83 | 91 | 9 | VLPFNDGVY | 0.000939 | 20 |
| HLA-B*57:01 | 1 | 408 | 416 | 9 | RQIAPGQTG | 0.000939 | 20 |
| HLA-A*30:02 | 1 | 522 | 530 | 9 | ATVCGPKKS | 0.000939 | 25 |
| HLA-B*40:01 | 1 | 771 | 780 | 10 | AVEQDKNTQE | 0.000939 | 7.7 |
| HLA-A*23:01 | 1 | 233 | 242 | 10 | INITRFQTL | 0.000938 | 8.4 |
| HLA-A*03:01 | 1 | 511 | 520 | 10 | VVLSFELLHA | 0.000938 | 12 |
| HLA-B*44:02 | 1 | 733 | 741 | 9 | KTSVDCTMY | 0.000938 | 8.2 |
| HLA-A*30:01 | 1 | 782 | 791 | 10 | FAQVKQIYKT | 0.000938 | 27 |
| HLA-A*30:01 | 1 | 902 | 910 | 9 | MAYRFNGIG | 0.000938 | 27 |
| HLA-A*31:01 | 1 | 908 | 917 | 10 | GIGVTQNVLY | 0.000938 | 16 |
| HLA-A*23:01 | 1 | 1257 | 1265 | 9 | DEDDSEPV | 0.000938 | 8.4 |
| HLA-A*01:01 | 1 | 10 | 18 | 9 | LVSSQCVNL | 0.000937 | 16 |
| HLA-A*31:01 | 1 | 219 | 227 | 9 | GFSALEPLV | 0.000937 | 16 |
| HLA-B*51:01 | 1 | 468 | 476 | 9 | ISTEIQAG | 0.000937 | 19 |
| HLA-A*31:01 | 1 | 516 | 524 | 9 | ELLHAPATV | 0.000937 | 16 |
| HLA-A*30:02 | 1 | 902 | 911 | 10 | MAYRFNGIGV | 0.000937 | 25 |
| HLA-A*23:01 | 1 | 964 | 973 | 10 | KQLSSNFGAI | 0.000937 | 8.4 |
| HLA-B*51:01 | 1 | 998 | 1006 | 9 | TGRLQSLQT | 0.000937 | 19 |
| HLA-B*15:01 | 1 | 1007 | 1015 | 9 | YVTQLLIRA | 0.000937 | 15 |
| HLA-B*51:01 | 1 | 1135 | 1143 | 9 | NTVYDPLQP | 0.000937 | 19 |
| HLA-A*31:01 | 1 | 77 | 85 | 9 | KRFDNPVLP | 0.000936 | 16 |
| HLA-A*26:01 | 1 | 220 | 229 | 10 | FSALEPLVDL | 0.000936 | 12 |
| HLA-B*15:01 | 1 | 269 | 278 | 10 | YLQPRTFLLK | 0.000936 | 15 |
| HLA-A*01:01 | 1 | 427 | 436 | 10 | DDFTGCVIAW | 0.000936 | 16 |
| HLA-B*53:01 | 1 | 811 | 819 | 9 | KPSKRSFIE | 0.000936 | 9.6 |
| HLA-B*53:01 | 1 | 828 | 836 | 9 | LADAGFIKQ | 0.000936 | 9.6 |
| HLA-A*68:01 | 1 | 893 | 901 | 9 | ALQIPFAMQ | 0.000936 | 16 |
| HLA-B*57:01 | 1 | 15 | 23 | 9 | CVNLTRTRQ | 0.000935 | 20 |
| HLA-B*58:01 | 1 | 26 | 34 | 9 | PAYTNSFTR | 0.000935 | 14 |
| HLA-A*02:01 | 1 | 482 | 490 | 9 | GVEGFNCYF | 0.000935 | 15 |
| HLA-A*31:01 | 1 | 488 | 496 | 9 | CYFPLQSYG | 0.000935 | 16 |
| HLA-A*02:01 | 1 | 710 | 718 | 9 | NSIAIPTNF | 0.000935 | 15 |
| HLA-B*08:01 | 1 | 845 | 853 | 9 | AARDLICAQ | 0.000935 | 20 |
| HLA-B*07:02 | 1 | 902 | 911 | 10 | MAYRFNGIGV | 0.000935 | 13 |
| HLA-A*33:01 | 1 | 924 | 933 | 10 | ANQFNSAIGK | 0.000935 | 14 |
| HLA-B*08:01 | 1 | 1013 | 1022 | 10 | IRAAEIRASA | 0.000935 | 20 |
| HLA-A*11:01 | 1 | 46 | 54 | 9 | SVLHSTQDL | 0.000934 | 9.8 |
| HLA-B*51:01 | 1 | 263 | 271 | 9 | AAYYVGYLQ | 0.000934 | 19 |
| HLA-B*57:01 | 1 | 291 | 299 | 9 | CALDPLSET | 0.000934 | 20 |
| HLA-A*26:01 | 1 | 497 | 506 | 10 | FQPTNGVGYY | 0.000934 | 12 |
| HLA-A*02:03 | 1 | 526 | 534 | 9 | GPKKSTNLV | 0.000934 | 16 |
| HLA-A*68:01 | 1 | 660 | 668 | 9 | YECDIPIGA | 0.000934 | 16 |
| HLA-B*07:02 | 1 | 728 | 736 | 9 | PVSMTKTSV | 0.000934 | 13 |
| HLA-A*01:01 | 1 | 1047 | 1056 | 10 | YHLMSFPQSA | 0.000934 | 16 |
| HLA-B*53:01 | 1 | 1121 | 1129 | 9 | FVSGNCDVV | 0.000934 | 9.6 |
| HLA-A*30:01 | 1 | 1181 | 1190 | 10 | KEIDRLNEVA | 0.000934 | 27 |
| HLA-A*33:01 | 1 | 153 | 161 | 9 | MESEFRVYS | 0.000933 | 14 |
| HLA-B*08:01 | 1 | 1018 | 1026 | 9 | IRASANLAA | 0.000933 | 20 |
| HLA-A*02:06 | 1 | 49 | 57 | 9 | HSTQDLFLP | 0.000932 | 20 |
| HLA-B*57:01 | 1 | 387 | 396 | 10 | LNLDLCFTNVY | 0.000932 | 20 |
| HLA-A*30:02 | 1 | 416 | 425 | 10 | GKIADYNYKL | 0.000932 | 25 |
| HLA-A*68:01 | 1 | 820 | 828 | 9 | DLLFNKVTL | 0.000932 | 16 |
| HLA-A*68:01 | 1 | 1105 | 1113 | 9 | TQRNFYEPQ | 0.000932 | 16 |
| HLA-A*26:01 | 1 | 70 | 79 | 10 | VSGTNGTKRF | 0.000931 | 12 |
| HLA-A*23:01 | 1 | 110 | 118 | 9 | LDSKTQSL | 0.000931 | 8.5 |
| HLA-A*32:01 | 1 | 124 | 133 | 10 | TNVVIKVECF | 0.000931 | 11 |
| HLA-A*01:01 | 1 | 526 | 534 | 9 | GPKKSTNLV | 0.000931 | 16 |
| HLA-B*44:03 | 1 | 877 | 886 | 10 | LLAGTITSGW | 0.000931 | 8.3 |
| HLA-B*53:01 | 1 | 1039 | 1047 | 9 | RVDFCGKGY | 0.000931 | 9.7 |
| HLA-A*68:02 | 1 | 1177 | 1186 | 10 | VNIQKEIDRL | 0.000931 | 16 |
| HLA-B*44:03 | 1 | 252 | 260 | 9 | GDSSSGWTA | 0.00093 | 8.3 |
| HLA-B*44:03 | 1 | 582 | 590 | 9 | LEILDITPC | 0.00093 | 8.3 |
| HLA-A*02:01 | 1 | 724 | 733 | 10 | TEILPVSMTK | 0.00093 | 15 |
| HLA-A*24:02 | 1 | 953 | 962 | 10 | NQNAQALNTL | 0.00093 | 8.3 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*02:03 | 1 | 956 | 964 | 9 | AQALNTLVK 0.00093 | 16 |
| HLA-A*02:06 | 1 | 1028 | 1037 | 10 | KMSECVLGQS 0.00093 | 20 |
| HLA-A*33:01 | 1 | 342 | 351 | 10 | FNATRFASVY 0.000929 | 14 |
| HLA-B*15:01 | 1 | 424 | 432 | 9 | KLPDDFTGC 0.000929 | 15 |
| HLA-B*07:02 | 1 | 20 | 28 | 9 | TRTQLPPAY 0.000928 | 13 |
| HLA-A*68:01 | 1 | 158 | 166 | 9 | RVYSSANNC 0.000928 | 16 |
| HLA-A*30:01 | 1 | 198 | 207 | 10 | DGYFKIYSKH 0.000928 | 27 |
| HLA-B*57:01 | 1 | 420 | 429 | 10 | DYNYKLPDDF 0.000928 | 20 |
| HLA-B*15:01 | 1 | 689 | 698 | 10 | SQSIIAYTMS 0.000928 | 15 |
| HLA-B*58:01 | 1 | 938 | 947 | 10 | LSSTASALGK 0.000928 | 14 |
| HLA-A*30:01 | 1 | 1133 | 1141 | 9 | VNNTVYDPL 0.000928 | 27 |
| HLA-A*31:01 | 1 | 453 | 461 | 9 | YRLFRRKSNL 0.000927 | 16 |
| HLA-B*51:01 | 1 | 488 | 497 | 10 | CYFPLQSYGF 0.000927 | 19 |
| HLA-A*30:02 | 1 | 513 | 522 | 10 | LSFELLHAPA 0.000927 | 25 |
| HLA-B*08:01 | 1 | 688 | 697 | 10 | ASQSIIAYTM 0.000927 | 20 |
| HLA-A*02:01 | 1 | 1119 | 1128 | 10 | NTFVSGNCDV 0.000927 | 15 |
| HLA-A*68:01 | 1 | 14 | 23 | 10 | QCVNLTRTQ 0.000926 | 16 |
| HLA-B*08:01 | 1 | 46 | 55 | 10 | SVLHSTQDLF 0.000926 | 20 |
| HLA-B*58:01 | 1 | 47 | 56 | 10 | VLHSTQDLFL 0.000926 | 14 |
| HLA-B*08:01 | 1 | 53 | 61 | 9 | DLFLPFFSN 0.000926 | 20 |
| HLA-A*26:01 | 1 | 54 | 62 | 9 | LFLPFFSNV 0.000926 | 12 |
| HLA-B*40:01 | 1 | 83 | 92 | 10 | VLPFNDGVYF 0.000926 | 7.8 |
| HLA-A*02:06 | 1 | 150 | 158 | 9 | KSWMESEFR 0.000926 | 20 |
| HLA-A*30:01 | 1 | 154 | 163 | 10 | ESEFRVYSSA 0.000926 | 27 |
| HLA-A*68:02 | 1 | 295 | 303 | 9 | PLSETKCTL 0.000926 | 16 |
| HLA-A*31:01 | 1 | 369 | 377 | 9 | YNSASFSTF 0.000926 | 16 |
| HLA-B*57:01 | 1 | 416 | 425 | 10 | GKIADYNYKL 0.000926 | 20 |
| HLA-B*44:02 | 1 | 895 | 904 | 10 | QIPFAMQMAY 0.000926 | 8.2 |
| HLA-A*68:02 | 1 | 974 | 983 | 10 | SSVLNDILSR 0.000926 | 16 |
| HLA-A*31:01 | 1 | 199 | 208 | 10 | GYFKIYSKHT 0.000925 | 16 |
| HLA-B*35:01 | 1 | 208 | 217 | 10 | TPINLVRDLP 0.000925 | 11 |
| HLA-A*68:02 | 1 | 242 | 250 | 9 | LALHRSYLT 0.000925 | 16 |
| HLA-B*58:01 | 1 | 246 | 254 | 9 | RSYLTPGDS 0.000925 | 14 |
| HLA-A*68:01 | 1 | 445 | 453 | 9 | VGGNYNYLY 0.000925 | 16 |
| HLA-B*51:01 | 1 | 626 | 635 | 10 | ADQLTPTWRV 0.000925 | 19 |
| HLA-A*68:02 | 1 | 636 | 644 | 9 | YSTGSNVFQ 0.000925 | 16 |
| HLA-A*30:02 | 1 | 677 | 686 | 10 | QTNSPRRARS 0.000925 | 25 |
| HLA-B*08:01 | 1 | 895 | 904 | 10 | QIPFAMQMAY 0.000925 | 20 |
| HLA-A*33:01 | 1 | 955 | 963 | 9 | NAQALNTLV 0.000925 | 14 |
| HLA-A*30:02 | 1 | 159 | 167 | 9 | VYSSANNCT 0.000924 | 25 |
| HLA-B*53:01 | 1 | 782 | 790 | 9 | FAQVKQIYK 0.000924 | 9.7 |
| HLA-B*53:01 | 1 | 1048 | 1056 | 9 | HLMSFPQSA 0.000924 | 9.7 |
| HLA-A*30:01 | 1 | 242 | 251 | 10 | LALHRSYLTP 0.000923 | 27 |
| HLA-A*02:03 | 1 | 267 | 275 | 9 | VGYLQPRTF 0.000923 | 17 |
| HLA-A*30:01 | 1 | 278 | 287 | 10 | KYNENGTITD 0.000923 | 27 |
| HLA-A*02:03 | 1 | 333 | 342 | 10 | TNLCPFGEVF 0.000923 | 17 |
| HLA-A*01:01 | 1 | 948 | 957 | 10 | LQDVVNQNAQ 0.000923 | 16 |
| HLA-A*33:01 | 1 | 1197 | 1205 | 9 | LIDLQELGK 0.000923 | 14 |
| HLA-A*30:02 | 1 | 6 | 15 | 10 | VLLPLVSSQC 0.000922 | 25 |
| HLA-A*33:01 | 1 | 102 | 110 | 9 | RGWIFGTTL 0.000922 | 14 |
| HLA-B*07:02 | 1 | 193 | 201 | 9 | VFKNIDGYF 0.000922 | 13 |
| HLA-B*15:01 | 1 | 267 | 276 | 10 | VGYLQPRTF 0.000922 | 15 |
| HLA-B*08:01 | 1 | 578 | 587 | 10 | DPQTLIELDI 0.000922 | 20 |
| HLA-B*44:03 | 1 | 746 | 755 | 10 | STECSNLLLQ 0.000922 | 8.3 |
| HLA-B*40:01 | 1 | 885 | 894 | 10 | GWTFGAGAAL 0.000922 | 7.8 |
| HLA-A*26:01 | 1 | 923 | 931 | 9 | IANQFNSAI 0.000922 | 12 |
| HLA-B*07:02 | 1 | 988 | 996 | 9 | EAEVQIDRL 0.000922 | 13 |
| HLA-B*57:01 | 1 | 1178 | 1186 | 9 | NIQKEIDRL 0.000922 | 20 |
| HLA-A*30:02 | 1 | 621 | 629 | 9 | PVAIHADQL 0.000921 | 25 |
| HLA-A*30:02 | 1 | 760 | 768 | 9 | CTQLNRALT 0.000921 | 25 |
| HLA-A*11:01 | 1 | 957 | 965 | 9 | QALNTLVKQ 0.000921 | 9.8 |
| HLA-B*44:03 | 1 | 1130 | 1138 | 9 | IGIVNNTVY 0.000921 | 8.3 |
| HLA-A*30:02 | 1 | 1174 | 1182 | 9 | ASVVNIQKE 0.000921 | 25 |
| HLA-A*68:02 | 1 | 19 | 28 | 10 | TTRTQLPPAY 0.00092 | 16 |
| HLA-A*32:01 | 1 | 22 | 30 | 9 | TQLPPAYTN 0.00092 | 11 |
| HLA-A*02:03 | 1 | 194 | 203 | 10 | FKNIDGYFKI 0.00092 | 17 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*02:01 | 1 | 349 | 358 | 10 | SVYAWNRKRI 0.00092 | 15 |
| HLA-A*30:02 | 1 | 359 | 367 | 9 | SNCVADYSV 0.00092 | 25 |
| HLA-A*30:02 | 1 | 753 | 762 | 10 | LLQYGSFCTQ 0.00092 | 25 |
| HLA-A*30:01 | 1 | 804 | 813 | 10 | QILPDPSKPS 0.00092 | 27 |
| HLA-A*33:01 | 1 | 864 | 873 | 10 | LLTDEMIAQY 0.00092 | 14 |
| HLA-A*31:01 | 1 | 1202 | 1211 | 10 | ELGKYEQYIK 0.00092 | 16 |
| HLA-A*11:01 | 1 | 136 | 145 | 10 | CNDPFLGVYY 0.000919 | 9.8 |
| HLA-B*40:01 | 1 | 394 | 402 | 9 | NVYADSFVI 0.000919 | 7.8 |
| HLA-B*44:03 | 1 | 666 | 674 | 9 | IGAGICASY 0.000919 | 8.3 |
| HLA-B*53:01 | 1 | 746 | 754 | 9 | STECNLLL 0.000919 | 9.7 |
| HLA-B*58:01 | 1 | 940 | 949 | 10 | STASALGKLQ 0.000919 | 14 |
| HLA-A*02:03 | 1 | 89 | 98 | 10 | GVYFASTEKS 0.000918 | 17 |
| HLA-A*68:01 | 1 | 231 | 239 | 9 | IGINITRFQ 0.000918 | 16 |
| HLA-B*08:01 | 1 | 582 | 590 | 9 | LEILDITPC 0.000918 | 20 |
| HLA-B*40:01 | 1 | 676 | 684 | 9 | TQTNSPRRA 0.000918 | 7.8 |
| HLA-A*01:01 | 1 | 685 | 693 | 9 | RSVASQSII 0.000918 | 16 |
| HLA-A*03:01 | 1 | 845 | 853 | 9 | AARDLICAQ 0.000918 | 12 |
| HLA-A*30:02 | 1 | 856 | 864 | 9 | NGLTVLPPL 0.000918 | 25 |
| HLA-A*02:01 | 1 | 891 | 900 | 10 | GAALQIPFAM 0.000918 | 15 |
| HLA-A*02:01 | 1 | 1062 | 1071 | 10 | FLHVTYVPAQ 0.000918 | 15 |
| HLA-A*30:01 | 1 | 1076 | 1084 | 9 | TTAPAICHD 0.000918 | 27 |
| HLA-A*03:01 | 1 | 1206 | 1215 | 10 | YEQYIKWPWY 0.000918 | 12 |
| HLA-B*07:02 | 1 | 30 | 38 | 9 | NSFTRGVYY 0.000917 | 13 |
| HLA-B*53:01 | 1 | 120 | 128 | 9 | VNATNVVI 0.000917 | 9.7 |
| HLA-B*35:01 | 1 | 241 | 249 | 9 | LLALHRSYL 0.000917 | 11 |
| HLA-A*26:01 | 1 | 285 | 293 | 9 | ITDAVDICAL 0.000917 | 12 |
| HLA-A*02:06 | 1 | 307 | 316 | 10 | TVEKGIYQTS 0.000917 | 21 |
| HLA-B*08:01 | 1 | 705 | 714 | 10 | VAYSNNISIAI 0.000917 | 20 |
| HLA-B*53:01 | 1 | 968 | 976 | 9 | SNFGAISSV 0.000917 | 9.7 |
| HLA-B*44:02 | 1 | 1140 | 1148 | 9 | PLQPELDSF 0.000917 | 8.3 |
| HLA-B*51:01 | 1 | 1154 | 1162 | 9 | KYFKNHTSP 0.000917 | 19 |
| HLA-B*57:01 | 1 | 69 | 78 | 10 | HVSGTNGTKR 0.000916 | 20 |
| HLA-A*03:01 | 1 | 102 | 110 | 9 | RGWIFGTTL 0.000916 | 12 |
| HLA-B*44:02 | 1 | 323 | 331 | 9 | TESIVRFPN 0.000916 | 8.3 |
| HLA-A*01:01 | 1 | 611 | 620 | 10 | LYQDVNCTEV 0.000916 | 16 |
| HLA-B*51:01 | 1 | 776 | 785 | 10 | KNTQEVFAQV 0.000916 | 19 |
| HLA-A*30:01 | 1 | 878 | 886 | 9 | LAGTITSGW 0.000916 | 27 |
| HLA-A*02:01 | 1 | 1021 | 1029 | 9 | SANLAATKM 0.000916 | 15 |
| HLA-A*01:01 | 1 | 1082 | 1091 | 10 | CHDGKAHFPR 0.000916 | 16 |
| HLA-B*44:02 | 1 | 1259 | 1268 | 10 | DDSEPVLKGV 0.000916 | 8.3 |
| HLA-B*15:01 | 1 | 67 | 75 | 9 | AIHVSQTNG 0.000915 | 15 |
| HLA-B*07:02 | 1 | 81 | 89 | 9 | NPVLPFNDG 0.000915 | 13 |
| HLA-A*26:01 | 1 | 232 | 241 | 10 | GINITRFQTL 0.000915 | 12 |
| HLA-A*32:01 | 1 | 265 | 273 | 9 | YYVGYLQPR 0.000915 | 11 |
| HLA-B*57:01 | 1 | 550 | 558 | 9 | GVLTESNKK 0.000915 | 20 |
| HLA-A*33:01 | 1 | 554 | 563 | 10 | ESNKKFLPFQ 0.000915 | 14 |
| HLA-A*02:06 | 1 | 635 | 643 | 9 | VYSTGSNVF 0.000915 | 21 |
| HLA-A*01:01 | 1 | 676 | 685 | 10 | TQTNSPRRAR 0.000915 | 16 |
| HLA-A*01:01 | 1 | 820 | 828 | 9 | DLLFNKVTL 0.000915 | 16 |
| HLA-B*15:01 | 1 | 827 | 836 | 10 | TLADAGFIKQ 0.000915 | 15 |
| HLA-B*35:01 | 1 | 60 | 68 | 9 | SNVTWFHAI 0.000914 | 11 |
| HLA-A*02:01 | 1 | 328 | 336 | 9 | RFPNITNLC 0.000914 | 15 |
| HLA-A*30:02 | 1 | 572 | 580 | 9 | TTDAVRDPQ 0.000914 | 25 |
| HLA-A*03:01 | 1 | 604 | 613 | 10 | TSNQVAVLYQ 0.000914 | 12 |
| HLA-A*31:01 | 1 | 627 | 636 | 10 | DQLTPTWRVY 0.000914 | 17 |
| HLA-A*32:01 | 1 | 1146 | 1155 | 10 | DSFKEELDKY 0.000914 | 11 |
| HLA-B*58:01 | 1 | 1169 | 1178 | 10 | ISGINASVVN 0.000914 | 14 |
| HLA-A*30:01 | 1 | 23 | 32 | 10 | QLPPAYTNSF 0.000913 | 28 |
| HLA-A*02:06 | 1 | 181 | 189 | 9 | GKQGNFKNL 0.000913 | 21 |
| HLA-A*33:01 | 1 | 624 | 633 | 10 | IHADQLTPTW 0.000913 | 14 |
| HLA-B*51:01 | 1 | 930 | 938 | 9 | AIGKIQDSL 0.000913 | 19 |
| HLA-B*08:01 | 1 | 34 | 43 | 10 | RGVYYPDKVF 0.000912 | 20 |
| HLA-B*53:01 | 1 | 109 | 118 | 10 | TLDSKTQSL 0.000912 | 9.7 |
| HLA-A*01:01 | 1 | 370 | 379 | 10 | NSASFSTFKC 0.000912 | 16 |
| HLA-A*32:01 | 1 | 567 | 576 | 10 | RDIADTTDAV 0.000912 | 11 |
| HLA-B*53:01 | 1 | 578 | 586 | 9 | DPQTLEILD 0.000912 | 9.7 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|
| HLA-A*24:02 | 1 | 604 | 612 | 9 | TSNQVAVLY | 0.000912 | 8.4 |
| HLA-A*23:01 | 1 | 723 | 731 | 9 | TTEILPVSM | 0.000912 | 8.5 |
| HLA-A*23:01 | 1 | 734 | 742 | 9 | TSVDCTMYI | 0.000912 | 8.5 |
| HLA-A*30:02 | 1 | 745 | 753 | 9 | DSTECSNLL | 0.000912 | 25 |
| HLA-B*07:02 | 1 | 762 | 770 | 9 | QLNRALTGI | 0.000912 | 13 |
| HLA-B*35:01 | 1 | 788 | 797 | 10 | IYKTPPIKDF | 0.000912 | 11 |
| HLA-B*15:01 | 1 | 815 | 824 | 10 | RSFIEDLLFN | 0.000912 | 15 |
| HLA-A*02:01 | 1 | 989 | 997 | 9 | AEVQIDRLI | 0.000912 | 15 |
| HLA-A*33:01 | 1 | 1113 | 1121 | 9 | QIITDNTF | 0.000912 | 14 |
| HLA-B*40:01 | 1 | 1124 | 1132 | 9 | GNCVVVIGI | 0.000912 | 7.8 |
| HLA-B*53:01 | 1 | 1220 | 1228 | 9 | FIAGLIAIV | 0.000912 | 9.7 |
| HLA-B*44:03 | 1 | 60 | 68 | 9 | SNVTWFHAI | 0.000911 | 8.3 |
| HLA-B*35:01 | 1 | 324 | 332 | 9 | ESIVRFPNI | 0.000911 | 11 |
| HLA-A*68:02 | 1 | 489 | 497 | 9 | YFPLQSYGF | 0.000911 | 16 |
| HLA-A*31:01 | 1 | 758 | 767 | 10 | SFCTQLNRAL | 0.000911 | 17 |
| HLA-B*07:02 | 1 | 926 | 934 | 9 | QFNSAIGKI | 0.000911 | 13 |
| HLA-A*30:02 | 1 | 234 | 243 | 10 | NITRFQTLA | 0.00091 | 25 |
| HLA-A*33:01 | 1 | 379 | 387 | 9 | CYGVSPTKL | 0.00091 | 14 |
| HLA-A*30:01 | 1 | 508 | 516 | 9 | YRVVLSFE | 0.00091 | 28 |
| HLA-A*02:06 | 1 | 795 | 803 | 9 | KDFGGFNFS | 0.00091 | 21 |
| HLA-A*02:06 | 1 | 26 | 34 | 9 | PAYTNSFTR | 0.000909 | 21 |
| HLA-B*35:01 | 1 | 76 | 84 | 9 | TKRFDNPVL | 0.000909 | 11 |
| HLA-A*02:06 | 1 | 213 | 222 | 10 | VRDLPQGFS | 0.000909 | 21 |
| HLA-B*57:01 | 1 | 261 | 270 | 10 | GAAAYVGYL | 0.000909 | 20 |
| HLA-A*31:01 | 1 | 379 | 387 | 9 | CYGVSPTKL | 0.000909 | 17 |
| HLA-B*51:01 | 1 | 710 | 719 | 10 | NSIAIPTNFT | 0.000909 | 19 |
| HLA-A*30:02 | 1 | 1062 | 1070 | 9 | FLHVTVVPA | 0.000909 | 25 |
| HLA-A*30:01 | 1 | 1156 | 1164 | 9 | FKNHTSPDV | 0.000909 | 28 |
| HLA-B*15:01 | 1 | 311 | 320 | 10 | GIYQTSNFRV | 0.000908 | 15 |
| HLA-B*57:01 | 1 | 362 | 371 | 10 | VADYSVLVNS | 0.000908 | 20 |
| HLA-A*02:06 | 1 | 582 | 590 | 9 | LEILDITPC | 0.000908 | 21 |
| HLA-A*02:01 | 1 | 686 | 695 | 10 | SVASQSIIAY | 0.000908 | 15 |
| HLA-B*57:01 | 1 | 883 | 892 | 10 | TSGWTFGAGA | 0.000908 | 20 |
| HLA-A*30:01 | 1 | 244 | 252 | 9 | LHRSYLTGP | 0.000907 | 28 |
| HLA-A*23:01 | 1 | 305 | 313 | 9 | SFTVEKGIY | 0.000907 | 8.5 |
| HLA-A*68:02 | 1 | 316 | 324 | 9 | SNFRVQPT | 0.000907 | 16 |
| HLA-A*30:01 | 1 | 666 | 675 | 10 | IGAGICASYQ | 0.000907 | 28 |
| HLA-A*26:01 | 1 | 1059 | 1068 | 10 | GVVFLHVTVV | 0.000907 | 12 |
| HLA-B*44:03 | 1 | 1209 | 1217 | 9 | YIKWPWYIW | 0.000907 | 8.3 |
| HLA-A*30:01 | 1 | 1226 | 1235 | 10 | AIVMVTIMLC | 0.000907 | 28 |
| HLA-B*08:01 | 1 | 19 | 28 | 10 | TTRTQLPPAY | 0.000906 | 21 |
| HLA-A*02:01 | 1 | 291 | 300 | 10 | CALDPLSETK | 0.000906 | 15 |
| HLA-B*07:02 | 1 | 682 | 691 | 10 | RRARSVASQS | 0.000906 | 13 |
| HLA-A*01:01 | 1 | 750 | 759 | 10 | SNLLLQYGSF | 0.000906 | 16 |
| HLA-B*58:01 | 1 | 784 | 792 | 9 | QVKQIYKTP | 0.000906 | 14 |
| HLA-B*57:01 | 1 | 1019 | 1027 | 9 | RASANLAAT | 0.000906 | 20 |
| HLA-A*30:02 | 1 | 1169 | 1177 | 9 | ISGINASVV | 0.000906 | 25 |
| HLA-A*30:01 | 1 | 1188 | 1196 | 9 | EVAKNLNES | 0.000906 | 28 |
| HLA-B*58:01 | 1 | 1212 | 1220 | 9 | WPWYIWLGF | 0.000906 | 14 |
| HLA-B*51:01 | 1 | 21 | 29 | 9 | RTQLPPAYT | 0.000905 | 19 |
| HLA-A*30:02 | 1 | 302 | 311 | 10 | TLKSFTVEKG | 0.000905 | 25 |
| HLA-A*23:01 | 1 | 509 | 518 | 10 | RVVLSFELL | 0.000905 | 8.6 |
| HLA-A*30:02 | 1 | 611 | 620 | 10 | LYQDVNCTEV | 0.000905 | 25 |
| HLA-A*31:01 | 1 | 704 | 712 | 9 | SVAYSNNSI | 0.000905 | 17 |
| HLA-A*26:01 | 1 | 755 | 763 | 9 | QYGSFCTQL | 0.000905 | 12 |
| HLA-B*35:01 | 1 | 827 | 835 | 9 | TLADAGFIK | 0.000905 | 11 |
| HLA-B*58:01 | 1 | 964 | 973 | 10 | KQLSSNFGAI | 0.000905 | 14 |
| HLA-B*57:01 | 1 | 1013 | 1022 | 10 | IRAAEIRASA | 0.000905 | 20 |
| HLA-B*07:02 | 1 | 28 | 37 | 10 | YTNSFTRGVY | 0.000904 | 13 |
| HLA-B*40:01 | 1 | 56 | 64 | 9 | LPFFSNVTW | 0.000904 | 7.8 |
| HLA-B*51:01 | 1 | 253 | 262 | 10 | DSSSGWTAGA | 0.000904 | 19 |
| HLA-A*24:02 | 1 | 422 | 431 | 10 | NYKLPDDFTG | 0.000904 | 8.4 |
| HLA-A*30:02 | 1 | 548 | 557 | 10 | GTGVLTESNK | 0.000904 | 25 |
| HLA-A*31:01 | 1 | 765 | 774 | 10 | RALTGIAVEQ | 0.000904 | 17 |
| HLA-B*57:01 | 1 | 804 | 812 | 9 | QILPDPSKP | 0.000904 | 20 |
| HLA-B*58:01 | 1 | 1114 | 1122 | 9 | IITDNTFV | 0.000904 | 14 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*08:01 | 1 | 50 | 59 | 10 | STQDLFLPFF 0.000903 | 21 |
| HLA-A*01:01 | 1 | 538 | 546 | 9 | CVNFNFNGL 0.000903 | 16 |
| HLA-A*24:02 | 1 | 973 | 981 | 9 | ISSVLNDIL 0.000903 | 8.4 |
| HLA-B*53:01 | 1 | 1111 | 1119 | 9 | EPQIITTDN 0.000903 | 9.8 |
| HLA-A*31:01 | 1 | 206 | 215 | 10 | KHTPINLVRD 0.000902 | 17 |
| HLA-A*01:01 | 1 | 239 | 247 | 9 | QTLALHRS 0.000902 | 16 |
| HLA-A*24:02 | 1 | 271 | 279 | 9 | QPRTFLLKY 0.000902 | 8.4 |
| HLA-B*57:01 | 1 | 440 | 449 | 10 | NLDSKVGNGY 0.000902 | 20 |
| HLA-B*58:01 | 1 | 648 | 656 | 9 | GCLIGAEHV 0.000902 | 14 |
| HLA-A*30:01 | 1 | 698 | 706 | 9 | SLGAENSV 0.000902 | 28 |
| HLA-A*26:01 | 1 | 711 | 719 | 9 | SIAIPTNFT 0.000902 | 12 |
| HLA-B*40:01 | 1 | 764 | 772 | 9 | NRALTGI 0.000902 | 7.8 |
| HLA-A*30:02 | 1 | 980 | 989 | 10 | ILSRLDKVEA 0.000902 | 25 |
| HLA-B*58:01 | 1 | 988 | 997 | 10 | EAEVQIDRLI 0.000902 | 14 |
| HLA-A*30:02 | 1 | 13 | 22 | 10 | SQCVNLTTRT 0.000901 | 25 |
| HLA-A*01:01 | 1 | 37 | 45 | 9 | YYPDKVFRS 0.000901 | 16 |
| HLA-B*51:01 | 1 | 201 | 209 | 9 | FKIYSKHTP 0.000901 | 19 |
| HLA-A*02:03 | 1 | 306 | 314 | 9 | FTVEKGIYQ 0.000901 | 17 |
| HLA-B*51:01 | 1 | 354 | 362 | 9 | NRKRISNCV 0.000901 | 19 |
| HLA-A*23:01 | 1 | 361 | 369 | 9 | CVADYSVLY 0.000901 | 8.6 |
| HLA-A*03:01 | 1 | 721 | 729 | 9 | SVTTEILPV 0.000901 | 13 |
| HLA-A*02:01 | 1 | 167 | 176 | 10 | TFEYVSQPFL 0.0009 | 15 |
| HLA-A*33:01 | 1 | 316 | 324 | 9 | SNFRVQPT 0.0009 | 14 |
| HLA-B*53:01 | 1 | 467 | 475 | 9 | DISTEYQA 0.0009 | 9.8 |
| HLA-A*02:01 | 1 | 537 | 546 | 10 | KCVNFNFNGL 0.0009 | 15 |
| HLA-A*30:02 | 1 | 892 | 901 | 10 | AALQIPFAMQ 0.0009 | 25 |
| HLA-A*02:01 | 1 | 1225 | 1234 | 10 | IAIVMVTIML 0.0009 | 15 |
| HLA-A*68:02 | 1 | 291 | 300 | 10 | CALDPLSETK 0.000899 | 16 |
| HLA-B*51:01 | 1 | 339 | 347 | 9 | GEVFNATRF 0.000899 | 19 |
| HLA-A*03:01 | 1 | 625 | 633 | 9 | HADQLTPTW 0.000899 | 13 |
| HLA-B*44:03 | 1 | 660 | 669 | 10 | YECDIPIGAG 0.000899 | 8.4 |
| HLA-A*30:02 | 1 | 696 | 705 | 10 | TMSLGAENSV 0.000899 | 25 |
| HLA-A*68:02 | 1 | 797 | 806 | 10 | FGGFNFSQIL 0.000899 | 16 |
| HLA-B*08:01 | 1 | 919 | 928 | 10 | NQKLIANQFN 0.000899 | 21 |
| HLA-B*44:02 | 1 | 56 | 65 | 10 | LPFFSNVTWF 0.000898 | 8.4 |
| HLA-B*08:01 | 1 | 308 | 316 | 9 | VEKGIYQTS 0.000898 | 21 |
| HLA-A*26:01 | 1 | 344 | 352 | 9 | ATRFASVYA 0.000898 | 12 |
| HLA-B*51:01 | 1 | 524 | 533 | 10 | VCGPKKSTNL 0.000898 | 19 |
| HLA-A*31:01 | 1 | 877 | 886 | 10 | LLAGTITSGW 0.000898 | 17 |
| HLA-A*02:01 | 1 | 890 | 899 | 10 | AGAALQIPFA 0.000898 | 15 |
| HLA-A*30:02 | 1 | 890 | 899 | 10 | AGAALQIPFA 0.000898 | 25 |
| HLA-B*51:01 | 1 | 960 | 968 | 9 | NTLVKQLSS 0.000898 | 19 |
| HLA-A*02:03 | 1 | 13 | 22 | 10 | SQCVNLTTRT 0.000897 | 17 |
| HLA-A*33:01 | 1 | 188 | 196 | 9 | NLREFVFKN 0.000897 | 14 |
| HLA-A*30:01 | 1 | 332 | 340 | 9 | ITNLCPFGE 0.000897 | 28 |
| HLA-B*35:01 | 1 | 550 | 559 | 10 | GVLTESNKKF 0.000897 | 11 |
| HLA-A*01:01 | 1 | 577 | 585 | 9 | RDPQTLEIL 0.000897 | 16 |
| HLA-A*03:01 | 1 | 910 | 918 | 9 | GVTQNVLYE 0.000897 | 13 |
| HLA-A*32:01 | 1 | 992 | 1001 | 10 | QIDRLITGRL 0.000897 | 11 |
| HLA-B*35:01 | 1 | 1005 | 1013 | 9 | QTYVTQLI 0.000897 | 11 |
| HLA-A*11:01 | 1 | 1151 | 1159 | 9 | ELDKYFKNH 0.000897 | 9.9 |
| HLA-A*02:03 | 1 | 36 | 44 | 9 | VYYPDKVFR 0.000896 | 17 |
| HLA-A*26:01 | 1 | 349 | 358 | 10 | SVYAWNKRRI 0.000896 | 12 |
| HLA-A*02:06 | 1 | 360 | 368 | 9 | NCVADYSVL 0.000896 | 21 |
| HLA-A*31:01 | 1 | 368 | 376 | 9 | LYNSASFST 0.000896 | 17 |
| HLA-A*01:01 | 1 | 400 | 408 | 9 | FVIRGDEVR 0.000896 | 16 |
| HLA-A*01:01 | 1 | 550 | 558 | 9 | GVLTESNKK 0.000896 | 16 |
| HLA-A*30:01 | 1 | 664 | 672 | 9 | IPIGAGICA 0.000896 | 28 |
| HLA-B*08:01 | 1 | 696 | 705 | 10 | TMSLGAENSV 0.000896 | 21 |
| HLA-A*23:01 | 1 | 746 | 754 | 9 | STECNLLL 0.000896 | 8.6 |
| HLA-B*58:01 | 1 | 956 | 964 | 9 | AQALNTLVK 0.000896 | 14 |
| HLA-B*15:01 | 1 | 969 | 977 | 9 | NFGAISSVL 0.000896 | 15 |
| HLA-A*02:01 | 1 | 110 | 118 | 9 | LDSKTQSL 0.000895 | 15 |
| HLA-A*31:01 | 1 | 113 | 121 | 9 | KTQSLLVN 0.000895 | 17 |
| HLA-A*33:01 | 1 | 464 | 473 | 10 | FERDISTEY 0.000895 | 14 |
| HLA-B*07:02 | 1 | 505 | 514 | 10 | YQPYRVVLS 0.000895 | 13 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*32:01 | 1 | 638 | 646 | 9 | TGSNVFQTR 0.000895 | 11 |
| HLA-B*08:01 | 1 | 913 | 922 | 10 | QNVLYENQKL 0.000895 | 21 |
| HLA-A*03:01 | 1 | 1130 | 1138 | 9 | IGIVNNTVY 0.000895 | 13 |
| HLA-A*68:01 | 1 | 168 | 177 | 10 | FEYVSQPFLM 0.000894 | 16 |
| HLA-A*31:01 | 1 | 584 | 592 | 9 | ILDITPCSF 0.000894 | 17 |
| HLA-A*02:06 | 1 | 657 | 666 | 10 | NNSYECDIPI 0.000894 | 21 |
| HLA-A*01:01 | 1 | 1175 | 1183 | 9 | SVVNIQKEI 0.000894 | 16 |
| HLA-A*33:01 | 1 | 1258 | 1266 | 9 | EDDSEPVLK 0.000894 | 14 |
| HLA-B*44:02 | 1 | 1258 | 1266 | 9 | EDDSEPVLK 0.000894 | 8.4 |
| HLA-A*31:01 | 1 | 123 | 131 | 9 | ATNVVIKVC 0.000893 | 17 |
| HLA-B*15:01 | 1 | 135 | 143 | 9 | FCNDPFLGV 0.000893 | 15 |
| HLA-A*30:01 | 1 | 407 | 416 | 10 | VRQIAPGQTG 0.000893 | 28 |
| HLA-B*44:03 | 1 | 550 | 559 | 10 | GVLTESNKKF 0.000893 | 8.4 |
| HLA-A*30:01 | 1 | 612 | 620 | 9 | YQDVNCTEV 0.000893 | 28 |
| HLA-B*35:01 | 1 | 677 | 685 | 9 | QTNSPRRAR 0.000893 | 11 |
| HLA-A*30:01 | 1 | 1206 | 1215 | 10 | YEQYIKWPWY 0.000893 | 28 |
| HLA-B*53:01 | 1 | 1206 | 1215 | 10 | YEQYIKWPWY 0.000893 | 9.8 |
| HLA-B*35:01 | 1 | 478 | 487 | 10 | TPCNGVEGFN 0.000892 | 11 |
| HLA-A*33:01 | 1 | 873 | 881 | 9 | YTSALLAGT 0.000892 | 14 |
| HLA-B*44:02 | 1 | 926 | 934 | 9 | QFNSAIGKI 0.000892 | 8.4 |
| HLA-B*15:01 | 1 | 1011 | 1019 | 9 | QLIRAAEIR 0.000892 | 15 |
| HLA-A*30:02 | 1 | 1159 | 1167 | 9 | HTSPDVDLG 0.000892 | 25 |
| HLA-A*01:01 | 1 | 92 | 101 | 10 | FASTEKSNII 0.000891 | 16 |
| HLA-A*01:01 | 1 | 207 | 216 | 10 | HTPINLVRDL 0.000891 | 16 |
| HLA-A*68:01 | 1 | 233 | 241 | 9 | INITRFQTL 0.000891 | 16 |
| HLA-A*02:01 | 1 | 255 | 264 | 10 | SSGWTAGAAA 0.000891 | 15 |
| HLA-A*33:01 | 1 | 443 | 451 | 9 | SKVGGNYNY 0.000891 | 14 |
| HLA-A*01:01 | 1 | 762 | 770 | 9 | QLNRALTGI 0.000891 | 16 |
| HLA-A*33:01 | 1 | 845 | 853 | 9 | AARDLICAQ 0.000891 | 14 |
| HLA-A*02:01 | 1 | 1065 | 1073 | 9 | VTYVPAQEK 0.000891 | 15 |
| HLA-A*01:01 | 1 | 420 | 429 | 10 | DYNYKLPDDF 0.00089 | 16 |
| HLA-A*02:01 | 1 | 453 | 462 | 10 | YRLFRRKSNL 0.00089 | 15 |
| HLA-A*30:01 | 1 | 539 | 547 | 9 | VNFNFNGLT 0.00089 | 28 |
| HLA-B*58:01 | 1 | 590 | 599 | 10 | CSFGGVSVIT 0.00089 | 14 |
| HLA-B*51:01 | 1 | 867 | 875 | 9 | DEMIAQYTS 0.00089 | 19 |
| HLA-B*57:01 | 1 | 5 | 13 | 9 | LVLLPLVSS 0.000889 | 20 |
| HLA-A*24:02 | 1 | 101 | 110 | 10 | IRGWIFGTTL 0.000889 | 8.5 |
| HLA-A*32:01 | 1 | 104 | 113 | 10 | WIFGTTLDSK 0.000889 | 11 |
| HLA-A*31:01 | 1 | 232 | 241 | 10 | GINITRFQTL 0.000889 | 17 |
| HLA-A*32:01 | 1 | 238 | 246 | 9 | FQTLALHR 0.000889 | 11 |
| HLA-B*58:01 | 1 | 502 | 510 | 9 | GVGYPYRV 0.000889 | 14 |
| HLA-A*68:01 | 1 | 516 | 524 | 9 | ELLHAPATV 0.000889 | 16 |
| HLA-A*30:02 | 1 | 544 | 552 | 9 | NGLTGTGVL 0.000889 | 25 |
| HLA-B*51:01 | 1 | 553 | 562 | 10 | TESNKKFLPF 0.000889 | 19 |
| HLA-B*58:01 | 1 | 845 | 854 | 10 | AARDLICAQK 0.000889 | 14 |
| HLA-A*33:01 | 1 | 903 | 911 | 9 | AYRFNGIGV 0.000889 | 14 |
| HLA-B*58:01 | 1 | 1014 | 1023 | 10 | RAAEIRASAN 0.000889 | 14 |
| HLA-A*01:01 | 1 | 155 | 163 | 9 | SEFRVYSSA 0.000888 | 16 |
| HLA-B*08:01 | 1 | 184 | 193 | 10 | GNFKNLREFV 0.000888 | 21 |
| HLA-B*57:01 | 1 | 246 | 254 | 9 | RSYLTPGDS 0.000888 | 20 |
| HLA-B*58:01 | 1 | 537 | 545 | 9 | KCVNFNFG 0.000888 | 14 |
| HLA-B*53:01 | 1 | 621 | 629 | 9 | PVAIHADQL 0.000888 | 9.8 |
| HLA-A*01:01 | 1 | 705 | 713 | 9 | VAYSNNSIA 0.000888 | 16 |
| HLA-A*02:01 | 1 | 705 | 714 | 10 | VAYSNNSIAI 0.000888 | 15 |
| HLA-A*31:01 | 1 | 762 | 770 | 9 | QLNRALTGI 0.000888 | 17 |
| HLA-B*51:01 | 1 | 829 | 837 | 9 | ADAGFIKQY 0.000888 | 19 |
| HLA-A*33:01 | 1 | 918 | 927 | 10 | ENQKLIANQF 0.000888 | 14 |
| HLA-A*30:02 | 1 | 1014 | 1023 | 10 | RAAEIRASAN 0.000888 | 25 |
| HLA-A*32:01 | 1 | 1105 | 1114 | 10 | TQRNFYEQI 0.000888 | 11 |
| HLA-A*26:01 | 1 | 37 | 45 | 9 | YYPDKVFRS 0.000887 | 12 |
| HLA-A*01:01 | 1 | 56 | 65 | 10 | LPFFSNVTWF 0.000887 | 16 |
| HLA-A*01:01 | 1 | 235 | 244 | 10 | ITRFQTLAL 0.000887 | 16 |
| HLA-A*30:02 | 1 | 317 | 326 | 10 | NFRVQPTESI 0.000887 | 25 |
| HLA-A*68:01 | 1 | 723 | 732 | 10 | TTEILPVSMT 0.000887 | 16 |
| HLA-A*02:01 | 1 | 786 | 795 | 10 | KQIYKTPPIK 0.000887 | 15 |
| HLA-A*02:06 | 1 | 1135 | 1143 | 9 | NTVYDPLQP 0.000887 | 21 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*11:01 | 1 | 1181 | 1189 | 9 | KEIDRLNEV 0.000887 | 10 |
| HLA-A*33:01 | 1 | 1185 | 1193 | 9 | RLNEVAKNL 0.000887 | 14 |
| HLA-A*26:01 | 1 | 1263 | 1271 | 9 | PVLKGVKHL 0.000887 | 12 |
| HLA-B*15:01 | 1 | 131 | 140 | 10 | CEFQFCNDPF 0.000886 | 15 |
| HLA-A*02:03 | 1 | 375 | 384 | 10 | STFKCYGVSP 0.000886 | 17 |
| HLA-A*02:01 | 1 | 624 | 633 | 10 | IHADQLTPTW 0.000886 | 15 |
| HLA-A*02:06 | 1 | 638 | 647 | 10 | TGSNVFQTRA 0.000886 | 21 |
| HLA-B*15:01 | 1 | 666 | 675 | 10 | IGAGICASYQ 0.000886 | 15 |
| HLA-B*57:01 | 1 | 1024 | 1033 | 10 | LAATKMSECV 0.000886 | 20 |
| HLA-A*30:01 | 1 | 1114 | 1122 | 9 | IITTDNTFV 0.000886 | 28 |
| HLA-A*11:01 | 1 | 1175 | 1183 | 9 | SVVNIQKEI 0.000886 | 10 |
| HLA-B*57:01 | 1 | 499 | 507 | 9 | PTNGVGYQP 0.000885 | 20 |
| HLA-B*58:01 | 1 | 548 | 556 | 9 | GTGVLTESN 0.000885 | 14 |
| HLA-A*33:01 | 1 | 576 | 584 | 9 | VRDPQTLEI 0.000885 | 14 |
| HLA-B*15:01 | 1 | 981 | 989 | 9 | LSRLDKVEA 0.000885 | 15 |
| HLA-A*02:06 | 1 | 1025 | 1034 | 10 | AATKMSECVL 0.000885 | 21 |
| HLA-B*58:01 | 1 | 94 | 102 | 9 | STEKSNIIR 0.000884 | 14 |
| HLA-B*08:01 | 1 | 213 | 222 | 10 | VRDLPQGFSA 0.000884 | 21 |
| HLA-A*30:02 | 1 | 316 | 324 | 9 | SNFRVQPTQ 0.000884 | 25 |
| HLA-A*03:01 | 1 | 669 | 677 | 9 | GICASYQTQ 0.000884 | 13 |
| HLA-A*30:02 | 1 | 875 | 884 | 10 | SALLAGTITS 0.000884 | 25 |
| HLA-B*35:01 | 1 | 1041 | 1049 | 9 | DFCGKGYHL 0.000884 | 11 |
| HLA-A*30:01 | 1 | 14 | 23 | 10 | QCVNLTRTQ 0.000883 | 28 |
| HLA-A*01:01 | 1 | 176 | 184 | 9 | LMDLEGKQG 0.000883 | 16 |
| HLA-B*51:01 | 1 | 311 | 320 | 10 | GIYQTSNFRV 0.000883 | 20 |
| HLA-A*02:06 | 1 | 522 | 531 | 10 | ATVCGPKKST 0.000883 | 21 |
| HLA-B*08:01 | 1 | 661 | 670 | 10 | ECDIPIGAGI 0.000883 | 21 |
| HLA-A*30:01 | 1 | 748 | 756 | 9 | ECSNLLLQY 0.000883 | 28 |
| HLA-A*30:01 | 1 | 798 | 807 | 10 | GGFNFSQILP 0.000883 | 28 |
| HLA-A*33:01 | 1 | 414 | 423 | 10 | QTGKIADYNY 0.000882 | 15 |
| HLA-B*57:01 | 1 | 608 | 617 | 10 | VAVLYQDVNC 0.000882 | 20 |
| HLA-A*68:01 | 1 | 617 | 626 | 10 | CTEVPVAIHA 0.000882 | 16 |
| HLA-A*30:01 | 1 | 771 | 779 | 9 | AVEQDKNTQ 0.000882 | 28 |
| HLA-A*30:02 | 1 | 913 | 922 | 10 | QNVLYENQKL 0.000882 | 25 |
| HLA-B*08:01 | 1 | 973 | 981 | 9 | ISSVLNDIL 0.000882 | 21 |
| HLA-B*35:01 | 1 | 1112 | 1121 | 10 | PQIITDNTF 0.000882 | 11 |
| HLA-B*35:01 | 1 | 1188 | 1196 | 9 | EVAKNLNES 0.000882 | 11 |
| HLA-B*44:03 | 1 | 1259 | 1268 | 10 | DDSEPVLKGV 0.000882 | 8.4 |
| HLA-B*40:01 | 1 | 108 | 117 | 10 | TTLDSKTQSL 0.000881 | 7.9 |
| HLA-A*30:01 | 1 | 357 | 366 | 10 | RISNCVADYS 0.000881 | 28 |
| HLA-A*02:06 | 1 | 565 | 573 | 9 | FGRDIADTT 0.000881 | 21 |
| HLA-B*44:02 | 1 | 778 | 787 | 10 | TQEVFAQVKQ 0.000881 | 8.4 |
| HLA-A*68:02 | 1 | 948 | 956 | 9 | LQDVVNQNA 0.000881 | 16 |
| HLA-A*68:01 | 1 | 955 | 963 | 9 | NAQALNTLV 0.000881 | 16 |
| HLA-B*51:01 | 1 | 961 | 970 | 10 | TLVKQLSSNF 0.000881 | 20 |
| HLA-A*02:03 | 1 | 1147 | 1155 | 9 | SFKEELDKY 0.000881 | 17 |
| HLA-A*31:01 | 1 | 1215 | 1224 | 10 | YIWLGFIAGL 0.000881 | 17 |
| HLA-B*44:02 | 1 | 229 | 238 | 10 | LPIGINITRF 0.00088 | 8.4 |
| HLA-A*01:01 | 1 | 252 | 260 | 9 | GDSSSGWTA 0.00088 | 16 |
| HLA-A*24:02 | 1 | 394 | 402 | 9 | NVYADSFVI 0.00088 | 8.5 |
| HLA-A*01:01 | 1 | 717 | 726 | 10 | NFTISVTTEI 0.00088 | 16 |
| HLA-A*68:01 | 1 | 765 | 774 | 10 | RALTGIAVEQ 0.00088 | 16 |
| HLA-A*01:01 | 1 | 870 | 879 | 10 | IAQYTSALLA 0.00088 | 16 |
| HLA-A*01:01 | 1 | 925 | 933 | 9 | NQFNSAIGK 0.00088 | 16 |
| HLA-B*51:01 | 1 | 1025 | 1034 | 10 | AATKMSECVL 0.00088 | 20 |
| HLA-B*57:01 | 1 | 313 | 322 | 10 | YQTSNFRVQP 0.000879 | 21 |
| HLA-B*35:01 | 1 | 344 | 353 | 10 | ATRFASVYAW 0.000879 | 11 |
| HLA-A*01:01 | 1 | 394 | 402 | 9 | NVYADSFVI 0.000879 | 16 |
| HLA-B*35:01 | 1 | 578 | 587 | 10 | DPQTLEILDI 0.000879 | 11 |
| HLA-B*53:01 | 1 | 732 | 740 | 9 | TKTSVDCTM 0.000879 | 9.9 |
| HLA-B*57:01 | 1 | 881 | 890 | 10 | TITSGWTFGA 0.000879 | 21 |
| HLA-B*51:01 | 1 | 885 | 894 | 10 | GWTFGAGAAL 0.000879 | 20 |
| HLA-A*68:01 | 1 | 84 | 93 | 10 | LPFNDGVYFA 0.000878 | 16 |
| HLA-B*07:02 | 1 | 254 | 262 | 9 | SSSGWTAGA 0.000878 | 13 |
| HLA-A*02:06 | 1 | 936 | 945 | 10 | DSLSSTASAL 0.000878 | 21 |
| HLA-A*26:01 | 1 | 985 | 993 | 9 | DKVEAEVQI 0.000878 | 12 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*30:01 | 1 | 59 | 68 | 10 | FSNVTWFHAI 0.000877 | 28 |
| HLA-B*57:01 | 1 | 91 | 100 | 10 | YFASTEKSNI 0.000877 | 21 |
| HLA-A*30:02 | 1 | 126 | 134 | 9 | VVIKVFCEFQ 0.000877 | 25 |
| HLA-B*53:01 | 1 | 556 | 565 | 10 | NKKFLPFQFQ 0.000877 | 9.9 |
| HLA-B*44:02 | 1 | 618 | 627 | 10 | TEVPVAIHAD 0.000877 | 8.5 |
| HLA-A*32:01 | 1 | 679 | 687 | 9 | NSPRRARSV 0.000877 | 12 |
| HLA-A*68:02 | 1 | 1076 | 1085 | 10 | TTAPAICHDG 0.000877 | 16 |
| HLA-A*33:01 | 1 | 1181 | 1189 | 9 | KEIDRLNEV 0.000877 | 15 |
| HLA-B*07:02 | 1 | 1220 | 1229 | 10 | FIAGLIAIVM 0.000877 | 13 |
| HLA-B*44:03 | 1 | 405 | 413 | 9 | DEVQRAPG 0.000876 | 8.5 |
| HLA-A*68:02 | 1 | 459 | 468 | 10 | SNLKPFERDI 0.000876 | 17 |
| HLA-A*33:01 | 1 | 509 | 517 | 9 | RVVLSFEL 0.000876 | 15 |
| HLA-A*23:01 | 1 | 688 | 697 | 10 | ASQSIIAYTM 0.000876 | 8.7 |
| HLA-A*30:02 | 1 | 720 | 728 | 9 | ISVTTEILP 0.000876 | 25 |
| HLA-A*33:01 | 1 | 758 | 766 | 9 | SFCTQLNRA 0.000876 | 15 |
| HLA-B*35:01 | 1 | 958 | 966 | 9 | ALNTLVKQL 0.000876 | 11 |
| HLA-A*68:02 | 1 | 1134 | 1143 | 10 | NNTVYDPLQP 0.000876 | 17 |
| HLA-B*58:01 | 1 | 316 | 324 | 9 | SNFRVQPT 0.000875 | 15 |
| HLA-A*02:06 | 1 | 582 | 591 | 10 | LEILDITPCS 0.000875 | 21 |
| HLA-A*30:01 | 1 | 908 | 917 | 10 | GIGVTQNVLY 0.000875 | 28 |
| HLA-A*30:01 | 1 | 918 | 927 | 10 | ENQKLIANQF 0.000875 | 28 |
| HLA-B*15:01 | 1 | 1207 | 1216 | 10 | EQYIKWPWYI 0.000875 | 15 |
| HLA-A*30:01 | 1 | 477 | 486 | 10 | STPCNGVEGF 0.000874 | 28 |
| HLA-A*11:01 | 1 | 481 | 489 | 9 | NGVEGFNCY 0.000874 | 10 |
| HLA-A*68:01 | 1 | 493 | 501 | 9 | QSYGFQPTN 0.000874 | 16 |
| HLA-A*68:02 | 1 | 1081 | 1089 | 9 | ICHDGKAHF 0.000874 | 17 |
| HLA-B*35:01 | 1 | 326 | 335 | 10 | IVRFPNITNL 0.000873 | 11 |
| HLA-A*68:02 | 1 | 369 | 378 | 10 | YNSASFSTFK 0.000873 | 17 |
| HLA-A*32:01 | 1 | 424 | 433 | 10 | KLPDDFTGCV 0.000873 | 12 |
| HLA-B*40:01 | 1 | 562 | 570 | 9 | FQQFGRDIA 0.000873 | 8.0 |
| HLA-A*26:01 | 1 | 571 | 579 | 9 | DTTDAVRDP 0.000873 | 12 |
| HLA-A*23:01 | 1 | 805 | 814 | 10 | ILPDPSKPSK 0.000873 | 8.7 |
| HLA-A*68:02 | 1 | 829 | 837 | 9 | ADAGFIKQY 0.000873 | 17 |
| HLA-A*30:01 | 1 | 959 | 968 | 10 | LNTLVKQLSS 0.000873 | 28 |
| HLA-A*02:06 | 1 | 1201 | 1210 | 10 | QELGKYEQYI 0.000873 | 21 |
| HLA-A*30:01 | 1 | 43 | 52 | 10 | FRSSVLHSTQ 0.000872 | 28 |
| HLA-A*30:02 | 1 | 49 | 57 | 9 | HSTQDLFLP 0.000872 | 25 |
| HLA-A*02:01 | 1 | 782 | 791 | 10 | FAQVKQIYKT 0.000872 | 15 |
| HLA-A*30:02 | 1 | 787 | 796 | 10 | QIYKTPPIKD 0.000872 | 25 |
| HLA-B*51:01 | 1 | 900 | 909 | 10 | MQMAYRFNGI 0.000872 | 20 |
| HLA-A*68:01 | 1 | 320 | 329 | 10 | VQPTESIVRF 0.000871 | 16 |
| HLA-B*53:01 | 1 | 513 | 521 | 9 | LSFELLHAP 0.000871 | 9.9 |
| HLA-B*35:01 | 1 | 844 | 852 | 9 | IAARDLICA 0.000871 | 11 |
| HLA-A*23:01 | 1 | 914 | 922 | 9 | NVLYENQKL 0.000871 | 8.7 |
| HLA-A*68:01 | 1 | 170 | 179 | 10 | YVSQPFLMDL 0.00087 | 16 |
| HLA-B*07:02 | 1 | 255 | 263 | 9 | SSGWTAGAA 0.00087 | 13 |
| HLA-A*26:01 | 1 | 294 | 303 | 10 | DPLSETKCTL 0.00087 | 12 |
| HLA-A*01:01 | 1 | 329 | 338 | 10 | FPNITNLCPF 0.00087 | 16 |
| HLA-A*26:01 | 1 | 519 | 528 | 10 | HAPATVCGPK 0.00087 | 12 |
| HLA-B*08:01 | 1 | 855 | 864 | 10 | FNGLTVLPLP 0.00087 | 21 |
| HLA-B*44:02 | 1 | 929 | 938 | 10 | SAIGKIQDSL 0.00087 | 8.5 |
| HLA-A*02:06 | 1 | 1061 | 1070 | 10 | VFLHVTYVPA 0.00087 | 21 |
| HLA-B*08:01 | 1 | 84 | 93 | 10 | LPFNDGVYFA 0.000869 | 21 |
| HLA-A*26:01 | 1 | 104 | 113 | 10 | WIFGTTLDSK 0.000869 | 12 |
| HLA-A*01:01 | 1 | 121 | 129 | 9 | NNATNVVIK 0.000869 | 16 |
| HLA-A*30:01 | 1 | 167 | 175 | 9 | TFEYVSQPF 0.000869 | 28 |
| HLA-B*53:01 | 1 | 560 | 568 | 9 | LPFQQFGRD 0.000869 | 9.9 |
| HLA-B*57:01 | 1 | 700 | 709 | 10 | GAENSVAYSN 0.000869 | 21 |
| HLA-A*30:02 | 1 | 1224 | 1232 | 9 | LIAIVMVTI 0.000869 | 25 |
| HLA-A*01:01 | 1 | 1255 | 1263 | 9 | KFDEDDSEP 0.000869 | 16 |
| HLA-A*26:01 | 1 | 1264 | 1273 | 10 | VLKGVKLHYT 0.000869 | 12 |
| HLA-B*08:01 | 1 | 49 | 58 | 10 | HSTQDLFLPF 0.000868 | 21 |
| HLA-B*51:01 | 1 | 177 | 186 | 10 | MDLEGKQGNF 0.000868 | 20 |
| HLA-B*58:01 | 1 | 242 | 251 | 10 | LALHRSYLTP 0.000868 | 15 |
| HLA-A*02:06 | 1 | 495 | 504 | 10 | YGFQPTNGVG 0.000868 | 21 |
| HLA-A*01:01 | 1 | 662 | 670 | 9 | CDIPIGAGI 0.000868 | 16 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*01:01 | 1 | 950 | 959 | 10 | DVVNQNAQAL 0.000868 | 16 |
| HLA-B*15:01 | 1 | 950 | 959 | 10 | DVVNQNAQAL 0.000868 | 15 |
| HLA-B*15:01 | 1 | 953 | 961 | 9 | NQNAQALNT 0.000868 | 15 |
| HLA-A*68:02 | 1 | 991 | 1000 | 10 | VQIDRLITGR 0.000868 | 17 |
| HLA-A*30:01 | 1 | 1021 | 1030 | 10 | SANLAATKMS 0.000868 | 28 |
| HLA-A*31:01 | 1 | 1108 | 1117 | 10 | NFYEQIITT 0.000868 | 17 |
| HLA-B*44:03 | 1 | 1207 | 1216 | 10 | EQYIKWPWYI 0.000868 | 8.5 |
| HLA-B*40:01 | 1 | 122 | 130 | 9 | NATNVVIVK 0.000867 | 8.0 |
| HLA-A*03:01 | 1 | 268 | 277 | 10 | GYLQPRTFLL 0.000867 | 13 |
| HLA-B*51:01 | 1 | 314 | 322 | 9 | QTSNFRVQP 0.000867 | 20 |
| HLA-B*53:01 | 1 | 544 | 552 | 9 | NGLTGTGVL 0.000867 | 9.9 |
| HLA-A*02:01 | 1 | 583 | 591 | 9 | EILDITPCS 0.000867 | 15 |
| HLA-A*02:03 | 1 | 706 | 714 | 9 | AYSNNIAI 0.000867 | 17 |
| HLA-B*57:01 | 1 | 719 | 728 | 10 | TISVTTEILP 0.000867 | 21 |
| HLA-B*57:01 | 1 | 770 | 779 | 10 | IAVEQDKNTQ 0.000867 | 21 |
| HLA-B*15:01 | 1 | 777 | 785 | 9 | NTQEVFAQV 0.000867 | 15 |
| HLA-A*33:01 | 1 | 1087 | 1096 | 10 | AHFPREGVFV 0.000867 | 15 |
| HLA-A*30:02 | 1 | 1184 | 1193 | 10 | DRLNEVAKNL 0.000867 | 25 |
| HLA-A*30:01 | 1 | 1260 | 1268 | 9 | DSEPVKGV 0.000867 | 28 |
| HLA-A*32:01 | 1 | 118 | 126 | 9 | LIVNNATNV 0.000866 | 12 |
| HLA-A*33:01 | 1 | 422 | 430 | 9 | NYKLPDDFT 0.000866 | 15 |
| HLA-A*02:06 | 1 | 629 | 637 | 9 | LTPTWRVYS 0.000866 | 21 |
| HLA-A*11:01 | 1 | 1008 | 1016 | 9 | VTQQLIRAA 0.000866 | 10 |
| HLA-B*58:01 | 1 | 1145 | 1154 | 10 | LDSFKEELDK 0.000866 | 15 |
| HLA-A*68:01 | 1 | 1206 | 1214 | 9 | YEQYIKWPW 0.000866 | 16 |
| HLA-A*33:01 | 1 | 5 | 13 | 9 | LVLLPLVSS 0.000865 | 15 |
| HLA-A*32:01 | 1 | 263 | 271 | 9 | AAYYVGYLQ 0.000865 | 12 |
| HLA-A*26:01 | 1 | 501 | 509 | 9 | NGVGYQPYP 0.000865 | 12 |
| HLA-A*30:02 | 1 | 574 | 582 | 9 | DAVRDPQTL 0.000865 | 25 |
| HLA-B*15:01 | 1 | 597 | 605 | 9 | VITPGTNTS 0.000865 | 15 |
| HLA-A*30:01 | 1 | 660 | 668 | 9 | YECDPIGA 0.000865 | 28 |
| HLA-A*68:02 | 1 | 677 | 686 | 10 | QTNSPRRARS 0.000865 | 17 |
| HLA-A*01:01 | 1 | 974 | 982 | 9 | SSVLNDILS 0.000865 | 16 |
| HLA-A*31:01 | 1 | 1261 | 1269 | 9 | SEPVKGVK 0.000865 | 17 |
| HLA-B*53:01 | 1 | 60 | 68 | 9 | SNVTWFHAI 0.000864 | 9.9 |
| HLA-A*68:01 | 1 | 82 | 91 | 10 | PVLPFNDGVY 0.000864 | 16 |
| HLA-A*30:01 | 1 | 374 | 382 | 9 | FSTFKCYGV 0.000864 | 28 |
| HLA-B*44:03 | 1 | 456 | 464 | 9 | FRKSNLKP 0.000864 | 8.5 |
| HLA-B*15:01 | 1 | 505 | 514 | 10 | YQPYRVVLS 0.000864 | 15 |
| HLA-A*68:02 | 1 | 533 | 541 | 9 | LVKNKCVNF 0.000864 | 17 |
| HLA-B*53:01 | 1 | 618 | 626 | 9 | TEVPVAIHA 0.000864 | 9.9 |
| HLA-B*08:01 | 1 | 782 | 791 | 10 | FAQVKQIYKT 0.000864 | 21 |
| HLA-B*58:01 | 1 | 852 | 861 | 10 | AQKFNGLTVL 0.000864 | 15 |
| HLA-A*02:06 | 1 | 1217 | 1225 | 9 | WLGFIAGLI 0.000864 | 21 |
| HLA-A*03:01 | 1 | 257 | 265 | 9 | GWTAGAAAY 0.000863 | 13 |
| HLA-B*58:01 | 1 | 291 | 299 | 9 | CALDPLSET 0.000863 | 15 |
| HLA-B*53:01 | 1 | 638 | 646 | 9 | TGSNVFQTR 0.000863 | 10 |
| HLA-B*07:02 | 1 | 905 | 913 | 9 | RFNGIGVTQ 0.000863 | 13 |
| HLA-B*44:03 | 1 | 915 | 923 | 9 | VLYENQKLI 0.000863 | 8.5 |
| HLA-A*02:01 | 1 | 954 | 962 | 9 | QNAQALNTL 0.000863 | 15 |
| HLA-A*68:01 | 1 | 960 | 968 | 9 | NTLVKQLSS 0.000863 | 16 |
| HLA-A*01:01 | 1 | 1041 | 1050 | 10 | DFCGKGYHLM 0.000863 | 16 |
| HLA-A*26:01 | 1 | 110 | 118 | 9 | LDSKTQSL 0.000862 | 12 |
| HLA-B*15:01 | 1 | 132 | 140 | 9 | EFQFCNDPF 0.000862 | 15 |
| HLA-B*57:01 | 1 | 199 | 207 | 9 | GYFKIYSKH 0.000862 | 21 |
| HLA-B*51:01 | 1 | 293 | 302 | 10 | LDPLSEKCT 0.000862 | 20 |
| HLA-A*26:01 | 1 | 762 | 770 | 9 | QLNRALTGI 0.000862 | 12 |
| HLA-B*58:01 | 1 | 845 | 853 | 9 | AARDLICA 0.000862 | 15 |
| HLA-A*02:03 | 1 | 954 | 963 | 10 | QNAQALNTLV 0.000862 | 17 |
| HLA-A*30:02 | 1 | 242 | 250 | 9 | LALHRSYLT 0.000861 | 26 |
| HLA-A*31:01 | 1 | 537 | 546 | 10 | KCVNFNFNGL 0.000861 | 17 |
| HLA-A*02:03 | 1 | 786 | 795 | 10 | KQIYKTPPIK 0.000861 | 17 |
| HLA-B*08:01 | 1 | 844 | 852 | 9 | IAARDLICA 0.000861 | 21 |
| HLA-A*31:01 | 1 | 904 | 913 | 10 | YRFNGIGVTQ 0.000861 | 17 |
| HLA-A*33:01 | 1 | 7 | 15 | 9 | LLPLVSSQC 0.00086 | 15 |
| HLA-B*58:01 | 1 | 75 | 83 | 9 | GTKRFDNPV 0.00086 | 15 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*30:01 | 1 | 118 | 127 | 10 | LIVNATNVV 0.00086 | 28 |
| HLA-A*01:01 | 1 | 580 | 588 | 9 | QTLEILDIT 0.00086 | 16 |
| HLA-B*07:02 | 1 | 602 | 611 | 10 | TNTSNQVAVL 0.00086 | 13 |
| HLA-B*44:02 | 1 | 706 | 714 | 9 | AYSNNIAI 0.00086 | 8.5 |
| HLA-B*44:02 | 1 | 940 | 948 | 9 | STASALGKL 0.00086 | 8.5 |
| HLA-B*57:01 | 1 | 966 | 974 | 9 | LSSNFGAIS 0.00086 | 21 |
| HLA-A*02:03 | 1 | 1001 | 1009 | 9 | LQSLQTYVT 0.00086 | 17 |
| HLA-A*02:01 | 1 | 311 | 319 | 9 | GIYQTSNFR 0.000859 | 15 |
| HLA-A*01:01 | 1 | 326 | 335 | 10 | IVRFPNITNL 0.000859 | 16 |
| HLA-A*68:01 | 1 | 437 | 445 | 9 | NSNNLDSKV 0.000859 | 16 |
| HLA-A*33:01 | 1 | 520 | 529 | 10 | APATVCGPKK 0.000859 | 15 |
| HLA-B*07:02 | 1 | 998 | 1007 | 10 | TGRLQSLQTY 0.000859 | 13 |
| HLA-A*03:01 | 1 | 1059 | 1068 | 10 | GVVFLHVTYV 0.000859 | 13 |
| HLA-B*44:02 | 1 | 1130 | 1138 | 9 | IGIVNNTVY 0.000859 | 8.5 |
| HLA-B*08:01 | 1 | 230 | 238 | 9 | PIGINITRF 0.000858 | 21 |
| HLA-A*68:02 | 1 | 321 | 330 | 10 | QPTESIVRFP 0.000858 | 17 |
| HLA-A*01:01 | 1 | 453 | 462 | 10 | YRLFRKSNLK 0.000858 | 16 |
| HLA-A*68:01 | 1 | 541 | 549 | 9 | FNFNGLTGT 0.000858 | 16 |
| HLA-B*15:01 | 1 | 792 | 800 | 9 | PPIKDFGGF 0.000858 | 15 |
| HLA-A*01:01 | 1 | 807 | 815 | 9 | PDPSKPSKR 0.000858 | 16 |
| HLA-B*53:01 | 1 | 846 | 855 | 10 | ARDLICAQKF 0.000858 | 10 |
| HLA-A*30:01 | 1 | 481 | 489 | 9 | NGVEGFNCY 0.000857 | 28 |
| HLA-B*57:01 | 1 | 548 | 556 | 9 | GTGVLTESN 0.000857 | 21 |
| HLA-A*26:01 | 1 | 802 | 811 | 10 | FSQILPDPSK 0.000857 | 12 |
| HLA-A*01:01 | 1 | 922 | 930 | 9 | LIANQFNFA 0.000857 | 16 |
| HLA-A*33:01 | 1 | 1105 | 1113 | 9 | TQRNFYEPQ 0.000857 | 15 |
| HLA-A*03:01 | 1 | 1171 | 1180 | 10 | GINASVVNIQ 0.000857 | 13 |
| HLA-A*31:01 | 1 | 1206 | 1215 | 10 | YEQYIKWPWY 0.000857 | 17 |
| HLA-A*02:03 | 1 | 165 | 174 | 10 | NCTFEYVSQP 0.000856 | 17 |
| HLA-A*68:01 | 1 | 249 | 258 | 10 | LTPGDSSSWG 0.000856 | 16 |
| HLA-A*01:01 | 1 | 311 | 319 | 9 | GIYQTSNFR 0.000856 | 16 |
| HLA-B*58:01 | 1 | 345 | 354 | 10 | TRFASVYAWN 0.000856 | 15 |
| HLA-A*02:06 | 1 | 363 | 371 | 9 | ADYSVLYNS 0.000856 | 21 |
| HLA-A*02:06 | 1 | 393 | 401 | 9 | TNVYADSFV 0.000856 | 21 |
| HLA-A*68:01 | 1 | 546 | 554 | 9 | LTGTGVLTE 0.000856 | 16 |
| HLA-A*30:01 | 1 | 598 | 607 | 10 | ITPGTNTSNQ 0.000856 | 28 |
| HLA-B*44:03 | 1 | 612 | 620 | 9 | YQDVNCTEV 0.000856 | 8.5 |
| HLA-A*68:01 | 1 | 1023 | 1031 | 9 | NLAATKMSE 0.000856 | 16 |
| HLA-A*68:02 | 1 | 1050 | 1059 | 10 | MSFPQSAPHG 0.000856 | 17 |
| HLA-B*53:01 | 1 | 1080 | 1089 | 10 | AICHDGKAHF 0.000856 | 10 |
| HLA-A*02:06 | 1 | 1127 | 1136 | 10 | DVVIGIVNNT 0.000856 | 21 |
| HLA-A*68:02 | 1 | 1217 | 1225 | 9 | WLGFIAGLI 0.000856 | 17 |
| HLA-A*02:01 | 1 | 227 | 236 | 10 | VDLPIGINIT 0.000855 | 15 |
| HLA-B*51:01 | 1 | 328 | 336 | 9 | RFPNITNLC 0.000855 | 20 |
| HLA-A*68:01 | 1 | 339 | 348 | 10 | GEVFNATRFA 0.000855 | 16 |
| HLA-B*57:01 | 1 | 621 | 629 | 9 | PVAIHADQL 0.000855 | 21 |
| HLA-A*33:01 | 1 | 709 | 718 | 10 | NNSIAIPTNF 0.000855 | 15 |
| HLA-A*01:01 | 1 | 890 | 898 | 9 | AGAALQIPF 0.000855 | 16 |
| HLA-A*02:03 | 1 | 969 | 977 | 9 | NFGAISSVL 0.000855 | 17 |
| HLA-B*35:01 | 1 | 1049 | 1058 | 10 | LMSFPQSAPH 0.000855 | 11 |
| HLA-B*35:01 | 1 | 1078 | 1086 | 9 | APAICHDGK 0.000855 | 11 |
| HLA-A*03:01 | 1 | 1208 | 1216 | 9 | QYIKWPWYI 0.000855 | 13 |
| HLA-A*30:01 | 1 | 225 | 233 | 9 | PLVDLPIGI 0.000854 | 28 |
| HLA-A*32:01 | 1 | 356 | 365 | 10 | KRISNCVADY 0.000854 | 12 |
| HLA-A*30:02 | 1 | 525 | 533 | 9 | CGPKKSTNL 0.000854 | 26 |
| HLA-A*30:02 | 1 | 804 | 813 | 10 | QILPDPSKPS 0.000854 | 26 |
| HLA-A*24:02 | 1 | 835 | 844 | 10 | KQYGDCLGDI 0.000854 | 8.6 |
| HLA-B*57:01 | 1 | 882 | 891 | 10 | ITSGWTFGAG 0.000854 | 21 |
| HLA-B*58:01 | 1 | 914 | 923 | 10 | NVLYENQKLI 0.000854 | 15 |
| HLA-B*35:01 | 1 | 1002 | 1010 | 9 | QSLQTYVTQ 0.000854 | 11 |
| HLA-B*07:02 | 1 | 1070 | 1078 | 9 | AQEKNFTTA 0.000854 | 13 |
| HLA-B*44:03 | 1 | 1073 | 1081 | 9 | KNFTTAPAI 0.000854 | 8.6 |
| HLA-B*35:01 | 1 | 347 | 355 | 9 | FASVYAWN 0.000853 | 11 |
| HLA-A*33:01 | 1 | 420 | 429 | 10 | DYNYKLPDDF 0.000853 | 15 |
| HLA-B*57:01 | 1 | 466 | 475 | 10 | RDISTEIQQA 0.000853 | 21 |
| HLA-B*08:01 | 1 | 477 | 486 | 10 | STPCNGVEGF 0.000853 | 21 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|
| HLA-A*30:01 | 1 | 729 | 737 | 9 | VSMTKTSVD | 0.000853 | 28 |
| HLA-A*30:01 | 1 | 750 | 758 | 9 | SNLLLQYGS | 0.000853 | 28 |
| HLA-A*31:01 | 1 | 59 | 67 | 9 | FSNVTWFHA | 0.000852 | 17 |
| HLA-A*01:01 | 1 | 449 | 457 | 9 | YNYLYRLEFR | 0.000852 | 16 |
| HLA-A*33:01 | 1 | 660 | 668 | 9 | YECDIPIGA | 0.000852 | 15 |
| HLA-B*08:01 | 1 | 698 | 706 | 9 | SLGAENSV | 0.000852 | 21 |
| HLA-B*44:03 | 1 | 733 | 741 | 9 | KTSVDCTMY | 0.000852 | 8.6 |
| HLA-A*68:01 | 1 | 808 | 817 | 10 | DPSKPSKRSF | 0.000852 | 16 |
| HLA-B*07:02 | 1 | 967 | 976 | 10 | SSNFGAISSV | 0.000852 | 13 |
| HLA-B*07:02 | 1 | 973 | 981 | 9 | ISSVLNDIL | 0.000852 | 13 |
| HLA-A*68:02 | 1 | 1048 | 1057 | 10 | HLMSFPQSAP | 0.000852 | 17 |
| HLA-A*26:01 | 1 | 1150 | 1159 | 10 | EELDKYFKNH | 0.000852 | 12 |
| HLA-B*08:01 | 1 | 256 | 264 | 9 | SGWTAGAAA | 0.000851 | 21 |
| HLA-B*58:01 | 1 | 617 | 626 | 10 | CTEVPVAIHA | 0.000851 | 15 |
| HLA-B*08:01 | 1 | 752 | 760 | 9 | LLLQYGSFC | 0.000851 | 21 |
| HLA-A*23:01 | 1 | 916 | 924 | 9 | LYENQKLIA | 0.000851 | 8.8 |
| HLA-A*11:01 | 1 | 933 | 941 | 9 | KIQDLSST | 0.000851 | 11 |
| HLA-A*02:01 | 1 | 962 | 970 | 9 | LVKQLSSNF | 0.000851 | 15 |
| HLA-B*53:01 | 1 | 1248 | 1256 | 9 | CSCGSCCKF | 0.000851 | 10 |
| HLA-A*01:01 | 1 | 596 | 604 | 9 | SVITPGTNT | 0.00085 | 17 |
| HLA-A*02:01 | 1 | 725 | 734 | 10 | EILPVSMTKT | 0.00085 | 15 |
| HLA-A*68:02 | 1 | 808 | 817 | 10 | DPSKPSKRSF | 0.00085 | 17 |
| HLA-B*57:01 | 1 | 844 | 853 | 10 | IAARDLICAQ | 0.00085 | 21 |
| HLA-B*51:01 | 1 | 855 | 864 | 10 | FNGLTVLPLP | 0.00085 | 20 |
| HLA-B*35:01 | 1 | 893 | 902 | 10 | ALQIPFAMQM | 0.00085 | 11 |
| HLA-A*68:01 | 1 | 992 | 1001 | 10 | QIDRLITGRL | 0.00085 | 16 |
| HLA-A*26:01 | 1 | 1003 | 1012 | 10 | SLQTYVTQQL | 0.00085 | 12 |
| HLA-A*01:01 | 1 | 760 | 768 | 9 | CTQLNRALT | 0.000849 | 17 |
| HLA-B*35:01 | 1 | 809 | 817 | 9 | PSKPSKRSF | 0.000849 | 11 |
| HLA-A*30:02 | 1 | 1209 | 1218 | 10 | YIKWPWYIWL | 0.000849 | 26 |
| HLA-A*33:01 | 1 | 90 | 98 | 9 | VYFASTKS | 0.000848 | 15 |
| HLA-A*01:01 | 1 | 198 | 206 | 9 | DGYFKIYSK | 0.000848 | 17 |
| HLA-B*44:02 | 1 | 500 | 508 | 9 | TNGVGYQPY | 0.000848 | 8.6 |
| HLA-A*11:01 | 1 | 821 | 829 | 9 | LLFNKVTLA | 0.000848 | 11 |
| HLA-B*15:01 | 1 | 1092 | 1101 | 10 | EGVFVSNPTH | 0.000848 | 15 |
| HLA-B*44:02 | 1 | 1110 | 1118 | 9 | YEPQIITD | 0.000848 | 8.6 |
| HLA-A*68:02 | 1 | 37 | 46 | 10 | YYPDKVFRSS | 0.000847 | 17 |
| HLA-A*32:01 | 1 | 314 | 322 | 9 | QTSNFRVQP | 0.000847 | 12 |
| HLA-B*51:01 | 1 | 344 | 352 | 9 | ATRFASVYA | 0.000847 | 20 |
| HLA-A*01:01 | 1 | 510 | 518 | 9 | VVLSFELL | 0.000847 | 17 |
| HLA-A*30:01 | 1 | 668 | 676 | 9 | AGICASYQT | 0.000847 | 28 |
| HLA-A*30:01 | 1 | 694 | 702 | 9 | AYTMSLGAE | 0.000847 | 28 |
| HLA-A*68:02 | 1 | 702 | 711 | 10 | ENSVAYSNNS | 0.000847 | 17 |
| HLA-A*30:01 | 1 | 944 | 952 | 9 | ALGKLQDVV | 0.000847 | 28 |
| HLA-A*02:01 | 1 | 1221 | 1229 | 9 | IAGLIAIVM | 0.000847 | 15 |
| HLA-A*26:01 | 1 | 143 | 152 | 10 | VYYHKNNKSW | 0.000846 | 12 |
| HLA-B*51:01 | 1 | 148 | 157 | 10 | NNKSWMESEF | 0.000846 | 20 |
| HLA-A*30:02 | 1 | 598 | 606 | 9 | ITPGTNTSN | 0.000846 | 26 |
| HLA-A*32:01 | 1 | 609 | 617 | 9 | AVLYQDVNC | 0.000846 | 12 |
| HLA-A*02:06 | 1 | 670 | 678 | 9 | ICASYQTQT | 0.000846 | 21 |
| HLA-A*01:01 | 1 | 699 | 708 | 10 | LGAENSVAYS | 0.000846 | 17 |
| HLA-B*07:02 | 1 | 875 | 883 | 9 | SALLAGTIT | 0.000846 | 13 |
| HLA-A*30:01 | 1 | 904 | 912 | 9 | YRFNGIGVT | 0.000846 | 28 |
| HLA-A*26:01 | 1 | 983 | 991 | 9 | RLDKVEAEV | 0.000846 | 12 |
| HLA-A*02:01 | 1 | 1137 | 1146 | 10 | VYDPLQPELD | 0.000846 | 15 |
| HLA-A*03:01 | 1 | 1146 | 1155 | 10 | DSFKEELDKY | 0.000846 | 13 |
| HLA-A*01:01 | 1 | 18 | 26 | 9 | LTTTRTQLPP | 0.000845 | 17 |
| HLA-A*02:06 | 1 | 315 | 323 | 9 | TSNFRVQPT | 0.000845 | 21 |
| HLA-A*01:01 | 1 | 395 | 403 | 9 | VYADSFVIR | 0.000845 | 17 |
| HLA-A*32:01 | 1 | 907 | 915 | 9 | NGIGVTQNV | 0.000845 | 12 |
| HLA-A*03:01 | 1 | 25 | 34 | 10 | PPAYTNSFTR | 0.000844 | 13 |
| HLA-A*30:02 | 1 | 110 | 119 | 10 | LDSKTQSLLI | 0.000844 | 26 |
| HLA-A*33:01 | 1 | 263 | 271 | 9 | AAYYVGYLQ | 0.000844 | 15 |
| HLA-A*33:01 | 1 | 617 | 625 | 9 | CTEVPVAIH | 0.000844 | 15 |
| HLA-B*35:01 | 1 | 716 | 724 | 9 | TNFTISVTT | 0.000844 | 11 |
| HLA-B*35:01 | 1 | 726 | 735 | 10 | ILPVSMTKTS | 0.000844 | 11 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|
| HLA-A*24:02 | 1 | 916 | 924 | 9 | LYENQKLI | 0.000844 | 8.7 |
| HLA-A*31:01 | 1 | 957 | 965 | 9 | QALNTLVKQ | 0.000844 | 17 |
| HLA-A*01:01 | 1 | 1052 | 1061 | 10 | FPQSAPHGVV | 0.000844 | 17 |
| HLA-A*33:01 | 1 | 1094 | 1103 | 10 | VFVSNGTHWF | 0.000844 | 15 |
| HLA-B*07:02 | 1 | 1215 | 1224 | 10 | YIWLGFIAGL | 0.000844 | 13 |
| HLA-B*15:01 | 1 | 110 | 118 | 9 | LDSKTQSL | 0.000843 | 16 |
| HLA-A*33:01 | 1 | 956 | 964 | 9 | AQALNTLVK | 0.000843 | 15 |
| HLA-A*11:01 | 1 | 1014 | 1022 | 9 | RAAEIRASA | 0.000843 | 11 |
| HLA-B*53:01 | 1 | 1025 | 1033 | 9 | AATKMSECV | 0.000843 | 10 |
| HLA-A*30:01 | 1 | 1028 | 1037 | 10 | KMSECVLGQS | 0.000843 | 28 |
| HLA-A*30:01 | 1 | 92 | 100 | 9 | FASTEKSNI | 0.000842 | 28 |
| HLA-A*33:01 | 1 | 351 | 359 | 9 | YAWNRKRIS | 0.000842 | 15 |
| HLA-A*24:02 | 1 | 634 | 642 | 9 | RVYSTGSNV | 0.000842 | 8.7 |
| HLA-A*68:02 | 1 | 650 | 659 | 10 | LIGAEHVNNS | 0.000842 | 17 |
| HLA-A*26:01 | 1 | 660 | 668 | 9 | YECDIPIGA | 0.000842 | 12 |
| HLA-B*15:01 | 1 | 955 | 964 | 10 | NAQALNTLVK | 0.000842 | 16 |
| HLA-A*68:02 | 1 | 33 | 42 | 10 | TRGVYYPDKV | 0.000841 | 17 |
| HLA-A*33:01 | 1 | 634 | 642 | 9 | RVYSTGSNV | 0.000841 | 15 |
| HLA-A*30:01 | 1 | 642 | 651 | 10 | VFQTRAGCLI | 0.000841 | 29 |
| HLA-A*02:03 | 1 | 751 | 759 | 9 | NLLLQYGSF | 0.000841 | 17 |
| HLA-B*08:01 | 1 | 809 | 818 | 10 | PSKPSKRSFI | 0.000841 | 21 |
| HLA-B*15:01 | 1 | 993 | 1001 | 9 | IDRLITGRL | 0.000841 | 16 |
| HLA-A*68:02 | 1 | 169 | 178 | 10 | EYVSQPFLMD | 0.00084 | 17 |
| HLA-A*02:03 | 1 | 283 | 292 | 10 | GTITDAVDCA | 0.00084 | 17 |
| HLA-A*30:02 | 1 | 500 | 509 | 10 | TNGVGYQPYR | 0.00084 | 26 |
| HLA-A*33:01 | 1 | 704 | 712 | 9 | SVAYSNNSI | 0.00084 | 15 |
| HLA-A*02:01 | 1 | 751 | 759 | 9 | NLLLQYGSF | 0.00084 | 15 |
| HLA-B*58:01 | 1 | 956 | 965 | 10 | AQALNTLVKQ | 0.00084 | 15 |
| HLA-A*02:01 | 1 | 968 | 977 | 10 | SNFGAISSVL | 0.00084 | 15 |
| HLA-A*30:02 | 1 | 1018 | 1026 | 9 | IRASANLAA | 0.00084 | 26 |
| HLA-B*44:03 | 1 | 1107 | 1115 | 9 | RNFYEPQII | 0.00084 | 8.6 |
| HLA-A*01:01 | 1 | 1119 | 1128 | 10 | NTFVSGNCDV | 0.00084 | 17 |
| HLA-B*40:01 | 1 | 1207 | 1216 | 10 | EQYIKWPWYI | 0.00084 | 8.1 |
| HLA-B*35:01 | 1 | 26 | 34 | 9 | PAYTNSFTR | 0.000839 | 11 |
| HLA-A*31:01 | 1 | 78 | 87 | 10 | RFDNPVLPFN | 0.000839 | 17 |
| HLA-A*11:01 | 1 | 236 | 245 | 10 | TRFQTLALH | 0.000839 | 11 |
| HLA-A*26:01 | 1 | 268 | 276 | 9 | GYLQPRTF | 0.000839 | 12 |
| HLA-B*58:01 | 1 | 356 | 365 | 10 | KRISNCVADY | 0.000839 | 15 |
| HLA-A*01:01 | 1 | 436 | 445 | 10 | WNSNNLDSKV | 0.000839 | 17 |
| HLA-B*07:02 | 1 | 602 | 610 | 9 | TNTSNQVAV | 0.000839 | 13 |
| HLA-A*30:01 | 1 | 624 | 633 | 10 | IHADQLTPTW | 0.000839 | 29 |
| HLA-B*58:01 | 1 | 852 | 860 | 9 | AQKFNGLTV | 0.000839 | 15 |
| HLA-A*23:01 | 1 | 989 | 997 | 9 | AEVQIDRLI | 0.000839 | 8.8 |
| HLA-A*03:01 | 1 | 1107 | 1116 | 10 | RNFYEPQIIT | 0.000839 | 13 |
| HLA-A*68:01 | 1 | 1144 | 1152 | 9 | ELDSFKEEL | 0.000839 | 16 |
| HLA-A*68:01 | 1 | 46 | 54 | 9 | SVLHSTQDL | 0.000838 | 16 |
| HLA-B*44:02 | 1 | 136 | 145 | 10 | CNDPFLGVY | 0.000838 | 8.6 |
| HLA-B*57:01 | 1 | 194 | 203 | 10 | FKNIDGYFKI | 0.000838 | 21 |
| HLA-A*01:01 | 1 | 312 | 320 | 9 | IYQTSNFRV | 0.000838 | 17 |
| HLA-A*68:02 | 1 | 805 | 814 | 10 | ILPDPSKPSK | 0.000838 | 17 |
| HLA-B*57:01 | 1 | 34 | 42 | 9 | RGVYYPDKV | 0.000837 | 21 |
| HLA-A*68:01 | 1 | 401 | 409 | 9 | VIRGDEVQR | 0.000837 | 16 |
| HLA-B*44:03 | 1 | 486 | 495 | 10 | FNCYFPLQSY | 0.000837 | 8.6 |
| HLA-A*02:01 | 1 | 615 | 624 | 10 | VNCTEVPVAI | 0.000837 | 15 |
| HLA-A*02:01 | 1 | 1164 | 1172 | 9 | VDLGDISGI | 0.000837 | 15 |
| HLA-A*02:03 | 1 | 247 | 256 | 10 | SYLTPGDSSS | 0.000836 | 17 |
| HLA-B*53:01 | 1 | 263 | 271 | 9 | AAYVYGYLQ | 0.000836 | 11 |
| HLA-A*02:03 | 1 | 333 | 341 | 9 | TNLCPFGEV | 0.000836 | 17 |
| HLA-A*03:01 | 1 | 366 | 375 | 10 | SVLYNSASF | 0.000836 | 13 |
| HLA-B*57:01 | 1 | 417 | 426 | 10 | KIADYNYKLP | 0.000836 | 21 |
| HLA-B*57:01 | 1 | 538 | 546 | 9 | CVNFFNGL | 0.000836 | 21 |
| HLA-A*33:01 | 1 | 859 | 868 | 10 | TVLPPLLTDE | 0.000836 | 15 |
| HLA-A*26:01 | 1 | 926 | 934 | 9 | QFNSAIGKI | 0.000836 | 12 |
| HLA-A*30:02 | 1 | 63 | 72 | 10 | TWFHAIHVS | 0.000835 | 26 |
| HLA-A*31:01 | 1 | 135 | 144 | 10 | FCNDPFLGVY | 0.000835 | 17 |
| HLA-B*40:01 | 1 | 326 | 335 | 10 | IVRFPNITNL | 0.000835 | 8.1 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*51:01 | 1 | 420 | 429 | 10 | DYNYKLPDDF 0.000835 | 20 |
| HLA-A*30:02 | 1 | 587 | 595 | 9 | ITPCSFQGV 0.000835 | 26 |
| HLA-B*51:01 | 1 | 639 | 647 | 9 | GSNVFQTRA 0.000835 | 20 |
| HLA-B*44:03 | 1 | 706 | 714 | 9 | AYSNNSIAI 0.000835 | 8.7 |
| HLA-A*02:06 | 1 | 751 | 759 | 9 | NLLLQYGSF 0.000835 | 21 |
| HLA-A*68:01 | 1 | 817 | 826 | 10 | FIEDLLFNKV 0.000835 | 16 |
| HLA-A*32:01 | 1 | 826 | 835 | 10 | VTLADAGFIK 0.000835 | 12 |
| HLA-A*02:01 | 1 | 1023 | 1031 | 9 | NLAATKMSE 0.000835 | 15 |
| HLA-A*11:01 | 1 | 1054 | 1063 | 10 | QSAPHGVVFL 0.000835 | 11 |
| HLA-A*33:01 | 1 | 1102 | 1111 | 10 | WFTVQRNFYE 0.000835 | 15 |
| HLA-A*68:02 | 1 | 1103 | 1112 | 10 | FVTQRNFYEP 0.000835 | 17 |
| HLA-A*01:01 | 1 | 238 | 246 | 9 | FQTLALHR 0.000834 | 17 |
| HLA-A*23:01 | 1 | 241 | 249 | 9 | LLALHRSYL 0.000834 | 8.9 |
| HLA-A*30:01 | 1 | 467 | 475 | 9 | DISTEIYQA 0.000834 | 29 |
| HLA-A*02:06 | 1 | 764 | 772 | 9 | NRALTGIAV 0.000834 | 21 |
| HLA-A*33:01 | 1 | 868 | 877 | 10 | EMIAQYTSAL 0.000834 | 15 |
| HLA-B*57:01 | 1 | 40 | 49 | 10 | DKVFRSSVLH 0.000833 | 21 |
| HLA-B*58:01 | 1 | 301 | 309 | 9 | CTLKSFTVE 0.000833 | 15 |
| HLA-A*68:02 | 1 | 336 | 345 | 10 | CPFGEVFNAT 0.000833 | 17 |
| HLA-B*57:01 | 1 | 729 | 737 | 9 | VSMTKTSVD 0.000833 | 21 |
| HLA-A*23:01 | 1 | 740 | 749 | 10 | MYICGDSTEC 0.000833 | 8.9 |
| HLA-B*44:03 | 1 | 948 | 956 | 9 | LQDVVNQNA 0.000833 | 8.7 |
| HLA-B*15:01 | 1 | 1195 | 1203 | 9 | ESLIDLQEL 0.000833 | 16 |
| HLA-A*02:03 | 1 | 256 | 264 | 9 | SGWTAGAAA 0.000832 | 17 |
| HLA-A*02:06 | 1 | 329 | 338 | 10 | FPNITNLCPF 0.000832 | 21 |
| HLA-A*02:03 | 1 | 525 | 533 | 9 | CGPKKSTNL 0.000832 | 17 |
| HLA-A*02:03 | 1 | 613 | 622 | 10 | QDVNCTEVPV 0.000832 | 17 |
| HLA-B*07:02 | 1 | 666 | 674 | 9 | IGAGICASY 0.000832 | 13 |
| HLA-B*44:02 | 1 | 864 | 873 | 10 | LLTDEMIAQY 0.000832 | 8.7 |
| HLA-A*26:01 | 1 | 1026 | 1034 | 9 | ATKMSECVL 0.000832 | 12 |
| HLA-B*58:01 | 1 | 1036 | 1044 | 9 | QSKRVDFCG 0.000832 | 15 |
| HLA-B*08:01 | 1 | 1059 | 1067 | 9 | GVVFLHVTY 0.000832 | 21 |
| HLA-A*26:01 | 1 | 1224 | 1232 | 9 | LIAIVMVTI 0.000832 | 12 |
| HLA-A*26:01 | 1 | 45 | 54 | 10 | SSVLHSTQDL 0.000831 | 12 |
| HLA-A*33:01 | 1 | 135 | 143 | 9 | FCNDPFLGV 0.000831 | 15 |
| HLA-B*35:01 | 1 | 248 | 256 | 9 | YLTPGDSSS 0.000831 | 11 |
| HLA-B*57:01 | 1 | 418 | 426 | 9 | IADYNYKLP 0.000831 | 21 |
| HLA-A*68:01 | 1 | 716 | 725 | 10 | TNFTISVTTE 0.000831 | 16 |
| HLA-B*40:01 | 1 | 898 | 906 | 9 | FAMQMAYRF 0.000831 | 8.1 |
| HLA-B*40:01 | 1 | 930 | 938 | 9 | AIGKIQDSL 0.000831 | 8.1 |
| HLA-A*24:02 | 1 | 1073 | 1081 | 9 | KNFTTAPAI 0.000831 | 8.7 |
| HLA-B*57:01 | 1 | 38 | 46 | 9 | YDPKVFRSS 0.00083 | 21 |
| HLA-A*11:01 | 1 | 51 | 59 | 9 | TQDLFLPFF 0.00083 | 11 |
| HLA-A*11:01 | 1 | 171 | 179 | 9 | VSQPFLMDL 0.00083 | 11 |
| HLA-A*30:01 | 1 | 206 | 215 | 10 | KHTPINLVRD 0.00083 | 29 |
| HLA-A*23:01 | 1 | 207 | 216 | 10 | HTPINLVRDL 0.00083 | 8.9 |
| HLA-B*40:01 | 1 | 456 | 464 | 9 | FRKSNLKPF 0.00083 | 8.1 |
| HLA-B*07:02 | 1 | 1194 | 1203 | 10 | NESLIDLQEL 0.00083 | 13 |
| HLA-A*11:01 | 1 | 319 | 327 | 9 | RVQPTESIV 0.000829 | 11 |
| HLA-A*26:01 | 1 | 348 | 357 | 10 | ASVYAWNRKR 0.000829 | 12 |
| HLA-A*32:01 | 1 | 601 | 610 | 10 | GTNTSNQVAV 0.000829 | 12 |
| HLA-A*68:01 | 1 | 868 | 877 | 10 | EMIAQYTSAL 0.000829 | 16 |
| HLA-B*58:01 | 1 | 926 | 934 | 9 | QFNSAIGKI 0.000829 | 15 |
| HLA-A*26:01 | 1 | 1011 | 1019 | 9 | QLIRAAEIR 0.000829 | 12 |
| HLA-A*68:01 | 1 | 1168 | 1177 | 10 | DISGINASVV 0.000829 | 16 |
| HLA-A*30:01 | 1 | 456 | 465 | 10 | FRKSNLKPFE 0.000828 | 29 |
| HLA-B*07:02 | 1 | 569 | 577 | 9 | IADTTDAVR 0.000828 | 13 |
| HLA-A*02:06 | 1 | 744 | 753 | 10 | GDSTECSNLL 0.000828 | 21 |
| HLA-A*01:01 | 1 | 788 | 797 | 10 | IYKTPPIKDF 0.000828 | 17 |
| HLA-B*53:01 | 1 | 943 | 951 | 9 | SALGKLQDV 0.000828 | 11 |
| HLA-A*32:01 | 1 | 1124 | 1132 | 9 | GNCDDVIGI 0.000828 | 12 |
| HLA-A*24:02 | 1 | 1261 | 1270 | 10 | SEPVLKGVKL 0.000828 | 8.7 |
| HLA-B*58:01 | 1 | 6 | 15 | 10 | VLLPLVSSQC 0.000827 | 15 |
| HLA-A*68:01 | 1 | 83 | 92 | 10 | VLPFNDGVYF 0.000827 | 16 |
| HLA-B*44:03 | 1 | 133 | 141 | 9 | FQFCNDPFL 0.000827 | 8.7 |
| HLA-A*31:01 | 1 | 300 | 308 | 9 | KCTLKSFTV 0.000827 | 17 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*33:01 | 1 | 444 | 453 | 10 | KVGGNYNYLY 0.000827 | 15 |
| HLA-A*31:01 | 1 | 450 | 459 | 10 | NYLYRFLFRKS 0.000827 | 17 |
| HLA-A*30:01 | 1 | 552 | 561 | 10 | LTESNKKFLP 0.000827 | 29 |
| HLA-A*02:01 | 1 | 574 | 582 | 9 | DAVRDPQTL 0.000827 | 15 |
| HLA-A*30:01 | 1 | 812 | 821 | 10 | PSKRSEFIEDL 0.000827 | 29 |
| HLA-B*15:01 | 1 | 876 | 885 | 10 | ALLAGTITSG 0.000827 | 16 |
| HLA-B*15:01 | 1 | 1223 | 1231 | 9 | GLIAIVMVT 0.000827 | 16 |
| HLA-A*31:01 | 1 | 94 | 103 | 10 | STEKSNIIRG 0.000826 | 17 |
| HLA-A*02:06 | 1 | 287 | 296 | 10 | DAVDCALDPL 0.000826 | 21 |
| HLA-B*58:01 | 1 | 348 | 357 | 10 | ASVYAWNRKR 0.000826 | 15 |
| HLA-A*30:01 | 1 | 360 | 369 | 10 | NCVADYSVLY 0.000826 | 29 |
| HLA-A*03:01 | 1 | 551 | 559 | 9 | VLTESNKKF 0.000826 | 13 |
| HLA-A*30:01 | 1 | 554 | 563 | 10 | ESNKKFLPFQ 0.000826 | 29 |
| HLA-A*33:01 | 1 | 616 | 625 | 10 | NCTEVPVAIH 0.000826 | 15 |
| HLA-B*57:01 | 1 | 671 | 679 | 9 | CASYQTQTN 0.000826 | 21 |
| HLA-B*44:02 | 1 | 744 | 752 | 9 | GDSTECNL 0.000826 | 8.7 |
| HLA-B*40:01 | 1 | 984 | 993 | 10 | LDKVEAEVQI 0.000826 | 8.1 |
| HLA-A*30:01 | 1 | 1184 | 1193 | 10 | DRLNEVAKNL 0.000826 | 29 |
| HLA-A*03:01 | 1 | 266 | 275 | 10 | YVGYLQPRTF 0.000825 | 13 |
| HLA-A*30:02 | 1 | 273 | 282 | 10 | RTFLLKYEN 0.000825 | 26 |
| HLA-A*24:02 | 1 | 297 | 306 | 10 | SETKCTLKSF 0.000825 | 8.7 |
| HLA-A*68:01 | 1 | 305 | 313 | 9 | SFTVEKGIY 0.000825 | 16 |
| HLA-A*24:02 | 1 | 329 | 338 | 10 | FPNITNLCPF 0.000825 | 8.7 |
| HLA-B*57:01 | 1 | 425 | 434 | 10 | LPDDFTGCVI 0.000825 | 21 |
| HLA-A*31:01 | 1 | 433 | 441 | 9 | VIAWNSNL 0.000825 | 17 |
| HLA-B*15:01 | 1 | 568 | 576 | 9 | DIADTTDAV 0.000825 | 16 |
| HLA-B*07:02 | 1 | 725 | 733 | 9 | EILPVSMTK 0.000825 | 13 |
| HLA-A*30:01 | 1 | 1071 | 1079 | 9 | QEKNFITAP 0.000825 | 29 |
| HLA-A*01:01 | 1 | 322 | 330 | 9 | PTESIVRFP 0.000824 | 17 |
| HLA-B*44:02 | 1 | 576 | 585 | 10 | VRDPQTLEIL 0.000824 | 8.7 |
| HLA-A*02:06 | 1 | 677 | 685 | 9 | QTNSPRRAR 0.000824 | 21 |
| HLA-A*24:02 | 1 | 734 | 742 | 9 | TSVDCTMYI 0.000824 | 8.7 |
| HLA-A*03:01 | 1 | 892 | 901 | 10 | AALQIPFAMQ 0.000824 | 13 |
| HLA-A*30:02 | 1 | 1052 | 1060 | 9 | FPQSAPHGV 0.000824 | 26 |
| HLA-A*02:03 | 1 | 1210 | 1218 | 9 | IKWPWYIWL 0.000824 | 17 |
| HLA-A*24:02 | 1 | 338 | 347 | 10 | FGEVFNATRF 0.000823 | 8.7 |
| HLA-A*30:01 | 1 | 464 | 473 | 10 | FERDISTEY 0.000823 | 29 |
| HLA-A*02:01 | 1 | 674 | 682 | 9 | YQTQTNSPR 0.000823 | 15 |
| HLA-A*11:01 | 1 | 704 | 712 | 9 | SVAYSNNSI 0.000823 | 11 |
| HLA-A*26:01 | 1 | 818 | 826 | 9 | IEDLLFNKV 0.000823 | 12 |
| HLA-A*30:01 | 1 | 827 | 836 | 10 | TLADAGFIKQ 0.000823 | 29 |
| HLA-B*08:01 | 1 | 1190 | 1198 | 9 | AKNLNESLI 0.000823 | 21 |
| HLA-A*30:01 | 1 | 68 | 76 | 9 | IHVSGTNGT 0.000822 | 29 |
| HLA-A*30:01 | 1 | 82 | 90 | 9 | PVLPFNDGV 0.000822 | 29 |
| HLA-A*30:01 | 1 | 116 | 124 | 9 | SLILVNNAT 0.000822 | 29 |
| HLA-A*02:03 | 1 | 315 | 323 | 9 | TSNFRVQPT 0.000822 | 17 |
| HLA-B*08:01 | 1 | 354 | 363 | 10 | NRKRISNCVA 0.000822 | 21 |
| HLA-A*68:02 | 1 | 396 | 404 | 9 | YADSFVIRG 0.000822 | 17 |
| HLA-A*01:01 | 1 | 571 | 580 | 10 | DTTDAVRDPQ 0.000822 | 17 |
| HLA-A*02:01 | 1 | 728 | 736 | 9 | PVSMKTTSV 0.000822 | 15 |
| HLA-A*02:03 | 1 | 1192 | 1201 | 10 | NLNESLIDLQ 0.000822 | 17 |
| HLA-B*15:01 | 1 | 1215 | 1224 | 10 | YIWLGFIAGL 0.000822 | 16 |
| HLA-A*01:01 | 1 | 1220 | 1228 | 9 | FIAGLIAIV 0.000822 | 17 |
| HLA-A*30:02 | 1 | 88 | 97 | 10 | DGVYFASTEK 0.000821 | 26 |
| HLA-B*44:03 | 1 | 233 | 241 | 9 | INITRFQTL 0.000821 | 8.7 |
| HLA-B*15:01 | 1 | 824 | 833 | 10 | NKVTLADAGF 0.000821 | 16 |
| HLA-A*32:01 | 1 | 1040 | 1049 | 10 | VDFCGKGYHL 0.000821 | 12 |
| HLA-A*11:01 | 1 | 1177 | 1185 | 9 | VNIQKEIDR 0.000821 | 11 |
| HLA-A*11:01 | 1 | 15 | 23 | 9 | CVNLTRTRQ 0.00082 | 11 |
| HLA-A*30:01 | 1 | 343 | 351 | 9 | NATRFASVY 0.00082 | 29 |
| HLA-B*08:01 | 1 | 349 | 358 | 10 | SVYAWNRKRI 0.00082 | 21 |
| HLA-B*51:01 | 1 | 219 | 227 | 9 | GFSALEPLV 0.000819 | 20 |
| HLA-A*03:01 | 1 | 235 | 244 | 10 | ITRFQTLAL 0.000819 | 13 |
| HLA-A*31:01 | 1 | 300 | 309 | 10 | KCTLKSFTVE 0.000819 | 17 |
| HLA-B*44:02 | 1 | 746 | 755 | 10 | STECNLLLQ 0.000819 | 8.7 |
| HLA-B*57:01 | 1 | 966 | 975 | 10 | LSSNFGAISS 0.000819 | 21 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*02:06 | 1 | 1016 | 1025 | 10 | AEIRASANLA 0.000819 | 21 |
| HLA-B*58:01 | 1 | 1093 | 1101 | 9 | GVFVSNQTH 0.000819 | 15 |
| HLA-A*30:01 | 1 | 45 | 53 | 9 | SSVLHSTQD 0.000818 | 29 |
| HLA-B*15:01 | 1 | 204 | 213 | 10 | YSKHTPINLV 0.000818 | 16 |
| HLA-A*23:01 | 1 | 791 | 800 | 10 | TPPIKDFGGF 0.000818 | 9.0 |
| HLA-B*51:01 | 1 | 814 | 823 | 10 | KRSFIEDLLF 0.000818 | 20 |
| HLA-A*01:01 | 1 | 844 | 852 | 9 | IAARDLICA 0.000818 | 17 |
| HLA-B*40:01 | 1 | 1210 | 1218 | 9 | IKWPWYIWL 0.000818 | 8.2 |
| HLA-A*30:01 | 1 | 67 | 76 | 10 | AIHVSQTNQT 0.000817 | 29 |
| HLA-B*44:03 | 1 | 136 | 145 | 10 | CNDPFLGVVY 0.000817 | 8.7 |
| HLA-A*26:01 | 1 | 237 | 245 | 9 | RFQTLALH 0.000817 | 12 |
| HLA-A*23:01 | 1 | 271 | 279 | 9 | QPRTFLLKY 0.000817 | 9.0 |
| HLA-A*23:01 | 1 | 292 | 300 | 9 | ALDPLSETK 0.000817 | 9.0 |
| HLA-A*02:01 | 1 | 543 | 551 | 9 | FNGLTGTGV 0.000817 | 16 |
| HLA-B*58:01 | 1 | 575 | 583 | 9 | AVRDPQTL 0.000817 | 15 |
| HLA-B*08:01 | 1 | 822 | 831 | 10 | LFNKVTLADA 0.000817 | 21 |
| HLA-B*15:01 | 1 | 999 | 1008 | 10 | GRLQSLQTYV 0.000817 | 16 |
| HLA-B*35:01 | 1 | 1092 | 1101 | 10 | EGVFVSNQTH 0.000817 | 11 |
| HLA-A*24:02 | 1 | 96 | 104 | 9 | EKSNIIRGW 0.000816 | 8.8 |
| HLA-A*32:01 | 1 | 204 | 213 | 10 | YSKHTPINLV 0.000816 | 12 |
| HLA-B*57:01 | 1 | 480 | 489 | 10 | CNGVEGFNCY 0.000816 | 21 |
| HLA-A*33:01 | 1 | 504 | 513 | 10 | GYQPYRVVVL 0.000816 | 15 |
| HLA-A*03:01 | 1 | 527 | 535 | 9 | PKKSTNLVK 0.000816 | 13 |
| HLA-A*23:01 | 1 | 687 | 695 | 9 | VASQSIIAY 0.000816 | 9.0 |
| HLA-A*03:01 | 1 | 780 | 788 | 9 | EVFAQVKQI 0.000816 | 13 |
| HLA-A*33:01 | 1 | 786 | 795 | 10 | KQIYKTPPIK 0.000816 | 15 |
| HLA-A*30:01 | 1 | 931 | 940 | 10 | IGKIQDSLSS 0.000816 | 29 |
| HLA-A*23:01 | 1 | 987 | 996 | 10 | VEAEVQIDRL 0.000816 | 9.0 |
| HLA-A*68:02 | 1 | 1072 | 1080 | 9 | EKNFTTAPA 0.000816 | 17 |
| HLA-A*31:01 | 1 | 167 | 175 | 9 | TFEYVSQPF 0.000815 | 17 |
| HLA-A*01:01 | 1 | 295 | 303 | 9 | PLSETKCTL 0.000815 | 17 |
| HLA-B*51:01 | 1 | 388 | 396 | 9 | NDLCFTNVY 0.000815 | 20 |
| HLA-A*30:01 | 1 | 898 | 906 | 9 | FAMQMAYRF 0.000815 | 29 |
| HLA-A*30:02 | 1 | 1066 | 1074 | 9 | TYVPAQEK 0.000815 | 26 |
| HLA-A*68:02 | 1 | 344 | 353 | 10 | ATRFASVYAW 0.000814 | 17 |
| HLA-A*68:01 | 1 | 557 | 565 | 9 | KKFLPFQF 0.000814 | 16 |
| HLA-A*30:01 | 1 | 727 | 736 | 10 | LPVSMTKTSV 0.000814 | 29 |
| HLA-A*30:02 | 1 | 934 | 943 | 10 | IQDSLSTAS 0.000814 | 26 |
| HLA-B*08:01 | 1 | 975 | 983 | 9 | SVLNDILSR 0.000814 | 21 |
| HLA-A*32:01 | 1 | 1202 | 1210 | 9 | ELGKYEYI 0.000814 | 12 |
| HLA-A*33:01 | 1 | 32 | 40 | 9 | FTRGVVYYP 0.000813 | 15 |
| HLA-B*35:01 | 1 | 183 | 192 | 10 | QGNFKNLREF 0.000813 | 11 |
| HLA-A*01:01 | 1 | 441 | 450 | 10 | LDSKVGGNYN 0.000813 | 17 |
| HLA-B*58:01 | 1 | 902 | 910 | 9 | MAYRFNGIG 0.000813 | 15 |
| HLA-B*15:01 | 1 | 943 | 951 | 9 | SALGKLQDV 0.000813 | 16 |
| HLA-A*26:01 | 1 | 1077 | 1086 | 10 | TAPAICHGDK 0.000813 | 12 |
| HLA-A*31:01 | 1 | 1078 | 1086 | 9 | APAICHGDK 0.000813 | 17 |
| HLA-A*11:01 | 1 | 1101 | 1110 | 10 | HWFVTQRNFY 0.000813 | 11 |
| HLA-B*08:01 | 1 | 1136 | 1144 | 9 | TVYDPLQPE 0.000813 | 21 |
| HLA-A*30:01 | 1 | 66 | 74 | 9 | HAIHVSQTN 0.000812 | 29 |
| HLA-A*30:02 | 1 | 114 | 123 | 10 | TQSLILVNN 0.000812 | 26 |
| HLA-B*58:01 | 1 | 326 | 334 | 9 | IVRFPNITN 0.000812 | 15 |
| HLA-A*31:01 | 1 | 722 | 731 | 10 | VTEILPVSM 0.000812 | 17 |
| HLA-B*44:02 | 1 | 813 | 821 | 9 | SKRSFIEDL 0.000812 | 8.8 |
| HLA-B*58:01 | 1 | 937 | 946 | 10 | SLSSTASALG 0.000812 | 15 |
| HLA-A*68:01 | 1 | 447 | 455 | 9 | GNYNLYRL 0.000811 | 16 |
| HLA-A*01:01 | 1 | 488 | 497 | 10 | CYFPLQSYGF 0.000811 | 17 |
| HLA-A*01:01 | 1 | 506 | 515 | 10 | QPYRVVLSF 0.000811 | 17 |
| HLA-A*02:06 | 1 | 592 | 600 | 9 | FGGVSVITP 0.000811 | 22 |
| HLA-A*01:01 | 1 | 711 | 719 | 9 | SIAIPTNFT 0.000811 | 17 |
| HLA-B*40:01 | 1 | 813 | 822 | 10 | SKRSFIEDLL 0.000811 | 8.2 |
| HLA-A*30:02 | 1 | 907 | 916 | 10 | NGIGVTQNVL 0.000811 | 26 |
| HLA-B*44:02 | 1 | 161 | 170 | 10 | SSANNCTFEY 0.000811 | 8.8 |
| HLA-B*57:01 | 1 | 238 | 246 | 9 | FQTLALHR 0.000811 | 21 |
| HLA-B*57:01 | 1 | 314 | 323 | 10 | QTSNFRVQPT 0.000811 | 21 |
| HLA-A*24:02 | 1 | 361 | 369 | 9 | CVADYSVLY 0.000811 | 8.8 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*58:01 | 1 | 499 | 507 | 9 | PTNGVGYQP 0.00081 | 15 |
| HLA-B*51:01 | 1 | 556 | 565 | 10 | NKKFLPFQF 0.00081 | 20 |
| HLA-A*32:01 | 1 | 1188 | 1197 | 10 | EVAKNLNESL 0.00081 | 12 |
| HLA-A*30:02 | 1 | 27 | 35 | 9 | AYTNSFTRG 0.000809 | 26 |
| HLA-A*02:01 | 1 | 557 | 565 | 9 | KKFLPFQF 0.000809 | 16 |
| HLA-A*31:01 | 1 | 611 | 619 | 9 | LYQDVNCTE 0.000809 | 17 |
| HLA-A*11:01 | 1 | 677 | 686 | 10 | QTNSPRRARS 0.000809 | 11 |
| HLA-A*32:01 | 1 | 833 | 841 | 9 | FIKQYGDCL 0.000809 | 12 |
| HLA-B*08:01 | 1 | 843 | 852 | 10 | DIAARDLICA 0.000809 | 21 |
| HLA-A*02:03 | 1 | 965 | 974 | 10 | QLSSNFGAIS 0.000809 | 17 |
| HLA-B*57:01 | 1 | 996 | 1005 | 10 | LITGRLQSLQ 0.000809 | 21 |
| HLA-A*03:01 | 1 | 1216 | 1224 | 9 | IWLGFIAGL 0.000809 | 13 |
| HLA-B*07:02 | 1 | 69 | 77 | 9 | HVSGTNGTK 0.000808 | 13 |
| HLA-A*02:01 | 1 | 93 | 101 | 9 | ASTEKSNII 0.000808 | 16 |
| HLA-A*33:01 | 1 | 108 | 116 | 9 | TTLDSKTQS 0.000808 | 15 |
| HLA-A*33:01 | 1 | 436 | 444 | 9 | WNSNNLDSK 0.000808 | 15 |
| HLA-A*01:01 | 1 | 587 | 595 | 9 | ITPCSFGGV 0.000808 | 17 |
| HLA-B*35:01 | 1 | 734 | 742 | 9 | TSVDCTMYI 0.000808 | 11 |
| HLA-A*03:01 | 1 | 782 | 791 | 10 | FAQVKQIYKT 0.000808 | 13 |
| HLA-B*57:01 | 1 | 821 | 829 | 9 | LLFNKVTLA 0.000808 | 21 |
| HLA-A*02:01 | 1 | 865 | 874 | 10 | LTDEMIAQYT 0.000808 | 16 |
| HLA-B*58:01 | 1 | 6 | 14 | 9 | VLLPLVSSQ 0.000807 | 15 |
| HLA-A*02:06 | 1 | 126 | 134 | 9 | VVIKVICEFQ 0.000807 | 22 |
| HLA-A*26:01 | 1 | 494 | 503 | 10 | SYGFQPTNGV 0.000807 | 12 |
| HLA-A*33:01 | 1 | 839 | 848 | 10 | DCLGDIAARD 0.000807 | 15 |
| HLA-B*08:01 | 1 | 967 | 976 | 10 | SSNFGAISSV 0.000807 | 22 |
| HLA-A*30:01 | 1 | 1082 | 1091 | 10 | CHDGKAHFPR 0.000807 | 29 |
| HLA-A*03:01 | 1 | 5 | 14 | 10 | LVLLPLVSSQ 0.000806 | 13 |
| HLA-A*32:01 | 1 | 40 | 49 | 10 | DKVFRSSVLH 0.000806 | 12 |
| HLA-B*57:01 | 1 | 296 | 304 | 9 | LSEKTKTLK 0.000806 | 21 |
| HLA-A*68:02 | 1 | 547 | 555 | 9 | TGTGVLTES 0.000806 | 17 |
| HLA-B*57:01 | 1 | 609 | 617 | 9 | AVLYQDVNC 0.000806 | 21 |
| HLA-B*53:01 | 1 | 798 | 806 | 9 | GGFNFSQIL 0.000806 | 11 |
| HLA-A*01:01 | 1 | 965 | 973 | 9 | QLSSNFGAI 0.000806 | 17 |
| HLA-A*02:06 | 1 | 1064 | 1073 | 10 | HVTYVPAQEK 0.000806 | 22 |
| HLA-A*33:01 | 1 | 1127 | 1136 | 10 | DVIVIGVNN 0.000806 | 15 |
| HLA-B*53:01 | 1 | 1158 | 1166 | 9 | NHTSPDVDL 0.000806 | 11 |
| HLA-A*68:01 | 1 | 13 | 22 | 10 | SQCVNLTRT 0.000805 | 16 |
| HLA-A*68:01 | 1 | 165 | 174 | 10 | NCTFEYVSQP 0.000805 | 16 |
| HLA-A*30:01 | 1 | 201 | 209 | 9 | FKIYSKHTP 0.000805 | 29 |
| HLA-B*53:01 | 1 | 241 | 249 | 9 | LLALHRSYL 0.000805 | 11 |
| HLA-A*01:01 | 1 | 371 | 379 | 9 | SASFSTFKC 0.000805 | 17 |
| HLA-A*02:03 | 1 | 395 | 403 | 9 | VYADSFVIR 0.000805 | 17 |
| HLA-A*30:02 | 1 | 522 | 531 | 10 | ATVCGPKKST 0.000805 | 26 |
| HLA-A*30:01 | 1 | 610 | 618 | 9 | VLYQDVNCT 0.000805 | 29 |
| HLA-B*53:01 | 1 | 853 | 861 | 9 | QKFNGLTVL 0.000805 | 11 |
| HLA-A*03:01 | 1 | 983 | 992 | 10 | RLDKVEAEVQ 0.000805 | 13 |
| HLA-A*26:01 | 1 | 988 | 997 | 10 | EAEVQIDRLI 0.000805 | 12 |
| HLA-B*40:01 | 1 | 1149 | 1157 | 9 | KEELDKYFK 0.000805 | 8.2 |
| HLA-B*15:01 | 1 | 1216 | 1224 | 9 | IWLGFIAGL 0.000805 | 16 |
| HLA-B*51:01 | 1 | 25 | 33 | 9 | PPAYTNSFT 0.000804 | 20 |
| HLA-B*40:01 | 1 | 162 | 170 | 9 | SANNCTFEY 0.000804 | 8.2 |
| HLA-B*53:01 | 1 | 319 | 327 | 9 | RVQPTESIV 0.000804 | 11 |
| HLA-B*15:01 | 1 | 610 | 619 | 10 | VLYQDVNCTE 0.000804 | 16 |
| HLA-B*51:01 | 1 | 1002 | 1010 | 9 | QSLQTYVTQ 0.000804 | 20 |
| HLA-A*32:01 | 1 | 1049 | 1058 | 10 | LMSFPQSAPH 0.000804 | 12 |
| HLA-A*31:01 | 1 | 1124 | 1132 | 9 | GNCDVVIGI 0.000804 | 17 |
| HLA-A*30:02 | 1 | 352 | 360 | 9 | AWNKRKRISN 0.000803 | 26 |
| HLA-A*26:01 | 1 | 398 | 407 | 10 | DSFVIRGDEV 0.000803 | 12 |
| HLA-B*08:01 | 1 | 424 | 433 | 10 | KLPDDFTGCV 0.000803 | 22 |
| HLA-A*02:03 | 1 | 453 | 461 | 9 | YRLFRKSNL 0.000803 | 18 |
| HLA-A*30:02 | 1 | 851 | 860 | 10 | CAQKFNGLTV 0.000803 | 26 |
| HLA-A*01:01 | 1 | 1136 | 1144 | 9 | TVYDPLQPE 0.000803 | 17 |
| HLA-A*02:06 | 1 | 114 | 122 | 9 | TQSLLVN 0.000802 | 22 |
| HLA-A*30:01 | 1 | 551 | 560 | 10 | VLTESNKKFL 0.000802 | 29 |
| HLA-B*08:01 | 1 | 643 | 651 | 9 | FQTRAGCLI 0.000802 | 22 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*30:02 | 1 | 662 | 670 | 9 | CDIPIGAGI 0.000802 | 26 |
| HLA-A*02:01 | 1 | 751 | 760 | 10 | NLLLQYGSFC 0.000802 | 16 |
| HLA-B*44:02 | 1 | 783 | 792 | 10 | AQVKQIYKTP 0.000802 | 8.8 |
| HLA-B*15:01 | 1 | 791 | 800 | 10 | TPPIKDFGGF 0.000802 | 16 |
| HLA-B*07:02 | 1 | 1094 | 1103 | 10 | VFVSNQTHWF 0.000802 | 13 |
| HLA-B*44:02 | 1 | 28 | 37 | 10 | YTNSFTRGVY 0.000801 | 8.8 |
| HLA-B*44:02 | 1 | 108 | 117 | 10 | TTLDSKTQSL 0.000801 | 8.8 |
| HLA-A*26:01 | 1 | 307 | 315 | 9 | TVEKGIYQT 0.000801 | 13 |
| HLA-A*03:01 | 1 | 326 | 334 | 9 | IVRFPNITN 0.000801 | 13 |
| HLA-A*31:01 | 1 | 572 | 580 | 9 | TTDAVRDPQ 0.000801 | 17 |
| HLA-A*68:01 | 1 | 618 | 626 | 9 | TEVPVAIHA 0.000801 | 16 |
| HLA-A*01:01 | 1 | 674 | 682 | 9 | YQTQTNspr 0.000801 | 17 |
| HLA-A*30:01 | 1 | 710 | 719 | 10 | NSIAIPTNFT 0.000801 | 29 |
| HLA-B*35:01 | 1 | 721 | 729 | 9 | SVTTEILPV 0.000801 | 11 |
| HLA-A*11:01 | 1 | 723 | 731 | 9 | TTEILPVSM 0.000801 | 11 |
| HLA-A*33:01 | 1 | 1037 | 1045 | 9 | SKRVDFCGK 0.000801 | 15 |
| HLA-B*07:02 | 1 | 1071 | 1079 | 9 | QEKNFHTAP 0.000801 | 13 |
| HLA-B*15:01 | 1 | 40 | 48 | 9 | DKVFRSSVL 0.0008 | 16 |
| HLA-A*30:02 | 1 | 113 | 122 | 10 | KTQSLLIVNN 0.0008 | 26 |
| HLA-B*58:01 | 1 | 114 | 123 | 10 | TQSLLIVNNA 0.0008 | 15 |
| HLA-B*58:01 | 1 | 306 | 315 | 10 | FTVEKGIYQT 0.0008 | 15 |
| HLA-B*07:02 | 1 | 553 | 562 | 10 | TESNKKFLPF 0.0008 | 13 |
| HLA-A*23:01 | 1 | 626 | 635 | 10 | ADQLTPTWRV 0.0008 | 9.0 |
| HLA-A*68:02 | 1 | 47 | 55 | 9 | VLHSTQDLF 0.000799 | 17 |
| HLA-A*68:01 | 1 | 150 | 159 | 10 | KSWMSEFRV 0.000799 | 16 |
| HLA-A*33:01 | 1 | 166 | 175 | 10 | CTFEYVSQPF 0.000799 | 15 |
| HLA-A*68:02 | 1 | 249 | 258 | 10 | LTPGDSSSGW 0.000799 | 17 |
| HLA-B*53:01 | 1 | 340 | 348 | 9 | EVFNATRFA 0.000799 | 11 |
| HLA-B*35:01 | 1 | 532 | 541 | 10 | NLVKNKCVNF 0.000799 | 11 |
| HLA-A*32:01 | 1 | 672 | 680 | 9 | ASYQTQTNs 0.000799 | 12 |
| HLA-A*26:01 | 1 | 687 | 696 | 10 | VASQSIIAYT 0.000799 | 13 |
| HLA-B*51:01 | 1 | 990 | 998 | 9 | EVQIDRLIT 0.000799 | 20 |
| HLA-A*02:01 | 1 | 84 | 93 | 10 | LPFNDGVYFA 0.000798 | 16 |
| HLA-A*01:01 | 1 | 171 | 180 | 10 | VSQPFLMDLE 0.000798 | 17 |
| HLA-B*57:01 | 1 | 182 | 190 | 9 | KQGNFKNLR 0.000798 | 21 |
| HLA-A*02:06 | 1 | 229 | 237 | 9 | LPIGINITR 0.000798 | 22 |
| HLA-A*02:06 | 1 | 407 | 416 | 10 | VRQIAPGQTG 0.000798 | 22 |
| HLA-A*01:01 | 1 | 424 | 432 | 9 | KLPDDFTGC 0.000798 | 17 |
| HLA-A*68:01 | 1 | 498 | 507 | 10 | QPTNGVGYQP 0.000798 | 16 |
| HLA-B*58:01 | 1 | 964 | 972 | 9 | KQLSSNFGA 0.000798 | 15 |
| HLA-B*07:02 | 1 | 1018 | 1026 | 9 | IRASANLAA 0.000798 | 13 |
| HLA-B*15:01 | 1 | 1262 | 1270 | 9 | EPVCLKGVKL 0.000798 | 16 |
| HLA-B*08:01 | 1 | 145 | 154 | 10 | YHKNNKSWME 0.000797 | 22 |
| HLA-A*01:01 | 1 | 199 | 207 | 9 | GYFKIYSKH 0.000797 | 17 |
| HLA-A*24:02 | 1 | 200 | 209 | 10 | YFKIYSKHTP 0.000797 | 8.8 |
| HLA-A*11:01 | 1 | 321 | 329 | 9 | QPTESIVRF 0.000797 | 11 |
| HLA-A*31:01 | 1 | 332 | 340 | 9 | ITNLCPFGE 0.000797 | 17 |
| HLA-A*33:01 | 1 | 416 | 424 | 9 | GKIADYNYK 0.000797 | 15 |
| HLA-A*30:02 | 1 | 493 | 502 | 10 | QSYGFQPTNG 0.000797 | 26 |
| HLA-A*68:02 | 1 | 890 | 898 | 9 | AGAALQIPF 0.000797 | 17 |
| HLA-A*26:01 | 1 | 999 | 1008 | 10 | GRLQSLQTYV 0.000797 | 13 |
| HLA-A*02:06 | 1 | 323 | 332 | 10 | TESIVRFPNI 0.000796 | 22 |
| HLA-A*30:02 | 1 | 373 | 381 | 9 | SFSTFKCYG 0.000796 | 27 |
| HLA-A*31:01 | 1 | 447 | 456 | 10 | GNYNYLYRLF 0.000796 | 17 |
| HLA-A*30:02 | 1 | 600 | 608 | 9 | PGTNTSNQV 0.000796 | 27 |
| HLA-A*11:01 | 1 | 636 | 644 | 9 | YSTGSNVFQ 0.000796 | 11 |
| HLA-B*08:01 | 1 | 828 | 837 | 10 | LADAGFIKQY 0.000796 | 22 |
| HLA-B*35:01 | 1 | 864 | 872 | 9 | LLTDEMIAQ 0.000796 | 11 |
| HLA-A*01:01 | 1 | 1029 | 1037 | 9 | MSECVLGQS 0.000796 | 17 |
| HLA-B*51:01 | 1 | 1206 | 1215 | 10 | YEQYIKWPWY 0.000796 | 20 |
| HLA-A*31:01 | 1 | 341 | 350 | 10 | VFNATRFASV 0.000795 | 17 |
| HLA-A*30:02 | 1 | 466 | 474 | 9 | RDISTEIIYQ 0.000795 | 27 |
| HLA-A*01:01 | 1 | 581 | 589 | 9 | TLEILDITP 0.000795 | 17 |
| HLA-B*57:01 | 1 | 665 | 674 | 10 | PIGAGICASY 0.000795 | 21 |
| HLA-B*15:01 | 1 | 730 | 738 | 9 | SMTKTSVDC 0.000795 | 16 |
| HLA-B*40:01 | 1 | 746 | 754 | 9 | STECSNLLL 0.000795 | 8.3 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*44:03 | 1 | 864 | 873 | 10 | LLTDEMIAQY 0.000795 | 8.9 |
| HLA-A*01:01 | 1 | 933 | 941 | 9 | KIQDLSST 0.000795 | 17 |
| HLA-B*40:01 | 1 | 1056 | 1064 | 9 | APHGVVFLH 0.000795 | 8.3 |
| HLA-B*57:01 | 1 | 121 | 130 | 10 | NNATNVVIVK 0.000794 | 21 |
| HLA-A*32:01 | 1 | 222 | 231 | 10 | ALEPLVDLPI 0.000794 | 12 |
| HLA-B*08:01 | 1 | 306 | 314 | 9 | FTVEKGIYQ 0.000794 | 22 |
| HLA-A*02:06 | 1 | 813 | 821 | 9 | SKRSFIEDL 0.000794 | 22 |
| HLA-A*23:01 | 1 | 901 | 909 | 9 | QMAYRFNGI 0.000794 | 9.0 |
| HLA-B*08:01 | 1 | 922 | 931 | 10 | LIANQFNSAI 0.000794 | 22 |
| HLA-B*08:01 | 1 | 1211 | 1220 | 10 | KWPWYIWLGF 0.000794 | 22 |
| HLA-B*07:02 | 1 | 1042 | 1050 | 9 | FCGKGYHLM 0.000793 | 13 |
| HLA-A*02:01 | 1 | 235 | 243 | 9 | ITRFQTLA 0.000792 | 16 |
| HLA-B*58:01 | 1 | 318 | 326 | 9 | FRVQPTESI 0.000792 | 15 |
| HLA-B*57:01 | 1 | 395 | 403 | 9 | VYADSFVIR 0.000792 | 21 |
| HLA-B*07:02 | 1 | 972 | 980 | 9 | AISSVLNDI 0.000792 | 13 |
| HLA-A*26:01 | 1 | 1006 | 1014 | 9 | TYVTQQLIR 0.000792 | 13 |
| HLA-A*30:01 | 1 | 1098 | 1106 | 9 | NGTHWFVTQ 0.000792 | 29 |
| HLA-B*08:01 | 1 | 383 | 391 | 9 | SPTKLNDLC 0.000791 | 22 |
| HLA-B*08:01 | 1 | 456 | 465 | 10 | FRKSNLKPFE 0.000791 | 22 |
| HLA-B*08:01 | 1 | 574 | 583 | 10 | DAVRDPQTL 0.000791 | 22 |
| HLA-A*33:01 | 1 | 614 | 622 | 9 | DVNCTEVPV 0.000791 | 15 |
| HLA-A*30:02 | 1 | 641 | 650 | 10 | NVFQTRAGCL 0.000791 | 27 |
| HLA-B*07:02 | 1 | 678 | 687 | 10 | TNSPRRARSV 0.000791 | 13 |
| HLA-B*40:01 | 1 | 806 | 814 | 9 | LPDPSKPSK 0.000791 | 8.3 |
| HLA-B*15:01 | 1 | 849 | 858 | 10 | LICAQKFNGL 0.000791 | 16 |
| HLA-A*33:01 | 1 | 1046 | 1054 | 9 | GYHLMSFPQ 0.000791 | 15 |
| HLA-B*35:01 | 1 | 7 | 16 | 10 | LLPLVSSQCV 0.00079 | 11 |
| HLA-A*30:02 | 1 | 186 | 195 | 10 | FKNLREFVFK 0.00079 | 27 |
| HLA-B*57:01 | 1 | 197 | 206 | 10 | IDGYFKIYSK 0.00079 | 21 |
| HLA-B*53:01 | 1 | 291 | 299 | 9 | CALDPLSET 0.00079 | 11 |
| HLA-B*35:01 | 1 | 356 | 365 | 10 | KRISNCVADY 0.00079 | 11 |
| HLA-A*33:01 | 1 | 501 | 510 | 10 | NGVGYQPYRV 0.00079 | 15 |
| HLA-B*57:01 | 1 | 658 | 667 | 10 | NSYECDIPIG 0.00079 | 21 |
| HLA-B*58:01 | 1 | 841 | 849 | 9 | LGDIAARDL 0.00079 | 15 |
| HLA-B*35:01 | 1 | 865 | 874 | 10 | LTDEMIAQYT 0.00079 | 11 |
| HLA-A*30:01 | 1 | 574 | 582 | 9 | DAVRDPQTL 0.000789 | 29 |
| HLA-A*02:06 | 1 | 590 | 599 | 10 | CSFGGVSVIT 0.000789 | 22 |
| HLA-B*57:01 | 1 | 677 | 686 | 10 | QTNSPRRARS 0.000789 | 21 |
| HLA-A*30:02 | 1 | 913 | 921 | 9 | QNVLYENQK 0.000789 | 27 |
| HLA-A*23:01 | 1 | 937 | 945 | 9 | SLSSTASAL 0.000789 | 9.1 |
| HLA-A*02:06 | 1 | 1125 | 1133 | 9 | NCDVVIGIV 0.000789 | 22 |
| HLA-A*03:01 | 1 | 1128 | 1136 | 9 | VVIGIVNNT 0.000789 | 13 |
| HLA-A*30:02 | 1 | 1170 | 1179 | 10 | SGINASVUNI 0.000789 | 27 |
| HLA-A*30:02 | 1 | 166 | 174 | 9 | CTFEYVSQP 0.000788 | 27 |
| HLA-A*68:01 | 1 | 265 | 274 | 10 | YYVGYLQPR 0.000788 | 17 |
| HLA-A*24:02 | 1 | 627 | 636 | 10 | DQLTPTWRVY 0.000788 | 8.9 |
| HLA-A*01:01 | 1 | 695 | 704 | 10 | YTMSLGAENS 0.000788 | 17 |
| HLA-B*58:01 | 1 | 719 | 728 | 10 | TISVTTEILP 0.000788 | 15 |
| HLA-B*44:03 | 1 | 745 | 753 | 9 | DSTECSNLL 0.000788 | 8.9 |
| HLA-A*02:01 | 1 | 797 | 805 | 9 | FGGFNFSQI 0.000788 | 16 |
| HLA-A*03:01 | 1 | 997 | 1005 | 9 | ITGRLQSLQ 0.000788 | 13 |
| HLA-A*26:01 | 1 | 1070 | 1078 | 9 | AQEKNFSTA 0.000788 | 13 |
| HLA-B*44:03 | 1 | 199 | 207 | 9 | GYFKIYSKH 0.000787 | 8.9 |
| HLA-A*30:01 | 1 | 421 | 430 | 10 | YNYKLPDDFT 0.000787 | 29 |
| HLA-B*51:01 | 1 | 651 | 659 | 9 | IGAHEVNNS 0.000787 | 20 |
| HLA-B*15:01 | 1 | 782 | 790 | 9 | FAQVKQIYK 0.000787 | 16 |
| HLA-A*68:01 | 1 | 784 | 792 | 9 | QVKQIYKTP 0.000787 | 17 |
| HLA-A*30:02 | 1 | 823 | 831 | 9 | FNKVTLADA 0.000787 | 27 |
| HLA-A*26:01 | 1 | 933 | 941 | 9 | KIQDLSST 0.000787 | 13 |
| HLA-B*57:01 | 1 | 1039 | 1048 | 10 | RVDFCGKGYH 0.000787 | 22 |
| HLA-A*31:01 | 1 | 1206 | 1214 | 9 | YEQYIKWPW 0.000787 | 17 |
| HLA-A*30:01 | 1 | 57 | 65 | 9 | PFFSNVTFW 0.000786 | 29 |
| HLA-B*07:02 | 1 | 149 | 157 | 9 | NKSWMSEFE 0.000786 | 13 |
| HLA-A*01:01 | 1 | 318 | 326 | 9 | FRVQPTESI 0.000786 | 17 |
| HLA-A*11:01 | 1 | 340 | 348 | 9 | EVFNATRFA 0.000786 | 11 |
| HLA-B*15:01 | 1 | 502 | 511 | 10 | GVGYQPYRVV 0.000786 | 16 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*30:02 | 1 | 595 | 603 | 9 | VSVITPGTN 0.000786 | 27 |
| HLA-A*30:02 | 1 | 598 | 607 | 10 | ITPGTNTSNQ 0.000786 | 27 |
| HLA-A*30:02 | 1 | 605 | 613 | 9 | SNQVAVLYQ 0.000786 | 27 |
| HLA-A*01:01 | 1 | 915 | 924 | 10 | VLYENQKLIA 0.000786 | 17 |
| HLA-B*44:03 | 1 | 925 | 934 | 10 | NQFNSAIGKI 0.000786 | 8.9 |
| HLA-A*02:06 | 1 | 969 | 977 | 9 | NFGAISSVL 0.000786 | 22 |
| HLA-A*30:01 | 1 | 1001 | 1010 | 10 | LQSLQTYVTQ 0.000786 | 29 |
| HLA-A*68:01 | 1 | 126 | 135 | 10 | VVIKVCFFQF 0.000785 | 17 |
| HLA-A*24:02 | 1 | 152 | 160 | 9 | WMESEFRVY 0.000785 | 8.9 |
| HLA-A*01:01 | 1 | 202 | 210 | 9 | KIYSKHTPI 0.000785 | 17 |
| HLA-A*30:01 | 1 | 262 | 271 | 10 | AAAYYVGYLQ 0.000785 | 29 |
| HLA-A*02:03 | 1 | 307 | 316 | 10 | TVEKGIYQTS 0.000785 | 18 |
| HLA-B*40:01 | 1 | 510 | 518 | 9 | VVLSFELL 0.000785 | 8.3 |
| HLA-B*07:02 | 1 | 663 | 672 | 10 | DIPIGAGICA 0.000785 | 13 |
| HLA-B*44:03 | 1 | 813 | 821 | 9 | SKRSFIEDL 0.000785 | 8.9 |
| HLA-A*02:03 | 1 | 887 | 896 | 10 | TFGAGAALQI 0.000785 | 18 |
| HLA-A*03:01 | 1 | 996 | 1004 | 9 | LITGRLQSL 0.000785 | 13 |
| HLA-A*01:01 | 1 | 1088 | 1096 | 9 | HFPREGVJV 0.000785 | 17 |
| HLA-B*53:01 | 1 | 503 | 511 | 9 | VGYPYRVV 0.000784 | 11 |
| HLA-A*33:01 | 1 | 538 | 546 | 9 | CVNFNFL 0.000784 | 15 |
| HLA-A*23:01 | 1 | 761 | 770 | 10 | TQLNRALTGI 0.000784 | 9.1 |
| HLA-A*02:06 | 1 | 781 | 789 | 9 | VFAQVKQIY 0.000784 | 22 |
| HLA-A*32:01 | 1 | 783 | 791 | 9 | AQVKQIYKT 0.000784 | 12 |
| HLA-A*01:01 | 1 | 911 | 919 | 9 | VTQNVLYEN 0.000784 | 17 |
| HLA-B*44:02 | 1 | 1029 | 1038 | 10 | MSECVLGQSK 0.000784 | 8.9 |
| HLA-B*08:01 | 1 | 1095 | 1104 | 10 | FVSNGTHWV 0.000784 | 22 |
| HLA-B*53:01 | 1 | 1202 | 1210 | 9 | ELGKYEQYI 0.000784 | 11 |
| HLA-B*53:01 | 1 | 1263 | 1272 | 10 | PVLKGVKLHY 0.000784 | 11 |
| HLA-B*51:01 | 1 | 12 | 20 | 9 | SSQCVNLTT 0.000783 | 21 |
| HLA-A*68:02 | 1 | 18 | 27 | 10 | LTTRTLPPA 0.000783 | 17 |
| HLA-A*30:01 | 1 | 53 | 62 | 10 | DLFLPFFSNV 0.000783 | 29 |
| HLA-A*02:03 | 1 | 142 | 150 | 9 | GVYHKNK 0.000783 | 18 |
| HLA-A*02:01 | 1 | 267 | 275 | 9 | VGYLQPRTF 0.000783 | 16 |
| HLA-B*44:02 | 1 | 356 | 365 | 10 | KRISNCVADY 0.000783 | 8.9 |
| HLA-A*31:01 | 1 | 360 | 369 | 10 | NCVADYSVLV 0.000783 | 17 |
| HLA-A*03:01 | 1 | 647 | 655 | 9 | AGCLIGAEH 0.000783 | 13 |
| HLA-B*07:02 | 1 | 862 | 870 | 9 | PPLLTDEMI 0.000783 | 13 |
| HLA-A*68:02 | 1 | 1187 | 1196 | 10 | NEVAKNLNES 0.000783 | 17 |
| HLA-B*15:01 | 1 | 1262 | 1271 | 10 | EPVLKGVKLH 0.000783 | 16 |
| HLA-A*26:01 | 1 | 53 | 61 | 9 | DLFLPFFSN 0.000782 | 13 |
| HLA-A*03:01 | 1 | 100 | 108 | 9 | IIRGWIFGT 0.000782 | 13 |
| HLA-A*01:01 | 1 | 340 | 348 | 9 | EVFNATRFA 0.000782 | 17 |
| HLA-B*44:03 | 1 | 378 | 386 | 9 | KCYGVSPTK 0.000782 | 8.9 |
| HLA-B*40:01 | 1 | 986 | 995 | 10 | KVEAEVQIDR 0.000782 | 8.3 |
| HLA-A*11:01 | 1 | 1208 | 1216 | 9 | QYIKWPWYI 0.000782 | 11 |
| HLA-B*53:01 | 1 | 172 | 181 | 10 | SQPFLMDLEG 0.000781 | 11 |
| HLA-A*26:01 | 1 | 382 | 390 | 9 | VSPTKLNLD 0.000781 | 13 |
| HLA-A*02:03 | 1 | 394 | 403 | 10 | NVYADSFVIR 0.000781 | 18 |
| HLA-A*23:01 | 1 | 422 | 430 | 9 | NYKLPDDFT 0.000781 | 9.1 |
| HLA-B*58:01 | 1 | 458 | 467 | 10 | KSNLKPFFERD 0.000781 | 15 |
| HLA-B*57:01 | 1 | 607 | 615 | 9 | QVAVLYQDV 0.000781 | 22 |
| HLA-A*02:06 | 1 | 826 | 835 | 10 | VTLADAGFIK 0.000781 | 22 |
| HLA-B*51:01 | 1 | 842 | 850 | 9 | GDIAARDLI 0.000781 | 21 |
| HLA-B*15:01 | 1 | 888 | 896 | 9 | FGAGAALQI 0.000781 | 16 |
| HLA-B*51:01 | 1 | 1009 | 1018 | 10 | TQQLIRAAEI 0.000781 | 21 |
| HLA-B*08:01 | 1 | 1125 | 1133 | 9 | NCDVVIGIV 0.000781 | 22 |
| HLA-A*31:01 | 1 | 31 | 39 | 9 | SFTRGVVYP 0.00078 | 18 |
| HLA-B*51:01 | 1 | 256 | 265 | 10 | SGWTAGAAAY 0.00078 | 21 |
| HLA-A*02:03 | 1 | 565 | 573 | 9 | FGRDIADTT 0.00078 | 18 |
| HLA-B*40:01 | 1 | 635 | 643 | 9 | VYSTGSNVF 0.00078 | 8.3 |
| HLA-B*08:01 | 1 | 730 | 738 | 9 | SMTKTSVDC 0.00078 | 22 |
| HLA-A*02:06 | 1 | 249 | 258 | 10 | LTPGDSSSGW 0.000779 | 22 |
| HLA-A*30:01 | 1 | 363 | 371 | 9 | ADYSVLVNS 0.000779 | 29 |
| HLA-A*31:01 | 1 | 373 | 382 | 10 | SFSTFKCYGV 0.000779 | 18 |
| HLA-A*68:02 | 1 | 402 | 410 | 9 | IRGDEVVRI 0.000779 | 17 |
| HLA-A*30:01 | 1 | 621 | 629 | 9 | PVAIHADQL 0.000779 | 29 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*11:01 | 1 | 647 | 655 | 9 | AGCLIGAEH 0.000779 | 11 |
| HLA-A*33:01 | 1 | 699 | 707 | 9 | LGAENSVAY 0.000779 | 15 |
| HLA-A*02:06 | 1 | 710 | 719 | 10 | NSIAIPTNFT 0.000779 | 22 |
| HLA-A*26:01 | 1 | 1052 | 1061 | 10 | FPQSAPHGUV 0.000779 | 13 |
| HLA-A*30:02 | 1 | 18 | 26 | 9 | LTRTRQLPP 0.000778 | 27 |
| HLA-B*44:03 | 1 | 56 | 65 | 10 | LPFFSNVTWF 0.000778 | 8.9 |
| HLA-A*68:02 | 1 | 263 | 271 | 9 | AAYYVGYLQ 0.000778 | 17 |
| HLA-B*08:01 | 1 | 359 | 367 | 9 | SNCVADYSV 0.000778 | 22 |
| HLA-A*01:01 | 1 | 410 | 418 | 9 | IAPGQTGKI 0.000778 | 17 |
| HLA-A*30:02 | 1 | 436 | 444 | 9 | WNSNNLDSK 0.000778 | 27 |
| HLA-B*53:01 | 1 | 1220 | 1229 | 10 | FIAGLIAIVM 0.000778 | 11 |
| HLA-B*58:01 | 1 | 89 | 97 | 9 | GVYFASTEK 0.000777 | 15 |
| HLA-B*51:01 | 1 | 198 | 207 | 10 | DGYFKIYSKH 0.000777 | 21 |
| HLA-B*58:01 | 1 | 258 | 267 | 10 | WTAGAAAYYV 0.000777 | 15 |
| HLA-B*44:02 | 1 | 368 | 377 | 10 | LYNSASFSTF 0.000777 | 9.0 |
| HLA-B*08:01 | 1 | 389 | 397 | 9 | DLCFTNVYA 0.000777 | 22 |
| HLA-B*57:01 | 1 | 500 | 508 | 9 | TNGVGYQPY 0.000777 | 22 |
| HLA-A*30:01 | 1 | 709 | 718 | 10 | NNSIAIPTNF 0.000777 | 29 |
| HLA-A*23:01 | 1 | 718 | 727 | 10 | FTISVTTEIL 0.000777 | 9.1 |
| HLA-B*57:01 | 1 | 833 | 841 | 9 | FIKQYGDCL 0.000777 | 22 |
| HLA-B*58:01 | 1 | 1191 | 1200 | 10 | KNLNESLIDL 0.000777 | 15 |
| HLA-A*32:01 | 1 | 111 | 119 | 9 | DSKTQSLLI 0.000776 | 12 |
| HLA-A*32:01 | 1 | 113 | 121 | 9 | KTQSLLIVN 0.000776 | 12 |
| HLA-B*07:02 | 1 | 201 | 210 | 10 | FKIYSKHTPI 0.000776 | 14 |
| HLA-A*31:01 | 1 | 316 | 324 | 9 | SNFRVQPT 0.000776 | 18 |
| HLA-A*31:01 | 1 | 718 | 727 | 10 | FTISVTTEIL 0.000776 | 18 |
| HLA-A*02:06 | 1 | 765 | 774 | 10 | RALTGIAVEQ 0.000776 | 22 |
| HLA-A*23:01 | 1 | 856 | 864 | 9 | NGLTVLPPL 0.000776 | 9.1 |
| HLA-A*02:03 | 1 | 1228 | 1236 | 9 | VMVTIMLCC 0.000776 | 18 |
| HLA-A*01:01 | 1 | 228 | 237 | 10 | DLPIGINITR 0.000775 | 17 |
| HLA-B*44:03 | 1 | 688 | 697 | 10 | ASQSIIAYTM 0.000775 | 9.0 |
| HLA-A*30:01 | 1 | 735 | 743 | 9 | SVDCTMYIC 0.000775 | 29 |
| HLA-A*11:01 | 1 | 858 | 866 | 9 | LTVLPPLT 0.000775 | 11 |
| HLA-A*30:01 | 1 | 882 | 891 | 10 | ITSGWTFGAG 0.000775 | 29 |
| HLA-B*51:01 | 1 | 1108 | 1117 | 10 | NFYEQIITT 0.000775 | 21 |
| HLA-A*30:01 | 1 | 1 | 9 | 9 | MFVFLVLLP 0.000774 | 29 |
| HLA-A*02:03 | 1 | 104 | 112 | 9 | WIFGTTLDS 0.000774 | 18 |
| HLA-B*08:01 | 1 | 276 | 284 | 9 | LLKYNENGT 0.000774 | 22 |
| HLA-B*57:01 | 1 | 305 | 314 | 10 | SFTVEKGIYQ 0.000774 | 22 |
| HLA-B*08:01 | 1 | 450 | 458 | 9 | NYLYRFRK 0.000774 | 22 |
| HLA-A*01:01 | 1 | 734 | 743 | 10 | TSVDCTMYIC 0.000774 | 17 |
| HLA-B*58:01 | 1 | 773 | 781 | 9 | EQDKNTQEV 0.000774 | 15 |
| HLA-B*15:01 | 1 | 900 | 908 | 9 | MQMAYRFNG 0.000774 | 16 |
| HLA-B*51:01 | 1 | 1041 | 1050 | 10 | DFCGKGYHLM 0.000774 | 21 |
| HLA-B*58:01 | 1 | 1076 | 1085 | 10 | TTAPAICHDG 0.000774 | 15 |
| HLA-B*15:01 | 1 | 1190 | 1198 | 9 | AKNLNESLI 0.000774 | 16 |
| HLA-B*57:01 | 1 | 77 | 85 | 9 | KRFDNPVLP 0.000773 | 22 |
| HLA-A*03:01 | 1 | 340 | 348 | 9 | EVFNATRFA 0.000773 | 13 |
| HLA-A*01:01 | 1 | 554 | 563 | 10 | ESNKKFLPFQ 0.000773 | 17 |
| HLA-B*08:01 | 1 | 829 | 837 | 9 | ADAGFIKQY 0.000773 | 22 |
| HLA-A*03:01 | 1 | 967 | 976 | 10 | SSNFGAISSV 0.000773 | 13 |
| HLA-B*44:02 | 1 | 1086 | 1095 | 10 | KAHFPREGVF 0.000773 | 9.0 |
| HLA-A*02:03 | 1 | 1189 | 1198 | 10 | VAKNLNESLI 0.000773 | 18 |
| HLA-B*15:01 | 1 | 21 | 29 | 9 | RTQLPPAYT 0.000772 | 16 |
| HLA-B*44:03 | 1 | 22 | 30 | 9 | TQLPPAYTN 0.000772 | 9.0 |
| HLA-B*44:03 | 1 | 125 | 133 | 9 | NVVIKVECF 0.000772 | 9.0 |
| HLA-B*57:01 | 1 | 311 | 319 | 9 | GIYQTSNFR 0.000772 | 22 |
| HLA-B*08:01 | 1 | 691 | 700 | 10 | SIIAYTMSLG 0.000772 | 22 |
| HLA-A*02:03 | 1 | 707 | 715 | 9 | YSNNSIAIP 0.000772 | 18 |
| HLA-B*58:01 | 1 | 856 | 865 | 10 | NGLTVLPPL 0.000772 | 15 |
| HLA-A*30:01 | 1 | 869 | 878 | 10 | MIAQYTSALL 0.000772 | 30 |
| HLA-A*23:01 | 1 | 968 | 976 | 9 | SNFGAISSV 0.000772 | 9.2 |
| HLA-A*32:01 | 1 | 1173 | 1181 | 9 | NASVVNIQK 0.000772 | 12 |
| HLA-B*35:01 | 1 | 1194 | 1203 | 10 | NESLIDLQEL 0.000772 | 12 |
| HLA-B*51:01 | 1 | 1260 | 1269 | 10 | DSEPVKGVK 0.000772 | 21 |
| HLA-A*32:01 | 1 | 61 | 69 | 9 | NVTWFHAIH 0.000771 | 12 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*02:06 | 1 | 98 | 106 | 9 | SNIIRGWIF 0.000771 | 22 |
| HLA-A*02:03 | 1 | 580 | 589 | 10 | QTLEILDITP 0.000771 | 18 |
| HLA-A*03:01 | 1 | 825 | 833 | 9 | KVTLADAGF 0.000771 | 13 |
| HLA-A*26:01 | 1 | 151 | 159 | 9 | SWMESEFRV 0.00077 | 13 |
| HLA-A*33:01 | 1 | 179 | 187 | 9 | LEGKQGNFK 0.00077 | 15 |
| HLA-A*33:01 | 1 | 818 | 826 | 9 | IEDLLFNKV 0.00077 | 15 |
| HLA-A*02:06 | 1 | 861 | 869 | 9 | LPPLLTDEM 0.00077 | 22 |
| HLA-A*02:03 | 1 | 1154 | 1162 | 9 | KYFKNHTSP 0.00077 | 18 |
| HLA-B*07:02 | 1 | 1154 | 1162 | 9 | KYFKNHTSP 0.00077 | 14 |
| HLA-A*11:01 | 1 | 123 | 131 | 9 | ATNVVIKVC 0.000769 | 11 |
| HLA-B*08:01 | 1 | 274 | 282 | 9 | TFLLKYNEN 0.000769 | 22 |
| HLA-A*68:01 | 1 | 315 | 324 | 10 | TSNFRVQPT 0.000769 | 17 |
| HLA-A*30:01 | 1 | 337 | 346 | 10 | PFGEVFNATR 0.000769 | 30 |
| HLA-A*11:01 | 1 | 669 | 677 | 9 | GICASYQTQ 0.000769 | 11 |
| HLA-A*33:01 | 1 | 722 | 731 | 10 | VTTEILPVSM 0.000769 | 15 |
| HLA-A*11:01 | 1 | 754 | 762 | 9 | LQYGSFCTQ 0.000769 | 11 |
| HLA-A*02:01 | 1 | 825 | 834 | 10 | KVTLADAGFI 0.000769 | 16 |
| HLA-B*57:01 | 1 | 871 | 879 | 9 | AQYTSALLA 0.000769 | 22 |
| HLA-A*02:03 | 1 | 925 | 933 | 9 | NQFNSAIGK 0.000769 | 18 |
| HLA-B*35:01 | 1 | 384 | 392 | 9 | PTKLNDFCF 0.000768 | 12 |
| HLA-A*68:01 | 1 | 513 | 521 | 9 | LSFELLHAP 0.000768 | 17 |
| HLA-A*24:02 | 1 | 797 | 805 | 9 | FGGFNFSQI 0.000768 | 9.0 |
| HLA-A*02:03 | 1 | 987 | 996 | 10 | VEAEVQIDRL 0.000768 | 18 |
| HLA-A*03:01 | 1 | 1008 | 1016 | 9 | VTQQLIRAA 0.000768 | 13 |
| HLA-A*68:02 | 1 | 1080 | 1089 | 10 | AICHDGKAHF 0.000768 | 17 |
| HLA-B*53:01 | 1 | 1163 | 1172 | 10 | DVDLGDISGI 0.000768 | 11 |
| HLA-A*02:03 | 1 | 132 | 141 | 10 | EFQFCNDPFL 0.000767 | 18 |
| HLA-A*32:01 | 1 | 178 | 186 | 9 | DLEGKQGNF 0.000767 | 12 |
| HLA-A*03:01 | 1 | 688 | 696 | 9 | ASQSIIAYT 0.000767 | 13 |
| HLA-B*08:01 | 1 | 784 | 793 | 10 | QVKQIYKTPP 0.000767 | 22 |
| HLA-A*30:02 | 1 | 1015 | 1024 | 10 | AAEIRASANL 0.000767 | 27 |
| HLA-B*08:01 | 1 | 219 | 227 | 9 | GFSALEPLV 0.000766 | 22 |
| HLA-B*07:02 | 1 | 781 | 789 | 9 | VFAQVKQIY 0.000766 | 14 |
| HLA-B*58:01 | 1 | 873 | 881 | 9 | YTSALLAGT 0.000766 | 15 |
| HLA-B*44:03 | 1 | 926 | 934 | 9 | QFNSAIGKI 0.000766 | 9.0 |
| HLA-B*07:02 | 1 | 936 | 944 | 9 | DSLSSTASA 0.000766 | 14 |
| HLA-B*57:01 | 1 | 942 | 950 | 9 | ASALGKLQD 0.000766 | 22 |
| HLA-A*01:01 | 1 | 978 | 987 | 10 | NDILSRDLKV 0.000766 | 17 |
| HLA-A*68:02 | 1 | 1011 | 1020 | 10 | QLIRAAEIRA 0.000766 | 17 |
| HLA-B*40:01 | 1 | 1048 | 1056 | 9 | HLMSFPQSA 0.000766 | 8.4 |
| HLA-A*30:02 | 1 | 1216 | 1225 | 10 | IWLGFIAGLI 0.000766 | 27 |
| HLA-A*01:01 | 1 | 1263 | 1271 | 9 | PVLKGVKLV 0.000766 | 17 |
| HLA-A*68:01 | 1 | 41 | 50 | 10 | KVFRSSVLHS 0.000765 | 17 |
| HLA-B*40:01 | 1 | 277 | 285 | 9 | LKYNENGTI 0.000765 | 8.4 |
| HLA-A*01:01 | 1 | 307 | 316 | 10 | TVEKGIYQTS 0.000765 | 17 |
| HLA-A*31:01 | 1 | 342 | 350 | 9 | FNATRFASV 0.000765 | 18 |
| HLA-B*51:01 | 1 | 502 | 510 | 9 | GVGYQPYRV 0.000765 | 21 |
| HLA-A*02:06 | 1 | 588 | 597 | 10 | TPCSFGGVSU 0.000765 | 22 |
| HLA-A*68:02 | 1 | 823 | 831 | 9 | FNKVTLADA 0.000765 | 17 |
| HLA-B*57:01 | 1 | 925 | 933 | 9 | NQFNSAIGK 0.000765 | 22 |
| HLA-A*68:01 | 1 | 1037 | 1045 | 9 | SKRVDFCGK 0.000765 | 17 |
| HLA-B*44:02 | 1 | 1101 | 1110 | 10 | HWFVTQRNFY 0.000765 | 9.0 |
| HLA-A*26:01 | 1 | 43 | 51 | 9 | FRSSVLHST 0.000764 | 13 |
| HLA-A*02:06 | 1 | 228 | 237 | 10 | DLPIGINITR 0.000764 | 22 |
| HLA-B*44:03 | 1 | 304 | 313 | 10 | KSFTVEKGIY 0.000764 | 9.0 |
| HLA-B*08:01 | 1 | 729 | 738 | 10 | VSMTKTSVDC 0.000764 | 22 |
| HLA-B*40:01 | 1 | 867 | 875 | 9 | DEMAIQYTS 0.000764 | 8.4 |
| HLA-A*30:01 | 1 | 994 | 1003 | 10 | DRLITGRLQS 0.000764 | 30 |
| HLA-B*07:02 | 1 | 1007 | 1015 | 9 | YVTQQLIRA 0.000764 | 14 |
| HLA-A*02:03 | 1 | 133 | 142 | 10 | FQFCNDPFLG 0.000763 | 18 |
| HLA-A*31:01 | 1 | 214 | 222 | 9 | RDLPGGFSA 0.000763 | 18 |
| HLA-B*40:01 | 1 | 285 | 293 | 9 | ITDAVDCAL 0.000763 | 8.4 |
| HLA-A*02:01 | 1 | 563 | 572 | 10 | QQFGRDIADT 0.000763 | 16 |
| HLA-A*24:02 | 1 | 704 | 712 | 9 | SVAYSNNSI 0.000763 | 9.0 |
| HLA-A*11:01 | 1 | 890 | 898 | 9 | AGAALQIPF 0.000763 | 11 |
| HLA-B*57:01 | 1 | 959 | 968 | 10 | LNTLVKQLSS 0.000763 | 22 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*35:01 | 1 | 975 | 984 | 10 | SVLNDILSRL 0.000763 | 12 |
| HLA-A*02:03 | 1 | 999 | 1007 | 9 | GRLQSLQTY 0.000763 | 18 |
| HLA-A*02:06 | 1 | 421 | 429 | 9 | YNYKLPDDF 0.000762 | 22 |
| HLA-A*68:02 | 1 | 546 | 555 | 10 | LTGTGVLTES 0.000762 | 17 |
| HLA-A*30:02 | 1 | 746 | 755 | 10 | STECSNLLLQ 0.000762 | 27 |
| HLA-B*07:02 | 1 | 1066 | 1075 | 10 | TYVPAQEKNF 0.000762 | 14 |
| HLA-B*44:02 | 1 | 266 | 275 | 10 | YVGYLQPRTF 0.000761 | 9.1 |
| HLA-B*58:01 | 1 | 347 | 356 | 10 | FASVYAWNRK 0.000761 | 16 |
| HLA-A*30:01 | 1 | 468 | 476 | 9 | ISTEIQAG 0.000761 | 30 |
| HLA-B*58:01 | 1 | 534 | 543 | 10 | VKNKCVNFNF 0.000761 | 16 |
| HLA-B*58:01 | 1 | 704 | 713 | 10 | SVAYSNNSIA 0.000761 | 16 |
| HLA-A*26:01 | 1 | 732 | 740 | 9 | TKTSVDCTM 0.000761 | 13 |
| HLA-A*68:02 | 1 | 813 | 821 | 9 | SKRSFIEDL 0.000761 | 17 |
| HLA-B*35:01 | 1 | 875 | 883 | 9 | SALLAGTIT 0.000761 | 12 |
| HLA-B*15:01 | 1 | 961 | 969 | 9 | TLVKQLSSN 0.000761 | 16 |
| HLA-B*40:01 | 1 | 975 | 984 | 10 | SVLNDILSRL 0.000761 | 8.4 |
| HLA-A*03:01 | 1 | 1054 | 1063 | 10 | QSAPHGVVFL 0.000761 | 13 |
| HLA-B*44:02 | 1 | 1073 | 1081 | 9 | KNFTTAPAI 0.000761 | 9.1 |
| HLA-A*31:01 | 1 | 1103 | 1111 | 9 | FVTQRNFYE 0.000761 | 18 |
| HLA-B*08:01 | 1 | 29 | 38 | 10 | TNSFTRGVVY 0.00076 | 22 |
| HLA-B*58:01 | 1 | 93 | 102 | 10 | ASTEKSNIIR 0.00076 | 16 |
| HLA-A*68:02 | 1 | 623 | 632 | 10 | AIHADQLTPT 0.00076 | 17 |
| HLA-A*30:02 | 1 | 705 | 714 | 10 | VAYSNNSIAI 0.00076 | 27 |
| HLA-A*01:01 | 1 | 1004 | 1013 | 10 | LQTYVTQQLI 0.00076 | 18 |
| HLA-A*31:01 | 1 | 1148 | 1157 | 10 | FKEELDKYFK 0.00076 | 18 |
| HLA-A*31:01 | 1 | 47 | 56 | 10 | VLHSTQDLFL 0.000759 | 18 |
| HLA-A*02:03 | 1 | 371 | 379 | 9 | SASFSTFKC 0.000759 | 18 |
| HLA-B*07:02 | 1 | 519 | 528 | 10 | HAPATVCGPK 0.000759 | 14 |
| HLA-A*31:01 | 1 | 961 | 970 | 10 | TLVKQLSSNF 0.000759 | 18 |
| HLA-A*68:01 | 1 | 1076 | 1084 | 9 | TTAPAICHD 0.000759 | 17 |
| HLA-A*31:01 | 1 | 346 | 354 | 9 | RFASVYAWN 0.000758 | 18 |
| HLA-B*57:01 | 1 | 400 | 408 | 9 | FVIRGDEVR 0.000758 | 22 |
| HLA-A*32:01 | 1 | 939 | 947 | 9 | SSTASALGK 0.000758 | 12 |
| HLA-B*51:01 | 1 | 941 | 949 | 9 | TASALGKLQ 0.000758 | 21 |
| HLA-B*35:01 | 1 | 1093 | 1101 | 9 | GVFVSNHGT 0.000758 | 12 |
| HLA-A*01:01 | 1 | 1163 | 1171 | 9 | DVDLGDISG 0.000758 | 18 |
| HLA-B*07:02 | 1 | 1216 | 1224 | 9 | IWLGFIAGL 0.000758 | 14 |
| HLA-B*44:02 | 1 | 204 | 212 | 9 | YSKHTPINL 0.000757 | 9.1 |
| HLA-B*58:01 | 1 | 532 | 541 | 10 | NLVKNKCVNF 0.000757 | 16 |
| HLA-B*08:01 | 1 | 864 | 873 | 10 | LLTDEMIAQY 0.000757 | 22 |
| HLA-B*58:01 | 1 | 1177 | 1186 | 10 | VNIQKEIDRL 0.000757 | 16 |
| HLA-A*01:01 | 1 | 51 | 60 | 10 | TQDLFLPFFS 0.000756 | 18 |
| HLA-A*03:01 | 1 | 123 | 131 | 9 | ATNVVIKVC 0.000756 | 13 |
| HLA-A*02:01 | 1 | 155 | 163 | 9 | SEFRVYSSA 0.000756 | 16 |
| HLA-A*01:01 | 1 | 529 | 537 | 9 | KSTNLVKNK 0.000756 | 18 |
| HLA-A*23:01 | 1 | 755 | 764 | 10 | QYGSFCTQLN 0.000756 | 9.3 |
| HLA-B*53:01 | 1 | 930 | 938 | 9 | AIGKIQDSL 0.000756 | 11 |
| HLA-A*31:01 | 1 | 191 | 200 | 10 | EFVFNKIDGY 0.000755 | 18 |
| HLA-B*40:01 | 1 | 240 | 248 | 9 | TLLALHSY 0.000755 | 8.4 |
| HLA-B*07:02 | 1 | 351 | 359 | 9 | YAWNRKRIS 0.000755 | 14 |
| HLA-B*40:01 | 1 | 363 | 372 | 10 | ADYSVLYNSA 0.000755 | 8.4 |
| HLA-A*02:03 | 1 | 648 | 656 | 9 | GCLIGAHEV 0.000755 | 18 |
| HLA-A*26:01 | 1 | 695 | 703 | 9 | YTMSLGAEN 0.000755 | 13 |
| HLA-A*33:01 | 1 | 893 | 901 | 9 | ALQIPFAMQ 0.000755 | 16 |
| HLA-A*01:01 | 1 | 1025 | 1033 | 9 | AATKMSECV 0.000755 | 18 |
| HLA-A*31:01 | 1 | 1088 | 1096 | 9 | HFPREGVJV 0.000755 | 18 |
| HLA-B*44:02 | 1 | 1208 | 1216 | 9 | QYIKWPWYI 0.000755 | 9.1 |
| HLA-B*35:01 | 1 | 290 | 299 | 10 | DCALDPLSET 0.000754 | 12 |
| HLA-A*30:02 | 1 | 529 | 538 | 10 | KSTNLVKKNC 0.000754 | 27 |
| HLA-A*68:01 | 1 | 688 | 697 | 10 | ASQSIIAYTM 0.000754 | 17 |
| HLA-A*11:01 | 1 | 733 | 742 | 10 | KTSVDCTMYI 0.000754 | 11 |
| HLA-A*03:01 | 1 | 1201 | 1209 | 9 | QELGKYEYQ 0.000754 | 13 |
| HLA-A*02:06 | 1 | 1227 | 1236 | 10 | IVMVTIMLCC 0.000754 | 22 |
| HLA-A*33:01 | 1 | 1257 | 1266 | 10 | DEDDSEPVLK 0.000754 | 16 |
| HLA-B*40:01 | 1 | 201 | 209 | 9 | FKIYSKHTP 0.000753 | 8.5 |
| HLA-B*44:03 | 1 | 208 | 216 | 9 | TPINLVRDL 0.000753 | 9.1 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*30:01 | 1 | 540 | 548 | 9 | NFNFNGLTG 0.000753 | 30 |
| HLA-A*02:06 | 1 | 627 | 636 | 10 | DQLTPTWRVY 0.000753 | 22 |
| HLA-A*26:01 | 1 | 662 | 670 | 9 | CDIPIGAGI 0.000753 | 13 |
| HLA-B*57:01 | 1 | 835 | 844 | 10 | KQYGDCLGDI 0.000753 | 22 |
| HLA-A*68:01 | 1 | 1094 | 1103 | 10 | VFVSNQTHWF 0.000753 | 17 |
| HLA-A*30:02 | 1 | 1146 | 1154 | 9 | DSFKEELDK 0.000753 | 27 |
| HLA-A*32:01 | 1 | 1164 | 1172 | 9 | VDLGDISGI 0.000753 | 12 |
| HLA-B*07:02 | 1 | 77 | 85 | 9 | KRFDNPVLP 0.000752 | 14 |
| HLA-B*08:01 | 1 | 270 | 279 | 10 | LQPRTFLLKY 0.000752 | 22 |
| HLA-B*51:01 | 1 | 341 | 350 | 10 | VFNATRFASV 0.000752 | 21 |
| HLA-B*35:01 | 1 | 364 | 372 | 9 | DYSVLYNSA 0.000752 | 12 |
| HLA-A*68:02 | 1 | 505 | 514 | 10 | YQPYRVVVL 0.000752 | 18 |
| HLA-A*33:01 | 1 | 734 | 742 | 9 | TSVDCTMYI 0.000752 | 16 |
| HLA-B*58:01 | 1 | 861 | 869 | 9 | LPPLLTDEM 0.000752 | 16 |
| HLA-B*58:01 | 1 | 1016 | 1024 | 9 | AEIRASANL 0.000752 | 16 |
| HLA-B*44:03 | 1 | 1052 | 1060 | 9 | FPQSAPHGV 0.000752 | 9.1 |
| HLA-A*01:01 | 1 | 1200 | 1208 | 9 | LQELGKYEQ 0.000752 | 18 |
| HLA-A*68:02 | 1 | 309 | 318 | 10 | EKGIYQTSNF 0.000751 | 18 |
| HLA-A*30:01 | 1 | 496 | 504 | 9 | GFQPTNGVG 0.000751 | 30 |
| HLA-A*30:02 | 1 | 602 | 611 | 10 | TNTSNQVAVL 0.000751 | 27 |
| HLA-A*30:01 | 1 | 1221 | 1229 | 9 | IAGLIAIVM 0.000751 | 30 |
| HLA-A*30:01 | 1 | 96 | 104 | 9 | EKSNIIRGW 0.00075 | 30 |
| HLA-A*02:06 | 1 | 263 | 271 | 9 | AAYYVGYLQ 0.00075 | 22 |
| HLA-A*26:01 | 1 | 381 | 390 | 10 | GVSPTKLNDL 0.00075 | 13 |
| HLA-A*02:06 | 1 | 532 | 541 | 10 | NLVKKNKCVN 0.00075 | 22 |
| HLA-B*15:01 | 1 | 573 | 582 | 10 | TDAVRDPQTL 0.00075 | 16 |
| HLA-A*68:02 | 1 | 683 | 692 | 10 | RARVASQSI 0.00075 | 18 |
| HLA-A*68:02 | 1 | 719 | 728 | 10 | TISVTTEILP 0.00075 | 18 |
| HLA-A*33:01 | 1 | 914 | 922 | 9 | NVLYENQKL 0.00075 | 16 |
| HLA-B*07:02 | 1 | 922 | 931 | 10 | LIANQFNLSAI 0.00075 | 14 |
| HLA-B*51:01 | 1 | 978 | 987 | 10 | NDILSRLDKV 0.00075 | 21 |
| HLA-B*44:02 | 1 | 1197 | 1206 | 10 | LIDLQELGKY 0.00075 | 9.1 |
| HLA-A*02:06 | 1 | 252 | 260 | 9 | GDSSSGWTA 0.000749 | 22 |
| HLA-A*01:01 | 1 | 315 | 323 | 9 | TSNFRVQPT 0.000749 | 18 |
| HLA-A*68:02 | 1 | 539 | 547 | 9 | VNFNFNGLT 0.000749 | 18 |
| HLA-A*11:01 | 1 | 688 | 697 | 10 | ASQSIIAYTM 0.000749 | 11 |
| HLA-B*53:01 | 1 | 717 | 726 | 10 | NFTISVTTEI 0.000749 | 11 |
| HLA-A*33:01 | 1 | 1148 | 1157 | 10 | FKEELDKYFK 0.000749 | 16 |
| HLA-B*51:01 | 1 | 1209 | 1218 | 10 | YIKWPWYIWL 0.000749 | 21 |
| HLA-A*30:01 | 1 | 2 | 11 | 10 | FVFLVLLPLV 0.000748 | 30 |
| HLA-A*30:01 | 1 | 127 | 136 | 10 | VIKVFCEFC 0.000748 | 30 |
| HLA-A*33:01 | 1 | 152 | 160 | 9 | WMESEFRVY 0.000748 | 16 |
| HLA-A*32:01 | 1 | 187 | 195 | 9 | KNLREFVFK 0.000748 | 12 |
| HLA-A*03:01 | 1 | 300 | 309 | 10 | KCTLKSFTVE 0.000748 | 13 |
| HLA-B*53:01 | 1 | 347 | 355 | 9 | FASVYAWNR 0.000748 | 11 |
| HLA-A*30:02 | 1 | 407 | 416 | 10 | VRQIAPGQTG 0.000748 | 27 |
| HLA-A*30:02 | 1 | 472 | 480 | 9 | IYQAGSTPC 0.000748 | 27 |
| HLA-B*57:01 | 1 | 558 | 567 | 10 | KFLPFQQFGR 0.000748 | 22 |
| HLA-A*26:01 | 1 | 663 | 672 | 10 | DIPIGAGICA 0.000748 | 13 |
| HLA-A*32:01 | 1 | 986 | 995 | 10 | KVEAEVQIDR 0.000748 | 12 |
| HLA-A*30:02 | 1 | 1177 | 1185 | 9 | VNIQKEIDR 0.000748 | 27 |
| HLA-B*35:01 | 1 | 202 | 210 | 9 | KIYSKHTPI 0.000747 | 12 |
| HLA-A*02:06 | 1 | 388 | 397 | 10 | NDLCFTNVYA 0.000747 | 22 |
| HLA-A*30:01 | 1 | 411 | 419 | 9 | APGQTGKIA 0.000747 | 30 |
| HLA-A*24:02 | 1 | 810 | 818 | 9 | SKPSKRSFI 0.000747 | 9.1 |
| HLA-A*02:01 | 1 | 825 | 833 | 9 | KVTLADAGF 0.000747 | 16 |
| HLA-A*32:01 | 1 | 1095 | 1104 | 10 | FVSNQTHWFV 0.000747 | 12 |
| HLA-A*30:01 | 1 | 1129 | 1138 | 10 | VIGIVNNTVY 0.000747 | 30 |
| HLA-B*57:01 | 1 | 5 | 14 | 10 | LVLLPLVSSQ 0.000746 | 22 |
| HLA-A*02:03 | 1 | 16 | 25 | 10 | VNLTRTQLP 0.000746 | 18 |
| HLA-B*44:03 | 1 | 28 | 37 | 10 | YTNSFTRGVY 0.000746 | 9.1 |
| HLA-B*44:03 | 1 | 48 | 56 | 9 | LHSTQDLFL 0.000746 | 9.1 |
| HLA-A*68:02 | 1 | 271 | 279 | 9 | QPRTFLLKY 0.000746 | 18 |
| HLA-B*57:01 | 1 | 446 | 455 | 10 | GGNYNYLYRL 0.000746 | 22 |
| HLA-B*15:01 | 1 | 447 | 455 | 9 | GNVNYLYRL 0.000746 | 16 |
| HLA-B*58:01 | 1 | 609 | 617 | 9 | AVLYQDVNC 0.000746 | 16 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*01:01 | 1 | 711 | 720 | 10 | SIAIPTNFTI 0.000746 | 18 |
| HLA-A*03:01 | 1 | 733 | 742 | 10 | KTSVDCTMYI 0.000746 | 13 |
| HLA-B*15:01 | 1 | 936 | 945 | 10 | DSLSSTASAL 0.000746 | 16 |
| HLA-A*01:01 | 1 | 938 | 946 | 9 | LSSTASALG 0.000746 | 18 |
| HLA-A*01:01 | 1 | 21 | 30 | 10 | RTQLPPAYTN 0.000745 | 18 |
| HLA-B*51:01 | 1 | 77 | 85 | 9 | KRFDNPVLP 0.000745 | 21 |
| HLA-A*68:01 | 1 | 121 | 130 | 10 | NNATNVVIVK 0.000745 | 17 |
| HLA-A*30:01 | 1 | 306 | 315 | 10 | FTVEKGIYQT 0.000745 | 30 |
| HLA-A*03:01 | 1 | 408 | 416 | 9 | RQIAPGQTG 0.000745 | 13 |
| HLA-B*57:01 | 1 | 706 | 715 | 10 | AYSNNIAIIP 0.000745 | 22 |
| HLA-B*51:01 | 1 | 923 | 932 | 10 | IANQFNISAIG 0.000745 | 21 |
| HLA-A*11:01 | 1 | 968 | 976 | 9 | SNFGAISSV 0.000745 | 11 |
| HLA-B*35:01 | 1 | 1063 | 1071 | 9 | LHVTVVPAQ 0.000745 | 12 |
| HLA-B*44:02 | 1 | 1087 | 1096 | 10 | AHFPREGVVF 0.000745 | 9.1 |
| HLA-B*58:01 | 1 | 1136 | 1144 | 9 | TVYDPLQPE 0.000745 | 16 |
| HLA-B*40:01 | 1 | 1205 | 1214 | 10 | KYEQYIKWPW 0.000745 | 8.5 |
| HLA-A*11:01 | 1 | 171 | 180 | 10 | VSQPFLMDLE 0.000744 | 11 |
| HLA-B*08:01 | 1 | 191 | 200 | 10 | EFVFKNIDGY 0.000744 | 22 |
| HLA-A*03:01 | 1 | 268 | 276 | 9 | GYLQPRFTL 0.000744 | 13 |
| HLA-B*51:01 | 1 | 332 | 341 | 10 | ITNLCPFGEV 0.000744 | 21 |
| HLA-B*57:01 | 1 | 360 | 368 | 9 | NCVADYSVL 0.000744 | 22 |
| HLA-A*01:01 | 1 | 456 | 464 | 9 | FRKSNLKP 0.000744 | 18 |
| HLA-A*31:01 | 1 | 482 | 490 | 9 | GVEGFNCYF 0.000744 | 18 |
| HLA-B*58:01 | 1 | 887 | 896 | 10 | TFGAGAALQI 0.000744 | 16 |
| HLA-B*08:01 | 1 | 1072 | 1080 | 9 | EKNFTTAPA 0.000744 | 22 |
| HLA-B*44:03 | 1 | 1195 | 1203 | 9 | ESLIDLQEL 0.000744 | 9.1 |
| HLA-B*44:03 | 1 | 309 | 318 | 10 | EKGIYQTSNF 0.000743 | 9.1 |
| HLA-B*08:01 | 1 | 321 | 330 | 10 | QPTESIVRFP 0.000743 | 22 |
| HLA-B*07:02 | 1 | 494 | 503 | 10 | SYGFQPTNGV 0.000743 | 14 |
| HLA-A*01:01 | 1 | 636 | 645 | 10 | YSTGSNVFQT 0.000743 | 18 |
| HLA-A*02:01 | 1 | 1216 | 1225 | 10 | IWLGFIAGLI 0.000743 | 16 |
| HLA-A*02:03 | 1 | 13 | 21 | 9 | SQCVNLTR 0.000742 | 18 |
| HLA-A*68:02 | 1 | 86 | 94 | 9 | FNDGVYFAS 0.000742 | 18 |
| HLA-A*01:01 | 1 | 234 | 243 | 10 | NITRFQTLA 0.000742 | 18 |
| HLA-B*51:01 | 1 | 392 | 401 | 10 | FTNVYADSFV 0.000742 | 21 |
| HLA-B*51:01 | 1 | 603 | 612 | 10 | NTSNQVAVLY 0.000742 | 21 |
| HLA-A*68:02 | 1 | 672 | 681 | 10 | ASYQTQTN 0.000742 | 18 |
| HLA-A*30:01 | 1 | 681 | 689 | 9 | PRRARSVAS 0.000742 | 30 |
| HLA-A*31:01 | 1 | 733 | 742 | 10 | KTSVDCTMYI 0.000742 | 18 |
| HLA-A*31:01 | 1 | 814 | 822 | 9 | KRSFIEDLL 0.000742 | 18 |
| HLA-A*30:01 | 1 | 844 | 853 | 10 | IAARDLICAQ 0.000742 | 30 |
| HLA-A*02:01 | 1 | 974 | 983 | 10 | SSVLNDILSR 0.000742 | 16 |
| HLA-A*01:01 | 1 | 989 | 997 | 9 | AEVQIDRLI 0.000742 | 18 |
| HLA-A*68:01 | 1 | 1212 | 1220 | 9 | WPWYIWLGF 0.000742 | 17 |
| HLA-B*07:02 | 1 | 1219 | 1227 | 9 | GFIAGLIAI 0.000742 | 14 |
| HLA-A*01:01 | 1 | 1262 | 1270 | 9 | EPVLKGVKL 0.000742 | 18 |
| HLA-A*31:01 | 1 | 170 | 179 | 10 | YVSQPFLMDL 0.000741 | 18 |
| HLA-B*51:01 | 1 | 395 | 403 | 9 | VYADSFVIR 0.000741 | 21 |
| HLA-B*08:01 | 1 | 555 | 563 | 9 | SNKKFLPFQ 0.000741 | 22 |
| HLA-A*01:01 | 1 | 722 | 730 | 9 | VTTEILPVS 0.000741 | 18 |
| HLA-B*08:01 | 1 | 758 | 766 | 9 | SFCTQLNRA 0.000741 | 22 |
| HLA-B*08:01 | 1 | 808 | 816 | 9 | DPSKPSKRS 0.000741 | 22 |
| HLA-B*58:01 | 1 | 851 | 860 | 10 | CAQKFNGLTV 0.000741 | 16 |
| HLA-A*32:01 | 1 | 854 | 862 | 9 | KFNGLTVLP 0.000741 | 12 |
| HLA-A*32:01 | 1 | 856 | 864 | 9 | NGLTVLPPL 0.000741 | 12 |
| HLA-A*02:06 | 1 | 1209 | 1217 | 9 | YIKWPWYIW 0.000741 | 22 |
| HLA-B*07:02 | 1 | 180 | 189 | 10 | EGKQGNFKNL 0.00074 | 14 |
| HLA-A*26:01 | 1 | 317 | 326 | 10 | NFRVQPTESI 0.00074 | 13 |
| HLA-A*26:01 | 1 | 573 | 582 | 10 | TDAVRDPQTL 0.00074 | 13 |
| HLA-B*58:01 | 1 | 615 | 624 | 10 | VNCTEVPVAI 0.00074 | 16 |
| HLA-B*08:01 | 1 | 651 | 660 | 10 | IGAHEVNNSY 0.00074 | 22 |
| HLA-A*24:02 | 1 | 722 | 731 | 10 | VTTEILPVSM 0.00074 | 9.2 |
| HLA-A*33:01 | 1 | 745 | 753 | 9 | DSTECSNLL 0.00074 | 16 |
| HLA-A*32:01 | 1 | 784 | 792 | 9 | QVKQIYKTP 0.00074 | 12 |
| HLA-A*11:01 | 1 | 828 | 836 | 9 | LADAGFIKQ 0.00074 | 11 |
| HLA-B*53:01 | 1 | 1161 | 1170 | 10 | SPDVDLGDIS 0.00074 | 11 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*30:02 | 1 | 1172 | 1180 | 9 | INASVVDNIQ 0.00074 | 27 |
| HLA-A*02:06 | 1 | 97 | 105 | 9 | KSNIIRGWI 0.000739 | 22 |
| HLA-A*32:01 | 1 | 301 | 310 | 10 | CTLKSFTVEK 0.000739 | 12 |
| HLA-B*08:01 | 1 | 516 | 525 | 10 | ELLHAPATVC 0.000739 | 22 |
| HLA-B*51:01 | 1 | 775 | 783 | 9 | DKNTQEVFA 0.000739 | 21 |
| HLA-B*15:01 | 1 | 806 | 814 | 9 | LPDPSKPSK 0.000739 | 16 |
| HLA-A*26:01 | 1 | 1007 | 1016 | 10 | YVTQQLIRAA 0.000739 | 13 |
| HLA-A*02:06 | 1 | 1116 | 1124 | 9 | TTDNTFVSG 0.000739 | 22 |
| HLA-B*40:01 | 1 | 46 | 54 | 9 | SVLHSTQDL 0.000738 | 8.5 |
| HLA-A*30:02 | 1 | 129 | 137 | 9 | KVCEFQFCN 0.000738 | 27 |
| HLA-B*40:01 | 1 | 319 | 327 | 9 | RVQPTESIV 0.000738 | 8.5 |
| HLA-A*01:01 | 1 | 513 | 522 | 10 | LSFELLHAPA 0.000738 | 18 |
| HLA-B*44:03 | 1 | 718 | 726 | 9 | FTISVTTEI 0.000738 | 9.2 |
| HLA-A*32:01 | 1 | 903 | 911 | 9 | AYRFNGIGV 0.000738 | 12 |
| HLA-A*30:01 | 1 | 1067 | 1075 | 9 | YVPAQEKNF 0.000738 | 30 |
| HLA-A*33:01 | 1 | 1154 | 1162 | 9 | KYFKNHTSP 0.000738 | 16 |
| HLA-B*44:02 | 1 | 1189 | 1197 | 9 | VAKNLNESL 0.000738 | 9.2 |
| HLA-A*03:01 | 1 | 1200 | 1209 | 10 | LQELGKYEYQ 0.000738 | 14 |
| HLA-A*30:01 | 1 | 192 | 201 | 10 | FVFKNIDGYF 0.000737 | 30 |
| HLA-A*01:01 | 1 | 195 | 203 | 9 | KNIDGYFKI 0.000737 | 18 |
| HLA-B*51:01 | 1 | 258 | 267 | 10 | WTAGAAAYYV 0.000737 | 21 |
| HLA-B*57:01 | 1 | 325 | 334 | 10 | SIVRFPNITN 0.000737 | 22 |
| HLA-A*01:01 | 1 | 358 | 366 | 9 | ISNCVADYS 0.000737 | 18 |
| HLA-A*33:01 | 1 | 451 | 459 | 9 | YLYRFLFRKS 0.000737 | 16 |
| HLA-B*51:01 | 1 | 501 | 509 | 9 | NGVGYQPYR 0.000737 | 21 |
| HLA-A*33:01 | 1 | 526 | 535 | 10 | GPKKSTNLVK 0.000737 | 16 |
| HLA-B*57:01 | 1 | 635 | 644 | 10 | VYSTGSNVFQ 0.000737 | 22 |
| HLA-B*08:01 | 1 | 677 | 685 | 9 | QTNSPRRAR 0.000737 | 22 |
| HLA-B*44:03 | 1 | 709 | 718 | 10 | NNSIAIPTNF 0.000737 | 9.2 |
| HLA-A*02:06 | 1 | 726 | 735 | 10 | ILPVSMTKTS 0.000737 | 22 |
| HLA-B*15:01 | 1 | 765 | 774 | 10 | RALTGIAVEQ 0.000737 | 16 |
| HLA-A*01:01 | 1 | 868 | 876 | 9 | EMIAQY TSA 0.000737 | 18 |
| HLA-A*33:01 | 1 | 887 | 895 | 9 | TFGAGAALQ 0.000737 | 16 |
| HLA-A*02:06 | 1 | 903 | 911 | 9 | AYRFNGIGV 0.000737 | 22 |
| HLA-A*31:01 | 1 | 911 | 920 | 10 | VTQNVLYENQ 0.000737 | 18 |
| HLA-B*35:01 | 1 | 957 | 966 | 10 | QALNTLVKQL 0.000737 | 12 |
| HLA-A*02:06 | 1 | 1053 | 1062 | 10 | PQSAPHGVVF 0.000737 | 22 |
| HLA-A*03:01 | 1 | 1102 | 1110 | 9 | WFVTQRNFY 0.000737 | 14 |
| HLA-B*44:03 | 1 | 1189 | 1197 | 9 | VAKNLNESL 0.000737 | 9.2 |
| HLA-A*30:02 | 1 | 92 | 100 | 9 | FASTEKSNI 0.000736 | 27 |
| HLA-B*08:01 | 1 | 110 | 119 | 10 | LDSKTQSLLI 0.000736 | 22 |
| HLA-A*32:01 | 1 | 149 | 157 | 9 | NKSWMESEF 0.000736 | 12 |
| HLA-A*02:06 | 1 | 198 | 206 | 9 | DGYFKIYSK 0.000736 | 22 |
| HLA-A*32:01 | 1 | 367 | 375 | 9 | VLYNSASF S 0.000736 | 12 |
| HLA-B*57:01 | 1 | 686 | 694 | 9 | SVASQSIIA 0.000736 | 22 |
| HLA-A*23:01 | 1 | 929 | 938 | 10 | SAIGKIQDSL 0.000736 | 9.4 |
| HLA-A*32:01 | 1 | 1154 | 1162 | 9 | KYFKNHTSP 0.000736 | 12 |
| HLA-A*30:01 | 1 | 1180 | 1189 | 10 | QKEIDRLNEV 0.000736 | 30 |
| HLA-A*68:01 | 1 | 153 | 161 | 9 | MESEFRVYS 0.000735 | 17 |
| HLA-A*32:01 | 1 | 417 | 426 | 10 | KIADYNYKLP 0.000735 | 12 |
| HLA-A*33:01 | 1 | 456 | 464 | 9 | FRKSNLKP F 0.000735 | 16 |
| HLA-A*30:02 | 1 | 465 | 474 | 10 | ERDISTEIQ 0.000735 | 27 |
| HLA-A*02:01 | 1 | 471 | 479 | 9 | EIYQAGSTP 0.000735 | 16 |
| HLA-B*08:01 | 1 | 496 | 505 | 10 | GFQPTNGVGY 0.000735 | 22 |
| HLA-B*08:01 | 1 | 575 | 583 | 9 | AVRDPQ TLE 0.000735 | 22 |
| HLA-B*57:01 | 1 | 647 | 655 | 9 | AGCLIGA E H 0.000735 | 22 |
| HLA-A*03:01 | 1 | 877 | 886 | 10 | LLAGTITSGW 0.000735 | 14 |
| HLA-B*40:01 | 1 | 879 | 888 | 10 | AGTITSGWTF 0.000735 | 8.5 |
| HLA-B*40:01 | 1 | 914 | 922 | 9 | NVLYENQKL 0.000735 | 8.5 |
| HLA-A*30:02 | 1 | 974 | 982 | 9 | SSVLNDILS 0.000735 | 27 |
| HLA-B*58:01 | 1 | 69 | 77 | 9 | HVSGTNGTK 0.000734 | 16 |
| HLA-A*01:01 | 1 | 75 | 83 | 9 | GTKRFDNPV 0.000734 | 18 |
| HLA-A*31:01 | 1 | 115 | 123 | 9 | QSLLI VNNA 0.000734 | 18 |
| HLA-B*58:01 | 1 | 199 | 207 | 9 | GYFKIYSKH 0.000734 | 16 |
| HLA-B*51:01 | 1 | 215 | 224 | 10 | DLPQGFSAL E 0.000734 | 21 |
| HLA-A*68:01 | 1 | 237 | 245 | 9 | RFQTL LALH 0.000734 | 17 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*02:01 | 1 | 487 | 495 | 9 | NCYFPLQSY 0.000734 | 16 |
| HLA-B*58:01 | 1 | 675 | 684 | 10 | QTQTNSPRRA 0.000734 | 16 |
| HLA-B*44:03 | 1 | 788 | 797 | 10 | IYKTPPIKDF 0.000734 | 9.2 |
| HLA-A*24:02 | 1 | 896 | 904 | 9 | IPFAMQMAY 0.000734 | 9.2 |
| HLA-A*31:01 | 1 | 956 | 965 | 10 | AQALNTLVKQ 0.000734 | 18 |
| HLA-B*53:01 | 1 | 979 | 987 | 9 | DILSRLDKV 0.000734 | 11 |
| HLA-B*51:01 | 1 | 1012 | 1020 | 9 | LIRAAEIRA 0.000734 | 21 |
| HLA-A*02:06 | 1 | 1086 | 1095 | 10 | KAHFPREGVF 0.000734 | 22 |
| HLA-B*53:01 | 1 | 41 | 49 | 9 | KVFRSSVLH 0.000733 | 11 |
| HLA-A*03:01 | 1 | 108 | 117 | 10 | TTLDSKTQSL 0.000733 | 14 |
| HLA-B*57:01 | 1 | 351 | 359 | 9 | YAWNKRKRIS 0.000733 | 22 |
| HLA-A*30:01 | 1 | 358 | 366 | 9 | ISNCVADYS 0.000733 | 30 |
| HLA-B*15:01 | 1 | 386 | 394 | 9 | KLNDLCFTN 0.000733 | 16 |
| HLA-B*57:01 | 1 | 392 | 401 | 10 | FTNVYADSFV 0.000733 | 22 |
| HLA-A*68:02 | 1 | 428 | 436 | 9 | DFTGCVIAW 0.000733 | 18 |
| HLA-B*44:02 | 1 | 526 | 534 | 9 | GPKKSTNLV 0.000733 | 9.2 |
| HLA-A*32:01 | 1 | 550 | 558 | 9 | GVLTESNKK 0.000733 | 12 |
| HLA-A*30:02 | 1 | 886 | 895 | 10 | WTFGAGAALQ 0.000733 | 27 |
| HLA-A*31:01 | 1 | 1026 | 1034 | 9 | ATKMSECVL 0.000733 | 18 |
| HLA-A*23:01 | 1 | 1109 | 1118 | 10 | FYEQIITTD 0.000733 | 9.4 |
| HLA-A*23:01 | 1 | 263 | 272 | 10 | AAYYVGYLQP 0.000732 | 9.4 |
| HLA-A*68:01 | 1 | 307 | 316 | 10 | TVEKGIYQTS 0.000732 | 17 |
| HLA-B*44:03 | 1 | 500 | 508 | 9 | TNGVGYQPY 0.000732 | 9.2 |
| HLA-B*40:01 | 1 | 554 | 562 | 9 | ESNKKFLPF 0.000732 | 8.5 |
| HLA-A*03:01 | 1 | 555 | 563 | 9 | SNKKFLPFQ 0.000732 | 14 |
| HLA-B*35:01 | 1 | 19 | 27 | 9 | TTRTQLPPA 0.000731 | 12 |
| HLA-A*33:01 | 1 | 239 | 247 | 9 | QTLLALHRS 0.000731 | 16 |
| HLA-A*02:06 | 1 | 294 | 303 | 10 | DPLSETKCTL 0.000731 | 22 |
| HLA-A*23:01 | 1 | 445 | 453 | 9 | VGGNYNYLY 0.000731 | 9.4 |
| HLA-B*51:01 | 1 | 698 | 707 | 10 | SLGAENSVAY 0.000731 | 21 |
| HLA-A*26:01 | 1 | 827 | 836 | 10 | TLADAGFIKQ 0.000731 | 13 |
| HLA-A*68:02 | 1 | 1077 | 1086 | 10 | TAPAICHGDK 0.000731 | 18 |
| HLA-B*40:01 | 1 | 1086 | 1095 | 10 | KAHFPREGVF 0.000731 | 8.6 |
| HLA-A*23:01 | 1 | 235 | 244 | 10 | ITRFQTLLAL 0.00073 | 9.4 |
| HLA-A*02:01 | 1 | 261 | 270 | 10 | GAAAYYVGYL 0.00073 | 16 |
| HLA-A*30:01 | 1 | 432 | 441 | 10 | CVIAWNSNNL 0.00073 | 30 |
| HLA-A*30:01 | 1 | 531 | 539 | 9 | TNLVKNKCV 0.00073 | 30 |
| HLA-A*01:01 | 1 | 580 | 589 | 10 | QTLEILDITP 0.00073 | 18 |
| HLA-A*03:01 | 1 | 1083 | 1091 | 9 | HDGKAHFPR 0.00073 | 14 |
| HLA-A*01:01 | 1 | 26 | 34 | 9 | PAYTNSFTR 0.000729 | 18 |
| HLA-B*51:01 | 1 | 47 | 56 | 10 | VLHSTQDLFL 0.000729 | 21 |
| HLA-A*30:02 | 1 | 233 | 242 | 10 | INITRFQTL 0.000729 | 28 |
| HLA-B*57:01 | 1 | 375 | 383 | 9 | STFKCYGVS 0.000729 | 22 |
| HLA-A*02:06 | 1 | 546 | 554 | 9 | LTGTGVLTE 0.000729 | 22 |
| HLA-B*35:01 | 1 | 576 | 585 | 10 | VRDPQTLEIL 0.000729 | 12 |
| HLA-A*03:01 | 1 | 710 | 718 | 9 | NSIAIPTNF 0.000729 | 14 |
| HLA-A*68:01 | 1 | 893 | 902 | 10 | ALQIPFAMQM 0.000729 | 17 |
| HLA-A*03:01 | 1 | 978 | 986 | 9 | NDILSRLDK 0.000729 | 14 |
| HLA-B*40:01 | 1 | 1059 | 1067 | 9 | GVVFLHVTY 0.000729 | 8.6 |
| HLA-A*26:01 | 1 | 1248 | 1256 | 9 | CSCGSCCKF 0.000729 | 13 |
| HLA-B*58:01 | 1 | 161 | 169 | 9 | SSANNCTFE 0.000728 | 16 |
| HLA-A*68:02 | 1 | 248 | 256 | 9 | YLTPGDSSS 0.000728 | 18 |
| HLA-A*33:01 | 1 | 343 | 352 | 10 | NATRFASVYA 0.000728 | 16 |
| HLA-A*30:01 | 1 | 500 | 508 | 9 | TNGVGYQPY 0.000728 | 30 |
| HLA-B*51:01 | 1 | 999 | 1007 | 9 | GRLQSLQTY 0.000728 | 21 |
| HLA-A*33:01 | 1 | 1040 | 1048 | 9 | VDFCGKGYH 0.000728 | 16 |
| HLA-B*51:01 | 1 | 1050 | 1059 | 10 | MSFPQSAPHG 0.000728 | 21 |
| HLA-A*01:01 | 1 | 1172 | 1181 | 10 | INASVVNIQK 0.000728 | 18 |
| HLA-B*57:01 | 1 | 48 | 56 | 9 | LHSTQDLFL 0.000727 | 22 |
| HLA-B*53:01 | 1 | 198 | 206 | 9 | DGYFKIYSK 0.000727 | 11 |
| HLA-A*03:01 | 1 | 305 | 313 | 9 | SFTVEKGIY 0.000727 | 14 |
| HLA-A*32:01 | 1 | 320 | 328 | 9 | VQPTESIVR 0.000727 | 12 |
| HLA-B*57:01 | 1 | 332 | 340 | 9 | ITNLCPFGE 0.000727 | 22 |
| HLA-A*68:02 | 1 | 648 | 656 | 9 | GCLIGAHEV 0.000727 | 18 |
| HLA-B*08:01 | 1 | 717 | 725 | 9 | NFTISVTTE 0.000727 | 22 |
| HLA-A*33:01 | 1 | 856 | 864 | 9 | NGLTVLPPL 0.000727 | 16 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*51:01 | 1 | 6 | 14 | 9 | VLLPLVSSQ 0.000726 | 21 |
| HLA-A*68:02 | 1 | 41 | 50 | 10 | KVFRSSVLHS 0.000726 | 18 |
| HLA-B*40:01 | 1 | 76 | 85 | 10 | TKRFDNPVLP 0.000726 | 8.6 |
| HLA-A*30:01 | 1 | 215 | 223 | 9 | DLPQGFSAI 0.000726 | 30 |
| HLA-B*07:02 | 1 | 350 | 358 | 9 | VYAWNKRRI 0.000726 | 14 |
| HLA-B*40:01 | 1 | 496 | 505 | 10 | GFQPTNGVGQ 0.000726 | 8.6 |
| HLA-B*53:01 | 1 | 532 | 541 | 10 | NLVKNKCVNF 0.000726 | 11 |
| HLA-A*68:02 | 1 | 814 | 822 | 9 | KRSFIEDLL 0.000726 | 18 |
| HLA-B*57:01 | 1 | 992 | 1000 | 9 | QIDRLITGR 0.000726 | 22 |
| HLA-A*68:02 | 1 | 1010 | 1018 | 9 | QQLIRAAEI 0.000726 | 18 |
| HLA-A*11:01 | 1 | 1021 | 1029 | 9 | SANLAATKM 0.000726 | 11 |
| HLA-A*31:01 | 1 | 1087 | 1095 | 9 | AHFPREGVF 0.000726 | 18 |
| HLA-B*35:01 | 1 | 59 | 67 | 9 | FSNVTWFHA 0.000725 | 12 |
| HLA-B*44:02 | 1 | 186 | 194 | 9 | FKNLREFVF 0.000725 | 9.2 |
| HLA-B*08:01 | 1 | 259 | 267 | 9 | TAGAAAYYV 0.000725 | 23 |
| HLA-B*53:01 | 1 | 497 | 506 | 10 | FQPTNGVGQ 0.000725 | 11 |
| HLA-A*30:02 | 1 | 624 | 632 | 9 | IHADQLTPT 0.000725 | 28 |
| HLA-B*57:01 | 1 | 674 | 683 | 10 | YQTQTNSPRR 0.000725 | 22 |
| HLA-A*31:01 | 1 | 885 | 894 | 10 | GWTFGAGAAL 0.000725 | 18 |
| HLA-B*15:01 | 1 | 922 | 931 | 10 | LIANQFNSAI 0.000725 | 16 |
| HLA-A*02:03 | 1 | 1020 | 1029 | 10 | ASANLAATKM 0.000725 | 18 |
| HLA-B*40:01 | 1 | 1030 | 1039 | 10 | SECVLGQSKR 0.000725 | 8.6 |
| HLA-B*51:01 | 1 | 65 | 73 | 9 | FHAIHVSQT 0.000724 | 21 |
| HLA-B*57:01 | 1 | 852 | 860 | 9 | AQKFNGLTV 0.000724 | 22 |
| HLA-A*33:01 | 1 | 912 | 921 | 10 | TQNVLYENQK 0.000724 | 16 |
| HLA-A*68:02 | 1 | 1066 | 1075 | 10 | TYVPAQEKNF 0.000724 | 18 |
| HLA-B*51:01 | 1 | 74 | 83 | 10 | NGTKRFDNPV 0.000723 | 21 |
| HLA-A*01:01 | 1 | 255 | 264 | 10 | SSGWTAGAAA 0.000723 | 18 |
| HLA-B*57:01 | 1 | 523 | 531 | 9 | TVCGPKKST 0.000723 | 22 |
| HLA-A*30:01 | 1 | 753 | 762 | 10 | LLQYGSFCTQ 0.000723 | 30 |
| HLA-B*35:01 | 1 | 824 | 833 | 10 | NKVTLADAGF 0.000723 | 12 |
| HLA-B*57:01 | 1 | 1135 | 1144 | 10 | NTVYDPLQPE 0.000723 | 22 |
| HLA-A*30:02 | 1 | 1154 | 1163 | 10 | KYFKNHTSPD 0.000723 | 28 |
| HLA-A*30:02 | 1 | 1167 | 1176 | 10 | GDISGINASV 0.000723 | 28 |
| HLA-B*35:01 | 1 | 1248 | 1256 | 9 | CSCGSCCKF 0.000723 | 12 |
| HLA-A*31:01 | 1 | 192 | 201 | 10 | FVFKNIDGYF 0.000722 | 18 |
| HLA-A*68:01 | 1 | 193 | 201 | 9 | VFKNIDGYF 0.000722 | 17 |
| HLA-A*30:01 | 1 | 292 | 301 | 10 | ALDPLSETKC 0.000722 | 30 |
| HLA-B*57:01 | 1 | 394 | 403 | 10 | NVYADSFVIR 0.000722 | 22 |
| HLA-B*07:02 | 1 | 660 | 668 | 9 | YECDIPIGA 0.000722 | 14 |
| HLA-B*40:01 | 1 | 759 | 767 | 9 | FCTQLNRL 0.000722 | 8.6 |
| HLA-A*01:01 | 1 | 779 | 788 | 10 | QEVFAQVKQI 0.000722 | 18 |
| HLA-B*35:01 | 1 | 897 | 906 | 10 | PFAMQMAYRF 0.000722 | 12 |
| HLA-A*31:01 | 1 | 968 | 977 | 10 | SNFGAISSVL 0.000722 | 18 |
| HLA-A*33:01 | 1 | 1007 | 1015 | 9 | YVTQQLIRA 0.000722 | 16 |
| HLA-A*23:01 | 1 | 1021 | 1029 | 9 | SANLAATKM 0.000722 | 9.5 |
| HLA-A*30:01 | 1 | 1022 | 1031 | 10 | ANLAATKMSE 0.000722 | 30 |
| HLA-A*31:01 | 1 | 22 | 30 | 9 | TQLPPAYTN 0.000721 | 18 |
| HLA-B*53:01 | 1 | 29 | 37 | 9 | TNSFTRGVY 0.000721 | 11 |
| HLA-A*26:01 | 1 | 165 | 174 | 10 | NCTFEYVSQP 0.000721 | 13 |
| HLA-A*30:02 | 1 | 248 | 256 | 9 | YLTPGDSSS 0.000721 | 28 |
| HLA-B*07:02 | 1 | 378 | 386 | 9 | KCYGVSPTK 0.000721 | 14 |
| HLA-B*07:02 | 1 | 621 | 629 | 9 | PVAIHADQL 0.000721 | 14 |
| HLA-A*02:03 | 1 | 1015 | 1024 | 10 | AAEIRASANL 0.000721 | 18 |
| HLA-A*02:06 | 1 | 1045 | 1053 | 9 | KGYHLMSFP 0.000721 | 23 |
| HLA-A*01:01 | 1 | 1051 | 1060 | 10 | SFPQSAPHGV 0.000721 | 18 |
| HLA-B*44:03 | 1 | 1101 | 1110 | 10 | HWFVTQRNFY 0.000721 | 9.2 |
| HLA-A*23:01 | 1 | 30 | 38 | 9 | NSFTRGVYY 0.000721 | 9.5 |
| HLA-A*68:01 | 1 | 43 | 52 | 10 | FRSSVLHSTQ 0.000721 | 17 |
| HLA-A*31:01 | 1 | 53 | 62 | 10 | DLFLPFFSNV 0.000721 | 18 |
| HLA-B*57:01 | 1 | 315 | 323 | 9 | TSNFRVQPT 0.000721 | 22 |
| HLA-B*57:01 | 1 | 661 | 670 | 10 | ECDIPIGAGI 0.000721 | 22 |
| HLA-A*23:01 | 1 | 1200 | 1209 | 10 | LQELGKYEQY 0.000721 | 9.5 |
| HLA-A*30:01 | 1 | 149 | 158 | 10 | NKSWMESEFR 0.000719 | 30 |
| HLA-A*11:01 | 1 | 151 | 159 | 9 | SWMESEFRV 0.000719 | 11 |
| HLA-B*08:01 | 1 | 186 | 195 | 10 | FKNLREFVFK 0.000719 | 23 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*07:02 | 1 | 371 | 379 | 9 | SASFSTFKC 0.000719 | 14 |
| HLA-A*33:01 | 1 | 530 | 538 | 9 | STNLVKKNC 0.000719 | 16 |
| HLA-B*53:01 | 1 | 898 | 907 | 10 | FAMQMAYRFN 0.000719 | 11 |
| HLA-A*02:01 | 1 | 939 | 948 | 10 | SSTASALGKL 0.000719 | 16 |
| HLA-B*57:01 | 1 | 1044 | 1052 | 9 | GKGYHLMSF 0.000719 | 22 |
| HLA-A*32:01 | 1 | 1197 | 1206 | 10 | LIDLQELGKY 0.000719 | 12 |
| HLA-A*68:01 | 1 | 109 | 117 | 9 | TLDSKTQSL 0.000718 | 17 |
| HLA-A*01:01 | 1 | 145 | 153 | 9 | YHKNNKSWM 0.000718 | 18 |
| HLA-B*35:01 | 1 | 268 | 276 | 9 | GYLQPRTF 0.000718 | 12 |
| HLA-B*07:02 | 1 | 294 | 302 | 9 | DPLSETKCT 0.000718 | 14 |
| HLA-A*02:03 | 1 | 588 | 597 | 10 | TPCSFGGVS 0.000718 | 18 |
| HLA-A*68:02 | 1 | 1094 | 1103 | 10 | VFVSNQTHWF 0.000718 | 18 |
| HLA-A*30:02 | 1 | 1150 | 1159 | 10 | EELDKYFKNH 0.000718 | 28 |
| HLA-A*01:01 | 1 | 1193 | 1201 | 9 | LNESLIDLQ 0.000718 | 18 |
| HLA-B*57:01 | 1 | 1226 | 1235 | 10 | AIVMVTIMLC 0.000718 | 22 |
| HLA-B*08:01 | 1 | 42 | 51 | 10 | VFRSSVLHST 0.000717 | 23 |
| HLA-A*33:01 | 1 | 264 | 272 | 9 | AYYVGYLQP 0.000717 | 16 |
| HLA-A*68:01 | 1 | 471 | 480 | 10 | EIYQAGSTPC 0.000717 | 17 |
| HLA-B*51:01 | 1 | 619 | 627 | 9 | EVVVAIHAD 0.000717 | 21 |
| HLA-A*01:01 | 1 | 643 | 651 | 9 | FQTRAGCLI 0.000717 | 18 |
| HLA-B*51:01 | 1 | 897 | 906 | 10 | PFAMQMAYRF 0.000717 | 21 |
| HLA-B*44:02 | 1 | 988 | 996 | 9 | EAEVQIDRL 0.000717 | 9.3 |
| HLA-A*30:01 | 1 | 1089 | 1097 | 9 | FPREGVFVS 0.000717 | 30 |
| HLA-A*33:01 | 1 | 1220 | 1228 | 9 | FIAGLIAIV 0.000717 | 16 |
| HLA-B*07:02 | 1 | 1224 | 1232 | 9 | LIAIVMVTI 0.000717 | 14 |
| HLA-A*02:01 | 1 | 17 | 25 | 9 | NLTTTRTQLP 0.000716 | 16 |
| HLA-A*68:01 | 1 | 23 | 31 | 9 | QLPPAYTNS 0.000716 | 17 |
| HLA-A*02:03 | 1 | 83 | 91 | 9 | VLFPNDGVY 0.000716 | 18 |
| HLA-A*26:01 | 1 | 269 | 278 | 10 | YLQPRTFLLK 0.000716 | 13 |
| HLA-A*30:01 | 1 | 380 | 388 | 9 | YGVSPTKLN 0.000716 | 30 |
| HLA-B*08:01 | 1 | 523 | 531 | 9 | TVCGPKKST 0.000716 | 23 |
| HLA-A*01:01 | 1 | 767 | 776 | 10 | LTGIAVEQDK 0.000716 | 18 |
| HLA-A*11:01 | 1 | 964 | 972 | 9 | KQLSSNFGA 0.000716 | 11 |
| HLA-A*30:01 | 1 | 973 | 981 | 9 | ISSVLNDIL 0.000716 | 30 |
| HLA-A*33:01 | 1 | 1019 | 1028 | 10 | RASANLAATK 0.000716 | 16 |
| HLA-A*03:01 | 1 | 1204 | 1212 | 9 | GKYEQYIKW 0.000716 | 14 |
| HLA-B*58:01 | 1 | 1210 | 1218 | 9 | IKWPWYIWL 0.000716 | 16 |
| HLA-A*02:03 | 1 | 142 | 151 | 10 | GVVYHKNNKS 0.000715 | 18 |
| HLA-A*11:01 | 1 | 326 | 335 | 10 | IVRFPNITNL 0.000715 | 11 |
| HLA-A*68:02 | 1 | 482 | 490 | 9 | GVEGFNCYF 0.000715 | 18 |
| HLA-A*02:01 | 1 | 602 | 610 | 9 | TNTSNQVAV 0.000715 | 16 |
| HLA-B*44:02 | 1 | 616 | 624 | 9 | NCTEVPVAI 0.000715 | 9.3 |
| HLA-A*68:02 | 1 | 690 | 698 | 9 | QSIIAYTMS 0.000715 | 18 |
| HLA-B*08:01 | 1 | 989 | 997 | 9 | AEVQIDRLI 0.000715 | 23 |
| HLA-A*30:02 | 1 | 1166 | 1174 | 9 | LGDISGINA 0.000715 | 28 |
| HLA-A*03:01 | 1 | 1191 | 1200 | 10 | KNLNESLIDL 0.000715 | 14 |
| HLA-A*02:03 | 1 | 1257 | 1265 | 9 | DEDDSEPV 0.000715 | 18 |
| HLA-A*02:06 | 1 | 153 | 161 | 9 | MESEFRVYS 0.000714 | 23 |
| HLA-B*44:03 | 1 | 159 | 168 | 10 | VYSSANNCTF 0.000714 | 9.3 |
| HLA-A*11:01 | 1 | 262 | 271 | 10 | AAAYVGYLQ 0.000714 | 11 |
| HLA-B*51:01 | 1 | 362 | 370 | 9 | VADYSVLYN 0.000714 | 21 |
| HLA-A*30:02 | 1 | 499 | 507 | 9 | PTNGVGYQP 0.000714 | 28 |
| HLA-A*02:06 | 1 | 842 | 850 | 9 | GDIAARDLI 0.000714 | 23 |
| HLA-A*26:01 | 1 | 858 | 866 | 9 | LTVLPPLLT 0.000714 | 13 |
| HLA-B*44:02 | 1 | 969 | 977 | 9 | NFGAISSVL 0.000714 | 9.3 |
| HLA-A*26:01 | 1 | 92 | 100 | 9 | FASTEKSNI 0.000713 | 13 |
| HLA-A*02:03 | 1 | 227 | 235 | 9 | VDLPIGINI 0.000713 | 18 |
| HLA-A*68:02 | 1 | 263 | 272 | 10 | AAAYVGYLQ 0.000713 | 18 |
| HLA-A*01:01 | 1 | 347 | 356 | 10 | FASVYAWNRK 0.000713 | 18 |
| HLA-A*03:01 | 1 | 436 | 444 | 9 | WNSNNLDSK 0.000713 | 14 |
| HLA-A*33:01 | 1 | 458 | 467 | 10 | KSNLKPFERD 0.000713 | 16 |
| HLA-A*23:01 | 1 | 603 | 611 | 9 | NTSNQVAVL 0.000713 | 9.5 |
| HLA-A*01:01 | 1 | 607 | 615 | 9 | QVAVLYQDV 0.000713 | 18 |
| HLA-B*44:02 | 1 | 688 | 697 | 10 | ASQSIIAYTM 0.000713 | 9.3 |
| HLA-A*30:01 | 1 | 707 | 716 | 10 | YSNNSIAIPT 0.000713 | 30 |
| HLA-A*11:01 | 1 | 734 | 742 | 9 | TSVDCTMYI 0.000713 | 11 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*40:01 | 1 | 1219 | 1227 | 9 | GFIAGLIAI 0.000713 | 8.6 |
| HLA-A*30:01 | 1 | 1223 | 1232 | 10 | GLIAIVMVTI 0.000713 | 30 |
| HLA-A*01:01 | 1 | 59 | 68 | 10 | FSNVTWFHAI 0.000712 | 18 |
| HLA-A*26:01 | 1 | 158 | 166 | 9 | RVYSSANNC 0.000712 | 13 |
| HLA-B*08:01 | 1 | 162 | 170 | 9 | SANNCTFEY 0.000712 | 23 |
| HLA-B*58:01 | 1 | 269 | 278 | 10 | YLQPRTFLLK 0.000712 | 16 |
| HLA-B*44:03 | 1 | 583 | 592 | 10 | EILDITPCSF 0.000712 | 9.3 |
| HLA-A*11:01 | 1 | 596 | 605 | 10 | SVITPGTNTS 0.000712 | 11 |
| HLA-A*02:06 | 1 | 845 | 854 | 10 | AARDLICAQK 0.000712 | 23 |
| HLA-B*57:01 | 1 | 890 | 899 | 10 | AGAALQIPFA 0.000712 | 22 |
| HLA-B*57:01 | 1 | 962 | 971 | 10 | LVKQLSSNFG 0.000712 | 22 |
| HLA-B*57:01 | 1 | 1104 | 1113 | 10 | VTQRNFYEPQ 0.000712 | 22 |
| HLA-B*51:01 | 1 | 1165 | 1174 | 10 | DLGDISGINA 0.000712 | 21 |
| HLA-A*30:01 | 1 | 1216 | 1225 | 10 | IWLGFIAGLI 0.000712 | 30 |
| HLA-A*31:01 | 1 | 1262 | 1271 | 10 | EPVLKGVKLG 0.000712 | 18 |
| HLA-A*02:03 | 1 | 552 | 560 | 9 | LTESNKKFL 0.000711 | 18 |
| HLA-A*68:01 | 1 | 580 | 588 | 9 | QTLEILDIT 0.000711 | 17 |
| HLA-B*51:01 | 1 | 1007 | 1016 | 10 | YVTQQLIRAA 0.000711 | 21 |
| HLA-A*30:02 | 1 | 1113 | 1122 | 10 | QIITTDNTFV 0.000711 | 28 |
| HLA-A*02:06 | 1 | 1147 | 1156 | 10 | SFKEELDKYF 0.000711 | 23 |
| HLA-B*58:01 | 1 | 1195 | 1204 | 10 | ESLIDLQELG 0.000711 | 16 |
| HLA-A*33:01 | 1 | 29 | 37 | 9 | TNSFTRGVY 0.00071 | 16 |
| HLA-A*31:01 | 1 | 179 | 187 | 9 | LEGKQGNFK 0.00071 | 18 |
| HLA-A*68:02 | 1 | 215 | 224 | 10 | DLPQGFSALE 0.00071 | 18 |
| HLA-A*33:01 | 1 | 261 | 269 | 9 | GAAAYVGY 0.00071 | 16 |
| HLA-B*08:01 | 1 | 427 | 435 | 9 | DDFTGCVIA 0.00071 | 23 |
| HLA-B*58:01 | 1 | 947 | 955 | 9 | KLQDVVNQN 0.00071 | 16 |
| HLA-A*68:01 | 1 | 1181 | 1189 | 9 | KEIDRLNEV 0.00071 | 17 |
| HLA-A*31:01 | 1 | 1227 | 1235 | 9 | IVMVTIMLC 0.00071 | 18 |
| HLA-A*33:01 | 1 | 1264 | 1273 | 10 | VLKGVKLHYT 0.00071 | 16 |
| HLA-A*30:02 | 1 | 67 | 76 | 10 | AIHVSGTNGT 0.000709 | 28 |
| HLA-B*35:01 | 1 | 185 | 194 | 10 | NFKNLREFVF 0.000709 | 12 |
| HLA-A*03:01 | 1 | 214 | 222 | 9 | RDLPQGFSA 0.000709 | 14 |
| HLA-A*68:02 | 1 | 467 | 476 | 10 | DISTEIQAG 0.000709 | 18 |
| HLA-B*58:01 | 1 | 511 | 520 | 10 | VVLSFELLHA 0.000709 | 16 |
| HLA-B*58:01 | 1 | 874 | 883 | 10 | TSALLAGTIT 0.000709 | 16 |
| HLA-A*68:01 | 1 | 892 | 901 | 10 | AALQIPFAMQ 0.000709 | 17 |
| HLA-B*44:03 | 1 | 951 | 959 | 9 | VVNQNAQAL 0.000709 | 9.3 |
| HLA-A*68:01 | 1 | 1066 | 1075 | 10 | TYVPAQEKNF 0.000709 | 17 |
| HLA-A*30:01 | 1 | 148 | 156 | 9 | NNKSWMESE 0.000708 | 31 |
| HLA-B*57:01 | 1 | 327 | 336 | 10 | VRFPNITNLC 0.000708 | 23 |
| HLA-A*02:03 | 1 | 400 | 408 | 9 | FVIRGDEVV 0.000708 | 18 |
| HLA-A*32:01 | 1 | 512 | 520 | 9 | VLSFELLHA 0.000708 | 13 |
| HLA-B*15:01 | 1 | 550 | 558 | 9 | GVLTESNKK 0.000708 | 17 |
| HLA-A*68:02 | 1 | 815 | 823 | 9 | RSFIEDLLF 0.000708 | 18 |
| HLA-A*02:06 | 1 | 843 | 852 | 10 | DIAARDLICA 0.000708 | 23 |
| HLA-B*51:01 | 1 | 864 | 873 | 10 | LLTDEMIAQY 0.000708 | 21 |
| HLA-A*03:01 | 1 | 957 | 965 | 9 | QALNTLVKQ 0.000708 | 14 |
| HLA-A*26:01 | 1 | 969 | 977 | 9 | NFGAISSVL 0.000708 | 13 |
| HLA-A*02:06 | 1 | 20 | 28 | 9 | TRTQLPPAY 0.000707 | 23 |
| HLA-A*30:02 | 1 | 189 | 197 | 9 | LREFVFKNI 0.000707 | 28 |
| HLA-A*02:06 | 1 | 301 | 309 | 9 | CTLKSFTVE 0.000707 | 23 |
| HLA-B*15:01 | 1 | 313 | 322 | 10 | YQTSNFRVQP 0.000707 | 17 |
| HLA-B*08:01 | 1 | 318 | 327 | 10 | FRVQPTESIV 0.000707 | 23 |
| HLA-A*26:01 | 1 | 567 | 576 | 10 | RDIADTTDAV 0.000707 | 13 |
| HLA-B*58:01 | 1 | 617 | 625 | 9 | CTEVPVAIH 0.000707 | 16 |
| HLA-B*51:01 | 1 | 684 | 693 | 10 | ARSVASQSII 0.000707 | 21 |
| HLA-B*15:01 | 1 | 1017 | 1025 | 9 | EIRASANLA 0.000707 | 17 |
| HLA-B*40:01 | 1 | 1091 | 1099 | 9 | REGVFSVNG 0.000707 | 8.7 |
| HLA-A*02:01 | 1 | 16 | 24 | 9 | VNLTRTQQL 0.000706 | 16 |
| HLA-A*30:01 | 1 | 91 | 100 | 10 | YFASTEKSNI 0.000706 | 31 |
| HLA-A*30:02 | 1 | 175 | 183 | 9 | FLMDLEGKQ 0.000706 | 28 |
| HLA-A*02:03 | 1 | 178 | 186 | 9 | DLEGKQGNF 0.000706 | 18 |
| HLA-A*24:02 | 1 | 233 | 242 | 10 | INITRFQTL 0.000706 | 9.3 |
| HLA-B*08:01 | 1 | 313 | 321 | 9 | YQTSNFRVQ 0.000706 | 23 |
| HLA-A*02:03 | 1 | 832 | 841 | 10 | GFIKQYGDC 0.000706 | 18 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*02:03 | 1 | 1181 | 1190 | 10 | KEIDRLNEVA 0.000706 | 18 |
| HLA-A*24:02 | 1 | 1248 | 1256 | 9 | CSCGSCCKF 0.000706 | 9.3 |
| HLA-B*15:01 | 1 | 15 | 23 | 9 | CVNLTRTQ 0.000705 | 17 |
| HLA-A*01:01 | 1 | 27 | 36 | 10 | AYTNSFTRGV 0.000705 | 18 |
| HLA-B*08:01 | 1 | 137 | 145 | 9 | NDPFLGVYY 0.000705 | 23 |
| HLA-A*68:02 | 1 | 206 | 214 | 9 | KHTPINLVR 0.000705 | 18 |
| HLA-A*30:02 | 1 | 317 | 325 | 9 | NFRVQPTES 0.000705 | 28 |
| HLA-A*03:01 | 1 | 503 | 511 | 9 | VGYPYRVV 0.000705 | 14 |
| HLA-A*30:01 | 1 | 528 | 536 | 9 | KKSTNLVKN 0.000705 | 31 |
| HLA-B*07:02 | 1 | 590 | 598 | 9 | CSFGGVSVI 0.000705 | 14 |
| HLA-A*02:01 | 1 | 612 | 621 | 10 | YQDVNCTEVP 0.000705 | 16 |
| HLA-A*02:03 | 1 | 687 | 695 | 9 | VASQSIIAY 0.000705 | 18 |
| HLA-A*01:01 | 1 | 713 | 722 | 10 | AIPTNFTISV 0.000705 | 18 |
| HLA-A*02:06 | 1 | 748 | 756 | 9 | ECSNLLQY 0.000705 | 23 |
| HLA-A*24:02 | 1 | 792 | 800 | 9 | PPIKDFGGF 0.000705 | 9.3 |
| HLA-B*07:02 | 1 | 998 | 1006 | 9 | TGRLQSLQT 0.000705 | 14 |
| HLA-B*07:02 | 1 | 999 | 1007 | 9 | GRLQSLQTY 0.000705 | 14 |
| HLA-B*57:01 | 1 | 1114 | 1122 | 9 | IITTDNTFV 0.000705 | 23 |
| HLA-A*30:02 | 1 | 1227 | 1235 | 9 | IVMVTIMLC 0.000705 | 28 |
| HLA-B*07:02 | 1 | 49 | 58 | 10 | HSTQDLFLPF 0.000704 | 14 |
| HLA-A*32:01 | 1 | 185 | 194 | 10 | NFKNLREFVF 0.000704 | 13 |
| HLA-A*02:01 | 1 | 313 | 322 | 10 | YQTSNFRVQP 0.000704 | 16 |
| HLA-A*31:01 | 1 | 356 | 365 | 10 | KRISNCVADY 0.000704 | 18 |
| HLA-A*23:01 | 1 | 449 | 458 | 10 | YNYLYRFRK 0.000704 | 9.6 |
| HLA-A*30:02 | 1 | 540 | 548 | 9 | NFNFNLTG 0.000704 | 28 |
| HLA-B*15:01 | 1 | 672 | 681 | 10 | ASYQTQTNSP 0.000704 | 17 |
| HLA-A*32:01 | 1 | 675 | 683 | 9 | QTQTNSPRR 0.000704 | 13 |
| HLA-A*03:01 | 1 | 685 | 693 | 9 | RSVASQSII 0.000704 | 14 |
| HLA-A*30:01 | 1 | 715 | 723 | 9 | PTNFTISVT 0.000704 | 31 |
| HLA-A*24:02 | 1 | 718 | 727 | 10 | FTISVTTEIL 0.000704 | 9.3 |
| HLA-A*01:01 | 1 | 759 | 767 | 9 | FCTQLNRAL 0.000704 | 18 |
| HLA-B*07:02 | 1 | 814 | 822 | 9 | KRSFIEDLL 0.000704 | 14 |
| HLA-B*57:01 | 1 | 924 | 933 | 10 | ANQFNSAIGK 0.000704 | 23 |
| HLA-B*51:01 | 1 | 1059 | 1068 | 10 | GVVFLHVTYV 0.000704 | 21 |
| HLA-A*24:02 | 1 | 1255 | 1264 | 10 | KFDEDDSEPV 0.000704 | 9.3 |
| HLA-B*57:01 | 1 | 18 | 27 | 10 | LTRTQLPPA 0.000703 | 23 |
| HLA-B*51:01 | 1 | 154 | 162 | 9 | ESEFRVYSS 0.000703 | 21 |
| HLA-A*30:01 | 1 | 166 | 175 | 10 | CTFEYVSQPF 0.000703 | 31 |
| HLA-B*35:01 | 1 | 170 | 179 | 10 | YVSQPFLMDL 0.000703 | 12 |
| HLA-A*30:01 | 1 | 622 | 631 | 10 | VAIHADQLTP 0.000703 | 31 |
| HLA-A*11:01 | 1 | 627 | 636 | 10 | DQLTPTWRVY 0.000703 | 11 |
| HLA-A*02:06 | 1 | 696 | 704 | 9 | TMSLGAENS 0.000703 | 23 |
| HLA-A*11:01 | 1 | 765 | 774 | 10 | RALTGIAVEQ 0.000703 | 11 |
| HLA-A*33:01 | 1 | 1002 | 1010 | 9 | QSLQTYVTQ 0.000703 | 16 |
| HLA-A*03:01 | 1 | 1030 | 1039 | 10 | SECVLGQSKR 0.000703 | 14 |
| HLA-A*24:02 | 1 | 1043 | 1052 | 10 | CGKGYHLMFS 0.000703 | 9.3 |
| HLA-B*57:01 | 1 | 1132 | 1141 | 10 | IVNNTVYDPL 0.000703 | 23 |
| HLA-B*51:01 | 1 | 1137 | 1146 | 10 | VYDPLQPELD 0.000703 | 21 |
| HLA-A*30:01 | 1 | 1215 | 1224 | 10 | YIWLGFIAGL 0.000703 | 31 |
| HLA-A*02:06 | 1 | 142 | 150 | 9 | GVYYHKNNK 0.000702 | 23 |
| HLA-A*02:06 | 1 | 264 | 272 | 9 | AYYVGYLQP 0.000702 | 23 |
| HLA-A*02:01 | 1 | 403 | 411 | 9 | RGDEVQRQA 0.000702 | 17 |
| HLA-A*01:01 | 1 | 487 | 496 | 10 | NCYFPLQSYG 0.000702 | 18 |
| HLA-A*33:01 | 1 | 796 | 805 | 10 | DFGGFNFSQI 0.000702 | 16 |
| HLA-B*58:01 | 1 | 854 | 862 | 9 | KFNGLTVLP 0.000702 | 16 |
| HLA-A*26:01 | 1 | 873 | 882 | 10 | YTSALLAGTI 0.000702 | 13 |
| HLA-B*57:01 | 1 | 937 | 945 | 9 | SLSSTASAL 0.000702 | 23 |
| HLA-A*02:01 | 1 | 1024 | 1033 | 10 | LAATKMSECV 0.000702 | 17 |
| HLA-B*35:01 | 1 | 92 | 101 | 10 | FASTEKSNI 0.000701 | 12 |
| HLA-A*23:01 | 1 | 138 | 147 | 10 | DPFLGVYYHK 0.000701 | 9.6 |
| HLA-A*03:01 | 1 | 240 | 249 | 10 | TLLALHRSYL 0.000701 | 14 |
| HLA-A*02:01 | 1 | 265 | 273 | 9 | YYVGYLQPR 0.000701 | 17 |
| HLA-B*07:02 | 1 | 302 | 310 | 9 | TLKSFTVEK 0.000701 | 14 |
| HLA-B*57:01 | 1 | 425 | 433 | 9 | LPDDFTGCV 0.000701 | 23 |
| HLA-B*53:01 | 1 | 797 | 805 | 9 | FGGFNFSQI 0.000701 | 11 |
| HLA-A*31:01 | 1 | 947 | 955 | 9 | KLQDVVNQN 0.000701 | 18 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*07:02 | 1 | 1014 | 1023 | 10 | RAAEIRASAN 0.000701 | 14 |
| HLA-A*30:02 | 1 | 1060 | 1069 | 10 | VVFLHVITYVP 0.000701 | 28 |
| HLA-A*24:02 | 1 | 1257 | 1265 | 9 | DEDDSEPV 0.000701 | 9.3 |
| HLA-A*31:01 | 1 | 23 | 31 | 9 | QLPPAYTNS 0.0007 | 18 |
| HLA-B*51:01 | 1 | 268 | 277 | 10 | GYLQPRTFLL 0.0007 | 21 |
| HLA-B*15:01 | 1 | 284 | 293 | 10 | TITDAVDCAL 0.0007 | 17 |
| HLA-B*44:03 | 1 | 363 | 371 | 9 | ADYSVLYNS 0.0007 | 9.3 |
| HLA-A*01:01 | 1 | 394 | 403 | 10 | NVYADSFVIR 0.0007 | 18 |
| HLA-B*15:01 | 1 | 641 | 650 | 10 | NVFQTRAGCL 0.0007 | 17 |
| HLA-B*08:01 | 1 | 746 | 754 | 9 | STECNLLL 0.0007 | 23 |
| HLA-A*68:01 | 1 | 864 | 872 | 9 | LLTDEMIAQ 0.0007 | 17 |
| HLA-A*32:01 | 1 | 868 | 877 | 10 | EMIAQYTSAL 0.0007 | 13 |
| HLA-B*57:01 | 1 | 933 | 942 | 10 | KIQDLSSTA 0.0007 | 23 |
| HLA-A*26:01 | 1 | 982 | 991 | 10 | SRLDKVEAEV 0.0007 | 13 |
| HLA-B*51:01 | 1 | 1003 | 1012 | 10 | SLQTYVTQQL 0.0007 | 21 |
| HLA-A*30:02 | 1 | 1120 | 1128 | 9 | TFVSGNCDV 0.0007 | 28 |
| HLA-A*30:01 | 1 | 1144 | 1152 | 9 | ELDSFKEEL 0.0007 | 31 |
| HLA-A*26:01 | 1 | 320 | 328 | 9 | VQPTESIVR 0.000699 | 13 |
| HLA-A*30:01 | 1 | 403 | 412 | 10 | RGDEVQRQIAP 0.000699 | 31 |
| HLA-A*31:01 | 1 | 452 | 461 | 10 | LYRLFRRKSNL 0.000699 | 18 |
| HLA-B*57:01 | 1 | 937 | 946 | 10 | SLSSTASALG 0.000699 | 23 |
| HLA-A*31:01 | 1 | 1074 | 1083 | 10 | NFTTAPAICH 0.000699 | 18 |
| HLA-A*03:01 | 1 | 1095 | 1103 | 9 | FVSNNGTHWF 0.000699 | 14 |
| HLA-A*68:01 | 1 | 135 | 143 | 9 | FCNDPFLGV 0.000698 | 17 |
| HLA-A*31:01 | 1 | 239 | 247 | 9 | QTLALHRS 0.000698 | 18 |
| HLA-B*58:01 | 1 | 261 | 270 | 10 | GAAAYYVGYL 0.000698 | 16 |
| HLA-A*30:02 | 1 | 376 | 384 | 9 | TFKCYGVSP 0.000698 | 28 |
| HLA-A*11:01 | 1 | 584 | 592 | 9 | ILDITPCSF 0.000698 | 11 |
| HLA-B*57:01 | 1 | 682 | 691 | 10 | RRARSVASQS 0.000698 | 23 |
| HLA-B*58:01 | 1 | 937 | 945 | 9 | SLSSTASAL 0.000698 | 16 |
| HLA-B*35:01 | 1 | 953 | 962 | 10 | NQNAQALNTL 0.000698 | 12 |
| HLA-A*11:01 | 1 | 1080 | 1088 | 9 | AICHDGKAH 0.000698 | 11 |
| HLA-A*33:01 | 1 | 84 | 92 | 9 | LPFNDGVYF 0.000697 | 16 |
| HLA-B*07:02 | 1 | 127 | 135 | 9 | VIKVFCEQF 0.000697 | 14 |
| HLA-A*01:01 | 1 | 149 | 158 | 10 | NKSWMESEFR 0.000697 | 18 |
| HLA-B*08:01 | 1 | 206 | 214 | 9 | KHTPINLVR 0.000697 | 23 |
| HLA-A*02:06 | 1 | 418 | 426 | 9 | IADYNYKLP 0.000697 | 23 |
| HLA-A*02:01 | 1 | 432 | 441 | 10 | CVIAWNSNNL 0.000697 | 17 |
| HLA-A*24:02 | 1 | 740 | 749 | 10 | MYICGDSTEC 0.000697 | 9.4 |
| HLA-A*33:01 | 1 | 827 | 836 | 10 | TLADAGFIKQ 0.000697 | 16 |
| HLA-B*08:01 | 1 | 833 | 842 | 10 | FIKQYGDCLG 0.000697 | 23 |
| HLA-A*03:01 | 1 | 904 | 913 | 10 | YRFNGIGVTQ 0.000697 | 14 |
| HLA-A*33:01 | 1 | 1047 | 1056 | 10 | YHLMSFPQSA 0.000697 | 16 |
| HLA-A*01:01 | 1 | 1077 | 1086 | 10 | TAPAICHDGK 0.000697 | 18 |
| HLA-A*30:01 | 1 | 1120 | 1128 | 9 | TFVSGNCDV 0.000697 | 31 |
| HLA-A*01:01 | 1 | 166 | 174 | 9 | CTFEYVSQP 0.000696 | 18 |
| HLA-A*02:06 | 1 | 370 | 378 | 9 | NSASFSTFK 0.000696 | 23 |
| HLA-A*32:01 | 1 | 464 | 473 | 10 | FERDISTEY 0.000696 | 13 |
| HLA-A*30:01 | 1 | 700 | 708 | 9 | GAENSVAYS 0.000696 | 31 |
| HLA-A*02:06 | 1 | 816 | 825 | 10 | SFIEDLLFNK 0.000696 | 23 |
| HLA-A*02:01 | 1 | 826 | 835 | 10 | VTLADAGFIK 0.000696 | 17 |
| HLA-A*23:01 | 1 | 930 | 938 | 9 | AIGKIQDSL 0.000696 | 9.6 |
| HLA-A*02:01 | 1 | 969 | 977 | 9 | NFGAISSVL 0.000696 | 17 |
| HLA-A*02:01 | 1 | 1081 | 1089 | 9 | ICHDGKAHF 0.000696 | 17 |
| HLA-A*30:01 | 1 | 1166 | 1174 | 9 | LGDISGINA 0.000696 | 31 |
| HLA-B*58:01 | 1 | 19 | 27 | 9 | TTRTQLPPA 0.000695 | 16 |
| HLA-A*31:01 | 1 | 29 | 37 | 9 | TNSFTRGVY 0.000695 | 18 |
| HLA-B*53:01 | 1 | 136 | 145 | 10 | CNDPFLGVVY 0.000695 | 11 |
| HLA-A*31:01 | 1 | 139 | 148 | 10 | PFLGVYYHKN 0.000695 | 18 |
| HLA-A*03:01 | 1 | 448 | 457 | 10 | NYNYLYRLFR 0.000695 | 14 |
| HLA-B*58:01 | 1 | 35 | 44 | 10 | GVYYPDKVFR 0.000694 | 16 |
| HLA-A*68:02 | 1 | 51 | 59 | 9 | TQDLFLPFF 0.000694 | 18 |
| HLA-B*57:01 | 1 | 72 | 80 | 9 | GTNGTKRFD 0.000694 | 23 |
| HLA-A*02:03 | 1 | 184 | 192 | 9 | GNFKNLREF 0.000694 | 18 |
| HLA-A*02:03 | 1 | 242 | 251 | 10 | LALHRSYLT 0.000694 | 18 |
| HLA-B*51:01 | 1 | 511 | 519 | 9 | VVLSFELLH 0.000694 | 21 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*08:01 | 1 | 666 | 674 | 9 | IGAGICASY 0.000694 | 23 |
| HLA-A*32:01 | 1 | 891 | 900 | 10 | GAALQIPFAM 0.000694 | 13 |
| HLA-B*58:01 | 1 | 936 | 945 | 10 | DSLSSTASAL 0.000694 | 16 |
| HLA-A*02:01 | 1 | 1001 | 1009 | 9 | LQSLQTYVT 0.000694 | 17 |
| HLA-B*07:02 | 1 | 1048 | 1057 | 10 | HLMSFPQSAP 0.000694 | 14 |
| HLA-B*08:01 | 1 | 135 | 144 | 10 | FCNDPFLGVY 0.000693 | 23 |
| HLA-A*33:01 | 1 | 231 | 239 | 9 | IGINITRFQ 0.000693 | 16 |
| HLA-B*58:01 | 1 | 255 | 264 | 10 | SSGWTAGAAA 0.000693 | 16 |
| HLA-B*35:01 | 1 | 284 | 293 | 10 | TITDAVDCAL 0.000693 | 12 |
| HLA-A*26:01 | 1 | 305 | 314 | 10 | SFTVEKGIYQ 0.000693 | 13 |
| HLA-A*01:01 | 1 | 343 | 352 | 10 | NATRFASVYA 0.000693 | 18 |
| HLA-A*02:06 | 1 | 668 | 676 | 9 | AGICASYQT 0.000693 | 23 |
| HLA-A*68:02 | 1 | 684 | 692 | 9 | ARSVASQSI 0.000693 | 18 |
| HLA-A*02:03 | 1 | 716 | 724 | 9 | TNFTISVTT 0.000693 | 18 |
| HLA-A*30:02 | 1 | 739 | 747 | 9 | TMYICGDST 0.000693 | 28 |
| HLA-B*58:01 | 1 | 890 | 899 | 10 | AGAALQIPFA 0.000693 | 16 |
| HLA-A*02:03 | 1 | 898 | 906 | 9 | FAMQMAYRF 0.000693 | 18 |
| HLA-B*58:01 | 1 | 13 | 21 | 9 | SQCVNLTTR 0.000692 | 16 |
| HLA-A*02:06 | 1 | 48 | 56 | 9 | LHSTQDLFL 0.000692 | 23 |
| HLA-A*68:02 | 1 | 142 | 150 | 9 | GYYHKNK 0.000692 | 18 |
| HLA-A*23:01 | 1 | 225 | 233 | 9 | PLVDLPIGI 0.000692 | 9.6 |
| HLA-A*30:01 | 1 | 487 | 496 | 10 | NCYFPLQSYG 0.000692 | 31 |
| HLA-B*15:01 | 1 | 818 | 826 | 9 | IEDLLFNKV 0.000692 | 17 |
| HLA-A*31:01 | 1 | 825 | 833 | 9 | KVTLADAGF 0.000692 | 18 |
| HLA-A*02:01 | 1 | 854 | 862 | 9 | KFNGLTVLP 0.000692 | 17 |
| HLA-B*07:02 | 1 | 868 | 876 | 9 | EMIAQY TSA 0.000692 | 14 |
| HLA-A*03:01 | 1 | 1064 | 1072 | 9 | HVTYVPAQE 0.000692 | 14 |
| HLA-A*31:01 | 1 | 108 | 116 | 9 | TTLDSKTQS 0.000691 | 18 |
| HLA-A*03:01 | 1 | 465 | 473 | 9 | ERDISTEY 0.000691 | 14 |
| HLA-A*30:01 | 1 | 598 | 606 | 9 | ITPGTNTSN 0.000691 | 31 |
| HLA-B*57:01 | 1 | 1016 | 1024 | 9 | AEIRASANL 0.000691 | 23 |
| HLA-B*57:01 | 1 | 1263 | 1271 | 9 | PVLKGVKHL 0.000691 | 23 |
| HLA-B*58:01 | 1 | 379 | 387 | 9 | CYGVSP TKL 0.00069 | 16 |
| HLA-A*01:01 | 1 | 455 | 464 | 10 | LFKSNL KPF 0.00069 | 19 |
| HLA-A*24:02 | 1 | 524 | 533 | 10 | VCGPKKSTNL 0.00069 | 9.4 |
| HLA-A*32:01 | 1 | 534 | 543 | 10 | VKNKCVNFN 0.00069 | 13 |
| HLA-B*15:01 | 1 | 563 | 571 | 9 | QQFGRDIAD 0.00069 | 17 |
| HLA-B*35:01 | 1 | 616 | 625 | 10 | NCTEVPVAIH 0.00069 | 12 |
| HLA-A*24:02 | 1 | 975 | 984 | 10 | SVLNDILSRL 0.00069 | 9.4 |
| HLA-A*33:01 | 1 | 1263 | 1271 | 9 | PVLKGVKHL 0.00069 | 16 |
| HLA-A*23:01 | 1 | 10 | 18 | 9 | LVSSQCVNL 0.000689 | 9.6 |
| HLA-A*01:01 | 1 | 123 | 131 | 9 | ATNVVIVKVC 0.000689 | 19 |
| HLA-A*03:01 | 1 | 150 | 159 | 10 | KSWMESEFRV 0.000689 | 14 |
| HLA-A*02:01 | 1 | 205 | 213 | 9 | SKHTPINLV 0.000689 | 17 |
| HLA-B*53:01 | 1 | 379 | 387 | 9 | CYGVSP TKL 0.000689 | 11 |
| HLA-A*68:02 | 1 | 486 | 495 | 10 | FNCYFPLQSY 0.000689 | 18 |
| HLA-A*02:03 | 1 | 544 | 553 | 10 | NGLTGTGVLT 0.000689 | 19 |
| HLA-A*31:01 | 1 | 637 | 645 | 9 | STGSNVFQT 0.000689 | 18 |
| HLA-B*15:01 | 1 | 639 | 647 | 9 | GSNVFQTRA 0.000689 | 17 |
| HLA-A*68:01 | 1 | 665 | 674 | 10 | PIGAGICASY 0.000689 | 17 |
| HLA-A*32:01 | 1 | 819 | 828 | 10 | EDLLFNKVTL 0.000689 | 13 |
| HLA-A*32:01 | 1 | 845 | 854 | 10 | AARDLICAQK 0.000689 | 13 |
| HLA-A*30:02 | 1 | 857 | 866 | 10 | GLTVLP LLT 0.000689 | 28 |
| HLA-A*03:01 | 1 | 1055 | 1063 | 9 | SAPHGVVFL 0.000689 | 14 |
| HLA-B*08:01 | 1 | 1059 | 1068 | 10 | GVVFLHVTVY 0.000689 | 23 |
| HLA-A*30:01 | 1 | 1113 | 1122 | 10 | QIITTDNTFV 0.000689 | 31 |
| HLA-A*02:06 | 1 | 69 | 77 | 9 | HVSGTNGTK 0.000688 | 23 |
| HLA-B*53:01 | 1 | 69 | 77 | 9 | HVSGTNGTK 0.000688 | 11 |
| HLA-A*30:01 | 1 | 83 | 92 | 10 | VLPFNDGVYF 0.000688 | 31 |
| HLA-B*51:01 | 1 | 214 | 222 | 9 | RDL PQG FSA 0.000688 | 22 |
| HLA-B*07:02 | 1 | 324 | 332 | 9 | ESIVRFPNI 0.000688 | 14 |
| HLA-B*07:02 | 1 | 349 | 358 | 10 | SVYAWNRKRI 0.000688 | 14 |
| HLA-A*68:02 | 1 | 388 | 397 | 10 | NDL CFTNVYA 0.000688 | 18 |
| HLA-A*32:01 | 1 | 451 | 459 | 9 | YLYRLF RKS 0.000688 | 13 |
| HLA-A*30:02 | 1 | 680 | 688 | 9 | SPRRARSVA 0.000688 | 28 |
| HLA-A*31:01 | 1 | 854 | 863 | 10 | KFNGLTVLPP 0.000688 | 18 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*08:01 | 1 | 1049 | 1057 | 9 | LMSFPQSAP 0.000688 | 23 |
| HLA-A*31:01 | 1 | 1061 | 1070 | 10 | VFLHVTYVPA 0.000688 | 18 |
| HLA-A*68:02 | 1 | 99 | 107 | 9 | NIIRGWIFG 0.000687 | 18 |
| HLA-B*58:01 | 1 | 225 | 233 | 9 | PLVDLPIGI 0.000687 | 16 |
| HLA-B*57:01 | 1 | 546 | 555 | 10 | LTGTGVLTES 0.000687 | 23 |
| HLA-A*30:01 | 1 | 938 | 946 | 9 | LSSTASALG 0.000687 | 31 |
| HLA-B*57:01 | 1 | 964 | 972 | 9 | KQLSSNFGA 0.000687 | 23 |
| HLA-A*30:02 | 1 | 1123 | 1132 | 10 | SGNCDVVIGI 0.000687 | 28 |
| HLA-A*02:01 | 1 | 1221 | 1230 | 10 | IAGLIAIVMV 0.000687 | 17 |
| HLA-A*03:01 | 1 | 109 | 118 | 10 | TLDSKTQSLL 0.000686 | 14 |
| HLA-A*26:01 | 1 | 271 | 280 | 10 | QPRTFLLKYN 0.000686 | 13 |
| HLA-B*08:01 | 1 | 284 | 293 | 10 | TITDAVDCAL 0.000686 | 23 |
| HLA-A*30:02 | 1 | 467 | 475 | 9 | DISTEIYQA 0.000686 | 28 |
| HLA-A*33:01 | 1 | 500 | 508 | 9 | TNGVGYQPY 0.000686 | 16 |
| HLA-A*31:01 | 1 | 551 | 559 | 9 | VLTESNKKF 0.000686 | 18 |
| HLA-B*51:01 | 1 | 1098 | 1106 | 9 | NGTHWFVTQ 0.000686 | 22 |
| HLA-A*68:01 | 1 | 1135 | 1143 | 9 | NTVYDPLQP 0.000686 | 17 |
| HLA-A*30:02 | 1 | 1200 | 1208 | 9 | LQELGKYEQ 0.000686 | 28 |
| HLA-B*57:01 | 1 | 14 | 23 | 10 | QCVNLTRTQ 0.000685 | 23 |
| HLA-B*40:01 | 1 | 151 | 159 | 9 | SWMESEFRV 0.000685 | 8.8 |
| HLA-B*44:03 | 1 | 204 | 212 | 9 | YSKHTPINL 0.000685 | 9.4 |
| HLA-A*30:02 | 1 | 220 | 229 | 10 | FSALEPLVDL 0.000685 | 28 |
| HLA-A*11:01 | 1 | 371 | 379 | 9 | SASFSTFKC 0.000685 | 11 |
| HLA-A*68:02 | 1 | 423 | 432 | 10 | YKLPDDFTGC 0.000685 | 18 |
| HLA-B*40:01 | 1 | 618 | 627 | 10 | TEVPVAIHAD 0.000685 | 8.8 |
| HLA-A*26:01 | 1 | 764 | 772 | 9 | NRALTGIADV 0.000685 | 13 |
| HLA-A*01:01 | 1 | 1024 | 1032 | 9 | LAATKMSEC 0.000685 | 19 |
| HLA-A*01:01 | 1 | 1212 | 1220 | 9 | WPWYIWLGF 0.000685 | 19 |
| HLA-A*02:06 | 1 | 28 | 37 | 10 | YTNSFTRGVY 0.000684 | 23 |
| HLA-B*58:01 | 1 | 126 | 134 | 9 | VVIKVCEFQ 0.000684 | 16 |
| HLA-B*57:01 | 1 | 165 | 174 | 10 | NCTFEYVSQP 0.000684 | 23 |
| HLA-A*02:06 | 1 | 167 | 175 | 9 | TFEYVSQPF 0.000684 | 23 |
| HLA-B*44:02 | 1 | 666 | 674 | 9 | IGAGICASY 0.000684 | 9.5 |
| HLA-A*02:06 | 1 | 707 | 716 | 10 | YSNNSIAIPT 0.000684 | 23 |
| HLA-A*68:02 | 1 | 712 | 721 | 10 | IAIPTNFTIS 0.000684 | 18 |
| HLA-B*40:01 | 1 | 962 | 970 | 9 | LVKQLSSNF 0.000684 | 8.8 |
| HLA-A*30:01 | 1 | 1153 | 1161 | 9 | DKYFKNHTS 0.000684 | 31 |
| HLA-A*03:01 | 1 | 126 | 134 | 9 | VVIKVCEFQ 0.000683 | 14 |
| HLA-A*01:01 | 1 | 132 | 140 | 9 | EFQFCNDPF 0.000683 | 19 |
| HLA-A*30:02 | 1 | 157 | 166 | 10 | FRVYSSANNC 0.000683 | 28 |
| HLA-B*07:02 | 1 | 328 | 336 | 9 | RFPNITNLC 0.000683 | 14 |
| HLA-A*30:02 | 1 | 352 | 361 | 10 | AWNKRISNC 0.000683 | 28 |
| HLA-A*02:01 | 1 | 552 | 560 | 9 | LTESNKKFL 0.000683 | 17 |
| HLA-A*02:01 | 1 | 628 | 637 | 10 | QLTPTWRVYS 0.000683 | 17 |
| HLA-B*44:02 | 1 | 732 | 741 | 10 | TKTSVDCTMY 0.000683 | 9.5 |
| HLA-A*68:02 | 1 | 789 | 797 | 9 | YKTPPIKDF 0.000683 | 18 |
| HLA-A*68:01 | 1 | 1086 | 1095 | 10 | KAHFPREGVF 0.000683 | 17 |
| HLA-A*24:02 | 1 | 1109 | 1118 | 10 | FYEPQIITTD 0.000683 | 9.5 |
| HLA-A*02:06 | 1 | 1139 | 1148 | 10 | DPLQPELDSF 0.000683 | 23 |
| HLA-A*33:01 | 1 | 85 | 93 | 9 | PFNDGVYFA 0.000682 | 16 |
| HLA-B*53:01 | 1 | 97 | 106 | 10 | KSNIIRGWIF 0.000682 | 11 |
| HLA-B*15:01 | 1 | 120 | 128 | 9 | VNATNVVI 0.000682 | 17 |
| HLA-B*40:01 | 1 | 169 | 177 | 9 | EYVSQPFLM 0.000682 | 8.8 |
| HLA-B*44:02 | 1 | 405 | 413 | 9 | DEVQRQIAPG 0.000682 | 9.5 |
| HLA-B*08:01 | 1 | 413 | 421 | 9 | GQTGKIADY 0.000682 | 23 |
| HLA-A*68:01 | 1 | 480 | 489 | 10 | CNGVEGFNCY 0.000682 | 17 |
| HLA-A*31:01 | 1 | 713 | 722 | 10 | AIPTNFTISV 0.000682 | 18 |
| HLA-A*31:01 | 1 | 787 | 796 | 10 | QIYKTPPIKD 0.000682 | 18 |
| HLA-A*68:01 | 1 | 803 | 812 | 10 | SQILPDPSKP 0.000682 | 17 |
| HLA-A*02:01 | 1 | 1026 | 1034 | 9 | ATKMSECVL 0.000682 | 17 |
| HLA-A*30:02 | 1 | 1218 | 1226 | 9 | LGFIAGLIA 0.000682 | 28 |
| HLA-A*33:01 | 1 | 1 | 10 | 10 | MFVFLVLLPL 0.000681 | 16 |
| HLA-A*01:01 | 1 | 97 | 105 | 9 | KSNIIRGWI 0.000681 | 19 |
| HLA-B*58:01 | 1 | 596 | 604 | 9 | SVITPGTNT 0.000681 | 16 |
| HLA-A*68:02 | 1 | 663 | 671 | 9 | DIPIGAGIC 0.000681 | 18 |
| HLA-A*32:01 | 1 | 817 | 825 | 9 | FIEDLLFNK 0.000681 | 13 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*07:02 | 1 | 879 | 888 | 10 | AGTITSGWTF 0.000681 | 14 |
| HLA-B*08:01 | 1 | 953 | 961 | 9 | NQNAQALNT 0.000681 | 23 |
| HLA-B*07:02 | 1 | 1009 | 1017 | 9 | TQQLIRAAE 0.000681 | 14 |
| HLA-A*32:01 | 1 | 1011 | 1019 | 9 | QLIRAAEIR 0.000681 | 13 |
| HLA-B*08:01 | 1 | 1019 | 1027 | 9 | RASANLAAT 0.000681 | 23 |
| HLA-A*33:01 | 1 | 1062 | 1070 | 9 | FLHVTVYPA 0.000681 | 16 |
| HLA-A*30:01 | 1 | 66 | 75 | 10 | HAIHVSGTNG 0.00068 | 31 |
| HLA-A*68:02 | 1 | 88 | 96 | 9 | DGVYFASTE 0.00068 | 18 |
| HLA-A*32:01 | 1 | 264 | 273 | 10 | AYYVGYLQPR 0.00068 | 13 |
| HLA-B*58:01 | 1 | 301 | 310 | 10 | CTLKSFTVEK 0.00068 | 16 |
| HLA-A*33:01 | 1 | 307 | 315 | 9 | TVEKGIYQT 0.00068 | 16 |
| HLA-A*26:01 | 1 | 754 | 762 | 9 | LQYGSFCTQ 0.00068 | 13 |
| HLA-A*01:01 | 1 | 814 | 822 | 9 | KRSFIEDLL 0.00068 | 19 |
| HLA-B*57:01 | 1 | 817 | 825 | 9 | FIEDLLFNK 0.00068 | 23 |
| HLA-A*02:03 | 1 | 859 | 868 | 10 | TVLPPLLTDE 0.00068 | 19 |
| HLA-B*57:01 | 1 | 991 | 999 | 9 | VQIDRLITG 0.00068 | 23 |
| HLA-B*51:01 | 1 | 153 | 161 | 9 | MESEFRVYS 0.000679 | 22 |
| HLA-A*31:01 | 1 | 278 | 286 | 9 | KYNENGTIT 0.000679 | 18 |
| HLA-A*68:01 | 1 | 332 | 340 | 9 | ITNLCPFGE 0.000679 | 17 |
| HLA-B*57:01 | 1 | 797 | 805 | 9 | FGGFNFSQI 0.000679 | 23 |
| HLA-A*03:01 | 1 | 854 | 862 | 9 | KFNGLTVLP 0.000679 | 14 |
| HLA-B*51:01 | 1 | 1045 | 1053 | 9 | KGYHLMSFP 0.000679 | 22 |
| HLA-B*15:01 | 1 | 1181 | 1190 | 10 | KEIDRLNEVA 0.000679 | 17 |
| HLA-B*35:01 | 1 | 1185 | 1193 | 9 | RLNEVAKNL 0.000679 | 12 |
| HLA-A*02:06 | 1 | 56 | 64 | 9 | LPFFSNVTW 0.000678 | 23 |
| HLA-A*11:01 | 1 | 236 | 244 | 9 | TRFQTLAL 0.000678 | 11 |
| HLA-B*08:01 | 1 | 265 | 273 | 9 | YYVGYLQPR 0.000678 | 23 |
| HLA-A*30:01 | 1 | 295 | 303 | 9 | PLSETKCTL 0.000678 | 31 |
| HLA-A*31:01 | 1 | 321 | 329 | 9 | QPTESIVRF 0.000678 | 18 |
| HLA-A*02:06 | 1 | 365 | 373 | 9 | YSVLYNSAS 0.000678 | 23 |
| HLA-A*03:01 | 1 | 386 | 394 | 9 | KLNDLCFTN 0.000678 | 14 |
| HLA-B*44:02 | 1 | 456 | 464 | 9 | FRKSNLKP 0.000678 | 9.5 |
| HLA-A*26:01 | 1 | 520 | 528 | 9 | APATVCGPK 0.000678 | 13 |
| HLA-A*24:02 | 1 | 815 | 824 | 10 | RSFIEDLLFN 0.000678 | 9.5 |
| HLA-B*07:02 | 1 | 1053 | 1062 | 10 | PQSAPHGVVF 0.000678 | 14 |
| HLA-A*02:03 | 1 | 1127 | 1136 | 10 | DVVIGIVNNT 0.000678 | 19 |
| HLA-A*02:06 | 1 | 1133 | 1141 | 9 | VNNTVYDPL 0.000678 | 23 |
| HLA-A*03:01 | 1 | 30 | 39 | 10 | NSFTRGVYYP 0.000677 | 14 |
| HLA-A*30:01 | 1 | 56 | 64 | 9 | LPFFSNVTW 0.000677 | 31 |
| HLA-A*33:01 | 1 | 120 | 129 | 10 | VNATNVVIK 0.000677 | 16 |
| HLA-B*58:01 | 1 | 208 | 216 | 9 | TPINLVRDL 0.000677 | 16 |
| HLA-B*58:01 | 1 | 262 | 271 | 10 | AAAYYVGYLQ 0.000677 | 16 |
| HLA-A*11:01 | 1 | 310 | 318 | 9 | KGIYQTSNF 0.000677 | 11 |
| HLA-A*02:03 | 1 | 731 | 740 | 10 | MTKTSVDCTM 0.000677 | 19 |
| HLA-B*44:02 | 1 | 846 | 854 | 9 | ARDLICAQK 0.000677 | 9.5 |
| HLA-A*11:01 | 1 | 967 | 976 | 10 | SSNFGAISSV 0.000677 | 11 |
| HLA-B*08:01 | 1 | 990 | 999 | 10 | EVQIDRLITG 0.000677 | 23 |
| HLA-A*11:01 | 1 | 47 | 55 | 9 | VLHSTQDLF 0.000676 | 11 |
| HLA-B*07:02 | 1 | 300 | 308 | 9 | KCTLKSFTV 0.000676 | 14 |
| HLA-B*44:02 | 1 | 363 | 371 | 9 | ADYSVLYNS 0.000676 | 9.5 |
| HLA-A*68:02 | 1 | 378 | 386 | 9 | KCYGVSPKT 0.000676 | 18 |
| HLA-A*02:06 | 1 | 628 | 637 | 10 | QLTPTWRVYS 0.000676 | 23 |
| HLA-B*15:01 | 1 | 704 | 713 | 10 | SVAYSNNSIA 0.000676 | 17 |
| HLA-B*15:01 | 1 | 713 | 722 | 10 | AIPTNFTISV 0.000676 | 17 |
| HLA-A*02:06 | 1 | 758 | 766 | 9 | SFCTQLNRA 0.000676 | 23 |
| HLA-B*51:01 | 1 | 811 | 819 | 9 | KPSKRSEIE 0.000676 | 22 |
| HLA-A*30:02 | 1 | 1156 | 1164 | 9 | FKNHTSPDV 0.000676 | 28 |
| HLA-B*44:03 | 1 | 46 | 55 | 10 | SVLHSTQDLF 0.000675 | 9.5 |
| HLA-A*01:01 | 1 | 126 | 135 | 10 | VVIKVCEFFQ 0.000675 | 19 |
| HLA-B*58:01 | 1 | 329 | 338 | 10 | FPNITNLCPF 0.000675 | 16 |
| HLA-B*57:01 | 1 | 449 | 457 | 9 | YNYLYRFR 0.000675 | 23 |
| HLA-A*68:01 | 1 | 605 | 613 | 9 | SNQVAVLYQ 0.000675 | 17 |
| HLA-B*57:01 | 1 | 773 | 781 | 9 | EQDKNTQEV 0.000675 | 23 |
| HLA-A*03:01 | 1 | 777 | 785 | 9 | NTQEVFAQV 0.000675 | 14 |
| HLA-A*03:01 | 1 | 784 | 792 | 9 | QVKQIYKTP 0.000675 | 14 |
| HLA-A*33:01 | 1 | 809 | 817 | 9 | PSKPSKRSE 0.000675 | 16 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*15:01 | 1 | 114 | 122 | 9 | TQSLIVNN 0.000674 | 17 |
| HLA-B*53:01 | 1 | 185 | 194 | 10 | NFKNLREFVF 0.000674 | 11 |
| HLA-B*15:01 | 1 | 660 | 668 | 9 | YECDIPIGA 0.000674 | 17 |
| HLA-A*01:01 | 1 | 1080 | 1088 | 9 | AICHDGKAH 0.000674 | 19 |
| HLA-A*30:02 | 1 | 1145 | 1154 | 10 | LDSFKEELDK 0.000674 | 28 |
| HLA-A*24:02 | 1 | 1146 | 1155 | 10 | DSFKEELDKY 0.000674 | 9.5 |
| HLA-A*30:01 | 1 | 101 | 110 | 10 | IRGWIFGTTL 0.000673 | 31 |
| HLA-A*68:02 | 1 | 104 | 112 | 9 | WIFGTTLDS 0.000673 | 18 |
| HLA-A*03:01 | 1 | 169 | 177 | 9 | EYVSQPFLM 0.000673 | 14 |
| HLA-A*31:01 | 1 | 211 | 220 | 10 | NLVRDLPQGF 0.000673 | 18 |
| HLA-B*08:01 | 1 | 236 | 245 | 10 | TRFQTLALH 0.000673 | 23 |
| HLA-A*01:01 | 1 | 389 | 397 | 9 | DLCFTNVYA 0.000673 | 19 |
| HLA-A*01:01 | 1 | 436 | 444 | 9 | WNSNNLDSK 0.000673 | 19 |
| HLA-A*31:01 | 1 | 686 | 694 | 9 | SVASQSIIA 0.000673 | 18 |
| HLA-A*30:02 | 1 | 778 | 787 | 10 | TQEVFAQVKQ 0.000673 | 28 |
| HLA-A*33:01 | 1 | 783 | 791 | 9 | AQVKQIYKT 0.000673 | 16 |
| HLA-B*08:01 | 1 | 879 | 888 | 10 | AGTITSGWTF 0.000673 | 23 |
| HLA-A*32:01 | 1 | 100 | 108 | 9 | IIRGWIFGT 0.000672 | 13 |
| HLA-B*44:03 | 1 | 161 | 170 | 10 | SSANNCTFEY 0.000672 | 9.5 |
| HLA-B*07:02 | 1 | 318 | 327 | 10 | FRVQPTESIV 0.000672 | 14 |
| HLA-A*02:06 | 1 | 740 | 749 | 10 | MYICGDSTEC 0.000672 | 23 |
| HLA-A*02:03 | 1 | 754 | 762 | 9 | LQYGSFCTQ 0.000672 | 19 |
| HLA-A*01:01 | 1 | 873 | 882 | 10 | YTSALLAGTI 0.000672 | 19 |
| HLA-A*01:01 | 1 | 916 | 924 | 9 | LYENQKLI 0.000672 | 19 |
| HLA-A*30:02 | 1 | 1132 | 1141 | 10 | IVNNTVYDPL 0.000672 | 28 |
| HLA-A*23:01 | 1 | 1192 | 1200 | 9 | NLNESLIDL 0.000672 | 9.7 |
| HLA-A*03:01 | 1 | 246 | 255 | 10 | RSYLTPGDSS 0.000671 | 14 |
| HLA-A*01:01 | 1 | 358 | 367 | 10 | ISNCVADYSV 0.000671 | 19 |
| HLA-A*02:01 | 1 | 544 | 553 | 10 | NGLTGTGVL 0.000671 | 17 |
| HLA-A*02:01 | 1 | 676 | 684 | 9 | TQTNSPRRA 0.000671 | 17 |
| HLA-A*03:01 | 1 | 689 | 697 | 9 | SQSIIAYTM 0.000671 | 14 |
| HLA-B*51:01 | 1 | 697 | 706 | 10 | MSLGAENSV 0.000671 | 22 |
| HLA-A*30:02 | 1 | 717 | 726 | 10 | NFTISVTTEI 0.000671 | 29 |
| HLA-A*24:02 | 1 | 723 | 731 | 9 | TTEILPVSM 0.000671 | 9.5 |
| HLA-A*33:01 | 1 | 922 | 930 | 9 | LIANQFN 0.000671 | 16 |
| HLA-B*57:01 | 1 | 993 | 1001 | 9 | IDRLITGRL 0.000671 | 23 |
| HLA-A*68:02 | 1 | 1182 | 1191 | 10 | EIDRLNEVAK 0.000671 | 18 |
| HLA-A*68:01 | 1 | 647 | 655 | 9 | AGCLIGAEH 0.00067 | 17 |
| HLA-A*03:01 | 1 | 693 | 701 | 9 | IAYTMSLGA 0.00067 | 14 |
| HLA-A*33:01 | 1 | 698 | 707 | 10 | SLGAENSVAY 0.00067 | 16 |
| HLA-B*44:02 | 1 | 718 | 726 | 9 | FTISVTTEI 0.00067 | 9.6 |
| HLA-B*51:01 | 1 | 882 | 890 | 9 | ITSGWTFGA 0.00067 | 22 |
| HLA-A*26:01 | 1 | 986 | 995 | 10 | KVEAEVQIDR 0.00067 | 14 |
| HLA-A*30:01 | 1 | 1167 | 1176 | 10 | GDISGINASV 0.00067 | 31 |
| HLA-A*30:02 | 1 | 1179 | 1188 | 10 | IQKEIDRLNE 0.00067 | 29 |
| HLA-A*32:01 | 1 | 5 | 13 | 9 | LVLLPLVSS 0.000669 | 13 |
| HLA-A*30:01 | 1 | 261 | 270 | 10 | GAAYVYVGYL 0.000669 | 31 |
| HLA-A*02:01 | 1 | 394 | 403 | 10 | NVYADSFVIR 0.000669 | 17 |
| HLA-B*58:01 | 1 | 596 | 605 | 10 | SVITPGTNTS 0.000669 | 16 |
| HLA-B*40:01 | 1 | 628 | 636 | 9 | QLTPTWRVY 0.000669 | 8.9 |
| HLA-B*51:01 | 1 | 680 | 689 | 10 | SPRRARSVAS 0.000669 | 22 |
| HLA-A*31:01 | 1 | 723 | 731 | 9 | TTEILPVSM 0.000669 | 18 |
| HLA-B*40:01 | 1 | 835 | 844 | 10 | KQYGDCLGDI 0.000669 | 8.9 |
| HLA-B*57:01 | 1 | 854 | 862 | 9 | KFNGLTVLP 0.000669 | 23 |
| HLA-A*30:01 | 1 | 942 | 950 | 9 | ASALGKLQD 0.000669 | 31 |
| HLA-B*40:01 | 1 | 1101 | 1109 | 9 | HWFVTQRNF 0.000669 | 8.9 |
| HLA-B*15:01 | 1 | 92 | 100 | 9 | FASTEKSNI 0.000668 | 17 |
| HLA-B*08:01 | 1 | 158 | 166 | 9 | RVYSSANNC 0.000668 | 23 |
| HLA-A*02:03 | 1 | 524 | 533 | 10 | VCGPKKSTNL 0.000668 | 19 |
| HLA-A*26:01 | 1 | 614 | 623 | 10 | DVNCTEVPVA 0.000668 | 14 |
| HLA-A*32:01 | 1 | 782 | 790 | 9 | FAQVKQIYK 0.000668 | 13 |
| HLA-A*26:01 | 1 | 870 | 878 | 9 | IAQYTSALL 0.000668 | 14 |
| HLA-B*07:02 | 1 | 1007 | 1016 | 10 | YVTQQLIRAA 0.000668 | 14 |
| HLA-A*26:01 | 1 | 1042 | 1050 | 9 | FCGKGYHLM 0.000668 | 14 |
| HLA-A*30:01 | 1 | 1053 | 1061 | 9 | PQSAPHGVV 0.000668 | 31 |
| HLA-A*02:01 | 1 | 1182 | 1190 | 9 | EIDRLNEVA 0.000668 | 17 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*31:01 | 1 | 1236 | 1245 | 10 | CMTSCCCLK 0.000668 | 18 |
| HLA-B*57:01 | 1 | 66 | 74 | 9 | HAIHVSBTN 0.000667 | 23 |
| HLA-A*31:01 | 1 | 142 | 151 | 10 | GYYHKNKNS 0.000667 | 18 |
| HLA-A*01:01 | 1 | 255 | 263 | 9 | SSGWTAGAA 0.000667 | 19 |
| HLA-A*68:02 | 1 | 609 | 617 | 9 | AVLYQDVNC 0.000667 | 18 |
| HLA-A*02:01 | 1 | 639 | 647 | 9 | GSNVFQTRA 0.000667 | 17 |
| HLA-A*01:01 | 1 | 672 | 681 | 10 | ASYQTQTNSP 0.000667 | 19 |
| HLA-A*31:01 | 1 | 766 | 774 | 9 | ALTGIAVEQ 0.000667 | 18 |
| HLA-A*68:02 | 1 | 806 | 815 | 10 | LPDPSKPSKR 0.000667 | 18 |
| HLA-A*01:01 | 1 | 852 | 861 | 10 | AQKFNGLTVL 0.000667 | 19 |
| HLA-B*57:01 | 1 | 1059 | 1068 | 10 | GVVFLHVTYV 0.000667 | 23 |
| HLA-B*57:01 | 1 | 1074 | 1083 | 10 | NFTTAPAICH 0.000667 | 23 |
| HLA-A*30:02 | 1 | 1135 | 1143 | 9 | NTVYDPLQP 0.000667 | 29 |
| HLA-A*01:01 | 1 | 1149 | 1157 | 9 | KEELDKYFK 0.000667 | 19 |
| HLA-B*15:01 | 1 | 6 | 15 | 10 | VLLPLVSSQC 0.000666 | 17 |
| HLA-A*33:01 | 1 | 302 | 311 | 10 | TLKSFTVEKG 0.000666 | 16 |
| HLA-A*02:03 | 1 | 462 | 470 | 9 | KPFERDIST 0.000666 | 19 |
| HLA-A*33:01 | 1 | 484 | 493 | 10 | EGFNCFPLQ 0.000666 | 16 |
| HLA-A*32:01 | 1 | 508 | 517 | 10 | YRVVLSFEL 0.000666 | 13 |
| HLA-A*02:06 | 1 | 563 | 571 | 9 | QQFGRDIAD 0.000666 | 23 |
| HLA-A*68:02 | 1 | 619 | 628 | 10 | EVPVAIHADQ 0.000666 | 18 |
| HLA-A*30:02 | 1 | 684 | 693 | 10 | ARSVASQSII 0.000666 | 29 |
| HLA-A*68:02 | 1 | 773 | 782 | 10 | EQDKNTQEVF 0.000666 | 18 |
| HLA-A*26:01 | 1 | 776 | 785 | 10 | KNTQEVFAQV 0.000666 | 14 |
| HLA-A*11:01 | 1 | 817 | 826 | 10 | FIEDLLFNKV 0.000666 | 11 |
| HLA-A*30:02 | 1 | 954 | 963 | 10 | QNAQALNTLV 0.000666 | 29 |
| HLA-A*26:01 | 1 | 1030 | 1039 | 10 | SECVLGQSKR 0.000666 | 14 |
| HLA-A*30:02 | 1 | 1046 | 1054 | 9 | GYHLSFPQ 0.000666 | 29 |
| HLA-A*23:01 | 1 | 1158 | 1166 | 9 | NHTSPDVDL 0.000666 | 9.7 |
| HLA-B*57:01 | 1 | 1196 | 1205 | 10 | SLIDLQELGK 0.000666 | 23 |
| HLA-A*02:01 | 1 | 1256 | 1264 | 9 | FDEDDSEPV 0.000666 | 17 |
| HLA-A*31:01 | 1 | 135 | 143 | 9 | FCNDPFLGV 0.000665 | 18 |
| HLA-A*03:01 | 1 | 171 | 179 | 9 | VSQPFLMDL 0.000665 | 14 |
| HLA-A*26:01 | 1 | 235 | 243 | 9 | ITRFQTLA 0.000665 | 14 |
| HLA-A*33:01 | 1 | 235 | 244 | 10 | ITRFQTLAL 0.000665 | 16 |
| HLA-B*15:01 | 1 | 277 | 285 | 9 | LKYNENGTI 0.000665 | 17 |
| HLA-A*30:02 | 1 | 446 | 455 | 10 | GGNYNYLYRL 0.000665 | 29 |
| HLA-A*30:01 | 1 | 462 | 471 | 10 | KPFERDISTE 0.000665 | 31 |
| HLA-B*51:01 | 1 | 568 | 577 | 10 | DIADTTDAVR 0.000665 | 22 |
| HLA-A*01:01 | 1 | 804 | 812 | 9 | QILPDPSKP 0.000665 | 19 |
| HLA-A*30:02 | 1 | 1258 | 1266 | 9 | EDDSEPVLK 0.000665 | 29 |
| HLA-A*30:02 | 1 | 2 | 10 | 9 | FVFLVLLPL 0.000664 | 29 |
| HLA-A*23:01 | 1 | 152 | 160 | 9 | WMESEFRVY 0.000664 | 9.8 |
| HLA-B*08:01 | 1 | 188 | 196 | 9 | NLREFVFKN 0.000664 | 23 |
| HLA-B*08:01 | 1 | 223 | 231 | 9 | LEPLVDLPI 0.000664 | 23 |
| HLA-A*24:02 | 1 | 257 | 266 | 10 | GWTAGAAAYY 0.000664 | 9.6 |
| HLA-B*08:01 | 1 | 463 | 472 | 10 | PFERDISTEI 0.000664 | 23 |
| HLA-A*30:02 | 1 | 692 | 701 | 10 | IIAYTMSLGA 0.000664 | 29 |
| HLA-A*30:01 | 1 | 820 | 829 | 10 | DLLFNKVTLA 0.000664 | 31 |
| HLA-A*30:01 | 1 | 966 | 975 | 10 | LSSNFGAISS 0.000664 | 31 |
| HLA-A*31:01 | 1 | 1040 | 1048 | 9 | VDFCGKGYH 0.000664 | 19 |
| HLA-A*68:01 | 1 | 1041 | 1050 | 10 | DFCGKGYHLM 0.000664 | 18 |
| HLA-A*68:02 | 1 | 14 | 22 | 9 | QCVNLTRT 0.000663 | 18 |
| HLA-B*53:01 | 1 | 195 | 203 | 9 | KNIDGYFKI 0.000663 | 12 |
| HLA-A*02:06 | 1 | 281 | 289 | 9 | ENGTITDAV 0.000663 | 23 |
| HLA-A*02:06 | 1 | 290 | 299 | 10 | DCALDPLSET 0.000663 | 23 |
| HLA-A*33:01 | 1 | 392 | 400 | 9 | FTNVYADSF 0.000663 | 16 |
| HLA-B*07:02 | 1 | 673 | 681 | 9 | SYQTQTNSP 0.000663 | 15 |
| HLA-A*30:02 | 1 | 910 | 918 | 9 | GVTQNVLYE 0.000663 | 29 |
| HLA-A*01:01 | 1 | 968 | 977 | 10 | SNFGAISSVL 0.000663 | 19 |
| HLA-A*30:01 | 1 | 994 | 1002 | 9 | DRLITGRLQ 0.000663 | 31 |
| HLA-B*15:01 | 1 | 1019 | 1028 | 10 | RASANLAATK 0.000663 | 17 |
| HLA-B*07:02 | 1 | 1041 | 1049 | 9 | DFCGKGYHL 0.000663 | 15 |
| HLA-A*11:01 | 1 | 152 | 160 | 9 | WMESEFRVY 0.000662 | 11 |
| HLA-A*30:02 | 1 | 313 | 322 | 10 | YQTSNFRVQP 0.000662 | 29 |
| HLA-A*30:02 | 1 | 362 | 370 | 9 | VADYSVLYN 0.000662 | 29 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*32:01 | 1 | 515 | 524 | 10 | FELLHAPATV 0.000662 | 13 |
| HLA-A*31:01 | 1 | 813 | 821 | 9 | SKRSFIEDL 0.000662 | 19 |
| HLA-B*53:01 | 1 | 857 | 865 | 9 | GLTVLPPLL 0.000662 | 12 |
| HLA-A*68:01 | 1 | 1039 | 1048 | 10 | RVDFCGKGYH 0.000662 | 18 |
| HLA-A*02:01 | 1 | 158 | 167 | 10 | RVYSSANNCT 0.000661 | 17 |
| HLA-A*30:01 | 1 | 189 | 197 | 9 | LREFVFKNI 0.000661 | 31 |
| HLA-A*02:01 | 1 | 276 | 284 | 9 | LLKYNENGT 0.000661 | 17 |
| HLA-B*15:01 | 1 | 443 | 452 | 10 | SKVGGNYNYL 0.000661 | 17 |
| HLA-B*44:03 | 1 | 443 | 452 | 10 | SKVGGNYNYL 0.000661 | 9.6 |
| HLA-A*30:02 | 1 | 553 | 561 | 9 | TESNKKFLP 0.000661 | 29 |
| HLA-A*02:06 | 1 | 622 | 631 | 10 | VAIHADQLTP 0.000661 | 23 |
| HLA-B*15:01 | 1 | 685 | 694 | 10 | RSVASQSIIA 0.000661 | 17 |
| HLA-A*24:02 | 1 | 687 | 695 | 9 | VASQSIIAY 0.000661 | 9.6 |
| HLA-B*51:01 | 1 | 942 | 951 | 10 | ASALGKLQDV 0.000661 | 22 |
| HLA-A*11:01 | 1 | 1128 | 1136 | 9 | VVIGIVNNT 0.000661 | 11 |
| HLA-B*08:01 | 1 | 148 | 156 | 9 | NNKSWMESE 0.00066 | 23 |
| HLA-A*31:01 | 1 | 394 | 402 | 9 | NVYADSFVI 0.00066 | 19 |
| HLA-A*33:01 | 1 | 549 | 557 | 9 | TGVLTESNK 0.00066 | 16 |
| HLA-B*53:01 | 1 | 634 | 642 | 9 | RVYSTGSNV 0.00066 | 12 |
| HLA-B*07:02 | 1 | 685 | 694 | 10 | RSVASQSIIA 0.00066 | 15 |
| HLA-A*30:01 | 1 | 689 | 698 | 10 | SQSIIAYTMS 0.00066 | 31 |
| HLA-A*02:03 | 1 | 723 | 732 | 10 | TTEILPVSMT 0.00066 | 19 |
| HLA-A*01:01 | 1 | 893 | 901 | 9 | ALQIPFAMQ 0.00066 | 19 |
| HLA-A*02:06 | 1 | 896 | 904 | 9 | IPFAMQMAR 0.00066 | 23 |
| HLA-A*68:02 | 1 | 1006 | 1014 | 9 | TYVTQLLIR 0.00066 | 18 |
| HLA-A*02:01 | 1 | 1180 | 1189 | 10 | QKEIDRLNEV 0.00066 | 17 |
| HLA-A*32:01 | 1 | 34 | 42 | 9 | RGVYYPDKV 0.000659 | 13 |
| HLA-B*58:01 | 1 | 134 | 143 | 10 | QFCNDPFLGV 0.000659 | 17 |
| HLA-B*15:01 | 1 | 229 | 237 | 9 | LPIGINITR 0.000659 | 17 |
| HLA-B*51:01 | 1 | 470 | 479 | 10 | TEIYQAGSTP 0.000659 | 22 |
| HLA-A*02:03 | 1 | 583 | 592 | 10 | EILDITPCSF 0.000659 | 19 |
| HLA-A*30:01 | 1 | 587 | 595 | 9 | ITPCSFGGV 0.000659 | 31 |
| HLA-A*32:01 | 1 | 633 | 642 | 10 | WRVYSTGSNV 0.000659 | 13 |
| HLA-B*57:01 | 1 | 671 | 680 | 10 | CASYQTQTN 0.000659 | 23 |
| HLA-A*02:06 | 1 | 755 | 763 | 9 | QYGSFCTQL 0.000659 | 23 |
| HLA-A*30:01 | 1 | 914 | 923 | 10 | NVLYENQKLI 0.000659 | 31 |
| HLA-B*53:01 | 1 | 953 | 962 | 10 | NONAQALNTL 0.000659 | 12 |
| HLA-A*30:01 | 1 | 1023 | 1031 | 9 | NLAATKMSE 0.000659 | 31 |
| HLA-A*01:01 | 1 | 1033 | 1042 | 10 | VLGQSKRVDF 0.000659 | 19 |
| HLA-B*44:02 | 1 | 1112 | 1121 | 10 | PQIITTDNTF 0.000659 | 9.6 |
| HLA-B*08:01 | 1 | 1120 | 1128 | 9 | TFVSGNCDV 0.000659 | 23 |
| HLA-A*30:02 | 1 | 1121 | 1129 | 9 | FVSGNCDVV 0.000659 | 29 |
| HLA-A*30:01 | 1 | 102 | 111 | 10 | RGWIFGTTL 0.000658 | 32 |
| HLA-B*57:01 | 1 | 170 | 178 | 9 | YVSQPFLMD 0.000658 | 23 |
| HLA-A*68:01 | 1 | 253 | 262 | 10 | DSSSGWTAGA 0.000658 | 18 |
| HLA-B*07:02 | 1 | 339 | 347 | 9 | GEVFNATRF 0.000658 | 15 |
| HLA-B*08:01 | 1 | 372 | 380 | 9 | ASFSTFKCY 0.000658 | 23 |
| HLA-A*31:01 | 1 | 451 | 459 | 9 | YLYRLEFRKS 0.000658 | 19 |
| HLA-A*24:02 | 1 | 590 | 598 | 9 | CSFGGVSVI 0.000658 | 9.6 |
| HLA-A*02:03 | 1 | 645 | 653 | 9 | TRAGCLIGA 0.000658 | 19 |
| HLA-A*02:01 | 1 | 726 | 735 | 10 | ILPVSMTKTS 0.000658 | 17 |
| HLA-A*33:01 | 1 | 961 | 970 | 10 | TLVKQLSSNF 0.000658 | 16 |
| HLA-A*32:01 | 1 | 1222 | 1230 | 9 | AGLIAIVMV 0.000658 | 13 |
| HLA-B*07:02 | 1 | 50 | 59 | 10 | STQDLFLPFF 0.000657 | 15 |
| HLA-A*32:01 | 1 | 188 | 197 | 10 | NLREFVFKNI 0.000657 | 13 |
| HLA-A*32:01 | 1 | 207 | 216 | 10 | HTPINLVRDL 0.000657 | 13 |
| HLA-B*53:01 | 1 | 284 | 293 | 10 | TITDAVDCAL 0.000657 | 12 |
| HLA-A*02:01 | 1 | 320 | 328 | 9 | VQPTESIVR 0.000657 | 17 |
| HLA-B*08:01 | 1 | 347 | 355 | 9 | FASVYAWNR 0.000657 | 23 |
| HLA-A*30:02 | 1 | 565 | 573 | 9 | FGRDIADTT 0.000657 | 29 |
| HLA-B*44:03 | 1 | 626 | 634 | 9 | ADQLTPTWR 0.000657 | 9.6 |
| HLA-A*02:06 | 1 | 650 | 659 | 10 | LIGAEHVNNS 0.000657 | 23 |
| HLA-A*01:01 | 1 | 696 | 705 | 10 | TMSLGAENSV 0.000657 | 19 |
| HLA-B*58:01 | 1 | 792 | 800 | 9 | PPIKDFGGF 0.000657 | 17 |
| HLA-A*30:02 | 1 | 914 | 923 | 10 | NVLYENQKLI 0.000657 | 29 |
| HLA-A*01:01 | 1 | 23 | 31 | 9 | QLPPAYTNS 0.000656 | 19 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*07:02 | 1 | 192 | 200 | 9 | FVFKNIDGY 0.000656 | 15 |
| HLA-A*02:06 | 1 | 255 | 263 | 9 | SSGWTAGAA 0.000656 | 23 |
| HLA-A*02:06 | 1 | 492 | 501 | 10 | LQSYGFQPTN 0.000656 | 23 |
| HLA-A*30:02 | 1 | 542 | 551 | 10 | NFNGLTGTGV 0.000656 | 29 |
| HLA-B*53:01 | 1 | 568 | 577 | 10 | DIADTTDAVR 0.000656 | 12 |
| HLA-A*30:02 | 1 | 658 | 666 | 9 | NSYECDIPI 0.000656 | 29 |
| HLA-A*31:01 | 1 | 711 | 719 | 9 | SIAIPTNFT 0.000656 | 19 |
| HLA-B*40:01 | 1 | 870 | 878 | 9 | IAQYTSALL 0.000656 | 8.9 |
| HLA-A*30:02 | 1 | 900 | 909 | 10 | MQMAYRFNGI 0.000656 | 29 |
| HLA-A*32:01 | 1 | 1047 | 1056 | 10 | YHLMSFPQSA 0.000656 | 13 |
| HLA-A*01:01 | 1 | 179 | 187 | 9 | LEGKQGNFK 0.000655 | 19 |
| HLA-A*30:02 | 1 | 505 | 514 | 10 | YQPYRVVLS 0.000655 | 29 |
| HLA-A*31:01 | 1 | 511 | 520 | 10 | VVLSFELLHA 0.000655 | 19 |
| HLA-A*68:01 | 1 | 575 | 584 | 10 | AVRDPQTLEI 0.000655 | 18 |
| HLA-A*30:01 | 1 | 590 | 599 | 10 | CSFGGVSVIT 0.000655 | 32 |
| HLA-A*31:01 | 1 | 639 | 647 | 9 | GSNVFQTRA 0.000655 | 19 |
| HLA-B*08:01 | 1 | 731 | 739 | 9 | MTKTSVDCT 0.000655 | 24 |
| HLA-B*08:01 | 1 | 878 | 886 | 9 | LAGTITSGW 0.000655 | 24 |
| HLA-B*53:01 | 1 | 1088 | 1097 | 10 | HFPREGVFSV 0.000655 | 12 |
| HLA-A*32:01 | 1 | 1112 | 1121 | 10 | PQIITDNTF 0.000655 | 13 |
| HLA-B*08:01 | 1 | 1208 | 1217 | 10 | QYIKWPWYIW 0.000655 | 24 |
| HLA-A*32:01 | 1 | 12 | 21 | 10 | SSQCVNLTTR 0.000654 | 13 |
| HLA-B*35:01 | 1 | 69 | 77 | 9 | HVSGTNGTK 0.000654 | 12 |
| HLA-B*40:01 | 1 | 206 | 214 | 9 | KHTPINLVR 0.000654 | 9.0 |
| HLA-A*33:01 | 1 | 215 | 224 | 10 | DLPOGFSALE 0.000654 | 16 |
| HLA-A*68:02 | 1 | 628 | 637 | 10 | QLTPTWRVYS 0.000654 | 19 |
| HLA-A*02:01 | 1 | 713 | 721 | 9 | AIPTNFTIS 0.000654 | 17 |
| HLA-A*33:01 | 1 | 895 | 903 | 9 | QIPFAMQMA 0.000654 | 16 |
| HLA-B*08:01 | 1 | 990 | 998 | 9 | EVQIDRLIT 0.000654 | 24 |
| HLA-A*26:01 | 1 | 1086 | 1094 | 9 | KAHFPREGV 0.000654 | 14 |
| HLA-B*44:03 | 1 | 1102 | 1110 | 9 | WFVTQRNFY 0.000654 | 9.6 |
| HLA-B*53:01 | 1 | 1111 | 1120 | 10 | EPQIITDNT 0.000654 | 12 |
| HLA-B*07:02 | 1 | 1189 | 1198 | 10 | VAKNLNESLI 0.000654 | 15 |
| HLA-A*02:01 | 1 | 1217 | 1226 | 10 | WLGFIAGLIA 0.000654 | 17 |
| HLA-A*03:01 | 1 | 1261 | 1269 | 9 | SEPVKKGVK 0.000654 | 14 |
| HLA-A*30:01 | 1 | 5 | 14 | 10 | LVLLPLVSSQ 0.000653 | 32 |
| HLA-B*40:01 | 1 | 235 | 244 | 10 | ITRFQTLAL 0.000653 | 9.0 |
| HLA-B*08:01 | 1 | 683 | 691 | 9 | RARSVASQS 0.000653 | 24 |
| HLA-A*01:01 | 1 | 700 | 708 | 9 | GAENSVAYS 0.000653 | 19 |
| HLA-A*24:02 | 1 | 719 | 727 | 9 | TISVTTEIL 0.000653 | 9.6 |
| HLA-B*15:01 | 1 | 734 | 742 | 9 | TSVDCTMYI 0.000653 | 17 |
| HLA-A*26:01 | 1 | 819 | 828 | 10 | EDLLFNKVTL 0.000653 | 14 |
| HLA-A*24:02 | 1 | 861 | 869 | 9 | LPPLLTDEM 0.000653 | 9.6 |
| HLA-A*32:01 | 1 | 1039 | 1048 | 10 | RVDFCGKGYH 0.000653 | 13 |
| HLA-B*15:01 | 1 | 1154 | 1162 | 9 | KYFKNHTSP 0.000653 | 17 |
| HLA-A*32:01 | 1 | 1198 | 1206 | 9 | IDLQELGKY 0.000653 | 13 |
| HLA-B*58:01 | 1 | 2 | 10 | 9 | FVFLVLLPL 0.000652 | 17 |
| HLA-A*30:02 | 1 | 11 | 20 | 10 | VSSQCVNLT 0.000652 | 29 |
| HLA-A*68:01 | 1 | 366 | 375 | 10 | SVLYNSASF 0.000652 | 18 |
| HLA-B*35:01 | 1 | 487 | 496 | 10 | NCYFPLQSYG 0.000652 | 12 |
| HLA-B*51:01 | 1 | 530 | 539 | 10 | STNLVKNKCV 0.000652 | 22 |
| HLA-A*02:03 | 1 | 773 | 782 | 10 | EQDKNTQEVF 0.000652 | 19 |
| HLA-B*40:01 | 1 | 850 | 858 | 9 | ICAQKFNGL 0.000652 | 9.0 |
| HLA-A*26:01 | 1 | 121 | 129 | 9 | NNATNVVIK 0.000651 | 14 |
| HLA-B*44:03 | 1 | 178 | 187 | 10 | DLEGKQGNFK 0.000651 | 9.6 |
| HLA-A*31:01 | 1 | 350 | 358 | 9 | VYAWNRKRI 0.000651 | 19 |
| HLA-A*30:01 | 1 | 351 | 360 | 10 | YAWNRKRISN 0.000651 | 32 |
| HLA-A*68:01 | 1 | 697 | 705 | 9 | MSLGAENSV 0.000651 | 18 |
| HLA-A*68:02 | 1 | 698 | 707 | 10 | SLGAENSVAY 0.000651 | 19 |
| HLA-A*03:01 | 1 | 795 | 804 | 10 | KDFGGFNFSQ 0.000651 | 14 |
| HLA-A*26:01 | 1 | 859 | 868 | 10 | TVLPPLLTDE 0.000651 | 14 |
| HLA-A*31:01 | 1 | 1104 | 1112 | 9 | VTQRNFYEP 0.000651 | 19 |
| HLA-B*57:01 | 1 | 1106 | 1115 | 10 | QRNFYEPQII 0.000651 | 23 |
| HLA-B*08:01 | 1 | 154 | 163 | 10 | ESEFRVYSSA 0.00065 | 24 |
| HLA-A*30:02 | 1 | 337 | 346 | 10 | PFGEVFNATR 0.00065 | 29 |
| HLA-A*68:02 | 1 | 427 | 435 | 9 | DDFTGCVIA 0.00065 | 19 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*26:01 | 1 | 508 | 517 | 10 | YRVVLSFEL 0.00065 | 14 |
| HLA-A*32:01 | 1 | 517 | 525 | 9 | LLHAPATVC 0.00065 | 13 |
| HLA-B*44:03 | 1 | 526 | 534 | 9 | GPKKSTNLV 0.00065 | 9.6 |
| HLA-B*40:01 | 1 | 706 | 714 | 9 | AYSNNNSIAI 0.00065 | 9.0 |
| HLA-A*30:02 | 1 | 713 | 721 | 9 | AIPTNFTIS 0.00065 | 29 |
| HLA-A*31:01 | 1 | 803 | 812 | 10 | SQILPDPSKP 0.00065 | 19 |
| HLA-B*44:03 | 1 | 940 | 948 | 9 | STASALGKL 0.00065 | 9.6 |
| HLA-A*31:01 | 1 | 1107 | 1115 | 9 | RMFYEPQII 0.00065 | 19 |
| HLA-B*40:01 | 1 | 1137 | 1146 | 10 | VYDPLQPELD 0.00065 | 9.0 |
| HLA-A*24:02 | 1 | 1158 | 1166 | 9 | NHTSPDVDL 0.00065 | 9.6 |
| HLA-A*68:02 | 1 | 1256 | 1265 | 10 | FDEDDSEPVL 0.00065 | 19 |
| HLA-A*02:01 | 1 | 135 | 144 | 10 | FCNDPFLGVY 0.000649 | 17 |
| HLA-B*44:03 | 1 | 193 | 201 | 9 | VFKNIDGYF 0.000649 | 9.7 |
| HLA-A*02:03 | 1 | 317 | 326 | 10 | NFRVQPTESI 0.000649 | 19 |
| HLA-A*33:01 | 1 | 679 | 687 | 9 | NSPRRARSV 0.000649 | 17 |
| HLA-B*58:01 | 1 | 1137 | 1146 | 10 | VYDPLQPELD 0.000649 | 17 |
| HLA-B*08:01 | 1 | 1225 | 1234 | 10 | IAIVMVTIML 0.000649 | 24 |
| HLA-A*02:01 | 1 | 1236 | 1244 | 9 | CMTSCCSCS 0.000649 | 17 |
| HLA-B*08:01 | 1 | 1242 | 1250 | 9 | SCLKGCCSC 0.000649 | 24 |
| HLA-A*11:01 | 1 | 33 | 41 | 9 | TRGVYYPDK 0.000648 | 11 |
| HLA-A*30:02 | 1 | 338 | 347 | 10 | FGEVFNATRF 0.000648 | 29 |
| HLA-A*01:01 | 1 | 348 | 357 | 10 | ASVYAWNRRK 0.000648 | 19 |
| HLA-A*02:06 | 1 | 993 | 1001 | 9 | IDRLITGRL 0.000648 | 23 |
| HLA-A*02:06 | 1 | 1071 | 1079 | 9 | QEKNFTTAP 0.000648 | 23 |
| HLA-A*11:01 | 1 | 1105 | 1113 | 9 | TQRNFYEPQ 0.000648 | 11 |
| HLA-B*40:01 | 1 | 1187 | 1195 | 9 | NEVAKNLNE 0.000648 | 9.0 |
| HLA-A*01:01 | 1 | 1198 | 1207 | 10 | IDLQELGKYE 0.000648 | 19 |
| HLA-A*02:01 | 1 | 208 | 216 | 9 | TPINLVRDL 0.000647 | 17 |
| HLA-B*15:01 | 1 | 377 | 386 | 10 | FKCYGVSPTK 0.000647 | 17 |
| HLA-A*02:03 | 1 | 517 | 526 | 10 | LLHAPATVCG 0.000647 | 19 |
| HLA-B*51:01 | 1 | 542 | 551 | 10 | NFNGLTGTGV 0.000647 | 22 |
| HLA-A*02:01 | 1 | 614 | 622 | 9 | DVNCTEVPV 0.000647 | 17 |
| HLA-A*30:02 | 1 | 716 | 724 | 9 | TNFTISVTT 0.000647 | 29 |
| HLA-A*30:01 | 1 | 860 | 868 | 9 | VLPPLLTDE 0.000647 | 32 |
| HLA-A*68:02 | 1 | 874 | 883 | 10 | TSALLAGTIT 0.000647 | 19 |
| HLA-A*30:01 | 1 | 1031 | 1039 | 9 | ECVLGQSKR 0.000647 | 32 |
| HLA-A*31:01 | 1 | 1113 | 1121 | 9 | QIITTDNTF 0.000647 | 19 |
| HLA-A*02:01 | 1 | 1218 | 1227 | 10 | LGFIAGLIAI 0.000647 | 17 |
| HLA-A*24:02 | 1 | 77 | 85 | 9 | KRFDNPVLP 0.000646 | 9.7 |
| HLA-A*24:02 | 1 | 105 | 113 | 9 | IFGTTLDLSD 0.000646 | 9.7 |
| HLA-A*33:01 | 1 | 374 | 382 | 9 | FSTFKCYGV 0.000646 | 17 |
| HLA-A*33:01 | 1 | 405 | 414 | 10 | DEVQRQIAPGQ 0.000646 | 17 |
| HLA-A*11:01 | 1 | 442 | 451 | 10 | DSKVGGNYNY 0.000646 | 11 |
| HLA-A*23:01 | 1 | 495 | 503 | 9 | YGFQPTNGV 0.000646 | 9.9 |
| HLA-B*15:01 | 1 | 669 | 677 | 9 | GICASYQTQ 0.000646 | 17 |
| HLA-B*35:01 | 1 | 930 | 938 | 9 | AIGKIQDSL 0.000646 | 12 |
| HLA-B*44:02 | 1 | 1044 | 1052 | 9 | GKGYHLMSF 0.000646 | 9.7 |
| HLA-B*58:01 | 1 | 1178 | 1186 | 9 | NIQKEIDRL 0.000646 | 17 |
| HLA-A*68:02 | 1 | 22 | 30 | 9 | TQLPPAYTN 0.000645 | 19 |
| HLA-A*68:01 | 1 | 154 | 162 | 9 | ESEFRVYSS 0.000645 | 18 |
| HLA-B*57:01 | 1 | 257 | 265 | 9 | GWTAGAAAY 0.000645 | 23 |
| HLA-B*51:01 | 1 | 344 | 353 | 10 | ATRFASVYAW 0.000645 | 22 |
| HLA-A*23:01 | 1 | 372 | 380 | 9 | ASFSTFKCY 0.000645 | 9.9 |
| HLA-B*08:01 | 1 | 779 | 788 | 10 | QEVFAQVKQI 0.000645 | 24 |
| HLA-A*02:06 | 1 | 887 | 896 | 10 | TFGAGAALQI 0.000645 | 24 |
| HLA-A*01:01 | 1 | 907 | 915 | 9 | NGIGVTQNV 0.000645 | 19 |
| HLA-A*02:06 | 1 | 957 | 965 | 9 | QALNTLVKQ 0.000645 | 24 |
| HLA-A*31:01 | 1 | 1098 | 1106 | 9 | NGTHWFVTQ 0.000645 | 19 |
| HLA-A*03:01 | 1 | 1154 | 1162 | 9 | KYFKNHTSP 0.000645 | 14 |
| HLA-B*40:01 | 1 | 1195 | 1203 | 9 | ESLIDLQEL 0.000645 | 9.0 |
| HLA-A*24:02 | 1 | 53 | 62 | 10 | DLFLPFFSNV 0.000644 | 9.7 |
| HLA-A*30:02 | 1 | 301 | 309 | 9 | CTLKSFTVE 0.000644 | 29 |
| HLA-A*11:01 | 1 | 345 | 353 | 9 | TRFASVYAW 0.000644 | 11 |
| HLA-A*01:01 | 1 | 515 | 524 | 10 | FELLHAPATV 0.000644 | 19 |
| HLA-B*58:01 | 1 | 538 | 546 | 9 | CVNFNFNGL 0.000644 | 17 |
| HLA-B*57:01 | 1 | 548 | 557 | 10 | GTGVLTESNK 0.000644 | 23 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*57:01 | 1 | 639 | 648 | 10 | GSNVFQTRAG 0.000644 | 23 |
| HLA-B*51:01 | 1 | 888 | 897 | 10 | FGAGAALQIP 0.000644 | 22 |
| HLA-A*02:03 | 1 | 913 | 922 | 10 | QNVLYENQKL 0.000644 | 19 |
| HLA-A*33:01 | 1 | 1128 | 1137 | 10 | VVIGIVNNTV 0.000644 | 17 |
| HLA-A*02:03 | 1 | 1151 | 1159 | 9 | ELDKYFKNH 0.000644 | 19 |
| HLA-B*08:01 | 1 | 1163 | 1172 | 10 | DVDLGDISGI 0.000644 | 24 |
| HLA-A*02:03 | 1 | 35 | 44 | 10 | GVYYPDKVFR 0.000643 | 19 |
| HLA-B*58:01 | 1 | 187 | 195 | 9 | KNLREFVFK 0.000643 | 17 |
| HLA-B*57:01 | 1 | 283 | 292 | 10 | GTITDAVDCA 0.000643 | 23 |
| HLA-A*31:01 | 1 | 328 | 337 | 10 | RFPNITNLCP 0.000643 | 19 |
| HLA-B*15:01 | 1 | 334 | 343 | 10 | NLCPFGEVFN 0.000643 | 17 |
| HLA-A*30:02 | 1 | 354 | 362 | 9 | NRKRISNCV 0.000643 | 29 |
| HLA-A*01:01 | 1 | 786 | 794 | 9 | KQIYKTPPI 0.000643 | 19 |
| HLA-A*24:02 | 1 | 989 | 997 | 9 | AEVQIDRLI 0.000643 | 9.7 |
| HLA-A*30:02 | 1 | 997 | 1006 | 10 | ITGRLQSLQT 0.000643 | 29 |
| HLA-A*68:01 | 1 | 1004 | 1012 | 9 | LQTYVTQQL 0.000643 | 18 |
| HLA-B*57:01 | 1 | 1098 | 1107 | 10 | NGTHWFVTQR 0.000643 | 23 |
| HLA-A*31:01 | 1 | 5 | 13 | 9 | LVLLPLVSS 0.000642 | 19 |
| HLA-A*23:01 | 1 | 63 | 72 | 10 | TWFHAIHVS 0.000642 | 9.9 |
| HLA-A*01:01 | 1 | 143 | 152 | 10 | VYYHKNNKSW 0.000642 | 19 |
| HLA-B*44:03 | 1 | 616 | 624 | 9 | NCTEVPVAI 0.000642 | 9.7 |
| HLA-A*30:01 | 1 | 696 | 705 | 10 | TMSLGAENSV 0.000642 | 32 |
| HLA-A*32:01 | 1 | 934 | 942 | 9 | IQDLSSTA 0.000642 | 13 |
| HLA-B*15:01 | 1 | 980 | 989 | 10 | ILSRLDKVEA 0.000642 | 17 |
| HLA-A*03:01 | 1 | 1050 | 1059 | 10 | MSFPQSAPHG 0.000642 | 14 |
| HLA-A*68:02 | 1 | 11 | 20 | 10 | VSSQCVNLTT 0.000641 | 19 |
| HLA-B*15:01 | 1 | 256 | 264 | 9 | SGWTAGAAA 0.000641 | 17 |
| HLA-B*15:01 | 1 | 263 | 271 | 9 | AAYYVGYLQ 0.000641 | 17 |
| HLA-B*53:01 | 1 | 304 | 312 | 9 | KSFTVEKGI 0.000641 | 12 |
| HLA-A*26:01 | 1 | 318 | 327 | 10 | FRVQPTESIV 0.000641 | 14 |
| HLA-A*30:02 | 1 | 355 | 363 | 9 | RKRISNCVA 0.000641 | 29 |
| HLA-A*30:02 | 1 | 435 | 443 | 9 | AWNSNNLDS 0.000641 | 29 |
| HLA-A*02:01 | 1 | 575 | 583 | 9 | AVRDPQMLE 0.000641 | 17 |
| HLA-B*15:01 | 1 | 577 | 585 | 9 | RDPQMLEIL 0.000641 | 17 |
| HLA-A*02:06 | 1 | 606 | 614 | 9 | NQVAVLYQD 0.000641 | 24 |
| HLA-A*03:01 | 1 | 704 | 712 | 9 | SVAYSNNSI 0.000641 | 14 |
| HLA-A*33:01 | 1 | 754 | 762 | 9 | LQYGSFCTQ 0.000641 | 17 |
| HLA-B*40:01 | 1 | 783 | 792 | 10 | AQVKQIYKTP 0.000641 | 9.0 |
| HLA-A*30:01 | 1 | 849 | 858 | 10 | LICAQKFNGL 0.000641 | 32 |
| HLA-A*26:01 | 1 | 891 | 900 | 10 | GAALQIPFAM 0.000641 | 14 |
| HLA-B*07:02 | 1 | 1132 | 1141 | 10 | IVNNTVYDPL 0.000641 | 15 |
| HLA-A*30:02 | 1 | 1215 | 1224 | 10 | YIWLGFIAGL 0.000641 | 29 |
| HLA-A*30:01 | 1 | 60 | 69 | 10 | SNVTWFHAIH 0.00064 | 32 |
| HLA-B*15:01 | 1 | 151 | 159 | 9 | SWMESEFRV 0.00064 | 17 |
| HLA-A*30:02 | 1 | 218 | 227 | 10 | QGFSALEPLV 0.00064 | 29 |
| HLA-A*26:01 | 1 | 253 | 262 | 10 | DSSSGWTAGA 0.00064 | 14 |
| HLA-B*15:01 | 1 | 382 | 390 | 9 | VSPTKLNDL 0.00064 | 17 |
| HLA-B*53:01 | 1 | 471 | 479 | 9 | EIYQAGSTP 0.00064 | 12 |
| HLA-A*30:01 | 1 | 595 | 603 | 9 | VSVITPGTN 0.00064 | 32 |
| HLA-A*03:01 | 1 | 757 | 766 | 10 | GSFCTQLNRA 0.00064 | 14 |
| HLA-A*32:01 | 1 | 1002 | 1010 | 9 | QSLQTYVTQ 0.00064 | 13 |
| HLA-A*30:01 | 1 | 1255 | 1264 | 10 | KFDEDDSEPV 0.00064 | 32 |
| HLA-B*07:02 | 1 | 185 | 193 | 9 | NFKNLREFV 0.000639 | 15 |
| HLA-A*30:02 | 1 | 330 | 338 | 9 | PNITNLCPF 0.000639 | 29 |
| HLA-B*57:01 | 1 | 339 | 348 | 10 | GEVFNATRFA 0.000639 | 24 |
| HLA-B*57:01 | 1 | 626 | 635 | 10 | ADQLTPTWRV 0.000639 | 24 |
| HLA-A*30:02 | 1 | 669 | 677 | 9 | GICASYQTQ 0.000639 | 29 |
| HLA-A*03:01 | 1 | 754 | 763 | 10 | LQYGSFCTQL 0.000639 | 14 |
| HLA-A*02:06 | 1 | 909 | 917 | 9 | IGVTQNVLY 0.000639 | 24 |
| HLA-B*44:02 | 1 | 914 | 922 | 9 | NVLYENQKL 0.000639 | 9.8 |
| HLA-A*24:02 | 1 | 1133 | 1141 | 9 | VNNTVYDPL 0.000639 | 9.7 |
| HLA-A*03:01 | 1 | 314 | 322 | 9 | QTSNFRVQP 0.000638 | 14 |
| HLA-A*68:02 | 1 | 458 | 466 | 9 | KSNLKPFR 0.000638 | 19 |
| HLA-B*07:02 | 1 | 693 | 701 | 9 | IAYTMSLGA 0.000638 | 15 |
| HLA-A*02:06 | 1 | 1002 | 1010 | 9 | QSLQTYVTQ 0.000638 | 24 |
| HLA-A*02:06 | 1 | 1120 | 1128 | 9 | TFVSGNCDV 0.000638 | 24 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*40:01 | 1 | 1256 | 1264 | 9 | FDEDDSEPV 0.000638 | 9.0 |
| HLA-A*26:01 | 1 | 405 | 414 | 10 | DEVQRQIAPGQ 0.000637 | 14 |
| HLA-B*08:01 | 1 | 454 | 463 | 10 | RLFRKSNLKP 0.000637 | 24 |
| HLA-A*01:01 | 1 | 703 | 712 | 10 | NSVAYSNSI 0.000637 | 19 |
| HLA-B*53:01 | 1 | 779 | 788 | 10 | QEVFAQVKQI 0.000637 | 12 |
| HLA-A*23:01 | 1 | 850 | 858 | 9 | ICAQKFNGL 0.000637 | 9.9 |
| HLA-B*57:01 | 1 | 1056 | 1065 | 10 | APHGVVFLHV 0.000637 | 24 |
| HLA-A*32:01 | 1 | 19 | 27 | 9 | TTRTQLPPA 0.000636 | 13 |
| HLA-B*07:02 | 1 | 177 | 186 | 10 | MDLEGKQGNF 0.000636 | 15 |
| HLA-B*51:01 | 1 | 370 | 378 | 9 | NSASFSTFK 0.000636 | 22 |
| HLA-B*35:01 | 1 | 395 | 403 | 9 | VYADSFVIR 0.000636 | 12 |
| HLA-B*40:01 | 1 | 466 | 475 | 10 | RDISTEIQQA 0.000636 | 9.0 |
| HLA-A*30:02 | 1 | 615 | 623 | 9 | VNCTEVPVA 0.000636 | 29 |
| HLA-A*30:02 | 1 | 963 | 972 | 10 | VKQLSSNFGA 0.000636 | 29 |
| HLA-B*51:01 | 1 | 991 | 999 | 9 | VQIDRLITG 0.000636 | 22 |
| HLA-A*30:01 | 1 | 1009 | 1018 | 10 | TQQLIRAAEI 0.000636 | 32 |
| HLA-A*68:01 | 1 | 144 | 152 | 9 | YYHKNNKSW 0.000635 | 18 |
| HLA-A*30:02 | 1 | 228 | 237 | 10 | DLPIGINITR 0.000635 | 29 |
| HLA-A*02:01 | 1 | 270 | 278 | 9 | LQPRTFLLK 0.000635 | 17 |
| HLA-A*31:01 | 1 | 406 | 414 | 9 | EVQRQIAPGQ 0.000635 | 19 |
| HLA-B*57:01 | 1 | 436 | 445 | 10 | WNSNNLDSKV 0.000635 | 24 |
| HLA-B*08:01 | 1 | 443 | 451 | 9 | SKVGGNYNY 0.000635 | 24 |
| HLA-A*01:01 | 1 | 914 | 923 | 10 | NVLYENQKLI 0.000635 | 19 |
| HLA-A*68:01 | 1 | 1199 | 1207 | 9 | DLQELGKYE 0.000635 | 18 |
| HLA-B*08:01 | 1 | 5 | 13 | 9 | LVLLPLVSS 0.000634 | 24 |
| HLA-A*23:01 | 1 | 22 | 30 | 9 | TQLPPAYTN 0.000634 | 9.9 |
| HLA-A*01:01 | 1 | 57 | 65 | 9 | PFFSNVTWF 0.000634 | 19 |
| HLA-A*26:01 | 1 | 212 | 221 | 10 | LVRDLPQGFS 0.000634 | 14 |
| HLA-A*30:02 | 1 | 325 | 334 | 10 | SIVRFPNITN 0.000634 | 29 |
| HLA-B*58:01 | 1 | 417 | 426 | 10 | KIADYNYKLP 0.000634 | 17 |
| HLA-A*02:06 | 1 | 510 | 519 | 10 | VVLSFELLH 0.000634 | 24 |
| HLA-A*30:02 | 1 | 547 | 555 | 9 | TGTGVLTES 0.000634 | 29 |
| HLA-A*68:02 | 1 | 589 | 598 | 10 | PCSFGGVSVI 0.000634 | 19 |
| HLA-A*30:02 | 1 | 591 | 600 | 10 | SFGGVSVITP 0.000634 | 29 |
| HLA-A*11:01 | 1 | 601 | 609 | 9 | GTNTSNQVA 0.000634 | 12 |
| HLA-A*30:01 | 1 | 694 | 703 | 10 | AYTMSLGAEN 0.000634 | 32 |
| HLA-A*02:01 | 1 | 802 | 811 | 10 | FSQILPDPSPK 0.000634 | 17 |
| HLA-A*02:01 | 1 | 804 | 813 | 10 | QILPDPSPKPS 0.000634 | 17 |
| HLA-A*11:01 | 1 | 852 | 860 | 9 | AQKFNGLTV 0.000634 | 12 |
| HLA-A*31:01 | 1 | 1087 | 1096 | 10 | AHFPREGVFV 0.000634 | 19 |
| HLA-B*58:01 | 1 | 3 | 11 | 9 | VFLVLLPLV 0.000633 | 17 |
| HLA-A*01:01 | 1 | 37 | 46 | 10 | YYPDKVFRSS 0.000633 | 19 |
| HLA-A*68:01 | 1 | 63 | 71 | 9 | TWFHAIHVS 0.000633 | 18 |
| HLA-A*68:02 | 1 | 371 | 380 | 10 | SASFSTFKCY 0.000633 | 19 |
| HLA-B*53:01 | 1 | 496 | 505 | 10 | GFQPTNGVG 0.000633 | 12 |
| HLA-A*01:01 | 1 | 659 | 668 | 10 | SYECDIPIGA 0.000633 | 19 |
| HLA-A*02:06 | 1 | 661 | 670 | 10 | ECDIPIGAGI 0.000633 | 24 |
| HLA-A*02:01 | 1 | 765 | 774 | 10 | RALTGIAVEQ 0.000633 | 17 |
| HLA-A*01:01 | 1 | 869 | 878 | 10 | MIAQYTSALL 0.000633 | 19 |
| HLA-A*02:01 | 1 | 1013 | 1022 | 10 | IRAAEIRASA 0.000633 | 17 |
| HLA-B*07:02 | 1 | 1129 | 1137 | 9 | VIGIVNNTV 0.000633 | 15 |
| HLA-A*02:06 | 1 | 1154 | 1162 | 9 | KYFKNHTSP 0.000633 | 24 |
| HLA-A*33:01 | 1 | 1175 | 1183 | 9 | SVVNIQKEI 0.000633 | 17 |
| HLA-A*02:06 | 1 | 86 | 94 | 9 | FNDGVYFAS 0.000632 | 24 |
| HLA-B*57:01 | 1 | 149 | 158 | 10 | NKSWMESEFR 0.000632 | 24 |
| HLA-A*02:01 | 1 | 160 | 168 | 9 | YSSANNCTF 0.000632 | 17 |
| HLA-A*02:01 | 1 | 194 | 203 | 10 | FKNIDGYFKI 0.000632 | 17 |
| HLA-A*03:01 | 1 | 195 | 203 | 9 | KNIDGYFKI 0.000632 | 14 |
| HLA-A*68:01 | 1 | 315 | 323 | 9 | TSNFRVQPT 0.000632 | 18 |
| HLA-B*53:01 | 1 | 732 | 741 | 10 | TKTSVDCTMY 0.000632 | 12 |
| HLA-A*68:01 | 1 | 925 | 934 | 10 | NQFNSAIGKI 0.000632 | 18 |
| HLA-B*44:03 | 1 | 937 | 945 | 9 | SLSSTASAL 0.000632 | 9.8 |
| HLA-A*68:02 | 1 | 1068 | 1076 | 9 | VPAQEKNF 0.000632 | 19 |
| HLA-A*01:01 | 1 | 1112 | 1121 | 10 | PQIITTDNTF 0.000632 | 19 |
| HLA-B*44:03 | 1 | 109 | 118 | 10 | TLDSKTQSL 0.000631 | 9.8 |
| HLA-A*32:01 | 1 | 135 | 143 | 9 | FCNDPFLGV 0.000631 | 13 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*30:01 | 1 | 136 | 145 | 10 | CNDPFLGVVY 0.000631 | 32 |
| HLA-A*23:01 | 1 | 194 | 203 | 10 | FKNIDGYFKI 0.000631 | 9.9 |
| HLA-B*35:01 | 1 | 284 | 292 | 9 | TITDAVDCA 0.000631 | 13 |
| HLA-A*30:01 | 1 | 362 | 371 | 10 | VADYSVLYNS 0.000631 | 32 |
| HLA-B*08:01 | 1 | 449 | 457 | 9 | YNYLYRLFR 0.000631 | 24 |
| HLA-A*68:01 | 1 | 705 | 713 | 9 | VAYSNNSIA 0.000631 | 18 |
| HLA-A*03:01 | 1 | 879 | 888 | 10 | AGTITSGWTF 0.000631 | 14 |
| HLA-B*40:01 | 1 | 969 | 977 | 9 | NFGAISSVL 0.000631 | 9.1 |
| HLA-B*35:01 | 1 | 1020 | 1029 | 10 | ASANLAATKM 0.000631 | 13 |
| HLA-B*58:01 | 1 | 151 | 159 | 9 | SWMESEFRV 0.00063 | 17 |
| HLA-B*58:01 | 1 | 238 | 246 | 9 | FQTLALHR 0.00063 | 17 |
| HLA-A*30:02 | 1 | 300 | 309 | 10 | KCTLKSFTVE 0.00063 | 29 |
| HLA-A*02:01 | 1 | 617 | 626 | 10 | CTEVPVAIHA 0.00063 | 17 |
| HLA-A*24:02 | 1 | 746 | 754 | 9 | STECNLLL 0.00063 | 9.8 |
| HLA-A*31:01 | 1 | 795 | 803 | 9 | KDFGGFNFS 0.00063 | 19 |
| HLA-A*33:01 | 1 | 828 | 837 | 10 | LADAGFIKQY 0.00063 | 17 |
| HLA-A*24:02 | 1 | 1052 | 1060 | 9 | FPQSAPHGV 0.00063 | 9.8 |
| HLA-B*07:02 | 1 | 29 | 37 | 9 | TNSFTRGVY 0.000629 | 15 |
| HLA-B*53:01 | 1 | 70 | 79 | 10 | VSGTNGTKRF 0.000629 | 12 |
| HLA-A*33:01 | 1 | 168 | 176 | 9 | FEYVSQPFL 0.000629 | 17 |
| HLA-B*07:02 | 1 | 186 | 194 | 9 | FKNLREFVF 0.000629 | 15 |
| HLA-A*32:01 | 1 | 683 | 691 | 9 | RARSVASQS 0.000629 | 13 |
| HLA-A*03:01 | 1 | 711 | 720 | 10 | SIAIPTNFTI 0.000629 | 14 |
| HLA-B*53:01 | 1 | 868 | 877 | 10 | EMIAQYTSAL 0.000629 | 12 |
| HLA-A*33:01 | 1 | 1204 | 1212 | 9 | GKYEQYIKW 0.000629 | 17 |
| HLA-B*35:01 | 1 | 151 | 159 | 9 | SWMESEFRV 0.000628 | 13 |
| HLA-A*01:01 | 1 | 170 | 178 | 9 | YVSQPFLMD 0.000628 | 19 |
| HLA-A*68:01 | 1 | 365 | 374 | 10 | YSVLYNSASF 0.000628 | 18 |
| HLA-B*51:01 | 1 | 867 | 876 | 10 | DEMIAQYTSA 0.000628 | 22 |
| HLA-B*57:01 | 1 | 905 | 913 | 9 | RFNGIGVTQ 0.000628 | 24 |
| HLA-A*03:01 | 1 | 961 | 970 | 10 | TLVKQLSSNF 0.000628 | 14 |
| HLA-B*15:01 | 1 | 985 | 993 | 9 | DKVEAEVQI 0.000628 | 17 |
| HLA-A*68:01 | 1 | 1159 | 1167 | 9 | HTSPDVDLG 0.000628 | 18 |
| HLA-A*02:06 | 1 | 1192 | 1201 | 10 | NLNESLIDLQ 0.000628 | 24 |
| HLA-A*03:01 | 1 | 136 | 144 | 9 | CNDPFLGVY 0.000627 | 14 |
| HLA-B*51:01 | 1 | 463 | 472 | 10 | PFERDISTEI 0.000627 | 22 |
| HLA-B*15:01 | 1 | 515 | 524 | 10 | FELLHAPATV 0.000627 | 17 |
| HLA-A*02:03 | 1 | 871 | 880 | 10 | AQYTSALLAG 0.000627 | 19 |
| HLA-B*07:02 | 1 | 889 | 898 | 10 | GAGAALQIPF 0.000627 | 15 |
| HLA-A*33:01 | 1 | 890 | 898 | 9 | AGAALQIPF 0.000627 | 17 |
| HLA-B*40:01 | 1 | 1009 | 1017 | 9 | TQQLIRAAE 0.000627 | 9.1 |
| HLA-B*44:02 | 1 | 1143 | 1151 | 9 | PELDSFKEE 0.000627 | 9.8 |
| HLA-A*02:01 | 1 | 1225 | 1233 | 9 | IAIVMVTIM 0.000627 | 17 |
| HLA-A*02:06 | 1 | 1229 | 1237 | 9 | MVTIMLCCM 0.000627 | 24 |
| HLA-A*31:01 | 1 | 166 | 175 | 10 | CTFEYVSQPF 0.000626 | 19 |
| HLA-A*26:01 | 1 | 178 | 187 | 10 | DLEGKQGNFK 0.000626 | 14 |
| HLA-B*44:02 | 1 | 206 | 214 | 9 | KHTPINLVR 0.000626 | 9.8 |
| HLA-A*11:01 | 1 | 301 | 309 | 9 | CTLKSFTVE 0.000626 | 12 |
| HLA-A*02:01 | 1 | 327 | 336 | 10 | VRFPNITNLC 0.000626 | 17 |
| HLA-A*02:03 | 1 | 935 | 944 | 10 | QDLSSTASA 0.000626 | 19 |
| HLA-B*58:01 | 1 | 1028 | 1036 | 9 | KMSECVLGQ 0.000626 | 17 |
| HLA-A*68:01 | 1 | 1089 | 1097 | 9 | FPREGVFVS 0.000626 | 18 |
| HLA-A*30:02 | 1 | 1202 | 1210 | 9 | ELGKYEQYI 0.000626 | 29 |
| HLA-A*32:01 | 1 | 136 | 144 | 9 | CNDPFLGVY 0.000625 | 13 |
| HLA-A*30:02 | 1 | 153 | 161 | 9 | MESEFRVYS 0.000625 | 29 |
| HLA-A*03:01 | 1 | 447 | 455 | 9 | GNYNYLYRL 0.000625 | 14 |
| HLA-B*44:03 | 1 | 447 | 455 | 9 | GNYNYLYRL 0.000625 | 9.8 |
| HLA-A*33:01 | 1 | 513 | 522 | 10 | LSFELLHAPA 0.000625 | 17 |
| HLA-A*02:03 | 1 | 522 | 531 | 10 | ATVCGPKKST 0.000625 | 19 |
| HLA-B*58:01 | 1 | 684 | 692 | 9 | ARSVASQSI 0.000625 | 17 |
| HLA-A*01:01 | 1 | 685 | 694 | 10 | RSVASQSIIA 0.000625 | 20 |
| HLA-B*58:01 | 1 | 706 | 715 | 10 | AYSNNSIAIP 0.000625 | 17 |
| HLA-A*68:02 | 1 | 744 | 753 | 10 | GDSTECNLL 0.000625 | 19 |
| HLA-A*30:02 | 1 | 785 | 794 | 10 | VKQIYKTPPI 0.000625 | 29 |
| HLA-B*58:01 | 1 | 889 | 897 | 9 | GAGAALQIP 0.000625 | 17 |
| HLA-A*68:02 | 1 | 918 | 927 | 10 | ENQKLIANQF 0.000625 | 19 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*57:01 | 1 | 929 | 937 | 9 | SAIGKIQDS 0.000625 | 24 |
| HLA-A*01:01 | 1 | 62 | 71 | 10 | VTWFHAIHVS 0.000624 | 20 |
| HLA-A*03:01 | 1 | 214 | 223 | 10 | RDLPQGFSA 0.000624 | 14 |
| HLA-B*07:02 | 1 | 228 | 237 | 10 | DLPIGINITR 0.000624 | 15 |
| HLA-B*57:01 | 1 | 284 | 293 | 10 | TITDAVDCAL 0.000624 | 24 |
| HLA-B*08:01 | 1 | 368 | 376 | 9 | LYNSASFST 0.000624 | 24 |
| HLA-B*08:01 | 1 | 416 | 425 | 10 | GKIADYNYKL 0.000624 | 24 |
| HLA-B*58:01 | 1 | 476 | 485 | 10 | GSTPCNGVEG 0.000624 | 17 |
| HLA-B*51:01 | 1 | 497 | 506 | 10 | FQPTNGVGYP 0.000624 | 22 |
| HLA-A*01:01 | 1 | 548 | 557 | 10 | GTGVLTESNK 0.000624 | 20 |
| HLA-A*01:01 | 1 | 600 | 609 | 10 | PGTNTSNQVA 0.000624 | 20 |
| HLA-A*30:02 | 1 | 695 | 704 | 10 | YTMSLGAENS 0.000624 | 29 |
| HLA-A*30:01 | 1 | 714 | 723 | 10 | IPNTFTISVT 0.000624 | 32 |
| HLA-B*07:02 | 1 | 772 | 781 | 10 | VEQDKNTQEV 0.000624 | 15 |
| HLA-A*30:02 | 1 | 791 | 800 | 10 | TPPIKDFGGF 0.000624 | 29 |
| HLA-A*01:01 | 1 | 999 | 1008 | 10 | GRLQSLQTYV 0.000624 | 20 |
| HLA-B*08:01 | 1 | 1061 | 1069 | 9 | VFLHVTVYP 0.000624 | 24 |
| HLA-B*57:01 | 1 | 1169 | 1178 | 10 | ISGINASVNV 0.000624 | 24 |
| HLA-A*26:01 | 1 | 93 | 101 | 9 | ASTEKSNI 0.000623 | 14 |
| HLA-A*68:01 | 1 | 184 | 192 | 9 | GNFKNREF 0.000623 | 18 |
| HLA-A*32:01 | 1 | 237 | 246 | 10 | RFQTLALHR 0.000623 | 13 |
| HLA-A*03:01 | 1 | 464 | 473 | 10 | FERDISTEIV 0.000623 | 14 |
| HLA-A*68:02 | 1 | 493 | 501 | 9 | QSYGFQPTN 0.000623 | 19 |
| HLA-A*02:03 | 1 | 891 | 900 | 10 | GAALQIPFAM 0.000623 | 19 |
| HLA-B*15:01 | 1 | 973 | 981 | 9 | ISSVLNDIL 0.000623 | 17 |
| HLA-A*02:06 | 1 | 1068 | 1077 | 10 | VPAQEKNF 0.000623 | 24 |
| HLA-B*35:01 | 1 | 1208 | 1216 | 9 | QYIKWPWYI 0.000623 | 13 |
| HLA-A*30:01 | 1 | 57 | 66 | 10 | PFFSNVTWFH 0.000622 | 32 |
| HLA-A*68:02 | 1 | 178 | 186 | 9 | DLEGKQGNF 0.000622 | 19 |
| HLA-B*51:01 | 1 | 191 | 200 | 10 | EFVFKNIDGY 0.000622 | 22 |
| HLA-A*30:01 | 1 | 194 | 203 | 10 | FKNIDGYFKI 0.000622 | 32 |
| HLA-B*08:01 | 1 | 387 | 395 | 9 | LNDLCFTNV 0.000622 | 24 |
| HLA-B*58:01 | 1 | 510 | 519 | 10 | VVLSFELLH 0.000622 | 17 |
| HLA-A*32:01 | 1 | 685 | 694 | 10 | RSVASQSIIA 0.000622 | 13 |
| HLA-A*30:02 | 1 | 689 | 698 | 10 | SQSIIAYTMS 0.000622 | 29 |
| HLA-B*58:01 | 1 | 803 | 812 | 10 | SQILPDPSKP 0.000622 | 17 |
| HLA-B*15:01 | 1 | 5 | 13 | 9 | LVLLPLVSS 0.000621 | 17 |
| HLA-A*33:01 | 1 | 16 | 24 | 9 | VNLTRTQL 0.000621 | 17 |
| HLA-A*03:01 | 1 | 27 | 36 | 10 | AYTNSFTRGV 0.000621 | 14 |
| HLA-A*33:01 | 1 | 42 | 51 | 10 | VFRSSVLHST 0.000621 | 17 |
| HLA-B*44:02 | 1 | 309 | 318 | 10 | EKGIYQTSNF 0.000621 | 9.9 |
| HLA-B*07:02 | 1 | 355 | 363 | 9 | RKRISNCVA 0.000621 | 15 |
| HLA-A*01:01 | 1 | 447 | 455 | 9 | GNYNLYRL 0.000621 | 20 |
| HLA-A*02:06 | 1 | 625 | 634 | 10 | HADQLTPTWR 0.000621 | 24 |
| HLA-A*68:02 | 1 | 825 | 834 | 10 | KVTLADAGFI 0.000621 | 19 |
| HLA-A*03:01 | 1 | 922 | 930 | 9 | LIANQFN 0.000621 | 14 |
| HLA-B*44:02 | 1 | 1014 | 1022 | 9 | RAAEIRASA 0.000621 | 9.9 |
| HLA-A*30:02 | 1 | 1177 | 1186 | 10 | VNIQKEIDRL 0.000621 | 30 |
| HLA-A*23:01 | 1 | 1248 | 1256 | 9 | CSCGSCCKF 0.000621 | 10 |
| HLA-A*68:01 | 1 | 61 | 70 | 10 | NVTWFHAIHV 0.00062 | 18 |
| HLA-A*68:01 | 1 | 259 | 267 | 9 | TAGAAAYYF 0.00062 | 18 |
| HLA-B*07:02 | 1 | 482 | 490 | 9 | GVEGFNCYF 0.00062 | 15 |
| HLA-A*01:01 | 1 | 498 | 507 | 10 | QPTNGVGYP 0.00062 | 20 |
| HLA-A*68:02 | 1 | 540 | 549 | 10 | NFNFNGLTGT 0.00062 | 19 |
| HLA-A*68:02 | 1 | 627 | 636 | 10 | DQLTPTWRVY 0.00062 | 19 |
| HLA-A*33:01 | 1 | 884 | 892 | 9 | SGWTFGAGA 0.00062 | 17 |
| HLA-A*33:01 | 1 | 901 | 909 | 9 | QMAYRFNGI 0.00062 | 17 |
| HLA-A*11:01 | 1 | 951 | 959 | 9 | VVNQNAQAL 0.00062 | 12 |
| HLA-A*33:01 | 1 | 1093 | 1101 | 9 | GVFVSNQTH 0.00062 | 17 |
| HLA-A*30:01 | 1 | 1258 | 1266 | 9 | EDDSEPVLK 0.00062 | 32 |
| HLA-A*02:03 | 1 | 1261 | 1270 | 10 | SEPVLKGVKL 0.00062 | 19 |
| HLA-A*01:01 | 1 | 124 | 133 | 10 | TNVVIKVC 0.000619 | 20 |
| HLA-A*30:02 | 1 | 170 | 178 | 9 | YVSQPF 0.000619 | 30 |
| HLA-A*02:06 | 1 | 196 | 205 | 10 | NIDGYFKIYS 0.000619 | 24 |
| HLA-A*31:01 | 1 | 442 | 451 | 10 | DSKVGGNYNY 0.000619 | 19 |
| HLA-B*15:01 | 1 | 453 | 461 | 9 | YRLFRKSNL 0.000619 | 17 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*02:03 | 1 | 501 | 510 | 10 | NGVGYQPYRV 0.000619 | 19 |
| HLA-A*33:01 | 1 | 550 | 558 | 9 | GVLTESNKK 0.000619 | 17 |
| HLA-B*58:01 | 1 | 552 | 561 | 10 | LTESNKKFLP 0.000619 | 17 |
| HLA-B*08:01 | 1 | 596 | 604 | 9 | SVITPGTNT 0.000619 | 24 |
| HLA-A*02:03 | 1 | 683 | 691 | 9 | RARSVASQS 0.000619 | 19 |
| HLA-B*51:01 | 1 | 687 | 696 | 10 | VASQSIIAYT 0.000619 | 22 |
| HLA-A*68:01 | 1 | 927 | 935 | 9 | FNSAIGKIQ 0.000619 | 18 |
| HLA-A*32:01 | 1 | 29 | 37 | 9 | TNSFTRGVY 0.000618 | 13 |
| HLA-A*24:02 | 1 | 30 | 38 | 9 | NSFTRGVYY 0.000618 | 9.8 |
| HLA-B*08:01 | 1 | 63 | 71 | 9 | TWFHAIHVS 0.000618 | 24 |
| HLA-B*58:01 | 1 | 284 | 293 | 10 | TITDAVDCAL 0.000618 | 17 |
| HLA-B*51:01 | 1 | 295 | 303 | 9 | PLSETKCTL 0.000618 | 22 |
| HLA-B*53:01 | 1 | 413 | 421 | 9 | GQTGIADY 0.000618 | 12 |
| HLA-B*07:02 | 1 | 578 | 587 | 10 | DPQTLEILDI 0.000618 | 15 |
| HLA-B*57:01 | 1 | 1132 | 1140 | 9 | IVNNTVYDP 0.000618 | 24 |
| HLA-A*32:01 | 1 | 1196 | 1204 | 9 | SLIDLQELG 0.000618 | 13 |
| HLA-A*32:01 | 1 | 115 | 123 | 9 | QSLLIVNNA 0.000617 | 13 |
| HLA-A*30:02 | 1 | 118 | 127 | 10 | LIVNATNVV 0.000617 | 30 |
| HLA-A*68:01 | 1 | 208 | 216 | 9 | TPINLVRDL 0.000617 | 18 |
| HLA-A*32:01 | 1 | 530 | 539 | 10 | STNLVKNKCV 0.000617 | 13 |
| HLA-B*58:01 | 1 | 844 | 853 | 10 | IAARDLICAQ 0.000617 | 17 |
| HLA-B*08:01 | 1 | 1128 | 1137 | 10 | VVIGIVNNTV 0.000617 | 24 |
| HLA-A*01:01 | 1 | 1167 | 1176 | 10 | GDISGINASV 0.000617 | 20 |
| HLA-A*01:01 | 1 | 1262 | 1271 | 10 | EPVLKGVKLG 0.000617 | 20 |
| HLA-A*68:01 | 1 | 56 | 65 | 10 | LPFFSNVTFW 0.000616 | 18 |
| HLA-B*58:01 | 1 | 402 | 410 | 9 | IRGDEVRI 0.000616 | 17 |
| HLA-A*30:02 | 1 | 462 | 471 | 10 | KPFERDISTE 0.000616 | 30 |
| HLA-A*02:06 | 1 | 486 | 495 | 10 | FNCYFPLQSY 0.000616 | 24 |
| HLA-B*57:01 | 1 | 508 | 517 | 10 | YRVVLSFEL 0.000616 | 24 |
| HLA-A*33:01 | 1 | 549 | 558 | 10 | TGVLTESNKK 0.000616 | 17 |
| HLA-A*02:03 | 1 | 583 | 591 | 9 | EILDITPCS 0.000616 | 19 |
| HLA-A*32:01 | 1 | 596 | 604 | 9 | SVITPGTNT 0.000616 | 13 |
| HLA-B*44:03 | 1 | 651 | 660 | 10 | IGAHEVNNSY 0.000616 | 9.8 |
| HLA-A*68:02 | 1 | 674 | 682 | 9 | YQTQTNSPR 0.000616 | 19 |
| HLA-A*02:01 | 1 | 696 | 704 | 9 | TMSLGAENS 0.000616 | 17 |
| HLA-A*30:02 | 1 | 988 | 996 | 9 | EAEVQIDRL 0.000616 | 30 |
| HLA-B*15:01 | 1 | 23 | 31 | 9 | QLPPAYTNS 0.000615 | 18 |
| HLA-A*68:01 | 1 | 98 | 106 | 9 | SNIRGWIF 0.000615 | 18 |
| HLA-B*51:01 | 1 | 402 | 411 | 10 | IRGDEVQRQA 0.000615 | 22 |
| HLA-B*57:01 | 1 | 403 | 411 | 9 | RGDEVQRQA 0.000615 | 24 |
| HLA-B*08:01 | 1 | 772 | 780 | 9 | VEQDKNTQE 0.000615 | 24 |
| HLA-B*58:01 | 1 | 793 | 802 | 10 | PIKDFGGFNF 0.000615 | 17 |
| HLA-A*02:03 | 1 | 829 | 837 | 9 | ADAGFIKQY 0.000615 | 19 |
| HLA-B*40:01 | 1 | 867 | 876 | 10 | DEMIAQY TSA 0.000615 | 9.2 |
| HLA-B*57:01 | 1 | 874 | 883 | 10 | TSALLAGTIT 0.000615 | 24 |
| HLA-B*15:01 | 1 | 1185 | 1194 | 10 | RLNEVAKNLN 0.000615 | 18 |
| HLA-A*68:01 | 1 | 59 | 67 | 9 | FSNVTWFHA 0.000614 | 18 |
| HLA-A*02:03 | 1 | 212 | 221 | 10 | LVRDLPQGS 0.000614 | 19 |
| HLA-B*35:01 | 1 | 302 | 310 | 9 | TLKSFTVEK 0.000614 | 13 |
| HLA-A*68:02 | 1 | 410 | 419 | 10 | IAPGQTGKIA 0.000614 | 19 |
| HLA-A*32:01 | 1 | 574 | 582 | 9 | DAVRDPQTL 0.000614 | 13 |
| HLA-B*53:01 | 1 | 602 | 610 | 9 | TNTSNQVAV 0.000614 | 12 |
| HLA-A*01:01 | 1 | 673 | 681 | 9 | SYQTQTNSP 0.000614 | 20 |
| HLA-A*68:02 | 1 | 740 | 749 | 10 | MYICGDSTEC 0.000614 | 19 |
| HLA-B*44:02 | 1 | 745 | 753 | 9 | DSTECSNLL 0.000614 | 9.9 |
| HLA-B*53:01 | 1 | 1151 | 1159 | 9 | ELDKYFKNH 0.000614 | 12 |
| HLA-A*30:02 | 1 | 1189 | 1198 | 10 | VAKNLNESLI 0.000614 | 30 |
| HLA-B*44:02 | 1 | 138 | 146 | 9 | DPFLGVYYH 0.000613 | 9.9 |
| HLA-A*23:01 | 1 | 237 | 246 | 10 | RFQTLALHR 0.000613 | 11 |
| HLA-B*53:01 | 1 | 305 | 313 | 9 | SFTVEKGIY 0.000613 | 12 |
| HLA-A*01:01 | 1 | 493 | 501 | 9 | QSYGFQPTN 0.000613 | 20 |
| HLA-A*31:01 | 1 | 514 | 522 | 9 | SFELLHAPA 0.000613 | 19 |
| HLA-A*68:02 | 1 | 525 | 533 | 9 | CGPKKSTNL 0.000613 | 19 |
| HLA-A*33:01 | 1 | 605 | 613 | 9 | SNQVAVLYQ 0.000613 | 17 |
| HLA-B*58:01 | 1 | 608 | 617 | 10 | VAVLYQDVNC 0.000613 | 17 |
| HLA-A*26:01 | 1 | 637 | 645 | 9 | STGSNVFQT 0.000613 | 14 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*44:02 | 1 | 806 | 815 | 10 | LPDPSKPSKR 0.000613 | 9.9 |
| HLA-A*01:01 | 1 | 935 | 944 | 10 | QDLSSTASA 0.000613 | 20 |
| HLA-A*01:01 | 1 | 944 | 952 | 9 | ALGKLQDVV 0.000613 | 20 |
| HLA-B*58:01 | 1 | 954 | 963 | 10 | QNAQALNTLV 0.000613 | 17 |
| HLA-A*02:06 | 1 | 1067 | 1076 | 10 | YVPAQEKNT 0.000613 | 24 |
| HLA-A*68:02 | 1 | 1218 | 1227 | 10 | LGFIAGLIAI 0.000613 | 19 |
| HLA-B*08:01 | 1 | 156 | 164 | 9 | EFRVYSSAN 0.000612 | 24 |
| HLA-A*30:01 | 1 | 284 | 292 | 9 | TITDAVDCA 0.000612 | 32 |
| HLA-A*30:02 | 1 | 295 | 304 | 10 | PLSETKCTLK 0.000612 | 30 |
| HLA-A*23:01 | 1 | 329 | 338 | 10 | FPNITNLCPF 0.000612 | 11 |
| HLA-A*33:01 | 1 | 332 | 340 | 9 | ITNLCPFGE 0.000612 | 17 |
| HLA-A*02:01 | 1 | 501 | 510 | 10 | NGVGYQPYRV 0.000612 | 17 |
| HLA-A*03:01 | 1 | 504 | 512 | 9 | GYQPYRVVV 0.000612 | 14 |
| HLA-B*44:03 | 1 | 783 | 792 | 10 | AQVKQIYKTP 0.000612 | 9.9 |
| HLA-A*11:01 | 1 | 814 | 823 | 10 | KRSFIEDLLF 0.000612 | 12 |
| HLA-B*07:02 | 1 | 878 | 886 | 9 | LAGTITSGW 0.000612 | 15 |
| HLA-A*24:02 | 1 | 1016 | 1024 | 9 | AEIRASANL 0.000612 | 9.9 |
| HLA-A*33:01 | 1 | 1195 | 1203 | 9 | ESLIDLQEL 0.000612 | 17 |
| HLA-B*08:01 | 1 | 61 | 70 | 10 | NVTWFHAIHV 0.000611 | 24 |
| HLA-A*11:01 | 1 | 161 | 169 | 9 | SSANNCTFE 0.000611 | 12 |
| HLA-A*30:02 | 1 | 288 | 296 | 9 | AVDCALDPL 0.000611 | 30 |
| HLA-A*01:01 | 1 | 318 | 327 | 10 | FRVQPTESIV 0.000611 | 20 |
| HLA-B*51:01 | 1 | 683 | 691 | 9 | RARSVASQS 0.000611 | 23 |
| HLA-A*26:01 | 1 | 757 | 765 | 9 | GSFCTQLNR 0.000611 | 14 |
| HLA-A*02:03 | 1 | 985 | 993 | 9 | DKVEAEVQI 0.000611 | 19 |
| HLA-A*23:01 | 1 | 1046 | 1054 | 9 | GYHLMSFPQ 0.000611 | 11 |
| HLA-A*30:01 | 1 | 1170 | 1178 | 9 | SGINASVVN 0.000611 | 32 |
| HLA-B*57:01 | 1 | 32 | 41 | 10 | FTRGVYYPDK 0.00061 | 24 |
| HLA-A*23:01 | 1 | 90 | 99 | 10 | VYFASTKSN 0.00061 | 11 |
| HLA-A*01:01 | 1 | 263 | 271 | 9 | AAYYVGYLQ 0.00061 | 20 |
| HLA-A*30:01 | 1 | 647 | 656 | 10 | AGCLIGAHEV 0.00061 | 32 |
| HLA-B*08:01 | 1 | 724 | 732 | 9 | TEILPVSMT 0.00061 | 24 |
| HLA-B*58:01 | 1 | 886 | 895 | 10 | WTFGAGAALQ 0.00061 | 17 |
| HLA-A*68:01 | 1 | 887 | 895 | 9 | TFGAGAALQ 0.00061 | 18 |
| HLA-A*68:02 | 1 | 908 | 916 | 9 | GIGVTQNVL 0.00061 | 19 |
| HLA-B*08:01 | 1 | 999 | 1008 | 10 | GRLQSLQTYV 0.00061 | 24 |
| HLA-A*02:06 | 1 | 1216 | 1225 | 10 | IWLGFIAGLI 0.00061 | 24 |
| HLA-A*01:01 | 1 | 16 | 24 | 9 | VNLTRTQQL 0.000609 | 20 |
| HLA-A*01:01 | 1 | 35 | 44 | 10 | GVYYPDKVFR 0.000609 | 20 |
| HLA-A*02:06 | 1 | 54 | 63 | 10 | LFLPFFSNVT 0.000609 | 24 |
| HLA-A*24:02 | 1 | 93 | 101 | 9 | ASTEKSNII 0.000609 | 9.9 |
| HLA-A*30:01 | 1 | 107 | 115 | 9 | GTTLDSTKQ 0.000609 | 32 |
| HLA-B*35:01 | 1 | 110 | 118 | 9 | LDSKTQSLL 0.000609 | 13 |
| HLA-A*02:01 | 1 | 162 | 170 | 9 | SANNCTFEY 0.000609 | 17 |
| HLA-A*68:01 | 1 | 234 | 243 | 10 | NITRFQTLA 0.000609 | 18 |
| HLA-A*26:01 | 1 | 236 | 245 | 10 | TRFQTLALH 0.000609 | 14 |
| HLA-B*53:01 | 1 | 370 | 378 | 9 | NSASFSTFK 0.000609 | 12 |
| HLA-B*58:01 | 1 | 377 | 386 | 10 | FKCYGVSPTK 0.000609 | 17 |
| HLA-A*68:01 | 1 | 458 | 467 | 10 | KSNLKPFRD 0.000609 | 18 |
| HLA-A*30:02 | 1 | 546 | 554 | 9 | LTGTGVLTE 0.000609 | 30 |
| HLA-A*68:02 | 1 | 861 | 870 | 10 | LPPLLTDEMI 0.000609 | 19 |
| HLA-A*02:06 | 1 | 934 | 943 | 10 | IQDLSSTAS 0.000609 | 24 |
| HLA-A*31:01 | 1 | 1009 | 1017 | 9 | TQQLIRAAE 0.000609 | 19 |
| HLA-A*68:02 | 1 | 1023 | 1032 | 10 | NLAATKMSEC 0.000609 | 19 |
| HLA-B*51:01 | 1 | 1153 | 1162 | 10 | DKYFKNHTSP 0.000609 | 23 |
| HLA-B*44:02 | 1 | 1158 | 1166 | 9 | NHTSPDVL 0.000609 | 10 |
| HLA-A*26:01 | 1 | 1211 | 1220 | 10 | KWPWYIWLGF 0.000609 | 14 |
| HLA-A*30:02 | 1 | 1217 | 1225 | 9 | WLGFIAGLI 0.000609 | 30 |
| HLA-B*40:01 | 1 | 1264 | 1272 | 9 | VLKGVKLHY 0.000609 | 9.2 |
| HLA-A*23:01 | 1 | 124 | 133 | 10 | TNVVIKVECF 0.000608 | 11 |
| HLA-A*02:01 | 1 | 152 | 160 | 9 | WMESEFRVY 0.000608 | 17 |
| HLA-A*26:01 | 1 | 175 | 183 | 9 | FLMDLEGKQ 0.000608 | 14 |
| HLA-A*23:01 | 1 | 218 | 226 | 9 | QGFSALEPL 0.000608 | 11 |
| HLA-B*51:01 | 1 | 280 | 288 | 9 | NENGTITDA 0.000608 | 23 |
| HLA-A*32:01 | 1 | 367 | 376 | 10 | VLYNSASFST 0.000608 | 13 |
| HLA-B*58:01 | 1 | 403 | 411 | 9 | RGDEVRIQA 0.000608 | 17 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*33:01 | 1 | 444 | 452 | 9 | KVGGNYNYL 0.000608 | 17 |
| HLA-B*58:01 | 1 | 468 | 477 | 10 | ISTEIQAGS 0.000608 | 17 |
| HLA-B*57:01 | 1 | 555 | 563 | 9 | SNKKFLPFQ 0.000608 | 24 |
| HLA-B*58:01 | 1 | 721 | 730 | 10 | SVTTEILPVS 0.000608 | 17 |
| HLA-A*11:01 | 1 | 786 | 794 | 9 | KQIYKTPPI 0.000608 | 12 |
| HLA-B*57:01 | 1 | 841 | 849 | 9 | LGDI AARDL 0.000608 | 24 |
| HLA-B*57:01 | 1 | 1106 | 1114 | 9 | QRNFYEPQI 0.000608 | 24 |
| HLA-A*11:01 | 1 | 5 | 13 | 9 | LVLLPLVSS 0.000607 | 12 |
| HLA-A*30:02 | 1 | 137 | 146 | 10 | NDPFLGVYYH 0.000607 | 30 |
| HLA-A*02:01 | 1 | 267 | 276 | 10 | VGYLQPRFTL 0.000607 | 17 |
| HLA-B*44:03 | 1 | 268 | 276 | 9 | GYLQPRFTL 0.000607 | 9.9 |
| HLA-A*11:01 | 1 | 415 | 423 | 9 | TGKIADYNY 0.000607 | 12 |
| HLA-A*30:01 | 1 | 442 | 450 | 9 | DSKVGGNYN 0.000607 | 33 |
| HLA-B*08:01 | 1 | 471 | 480 | 10 | EIYQAGSTPC 0.000607 | 24 |
| HLA-B*15:01 | 1 | 633 | 642 | 10 | WRVYSTGSNV 0.000607 | 18 |
| HLA-A*02:01 | 1 | 721 | 730 | 10 | SVTTEILPVS 0.000607 | 17 |
| HLA-B*57:01 | 1 | 906 | 915 | 10 | FNGIGVTQNV 0.000607 | 24 |
| HLA-A*68:01 | 1 | 990 | 999 | 10 | EVQIDRLITG 0.000607 | 18 |
| HLA-A*31:01 | 1 | 1146 | 1154 | 9 | DSFKEELDK 0.000607 | 19 |
| HLA-B*57:01 | 1 | 1164 | 1172 | 9 | VDLGDISGI 0.000607 | 24 |
| HLA-B*40:01 | 1 | 1167 | 1175 | 9 | GDISGINAS 0.000607 | 9.2 |
| HLA-B*44:02 | 1 | 48 | 56 | 9 | LHSTQDLFL 0.000606 | 10 |
| HLA-A*68:01 | 1 | 151 | 159 | 9 | SWMESEFRV 0.000606 | 18 |
| HLA-A*02:03 | 1 | 215 | 224 | 10 | DLPQGFSALE 0.000606 | 19 |
| HLA-B*57:01 | 1 | 460 | 468 | 9 | NLKPFERDI 0.000606 | 24 |
| HLA-A*68:02 | 1 | 735 | 743 | 9 | SVDCTMYIC 0.000606 | 19 |
| HLA-A*01:01 | 1 | 1076 | 1084 | 9 | TTAPAICHD 0.000606 | 20 |
| HLA-B*44:03 | 1 | 1086 | 1095 | 10 | KAHFPREGVF 0.000606 | 9.9 |
| HLA-B*53:01 | 1 | 1160 | 1169 | 10 | TSPDVLGDI 0.000606 | 12 |
| HLA-A*68:02 | 1 | 36 | 45 | 10 | VYYDPKVFRRS 0.000605 | 19 |
| HLA-A*03:01 | 1 | 46 | 54 | 9 | SVLHSTQDL 0.000605 | 15 |
| HLA-A*03:01 | 1 | 170 | 179 | 10 | YVSQPFLMDL 0.000605 | 15 |
| HLA-B*35:01 | 1 | 227 | 235 | 9 | VDLPIGINI 0.000605 | 13 |
| HLA-A*02:01 | 1 | 254 | 263 | 10 | SSSGWTAGAA 0.000605 | 17 |
| HLA-A*02:03 | 1 | 514 | 522 | 9 | SFELLHAPA 0.000605 | 19 |
| HLA-A*01:01 | 1 | 597 | 605 | 9 | VITPGTNTS 0.000605 | 20 |
| HLA-A*11:01 | 1 | 629 | 637 | 9 | LTPTWRVYS 0.000605 | 12 |
| HLA-B*08:01 | 1 | 658 | 666 | 9 | NSYECDIPI 0.000605 | 24 |
| HLA-A*26:01 | 1 | 1080 | 1088 | 9 | AICHDGKAH 0.000605 | 14 |
| HLA-A*01:01 | 1 | 1093 | 1101 | 9 | GVFVSNLTH 0.000605 | 20 |
| HLA-A*02:03 | 1 | 103 | 112 | 10 | GWIFGTTLDS 0.000604 | 19 |
| HLA-A*24:02 | 1 | 138 | 147 | 10 | DPFLGVYYHK 0.000604 | 9.9 |
| HLA-B*35:01 | 1 | 365 | 373 | 9 | YSVLYNSAS 0.000604 | 13 |
| HLA-B*08:01 | 1 | 422 | 430 | 9 | NYKLPDDFT 0.000604 | 24 |
| HLA-B*08:01 | 1 | 490 | 499 | 10 | FPLQSYGFQP 0.000604 | 24 |
| HLA-B*15:01 | 1 | 557 | 566 | 10 | KKFLPFQQFG 0.000604 | 18 |
| HLA-B*57:01 | 1 | 596 | 605 | 10 | SVITPGTNTS 0.000604 | 24 |
| HLA-A*30:02 | 1 | 694 | 703 | 10 | AYTMSLGAEN 0.000604 | 30 |
| HLA-A*01:01 | 1 | 728 | 736 | 9 | PVSMTKTSV 0.000604 | 20 |
| HLA-A*31:01 | 1 | 758 | 766 | 9 | SFCTQLNRA 0.000604 | 19 |
| HLA-A*30:01 | 1 | 776 | 784 | 9 | KNTQEVFAQ 0.000604 | 33 |
| HLA-A*68:02 | 1 | 804 | 813 | 10 | QILPDPSKPS 0.000604 | 19 |
| HLA-A*30:02 | 1 | 835 | 843 | 9 | KQYGDCLGD 0.000604 | 30 |
| HLA-A*01:01 | 1 | 841 | 850 | 10 | LGDI AARDLI 0.000604 | 20 |
| HLA-A*23:01 | 1 | 925 | 934 | 10 | NQFNSAIGKI 0.000604 | 11 |
| HLA-B*07:02 | 1 | 1155 | 1164 | 10 | YFKNHTSPDV 0.000604 | 15 |
| HLA-A*68:02 | 1 | 1212 | 1221 | 10 | WPWYIWLGFI 0.000604 | 19 |
| HLA-A*30:02 | 1 | 1256 | 1265 | 10 | FDEDDSEPVL 0.000604 | 30 |
| HLA-A*01:01 | 1 | 61 | 70 | 10 | NVTWFHAIHV 0.000603 | 20 |
| HLA-A*23:01 | 1 | 195 | 204 | 10 | KNIDGYFKIY 0.000603 | 11 |
| HLA-A*68:01 | 1 | 207 | 216 | 10 | HTPINLVRDL 0.000603 | 18 |
| HLA-B*40:01 | 1 | 218 | 226 | 9 | QGFSALEPL 0.000603 | 9.3 |
| HLA-B*58:01 | 1 | 349 | 358 | 10 | SVYAWNRKRI 0.000603 | 17 |
| HLA-A*02:01 | 1 | 387 | 395 | 9 | LNDLCFTNV 0.000603 | 18 |
| HLA-B*51:01 | 1 | 398 | 406 | 9 | DSFVIRGDE 0.000603 | 23 |
| HLA-A*02:06 | 1 | 459 | 468 | 10 | SNLKPFERDI 0.000603 | 24 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*30:02 | 1 | 459 | 468 | 10 | SNLKPFERDI 0.000603 | 30 |
| HLA-A*68:02 | 1 | 519 | 528 | 10 | HAPATVCGPK 0.000603 | 19 |
| HLA-A*01:01 | 1 | 891 | 899 | 9 | GAALQIPFA 0.000603 | 20 |
| HLA-B*51:01 | 1 | 898 | 907 | 10 | FAMQMAYRFN 0.000603 | 23 |
| HLA-A*32:01 | 1 | 969 | 977 | 9 | NFGAISSVL 0.000603 | 13 |
| HLA-A*02:03 | 1 | 989 | 997 | 9 | AEVQIDRLI 0.000603 | 19 |
| HLA-B*35:01 | 1 | 1163 | 1171 | 9 | DVDLGDISG 0.000603 | 13 |
| HLA-A*02:01 | 1 | 34 | 43 | 10 | RGVYYPDKVF 0.000602 | 18 |
| HLA-A*24:02 | 1 | 263 | 272 | 10 | AAYYVGYLQP 0.000602 | 10 |
| HLA-A*01:01 | 1 | 309 | 318 | 10 | EKGYYQTSNF 0.000602 | 20 |
| HLA-B*57:01 | 1 | 381 | 389 | 9 | GVSPTKLN 0.000602 | 24 |
| HLA-A*30:02 | 1 | 395 | 404 | 10 | VYADSFVIRG 0.000602 | 30 |
| HLA-A*24:02 | 1 | 449 | 458 | 10 | YNYLYRFRK 0.000602 | 10 |
| HLA-A*30:02 | 1 | 492 | 501 | 10 | LQSYGFQPTN 0.000602 | 30 |
| HLA-A*24:02 | 1 | 929 | 938 | 10 | SAIGKIQDSL 0.000602 | 10 |
| HLA-B*35:01 | 1 | 1017 | 1025 | 9 | EIRASANLA 0.000602 | 13 |
| HLA-B*51:01 | 1 | 1118 | 1126 | 9 | DNTFVSGNC 0.000602 | 23 |
| HLA-B*57:01 | 1 | 198 | 206 | 9 | DGYFKIYSK 0.000601 | 24 |
| HLA-A*30:01 | 1 | 359 | 367 | 9 | SNCVADYSV 0.000601 | 33 |
| HLA-B*58:01 | 1 | 381 | 389 | 9 | GVSPTKLN 0.000601 | 17 |
| HLA-A*03:01 | 1 | 401 | 409 | 9 | VIRGDEVQR 0.000601 | 15 |
| HLA-A*30:01 | 1 | 926 | 935 | 10 | QFNSAIGKIQ 0.000601 | 33 |
| HLA-A*02:06 | 1 | 1053 | 1061 | 9 | PQSAPHGVV 0.000601 | 24 |
| HLA-B*07:02 | 1 | 1065 | 1073 | 9 | VTYVPAQEK 0.000601 | 15 |
| HLA-A*01:01 | 1 | 1086 | 1094 | 9 | KAHFPREGV 0.000601 | 20 |
| HLA-A*30:02 | 1 | 51 | 60 | 10 | TQDLFLPFFS 0.0006 | 30 |
| HLA-A*03:01 | 1 | 60 | 69 | 10 | SNVTWFHAIH 0.0006 | 15 |
| HLA-A*68:02 | 1 | 61 | 69 | 9 | NVTWFHAIH 0.0006 | 19 |
| HLA-A*03:01 | 1 | 149 | 158 | 10 | NKSWMESEFR 0.0006 | 15 |
| HLA-B*40:01 | 1 | 160 | 168 | 9 | YSSANNCTF 0.0006 | 9.3 |
| HLA-A*30:01 | 1 | 365 | 373 | 9 | YSVLYNSAS 0.0006 | 33 |
| HLA-B*40:01 | 1 | 378 | 387 | 10 | KCYGVSPTKL 0.0006 | 9.3 |
| HLA-B*15:01 | 1 | 458 | 466 | 9 | KSNLKPFER 0.0006 | 18 |
| HLA-A*11:01 | 1 | 546 | 554 | 9 | LTGTGVLTE 0.0006 | 12 |
| HLA-A*02:06 | 1 | 720 | 728 | 9 | ISVTTEILP 0.0006 | 24 |
| HLA-A*30:01 | 1 | 1255 | 1263 | 9 | KFDEDDSEP 0.0006 | 33 |
| HLA-B*51:01 | 1 | 41 | 49 | 9 | KVFRSSVLH 0.000599 | 23 |
| HLA-A*03:01 | 1 | 138 | 146 | 9 | DPFLGVYYH 0.000599 | 15 |
| HLA-B*15:01 | 1 | 167 | 176 | 10 | TFEYVSQPFL 0.000599 | 18 |
| HLA-B*58:01 | 1 | 182 | 190 | 9 | KQGNFKNLR 0.000599 | 17 |
| HLA-A*02:06 | 1 | 229 | 238 | 10 | LPIGINITRF 0.000599 | 24 |
| HLA-A*01:01 | 1 | 332 | 341 | 10 | ITNLCPFGEV 0.000599 | 20 |
| HLA-A*31:01 | 1 | 499 | 508 | 10 | PTNGVGYQPY 0.000599 | 19 |
| HLA-B*07:02 | 1 | 587 | 596 | 10 | ITPCSFGGVS 0.000599 | 15 |
| HLA-A*01:01 | 1 | 731 | 739 | 9 | MTKTSVDCT 0.000599 | 20 |
| HLA-B*15:01 | 1 | 739 | 747 | 9 | TMYICGDST 0.000599 | 18 |
| HLA-A*32:01 | 1 | 915 | 924 | 10 | VLYENQKLI 0.000599 | 13 |
| HLA-A*33:01 | 1 | 1009 | 1017 | 9 | TQQLIRAAE 0.000599 | 17 |
| HLA-A*02:03 | 1 | 1022 | 1031 | 10 | ANLAATKMSE 0.000599 | 19 |
| HLA-A*02:06 | 1 | 1023 | 1031 | 9 | NLAATKMSE 0.000599 | 24 |
| HLA-B*44:02 | 1 | 1054 | 1063 | 10 | QSAPHGVVFL 0.000599 | 10 |
| HLA-A*68:02 | 1 | 1151 | 1160 | 10 | ELDKYFKNHT 0.000599 | 19 |
| HLA-A*26:01 | 1 | 1219 | 1227 | 9 | GFIAGLIAI 0.000599 | 14 |
| HLA-A*68:02 | 1 | 137 | 145 | 9 | NDPFLGVYY 0.000598 | 19 |
| HLA-B*08:01 | 1 | 151 | 160 | 10 | SWMESEFRVY 0.000598 | 24 |
| HLA-A*01:01 | 1 | 185 | 194 | 10 | NFKNLREFVF 0.000598 | 20 |
| HLA-A*24:02 | 1 | 247 | 256 | 10 | SYLTPGDSSS 0.000598 | 10 |
| HLA-A*30:01 | 1 | 266 | 274 | 9 | YVGYLQPR 0.000598 | 33 |
| HLA-B*53:01 | 1 | 680 | 688 | 9 | SPRRARSA 0.000598 | 12 |
| HLA-A*68:02 | 1 | 684 | 693 | 10 | ARSVASQSII 0.000598 | 19 |
| HLA-A*24:02 | 1 | 907 | 915 | 9 | NGIGVTQNV 0.000598 | 10 |
| HLA-A*30:02 | 1 | 1135 | 1144 | 10 | NTVYDPLQPE 0.000598 | 30 |
| HLA-B*51:01 | 1 | 29 | 37 | 9 | TNSFTRGVY 0.000597 | 23 |
| HLA-B*15:01 | 1 | 114 | 123 | 10 | TQSLIVNNA 0.000597 | 18 |
| HLA-A*33:01 | 1 | 133 | 141 | 9 | FQFCNDPFL 0.000597 | 17 |
| HLA-A*26:01 | 1 | 348 | 356 | 9 | ASVYAWNRK 0.000597 | 14 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|
| HLA-B*44:02 | 1 | 415 | 423 | 9 | TGKIADYNY | 0.000597 | 11 |
| HLA-B*15:01 | 1 | 416 | 425 | 10 | GKIADYNYKL | 0.000597 | 18 |
| HLA-B*57:01 | 1 | 504 | 512 | 9 | GYQPYRVVV | 0.000597 | 24 |
| HLA-B*58:01 | 1 | 577 | 585 | 9 | RDPQTLEIL | 0.000597 | 17 |
| HLA-A*26:01 | 1 | 929 | 937 | 9 | SAIGKIQDS | 0.000597 | 14 |
| HLA-A*26:01 | 1 | 956 | 964 | 9 | AQALNTLVK | 0.000597 | 14 |
| HLA-B*44:02 | 1 | 1048 | 1056 | 9 | HLMSFPQSA | 0.000597 | 11 |
| HLA-B*51:01 | 1 | 1075 | 1083 | 9 | FTTAPAICH | 0.000597 | 23 |
| HLA-A*33:01 | 1 | 1227 | 1235 | 9 | IVMVTIMLC | 0.000597 | 17 |
| HLA-A*30:01 | 1 | 3 | 12 | 10 | VFLVLLPLVS | 0.000596 | 33 |
| HLA-B*07:02 | 1 | 48 | 56 | 9 | LHSTQDLFL | 0.000596 | 15 |
| HLA-A*30:02 | 1 | 200 | 208 | 9 | YFKIYSKHT | 0.000596 | 30 |
| HLA-A*23:01 | 1 | 309 | 318 | 10 | EKGIYQTSNF | 0.000596 | 11 |
| HLA-A*68:01 | 1 | 482 | 490 | 9 | GVEGFNCYF | 0.000596 | 18 |
| HLA-B*07:02 | 1 | 537 | 546 | 10 | KCVNFNFNGL | 0.000596 | 15 |
| HLA-B*08:01 | 1 | 909 | 917 | 9 | IGVTQNVLY | 0.000596 | 24 |
| HLA-A*31:01 | 1 | 992 | 1001 | 10 | QIDRLITGRL | 0.000596 | 19 |
| HLA-A*30:02 | 1 | 1261 | 1270 | 10 | SEPVLKGVKL | 0.000596 | 30 |
| HLA-A*03:01 | 1 | 1262 | 1271 | 10 | EPVLKGVKHL | 0.000596 | 15 |
| HLA-A*02:03 | 1 | 28 | 37 | 10 | YTNSFTRGVY | 0.000595 | 20 |
| HLA-A*26:01 | 1 | 263 | 271 | 9 | AAYYVGYLQ | 0.000595 | 14 |
| HLA-B*08:01 | 1 | 327 | 336 | 10 | VRFPNITNLC | 0.000595 | 24 |
| HLA-A*30:01 | 1 | 402 | 411 | 10 | IRGDEVQIA | 0.000595 | 33 |
| HLA-B*51:01 | 1 | 578 | 586 | 9 | DPQTLEILD | 0.000595 | 23 |
| HLA-A*02:01 | 1 | 595 | 604 | 10 | VSVITPGTNT | 0.000595 | 18 |
| HLA-A*02:03 | 1 | 684 | 692 | 9 | ARSVASQSI | 0.000595 | 20 |
| HLA-A*24:02 | 1 | 685 | 693 | 9 | RSVASQSII | 0.000595 | 10 |
| HLA-A*02:03 | 1 | 687 | 696 | 10 | VASQSIIAYT | 0.000595 | 20 |
| HLA-B*40:01 | 1 | 761 | 770 | 10 | TQLNRALTGI | 0.000595 | 9.3 |
| HLA-A*30:02 | 1 | 911 | 920 | 10 | VTQNVLYENQ | 0.000595 | 30 |
| HLA-B*58:01 | 1 | 921 | 929 | 9 | KLIANQFNS | 0.000595 | 17 |
| HLA-A*31:01 | 1 | 954 | 962 | 9 | QNAQALNTL | 0.000595 | 19 |
| HLA-B*57:01 | 1 | 106 | 115 | 10 | FGTTLDSKTQ | 0.000594 | 24 |
| HLA-A*02:03 | 1 | 111 | 120 | 10 | DSKTQSLLIV | 0.000594 | 20 |
| HLA-B*40:01 | 1 | 131 | 139 | 9 | CEFQFCNDP | 0.000594 | 9.3 |
| HLA-A*33:01 | 1 | 159 | 168 | 10 | VYSSANNCTF | 0.000594 | 17 |
| HLA-A*32:01 | 1 | 198 | 206 | 9 | DGYFKIYSK | 0.000594 | 13 |
| HLA-B*57:01 | 1 | 434 | 443 | 10 | IAWNSNLDL | 0.000594 | 24 |
| HLA-A*24:02 | 1 | 487 | 496 | 10 | NCYFPLQSYG | 0.000594 | 10 |
| HLA-A*33:01 | 1 | 541 | 549 | 9 | FNFNGLTGT | 0.000594 | 17 |
| HLA-A*02:03 | 1 | 823 | 831 | 9 | FNKVTLADA | 0.000594 | 20 |
| HLA-B*15:01 | 1 | 1121 | 1129 | 9 | FVSGNCDVV | 0.000594 | 18 |
| HLA-B*15:01 | 1 | 1130 | 1139 | 10 | IGIVNNTVYD | 0.000594 | 18 |
| HLA-A*30:01 | 1 | 220 | 229 | 10 | FSALEPLVDL | 0.000593 | 33 |
| HLA-B*15:01 | 1 | 280 | 288 | 9 | NENGTITDA | 0.000593 | 18 |
| HLA-A*02:01 | 1 | 458 | 466 | 9 | KSNLKPFR | 0.000593 | 18 |
| HLA-B*57:01 | 1 | 678 | 687 | 10 | TNSPRRARSV | 0.000593 | 24 |
| HLA-A*30:02 | 1 | 694 | 702 | 9 | AYTMSLGAE | 0.000593 | 30 |
| HLA-A*30:02 | 1 | 712 | 721 | 10 | IAIPTNFTIS | 0.000593 | 30 |
| HLA-A*32:01 | 1 | 902 | 911 | 10 | MAYRFNGIGV | 0.000593 | 14 |
| HLA-B*58:01 | 1 | 1209 | 1218 | 10 | YIKWPWYIWL | 0.000593 | 17 |
| HLA-A*01:01 | 1 | 149 | 157 | 9 | NKSWMSEF | 0.000592 | 20 |
| HLA-A*03:01 | 1 | 406 | 414 | 9 | EVRQIAPGQ | 0.000592 | 15 |
| HLA-A*30:02 | 1 | 452 | 461 | 10 | LYRLFRKSNL | 0.000592 | 30 |
| HLA-A*68:02 | 1 | 609 | 618 | 10 | AVLYQDVNCT | 0.000592 | 19 |
| HLA-B*51:01 | 1 | 875 | 884 | 10 | SALLAGTITS | 0.000592 | 23 |
| HLA-A*32:01 | 1 | 900 | 908 | 9 | MQMAYRFNG | 0.000592 | 14 |
| HLA-A*68:02 | 1 | 1025 | 1034 | 10 | AATKMSECVL | 0.000592 | 19 |
| HLA-B*07:02 | 1 | 1142 | 1151 | 10 | QPELDSFKEE | 0.000592 | 15 |
| HLA-A*26:01 | 1 | 1167 | 1176 | 10 | GDISGINASV | 0.000592 | 14 |
| HLA-B*40:01 | 1 | 1198 | 1206 | 9 | IDLQELGKY | 0.000592 | 9.3 |
| HLA-A*23:01 | 1 | 1210 | 1219 | 10 | IKWPWYIWL | 0.000592 | 11 |
| HLA-B*51:01 | 1 | 28 | 37 | 10 | YTNSFTRGVY | 0.000591 | 23 |
| HLA-B*08:01 | 1 | 199 | 207 | 9 | GYFKIYSKH | 0.000591 | 25 |
| HLA-A*68:02 | 1 | 497 | 505 | 9 | FQPTNGVGY | 0.000591 | 19 |
| HLA-B*44:02 | 1 | 582 | 590 | 9 | LEILDITPC | 0.000591 | 11 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-A*33:01 | 1 | 678 | 686 | 9 | TNSPRRARS 0.000591 | 17 |
| HLA-B*51:01 | 1 | 837 | 846 | 10 | YGDCLGDIAA 0.000591 | 23 |
| HLA-B*07:02 | 1 | 1130 | 1138 | 9 | IGIVNNTVY 0.000591 | 15 |
| HLA-B*40:01 | 1 | 1142 | 1151 | 10 | QPELDSFKEE 0.000591 | 9.3 |
| HLA-A*01:01 | 1 | 1159 | 1168 | 10 | HTSPDVLGD 0.000591 | 20 |
| HLA-B*57:01 | 1 | 1 | 10 | 10 | MFVFLVLLPL 0.00059 | 24 |
| HLA-B*51:01 | 1 | 97 | 105 | 9 | KSNIIIRGWI 0.00059 | 23 |
| HLA-B*57:01 | 1 | 161 | 169 | 9 | SSANNCTFE 0.00059 | 24 |
| HLA-A*23:01 | 1 | 367 | 376 | 10 | VLVNSASFST 0.00059 | 11 |
| HLA-A*30:01 | 1 | 537 | 545 | 9 | KCVNFNFNFG 0.00059 | 33 |
| HLA-A*68:01 | 1 | 911 | 919 | 9 | VTQNVLYEN 0.00059 | 18 |
| HLA-A*30:02 | 1 | 1002 | 1011 | 10 | QSLQTYVTQQ 0.00059 | 30 |
| HLA-A*30:02 | 1 | 622 | 631 | 10 | VAIHADQLTP 0.000589 | 30 |
| HLA-A*68:02 | 1 | 652 | 660 | 9 | GAEHVNNSY 0.000589 | 19 |
| HLA-A*30:02 | 1 | 926 | 935 | 10 | QFNSAIGKI 0.000589 | 30 |
| HLA-A*02:01 | 1 | 936 | 944 | 9 | DSLSSSTASA 0.000589 | 18 |
| HLA-A*01:01 | 1 | 957 | 966 | 10 | QALNTLVKQL 0.000589 | 20 |
| HLA-A*01:01 | 1 | 1221 | 1229 | 9 | IAGLIAIVM 0.000589 | 20 |
| HLA-A*30:01 | 1 | 1248 | 1256 | 9 | CSCGSCCKF 0.000589 | 33 |
| HLA-A*32:01 | 1 | 202 | 211 | 10 | KIYSKHTPIN 0.000588 | 14 |
| HLA-A*33:01 | 1 | 266 | 275 | 10 | YVGYLQPRTF 0.000588 | 17 |
| HLA-B*15:01 | 1 | 410 | 418 | 9 | IAPGQTGKI 0.000588 | 18 |
| HLA-A*30:01 | 1 | 469 | 477 | 9 | STEIYQAGS 0.000588 | 33 |
| HLA-A*32:01 | 1 | 552 | 560 | 9 | LTESNKKFL 0.000588 | 14 |
| HLA-A*30:01 | 1 | 572 | 580 | 9 | TTDAVRDPQ 0.000588 | 33 |
| HLA-A*02:06 | 1 | 745 | 754 | 10 | DSTECSNLLL 0.000588 | 24 |
| HLA-A*24:02 | 1 | 799 | 807 | 9 | GFNFSQILP 0.000588 | 11 |
| HLA-B*08:01 | 1 | 933 | 941 | 9 | KIQDLSLST 0.000588 | 25 |
| HLA-B*58:01 | 1 | 997 | 1006 | 10 | ITGRLQSLQT 0.000588 | 17 |
| HLA-A*32:01 | 1 | 1003 | 1011 | 9 | SLQTYVTQQ 0.000588 | 14 |
| HLA-A*02:03 | 1 | 1081 | 1089 | 9 | ICHDGKAHF 0.000588 | 20 |
| HLA-A*30:01 | 1 | 1146 | 1155 | 10 | DSFKEELDKY 0.000588 | 33 |
| HLA-A*01:01 | 1 | 1180 | 1189 | 10 | QKEIDRLNEV 0.000588 | 20 |
| HLA-B*08:01 | 1 | 1255 | 1264 | 10 | KFDEDDSEPV 0.000588 | 25 |
| HLA-A*68:02 | 1 | 305 | 314 | 10 | SFTVEKGIYQ 0.000587 | 19 |
| HLA-A*02:06 | 1 | 341 | 350 | 10 | VFNATRFASV 0.000587 | 24 |
| HLA-A*68:01 | 1 | 628 | 637 | 10 | QLTPTWRVYS 0.000587 | 18 |
| HLA-B*53:01 | 1 | 663 | 672 | 10 | DIPIGAGICA 0.000587 | 12 |
| HLA-B*15:01 | 1 | 755 | 763 | 9 | QYGSFCTQL 0.000587 | 18 |
| HLA-B*51:01 | 1 | 791 | 799 | 9 | TPPIKDFGG 0.000587 | 23 |
| HLA-B*51:01 | 1 | 955 | 964 | 10 | NAQALNTLVK 0.000587 | 23 |
| HLA-A*30:01 | 1 | 958 | 967 | 10 | ALNTLVKQLS 0.000587 | 33 |
| HLA-A*01:01 | 1 | 972 | 980 | 9 | AISSVLNDI 0.000587 | 20 |
| HLA-A*30:02 | 1 | 14 | 23 | 10 | QCVNLTRTQ 0.000586 | 30 |
| HLA-B*35:01 | 1 | 25 | 34 | 10 | PPAYTNSFTR 0.000586 | 13 |
| HLA-B*44:02 | 1 | 28 | 36 | 9 | YTNSFTRGV 0.000586 | 11 |
| HLA-A*03:01 | 1 | 119 | 127 | 9 | IVNATNVV 0.000586 | 15 |
| HLA-B*08:01 | 1 | 234 | 243 | 10 | NITRFQTLA 0.000586 | 25 |
| HLA-B*35:01 | 1 | 351 | 359 | 9 | YAWNRKRIS 0.000586 | 13 |
| HLA-A*03:01 | 1 | 361 | 370 | 10 | CVADYSVLVN 0.000586 | 15 |
| HLA-B*44:03 | 1 | 415 | 423 | 9 | TGKIADYNY 0.000586 | 10 |
| HLA-A*30:02 | 1 | 469 | 477 | 9 | STEIYQAGS 0.000586 | 30 |
| HLA-A*33:01 | 1 | 556 | 565 | 10 | NKKFLPFQF 0.000586 | 17 |
| HLA-B*44:02 | 1 | 925 | 934 | 10 | NQFNSAIGKI 0.000586 | 11 |
| HLA-B*44:02 | 1 | 961 | 970 | 10 | TLVKQLSSNF 0.000586 | 11 |
| HLA-A*31:01 | 1 | 999 | 1008 | 10 | GRLQSLQTYV 0.000586 | 19 |
| HLA-B*35:01 | 1 | 1013 | 1022 | 10 | IRAAEIRASA 0.000586 | 13 |
| HLA-B*44:03 | 1 | 1014 | 1022 | 9 | RAAEIRASA 0.000586 | 10 |
| HLA-B*08:01 | 1 | 1128 | 1136 | 9 | VVIGIVNNT 0.000586 | 25 |
| HLA-B*57:01 | 1 | 1220 | 1228 | 9 | FIAGLIAIV 0.000586 | 24 |
| HLA-B*15:01 | 1 | 77 | 85 | 9 | KRFDNPVLP 0.000585 | 18 |
| HLA-A*01:01 | 1 | 78 | 87 | 10 | RFDNPVLPFN 0.000585 | 20 |
| HLA-A*30:01 | 1 | 172 | 180 | 9 | SQPFLMDLE 0.000585 | 33 |
| HLA-B*57:01 | 1 | 295 | 303 | 9 | PLSETKCTL 0.000585 | 24 |
| HLA-B*57:01 | 1 | 298 | 307 | 10 | ETKCTLSFT 0.000585 | 24 |
| HLA-A*31:01 | 1 | 324 | 332 | 9 | ESIVRFPNI 0.000585 | 19 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*08:01 | 1 | 339 | 347 | 9 | GEVFNATRF 0.000585 | 25 |
| HLA-A*31:01 | 1 | 371 | 379 | 9 | SASFSTFKC 0.000585 | 19 |
| HLA-A*24:02 | 1 | 372 | 380 | 9 | ASFSTFKCY 0.000585 | 11 |
| HLA-A*03:01 | 1 | 502 | 510 | 9 | GVGYPYRV 0.000585 | 15 |
| HLA-A*02:06 | 1 | 675 | 684 | 10 | QTQTNSPRRA 0.000585 | 24 |
| HLA-A*23:01 | 1 | 810 | 818 | 9 | SKPSKRSFI 0.000585 | 11 |
| HLA-A*32:01 | 1 | 943 | 952 | 10 | SALGKLQDVV 0.000585 | 14 |
| HLA-B*15:01 | 1 | 1002 | 1010 | 9 | QSLQTYVTQ 0.000585 | 18 |
| HLA-A*68:02 | 1 | 1049 | 1057 | 9 | LMSFPQSAP 0.000585 | 19 |
| HLA-B*15:01 | 1 | 1050 | 1059 | 10 | MSFPQSAPHG 0.000585 | 18 |
| HLA-B*53:01 | 1 | 1189 | 1198 | 10 | VAKNLNESLI 0.000585 | 12 |
| HLA-A*31:01 | 1 | 56 | 64 | 9 | LPFFSNVTW 0.000584 | 19 |
| HLA-A*33:01 | 1 | 84 | 93 | 10 | LPFNDGVYFA 0.000584 | 17 |
| HLA-B*44:03 | 1 | 112 | 120 | 9 | SKTQSLIIV 0.000584 | 10 |
| HLA-A*68:01 | 1 | 238 | 246 | 9 | FQTLALHR 0.000584 | 14 |
| HLA-A*68:02 | 1 | 250 | 258 | 9 | TPGDSSSGW 0.000584 | 19 |
| HLA-A*30:02 | 1 | 284 | 293 | 10 | TITDAVDCAL 0.000584 | 30 |
| HLA-B*08:01 | 1 | 288 | 296 | 9 | AVDCALDPL 0.000584 | 25 |
| HLA-A*26:01 | 1 | 290 | 299 | 10 | DCALDPLSET 0.000584 | 14 |
| HLA-A*68:01 | 1 | 298 | 307 | 10 | ETKCTLKSFT 0.000584 | 18 |
| HLA-B*51:01 | 1 | 504 | 513 | 10 | GYQPYRVVVL 0.000584 | 23 |
| HLA-A*30:01 | 1 | 519 | 527 | 9 | HAPATVCGP 0.000584 | 33 |
| HLA-A*24:02 | 1 | 591 | 599 | 9 | SFGGVSVIT 0.000584 | 11 |
| HLA-A*02:01 | 1 | 685 | 693 | 9 | RSVASQSII 0.000584 | 18 |
| HLA-A*01:01 | 1 | 1148 | 1157 | 10 | FKEELDKYFK 0.000584 | 20 |
| HLA-A*33:01 | 1 | 195 | 203 | 9 | KNIDGYFKI 0.000583 | 17 |
| HLA-A*02:06 | 1 | 234 | 243 | 10 | NITRFQTLA 0.000583 | 24 |
| HLA-A*32:01 | 1 | 326 | 334 | 9 | IVRFPNITN 0.000583 | 14 |
| HLA-B*57:01 | 1 | 362 | 370 | 9 | VADYSVLYN 0.000583 | 24 |
| HLA-B*44:02 | 1 | 363 | 372 | 10 | ADYSVLYNSA 0.000583 | 11 |
| HLA-A*11:01 | 1 | 440 | 449 | 10 | NLDSKVGNY 0.000583 | 12 |
| HLA-A*02:06 | 1 | 586 | 595 | 10 | DITPCSFGGV 0.000583 | 24 |
| HLA-A*68:02 | 1 | 795 | 803 | 9 | KDFGGFNFS 0.000583 | 19 |
| HLA-B*07:02 | 1 | 804 | 812 | 9 | QILPDPSKP 0.000583 | 15 |
| HLA-A*02:03 | 1 | 817 | 825 | 9 | FIEDLLFNK 0.000583 | 20 |
| HLA-A*02:03 | 1 | 1064 | 1073 | 10 | HVTYVPAQEK 0.000583 | 20 |
| HLA-A*33:01 | 1 | 1067 | 1075 | 9 | YVPAQEKNF 0.000583 | 17 |
| HLA-B*08:01 | 1 | 1101 | 1110 | 10 | HWFVTQRNFY 0.000583 | 25 |
| HLA-A*02:06 | 1 | 1179 | 1188 | 10 | IQKEIDRLNE 0.000583 | 24 |
| HLA-A*30:01 | 1 | 1213 | 1221 | 9 | PWYIWLGFI 0.000583 | 33 |
| HLA-B*07:02 | 1 | 78 | 87 | 10 | RFDNPVLPFN 0.000582 | 15 |
| HLA-A*68:02 | 1 | 110 | 119 | 10 | LDSKTQSLI 0.000582 | 19 |
| HLA-A*33:01 | 1 | 310 | 318 | 9 | KGIYQTSNF 0.000582 | 17 |
| HLA-A*02:06 | 1 | 317 | 326 | 10 | NFRVQPTESI 0.000582 | 24 |
| HLA-B*08:01 | 1 | 373 | 382 | 10 | SFSTFKCYGV 0.000582 | 25 |
| HLA-A*02:06 | 1 | 547 | 555 | 9 | TGTGVLTES 0.000582 | 24 |
| HLA-A*30:02 | 1 | 640 | 649 | 10 | SNVFQTRAGC 0.000582 | 30 |
| HLA-A*32:01 | 1 | 674 | 682 | 9 | YQTQTNSPR 0.000582 | 14 |
| HLA-A*23:01 | 1 | 798 | 806 | 9 | GGFNFSQIL 0.000582 | 11 |
| HLA-A*01:01 | 1 | 850 | 858 | 9 | ICAQKFNGL 0.000582 | 20 |
| HLA-B*07:02 | 1 | 901 | 909 | 9 | QMAYRFNGI 0.000582 | 15 |
| HLA-A*30:01 | 1 | 959 | 967 | 9 | LNTLVKQLS 0.000582 | 33 |
| HLA-B*44:03 | 1 | 991 | 999 | 9 | VQIDRLITG 0.000582 | 11 |
| HLA-A*33:01 | 1 | 1206 | 1215 | 10 | YEQYIKWPWY 0.000582 | 17 |
| HLA-A*02:01 | 1 | 15 | 24 | 10 | CVNLTRRTQL 0.000581 | 18 |
| HLA-B*07:02 | 1 | 92 | 101 | 10 | FASTEKSNII 0.000581 | 15 |
| HLA-A*32:01 | 1 | 158 | 167 | 10 | RVYSSANNCT 0.000581 | 14 |
| HLA-B*58:01 | 1 | 302 | 310 | 9 | TLKSFTVEK 0.000581 | 18 |
| HLA-B*07:02 | 1 | 345 | 353 | 9 | TRFASVYAW 0.000581 | 15 |
| HLA-B*58:01 | 1 | 374 | 382 | 9 | FSTFKCYGV 0.000581 | 18 |
| HLA-A*30:02 | 1 | 382 | 391 | 10 | VSPTKLNDLC 0.000581 | 30 |
| HLA-A*68:01 | 1 | 444 | 452 | 9 | KVGGNYNYL 0.000581 | 18 |
| HLA-A*30:01 | 1 | 477 | 485 | 9 | STPCNGVEG 0.000581 | 33 |
| HLA-B*08:01 | 1 | 573 | 581 | 9 | TDAVRDPQT 0.000581 | 25 |
| HLA-A*03:01 | 1 | 596 | 605 | 10 | SVITPGTNTS 0.000581 | 15 |
| HLA-B*40:01 | 1 | 853 | 862 | 10 | QKFNGLTVLP 0.000581 | 9.4 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*40:01 | 1 | 925 | 933 | 9 | NQFNSAIGK 0.000581 | 9.4 |
| HLA-A*30:01 | 1 | 1001 | 1009 | 9 | LQSLQTYVT 0.000581 | 33 |
| HLA-A*30:02 | 1 | 1061 | 1070 | 10 | VFLHVTVVPA 0.000581 | 30 |
| HLA-A*02:03 | 1 | 1164 | 1172 | 9 | VDLGDISGI 0.000581 | 20 |
| HLA-A*33:01 | 1 | 24 | 32 | 9 | LPPAYTNSF 0.00058 | 17 |
| HLA-A*01:01 | 1 | 175 | 183 | 9 | FLMDLEGKQ 0.00058 | 20 |
| HLA-A*33:01 | 1 | 204 | 213 | 10 | YSKHTPINLV 0.00058 | 17 |
| HLA-A*01:01 | 1 | 706 | 714 | 9 | AYSNNSIAI 0.00058 | 20 |
| HLA-B*44:02 | 1 | 751 | 759 | 9 | NLLLQYGSF 0.00058 | 11 |
| HLA-A*30:01 | 1 | 771 | 780 | 10 | AVEQDKNTQE 0.00058 | 33 |
| HLA-B*07:02 | 1 | 821 | 829 | 9 | LLFNKVTLA 0.00058 | 15 |
| HLA-B*58:01 | 1 | 898 | 907 | 10 | FAMQMAYRFN 0.00058 | 18 |
| HLA-A*01:01 | 1 | 972 | 981 | 10 | AISSVLNDIL 0.00058 | 20 |
| HLA-A*30:02 | 1 | 1182 | 1191 | 10 | EIDRLNEVAK 0.00058 | 30 |
| HLA-A*02:01 | 1 | 1231 | 1239 | 9 | TIMLCCMTS 0.00058 | 18 |
| HLA-A*33:01 | 1 | 1263 | 1272 | 10 | PVLKGVKLHY 0.00058 | 17 |
| HLA-A*32:01 | 1 | 1264 | 1273 | 10 | VLKGVKLHYT 0.00058 | 14 |
| HLA-A*30:01 | 1 | 6 | 15 | 10 | VLLPLVSSQC 0.000579 | 33 |
| HLA-A*30:01 | 1 | 16 | 25 | 10 | VNLTRTQLP 0.000579 | 33 |
| HLA-A*30:01 | 1 | 38 | 47 | 10 | YDPKVFRRSSV 0.000579 | 33 |
| HLA-A*11:01 | 1 | 108 | 117 | 10 | TTLDSKTQSL 0.000579 | 12 |
| HLA-B*07:02 | 1 | 168 | 177 | 10 | FEYVSQPFLM 0.000579 | 15 |
| HLA-A*23:01 | 1 | 199 | 208 | 10 | GYFKIYSKHT 0.000579 | 11 |
| HLA-A*68:01 | 1 | 215 | 224 | 10 | DLPQGFSALE 0.000579 | 18 |
| HLA-A*26:01 | 1 | 281 | 289 | 9 | ENGTITDAV 0.000579 | 14 |
| HLA-A*31:01 | 1 | 400 | 409 | 10 | FVIRGDEVRRQ 0.000579 | 19 |
| HLA-B*57:01 | 1 | 627 | 635 | 9 | DQLTPTWRV 0.000579 | 25 |
| HLA-A*03:01 | 1 | 633 | 642 | 10 | WRVYSTGSNV 0.000579 | 15 |
| HLA-B*51:01 | 1 | 656 | 664 | 9 | VNNSYECDI 0.000579 | 23 |
| HLA-A*26:01 | 1 | 783 | 791 | 9 | AQVKQIYKT 0.000579 | 14 |
| HLA-A*23:01 | 1 | 907 | 915 | 9 | NGIGVTQNV 0.000579 | 11 |
| HLA-A*01:01 | 1 | 966 | 974 | 9 | LSSNFGAIS 0.000579 | 20 |
| HLA-B*57:01 | 1 | 1227 | 1236 | 10 | IVMVTIMLCC 0.000579 | 25 |
| HLA-B*40:01 | 1 | 93 | 101 | 9 | ASTEKSNI 0.000578 | 9.4 |
| HLA-A*31:01 | 1 | 484 | 492 | 9 | EGFNCFYFPL 0.000578 | 19 |
| HLA-B*44:02 | 1 | 625 | 634 | 10 | HADQLTPTWR 0.000578 | 11 |
| HLA-B*51:01 | 1 | 889 | 898 | 10 | GAGAALQIPF 0.000578 | 23 |
| HLA-A*33:01 | 1 | 936 | 945 | 10 | DSLSSTASAL 0.000578 | 17 |
| HLA-A*68:02 | 1 | 974 | 982 | 9 | SSVLNDILS 0.000578 | 20 |
| HLA-A*32:01 | 1 | 137 | 145 | 9 | NDPFLGVYY 0.000577 | 14 |
| HLA-B*44:02 | 1 | 178 | 187 | 10 | DLEGKQGNFK 0.000577 | 11 |
| HLA-B*08:01 | 1 | 278 | 286 | 9 | KYNENGTIT 0.000577 | 25 |
| HLA-A*02:06 | 1 | 373 | 382 | 10 | SFSTFKCYGV 0.000577 | 24 |
| HLA-B*07:02 | 1 | 551 | 560 | 10 | VLTESNKKFL 0.000577 | 15 |
| HLA-A*68:02 | 1 | 577 | 585 | 9 | RDPQTLEIL 0.000577 | 20 |
| HLA-A*24:02 | 1 | 706 | 715 | 10 | AYSNNSIAIP 0.000577 | 11 |
| HLA-A*01:01 | 1 | 756 | 765 | 10 | YGSFCTQLNR 0.000577 | 20 |
| HLA-B*07:02 | 1 | 989 | 997 | 9 | AEVQIDRLI 0.000577 | 15 |
| HLA-B*44:03 | 1 | 999 | 1008 | 10 | GRLQSLQTYV 0.000577 | 11 |
| HLA-A*02:06 | 1 | 1093 | 1101 | 9 | GVFVSNATH 0.000577 | 24 |
| HLA-A*02:06 | 1 | 11 | 19 | 9 | VSSQCVNLT 0.000576 | 24 |
| HLA-B*53:01 | 1 | 61 | 69 | 9 | NVTWFHAIH 0.000576 | 12 |
| HLA-A*30:02 | 1 | 82 | 90 | 9 | PVLPFNDGV 0.000576 | 30 |
| HLA-A*30:01 | 1 | 342 | 351 | 10 | FNATRFASVY 0.000576 | 33 |
| HLA-A*02:03 | 1 | 635 | 643 | 9 | VYSTGSNVF 0.000576 | 20 |
| HLA-B*51:01 | 1 | 672 | 681 | 10 | ASYQTQTNSP 0.000576 | 23 |
| HLA-A*68:01 | 1 | 703 | 711 | 9 | NSVAYSNNS 0.000576 | 18 |
| HLA-A*23:01 | 1 | 704 | 712 | 9 | SVAYSNNSI 0.000576 | 11 |
| HLA-A*01:01 | 1 | 710 | 719 | 10 | NSIAIPTNFT 0.000576 | 20 |
| HLA-A*33:01 | 1 | 731 | 740 | 10 | MTKTSVDCTM 0.000576 | 17 |
| HLA-B*51:01 | 1 | 819 | 827 | 9 | EDLLFNKVT 0.000576 | 23 |
| HLA-A*68:01 | 1 | 902 | 911 | 10 | MAYRFNGIGV 0.000576 | 18 |
| HLA-A*30:02 | 1 | 962 | 971 | 10 | LVKQLSSNFG 0.000576 | 30 |
| HLA-B*07:02 | 1 | 1088 | 1096 | 9 | HFPREGVVF 0.000576 | 15 |
| HLA-A*01:01 | 1 | 163 | 171 | 9 | ANNCTFEYV 0.000575 | 21 |
| HLA-A*02:01 | 1 | 169 | 177 | 9 | EYVSQPFLM 0.000575 | 18 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|-----|
| HLA-A*02:06 | 1 | 223 | 231 | 9 | LEPLVDLPI | 0.000575 | 24 |
| HLA-A*31:01 | 1 | 297 | 306 | 10 | SETKCTLKSF | 0.000575 | 19 |
| HLA-A*33:01 | 1 | 376 | 384 | 9 | TFKCYGVSP | 0.000575 | 17 |
| HLA-A*11:01 | 1 | 605 | 613 | 9 | SNQVAVLYQ | 0.000575 | 12 |
| HLA-A*24:02 | 1 | 679 | 687 | 9 | NSPRRARSV | 0.000575 | 11 |
| HLA-A*02:03 | 1 | 710 | 719 | 10 | NSIAIPTNFT | 0.000575 | 20 |
| HLA-B*35:01 | 1 | 745 | 754 | 10 | DSTECSNLLL | 0.000575 | 13 |
| HLA-A*30:02 | 1 | 763 | 772 | 10 | LNRAITGIIV | 0.000575 | 31 |
| HLA-A*68:01 | 1 | 859 | 867 | 9 | TVLPPLTD | 0.000575 | 18 |
| HLA-A*30:02 | 1 | 883 | 891 | 9 | TSGWTFGAG | 0.000575 | 31 |
| HLA-A*31:01 | 1 | 905 | 914 | 10 | RFNGIGVTQN | 0.000575 | 19 |
| HLA-B*07:02 | 1 | 913 | 922 | 10 | QNVLYENQKL | 0.000575 | 15 |
| HLA-A*02:01 | 1 | 1019 | 1027 | 9 | RASANLAAT | 0.000575 | 18 |
| HLA-B*35:01 | 1 | 1111 | 1120 | 10 | EPQIITDNT | 0.000575 | 13 |
| HLA-A*30:02 | 1 | 1223 | 1231 | 9 | GLIAIVMVT | 0.000575 | 31 |
| HLA-A*30:01 | 1 | 154 | 162 | 9 | ESEFRVYSS | 0.000574 | 33 |
| HLA-B*57:01 | 1 | 180 | 189 | 10 | EGKQGNFKNL | 0.000574 | 25 |
| HLA-A*33:01 | 1 | 632 | 640 | 9 | TWRVYSTGS | 0.000574 | 17 |
| HLA-A*02:03 | 1 | 659 | 668 | 10 | SYECDIPIGA | 0.000574 | 20 |
| HLA-A*33:01 | 1 | 786 | 794 | 9 | KQIYKTPPI | 0.000574 | 17 |
| HLA-B*07:02 | 1 | 787 | 795 | 9 | QIYKTPPIK | 0.000574 | 15 |
| HLA-A*02:01 | 1 | 1009 | 1018 | 10 | TQQLIRAAEI | 0.000574 | 18 |
| HLA-A*68:01 | 1 | 1086 | 1094 | 9 | KAHFPREGV | 0.000574 | 18 |
| HLA-A*68:01 | 1 | 1204 | 1212 | 9 | GKYEQYIKW | 0.000574 | 18 |
| HLA-B*57:01 | 1 | 78 | 87 | 10 | RFDNPVLPFN | 0.000573 | 25 |
| HLA-A*30:02 | 1 | 277 | 285 | 9 | LKYNENGTI | 0.000573 | 31 |
| HLA-A*01:01 | 1 | 414 | 422 | 9 | QTGKIADYN | 0.000573 | 21 |
| HLA-A*02:01 | 1 | 453 | 461 | 9 | YRLFRKSNL | 0.000573 | 18 |
| HLA-A*01:01 | 1 | 598 | 607 | 10 | ITPGTNTSNQ | 0.000573 | 21 |
| HLA-B*53:01 | 1 | 630 | 639 | 10 | TPTWRVYSTG | 0.000573 | 12 |
| HLA-B*58:01 | 1 | 647 | 655 | 9 | AGCLIGAEH | 0.000573 | 18 |
| HLA-B*58:01 | 1 | 818 | 826 | 9 | IEDLLFNKV | 0.000573 | 18 |
| HLA-A*24:02 | 1 | 850 | 858 | 9 | ICAQKFNGL | 0.000573 | 11 |
| HLA-A*03:01 | 1 | 897 | 905 | 9 | PFAMQMAYR | 0.000573 | 15 |
| HLA-B*15:01 | 1 | 934 | 943 | 10 | IQDLSLSTAS | 0.000573 | 18 |
| HLA-A*02:01 | 1 | 1144 | 1153 | 10 | ELDSFKEELD | 0.000573 | 18 |
| HLA-B*58:01 | 1 | 1164 | 1172 | 9 | VDLGDISGI | 0.000573 | 18 |
| HLA-A*01:01 | 1 | 138 | 146 | 9 | DPFLGVVYH | 0.000572 | 21 |
| HLA-A*33:01 | 1 | 144 | 153 | 10 | YYHKNNKSWM | 0.000572 | 17 |
| HLA-B*51:01 | 1 | 165 | 174 | 10 | NCTFEYVSQP | 0.000572 | 23 |
| HLA-A*30:01 | 1 | 703 | 712 | 10 | NSVAYSNNSI | 0.000572 | 33 |
| HLA-A*68:02 | 1 | 877 | 886 | 10 | LLAGTITSGW | 0.000572 | 20 |
| HLA-A*26:01 | 1 | 1103 | 1111 | 9 | FVTQRNFYE | 0.000572 | 15 |
| HLA-A*30:01 | 1 | 1203 | 1212 | 10 | LGKYEQYIKW | 0.000572 | 33 |
| HLA-A*30:01 | 1 | 1227 | 1236 | 10 | IVMVTIMLCC | 0.000572 | 33 |
| HLA-A*68:02 | 1 | 77 | 85 | 9 | KRFDNPVLP | 0.000571 | 20 |
| HLA-A*02:01 | 1 | 228 | 236 | 9 | DLPIGINIT | 0.000571 | 18 |
| HLA-A*30:01 | 1 | 298 | 307 | 10 | ETKCTLKSFT | 0.000571 | 33 |
| HLA-A*32:01 | 1 | 441 | 449 | 9 | LDSKVGNGY | 0.000571 | 14 |
| HLA-B*44:02 | 1 | 486 | 495 | 10 | FNCYFPLQSY | 0.000571 | 11 |
| HLA-A*02:01 | 1 | 503 | 512 | 10 | VGYPYRVVV | 0.000571 | 18 |
| HLA-B*40:01 | 1 | 582 | 591 | 10 | LEILDITPCS | 0.000571 | 9.5 |
| HLA-B*53:01 | 1 | 683 | 692 | 10 | RARSVASQSI | 0.000571 | 12 |
| HLA-A*68:02 | 1 | 699 | 707 | 9 | LGAENSVAY | 0.000571 | 20 |
| HLA-A*01:01 | 1 | 771 | 780 | 10 | AVEQDKNTQE | 0.000571 | 21 |
| HLA-B*15:01 | 1 | 779 | 788 | 10 | QEVFAQVKQI | 0.000571 | 18 |
| HLA-A*68:01 | 1 | 839 | 848 | 10 | DCLGDIAARD | 0.000571 | 18 |
| HLA-A*30:02 | 1 | 841 | 849 | 9 | LGDIARDL | 0.000571 | 31 |
| HLA-A*11:01 | 1 | 937 | 945 | 9 | SLSSTASAL | 0.000571 | 12 |
| HLA-B*58:01 | 1 | 1024 | 1033 | 10 | LAATKMSECV | 0.000571 | 18 |
| HLA-A*32:01 | 1 | 1062 | 1070 | 9 | FLHVTYVPA | 0.000571 | 14 |
| HLA-B*44:02 | 1 | 229 | 237 | 9 | LPIGINITR | 0.00057 | 11 |
| HLA-B*57:01 | 1 | 322 | 330 | 9 | PTESIVRFP | 0.00057 | 25 |
| HLA-B*58:01 | 1 | 644 | 652 | 9 | QTRAGCLIG | 0.00057 | 18 |
| HLA-A*31:01 | 1 | 940 | 949 | 10 | STASALGKLQ | 0.00057 | 20 |
| HLA-B*07:02 | 1 | 975 | 983 | 9 | SVLNDILSR | 0.00057 | 16 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*01:01 | 1 | 1030 | 1039 | 10 | SECVLGQSKR 0.00057 | 21 |
| HLA-A*31:01 | 1 | 1108 | 1116 | 9 | NFYEQIIT 0.00057 | 20 |
| HLA-A*30:02 | 1 | 1247 | 1256 | 10 | CCSCGSCCKF 0.00057 | 31 |
| HLA-A*68:02 | 1 | 9 | 18 | 10 | PLVSSQCVNL 0.000569 | 20 |
| HLA-A*33:01 | 1 | 308 | 316 | 9 | VEKGIYQTS 0.000569 | 17 |
| HLA-A*02:06 | 1 | 398 | 407 | 10 | DSFVIRGDEV 0.000569 | 25 |
| HLA-A*33:01 | 1 | 462 | 470 | 9 | KPFERDIST 0.000569 | 17 |
| HLA-A*68:02 | 1 | 624 | 633 | 10 | IHADQLTPTW 0.000569 | 20 |
| HLA-B*44:03 | 1 | 677 | 685 | 9 | QTNSPRRAR 0.000569 | 11 |
| HLA-A*33:01 | 1 | 733 | 741 | 9 | KTSVDCTMY 0.000569 | 17 |
| HLA-B*58:01 | 1 | 911 | 920 | 10 | VTQNVLYENQ 0.000569 | 18 |
| HLA-A*23:01 | 1 | 1133 | 1141 | 9 | VNNTVYDPL 0.000569 | 11 |
| HLA-A*01:01 | 1 | 1207 | 1216 | 10 | EQYIKWPWYI 0.000569 | 21 |
| HLA-B*08:01 | 1 | 59 | 67 | 9 | FSNVTWFHA 0.000568 | 25 |
| HLA-B*44:03 | 1 | 145 | 153 | 9 | YHKNNKSWM 0.000568 | 11 |
| HLA-A*23:01 | 1 | 198 | 207 | 10 | DGYFKIYSKH 0.000568 | 11 |
| HLA-A*30:02 | 1 | 252 | 260 | 9 | GDSSSGWTA 0.000568 | 31 |
| HLA-B*40:01 | 1 | 292 | 300 | 9 | ALDPLSETK 0.000568 | 9.5 |
| HLA-A*24:02 | 1 | 454 | 462 | 9 | RLFRKSNLK 0.000568 | 11 |
| HLA-A*02:01 | 1 | 1181 | 1190 | 10 | KEIDRLNEVA 0.000568 | 18 |
| HLA-A*24:02 | 1 | 320 | 328 | 9 | VQPTESIVR 0.000567 | 11 |
| HLA-A*32:01 | 1 | 384 | 392 | 9 | PTKLNDLCF 0.000567 | 14 |
| HLA-A*02:01 | 1 | 532 | 541 | 10 | NLVKNKCVNF 0.000567 | 18 |
| HLA-A*30:01 | 1 | 542 | 551 | 10 | NFNGLTGTGV 0.000567 | 33 |
| HLA-B*57:01 | 1 | 577 | 585 | 9 | RDPQTLLEIL 0.000567 | 25 |
| HLA-B*44:03 | 1 | 814 | 822 | 9 | KRSFIEDLL 0.000567 | 11 |
| HLA-A*26:01 | 1 | 826 | 835 | 10 | VTLADAGFIK 0.000567 | 15 |
| HLA-A*23:01 | 1 | 886 | 894 | 9 | WTFGAGAAL 0.000567 | 11 |
| HLA-A*30:02 | 1 | 931 | 939 | 9 | IGKIQDLSL 0.000567 | 31 |
| HLA-A*31:01 | 1 | 1106 | 1114 | 9 | QRNFYEQPI 0.000567 | 20 |
| HLA-B*07:02 | 1 | 1148 | 1156 | 9 | FKEELDKYF 0.000567 | 16 |
| HLA-A*01:01 | 1 | 1225 | 1233 | 9 | IAIVMVTIM 0.000567 | 21 |
| HLA-A*02:03 | 1 | 188 | 196 | 9 | NLREFVFKN 0.000566 | 20 |
| HLA-A*01:01 | 1 | 381 | 390 | 10 | GVSPTKLNDL 0.000566 | 21 |
| HLA-A*02:06 | 1 | 522 | 530 | 9 | ATVCGPKKS 0.000566 | 25 |
| HLA-A*01:01 | 1 | 549 | 558 | 10 | TGVLTESNKK 0.000566 | 21 |
| HLA-A*68:02 | 1 | 676 | 684 | 9 | TQTNSPRRA 0.000566 | 20 |
| HLA-B*08:01 | 1 | 745 | 754 | 10 | DSTECSNLLL 0.000566 | 25 |
| HLA-A*31:01 | 1 | 1095 | 1104 | 10 | FVSNGTHWFV 0.000566 | 20 |
| HLA-B*35:01 | 1 | 36 | 44 | 9 | VYYPDKVFR 0.000565 | 13 |
| HLA-A*32:01 | 1 | 94 | 102 | 9 | STEKSNIIR 0.000565 | 14 |
| HLA-A*33:01 | 1 | 136 | 144 | 9 | CNDPFLGVY 0.000565 | 18 |
| HLA-B*15:01 | 1 | 166 | 174 | 9 | CTFEYVSQP 0.000565 | 18 |
| HLA-A*02:03 | 1 | 343 | 352 | 10 | NATRFASVYA 0.000565 | 20 |
| HLA-B*40:01 | 1 | 402 | 410 | 9 | IRGDEVRQI 0.000565 | 9.5 |
| HLA-A*02:06 | 1 | 453 | 462 | 10 | YRLFRRKSNLK 0.000565 | 25 |
| HLA-B*44:03 | 1 | 477 | 486 | 10 | STPCNGVEGF 0.000565 | 11 |
| HLA-B*53:01 | 1 | 520 | 529 | 10 | APATVCGPKK 0.000565 | 12 |
| HLA-A*26:01 | 1 | 552 | 560 | 9 | LTESNKKFL 0.000565 | 15 |
| HLA-A*02:03 | 1 | 615 | 624 | 10 | VNCTEVPVAI 0.000565 | 20 |
| HLA-A*02:06 | 1 | 695 | 703 | 9 | YTMSLGAEN 0.000565 | 25 |
| HLA-B*58:01 | 1 | 922 | 931 | 10 | LIANQFNSAI 0.000565 | 18 |
| HLA-B*57:01 | 1 | 1068 | 1077 | 10 | VPAQEKNFIT 0.000565 | 25 |
| HLA-A*02:01 | 1 | 1147 | 1155 | 9 | SFKEELDKY 0.000565 | 18 |
| HLA-A*01:01 | 1 | 1204 | 1212 | 9 | GKYEQYIKW 0.000565 | 21 |
| HLA-A*68:01 | 1 | 92 | 100 | 9 | FASTEKSNI 0.000564 | 18 |
| HLA-B*40:01 | 1 | 158 | 166 | 9 | RVYSSANNC 0.000564 | 9.5 |
| HLA-A*31:01 | 1 | 477 | 486 | 10 | STPCNGVEGF 0.000564 | 20 |
| HLA-B*08:01 | 1 | 540 | 548 | 9 | NFNFNGLTG 0.000564 | 25 |
| HLA-B*57:01 | 1 | 596 | 604 | 9 | SVITPGTNT 0.000564 | 25 |
| HLA-A*68:01 | 1 | 597 | 605 | 9 | VITPGTNTS 0.000564 | 18 |
| HLA-B*58:01 | 1 | 620 | 629 | 10 | VPVAIHADQL 0.000564 | 18 |
| HLA-B*40:01 | 1 | 699 | 707 | 9 | LGAENSVAY 0.000564 | 9.5 |
| HLA-A*68:02 | 1 | 715 | 723 | 9 | PTNFTISVT 0.000564 | 20 |
| HLA-A*02:06 | 1 | 733 | 741 | 9 | KTSVDCTMY 0.000564 | 25 |
| HLA-B*58:01 | 1 | 1196 | 1205 | 10 | SLIDLQELGK 0.000564 | 18 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|-----|
| HLA-B*57:01 | 1 | 1261 | 1270 | 10 | SEPVLKGVKL 0.000564 | 25 |
| HLA-A*68:02 | 1 | 100 | 108 | 9 | IIRGWIFGT 0.000563 | 20 |
| HLA-B*44:02 | 1 | 131 | 139 | 9 | CEFQFCNDP 0.000563 | 11 |
| HLA-B*58:01 | 1 | 315 | 323 | 9 | TSNFRVQPT 0.000563 | 18 |
| HLA-B*58:01 | 1 | 387 | 396 | 10 | LNDLCFTNVY 0.000563 | 18 |
| HLA-A*02:01 | 1 | 395 | 403 | 9 | VYADSFVIR 0.000563 | 18 |
| HLA-B*58:01 | 1 | 607 | 615 | 9 | QVAVLYQDV 0.000563 | 18 |
| HLA-A*30:01 | 1 | 616 | 624 | 9 | NCTEVPVAI 0.000563 | 33 |
| HLA-A*30:01 | 1 | 1103 | 1112 | 10 | FVTQRNFYEP 0.000563 | 33 |
| HLA-A*30:02 | 1 | 1257 | 1266 | 10 | DEDDSEPVLK 0.000563 | 31 |
| HLA-B*57:01 | 1 | 66 | 75 | 10 | HAIHVSQTNG 0.000562 | 25 |
| HLA-B*44:03 | 1 | 368 | 377 | 10 | LYNSASFSTF 0.000562 | 11 |
| HLA-B*58:01 | 1 | 400 | 408 | 9 | FVIRGDEVR 0.000562 | 18 |
| HLA-B*07:02 | 1 | 625 | 634 | 10 | HADQLTPTWR 0.000562 | 16 |
| HLA-B*53:01 | 1 | 685 | 693 | 9 | RSVASQSII 0.000562 | 12 |
| HLA-A*23:01 | 1 | 853 | 861 | 9 | QKFNGLTVL 0.000562 | 11 |
| HLA-A*26:01 | 1 | 871 | 879 | 9 | AQYTSALLA 0.000562 | 15 |
| HLA-A*68:01 | 1 | 996 | 1005 | 10 | LITGRLQSLQ 0.000562 | 18 |
| HLA-B*58:01 | 1 | 1068 | 1077 | 10 | VPAQEKNFST 0.000562 | 18 |
| HLA-A*33:01 | 1 | 1078 | 1086 | 9 | APAICHDGK 0.000562 | 18 |
| HLA-A*02:01 | 1 | 1226 | 1235 | 10 | AIVMVTIMLC 0.000562 | 18 |
| HLA-B*40:01 | 1 | 23 | 32 | 10 | QLPPAYTNSF 0.000561 | 9.6 |
| HLA-B*51:01 | 1 | 70 | 79 | 10 | VSGTNGTKRF 0.000561 | 23 |
| HLA-B*08:01 | 1 | 88 | 96 | 9 | DGVYFASTE 0.000561 | 25 |
| HLA-A*30:02 | 1 | 90 | 99 | 10 | VYFASTEKSN 0.000561 | 31 |
| HLA-B*57:01 | 1 | 96 | 105 | 10 | EKSNIIRGWI 0.000561 | 25 |
| HLA-A*30:02 | 1 | 184 | 193 | 10 | GNFKNLREFV 0.000561 | 31 |
| HLA-A*68:01 | 1 | 216 | 224 | 9 | LPQGFSALE 0.000561 | 18 |
| HLA-A*30:02 | 1 | 262 | 271 | 10 | AAAYYVGYLQ 0.000561 | 31 |
| HLA-A*32:01 | 1 | 576 | 585 | 10 | VRDPQTLEIL 0.000561 | 14 |
| HLA-B*08:01 | 1 | 590 | 598 | 9 | CSFGGVSVI 0.000561 | 25 |
| HLA-B*44:03 | 1 | 754 | 763 | 10 | LQYGSFCTQL 0.000561 | 11 |
| HLA-B*44:02 | 1 | 755 | 763 | 9 | QYGSFCTQL 0.000561 | 11 |
| HLA-A*24:02 | 1 | 998 | 1007 | 10 | TGRLQSLQTY 0.000561 | 11 |
| HLA-A*02:06 | 1 | 1041 | 1049 | 9 | DFCGKGYHL 0.000561 | 25 |
| HLA-B*15:01 | 1 | 1095 | 1104 | 10 | FVSNGTHWFV 0.000561 | 18 |
| HLA-B*51:01 | 1 | 1198 | 1206 | 9 | IDLQELGKY 0.000561 | 23 |
| HLA-B*08:01 | 1 | 41 | 49 | 9 | KVFRSSVLH 0.00056 | 25 |
| HLA-A*01:01 | 1 | 58 | 67 | 10 | FFSNVTWFHA 0.00056 | 21 |
| HLA-A*24:02 | 1 | 134 | 142 | 9 | QFCNDPFLG 0.00056 | 11 |
| HLA-A*30:02 | 1 | 134 | 142 | 9 | QFCNDPFLG 0.00056 | 31 |
| HLA-A*26:01 | 1 | 259 | 267 | 9 | TAGAAAYYV 0.00056 | 15 |
| HLA-B*51:01 | 1 | 465 | 473 | 9 | ERDISTEII 0.00056 | 23 |
| HLA-B*07:02 | 1 | 601 | 609 | 9 | GTNTSNQVA 0.00056 | 16 |
| HLA-B*57:01 | 1 | 648 | 656 | 9 | GCLIGAHEV 0.00056 | 25 |
| HLA-A*01:01 | 1 | 676 | 684 | 9 | TQTNSPRRA 0.00056 | 21 |
| HLA-A*26:01 | 1 | 710 | 719 | 10 | NSIAIPTNFT 0.00056 | 15 |
| HLA-A*01:01 | 1 | 720 | 728 | 9 | ISVTTEILP 0.00056 | 21 |
| HLA-A*02:03 | 1 | 764 | 772 | 9 | NRALTGIAV 0.00056 | 20 |
| HLA-A*01:01 | 1 | 885 | 894 | 10 | GWTFGAGAAL 0.00056 | 21 |
| HLA-B*44:03 | 1 | 924 | 933 | 10 | ANQFNSAIGK 0.00056 | 11 |
| HLA-B*51:01 | 1 | 992 | 1001 | 10 | QIDRLITGRL 0.00056 | 23 |
| HLA-A*02:03 | 1 | 1012 | 1021 | 10 | LIRAAEIRAS 0.00056 | 20 |
| HLA-A*31:01 | 1 | 1045 | 1053 | 9 | KGYHLMSFP 0.00056 | 20 |
| HLA-B*51:01 | 1 | 1047 | 1055 | 9 | YHLMSFPQS 0.00056 | 23 |
| HLA-A*68:02 | 1 | 1106 | 1115 | 10 | QRNFYEPQII 0.00056 | 20 |
| HLA-A*24:02 | 1 | 1200 | 1209 | 10 | LQELGKYEYQ 0.00056 | 11 |
| HLA-B*53:01 | 1 | 82 | 91 | 10 | PVLPFNDGVY 0.000559 | 12 |
| HLA-A*30:02 | 1 | 213 | 221 | 9 | VRDLPQGF 0.000559 | 31 |
| HLA-A*30:01 | 1 | 671 | 680 | 10 | CASYQTQTN 0.000559 | 34 |
| HLA-A*02:06 | 1 | 986 | 995 | 10 | KVEAEVQIDR 0.000559 | 25 |
| HLA-B*15:01 | 1 | 1000 | 1009 | 10 | RLQSLQTYVT 0.000559 | 18 |
| HLA-A*02:03 | 1 | 1050 | 1058 | 9 | MSFPQSAPH 0.000559 | 20 |
| HLA-A*30:01 | 1 | 1099 | 1108 | 10 | GTHWFVTQRN 0.000559 | 34 |
| HLA-B*51:01 | 1 | 1208 | 1217 | 10 | QYIKWPWYIW 0.000559 | 23 |
| HLA-A*02:03 | 1 | 1231 | 1239 | 9 | TIMLCCTS 0.000559 | 20 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*15:01 | 1 | 12 | 21 | 10 | SSQCVNLTTR 0.000558 | 18 |
| HLA-B*07:02 | 1 | 75 | 83 | 9 | GTKRFDNPV 0.000558 | 16 |
| HLA-A*26:01 | 1 | 378 | 386 | 9 | KCYGVSPTK 0.000558 | 15 |
| HLA-B*53:01 | 1 | 409 | 418 | 10 | QIAPGQTGKI 0.000558 | 12 |
| HLA-A*33:01 | 1 | 427 | 436 | 10 | DDFTGCVIAW 0.000558 | 18 |
| HLA-A*30:01 | 1 | 615 | 624 | 10 | VNCTEVPVAI 0.000558 | 34 |
| HLA-A*01:01 | 1 | 680 | 688 | 9 | SPRRARSVA 0.000558 | 21 |
| HLA-A*68:02 | 1 | 713 | 721 | 9 | AIPTNFTIS 0.000558 | 20 |
| HLA-B*15:01 | 1 | 832 | 841 | 10 | GFIKQYGDCL 0.000558 | 18 |
| HLA-A*03:01 | 1 | 885 | 894 | 10 | GWTFGAGAAL 0.000558 | 15 |
| HLA-B*58:01 | 1 | 1036 | 1045 | 10 | QSKRVDFCGK 0.000558 | 18 |
| HLA-A*02:06 | 1 | 8 | 16 | 9 | LPLVSSQCV 0.000557 | 25 |
| HLA-A*03:01 | 1 | 108 | 116 | 9 | TTLDSKTQS 0.000557 | 15 |
| HLA-B*07:02 | 1 | 120 | 128 | 9 | VNNATNVVI 0.000557 | 16 |
| HLA-A*02:03 | 1 | 135 | 144 | 10 | FCNDPFLGVY 0.000557 | 20 |
| HLA-A*31:01 | 1 | 204 | 213 | 10 | YSKHTPINLV 0.000557 | 20 |
| HLA-B*53:01 | 1 | 230 | 238 | 9 | PIGINITRF 0.000557 | 12 |
| HLA-B*57:01 | 1 | 234 | 243 | 10 | NITRFQTLA 0.000557 | 25 |
| HLA-A*30:02 | 1 | 425 | 433 | 9 | LPDDFTGCV 0.000557 | 31 |
| HLA-A*30:02 | 1 | 512 | 521 | 10 | VLSFELLHAP 0.000557 | 31 |
| HLA-A*02:06 | 1 | 709 | 718 | 10 | NNSIAIPTNF 0.000557 | 25 |
| HLA-A*68:01 | 1 | 820 | 829 | 10 | DLLFNKVTLA 0.000557 | 18 |
| HLA-A*02:06 | 1 | 172 | 180 | 9 | SQPFLMDLE 0.000556 | 25 |
| HLA-B*35:01 | 1 | 378 | 386 | 9 | KCYGVSPTK 0.000556 | 13 |
| HLA-A*68:02 | 1 | 448 | 456 | 9 | NYNLYRLF 0.000556 | 20 |
| HLA-B*40:01 | 1 | 487 | 495 | 9 | NCYFPLQSY 0.000556 | 9.6 |
| HLA-A*02:01 | 1 | 491 | 499 | 9 | PLQSYGFQP 0.000556 | 18 |
| HLA-A*02:01 | 1 | 588 | 597 | 10 | TPCSFGGVSU 0.000556 | 18 |
| HLA-B*51:01 | 1 | 647 | 656 | 10 | AGCLIGAHEV 0.000556 | 23 |
| HLA-A*26:01 | 1 | 704 | 713 | 10 | SVAYSNNNSIA 0.000556 | 15 |
| HLA-B*44:03 | 1 | 846 | 854 | 9 | ARDLICAQK 0.000556 | 11 |
| HLA-A*68:02 | 1 | 864 | 873 | 10 | LLTDEMIAQY 0.000556 | 20 |
| HLA-A*01:01 | 1 | 934 | 943 | 10 | IQDLSLSTAS 0.000556 | 21 |
| HLA-A*03:01 | 1 | 972 | 980 | 9 | AISSVLNDI 0.000556 | 15 |
| HLA-B*40:01 | 1 | 1026 | 1034 | 9 | ATKMSECVL 0.000556 | 9.6 |
| HLA-A*32:01 | 1 | 1168 | 1176 | 9 | DISGINASV 0.000556 | 14 |
| HLA-B*51:01 | 1 | 297 | 306 | 10 | SETKCTLKSF 0.000555 | 23 |
| HLA-B*08:01 | 1 | 306 | 315 | 10 | FTVEKGIYQT 0.000555 | 25 |
| HLA-B*57:01 | 1 | 343 | 352 | 10 | NATRFASVYA 0.000555 | 25 |
| HLA-B*53:01 | 1 | 661 | 670 | 10 | ECDIPIGAGI 0.000555 | 12 |
| HLA-B*57:01 | 1 | 704 | 713 | 10 | SVAYSNNNSIA 0.000555 | 25 |
| HLA-B*58:01 | 1 | 853 | 861 | 9 | QKFNGLTVL 0.000555 | 18 |
| HLA-B*51:01 | 1 | 916 | 924 | 9 | LYENQKLI 0.000555 | 23 |
| HLA-A*30:02 | 1 | 958 | 967 | 10 | ALNTLVKQLS 0.000555 | 31 |
| HLA-B*07:02 | 1 | 1049 | 1057 | 9 | LMSFPQSAP 0.000555 | 16 |
| HLA-B*57:01 | 1 | 1196 | 1204 | 9 | SLIDLQELG 0.000555 | 25 |
| HLA-A*24:02 | 1 | 63 | 72 | 10 | TWFHAIHVSU 0.000554 | 11 |
| HLA-B*08:01 | 1 | 249 | 258 | 10 | LTPGDSSSGW 0.000554 | 25 |
| HLA-A*68:01 | 1 | 267 | 275 | 9 | VGYLQPRTF 0.000554 | 19 |
| HLA-A*02:01 | 1 | 283 | 292 | 10 | GTITDAVDCA 0.000554 | 18 |
| HLA-B*35:01 | 1 | 455 | 464 | 10 | LFRKSNLKP 0.000554 | 13 |
| HLA-B*58:01 | 1 | 466 | 475 | 10 | RDISTEIQQA 0.000554 | 18 |
| HLA-A*11:01 | 1 | 495 | 503 | 9 | YGFQPTNGV 0.000554 | 12 |
| HLA-B*53:01 | 1 | 538 | 546 | 9 | CVNFNFNGL 0.000554 | 12 |
| HLA-A*26:01 | 1 | 814 | 822 | 9 | KRSFIEDLL 0.000554 | 15 |
| HLA-B*57:01 | 1 | 853 | 861 | 9 | QKFNGLTVL 0.000554 | 25 |
| HLA-A*30:02 | 1 | 1024 | 1032 | 9 | LAATKMSEC 0.000554 | 31 |
| HLA-B*35:01 | 1 | 30 | 39 | 10 | NSFTRGVYYP 0.000553 | 13 |
| HLA-A*30:01 | 1 | 540 | 549 | 10 | NFNFNGLTGT 0.000553 | 34 |
| HLA-A*02:06 | 1 | 572 | 581 | 10 | TTDAVRDPQT 0.000553 | 25 |
| HLA-A*33:01 | 1 | 612 | 620 | 9 | YQDVNCTEV 0.000553 | 18 |
| HLA-B*40:01 | 1 | 661 | 670 | 10 | ECDIPIGAGI 0.000553 | 9.6 |
| HLA-A*01:01 | 1 | 705 | 714 | 10 | VAYSNNNSIAI 0.000553 | 21 |
| HLA-B*40:01 | 1 | 869 | 877 | 9 | MIAQYTSAL 0.000553 | 9.6 |
| HLA-B*44:02 | 1 | 975 | 984 | 10 | SVLNDILSRL 0.000553 | 11 |
| HLA-A*01:01 | 1 | 43 | 52 | 10 | FRSSVLHSTQ 0.000552 | 21 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*40:01 | 1 | 190 | 199 | 10 | REFVFKNIDG 0.000552 | 9.6 |
| HLA-A*32:01 | 1 | 375 | 384 | 10 | STFKCYGVSP 0.000552 | 14 |
| HLA-A*30:02 | 1 | 396 | 404 | 9 | YADSFVIRG 0.000552 | 31 |
| HLA-A*02:03 | 1 | 695 | 704 | 10 | YTMSLGAENS 0.000552 | 20 |
| HLA-A*02:06 | 1 | 858 | 867 | 10 | LTVLPLLLTD 0.000552 | 25 |
| HLA-B*44:02 | 1 | 982 | 991 | 10 | SRLDKVEAEV 0.000552 | 11 |
| HLA-B*08:01 | 1 | 991 | 1000 | 10 | VQIDRLITGR 0.000552 | 25 |
| HLA-A*23:01 | 1 | 1107 | 1116 | 10 | RNFYEPQIIT 0.000552 | 11 |
| HLA-B*51:01 | 1 | 1163 | 1171 | 9 | DVDLGDISG 0.000552 | 23 |
| HLA-B*58:01 | 1 | 5 | 13 | 9 | LVLLPLVSS 0.000551 | 18 |
| HLA-A*02:06 | 1 | 17 | 25 | 9 | NLTTRTQLP 0.000551 | 25 |
| HLA-A*24:02 | 1 | 256 | 265 | 10 | SGWTAGAAAY 0.000551 | 11 |
| HLA-A*30:02 | 1 | 403 | 412 | 10 | RGDEVQRQIAP 0.000551 | 31 |
| HLA-B*51:01 | 1 | 459 | 468 | 10 | SNLKPFERDI 0.000551 | 23 |
| HLA-B*15:01 | 1 | 537 | 546 | 10 | KCVNFNFNGL 0.000551 | 18 |
| HLA-A*26:01 | 1 | 569 | 577 | 9 | IADTTDAVR 0.000551 | 15 |
| HLA-A*26:01 | 1 | 587 | 595 | 9 | ITPCSFGGV 0.000551 | 15 |
| HLA-A*68:02 | 1 | 591 | 599 | 9 | SFGGVSVIT 0.000551 | 20 |
| HLA-A*01:01 | 1 | 598 | 606 | 9 | ITPGTNTSN 0.000551 | 21 |
| HLA-B*57:01 | 1 | 598 | 606 | 9 | ITPGTNTSN 0.000551 | 25 |
| HLA-B*07:02 | 1 | 604 | 612 | 9 | TSNQVAVLY 0.000551 | 16 |
| HLA-A*31:01 | 1 | 605 | 613 | 9 | SNQVAVLYQ 0.000551 | 20 |
| HLA-A*68:01 | 1 | 869 | 878 | 10 | MIAQYTSALL 0.000551 | 19 |
| HLA-A*03:01 | 1 | 1003 | 1012 | 10 | SLQTYVTQQL 0.000551 | 15 |
| HLA-B*57:01 | 1 | 1010 | 1018 | 9 | QLLIRAAEI 0.000551 | 25 |
| HLA-A*02:06 | 1 | 1101 | 1109 | 9 | HWFVTQRNF 0.000551 | 25 |
| HLA-A*23:01 | 1 | 1262 | 1270 | 9 | EPVLKGVKL 0.000551 | 11 |
| HLA-B*08:01 | 1 | 77 | 85 | 9 | KRFDNPVLP 0.00055 | 25 |
| HLA-B*44:03 | 1 | 305 | 313 | 9 | SFTVEKGIY 0.00055 | 11 |
| HLA-B*44:03 | 1 | 308 | 317 | 10 | VEKGIYQTSN 0.00055 | 11 |
| HLA-B*07:02 | 1 | 372 | 380 | 9 | ASFSTFKCY 0.00055 | 16 |
| HLA-A*02:06 | 1 | 481 | 490 | 10 | NGVEGFNCYF 0.00055 | 25 |
| HLA-A*30:01 | 1 | 492 | 501 | 10 | LQSYGFQPTN 0.00055 | 34 |
| HLA-A*33:01 | 1 | 542 | 551 | 10 | NFNGLTGTGV 0.00055 | 18 |
| HLA-A*02:03 | 1 | 580 | 588 | 9 | QTLEILDIT 0.00055 | 20 |
| HLA-A*30:01 | 1 | 646 | 654 | 9 | RAGLIGAE 0.00055 | 34 |
| HLA-B*57:01 | 1 | 694 | 703 | 10 | AYTMSLGAEN 0.00055 | 25 |
| HLA-A*32:01 | 1 | 758 | 767 | 10 | SFCTQLNRAL 0.00055 | 14 |
| HLA-B*15:01 | 1 | 921 | 929 | 9 | KLIANQFNS 0.00055 | 18 |
| HLA-B*07:02 | 1 | 1107 | 1115 | 9 | RNFYEPQII 0.00055 | 16 |
| HLA-A*03:01 | 1 | 1177 | 1185 | 9 | VNIQKEIDR 0.00055 | 15 |
| HLA-A*02:03 | 1 | 34 | 43 | 10 | RGVYYPDKVF 0.000549 | 20 |
| HLA-A*03:01 | 1 | 77 | 85 | 9 | KRFDNPVLP 0.000549 | 15 |
| HLA-A*23:01 | 1 | 134 | 142 | 9 | QFCNDPFLG 0.000549 | 11 |
| HLA-A*23:01 | 1 | 257 | 266 | 10 | GWTAGAAAYY 0.000549 | 11 |
| HLA-B*07:02 | 1 | 354 | 362 | 9 | NRKRISNCV 0.000549 | 16 |
| HLA-B*51:01 | 1 | 365 | 373 | 9 | YSVLYNSAS 0.000549 | 23 |
| HLA-B*44:03 | 1 | 383 | 392 | 10 | SPTKLNDLCF 0.000549 | 11 |
| HLA-B*08:01 | 1 | 459 | 468 | 10 | SNLKPFERDI 0.000549 | 25 |
| HLA-A*01:01 | 1 | 477 | 485 | 9 | STPCNGVEG 0.000549 | 21 |
| HLA-A*02:01 | 1 | 584 | 593 | 10 | ILDITPCSF 0.000549 | 18 |
| HLA-A*02:01 | 1 | 644 | 653 | 10 | QTRAGCLIGA 0.000549 | 18 |
| HLA-B*08:01 | 1 | 972 | 980 | 9 | AISSVLNDI 0.000549 | 25 |
| HLA-A*68:01 | 1 | 1011 | 1020 | 10 | QLIRAAEIRA 0.000549 | 19 |
| HLA-B*51:01 | 1 | 1060 | 1069 | 10 | VVFLHVITYVP 0.000549 | 23 |
| HLA-A*30:01 | 1 | 1151 | 1159 | 9 | ELDKYFKNH 0.000549 | 34 |
| HLA-A*33:01 | 1 | 1209 | 1218 | 10 | YIKWPWYIWL 0.000549 | 18 |
| HLA-A*31:01 | 1 | 160 | 168 | 9 | YSSANNCTF 0.000548 | 20 |
| HLA-B*57:01 | 1 | 225 | 233 | 9 | PLVDLPIGI 0.000548 | 25 |
| HLA-B*51:01 | 1 | 306 | 314 | 9 | FTVEKGIYQ 0.000548 | 24 |
| HLA-B*57:01 | 1 | 311 | 320 | 10 | GIYQTSNFRV 0.000548 | 25 |
| HLA-A*02:06 | 1 | 629 | 638 | 10 | LTPTWRVYST 0.000548 | 25 |
| HLA-A*03:01 | 1 | 776 | 785 | 10 | KNTQEVFAQV 0.000548 | 15 |
| HLA-A*26:01 | 1 | 847 | 855 | 9 | RDLICAQKF 0.000548 | 15 |
| HLA-B*44:03 | 1 | 988 | 996 | 9 | EAEVQIDRL 0.000548 | 11 |
| HLA-A*24:02 | 1 | 1205 | 1213 | 9 | KYEQYIKWP 0.000548 | 11 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*26:01 | 1 | 134 | 143 | 10 | QFCNDPFLGV 0.000547 | 15 |
| HLA-B*35:01 | 1 | 410 | 419 | 10 | IAPGQTGKIA 0.000547 | 13 |
| HLA-B*51:01 | 1 | 441 | 449 | 9 | LDSKVGGINY 0.000547 | 24 |
| HLA-A*30:01 | 1 | 451 | 460 | 10 | YLYRLFRRKSN 0.000547 | 34 |
| HLA-A*30:01 | 1 | 533 | 542 | 10 | LVKNKCVNFN 0.000547 | 34 |
| HLA-A*02:01 | 1 | 577 | 585 | 9 | RDPQTLLEIL 0.000547 | 18 |
| HLA-B*51:01 | 1 | 638 | 647 | 10 | TGSNVFQTRA 0.000547 | 24 |
| HLA-A*33:01 | 1 | 773 | 781 | 9 | EQDKNTQEV 0.000547 | 18 |
| HLA-A*31:01 | 1 | 784 | 792 | 9 | QVKQIYKTP 0.000547 | 20 |
| HLA-A*03:01 | 1 | 853 | 861 | 9 | QKFNGLTVL 0.000547 | 15 |
| HLA-A*30:01 | 1 | 911 | 920 | 10 | VTQNVLYENQ 0.000547 | 34 |
| HLA-A*31:01 | 1 | 912 | 920 | 9 | TQNVLYENQ 0.000547 | 20 |
| HLA-A*01:01 | 1 | 995 | 1004 | 10 | RLITGRLQSL 0.000547 | 21 |
| HLA-B*40:01 | 1 | 1009 | 1018 | 10 | TQQLIRAAEI 0.000547 | 9.7 |
| HLA-A*24:02 | 1 | 1021 | 1029 | 9 | SANLAATKM 0.000547 | 11 |
| HLA-A*02:01 | 1 | 1156 | 1164 | 9 | FKNHTSPDV 0.000547 | 18 |
| HLA-A*33:01 | 1 | 1261 | 1269 | 9 | SEPVLKGVK 0.000547 | 18 |
| HLA-A*01:01 | 1 | 7 | 15 | 9 | LLPLVSSQC 0.000546 | 21 |
| HLA-A*11:01 | 1 | 30 | 39 | 10 | NSFTRGVVYP 0.000546 | 12 |
| HLA-A*33:01 | 1 | 126 | 135 | 10 | VVIKVCEFFQ 0.000546 | 18 |
| HLA-A*02:01 | 1 | 207 | 216 | 10 | HTPINLVLDL 0.000546 | 18 |
| HLA-A*11:01 | 1 | 239 | 247 | 9 | QTLLALHRS 0.000546 | 12 |
| HLA-A*02:06 | 1 | 246 | 255 | 10 | RSYLTPGDSS 0.000546 | 25 |
| HLA-A*30:02 | 1 | 441 | 450 | 10 | LDSKVGGINY 0.000546 | 31 |
| HLA-A*03:01 | 1 | 442 | 451 | 10 | DSKVGGINY 0.000546 | 15 |
| HLA-A*31:01 | 1 | 529 | 538 | 10 | KSTNLVKKNC 0.000546 | 20 |
| HLA-A*02:03 | 1 | 662 | 670 | 9 | CDIPIGAGI 0.000546 | 20 |
| HLA-A*68:02 | 1 | 691 | 700 | 10 | SIIAYTMSLG 0.000546 | 20 |
| HLA-A*68:01 | 1 | 825 | 833 | 9 | KVTLADAGF 0.000546 | 19 |
| HLA-A*33:01 | 1 | 909 | 917 | 9 | IGVTQNVLY 0.000546 | 18 |
| HLA-A*01:01 | 1 | 1100 | 1109 | 10 | THWVFTQRNF 0.000546 | 21 |
| HLA-B*51:01 | 1 | 1120 | 1128 | 9 | TFVSGNCDV 0.000546 | 24 |
| HLA-A*26:01 | 1 | 1202 | 1210 | 9 | ELGKYEQYI 0.000546 | 15 |
| HLA-A*02:06 | 1 | 5 | 14 | 10 | LVLLPLVSSQ 0.000545 | 25 |
| HLA-A*02:06 | 1 | 30 | 39 | 10 | NSFTRGVVYP 0.000545 | 25 |
| HLA-B*07:02 | 1 | 47 | 56 | 10 | VLHSTQDLFL 0.000545 | 16 |
| HLA-A*30:02 | 1 | 381 | 389 | 9 | GVSPTKLDN 0.000545 | 31 |
| HLA-B*44:02 | 1 | 392 | 400 | 9 | FTNVYADSF 0.000545 | 11 |
| HLA-B*53:01 | 1 | 499 | 508 | 10 | PTNGVGYQPY 0.000545 | 12 |
| HLA-A*26:01 | 1 | 530 | 538 | 9 | STNLVKKNC 0.000545 | 15 |
| HLA-A*02:01 | 1 | 601 | 609 | 9 | GTNTSNQVA 0.000545 | 18 |
| HLA-A*32:01 | 1 | 641 | 650 | 10 | NVFQTRAGCL 0.000545 | 14 |
| HLA-B*51:01 | 1 | 884 | 893 | 10 | SGWTFGAGAA 0.000545 | 24 |
| HLA-A*32:01 | 1 | 914 | 923 | 10 | NVLYENQKLI 0.000545 | 14 |
| HLA-A*03:01 | 1 | 1007 | 1015 | 9 | YVTQQLIRA 0.000545 | 15 |
| HLA-A*02:01 | 1 | 1039 | 1047 | 9 | RVDFCGKGY 0.000545 | 18 |
| HLA-A*02:03 | 1 | 1225 | 1234 | 10 | IAIVMVTIML 0.000545 | 20 |
| HLA-A*11:01 | 1 | 1227 | 1235 | 9 | IVMVTIMLC 0.000545 | 12 |
| HLA-B*44:03 | 1 | 1260 | 1268 | 9 | DSEPVLKGV 0.000545 | 11 |
| HLA-A*02:01 | 1 | 58 | 66 | 9 | FFSNVTWFH 0.000544 | 18 |
| HLA-A*31:01 | 1 | 58 | 67 | 10 | FFSNVTWFHA 0.000544 | 20 |
| HLA-A*26:01 | 1 | 580 | 588 | 9 | QTLEILDIT 0.000544 | 15 |
| HLA-A*33:01 | 1 | 596 | 604 | 9 | SVITPGTNT 0.000544 | 18 |
| HLA-A*68:02 | 1 | 654 | 662 | 9 | EHVNNSYEC 0.000544 | 20 |
| HLA-A*02:06 | 1 | 663 | 672 | 10 | DIPIGAGICA 0.000544 | 25 |
| HLA-B*40:01 | 1 | 777 | 785 | 9 | NTQEVFAQV 0.000544 | 9.7 |
| HLA-B*57:01 | 1 | 819 | 828 | 10 | EDLLFNKVTL 0.000544 | 25 |
| HLA-B*35:01 | 1 | 874 | 882 | 9 | TSALLAGTI 0.000544 | 13 |
| HLA-A*11:01 | 1 | 1200 | 1209 | 10 | LQELGKYEQY 0.000544 | 12 |
| HLA-A*32:01 | 1 | 78 | 87 | 10 | RFDNPVLPFN 0.000543 | 14 |
| HLA-A*02:06 | 1 | 85 | 93 | 9 | PFNDGVYFA 0.000543 | 25 |
| HLA-A*02:01 | 1 | 182 | 190 | 9 | KQGNFKNLR 0.000543 | 18 |
| HLA-A*23:01 | 1 | 200 | 209 | 10 | YFKIYSKHTP 0.000543 | 11 |
| HLA-A*02:01 | 1 | 530 | 538 | 9 | STNLVKKNC 0.000543 | 18 |
| HLA-A*31:01 | 1 | 734 | 742 | 9 | TSVDCTMYI 0.000543 | 20 |
| HLA-A*30:02 | 1 | 1023 | 1031 | 9 | NLAATKMSE 0.000543 | 31 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*51:01 | 1 | 1078 | 1087 | 10 | APAICHDGKA 0.000543 | 24 |
| HLA-A*68:01 | 1 | 155 | 163 | 9 | SEFRVYSSA 0.000542 | 19 |
| HLA-A*01:01 | 1 | 203 | 212 | 10 | IYSKHTPINL 0.000542 | 21 |
| HLA-A*26:01 | 1 | 215 | 224 | 10 | DLPOGFSALE 0.000542 | 15 |
| HLA-A*31:01 | 1 | 262 | 270 | 9 | AAAYYVGYL 0.000542 | 20 |
| HLA-B*08:01 | 1 | 338 | 347 | 10 | FGEVFNATRF 0.000542 | 25 |
| HLA-B*58:01 | 1 | 350 | 358 | 9 | VYAWNKRRI 0.000542 | 18 |
| HLA-A*68:02 | 1 | 451 | 459 | 9 | YLYRFLRKS 0.000542 | 20 |
| HLA-A*32:01 | 1 | 465 | 473 | 9 | ERDISTEYI 0.000542 | 14 |
| HLA-A*68:01 | 1 | 551 | 559 | 9 | VLTESNKKF 0.000542 | 19 |
| HLA-B*51:01 | 1 | 580 | 588 | 9 | QTLEILDIT 0.000542 | 24 |
| HLA-B*08:01 | 1 | 783 | 792 | 10 | AQVKQIYKTP 0.000542 | 25 |
| HLA-B*51:01 | 1 | 908 | 916 | 9 | GIGVTQNVL 0.000542 | 24 |
| HLA-A*02:06 | 1 | 984 | 993 | 10 | LDKVEAEVQI 0.000542 | 25 |
| HLA-B*08:01 | 1 | 1071 | 1080 | 10 | QEKNFTTAPA 0.000542 | 25 |
| HLA-B*58:01 | 1 | 1112 | 1121 | 10 | PQIITTDNTF 0.000542 | 18 |
| HLA-B*44:03 | 1 | 266 | 275 | 10 | YVGYLQPRTF 0.000541 | 11 |
| HLA-B*44:02 | 1 | 304 | 313 | 10 | KSFTVEKGIY 0.000541 | 11 |
| HLA-B*44:02 | 1 | 305 | 313 | 9 | SFTVEKGIY 0.000541 | 11 |
| HLA-A*33:01 | 1 | 314 | 322 | 9 | QTSNFRVQP 0.000541 | 18 |
| HLA-A*33:01 | 1 | 318 | 326 | 9 | FRVQPTESI 0.000541 | 18 |
| HLA-B*57:01 | 1 | 351 | 360 | 10 | YAWNKRKRISN 0.000541 | 25 |
| HLA-A*33:01 | 1 | 421 | 429 | 9 | YNYKLPDDF 0.000541 | 18 |
| HLA-A*68:02 | 1 | 557 | 565 | 9 | KKFLPFQQF 0.000541 | 20 |
| HLA-A*11:01 | 1 | 646 | 655 | 10 | RAGCLIGAEH 0.000541 | 12 |
| HLA-A*30:01 | 1 | 692 | 700 | 9 | IIAYTMSLG 0.000541 | 34 |
| HLA-B*51:01 | 1 | 995 | 1004 | 10 | RLITGRLQSL 0.000541 | 24 |
| HLA-B*08:01 | 1 | 1173 | 1181 | 9 | NASVVNIQK 0.000541 | 25 |
| HLA-A*68:01 | 1 | 1200 | 1209 | 10 | LQELGKYEQY 0.000541 | 19 |
| HLA-A*31:01 | 1 | 42 | 51 | 10 | VFRSSVLHST 0.00054 | 20 |
| HLA-A*33:01 | 1 | 150 | 159 | 10 | KSWMESEFRV 0.00054 | 18 |
| HLA-B*08:01 | 1 | 248 | 256 | 9 | YLTPGDSSS 0.00054 | 25 |
| HLA-A*30:02 | 1 | 710 | 719 | 10 | NSIAIPTNFT 0.00054 | 31 |
| HLA-B*15:01 | 1 | 804 | 812 | 9 | QILPDPSKP 0.00054 | 18 |
| HLA-A*31:01 | 1 | 978 | 986 | 9 | NDILSRLDK 0.00054 | 20 |
| HLA-B*35:01 | 1 | 1026 | 1034 | 9 | ATKMSECVL 0.00054 | 13 |
| HLA-B*35:01 | 1 | 1163 | 1172 | 10 | DVDLGDISGI 0.00054 | 13 |
| HLA-A*30:01 | 1 | 1265 | 1273 | 9 | LKGVKLYHT 0.00054 | 34 |
| HLA-A*30:02 | 1 | 18 | 27 | 10 | LTRTQLPPA 0.000539 | 31 |
| HLA-A*11:01 | 1 | 137 | 145 | 9 | NDPFLGVVY 0.000539 | 12 |
| HLA-B*15:01 | 1 | 158 | 167 | 10 | RVYSSANNCT 0.000539 | 18 |
| HLA-A*68:02 | 1 | 238 | 247 | 10 | FQTLALHRS 0.000539 | 20 |
| HLA-A*26:01 | 1 | 270 | 278 | 9 | LQPRTFLLK 0.000539 | 15 |
| HLA-A*24:02 | 1 | 330 | 338 | 9 | PNITNLCPF 0.000539 | 11 |
| HLA-A*26:01 | 1 | 412 | 421 | 10 | PGQTGKIADY 0.000539 | 15 |
| HLA-A*32:01 | 1 | 443 | 452 | 10 | SKVGGNYNYL 0.000539 | 14 |
| HLA-A*68:02 | 1 | 469 | 477 | 9 | STEIYQAGS 0.000539 | 20 |
| HLA-A*30:02 | 1 | 610 | 619 | 10 | VLYQDVNCTE 0.000539 | 31 |
| HLA-B*57:01 | 1 | 783 | 791 | 9 | AQVKQIYKT 0.000539 | 25 |
| HLA-B*08:01 | 1 | 791 | 799 | 9 | TPPIKDFGG 0.000539 | 25 |
| HLA-B*07:02 | 1 | 891 | 899 | 9 | GAALQIPFA 0.000539 | 16 |
| HLA-A*02:03 | 1 | 907 | 916 | 10 | NGIGVTQNVL 0.000539 | 20 |
| HLA-A*32:01 | 1 | 922 | 930 | 9 | LIANQFNSA 0.000539 | 14 |
| HLA-A*68:02 | 1 | 964 | 972 | 9 | KQLSSNFGA 0.000539 | 20 |
| HLA-A*68:02 | 1 | 1041 | 1050 | 10 | DFCGKGYHLM 0.000539 | 20 |
| HLA-A*32:01 | 1 | 1104 | 1112 | 9 | VTQRNFYEP 0.000539 | 14 |
| HLA-B*57:01 | 1 | 1109 | 1117 | 9 | FYEPQIITT 0.000539 | 25 |
| HLA-A*68:02 | 1 | 1166 | 1174 | 9 | LGDISGINA 0.000539 | 20 |
| HLA-B*44:02 | 1 | 1167 | 1176 | 10 | GDISGINASV 0.000539 | 11 |
| HLA-A*02:01 | 1 | 1262 | 1270 | 9 | EPVLKGVKL 0.000539 | 18 |
| HLA-A*31:01 | 1 | 5 | 14 | 10 | LVLLPLVSSQ 0.000538 | 20 |
| HLA-B*15:01 | 1 | 206 | 214 | 9 | KHTPINLVR 0.000538 | 18 |
| HLA-A*11:01 | 1 | 510 | 518 | 9 | VVLSFELL 0.000538 | 12 |
| HLA-A*30:02 | 1 | 520 | 528 | 9 | APATVCGPK 0.000538 | 31 |
| HLA-B*15:01 | 1 | 696 | 705 | 10 | TMSLGAENSV 0.000538 | 18 |
| HLA-A*03:01 | 1 | 723 | 731 | 9 | TTEILPVSM 0.000538 | 15 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-B*07:02 | 1 | 724 | 732 | 9 | TEILPVSMT 0.000538 | 16 |
| HLA-B*08:01 | 1 | 763 | 771 | 9 | LNRALTGIA 0.000538 | 25 |
| HLA-A*30:01 | 1 | 828 | 836 | 9 | LADAGFIKQ 0.000538 | 34 |
| HLA-A*68:01 | 1 | 844 | 853 | 10 | IAARDLICAQ 0.000538 | 19 |
| HLA-A*26:01 | 1 | 1160 | 1169 | 10 | TSPDVDLGLDI 0.000538 | 15 |
| HLA-B*44:02 | 1 | 46 | 54 | 9 | SVLHSTQDL 0.000537 | 11 |
| HLA-A*26:01 | 1 | 145 | 153 | 9 | YHKNNKSWM 0.000537 | 15 |
| HLA-A*02:01 | 1 | 232 | 240 | 9 | GINITRFQT 0.000537 | 18 |
| HLA-A*33:01 | 1 | 298 | 307 | 10 | ETKCTLKSFT 0.000537 | 18 |
| HLA-A*01:01 | 1 | 415 | 424 | 10 | TGKIADYNYK 0.000537 | 21 |
| HLA-A*03:01 | 1 | 493 | 501 | 9 | QSYGFQPTN 0.000537 | 15 |
| HLA-B*51:01 | 1 | 975 | 983 | 9 | SVLNDILSR 0.000537 | 24 |
| HLA-A*32:01 | 1 | 989 | 997 | 9 | AEVQIDRLI 0.000537 | 14 |
| HLA-B*58:01 | 1 | 1040 | 1049 | 10 | VDFCGKGYHL 0.000537 | 18 |
| HLA-B*40:01 | 1 | 1150 | 1158 | 9 | EELDKYFKN 0.000537 | 9.7 |
| HLA-B*07:02 | 1 | 280 | 289 | 10 | NENGTITDAV 0.000536 | 16 |
| HLA-A*30:02 | 1 | 365 | 373 | 9 | YSVLYNSAS 0.000536 | 31 |
| HLA-A*30:01 | 1 | 398 | 407 | 10 | DSFVIRGDEV 0.000536 | 34 |
| HLA-A*30:02 | 1 | 587 | 596 | 10 | ITPCSFGGVS 0.000536 | 31 |
| HLA-B*58:01 | 1 | 626 | 635 | 10 | ADQLTPTWRV 0.000536 | 18 |
| HLA-A*30:01 | 1 | 734 | 743 | 10 | TSVDCTMYIC 0.000536 | 34 |
| HLA-B*58:01 | 1 | 933 | 942 | 10 | KIQDLSLSTA 0.000536 | 18 |
| HLA-A*30:02 | 1 | 950 | 959 | 10 | DVVNQNAQAL 0.000536 | 31 |
| HLA-A*30:01 | 1 | 1053 | 1062 | 10 | PQSAPHGVVF 0.000536 | 34 |
| HLA-B*40:01 | 1 | 1093 | 1102 | 10 | GVFVSNNGTHW 0.000536 | 9.7 |
| HLA-B*44:03 | 1 | 1187 | 1196 | 10 | NEVAKNLNES 0.000536 | 11 |
| HLA-A*68:02 | 1 | 1212 | 1220 | 9 | WPWYIWLGF 0.000536 | 20 |
| HLA-B*44:02 | 1 | 1259 | 1267 | 9 | DDSEPVKLG 0.000536 | 11 |
| HLA-A*02:03 | 1 | 63 | 71 | 9 | TWFHAIHVS 0.000535 | 20 |
| HLA-A*24:02 | 1 | 137 | 145 | 9 | NDPFLGVYY 0.000535 | 11 |
| HLA-A*33:01 | 1 | 154 | 163 | 10 | ESEFRVYSSA 0.000535 | 18 |
| HLA-B*51:01 | 1 | 232 | 241 | 10 | GINITRFQTL 0.000535 | 24 |
| HLA-A*26:01 | 1 | 424 | 433 | 10 | KLPDDFTGCV 0.000535 | 15 |
| HLA-B*58:01 | 1 | 434 | 443 | 10 | IAWNSNLLDS 0.000535 | 18 |
| HLA-A*26:01 | 1 | 455 | 464 | 10 | LFRKSNLKP 0.000535 | 15 |
| HLA-A*33:01 | 1 | 497 | 505 | 9 | FQPTNGVGY 0.000535 | 18 |
| HLA-A*33:01 | 1 | 540 | 549 | 10 | NFNFNGLTGT 0.000535 | 18 |
| HLA-A*23:01 | 1 | 573 | 582 | 10 | TDAVRDPQTL 0.000535 | 11 |
| HLA-A*31:01 | 1 | 683 | 692 | 10 | RARSVASQSI 0.000535 | 20 |
| HLA-A*02:03 | 1 | 730 | 739 | 10 | SMTKTSVDCT 0.000535 | 20 |
| HLA-A*02:06 | 1 | 1069 | 1078 | 10 | PAQEKNFSTA 0.000535 | 25 |
| HLA-B*08:01 | 1 | 1215 | 1223 | 9 | YIWLGFIAQ 0.000535 | 26 |
| HLA-A*26:01 | 1 | 1259 | 1268 | 10 | DDSEPVKGV 0.000535 | 15 |
| HLA-A*31:01 | 1 | 155 | 163 | 9 | SEFRVYSSA 0.000534 | 20 |
| HLA-A*33:01 | 1 | 320 | 329 | 10 | VQPTESIVRF 0.000534 | 18 |
| HLA-A*23:01 | 1 | 719 | 727 | 9 | TISVTTEIL 0.000534 | 11 |
| HLA-A*30:02 | 1 | 776 | 784 | 9 | KNTQEVFAQ 0.000534 | 31 |
| HLA-A*02:06 | 1 | 841 | 849 | 9 | LGDIAARDL 0.000534 | 25 |
| HLA-A*02:01 | 1 | 887 | 896 | 10 | TFGAGAALQI 0.000534 | 18 |
| HLA-B*51:01 | 1 | 894 | 903 | 10 | LQIPFAMQMA 0.000534 | 24 |
| HLA-A*30:02 | 1 | 897 | 906 | 10 | PFAMQMAYRF 0.000534 | 31 |
| HLA-A*32:01 | 1 | 971 | 980 | 10 | GAISSVLNDI 0.000534 | 14 |
| HLA-A*30:01 | 1 | 1100 | 1108 | 9 | THWFVTQRN 0.000534 | 34 |
| HLA-A*01:01 | 1 | 1129 | 1137 | 9 | VIGIVNNTV 0.000534 | 21 |
| HLA-A*33:01 | 1 | 46 | 55 | 10 | SVLHSTQDLF 0.000533 | 18 |
| HLA-B*40:01 | 1 | 96 | 104 | 9 | EKSNIIRGW 0.000533 | 9.8 |
| HLA-B*07:02 | 1 | 151 | 159 | 9 | SWMESEFRV 0.000533 | 16 |
| HLA-A*01:01 | 1 | 279 | 288 | 10 | YNENGTITDA 0.000533 | 21 |
| HLA-A*01:01 | 1 | 284 | 292 | 9 | TITDAVDCA 0.000533 | 21 |
| HLA-A*02:01 | 1 | 363 | 372 | 10 | ADYSVLYNSA 0.000533 | 18 |
| HLA-A*33:01 | 1 | 433 | 441 | 9 | VIAWNSNLL 0.000533 | 18 |
| HLA-A*11:01 | 1 | 511 | 520 | 10 | VVLSFELLHA 0.000533 | 12 |
| HLA-A*02:06 | 1 | 519 | 527 | 9 | HAPATVCGP 0.000533 | 25 |
| HLA-A*02:06 | 1 | 649 | 657 | 9 | CLIGAHEVN 0.000533 | 25 |
| HLA-A*31:01 | 1 | 682 | 690 | 9 | RRARSVASQ 0.000533 | 20 |
| HLA-B*40:01 | 1 | 923 | 931 | 9 | IANQFNLSAI 0.000533 | 9.8 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*33:01 | 1 | 926 | 934 | 9 | QFNSAIGKI 0.000533 | 18 |
| HLA-B*57:01 | 1 | 955 | 964 | 10 | NAQALNTLVK 0.000533 | 25 |
| HLA-A*01:01 | 1 | 997 | 1006 | 10 | ITGRLQSLQT 0.000533 | 21 |
| HLA-A*33:01 | 1 | 1124 | 1132 | 9 | GNCDDVIGI 0.000533 | 18 |
| HLA-B*57:01 | 1 | 1220 | 1229 | 10 | FIAGLIAIVM 0.000533 | 25 |
| HLA-A*30:01 | 1 | 11 | 20 | 10 | VSSQCVNLTT 0.000532 | 34 |
| HLA-B*15:01 | 1 | 13 | 22 | 10 | SQCVNLTTTRT 0.000532 | 19 |
| HLA-A*02:01 | 1 | 84 | 92 | 9 | LPFNDGVYF 0.000532 | 18 |
| HLA-B*15:01 | 1 | 494 | 503 | 10 | SYGFQPTNGV 0.000532 | 19 |
| HLA-B*51:01 | 1 | 688 | 696 | 9 | ASQSIIAYT 0.000532 | 24 |
| HLA-A*68:02 | 1 | 791 | 800 | 10 | TPPIKDFGGF 0.000532 | 20 |
| HLA-A*23:01 | 1 | 835 | 844 | 10 | KQYGDCLGDI 0.000532 | 11 |
| HLA-A*68:01 | 1 | 958 | 966 | 9 | ALNTLVKQL 0.000532 | 19 |
| HLA-A*03:01 | 1 | 1086 | 1094 | 9 | KAHFPREGV 0.000532 | 15 |
| HLA-B*57:01 | 1 | 1107 | 1116 | 10 | RNFYEQIIT 0.000532 | 25 |
| HLA-B*53:01 | 1 | 1142 | 1151 | 10 | QPELDSFKEE 0.000532 | 13 |
| HLA-A*31:01 | 1 | 109 | 118 | 10 | TLDSKTQSL 0.000531 | 20 |
| HLA-B*57:01 | 1 | 250 | 259 | 10 | TPGDSSSGWT 0.000531 | 25 |
| HLA-A*01:01 | 1 | 378 | 387 | 10 | KCYGVSPTKL 0.000531 | 21 |
| HLA-B*53:01 | 1 | 400 | 408 | 9 | FVIRGDEV 0.000531 | 13 |
| HLA-B*15:01 | 1 | 652 | 661 | 10 | GAEHVNNSYE 0.000531 | 19 |
| HLA-A*30:02 | 1 | 696 | 704 | 9 | TMSLGAENS 0.000531 | 32 |
| HLA-B*35:01 | 1 | 979 | 987 | 9 | DILSRLDKV 0.000531 | 13 |
| HLA-A*03:01 | 1 | 1086 | 1095 | 10 | KAHFPREGVF 0.000531 | 15 |
| HLA-A*33:01 | 1 | 1087 | 1095 | 9 | AHFPREGVF 0.000531 | 18 |
| HLA-A*01:01 | 1 | 304 | 312 | 9 | KSFTVEKGI 0.00053 | 21 |
| HLA-A*30:02 | 1 | 306 | 315 | 10 | FTVEKGIYQT 0.00053 | 32 |
| HLA-B*35:01 | 1 | 319 | 327 | 9 | RVQPTESIV 0.00053 | 13 |
| HLA-B*40:01 | 1 | 363 | 371 | 9 | ADYSVLYNS 0.00053 | 9.8 |
| HLA-A*30:01 | 1 | 485 | 494 | 10 | GFNCYFPLQS 0.00053 | 34 |
| HLA-B*08:01 | 1 | 556 | 564 | 9 | NKKFLPFQQ 0.00053 | 26 |
| HLA-A*68:02 | 1 | 584 | 592 | 9 | ILDITPCSF 0.00053 | 20 |
| HLA-A*31:01 | 1 | 632 | 640 | 9 | TWRVYSTGS 0.00053 | 20 |
| HLA-A*30:02 | 1 | 824 | 833 | 10 | NKVTLADAGF 0.00053 | 32 |
| HLA-B*44:03 | 1 | 914 | 922 | 9 | NVLYENQKL 0.00053 | 11 |
| HLA-B*57:01 | 1 | 1058 | 1066 | 9 | HGVVFLHVT 0.00053 | 25 |
| HLA-B*53:01 | 1 | 1109 | 1117 | 9 | FYEQIITT 0.00053 | 13 |
| HLA-A*31:01 | 1 | 89 | 98 | 10 | GVYFASTEKS 0.000529 | 20 |
| HLA-B*58:01 | 1 | 122 | 131 | 10 | NATNVVIKVC 0.000529 | 18 |
| HLA-A*02:06 | 1 | 195 | 204 | 10 | KNIDGYFKIY 0.000529 | 25 |
| HLA-B*15:01 | 1 | 340 | 348 | 9 | EVFNATRFA 0.000529 | 19 |
| HLA-A*30:01 | 1 | 463 | 472 | 10 | PFERDISTEI 0.000529 | 34 |
| HLA-A*23:01 | 1 | 511 | 519 | 9 | VVLSFELLH 0.000529 | 11 |
| HLA-B*57:01 | 1 | 587 | 595 | 9 | ITPCSFGGV 0.000529 | 25 |
| HLA-A*02:06 | 1 | 739 | 748 | 10 | TMYICGDSTE 0.000529 | 25 |
| HLA-A*31:01 | 1 | 765 | 773 | 9 | RALTGIIVE 0.000529 | 20 |
| HLA-A*01:01 | 1 | 803 | 812 | 10 | SQILPDPSKP 0.000529 | 22 |
| HLA-A*01:01 | 1 | 819 | 828 | 10 | EDLLFNKVTL 0.000529 | 22 |
| HLA-A*31:01 | 1 | 856 | 864 | 9 | NGLTVLPL 0.000529 | 20 |
| HLA-A*24:02 | 1 | 923 | 931 | 9 | IANQFNSAI 0.000529 | 11 |
| HLA-A*02:01 | 1 | 992 | 1000 | 9 | QIDRLITGR 0.000529 | 18 |
| HLA-A*68:01 | 1 | 996 | 1004 | 9 | LITGRLQSL 0.000529 | 19 |
| HLA-A*02:01 | 1 | 1011 | 1019 | 9 | QLIRAAEIR 0.000529 | 18 |
| HLA-A*33:01 | 1 | 1086 | 1094 | 9 | KAHFPREGV 0.000529 | 18 |
| HLA-A*02:03 | 1 | 1106 | 1114 | 9 | QRNFYEQI 0.000529 | 20 |
| HLA-A*02:01 | 1 | 1169 | 1177 | 9 | ISGINASV 0.000529 | 18 |
| HLA-A*01:01 | 1 | 1171 | 1179 | 9 | GINASVVNI 0.000529 | 22 |
| HLA-B*15:01 | 1 | 5 | 14 | 10 | LVLLPLVSSQ 0.000528 | 19 |
| HLA-A*24:02 | 1 | 10 | 18 | 9 | LVSSQCVNL 0.000528 | 11 |
| HLA-A*24:02 | 1 | 23 | 31 | 9 | QLPPAYTNS 0.000528 | 11 |
| HLA-B*51:01 | 1 | 83 | 91 | 9 | VLPFNDGVY 0.000528 | 24 |
| HLA-A*01:01 | 1 | 509 | 517 | 9 | RVVLSFEL 0.000528 | 22 |
| HLA-A*03:01 | 1 | 530 | 538 | 9 | STNLVKNKC 0.000528 | 15 |
| HLA-B*08:01 | 1 | 553 | 561 | 9 | TESNKKFLP 0.000528 | 26 |
| HLA-B*08:01 | 1 | 625 | 634 | 10 | HADQLTPTWR 0.000528 | 26 |
| HLA-A*33:01 | 1 | 635 | 644 | 10 | VYSTGSNVFQ 0.000528 | 18 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*02:06 | 1 | 636 | 644 | 9 | YSTGSNVFQ 0.000528 | 25 |
| HLA-B*58:01 | 1 | 755 | 763 | 9 | QYGSFCTQL 0.000528 | 18 |
| HLA-A*24:02 | 1 | 761 | 770 | 10 | TQLNRALTGI 0.000528 | 11 |
| HLA-A*01:01 | 1 | 895 | 903 | 9 | QIPFAMQMA 0.000528 | 22 |
| HLA-A*01:01 | 1 | 909 | 918 | 10 | IGVTQNVLYE 0.000528 | 22 |
| HLA-B*07:02 | 1 | 915 | 923 | 9 | VLYENQKLI 0.000528 | 16 |
| HLA-A*31:01 | 1 | 918 | 926 | 9 | ENQKLIANQ 0.000528 | 20 |
| HLA-B*58:01 | 1 | 929 | 937 | 9 | SAIGKIQDS 0.000528 | 18 |
| HLA-A*01:01 | 1 | 1144 | 1153 | 10 | ELDSFKEELD 0.000528 | 22 |
| HLA-B*08:01 | 1 | 1144 | 1153 | 10 | ELDSFKEELD 0.000528 | 26 |
| HLA-B*08:01 | 1 | 1203 | 1212 | 10 | LGKYEQYIKW 0.000528 | 26 |
| HLA-B*58:01 | 1 | 115 | 124 | 10 | QSLLVNAT 0.000527 | 18 |
| HLA-B*51:01 | 1 | 250 | 259 | 10 | TPGDSSSGWT 0.000527 | 24 |
| HLA-A*01:01 | 1 | 365 | 373 | 9 | YSVLYNSAS 0.000527 | 22 |
| HLA-A*30:02 | 1 | 393 | 402 | 10 | TNVYADSFVI 0.000527 | 32 |
| HLA-A*31:01 | 1 | 440 | 449 | 10 | NLDSKVGNGY 0.000527 | 20 |
| HLA-B*53:01 | 1 | 500 | 508 | 9 | TNGVGYQPY 0.000527 | 13 |
| HLA-A*02:01 | 1 | 1094 | 1102 | 9 | VFVSNATHW 0.000527 | 18 |
| HLA-A*02:01 | 1 | 1106 | 1114 | 9 | QRNFYEPQI 0.000527 | 18 |
| HLA-B*53:01 | 1 | 1136 | 1144 | 9 | TVYDPLQPE 0.000527 | 13 |
| HLA-A*01:01 | 1 | 1184 | 1193 | 10 | DRLNEVAKNL 0.000527 | 22 |
| HLA-A*24:02 | 1 | 1192 | 1200 | 9 | NLNESLIDL 0.000527 | 11 |
| HLA-B*07:02 | 1 | 91 | 100 | 10 | YFASTEKSNI 0.000526 | 16 |
| HLA-A*24:02 | 1 | 237 | 246 | 10 | RFQTLALHR 0.000526 | 11 |
| HLA-A*33:01 | 1 | 242 | 250 | 9 | LALHRSYLT 0.000526 | 18 |
| HLA-B*44:02 | 1 | 257 | 265 | 9 | GWTAGAAAY 0.000526 | 11 |
| HLA-B*51:01 | 1 | 324 | 333 | 10 | ESIVRFPNIT 0.000526 | 24 |
| HLA-A*23:01 | 1 | 443 | 451 | 9 | SKVGGNYNY 0.000526 | 11 |
| HLA-B*07:02 | 1 | 488 | 497 | 10 | CYFPLQSYGF 0.000526 | 16 |
| HLA-A*24:02 | 1 | 511 | 519 | 9 | VVLSFELLH 0.000526 | 11 |
| HLA-B*58:01 | 1 | 525 | 533 | 9 | CGPKKSTNL 0.000526 | 18 |
| HLA-A*01:01 | 1 | 704 | 713 | 10 | SVAYSNNNSIA 0.000526 | 22 |
| HLA-A*02:03 | 1 | 802 | 811 | 10 | FSQILPDPSK 0.000526 | 21 |
| HLA-B*58:01 | 1 | 907 | 916 | 10 | NGIGVTQNVL 0.000526 | 18 |
| HLA-A*24:02 | 1 | 968 | 976 | 9 | SNFGAISSV 0.000526 | 11 |
| HLA-B*35:01 | 1 | 981 | 989 | 9 | LSRLDKVEA 0.000526 | 13 |
| HLA-A*30:02 | 1 | 1009 | 1018 | 10 | TQQLIRAAEI 0.000526 | 32 |
| HLA-A*30:02 | 1 | 1076 | 1084 | 9 | TTAPAICHD 0.000526 | 32 |
| HLA-B*44:03 | 1 | 57 | 65 | 9 | PFFSNVTWF 0.000525 | 11 |
| HLA-A*32:01 | 1 | 197 | 206 | 10 | IDGYFKIYSK 0.000525 | 14 |
| HLA-B*44:03 | 1 | 257 | 265 | 9 | GWTAGAAAY 0.000525 | 11 |
| HLA-A*02:03 | 1 | 373 | 382 | 10 | SFSTFKCYGV 0.000525 | 21 |
| HLA-A*23:01 | 1 | 373 | 382 | 10 | SFSTFKCYGV 0.000525 | 11 |
| HLA-B*35:01 | 1 | 847 | 855 | 9 | RDLICAQKF 0.000525 | 13 |
| HLA-A*24:02 | 1 | 925 | 934 | 10 | NQFNSAIGKI 0.000525 | 11 |
| HLA-A*01:01 | 1 | 941 | 949 | 9 | TASALGKLQ 0.000525 | 22 |
| HLA-A*02:03 | 1 | 973 | 981 | 9 | ISSVLNDIL 0.000525 | 21 |
| HLA-A*32:01 | 1 | 987 | 996 | 10 | VEAEVQIDRL 0.000525 | 14 |
| HLA-A*01:01 | 1 | 1107 | 1115 | 9 | RNFYEPQII 0.000525 | 22 |
| HLA-A*02:01 | 1 | 1125 | 1133 | 9 | NCDVVIGIV 0.000525 | 18 |
| HLA-A*03:01 | 1 | 1192 | 1200 | 9 | NLNESLIDL 0.000525 | 15 |
| HLA-A*26:01 | 1 | 1258 | 1266 | 9 | EDDSEPVLK 0.000525 | 15 |
| HLA-A*30:01 | 1 | 31 | 40 | 10 | SFTRGVYYPD 0.000524 | 34 |
| HLA-A*32:01 | 1 | 77 | 85 | 9 | KRFDNPVLP 0.000524 | 14 |
| HLA-B*07:02 | 1 | 204 | 213 | 10 | YSKHTPINLV 0.000524 | 16 |
| HLA-A*68:02 | 1 | 292 | 301 | 10 | ALDPLSETKC 0.000524 | 20 |
| HLA-A*68:01 | 1 | 314 | 323 | 10 | QTSNFRVQPT 0.000524 | 19 |
| HLA-B*58:01 | 1 | 416 | 425 | 10 | GKIADYNYKL 0.000524 | 18 |
| HLA-A*23:01 | 1 | 685 | 693 | 9 | RSVASQSII 0.000524 | 11 |
| HLA-A*01:01 | 1 | 690 | 699 | 10 | QSIAYTMSL 0.000524 | 22 |
| HLA-A*30:02 | 1 | 762 | 771 | 10 | QLNRALTGIA 0.000524 | 32 |
| HLA-B*51:01 | 1 | 1049 | 1057 | 9 | LMSFPQSAP 0.000524 | 24 |
| HLA-A*68:01 | 1 | 1206 | 1215 | 10 | YEQYIKWPWY 0.000524 | 19 |
| HLA-A*68:02 | 1 | 18 | 26 | 9 | LTRTQLPP 0.000523 | 20 |
| HLA-B*08:01 | 1 | 34 | 42 | 9 | RGVYYPDKV 0.000523 | 26 |
| HLA-A*03:01 | 1 | 54 | 62 | 9 | LFLPFFSNV 0.000523 | 15 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*31:01 | 1 | 97 | 105 | 9 | KSNIIRGWI 0.000523 | 20 |
| HLA-A*30:02 | 1 | 103 | 112 | 10 | GWIFGTTLDS 0.000523 | 32 |
| HLA-A*30:01 | 1 | 180 | 189 | 10 | EGKQGNFKNL 0.000523 | 34 |
| HLA-A*01:01 | 1 | 283 | 292 | 10 | GTITDAVDCA 0.000523 | 22 |
| HLA-B*08:01 | 1 | 427 | 436 | 10 | DDFTGCVIAW 0.000523 | 26 |
| HLA-B*07:02 | 1 | 644 | 653 | 10 | QTRAGCLIGA 0.000523 | 16 |
| HLA-A*31:01 | 1 | 979 | 987 | 9 | DILSRLDKV 0.000523 | 20 |
| HLA-B*35:01 | 1 | 1224 | 1233 | 10 | LIAIVMVTIM 0.000523 | 13 |
| HLA-A*03:01 | 1 | 49 | 58 | 10 | HSTQDLFLPF 0.000522 | 15 |
| HLA-B*15:01 | 1 | 122 | 130 | 9 | NATNVVIKV 0.000522 | 19 |
| HLA-A*30:01 | 1 | 253 | 261 | 9 | DSSSGWTAG 0.000522 | 34 |
| HLA-A*68:02 | 1 | 273 | 281 | 9 | RTFLLKYNE 0.000522 | 20 |
| HLA-B*08:01 | 1 | 287 | 296 | 10 | DAVDCALDPL 0.000522 | 26 |
| HLA-B*08:01 | 1 | 325 | 333 | 9 | SIVRFPNIT 0.000522 | 26 |
| HLA-B*44:02 | 1 | 533 | 541 | 9 | LVKNKCVNF 0.000522 | 11 |
| HLA-A*01:01 | 1 | 575 | 583 | 9 | AVRDPQTL 0.000522 | 22 |
| HLA-A*26:01 | 1 | 684 | 692 | 9 | ARSVASQSI 0.000522 | 15 |
| HLA-B*57:01 | 1 | 707 | 716 | 10 | YSNNSIAIPT 0.000522 | 26 |
| HLA-A*68:01 | 1 | 987 | 996 | 10 | VEAEVQIDRL 0.000522 | 19 |
| HLA-B*08:01 | 1 | 1124 | 1132 | 9 | GNCDDVIGI 0.000522 | 26 |
| HLA-A*02:01 | 1 | 1160 | 1169 | 10 | TSPDVDLGLDI 0.000522 | 19 |
| HLA-A*30:01 | 1 | 170 | 178 | 9 | YVSQPFLMD 0.000521 | 34 |
| HLA-A*01:01 | 1 | 359 | 367 | 9 | SNCVADYSV 0.000521 | 22 |
| HLA-B*15:01 | 1 | 360 | 368 | 9 | NCVADYSVL 0.000521 | 19 |
| HLA-A*03:01 | 1 | 517 | 525 | 9 | LLHAPATVC 0.000521 | 15 |
| HLA-A*24:02 | 1 | 610 | 619 | 10 | VLYQDVNCTE 0.000521 | 11 |
| HLA-A*68:01 | 1 | 635 | 644 | 10 | VYSTGSNVFQ 0.000521 | 19 |
| HLA-A*26:01 | 1 | 636 | 644 | 9 | YSTGSNVFQ 0.000521 | 15 |
| HLA-B*35:01 | 1 | 665 | 674 | 10 | PIGAGICASY 0.000521 | 13 |
| HLA-A*33:01 | 1 | 768 | 776 | 9 | TGIAVEQDK 0.000521 | 18 |
| HLA-A*02:01 | 1 | 781 | 789 | 9 | VFAQVKQIY 0.000521 | 19 |
| HLA-A*30:02 | 1 | 873 | 882 | 10 | YTSALLAGTI 0.000521 | 32 |
| HLA-B*08:01 | 1 | 904 | 913 | 10 | YRFNGIGVTQ 0.000521 | 26 |
| HLA-B*57:01 | 1 | 921 | 929 | 9 | KLIANQFNS 0.000521 | 26 |
| HLA-B*53:01 | 1 | 1020 | 1029 | 10 | ASANLAATKM 0.000521 | 13 |
| HLA-A*68:01 | 1 | 1225 | 1233 | 9 | IAIVMVTIM 0.000521 | 19 |
| HLA-A*26:01 | 1 | 108 | 116 | 9 | TTLDSKTQS 0.00052 | 15 |
| HLA-A*31:01 | 1 | 152 | 160 | 9 | WMESEFRVY 0.00052 | 20 |
| HLA-A*01:01 | 1 | 242 | 250 | 9 | LALHRSYLT 0.00052 | 22 |
| HLA-B*07:02 | 1 | 297 | 306 | 10 | SETKCTLKSF 0.00052 | 16 |
| HLA-A*31:01 | 1 | 301 | 309 | 9 | CTLKSFTVE 0.00052 | 20 |
| HLA-A*30:02 | 1 | 402 | 411 | 10 | IRGDEVQRQA 0.00052 | 32 |
| HLA-B*07:02 | 1 | 543 | 552 | 10 | FNGLTGTGVL 0.00052 | 16 |
| HLA-A*11:01 | 1 | 555 | 563 | 9 | SNKKFLPFQ 0.00052 | 12 |
| HLA-B*35:01 | 1 | 604 | 613 | 10 | TSNQVAVLYQ 0.00052 | 13 |
| HLA-A*33:01 | 1 | 630 | 638 | 9 | TPTWRVYST 0.00052 | 18 |
| HLA-B*35:01 | 1 | 819 | 828 | 10 | EDLLFNKVTL 0.00052 | 13 |
| HLA-A*30:02 | 1 | 932 | 941 | 10 | GKIQDSLST 0.00052 | 32 |
| HLA-B*57:01 | 1 | 934 | 942 | 9 | IQDSLSTA 0.00052 | 26 |
| HLA-B*15:01 | 1 | 992 | 1000 | 9 | QIDRLITGR 0.00052 | 19 |
| HLA-A*02:03 | 1 | 1171 | 1180 | 10 | GINASVVNIQ 0.00052 | 21 |
| HLA-A*30:02 | 1 | 1176 | 1185 | 10 | VVNIQKEIDR 0.00052 | 32 |
| HLA-A*02:03 | 1 | 42 | 50 | 9 | VFRSSVLHS 0.000519 | 21 |
| HLA-A*11:01 | 1 | 115 | 123 | 9 | QSL LIVNNA 0.000519 | 12 |
| HLA-A*30:01 | 1 | 152 | 160 | 9 | WMESEFRVY 0.000519 | 35 |
| HLA-B*08:01 | 1 | 228 | 237 | 10 | DLPIGINITR 0.000519 | 26 |
| HLA-A*02:03 | 1 | 263 | 272 | 10 | AAYVGYLQP 0.000519 | 21 |
| HLA-A*23:01 | 1 | 278 | 287 | 10 | KYNENGTITD 0.000519 | 11 |
| HLA-A*26:01 | 1 | 602 | 610 | 9 | TNTSNQVAV 0.000519 | 15 |
| HLA-B*44:02 | 1 | 603 | 611 | 9 | NTSNQVAVL 0.000519 | 11 |
| HLA-A*02:06 | 1 | 731 | 739 | 9 | MTKTSVDCT 0.000519 | 25 |
| HLA-A*31:01 | 1 | 891 | 900 | 10 | GAALQIPFAM 0.000519 | 20 |
| HLA-A*11:01 | 1 | 892 | 901 | 10 | AALQIPFAMQ 0.000519 | 12 |
| HLA-A*31:01 | 1 | 977 | 986 | 10 | LNDILSRLDK 0.000519 | 20 |
| HLA-A*02:06 | 1 | 1011 | 1019 | 9 | QLIRAAEIR 0.000519 | 25 |
| HLA-B*40:01 | 1 | 1053 | 1061 | 9 | PQSAPHGVV 0.000519 | 9.9 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|-----|
| HLA-A*03:01 | 1 | 2 | 10 | 9 | FVFLVLLPL 0.000518 | 15 |
| HLA-A*24:02 | 1 | 22 | 30 | 9 | TQLPPAYTN 0.000518 | 11 |
| HLA-A*02:06 | 1 | 115 | 124 | 10 | QSLLIIVNNAT 0.000518 | 25 |
| HLA-A*31:01 | 1 | 226 | 235 | 10 | LVDLPIGINI 0.000518 | 20 |
| HLA-B*51:01 | 1 | 239 | 247 | 9 | QTLLALHRS 0.000518 | 24 |
| HLA-A*32:01 | 1 | 342 | 350 | 9 | FNATRFASV 0.000518 | 14 |
| HLA-B*15:01 | 1 | 432 | 441 | 10 | CVIAWNSNLL 0.000518 | 19 |
| HLA-B*51:01 | 1 | 567 | 576 | 10 | RDIADTTDAV 0.000518 | 24 |
| HLA-A*11:01 | 1 | 712 | 720 | 9 | IAIPTNFTI 0.000518 | 12 |
| HLA-B*40:01 | 1 | 778 | 786 | 9 | TQEVFAQVK 0.000518 | 9.9 |
| HLA-A*30:01 | 1 | 801 | 809 | 9 | NFSQILPDP 0.000518 | 35 |
| HLA-A*11:01 | 1 | 845 | 853 | 9 | AARDLICAQ 0.000518 | 12 |
| HLA-A*26:01 | 1 | 913 | 922 | 10 | QNVLYENQKL 0.000518 | 15 |
| HLA-B*08:01 | 1 | 925 | 934 | 10 | NQFNSAIGKI 0.000518 | 26 |
| HLA-A*30:02 | 1 | 966 | 975 | 10 | LSSNFGAISS 0.000518 | 32 |
| HLA-B*08:01 | 1 | 1072 | 1081 | 10 | EKNFTTAPAI 0.000518 | 26 |
| HLA-A*30:02 | 1 | 84 | 93 | 10 | LPFNDGVYFA 0.000517 | 32 |
| HLA-B*35:01 | 1 | 199 | 207 | 9 | GYFKIYSKH 0.000517 | 13 |
| HLA-B*51:01 | 1 | 302 | 310 | 9 | TLKSFTVEK 0.000517 | 24 |
| HLA-A*31:01 | 1 | 436 | 444 | 9 | WNSNNLDSK 0.000517 | 20 |
| HLA-A*68:01 | 1 | 498 | 506 | 9 | QPTNGVGYQ 0.000517 | 19 |
| HLA-A*02:01 | 1 | 569 | 577 | 9 | IADTTDAVR 0.000517 | 19 |
| HLA-B*51:01 | 1 | 817 | 825 | 9 | FIEDLLFNK 0.000517 | 24 |
| HLA-A*31:01 | 1 | 820 | 828 | 9 | DLLFNKVTL 0.000517 | 20 |
| HLA-A*31:01 | 1 | 868 | 876 | 9 | EMIAQY TSA 0.000517 | 20 |
| HLA-A*68:02 | 1 | 1196 | 1205 | 10 | SLIDLQELGK 0.000517 | 20 |
| HLA-A*68:01 | 1 | 257 | 265 | 9 | GWTAGAAAY 0.000516 | 19 |
| HLA-A*68:02 | 1 | 283 | 291 | 9 | GTITDAVDC 0.000516 | 20 |
| HLA-A*24:02 | 1 | 464 | 473 | 10 | FERDISTEY 0.000516 | 11 |
| HLA-B*51:01 | 1 | 472 | 480 | 9 | IYQAGSTPC 0.000516 | 24 |
| HLA-A*33:01 | 1 | 487 | 496 | 10 | NCYFPLQSYG 0.000516 | 18 |
| HLA-B*07:02 | 1 | 662 | 670 | 9 | CDIPIGAGI 0.000516 | 16 |
| HLA-A*11:01 | 1 | 1002 | 1011 | 10 | QSLQTYVTQQ 0.000516 | 12 |
| HLA-A*23:01 | 1 | 1226 | 1234 | 9 | AIVMVTIML 0.000516 | 11 |
| HLA-A*30:02 | 1 | 25 | 34 | 10 | PPAYTNSFTR 0.000515 | 32 |
| HLA-B*40:01 | 1 | 144 | 152 | 9 | YYHKNNKSW 0.000515 | 9.9 |
| HLA-A*24:02 | 1 | 205 | 214 | 10 | SKHTPINLVR 0.000515 | 11 |
| HLA-A*33:01 | 1 | 311 | 320 | 10 | GIYQTSNFRV 0.000515 | 18 |
| HLA-B*51:01 | 1 | 330 | 338 | 9 | PNITNLCPF 0.000515 | 24 |
| HLA-B*07:02 | 1 | 349 | 357 | 9 | SVYAWNRKR 0.000515 | 16 |
| HLA-A*02:06 | 1 | 444 | 453 | 10 | KVGGNYNYLY 0.000515 | 26 |
| HLA-A*23:01 | 1 | 464 | 473 | 10 | FERDISTEY 0.000515 | 11 |
| HLA-A*32:01 | 1 | 558 | 566 | 9 | KFLPFQFG 0.000515 | 14 |
| HLA-A*02:06 | 1 | 593 | 602 | 10 | GGVSVITPGT 0.000515 | 26 |
| HLA-A*68:01 | 1 | 635 | 643 | 9 | VYSTGSNVF 0.000515 | 19 |
| HLA-B*35:01 | 1 | 688 | 697 | 10 | ASQSIIAYTM 0.000515 | 13 |
| HLA-B*58:01 | 1 | 731 | 739 | 9 | MTKTSVDCT 0.000515 | 19 |
| HLA-A*30:02 | 1 | 1180 | 1189 | 10 | QKEIDRLNEV 0.000515 | 32 |
| HLA-A*24:02 | 1 | 131 | 140 | 10 | CEFQFCNDPF 0.000514 | 11 |
| HLA-A*68:02 | 1 | 184 | 192 | 9 | GNFKNLREF 0.000514 | 20 |
| HLA-B*08:01 | 1 | 225 | 233 | 9 | PLVDLPIGI 0.000514 | 26 |
| HLA-A*02:03 | 1 | 319 | 328 | 10 | RVQPTESIVR 0.000514 | 21 |
| HLA-A*31:01 | 1 | 403 | 411 | 9 | RGDEVRIA 0.000514 | 20 |
| HLA-B*44:03 | 1 | 520 | 529 | 10 | APATVCGPKK 0.000514 | 11 |
| HLA-B*35:01 | 1 | 538 | 546 | 9 | CVNFNFNGL 0.000514 | 13 |
| HLA-A*03:01 | 1 | 639 | 647 | 9 | GSNVFQTRA 0.000514 | 15 |
| HLA-B*44:02 | 1 | 660 | 669 | 10 | YECDIPIGAG 0.000514 | 11 |
| HLA-B*53:01 | 1 | 660 | 668 | 9 | YECDIPIGA 0.000514 | 13 |
| HLA-B*08:01 | 1 | 682 | 690 | 9 | RRARVASQ 0.000514 | 26 |
| HLA-A*30:01 | 1 | 703 | 711 | 9 | NSVAYSNNS 0.000514 | 35 |
| HLA-B*35:01 | 1 | 706 | 714 | 9 | AYSNNSIAI 0.000514 | 13 |
| HLA-A*68:01 | 1 | 711 | 720 | 10 | SIAIPTNFTI 0.000514 | 19 |
| HLA-B*44:03 | 1 | 744 | 752 | 9 | GDSTECNL 0.000514 | 11 |
| HLA-A*30:02 | 1 | 849 | 858 | 10 | LICAQKFNGL 0.000514 | 32 |
| HLA-A*02:01 | 1 | 926 | 934 | 9 | QFNSAIGKI 0.000514 | 19 |
| HLA-A*01:01 | 1 | 1002 | 1011 | 10 | QSLQTYVTQQ 0.000514 | 22 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*35:01 | 1 | 1044 | 1052 | 9 | GKGYHLMSF 0.000514 | 13 |
| HLA-A*68:02 | 1 | 1068 | 1077 | 10 | VPAQEKNFST 0.000514 | 20 |
| HLA-A*68:02 | 1 | 1094 | 1102 | 9 | VFVSNQTHW 0.000514 | 20 |
| HLA-A*02:01 | 1 | 1107 | 1115 | 9 | RNFYEPQII 0.000514 | 19 |
| HLA-B*07:02 | 1 | 1108 | 1116 | 9 | NFYEPQIIT 0.000514 | 16 |
| HLA-B*15:01 | 1 | 1174 | 1183 | 10 | ASVVNIQKEI 0.000514 | 19 |
| HLA-A*02:03 | 1 | 1262 | 1270 | 9 | EPVLKGVKL 0.000514 | 21 |
| HLA-B*57:01 | 1 | 10 | 19 | 10 | LVSSQCVNLT 0.000513 | 26 |
| HLA-B*35:01 | 1 | 109 | 118 | 10 | TLDSKTQSL 0.000513 | 14 |
| HLA-B*35:01 | 1 | 115 | 123 | 9 | QSLLVNNA 0.000513 | 14 |
| HLA-B*44:02 | 1 | 151 | 159 | 9 | SWMESEFRV 0.000513 | 11 |
| HLA-B*35:01 | 1 | 420 | 429 | 10 | DYNYKLPDDF 0.000513 | 14 |
| HLA-A*30:01 | 1 | 695 | 704 | 10 | YTMSLGAENS 0.000513 | 35 |
| HLA-A*01:01 | 1 | 766 | 774 | 9 | ALTGIAVEQ 0.000513 | 22 |
| HLA-A*02:01 | 1 | 782 | 790 | 9 | FAQVKQIYK 0.000513 | 19 |
| HLA-B*58:01 | 1 | 783 | 791 | 9 | AQVKQIYKT 0.000513 | 19 |
| HLA-A*31:01 | 1 | 933 | 942 | 10 | KIQDSLSTA 0.000513 | 20 |
| HLA-B*57:01 | 1 | 1260 | 1269 | 10 | DSEPVKGVK 0.000513 | 26 |
| HLA-B*35:01 | 1 | 343 | 352 | 10 | NATRFASVYA 0.000512 | 14 |
| HLA-A*26:01 | 1 | 523 | 531 | 9 | TVCGPKKST 0.000512 | 15 |
| HLA-B*51:01 | 1 | 559 | 568 | 10 | FLPFQFGRD 0.000512 | 24 |
| HLA-A*03:01 | 1 | 623 | 631 | 9 | AIHADQLTP 0.000512 | 15 |
| HLA-A*02:03 | 1 | 675 | 684 | 10 | QTQTNPRRA 0.000512 | 21 |
| HLA-A*30:02 | 1 | 725 | 734 | 10 | EILPVSMTKT 0.000512 | 32 |
| HLA-B*44:03 | 1 | 764 | 772 | 9 | NRALTGIIV 0.000512 | 11 |
| HLA-B*44:02 | 1 | 820 | 828 | 9 | DLLFNKVTL 0.000512 | 11 |
| HLA-A*33:01 | 1 | 885 | 894 | 10 | GWTFGAGAAL 0.000512 | 18 |
| HLA-B*58:01 | 1 | 1026 | 1035 | 10 | ATKMSECVLG 0.000512 | 19 |
| HLA-A*01:01 | 1 | 1065 | 1074 | 10 | VTYVPAQEK 0.000512 | 22 |
| HLA-B*08:01 | 1 | 1200 | 1209 | 10 | LQELGKYEY 0.000512 | 26 |
| HLA-B*57:01 | 1 | 45 | 53 | 9 | SSVLHSTQD 0.000511 | 26 |
| HLA-B*57:01 | 1 | 58 | 67 | 10 | FFSNVTWFHA 0.000511 | 26 |
| HLA-B*51:01 | 1 | 254 | 262 | 9 | SSSGWTAGA 0.000511 | 24 |
| HLA-A*68:01 | 1 | 291 | 299 | 9 | CALDPLSET 0.000511 | 19 |
| HLA-B*58:01 | 1 | 528 | 537 | 10 | KKSTNLVKNK 0.000511 | 19 |
| HLA-B*08:01 | 1 | 686 | 695 | 10 | SVASQSIIAY 0.000511 | 26 |
| HLA-A*30:02 | 1 | 784 | 793 | 10 | QVKQIYKTPP 0.000511 | 32 |
| HLA-B*51:01 | 1 | 964 | 973 | 10 | KQLSSNFGAI 0.000511 | 24 |
| HLA-A*02:03 | 1 | 1064 | 1072 | 9 | HVTYVPAQE 0.000511 | 21 |
| HLA-A*02:01 | 1 | 1120 | 1129 | 10 | TFVSGNCDVV 0.000511 | 19 |
| HLA-A*30:01 | 1 | 1229 | 1237 | 9 | MVTIMLCCM 0.000511 | 35 |
| HLA-A*03:01 | 1 | 10 | 18 | 9 | LVSSQCVNL 0.000511 | 16 |
| HLA-B*07:02 | 1 | 54 | 62 | 9 | LFLPFFSNV 0.000511 | 16 |
| HLA-A*30:01 | 1 | 121 | 130 | 10 | NNATNVVIVK 0.000511 | 35 |
| HLA-A*31:01 | 1 | 205 | 213 | 9 | SKHTPINLV 0.000511 | 20 |
| HLA-A*03:01 | 1 | 221 | 229 | 9 | SALEPLVDL 0.000511 | 16 |
| HLA-A*30:02 | 1 | 363 | 371 | 9 | ADYSVLYNS 0.000511 | 32 |
| HLA-A*33:01 | 1 | 393 | 401 | 9 | TNVYADSFV 0.000511 | 18 |
| HLA-B*44:03 | 1 | 395 | 403 | 9 | VYADSFVIR 0.000511 | 11 |
| HLA-A*33:01 | 1 | 485 | 493 | 9 | GFNCYFPLQ 0.000511 | 18 |
| HLA-A*02:01 | 1 | 613 | 622 | 10 | QDVNCTEVPV 0.000511 | 19 |
| HLA-A*02:03 | 1 | 638 | 647 | 10 | TGSNVFQTRA 0.000511 | 21 |
| HLA-A*30:01 | 1 | 740 | 748 | 9 | MYICGDSTE 0.000511 | 35 |
| HLA-A*01:01 | 1 | 911 | 920 | 10 | VTQNVLYENQ 0.000511 | 22 |
| HLA-A*26:01 | 1 | 957 | 966 | 10 | QALNTLVKQL 0.000511 | 15 |
| HLA-A*02:06 | 1 | 967 | 975 | 9 | SSNFGAISS 0.000511 | 26 |
| HLA-B*53:01 | 1 | 1034 | 1042 | 9 | LGQSKRVDF 0.000511 | 13 |
| HLA-B*58:01 | 1 | 1107 | 1116 | 10 | RNFYEPQIIT 0.000511 | 19 |
| HLA-B*58:01 | 1 | 1146 | 1154 | 9 | DSFKEELDK 0.000511 | 19 |
| HLA-A*24:02 | 1 | 1214 | 1222 | 9 | WYIWLGFIA 0.000511 | 11 |
| HLA-A*68:02 | 1 | 40 | 49 | 10 | DKVFRSSVLH 0.000509 | 20 |
| HLA-A*02:01 | 1 | 125 | 133 | 9 | NVVIKVFCE 0.000509 | 19 |
| HLA-A*68:01 | 1 | 172 | 180 | 9 | SQPFLMDLE 0.000509 | 19 |
| HLA-B*08:01 | 1 | 216 | 224 | 9 | LPQGFSALE 0.000509 | 26 |
| HLA-A*02:01 | 1 | 392 | 400 | 9 | FTNVYADSF 0.000509 | 19 |
| HLA-B*58:01 | 1 | 711 | 719 | 9 | SIAIPTNFT 0.000509 | 19 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|----------|-----|
| HLA-A*30:02 | 1 | 833 | 841 | 9 | FIKQYGDCL | 0.000509 | 32 |
| HLA-A*26:01 | 1 | 845 | 853 | 9 | AARDLICAQ | 0.000509 | 15 |
| HLA-A*31:01 | 1 | 907 | 915 | 9 | NGIGVTQNV | 0.000509 | 20 |
| HLA-B*40:01 | 1 | 932 | 940 | 9 | GKIQDSLSS | 0.000509 | 9.9 |
| HLA-B*35:01 | 1 | 1041 | 1050 | 10 | DFCGKGYHLM | 0.000509 | 14 |
| HLA-A*24:02 | 1 | 1059 | 1067 | 9 | GVVFLHVTY | 0.000509 | 11 |
| HLA-B*15:01 | 1 | 1096 | 1104 | 9 | VSNGTHWFV | 0.000509 | 19 |
| HLA-B*51:01 | 1 | 1140 | 1148 | 9 | PLQPELDSF | 0.000509 | 24 |
| HLA-A*31:01 | 1 | 1146 | 1155 | 10 | DSFKEELDKY | 0.000509 | 20 |
| HLA-A*30:02 | 1 | 1155 | 1164 | 10 | YFKNHTSPDV | 0.000509 | 32 |
| HLA-A*30:02 | 1 | 1220 | 1229 | 10 | FIAGLIAIVM | 0.000509 | 32 |
| HLA-A*01:01 | 1 | 6 | 14 | 9 | VLLPLVSSQ | 0.000508 | 22 |
| HLA-A*02:06 | 1 | 241 | 250 | 10 | LLALHRSYLT | 0.000508 | 26 |
| HLA-B*57:01 | 1 | 454 | 463 | 10 | RLFRKSNLKP | 0.000508 | 26 |
| HLA-A*31:01 | 1 | 532 | 541 | 10 | NLVKNKCVNF | 0.000508 | 20 |
| HLA-A*02:06 | 1 | 591 | 599 | 9 | SFGGVSUIT | 0.000508 | 26 |
| HLA-A*31:01 | 1 | 596 | 605 | 10 | SVITPGTNTS | 0.000508 | 20 |
| HLA-B*07:02 | 1 | 765 | 773 | 9 | RALTGIAVE | 0.000508 | 16 |
| HLA-A*02:06 | 1 | 987 | 995 | 9 | VEAEVQIDR | 0.000508 | 26 |
| HLA-B*57:01 | 1 | 1219 | 1227 | 9 | GFIAGLIAI | 0.000508 | 26 |
| HLA-A*31:01 | 1 | 55 | 64 | 10 | FLPFFSNVTW | 0.000507 | 20 |
| HLA-A*30:02 | 1 | 107 | 116 | 10 | GTTLDSKTQS | 0.000507 | 32 |
| HLA-A*32:01 | 1 | 167 | 176 | 10 | TFEYVSQLPFL | 0.000507 | 14 |
| HLA-A*01:01 | 1 | 197 | 206 | 10 | IDGYFKIYSK | 0.000507 | 22 |
| HLA-A*24:02 | 1 | 573 | 582 | 10 | TDAVRDPQTL | 0.000507 | 11 |
| HLA-A*23:01 | 1 | 654 | 662 | 9 | EHVNNSYEC | 0.000507 | 11 |
| HLA-A*68:02 | 1 | 758 | 766 | 9 | SFCTQLNRA | 0.000507 | 20 |
| HLA-A*68:01 | 1 | 771 | 779 | 9 | AVEQDKNTQ | 0.000507 | 19 |
| HLA-A*30:02 | 1 | 819 | 828 | 10 | EDLLFNKVTL | 0.000507 | 32 |
| HLA-A*24:02 | 1 | 829 | 837 | 9 | ADAGFIKQY | 0.000507 | 11 |
| HLA-B*08:01 | 1 | 877 | 886 | 10 | LLAGTITSGW | 0.000507 | 26 |
| HLA-B*53:01 | 1 | 957 | 965 | 9 | QALNTLVKQ | 0.000507 | 13 |
| HLA-A*02:06 | 1 | 1062 | 1071 | 10 | FLHVTYVPAQ | 0.000507 | 26 |
| HLA-A*02:03 | 1 | 1093 | 1102 | 10 | GVFVSNGTHW | 0.000507 | 21 |
| HLA-B*51:01 | 1 | 1146 | 1154 | 9 | DSFKEELDK | 0.000507 | 24 |
| HLA-A*33:01 | 1 | 1200 | 1209 | 10 | LQELGKYEYQ | 0.000507 | 18 |
| HLA-A*31:01 | 1 | 1258 | 1266 | 9 | EDDSEPVLK | 0.000507 | 20 |
| HLA-A*32:01 | 1 | 229 | 237 | 9 | LPIGINITR | 0.000506 | 14 |
| HLA-A*23:01 | 1 | 247 | 256 | 10 | SYLTPGDSSS | 0.000506 | 11 |
| HLA-A*02:01 | 1 | 258 | 266 | 9 | WTAGAAAYY | 0.000506 | 19 |
| HLA-A*33:01 | 1 | 301 | 309 | 9 | CTLKSFTVE | 0.000506 | 18 |
| HLA-B*57:01 | 1 | 359 | 367 | 9 | SNCVADYSV | 0.000506 | 26 |
| HLA-A*02:06 | 1 | 456 | 464 | 9 | FRKSNLKP | 0.000506 | 26 |
| HLA-A*26:01 | 1 | 458 | 466 | 9 | KSNLKPFR | 0.000506 | 15 |
| HLA-A*03:01 | 1 | 471 | 479 | 9 | EIYQAGSTP | 0.000506 | 16 |
| HLA-A*68:02 | 1 | 560 | 569 | 10 | LPFQQFGRDI | 0.000506 | 21 |
| HLA-A*02:01 | 1 | 620 | 629 | 10 | VPVAIHADQL | 0.000506 | 19 |
| HLA-A*02:03 | 1 | 663 | 672 | 10 | DIPIGAGICA | 0.000506 | 21 |
| HLA-A*68:02 | 1 | 679 | 688 | 10 | NSPRRARSVA | 0.000506 | 21 |
| HLA-B*35:01 | 1 | 764 | 772 | 9 | NRALTGIAV | 0.000506 | 14 |
| HLA-B*58:01 | 1 | 767 | 775 | 9 | LTGIAVEQD | 0.000506 | 19 |
| HLA-B*57:01 | 1 | 894 | 903 | 10 | LQIPFAMQMA | 0.000506 | 26 |
| HLA-B*15:01 | 1 | 939 | 948 | 10 | SSTASALGKL | 0.000506 | 19 |
| HLA-B*44:02 | 1 | 957 | 966 | 10 | QALNTLVKQL | 0.000506 | 11 |
| HLA-A*33:01 | 1 | 967 | 976 | 10 | SSNFGAISSV | 0.000506 | 18 |
| HLA-A*02:03 | 1 | 994 | 1003 | 10 | DRLITGRLQS | 0.000506 | 21 |
| HLA-B*35:01 | 1 | 1025 | 1033 | 9 | AATKMSECV | 0.000506 | 14 |
| HLA-A*33:01 | 1 | 1038 | 1047 | 10 | KRVDFCGKGY | 0.000506 | 18 |
| HLA-B*08:01 | 1 | 1097 | 1105 | 9 | SNGTHWFVT | 0.000506 | 26 |
| HLA-A*01:01 | 1 | 1161 | 1169 | 9 | SPDVDLGDI | 0.000506 | 22 |
| HLA-B*51:01 | 1 | 1215 | 1224 | 10 | YIWLGFIAGL | 0.000506 | 24 |
| HLA-A*31:01 | 1 | 62 | 71 | 10 | VTWFHAIHVS | 0.000505 | 20 |
| HLA-A*24:02 | 1 | 122 | 130 | 9 | NATNVVIKV | 0.000505 | 11 |
| HLA-A*31:01 | 1 | 184 | 193 | 10 | GNFKNLREFV | 0.000505 | 20 |
| HLA-A*02:06 | 1 | 247 | 256 | 10 | SYLTPGDSSS | 0.000505 | 26 |
| HLA-A*02:06 | 1 | 343 | 352 | 10 | NATRFASVYA | 0.000505 | 26 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*03:01 | 1 | 433 | 441 | 9 | VIAWNSNNL 0.000505 | 16 |
| HLA-B*08:01 | 1 | 624 | 632 | 9 | IHADQLTPT 0.000505 | 26 |
| HLA-A*02:01 | 1 | 706 | 714 | 9 | AYSNNNSIAI 0.000505 | 19 |
| HLA-A*68:01 | 1 | 774 | 782 | 9 | QDKNTQEVF 0.000505 | 19 |
| HLA-B*08:01 | 1 | 1031 | 1040 | 10 | ECVLGQSKRV 0.000505 | 26 |
| HLA-B*44:03 | 1 | 1259 | 1267 | 9 | DDSEPVLKG 0.000505 | 11 |
| HLA-A*02:01 | 1 | 62 | 71 | 10 | VTWFHAIHVS 0.000504 | 19 |
| HLA-A*03:01 | 1 | 84 | 92 | 9 | LPFNDGVYF 0.000504 | 16 |
| HLA-B*44:03 | 1 | 96 | 105 | 10 | EKSNIIRGWI 0.000504 | 11 |
| HLA-A*68:01 | 1 | 119 | 127 | 9 | IVNNATNVV 0.000504 | 19 |
| HLA-A*33:01 | 1 | 148 | 157 | 10 | NNKSWMESEF 0.000504 | 18 |
| HLA-A*24:02 | 1 | 319 | 327 | 9 | RVQPTESIV 0.000504 | 11 |
| HLA-A*30:02 | 1 | 527 | 535 | 9 | PKKSTNLVK 0.000504 | 32 |
| HLA-A*02:06 | 1 | 543 | 552 | 10 | FNGLTGTGVL 0.000504 | 26 |
| HLA-A*02:06 | 1 | 544 | 553 | 10 | NGLTGTGVL 0.000504 | 26 |
| HLA-B*08:01 | 1 | 550 | 559 | 10 | GVLTESNKKF 0.000504 | 26 |
| HLA-A*33:01 | 1 | 574 | 582 | 9 | DAVRDPQTL 0.000504 | 18 |
| HLA-B*40:01 | 1 | 686 | 694 | 9 | SVASQSIIA 0.000504 | 10 |
| HLA-A*03:01 | 1 | 732 | 741 | 10 | TKTSVDCTMY 0.000504 | 16 |
| HLA-B*58:01 | 1 | 770 | 778 | 9 | IAVEQDKNT 0.000504 | 19 |
| HLA-A*02:01 | 1 | 851 | 860 | 10 | CAQKFNGLTV 0.000504 | 19 |
| HLA-A*68:02 | 1 | 895 | 904 | 10 | QIPFAMQMAY 0.000504 | 21 |
| HLA-A*02:01 | 1 | 1093 | 1102 | 10 | GVFVSNNGTHW 0.000504 | 19 |
| HLA-B*15:01 | 1 | 4 | 12 | 9 | FLVLLPLVS 0.000503 | 19 |
| HLA-A*01:01 | 1 | 60 | 69 | 10 | SNVTWFHAIH 0.000503 | 22 |
| HLA-A*26:01 | 1 | 75 | 83 | 9 | GTKRFDNPV 0.000503 | 15 |
| HLA-B*08:01 | 1 | 83 | 91 | 9 | VLPFNDGVY 0.000503 | 26 |
| HLA-A*33:01 | 1 | 180 | 189 | 10 | EGKQGNFKNL 0.000503 | 18 |
| HLA-A*01:01 | 1 | 281 | 289 | 9 | ENGTITDAV 0.000503 | 22 |
| HLA-A*24:02 | 1 | 302 | 310 | 9 | TLKSFTVEK 0.000503 | 11 |
| HLA-B*44:02 | 1 | 405 | 414 | 10 | DEVRFQIAPGQ 0.000503 | 11 |
| HLA-A*31:01 | 1 | 557 | 566 | 10 | KKFLPFQQFG 0.000503 | 20 |
| HLA-B*57:01 | 1 | 706 | 714 | 9 | AYSNNNSIAI 0.000503 | 26 |
| HLA-A*01:01 | 1 | 842 | 850 | 9 | GDIAARDLI 0.000503 | 22 |
| HLA-A*33:01 | 1 | 1089 | 1097 | 9 | FPREGVFS 0.000503 | 18 |
| HLA-B*44:02 | 1 | 1192 | 1200 | 9 | NLNESLIDL 0.000503 | 11 |
| HLA-A*23:01 | 1 | 1225 | 1233 | 9 | IATVMVTIM 0.000503 | 11 |
| HLA-A*02:06 | 1 | 11 | 20 | 10 | VSSQCVNLTT 0.000502 | 26 |
| HLA-A*68:01 | 1 | 20 | 29 | 10 | TRTQLPPAYT 0.000502 | 19 |
| HLA-A*02:01 | 1 | 142 | 150 | 9 | GVYYHKNNK 0.000502 | 19 |
| HLA-A*02:01 | 1 | 186 | 194 | 9 | FKNLREFVF 0.000502 | 19 |
| HLA-B*58:01 | 1 | 310 | 319 | 10 | KGTYQTSNFR 0.000502 | 19 |
| HLA-B*15:01 | 1 | 318 | 327 | 10 | FRVQPTESIV 0.000502 | 19 |
| HLA-B*51:01 | 1 | 442 | 450 | 9 | DSKVGGNYN 0.000502 | 24 |
| HLA-A*03:01 | 1 | 500 | 508 | 9 | TNGVGYQPY 0.000502 | 16 |
| HLA-A*01:01 | 1 | 511 | 520 | 10 | VVLSFELLHA 0.000502 | 22 |
| HLA-A*31:01 | 1 | 673 | 681 | 9 | SYQTQTNSP 0.000502 | 20 |
| HLA-B*15:01 | 1 | 765 | 773 | 9 | RALTGIAVE 0.000502 | 19 |
| HLA-A*30:01 | 1 | 949 | 958 | 10 | QDVVNQNAQA 0.000502 | 35 |
| HLA-A*03:01 | 1 | 1087 | 1095 | 9 | AHFPREGVF 0.000502 | 16 |
| HLA-B*15:01 | 1 | 1184 | 1193 | 10 | DRLNEVAKNL 0.000502 | 19 |
| HLA-B*44:03 | 1 | 16 | 24 | 9 | VNLTRTQL 0.000501 | 11 |
| HLA-A*26:01 | 1 | 240 | 249 | 10 | TLLALHRSYL 0.000501 | 15 |
| HLA-A*02:03 | 1 | 255 | 263 | 9 | SSGWTAGAA 0.000501 | 21 |
| HLA-A*02:03 | 1 | 460 | 469 | 10 | NLKPFERDIS 0.000501 | 21 |
| HLA-A*02:01 | 1 | 470 | 479 | 10 | TEIYQAGSTP 0.000501 | 19 |
| HLA-B*35:01 | 1 | 526 | 535 | 10 | GPKKSTNLVK 0.000501 | 14 |
| HLA-A*01:01 | 1 | 535 | 543 | 9 | KNKCVNFN 0.000501 | 22 |
| HLA-B*44:02 | 1 | 704 | 712 | 9 | SVAYSNNNSI 0.000501 | 11 |
| HLA-A*30:01 | 1 | 747 | 756 | 10 | TECSNLLLQY 0.000501 | 35 |
| HLA-B*53:01 | 1 | 941 | 949 | 9 | TASALGKLQ 0.000501 | 13 |
| HLA-A*30:02 | 1 | 1058 | 1066 | 9 | HGVVFLHVT 0.000501 | 32 |
| HLA-A*01:01 | 1 | 1247 | 1256 | 10 | CCSCGSCCKF 0.000501 | 22 |
| HLA-A*03:01 | 1 | 63 | 71 | 9 | TWFHAIHVS 0.000501 | 16 |
| HLA-B*58:01 | 1 | 72 | 80 | 9 | GTNGTKRFD 0.000501 | 19 |
| HLA-A*30:02 | 1 | 138 | 147 | 10 | DPFLGVVYHK 0.000501 | 32 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*07:02 | 1 | 192 | 201 | 10 | FVFKNIDGYF 0.0005 | 16 |
| HLA-B*44:03 | 1 | 205 | 214 | 10 | SKHTPINLVR 0.0005 | 11 |
| HLA-A*26:01 | 1 | 301 | 310 | 10 | CTLKSFTVEK 0.0005 | 15 |
| HLA-B*58:01 | 1 | 305 | 313 | 9 | SFTVEKGIY 0.0005 | 19 |
| HLA-A*11:01 | 1 | 372 | 381 | 10 | ASFSTFKCYG 0.0005 | 13 |
| HLA-B*40:01 | 1 | 489 | 497 | 9 | YFPLQSYGF 0.0005 | 10 |
| HLA-A*02:06 | 1 | 493 | 501 | 9 | QSYGFQPTN 0.0005 | 26 |
| HLA-B*07:02 | 1 | 556 | 565 | 10 | NKKFLPFQQF 0.0005 | 16 |
| HLA-A*68:02 | 1 | 623 | 631 | 9 | AIHADQLTP 0.0005 | 21 |
| HLA-A*30:01 | 1 | 774 | 782 | 9 | QDKNTQEVF 0.0005 | 35 |
| HLA-A*30:01 | 1 | 802 | 810 | 9 | FSQILPDPS 0.0005 | 35 |
| HLA-A*01:01 | 1 | 1044 | 1052 | 9 | GKGYHLMSF 0.0005 | 22 |
| HLA-B*07:02 | 1 | 1093 | 1101 | 9 | GVFVSNQTH 0.0005 | 16 |
| HLA-A*01:01 | 1 | 1158 | 1167 | 10 | NHTSPDVDLG 0.0005 | 22 |
| HLA-B*51:01 | 1 | 1248 | 1256 | 9 | CSCGSCCKF 0.0005 | 24 |
| HLA-B*51:01 | 1 | 15 | 24 | 10 | CVNLTRTQL 0.000499 | 24 |
| HLA-B*44:03 | 1 | 76 | 84 | 9 | TKRFDNPVL 0.000499 | 11 |
| HLA-A*30:02 | 1 | 173 | 182 | 10 | QPFLMDLEGK 0.000499 | 32 |
| HLA-A*02:01 | 1 | 247 | 256 | 10 | SYLTPGDSSS 0.000499 | 19 |
| HLA-B*58:01 | 1 | 295 | 303 | 9 | PLSETKCTL 0.000499 | 19 |
| HLA-A*23:01 | 1 | 487 | 495 | 9 | NCYFPLQSY 0.000499 | 12 |
| HLA-A*32:01 | 1 | 551 | 560 | 10 | VLTESNKKFL 0.000499 | 14 |
| HLA-B*35:01 | 1 | 741 | 749 | 9 | YICGDSTEC 0.000499 | 14 |
| HLA-B*35:01 | 1 | 852 | 860 | 9 | AQKFNGLTV 0.000499 | 14 |
| HLA-B*35:01 | 1 | 862 | 870 | 9 | PLLLTDEMI 0.000499 | 14 |
| HLA-A*26:01 | 1 | 992 | 1001 | 10 | QIDRLITGRL 0.000499 | 15 |
| HLA-A*01:01 | 1 | 1007 | 1016 | 10 | YVTQQLIRAA 0.000499 | 22 |
| HLA-B*51:01 | 1 | 1115 | 1123 | 9 | ITTDNTFVS 0.000499 | 24 |
| HLA-A*33:01 | 1 | 27 | 36 | 10 | AYTNSFTRGV 0.000498 | 19 |
| HLA-A*23:01 | 1 | 28 | 36 | 9 | YTNSFTRGV 0.000498 | 12 |
| HLA-A*68:02 | 1 | 32 | 40 | 9 | FTRGVYYPD 0.000498 | 21 |
| HLA-A*02:06 | 1 | 58 | 66 | 9 | FFSNVTWFH 0.000498 | 26 |
| HLA-A*01:01 | 1 | 84 | 93 | 10 | LPFNDGVYFA 0.000498 | 22 |
| HLA-B*53:01 | 1 | 91 | 100 | 10 | YFASTEKSNI 0.000498 | 13 |
| HLA-A*02:03 | 1 | 196 | 204 | 9 | NIDGYFKIY 0.000498 | 21 |
| HLA-A*68:01 | 1 | 602 | 611 | 10 | TNTSNQVAVL 0.000498 | 19 |
| HLA-B*35:01 | 1 | 602 | 610 | 9 | TNTSNQVAV 0.000498 | 14 |
| HLA-A*31:01 | 1 | 603 | 611 | 9 | NTSNQVAVL 0.000498 | 20 |
| HLA-A*33:01 | 1 | 611 | 620 | 10 | LYQDVNCTEV 0.000498 | 19 |
| HLA-A*02:03 | 1 | 661 | 670 | 10 | ECDIPIGAGI 0.000498 | 21 |
| HLA-A*03:01 | 1 | 712 | 720 | 9 | IAIPTNFTI 0.000498 | 16 |
| HLA-B*53:01 | 1 | 926 | 934 | 9 | QFNSAIGKI 0.000498 | 13 |
| HLA-B*44:03 | 1 | 929 | 938 | 10 | SAIGKIQDSL 0.000498 | 11 |
| HLA-B*07:02 | 1 | 987 | 996 | 10 | VEAEVQIDRL 0.000498 | 16 |
| HLA-A*26:01 | 1 | 1083 | 1091 | 9 | HDGKAHFPR 0.000498 | 15 |
| HLA-B*51:01 | 1 | 1195 | 1204 | 10 | ESLIDLQELG 0.000498 | 24 |
| HLA-A*02:03 | 1 | 1256 | 1265 | 10 | FDEDDSEPV 0.000498 | 21 |
| HLA-A*31:01 | 1 | 70 | 79 | 10 | VSGTNGTKRF 0.000497 | 20 |
| HLA-B*07:02 | 1 | 340 | 348 | 9 | EVFNATRFA 0.000497 | 16 |
| HLA-A*01:01 | 1 | 378 | 386 | 9 | KCYGVSPTK 0.000497 | 22 |
| HLA-A*01:01 | 1 | 443 | 452 | 10 | SKVGGNYNYL 0.000497 | 22 |
| HLA-B*58:01 | 1 | 454 | 463 | 10 | RLFRKSNLKP 0.000497 | 19 |
| HLA-A*30:01 | 1 | 499 | 508 | 10 | PTNGVGYQPY 0.000497 | 35 |
| HLA-A*02:06 | 1 | 664 | 672 | 9 | IPIGAGICA 0.000497 | 26 |
| HLA-A*68:01 | 1 | 779 | 787 | 9 | QEVFAQVKQ 0.000497 | 19 |
| HLA-B*58:01 | 1 | 856 | 864 | 9 | NGLTVLPPL 0.000497 | 19 |
| HLA-A*31:01 | 1 | 930 | 938 | 9 | AIGKIQDSL 0.000497 | 20 |
| HLA-A*26:01 | 1 | 1043 | 1052 | 10 | CGKGYHLMSF 0.000497 | 16 |
| HLA-B*58:01 | 1 | 1044 | 1052 | 9 | GKGYHLMSF 0.000497 | 19 |
| HLA-A*03:01 | 1 | 1108 | 1116 | 9 | NFYEQIIT 0.000497 | 16 |
| HLA-B*58:01 | 1 | 38 | 46 | 9 | YDPKVFRSS 0.000496 | 19 |
| HLA-A*23:01 | 1 | 58 | 67 | 10 | FFSNVTWFHA 0.000496 | 12 |
| HLA-A*02:01 | 1 | 104 | 112 | 9 | WIFGTTLDS 0.000496 | 19 |
| HLA-A*30:02 | 1 | 107 | 115 | 9 | GTTLDSKTQ 0.000496 | 32 |
| HLA-A*01:01 | 1 | 121 | 130 | 10 | NNATNVVIKV 0.000496 | 22 |
| HLA-A*31:01 | 1 | 247 | 255 | 9 | SYLTPGDSS 0.000496 | 20 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|----------|----|
| HLA-A*02:03 | 1 | 264 | 272 | 9 | AYYVGYLQP | 0.000496 | 21 |
| HLA-B*44:02 | 1 | 304 | 312 | 9 | KSFTVEKGI | 0.000496 | 11 |
| HLA-A*02:06 | 1 | 357 | 365 | 9 | RISNCVADY | 0.000496 | 26 |
| HLA-B*57:01 | 1 | 359 | 368 | 10 | SNCVADYSVL | 0.000496 | 26 |
| HLA-A*68:01 | 1 | 375 | 384 | 10 | STFKCYGVSP | 0.000496 | 19 |
| HLA-A*30:02 | 1 | 564 | 573 | 10 | QFGRDIADTT | 0.000496 | 32 |
| HLA-B*08:01 | 1 | 652 | 660 | 9 | GAEHVNNSY | 0.000496 | 26 |
| HLA-A*23:01 | 1 | 829 | 837 | 9 | ADAGFIKQY | 0.000496 | 12 |
| HLA-A*30:01 | 1 | 885 | 893 | 9 | GWTFGAGAA | 0.000496 | 35 |
| HLA-B*08:01 | 1 | 887 | 896 | 10 | TFGAGAALQI | 0.000496 | 26 |
| HLA-A*02:06 | 1 | 889 | 898 | 10 | GAGAALQIPF | 0.000496 | 26 |
| HLA-A*68:02 | 1 | 896 | 905 | 10 | IPFAMQMAYR | 0.000496 | 21 |
| HLA-A*31:01 | 1 | 1129 | 1138 | 10 | VIGIVNNTVY | 0.000496 | 20 |
| HLA-B*07:02 | 1 | 1138 | 1147 | 10 | YDPLQPELDS | 0.000496 | 16 |
| HLA-B*58:01 | 1 | 1224 | 1233 | 10 | LIAIVMVTIM | 0.000496 | 19 |
| HLA-B*35:01 | 1 | 16 | 24 | 9 | VNLTRTQQL | 0.000495 | 14 |
| HLA-B*40:01 | 1 | 24 | 32 | 9 | LPPAYTNSF | 0.000495 | 10 |
| HLA-A*03:01 | 1 | 33 | 41 | 9 | TRGVYYPDK | 0.000495 | 16 |
| HLA-A*24:02 | 1 | 90 | 99 | 10 | VYFASTEKSN | 0.000495 | 11 |
| HLA-B*44:02 | 1 | 93 | 101 | 9 | ASTEKSNI | 0.000495 | 11 |
| HLA-B*15:01 | 1 | 162 | 171 | 10 | SANNCTFEYV | 0.000495 | 19 |
| HLA-B*51:01 | 1 | 223 | 232 | 10 | LEPLVDLPIG | 0.000495 | 24 |
| HLA-B*35:01 | 1 | 280 | 288 | 9 | NENGTITDA | 0.000495 | 14 |
| HLA-A*30:02 | 1 | 617 | 626 | 10 | CTEVPVAIHA | 0.000495 | 32 |
| HLA-B*35:01 | 1 | 634 | 642 | 9 | RVYSTGNSV | 0.000495 | 14 |
| HLA-A*30:02 | 1 | 724 | 732 | 9 | TEILPVSM | 0.000495 | 32 |
| HLA-A*30:01 | 1 | 930 | 939 | 10 | AIGKIQDLS | 0.000495 | 35 |
| HLA-A*01:01 | 1 | 943 | 952 | 10 | SALGKLQDVV | 0.000495 | 22 |
| HLA-A*30:02 | 1 | 1025 | 1033 | 9 | AATKMSECV | 0.000495 | 32 |
| HLA-A*01:01 | 1 | 1135 | 1144 | 10 | NTVYDPLQPE | 0.000495 | 22 |
| HLA-A*26:01 | 1 | 38 | 47 | 10 | YDPKVFSSV | 0.000494 | 16 |
| HLA-A*03:01 | 1 | 174 | 182 | 9 | PFLMDLEGK | 0.000494 | 16 |
| HLA-A*68:01 | 1 | 204 | 213 | 10 | YSKHTPINLV | 0.000494 | 19 |
| HLA-B*51:01 | 1 | 261 | 270 | 10 | GAAAYYVGYL | 0.000494 | 24 |
| HLA-A*31:01 | 1 | 326 | 334 | 9 | IVRFPNITN | 0.000494 | 21 |
| HLA-A*24:02 | 1 | 342 | 350 | 9 | FNATRFASV | 0.000494 | 11 |
| HLA-B*51:01 | 1 | 763 | 772 | 10 | LNRALGTIAV | 0.000494 | 24 |
| HLA-B*40:01 | 1 | 890 | 898 | 9 | AGAALQIPF | 0.000494 | 10 |
| HLA-A*33:01 | 1 | 929 | 938 | 10 | SAIGKIQDSL | 0.000494 | 19 |
| HLA-B*51:01 | 1 | 982 | 991 | 10 | SRLDKVEAEV | 0.000494 | 24 |
| HLA-A*33:01 | 1 | 1061 | 1069 | 9 | VFLHVITYVP | 0.000494 | 19 |
| HLA-A*30:01 | 1 | 1178 | 1186 | 9 | NIQKEIDRL | 0.000494 | 35 |
| HLA-A*26:01 | 1 | 144 | 153 | 10 | YYHKNNKSWM | 0.000493 | 16 |
| HLA-A*02:03 | 1 | 487 | 495 | 9 | NCYFPLQSY | 0.000493 | 21 |
| HLA-A*30:02 | 1 | 573 | 582 | 10 | TDAVRDPQTL | 0.000493 | 32 |
| HLA-B*15:01 | 1 | 641 | 649 | 9 | NVFQTRAGC | 0.000493 | 19 |
| HLA-B*07:02 | 1 | 676 | 685 | 10 | TQTNSPRRAR | 0.000493 | 16 |
| HLA-A*02:03 | 1 | 739 | 748 | 10 | TMYICGDSTE | 0.000493 | 21 |
| HLA-A*30:01 | 1 | 797 | 805 | 9 | FGGFNFSQI | 0.000493 | 35 |
| HLA-A*32:01 | 1 | 816 | 825 | 10 | SFIEDLLFNK | 0.000493 | 15 |
| HLA-B*15:01 | 1 | 874 | 882 | 9 | TSALLAGTI | 0.000493 | 19 |
| HLA-A*26:01 | 1 | 902 | 911 | 10 | MAYRFNGIGV | 0.000493 | 16 |
| HLA-B*58:01 | 1 | 905 | 913 | 9 | RFNGIGVTQ | 0.000493 | 19 |
| HLA-B*07:02 | 1 | 1025 | 1033 | 9 | AATKMSECV | 0.000493 | 16 |
| HLA-A*30:02 | 1 | 1170 | 1178 | 9 | SGINASVVN | 0.000493 | 32 |
| HLA-B*44:02 | 1 | 1263 | 1272 | 10 | PVLKGVKLHY | 0.000493 | 11 |
| HLA-A*02:06 | 1 | 94 | 102 | 9 | STEKSNIIR | 0.000492 | 26 |
| HLA-A*01:01 | 1 | 118 | 126 | 9 | LIVNNATNV | 0.000492 | 22 |
| HLA-A*31:01 | 1 | 158 | 167 | 10 | RVYSSANNCT | 0.000492 | 21 |
| HLA-B*53:01 | 1 | 195 | 204 | 10 | KNIDGYFKIY | 0.000492 | 13 |
| HLA-B*15:01 | 1 | 246 | 255 | 10 | RSYLTPGDSS | 0.000492 | 19 |
| HLA-A*31:01 | 1 | 256 | 264 | 9 | SGWTAGAAA | 0.000492 | 21 |
| HLA-A*30:01 | 1 | 260 | 268 | 9 | AGAAAYYVG | 0.000492 | 35 |
| HLA-A*02:03 | 1 | 450 | 459 | 10 | NYLYRLEFRKS | 0.000492 | 21 |
| HLA-A*68:01 | 1 | 513 | 522 | 10 | LSFELLHAPA | 0.000492 | 19 |
| HLA-A*30:02 | 1 | 670 | 678 | 9 | ICASYQTQT | 0.000492 | 32 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*57:01 | 1 | 921 | 930 | 10 | KLIANQFNFA 0.000492 | 26 |
| HLA-A*03:01 | 1 | 930 | 938 | 9 | AIGKIQDSL 0.000492 | 16 |
| HLA-A*33:01 | 1 | 968 | 977 | 10 | SNFGAISSVL 0.000492 | 19 |
| HLA-A*03:01 | 1 | 1009 | 1017 | 9 | TQQLIRAAE 0.000492 | 16 |
| HLA-A*11:01 | 1 | 1037 | 1045 | 9 | SKRVDFCGK 0.000492 | 13 |
| HLA-A*23:01 | 1 | 1047 | 1056 | 10 | YHLMSFPQSA 0.000492 | 12 |
| HLA-B*07:02 | 1 | 1047 | 1056 | 10 | YHLMSFPQSA 0.000492 | 16 |
| HLA-B*51:01 | 1 | 1061 | 1069 | 9 | VFLHVTVYP 0.000492 | 24 |
| HLA-A*30:01 | 1 | 1076 | 1085 | 10 | TTAPAICHDG 0.000492 | 35 |
| HLA-A*30:02 | 1 | 1085 | 1094 | 10 | GKAHFPREGV 0.000492 | 32 |
| HLA-B*44:03 | 1 | 1091 | 1100 | 10 | REGVVFVSNGT 0.000492 | 11 |
| HLA-B*44:03 | 1 | 1140 | 1148 | 9 | PLQPELDSF 0.000492 | 11 |
| HLA-A*33:01 | 1 | 1168 | 1177 | 10 | DISGINASVV 0.000492 | 19 |
| HLA-B*58:01 | 1 | 112 | 121 | 10 | SKTQSLIIVN 0.000491 | 19 |
| HLA-B*44:03 | 1 | 138 | 146 | 9 | DPFLGVYYH 0.000491 | 11 |
| HLA-A*23:01 | 1 | 319 | 327 | 9 | RVQPTESIV 0.000491 | 12 |
| HLA-B*08:01 | 1 | 351 | 360 | 10 | YAWNKRKRISN 0.000491 | 26 |
| HLA-A*24:02 | 1 | 509 | 518 | 10 | RVVLSFELL 0.000491 | 11 |
| HLA-A*01:01 | 1 | 743 | 752 | 10 | CGDSTECSNL 0.000491 | 22 |
| HLA-A*02:03 | 1 | 788 | 797 | 10 | IYKTPPIKDF 0.000491 | 21 |
| HLA-A*68:01 | 1 | 1199 | 1208 | 10 | DLQELGKYEQ 0.000491 | 19 |
| HLA-A*30:02 | 1 | 1260 | 1269 | 10 | DSEPVLKGVK 0.000491 | 33 |
| HLA-A*02:01 | 1 | 59 | 68 | 10 | FSNVTWFHAI 0.00049 | 19 |
| HLA-B*15:01 | 1 | 118 | 127 | 10 | LIVNATNVV 0.00049 | 19 |
| HLA-B*51:01 | 1 | 269 | 278 | 10 | YLPRTFLLK 0.00049 | 24 |
| HLA-A*02:06 | 1 | 375 | 383 | 9 | STFKCYGVS 0.00049 | 26 |
| HLA-A*02:01 | 1 | 662 | 670 | 9 | CDIPIGAGI 0.00049 | 19 |
| HLA-B*08:01 | 1 | 734 | 742 | 9 | TSVDCTMYI 0.00049 | 26 |
| HLA-A*68:01 | 1 | 760 | 768 | 9 | CTQLNRALT 0.00049 | 19 |
| HLA-A*02:01 | 1 | 806 | 814 | 9 | LPDPSKPSK 0.00049 | 19 |
| HLA-A*32:01 | 1 | 1048 | 1057 | 10 | HLMSPQSA 0.00049 | 15 |
| HLA-B*57:01 | 1 | 1052 | 1060 | 9 | FPQSAPHGV 0.00049 | 26 |
| HLA-A*03:01 | 1 | 1094 | 1102 | 9 | VFVSNQTHW 0.00049 | 16 |
| HLA-A*01:01 | 1 | 1203 | 1212 | 10 | LGKYEQYIKW 0.00049 | 23 |
| HLA-A*02:03 | 1 | 1225 | 1233 | 9 | IAIVMTIM 0.00049 | 21 |
| HLA-A*68:02 | 1 | 31 | 39 | 9 | SFTRGVYYP 0.000489 | 21 |
| HLA-A*24:02 | 1 | 42 | 50 | 9 | VFRSSVLHS 0.000489 | 11 |
| HLA-B*07:02 | 1 | 119 | 128 | 10 | IVNATNVVI 0.000489 | 17 |
| HLA-A*33:01 | 1 | 171 | 179 | 9 | VSQPFLMDL 0.000489 | 19 |
| HLA-A*03:01 | 1 | 187 | 196 | 10 | KNLREFVFKN 0.000489 | 16 |
| HLA-A*68:01 | 1 | 195 | 203 | 9 | KNIDGYFKI 0.000489 | 19 |
| HLA-A*68:02 | 1 | 239 | 248 | 10 | QTLALHRSY 0.000489 | 21 |
| HLA-A*30:02 | 1 | 316 | 325 | 10 | SNFRVQPTES 0.000489 | 33 |
| HLA-B*58:01 | 1 | 380 | 388 | 9 | YGVSPTKLN 0.000489 | 19 |
| HLA-A*68:02 | 1 | 569 | 577 | 9 | IADTTDAVR 0.000489 | 21 |
| HLA-A*02:06 | 1 | 651 | 660 | 10 | IGAHEVNNNSY 0.000489 | 26 |
| HLA-A*68:01 | 1 | 690 | 698 | 9 | QSIAYTMS 0.000489 | 19 |
| HLA-B*58:01 | 1 | 797 | 806 | 10 | FGGFNFSQIL 0.000489 | 19 |
| HLA-A*68:02 | 1 | 802 | 810 | 9 | FSQILPDPS 0.000489 | 21 |
| HLA-B*40:01 | 1 | 1000 | 1008 | 9 | RLQSLQTYV 0.000489 | 11 |
| HLA-B*44:02 | 1 | 1020 | 1028 | 9 | ASANLAATK 0.000489 | 11 |
| HLA-B*07:02 | 1 | 1212 | 1221 | 10 | WPWYIWLGFI 0.000489 | 17 |
| HLA-A*26:01 | 1 | 1224 | 1233 | 10 | LIAIVMTIM 0.000489 | 16 |
| HLA-B*35:01 | 1 | 6 | 14 | 9 | VLLPLVSSQ 0.000488 | 14 |
| HLA-A*31:01 | 1 | 22 | 31 | 10 | TQLPPAYTNS 0.000488 | 21 |
| HLA-A*23:01 | 1 | 42 | 50 | 9 | VFRSSVLHS 0.000488 | 12 |
| HLA-A*02:03 | 1 | 84 | 93 | 10 | LPFNDGVYFA 0.000488 | 21 |
| HLA-B*58:01 | 1 | 121 | 130 | 10 | NNATNVVIKV 0.000488 | 19 |
| HLA-A*11:01 | 1 | 138 | 146 | 9 | DPFLGVYYH 0.000488 | 13 |
| HLA-A*03:01 | 1 | 182 | 191 | 10 | KQGNFKNLRE 0.000488 | 16 |
| HLA-A*68:01 | 1 | 313 | 322 | 10 | YQTSNFRVQP 0.000488 | 19 |
| HLA-B*44:03 | 1 | 363 | 372 | 10 | ADYSVLYNSA 0.000488 | 11 |
| HLA-A*30:02 | 1 | 380 | 388 | 9 | YGVSPTKLN 0.000488 | 33 |
| HLA-A*23:01 | 1 | 722 | 731 | 10 | VTEILPVSM 0.000488 | 12 |
| HLA-B*40:01 | 1 | 781 | 789 | 9 | VFAQVKQIY 0.000488 | 11 |
| HLA-A*30:01 | 1 | 872 | 881 | 10 | QYTSALLAGT 0.000488 | 35 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*57:01 | 1 | 933 | 941 | 9 | KIQDLSST 0.000488 | 26 |
| HLA-B*08:01 | 1 | 1146 | 1155 | 10 | DSFKEELDKY 0.000488 | 27 |
| HLA-A*23:01 | 1 | 1256 | 1265 | 10 | FDEDDSEPVL 0.000488 | 12 |
| HLA-A*68:02 | 1 | 1264 | 1273 | 10 | VLKGVKLHYT 0.000488 | 21 |
| HLA-B*15:01 | 1 | 1 | 10 | 10 | MFVFLVLLPL 0.000487 | 19 |
| HLA-B*51:01 | 1 | 19 | 28 | 10 | TTRTQLPPAY 0.000487 | 25 |
| HLA-A*26:01 | 1 | 23 | 31 | 9 | QLPPAYTNS 0.000487 | 16 |
| HLA-B*51:01 | 1 | 23 | 31 | 9 | QLPPAYTNS 0.000487 | 25 |
| HLA-A*02:03 | 1 | 69 | 77 | 9 | HVSGTNGTK 0.000487 | 21 |
| HLA-A*02:06 | 1 | 91 | 100 | 10 | YFASTEKSNI 0.000487 | 26 |
| HLA-A*30:02 | 1 | 91 | 100 | 10 | YFASTEKSNI 0.000487 | 33 |
| HLA-A*30:02 | 1 | 211 | 219 | 9 | NLVRDLPOG 0.000487 | 33 |
| HLA-A*30:01 | 1 | 283 | 292 | 10 | GTITDAVDC 0.000487 | 35 |
| HLA-B*58:01 | 1 | 420 | 429 | 10 | DYNYKLPDDF 0.000487 | 19 |
| HLA-A*32:01 | 1 | 503 | 512 | 10 | VGYPYRVVV 0.000487 | 15 |
| HLA-B*57:01 | 1 | 516 | 524 | 9 | ELLHAPATV 0.000487 | 26 |
| HLA-A*30:02 | 1 | 723 | 732 | 10 | TTEILPVSM 0.000487 | 33 |
| HLA-B*08:01 | 1 | 726 | 734 | 9 | ILPVSMTKT 0.000487 | 27 |
| HLA-A*11:01 | 1 | 771 | 779 | 9 | AVEQDKNTQ 0.000487 | 13 |
| HLA-B*44:02 | 1 | 948 | 956 | 9 | LQDVVNQNA 0.000487 | 11 |
| HLA-A*30:02 | 1 | 1164 | 1172 | 9 | VLDGDISGI 0.000487 | 33 |
| HLA-A*02:03 | 1 | 1259 | 1268 | 10 | DDSEPVLKG 0.000487 | 21 |
| HLA-A*33:01 | 1 | 5 | 14 | 10 | LVLLPLVSS 0.000486 | 19 |
| HLA-A*02:03 | 1 | 50 | 59 | 10 | STQDLFLPF 0.000486 | 21 |
| HLA-B*51:01 | 1 | 106 | 114 | 9 | FGTTLDSKT 0.000486 | 25 |
| HLA-B*57:01 | 1 | 137 | 145 | 9 | NDPFLGVYY 0.000486 | 26 |
| HLA-A*31:01 | 1 | 343 | 351 | 9 | NATRFASVY 0.000486 | 21 |
| HLA-A*24:02 | 1 | 373 | 382 | 10 | SFSTFKCYGV 0.000486 | 11 |
| HLA-A*24:02 | 1 | 534 | 543 | 10 | VKNKCVNFN 0.000486 | 11 |
| HLA-B*57:01 | 1 | 629 | 637 | 9 | LTPTWRVYS 0.000486 | 26 |
| HLA-A*03:01 | 1 | 665 | 674 | 10 | PIGAGICASY 0.000486 | 16 |
| HLA-A*31:01 | 1 | 827 | 836 | 10 | TLADAGFIK 0.000486 | 21 |
| HLA-A*23:01 | 1 | 861 | 869 | 9 | LPPLLTDEM 0.000486 | 12 |
| HLA-B*15:01 | 1 | 926 | 934 | 9 | QFNSAIGKI 0.000486 | 19 |
| HLA-A*30:02 | 1 | 946 | 954 | 9 | GKLQDVVNQ 0.000486 | 33 |
| HLA-B*58:01 | 1 | 1013 | 1022 | 10 | IRAAEIRASA 0.000486 | 19 |
| HLA-B*58:01 | 1 | 1032 | 1040 | 9 | CVLQSKRVR 0.000486 | 19 |
| HLA-B*15:01 | 1 | 1064 | 1072 | 9 | HVTYVPAQE 0.000486 | 19 |
| HLA-A*24:02 | 1 | 28 | 36 | 9 | YTNSFTRGV 0.000485 | 11 |
| HLA-B*08:01 | 1 | 78 | 87 | 10 | RFDNPVLPF 0.000485 | 27 |
| HLA-A*02:03 | 1 | 410 | 419 | 10 | IAPGQTGKIA 0.000485 | 21 |
| HLA-A*30:01 | 1 | 441 | 450 | 10 | LDSKVGNYN 0.000485 | 35 |
| HLA-A*02:06 | 1 | 567 | 575 | 9 | RDIADTTDA 0.000485 | 26 |
| HLA-A*02:03 | 1 | 609 | 617 | 9 | AVLYQDVNC 0.000485 | 21 |
| HLA-A*01:01 | 1 | 677 | 686 | 10 | QTNSPRRARS 0.000485 | 23 |
| HLA-B*57:01 | 1 | 875 | 883 | 9 | SALLAGTIT 0.000485 | 26 |
| HLA-A*31:01 | 1 | 982 | 990 | 9 | SRLDKVEAE 0.000485 | 21 |
| HLA-A*01:01 | 1 | 1041 | 1049 | 9 | DFCGKGYHL 0.000485 | 23 |
| HLA-A*01:01 | 1 | 1188 | 1196 | 9 | EVAKNLNES 0.000485 | 23 |
| HLA-A*30:01 | 1 | 7 | 15 | 9 | LLPLVSSQC 0.000484 | 35 |
| HLA-B*57:01 | 1 | 20 | 29 | 10 | TRTQLPPAY 0.000484 | 26 |
| HLA-B*58:01 | 1 | 20 | 29 | 10 | TRTQLPPAY 0.000484 | 19 |
| HLA-A*30:02 | 1 | 104 | 112 | 9 | WIFGTTLDS 0.000484 | 33 |
| HLA-A*02:03 | 1 | 110 | 118 | 9 | LDSKTQSL 0.000484 | 21 |
| HLA-A*23:01 | 1 | 131 | 140 | 10 | CEFQFCNDPF 0.000484 | 12 |
| HLA-A*02:03 | 1 | 144 | 152 | 9 | YYHKNNKSW 0.000484 | 21 |
| HLA-A*32:01 | 1 | 219 | 227 | 9 | GFSALEPLV 0.000484 | 15 |
| HLA-B*15:01 | 1 | 261 | 270 | 10 | GAAAYVGYL 0.000484 | 19 |
| HLA-B*44:03 | 1 | 279 | 288 | 10 | YNENGTITDA 0.000484 | 11 |
| HLA-A*30:01 | 1 | 283 | 291 | 9 | GTITDAVDC 0.000484 | 35 |
| HLA-A*26:01 | 1 | 291 | 299 | 9 | CALDPLSET 0.000484 | 16 |
| HLA-A*68:01 | 1 | 339 | 347 | 9 | GEVFNATRF 0.000484 | 19 |
| HLA-A*30:01 | 1 | 422 | 431 | 10 | NYKLPDDFTG 0.000484 | 35 |
| HLA-B*44:03 | 1 | 445 | 453 | 9 | VGGNYNYLY 0.000484 | 11 |
| HLA-A*24:02 | 1 | 484 | 492 | 9 | EGFNCFYPL 0.000484 | 11 |
| HLA-A*30:01 | 1 | 489 | 497 | 9 | YFPLQSYGF 0.000484 | 35 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*02:03 | 1 | 751 | 760 | 10 | NLLLQYGSFC 0.000484 | 21 |
| HLA-A*24:02 | 1 | 816 | 824 | 9 | SFIEDLLFN 0.000484 | 11 |
| HLA-A*30:01 | 1 | 919 | 928 | 10 | NQKLIANQFN 0.000484 | 35 |
| HLA-B*58:01 | 1 | 934 | 942 | 9 | IQDSLSTA 0.000484 | 19 |
| HLA-A*24:02 | 1 | 987 | 996 | 10 | VEAEVQIDRL 0.000484 | 11 |
| HLA-B*51:01 | 1 | 1019 | 1027 | 9 | RASANLAAT 0.000484 | 25 |
| HLA-B*44:02 | 1 | 1107 | 1115 | 9 | RNFYEPQII 0.000484 | 11 |
| HLA-A*26:01 | 1 | 1135 | 1143 | 9 | NTVYDPLQP 0.000484 | 16 |
| HLA-A*68:01 | 1 | 1171 | 1180 | 10 | GINASVVNIQ 0.000484 | 19 |
| HLA-A*23:01 | 1 | 105 | 113 | 9 | IFGTTLDSK 0.000483 | 12 |
| HLA-A*02:01 | 1 | 127 | 135 | 9 | VIKVCEFQF 0.000483 | 19 |
| HLA-A*02:01 | 1 | 228 | 237 | 10 | DLPIGINITR 0.000483 | 19 |
| HLA-B*57:01 | 1 | 243 | 251 | 9 | ALHRSYLTP 0.000483 | 26 |
| HLA-A*68:01 | 1 | 254 | 263 | 10 | SSSGWTAGAA 0.000483 | 19 |
| HLA-B*58:01 | 1 | 305 | 314 | 10 | SFTVEKGIYQ 0.000483 | 19 |
| HLA-A*24:02 | 1 | 337 | 345 | 9 | PFGEVFNAT 0.000483 | 11 |
| HLA-A*03:01 | 1 | 339 | 348 | 10 | GEVFNATRFA 0.000483 | 16 |
| HLA-A*01:01 | 1 | 446 | 454 | 9 | GGNYNYLYR 0.000483 | 23 |
| HLA-B*57:01 | 1 | 598 | 607 | 10 | ITPGTNTSNQ 0.000483 | 26 |
| HLA-B*51:01 | 1 | 606 | 615 | 10 | NQVAVLYQDV 0.000483 | 25 |
| HLA-A*26:01 | 1 | 612 | 620 | 9 | YQDVNCTEV 0.000483 | 16 |
| HLA-B*57:01 | 1 | 692 | 701 | 10 | IIAYTMSLGA 0.000483 | 26 |
| HLA-B*40:01 | 1 | 704 | 712 | 9 | SVAYSNNSI 0.000483 | 11 |
| HLA-A*32:01 | 1 | 754 | 762 | 9 | LQYGSFCTQ 0.000483 | 15 |
| HLA-B*57:01 | 1 | 798 | 807 | 10 | GGFNFSQILP 0.000483 | 26 |
| HLA-B*57:01 | 1 | 818 | 826 | 9 | IEDLLFNKV 0.000483 | 26 |
| HLA-A*02:06 | 1 | 846 | 855 | 10 | ARDLICAQKF 0.000483 | 26 |
| HLA-A*30:01 | 1 | 864 | 873 | 10 | LLTDEMIAQY 0.000483 | 36 |
| HLA-A*33:01 | 1 | 886 | 895 | 10 | WTFGAGAALQ 0.000483 | 19 |
| HLA-A*30:02 | 1 | 1106 | 1115 | 10 | QRNFYEPQII 0.000483 | 33 |
| HLA-A*26:01 | 1 | 1108 | 1117 | 10 | NFYEPQIITT 0.000483 | 16 |
| HLA-B*57:01 | 1 | 1141 | 1149 | 9 | LQPELDSFK 0.000483 | 26 |
| HLA-A*68:02 | 1 | 377 | 386 | 10 | FKCYGVSPTK 0.000482 | 21 |
| HLA-B*58:01 | 1 | 386 | 395 | 10 | KLNDLCFTNV 0.000482 | 19 |
| HLA-A*33:01 | 1 | 452 | 461 | 10 | LYRLFRKSNL 0.000482 | 19 |
| HLA-B*08:01 | 1 | 563 | 572 | 10 | QQFGRDIADT 0.000482 | 27 |
| HLA-B*58:01 | 1 | 608 | 616 | 9 | VAVLYQDVN 0.000482 | 19 |
| HLA-B*44:02 | 1 | 723 | 731 | 9 | TTEILPVSM 0.000482 | 12 |
| HLA-B*44:03 | 1 | 755 | 763 | 9 | QYGSFCTQL 0.000482 | 11 |
| HLA-A*02:01 | 1 | 757 | 766 | 10 | GSFCTQLNRA 0.000482 | 19 |
| HLA-A*26:01 | 1 | 813 | 821 | 9 | SKRSFIEDL 0.000482 | 16 |
| HLA-A*32:01 | 1 | 849 | 858 | 10 | LICAQKFNGL 0.000482 | 15 |
| HLA-B*57:01 | 1 | 960 | 969 | 10 | NTLVKQLSSN 0.000482 | 26 |
| HLA-A*02:03 | 1 | 990 | 999 | 10 | EVQIDRLITG 0.000482 | 21 |
| HLA-B*58:01 | 1 | 1010 | 1018 | 9 | QQLIRAAEI 0.000482 | 19 |
| HLA-A*30:02 | 1 | 1031 | 1039 | 9 | ECVLGQSKR 0.000482 | 33 |
| HLA-A*23:01 | 1 | 1052 | 1060 | 9 | FPQSAPHGV 0.000482 | 12 |
| HLA-A*11:01 | 1 | 13 | 22 | 10 | SQCYNLTTRT 0.000481 | 13 |
| HLA-A*68:02 | 1 | 222 | 230 | 9 | ALEPLVDLP 0.000481 | 21 |
| HLA-A*01:01 | 1 | 236 | 245 | 10 | TRFQTLALH 0.000481 | 23 |
| HLA-B*44:03 | 1 | 304 | 312 | 9 | KSFTVEKGI 0.000481 | 11 |
| HLA-A*23:01 | 1 | 508 | 517 | 10 | YRVVLSFEL 0.000481 | 12 |
| HLA-A*31:01 | 1 | 553 | 562 | 10 | TESNKKFLPF 0.000481 | 21 |
| HLA-A*03:01 | 1 | 713 | 722 | 10 | AIPTNFTISV 0.000481 | 16 |
| HLA-A*33:01 | 1 | 721 | 729 | 9 | SVTTEILPV 0.000481 | 19 |
| HLA-B*07:02 | 1 | 745 | 753 | 9 | DSTECSNLL 0.000481 | 17 |
| HLA-B*51:01 | 1 | 862 | 871 | 10 | PLLTDEMIA 0.000481 | 25 |
| HLA-B*58:01 | 1 | 928 | 936 | 9 | NSAIGKIQD 0.000481 | 19 |
| HLA-A*33:01 | 1 | 937 | 945 | 9 | SLSSTASAL 0.000481 | 19 |
| HLA-A*01:01 | 1 | 981 | 989 | 9 | LSRLDKVEA 0.000481 | 23 |
| HLA-A*03:01 | 1 | 1092 | 1101 | 10 | EGVFSVNGTH 0.000481 | 16 |
| HLA-A*02:06 | 1 | 1224 | 1233 | 10 | LIAIVMVTIM 0.000481 | 26 |
| HLA-B*58:01 | 1 | 254 | 263 | 10 | SSSGWTAGAA 0.00048 | 19 |
| HLA-A*26:01 | 1 | 372 | 381 | 10 | ASFSTFKCYG 0.00048 | 16 |
| HLA-A*68:02 | 1 | 417 | 426 | 10 | KIADYNYKLP 0.00048 | 21 |
| HLA-B*51:01 | 1 | 434 | 442 | 9 | IAWNSNLD 0.00048 | 25 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*31:01 | 1 | 652 | 660 | 9 | GAEHVNNSY 0.00048 | 21 |
| HLA-B*44:03 | 1 | 691 | 699 | 9 | SIIAYTMSL 0.00048 | 11 |
| HLA-A*30:01 | 1 | 773 | 782 | 10 | EQDKNTQEVF 0.00048 | 36 |
| HLA-B*57:01 | 1 | 820 | 828 | 9 | DLLFNKVTL 0.00048 | 26 |
| HLA-B*58:01 | 1 | 821 | 829 | 9 | LLFNKVTLA 0.00048 | 19 |
| HLA-A*32:01 | 1 | 1169 | 1177 | 9 | ISGINASVV 0.00048 | 15 |
| HLA-B*08:01 | 1 | 1181 | 1190 | 10 | KEIDRLNEVA 0.00048 | 27 |
| HLA-A*23:01 | 1 | 223 | 231 | 9 | LEPLVDLPI 0.000479 | 12 |
| HLA-A*26:01 | 1 | 226 | 235 | 10 | LVDLPIGINI 0.000479 | 16 |
| HLA-A*32:01 | 1 | 291 | 300 | 10 | CALDPLSETK 0.000479 | 15 |
| HLA-A*02:03 | 1 | 369 | 377 | 9 | YNSASFSTF 0.000479 | 21 |
| HLA-A*26:01 | 1 | 391 | 400 | 10 | CFTNVYADSF 0.000479 | 16 |
| HLA-A*24:02 | 1 | 424 | 433 | 10 | KLPDDFTGCV 0.000479 | 11 |
| HLA-B*58:01 | 1 | 440 | 449 | 10 | NLDSKVGGNV 0.000479 | 19 |
| HLA-A*31:01 | 1 | 503 | 512 | 10 | VGYPYRVVV 0.000479 | 21 |
| HLA-A*68:02 | 1 | 551 | 559 | 9 | VLTESNKKF 0.000479 | 21 |
| HLA-A*33:01 | 1 | 571 | 580 | 10 | DTTDAVRDPQ 0.000479 | 19 |
| HLA-A*33:01 | 1 | 688 | 697 | 10 | ASQSIIAYTM 0.000479 | 19 |
| HLA-A*30:02 | 1 | 700 | 708 | 9 | GAENSVAYS 0.000479 | 33 |
| HLA-A*23:01 | 1 | 909 | 917 | 9 | IGVTQNVLY 0.000479 | 12 |
| HLA-A*11:01 | 1 | 921 | 929 | 9 | KLIANQFNS 0.000479 | 13 |
| HLA-B*57:01 | 1 | 971 | 979 | 9 | GAISSVLND 0.000479 | 27 |
| HLA-B*53:01 | 1 | 1107 | 1115 | 9 | RNFYEPQII 0.000479 | 13 |
| HLA-A*68:01 | 1 | 1108 | 1116 | 9 | NFYEPQIIT 0.000479 | 19 |
| HLA-B*57:01 | 1 | 1119 | 1128 | 10 | NTFVSGNCDV 0.000479 | 27 |
| HLA-A*33:01 | 1 | 38 | 46 | 9 | YDPKVRSS 0.000478 | 19 |
| HLA-A*30:02 | 1 | 40 | 48 | 9 | DKVFRSSVL 0.000478 | 33 |
| HLA-A*30:01 | 1 | 156 | 164 | 9 | EFRVYSSAN 0.000478 | 36 |
| HLA-A*33:01 | 1 | 221 | 229 | 9 | SALEPLVDL 0.000478 | 19 |
| HLA-A*24:02 | 1 | 235 | 244 | 10 | ITRFQTLAL 0.000478 | 11 |
| HLA-B*58:01 | 1 | 362 | 371 | 10 | VADYSVLYNS 0.000478 | 19 |
| HLA-B*07:02 | 1 | 406 | 414 | 9 | EVRQIAPGQ 0.000478 | 17 |
| HLA-B*15:01 | 1 | 416 | 424 | 9 | GKIADYNYK 0.000478 | 19 |
| HLA-B*53:01 | 1 | 444 | 453 | 10 | KVGGNYNYLY 0.000478 | 13 |
| HLA-A*02:01 | 1 | 446 | 455 | 10 | GGNYNYLYRL 0.000478 | 19 |
| HLA-A*31:01 | 1 | 481 | 489 | 9 | NGVEGFNCY 0.000478 | 21 |
| HLA-B*58:01 | 1 | 500 | 508 | 9 | TNGVGYQPY 0.000478 | 19 |
| HLA-A*01:01 | 1 | 520 | 529 | 10 | APATVCGPKK 0.000478 | 23 |
| HLA-B*57:01 | 1 | 520 | 529 | 10 | APATVCGPKK 0.000478 | 27 |
| HLA-A*30:02 | 1 | 588 | 597 | 10 | TPCSFGGVSU 0.000478 | 33 |
| HLA-A*32:01 | 1 | 623 | 631 | 9 | AIHADQLTP 0.000478 | 15 |
| HLA-A*02:06 | 1 | 669 | 678 | 10 | GICASYQTQT 0.000478 | 26 |
| HLA-B*57:01 | 1 | 767 | 775 | 9 | LTGIAVEQD 0.000478 | 27 |
| HLA-B*40:01 | 1 | 814 | 823 | 10 | KRSFIEDLLF 0.000478 | 11 |
| HLA-B*35:01 | 1 | 891 | 899 | 9 | GAALQIPFA 0.000478 | 14 |
| HLA-A*68:01 | 1 | 956 | 965 | 10 | AQALNTLVKQ 0.000478 | 19 |
| HLA-A*23:01 | 1 | 973 | 981 | 9 | ISSVLNDIL 0.000478 | 12 |
| HLA-B*53:01 | 1 | 1095 | 1104 | 10 | FVSNQTHWFV 0.000478 | 13 |
| HLA-B*51:01 | 1 | 1129 | 1138 | 10 | VIGIVNNTVY 0.000478 | 25 |
| HLA-A*30:01 | 1 | 1225 | 1234 | 10 | IAIVMTIML 0.000478 | 36 |
| HLA-A*01:01 | 1 | 1261 | 1269 | 9 | SEPVKKGVK 0.000478 | 23 |
| HLA-B*08:01 | 1 | 6 | 15 | 10 | VLLPLVSSQC 0.000477 | 27 |
| HLA-B*44:02 | 1 | 40 | 48 | 9 | DKVFRSSVL 0.000477 | 12 |
| HLA-A*32:01 | 1 | 129 | 137 | 9 | KVCEFQFCN 0.000477 | 15 |
| HLA-A*33:01 | 1 | 154 | 162 | 9 | ESEFRVYSS 0.000477 | 19 |
| HLA-A*32:01 | 1 | 166 | 174 | 9 | CTFEYVSQP 0.000477 | 15 |
| HLA-B*40:01 | 1 | 202 | 210 | 9 | KIYSKHTPI 0.000477 | 11 |
| HLA-B*40:01 | 1 | 317 | 326 | 10 | NFRVQPTESI 0.000477 | 11 |
| HLA-A*01:01 | 1 | 321 | 330 | 10 | QPTESIVRFP 0.000477 | 23 |
| HLA-A*03:01 | 1 | 558 | 566 | 9 | KFLPFQQFG 0.000477 | 16 |
| HLA-A*31:01 | 1 | 583 | 592 | 10 | EILDITPCSF 0.000477 | 21 |
| HLA-A*02:03 | 1 | 590 | 599 | 10 | CSFGGVSUIT 0.000477 | 21 |
| HLA-A*30:02 | 1 | 721 | 730 | 10 | SVTTEILPVS 0.000477 | 33 |
| HLA-B*35:01 | 1 | 746 | 754 | 9 | STECNLLL 0.000477 | 14 |
| HLA-B*53:01 | 1 | 830 | 838 | 9 | DAGFIKQYG 0.000477 | 13 |
| HLA-B*08:01 | 1 | 862 | 870 | 9 | PPLLTDEMI 0.000477 | 27 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*31:01 | 1 | 897 | 906 | 10 | PFAMQMAYRF 0.000477 | 21 |
| HLA-B*15:01 | 1 | 1168 | 1176 | 9 | DISGINASV 0.000477 | 19 |
| HLA-B*57:01 | 1 | 1173 | 1182 | 10 | NASVVNIQKE 0.000477 | 27 |
| HLA-A*33:01 | 1 | 1189 | 1197 | 9 | VAKNLNESL 0.000477 | 19 |
| HLA-A*01:01 | 1 | 313 | 321 | 9 | YQTSNFRVQ 0.000476 | 23 |
| HLA-A*68:02 | 1 | 628 | 636 | 9 | QLTPTWRVY 0.000476 | 21 |
| HLA-A*02:03 | 1 | 674 | 682 | 9 | YQTQTNSPR 0.000476 | 21 |
| HLA-A*02:03 | 1 | 746 | 754 | 9 | STECNLLL 0.000476 | 21 |
| HLA-B*51:01 | 1 | 782 | 791 | 10 | FAQVKQIYKT 0.000476 | 25 |
| HLA-B*58:01 | 1 | 991 | 1000 | 10 | VQIDRLITGR 0.000476 | 19 |
| HLA-A*30:01 | 1 | 1024 | 1033 | 10 | LAATKMSECV 0.000476 | 36 |
| HLA-A*23:01 | 1 | 1202 | 1210 | 9 | ELGKYEQYI 0.000476 | 12 |
| HLA-B*44:02 | 1 | 1219 | 1227 | 9 | GFIAGLIAI 0.000476 | 12 |
| HLA-B*15:01 | 1 | 1223 | 1232 | 10 | GLIAIVMVTI 0.000476 | 19 |
| HLA-A*02:03 | 1 | 3 | 12 | 10 | VFLVLLPLVS 0.000475 | 21 |
| HLA-A*11:01 | 1 | 34 | 43 | 10 | RGVYYPDKVF 0.000475 | 13 |
| HLA-A*31:01 | 1 | 37 | 46 | 10 | YYPDKVFRSS 0.000475 | 21 |
| HLA-A*23:01 | 1 | 137 | 145 | 9 | NDPFLGVYY 0.000475 | 12 |
| HLA-A*30:01 | 1 | 191 | 200 | 10 | EFVFKNIDGY 0.000475 | 36 |
| HLA-A*01:01 | 1 | 219 | 227 | 9 | GFSALEPLV 0.000475 | 23 |
| HLA-B*44:02 | 1 | 256 | 265 | 10 | SGWTAGAAAY 0.000475 | 12 |
| HLA-A*68:01 | 1 | 624 | 633 | 10 | IHADQLTPTW 0.000475 | 19 |
| HLA-B*08:01 | 1 | 810 | 819 | 10 | SKPSKRSEFIE 0.000475 | 27 |
| HLA-A*30:02 | 1 | 853 | 862 | 10 | QKFNGLTVLP 0.000475 | 33 |
| HLA-A*23:01 | 1 | 864 | 873 | 10 | LLTDEMIAQY 0.000475 | 12 |
| HLA-B*15:01 | 1 | 914 | 923 | 10 | NVLYENQKLI 0.000475 | 19 |
| HLA-A*33:01 | 1 | 1023 | 1031 | 9 | NLAATKMSE 0.000475 | 19 |
| HLA-B*15:01 | 1 | 1032 | 1040 | 9 | CVLGQSKRV 0.000475 | 19 |
| HLA-A*31:01 | 1 | 1070 | 1078 | 9 | AQEKNFHTA 0.000475 | 21 |
| HLA-A*30:02 | 1 | 1073 | 1082 | 10 | KNFTTAPAIC 0.000475 | 33 |
| HLA-B*44:03 | 1 | 1184 | 1193 | 10 | DRLNEVAKNL 0.000475 | 11 |
| HLA-B*44:03 | 1 | 40 | 48 | 9 | DKVFRSSVL 0.000474 | 11 |
| HLA-A*23:01 | 1 | 229 | 237 | 9 | LPIGINITR 0.000474 | 12 |
| HLA-B*07:02 | 1 | 254 | 263 | 10 | SSSGWTAGAA 0.000474 | 17 |
| HLA-B*44:03 | 1 | 256 | 265 | 10 | SGWTAGAAAY 0.000474 | 11 |
| HLA-B*07:02 | 1 | 278 | 286 | 9 | KYNENGTIT 0.000474 | 17 |
| HLA-B*57:01 | 1 | 307 | 315 | 9 | TVEKGIYQT 0.000474 | 27 |
| HLA-A*23:01 | 1 | 356 | 365 | 10 | KRISNCVADY 0.000474 | 12 |
| HLA-A*02:06 | 1 | 370 | 379 | 10 | NSASFSTFKC 0.000474 | 26 |
| HLA-B*44:02 | 1 | 387 | 396 | 10 | LNDLCFTNVY 0.000474 | 12 |
| HLA-A*26:01 | 1 | 402 | 410 | 9 | IRGDEVRFI 0.000474 | 16 |
| HLA-B*07:02 | 1 | 448 | 456 | 9 | NYNLYRLF 0.000474 | 17 |
| HLA-B*58:01 | 1 | 457 | 466 | 10 | RKSNLKPFR 0.000474 | 19 |
| HLA-A*30:02 | 1 | 462 | 470 | 9 | KPFERDIST 0.000474 | 33 |
| HLA-B*40:01 | 1 | 602 | 611 | 10 | TNTSNQVAVL 0.000474 | 11 |
| HLA-A*23:01 | 1 | 610 | 619 | 10 | VLYQDVNCTE 0.000474 | 12 |
| HLA-B*51:01 | 1 | 642 | 650 | 9 | VFQTRAGCL 0.000474 | 25 |
| HLA-B*15:01 | 1 | 673 | 682 | 10 | SYQTQTNSPR 0.000474 | 19 |
| HLA-A*33:01 | 1 | 711 | 719 | 9 | SIAIPTNFT 0.000474 | 19 |
| HLA-B*07:02 | 1 | 828 | 837 | 10 | LADAGFIKQY 0.000474 | 17 |
| HLA-B*51:01 | 1 | 915 | 924 | 10 | VLYENQKLI 0.000474 | 25 |
| HLA-A*30:02 | 1 | 950 | 958 | 9 | DVVNQNAQA 0.000474 | 33 |
| HLA-A*31:01 | 1 | 991 | 999 | 9 | VQIDRLITG 0.000474 | 21 |
| HLA-A*02:03 | 1 | 1087 | 1095 | 9 | AHFPREGVF 0.000474 | 21 |
| HLA-B*07:02 | 1 | 172 | 181 | 10 | SQPFLMDLEG 0.000473 | 17 |
| HLA-A*24:02 | 1 | 225 | 233 | 9 | PLVDLPIGI 0.000473 | 11 |
| HLA-A*30:02 | 1 | 314 | 323 | 10 | QTSNFRVQPT 0.000473 | 33 |
| HLA-A*24:02 | 1 | 379 | 388 | 10 | CYGVSPTKLN 0.000473 | 11 |
| HLA-B*44:02 | 1 | 443 | 452 | 10 | SKVGGNYYL 0.000473 | 12 |
| HLA-B*08:01 | 1 | 490 | 498 | 9 | FPLQSYGFQ 0.000473 | 27 |
| HLA-A*30:01 | 1 | 535 | 544 | 10 | KNKCVNFNFN 0.000473 | 36 |
| HLA-A*68:02 | 1 | 538 | 547 | 10 | CVNFNFNGLT 0.000473 | 21 |
| HLA-B*07:02 | 1 | 627 | 635 | 9 | DQLTPTWRV 0.000473 | 17 |
| HLA-B*58:01 | 1 | 627 | 635 | 9 | DQLTPTWRV 0.000473 | 19 |
| HLA-A*32:01 | 1 | 637 | 645 | 9 | STGSNVFQT 0.000473 | 15 |
| HLA-B*07:02 | 1 | 651 | 660 | 10 | IGAHEVNNSY 0.000473 | 17 |

| | | | | | | |
|-------------|---|------|------|----|-----------------------|----|
| HLA-A*30:02 | 1 | 767 | 776 | 10 | LTGIAVEQDK 0.000473 | 33 |
| HLA-B*15:01 | 1 | 778 | 787 | 10 | TQEVFAQVKQ 0.000473 | 19 |
| HLA-B*44:03 | 1 | 820 | 828 | 9 | DLLFNKVTL 0.000473 | 11 |
| HLA-A*03:01 | 1 | 864 | 872 | 9 | LLTDEMIAQ 0.000473 | 16 |
| HLA-A*30:02 | 1 | 872 | 880 | 9 | QYTSALLAG 0.000473 | 33 |
| HLA-A*68:02 | 1 | 875 | 883 | 9 | SALLAGTIT 0.000473 | 21 |
| HLA-B*15:01 | 1 | 948 | 957 | 10 | LQDVVNQNAQ 0.000473 | 19 |
| HLA-B*51:01 | 1 | 1074 | 1082 | 9 | NFTTAPAIC 0.000473 | 25 |
| HLA-A*02:06 | 1 | 111 | 119 | 9 | DSKTQSLLI 0.000472 | 26 |
| HLA-B*58:01 | 1 | 121 | 129 | 9 | NNATNVVIK 0.000472 | 19 |
| HLA-A*01:01 | 1 | 246 | 255 | 10 | RSYLTPGDSS 0.000472 | 23 |
| HLA-A*30:02 | 1 | 249 | 257 | 9 | LTPGDSSSG 0.000472 | 33 |
| HLA-A*32:01 | 1 | 342 | 351 | 10 | FNATRFASVY 0.000472 | 15 |
| HLA-A*30:02 | 1 | 373 | 382 | 10 | SFSTFKCYGV 0.000472 | 33 |
| HLA-B*08:01 | 1 | 408 | 416 | 9 | RQIAPGQTG 0.000472 | 27 |
| HLA-A*24:02 | 1 | 495 | 503 | 9 | YGFQPTNGV 0.000472 | 11 |
| HLA-A*33:01 | 1 | 542 | 550 | 9 | NFNGLTGTG 0.000472 | 19 |
| HLA-B*57:01 | 1 | 616 | 625 | 10 | NCTEVPVAIH 0.000472 | 27 |
| HLA-A*24:02 | 1 | 654 | 662 | 9 | EHVNNSYEC 0.000472 | 11 |
| HLA-A*30:01 | 1 | 691 | 700 | 10 | SIAYTMSLG 0.000472 | 36 |
| HLA-B*58:01 | 1 | 707 | 716 | 10 | YSNNSIAIPT 0.000472 | 19 |
| HLA-A*03:01 | 1 | 765 | 773 | 9 | RALTGIAVE 0.000472 | 16 |
| HLA-A*26:01 | 1 | 816 | 825 | 10 | SFIEDLLFNK 0.000472 | 16 |
| HLA-B*07:02 | 1 | 832 | 841 | 10 | GFIKQYGDCL 0.000472 | 17 |
| HLA-B*35:01 | 1 | 841 | 849 | 9 | LGDI AARDL 0.000472 | 14 |
| HLA-A*68:01 | 1 | 861 | 869 | 9 | LPPLLTDEM 0.000472 | 20 |
| HLA-A*02:06 | 1 | 926 | 934 | 9 | QFNSAIGKI 0.000472 | 26 |
| HLA-B*58:01 | 1 | 941 | 950 | 10 | TASALGKLQD 0.000472 | 19 |
| HLA-B*44:02 | 1 | 975 | 983 | 9 | SVLNDILSR 0.000472 | 12 |
| HLA-A*68:01 | 1 | 988 | 996 | 9 | EAEVQIDRL 0.000472 | 20 |
| HLA-A*01:01 | 1 | 1098 | 1107 | 10 | NGTHWFVTQR 0.000472 | 23 |
| HLA-A*68:02 | 1 | 17 | 25 | 9 | NLTTRTQLP 0.000471 | 21 |
| HLA-B*51:01 | 1 | 55 | 63 | 9 | FLPFFSNVT 0.000471 | 25 |
| HLA-A*33:01 | 1 | 64 | 72 | 9 | WFHAIHVSG 0.000471 | 19 |
| HLA-A*01:01 | 1 | 205 | 213 | 9 | SKHTPINLV 0.000471 | 23 |
| HLA-B*53:01 | 1 | 214 | 223 | 10 | RDL PQGF SAL 0.000471 | 13 |
| HLA-A*24:02 | 1 | 304 | 312 | 9 | KSFTVEKGI 0.000471 | 11 |
| HLA-B*51:01 | 1 | 325 | 333 | 9 | SIVRFPNIT 0.000471 | 25 |
| HLA-B*51:01 | 1 | 384 | 392 | 9 | PTKLNLCF 0.000471 | 25 |
| HLA-A*30:01 | 1 | 410 | 419 | 10 | IAPGQTGKIA 0.000471 | 36 |
| HLA-A*33:01 | 1 | 440 | 449 | 10 | NLDSKVGNGY 0.000471 | 19 |
| HLA-A*68:01 | 1 | 490 | 498 | 9 | FPLQSYGFQ 0.000471 | 20 |
| HLA-B*35:01 | 1 | 560 | 568 | 9 | LPFQQFGRD 0.000471 | 14 |
| HLA-A*01:01 | 1 | 744 | 752 | 9 | GDSTEC SNL 0.000471 | 23 |
| HLA-B*58:01 | 1 | 781 | 790 | 10 | VFAQVKQIYK 0.000471 | 19 |
| HLA-A*68:02 | 1 | 810 | 818 | 9 | SKPSKRSFI 0.000471 | 21 |
| HLA-A*30:01 | 1 | 906 | 915 | 10 | FNGIGVTQNV 0.000471 | 36 |
| HLA-A*23:01 | 1 | 923 | 931 | 9 | IANQFN SAI 0.000471 | 12 |
| HLA-A*32:01 | 1 | 1009 | 1018 | 10 | TQQLIRAAEI 0.000471 | 15 |
| HLA-B*07:02 | 1 | 1016 | 1025 | 10 | AEIRASANLA 0.000471 | 17 |
| HLA-A*02:03 | 1 | 1025 | 1034 | 10 | AATKMSECVL 0.000471 | 21 |
| HLA-B*07:02 | 1 | 1087 | 1096 | 10 | AHF PREGV FV 0.000471 | 17 |
| HLA-B*40:01 | 1 | 1147 | 1156 | 10 | SFKEELDKYF 0.000471 | 11 |
| HLA-A*02:01 | 1 | 1261 | 1270 | 10 | SEPV LKGVKL 0.000471 | 19 |
| HLA-A*03:01 | 1 | 51 | 59 | 9 | TQDLFLPFF 0.00047 | 16 |
| HLA-A*32:01 | 1 | 110 | 118 | 9 | LDSKTQSL L 0.00047 | 15 |
| HLA-A*03:01 | 1 | 166 | 174 | 9 | CTFEYVSQP 0.00047 | 16 |
| HLA-A*23:01 | 1 | 205 | 214 | 10 | SKHTPINLVR 0.00047 | 12 |
| HLA-A*68:01 | 1 | 285 | 293 | 9 | ITDAVDCAL 0.00047 | 20 |
| HLA-B*44:02 | 1 | 314 | 322 | 9 | QTSNFRVQP 0.00047 | 12 |
| HLA-B*08:01 | 1 | 343 | 352 | 10 | NATRFASVYA 0.00047 | 27 |
| HLA-B*44:03 | 1 | 416 | 425 | 10 | GKIADYNYKL 0.00047 | 11 |
| HLA-A*03:01 | 1 | 494 | 503 | 10 | SYGFQPTNGV 0.00047 | 16 |
| HLA-A*03:01 | 1 | 859 | 867 | 9 | TVLPPL LTD 0.00047 | 16 |
| HLA-A*11:01 | 1 | 911 | 920 | 10 | VTQNVLYENQ 0.00047 | 13 |
| HLA-A*30:01 | 1 | 1091 | 1100 | 10 | REGV FVSNGT 0.00047 | 36 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*08:01 | 1 | 1104 | 1112 | 9 | VTQRNFYEP 0.00047 | 27 |
| HLA-A*02:06 | 1 | 1141 | 1150 | 10 | LQPELDSFKE 0.00047 | 26 |
| HLA-A*01:01 | 1 | 1174 | 1182 | 9 | ASVVNIQKE 0.00047 | 23 |
| HLA-A*33:01 | 1 | 1184 | 1193 | 10 | DRLNEVAKNL 0.00047 | 19 |
| HLA-B*58:01 | 1 | 1229 | 1237 | 9 | MVTIMLCCM 0.00047 | 19 |
| HLA-A*30:02 | 1 | 94 | 103 | 10 | STEKSNIIRG 0.000469 | 33 |
| HLA-A*30:01 | 1 | 110 | 118 | 9 | LDSKTQSL 0.000469 | 36 |
| HLA-A*24:02 | 1 | 120 | 128 | 9 | VNMATNVVI 0.000469 | 11 |
| HLA-A*30:02 | 1 | 226 | 234 | 9 | LVDLPIGIN 0.000469 | 33 |
| HLA-B*58:01 | 1 | 309 | 318 | 10 | EKGIYQTSNF 0.000469 | 19 |
| HLA-A*68:01 | 1 | 326 | 334 | 9 | IVRFPNITN 0.000469 | 20 |
| HLA-B*15:01 | 1 | 471 | 480 | 10 | EIYQAGSTPC 0.000469 | 19 |
| HLA-B*57:01 | 1 | 623 | 631 | 9 | AIHADQLTP 0.000469 | 27 |
| HLA-A*23:01 | 1 | 666 | 674 | 9 | IGAGICASY 0.000469 | 12 |
| HLA-B*15:01 | 1 | 711 | 719 | 9 | SIAPTNTFT 0.000469 | 19 |
| HLA-A*02:06 | 1 | 753 | 762 | 10 | LLQYGSFCTQ 0.000469 | 26 |
| HLA-A*01:01 | 1 | 886 | 895 | 10 | WTFGAGAALQ 0.000469 | 23 |
| HLA-A*01:01 | 1 | 913 | 922 | 10 | QNVLYENQKL 0.000469 | 23 |
| HLA-A*26:01 | 1 | 1089 | 1097 | 9 | FPREGVFS 0.000469 | 16 |
| HLA-B*08:01 | 1 | 1188 | 1196 | 9 | EVAKNLNES 0.000469 | 27 |
| HLA-B*15:01 | 1 | 116 | 124 | 9 | SLLIVNNAT 0.000468 | 19 |
| HLA-B*51:01 | 1 | 512 | 520 | 9 | VLSFELLHA 0.000468 | 25 |
| HLA-A*30:01 | 1 | 583 | 592 | 10 | EILDITPCSF 0.000468 | 36 |
| HLA-A*68:02 | 1 | 784 | 793 | 10 | QVKQIYKTPP 0.000468 | 21 |
| HLA-A*01:01 | 1 | 791 | 800 | 10 | TPPIKDFGGF 0.000468 | 23 |
| HLA-A*68:01 | 1 | 1016 | 1024 | 9 | AEIRASANL 0.000468 | 20 |
| HLA-A*01:01 | 1 | 1059 | 1068 | 10 | GVVFLHVTYV 0.000468 | 23 |
| HLA-A*02:03 | 1 | 1059 | 1067 | 9 | GVVFLHVTY 0.000468 | 21 |
| HLA-A*02:06 | 1 | 117 | 125 | 9 | LLIVNNATN 0.000467 | 26 |
| HLA-A*02:03 | 1 | 360 | 368 | 9 | NCVADYSVL 0.000467 | 21 |
| HLA-A*02:03 | 1 | 392 | 400 | 9 | FTNVYADSF 0.000467 | 21 |
| HLA-A*30:01 | 1 | 501 | 510 | 10 | NGVGYQPYRV 0.000467 | 36 |
| HLA-A*03:01 | 1 | 502 | 511 | 10 | GVGYQPYRVV 0.000467 | 16 |
| HLA-A*01:01 | 1 | 524 | 533 | 10 | VCGPKKSTNL 0.000467 | 23 |
| HLA-B*58:01 | 1 | 546 | 555 | 10 | LTGTGVLTES 0.000467 | 19 |
| HLA-B*35:01 | 1 | 597 | 605 | 9 | VITPGTNTS 0.000467 | 14 |
| HLA-A*32:01 | 1 | 616 | 624 | 9 | NCTEVPVAI 0.000467 | 15 |
| HLA-A*33:01 | 1 | 815 | 823 | 9 | RSFIEDLLF 0.000467 | 19 |
| HLA-A*02:06 | 1 | 867 | 876 | 10 | DEMIAQY TSA 0.000467 | 26 |
| HLA-A*03:01 | 1 | 1048 | 1057 | 10 | HLMSFPQSAP 0.000467 | 16 |
| HLA-A*23:01 | 1 | 1120 | 1128 | 9 | TFVSGNCDV 0.000467 | 12 |
| HLA-A*31:01 | 1 | 1220 | 1228 | 9 | FIAGLIAIV 0.000467 | 21 |
| HLA-A*30:01 | 1 | 1224 | 1233 | 10 | LIAIVMVTIM 0.000467 | 36 |
| HLA-A*01:01 | 1 | 54 | 62 | 9 | LFLPFFSNV 0.000466 | 23 |
| HLA-A*30:02 | 1 | 68 | 76 | 9 | IHSVGTNGT 0.000466 | 33 |
| HLA-A*01:01 | 1 | 88 | 97 | 10 | DGVYFASTEK 0.000466 | 23 |
| HLA-A*02:03 | 1 | 97 | 105 | 9 | KSNIIRGWI 0.000466 | 22 |
| HLA-A*30:02 | 1 | 201 | 210 | 10 | FKIYSKHTPI 0.000466 | 33 |
| HLA-B*51:01 | 1 | 264 | 272 | 9 | AYYVGYLQP 0.000466 | 25 |
| HLA-A*33:01 | 1 | 315 | 323 | 9 | TSNFRVQPT 0.000466 | 19 |
| HLA-A*02:03 | 1 | 320 | 328 | 9 | VQPTESIVR 0.000466 | 22 |
| HLA-A*30:01 | 1 | 322 | 330 | 9 | PTESIVRFP 0.000466 | 36 |
| HLA-A*33:01 | 1 | 341 | 350 | 10 | VFNATRFASV 0.000466 | 19 |
| HLA-A*68:01 | 1 | 428 | 436 | 9 | DFTGCVIAW 0.000466 | 20 |
| HLA-A*32:01 | 1 | 625 | 634 | 10 | HADQLTPTWR 0.000466 | 15 |
| HLA-B*08:01 | 1 | 651 | 659 | 9 | IGAHEVNNS 0.000466 | 27 |
| HLA-B*58:01 | 1 | 791 | 800 | 10 | TPPIKDFGGF 0.000466 | 19 |
| HLA-B*07:02 | 1 | 921 | 930 | 10 | KLIANQFN SA 0.000466 | 17 |
| HLA-B*08:01 | 1 | 1069 | 1078 | 10 | PAQEKNF TTA 0.000466 | 27 |
| HLA-B*35:01 | 1 | 1070 | 1078 | 9 | AQEKNF TTA 0.000466 | 14 |
| HLA-A*68:01 | 1 | 1075 | 1084 | 10 | FTTAPAICH D 0.000466 | 20 |
| HLA-B*07:02 | 1 | 89 | 97 | 9 | GVYFASTEK 0.000465 | 17 |
| HLA-B*58:01 | 1 | 101 | 110 | 10 | IRGWIFGT TL 0.000465 | 19 |
| HLA-B*58:01 | 1 | 170 | 178 | 9 | YVSQPFLMD 0.000465 | 19 |
| HLA-B*35:01 | 1 | 313 | 321 | 9 | YQTSNFRVQ 0.000465 | 14 |
| HLA-A*11:01 | 1 | 316 | 324 | 9 | SNFRVQPT E 0.000465 | 13 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*68:01 | 1 | 381 | 390 | 10 | GVSPTKLNDL 0.000465 | 20 |
| HLA-B*15:01 | 1 | 391 | 400 | 10 | CFTNVYADSF 0.000465 | 19 |
| HLA-B*58:01 | 1 | 401 | 410 | 10 | VIRGDEVQRQI 0.000465 | 19 |
| HLA-B*08:01 | 1 | 442 | 451 | 10 | DSKVGGNVNY 0.000465 | 27 |
| HLA-B*44:02 | 1 | 447 | 455 | 9 | GNVNYLYRL 0.000465 | 12 |
| HLA-A*01:01 | 1 | 466 | 474 | 9 | RDISTEIQ 0.000465 | 23 |
| HLA-A*01:01 | 1 | 501 | 509 | 9 | NGVGYQPYR 0.000465 | 23 |
| HLA-B*53:01 | 1 | 520 | 528 | 9 | APATVCGPK 0.000465 | 13 |
| HLA-A*24:02 | 1 | 538 | 546 | 9 | CVNFNFNGL 0.000465 | 11 |
| HLA-B*57:01 | 1 | 557 | 566 | 10 | KKFLPFQFG 0.000465 | 27 |
| HLA-B*51:01 | 1 | 579 | 587 | 9 | PQTLEILDI 0.000465 | 25 |
| HLA-B*53:01 | 1 | 690 | 699 | 10 | QSIIAYTMSL 0.000465 | 13 |
| HLA-A*23:01 | 1 | 714 | 722 | 9 | IPTNFTISV 0.000465 | 12 |
| HLA-B*57:01 | 1 | 816 | 825 | 10 | SFIEDLLFNK 0.000465 | 27 |
| HLA-A*68:02 | 1 | 854 | 862 | 9 | KFNGLTVLP 0.000465 | 21 |
| HLA-A*23:01 | 1 | 871 | 879 | 9 | AQYTSALLA 0.000465 | 12 |
| HLA-A*11:01 | 1 | 886 | 895 | 10 | WTFGAGAALQ 0.000465 | 13 |
| HLA-A*33:01 | 1 | 943 | 951 | 9 | SALGKLQDV 0.000465 | 19 |
| HLA-A*32:01 | 1 | 967 | 975 | 9 | SSNFGAISS 0.000465 | 15 |
| HLA-B*57:01 | 1 | 1064 | 1072 | 9 | HVTYVPAQE 0.000465 | 27 |
| HLA-A*33:01 | 1 | 1153 | 1162 | 10 | DKYFKNHTSP 0.000465 | 19 |
| HLA-A*31:01 | 1 | 136 | 144 | 9 | CNDPFLGVY 0.000464 | 21 |
| HLA-A*01:01 | 1 | 142 | 150 | 9 | GVYYHKNNK 0.000464 | 23 |
| HLA-B*07:02 | 1 | 196 | 204 | 9 | NIDGYFKIY 0.000464 | 17 |
| HLA-B*07:02 | 1 | 357 | 365 | 9 | RISNCVADY 0.000464 | 17 |
| HLA-B*57:01 | 1 | 386 | 394 | 9 | KLNDLCFTN 0.000464 | 27 |
| HLA-A*01:01 | 1 | 440 | 448 | 9 | NLDSKVGGN 0.000464 | 23 |
| HLA-A*03:01 | 1 | 482 | 490 | 9 | GVEGFNCYF 0.000464 | 16 |
| HLA-A*02:01 | 1 | 745 | 753 | 9 | DSTECSNLL 0.000464 | 19 |
| HLA-B*44:02 | 1 | 814 | 822 | 9 | KRSFIEDLL 0.000464 | 12 |
| HLA-A*33:01 | 1 | 853 | 861 | 9 | QKFNGLTVL 0.000464 | 19 |
| HLA-A*02:03 | 1 | 856 | 864 | 9 | NGLTVLPPL 0.000464 | 22 |
| HLA-B*53:01 | 1 | 914 | 923 | 10 | NVLYENQKLI 0.000464 | 13 |
| HLA-B*57:01 | 1 | 915 | 924 | 10 | VLYENQKLIA 0.000464 | 27 |
| HLA-B*35:01 | 1 | 975 | 983 | 9 | SVLNDILSR 0.000464 | 14 |
| HLA-B*40:01 | 1 | 992 | 1001 | 10 | QIDRLITGRL 0.000464 | 11 |
| HLA-B*58:01 | 1 | 1064 | 1072 | 9 | HVTYVPAQE 0.000464 | 19 |
| HLA-A*24:02 | 1 | 1210 | 1219 | 10 | IKWPWYIWLG 0.000464 | 11 |
| HLA-A*31:01 | 1 | 1 | 10 | 10 | MFVFLVLLPL 0.000463 | 21 |
| HLA-B*51:01 | 1 | 63 | 71 | 9 | TWFHAIHVS 0.000463 | 25 |
| HLA-A*02:01 | 1 | 163 | 171 | 9 | ANNCTFEYV 0.000463 | 19 |
| HLA-B*08:01 | 1 | 242 | 251 | 10 | LALHRSYLTP 0.000463 | 27 |
| HLA-A*30:01 | 1 | 265 | 274 | 10 | YYVGYLQPR 0.000463 | 36 |
| HLA-A*33:01 | 1 | 455 | 464 | 10 | LFRKSNLKP 0.000463 | 19 |
| HLA-A*31:01 | 1 | 472 | 480 | 9 | IYQAGSTPC 0.000463 | 21 |
| HLA-A*02:01 | 1 | 530 | 539 | 10 | STNLVKNKCV 0.000463 | 19 |
| HLA-A*02:03 | 1 | 554 | 562 | 9 | ESNKKFLPF 0.000463 | 22 |
| HLA-A*02:01 | 1 | 640 | 649 | 10 | SNVFQTRAGC 0.000463 | 19 |
| HLA-A*30:02 | 1 | 703 | 712 | 10 | NSVAYSNNSI 0.000463 | 33 |
| HLA-A*26:01 | 1 | 939 | 947 | 9 | SSTASALGK 0.000463 | 16 |
| HLA-B*40:01 | 1 | 982 | 991 | 10 | SRLDKVEAEV 0.000463 | 11 |
| HLA-B*40:01 | 1 | 988 | 996 | 9 | EAEVQIDRL 0.000463 | 11 |
| HLA-A*68:01 | 1 | 57 | 66 | 10 | PFFSNVTWFH 0.000462 | 20 |
| HLA-A*68:01 | 1 | 70 | 79 | 10 | VSGTNGTKRF 0.000462 | 20 |
| HLA-A*30:01 | 1 | 137 | 145 | 9 | NDPFLGVYY 0.000462 | 36 |
| HLA-B*40:01 | 1 | 307 | 316 | 10 | TVEKGIYQTS 0.000462 | 11 |
| HLA-A*01:01 | 1 | 375 | 384 | 10 | STFKCYGVSP 0.000462 | 23 |
| HLA-B*51:01 | 1 | 377 | 386 | 10 | FKCYGVSPK 0.000462 | 25 |
| HLA-A*01:01 | 1 | 447 | 456 | 10 | GNVNYLYRLF 0.000462 | 23 |
| HLA-B*08:01 | 1 | 514 | 523 | 10 | SFELLHAPAT 0.000462 | 27 |
| HLA-A*02:06 | 1 | 524 | 533 | 10 | VCGPKKSTNL 0.000462 | 27 |
| HLA-A*02:06 | 1 | 550 | 558 | 9 | GVLTESNKK 0.000462 | 27 |
| HLA-B*58:01 | 1 | 556 | 565 | 10 | NKKFLPFQF 0.000462 | 19 |
| HLA-A*01:01 | 1 | 720 | 729 | 10 | ISVTTEILPV 0.000462 | 23 |
| HLA-B*58:01 | 1 | 936 | 944 | 9 | DSLSSTASA 0.000462 | 19 |
| HLA-A*24:02 | 1 | 1046 | 1054 | 9 | GYHLMSFPQ 0.000462 | 11 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|----|
| HLA-A*02:06 | 1 | 1089 | 1097 | 9 | FPREGVFS | 0.000462 | 27 |
| HLA-B*08:01 | 1 | 1098 | 1106 | 9 | NGTHWFVTQ | 0.000462 | 27 |
| HLA-A*68:01 | 1 | 1121 | 1129 | 9 | FVSGNCDVV | 0.000462 | 20 |
| HLA-A*02:01 | 1 | 1135 | 1144 | 10 | NTVYDPLQPE | 0.000462 | 19 |
| HLA-B*40:01 | 1 | 1157 | 1166 | 10 | KNHTSPDVL | 0.000462 | 11 |
| HLA-A*30:01 | 1 | 17 | 25 | 9 | NLTTRTQLP | 0.000461 | 36 |
| HLA-B*51:01 | 1 | 266 | 274 | 9 | YVGYLQPR | 0.000461 | 25 |
| HLA-A*01:01 | 1 | 311 | 320 | 10 | GIYQTSNFRV | 0.000461 | 23 |
| HLA-A*30:01 | 1 | 336 | 344 | 9 | CPFGEVFNA | 0.000461 | 36 |
| HLA-B*44:02 | 1 | 411 | 419 | 9 | APGQTGKIA | 0.000461 | 12 |
| HLA-A*68:01 | 1 | 481 | 490 | 10 | NGVEGFNCYF | 0.000461 | 20 |
| HLA-A*11:01 | 1 | 493 | 501 | 9 | QSYGFQPTN | 0.000461 | 13 |
| HLA-A*03:01 | 1 | 546 | 554 | 9 | LTGTGVLTE | 0.000461 | 16 |
| HLA-A*26:01 | 1 | 550 | 558 | 9 | GVLTESNKK | 0.000461 | 16 |
| HLA-A*01:01 | 1 | 556 | 565 | 10 | NKKFLPFQF | 0.000461 | 23 |
| HLA-A*32:01 | 1 | 559 | 567 | 9 | FLPFQFQGR | 0.000461 | 15 |
| HLA-A*02:06 | 1 | 684 | 693 | 10 | ARSVASQSII | 0.000461 | 27 |
| HLA-A*01:01 | 1 | 851 | 860 | 10 | CAQKFNGLTV | 0.000461 | 23 |
| HLA-B*51:01 | 1 | 944 | 952 | 9 | ALGKLQDVV | 0.000461 | 25 |
| HLA-B*07:02 | 1 | 25 | 34 | 10 | PPAYTNSFTR | 0.00046 | 17 |
| HLA-A*31:01 | 1 | 30 | 39 | 10 | NSFTRGVYYP | 0.00046 | 21 |
| HLA-A*68:02 | 1 | 115 | 124 | 10 | QSLLVNNT | 0.00046 | 21 |
| HLA-A*02:06 | 1 | 305 | 314 | 10 | SFTVEKGIYQ | 0.00046 | 27 |
| HLA-A*31:01 | 1 | 386 | 394 | 9 | KLNDLCFTN | 0.00046 | 21 |
| HLA-A*30:01 | 1 | 534 | 543 | 10 | VKNKCVNFN | 0.00046 | 36 |
| HLA-A*33:01 | 1 | 572 | 580 | 9 | TTDAVRDPQ | 0.00046 | 19 |
| HLA-A*30:01 | 1 | 670 | 678 | 9 | ICASYQTQT | 0.00046 | 36 |
| HLA-A*68:02 | 1 | 720 | 728 | 9 | ISVTTEILP | 0.00046 | 21 |
| HLA-A*26:01 | 1 | 845 | 854 | 10 | AARDLICAQK | 0.00046 | 16 |
| HLA-A*68:01 | 1 | 877 | 886 | 10 | LLAGTITSGW | 0.00046 | 20 |
| HLA-A*01:01 | 1 | 883 | 892 | 10 | TSGWTFGAGA | 0.00046 | 23 |
| HLA-A*33:01 | 1 | 982 | 990 | 9 | SRLDKVEAE | 0.00046 | 19 |
| HLA-B*57:01 | 1 | 995 | 1003 | 9 | RLITGRLQS | 0.00046 | 27 |
| HLA-A*33:01 | 1 | 1003 | 1012 | 10 | SLQTYVTQQL | 0.00046 | 19 |
| HLA-A*02:03 | 1 | 1069 | 1078 | 10 | PAQEKNFSTA | 0.00046 | 22 |
| HLA-A*68:02 | 1 | 1155 | 1164 | 10 | YFKNHTSPDV | 0.00046 | 21 |
| HLA-B*51:01 | 1 | 86 | 94 | 9 | FNDGVYFAS | 0.000459 | 25 |
| HLA-A*26:01 | 1 | 126 | 134 | 9 | VVIKVCFFQ | 0.000459 | 16 |
| HLA-A*03:01 | 1 | 136 | 145 | 10 | CNDPFLGVY | 0.000459 | 16 |
| HLA-A*32:01 | 1 | 220 | 229 | 10 | FSALEPLVDL | 0.000459 | 15 |
| HLA-A*68:02 | 1 | 319 | 328 | 10 | RVQPTESIVR | 0.000459 | 21 |
| HLA-B*53:01 | 1 | 455 | 464 | 10 | LFRKSNLKP | 0.000459 | 13 |
| HLA-A*02:06 | 1 | 497 | 506 | 10 | FQPTNGVGYQ | 0.000459 | 27 |
| HLA-A*11:01 | 1 | 500 | 508 | 9 | TNGVGYQPY | 0.000459 | 13 |
| HLA-B*58:01 | 1 | 503 | 512 | 10 | VGYPYRVVV | 0.000459 | 19 |
| HLA-A*30:01 | 1 | 631 | 639 | 9 | PTWRVYSTG | 0.000459 | 36 |
| HLA-B*07:02 | 1 | 661 | 670 | 10 | ECDIPIGAGI | 0.000459 | 17 |
| HLA-B*40:01 | 1 | 1080 | 1089 | 10 | AICHDGKAHF | 0.000459 | 11 |
| HLA-B*07:02 | 1 | 1133 | 1141 | 9 | VNNTVYDPL | 0.000459 | 17 |
| HLA-B*57:01 | 1 | 84 | 93 | 10 | LPFNDGVYFA | 0.000458 | 27 |
| HLA-A*11:01 | 1 | 160 | 168 | 9 | YSSANNCTF | 0.000458 | 13 |
| HLA-B*57:01 | 1 | 237 | 246 | 10 | RFQTLALHR | 0.000458 | 27 |
| HLA-B*57:01 | 1 | 253 | 261 | 9 | DSSSGWTAG | 0.000458 | 27 |
| HLA-B*53:01 | 1 | 306 | 314 | 9 | FTVEKGIYQ | 0.000458 | 13 |
| HLA-A*01:01 | 1 | 367 | 375 | 9 | VLYNSASFS | 0.000458 | 23 |
| HLA-A*11:01 | 1 | 381 | 390 | 10 | GVSPTKLNDL | 0.000458 | 13 |
| HLA-B*51:01 | 1 | 436 | 445 | 10 | WNSNNLDSKV | 0.000458 | 25 |
| HLA-A*01:01 | 1 | 466 | 475 | 10 | RDISTEIQQA | 0.000458 | 23 |
| HLA-A*30:01 | 1 | 486 | 494 | 9 | FNCYFPLQS | 0.000458 | 36 |
| HLA-A*03:01 | 1 | 672 | 681 | 10 | ASYQTQTN | 0.000458 | 16 |
| HLA-A*33:01 | 1 | 951 | 959 | 9 | VVNQAQAL | 0.000458 | 19 |
| HLA-B*58:01 | 1 | 986 | 995 | 10 | KVEAEVQIDR | 0.000458 | 19 |
| HLA-A*23:01 | 1 | 1153 | 1162 | 10 | DKYFKNHTSP | 0.000458 | 12 |
| HLA-A*01:01 | 1 | 1174 | 1183 | 10 | ASVWNIQKEI | 0.000458 | 23 |
| HLA-B*35:01 | 1 | 1226 | 1234 | 9 | AIVMVTIML | 0.000458 | 14 |
| HLA-B*44:03 | 1 | 1263 | 1272 | 10 | PVLKGVKLHY | 0.000458 | 12 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*02:01 | 1 | 152 | 161 | 10 | WMESEFRVYS 0.000457 | 20 |
| HLA-B*40:01 | 1 | 268 | 277 | 10 | GYLQPRTFLL 0.000457 | 11 |
| HLA-B*07:02 | 1 | 314 | 322 | 9 | QTSNFRVQP 0.000457 | 17 |
| HLA-B*51:01 | 1 | 327 | 336 | 10 | VRFPNITNLC 0.000457 | 25 |
| HLA-A*31:01 | 1 | 512 | 520 | 9 | VLSFELLHA 0.000457 | 21 |
| HLA-A*01:01 | 1 | 583 | 591 | 9 | EILDITPCS 0.000457 | 23 |
| HLA-B*57:01 | 1 | 748 | 757 | 10 | ECSNLLLQYG 0.000457 | 27 |
| HLA-B*57:01 | 1 | 768 | 776 | 9 | TGIAVEQDK 0.000457 | 27 |
| HLA-B*44:02 | 1 | 999 | 1008 | 10 | GRLQSLQTYV 0.000457 | 12 |
| HLA-B*51:01 | 1 | 1116 | 1124 | 9 | TTDNTFVSG 0.000457 | 25 |
| HLA-B*44:02 | 1 | 1207 | 1216 | 10 | EQYIKWPWYI 0.000457 | 12 |
| HLA-A*03:01 | 1 | 56 | 64 | 9 | LPFFSNVTW 0.000456 | 16 |
| HLA-B*58:01 | 1 | 69 | 78 | 10 | HVSGTNGTKR 0.000456 | 19 |
| HLA-A*24:02 | 1 | 119 | 127 | 9 | IVN NATNVV 0.000456 | 12 |
| HLA-B*44:02 | 1 | 190 | 198 | 9 | REFVFKNID 0.000456 | 12 |
| HLA-B*08:01 | 1 | 239 | 248 | 10 | QTLLALHRSY 0.000456 | 27 |
| HLA-A*02:06 | 1 | 351 | 359 | 9 | YAWNKRKRIS 0.000456 | 27 |
| HLA-A*03:01 | 1 | 424 | 432 | 9 | KLPDDFTGC 0.000456 | 16 |
| HLA-A*31:01 | 1 | 424 | 433 | 10 | KLPDDFTGCV 0.000456 | 21 |
| HLA-A*01:01 | 1 | 428 | 436 | 9 | DFTGCVIAW 0.000456 | 23 |
| HLA-A*68:02 | 1 | 468 | 476 | 9 | ISTEIQAG 0.000456 | 21 |
| HLA-A*02:01 | 1 | 525 | 533 | 9 | CGPKKSTNL 0.000456 | 20 |
| HLA-A*02:06 | 1 | 757 | 765 | 9 | GSFCTQLNR 0.000456 | 27 |
| HLA-A*02:01 | 1 | 828 | 837 | 10 | LADAGFIKQY 0.000456 | 20 |
| HLA-B*07:02 | 1 | 829 | 837 | 9 | ADAGFIKQY 0.000456 | 17 |
| HLA-B*44:02 | 1 | 978 | 986 | 9 | NDILSRDK 0.000456 | 12 |
| HLA-A*02:06 | 1 | 1044 | 1052 | 9 | GKGYHLMSF 0.000456 | 27 |
| HLA-A*02:06 | 1 | 1114 | 1123 | 10 | IITTDNTFVS 0.000456 | 27 |
| HLA-B*08:01 | 1 | 1191 | 1200 | 10 | KNLNESLIDL 0.000456 | 27 |
| HLA-B*58:01 | 1 | 1206 | 1215 | 10 | YEYIKWPWY 0.000456 | 19 |
| HLA-A*02:01 | 1 | 48 | 56 | 9 | LHSTQDLFL 0.000455 | 20 |
| HLA-B*57:01 | 1 | 238 | 247 | 10 | FQTLALHRS 0.000455 | 27 |
| HLA-B*08:01 | 1 | 333 | 341 | 9 | TNLCPFGEV 0.000455 | 27 |
| HLA-A*68:01 | 1 | 669 | 677 | 9 | GICASYQTQ 0.000455 | 20 |
| HLA-A*02:06 | 1 | 770 | 778 | 9 | IAVEQDKNT 0.000455 | 27 |
| HLA-A*68:01 | 1 | 784 | 793 | 10 | QVKQIYKTPP 0.000455 | 20 |
| HLA-A*68:02 | 1 | 826 | 835 | 10 | VTLADAGFIK 0.000455 | 21 |
| HLA-A*31:01 | 1 | 853 | 861 | 9 | QKFNGLTVL 0.000455 | 21 |
| HLA-A*23:01 | 1 | 880 | 889 | 10 | GTITSGWTFG 0.000455 | 12 |
| HLA-B*35:01 | 1 | 898 | 907 | 10 | FAMQMAYRFN 0.000455 | 14 |
| HLA-A*30:02 | 1 | 937 | 946 | 10 | SLSSTASALG 0.000455 | 34 |
| HLA-B*53:01 | 1 | 975 | 983 | 9 | SVLNDILSR 0.000455 | 13 |
| HLA-B*35:01 | 1 | 8 | 17 | 10 | LPLVSSQCVN 0.000454 | 14 |
| HLA-A*01:01 | 1 | 11 | 20 | 10 | VSSQCVNLTT 0.000454 | 23 |
| HLA-A*02:01 | 1 | 22 | 30 | 9 | TQLPPAYTN 0.000454 | 20 |
| HLA-A*01:01 | 1 | 79 | 87 | 9 | FDNPVLPFN 0.000454 | 23 |
| HLA-A*03:01 | 1 | 205 | 213 | 9 | SKHTPINLV 0.000454 | 16 |
| HLA-B*07:02 | 1 | 255 | 264 | 10 | SSGWTAGAAA 0.000454 | 17 |
| HLA-B*44:02 | 1 | 257 | 266 | 10 | GWTAGAAAYY 0.000454 | 12 |
| HLA-A*26:01 | 1 | 264 | 273 | 10 | AYYVGYLQPR 0.000454 | 16 |
| HLA-A*01:01 | 1 | 268 | 276 | 9 | GYLQPRTFLL 0.000454 | 23 |
| HLA-A*26:01 | 1 | 314 | 322 | 9 | QTSNFRVQP 0.000454 | 16 |
| HLA-A*02:01 | 1 | 377 | 386 | 10 | FKCYGVSPK 0.000454 | 20 |
| HLA-B*57:01 | 1 | 432 | 441 | 10 | CVIAWNSNNL 0.000454 | 27 |
| HLA-A*01:01 | 1 | 453 | 461 | 9 | YRLFRKSNL 0.000454 | 23 |
| HLA-B*35:01 | 1 | 565 | 573 | 9 | FGRDIADTT 0.000454 | 14 |
| HLA-A*68:01 | 1 | 717 | 725 | 9 | NFTISVTTE 0.000454 | 20 |
| HLA-A*68:01 | 1 | 853 | 861 | 9 | QKFNGLTVL 0.000454 | 20 |
| HLA-A*02:03 | 1 | 924 | 933 | 10 | ANQFNSAIGK 0.000454 | 22 |
| HLA-B*51:01 | 1 | 1071 | 1079 | 9 | QEKNF T TAP 0.000454 | 25 |
| HLA-A*68:02 | 1 | 1132 | 1140 | 9 | IVNNTVYDP 0.000454 | 21 |
| HLA-A*68:01 | 1 | 1182 | 1190 | 9 | EIDRLNEVA 0.000454 | 20 |
| HLA-A*01:01 | 1 | 1192 | 1201 | 10 | NLNESLIDLQ 0.000454 | 23 |
| HLA-A*32:01 | 1 | 26 | 34 | 9 | PAYTNSFTR 0.000453 | 15 |
| HLA-B*15:01 | 1 | 226 | 235 | 10 | LVDLPIGINI 0.000453 | 20 |
| HLA-B*53:01 | 1 | 312 | 320 | 9 | IYQTSNFRV 0.000453 | 13 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|----------|----|
| HLA-A*03:01 | 1 | 338 | 346 | 9 | FGEVFNATR | 0.000453 | 16 |
| HLA-A*03:01 | 1 | 367 | 376 | 10 | VLYNSASFST | 0.000453 | 16 |
| HLA-B*44:03 | 1 | 392 | 400 | 9 | FTNVYADSF | 0.000453 | 12 |
| HLA-B*58:01 | 1 | 436 | 445 | 10 | WNSNNLDSKV | 0.000453 | 20 |
| HLA-A*68:02 | 1 | 578 | 587 | 10 | DPQTLEILDI | 0.000453 | 21 |
| HLA-B*08:01 | 1 | 663 | 672 | 10 | DIPIGAGICA | 0.000453 | 27 |
| HLA-A*31:01 | 1 | 776 | 784 | 9 | KNTQEVFAQ | 0.000453 | 21 |
| HLA-A*24:02 | 1 | 886 | 894 | 9 | WTFGAGAAL | 0.000453 | 12 |
| HLA-B*07:02 | 1 | 950 | 958 | 9 | DVVNQNAQA | 0.000453 | 17 |
| HLA-B*08:01 | 1 | 951 | 960 | 10 | VVNQNAQALN | 0.000453 | 27 |
| HLA-A*31:01 | 1 | 969 | 977 | 9 | NFGAISSVL | 0.000453 | 21 |
| HLA-A*68:01 | 1 | 1119 | 1128 | 10 | NTFVSGNCDV | 0.000453 | 20 |
| HLA-A*31:01 | 1 | 15 | 23 | 9 | CVNLTRTRQ | 0.000452 | 21 |
| HLA-A*30:02 | 1 | 43 | 52 | 10 | FRSSVLHSTQ | 0.000452 | 34 |
| HLA-A*02:01 | 1 | 54 | 63 | 10 | LFLPFFSNVT | 0.000452 | 20 |
| HLA-B*57:01 | 1 | 220 | 228 | 9 | FSALEPLVD | 0.000452 | 27 |
| HLA-A*11:01 | 1 | 267 | 275 | 9 | VGYLQPRTF | 0.000452 | 13 |
| HLA-B*58:01 | 1 | 296 | 304 | 9 | LSETKCTLK | 0.000452 | 20 |
| HLA-B*44:02 | 1 | 349 | 357 | 9 | SVYAWNRKR | 0.000452 | 12 |
| HLA-B*51:01 | 1 | 349 | 357 | 9 | SVYAWNRKR | 0.000452 | 25 |
| HLA-A*26:01 | 1 | 506 | 514 | 9 | QPYRVVVL | 0.000452 | 16 |
| HLA-A*68:02 | 1 | 666 | 674 | 9 | IGAGICASY | 0.000452 | 22 |
| HLA-B*44:02 | 1 | 676 | 685 | 10 | TQTNSPRRAR | 0.000452 | 12 |
| HLA-B*57:01 | 1 | 713 | 722 | 10 | AIPTNFTISV | 0.000452 | 27 |
| HLA-A*33:01 | 1 | 779 | 788 | 10 | QEVFAQVKQI | 0.000452 | 19 |
| HLA-A*30:02 | 1 | 802 | 810 | 9 | FSQILPDPS | 0.000452 | 34 |
| HLA-A*03:01 | 1 | 817 | 826 | 10 | FIEDLLFNKV | 0.000452 | 16 |
| HLA-A*68:02 | 1 | 1002 | 1010 | 9 | QSLQTYVTQ | 0.000452 | 22 |
| HLA-B*44:02 | 1 | 1050 | 1058 | 9 | MSFPQSAPH | 0.000452 | 12 |
| HLA-A*02:06 | 1 | 12 | 21 | 10 | SSQCVNLTR | 0.000451 | 27 |
| HLA-B*58:01 | 1 | 58 | 67 | 10 | FFSNVTFWFA | 0.000451 | 20 |
| HLA-B*58:01 | 1 | 94 | 103 | 10 | STEKSNIIRG | 0.000451 | 20 |
| HLA-A*01:01 | 1 | 113 | 121 | 9 | KTQSLLIVN | 0.000451 | 24 |
| HLA-A*30:01 | 1 | 114 | 122 | 9 | TQSLLIVNN | 0.000451 | 36 |
| HLA-A*33:01 | 1 | 227 | 235 | 9 | VDLPIGINI | 0.000451 | 19 |
| HLA-B*15:01 | 1 | 254 | 262 | 9 | SSSGWTAGA | 0.000451 | 20 |
| HLA-A*01:01 | 1 | 266 | 274 | 9 | YVGYLQPRT | 0.000451 | 24 |
| HLA-A*02:03 | 1 | 358 | 367 | 10 | ISNCVADYSV | 0.000451 | 22 |
| HLA-A*26:01 | 1 | 392 | 401 | 10 | FTNVYADSFV | 0.000451 | 16 |
| HLA-A*11:01 | 1 | 394 | 402 | 9 | NVYADSFVI | 0.000451 | 13 |
| HLA-B*08:01 | 1 | 395 | 403 | 9 | VYADSFVIR | 0.000451 | 27 |
| HLA-A*03:01 | 1 | 510 | 518 | 9 | VVLSFELL | 0.000451 | 16 |
| HLA-B*15:01 | 1 | 526 | 534 | 9 | GPKKSTNLV | 0.000451 | 20 |
| HLA-A*02:03 | 1 | 573 | 582 | 10 | TDAVRDPQTL | 0.000451 | 22 |
| HLA-B*08:01 | 1 | 584 | 593 | 10 | ILDITPCFSG | 0.000451 | 27 |
| HLA-A*32:01 | 1 | 868 | 876 | 9 | EMIAQY TSA | 0.000451 | 15 |
| HLA-A*01:01 | 1 | 891 | 900 | 10 | GAALQIPFAM | 0.000451 | 24 |
| HLA-B*53:01 | 1 | 1007 | 1015 | 9 | YVTQLLIRA | 0.000451 | 13 |
| HLA-B*44:03 | 1 | 1048 | 1056 | 9 | HLMSFPQSA | 0.000451 | 12 |
| HLA-B*53:01 | 1 | 1225 | 1234 | 10 | IAIVMVTIML | 0.000451 | 13 |
| HLA-B*40:01 | 1 | 34 | 43 | 10 | RGVYYPDKVF | 0.00045 | 11 |
| HLA-B*58:01 | 1 | 283 | 292 | 10 | GTITDAV DCA | 0.00045 | 20 |
| HLA-B*44:02 | 1 | 378 | 386 | 9 | KCYGVSP TK | 0.00045 | 12 |
| HLA-B*57:01 | 1 | 662 | 670 | 9 | CDIPIGAGI | 0.00045 | 27 |
| HLA-A*02:06 | 1 | 683 | 691 | 9 | RARSVASQS | 0.00045 | 27 |
| HLA-A*03:01 | 1 | 1026 | 1034 | 9 | ATKMSECVL | 0.00045 | 16 |
| HLA-A*02:03 | 1 | 1045 | 1053 | 9 | KGYHLSMFP | 0.00045 | 22 |
| HLA-B*44:02 | 1 | 1055 | 1063 | 9 | SAPHGVVFL | 0.00045 | 12 |
| HLA-B*15:01 | 1 | 1087 | 1096 | 10 | AHFPREGV FV | 0.00045 | 20 |
| HLA-A*02:06 | 1 | 1130 | 1138 | 9 | IGIVNNTVY | 0.00045 | 27 |
| HLA-A*30:02 | 1 | 5 | 14 | 10 | LVLLPLVSSQ | 0.000449 | 34 |
| HLA-B*08:01 | 1 | 121 | 129 | 9 | NNATNVVIK | 0.000449 | 27 |
| HLA-A*30:02 | 1 | 208 | 216 | 9 | TPINLVRDL | 0.000449 | 34 |
| HLA-B*07:02 | 1 | 291 | 299 | 9 | CALDPLSET | 0.000449 | 17 |
| HLA-A*26:01 | 1 | 387 | 396 | 10 | LNDLCFTNVY | 0.000449 | 16 |
| HLA-A*68:01 | 1 | 484 | 493 | 10 | EGFNCFPLQ | 0.000449 | 20 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*07:02 | 1 | 560 | 568 | 9 | LPFQQFGRD 0.000449 | 17 |
| HLA-A*30:02 | 1 | 593 | 601 | 9 | GGVSVITPG 0.000449 | 34 |
| HLA-A*30:02 | 1 | 609 | 618 | 10 | AVLYQDVNCT 0.000449 | 34 |
| HLA-A*32:01 | 1 | 639 | 647 | 9 | GSNVFQTRA 0.000449 | 15 |
| HLA-A*01:01 | 1 | 708 | 716 | 9 | SNNSIAIPT 0.000449 | 24 |
| HLA-B*15:01 | 1 | 726 | 734 | 9 | ILPVSMTKT 0.000449 | 20 |
| HLA-B*44:03 | 1 | 751 | 759 | 9 | NLLLQYGSF 0.000449 | 12 |
| HLA-A*02:03 | 1 | 883 | 892 | 10 | TSGWTFGAGA 0.000449 | 22 |
| HLA-B*08:01 | 1 | 942 | 951 | 10 | ASALGKLQDV 0.000449 | 27 |
| HLA-A*68:02 | 1 | 1118 | 1126 | 9 | DNTFVSGNC 0.000449 | 22 |
| HLA-A*30:02 | 1 | 1212 | 1220 | 9 | WPWYIWLGF 0.000449 | 34 |
| HLA-A*24:02 | 1 | 1 | 10 | 10 | MFVFLVLLPL 0.000448 | 12 |
| HLA-A*33:01 | 1 | 47 | 55 | 9 | VLHSTQDLF 0.000448 | 19 |
| HLA-B*08:01 | 1 | 95 | 104 | 10 | TEKSNIIRGW 0.000448 | 27 |
| HLA-A*02:06 | 1 | 100 | 109 | 10 | IIRGWIFGTT 0.000448 | 27 |
| HLA-B*51:01 | 1 | 117 | 126 | 10 | LLIVNNATNV 0.000448 | 25 |
| HLA-B*08:01 | 1 | 126 | 135 | 10 | VVIKVCFFQF 0.000448 | 27 |
| HLA-A*30:02 | 1 | 206 | 215 | 10 | KHTPINLVRD 0.000448 | 34 |
| HLA-A*26:01 | 1 | 227 | 235 | 9 | VDLPIGINI 0.000448 | 16 |
| HLA-A*02:01 | 1 | 234 | 243 | 10 | NITRFQTLA 0.000448 | 20 |
| HLA-B*07:02 | 1 | 261 | 269 | 9 | GAAAYVVG 0.000448 | 17 |
| HLA-B*51:01 | 1 | 307 | 315 | 9 | TVEKGIYQT 0.000448 | 25 |
| HLA-B*15:01 | 1 | 394 | 403 | 10 | NVYADSFVIR 0.000448 | 20 |
| HLA-A*32:01 | 1 | 580 | 589 | 10 | QTLEILDITP 0.000448 | 15 |
| HLA-B*40:01 | 1 | 697 | 705 | 9 | MSLGAENS 0.000448 | 11 |
| HLA-A*02:06 | 1 | 758 | 767 | 10 | SFCTQLNRAL 0.000448 | 27 |
| HLA-A*32:01 | 1 | 818 | 826 | 9 | IEDLLFNKV 0.000448 | 15 |
| HLA-B*57:01 | 1 | 1012 | 1020 | 9 | LIRAAEIRA 0.000448 | 27 |
| HLA-A*30:02 | 1 | 1043 | 1051 | 9 | CGKGYHLMS 0.000448 | 34 |
| HLA-A*11:01 | 1 | 1174 | 1182 | 9 | ASVVNIQKE 0.000448 | 13 |
| HLA-A*02:06 | 1 | 1189 | 1198 | 10 | VAKNLNESLI 0.000448 | 27 |
| HLA-A*68:01 | 1 | 1208 | 1217 | 10 | QYIKWPWYIW 0.000448 | 20 |
| HLA-A*02:01 | 1 | 126 | 135 | 10 | VVIKVCFFQF 0.000447 | 20 |
| HLA-A*02:03 | 1 | 177 | 186 | 10 | MDLEGKQGNF 0.000447 | 22 |
| HLA-B*51:01 | 1 | 299 | 308 | 10 | TKCTLKSFTV 0.000447 | 25 |
| HLA-A*11:01 | 1 | 300 | 309 | 10 | KCTLKSFTVE 0.000447 | 13 |
| HLA-B*08:01 | 1 | 344 | 353 | 10 | ATRFASVYAW 0.000447 | 27 |
| HLA-B*51:01 | 1 | 368 | 376 | 9 | LYNSASFST 0.000447 | 25 |
| HLA-A*11:01 | 1 | 746 | 754 | 9 | STECSNLLL 0.000447 | 13 |
| HLA-A*30:01 | 1 | 836 | 845 | 10 | QYGDCLGDIA 0.000447 | 37 |
| HLA-A*32:01 | 1 | 1043 | 1052 | 10 | CGKGYHLMSF 0.000447 | 15 |
| HLA-B*44:02 | 1 | 1055 | 1064 | 10 | SAPHGVVFLH 0.000447 | 12 |
| HLA-B*35:01 | 1 | 1064 | 1072 | 9 | HVTYVPAQE 0.000447 | 14 |
| HLA-B*57:01 | 1 | 1075 | 1084 | 10 | FTTAPAICH 0.000447 | 27 |
| HLA-A*11:01 | 1 | 1104 | 1112 | 9 | VTQRNFYEP 0.000447 | 13 |
| HLA-A*33:01 | 1 | 1140 | 1149 | 10 | PLQPELDSFK 0.000447 | 19 |
| HLA-A*11:01 | 1 | 1173 | 1182 | 10 | NASVVNIQKE 0.000447 | 13 |
| HLA-A*02:06 | 1 | 1255 | 1263 | 9 | KFDEDDSEP 0.000447 | 27 |
| HLA-B*51:01 | 1 | 4 | 12 | 9 | FLVLLPLVS 0.000446 | 25 |
| HLA-A*30:02 | 1 | 452 | 460 | 9 | LYRLFRKSN 0.000446 | 34 |
| HLA-A*68:01 | 1 | 611 | 619 | 9 | LYQDVNCTE 0.000446 | 20 |
| HLA-A*30:01 | 1 | 630 | 638 | 9 | TPTWRVYST 0.000446 | 37 |
| HLA-A*02:01 | 1 | 816 | 825 | 10 | SFIEDLLFNK 0.000446 | 20 |
| HLA-A*26:01 | 1 | 843 | 851 | 9 | DIAARDLIC 0.000446 | 16 |
| HLA-B*35:01 | 1 | 846 | 855 | 10 | ARDLICAQKF 0.000446 | 14 |
| HLA-A*68:01 | 1 | 871 | 879 | 9 | AQYTSALLA 0.000446 | 20 |
| HLA-B*08:01 | 1 | 1020 | 1029 | 10 | ASANLAATKM 0.000446 | 27 |
| HLA-A*03:01 | 1 | 1022 | 1031 | 10 | ANLAATKMSE 0.000446 | 16 |
| HLA-B*40:01 | 1 | 1100 | 1109 | 10 | THWVFTQRNF 0.000446 | 11 |
| HLA-B*40:01 | 1 | 1105 | 1114 | 10 | TQRNFYEPQI 0.000446 | 11 |
| HLA-A*24:02 | 1 | 1155 | 1164 | 10 | YFKNHTSPDV 0.000446 | 12 |
| HLA-A*30:02 | 1 | 1219 | 1228 | 10 | GFIAGLIAIV 0.000446 | 34 |
| HLA-A*30:01 | 1 | 98 | 107 | 10 | SNIIRGWIFG 0.000445 | 37 |
| HLA-A*30:01 | 1 | 155 | 164 | 10 | SEFRVYSSAN 0.000445 | 37 |
| HLA-B*35:01 | 1 | 175 | 183 | 9 | FLMDLEGKQ 0.000445 | 14 |
| HLA-B*15:01 | 1 | 227 | 235 | 9 | VDLPIGINI 0.000445 | 20 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|----------|----|
| HLA-A*30:02 | 1 | 351 | 359 | 9 | YAWNRKRIS | 0.000445 | 34 |
| HLA-A*30:02 | 1 | 362 | 371 | 10 | VADYSVLVNS | 0.000445 | 34 |
| HLA-A*30:02 | 1 | 418 | 426 | 9 | IADYNYKLP | 0.000445 | 34 |
| HLA-A*02:06 | 1 | 473 | 482 | 10 | YQAGSTPCNG | 0.000445 | 27 |
| HLA-A*30:01 | 1 | 572 | 581 | 10 | TTDAVRDPQT | 0.000445 | 37 |
| HLA-B*53:01 | 1 | 588 | 596 | 9 | TPCSFGGVS | 0.000445 | 13 |
| HLA-A*30:02 | 1 | 597 | 606 | 10 | VITPGTNTSN | 0.000445 | 34 |
| HLA-B*08:01 | 1 | 599 | 607 | 9 | TPGTNTSNQ | 0.000445 | 27 |
| HLA-A*02:01 | 1 | 604 | 612 | 9 | TSNQVAVLY | 0.000445 | 20 |
| HLA-A*33:01 | 1 | 651 | 660 | 10 | IGAHEVNNNSY | 0.000445 | 19 |
| HLA-B*57:01 | 1 | 689 | 698 | 10 | SQSIIAYTMS | 0.000445 | 27 |
| HLA-A*26:01 | 1 | 722 | 730 | 9 | VTTEILPVS | 0.000445 | 16 |
| HLA-B*35:01 | 1 | 755 | 763 | 9 | QYGSFCTQL | 0.000445 | 14 |
| HLA-A*23:01 | 1 | 772 | 781 | 10 | VEQDKNTQEV | 0.000445 | 12 |
| HLA-B*51:01 | 1 | 835 | 844 | 10 | KQYGDCLGDI | 0.000445 | 25 |
| HLA-A*01:01 | 1 | 912 | 921 | 10 | TQNVLYENQK | 0.000445 | 24 |
| HLA-B*07:02 | 1 | 979 | 987 | 9 | DILSRLDKV | 0.000445 | 17 |
| HLA-B*58:01 | 1 | 992 | 1001 | 10 | QIDRLITGRL | 0.000445 | 20 |
| HLA-B*15:01 | 1 | 69 | 78 | 10 | HVSGTNGTKR | 0.000444 | 20 |
| HLA-A*24:02 | 1 | 229 | 237 | 9 | LPIGINITR | 0.000444 | 12 |
| HLA-B*58:01 | 1 | 386 | 394 | 9 | KLNDLCFTN | 0.000444 | 20 |
| HLA-A*01:01 | 1 | 471 | 479 | 9 | EIYQAGSTP | 0.000444 | 24 |
| HLA-A*32:01 | 1 | 484 | 492 | 9 | EGFNCYFPL | 0.000444 | 15 |
| HLA-A*02:03 | 1 | 670 | 678 | 9 | ICASYQTQT | 0.000444 | 22 |
| HLA-B*58:01 | 1 | 670 | 678 | 9 | ICASYQTQT | 0.000444 | 20 |
| HLA-A*02:03 | 1 | 797 | 806 | 10 | FGGFNFSQIL | 0.000444 | 22 |
| HLA-B*44:02 | 1 | 924 | 933 | 10 | ANQFNSAIGK | 0.000444 | 12 |
| HLA-A*30:01 | 1 | 952 | 960 | 9 | VNQNAQALN | 0.000444 | 37 |
| HLA-A*31:01 | 1 | 1135 | 1144 | 10 | NTVYDPLQPE | 0.000444 | 21 |
| HLA-A*26:01 | 1 | 1141 | 1149 | 9 | LQPELDSFK | 0.000444 | 16 |
| HLA-B*58:01 | 1 | 1154 | 1162 | 9 | KYFKNHTSP | 0.000444 | 20 |
| HLA-A*24:02 | 1 | 58 | 67 | 10 | FFSNVTWFHA | 0.000443 | 12 |
| HLA-B*15:01 | 1 | 94 | 102 | 9 | STEKSNIIR | 0.000443 | 20 |
| HLA-A*24:02 | 1 | 218 | 226 | 9 | QGFSALEPL | 0.000443 | 12 |
| HLA-A*33:01 | 1 | 256 | 264 | 9 | SGWTAGAAA | 0.000443 | 20 |
| HLA-A*30:02 | 1 | 284 | 292 | 9 | TITDAVDCA | 0.000443 | 34 |
| HLA-B*51:01 | 1 | 284 | 293 | 10 | TITDAVDCAL | 0.000443 | 25 |
| HLA-A*02:06 | 1 | 344 | 353 | 10 | ATRFASVYAW | 0.000443 | 27 |
| HLA-B*53:01 | 1 | 357 | 365 | 9 | RISNCVADY | 0.000443 | 13 |
| HLA-A*32:01 | 1 | 366 | 375 | 10 | SVLYNSASF | 0.000443 | 15 |
| HLA-B*44:03 | 1 | 387 | 396 | 10 | LNLCFTNVY | 0.000443 | 12 |
| HLA-B*51:01 | 1 | 451 | 459 | 9 | YLYRLFRKS | 0.000443 | 25 |
| HLA-B*57:01 | 1 | 522 | 530 | 9 | ATVCGPKKS | 0.000443 | 27 |
| HLA-A*30:01 | 1 | 568 | 577 | 10 | DIADTTDAVR | 0.000443 | 37 |
| HLA-A*02:06 | 1 | 591 | 600 | 10 | SFGGVSVITP | 0.000443 | 27 |
| HLA-A*02:03 | 1 | 763 | 772 | 10 | LNRLTGIIV | 0.000443 | 22 |
| HLA-A*02:01 | 1 | 794 | 802 | 9 | IKDFGGFNF | 0.000443 | 20 |
| HLA-B*44:02 | 1 | 890 | 898 | 9 | AGAALQIPF | 0.000443 | 12 |
| HLA-B*07:02 | 1 | 956 | 964 | 9 | AQALNTLVK | 0.000443 | 17 |
| HLA-A*23:01 | 1 | 1130 | 1138 | 9 | IGIVNNTVY | 0.000443 | 12 |
| HLA-A*11:01 | 1 | 1148 | 1157 | 10 | FKEELDKYFK | 0.000443 | 13 |
| HLA-A*02:06 | 1 | 1197 | 1206 | 10 | LIDLQELGKY | 0.000443 | 27 |
| HLA-A*26:01 | 1 | 6 | 14 | 9 | VLLPLVSSQ | 0.000442 | 16 |
| HLA-A*68:02 | 1 | 41 | 49 | 9 | KVFRSSVLH | 0.000442 | 22 |
| HLA-A*68:01 | 1 | 106 | 115 | 10 | FGTTLDSKTQ | 0.000442 | 20 |
| HLA-A*33:01 | 1 | 124 | 132 | 9 | TNVVIKVC | 0.000442 | 20 |
| HLA-B*58:01 | 1 | 148 | 157 | 10 | NNKSWMESEF | 0.000442 | 20 |
| HLA-A*33:01 | 1 | 182 | 191 | 10 | KQGNFKNLRE | 0.000442 | 20 |
| HLA-A*02:01 | 1 | 396 | 404 | 9 | YADSFVIRG | 0.000442 | 20 |
| HLA-A*30:02 | 1 | 473 | 482 | 10 | YQAGSTPCNG | 0.000442 | 34 |
| HLA-B*44:03 | 1 | 488 | 497 | 10 | CYFPLQSYGF | 0.000442 | 12 |
| HLA-A*02:06 | 1 | 514 | 522 | 9 | SFELLHAPA | 0.000442 | 27 |
| HLA-B*15:01 | 1 | 552 | 560 | 9 | LTESNKKFL | 0.000442 | 20 |
| HLA-A*26:01 | 1 | 849 | 858 | 10 | LICAQKFNGL | 0.000442 | 16 |
| HLA-A*26:01 | 1 | 867 | 876 | 10 | DEMIAQYTSA | 0.000442 | 16 |
| HLA-A*01:01 | 1 | 901 | 909 | 9 | QMAYRFNGI | 0.000442 | 24 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*08:01 | 1 | 956 | 964 | 9 | AQALNTLVK 0.000442 | 28 |
| HLA-A*03:01 | 1 | 967 | 975 | 9 | SSNFGAISS 0.000442 | 16 |
| HLA-A*30:02 | 1 | 1045 | 1054 | 10 | KGYHLMSPFQ 0.000442 | 34 |
| HLA-A*02:03 | 1 | 1049 | 1058 | 10 | LMSFPQSAPH 0.000442 | 22 |
| HLA-B*35:01 | 1 | 1096 | 1104 | 9 | VSNGTHWFV 0.000442 | 14 |
| HLA-A*30:02 | 1 | 1153 | 1162 | 10 | DKYFKNHTSP 0.000442 | 34 |
| HLA-B*58:01 | 1 | 1203 | 1211 | 9 | LGKYEQYIK 0.000442 | 20 |
| HLA-B*15:01 | 1 | 68 | 77 | 10 | IHVSGTNGTK 0.000441 | 20 |
| HLA-A*31:01 | 1 | 144 | 153 | 10 | YYHKNNKSWM 0.000441 | 21 |
| HLA-B*40:01 | 1 | 266 | 275 | 10 | YVGYLQPRTF 0.000441 | 11 |
| HLA-A*02:03 | 1 | 327 | 336 | 10 | VRFPNITNLC 0.000441 | 22 |
| HLA-A*01:01 | 1 | 386 | 395 | 10 | KLNDLCFTNV 0.000441 | 24 |
| HLA-A*33:01 | 1 | 502 | 510 | 9 | GVGYQPYRV 0.000441 | 20 |
| HLA-A*68:02 | 1 | 562 | 570 | 9 | FQQFGRDIA 0.000441 | 22 |
| HLA-A*68:01 | 1 | 601 | 609 | 9 | GTNTSNQVA 0.000441 | 20 |
| HLA-A*68:02 | 1 | 732 | 740 | 9 | TKTSVDCTM 0.000441 | 22 |
| HLA-B*57:01 | 1 | 761 | 770 | 10 | TQLNRALTGI 0.000441 | 27 |
| HLA-B*35:01 | 1 | 989 | 997 | 9 | AEVQIDRLI 0.000441 | 14 |
| HLA-B*53:01 | 1 | 1064 | 1073 | 10 | HVTYVPAQEK 0.000441 | 13 |
| HLA-A*32:01 | 1 | 1080 | 1088 | 9 | AICHDGKAH 0.000441 | 15 |
| HLA-A*11:01 | 1 | 83 | 92 | 10 | VLFPNDGVYF 0.00044 | 13 |
| HLA-A*02:06 | 1 | 104 | 113 | 10 | WIFGTTLDISK 0.00044 | 27 |
| HLA-B*58:01 | 1 | 107 | 116 | 10 | GTTLDSKTQS 0.00044 | 20 |
| HLA-B*51:01 | 1 | 108 | 116 | 9 | TTLDSKTQS 0.00044 | 25 |
| HLA-B*15:01 | 1 | 217 | 226 | 10 | PQGFSALEPL 0.00044 | 20 |
| HLA-A*33:01 | 1 | 437 | 445 | 9 | NSNNLDSKV 0.00044 | 20 |
| HLA-B*44:02 | 1 | 469 | 478 | 10 | STEIYQAGST 0.00044 | 12 |
| HLA-A*23:01 | 1 | 524 | 533 | 10 | VCGPKKSTNL 0.00044 | 12 |
| HLA-A*33:01 | 1 | 636 | 644 | 9 | YSTGSNVFQ 0.00044 | 20 |
| HLA-A*68:02 | 1 | 647 | 656 | 10 | AGCLIGAEHV 0.00044 | 22 |
| HLA-B*58:01 | 1 | 671 | 680 | 10 | CASYQTQTN 0.00044 | 20 |
| HLA-B*51:01 | 1 | 785 | 794 | 10 | VKQIYKTPPI 0.00044 | 25 |
| HLA-B*08:01 | 1 | 812 | 821 | 10 | PSKRSEFIEDL 0.00044 | 28 |
| HLA-A*30:02 | 1 | 822 | 830 | 9 | LFNKVTLAD 0.00044 | 34 |
| HLA-B*57:01 | 1 | 841 | 850 | 10 | LGDIAARDLI 0.00044 | 27 |
| HLA-A*33:01 | 1 | 852 | 860 | 9 | AQKFNGLTV 0.00044 | 20 |
| HLA-A*30:01 | 1 | 876 | 885 | 10 | ALLAGTITSG 0.00044 | 37 |
| HLA-A*01:01 | 1 | 1031 | 1039 | 9 | ECVLGQSKR 0.00044 | 24 |
| HLA-A*30:02 | 1 | 1088 | 1097 | 10 | HFPREGVFVS 0.00044 | 34 |
| HLA-A*02:06 | 1 | 10 | 19 | 10 | LVSSQCVNLT 0.000439 | 27 |
| HLA-B*44:02 | 1 | 16 | 24 | 9 | VNLTRTQQL 0.000439 | 12 |
| HLA-B*57:01 | 1 | 79 | 87 | 9 | FDNPVLPFN 0.000439 | 27 |
| HLA-A*01:01 | 1 | 291 | 299 | 9 | CALDPLSET 0.000439 | 24 |
| HLA-A*32:01 | 1 | 345 | 354 | 10 | TRFASVYAWN 0.000439 | 15 |
| HLA-B*08:01 | 1 | 388 | 396 | 9 | NDLCFTNVY 0.000439 | 28 |
| HLA-A*30:01 | 1 | 418 | 426 | 9 | IADYNYKLP 0.000439 | 37 |
| HLA-A*02:01 | 1 | 474 | 483 | 10 | QAGSTPCNGV 0.000439 | 20 |
| HLA-A*23:01 | 1 | 538 | 546 | 9 | CVNFNFNGL 0.000439 | 12 |
| HLA-B*44:02 | 1 | 634 | 642 | 9 | RVYSTGSNV 0.000439 | 12 |
| HLA-B*58:01 | 1 | 706 | 714 | 9 | AYSNNIAI 0.000439 | 20 |
| HLA-B*51:01 | 1 | 733 | 742 | 10 | KTSVDCTMYI 0.000439 | 25 |
| HLA-A*30:01 | 1 | 860 | 869 | 10 | VLPLLLTDEM 0.000439 | 37 |
| HLA-A*31:01 | 1 | 1191 | 1200 | 10 | KNLNEIDL 0.000439 | 21 |
| HLA-B*57:01 | 1 | 1256 | 1265 | 10 | FDEDDSEPV 0.000439 | 27 |
| HLA-B*35:01 | 1 | 43 | 51 | 9 | FRSSVLHST 0.000438 | 14 |
| HLA-A*68:01 | 1 | 88 | 96 | 9 | DGVYFASTE 0.000438 | 20 |
| HLA-A*02:01 | 1 | 115 | 124 | 10 | QSLLIIVNAT 0.000438 | 20 |
| HLA-A*01:01 | 1 | 194 | 203 | 10 | FKNIDGYFKI 0.000438 | 24 |
| HLA-A*24:02 | 1 | 198 | 207 | 10 | DGYFKIYSKH 0.000438 | 12 |
| HLA-B*07:02 | 1 | 206 | 214 | 9 | KHTPINLVR 0.000438 | 17 |
| HLA-A*02:03 | 1 | 208 | 216 | 9 | TPINLVRDL 0.000438 | 22 |
| HLA-A*30:01 | 1 | 358 | 367 | 10 | ISNCVADYSV 0.000438 | 37 |
| HLA-A*31:01 | 1 | 367 | 376 | 10 | VLYNSASFST 0.000438 | 21 |
| HLA-A*26:01 | 1 | 453 | 462 | 10 | YRLFRRKSNLK 0.000438 | 16 |
| HLA-A*02:06 | 1 | 478 | 486 | 9 | TPCNGVEGF 0.000438 | 27 |
| HLA-A*01:01 | 1 | 519 | 528 | 10 | HAPATVCGPK 0.000438 | 24 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*01:01 | 1 | 623 | 631 | 9 | AIHADQLTP 0.000438 | 24 |
| HLA-A*30:02 | 1 | 668 | 676 | 9 | AGICASYQT 0.000438 | 34 |
| HLA-B*57:01 | 1 | 695 | 704 | 10 | YTMSLGAENS 0.000438 | 27 |
| HLA-B*51:01 | 1 | 724 | 733 | 10 | TEILPVSMTK 0.000438 | 25 |
| HLA-B*08:01 | 1 | 751 | 760 | 10 | NLLLQYGSFC 0.000438 | 28 |
| HLA-A*30:02 | 1 | 771 | 780 | 10 | AVEQDKNTQE 0.000438 | 34 |
| HLA-A*30:01 | 1 | 818 | 826 | 9 | IEDLLFNKV 0.000438 | 37 |
| HLA-B*51:01 | 1 | 935 | 944 | 10 | QDLSSTASA 0.000438 | 25 |
| HLA-A*31:01 | 1 | 972 | 980 | 9 | AISSVLNDI 0.000438 | 21 |
| HLA-B*07:02 | 1 | 1160 | 1169 | 10 | TSPDVLGDI 0.000438 | 17 |
| HLA-A*31:01 | 1 | 147 | 155 | 9 | KNNKSWMES 0.000437 | 21 |
| HLA-A*03:01 | 1 | 345 | 353 | 9 | TRFASVYAW 0.000437 | 16 |
| HLA-B*15:01 | 1 | 525 | 533 | 9 | CGPKKSTNL 0.000437 | 20 |
| HLA-A*30:02 | 1 | 620 | 629 | 10 | VPVAIHADQL 0.000437 | 34 |
| HLA-B*07:02 | 1 | 638 | 646 | 9 | TGSNVFQTR 0.000437 | 17 |
| HLA-A*02:03 | 1 | 678 | 687 | 10 | TNSPRRARSV 0.000437 | 22 |
| HLA-A*02:06 | 1 | 734 | 743 | 10 | TSVDCTMYIC 0.000437 | 27 |
| HLA-A*23:01 | 1 | 816 | 824 | 9 | SFIEDLLFN 0.000437 | 12 |
| HLA-B*53:01 | 1 | 841 | 849 | 9 | LGDIARDL 0.000437 | 14 |
| HLA-B*44:02 | 1 | 869 | 877 | 9 | MIAQYTSAL 0.000437 | 12 |
| HLA-A*02:01 | 1 | 953 | 961 | 9 | NONAQALNT 0.000437 | 20 |
| HLA-A*02:06 | 1 | 1158 | 1166 | 9 | NHTSPDVDL 0.000437 | 27 |
| HLA-B*08:01 | 1 | 1166 | 1174 | 9 | LGDISGINA 0.000437 | 28 |
| HLA-B*51:01 | 1 | 1177 | 1186 | 10 | VNIQKEIDRL 0.000437 | 26 |
| HLA-B*53:01 | 1 | 16 | 24 | 9 | VNLTRTQL 0.000436 | 14 |
| HLA-B*44:03 | 1 | 93 | 101 | 9 | ASTEKSNI 0.000436 | 12 |
| HLA-B*57:01 | 1 | 107 | 116 | 10 | GTTLDSTQS 0.000436 | 28 |
| HLA-B*35:01 | 1 | 408 | 416 | 9 | RQIAPGQTG 0.000436 | 14 |
| HLA-A*33:01 | 1 | 555 | 564 | 10 | SNKKFLPFQQ 0.000436 | 20 |
| HLA-B*51:01 | 1 | 582 | 590 | 9 | LEILDITPC 0.000436 | 26 |
| HLA-A*30:02 | 1 | 642 | 651 | 10 | VFQTRAGCLI 0.000436 | 34 |
| HLA-A*01:01 | 1 | 707 | 716 | 10 | YSNNSIAIPT 0.000436 | 24 |
| HLA-A*26:01 | 1 | 724 | 732 | 9 | TEILPVSMT 0.000436 | 16 |
| HLA-B*57:01 | 1 | 728 | 736 | 9 | PVSMTKTSV 0.000436 | 28 |
| HLA-A*68:01 | 1 | 779 | 788 | 10 | QEVFAQVKQI 0.000436 | 20 |
| HLA-A*01:01 | 1 | 864 | 872 | 9 | LLTDEMIAQ 0.000436 | 24 |
| HLA-A*01:01 | 1 | 924 | 933 | 10 | ANQFNSAIGK 0.000436 | 24 |
| HLA-A*31:01 | 1 | 957 | 966 | 10 | QALNTLVKQL 0.000436 | 21 |
| HLA-A*02:01 | 1 | 988 | 996 | 9 | EAEVQIDRL 0.000436 | 20 |
| HLA-A*68:02 | 1 | 994 | 1003 | 10 | DRLITGRLOS 0.000436 | 22 |
| HLA-A*11:01 | 1 | 1064 | 1072 | 9 | HVTYVPAQE 0.000436 | 13 |
| HLA-A*01:01 | 1 | 1177 | 1186 | 10 | VNIQKEIDRL 0.000436 | 24 |
| HLA-A*01:01 | 1 | 1196 | 1204 | 9 | SLIDLQELG 0.000436 | 24 |
| HLA-B*44:03 | 1 | 28 | 36 | 9 | YTNSFTRGV 0.000435 | 12 |
| HLA-A*33:01 | 1 | 30 | 39 | 10 | NSFTRGVYYP 0.000435 | 20 |
| HLA-B*58:01 | 1 | 137 | 145 | 9 | NDPFLGVYY 0.000435 | 20 |
| HLA-B*51:01 | 1 | 271 | 280 | 10 | QPRTFLLKYN 0.000435 | 26 |
| HLA-A*30:02 | 1 | 524 | 533 | 10 | VCGPKKSTNL 0.000435 | 34 |
| HLA-A*32:01 | 1 | 610 | 618 | 9 | VLYQDVNCT 0.000435 | 15 |
| HLA-A*02:06 | 1 | 615 | 623 | 9 | VNCTEVPVA 0.000435 | 27 |
| HLA-B*15:01 | 1 | 638 | 646 | 9 | TGSNVFQTR 0.000435 | 20 |
| HLA-A*68:02 | 1 | 643 | 651 | 9 | FQTRAGCLI 0.000435 | 22 |
| HLA-A*02:06 | 1 | 708 | 716 | 9 | SNNSIAIPT 0.000435 | 27 |
| HLA-A*68:02 | 1 | 825 | 833 | 9 | KVTLADAGF 0.000435 | 22 |
| HLA-A*11:01 | 1 | 838 | 847 | 10 | GDCLGDIAAR 0.000435 | 13 |
| HLA-A*68:01 | 1 | 865 | 874 | 10 | LTDEMIAQYT 0.000435 | 20 |
| HLA-B*51:01 | 1 | 874 | 883 | 10 | TSALLAGTIT 0.000435 | 26 |
| HLA-A*01:01 | 1 | 953 | 961 | 9 | NONAQALNT 0.000435 | 24 |
| HLA-B*44:03 | 1 | 964 | 972 | 9 | KQLSSNFGA 0.000435 | 12 |
| HLA-A*30:02 | 1 | 971 | 980 | 10 | GAISSVLNDI 0.000435 | 34 |
| HLA-B*51:01 | 1 | 1161 | 1170 | 10 | SPDVLGDIS 0.000435 | 26 |
| HLA-A*68:02 | 1 | 1175 | 1184 | 10 | SVVNIQKEID 0.000435 | 22 |
| HLA-A*68:02 | 1 | 1201 | 1210 | 10 | QELGKYEQYI 0.000435 | 22 |
| HLA-A*33:01 | 1 | 206 | 215 | 10 | KHTPINLVRD 0.000434 | 20 |
| HLA-A*32:01 | 1 | 340 | 348 | 9 | EVFNATRFA 0.000434 | 15 |
| HLA-B*44:03 | 1 | 349 | 357 | 9 | SVYAWNRKR 0.000434 | 12 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*57:01 | 1 | 594 | 602 | 9 | GVSVITPGT 0.000434 | 28 |
| HLA-A*31:01 | 1 | 604 | 613 | 10 | TSNQVAVLYQ 0.000434 | 22 |
| HLA-B*58:01 | 1 | 695 | 704 | 10 | YTMSLGAENS 0.000434 | 20 |
| HLA-A*01:01 | 1 | 757 | 766 | 10 | GSFCTQLNRA 0.000434 | 24 |
| HLA-A*02:06 | 1 | 763 | 772 | 10 | LNRAITGIAV 0.000434 | 27 |
| HLA-A*01:01 | 1 | 853 | 861 | 9 | QKFNGLTVL 0.000434 | 24 |
| HLA-A*02:03 | 1 | 863 | 871 | 9 | PLLTDEMIA 0.000434 | 22 |
| HLA-A*11:01 | 1 | 898 | 906 | 9 | FAMQMAYRF 0.000434 | 13 |
| HLA-B*35:01 | 1 | 948 | 956 | 9 | LQDVVNQNA 0.000434 | 14 |
| HLA-A*01:01 | 1 | 969 | 977 | 9 | NFGAISSVL 0.000434 | 24 |
| HLA-A*02:03 | 1 | 1135 | 1143 | 9 | NTVYDPLQP 0.000434 | 22 |
| HLA-B*15:01 | 1 | 1150 | 1159 | 10 | EELDKYFKNH 0.000434 | 20 |
| HLA-B*08:01 | 1 | 138 | 147 | 10 | DPFLGVVYHK 0.000433 | 28 |
| HLA-A*31:01 | 1 | 171 | 180 | 10 | VSQPFLMDLE 0.000433 | 22 |
| HLA-B*51:01 | 1 | 293 | 301 | 9 | LDPLSETKC 0.000433 | 26 |
| HLA-A*68:02 | 1 | 367 | 375 | 9 | VLYNSASFS 0.000433 | 22 |
| HLA-A*30:01 | 1 | 474 | 483 | 10 | QAGSTPCNGV 0.000433 | 37 |
| HLA-B*57:01 | 1 | 476 | 485 | 10 | GSTPCNGVEG 0.000433 | 28 |
| HLA-A*30:02 | 1 | 485 | 493 | 9 | GFNCYFPLQ 0.000433 | 34 |
| HLA-B*08:01 | 1 | 541 | 549 | 9 | FNFNGLTGT 0.000433 | 28 |
| HLA-A*23:01 | 1 | 557 | 566 | 10 | KKFLPFQFG 0.000433 | 12 |
| HLA-B*57:01 | 1 | 570 | 579 | 10 | ADTTDAVRDP 0.000433 | 28 |
| HLA-B*57:01 | 1 | 597 | 605 | 9 | VITPGTNTS 0.000433 | 28 |
| HLA-B*40:01 | 1 | 719 | 727 | 9 | TISVTTEIL 0.000433 | 11 |
| HLA-A*68:01 | 1 | 778 | 787 | 10 | TQEVFAQVKQ 0.000433 | 20 |
| HLA-A*23:01 | 1 | 797 | 805 | 9 | FGGFNFSQI 0.000433 | 12 |
| HLA-A*03:01 | 1 | 838 | 847 | 10 | GDCLGDIAAR 0.000433 | 16 |
| HLA-B*07:02 | 1 | 871 | 879 | 9 | AQYTSALLA 0.000433 | 18 |
| HLA-A*33:01 | 1 | 893 | 902 | 10 | ALQIPFAMQM 0.000433 | 20 |
| HLA-B*44:03 | 1 | 1020 | 1028 | 9 | ASANLAATK 0.000433 | 12 |
| HLA-A*01:01 | 1 | 1087 | 1096 | 10 | AHFPREGVAV 0.000433 | 24 |
| HLA-A*01:01 | 1 | 1124 | 1132 | 9 | GNCDVVIGI 0.000433 | 24 |
| HLA-A*30:02 | 1 | 1148 | 1157 | 10 | FKEELDKYFK 0.000433 | 34 |
| HLA-A*31:01 | 1 | 1150 | 1159 | 10 | EELDKYFKNH 0.000433 | 22 |
| HLA-A*24:02 | 1 | 1153 | 1162 | 10 | DKYFKNHTSP 0.000433 | 12 |
| HLA-A*23:01 | 1 | 1255 | 1264 | 10 | KFDEDDSEPV 0.000433 | 12 |
| HLA-A*02:03 | 1 | 20 | 29 | 10 | TRTQLPPAYT 0.000432 | 22 |
| HLA-B*57:01 | 1 | 149 | 157 | 9 | NKSWMESEF 0.000432 | 28 |
| HLA-A*68:01 | 1 | 356 | 365 | 10 | KRISNCVADY 0.000432 | 20 |
| HLA-A*32:01 | 1 | 371 | 379 | 9 | SASFSTFKC 0.000432 | 15 |
| HLA-A*33:01 | 1 | 481 | 490 | 10 | NGVEGFNCYF 0.000432 | 20 |
| HLA-B*44:02 | 1 | 488 | 497 | 10 | CYFPLQSYGF 0.000432 | 12 |
| HLA-B*53:01 | 1 | 493 | 501 | 9 | QSYGFQPTN 0.000432 | 14 |
| HLA-B*58:01 | 1 | 522 | 530 | 9 | ATVCGPKKS 0.000432 | 20 |
| HLA-A*30:02 | 1 | 541 | 549 | 9 | FNFNGLTGT 0.000432 | 34 |
| HLA-B*58:01 | 1 | 621 | 629 | 9 | PVAIHADQL 0.000432 | 20 |
| HLA-A*23:01 | 1 | 758 | 766 | 9 | SFCTQLNRA 0.000432 | 12 |
| HLA-B*15:01 | 1 | 865 | 874 | 10 | LTDEMIAQYT 0.000432 | 20 |
| HLA-A*33:01 | 1 | 957 | 965 | 9 | QALNTLVKQ 0.000432 | 20 |
| HLA-A*68:01 | 1 | 1040 | 1048 | 9 | VDFCGKGYH 0.000432 | 20 |
| HLA-B*35:01 | 1 | 1108 | 1116 | 9 | NFYEQIIT 0.000432 | 14 |
| HLA-A*26:01 | 1 | 60 | 69 | 10 | SNVTWFHAIH 0.000431 | 16 |
| HLA-B*40:01 | 1 | 119 | 127 | 9 | IVNNATNVV 0.000431 | 11 |
| HLA-B*58:01 | 1 | 307 | 315 | 9 | TVEKGIYQT 0.000431 | 20 |
| HLA-A*68:02 | 1 | 399 | 408 | 10 | SFVIRGDEVR 0.000431 | 22 |
| HLA-A*31:01 | 1 | 409 | 418 | 10 | QIAPGQTGKI 0.000431 | 22 |
| HLA-A*30:01 | 1 | 472 | 481 | 10 | IYQAGSTPCN 0.000431 | 37 |
| HLA-B*57:01 | 1 | 484 | 492 | 9 | EGFNCYFPL 0.000431 | 28 |
| HLA-A*68:02 | 1 | 520 | 528 | 9 | APATVCGPK 0.000431 | 22 |
| HLA-A*30:02 | 1 | 568 | 577 | 10 | DIADTTDAVR 0.000431 | 34 |
| HLA-A*02:03 | 1 | 581 | 589 | 9 | TLEILDITP 0.000431 | 22 |
| HLA-A*01:01 | 1 | 605 | 613 | 9 | SNQVAVLYQ 0.000431 | 24 |
| HLA-B*53:01 | 1 | 819 | 828 | 10 | EDLLFNKVTL 0.000431 | 14 |
| HLA-A*03:01 | 1 | 886 | 894 | 9 | WTFGAGAAL 0.000431 | 17 |
| HLA-A*01:01 | 1 | 926 | 934 | 9 | QFNSAIGKI 0.000431 | 24 |
| HLA-A*01:01 | 1 | 1017 | 1025 | 9 | EIRASANLA 0.000431 | 24 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*35:01 | 1 | 1047 | 1055 | 9 | YHLMSFPQS 0.000431 | 14 |
| HLA-B*07:02 | 1 | 1111 | 1120 | 10 | EPQIITDNT 0.000431 | 18 |
| HLA-A*31:01 | 1 | 1168 | 1176 | 9 | DISGINASV 0.000431 | 22 |
| HLA-A*26:01 | 1 | 1201 | 1210 | 10 | QELGKYEQYI 0.000431 | 16 |
| HLA-A*68:02 | 1 | 252 | 260 | 9 | GDSSSGWTA 0.00043 | 22 |
| HLA-A*30:02 | 1 | 253 | 261 | 9 | DSSSGWTAG 0.00043 | 34 |
| HLA-B*08:01 | 1 | 277 | 285 | 9 | LKYNENGTI 0.00043 | 28 |
| HLA-A*33:01 | 1 | 312 | 321 | 10 | IYQTSNFRVQ 0.00043 | 20 |
| HLA-A*26:01 | 1 | 400 | 409 | 10 | FVIRGDEVRO 0.00043 | 16 |
| HLA-B*44:02 | 1 | 520 | 529 | 10 | APATVCGPKK 0.00043 | 12 |
| HLA-A*24:02 | 1 | 713 | 722 | 10 | AIPTNFTISV 0.00043 | 12 |
| HLA-A*02:01 | 1 | 754 | 762 | 9 | LQYGSFCTQ 0.00043 | 20 |
| HLA-A*02:01 | 1 | 784 | 792 | 9 | QVKQIYKTP 0.00043 | 20 |
| HLA-A*33:01 | 1 | 950 | 959 | 10 | DVVNQNAQAL 0.00043 | 20 |
| HLA-A*03:01 | 1 | 1000 | 1009 | 10 | RLQSLQTYVT 0.00043 | 17 |
| HLA-B*08:01 | 1 | 1034 | 1043 | 10 | LGQSKRVDFC 0.00043 | 28 |
| HLA-A*02:01 | 1 | 1064 | 1073 | 10 | HVTYVPAQEK 0.00043 | 20 |
| HLA-B*35:01 | 1 | 1218 | 1226 | 9 | LGFIAGLIA 0.00043 | 14 |
| HLA-A*33:01 | 1 | 1219 | 1227 | 9 | GFIAGLIAI 0.00043 | 20 |
| HLA-A*68:02 | 1 | 116 | 124 | 9 | SLLVNNAT 0.000429 | 22 |
| HLA-A*01:01 | 1 | 120 | 128 | 9 | VNNATNVVI 0.000429 | 24 |
| HLA-A*33:01 | 1 | 184 | 193 | 10 | GNFKNLREFV 0.000429 | 20 |
| HLA-A*68:01 | 1 | 202 | 210 | 9 | KIYSKHTPI 0.000429 | 20 |
| HLA-B*58:01 | 1 | 219 | 227 | 9 | GFSALEPLV 0.000429 | 20 |
| HLA-B*51:01 | 1 | 338 | 346 | 9 | FGEVFNATR 0.000429 | 26 |
| HLA-A*11:01 | 1 | 441 | 449 | 9 | LDSKVGNGY 0.000429 | 13 |
| HLA-B*35:01 | 1 | 489 | 498 | 10 | YFPLQSYGFQ 0.000429 | 14 |
| HLA-A*31:01 | 1 | 672 | 680 | 9 | ASYQTQTNV 0.000429 | 22 |
| HLA-B*44:03 | 1 | 810 | 818 | 9 | SKPSKRSFI 0.000429 | 12 |
| HLA-B*53:01 | 1 | 826 | 834 | 9 | VTLADAGFI 0.000429 | 14 |
| HLA-A*11:01 | 1 | 876 | 884 | 9 | ALLAGTITS 0.000429 | 13 |
| HLA-A*33:01 | 1 | 902 | 911 | 10 | MAYRFNGIGV 0.000429 | 20 |
| HLA-A*30:01 | 1 | 922 | 931 | 10 | LIANQFNDAI 0.000429 | 37 |
| HLA-A*30:01 | 1 | 1080 | 1088 | 9 | AICHGDKAH 0.000429 | 37 |
| HLA-B*08:01 | 1 | 1106 | 1115 | 10 | QRNFYEPQII 0.000429 | 28 |
| HLA-B*08:01 | 1 | 1132 | 1141 | 10 | IVNNTVYDPL 0.000429 | 28 |
| HLA-A*68:01 | 1 | 1139 | 1148 | 10 | DPLQPELDSF 0.000429 | 20 |
| HLA-B*44:02 | 1 | 1187 | 1196 | 10 | NEVAKNLNES 0.000429 | 12 |
| HLA-A*68:01 | 1 | 1229 | 1237 | 9 | MVTIMLCCM 0.000429 | 20 |
| HLA-A*68:01 | 1 | 1237 | 1246 | 10 | MTSCCSCCLKG 0.000429 | 20 |
| HLA-B*51:01 | 1 | 18 | 26 | 9 | LTRTQLPP 0.000428 | 26 |
| HLA-A*33:01 | 1 | 109 | 118 | 10 | TLDSKTQSL 0.000428 | 20 |
| HLA-A*30:02 | 1 | 111 | 120 | 10 | DSKTQSLLIV 0.000428 | 34 |
| HLA-A*23:01 | 1 | 122 | 130 | 9 | NATNVVIVK 0.000428 | 12 |
| HLA-A*02:03 | 1 | 160 | 168 | 9 | YSSANNCTF 0.000428 | 22 |
| HLA-B*44:03 | 1 | 182 | 190 | 9 | KQGNFKNLR 0.000428 | 12 |
| HLA-B*15:01 | 1 | 393 | 402 | 10 | TNVYADSFVI 0.000428 | 20 |
| HLA-B*51:01 | 1 | 394 | 403 | 10 | NVYADSFVIR 0.000428 | 26 |
| HLA-A*02:06 | 1 | 440 | 449 | 10 | NLDSKVGNGY 0.000428 | 27 |
| HLA-A*11:01 | 1 | 477 | 486 | 10 | STPCNGVEGF 0.000428 | 13 |
| HLA-B*57:01 | 1 | 487 | 496 | 10 | NCYFPLQSYG 0.000428 | 28 |
| HLA-A*23:01 | 1 | 516 | 524 | 9 | ELLHAPATV 0.000428 | 12 |
| HLA-B*08:01 | 1 | 537 | 546 | 10 | KCVNFNFNGL 0.000428 | 28 |
| HLA-A*68:01 | 1 | 663 | 672 | 10 | DIPIGAGICA 0.000428 | 20 |
| HLA-B*53:01 | 1 | 712 | 721 | 10 | IAIPTNFTIS 0.000428 | 14 |
| HLA-B*40:01 | 1 | 714 | 722 | 9 | IPTNFTISV 0.000428 | 11 |
| HLA-B*58:01 | 1 | 797 | 805 | 9 | FGGFNFSQI 0.000428 | 20 |
| HLA-A*24:02 | 1 | 902 | 911 | 10 | MAYRFNGIGV 0.000428 | 12 |
| HLA-A*30:01 | 1 | 936 | 945 | 10 | DSLSTASAL 0.000428 | 37 |
| HLA-B*15:01 | 1 | 1201 | 1210 | 10 | QELGKYEQYI 0.000428 | 20 |
| HLA-A*23:01 | 1 | 1206 | 1215 | 10 | YEQYIKWPWY 0.000428 | 12 |
| HLA-B*07:02 | 1 | 25 | 33 | 9 | PPAYTNSFT 0.000427 | 18 |
| HLA-A*02:01 | 1 | 30 | 38 | 9 | NSFTRGVYY 0.000427 | 20 |
| HLA-B*07:02 | 1 | 133 | 141 | 9 | FQFCNDPFL 0.000427 | 18 |
| HLA-A*03:01 | 1 | 175 | 183 | 9 | FLMDLEGKQ 0.000427 | 17 |
| HLA-B*57:01 | 1 | 224 | 233 | 10 | EPLVDLPIGI 0.000427 | 28 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*23:01 | 1 | 226 | 235 | 10 | LVDLPIGINI 0.000427 | 12 |
| HLA-A*03:01 | 1 | 250 | 258 | 9 | TPGDSSSGW 0.000427 | 17 |
| HLA-A*30:02 | 1 | 265 | 274 | 10 | YYVGYLQPR 0.000427 | 34 |
| HLA-B*53:01 | 1 | 291 | 300 | 10 | CALDPLSETK 0.000427 | 14 |
| HLA-B*58:01 | 1 | 311 | 319 | 9 | GIYQTSNFR 0.000427 | 20 |
| HLA-A*68:02 | 1 | 359 | 368 | 10 | SNCVADYSVL 0.000427 | 22 |
| HLA-A*02:03 | 1 | 403 | 411 | 9 | RGDEVRIQA 0.000427 | 22 |
| HLA-B*44:02 | 1 | 420 | 429 | 10 | DYNYKLPDDF 0.000427 | 12 |
| HLA-A*32:01 | 1 | 577 | 585 | 9 | RDPQTLEIL 0.000427 | 15 |
| HLA-A*02:01 | 1 | 602 | 611 | 10 | TNTSNQVAVL 0.000427 | 20 |
| HLA-B*08:01 | 1 | 615 | 623 | 9 | VNCTEVPVA 0.000427 | 28 |
| HLA-B*08:01 | 1 | 615 | 624 | 10 | VNCTEVPVAI 0.000427 | 28 |
| HLA-A*30:01 | 1 | 717 | 725 | 9 | NFTISVTTE 0.000427 | 37 |
| HLA-B*15:01 | 1 | 771 | 779 | 9 | AVEQDKNTQ 0.000427 | 20 |
| HLA-A*68:02 | 1 | 803 | 812 | 10 | SQILPDPSKP 0.000427 | 22 |
| HLA-A*33:01 | 1 | 810 | 818 | 9 | SKPSKRSFI 0.000427 | 20 |
| HLA-B*07:02 | 1 | 985 | 993 | 9 | DKVEAEVQI 0.000427 | 18 |
| HLA-A*33:01 | 1 | 1061 | 1070 | 10 | VFLHVTVVPA 0.000427 | 20 |
| HLA-A*30:01 | 1 | 1141 | 1150 | 10 | LQPELDSFKE 0.000427 | 37 |
| HLA-A*11:01 | 1 | 1171 | 1180 | 10 | GINASVVNIQ 0.000427 | 13 |
| HLA-A*23:01 | 1 | 1205 | 1213 | 9 | KYEYIKWP 0.000427 | 12 |
| HLA-A*11:01 | 1 | 27 | 36 | 10 | AYTNSFTRGV 0.000426 | 13 |
| HLA-B*51:01 | 1 | 79 | 87 | 9 | FDNPVLPFN 0.000426 | 26 |
| HLA-A*02:06 | 1 | 161 | 170 | 10 | SSANNCTFEY 0.000426 | 27 |
| HLA-A*68:01 | 1 | 174 | 182 | 9 | PFLMDLEGK 0.000426 | 20 |
| HLA-A*24:02 | 1 | 194 | 203 | 10 | FKNIDGYFKI 0.000426 | 12 |
| HLA-A*24:02 | 1 | 195 | 204 | 10 | KNIDGYFKIY 0.000426 | 12 |
| HLA-A*30:01 | 1 | 253 | 262 | 10 | DSSSGWTAGA 0.000426 | 37 |
| HLA-A*30:02 | 1 | 393 | 401 | 9 | TNVYADSFV 0.000426 | 34 |
| HLA-B*15:01 | 1 | 395 | 403 | 9 | VYADSFVIR 0.000426 | 20 |
| HLA-A*68:01 | 1 | 421 | 429 | 9 | YNYKLPDDF 0.000426 | 20 |
| HLA-A*24:02 | 1 | 443 | 451 | 9 | SKVGGNYNY 0.000426 | 12 |
| HLA-B*35:01 | 1 | 503 | 511 | 9 | VGYPYRVV 0.000426 | 14 |
| HLA-B*15:01 | 1 | 512 | 521 | 10 | VLSFELLHAP 0.000426 | 20 |
| HLA-B*44:02 | 1 | 764 | 772 | 9 | NRALTGIIV 0.000426 | 12 |
| HLA-B*58:01 | 1 | 798 | 807 | 10 | GGFNFSQILP 0.000426 | 20 |
| HLA-A*01:01 | 1 | 868 | 877 | 10 | EMIAQYTSAL 0.000426 | 24 |
| HLA-A*33:01 | 1 | 879 | 888 | 10 | AGTITSGWTF 0.000426 | 20 |
| HLA-A*24:02 | 1 | 956 | 964 | 9 | AQALNTLVK 0.000426 | 12 |
| HLA-A*26:01 | 1 | 1030 | 1038 | 9 | SECVLGQSK 0.000426 | 17 |
| HLA-A*01:01 | 1 | 1036 | 1045 | 10 | QSKRVDFCGK 0.000426 | 24 |
| HLA-B*53:01 | 1 | 1137 | 1146 | 10 | VYDPLQPELD 0.000426 | 14 |
| HLA-B*35:01 | 1 | 1146 | 1154 | 9 | DSFKEELDK 0.000426 | 14 |
| HLA-A*32:01 | 1 | 1184 | 1193 | 10 | DRLNEVAKNL 0.000426 | 15 |
| HLA-A*01:01 | 1 | 1189 | 1198 | 10 | VAKNLNESLI 0.000426 | 24 |
| HLA-A*24:02 | 1 | 1218 | 1227 | 10 | LGFIAGLIAI 0.000426 | 12 |
| HLA-B*07:02 | 1 | 43 | 51 | 9 | FRSSVLHST 0.000425 | 18 |
| HLA-A*68:02 | 1 | 58 | 66 | 9 | FFSNVTWFH 0.000425 | 22 |
| HLA-B*57:01 | 1 | 100 | 108 | 9 | IIRGWIFGT 0.000425 | 28 |
| HLA-B*58:01 | 1 | 158 | 167 | 10 | RVYSSANNCT 0.000425 | 20 |
| HLA-A*33:01 | 1 | 205 | 213 | 9 | SKHTPINLV 0.000425 | 20 |
| HLA-A*32:01 | 1 | 257 | 265 | 9 | GWTAGAAAY 0.000425 | 15 |
| HLA-B*53:01 | 1 | 260 | 269 | 10 | AGAAAYVGY 0.000425 | 14 |
| HLA-A*23:01 | 1 | 304 | 312 | 9 | KSFTVEKGI 0.000425 | 12 |
| HLA-B*08:01 | 1 | 316 | 324 | 9 | SNFRVQPT 0.000425 | 28 |
| HLA-A*30:01 | 1 | 384 | 392 | 9 | PTKLNLCF 0.000425 | 37 |
| HLA-A*26:01 | 1 | 420 | 429 | 10 | DYNYKLPDDF 0.000425 | 17 |
| HLA-B*57:01 | 1 | 443 | 452 | 10 | SKVGGNYNYL 0.000425 | 28 |
| HLA-A*30:02 | 1 | 474 | 483 | 10 | QAGSTPCNGV 0.000425 | 34 |
| HLA-A*31:01 | 1 | 714 | 722 | 9 | IPTNFTISV 0.000425 | 22 |
| HLA-B*08:01 | 1 | 906 | 915 | 10 | FNGIGVTQNV 0.000425 | 28 |
| HLA-A*11:01 | 1 | 930 | 938 | 9 | AIGKIQDSL 0.000425 | 13 |
| HLA-B*44:02 | 1 | 955 | 963 | 9 | NAQALNTLV 0.000425 | 12 |
| HLA-B*44:03 | 1 | 982 | 991 | 10 | SRLDKVEAEV 0.000425 | 12 |
| HLA-B*35:01 | 1 | 988 | 997 | 10 | EAEVQIDRLI 0.000425 | 14 |
| HLA-A*30:01 | 1 | 990 | 999 | 10 | EVQIDRLITG 0.000425 | 37 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*08:01 | 1 | 1082 | 1090 | 9 | CHDGKAHFP 0.000425 | 28 |
| HLA-A*26:01 | 1 | 1119 | 1128 | 10 | NTFVSGNCDV 0.000425 | 17 |
| HLA-A*02:01 | 1 | 1141 | 1149 | 9 | LQPELDSFK 0.000425 | 20 |
| HLA-B*51:01 | 1 | 1151 | 1159 | 9 | ELDKYFKNH 0.000425 | 26 |
| HLA-B*53:01 | 1 | 1159 | 1167 | 9 | HTSPDVDLG 0.000425 | 14 |
| HLA-A*31:01 | 1 | 1179 | 1188 | 10 | IQKEIDRLNE 0.000425 | 22 |
| HLA-A*33:01 | 1 | 1 | 9 | 9 | MFVFLVLLP 0.000424 | 20 |
| HLA-A*02:03 | 1 | 74 | 83 | 10 | NGTKRFDNPV 0.000424 | 22 |
| HLA-B*57:01 | 1 | 141 | 150 | 10 | LGVYYHKNNK 0.000424 | 28 |
| HLA-A*31:01 | 1 | 238 | 247 | 10 | FQTLALHRS 0.000424 | 22 |
| HLA-B*07:02 | 1 | 287 | 296 | 10 | DAVDCALDPL 0.000424 | 18 |
| HLA-A*30:02 | 1 | 297 | 305 | 9 | SETKCTLKS 0.000424 | 35 |
| HLA-B*44:02 | 1 | 308 | 317 | 10 | VEKGIYQTSN 0.000424 | 12 |
| HLA-B*58:01 | 1 | 313 | 322 | 10 | YQTSNFRVQP 0.000424 | 20 |
| HLA-B*08:01 | 1 | 314 | 322 | 9 | QTSNFRVQP 0.000424 | 28 |
| HLA-B*51:01 | 1 | 320 | 328 | 9 | VQPTESIVR 0.000424 | 26 |
| HLA-B*57:01 | 1 | 572 | 581 | 10 | TTDAVRDPQT 0.000424 | 28 |
| HLA-A*68:02 | 1 | 651 | 659 | 9 | IGAHEVNNV 0.000424 | 22 |
| HLA-A*68:02 | 1 | 714 | 723 | 10 | IPNFTISVT 0.000424 | 22 |
| HLA-A*31:01 | 1 | 731 | 740 | 10 | MTKTSVDCTM 0.000424 | 22 |
| HLA-A*03:01 | 1 | 734 | 742 | 9 | TSVDCTMYI 0.000424 | 17 |
| HLA-A*02:01 | 1 | 739 | 748 | 10 | TMYICGDSTE 0.000424 | 20 |
| HLA-B*58:01 | 1 | 756 | 765 | 10 | YGSFCTQLNR 0.000424 | 20 |
| HLA-A*30:02 | 1 | 948 | 957 | 10 | LQDVVNQNAQ 0.000424 | 35 |
| HLA-A*02:01 | 1 | 1041 | 1049 | 9 | DFCGKGYHL 0.000424 | 20 |
| HLA-A*03:01 | 1 | 1073 | 1081 | 9 | KNFTTAPAI 0.000424 | 17 |
| HLA-A*11:01 | 1 | 1102 | 1110 | 9 | WFVTQRNFY 0.000424 | 13 |
| HLA-A*24:02 | 1 | 1120 | 1128 | 9 | TFVSGNCDV 0.000424 | 12 |
| HLA-B*07:02 | 1 | 1142 | 1150 | 9 | QPELDSFKE 0.000424 | 18 |
| HLA-B*58:01 | 1 | 38 | 47 | 10 | YPDKVFRSSV 0.000423 | 20 |
| HLA-A*26:01 | 1 | 66 | 74 | 9 | HAIHVSBTN 0.000423 | 17 |
| HLA-A*30:01 | 1 | 285 | 293 | 9 | ITDAVDCAL 0.000423 | 37 |
| HLA-B*58:01 | 1 | 340 | 348 | 9 | EVFNATRFA 0.000423 | 20 |
| HLA-A*02:01 | 1 | 357 | 365 | 9 | RISNCVADY 0.000423 | 20 |
| HLA-A*30:02 | 1 | 406 | 414 | 9 | EVRQIAPGQ 0.000423 | 35 |
| HLA-A*30:02 | 1 | 422 | 430 | 9 | NYKLPDDFT 0.000423 | 35 |
| HLA-B*57:01 | 1 | 462 | 470 | 9 | KPFERDIST 0.000423 | 28 |
| HLA-B*44:02 | 1 | 791 | 800 | 10 | TPPIKDFGGF 0.000423 | 12 |
| HLA-B*40:01 | 1 | 795 | 803 | 9 | KDFGGFNFS 0.000423 | 11 |
| HLA-A*30:02 | 1 | 796 | 804 | 9 | DFGGFNFSQ 0.000423 | 35 |
| HLA-A*23:01 | 1 | 874 | 882 | 9 | TSALLAGTI 0.000423 | 12 |
| HLA-A*23:01 | 1 | 900 | 909 | 10 | MQMAYRFNGI 0.000423 | 12 |
| HLA-B*58:01 | 1 | 925 | 933 | 9 | NQFNSAIGK 0.000423 | 20 |
| HLA-A*01:01 | 1 | 950 | 958 | 9 | DVVNQNQAQA 0.000423 | 24 |
| HLA-A*26:01 | 1 | 1015 | 1024 | 10 | AAEIRASANL 0.000423 | 17 |
| HLA-A*01:01 | 1 | 1092 | 1101 | 10 | EGVFVSNNGTH 0.000423 | 24 |
| HLA-A*03:01 | 1 | 1192 | 1201 | 10 | NLNESLIDLQ 0.000423 | 17 |
| HLA-A*31:01 | 1 | 1196 | 1204 | 9 | SLIDLQELG 0.000423 | 22 |
| HLA-A*30:01 | 1 | 1214 | 1222 | 9 | WYIWLGFIA 0.000423 | 37 |
| HLA-A*68:02 | 1 | 86 | 95 | 10 | FNDGVYFAST 0.000422 | 22 |
| HLA-A*31:01 | 1 | 178 | 187 | 10 | DLEGKQGNFK 0.000422 | 22 |
| HLA-B*08:01 | 1 | 183 | 191 | 9 | QGNFKNLRE 0.000422 | 28 |
| HLA-A*31:01 | 1 | 187 | 196 | 10 | KNLREFVFKN 0.000422 | 22 |
| HLA-B*57:01 | 1 | 474 | 483 | 10 | QAGSTPCNGV 0.000422 | 28 |
| HLA-B*07:02 | 1 | 502 | 511 | 10 | GVGYQPYRVV 0.000422 | 18 |
| HLA-B*57:01 | 1 | 526 | 534 | 9 | GPKKSTNLV 0.000422 | 28 |
| HLA-B*57:01 | 1 | 714 | 723 | 10 | IPNFTISVT 0.000422 | 28 |
| HLA-A*33:01 | 1 | 813 | 821 | 9 | SKRSFIEDL 0.000422 | 20 |
| HLA-A*33:01 | 1 | 819 | 828 | 10 | EDLLFNKVTL 0.000422 | 20 |
| HLA-A*32:01 | 1 | 887 | 896 | 10 | TFGAGAALQI 0.000422 | 15 |
| HLA-A*02:01 | 1 | 950 | 958 | 9 | DVVNQNQAQA 0.000422 | 20 |
| HLA-B*58:01 | 1 | 1052 | 1060 | 9 | FPQSAPHGV 0.000422 | 20 |
| HLA-B*08:01 | 1 | 1070 | 1079 | 10 | AQEKNFHTAP 0.000422 | 28 |
| HLA-A*11:01 | 1 | 1101 | 1109 | 9 | HWFVTQRNF 0.000422 | 13 |
| HLA-B*07:02 | 1 | 1140 | 1148 | 9 | PLQPELDSF 0.000422 | 18 |
| HLA-A*02:01 | 1 | 1228 | 1237 | 10 | VMVTIMLCCM 0.000422 | 20 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*26:01 | 1 | 1256 | 1265 | 10 | FDEDDSEPVL 0.000422 | 17 |
| HLA-B*44:02 | 1 | 76 | 84 | 9 | TKRFDNPVL 0.000421 | 12 |
| HLA-B*07:02 | 1 | 98 | 106 | 9 | SNIRGWIF 0.000421 | 18 |
| HLA-A*11:01 | 1 | 122 | 130 | 9 | NATNVVIVK 0.000421 | 13 |
| HLA-A*02:03 | 1 | 145 | 153 | 9 | YHKNNKSWM 0.000421 | 22 |
| HLA-B*51:01 | 1 | 230 | 238 | 9 | PIGINITRF 0.000421 | 26 |
| HLA-A*02:06 | 1 | 288 | 297 | 10 | AVDCALDPLS 0.000421 | 27 |
| HLA-B*40:01 | 1 | 403 | 411 | 9 | RGDEVQRQA 0.000421 | 11 |
| HLA-A*30:02 | 1 | 432 | 441 | 10 | CVIAWNSNNL 0.000421 | 35 |
| HLA-B*08:01 | 1 | 501 | 510 | 10 | NGVGYQPYRV 0.000421 | 28 |
| HLA-A*30:01 | 1 | 544 | 552 | 9 | NGLTGTGVL 0.000421 | 37 |
| HLA-A*33:01 | 1 | 558 | 566 | 9 | KFLPFQFG 0.000421 | 20 |
| HLA-B*53:01 | 1 | 662 | 670 | 9 | CDIPIGAGI 0.000421 | 14 |
| HLA-A*30:01 | 1 | 724 | 732 | 9 | TEILPVSMT 0.000421 | 37 |
| HLA-B*40:01 | 1 | 810 | 818 | 9 | SKPSKRSFI 0.000421 | 11 |
| HLA-A*30:02 | 1 | 949 | 958 | 10 | QDVVNQNAQA 0.000421 | 35 |
| HLA-A*68:02 | 1 | 1105 | 1114 | 10 | TQRNFYEQPI 0.000421 | 22 |
| HLA-B*51:01 | 1 | 1127 | 1136 | 10 | DVIVIGIVNNT 0.000421 | 26 |
| HLA-A*02:03 | 1 | 1221 | 1230 | 10 | IAGLIAIVMV 0.000421 | 22 |
| HLA-B*44:03 | 1 | 108 | 117 | 10 | TTLDSKTQSL 0.00042 | 12 |
| HLA-A*33:01 | 1 | 174 | 182 | 9 | PFLMDLEGK 0.00042 | 20 |
| HLA-A*32:01 | 1 | 214 | 222 | 9 | RDLPGGFSA 0.00042 | 15 |
| HLA-A*26:01 | 1 | 307 | 316 | 10 | TVEKGIYQTS 0.00042 | 17 |
| HLA-A*01:01 | 1 | 328 | 336 | 9 | RFPNITNLC 0.00042 | 24 |
| HLA-A*33:01 | 1 | 350 | 358 | 9 | VYAWNRKRI 0.00042 | 20 |
| HLA-B*08:01 | 1 | 361 | 369 | 9 | CVADYSVLY 0.00042 | 28 |
| HLA-A*68:01 | 1 | 456 | 464 | 9 | FRKSNLKP 0.00042 | 20 |
| HLA-A*30:02 | 1 | 539 | 547 | 9 | VNFNFNGLT 0.00042 | 35 |
| HLA-A*01:01 | 1 | 815 | 824 | 10 | RSFIEDLLFN 0.00042 | 24 |
| HLA-A*30:01 | 1 | 1063 | 1071 | 9 | LHVTVVPAQ 0.00042 | 37 |
| HLA-A*68:01 | 1 | 1080 | 1089 | 10 | AICHDGKAHF 0.00042 | 20 |
| HLA-A*11:01 | 1 | 1204 | 1212 | 9 | GKYEQYIKW 0.00042 | 13 |
| HLA-A*03:01 | 1 | 6 | 15 | 10 | VLLPLVSSQC 0.000419 | 17 |
| HLA-A*33:01 | 1 | 31 | 39 | 9 | SFTRGVYYP 0.000419 | 20 |
| HLA-A*11:01 | 1 | 84 | 92 | 9 | LPFNDGVYF 0.000419 | 13 |
| HLA-B*40:01 | 1 | 152 | 160 | 9 | WMESEFRVY 0.000419 | 11 |
| HLA-B*40:01 | 1 | 155 | 164 | 10 | SEFRVYSSAN 0.000419 | 11 |
| HLA-A*02:06 | 1 | 188 | 196 | 9 | NLREFVFKN 0.000419 | 28 |
| HLA-A*02:01 | 1 | 213 | 222 | 10 | VRDLPQGFSA 0.000419 | 20 |
| HLA-B*40:01 | 1 | 241 | 249 | 9 | LLALHRSYL 0.000419 | 11 |
| HLA-B*15:01 | 1 | 291 | 300 | 10 | CALDPLSETK 0.000419 | 20 |
| HLA-B*07:02 | 1 | 315 | 323 | 9 | TSNFRVQPT 0.000419 | 18 |
| HLA-A*11:01 | 1 | 332 | 340 | 9 | ITNLCPFGE 0.000419 | 13 |
| HLA-A*30:02 | 1 | 353 | 361 | 9 | WNRKRISNC 0.000419 | 35 |
| HLA-B*35:01 | 1 | 361 | 370 | 10 | CVADYSVLYN 0.000419 | 15 |
| HLA-A*30:02 | 1 | 485 | 494 | 10 | GFNCYFPLQS 0.000419 | 35 |
| HLA-B*51:01 | 1 | 489 | 498 | 10 | YFPLQSYGFQ 0.000419 | 26 |
| HLA-B*40:01 | 1 | 516 | 524 | 9 | ELLHAPATV 0.000419 | 11 |
| HLA-A*26:01 | 1 | 620 | 629 | 10 | VPVAIHADQL 0.000419 | 17 |
| HLA-A*02:01 | 1 | 636 | 645 | 10 | YSTGSNVFQT 0.000419 | 20 |
| HLA-B*40:01 | 1 | 698 | 707 | 10 | SLGAENSVAY 0.000419 | 11 |
| HLA-B*57:01 | 1 | 953 | 962 | 10 | NQNAQALNTL 0.000419 | 28 |
| HLA-A*26:01 | 1 | 955 | 964 | 10 | NAQALNTLVK 0.000419 | 17 |
| HLA-A*03:01 | 1 | 1021 | 1029 | 9 | SANLAATKM 0.000419 | 17 |
| HLA-B*57:01 | 1 | 1223 | 1232 | 10 | GLIAIVMVTI 0.000419 | 28 |
| HLA-A*26:01 | 1 | 12 | 21 | 10 | SSQCVNLTTR 0.000418 | 17 |
| HLA-A*68:01 | 1 | 62 | 71 | 10 | VTWFHAIHVS 0.000418 | 20 |
| HLA-B*35:01 | 1 | 70 | 79 | 10 | VSGTNGTKRF 0.000418 | 15 |
| HLA-B*07:02 | 1 | 118 | 126 | 9 | LIVNNATNV 0.000418 | 18 |
| HLA-A*02:03 | 1 | 238 | 246 | 9 | FQTLALHR 0.000418 | 22 |
| HLA-A*03:01 | 1 | 320 | 329 | 10 | VQPTESIVRF 0.000418 | 17 |
| HLA-A*33:01 | 1 | 354 | 362 | 9 | NRKRISNCV 0.000418 | 20 |
| HLA-A*03:01 | 1 | 372 | 381 | 10 | ASFSTFKCYG 0.000418 | 17 |
| HLA-A*26:01 | 1 | 425 | 433 | 9 | LPDDFTGCV 0.000418 | 17 |
| HLA-B*44:02 | 1 | 460 | 468 | 9 | NLKPFERDI 0.000418 | 12 |
| HLA-B*15:01 | 1 | 473 | 482 | 10 | YQAGSTPCNG 0.000418 | 20 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*33:01 | 1 | 634 | 643 | 10 | RVYSTGSNVF 0.000418 | 20 |
| HLA-B*58:01 | 1 | 700 | 709 | 10 | GAENSVAYSN 0.000418 | 20 |
| HLA-B*57:01 | 1 | 716 | 724 | 9 | TNFTISVTT 0.000418 | 28 |
| HLA-B*44:02 | 1 | 805 | 814 | 10 | ILPDPSKPSK 0.000418 | 12 |
| HLA-B*08:01 | 1 | 819 | 827 | 9 | EDLLFNKVT 0.000418 | 28 |
| HLA-B*53:01 | 1 | 893 | 902 | 10 | ALQIPFAMQM 0.000418 | 14 |
| HLA-A*68:01 | 1 | 949 | 958 | 10 | QDVVNQNAQA 0.000418 | 20 |
| HLA-B*57:01 | 1 | 1021 | 1030 | 10 | SANLAATKMS 0.000418 | 28 |
| HLA-A*03:01 | 1 | 36 | 45 | 10 | VYYPDKVFRS 0.000417 | 17 |
| HLA-B*57:01 | 1 | 120 | 129 | 10 | VNNATNVVVK 0.000417 | 28 |
| HLA-A*02:03 | 1 | 167 | 176 | 10 | TFEYVSQPFL 0.000417 | 22 |
| HLA-B*51:01 | 1 | 240 | 249 | 10 | TLLALHRSYL 0.000417 | 26 |
| HLA-A*33:01 | 1 | 399 | 407 | 9 | SFVIRGDEV 0.000417 | 20 |
| HLA-B*44:02 | 1 | 437 | 445 | 9 | NSNNLDSKV 0.000417 | 12 |
| HLA-B*57:01 | 1 | 462 | 471 | 10 | KPFERDISTE 0.000417 | 28 |
| HLA-B*53:01 | 1 | 583 | 591 | 9 | EILDITPCS 0.000417 | 14 |
| HLA-A*68:01 | 1 | 747 | 755 | 9 | TECSNLLLQ 0.000417 | 20 |
| HLA-A*32:01 | 1 | 752 | 760 | 9 | LLLQYGSFC 0.000417 | 16 |
| HLA-A*33:01 | 1 | 915 | 923 | 9 | VLLENQKLI 0.000417 | 20 |
| HLA-A*30:01 | 1 | 1042 | 1050 | 9 | FCGKYHLM 0.000417 | 37 |
| HLA-A*02:06 | 1 | 1122 | 1130 | 9 | VSGNCDVVI 0.000417 | 28 |
| HLA-B*07:02 | 1 | 1128 | 1137 | 10 | VVIGIVNNTV 0.000417 | 18 |
| HLA-A*31:01 | 1 | 1145 | 1154 | 10 | LDSFKEELDK 0.000417 | 22 |
| HLA-A*26:01 | 1 | 118 | 127 | 10 | LIVNNATNVV 0.000416 | 17 |
| HLA-A*02:03 | 1 | 152 | 160 | 9 | WMESEFRVY 0.000416 | 22 |
| HLA-A*68:01 | 1 | 224 | 233 | 10 | EPLVDLPIGI 0.000416 | 20 |
| HLA-B*58:01 | 1 | 240 | 249 | 10 | TLLALHRSYL 0.000416 | 20 |
| HLA-B*44:02 | 1 | 268 | 277 | 10 | GYLQPRTFLL 0.000416 | 12 |
| HLA-A*30:01 | 1 | 416 | 425 | 10 | GKIADYNYKL 0.000416 | 37 |
| HLA-B*15:01 | 1 | 508 | 517 | 10 | YRVVVLSEFEL 0.000416 | 20 |
| HLA-A*30:01 | 1 | 622 | 630 | 9 | VAIHADQLT 0.000416 | 37 |
| HLA-A*33:01 | 1 | 658 | 666 | 9 | NSYECDIPI 0.000416 | 20 |
| HLA-A*32:01 | 1 | 781 | 790 | 10 | VFAQVKQIYK 0.000416 | 16 |
| HLA-A*02:01 | 1 | 1075 | 1083 | 9 | FTTAPAICH 0.000416 | 20 |
| HLA-A*01:01 | 1 | 1081 | 1090 | 10 | ICHDGKAHFP 0.000416 | 25 |
| HLA-A*68:02 | 1 | 1210 | 1218 | 9 | IKWPWYIWL 0.000416 | 22 |
| HLA-A*68:01 | 1 | 1220 | 1229 | 10 | FIAGLIAIVM 0.000416 | 20 |
| HLA-B*07:02 | 1 | 5 | 13 | 9 | LVLLPLVSS 0.000415 | 18 |
| HLA-A*01:01 | 1 | 233 | 242 | 10 | INITRFQTL 0.000415 | 25 |
| HLA-B*51:01 | 1 | 243 | 251 | 9 | ALHRSYLTP 0.000415 | 26 |
| HLA-A*11:01 | 1 | 262 | 270 | 9 | AAAYYVGYL 0.000415 | 13 |
| HLA-B*08:01 | 1 | 305 | 313 | 9 | SFTVEKGIY 0.000415 | 28 |
| HLA-B*57:01 | 1 | 643 | 651 | 9 | FQTRAGCLI 0.000415 | 28 |
| HLA-A*02:03 | 1 | 684 | 693 | 10 | ARSVASQSII 0.000415 | 22 |
| HLA-A*24:02 | 1 | 758 | 766 | 9 | SFCTQLNRA 0.000415 | 12 |
| HLA-B*08:01 | 1 | 787 | 795 | 9 | QIYKTPPIK 0.000415 | 28 |
| HLA-A*33:01 | 1 | 878 | 886 | 9 | LAGTITSGW 0.000415 | 20 |
| HLA-B*07:02 | 1 | 929 | 937 | 9 | SAIGKIQDS 0.000415 | 18 |
| HLA-A*26:01 | 1 | 943 | 952 | 10 | SALGKLQDVV 0.000415 | 17 |
| HLA-B*40:01 | 1 | 947 | 956 | 10 | KLQDVVNQNA 0.000415 | 11 |
| HLA-A*02:03 | 1 | 996 | 1005 | 10 | LITGRLQSLQ 0.000415 | 22 |
| HLA-A*03:01 | 1 | 1044 | 1052 | 9 | GKGYHLMSF 0.000415 | 17 |
| HLA-A*02:01 | 1 | 1103 | 1111 | 9 | FVTQRNFYE 0.000415 | 20 |
| HLA-A*31:01 | 1 | 1144 | 1152 | 9 | ELDSFKEEL 0.000415 | 22 |
| HLA-B*08:01 | 1 | 117 | 126 | 10 | LLIVNNATNV 0.000414 | 28 |
| HLA-A*68:02 | 1 | 144 | 152 | 9 | YYHKNNKSW 0.000414 | 22 |
| HLA-A*30:01 | 1 | 382 | 391 | 10 | VSPTKLNLC 0.000414 | 38 |
| HLA-B*07:02 | 1 | 454 | 462 | 9 | RLFRKSNLK 0.000414 | 18 |
| HLA-B*07:02 | 1 | 484 | 492 | 9 | EGFNCFYFPL 0.000414 | 18 |
| HLA-B*40:01 | 1 | 563 | 571 | 9 | QQFGRDIAD 0.000414 | 11 |
| HLA-B*58:01 | 1 | 643 | 651 | 9 | FQTRAGCLI 0.000414 | 20 |
| HLA-A*01:01 | 1 | 684 | 692 | 9 | ARSVASQSI 0.000414 | 25 |
| HLA-A*03:01 | 1 | 722 | 731 | 10 | VTTEILPVSIM 0.000414 | 17 |
| HLA-A*30:01 | 1 | 797 | 806 | 10 | FGGFNFSQIL 0.000414 | 38 |
| HLA-A*33:01 | 1 | 814 | 822 | 9 | KRSFIEDLL 0.000414 | 20 |
| HLA-B*08:01 | 1 | 900 | 908 | 9 | MQMAYRFNG 0.000414 | 28 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*15:01 | 1 | 990 | 999 | 10 | EVQIDRLITG 0.000414 | 20 |
| HLA-A*30:02 | 1 | 1056 | 1065 | 10 | APHGCVFLHV 0.000414 | 35 |
| HLA-B*08:01 | 1 | 1057 | 1065 | 9 | PHGVVFLHV 0.000414 | 28 |
| HLA-A*30:02 | 1 | 1198 | 1207 | 10 | IDLQELGKYE 0.000414 | 35 |
| HLA-A*26:01 | 1 | 21 | 29 | 9 | RTQLPPAYT 0.000413 | 17 |
| HLA-A*11:01 | 1 | 60 | 69 | 10 | SNVTWFHAIH 0.000413 | 13 |
| HLA-A*24:02 | 1 | 124 | 133 | 10 | TNVVIKVCDF 0.000413 | 12 |
| HLA-A*02:06 | 1 | 340 | 349 | 10 | EVFNATRFAS 0.000413 | 28 |
| HLA-A*30:01 | 1 | 392 | 400 | 9 | FTNVYADSF 0.000413 | 38 |
| HLA-B*08:01 | 1 | 418 | 426 | 9 | IADYNYKLP 0.000413 | 28 |
| HLA-B*07:02 | 1 | 460 | 468 | 9 | NLKPFERDI 0.000413 | 18 |
| HLA-A*68:02 | 1 | 589 | 597 | 9 | PCSFGGVSV 0.000413 | 22 |
| HLA-B*57:01 | 1 | 641 | 649 | 9 | NVFQTRAGC 0.000413 | 28 |
| HLA-B*53:01 | 1 | 687 | 696 | 10 | VASQSIIAYT 0.000413 | 14 |
| HLA-B*15:01 | 1 | 741 | 749 | 9 | YICGDSTEC 0.000413 | 20 |
| HLA-A*02:01 | 1 | 797 | 806 | 10 | FGGFNFSQIL 0.000413 | 20 |
| HLA-A*02:01 | 1 | 867 | 876 | 10 | DEMIAQY TSA 0.000413 | 20 |
| HLA-A*01:01 | 1 | 896 | 905 | 10 | IPFAMQMAYR 0.000413 | 25 |
| HLA-B*57:01 | 1 | 969 | 977 | 9 | NFGAISSVL 0.000413 | 28 |
| HLA-A*31:01 | 1 | 1021 | 1029 | 9 | SANLAATKM 0.000413 | 22 |
| HLA-A*33:01 | 1 | 1106 | 1114 | 9 | QRNFYEQI 0.000413 | 20 |
| HLA-A*30:02 | 1 | 1194 | 1203 | 10 | NESLIDLQEL 0.000413 | 35 |
| HLA-B*58:01 | 1 | 1257 | 1265 | 9 | DEDDSEPVL 0.000413 | 20 |
| HLA-A*24:02 | 1 | 1262 | 1270 | 9 | EPVLKGVKL 0.000413 | 12 |
| HLA-B*53:01 | 1 | 121 | 130 | 10 | NNATNVVIVK 0.000412 | 14 |
| HLA-B*40:01 | 1 | 262 | 270 | 9 | AAAYYVGYL 0.000412 | 11 |
| HLA-A*68:01 | 1 | 462 | 470 | 9 | KPFERDIST 0.000412 | 20 |
| HLA-B*07:02 | 1 | 623 | 631 | 9 | AIHADQLTP 0.000412 | 18 |
| HLA-B*57:01 | 1 | 629 | 638 | 10 | LTPTWRVYST 0.000412 | 28 |
| HLA-A*30:02 | 1 | 745 | 754 | 10 | DSTECSNLLL 0.000412 | 35 |
| HLA-B*44:02 | 1 | 818 | 827 | 10 | IEDLLFNKVT 0.000412 | 12 |
| HLA-B*35:01 | 1 | 929 | 937 | 9 | SAIGKIQDS 0.000412 | 15 |
| HLA-A*01:01 | 1 | 1134 | 1143 | 10 | NNTVYDPLQP 0.000412 | 25 |
| HLA-A*26:01 | 1 | 1194 | 1203 | 10 | NESLIDLQEL 0.000412 | 17 |
| HLA-A*26:01 | 1 | 1199 | 1207 | 9 | DLQELGKYE 0.000412 | 17 |
| HLA-B*08:01 | 1 | 1199 | 1208 | 10 | DLQELGKYE 0.000412 | 28 |
| HLA-A*02:01 | 1 | 3 | 12 | 10 | VFLVLLPLVS 0.000411 | 20 |
| HLA-A*68:02 | 1 | 40 | 48 | 9 | DKVFRSSVL 0.000411 | 22 |
| HLA-A*68:02 | 1 | 112 | 120 | 9 | SKTQSLLIV 0.000411 | 22 |
| HLA-B*58:01 | 1 | 142 | 150 | 9 | GVYYHKNNK 0.000411 | 20 |
| HLA-A*23:01 | 1 | 148 | 157 | 10 | NNKSWMESEF 0.000411 | 12 |
| HLA-A*26:01 | 1 | 205 | 214 | 10 | SKHTPINLVR 0.000411 | 17 |
| HLA-B*44:02 | 1 | 238 | 246 | 9 | FQTLALHR 0.000411 | 12 |
| HLA-B*51:01 | 1 | 255 | 264 | 10 | SSGWTAGAAA 0.000411 | 26 |
| HLA-B*44:02 | 1 | 279 | 288 | 10 | YNENGTITDA 0.000411 | 12 |
| HLA-A*30:01 | 1 | 389 | 397 | 9 | DLCFTNVYA 0.000411 | 38 |
| HLA-B*57:01 | 1 | 401 | 409 | 9 | VIRGDEVRQ 0.000411 | 28 |
| HLA-B*44:02 | 1 | 482 | 490 | 9 | GVEGFNCYF 0.000411 | 12 |
| HLA-B*08:01 | 1 | 486 | 495 | 10 | FNCYFPLQSY 0.000411 | 28 |
| HLA-A*30:02 | 1 | 622 | 630 | 9 | VAIHADQLT 0.000411 | 35 |
| HLA-A*31:01 | 1 | 624 | 633 | 10 | IHADQLTPTW 0.000411 | 22 |
| HLA-A*30:01 | 1 | 732 | 740 | 9 | TKTSVDCTM 0.000411 | 38 |
| HLA-A*01:01 | 1 | 778 | 787 | 10 | TQEVFAQVKQ 0.000411 | 25 |
| HLA-B*08:01 | 1 | 821 | 830 | 10 | LLFNKVTLAD 0.000411 | 28 |
| HLA-A*33:01 | 1 | 867 | 876 | 10 | DEMIAQY TSA 0.000411 | 20 |
| HLA-A*23:01 | 1 | 902 | 911 | 10 | MAYRFNGIGV 0.000411 | 12 |
| HLA-A*68:02 | 1 | 1199 | 1207 | 9 | DLQELGKYE 0.000411 | 22 |
| HLA-B*15:01 | 1 | 1210 | 1218 | 9 | IKWPWYIWL 0.000411 | 20 |
| HLA-A*33:01 | 1 | 1224 | 1232 | 9 | LIAIVMVTI 0.000411 | 20 |
| HLA-B*44:02 | 1 | 57 | 65 | 9 | PFFSNVTWF 0.000411 | 12 |
| HLA-B*58:01 | 1 | 111 | 120 | 10 | DSKTQSLLIV 0.000411 | 20 |
| HLA-B*15:01 | 1 | 248 | 257 | 10 | YLTPGDSSSG 0.000411 | 21 |
| HLA-B*44:03 | 1 | 257 | 266 | 10 | GWTAGAAAYY 0.000411 | 12 |
| HLA-B*07:02 | 1 | 258 | 266 | 9 | WTAGAAAYY 0.000411 | 18 |
| HLA-B*51:01 | 1 | 270 | 278 | 9 | LQPRTFLLK 0.000411 | 26 |
| HLA-B*07:02 | 1 | 277 | 285 | 9 | LKYNENGTI 0.000411 | 18 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*07:02 | 1 | 443 | 452 | 10 | SKVGGNYYL 0.00041 | 18 |
| HLA-B*57:01 | 1 | 526 | 535 | 10 | GPKKSTNLVK 0.00041 | 28 |
| HLA-A*30:01 | 1 | 593 | 601 | 9 | GGVSVITPG 0.00041 | 38 |
| HLA-B*35:01 | 1 | 641 | 650 | 10 | NVFQTRAGCL 0.00041 | 15 |
| HLA-A*31:01 | 1 | 746 | 754 | 9 | STECSNLLL 0.00041 | 22 |
| HLA-B*08:01 | 1 | 805 | 813 | 9 | ILPDPSPKS 0.00041 | 28 |
| HLA-A*31:01 | 1 | 850 | 858 | 9 | ICAQKFNGL 0.00041 | 22 |
| HLA-A*24:02 | 1 | 874 | 882 | 9 | TSALLAGTI 0.00041 | 12 |
| HLA-B*44:03 | 1 | 890 | 898 | 9 | AGAALQIPF 0.00041 | 12 |
| HLA-A*30:01 | 1 | 1033 | 1042 | 10 | VLGQSKRVDF 0.00041 | 38 |
| HLA-A*30:01 | 1 | 1042 | 1051 | 10 | FCGKGYHLMS 0.00041 | 38 |
| HLA-A*02:03 | 1 | 1094 | 1102 | 9 | VFVSNGTHW 0.00041 | 23 |
| HLA-A*02:03 | 1 | 1182 | 1190 | 9 | EIDRLNEVA 0.00041 | 23 |
| HLA-B*58:01 | 1 | 1218 | 1227 | 10 | LGFIAGLIAI 0.00041 | 20 |
| HLA-B*53:01 | 1 | 1226 | 1234 | 9 | AIVMVTIML 0.00041 | 14 |
| HLA-B*57:01 | 1 | 1257 | 1265 | 9 | DEDDSEPVL 0.00041 | 28 |
| HLA-B*40:01 | 1 | 152 | 161 | 10 | WMESEFRVYS 0.000409 | 11 |
| HLA-A*30:01 | 1 | 153 | 162 | 10 | MESEFRVYSS 0.000409 | 38 |
| HLA-A*33:01 | 1 | 240 | 249 | 10 | TLLALHRSYL 0.000409 | 20 |
| HLA-B*07:02 | 1 | 353 | 361 | 9 | WNRKRISNC 0.000409 | 18 |
| HLA-A*33:01 | 1 | 363 | 371 | 9 | ADYSVLVNS 0.000409 | 20 |
| HLA-A*68:01 | 1 | 494 | 503 | 10 | SYGFQPTNGV 0.000409 | 20 |
| HLA-B*35:01 | 1 | 575 | 584 | 10 | AVRDPQTLEI 0.000409 | 15 |
| HLA-B*51:01 | 1 | 729 | 737 | 9 | VSMTKTSVD 0.000409 | 26 |
| HLA-B*35:01 | 1 | 802 | 811 | 10 | FSQILPDPSPK 0.000409 | 15 |
| HLA-A*02:01 | 1 | 907 | 916 | 10 | NGIGVTQNVL 0.000409 | 20 |
| HLA-A*23:01 | 1 | 1065 | 1073 | 9 | VTYVPAQEK 0.000409 | 12 |
| HLA-B*51:01 | 1 | 1120 | 1129 | 10 | TFVSGNCDVV 0.000409 | 26 |
| HLA-B*08:01 | 1 | 1259 | 1268 | 10 | DDSEPVLKGV 0.000409 | 28 |
| HLA-B*08:01 | 1 | 29 | 37 | 9 | TNSFTRGVY 0.000408 | 28 |
| HLA-A*01:01 | 1 | 104 | 113 | 10 | WIFGTTLDISK 0.000408 | 25 |
| HLA-A*02:03 | 1 | 168 | 177 | 10 | FEYVSQPFLM 0.000408 | 23 |
| HLA-A*01:01 | 1 | 198 | 207 | 10 | DGYFKIYSKH 0.000408 | 25 |
| HLA-A*30:02 | 1 | 274 | 282 | 9 | TFLLKYNEN 0.000408 | 35 |
| HLA-A*02:03 | 1 | 386 | 394 | 9 | KLNDLCFTN 0.000408 | 23 |
| HLA-A*03:01 | 1 | 462 | 470 | 9 | KPFERDIST 0.000408 | 17 |
| HLA-A*30:02 | 1 | 506 | 514 | 9 | QPYRVVVL 0.000408 | 35 |
| HLA-A*24:02 | 1 | 714 | 722 | 9 | IPTNFTISV 0.000408 | 12 |
| HLA-B*15:01 | 1 | 724 | 732 | 9 | TEILPVSM 0.000408 | 21 |
| HLA-A*33:01 | 1 | 758 | 767 | 10 | SFCTQLNRL 0.000408 | 20 |
| HLA-A*23:01 | 1 | 815 | 824 | 10 | RSFIEDLLFN 0.000408 | 12 |
| HLA-B*08:01 | 1 | 847 | 855 | 9 | RDLICAQKF 0.000408 | 28 |
| HLA-B*07:02 | 1 | 1139 | 1147 | 9 | DPLQPELDS 0.000408 | 18 |
| HLA-A*02:03 | 1 | 62 | 71 | 10 | VTWFHAIHVS 0.000407 | 23 |
| HLA-A*02:06 | 1 | 178 | 186 | 9 | DLEGKQGNF 0.000407 | 28 |
| HLA-B*53:01 | 1 | 223 | 231 | 9 | LEPLVDLPI 0.000407 | 14 |
| HLA-B*08:01 | 1 | 292 | 301 | 10 | ALDPLSETKC 0.000407 | 28 |
| HLA-A*02:01 | 1 | 358 | 367 | 10 | ISNCVADYSV 0.000407 | 20 |
| HLA-B*58:01 | 1 | 466 | 474 | 9 | RDISTEIIYQ 0.000407 | 20 |
| HLA-B*53:01 | 1 | 577 | 585 | 9 | RDPQTLEIL 0.000407 | 14 |
| HLA-A*30:01 | 1 | 726 | 734 | 9 | ILPVSMTKT 0.000407 | 38 |
| HLA-B*08:01 | 1 | 793 | 802 | 10 | PIKDFGGFNF 0.000407 | 28 |
| HLA-B*35:01 | 1 | 987 | 996 | 10 | VEAEVQIDRL 0.000407 | 15 |
| HLA-A*11:01 | 1 | 1007 | 1015 | 9 | YVTQQLIRA 0.000407 | 13 |
| HLA-A*68:01 | 1 | 1026 | 1034 | 9 | ATKMSECVL 0.000407 | 20 |
| HLA-B*07:02 | 1 | 1033 | 1042 | 10 | VLGQSKRVDF 0.000407 | 18 |
| HLA-A*01:01 | 1 | 1082 | 1090 | 9 | CHDGKAHFP 0.000407 | 25 |
| HLA-B*51:01 | 1 | 124 | 133 | 10 | TNVVIKVECF 0.000406 | 26 |
| HLA-B*08:01 | 1 | 208 | 217 | 10 | TPINLVRDLP 0.000406 | 28 |
| HLA-A*30:02 | 1 | 329 | 338 | 10 | FPNITNLCPF 0.000406 | 35 |
| HLA-B*44:03 | 1 | 469 | 478 | 10 | STEIYQAGST 0.000406 | 12 |
| HLA-A*30:01 | 1 | 568 | 576 | 9 | DIADTTDAV 0.000406 | 38 |
| HLA-B*40:01 | 1 | 674 | 682 | 9 | YQTQTNSPR 0.000406 | 11 |
| HLA-A*68:01 | 1 | 708 | 716 | 9 | SNNSIAIPT 0.000406 | 20 |
| HLA-A*31:01 | 1 | 709 | 718 | 10 | NNSIAIPTNF 0.000406 | 22 |
| HLA-B*44:02 | 1 | 750 | 759 | 10 | SNLLLQYGSF 0.000406 | 12 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|----------|----|
| HLA-A*68:02 | 1 | 816 | 825 | 10 | SFIEDLLFNK | 0.000406 | 22 |
| HLA-A*68:01 | 1 | 818 | 826 | 9 | IEDLLFNKV | 0.000406 | 20 |
| HLA-B*44:03 | 1 | 819 | 827 | 9 | EDLLFNKVT | 0.000406 | 12 |
| HLA-A*30:01 | 1 | 831 | 839 | 9 | AGFIKQYGD | 0.000406 | 38 |
| HLA-A*01:01 | 1 | 1096 | 1105 | 10 | VSNQTHWFVT | 0.000406 | 25 |
| HLA-A*01:01 | 1 | 1108 | 1117 | 10 | NFYEQIITT | 0.000406 | 25 |
| HLA-A*02:06 | 1 | 1173 | 1181 | 9 | NASVVNIQK | 0.000406 | 28 |
| HLA-B*15:01 | 1 | 1173 | 1181 | 9 | NASVVNIQK | 0.000406 | 21 |
| HLA-B*15:01 | 1 | 1194 | 1203 | 10 | NESLIDLQEL | 0.000406 | 21 |
| HLA-A*23:01 | 1 | 43 | 51 | 9 | FRSSVLHST | 0.000405 | 12 |
| HLA-A*02:01 | 1 | 101 | 110 | 10 | IRGWIFGTTL | 0.000405 | 20 |
| HLA-A*31:01 | 1 | 119 | 127 | 9 | IVNNATNVV | 0.000405 | 22 |
| HLA-A*31:01 | 1 | 136 | 145 | 10 | CNDPFLGVVY | 0.000405 | 22 |
| HLA-B*44:02 | 1 | 145 | 153 | 9 | YHKNNKSWM | 0.000405 | 12 |
| HLA-A*30:02 | 1 | 183 | 191 | 9 | QGNFKNLRE | 0.000405 | 35 |
| HLA-A*02:06 | 1 | 185 | 193 | 9 | NFKNLREFV | 0.000405 | 28 |
| HLA-A*23:01 | 1 | 189 | 197 | 9 | LREFVFKNI | 0.000405 | 12 |
| HLA-B*58:01 | 1 | 214 | 222 | 9 | RDLPLQGFSA | 0.000405 | 21 |
| HLA-A*68:02 | 1 | 338 | 346 | 9 | FGEVFNATR | 0.000405 | 22 |
| HLA-B*15:01 | 1 | 658 | 666 | 9 | NSYECDIPI | 0.000405 | 21 |
| HLA-B*08:01 | 1 | 708 | 716 | 9 | SNNSIAIPT | 0.000405 | 29 |
| HLA-B*44:03 | 1 | 795 | 804 | 10 | KDFGGFNFSQ | 0.000405 | 12 |
| HLA-A*30:01 | 1 | 877 | 886 | 10 | LLAGTITSGW | 0.000405 | 38 |
| HLA-A*33:01 | 1 | 881 | 890 | 10 | TITSGWTFGA | 0.000405 | 20 |
| HLA-A*02:06 | 1 | 892 | 901 | 10 | AALQIPFAMQ | 0.000405 | 28 |
| HLA-B*57:01 | 1 | 1028 | 1036 | 9 | KMSECVLGQ | 0.000405 | 28 |
| HLA-A*03:01 | 1 | 1031 | 1039 | 9 | ECVLGQSKR | 0.000405 | 17 |
| HLA-B*44:02 | 1 | 1091 | 1100 | 10 | REGVVFVSNGT | 0.000405 | 12 |
| HLA-A*26:01 | 1 | 15 | 24 | 10 | CVNLTRTQL | 0.000404 | 17 |
| HLA-B*07:02 | 1 | 44 | 52 | 9 | RSSVLHSTQ | 0.000404 | 18 |
| HLA-A*31:01 | 1 | 56 | 65 | 10 | LPFFSNVTWF | 0.000404 | 22 |
| HLA-A*11:01 | 1 | 162 | 171 | 10 | SANNTFEYV | 0.000404 | 13 |
| HLA-B*57:01 | 1 | 184 | 193 | 10 | GNFKNLREFV | 0.000404 | 28 |
| HLA-B*07:02 | 1 | 233 | 242 | 10 | INITRFQTL | 0.000404 | 18 |
| HLA-B*07:02 | 1 | 256 | 265 | 10 | SGWTAGAAAY | 0.000404 | 18 |
| HLA-A*33:01 | 1 | 259 | 267 | 9 | TAGAAAYV | 0.000404 | 20 |
| HLA-B*57:01 | 1 | 451 | 459 | 9 | YLYRLFRKS | 0.000404 | 28 |
| HLA-A*01:01 | 1 | 468 | 477 | 10 | ISTEIQAGS | 0.000404 | 25 |
| HLA-B*58:01 | 1 | 480 | 489 | 10 | CNGVEGFNCY | 0.000404 | 21 |
| HLA-A*03:01 | 1 | 576 | 585 | 10 | VRDPQTLEIL | 0.000404 | 17 |
| HLA-B*51:01 | 1 | 599 | 607 | 9 | TPGTNTSNQ | 0.000404 | 26 |
| HLA-A*01:01 | 1 | 644 | 653 | 10 | QTRAGCLIGA | 0.000404 | 25 |
| HLA-A*02:06 | 1 | 675 | 683 | 9 | QTQTNSPRR | 0.000404 | 28 |
| HLA-B*08:01 | 1 | 711 | 719 | 9 | SIAIPTNFT | 0.000404 | 29 |
| HLA-A*31:01 | 1 | 746 | 755 | 10 | STECSNLLLQ | 0.000404 | 22 |
| HLA-A*30:01 | 1 | 838 | 847 | 10 | GDCLGDIAAR | 0.000404 | 38 |
| HLA-B*15:01 | 1 | 859 | 868 | 10 | TVLPPLLTDE | 0.000404 | 21 |
| HLA-A*26:01 | 1 | 904 | 913 | 10 | YRFNGIGVTQ | 0.000404 | 17 |
| HLA-A*26:01 | 1 | 949 | 958 | 10 | QDVVNQNAQA | 0.000404 | 17 |
| HLA-B*44:03 | 1 | 1055 | 1063 | 9 | SAPHGVVFL | 0.000404 | 12 |
| HLA-B*08:01 | 1 | 1063 | 1071 | 9 | LHVTYVPAQ | 0.000404 | 29 |
| HLA-A*30:02 | 1 | 1081 | 1090 | 10 | ICHDGKAHFP | 0.000404 | 35 |
| HLA-B*08:01 | 1 | 1157 | 1166 | 10 | KNHTSPDVDL | 0.000404 | 29 |
| HLA-A*33:01 | 1 | 2 | 11 | 10 | FVFLVLLPLV | 0.000403 | 20 |
| HLA-A*32:01 | 1 | 82 | 91 | 10 | PVLPFNDGVY | 0.000403 | 16 |
| HLA-A*68:01 | 1 | 235 | 244 | 10 | ITRFQTLAL | 0.000403 | 21 |
| HLA-A*30:01 | 1 | 276 | 285 | 10 | LLKYNENGTI | 0.000403 | 38 |
| HLA-B*40:01 | 1 | 313 | 322 | 10 | YQTSNFRVQP | 0.000403 | 11 |
| HLA-A*02:03 | 1 | 359 | 368 | 10 | SNCVADYSVL | 0.000403 | 23 |
| HLA-B*40:01 | 1 | 469 | 478 | 10 | STEIQAGST | 0.000403 | 11 |
| HLA-A*31:01 | 1 | 493 | 501 | 9 | QSYGFQPTN | 0.000403 | 22 |
| HLA-A*24:02 | 1 | 621 | 629 | 9 | PVAIHADQL | 0.000403 | 12 |
| HLA-A*30:02 | 1 | 744 | 753 | 10 | GDSTECSNLL | 0.000403 | 35 |
| HLA-A*30:02 | 1 | 807 | 815 | 9 | PDPKPSKR | 0.000403 | 35 |
| HLA-A*30:01 | 1 | 839 | 847 | 9 | DCLGDIAAR | 0.000403 | 38 |
| HLA-A*32:01 | 1 | 897 | 906 | 10 | PFAMQMAYRF | 0.000403 | 16 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*53:01 | 1 | 913 | 922 | 10 | QNVLYENQKL 0.000403 | 14 |
| HLA-A*30:02 | 1 | 977 | 986 | 10 | LNDILSRLDK 0.000403 | 35 |
| HLA-A*33:01 | 1 | 982 | 991 | 10 | SRLDKVEAEV 0.000403 | 20 |
| HLA-A*02:06 | 1 | 1190 | 1198 | 9 | AKNLNESLI 0.000403 | 28 |
| HLA-B*57:01 | 1 | 1202 | 1210 | 9 | ELGKYEQYI 0.000403 | 28 |
| HLA-A*02:01 | 1 | 75 | 84 | 10 | GTKRFDNPVL 0.000402 | 21 |
| HLA-B*57:01 | 1 | 214 | 222 | 9 | RDLPQGFSA 0.000402 | 28 |
| HLA-A*01:01 | 1 | 280 | 289 | 10 | NENGTITDAV 0.000402 | 25 |
| HLA-B*07:02 | 1 | 312 | 320 | 9 | IYQTSNFRV 0.000402 | 18 |
| HLA-A*23:01 | 1 | 342 | 350 | 9 | FNATRFASV 0.000402 | 12 |
| HLA-A*02:06 | 1 | 359 | 368 | 10 | SNCVADYSVL 0.000402 | 28 |
| HLA-A*32:01 | 1 | 369 | 378 | 10 | YNSASFSTFK 0.000402 | 16 |
| HLA-A*01:01 | 1 | 393 | 401 | 9 | TNVYADSFV 0.000402 | 25 |
| HLA-A*02:06 | 1 | 491 | 499 | 9 | PLQSYGFQP 0.000402 | 28 |
| HLA-A*01:01 | 1 | 588 | 597 | 10 | TPCSFGGVSU 0.000402 | 25 |
| HLA-B*40:01 | 1 | 590 | 598 | 9 | CSFSGGVSU 0.000402 | 11 |
| HLA-B*08:01 | 1 | 620 | 628 | 9 | VPVAIHADQ 0.000402 | 29 |
| HLA-B*44:03 | 1 | 625 | 634 | 10 | HADQLTPTWR 0.000402 | 12 |
| HLA-A*24:02 | 1 | 626 | 635 | 10 | ADQLTPTWRV 0.000402 | 12 |
| HLA-A*02:01 | 1 | 647 | 656 | 10 | AGCLIGAHEV 0.000402 | 21 |
| HLA-A*02:06 | 1 | 741 | 750 | 10 | YICGDSTECS 0.000402 | 28 |
| HLA-B*51:01 | 1 | 892 | 901 | 10 | AALQIPFAMQ 0.000402 | 26 |
| HLA-A*23:01 | 1 | 1004 | 1013 | 10 | LQTYVTQQLI 0.000402 | 12 |
| HLA-A*31:01 | 1 | 1067 | 1075 | 9 | YVPAQEKNF 0.000402 | 22 |
| HLA-B*40:01 | 1 | 1112 | 1121 | 10 | PQIITDNTF 0.000402 | 11 |
| HLA-B*58:01 | 1 | 1114 | 1123 | 10 | IITDNTFVS 0.000402 | 21 |
| HLA-A*02:03 | 1 | 1151 | 1160 | 10 | ELDKYFKNHT 0.000402 | 23 |
| HLA-A*68:02 | 1 | 1223 | 1231 | 9 | GLIAIVMVT 0.000402 | 22 |
| HLA-B*57:01 | 1 | 32 | 40 | 9 | FTRGVYYPD 0.000401 | 29 |
| HLA-A*30:01 | 1 | 303 | 312 | 10 | LKSFTVEKGI 0.000401 | 38 |
| HLA-A*26:01 | 1 | 389 | 397 | 9 | DLCFTNVYA 0.000401 | 17 |
| HLA-A*31:01 | 1 | 465 | 473 | 9 | ERDISTEYI 0.000401 | 22 |
| HLA-A*01:01 | 1 | 503 | 511 | 9 | VGYPYRVV 0.000401 | 25 |
| HLA-A*30:01 | 1 | 592 | 600 | 9 | FGGVSUITP 0.000401 | 38 |
| HLA-A*30:01 | 1 | 716 | 725 | 10 | TNFTISVTE 0.000401 | 38 |
| HLA-A*11:01 | 1 | 776 | 785 | 10 | KNTQEVFAQV 0.000401 | 14 |
| HLA-B*57:01 | 1 | 784 | 793 | 10 | QVKQIYKTPP 0.000401 | 29 |
| HLA-A*11:01 | 1 | 869 | 877 | 9 | MIAQYTSAL 0.000401 | 14 |
| HLA-B*35:01 | 1 | 871 | 879 | 9 | AQYTSALLA 0.000401 | 15 |
| HLA-A*30:01 | 1 | 889 | 897 | 9 | GAGAALQIP 0.000401 | 38 |
| HLA-B*07:02 | 1 | 1062 | 1070 | 9 | FLHVTVVPA 0.000401 | 18 |
| HLA-A*03:01 | 1 | 1082 | 1091 | 10 | CHDGKAHFPR 0.000401 | 17 |
| HLA-A*23:01 | 1 | 1106 | 1115 | 10 | QRNFYEPQII 0.000401 | 12 |
| HLA-A*33:01 | 1 | 1130 | 1138 | 9 | IGIVNNTVY 0.000401 | 20 |
| HLA-A*23:01 | 1 | 1155 | 1164 | 10 | YFKNHTSPDV 0.000401 | 12 |
| HLA-A*03:01 | 1 | 127 | 135 | 9 | VIKVCEFQF 0.0004 | 17 |
| HLA-A*31:01 | 1 | 229 | 238 | 10 | LPIGINITRF 0.0004 | 22 |
| HLA-A*02:03 | 1 | 258 | 266 | 9 | WTAGAAAYY 0.0004 | 23 |
| HLA-B*57:01 | 1 | 342 | 350 | 9 | FNATRFASV 0.0004 | 29 |
| HLA-A*01:01 | 1 | 379 | 387 | 9 | CYGVSPTKL 0.0004 | 25 |
| HLA-A*68:01 | 1 | 484 | 492 | 9 | EGFNCFYFPL 0.0004 | 21 |
| HLA-A*30:01 | 1 | 505 | 514 | 10 | YQPYRVVVLS 0.0004 | 38 |
| HLA-B*15:01 | 1 | 904 | 913 | 10 | YRFNGIGVTQ 0.0004 | 21 |
| HLA-B*44:02 | 1 | 983 | 991 | 9 | RLDKVEAEV 0.0004 | 12 |
| HLA-B*53:01 | 1 | 983 | 991 | 9 | RLDKVEAEV 0.0004 | 14 |
| HLA-A*30:02 | 1 | 1017 | 1026 | 10 | EIRASANLAA 0.0004 | 35 |
| HLA-A*33:01 | 1 | 1031 | 1040 | 10 | ECVLGQSKRV 0.0004 | 20 |
| HLA-A*03:01 | 1 | 1045 | 1054 | 10 | KGYHLMSFPQ 0.0004 | 17 |
| HLA-B*35:01 | 1 | 1047 | 1056 | 10 | YHLMSFPQSA 0.0004 | 15 |
| HLA-A*11:01 | 1 | 1086 | 1094 | 9 | KAHFPPREGV 0.0004 | 14 |
| HLA-A*30:02 | 1 | 1182 | 1190 | 9 | EIDRLNEVA 0.0004 | 35 |
| HLA-A*30:02 | 1 | 1205 | 1213 | 9 | KYEQYIKWP 0.0004 | 35 |
| HLA-A*30:01 | 1 | 1230 | 1239 | 10 | VTIMLCCMST 0.0004 | 38 |
| HLA-B*08:01 | 1 | 1236 | 1244 | 9 | CMTSCCSCL 0.0004 | 29 |
| HLA-A*26:01 | 1 | 20 | 29 | 10 | TRTQLPPAYT 0.000399 | 17 |
| HLA-A*23:01 | 1 | 62 | 71 | 10 | VTWFHAIHVS 0.000399 | 12 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*57:01 | 1 | 82 | 90 | 9 | PVLPFNDGV 0.000399 | 29 |
| HLA-B*35:01 | 1 | 121 | 129 | 9 | NNATNVVIK 0.000399 | 15 |
| HLA-A*30:02 | 1 | 149 | 158 | 10 | NKSWMESEFR 0.000399 | 35 |
| HLA-B*57:01 | 1 | 512 | 520 | 9 | VLSFELLHA 0.000399 | 29 |
| HLA-A*02:03 | 1 | 525 | 534 | 10 | CGPKKSTNLV 0.000399 | 23 |
| HLA-A*02:01 | 1 | 533 | 541 | 9 | LVKNKCVNF 0.000399 | 21 |
| HLA-A*23:01 | 1 | 620 | 629 | 10 | VPVAIHADQL 0.000399 | 12 |
| HLA-A*68:01 | 1 | 646 | 655 | 10 | RAGCLIGAEH 0.000399 | 21 |
| HLA-B*51:01 | 1 | 750 | 759 | 10 | SNLLLQYGSF 0.000399 | 26 |
| HLA-A*68:02 | 1 | 813 | 822 | 10 | SKRSFIEDLL 0.000399 | 23 |
| HLA-B*53:01 | 1 | 850 | 858 | 9 | ICAQKFNGL 0.000399 | 14 |
| HLA-A*01:01 | 1 | 857 | 866 | 10 | GLTVLPPLLT 0.000399 | 25 |
| HLA-A*30:01 | 1 | 858 | 867 | 10 | LTVLPPLTDD 0.000399 | 38 |
| HLA-A*02:03 | 1 | 993 | 1001 | 9 | IDRLITGRL 0.000399 | 23 |
| HLA-A*30:02 | 1 | 1052 | 1061 | 10 | FPQSAPHGVV 0.000399 | 35 |
| HLA-B*58:01 | 1 | 1058 | 1066 | 9 | HGVVFLHVT 0.000399 | 21 |
| HLA-B*08:01 | 1 | 1105 | 1113 | 9 | TQRNFYEPQ 0.000399 | 29 |
| HLA-B*15:01 | 1 | 1208 | 1216 | 9 | QYIKWPWYI 0.000399 | 21 |
| HLA-B*07:02 | 1 | 62 | 70 | 9 | VTWFHAIHV 0.000398 | 18 |
| HLA-A*68:02 | 1 | 327 | 336 | 10 | VRFPNITNLC 0.000398 | 23 |
| HLA-B*44:03 | 1 | 414 | 423 | 10 | QTGKIADYNY 0.000398 | 12 |
| HLA-A*01:01 | 1 | 445 | 454 | 10 | VGGNYNYLYR 0.000398 | 25 |
| HLA-A*31:01 | 1 | 559 | 568 | 10 | FLPFQQFGRD 0.000398 | 22 |
| HLA-B*57:01 | 1 | 574 | 583 | 10 | DAVRDPQTLE 0.000398 | 29 |
| HLA-B*58:01 | 1 | 662 | 670 | 9 | CDIPIGAGI 0.000398 | 21 |
| HLA-A*30:02 | 1 | 707 | 716 | 10 | YSNNSIAIPT 0.000398 | 35 |
| HLA-A*30:02 | 1 | 715 | 723 | 9 | PTNFTISVT 0.000398 | 35 |
| HLA-B*15:01 | 1 | 739 | 748 | 10 | TMYICGDSTE 0.000398 | 21 |
| HLA-A*68:02 | 1 | 758 | 767 | 10 | SFCTQLNRAL 0.000398 | 23 |
| HLA-B*15:01 | 1 | 846 | 854 | 9 | ARDLICAQK 0.000398 | 21 |
| HLA-A*30:02 | 1 | 868 | 877 | 10 | EMIAQYTSAL 0.000398 | 35 |
| HLA-A*30:01 | 1 | 993 | 1002 | 10 | IDRLITGRLQ 0.000398 | 38 |
| HLA-A*32:01 | 1 | 1042 | 1050 | 9 | FCGKGHYLM 0.000398 | 16 |
| HLA-B*44:03 | 1 | 41 | 49 | 9 | KVFRSSVLH 0.000397 | 12 |
| HLA-B*51:01 | 1 | 172 | 181 | 10 | SQPFLMDLEG 0.000397 | 26 |
| HLA-A*30:01 | 1 | 299 | 308 | 10 | TKCTLKSFTV 0.000397 | 38 |
| HLA-A*03:01 | 1 | 316 | 324 | 9 | SNFRVQPT 0.000397 | 17 |
| HLA-A*02:03 | 1 | 321 | 329 | 9 | QPTESIVRF 0.000397 | 23 |
| HLA-A*02:01 | 1 | 440 | 449 | 10 | NLDSKVGGNY 0.000397 | 21 |
| HLA-A*03:01 | 1 | 610 | 619 | 10 | VLYQDVNCTE 0.000397 | 17 |
| HLA-A*23:01 | 1 | 764 | 772 | 9 | NRALTGI 0.000397 | 13 |
| HLA-A*03:01 | 1 | 1023 | 1031 | 9 | NLAATKMSE 0.000397 | 17 |
| HLA-A*01:01 | 1 | 1069 | 1078 | 10 | PAQEKNFSTA 0.000397 | 25 |
| HLA-B*53:01 | 1 | 1182 | 1190 | 9 | EIDRLNEVA 0.000397 | 14 |
| HLA-A*68:02 | 1 | 1208 | 1217 | 10 | QYIKWPWYIW 0.000397 | 23 |
| HLA-A*24:02 | 1 | 1209 | 1218 | 10 | YIKWPWYIWL 0.000397 | 12 |
| HLA-A*68:01 | 1 | 58 | 67 | 10 | FFSNVTFHFA 0.000396 | 21 |
| HLA-B*44:02 | 1 | 70 | 79 | 10 | VSGTNGTKRF 0.000396 | 13 |
| HLA-B*51:01 | 1 | 88 | 97 | 10 | DGVYFASTK 0.000396 | 26 |
| HLA-A*01:01 | 1 | 107 | 115 | 9 | GTTLDSKTQ 0.000396 | 25 |
| HLA-B*08:01 | 1 | 163 | 171 | 9 | ANNCTFEYV 0.000396 | 29 |
| HLA-A*68:02 | 1 | 196 | 205 | 10 | NIDGYFKIYS 0.000396 | 23 |
| HLA-B*44:02 | 1 | 215 | 223 | 9 | DLPQGFSA 0.000396 | 13 |
| HLA-A*02:06 | 1 | 310 | 319 | 10 | KGIYQTSNFR 0.000396 | 28 |
| HLA-A*30:01 | 1 | 524 | 533 | 10 | VCGPKKSTNL 0.000396 | 38 |
| HLA-A*02:06 | 1 | 760 | 768 | 9 | CTQLNRALT 0.000396 | 28 |
| HLA-A*02:03 | 1 | 814 | 822 | 9 | KRSFIEDLL 0.000396 | 23 |
| HLA-A*33:01 | 1 | 870 | 878 | 9 | IAQYTSALL 0.000396 | 20 |
| HLA-A*68:01 | 1 | 870 | 878 | 9 | IAQYTSALL 0.000396 | 21 |
| HLA-A*68:01 | 1 | 914 | 923 | 10 | NVLYENQKLI 0.000396 | 21 |
| HLA-A*68:02 | 1 | 991 | 999 | 9 | VQIDRLITG 0.000396 | 23 |
| HLA-B*44:02 | 1 | 1051 | 1060 | 10 | SFPQSAPHGV 0.000396 | 13 |
| HLA-A*11:01 | 1 | 1113 | 1121 | 9 | QIITDNTF 0.000396 | 14 |
| HLA-B*07:02 | 1 | 213 | 222 | 10 | VRDLPQGFSA 0.000395 | 18 |
| HLA-B*51:01 | 1 | 304 | 313 | 10 | KSFTVEKGIY 0.000395 | 26 |
| HLA-B*58:01 | 1 | 327 | 336 | 10 | VRFPNITNLC 0.000395 | 21 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*15:01 | 1 | 526 | 535 | 10 | GPKKSTNLVK 0.000395 | 21 |
| HLA-B*44:03 | 1 | 535 | 543 | 9 | KNKCVNFNF 0.000395 | 12 |
| HLA-A*02:06 | 1 | 579 | 587 | 9 | PQTLEILDI 0.000395 | 28 |
| HLA-B*44:03 | 1 | 581 | 590 | 10 | TLEILDITPC 0.000395 | 12 |
| HLA-B*51:01 | 1 | 597 | 605 | 9 | VITPGTNTS 0.000395 | 26 |
| HLA-B*53:01 | 1 | 726 | 735 | 10 | ILPVSMTKTS 0.000395 | 14 |
| HLA-A*33:01 | 1 | 794 | 802 | 9 | IKDFGGFNF 0.000395 | 20 |
| HLA-B*57:01 | 1 | 872 | 881 | 10 | QYTSALLAGT 0.000395 | 29 |
| HLA-A*30:01 | 1 | 873 | 882 | 10 | YTSALLAGTI 0.000395 | 38 |
| HLA-A*26:01 | 1 | 925 | 934 | 10 | NQFNSAIGKI 0.000395 | 17 |
| HLA-A*02:03 | 1 | 963 | 972 | 10 | VKQLSSNFGA 0.000395 | 23 |
| HLA-A*02:06 | 1 | 974 | 982 | 9 | SSVLNDILS 0.000395 | 28 |
| HLA-B*44:02 | 1 | 1188 | 1197 | 10 | EVAKNLNESL 0.000395 | 13 |
| HLA-A*31:01 | 1 | 1192 | 1200 | 9 | NLNESLIDL 0.000395 | 22 |
| HLA-A*24:02 | 1 | 1202 | 1210 | 9 | ELGKYEQYI 0.000395 | 12 |
| HLA-A*03:01 | 1 | 23 | 31 | 9 | QLPPAYTNS 0.000394 | 17 |
| HLA-A*02:03 | 1 | 30 | 38 | 9 | NSFTRGVYY 0.000394 | 23 |
| HLA-A*02:01 | 1 | 85 | 93 | 9 | PFNDGVYFA 0.000394 | 21 |
| HLA-A*68:01 | 1 | 142 | 151 | 10 | GVYYHKNNKS 0.000394 | 21 |
| HLA-A*03:01 | 1 | 151 | 159 | 9 | SWMESEFRV 0.000394 | 17 |
| HLA-A*30:02 | 1 | 171 | 180 | 10 | VSQPFLMDLE 0.000394 | 36 |
| HLA-A*33:01 | 1 | 184 | 192 | 9 | GNFKNLREF 0.000394 | 21 |
| HLA-A*02:01 | 1 | 203 | 212 | 10 | IYSKHTPINL 0.000394 | 21 |
| HLA-A*02:03 | 1 | 265 | 273 | 9 | YYVGYLQPR 0.000394 | 23 |
| HLA-B*35:01 | 1 | 290 | 298 | 9 | DCALDPLSE 0.000394 | 15 |
| HLA-B*08:01 | 1 | 341 | 349 | 9 | VFNATRFAS 0.000394 | 29 |
| HLA-A*68:01 | 1 | 375 | 383 | 9 | STFKCYGVS 0.000394 | 21 |
| HLA-A*03:01 | 1 | 394 | 402 | 9 | NVYADSFVI 0.000394 | 17 |
| HLA-A*30:02 | 1 | 543 | 551 | 9 | FNGLTGTGV 0.000394 | 36 |
| HLA-A*24:02 | 1 | 552 | 560 | 9 | LTESNKKFL 0.000394 | 12 |
| HLA-B*40:01 | 1 | 686 | 695 | 10 | SVASQSIIAY 0.000394 | 12 |
| HLA-A*30:02 | 1 | 952 | 961 | 10 | VNQNAQALNT 0.000394 | 36 |
| HLA-B*44:03 | 1 | 978 | 986 | 9 | NDILSRLDK 0.000394 | 12 |
| HLA-A*68:02 | 1 | 1207 | 1215 | 9 | EQYIKWPWY 0.000394 | 23 |
| HLA-B*51:01 | 1 | 1229 | 1237 | 9 | MVTIMLCCM 0.000394 | 26 |
| HLA-A*30:01 | 1 | 138 | 146 | 9 | DPFLGVYYH 0.000393 | 38 |
| HLA-B*53:01 | 1 | 148 | 157 | 10 | NNKSWMESEF 0.000393 | 14 |
| HLA-B*35:01 | 1 | 172 | 181 | 10 | SQPFLMDLEG 0.000393 | 15 |
| HLA-B*44:03 | 1 | 215 | 223 | 9 | DLPQGFSAL 0.000393 | 12 |
| HLA-B*58:01 | 1 | 232 | 241 | 10 | GINITRFQTL 0.000393 | 21 |
| HLA-A*01:01 | 1 | 253 | 261 | 9 | DSSSGWTAG 0.000393 | 25 |
| HLA-B*15:01 | 1 | 255 | 264 | 10 | SSGWTAGAAA 0.000393 | 21 |
| HLA-B*53:01 | 1 | 290 | 299 | 10 | DCALDPLSET 0.000393 | 14 |
| HLA-A*02:01 | 1 | 477 | 486 | 10 | STPCNGVEGF 0.000393 | 21 |
| HLA-A*32:01 | 1 | 500 | 508 | 9 | TNGVGYQPY 0.000393 | 16 |
| HLA-B*08:01 | 1 | 569 | 577 | 9 | IADTTDAVR 0.000393 | 29 |
| HLA-A*68:01 | 1 | 576 | 584 | 9 | VRDPQTLEI 0.000393 | 21 |
| HLA-B*58:01 | 1 | 602 | 610 | 9 | TNTSNQVAV 0.000393 | 21 |
| HLA-B*15:01 | 1 | 733 | 742 | 10 | KTSVDCTMYI 0.000393 | 21 |
| HLA-B*51:01 | 1 | 765 | 773 | 9 | RALTGIAVE 0.000393 | 26 |
| HLA-A*23:01 | 1 | 799 | 807 | 9 | GFNFSQILP 0.000393 | 13 |
| HLA-A*31:01 | 1 | 922 | 930 | 9 | LIANQFNSA 0.000393 | 22 |
| HLA-B*58:01 | 1 | 947 | 956 | 10 | KLQDVVNQNA 0.000393 | 21 |
| HLA-B*35:01 | 1 | 967 | 975 | 9 | SSNFGAISS 0.000393 | 15 |
| HLA-A*01:01 | 1 | 978 | 986 | 9 | NDILSRLDK 0.000393 | 25 |
| HLA-A*68:01 | 1 | 990 | 998 | 9 | EVQIDRLIT 0.000393 | 21 |
| HLA-A*24:02 | 1 | 1141 | 1149 | 9 | LQPELDSFK 0.000393 | 12 |
| HLA-A*31:01 | 1 | 232 | 240 | 9 | GINITRFQT 0.000392 | 22 |
| HLA-B*07:02 | 1 | 304 | 312 | 9 | KSFTVEKGI 0.000392 | 18 |
| HLA-B*58:01 | 1 | 358 | 366 | 9 | ISNCVADYS 0.000392 | 21 |
| HLA-A*01:01 | 1 | 402 | 411 | 10 | IRGDEVQRQA 0.000392 | 25 |
| HLA-B*15:01 | 1 | 529 | 537 | 9 | KSTNLVKNK 0.000392 | 21 |
| HLA-A*30:02 | 1 | 599 | 608 | 10 | TPGTNTSNQV 0.000392 | 36 |
| HLA-B*40:01 | 1 | 601 | 609 | 9 | GTNTSNQVA 0.000392 | 12 |
| HLA-A*31:01 | 1 | 611 | 620 | 10 | LYQDVNCTEV 0.000392 | 22 |
| HLA-A*02:06 | 1 | 642 | 651 | 10 | VFQTRAGCLI 0.000392 | 28 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*58:01 | 1 | 658 | 667 | 10 | NSYECDIPIG 0.000392 | 21 |
| HLA-B*15:01 | 1 | 713 | 721 | 9 | AIPTNFTIS 0.000392 | 21 |
| HLA-B*57:01 | 1 | 827 | 835 | 9 | TLADAGFIK 0.000392 | 29 |
| HLA-A*03:01 | 1 | 860 | 869 | 10 | VLPPLLTDEM 0.000392 | 17 |
| HLA-B*08:01 | 1 | 917 | 926 | 10 | YENQKLIANQ 0.000392 | 29 |
| HLA-B*44:03 | 1 | 961 | 970 | 10 | TLVKQLSSNF 0.000392 | 12 |
| HLA-B*58:01 | 1 | 969 | 977 | 9 | NFGAISSVL 0.000392 | 21 |
| HLA-A*03:01 | 1 | 1002 | 1011 | 10 | QSLQTYVTQQ 0.000392 | 17 |
| HLA-B*40:01 | 1 | 1060 | 1068 | 9 | VVFLHVTYV 0.000392 | 12 |
| HLA-B*58:01 | 1 | 10 | 19 | 10 | LVSSQCVNLT 0.000391 | 21 |
| HLA-A*68:02 | 1 | 34 | 43 | 10 | RGVYYPDKVF 0.000391 | 23 |
| HLA-A*30:02 | 1 | 253 | 262 | 10 | DSSSGWTAGA 0.000391 | 36 |
| HLA-A*01:01 | 1 | 382 | 391 | 10 | VSPTKLNLDLC 0.000391 | 25 |
| HLA-B*57:01 | 1 | 424 | 432 | 9 | KLPDDFTGC 0.000391 | 29 |
| HLA-B*40:01 | 1 | 444 | 452 | 9 | KVGGNYNYL 0.000391 | 12 |
| HLA-A*30:01 | 1 | 514 | 523 | 10 | SFELLHAPAT 0.000391 | 38 |
| HLA-A*03:01 | 1 | 583 | 592 | 10 | EILDITPCSF 0.000391 | 17 |
| HLA-B*08:01 | 1 | 583 | 591 | 9 | EILDITPCS 0.000391 | 29 |
| HLA-A*01:01 | 1 | 610 | 618 | 9 | VLYQDVNCT 0.000391 | 25 |
| HLA-A*02:03 | 1 | 753 | 762 | 10 | LLQYGSFCTQ 0.000391 | 23 |
| HLA-A*30:01 | 1 | 774 | 783 | 10 | QDKNTQEVFA 0.000391 | 38 |
| HLA-B*35:01 | 1 | 787 | 795 | 9 | QIYKTPPIK 0.000391 | 15 |
| HLA-A*33:01 | 1 | 811 | 819 | 9 | KPSKRSFIE 0.000391 | 21 |
| HLA-A*23:01 | 1 | 826 | 834 | 9 | VTLADAGFI 0.000391 | 13 |
| HLA-A*33:01 | 1 | 846 | 855 | 10 | ARDLICAQKF 0.000391 | 21 |
| HLA-B*35:01 | 1 | 867 | 875 | 9 | DEMIAQYTS 0.000391 | 15 |
| HLA-A*30:01 | 1 | 989 | 997 | 9 | AEVQIDRLI 0.000391 | 38 |
| HLA-B*44:03 | 1 | 991 | 1000 | 10 | VQIDRLITGR 0.000391 | 12 |
| HLA-B*58:01 | 1 | 991 | 999 | 9 | VQIDRLITG 0.000391 | 21 |
| HLA-A*03:01 | 1 | 992 | 1001 | 10 | QIDRLITGRL 0.000391 | 17 |
| HLA-B*58:01 | 1 | 1060 | 1069 | 10 | VVFLHVTYVP 0.000391 | 21 |
| HLA-A*68:02 | 1 | 1096 | 1105 | 10 | VSNGTHWFVT 0.000391 | 23 |
| HLA-B*08:01 | 1 | 13 | 21 | 9 | SQCVNLTTR 0.00039 | 29 |
| HLA-A*01:01 | 1 | 218 | 227 | 10 | QGFSALEPLV 0.00039 | 26 |
| HLA-A*23:01 | 1 | 413 | 421 | 9 | GQTGKIADY 0.00039 | 13 |
| HLA-A*31:01 | 1 | 576 | 585 | 10 | VRDPQTLEIL 0.00039 | 22 |
| HLA-A*02:01 | 1 | 586 | 595 | 10 | DITPCSFGGV 0.00039 | 21 |
| HLA-A*68:02 | 1 | 674 | 683 | 10 | YQTQTNSPRR 0.00039 | 23 |
| HLA-A*33:01 | 1 | 697 | 705 | 9 | MSLGAENSV 0.00039 | 21 |
| HLA-A*31:01 | 1 | 725 | 734 | 10 | EILPVSMTKT 0.00039 | 22 |
| HLA-A*68:02 | 1 | 757 | 765 | 9 | GSFCTQLNR 0.00039 | 23 |
| HLA-B*44:02 | 1 | 810 | 818 | 9 | SKPSKRSFI 0.00039 | 13 |
| HLA-A*32:01 | 1 | 858 | 866 | 9 | LTVLPPLLT 0.00039 | 16 |
| HLA-A*26:01 | 1 | 906 | 915 | 10 | FNGIGVTQNV 0.00039 | 17 |
| HLA-A*32:01 | 1 | 999 | 1008 | 10 | GRLQSLQTYV 0.00039 | 16 |
| HLA-B*57:01 | 1 | 1011 | 1019 | 9 | QLIRAAEIR 0.00039 | 29 |
| HLA-A*23:01 | 1 | 1047 | 1055 | 9 | YHLMSEFPQS 0.00039 | 13 |
| HLA-B*57:01 | 1 | 1133 | 1141 | 9 | VNNTVYDPL 0.00039 | 29 |
| HLA-B*08:01 | 1 | 1224 | 1233 | 10 | LIAIVMVTIM 0.00039 | 29 |
| HLA-B*08:01 | 1 | 1256 | 1264 | 9 | FDEDDSEPV 0.00039 | 29 |
| HLA-A*02:03 | 1 | 10 | 19 | 10 | LVSSQCVNLT 0.000389 | 23 |
| HLA-A*30:02 | 1 | 100 | 109 | 10 | IIRGWIFGTT 0.000389 | 36 |
| HLA-B*53:01 | 1 | 167 | 176 | 10 | TFEYVSPFL 0.000389 | 14 |
| HLA-B*44:02 | 1 | 205 | 214 | 10 | SKHTPINLVR 0.000389 | 13 |
| HLA-B*08:01 | 1 | 264 | 272 | 9 | AYYVGYLQP 0.000389 | 29 |
| HLA-A*11:01 | 1 | 304 | 312 | 9 | KSFTVEKGI 0.000389 | 14 |
| HLA-B*53:01 | 1 | 489 | 498 | 10 | YFPLQSYGFQ 0.000389 | 14 |
| HLA-A*30:02 | 1 | 495 | 504 | 10 | YGFQPTNGVG 0.000389 | 36 |
| HLA-A*30:02 | 1 | 555 | 564 | 10 | SNKKFLPFQQ 0.000389 | 36 |
| HLA-B*57:01 | 1 | 641 | 650 | 10 | NVFQTRAGCL 0.000389 | 29 |
| HLA-A*30:01 | 1 | 643 | 651 | 9 | FQTRAGCLI 0.000389 | 38 |
| HLA-A*30:02 | 1 | 647 | 656 | 10 | AGCLIGAHEV 0.000389 | 36 |
| HLA-A*02:03 | 1 | 758 | 767 | 10 | SFCTQLNRL 0.000389 | 23 |
| HLA-A*31:01 | 1 | 782 | 791 | 10 | FAQVKQIYKT 0.000389 | 22 |
| HLA-A*26:01 | 1 | 817 | 826 | 10 | FIEDLLFNKV 0.000389 | 17 |
| HLA-A*33:01 | 1 | 871 | 879 | 9 | AQYTSALLA 0.000389 | 21 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*30:01 | 1 | 899 | 908 | 10 | AMQMAYRFNG 0.000389 | 38 |
| HLA-B*57:01 | 1 | 941 | 950 | 10 | TASALGKLQD 0.000389 | 29 |
| HLA-A*68:01 | 1 | 1008 | 1017 | 10 | VTQQLIRAAE 0.000389 | 21 |
| HLA-A*23:01 | 1 | 1224 | 1232 | 9 | LIAIVMVTI 0.000389 | 13 |
| HLA-A*26:01 | 1 | 2 | 11 | 10 | FVFLVLLPLV 0.000388 | 17 |
| HLA-A*30:02 | 1 | 99 | 107 | 9 | NIIRGWIFG 0.000388 | 36 |
| HLA-B*15:01 | 1 | 111 | 119 | 9 | DSKTQSLLI 0.000388 | 21 |
| HLA-B*44:03 | 1 | 151 | 159 | 9 | SWMESEFRV 0.000388 | 12 |
| HLA-A*33:01 | 1 | 178 | 186 | 9 | DLEGKQGNF 0.000388 | 21 |
| HLA-A*02:06 | 1 | 265 | 274 | 10 | YYVGYLQPRT 0.000388 | 28 |
| HLA-A*23:01 | 1 | 346 | 354 | 9 | RFASVYAWN 0.000388 | 13 |
| HLA-A*11:01 | 1 | 366 | 375 | 10 | SVLYNSASF5 0.000388 | 14 |
| HLA-B*51:01 | 1 | 520 | 529 | 10 | APATVCGPKK 0.000388 | 27 |
| HLA-B*35:01 | 1 | 622 | 630 | 9 | VAIHADQLT 0.000388 | 15 |
| HLA-A*01:01 | 1 | 635 | 644 | 10 | VYSTG5NVFQ 0.000388 | 26 |
| HLA-B*58:01 | 1 | 670 | 679 | 10 | ICASYQTQTN 0.000388 | 21 |
| HLA-A*02:03 | 1 | 677 | 685 | 9 | QTNSPRRAR 0.000388 | 23 |
| HLA-A*33:01 | 1 | 708 | 716 | 9 | 5MNSIAIPT 0.000388 | 21 |
| HLA-A*30:02 | 1 | 714 | 723 | 10 | IPTNFTISVT 0.000388 | 36 |
| HLA-B*51:01 | 1 | 825 | 833 | 9 | KVTLADAGF 0.000388 | 27 |
| HLA-B*07:02 | 1 | 844 | 852 | 9 | IAARDLICA 0.000388 | 18 |
| HLA-A*30:01 | 1 | 846 | 855 | 10 | ARDLICAQKF 0.000388 | 38 |
| HLA-A*68:02 | 1 | 876 | 884 | 9 | ALLAGTITS 0.000388 | 23 |
| HLA-B*57:01 | 1 | 948 | 956 | 9 | LQDVVNQNA 0.000388 | 29 |
| HLA-B*51:01 | 1 | 974 | 982 | 9 | SSVLNDILS 0.000388 | 27 |
| HLA-B*58:01 | 1 | 980 | 989 | 10 | ILSRLDKVEA 0.000388 | 21 |
| HLA-B*44:02 | 1 | 991 | 999 | 9 | VQIDRLITG 0.000388 | 13 |
| HLA-A*11:01 | 1 | 1031 | 1039 | 9 | ECVLGQSKR 0.000388 | 14 |
| HLA-A*30:01 | 1 | 1137 | 1146 | 10 | VYDPLQPELD 0.000388 | 38 |
| HLA-A*30:01 | 1 | 1177 | 1186 | 10 | VNIQKEIDRL 0.000388 | 38 |
| HLA-A*11:01 | 1 | 174 | 182 | 9 | PFLMDLEGK 0.000387 | 14 |
| HLA-B*58:01 | 1 | 243 | 251 | 9 | ALHRSYLTP 0.000387 | 21 |
| HLA-A*03:01 | 1 | 264 | 272 | 9 | AYYVGYLQP 0.000387 | 17 |
| HLA-A*31:01 | 1 | 318 | 326 | 9 | FRVQPTESI 0.000387 | 22 |
| HLA-B*57:01 | 1 | 328 | 336 | 9 | RFPNITNLC 0.000387 | 29 |
| HLA-A*24:02 | 1 | 346 | 354 | 9 | RFASVYAWN 0.000387 | 12 |
| HLA-B*58:01 | 1 | 346 | 355 | 10 | RFASVYAWNR 0.000387 | 21 |
| HLA-B*57:01 | 1 | 398 | 407 | 10 | DSFVIRGDEV 0.000387 | 29 |
| HLA-A*03:01 | 1 | 495 | 503 | 9 | YGFQPTNGV 0.000387 | 17 |
| HLA-B*51:01 | 1 | 499 | 507 | 9 | PTNGVGYQP 0.000387 | 27 |
| HLA-A*02:06 | 1 | 584 | 593 | 10 | ILDITPC5FG 0.000387 | 28 |
| HLA-B*15:01 | 1 | 764 | 772 | 9 | NRALTGI5V 0.000387 | 21 |
| HLA-A*30:01 | 1 | 794 | 803 | 10 | IKDFGGFNFS 0.000387 | 38 |
| HLA-A*26:01 | 1 | 810 | 818 | 9 | SKPSKRSFI 0.000387 | 17 |
| HLA-B*08:01 | 1 | 814 | 823 | 10 | KRSFIEDLLF 0.000387 | 29 |
| HLA-A*31:01 | 1 | 860 | 869 | 10 | VLPPLLTDEM 0.000387 | 22 |
| HLA-B*35:01 | 1 | 915 | 923 | 9 | VLYENQKLI 0.000387 | 15 |
| HLA-A*33:01 | 1 | 1021 | 1029 | 9 | SANLAATKM 0.000387 | 21 |
| HLA-B*51:01 | 1 | 1051 | 1059 | 9 | SFPQSAPHG 0.000387 | 27 |
| HLA-A*30:02 | 1 | 1122 | 1130 | 9 | VSGNCDVVI 0.000387 | 36 |
| HLA-B*15:01 | 1 | 1212 | 1220 | 9 | WPWYIWLGF 0.000387 | 21 |
| HLA-A*01:01 | 1 | 75 | 84 | 10 | GTKRFDNPVL 0.000386 | 26 |
| HLA-B*08:01 | 1 | 98 | 107 | 10 | SNIIRGWIFG 0.000386 | 29 |
| HLA-B*44:02 | 1 | 250 | 259 | 10 | TPGDSSSGWT 0.000386 | 13 |
| HLA-A*26:01 | 1 | 310 | 319 | 10 | KGIYQTSNFR 0.000386 | 17 |
| HLA-B*44:02 | 1 | 310 | 318 | 9 | KGIYQTSNF 0.000386 | 13 |
| HLA-A*02:03 | 1 | 335 | 344 | 10 | LCPFGEVFNA 0.000386 | 23 |
| HLA-A*31:01 | 1 | 367 | 375 | 9 | VLYNSASF5 0.000386 | 22 |
| HLA-A*01:01 | 1 | 399 | 407 | 9 | SFVIRGDEV 0.000386 | 26 |
| HLA-B*44:03 | 1 | 411 | 419 | 9 | APGQTGKIA 0.000386 | 12 |
| HLA-A*31:01 | 1 | 513 | 521 | 9 | LSFELLHAP 0.000386 | 22 |
| HLA-B*35:01 | 1 | 596 | 604 | 9 | SVITPGTNT 0.000386 | 15 |
| HLA-B*35:01 | 1 | 617 | 625 | 9 | CTEVPVAIH 0.000386 | 15 |
| HLA-B*57:01 | 1 | 770 | 778 | 9 | I5VEQDKNT 0.000386 | 29 |
| HLA-A*02:01 | 1 | 829 | 837 | 9 | ADAGFIKQY 0.000386 | 21 |
| HLA-A*30:01 | 1 | 963 | 971 | 9 | VKQLSSNFG 0.000386 | 38 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*01:01 | 1 | 990 | 998 | 9 | EVQIDRLIT 0.000386 | 26 |
| HLA-A*02:01 | 1 | 1022 | 1031 | 10 | ANLAATKMSE 0.000386 | 21 |
| HLA-B*40:01 | 1 | 1035 | 1043 | 9 | GQSKRVDFC 0.000386 | 12 |
| HLA-A*03:01 | 1 | 1113 | 1121 | 9 | QIITTDNTF 0.000386 | 17 |
| HLA-A*02:01 | 1 | 1166 | 1174 | 9 | LGDISGINA 0.000386 | 21 |
| HLA-B*51:01 | 1 | 1173 | 1182 | 10 | NASVVNIQKE 0.000386 | 27 |
| HLA-A*02:03 | 1 | 1187 | 1196 | 10 | NEVAKNLNES 0.000386 | 23 |
| HLA-B*40:01 | 1 | 1188 | 1197 | 10 | EVAKNLNESL 0.000386 | 12 |
| HLA-A*01:01 | 1 | 1211 | 1220 | 10 | KWPWYIWLGF 0.000386 | 26 |
| HLA-B*58:01 | 1 | 1220 | 1228 | 9 | FIAGLIAIV 0.000386 | 21 |
| HLA-A*11:01 | 1 | 1246 | 1255 | 10 | GCCSCGSCCK 0.000386 | 14 |
| HLA-B*53:01 | 1 | 54 | 62 | 9 | LFLPFFSNV 0.000385 | 14 |
| HLA-A*30:02 | 1 | 61 | 70 | 10 | NVTWFHAIHV 0.000385 | 36 |
| HLA-A*33:01 | 1 | 83 | 92 | 10 | VLPFNDGVYF 0.000385 | 21 |
| HLA-A*33:01 | 1 | 156 | 164 | 9 | EFRVYSSAN 0.000385 | 21 |
| HLA-B*57:01 | 1 | 157 | 166 | 10 | FRVYSSANNC 0.000385 | 29 |
| HLA-B*57:01 | 1 | 219 | 227 | 9 | GFSALEPLV 0.000385 | 29 |
| HLA-B*57:01 | 1 | 317 | 326 | 10 | NFRVQPTESI 0.000385 | 29 |
| HLA-A*03:01 | 1 | 328 | 336 | 9 | RFPNITNLC 0.000385 | 17 |
| HLA-A*33:01 | 1 | 391 | 400 | 10 | CFTNVYADSF 0.000385 | 21 |
| HLA-B*15:01 | 1 | 492 | 501 | 10 | LQSYGFQPTN 0.000385 | 21 |
| HLA-B*57:01 | 1 | 537 | 545 | 9 | KCVNFNFNFG 0.000385 | 29 |
| HLA-A*02:03 | 1 | 784 | 793 | 10 | QVKQIYKTPP 0.000385 | 23 |
| HLA-A*31:01 | 1 | 799 | 807 | 9 | GFNFSQILP 0.000385 | 22 |
| HLA-A*31:01 | 1 | 859 | 867 | 9 | TVLPPLTD 0.000385 | 22 |
| HLA-A*03:01 | 1 | 870 | 879 | 10 | IAQYTSALLA 0.000385 | 17 |
| HLA-A*26:01 | 1 | 1106 | 1114 | 9 | QRNFYEPQI 0.000385 | 17 |
| HLA-B*57:01 | 1 | 1262 | 1271 | 10 | EPVLKGVKLV 0.000385 | 29 |
| HLA-A*68:02 | 1 | 42 | 51 | 10 | VFRSSVLHST 0.000384 | 23 |
| HLA-B*35:01 | 1 | 62 | 70 | 9 | VTWFHAIHV 0.000384 | 15 |
| HLA-A*02:01 | 1 | 83 | 91 | 9 | VLPFNDGVY 0.000384 | 21 |
| HLA-A*23:01 | 1 | 120 | 128 | 9 | VNATNVVI 0.000384 | 13 |
| HLA-B*58:01 | 1 | 145 | 153 | 9 | YHKNNKSWM 0.000384 | 21 |
| HLA-A*02:06 | 1 | 257 | 266 | 10 | GWTAGAAAYY 0.000384 | 28 |
| HLA-A*01:01 | 1 | 294 | 303 | 10 | DPLSEKCTL 0.000384 | 26 |
| HLA-A*33:01 | 1 | 319 | 327 | 9 | RVQPTESIV 0.000384 | 21 |
| HLA-A*01:01 | 1 | 332 | 340 | 9 | ITNLCPFGE 0.000384 | 26 |
| HLA-B*40:01 | 1 | 342 | 350 | 9 | FNATRFASV 0.000384 | 12 |
| HLA-B*58:01 | 1 | 572 | 580 | 9 | TTDAVRDPQ 0.000384 | 21 |
| HLA-A*01:01 | 1 | 620 | 629 | 10 | VPVAIHADQL 0.000384 | 26 |
| HLA-A*31:01 | 1 | 641 | 649 | 9 | NVFQTRAGC 0.000384 | 22 |
| HLA-A*68:02 | 1 | 680 | 688 | 9 | SPRRARSA 0.000384 | 23 |
| HLA-B*08:01 | 1 | 714 | 723 | 10 | IPTNFTISVT 0.000384 | 29 |
| HLA-B*58:01 | 1 | 723 | 732 | 10 | TTEILPVSM 0.000384 | 21 |
| HLA-B*40:01 | 1 | 894 | 903 | 10 | LQIPFAMQMA 0.000384 | 12 |
| HLA-B*57:01 | 1 | 910 | 919 | 10 | GVTQNVLYEN 0.000384 | 29 |
| HLA-B*51:01 | 1 | 925 | 933 | 9 | NQFNSAIGK 0.000384 | 27 |
| HLA-A*68:01 | 1 | 933 | 941 | 9 | KIQDSLST 0.000384 | 21 |
| HLA-A*02:06 | 1 | 937 | 946 | 10 | SLSSTASALG 0.000384 | 28 |
| HLA-B*57:01 | 1 | 947 | 956 | 10 | KLQDVVNQNA 0.000384 | 29 |
| HLA-A*02:01 | 1 | 1124 | 1133 | 10 | GNCDVVIGIV 0.000384 | 21 |
| HLA-A*33:01 | 1 | 1192 | 1200 | 9 | NLNESLIDL 0.000384 | 21 |
| HLA-B*40:01 | 1 | 22 | 30 | 9 | TQLPPAYTN 0.000383 | 12 |
| HLA-A*02:01 | 1 | 38 | 46 | 9 | YDPKVFRSS 0.000383 | 21 |
| HLA-A*30:01 | 1 | 39 | 47 | 9 | PDKVFRSSV 0.000383 | 39 |
| HLA-A*68:02 | 1 | 200 | 209 | 10 | YFKIYSKHTP 0.000383 | 23 |
| HLA-A*02:01 | 1 | 248 | 257 | 10 | YLTPGDSSSG 0.000383 | 21 |
| HLA-B*35:01 | 1 | 265 | 273 | 9 | YYVGYLQPR 0.000383 | 15 |
| HLA-B*53:01 | 1 | 317 | 326 | 10 | NFRVQPTESI 0.000383 | 14 |
| HLA-B*08:01 | 1 | 509 | 518 | 10 | RVVLSFELL 0.000383 | 29 |
| HLA-A*30:01 | 1 | 588 | 597 | 10 | TPCSFGGVS 0.000383 | 39 |
| HLA-A*68:01 | 1 | 602 | 610 | 9 | TNTSNQVAV 0.000383 | 21 |
| HLA-A*30:02 | 1 | 664 | 672 | 9 | IPIGAGICA 0.000383 | 36 |
| HLA-A*32:01 | 1 | 688 | 696 | 9 | ASQSIIAYT 0.000383 | 16 |
| HLA-B*07:02 | 1 | 703 | 712 | 10 | NSVAYSNNNSI 0.000383 | 18 |
| HLA-B*53:01 | 1 | 721 | 729 | 9 | SVTTEILPV 0.000383 | 14 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*44:02 | 1 | 725 | 733 | 9 | EILPVSMTK 0.000383 | 13 |
| HLA-A*30:02 | 1 | 790 | 799 | 10 | KTPPIKDFGG 0.000383 | 36 |
| HLA-A*31:01 | 1 | 914 | 922 | 9 | NVLYENQKL 0.000383 | 22 |
| HLA-A*30:02 | 1 | 930 | 939 | 10 | AIGKIQDLSL 0.000383 | 36 |
| HLA-A*33:01 | 1 | 938 | 947 | 10 | LSSTASALGK 0.000383 | 21 |
| HLA-B*51:01 | 1 | 1018 | 1026 | 9 | IRASANLAA 0.000383 | 27 |
| HLA-A*31:01 | 1 | 1020 | 1029 | 10 | ASANLAATKM 0.000383 | 22 |
| HLA-B*08:01 | 1 | 1093 | 1102 | 10 | GVFVSNQTHW 0.000383 | 29 |
| HLA-A*26:01 | 1 | 112 | 120 | 9 | SKTQSLIV 0.000382 | 17 |
| HLA-B*51:01 | 1 | 144 | 153 | 10 | YYHKNNKSWM 0.000382 | 27 |
| HLA-A*01:01 | 1 | 175 | 184 | 10 | FLMDLEGKQG 0.000382 | 26 |
| HLA-A*03:01 | 1 | 301 | 309 | 9 | CTLKSFTVE 0.000382 | 17 |
| HLA-A*02:06 | 1 | 303 | 312 | 10 | LKSFTVEKGI 0.000382 | 28 |
| HLA-A*02:03 | 1 | 440 | 449 | 10 | NLDSKVGNGY 0.000382 | 23 |
| HLA-A*30:01 | 1 | 483 | 492 | 10 | VEGFNCYFPL 0.000382 | 39 |
| HLA-B*07:02 | 1 | 489 | 498 | 10 | YFPLQSYGFQ 0.000382 | 18 |
| HLA-A*33:01 | 1 | 499 | 508 | 10 | PTNGVGYQPY 0.000382 | 21 |
| HLA-B*58:01 | 1 | 597 | 605 | 9 | VITPGTNTS 0.000382 | 21 |
| HLA-A*33:01 | 1 | 706 | 714 | 9 | AYSNNSIAI 0.000382 | 21 |
| HLA-A*26:01 | 1 | 781 | 790 | 10 | VFAQVKQIYK 0.000382 | 17 |
| HLA-A*68:01 | 1 | 795 | 803 | 9 | KDFGGFNFS 0.000382 | 21 |
| HLA-A*68:01 | 1 | 981 | 989 | 9 | LSRLDKVEA 0.000382 | 21 |
| HLA-A*30:02 | 1 | 1008 | 1017 | 10 | VTQQLIRAAE 0.000382 | 36 |
| HLA-B*07:02 | 1 | 1100 | 1109 | 10 | THWFVTQRNF 0.000382 | 18 |
| HLA-A*02:03 | 1 | 1139 | 1148 | 10 | DPLQPELDSF 0.000382 | 23 |
| HLA-A*01:01 | 1 | 1181 | 1190 | 10 | KEIDRLNEVA 0.000382 | 26 |
| HLA-B*44:02 | 1 | 1262 | 1271 | 10 | EPVLKGVKLV 0.000382 | 13 |
| HLA-A*11:01 | 1 | 1263 | 1271 | 9 | PVLKGVKLV 0.000382 | 14 |
| HLA-B*35:01 | 1 | 148 | 157 | 10 | NNKSWMESEF 0.000381 | 15 |
| HLA-A*30:01 | 1 | 178 | 187 | 10 | DLEGKQGNFK 0.000381 | 39 |
| HLA-B*07:02 | 1 | 184 | 192 | 9 | GNFKNLREF 0.000381 | 18 |
| HLA-B*15:01 | 1 | 205 | 214 | 10 | SKHTPINLVR 0.000381 | 21 |
| HLA-B*57:01 | 1 | 253 | 262 | 10 | DSSSGWTAGA 0.000381 | 29 |
| HLA-A*32:01 | 1 | 259 | 267 | 9 | TAGAAAYYV 0.000381 | 16 |
| HLA-A*31:01 | 1 | 307 | 315 | 9 | TVEKGIYQT 0.000381 | 23 |
| HLA-A*31:01 | 1 | 327 | 336 | 10 | VRFPNITNLC 0.000381 | 23 |
| HLA-A*03:01 | 1 | 375 | 384 | 10 | STFKCYGVSP 0.000381 | 17 |
| HLA-B*58:01 | 1 | 392 | 401 | 10 | FTNVYADSFV 0.000381 | 21 |
| HLA-A*02:03 | 1 | 398 | 407 | 10 | DSFVIRGDEV 0.000381 | 23 |
| HLA-A*33:01 | 1 | 478 | 486 | 9 | TPCNGVEGF 0.000381 | 21 |
| HLA-A*68:02 | 1 | 504 | 513 | 10 | GYQPYRVVVL 0.000381 | 23 |
| HLA-B*35:01 | 1 | 508 | 517 | 10 | YRVVLSFEL 0.000381 | 15 |
| HLA-B*58:01 | 1 | 508 | 517 | 10 | YRVVLSFEL 0.000381 | 21 |
| HLA-A*02:06 | 1 | 544 | 552 | 9 | NGLTGTGVL 0.000381 | 29 |
| HLA-A*01:01 | 1 | 770 | 779 | 10 | IAVEQDKNTQ 0.000381 | 26 |
| HLA-A*01:01 | 1 | 783 | 791 | 9 | AQVKQIYKT 0.000381 | 26 |
| HLA-B*35:01 | 1 | 852 | 861 | 10 | AQKFNGLTVL 0.000381 | 15 |
| HLA-A*30:02 | 1 | 1229 | 1237 | 9 | MVTIMLCCM 0.000381 | 36 |
| HLA-A*11:01 | 1 | 5 | 14 | 10 | LVLLPLVSSQ 0.00038 | 14 |
| HLA-A*01:01 | 1 | 158 | 166 | 9 | RVYSSANNC 0.00038 | 26 |
| HLA-B*58:01 | 1 | 167 | 176 | 10 | TFEYVSQPFL 0.00038 | 21 |
| HLA-B*15:01 | 1 | 339 | 348 | 10 | GEVFNATRFA 0.00038 | 21 |
| HLA-B*53:01 | 1 | 393 | 402 | 10 | TNVYADSFVI 0.00038 | 14 |
| HLA-B*58:01 | 1 | 395 | 403 | 9 | VYADSFVIR 0.00038 | 21 |
| HLA-A*33:01 | 1 | 413 | 421 | 9 | GQTGKIADY 0.00038 | 21 |
| HLA-A*68:02 | 1 | 425 | 434 | 10 | LPDDFTGCVI 0.00038 | 23 |
| HLA-A*30:01 | 1 | 648 | 656 | 9 | GCLIGAEHV 0.00038 | 39 |
| HLA-B*57:01 | 1 | 754 | 762 | 9 | LQYGSFCTQ 0.00038 | 29 |
| HLA-A*24:02 | 1 | 772 | 781 | 10 | VEQDKNTQEV 0.00038 | 12 |
| HLA-A*01:01 | 1 | 810 | 818 | 9 | SKPSKRSFI 0.00038 | 26 |
| HLA-A*30:01 | 1 | 945 | 954 | 10 | LGKLDVVNQ 0.00038 | 39 |
| HLA-A*23:01 | 1 | 979 | 987 | 9 | DILSRLDKV 0.00038 | 13 |
| HLA-B*15:01 | 1 | 992 | 1001 | 10 | QIDRLITGRL 0.00038 | 21 |
| HLA-A*26:01 | 1 | 1159 | 1167 | 9 | HTSPDVLG 0.00038 | 17 |
| HLA-A*68:02 | 1 | 1181 | 1190 | 10 | KEIDRLNEVA 0.00038 | 23 |
| HLA-A*02:06 | 1 | 1217 | 1226 | 10 | WLGFIAGLIA 0.00038 | 29 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|----|
| HLA-A*01:01 | 1 | 85 | 93 | 9 | PFNDGVYFA | 0.000379 | 26 |
| HLA-B*08:01 | 1 | 153 | 161 | 9 | MESEFRVYS | 0.000379 | 29 |
| HLA-A*02:06 | 1 | 193 | 201 | 9 | VFKNIDGYF | 0.000379 | 29 |
| HLA-B*35:01 | 1 | 253 | 261 | 9 | DSSSGWTAG | 0.000379 | 15 |
| HLA-A*23:01 | 1 | 337 | 346 | 10 | PFGEVFNATR | 0.000379 | 13 |
| HLA-B*57:01 | 1 | 415 | 424 | 10 | TGKIADYNYK | 0.000379 | 29 |
| HLA-B*51:01 | 1 | 488 | 496 | 9 | CYFPLQSYG | 0.000379 | 27 |
| HLA-A*24:02 | 1 | 540 | 548 | 9 | NFNFNGLTG | 0.000379 | 12 |
| HLA-B*44:03 | 1 | 634 | 642 | 9 | RVYSTGNSV | 0.000379 | 12 |
| HLA-B*57:01 | 1 | 670 | 678 | 9 | ICASYQTQT | 0.000379 | 29 |
| HLA-B*57:01 | 1 | 670 | 679 | 10 | ICASYQTQTN | 0.000379 | 29 |
| HLA-A*01:01 | 1 | 726 | 734 | 9 | ILPVSMTKT | 0.000379 | 26 |
| HLA-A*24:02 | 1 | 806 | 814 | 9 | LPDPSKPSK | 0.000379 | 12 |
| HLA-B*51:01 | 1 | 890 | 899 | 10 | AGAALQIPFA | 0.000379 | 27 |
| HLA-A*30:01 | 1 | 1029 | 1037 | 9 | MSECVLGQS | 0.000379 | 39 |
| HLA-B*57:01 | 1 | 1041 | 1049 | 9 | DFCGKGYHL | 0.000379 | 29 |
| HLA-A*02:03 | 1 | 1067 | 1076 | 10 | YVPAQEKNT | 0.000379 | 23 |
| HLA-B*07:02 | 1 | 1096 | 1104 | 9 | VSNGTHWFV | 0.000379 | 18 |
| HLA-A*30:01 | 1 | 1124 | 1133 | 10 | GNCDDVIGIV | 0.000379 | 39 |
| HLA-B*08:01 | 1 | 1205 | 1214 | 10 | KYEYQIKWPW | 0.000379 | 29 |
| HLA-B*57:01 | 1 | 1259 | 1268 | 10 | DDSEPVKGV | 0.000379 | 29 |
| HLA-A*33:01 | 1 | 22 | 31 | 10 | TQLPPAYTNS | 0.000378 | 21 |
| HLA-A*30:01 | 1 | 56 | 65 | 10 | LPFFSNVTWF | 0.000378 | 39 |
| HLA-B*08:01 | 1 | 95 | 103 | 9 | TEKSNIIRG | 0.000378 | 29 |
| HLA-A*23:01 | 1 | 119 | 127 | 9 | IVNATNVV | 0.000378 | 13 |
| HLA-A*26:01 | 1 | 121 | 130 | 10 | NNATNVVIVK | 0.000378 | 17 |
| HLA-B*07:02 | 1 | 248 | 256 | 9 | YLTPGDSSS | 0.000378 | 18 |
| HLA-B*40:01 | 1 | 261 | 269 | 9 | GAAAYVGY | 0.000378 | 12 |
| HLA-B*53:01 | 1 | 267 | 276 | 10 | VGYLQPRFL | 0.000378 | 14 |
| HLA-B*15:01 | 1 | 342 | 350 | 9 | FNATRFASV | 0.000378 | 21 |
| HLA-A*23:01 | 1 | 349 | 357 | 9 | SVYAWNRRK | 0.000378 | 13 |
| HLA-A*02:06 | 1 | 501 | 509 | 9 | NGVGYQPYR | 0.000378 | 29 |
| HLA-B*15:01 | 1 | 530 | 538 | 9 | STNLVKNKC | 0.000378 | 21 |
| HLA-B*57:01 | 1 | 549 | 558 | 10 | TGVLTESNKK | 0.000378 | 29 |
| HLA-A*02:01 | 1 | 582 | 591 | 10 | LEILDITPCS | 0.000378 | 21 |
| HLA-A*03:01 | 1 | 590 | 598 | 9 | CSFGGVSVI | 0.000378 | 17 |
| HLA-A*30:01 | 1 | 620 | 629 | 10 | VPVAIHADQL | 0.000378 | 39 |
| HLA-A*02:03 | 1 | 636 | 645 | 10 | YSTGSNVFQT | 0.000378 | 23 |
| HLA-A*68:02 | 1 | 692 | 700 | 9 | IIAYTMSLG | 0.000378 | 23 |
| HLA-B*07:02 | 1 | 724 | 733 | 10 | TEILPVSMTK | 0.000378 | 18 |
| HLA-A*32:01 | 1 | 942 | 951 | 10 | ASALGKLQDV | 0.000378 | 16 |
| HLA-B*15:01 | 1 | 1016 | 1025 | 10 | AEIRASANLA | 0.000378 | 21 |
| HLA-B*15:01 | 1 | 1024 | 1032 | 9 | LAATKMSEC | 0.000378 | 21 |
| HLA-A*30:02 | 1 | 1103 | 1111 | 9 | FVTQRNFYE | 0.000378 | 36 |
| HLA-A*02:01 | 1 | 1115 | 1123 | 9 | ITTDNTFVS | 0.000378 | 21 |
| HLA-A*01:01 | 1 | 1164 | 1172 | 9 | VDLGDISGI | 0.000378 | 26 |
| HLA-A*30:01 | 1 | 1230 | 1238 | 9 | VTIMLCMT | 0.000378 | 39 |
| HLA-B*40:01 | 1 | 125 | 133 | 9 | NVVIKCEF | 0.000377 | 12 |
| HLA-A*01:01 | 1 | 132 | 141 | 10 | EFQFCNDPFL | 0.000377 | 26 |
| HLA-A*68:01 | 1 | 310 | 318 | 9 | KGITYQTSNF | 0.000377 | 21 |
| HLA-B*08:01 | 1 | 338 | 346 | 9 | FGEVFNATR | 0.000377 | 29 |
| HLA-B*57:01 | 1 | 388 | 396 | 9 | NDLCFITNVY | 0.000377 | 29 |
| HLA-A*02:03 | 1 | 393 | 401 | 9 | TNVYADSFV | 0.000377 | 23 |
| HLA-A*68:01 | 1 | 466 | 474 | 9 | RDISTEIQ | 0.000377 | 21 |
| HLA-B*07:02 | 1 | 471 | 480 | 10 | EIYQAGSTPC | 0.000377 | 19 |
| HLA-A*33:01 | 1 | 486 | 494 | 9 | FNCYFPLQS | 0.000377 | 21 |
| HLA-A*24:02 | 1 | 487 | 495 | 9 | NCYFPLQSY | 0.000377 | 12 |
| HLA-A*01:01 | 1 | 546 | 555 | 10 | LTGTGVLTES | 0.000377 | 26 |
| HLA-A*30:01 | 1 | 593 | 602 | 10 | GGVSVITPGT | 0.000377 | 39 |
| HLA-A*26:01 | 1 | 619 | 627 | 9 | EVPVAIHAD | 0.000377 | 17 |
| HLA-A*68:01 | 1 | 639 | 647 | 9 | GSNVFQTRA | 0.000377 | 21 |
| HLA-B*57:01 | 1 | 655 | 664 | 10 | HVNNSYECDI | 0.000377 | 29 |
| HLA-B*44:03 | 1 | 679 | 687 | 9 | NSPRRARSV | 0.000377 | 13 |
| HLA-A*26:01 | 1 | 705 | 713 | 9 | VAYSNNNSIA | 0.000377 | 17 |
| HLA-B*08:01 | 1 | 765 | 773 | 9 | RALTGIAVE | 0.000377 | 29 |
| HLA-B*44:02 | 1 | 784 | 792 | 9 | QVKQIYKTP | 0.000377 | 13 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*57:01 | 1 | 811 | 820 | 10 | KPSKRSFIED 0.000377 | 29 |
| HLA-A*30:01 | 1 | 812 | 820 | 9 | PSKRSFIED 0.000377 | 39 |
| HLA-B*57:01 | 1 | 901 | 909 | 9 | QMAYRFNGI 0.000377 | 29 |
| HLA-A*02:01 | 1 | 1020 | 1029 | 10 | ASANLAATKM 0.000377 | 21 |
| HLA-A*23:01 | 1 | 1038 | 1047 | 10 | KRVDFCGKGY 0.000377 | 13 |
| HLA-B*15:01 | 1 | 1062 | 1071 | 10 | FLHVTVVPAQ 0.000377 | 21 |
| HLA-A*30:02 | 1 | 1097 | 1105 | 9 | SNGTHWFVT 0.000377 | 36 |
| HLA-B*07:02 | 1 | 1167 | 1176 | 10 | GDISGINASV 0.000377 | 19 |
| HLA-A*26:01 | 1 | 1174 | 1183 | 10 | ASVVNIQKEI 0.000377 | 17 |
| HLA-A*32:01 | 1 | 1189 | 1198 | 10 | VAKNLNESLI 0.000377 | 16 |
| HLA-B*58:01 | 1 | 1256 | 1265 | 10 | FDEDDSEPV 0.000377 | 21 |
| HLA-A*03:01 | 1 | 135 | 143 | 9 | FCNDPFLGV 0.000376 | 17 |
| HLA-B*51:01 | 1 | 239 | 248 | 10 | QTLLALHRSY 0.000376 | 27 |
| HLA-A*02:06 | 1 | 316 | 324 | 9 | SNFRVQPT 0.000376 | 29 |
| HLA-B*35:01 | 1 | 382 | 391 | 10 | VSPTKLNLC 0.000376 | 15 |
| HLA-A*68:01 | 1 | 522 | 531 | 10 | ATVCGPKKST 0.000376 | 21 |
| HLA-B*07:02 | 1 | 550 | 559 | 10 | GVLTESNKKF 0.000376 | 19 |
| HLA-A*33:01 | 1 | 602 | 610 | 9 | TNTSNQVAV 0.000376 | 21 |
| HLA-A*30:02 | 1 | 668 | 677 | 10 | AGICASYQTQ 0.000376 | 36 |
| HLA-A*02:01 | 1 | 672 | 680 | 9 | ASYQTQNS 0.000376 | 21 |
| HLA-B*53:01 | 1 | 755 | 763 | 9 | QYGSFCTQL 0.000376 | 14 |
| HLA-B*51:01 | 1 | 803 | 812 | 10 | SQILPDPSPK 0.000376 | 27 |
| HLA-A*31:01 | 1 | 847 | 855 | 9 | RDLICAQKF 0.000376 | 23 |
| HLA-B*53:01 | 1 | 859 | 867 | 9 | TVLPPLD 0.000376 | 14 |
| HLA-B*57:01 | 1 | 884 | 892 | 9 | SGWTFGAGA 0.000376 | 29 |
| HLA-B*57:01 | 1 | 908 | 916 | 9 | GIGVTQNV 0.000376 | 29 |
| HLA-B*08:01 | 1 | 1058 | 1067 | 10 | HGVVFLHVTY 0.000376 | 29 |
| HLA-B*44:02 | 1 | 1065 | 1073 | 9 | VTYVPAQEK 0.000376 | 13 |
| HLA-A*11:01 | 1 | 1074 | 1083 | 10 | NFTTAPAICH 0.000376 | 14 |
| HLA-B*44:02 | 1 | 1086 | 1094 | 9 | KAHPREGV 0.000376 | 13 |
| HLA-B*57:01 | 1 | 1116 | 1125 | 10 | TTDNTFVSGN 0.000376 | 29 |
| HLA-B*58:01 | 1 | 15 | 24 | 10 | CVNLTRTQL 0.000375 | 21 |
| HLA-A*33:01 | 1 | 20 | 29 | 10 | TRTQLPPAY 0.000375 | 21 |
| HLA-B*08:01 | 1 | 31 | 39 | 9 | SFTRGVYYP 0.000375 | 29 |
| HLA-B*40:01 | 1 | 75 | 84 | 10 | GTKRFDNPV 0.000375 | 12 |
| HLA-A*01:01 | 1 | 153 | 161 | 9 | MESEFRVYS 0.000375 | 26 |
| HLA-A*31:01 | 1 | 243 | 251 | 9 | ALHRSYLT 0.000375 | 23 |
| HLA-A*31:01 | 1 | 325 | 333 | 9 | SIVRFPNIT 0.000375 | 23 |
| HLA-A*02:06 | 1 | 464 | 473 | 10 | FERDISTEIV 0.000375 | 29 |
| HLA-A*01:01 | 1 | 614 | 622 | 9 | DVNCTEVPV 0.000375 | 26 |
| HLA-B*15:01 | 1 | 625 | 634 | 10 | HADQLTPTWR 0.000375 | 21 |
| HLA-B*51:01 | 1 | 672 | 680 | 9 | ASYQTQNS 0.000375 | 27 |
| HLA-B*08:01 | 1 | 729 | 737 | 9 | VSMTKTSVD 0.000375 | 29 |
| HLA-A*02:03 | 1 | 782 | 790 | 9 | FAQVKQIYK 0.000375 | 23 |
| HLA-A*02:01 | 1 | 896 | 904 | 9 | IPFAMQMAY 0.000375 | 21 |
| HLA-B*57:01 | 1 | 900 | 909 | 10 | MQMAYRFNGI 0.000375 | 29 |
| HLA-A*68:01 | 1 | 930 | 938 | 9 | AIGKIQDSL 0.000375 | 21 |
| HLA-A*01:01 | 1 | 1032 | 1040 | 9 | CVLGQSKRV 0.000375 | 26 |
| HLA-B*08:01 | 1 | 1223 | 1231 | 9 | GLIAIVMVT 0.000375 | 29 |
| HLA-A*30:01 | 1 | 74 | 82 | 9 | NGTKRFDNP 0.000374 | 39 |
| HLA-B*44:02 | 1 | 182 | 190 | 9 | KQGNFKNLR 0.000374 | 13 |
| HLA-A*02:06 | 1 | 215 | 224 | 10 | DLPQGFSALE 0.000374 | 29 |
| HLA-B*53:01 | 1 | 268 | 276 | 9 | GYLQPRFTL 0.000374 | 14 |
| HLA-A*30:02 | 1 | 276 | 285 | 10 | LLKYNENGTI 0.000374 | 36 |
| HLA-A*68:02 | 1 | 368 | 376 | 9 | LYNSASFST 0.000374 | 23 |
| HLA-A*23:01 | 1 | 424 | 433 | 10 | KLPDDFTGCV 0.000374 | 13 |
| HLA-A*02:01 | 1 | 471 | 480 | 10 | EIYQAGSTPC 0.000374 | 21 |
| HLA-A*01:01 | 1 | 474 | 483 | 10 | QAGSTPCNGV 0.000374 | 26 |
| HLA-A*02:06 | 1 | 546 | 555 | 10 | LTGTGVLTES 0.000374 | 29 |
| HLA-A*30:01 | 1 | 632 | 641 | 10 | TWRVYSTGSN 0.000374 | 39 |
| HLA-A*01:01 | 1 | 715 | 723 | 9 | PTNFTISVT 0.000374 | 26 |
| HLA-B*57:01 | 1 | 782 | 791 | 10 | FAQVKQIYKT 0.000374 | 29 |
| HLA-A*30:02 | 1 | 882 | 891 | 10 | ITSGWTFGAG 0.000374 | 36 |
| HLA-B*44:03 | 1 | 975 | 983 | 9 | SVLNDILSR 0.000374 | 13 |
| HLA-A*26:01 | 1 | 81 | 90 | 10 | NPVLPFNDGV 0.000373 | 18 |
| HLA-B*40:01 | 1 | 167 | 175 | 9 | TFEYVSQPF 0.000373 | 12 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*01:01 | 1 | 187 | 195 | 9 | KNLREFVFK 0.000373 | 26 |
| HLA-A*30:01 | 1 | 276 | 284 | 9 | LLKYNGT 0.000373 | 39 |
| HLA-A*01:01 | 1 | 287 | 296 | 10 | DAVDCALDPL 0.000373 | 26 |
| HLA-B*15:01 | 1 | 420 | 429 | 10 | DYNYKLPDDF 0.000373 | 21 |
| HLA-A*31:01 | 1 | 466 | 475 | 10 | RDISTEIIYQA 0.000373 | 23 |
| HLA-B*07:02 | 1 | 470 | 479 | 10 | TEIYQAGSTP 0.000373 | 19 |
| HLA-A*30:02 | 1 | 508 | 517 | 10 | YRVVLSFEL 0.000373 | 36 |
| HLA-B*44:02 | 1 | 535 | 543 | 9 | KNKCVNFN 0.000373 | 13 |
| HLA-B*44:03 | 1 | 582 | 591 | 10 | LEILDITPCS 0.000373 | 13 |
| HLA-B*51:01 | 1 | 610 | 618 | 9 | VLYQDVNCT 0.000373 | 27 |
| HLA-B*58:01 | 1 | 644 | 653 | 10 | QTRAGCLIGA 0.000373 | 21 |
| HLA-A*24:02 | 1 | 672 | 681 | 10 | ASYQTQTN 0.000373 | 12 |
| HLA-A*26:01 | 1 | 688 | 696 | 9 | ASQSIIAYT 0.000373 | 18 |
| HLA-A*30:02 | 1 | 741 | 749 | 9 | YICGDSTEC 0.000373 | 36 |
| HLA-A*01:01 | 1 | 880 | 889 | 10 | GTITSGWTF 0.000373 | 26 |
| HLA-B*53:01 | 1 | 934 | 942 | 9 | IQDLSSTA 0.000373 | 14 |
| HLA-A*23:01 | 1 | 1143 | 1152 | 10 | PELDSFKEEL 0.000373 | 13 |
| HLA-A*31:01 | 1 | 1174 | 1182 | 9 | ASVVNIQKE 0.000373 | 23 |
| HLA-A*26:01 | 1 | 16 | 24 | 9 | VNLTRTQL 0.000372 | 18 |
| HLA-A*32:01 | 1 | 61 | 70 | 10 | NVTWFHAIHV 0.000372 | 16 |
| HLA-B*44:03 | 1 | 76 | 85 | 10 | TKRFDNPVLP 0.000372 | 13 |
| HLA-A*02:06 | 1 | 152 | 161 | 10 | WMESEFRVYS 0.000372 | 29 |
| HLA-B*07:02 | 1 | 212 | 221 | 10 | LVRDLPQGF 0.000372 | 19 |
| HLA-A*68:02 | 1 | 342 | 351 | 10 | FNATRFASVY 0.000372 | 23 |
| HLA-A*03:01 | 1 | 375 | 383 | 9 | STFKCYGVS 0.000372 | 17 |
| HLA-B*08:01 | 1 | 406 | 414 | 9 | EVRQIAPGQ 0.000372 | 29 |
| HLA-B*35:01 | 1 | 444 | 452 | 9 | KVGGNYNYL 0.000372 | 15 |
| HLA-A*33:01 | 1 | 482 | 490 | 9 | GVEGFNCYF 0.000372 | 21 |
| HLA-B*15:01 | 1 | 493 | 501 | 9 | QSYGFQPTN 0.000372 | 21 |
| HLA-A*30:01 | 1 | 507 | 516 | 10 | PYRVVLSFE 0.000372 | 39 |
| HLA-B*07:02 | 1 | 674 | 682 | 9 | YQTQTN 0.000372 | 19 |
| HLA-B*15:01 | 1 | 707 | 715 | 9 | YSNNSIAIP 0.000372 | 21 |
| HLA-B*58:01 | 1 | 716 | 724 | 9 | TNFTISVTT 0.000372 | 21 |
| HLA-B*44:03 | 1 | 732 | 740 | 9 | TKTSVDCTM 0.000372 | 13 |
| HLA-A*68:01 | 1 | 783 | 791 | 9 | AQVKQIYKT 0.000372 | 21 |
| HLA-B*40:01 | 1 | 861 | 869 | 9 | LPPLLTDEM 0.000372 | 12 |
| HLA-A*11:01 | 1 | 886 | 894 | 9 | WTFGAGAAL 0.000372 | 14 |
| HLA-A*68:01 | 1 | 918 | 927 | 10 | ENQKLIANQF 0.000372 | 21 |
| HLA-A*30:02 | 1 | 1078 | 1086 | 9 | APAICHDGK 0.000372 | 36 |
| HLA-A*24:02 | 1 | 1088 | 1097 | 10 | HFPREGVFVS 0.000372 | 12 |
| HLA-A*33:01 | 1 | 1088 | 1097 | 10 | HFPREGVFVS 0.000372 | 21 |
| HLA-B*58:01 | 1 | 1121 | 1130 | 10 | FVSGNCDVVI 0.000372 | 21 |
| HLA-A*02:01 | 1 | 1188 | 1196 | 9 | EVAKNLNES 0.000372 | 21 |
| HLA-A*02:03 | 1 | 1215 | 1223 | 9 | YIWLGFIA 0.000372 | 23 |
| HLA-A*02:01 | 1 | 242 | 250 | 9 | LALHRSYLT 0.000371 | 21 |
| HLA-B*58:01 | 1 | 365 | 373 | 9 | YSVLYNSAS 0.000371 | 21 |
| HLA-A*01:01 | 1 | 416 | 425 | 10 | GKIADYNYKL 0.000371 | 26 |
| HLA-A*23:01 | 1 | 455 | 463 | 9 | LFRKSNLKP 0.000371 | 13 |
| HLA-B*51:01 | 1 | 456 | 464 | 9 | FRKSNLKP 0.000371 | 27 |
| HLA-B*58:01 | 1 | 550 | 558 | 9 | GVLTESNKK 0.000371 | 21 |
| HLA-A*26:01 | 1 | 601 | 610 | 10 | GTNTSNQVAV 0.000371 | 18 |
| HLA-B*08:01 | 1 | 673 | 682 | 10 | SYQTQTN 0.000371 | 29 |
| HLA-A*11:01 | 1 | 783 | 791 | 9 | AQVKQIYKT 0.000371 | 14 |
| HLA-B*58:01 | 1 | 970 | 978 | 9 | FGAISSVLN 0.000371 | 21 |
| HLA-A*68:02 | 1 | 984 | 993 | 10 | LDKVEAEVQI 0.000371 | 23 |
| HLA-A*02:03 | 1 | 1120 | 1128 | 9 | TFVSGNCDV 0.000371 | 23 |
| HLA-A*11:01 | 1 | 102 | 110 | 9 | RGWIFGTTL 0.00037 | 14 |
| HLA-B*35:01 | 1 | 153 | 161 | 9 | MESEFRVYS 0.00037 | 15 |
| HLA-B*15:01 | 1 | 348 | 356 | 9 | ASVYAWNRK 0.00037 | 21 |
| HLA-A*11:01 | 1 | 361 | 370 | 10 | CVADYSVLYN 0.00037 | 14 |
| HLA-B*51:01 | 1 | 378 | 386 | 9 | KCYGVSP 0.00037 | 27 |
| HLA-B*53:01 | 1 | 391 | 400 | 10 | CFTNVYADSF 0.00037 | 14 |
| HLA-A*01:01 | 1 | 596 | 605 | 10 | SVITPGTNTS 0.00037 | 26 |
| HLA-A*30:01 | 1 | 636 | 645 | 10 | YSTGSNVFQT 0.00037 | 39 |
| HLA-B*35:01 | 1 | 636 | 644 | 9 | YSTGSNVFQ 0.00037 | 15 |
| HLA-A*02:06 | 1 | 676 | 685 | 10 | TQTNSPRRAR 0.00037 | 29 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*15:01 | 1 | 682 | 690 | 9 | RRARSVASQ 0.00037 | 21 |
| HLA-B*57:01 | 1 | 760 | 769 | 10 | CTQLNRALTG 0.00037 | 29 |
| HLA-A*02:03 | 1 | 765 | 774 | 10 | RALTGIAVEQ 0.00037 | 23 |
| HLA-B*53:01 | 1 | 814 | 822 | 9 | KRSFIEDLL 0.00037 | 14 |
| HLA-A*33:01 | 1 | 877 | 886 | 10 | LLAGTITSGW 0.00037 | 21 |
| HLA-B*35:01 | 1 | 885 | 894 | 10 | GWTFGAGAAL 0.00037 | 15 |
| HLA-B*58:01 | 1 | 924 | 933 | 10 | ANQFNSAIGK 0.00037 | 21 |
| HLA-A*02:01 | 1 | 950 | 959 | 10 | DVVNQNAQAL 0.00037 | 21 |
| HLA-B*08:01 | 1 | 1002 | 1010 | 9 | QSLQTYVTQ 0.00037 | 30 |
| HLA-A*02:03 | 1 | 1033 | 1042 | 10 | VLGQSKRVDF 0.00037 | 23 |
| HLA-A*30:01 | 1 | 1041 | 1050 | 10 | DFCGKGYHLM 0.00037 | 39 |
| HLA-B*44:02 | 1 | 1041 | 1049 | 9 | DFCGKGYHL 0.00037 | 13 |
| HLA-A*02:01 | 1 | 1194 | 1203 | 10 | NESLIDLQEL 0.00037 | 21 |
| HLA-A*23:01 | 1 | 2 | 10 | 9 | FVFLVLLPL 0.000369 | 13 |
| HLA-B*51:01 | 1 | 231 | 239 | 9 | IGINITRFQ 0.000369 | 27 |
| HLA-A*02:03 | 1 | 238 | 247 | 10 | FQTLALHRS 0.000369 | 23 |
| HLA-B*08:01 | 1 | 359 | 368 | 10 | SNCVADYSVL 0.000369 | 30 |
| HLA-A*31:01 | 1 | 590 | 598 | 9 | CSFGGVSVI 0.000369 | 23 |
| HLA-A*24:02 | 1 | 745 | 753 | 9 | DSTECSNLL 0.000369 | 13 |
| HLA-B*57:01 | 1 | 896 | 905 | 10 | IPFAMQMAYR 0.000369 | 29 |
| HLA-A*02:06 | 1 | 1076 | 1084 | 9 | TTAPAICHD 0.000369 | 29 |
| HLA-B*35:01 | 1 | 1141 | 1150 | 10 | LQPELDSFKE 0.000369 | 15 |
| HLA-A*02:03 | 1 | 1160 | 1169 | 10 | TSPDVLGDI 0.000369 | 23 |
| HLA-A*23:01 | 1 | 1184 | 1193 | 10 | DRLNEVAKNL 0.000369 | 13 |
| HLA-B*58:01 | 1 | 1202 | 1210 | 9 | ELGKYEQYI 0.000369 | 21 |
| HLA-A*31:01 | 1 | 1216 | 1225 | 10 | IWLGFIAGLI 0.000369 | 23 |
| HLA-A*02:03 | 1 | 24 | 32 | 9 | LPPAYTNSF 0.000368 | 23 |
| HLA-B*57:01 | 1 | 71 | 80 | 10 | SGTNGTKRFD 0.000368 | 29 |
| HLA-A*68:02 | 1 | 196 | 204 | 9 | NIDGYFKIY 0.000368 | 23 |
| HLA-A*02:03 | 1 | 270 | 278 | 9 | LQPRTFLLK 0.000368 | 23 |
| HLA-A*03:01 | 1 | 334 | 342 | 9 | NLCPFGEVF 0.000368 | 18 |
| HLA-A*24:02 | 1 | 337 | 346 | 10 | PFGEVFNATR 0.000368 | 13 |
| HLA-A*02:06 | 1 | 343 | 351 | 9 | NATRFASVY 0.000368 | 29 |
| HLA-B*08:01 | 1 | 396 | 404 | 9 | YADSFVIRG 0.000368 | 30 |
| HLA-B*58:01 | 1 | 512 | 520 | 9 | VLSFELLHA 0.000368 | 21 |
| HLA-A*24:02 | 1 | 666 | 674 | 9 | IGAGICASY 0.000368 | 13 |
| HLA-A*33:01 | 1 | 710 | 719 | 10 | NSIAIPTNFT 0.000368 | 21 |
| HLA-A*26:01 | 1 | 727 | 736 | 10 | LPVSMTKTSV 0.000368 | 18 |
| HLA-B*08:01 | 1 | 744 | 752 | 9 | GDSTECSNL 0.000368 | 30 |
| HLA-B*40:01 | 1 | 825 | 833 | 9 | KVTLADAGF 0.000368 | 12 |
| HLA-A*02:01 | 1 | 954 | 963 | 10 | QNAQALNTLV 0.000368 | 21 |
| HLA-A*23:01 | 1 | 982 | 991 | 10 | SRLDKVEAEV 0.000368 | 13 |
| HLA-A*23:01 | 1 | 13 | 21 | 9 | SQCVNLTTR 0.000367 | 13 |
| HLA-A*68:01 | 1 | 43 | 51 | 9 | FRSSVLHST 0.000367 | 21 |
| HLA-B*08:01 | 1 | 212 | 221 | 10 | LVRDLPQGFS 0.000367 | 30 |
| HLA-B*35:01 | 1 | 406 | 414 | 9 | EVQRQIAPGQ 0.000367 | 15 |
| HLA-B*15:01 | 1 | 462 | 470 | 9 | KPFERDIST 0.000367 | 21 |
| HLA-B*08:01 | 1 | 489 | 498 | 10 | YFPLQSYGFQ 0.000367 | 30 |
| HLA-A*68:01 | 1 | 505 | 513 | 9 | YQPYRVVVL 0.000367 | 21 |
| HLA-B*35:01 | 1 | 674 | 682 | 9 | YQTQTNSPR 0.000367 | 15 |
| HLA-B*57:01 | 1 | 715 | 724 | 10 | PTNFTISVTT 0.000367 | 30 |
| HLA-B*44:03 | 1 | 725 | 733 | 9 | EILPVSMTK 0.000367 | 13 |
| HLA-B*35:01 | 1 | 765 | 773 | 9 | RALTGIAVE 0.000367 | 15 |
| HLA-A*30:02 | 1 | 1011 | 1020 | 10 | QLIRAAEIRA 0.000367 | 36 |
| HLA-A*01:01 | 1 | 1028 | 1036 | 9 | KMSECVLGQ 0.000367 | 26 |
| HLA-B*08:01 | 1 | 1051 | 1059 | 9 | SFPQSAPHG 0.000367 | 30 |
| HLA-A*03:01 | 1 | 1223 | 1231 | 9 | GLIAIVMVT 0.000367 | 18 |
| HLA-A*30:02 | 1 | 14 | 22 | 9 | QCVNLTVRT 0.000366 | 37 |
| HLA-B*15:01 | 1 | 54 | 62 | 9 | LFLPFFSNV 0.000366 | 21 |
| HLA-A*03:01 | 1 | 78 | 87 | 10 | RFDNPVLPFN 0.000366 | 18 |
| HLA-A*01:01 | 1 | 364 | 372 | 9 | DYSVLYNSA 0.000366 | 26 |
| HLA-B*15:01 | 1 | 453 | 462 | 10 | YRLFRKSNLK 0.000366 | 21 |
| HLA-A*01:01 | 1 | 460 | 468 | 9 | NLKPFERDI 0.000366 | 26 |
| HLA-A*30:02 | 1 | 469 | 478 | 10 | STEIYQAGST 0.000366 | 37 |
| HLA-A*26:01 | 1 | 502 | 511 | 10 | GVGYPYRVV 0.000366 | 18 |
| HLA-B*57:01 | 1 | 594 | 603 | 10 | GVSVITPGTN 0.000366 | 30 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*35:01 | 1 | 638 | 646 | 9 | TGSNVFQTR 0.000366 | 15 |
| HLA-B*57:01 | 1 | 640 | 649 | 10 | SNVVFQTRAGC 0.000366 | 30 |
| HLA-B*07:02 | 1 | 646 | 655 | 10 | RAGCLIGAETH 0.000366 | 19 |
| HLA-A*01:01 | 1 | 683 | 692 | 10 | RARSVASQSI 0.000366 | 26 |
| HLA-B*57:01 | 1 | 684 | 692 | 9 | ARSVASQSI 0.000366 | 30 |
| HLA-A*01:01 | 1 | 797 | 805 | 9 | FGGFNFSQI 0.000366 | 26 |
| HLA-A*30:02 | 1 | 817 | 826 | 10 | FIEDLLFNKV 0.000366 | 37 |
| HLA-A*68:02 | 1 | 1018 | 1026 | 9 | IRASANLAA 0.000366 | 23 |
| HLA-A*68:01 | 1 | 1059 | 1068 | 10 | GVVFLHVTV 0.000366 | 21 |
| HLA-B*53:01 | 1 | 1128 | 1137 | 10 | VVIGIVNNTV 0.000366 | 14 |
| HLA-B*57:01 | 1 | 1192 | 1200 | 9 | NLNESLIDL 0.000366 | 30 |
| HLA-A*68:01 | 1 | 38 | 46 | 9 | YDPKVFRSS 0.000365 | 21 |
| HLA-A*33:01 | 1 | 40 | 48 | 9 | DKVFRSSVL 0.000365 | 21 |
| HLA-A*30:01 | 1 | 72 | 81 | 10 | GTNGTKRFDN 0.000365 | 39 |
| HLA-A*11:01 | 1 | 119 | 127 | 9 | IVNNATNVV 0.000365 | 14 |
| HLA-A*32:01 | 1 | 148 | 157 | 10 | NNKSWMESEF 0.000365 | 16 |
| HLA-A*68:01 | 1 | 185 | 193 | 9 | NFKNLREFV 0.000365 | 21 |
| HLA-B*07:02 | 1 | 325 | 334 | 10 | SIVRFPNITN 0.000365 | 19 |
| HLA-B*58:01 | 1 | 332 | 340 | 9 | ITNLCPFGE 0.000365 | 22 |
| HLA-B*07:02 | 1 | 343 | 352 | 10 | NATRFASVYA 0.000365 | 19 |
| HLA-B*15:01 | 1 | 370 | 378 | 9 | NSASFSTFK 0.000365 | 21 |
| HLA-A*68:01 | 1 | 487 | 496 | 10 | NCYFPLQSYG 0.000365 | 21 |
| HLA-B*08:01 | 1 | 592 | 600 | 9 | FGGVSVITP 0.000365 | 30 |
| HLA-A*03:01 | 1 | 605 | 613 | 9 | SNQVAVLYQ 0.000365 | 18 |
| HLA-A*03:01 | 1 | 626 | 635 | 10 | ADQLTPTWRV 0.000365 | 18 |
| HLA-B*58:01 | 1 | 768 | 776 | 9 | TGIAVEQDK 0.000365 | 22 |
| HLA-A*01:01 | 1 | 820 | 829 | 10 | DLLFNKVTLA 0.000365 | 26 |
| HLA-A*24:02 | 1 | 833 | 841 | 9 | FIKQYGDCL 0.000365 | 13 |
| HLA-A*01:01 | 1 | 1040 | 1048 | 9 | VDFCGKGYH 0.000365 | 26 |
| HLA-B*44:03 | 1 | 1040 | 1048 | 9 | VDFCGKGYH 0.000365 | 13 |
| HLA-A*68:02 | 1 | 1163 | 1171 | 9 | DVDLGDISG 0.000365 | 23 |
| HLA-B*44:02 | 1 | 1184 | 1193 | 10 | DRLNEVAKNL 0.000365 | 13 |
| HLA-A*31:01 | 1 | 33 | 41 | 9 | TRGVYYPDK 0.000364 | 23 |
| HLA-A*01:01 | 1 | 91 | 100 | 10 | YFASTEKSNI 0.000364 | 26 |
| HLA-A*02:03 | 1 | 127 | 135 | 9 | VIKVCEFPQ 0.000364 | 24 |
| HLA-A*26:01 | 1 | 181 | 189 | 9 | GKQGNFKNL 0.000364 | 18 |
| HLA-B*08:01 | 1 | 194 | 203 | 10 | FKNIDGYFKI 0.000364 | 30 |
| HLA-A*31:01 | 1 | 292 | 301 | 10 | ALDPLSETKC 0.000364 | 23 |
| HLA-A*33:01 | 1 | 333 | 342 | 10 | TNLCPFGEVF 0.000364 | 21 |
| HLA-A*30:01 | 1 | 359 | 368 | 10 | SNCVADYSVL 0.000364 | 39 |
| HLA-B*53:01 | 1 | 399 | 407 | 9 | SFVIRGDEV 0.000364 | 15 |
| HLA-A*02:06 | 1 | 483 | 492 | 10 | VEGFNCYFPL 0.000364 | 29 |
| HLA-A*02:03 | 1 | 577 | 585 | 9 | RDPQTLEIL 0.000364 | 24 |
| HLA-A*33:01 | 1 | 606 | 615 | 10 | NQVAVLYQDV 0.000364 | 21 |
| HLA-B*35:01 | 1 | 724 | 733 | 10 | TEILPVSMTK 0.000364 | 15 |
| HLA-A*02:06 | 1 | 878 | 886 | 9 | LAGTITSGW 0.000364 | 29 |
| HLA-A*30:02 | 1 | 922 | 931 | 10 | LIANQFNSAI 0.000364 | 37 |
| HLA-A*03:01 | 1 | 1047 | 1056 | 10 | YHLMSFPQSA 0.000364 | 18 |
| HLA-A*23:01 | 1 | 1120 | 1129 | 10 | TFVSGNCDVV 0.000364 | 13 |
| HLA-B*07:02 | 1 | 1188 | 1196 | 9 | EVAKNLNES 0.000364 | 19 |
| HLA-A*02:03 | 1 | 1204 | 1212 | 9 | GKYEQYIKW 0.000364 | 24 |
| HLA-A*30:01 | 1 | 4 | 12 | 9 | FLVLLPLVS 0.000363 | 39 |
| HLA-A*30:02 | 1 | 45 | 53 | 9 | SSVLHSTQD 0.000363 | 37 |
| HLA-A*30:01 | 1 | 95 | 104 | 10 | TEKSNIIRGW 0.000363 | 39 |
| HLA-A*26:01 | 1 | 196 | 205 | 10 | NIDGYFKIYS 0.000363 | 18 |
| HLA-A*11:01 | 1 | 214 | 222 | 9 | RDLPQGFS 0.000363 | 14 |
| HLA-B*07:02 | 1 | 247 | 255 | 9 | SYLTPGDSS 0.000363 | 19 |
| HLA-B*08:01 | 1 | 261 | 269 | 9 | GAAAYVGY 0.000363 | 30 |
| HLA-A*31:01 | 1 | 263 | 272 | 10 | AAYVGYLQP 0.000363 | 23 |
| HLA-A*30:01 | 1 | 277 | 285 | 9 | LKYNENGTI 0.000363 | 39 |
| HLA-A*31:01 | 1 | 313 | 321 | 9 | YQTSNFRVQ 0.000363 | 23 |
| HLA-A*68:01 | 1 | 398 | 407 | 10 | DSFVIRGDEV 0.000363 | 21 |
| HLA-B*40:01 | 1 | 483 | 491 | 9 | VEGFNCYFP 0.000363 | 12 |
| HLA-A*68:01 | 1 | 497 | 506 | 10 | FQPTNGVGYQ 0.000363 | 21 |
| HLA-A*03:01 | 1 | 506 | 515 | 10 | QPYRVVLSF 0.000363 | 18 |
| HLA-B*35:01 | 1 | 517 | 525 | 9 | LLHAPATVC 0.000363 | 15 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*57:01 | 1 | 523 | 532 | 10 | TVCGPKKSTN 0.000363 | 30 |
| HLA-A*01:01 | 1 | 543 | 551 | 9 | FNGLTGTGV 0.000363 | 27 |
| HLA-A*23:01 | 1 | 591 | 599 | 9 | SFGGVSVIT 0.000363 | 13 |
| HLA-B*07:02 | 1 | 717 | 726 | 10 | NFTISVTTEI 0.000363 | 19 |
| HLA-A*02:01 | 1 | 753 | 762 | 10 | LLQYGSFCTQ 0.000363 | 21 |
| HLA-A*11:01 | 1 | 852 | 861 | 10 | AQKFNGLTVL 0.000363 | 14 |
| HLA-A*30:01 | 1 | 855 | 864 | 10 | FNGLTVLPLP 0.000363 | 39 |
| HLA-A*02:06 | 1 | 952 | 961 | 10 | VNQAQALNT 0.000363 | 29 |
| HLA-B*15:01 | 1 | 958 | 967 | 10 | ALNTLVKQLS 0.000363 | 22 |
| HLA-B*08:01 | 1 | 964 | 973 | 10 | KQLSSNFGAI 0.000363 | 30 |
| HLA-B*07:02 | 1 | 967 | 975 | 9 | SSNFGAISS 0.000363 | 19 |
| HLA-A*68:01 | 1 | 1006 | 1015 | 10 | TYVTQQLIRA 0.000363 | 21 |
| HLA-A*30:01 | 1 | 1236 | 1245 | 10 | CMTSCCSCLK 0.000363 | 39 |
| HLA-A*30:01 | 1 | 1262 | 1270 | 9 | EPVLKGVKL 0.000363 | 39 |
| HLA-B*58:01 | 1 | 15 | 23 | 9 | CVNLTTRTQ 0.000362 | 22 |
| HLA-A*23:01 | 1 | 23 | 31 | 9 | QLPPAYTNS 0.000362 | 13 |
| HLA-B*57:01 | 1 | 185 | 193 | 9 | NFKNLREFV 0.000362 | 30 |
| HLA-B*07:02 | 1 | 280 | 288 | 9 | NENGTITDA 0.000362 | 19 |
| HLA-A*68:01 | 1 | 292 | 301 | 10 | ALDPLSETKC 0.000362 | 21 |
| HLA-B*15:01 | 1 | 302 | 311 | 10 | TLKSFTVEKG 0.000362 | 22 |
| HLA-A*30:01 | 1 | 337 | 345 | 9 | PFGEVFNAT 0.000362 | 39 |
| HLA-A*68:01 | 1 | 406 | 415 | 10 | EVQRQIAPGQT 0.000362 | 21 |
| HLA-A*33:01 | 1 | 513 | 521 | 9 | LSFELLHAP 0.000362 | 21 |
| HLA-A*33:01 | 1 | 523 | 531 | 9 | TVCGPKKST 0.000362 | 21 |
| HLA-A*26:01 | 1 | 621 | 629 | 9 | PVAIHADQL 0.000362 | 18 |
| HLA-A*31:01 | 1 | 804 | 812 | 9 | QILPDPSKP 0.000362 | 23 |
| HLA-B*07:02 | 1 | 805 | 813 | 9 | ILPDPSKPS 0.000362 | 19 |
| HLA-A*01:01 | 1 | 840 | 849 | 10 | CLGDIAARDL 0.000362 | 27 |
| HLA-A*33:01 | 1 | 854 | 862 | 9 | KFNGLTVLP 0.000362 | 21 |
| HLA-A*30:02 | 1 | 860 | 868 | 9 | VLPLLTDE 0.000362 | 37 |
| HLA-B*53:01 | 1 | 968 | 977 | 10 | SNFGAISSVL 0.000362 | 15 |
| HLA-A*02:06 | 1 | 1019 | 1028 | 10 | RASANLAATK 0.000362 | 29 |
| HLA-A*01:01 | 1 | 1113 | 1122 | 10 | QIITTDNTFV 0.000362 | 27 |
| HLA-B*57:01 | 1 | 1158 | 1167 | 10 | NHTSPDVDLG 0.000362 | 30 |
| HLA-A*11:01 | 1 | 1237 | 1246 | 10 | MTSCCSCCLK 0.000362 | 14 |
| HLA-A*30:01 | 1 | 1257 | 1266 | 10 | DEDDSEPVLK 0.000362 | 39 |
| HLA-A*02:01 | 1 | 20 | 28 | 9 | TRTQLPPAY 0.000361 | 21 |
| HLA-A*01:01 | 1 | 102 | 110 | 9 | RGWIFGTTL 0.000361 | 27 |
| HLA-A*33:01 | 1 | 200 | 209 | 10 | YFKIYSKHTP 0.000361 | 21 |
| HLA-A*01:01 | 1 | 267 | 276 | 10 | VGYLQPRFTL 0.000361 | 27 |
| HLA-A*01:01 | 1 | 313 | 322 | 10 | YQTSNFRVQP 0.000361 | 27 |
| HLA-B*44:02 | 1 | 416 | 425 | 10 | GKIADYNYKL 0.000361 | 13 |
| HLA-B*08:01 | 1 | 446 | 455 | 10 | GGNYNYLYRL 0.000361 | 30 |
| HLA-A*01:01 | 1 | 500 | 509 | 10 | TNGVGYQPYR 0.000361 | 27 |
| HLA-A*26:01 | 1 | 520 | 529 | 10 | APATVCGPKK 0.000361 | 18 |
| HLA-A*30:02 | 1 | 574 | 583 | 10 | DAVRDPQTLE 0.000361 | 37 |
| HLA-A*33:01 | 1 | 575 | 584 | 10 | AVRDPQTLEI 0.000361 | 21 |
| HLA-B*35:01 | 1 | 690 | 699 | 10 | QSIIAYTMSL 0.000361 | 15 |
| HLA-B*51:01 | 1 | 693 | 702 | 10 | IAYTMSLGAE 0.000361 | 27 |
| HLA-A*68:01 | 1 | 937 | 945 | 9 | SLSSTASAL 0.000361 | 21 |
| HLA-A*68:02 | 1 | 957 | 965 | 9 | QALNTLVKQ 0.000361 | 23 |
| HLA-A*30:01 | 1 | 978 | 987 | 10 | NDILSRLDKV 0.000361 | 39 |
| HLA-A*68:02 | 1 | 1147 | 1155 | 9 | SFKEELDKY 0.000361 | 23 |
| HLA-A*02:03 | 1 | 1224 | 1233 | 10 | LIAIVMVTIM 0.000361 | 24 |
| HLA-A*30:02 | 1 | 132 | 141 | 10 | EFQFCNDPFL 0.00036 | 37 |
| HLA-A*30:01 | 1 | 145 | 154 | 10 | YHKNNKSWME 0.00036 | 39 |
| HLA-A*30:02 | 1 | 242 | 251 | 10 | LALHRSYLTP 0.00036 | 37 |
| HLA-A*32:01 | 1 | 400 | 408 | 9 | FVIRGDEVR 0.00036 | 16 |
| HLA-B*58:01 | 1 | 504 | 512 | 9 | GYQPYRVVV 0.00036 | 22 |
| HLA-B*51:01 | 1 | 516 | 525 | 10 | ELLHAPATVC 0.00036 | 27 |
| HLA-B*58:01 | 1 | 661 | 670 | 10 | ECDIPIGAGI 0.00036 | 22 |
| HLA-A*03:01 | 1 | 704 | 713 | 10 | SVAYSNNNSIA 0.00036 | 18 |
| HLA-A*02:06 | 1 | 719 | 728 | 10 | TISVTTEILP 0.00036 | 29 |
| HLA-B*58:01 | 1 | 767 | 776 | 10 | LTGIAVEQDK 0.00036 | 22 |
| HLA-B*08:01 | 1 | 828 | 836 | 9 | LADAGFIKQ 0.00036 | 30 |
| HLA-B*08:01 | 1 | 884 | 892 | 9 | SGWTFGAGA 0.00036 | 30 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*30:01 | 1 | 1018 | 1027 | 10 | IRASANLAAT 0.00036 | 39 |
| HLA-B*44:03 | 1 | 1054 | 1063 | 10 | QSAPHGVVFL 0.00036 | 13 |
| HLA-B*53:01 | 1 | 1141 | 1150 | 10 | LQPELDSFKE 0.00036 | 15 |
| HLA-B*07:02 | 1 | 1147 | 1156 | 10 | SFKEELDKYF 0.00036 | 19 |
| HLA-B*44:02 | 1 | 144 | 153 | 10 | YYHKNNKSWM 0.000359 | 13 |
| HLA-B*40:01 | 1 | 192 | 200 | 9 | FVFKNIDGY 0.000359 | 12 |
| HLA-A*30:02 | 1 | 278 | 287 | 10 | KYNENGTITD 0.000359 | 37 |
| HLA-A*24:02 | 1 | 516 | 524 | 9 | ELLHAPATV 0.000359 | 13 |
| HLA-B*58:01 | 1 | 524 | 533 | 10 | VCGPKKSTNL 0.000359 | 22 |
| HLA-A*11:01 | 1 | 533 | 541 | 9 | LVKNKCVNF 0.000359 | 14 |
| HLA-B*57:01 | 1 | 549 | 557 | 9 | TGVLTESNK 0.000359 | 30 |
| HLA-A*30:02 | 1 | 583 | 591 | 9 | EILDITPCS 0.000359 | 37 |
| HLA-B*58:01 | 1 | 598 | 606 | 9 | ITPGTNTSN 0.000359 | 22 |
| HLA-A*31:01 | 1 | 610 | 619 | 10 | VLYQDVNCTE 0.000359 | 23 |
| HLA-A*26:01 | 1 | 706 | 714 | 9 | AYSNNIAI 0.000359 | 18 |
| HLA-A*02:03 | 1 | 724 | 733 | 10 | TEILPVSMTK 0.000359 | 24 |
| HLA-A*03:01 | 1 | 783 | 791 | 9 | AQVKQIYKT 0.000359 | 18 |
| HLA-B*58:01 | 1 | 835 | 844 | 10 | KQYGDCLGDI 0.000359 | 22 |
| HLA-B*07:02 | 1 | 845 | 854 | 10 | AARDLICAQK 0.000359 | 19 |
| HLA-A*31:01 | 1 | 876 | 884 | 9 | ALLAGTITS 0.000359 | 23 |
| HLA-B*08:01 | 1 | 877 | 885 | 9 | LLAGTITSG 0.000359 | 30 |
| HLA-A*01:01 | 1 | 984 | 993 | 10 | LDKVEAEVQI 0.000359 | 27 |
| HLA-B*07:02 | 1 | 1040 | 1049 | 10 | VDFCGKGYHL 0.000359 | 19 |
| HLA-A*30:01 | 1 | 1097 | 1106 | 10 | SNGTHWFVTQ 0.000359 | 39 |
| HLA-B*44:02 | 1 | 1171 | 1179 | 9 | GINASVNI 0.000359 | 13 |
| HLA-A*02:03 | 1 | 104 | 113 | 10 | WIFGTTLDSK 0.000358 | 24 |
| HLA-B*08:01 | 1 | 232 | 240 | 9 | GINITRFQT 0.000358 | 30 |
| HLA-A*68:02 | 1 | 238 | 246 | 9 | FQTLALHR 0.000358 | 23 |
| HLA-A*02:03 | 1 | 246 | 255 | 10 | RSYLTPGDSS 0.000358 | 24 |
| HLA-B*08:01 | 1 | 252 | 260 | 9 | GDSSSGWTA 0.000358 | 30 |
| HLA-A*30:02 | 1 | 260 | 268 | 9 | AGAAAYYVG 0.000358 | 37 |
| HLA-A*02:06 | 1 | 362 | 371 | 10 | VADYSVLYNS 0.000358 | 29 |
| HLA-A*30:02 | 1 | 407 | 415 | 9 | VRQIAPGQT 0.000358 | 37 |
| HLA-A*32:01 | 1 | 481 | 490 | 10 | NGVEGFNCYF 0.000358 | 16 |
| HLA-A*30:02 | 1 | 590 | 599 | 10 | CSFGGVSVIT 0.000358 | 37 |
| HLA-B*40:01 | 1 | 596 | 604 | 9 | SVITPGTNT 0.000358 | 12 |
| HLA-A*11:01 | 1 | 711 | 720 | 10 | SIAIPTNFTI 0.000358 | 14 |
| HLA-B*58:01 | 1 | 827 | 835 | 9 | TLADAGFIK 0.000358 | 22 |
| HLA-B*40:01 | 1 | 936 | 944 | 9 | DSLSSTASA 0.000358 | 12 |
| HLA-A*68:02 | 1 | 939 | 947 | 9 | SSTASALGK 0.000358 | 23 |
| HLA-B*07:02 | 1 | 951 | 960 | 10 | VVNQNAQALN 0.000358 | 19 |
| HLA-A*33:01 | 1 | 995 | 1004 | 10 | RLITGRLQSL 0.000358 | 21 |
| HLA-B*07:02 | 1 | 1075 | 1083 | 9 | FTTAPAICH 0.000358 | 19 |
| HLA-A*02:03 | 1 | 1141 | 1149 | 9 | LQPELDSFK 0.000358 | 24 |
| HLA-B*08:01 | 1 | 1183 | 1191 | 9 | IDRLNEVAK 0.000358 | 30 |
| HLA-A*01:01 | 1 | 1195 | 1204 | 10 | ESLIDLQELG 0.000358 | 27 |
| HLA-A*02:01 | 1 | 5 | 14 | 10 | LVLPLVSSQ 0.000357 | 21 |
| HLA-B*57:01 | 1 | 102 | 111 | 10 | RGWIFGTTL 0.000357 | 30 |
| HLA-A*02:01 | 1 | 120 | 128 | 9 | VNNATNVVI 0.000357 | 21 |
| HLA-B*08:01 | 1 | 330 | 338 | 9 | PNITNLCPF 0.000357 | 30 |
| HLA-A*24:02 | 1 | 363 | 372 | 10 | ADYSVLYNSA 0.000357 | 13 |
| HLA-B*35:01 | 1 | 394 | 403 | 10 | NVYADSFVIR 0.000357 | 15 |
| HLA-A*33:01 | 1 | 400 | 409 | 10 | FVIRGDEVRO 0.000357 | 21 |
| HLA-B*44:03 | 1 | 447 | 456 | 10 | GNYNLYRLF 0.000357 | 13 |
| HLA-B*58:01 | 1 | 456 | 464 | 9 | FRKSNLKP 0.000357 | 22 |
| HLA-A*26:01 | 1 | 460 | 468 | 9 | NLKPFERDI 0.000357 | 18 |
| HLA-B*07:02 | 1 | 565 | 573 | 9 | FGRDIADTT 0.000357 | 19 |
| HLA-A*30:01 | 1 | 730 | 738 | 9 | SMTKTSVDC 0.000357 | 40 |
| HLA-B*44:03 | 1 | 750 | 759 | 10 | SNLLLQYGSF 0.000357 | 13 |
| HLA-A*24:02 | 1 | 801 | 809 | 9 | NFSQILPDP 0.000357 | 13 |
| HLA-A*02:01 | 1 | 883 | 892 | 10 | TSGWTFGAGA 0.000357 | 21 |
| HLA-A*68:02 | 1 | 966 | 974 | 9 | LSSNFGAIS 0.000357 | 24 |
| HLA-A*32:01 | 1 | 979 | 987 | 9 | DILSRLDKV 0.000357 | 16 |
| HLA-A*68:02 | 1 | 1009 | 1018 | 10 | TQQLIRAAEI 0.000357 | 24 |
| HLA-B*58:01 | 1 | 1039 | 1048 | 10 | RVDFCGKGYH 0.000357 | 22 |
| HLA-A*24:02 | 1 | 1065 | 1073 | 9 | VTYVPAQEK 0.000357 | 13 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*68:02 | 1 | 1088 | 1097 | 10 | HFPREGVFSV 0.000357 | 24 |
| HLA-A*02:01 | 1 | 1120 | 1128 | 9 | TFVSGNCDV 0.000357 | 21 |
| HLA-A*02:03 | 1 | 1256 | 1264 | 9 | FDEDDSEPV 0.000357 | 24 |
| HLA-A*26:01 | 1 | 1257 | 1266 | 10 | DEDDSEPVLK 0.000357 | 18 |
| HLA-A*68:02 | 1 | 89 | 98 | 10 | GVYFASTEKS 0.000356 | 24 |
| HLA-A*33:01 | 1 | 94 | 103 | 10 | STEKSNIIRG 0.000356 | 21 |
| HLA-B*15:01 | 1 | 104 | 113 | 10 | WIFGTTLDSK 0.000356 | 22 |
| HLA-B*44:03 | 1 | 152 | 161 | 10 | WMESEFRVYS 0.000356 | 13 |
| HLA-B*58:01 | 1 | 292 | 301 | 10 | ALDPLSETKC 0.000356 | 22 |
| HLA-A*68:02 | 1 | 333 | 342 | 10 | TNLCPFGEVF 0.000356 | 24 |
| HLA-B*44:02 | 1 | 414 | 423 | 10 | QTGKIADYNY 0.000356 | 13 |
| HLA-A*02:06 | 1 | 449 | 457 | 9 | YNYLYRLEFR 0.000356 | 29 |
| HLA-A*01:01 | 1 | 494 | 503 | 10 | SYGFQPTNGV 0.000356 | 27 |
| HLA-B*53:01 | 1 | 501 | 509 | 9 | NGVGYQPYR 0.000356 | 15 |
| HLA-A*03:01 | 1 | 516 | 524 | 9 | ELLHAPATV 0.000356 | 18 |
| HLA-B*51:01 | 1 | 642 | 651 | 10 | VFQTRAGCLI 0.000356 | 27 |
| HLA-B*44:03 | 1 | 723 | 731 | 9 | TTEILPVSM 0.000356 | 13 |
| HLA-A*33:01 | 1 | 789 | 797 | 9 | YKTPPIKDF 0.000356 | 21 |
| HLA-B*44:02 | 1 | 964 | 972 | 9 | KQLSSNFGA 0.000356 | 13 |
| HLA-B*40:01 | 1 | 973 | 981 | 9 | ISSVLNDIL 0.000356 | 12 |
| HLA-A*02:06 | 1 | 1066 | 1075 | 10 | TYVPAQEKNF 0.000356 | 29 |
| HLA-A*03:01 | 1 | 1074 | 1083 | 10 | NFTTAPAICH 0.000356 | 18 |
| HLA-A*02:03 | 1 | 1103 | 1112 | 10 | FVTQRNFYEP 0.000356 | 24 |
| HLA-B*51:01 | 1 | 1110 | 1118 | 9 | YEQIITTD 0.000356 | 27 |
| HLA-A*24:02 | 1 | 1120 | 1129 | 10 | TFVSGNCDVV 0.000356 | 13 |
| HLA-A*32:01 | 1 | 1151 | 1159 | 9 | ELDKYFKNH 0.000356 | 17 |
| HLA-B*58:01 | 1 | 1173 | 1182 | 10 | NASVVNIQKE 0.000356 | 22 |
| HLA-B*35:01 | 1 | 1203 | 1212 | 10 | LGKYEQYIKW 0.000356 | 15 |
| HLA-A*30:01 | 1 | 1232 | 1240 | 9 | IMLCCMTSC 0.000356 | 40 |
| HLA-A*30:01 | 1 | 1261 | 1270 | 10 | SEPVKGVKLV 0.000356 | 40 |
| HLA-B*51:01 | 1 | 1 | 10 | 10 | MFVFLVLLPL 0.000355 | 27 |
| HLA-B*15:01 | 1 | 294 | 303 | 10 | DPLSETKCTL 0.000355 | 22 |
| HLA-B*51:01 | 1 | 306 | 315 | 10 | FTVEKGIYQT 0.000355 | 27 |
| HLA-B*08:01 | 1 | 561 | 569 | 9 | PFQQFGRDI 0.000355 | 30 |
| HLA-A*31:01 | 1 | 601 | 610 | 10 | GTNTSNQVAV 0.000355 | 23 |
| HLA-B*08:01 | 1 | 626 | 635 | 10 | ADQLTPTWRV 0.000355 | 30 |
| HLA-A*11:01 | 1 | 780 | 788 | 9 | EVFAQVKQI 0.000355 | 14 |
| HLA-B*44:03 | 1 | 818 | 827 | 10 | IEDLLFNKVT 0.000355 | 13 |
| HLA-B*58:01 | 1 | 904 | 913 | 10 | YRFNGIGVTQ 0.000355 | 22 |
| HLA-B*58:01 | 1 | 927 | 936 | 10 | FNSAIGKIQD 0.000355 | 22 |
| HLA-A*02:03 | 1 | 960 | 968 | 9 | NLTVKQLSS 0.000355 | 24 |
| HLA-B*44:03 | 1 | 1055 | 1064 | 10 | SAPHGVVFLH 0.000355 | 13 |
| HLA-A*30:02 | 1 | 1098 | 1106 | 9 | NGTHWFVTQ 0.000355 | 37 |
| HLA-A*02:01 | 1 | 1148 | 1156 | 9 | FKEELDKYF 0.000355 | 22 |
| HLA-B*58:01 | 1 | 66 | 75 | 10 | HATHVSGTNG 0.000354 | 22 |
| HLA-B*57:01 | 1 | 68 | 77 | 10 | IHSVGTNGTK 0.000354 | 30 |
| HLA-A*32:01 | 1 | 110 | 119 | 10 | LDSKTQSLLI 0.000354 | 17 |
| HLA-A*30:02 | 1 | 194 | 203 | 10 | FKNIDGYFKI 0.000354 | 37 |
| HLA-A*68:02 | 1 | 222 | 231 | 10 | ALEPLVDLPI 0.000354 | 24 |
| HLA-B*51:01 | 1 | 227 | 236 | 10 | VDLPIGINIT 0.000354 | 28 |
| HLA-A*30:01 | 1 | 252 | 260 | 9 | GDSSSGWTA 0.000354 | 40 |
| HLA-B*44:02 | 1 | 317 | 326 | 10 | NFRVQPTESI 0.000354 | 13 |
| HLA-A*26:01 | 1 | 366 | 375 | 10 | SVLYNSASF 0.000354 | 18 |
| HLA-A*32:01 | 1 | 442 | 451 | 10 | DSKVGGNYNY 0.000354 | 17 |
| HLA-A*02:03 | 1 | 458 | 466 | 9 | KSNLKPFER 0.000354 | 24 |
| HLA-A*30:01 | 1 | 523 | 532 | 10 | TVCGPKKSTN 0.000354 | 40 |
| HLA-A*30:01 | 1 | 546 | 555 | 10 | LTGTGVLTES 0.000354 | 40 |
| HLA-B*08:01 | 1 | 637 | 645 | 9 | STGSNVFQT 0.000354 | 30 |
| HLA-A*68:01 | 1 | 683 | 691 | 9 | RARSVASQS 0.000354 | 21 |
| HLA-A*30:02 | 1 | 729 | 738 | 10 | VSMTKTSVDC 0.000354 | 37 |
| HLA-A*33:01 | 1 | 747 | 755 | 9 | TECSNLLLQ 0.000354 | 21 |
| HLA-B*53:01 | 1 | 787 | 795 | 9 | QIYKTPPIK 0.000354 | 15 |
| HLA-A*30:02 | 1 | 797 | 805 | 9 | FGGFNFSQI 0.000354 | 37 |
| HLA-B*51:01 | 1 | 846 | 855 | 10 | ARDLICAQKF 0.000354 | 28 |
| HLA-B*51:01 | 1 | 913 | 922 | 10 | QNVLYENQKL 0.000354 | 28 |
| HLA-A*02:01 | 1 | 961 | 969 | 9 | TLVKQLSSN 0.000354 | 22 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*30:01 | 1 | 1072 | 1081 | 10 | EKNFTTAPAI 0.000354 | 40 |
| HLA-B*53:01 | 1 | 1073 | 1081 | 9 | KNFTTAPAI 0.000354 | 15 |
| HLA-B*40:01 | 1 | 1133 | 1141 | 9 | VNNTVYDPL 0.000354 | 12 |
| HLA-A*33:01 | 1 | 1155 | 1164 | 10 | YFKNHTSPDV 0.000354 | 21 |
| HLA-B*15:01 | 1 | 1177 | 1186 | 10 | VNIQKEIDRL 0.000354 | 22 |
| HLA-A*01:01 | 1 | 55 | 63 | 9 | FLPFFSNVT 0.000353 | 27 |
| HLA-A*02:06 | 1 | 113 | 121 | 9 | KTQSLLIVN 0.000353 | 29 |
| HLA-B*51:01 | 1 | 151 | 160 | 10 | SWMESEFRVY 0.000353 | 28 |
| HLA-A*02:03 | 1 | 214 | 222 | 9 | RDLPQGFSA 0.000353 | 24 |
| HLA-A*02:06 | 1 | 231 | 240 | 10 | IGINITRFQT 0.000353 | 29 |
| HLA-A*03:01 | 1 | 415 | 423 | 9 | TGKIADYNY 0.000353 | 18 |
| HLA-A*68:01 | 1 | 462 | 471 | 10 | KPFERDISTE 0.000353 | 21 |
| HLA-A*02:03 | 1 | 489 | 497 | 9 | YFPLQSYGF 0.000353 | 24 |
| HLA-B*07:02 | 1 | 508 | 517 | 10 | YRVVLSFEL 0.000353 | 19 |
| HLA-A*30:01 | 1 | 600 | 609 | 10 | PGTNTSNQVA 0.000353 | 40 |
| HLA-B*15:01 | 1 | 602 | 611 | 10 | TNTSNQVAVL 0.000353 | 22 |
| HLA-A*24:02 | 1 | 638 | 646 | 9 | TGSNVFQTR 0.000353 | 13 |
| HLA-A*32:01 | 1 | 641 | 649 | 9 | NVFQTRAGC 0.000353 | 17 |
| HLA-A*24:02 | 1 | 699 | 707 | 9 | LGAENSVAY 0.000353 | 13 |
| HLA-B*51:01 | 1 | 777 | 786 | 10 | NTQEVFAQVK 0.000353 | 28 |
| HLA-A*68:02 | 1 | 842 | 850 | 9 | GDIAARDLI 0.000353 | 24 |
| HLA-B*40:01 | 1 | 908 | 916 | 9 | GIGVTQNVL 0.000353 | 12 |
| HLA-A*24:02 | 1 | 979 | 987 | 9 | DILSRLDKV 0.000353 | 13 |
| HLA-B*53:01 | 1 | 1015 | 1024 | 10 | AAEIRASANL 0.000353 | 15 |
| HLA-B*53:01 | 1 | 1024 | 1032 | 9 | LAATKMSEC 0.000353 | 15 |
| HLA-A*32:01 | 1 | 1025 | 1034 | 10 | AATKMSECVL 0.000353 | 17 |
| HLA-B*57:01 | 1 | 1125 | 1133 | 9 | NCDVVIGIV 0.000353 | 30 |
| HLA-B*51:01 | 1 | 1142 | 1151 | 10 | QPELDSFKEE 0.000353 | 28 |
| HLA-A*11:01 | 1 | 1262 | 1271 | 10 | EPVLKGVKLVH 0.000353 | 14 |
| HLA-B*57:01 | 1 | 36 | 45 | 10 | VYYPDKVFRS 0.000352 | 30 |
| HLA-A*02:01 | 1 | 144 | 152 | 9 | YYHKNNKSW 0.000352 | 22 |
| HLA-A*33:01 | 1 | 163 | 171 | 9 | ANNCTFEYV 0.000352 | 22 |
| HLA-A*23:01 | 1 | 208 | 216 | 9 | TPINLVRDL 0.000352 | 13 |
| HLA-A*68:02 | 1 | 282 | 291 | 10 | NGTITDAVDC 0.000352 | 24 |
| HLA-B*53:01 | 1 | 398 | 407 | 10 | DSFVIRGDEV 0.000352 | 15 |
| HLA-A*24:02 | 1 | 458 | 466 | 9 | KSNLKPFR 0.000352 | 13 |
| HLA-A*68:02 | 1 | 470 | 478 | 9 | TEIYQAGST 0.000352 | 24 |
| HLA-B*08:01 | 1 | 559 | 567 | 9 | FLPFQQFGR 0.000352 | 30 |
| HLA-A*01:01 | 1 | 612 | 621 | 10 | YQDVNCTEVP 0.000352 | 27 |
| HLA-A*03:01 | 1 | 627 | 635 | 9 | DQLTPTWRV 0.000352 | 18 |
| HLA-A*02:01 | 1 | 669 | 678 | 10 | GICASYQTQT 0.000352 | 22 |
| HLA-A*11:01 | 1 | 683 | 691 | 9 | RARSVASQS 0.000352 | 14 |
| HLA-A*68:02 | 1 | 770 | 778 | 9 | IAVEQDKNT 0.000352 | 24 |
| HLA-B*07:02 | 1 | 813 | 822 | 10 | SKRSFIEDLL 0.000352 | 19 |
| HLA-A*30:01 | 1 | 849 | 857 | 9 | LICAQKFNG 0.000352 | 40 |
| HLA-A*26:01 | 1 | 880 | 889 | 10 | GTITSGWTFG 0.000352 | 18 |
| HLA-A*01:01 | 1 | 1122 | 1130 | 9 | VSGNCDVVI 0.000352 | 27 |
| HLA-B*51:01 | 1 | 1155 | 1164 | 10 | YFKNHTSPDV 0.000352 | 28 |
| HLA-A*68:01 | 1 | 1216 | 1224 | 9 | IWLGFIAGL 0.000352 | 21 |
| HLA-B*15:01 | 1 | 89 | 98 | 10 | GVYFASTEKS 0.000351 | 22 |
| HLA-A*32:01 | 1 | 132 | 140 | 9 | EFQFCNDPF 0.000351 | 17 |
| HLA-A*30:01 | 1 | 209 | 217 | 9 | PINLVRDLP 0.000351 | 40 |
| HLA-B*08:01 | 1 | 257 | 265 | 9 | GWTAGAAAY 0.000351 | 30 |
| HLA-A*03:01 | 1 | 263 | 272 | 10 | AAYYVGYLQP 0.000351 | 18 |
| HLA-B*07:02 | 1 | 293 | 302 | 10 | LDPLSETKCT 0.000351 | 19 |
| HLA-B*58:01 | 1 | 321 | 330 | 10 | QPTESIVRFP 0.000351 | 22 |
| HLA-B*57:01 | 1 | 358 | 366 | 9 | ISNCVADYS 0.000351 | 30 |
| HLA-A*30:01 | 1 | 752 | 760 | 9 | LLLQYGSFC 0.000351 | 40 |
| HLA-B*58:01 | 1 | 910 | 918 | 9 | GVTQNVLYE 0.000351 | 22 |
| HLA-A*02:06 | 1 | 1049 | 1058 | 10 | LMSFPQSAPH 0.000351 | 29 |
| HLA-A*03:01 | 1 | 1094 | 1103 | 10 | VFVSNGTHWF 0.000351 | 18 |
| HLA-A*01:01 | 1 | 1106 | 1114 | 9 | QRNFYEPQI 0.000351 | 27 |
| HLA-A*68:01 | 1 | 1108 | 1117 | 10 | NFYEQIITT 0.000351 | 21 |
| HLA-A*02:03 | 1 | 1124 | 1133 | 10 | GNCDDVIGIV 0.000351 | 24 |
| HLA-A*01:01 | 1 | 1166 | 1175 | 10 | LGDISGINAS 0.000351 | 27 |
| HLA-A*32:01 | 1 | 1185 | 1194 | 10 | RLNEVAKNLN 0.000351 | 17 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*31:01 | 1 | 75 | 84 | 10 | GTKRFDNPVL 0.00035 | 23 |
| HLA-A*30:02 | 1 | 121 | 130 | 10 | NNATNVVIKV 0.00035 | 37 |
| HLA-A*26:01 | 1 | 154 | 162 | 9 | ESEFRVYSS 0.00035 | 18 |
| HLA-B*57:01 | 1 | 178 | 186 | 9 | DLEGKQGNF 0.00035 | 30 |
| HLA-B*08:01 | 1 | 202 | 211 | 10 | KIYSKHTPIN 0.00035 | 30 |
| HLA-B*35:01 | 1 | 214 | 222 | 9 | RDLPQGFSA 0.00035 | 16 |
| HLA-A*26:01 | 1 | 234 | 243 | 10 | NITRFQTLA 0.00035 | 18 |
| HLA-A*02:01 | 1 | 238 | 247 | 10 | FQTLALHRS 0.00035 | 22 |
| HLA-A*33:01 | 1 | 294 | 303 | 10 | DPLSEKCTL 0.00035 | 22 |
| HLA-A*01:01 | 1 | 402 | 410 | 9 | IRGDEVRQI 0.00035 | 27 |
| HLA-A*03:01 | 1 | 466 | 475 | 10 | RDISTEIQQA 0.00035 | 18 |
| HLA-A*02:03 | 1 | 624 | 633 | 10 | IHADQLTPTW 0.00035 | 24 |
| HLA-A*68:01 | 1 | 664 | 672 | 9 | IPIGAGICA 0.00035 | 21 |
| HLA-A*02:01 | 1 | 703 | 712 | 10 | NSVAYSNNSI 0.00035 | 22 |
| HLA-B*57:01 | 1 | 727 | 736 | 10 | LPVSMTKTSV 0.00035 | 30 |
| HLA-A*68:02 | 1 | 830 | 838 | 9 | DAGFIKQYG 0.00035 | 24 |
| HLA-A*30:02 | 1 | 842 | 850 | 9 | GDIAARDLI 0.00035 | 37 |
| HLA-A*01:01 | 1 | 887 | 896 | 10 | TFGAGAALQI 0.00035 | 27 |
| HLA-A*26:01 | 1 | 889 | 898 | 10 | GAGAALQIPF 0.00035 | 18 |
| HLA-A*31:01 | 1 | 934 | 942 | 9 | IQDLSSTA 0.00035 | 23 |
| HLA-B*51:01 | 1 | 1023 | 1032 | 10 | NLAATKMSEC 0.00035 | 28 |
| HLA-A*30:01 | 1 | 1085 | 1093 | 9 | GKAHFPREG 0.00035 | 40 |
| HLA-B*58:01 | 1 | 1109 | 1117 | 9 | FYEPQIITT 0.00035 | 22 |
| HLA-B*35:01 | 1 | 1115 | 1123 | 9 | ITTDNTFVS 0.00035 | 16 |
| HLA-A*02:03 | 1 | 1218 | 1226 | 9 | LGFIAGLIA 0.00035 | 24 |
| HLA-A*68:01 | 1 | 75 | 83 | 9 | GTKRFDNPV 0.000349 | 21 |
| HLA-A*03:01 | 1 | 193 | 201 | 9 | VFKNIDGYF 0.000349 | 18 |
| HLA-A*30:01 | 1 | 299 | 307 | 9 | TKCTLKSFT 0.000349 | 40 |
| HLA-A*30:01 | 1 | 321 | 330 | 10 | QPTESIVRFP 0.000349 | 40 |
| HLA-B*15:01 | 1 | 357 | 366 | 10 | RISNCVADYS 0.000349 | 22 |
| HLA-A*11:01 | 1 | 367 | 375 | 9 | VLYNSASF 0.000349 | 14 |
| HLA-A*33:01 | 1 | 386 | 395 | 10 | KLNDLCFTNV 0.000349 | 22 |
| HLA-A*31:01 | 1 | 455 | 463 | 9 | LFRKSNLKP 0.000349 | 23 |
| HLA-A*01:01 | 1 | 486 | 494 | 9 | FNCYFPLQS 0.000349 | 27 |
| HLA-A*30:02 | 1 | 523 | 532 | 10 | TVCGPKKSTN 0.000349 | 37 |
| HLA-B*51:01 | 1 | 551 | 560 | 10 | VLTESNKKFL 0.000349 | 28 |
| HLA-A*02:03 | 1 | 589 | 598 | 10 | PCSFGGVSVI 0.000349 | 24 |
| HLA-A*02:01 | 1 | 591 | 599 | 9 | SFGGVSVIT 0.000349 | 22 |
| HLA-A*01:01 | 1 | 599 | 608 | 10 | TPGTNTSNQV 0.000349 | 27 |
| HLA-B*35:01 | 1 | 619 | 628 | 10 | EVVVAIHADQ 0.000349 | 16 |
| HLA-B*58:01 | 1 | 676 | 685 | 10 | TQTNSPRRAR 0.000349 | 22 |
| HLA-A*03:01 | 1 | 683 | 692 | 10 | RARVASQSI 0.000349 | 18 |
| HLA-A*01:01 | 1 | 690 | 698 | 9 | QSIIAYTMS 0.000349 | 27 |
| HLA-A*31:01 | 1 | 900 | 908 | 9 | MQMAYRFNG 0.000349 | 23 |
| HLA-A*24:02 | 1 | 909 | 917 | 9 | IGVTQNVLY 0.000349 | 13 |
| HLA-B*58:01 | 1 | 992 | 1000 | 9 | QIDRLITGR 0.000349 | 22 |
| HLA-B*57:01 | 1 | 1121 | 1130 | 10 | FVSGNCDVVI 0.000349 | 30 |
| HLA-A*01:01 | 1 | 1168 | 1177 | 10 | DISGINASVV 0.000349 | 27 |
| HLA-B*44:02 | 1 | 22 | 30 | 9 | TQLPPAYTN 0.000348 | 13 |
| HLA-A*33:01 | 1 | 119 | 127 | 9 | IVNNATNVV 0.000348 | 22 |
| HLA-B*58:01 | 1 | 194 | 203 | 10 | FKNIDGYFKI 0.000348 | 22 |
| HLA-A*68:02 | 1 | 421 | 429 | 9 | YNYKLPDDF 0.000348 | 24 |
| HLA-A*68:02 | 1 | 517 | 525 | 9 | LLHAPATVC 0.000348 | 24 |
| HLA-A*26:01 | 1 | 685 | 693 | 9 | RSVASQSII 0.000348 | 18 |
| HLA-A*01:01 | 1 | 703 | 711 | 9 | NSVAYSNN 0.000348 | 27 |
| HLA-B*53:01 | 1 | 710 | 719 | 10 | NSIAIPTNFT 0.000348 | 15 |
| HLA-A*33:01 | 1 | 716 | 725 | 10 | TNFTISVTTE 0.000348 | 22 |
| HLA-A*30:01 | 1 | 759 | 767 | 9 | FCTQLNRAL 0.000348 | 40 |
| HLA-A*32:01 | 1 | 777 | 786 | 10 | NTQEVFAQVK 0.000348 | 17 |
| HLA-A*01:01 | 1 | 786 | 795 | 10 | KQIYKTPPIK 0.000348 | 27 |
| HLA-B*57:01 | 1 | 803 | 812 | 10 | SQILPDPSKP 0.000348 | 30 |
| HLA-B*57:01 | 1 | 824 | 833 | 10 | NKVTLADAGF 0.000348 | 30 |
| HLA-A*23:01 | 1 | 846 | 854 | 9 | ARDLICAQK 0.000348 | 13 |
| HLA-A*26:01 | 1 | 957 | 965 | 9 | QALNTLVKQ 0.000348 | 18 |
| HLA-B*44:02 | 1 | 991 | 1000 | 10 | VQIDRLITGR 0.000348 | 13 |
| HLA-B*57:01 | 1 | 1114 | 1123 | 10 | IITTDNTFVS 0.000348 | 30 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*30:01 | 1 | 1115 | 1124 | 10 | ITTDNTFVSG 0.000348 | 40 |
| HLA-A*33:01 | 1 | 1120 | 1128 | 9 | TFVSGNCDV 0.000348 | 22 |
| HLA-A*30:01 | 1 | 73 | 82 | 10 | TNGTKRFDNP 0.000347 | 40 |
| HLA-B*44:02 | 1 | 112 | 120 | 9 | SKTQSLIV 0.000347 | 13 |
| HLA-A*03:01 | 1 | 122 | 130 | 9 | NATNVVIKV 0.000347 | 18 |
| HLA-A*02:03 | 1 | 181 | 189 | 9 | GKQGNFKNL 0.000347 | 24 |
| HLA-A*23:01 | 1 | 232 | 241 | 10 | GINITRFQTL 0.000347 | 13 |
| HLA-A*02:03 | 1 | 291 | 300 | 10 | CALDPLSETK 0.000347 | 24 |
| HLA-A*33:01 | 1 | 307 | 316 | 10 | TVEKGIYQTS 0.000347 | 22 |
| HLA-A*32:01 | 1 | 391 | 400 | 10 | CFTNVYADSF 0.000347 | 17 |
| HLA-B*58:01 | 1 | 522 | 531 | 10 | ATVCGPKKST 0.000347 | 22 |
| HLA-A*11:01 | 1 | 538 | 546 | 9 | CVNFNFNGL 0.000347 | 14 |
| HLA-A*11:01 | 1 | 601 | 610 | 10 | GTNTSNQVAV 0.000347 | 14 |
| HLA-A*30:02 | 1 | 703 | 711 | 9 | NSVAYSNNNS 0.000347 | 37 |
| HLA-A*31:01 | 1 | 716 | 724 | 9 | TNFTISVTT 0.000347 | 23 |
| HLA-B*44:02 | 1 | 819 | 827 | 9 | EDLLFNKVT 0.000347 | 13 |
| HLA-A*31:01 | 1 | 858 | 866 | 9 | LTVLPPLLT 0.000347 | 23 |
| HLA-B*44:02 | 1 | 943 | 951 | 9 | SALGKLQDV 0.000347 | 13 |
| HLA-B*44:02 | 1 | 995 | 1004 | 10 | RLITGRLQSL 0.000347 | 13 |
| HLA-A*02:01 | 1 | 1040 | 1049 | 10 | VDFCGKGYHL 0.000347 | 22 |
| HLA-B*07:02 | 1 | 1147 | 1155 | 9 | SFKEELDKY 0.000347 | 19 |
| HLA-A*02:01 | 1 | 100 | 109 | 10 | IIRGWIFGTT 0.000346 | 22 |
| HLA-A*68:02 | 1 | 173 | 182 | 10 | QPFLMDLEGK 0.000346 | 24 |
| HLA-A*68:02 | 1 | 299 | 308 | 10 | TKCTLKSFTV 0.000346 | 24 |
| HLA-A*30:02 | 1 | 315 | 324 | 10 | TSNFRVQPT 0.000346 | 37 |
| HLA-A*31:01 | 1 | 333 | 342 | 10 | TNLCPFGEVF 0.000346 | 23 |
| HLA-B*58:01 | 1 | 446 | 454 | 9 | GGNYNYLYR 0.000346 | 22 |
| HLA-B*35:01 | 1 | 493 | 501 | 9 | QSYGFQPTN 0.000346 | 16 |
| HLA-A*02:01 | 1 | 523 | 531 | 9 | TVCGPKKST 0.000346 | 22 |
| HLA-A*02:01 | 1 | 637 | 646 | 10 | STGSNVFQTR 0.000346 | 22 |
| HLA-A*01:01 | 1 | 678 | 687 | 10 | TNSPRRARSV 0.000346 | 27 |
| HLA-A*31:01 | 1 | 690 | 699 | 10 | QSIAYTMSL 0.000346 | 23 |
| HLA-B*58:01 | 1 | 692 | 701 | 10 | IIAYTMSLGA 0.000346 | 22 |
| HLA-A*01:01 | 1 | 697 | 706 | 10 | MSLGAENVA 0.000346 | 27 |
| HLA-A*32:01 | 1 | 705 | 713 | 9 | VAYSNNNSIA 0.000346 | 17 |
| HLA-A*02:01 | 1 | 755 | 763 | 9 | QYGSFCTQL 0.000346 | 22 |
| HLA-A*32:01 | 1 | 759 | 767 | 9 | FCTQLNRAL 0.000346 | 17 |
| HLA-A*03:01 | 1 | 890 | 898 | 9 | AGAALQIPF 0.000346 | 18 |
| HLA-A*30:01 | 1 | 932 | 940 | 9 | GKIQDSLSS 0.000346 | 40 |
| HLA-B*44:03 | 1 | 957 | 966 | 10 | QALNTLVKQL 0.000346 | 13 |
| HLA-A*02:06 | 1 | 1061 | 1069 | 9 | VFLHVTVYP 0.000346 | 29 |
| HLA-B*53:01 | 1 | 1088 | 1096 | 9 | HFPREGVFN 0.000346 | 15 |
| HLA-A*02:06 | 1 | 1112 | 1121 | 10 | PQIITTDNTF 0.000346 | 29 |
| HLA-A*03:01 | 1 | 1128 | 1137 | 10 | VVIGIVNNTV 0.000346 | 18 |
| HLA-A*11:01 | 1 | 1206 | 1215 | 10 | YEQYIKWPWY 0.000346 | 14 |
| HLA-B*08:01 | 1 | 1218 | 1226 | 9 | LGFIAGLIA 0.000346 | 30 |
| HLA-B*51:01 | 1 | 33 | 42 | 10 | TRGVVYPDKV 0.000345 | 28 |
| HLA-A*33:01 | 1 | 43 | 52 | 10 | FRSSVLHSTQ 0.000345 | 22 |
| HLA-A*33:01 | 1 | 95 | 104 | 10 | TEKSNIIRGW 0.000345 | 22 |
| HLA-A*02:03 | 1 | 110 | 119 | 10 | LDSKTQSLLI 0.000345 | 24 |
| HLA-A*02:06 | 1 | 177 | 186 | 10 | MDLEGKQGNF 0.000345 | 29 |
| HLA-A*02:01 | 1 | 185 | 193 | 9 | NFKNLREFV 0.000345 | 22 |
| HLA-A*30:02 | 1 | 188 | 196 | 9 | NLREFVFNK 0.000345 | 37 |
| HLA-A*30:02 | 1 | 200 | 209 | 10 | YFKIYSKHTP 0.000345 | 37 |
| HLA-A*03:01 | 1 | 211 | 220 | 10 | NLVRDLPQGF 0.000345 | 18 |
| HLA-A*02:06 | 1 | 298 | 306 | 9 | ETKCTLKSF 0.000345 | 29 |
| HLA-B*57:01 | 1 | 395 | 404 | 10 | VYADSFVIRG 0.000345 | 30 |
| HLA-A*68:02 | 1 | 403 | 411 | 9 | RGDEVRIA 0.000345 | 24 |
| HLA-B*44:03 | 1 | 420 | 429 | 10 | DYNYKLPDDF 0.000345 | 13 |
| HLA-A*02:03 | 1 | 477 | 486 | 10 | STPCNGVEGF 0.000345 | 24 |
| HLA-B*51:01 | 1 | 523 | 531 | 9 | TVCGPKKST 0.000345 | 28 |
| HLA-A*02:01 | 1 | 621 | 629 | 9 | PVAIHADQL 0.000345 | 22 |
| HLA-B*40:01 | 1 | 685 | 693 | 9 | RSVASQSII 0.000345 | 12 |
| HLA-A*68:01 | 1 | 690 | 699 | 10 | QSIAYTMSL 0.000345 | 22 |
| HLA-A*01:01 | 1 | 764 | 772 | 9 | NRALTGIAV 0.000345 | 27 |
| HLA-A*23:01 | 1 | 833 | 841 | 9 | FIKQYGDCL 0.000345 | 13 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*68:01 | 1 | 890 | 898 | 9 | AGAALQIPF 0.000345 | 22 |
| HLA-B*15:01 | 1 | 937 | 946 | 10 | SLSSTASALG 0.000345 | 22 |
| HLA-B*44:03 | 1 | 975 | 984 | 10 | SVLNDILSRL 0.000345 | 13 |
| HLA-B*53:01 | 1 | 1002 | 1010 | 9 | QSLQTYVTQ 0.000345 | 15 |
| HLA-A*01:01 | 1 | 1103 | 1111 | 9 | FVTQRNFYE 0.000345 | 27 |
| HLA-A*68:01 | 1 | 54 | 62 | 9 | LFLPFFSNV 0.000344 | 22 |
| HLA-A*33:01 | 1 | 110 | 118 | 9 | LDSKTQSL 0.000344 | 22 |
| HLA-B*08:01 | 1 | 166 | 175 | 10 | CTFEYVSQPF 0.000344 | 30 |
| HLA-A*30:01 | 1 | 250 | 258 | 9 | TPGDSSSGW 0.000344 | 40 |
| HLA-A*03:01 | 1 | 262 | 271 | 10 | AAAYYVGYLQ 0.000344 | 18 |
| HLA-A*23:01 | 1 | 408 | 417 | 10 | RQIAPGQTGK 0.000344 | 13 |
| HLA-B*44:02 | 1 | 409 | 418 | 10 | QIAPGQTGKI 0.000344 | 13 |
| HLA-B*51:01 | 1 | 508 | 517 | 10 | YRVVLSFEL 0.000344 | 28 |
| HLA-A*32:01 | 1 | 711 | 719 | 9 | SIAIPTNFT 0.000344 | 17 |
| HLA-B*51:01 | 1 | 733 | 741 | 9 | KTSVDCTMY 0.000344 | 28 |
| HLA-A*33:01 | 1 | 857 | 865 | 9 | GLTVLPPLL 0.000344 | 22 |
| HLA-B*40:01 | 1 | 955 | 963 | 9 | NAQALNTLV 0.000344 | 12 |
| HLA-B*44:03 | 1 | 983 | 991 | 9 | RLDKVEAEV 0.000344 | 13 |
| HLA-B*57:01 | 1 | 1006 | 1014 | 9 | TYVTQQLIR 0.000344 | 30 |
| HLA-B*07:02 | 1 | 1024 | 1033 | 10 | LAATKMSECV 0.000344 | 19 |
| HLA-A*31:01 | 1 | 1062 | 1070 | 9 | FLHVTVVPA 0.000344 | 23 |
| HLA-A*02:06 | 1 | 1131 | 1140 | 10 | GIVNNTVYDP 0.000344 | 30 |
| HLA-A*32:01 | 1 | 1133 | 1141 | 9 | VNNTVYDPL 0.000344 | 17 |
| HLA-B*08:01 | 1 | 1218 | 1227 | 10 | LGFIAGLIAI 0.000344 | 30 |
| HLA-A*03:01 | 1 | 1220 | 1228 | 9 | FIAGLIAIV 0.000344 | 18 |
| HLA-A*26:01 | 1 | 1 | 10 | 10 | MFVFLVLLPL 0.000343 | 18 |
| HLA-A*68:01 | 1 | 22 | 31 | 10 | TQLPPAYTNS 0.000343 | 22 |
| HLA-A*30:02 | 1 | 33 | 41 | 9 | TRGVYYPDK 0.000343 | 37 |
| HLA-B*08:01 | 1 | 87 | 95 | 9 | NDGVYFAST 0.000343 | 30 |
| HLA-A*26:01 | 1 | 185 | 193 | 9 | NFKNLREFV 0.000343 | 18 |
| HLA-A*33:01 | 1 | 219 | 227 | 9 | GFSALEPLV 0.000343 | 22 |
| HLA-A*02:06 | 1 | 248 | 257 | 10 | YLTPGDSSSG 0.000343 | 30 |
| HLA-A*33:01 | 1 | 258 | 267 | 10 | WTAGAAAYYV 0.000343 | 22 |
| HLA-A*68:01 | 1 | 297 | 306 | 10 | SETKCTLKSF 0.000343 | 22 |
| HLA-A*23:01 | 1 | 408 | 416 | 9 | RQIAPGQTG 0.000343 | 13 |
| HLA-A*68:02 | 1 | 454 | 462 | 9 | RLFRKSNLK 0.000343 | 24 |
| HLA-A*33:01 | 1 | 477 | 486 | 10 | STPCNGVEGF 0.000343 | 22 |
| HLA-A*02:06 | 1 | 498 | 507 | 10 | QPTNGVGYPQ 0.000343 | 30 |
| HLA-A*02:06 | 1 | 603 | 612 | 10 | NTSNQVAVLY 0.000343 | 30 |
| HLA-A*32:01 | 1 | 662 | 670 | 9 | CDIPIGAGI 0.000343 | 17 |
| HLA-A*30:02 | 1 | 740 | 749 | 10 | MYICGDSTEC 0.000343 | 37 |
| HLA-A*02:03 | 1 | 755 | 763 | 9 | QYGSFCTQL 0.000343 | 24 |
| HLA-A*02:03 | 1 | 822 | 831 | 10 | LFNKVTLADA 0.000343 | 24 |
| HLA-B*58:01 | 1 | 933 | 941 | 9 | KIQDSLST 0.000343 | 22 |
| HLA-A*23:01 | 1 | 991 | 999 | 9 | VQIDRLITG 0.000343 | 13 |
| HLA-A*68:02 | 1 | 1061 | 1070 | 10 | VFLHVTVVPA 0.000343 | 24 |
| HLA-B*08:01 | 1 | 1120 | 1129 | 10 | TFVSGNCDVV 0.000343 | 30 |
| HLA-B*53:01 | 1 | 1207 | 1216 | 10 | EQYIKWPWYI 0.000343 | 15 |
| HLA-A*11:01 | 1 | 2 | 10 | 9 | FVFLVLLPL 0.000342 | 14 |
| HLA-A*68:02 | 1 | 124 | 133 | 10 | TNVVIKVICEF 0.000342 | 24 |
| HLA-B*51:01 | 1 | 136 | 145 | 10 | CNDPFLGVVY 0.000342 | 28 |
| HLA-B*58:01 | 1 | 257 | 265 | 9 | GWTAGAAAY 0.000342 | 22 |
| HLA-A*30:01 | 1 | 271 | 280 | 10 | QPRTFLLKYN 0.000342 | 40 |
| HLA-B*40:01 | 1 | 313 | 321 | 9 | YQTSNFRVQ 0.000342 | 12 |
| HLA-B*57:01 | 1 | 320 | 328 | 9 | VQPTESIVR 0.000342 | 30 |
| HLA-A*26:01 | 1 | 343 | 352 | 10 | NATRFASVYA 0.000342 | 18 |
| HLA-A*30:01 | 1 | 421 | 429 | 9 | YNYKLPDDF 0.000342 | 40 |
| HLA-A*02:06 | 1 | 558 | 566 | 9 | KFLPFQFG 0.000342 | 30 |
| HLA-A*31:01 | 1 | 618 | 626 | 9 | TEVPVAIHA 0.000342 | 23 |
| HLA-A*33:01 | 1 | 626 | 635 | 10 | ADQLTPTWRV 0.000342 | 22 |
| HLA-A*31:01 | 1 | 636 | 644 | 9 | YSTGSNVFQ 0.000342 | 23 |
| HLA-A*02:01 | 1 | 661 | 670 | 10 | ECDIPIGAGI 0.000342 | 22 |
| HLA-B*44:02 | 1 | 679 | 687 | 9 | NSPRRARSV 0.000342 | 13 |
| HLA-A*02:01 | 1 | 684 | 692 | 9 | ARSVASQSI 0.000342 | 22 |
| HLA-A*68:01 | 1 | 687 | 696 | 10 | VASQSIIAYT 0.000342 | 22 |
| HLA-A*30:02 | 1 | 701 | 709 | 9 | AENSVAYSN 0.000342 | 38 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*08:01 | 1 | 703 | 712 | 10 | NSVAYSNNSI 0.000342 | 30 |
| HLA-A*33:01 | 1 | 711 | 720 | 10 | SIAIPTNFTI 0.000342 | 22 |
| HLA-A*02:03 | 1 | 777 | 786 | 10 | NTQEVFAQVK 0.000342 | 24 |
| HLA-B*58:01 | 1 | 894 | 903 | 10 | LQIPFAMQMA 0.000342 | 22 |
| HLA-A*31:01 | 1 | 939 | 948 | 10 | SSTASALGKL 0.000342 | 23 |
| HLA-B*15:01 | 1 | 967 | 975 | 9 | SSNFGAISS 0.000342 | 22 |
| HLA-A*30:01 | 1 | 1052 | 1061 | 10 | FPQSAPHGVV 0.000342 | 40 |
| HLA-A*02:06 | 1 | 1056 | 1064 | 9 | APHGVVFLH 0.000342 | 30 |
| HLA-B*51:01 | 1 | 1080 | 1089 | 10 | AICHDGKAHF 0.000342 | 28 |
| HLA-A*68:02 | 1 | 1229 | 1238 | 10 | MVTIMLCCMT 0.000342 | 24 |
| HLA-B*40:01 | 1 | 13 | 21 | 9 | SQCVNLTTTR 0.000341 | 12 |
| HLA-A*01:01 | 1 | 57 | 66 | 10 | PFFSNVTWFH 0.000341 | 27 |
| HLA-B*08:01 | 1 | 58 | 67 | 10 | FFSNVTWFHA 0.000341 | 30 |
| HLA-A*26:01 | 1 | 70 | 78 | 9 | VSGTNGTKR 0.000341 | 18 |
| HLA-A*02:03 | 1 | 108 | 116 | 9 | TTLDSKTQS 0.000341 | 24 |
| HLA-A*01:01 | 1 | 144 | 153 | 10 | YYHKNNKSWM 0.000341 | 27 |
| HLA-B*44:02 | 1 | 199 | 207 | 9 | GYFKIYSKH 0.000341 | 13 |
| HLA-B*07:02 | 1 | 307 | 315 | 9 | TVEKGIYQT 0.000341 | 19 |
| HLA-A*24:02 | 1 | 309 | 318 | 10 | EKGIYQTSNF 0.000341 | 13 |
| HLA-A*24:02 | 1 | 455 | 463 | 9 | LFRKSNLKP 0.000341 | 13 |
| HLA-A*32:01 | 1 | 462 | 470 | 9 | KPFERDIST 0.000341 | 17 |
| HLA-A*11:01 | 1 | 464 | 473 | 10 | FERDISTEYI 0.000341 | 14 |
| HLA-A*02:06 | 1 | 529 | 537 | 9 | KSTNLVKNK 0.000341 | 30 |
| HLA-A*02:03 | 1 | 591 | 599 | 9 | SFGGVSUIT 0.000341 | 24 |
| HLA-A*01:01 | 1 | 657 | 666 | 10 | NNSYECDIPI 0.000341 | 27 |
| HLA-B*51:01 | 1 | 671 | 679 | 9 | CASYQTQTN 0.000341 | 28 |
| HLA-B*15:01 | 1 | 813 | 822 | 10 | SKRSFIEDLL 0.000341 | 22 |
| HLA-B*44:02 | 1 | 825 | 833 | 9 | KVTLADAGF 0.000341 | 13 |
| HLA-A*30:01 | 1 | 835 | 843 | 9 | KQYGDCLGD 0.000341 | 40 |
| HLA-A*23:01 | 1 | 925 | 933 | 9 | NQFNSAIGK 0.000341 | 13 |
| HLA-B*51:01 | 1 | 1082 | 1090 | 9 | CHDGAHFP 0.000341 | 28 |
| HLA-A*02:03 | 1 | 1101 | 1109 | 9 | HWFVTQRNF 0.000341 | 24 |
| HLA-B*44:03 | 1 | 1149 | 1158 | 10 | KEELDKYFKN 0.000341 | 13 |
| HLA-B*08:01 | 1 | 1152 | 1160 | 9 | LDKYFKNHT 0.000341 | 30 |
| HLA-B*44:03 | 1 | 1212 | 1220 | 9 | WPWYIWLGF 0.000341 | 13 |
| HLA-B*58:01 | 1 | 1262 | 1270 | 9 | EPVLKGVKL 0.000341 | 22 |
| HLA-A*30:02 | 1 | 7 | 15 | 9 | LLPLVSSQC 0.00034 | 38 |
| HLA-A*31:01 | 1 | 84 | 92 | 9 | LPFNDGVYF 0.00034 | 23 |
| HLA-A*33:01 | 1 | 166 | 174 | 9 | CTFEYVSQP 0.00034 | 22 |
| HLA-B*44:03 | 1 | 320 | 328 | 9 | VQPTESIVR 0.00034 | 13 |
| HLA-B*08:01 | 1 | 324 | 333 | 10 | ESIVRFPNIT 0.00034 | 30 |
| HLA-A*30:01 | 1 | 474 | 482 | 9 | QAGSTPCNG 0.00034 | 40 |
| HLA-A*31:01 | 1 | 489 | 498 | 10 | YFPLQSYGFQ 0.00034 | 23 |
| HLA-A*02:01 | 1 | 514 | 522 | 9 | SFELLHAPA 0.00034 | 22 |
| HLA-B*35:01 | 1 | 552 | 560 | 9 | LTESNKKFL 0.00034 | 16 |
| HLA-B*57:01 | 1 | 602 | 610 | 9 | TNTSNQVAV 0.00034 | 30 |
| HLA-B*51:01 | 1 | 690 | 698 | 9 | QSIAYTMS 0.00034 | 28 |
| HLA-A*11:01 | 1 | 693 | 701 | 9 | IAYTMSLGA 0.00034 | 14 |
| HLA-A*24:02 | 1 | 740 | 748 | 9 | MYICGDSTE 0.00034 | 13 |
| HLA-A*30:02 | 1 | 798 | 807 | 10 | GGFNFSQILP 0.00034 | 38 |
| HLA-B*53:01 | 1 | 804 | 812 | 9 | QILPDPSKP 0.00034 | 15 |
| HLA-B*58:01 | 1 | 817 | 825 | 9 | FIEDLLFNK 0.00034 | 22 |
| HLA-B*08:01 | 1 | 897 | 906 | 10 | PFAMQMAYRF 0.00034 | 30 |
| HLA-A*30:01 | 1 | 932 | 941 | 10 | GKIQDLSLST 0.00034 | 40 |
| HLA-A*30:02 | 1 | 942 | 950 | 9 | ASALGKLQD 0.00034 | 38 |
| HLA-A*01:01 | 1 | 973 | 982 | 10 | ISSVLNDILS 0.00034 | 28 |
| HLA-A*33:01 | 1 | 1074 | 1082 | 9 | NFTTAPAIC 0.00034 | 22 |
| HLA-B*07:02 | 1 | 1093 | 1102 | 10 | GVFVSNGTHW 0.00034 | 19 |
| HLA-A*26:01 | 1 | 1203 | 1212 | 10 | LGKYEYIKW 0.00034 | 18 |
| HLA-A*30:01 | 1 | 1215 | 1223 | 9 | YIWLGFIAG 0.00034 | 40 |
| HLA-B*08:01 | 1 | 30 | 39 | 10 | NSFTRGVYYP 0.000339 | 30 |
| HLA-B*08:01 | 1 | 76 | 85 | 10 | TKRFDNPVLP 0.000339 | 30 |
| HLA-A*32:01 | 1 | 144 | 153 | 10 | YYHKNNKSWM 0.000339 | 17 |
| HLA-A*11:01 | 1 | 169 | 177 | 9 | EYVSQPFLM 0.000339 | 14 |
| HLA-B*35:01 | 1 | 198 | 207 | 10 | DGYFKIYSKH 0.000339 | 16 |
| HLA-B*44:03 | 1 | 310 | 318 | 9 | KGIYQTSNF 0.000339 | 13 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*15:01 | 1 | 459 | 468 | 10 | SNLKPFERDI 0.000339 | 22 |
| HLA-A*68:01 | 1 | 464 | 472 | 9 | FERDISTEI 0.000339 | 22 |
| HLA-A*33:01 | 1 | 551 | 559 | 9 | VLTESNKKF 0.000339 | 22 |
| HLA-B*44:03 | 1 | 552 | 561 | 10 | LTESNKKFLP 0.000339 | 13 |
| HLA-A*11:01 | 1 | 609 | 617 | 9 | AVLYQDVNC 0.000339 | 14 |
| HLA-A*68:01 | 1 | 771 | 780 | 10 | AVEQDKNTQE 0.000339 | 22 |
| HLA-B*15:01 | 1 | 891 | 899 | 9 | GAALQIPFA 0.000339 | 22 |
| HLA-B*15:01 | 1 | 976 | 985 | 10 | VLNDILSRLD 0.000339 | 22 |
| HLA-A*30:02 | 1 | 980 | 988 | 9 | ILSRLDKVE 0.000339 | 38 |
| HLA-A*30:02 | 1 | 989 | 998 | 10 | AEVQIDRLIT 0.000339 | 38 |
| HLA-A*33:01 | 1 | 993 | 1001 | 9 | IDRLITGRL 0.000339 | 22 |
| HLA-B*44:03 | 1 | 1050 | 1058 | 9 | MSFPQSAPH 0.000339 | 13 |
| HLA-B*51:01 | 1 | 1064 | 1073 | 10 | HVTYVPAQEK 0.000339 | 28 |
| HLA-B*57:01 | 1 | 1085 | 1094 | 10 | GKAHFPRGV 0.000339 | 31 |
| HLA-A*03:01 | 1 | 1107 | 1115 | 9 | RNFYEPQII 0.000339 | 18 |
| HLA-B*57:01 | 1 | 1134 | 1143 | 10 | NNTVYDPLQP 0.000339 | 31 |
| HLA-B*44:02 | 1 | 1173 | 1181 | 9 | NASVVNIQK 0.000339 | 13 |
| HLA-B*57:01 | 1 | 1201 | 1210 | 10 | QELGKYEYI 0.000339 | 31 |
| HLA-A*30:02 | 1 | 38 | 46 | 9 | YDPKVFRRSS 0.000338 | 38 |
| HLA-B*57:01 | 1 | 292 | 301 | 10 | ALDPLSETKC 0.000338 | 31 |
| HLA-B*51:01 | 1 | 308 | 316 | 9 | VEKGIYQTS 0.000338 | 28 |
| HLA-A*01:01 | 1 | 435 | 444 | 10 | AWNSNNLDSK 0.000338 | 28 |
| HLA-A*33:01 | 1 | 503 | 511 | 9 | VGYPYRVV 0.000338 | 22 |
| HLA-B*07:02 | 1 | 532 | 541 | 10 | NLVKKNKCVNF 0.000338 | 19 |
| HLA-A*68:01 | 1 | 594 | 602 | 9 | GVSITPGT 0.000338 | 22 |
| HLA-B*44:03 | 1 | 704 | 712 | 9 | SVAYSNNSI 0.000338 | 13 |
| HLA-A*68:02 | 1 | 884 | 893 | 10 | SGWTFGAGAA 0.000338 | 24 |
| HLA-A*03:01 | 1 | 886 | 895 | 10 | WTFGAGAALQ 0.000338 | 18 |
| HLA-A*01:01 | 1 | 889 | 898 | 10 | GAGAALQIPF 0.000338 | 28 |
| HLA-A*01:01 | 1 | 908 | 916 | 9 | GIGVTQNVL 0.000338 | 28 |
| HLA-A*68:02 | 1 | 976 | 985 | 10 | VLNDILSRLD 0.000338 | 24 |
| HLA-A*30:01 | 1 | 1069 | 1077 | 9 | PAQEKNFTT 0.000338 | 40 |
| HLA-B*44:02 | 1 | 111 | 119 | 9 | DSKTQSLLI 0.000337 | 13 |
| HLA-A*01:01 | 1 | 134 | 142 | 9 | QFCNDPFLG 0.000337 | 28 |
| HLA-A*03:01 | 1 | 184 | 192 | 9 | GNFKNLREF 0.000337 | 18 |
| HLA-B*40:01 | 1 | 194 | 203 | 10 | FKNIDGYFKI 0.000337 | 12 |
| HLA-A*02:03 | 1 | 280 | 289 | 10 | NENGTITDAV 0.000337 | 24 |
| HLA-B*40:01 | 1 | 360 | 368 | 9 | NCVADYSVL 0.000337 | 12 |
| HLA-A*30:01 | 1 | 365 | 374 | 10 | YSVLYNSASF 0.000337 | 40 |
| HLA-A*33:01 | 1 | 365 | 374 | 10 | YSVLYNSASF 0.000337 | 22 |
| HLA-B*51:01 | 1 | 376 | 384 | 9 | TFKCYGVSP 0.000337 | 28 |
| HLA-A*24:02 | 1 | 413 | 421 | 9 | GQTGKIADY 0.000337 | 13 |
| HLA-A*26:01 | 1 | 513 | 521 | 9 | LSFELLHAP 0.000337 | 18 |
| HLA-B*35:01 | 1 | 525 | 534 | 10 | CGPKKSTNLV 0.000337 | 16 |
| HLA-A*30:02 | 1 | 572 | 581 | 10 | TTDAVRDPQT 0.000337 | 38 |
| HLA-A*02:03 | 1 | 655 | 664 | 10 | HVNNSYECDI 0.000337 | 24 |
| HLA-A*31:01 | 1 | 669 | 677 | 9 | GICASYQTQ 0.000337 | 23 |
| HLA-A*11:01 | 1 | 672 | 681 | 10 | ASYQTQTNSP 0.000337 | 14 |
| HLA-A*30:02 | 1 | 691 | 700 | 10 | SIAYTMSLG 0.000337 | 38 |
| HLA-B*40:01 | 1 | 716 | 724 | 9 | TNFTISVTT 0.000337 | 12 |
| HLA-A*33:01 | 1 | 764 | 772 | 9 | NRALTGIIV 0.000337 | 22 |
| HLA-A*02:06 | 1 | 810 | 818 | 9 | SKPSKRSFI 0.000337 | 30 |
| HLA-A*68:02 | 1 | 875 | 884 | 10 | SALLAGTITS 0.000337 | 24 |
| HLA-A*30:01 | 1 | 907 | 916 | 10 | NGIGVTQNVL 0.000337 | 40 |
| HLA-B*58:01 | 1 | 981 | 990 | 10 | LSRLDKVEAE 0.000337 | 22 |
| HLA-A*31:01 | 1 | 997 | 1005 | 9 | ITGRLQSLQ 0.000337 | 23 |
| HLA-B*35:01 | 1 | 1019 | 1027 | 9 | RASANLAAT 0.000337 | 16 |
| HLA-A*02:01 | 1 | 1104 | 1112 | 9 | VTQRNFYEP 0.000337 | 22 |
| HLA-A*68:02 | 1 | 48 | 56 | 9 | LHSTQDLFL 0.000336 | 24 |
| HLA-B*51:01 | 1 | 226 | 234 | 9 | LVDLPIGIN 0.000336 | 28 |
| HLA-A*11:01 | 1 | 342 | 351 | 10 | FNATRFASVY 0.000336 | 14 |
| HLA-A*31:01 | 1 | 342 | 351 | 10 | FNATRFASVY 0.000336 | 23 |
| HLA-A*32:01 | 1 | 347 | 355 | 9 | FASVYAWNR 0.000336 | 17 |
| HLA-A*32:01 | 1 | 670 | 678 | 9 | ICASYQTQT 0.000336 | 17 |
| HLA-A*31:01 | 1 | 697 | 705 | 9 | MSLGAENSV 0.000336 | 23 |
| HLA-A*03:01 | 1 | 714 | 722 | 9 | IPTNFTISV 0.000336 | 18 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*58:01 | 1 | 816 | 825 | 10 | SFIEDLLFNK 0.000336 | 22 |
| HLA-B*15:01 | 1 | 819 | 828 | 10 | EDLLFNKVTL 0.000336 | 22 |
| HLA-B*58:01 | 1 | 915 | 924 | 10 | VLYENQKLI A 0.000336 | 22 |
| HLA-A*01:01 | 1 | 956 | 965 | 10 | AQALNTLVKQ 0.000336 | 28 |
| HLA-A*02:06 | 1 | 1001 | 1010 | 10 | LQSLQTYVTQ 0.000336 | 30 |
| HLA-A*26:01 | 1 | 1039 | 1048 | 10 | RVDFCGKGYH 0.000336 | 18 |
| HLA-B*58:01 | 1 | 1192 | 1200 | 9 | NLNESLIDL 0.000336 | 22 |
| HLA-B*57:01 | 1 | 1237 | 1245 | 9 | MTSCCCLK 0.000336 | 31 |
| HLA-A*31:01 | 1 | 85 | 93 | 9 | PFNDGVYFA 0.000335 | 24 |
| HLA-A*33:01 | 1 | 170 | 179 | 10 | YVSQPFLMDL 0.000335 | 22 |
| HLA-B*51:01 | 1 | 170 | 178 | 9 | YVSQPFLMD 0.000335 | 28 |
| HLA-A*33:01 | 1 | 353 | 361 | 9 | WNRKRISNC 0.000335 | 22 |
| HLA-A*30:02 | 1 | 358 | 366 | 9 | ISNCVADYS 0.000335 | 38 |
| HLA-A*02:01 | 1 | 369 | 377 | 9 | YNSASFSTF 0.000335 | 22 |
| HLA-A*68:02 | 1 | 383 | 391 | 9 | SPTKLNDLC 0.000335 | 24 |
| HLA-B*15:01 | 1 | 565 | 573 | 9 | FGRDIADTT 0.000335 | 22 |
| HLA-B*35:01 | 1 | 679 | 688 | 10 | NSPRRARSVA 0.000335 | 16 |
| HLA-A*23:01 | 1 | 725 | 733 | 9 | EILPVSMTK 0.000335 | 13 |
| HLA-B*08:01 | 1 | 741 | 749 | 9 | YICGDSTEC 0.000335 | 31 |
| HLA-A*33:01 | 1 | 754 | 763 | 10 | LQYGSFCTQL 0.000335 | 22 |
| HLA-A*02:01 | 1 | 874 | 882 | 9 | TSALLAGTI 0.000335 | 22 |
| HLA-A*02:01 | 1 | 879 | 888 | 10 | AGTITSGWTF 0.000335 | 22 |
| HLA-B*07:02 | 1 | 918 | 927 | 10 | ENQKLIANQF 0.000335 | 19 |
| HLA-A*26:01 | 1 | 978 | 986 | 9 | NDILSRLDK 0.000335 | 18 |
| HLA-A*01:01 | 1 | 1073 | 1081 | 9 | KNFTTAPAI 0.000335 | 28 |
| HLA-A*26:01 | 1 | 1121 | 1130 | 10 | FVSGNCDVVI 0.000335 | 18 |
| HLA-A*24:02 | 1 | 1129 | 1137 | 9 | VIGIVNNTV 0.000335 | 13 |
| HLA-B*53:01 | 1 | 1197 | 1205 | 9 | LIDLQELGK 0.000335 | 15 |
| HLA-A*31:01 | 1 | 1224 | 1232 | 9 | LIAIVMVTI 0.000335 | 24 |
| HLA-A*02:03 | 1 | 154 | 163 | 10 | ESEFRVYSSA 0.000334 | 24 |
| HLA-B*51:01 | 1 | 284 | 292 | 9 | TITDAVDCA 0.000334 | 28 |
| HLA-B*15:01 | 1 | 310 | 319 | 10 | KGIYQTSNFR 0.000334 | 22 |
| HLA-A*68:02 | 1 | 376 | 384 | 9 | TFKCYGVSP 0.000334 | 24 |
| HLA-B*35:01 | 1 | 403 | 411 | 9 | RGDEVRI A 0.000334 | 16 |
| HLA-B*57:01 | 1 | 424 | 433 | 10 | KLPDDFTGCV 0.000334 | 31 |
| HLA-A*30:01 | 1 | 439 | 447 | 9 | NNLDSKVG G 0.000334 | 41 |
| HLA-A*68:02 | 1 | 446 | 455 | 10 | GGNYNYLYRL 0.000334 | 24 |
| HLA-A*23:01 | 1 | 551 | 560 | 10 | VLTESNKKFL 0.000334 | 13 |
| HLA-A*02:06 | 1 | 624 | 632 | 9 | IHADQLTPT 0.000334 | 30 |
| HLA-A*11:01 | 1 | 685 | 694 | 10 | RSVASQSII A 0.000334 | 14 |
| HLA-A*01:01 | 1 | 716 | 724 | 9 | TNFTISVTT 0.000334 | 28 |
| HLA-A*02:06 | 1 | 751 | 760 | 10 | NLLLQYGSFC 0.000334 | 30 |
| HLA-A*01:01 | 1 | 754 | 763 | 10 | LQYGSFCTQL 0.000334 | 28 |
| HLA-B*51:01 | 1 | 763 | 771 | 9 | LN RALTGIA 0.000334 | 28 |
| HLA-A*30:01 | 1 | 775 | 783 | 9 | DKNTQEVFA 0.000334 | 41 |
| HLA-B*15:01 | 1 | 859 | 867 | 9 | TVLPPL LTD 0.000334 | 22 |
| HLA-B*40:01 | 1 | 1001 | 1009 | 9 | LQSLQTYVT 0.000334 | 12 |
| HLA-A*02:06 | 1 | 1187 | 1196 | 10 | NEVAKNLNES 0.000334 | 30 |
| HLA-B*44:02 | 1 | 1212 | 1220 | 9 | WPWYIWLGF 0.000334 | 13 |
| HLA-B*08:01 | 1 | 21 | 29 | 9 | RTQLPPAYT 0.000333 | 31 |
| HLA-A*02:03 | 1 | 42 | 51 | 10 | VFRSSVLHST 0.000333 | 24 |
| HLA-B*57:01 | 1 | 61 | 69 | 9 | NVTWFHAIH 0.000333 | 31 |
| HLA-A*68:02 | 1 | 65 | 73 | 9 | FHAIHVSGT 0.000333 | 24 |
| HLA-A*32:01 | 1 | 69 | 78 | 10 | HVSGTNGTKR 0.000333 | 17 |
| HLA-B*51:01 | 1 | 90 | 98 | 9 | VYFASTEKS 0.000333 | 28 |
| HLA-A*30:01 | 1 | 101 | 109 | 9 | IRGWIFGTT 0.000333 | 41 |
| HLA-A*30:01 | 1 | 134 | 142 | 9 | QFCNDPFLG 0.000333 | 41 |
| HLA-A*26:01 | 1 | 225 | 233 | 9 | PLVDLP IGI 0.000333 | 18 |
| HLA-B*58:01 | 1 | 255 | 263 | 9 | SSGWTAGAA 0.000333 | 22 |
| HLA-B*51:01 | 1 | 328 | 337 | 10 | RFPNITNLCP 0.000333 | 28 |
| HLA-A*30:02 | 1 | 332 | 340 | 9 | ITNLCPFGE 0.000333 | 38 |
| HLA-A*68:01 | 1 | 333 | 342 | 10 | TNLCPFGEVF 0.000333 | 22 |
| HLA-B*51:01 | 1 | 370 | 379 | 10 | NSASFSTFKC 0.000333 | 28 |
| HLA-A*01:01 | 1 | 504 | 512 | 9 | GYQPYRVVV 0.000333 | 28 |
| HLA-A*02:01 | 1 | 526 | 534 | 9 | GPKKSTNLV 0.000333 | 22 |
| HLA-B*51:01 | 1 | 587 | 596 | 10 | ITPCSF GGVS 0.000333 | 28 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|----|
| HLA-A*02:01 | 1 | 716 | 724 | 9 | TNFTISVTT | 0.000333 | 22 |
| HLA-B*53:01 | 1 | 716 | 724 | 9 | TNFTISVTT | 0.000333 | 15 |
| HLA-B*08:01 | 1 | 801 | 809 | 9 | NFSQILPDP | 0.000333 | 31 |
| HLA-A*30:01 | 1 | 810 | 819 | 10 | SKPSKRSFIE | 0.000333 | 41 |
| HLA-A*26:01 | 1 | 850 | 858 | 9 | ICAQKFNGL | 0.000333 | 18 |
| HLA-A*32:01 | 1 | 955 | 963 | 9 | NAQALNTLV | 0.000333 | 17 |
| HLA-B*15:01 | 1 | 1041 | 1049 | 9 | DFCGKGYHL | 0.000333 | 22 |
| HLA-B*53:01 | 1 | 1041 | 1050 | 10 | DFCGKGYHLM | 0.000333 | 15 |
| HLA-B*08:01 | 1 | 1053 | 1061 | 9 | PQSAPHGVV | 0.000333 | 31 |
| HLA-B*35:01 | 1 | 1166 | 1174 | 9 | LGDISGINA | 0.000333 | 16 |
| HLA-A*68:02 | 1 | 1201 | 1209 | 9 | QELGKYEQY | 0.000333 | 24 |
| HLA-B*51:01 | 1 | 17 | 25 | 9 | NLTTRTQLP | 0.000332 | 28 |
| HLA-A*68:02 | 1 | 66 | 74 | 9 | HAIHVSBTN | 0.000332 | 24 |
| HLA-A*31:01 | 1 | 129 | 137 | 9 | KVCEFQFCN | 0.000332 | 24 |
| HLA-A*02:01 | 1 | 177 | 186 | 10 | MDLEGKQGNF | 0.000332 | 22 |
| HLA-A*02:01 | 1 | 188 | 196 | 9 | NLREFVFKN | 0.000332 | 22 |
| HLA-A*01:01 | 1 | 218 | 226 | 9 | QGFSALEPL | 0.000332 | 28 |
| HLA-A*68:01 | 1 | 218 | 226 | 9 | QGFSALEPL | 0.000332 | 22 |
| HLA-B*08:01 | 1 | 247 | 255 | 9 | SYLTPGDSS | 0.000332 | 31 |
| HLA-A*11:01 | 1 | 268 | 276 | 9 | GYLQPRFL | 0.000332 | 14 |
| HLA-A*30:01 | 1 | 393 | 401 | 9 | TNVYADSFV | 0.000332 | 41 |
| HLA-A*02:06 | 1 | 410 | 419 | 10 | IAPGQTGKIA | 0.000332 | 30 |
| HLA-A*68:01 | 1 | 552 | 560 | 9 | LTESNKKFL | 0.000332 | 22 |
| HLA-A*68:02 | 1 | 572 | 580 | 9 | TTDAVRDPQ | 0.000332 | 24 |
| HLA-A*24:02 | 1 | 591 | 600 | 10 | SFGGVSVIP | 0.000332 | 13 |
| HLA-A*30:02 | 1 | 645 | 653 | 9 | TRAGCLIGA | 0.000332 | 38 |
| HLA-A*68:02 | 1 | 670 | 678 | 9 | ICASYQTQT | 0.000332 | 24 |
| HLA-A*03:01 | 1 | 673 | 681 | 9 | SYQTQTNSP | 0.000332 | 18 |
| HLA-A*30:01 | 1 | 693 | 702 | 10 | IAYTMSLGAE | 0.000332 | 41 |
| HLA-A*68:01 | 1 | 776 | 784 | 9 | KNTQEVFAQ | 0.000332 | 22 |
| HLA-A*23:01 | 1 | 919 | 928 | 10 | NQKLIANQFN | 0.000332 | 13 |
| HLA-A*30:01 | 1 | 990 | 998 | 9 | EVQIDRLIT | 0.000332 | 41 |
| HLA-A*30:01 | 1 | 1074 | 1083 | 10 | NFTTAPAICH | 0.000332 | 41 |
| HLA-A*24:02 | 1 | 62 | 71 | 10 | VTWFHAIHVS | 0.000331 | 13 |
| HLA-A*30:01 | 1 | 103 | 112 | 10 | GWIFGTTLDS | 0.000331 | 41 |
| HLA-A*32:01 | 1 | 134 | 143 | 10 | QFCNDPFLGV | 0.000331 | 17 |
| HLA-A*33:01 | 1 | 158 | 166 | 9 | RVYSSANNC | 0.000331 | 22 |
| HLA-A*68:01 | 1 | 238 | 247 | 10 | FQTLALHRS | 0.000331 | 22 |
| HLA-A*03:01 | 1 | 267 | 276 | 10 | VGYLQPRFL | 0.000331 | 18 |
| HLA-B*51:01 | 1 | 288 | 296 | 9 | AVDCALDPL | 0.000331 | 28 |
| HLA-A*33:01 | 1 | 336 | 344 | 9 | CPFGEVFNA | 0.000331 | 22 |
| HLA-B*08:01 | 1 | 363 | 372 | 10 | ADYSVLYNSA | 0.000331 | 31 |
| HLA-A*02:01 | 1 | 372 | 380 | 9 | ASFSTFKCY | 0.000331 | 22 |
| HLA-A*02:01 | 1 | 373 | 382 | 10 | SFSTFKCYGV | 0.000331 | 22 |
| HLA-A*68:01 | 1 | 427 | 436 | 10 | DDFTGCVIAW | 0.000331 | 22 |
| HLA-A*33:01 | 1 | 447 | 456 | 10 | GNYNYLYRLF | 0.000331 | 22 |
| HLA-A*31:01 | 1 | 500 | 508 | 9 | TNGVGYQPY | 0.000331 | 24 |
| HLA-A*31:01 | 1 | 502 | 511 | 10 | GVGYQPYRVV | 0.000331 | 24 |
| HLA-B*15:01 | 1 | 503 | 512 | 10 | VGYPYRVVV | 0.000331 | 22 |
| HLA-A*01:01 | 1 | 526 | 535 | 10 | GPKKSTNLVK | 0.000331 | 28 |
| HLA-A*33:01 | 1 | 526 | 534 | 9 | GPKKSTNLV | 0.000331 | 22 |
| HLA-A*23:01 | 1 | 579 | 587 | 9 | PQTLIILDI | 0.000331 | 13 |
| HLA-A*32:01 | 1 | 621 | 629 | 9 | PVAIHADQL | 0.000331 | 17 |
| HLA-B*51:01 | 1 | 623 | 631 | 9 | AIHADQLTP | 0.000331 | 28 |
| HLA-A*30:01 | 1 | 639 | 648 | 10 | GSNVFQTRAG | 0.000331 | 41 |
| HLA-A*30:02 | 1 | 770 | 779 | 10 | IAVEQDKNTQ | 0.000331 | 38 |
| HLA-B*51:01 | 1 | 839 | 847 | 9 | DCLGDIAAR | 0.000331 | 28 |
| HLA-A*68:02 | 1 | 845 | 854 | 10 | AARDLICAQK | 0.000331 | 24 |
| HLA-A*68:02 | 1 | 953 | 961 | 9 | NQNAQALNT | 0.000331 | 24 |
| HLA-B*15:01 | 1 | 980 | 988 | 9 | ILSRLDKVE | 0.000331 | 22 |
| HLA-A*02:06 | 1 | 998 | 1007 | 10 | TGRLQSLQTY | 0.000331 | 30 |
| HLA-A*68:02 | 1 | 1061 | 1069 | 9 | VFLHVITYVP | 0.000331 | 24 |
| HLA-A*33:01 | 1 | 1093 | 1102 | 10 | GVFVSNQTHW | 0.000331 | 22 |
| HLA-A*02:06 | 1 | 1096 | 1105 | 10 | VSNQTHWFVT | 0.000331 | 30 |
| HLA-A*01:01 | 1 | 1114 | 1123 | 10 | IITTDNTFVS | 0.000331 | 28 |
| HLA-A*68:01 | 1 | 37 | 45 | 9 | YYPDKVFRS | 0.00033 | 22 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*15:01 | 1 | 42 | 50 | 9 | VFRSSVLHS 0.00033 | 22 |
| HLA-B*15:01 | 1 | 132 | 141 | 10 | EFQFCNDPFL 0.00033 | 22 |
| HLA-A*02:01 | 1 | 184 | 193 | 10 | GNFKNLREFV 0.00033 | 22 |
| HLA-A*68:02 | 1 | 207 | 215 | 9 | HTPINLVRD 0.00033 | 24 |
| HLA-A*02:01 | 1 | 264 | 272 | 9 | AYYVGYLQP 0.00033 | 22 |
| HLA-A*23:01 | 1 | 302 | 310 | 9 | TLKSFTVEK 0.00033 | 13 |
| HLA-A*03:01 | 1 | 313 | 321 | 9 | YQTSNFRVQ 0.00033 | 18 |
| HLA-A*30:01 | 1 | 324 | 333 | 10 | ESIVRFPNIT 0.00033 | 41 |
| HLA-A*68:02 | 1 | 429 | 438 | 10 | FTGCVIAWNS 0.00033 | 24 |
| HLA-A*31:01 | 1 | 501 | 510 | 10 | NGVGYQPYRV 0.00033 | 24 |
| HLA-A*33:01 | 1 | 527 | 535 | 9 | PKKSTNLVK 0.00033 | 22 |
| HLA-A*03:01 | 1 | 616 | 625 | 10 | NCTEVPVAIH 0.00033 | 18 |
| HLA-A*01:01 | 1 | 647 | 655 | 9 | AGCLIGAHEH 0.00033 | 28 |
| HLA-A*33:01 | 1 | 680 | 688 | 9 | SPRRARSVA 0.00033 | 22 |
| HLA-B*35:01 | 1 | 695 | 703 | 9 | YTMSLGAEN 0.00033 | 16 |
| HLA-B*44:03 | 1 | 711 | 720 | 10 | SIAIPTNFTI 0.00033 | 13 |
| HLA-A*30:02 | 1 | 832 | 841 | 10 | GFIKQYGDCL 0.00033 | 38 |
| HLA-B*58:01 | 1 | 883 | 892 | 10 | TSGWTFGAGA 0.00033 | 23 |
| HLA-A*30:02 | 1 | 906 | 915 | 10 | FNGIGVTQNV 0.00033 | 38 |
| HLA-B*08:01 | 1 | 1067 | 1076 | 10 | YVPAQEKNF 0.00033 | 31 |
| HLA-A*23:01 | 1 | 1105 | 1114 | 10 | TQRNFYEPQI 0.00033 | 13 |
| HLA-A*23:01 | 1 | 1141 | 1149 | 9 | LQPELDSFK 0.00033 | 13 |
| HLA-A*68:01 | 1 | 1163 | 1172 | 10 | DVDLGDISGI 0.00033 | 22 |
| HLA-B*44:03 | 1 | 1167 | 1176 | 10 | GDISGINASV 0.00033 | 13 |
| HLA-A*01:01 | 1 | 1202 | 1211 | 10 | ELGKYEQYIK 0.00033 | 28 |
| HLA-A*68:01 | 1 | 90 | 98 | 9 | VYFASTEKS 0.000329 | 22 |
| HLA-A*23:01 | 1 | 93 | 101 | 9 | ASTEKSNI 0.000329 | 13 |
| HLA-B*44:02 | 1 | 180 | 189 | 10 | EGKQGNFKNL 0.000329 | 14 |
| HLA-A*03:01 | 1 | 246 | 254 | 9 | RSYLTPGDS 0.000329 | 18 |
| HLA-A*30:01 | 1 | 288 | 296 | 9 | AVDCALDPL 0.000329 | 41 |
| HLA-A*31:01 | 1 | 315 | 323 | 9 | TSNFRVQPT 0.000329 | 24 |
| HLA-A*68:02 | 1 | 350 | 358 | 9 | VYAWNRKRI 0.000329 | 24 |
| HLA-A*11:01 | 1 | 375 | 384 | 10 | STFKCYGVSP 0.000329 | 14 |
| HLA-B*35:01 | 1 | 409 | 417 | 9 | QIAPGQTGK 0.000329 | 16 |
| HLA-B*07:02 | 1 | 437 | 445 | 9 | NSNNLDSKV 0.000329 | 20 |
| HLA-A*02:03 | 1 | 446 | 455 | 10 | GGNYNYLYRL 0.000329 | 24 |
| HLA-B*57:01 | 1 | 453 | 461 | 9 | YRLFRRKSNL 0.000329 | 31 |
| HLA-A*33:01 | 1 | 511 | 520 | 10 | VVLSFELLHA 0.000329 | 22 |
| HLA-A*01:01 | 1 | 521 | 529 | 9 | PATVCGPKK 0.000329 | 28 |
| HLA-A*31:01 | 1 | 550 | 559 | 10 | GVLTESNKKF 0.000329 | 24 |
| HLA-A*02:03 | 1 | 614 | 623 | 10 | DVNCTEVPVA 0.000329 | 24 |
| HLA-A*02:01 | 1 | 659 | 668 | 10 | SYECDIPIGA 0.000329 | 22 |
| HLA-B*15:01 | 1 | 675 | 683 | 9 | QTQTNSPRR 0.000329 | 22 |
| HLA-B*15:01 | 1 | 757 | 765 | 9 | GSFCTQLNR 0.000329 | 22 |
| HLA-B*44:02 | 1 | 761 | 770 | 10 | TQLNRALTGI 0.000329 | 14 |
| HLA-A*30:01 | 1 | 856 | 865 | 10 | NGLTVLPLLL 0.000329 | 41 |
| HLA-B*15:01 | 1 | 1007 | 1016 | 10 | YVTQQLIRAA 0.000329 | 22 |
| HLA-A*30:02 | 1 | 1237 | 1245 | 9 | MTSCCSCLK 0.000329 | 38 |
| HLA-A*32:01 | 1 | 92 | 100 | 9 | FASTEKSNI 0.000328 | 17 |
| HLA-A*68:02 | 1 | 138 | 146 | 9 | DPFLGVYYH 0.000328 | 24 |
| HLA-A*02:01 | 1 | 239 | 247 | 9 | QTLLALHRS 0.000328 | 22 |
| HLA-A*33:01 | 1 | 260 | 269 | 10 | AGAAAYYVGY 0.000328 | 22 |
| HLA-A*02:01 | 1 | 360 | 369 | 10 | NCVADYSVLY 0.000328 | 22 |
| HLA-A*02:01 | 1 | 365 | 374 | 10 | YSVLYNSASF 0.000328 | 22 |
| HLA-B*51:01 | 1 | 381 | 390 | 10 | GVSPTKLNDL 0.000328 | 28 |
| HLA-A*30:02 | 1 | 410 | 419 | 10 | IAPGQTGKIA 0.000328 | 38 |
| HLA-A*33:01 | 1 | 503 | 512 | 10 | VGYPYRVVVV 0.000328 | 22 |
| HLA-A*02:06 | 1 | 599 | 608 | 10 | TPGTNTSNQV 0.000328 | 30 |
| HLA-A*32:01 | 1 | 602 | 611 | 10 | TNTSNQVAVL 0.000328 | 17 |
| HLA-A*23:01 | 1 | 699 | 707 | 9 | LGAENSVAY 0.000328 | 13 |
| HLA-A*11:01 | 1 | 722 | 731 | 10 | VTTEILPVSM 0.000328 | 14 |
| HLA-A*01:01 | 1 | 755 | 763 | 9 | QYGSFCTQL 0.000328 | 28 |
| HLA-A*30:01 | 1 | 889 | 898 | 10 | GAGAALQIPF 0.000328 | 41 |
| HLA-A*31:01 | 1 | 900 | 909 | 10 | MQMAYRFNGI 0.000328 | 24 |
| HLA-B*58:01 | 1 | 948 | 956 | 9 | LQDVVNQNA 0.000328 | 23 |
| HLA-B*40:01 | 1 | 967 | 976 | 10 | SSNFGAISSV 0.000328 | 12 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*02:01 | 1 | 1015 | 1024 | 10 | AAEIRASANL 0.000328 | 22 |
| HLA-B*53:01 | 1 | 1065 | 1073 | 9 | VTYVPAQEK 0.000328 | 15 |
| HLA-B*57:01 | 1 | 1168 | 1176 | 9 | DISGINASV 0.000328 | 31 |
| HLA-A*33:01 | 1 | 1226 | 1234 | 9 | AIVMVTIML 0.000328 | 22 |
| HLA-A*33:01 | 1 | 15 | 23 | 9 | CVNLTRRTQ 0.000327 | 22 |
| HLA-A*02:06 | 1 | 103 | 112 | 10 | GWIFGTTLDS 0.000327 | 30 |
| HLA-A*26:01 | 1 | 125 | 134 | 10 | NVVIKVFCEFQ 0.000327 | 18 |
| HLA-B*44:03 | 1 | 130 | 139 | 10 | VCEFQFCNDP 0.000327 | 13 |
| HLA-B*07:02 | 1 | 152 | 160 | 9 | WMESEFRVY 0.000327 | 20 |
| HLA-A*01:01 | 1 | 205 | 214 | 10 | SKHTPINLVR 0.000327 | 28 |
| HLA-A*30:01 | 1 | 245 | 254 | 10 | HRSYLTPGDS 0.000327 | 41 |
| HLA-A*24:02 | 1 | 421 | 430 | 10 | YNYKLPDDFT 0.000327 | 13 |
| HLA-A*01:01 | 1 | 426 | 434 | 9 | PDDFTGCVI 0.000327 | 28 |
| HLA-A*26:01 | 1 | 465 | 474 | 10 | ERDISTEIQ 0.000327 | 18 |
| HLA-B*58:01 | 1 | 474 | 483 | 10 | QAGSTPCNGV 0.000327 | 23 |
| HLA-B*51:01 | 1 | 561 | 569 | 9 | PFQQFGRDI 0.000327 | 28 |
| HLA-B*44:02 | 1 | 602 | 610 | 9 | TNTSNQVAV 0.000327 | 14 |
| HLA-B*08:01 | 1 | 825 | 833 | 9 | KVTLADAGF 0.000327 | 31 |
| HLA-A*24:02 | 1 | 856 | 864 | 9 | NGLTVLPL 0.000327 | 13 |
| HLA-B*58:01 | 1 | 882 | 891 | 10 | ITSGWTFGAG 0.000327 | 23 |
| HLA-A*02:06 | 1 | 912 | 921 | 10 | TQNVLYENQK 0.000327 | 30 |
| HLA-B*57:01 | 1 | 951 | 960 | 10 | VVNQNAQALN 0.000327 | 31 |
| HLA-B*08:01 | 1 | 992 | 1000 | 9 | QIDRLITGR 0.000327 | 31 |
| HLA-B*51:01 | 1 | 1102 | 1110 | 9 | WFVTQRNFY 0.000327 | 28 |
| HLA-A*01:01 | 1 | 1183 | 1191 | 9 | IDRLNEVAK 0.000327 | 28 |
| HLA-B*07:02 | 1 | 1184 | 1193 | 10 | DRLNEVAKNL 0.000327 | 20 |
| HLA-B*57:01 | 1 | 2 | 11 | 10 | FVFLVLLPLV 0.000326 | 31 |
| HLA-B*08:01 | 1 | 23 | 31 | 9 | QLPPAYTNS 0.000326 | 31 |
| HLA-B*35:01 | 1 | 214 | 223 | 10 | RDLPQGFSAL 0.000326 | 16 |
| HLA-A*30:01 | 1 | 226 | 234 | 9 | LVDLPIGIN 0.000326 | 41 |
| HLA-B*35:01 | 1 | 230 | 238 | 9 | PIGINITRF 0.000326 | 16 |
| HLA-A*30:01 | 1 | 249 | 257 | 9 | LTPGSSSSG 0.000326 | 41 |
| HLA-A*33:01 | 1 | 304 | 313 | 10 | KSFTVEKGIY 0.000326 | 22 |
| HLA-B*15:01 | 1 | 375 | 384 | 10 | STFKCYGVSP 0.000326 | 22 |
| HLA-A*32:01 | 1 | 446 | 455 | 10 | GGNYNYLYRL 0.000326 | 17 |
| HLA-B*44:03 | 1 | 453 | 461 | 9 | YRLFRRKSNL 0.000326 | 13 |
| HLA-A*02:06 | 1 | 465 | 473 | 9 | ERDISTEIQ 0.000326 | 30 |
| HLA-A*02:06 | 1 | 481 | 489 | 9 | NGVEGFNCY 0.000326 | 30 |
| HLA-B*51:01 | 1 | 483 | 492 | 10 | VEGFNCYFPL 0.000326 | 28 |
| HLA-B*08:01 | 1 | 500 | 508 | 9 | TNGVGYQPY 0.000326 | 31 |
| HLA-A*68:02 | 1 | 543 | 552 | 10 | FNGLTGTGVL 0.000326 | 24 |
| HLA-A*23:01 | 1 | 560 | 569 | 10 | LPFQQFGRDI 0.000326 | 13 |
| HLA-B*44:03 | 1 | 603 | 611 | 9 | NTSNQVAVL 0.000326 | 13 |
| HLA-B*51:01 | 1 | 637 | 645 | 9 | STGSNVFQT 0.000326 | 28 |
| HLA-B*58:01 | 1 | 639 | 648 | 10 | GSNVFQTRAG 0.000326 | 23 |
| HLA-A*23:01 | 1 | 698 | 707 | 10 | SLGAENSVAY 0.000326 | 13 |
| HLA-A*24:02 | 1 | 725 | 733 | 9 | EILPVSMTK 0.000326 | 13 |
| HLA-A*30:01 | 1 | 751 | 759 | 9 | NLLLQYGSF 0.000326 | 41 |
| HLA-A*68:01 | 1 | 770 | 779 | 10 | IAVEQDKNTQ 0.000326 | 22 |
| HLA-A*31:01 | 1 | 796 | 804 | 9 | DFGGFNFSQ 0.000326 | 24 |
| HLA-B*53:01 | 1 | 803 | 811 | 9 | SQILPDPSK 0.000326 | 15 |
| HLA-A*68:02 | 1 | 824 | 833 | 10 | NKVTLADAGF 0.000326 | 24 |
| HLA-B*15:01 | 1 | 896 | 905 | 10 | IPFAMQMAYR 0.000326 | 22 |
| HLA-A*26:01 | 1 | 922 | 931 | 10 | LIANQFNSAI 0.000326 | 18 |
| HLA-A*24:02 | 1 | 1004 | 1013 | 10 | LQTYVTQQLI 0.000326 | 13 |
| HLA-A*68:02 | 1 | 1011 | 1019 | 9 | QLIRAAEIR 0.000326 | 24 |
| HLA-A*32:01 | 1 | 1070 | 1078 | 9 | AQEKNFSTA 0.000326 | 17 |
| HLA-A*33:01 | 1 | 1139 | 1148 | 10 | DPLQPELDSF 0.000326 | 22 |
| HLA-A*68:02 | 1 | 1156 | 1164 | 9 | FKNHTSPDV 0.000326 | 24 |
| HLA-B*58:01 | 1 | 1158 | 1167 | 10 | NHTSPDVDLG 0.000326 | 23 |
| HLA-B*15:01 | 1 | 1169 | 1177 | 9 | ISGINASVV 0.000326 | 22 |
| HLA-B*51:01 | 1 | 1188 | 1196 | 9 | EVAKNLNES 0.000326 | 28 |
| HLA-A*32:01 | 1 | 1211 | 1219 | 9 | KWPWYIWL 0.000326 | 17 |
| HLA-B*08:01 | 1 | 1263 | 1272 | 10 | PVLKGVKLHY 0.000326 | 31 |
| HLA-A*30:01 | 1 | 48 | 56 | 9 | LHSTQDLFL 0.000325 | 41 |
| HLA-A*68:01 | 1 | 109 | 118 | 10 | TLDSKTQSL 0.000325 | 22 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*33:01 | 1 | 125 | 134 | 10 | NVVIKVFCEQ 0.000325 | 22 |
| HLA-A*23:01 | 1 | 158 | 166 | 9 | RVYSSANNC 0.000325 | 13 |
| HLA-B*44:02 | 1 | 202 | 210 | 9 | KIYSKHTPI 0.000325 | 14 |
| HLA-A*26:01 | 1 | 268 | 277 | 10 | GYLQPRTFLL 0.000325 | 19 |
| HLA-B*15:01 | 1 | 301 | 310 | 10 | CTLKSFTVEK 0.000325 | 22 |
| HLA-A*30:01 | 1 | 545 | 553 | 9 | GLTGTGVL 0.000325 | 41 |
| HLA-A*30:02 | 1 | 584 | 593 | 10 | ILDITPCSF 0.000325 | 38 |
| HLA-A*02:03 | 1 | 622 | 631 | 10 | VAIHADQLTP 0.000325 | 25 |
| HLA-B*07:02 | 1 | 624 | 632 | 9 | IHADQLTPT 0.000325 | 20 |
| HLA-A*01:01 | 1 | 684 | 693 | 10 | ARSVASQSII 0.000325 | 28 |
| HLA-A*26:01 | 1 | 733 | 742 | 10 | KTSVDCTMYI 0.000325 | 19 |
| HLA-A*26:01 | 1 | 759 | 767 | 9 | FCTQLNRAL 0.000325 | 19 |
| HLA-A*02:06 | 1 | 780 | 789 | 10 | EVFAQVKQIY 0.000325 | 30 |
| HLA-A*03:01 | 1 | 804 | 812 | 9 | QILPDPSPK 0.000325 | 18 |
| HLA-B*15:01 | 1 | 860 | 868 | 9 | VLPPLLTDE 0.000325 | 22 |
| HLA-B*53:01 | 1 | 943 | 952 | 10 | SALGKLQDVV 0.000325 | 15 |
| HLA-A*01:01 | 1 | 976 | 985 | 10 | VLNDILSRLD 0.000325 | 28 |
| HLA-B*53:01 | 1 | 8 | 17 | 10 | LPLVSSQCVN 0.000324 | 15 |
| HLA-A*11:01 | 1 | 36 | 45 | 10 | VYYPDKVFRS 0.000324 | 14 |
| HLA-B*15:01 | 1 | 117 | 126 | 10 | LLIVNNATNV 0.000324 | 23 |
| HLA-A*26:01 | 1 | 132 | 141 | 10 | EFQFCNDPFL 0.000324 | 19 |
| HLA-B*58:01 | 1 | 149 | 157 | 9 | NKSWMESEF 0.000324 | 23 |
| HLA-A*31:01 | 1 | 215 | 223 | 9 | DLPOGFSA 0.000324 | 24 |
| HLA-A*68:02 | 1 | 269 | 278 | 10 | YLQPRTFLLK 0.000324 | 24 |
| HLA-B*44:02 | 1 | 324 | 332 | 9 | ESIVRFPNI 0.000324 | 14 |
| HLA-A*68:02 | 1 | 367 | 376 | 10 | VLYNSASFST 0.000324 | 24 |
| HLA-A*23:01 | 1 | 381 | 390 | 10 | GVSPTKLNDL 0.000324 | 13 |
| HLA-B*58:01 | 1 | 462 | 470 | 9 | KPFERDIST 0.000324 | 23 |
| HLA-A*02:03 | 1 | 482 | 490 | 9 | GVEGFNCYF 0.000324 | 25 |
| HLA-A*30:02 | 1 | 546 | 555 | 10 | LTGTGVLTES 0.000324 | 38 |
| HLA-A*68:01 | 1 | 550 | 559 | 10 | GLVTESNKKF 0.000324 | 22 |
| HLA-A*68:01 | 1 | 584 | 592 | 9 | ILDITPCSF 0.000324 | 22 |
| HLA-A*31:01 | 1 | 751 | 759 | 9 | NLLLQYGSF 0.000324 | 24 |
| HLA-B*58:01 | 1 | 758 | 767 | 10 | SFCTQLNRAL 0.000324 | 23 |
| HLA-A*24:02 | 1 | 880 | 889 | 10 | GTITSGWTFG 0.000324 | 13 |
| HLA-A*02:06 | 1 | 904 | 913 | 10 | YRFNGIVTQ 0.000324 | 30 |
| HLA-B*44:03 | 1 | 968 | 977 | 10 | SNFGAISSVL 0.000324 | 13 |
| HLA-A*02:03 | 1 | 1143 | 1152 | 10 | PELDSFKEEL 0.000324 | 25 |
| HLA-B*53:01 | 1 | 1146 | 1154 | 9 | DSFKEELDK 0.000324 | 15 |
| HLA-A*02:06 | 1 | 1151 | 1160 | 10 | ELDKYFKNHT 0.000324 | 30 |
| HLA-A*02:01 | 1 | 1197 | 1206 | 10 | LIDLQELGKY 0.000324 | 22 |
| HLA-A*33:01 | 1 | 1216 | 1225 | 10 | IWLGFIAGLI 0.000324 | 22 |
| HLA-A*31:01 | 1 | 1219 | 1228 | 10 | GFIAGLIAIV 0.000324 | 24 |
| HLA-A*26:01 | 1 | 15 | 23 | 9 | CVNLTRRTQ 0.000323 | 19 |
| HLA-A*68:01 | 1 | 22 | 30 | 9 | TQLPPAYTN 0.000323 | 22 |
| HLA-B*51:01 | 1 | 22 | 30 | 9 | TQLPPAYTN 0.000323 | 28 |
| HLA-A*11:01 | 1 | 60 | 68 | 9 | SNVTWFHAI 0.000323 | 14 |
| HLA-A*30:02 | 1 | 64 | 72 | 9 | WFHAIHVSG 0.000323 | 38 |
| HLA-A*30:01 | 1 | 84 | 92 | 9 | LPFNDGVYF 0.000323 | 41 |
| HLA-A*01:01 | 1 | 310 | 319 | 10 | KGIYQTSNFR 0.000323 | 28 |
| HLA-B*35:01 | 1 | 320 | 328 | 9 | VQPTESIVR 0.000323 | 16 |
| HLA-A*32:01 | 1 | 374 | 382 | 9 | FSTFKCYGV 0.000323 | 17 |
| HLA-A*68:02 | 1 | 493 | 502 | 10 | QSYGFQPTNG 0.000323 | 24 |
| HLA-B*57:01 | 1 | 544 | 552 | 9 | NGLTGTGVL 0.000323 | 31 |
| HLA-A*01:01 | 1 | 562 | 570 | 9 | FQQFGRDIA 0.000323 | 28 |
| HLA-B*51:01 | 1 | 809 | 818 | 10 | PSKPSKRSFI 0.000323 | 28 |
| HLA-B*15:01 | 1 | 826 | 835 | 10 | VTLADAGFIK 0.000323 | 23 |
| HLA-A*02:06 | 1 | 845 | 853 | 9 | AARDLICAQ 0.000323 | 30 |
| HLA-A*02:03 | 1 | 855 | 864 | 10 | FNGLTVLPPL 0.000323 | 25 |
| HLA-B*15:01 | 1 | 913 | 922 | 10 | QNVLYENQKL 0.000323 | 23 |
| HLA-A*01:01 | 1 | 947 | 955 | 9 | KLQDVVNQN 0.000323 | 28 |
| HLA-B*07:02 | 1 | 964 | 973 | 10 | KQLSSNFGAI 0.000323 | 20 |
| HLA-B*07:02 | 1 | 982 | 991 | 10 | SRLDKVEAEV 0.000323 | 20 |
| HLA-A*26:01 | 1 | 1002 | 1010 | 9 | QSLQTYVTQ 0.000323 | 19 |
| HLA-A*68:02 | 1 | 1016 | 1025 | 10 | AEIRASANLA 0.000323 | 24 |
| HLA-A*33:01 | 1 | 1039 | 1047 | 9 | RVDFCGKGY 0.000323 | 22 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|----------|----|
| HLA-A*24:02 | 1 | 1070 | 1078 | 9 | AQEKNFSTA | 0.000323 | 13 |
| HLA-A*24:02 | 1 | 1074 | 1082 | 9 | NFTTAPAIC | 0.000323 | 13 |
| HLA-A*24:02 | 1 | 1130 | 1138 | 9 | IGIVNNTVY | 0.000323 | 13 |
| HLA-A*23:01 | 1 | 1146 | 1155 | 10 | DSFKEELDKY | 0.000323 | 13 |
| HLA-B*58:01 | 1 | 1172 | 1180 | 9 | INASVVNIQ | 0.000323 | 23 |
| HLA-A*02:01 | 1 | 1204 | 1212 | 9 | GKYEQYIKW | 0.000323 | 22 |
| HLA-B*15:01 | 1 | 100 | 108 | 9 | IIRGWIFGT | 0.000322 | 23 |
| HLA-A*01:01 | 1 | 185 | 193 | 9 | NFKNLREFV | 0.000322 | 28 |
| HLA-B*40:01 | 1 | 226 | 235 | 10 | LVDLPIGINI | 0.000322 | 12 |
| HLA-A*31:01 | 1 | 227 | 235 | 9 | VDLPIGINI | 0.000322 | 24 |
| HLA-A*33:01 | 1 | 238 | 247 | 10 | FQTLALHRS | 0.000322 | 22 |
| HLA-B*15:01 | 1 | 317 | 326 | 10 | NFRVQPTESI | 0.000322 | 23 |
| HLA-A*31:01 | 1 | 416 | 425 | 10 | GKIADYNYKL | 0.000322 | 24 |
| HLA-A*31:01 | 1 | 521 | 529 | 9 | PATVCGPKK | 0.000322 | 24 |
| HLA-A*24:02 | 1 | 542 | 551 | 10 | NFNGLTGTGV | 0.000322 | 13 |
| HLA-A*01:01 | 1 | 547 | 555 | 9 | TGTGVLTES | 0.000322 | 28 |
| HLA-A*02:01 | 1 | 591 | 600 | 10 | SFGGVSIVTP | 0.000322 | 22 |
| HLA-A*03:01 | 1 | 637 | 645 | 9 | STGSNVFQT | 0.000322 | 18 |
| HLA-B*08:01 | 1 | 659 | 668 | 10 | SYECDIPIGA | 0.000322 | 31 |
| HLA-B*51:01 | 1 | 703 | 711 | 9 | NSVAYSNNS | 0.000322 | 28 |
| HLA-B*57:01 | 1 | 711 | 719 | 9 | SIAIPTNFT | 0.000322 | 31 |
| HLA-A*02:03 | 1 | 731 | 739 | 9 | MTKTSVDCT | 0.000322 | 25 |
| HLA-B*53:01 | 1 | 750 | 759 | 10 | SNLLLQYGSF | 0.000322 | 15 |
| HLA-B*57:01 | 1 | 778 | 786 | 9 | TQEVFAQVK | 0.000322 | 31 |
| HLA-B*07:02 | 1 | 782 | 790 | 9 | FAQVKQIYK | 0.000322 | 20 |
| HLA-B*35:01 | 1 | 817 | 825 | 9 | FIEDLLFNK | 0.000322 | 16 |
| HLA-A*11:01 | 1 | 825 | 833 | 9 | KVTLADAGF | 0.000322 | 14 |
| HLA-A*24:02 | 1 | 853 | 861 | 9 | QKFNGLTVL | 0.000322 | 13 |
| HLA-A*30:02 | 1 | 856 | 865 | 10 | NGLTVLPLLL | 0.000322 | 38 |
| HLA-B*08:01 | 1 | 947 | 956 | 10 | KLQDVVNQNA | 0.000322 | 31 |
| HLA-B*15:01 | 1 | 1019 | 1027 | 9 | RASANLAAT | 0.000322 | 23 |
| HLA-B*15:01 | 1 | 1023 | 1031 | 9 | NLAATKMSE | 0.000322 | 23 |
| HLA-A*68:01 | 1 | 1028 | 1036 | 9 | KMSECVLGG | 0.000322 | 22 |
| HLA-B*40:01 | 1 | 1052 | 1061 | 10 | FPQSAPHGVV | 0.000322 | 12 |
| HLA-A*01:01 | 1 | 1056 | 1065 | 10 | APHGVVFLHV | 0.000322 | 28 |
| HLA-A*23:01 | 1 | 1061 | 1070 | 10 | VFLHVTVVPA | 0.000322 | 14 |
| HLA-B*07:02 | 1 | 1106 | 1114 | 9 | QRNFYEPQI | 0.000322 | 20 |
| HLA-B*51:01 | 1 | 1147 | 1156 | 10 | SFKEELDKYF | 0.000322 | 28 |
| HLA-A*32:01 | 1 | 1148 | 1156 | 9 | FKEELDKYF | 0.000322 | 17 |
| HLA-A*02:06 | 1 | 1167 | 1175 | 9 | GDISGINAS | 0.000322 | 30 |
| HLA-A*24:02 | 1 | 1173 | 1181 | 9 | NASVVNIQK | 0.000322 | 13 |
| HLA-A*24:02 | 1 | 1256 | 1265 | 10 | FDEDDSEPVL | 0.000322 | 13 |
| HLA-B*53:01 | 1 | 15 | 23 | 9 | CVNLTRTRQ | 0.000321 | 15 |
| HLA-B*44:03 | 1 | 34 | 43 | 10 | RGVYYPDKVF | 0.000321 | 13 |
| HLA-B*08:01 | 1 | 64 | 73 | 10 | WFHAIHVSQT | 0.000321 | 31 |
| HLA-A*33:01 | 1 | 161 | 169 | 9 | SSANNCTFE | 0.000321 | 22 |
| HLA-A*03:01 | 1 | 203 | 212 | 10 | IYSKHTPINL | 0.000321 | 18 |
| HLA-B*51:01 | 1 | 316 | 324 | 9 | SNFRVQPTI | 0.000321 | 29 |
| HLA-A*31:01 | 1 | 352 | 361 | 10 | AWNKRKRISNC | 0.000321 | 24 |
| HLA-B*51:01 | 1 | 443 | 452 | 10 | SKVGGNYNYL | 0.000321 | 29 |
| HLA-A*31:01 | 1 | 456 | 464 | 9 | FRKSNLKPFL | 0.000321 | 24 |
| HLA-A*24:02 | 1 | 551 | 560 | 10 | VLTESNKKFL | 0.000321 | 13 |
| HLA-A*30:02 | 1 | 735 | 743 | 9 | SVDCTMYIC | 0.000321 | 38 |
| HLA-A*30:01 | 1 | 739 | 747 | 9 | TMYICGDST | 0.000321 | 41 |
| HLA-B*44:02 | 1 | 774 | 783 | 10 | QDKNTQEVFA | 0.000321 | 14 |
| HLA-A*11:01 | 1 | 881 | 890 | 10 | TITSGWTFGA | 0.000321 | 14 |
| HLA-A*30:01 | 1 | 924 | 932 | 9 | ANQFNLSAIG | 0.000321 | 41 |
| HLA-A*02:06 | 1 | 982 | 990 | 9 | SRLDKVEAE | 0.000321 | 30 |
| HLA-B*53:01 | 1 | 1003 | 1012 | 10 | SLQTYVTQQL | 0.000321 | 15 |
| HLA-A*23:01 | 1 | 1005 | 1014 | 10 | QTYVTQQLIR | 0.000321 | 14 |
| HLA-B*08:01 | 1 | 1055 | 1064 | 10 | SAPHGVVFLH | 0.000321 | 31 |
| HLA-A*02:03 | 1 | 1132 | 1140 | 9 | IVNNTVYDP | 0.000321 | 25 |
| HLA-A*33:01 | 1 | 1229 | 1237 | 9 | MVTIMLCCM | 0.000321 | 22 |
| HLA-A*31:01 | 1 | 61 | 70 | 10 | NVTWFHAIHV | 0.00032 | 24 |
| HLA-A*02:06 | 1 | 151 | 160 | 10 | SWMESEFRVY | 0.00032 | 30 |
| HLA-A*02:03 | 1 | 228 | 237 | 10 | DLPIGINITR | 0.00032 | 25 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|----------|----|
| HLA-B*58:01 | 1 | 351 | 359 | 9 | YAWNRKRIS | 0.00032 | 23 |
| HLA-A*68:01 | 1 | 662 | 670 | 9 | CDIPIGAGI | 0.00032 | 22 |
| HLA-A*32:01 | 1 | 766 | 774 | 9 | ALTGIAVEQ | 0.00032 | 17 |
| HLA-A*30:02 | 1 | 874 | 883 | 10 | TSALLAGTIT | 0.00032 | 38 |
| HLA-B*57:01 | 1 | 889 | 897 | 9 | GAGAALQIP | 0.00032 | 31 |
| HLA-A*31:01 | 1 | 891 | 899 | 9 | GAALQIPFA | 0.00032 | 24 |
| HLA-B*57:01 | 1 | 944 | 952 | 9 | ALGKLQDVV | 0.00032 | 31 |
| HLA-B*58:01 | 1 | 987 | 995 | 9 | VEAEVQIDR | 0.00032 | 23 |
| HLA-A*30:02 | 1 | 1026 | 1035 | 10 | ATKMSECVLG | 0.00032 | 38 |
| HLA-A*31:01 | 1 | 1047 | 1056 | 10 | YHLMSFPQSA | 0.00032 | 24 |
| HLA-B*44:03 | 1 | 1124 | 1132 | 9 | GNCDVVIGI | 0.00032 | 13 |
| HLA-B*35:01 | 1 | 1215 | 1223 | 9 | YIWLGFIAI | 0.00032 | 16 |
| HLA-A*30:02 | 1 | 1224 | 1233 | 10 | LIAIVMVTIM | 0.00032 | 38 |
| HLA-A*68:02 | 1 | 1224 | 1233 | 10 | LIAIVMVTIM | 0.00032 | 24 |
| HLA-A*01:01 | 1 | 43 | 51 | 9 | FRSSVLHST | 0.000319 | 28 |
| HLA-B*44:03 | 1 | 46 | 54 | 9 | SVLHSTQDL | 0.000319 | 13 |
| HLA-A*02:03 | 1 | 193 | 201 | 9 | VFKNIDGYF | 0.000319 | 25 |
| HLA-A*01:01 | 1 | 194 | 202 | 9 | FKNIDGYFK | 0.000319 | 28 |
| HLA-A*24:02 | 1 | 205 | 213 | 9 | SKHTPINLV | 0.000319 | 13 |
| HLA-A*68:02 | 1 | 279 | 288 | 10 | YNENGTITDA | 0.000319 | 25 |
| HLA-A*32:01 | 1 | 309 | 318 | 10 | EKGIYQTSNF | 0.000319 | 17 |
| HLA-A*68:01 | 1 | 313 | 321 | 9 | YQTSNFRVQ | 0.000319 | 22 |
| HLA-B*40:01 | 1 | 333 | 342 | 10 | TNLCPFGEVF | 0.000319 | 12 |
| HLA-A*30:02 | 1 | 340 | 349 | 10 | EVFNATRFAS | 0.000319 | 38 |
| HLA-A*68:01 | 1 | 372 | 381 | 10 | ASFSTFKCYG | 0.000319 | 22 |
| HLA-B*40:01 | 1 | 441 | 449 | 9 | LDSKVGNGY | 0.000319 | 12 |
| HLA-B*40:01 | 1 | 503 | 511 | 9 | VGYPYRVV | 0.000319 | 12 |
| HLA-A*01:01 | 1 | 615 | 623 | 9 | VNCTEVPVA | 0.000319 | 28 |
| HLA-A*03:01 | 1 | 629 | 637 | 9 | LTPTWRVYS | 0.000319 | 19 |
| HLA-A*02:03 | 1 | 647 | 656 | 10 | AGCLIGAEHV | 0.000319 | 25 |
| HLA-B*35:01 | 1 | 707 | 715 | 9 | YSNNSIAIP | 0.000319 | 16 |
| HLA-B*51:01 | 1 | 711 | 719 | 9 | SIAIPTNFT | 0.000319 | 29 |
| HLA-A*33:01 | 1 | 776 | 785 | 10 | KNTQEVFAQV | 0.000319 | 22 |
| HLA-B*08:01 | 1 | 785 | 793 | 9 | VKQIYKTPP | 0.000319 | 31 |
| HLA-A*02:06 | 1 | 813 | 822 | 10 | SKRSFIEDLL | 0.000319 | 30 |
| HLA-B*07:02 | 1 | 846 | 855 | 10 | ARDLICAQKF | 0.000319 | 20 |
| HLA-A*68:02 | 1 | 855 | 864 | 10 | FNGLTVLPPL | 0.000319 | 25 |
| HLA-B*08:01 | 1 | 933 | 942 | 10 | KIQDSLSSSTA | 0.000319 | 31 |
| HLA-B*08:01 | 1 | 988 | 997 | 10 | EAEVQIDRLI | 0.000319 | 31 |
| HLA-A*31:01 | 1 | 1051 | 1059 | 9 | SFPQSAPHG | 0.000319 | 24 |
| HLA-B*08:01 | 1 | 1060 | 1069 | 10 | VVFLHVTVYP | 0.000319 | 31 |
| HLA-A*24:02 | 1 | 1065 | 1074 | 10 | VTYVPAQEK | 0.000319 | 13 |
| HLA-A*30:02 | 1 | 1100 | 1108 | 9 | THWFVTQRN | 0.000319 | 38 |
| HLA-A*23:01 | 1 | 1213 | 1222 | 10 | PWYIWLGFIA | 0.000319 | 14 |
| HLA-A*02:03 | 1 | 17 | 26 | 10 | NLTTTRTQLP | 0.000318 | 25 |
| HLA-A*30:02 | 1 | 17 | 25 | 9 | NLTTTRTQLP | 0.000318 | 38 |
| HLA-B*53:01 | 1 | 49 | 57 | 9 | HSTQDLFLP | 0.000318 | 15 |
| HLA-A*30:02 | 1 | 156 | 164 | 9 | EFRVYSSAN | 0.000318 | 38 |
| HLA-B*51:01 | 1 | 161 | 170 | 10 | SSANNCTFEY | 0.000318 | 29 |
| HLA-A*30:02 | 1 | 172 | 180 | 9 | SQPFLMDLE | 0.000318 | 38 |
| HLA-A*03:01 | 1 | 227 | 235 | 9 | VDLPIGINI | 0.000318 | 19 |
| HLA-B*40:01 | 1 | 229 | 238 | 10 | LPIGINITRF | 0.000318 | 13 |
| HLA-B*51:01 | 1 | 252 | 260 | 9 | GDSSSGWTA | 0.000318 | 29 |
| HLA-A*02:06 | 1 | 276 | 284 | 9 | LLKYNENGT | 0.000318 | 30 |
| HLA-B*15:01 | 1 | 291 | 299 | 9 | CALDPLSET | 0.000318 | 23 |
| HLA-B*15:01 | 1 | 312 | 321 | 10 | IYQTSNFRVQ | 0.000318 | 23 |
| HLA-B*51:01 | 1 | 347 | 356 | 10 | FASVYAWNRK | 0.000318 | 29 |
| HLA-B*07:02 | 1 | 382 | 391 | 10 | VSPTKLNDLC | 0.000318 | 20 |
| HLA-A*26:01 | 1 | 502 | 510 | 9 | GVGYQPYRV | 0.000318 | 19 |
| HLA-B*57:01 | 1 | 525 | 534 | 10 | CGPKKSTNLV | 0.000318 | 31 |
| HLA-A*11:01 | 1 | 617 | 626 | 10 | CTEVPVAIHA | 0.000318 | 15 |
| HLA-A*26:01 | 1 | 673 | 682 | 10 | SYQTQTNSPR | 0.000318 | 19 |
| HLA-A*30:02 | 1 | 678 | 686 | 9 | TNSPRRARS | 0.000318 | 38 |
| HLA-A*01:01 | 1 | 774 | 783 | 10 | QDKNTQEVFA | 0.000318 | 28 |
| HLA-B*15:01 | 1 | 835 | 843 | 9 | KQYGDCLGD | 0.000318 | 23 |
| HLA-A*24:02 | 1 | 846 | 854 | 9 | ARDLICAQK | 0.000318 | 13 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*01:01 | 1 | 897 | 906 | 10 | PFAMQMAYRF 0.000318 | 28 |
| HLA-A*01:01 | 1 | 913 | 921 | 9 | QNVLYENQK 0.000318 | 28 |
| HLA-A*30:01 | 1 | 913 | 922 | 10 | QNVLYENQKL 0.000318 | 41 |
| HLA-B*08:01 | 1 | 939 | 948 | 10 | SSTASALGKL 0.000318 | 31 |
| HLA-A*24:02 | 1 | 1005 | 1014 | 10 | QTYVTQQLIR 0.000318 | 13 |
| HLA-B*15:01 | 1 | 1052 | 1060 | 9 | FPQSAPHGV 0.000318 | 23 |
| HLA-A*01:01 | 1 | 1104 | 1113 | 10 | VTQRNFYEPQ 0.000318 | 28 |
| HLA-B*08:01 | 1 | 81 | 89 | 9 | NPVLPFNDG 0.000317 | 31 |
| HLA-A*23:01 | 1 | 97 | 105 | 9 | KSNIIRGWI 0.000317 | 14 |
| HLA-B*08:01 | 1 | 125 | 134 | 10 | NVVIKVCEFQ 0.000317 | 31 |
| HLA-A*01:01 | 1 | 153 | 162 | 10 | MESEFRVYSS 0.000317 | 28 |
| HLA-A*03:01 | 1 | 155 | 163 | 9 | SEFRVYSSA 0.000317 | 19 |
| HLA-B*53:01 | 1 | 203 | 212 | 10 | IYSKHTPINL 0.000317 | 15 |
| HLA-A*01:01 | 1 | 249 | 257 | 9 | LTPGDSSSG 0.000317 | 28 |
| HLA-A*03:01 | 1 | 424 | 433 | 10 | KLPDDFTGCV 0.000317 | 19 |
| HLA-A*30:01 | 1 | 469 | 478 | 10 | STEIYQAGST 0.000317 | 41 |
| HLA-A*26:01 | 1 | 588 | 597 | 10 | TPCSFGGVSV 0.000317 | 19 |
| HLA-B*40:01 | 1 | 711 | 720 | 10 | SIAIPTNFTI 0.000317 | 13 |
| HLA-A*23:01 | 1 | 740 | 748 | 9 | MYICGDSTE 0.000317 | 14 |
| HLA-A*02:06 | 1 | 744 | 752 | 9 | GDSTECSNL 0.000317 | 30 |
| HLA-A*32:01 | 1 | 792 | 800 | 9 | PPIKDFGGF 0.000317 | 17 |
| HLA-A*30:01 | 1 | 822 | 830 | 9 | LFNKVTLAD 0.000317 | 41 |
| HLA-B*40:01 | 1 | 999 | 1008 | 10 | GRLQSLQTYV 0.000317 | 13 |
| HLA-B*51:01 | 1 | 1001 | 1009 | 9 | LQSLQTYVT 0.000317 | 29 |
| HLA-B*15:01 | 1 | 1040 | 1049 | 10 | VDFCGKGYHL 0.000317 | 23 |
| HLA-A*11:01 | 1 | 1094 | 1102 | 9 | VFVSNGTHW 0.000317 | 15 |
| HLA-B*58:01 | 1 | 1132 | 1140 | 9 | IVNNTVYDP 0.000317 | 23 |
| HLA-A*30:02 | 1 | 1202 | 1211 | 10 | ELGKYEQYIK 0.000317 | 39 |
| HLA-A*02:06 | 1 | 53 | 61 | 9 | DLFLPFFSN 0.000316 | 30 |
| HLA-A*68:01 | 1 | 160 | 169 | 10 | YSSANNCTFE 0.000316 | 22 |
| HLA-A*02:06 | 1 | 212 | 221 | 10 | LVRDLPQGF5 0.000316 | 30 |
| HLA-A*02:03 | 1 | 323 | 332 | 10 | TESIVRFPNI 0.000316 | 25 |
| HLA-B*58:01 | 1 | 375 | 383 | 9 | STFKCYGVS 0.000316 | 23 |
| HLA-A*33:01 | 1 | 388 | 396 | 9 | NDLCFTNVY 0.000316 | 22 |
| HLA-A*02:06 | 1 | 399 | 408 | 10 | SFVIRGDEV 0.000316 | 30 |
| HLA-A*01:01 | 1 | 417 | 426 | 10 | KIADYNYKLP 0.000316 | 29 |
| HLA-B*53:01 | 1 | 444 | 452 | 9 | KVGGNYNYL 0.000316 | 15 |
| HLA-A*03:01 | 1 | 481 | 489 | 9 | NGVEGFNCY 0.000316 | 19 |
| HLA-B*15:01 | 1 | 517 | 526 | 10 | LLHAPATVCG 0.000316 | 23 |
| HLA-A*30:01 | 1 | 577 | 585 | 9 | RDPQTLLEIL 0.000316 | 41 |
| HLA-A*03:01 | 1 | 603 | 611 | 9 | NTSNQVAVL 0.000316 | 19 |
| HLA-B*40:01 | 1 | 718 | 727 | 10 | FTISVTTEIL 0.000316 | 13 |
| HLA-B*58:01 | 1 | 778 | 786 | 9 | TQEVFAQVK 0.000316 | 23 |
| HLA-A*02:06 | 1 | 823 | 831 | 9 | FNKVTLADA 0.000316 | 30 |
| HLA-A*24:02 | 1 | 864 | 873 | 10 | LLTDEMIAQY 0.000316 | 13 |
| HLA-B*08:01 | 1 | 962 | 971 | 10 | LVKQLSSNFG 0.000316 | 31 |
| HLA-A*68:01 | 1 | 969 | 977 | 9 | NFGAISSVL 0.000316 | 22 |
| HLA-B*58:01 | 1 | 993 | 1001 | 9 | IDRLITGRL 0.000316 | 23 |
| HLA-B*44:03 | 1 | 1065 | 1073 | 9 | VTYVPAQEK 0.000316 | 13 |
| HLA-B*08:01 | 1 | 1075 | 1083 | 9 | FTTAPAICH 0.000316 | 31 |
| HLA-A*30:01 | 1 | 1121 | 1129 | 9 | FVSGNCDVV 0.000316 | 41 |
| HLA-A*02:06 | 1 | 1157 | 1166 | 10 | KNHTSPDVL 0.000316 | 30 |
| HLA-B*51:01 | 1 | 1217 | 1226 | 10 | WLGFIAGLIA 0.000316 | 29 |
| HLA-B*07:02 | 1 | 97 | 106 | 10 | KSNIIRGWIF 0.000315 | 20 |
| HLA-B*07:02 | 1 | 269 | 278 | 10 | YLPRTFLLK 0.000315 | 20 |
| HLA-A*30:01 | 1 | 334 | 342 | 9 | NLCPFGEVF 0.000315 | 41 |
| HLA-A*31:01 | 1 | 399 | 407 | 9 | SFVIRGDEV 0.000315 | 24 |
| HLA-B*40:01 | 1 | 448 | 456 | 9 | NYNYLYRLF 0.000315 | 13 |
| HLA-A*68:01 | 1 | 555 | 564 | 10 | SNKKFLPFQ 0.000315 | 22 |
| HLA-B*08:01 | 1 | 630 | 639 | 10 | TPTWRVYSTG 0.000315 | 31 |
| HLA-B*15:01 | 1 | 637 | 646 | 10 | STGSNVFQTR 0.000315 | 23 |
| HLA-B*53:01 | 1 | 643 | 651 | 9 | FQTRAGCLI 0.000315 | 15 |
| HLA-A*30:01 | 1 | 662 | 670 | 9 | CDIPIGAGI 0.000315 | 41 |
| HLA-A*68:01 | 1 | 765 | 773 | 9 | RALTGIAVE 0.000315 | 22 |
| HLA-B*15:01 | 1 | 776 | 785 | 10 | KNTQEVFAQV 0.000315 | 23 |
| HLA-A*30:01 | 1 | 785 | 793 | 9 | VKQIYKTPP 0.000315 | 41 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*07:02 | 1 | 791 | 799 | 9 | TPPIKDFGG 0.000315 | 20 |
| HLA-A*68:01 | 1 | 804 | 813 | 10 | QILPDPSKPS 0.000315 | 22 |
| HLA-A*02:06 | 1 | 816 | 824 | 9 | SFIEDLLFN 0.000315 | 30 |
| HLA-A*02:03 | 1 | 886 | 895 | 10 | WTFGAGAALQ 0.000315 | 25 |
| HLA-A*30:01 | 1 | 916 | 925 | 10 | LYENQKLIAN 0.000315 | 41 |
| HLA-B*44:03 | 1 | 953 | 961 | 9 | NQNAQALNT 0.000315 | 13 |
| HLA-A*02:06 | 1 | 955 | 964 | 10 | NAQALNTLVK 0.000315 | 30 |
| HLA-B*35:01 | 1 | 955 | 964 | 10 | NAQALNTLVK 0.000315 | 16 |
| HLA-A*03:01 | 1 | 1049 | 1057 | 9 | LMSFPQSAP 0.000315 | 19 |
| HLA-A*68:01 | 1 | 1056 | 1065 | 10 | APHGVVFLHV 0.000315 | 22 |
| HLA-A*68:01 | 1 | 1063 | 1072 | 10 | LHVTVVPAQE 0.000315 | 22 |
| HLA-A*01:01 | 1 | 1078 | 1086 | 9 | APAICHDGK 0.000315 | 29 |
| HLA-A*02:01 | 1 | 1139 | 1148 | 10 | DPLQPELDSF 0.000315 | 22 |
| HLA-B*40:01 | 1 | 1147 | 1155 | 9 | SFKEELDKY 0.000315 | 13 |
| HLA-B*08:01 | 1 | 1257 | 1266 | 10 | DEDDSEPVLK 0.000315 | 31 |
| HLA-B*51:01 | 1 | 11 | 19 | 9 | VSSQCVNLT 0.000314 | 29 |
| HLA-B*07:02 | 1 | 95 | 104 | 10 | TEKSNIIRGW 0.000314 | 20 |
| HLA-A*30:01 | 1 | 124 | 132 | 9 | TNVVIKVCE 0.000314 | 41 |
| HLA-A*23:01 | 1 | 162 | 170 | 9 | SANNCTFEY 0.000314 | 14 |
| HLA-A*24:02 | 1 | 199 | 208 | 10 | GYFKIYSKHT 0.000314 | 13 |
| HLA-A*24:02 | 1 | 226 | 235 | 10 | LVDLPIGINI 0.000314 | 13 |
| HLA-A*68:02 | 1 | 240 | 248 | 9 | TLLALHRSY 0.000314 | 25 |
| HLA-B*35:01 | 1 | 288 | 296 | 9 | AVDCALDPL 0.000314 | 16 |
| HLA-B*40:01 | 1 | 392 | 400 | 9 | FTNVYADSF 0.000314 | 13 |
| HLA-B*08:01 | 1 | 513 | 522 | 10 | LSFELLHAPA 0.000314 | 31 |
| HLA-A*03:01 | 1 | 597 | 605 | 9 | VITPGTNTS 0.000314 | 19 |
| HLA-A*32:01 | 1 | 672 | 681 | 10 | ASYQTQTNSP 0.000314 | 17 |
| HLA-A*02:06 | 1 | 771 | 780 | 10 | AVEQDKNTQE 0.000314 | 30 |
| HLA-B*57:01 | 1 | 923 | 932 | 10 | IANQFNSAIG 0.000314 | 31 |
| HLA-B*51:01 | 1 | 933 | 942 | 10 | KIQDLSLSTA 0.000314 | 29 |
| HLA-A*01:01 | 1 | 1067 | 1076 | 10 | YVPAQEKFT 0.000314 | 29 |
| HLA-B*51:01 | 1 | 1092 | 1101 | 10 | EGVFSVNGTH 0.000314 | 29 |
| HLA-A*02:03 | 1 | 1115 | 1123 | 9 | ITTDNTFVS 0.000314 | 25 |
| HLA-A*01:01 | 1 | 1133 | 1141 | 9 | VNNTVYDPL 0.000314 | 29 |
| HLA-A*02:01 | 1 | 1255 | 1263 | 9 | KFDEDDSEP 0.000314 | 22 |
| HLA-A*30:02 | 1 | 59 | 68 | 10 | FSNVTWFHAI 0.000313 | 39 |
| HLA-A*30:01 | 1 | 83 | 91 | 9 | VLPFNDGVY 0.000313 | 41 |
| HLA-A*26:01 | 1 | 115 | 123 | 9 | QSLLIWNNA 0.000313 | 19 |
| HLA-B*07:02 | 1 | 135 | 144 | 10 | FCNDPFLGVY 0.000313 | 20 |
| HLA-B*53:01 | 1 | 155 | 163 | 9 | SEFRVYSSA 0.000313 | 15 |
| HLA-B*08:01 | 1 | 210 | 218 | 9 | INLVRDLPO 0.000313 | 32 |
| HLA-A*02:06 | 1 | 237 | 246 | 10 | RFQTLALHR 0.000313 | 30 |
| HLA-A*68:01 | 1 | 309 | 318 | 10 | EKGIYQTSNF 0.000313 | 22 |
| HLA-A*02:01 | 1 | 314 | 322 | 9 | QTSNFRVQP 0.000313 | 22 |
| HLA-A*02:06 | 1 | 436 | 445 | 10 | WNSNNLDSKV 0.000313 | 30 |
| HLA-B*44:02 | 1 | 447 | 456 | 10 | GNYNLYRLF 0.000313 | 14 |
| HLA-A*30:02 | 1 | 474 | 482 | 9 | QAGSTPCNG 0.000313 | 39 |
| HLA-B*51:01 | 1 | 498 | 506 | 9 | QPTNGVGYQ 0.000313 | 29 |
| HLA-A*01:01 | 1 | 507 | 515 | 9 | PYRVVLSF 0.000313 | 29 |
| HLA-B*40:01 | 1 | 552 | 561 | 10 | LTESNKKFLP 0.000313 | 13 |
| HLA-B*35:01 | 1 | 572 | 580 | 9 | TTDAVRDPQ 0.000313 | 16 |
| HLA-B*57:01 | 1 | 588 | 597 | 10 | TPCSFGGVSV 0.000313 | 31 |
| HLA-B*15:01 | 1 | 620 | 629 | 10 | VPVAIHADQL 0.000313 | 23 |
| HLA-B*57:01 | 1 | 657 | 666 | 10 | NNSYECDIPI 0.000313 | 31 |
| HLA-A*68:02 | 1 | 698 | 706 | 9 | SLGAENSV 0.000313 | 25 |
| HLA-B*15:01 | 1 | 747 | 755 | 9 | TECSNLLLQ 0.000313 | 23 |
| HLA-A*32:01 | 1 | 813 | 821 | 9 | SKRSFIEDL 0.000313 | 17 |
| HLA-B*57:01 | 1 | 813 | 822 | 10 | SKRSFIEDLL 0.000313 | 31 |
| HLA-B*15:01 | 1 | 814 | 822 | 9 | KRSFIEDLL 0.000313 | 23 |
| HLA-B*08:01 | 1 | 830 | 838 | 9 | DAGFIKQYG 0.000313 | 32 |
| HLA-A*11:01 | 1 | 933 | 942 | 10 | KIQDLSLSTA 0.000313 | 15 |
| HLA-B*08:01 | 1 | 954 | 963 | 10 | QNAQALNTLV 0.000313 | 32 |
| HLA-A*31:01 | 1 | 1000 | 1009 | 10 | RLQSLQTYVT 0.000313 | 24 |
| HLA-A*31:01 | 1 | 1007 | 1015 | 9 | YVTQLLIRA 0.000313 | 24 |
| HLA-A*03:01 | 1 | 1012 | 1020 | 9 | LIRAAEIRA 0.000313 | 19 |
| HLA-B*40:01 | 1 | 1109 | 1117 | 9 | FYEPQIITT 0.000313 | 13 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*26:01 | 1 | 59 | 68 | 10 | FSNVTWFHAI 0.000312 | 19 |
| HLA-A*30:01 | 1 | 70 | 79 | 10 | VSGTNGTKRF 0.000312 | 42 |
| HLA-B*40:01 | 1 | 217 | 226 | 10 | PQGFSALEPL 0.000312 | 13 |
| HLA-B*15:01 | 1 | 233 | 242 | 10 | INITRFQTL 0.000312 | 23 |
| HLA-A*68:02 | 1 | 246 | 255 | 10 | RSYLTPGDSS 0.000312 | 25 |
| HLA-B*51:01 | 1 | 380 | 388 | 9 | YGVSPTKLN 0.000312 | 29 |
| HLA-B*15:01 | 1 | 400 | 409 | 10 | FVIRGDEVQR 0.000312 | 23 |
| HLA-A*24:02 | 1 | 579 | 587 | 9 | PQTLEILDI 0.000312 | 13 |
| HLA-A*01:01 | 1 | 666 | 675 | 10 | IGAGICASYQ 0.000312 | 29 |
| HLA-B*57:01 | 1 | 693 | 702 | 10 | IAYTMSLGAE 0.000312 | 31 |
| HLA-A*32:01 | 1 | 696 | 705 | 10 | TMSLGAENSV 0.000312 | 17 |
| HLA-A*33:01 | 1 | 722 | 730 | 9 | VTTEILPVS 0.000312 | 23 |
| HLA-B*07:02 | 1 | 763 | 772 | 10 | LNRLTGIIV 0.000312 | 20 |
| HLA-B*15:01 | 1 | 779 | 787 | 9 | QEVFAQVKQ 0.000312 | 23 |
| HLA-A*68:02 | 1 | 790 | 798 | 9 | KTPPIKDFG 0.000312 | 25 |
| HLA-A*23:01 | 1 | 903 | 912 | 10 | AYRFNGIGVT 0.000312 | 14 |
| HLA-B*58:01 | 1 | 1106 | 1115 | 10 | QRNFYEQII 0.000312 | 23 |
| HLA-A*24:02 | 1 | 1177 | 1186 | 10 | VNIQKEIDRL 0.000312 | 13 |
| HLA-A*23:01 | 1 | 1201 | 1210 | 10 | QELGKYEQYI 0.000312 | 14 |
| HLA-B*07:02 | 1 | 7 | 15 | 9 | LLPLVSSQC 0.000311 | 20 |
| HLA-B*57:01 | 1 | 22 | 31 | 10 | TQLPPAYTNS 0.000311 | 32 |
| HLA-A*68:01 | 1 | 162 | 171 | 10 | SANNCTFEYV 0.000311 | 22 |
| HLA-A*31:01 | 1 | 221 | 230 | 10 | SALEPLVDLP 0.000311 | 24 |
| HLA-A*23:01 | 1 | 256 | 265 | 10 | SGWTAGAAAY 0.000311 | 14 |
| HLA-A*33:01 | 1 | 274 | 282 | 9 | TFLLYNEN 0.000311 | 23 |
| HLA-B*53:01 | 1 | 281 | 289 | 9 | ENGTITDAV 0.000311 | 15 |
| HLA-B*35:01 | 1 | 287 | 295 | 9 | DAVDCALDP 0.000311 | 16 |
| HLA-A*26:01 | 1 | 393 | 402 | 10 | TNVYADSFVI 0.000311 | 19 |
| HLA-B*15:01 | 1 | 406 | 414 | 9 | EVRFIAPGQ 0.000311 | 23 |
| HLA-B*44:02 | 1 | 425 | 433 | 9 | LPDDFTGCV 0.000311 | 14 |
| HLA-B*44:02 | 1 | 516 | 524 | 9 | ELLHAPATV 0.000311 | 14 |
| HLA-B*08:01 | 1 | 632 | 640 | 9 | TWRVYSTGS 0.000311 | 32 |
| HLA-A*01:01 | 1 | 851 | 859 | 9 | CAQKFNGLT 0.000311 | 29 |
| HLA-A*30:02 | 1 | 885 | 893 | 9 | GWTFGAGAA 0.000311 | 39 |
| HLA-B*08:01 | 1 | 979 | 988 | 10 | DILSRLDKVE 0.000311 | 32 |
| HLA-A*68:02 | 1 | 986 | 995 | 10 | KVEAEVQIDR 0.000311 | 25 |
| HLA-B*58:01 | 1 | 1007 | 1016 | 10 | YVTQLIRAA 0.000311 | 23 |
| HLA-A*02:01 | 1 | 1132 | 1140 | 9 | IVNNTVYDP 0.000311 | 23 |
| HLA-A*02:06 | 1 | 1175 | 1184 | 10 | SVVNIQKEID 0.000311 | 31 |
| HLA-B*57:01 | 1 | 72 | 81 | 10 | GTNGTKRFDN 0.00031 | 32 |
| HLA-A*01:01 | 1 | 82 | 90 | 9 | PVLPFNDGV 0.00031 | 29 |
| HLA-B*53:01 | 1 | 131 | 140 | 10 | CEFQFCNDPF 0.00031 | 15 |
| HLA-B*58:01 | 1 | 154 | 163 | 10 | ESEFRVYSSA 0.00031 | 23 |
| HLA-A*30:02 | 1 | 180 | 189 | 10 | EGKQGNFKNL 0.00031 | 39 |
| HLA-A*68:01 | 1 | 205 | 213 | 9 | SKHTPINLV 0.00031 | 22 |
| HLA-B*35:01 | 1 | 206 | 214 | 9 | KHTPINLVR 0.00031 | 16 |
| HLA-A*02:03 | 1 | 213 | 222 | 10 | VRDLPQGFSA 0.00031 | 25 |
| HLA-A*68:02 | 1 | 326 | 334 | 9 | IVRFPNITN 0.00031 | 25 |
| HLA-A*32:01 | 1 | 327 | 336 | 10 | VRFPNITNLC 0.00031 | 17 |
| HLA-A*26:01 | 1 | 360 | 368 | 9 | NCVADYSVL 0.00031 | 19 |
| HLA-B*58:01 | 1 | 360 | 368 | 9 | NCVADYSVL 0.00031 | 23 |
| HLA-B*15:01 | 1 | 601 | 610 | 10 | GTNTSNQVAV 0.00031 | 23 |
| HLA-A*31:01 | 1 | 642 | 650 | 9 | VFQTRAGCL 0.00031 | 24 |
| HLA-A*02:01 | 1 | 674 | 683 | 10 | YQTQTNsprr 0.00031 | 23 |
| HLA-A*68:01 | 1 | 795 | 804 | 10 | KDFGGFNFSQ 0.00031 | 22 |
| HLA-A*33:01 | 1 | 856 | 865 | 10 | NGLTVLPPLL 0.00031 | 23 |
| HLA-B*58:01 | 1 | 884 | 892 | 9 | SGWTFGAGA 0.00031 | 23 |
| HLA-A*30:01 | 1 | 918 | 926 | 9 | ENQKLIANQ 0.00031 | 42 |
| HLA-A*68:01 | 1 | 953 | 962 | 10 | NQNAQALNLT 0.00031 | 22 |
| HLA-A*68:02 | 1 | 955 | 964 | 10 | NAQALNLTVK 0.00031 | 25 |
| HLA-B*08:01 | 1 | 972 | 981 | 10 | AISSVLNDIL 0.00031 | 32 |
| HLA-A*02:06 | 1 | 1105 | 1113 | 9 | TQRNFYEPQ 0.00031 | 31 |
| HLA-B*08:01 | 1 | 1167 | 1176 | 10 | GDISGINASV 0.00031 | 32 |
| HLA-A*68:01 | 1 | 1185 | 1193 | 9 | RLNEVAKNL 0.00031 | 22 |
| HLA-A*01:01 | 1 | 15 | 24 | 10 | CVNLTRTQL 0.000309 | 29 |
| HLA-B*44:02 | 1 | 34 | 43 | 10 | RGVYYPDKVF 0.000309 | 14 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*30:02 | 1 | 133 | 142 | 10 | FQFCNDPFLG 0.000309 | 39 |
| HLA-B*53:01 | 1 | 145 | 153 | 9 | YHKNNKSWM 0.000309 | 15 |
| HLA-A*26:01 | 1 | 203 | 212 | 10 | IYSKHTPINL 0.000309 | 19 |
| HLA-B*57:01 | 1 | 205 | 214 | 10 | SKHTPINLVR 0.000309 | 32 |
| HLA-A*30:01 | 1 | 258 | 267 | 10 | WTAGAAAYYV 0.000309 | 42 |
| HLA-B*40:01 | 1 | 304 | 312 | 9 | KSFTVEKGI 0.000309 | 13 |
| HLA-A*30:01 | 1 | 427 | 435 | 9 | DDFTGCVIA 0.000309 | 42 |
| HLA-B*44:02 | 1 | 445 | 453 | 9 | VGGNYNYLY 0.000309 | 14 |
| HLA-B*08:01 | 1 | 482 | 490 | 9 | GVEGFNCYF 0.000309 | 32 |
| HLA-B*57:01 | 1 | 666 | 675 | 10 | IGAGICASYQ 0.000309 | 32 |
| HLA-A*31:01 | 1 | 685 | 694 | 10 | RSVASQSIIA 0.000309 | 24 |
| HLA-A*11:01 | 1 | 776 | 784 | 9 | KNTQEVFAQ 0.000309 | 15 |
| HLA-B*07:02 | 1 | 780 | 789 | 10 | EVFAQVKQIY 0.000309 | 20 |
| HLA-A*26:01 | 1 | 786 | 795 | 10 | KQIYKTPPIK 0.000309 | 19 |
| HLA-B*08:01 | 1 | 804 | 812 | 9 | QILPDPSKP 0.000309 | 32 |
| HLA-B*51:01 | 1 | 805 | 813 | 9 | ILPDPSKPS 0.000309 | 29 |
| HLA-A*01:01 | 1 | 824 | 833 | 10 | NKVTLADAGF 0.000309 | 29 |
| HLA-B*44:02 | 1 | 923 | 931 | 9 | IANQFNSAI 0.000309 | 14 |
| HLA-B*51:01 | 1 | 1005 | 1014 | 10 | QTYVVTQLIR 0.000309 | 29 |
| HLA-B*07:02 | 1 | 1009 | 1018 | 10 | TQLLIRAAEI 0.000309 | 20 |
| HLA-A*01:01 | 1 | 1010 | 1018 | 9 | QQLIRAAEI 0.000309 | 29 |
| HLA-A*03:01 | 1 | 1016 | 1025 | 10 | AEIRASANLA 0.000309 | 19 |
| HLA-A*68:02 | 1 | 1075 | 1084 | 10 | FTTAPAICHD 0.000309 | 25 |
| HLA-A*02:01 | 1 | 1085 | 1094 | 10 | GKAHFPREGV 0.000309 | 23 |
| HLA-A*23:01 | 1 | 1129 | 1137 | 9 | VIGIVNNTV 0.000309 | 14 |
| HLA-A*32:01 | 1 | 1177 | 1186 | 10 | VNIQKEIDRL 0.000309 | 17 |
| HLA-A*02:01 | 1 | 1197 | 1205 | 9 | LIDLQELGK 0.000309 | 23 |
| HLA-A*02:06 | 1 | 3 | 12 | 10 | VFLVLLPLVS 0.000308 | 31 |
| HLA-B*44:03 | 1 | 49 | 58 | 10 | HSTQDLFLPF 0.000308 | 14 |
| HLA-A*68:01 | 1 | 123 | 131 | 9 | ATNVVIVKC 0.000308 | 22 |
| HLA-A*02:06 | 1 | 142 | 151 | 10 | GVYYHKNNKS 0.000308 | 31 |
| HLA-A*24:02 | 1 | 148 | 157 | 10 | NNKSWMESEF 0.000308 | 13 |
| HLA-B*35:01 | 1 | 258 | 267 | 10 | WTAGAAAYYV 0.000308 | 16 |
| HLA-A*23:01 | 1 | 274 | 282 | 9 | TFLLKYNEN 0.000308 | 14 |
| HLA-A*68:02 | 1 | 280 | 288 | 9 | NENGTITDA 0.000308 | 25 |
| HLA-A*30:01 | 1 | 609 | 618 | 10 | AVLYQDVNCT 0.000308 | 42 |
| HLA-A*02:03 | 1 | 707 | 716 | 10 | YSNNSIAIPT 0.000308 | 25 |
| HLA-B*08:01 | 1 | 781 | 790 | 10 | VFAQVKQIYK 0.000308 | 32 |
| HLA-A*68:01 | 1 | 860 | 869 | 10 | VLPLLTDDEM 0.000308 | 22 |
| HLA-A*68:02 | 1 | 928 | 937 | 10 | NSAIGKIQDS 0.000308 | 25 |
| HLA-B*07:02 | 1 | 960 | 968 | 9 | NLTVKQLSS 0.000308 | 20 |
| HLA-B*58:01 | 1 | 1021 | 1030 | 10 | SANLAATKMS 0.000308 | 23 |
| HLA-B*35:01 | 1 | 1113 | 1122 | 10 | QIITTDNTFV 0.000308 | 16 |
| HLA-A*30:01 | 1 | 1164 | 1172 | 9 | VDLGDISGI 0.000308 | 42 |
| HLA-A*68:01 | 1 | 1207 | 1216 | 10 | EQYIKWPWYI 0.000308 | 22 |
| HLA-B*44:03 | 1 | 1219 | 1227 | 9 | GFIAGLIAI 0.000308 | 14 |
| HLA-B*15:01 | 1 | 55 | 63 | 9 | FLPFFSNVT 0.000307 | 23 |
| HLA-B*57:01 | 1 | 118 | 126 | 9 | LIVNNATNV 0.000307 | 32 |
| HLA-A*30:01 | 1 | 165 | 174 | 10 | NCTFEYVSQP 0.000307 | 42 |
| HLA-B*40:01 | 1 | 213 | 222 | 10 | VRDLPQGFSF 0.000307 | 13 |
| HLA-B*57:01 | 1 | 256 | 264 | 9 | SGWTAGAAA 0.000307 | 32 |
| HLA-B*44:03 | 1 | 313 | 321 | 9 | YQTSNFRVQ 0.000307 | 14 |
| HLA-B*35:01 | 1 | 342 | 350 | 9 | FNATRFASV 0.000307 | 16 |
| HLA-A*02:01 | 1 | 360 | 368 | 9 | NCVADYSVL 0.000307 | 23 |
| HLA-A*31:01 | 1 | 373 | 381 | 9 | SFSTFKCYG 0.000307 | 24 |
| HLA-B*08:01 | 1 | 386 | 395 | 10 | KLNDLCFTNV 0.000307 | 32 |
| HLA-A*30:02 | 1 | 457 | 465 | 9 | RKSNLKPFE 0.000307 | 39 |
| HLA-A*24:02 | 1 | 557 | 566 | 10 | KKFLPFQQFG 0.000307 | 13 |
| HLA-A*02:01 | 1 | 573 | 582 | 10 | TDAVRDPQTL 0.000307 | 23 |
| HLA-B*07:02 | 1 | 601 | 610 | 10 | GTNTSNQVAV 0.000307 | 20 |
| HLA-B*35:01 | 1 | 641 | 649 | 9 | NVFQTRAGC 0.000307 | 16 |
| HLA-A*33:01 | 1 | 642 | 650 | 9 | VFQTRAGCL 0.000307 | 23 |
| HLA-A*26:01 | 1 | 645 | 653 | 9 | TRAGCLIGA 0.000307 | 19 |
| HLA-A*23:01 | 1 | 759 | 767 | 9 | FCTQLNRAL 0.000307 | 14 |
| HLA-A*26:01 | 1 | 772 | 781 | 10 | VEQDKNTQEV 0.000307 | 19 |
| HLA-A*26:01 | 1 | 857 | 865 | 9 | GLTVLPLLL 0.000307 | 19 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*44:02 | 1 | 907 | 915 | 9 | NGIGVTQNV 0.000307 | 14 |
| HLA-A*02:03 | 1 | 1011 | 1019 | 9 | QLIRAAEIR 0.000307 | 25 |
| HLA-B*51:01 | 1 | 1017 | 1026 | 10 | EIRASANLAA 0.000307 | 29 |
| HLA-B*44:03 | 1 | 1168 | 1176 | 9 | DISGINASV 0.000307 | 14 |
| HLA-A*68:01 | 1 | 1224 | 1232 | 9 | LIAIVMVTI 0.000307 | 22 |
| HLA-B*08:01 | 1 | 2 | 11 | 10 | FVFLVLLPLV 0.000306 | 32 |
| HLA-B*08:01 | 1 | 122 | 131 | 10 | NATNVVIKVC 0.000306 | 32 |
| HLA-A*03:01 | 1 | 192 | 201 | 10 | FVFKNIDGYF 0.000306 | 19 |
| HLA-A*33:01 | 1 | 214 | 222 | 9 | RDLPQGFSA 0.000306 | 23 |
| HLA-B*44:02 | 1 | 379 | 387 | 9 | CYGVSPTKL 0.000306 | 14 |
| HLA-B*57:01 | 1 | 441 | 450 | 10 | LDSKVGGNYN 0.000306 | 32 |
| HLA-B*07:02 | 1 | 478 | 487 | 10 | TPCNGVEGFN 0.000306 | 20 |
| HLA-A*01:01 | 1 | 517 | 525 | 9 | LLHAPATVC 0.000306 | 29 |
| HLA-B*15:01 | 1 | 545 | 553 | 9 | GLTGTGVL 0.000306 | 23 |
| HLA-B*58:01 | 1 | 558 | 567 | 10 | KFLPFQQFGR 0.000306 | 23 |
| HLA-A*01:01 | 1 | 651 | 659 | 9 | IGAHEVNNS 0.000306 | 29 |
| HLA-B*15:01 | 1 | 692 | 700 | 9 | IIAYTMSLG 0.000306 | 23 |
| HLA-A*02:06 | 1 | 790 | 798 | 9 | KTPPIKDFG 0.000306 | 31 |
| HLA-A*02:06 | 1 | 837 | 846 | 10 | YGDCLGDIAA 0.000306 | 31 |
| HLA-A*02:01 | 1 | 843 | 852 | 10 | DIAARDLICA 0.000306 | 23 |
| HLA-B*08:01 | 1 | 876 | 884 | 9 | ALLAGTITS 0.000306 | 32 |
| HLA-B*58:01 | 1 | 908 | 916 | 9 | GIGVTQNV 0.000306 | 23 |
| HLA-A*11:01 | 1 | 911 | 919 | 9 | VTQNVLYEN 0.000306 | 15 |
| HLA-A*32:01 | 1 | 993 | 1001 | 9 | IDRLITGRL 0.000306 | 18 |
| HLA-A*01:01 | 1 | 1031 | 1040 | 10 | ECVLGQSKRV 0.000306 | 29 |
| HLA-B*53:01 | 1 | 1121 | 1130 | 10 | FVSGNCDVVI 0.000306 | 15 |
| HLA-A*31:01 | 1 | 1172 | 1180 | 9 | INASVVNIQ 0.000306 | 24 |
| HLA-B*15:01 | 1 | 1180 | 1189 | 10 | QKEIDRLNEV 0.000306 | 23 |
| HLA-A*01:01 | 1 | 1220 | 1229 | 10 | FIAGLIAIVM 0.000306 | 29 |
| HLA-A*02:06 | 1 | 37 | 46 | 10 | YYPDKVFRSS 0.000305 | 31 |
| HLA-A*30:02 | 1 | 53 | 62 | 10 | DLFLPFFSNV 0.000305 | 39 |
| HLA-B*07:02 | 1 | 83 | 91 | 9 | VLFPNDGVY 0.000305 | 20 |
| HLA-B*58:01 | 1 | 106 | 115 | 10 | FGTTLDSKTQ 0.000305 | 23 |
| HLA-B*44:02 | 1 | 120 | 128 | 9 | VNNATNVVI 0.000305 | 14 |
| HLA-A*03:01 | 1 | 143 | 152 | 10 | VYYHKNNKSW 0.000305 | 19 |
| HLA-B*53:01 | 1 | 158 | 166 | 9 | RVYSSANNC 0.000305 | 15 |
| HLA-A*68:02 | 1 | 205 | 214 | 10 | SKHTPINLVR 0.000305 | 25 |
| HLA-A*30:01 | 1 | 222 | 230 | 9 | ALEPLVDLP 0.000305 | 42 |
| HLA-A*11:01 | 1 | 257 | 265 | 9 | GWTAGAAAY 0.000305 | 15 |
| HLA-A*01:01 | 1 | 261 | 270 | 10 | GAAAYVGYL 0.000305 | 29 |
| HLA-A*30:02 | 1 | 283 | 292 | 10 | GTITDAVDCA 0.000305 | 39 |
| HLA-B*35:01 | 1 | 291 | 300 | 10 | CALDPLSETK 0.000305 | 16 |
| HLA-B*51:01 | 1 | 375 | 384 | 10 | STFKCYGVSP 0.000305 | 29 |
| HLA-A*68:01 | 1 | 530 | 539 | 10 | STNLVKNKCV 0.000305 | 22 |
| HLA-B*51:01 | 1 | 601 | 609 | 9 | GTNTSNQVA 0.000305 | 29 |
| HLA-A*68:01 | 1 | 658 | 666 | 9 | NSYECDIPI 0.000305 | 22 |
| HLA-A*68:01 | 1 | 666 | 675 | 10 | IGAGICASYQ 0.000305 | 22 |
| HLA-B*57:01 | 1 | 674 | 682 | 9 | YQTQNSPR 0.000305 | 32 |
| HLA-A*68:01 | 1 | 745 | 754 | 10 | DSTECSNLLL 0.000305 | 22 |
| HLA-A*32:01 | 1 | 797 | 805 | 9 | FGGFNFSQI 0.000305 | 18 |
| HLA-A*68:01 | 1 | 804 | 812 | 9 | QILPDPSK 0.000305 | 22 |
| HLA-A*02:03 | 1 | 845 | 854 | 10 | AARDLICAQK 0.000305 | 25 |
| HLA-A*26:01 | 1 | 881 | 890 | 10 | TITSGWTFGA 0.000305 | 19 |
| HLA-A*02:01 | 1 | 920 | 929 | 10 | QKLIANQFNS 0.000305 | 23 |
| HLA-B*58:01 | 1 | 953 | 962 | 10 | NQNAQALNTL 0.000305 | 23 |
| HLA-B*08:01 | 1 | 958 | 967 | 10 | ALNTLVKQLS 0.000305 | 32 |
| HLA-B*51:01 | 1 | 990 | 999 | 10 | EVQIDRLITG 0.000305 | 29 |
| HLA-A*26:01 | 1 | 991 | 999 | 9 | VQIDRLITG 0.000305 | 19 |
| HLA-A*30:02 | 1 | 1022 | 1031 | 10 | ANLAATKMSE 0.000305 | 39 |
| HLA-A*30:02 | 1 | 1046 | 1055 | 10 | GYHLMSFPQS 0.000305 | 39 |
| HLA-A*02:01 | 1 | 1064 | 1072 | 9 | HVTYVPAQE 0.000305 | 23 |
| HLA-B*57:01 | 1 | 1073 | 1082 | 10 | KNFTTAPAIC 0.000305 | 32 |
| HLA-A*33:01 | 1 | 1172 | 1180 | 9 | INASVVNIQ 0.000305 | 23 |
| HLA-A*24:02 | 1 | 1194 | 1203 | 10 | NESLIDLQEL 0.000305 | 13 |
| HLA-B*51:01 | 1 | 1199 | 1207 | 9 | DLQELGKYE 0.000305 | 29 |
| HLA-A*31:01 | 1 | 1257 | 1266 | 10 | DEDDSEPVLK 0.000305 | 24 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*02:01 | 1 | 91 | 100 | 10 | YFASTEKSNI 0.000304 | 23 |
| HLA-B*57:01 | 1 | 118 | 127 | 10 | LIVNATNVV 0.000304 | 32 |
| HLA-A*33:01 | 1 | 169 | 178 | 10 | EYVSQPFLMD 0.000304 | 23 |
| HLA-A*11:01 | 1 | 170 | 179 | 10 | YVSQPFLMDL 0.000304 | 15 |
| HLA-A*02:06 | 1 | 338 | 346 | 9 | FGEVFNATR 0.000304 | 31 |
| HLA-B*58:01 | 1 | 383 | 391 | 9 | SPTKLNLC 0.000304 | 23 |
| HLA-B*35:01 | 1 | 399 | 407 | 9 | SFVIRGDEV 0.000304 | 16 |
| HLA-B*15:01 | 1 | 427 | 436 | 10 | DDFTGCVIAW 0.000304 | 23 |
| HLA-A*31:01 | 1 | 513 | 522 | 10 | LSFELLHAPA 0.000304 | 24 |
| HLA-A*30:02 | 1 | 515 | 524 | 10 | FELLHAPATV 0.000304 | 39 |
| HLA-A*03:01 | 1 | 523 | 531 | 9 | TVCGPKKST 0.000304 | 19 |
| HLA-A*30:01 | 1 | 614 | 622 | 9 | DVNCTEVPV 0.000304 | 42 |
| HLA-A*02:03 | 1 | 629 | 637 | 9 | LTPTWRVYS 0.000304 | 25 |
| HLA-A*01:01 | 1 | 729 | 738 | 10 | VSMTKTSVDC 0.000304 | 29 |
| HLA-A*30:02 | 1 | 744 | 752 | 9 | GDSTECSNL 0.000304 | 39 |
| HLA-B*35:01 | 1 | 770 | 779 | 10 | IAVEQDKNTQ 0.000304 | 16 |
| HLA-B*44:03 | 1 | 806 | 815 | 10 | LPDPSKPSKR 0.000304 | 14 |
| HLA-A*30:02 | 1 | 951 | 960 | 10 | VVNQAQALN 0.000304 | 39 |
| HLA-B*58:01 | 1 | 995 | 1003 | 9 | RLITGRLQS 0.000304 | 23 |
| HLA-A*30:01 | 1 | 1081 | 1090 | 10 | ICHDGKAHFP 0.000304 | 42 |
| HLA-A*32:01 | 1 | 1106 | 1115 | 10 | QRNFYEPQII 0.000304 | 18 |
| HLA-B*15:01 | 1 | 1106 | 1114 | 9 | QRNFYEPQI 0.000304 | 23 |
| HLA-B*15:01 | 1 | 1170 | 1179 | 10 | SGINASVVNI 0.000304 | 23 |
| HLA-A*02:01 | 1 | 1259 | 1268 | 10 | DDSEPVKGV 0.000304 | 23 |
| HLA-B*44:02 | 1 | 13 | 21 | 9 | SQCVNLTR 0.000303 | 14 |
| HLA-A*30:02 | 1 | 95 | 103 | 9 | TEKSNIIRG 0.000303 | 39 |
| HLA-B*51:01 | 1 | 97 | 106 | 10 | KSNIIRGWIF 0.000303 | 29 |
| HLA-A*30:01 | 1 | 149 | 157 | 9 | NKSWMESEF 0.000303 | 42 |
| HLA-A*33:01 | 1 | 208 | 216 | 9 | TPINLVRDL 0.000303 | 23 |
| HLA-A*02:06 | 1 | 242 | 251 | 10 | LALHRSYLTP 0.000303 | 31 |
| HLA-A*01:01 | 1 | 301 | 309 | 9 | CTLKSFTVE 0.000303 | 29 |
| HLA-A*02:01 | 1 | 341 | 350 | 10 | VFNATRFASV 0.000303 | 23 |
| HLA-B*08:01 | 1 | 349 | 357 | 9 | SVYAWNRKR 0.000303 | 32 |
| HLA-B*57:01 | 1 | 366 | 375 | 10 | SVLYNSASF 0.000303 | 32 |
| HLA-A*01:01 | 1 | 475 | 483 | 9 | AGSTPCNGV 0.000303 | 29 |
| HLA-A*30:01 | 1 | 665 | 674 | 10 | PIGAGICASY 0.000303 | 42 |
| HLA-A*68:01 | 1 | 794 | 802 | 9 | IKDFGGFNF 0.000303 | 22 |
| HLA-A*01:01 | 1 | 859 | 867 | 9 | TVLPPLLD 0.000303 | 29 |
| HLA-A*33:01 | 1 | 869 | 878 | 10 | MIAQYTSALL 0.000303 | 23 |
| HLA-B*07:02 | 1 | 937 | 946 | 10 | SLSSTASALG 0.000303 | 20 |
| HLA-B*51:01 | 1 | 953 | 961 | 9 | NQNAQALNT 0.000303 | 29 |
| HLA-B*15:01 | 1 | 1010 | 1019 | 10 | QQLIRAAEIR 0.000303 | 23 |
| HLA-B*51:01 | 1 | 1085 | 1094 | 10 | GKAHFPREGV 0.000303 | 29 |
| HLA-A*30:02 | 1 | 1091 | 1100 | 10 | REGVFSVNGT 0.000303 | 39 |
| HLA-B*58:01 | 1 | 1099 | 1108 | 10 | GTHWFVTQRN 0.000303 | 23 |
| HLA-A*68:02 | 1 | 1101 | 1109 | 9 | HWFVTQRNF 0.000303 | 25 |
| HLA-A*02:03 | 1 | 1147 | 1156 | 10 | SFKEELDKYF 0.000303 | 25 |
| HLA-A*68:02 | 1 | 1153 | 1161 | 9 | DKYFKNHTS 0.000303 | 25 |
| HLA-B*51:01 | 1 | 1172 | 1181 | 10 | INASVVNIQK 0.000303 | 29 |
| HLA-B*44:03 | 1 | 1192 | 1200 | 9 | NLNESLIDL 0.000303 | 14 |
| HLA-A*02:03 | 1 | 1228 | 1237 | 10 | VMVTIMLCCM 0.000303 | 25 |
| HLA-A*30:01 | 1 | 44 | 53 | 10 | RSSVLHSTQD 0.000302 | 42 |
| HLA-B*08:01 | 1 | 100 | 108 | 9 | IIRGWIFGT 0.000302 | 32 |
| HLA-A*68:02 | 1 | 104 | 113 | 10 | WIFGTTLDSK 0.000302 | 25 |
| HLA-B*51:01 | 1 | 132 | 140 | 9 | EFQFCNDPF 0.000302 | 29 |
| HLA-B*44:03 | 1 | 137 | 146 | 10 | NDPFLGVYYH 0.000302 | 14 |
| HLA-A*33:01 | 1 | 199 | 208 | 10 | GYFKIYSKHT 0.000302 | 23 |
| HLA-A*26:01 | 1 | 206 | 214 | 9 | KHTPINLVR 0.000302 | 19 |
| HLA-B*58:01 | 1 | 459 | 468 | 10 | SNLKPFERDI 0.000302 | 23 |
| HLA-A*03:01 | 1 | 545 | 554 | 10 | GLTGTGVLTE 0.000302 | 19 |
| HLA-A*23:01 | 1 | 559 | 567 | 9 | FLPFQQFGR 0.000302 | 14 |
| HLA-A*32:01 | 1 | 620 | 629 | 10 | VPVAIHADQL 0.000302 | 18 |
| HLA-B*53:01 | 1 | 686 | 694 | 9 | SVASQSIIA 0.000302 | 16 |
| HLA-A*11:01 | 1 | 722 | 730 | 9 | VTTEILPVS 0.000302 | 15 |
| HLA-A*31:01 | 1 | 794 | 802 | 9 | IKDFGGFNF 0.000302 | 24 |
| HLA-B*44:03 | 1 | 912 | 920 | 9 | TQNVLYENQ 0.000302 | 14 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*01:01 | 1 | 957 | 965 | 9 | QALNTLVKQ 0.000302 | 29 |
| HLA-B*15:01 | 1 | 987 | 995 | 9 | VEAEVQIDR 0.000302 | 23 |
| HLA-A*33:01 | 1 | 992 | 1001 | 10 | QIDRLITGRL 0.000302 | 23 |
| HLA-A*68:01 | 1 | 1007 | 1016 | 10 | YVTQQLIRAA 0.000302 | 22 |
| HLA-A*31:01 | 1 | 1011 | 1020 | 10 | QLIRAAEIRA 0.000302 | 24 |
| HLA-A*02:03 | 1 | 1018 | 1026 | 9 | IRASANLAA 0.000302 | 25 |
| HLA-A*01:01 | 1 | 1025 | 1034 | 10 | AATKMSECVL 0.000302 | 29 |
| HLA-B*15:01 | 1 | 1121 | 1130 | 10 | FVSGNCDVVI 0.000302 | 23 |
| HLA-A*68:02 | 1 | 1214 | 1222 | 9 | WYIWLGFIA 0.000302 | 25 |
| HLA-A*01:01 | 1 | 22 | 31 | 10 | TQLPPAYTNS 0.000301 | 29 |
| HLA-A*31:01 | 1 | 96 | 104 | 9 | EKSNIIRGW 0.000301 | 24 |
| HLA-B*44:02 | 1 | 133 | 141 | 9 | FQFCNDPFL 0.000301 | 14 |
| HLA-A*31:01 | 1 | 247 | 256 | 10 | SYLTPGDSSS 0.000301 | 24 |
| HLA-A*03:01 | 1 | 342 | 351 | 10 | FNATRFASVY 0.000301 | 19 |
| HLA-B*44:02 | 1 | 342 | 351 | 10 | FNATRFASVY 0.000301 | 14 |
| HLA-B*07:02 | 1 | 406 | 415 | 10 | EVQRQIAPGQT 0.000301 | 20 |
| HLA-B*44:02 | 1 | 444 | 453 | 10 | KVGGNYNYLY 0.000301 | 14 |
| HLA-A*33:01 | 1 | 464 | 472 | 9 | FERDISTEI 0.000301 | 23 |
| HLA-B*51:01 | 1 | 478 | 487 | 10 | TPCNGVEGFN 0.000301 | 29 |
| HLA-A*11:01 | 1 | 503 | 511 | 9 | VGYPYRVV 0.000301 | 15 |
| HLA-A*68:01 | 1 | 659 | 668 | 10 | SYECDPIIGA 0.000301 | 22 |
| HLA-A*23:01 | 1 | 801 | 809 | 9 | NFSQILPDP 0.000301 | 14 |
| HLA-A*02:03 | 1 | 810 | 818 | 9 | SKPSKRSEFI 0.000301 | 25 |
| HLA-A*24:02 | 1 | 826 | 834 | 9 | VTLADAGFI 0.000301 | 14 |
| HLA-A*30:02 | 1 | 844 | 853 | 10 | IAARDLICAQ 0.000301 | 39 |
| HLA-A*31:01 | 1 | 869 | 878 | 10 | MIAQYTSALL 0.000301 | 24 |
| HLA-B*53:01 | 1 | 902 | 911 | 10 | MAYRFNGIGV 0.000301 | 16 |
| HLA-A*11:01 | 1 | 922 | 930 | 9 | LIANQFNSA 0.000301 | 15 |
| HLA-A*30:02 | 1 | 965 | 974 | 10 | QLSSNFGAIS 0.000301 | 39 |
| HLA-B*44:03 | 1 | 969 | 977 | 9 | NFGAISSVL 0.000301 | 14 |
| HLA-A*03:01 | 1 | 1004 | 1012 | 9 | LQTYVTQQL 0.000301 | 19 |
| HLA-B*58:01 | 1 | 1221 | 1230 | 10 | IAGLIAIVMV 0.000301 | 23 |
| HLA-A*01:01 | 1 | 22 | 30 | 9 | TQLPPAYTN 0.0003 | 29 |
| HLA-A*30:02 | 1 | 53 | 61 | 9 | DLFLPFFSN 0.0003 | 39 |
| HLA-A*01:01 | 1 | 225 | 233 | 9 | PLVDLPIGI 0.0003 | 29 |
| HLA-B*07:02 | 1 | 232 | 240 | 9 | GINITRFQT 0.0003 | 20 |
| HLA-A*30:01 | 1 | 281 | 289 | 9 | ENGTITDVA 0.0003 | 42 |
| HLA-B*57:01 | 1 | 307 | 316 | 10 | TVEKGIYQTS 0.0003 | 32 |
| HLA-A*33:01 | 1 | 370 | 379 | 10 | NSASFSTFKC 0.0003 | 23 |
| HLA-A*23:01 | 1 | 421 | 430 | 10 | YNYKLPDDFT 0.0003 | 14 |
| HLA-A*01:01 | 1 | 514 | 522 | 9 | SFELLHAPA 0.0003 | 29 |
| HLA-A*30:01 | 1 | 518 | 526 | 9 | LHAPATVCG 0.0003 | 42 |
| HLA-B*40:01 | 1 | 550 | 559 | 10 | GVLTESNKKF 0.0003 | 13 |
| HLA-B*40:01 | 1 | 620 | 629 | 10 | VPVAIHADQL 0.0003 | 13 |
| HLA-A*26:01 | 1 | 644 | 653 | 10 | QTRAGCLIGA 0.0003 | 19 |
| HLA-A*01:01 | 1 | 646 | 655 | 10 | RAGCLIGAHEH 0.0003 | 29 |
| HLA-B*58:01 | 1 | 655 | 664 | 10 | HVNNSYECDI 0.0003 | 23 |
| HLA-A*32:01 | 1 | 673 | 682 | 10 | SYQTQTNSPR 0.0003 | 18 |
| HLA-A*32:01 | 1 | 684 | 693 | 10 | ARSVASQSII 0.0003 | 18 |
| HLA-A*11:01 | 1 | 706 | 714 | 9 | AYSNNSIAI 0.0003 | 15 |
| HLA-A*01:01 | 1 | 713 | 721 | 9 | AIPTNFTIS 0.0003 | 29 |
| HLA-A*24:02 | 1 | 717 | 725 | 9 | NFTISVTTE 0.0003 | 14 |
| HLA-A*24:02 | 1 | 733 | 742 | 10 | KTSVDCTMYI 0.0003 | 14 |
| HLA-A*11:01 | 1 | 859 | 867 | 9 | TVLPPLLLTD 0.0003 | 15 |
| HLA-A*31:01 | 1 | 1002 | 1011 | 10 | QSLQTYVTQQ 0.0003 | 24 |
| HLA-A*02:03 | 1 | 1058 | 1066 | 9 | HGVVFLHVT 0.0003 | 25 |
| HLA-B*44:03 | 1 | 1099 | 1107 | 9 | GTHWFVTQR 0.0003 | 14 |
| HLA-A*02:01 | 1 | 1103 | 1112 | 10 | FVTQRNFYEP 0.0003 | 23 |
| HLA-B*58:01 | 1 | 1141 | 1149 | 9 | LQPELDSFK 0.0003 | 23 |
| HLA-B*08:01 | 1 | 1151 | 1160 | 10 | ELDKYFKNHT 0.0003 | 32 |
| HLA-A*03:01 | 1 | 1170 | 1179 | 10 | SGINASVVNI 0.0003 | 19 |
| HLA-B*44:03 | 1 | 1173 | 1181 | 9 | NASVVNIQK 0.0003 | 14 |
| HLA-A*01:01 | 1 | 1226 | 1234 | 9 | AIVMVTIML 0.0003 | 29 |
| HLA-B*40:01 | 1 | 1226 | 1234 | 9 | AIVMVTIML 0.0003 | 13 |
| HLA-A*02:01 | 1 | 13 | 22 | 10 | SQCVNLTTRT 0.000299 | 23 |
| HLA-B*07:02 | 1 | 57 | 65 | 9 | PFFSNVTWF 0.000299 | 20 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*68:01 | 1 | 124 | 133 | 10 | TNVVIKVECF 0.000299 | 23 |
| HLA-A*26:01 | 1 | 167 | 176 | 10 | TFEYVSQPFL 0.000299 | 19 |
| HLA-A*30:02 | 1 | 178 | 187 | 10 | DLEGKQGNFK 0.000299 | 39 |
| HLA-A*24:02 | 1 | 218 | 227 | 10 | QGFSALEPLV 0.000299 | 14 |
| HLA-B*57:01 | 1 | 241 | 250 | 10 | LLALHRSYLT 0.000299 | 32 |
| HLA-B*57:01 | 1 | 264 | 272 | 9 | AYYVGYLQP 0.000299 | 32 |
| HLA-B*51:01 | 1 | 292 | 300 | 9 | ALDPLSETK 0.000299 | 29 |
| HLA-B*07:02 | 1 | 443 | 451 | 9 | SKVGGNYNY 0.000299 | 20 |
| HLA-A*02:03 | 1 | 515 | 523 | 9 | FELLHAPAT 0.000299 | 25 |
| HLA-A*23:01 | 1 | 621 | 629 | 9 | PVAIHADQL 0.000299 | 14 |
| HLA-B*44:02 | 1 | 684 | 693 | 10 | ARSVASQSII 0.000299 | 14 |
| HLA-A*33:01 | 1 | 695 | 703 | 9 | YTMSLGAEN 0.000299 | 23 |
| HLA-A*11:01 | 1 | 795 | 804 | 10 | KDFGGFNFSQ 0.000299 | 15 |
| HLA-B*51:01 | 1 | 798 | 807 | 10 | GGFNFSQILP 0.000299 | 29 |
| HLA-A*26:01 | 1 | 941 | 949 | 9 | TASALGKLQ 0.000299 | 19 |
| HLA-B*40:01 | 1 | 991 | 1000 | 10 | VQIDRLITGR 0.000299 | 13 |
| HLA-A*02:01 | 1 | 1017 | 1025 | 9 | EIRASANLA 0.000299 | 23 |
| HLA-A*23:01 | 1 | 1048 | 1056 | 9 | HLMSFPQSA 0.000299 | 14 |
| HLA-B*35:01 | 1 | 1062 | 1070 | 9 | FLHVTVVPA 0.000299 | 16 |
| HLA-B*44:03 | 1 | 1262 | 1271 | 10 | EPVLKGVKLV 0.000299 | 14 |
| HLA-A*02:06 | 1 | 57 | 65 | 9 | PFFSNVTFW 0.000298 | 31 |
| HLA-B*53:01 | 1 | 66 | 74 | 9 | HAIHVSGTN 0.000298 | 16 |
| HLA-A*03:01 | 1 | 82 | 91 | 10 | PVLPFNDGVY 0.000298 | 19 |
| HLA-A*30:01 | 1 | 91 | 99 | 9 | YFASTEKSN 0.000298 | 42 |
| HLA-A*02:01 | 1 | 104 | 113 | 10 | WIFGTTLDSK 0.000298 | 23 |
| HLA-B*57:01 | 1 | 249 | 257 | 9 | LTPGDSSSG 0.000298 | 32 |
| HLA-B*40:01 | 1 | 271 | 279 | 9 | QPRTFLLKY 0.000298 | 13 |
| HLA-A*26:01 | 1 | 330 | 338 | 9 | PNITNLCPF 0.000298 | 19 |
| HLA-A*31:01 | 1 | 467 | 475 | 9 | DISTEIQQA 0.000298 | 24 |
| HLA-A*11:01 | 1 | 502 | 510 | 9 | GVGYQPYRV 0.000298 | 15 |
| HLA-B*15:01 | 1 | 569 | 577 | 9 | IADTTDAVR 0.000298 | 23 |
| HLA-A*03:01 | 1 | 618 | 626 | 9 | TEVPVAIHA 0.000298 | 19 |
| HLA-A*68:02 | 1 | 622 | 631 | 10 | VAIHADQLTP 0.000298 | 25 |
| HLA-B*08:01 | 1 | 633 | 642 | 10 | WRVYSTGSNV 0.000298 | 32 |
| HLA-A*30:02 | 1 | 864 | 872 | 9 | LLTDEMIAQ 0.000298 | 39 |
| HLA-A*02:01 | 1 | 890 | 898 | 9 | AGAALQIPF 0.000298 | 23 |
| HLA-A*01:01 | 1 | 1017 | 1026 | 10 | EIRASANLAA 0.000298 | 29 |
| HLA-A*31:01 | 1 | 1044 | 1052 | 9 | GKGYHLMSF 0.000298 | 24 |
| HLA-B*08:01 | 1 | 1150 | 1159 | 10 | EELDKYFKNH 0.000298 | 32 |
| HLA-A*26:01 | 1 | 1164 | 1172 | 9 | VDLGDISGI 0.000298 | 19 |
| HLA-B*07:02 | 1 | 1210 | 1218 | 9 | IKWPWYIWL 0.000298 | 20 |
| HLA-A*24:02 | 1 | 1225 | 1233 | 9 | IAIVMVTIM 0.000298 | 14 |
| HLA-A*03:01 | 1 | 14 | 23 | 10 | QCVNLTRTQ 0.000297 | 19 |
| HLA-B*15:01 | 1 | 60 | 69 | 10 | SNVTWFHAIH 0.000297 | 23 |
| HLA-A*02:01 | 1 | 67 | 76 | 10 | AIHVSGTNGT 0.000297 | 23 |
| HLA-A*30:01 | 1 | 112 | 121 | 10 | SKTQSLLIIVN 0.000297 | 42 |
| HLA-B*40:01 | 1 | 135 | 143 | 9 | FCNDPFLGV 0.000297 | 13 |
| HLA-A*33:01 | 1 | 160 | 168 | 9 | YSSANNCTF 0.000297 | 23 |
| HLA-B*35:01 | 1 | 162 | 171 | 10 | SANNCTFEYV 0.000297 | 17 |
| HLA-A*31:01 | 1 | 163 | 171 | 9 | ANNCTFEYV 0.000297 | 25 |
| HLA-A*24:02 | 1 | 189 | 197 | 9 | LREFVFKNI 0.000297 | 14 |
| HLA-A*03:01 | 1 | 215 | 223 | 9 | DLPQGFSAF 0.000297 | 19 |
| HLA-A*01:01 | 1 | 360 | 368 | 9 | NCVADYSVL 0.000297 | 29 |
| HLA-B*57:01 | 1 | 361 | 370 | 10 | CVADYSVLYN 0.000297 | 32 |
| HLA-A*30:02 | 1 | 370 | 379 | 10 | NSASFSTFKC 0.000297 | 40 |
| HLA-A*02:01 | 1 | 375 | 384 | 10 | STFKCYGVSP 0.000297 | 23 |
| HLA-A*68:02 | 1 | 477 | 485 | 9 | STPCNGVEG 0.000297 | 25 |
| HLA-B*08:01 | 1 | 502 | 511 | 10 | GVGYQPYRVV 0.000297 | 32 |
| HLA-B*57:01 | 1 | 506 | 514 | 9 | QPYRVVVL 0.000297 | 32 |
| HLA-A*30:02 | 1 | 521 | 529 | 9 | PATVCGPKK 0.000297 | 40 |
| HLA-A*24:02 | 1 | 559 | 567 | 9 | FLPFQQFGR 0.000297 | 14 |
| HLA-A*02:01 | 1 | 699 | 707 | 9 | LGAENSVAY 0.000297 | 23 |
| HLA-A*01:01 | 1 | 732 | 740 | 9 | TKTSVDCTM 0.000297 | 29 |
| HLA-A*24:02 | 1 | 764 | 772 | 9 | NRALTGIAV 0.000297 | 14 |
| HLA-B*51:01 | 1 | 845 | 853 | 9 | AARDLICAQ 0.000297 | 29 |
| HLA-B*51:01 | 1 | 851 | 859 | 9 | CAQKFNGLT 0.000297 | 29 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|----|
| HLA-A*31:01 | 1 | 910 | 918 | 9 | GVTQNVLYE | 0.000297 | 25 |
| HLA-B*44:02 | 1 | 950 | 959 | 10 | DVVNQNAQAL | 0.000297 | 14 |
| HLA-A*30:02 | 1 | 1115 | 1124 | 10 | ITDNTFVSG | 0.000297 | 40 |
| HLA-A*02:03 | 1 | 1209 | 1217 | 9 | YIKWPWYIW | 0.000297 | 25 |
| HLA-B*44:03 | 1 | 13 | 21 | 9 | SQCVNLTR | 0.000296 | 14 |
| HLA-A*68:02 | 1 | 76 | 85 | 10 | TKRFDNPVLP | 0.000296 | 25 |
| HLA-A*68:01 | 1 | 81 | 90 | 10 | NPVLPFNDGV | 0.000296 | 23 |
| HLA-A*68:02 | 1 | 126 | 134 | 9 | VVIKVECFQ | 0.000296 | 25 |
| HLA-A*68:01 | 1 | 127 | 135 | 9 | VIKVECFQ | 0.000296 | 23 |
| HLA-B*53:01 | 1 | 292 | 300 | 9 | ALDPLSETK | 0.000296 | 16 |
| HLA-A*30:01 | 1 | 297 | 305 | 9 | SETKCTLKS | 0.000296 | 42 |
| HLA-B*35:01 | 1 | 349 | 357 | 9 | SVYAWNRKR | 0.000296 | 17 |
| HLA-A*26:01 | 1 | 493 | 501 | 9 | QSYGFQPTN | 0.000296 | 19 |
| HLA-A*02:06 | 1 | 525 | 534 | 10 | CGPKKSTNLV | 0.000296 | 31 |
| HLA-A*31:01 | 1 | 527 | 535 | 9 | PKKSTNLVK | 0.000296 | 25 |
| HLA-B*51:01 | 1 | 532 | 541 | 10 | NLVKNKCVNF | 0.000296 | 29 |
| HLA-B*58:01 | 1 | 549 | 557 | 9 | TGVLTESNK | 0.000296 | 24 |
| HLA-A*30:02 | 1 | 581 | 589 | 9 | TLEILDITP | 0.000296 | 40 |
| HLA-A*68:01 | 1 | 620 | 628 | 9 | VPVAIHADQ | 0.000296 | 23 |
| HLA-A*02:03 | 1 | 624 | 632 | 9 | IHADQLTPT | 0.000296 | 25 |
| HLA-B*15:01 | 1 | 746 | 754 | 9 | STECNLLL | 0.000296 | 23 |
| HLA-B*44:03 | 1 | 774 | 783 | 10 | QDKNTQEVFA | 0.000296 | 14 |
| HLA-A*02:03 | 1 | 865 | 874 | 10 | LTDEMIAQYT | 0.000296 | 25 |
| HLA-A*68:02 | 1 | 881 | 889 | 9 | TITSGWTFG | 0.000296 | 25 |
| HLA-B*51:01 | 1 | 967 | 975 | 9 | SSNFGAISS | 0.000296 | 29 |
| HLA-B*35:01 | 1 | 968 | 977 | 10 | SNFGAISSVL | 0.000296 | 17 |
| HLA-B*35:01 | 1 | 983 | 991 | 9 | RLDKVEAEV | 0.000296 | 17 |
| HLA-A*26:01 | 1 | 1024 | 1032 | 9 | LAATKMSEC | 0.000296 | 19 |
| HLA-A*68:01 | 1 | 1150 | 1159 | 10 | EELDKYFKNH | 0.000296 | 23 |
| HLA-B*57:01 | 1 | 1215 | 1224 | 10 | YIWLGFIAGL | 0.000296 | 32 |
| HLA-B*44:02 | 1 | 38 | 47 | 10 | YDPKVFSSV | 0.000295 | 14 |
| HLA-A*68:01 | 1 | 77 | 85 | 9 | KRFDNPVLP | 0.000295 | 23 |
| HLA-A*30:02 | 1 | 146 | 154 | 9 | HKNNKSWME | 0.000295 | 40 |
| HLA-B*58:01 | 1 | 178 | 186 | 9 | DLEGKQGNF | 0.000295 | 24 |
| HLA-A*03:01 | 1 | 232 | 240 | 9 | GINITRFQT | 0.000295 | 19 |
| HLA-A*31:01 | 1 | 352 | 360 | 9 | AWNKRKRISN | 0.000295 | 25 |
| HLA-A*01:01 | 1 | 363 | 372 | 10 | ADYSVLYNSA | 0.000295 | 30 |
| HLA-A*30:02 | 1 | 484 | 492 | 9 | EGFNCYFPL | 0.000295 | 40 |
| HLA-A*30:02 | 1 | 528 | 536 | 9 | KKSTNLVKN | 0.000295 | 40 |
| HLA-B*08:01 | 1 | 614 | 623 | 10 | DVNCTEVPVA | 0.000295 | 32 |
| HLA-B*07:02 | 1 | 633 | 642 | 10 | WRVYSTGSNV | 0.000295 | 21 |
| HLA-B*58:01 | 1 | 674 | 683 | 10 | YQTQTNSPRR | 0.000295 | 24 |
| HLA-A*31:01 | 1 | 740 | 748 | 9 | MYICGDSTE | 0.000295 | 25 |
| HLA-A*01:01 | 1 | 789 | 798 | 10 | YKTPPIKDFG | 0.000295 | 30 |
| HLA-A*24:02 | 1 | 798 | 806 | 9 | GGFNFSQIL | 0.000295 | 14 |
| HLA-B*58:01 | 1 | 827 | 836 | 10 | TLADAGFIKQ | 0.000295 | 24 |
| HLA-A*26:01 | 1 | 907 | 916 | 10 | NGIGVTQNVL | 0.000295 | 19 |
| HLA-B*57:01 | 1 | 928 | 936 | 9 | NSAIGKIQD | 0.000295 | 32 |
| HLA-A*02:01 | 1 | 960 | 968 | 9 | NLVKQLSS | 0.000295 | 23 |
| HLA-A*01:01 | 1 | 1006 | 1014 | 9 | TYVTQQLIR | 0.000295 | 30 |
| HLA-A*02:06 | 1 | 1072 | 1081 | 10 | EKNFTTAPAI | 0.000295 | 31 |
| HLA-A*01:01 | 1 | 1108 | 1116 | 9 | NFYEQIIT | 0.000295 | 30 |
| HLA-A*03:01 | 1 | 1185 | 1194 | 10 | RLNEVAKNLN | 0.000295 | 19 |
| HLA-A*30:01 | 1 | 4 | 13 | 10 | FLVLLPLVSS | 0.000294 | 42 |
| HLA-A*01:01 | 1 | 17 | 25 | 9 | NLTTRTQLP | 0.000294 | 30 |
| HLA-A*01:01 | 1 | 68 | 77 | 10 | IHSVGTNGTK | 0.000294 | 30 |
| HLA-B*08:01 | 1 | 136 | 144 | 9 | CNDPFLGVY | 0.000294 | 32 |
| HLA-B*53:01 | 1 | 202 | 210 | 9 | KIYSKHTPI | 0.000294 | 16 |
| HLA-A*30:01 | 1 | 222 | 231 | 10 | ALEPLVDLPI | 0.000294 | 42 |
| HLA-B*51:01 | 1 | 222 | 231 | 10 | ALEPLVDLPI | 0.000294 | 29 |
| HLA-A*33:01 | 1 | 359 | 367 | 9 | SNCVADYSV | 0.000294 | 23 |
| HLA-A*68:02 | 1 | 363 | 371 | 9 | ADYSVLYNS | 0.000294 | 25 |
| HLA-A*68:01 | 1 | 367 | 375 | 9 | VLYNSASFS | 0.000294 | 23 |
| HLA-B*40:01 | 1 | 388 | 396 | 9 | NDLCFTNVY | 0.000294 | 13 |
| HLA-B*07:02 | 1 | 400 | 408 | 9 | FVIRGDEVR | 0.000294 | 21 |
| HLA-B*51:01 | 1 | 400 | 408 | 9 | FVIRGDEVR | 0.000294 | 29 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*23:01 | 1 | 443 | 452 | 10 | SKVGGNYNYL 0.000294 | 14 |
| HLA-B*08:01 | 1 | 492 | 500 | 9 | LQSYGFQPT 0.000294 | 32 |
| HLA-A*26:01 | 1 | 549 | 558 | 10 | TGVLTESNKK 0.000294 | 19 |
| HLA-A*30:01 | 1 | 563 | 572 | 10 | QQFGRDIADT 0.000294 | 42 |
| HLA-A*03:01 | 1 | 601 | 609 | 9 | GTNTSNQVA 0.000294 | 19 |
| HLA-A*31:01 | 1 | 644 | 653 | 10 | QTRAGCLIGA 0.000294 | 25 |
| HLA-B*57:01 | 1 | 647 | 656 | 10 | AGCLIGAHEV 0.000294 | 32 |
| HLA-A*33:01 | 1 | 731 | 739 | 9 | MTKTSVDCT 0.000294 | 23 |
| HLA-B*57:01 | 1 | 732 | 740 | 9 | TKTSVDCTM 0.000294 | 32 |
| HLA-B*15:01 | 1 | 810 | 818 | 9 | SKPSKRSFI 0.000294 | 23 |
| HLA-B*40:01 | 1 | 891 | 900 | 10 | GAALQIPFAM 0.000294 | 13 |
| HLA-B*07:02 | 1 | 893 | 901 | 9 | ALQIPFAMQ 0.000294 | 21 |
| HLA-A*02:01 | 1 | 910 | 918 | 9 | GVTQNVLYE 0.000294 | 23 |
| HLA-A*11:01 | 1 | 915 | 923 | 9 | VLYENQKLI 0.000294 | 15 |
| HLA-B*15:01 | 1 | 917 | 925 | 9 | YENQKLIAN 0.000294 | 23 |
| HLA-B*58:01 | 1 | 944 | 952 | 9 | ALGKLQDVV 0.000294 | 24 |
| HLA-A*24:02 | 1 | 975 | 983 | 9 | SVLNDILSR 0.000294 | 14 |
| HLA-A*68:02 | 1 | 1056 | 1064 | 9 | APHGVVFLH 0.000294 | 25 |
| HLA-A*32:01 | 1 | 1098 | 1107 | 10 | NGTHWFVTQR 0.000294 | 18 |
| HLA-B*40:01 | 1 | 38 | 46 | 9 | YDPKVFRRS 0.000293 | 13 |
| HLA-A*30:01 | 1 | 148 | 157 | 10 | NNKSWMESEF 0.000293 | 42 |
| HLA-A*01:01 | 1 | 182 | 190 | 9 | KQGNFKNLR 0.000293 | 30 |
| HLA-B*51:01 | 1 | 213 | 222 | 10 | VRDLPQGFSFA 0.000293 | 29 |
| HLA-B*15:01 | 1 | 349 | 358 | 10 | SVYAWNRKRI 0.000293 | 23 |
| HLA-A*68:01 | 1 | 365 | 373 | 9 | YSVLYNSAS 0.000293 | 23 |
| HLA-A*30:02 | 1 | 389 | 397 | 9 | DLCFTNVYA 0.000293 | 40 |
| HLA-B*44:02 | 1 | 466 | 475 | 10 | RDISTEIQQA 0.000293 | 14 |
| HLA-A*32:01 | 1 | 511 | 520 | 10 | VVLSFELLHA 0.000293 | 18 |
| HLA-A*02:06 | 1 | 608 | 617 | 10 | VAVLYQDVNC 0.000293 | 31 |
| HLA-A*23:01 | 1 | 616 | 624 | 9 | NCTEVPVAI 0.000293 | 14 |
| HLA-A*02:06 | 1 | 732 | 740 | 9 | TKTSVDCTM 0.000293 | 31 |
| HLA-B*44:02 | 1 | 746 | 754 | 9 | STECNLLL 0.000293 | 14 |
| HLA-A*31:01 | 1 | 773 | 781 | 9 | EQDKNTQEV 0.000293 | 25 |
| HLA-A*68:02 | 1 | 801 | 809 | 9 | NFSQILPDP 0.000293 | 25 |
| HLA-B*44:03 | 1 | 813 | 822 | 10 | SKRSFIEDLL 0.000293 | 14 |
| HLA-B*53:01 | 1 | 856 | 865 | 10 | NGLTVLPLL 0.000293 | 16 |
| HLA-B*44:03 | 1 | 886 | 894 | 9 | WTFGAGAAL 0.000293 | 14 |
| HLA-A*01:01 | 1 | 907 | 916 | 10 | NGIGVTQNVL 0.000293 | 30 |
| HLA-A*30:01 | 1 | 961 | 969 | 9 | TLVKQLSSN 0.000293 | 42 |
| HLA-B*08:01 | 1 | 969 | 978 | 10 | NFGAISSVLN 0.000293 | 32 |
| HLA-A*03:01 | 1 | 999 | 1008 | 10 | GRLQSLQTYV 0.000293 | 19 |
| HLA-A*26:01 | 1 | 1040 | 1049 | 10 | VDFCGKGYHL 0.000293 | 19 |
| HLA-B*58:01 | 1 | 1132 | 1141 | 10 | IVNNTVYDPL 0.000293 | 24 |
| HLA-A*32:01 | 1 | 131 | 140 | 10 | CEFQFCNDPF 0.000292 | 18 |
| HLA-B*07:02 | 1 | 138 | 147 | 10 | DPFLGVYYHK 0.000292 | 21 |
| HLA-B*40:01 | 1 | 205 | 214 | 10 | SKHTPINLVR 0.000292 | 13 |
| HLA-A*01:01 | 1 | 208 | 216 | 9 | TPINLVRDL 0.000292 | 30 |
| HLA-A*24:02 | 1 | 208 | 216 | 9 | TPINLVRDL 0.000292 | 14 |
| HLA-B*08:01 | 1 | 320 | 328 | 9 | VQPTESIVR 0.000292 | 32 |
| HLA-B*40:01 | 1 | 320 | 328 | 9 | VQPTESIVR 0.000292 | 13 |
| HLA-A*30:02 | 1 | 406 | 415 | 10 | EVQRQIAPGQT 0.000292 | 40 |
| HLA-B*51:01 | 1 | 406 | 414 | 9 | EVQRQIAPGQ 0.000292 | 29 |
| HLA-A*02:01 | 1 | 418 | 426 | 9 | IADYNYKLP 0.000292 | 23 |
| HLA-A*26:01 | 1 | 628 | 637 | 10 | QLTPTWRVYS 0.000292 | 19 |
| HLA-A*03:01 | 1 | 636 | 644 | 9 | YSTGSNVFQ 0.000292 | 19 |
| HLA-A*30:02 | 1 | 648 | 656 | 9 | GCLIGAHEV 0.000292 | 40 |
| HLA-A*33:01 | 1 | 662 | 670 | 9 | CDIPIGAGI 0.000292 | 23 |
| HLA-A*30:01 | 1 | 715 | 724 | 10 | PTNFTISVTT 0.000292 | 42 |
| HLA-B*57:01 | 1 | 735 | 743 | 9 | SVDCTMYIC 0.000292 | 32 |
| HLA-A*30:02 | 1 | 740 | 748 | 9 | MYICGDSTE 0.000292 | 40 |
| HLA-B*57:01 | 1 | 771 | 779 | 9 | AVEQDKNTQ 0.000292 | 32 |
| HLA-A*02:03 | 1 | 813 | 822 | 10 | SKRSFIEDLL 0.000292 | 26 |
| HLA-A*68:01 | 1 | 874 | 882 | 9 | TSALLAGTI 0.000292 | 23 |
| HLA-B*51:01 | 1 | 883 | 892 | 10 | TSGWTFGAGA 0.000292 | 29 |
| HLA-A*33:01 | 1 | 912 | 920 | 9 | TQNVLYENQ 0.000292 | 23 |
| HLA-A*68:01 | 1 | 1038 | 1047 | 10 | KRVDFCGKGY 0.000292 | 23 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*30:02 | 1 | 1063 | 1071 | 9 | LHVTYVPAQ 0.000292 | 40 |
| HLA-A*30:01 | 1 | 1069 | 1078 | 10 | PAQEKNFHTA 0.000292 | 42 |
| HLA-B*57:01 | 1 | 1077 | 1086 | 10 | TAPAICHGDK 0.000292 | 32 |
| HLA-A*68:02 | 1 | 1111 | 1120 | 10 | EPQIITTDNT 0.000292 | 25 |
| HLA-A*02:06 | 1 | 1197 | 1205 | 9 | LIDLQELGK 0.000292 | 31 |
| HLA-B*44:02 | 1 | 1204 | 1213 | 10 | GKYEQYIKWP 0.000292 | 14 |
| HLA-B*08:01 | 1 | 1255 | 1263 | 9 | KFDEDDSEP 0.000292 | 32 |
| HLA-A*01:01 | 1 | 1258 | 1267 | 10 | EDDSEPVKLG 0.000292 | 30 |
| HLA-A*32:01 | 1 | 1262 | 1270 | 9 | EPVLKGVKL 0.000292 | 18 |
| HLA-A*30:01 | 1 | 79 | 87 | 9 | FDNPVLPFN 0.000291 | 43 |
| HLA-B*58:01 | 1 | 96 | 105 | 10 | EKSNIIRGWI 0.000291 | 24 |
| HLA-A*02:03 | 1 | 115 | 124 | 10 | QSLLVNNTAT 0.000291 | 26 |
| HLA-B*57:01 | 1 | 173 | 182 | 10 | QPFLMDLEGK 0.000291 | 32 |
| HLA-B*08:01 | 1 | 254 | 262 | 9 | SSSGWTAGA 0.000291 | 32 |
| HLA-B*53:01 | 1 | 257 | 265 | 9 | GWTAGAAAY 0.000291 | 16 |
| HLA-A*02:03 | 1 | 261 | 269 | 9 | GAAAYVVG 0.000291 | 26 |
| HLA-A*03:01 | 1 | 262 | 270 | 9 | AAAYVGYL 0.000291 | 19 |
| HLA-B*35:01 | 1 | 424 | 433 | 10 | KLPDDFTGCV 0.000291 | 17 |
| HLA-B*51:01 | 1 | 443 | 451 | 9 | SKVGGNYNY 0.000291 | 29 |
| HLA-B*08:01 | 1 | 470 | 478 | 9 | TEIYQAGST 0.000291 | 32 |
| HLA-A*33:01 | 1 | 591 | 599 | 9 | SFGGVSUIT 0.000291 | 23 |
| HLA-A*26:01 | 1 | 630 | 638 | 9 | TPTWRVYST 0.000291 | 19 |
| HLA-B*35:01 | 1 | 654 | 662 | 9 | EHVNSYEC 0.000291 | 17 |
| HLA-A*02:01 | 1 | 683 | 692 | 10 | RARSVASQSI 0.000291 | 23 |
| HLA-B*53:01 | 1 | 684 | 692 | 9 | ARSVASQSI 0.000291 | 16 |
| HLA-A*30:01 | 1 | 732 | 741 | 10 | TKTSVDCTMY 0.000291 | 43 |
| HLA-A*68:02 | 1 | 756 | 765 | 10 | YGSFCTQLNR 0.000291 | 25 |
| HLA-A*26:01 | 1 | 766 | 774 | 9 | ALTGIAVEQ 0.000291 | 19 |
| HLA-B*58:01 | 1 | 802 | 810 | 9 | FSQILPDPS 0.000291 | 24 |
| HLA-A*33:01 | 1 | 860 | 869 | 10 | VLPLLLTDEM 0.000291 | 23 |
| HLA-A*68:01 | 1 | 891 | 900 | 10 | GAALQIPFAM 0.000291 | 23 |
| HLA-B*44:02 | 1 | 1000 | 1008 | 9 | RLQSLQTYV 0.000291 | 14 |
| HLA-A*32:01 | 1 | 1019 | 1027 | 9 | RASANLAAT 0.000291 | 18 |
| HLA-A*01:01 | 1 | 1128 | 1137 | 10 | VVIGIVNNTV 0.000291 | 30 |
| HLA-A*23:01 | 1 | 1177 | 1186 | 10 | VNIQKEIDRL 0.000291 | 14 |
| HLA-A*01:01 | 1 | 1199 | 1208 | 10 | DLQELGKYEQ 0.000291 | 30 |
| HLA-B*15:01 | 1 | 1236 | 1244 | 9 | CMTSCCSCL 0.000291 | 23 |
| HLA-B*51:01 | 1 | 25 | 34 | 10 | PPAYTNSFTR 0.00029 | 30 |
| HLA-A*33:01 | 1 | 121 | 130 | 10 | NNATNVVIVK 0.00029 | 23 |
| HLA-A*30:01 | 1 | 180 | 188 | 9 | EGKQGNFKN 0.00029 | 43 |
| HLA-A*11:01 | 1 | 184 | 192 | 9 | GNFKNLRF 0.00029 | 15 |
| HLA-A*02:01 | 1 | 206 | 214 | 9 | KHTPINLVR 0.00029 | 23 |
| HLA-A*33:01 | 1 | 247 | 255 | 9 | SYLTPGDSS 0.00029 | 23 |
| HLA-B*57:01 | 1 | 255 | 263 | 9 | SSGWTAGAA 0.00029 | 32 |
| HLA-B*08:01 | 1 | 376 | 385 | 10 | TFKCYGVSPT 0.00029 | 33 |
| HLA-A*02:03 | 1 | 406 | 415 | 10 | EVRIAPGQT 0.00029 | 26 |
| HLA-B*51:01 | 1 | 426 | 434 | 9 | PDDFTGCVI 0.00029 | 30 |
| HLA-B*08:01 | 1 | 470 | 479 | 10 | TEIYQAGSTP 0.00029 | 33 |
| HLA-B*57:01 | 1 | 474 | 482 | 9 | QAGSTPCNG 0.00029 | 32 |
| HLA-A*23:01 | 1 | 745 | 753 | 9 | DSTECSNLL 0.00029 | 14 |
| HLA-A*23:01 | 1 | 806 | 814 | 9 | LPDPSKPSK 0.00029 | 14 |
| HLA-A*23:01 | 1 | 856 | 865 | 10 | NGLTVLPLLL 0.00029 | 14 |
| HLA-A*30:01 | 1 | 874 | 883 | 10 | TSALLAGTIT 0.00029 | 43 |
| HLA-A*33:01 | 1 | 964 | 972 | 9 | KQLSSNFGA 0.00029 | 23 |
| HLA-A*01:01 | 1 | 1006 | 1015 | 10 | TYVTQQLIRA 0.00029 | 30 |
| HLA-A*02:01 | 1 | 1016 | 1025 | 10 | AEIRASANLA 0.00029 | 23 |
| HLA-A*68:02 | 1 | 1087 | 1095 | 9 | AHFPREGVF 0.00029 | 25 |
| HLA-B*53:01 | 1 | 1164 | 1172 | 9 | VDLGDISGI 0.00029 | 16 |
| HLA-B*44:02 | 1 | 1168 | 1176 | 9 | DISGINASV 0.00029 | 14 |
| HLA-A*68:01 | 1 | 1171 | 1179 | 9 | GINASVVNI 0.00029 | 23 |
| HLA-A*01:01 | 1 | 1190 | 1198 | 9 | AKNLNESLI 0.00029 | 30 |
| HLA-B*58:01 | 1 | 1219 | 1227 | 9 | GFIAGLIAI 0.00029 | 24 |
| HLA-A*32:01 | 1 | 1220 | 1229 | 10 | FIAGLIAIVM 0.00029 | 18 |
| HLA-A*02:06 | 1 | 1230 | 1239 | 10 | VTIMLCCMTS 0.00029 | 31 |
| HLA-A*03:01 | 1 | 57 | 66 | 10 | PFFSNVTWFH 0.000289 | 19 |
| HLA-B*58:01 | 1 | 250 | 259 | 10 | TPGDSSSGWT 0.000289 | 24 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*44:03 | 1 | 314 | 322 | 9 | QTSNFRVQP 0.000289 | 14 |
| HLA-A*02:03 | 1 | 353 | 361 | 9 | WNRKRISNC 0.000289 | 26 |
| HLA-B*15:01 | 1 | 369 | 378 | 10 | YNSASFSTFK 0.000289 | 24 |
| HLA-A*33:01 | 1 | 375 | 383 | 9 | STFKCYGVS 0.000289 | 23 |
| HLA-A*32:01 | 1 | 440 | 449 | 10 | NLDSKVGGNY 0.000289 | 18 |
| HLA-B*44:02 | 1 | 504 | 512 | 9 | GYQPYRVVV 0.000289 | 14 |
| HLA-B*51:01 | 1 | 511 | 520 | 10 | VVLSFELLHA 0.000289 | 30 |
| HLA-A*31:01 | 1 | 523 | 531 | 9 | TVCGPKKST 0.000289 | 25 |
| HLA-A*30:02 | 1 | 636 | 645 | 10 | YSTGSNVFQT 0.000289 | 40 |
| HLA-A*11:01 | 1 | 685 | 693 | 9 | RSVASQSII 0.000289 | 15 |
| HLA-B*44:02 | 1 | 714 | 722 | 9 | IPTNFTISV 0.000289 | 14 |
| HLA-B*44:02 | 1 | 813 | 822 | 10 | SKRSFIEDLL 0.000289 | 14 |
| HLA-A*30:01 | 1 | 851 | 859 | 9 | CAQKFNGLT 0.000289 | 43 |
| HLA-B*44:03 | 1 | 955 | 963 | 9 | NAQALNTLV 0.000289 | 14 |
| HLA-A*33:01 | 1 | 977 | 986 | 10 | LNDILSRLDK 0.000289 | 23 |
| HLA-A*31:01 | 1 | 1019 | 1027 | 9 | RASANLAAT 0.000289 | 25 |
| HLA-A*32:01 | 1 | 1051 | 1060 | 10 | SFPQSAPHGV 0.000289 | 18 |
| HLA-B*57:01 | 1 | 1105 | 1114 | 10 | TQRNFYEQI 0.000289 | 32 |
| HLA-B*58:01 | 1 | 1125 | 1133 | 9 | NCDVVIGIV 0.000289 | 24 |
| HLA-B*58:01 | 1 | 1134 | 1143 | 10 | NNTVYDPLQP 0.000289 | 24 |
| HLA-B*44:02 | 1 | 1202 | 1210 | 9 | ELGKYEYI 0.000289 | 14 |
| HLA-B*15:01 | 1 | 1211 | 1220 | 10 | KWPWYIWLGF 0.000289 | 24 |
| HLA-A*02:01 | 1 | 8 | 16 | 9 | LPLVSSQCV 0.000288 | 23 |
| HLA-A*03:01 | 1 | 22 | 31 | 10 | TQLPPAYTNS 0.000288 | 19 |
| HLA-A*30:01 | 1 | 40 | 48 | 9 | DKVFRSSVL 0.000288 | 43 |
| HLA-B*07:02 | 1 | 68 | 76 | 9 | IHVSGTNGT 0.000288 | 21 |
| HLA-A*02:01 | 1 | 69 | 77 | 9 | HVSGTNGTK 0.000288 | 23 |
| HLA-A*02:06 | 1 | 191 | 200 | 10 | EFVFKNIDGY 0.000288 | 31 |
| HLA-A*30:01 | 1 | 274 | 283 | 10 | TFLLKYNENG 0.000288 | 43 |
| HLA-A*26:01 | 1 | 280 | 288 | 9 | NENGTITDA 0.000288 | 19 |
| HLA-A*01:01 | 1 | 315 | 324 | 10 | TSNFRVQPT 0.000288 | 30 |
| HLA-A*23:01 | 1 | 337 | 345 | 9 | PFGEVFNAT 0.000288 | 14 |
| HLA-A*01:01 | 1 | 399 | 408 | 10 | SFVIRGDEV 0.000288 | 30 |
| HLA-A*24:02 | 1 | 408 | 416 | 9 | RQIAPGQTG 0.000288 | 14 |
| HLA-B*58:01 | 1 | 433 | 442 | 10 | VIAMNSNLD 0.000288 | 24 |
| HLA-A*23:01 | 1 | 542 | 551 | 10 | NFNGLTGTGV 0.000288 | 14 |
| HLA-A*01:01 | 1 | 569 | 578 | 10 | IADTTDAVRD 0.000288 | 30 |
| HLA-A*02:01 | 1 | 622 | 631 | 10 | VAIHADQLTP 0.000288 | 23 |
| HLA-A*24:02 | 1 | 698 | 707 | 10 | SLGAENSVAY 0.000288 | 14 |
| HLA-A*68:01 | 1 | 746 | 754 | 9 | STECNLLL 0.000288 | 23 |
| HLA-B*57:01 | 1 | 760 | 768 | 9 | CTQLNRALT 0.000288 | 33 |
| HLA-B*51:01 | 1 | 823 | 831 | 9 | FNKVTLADA 0.000288 | 30 |
| HLA-A*26:01 | 1 | 888 | 896 | 9 | FGAGAALQI 0.000288 | 19 |
| HLA-B*57:01 | 1 | 912 | 921 | 10 | TQNVLYENQK 0.000288 | 33 |
| HLA-A*02:06 | 1 | 940 | 949 | 10 | STASALGKLQ 0.000288 | 31 |
| HLA-A*02:01 | 1 | 1017 | 1026 | 10 | EIRASANLAA 0.000288 | 23 |
| HLA-A*30:02 | 1 | 1021 | 1030 | 10 | SANLAATKMS 0.000288 | 40 |
| HLA-A*26:01 | 1 | 1040 | 1048 | 9 | VDFCGKGYH 0.000288 | 19 |
| HLA-B*40:01 | 1 | 1050 | 1058 | 9 | MSFPQSAPH 0.000288 | 13 |
| HLA-B*07:02 | 1 | 1058 | 1067 | 10 | HGVVFLHVTY 0.000288 | 21 |
| HLA-A*30:01 | 1 | 1120 | 1129 | 10 | TFVSGNCDVV 0.000288 | 43 |
| HLA-B*51:01 | 1 | 1127 | 1135 | 9 | DVVIGIVNN 0.000288 | 30 |
| HLA-A*30:02 | 1 | 1171 | 1180 | 10 | GINASVNIQ 0.000288 | 40 |
| HLA-B*53:01 | 1 | 1218 | 1226 | 9 | LGFIAGLIA 0.000288 | 16 |
| HLA-A*30:01 | 1 | 38 | 46 | 9 | YDPKVFSS 0.000287 | 43 |
| HLA-A*32:01 | 1 | 59 | 67 | 9 | FSNVTWFHA 0.000287 | 18 |
| HLA-B*44:02 | 1 | 92 | 100 | 9 | FASTEKSI 0.000287 | 14 |
| HLA-B*15:01 | 1 | 115 | 123 | 9 | QSLIVNNA 0.000287 | 24 |
| HLA-A*23:01 | 1 | 205 | 213 | 9 | SKHTPINLV 0.000287 | 14 |
| HLA-B*15:01 | 1 | 208 | 216 | 9 | TPINLVRDL 0.000287 | 24 |
| HLA-B*08:01 | 1 | 237 | 245 | 9 | RFQTLALH 0.000287 | 33 |
| HLA-A*68:01 | 1 | 318 | 326 | 9 | FRVQPTESI 0.000287 | 23 |
| HLA-B*15:01 | 1 | 325 | 333 | 9 | SIVRFPNIT 0.000287 | 24 |
| HLA-A*68:02 | 1 | 348 | 356 | 9 | ASVYAWNRK 0.000287 | 25 |
| HLA-A*68:02 | 1 | 348 | 357 | 10 | ASVYAWNRKR 0.000287 | 25 |
| HLA-B*51:01 | 1 | 367 | 375 | 9 | VLYNSASFS 0.000287 | 30 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*30:01 | 1 | 438 | 447 | 10 | SNNLDSKVG 0.000287 | 43 |
| HLA-A*23:01 | 1 | 444 | 453 | 10 | KVGGNYNYLY 0.000287 | 14 |
| HLA-A*01:01 | 1 | 462 | 470 | 9 | KPFERDIST 0.000287 | 30 |
| HLA-B*40:01 | 1 | 504 | 512 | 9 | GYQPYRVVV 0.000287 | 13 |
| HLA-B*58:01 | 1 | 516 | 524 | 9 | ELLHAPATV 0.000287 | 24 |
| HLA-B*58:01 | 1 | 520 | 529 | 10 | APATVCGPKK 0.000287 | 24 |
| HLA-A*11:01 | 1 | 598 | 607 | 10 | ITPGTNTSNQ 0.000287 | 15 |
| HLA-B*07:02 | 1 | 611 | 620 | 10 | LYQDVNCTEV 0.000287 | 21 |
| HLA-A*03:01 | 1 | 644 | 653 | 10 | QTRAGCLIGA 0.000287 | 19 |
| HLA-A*33:01 | 1 | 645 | 653 | 9 | TRAGCLIGA 0.000287 | 23 |
| HLA-A*33:01 | 1 | 646 | 655 | 10 | RAGCLIGAEH 0.000287 | 23 |
| HLA-A*68:01 | 1 | 703 | 712 | 10 | NSVAYSNSI 0.000287 | 23 |
| HLA-A*02:03 | 1 | 750 | 759 | 10 | SNLLQYGSF 0.000287 | 26 |
| HLA-A*33:01 | 1 | 750 | 758 | 9 | SNLLQYGS 0.000287 | 23 |
| HLA-A*68:02 | 1 | 774 | 782 | 9 | QDKNTQEVF 0.000287 | 25 |
| HLA-B*57:01 | 1 | 789 | 798 | 10 | YKTPPIKDFG 0.000287 | 33 |
| HLA-A*68:01 | 1 | 791 | 800 | 10 | TPPIKDFGGF 0.000287 | 23 |
| HLA-B*58:01 | 1 | 820 | 828 | 9 | DLLFNKVTL 0.000287 | 24 |
| HLA-B*44:03 | 1 | 824 | 833 | 10 | NKVTLADAGF 0.000287 | 14 |
| HLA-A*26:01 | 1 | 933 | 942 | 10 | KIQDSLSTA 0.000287 | 19 |
| HLA-B*07:02 | 1 | 1053 | 1061 | 9 | PQSAPHGVV 0.000287 | 21 |
| HLA-A*11:01 | 1 | 1082 | 1091 | 10 | CHDGKAHFPR 0.000287 | 15 |
| HLA-B*07:02 | 1 | 1151 | 1159 | 9 | ELDKYFKNH 0.000287 | 21 |
| HLA-A*32:01 | 1 | 1167 | 1176 | 10 | GDISGINASV 0.000287 | 18 |
| HLA-B*53:01 | 1 | 1210 | 1218 | 9 | IKWPWYIWL 0.000287 | 16 |
| HLA-A*31:01 | 1 | 20 | 29 | 10 | TRTQLPPAYT 0.000286 | 25 |
| HLA-B*15:01 | 1 | 126 | 134 | 9 | VVIKVCFEQ 0.000286 | 24 |
| HLA-B*44:03 | 1 | 190 | 199 | 10 | REFVFKNIDG 0.000286 | 14 |
| HLA-B*08:01 | 1 | 238 | 246 | 9 | FQTLALHR 0.000286 | 33 |
| HLA-A*24:02 | 1 | 274 | 282 | 9 | TFLLYNEN 0.000286 | 14 |
| HLA-B*44:02 | 1 | 319 | 327 | 9 | RVQPTESIV 0.000286 | 14 |
| HLA-B*44:03 | 1 | 345 | 354 | 10 | TRFASVYAWN 0.000286 | 14 |
| HLA-A*32:01 | 1 | 481 | 489 | 9 | NGVEGFNCY 0.000286 | 18 |
| HLA-A*03:01 | 1 | 538 | 546 | 9 | CVNFFNGL 0.000286 | 19 |
| HLA-B*58:01 | 1 | 548 | 557 | 10 | GTGVLTESNK 0.000286 | 24 |
| HLA-A*30:01 | 1 | 567 | 575 | 9 | RDIADTTDA 0.000286 | 43 |
| HLA-A*02:03 | 1 | 591 | 600 | 10 | SFGGVSVITP 0.000286 | 26 |
| HLA-A*30:01 | 1 | 599 | 608 | 10 | TPGTNTSNQV 0.000286 | 43 |
| HLA-A*68:01 | 1 | 616 | 624 | 9 | NCTEVPVAI 0.000286 | 23 |
| HLA-B*07:02 | 1 | 677 | 686 | 10 | QTNSPRRARS 0.000286 | 21 |
| HLA-A*01:01 | 1 | 698 | 706 | 9 | SLGAENVA 0.000286 | 30 |
| HLA-A*02:03 | 1 | 745 | 753 | 9 | DSTECSNLL 0.000286 | 26 |
| HLA-A*02:03 | 1 | 780 | 789 | 10 | EVFAQVKQIY 0.000286 | 26 |
| HLA-B*57:01 | 1 | 827 | 836 | 10 | TLADAGFIKQ 0.000286 | 33 |
| HLA-B*51:01 | 1 | 849 | 858 | 10 | LICAQKFNGL 0.000286 | 30 |
| HLA-B*15:01 | 1 | 882 | 890 | 9 | ITSGWTFGA 0.000286 | 24 |
| HLA-B*58:01 | 1 | 921 | 930 | 10 | KLIANQFNVA 0.000286 | 24 |
| HLA-B*57:01 | 1 | 922 | 930 | 9 | LIANQFNVA 0.000286 | 33 |
| HLA-A*30:01 | 1 | 952 | 961 | 10 | VNQAQALNT 0.000286 | 43 |
| HLA-A*26:01 | 1 | 1010 | 1018 | 9 | QQLIRAAEI 0.000286 | 20 |
| HLA-B*07:02 | 1 | 1020 | 1028 | 9 | ASANLAATK 0.000286 | 21 |
| HLA-A*02:06 | 1 | 1047 | 1055 | 9 | YHLMSFPQS 0.000286 | 31 |
| HLA-A*02:06 | 1 | 1069 | 1077 | 9 | PAQEKNF 0.000286 | 31 |
| HLA-B*07:02 | 1 | 1085 | 1094 | 10 | GKAHFPREGV 0.000286 | 21 |
| HLA-B*51:01 | 1 | 1101 | 1110 | 10 | HWFVTQRNFY 0.000286 | 30 |
| HLA-A*30:02 | 1 | 1104 | 1113 | 10 | VTQRNFYEPQ 0.000286 | 40 |
| HLA-A*31:01 | 1 | 1129 | 1137 | 9 | VIGIVNNTV 0.000286 | 25 |
| HLA-A*30:01 | 1 | 1152 | 1161 | 10 | LDKYFKNHTS 0.000286 | 43 |
| HLA-A*33:01 | 1 | 1153 | 1161 | 9 | DKYFKNHTS 0.000286 | 23 |
| HLA-A*02:03 | 1 | 1226 | 1235 | 10 | AIVMVTIMLC 0.000286 | 26 |
| HLA-A*68:02 | 1 | 1 | 9 | 9 | MFVFLVLLP 0.000285 | 26 |
| HLA-B*53:01 | 1 | 6 | 14 | 9 | VLLPLVSSQ 0.000285 | 16 |
| HLA-A*31:01 | 1 | 15 | 24 | 10 | CVNLTRTQL 0.000285 | 25 |
| HLA-A*11:01 | 1 | 23 | 32 | 10 | QLPPAYTNSF 0.000285 | 15 |
| HLA-A*26:01 | 1 | 38 | 46 | 9 | YDPKVFSS 0.000285 | 20 |
| HLA-A*68:01 | 1 | 123 | 132 | 10 | ATNVVIVKCE 0.000285 | 23 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*11:01 | 1 | 250 | 258 | 9 | TPGDSSSGW 0.000285 | 15 |
| HLA-B*40:01 | 1 | 288 | 296 | 9 | AVDCALDPL 0.000285 | 13 |
| HLA-A*02:03 | 1 | 365 | 374 | 10 | YSVLYNSASF 0.000285 | 26 |
| HLA-B*35:01 | 1 | 377 | 386 | 10 | FKCYGVSPTK 0.000285 | 17 |
| HLA-A*26:01 | 1 | 401 | 410 | 10 | VIRGDEVQRQI 0.000285 | 20 |
| HLA-A*33:01 | 1 | 471 | 479 | 9 | EIYQAGSTP 0.000285 | 23 |
| HLA-A*02:03 | 1 | 495 | 504 | 10 | YGFQPTNGVG 0.000285 | 26 |
| HLA-B*44:03 | 1 | 533 | 541 | 9 | LVKNKCVNF 0.000285 | 14 |
| HLA-B*40:01 | 1 | 552 | 560 | 9 | LTESNKKFL 0.000285 | 13 |
| HLA-A*68:01 | 1 | 607 | 615 | 9 | QVAVLYQDV 0.000285 | 23 |
| HLA-A*02:01 | 1 | 652 | 660 | 9 | GAEHVNNSY 0.000285 | 23 |
| HLA-A*23:01 | 1 | 690 | 699 | 10 | QSIAYTMSL 0.000285 | 14 |
| HLA-B*07:02 | 1 | 698 | 706 | 9 | SLGAENSV 0.000285 | 21 |
| HLA-A*23:01 | 1 | 706 | 715 | 10 | AYSNNIAIP 0.000285 | 14 |
| HLA-A*26:01 | 1 | 746 | 755 | 10 | STECNLLLQ 0.000285 | 20 |
| HLA-A*30:01 | 1 | 793 | 802 | 10 | PIKDFGGFNF 0.000285 | 43 |
| HLA-A*30:02 | 1 | 836 | 844 | 9 | QYGDCLGDI 0.000285 | 40 |
| HLA-A*30:02 | 1 | 851 | 859 | 9 | CAQKFNGLT 0.000285 | 40 |
| HLA-A*01:01 | 1 | 925 | 934 | 10 | NQFNSAIGKI 0.000285 | 30 |
| HLA-B*44:03 | 1 | 1009 | 1017 | 9 | TQLLIRAAE 0.000285 | 14 |
| HLA-A*02:01 | 1 | 1020 | 1028 | 9 | ASANLAATK 0.000285 | 23 |
| HLA-B*07:02 | 1 | 1099 | 1107 | 9 | GTHWFVTQR 0.000285 | 21 |
| HLA-B*08:01 | 1 | 1121 | 1130 | 10 | FVSGNCDVVI 0.000285 | 33 |
| HLA-B*53:01 | 1 | 1171 | 1179 | 9 | GINASVVNI 0.000285 | 16 |
| HLA-A*68:01 | 1 | 27 | 36 | 10 | AYTNSFTRGV 0.000284 | 23 |
| HLA-A*24:02 | 1 | 38 | 47 | 10 | YDPKVFRRSSV 0.000284 | 14 |
| HLA-A*30:01 | 1 | 51 | 60 | 10 | TQDLFLPFFS 0.000284 | 43 |
| HLA-A*02:01 | 1 | 63 | 71 | 9 | TWFHAIHVS 0.000284 | 23 |
| HLA-A*32:01 | 1 | 141 | 150 | 10 | LGVYYHKNNK 0.000284 | 18 |
| HLA-A*33:01 | 1 | 175 | 183 | 9 | FLMDLEGKQ 0.000284 | 23 |
| HLA-B*15:01 | 1 | 175 | 184 | 10 | FLMDLEGKQG 0.000284 | 24 |
| HLA-A*33:01 | 1 | 201 | 210 | 10 | FKIYSKHTPI 0.000284 | 23 |
| HLA-A*03:01 | 1 | 231 | 239 | 9 | IGINITRFQ 0.000284 | 19 |
| HLA-B*51:01 | 1 | 255 | 263 | 9 | SSGWTAGAA 0.000284 | 30 |
| HLA-B*53:01 | 1 | 257 | 266 | 10 | GWTAGAAAYY 0.000284 | 16 |
| HLA-A*31:01 | 1 | 392 | 400 | 9 | FTNVYADSF 0.000284 | 25 |
| HLA-A*30:01 | 1 | 396 | 404 | 9 | YADSFVIRG 0.000284 | 43 |
| HLA-B*08:01 | 1 | 432 | 441 | 10 | CVIAWNSNNL 0.000284 | 33 |
| HLA-A*30:01 | 1 | 518 | 527 | 10 | LHAPATVCGP 0.000284 | 43 |
| HLA-A*33:01 | 1 | 624 | 632 | 9 | IHADQLTPT 0.000284 | 23 |
| HLA-A*68:01 | 1 | 630 | 638 | 9 | TPTWRVYST 0.000284 | 23 |
| HLA-A*30:02 | 1 | 667 | 675 | 9 | GAGICASYQ 0.000284 | 40 |
| HLA-A*30:02 | 1 | 693 | 702 | 10 | IAYTMSLGAE 0.000284 | 40 |
| HLA-B*44:03 | 1 | 714 | 722 | 9 | IPTNFTISV 0.000284 | 14 |
| HLA-A*31:01 | 1 | 726 | 734 | 9 | ILPVSMTKT 0.000284 | 25 |
| HLA-B*57:01 | 1 | 743 | 752 | 10 | CGDSTECNL 0.000284 | 33 |
| HLA-A*33:01 | 1 | 767 | 776 | 10 | LTGIAVEQDK 0.000284 | 23 |
| HLA-B*08:01 | 1 | 788 | 796 | 9 | IYKTPPIKD 0.000284 | 33 |
| HLA-A*01:01 | 1 | 813 | 822 | 10 | SKRSFIEDLL 0.000284 | 30 |
| HLA-A*03:01 | 1 | 839 | 847 | 9 | DCLGDIAAR 0.000284 | 19 |
| HLA-B*07:02 | 1 | 864 | 873 | 10 | LLTDEMIAQY 0.000284 | 21 |
| HLA-B*08:01 | 1 | 895 | 903 | 9 | QIPFAMQMA 0.000284 | 33 |
| HLA-B*53:01 | 1 | 908 | 917 | 10 | GIGVTQNVLY 0.000284 | 16 |
| HLA-A*68:01 | 1 | 1013 | 1022 | 10 | IRAAEIRASA 0.000284 | 23 |
| HLA-B*35:01 | 1 | 1038 | 1047 | 10 | KRVDFCGKGY 0.000284 | 17 |
| HLA-A*32:01 | 1 | 1049 | 1057 | 9 | LMSFPQSAP 0.000284 | 18 |
| HLA-B*51:01 | 1 | 1077 | 1086 | 10 | TAPAICHGDK 0.000284 | 30 |
| HLA-B*53:01 | 1 | 1092 | 1101 | 10 | EGVFVSNQTH 0.000284 | 16 |
| HLA-B*44:02 | 1 | 1149 | 1158 | 10 | KEELDKYFKN 0.000284 | 14 |
| HLA-B*44:03 | 1 | 1204 | 1213 | 10 | GKYEQYIKWP 0.000284 | 14 |
| HLA-A*03:01 | 1 | 13 | 22 | 10 | SQCWNLTTRT 0.000283 | 19 |
| HLA-B*58:01 | 1 | 78 | 87 | 10 | RFDNPVLPFN 0.000283 | 24 |
| HLA-B*08:01 | 1 | 85 | 93 | 9 | PFNDGVYFA 0.000283 | 33 |
| HLA-B*51:01 | 1 | 85 | 93 | 9 | PFNDGVYFA 0.000283 | 30 |
| HLA-B*07:02 | 1 | 123 | 131 | 9 | ATNVVIVKVC 0.000283 | 21 |
| HLA-A*03:01 | 1 | 134 | 143 | 10 | QFCNDPFLGV 0.000283 | 19 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*15:01 | 1 | 150 | 158 | 9 | KSWMESEFR 0.000283 | 24 |
| HLA-B*08:01 | 1 | 178 | 187 | 10 | DLEGKQGNFK 0.000283 | 33 |
| HLA-B*58:01 | 1 | 212 | 221 | 10 | LVRDLPQGF 0.000283 | 24 |
| HLA-A*30:02 | 1 | 279 | 288 | 10 | YNENGTITDA 0.000283 | 40 |
| HLA-B*07:02 | 1 | 333 | 342 | 10 | TNLCPFGEVF 0.000283 | 21 |
| HLA-A*30:02 | 1 | 458 | 467 | 10 | KSNLKPFFERD 0.000283 | 40 |
| HLA-A*23:01 | 1 | 460 | 468 | 9 | NLKPFFERDI 0.000283 | 14 |
| HLA-A*31:01 | 1 | 464 | 473 | 10 | FERDISTEYI 0.000283 | 25 |
| HLA-A*33:01 | 1 | 528 | 537 | 10 | KKSTNLVKNK 0.000283 | 24 |
| HLA-B*15:01 | 1 | 621 | 629 | 9 | PVAIHADQL 0.000283 | 24 |
| HLA-A*31:01 | 1 | 660 | 668 | 9 | YECDIPIGA 0.000283 | 25 |
| HLA-A*68:02 | 1 | 696 | 704 | 9 | TMSLGAENS 0.000283 | 26 |
| HLA-A*32:01 | 1 | 703 | 712 | 10 | NSVAYSNSI 0.000283 | 18 |
| HLA-B*35:01 | 1 | 750 | 759 | 10 | SNLLQYGSF 0.000283 | 17 |
| HLA-A*03:01 | 1 | 828 | 836 | 9 | LADAGFIKQ 0.000283 | 19 |
| HLA-A*30:01 | 1 | 847 | 856 | 10 | RDLICAQKFN 0.000283 | 43 |
| HLA-B*08:01 | 1 | 854 | 862 | 9 | KFNGLTVLP 0.000283 | 33 |
| HLA-A*01:01 | 1 | 874 | 883 | 10 | TSALLAGTIT 0.000283 | 30 |
| HLA-B*15:01 | 1 | 951 | 960 | 10 | VVNQAQALN 0.000283 | 24 |
| HLA-B*53:01 | 1 | 1026 | 1034 | 9 | ATKMSECVL 0.000283 | 16 |
| HLA-A*23:01 | 1 | 1065 | 1074 | 10 | VTYVPAQEK 0.000283 | 14 |
| HLA-B*15:01 | 1 | 1107 | 1116 | 10 | RNFYEQIIT 0.000283 | 24 |
| HLA-A*23:01 | 1 | 1122 | 1130 | 9 | VSGNCDVVI 0.000283 | 14 |
| HLA-B*15:01 | 1 | 1135 | 1144 | 10 | NTVYDPLQE 0.000283 | 24 |
| HLA-B*58:01 | 1 | 1135 | 1144 | 10 | NTVYDPLQE 0.000283 | 24 |
| HLA-A*02:03 | 1 | 1175 | 1184 | 10 | SVVNIQKEID 0.000283 | 26 |
| HLA-A*68:02 | 1 | 42 | 50 | 9 | VFRSSVLHS 0.000282 | 26 |
| HLA-A*30:01 | 1 | 54 | 63 | 10 | LFLPFFSNVT 0.000282 | 43 |
| HLA-B*53:01 | 1 | 93 | 101 | 9 | ASTEKSNI 0.000282 | 16 |
| HLA-B*58:01 | 1 | 118 | 126 | 9 | LIVNNATNV 0.000282 | 24 |
| HLA-A*26:01 | 1 | 123 | 131 | 9 | ATNVVIVKVC 0.000282 | 20 |
| HLA-B*58:01 | 1 | 314 | 323 | 10 | QTSNFRVQPT 0.000282 | 24 |
| HLA-A*02:03 | 1 | 357 | 365 | 9 | RISNCVADY 0.000282 | 26 |
| HLA-B*08:01 | 1 | 424 | 432 | 9 | KLPDDFTGC 0.000282 | 33 |
| HLA-A*02:03 | 1 | 451 | 460 | 10 | YLYRLFRRKSN 0.000282 | 26 |
| HLA-A*11:01 | 1 | 478 | 486 | 9 | TPCNGVEGF 0.000282 | 15 |
| HLA-B*44:03 | 1 | 482 | 490 | 9 | GVEGFNCYF 0.000282 | 14 |
| HLA-A*11:01 | 1 | 512 | 520 | 9 | VLSFELLHA 0.000282 | 15 |
| HLA-B*58:01 | 1 | 517 | 525 | 9 | LLHAPATVC 0.000282 | 24 |
| HLA-B*08:01 | 1 | 591 | 599 | 9 | SFGGVSVIT 0.000282 | 33 |
| HLA-B*51:01 | 1 | 608 | 617 | 10 | VAVLYQDVNC 0.000282 | 30 |
| HLA-B*35:01 | 1 | 630 | 639 | 10 | TPTWRVYSTG 0.000282 | 17 |
| HLA-B*58:01 | 1 | 631 | 639 | 9 | PTWRVYSTG 0.000282 | 24 |
| HLA-A*33:01 | 1 | 673 | 681 | 9 | SYQTQTN 0.000282 | 24 |
| HLA-A*02:01 | 1 | 677 | 685 | 9 | QTN 0.000282 | 23 |
| HLA-A*03:01 | 1 | 680 | 688 | 9 | SPRRAR 0.000282 | 19 |
| HLA-B*58:01 | 1 | 694 | 703 | 10 | AYTMSLGAEN 0.000282 | 24 |
| HLA-A*03:01 | 1 | 875 | 884 | 10 | SALLAGTITS 0.000282 | 19 |
| HLA-A*68:02 | 1 | 980 | 989 | 10 | ILSRLDKVEA 0.000282 | 26 |
| HLA-A*23:01 | 1 | 1070 | 1078 | 9 | AQEKNF 0.000282 | 14 |
| HLA-B*51:01 | 1 | 1077 | 1085 | 9 | TAPAICH 0.000282 | 30 |
| HLA-A*02:03 | 1 | 1093 | 1101 | 9 | GVFVSN 0.000282 | 26 |
| HLA-B*44:02 | 1 | 1099 | 1107 | 9 | GTHWFVTQR 0.000282 | 15 |
| HLA-A*24:02 | 1 | 1107 | 1116 | 10 | RNFYEQIIT 0.000282 | 14 |
| HLA-B*57:01 | 1 | 1172 | 1180 | 9 | INASVVNIQ 0.000282 | 33 |
| HLA-A*30:01 | 1 | 1173 | 1182 | 10 | NASVVNIQKE 0.000282 | 43 |
| HLA-B*07:02 | 1 | 1180 | 1189 | 10 | QKEIDRLNEV 0.000282 | 21 |
| HLA-B*40:01 | 1 | 38 | 47 | 10 | YDPKVF 0.000281 | 13 |
| HLA-B*35:01 | 1 | 88 | 96 | 9 | DGVYFASTE 0.000281 | 17 |
| HLA-A*11:01 | 1 | 126 | 135 | 10 | VVIKVCE 0.000281 | 15 |
| HLA-A*30:01 | 1 | 132 | 141 | 10 | EFQFCNDPFL 0.000281 | 43 |
| HLA-A*11:01 | 1 | 166 | 175 | 10 | CTFEYVSQP 0.000281 | 15 |
| HLA-A*31:01 | 1 | 200 | 208 | 9 | YFKIYSKHT 0.000281 | 25 |
| HLA-B*44:02 | 1 | 236 | 245 | 10 | TRFQTL 0.000281 | 15 |
| HLA-B*51:01 | 1 | 238 | 246 | 9 | FQTL 0.000281 | 30 |
| HLA-A*01:01 | 1 | 251 | 260 | 10 | PGDSSSGWTA 0.000281 | 30 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*68:02 | 1 | 408 | 417 | 10 | RQIAPGQTGK 0.000281 | 26 |
| HLA-B*07:02 | 1 | 427 | 436 | 10 | DDFTGCVIAW 0.000281 | 21 |
| HLA-B*44:03 | 1 | 437 | 445 | 9 | NSNNLDSKV 0.000281 | 14 |
| HLA-B*58:01 | 1 | 449 | 457 | 9 | YNYLYRLEFR 0.000281 | 24 |
| HLA-A*30:02 | 1 | 518 | 526 | 9 | LHAPATVCG 0.000281 | 40 |
| HLA-B*53:01 | 1 | 654 | 662 | 9 | EHVWNSYEC 0.000281 | 16 |
| HLA-A*30:02 | 1 | 720 | 729 | 10 | ISVTTEILPV 0.000281 | 40 |
| HLA-B*53:01 | 1 | 724 | 733 | 10 | TEILPVSMTK 0.000281 | 16 |
| HLA-A*26:01 | 1 | 731 | 739 | 9 | MTKTSVDCT 0.000281 | 20 |
| HLA-B*51:01 | 1 | 783 | 791 | 9 | AQVKQIYKT 0.000281 | 30 |
| HLA-B*07:02 | 1 | 784 | 793 | 10 | QVKQIYKTPP 0.000281 | 21 |
| HLA-A*01:01 | 1 | 860 | 868 | 9 | VLPLLLTDE 0.000281 | 30 |
| HLA-A*31:01 | 1 | 902 | 911 | 10 | MAYRFNGIGV 0.000281 | 25 |
| HLA-A*01:01 | 1 | 910 | 918 | 9 | GVTQNVLYE 0.000281 | 30 |
| HLA-A*02:01 | 1 | 1050 | 1058 | 9 | MSFPQSAPH 0.000281 | 23 |
| HLA-B*44:03 | 1 | 1106 | 1115 | 10 | QRNFYEPQII 0.000281 | 14 |
| HLA-B*35:01 | 1 | 1128 | 1136 | 9 | VVIGIVNNT 0.000281 | 17 |
| HLA-A*30:01 | 1 | 1171 | 1180 | 10 | GINASVVNIQ 0.000281 | 43 |
| HLA-B*51:01 | 1 | 1200 | 1209 | 10 | LQELGKYEYQ 0.000281 | 30 |
| HLA-A*02:03 | 1 | 1233 | 1241 | 9 | MLCCMTSCC 0.000281 | 26 |
| HLA-A*68:01 | 1 | 1248 | 1256 | 9 | CSCGSCCKF 0.000281 | 23 |
| HLA-B*35:01 | 1 | 1257 | 1266 | 10 | DEDDSEPVLK 0.000281 | 17 |
| HLA-B*53:01 | 1 | 25 | 34 | 10 | PPAYTNSFTR 0.00028 | 16 |
| HLA-A*30:02 | 1 | 91 | 99 | 9 | YFASTEKSN 0.00028 | 40 |
| HLA-A*02:01 | 1 | 196 | 205 | 10 | NIDGYFKIYS 0.00028 | 23 |
| HLA-A*26:01 | 1 | 228 | 236 | 9 | DLPIGINIT 0.00028 | 20 |
| HLA-A*11:01 | 1 | 233 | 241 | 9 | INITRFQTL 0.00028 | 15 |
| HLA-B*58:01 | 1 | 311 | 320 | 10 | GIYQTSNFRV 0.00028 | 24 |
| HLA-A*03:01 | 1 | 505 | 513 | 9 | YQPYRVVVL 0.00028 | 19 |
| HLA-A*03:01 | 1 | 509 | 518 | 10 | RVVVLSEFEL 0.00028 | 19 |
| HLA-B*44:03 | 1 | 511 | 519 | 9 | VVLSFELLH 0.00028 | 14 |
| HLA-A*30:01 | 1 | 539 | 548 | 10 | VNFNFNGLTG 0.00028 | 43 |
| HLA-A*02:03 | 1 | 712 | 721 | 10 | IAIPTNFTIS 0.00028 | 26 |
| HLA-A*68:02 | 1 | 739 | 747 | 9 | TMYICGDST 0.00028 | 26 |
| HLA-B*44:02 | 1 | 744 | 753 | 10 | GDSTECSNLL 0.00028 | 15 |
| HLA-A*02:01 | 1 | 777 | 786 | 10 | NTQEVFAQVK 0.00028 | 23 |
| HLA-A*02:03 | 1 | 826 | 835 | 10 | VTLADAGFIK 0.00028 | 26 |
| HLA-A*02:03 | 1 | 904 | 912 | 9 | YRFNGIGVT 0.00028 | 26 |
| HLA-B*15:01 | 1 | 907 | 915 | 9 | NGIGVTQNV 0.00028 | 24 |
| HLA-A*03:01 | 1 | 934 | 942 | 9 | IQDLSLSTA 0.00028 | 19 |
| HLA-B*15:01 | 1 | 939 | 947 | 9 | SSTASALGK 0.00028 | 24 |
| HLA-B*53:01 | 1 | 965 | 973 | 9 | QLSSNFGAI 0.00028 | 16 |
| HLA-A*30:02 | 1 | 976 | 985 | 10 | VLNDILSRLD 0.00028 | 40 |
| HLA-A*68:01 | 1 | 1001 | 1010 | 10 | LQSLQTYVTQ 0.00028 | 23 |
| HLA-A*01:01 | 1 | 1158 | 1166 | 9 | NHTSPDVDL 0.00028 | 30 |
| HLA-B*57:01 | 1 | 1204 | 1213 | 10 | GKYEQYIKWP 0.00028 | 33 |
| HLA-B*35:01 | 1 | 1216 | 1224 | 9 | IWLGFIAGL 0.00028 | 17 |
| HLA-A*02:01 | 1 | 24 | 32 | 9 | LPPAYTNSF 0.000279 | 23 |
| HLA-A*33:01 | 1 | 35 | 43 | 9 | GVYYPDKVF 0.000279 | 24 |
| HLA-A*02:06 | 1 | 110 | 119 | 10 | LDSKTQSLLI 0.000279 | 32 |
| HLA-A*02:06 | 1 | 127 | 136 | 10 | VIKVFQFC 0.000279 | 32 |
| HLA-A*31:01 | 1 | 137 | 146 | 10 | NDPFLGVYYH 0.000279 | 25 |
| HLA-B*35:01 | 1 | 143 | 152 | 10 | VYYHKNNKSW 0.000279 | 17 |
| HLA-A*02:01 | 1 | 151 | 160 | 10 | SWMESEFRVY 0.000279 | 23 |
| HLA-B*53:01 | 1 | 219 | 227 | 9 | GFSALEPLV 0.000279 | 16 |
| HLA-A*02:01 | 1 | 270 | 279 | 10 | LQPRTFLLKY 0.000279 | 23 |
| HLA-A*26:01 | 1 | 284 | 292 | 9 | TITDAVDCA 0.000279 | 20 |
| HLA-B*44:03 | 1 | 326 | 335 | 10 | IVRFPNITNL 0.000279 | 14 |
| HLA-A*68:01 | 1 | 363 | 371 | 9 | ADYSVLYNS 0.000279 | 23 |
| HLA-A*01:01 | 1 | 375 | 383 | 9 | STFKCYGVS 0.000279 | 30 |
| HLA-B*57:01 | 1 | 433 | 442 | 10 | VIAWNSNNLD 0.000279 | 33 |
| HLA-A*30:02 | 1 | 472 | 481 | 10 | IYQAGSTPCN 0.000279 | 40 |
| HLA-A*33:01 | 1 | 508 | 517 | 10 | YRVVLSFEL 0.000279 | 24 |
| HLA-B*15:01 | 1 | 523 | 531 | 9 | TVCGPKKST 0.000279 | 24 |
| HLA-A*02:03 | 1 | 593 | 602 | 10 | GGVSVITPGT 0.000279 | 26 |
| HLA-B*51:01 | 1 | 601 | 610 | 10 | GTNTSNQVAV 0.000279 | 30 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*15:01 | 1 | 649 | 657 | 9 | CLIGAEHVN 0.000279 | 24 |
| HLA-A*02:01 | 1 | 687 | 696 | 10 | VASQSIIAYT 0.000279 | 23 |
| HLA-A*32:01 | 1 | 691 | 700 | 10 | SIIAYTMSLG 0.000279 | 18 |
| HLA-B*44:02 | 1 | 857 | 865 | 9 | GLTVLPPLL 0.000279 | 15 |
| HLA-A*30:02 | 1 | 904 | 912 | 9 | YRFNGIGVT 0.000279 | 40 |
| HLA-B*15:01 | 1 | 909 | 918 | 10 | IGVTQNVLYE 0.000279 | 24 |
| HLA-A*01:01 | 1 | 1049 | 1057 | 9 | LMSFPQSAP 0.000279 | 30 |
| HLA-A*30:01 | 1 | 1152 | 1160 | 9 | LDKYFKNHT 0.000279 | 43 |
| HLA-B*40:01 | 1 | 46 | 55 | 10 | SVLHSTQDLF 0.000278 | 13 |
| HLA-B*08:01 | 1 | 61 | 69 | 9 | NVTWFHAIH 0.000278 | 33 |
| HLA-A*03:01 | 1 | 126 | 135 | 10 | VVIKVCFFQF 0.000278 | 19 |
| HLA-B*44:02 | 1 | 135 | 143 | 9 | FCNDPFLGV 0.000278 | 15 |
| HLA-A*30:02 | 1 | 188 | 197 | 10 | NLREFVFKNI 0.000278 | 41 |
| HLA-B*57:01 | 1 | 231 | 240 | 10 | IGINITRFQT 0.000278 | 33 |
| HLA-A*31:01 | 1 | 370 | 379 | 10 | NSASFSTFKC 0.000278 | 25 |
| HLA-A*30:02 | 1 | 427 | 436 | 10 | DDFTGCVIAW 0.000278 | 41 |
| HLA-A*11:01 | 1 | 433 | 441 | 9 | VIAWNSNNL 0.000278 | 15 |
| HLA-A*01:01 | 1 | 512 | 521 | 10 | VLSFELLHAP 0.000278 | 31 |
| HLA-B*08:01 | 1 | 563 | 571 | 9 | QQFGRDIAD 0.000278 | 33 |
| HLA-A*03:01 | 1 | 572 | 580 | 9 | TTDAVRDPQ 0.000278 | 19 |
| HLA-A*02:01 | 1 | 657 | 666 | 10 | NNSYECDIPI 0.000278 | 23 |
| HLA-A*30:02 | 1 | 678 | 687 | 10 | TNSPRRARSV 0.000278 | 41 |
| HLA-A*02:06 | 1 | 802 | 810 | 9 | FSQILPDPS 0.000278 | 32 |
| HLA-B*44:03 | 1 | 825 | 833 | 9 | KVTLADAGF 0.000278 | 14 |
| HLA-A*68:02 | 1 | 827 | 836 | 10 | TLADAGFIKQ 0.000278 | 26 |
| HLA-A*30:01 | 1 | 832 | 841 | 10 | GFIKQYGDCL 0.000278 | 43 |
| HLA-A*68:02 | 1 | 877 | 885 | 9 | LLAGTITSG 0.000278 | 26 |
| HLA-B*57:01 | 1 | 883 | 891 | 9 | TSGWTFGAG 0.000278 | 33 |
| HLA-A*23:01 | 1 | 907 | 916 | 10 | NGIGVTQNVL 0.000278 | 14 |
| HLA-A*11:01 | 1 | 912 | 920 | 9 | TQNVLYENQ 0.000278 | 15 |
| HLA-B*35:01 | 1 | 1018 | 1026 | 9 | IRASANLAA 0.000278 | 17 |
| HLA-B*57:01 | 1 | 1061 | 1069 | 9 | VFLHVTYVP 0.000278 | 33 |
| HLA-B*07:02 | 1 | 1064 | 1073 | 10 | HVTYVPAQEK 0.000278 | 21 |
| HLA-B*53:01 | 1 | 1078 | 1086 | 9 | APAICHDGK 0.000278 | 16 |
| HLA-A*30:02 | 1 | 1099 | 1108 | 10 | GTHWFVTQRN 0.000278 | 41 |
| HLA-A*11:01 | 1 | 1103 | 1111 | 9 | FVTQRNFYE 0.000278 | 15 |
| HLA-A*33:01 | 1 | 1129 | 1137 | 9 | VIGIVNNTV 0.000278 | 24 |
| HLA-A*31:01 | 1 | 1170 | 1179 | 10 | SGINASVVNI 0.000278 | 25 |
| HLA-A*02:03 | 1 | 5 | 14 | 10 | LVLLPLVSSQ 0.000277 | 26 |
| HLA-B*51:01 | 1 | 76 | 85 | 10 | TKRFDNPVLP 0.000277 | 30 |
| HLA-A*23:01 | 1 | 218 | 227 | 10 | QGFSALEPLV 0.000277 | 14 |
| HLA-B*44:02 | 1 | 234 | 242 | 9 | NITRFQTL 0.000277 | 15 |
| HLA-A*33:01 | 1 | 253 | 262 | 10 | DSSSGWTAGA 0.000277 | 24 |
| HLA-A*30:02 | 1 | 276 | 284 | 9 | LLKYNENGT 0.000277 | 41 |
| HLA-A*26:01 | 1 | 377 | 386 | 10 | FKCYGVSPTK 0.000277 | 20 |
| HLA-A*30:01 | 1 | 392 | 401 | 10 | FTNVYADSFV 0.000277 | 43 |
| HLA-B*44:02 | 1 | 454 | 462 | 9 | RLFRKSNLK 0.000277 | 15 |
| HLA-A*33:01 | 1 | 460 | 468 | 9 | NLKPFERDI 0.000277 | 24 |
| HLA-B*08:01 | 1 | 540 | 549 | 10 | NFNFNGLTGT 0.000277 | 33 |
| HLA-A*03:01 | 1 | 692 | 701 | 10 | IIAYTMSLGA 0.000277 | 19 |
| HLA-A*01:01 | 1 | 725 | 734 | 10 | EILPVSMTKT 0.000277 | 31 |
| HLA-A*02:06 | 1 | 787 | 796 | 10 | QIYKTPPIKD 0.000277 | 32 |
| HLA-B*08:01 | 1 | 800 | 808 | 9 | FNFSQILPD 0.000277 | 33 |
| HLA-A*02:03 | 1 | 861 | 869 | 9 | LPPLLTDEM 0.000277 | 26 |
| HLA-B*57:01 | 1 | 904 | 913 | 10 | YRFNGIGVTQ 0.000277 | 33 |
| HLA-A*23:01 | 1 | 934 | 942 | 9 | IQDLSLSTA 0.000277 | 14 |
| HLA-B*53:01 | 1 | 955 | 964 | 10 | NAQALNLTVK 0.000277 | 16 |
| HLA-A*30:01 | 1 | 989 | 998 | 10 | AEVQIDRLIT 0.000277 | 43 |
| HLA-B*57:01 | 1 | 1010 | 1019 | 10 | QQLIRAAEIR 0.000277 | 33 |
| HLA-A*30:01 | 1 | 1034 | 1043 | 10 | LGQSKRVDFC 0.000277 | 43 |
| HLA-A*03:01 | 1 | 1087 | 1096 | 10 | AHFPREGVIV 0.000277 | 19 |
| HLA-A*01:01 | 1 | 1089 | 1097 | 9 | FPREGVIVS 0.000277 | 31 |
| HLA-B*53:01 | 1 | 1125 | 1133 | 9 | NCDVVIGIV 0.000277 | 16 |
| HLA-B*53:01 | 1 | 1184 | 1193 | 10 | DRLNEVAKNL 0.000277 | 16 |
| HLA-A*68:01 | 1 | 1227 | 1235 | 9 | IVMVTIMLC 0.000277 | 23 |
| HLA-B*51:01 | 1 | 61 | 69 | 9 | NVTWFHAIH 0.000276 | 30 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*51:01 | 1 | 74 | 82 | 9 | NGTKRFDNP 0.000276 | 30 |
| HLA-B*44:03 | 1 | 124 | 133 | 10 | TNVVIKVICEF 0.000276 | 14 |
| HLA-A*02:06 | 1 | 154 | 163 | 10 | ESEFRVYSSA 0.000276 | 32 |
| HLA-A*11:01 | 1 | 163 | 171 | 9 | ANNCTFEYV 0.000276 | 15 |
| HLA-A*68:01 | 1 | 227 | 235 | 9 | VDLPIGINI 0.000276 | 23 |
| HLA-A*23:01 | 1 | 323 | 332 | 10 | TESIVRFPNI 0.000276 | 14 |
| HLA-B*08:01 | 1 | 391 | 400 | 10 | CFTNVYADSF 0.000276 | 33 |
| HLA-B*07:02 | 1 | 421 | 429 | 9 | YNYKLPDDF 0.000276 | 21 |
| HLA-B*44:03 | 1 | 462 | 470 | 9 | KPFERDIST 0.000276 | 14 |
| HLA-A*01:01 | 1 | 522 | 530 | 9 | ATVCGPKKS 0.000276 | 31 |
| HLA-A*32:01 | 1 | 525 | 533 | 9 | CGPKKSTNL 0.000276 | 18 |
| HLA-B*15:01 | 1 | 606 | 615 | 10 | NQVAVLYQDV 0.000276 | 24 |
| HLA-A*33:01 | 1 | 619 | 627 | 9 | EVPVAIHAD 0.000276 | 24 |
| HLA-A*01:01 | 1 | 798 | 806 | 9 | GGFNFSQIL 0.000276 | 31 |
| HLA-A*03:01 | 1 | 805 | 813 | 9 | ILPDPSKPS 0.000276 | 19 |
| HLA-A*30:02 | 1 | 990 | 998 | 9 | EVQIDRLIT 0.000276 | 41 |
| HLA-A*01:01 | 1 | 996 | 1005 | 10 | LITGRLQSLQ 0.000276 | 31 |
| HLA-B*40:01 | 1 | 1018 | 1026 | 9 | IRASANLAA 0.000276 | 13 |
| HLA-A*26:01 | 1 | 1182 | 1190 | 9 | EIDRLNEVA 0.000276 | 20 |
| HLA-B*15:01 | 1 | 1189 | 1198 | 10 | VAKNLNESLI 0.000276 | 24 |
| HLA-A*02:03 | 1 | 1190 | 1198 | 9 | AKNLNESLI 0.000276 | 26 |
| HLA-B*51:01 | 1 | 1217 | 1225 | 9 | WLGFIAGLI 0.000276 | 30 |
| HLA-A*02:03 | 1 | 69 | 78 | 10 | HVSGTNGTKR 0.000275 | 26 |
| HLA-B*44:03 | 1 | 148 | 157 | 10 | NNKSWMESEF 0.000275 | 14 |
| HLA-A*24:02 | 1 | 196 | 204 | 9 | NIDGYFKIY 0.000275 | 14 |
| HLA-B*57:01 | 1 | 272 | 281 | 10 | PRTFLLKYNE 0.000275 | 33 |
| HLA-A*01:01 | 1 | 388 | 397 | 10 | NDLCFTNVYA 0.000275 | 31 |
| HLA-B*51:01 | 1 | 487 | 496 | 10 | NCYFPLQSYG 0.000275 | 30 |
| HLA-B*58:01 | 1 | 572 | 581 | 10 | TTDAVRDPQT 0.000275 | 24 |
| HLA-A*33:01 | 1 | 610 | 619 | 10 | VLYQDVNCTE 0.000275 | 24 |
| HLA-A*02:06 | 1 | 614 | 623 | 10 | DVNCTEVPVA 0.000275 | 32 |
| HLA-B*57:01 | 1 | 749 | 758 | 10 | CSNLLLQYGS 0.000275 | 33 |
| HLA-B*08:01 | 1 | 753 | 761 | 9 | LLQYGSFCT 0.000275 | 33 |
| HLA-B*51:01 | 1 | 764 | 773 | 10 | NRALTGIAVE 0.000275 | 30 |
| HLA-B*35:01 | 1 | 821 | 829 | 9 | LLFNKVTLA 0.000275 | 17 |
| HLA-A*23:01 | 1 | 897 | 905 | 9 | PFAMQMAYR 0.000275 | 14 |
| HLA-A*02:01 | 1 | 949 | 958 | 10 | QDVVNQNAQA 0.000275 | 24 |
| HLA-B*57:01 | 1 | 979 | 987 | 9 | DILSRLDKV 0.000275 | 33 |
| HLA-A*02:03 | 1 | 992 | 1000 | 9 | QIDRLITGR 0.000275 | 26 |
| HLA-A*02:01 | 1 | 1033 | 1042 | 10 | VLGQSKRVDF 0.000275 | 24 |
| HLA-B*51:01 | 1 | 1132 | 1140 | 9 | IVNNTVYDP 0.000275 | 30 |
| HLA-B*51:01 | 1 | 1132 | 1141 | 10 | IVNNTVYDPL 0.000275 | 30 |
| HLA-B*07:02 | 1 | 1207 | 1215 | 9 | EQYIKWPWY 0.000275 | 21 |
| HLA-B*58:01 | 1 | 61 | 70 | 10 | NVTWFHAIHV 0.000274 | 24 |
| HLA-A*33:01 | 1 | 62 | 71 | 10 | VTWFHAIHVS 0.000274 | 24 |
| HLA-A*30:02 | 1 | 76 | 85 | 10 | TKRFDNPVLP 0.000274 | 41 |
| HLA-A*32:01 | 1 | 82 | 90 | 9 | PVLPFNDGV 0.000274 | 18 |
| HLA-A*02:06 | 1 | 86 | 95 | 10 | FNDGVYFAST 0.000274 | 32 |
| HLA-A*02:06 | 1 | 122 | 131 | 10 | NATNVVIKVC 0.000274 | 32 |
| HLA-A*03:01 | 1 | 233 | 241 | 9 | INITRFQTL 0.000274 | 20 |
| HLA-A*68:02 | 1 | 264 | 272 | 9 | AYYVGYLQP 0.000274 | 26 |
| HLA-A*02:03 | 1 | 281 | 289 | 9 | ENGTITDAV 0.000274 | 26 |
| HLA-A*68:01 | 1 | 319 | 327 | 9 | RVQPTESIV 0.000274 | 23 |
| HLA-A*30:02 | 1 | 519 | 527 | 9 | HAPATVCGP 0.000274 | 41 |
| HLA-A*33:01 | 1 | 548 | 557 | 10 | GTGVLTESNK 0.000274 | 24 |
| HLA-B*40:01 | 1 | 567 | 575 | 9 | RDIADTTDA 0.000274 | 13 |
| HLA-B*58:01 | 1 | 682 | 691 | 10 | RRARSVASQS 0.000274 | 24 |
| HLA-B*44:03 | 1 | 761 | 770 | 10 | TQLNRALTGI 0.000274 | 14 |
| HLA-A*30:02 | 1 | 838 | 847 | 10 | GDCLGDIAAR 0.000274 | 41 |
| HLA-A*68:01 | 1 | 891 | 899 | 9 | GAALQIPFA 0.000274 | 23 |
| HLA-B*57:01 | 1 | 910 | 918 | 9 | GVTQNVLYE 0.000274 | 33 |
| HLA-A*01:01 | 1 | 929 | 937 | 9 | SAIGKIQDS 0.000274 | 31 |
| HLA-A*33:01 | 1 | 1081 | 1089 | 9 | ICHDGKAHF 0.000274 | 24 |
| HLA-A*26:01 | 1 | 1087 | 1096 | 10 | AHFPREGVFN 0.000274 | 20 |
| HLA-A*32:01 | 1 | 1113 | 1122 | 10 | QIITTDNTFV 0.000274 | 18 |
| HLA-B*07:02 | 1 | 1128 | 1136 | 9 | VVIGIVNNT 0.000274 | 21 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*24:02 | 1 | 1143 | 1152 | 10 | PELDSFKEEL 0.000274 | 14 |
| HLA-B*35:01 | 1 | 1168 | 1177 | 10 | DISGINASVV 0.000274 | 17 |
| HLA-B*08:01 | 1 | 1170 | 1179 | 10 | SGINASVVNI 0.000274 | 33 |
| HLA-B*57:01 | 1 | 1185 | 1194 | 10 | RLNEVAKNLN 0.000274 | 33 |
| HLA-A*30:01 | 1 | 1237 | 1246 | 10 | MTSCCSCCLKG 0.000274 | 43 |
| HLA-A*68:02 | 1 | 12 | 21 | 10 | SSQCVNLTR 0.000273 | 26 |
| HLA-B*08:01 | 1 | 16 | 25 | 10 | VNLTRTRQLP 0.000273 | 33 |
| HLA-B*51:01 | 1 | 40 | 49 | 10 | DKVFRSSVLH 0.000273 | 30 |
| HLA-B*07:02 | 1 | 118 | 127 | 10 | LIVNNATNVV 0.000273 | 21 |
| HLA-B*58:01 | 1 | 140 | 148 | 9 | FLGVYYHKN 0.000273 | 24 |
| HLA-A*26:01 | 1 | 194 | 203 | 10 | FKNIDGYFKI 0.000273 | 20 |
| HLA-B*15:01 | 1 | 207 | 216 | 10 | HTPINLVRDL 0.000273 | 24 |
| HLA-A*32:01 | 1 | 208 | 216 | 9 | TPINLVRDL 0.000273 | 18 |
| HLA-A*68:02 | 1 | 267 | 275 | 9 | VGYLQPRTF 0.000273 | 26 |
| HLA-B*58:01 | 1 | 322 | 330 | 9 | PTESIVRFP 0.000273 | 24 |
| HLA-A*03:01 | 1 | 337 | 346 | 10 | PFGEVFNATR 0.000273 | 20 |
| HLA-B*44:03 | 1 | 342 | 351 | 10 | FNATRFASVY 0.000273 | 14 |
| HLA-B*08:01 | 1 | 406 | 415 | 10 | EVRQIAPGQT 0.000273 | 33 |
| HLA-B*44:02 | 1 | 409 | 417 | 9 | QIAPGQTGK 0.000273 | 15 |
| HLA-B*57:01 | 1 | 412 | 421 | 10 | PGQTGKIADY 0.000273 | 33 |
| HLA-A*24:02 | 1 | 443 | 452 | 10 | SKVGGNYNYL 0.000273 | 14 |
| HLA-B*44:03 | 1 | 506 | 514 | 9 | QPYRVVVL 0.000273 | 14 |
| HLA-B*44:02 | 1 | 530 | 538 | 9 | STNLVKKNC 0.000273 | 15 |
| HLA-A*03:01 | 1 | 688 | 697 | 10 | ASQSIIAYTM 0.000273 | 20 |
| HLA-A*31:01 | 1 | 753 | 762 | 10 | LLQYGSFCTQ 0.000273 | 25 |
| HLA-B*15:01 | 1 | 758 | 767 | 10 | SFCTQLNRAL 0.000273 | 24 |
| HLA-A*33:01 | 1 | 843 | 852 | 10 | DIAARDLICA 0.000273 | 24 |
| HLA-B*08:01 | 1 | 875 | 883 | 9 | SALLAGTIT 0.000273 | 33 |
| HLA-A*31:01 | 1 | 878 | 886 | 9 | LAGTITSGW 0.000273 | 25 |
| HLA-A*24:02 | 1 | 900 | 909 | 10 | MQMAYRFNGI 0.000273 | 14 |
| HLA-A*68:01 | 1 | 1104 | 1113 | 10 | VTQRNFYEPQ 0.000273 | 23 |
| HLA-B*57:01 | 1 | 1113 | 1122 | 10 | QIITDNTFV 0.000273 | 33 |
| HLA-B*51:01 | 1 | 1143 | 1152 | 10 | PELDSFKEEL 0.000273 | 30 |
| HLA-A*68:01 | 1 | 1147 | 1156 | 10 | SFKEELDKYF 0.000273 | 23 |
| HLA-B*57:01 | 1 | 1238 | 1247 | 10 | TSCCSCCLKGC 0.000273 | 33 |
| HLA-A*03:01 | 1 | 1246 | 1255 | 10 | GCCSCGSCCK 0.000273 | 20 |
| HLA-B*51:01 | 1 | 1257 | 1266 | 10 | DEDDSEPVLK 0.000273 | 30 |
| HLA-A*23:01 | 1 | 19 | 28 | 10 | TTRTQLPPAY 0.000272 | 14 |
| HLA-A*68:01 | 1 | 34 | 43 | 10 | RGVYYPDKVF 0.000272 | 23 |
| HLA-A*31:01 | 1 | 43 | 51 | 9 | FRSSVLHST 0.000272 | 25 |
| HLA-B*58:01 | 1 | 84 | 93 | 10 | LPFNDGVYFA 0.000272 | 24 |
| HLA-B*07:02 | 1 | 137 | 145 | 9 | NDPFLGVYY 0.000272 | 21 |
| HLA-A*30:02 | 1 | 174 | 182 | 9 | PFLMDLEGK 0.000272 | 41 |
| HLA-B*07:02 | 1 | 181 | 189 | 9 | GKQGNFKNL 0.000272 | 21 |
| HLA-B*57:01 | 1 | 202 | 211 | 10 | KIYSKHTPIN 0.000272 | 33 |
| HLA-B*40:01 | 1 | 211 | 220 | 10 | NLVRDLPQGF 0.000272 | 13 |
| HLA-A*32:01 | 1 | 212 | 221 | 10 | LVRDLPQGF 0.000272 | 18 |
| HLA-A*31:01 | 1 | 233 | 242 | 10 | INITRFQTL 0.000272 | 25 |
| HLA-A*32:01 | 1 | 239 | 247 | 9 | QTLALHRS 0.000272 | 18 |
| HLA-A*31:01 | 1 | 306 | 315 | 10 | FTVEKGIYQT 0.000272 | 25 |
| HLA-B*44:03 | 1 | 317 | 326 | 10 | NFRVQPTESI 0.000272 | 14 |
| HLA-A*01:01 | 1 | 323 | 332 | 10 | TESIVRFPNI 0.000272 | 31 |
| HLA-B*51:01 | 1 | 340 | 349 | 10 | EVFNATRFAS 0.000272 | 30 |
| HLA-B*53:01 | 1 | 345 | 354 | 10 | TRFASVYAWN 0.000272 | 16 |
| HLA-A*30:02 | 1 | 359 | 368 | 10 | SNCVADYSVL 0.000272 | 41 |
| HLA-A*01:01 | 1 | 383 | 391 | 9 | SPTKLNDLC 0.000272 | 31 |
| HLA-A*30:02 | 1 | 432 | 440 | 9 | CVIAWNSNN 0.000272 | 41 |
| HLA-A*30:01 | 1 | 489 | 498 | 10 | YFPLQSYGFQ 0.000272 | 44 |
| HLA-A*33:01 | 1 | 530 | 539 | 10 | STNLVKKNCV 0.000272 | 24 |
| HLA-B*57:01 | 1 | 560 | 569 | 10 | LPFQQFGRDI 0.000272 | 33 |
| HLA-B*07:02 | 1 | 562 | 570 | 9 | FQQFGRDIA 0.000272 | 21 |
| HLA-B*35:01 | 1 | 578 | 586 | 9 | DPQTLEILD 0.000272 | 17 |
| HLA-B*08:01 | 1 | 611 | 619 | 9 | LYQDVNCTE 0.000272 | 33 |
| HLA-A*11:01 | 1 | 668 | 677 | 10 | AGICASYQTQ 0.000272 | 15 |
| HLA-A*33:01 | 1 | 695 | 704 | 10 | YTMSLGAENS 0.000272 | 24 |
| HLA-A*68:01 | 1 | 773 | 782 | 10 | EQDKNTQEVF 0.000272 | 23 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*53:01 | 1 | 797 | 806 | 10 | FGGFNFSQIL 0.000272 | 16 |
| HLA-B*35:01 | 1 | 904 | 913 | 10 | YRFNGIGVTQ 0.000272 | 17 |
| HLA-A*68:01 | 1 | 1009 | 1017 | 9 | TQQLIRAAE 0.000272 | 23 |
| HLA-A*02:06 | 1 | 1022 | 1031 | 10 | ANLAATKMSE 0.000272 | 32 |
| HLA-A*68:02 | 1 | 1143 | 1152 | 10 | PELDSFKEEL 0.000272 | 26 |
| HLA-B*15:01 | 1 | 1202 | 1210 | 9 | ELGKYEQYI 0.000272 | 24 |
| HLA-A*26:01 | 1 | 1221 | 1229 | 9 | IAGLIAIVM 0.000272 | 20 |
| HLA-A*02:06 | 1 | 1231 | 1240 | 10 | TIMLCCMTSC 0.000272 | 32 |
| HLA-B*07:02 | 1 | 1255 | 1264 | 10 | KFDEDDSEPV 0.000272 | 21 |
| HLA-B*58:01 | 1 | 1259 | 1268 | 10 | DDSEPVLKGV 0.000272 | 24 |
| HLA-B*58:01 | 1 | 8 | 16 | 9 | LPLVSSQCV 0.000271 | 24 |
| HLA-B*35:01 | 1 | 15 | 23 | 9 | CVNLTRTRQ 0.000271 | 17 |
| HLA-A*02:06 | 1 | 29 | 38 | 10 | TNSFTRGVVY 0.000271 | 32 |
| HLA-A*33:01 | 1 | 44 | 52 | 9 | RSSVLHSTQ 0.000271 | 24 |
| HLA-A*11:01 | 1 | 49 | 57 | 9 | HSTQDLFLP 0.000271 | 15 |
| HLA-A*01:01 | 1 | 77 | 85 | 9 | KRFDPVLP 0.000271 | 31 |
| HLA-A*30:01 | 1 | 95 | 103 | 9 | TEKSNIIRG 0.000271 | 44 |
| HLA-B*51:01 | 1 | 96 | 105 | 10 | EKSNIIRGWI 0.000271 | 30 |
| HLA-A*23:01 | 1 | 240 | 249 | 10 | TLLALHRSYL 0.000271 | 14 |
| HLA-B*57:01 | 1 | 264 | 273 | 10 | AYYVGYLQPR 0.000271 | 33 |
| HLA-A*30:02 | 1 | 277 | 286 | 10 | LKYNGTIT 0.000271 | 41 |
| HLA-A*01:01 | 1 | 314 | 323 | 10 | QTSNFRVQPT 0.000271 | 31 |
| HLA-A*30:02 | 1 | 434 | 443 | 10 | IAWNSNLLDS 0.000271 | 41 |
| HLA-B*44:02 | 1 | 453 | 461 | 9 | YRLFRKSNL 0.000271 | 15 |
| HLA-A*68:01 | 1 | 454 | 463 | 10 | RLFRKSNLKP 0.000271 | 23 |
| HLA-B*51:01 | 1 | 520 | 528 | 9 | APATVCGPK 0.000271 | 30 |
| HLA-A*68:02 | 1 | 544 | 553 | 10 | NGLTGTGVL 0.000271 | 26 |
| HLA-B*08:01 | 1 | 688 | 696 | 9 | ASQSIIAYT 0.000271 | 33 |
| HLA-A*01:01 | 1 | 779 | 787 | 9 | QEVFAQVKQ 0.000271 | 31 |
| HLA-A*30:02 | 1 | 779 | 787 | 9 | QEVFAQVKQ 0.000271 | 41 |
| HLA-A*68:01 | 1 | 789 | 797 | 9 | YKTPPIKDF 0.000271 | 23 |
| HLA-A*23:01 | 1 | 819 | 828 | 10 | EDLLFNKVT 0.000271 | 14 |
| HLA-A*30:02 | 1 | 820 | 829 | 10 | DLLFNKVTLA 0.000271 | 41 |
| HLA-A*02:03 | 1 | 825 | 833 | 9 | KVTLADAGF 0.000271 | 26 |
| HLA-B*58:01 | 1 | 841 | 850 | 10 | LGDI AARDLI 0.000271 | 24 |
| HLA-A*26:01 | 1 | 918 | 926 | 9 | ENQKLIANQ 0.000271 | 20 |
| HLA-A*02:03 | 1 | 920 | 929 | 10 | QKLIANQFNS 0.000271 | 26 |
| HLA-B*53:01 | 1 | 922 | 931 | 10 | LIANQFNSAI 0.000271 | 16 |
| HLA-B*44:03 | 1 | 943 | 951 | 9 | SALGKLQDV 0.000271 | 14 |
| HLA-A*30:01 | 1 | 946 | 954 | 9 | GKLQDVVNQ 0.000271 | 44 |
| HLA-A*30:02 | 1 | 1029 | 1037 | 9 | MSECVLGQS 0.000271 | 41 |
| HLA-B*07:02 | 1 | 1049 | 1058 | 10 | LMSFPQSAPH 0.000271 | 21 |
| HLA-A*31:01 | 1 | 1092 | 1101 | 10 | EGVFSNGTH 0.000271 | 25 |
| HLA-B*53:01 | 1 | 1113 | 1122 | 10 | QIITTDNTFV 0.000271 | 16 |
| HLA-B*58:01 | 1 | 31 | 39 | 9 | SFTRGVVYP 0.00027 | 25 |
| HLA-A*23:01 | 1 | 41 | 49 | 9 | KVFRSSVLH 0.00027 | 14 |
| HLA-A*03:01 | 1 | 94 | 103 | 10 | STEKSNIIRG 0.00027 | 20 |
| HLA-A*11:01 | 1 | 187 | 196 | 10 | KNLREFVFKN 0.00027 | 15 |
| HLA-B*51:01 | 1 | 290 | 298 | 9 | DCALDPLSE 0.00027 | 30 |
| HLA-B*15:01 | 1 | 292 | 301 | 10 | ALDPLSETKC 0.00027 | 24 |
| HLA-A*33:01 | 1 | 327 | 336 | 10 | VRFPNITNLC 0.00027 | 24 |
| HLA-A*01:01 | 1 | 363 | 371 | 9 | ADYSVLYNS 0.00027 | 31 |
| HLA-B*58:01 | 1 | 394 | 403 | 10 | NVYADSFVIR 0.00027 | 25 |
| HLA-B*53:01 | 1 | 410 | 419 | 10 | IAPGQTGKIA 0.00027 | 16 |
| HLA-B*15:01 | 1 | 428 | 436 | 9 | DFTGCVIAW 0.00027 | 24 |
| HLA-B*44:03 | 1 | 466 | 475 | 10 | RDISTEIIYQA 0.00027 | 14 |
| HLA-B*51:01 | 1 | 514 | 522 | 9 | SFELLHAPA 0.00027 | 30 |
| HLA-A*33:01 | 1 | 576 | 585 | 10 | VRDPQTLEIL 0.00027 | 24 |
| HLA-B*35:01 | 1 | 601 | 609 | 9 | GTNTSNQVA 0.00027 | 17 |
| HLA-B*35:01 | 1 | 717 | 726 | 10 | NFTISVTTEI 0.00027 | 17 |
| HLA-B*08:01 | 1 | 739 | 747 | 9 | TMYICGDST 0.00027 | 33 |
| HLA-B*07:02 | 1 | 771 | 779 | 9 | AVEQDKNTQ 0.00027 | 21 |
| HLA-A*31:01 | 1 | 789 | 797 | 9 | YKTPPIKDF 0.00027 | 25 |
| HLA-A*33:01 | 1 | 795 | 804 | 10 | KDFGGFNFSQ 0.00027 | 24 |
| HLA-A*02:01 | 1 | 884 | 893 | 10 | SGWTFGAGAA 0.00027 | 24 |
| HLA-B*07:02 | 1 | 884 | 892 | 9 | SGWTFGAGA 0.00027 | 21 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*01:01 | 1 | 894 | 903 | 10 | LQIPFAMQMA 0.00027 | 31 |
| HLA-B*35:01 | 1 | 905 | 913 | 9 | RFNGIGVTQ 0.00027 | 17 |
| HLA-A*31:01 | 1 | 915 | 924 | 10 | VLYENQKLI A 0.00027 | 25 |
| HLA-A*30:01 | 1 | 937 | 946 | 10 | SLSSTASALG 0.00027 | 44 |
| HLA-B*15:01 | 1 | 1011 | 1020 | 10 | QLIRAAEIRA 0.00027 | 24 |
| HLA-B*35:01 | 1 | 1017 | 1026 | 10 | EIRASANLAA 0.00027 | 17 |
| HLA-B*44:03 | 1 | 1051 | 1060 | 10 | SFPQSAPHGV 0.00027 | 14 |
| HLA-A*68:02 | 1 | 1172 | 1181 | 10 | INASVVNIQK 0.00027 | 26 |
| HLA-A*31:01 | 1 | 6 | 15 | 10 | VLLPLVSSQC 0.000269 | 25 |
| HLA-B*08:01 | 1 | 22 | 30 | 9 | TQLPPAYTN 0.000269 | 33 |
| HLA-A*01:01 | 1 | 119 | 128 | 10 | IVNNATNVVI 0.000269 | 31 |
| HLA-A*31:01 | 1 | 148 | 156 | 9 | NNKSWMESE 0.000269 | 25 |
| HLA-A*24:02 | 1 | 182 | 190 | 9 | KQGNFKNLR 0.000269 | 14 |
| HLA-B*53:01 | 1 | 295 | 303 | 9 | PLSETKCTL 0.000269 | 16 |
| HLA-A*02:01 | 1 | 317 | 326 | 10 | NFRVQPTESI 0.000269 | 24 |
| HLA-B*07:02 | 1 | 325 | 333 | 9 | SIVRFPNIT 0.000269 | 21 |
| HLA-A*68:02 | 1 | 362 | 371 | 10 | VADYSVLYNS 0.000269 | 26 |
| HLA-A*02:01 | 1 | 515 | 523 | 9 | FELLHAPAT 0.000269 | 24 |
| HLA-A*11:01 | 1 | 553 | 562 | 10 | TESNKKFLPF 0.000269 | 15 |
| HLA-B*57:01 | 1 | 572 | 580 | 9 | TTDAVRDPQ 0.000269 | 33 |
| HLA-A*68:01 | 1 | 580 | 589 | 10 | QTLIELDITP 0.000269 | 23 |
| HLA-A*02:03 | 1 | 584 | 593 | 10 | ILDITPCSFQ 0.000269 | 26 |
| HLA-A*68:02 | 1 | 624 | 632 | 9 | IHADQLTPT 0.000269 | 26 |
| HLA-B*35:01 | 1 | 724 | 732 | 9 | TEILPVSM T 0.000269 | 17 |
| HLA-A*03:01 | 1 | 901 | 909 | 9 | QMAYRFNGI 0.000269 | 20 |
| HLA-A*01:01 | 1 | 906 | 915 | 10 | FNGIGVTQNV 0.000269 | 31 |
| HLA-A*02:06 | 1 | 908 | 917 | 10 | GIGVTQNVLY 0.000269 | 32 |
| HLA-A*02:03 | 1 | 980 | 988 | 9 | ILSRLDKVE 0.000269 | 26 |
| HLA-A*33:01 | 1 | 994 | 1002 | 9 | DRLITGRLQ 0.000269 | 24 |
| HLA-B*08:01 | 1 | 994 | 1003 | 10 | DRLITGRLQS 0.000269 | 33 |
| HLA-A*03:01 | 1 | 1045 | 1053 | 9 | KGYHLMSFP 0.000269 | 20 |
| HLA-A*30:01 | 1 | 1082 | 1090 | 9 | CHDGKAHFP 0.000269 | 44 |
| HLA-A*30:01 | 1 | 1201 | 1210 | 10 | QELGKYEQYI 0.000269 | 44 |
| HLA-B*53:01 | 1 | 1229 | 1237 | 9 | MVTIMLCCM 0.000269 | 16 |
| HLA-B*58:01 | 1 | 1261 | 1270 | 10 | SEPV LKGVKL 0.000269 | 25 |
| HLA-B*58:01 | 1 | 180 | 189 | 10 | EGKQGNFKNL 0.000268 | 25 |
| HLA-A*68:02 | 1 | 301 | 310 | 10 | CTLKSFTVEK 0.000268 | 26 |
| HLA-A*30:02 | 1 | 374 | 382 | 9 | FSTFKCYGV 0.000268 | 41 |
| HLA-B*07:02 | 1 | 441 | 449 | 9 | LDSKVGGNY 0.000268 | 21 |
| HLA-B*51:01 | 1 | 467 | 476 | 10 | DISTEIQAG 0.000268 | 30 |
| HLA-A*01:01 | 1 | 520 | 528 | 9 | APATVCGPK 0.000268 | 31 |
| HLA-B*57:01 | 1 | 545 | 554 | 10 | GLTGTGVLTE 0.000268 | 33 |
| HLA-B*51:01 | 1 | 547 | 555 | 9 | TGTGVLTES 0.000268 | 30 |
| HLA-B*44:02 | 1 | 575 | 583 | 9 | AVRDPQ TLE 0.000268 | 15 |
| HLA-A*32:01 | 1 | 601 | 609 | 9 | GTNTSNQVA 0.000268 | 18 |
| HLA-B*51:01 | 1 | 608 | 616 | 9 | VAVLYQDVN 0.000268 | 30 |
| HLA-A*03:01 | 1 | 624 | 633 | 10 | IHADQLPTW 0.000268 | 20 |
| HLA-B*07:02 | 1 | 741 | 749 | 9 | YICGDSTEC 0.000268 | 21 |
| HLA-A*01:01 | 1 | 805 | 813 | 9 | ILPDPSKPS 0.000268 | 31 |
| HLA-B*57:01 | 1 | 831 | 840 | 10 | AGFIKQYGDC 0.000268 | 33 |
| HLA-A*11:01 | 1 | 897 | 905 | 9 | PFAMQMAYR 0.000268 | 15 |
| HLA-A*02:06 | 1 | 912 | 920 | 9 | TQNVLYENQ 0.000268 | 32 |
| HLA-B*57:01 | 1 | 927 | 936 | 10 | FNSAIGKIQD 0.000268 | 33 |
| HLA-A*68:02 | 1 | 941 | 949 | 9 | TASALGKLQ 0.000268 | 26 |
| HLA-A*32:01 | 1 | 982 | 991 | 10 | SRLDKVEAEV 0.000268 | 18 |
| HLA-B*57:01 | 1 | 999 | 1008 | 10 | GRLQSLQTYV 0.000268 | 33 |
| HLA-B*07:02 | 1 | 1023 | 1031 | 9 | NLAATKMSE 0.000268 | 21 |
| HLA-A*24:02 | 1 | 1047 | 1055 | 9 | YHLMSFPQS 0.000268 | 14 |
| HLA-B*44:03 | 1 | 1072 | 1081 | 10 | EKNFTTAPAI 0.000268 | 14 |
| HLA-A*01:01 | 1 | 1102 | 1111 | 10 | WFVTQRNFYE 0.000268 | 31 |
| HLA-B*08:01 | 1 | 1116 | 1124 | 9 | TTDNTFVSG 0.000268 | 33 |
| HLA-A*03:01 | 1 | 1211 | 1220 | 10 | KWPWYIWLGF 0.000268 | 20 |
| HLA-A*01:01 | 1 | 118 | 127 | 10 | LIVNNATNVV 0.000267 | 31 |
| HLA-A*30:02 | 1 | 147 | 156 | 10 | KNNKSWMESE 0.000267 | 41 |
| HLA-A*31:01 | 1 | 148 | 157 | 10 | NNKSWMESEF 0.000267 | 25 |
| HLA-B*53:01 | 1 | 215 | 224 | 10 | DLPQGFSALE 0.000267 | 16 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*02:01 | 1 | 229 | 237 | 9 | LPIGINITR 0.000267 | 24 |
| HLA-A*02:06 | 1 | 239 | 248 | 10 | QTLLALHRYSY 0.000267 | 32 |
| HLA-A*26:01 | 1 | 393 | 401 | 9 | TNVYADSFV 0.000267 | 20 |
| HLA-A*68:01 | 1 | 432 | 441 | 10 | CVIAWNSNNL 0.000267 | 23 |
| HLA-A*68:02 | 1 | 468 | 477 | 10 | ISTEIQAGS 0.000267 | 26 |
| HLA-B*08:01 | 1 | 498 | 507 | 10 | QPTNGVGYP 0.000267 | 34 |
| HLA-B*40:01 | 1 | 513 | 521 | 9 | LSFELLHAP 0.000267 | 13 |
| HLA-A*31:01 | 1 | 530 | 539 | 10 | STNLVKNKCV 0.000267 | 25 |
| HLA-B*53:01 | 1 | 535 | 543 | 9 | KNKCVNFN 0.000267 | 16 |
| HLA-B*51:01 | 1 | 553 | 561 | 9 | TESNKKFLP 0.000267 | 30 |
| HLA-A*01:01 | 1 | 558 | 567 | 10 | KFLPFQFGR 0.000267 | 31 |
| HLA-B*15:01 | 1 | 635 | 644 | 10 | VYSTGSNVFQ 0.000267 | 24 |
| HLA-A*30:02 | 1 | 729 | 737 | 9 | VSMTKTSVD 0.000267 | 41 |
| HLA-A*02:01 | 1 | 730 | 739 | 10 | SMTKTSVDCT 0.000267 | 24 |
| HLA-A*01:01 | 1 | 768 | 776 | 9 | TGIAVEQDK 0.000267 | 31 |
| HLA-B*08:01 | 1 | 984 | 993 | 10 | LDKVEAEVQI 0.000267 | 34 |
| HLA-A*26:01 | 1 | 990 | 998 | 9 | EVQIDRLIT 0.000267 | 20 |
| HLA-A*30:02 | 1 | 996 | 1005 | 10 | LITGRLQSLQ 0.000267 | 41 |
| HLA-B*53:01 | 1 | 1044 | 1052 | 9 | GKGYHLMSF 0.000267 | 16 |
| HLA-A*02:01 | 1 | 1055 | 1064 | 10 | SAPHGVVFLH 0.000267 | 24 |
| HLA-A*30:01 | 1 | 1074 | 1082 | 9 | NFTTAPAIC 0.000267 | 44 |
| HLA-B*53:01 | 1 | 1129 | 1137 | 9 | VIGIVNNTV 0.000267 | 16 |
| HLA-B*57:01 | 1 | 1184 | 1193 | 10 | DRLNEVAKNL 0.000267 | 33 |
| HLA-B*08:01 | 1 | 1219 | 1228 | 10 | GFIAGLIAIV 0.000267 | 34 |
| HLA-A*02:06 | 1 | 69 | 78 | 10 | HVSGTNGTKR 0.000266 | 32 |
| HLA-B*08:01 | 1 | 70 | 79 | 10 | VSGTNGTKRF 0.000266 | 34 |
| HLA-B*15:01 | 1 | 112 | 120 | 9 | SKTQSLIV 0.000266 | 24 |
| HLA-B*51:01 | 1 | 159 | 167 | 9 | VYSSANNCT 0.000266 | 30 |
| HLA-A*68:02 | 1 | 161 | 169 | 9 | SSANNCTFE 0.000266 | 26 |
| HLA-A*30:01 | 1 | 207 | 215 | 9 | HTPINLVRD 0.000266 | 44 |
| HLA-A*03:01 | 1 | 234 | 242 | 9 | NITRFQTL 0.000266 | 20 |
| HLA-A*30:02 | 1 | 283 | 291 | 9 | GTITDAVDC 0.000266 | 41 |
| HLA-A*32:01 | 1 | 317 | 326 | 10 | NFRVQPTESI 0.000266 | 18 |
| HLA-B*44:02 | 1 | 340 | 348 | 9 | EVFNATRFA 0.000266 | 15 |
| HLA-B*58:01 | 1 | 504 | 513 | 10 | GYQPYRVVVL 0.000266 | 25 |
| HLA-A*30:02 | 1 | 543 | 552 | 10 | FNGLTGTGVL 0.000266 | 41 |
| HLA-B*44:02 | 1 | 552 | 561 | 10 | LTESNKKFLP 0.000266 | 15 |
| HLA-B*44:02 | 1 | 582 | 591 | 10 | LEILDITPCS 0.000266 | 15 |
| HLA-B*15:01 | 1 | 595 | 604 | 10 | VSVITPGTNT 0.000266 | 24 |
| HLA-A*33:01 | 1 | 719 | 727 | 9 | TISVTTEIL 0.000266 | 24 |
| HLA-B*51:01 | 1 | 814 | 822 | 9 | KRSFIEDLL 0.000266 | 30 |
| HLA-A*11:01 | 1 | 839 | 847 | 9 | DCLGDIAAR 0.000266 | 15 |
| HLA-A*68:01 | 1 | 852 | 861 | 10 | AQKFNGLTVL 0.000266 | 23 |
| HLA-A*32:01 | 1 | 1000 | 1009 | 10 | RLQSLQTYVT 0.000266 | 18 |
| HLA-A*02:06 | 1 | 1005 | 1014 | 10 | QTYVTQQLIR 0.000266 | 32 |
| HLA-A*02:06 | 1 | 1018 | 1026 | 9 | IRASANLAA 0.000266 | 32 |
| HLA-A*31:01 | 1 | 1081 | 1089 | 9 | ICHDGKAHF 0.000266 | 25 |
| HLA-B*15:01 | 1 | 1109 | 1117 | 9 | FYEPQIITT 0.000266 | 24 |
| HLA-A*68:02 | 1 | 1114 | 1123 | 10 | IITTDNTFVS 0.000266 | 26 |
| HLA-B*15:01 | 1 | 1167 | 1176 | 10 | GDISGINASV 0.000266 | 24 |
| HLA-A*33:01 | 1 | 1171 | 1179 | 9 | GINASVVNI 0.000266 | 24 |
| HLA-B*15:01 | 1 | 1225 | 1234 | 10 | IAIVMVTIML 0.000266 | 24 |
| HLA-A*24:02 | 1 | 1226 | 1234 | 9 | AIVMVTIML 0.000266 | 14 |
| HLA-A*32:01 | 1 | 1261 | 1270 | 10 | SEPVLKGVKL 0.000266 | 18 |
| HLA-A*68:01 | 1 | 1 | 10 | 10 | MFVFLVLLPL 0.000265 | 23 |
| HLA-B*53:01 | 1 | 40 | 49 | 10 | DKVFRSSVLH 0.000265 | 16 |
| HLA-B*08:01 | 1 | 119 | 128 | 10 | IVMNATNVVI 0.000265 | 34 |
| HLA-A*02:03 | 1 | 166 | 175 | 10 | CTFEYVSQPF 0.000265 | 26 |
| HLA-B*44:03 | 1 | 180 | 189 | 10 | EGKQGNFKNL 0.000265 | 14 |
| HLA-A*03:01 | 1 | 201 | 210 | 10 | FKIYSKHTPI 0.000265 | 20 |
| HLA-A*24:02 | 1 | 223 | 231 | 9 | LEPLVDLPI 0.000265 | 14 |
| HLA-B*35:01 | 1 | 253 | 262 | 10 | DSSSGWTAGA 0.000265 | 17 |
| HLA-A*30:01 | 1 | 280 | 288 | 9 | NENGTITDA 0.000265 | 44 |
| HLA-A*11:01 | 1 | 305 | 313 | 9 | SFTVEKGIY 0.000265 | 15 |
| HLA-A*26:01 | 1 | 346 | 355 | 10 | RFASVYAWN 0.000265 | 20 |
| HLA-A*30:02 | 1 | 358 | 367 | 10 | ISNCVADYSV 0.000265 | 41 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|----------|----|
| HLA-A*11:01 | 1 | 424 | 432 | 9 | KLPDDFTGC | 0.000265 | 15 |
| HLA-A*02:03 | 1 | 519 | 527 | 9 | HAPATVCGP | 0.000265 | 26 |
| HLA-A*24:02 | 1 | 587 | 595 | 9 | ITPCSFGGV | 0.000265 | 14 |
| HLA-B*08:01 | 1 | 685 | 693 | 9 | RSVASQSII | 0.000265 | 34 |
| HLA-B*15:01 | 1 | 695 | 703 | 9 | YTMSLGAEN | 0.000265 | 24 |
| HLA-A*31:01 | 1 | 722 | 730 | 9 | VTTEILPVS | 0.000265 | 25 |
| HLA-A*01:01 | 1 | 753 | 761 | 9 | LLQYGSFCT | 0.000265 | 31 |
| HLA-A*03:01 | 1 | 788 | 797 | 10 | IYKTPPIKDF | 0.000265 | 20 |
| HLA-A*31:01 | 1 | 790 | 798 | 9 | KTPPIKDFG | 0.000265 | 25 |
| HLA-A*68:01 | 1 | 805 | 813 | 9 | ILPDPSKPS | 0.000265 | 23 |
| HLA-A*02:03 | 1 | 843 | 851 | 9 | DIAARDLIC | 0.000265 | 26 |
| HLA-A*03:01 | 1 | 868 | 876 | 9 | EMIAQY TSA | 0.000265 | 20 |
| HLA-A*31:01 | 1 | 960 | 968 | 9 | NTLVKQLSS | 0.000265 | 25 |
| HLA-B*57:01 | 1 | 1030 | 1038 | 9 | SECVLGQSK | 0.000265 | 34 |
| HLA-B*51:01 | 1 | 1093 | 1101 | 9 | GVFVSNQTH | 0.000265 | 30 |
| HLA-A*31:01 | 1 | 1132 | 1141 | 10 | IVNNTVYDPL | 0.000265 | 25 |
| HLA-A*30:02 | 1 | 1163 | 1172 | 10 | DVDLGDISGI | 0.000265 | 41 |
| HLA-A*30:01 | 1 | 1222 | 1231 | 10 | AGLIAIVMVT | 0.000265 | 44 |
| HLA-B*51:01 | 1 | 6 | 15 | 10 | VLLPLVSSQC | 0.000264 | 30 |
| HLA-B*35:01 | 1 | 22 | 30 | 9 | TQLPPAYTN | 0.000264 | 17 |
| HLA-A*30:02 | 1 | 54 | 63 | 10 | LFLPFFSNVT | 0.000264 | 41 |
| HLA-B*51:01 | 1 | 75 | 84 | 10 | GTKRFDNPVL | 0.000264 | 30 |
| HLA-B*57:01 | 1 | 155 | 163 | 9 | SEFRVYSSA | 0.000264 | 34 |
| HLA-A*68:01 | 1 | 214 | 222 | 9 | RDL PQGFSA | 0.000264 | 23 |
| HLA-A*68:01 | 1 | 255 | 264 | 10 | SSGWTAGAAA | 0.000264 | 23 |
| HLA-B*40:01 | 1 | 258 | 266 | 9 | WTAGAAAYY | 0.000264 | 13 |
| HLA-A*31:01 | 1 | 339 | 348 | 10 | GEVFNATRFA | 0.000264 | 26 |
| HLA-A*33:01 | 1 | 364 | 373 | 10 | DYSVLYNSAS | 0.000264 | 24 |
| HLA-A*32:01 | 1 | 388 | 396 | 9 | NDLCFTNVY | 0.000264 | 18 |
| HLA-B*07:02 | 1 | 447 | 455 | 9 | GNYNYLYRL | 0.000264 | 21 |
| HLA-A*31:01 | 1 | 466 | 474 | 9 | RDISTEIQ | 0.000264 | 26 |
| HLA-B*44:03 | 1 | 516 | 524 | 9 | ELLHAPATV | 0.000264 | 15 |
| HLA-A*11:01 | 1 | 623 | 631 | 9 | AIHADQLTP | 0.000264 | 16 |
| HLA-B*35:01 | 1 | 647 | 655 | 9 | AGCLIGA EH | 0.000264 | 17 |
| HLA-A*24:02 | 1 | 683 | 692 | 10 | RARSVASQSI | 0.000264 | 14 |
| HLA-B*08:01 | 1 | 704 | 713 | 10 | SVAYSNN SIA | 0.000264 | 34 |
| HLA-B*07:02 | 1 | 779 | 788 | 10 | QEVFAQVKQI | 0.000264 | 21 |
| HLA-B*35:01 | 1 | 839 | 847 | 9 | DCLGDIAAR | 0.000264 | 17 |
| HLA-A*31:01 | 1 | 870 | 878 | 9 | IAQYTSALL | 0.000264 | 26 |
| HLA-A*31:01 | 1 | 911 | 919 | 9 | VTQNVLYEN | 0.000264 | 26 |
| HLA-A*31:01 | 1 | 967 | 975 | 9 | SSNFGAISS | 0.000264 | 26 |
| HLA-A*68:01 | 1 | 981 | 990 | 10 | LSRLDKVEAE | 0.000264 | 23 |
| HLA-B*07:02 | 1 | 992 | 1000 | 9 | QIDRLITGR | 0.000264 | 21 |
| HLA-A*68:02 | 1 | 1115 | 1124 | 10 | ITTDNTFVSG | 0.000264 | 26 |
| HLA-A*30:02 | 1 | 1119 | 1128 | 10 | NTFVSGNCDV | 0.000264 | 41 |
| HLA-B*44:02 | 1 | 1124 | 1132 | 9 | GNC DVVIGI | 0.000264 | 15 |
| HLA-A*01:01 | 1 | 1191 | 1200 | 10 | KNL NESLIDL | 0.000264 | 31 |
| HLA-B*53:01 | 1 | 1216 | 1224 | 9 | IWLGFIAGL | 0.000264 | 16 |
| HLA-A*32:01 | 1 | 1263 | 1271 | 9 | PVLKGVK LH | 0.000264 | 18 |
| HLA-B*40:01 | 1 | 62 | 70 | 9 | VTWFHAIHV | 0.000263 | 14 |
| HLA-A*02:01 | 1 | 108 | 116 | 9 | TTLDSKTQS | 0.000263 | 24 |
| HLA-A*30:02 | 1 | 131 | 140 | 10 | CEFQFCNDPF | 0.000263 | 41 |
| HLA-A*01:01 | 1 | 176 | 185 | 10 | LMDLEGKQGN | 0.000263 | 31 |
| HLA-A*02:03 | 1 | 200 | 209 | 10 | YFKIYSKHTP | 0.000263 | 26 |
| HLA-A*01:01 | 1 | 213 | 221 | 9 | VRDLPQGF S | 0.000263 | 31 |
| HLA-A*30:01 | 1 | 241 | 250 | 10 | LLALHRSYLT | 0.000263 | 44 |
| HLA-A*02:06 | 1 | 253 | 262 | 10 | DSSSGW TAGA | 0.000263 | 32 |
| HLA-B*15:01 | 1 | 399 | 407 | 9 | SFVIRGDEV | 0.000263 | 24 |
| HLA-B*07:02 | 1 | 415 | 423 | 9 | TGKIADYNY | 0.000263 | 21 |
| HLA-B*44:03 | 1 | 454 | 462 | 9 | RLFRKSNLK | 0.000263 | 15 |
| HLA-A*02:03 | 1 | 604 | 612 | 9 | TSNQVAVLY | 0.000263 | 26 |
| HLA-B*57:01 | 1 | 612 | 620 | 9 | YQDVNCTEV | 0.000263 | 34 |
| HLA-B*53:01 | 1 | 614 | 622 | 9 | DVNCTEVPV | 0.000263 | 16 |
| HLA-A*01:01 | 1 | 655 | 664 | 10 | HVNNSYECDI | 0.000263 | 31 |
| HLA-A*68:01 | 1 | 773 | 781 | 9 | EQDKNTQEV | 0.000263 | 23 |
| HLA-A*01:01 | 1 | 843 | 851 | 9 | DIAARDLIC | 0.000263 | 31 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|----|
| HLA-A*02:01 | 1 | 861 | 869 | 9 | LPPLLTDEM | 0.000263 | 24 |
| HLA-A*31:01 | 1 | 887 | 895 | 9 | TFGAGAALQ | 0.000263 | 26 |
| HLA-A*30:02 | 1 | 1022 | 1030 | 9 | ANLAATKMS | 0.000263 | 41 |
| HLA-A*02:03 | 1 | 1040 | 1049 | 10 | VDFCGKGYHL | 0.000263 | 26 |
| HLA-A*26:01 | 1 | 1124 | 1132 | 9 | GNCDDVIGI | 0.000263 | 20 |
| HLA-A*23:01 | 1 | 1164 | 1172 | 9 | VDLGDISGI | 0.000263 | 15 |
| HLA-B*58:01 | 1 | 1170 | 1178 | 9 | SGINASVVN | 0.000263 | 25 |
| HLA-A*33:01 | 1 | 1197 | 1206 | 10 | LIDLQELGKY | 0.000263 | 24 |
| HLA-A*02:06 | 1 | 1228 | 1237 | 10 | VMVTIMLCCM | 0.000263 | 32 |
| HLA-A*02:01 | 1 | 1233 | 1241 | 9 | MLCCMTSCC | 0.000263 | 24 |
| HLA-A*31:01 | 1 | 1248 | 1256 | 9 | CSCGSCCKF | 0.000263 | 26 |
| HLA-A*68:01 | 1 | 21 | 30 | 10 | RTQLPPAYTN | 0.000262 | 23 |
| HLA-A*33:01 | 1 | 22 | 30 | 9 | TQLPPAYTN | 0.000262 | 24 |
| HLA-A*31:01 | 1 | 26 | 35 | 10 | PAYTNSFTRG | 0.000262 | 26 |
| HLA-B*53:01 | 1 | 36 | 44 | 9 | VYYPDKVFR | 0.000262 | 16 |
| HLA-B*44:02 | 1 | 49 | 58 | 10 | HSTQDLFLPF | 0.000262 | 15 |
| HLA-B*58:01 | 1 | 79 | 87 | 9 | FDPVLPFN | 0.000262 | 25 |
| HLA-B*15:01 | 1 | 95 | 103 | 9 | TEKSNIIRG | 0.000262 | 24 |
| HLA-A*01:01 | 1 | 184 | 193 | 10 | GNFKNLREFV | 0.000262 | 31 |
| HLA-A*68:02 | 1 | 208 | 217 | 10 | TPINLVRDLP | 0.000262 | 26 |
| HLA-A*11:01 | 1 | 246 | 255 | 10 | RSYLTGDS | 0.000262 | 16 |
| HLA-B*07:02 | 1 | 259 | 267 | 9 | TAGAAAYV | 0.000262 | 22 |
| HLA-A*30:01 | 1 | 272 | 281 | 10 | PRTFLLKYNE | 0.000262 | 44 |
| HLA-A*30:02 | 1 | 280 | 288 | 9 | NENGTITDA | 0.000262 | 41 |
| HLA-A*24:02 | 1 | 285 | 293 | 9 | ITDAVDCAL | 0.000262 | 14 |
| HLA-A*24:02 | 1 | 300 | 308 | 9 | KCTLKSFTV | 0.000262 | 14 |
| HLA-A*11:01 | 1 | 313 | 321 | 9 | YQTSNFRVQ | 0.000262 | 16 |
| HLA-A*02:01 | 1 | 347 | 355 | 9 | FASVYAWNR | 0.000262 | 24 |
| HLA-B*57:01 | 1 | 365 | 373 | 9 | YSVLYNSAS | 0.000262 | 34 |
| HLA-A*68:01 | 1 | 368 | 377 | 10 | LYNSASFSTF | 0.000262 | 23 |
| HLA-A*01:01 | 1 | 377 | 386 | 10 | FKCYGVSPK | 0.000262 | 31 |
| HLA-A*32:01 | 1 | 377 | 386 | 10 | FKCYGVSPK | 0.000262 | 19 |
| HLA-B*08:01 | 1 | 400 | 408 | 9 | FVIRGDEVR | 0.000262 | 34 |
| HLA-A*30:01 | 1 | 414 | 422 | 9 | QTGKIADYN | 0.000262 | 44 |
| HLA-A*30:01 | 1 | 434 | 443 | 10 | IAWNSNLDL | 0.000262 | 44 |
| HLA-B*07:02 | 1 | 486 | 495 | 10 | FNCYFPLQSY | 0.000262 | 22 |
| HLA-B*07:02 | 1 | 515 | 524 | 10 | FELLHAPATV | 0.000262 | 22 |
| HLA-B*57:01 | 1 | 517 | 525 | 9 | LLHAPATVC | 0.000262 | 34 |
| HLA-A*01:01 | 1 | 549 | 557 | 9 | TGVLTESNK | 0.000262 | 31 |
| HLA-A*30:02 | 1 | 567 | 575 | 9 | RDIADTTDA | 0.000262 | 41 |
| HLA-B*58:01 | 1 | 612 | 620 | 9 | YQDVNCTEV | 0.000262 | 25 |
| HLA-B*57:01 | 1 | 618 | 626 | 9 | TEVPVAIHA | 0.000262 | 34 |
| HLA-B*58:01 | 1 | 630 | 639 | 10 | TPTWRVYSTG | 0.000262 | 25 |
| HLA-B*40:01 | 1 | 683 | 692 | 10 | RARSVASQSI | 0.000262 | 14 |
| HLA-B*44:03 | 1 | 684 | 693 | 10 | ARSVASQSII | 0.000262 | 15 |
| HLA-A*68:01 | 1 | 721 | 730 | 10 | SVTTEILPVS | 0.000262 | 23 |
| HLA-A*30:01 | 1 | 879 | 887 | 9 | AGTITSGWT | 0.000262 | 44 |
| HLA-A*02:03 | 1 | 956 | 965 | 10 | AQALNTLVKQ | 0.000262 | 27 |
| HLA-A*23:01 | 1 | 991 | 1000 | 10 | VQIDRLITGR | 0.000262 | 15 |
| HLA-A*33:01 | 1 | 1017 | 1026 | 10 | EIRASANLAA | 0.000262 | 24 |
| HLA-B*58:01 | 1 | 1041 | 1049 | 9 | DFCGKGYHL | 0.000262 | 25 |
| HLA-A*30:02 | 1 | 1079 | 1088 | 10 | PAICHGDKAH | 0.000262 | 41 |
| HLA-A*68:01 | 1 | 1080 | 1088 | 9 | AICHGDKAH | 0.000262 | 23 |
| HLA-A*31:01 | 1 | 1104 | 1113 | 10 | VTQRNFYEPQ | 0.000262 | 26 |
| HLA-A*01:01 | 1 | 1110 | 1118 | 9 | YEPQIITTD | 0.000262 | 31 |
| HLA-B*44:02 | 1 | 1178 | 1186 | 9 | NIQKEIDRL | 0.000262 | 15 |
| HLA-B*08:01 | 1 | 1228 | 1236 | 9 | VMVTIMLCC | 0.000262 | 34 |
| HLA-A*24:02 | 1 | 7 | 15 | 9 | LLPLVSSQC | 0.000261 | 14 |
| HLA-B*15:01 | 1 | 7 | 16 | 10 | LLPLVSSQCV | 0.000261 | 24 |
| HLA-B*44:03 | 1 | 111 | 119 | 9 | DSKTQSLLI | 0.000261 | 15 |
| HLA-B*07:02 | 1 | 134 | 143 | 10 | QFCNDPFLGV | 0.000261 | 22 |
| HLA-A*31:01 | 1 | 137 | 145 | 9 | NDPFLGVY | 0.000261 | 26 |
| HLA-A*30:01 | 1 | 160 | 169 | 10 | YSSANNCTFE | 0.000261 | 44 |
| HLA-A*01:01 | 1 | 180 | 189 | 10 | EKGQGNFKNL | 0.000261 | 32 |
| HLA-B*57:01 | 1 | 276 | 285 | 10 | LLKYNENGTI | 0.000261 | 34 |
| HLA-A*26:01 | 1 | 288 | 296 | 9 | AVDCALDPL | 0.000261 | 20 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*26:01 | 1 | 321 | 330 | 10 | QPTESIVRFP 0.000261 | 20 |
| HLA-B*44:03 | 1 | 321 | 330 | 10 | QPTESIVRFP 0.000261 | 15 |
| HLA-A*02:03 | 1 | 364 | 372 | 9 | DYSVLYNSA 0.000261 | 27 |
| HLA-B*57:01 | 1 | 383 | 391 | 9 | SPTKLNLDL 0.000261 | 34 |
| HLA-B*58:01 | 1 | 388 | 396 | 9 | NDLCFITNVY 0.000261 | 25 |
| HLA-A*23:01 | 1 | 449 | 457 | 9 | YNYLYRFLR 0.000261 | 15 |
| HLA-B*51:01 | 1 | 482 | 490 | 9 | GVEGFNCYF 0.000261 | 31 |
| HLA-A*02:01 | 1 | 496 | 505 | 10 | GFQPTNGVGY 0.000261 | 24 |
| HLA-A*02:06 | 1 | 506 | 514 | 9 | QPYRVVVL 0.000261 | 32 |
| HLA-A*68:01 | 1 | 511 | 520 | 10 | VVLSFELLHA 0.000261 | 23 |
| HLA-B*44:03 | 1 | 529 | 537 | 9 | KSTNLVKNK 0.000261 | 15 |
| HLA-A*02:06 | 1 | 562 | 571 | 10 | FQQFGRDIAD 0.000261 | 32 |
| HLA-A*11:01 | 1 | 583 | 592 | 10 | EILDITPCSF 0.000261 | 16 |
| HLA-A*02:03 | 1 | 629 | 638 | 10 | LTPTWRVYST 0.000261 | 27 |
| HLA-B*15:01 | 1 | 643 | 652 | 10 | FQTRAGCLIG 0.000261 | 24 |
| HLA-A*02:01 | 1 | 745 | 754 | 10 | DSTECSNLLL 0.000261 | 24 |
| HLA-A*32:01 | 1 | 877 | 885 | 9 | LLAGTITSG 0.000261 | 19 |
| HLA-B*15:01 | 1 | 886 | 895 | 10 | WTFGAGAALQ 0.000261 | 24 |
| HLA-B*15:01 | 1 | 902 | 911 | 10 | MAYRFNGIGV 0.000261 | 24 |
| HLA-A*03:01 | 1 | 926 | 934 | 9 | QFNSAIGKI 0.000261 | 20 |
| HLA-B*15:01 | 1 | 943 | 952 | 10 | SALGKLDVV 0.000261 | 24 |
| HLA-B*44:03 | 1 | 990 | 999 | 10 | EVQIDRLITG 0.000261 | 15 |
| HLA-A*02:01 | 1 | 1031 | 1040 | 10 | ECVLGQSKRV 0.000261 | 24 |
| HLA-A*30:01 | 1 | 1044 | 1053 | 10 | GKGYHLMSFP 0.000261 | 44 |
| HLA-A*01:01 | 1 | 1121 | 1130 | 10 | FVSGNCDVVI 0.000261 | 32 |
| HLA-A*11:01 | 1 | 10 | 18 | 9 | LVSSQCVNL 0.00026 | 16 |
| HLA-A*02:06 | 1 | 18 | 26 | 9 | LTRTQLPP 0.00026 | 33 |
| HLA-A*01:01 | 1 | 53 | 62 | 10 | DLFLPFFSNV 0.00026 | 32 |
| HLA-A*30:01 | 1 | 55 | 64 | 10 | FLPFFSNVTW 0.00026 | 44 |
| HLA-A*02:06 | 1 | 136 | 144 | 9 | CNDPFLGVY 0.00026 | 33 |
| HLA-B*44:02 | 1 | 148 | 157 | 10 | NNKSWMESEF 0.00026 | 15 |
| HLA-A*03:01 | 1 | 166 | 175 | 10 | CTFEYVSQPF 0.00026 | 20 |
| HLA-A*02:03 | 1 | 169 | 177 | 9 | EYVSQPFLM 0.00026 | 27 |
| HLA-A*68:01 | 1 | 171 | 179 | 9 | VSQPFLMDL 0.00026 | 24 |
| HLA-A*24:02 | 1 | 220 | 229 | 10 | FSALEPLVDL 0.00026 | 14 |
| HLA-B*15:01 | 1 | 222 | 231 | 10 | ALEPLVDLPI 0.00026 | 25 |
| HLA-A*01:01 | 1 | 271 | 280 | 10 | QPRTFLLKYN 0.00026 | 32 |
| HLA-B*15:01 | 1 | 276 | 284 | 9 | LLKYNENGT 0.00026 | 25 |
| HLA-A*02:01 | 1 | 359 | 367 | 9 | SNCVADYSV 0.00026 | 24 |
| HLA-A*02:03 | 1 | 377 | 386 | 10 | FKCYGVSPTK 0.00026 | 27 |
| HLA-A*24:02 | 1 | 381 | 390 | 10 | GVSPTKLNLD 0.00026 | 14 |
| HLA-A*30:02 | 1 | 387 | 395 | 9 | LNDLCFTNV 0.00026 | 41 |
| HLA-B*58:01 | 1 | 398 | 407 | 10 | DSFVIRGDEV 0.00026 | 25 |
| HLA-A*03:01 | 1 | 553 | 562 | 10 | TESNKKFLPF 0.00026 | 20 |
| HLA-A*68:02 | 1 | 571 | 580 | 10 | DTTDAVRDPQ 0.00026 | 26 |
| HLA-B*58:01 | 1 | 594 | 602 | 9 | GVSVITPGT 0.00026 | 25 |
| HLA-A*11:01 | 1 | 603 | 611 | 9 | NTSNQVAVL 0.00026 | 16 |
| HLA-A*02:03 | 1 | 651 | 660 | 10 | IGAHEVNNSY 0.00026 | 27 |
| HLA-B*15:01 | 1 | 679 | 687 | 9 | NSPRRARSV 0.00026 | 25 |
| HLA-A*11:01 | 1 | 771 | 780 | 10 | AVEQDKNTQE 0.00026 | 16 |
| HLA-A*68:01 | 1 | 860 | 868 | 9 | VLPLLTDE 0.00026 | 24 |
| HLA-B*35:01 | 1 | 925 | 933 | 9 | NQFNSAIGK 0.00026 | 17 |
| HLA-B*44:02 | 1 | 930 | 938 | 9 | AIGKIQDSL 0.00026 | 15 |
| HLA-A*02:03 | 1 | 946 | 955 | 10 | GKLDVVNQ 0.00026 | 27 |
| HLA-A*23:01 | 1 | 964 | 972 | 9 | KQLSSNFGA 0.00026 | 15 |
| HLA-B*57:01 | 1 | 987 | 995 | 9 | VEAEVQIDR 0.00026 | 34 |
| HLA-B*44:02 | 1 | 1056 | 1065 | 10 | APHGVVFLHV 0.00026 | 15 |
| HLA-B*58:01 | 1 | 1103 | 1112 | 10 | FVTQRNFYEP 0.00026 | 25 |
| HLA-B*08:01 | 1 | 1112 | 1121 | 10 | PQIITDNTF 0.00026 | 34 |
| HLA-A*68:02 | 1 | 1119 | 1127 | 9 | NTFVSGNCD 0.00026 | 26 |
| HLA-A*02:01 | 1 | 1147 | 1156 | 10 | SFKEELDKYF 0.00026 | 24 |
| HLA-B*44:03 | 1 | 1171 | 1179 | 9 | GINASVVNI 0.00026 | 15 |
| HLA-A*23:01 | 1 | 1194 | 1203 | 10 | NESLIDLQEL 0.00026 | 15 |
| HLA-A*32:01 | 1 | 1257 | 1265 | 9 | DEDDSEPV 0.00026 | 19 |
| HLA-A*24:02 | 1 | 162 | 170 | 9 | SANNCTFEY 0.000259 | 14 |
| HLA-B*40:01 | 1 | 171 | 179 | 9 | VSQPFLMDL 0.000259 | 14 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*07:02 | 1 | 239 | 248 | 10 | QTLALHRSY 0.000259 | 22 |
| HLA-A*68:02 | 1 | 276 | 285 | 10 | LLKYNENGTI 0.000259 | 26 |
| HLA-B*53:01 | 1 | 318 | 327 | 10 | FRVQPTESIV 0.000259 | 16 |
| HLA-A*02:06 | 1 | 326 | 334 | 9 | IVRFPNITN 0.000259 | 33 |
| HLA-B*44:02 | 1 | 350 | 358 | 9 | VYAWNRKRI 0.000259 | 15 |
| HLA-B*51:01 | 1 | 369 | 378 | 10 | YNSASFSTFK 0.000259 | 31 |
| HLA-A*02:03 | 1 | 372 | 380 | 9 | ASFSTFKCY 0.000259 | 27 |
| HLA-B*08:01 | 1 | 375 | 384 | 10 | STFKCYGVSP 0.000259 | 34 |
| HLA-A*24:02 | 1 | 460 | 468 | 9 | NLKPFERDI 0.000259 | 14 |
| HLA-A*68:02 | 1 | 499 | 508 | 10 | PTNGVGYQPY 0.000259 | 26 |
| HLA-B*57:01 | 1 | 608 | 616 | 9 | VAVLYQDVN 0.000259 | 34 |
| HLA-B*53:01 | 1 | 622 | 631 | 10 | VAIHADQLTP 0.000259 | 16 |
| HLA-A*02:01 | 1 | 645 | 653 | 9 | TRAGCLIGA 0.000259 | 24 |
| HLA-B*51:01 | 1 | 744 | 752 | 9 | GDSTECSNL 0.000259 | 31 |
| HLA-B*15:01 | 1 | 752 | 760 | 9 | LLLQYGSFC 0.000259 | 25 |
| HLA-A*02:03 | 1 | 789 | 797 | 9 | YKTPPIKDF 0.000259 | 27 |
| HLA-A*24:02 | 1 | 856 | 865 | 10 | NGLTVLPLLL 0.000259 | 14 |
| HLA-A*03:01 | 1 | 860 | 868 | 9 | VLPLLLTDE 0.000259 | 20 |
| HLA-A*23:01 | 1 | 869 | 878 | 10 | MIAQYTSALL 0.000259 | 15 |
| HLA-A*01:01 | 1 | 902 | 911 | 10 | MAYRFNGIGV 0.000259 | 32 |
| HLA-A*02:06 | 1 | 911 | 919 | 9 | VTQNVLYEN 0.000259 | 33 |
| HLA-A*68:01 | 1 | 1019 | 1027 | 9 | RASANLAAT 0.000259 | 24 |
| HLA-B*58:01 | 1 | 1030 | 1038 | 9 | SECVLGQSK 0.000259 | 25 |
| HLA-A*31:01 | 1 | 1032 | 1040 | 9 | CVLGQSKRV 0.000259 | 26 |
| HLA-B*07:02 | 1 | 1032 | 1040 | 9 | CVLGQSKRV 0.000259 | 22 |
| HLA-B*07:02 | 1 | 1072 | 1080 | 9 | EKNFTTAPA 0.000259 | 22 |
| HLA-B*51:01 | 1 | 1142 | 1150 | 9 | QPELDSFKE 0.000259 | 31 |
| HLA-B*07:02 | 1 | 1157 | 1166 | 10 | KNHTSPDVDL 0.000259 | 22 |
| HLA-A*31:01 | 1 | 1188 | 1197 | 10 | EVAKNLNESL 0.000259 | 26 |
| HLA-A*02:03 | 1 | 1221 | 1229 | 9 | IAGLIAIVM 0.000259 | 27 |
| HLA-A*02:01 | 1 | 1227 | 1236 | 10 | IVMVTIMLCC 0.000259 | 24 |
| HLA-A*01:01 | 1 | 7 | 16 | 10 | LLPLVSSQCV 0.000258 | 32 |
| HLA-A*02:03 | 1 | 48 | 56 | 9 | LHSTQDLFL 0.000258 | 27 |
| HLA-A*02:03 | 1 | 85 | 93 | 9 | PFNDGVYFA 0.000258 | 27 |
| HLA-A*30:02 | 1 | 86 | 94 | 9 | FNDGVYFAS 0.000258 | 42 |
| HLA-A*02:01 | 1 | 242 | 251 | 10 | LALHRSYLTP 0.000258 | 24 |
| HLA-A*11:01 | 1 | 307 | 315 | 9 | TVEKGIYQT 0.000258 | 16 |
| HLA-A*30:02 | 1 | 400 | 409 | 10 | FVIRGDEVQR 0.000258 | 42 |
| HLA-A*03:01 | 1 | 441 | 449 | 9 | LDSKVGNGY 0.000258 | 20 |
| HLA-B*08:01 | 1 | 445 | 453 | 9 | VGGNYNYLY 0.000258 | 34 |
| HLA-A*30:01 | 1 | 460 | 469 | 10 | NLKPFERDIS 0.000258 | 44 |
| HLA-A*02:03 | 1 | 491 | 499 | 9 | PLQSYGFQP 0.000258 | 27 |
| HLA-B*15:01 | 1 | 502 | 510 | 9 | GVGYQPYRV 0.000258 | 25 |
| HLA-A*24:02 | 1 | 508 | 517 | 10 | YRVVLSFEL 0.000258 | 14 |
| HLA-B*15:01 | 1 | 533 | 542 | 10 | LVKNKCVNFN 0.000258 | 25 |
| HLA-A*30:02 | 1 | 537 | 545 | 9 | KCVNFNFN 0.000258 | 42 |
| HLA-A*33:01 | 1 | 580 | 588 | 9 | QTLEILDIT 0.000258 | 24 |
| HLA-B*58:01 | 1 | 598 | 607 | 10 | ITPGTNTSNQ 0.000258 | 25 |
| HLA-A*23:01 | 1 | 638 | 646 | 9 | TGSNVFQTR 0.000258 | 15 |
| HLA-B*08:01 | 1 | 639 | 647 | 9 | GSNVFQTRA 0.000258 | 34 |
| HLA-A*26:01 | 1 | 779 | 787 | 9 | QEVFAQVKQ 0.000258 | 20 |
| HLA-A*26:01 | 1 | 843 | 852 | 10 | DIAARDLICA 0.000258 | 20 |
| HLA-A*33:01 | 1 | 858 | 866 | 9 | LTVLPLLLT 0.000258 | 24 |
| HLA-B*40:01 | 1 | 888 | 896 | 9 | FGAGAALQI 0.000258 | 14 |
| HLA-B*44:03 | 1 | 907 | 915 | 9 | NGIGVTQNV 0.000258 | 15 |
| HLA-A*30:02 | 1 | 919 | 928 | 10 | NQKLIANQFN 0.000258 | 42 |
| HLA-A*24:02 | 1 | 934 | 942 | 9 | IQDSLSSSTA 0.000258 | 14 |
| HLA-A*11:01 | 1 | 947 | 955 | 9 | KLQDVVNQN 0.000258 | 16 |
| HLA-A*26:01 | 1 | 1003 | 1011 | 9 | SLQTYVTQQ 0.000258 | 20 |
| HLA-B*40:01 | 1 | 1004 | 1013 | 10 | LQTYVTQQLI 0.000258 | 14 |
| HLA-A*01:01 | 1 | 1064 | 1072 | 9 | HVTYVPAQE 0.000258 | 32 |
| HLA-B*51:01 | 1 | 1072 | 1080 | 9 | EKNFTTAPA 0.000258 | 31 |
| HLA-B*15:01 | 1 | 1183 | 1191 | 9 | IDRLNEVAK 0.000258 | 25 |
| HLA-B*51:01 | 1 | 1 | 9 | 9 | MFVFLVLLP 0.000257 | 31 |
| HLA-A*68:02 | 1 | 13 | 21 | 9 | SQCVNLTTR 0.000257 | 26 |
| HLA-B*40:01 | 1 | 28 | 36 | 9 | YTNSFTRGV 0.000257 | 14 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*02:06 | 1 | 76 | 84 | 9 | TKRFDNPVL 0.000257 | 33 |
| HLA-B*44:02 | 1 | 123 | 131 | 9 | ATNVVIVKVC 0.000257 | 15 |
| HLA-A*01:01 | 1 | 131 | 140 | 10 | CEFQFCNDPF 0.000257 | 32 |
| HLA-A*30:01 | 1 | 190 | 199 | 10 | REFVFKNIDG 0.000257 | 44 |
| HLA-A*02:06 | 1 | 202 | 211 | 10 | KIYSKHTPIN 0.000257 | 33 |
| HLA-A*24:02 | 1 | 204 | 213 | 10 | YSKHTPINLV 0.000257 | 14 |
| HLA-B*58:01 | 1 | 205 | 214 | 10 | SKHTPINLVR 0.000257 | 25 |
| HLA-B*53:01 | 1 | 235 | 244 | 10 | ITRFQTLAL 0.000257 | 17 |
| HLA-A*68:02 | 1 | 243 | 251 | 9 | ALHRSYLTP 0.000257 | 26 |
| HLA-A*30:01 | 1 | 252 | 261 | 10 | GDSSSGWTAG 0.000257 | 44 |
| HLA-B*57:01 | 1 | 265 | 273 | 9 | YYVGYLQPR 0.000257 | 34 |
| HLA-A*23:01 | 1 | 319 | 328 | 10 | RVQPTESIVR 0.000257 | 15 |
| HLA-A*01:01 | 1 | 401 | 410 | 10 | VIRGDEVQR 0.000257 | 32 |
| HLA-B*07:02 | 1 | 432 | 441 | 10 | CVIAWNSNNL 0.000257 | 22 |
| HLA-A*01:01 | 1 | 470 | 479 | 10 | TEIYQAGSTP 0.000257 | 32 |
| HLA-B*07:02 | 1 | 481 | 490 | 10 | NGVEGFNCYF 0.000257 | 22 |
| HLA-B*44:03 | 1 | 483 | 491 | 9 | VEGFNCYFP 0.000257 | 15 |
| HLA-B*07:02 | 1 | 497 | 506 | 10 | FQPTNGVGYQ 0.000257 | 22 |
| HLA-B*35:01 | 1 | 519 | 528 | 10 | HAPATVCGPK 0.000257 | 17 |
| HLA-A*30:02 | 1 | 563 | 572 | 10 | QQFGRDIADT 0.000257 | 42 |
| HLA-B*44:02 | 1 | 581 | 590 | 10 | TLEILDITPC 0.000257 | 15 |
| HLA-B*53:01 | 1 | 607 | 615 | 9 | QVAVLYQDV 0.000257 | 17 |
| HLA-B*44:03 | 1 | 784 | 792 | 9 | QVKQIYKTP 0.000257 | 15 |
| HLA-A*02:01 | 1 | 814 | 823 | 10 | KRSFIEDLLF 0.000257 | 24 |
| HLA-A*30:01 | 1 | 831 | 840 | 10 | AGFIKQYGDC 0.000257 | 44 |
| HLA-A*01:01 | 1 | 854 | 862 | 9 | KFNGLTVLP 0.000257 | 32 |
| HLA-A*30:02 | 1 | 932 | 940 | 9 | GKIQDSLSS 0.000257 | 42 |
| HLA-A*02:06 | 1 | 946 | 955 | 10 | GKLQDVVNQN 0.000257 | 33 |
| HLA-A*02:06 | 1 | 1010 | 1019 | 10 | QQLIRAAEIR 0.000257 | 33 |
| HLA-A*31:01 | 1 | 1010 | 1018 | 9 | QQLIRAAEI 0.000257 | 26 |
| HLA-A*01:01 | 1 | 1015 | 1023 | 9 | AAEIRASAN 0.000257 | 32 |
| HLA-A*23:01 | 1 | 1060 | 1069 | 10 | VVFLHVITYVP 0.000257 | 15 |
| HLA-A*33:01 | 1 | 1080 | 1088 | 9 | AICHDGKAH 0.000257 | 25 |
| HLA-A*33:01 | 1 | 1225 | 1233 | 9 | IATVMVTIM 0.000257 | 25 |
| HLA-A*02:03 | 1 | 88 | 97 | 10 | DGVYFASTEK 0.000256 | 27 |
| HLA-B*07:02 | 1 | 153 | 161 | 9 | MESEFRVYS 0.000256 | 22 |
| HLA-B*40:01 | 1 | 232 | 241 | 10 | GINITRFQTL 0.000256 | 14 |
| HLA-A*01:01 | 1 | 237 | 246 | 10 | RFQTLALHR 0.000256 | 32 |
| HLA-A*02:01 | 1 | 263 | 272 | 10 | AAYYVGYLQP 0.000256 | 24 |
| HLA-A*02:01 | 1 | 283 | 291 | 9 | GTITDAVDC 0.000256 | 24 |
| HLA-A*33:01 | 1 | 357 | 365 | 9 | RISNCVADY 0.000256 | 25 |
| HLA-B*07:02 | 1 | 361 | 369 | 9 | CVADYSVLY 0.000256 | 22 |
| HLA-B*57:01 | 1 | 380 | 388 | 9 | YGVSPTKLN 0.000256 | 34 |
| HLA-A*30:01 | 1 | 387 | 395 | 9 | LNDLCFTNV 0.000256 | 44 |
| HLA-B*08:01 | 1 | 460 | 469 | 10 | NLKPFERDIS 0.000256 | 34 |
| HLA-A*30:02 | 1 | 489 | 498 | 10 | YFPLQSYGFQ 0.000256 | 42 |
| HLA-A*30:01 | 1 | 573 | 582 | 10 | TDAVRDPQTL 0.000256 | 44 |
| HLA-A*30:01 | 1 | 606 | 615 | 10 | NQVAVLYQDV 0.000256 | 44 |
| HLA-B*07:02 | 1 | 640 | 649 | 10 | SNVFQTRAGC 0.000256 | 22 |
| HLA-A*31:01 | 1 | 641 | 650 | 10 | NVFQTRAGCL 0.000256 | 26 |
| HLA-B*08:01 | 1 | 662 | 670 | 9 | CDIPIGAGI 0.000256 | 34 |
| HLA-A*02:01 | 1 | 670 | 678 | 9 | ICASYQTQT 0.000256 | 24 |
| HLA-A*32:01 | 1 | 716 | 724 | 9 | TNFTISVTT 0.000256 | 19 |
| HLA-A*01:01 | 1 | 719 | 728 | 10 | TISVTTEILP 0.000256 | 32 |
| HLA-A*30:02 | 1 | 727 | 736 | 10 | LPVSMTKTSV 0.000256 | 42 |
| HLA-B*44:02 | 1 | 762 | 770 | 9 | QLNRALTGI 0.000256 | 15 |
| HLA-B*40:01 | 1 | 866 | 875 | 10 | TDEMIAQYTS 0.000256 | 14 |
| HLA-B*40:01 | 1 | 924 | 933 | 10 | ANQFNSAIGK 0.000256 | 14 |
| HLA-A*01:01 | 1 | 966 | 975 | 10 | LSSNFGAISS 0.000256 | 32 |
| HLA-B*53:01 | 1 | 1064 | 1072 | 9 | HVTYVPAQE 0.000256 | 17 |
| HLA-B*51:01 | 1 | 1112 | 1121 | 10 | PQIITTDNTF 0.000256 | 31 |
| HLA-B*35:01 | 1 | 1121 | 1130 | 10 | FVSGNCDVVI 0.000256 | 17 |
| HLA-B*53:01 | 1 | 1135 | 1143 | 9 | NTVYDPLQP 0.000256 | 17 |
| HLA-A*23:01 | 1 | 1221 | 1229 | 9 | IAGLIAIVM 0.000256 | 15 |
| HLA-A*33:01 | 1 | 46 | 54 | 9 | SVLHSTQDL 0.000255 | 25 |
| HLA-B*57:01 | 1 | 60 | 69 | 10 | SNVTWFHAIH 0.000255 | 34 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*23:01 | 1 | 64 | 72 | 9 | WFHAIHVSG 0.000255 | 15 |
| HLA-A*02:03 | 1 | 67 | 75 | 9 | AIHVSGTNG 0.000255 | 27 |
| HLA-B*07:02 | 1 | 143 | 152 | 10 | VYYHKNNKSW 0.000255 | 22 |
| HLA-B*44:02 | 1 | 185 | 194 | 10 | NFKNLREFVF 0.000255 | 15 |
| HLA-A*33:01 | 1 | 218 | 227 | 10 | QGFSALEPLV 0.000255 | 25 |
| HLA-B*44:02 | 1 | 226 | 235 | 10 | LVDLPIGINI 0.000255 | 15 |
| HLA-A*11:01 | 1 | 363 | 371 | 9 | ADYSVLYNS 0.000255 | 16 |
| HLA-A*68:01 | 1 | 378 | 387 | 10 | KCYGVSPTKL 0.000255 | 24 |
| HLA-A*68:01 | 1 | 387 | 396 | 10 | LNDLCFTNVY 0.000255 | 24 |
| HLA-B*53:01 | 1 | 402 | 410 | 9 | IRGDEVRFQI 0.000255 | 17 |
| HLA-B*35:01 | 1 | 418 | 426 | 9 | IADYNYKLP 0.000255 | 17 |
| HLA-A*68:02 | 1 | 490 | 499 | 10 | FPLQSYGFQP 0.000255 | 27 |
| HLA-B*15:01 | 1 | 582 | 590 | 9 | LEILDITPC 0.000255 | 25 |
| HLA-B*35:01 | 1 | 614 | 623 | 10 | DVNCTEVPVA 0.000255 | 17 |
| HLA-A*33:01 | 1 | 644 | 653 | 10 | QTRAGCLIGA 0.000255 | 25 |
| HLA-A*30:02 | 1 | 661 | 670 | 10 | ECDIPIGAGI 0.000255 | 42 |
| HLA-A*01:01 | 1 | 727 | 736 | 10 | LPVSMTKTSV 0.000255 | 32 |
| HLA-A*03:01 | 1 | 771 | 779 | 9 | AVEQDKNTQ 0.000255 | 20 |
| HLA-B*58:01 | 1 | 771 | 779 | 9 | AVEQDKNTQ 0.000255 | 25 |
| HLA-A*68:02 | 1 | 781 | 789 | 9 | VFAQVKQIY 0.000255 | 27 |
| HLA-B*35:01 | 1 | 786 | 794 | 9 | KQIYKTPPI 0.000255 | 17 |
| HLA-B*51:01 | 1 | 801 | 809 | 9 | NFSQILPDP 0.000255 | 31 |
| HLA-A*31:01 | 1 | 808 | 817 | 10 | DPSKPSKRSF 0.000255 | 26 |
| HLA-B*35:01 | 1 | 850 | 858 | 9 | ICAQKFNGL 0.000255 | 17 |
| HLA-A*03:01 | 1 | 887 | 895 | 9 | TFGAGAALQ 0.000255 | 20 |
| HLA-A*11:01 | 1 | 972 | 980 | 9 | AISSVLNDI 0.000255 | 16 |
| HLA-B*58:01 | 1 | 996 | 1005 | 10 | LITGRLQSLQ 0.000255 | 25 |
| HLA-A*30:02 | 1 | 1031 | 1040 | 10 | ECVLGQSKRV 0.000255 | 42 |
| HLA-A*02:03 | 1 | 1086 | 1095 | 10 | KAHFPREGVF 0.000255 | 27 |
| HLA-A*23:01 | 1 | 1088 | 1097 | 10 | HFPREGVFVS 0.000255 | 15 |
| HLA-B*35:01 | 1 | 1095 | 1104 | 10 | FVSNGTHWFV 0.000255 | 17 |
| HLA-A*03:01 | 1 | 1219 | 1227 | 9 | GFIAGLIAI 0.000255 | 20 |
| HLA-B*07:02 | 1 | 108 | 116 | 9 | TTLDSKTQS 0.000254 | 22 |
| HLA-B*58:01 | 1 | 123 | 132 | 10 | ATNVVIVKVE 0.000254 | 25 |
| HLA-A*32:01 | 1 | 136 | 145 | 10 | CNDPFLGVVY 0.000254 | 19 |
| HLA-B*08:01 | 1 | 142 | 150 | 9 | GVYYHKNNK 0.000254 | 34 |
| HLA-A*02:01 | 1 | 165 | 174 | 10 | NCTFEYVSQP 0.000254 | 24 |
| HLA-A*02:03 | 1 | 182 | 190 | 9 | KQGNFKNLR 0.000254 | 27 |
| HLA-B*44:03 | 1 | 213 | 222 | 10 | VRDLPQGFSF 0.000254 | 15 |
| HLA-A*11:01 | 1 | 231 | 239 | 9 | IGINITRFQ 0.000254 | 16 |
| HLA-A*30:02 | 1 | 323 | 332 | 10 | TESIVRFPNI 0.000254 | 42 |
| HLA-B*08:01 | 1 | 352 | 360 | 9 | AWNKRISN 0.000254 | 34 |
| HLA-B*51:01 | 1 | 359 | 368 | 10 | SNCVADYSVL 0.000254 | 31 |
| HLA-A*03:01 | 1 | 369 | 377 | 9 | YNSASFSTF 0.000254 | 20 |
| HLA-A*33:01 | 1 | 371 | 379 | 9 | SASFSTFKC 0.000254 | 25 |
| HLA-B*57:01 | 1 | 445 | 454 | 10 | VGGNYNYLYR 0.000254 | 34 |
| HLA-B*07:02 | 1 | 481 | 489 | 9 | NGVEGFNCY 0.000254 | 22 |
| HLA-B*40:01 | 1 | 482 | 490 | 9 | GVEGFNCYF 0.000254 | 14 |
| HLA-A*01:01 | 1 | 501 | 510 | 10 | NGVGYQPYRV 0.000254 | 32 |
| HLA-A*33:01 | 1 | 665 | 674 | 10 | PIGAGICASY 0.000254 | 25 |
| HLA-A*26:01 | 1 | 683 | 692 | 10 | RARSVASQSI 0.000254 | 20 |
| HLA-A*33:01 | 1 | 724 | 732 | 9 | TEILPVSMT 0.000254 | 25 |
| HLA-A*33:01 | 1 | 766 | 774 | 9 | ALTGIAVEQ 0.000254 | 25 |
| HLA-A*11:01 | 1 | 784 | 792 | 9 | QVKQIYKTP 0.000254 | 16 |
| HLA-B*15:01 | 1 | 789 | 798 | 10 | YKTPPIKDFG 0.000254 | 25 |
| HLA-B*58:01 | 1 | 812 | 821 | 10 | PSKRSEFIEDL 0.000254 | 25 |
| HLA-A*68:02 | 1 | 858 | 867 | 10 | LTVLPPLD 0.000254 | 27 |
| HLA-A*02:06 | 1 | 872 | 881 | 10 | QYTSALLAGT 0.000254 | 33 |
| HLA-A*11:01 | 1 | 891 | 899 | 9 | GAALQIPFA 0.000254 | 16 |
| HLA-A*02:03 | 1 | 988 | 996 | 9 | EAEVQIDRL 0.000254 | 27 |
| HLA-B*07:02 | 1 | 1019 | 1028 | 10 | RASANLAATK 0.000254 | 22 |
| HLA-A*11:01 | 1 | 1026 | 1034 | 9 | ATKMSECVL 0.000254 | 16 |
| HLA-B*44:03 | 1 | 1041 | 1049 | 9 | DFCGKGYHL 0.000254 | 15 |
| HLA-A*68:02 | 1 | 1069 | 1077 | 9 | PAQEKNFST 0.000254 | 27 |
| HLA-A*30:02 | 1 | 1228 | 1236 | 9 | VMVTIMLCC 0.000254 | 42 |
| HLA-A*01:01 | 1 | 45 | 53 | 9 | SSVLHSTQD 0.000253 | 32 |

| | | | | | | | |
|-------------|---|------|------|----|---------|----------|----|
| HLA-A*02:03 | 1 | 65 | 73 | 9 | FHAIHVS | 0.000253 | 27 |
| HLA-B*51:01 | 1 | 66 | 75 | 10 | HAIHVS | 0.000253 | 31 |
| HLA-A*02:01 | 1 | 89 | 98 | 10 | GYYFAST | 0.000253 | 24 |
| HLA-A*30:01 | 1 | 122 | 131 | 10 | NATNVV | 0.000253 | 45 |
| HLA-A*23:01 | 1 | 200 | 208 | 9 | YFKIYS | 0.000253 | 15 |
| HLA-B*35:01 | 1 | 215 | 224 | 10 | DLPQGF | 0.000253 | 17 |
| HLA-A*02:03 | 1 | 336 | 344 | 9 | CPFGEV | 0.000253 | 27 |
| HLA-A*30:01 | 1 | 441 | 449 | 9 | LDSKVG | 0.000253 | 45 |
| HLA-A*30:01 | 1 | 589 | 598 | 10 | PCSFGG | 0.000253 | 45 |
| HLA-A*26:01 | 1 | 597 | 605 | 9 | VITPGT | 0.000253 | 20 |
| HLA-A*11:01 | 1 | 635 | 643 | 9 | VYSTGS | 0.000253 | 16 |
| HLA-A*02:03 | 1 | 637 | 646 | 10 | STGSNV | 0.000253 | 27 |
| HLA-A*01:01 | 1 | 670 | 678 | 9 | ICASYQ | 0.000253 | 32 |
| HLA-B*07:02 | 1 | 672 | 681 | 10 | ASYQTQ | 0.000253 | 22 |
| HLA-B*15:01 | 1 | 710 | 719 | 10 | NSIAIP | 0.000253 | 25 |
| HLA-A*30:01 | 1 | 750 | 759 | 10 | SNLLQY | 0.000253 | 45 |
| HLA-B*35:01 | 1 | 754 | 763 | 10 | LQYGSF | 0.000253 | 17 |
| HLA-A*23:01 | 1 | 762 | 770 | 9 | QLNRAL | 0.000253 | 15 |
| HLA-A*31:01 | 1 | 832 | 841 | 10 | GFIKQY | 0.000253 | 26 |
| HLA-B*51:01 | 1 | 889 | 897 | 9 | GAGAAL | 0.000253 | 31 |
| HLA-B*08:01 | 1 | 976 | 985 | 10 | VLNDIL | 0.000253 | 34 |
| HLA-A*02:06 | 1 | 980 | 988 | 9 | ILSRLD | 0.000253 | 33 |
| HLA-A*03:01 | 1 | 1028 | 1037 | 10 | KMSECV | 0.000253 | 20 |
| HLA-A*02:06 | 1 | 1030 | 1038 | 9 | SECVLG | 0.000253 | 33 |
| HLA-B*40:01 | 1 | 1086 | 1094 | 9 | KAHFP | 0.000253 | 14 |
| HLA-B*53:01 | 1 | 1114 | 1122 | 9 | IITDNT | 0.000253 | 17 |
| HLA-B*44:02 | 1 | 1148 | 1157 | 10 | FKEELD | 0.000253 | 15 |
| HLA-B*08:01 | 1 | 1177 | 1185 | 9 | VNIQKE | 0.000253 | 34 |
| HLA-A*68:01 | 1 | 1178 | 1186 | 9 | NIQKEI | 0.000253 | 24 |
| HLA-A*26:01 | 1 | 1181 | 1190 | 10 | KEIDRL | 0.000253 | 20 |
| HLA-B*35:01 | 1 | 1215 | 1224 | 10 | YIWLGF | 0.000253 | 17 |
| HLA-A*23:01 | 1 | 1219 | 1228 | 10 | GFIAGL | 0.000253 | 15 |
| HLA-B*35:01 | 1 | 1256 | 1264 | 9 | FDEDD | 0.000253 | 17 |
| HLA-B*07:02 | 1 | 1 | 10 | 10 | MFVFLV | 0.000252 | 22 |
| HLA-B*07:02 | 1 | 6 | 14 | 9 | VLLPLV | 0.000252 | 22 |
| HLA-A*30:01 | 1 | 208 | 216 | 9 | TPINLV | 0.000252 | 45 |
| HLA-A*68:02 | 1 | 213 | 222 | 10 | VRDLPQ | 0.000252 | 27 |
| HLA-A*01:01 | 1 | 232 | 241 | 10 | GINITR | 0.000252 | 32 |
| HLA-B*53:01 | 1 | 378 | 386 | 9 | KCYGV | 0.000252 | 17 |
| HLA-B*08:01 | 1 | 410 | 419 | 10 | IAPGQT | 0.000252 | 34 |
| HLA-B*57:01 | 1 | 453 | 462 | 10 | YRFRKS | 0.000252 | 34 |
| HLA-A*32:01 | 1 | 466 | 475 | 10 | RDISTE | 0.000252 | 19 |
| HLA-B*51:01 | 1 | 500 | 508 | 9 | TNGVGY | 0.000252 | 31 |
| HLA-B*53:01 | 1 | 508 | 517 | 10 | YRVVVL | 0.000252 | 17 |
| HLA-A*02:01 | 1 | 550 | 558 | 9 | GVLTES | 0.000252 | 24 |
| HLA-A*30:01 | 1 | 553 | 561 | 9 | TESNKK | 0.000252 | 45 |
| HLA-B*08:01 | 1 | 597 | 605 | 9 | VITPGT | 0.000252 | 34 |
| HLA-B*08:01 | 1 | 603 | 612 | 10 | NTSNQV | 0.000252 | 34 |
| HLA-A*11:01 | 1 | 618 | 626 | 9 | TEVPVA | 0.000252 | 16 |
| HLA-A*02:06 | 1 | 700 | 708 | 9 | GAENSV | 0.000252 | 33 |
| HLA-A*33:01 | 1 | 705 | 713 | 9 | VAYSN | 0.000252 | 25 |
| HLA-B*07:02 | 1 | 744 | 752 | 9 | GDSTEC | 0.000252 | 22 |
| HLA-A*68:02 | 1 | 747 | 756 | 10 | TECSNL | 0.000252 | 27 |
| HLA-B*51:01 | 1 | 855 | 863 | 9 | FNGLTV | 0.000252 | 31 |
| HLA-B*58:01 | 1 | 901 | 909 | 9 | QMAYRF | 0.000252 | 25 |
| HLA-B*57:01 | 1 | 909 | 918 | 10 | IGVTQN | 0.000252 | 34 |
| HLA-B*58:01 | 1 | 951 | 960 | 10 | VVNQAQ | 0.000252 | 25 |
| HLA-A*30:01 | 1 | 973 | 982 | 10 | ISSVLD | 0.000252 | 45 |
| HLA-B*08:01 | 1 | 1039 | 1047 | 9 | RVDFCG | 0.000252 | 34 |
| HLA-B*44:03 | 1 | 1056 | 1065 | 10 | APHGVV | 0.000252 | 15 |
| HLA-A*02:01 | 1 | 1070 | 1079 | 10 | AQEKNF | 0.000252 | 24 |
| HLA-A*11:01 | 1 | 1087 | 1095 | 9 | AHFP | 0.000252 | 16 |
| HLA-B*35:01 | 1 | 1099 | 1107 | 9 | GTHWFV | 0.000252 | 18 |
| HLA-B*08:01 | 1 | 1150 | 1158 | 9 | EELD | 0.000252 | 34 |
| HLA-A*30:01 | 1 | 1159 | 1168 | 10 | HTSPDV | 0.000252 | 45 |
| HLA-B*40:01 | 1 | 1171 | 1179 | 9 | GINASV | 0.000252 | 14 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*40:01 | 1 | 1178 | 1186 | 9 | NIQKEIDRL 0.000252 | 14 |
| HLA-A*02:06 | 1 | 1198 | 1207 | 10 | IDLQELGKYE 0.000252 | 33 |
| HLA-B*58:01 | 1 | 1216 | 1224 | 9 | IWLGFIAGL 0.000252 | 25 |
| HLA-B*08:01 | 1 | 1258 | 1266 | 9 | EDDSEPVLK 0.000252 | 34 |
| HLA-A*30:02 | 1 | 38 | 47 | 10 | YDPKVFSSV 0.000251 | 42 |
| HLA-B*35:01 | 1 | 54 | 62 | 9 | LFLPFFSNV 0.000251 | 18 |
| HLA-B*08:01 | 1 | 304 | 312 | 9 | KSFTVEKGI 0.000251 | 34 |
| HLA-A*26:01 | 1 | 311 | 320 | 10 | GIYQTSNFRV 0.000251 | 21 |
| HLA-A*24:02 | 1 | 341 | 349 | 9 | VFNATRFAS 0.000251 | 14 |
| HLA-A*33:01 | 1 | 398 | 407 | 10 | DSFVIRGDEV 0.000251 | 25 |
| HLA-B*44:02 | 1 | 444 | 452 | 9 | KVGGNYNYL 0.000251 | 15 |
| HLA-A*23:01 | 1 | 450 | 459 | 10 | NYLYRFLFRKS 0.000251 | 15 |
| HLA-B*08:01 | 1 | 475 | 483 | 9 | AGSTPCNGV 0.000251 | 34 |
| HLA-B*51:01 | 1 | 486 | 494 | 9 | FNCYFPLQS 0.000251 | 31 |
| HLA-A*68:01 | 1 | 489 | 498 | 10 | YFPLQSYGFQ 0.000251 | 24 |
| HLA-A*02:03 | 1 | 496 | 505 | 10 | GFQPTNGVGY 0.000251 | 27 |
| HLA-A*32:01 | 1 | 528 | 537 | 10 | KKSTNLVKNK 0.000251 | 19 |
| HLA-A*26:01 | 1 | 529 | 537 | 9 | KSTNLVKNK 0.000251 | 21 |
| HLA-A*01:01 | 1 | 613 | 622 | 10 | QDVNCTEVPV 0.000251 | 32 |
| HLA-A*01:01 | 1 | 624 | 632 | 9 | IHADQLTPT 0.000251 | 32 |
| HLA-A*03:01 | 1 | 628 | 637 | 10 | QLTPTWRVYS 0.000251 | 20 |
| HLA-A*03:01 | 1 | 635 | 643 | 9 | VYSTGSNVF 0.000251 | 20 |
| HLA-A*31:01 | 1 | 693 | 701 | 9 | IAYTMSLGA 0.000251 | 26 |
| HLA-A*30:01 | 1 | 696 | 704 | 9 | TMSLGAENS 0.000251 | 45 |
| HLA-B*53:01 | 1 | 703 | 712 | 10 | NSVAYSNNISI 0.000251 | 17 |
| HLA-A*26:01 | 1 | 705 | 714 | 10 | VAYSNNIAI 0.000251 | 21 |
| HLA-A*03:01 | 1 | 706 | 714 | 9 | AYSNNIAI 0.000251 | 20 |
| HLA-B*51:01 | 1 | 739 | 747 | 9 | TMYICGDST 0.000251 | 31 |
| HLA-A*32:01 | 1 | 810 | 818 | 9 | SKPSKRFSI 0.000251 | 19 |
| HLA-A*30:02 | 1 | 872 | 881 | 10 | QYTSALLAGT 0.000251 | 42 |
| HLA-A*30:02 | 1 | 982 | 990 | 9 | SRLDKVEAE 0.000251 | 42 |
| HLA-B*53:01 | 1 | 1025 | 1034 | 10 | AATKMSECVL 0.000251 | 17 |
| HLA-A*02:01 | 1 | 1061 | 1069 | 9 | VFLHVITYVP 0.000251 | 24 |
| HLA-A*01:01 | 1 | 1227 | 1235 | 9 | IVMVTIMLC 0.000251 | 32 |
| HLA-A*03:01 | 1 | 38 | 46 | 9 | YDPKVFSSV 0.000251 | 20 |
| HLA-B*40:01 | 1 | 101 | 110 | 10 | IRGWIFGTTL 0.000251 | 14 |
| HLA-A*02:03 | 1 | 170 | 178 | 9 | YVSQPFLMD 0.000251 | 27 |
| HLA-B*57:01 | 1 | 187 | 196 | 10 | KNLREFVFKN 0.000251 | 34 |
| HLA-A*23:01 | 1 | 196 | 204 | 9 | NIDGYFKIY 0.000251 | 15 |
| HLA-A*30:02 | 1 | 224 | 233 | 10 | EPLVDLPIGI 0.000251 | 42 |
| HLA-A*32:01 | 1 | 224 | 233 | 10 | EPLVDLPIGI 0.000251 | 19 |
| HLA-B*15:01 | 1 | 265 | 273 | 9 | YYVGYLQPR 0.000251 | 25 |
| HLA-A*68:01 | 1 | 268 | 276 | 9 | GYLQPRFTL 0.000251 | 24 |
| HLA-B*51:01 | 1 | 363 | 372 | 10 | ADYSVLYNSA 0.000251 | 31 |
| HLA-A*01:01 | 1 | 413 | 422 | 10 | GQTGKIADYN 0.000251 | 32 |
| HLA-A*02:03 | 1 | 436 | 445 | 10 | WNSNNLDSKV 0.000251 | 27 |
| HLA-A*03:01 | 1 | 506 | 514 | 9 | QPYRVVLS 0.000251 | 20 |
| HLA-B*15:01 | 1 | 515 | 523 | 9 | FELLHAPAT 0.000251 | 25 |
| HLA-A*68:01 | 1 | 619 | 627 | 9 | EVPVAIHAD 0.000251 | 24 |
| HLA-B*08:01 | 1 | 644 | 653 | 10 | QTRAGCLIGA 0.000251 | 34 |
| HLA-A*68:02 | 1 | 678 | 686 | 9 | TNSPRRARS 0.000251 | 27 |
| HLA-A*02:01 | 1 | 695 | 704 | 10 | YTMSLGAENS 0.000251 | 24 |
| HLA-A*26:01 | 1 | 826 | 834 | 9 | VTLADAGFI 0.000251 | 21 |
| HLA-B*15:01 | 1 | 854 | 862 | 9 | KFNGLTVLP 0.000251 | 25 |
| HLA-A*03:01 | 1 | 857 | 866 | 10 | GLTVLPPLLT 0.000251 | 20 |
| HLA-A*01:01 | 1 | 876 | 884 | 9 | ALLAGTITS 0.000251 | 32 |
| HLA-A*30:01 | 1 | 945 | 953 | 9 | LGKLQDVVN 0.000251 | 45 |
| HLA-B*07:02 | 1 | 990 | 998 | 9 | EVQIDRLIT 0.000251 | 22 |
| HLA-B*08:01 | 1 | 1016 | 1025 | 10 | AEIRASANLA 0.000251 | 34 |
| HLA-A*02:03 | 1 | 1020 | 1028 | 9 | ASANLAATK 0.000251 | 27 |
| HLA-A*30:01 | 1 | 1068 | 1077 | 10 | VPAQEKNFST 0.000251 | 45 |
| HLA-B*58:01 | 1 | 1104 | 1113 | 10 | VTQRNFYEPQ 0.000251 | 25 |
| HLA-B*44:02 | 1 | 1106 | 1115 | 10 | QRNFYEPQII 0.000251 | 15 |
| HLA-A*68:01 | 1 | 1116 | 1124 | 9 | TTDNTFVSG 0.000251 | 24 |
| HLA-A*32:01 | 1 | 1172 | 1181 | 10 | INASVVNIQK 0.000251 | 19 |
| HLA-B*07:02 | 1 | 1173 | 1181 | 9 | NASVVNIQK 0.000251 | 22 |

| | | | | | | | |
|-------------|---|------|------|----|-----------|----------|----|
| HLA-A*30:01 | 1 | 1228 | 1236 | 9 | VMVTIMLCC | 0.00025 | 45 |
| HLA-A*01:01 | 1 | 1229 | 1237 | 9 | MVTIMLCCM | 0.00025 | 32 |
| HLA-A*30:01 | 1 | 1231 | 1239 | 9 | TIMLCCMTS | 0.00025 | 45 |
| HLA-B*44:02 | 1 | 36 | 44 | 9 | VYYPKVFR | 0.000249 | 15 |
| HLA-A*33:01 | 1 | 63 | 72 | 10 | TWFHAIHVS | 0.000249 | 25 |
| HLA-A*30:01 | 1 | 65 | 73 | 9 | FHAIHVS | 0.000249 | 45 |
| HLA-A*02:06 | 1 | 111 | 120 | 10 | DSKTQSL | 0.000249 | 33 |
| HLA-B*40:01 | 1 | 270 | 279 | 10 | LQPRTFLL | 0.000249 | 14 |
| HLA-A*02:06 | 1 | 280 | 288 | 9 | NENGTITDA | 0.000249 | 33 |
| HLA-B*35:01 | 1 | 280 | 289 | 10 | NENGTITDA | 0.000249 | 18 |
| HLA-A*32:01 | 1 | 323 | 332 | 10 | TESIVRFP | 0.000249 | 19 |
| HLA-B*57:01 | 1 | 324 | 333 | 10 | ESIVRFP | 0.000249 | 34 |
| HLA-B*57:01 | 1 | 380 | 389 | 10 | YGVSP | 0.000249 | 34 |
| HLA-A*02:03 | 1 | 456 | 464 | 9 | FRKSNL | 0.000249 | 27 |
| HLA-B*58:01 | 1 | 554 | 563 | 10 | ESNKKFL | 0.000249 | 25 |
| HLA-B*51:01 | 1 | 590 | 599 | 10 | CSFGG | 0.000249 | 31 |
| HLA-A*01:01 | 1 | 595 | 604 | 10 | VSVIT | 0.000249 | 32 |
| HLA-A*32:01 | 1 | 596 | 605 | 10 | SVIT | 0.000249 | 19 |
| HLA-A*26:01 | 1 | 682 | 690 | 9 | RRARS | 0.000249 | 21 |
| HLA-B*51:01 | 1 | 695 | 703 | 9 | YTM | 0.000249 | 31 |
| HLA-A*02:01 | 1 | 740 | 749 | 10 | MYIC | 0.000249 | 24 |
| HLA-B*51:01 | 1 | 741 | 749 | 9 | YIC | 0.000249 | 31 |
| HLA-B*51:01 | 1 | 744 | 753 | 10 | GD | 0.000249 | 31 |
| HLA-A*30:01 | 1 | 745 | 753 | 9 | D | 0.000249 | 45 |
| HLA-A*31:01 | 1 | 750 | 759 | 10 | SNLL | 0.000249 | 26 |
| HLA-A*02:01 | 1 | 758 | 766 | 9 | SFCT | 0.000249 | 24 |
| HLA-A*02:06 | 1 | 774 | 782 | 9 | QDK | 0.000249 | 33 |
| HLA-A*02:01 | 1 | 789 | 797 | 9 | YK | 0.000249 | 24 |
| HLA-A*02:01 | 1 | 799 | 807 | 9 | GF | 0.000249 | 24 |
| HLA-B*57:01 | 1 | 829 | 838 | 10 | ADAG | 0.000249 | 34 |
| HLA-A*11:01 | 1 | 885 | 894 | 10 | GWT | 0.000249 | 16 |
| HLA-A*23:01 | 1 | 956 | 964 | 9 | AQAL | 0.000249 | 15 |
| HLA-B*07:02 | 1 | 980 | 989 | 10 | IL | 0.000249 | 22 |
| HLA-B*08:01 | 1 | 981 | 990 | 10 | LS | 0.000249 | 34 |
| HLA-A*11:01 | 1 | 992 | 1001 | 10 | QID | 0.000249 | 16 |
| HLA-A*01:01 | 1 | 995 | 1003 | 9 | RL | 0.000249 | 32 |
| HLA-A*32:01 | 1 | 1007 | 1015 | 9 | YV | 0.000249 | 19 |
| HLA-B*58:01 | 1 | 1087 | 1096 | 10 | AH | 0.000249 | 25 |
| HLA-B*57:01 | 1 | 1103 | 1112 | 10 | FV | 0.000249 | 34 |
| HLA-A*32:01 | 1 | 1114 | 1122 | 9 | IIT | 0.000249 | 19 |
| HLA-A*33:01 | 1 | 1127 | 1135 | 9 | DV | 0.000249 | 25 |
| HLA-A*30:02 | 1 | 1155 | 1163 | 9 | YF | 0.000249 | 42 |
| HLA-B*57:01 | 1 | 1175 | 1184 | 10 | SV | 0.000249 | 34 |
| HLA-B*53:01 | 1 | 1259 | 1268 | 10 | DD | 0.000249 | 17 |
| HLA-B*58:01 | 1 | 18 | 27 | 10 | LT | 0.000248 | 25 |
| HLA-A*31:01 | 1 | 27 | 35 | 9 | AY | 0.000248 | 26 |
| HLA-B*53:01 | 1 | 47 | 56 | 10 | VL | 0.000248 | 17 |
| HLA-A*03:01 | 1 | 55 | 64 | 10 | FL | 0.000248 | 20 |
| HLA-A*02:06 | 1 | 71 | 79 | 9 | SG | 0.000248 | 33 |
| HLA-B*35:01 | 1 | 89 | 97 | 9 | GV | 0.000248 | 18 |
| HLA-A*26:01 | 1 | 131 | 140 | 10 | CE | 0.000248 | 21 |
| HLA-B*15:01 | 1 | 172 | 180 | 9 | SQ | 0.000248 | 25 |
| HLA-A*23:01 | 1 | 182 | 190 | 9 | KQ | 0.000248 | 15 |
| HLA-A*02:03 | 1 | 200 | 208 | 9 | YF | 0.000248 | 27 |
| HLA-A*30:02 | 1 | 231 | 240 | 10 | IG | 0.000248 | 42 |
| HLA-B*40:01 | 1 | 295 | 303 | 9 | PL | 0.000248 | 14 |
| HLA-B*57:01 | 1 | 399 | 408 | 10 | SF | 0.000248 | 34 |
| HLA-B*40:01 | 1 | 427 | 436 | 10 | DD | 0.000248 | 14 |
| HLA-A*11:01 | 1 | 509 | 518 | 10 | RV | 0.000248 | 16 |
| HLA-A*31:01 | 1 | 580 | 588 | 9 | QT | 0.000248 | 26 |
| HLA-A*02:01 | 1 | 592 | 600 | 9 | FG | 0.000248 | 25 |
| HLA-A*31:01 | 1 | 633 | 642 | 10 | WR | 0.000248 | 26 |
| HLA-B*58:01 | 1 | 703 | 711 | 9 | NS | 0.000248 | 25 |
| HLA-B*15:01 | 1 | 714 | 722 | 9 | IP | 0.000248 | 25 |
| HLA-A*02:01 | 1 | 744 | 753 | 10 | GD | 0.000248 | 25 |
| HLA-A*11:01 | 1 | 765 | 773 | 9 | RAL | 0.000248 | 16 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*31:01 | 1 | 779 | 788 | 10 | QEVFAQVKQI 0.000248 | 26 |
| HLA-B*44:03 | 1 | 791 | 800 | 10 | TPPIKDFGGF 0.000248 | 15 |
| HLA-A*01:01 | 1 | 799 | 807 | 9 | GFNFSQILP 0.000248 | 32 |
| HLA-A*30:02 | 1 | 801 | 809 | 9 | NFSQILPDP 0.000248 | 42 |
| HLA-B*07:02 | 1 | 876 | 884 | 9 | ALLAGTITS 0.000248 | 22 |
| HLA-B*44:02 | 1 | 908 | 917 | 10 | GIGVTQNVLY 0.000248 | 15 |
| HLA-B*07:02 | 1 | 942 | 951 | 10 | ASALGKLQDV 0.000248 | 22 |
| HLA-A*30:01 | 1 | 951 | 960 | 10 | VVNQNAQALN 0.000248 | 45 |
| HLA-A*30:02 | 1 | 978 | 986 | 9 | NDILSRLDK 0.000248 | 42 |
| HLA-A*03:01 | 1 | 1070 | 1078 | 9 | AQEKNFTTA 0.000248 | 20 |
| HLA-B*08:01 | 1 | 1078 | 1087 | 10 | APAICHDGKA 0.000248 | 35 |
| HLA-B*57:01 | 1 | 1122 | 1131 | 10 | VSGNCDVVG 0.000248 | 34 |
| HLA-A*03:01 | 1 | 1144 | 1152 | 9 | ELDSFKEEL 0.000248 | 20 |
| HLA-B*57:01 | 1 | 1166 | 1174 | 9 | LGDISGINA 0.000248 | 34 |
| HLA-A*30:01 | 1 | 14 | 22 | 9 | QCVNLTRT 0.000247 | 45 |
| HLA-A*30:01 | 1 | 24 | 32 | 9 | LPPAYTNSF 0.000247 | 45 |
| HLA-B*35:01 | 1 | 97 | 106 | 10 | KSNIRGWIF 0.000247 | 18 |
| HLA-A*68:02 | 1 | 153 | 162 | 10 | MESEFRVYSS 0.000247 | 27 |
| HLA-B*08:01 | 1 | 166 | 174 | 9 | CTFEYVSQP 0.000247 | 35 |
| HLA-B*58:01 | 1 | 173 | 182 | 10 | QPFMLDLEG 0.000247 | 25 |
| HLA-A*31:01 | 1 | 218 | 227 | 10 | QGFSALEPLV 0.000247 | 26 |
| HLA-B*35:01 | 1 | 226 | 235 | 10 | LVDLPIGINI 0.000247 | 18 |
| HLA-A*68:01 | 1 | 284 | 293 | 10 | TITDAVDCAL 0.000247 | 24 |
| HLA-B*57:01 | 1 | 294 | 303 | 10 | DPLSEKCTL 0.000247 | 34 |
| HLA-A*33:01 | 1 | 295 | 304 | 10 | PLSEKCTLK 0.000247 | 25 |
| HLA-B*57:01 | 1 | 318 | 327 | 10 | FRVQPTESIV 0.000247 | 34 |
| HLA-A*30:02 | 1 | 392 | 401 | 10 | FTNVYADSFV 0.000247 | 42 |
| HLA-B*57:01 | 1 | 501 | 509 | 9 | NGVGYQPYR 0.000247 | 34 |
| HLA-A*02:06 | 1 | 531 | 539 | 9 | TNLVKNKCV 0.000247 | 33 |
| HLA-A*01:01 | 1 | 574 | 583 | 10 | DAVRDPQTL 0.000247 | 32 |
| HLA-A*02:01 | 1 | 666 | 674 | 9 | IGAGICASY 0.000247 | 25 |
| HLA-B*07:02 | 1 | 709 | 718 | 10 | NNSIAIPTNF 0.000247 | 22 |
| HLA-A*03:01 | 1 | 722 | 730 | 9 | VTTEILPVS 0.000247 | 20 |
| HLA-A*68:01 | 1 | 733 | 742 | 10 | KTSVDCTMYI 0.000247 | 24 |
| HLA-A*01:01 | 1 | 741 | 749 | 9 | YICGDSTEC 0.000247 | 32 |
| HLA-B*51:01 | 1 | 743 | 752 | 10 | CGDSTECNSL 0.000247 | 31 |
| HLA-A*30:02 | 1 | 782 | 791 | 10 | FAQVKQIYKT 0.000247 | 42 |
| HLA-A*68:01 | 1 | 814 | 822 | 9 | KRSFIEDLL 0.000247 | 24 |
| HLA-A*68:01 | 1 | 814 | 823 | 10 | KRSFIEDLLF 0.000247 | 24 |
| HLA-A*33:01 | 1 | 833 | 841 | 9 | FIKQYGDCL 0.000247 | 25 |
| HLA-A*31:01 | 1 | 860 | 868 | 9 | VLPPLTDE 0.000247 | 26 |
| HLA-B*07:02 | 1 | 877 | 886 | 10 | LLAGTITSGW 0.000247 | 22 |
| HLA-B*58:01 | 1 | 881 | 890 | 10 | TITSGWTFGA 0.000247 | 25 |
| HLA-A*31:01 | 1 | 918 | 927 | 10 | ENQKLIANQF 0.000247 | 26 |
| HLA-A*30:01 | 1 | 928 | 937 | 10 | NSAIGKIQDS 0.000247 | 45 |
| HLA-B*35:01 | 1 | 1030 | 1038 | 9 | SECVLGQSK 0.000247 | 18 |
| HLA-A*33:01 | 1 | 1063 | 1071 | 9 | LHVTVPAQ 0.000247 | 25 |
| HLA-A*23:01 | 1 | 1154 | 1163 | 10 | KYFKNHTSPD 0.000247 | 15 |
| HLA-B*08:01 | 1 | 1182 | 1191 | 10 | EIDRLNEVAK 0.000247 | 35 |
| HLA-A*01:01 | 1 | 1217 | 1225 | 9 | WLGFIAGLI 0.000247 | 32 |
| HLA-A*68:02 | 1 | 1262 | 1271 | 10 | EPVLKGVKLV 0.000247 | 27 |
| HLA-A*31:01 | 1 | 63 | 72 | 10 | TWFHAIHVS 0.000246 | 26 |
| HLA-B*08:01 | 1 | 97 | 105 | 9 | KSNIRGWI 0.000246 | 35 |
| HLA-A*26:01 | 1 | 162 | 171 | 10 | SANNCTFEYV 0.000246 | 21 |
| HLA-A*02:03 | 1 | 239 | 247 | 9 | QTLALHRS 0.000246 | 27 |
| HLA-B*44:03 | 1 | 264 | 272 | 9 | AYYVGYLQP 0.000246 | 15 |
| HLA-A*01:01 | 1 | 297 | 305 | 9 | SETKCTLKS 0.000246 | 32 |
| HLA-A*01:01 | 1 | 298 | 307 | 10 | ETKCTLKST 0.000246 | 32 |
| HLA-B*44:02 | 1 | 302 | 310 | 9 | TLKSFTVEK 0.000246 | 15 |
| HLA-A*24:02 | 1 | 323 | 332 | 10 | TESIVRFPNI 0.000246 | 15 |
| HLA-B*15:01 | 1 | 375 | 383 | 9 | STFKCYGVS 0.000246 | 25 |
| HLA-A*26:01 | 1 | 378 | 387 | 10 | KCYGVSPTKL 0.000246 | 21 |
| HLA-B*44:02 | 1 | 416 | 424 | 9 | GKIADYNYK 0.000246 | 15 |
| HLA-B*08:01 | 1 | 447 | 456 | 10 | GNYNYLYRLF 0.000246 | 35 |
| HLA-A*33:01 | 1 | 465 | 474 | 10 | ERDISTEIQ 0.000246 | 25 |
| HLA-A*31:01 | 1 | 607 | 615 | 9 | QVAVLYQDV 0.000246 | 26 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*01:01 | 1 | 615 | 624 | 10 | VNCTEVPVAI 0.000246 | 32 |
| HLA-A*30:02 | 1 | 671 | 680 | 10 | CASYQTQTNIS 0.000246 | 42 |
| HLA-B*58:01 | 1 | 689 | 698 | 10 | SQSIIAYTMS 0.000246 | 26 |
| HLA-A*23:01 | 1 | 733 | 742 | 10 | KTSVDCTMYI 0.000246 | 15 |
| HLA-A*30:02 | 1 | 839 | 847 | 9 | DCLGDIAAR 0.000246 | 42 |
| HLA-A*24:02 | 1 | 897 | 905 | 9 | PFAMQMAYR 0.000246 | 15 |
| HLA-B*08:01 | 1 | 903 | 912 | 10 | AYRFNGIGVT 0.000246 | 35 |
| HLA-A*33:01 | 1 | 907 | 916 | 10 | NGIGVTQNVL 0.000246 | 25 |
| HLA-A*01:01 | 1 | 1011 | 1019 | 9 | QLIRAAEIR 0.000246 | 32 |
| HLA-A*24:02 | 1 | 1038 | 1047 | 10 | KRVDFCGKGY 0.000246 | 15 |
| HLA-B*58:01 | 1 | 1056 | 1065 | 10 | APHGVVFLHV 0.000246 | 26 |
| HLA-A*02:03 | 1 | 1104 | 1112 | 9 | VTQRNFYEP 0.000246 | 27 |
| HLA-A*30:01 | 1 | 1122 | 1130 | 9 | VSGNCDVVI 0.000246 | 45 |
| HLA-A*26:01 | 1 | 1195 | 1204 | 10 | ESLIDLQELG 0.000246 | 21 |
| HLA-A*30:01 | 1 | 1221 | 1230 | 10 | IAGLIAIVMV 0.000246 | 45 |
| HLA-A*02:06 | 1 | 1233 | 1241 | 9 | MLCCMTSCC 0.000246 | 33 |
| HLA-B*44:03 | 1 | 43 | 51 | 9 | FRSSVLHST 0.000245 | 15 |
| HLA-A*02:06 | 1 | 74 | 83 | 10 | NGTKRFDNPV 0.000245 | 33 |
| HLA-A*02:01 | 1 | 92 | 101 | 10 | FASTEKSNI 0.000245 | 25 |
| HLA-A*68:01 | 1 | 99 | 107 | 9 | NIIRGWIFG 0.000245 | 24 |
| HLA-A*24:02 | 1 | 158 | 166 | 9 | RVYSSANNC 0.000245 | 15 |
| HLA-A*24:02 | 1 | 232 | 241 | 10 | GINITRFQTL 0.000245 | 15 |
| HLA-A*02:06 | 1 | 314 | 323 | 10 | QTSNFRVQPT 0.000245 | 33 |
| HLA-A*31:01 | 1 | 363 | 371 | 9 | ADYSVLYNS 0.000245 | 26 |
| HLA-A*31:01 | 1 | 363 | 372 | 10 | ADYSVLYNSA 0.000245 | 26 |
| HLA-B*53:01 | 1 | 394 | 403 | 10 | NVYADSFVIR 0.000245 | 17 |
| HLA-A*68:02 | 1 | 414 | 423 | 10 | QTGKIADYNY 0.000245 | 27 |
| HLA-B*40:01 | 1 | 433 | 441 | 9 | VIAWNSNNL 0.000245 | 14 |
| HLA-A*32:01 | 1 | 450 | 458 | 9 | NYLYRFLFRK 0.000245 | 19 |
| HLA-A*68:02 | 1 | 488 | 497 | 10 | CYFPLQSYGF 0.000245 | 27 |
| HLA-B*08:01 | 1 | 497 | 506 | 10 | FQPTNGVGYQ 0.000245 | 35 |
| HLA-A*33:01 | 1 | 512 | 520 | 9 | VLSFELLHA 0.000245 | 25 |
| HLA-A*26:01 | 1 | 541 | 549 | 9 | FNFNGLTGT 0.000245 | 21 |
| HLA-A*30:01 | 1 | 614 | 623 | 10 | DVNCTEVPVA 0.000245 | 45 |
| HLA-A*24:02 | 1 | 620 | 629 | 10 | VPVAIHADQL 0.000245 | 15 |
| HLA-A*02:06 | 1 | 655 | 664 | 10 | HVNNSYECDI 0.000245 | 33 |
| HLA-A*23:01 | 1 | 679 | 687 | 9 | NSPRRARSV 0.000245 | 15 |
| HLA-B*57:01 | 1 | 772 | 781 | 10 | VEQDKNTQEV 0.000245 | 35 |
| HLA-A*32:01 | 1 | 790 | 798 | 9 | KTPPIKDFG 0.000245 | 19 |
| HLA-A*68:02 | 1 | 835 | 844 | 10 | KQYGDCLGDI 0.000245 | 27 |
| HLA-B*53:01 | 1 | 852 | 860 | 9 | AQKFNGLTV 0.000245 | 17 |
| HLA-A*24:02 | 1 | 871 | 879 | 9 | AQYTSALLA 0.000245 | 15 |
| HLA-B*15:01 | 1 | 974 | 983 | 10 | SSVLNDILSR 0.000245 | 25 |
| HLA-B*08:01 | 1 | 1006 | 1015 | 10 | TYVTQQLIRA 0.000245 | 35 |
| HLA-B*58:01 | 1 | 1061 | 1069 | 9 | VFLHVITYVP 0.000245 | 26 |
| HLA-A*23:01 | 1 | 1074 | 1082 | 9 | NFTTAPAIC 0.000245 | 15 |
| HLA-A*11:01 | 1 | 1080 | 1089 | 10 | AICHDGKAHF 0.000245 | 16 |
| HLA-A*31:01 | 1 | 1097 | 1106 | 10 | SNGTHWFVTQ 0.000245 | 26 |
| HLA-A*24:02 | 1 | 1154 | 1163 | 10 | KYFKNHTSPD 0.000245 | 15 |
| HLA-A*01:01 | 1 | 1205 | 1214 | 10 | KYEQYIKWPW 0.000245 | 33 |
| HLA-B*51:01 | 1 | 1216 | 1225 | 10 | IWLGFIAGLI 0.000245 | 31 |
| HLA-A*24:02 | 1 | 1224 | 1232 | 9 | LIAIVMVTI 0.000245 | 15 |
| HLA-A*02:03 | 1 | 1231 | 1240 | 10 | TIMLCCMTSC 0.000245 | 27 |
| HLA-B*57:01 | 1 | 43 | 51 | 9 | FRSSVLHST 0.000244 | 35 |
| HLA-A*68:01 | 1 | 95 | 104 | 10 | TEKSNIIRGW 0.000244 | 24 |
| HLA-A*68:01 | 1 | 170 | 178 | 9 | YVSQPFLMD 0.000244 | 24 |
| HLA-A*68:02 | 1 | 189 | 197 | 9 | LREFVFKNI 0.000244 | 27 |
| HLA-B*57:01 | 1 | 222 | 231 | 10 | ALEPLVDLPI 0.000244 | 35 |
| HLA-A*02:01 | 1 | 261 | 269 | 9 | GAAAYVVG 0.000244 | 25 |
| HLA-B*15:01 | 1 | 271 | 280 | 10 | QPRTFLLKYN 0.000244 | 25 |
| HLA-A*02:06 | 1 | 279 | 288 | 10 | YNENGTITDA 0.000244 | 33 |
| HLA-B*08:01 | 1 | 307 | 316 | 10 | TVEKGIYQTS 0.000244 | 35 |
| HLA-A*01:01 | 1 | 349 | 358 | 10 | SVYAWNRKRI 0.000244 | 33 |
| HLA-B*57:01 | 1 | 519 | 528 | 10 | HAPATVCGPK 0.000244 | 35 |
| HLA-A*68:01 | 1 | 556 | 564 | 9 | NKKFLPFQQ 0.000244 | 24 |
| HLA-B*57:01 | 1 | 599 | 608 | 10 | TPGTNTSNQV 0.000244 | 35 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*31:01 | 1 | 628 | 637 | 10 | QLTPTWRVYS 0.000244 | 26 |
| HLA-A*32:01 | 1 | 646 | 655 | 10 | RAGCLIGAIEH 0.000244 | 19 |
| HLA-B*07:02 | 1 | 691 | 700 | 10 | SIAYTMSLG 0.000244 | 22 |
| HLA-A*68:01 | 1 | 713 | 722 | 10 | AIPTNFTISV 0.000244 | 24 |
| HLA-A*26:01 | 1 | 798 | 806 | 9 | GGFNFSQIL 0.000244 | 21 |
| HLA-B*07:02 | 1 | 827 | 835 | 9 | TLADAGFIK 0.000244 | 22 |
| HLA-A*30:02 | 1 | 902 | 910 | 9 | MAYRFNGIG 0.000244 | 42 |
| HLA-A*24:02 | 1 | 919 | 928 | 10 | NQKLIANQFN 0.000244 | 15 |
| HLA-B*44:02 | 1 | 953 | 961 | 9 | NQNAQALNT 0.000244 | 15 |
| HLA-A*26:01 | 1 | 1019 | 1028 | 10 | RASANLAATK 0.000244 | 21 |
| HLA-A*24:02 | 1 | 1048 | 1056 | 9 | HLMSFPQSA 0.000244 | 15 |
| HLA-B*15:01 | 1 | 1071 | 1080 | 10 | QEKNFTTAPA 0.000244 | 25 |
| HLA-A*03:01 | 1 | 1209 | 1217 | 9 | YIKWPWYIW 0.000244 | 20 |
| HLA-B*15:01 | 1 | 1218 | 1226 | 9 | LGFIAGLIA 0.000244 | 25 |
| HLA-A*31:01 | 1 | 1225 | 1233 | 9 | IAIVMVTIM 0.000244 | 26 |
| HLA-B*57:01 | 1 | 1230 | 1239 | 10 | VTIMLCCMTS 0.000244 | 35 |
| HLA-A*33:01 | 1 | 64 | 73 | 10 | WFHAIHVSGT 0.000243 | 25 |
| HLA-B*08:01 | 1 | 96 | 105 | 10 | EKSNIIRGWI 0.000243 | 35 |
| HLA-B*44:02 | 1 | 152 | 161 | 10 | WMESEFRVYS 0.000243 | 16 |
| HLA-B*07:02 | 1 | 183 | 192 | 10 | QGNFKNLREF 0.000243 | 22 |
| HLA-A*26:01 | 1 | 197 | 206 | 10 | IDGYFKIYSK 0.000243 | 21 |
| HLA-A*24:02 | 1 | 200 | 208 | 9 | YFKIYSKHT 0.000243 | 15 |
| HLA-B*15:01 | 1 | 201 | 209 | 9 | FKIYSKHTP 0.000243 | 25 |
| HLA-A*24:02 | 1 | 246 | 255 | 10 | RSYLTPGDSS 0.000243 | 15 |
| HLA-A*02:06 | 1 | 256 | 265 | 10 | SGWTAGAAAY 0.000243 | 33 |
| HLA-A*32:01 | 1 | 288 | 296 | 9 | AVDCALDPL 0.000243 | 19 |
| HLA-A*02:06 | 1 | 403 | 412 | 10 | RGDEVRQIAP 0.000243 | 33 |
| HLA-B*07:02 | 1 | 627 | 636 | 10 | DQLTPTWRVY 0.000243 | 22 |
| HLA-B*15:01 | 1 | 688 | 696 | 9 | ASQSIIAYT 0.000243 | 25 |
| HLA-A*02:01 | 1 | 733 | 741 | 9 | KTSVDCTMY 0.000243 | 25 |
| HLA-A*02:01 | 1 | 758 | 767 | 10 | SFCTQLNRAL 0.000243 | 25 |
| HLA-B*44:03 | 1 | 786 | 795 | 10 | KQIYKTPPIK 0.000243 | 15 |
| HLA-A*02:06 | 1 | 799 | 807 | 9 | GFNFSQILP 0.000243 | 33 |
| HLA-B*35:01 | 1 | 956 | 964 | 9 | AQALNTLVK 0.000243 | 18 |
| HLA-B*08:01 | 1 | 27 | 36 | 10 | AYTNSFTRGV 0.000242 | 35 |
| HLA-A*02:06 | 1 | 31 | 39 | 9 | SFTRGVYYP 0.000242 | 33 |
| HLA-B*15:01 | 1 | 198 | 206 | 9 | DGYFKIYSK 0.000242 | 25 |
| HLA-A*68:01 | 1 | 266 | 274 | 9 | YVGYLQPRT 0.000242 | 24 |
| HLA-A*02:03 | 1 | 301 | 310 | 10 | CTLKSFTVEK 0.000242 | 27 |
| HLA-B*51:01 | 1 | 313 | 321 | 9 | YQTSNFRVQ 0.000242 | 31 |
| HLA-B*57:01 | 1 | 330 | 338 | 9 | PNITNLCPF 0.000242 | 35 |
| HLA-A*02:06 | 1 | 402 | 411 | 10 | IRGDEVRQIA 0.000242 | 33 |
| HLA-B*08:01 | 1 | 402 | 411 | 10 | IRGDEVRQIA 0.000242 | 35 |
| HLA-B*58:01 | 1 | 410 | 419 | 10 | IAPGQTGKIA 0.000242 | 26 |
| HLA-A*68:02 | 1 | 461 | 470 | 10 | LKPFERDIST 0.000242 | 27 |
| HLA-A*11:01 | 1 | 466 | 474 | 9 | RDISTEIQ 0.000242 | 16 |
| HLA-B*57:01 | 1 | 567 | 576 | 10 | RDIADTTDAV 0.000242 | 35 |
| HLA-A*30:01 | 1 | 587 | 596 | 10 | ITPCSFGGVS 0.000242 | 45 |
| HLA-A*31:01 | 1 | 591 | 599 | 9 | SFGGVSVIT 0.000242 | 26 |
| HLA-A*33:01 | 1 | 607 | 615 | 9 | QVAVLYQDV 0.000242 | 25 |
| HLA-A*31:01 | 1 | 609 | 617 | 9 | AVLYQDVNC 0.000242 | 26 |
| HLA-B*44:02 | 1 | 638 | 646 | 9 | TGSNVFQTR 0.000242 | 16 |
| HLA-A*02:01 | 1 | 748 | 756 | 9 | ECSNLLLQY 0.000242 | 25 |
| HLA-B*58:01 | 1 | 766 | 774 | 9 | ALTGIAVEQ 0.000242 | 26 |
| HLA-A*32:01 | 1 | 851 | 860 | 10 | CAQKFNGLTV 0.000242 | 19 |
| HLA-B*51:01 | 1 | 873 | 881 | 9 | YTSALLAGT 0.000242 | 31 |
| HLA-A*02:01 | 1 | 903 | 911 | 9 | AYRFNGIGV 0.000242 | 25 |
| HLA-B*44:02 | 1 | 912 | 920 | 9 | TQNVLYENQ 0.000242 | 16 |
| HLA-B*57:01 | 1 | 1030 | 1039 | 10 | SECVLGQSKR 0.000242 | 35 |
| HLA-A*02:06 | 1 | 1033 | 1042 | 10 | VLGQSKRVDF 0.000242 | 33 |
| HLA-A*01:01 | 1 | 1050 | 1059 | 10 | MSFPQSAPHG 0.000242 | 33 |
| HLA-A*11:01 | 1 | 1154 | 1162 | 9 | KYFKNHTSP 0.000242 | 16 |
| HLA-A*01:01 | 1 | 1160 | 1168 | 9 | TSPDVDLGD 0.000242 | 33 |
| HLA-B*07:02 | 1 | 1170 | 1179 | 10 | SGINASVVNI 0.000242 | 22 |
| HLA-A*31:01 | 1 | 1197 | 1206 | 10 | LIDLQELGKY 0.000242 | 26 |
| HLA-B*53:01 | 1 | 40 | 48 | 9 | DKVFRSSVL 0.000241 | 17 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*02:06 | 1 | 171 | 180 | 10 | VSQPFLMDLE 0.000241 | 33 |
| HLA-B*07:02 | 1 | 185 | 194 | 10 | NFKNLREFVF 0.000241 | 22 |
| HLA-A*33:01 | 1 | 188 | 197 | 10 | NLREFVFKNI 0.000241 | 25 |
| HLA-B*53:01 | 1 | 277 | 285 | 9 | LKYNENGTI 0.000241 | 17 |
| HLA-A*68:01 | 1 | 290 | 299 | 10 | DCALDPLSET 0.000241 | 24 |
| HLA-B*40:01 | 1 | 361 | 369 | 9 | CVADYSVLY 0.000241 | 14 |
| HLA-A*23:01 | 1 | 363 | 372 | 10 | ADYSVLYNSA 0.000241 | 15 |
| HLA-A*31:01 | 1 | 364 | 372 | 9 | DYSVLYNSA 0.000241 | 26 |
| HLA-A*01:01 | 1 | 421 | 430 | 10 | YNYKLPDDFT 0.000241 | 33 |
| HLA-B*44:02 | 1 | 504 | 513 | 10 | GYQPYRVVVL 0.000241 | 16 |
| HLA-B*44:02 | 1 | 529 | 537 | 9 | KSTNLVKNK 0.000241 | 16 |
| HLA-B*07:02 | 1 | 672 | 680 | 9 | ASYQTQTNS 0.000241 | 22 |
| HLA-A*24:02 | 1 | 690 | 699 | 10 | QSIIAYTMSL 0.000241 | 15 |
| HLA-B*35:01 | 1 | 704 | 713 | 10 | SVAYSNNNSIA 0.000241 | 18 |
| HLA-A*02:06 | 1 | 806 | 815 | 10 | LPDPSKPSKR 0.000241 | 33 |
| HLA-B*35:01 | 1 | 837 | 845 | 9 | YGDCLGDIA 0.000241 | 18 |
| HLA-A*02:03 | 1 | 884 | 893 | 10 | SGWTFGAGAA 0.000241 | 27 |
| HLA-B*44:02 | 1 | 1009 | 1018 | 10 | TQQLIRAAEI 0.000241 | 16 |
| HLA-B*40:01 | 1 | 1067 | 1075 | 9 | YVPAQEKNF 0.000241 | 14 |
| HLA-A*33:01 | 1 | 1192 | 1201 | 10 | NLNESLIDLQ 0.000241 | 25 |
| HLA-A*32:01 | 1 | 1229 | 1237 | 9 | MVTIMLCCM 0.000241 | 19 |
| HLA-B*07:02 | 1 | 8 | 17 | 10 | LPLVSSQCVN 0.00024 | 22 |
| HLA-A*11:01 | 1 | 107 | 115 | 9 | GTTLDSKTQ 0.00024 | 16 |
| HLA-B*07:02 | 1 | 142 | 150 | 9 | GVYYHKNNK 0.00024 | 22 |
| HLA-B*57:01 | 1 | 163 | 171 | 9 | ANNCTFEYV 0.00024 | 35 |
| HLA-B*08:01 | 1 | 173 | 181 | 9 | QPFLMDLEG 0.00024 | 35 |
| HLA-A*31:01 | 1 | 246 | 255 | 10 | RSYLTPGDSS 0.00024 | 26 |
| HLA-A*02:06 | 1 | 304 | 313 | 10 | KSFTVEKGIY 0.00024 | 33 |
| HLA-A*32:01 | 1 | 339 | 348 | 10 | GEVFNATRFA 0.00024 | 19 |
| HLA-A*24:02 | 1 | 349 | 357 | 9 | SVYAWNRKR 0.00024 | 15 |
| HLA-B*35:01 | 1 | 368 | 376 | 9 | LYNSASFST 0.00024 | 18 |
| HLA-A*23:01 | 1 | 458 | 466 | 9 | KSNLKPFER 0.00024 | 15 |
| HLA-B*57:01 | 1 | 501 | 510 | 10 | NGVGYQPYRV 0.00024 | 35 |
| HLA-A*24:02 | 1 | 502 | 510 | 9 | GVGYQPYRV 0.00024 | 15 |
| HLA-B*40:01 | 1 | 508 | 517 | 10 | YRVVLSFEL 0.00024 | 14 |
| HLA-A*68:02 | 1 | 532 | 541 | 10 | NLVKNKCVNF 0.00024 | 27 |
| HLA-A*03:01 | 1 | 537 | 546 | 10 | KCVNFNFNGL 0.00024 | 21 |
| HLA-A*30:01 | 1 | 543 | 551 | 9 | FNGLTGTGV 0.00024 | 45 |
| HLA-A*23:01 | 1 | 625 | 634 | 10 | HADQLTPTWR 0.00024 | 15 |
| HLA-B*15:01 | 1 | 662 | 670 | 9 | CDIPIGAGI 0.00024 | 25 |
| HLA-A*01:01 | 1 | 673 | 682 | 10 | SYQTQTNSPR 0.00024 | 33 |
| HLA-A*03:01 | 1 | 675 | 684 | 10 | QTQTNSPRRA 0.00024 | 21 |
| HLA-B*44:03 | 1 | 676 | 685 | 10 | TQTNSPRRAR 0.00024 | 15 |
| HLA-A*23:01 | 1 | 713 | 722 | 10 | AIPTNFTISV 0.00024 | 15 |
| HLA-A*01:01 | 1 | 724 | 732 | 9 | TEILPVSMY 0.00024 | 33 |
| HLA-A*33:01 | 1 | 732 | 741 | 10 | TKTSVDCTMY 0.00024 | 25 |
| HLA-A*30:01 | 1 | 740 | 749 | 10 | MYICGDSTEC 0.00024 | 45 |
| HLA-A*02:06 | 1 | 798 | 807 | 10 | GGFNFSQILP 0.00024 | 33 |
| HLA-B*44:03 | 1 | 798 | 806 | 9 | GGFNFSQIL 0.00024 | 15 |
| HLA-B*53:01 | 1 | 858 | 866 | 9 | LTVLPPLL 0.00024 | 17 |
| HLA-A*24:02 | 1 | 872 | 881 | 10 | QYTSALLAGT 0.00024 | 15 |
| HLA-A*26:01 | 1 | 904 | 912 | 9 | YRFNGIGVT 0.00024 | 21 |
| HLA-A*33:01 | 1 | 911 | 920 | 10 | VTQNVLYENQ 0.00024 | 25 |
| HLA-A*02:01 | 1 | 956 | 965 | 10 | AQALNTLVKQ 0.00024 | 25 |
| HLA-A*68:02 | 1 | 964 | 973 | 10 | KQLSSNFGAI 0.00024 | 27 |
| HLA-B*44:03 | 1 | 964 | 973 | 10 | KQLSSNFGAI 0.00024 | 15 |
| HLA-B*51:01 | 1 | 972 | 981 | 10 | AISSVLNDIL 0.00024 | 31 |
| HLA-A*02:01 | 1 | 986 | 995 | 10 | KVEAEVQIDR 0.00024 | 25 |
| HLA-B*57:01 | 1 | 1051 | 1060 | 10 | SFPQSAPHGV 0.00024 | 35 |
| HLA-B*44:02 | 1 | 1072 | 1081 | 10 | EKNFTTAPAI 0.00024 | 16 |
| HLA-B*44:03 | 1 | 1167 | 1175 | 9 | GDISGINAS 0.00024 | 15 |
| HLA-B*35:01 | 1 | 5 | 13 | 9 | LVLLPLVSS 0.000239 | 18 |
| HLA-B*57:01 | 1 | 8 | 16 | 9 | LPLVSSQCV 0.000239 | 35 |
| HLA-A*23:01 | 1 | 38 | 47 | 10 | YDPKVFRSSV 0.000239 | 15 |
| HLA-A*30:01 | 1 | 64 | 73 | 10 | WFHAIHVSGT 0.000239 | 45 |
| HLA-A*11:01 | 1 | 82 | 91 | 10 | PVLPFNDGVY 0.000239 | 16 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*08:01 | 1 | 118 | 127 | 10 | LIVNATNVV 0.000239 | 35 |
| HLA-A*31:01 | 1 | 202 | 211 | 10 | KIYSKHTPIN 0.000239 | 26 |
| HLA-A*33:01 | 1 | 224 | 233 | 10 | EPLVDLPIGI 0.000239 | 25 |
| HLA-B*57:01 | 1 | 236 | 245 | 10 | TRFQTLALH 0.000239 | 35 |
| HLA-A*32:01 | 1 | 254 | 263 | 10 | SSSGWTAGAA 0.000239 | 19 |
| HLA-B*58:01 | 1 | 256 | 264 | 9 | SGWTAGAAA 0.000239 | 26 |
| HLA-A*68:01 | 1 | 287 | 296 | 10 | DAVDCALDPL 0.000239 | 24 |
| HLA-A*11:01 | 1 | 288 | 296 | 9 | AVDCALDPL 0.000239 | 16 |
| HLA-B*40:01 | 1 | 310 | 318 | 9 | KGIYQTSNF 0.000239 | 14 |
| HLA-B*15:01 | 1 | 399 | 408 | 10 | SFVIRGDEV 0.000239 | 25 |
| HLA-A*24:02 | 1 | 408 | 417 | 10 | RQIAPGQTGK 0.000239 | 15 |
| HLA-A*01:01 | 1 | 411 | 419 | 9 | APGQTGKIA 0.000239 | 33 |
| HLA-B*58:01 | 1 | 462 | 471 | 10 | KPFERDISTE 0.000239 | 26 |
| HLA-A*01:01 | 1 | 463 | 472 | 10 | PFERDISTEI 0.000239 | 33 |
| HLA-A*68:01 | 1 | 465 | 474 | 10 | ERDISTEIQ 0.000239 | 24 |
| HLA-A*30:02 | 1 | 476 | 484 | 9 | GSTPCNGVE 0.000239 | 43 |
| HLA-A*33:01 | 1 | 490 | 498 | 9 | FPLQSYGFQ 0.000239 | 25 |
| HLA-A*26:01 | 1 | 554 | 563 | 10 | ESNKKFLPFQ 0.000239 | 21 |
| HLA-A*31:01 | 1 | 554 | 563 | 10 | ESNKKFLPFQ 0.000239 | 26 |
| HLA-A*68:02 | 1 | 592 | 600 | 9 | FGVSVITP 0.000239 | 27 |
| HLA-A*31:01 | 1 | 640 | 649 | 10 | SNVFQTRAG 0.000239 | 26 |
| HLA-A*30:01 | 1 | 643 | 652 | 10 | FQTRAGCLIG 0.000239 | 45 |
| HLA-A*68:01 | 1 | 645 | 653 | 9 | TRAGCLIGA 0.000239 | 24 |
| HLA-B*07:02 | 1 | 658 | 666 | 9 | NSYECDIPI 0.000239 | 22 |
| HLA-A*30:01 | 1 | 667 | 675 | 9 | GAGICASYQ 0.000239 | 45 |
| HLA-A*32:01 | 1 | 732 | 741 | 10 | TKTSVDCTMY 0.000239 | 19 |
| HLA-A*33:01 | 1 | 798 | 806 | 9 | GGFNFSQIL 0.000239 | 25 |
| HLA-B*35:01 | 1 | 810 | 819 | 10 | SKPSKRSFIE 0.000239 | 18 |
| HLA-A*02:01 | 1 | 909 | 917 | 9 | IGVTQNVLY 0.000239 | 25 |
| HLA-A*26:01 | 1 | 961 | 969 | 9 | TLVKQLSSN 0.000239 | 21 |
| HLA-B*44:02 | 1 | 1020 | 1029 | 10 | ASANLAATKM 0.000239 | 16 |
| HLA-A*03:01 | 1 | 1040 | 1048 | 9 | VDFCGKGYH 0.000239 | 21 |
| HLA-A*26:01 | 1 | 1076 | 1084 | 9 | TTAPAICHD 0.000239 | 21 |
| HLA-A*68:02 | 1 | 1083 | 1091 | 9 | HDGKAHFPR 0.000239 | 27 |
| HLA-B*53:01 | 1 | 1156 | 1164 | 9 | FKNHTSPDV 0.000239 | 17 |
| HLA-B*57:01 | 1 | 1157 | 1166 | 10 | KNHTSPDIDL 0.000239 | 35 |
| HLA-B*15:01 | 1 | 1208 | 1217 | 10 | QYIKWPWYIW 0.000239 | 25 |
| HLA-B*35:01 | 1 | 1212 | 1221 | 10 | WPWYIWLGF 0.000239 | 18 |
| HLA-A*68:01 | 1 | 2 | 11 | 10 | FVFLVLLPLV 0.000238 | 24 |
| HLA-A*31:01 | 1 | 116 | 124 | 9 | SLLIVNNAT 0.000238 | 26 |
| HLA-A*68:02 | 1 | 159 | 168 | 10 | VYSSANNCTF 0.000238 | 27 |
| HLA-A*26:01 | 1 | 182 | 190 | 9 | KQGNFKNLR 0.000238 | 21 |
| HLA-A*31:01 | 1 | 183 | 192 | 10 | QGNFKNLR 0.000238 | 26 |
| HLA-A*30:01 | 1 | 249 | 258 | 10 | LTPGDSSSGW 0.000238 | 46 |
| HLA-A*33:01 | 1 | 443 | 452 | 10 | SKVGGNYNYL 0.000238 | 25 |
| HLA-B*57:01 | 1 | 495 | 504 | 10 | YGFQPTNGVG 0.000238 | 35 |
| HLA-A*30:01 | 1 | 515 | 524 | 10 | FELLHAPATV 0.000238 | 46 |
| HLA-A*23:01 | 1 | 540 | 548 | 9 | NFNFNGLTG 0.000238 | 15 |
| HLA-B*58:01 | 1 | 557 | 566 | 10 | KKFLPFQQFG 0.000238 | 26 |
| HLA-A*01:01 | 1 | 595 | 603 | 9 | VSVITPGTN 0.000238 | 33 |
| HLA-B*53:01 | 1 | 636 | 644 | 9 | YSTGSNVFQ 0.000238 | 17 |
| HLA-B*15:01 | 1 | 642 | 650 | 9 | VFQTRAGCL 0.000238 | 25 |
| HLA-B*15:01 | 1 | 680 | 688 | 9 | SPRRARVA 0.000238 | 25 |
| HLA-A*68:02 | 1 | 840 | 849 | 10 | CLGDIAARDL 0.000238 | 27 |
| HLA-B*07:02 | 1 | 895 | 903 | 9 | QIPFAMQMA 0.000238 | 22 |
| HLA-B*58:01 | 1 | 906 | 915 | 10 | FNGIGVTQNV 0.000238 | 26 |
| HLA-B*40:01 | 1 | 957 | 966 | 10 | QALNTLVKQL 0.000238 | 14 |
| HLA-A*30:01 | 1 | 970 | 978 | 9 | FGAISSVLN 0.000238 | 46 |
| HLA-A*02:03 | 1 | 974 | 983 | 10 | SSVLNDILSR 0.000238 | 27 |
| HLA-A*24:02 | 1 | 982 | 991 | 10 | SRLDKVEAEV 0.000238 | 15 |
| HLA-A*24:02 | 1 | 993 | 1001 | 9 | IDRLITGRL 0.000238 | 15 |
| HLA-B*58:01 | 1 | 1008 | 1017 | 10 | VTQQLIRAAE 0.000238 | 26 |
| HLA-A*30:01 | 1 | 1127 | 1136 | 10 | DVIVIGVNN 0.000238 | 46 |
| HLA-B*15:01 | 1 | 1174 | 1182 | 9 | ASVWNIQKE 0.000238 | 25 |
| HLA-A*68:01 | 1 | 1187 | 1196 | 10 | NEVAKNLNES 0.000238 | 24 |
| HLA-A*26:01 | 1 | 1227 | 1235 | 9 | IVMVTIMLC 0.000238 | 21 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|----------|----|
| HLA-A*33:01 | 1 | 33 | 41 | 9 | TRGVYYPDK | 0.000237 | 25 |
| HLA-A*11:01 | 1 | 56 | 64 | 9 | LPFFSNVTW | 0.000237 | 16 |
| HLA-A*01:01 | 1 | 81 | 90 | 10 | NPVLPFNDGV | 0.000237 | 33 |
| HLA-B*44:02 | 1 | 102 | 110 | 9 | RGWIFGTTL | 0.000237 | 16 |
| HLA-B*35:01 | 1 | 118 | 126 | 9 | LIVNNATNV | 0.000237 | 18 |
| HLA-A*68:01 | 1 | 133 | 141 | 9 | FQFCNDPFL | 0.000237 | 24 |
| HLA-A*31:01 | 1 | 161 | 169 | 9 | SSANNCTFE | 0.000237 | 27 |
| HLA-A*68:01 | 1 | 171 | 180 | 10 | VSQPFLMDLE | 0.000237 | 24 |
| HLA-A*26:01 | 1 | 201 | 210 | 10 | FKIYSKHTPI | 0.000237 | 21 |
| HLA-B*44:03 | 1 | 238 | 246 | 9 | FQTLALHR | 0.000237 | 15 |
| HLA-B*58:01 | 1 | 328 | 336 | 9 | RFPNITNLC | 0.000237 | 26 |
| HLA-A*33:01 | 1 | 356 | 365 | 10 | KRISNCVADY | 0.000237 | 25 |
| HLA-A*03:01 | 1 | 403 | 411 | 9 | RGDEVRIQA | 0.000237 | 21 |
| HLA-B*07:02 | 1 | 467 | 475 | 9 | DISTEIYQA | 0.000237 | 22 |
| HLA-A*68:01 | 1 | 499 | 507 | 9 | PTNGVGYQP | 0.000237 | 24 |
| HLA-A*26:01 | 1 | 504 | 513 | 10 | GYQPYRVVVL | 0.000237 | 21 |
| HLA-B*51:01 | 1 | 559 | 567 | 9 | FLPFQQFGR | 0.000237 | 32 |
| HLA-B*08:01 | 1 | 663 | 671 | 9 | DIPIGAGIC | 0.000237 | 35 |
| HLA-B*08:01 | 1 | 684 | 693 | 10 | ARSVASQSII | 0.000237 | 35 |
| HLA-A*31:01 | 1 | 717 | 726 | 10 | NFTISVTTEI | 0.000237 | 27 |
| HLA-A*02:03 | 1 | 740 | 749 | 10 | MYICGDSTEC | 0.000237 | 27 |
| HLA-B*15:01 | 1 | 762 | 771 | 10 | QLNRALTGIA | 0.000237 | 25 |
| HLA-B*58:01 | 1 | 772 | 781 | 10 | VEQDKNTQEV | 0.000237 | 26 |
| HLA-A*32:01 | 1 | 802 | 811 | 10 | FSQILPDPSPK | 0.000237 | 19 |
| HLA-B*08:01 | 1 | 803 | 812 | 10 | SQILPDPSPK | 0.000237 | 35 |
| HLA-A*01:01 | 1 | 809 | 818 | 10 | PSKPSKRSFI | 0.000237 | 33 |
| HLA-B*57:01 | 1 | 846 | 854 | 9 | ARDLICAQK | 0.000237 | 35 |
| HLA-A*23:01 | 1 | 889 | 898 | 10 | GAGAALQIPF | 0.000237 | 15 |
| HLA-B*44:02 | 1 | 901 | 909 | 9 | QMAYRFNGI | 0.000237 | 16 |
| HLA-A*33:01 | 1 | 925 | 934 | 10 | NQFNSAIGKI | 0.000237 | 25 |
| HLA-B*53:01 | 1 | 948 | 956 | 9 | LQDVVNQNA | 0.000237 | 17 |
| HLA-B*57:01 | 1 | 950 | 959 | 10 | DVVNQNQAAL | 0.000237 | 35 |
| HLA-B*57:01 | 1 | 965 | 974 | 10 | QLSSNFGAIS | 0.000237 | 35 |
| HLA-A*33:01 | 1 | 1012 | 1020 | 9 | LIRAAEIRA | 0.000237 | 25 |
| HLA-A*68:02 | 1 | 1019 | 1028 | 10 | RASANLAATK | 0.000237 | 27 |
| HLA-A*02:03 | 1 | 1041 | 1049 | 9 | DFCGKGYHL | 0.000237 | 27 |
| HLA-A*30:01 | 1 | 1092 | 1101 | 10 | EGVFVSNQTH | 0.000237 | 46 |
| HLA-B*53:01 | 1 | 1128 | 1136 | 9 | VVIGIVNNT | 0.000237 | 17 |
| HLA-A*31:01 | 1 | 1214 | 1222 | 9 | WYIWLGFIA | 0.000237 | 27 |
| HLA-A*23:01 | 1 | 1227 | 1235 | 9 | IVMVTIMLC | 0.000237 | 15 |
| HLA-A*02:06 | 1 | 14 | 22 | 9 | QCVNLTRT | 0.000236 | 34 |
| HLA-A*33:01 | 1 | 54 | 63 | 10 | LFLPFFSNVT | 0.000236 | 25 |
| HLA-A*26:01 | 1 | 68 | 77 | 10 | IHVSGTNGTK | 0.000236 | 21 |
| HLA-B*07:02 | 1 | 94 | 102 | 9 | STEKSNIIIR | 0.000236 | 22 |
| HLA-A*02:06 | 1 | 107 | 116 | 10 | GTTLDSKTQS | 0.000236 | 34 |
| HLA-A*11:01 | 1 | 155 | 163 | 9 | SEFRVYSSA | 0.000236 | 16 |
| HLA-B*15:01 | 1 | 157 | 166 | 10 | FRVYSSANNC | 0.000236 | 25 |
| HLA-A*33:01 | 1 | 214 | 223 | 10 | RDLPGGFSAL | 0.000236 | 25 |
| HLA-B*07:02 | 1 | 234 | 243 | 10 | NITRFQTLA | 0.000236 | 22 |
| HLA-A*02:03 | 1 | 242 | 250 | 9 | LALHRSYLT | 0.000236 | 28 |
| HLA-B*51:01 | 1 | 313 | 322 | 10 | YQTSNFRVQP | 0.000236 | 32 |
| HLA-A*32:01 | 1 | 459 | 468 | 10 | SNLKPFERDI | 0.000236 | 19 |
| HLA-B*57:01 | 1 | 475 | 483 | 9 | AGSTPCNGV | 0.000236 | 35 |
| HLA-B*07:02 | 1 | 496 | 505 | 10 | GFQPTNGVGY | 0.000236 | 22 |
| HLA-A*30:01 | 1 | 497 | 506 | 10 | FQPTNGVGYQ | 0.000236 | 46 |
| HLA-B*15:01 | 1 | 544 | 552 | 9 | NGLTGTGVL | 0.000236 | 25 |
| HLA-A*26:01 | 1 | 595 | 604 | 10 | VSVITPGTNT | 0.000236 | 21 |
| HLA-B*07:02 | 1 | 598 | 607 | 10 | ITPGTNTSNQ | 0.000236 | 22 |
| HLA-A*68:02 | 1 | 600 | 608 | 9 | PGTNTSNQV | 0.000236 | 27 |
| HLA-A*31:01 | 1 | 601 | 609 | 9 | GTNTSNQVA | 0.000236 | 27 |
| HLA-A*11:01 | 1 | 616 | 625 | 10 | NCTEVPVAIH | 0.000236 | 16 |
| HLA-A*01:01 | 1 | 622 | 630 | 9 | VAIHADQLT | 0.000236 | 33 |
| HLA-A*30:02 | 1 | 649 | 657 | 9 | CLIGAEHVN | 0.000236 | 43 |
| HLA-A*26:01 | 1 | 672 | 680 | 9 | ASYQTQTNS | 0.000236 | 21 |
| HLA-A*68:01 | 1 | 680 | 688 | 9 | SPRRARVA | 0.000236 | 24 |
| HLA-A*02:03 | 1 | 724 | 732 | 9 | TEILPVSMT | 0.000236 | 28 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|----|
| HLA-A*32:01 | 1 | 761 | 769 | 9 | TQLNRALTG | 0.000236 | 19 |
| HLA-B*44:03 | 1 | 761 | 769 | 9 | TQLNRALTG | 0.000236 | 15 |
| HLA-A*24:02 | 1 | 841 | 849 | 9 | LGDIARDL | 0.000236 | 15 |
| HLA-A*02:01 | 1 | 845 | 854 | 10 | AARDLICAQK | 0.000236 | 25 |
| HLA-B*07:02 | 1 | 847 | 855 | 9 | RDLICAQKF | 0.000236 | 22 |
| HLA-A*03:01 | 1 | 919 | 927 | 9 | NQKLIANQF | 0.000236 | 21 |
| HLA-B*40:01 | 1 | 943 | 951 | 9 | SALGKLDQV | 0.000236 | 14 |
| HLA-A*33:01 | 1 | 947 | 956 | 10 | KLQDVVNQNA | 0.000236 | 25 |
| HLA-A*68:01 | 1 | 957 | 966 | 10 | QALNTLVKQL | 0.000236 | 24 |
| HLA-A*03:01 | 1 | 960 | 968 | 9 | NTLVKQLSS | 0.000236 | 21 |
| HLA-B*58:01 | 1 | 1119 | 1128 | 10 | NTFVSGNCDV | 0.000236 | 26 |
| HLA-B*57:01 | 1 | 1161 | 1169 | 9 | SPDVDLGDI | 0.000236 | 35 |
| HLA-B*58:01 | 1 | 1166 | 1174 | 9 | LGDISGINA | 0.000236 | 26 |
| HLA-B*44:02 | 1 | 1167 | 1175 | 9 | GDISGINAS | 0.000236 | 16 |
| HLA-B*35:01 | 1 | 1199 | 1207 | 9 | DLQELGKYE | 0.000236 | 18 |
| HLA-A*30:01 | 1 | 1200 | 1208 | 9 | LQELGKYEQ | 0.000236 | 46 |
| HLA-A*32:01 | 1 | 1223 | 1231 | 9 | GLIAIVMVT | 0.000236 | 19 |
| HLA-B*07:02 | 1 | 1256 | 1264 | 9 | FDEDDSEPV | 0.000236 | 22 |
| HLA-A*01:01 | 1 | 8 | 16 | 9 | LPLVSSQCV | 0.000235 | 33 |
| HLA-A*68:01 | 1 | 16 | 24 | 9 | VNLTTRTQL | 0.000235 | 24 |
| HLA-B*35:01 | 1 | 88 | 97 | 10 | DGVYFASTEK | 0.000235 | 18 |
| HLA-B*15:01 | 1 | 113 | 121 | 9 | KTQSLLIVN | 0.000235 | 25 |
| HLA-B*44:02 | 1 | 132 | 140 | 9 | EFQFCNDPF | 0.000235 | 16 |
| HLA-A*02:01 | 1 | 184 | 192 | 9 | GNFKNLREF | 0.000235 | 25 |
| HLA-A*01:01 | 1 | 246 | 254 | 9 | RSYLTGDS | 0.000235 | 33 |
| HLA-A*26:01 | 1 | 312 | 320 | 9 | IYQTSNFRV | 0.000235 | 21 |
| HLA-A*68:02 | 1 | 346 | 355 | 10 | RFASVYAWNR | 0.000235 | 27 |
| HLA-B*51:01 | 1 | 353 | 361 | 9 | WNRKRISNC | 0.000235 | 32 |
| HLA-B*53:01 | 1 | 393 | 401 | 9 | TNVYADSFV | 0.000235 | 17 |
| HLA-A*11:01 | 1 | 465 | 473 | 9 | ERDISTEY | 0.000235 | 16 |
| HLA-A*30:01 | 1 | 508 | 517 | 10 | YRVVLSFEL | 0.000235 | 46 |
| HLA-B*53:01 | 1 | 510 | 519 | 10 | VVLSFELLH | 0.000235 | 17 |
| HLA-B*58:01 | 1 | 545 | 554 | 10 | GLTGTGVLTE | 0.000235 | 26 |
| HLA-A*33:01 | 1 | 604 | 613 | 10 | TSNQVAVLYQ | 0.000235 | 25 |
| HLA-A*26:01 | 1 | 677 | 686 | 10 | QTNSPRRARS | 0.000235 | 21 |
| HLA-A*68:01 | 1 | 754 | 763 | 10 | LQYGSFCTQL | 0.000235 | 24 |
| HLA-A*01:01 | 1 | 759 | 768 | 10 | FCTQLNRALT | 0.000235 | 33 |
| HLA-A*23:01 | 1 | 813 | 822 | 10 | SKRSFIEDLL | 0.000235 | 15 |
| HLA-A*31:01 | 1 | 846 | 855 | 10 | ARDLICAQKF | 0.000235 | 27 |
| HLA-A*02:06 | 1 | 888 | 897 | 10 | FGAGAALQIP | 0.000235 | 34 |
| HLA-A*01:01 | 1 | 905 | 913 | 9 | RFNGIGVTQ | 0.000235 | 33 |
| HLA-A*02:01 | 1 | 981 | 989 | 9 | LSRLDKVEA | 0.000235 | 25 |
| HLA-A*33:01 | 1 | 985 | 993 | 9 | DKVEAEVQI | 0.000235 | 25 |
| HLA-A*02:06 | 1 | 1008 | 1017 | 10 | VTQQLIRAAE | 0.000235 | 34 |
| HLA-A*30:01 | 1 | 1057 | 1065 | 9 | PHGVVFLHV | 0.000235 | 46 |
| HLA-B*44:03 | 1 | 1058 | 1067 | 10 | HGVVFLHVTY | 0.000235 | 15 |
| HLA-A*68:01 | 1 | 1100 | 1109 | 10 | THWFVTQRNF | 0.000235 | 24 |
| HLA-B*51:01 | 1 | 1174 | 1182 | 9 | ASVVNIQKE | 0.000235 | 32 |
| HLA-B*58:01 | 1 | 1220 | 1229 | 10 | FIAGLIAIVM | 0.000235 | 26 |
| HLA-B*40:01 | 1 | 71 | 79 | 9 | SGTNGTKRF | 0.000234 | 14 |
| HLA-B*58:01 | 1 | 82 | 90 | 9 | PVLPFNDGV | 0.000234 | 26 |
| HLA-A*02:06 | 1 | 149 | 157 | 9 | NKSWMSESEF | 0.000234 | 34 |
| HLA-A*11:01 | 1 | 158 | 167 | 10 | RVYSSANNCT | 0.000234 | 16 |
| HLA-B*40:01 | 1 | 179 | 187 | 9 | LEGKQGNFK | 0.000234 | 14 |
| HLA-A*33:01 | 1 | 262 | 270 | 9 | AAAYYVGYL | 0.000234 | 26 |
| HLA-A*01:01 | 1 | 329 | 337 | 9 | FPNITNLCP | 0.000234 | 33 |
| HLA-B*44:03 | 1 | 340 | 348 | 9 | EVFNATRFA | 0.000234 | 15 |
| HLA-A*68:02 | 1 | 347 | 356 | 10 | FASVYAWNRK | 0.000234 | 27 |
| HLA-B*58:01 | 1 | 393 | 401 | 9 | TNVYADSFV | 0.000234 | 26 |
| HLA-B*53:01 | 1 | 409 | 417 | 9 | QIAPGQTGK | 0.000234 | 17 |
| HLA-B*51:01 | 1 | 432 | 441 | 10 | CVIAWNSNLL | 0.000234 | 32 |
| HLA-A*30:01 | 1 | 484 | 493 | 10 | EGFNCFYPLQ | 0.000234 | 46 |
| HLA-B*08:01 | 1 | 601 | 609 | 9 | GTNTSNQVA | 0.000234 | 35 |
| HLA-A*30:02 | 1 | 615 | 624 | 10 | VNCTEVPVAI | 0.000234 | 43 |
| HLA-A*30:01 | 1 | 659 | 667 | 9 | SYECDIPIG | 0.000234 | 46 |
| HLA-B*44:02 | 1 | 711 | 720 | 10 | SIAIPTNFTI | 0.000234 | 16 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|----|
| HLA-B*51:01 | 1 | 735 | 743 | 9 | SVDCTMYIC | 0.000234 | 32 |
| HLA-A*02:03 | 1 | 799 | 807 | 9 | GFNFSQILP | 0.000234 | 28 |
| HLA-A*68:01 | 1 | 824 | 833 | 10 | NKVTLADAGF | 0.000234 | 24 |
| HLA-B*15:01 | 1 | 828 | 836 | 9 | LADAGFIKQ | 0.000234 | 25 |
| HLA-A*26:01 | 1 | 859 | 867 | 9 | TVLPPLD | 0.000234 | 21 |
| HLA-B*15:01 | 1 | 884 | 892 | 9 | SGWTFGAGA | 0.000234 | 25 |
| HLA-B*08:01 | 1 | 896 | 905 | 10 | IPFAMQMAYR | 0.000234 | 35 |
| HLA-A*02:01 | 1 | 900 | 908 | 9 | MQMAYRFNG | 0.000234 | 25 |
| HLA-B*15:01 | 1 | 936 | 944 | 9 | DSLSTASA | 0.000234 | 25 |
| HLA-A*24:02 | 1 | 965 | 973 | 9 | QLSSNFGAI | 0.000234 | 15 |
| HLA-A*02:03 | 1 | 998 | 1006 | 9 | TGRLQSLQT | 0.000234 | 28 |
| HLA-A*32:01 | 1 | 1015 | 1024 | 10 | AAEIRASANL | 0.000234 | 19 |
| HLA-B*35:01 | 1 | 1219 | 1227 | 9 | GFIAGLIAI | 0.000234 | 18 |
| HLA-A*03:01 | 1 | 1224 | 1232 | 9 | LIAIVMVTI | 0.000234 | 21 |
| HLA-A*11:01 | 1 | 24 | 32 | 9 | LPPAYTNSF | 0.000233 | 16 |
| HLA-A*32:01 | 1 | 48 | 56 | 9 | LHSTQDLFL | 0.000233 | 19 |
| HLA-A*32:01 | 1 | 49 | 57 | 9 | HSTQDLFLP | 0.000233 | 19 |
| HLA-B*44:02 | 1 | 83 | 91 | 9 | VLPFNDGVY | 0.000233 | 16 |
| HLA-B*15:01 | 1 | 188 | 197 | 10 | NLREFVFKNI | 0.000233 | 26 |
| HLA-B*15:01 | 1 | 214 | 222 | 9 | RDLPGGFS | 0.000233 | 26 |
| HLA-A*02:03 | 1 | 217 | 226 | 10 | PQGFSALEPL | 0.000233 | 28 |
| HLA-A*01:01 | 1 | 223 | 231 | 9 | LEPLVDLPI | 0.000233 | 33 |
| HLA-B*44:03 | 1 | 260 | 269 | 10 | AGAAAYYVGY | 0.000233 | 15 |
| HLA-A*33:01 | 1 | 281 | 289 | 9 | ENGTITDAV | 0.000233 | 26 |
| HLA-A*02:01 | 1 | 287 | 296 | 10 | DAVDCALDPL | 0.000233 | 25 |
| HLA-B*08:01 | 1 | 291 | 299 | 9 | CALDPLSET | 0.000233 | 35 |
| HLA-B*35:01 | 1 | 307 | 315 | 9 | TVEKGIYQT | 0.000233 | 18 |
| HLA-B*35:01 | 1 | 312 | 320 | 9 | IYQTSNFRV | 0.000233 | 18 |
| HLA-A*32:01 | 1 | 338 | 347 | 10 | FGEVFNATRF | 0.000233 | 19 |
| HLA-B*08:01 | 1 | 365 | 373 | 9 | YSVLYNSAS | 0.000233 | 35 |
| HLA-B*58:01 | 1 | 432 | 441 | 10 | CVIAWNSNLI | 0.000233 | 26 |
| HLA-B*53:01 | 1 | 515 | 524 | 10 | FELLHAPATV | 0.000233 | 17 |
| HLA-B*44:02 | 1 | 568 | 576 | 9 | DIADTTDAV | 0.000233 | 16 |
| HLA-A*02:03 | 1 | 612 | 621 | 10 | YQDVNCTEVP | 0.000233 | 28 |
| HLA-B*57:01 | 1 | 633 | 642 | 10 | WRVYSTGNSV | 0.000233 | 35 |
| HLA-A*33:01 | 1 | 661 | 670 | 10 | ECDIPIGAGI | 0.000233 | 26 |
| HLA-A*02:01 | 1 | 672 | 681 | 10 | ASYQTQTNSP | 0.000233 | 25 |
| HLA-A*02:06 | 1 | 673 | 682 | 10 | SYQTQTNSPR | 0.000233 | 34 |
| HLA-B*57:01 | 1 | 682 | 690 | 9 | RRARSVASQ | 0.000233 | 35 |
| HLA-A*32:01 | 1 | 704 | 713 | 10 | SVAYSNNSIA | 0.000233 | 19 |
| HLA-B*58:01 | 1 | 732 | 740 | 9 | TKTSVDCTM | 0.000233 | 26 |
| HLA-B*07:02 | 1 | 734 | 742 | 9 | TSVDCTMYI | 0.000233 | 23 |
| HLA-A*02:03 | 1 | 738 | 747 | 10 | CTMYICGDST | 0.000233 | 28 |
| HLA-B*53:01 | 1 | 772 | 781 | 10 | VEQDKNTQEV | 0.000233 | 17 |
| HLA-A*32:01 | 1 | 787 | 796 | 10 | QIYKTPPIKD | 0.000233 | 19 |
| HLA-A*02:01 | 1 | 908 | 917 | 10 | GIGVTQNVLY | 0.000233 | 25 |
| HLA-A*30:02 | 1 | 927 | 935 | 9 | FNSAIGKIQ | 0.000233 | 43 |
| HLA-A*24:02 | 1 | 964 | 972 | 9 | KQLSSNFGA | 0.000233 | 15 |
| HLA-A*02:03 | 1 | 1014 | 1023 | 10 | RAAEIRASAN | 0.000233 | 28 |
| HLA-A*01:01 | 1 | 1048 | 1057 | 10 | HLMSFPQSAP | 0.000233 | 33 |
| HLA-A*01:01 | 1 | 1062 | 1070 | 9 | FLHVTVVPA | 0.000233 | 33 |
| HLA-A*68:02 | 1 | 1069 | 1078 | 10 | PAQEKNFSTA | 0.000233 | 28 |
| HLA-A*33:01 | 1 | 1080 | 1089 | 10 | AICHGDKAHF | 0.000233 | 26 |
| HLA-A*68:02 | 1 | 1092 | 1101 | 10 | EGVFSNGTH | 0.000233 | 28 |
| HLA-A*02:03 | 1 | 1094 | 1103 | 10 | VFVSNNGTHW | 0.000233 | 28 |
| HLA-B*08:01 | 1 | 1114 | 1122 | 9 | IITDNTFV | 0.000233 | 35 |
| HLA-A*02:06 | 1 | 1144 | 1153 | 10 | ELDSFKEELD | 0.000233 | 34 |
| HLA-A*03:01 | 1 | 1173 | 1182 | 10 | NASVNNIQKE | 0.000233 | 21 |
| HLA-A*68:01 | 1 | 1247 | 1255 | 9 | CCSCGSCCK | 0.000233 | 24 |
| HLA-A*68:02 | 1 | 29 | 37 | 9 | TNSFTRGVY | 0.000232 | 28 |
| HLA-A*02:03 | 1 | 40 | 48 | 9 | DKVFRSSVL | 0.000232 | 28 |
| HLA-B*53:01 | 1 | 59 | 68 | 10 | FSNVTWFHAI | 0.000232 | 17 |
| HLA-A*33:01 | 1 | 88 | 96 | 9 | DGVYFASTE | 0.000232 | 26 |
| HLA-B*57:01 | 1 | 188 | 197 | 10 | NLREFVFKNI | 0.000232 | 35 |
| HLA-B*58:01 | 1 | 197 | 206 | 10 | IDGYFKIYSK | 0.000232 | 26 |
| HLA-A*01:01 | 1 | 262 | 271 | 10 | AAAYYVGYLQ | 0.000232 | 33 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*51:01 | 1 | 279 | 288 | 10 | YNENGTITDA 0.000232 | 32 |
| HLA-B*44:02 | 1 | 357 | 365 | 9 | RISNCVADY 0.000232 | 16 |
| HLA-A*02:03 | 1 | 375 | 383 | 9 | STFKCYGVS 0.000232 | 28 |
| HLA-A*02:01 | 1 | 444 | 453 | 10 | KVGGNYNYLY 0.000232 | 25 |
| HLA-B*58:01 | 1 | 446 | 455 | 10 | GGNYNYLYRL 0.000232 | 26 |
| HLA-B*51:01 | 1 | 455 | 463 | 9 | LFRKSNLKP 0.000232 | 32 |
| HLA-B*51:01 | 1 | 509 | 518 | 10 | RVVLSFELL 0.000232 | 32 |
| HLA-A*01:01 | 1 | 573 | 581 | 9 | TDAVRDPQT 0.000232 | 33 |
| HLA-A*33:01 | 1 | 693 | 701 | 9 | IAYTMSLGA 0.000232 | 26 |
| HLA-A*03:01 | 1 | 705 | 713 | 9 | VAYSNNNSIA 0.000232 | 21 |
| HLA-A*68:02 | 1 | 716 | 725 | 10 | TNFTISVTTE 0.000232 | 28 |
| HLA-A*68:02 | 1 | 727 | 735 | 9 | LPVSMTKTS 0.000232 | 28 |
| HLA-A*01:01 | 1 | 761 | 770 | 10 | TQLNRALTGI 0.000232 | 33 |
| HLA-B*35:01 | 1 | 770 | 778 | 9 | IAVEQDKNT 0.000232 | 18 |
| HLA-B*15:01 | 1 | 777 | 786 | 10 | NTQEVFAQVK 0.000232 | 26 |
| HLA-B*15:01 | 1 | 806 | 815 | 10 | LPDPSKPSKR 0.000232 | 26 |
| HLA-B*40:01 | 1 | 824 | 833 | 10 | NKVTLADAGF 0.000232 | 14 |
| HLA-A*01:01 | 1 | 922 | 931 | 10 | LIANQFNNSAI 0.000232 | 33 |
| HLA-A*30:01 | 1 | 934 | 943 | 10 | IQDLSLSTAS 0.000232 | 46 |
| HLA-B*40:01 | 1 | 1066 | 1075 | 10 | TYVPAQEKNF 0.000232 | 14 |
| HLA-A*02:03 | 1 | 1071 | 1079 | 9 | QEKNFITAP 0.000232 | 28 |
| HLA-B*53:01 | 1 | 1086 | 1094 | 9 | KAHFPREGV 0.000232 | 17 |
| HLA-B*07:02 | 1 | 1095 | 1104 | 10 | FVSNNGTHWFV 0.000232 | 23 |
| HLA-B*57:01 | 1 | 1103 | 1111 | 9 | FVTQRNFYE 0.000232 | 35 |
| HLA-A*02:01 | 1 | 1200 | 1209 | 10 | LQELGKYEYQ 0.000232 | 25 |
| HLA-B*58:01 | 1 | 43 | 51 | 9 | FRSSVLHST 0.000231 | 26 |
| HLA-A*33:01 | 1 | 75 | 83 | 9 | GTKRFDNPV 0.000231 | 26 |
| HLA-A*31:01 | 1 | 84 | 93 | 10 | LPFNDGVYFA 0.000231 | 27 |
| HLA-A*26:01 | 1 | 97 | 106 | 10 | KSNIIRGWIF 0.000231 | 21 |
| HLA-B*58:01 | 1 | 224 | 233 | 10 | EPLVDLPIGI 0.000231 | 26 |
| HLA-B*40:01 | 1 | 256 | 264 | 9 | SGWTAGAAA 0.000231 | 14 |
| HLA-B*08:01 | 1 | 266 | 274 | 9 | YVGYLQPRT 0.000231 | 35 |
| HLA-B*15:01 | 1 | 273 | 281 | 9 | RTFLLKYNE 0.000231 | 26 |
| HLA-B*57:01 | 1 | 288 | 296 | 9 | AVDCALDPL 0.000231 | 35 |
| HLA-A*02:01 | 1 | 302 | 311 | 10 | TLKSFTVEKG 0.000231 | 25 |
| HLA-B*07:02 | 1 | 306 | 314 | 9 | FTVEKGIYQ 0.000231 | 23 |
| HLA-A*02:03 | 1 | 379 | 387 | 9 | CYGVSPTKL 0.000231 | 28 |
| HLA-B*44:03 | 1 | 465 | 474 | 10 | ERDISTEIQ 0.000231 | 15 |
| HLA-A*02:06 | 1 | 542 | 551 | 10 | NFNGLTGTGV 0.000231 | 34 |
| HLA-A*23:01 | 1 | 552 | 560 | 9 | LTESNKKFL 0.000231 | 15 |
| HLA-B*40:01 | 1 | 563 | 572 | 10 | QQFGRDIADT 0.000231 | 14 |
| HLA-A*11:01 | 1 | 590 | 598 | 9 | CSFGGVSVI 0.000231 | 16 |
| HLA-B*44:02 | 1 | 596 | 604 | 9 | SVITPGTNT 0.000231 | 16 |
| HLA-A*02:01 | 1 | 649 | 657 | 9 | CLIGAHEVN 0.000231 | 25 |
| HLA-B*58:01 | 1 | 728 | 736 | 9 | PVSMTKTSV 0.000231 | 26 |
| HLA-A*32:01 | 1 | 765 | 773 | 9 | RALTGIAVE 0.000231 | 19 |
| HLA-B*44:02 | 1 | 786 | 795 | 10 | KQIYKTPPIK 0.000231 | 16 |
| HLA-A*02:01 | 1 | 841 | 849 | 9 | LGDIARDL 0.000231 | 25 |
| HLA-A*31:01 | 1 | 849 | 858 | 10 | LICAQKFNGL 0.000231 | 27 |
| HLA-A*31:01 | 1 | 873 | 881 | 9 | YTSALLAGT 0.000231 | 27 |
| HLA-B*57:01 | 1 | 965 | 973 | 9 | QLSSNFGAI 0.000231 | 35 |
| HLA-B*51:01 | 1 | 987 | 995 | 9 | VEAEVQIDR 0.000231 | 32 |
| HLA-B*40:01 | 1 | 996 | 1004 | 9 | LITGRLQSL 0.000231 | 14 |
| HLA-B*57:01 | 1 | 1006 | 1015 | 10 | TYVTQQLIRA 0.000231 | 35 |
| HLA-B*07:02 | 1 | 1030 | 1038 | 9 | SECVLGQSK 0.000231 | 23 |
| HLA-B*08:01 | 1 | 1065 | 1073 | 9 | VTYVPAQEK 0.000231 | 35 |
| HLA-A*02:01 | 1 | 1154 | 1162 | 9 | KYFKNHTSP 0.000231 | 25 |
| HLA-A*26:01 | 1 | 1202 | 1211 | 10 | ELGKYEYIK 0.000231 | 21 |
| HLA-B*08:01 | 1 | 1206 | 1215 | 10 | YEQYIKWPWY 0.000231 | 35 |
| HLA-B*44:02 | 1 | 1211 | 1220 | 10 | KWPWYIWLGF 0.000231 | 16 |
| HLA-B*57:01 | 1 | 1218 | 1226 | 9 | LGFIAGLIA 0.000231 | 35 |
| HLA-B*07:02 | 1 | 69 | 78 | 10 | HVSGTNGTKR 0.00023 | 23 |
| HLA-B*07:02 | 1 | 112 | 120 | 9 | SKTQSLIIV 0.00023 | 23 |
| HLA-B*44:03 | 1 | 171 | 179 | 9 | VSQPFLMDL 0.00023 | 15 |
| HLA-B*57:01 | 1 | 213 | 222 | 10 | VRDLPQGFSA 0.00023 | 35 |
| HLA-B*58:01 | 1 | 249 | 257 | 9 | LTPGDSSSG 0.00023 | 26 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*33:01 | 1 | 291 | 299 | 9 | CALDPLSET 0.00023 | 26 |
| HLA-B*08:01 | 1 | 409 | 417 | 9 | QIAPGQTGK 0.00023 | 36 |
| HLA-B*44:03 | 1 | 409 | 417 | 9 | QIAPGQTGK 0.00023 | 15 |
| HLA-A*23:01 | 1 | 416 | 425 | 10 | GKIADYNYKL 0.00023 | 15 |
| HLA-B*57:01 | 1 | 446 | 454 | 9 | GGNYNYLYR 0.00023 | 35 |
| HLA-A*30:02 | 1 | 463 | 472 | 10 | PFERDISTEI 0.00023 | 43 |
| HLA-A*01:01 | 1 | 482 | 491 | 10 | GVEGFNCYFP 0.00023 | 34 |
| HLA-B*07:02 | 1 | 607 | 615 | 9 | QVAVLYQDV 0.00023 | 23 |
| HLA-A*24:02 | 1 | 616 | 624 | 9 | NCTEVPVAI 0.00023 | 15 |
| HLA-A*33:01 | 1 | 690 | 699 | 10 | QSIIAYTMSL 0.00023 | 26 |
| HLA-A*31:01 | 1 | 719 | 727 | 9 | TISVTTEIL 0.00023 | 27 |
| HLA-B*44:02 | 1 | 732 | 740 | 9 | TKTSVDCTM 0.00023 | 16 |
| HLA-B*44:03 | 1 | 744 | 753 | 10 | GDSTECSNLL 0.00023 | 15 |
| HLA-A*01:01 | 1 | 758 | 766 | 9 | SFCTQLNRA 0.00023 | 34 |
| HLA-A*02:06 | 1 | 778 | 787 | 10 | TQEVFAQVKQ 0.00023 | 34 |
| HLA-A*32:01 | 1 | 893 | 901 | 9 | ALQIPFAMQ 0.00023 | 19 |
| HLA-A*02:03 | 1 | 900 | 908 | 9 | MQMAYRFNG 0.00023 | 28 |
| HLA-A*02:03 | 1 | 901 | 910 | 10 | QMAYRFNGIG 0.00023 | 28 |
| HLA-A*02:03 | 1 | 940 | 949 | 10 | STASALGKLQ 0.00023 | 28 |
| HLA-B*53:01 | 1 | 950 | 958 | 9 | DVVNQNAQA 0.00023 | 17 |
| HLA-A*23:01 | 1 | 965 | 973 | 9 | QLSSNFGAI 0.00023 | 15 |
| HLA-A*33:01 | 1 | 981 | 989 | 9 | LSRLDKVEA 0.00023 | 26 |
| HLA-A*31:01 | 1 | 982 | 991 | 10 | SRLDKVEAEV 0.00023 | 27 |
| HLA-A*02:01 | 1 | 1094 | 1103 | 10 | VFVSNGTHWF 0.00023 | 25 |
| HLA-A*11:01 | 1 | 1104 | 1113 | 10 | VTQRNFYEPQ 0.00023 | 16 |
| HLA-A*02:03 | 1 | 1131 | 1140 | 10 | GIVNNTVYDP 0.00023 | 28 |
| HLA-A*02:01 | 1 | 1135 | 1143 | 9 | NTVYDPLQP 0.00023 | 25 |
| HLA-A*01:01 | 1 | 1156 | 1164 | 9 | FKNHTSPDV 0.00023 | 34 |
| HLA-B*53:01 | 1 | 1180 | 1189 | 10 | QKEIDRLNEV 0.00023 | 17 |
| HLA-B*58:01 | 1 | 1218 | 1226 | 9 | LGFIAGLIA 0.00023 | 26 |
| HLA-A*02:01 | 1 | 1224 | 1233 | 10 | LIAIVMVTIM 0.00023 | 25 |
| HLA-A*02:06 | 1 | 1242 | 1250 | 9 | SCLKGCCSC 0.00023 | 34 |
| HLA-A*68:02 | 1 | 24 | 33 | 10 | LPPAYTNSFT 0.000229 | 28 |
| HLA-A*11:01 | 1 | 59 | 67 | 9 | FSNVTWFHA 0.000229 | 16 |
| HLA-A*26:01 | 1 | 93 | 102 | 10 | ASTEKSNIIR 0.000229 | 21 |
| HLA-B*57:01 | 1 | 154 | 162 | 9 | ESEFRVYSS 0.000229 | 36 |
| HLA-A*68:01 | 1 | 178 | 186 | 9 | DLEGKQGNF 0.000229 | 25 |
| HLA-A*33:01 | 1 | 207 | 216 | 10 | HTPINLVRDL 0.000229 | 26 |
| HLA-A*11:01 | 1 | 227 | 235 | 9 | VDLPIGINI 0.000229 | 16 |
| HLA-B*35:01 | 1 | 238 | 246 | 9 | FQTLALHR 0.000229 | 18 |
| HLA-B*08:01 | 1 | 270 | 278 | 9 | LQPRTFLLK 0.000229 | 36 |
| HLA-A*30:02 | 1 | 281 | 289 | 9 | ENGTITDAV 0.000229 | 43 |
| HLA-B*15:01 | 1 | 288 | 296 | 9 | AVDCALDPL 0.000229 | 26 |
| HLA-A*01:01 | 1 | 300 | 308 | 9 | KCTLKSFTV 0.000229 | 34 |
| HLA-B*44:03 | 1 | 324 | 332 | 9 | ESIVRFPNI 0.000229 | 15 |
| HLA-A*24:02 | 1 | 352 | 361 | 10 | AWNKRKISNC 0.000229 | 15 |
| HLA-B*15:01 | 1 | 354 | 362 | 9 | NRKRISNCV 0.000229 | 26 |
| HLA-A*02:01 | 1 | 400 | 409 | 10 | FVIRGDEVQR 0.000229 | 25 |
| HLA-A*31:01 | 1 | 402 | 410 | 9 | IRGDEVQRQI 0.000229 | 27 |
| HLA-B*15:01 | 1 | 402 | 410 | 9 | IRGDEVQRQI 0.000229 | 26 |
| HLA-B*44:02 | 1 | 507 | 515 | 9 | PYRVVLSF 0.000229 | 16 |
| HLA-B*15:01 | 1 | 513 | 522 | 10 | LSFELLHAPA 0.000229 | 26 |
| HLA-B*51:01 | 1 | 596 | 605 | 10 | SVITPGTNTS 0.000229 | 32 |
| HLA-A*30:02 | 1 | 614 | 622 | 9 | DVNCTEVPV 0.000229 | 43 |
| HLA-A*30:02 | 1 | 655 | 664 | 10 | HVNNSYECDI 0.000229 | 43 |
| HLA-A*01:01 | 1 | 678 | 686 | 9 | TNSPRRARS 0.000229 | 34 |
| HLA-B*53:01 | 1 | 707 | 715 | 9 | YSNNSIAIP 0.000229 | 17 |
| HLA-A*30:01 | 1 | 708 | 717 | 10 | SNNSIAIPTN 0.000229 | 46 |
| HLA-A*33:01 | 1 | 739 | 748 | 10 | TMYICGDSTE 0.000229 | 26 |
| HLA-B*51:01 | 1 | 752 | 760 | 9 | LLLQYGSFC 0.000229 | 32 |
| HLA-A*31:01 | 1 | 788 | 796 | 9 | IYKTPPIKD 0.000229 | 27 |
| HLA-B*08:01 | 1 | 846 | 854 | 9 | ARDLICAQK 0.000229 | 36 |
| HLA-A*01:01 | 1 | 856 | 865 | 10 | NGLTVLPLLL 0.000229 | 34 |
| HLA-A*23:01 | 1 | 914 | 923 | 10 | NVLYENQKLI 0.000229 | 15 |
| HLA-B*07:02 | 1 | 948 | 956 | 9 | LQDVVNQNA 0.000229 | 23 |
| HLA-B*15:01 | 1 | 1040 | 1048 | 9 | VDFCGKGYH 0.000229 | 26 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|----|
| HLA-A*33:01 | 1 | 1058 | 1066 | 9 | HGVVFLHVT | 0.000229 | 26 |
| HLA-B*58:01 | 1 | 1073 | 1082 | 10 | KNFTTAPAIC | 0.000229 | 26 |
| HLA-B*57:01 | 1 | 1088 | 1096 | 9 | HFPREGVFN | 0.000229 | 36 |
| HLA-A*02:03 | 1 | 1103 | 1111 | 9 | FVTQRNFYE | 0.000229 | 28 |
| HLA-A*01:01 | 1 | 1123 | 1132 | 10 | SGNCDVVIGI | 0.000229 | 34 |
| HLA-B*57:01 | 1 | 1176 | 1185 | 10 | VVNIQKEIDR | 0.000229 | 36 |
| HLA-B*35:01 | 1 | 1200 | 1208 | 9 | LQELGKYEQ | 0.000229 | 18 |
| HLA-B*58:01 | 1 | 1264 | 1273 | 10 | VLKGVKLHYT | 0.000229 | 26 |
| HLA-A*02:03 | 1 | 11 | 19 | 9 | VSSQCVNLT | 0.000228 | 28 |
| HLA-A*24:02 | 1 | 13 | 21 | 9 | SQCVNLTTR | 0.000228 | 15 |
| HLA-A*03:01 | 1 | 22 | 30 | 9 | TQLPPAYTN | 0.000228 | 21 |
| HLA-B*57:01 | 1 | 25 | 34 | 10 | PPAYTNSFTR | 0.000228 | 36 |
| HLA-B*51:01 | 1 | 27 | 36 | 10 | AYTNSFTRGV | 0.000228 | 32 |
| HLA-A*24:02 | 1 | 51 | 60 | 10 | TQDLFLPFFS | 0.000228 | 15 |
| HLA-A*02:01 | 1 | 111 | 119 | 9 | DSKTQSLLI | 0.000228 | 25 |
| HLA-B*53:01 | 1 | 118 | 126 | 9 | LIVNNATNV | 0.000228 | 17 |
| HLA-A*11:01 | 1 | 129 | 137 | 9 | KVCEFQFCN | 0.000228 | 16 |
| HLA-A*02:06 | 1 | 140 | 148 | 9 | FLGVYYHKN | 0.000228 | 34 |
| HLA-A*11:01 | 1 | 166 | 174 | 9 | CTFEYVSQP | 0.000228 | 16 |
| HLA-B*15:01 | 1 | 179 | 187 | 9 | LEGGQGNFK | 0.000228 | 26 |
| HLA-B*57:01 | 1 | 193 | 202 | 10 | VFKNIDGYFK | 0.000228 | 36 |
| HLA-B*58:01 | 1 | 198 | 206 | 9 | DGYFKIYSK | 0.000228 | 26 |
| HLA-A*03:01 | 1 | 239 | 247 | 9 | QTLALHRS | 0.000228 | 21 |
| HLA-B*44:03 | 1 | 268 | 277 | 10 | GYLQPRFTLL | 0.000228 | 15 |
| HLA-B*15:01 | 1 | 280 | 289 | 10 | NENGTITDAV | 0.000228 | 26 |
| HLA-B*40:01 | 1 | 318 | 327 | 10 | FRVQPTESIV | 0.000228 | 14 |
| HLA-B*44:02 | 1 | 378 | 387 | 10 | KCYGVSPTKL | 0.000228 | 16 |
| HLA-A*24:02 | 1 | 416 | 425 | 10 | GKIADYNYKL | 0.000228 | 15 |
| HLA-B*58:01 | 1 | 476 | 484 | 9 | GSTPCNGVE | 0.000228 | 26 |
| HLA-B*58:01 | 1 | 519 | 528 | 10 | HAPATVCGPK | 0.000228 | 26 |
| HLA-A*33:01 | 1 | 552 | 560 | 9 | LTESNKKFL | 0.000228 | 26 |
| HLA-B*44:03 | 1 | 792 | 800 | 9 | PPIKDFGGF | 0.000228 | 15 |
| HLA-B*57:01 | 1 | 811 | 819 | 9 | KPSKRSFIE | 0.000228 | 36 |
| HLA-A*02:03 | 1 | 815 | 823 | 9 | RSFIEDLLF | 0.000228 | 28 |
| HLA-A*30:01 | 1 | 819 | 828 | 10 | EDLLFNKRTL | 0.000228 | 46 |
| HLA-B*57:01 | 1 | 855 | 864 | 10 | FNGLTVLPLP | 0.000228 | 36 |
| HLA-A*30:01 | 1 | 883 | 891 | 9 | TSGWTFGAG | 0.000228 | 46 |
| HLA-A*26:01 | 1 | 893 | 901 | 9 | ALQIPFAMQ | 0.000228 | 21 |
| HLA-A*26:01 | 1 | 894 | 903 | 10 | LQIPFAMQMA | 0.000228 | 21 |
| HLA-B*35:01 | 1 | 902 | 911 | 10 | MAYRFNGIGV | 0.000228 | 18 |
| HLA-A*01:01 | 1 | 917 | 926 | 10 | YENQKLIANQ | 0.000228 | 34 |
| HLA-B*57:01 | 1 | 1045 | 1054 | 10 | KGYHLMSFPQ | 0.000228 | 36 |
| HLA-A*31:01 | 1 | 1048 | 1057 | 10 | HLMSFPQSAP | 0.000228 | 27 |
| HLA-B*44:02 | 1 | 1058 | 1067 | 10 | HGVVFLHVTV | 0.000228 | 16 |
| HLA-A*02:01 | 1 | 1068 | 1077 | 10 | VPAQEKNFTR | 0.000228 | 25 |
| HLA-B*57:01 | 1 | 1121 | 1129 | 9 | FVSGNCDVV | 0.000228 | 36 |
| HLA-B*58:01 | 1 | 5 | 14 | 10 | LVLLPLVSSQ | 0.000227 | 26 |
| HLA-B*53:01 | 1 | 45 | 54 | 10 | SSVLHSTQDL | 0.000227 | 17 |
| HLA-A*68:01 | 1 | 74 | 83 | 10 | NGTKRFDNPV | 0.000227 | 25 |
| HLA-A*31:01 | 1 | 95 | 104 | 10 | TEKSNIIRGW | 0.000227 | 27 |
| HLA-B*08:01 | 1 | 137 | 146 | 10 | NDPFLGVYYH | 0.000227 | 36 |
| HLA-A*03:01 | 1 | 171 | 180 | 10 | VSQPFLMDLE | 0.000227 | 21 |
| HLA-B*58:01 | 1 | 222 | 230 | 9 | ALEPLVDLP | 0.000227 | 26 |
| HLA-A*03:01 | 1 | 229 | 238 | 10 | LPIGINITRF | 0.000227 | 21 |
| HLA-A*26:01 | 1 | 239 | 247 | 9 | QTLALHRS | 0.000227 | 21 |
| HLA-B*15:01 | 1 | 278 | 286 | 9 | KYNENGTIT | 0.000227 | 26 |
| HLA-A*30:01 | 1 | 280 | 289 | 10 | NENGTITDAV | 0.000227 | 46 |
| HLA-A*02:03 | 1 | 298 | 306 | 9 | ETKCTLSKF | 0.000227 | 28 |
| HLA-A*33:01 | 1 | 309 | 318 | 10 | EKGIYQTSNF | 0.000227 | 26 |
| HLA-A*26:01 | 1 | 339 | 348 | 10 | GEVFNATRFA | 0.000227 | 21 |
| HLA-B*51:01 | 1 | 362 | 371 | 10 | VADYSVLVNS | 0.000227 | 32 |
| HLA-A*26:01 | 1 | 371 | 379 | 9 | SASFSTFKC | 0.000227 | 21 |
| HLA-A*68:01 | 1 | 392 | 401 | 10 | FTNVYADSFV | 0.000227 | 25 |
| HLA-B*44:02 | 1 | 394 | 402 | 9 | NVYADSFVI | 0.000227 | 16 |
| HLA-A*68:01 | 1 | 432 | 440 | 9 | CVIAWNSNN | 0.000227 | 25 |
| HLA-B*44:02 | 1 | 458 | 466 | 9 | KSNLKPFR | 0.000227 | 16 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*57:01 | 1 | 488 | 496 | 9 | CYFPLQSYG 0.000227 | 36 |
| HLA-A*26:01 | 1 | 500 | 509 | 10 | TNGVGYQPYR 0.000227 | 21 |
| HLA-A*30:02 | 1 | 533 | 542 | 10 | LVKNKCVNFN 0.000227 | 44 |
| HLA-A*03:01 | 1 | 601 | 610 | 10 | GTNTSNQVAV 0.000227 | 21 |
| HLA-B*15:01 | 1 | 623 | 632 | 10 | AIHADQLTPT 0.000227 | 26 |
| HLA-A*30:02 | 1 | 640 | 648 | 9 | SNVFOQTRAG 0.000227 | 44 |
| HLA-B*07:02 | 1 | 675 | 683 | 9 | QTQTNSPRR 0.000227 | 23 |
| HLA-B*08:01 | 1 | 754 | 762 | 9 | LQYGSFCTQ 0.000227 | 36 |
| HLA-B*58:01 | 1 | 760 | 768 | 9 | CTQLNRALT 0.000227 | 26 |
| HLA-A*32:01 | 1 | 778 | 786 | 9 | TQEVFAQVK 0.000227 | 20 |
| HLA-A*02:03 | 1 | 781 | 789 | 9 | VFAQVKQIY 0.000227 | 28 |
| HLA-B*08:01 | 1 | 824 | 833 | 10 | NKVTLADAGF 0.000227 | 36 |
| HLA-B*58:01 | 1 | 829 | 838 | 10 | ADAGFIKQYG 0.000227 | 26 |
| HLA-B*15:01 | 1 | 907 | 916 | 10 | NGIGVTQNVL 0.000227 | 26 |
| HLA-A*31:01 | 1 | 981 | 989 | 9 | LSRLDKVEA 0.000227 | 27 |
| HLA-B*57:01 | 1 | 984 | 993 | 10 | LDKVEAEVQI 0.000227 | 36 |
| HLA-A*23:01 | 1 | 985 | 993 | 9 | DKVEAEVQI 0.000227 | 15 |
| HLA-A*31:01 | 1 | 1033 | 1042 | 10 | VLGQSKRVDF 0.000227 | 27 |
| HLA-A*01:01 | 1 | 1076 | 1085 | 10 | TTAPAICHDG 0.000227 | 34 |
| HLA-A*68:01 | 1 | 1087 | 1095 | 9 | AHFREGVF 0.000227 | 25 |
| HLA-A*32:01 | 1 | 1122 | 1130 | 9 | VSGNCDVVI 0.000227 | 20 |
| HLA-B*15:01 | 1 | 1133 | 1141 | 9 | VNNTVYDPL 0.000227 | 26 |
| HLA-A*68:02 | 1 | 1154 | 1162 | 9 | KYFKNHTSP 0.000227 | 28 |
| HLA-A*30:02 | 1 | 1163 | 1171 | 9 | DVDLGDISG 0.000227 | 44 |
| HLA-A*23:01 | 1 | 1171 | 1179 | 9 | GINASVNI 0.000227 | 15 |
| HLA-A*68:02 | 1 | 1191 | 1200 | 10 | KNLNEIDL 0.000227 | 28 |
| HLA-A*02:01 | 1 | 1207 | 1215 | 9 | EQYIKWPWY 0.000227 | 25 |
| HLA-B*35:01 | 1 | 1210 | 1218 | 9 | IKWPWYIWL 0.000227 | 18 |
| HLA-A*31:01 | 1 | 1 | 9 | 9 | MFVFLVLLP 0.000226 | 27 |
| HLA-A*02:01 | 1 | 20 | 29 | 10 | TRTQLPPAYT 0.000226 | 25 |
| HLA-B*15:01 | 1 | 78 | 87 | 10 | RFDNPVLPFN 0.000226 | 26 |
| HLA-B*57:01 | 1 | 121 | 129 | 9 | NNATNVVIK 0.000226 | 36 |
| HLA-B*58:01 | 1 | 165 | 174 | 10 | NCTFEYVSQP 0.000226 | 26 |
| HLA-B*07:02 | 1 | 195 | 203 | 9 | KNIDGYFKI 0.000226 | 23 |
| HLA-A*03:01 | 1 | 226 | 235 | 10 | LVDLPIGINI 0.000226 | 21 |
| HLA-A*32:01 | 1 | 264 | 272 | 9 | AYYVGYLQP 0.000226 | 20 |
| HLA-B*58:01 | 1 | 264 | 272 | 9 | AYYVGYLQP 0.000226 | 26 |
| HLA-B*57:01 | 1 | 266 | 274 | 9 | YVGYLQPR 0.000226 | 36 |
| HLA-A*23:01 | 1 | 300 | 308 | 9 | KCTLKSFTV 0.000226 | 15 |
| HLA-A*02:01 | 1 | 310 | 319 | 10 | KGITYQTSNFR 0.000226 | 25 |
| HLA-B*44:03 | 1 | 444 | 453 | 10 | KVGGNYNYLY 0.000226 | 15 |
| HLA-A*33:01 | 1 | 455 | 463 | 9 | LFRKSNLKP 0.000226 | 26 |
| HLA-B*51:01 | 1 | 535 | 543 | 9 | KNKCVNFN 0.000226 | 32 |
| HLA-A*68:01 | 1 | 553 | 562 | 10 | TESNKKFLPF 0.000226 | 25 |
| HLA-B*58:01 | 1 | 592 | 600 | 9 | FGGVSVITP 0.000226 | 26 |
| HLA-B*15:01 | 1 | 609 | 617 | 9 | AVLYQDVNC 0.000226 | 26 |
| HLA-B*08:01 | 1 | 725 | 734 | 10 | EILPVSMTKT 0.000226 | 36 |
| HLA-A*32:01 | 1 | 728 | 736 | 9 | PVSMTKTSV 0.000226 | 20 |
| HLA-B*58:01 | 1 | 754 | 762 | 9 | LQYGSFCTQ 0.000226 | 26 |
| HLA-B*51:01 | 1 | 761 | 769 | 9 | TQLNRALTG 0.000226 | 32 |
| HLA-A*33:01 | 1 | 782 | 791 | 10 | FAQVKQIYKT 0.000226 | 26 |
| HLA-A*68:01 | 1 | 809 | 817 | 9 | PSKPSKRSF 0.000226 | 25 |
| HLA-A*02:01 | 1 | 886 | 895 | 10 | WTFGAGAALQ 0.000226 | 25 |
| HLA-A*30:02 | 1 | 889 | 897 | 9 | GAGAALQIP 0.000226 | 44 |
| HLA-A*02:06 | 1 | 918 | 927 | 10 | ENQKLIANQF 0.000226 | 34 |
| HLA-A*33:01 | 1 | 1016 | 1024 | 9 | AEIRASANL 0.000226 | 26 |
| HLA-A*02:03 | 1 | 1050 | 1059 | 10 | MSFPQSAPHG 0.000226 | 28 |
| HLA-B*44:02 | 1 | 1060 | 1068 | 9 | VVFLHVTVY 0.000226 | 16 |
| HLA-A*30:02 | 1 | 1076 | 1085 | 10 | TTAPAICHDG 0.000226 | 44 |
| HLA-B*15:01 | 1 | 1124 | 1132 | 9 | GNCVVIGI 0.000226 | 26 |
| HLA-A*02:03 | 1 | 1198 | 1207 | 10 | IDLQELGKYE 0.000226 | 28 |
| HLA-B*40:01 | 1 | 1200 | 1208 | 9 | LQELGKYEQ 0.000226 | 14 |
| HLA-B*08:01 | 1 | 17 | 26 | 10 | NLTTRTQLPP 0.000225 | 36 |
| HLA-A*68:02 | 1 | 159 | 167 | 9 | VYSSANNCT 0.000225 | 28 |
| HLA-B*15:01 | 1 | 160 | 169 | 10 | YSSANNCTFE 0.000225 | 26 |
| HLA-B*51:01 | 1 | 220 | 228 | 9 | FSALEPLVD 0.000225 | 32 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|----|
| HLA-A*02:03 | 1 | 277 | 285 | 9 | LKYNENGTI | 0.000225 | 28 |
| HLA-B*58:01 | 1 | 359 | 368 | 10 | SNCVADYSVL | 0.000225 | 27 |
| HLA-A*23:01 | 1 | 376 | 384 | 9 | TFKCYGVSP | 0.000225 | 16 |
| HLA-A*02:01 | 1 | 398 | 407 | 10 | DSFVIRGDEV | 0.000225 | 25 |
| HLA-B*07:02 | 1 | 402 | 410 | 9 | IRGDEVRFQI | 0.000225 | 23 |
| HLA-A*02:06 | 1 | 406 | 414 | 9 | EVRFQIAPGQ | 0.000225 | 34 |
| HLA-B*35:01 | 1 | 472 | 480 | 9 | IYQAGSTPC | 0.000225 | 18 |
| HLA-A*03:01 | 1 | 478 | 486 | 9 | TPCNGVEGF | 0.000225 | 21 |
| HLA-B*51:01 | 1 | 629 | 637 | 9 | LTPTWRVYS | 0.000225 | 32 |
| HLA-A*03:01 | 1 | 746 | 754 | 9 | STECNLLL | 0.000225 | 21 |
| HLA-A*33:01 | 1 | 750 | 759 | 10 | SNLLLQYGSF | 0.000225 | 26 |
| HLA-B*44:02 | 1 | 754 | 763 | 10 | LQYGSFCTQL | 0.000225 | 16 |
| HLA-B*58:01 | 1 | 761 | 770 | 10 | TQLNRALTGI | 0.000225 | 27 |
| HLA-A*03:01 | 1 | 771 | 780 | 10 | AVEQDKNTQE | 0.000225 | 21 |
| HLA-B*15:01 | 1 | 817 | 825 | 9 | FIEDLLFNK | 0.000225 | 26 |
| HLA-A*33:01 | 1 | 859 | 867 | 9 | TVLPPLLD | 0.000225 | 26 |
| HLA-B*08:01 | 1 | 860 | 868 | 9 | VLPPLLTDE | 0.000225 | 36 |
| HLA-B*57:01 | 1 | 868 | 877 | 10 | EMIAQYTSAL | 0.000225 | 36 |
| HLA-A*02:06 | 1 | 880 | 889 | 10 | GTITSGWTFG | 0.000225 | 34 |
| HLA-B*44:02 | 1 | 933 | 942 | 10 | KIQDLSSTA | 0.000225 | 16 |
| HLA-B*44:02 | 1 | 968 | 977 | 10 | SNFGAISSVL | 0.000225 | 16 |
| HLA-A*02:01 | 1 | 980 | 988 | 9 | ILSRLDKVE | 0.000225 | 25 |
| HLA-A*02:06 | 1 | 998 | 1006 | 9 | TGRLQSLQT | 0.000225 | 34 |
| HLA-B*51:01 | 1 | 999 | 1008 | 10 | GRLQSLQTYV | 0.000225 | 32 |
| HLA-A*03:01 | 1 | 1106 | 1114 | 9 | QRNFYEPQI | 0.000225 | 21 |
| HLA-A*02:01 | 1 | 1151 | 1160 | 10 | ELDKYFKNHT | 0.000225 | 25 |
| HLA-A*01:01 | 1 | 1157 | 1166 | 10 | KNHTSPDVDL | 0.000225 | 34 |
| HLA-B*07:02 | 1 | 1164 | 1172 | 9 | VDLGDISGI | 0.000225 | 23 |
| HLA-A*68:02 | 1 | 1218 | 1226 | 9 | LGFIAGLIA | 0.000225 | 28 |
| HLA-A*11:01 | 1 | 77 | 85 | 9 | KRFDPVLP | 0.000224 | 16 |
| HLA-B*51:01 | 1 | 114 | 123 | 10 | TQSLLVNNA | 0.000224 | 32 |
| HLA-A*68:01 | 1 | 124 | 132 | 9 | TNVVIKVC | 0.000224 | 25 |
| HLA-B*44:02 | 1 | 137 | 146 | 10 | NDPFLGVYYH | 0.000224 | 16 |
| HLA-A*33:01 | 1 | 145 | 153 | 9 | YHKNNKSWM | 0.000224 | 26 |
| HLA-A*31:01 | 1 | 207 | 216 | 10 | HTPINLVRLD | 0.000224 | 27 |
| HLA-A*33:01 | 1 | 233 | 242 | 10 | INITRFQTL | 0.000224 | 26 |
| HLA-A*30:01 | 1 | 238 | 247 | 10 | FQTLALHRS | 0.000224 | 46 |
| HLA-B*07:02 | 1 | 252 | 260 | 9 | GDSSSGWTA | 0.000224 | 23 |
| HLA-B*57:01 | 1 | 252 | 261 | 10 | GDSSSGWTAG | 0.000224 | 36 |
| HLA-B*57:01 | 1 | 335 | 344 | 10 | LCPFGEVFNA | 0.000224 | 36 |
| HLA-A*11:01 | 1 | 392 | 400 | 9 | FTNVYADSF | 0.000224 | 16 |
| HLA-A*30:02 | 1 | 421 | 430 | 10 | YNYKLPDDFT | 0.000224 | 44 |
| HLA-A*31:01 | 1 | 428 | 436 | 9 | DFTGCVIAW | 0.000224 | 27 |
| HLA-B*08:01 | 1 | 452 | 460 | 9 | LYRLFRRSN | 0.000224 | 36 |
| HLA-A*26:01 | 1 | 503 | 511 | 9 | VGYPYRVV | 0.000224 | 21 |
| HLA-B*44:02 | 1 | 532 | 541 | 10 | NLVKKNKCNF | 0.000224 | 16 |
| HLA-A*01:01 | 1 | 544 | 552 | 9 | NGLTGTGVL | 0.000224 | 34 |
| HLA-B*57:01 | 1 | 597 | 606 | 10 | VITPGTNTSN | 0.000224 | 36 |
| HLA-A*31:01 | 1 | 616 | 625 | 10 | NCTEVPVAIH | 0.000224 | 27 |
| HLA-A*01:01 | 1 | 622 | 631 | 10 | VAIHADQLTP | 0.000224 | 34 |
| HLA-A*33:01 | 1 | 628 | 637 | 10 | QLTPTWRVYS | 0.000224 | 26 |
| HLA-A*68:02 | 1 | 651 | 660 | 10 | IGAHEVNSY | 0.000224 | 28 |
| HLA-B*40:01 | 1 | 705 | 713 | 9 | VAYSNNNSIA | 0.000224 | 14 |
| HLA-A*30:02 | 1 | 726 | 735 | 10 | ILPVSMTKTS | 0.000224 | 44 |
| HLA-B*53:01 | 1 | 793 | 802 | 10 | PIKDFGGFNF | 0.000224 | 17 |
| HLA-B*44:03 | 1 | 805 | 814 | 10 | ILPDPSKPSK | 0.000224 | 16 |
| HLA-B*07:02 | 1 | 828 | 836 | 9 | LADAGFIKQ | 0.000224 | 23 |
| HLA-B*08:01 | 1 | 842 | 850 | 9 | GDIAARDLI | 0.000224 | 36 |
| HLA-B*40:01 | 1 | 891 | 899 | 9 | GAALQIPFA | 0.000224 | 14 |
| HLA-B*53:01 | 1 | 1013 | 1022 | 10 | IRAAEIRASA | 0.000224 | 17 |
| HLA-B*08:01 | 1 | 28 | 37 | 10 | YTNSFTRGVY | 0.000223 | 36 |
| HLA-B*07:02 | 1 | 39 | 47 | 9 | PKVFRSSV | 0.000223 | 23 |
| HLA-A*23:01 | 1 | 51 | 60 | 10 | TQDLFLPFFS | 0.000223 | 16 |
| HLA-A*32:01 | 1 | 53 | 62 | 10 | DLFLPFFSNV | 0.000223 | 20 |
| HLA-B*35:01 | 1 | 108 | 116 | 9 | TTLDSKTQS | 0.000223 | 18 |
| HLA-B*15:01 | 1 | 225 | 233 | 9 | PLVDLPIGI | 0.000223 | 26 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*11:01 | 1 | 235 | 244 | 10 | ITRFQTLAL 0.000223 | 16 |
| HLA-A*68:02 | 1 | 249 | 257 | 9 | LTPGDSSSG 0.000223 | 28 |
| HLA-A*23:01 | 1 | 259 | 267 | 9 | TAGAAAYV 0.000223 | 16 |
| HLA-A*31:01 | 1 | 262 | 271 | 10 | AAAYVGYLQ 0.000223 | 27 |
| HLA-A*02:03 | 1 | 270 | 279 | 10 | LQPRTFLLKY 0.000223 | 28 |
| HLA-A*33:01 | 1 | 304 | 312 | 9 | KSFTVEKGI 0.000223 | 26 |
| HLA-A*03:01 | 1 | 307 | 315 | 9 | TVEKGIYQT 0.000223 | 21 |
| HLA-B*53:01 | 1 | 349 | 357 | 9 | SVYAWNRKR 0.000223 | 17 |
| HLA-B*51:01 | 1 | 353 | 362 | 10 | WNRKRISNCV 0.000223 | 32 |
| HLA-B*07:02 | 1 | 359 | 368 | 10 | SNCVADYSVL 0.000223 | 23 |
| HLA-B*57:01 | 1 | 407 | 416 | 10 | VRQIAPGQTG 0.000223 | 36 |
| HLA-B*58:01 | 1 | 443 | 452 | 10 | SKVGGNYNYL 0.000223 | 27 |
| HLA-A*03:01 | 1 | 462 | 471 | 10 | KPFERDISTE 0.000223 | 21 |
| HLA-A*26:01 | 1 | 462 | 470 | 9 | KPFERDIST 0.000223 | 22 |
| HLA-B*44:02 | 1 | 466 | 474 | 9 | RDISTEIQ 0.000223 | 16 |
| HLA-A*02:01 | 1 | 484 | 492 | 9 | EGFNCYFPL 0.000223 | 25 |
| HLA-A*26:01 | 1 | 530 | 539 | 10 | STNLVKNKCV 0.000223 | 22 |
| HLA-A*02:01 | 1 | 542 | 551 | 10 | NFNGLTGTGV 0.000223 | 25 |
| HLA-B*58:01 | 1 | 618 | 626 | 9 | TEVPVAIHA 0.000223 | 27 |
| HLA-A*23:01 | 1 | 662 | 670 | 9 | CDIPIGAGI 0.000223 | 16 |
| HLA-B*35:01 | 1 | 684 | 692 | 9 | ARSVASQSI 0.000223 | 18 |
| HLA-A*24:02 | 1 | 726 | 734 | 9 | ILPVSMTKT 0.000223 | 15 |
| HLA-A*68:02 | 1 | 733 | 741 | 9 | KTSVDCTMY 0.000223 | 28 |
| HLA-A*24:02 | 1 | 762 | 770 | 9 | QLNRALTGI 0.000223 | 15 |
| HLA-B*15:01 | 1 | 771 | 780 | 10 | AVEQDKNTQE 0.000223 | 26 |
| HLA-A*23:01 | 1 | 783 | 791 | 9 | AQVKQIYKT 0.000223 | 16 |
| HLA-A*03:01 | 1 | 905 | 914 | 10 | RFNGIGVTQN 0.000223 | 21 |
| HLA-A*11:01 | 1 | 929 | 938 | 10 | SAIGKIQDSL 0.000223 | 16 |
| HLA-B*07:02 | 1 | 935 | 944 | 10 | QDLSSTASA 0.000223 | 23 |
| HLA-A*33:01 | 1 | 1008 | 1017 | 10 | VTQQLIRAAE 0.000223 | 26 |
| HLA-A*01:01 | 1 | 1013 | 1022 | 10 | IRAAEIRASA 0.000223 | 34 |
| HLA-A*01:01 | 1 | 1024 | 1033 | 10 | LAATKMSECV 0.000223 | 34 |
| HLA-B*15:01 | 1 | 1028 | 1037 | 10 | KMSECVLGQS 0.000223 | 26 |
| HLA-A*02:01 | 1 | 1058 | 1066 | 9 | HGVVFLHVT 0.000223 | 25 |
| HLA-A*68:02 | 1 | 1086 | 1095 | 10 | KAHFPREGVF 0.000223 | 28 |
| HLA-A*01:01 | 1 | 1106 | 1115 | 10 | QRNFYEQII 0.000223 | 34 |
| HLA-A*03:01 | 1 | 1108 | 1117 | 10 | NFYEQIITT 0.000223 | 21 |
| HLA-A*01:01 | 1 | 1128 | 1136 | 9 | VVIGIVNNT 0.000223 | 34 |
| HLA-B*40:01 | 1 | 1208 | 1216 | 9 | QYIKWPWYI 0.000223 | 15 |
| HLA-A*24:02 | 1 | 1255 | 1263 | 9 | KFDEDDSEP 0.000223 | 15 |
| HLA-A*23:01 | 1 | 1263 | 1272 | 10 | PVLKGVKLHY 0.000223 | 16 |
| HLA-A*03:01 | 1 | 24 | 32 | 9 | LPPAYTNSF 0.000222 | 21 |
| HLA-B*51:01 | 1 | 31 | 39 | 9 | SFTRGVVYYP 0.000222 | 32 |
| HLA-A*01:01 | 1 | 34 | 42 | 9 | RGVYYPDKV 0.000222 | 34 |
| HLA-A*02:06 | 1 | 56 | 65 | 10 | LPFFSNVTWF 0.000222 | 34 |
| HLA-A*32:01 | 1 | 60 | 69 | 10 | SNVTWFHAIH 0.000222 | 20 |
| HLA-A*02:06 | 1 | 96 | 104 | 9 | EKSNIIRGW 0.000222 | 34 |
| HLA-B*35:01 | 1 | 158 | 166 | 9 | RVYSSANNC 0.000222 | 18 |
| HLA-B*57:01 | 1 | 198 | 207 | 10 | DGYFKIYSKH 0.000222 | 36 |
| HLA-A*26:01 | 1 | 304 | 312 | 9 | KSFTVEKGI 0.000222 | 22 |
| HLA-B*08:01 | 1 | 316 | 325 | 10 | SNFRVQPTES 0.000222 | 36 |
| HLA-A*31:01 | 1 | 317 | 326 | 10 | NFRVQPTESI 0.000222 | 27 |
| HLA-B*58:01 | 1 | 325 | 333 | 9 | SIVRFPNIT 0.000222 | 27 |
| HLA-B*08:01 | 1 | 336 | 345 | 10 | CPFGEVFNAT 0.000222 | 36 |
| HLA-A*02:03 | 1 | 360 | 369 | 10 | NCVADYSVLY 0.000222 | 28 |
| HLA-A*02:06 | 1 | 382 | 391 | 10 | VSPTKLNDLC 0.000222 | 34 |
| HLA-B*15:01 | 1 | 403 | 411 | 9 | RGDEVQRQA 0.000222 | 26 |
| HLA-A*01:01 | 1 | 442 | 450 | 9 | DSKVGNYN 0.000222 | 34 |
| HLA-B*35:01 | 1 | 470 | 479 | 10 | TEIQAGSTP 0.000222 | 18 |
| HLA-A*32:01 | 1 | 529 | 538 | 10 | KSTNLVKNKC 0.000222 | 20 |
| HLA-A*68:01 | 1 | 571 | 579 | 9 | DTTDAVRDP 0.000222 | 25 |
| HLA-A*68:02 | 1 | 591 | 600 | 10 | SFGGVSIVTP 0.000222 | 28 |
| HLA-B*53:01 | 1 | 622 | 630 | 9 | VAIHADQLT 0.000222 | 17 |
| HLA-A*01:01 | 1 | 641 | 650 | 10 | NVFQTRAGCL 0.000222 | 34 |
| HLA-A*02:03 | 1 | 674 | 683 | 10 | YQTQTNsprr 0.000222 | 28 |
| HLA-A*23:01 | 1 | 697 | 705 | 9 | MSLGAENSV 0.000222 | 16 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*31:01 | 1 | 708 | 716 | 9 | SNNSIAIPT 0.000222 | 27 |
| HLA-A*30:02 | 1 | 809 | 818 | 10 | PSKPSKRSFI 0.000222 | 44 |
| HLA-A*01:01 | 1 | 811 | 819 | 9 | KPSKRSFIE 0.000222 | 34 |
| HLA-A*33:01 | 1 | 850 | 858 | 9 | ICAQKFNGL 0.000222 | 26 |
| HLA-A*33:01 | 1 | 852 | 861 | 10 | AQKFNGLTVL 0.000222 | 26 |
| HLA-B*08:01 | 1 | 853 | 862 | 10 | QKFNGLTVLP 0.000222 | 36 |
| HLA-B*51:01 | 1 | 859 | 868 | 10 | TVLPPLLTDE 0.000222 | 32 |
| HLA-B*08:01 | 1 | 894 | 903 | 10 | LQIPFAMQMA 0.000222 | 36 |
| HLA-B*58:01 | 1 | 896 | 905 | 10 | IPFAMQMAYR 0.000222 | 27 |
| HLA-A*31:01 | 1 | 925 | 934 | 10 | NQFNSAIGKI 0.000222 | 27 |
| HLA-A*33:01 | 1 | 983 | 991 | 9 | RLDKVEAEV 0.000222 | 26 |
| HLA-B*57:01 | 1 | 998 | 1006 | 9 | TGRLQSLQT 0.000222 | 36 |
| HLA-A*31:01 | 1 | 1008 | 1017 | 10 | VTQQLIRAAE 0.000222 | 27 |
| HLA-A*31:01 | 1 | 1060 | 1069 | 10 | VVFLHVTVYP 0.000222 | 27 |
| HLA-A*11:01 | 1 | 1067 | 1075 | 9 | YVPAQEKNF 0.000222 | 16 |
| HLA-A*68:02 | 1 | 1144 | 1153 | 10 | ELDSFKEELD 0.000222 | 28 |
| HLA-A*03:01 | 1 | 1198 | 1206 | 9 | IDLQELGKY 0.000222 | 21 |
| HLA-A*02:01 | 1 | 1218 | 1226 | 9 | LGFIAGLIA 0.000222 | 25 |
| HLA-B*51:01 | 1 | 1255 | 1264 | 10 | KFDEDDSEPV 0.000222 | 32 |
| HLA-B*15:01 | 1 | 1261 | 1269 | 9 | SEPVLKGVK 0.000222 | 26 |
| HLA-A*01:01 | 1 | 15 | 23 | 9 | CVNLTTRTQ 0.000221 | 34 |
| HLA-A*30:02 | 1 | 16 | 25 | 10 | VNLTTRTQLP 0.000221 | 44 |
| HLA-B*51:01 | 1 | 89 | 97 | 9 | GVYFASTEK 0.000221 | 32 |
| HLA-B*57:01 | 1 | 104 | 113 | 10 | WIFGTTLDSK 0.000221 | 36 |
| HLA-A*68:02 | 1 | 212 | 221 | 10 | LVRDLPQGF 0.000221 | 28 |
| HLA-A*24:02 | 1 | 240 | 249 | 10 | TLLALHRSYL 0.000221 | 15 |
| HLA-B*08:01 | 1 | 273 | 281 | 9 | RTFLLKYNE 0.000221 | 36 |
| HLA-A*02:06 | 1 | 277 | 285 | 9 | LKYNENGTI 0.000221 | 34 |
| HLA-A*23:01 | 1 | 285 | 293 | 9 | ITDAVDCAL 0.000221 | 16 |
| HLA-B*57:01 | 1 | 325 | 333 | 9 | SIVRFPNIT 0.000221 | 36 |
| HLA-B*51:01 | 1 | 326 | 334 | 9 | IVRFPNITN 0.000221 | 32 |
| HLA-A*02:06 | 1 | 348 | 357 | 10 | ASVYAWNRKR 0.000221 | 34 |
| HLA-B*35:01 | 1 | 362 | 370 | 9 | VADYSVLYN 0.000221 | 18 |
| HLA-A*02:03 | 1 | 433 | 442 | 10 | VIAWNSNLD 0.000221 | 28 |
| HLA-B*51:01 | 1 | 434 | 443 | 10 | IAWNSNLD 0.000221 | 32 |
| HLA-B*15:01 | 1 | 437 | 445 | 9 | NSNNLDSKV 0.000221 | 26 |
| HLA-A*33:01 | 1 | 553 | 562 | 10 | TESNKKFLPF 0.000221 | 26 |
| HLA-B*53:01 | 1 | 602 | 611 | 10 | TNTSNQVAVL 0.000221 | 17 |
| HLA-B*57:01 | 1 | 609 | 618 | 10 | AVLYQDVNCT 0.000221 | 36 |
| HLA-A*33:01 | 1 | 616 | 624 | 9 | NCTEVPVAI 0.000221 | 26 |
| HLA-A*01:01 | 1 | 706 | 715 | 10 | AYSNNIAIPI 0.000221 | 34 |
| HLA-A*02:01 | 1 | 719 | 728 | 10 | TISVTTEILP 0.000221 | 25 |
| HLA-B*35:01 | 1 | 772 | 781 | 10 | VEQDKNTQEV 0.000221 | 18 |
| HLA-A*30:02 | 1 | 811 | 819 | 9 | KPSKRSFIE 0.000221 | 44 |
| HLA-A*02:06 | 1 | 832 | 841 | 10 | GFIKQYGDCL 0.000221 | 34 |
| HLA-A*02:03 | 1 | 879 | 888 | 10 | AGTITSGWTF 0.000221 | 28 |
| HLA-B*44:02 | 1 | 919 | 928 | 10 | NQKLIANQFN 0.000221 | 16 |
| HLA-A*11:01 | 1 | 943 | 951 | 9 | SALGKLQDV 0.000221 | 16 |
| HLA-A*02:01 | 1 | 944 | 953 | 10 | ALGKLQDVVN 0.000221 | 25 |
| HLA-A*31:01 | 1 | 972 | 981 | 10 | AISSVLNDIL 0.000221 | 27 |
| HLA-A*23:01 | 1 | 993 | 1001 | 9 | IDRLITGRL 0.000221 | 16 |
| HLA-A*24:02 | 1 | 1047 | 1056 | 10 | YHLMSPQSA 0.000221 | 15 |
| HLA-B*57:01 | 1 | 1048 | 1057 | 10 | HLMSPQSAP 0.000221 | 36 |
| HLA-B*08:01 | 1 | 1085 | 1094 | 10 | GKAHFPREGV 0.000221 | 36 |
| HLA-A*02:01 | 1 | 1087 | 1095 | 9 | AHFPREGVF 0.000221 | 25 |
| HLA-A*26:01 | 1 | 1107 | 1115 | 9 | RNFYEPQII 0.000221 | 22 |
| HLA-A*68:02 | 1 | 1122 | 1130 | 9 | VSGNCDVVI 0.000221 | 28 |
| HLA-A*02:06 | 1 | 1159 | 1167 | 9 | HTSPDVLG 0.000221 | 34 |
| HLA-B*57:01 | 1 | 1179 | 1187 | 9 | IQKEIDRLN 0.000221 | 36 |
| HLA-A*30:01 | 1 | 1220 | 1229 | 10 | FIAGLIAIVM 0.000221 | 47 |
| HLA-A*30:02 | 1 | 4 | 12 | 9 | FLVLLPLVS 0.00022 | 44 |
| HLA-B*15:01 | 1 | 20 | 29 | 10 | TRTQLPPAYT 0.00022 | 26 |
| HLA-A*24:02 | 1 | 26 | 34 | 9 | PAYTNSFTR 0.00022 | 15 |
| HLA-B*58:01 | 1 | 40 | 49 | 10 | DKVFRSSVLH 0.00022 | 27 |
| HLA-A*23:01 | 1 | 181 | 189 | 9 | GKQGNFKNL 0.00022 | 16 |
| HLA-B*08:01 | 1 | 197 | 206 | 10 | IDGYFKIYSK 0.00022 | 36 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*07:02 | 1 | 236 | 245 | 10 | TRFQTLALH 0.00022 | 23 |
| HLA-B*35:01 | 1 | 254 | 262 | 9 | SSSGWTAGA 0.00022 | 18 |
| HLA-A*26:01 | 1 | 261 | 270 | 10 | GAAAYVGYL 0.00022 | 22 |
| HLA-B*08:01 | 1 | 284 | 292 | 9 | TITDAVDCA 0.00022 | 36 |
| HLA-B*57:01 | 1 | 406 | 414 | 9 | EVRQIAPGQ 0.00022 | 36 |
| HLA-A*30:02 | 1 | 482 | 491 | 10 | GVEGFNCYFP 0.00022 | 44 |
| HLA-A*01:01 | 1 | 493 | 502 | 10 | QSYGFQPTNG 0.00022 | 34 |
| HLA-A*02:03 | 1 | 543 | 552 | 10 | FNGLTGTGVL 0.00022 | 28 |
| HLA-A*02:03 | 1 | 599 | 608 | 10 | TPGTNTSNQV 0.00022 | 28 |
| HLA-B*51:01 | 1 | 617 | 626 | 10 | CTEVPVAIHA 0.00022 | 32 |
| HLA-A*31:01 | 1 | 666 | 675 | 10 | IGAGICASYQ 0.00022 | 27 |
| HLA-B*08:01 | 1 | 674 | 682 | 9 | YQTQTNSPR 0.00022 | 36 |
| HLA-B*57:01 | 1 | 703 | 711 | 9 | NSVAYSNNS 0.00022 | 36 |
| HLA-A*32:01 | 1 | 765 | 774 | 10 | RALTGIAVEQ 0.00022 | 20 |
| HLA-A*68:02 | 1 | 851 | 859 | 9 | CAQKFNGLT 0.00022 | 28 |
| HLA-B*35:01 | 1 | 859 | 867 | 9 | TVLPPLD 0.00022 | 18 |
| HLA-A*03:01 | 1 | 869 | 878 | 10 | MIAQYTSALL 0.00022 | 21 |
| HLA-B*58:01 | 1 | 923 | 932 | 10 | IANQFNISAIG 0.00022 | 27 |
| HLA-A*33:01 | 1 | 927 | 935 | 9 | FNSAIGKIQ 0.00022 | 26 |
| HLA-B*15:01 | 1 | 1045 | 1053 | 9 | KGYHLSMFP 0.00022 | 26 |
| HLA-A*68:02 | 1 | 1078 | 1087 | 10 | APAICHGDKA 0.00022 | 28 |
| HLA-A*26:01 | 1 | 1199 | 1208 | 10 | DLQELGKYEQ 0.00022 | 22 |
| HLA-A*31:01 | 1 | 1223 | 1232 | 10 | GLIAIVMVTI 0.00022 | 27 |
| HLA-B*58:01 | 1 | 1237 | 1245 | 9 | MTSCCCLK 0.00022 | 27 |
| HLA-A*02:01 | 1 | 1263 | 1272 | 10 | PVLKGVKLHY 0.00022 | 26 |
| HLA-A*26:01 | 1 | 32 | 41 | 10 | FTRGVYYPDK 0.000219 | 22 |
| HLA-A*31:01 | 1 | 71 | 79 | 9 | SGTNGTKRF 0.000219 | 27 |
| HLA-A*24:02 | 1 | 97 | 105 | 9 | KSNIRGWI 0.000219 | 15 |
| HLA-A*30:01 | 1 | 104 | 112 | 9 | WIFGTTLDS 0.000219 | 47 |
| HLA-A*33:01 | 1 | 111 | 120 | 10 | DSKTQSLLIV 0.000219 | 26 |
| HLA-A*30:02 | 1 | 112 | 121 | 10 | SKTQSLLIVN 0.000219 | 44 |
| HLA-B*07:02 | 1 | 116 | 124 | 9 | SLLVNAT 0.000219 | 23 |
| HLA-A*68:02 | 1 | 148 | 156 | 9 | NNKSWMESE 0.000219 | 28 |
| HLA-B*08:01 | 1 | 169 | 178 | 10 | EYVSQPFLMD 0.000219 | 36 |
| HLA-B*08:01 | 1 | 205 | 214 | 10 | SKHTPINLVR 0.000219 | 36 |
| HLA-B*44:02 | 1 | 213 | 222 | 10 | VRDLPQGFSA 0.000219 | 16 |
| HLA-B*15:01 | 1 | 237 | 246 | 10 | RFQTLALHR 0.000219 | 26 |
| HLA-A*11:01 | 1 | 249 | 258 | 10 | LTPGDSSSGW 0.000219 | 17 |
| HLA-A*31:01 | 1 | 259 | 267 | 9 | TAGAAAYV 0.000219 | 27 |
| HLA-B*08:01 | 1 | 298 | 307 | 10 | ETKCTLKSFT 0.000219 | 36 |
| HLA-B*07:02 | 1 | 341 | 349 | 9 | VFNATRFAS 0.000219 | 23 |
| HLA-A*31:01 | 1 | 475 | 483 | 9 | AGSTPCNGV 0.000219 | 27 |
| HLA-A*32:01 | 1 | 513 | 522 | 10 | LSFELLHAPA 0.000219 | 20 |
| HLA-A*68:02 | 1 | 520 | 529 | 10 | APATVCGPKK 0.000219 | 28 |
| HLA-A*02:01 | 1 | 524 | 533 | 10 | VCGPKKSTNL 0.000219 | 26 |
| HLA-A*03:01 | 1 | 526 | 534 | 9 | GPKKSTNLV 0.000219 | 21 |
| HLA-B*58:01 | 1 | 549 | 558 | 10 | TGVLTESNKK 0.000219 | 27 |
| HLA-B*40:01 | 1 | 583 | 592 | 10 | EILDITPCSF 0.000219 | 15 |
| HLA-A*30:01 | 1 | 599 | 607 | 9 | TPGTNTSNQ 0.000219 | 47 |
| HLA-B*40:01 | 1 | 612 | 621 | 10 | YQDVNCTEVP 0.000219 | 15 |
| HLA-A*26:01 | 1 | 640 | 649 | 10 | SNVFQTRAGC 0.000219 | 22 |
| HLA-B*08:01 | 1 | 707 | 715 | 9 | YSNNSIAIP 0.000219 | 36 |
| HLA-B*51:01 | 1 | 717 | 725 | 9 | NFTISVTTE 0.000219 | 33 |
| HLA-A*01:01 | 1 | 749 | 757 | 9 | CSNLLLQYG 0.000219 | 34 |
| HLA-B*40:01 | 1 | 780 | 789 | 10 | EVFAQVKQIY 0.000219 | 15 |
| HLA-B*58:01 | 1 | 783 | 792 | 10 | AQVKQIYKTP 0.000219 | 27 |
| HLA-B*15:01 | 1 | 941 | 949 | 9 | TASALGKLQ 0.000219 | 26 |
| HLA-A*68:01 | 1 | 943 | 951 | 9 | SALGKLQDV 0.000219 | 25 |
| HLA-A*23:01 | 1 | 957 | 966 | 10 | QALNTLVKQL 0.000219 | 16 |
| HLA-B*15:01 | 1 | 963 | 972 | 10 | VKQLSSNFGA 0.000219 | 26 |
| HLA-B*57:01 | 1 | 982 | 991 | 10 | SRLDKVEAEV 0.000219 | 36 |
| HLA-A*02:01 | 1 | 985 | 993 | 9 | DKVEAEVQI 0.000219 | 26 |
| HLA-B*44:03 | 1 | 995 | 1004 | 10 | RLITGRLQSL 0.000219 | 16 |
| HLA-B*40:01 | 1 | 1008 | 1016 | 9 | VTQQLIRAA 0.000219 | 15 |
| HLA-B*08:01 | 1 | 1010 | 1019 | 10 | QQLIRAAEIR 0.000219 | 36 |
| HLA-B*08:01 | 1 | 1061 | 1070 | 10 | VFLHVTVVPA 0.000219 | 36 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*02:06 | 1 | 1131 | 1139 | 9 | GIVNNTVYD 0.000219 | 34 |
| HLA-B*15:01 | 1 | 1156 | 1164 | 9 | FKNHTSPDV 0.000219 | 26 |
| HLA-A*24:02 | 1 | 1164 | 1172 | 9 | VDLGDISGI 0.000219 | 15 |
| HLA-A*11:01 | 1 | 1198 | 1206 | 9 | IDLQELGKY 0.000219 | 17 |
| HLA-A*33:01 | 1 | 1211 | 1219 | 9 | KWPWYIWLG 0.000219 | 26 |
| HLA-A*30:02 | 1 | 1214 | 1222 | 9 | WYIWLGFIA 0.000219 | 44 |
| HLA-A*01:01 | 1 | 86 | 95 | 10 | FNDGVYFAST 0.000218 | 34 |
| HLA-A*68:01 | 1 | 99 | 108 | 10 | NIIRGWIFGT 0.000218 | 25 |
| HLA-B*51:01 | 1 | 131 | 140 | 10 | CEFQFCNDPF 0.000218 | 33 |
| HLA-B*57:01 | 1 | 139 | 147 | 9 | PFLGVYYHK 0.000218 | 36 |
| HLA-A*01:01 | 1 | 276 | 285 | 10 | LLKYNENGTI 0.000218 | 34 |
| HLA-A*02:03 | 1 | 283 | 291 | 9 | GTITDAVDC 0.000218 | 28 |
| HLA-B*44:02 | 1 | 321 | 330 | 10 | QPTESIVRFP 0.000218 | 16 |
| HLA-B*51:01 | 1 | 386 | 395 | 10 | KLNDLCFTNV 0.000218 | 33 |
| HLA-A*68:02 | 1 | 400 | 409 | 10 | FVIRGDEVQR 0.000218 | 28 |
| HLA-A*30:01 | 1 | 405 | 414 | 10 | DEVQRQIAPGQ 0.000218 | 47 |
| HLA-A*31:01 | 1 | 443 | 452 | 10 | SKVGGNYNYL 0.000218 | 27 |
| HLA-B*44:03 | 1 | 466 | 474 | 9 | RDISTEIQ 0.000218 | 16 |
| HLA-B*57:01 | 1 | 471 | 479 | 9 | EIQAGSTP 0.000218 | 36 |
| HLA-A*26:01 | 1 | 526 | 535 | 10 | GPKKSTNLVK 0.000218 | 22 |
| HLA-B*53:01 | 1 | 543 | 551 | 9 | FNGLTGTGV 0.000218 | 18 |
| HLA-A*02:01 | 1 | 558 | 567 | 10 | KFLPFQQFGR 0.000218 | 26 |
| HLA-A*68:01 | 1 | 610 | 619 | 10 | VLYQDVNCTE 0.000218 | 25 |
| HLA-A*68:01 | 1 | 614 | 623 | 10 | DVNCTEVPVA 0.000218 | 25 |
| HLA-B*53:01 | 1 | 720 | 728 | 9 | ISVTTEILP 0.000218 | 18 |
| HLA-A*02:03 | 1 | 828 | 837 | 10 | LADAGFIKQY 0.000218 | 28 |
| HLA-A*01:01 | 1 | 859 | 868 | 10 | TVLPPLLTDE 0.000218 | 34 |
| HLA-A*01:01 | 1 | 921 | 930 | 10 | KLIANQFNFA 0.000218 | 34 |
| HLA-A*33:01 | 1 | 933 | 941 | 9 | KIQDLSLST 0.000218 | 26 |
| HLA-A*30:01 | 1 | 965 | 974 | 10 | QLSSNFGAIS 0.000218 | 47 |
| HLA-B*44:02 | 1 | 978 | 987 | 10 | NDILSRDLKV 0.000218 | 16 |
| HLA-B*44:03 | 1 | 978 | 987 | 10 | NDILSRDLKV 0.000218 | 16 |
| HLA-A*23:01 | 1 | 1009 | 1018 | 10 | TQQLIRAAEI 0.000218 | 16 |
| HLA-A*02:01 | 1 | 1025 | 1034 | 10 | AATKMSECVL 0.000218 | 26 |
| HLA-B*40:01 | 1 | 1094 | 1102 | 9 | VFVSNQTHW 0.000218 | 15 |
| HLA-B*40:01 | 1 | 1106 | 1115 | 10 | QRNFYEPQII 0.000218 | 15 |
| HLA-B*07:02 | 1 | 1168 | 1177 | 10 | DISGINASVV 0.000218 | 23 |
| HLA-A*68:01 | 1 | 1192 | 1200 | 9 | NLNESLIDL 0.000218 | 25 |
| HLA-A*02:01 | 1 | 1198 | 1207 | 10 | IDLQELGKYE 0.000218 | 26 |
| HLA-A*01:01 | 1 | 18 | 27 | 10 | LTRTQLPPA 0.000217 | 34 |
| HLA-B*53:01 | 1 | 25 | 33 | 9 | PPAYTNSFT 0.000217 | 18 |
| HLA-A*31:01 | 1 | 82 | 90 | 9 | PVLPFNDGV 0.000217 | 27 |
| HLA-A*23:01 | 1 | 84 | 93 | 10 | LPFNDGVYFA 0.000217 | 16 |
| HLA-B*53:01 | 1 | 88 | 97 | 10 | DGVYFASTK 0.000217 | 18 |
| HLA-A*02:01 | 1 | 112 | 120 | 9 | SKTQSLIV 0.000217 | 26 |
| HLA-B*35:01 | 1 | 120 | 128 | 9 | VNATNVVI 0.000217 | 19 |
| HLA-A*01:01 | 1 | 147 | 155 | 9 | KNNKSWMES 0.000217 | 34 |
| HLA-A*68:02 | 1 | 150 | 158 | 9 | KSWMESEFR 0.000217 | 28 |
| HLA-A*02:01 | 1 | 178 | 186 | 9 | DLEGKQGNF 0.000217 | 26 |
| HLA-B*44:03 | 1 | 185 | 194 | 10 | NFKNLREFVF 0.000217 | 16 |
| HLA-B*40:01 | 1 | 298 | 306 | 9 | ETKCTLKSF 0.000217 | 15 |
| HLA-A*01:01 | 1 | 333 | 341 | 9 | TNLCPFGEV 0.000217 | 34 |
| HLA-A*01:01 | 1 | 357 | 366 | 10 | RISNCVADYS 0.000217 | 34 |
| HLA-B*58:01 | 1 | 425 | 434 | 10 | LPDDFTGCVI 0.000217 | 27 |
| HLA-B*40:01 | 1 | 426 | 434 | 9 | PDDFTGCVI 0.000217 | 15 |
| HLA-A*03:01 | 1 | 470 | 479 | 10 | TEIQAGSTP 0.000217 | 21 |
| HLA-A*01:01 | 1 | 553 | 561 | 9 | TESNKKFLP 0.000217 | 34 |
| HLA-A*02:01 | 1 | 627 | 636 | 10 | DQLTPTWRVY 0.000217 | 26 |
| HLA-A*11:01 | 1 | 644 | 653 | 10 | QTRAGLIGA 0.000217 | 17 |
| HLA-B*44:02 | 1 | 673 | 681 | 9 | SYQTQTNSP 0.000217 | 16 |
| HLA-A*02:01 | 1 | 712 | 721 | 10 | IAIPTNFTIS 0.000217 | 26 |
| HLA-A*03:01 | 1 | 779 | 788 | 10 | QEVFAQVKQI 0.000217 | 21 |
| HLA-A*24:02 | 1 | 819 | 828 | 10 | EDLLFNKVTL 0.000217 | 15 |
| HLA-A*31:01 | 1 | 828 | 836 | 9 | LADAGFIKQ 0.000217 | 27 |
| HLA-A*01:01 | 1 | 838 | 846 | 9 | GDCLGDIAA 0.000217 | 34 |
| HLA-B*07:02 | 1 | 842 | 850 | 9 | GDIARDLI 0.000217 | 23 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*24:02 | 1 | 869 | 878 | 10 | MIAQYTSALL 0.000217 | 15 |
| HLA-B*15:01 | 1 | 897 | 906 | 10 | PFAMQMAYRF 0.000217 | 26 |
| HLA-B*07:02 | 1 | 916 | 924 | 9 | LYENQKLI A 0.000217 | 23 |
| HLA-B*08:01 | 1 | 925 | 933 | 9 | NQFNSAIGK 0.000217 | 36 |
| HLA-A*33:01 | 1 | 926 | 935 | 10 | QFNSAIGKIQ 0.000217 | 26 |
| HLA-B*35:01 | 1 | 965 | 973 | 9 | QLSSNFGAI 0.000217 | 19 |
| HLA-A*23:01 | 1 | 972 | 980 | 9 | AISSVLNDI 0.000217 | 16 |
| HLA-B*40:01 | 1 | 982 | 990 | 9 | SRLDKVEAE 0.000217 | 15 |
| HLA-B*57:01 | 1 | 1052 | 1061 | 10 | FPQSAPHGVV 0.000217 | 36 |
| HLA-B*08:01 | 1 | 1064 | 1072 | 9 | HVTYVPAQE 0.000217 | 36 |
| HLA-B*35:01 | 1 | 1064 | 1073 | 10 | HVTYVPAQEK 0.000217 | 19 |
| HLA-B*44:02 | 1 | 1082 | 1090 | 9 | CHDGKAHFP 0.000217 | 16 |
| HLA-A*30:02 | 1 | 1120 | 1129 | 10 | TFVSGNCDVV 0.000217 | 44 |
| HLA-A*33:01 | 1 | 1203 | 1212 | 10 | LGKYEQYIKW 0.000217 | 26 |
| HLA-B*57:01 | 1 | 76 | 84 | 9 | TKRFDNPVL 0.000216 | 36 |
| HLA-A*02:06 | 1 | 99 | 107 | 9 | NIIRGWIFG 0.000216 | 35 |
| HLA-B*07:02 | 1 | 100 | 108 | 9 | IIRGWIFGT 0.000216 | 23 |
| HLA-A*01:01 | 1 | 114 | 123 | 10 | TQSL LIVNNA 0.000216 | 35 |
| HLA-B*58:01 | 1 | 157 | 166 | 10 | FRVYSSANNC 0.000216 | 27 |
| HLA-B*51:01 | 1 | 217 | 226 | 10 | PQGFSALEPL 0.000216 | 33 |
| HLA-A*68:02 | 1 | 297 | 306 | 10 | SETKCTLKSF 0.000216 | 28 |
| HLA-B*40:01 | 1 | 344 | 353 | 10 | ATRFASVYAW 0.000216 | 15 |
| HLA-A*68:01 | 1 | 410 | 418 | 9 | IAPGQTGKI 0.000216 | 25 |
| HLA-A*68:02 | 1 | 422 | 430 | 9 | NYKLPDDFT 0.000216 | 28 |
| HLA-B*44:03 | 1 | 460 | 468 | 9 | NLKPFERDI 0.000216 | 16 |
| HLA-A*02:06 | 1 | 488 | 497 | 10 | CYFPLQSYGF 0.000216 | 35 |
| HLA-A*68:01 | 1 | 502 | 510 | 9 | GVGYQPYRV 0.000216 | 25 |
| HLA-A*02:03 | 1 | 568 | 577 | 10 | DIADTTDAVR 0.000216 | 28 |
| HLA-B*40:01 | 1 | 568 | 576 | 9 | DIADTTDAV 0.000216 | 15 |
| HLA-A*03:01 | 1 | 598 | 607 | 10 | ITPGTNTSNQ 0.000216 | 21 |
| HLA-B*44:03 | 1 | 638 | 646 | 9 | TGSNVFQTR 0.000216 | 16 |
| HLA-B*15:01 | 1 | 642 | 651 | 10 | VFQTRAGCLI 0.000216 | 26 |
| HLA-A*01:01 | 1 | 671 | 679 | 9 | CASYQTQTN 0.000216 | 35 |
| HLA-B*53:01 | 1 | 695 | 703 | 9 | YTMSLGAEN 0.000216 | 18 |
| HLA-A*02:03 | 1 | 708 | 716 | 9 | SNNSIAIPT 0.000216 | 28 |
| HLA-A*30:01 | 1 | 719 | 728 | 10 | TISVTEILP 0.000216 | 47 |
| HLA-A*02:06 | 1 | 747 | 756 | 10 | TECSNLLLQY 0.000216 | 35 |
| HLA-B*58:01 | 1 | 876 | 884 | 9 | ALLAGTITS 0.000216 | 27 |
| HLA-A*02:06 | 1 | 895 | 904 | 10 | QIPFAMQMAY 0.000216 | 35 |
| HLA-A*23:01 | 1 | 904 | 913 | 10 | YRFNGIGVTQ 0.000216 | 16 |
| HLA-B*51:01 | 1 | 1006 | 1015 | 10 | TYVTQQLIRA 0.000216 | 33 |
| HLA-A*26:01 | 1 | 1047 | 1056 | 10 | YHLMSFPQSA 0.000216 | 22 |
| HLA-A*33:01 | 1 | 1129 | 1138 | 10 | VIGIVNNTVY 0.000216 | 26 |
| HLA-B*51:01 | 1 | 1135 | 1144 | 10 | NTVYDPLQPE 0.000216 | 33 |
| HLA-A*33:01 | 1 | 1152 | 1160 | 9 | LDKYFKNHT 0.000216 | 26 |
| HLA-A*33:01 | 1 | 1202 | 1210 | 9 | ELGKYEQYI 0.000216 | 26 |
| HLA-B*15:01 | 1 | 1215 | 1223 | 9 | YIWLGFIA G 0.000216 | 26 |
| HLA-A*68:02 | 1 | 1216 | 1225 | 10 | IWLGFIAGLI 0.000216 | 28 |
| HLA-A*30:02 | 1 | 1232 | 1240 | 9 | IMLCCMTSC 0.000216 | 44 |
| HLA-A*31:01 | 1 | 1246 | 1255 | 10 | GCCSCGSCCK 0.000216 | 27 |
| HLA-B*15:01 | 1 | 14 | 23 | 10 | QCVNLTRTQ 0.000215 | 26 |
| HLA-A*23:01 | 1 | 42 | 51 | 10 | VFRSSVLHST 0.000215 | 16 |
| HLA-A*24:02 | 1 | 43 | 51 | 9 | FRSSVLHST 0.000215 | 15 |
| HLA-A*02:01 | 1 | 56 | 64 | 9 | LPFFSNVTW 0.000215 | 26 |
| HLA-A*30:02 | 1 | 66 | 75 | 10 | HAIHVSGTNG 0.000215 | 44 |
| HLA-B*51:01 | 1 | 102 | 111 | 10 | RGWIFGTTL D 0.000215 | 33 |
| HLA-B*57:01 | 1 | 114 | 122 | 9 | TQSL LIVNN 0.000215 | 36 |
| HLA-B*58:01 | 1 | 184 | 193 | 10 | GNFKNLREFV 0.000215 | 27 |
| HLA-B*44:02 | 1 | 190 | 199 | 10 | REFVFKNIDG 0.000215 | 16 |
| HLA-A*01:01 | 1 | 243 | 251 | 9 | ALHRSYLTP 0.000215 | 35 |
| HLA-B*08:01 | 1 | 253 | 261 | 9 | DSSSGWTAG 0.000215 | 37 |
| HLA-A*30:01 | 1 | 284 | 293 | 10 | TITDAVDCAL 0.000215 | 47 |
| HLA-B*08:01 | 1 | 293 | 301 | 9 | LDPLSETKC 0.000215 | 37 |
| HLA-B*15:01 | 1 | 307 | 316 | 10 | TVEKGIYQTS 0.000215 | 26 |
| HLA-A*31:01 | 1 | 372 | 381 | 10 | ASFSTFKCYG 0.000215 | 27 |
| HLA-B*58:01 | 1 | 380 | 389 | 10 | YGVSPTKLND 0.000215 | 27 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*35:01 | 1 | 382 | 390 | 9 | VSPTKLN DL 0.000215 | 19 |
| HLA-B*44:02 | 1 | 388 | 397 | 10 | NDLCFTNVYA 0.000215 | 16 |
| HLA-A*30:01 | 1 | 400 | 409 | 10 | FVIRGDEVRQ 0.000215 | 47 |
| HLA-A*23:01 | 1 | 409 | 418 | 10 | QIAPGQTGKI 0.000215 | 16 |
| HLA-B*07:02 | 1 | 455 | 463 | 9 | LFRKSNLKP 0.000215 | 23 |
| HLA-A*01:01 | 1 | 459 | 468 | 10 | SNLKPFERDI 0.000215 | 35 |
| HLA-A*01:01 | 1 | 489 | 498 | 10 | YFPLQSYGFQ 0.000215 | 35 |
| HLA-A*31:01 | 1 | 580 | 589 | 10 | QTLEILDITP 0.000215 | 27 |
| HLA-B*58:01 | 1 | 597 | 606 | 10 | VITPGTNTSN 0.000215 | 27 |
| HLA-B*44:03 | 1 | 602 | 610 | 9 | TNTSNQVAV 0.000215 | 16 |
| HLA-B*53:01 | 1 | 641 | 649 | 9 | NVVFQTRAGC 0.000215 | 18 |
| HLA-A*68:02 | 1 | 730 | 739 | 10 | SMTKTSVDCT 0.000215 | 28 |
| HLA-B*51:01 | 1 | 730 | 738 | 9 | SMTKTSVDC 0.000215 | 33 |
| HLA-A*68:02 | 1 | 754 | 762 | 9 | LQYGSFCTQ 0.000215 | 28 |
| HLA-A*33:01 | 1 | 788 | 796 | 9 | IYKTPPIKD 0.000215 | 26 |
| HLA-A*03:01 | 1 | 811 | 819 | 9 | KPSKR SFIE 0.000215 | 21 |
| HLA-A*33:01 | 1 | 894 | 903 | 10 | LQIPFAMQMA 0.000215 | 26 |
| HLA-A*24:02 | 1 | 903 | 912 | 10 | AYRFNGIGVT 0.000215 | 15 |
| HLA-A*68:01 | 1 | 909 | 918 | 10 | IGVTQNVLYE 0.000215 | 25 |
| HLA-B*51:01 | 1 | 933 | 941 | 9 | KIQDSLST 0.000215 | 33 |
| HLA-A*24:02 | 1 | 972 | 980 | 9 | AISSVLNDI 0.000215 | 15 |
| HLA-A*31:01 | 1 | 983 | 992 | 10 | RLDKVEAEVQ 0.000215 | 27 |
| HLA-B*15:01 | 1 | 1005 | 1014 | 10 | QTYVTQQLIR 0.000215 | 26 |
| HLA-A*68:02 | 1 | 1045 | 1053 | 9 | KGYHLM SF 0.000215 | 28 |
| HLA-B*58:01 | 1 | 1049 | 1057 | 9 | LMSFPQSAP 0.000215 | 27 |
| HLA-A*24:02 | 1 | 1106 | 1115 | 10 | QRNFYEPQII 0.000215 | 15 |
| HLA-A*01:01 | 1 | 1120 | 1129 | 10 | TFVSGNCDVV 0.000215 | 35 |
| HLA-A*01:01 | 1 | 1130 | 1139 | 10 | IGIVNNTVYD 0.000215 | 35 |
| HLA-B*15:01 | 1 | 1155 | 1164 | 10 | YFKNHTSPDV 0.000215 | 26 |
| HLA-B*07:02 | 1 | 1182 | 1190 | 9 | EIDRLNEVA 0.000215 | 23 |
| HLA-B*15:01 | 1 | 1205 | 1214 | 10 | KYEYIKWPW 0.000215 | 26 |
| HLA-A*30:01 | 1 | 1262 | 1271 | 10 | EPVLKGVK LH 0.000215 | 47 |
| HLA-A*68:01 | 1 | 57 | 65 | 9 | PFFSNVTWF 0.000214 | 25 |
| HLA-B*44:03 | 1 | 92 | 100 | 9 | FASTEKSNI 0.000214 | 16 |
| HLA-B*15:01 | 1 | 97 | 105 | 9 | KSNIIRGWI 0.000214 | 26 |
| HLA-A*68:01 | 1 | 118 | 126 | 9 | LIVNNATNV 0.000214 | 25 |
| HLA-A*30:01 | 1 | 211 | 219 | 9 | NLVRDLPQG 0.000214 | 47 |
| HLA-A*30:02 | 1 | 243 | 252 | 10 | ALHRSYLT PG 0.000214 | 44 |
| HLA-A*02:06 | 1 | 297 | 306 | 10 | SETKCTLKSF 0.000214 | 35 |
| HLA-B*35:01 | 1 | 338 | 346 | 9 | FGEVFNATR 0.000214 | 19 |
| HLA-A*30:02 | 1 | 376 | 385 | 10 | TFKCYGVSPT 0.000214 | 44 |
| HLA-A*68:01 | 1 | 393 | 401 | 9 | TNVYADSFV 0.000214 | 25 |
| HLA-A*24:02 | 1 | 409 | 418 | 10 | QIAPGQTGKI 0.000214 | 15 |
| HLA-A*30:01 | 1 | 465 | 474 | 10 | ERDISTEIQ 0.000214 | 47 |
| HLA-A*01:01 | 1 | 504 | 513 | 10 | GYQPYRVVVL 0.000214 | 35 |
| HLA-A*02:06 | 1 | 506 | 515 | 10 | QPYRVVLSF 0.000214 | 35 |
| HLA-B*53:01 | 1 | 641 | 650 | 10 | NVVFQTRAGCL 0.000214 | 18 |
| HLA-A*68:01 | 1 | 661 | 670 | 10 | ECDIPIGAGI 0.000214 | 25 |
| HLA-A*02:03 | 1 | 719 | 728 | 10 | TISVTTEILP 0.000214 | 29 |
| HLA-A*33:01 | 1 | 813 | 822 | 10 | SKRSFIEDLL 0.000214 | 27 |
| HLA-B*58:01 | 1 | 833 | 841 | 9 | FIKQYGDCL 0.000214 | 27 |
| HLA-B*40:01 | 1 | 856 | 864 | 9 | NGLTVLPPL 0.000214 | 15 |
| HLA-B*44:03 | 1 | 933 | 942 | 10 | KIQDSLSTA 0.000214 | 16 |
| HLA-A*01:01 | 1 | 942 | 950 | 9 | ASALGKLQD 0.000214 | 35 |
| HLA-A*02:03 | 1 | 967 | 975 | 9 | SSNFGAISS 0.000214 | 29 |
| HLA-B*07:02 | 1 | 1044 | 1052 | 9 | GKGYHLM SF 0.000214 | 23 |
| HLA-A*11:01 | 1 | 1059 | 1068 | 10 | GVVFLHVTVV 0.000214 | 17 |
| HLA-A*30:02 | 1 | 1068 | 1077 | 10 | VPAQEKNF TT 0.000214 | 44 |
| HLA-A*68:01 | 1 | 1088 | 1096 | 9 | HFPREGV FV 0.000214 | 25 |
| HLA-A*23:01 | 1 | 1104 | 1112 | 9 | VTQRNFYEP 0.000214 | 16 |
| HLA-A*33:01 | 1 | 1148 | 1156 | 9 | FKEELDKYF 0.000214 | 27 |
| HLA-B*07:02 | 1 | 1174 | 1183 | 10 | ASV VNIQKEI 0.000214 | 23 |
| HLA-A*24:02 | 1 | 1201 | 1210 | 10 | QELGKYEQYI 0.000214 | 15 |
| HLA-A*01:01 | 1 | 1203 | 1211 | 9 | LGKYEYIK 0.000214 | 35 |
| HLA-B*15:01 | 1 | 70 | 78 | 9 | VSGTNGTKR 0.000213 | 26 |
| HLA-A*03:01 | 1 | 97 | 106 | 10 | KSNIIRGWIF 0.000213 | 21 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*30:02 | 1 | 102 | 111 | 10 | RGWIFGTTLD 0.000213 | 44 |
| HLA-A*31:01 | 1 | 123 | 132 | 10 | ATNVVIVKCE 0.000213 | 27 |
| HLA-A*68:01 | 1 | 159 | 168 | 10 | VYSSANNCTF 0.000213 | 25 |
| HLA-A*11:01 | 1 | 192 | 201 | 10 | FVFKNIDGYF 0.000213 | 17 |
| HLA-A*02:01 | 1 | 195 | 204 | 10 | KNIDGYFKIY 0.000213 | 26 |
| HLA-A*30:01 | 1 | 208 | 217 | 10 | TPINLVRDLP 0.000213 | 47 |
| HLA-A*30:01 | 1 | 210 | 218 | 9 | INLVRDLPQ 0.000213 | 47 |
| HLA-A*33:01 | 1 | 234 | 243 | 10 | NITRFQTLA 0.000213 | 27 |
| HLA-A*31:01 | 1 | 242 | 250 | 9 | LALHRSYLT 0.000213 | 27 |
| HLA-B*58:01 | 1 | 252 | 261 | 10 | GDSSSGWTAG 0.000213 | 27 |
| HLA-A*68:02 | 1 | 315 | 324 | 10 | TSNFRVQPT 0.000213 | 28 |
| HLA-B*07:02 | 1 | 353 | 362 | 10 | WNRKRISNCV 0.000213 | 23 |
| HLA-A*31:01 | 1 | 375 | 383 | 9 | STFKCYGVS 0.000213 | 27 |
| HLA-A*68:01 | 1 | 443 | 452 | 10 | SKVGGNYNYL 0.000213 | 25 |
| HLA-B*57:01 | 1 | 450 | 458 | 9 | NYLYRFRK 0.000213 | 36 |
| HLA-B*07:02 | 1 | 463 | 472 | 10 | PFERDISTEI 0.000213 | 23 |
| HLA-A*30:01 | 1 | 473 | 482 | 10 | YQAGSTPCNG 0.000213 | 47 |
| HLA-A*23:01 | 1 | 481 | 489 | 9 | NGVEGFNCY 0.000213 | 16 |
| HLA-A*01:01 | 1 | 515 | 523 | 9 | FELLHAPAT 0.000213 | 35 |
| HLA-A*01:01 | 1 | 531 | 539 | 9 | TNLVKNKCV 0.000213 | 35 |
| HLA-A*68:02 | 1 | 563 | 572 | 10 | QQFGRDIADT 0.000213 | 28 |
| HLA-B*44:03 | 1 | 596 | 604 | 9 | SVITPGTNT 0.000213 | 16 |
| HLA-B*53:01 | 1 | 604 | 613 | 10 | TSNQVAVLYQ 0.000213 | 18 |
| HLA-B*35:01 | 1 | 652 | 661 | 10 | GAEHVNNSYE 0.000213 | 19 |
| HLA-A*01:01 | 1 | 664 | 672 | 9 | IPIGAGICA 0.000213 | 35 |
| HLA-B*57:01 | 1 | 676 | 684 | 9 | TQTNSPRRA 0.000213 | 36 |
| HLA-B*07:02 | 1 | 682 | 690 | 9 | RRARSVASQ 0.000213 | 23 |
| HLA-B*15:01 | 1 | 684 | 693 | 10 | ARSVASQSII 0.000213 | 26 |
| HLA-B*53:01 | 1 | 865 | 874 | 10 | LTDEMIAQYT 0.000213 | 18 |
| HLA-A*30:02 | 1 | 952 | 960 | 9 | VNQAQALN 0.000213 | 44 |
| HLA-A*02:06 | 1 | 996 | 1005 | 10 | LITGRLQSLQ 0.000213 | 35 |
| HLA-A*02:06 | 1 | 1034 | 1043 | 10 | LGQSKRVDFC 0.000213 | 35 |
| HLA-A*30:01 | 1 | 1040 | 1048 | 9 | VDFCGKGYH 0.000213 | 47 |
| HLA-B*51:01 | 1 | 1049 | 1058 | 10 | LMSFPQSAPH 0.000213 | 33 |
| HLA-A*23:01 | 1 | 1099 | 1107 | 9 | GTHWFVTQR 0.000213 | 16 |
| HLA-A*02:06 | 1 | 1106 | 1115 | 10 | QRNFYEPQII 0.000213 | 35 |
| HLA-A*02:03 | 1 | 1179 | 1188 | 10 | IQKEIDRLNE 0.000213 | 29 |
| HLA-A*30:01 | 1 | 1242 | 1250 | 9 | SCLKGCCSC 0.000213 | 47 |
| HLA-A*68:02 | 1 | 6 | 15 | 10 | VLLPLVSSQC 0.000212 | 28 |
| HLA-A*02:06 | 1 | 19 | 28 | 10 | TRTQLPPAY 0.000212 | 35 |
| HLA-A*68:02 | 1 | 20 | 28 | 9 | TRTQLPPAY 0.000212 | 28 |
| HLA-A*11:01 | 1 | 75 | 83 | 9 | GTKRFDNPV 0.000212 | 17 |
| HLA-B*35:01 | 1 | 131 | 140 | 10 | CEFQFCNDPF 0.000212 | 19 |
| HLA-A*33:01 | 1 | 139 | 148 | 10 | PFLGVYYHKN 0.000212 | 27 |
| HLA-B*44:02 | 1 | 163 | 171 | 9 | ANNCTFEYV 0.000212 | 16 |
| HLA-A*02:01 | 1 | 202 | 211 | 10 | KIYSKHTPIN 0.000212 | 26 |
| HLA-A*01:01 | 1 | 224 | 233 | 10 | EPLVDLPIGI 0.000212 | 35 |
| HLA-B*44:02 | 1 | 224 | 233 | 10 | EPLVDLPIGI 0.000212 | 16 |
| HLA-A*01:01 | 1 | 248 | 257 | 10 | YLTPGDSSSG 0.000212 | 35 |
| HLA-A*26:01 | 1 | 254 | 263 | 10 | SSSGWTAGAA 0.000212 | 22 |
| HLA-A*01:01 | 1 | 280 | 288 | 9 | NENGTITDA 0.000212 | 35 |
| HLA-A*24:02 | 1 | 376 | 384 | 9 | TFKCYGVSP 0.000212 | 15 |
| HLA-B*53:01 | 1 | 378 | 387 | 10 | KCYGVSPTKL 0.000212 | 18 |
| HLA-A*30:02 | 1 | 414 | 422 | 9 | QTGKIADYN 0.000212 | 45 |
| HLA-B*58:01 | 1 | 441 | 450 | 10 | LDSKVGGNYN 0.000212 | 27 |
| HLA-A*11:01 | 1 | 446 | 455 | 10 | GGNYNYLYRL 0.000212 | 17 |
| HLA-A*01:01 | 1 | 449 | 458 | 10 | YNYLYRFRK 0.000212 | 35 |
| HLA-A*03:01 | 1 | 477 | 486 | 10 | STPCNGVEGF 0.000212 | 21 |
| HLA-B*51:01 | 1 | 519 | 528 | 10 | HAPATVCGPK 0.000212 | 33 |
| HLA-A*02:03 | 1 | 592 | 600 | 9 | FGGVSVITP 0.000212 | 29 |
| HLA-A*02:01 | 1 | 650 | 659 | 10 | LIGAEHVNS 0.000212 | 26 |
| HLA-A*30:02 | 1 | 650 | 658 | 9 | LIGAEHVNN 0.000212 | 45 |
| HLA-A*30:01 | 1 | 653 | 661 | 9 | AEHVNSNYS 0.000212 | 47 |
| HLA-A*31:01 | 1 | 684 | 692 | 9 | ARSVASQSI 0.000212 | 28 |
| HLA-A*68:02 | 1 | 781 | 790 | 10 | VFAQVKQIYK 0.000212 | 28 |
| HLA-B*15:01 | 1 | 797 | 806 | 10 | FGGFNFSQIL 0.000212 | 26 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*33:01 | 1 | 814 | 823 | 10 | KRSFIEDLLF 0.000212 | 27 |
| HLA-B*40:01 | 1 | 868 | 877 | 10 | EMIAQYTSAL 0.000212 | 15 |
| HLA-B*57:01 | 1 | 877 | 885 | 9 | LLAGTITSG 0.000212 | 37 |
| HLA-A*68:01 | 1 | 883 | 892 | 10 | TSGWTFGAGA 0.000212 | 25 |
| HLA-B*07:02 | 1 | 887 | 896 | 10 | TFGAGAALQI 0.000212 | 24 |
| HLA-A*30:01 | 1 | 909 | 918 | 10 | IGVTQNVLYE 0.000212 | 47 |
| HLA-B*57:01 | 1 | 928 | 937 | 10 | NSAIGKIQDS 0.000212 | 37 |
| HLA-A*33:01 | 1 | 941 | 949 | 9 | TASALGKLQ 0.000212 | 27 |
| HLA-A*03:01 | 1 | 965 | 973 | 9 | QLSSNFGAI 0.000212 | 21 |
| HLA-A*31:01 | 1 | 1004 | 1013 | 10 | LQTYVTQQLI 0.000212 | 28 |
| HLA-B*57:01 | 1 | 1041 | 1050 | 10 | DFCGKGYHLM 0.000212 | 37 |
| HLA-B*44:02 | 1 | 1105 | 1114 | 10 | TQRNFYEQPI 0.000212 | 16 |
| HLA-B*44:03 | 1 | 1188 | 1197 | 10 | EVAKNLNESL 0.000212 | 16 |
| HLA-B*07:02 | 1 | 1191 | 1200 | 10 | KNLNESLIDL 0.000212 | 24 |
| HLA-A*01:01 | 1 | 6 | 15 | 10 | VLLPLVSSQC 0.000211 | 35 |
| HLA-A*03:01 | 1 | 62 | 71 | 10 | VTWFHAIHVS 0.000211 | 22 |
| HLA-A*30:01 | 1 | 81 | 90 | 10 | NPVLPFNDGV 0.000211 | 47 |
| HLA-A*11:01 | 1 | 98 | 106 | 9 | SNIIRGWIF 0.000211 | 17 |
| HLA-A*68:02 | 1 | 98 | 106 | 9 | SNIIRGWIF 0.000211 | 28 |
| HLA-A*03:01 | 1 | 167 | 175 | 9 | TFEYVSQPF 0.000211 | 22 |
| HLA-A*03:01 | 1 | 198 | 207 | 10 | DGYFKIYSKH 0.000211 | 22 |
| HLA-B*08:01 | 1 | 218 | 227 | 10 | QGFSALEPLV 0.000211 | 37 |
| HLA-B*53:01 | 1 | 221 | 230 | 10 | SALEPLVDLP 0.000211 | 18 |
| HLA-B*35:01 | 1 | 235 | 244 | 10 | ITRFQTLAL 0.000211 | 19 |
| HLA-B*08:01 | 1 | 244 | 252 | 9 | LHRSYLTPG 0.000211 | 37 |
| HLA-A*33:01 | 1 | 285 | 293 | 9 | ITDAVDCAL 0.000211 | 27 |
| HLA-B*07:02 | 1 | 317 | 325 | 9 | NFRVQPTES 0.000211 | 24 |
| HLA-A*33:01 | 1 | 373 | 381 | 9 | SFSTFKCYG 0.000211 | 27 |
| HLA-A*31:01 | 1 | 375 | 384 | 10 | STFKCYGVSP 0.000211 | 28 |
| HLA-A*32:01 | 1 | 403 | 411 | 9 | RGDEVQRQA 0.000211 | 20 |
| HLA-B*15:01 | 1 | 466 | 475 | 10 | RDISTEIQQA 0.000211 | 26 |
| HLA-A*30:01 | 1 | 498 | 506 | 9 | QPTNGVGYY 0.000211 | 47 |
| HLA-A*26:01 | 1 | 707 | 715 | 9 | YSNNSIAIP 0.000211 | 22 |
| HLA-A*30:02 | 1 | 717 | 725 | 9 | NFTISVTTE 0.000211 | 45 |
| HLA-B*53:01 | 1 | 764 | 772 | 9 | NRALTGIAV 0.000211 | 18 |
| HLA-A*68:02 | 1 | 785 | 794 | 10 | VKQIYKTPPI 0.000211 | 28 |
| HLA-A*30:01 | 1 | 796 | 804 | 9 | DFGGFNFSQ 0.000211 | 47 |
| HLA-A*11:01 | 1 | 798 | 806 | 9 | GGFNFSQIL 0.000211 | 17 |
| HLA-A*02:06 | 1 | 904 | 912 | 9 | YRFNGIGVT 0.000211 | 35 |
| HLA-A*02:03 | 1 | 905 | 913 | 9 | RFNGIGVTQ 0.000211 | 29 |
| HLA-B*15:01 | 1 | 910 | 918 | 9 | GVTQNVLYE 0.000211 | 26 |
| HLA-A*31:01 | 1 | 923 | 931 | 9 | IANQFNSAI 0.000211 | 28 |
| HLA-A*30:01 | 1 | 971 | 979 | 9 | GAISSVLND 0.000211 | 47 |
| HLA-A*11:01 | 1 | 1004 | 1012 | 9 | LQTYVTQQL 0.000211 | 17 |
| HLA-A*26:01 | 1 | 1029 | 1038 | 10 | MSECVLGQSK 0.000211 | 22 |
| HLA-B*35:01 | 1 | 1049 | 1057 | 9 | LMSFPQSAP 0.000211 | 19 |
| HLA-B*57:01 | 1 | 1087 | 1096 | 10 | AHFPREGVAV 0.000211 | 37 |
| HLA-B*57:01 | 1 | 1092 | 1101 | 10 | EGVFVSNQTH 0.000211 | 37 |
| HLA-A*01:01 | 1 | 1103 | 1112 | 10 | FVTQRNFYEP 0.000211 | 35 |
| HLA-A*01:01 | 1 | 1155 | 1164 | 10 | YFKNHTSPDV 0.000211 | 35 |
| HLA-B*35:01 | 1 | 1156 | 1164 | 9 | FKNHTSPDV 0.000211 | 19 |
| HLA-B*58:01 | 1 | 1201 | 1210 | 10 | QELGKYEQYI 0.000211 | 27 |
| HLA-A*03:01 | 1 | 144 | 152 | 9 | YYHKNNKSW 0.000211 | 22 |
| HLA-B*35:01 | 1 | 237 | 245 | 9 | RFQTLALH 0.000211 | 19 |
| HLA-A*26:01 | 1 | 253 | 261 | 9 | DSSSGWTAG 0.000211 | 22 |
| HLA-A*68:02 | 1 | 265 | 274 | 10 | YYVGYLQPR 0.000211 | 29 |
| HLA-A*30:01 | 1 | 279 | 288 | 10 | YNENGTITDA 0.000211 | 47 |
| HLA-A*30:02 | 1 | 287 | 296 | 10 | DAVDCALDPL 0.000211 | 45 |
| HLA-B*40:01 | 1 | 343 | 351 | 9 | NATRFASVY 0.000211 | 15 |
| HLA-A*01:01 | 1 | 359 | 368 | 10 | SNCVADYSVL 0.000211 | 35 |
| HLA-A*02:01 | 1 | 363 | 371 | 9 | ADYSVLYNS 0.000211 | 26 |
| HLA-A*01:01 | 1 | 393 | 402 | 10 | TNVYADSFVI 0.000211 | 35 |
| HLA-A*02:06 | 1 | 401 | 409 | 9 | VIRGDEVQR 0.000211 | 35 |
| HLA-B*51:01 | 1 | 416 | 425 | 10 | GKIADYNYKL 0.000211 | 33 |
| HLA-A*01:01 | 1 | 491 | 499 | 9 | PLQSYGFQP 0.000211 | 35 |
| HLA-A*31:01 | 1 | 497 | 506 | 10 | FQPTNGVGYY 0.000211 | 28 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*57:01 | 1 | 715 | 723 | 9 | PTNFTISVT 0.00021 | 37 |
| HLA-B*15:01 | 1 | 728 | 736 | 9 | PVSMTKTSV 0.00021 | 26 |
| HLA-A*26:01 | 1 | 804 | 812 | 9 | QILPDPSPK 0.00021 | 22 |
| HLA-B*53:01 | 1 | 868 | 876 | 9 | EMIAQYTSA 0.00021 | 18 |
| HLA-B*08:01 | 1 | 882 | 890 | 9 | ITSGWTFGA 0.00021 | 37 |
| HLA-A*11:01 | 1 | 884 | 892 | 9 | SGWTFGAGA 0.00021 | 17 |
| HLA-A*01:01 | 1 | 890 | 899 | 10 | AGAALQIPFA 0.00021 | 35 |
| HLA-A*31:01 | 1 | 894 | 903 | 10 | LQIPFAMQMA 0.00021 | 28 |
| HLA-B*15:01 | 1 | 917 | 926 | 10 | YENQKLIANQ 0.00021 | 26 |
| HLA-A*26:01 | 1 | 962 | 971 | 10 | LVKQLSSNFG 0.00021 | 22 |
| HLA-B*08:01 | 1 | 1006 | 1014 | 9 | TYVTQQLIR 0.00021 | 37 |
| HLA-A*32:01 | 1 | 1029 | 1038 | 10 | MSECVLGQSK 0.00021 | 20 |
| HLA-B*53:01 | 1 | 1032 | 1040 | 9 | CVLGQSKRV 0.00021 | 18 |
| HLA-A*31:01 | 1 | 1041 | 1050 | 10 | DFCGKGYHLM 0.00021 | 28 |
| HLA-B*58:01 | 1 | 1059 | 1068 | 10 | GVVFLHVTYV 0.00021 | 27 |
| HLA-B*51:01 | 1 | 1063 | 1071 | 9 | LHVTYVPAQ 0.00021 | 33 |
| HLA-B*35:01 | 1 | 1071 | 1079 | 9 | QEKNFHTAP 0.00021 | 19 |
| HLA-B*51:01 | 1 | 1079 | 1087 | 9 | PAICHGDKA 0.00021 | 33 |
| HLA-B*57:01 | 1 | 1124 | 1133 | 10 | GNCDDVIGIV 0.00021 | 37 |
| HLA-B*40:01 | 1 | 1130 | 1138 | 9 | IGIVNNTVY 0.00021 | 15 |
| HLA-A*24:02 | 1 | 1171 | 1179 | 9 | GINASVVNI 0.00021 | 15 |
| HLA-A*02:06 | 1 | 1236 | 1244 | 9 | CMTSCCSCS 0.00021 | 35 |
| HLA-A*02:06 | 1 | 1263 | 1272 | 10 | PVLKGVKLHY 0.00021 | 35 |
| HLA-A*11:01 | 1 | 54 | 62 | 9 | LFLPFFSNV 0.000209 | 17 |
| HLA-B*51:01 | 1 | 95 | 103 | 9 | TEKSNIIRG 0.000209 | 33 |
| HLA-B*07:02 | 1 | 151 | 160 | 10 | SWMESEFRVY 0.000209 | 24 |
| HLA-B*07:02 | 1 | 158 | 167 | 10 | RVYSSANNCT 0.000209 | 24 |
| HLA-A*02:06 | 1 | 182 | 191 | 10 | KQGNFKNLRE 0.000209 | 35 |
| HLA-A*33:01 | 1 | 226 | 235 | 10 | LVDLPIGINI 0.000209 | 27 |
| HLA-A*24:02 | 1 | 258 | 266 | 9 | WTAGAAAYY 0.000209 | 15 |
| HLA-B*57:01 | 1 | 259 | 268 | 10 | TAGAAAYYVG 0.000209 | 37 |
| HLA-A*68:02 | 1 | 277 | 285 | 9 | LKYNENGTI 0.000209 | 29 |
| HLA-A*01:01 | 1 | 336 | 344 | 9 | CPFGEVFNA 0.000209 | 35 |
| HLA-B*58:01 | 1 | 336 | 344 | 9 | CPFGEVFNA 0.000209 | 27 |
| HLA-B*15:01 | 1 | 371 | 379 | 9 | SASFSTFKC 0.000209 | 27 |
| HLA-A*31:01 | 1 | 374 | 382 | 9 | FSTFKCYGV 0.000209 | 28 |
| HLA-A*68:02 | 1 | 443 | 451 | 9 | SKVGGNYNY 0.000209 | 29 |
| HLA-B*57:01 | 1 | 500 | 509 | 10 | TNGVGYQPYP 0.000209 | 37 |
| HLA-A*30:02 | 1 | 517 | 526 | 10 | LLHAPATVCG 0.000209 | 45 |
| HLA-A*68:02 | 1 | 524 | 533 | 10 | VCGPKKSTNL 0.000209 | 29 |
| HLA-A*68:01 | 1 | 529 | 538 | 10 | KSTNLVKNKC 0.000209 | 25 |
| HLA-A*30:01 | 1 | 545 | 554 | 10 | GLTGTGVLTE 0.000209 | 48 |
| HLA-B*07:02 | 1 | 589 | 597 | 9 | PCSFGGVSV 0.000209 | 24 |
| HLA-B*07:02 | 1 | 591 | 599 | 9 | SFGGVSVIT 0.000209 | 24 |
| HLA-B*15:01 | 1 | 616 | 625 | 10 | NCTEVPVAIH 0.000209 | 27 |
| HLA-B*08:01 | 1 | 724 | 733 | 10 | TEILPVSMTK 0.000209 | 37 |
| HLA-B*57:01 | 1 | 787 | 796 | 10 | QIYKTPPIKD 0.000209 | 37 |
| HLA-B*07:02 | 1 | 797 | 806 | 10 | FGGFNFSQIL 0.000209 | 24 |
| HLA-A*01:01 | 1 | 904 | 913 | 10 | YRFNGIGVTQ 0.000209 | 35 |
| HLA-A*32:01 | 1 | 904 | 912 | 9 | YRFNGIGVT 0.000209 | 20 |
| HLA-A*02:01 | 1 | 905 | 913 | 9 | RFNGIGVTQ 0.000209 | 26 |
| HLA-A*26:01 | 1 | 972 | 981 | 10 | AISSVLNDIL 0.000209 | 22 |
| HLA-B*15:01 | 1 | 1013 | 1022 | 10 | IRAAEIRASA 0.000209 | 27 |
| HLA-A*01:01 | 1 | 1019 | 1027 | 9 | RASANLAAT 0.000209 | 35 |
| HLA-B*15:01 | 1 | 1025 | 1033 | 9 | AATKMSECV 0.000209 | 27 |
| HLA-B*51:01 | 1 | 1064 | 1072 | 9 | HVTYVPAQE 0.000209 | 33 |
| HLA-A*30:02 | 1 | 1097 | 1106 | 10 | SNGTHWFVTQ 0.000209 | 45 |
| HLA-B*53:01 | 1 | 1120 | 1128 | 9 | TFVSGNCDV 0.000209 | 18 |
| HLA-A*24:02 | 1 | 1160 | 1169 | 10 | TSPDVDLGD 0.000209 | 15 |
| HLA-A*30:02 | 1 | 1223 | 1232 | 10 | GLIAIVMVTI 0.000209 | 45 |
| HLA-B*57:01 | 1 | 1230 | 1238 | 9 | VTIMLCCMT 0.000209 | 37 |
| HLA-B*40:01 | 1 | 2 | 10 | 9 | FVFLVLLPL 0.000208 | 15 |
| HLA-A*02:03 | 1 | 30 | 39 | 10 | NSFTRGVYYP 0.000208 | 29 |
| HLA-B*53:01 | 1 | 30 | 39 | 10 | NSFTRGVYYP 0.000208 | 18 |
| HLA-A*02:03 | 1 | 37 | 46 | 10 | YYPDKVFRSS 0.000208 | 29 |
| HLA-B*35:01 | 1 | 37 | 45 | 9 | YYPDKVFRS 0.000208 | 19 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*30:02 | 1 | 81 | 90 | 10 | NPVLPFNDGV 0.000208 | 45 |
| HLA-B*44:03 | 1 | 83 | 91 | 9 | VLFPFNDGVY 0.000208 | 16 |
| HLA-B*15:01 | 1 | 101 | 110 | 10 | IRGWIFGTTL 0.000208 | 27 |
| HLA-A*01:01 | 1 | 112 | 120 | 9 | SKTQSLLIV 0.000208 | 35 |
| HLA-B*44:02 | 1 | 124 | 133 | 10 | TNVVIKVCEF 0.000208 | 17 |
| HLA-A*30:02 | 1 | 146 | 155 | 10 | HKNNKSWMES 0.000208 | 45 |
| HLA-A*31:01 | 1 | 147 | 156 | 10 | KNNKSWMESE 0.000208 | 28 |
| HLA-A*02:06 | 1 | 159 | 168 | 10 | VYSSANNCTF 0.000208 | 35 |
| HLA-A*01:01 | 1 | 165 | 174 | 10 | NCTFEYVSQP 0.000208 | 35 |
| HLA-A*68:02 | 1 | 181 | 189 | 9 | GKQGNFKNL 0.000208 | 29 |
| HLA-A*02:01 | 1 | 198 | 206 | 9 | DGYFKIYSK 0.000208 | 26 |
| HLA-B*40:01 | 1 | 201 | 210 | 10 | FKIYSKHTPI 0.000208 | 15 |
| HLA-A*68:01 | 1 | 283 | 292 | 10 | GTITDAVDCA 0.000208 | 25 |
| HLA-B*07:02 | 1 | 292 | 301 | 10 | ALDPLSETKC 0.000208 | 24 |
| HLA-A*01:01 | 1 | 324 | 333 | 10 | ESIVRFPNIT 0.000208 | 35 |
| HLA-B*07:02 | 1 | 368 | 376 | 9 | LYNSASFST 0.000208 | 24 |
| HLA-B*57:01 | 1 | 437 | 446 | 10 | NSNNLDSKVG 0.000208 | 37 |
| HLA-A*24:02 | 1 | 471 | 480 | 10 | EIYQAGSTPC 0.000208 | 16 |
| HLA-A*02:06 | 1 | 472 | 480 | 9 | IYQAGSTPC 0.000208 | 35 |
| HLA-A*33:01 | 1 | 480 | 489 | 10 | CNGVEGFNCY 0.000208 | 27 |
| HLA-A*30:02 | 1 | 483 | 492 | 10 | VEGFNCYFPL 0.000208 | 45 |
| HLA-B*44:02 | 1 | 495 | 503 | 9 | YGFQPTNGV 0.000208 | 17 |
| HLA-A*30:01 | 1 | 517 | 526 | 10 | LLHAPATVCG 0.000208 | 48 |
| HLA-A*68:01 | 1 | 567 | 576 | 10 | RDIADTTDAV 0.000208 | 25 |
| HLA-A*30:02 | 1 | 606 | 615 | 10 | NQVAVLYQDV 0.000208 | 45 |
| HLA-A*01:01 | 1 | 630 | 638 | 9 | TPTWRVYST 0.000208 | 35 |
| HLA-B*51:01 | 1 | 719 | 728 | 10 | TISVTTEILP 0.000208 | 33 |
| HLA-B*53:01 | 1 | 725 | 734 | 10 | EILPVSMTKT 0.000208 | 18 |
| HLA-B*35:01 | 1 | 781 | 790 | 10 | VFAQVKQIYK 0.000208 | 19 |
| HLA-B*58:01 | 1 | 910 | 919 | 10 | GVTQNVLYEN 0.000208 | 27 |
| HLA-A*02:01 | 1 | 935 | 944 | 10 | QDLSSTASA 0.000208 | 26 |
| HLA-B*08:01 | 1 | 935 | 944 | 10 | QDLSSTASA 0.000208 | 37 |
| HLA-A*02:06 | 1 | 951 | 960 | 10 | VVNQNAQALN 0.000208 | 35 |
| HLA-A*24:02 | 1 | 991 | 999 | 9 | VQIDRLITG 0.000208 | 16 |
| HLA-B*44:02 | 1 | 1009 | 1017 | 9 | TQQLIRAAE 0.000208 | 17 |
| HLA-B*35:01 | 1 | 1020 | 1028 | 9 | ASANLAATK 0.000208 | 19 |
| HLA-A*32:01 | 1 | 1105 | 1113 | 9 | TQRNFYEPQ 0.000208 | 20 |
| HLA-A*03:01 | 1 | 1148 | 1157 | 10 | FKEELDKYFK 0.000208 | 22 |
| HLA-A*33:01 | 1 | 1158 | 1166 | 9 | NHTSPDVDL 0.000208 | 27 |
| HLA-B*07:02 | 1 | 1163 | 1172 | 10 | DVDLGDISGI 0.000208 | 24 |
| HLA-B*08:01 | 1 | 1165 | 1174 | 10 | DLGDISGINA 0.000208 | 37 |
| HLA-B*44:03 | 1 | 1211 | 1220 | 10 | KWPWYIWLGF 0.000208 | 16 |
| HLA-A*03:01 | 1 | 1228 | 1236 | 9 | VMVTIMLCC 0.000208 | 22 |
| HLA-B*58:01 | 1 | 1263 | 1271 | 9 | PVLKGVKLH 0.000208 | 27 |
| HLA-A*68:01 | 1 | 32 | 40 | 9 | FTRGVYYPD 0.000207 | 25 |
| HLA-B*35:01 | 1 | 44 | 52 | 9 | RSSVLHSTQ 0.000207 | 19 |
| HLA-B*15:01 | 1 | 91 | 100 | 10 | YFASTEKSNI 0.000207 | 27 |
| HLA-B*08:01 | 1 | 108 | 116 | 9 | TTLDSKTQS 0.000207 | 37 |
| HLA-A*31:01 | 1 | 125 | 134 | 10 | NVVIKVCEFQ 0.000207 | 28 |
| HLA-B*08:01 | 1 | 150 | 159 | 10 | KSWESEFRV 0.000207 | 37 |
| HLA-A*31:01 | 1 | 168 | 176 | 9 | FEYVSQPFL 0.000207 | 28 |
| HLA-B*44:03 | 1 | 236 | 245 | 10 | TRFQTLALH 0.000207 | 16 |
| HLA-B*08:01 | 1 | 335 | 344 | 10 | LCPFGEVFNA 0.000207 | 37 |
| HLA-A*02:01 | 1 | 345 | 353 | 9 | TRFASVYAW 0.000207 | 26 |
| HLA-A*02:03 | 1 | 365 | 373 | 9 | YSVLYNSAS 0.000207 | 29 |
| HLA-B*40:01 | 1 | 382 | 390 | 9 | VSPTKLNDL 0.000207 | 15 |
| HLA-A*01:01 | 1 | 408 | 416 | 9 | RQIAPQGTG 0.000207 | 35 |
| HLA-B*44:03 | 1 | 416 | 424 | 9 | GKIADYNYK 0.000207 | 16 |
| HLA-B*53:01 | 1 | 416 | 425 | 10 | GKIADYNYKL 0.000207 | 18 |
| HLA-A*26:01 | 1 | 436 | 444 | 9 | WNSNNLDSK 0.000207 | 22 |
| HLA-A*68:01 | 1 | 505 | 514 | 10 | YQPYRVVLS 0.000207 | 25 |
| HLA-A*68:02 | 1 | 545 | 553 | 9 | GLTGTGVLT 0.000207 | 29 |
| HLA-A*02:06 | 1 | 558 | 567 | 10 | KFLPFQQFGR 0.000207 | 35 |
| HLA-B*44:03 | 1 | 575 | 583 | 9 | AVRDPQTL 0.000207 | 16 |
| HLA-B*15:01 | 1 | 691 | 700 | 10 | SIAYTMSLG 0.000207 | 27 |
| HLA-A*23:01 | 1 | 717 | 725 | 9 | NFTISVTTE 0.000207 | 16 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*08:01 | 1 | 776 | 785 | 10 | KNTQEVFAQV 0.000207 | 37 |
| HLA-A*30:02 | 1 | 832 | 840 | 9 | GFIKQYGDC 0.000207 | 45 |
| HLA-A*30:01 | 1 | 920 | 929 | 10 | QKLIANQFNS 0.000207 | 48 |
| HLA-A*33:01 | 1 | 940 | 949 | 10 | STASALGKLQ 0.000207 | 27 |
| HLA-A*32:01 | 1 | 948 | 956 | 9 | LQDVVNQNA 0.000207 | 20 |
| HLA-B*51:01 | 1 | 966 | 974 | 9 | LSSNFGAIS 0.000207 | 33 |
| HLA-A*68:02 | 1 | 1023 | 1031 | 9 | NLAATKMSE 0.000207 | 29 |
| HLA-A*33:01 | 1 | 1059 | 1068 | 10 | GVVFLHVTVYV 0.000207 | 27 |
| HLA-A*01:01 | 1 | 1068 | 1077 | 10 | VPAQEKNFHT 0.000207 | 35 |
| HLA-B*58:01 | 1 | 1075 | 1084 | 10 | FTTAPAICHHD 0.000207 | 27 |
| HLA-A*33:01 | 1 | 1083 | 1092 | 10 | HDGKAHFPRE 0.000207 | 27 |
| HLA-B*57:01 | 1 | 1098 | 1106 | 9 | NGTHWFVTQ 0.000207 | 37 |
| HLA-B*08:01 | 1 | 1139 | 1147 | 9 | DPLQPELDS 0.000207 | 37 |
| HLA-B*07:02 | 1 | 1169 | 1177 | 9 | ISGINASVV 0.000207 | 24 |
| HLA-B*58:01 | 1 | 1185 | 1194 | 10 | RLNEVAKNLN 0.000207 | 27 |
| HLA-A*68:01 | 1 | 1215 | 1224 | 10 | YIWLGFIAAGL 0.000207 | 25 |
| HLA-A*30:02 | 1 | 1 | 10 | 10 | MFVFLVLLPL 0.000206 | 45 |
| HLA-A*26:01 | 1 | 37 | 46 | 10 | YYPDKVFRSS 0.000206 | 22 |
| HLA-A*30:01 | 1 | 71 | 80 | 10 | SGTNGTKRFD 0.000206 | 48 |
| HLA-A*33:01 | 1 | 92 | 100 | 9 | FASTEKSNI 0.000206 | 27 |
| HLA-B*44:03 | 1 | 132 | 140 | 9 | EFQFCNDPF 0.000206 | 16 |
| HLA-A*31:01 | 1 | 186 | 194 | 9 | FKNLREFVF 0.000206 | 28 |
| HLA-B*51:01 | 1 | 200 | 209 | 10 | YFKIYSKHTP 0.000206 | 33 |
| HLA-A*30:02 | 1 | 245 | 254 | 10 | HRSYLTGPGDS 0.000206 | 45 |
| HLA-B*08:01 | 1 | 275 | 283 | 9 | FLLKYNENG 0.000206 | 37 |
| HLA-B*57:01 | 1 | 296 | 305 | 10 | LSETKCTLKS 0.000206 | 37 |
| HLA-B*53:01 | 1 | 302 | 310 | 9 | TLKSFTVEK 0.000206 | 18 |
| HLA-B*08:01 | 1 | 326 | 334 | 9 | IVRFPNITN 0.000206 | 37 |
| HLA-B*58:01 | 1 | 361 | 370 | 10 | CVADYSVLYN 0.000206 | 27 |
| HLA-B*40:01 | 1 | 400 | 408 | 9 | FVIRGDEVR 0.000206 | 15 |
| HLA-A*26:01 | 1 | 413 | 422 | 10 | GQTGKIADYN 0.000206 | 22 |
| HLA-A*24:02 | 1 | 444 | 453 | 10 | KVGGNYNYLY 0.000206 | 16 |
| HLA-A*26:01 | 1 | 484 | 492 | 9 | EGFNCYFPL 0.000206 | 22 |
| HLA-B*44:02 | 1 | 509 | 517 | 9 | RVVLSFEL 0.000206 | 17 |
| HLA-A*32:01 | 1 | 674 | 683 | 10 | YQTQTNsprr 0.000206 | 20 |
| HLA-B*07:02 | 1 | 763 | 771 | 9 | LNRLTGIA 0.000206 | 24 |
| HLA-A*68:02 | 1 | 789 | 798 | 10 | YKTPPIKDFG 0.000206 | 29 |
| HLA-A*11:01 | 1 | 854 | 862 | 9 | KFNGLTVLP 0.000206 | 17 |
| HLA-B*08:01 | 1 | 858 | 866 | 9 | LTVLPPLL 0.000206 | 37 |
| HLA-A*30:01 | 1 | 927 | 935 | 9 | FNSAIGKIQ 0.000206 | 48 |
| HLA-A*26:01 | 1 | 954 | 963 | 10 | QNAQALNTLV 0.000206 | 22 |
| HLA-B*53:01 | 1 | 972 | 980 | 9 | AISSVLNDI 0.000206 | 18 |
| HLA-A*03:01 | 1 | 1056 | 1065 | 10 | APHGVVFLHV 0.000206 | 22 |
| HLA-B*57:01 | 1 | 1081 | 1090 | 10 | ICHGDKAHFP 0.000206 | 37 |
| HLA-A*32:01 | 1 | 1087 | 1096 | 10 | AHFPREGVFV 0.000206 | 20 |
| HLA-B*15:01 | 1 | 1114 | 1122 | 9 | IITTDNTFV 0.000206 | 27 |
| HLA-B*57:01 | 1 | 1167 | 1176 | 10 | GDISGINASV 0.000206 | 37 |
| HLA-B*15:01 | 1 | 1171 | 1180 | 10 | GINASVVNIQ 0.000206 | 27 |
| HLA-A*68:01 | 1 | 1203 | 1212 | 10 | LGKYEQYIKW 0.000206 | 25 |
| HLA-A*24:02 | 1 | 1206 | 1215 | 10 | YEQYIKWPWY 0.000206 | 16 |
| HLA-B*44:03 | 1 | 1210 | 1218 | 9 | IKWPWYIWL 0.000206 | 16 |
| HLA-A*30:02 | 1 | 1 | 9 | 9 | MFVFLVLLP 0.000205 | 45 |
| HLA-A*02:01 | 1 | 31 | 39 | 9 | SFTRGVYYP 0.000205 | 26 |
| HLA-A*01:01 | 1 | 39 | 47 | 9 | PDKVFRSSV 0.000205 | 35 |
| HLA-A*68:02 | 1 | 217 | 226 | 10 | PQGFSALEPL 0.000205 | 29 |
| HLA-A*32:01 | 1 | 218 | 227 | 10 | QGFSALEPLV 0.000205 | 20 |
| HLA-B*57:01 | 1 | 232 | 240 | 9 | GINITRFQT 0.000205 | 37 |
| HLA-B*58:01 | 1 | 296 | 305 | 10 | LSETKCTLKS 0.000205 | 28 |
| HLA-A*33:01 | 1 | 313 | 321 | 9 | YQTSNFRVQ 0.000205 | 27 |
| HLA-A*24:02 | 1 | 319 | 328 | 10 | RVQPTESIVR 0.000205 | 16 |
| HLA-A*01:01 | 1 | 366 | 375 | 10 | SVLYNSASF 0.000205 | 35 |
| HLA-B*07:02 | 1 | 384 | 392 | 9 | PTKLNDFCF 0.000205 | 24 |
| HLA-A*31:01 | 1 | 421 | 429 | 9 | YNYKLPDDF 0.000205 | 28 |
| HLA-A*26:01 | 1 | 424 | 432 | 9 | KLPDDFTGC 0.000205 | 22 |
| HLA-B*51:01 | 1 | 453 | 462 | 10 | YRLFRKSNLK 0.000205 | 33 |
| HLA-B*57:01 | 1 | 476 | 484 | 9 | GSTPCNGVE 0.000205 | 37 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*30:02 | 1 | 477 | 485 | 9 | STPCNGVEG 0.000205 | 45 |
| HLA-B*40:01 | 1 | 544 | 552 | 9 | NGLTGTGVL 0.000205 | 15 |
| HLA-A*32:01 | 1 | 573 | 582 | 10 | TDAVRDPQTL 0.000205 | 20 |
| HLA-B*51:01 | 1 | 685 | 694 | 10 | RSVASQSIIA 0.000205 | 33 |
| HLA-B*35:01 | 1 | 748 | 757 | 10 | ECSNLLLQYG 0.000205 | 19 |
| HLA-A*68:02 | 1 | 783 | 792 | 10 | AQVKQIYKTP 0.000205 | 29 |
| HLA-B*51:01 | 1 | 824 | 833 | 10 | NKVTLADAGF 0.000205 | 33 |
| HLA-A*02:01 | 1 | 828 | 836 | 9 | LADAGFIKQ 0.000205 | 26 |
| HLA-A*02:01 | 1 | 871 | 880 | 10 | AQYTSALLAG 0.000205 | 26 |
| HLA-A*01:01 | 1 | 875 | 883 | 9 | SALLAGTIT 0.000205 | 35 |
| HLA-A*01:01 | 1 | 892 | 901 | 10 | AALQIPFAMQ 0.000205 | 35 |
| HLA-B*07:02 | 1 | 903 | 912 | 10 | AYRFNGIGVT 0.000205 | 24 |
| HLA-A*32:01 | 1 | 936 | 945 | 10 | DSLSSTASAL 0.000205 | 20 |
| HLA-A*32:01 | 1 | 1006 | 1014 | 9 | TYVTQQLIR 0.000205 | 20 |
| HLA-B*08:01 | 1 | 1049 | 1058 | 10 | LMSFPQSAPH 0.000205 | 37 |
| HLA-A*03:01 | 1 | 1100 | 1109 | 10 | THWFVTQRNF 0.000205 | 22 |
| HLA-A*32:01 | 1 | 1107 | 1116 | 10 | RNFYEPQIIT 0.000205 | 20 |
| HLA-A*30:02 | 1 | 1160 | 1169 | 10 | TSPDVLGDI 0.000205 | 45 |
| HLA-B*53:01 | 1 | 1168 | 1177 | 10 | DISGINASVV 0.000205 | 18 |
| HLA-A*30:01 | 1 | 1182 | 1190 | 9 | EIDRLNEVA 0.000205 | 48 |
| HLA-A*11:01 | 1 | 1209 | 1217 | 9 | YIKWPWYIW 0.000205 | 17 |
| HLA-A*02:01 | 1 | 1230 | 1238 | 9 | VTIMLCCMT 0.000205 | 26 |
| HLA-B*40:01 | 1 | 1259 | 1268 | 10 | DDSEPVLKGV 0.000205 | 15 |
| HLA-A*01:01 | 1 | 4 | 12 | 9 | FLVLLPLVS 0.000204 | 36 |
| HLA-A*33:01 | 1 | 76 | 84 | 9 | TKRFDNPVL 0.000204 | 27 |
| HLA-A*11:01 | 1 | 123 | 132 | 10 | ATNVVIKVCE 0.000204 | 17 |
| HLA-A*03:01 | 1 | 157 | 166 | 10 | FRVYSSANNC 0.000204 | 22 |
| HLA-B*15:01 | 1 | 232 | 240 | 9 | GINITRFQT 0.000204 | 27 |
| HLA-A*23:01 | 1 | 238 | 246 | 9 | FQTLALHR 0.000204 | 16 |
| HLA-B*44:03 | 1 | 250 | 259 | 10 | TPGDSSSGWT 0.000204 | 16 |
| HLA-A*31:01 | 1 | 376 | 384 | 9 | TFKCYGVSP 0.000204 | 28 |
| HLA-B*51:01 | 1 | 449 | 457 | 9 | YNYLYRLFR 0.000204 | 33 |
| HLA-B*57:01 | 1 | 467 | 475 | 9 | DISTEIQQA 0.000204 | 37 |
| HLA-A*01:01 | 1 | 468 | 476 | 9 | ISTEIQAG 0.000204 | 36 |
| HLA-A*30:01 | 1 | 478 | 486 | 9 | TPCNGVEGF 0.000204 | 48 |
| HLA-A*26:01 | 1 | 504 | 512 | 9 | GYQPYRVVV 0.000204 | 22 |
| HLA-A*01:01 | 1 | 525 | 534 | 10 | CGPKKSTNLV 0.000204 | 36 |
| HLA-B*53:01 | 1 | 526 | 535 | 10 | GPKKSTNLVK 0.000204 | 18 |
| HLA-A*68:01 | 1 | 547 | 555 | 9 | TGTGVLTES 0.000204 | 25 |
| HLA-B*15:01 | 1 | 616 | 624 | 9 | NCTEVPVAI 0.000204 | 27 |
| HLA-A*33:01 | 1 | 652 | 660 | 9 | GAEHVNNSY 0.000204 | 27 |
| HLA-A*02:06 | 1 | 673 | 681 | 9 | SYQTQTNSP 0.000204 | 35 |
| HLA-B*44:02 | 1 | 717 | 726 | 10 | NFTISVTTEI 0.000204 | 17 |
| HLA-B*35:01 | 1 | 722 | 730 | 9 | VTTEILPVS 0.000204 | 19 |
| HLA-A*30:02 | 1 | 752 | 760 | 9 | LLLQYGSFC 0.000204 | 45 |
| HLA-B*08:01 | 1 | 778 | 786 | 9 | TQEVFAQVK 0.000204 | 37 |
| HLA-B*53:01 | 1 | 786 | 794 | 9 | KQIYKTPPI 0.000204 | 18 |
| HLA-A*30:01 | 1 | 830 | 838 | 9 | DAGFIKQYG 0.000204 | 48 |
| HLA-B*57:01 | 1 | 876 | 884 | 9 | ALLAGTITS 0.000204 | 37 |
| HLA-B*15:01 | 1 | 892 | 901 | 10 | AALQIPFAMQ 0.000204 | 27 |
| HLA-B*08:01 | 1 | 893 | 901 | 9 | ALQIPFAMQ 0.000204 | 37 |
| HLA-A*31:01 | 1 | 895 | 903 | 9 | QIPFAMQMA 0.000204 | 28 |
| HLA-A*11:01 | 1 | 941 | 949 | 9 | TASALGKLQ 0.000204 | 17 |
| HLA-A*03:01 | 1 | 964 | 973 | 10 | KQLSSNFGAI 0.000204 | 22 |
| HLA-B*15:01 | 1 | 1017 | 1026 | 10 | EIRASANLAA 0.000204 | 27 |
| HLA-A*02:06 | 1 | 1038 | 1047 | 10 | KRVDFCGKGY 0.000204 | 35 |
| HLA-B*51:01 | 1 | 1048 | 1057 | 10 | HLMSFPQSAP 0.000204 | 33 |
| HLA-B*08:01 | 1 | 1164 | 1172 | 9 | VDLGDISGI 0.000204 | 37 |
| HLA-A*26:01 | 1 | 1197 | 1205 | 9 | LIDLQELGK 0.000204 | 22 |
| HLA-A*02:01 | 1 | 16 | 25 | 10 | VNLTRTQLP 0.000203 | 26 |
| HLA-B*58:01 | 1 | 22 | 31 | 10 | TQLPPAYTNS 0.000203 | 28 |
| HLA-B*07:02 | 1 | 29 | 38 | 10 | TNSFTRGVVY 0.000203 | 24 |
| HLA-B*07:02 | 1 | 42 | 51 | 10 | VFRSSVLHST 0.000203 | 24 |
| HLA-B*15:01 | 1 | 63 | 71 | 9 | TWFHAIHVS 0.000203 | 27 |
| HLA-A*02:03 | 1 | 76 | 84 | 9 | TKRFDNPVL 0.000203 | 29 |
| HLA-A*24:02 | 1 | 92 | 100 | 9 | FASTEKSNI 0.000203 | 16 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*31:01 | 1 | 111 | 119 | 9 | DSKTQSLLI 0.000203 | 28 |
| HLA-A*31:01 | 1 | 172 | 180 | 9 | SQPFLMDLE 0.000203 | 28 |
| HLA-A*02:06 | 1 | 205 | 214 | 10 | SKHTPINLVR 0.000203 | 35 |
| HLA-A*02:01 | 1 | 217 | 226 | 10 | PQGFSALEPL 0.000203 | 26 |
| HLA-B*15:01 | 1 | 222 | 230 | 9 | ALEPLVDLP 0.000203 | 27 |
| HLA-A*24:02 | 1 | 262 | 270 | 9 | AAAYVGYL 0.000203 | 16 |
| HLA-A*68:01 | 1 | 304 | 312 | 9 | KSFTVEKGI 0.000203 | 25 |
| HLA-A*02:06 | 1 | 338 | 347 | 10 | FGEVFNATRF 0.000203 | 35 |
| HLA-B*07:02 | 1 | 371 | 380 | 10 | SASFSTFKCY 0.000203 | 24 |
| HLA-A*68:02 | 1 | 379 | 387 | 9 | CYGVSPTKL 0.000203 | 29 |
| HLA-A*02:03 | 1 | 455 | 463 | 9 | LFKSNLKP 0.000203 | 29 |
| HLA-A*02:03 | 1 | 464 | 473 | 10 | FERDISTEY 0.000203 | 29 |
| HLA-A*11:01 | 1 | 467 | 475 | 9 | DISTEYQA 0.000203 | 17 |
| HLA-A*30:02 | 1 | 471 | 480 | 10 | EIYQAGSTPC 0.000203 | 45 |
| HLA-A*68:02 | 1 | 492 | 500 | 9 | LQSYGFQPT 0.000203 | 29 |
| HLA-B*51:01 | 1 | 550 | 559 | 10 | GVLTESNKKF 0.000203 | 33 |
| HLA-B*57:01 | 1 | 565 | 573 | 9 | FGRDIADTT 0.000203 | 37 |
| HLA-B*44:02 | 1 | 567 | 576 | 10 | RDIADTTDAV 0.000203 | 17 |
| HLA-A*03:01 | 1 | 610 | 618 | 9 | VLYQDVNCT 0.000203 | 22 |
| HLA-A*30:02 | 1 | 646 | 654 | 9 | RAGCLIGAE 0.000203 | 45 |
| HLA-B*51:01 | 1 | 658 | 667 | 10 | NSYECDIPIG 0.000203 | 33 |
| HLA-B*35:01 | 1 | 661 | 670 | 10 | ECDIPIGAGI 0.000203 | 19 |
| HLA-A*30:01 | 1 | 699 | 708 | 10 | LGAENSVAYS 0.000203 | 48 |
| HLA-A*30:02 | 1 | 749 | 757 | 9 | CSNLLLQYG 0.000203 | 45 |
| HLA-B*51:01 | 1 | 754 | 762 | 9 | LQYGSFCTQ 0.000203 | 33 |
| HLA-B*15:01 | 1 | 895 | 903 | 9 | QIPFAMQMA 0.000203 | 27 |
| HLA-A*26:01 | 1 | 905 | 913 | 9 | RFNGIGVTQ 0.000203 | 22 |
| HLA-A*26:01 | 1 | 913 | 921 | 9 | QNVLYENQK 0.000203 | 22 |
| HLA-A*30:02 | 1 | 917 | 925 | 9 | YENQKLIAN 0.000203 | 45 |
| HLA-A*11:01 | 1 | 919 | 927 | 9 | NQKLIANQF 0.000203 | 17 |
| HLA-A*03:01 | 1 | 958 | 967 | 10 | ALNTLVKQLS 0.000203 | 22 |
| HLA-B*53:01 | 1 | 1000 | 1008 | 9 | RLQSLQTYV 0.000203 | 18 |
| HLA-B*15:01 | 1 | 1008 | 1017 | 10 | VTQQLIRAAE 0.000203 | 27 |
| HLA-A*68:02 | 1 | 1030 | 1038 | 9 | SECVLGQSK 0.000203 | 29 |
| HLA-B*08:01 | 1 | 1043 | 1051 | 9 | CGKGYHLSM 0.000203 | 37 |
| HLA-A*33:01 | 1 | 1066 | 1074 | 9 | TYVPAQEKV 0.000203 | 27 |
| HLA-A*32:01 | 1 | 1088 | 1096 | 9 | HFPREGVFN 0.000203 | 20 |
| HLA-B*08:01 | 1 | 1103 | 1112 | 10 | FVTQRNFYEP 0.000203 | 37 |
| HLA-B*44:03 | 1 | 1105 | 1114 | 10 | TQRNFYEPQI 0.000203 | 16 |
| HLA-A*02:01 | 1 | 1122 | 1130 | 9 | VSGNCDVVI 0.000203 | 26 |
| HLA-A*11:01 | 1 | 1144 | 1152 | 9 | ELDSFKEEL 0.000203 | 17 |
| HLA-B*58:01 | 1 | 1157 | 1166 | 10 | KNHTSPDVDL 0.000203 | 28 |
| HLA-B*44:03 | 1 | 1178 | 1186 | 9 | NIQKEIDRL 0.000203 | 16 |
| HLA-A*24:02 | 1 | 1184 | 1193 | 10 | DRLNEVAKNL 0.000203 | 16 |
| HLA-A*01:01 | 1 | 1218 | 1226 | 9 | LGFIAGLIA 0.000203 | 36 |
| HLA-B*15:01 | 1 | 59 | 68 | 10 | FSNVTWFHAI 0.000202 | 27 |
| HLA-B*44:03 | 1 | 120 | 128 | 9 | VNNATNVVI 0.000202 | 16 |
| HLA-A*02:01 | 1 | 170 | 178 | 9 | YVSQPFLMD 0.000202 | 26 |
| HLA-A*01:01 | 1 | 193 | 202 | 10 | VFKNIDGYFK 0.000202 | 36 |
| HLA-A*02:03 | 1 | 303 | 312 | 10 | LKSFTVEKGI 0.000202 | 29 |
| HLA-B*07:02 | 1 | 363 | 372 | 10 | ADYSVLYNSA 0.000202 | 24 |
| HLA-A*68:02 | 1 | 383 | 392 | 10 | SPTKLNLCF 0.000202 | 29 |
| HLA-B*51:01 | 1 | 408 | 416 | 9 | RQIAPGQTG 0.000202 | 34 |
| HLA-A*68:02 | 1 | 465 | 473 | 9 | ERDISTEY 0.000202 | 29 |
| HLA-B*51:01 | 1 | 470 | 478 | 9 | TEIYQAGST 0.000202 | 34 |
| HLA-B*08:01 | 1 | 483 | 492 | 10 | VEGFNCYFPL 0.000202 | 37 |
| HLA-A*30:01 | 1 | 495 | 504 | 10 | YGFQPTNGVG 0.000202 | 48 |
| HLA-B*15:01 | 1 | 516 | 525 | 10 | ELLHAPATVC 0.000202 | 27 |
| HLA-A*01:01 | 1 | 542 | 551 | 10 | NFNGLTGTGV 0.000202 | 36 |
| HLA-A*68:01 | 1 | 598 | 606 | 9 | ITPGTNTSN 0.000202 | 25 |
| HLA-B*08:01 | 1 | 623 | 631 | 9 | AIHADQLTP 0.000202 | 37 |
| HLA-A*11:01 | 1 | 635 | 644 | 10 | VYSTGSNVFQ 0.000202 | 17 |
| HLA-A*02:03 | 1 | 642 | 651 | 10 | VFQTRAGCLI 0.000202 | 29 |
| HLA-B*58:01 | 1 | 678 | 687 | 10 | TNSPRRARSV 0.000202 | 28 |
| HLA-A*33:01 | 1 | 713 | 722 | 10 | AIPTNFTISV 0.000202 | 27 |
| HLA-A*26:01 | 1 | 756 | 765 | 10 | YGSFCTQLNR 0.000202 | 22 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*32:01 | 1 | 772 | 781 | 10 | VEQDKNTQEV 0.000202 | 20 |
| HLA-A*31:01 | 1 | 810 | 818 | 9 | SKPSKRSFI 0.000202 | 28 |
| HLA-B*53:01 | 1 | 845 | 853 | 9 | AARDLICAQ 0.000202 | 18 |
| HLA-A*30:01 | 1 | 868 | 877 | 10 | EMIAQYTSAL 0.000202 | 48 |
| HLA-B*57:01 | 1 | 925 | 934 | 10 | NQFNSAIGKI 0.000202 | 37 |
| HLA-B*15:01 | 1 | 929 | 937 | 9 | SAIGKIQDS 0.000202 | 27 |
| HLA-A*01:01 | 1 | 965 | 974 | 10 | QLSSNFGAIS 0.000202 | 36 |
| HLA-A*01:01 | 1 | 1043 | 1052 | 10 | CGKGYHLMFS 0.000202 | 36 |
| HLA-A*33:01 | 1 | 1107 | 1116 | 10 | RNFYEPQIIT 0.000202 | 27 |
| HLA-A*30:02 | 1 | 1116 | 1125 | 10 | TTDNTFVSGN 0.000202 | 45 |
| HLA-B*44:03 | 1 | 1148 | 1157 | 10 | FKEELDKYFK 0.000202 | 16 |
| HLA-A*68:02 | 1 | 1167 | 1175 | 9 | GDISGINAS 0.000202 | 29 |
| HLA-A*23:01 | 1 | 1188 | 1197 | 10 | EVAKNLNESL 0.000202 | 16 |
| HLA-A*30:02 | 1 | 1218 | 1227 | 10 | LGFIAGLIAI 0.000202 | 45 |
| HLA-A*32:01 | 1 | 1225 | 1234 | 10 | IATVMVTIML 0.000202 | 20 |
| HLA-B*57:01 | 1 | 81 | 90 | 10 | NPVLPFNDGV 0.000201 | 37 |
| HLA-A*11:01 | 1 | 135 | 143 | 9 | FCNDPFLGV 0.000201 | 17 |
| HLA-B*35:01 | 1 | 167 | 176 | 10 | TFEYVSQPFL 0.000201 | 19 |
| HLA-B*44:02 | 1 | 171 | 179 | 9 | VSQPFLMDL 0.000201 | 17 |
| HLA-A*03:01 | 1 | 204 | 213 | 10 | YSKHTPINLV 0.000201 | 22 |
| HLA-A*01:01 | 1 | 265 | 273 | 9 | YYVGYLQPR 0.000201 | 36 |
| HLA-A*68:02 | 1 | 329 | 338 | 10 | FPNITNLCPF 0.000201 | 29 |
| HLA-A*02:06 | 1 | 364 | 372 | 9 | DYSVLYNSA 0.000201 | 35 |
| HLA-B*44:02 | 1 | 465 | 474 | 10 | ERDISTEIQ 0.000201 | 17 |
| HLA-B*58:01 | 1 | 475 | 483 | 9 | AGSTPCNGV 0.000201 | 28 |
| HLA-A*03:01 | 1 | 513 | 521 | 9 | LSFELLHAP 0.000201 | 22 |
| HLA-A*30:01 | 1 | 597 | 606 | 10 | VITPGTNTSN 0.000201 | 48 |
| HLA-B*08:01 | 1 | 601 | 610 | 10 | GTNTSNQVAV 0.000201 | 37 |
| HLA-B*15:01 | 1 | 602 | 610 | 9 | TNTSNQVAV 0.000201 | 27 |
| HLA-B*58:01 | 1 | 605 | 613 | 9 | SNQVAVLYQ 0.000201 | 28 |
| HLA-A*02:01 | 1 | 625 | 634 | 10 | HADQLTPTWR 0.000201 | 26 |
| HLA-A*03:01 | 1 | 635 | 644 | 10 | VYSTGSNVFQ 0.000201 | 22 |
| HLA-B*44:03 | 1 | 654 | 662 | 9 | EHVNNSYEC 0.000201 | 16 |
| HLA-B*15:01 | 1 | 664 | 672 | 9 | IPIGAGICA 0.000201 | 27 |
| HLA-A*30:02 | 1 | 739 | 748 | 10 | TMYICGDSTE 0.000201 | 45 |
| HLA-A*01:01 | 1 | 790 | 799 | 10 | KTPPIKDFGG 0.000201 | 36 |
| HLA-A*02:06 | 1 | 847 | 855 | 9 | RDLICAQKF 0.000201 | 35 |
| HLA-B*53:01 | 1 | 873 | 882 | 10 | YTSALLAGTI 0.000201 | 18 |
| HLA-B*40:01 | 1 | 907 | 915 | 9 | NGIGVTQNV 0.000201 | 15 |
| HLA-B*08:01 | 1 | 937 | 946 | 10 | SLSSTASALG 0.000201 | 37 |
| HLA-A*01:01 | 1 | 949 | 958 | 10 | QDVVNQNAQA 0.000201 | 36 |
| HLA-A*33:01 | 1 | 953 | 962 | 10 | NQNAQALNTL 0.000201 | 27 |
| HLA-A*30:02 | 1 | 978 | 987 | 10 | NDILSRLDKV 0.000201 | 45 |
| HLA-B*44:03 | 1 | 1000 | 1008 | 9 | RLQSLQTYV 0.000201 | 16 |
| HLA-B*58:01 | 1 | 1035 | 1043 | 9 | GQSKRVDFC 0.000201 | 28 |
| HLA-A*02:03 | 1 | 1039 | 1047 | 9 | RVDFCGKGY 0.000201 | 29 |
| HLA-B*57:01 | 1 | 1066 | 1074 | 9 | TYVPAQEKY 0.000201 | 37 |
| HLA-A*31:01 | 1 | 1133 | 1141 | 9 | VNNTVYDPL 0.000201 | 28 |
| HLA-A*26:01 | 1 | 7 | 15 | 9 | LLPLVSSQC 0.0002 | 22 |
| HLA-A*02:03 | 1 | 20 | 28 | 9 | TRTQLPPAY 0.0002 | 29 |
| HLA-A*30:02 | 1 | 115 | 124 | 10 | QSLILVNNAT 0.0002 | 45 |
| HLA-A*11:01 | 1 | 127 | 135 | 9 | VIKVFCEQF 0.0002 | 17 |
| HLA-A*31:01 | 1 | 159 | 167 | 9 | VYSSANNCT 0.0002 | 28 |
| HLA-A*68:01 | 1 | 182 | 191 | 10 | KQGNFKNLRE 0.0002 | 26 |
| HLA-B*15:01 | 1 | 193 | 202 | 10 | VFKNIDGYFK 0.0002 | 27 |
| HLA-A*31:01 | 1 | 201 | 210 | 10 | FKIYSKHTPI 0.0002 | 28 |
| HLA-A*68:01 | 1 | 220 | 229 | 10 | FSALEPLVDL 0.0002 | 26 |
| HLA-A*68:02 | 1 | 223 | 231 | 9 | LEPLVDLPI 0.0002 | 29 |
| HLA-A*30:01 | 1 | 277 | 286 | 10 | LKYNENGTIT 0.0002 | 48 |
| HLA-B*44:03 | 1 | 319 | 327 | 9 | RVQPTESIV 0.0002 | 16 |
| HLA-B*44:02 | 1 | 326 | 335 | 10 | IVRFPNITNL 0.0002 | 17 |
| HLA-A*02:06 | 1 | 379 | 387 | 9 | CYGVSPTKL 0.0002 | 35 |
| HLA-B*44:02 | 1 | 395 | 403 | 9 | VYADSFVIR 0.0002 | 17 |
| HLA-A*68:02 | 1 | 453 | 462 | 10 | YRLFRKSNLK 0.0002 | 29 |
| HLA-A*03:01 | 1 | 488 | 497 | 10 | CYFPLQSYGF 0.0002 | 22 |
| HLA-B*08:01 | 1 | 501 | 509 | 9 | NGVGYQPYR 0.0002 | 38 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*03:01 | 1 | 583 | 591 | 9 | EILDITPCS 0.0002 | 22 |
| HLA-B*15:01 | 1 | 584 | 593 | 10 | ILDITPCSF0 0.0002 | 27 |
| HLA-A*02:03 | 1 | 589 | 597 | 9 | PCSF0GVSV 0.0002 | 29 |
| HLA-B*08:01 | 1 | 638 | 647 | 10 | TGSNVFQTRA 0.0002 | 38 |
| HLA-B*07:02 | 1 | 643 | 651 | 9 | FQTRAGCLI 0.0002 | 24 |
| HLA-A*26:01 | 1 | 659 | 668 | 10 | SYECDIPIGA 0.0002 | 22 |
| HLA-B*35:01 | 1 | 679 | 687 | 9 | NSPRRARSV 0.0002 | 19 |
| HLA-A*68:01 | 1 | 682 | 690 | 9 | RRARSVASQ 0.0002 | 26 |
| HLA-B*40:01 | 1 | 725 | 733 | 9 | EILPVSMTK 0.0002 | 15 |
| HLA-A*23:01 | 1 | 733 | 741 | 9 | KTSVDCTMY 0.0002 | 16 |
| HLA-A*68:01 | 1 | 740 | 748 | 9 | MYICGDSTE 0.0002 | 26 |
| HLA-B*07:02 | 1 | 750 | 759 | 10 | SNLLLQYGSF 0.0002 | 24 |
| HLA-A*68:02 | 1 | 751 | 759 | 9 | NLLLQYGSF 0.0002 | 29 |
| HLA-A*30:01 | 1 | 778 | 787 | 10 | TQEVFAQVKQ 0.0002 | 48 |
| HLA-B*35:01 | 1 | 778 | 786 | 9 | TQEVFAQVK 0.0002 | 19 |
| HLA-B*08:01 | 1 | 827 | 835 | 9 | TLADAGFIK 0.0002 | 38 |
| HLA-B*51:01 | 1 | 866 | 874 | 9 | TDEMIAQYT 0.0002 | 34 |
| HLA-A*01:01 | 1 | 877 | 885 | 9 | LLAGTITSG 0.0002 | 36 |
| HLA-A*24:02 | 1 | 915 | 924 | 10 | VLYENQKLI 0.0002 | 16 |
| HLA-A*26:01 | 1 | 924 | 933 | 10 | ANQFNSAIGK 0.0002 | 22 |
| HLA-B*58:01 | 1 | 959 | 968 | 10 | LNTLVKQLSS 0.0002 | 28 |
| HLA-B*40:01 | 1 | 978 | 987 | 10 | NDILSRDKV 0.0002 | 15 |
| HLA-A*68:01 | 1 | 982 | 990 | 9 | SRLDKVEAE 0.0002 | 26 |
| HLA-A*26:01 | 1 | 1006 | 1015 | 10 | TYVTQQLIRA 0.0002 | 22 |
| HLA-A*30:01 | 1 | 1068 | 1076 | 9 | VPAQEKFT 0.0002 | 48 |
| HLA-A*31:01 | 1 | 1140 | 1148 | 9 | PLQPELDSF 0.0002 | 28 |
| HLA-B*40:01 | 1 | 1196 | 1204 | 9 | SLIDLQELG 0.0002 | 15 |
| HLA-A*11:01 | 1 | 1247 | 1255 | 9 | CCSCGSCCK 0.0002 | 17 |
| HLA-A*68:01 | 1 | 33 | 41 | 9 | TRGVYYPDK 0.000199 | 26 |
| HLA-A*02:06 | 1 | 36 | 45 | 10 | VYYPDKVFRS 0.000199 | 35 |
| HLA-B*53:01 | 1 | 119 | 128 | 10 | IVNNATNVVI 0.000199 | 18 |
| HLA-A*02:06 | 1 | 145 | 153 | 9 | YHKNNKSWM 0.000199 | 35 |
| HLA-B*15:01 | 1 | 194 | 202 | 9 | FKNIDGYFK 0.000199 | 27 |
| HLA-B*53:01 | 1 | 206 | 214 | 9 | KHTPINLVR 0.000199 | 18 |
| HLA-A*68:01 | 1 | 241 | 249 | 9 | LLALHRSYL 0.000199 | 26 |
| HLA-B*51:01 | 1 | 248 | 256 | 9 | YLTSGDSSS 0.000199 | 34 |
| HLA-A*02:01 | 1 | 249 | 258 | 10 | LTPGDSSSGW 0.000199 | 27 |
| HLA-A*11:01 | 1 | 266 | 275 | 10 | YVGYLQPRTF 0.000199 | 17 |
| HLA-A*02:03 | 1 | 310 | 319 | 10 | KGIYQTSNFR 0.000199 | 29 |
| HLA-A*68:02 | 1 | 322 | 330 | 9 | PTESIVRFP 0.000199 | 29 |
| HLA-A*26:01 | 1 | 325 | 333 | 9 | SIVRFPNIT 0.000199 | 22 |
| HLA-A*11:01 | 1 | 326 | 334 | 9 | IVRFPNITN 0.000199 | 17 |
| HLA-B*15:01 | 1 | 328 | 336 | 9 | RFPNITNLC 0.000199 | 27 |
| HLA-A*24:02 | 1 | 356 | 365 | 10 | KRISNCVADY 0.000199 | 16 |
| HLA-B*44:02 | 1 | 462 | 470 | 9 | KPFERDIST 0.000199 | 17 |
| HLA-B*58:01 | 1 | 502 | 511 | 10 | GVGYQPYRVV 0.000199 | 28 |
| HLA-A*03:01 | 1 | 612 | 620 | 9 | YQDVNCTEV 0.000199 | 22 |
| HLA-A*68:02 | 1 | 635 | 643 | 9 | VYSTGSNVF 0.000199 | 29 |
| HLA-A*30:01 | 1 | 760 | 769 | 10 | CTQLNRALTG 0.000199 | 48 |
| HLA-A*11:01 | 1 | 795 | 803 | 9 | KDFGGFNFS 0.000199 | 17 |
| HLA-B*35:01 | 1 | 830 | 838 | 9 | DAGFIKQYG 0.000199 | 19 |
| HLA-B*58:01 | 1 | 831 | 840 | 10 | AGFIKQYGDC 0.000199 | 28 |
| HLA-B*44:03 | 1 | 857 | 865 | 9 | GLTVLPPLL 0.000199 | 16 |
| HLA-B*44:03 | 1 | 919 | 928 | 10 | NQKLIANQFN 0.000199 | 16 |
| HLA-A*24:02 | 1 | 925 | 933 | 9 | NQFNSAIGK 0.000199 | 16 |
| HLA-A*02:06 | 1 | 939 | 947 | 9 | SSTASALGK 0.000199 | 35 |
| HLA-A*23:01 | 1 | 943 | 951 | 9 | SALGKLQDV 0.000199 | 16 |
| HLA-A*31:01 | 1 | 955 | 963 | 9 | NAQALNTLV 0.000199 | 28 |
| HLA-A*68:01 | 1 | 1012 | 1020 | 9 | LIRAAEIRA 0.000199 | 26 |
| HLA-A*01:01 | 1 | 1016 | 1025 | 10 | AEIRASANLA 0.000199 | 36 |
| HLA-A*30:02 | 1 | 1071 | 1080 | 10 | QEKNFHTTAPA 0.000199 | 46 |
| HLA-A*02:06 | 1 | 1155 | 1164 | 10 | YFKNHTSPDV 0.000199 | 35 |
| HLA-A*30:02 | 1 | 1161 | 1169 | 9 | SPVDLGDVI 0.000199 | 46 |
| HLA-B*44:02 | 1 | 1174 | 1183 | 10 | ASVWNIQKEI 0.000199 | 17 |
| HLA-A*68:02 | 1 | 1215 | 1223 | 9 | YIWLGFIAI 0.000199 | 29 |
| HLA-B*57:01 | 1 | 1228 | 1236 | 9 | VMVTIMLCC 0.000199 | 37 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*01:01 | 1 | 2 | 10 | 9 | FVFLVLLPL 0.000198 | 36 |
| HLA-B*58:01 | 1 | 61 | 69 | 9 | NVTWFHAIH 0.000198 | 28 |
| HLA-A*32:01 | 1 | 68 | 77 | 10 | IHSVGTNGTK 0.000198 | 21 |
| HLA-A*30:01 | 1 | 117 | 126 | 10 | LLIVNNATNV 0.000198 | 48 |
| HLA-B*58:01 | 1 | 120 | 129 | 10 | VNNATNVVIK 0.000198 | 28 |
| HLA-B*58:01 | 1 | 163 | 171 | 9 | ANNCTFEYV 0.000198 | 28 |
| HLA-A*23:01 | 1 | 213 | 222 | 10 | VRDLPQGFSA 0.000198 | 16 |
| HLA-B*53:01 | 1 | 280 | 289 | 10 | NENGTITDAV 0.000198 | 18 |
| HLA-B*35:01 | 1 | 281 | 289 | 9 | ENGTITDAV 0.000198 | 19 |
| HLA-B*40:01 | 1 | 294 | 303 | 10 | DPLSETKCTL 0.000198 | 15 |
| HLA-B*57:01 | 1 | 336 | 344 | 9 | CPFGEVFNA 0.000198 | 37 |
| HLA-A*26:01 | 1 | 347 | 356 | 10 | FASVYAWNRK 0.000198 | 23 |
| HLA-B*53:01 | 1 | 364 | 372 | 9 | DYSVLYNSA 0.000198 | 18 |
| HLA-B*44:03 | 1 | 394 | 402 | 9 | NVYADSFVI 0.000198 | 16 |
| HLA-A*01:01 | 1 | 403 | 412 | 10 | RGDEVQRQIAP 0.000198 | 36 |
| HLA-A*33:01 | 1 | 406 | 415 | 10 | EVQRQIAPGQT 0.000198 | 27 |
| HLA-B*53:01 | 1 | 406 | 414 | 9 | EVQRQIAPGQ 0.000198 | 18 |
| HLA-A*68:02 | 1 | 500 | 509 | 10 | TNGVGYQPYR 0.000198 | 29 |
| HLA-B*44:03 | 1 | 509 | 517 | 9 | RVVLSFEL 0.000198 | 16 |
| HLA-B*58:01 | 1 | 570 | 579 | 10 | ADTTDAVRDP 0.000198 | 28 |
| HLA-B*53:01 | 1 | 619 | 628 | 10 | EVVVAIHADQ 0.000198 | 18 |
| HLA-A*01:01 | 1 | 642 | 650 | 9 | VFQTRAGCL 0.000198 | 36 |
| HLA-B*57:01 | 1 | 708 | 717 | 10 | SNNSIAIPTN 0.000198 | 37 |
| HLA-A*68:01 | 1 | 748 | 757 | 10 | ECSNLLLQYG 0.000198 | 26 |
| HLA-B*58:01 | 1 | 749 | 758 | 10 | CSNLLLQYGS 0.000198 | 28 |
| HLA-B*58:01 | 1 | 756 | 764 | 9 | YGSFCTQLN 0.000198 | 28 |
| HLA-A*02:01 | 1 | 764 | 772 | 9 | NRALTGIIV 0.000198 | 27 |
| HLA-A*03:01 | 1 | 798 | 806 | 9 | GGFNFSQIL 0.000198 | 22 |
| HLA-A*26:01 | 1 | 838 | 847 | 10 | GDCLGDIAAR 0.000198 | 23 |
| HLA-B*35:01 | 1 | 884 | 892 | 9 | SGWTFGAGA 0.000198 | 19 |
| HLA-A*03:01 | 1 | 894 | 903 | 10 | LQIPFAMQMA 0.000198 | 22 |
| HLA-B*08:01 | 1 | 901 | 910 | 10 | QMAYRFNGIG 0.000198 | 38 |
| HLA-B*57:01 | 1 | 903 | 911 | 9 | AYRFNGIGV 0.000198 | 37 |
| HLA-A*33:01 | 1 | 923 | 931 | 9 | IANQFNSAI 0.000198 | 27 |
| HLA-B*58:01 | 1 | 928 | 937 | 10 | NSAIGKIQDS 0.000198 | 28 |
| HLA-A*11:01 | 1 | 947 | 956 | 10 | KLQDVVNQNA 0.000198 | 17 |
| HLA-B*44:02 | 1 | 972 | 980 | 9 | AISSVLNDI 0.000198 | 17 |
| HLA-B*53:01 | 1 | 1010 | 1018 | 9 | QQLIRAAEI 0.000198 | 18 |
| HLA-B*15:01 | 1 | 1022 | 1031 | 10 | ANLAATKMSE 0.000198 | 27 |
| HLA-B*15:01 | 1 | 1041 | 1050 | 10 | DFCGKGYHLM 0.000198 | 27 |
| HLA-A*02:03 | 1 | 1055 | 1064 | 10 | SAPHGVVFLH 0.000198 | 29 |
| HLA-A*33:01 | 1 | 1073 | 1081 | 9 | KNFTTAPAI 0.000198 | 27 |
| HLA-A*68:02 | 1 | 1074 | 1082 | 9 | NFTTAPAIC 0.000198 | 29 |
| HLA-B*35:01 | 1 | 1086 | 1094 | 9 | KAHFPREGV 0.000198 | 19 |
| HLA-A*24:02 | 1 | 1105 | 1114 | 10 | TQRNFYEQI 0.000198 | 16 |
| HLA-A*02:03 | 1 | 1166 | 1174 | 9 | LGDISGINA 0.000198 | 29 |
| HLA-B*51:01 | 1 | 1181 | 1190 | 10 | KEIDRLNEVA 0.000198 | 34 |
| HLA-B*40:01 | 1 | 1225 | 1233 | 9 | IAIVMTIM 0.000198 | 15 |
| HLA-B*07:02 | 1 | 1227 | 1235 | 9 | IVMVTIMLC 0.000198 | 24 |
| HLA-A*02:01 | 1 | 1231 | 1240 | 10 | TIMLCCMTSC 0.000198 | 27 |
| HLA-A*01:01 | 1 | 1254 | 1263 | 10 | CKFDEDDSEP 0.000198 | 36 |
| HLA-A*02:06 | 1 | 40 | 48 | 9 | DKVFRSSVL 0.000197 | 36 |
| HLA-B*07:02 | 1 | 42 | 50 | 9 | VFRSSVLHS 0.000197 | 24 |
| HLA-A*03:01 | 1 | 60 | 68 | 9 | SNVTWFHAI 0.000197 | 22 |
| HLA-A*26:01 | 1 | 84 | 93 | 10 | LPFNDGVYFA 0.000197 | 23 |
| HLA-A*33:01 | 1 | 99 | 108 | 10 | NIIRGWIFGT 0.000197 | 27 |
| HLA-A*33:01 | 1 | 101 | 110 | 10 | IRGWIFGTTL 0.000197 | 27 |
| HLA-A*68:02 | 1 | 101 | 110 | 10 | IRGWIFGTTL 0.000197 | 29 |
| HLA-A*68:01 | 1 | 102 | 110 | 9 | RGWIFGTTL 0.000197 | 26 |
| HLA-A*02:03 | 1 | 127 | 136 | 10 | VIKVEFQFC 0.000197 | 29 |
| HLA-B*53:01 | 1 | 226 | 234 | 9 | LVDLPIGIN 0.000197 | 18 |
| HLA-A*30:02 | 1 | 280 | 289 | 10 | NENGTITDAV 0.000197 | 46 |
| HLA-B*08:01 | 1 | 296 | 304 | 9 | LSETKCTLK 0.000197 | 38 |
| HLA-A*30:02 | 1 | 303 | 312 | 10 | LKSFTVEKGI 0.000197 | 46 |
| HLA-B*08:01 | 1 | 305 | 314 | 10 | SFTVEKGIYQ 0.000197 | 38 |
| HLA-A*68:02 | 1 | 316 | 325 | 10 | SNFRVQPTES 0.000197 | 29 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*32:01 | 1 | 332 | 341 | 10 | ITNLCPFGEV 0.000197 | 21 |
| HLA-A*30:01 | 1 | 333 | 342 | 10 | TNLCPFGEVF 0.000197 | 48 |
| HLA-A*33:01 | 1 | 339 | 348 | 10 | GEVFNATRFA 0.000197 | 27 |
| HLA-B*15:01 | 1 | 355 | 363 | 9 | RKRISNCVA 0.000197 | 27 |
| HLA-A*33:01 | 1 | 376 | 385 | 10 | TFKCYGVSPT 0.000197 | 27 |
| HLA-B*44:03 | 1 | 378 | 387 | 10 | KCYGVSPTKL 0.000197 | 16 |
| HLA-A*02:03 | 1 | 387 | 395 | 9 | LNDLCFTNV 0.000197 | 29 |
| HLA-A*26:01 | 1 | 399 | 407 | 9 | SFVIRGDEV 0.000197 | 23 |
| HLA-B*35:01 | 1 | 427 | 435 | 9 | DDFTGCVIA 0.000197 | 19 |
| HLA-A*02:03 | 1 | 449 | 457 | 9 | YNYLYRFR 0.000197 | 29 |
| HLA-A*30:01 | 1 | 471 | 480 | 10 | EIYQAGSTPC 0.000197 | 48 |
| HLA-A*30:01 | 1 | 570 | 579 | 10 | ADTTDAVRDP 0.000197 | 48 |
| HLA-A*26:01 | 1 | 626 | 635 | 10 | ADQLTPTWRV 0.000197 | 23 |
| HLA-A*02:01 | 1 | 638 | 646 | 9 | TGSNVFQTR 0.000197 | 27 |
| HLA-B*58:01 | 1 | 657 | 666 | 10 | NNSYECDIPI 0.000197 | 28 |
| HLA-B*08:01 | 1 | 676 | 685 | 10 | TQTNSPRRAR 0.000197 | 38 |
| HLA-A*30:01 | 1 | 681 | 690 | 10 | PRRARSVASQ 0.000197 | 48 |
| HLA-A*31:01 | 1 | 694 | 702 | 9 | AYTMSLGAE 0.000197 | 28 |
| HLA-B*07:02 | 1 | 696 | 705 | 10 | TMSLGAENSV 0.000197 | 24 |
| HLA-B*40:01 | 1 | 746 | 755 | 10 | STECSNLLLQ 0.000197 | 15 |
| HLA-A*03:01 | 1 | 818 | 826 | 9 | IEDLLFNKV 0.000197 | 22 |
| HLA-A*02:06 | 1 | 843 | 851 | 9 | DIAARDLIC 0.000197 | 36 |
| HLA-A*32:01 | 1 | 870 | 879 | 10 | IAQYTSALLA 0.000197 | 21 |
| HLA-A*03:01 | 1 | 903 | 911 | 9 | AYRFNGIGV 0.000197 | 22 |
| HLA-A*68:01 | 1 | 917 | 926 | 10 | YENQKLIANQ 0.000197 | 26 |
| HLA-B*51:01 | 1 | 979 | 988 | 10 | DILSRLDKVE 0.000197 | 34 |
| HLA-B*57:01 | 1 | 1016 | 1025 | 10 | AEIRASANLA 0.000197 | 38 |
| HLA-A*32:01 | 1 | 1050 | 1059 | 10 | MSFPQSAPHG 0.000197 | 21 |
| HLA-B*53:01 | 1 | 1108 | 1116 | 9 | NFYEQIIT 0.000197 | 18 |
| HLA-A*32:01 | 1 | 1217 | 1225 | 9 | WLGFIAGLI 0.000197 | 21 |
| HLA-B*07:02 | 1 | 1229 | 1237 | 9 | MVTIMLCCM 0.000197 | 24 |
| HLA-A*32:01 | 1 | 89 | 98 | 10 | GVYFASTEKS 0.000196 | 21 |
| HLA-A*30:01 | 1 | 115 | 124 | 10 | QSLLVNNT 0.000196 | 48 |
| HLA-A*68:01 | 1 | 134 | 143 | 10 | QFCNDPFLGV 0.000196 | 26 |
| HLA-A*30:02 | 1 | 160 | 169 | 10 | YSSANNCTFE 0.000196 | 46 |
| HLA-A*11:01 | 1 | 214 | 223 | 10 | RDLPGGFSAL 0.000196 | 17 |
| HLA-B*07:02 | 1 | 257 | 265 | 9 | GWTAGAAAY 0.000196 | 24 |
| HLA-B*44:02 | 1 | 260 | 269 | 10 | AGAAAYVGY 0.000196 | 17 |
| HLA-B*08:01 | 1 | 279 | 288 | 10 | YNENGTITDA 0.000196 | 38 |
| HLA-B*53:01 | 1 | 287 | 295 | 9 | DAVDCALDP 0.000196 | 18 |
| HLA-A*33:01 | 1 | 396 | 404 | 9 | YADSFVIRG 0.000196 | 27 |
| HLA-A*26:01 | 1 | 451 | 459 | 9 | YLYRFLFRKS 0.000196 | 23 |
| HLA-B*40:01 | 1 | 466 | 474 | 9 | RDISTEIQ 0.000196 | 15 |
| HLA-B*44:02 | 1 | 503 | 511 | 9 | VGYPYRVV 0.000196 | 17 |
| HLA-B*58:01 | 1 | 555 | 563 | 9 | SNKKFLPFQ 0.000196 | 28 |
| HLA-A*31:01 | 1 | 556 | 565 | 10 | NKKFLPFQF 0.000196 | 28 |
| HLA-A*23:01 | 1 | 591 | 600 | 10 | SFGGVSIVTP 0.000196 | 16 |
| HLA-A*68:01 | 1 | 599 | 607 | 9 | TPGTNTSNQ 0.000196 | 26 |
| HLA-B*07:02 | 1 | 637 | 646 | 10 | STGSNVFQTR 0.000196 | 24 |
| HLA-A*02:01 | 1 | 651 | 659 | 9 | IGAHEVNNS 0.000196 | 27 |
| HLA-A*31:01 | 1 | 682 | 691 | 10 | RRARSVASQS 0.000196 | 28 |
| HLA-B*58:01 | 1 | 713 | 722 | 10 | AIPTNFTISV 0.000196 | 28 |
| HLA-A*68:01 | 1 | 724 | 732 | 9 | TEILPVSM 0.000196 | 26 |
| HLA-A*02:01 | 1 | 731 | 740 | 10 | MTKTSVDCTM 0.000196 | 27 |
| HLA-A*33:01 | 1 | 745 | 754 | 10 | DSTECNLLL 0.000196 | 27 |
| HLA-B*40:01 | 1 | 755 | 763 | 9 | QYGSFCTQL 0.000196 | 15 |
| HLA-B*15:01 | 1 | 784 | 793 | 10 | QVKQIYKTPP 0.000196 | 27 |
| HLA-B*40:01 | 1 | 808 | 817 | 10 | DPSKPSKRSF 0.000196 | 15 |
| HLA-B*51:01 | 1 | 825 | 834 | 10 | KVTLADAGFI 0.000196 | 34 |
| HLA-A*01:01 | 1 | 849 | 858 | 10 | LICAQKFNGL 0.000196 | 36 |
| HLA-B*44:02 | 1 | 868 | 876 | 9 | EMIAQY TSA 0.000196 | 17 |
| HLA-B*40:01 | 1 | 900 | 909 | 10 | MQMAYRFNGI 0.000196 | 15 |
| HLA-B*40:01 | 1 | 926 | 934 | 9 | QFN SAIGKI 0.000196 | 15 |
| HLA-A*30:02 | 1 | 959 | 968 | 10 | LNTLVKQLSS 0.000196 | 46 |
| HLA-A*11:01 | 1 | 983 | 992 | 10 | RLDKVEAEVQ 0.000196 | 17 |
| HLA-A*30:02 | 1 | 994 | 1003 | 10 | DRLITGRLQS 0.000196 | 46 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|----------|----|
| HLA-B*08:01 | 1 | 1013 | 1021 | 9 | IRAAEIRAS | 0.000196 | 38 |
| HLA-B*40:01 | 1 | 1040 | 1048 | 9 | VDFCGKGYH | 0.000196 | 15 |
| HLA-B*57:01 | 1 | 1080 | 1088 | 9 | AICHDGKAH | 0.000196 | 38 |
| HLA-A*68:01 | 1 | 1109 | 1117 | 9 | FYEPQIITT | 0.000196 | 26 |
| HLA-A*68:01 | 1 | 1113 | 1122 | 10 | QIITTDNTFV | 0.000196 | 26 |
| HLA-A*68:01 | 1 | 1221 | 1229 | 9 | IAGLIAIVM | 0.000196 | 26 |
| HLA-A*68:01 | 1 | 45 | 54 | 10 | SSVLHSTQDL | 0.000195 | 26 |
| HLA-A*02:06 | 1 | 124 | 133 | 10 | TNVVIKVICEF | 0.000195 | 36 |
| HLA-B*08:01 | 1 | 157 | 166 | 10 | FRVYSSANNC | 0.000195 | 38 |
| HLA-A*02:06 | 1 | 210 | 219 | 10 | INLVRDLPQG | 0.000195 | 36 |
| HLA-A*01:01 | 1 | 273 | 281 | 9 | RTFLLKYNE | 0.000195 | 36 |
| HLA-A*26:01 | 1 | 315 | 323 | 9 | TSNFRVQPT | 0.000195 | 23 |
| HLA-B*51:01 | 1 | 339 | 348 | 10 | GEVFNATRFA | 0.000195 | 34 |
| HLA-A*23:01 | 1 | 345 | 354 | 10 | TRFASVYAWN | 0.000195 | 16 |
| HLA-A*02:03 | 1 | 359 | 367 | 9 | SNCVADYSV | 0.000195 | 29 |
| HLA-A*11:01 | 1 | 386 | 395 | 10 | KLNDLCFTNV | 0.000195 | 17 |
| HLA-A*01:01 | 1 | 396 | 405 | 10 | YADSFVIRGD | 0.000195 | 36 |
| HLA-A*11:01 | 1 | 406 | 414 | 9 | EVRQIAPGQ | 0.000195 | 17 |
| HLA-B*40:01 | 1 | 424 | 432 | 9 | KLPDDFTGC | 0.000195 | 15 |
| HLA-A*33:01 | 1 | 446 | 455 | 10 | GGNYNYLYRL | 0.000195 | 28 |
| HLA-A*32:01 | 1 | 512 | 521 | 10 | VLSFELLHAP | 0.000195 | 21 |
| HLA-B*53:01 | 1 | 534 | 543 | 10 | VKNKCVNFNF | 0.000195 | 18 |
| HLA-A*30:02 | 1 | 548 | 556 | 9 | GTGVLTESN | 0.000195 | 46 |
| HLA-A*33:01 | 1 | 639 | 647 | 9 | GSNVFQTRA | 0.000195 | 28 |
| HLA-A*02:01 | 1 | 664 | 672 | 9 | IPIGAGICA | 0.000195 | 27 |
| HLA-B*44:02 | 1 | 688 | 696 | 9 | ASQSIIAYT | 0.000195 | 17 |
| HLA-A*33:01 | 1 | 773 | 782 | 10 | EQDKNTQEVF | 0.000195 | 28 |
| HLA-A*68:01 | 1 | 776 | 785 | 10 | KNTQEVFAQV | 0.000195 | 26 |
| HLA-A*01:01 | 1 | 782 | 791 | 10 | FAQVKQIYKT | 0.000195 | 36 |
| HLA-A*32:01 | 1 | 804 | 812 | 9 | QILPDPSKP | 0.000195 | 21 |
| HLA-A*03:01 | 1 | 846 | 855 | 10 | ARDLICAQKF | 0.000195 | 22 |
| HLA-A*31:01 | 1 | 926 | 935 | 10 | QFNSAIGKIQ | 0.000195 | 28 |
| HLA-B*44:02 | 1 | 992 | 1001 | 10 | QIDRLITGRL | 0.000195 | 17 |
| HLA-B*44:03 | 1 | 1009 | 1018 | 10 | TQQLIRAAEI | 0.000195 | 16 |
| HLA-B*07:02 | 1 | 1023 | 1032 | 10 | NLAATKMSEC | 0.000195 | 24 |
| HLA-B*51:01 | 1 | 1044 | 1052 | 9 | GKGYHLMSF | 0.000195 | 34 |
| HLA-A*02:01 | 1 | 1049 | 1058 | 10 | LMSFPQSAPH | 0.000195 | 27 |
| HLA-A*32:01 | 1 | 1052 | 1060 | 9 | FPQSAPHGV | 0.000195 | 21 |
| HLA-B*51:01 | 1 | 1099 | 1107 | 9 | GTHWFVTQR | 0.000195 | 34 |
| HLA-A*23:01 | 1 | 1124 | 1132 | 9 | GNCDDVIGI | 0.000195 | 16 |
| HLA-A*30:02 | 1 | 1125 | 1133 | 9 | NCDVVIGIV | 0.000195 | 46 |
| HLA-A*02:06 | 1 | 1140 | 1149 | 10 | PLQPELDSFK | 0.000195 | 36 |
| HLA-A*01:01 | 1 | 1161 | 1170 | 10 | SPDVDLGDIS | 0.000195 | 36 |
| HLA-A*26:01 | 1 | 1172 | 1181 | 10 | INASVVNIQK | 0.000195 | 23 |
| HLA-A*33:01 | 1 | 1178 | 1186 | 9 | NIQKEIDRL | 0.000195 | 28 |
| HLA-B*15:01 | 1 | 1192 | 1201 | 10 | NLNESLIDLQ | 0.000195 | 27 |
| HLA-A*30:01 | 1 | 1202 | 1210 | 9 | ELGKYEQYI | 0.000195 | 49 |
| HLA-B*51:01 | 1 | 1215 | 1223 | 9 | YIWLGFIAG | 0.000195 | 34 |
| HLA-B*07:02 | 1 | 1260 | 1268 | 9 | DSEPVLKGV | 0.000195 | 24 |
| HLA-B*40:01 | 1 | 22 | 31 | 10 | TQLPPAYTNS | 0.000194 | 15 |
| HLA-B*44:02 | 1 | 39 | 47 | 9 | PKVFRSSV | 0.000194 | 17 |
| HLA-A*30:02 | 1 | 55 | 63 | 9 | FLPFFSNVT | 0.000194 | 46 |
| HLA-B*15:01 | 1 | 84 | 93 | 10 | LPFNDGVYFA | 0.000194 | 27 |
| HLA-A*23:01 | 1 | 92 | 100 | 9 | FASTEKSNI | 0.000194 | 16 |
| HLA-B*53:01 | 1 | 94 | 102 | 9 | STEKSNIIR | 0.000194 | 18 |
| HLA-A*23:01 | 1 | 135 | 143 | 9 | FCNDPFLG | 0.000194 | 16 |
| HLA-A*03:01 | 1 | 137 | 145 | 9 | NDPFLGVVY | 0.000194 | 22 |
| HLA-B*40:01 | 1 | 196 | 204 | 9 | NIDGYFKIY | 0.000194 | 15 |
| HLA-B*57:01 | 1 | 215 | 223 | 9 | DLPQGFSAL | 0.000194 | 38 |
| HLA-A*32:01 | 1 | 228 | 237 | 10 | DLPIGINITR | 0.000194 | 21 |
| HLA-A*02:06 | 1 | 247 | 255 | 9 | SYLTPGDSS | 0.000194 | 36 |
| HLA-B*07:02 | 1 | 247 | 256 | 10 | SYLTPGDSSS | 0.000194 | 24 |
| HLA-A*02:06 | 1 | 302 | 311 | 10 | TLKSFTVEKG | 0.000194 | 36 |
| HLA-B*44:03 | 1 | 302 | 310 | 9 | TLKSFTVEK | 0.000194 | 17 |
| HLA-A*32:01 | 1 | 306 | 314 | 9 | FTVEKGIYQ | 0.000194 | 21 |
| HLA-A*31:01 | 1 | 315 | 324 | 10 | TSNFRVQPT | 0.000194 | 28 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*58:01 | 1 | 339 | 348 | 10 | GEVFNATRFA 0.000194 | 28 |
| HLA-A*30:02 | 1 | 350 | 359 | 10 | VYAWNRRKRIS 0.000194 | 46 |
| HLA-B*44:03 | 1 | 357 | 365 | 9 | RISNCVADY 0.000194 | 17 |
| HLA-A*68:02 | 1 | 382 | 391 | 10 | VSPTKLNLDLC 0.000194 | 29 |
| HLA-B*40:01 | 1 | 425 | 433 | 9 | LPDDFTGCV 0.000194 | 15 |
| HLA-A*02:06 | 1 | 445 | 453 | 9 | VGGNYNYLY 0.000194 | 36 |
| HLA-B*57:01 | 1 | 543 | 552 | 10 | FNGLTGTGVL 0.000194 | 38 |
| HLA-B*35:01 | 1 | 562 | 570 | 9 | FQQFGRDIA 0.000194 | 19 |
| HLA-A*02:01 | 1 | 590 | 599 | 10 | CSFGGVSUIT 0.000194 | 27 |
| HLA-B*57:01 | 1 | 592 | 600 | 9 | FGGVSUITP 0.000194 | 38 |
| HLA-A*30:02 | 1 | 593 | 602 | 10 | GGVSVITPGT 0.000194 | 46 |
| HLA-B*57:01 | 1 | 605 | 613 | 9 | SNQVAVLYQ 0.000194 | 38 |
| HLA-B*44:03 | 1 | 639 | 647 | 9 | GSNVFQTRA 0.000194 | 17 |
| HLA-A*33:01 | 1 | 663 | 672 | 10 | DIPIGAGICA 0.000194 | 28 |
| HLA-A*30:02 | 1 | 679 | 688 | 10 | NSPRRARSVA 0.000194 | 46 |
| HLA-A*03:01 | 1 | 682 | 691 | 10 | RRARSVASQS 0.000194 | 22 |
| HLA-A*03:01 | 1 | 690 | 699 | 10 | QSIAYTMSL 0.000194 | 22 |
| HLA-A*02:03 | 1 | 714 | 723 | 10 | IPTNFTISVT 0.000194 | 29 |
| HLA-B*51:01 | 1 | 758 | 767 | 10 | SFCTQLNRAL 0.000194 | 34 |
| HLA-B*08:01 | 1 | 764 | 773 | 10 | NRALTGIAVE 0.000194 | 38 |
| HLA-B*57:01 | 1 | 766 | 774 | 9 | ALTGIAVEQ 0.000194 | 38 |
| HLA-B*15:01 | 1 | 826 | 834 | 9 | VTLADAGFI 0.000194 | 27 |
| HLA-A*30:01 | 1 | 842 | 850 | 9 | GDIAARDLI 0.000194 | 49 |
| HLA-B*07:02 | 1 | 856 | 865 | 10 | NGLTVLPLPL 0.000194 | 24 |
| HLA-B*40:01 | 1 | 904 | 912 | 9 | YRFNGIGVT 0.000194 | 15 |
| HLA-A*33:01 | 1 | 939 | 948 | 10 | SSTASALGKL 0.000194 | 28 |
| HLA-B*15:01 | 1 | 957 | 965 | 9 | QALNTLVKQ 0.000194 | 27 |
| HLA-A*01:01 | 1 | 985 | 993 | 9 | DKVEAEVQI 0.000194 | 36 |
| HLA-B*35:01 | 1 | 995 | 1004 | 10 | RLITGRLQSL 0.000194 | 19 |
| HLA-A*31:01 | 1 | 1001 | 1010 | 10 | LQSLQTYVTQ 0.000194 | 28 |
| HLA-B*44:02 | 1 | 1008 | 1016 | 9 | VTQQLIRAA 0.000194 | 17 |
| HLA-B*40:01 | 1 | 1177 | 1186 | 10 | VNIQKEIDRL 0.000194 | 15 |
| HLA-B*07:02 | 1 | 1259 | 1268 | 10 | DDSEPVLKGV 0.000194 | 24 |
| HLA-A*23:01 | 1 | 7 | 15 | 9 | LLPLVSSQC 0.000193 | 16 |
| HLA-A*31:01 | 1 | 45 | 54 | 10 | SSVLHSTQDL 0.000193 | 28 |
| HLA-A*30:01 | 1 | 53 | 61 | 9 | DLFLPFFSN 0.000193 | 49 |
| HLA-A*32:01 | 1 | 62 | 71 | 10 | VTWFHAIHVS 0.000193 | 21 |
| HLA-A*68:02 | 1 | 76 | 84 | 9 | TKRFDNPVL 0.000193 | 29 |
| HLA-A*30:02 | 1 | 187 | 196 | 10 | KNLREFVFKN 0.000193 | 46 |
| HLA-B*15:01 | 1 | 202 | 211 | 10 | KIYSKHTPIN 0.000193 | 27 |
| HLA-A*68:02 | 1 | 232 | 240 | 9 | GINITRFQT 0.000193 | 29 |
| HLA-A*32:01 | 1 | 236 | 245 | 10 | TRFQTLALH 0.000193 | 21 |
| HLA-B*08:01 | 1 | 311 | 320 | 10 | GIYQTSNFRV 0.000193 | 38 |
| HLA-B*57:01 | 1 | 313 | 321 | 9 | YQTSNFRVQ 0.000193 | 38 |
| HLA-B*35:01 | 1 | 391 | 400 | 10 | CFTNVYADSF 0.000193 | 19 |
| HLA-A*31:01 | 1 | 417 | 426 | 10 | KIADYNYKLP 0.000193 | 28 |
| HLA-B*57:01 | 1 | 430 | 438 | 9 | TGCVIAWNS 0.000193 | 38 |
| HLA-A*30:01 | 1 | 432 | 440 | 9 | CVIAWNSNN 0.000193 | 49 |
| HLA-A*68:01 | 1 | 532 | 541 | 10 | NLVKKNKCVNF 0.000193 | 26 |
| HLA-A*02:06 | 1 | 540 | 549 | 10 | NFNFNGLTGT 0.000193 | 36 |
| HLA-A*26:01 | 1 | 572 | 580 | 9 | TTDAVRDPQ 0.000193 | 23 |
| HLA-B*58:01 | 1 | 647 | 656 | 10 | AGCLIGAEHV 0.000193 | 28 |
| HLA-A*23:01 | 1 | 683 | 692 | 10 | RARSVASQSI 0.000193 | 16 |
| HLA-B*44:03 | 1 | 717 | 726 | 10 | NFTISVTTEI 0.000193 | 17 |
| HLA-A*03:01 | 1 | 718 | 727 | 10 | FTISVTTEIL 0.000193 | 22 |
| HLA-B*51:01 | 1 | 731 | 739 | 9 | MTKTSVDCT 0.000193 | 34 |
| HLA-A*68:02 | 1 | 744 | 752 | 9 | GDSTECSNL 0.000193 | 29 |
| HLA-A*33:01 | 1 | 746 | 755 | 10 | STECSNLLQ 0.000193 | 28 |
| HLA-A*02:01 | 1 | 757 | 765 | 9 | GSFCTQLNR 0.000193 | 27 |
| HLA-A*01:01 | 1 | 762 | 771 | 10 | QLNRALTGIA 0.000193 | 36 |
| HLA-A*68:01 | 1 | 935 | 944 | 10 | QDLSLSTASA 0.000193 | 26 |
| HLA-B*57:01 | 1 | 945 | 954 | 10 | LGKLQDVVNQ 0.000193 | 38 |
| HLA-A*02:01 | 1 | 946 | 955 | 10 | GKLQDVVNQN 0.000193 | 27 |
| HLA-A*11:01 | 1 | 960 | 968 | 9 | NTLVKQLSS 0.000193 | 17 |
| HLA-A*33:01 | 1 | 1011 | 1020 | 10 | QLIRAAEIRA 0.000193 | 28 |
| HLA-B*51:01 | 1 | 1043 | 1052 | 10 | CGKGYHLMSF 0.000193 | 34 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*08:01 | 1 | 1228 | 1237 | 10 | VMVTIMLCCM 0.000193 | 38 |
| HLA-B*53:01 | 1 | 43 | 51 | 9 | FRSSVLHST 0.000192 | 18 |
| HLA-A*30:02 | 1 | 44 | 53 | 10 | RSSVLHSTQD 0.000192 | 46 |
| HLA-A*02:01 | 1 | 103 | 112 | 10 | GWIFGTTLDS 0.000192 | 27 |
| HLA-B*44:03 | 1 | 135 | 143 | 9 | FCNDPFLGV 0.000192 | 17 |
| HLA-B*58:01 | 1 | 137 | 146 | 10 | NDPFLGVYYH 0.000192 | 28 |
| HLA-B*40:01 | 1 | 234 | 242 | 9 | NITRFQTL 0.000192 | 15 |
| HLA-A*32:01 | 1 | 246 | 255 | 10 | RSYLTGPDSS 0.000192 | 21 |
| HLA-A*02:03 | 1 | 290 | 299 | 10 | DCALDPLSET 0.000192 | 30 |
| HLA-A*33:01 | 1 | 326 | 334 | 9 | IVRFPNITN 0.000192 | 28 |
| HLA-A*02:03 | 1 | 340 | 349 | 10 | EVFNATRFAS 0.000192 | 30 |
| HLA-B*53:01 | 1 | 362 | 370 | 9 | VADYSVLYN 0.000192 | 18 |
| HLA-A*31:01 | 1 | 432 | 441 | 10 | CVIAWNSNNL 0.000192 | 29 |
| HLA-B*15:01 | 1 | 511 | 520 | 10 | VVLSFELLHA 0.000192 | 27 |
| HLA-A*30:02 | 1 | 545 | 554 | 10 | GLTGTGVLTE 0.000192 | 46 |
| HLA-B*57:01 | 1 | 600 | 608 | 9 | PGTNTSNQV 0.000192 | 38 |
| HLA-A*68:01 | 1 | 601 | 610 | 10 | GTNTSNQVAV 0.000192 | 26 |
| HLA-B*57:01 | 1 | 615 | 623 | 9 | VNCTEVPVA 0.000192 | 38 |
| HLA-A*02:03 | 1 | 652 | 660 | 9 | GAEHVNNSY 0.000192 | 30 |
| HLA-B*57:01 | 1 | 664 | 672 | 9 | IPIGAGICA 0.000192 | 38 |
| HLA-A*02:01 | 1 | 710 | 719 | 10 | NSIAIPTNFT 0.000192 | 27 |
| HLA-B*44:02 | 1 | 721 | 729 | 9 | SVTTEILPV 0.000192 | 17 |
| HLA-A*31:01 | 1 | 761 | 770 | 10 | TQLNRALTGI 0.000192 | 29 |
| HLA-A*23:01 | 1 | 790 | 798 | 9 | KTPPIKDFG 0.000192 | 16 |
| HLA-A*11:01 | 1 | 804 | 812 | 9 | QILPDPSKP 0.000192 | 17 |
| HLA-B*35:01 | 1 | 804 | 812 | 9 | QILPDPSKP 0.000192 | 19 |
| HLA-A*68:01 | 1 | 915 | 923 | 9 | VLYENQKLI 0.000192 | 26 |
| HLA-A*33:01 | 1 | 1010 | 1018 | 9 | QLLIRAAEI 0.000192 | 28 |
| HLA-A*03:01 | 1 | 1032 | 1040 | 9 | CVLGQSKRV 0.000192 | 22 |
| HLA-A*03:01 | 1 | 1052 | 1060 | 9 | FPQSAPHGV 0.000192 | 22 |
| HLA-B*15:01 | 1 | 1081 | 1090 | 10 | ICHDGKAHFP 0.000192 | 27 |
| HLA-B*58:01 | 1 | 1088 | 1096 | 9 | HFPREGVVF 0.000192 | 28 |
| HLA-B*07:02 | 1 | 1107 | 1116 | 10 | RNFYEQIIT 0.000192 | 24 |
| HLA-B*07:02 | 1 | 1166 | 1174 | 9 | LGDISGINA 0.000192 | 24 |
| HLA-A*01:01 | 1 | 1176 | 1185 | 10 | VVNIQKEIDR 0.000192 | 37 |
| HLA-A*24:02 | 1 | 1188 | 1197 | 10 | EVAKNLNESL 0.000192 | 16 |
| HLA-A*30:02 | 1 | 1192 | 1201 | 10 | NLNESLIDLQ 0.000192 | 46 |
| HLA-A*02:06 | 1 | 1200 | 1208 | 9 | LQELGKYEQ 0.000192 | 36 |
| HLA-A*30:02 | 1 | 1230 | 1238 | 9 | VTIMLCCMT 0.000192 | 46 |
| HLA-A*23:01 | 1 | 1255 | 1263 | 9 | KFDEDDSEP 0.000192 | 16 |
| HLA-A*30:01 | 1 | 8 | 16 | 9 | LPLVSSQCV 0.000191 | 49 |
| HLA-A*30:01 | 1 | 10 | 19 | 10 | LVSSQCVNLT 0.000191 | 49 |
| HLA-A*24:02 | 1 | 42 | 51 | 10 | VFRSSVLHST 0.000191 | 16 |
| HLA-B*40:01 | 1 | 55 | 64 | 10 | FLPFFSNVTW 0.000191 | 15 |
| HLA-A*31:01 | 1 | 162 | 171 | 10 | SANNCTFEYV 0.000191 | 29 |
| HLA-A*03:01 | 1 | 178 | 186 | 9 | DLEGKQGNF 0.000191 | 22 |
| HLA-B*57:01 | 1 | 205 | 213 | 9 | SKHTPINLV 0.000191 | 38 |
| HLA-A*31:01 | 1 | 249 | 258 | 10 | LTPGDSSSGW 0.000191 | 29 |
| HLA-A*02:03 | 1 | 253 | 262 | 10 | DSSSGWTAGA 0.000191 | 30 |
| HLA-A*24:02 | 1 | 259 | 267 | 9 | TAGAAAYYV 0.000191 | 16 |
| HLA-A*32:01 | 1 | 263 | 272 | 10 | AAYYVGYLQP 0.000191 | 21 |
| HLA-A*01:01 | 1 | 278 | 286 | 9 | KYNENGTIT 0.000191 | 37 |
| HLA-B*15:01 | 1 | 343 | 352 | 10 | NATRFASVYA 0.000191 | 27 |
| HLA-A*68:02 | 1 | 364 | 373 | 10 | DYSVLVNSAS 0.000191 | 29 |
| HLA-A*11:01 | 1 | 369 | 377 | 9 | YNSASFSTF 0.000191 | 17 |
| HLA-A*33:01 | 1 | 381 | 390 | 10 | GVSPTKLNDL 0.000191 | 28 |
| HLA-A*02:03 | 1 | 400 | 409 | 10 | FVIRGDEVRQ 0.000191 | 30 |
| HLA-B*58:01 | 1 | 453 | 461 | 9 | YRLFKSNL 0.000191 | 28 |
| HLA-A*02:03 | 1 | 463 | 472 | 10 | PFERDISTEI 0.000191 | 30 |
| HLA-B*53:01 | 1 | 487 | 496 | 10 | NCYFPLQSYG 0.000191 | 18 |
| HLA-B*44:03 | 1 | 504 | 512 | 9 | GYQPYRVVV 0.000191 | 17 |
| HLA-A*01:01 | 1 | 565 | 573 | 9 | FGRDIADTT 0.000191 | 37 |
| HLA-A*03:01 | 1 | 574 | 583 | 10 | DAVRDPQTL 0.000191 | 22 |
| HLA-B*08:01 | 1 | 581 | 590 | 10 | TLEILDITPC 0.000191 | 38 |
| HLA-B*08:01 | 1 | 589 | 597 | 9 | PCSFGGVSV 0.000191 | 38 |
| HLA-B*35:01 | 1 | 596 | 605 | 10 | SVITPGTNTS 0.000191 | 19 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*53:01 | 1 | 617 | 625 | 9 | CTEVPVAIH 0.000191 | 18 |
| HLA-A*24:02 | 1 | 625 | 634 | 10 | HADQLTPTWR 0.000191 | 16 |
| HLA-A*02:03 | 1 | 666 | 674 | 9 | IGAGICASY 0.000191 | 30 |
| HLA-A*68:02 | 1 | 673 | 681 | 9 | SYQTQTNSP 0.000191 | 29 |
| HLA-A*30:02 | 1 | 730 | 739 | 10 | SMTKTSVDCT 0.000191 | 46 |
| HLA-B*08:01 | 1 | 740 | 749 | 10 | MYICGDSTEC 0.000191 | 38 |
| HLA-A*01:01 | 1 | 758 | 767 | 10 | SFCTQLNRAL 0.000191 | 37 |
| HLA-B*58:01 | 1 | 795 | 804 | 10 | KDFGGFNFSQ 0.000191 | 28 |
| HLA-A*30:01 | 1 | 807 | 815 | 9 | PDPSPKPSKR 0.000191 | 49 |
| HLA-B*40:01 | 1 | 821 | 829 | 9 | LLFNKVTLA 0.000191 | 15 |
| HLA-B*40:01 | 1 | 874 | 882 | 9 | TSALLAGTI 0.000191 | 15 |
| HLA-B*44:02 | 1 | 900 | 909 | 10 | MQMAYRFNGI 0.000191 | 17 |
| HLA-A*30:02 | 1 | 917 | 926 | 10 | YENQKLIANQ 0.000191 | 46 |
| HLA-A*26:01 | 1 | 921 | 930 | 10 | KLIANQFNFA 0.000191 | 23 |
| HLA-A*26:01 | 1 | 934 | 942 | 9 | IQDLSSTA 0.000191 | 23 |
| HLA-A*68:02 | 1 | 956 | 964 | 9 | AQALNTLVK 0.000191 | 29 |
| HLA-B*08:01 | 1 | 994 | 1002 | 9 | DRLITGRLQ 0.000191 | 38 |
| HLA-B*53:01 | 1 | 1004 | 1013 | 10 | LQTYVTQLLI 0.000191 | 18 |
| HLA-B*51:01 | 1 | 1021 | 1030 | 10 | SANLAATKMS 0.000191 | 34 |
| HLA-A*01:01 | 1 | 1069 | 1077 | 9 | PAQEKNFMT 0.000191 | 37 |
| HLA-B*44:03 | 1 | 1086 | 1094 | 9 | KAHFPREGV 0.000191 | 17 |
| HLA-B*15:01 | 1 | 1088 | 1096 | 9 | HFPREGVVF 0.000191 | 27 |
| HLA-B*08:01 | 1 | 1107 | 1116 | 10 | RNFYEPQIIT 0.000191 | 38 |
| HLA-A*11:01 | 1 | 1115 | 1123 | 9 | ITTDNTFVS 0.000191 | 17 |
| HLA-B*07:02 | 1 | 1121 | 1130 | 10 | FVSGNCDVVI 0.000191 | 24 |
| HLA-B*51:01 | 1 | 1141 | 1149 | 9 | LQPELDSFK 0.000191 | 34 |
| HLA-B*53:01 | 1 | 1163 | 1171 | 9 | DVDLGDISG 0.000191 | 18 |
| HLA-B*57:01 | 1 | 1197 | 1205 | 9 | LIDLQELGK 0.000191 | 38 |
| HLA-B*57:01 | 1 | 14 | 22 | 9 | QCVNLTRT 0.000191 | 38 |
| HLA-A*02:01 | 1 | 51 | 60 | 10 | TQDLFLPFFS 0.000191 | 27 |
| HLA-A*11:01 | 1 | 62 | 71 | 10 | VTWFHAIHVS 0.000191 | 17 |
| HLA-B*15:01 | 1 | 110 | 119 | 10 | LDSKTQSLLI 0.000191 | 27 |
| HLA-B*15:01 | 1 | 117 | 125 | 9 | LLIVNNATN 0.000191 | 27 |
| HLA-A*02:03 | 1 | 151 | 160 | 10 | SWMESEFRVY 0.000191 | 30 |
| HLA-B*08:01 | 1 | 191 | 199 | 9 | EFVFKNIDG 0.000191 | 38 |
| HLA-B*53:01 | 1 | 194 | 203 | 10 | FKNIDGYFKI 0.000191 | 18 |
| HLA-B*07:02 | 1 | 243 | 251 | 9 | ALHRSYLT 0.000191 | 25 |
| HLA-A*23:01 | 1 | 246 | 255 | 10 | RSYLT PGDSS 0.000191 | 17 |
| HLA-A*30:01 | 1 | 248 | 256 | 9 | YLTPGDSSS 0.000191 | 49 |
| HLA-A*23:01 | 1 | 262 | 270 | 9 | AAAYYVGYL 0.000191 | 17 |
| HLA-B*40:01 | 1 | 316 | 324 | 9 | SNFRVQPT 0.000191 | 15 |
| HLA-A*11:01 | 1 | 320 | 329 | 10 | VQPTESIVRF 0.000191 | 17 |
| HLA-A*68:01 | 1 | 325 | 333 | 9 | SIVRFPNIT 0.000191 | 26 |
| HLA-A*23:01 | 1 | 369 | 378 | 10 | YNSASFSTFK 0.000191 | 17 |
| HLA-B*58:01 | 1 | 395 | 404 | 10 | VYADSFVIRG 0.000191 | 28 |
| HLA-B*40:01 | 1 | 404 | 412 | 9 | GDEVQRQIAP 0.000191 | 15 |
| HLA-B*35:01 | 1 | 471 | 480 | 10 | EIYQAGSTPC 0.000191 | 19 |
| HLA-B*44:02 | 1 | 481 | 490 | 10 | NGVEGFNCYF 0.000191 | 17 |
| HLA-A*01:01 | 1 | 534 | 543 | 10 | VKNKCVNFN 0.000191 | 37 |
| HLA-A*01:01 | 1 | 545 | 553 | 9 | GLTGTGVL 0.000191 | 37 |
| HLA-A*68:01 | 1 | 588 | 597 | 10 | TPCSFGGVSV 0.000191 | 26 |
| HLA-A*30:01 | 1 | 600 | 608 | 9 | PGTNTSNQV 0.000191 | 49 |
| HLA-B*08:01 | 1 | 609 | 617 | 9 | AVLYQDVNC 0.000191 | 38 |
| HLA-A*31:01 | 1 | 612 | 620 | 9 | YQDVNCTEV 0.000191 | 29 |
| HLA-B*35:01 | 1 | 629 | 638 | 10 | LTPTWRVYST 0.000191 | 19 |
| HLA-A*03:01 | 1 | 641 | 649 | 9 | NVFQTRAGC 0.000191 | 22 |
| HLA-A*30:02 | 1 | 669 | 678 | 10 | GICASYQTQT 0.000191 | 46 |
| HLA-A*24:02 | 1 | 697 | 705 | 9 | MSLGAENSV 0.000191 | 16 |
| HLA-B*15:01 | 1 | 717 | 726 | 10 | NFTISVTTEI 0.000191 | 27 |
| HLA-A*02:01 | 1 | 723 | 732 | 10 | TTEILPVSM 0.000191 | 27 |
| HLA-B*51:01 | 1 | 740 | 749 | 10 | MYICGDSTEC 0.000191 | 34 |
| HLA-A*26:01 | 1 | 741 | 749 | 9 | YICGDSTEC 0.000191 | 23 |
| HLA-B*44:03 | 1 | 775 | 783 | 9 | DKNTQEVFA 0.000191 | 17 |
| HLA-B*58:01 | 1 | 776 | 784 | 9 | KNTQEVFAQ 0.000191 | 28 |
| HLA-B*44:02 | 1 | 777 | 786 | 10 | NTQEVFAQVK 0.000191 | 17 |
| HLA-B*40:01 | 1 | 778 | 787 | 10 | TQEVFAQVKQ 0.000191 | 15 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*33:01 | 1 | 795 | 803 | 9 | KDFGGFNFS 0.00019 | 28 |
| HLA-B*35:01 | 1 | 814 | 822 | 9 | KRSFIEDLL 0.00019 | 19 |
| HLA-B*44:02 | 1 | 824 | 833 | 10 | NKVTLADAGF 0.00019 | 17 |
| HLA-A*68:02 | 1 | 853 | 862 | 10 | QKFNGLTVLP 0.00019 | 30 |
| HLA-B*51:01 | 1 | 886 | 895 | 10 | WTFGAGAALQ 0.00019 | 34 |
| HLA-B*44:03 | 1 | 923 | 931 | 9 | IANQFNSAI 0.00019 | 17 |
| HLA-A*03:01 | 1 | 957 | 966 | 10 | QALNTLVKQL 0.00019 | 22 |
| HLA-A*02:01 | 1 | 965 | 974 | 10 | QLSSNFGAIS 0.00019 | 27 |
| HLA-B*57:01 | 1 | 976 | 985 | 10 | VLNDILSRLD 0.00019 | 38 |
| HLA-B*15:01 | 1 | 986 | 995 | 10 | KVEAEVQIDR 0.00019 | 27 |
| HLA-B*53:01 | 1 | 993 | 1001 | 9 | IDRLITGRL 0.00019 | 18 |
| HLA-A*01:01 | 1 | 1023 | 1031 | 9 | NLAATKMSE 0.00019 | 37 |
| HLA-A*32:01 | 1 | 1123 | 1132 | 10 | SGNCDVVIGI 0.00019 | 21 |
| HLA-A*68:02 | 1 | 1141 | 1149 | 9 | LQPELDSFK 0.00019 | 30 |
| HLA-A*03:01 | 1 | 1150 | 1159 | 10 | EELDKYFKNH 0.00019 | 22 |
| HLA-A*23:01 | 1 | 1157 | 1166 | 10 | KNHTSPDVDL 0.00019 | 17 |
| HLA-A*32:01 | 1 | 1216 | 1225 | 10 | IWLGFIAGLI 0.00019 | 21 |
| HLA-B*35:01 | 1 | 1224 | 1232 | 9 | LIAIVMVTI 0.00019 | 19 |
| HLA-A*24:02 | 1 | 1227 | 1235 | 9 | IVMVTIMLC 0.00019 | 16 |
| HLA-A*30:01 | 1 | 1257 | 1265 | 9 | DEDDSEPVL 0.00019 | 49 |
| HLA-A*11:01 | 1 | 14 | 23 | 10 | QCVNLTRTQ 0.000189 | 17 |
| HLA-A*02:01 | 1 | 69 | 78 | 10 | HVSGTNGTKR 0.000189 | 27 |
| HLA-A*01:01 | 1 | 107 | 116 | 10 | GTTLDSKTQS 0.000189 | 37 |
| HLA-A*11:01 | 1 | 125 | 133 | 9 | NVVIKVCEF 0.000189 | 17 |
| HLA-A*02:06 | 1 | 230 | 238 | 9 | PIGINITRF 0.000189 | 36 |
| HLA-B*35:01 | 1 | 293 | 302 | 10 | LDPLSETKCT 0.000189 | 19 |
| HLA-B*57:01 | 1 | 316 | 325 | 10 | SNFRVQPTES 0.000189 | 38 |
| HLA-B*35:01 | 1 | 330 | 338 | 9 | PNITNLCPF 0.000189 | 19 |
| HLA-B*57:01 | 1 | 338 | 346 | 9 | FGEVFNATR 0.000189 | 38 |
| HLA-A*23:01 | 1 | 341 | 349 | 9 | VFNATRFAS 0.000189 | 17 |
| HLA-B*57:01 | 1 | 400 | 409 | 10 | FVIRGDEVRO 0.000189 | 38 |
| HLA-A*01:01 | 1 | 410 | 419 | 10 | IAPGQTGKIA 0.000189 | 37 |
| HLA-B*35:01 | 1 | 412 | 421 | 10 | PGQTGKIADY 0.000189 | 19 |
| HLA-A*30:01 | 1 | 475 | 484 | 10 | AGSTPCNGVE 0.000189 | 49 |
| HLA-A*31:01 | 1 | 478 | 486 | 9 | TPCNGVEGF 0.000189 | 29 |
| HLA-B*53:01 | 1 | 480 | 489 | 10 | CNGVEGFNCY 0.000189 | 18 |
| HLA-A*26:01 | 1 | 522 | 531 | 10 | ATVCGPKKST 0.000189 | 23 |
| HLA-A*30:01 | 1 | 548 | 556 | 9 | GTGVLTESN 0.000189 | 49 |
| HLA-B*08:01 | 1 | 581 | 589 | 9 | TLEILDITP 0.000189 | 38 |
| HLA-A*33:01 | 1 | 586 | 595 | 10 | DITPCSFGGV 0.000189 | 28 |
| HLA-B*35:01 | 1 | 623 | 631 | 9 | AIHADQLTP 0.000189 | 19 |
| HLA-B*51:01 | 1 | 636 | 644 | 9 | YSTGSNVFQ 0.000189 | 34 |
| HLA-B*57:01 | 1 | 642 | 651 | 10 | VFQTRAGCLI 0.000189 | 38 |
| HLA-B*57:01 | 1 | 652 | 661 | 10 | GAEHVNNSYE 0.000189 | 38 |
| HLA-A*03:01 | 1 | 668 | 677 | 10 | AGICASYQTQ 0.000189 | 22 |
| HLA-B*51:01 | 1 | 734 | 743 | 10 | TSVDCTMYIC 0.000189 | 34 |
| HLA-B*40:01 | 1 | 838 | 846 | 9 | GDCLGDIAA 0.000189 | 15 |
| HLA-A*01:01 | 1 | 845 | 853 | 9 | AARDLICAQ 0.000189 | 37 |
| HLA-B*07:02 | 1 | 884 | 893 | 10 | SGWTFGAGAA 0.000189 | 25 |
| HLA-A*01:01 | 1 | 912 | 920 | 9 | TQNVLYENQ 0.000189 | 37 |
| HLA-A*03:01 | 1 | 968 | 977 | 10 | SNFGAISSVL 0.000189 | 22 |
| HLA-B*15:01 | 1 | 998 | 1006 | 9 | TGRLQSLQT 0.000189 | 28 |
| HLA-A*33:01 | 1 | 999 | 1008 | 10 | GRLQSLQTYV 0.000189 | 28 |
| HLA-B*40:01 | 1 | 1039 | 1047 | 9 | RVDFCGKGY 0.000189 | 15 |
| HLA-A*02:06 | 1 | 1235 | 1243 | 9 | CCMTSCCSC 0.000189 | 36 |
| HLA-A*30:02 | 1 | 33 | 42 | 10 | TRGVYYPDKV 0.000188 | 46 |
| HLA-A*02:06 | 1 | 76 | 85 | 10 | TKRFDNPVLP 0.000188 | 36 |
| HLA-A*01:01 | 1 | 172 | 180 | 9 | SQPFLEMDLE 0.000188 | 37 |
| HLA-A*02:06 | 1 | 187 | 195 | 9 | KNLREFVFK 0.000188 | 36 |
| HLA-B*44:02 | 1 | 262 | 270 | 9 | AAAYYVGYL 0.000188 | 17 |
| HLA-B*40:01 | 1 | 265 | 273 | 9 | YYVGYLQPR 0.000188 | 16 |
| HLA-B*35:01 | 1 | 379 | 387 | 9 | CYGVSPTKL 0.000188 | 20 |
| HLA-A*01:01 | 1 | 395 | 404 | 10 | VYADSFVIRG 0.000188 | 37 |
| HLA-A*31:01 | 1 | 401 | 409 | 9 | VIRGDEVRO 0.000188 | 29 |
| HLA-B*51:01 | 1 | 409 | 417 | 9 | QIAPGQTGK 0.000188 | 34 |
| HLA-B*07:02 | 1 | 475 | 483 | 9 | AGSTPCNGV 0.000188 | 25 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*02:06 | 1 | 538 | 547 | 10 | CVNFNFNGLT 0.000188 | 36 |
| HLA-B*51:01 | 1 | 540 | 548 | 9 | NFNFNGLTG 0.000188 | 34 |
| HLA-A*01:01 | 1 | 543 | 552 | 10 | FNGLTGTGVL 0.000188 | 37 |
| HLA-B*15:01 | 1 | 555 | 563 | 9 | SNKKFLPFQ 0.000188 | 28 |
| HLA-A*68:01 | 1 | 595 | 604 | 10 | VSVITPGTNT 0.000188 | 26 |
| HLA-A*33:01 | 1 | 596 | 605 | 10 | SVITPGTNTS 0.000188 | 28 |
| HLA-A*02:06 | 1 | 669 | 677 | 9 | GICASYQTQ 0.000188 | 36 |
| HLA-B*40:01 | 1 | 845 | 853 | 9 | AARDLICAQ 0.000188 | 16 |
| HLA-B*07:02 | 1 | 854 | 862 | 9 | KFNGLTVLP 0.000188 | 25 |
| HLA-B*40:01 | 1 | 909 | 917 | 9 | IGVTQNVLY 0.000188 | 16 |
| HLA-B*44:02 | 1 | 1040 | 1048 | 9 | VDFCGKGYH 0.000188 | 17 |
| HLA-A*23:01 | 1 | 1046 | 1055 | 10 | GYHLMSFPQS 0.000188 | 17 |
| HLA-A*32:01 | 1 | 1141 | 1149 | 9 | LQPELDSFK 0.000188 | 21 |
| HLA-B*40:01 | 1 | 1191 | 1200 | 10 | KNLNESLIDL 0.000188 | 16 |
| HLA-A*33:01 | 1 | 1222 | 1230 | 9 | AGLIAIVMV 0.000188 | 28 |
| HLA-B*35:01 | 1 | 1225 | 1234 | 10 | IAIVMVTIML 0.000188 | 20 |
| HLA-A*30:01 | 1 | 1247 | 1255 | 9 | CCSCGSCCK 0.000188 | 49 |
| HLA-B*53:01 | 1 | 22 | 30 | 9 | TQLPPAYTN 0.000187 | 19 |
| HLA-A*31:01 | 1 | 54 | 63 | 10 | LFLPFFSNVT 0.000187 | 29 |
| HLA-B*07:02 | 1 | 61 | 69 | 9 | NVTWFHAIH 0.000187 | 25 |
| HLA-B*44:02 | 1 | 62 | 70 | 9 | VTWFHAIHV 0.000187 | 17 |
| HLA-A*33:01 | 1 | 77 | 85 | 9 | KRFDNPVLP 0.000187 | 28 |
| HLA-A*31:01 | 1 | 101 | 110 | 10 | IRGWIFGTTL 0.000187 | 29 |
| HLA-A*24:02 | 1 | 103 | 111 | 9 | GWIFGTTL 0.000187 | 16 |
| HLA-A*01:01 | 1 | 120 | 129 | 10 | VNNATNVVIK 0.000187 | 37 |
| HLA-B*07:02 | 1 | 132 | 140 | 9 | EFQFCNDPF 0.000187 | 25 |
| HLA-B*08:01 | 1 | 224 | 232 | 9 | EPLVDLPIG 0.000187 | 38 |
| HLA-B*44:02 | 1 | 294 | 303 | 10 | DPLSETKCTL 0.000187 | 17 |
| HLA-A*02:01 | 1 | 333 | 341 | 9 | TNLCPFGEV 0.000187 | 27 |
| HLA-B*58:01 | 1 | 357 | 366 | 10 | RISNCVADYS 0.000187 | 29 |
| HLA-A*30:01 | 1 | 362 | 370 | 9 | VADYSVLYN 0.000187 | 49 |
| HLA-B*35:01 | 1 | 453 | 461 | 9 | YRLFRKSNL 0.000187 | 20 |
| HLA-A*02:06 | 1 | 462 | 471 | 10 | KPFERDISTE 0.000187 | 36 |
| HLA-B*07:02 | 1 | 466 | 475 | 10 | RDISTEIQQA 0.000187 | 25 |
| HLA-B*08:01 | 1 | 466 | 475 | 10 | RDISTEIQQA 0.000187 | 38 |
| HLA-A*33:01 | 1 | 471 | 480 | 10 | EIQAGSTPC 0.000187 | 28 |
| HLA-B*44:03 | 1 | 482 | 491 | 10 | GVEGFNCYFP 0.000187 | 17 |
| HLA-B*57:01 | 1 | 483 | 492 | 10 | VEGFNCYFPL 0.000187 | 38 |
| HLA-B*40:01 | 1 | 506 | 515 | 10 | QPYRVVLSF 0.000187 | 16 |
| HLA-B*35:01 | 1 | 515 | 524 | 10 | FELLHAPATV 0.000187 | 20 |
| HLA-A*26:01 | 1 | 519 | 527 | 9 | HAPATVCGP 0.000187 | 23 |
| HLA-A*11:01 | 1 | 535 | 543 | 9 | KNKCVNFN 0.000187 | 17 |
| HLA-B*08:01 | 1 | 549 | 557 | 9 | TGVLTESNK 0.000187 | 38 |
| HLA-B*35:01 | 1 | 577 | 585 | 9 | RDPQLEIL 0.000187 | 20 |
| HLA-A*31:01 | 1 | 595 | 604 | 10 | VSVITPGTNT 0.000187 | 29 |
| HLA-A*02:03 | 1 | 679 | 688 | 10 | NSPRRARSVA 0.000187 | 30 |
| HLA-B*08:01 | 1 | 689 | 698 | 10 | SQSIIAYTMS 0.000187 | 38 |
| HLA-B*58:01 | 1 | 693 | 702 | 10 | IAYTMSLGAE 0.000187 | 29 |
| HLA-A*30:01 | 1 | 772 | 780 | 9 | VEQDKNTQE 0.000187 | 49 |
| HLA-B*58:01 | 1 | 779 | 787 | 9 | QEVFAQVKQ 0.000187 | 29 |
| HLA-B*53:01 | 1 | 791 | 799 | 9 | TPPIKDFGG 0.000187 | 19 |
| HLA-B*15:01 | 1 | 858 | 866 | 9 | LTVLPPLLT 0.000187 | 28 |
| HLA-A*30:01 | 1 | 864 | 872 | 9 | LLTDEMIAQ 0.000187 | 49 |
| HLA-A*32:01 | 1 | 910 | 918 | 9 | GVTQNVLYE 0.000187 | 21 |
| HLA-A*03:01 | 1 | 912 | 920 | 9 | TQNVLYENQ 0.000187 | 23 |
| HLA-B*07:02 | 1 | 964 | 972 | 9 | KQLSSNFGA 0.000187 | 25 |
| HLA-B*44:02 | 1 | 964 | 973 | 10 | KQLSSNFGAI 0.000187 | 17 |
| HLA-B*51:01 | 1 | 964 | 972 | 9 | KQLSSNFGA 0.000187 | 34 |
| HLA-A*01:01 | 1 | 980 | 989 | 10 | ILSRLDKVEA 0.000187 | 37 |
| HLA-B*51:01 | 1 | 992 | 1000 | 9 | QIDRLITGR 0.000187 | 34 |
| HLA-A*01:01 | 1 | 1000 | 1009 | 10 | RLQSLQTYVT 0.000187 | 37 |
| HLA-B*58:01 | 1 | 1011 | 1019 | 9 | QLIRAAEIR 0.000187 | 29 |
| HLA-B*51:01 | 1 | 1039 | 1047 | 9 | RVDFCGKGY 0.000187 | 34 |
| HLA-A*01:01 | 1 | 1068 | 1076 | 9 | VPAQEKNF 0.000187 | 37 |
| HLA-B*44:02 | 1 | 1110 | 1119 | 10 | YEPQIITTDN 0.000187 | 17 |
| HLA-A*30:02 | 1 | 1114 | 1123 | 10 | IITTDNTFVS 0.000187 | 46 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*31:01 | 1 | 1123 | 1132 | 10 | SGNCDDVIGI 0.000187 | 29 |
| HLA-A*02:01 | 1 | 1209 | 1217 | 9 | YIKWPWYIW 0.000187 | 27 |
| HLA-A*31:01 | 1 | 1220 | 1229 | 10 | FIAGLIAIVM 0.000187 | 29 |
| HLA-B*15:01 | 1 | 1247 | 1256 | 10 | CCSCGSCCKF 0.000187 | 28 |
| HLA-B*40:01 | 1 | 56 | 65 | 10 | LPFFSNVTWF 0.000186 | 16 |
| HLA-A*68:02 | 1 | 93 | 102 | 10 | ASTEKSNIIR 0.000186 | 30 |
| HLA-B*07:02 | 1 | 96 | 104 | 9 | EKSNIIRGW 0.000186 | 25 |
| HLA-B*53:01 | 1 | 132 | 141 | 10 | EFQFCNDPFL 0.000186 | 19 |
| HLA-A*30:02 | 1 | 154 | 163 | 10 | ESEFRVYSSA 0.000186 | 47 |
| HLA-A*03:01 | 1 | 160 | 168 | 9 | YSSANNCTF 0.000186 | 23 |
| HLA-B*51:01 | 1 | 171 | 180 | 10 | VSQPFLMDLE 0.000186 | 34 |
| HLA-B*53:01 | 1 | 180 | 189 | 10 | EGKQGNFKNL 0.000186 | 19 |
| HLA-B*57:01 | 1 | 201 | 210 | 10 | FKIYSKHTPI 0.000186 | 38 |
| HLA-B*15:01 | 1 | 246 | 254 | 9 | RSYLTGDS 0.000186 | 28 |
| HLA-B*07:02 | 1 | 276 | 285 | 10 | LLKYNENGTI 0.000186 | 25 |
| HLA-A*02:03 | 1 | 313 | 321 | 9 | YQTSNFRVQ 0.000186 | 30 |
| HLA-B*58:01 | 1 | 325 | 334 | 10 | SIVRFPNITN 0.000186 | 29 |
| HLA-A*02:03 | 1 | 351 | 359 | 9 | YAWNKRKRIS 0.000186 | 30 |
| HLA-A*02:03 | 1 | 354 | 362 | 9 | NRKRISNCV 0.000186 | 30 |
| HLA-B*08:01 | 1 | 360 | 369 | 10 | NCVADYSVLY 0.000186 | 39 |
| HLA-A*68:02 | 1 | 398 | 406 | 9 | DSFVIRGDE 0.000186 | 30 |
| HLA-A*33:01 | 1 | 466 | 474 | 9 | RDISTEIQ 0.000186 | 28 |
| HLA-A*03:01 | 1 | 467 | 475 | 9 | DISTEIQQA 0.000186 | 23 |
| HLA-A*30:01 | 1 | 468 | 477 | 10 | ISTEIQAGS 0.000186 | 49 |
| HLA-A*02:03 | 1 | 473 | 482 | 10 | YQAGSTPCNG 0.000186 | 30 |
| HLA-A*01:01 | 1 | 523 | 531 | 9 | TVCGPKKST 0.000186 | 37 |
| HLA-A*31:01 | 1 | 598 | 607 | 10 | ITPGTNTSNQ 0.000186 | 29 |
| HLA-A*02:01 | 1 | 638 | 647 | 10 | TGSNVFQTRA 0.000186 | 27 |
| HLA-A*02:03 | 1 | 638 | 646 | 9 | TGSNVFQTR 0.000186 | 30 |
| HLA-A*01:01 | 1 | 683 | 691 | 9 | RARSVASQS 0.000186 | 37 |
| HLA-A*24:02 | 1 | 783 | 791 | 9 | AQVKQIYKT 0.000186 | 16 |
| HLA-B*51:01 | 1 | 790 | 798 | 9 | KTPPIKDFG 0.000186 | 34 |
| HLA-A*30:02 | 1 | 794 | 803 | 10 | IKDFGGFNFS 0.000186 | 47 |
| HLA-A*30:01 | 1 | 801 | 810 | 10 | NFSQILPDPS 0.000186 | 49 |
| HLA-A*03:01 | 1 | 835 | 844 | 10 | KQYGDCLGDI 0.000186 | 23 |
| HLA-B*07:02 | 1 | 875 | 884 | 10 | SALLAGTITS 0.000186 | 25 |
| HLA-B*08:01 | 1 | 932 | 940 | 9 | GKIQDSLSS 0.000186 | 39 |
| HLA-B*58:01 | 1 | 965 | 973 | 9 | QLSSNFGAI 0.000186 | 29 |
| HLA-A*02:06 | 1 | 1012 | 1021 | 10 | LIRAAEIRAS 0.000186 | 36 |
| HLA-B*53:01 | 1 | 1033 | 1042 | 10 | VLGQSKRVDF 0.000186 | 19 |
| HLA-B*58:01 | 1 | 1113 | 1122 | 10 | QIITTDNTFV 0.000186 | 29 |
| HLA-B*57:01 | 1 | 1119 | 1127 | 9 | NTFVSGNCD 0.000186 | 38 |
| HLA-B*58:01 | 1 | 1121 | 1129 | 9 | FVSGNCDVV 0.000186 | 29 |
| HLA-A*26:01 | 1 | 1129 | 1137 | 9 | VIGIVNNTV 0.000186 | 23 |
| HLA-A*33:01 | 1 | 1133 | 1141 | 9 | VNNTVYDPL 0.000186 | 28 |
| HLA-B*57:01 | 1 | 1171 | 1180 | 10 | GINASVVNIQ 0.000186 | 38 |
| HLA-B*15:01 | 1 | 1203 | 1211 | 9 | LGKYEQYIK 0.000186 | 28 |
| HLA-A*68:01 | 1 | 1261 | 1270 | 10 | SEPVLKGVKL 0.000186 | 26 |
| HLA-A*02:06 | 1 | 1 | 9 | 9 | MFVFLVLLP 0.000185 | 36 |
| HLA-A*24:02 | 1 | 34 | 42 | 9 | RGVYYPDKV 0.000185 | 16 |
| HLA-A*01:01 | 1 | 41 | 50 | 10 | KVFRSSVLHS 0.000185 | 37 |
| HLA-A*30:02 | 1 | 72 | 80 | 9 | GTNGTKRFD 0.000185 | 47 |
| HLA-B*15:01 | 1 | 92 | 101 | 10 | FASTEKSNI 0.000185 | 28 |
| HLA-B*35:01 | 1 | 121 | 130 | 10 | NNATNVVIKV 0.000185 | 20 |
| HLA-A*26:01 | 1 | 149 | 158 | 10 | NKSWMESEFR 0.000185 | 23 |
| HLA-A*01:01 | 1 | 207 | 215 | 9 | HTPINLVDR 0.000185 | 37 |
| HLA-B*15:01 | 1 | 223 | 231 | 9 | LEPLVDLPI 0.000185 | 28 |
| HLA-A*68:02 | 1 | 260 | 269 | 10 | AGAAAYVGY 0.000185 | 30 |
| HLA-A*32:01 | 1 | 273 | 282 | 10 | RTFLLKYNEN 0.000185 | 21 |
| HLA-A*03:01 | 1 | 312 | 320 | 9 | IYQTSNFRV 0.000185 | 23 |
| HLA-B*58:01 | 1 | 320 | 328 | 9 | VQPTESIVR 0.000185 | 29 |
| HLA-B*15:01 | 1 | 324 | 332 | 9 | ESIVRFPNI 0.000185 | 28 |
| HLA-B*51:01 | 1 | 406 | 415 | 10 | EVRQIAPGQT 0.000185 | 34 |
| HLA-A*68:02 | 1 | 418 | 426 | 9 | IADYNYKLP 0.000185 | 30 |
| HLA-A*32:01 | 1 | 437 | 445 | 9 | NSNNLDSKV 0.000185 | 21 |
| HLA-A*02:06 | 1 | 529 | 538 | 10 | KSTNLVKNKC 0.000185 | 36 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*02:03 | 1 | 540 | 549 | 10 | NFNFNGLTGT 0.000185 | 30 |
| HLA-A*30:02 | 1 | 556 | 564 | 9 | NKKFLPFQQ 0.000185 | 47 |
| HLA-B*08:01 | 1 | 567 | 576 | 10 | RDIADTTDAV 0.000185 | 39 |
| HLA-B*08:01 | 1 | 640 | 649 | 10 | SNVVFQTRAGC 0.000185 | 39 |
| HLA-A*32:01 | 1 | 665 | 674 | 10 | PIGAGICASY 0.000185 | 21 |
| HLA-B*58:01 | 1 | 677 | 686 | 10 | QTNSPRRARS 0.000185 | 29 |
| HLA-A*03:01 | 1 | 687 | 696 | 10 | VASQSIIAYT 0.000185 | 23 |
| HLA-A*02:03 | 1 | 689 | 698 | 10 | SQSIIAYTMS 0.000185 | 30 |
| HLA-A*68:02 | 1 | 732 | 741 | 10 | TKTSVDCTMY 0.000185 | 30 |
| HLA-A*23:01 | 1 | 747 | 756 | 10 | TECSNLLLQY 0.000185 | 17 |
| HLA-B*58:01 | 1 | 748 | 757 | 10 | ECSNLLLQYG 0.000185 | 29 |
| HLA-A*02:06 | 1 | 750 | 759 | 10 | SNLLLQYGSF 0.000185 | 36 |
| HLA-A*02:01 | 1 | 766 | 775 | 10 | ALTGIAVEQD 0.000185 | 27 |
| HLA-B*51:01 | 1 | 770 | 779 | 10 | IAVEQDKNTQ 0.000185 | 34 |
| HLA-A*31:01 | 1 | 774 | 782 | 9 | QDKNTQEVF 0.000185 | 29 |
| HLA-A*23:01 | 1 | 787 | 795 | 9 | QIYKTPPIK 0.000185 | 17 |
| HLA-B*57:01 | 1 | 813 | 821 | 9 | SKRSFIEDL 0.000185 | 38 |
| HLA-A*03:01 | 1 | 815 | 824 | 10 | RSFIEDLLFN 0.000185 | 23 |
| HLA-B*58:01 | 1 | 824 | 833 | 10 | NKVTLADAGF 0.000185 | 29 |
| HLA-A*30:01 | 1 | 836 | 844 | 9 | QYGDCLGDI 0.000185 | 49 |
| HLA-B*07:02 | 1 | 851 | 860 | 10 | CAQKFNGLTV 0.000185 | 25 |
| HLA-B*53:01 | 1 | 852 | 861 | 10 | AQKFNGLTVL 0.000185 | 19 |
| HLA-B*08:01 | 1 | 855 | 863 | 9 | FNGLTVLPP 0.000185 | 39 |
| HLA-B*44:03 | 1 | 869 | 877 | 9 | MIAQYTSAL 0.000185 | 17 |
| HLA-A*30:02 | 1 | 879 | 887 | 9 | AGTITSGWT 0.000185 | 47 |
| HLA-B*35:01 | 1 | 908 | 916 | 9 | GIGVTQNVL 0.000185 | 20 |
| HLA-A*03:01 | 1 | 911 | 920 | 10 | VTQNVLYENQ 0.000185 | 23 |
| HLA-B*53:01 | 1 | 995 | 1004 | 10 | RLITGRLQSL 0.000185 | 19 |
| HLA-A*31:01 | 1 | 1034 | 1042 | 9 | LGQSKRVDF 0.000185 | 29 |
| HLA-A*02:01 | 1 | 1053 | 1061 | 9 | PQSAPHGVV 0.000185 | 27 |
| HLA-B*53:01 | 1 | 1070 | 1078 | 9 | AQEKNFTTA 0.000185 | 19 |
| HLA-B*44:02 | 1 | 1146 | 1154 | 9 | DSFKEELDK 0.000185 | 17 |
| HLA-B*53:01 | 1 | 1188 | 1196 | 9 | EVAKNLNES 0.000185 | 19 |
| HLA-A*32:01 | 1 | 1218 | 1227 | 10 | LGFIAGLIAI 0.000185 | 21 |
| HLA-A*68:02 | 1 | 4 | 12 | 9 | FLVLLPLVS 0.000184 | 30 |
| HLA-A*01:01 | 1 | 10 | 19 | 10 | LVSSQCVNLT 0.000184 | 37 |
| HLA-B*51:01 | 1 | 13 | 21 | 9 | SQCVNLTTR 0.000184 | 35 |
| HLA-B*58:01 | 1 | 14 | 23 | 10 | QCVNLTTRTQ 0.000184 | 29 |
| HLA-A*33:01 | 1 | 38 | 47 | 10 | YDPKVFRRSSV 0.000184 | 28 |
| HLA-B*44:03 | 1 | 38 | 46 | 9 | YDPKVFRRSS 0.000184 | 17 |
| HLA-A*24:02 | 1 | 41 | 49 | 9 | KVFRSSVLH 0.000184 | 16 |
| HLA-A*02:06 | 1 | 93 | 102 | 10 | ASTEKSNIIR 0.000184 | 36 |
| HLA-A*23:01 | 1 | 103 | 111 | 9 | GWIFGTTLTLD 0.000184 | 17 |
| HLA-A*01:01 | 1 | 104 | 112 | 9 | WIFGTTLDS 0.000184 | 37 |
| HLA-B*53:01 | 1 | 115 | 123 | 9 | QSLLVNNA 0.000184 | 19 |
| HLA-B*40:01 | 1 | 267 | 276 | 10 | VGYLQPRTFL 0.000184 | 16 |
| HLA-A*30:01 | 1 | 296 | 305 | 10 | LSETKCTLKS 0.000184 | 49 |
| HLA-B*58:01 | 1 | 467 | 475 | 9 | DISTEIYQA 0.000184 | 29 |
| HLA-A*01:01 | 1 | 508 | 517 | 10 | YRVVLSFEL 0.000184 | 37 |
| HLA-B*15:01 | 1 | 545 | 554 | 10 | GLTGTGVLTE 0.000184 | 28 |
| HLA-B*35:01 | 1 | 575 | 583 | 9 | AVRDPQTLTLE 0.000184 | 20 |
| HLA-A*32:01 | 1 | 640 | 649 | 10 | SNVVFQTRAGC 0.000184 | 21 |
| HLA-B*57:01 | 1 | 669 | 677 | 9 | GICASYQTQ 0.000184 | 39 |
| HLA-B*58:01 | 1 | 669 | 677 | 9 | GICASYQTQ 0.000184 | 29 |
| HLA-A*30:02 | 1 | 719 | 728 | 10 | TISVTTEILP 0.000184 | 47 |
| HLA-A*68:01 | 1 | 753 | 762 | 10 | LLQYGSFCTQ 0.000184 | 26 |
| HLA-A*31:01 | 1 | 835 | 844 | 10 | KQYGDCLGDI 0.000184 | 29 |
| HLA-A*32:01 | 1 | 876 | 885 | 10 | ALLAGTITSG 0.000184 | 21 |
| HLA-A*02:03 | 1 | 890 | 898 | 9 | AGAALQIPF 0.000184 | 30 |
| HLA-B*53:01 | 1 | 1040 | 1049 | 10 | VDFCGKGYHL 0.000184 | 19 |
| HLA-A*33:01 | 1 | 1086 | 1095 | 10 | KAHFPREGVF 0.000184 | 28 |
| HLA-A*24:02 | 1 | 1099 | 1107 | 9 | GTHWFVTQR 0.000184 | 16 |
| HLA-A*02:06 | 1 | 1129 | 1138 | 10 | VIGIVNNTVY 0.000184 | 36 |
| HLA-B*40:01 | 1 | 1184 | 1193 | 10 | DRLNEVAKNL 0.000184 | 16 |
| HLA-A*33:01 | 1 | 1198 | 1206 | 9 | IDLQELGKY 0.000184 | 28 |
| HLA-B*57:01 | 1 | 1216 | 1225 | 10 | IWLGFIAGLI 0.000184 | 39 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*30:02 | 1 | 1228 | 1237 | 10 | VMVTIMLCCM 0.000184 | 47 |
| HLA-A*31:01 | 1 | 1260 | 1268 | 9 | DSEPVLKGV 0.000184 | 29 |
| HLA-A*32:01 | 1 | 5 | 14 | 10 | LVLLPLVSSQ 0.000183 | 21 |
| HLA-A*11:01 | 1 | 22 | 30 | 9 | TQLPPAYTN 0.000183 | 17 |
| HLA-A*68:02 | 1 | 67 | 76 | 10 | AIHVSNGTGT 0.000183 | 30 |
| HLA-A*31:01 | 1 | 166 | 174 | 9 | CTFEYVSQP 0.000183 | 29 |
| HLA-A*26:01 | 1 | 170 | 178 | 9 | YVSQPFLMD 0.000183 | 23 |
| HLA-A*30:02 | 1 | 176 | 184 | 9 | LMDLEGKQG 0.000183 | 47 |
| HLA-A*33:01 | 1 | 216 | 224 | 9 | LPQGFSALE 0.000183 | 28 |
| HLA-B*51:01 | 1 | 234 | 243 | 10 | NITRFQTLA 0.000183 | 35 |
| HLA-B*15:01 | 1 | 264 | 272 | 9 | AYYVGYLQP 0.000183 | 28 |
| HLA-B*51:01 | 1 | 265 | 273 | 9 | YYVGYLQPR 0.000183 | 35 |
| HLA-A*32:01 | 1 | 325 | 333 | 9 | SIVRFPNIT 0.000183 | 21 |
| HLA-B*40:01 | 1 | 359 | 367 | 9 | SNCVADYSV 0.000183 | 16 |
| HLA-B*44:02 | 1 | 401 | 410 | 10 | VIRGDEVRI 0.000183 | 18 |
| HLA-B*57:01 | 1 | 449 | 458 | 10 | YNYLYRFRK 0.000183 | 39 |
| HLA-A*33:01 | 1 | 462 | 471 | 10 | KPFERDISTE 0.000183 | 28 |
| HLA-A*02:01 | 1 | 517 | 526 | 10 | LLHAPATVCG 0.000183 | 27 |
| HLA-A*26:01 | 1 | 525 | 534 | 10 | CGPKKSTNLV 0.000183 | 23 |
| HLA-B*58:01 | 1 | 526 | 534 | 9 | GPKKSTNLV 0.000183 | 29 |
| HLA-A*68:01 | 1 | 527 | 535 | 9 | PKKSTNLVK 0.000183 | 26 |
| HLA-A*23:01 | 1 | 537 | 546 | 10 | KCVNFNFNGL 0.000183 | 17 |
| HLA-A*26:01 | 1 | 542 | 551 | 10 | NFNGLTGTGV 0.000183 | 23 |
| HLA-A*26:01 | 1 | 611 | 620 | 10 | LYQDVNCTEV 0.000183 | 23 |
| HLA-A*31:01 | 1 | 624 | 632 | 9 | IHADQLTPT 0.000183 | 29 |
| HLA-A*32:01 | 1 | 628 | 637 | 10 | QLTPTWRVYS 0.000183 | 21 |
| HLA-B*08:01 | 1 | 670 | 678 | 9 | ICASYQTQT 0.000183 | 39 |
| HLA-B*08:01 | 1 | 762 | 771 | 10 | QLNRALTGIA 0.000183 | 39 |
| HLA-B*15:01 | 1 | 772 | 780 | 9 | VEQDKNTQE 0.000183 | 28 |
| HLA-A*23:01 | 1 | 786 | 795 | 10 | KQIYKTPPIK 0.000183 | 17 |
| HLA-A*30:02 | 1 | 789 | 798 | 10 | YKTPPIKDFG 0.000183 | 47 |
| HLA-A*23:01 | 1 | 868 | 877 | 10 | EMIAQYTSAL 0.000183 | 17 |
| HLA-B*40:01 | 1 | 904 | 913 | 10 | YRFNGIGVTQ 0.000183 | 16 |
| HLA-A*24:02 | 1 | 907 | 916 | 10 | NGIGVTQNVL 0.000183 | 16 |
| HLA-B*51:01 | 1 | 917 | 925 | 9 | YENQKLIAN 0.000183 | 35 |
| HLA-A*68:01 | 1 | 921 | 930 | 10 | KLIANQFNFA 0.000183 | 26 |
| HLA-B*35:01 | 1 | 943 | 952 | 10 | SALGKLQDVV 0.000183 | 20 |
| HLA-B*44:02 | 1 | 965 | 973 | 9 | QLSSNFGAI 0.000183 | 18 |
| HLA-A*24:02 | 1 | 991 | 1000 | 10 | VQIDRLITGR 0.000183 | 16 |
| HLA-A*30:02 | 1 | 1069 | 1078 | 10 | PAQEKNFITA 0.000183 | 47 |
| HLA-B*08:01 | 1 | 1077 | 1085 | 9 | TAPAICHDG 0.000183 | 39 |
| HLA-A*02:06 | 1 | 1100 | 1109 | 10 | THWFVTQRNF 0.000183 | 36 |
| HLA-A*01:01 | 1 | 1132 | 1141 | 10 | IVNNTVYDPL 0.000183 | 37 |
| HLA-B*15:01 | 1 | 1172 | 1181 | 10 | INASVVNIQK 0.000183 | 28 |
| HLA-A*24:02 | 1 | 19 | 28 | 10 | TTRTQLPPAY 0.000182 | 16 |
| HLA-A*01:01 | 1 | 25 | 34 | 10 | PPAYTNSFTR 0.000182 | 37 |
| HLA-B*44:03 | 1 | 36 | 44 | 9 | VYYPDKVFR 0.000182 | 17 |
| HLA-B*57:01 | 1 | 37 | 46 | 10 | YYPDKVFRSS 0.000182 | 39 |
| HLA-A*33:01 | 1 | 41 | 50 | 10 | KVFRSSVLHS 0.000182 | 28 |
| HLA-A*24:02 | 1 | 89 | 98 | 10 | GVYFASTEKS 0.000182 | 16 |
| HLA-B*44:02 | 1 | 94 | 102 | 9 | STEKSNIIR 0.000182 | 18 |
| HLA-B*40:01 | 1 | 144 | 153 | 10 | YYHKNNKSWM 0.000182 | 16 |
| HLA-B*07:02 | 1 | 198 | 206 | 9 | DGYFKIYSK 0.000182 | 25 |
| HLA-A*30:01 | 1 | 229 | 238 | 10 | LPIGINITRF 0.000182 | 50 |
| HLA-A*11:01 | 1 | 324 | 332 | 9 | ESIVRFPNI 0.000182 | 18 |
| HLA-A*01:01 | 1 | 354 | 362 | 9 | NRKRISNCV 0.000182 | 37 |
| HLA-B*15:01 | 1 | 359 | 368 | 10 | SNCVADYSVL 0.000182 | 28 |
| HLA-B*57:01 | 1 | 373 | 382 | 10 | SFSTFKCYGV 0.000182 | 39 |
| HLA-B*15:01 | 1 | 379 | 387 | 9 | CYGVSPTKL 0.000182 | 28 |
| HLA-A*02:03 | 1 | 473 | 481 | 9 | YQAGSTPCN 0.000182 | 30 |
| HLA-A*02:06 | 1 | 499 | 507 | 9 | PTNGVGYQP 0.000182 | 37 |
| HLA-B*57:01 | 1 | 519 | 527 | 9 | HAPATVCGP 0.000182 | 39 |
| HLA-A*32:01 | 1 | 524 | 533 | 10 | VCGPKKSTNL 0.000182 | 21 |
| HLA-B*07:02 | 1 | 542 | 551 | 10 | NFNGLTGTGV 0.000182 | 25 |
| HLA-A*02:03 | 1 | 547 | 555 | 9 | TGTGVLTES 0.000182 | 30 |
| HLA-A*02:01 | 1 | 572 | 581 | 10 | TTDAVRDPQT 0.000182 | 27 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*58:01 | 1 | 616 | 625 | 10 | NCTEVPVAIH 0.000182 | 29 |
| HLA-A*26:01 | 1 | 652 | 661 | 10 | GAEHVNNSYE 0.000182 | 23 |
| HLA-A*02:01 | 1 | 663 | 672 | 10 | DIPIGAGICA 0.000182 | 27 |
| HLA-B*35:01 | 1 | 675 | 683 | 9 | QTQTNSPRR 0.000182 | 20 |
| HLA-A*33:01 | 1 | 704 | 713 | 10 | SVAYSNNNSIA 0.000182 | 28 |
| HLA-B*51:01 | 1 | 709 | 717 | 9 | NNSIAIPTN 0.000182 | 35 |
| HLA-B*44:02 | 1 | 804 | 812 | 9 | QILPDPSKP 0.000182 | 18 |
| HLA-A*02:03 | 1 | 845 | 853 | 9 | AARDLICAQ 0.000182 | 30 |
| HLA-A*03:01 | 1 | 954 | 962 | 9 | QNAQALNTL 0.000182 | 23 |
| HLA-B*08:01 | 1 | 955 | 964 | 10 | NAQALNTLVK 0.000182 | 39 |
| HLA-A*26:01 | 1 | 960 | 968 | 9 | NTLVKQLSS 0.000182 | 23 |
| HLA-A*33:01 | 1 | 990 | 999 | 10 | EVQIDRLITG 0.000182 | 28 |
| HLA-A*23:01 | 1 | 999 | 1008 | 10 | GRLQSLQTYV 0.000182 | 17 |
| HLA-B*40:01 | 1 | 1007 | 1015 | 9 | YVTQQLIRA 0.000182 | 16 |
| HLA-B*53:01 | 1 | 1008 | 1016 | 9 | VTQQLIRAA 0.000182 | 19 |
| HLA-A*11:01 | 1 | 1070 | 1078 | 9 | AQEKNFTTA 0.000182 | 18 |
| HLA-B*53:01 | 1 | 1106 | 1114 | 9 | QRNFYEPQI 0.000182 | 19 |
| HLA-A*02:01 | 1 | 1155 | 1164 | 10 | YFKNHTSPDV 0.000182 | 27 |
| HLA-A*24:02 | 1 | 1157 | 1166 | 10 | KNHTSPDVDL 0.000182 | 16 |
| HLA-A*23:01 | 1 | 1173 | 1181 | 9 | NASVNNIQK 0.000182 | 17 |
| HLA-A*31:01 | 1 | 1223 | 1231 | 9 | GLIAIVMVT 0.000182 | 29 |
| HLA-B*08:01 | 1 | 9 | 18 | 10 | PLVSSQCVNL 0.000181 | 39 |
| HLA-A*31:01 | 1 | 48 | 56 | 9 | LHSTQDLFL 0.000181 | 29 |
| HLA-A*11:01 | 1 | 63 | 71 | 9 | TWFHAIHVS 0.000181 | 18 |
| HLA-B*57:01 | 1 | 89 | 98 | 10 | GYYFASTEKS 0.000181 | 39 |
| HLA-B*40:01 | 1 | 92 | 100 | 9 | FASTEKSNI 0.000181 | 16 |
| HLA-A*11:01 | 1 | 97 | 106 | 10 | KSNIIRGWIF 0.000181 | 18 |
| HLA-B*44:02 | 1 | 97 | 106 | 10 | KSNIIRGWIF 0.000181 | 18 |
| HLA-A*26:01 | 1 | 102 | 110 | 9 | RGWIFGTTL 0.000181 | 23 |
| HLA-A*02:01 | 1 | 117 | 125 | 9 | LLIVNNATN 0.000181 | 27 |
| HLA-A*26:01 | 1 | 150 | 158 | 9 | KSWMSEFR 0.000181 | 23 |
| HLA-A*30:02 | 1 | 154 | 162 | 9 | ESEFRVYSS 0.000181 | 47 |
| HLA-B*57:01 | 1 | 207 | 215 | 9 | HTPINLVRD 0.000181 | 39 |
| HLA-A*23:01 | 1 | 236 | 245 | 10 | TRFQTLALH 0.000181 | 17 |
| HLA-B*44:02 | 1 | 316 | 324 | 9 | SNFRVQPT 0.000181 | 18 |
| HLA-A*23:01 | 1 | 350 | 359 | 10 | VYAWNRKRIS 0.000181 | 17 |
| HLA-B*15:01 | 1 | 350 | 358 | 9 | VYAWNRKRI 0.000181 | 28 |
| HLA-A*03:01 | 1 | 357 | 366 | 10 | RISNCVADYS 0.000181 | 23 |
| HLA-A*33:01 | 1 | 363 | 372 | 10 | ADYSVLYNSA 0.000181 | 28 |
| HLA-B*40:01 | 1 | 371 | 379 | 9 | SASFSTFKC 0.000181 | 16 |
| HLA-B*35:01 | 1 | 400 | 409 | 10 | FVIRGDEVQR 0.000181 | 20 |
| HLA-B*08:01 | 1 | 511 | 519 | 9 | VVLSFELLH 0.000181 | 39 |
| HLA-A*24:02 | 1 | 560 | 569 | 10 | LPFQQFGRDI 0.000181 | 16 |
| HLA-B*08:01 | 1 | 564 | 573 | 10 | QFGRDIADTT 0.000181 | 39 |
| HLA-A*32:01 | 1 | 597 | 605 | 9 | VITPGTNTS 0.000181 | 21 |
| HLA-B*15:01 | 1 | 609 | 618 | 10 | AVLYQDVNCT 0.000181 | 28 |
| HLA-A*31:01 | 1 | 623 | 631 | 9 | AIHADQLTP 0.000181 | 29 |
| HLA-A*01:01 | 1 | 642 | 651 | 10 | VFQTRAGCLI 0.000181 | 38 |
| HLA-A*11:01 | 1 | 713 | 722 | 10 | AIPTNFTISV 0.000181 | 18 |
| HLA-A*26:01 | 1 | 747 | 755 | 9 | TECSNLLLQ 0.000181 | 23 |
| HLA-B*53:01 | 1 | 754 | 763 | 10 | LQYGSFCTQL 0.000181 | 19 |
| HLA-B*44:03 | 1 | 759 | 767 | 9 | FCTQLNRL 0.000181 | 17 |
| HLA-B*51:01 | 1 | 802 | 810 | 9 | FSQILPDPS 0.000181 | 35 |
| HLA-A*32:01 | 1 | 806 | 814 | 9 | LPDPSKPSK 0.000181 | 21 |
| HLA-A*01:01 | 1 | 843 | 852 | 10 | DIAARDLICA 0.000181 | 38 |
| HLA-B*44:02 | 1 | 850 | 858 | 9 | ICAQKFNGL 0.000181 | 18 |
| HLA-B*35:01 | 1 | 867 | 876 | 10 | DEMIAQY TSA 0.000181 | 20 |
| HLA-A*31:01 | 1 | 903 | 912 | 10 | AYRFNGIGVT 0.000181 | 29 |
| HLA-B*58:01 | 1 | 909 | 918 | 10 | IGVTQNVLYE 0.000181 | 29 |
| HLA-B*44:02 | 1 | 914 | 923 | 10 | NVLYENQKLI 0.000181 | 18 |
| HLA-B*15:01 | 1 | 932 | 940 | 9 | GKIQDSLSS 0.000181 | 28 |
| HLA-B*15:01 | 1 | 955 | 963 | 9 | NAQALNTLV 0.000181 | 28 |
| HLA-A*02:03 | 1 | 997 | 1006 | 10 | ITGRLQSLQT 0.000181 | 30 |
| HLA-A*68:01 | 1 | 1000 | 1008 | 9 | RLQSLQTYV 0.000181 | 26 |
| HLA-A*02:06 | 1 | 1014 | 1023 | 10 | RAAEIRASAN 0.000181 | 37 |
| HLA-A*03:01 | 1 | 1017 | 1025 | 9 | EIRASANLA 0.000181 | 23 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*57:01 | 1 | 1029 | 1037 | 9 | MSECVLGQS 0.000181 | 39 |
| HLA-A*31:01 | 1 | 1050 | 1059 | 10 | MSFPQSAPHG 0.000181 | 29 |
| HLA-B*57:01 | 1 | 1088 | 1097 | 10 | HFPREGVAVS 0.000181 | 39 |
| HLA-A*68:01 | 1 | 1097 | 1106 | 10 | SNGTHWFVTQ 0.000181 | 26 |
| HLA-B*51:01 | 1 | 1107 | 1116 | 10 | RNFYEQIIT 0.000181 | 35 |
| HLA-A*68:01 | 1 | 1124 | 1132 | 9 | GNCDVVIGI 0.000181 | 26 |
| HLA-A*03:01 | 1 | 1147 | 1156 | 10 | SFKEELDKYF 0.000181 | 23 |
| HLA-A*30:01 | 1 | 1158 | 1166 | 9 | NHTSPDVDL 0.000181 | 50 |
| HLA-A*30:01 | 1 | 1166 | 1175 | 10 | LGDISGINAS 0.000181 | 50 |
| HLA-B*40:01 | 1 | 1168 | 1176 | 9 | DISGINASV 0.000181 | 16 |
| HLA-B*40:01 | 1 | 1187 | 1196 | 10 | NEVAKNLNES 0.000181 | 16 |
| HLA-A*26:01 | 1 | 8 | 16 | 9 | LPLVSSQCV 0.000181 | 23 |
| HLA-A*02:06 | 1 | 33 | 42 | 10 | TRGVYYPDKV 0.000181 | 37 |
| HLA-A*02:03 | 1 | 38 | 46 | 9 | YDPKVFVRS 0.000181 | 30 |
| HLA-A*01:01 | 1 | 40 | 48 | 9 | DKVFRSSVL 0.000181 | 38 |
| HLA-A*26:01 | 1 | 47 | 56 | 10 | VLHSTQDLFL 0.000181 | 23 |
| HLA-A*03:01 | 1 | 75 | 83 | 9 | GTKRFDNPV 0.000181 | 23 |
| HLA-A*30:02 | 1 | 79 | 87 | 9 | FDNPVLPFN 0.000181 | 47 |
| HLA-B*08:01 | 1 | 90 | 98 | 9 | VYFASTEKS 0.000181 | 39 |
| HLA-A*68:01 | 1 | 113 | 121 | 9 | KTQSLIVN 0.000181 | 26 |
| HLA-B*57:01 | 1 | 129 | 138 | 10 | KVCEFQFCND 0.000181 | 39 |
| HLA-A*02:01 | 1 | 166 | 175 | 10 | CTFEYVSQPF 0.000181 | 28 |
| HLA-A*03:01 | 1 | 167 | 176 | 10 | TFEYVSQPF 0.000181 | 23 |
| HLA-B*15:01 | 1 | 219 | 227 | 9 | GFSALEPLV 0.000181 | 28 |
| HLA-A*02:01 | 1 | 229 | 238 | 10 | LPIGINITRF 0.000181 | 28 |
| HLA-B*44:03 | 1 | 234 | 242 | 9 | NITRFQTL 0.000181 | 17 |
| HLA-A*02:01 | 1 | 307 | 316 | 10 | TVEKGIYQTS 0.000181 | 28 |
| HLA-A*68:01 | 1 | 335 | 344 | 10 | LCPFGEVFNA 0.000181 | 26 |
| HLA-B*15:01 | 1 | 463 | 472 | 10 | PFERDISTEI 0.000181 | 28 |
| HLA-B*44:02 | 1 | 506 | 514 | 9 | QPYRVVLS 0.000181 | 18 |
| HLA-B*44:02 | 1 | 552 | 560 | 9 | LTESNKKFL 0.000181 | 18 |
| HLA-A*30:01 | 1 | 561 | 569 | 9 | PFQQFGRDI 0.000181 | 50 |
| HLA-B*51:01 | 1 | 659 | 668 | 10 | SYECDIPIGA 0.000181 | 35 |
| HLA-A*31:01 | 1 | 665 | 674 | 10 | PIGAGICASY 0.000181 | 29 |
| HLA-B*51:01 | 1 | 677 | 685 | 9 | QTNSPRRAR 0.000181 | 35 |
| HLA-B*15:01 | 1 | 696 | 704 | 9 | TMSLGAENS 0.000181 | 28 |
| HLA-A*24:02 | 1 | 733 | 741 | 9 | KTSVDCTMY 0.000181 | 16 |
| HLA-A*02:03 | 1 | 735 | 743 | 9 | SVDCTMYIC 0.000181 | 30 |
| HLA-B*44:02 | 1 | 761 | 769 | 9 | TQLNRALTG 0.000181 | 18 |
| HLA-B*53:01 | 1 | 765 | 773 | 9 | RALTGIAVE 0.000181 | 19 |
| HLA-A*01:01 | 1 | 772 | 780 | 9 | VEQDKNTQE 0.000181 | 38 |
| HLA-B*57:01 | 1 | 776 | 784 | 9 | KNTQEVFAQ 0.000181 | 39 |
| HLA-B*35:01 | 1 | 779 | 787 | 9 | QEVFAQVKQ 0.000181 | 20 |
| HLA-B*51:01 | 1 | 779 | 787 | 9 | QEVFAQVKQ 0.000181 | 35 |
| HLA-A*30:01 | 1 | 832 | 840 | 9 | GFIKQYGDC 0.000181 | 50 |
| HLA-A*24:02 | 1 | 836 | 845 | 10 | QYGDCLGDIA 0.000181 | 16 |
| HLA-A*68:01 | 1 | 843 | 852 | 10 | DIAARDLICA 0.000181 | 26 |
| HLA-B*57:01 | 1 | 851 | 859 | 9 | CAQKFNGLT 0.000181 | 39 |
| HLA-A*02:03 | 1 | 875 | 883 | 9 | SALLAGTIT 0.000181 | 30 |
| HLA-A*03:01 | 1 | 891 | 899 | 9 | GAALQIPFA 0.000181 | 23 |
| HLA-B*44:03 | 1 | 930 | 938 | 9 | AIGKIQDSL 0.000181 | 17 |
| HLA-A*23:01 | 1 | 975 | 983 | 9 | SVLNDILSR 0.000181 | 17 |
| HLA-A*02:03 | 1 | 982 | 990 | 9 | SRLDKVEAE 0.000181 | 30 |
| HLA-A*30:02 | 1 | 986 | 994 | 9 | KVEAEVQID 0.000181 | 47 |
| HLA-B*07:02 | 1 | 996 | 1005 | 10 | LITGRLQSLQ 0.000181 | 25 |
| HLA-A*01:01 | 1 | 1075 | 1084 | 10 | FTTAPAICH 0.000181 | 38 |
| HLA-B*35:01 | 1 | 1078 | 1087 | 10 | APAICHDGKA 0.000181 | 20 |
| HLA-B*07:02 | 1 | 1108 | 1117 | 10 | NFYEQIIT 0.000181 | 25 |
| HLA-B*58:01 | 1 | 1124 | 1133 | 10 | GNCDVVIGIV 0.000181 | 29 |
| HLA-A*02:03 | 1 | 1125 | 1133 | 9 | NCDVVIGIV 0.000181 | 30 |
| HLA-B*44:02 | 1 | 1210 | 1218 | 9 | IKWPWYIWL 0.000181 | 18 |
| HLA-B*35:01 | 1 | 1260 | 1269 | 10 | DSEPVKGVK 0.000181 | 20 |
| HLA-A*32:01 | 1 | 23 | 31 | 9 | QLPPAYTNS 0.000179 | 21 |
| HLA-B*07:02 | 1 | 36 | 44 | 9 | VYYPDKVFR 0.000179 | 25 |
| HLA-A*26:01 | 1 | 48 | 56 | 9 | LHSTQDLFL 0.000179 | 23 |
| HLA-A*26:01 | 1 | 49 | 57 | 9 | HSTQDLFLP 0.000179 | 23 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*57:01 | 1 | 51 | 60 | 10 | TQDLFLPFFS 0.000179 | 39 |
| HLA-B*08:01 | 1 | 86 | 94 | 9 | FNDGVYFAS 0.000179 | 39 |
| HLA-B*08:01 | 1 | 114 | 123 | 10 | TQSLLVNNA 0.000179 | 39 |
| HLA-B*08:01 | 1 | 136 | 145 | 10 | CNDPFLGVYY 0.000179 | 39 |
| HLA-A*26:01 | 1 | 169 | 178 | 10 | EYVSQPFLMD 0.000179 | 23 |
| HLA-A*23:01 | 1 | 204 | 213 | 10 | YSKHTPINLV 0.000179 | 17 |
| HLA-B*35:01 | 1 | 223 | 231 | 9 | LEPLVDLPI 0.000179 | 20 |
| HLA-B*44:03 | 1 | 224 | 233 | 10 | EPLVDLPIGI 0.000179 | 17 |
| HLA-A*02:06 | 1 | 299 | 308 | 10 | TKCTLKSFTV 0.000179 | 37 |
| HLA-B*15:01 | 1 | 305 | 314 | 10 | SFTVEKGIYQ 0.000179 | 28 |
| HLA-A*01:01 | 1 | 339 | 348 | 10 | GEVFNATRFA 0.000179 | 38 |
| HLA-A*02:06 | 1 | 425 | 434 | 10 | LPDDFTGCVI 0.000179 | 37 |
| HLA-A*02:03 | 1 | 511 | 519 | 9 | VVLSFELLH 0.000179 | 30 |
| HLA-A*68:02 | 1 | 515 | 523 | 9 | FELLHAPAT 0.000179 | 30 |
| HLA-A*33:01 | 1 | 525 | 533 | 9 | CGPKKSTNL 0.000179 | 29 |
| HLA-A*02:03 | 1 | 559 | 568 | 10 | FLPFQQFGRD 0.000179 | 30 |
| HLA-A*01:01 | 1 | 589 | 597 | 9 | PCSFGGVSV 0.000179 | 38 |
| HLA-A*02:06 | 1 | 589 | 598 | 10 | PCSFGGVSVI 0.000179 | 37 |
| HLA-A*26:01 | 1 | 601 | 609 | 9 | GTNTSNQVA 0.000179 | 23 |
| HLA-A*11:01 | 1 | 627 | 635 | 9 | DQLTPTWRV 0.000179 | 18 |
| HLA-A*02:01 | 1 | 629 | 637 | 9 | LTPTWRVYS 0.000179 | 28 |
| HLA-A*02:01 | 1 | 635 | 643 | 9 | VYSTGSNVF 0.000179 | 28 |
| HLA-A*30:01 | 1 | 656 | 664 | 9 | VNNSYECDI 0.000179 | 50 |
| HLA-B*58:01 | 1 | 665 | 674 | 10 | PIGAGICASY 0.000179 | 29 |
| HLA-B*40:01 | 1 | 721 | 729 | 9 | SVTTEILPV 0.000179 | 16 |
| HLA-A*31:01 | 1 | 732 | 741 | 10 | TKTSVDCTMY 0.000179 | 29 |
| HLA-A*01:01 | 1 | 756 | 764 | 9 | YGSFCTQLN 0.000179 | 38 |
| HLA-A*02:06 | 1 | 759 | 768 | 10 | FCTQLNRALT 0.000179 | 37 |
| HLA-A*68:02 | 1 | 766 | 774 | 9 | ALTGIAVEQ 0.000179 | 30 |
| HLA-B*51:01 | 1 | 793 | 802 | 10 | PIKDFGGFNF 0.000179 | 35 |
| HLA-B*35:01 | 1 | 875 | 884 | 10 | SALLAGTITS 0.000179 | 20 |
| HLA-A*02:06 | 1 | 885 | 893 | 9 | GWTFGAGAA 0.000179 | 37 |
| HLA-B*40:01 | 1 | 907 | 916 | 10 | NGIGVTQNVL 0.000179 | 16 |
| HLA-A*33:01 | 1 | 917 | 926 | 10 | YENQKLIANQ 0.000179 | 29 |
| HLA-A*68:01 | 1 | 923 | 931 | 9 | IANQFNSAI 0.000179 | 26 |
| HLA-B*53:01 | 1 | 967 | 976 | 10 | SSNFGAISSV 0.000179 | 19 |
| HLA-A*01:01 | 1 | 970 | 978 | 9 | FGAISSVLN 0.000179 | 38 |
| HLA-B*57:01 | 1 | 1011 | 1020 | 10 | QLIRAAEIRA 0.000179 | 39 |
| HLA-B*58:01 | 1 | 1066 | 1074 | 9 | TYVPAQEKV 0.000179 | 29 |
| HLA-B*57:01 | 1 | 1067 | 1076 | 10 | YVPAQEKVFT 0.000179 | 39 |
| HLA-B*08:01 | 1 | 1119 | 1128 | 10 | NTFVSGNCDV 0.000179 | 39 |
| HLA-A*01:01 | 1 | 1199 | 1207 | 9 | DLQELGKYE 0.000179 | 38 |
| HLA-A*68:02 | 1 | 1231 | 1239 | 9 | TIMLCCMTS 0.000179 | 30 |
| HLA-A*23:01 | 1 | 2 | 11 | 10 | FVFLVLLPLV 0.000178 | 17 |
| HLA-A*31:01 | 1 | 2 | 11 | 10 | FVFLVLLPLV 0.000178 | 29 |
| HLA-A*02:06 | 1 | 70 | 78 | 9 | VSGTNGTKR 0.000178 | 37 |
| HLA-A*02:06 | 1 | 90 | 98 | 9 | VYFASTEKS 0.000178 | 37 |
| HLA-B*44:03 | 1 | 102 | 110 | 9 | RGWIFGTTL 0.000178 | 17 |
| HLA-B*44:03 | 1 | 134 | 143 | 10 | QFCNDPFLGV 0.000178 | 17 |
| HLA-A*31:01 | 1 | 175 | 183 | 9 | FLMDLEGKQ 0.000178 | 29 |
| HLA-A*33:01 | 1 | 183 | 192 | 10 | QGNFKNLREF 0.000178 | 29 |
| HLA-B*53:01 | 1 | 204 | 213 | 10 | YSKHTPINLV 0.000178 | 19 |
| HLA-A*30:01 | 1 | 217 | 226 | 10 | PQGFSALEPL 0.000178 | 50 |
| HLA-B*08:01 | 1 | 231 | 240 | 10 | IGINITRFQT 0.000178 | 39 |
| HLA-A*30:02 | 1 | 244 | 252 | 9 | LHRSYLTPG 0.000178 | 47 |
| HLA-A*02:03 | 1 | 246 | 254 | 9 | RSYLTPGDS 0.000178 | 30 |
| HLA-A*68:01 | 1 | 246 | 255 | 10 | RSYLTPGDSS 0.000178 | 26 |
| HLA-A*02:03 | 1 | 265 | 274 | 10 | YYVGYLQPR 0.000178 | 30 |
| HLA-A*30:01 | 1 | 356 | 364 | 9 | KRISNCVAD 0.000178 | 50 |
| HLA-A*68:01 | 1 | 374 | 382 | 9 | FSTFKCYGV 0.000178 | 26 |
| HLA-B*57:01 | 1 | 393 | 401 | 9 | TNVYADSFV 0.000178 | 39 |
| HLA-B*58:01 | 1 | 495 | 504 | 10 | YGFQPTNGVG 0.000178 | 29 |
| HLA-A*33:01 | 1 | 508 | 516 | 9 | YRVVLSFE 0.000178 | 29 |
| HLA-B*44:02 | 1 | 510 | 518 | 9 | VVLSFELL 0.000178 | 18 |
| HLA-A*31:01 | 1 | 517 | 525 | 9 | LLHAPATVC 0.000178 | 29 |
| HLA-A*03:01 | 1 | 594 | 602 | 9 | GVSVITPGT 0.000178 | 23 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|----|
| HLA-A*31:01 | 1 | 610 | 618 | 9 | VLYQDVNCT | 0.000178 | 29 |
| HLA-B*58:01 | 1 | 629 | 637 | 9 | LTPTWRVYS | 0.000178 | 29 |
| HLA-B*15:01 | 1 | 640 | 649 | 10 | SNVFQTRAGC | 0.000178 | 28 |
| HLA-A*68:02 | 1 | 683 | 691 | 9 | RARSVASQS | 0.000178 | 30 |
| HLA-A*30:01 | 1 | 709 | 717 | 9 | NNSIAIPTN | 0.000178 | 50 |
| HLA-A*32:01 | 1 | 722 | 730 | 9 | VTTEILPVS | 0.000178 | 21 |
| HLA-A*33:01 | 1 | 746 | 754 | 9 | STECSNLLL | 0.000178 | 29 |
| HLA-A*02:03 | 1 | 760 | 768 | 9 | CTQLNRALT | 0.000178 | 30 |
| HLA-A*30:01 | 1 | 770 | 779 | 10 | IAVEQDKNTQ | 0.000178 | 50 |
| HLA-A*33:01 | 1 | 816 | 824 | 9 | SFIEDLLFN | 0.000178 | 29 |
| HLA-A*01:01 | 1 | 858 | 867 | 10 | LTVLPPLTLD | 0.000178 | 38 |
| HLA-A*30:02 | 1 | 858 | 867 | 10 | LTVLPPLTLD | 0.000178 | 47 |
| HLA-A*33:01 | 1 | 860 | 868 | 9 | VLPPLTDE | 0.000178 | 29 |
| HLA-B*44:02 | 1 | 886 | 894 | 9 | WTFGAGAAL | 0.000178 | 18 |
| HLA-A*02:03 | 1 | 910 | 918 | 9 | GVTQNVLYE | 0.000178 | 30 |
| HLA-A*02:03 | 1 | 930 | 939 | 10 | AIGKIQDLSL | 0.000178 | 30 |
| HLA-A*11:01 | 1 | 995 | 1004 | 10 | RLITGRLQSL | 0.000178 | 18 |
| HLA-B*15:01 | 1 | 1018 | 1026 | 9 | IRASANLAA | 0.000178 | 28 |
| HLA-B*15:01 | 1 | 1060 | 1069 | 10 | VVFLHVTVYP | 0.000178 | 28 |
| HLA-A*03:01 | 1 | 1067 | 1075 | 9 | YVPAQEKNF | 0.000178 | 23 |
| HLA-A*02:01 | 1 | 1140 | 1149 | 10 | PLQPELDSFK | 0.000178 | 28 |
| HLA-A*26:01 | 1 | 1158 | 1166 | 9 | NHTSPDVDL | 0.000178 | 23 |
| HLA-A*68:02 | 1 | 1204 | 1212 | 9 | GKYEYIKW | 0.000178 | 30 |
| HLA-A*02:06 | 1 | 1206 | 1215 | 10 | YEYIKWPWY | 0.000178 | 37 |
| HLA-B*53:01 | 1 | 1209 | 1218 | 10 | YIKWPWYIWL | 0.000178 | 19 |
| HLA-B*08:01 | 1 | 1235 | 1244 | 10 | CCMTSCCSCL | 0.000178 | 39 |
| HLA-B*35:01 | 1 | 1259 | 1268 | 10 | DDSEPVKGV | 0.000178 | 20 |
| HLA-B*44:02 | 1 | 35 | 44 | 10 | GVYYPDKVFR | 0.000177 | 18 |
| HLA-A*23:01 | 1 | 89 | 98 | 10 | GVYFASTEKS | 0.000177 | 17 |
| HLA-B*15:01 | 1 | 90 | 98 | 9 | VYFASTEKS | 0.000177 | 28 |
| HLA-B*51:01 | 1 | 100 | 108 | 9 | IIRGWIFGT | 0.000177 | 35 |
| HLA-B*15:01 | 1 | 133 | 142 | 10 | FQFCNDPFLG | 0.000177 | 28 |
| HLA-B*57:01 | 1 | 140 | 148 | 9 | FLGVYYHKN | 0.000177 | 39 |
| HLA-B*40:01 | 1 | 151 | 160 | 10 | SWMESEFRVY | 0.000177 | 16 |
| HLA-A*02:01 | 1 | 193 | 201 | 9 | VFKNIDGYF | 0.000177 | 28 |
| HLA-B*58:01 | 1 | 253 | 261 | 9 | DSSSGWTAG | 0.000177 | 29 |
| HLA-B*07:02 | 1 | 261 | 270 | 10 | GAAAYYVGYL | 0.000177 | 25 |
| HLA-B*44:02 | 1 | 264 | 272 | 9 | AYYVGYLQP | 0.000177 | 18 |
| HLA-A*32:01 | 1 | 305 | 313 | 9 | SFTVEKGIY | 0.000177 | 22 |
| HLA-B*44:02 | 1 | 345 | 354 | 10 | TRFASVYAWN | 0.000177 | 18 |
| HLA-A*02:06 | 1 | 354 | 362 | 9 | NRKRISNCV | 0.000177 | 37 |
| HLA-B*07:02 | 1 | 366 | 375 | 10 | SVLYNSASF | 0.000177 | 25 |
| HLA-B*58:01 | 1 | 366 | 375 | 10 | SVLYNSASF | 0.000177 | 29 |
| HLA-A*26:01 | 1 | 379 | 387 | 9 | CYGVSPTKL | 0.000177 | 24 |
| HLA-B*44:03 | 1 | 379 | 387 | 9 | CYGVSPTKL | 0.000177 | 17 |
| HLA-A*30:01 | 1 | 440 | 449 | 10 | NLDSKVGNGY | 0.000177 | 50 |
| HLA-A*68:02 | 1 | 463 | 472 | 10 | PFERDISTEI | 0.000177 | 30 |
| HLA-A*30:01 | 1 | 491 | 499 | 9 | PLQSYGFQP | 0.000177 | 50 |
| HLA-A*02:06 | 1 | 493 | 502 | 10 | QSYGFQPTNG | 0.000177 | 37 |
| HLA-A*68:01 | 1 | 586 | 595 | 10 | DITPCSFGGV | 0.000177 | 26 |
| HLA-B*58:01 | 1 | 594 | 603 | 10 | GVSVITPGTN | 0.000177 | 29 |
| HLA-A*30:01 | 1 | 608 | 617 | 10 | VAVLYQDVNC | 0.000177 | 50 |
| HLA-A*01:01 | 1 | 614 | 623 | 10 | DVNCTEVPVA | 0.000177 | 38 |
| HLA-B*08:01 | 1 | 647 | 655 | 9 | AGCLIGAEH | 0.000177 | 39 |
| HLA-A*11:01 | 1 | 695 | 703 | 9 | YTMSLGAEN | 0.000177 | 18 |
| HLA-B*51:01 | 1 | 729 | 738 | 10 | VSMTKTSVDC | 0.000177 | 35 |
| HLA-B*51:01 | 1 | 757 | 766 | 10 | GSFCTQLNRA | 0.000177 | 35 |
| HLA-A*30:01 | 1 | 770 | 778 | 9 | IAVEQDKNT | 0.000177 | 50 |
| HLA-B*44:02 | 1 | 795 | 804 | 10 | KDFGGFNFSQ | 0.000177 | 18 |
| HLA-A*68:02 | 1 | 828 | 836 | 9 | LADAGFIKQ | 0.000177 | 30 |
| HLA-B*08:01 | 1 | 850 | 859 | 10 | ICAQKFNGLT | 0.000177 | 39 |
| HLA-B*07:02 | 1 | 900 | 909 | 10 | MQMAYRFNGI | 0.000177 | 25 |
| HLA-A*31:01 | 1 | 936 | 944 | 9 | DSLSSTASA | 0.000177 | 29 |
| HLA-B*07:02 | 1 | 947 | 956 | 10 | KLQDVVNQNA | 0.000177 | 25 |
| HLA-A*01:01 | 1 | 964 | 972 | 9 | KQLSSNFGA | 0.000177 | 38 |
| HLA-B*57:01 | 1 | 1031 | 1039 | 9 | ECVLGQSKR | 0.000177 | 39 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*57:01 | 1 | 1034 | 1043 | 10 | LGQSKRVDFC 0.000177 | 39 |
| HLA-A*24:02 | 1 | 1055 | 1064 | 10 | SAPHGVVFLH 0.000177 | 17 |
| HLA-B*44:03 | 1 | 1110 | 1119 | 10 | YEQIITTDN 0.000177 | 17 |
| HLA-A*02:01 | 1 | 1131 | 1140 | 10 | GIVNNTVYDP 0.000177 | 28 |
| HLA-A*30:01 | 1 | 1198 | 1206 | 9 | IDLQELGKY 0.000177 | 50 |
| HLA-A*68:02 | 1 | 1206 | 1214 | 9 | YEQYIKWPW 0.000177 | 30 |
| HLA-A*32:01 | 1 | 1224 | 1233 | 10 | LIAIVMVTIM 0.000177 | 22 |
| HLA-A*33:01 | 1 | 1236 | 1245 | 10 | CMTSCCCLK 0.000177 | 29 |
| HLA-A*30:02 | 1 | 3 | 12 | 10 | VFLVLLPLVS 0.000176 | 47 |
| HLA-A*11:01 | 1 | 22 | 31 | 10 | TQLPPAYTNS 0.000176 | 18 |
| HLA-A*23:01 | 1 | 26 | 34 | 9 | PAYTNSFTR 0.000176 | 17 |
| HLA-A*30:01 | 1 | 26 | 35 | 10 | PAYTNSFTRG 0.000176 | 50 |
| HLA-B*58:01 | 1 | 36 | 45 | 10 | VYYPKVFRS 0.000176 | 29 |
| HLA-A*30:01 | 1 | 82 | 91 | 10 | PVLPFNDGVY 0.000176 | 50 |
| HLA-B*07:02 | 1 | 100 | 109 | 10 | IIRGWIFGTT 0.000176 | 25 |
| HLA-B*51:01 | 1 | 104 | 113 | 10 | WIFGTTLDSK 0.000176 | 35 |
| HLA-B*57:01 | 1 | 105 | 113 | 9 | IFGTTLDSK 0.000176 | 39 |
| HLA-A*33:01 | 1 | 114 | 123 | 10 | TQSLILVNN 0.000176 | 29 |
| HLA-A*31:01 | 1 | 153 | 161 | 9 | MESEFRVYS 0.000176 | 29 |
| HLA-B*08:01 | 1 | 175 | 183 | 9 | FLMDLEGKQ 0.000176 | 39 |
| HLA-A*02:01 | 1 | 176 | 184 | 9 | LMDLEGKQG 0.000176 | 28 |
| HLA-A*32:01 | 1 | 185 | 193 | 9 | NFKNLREFV 0.000176 | 22 |
| HLA-B*51:01 | 1 | 185 | 194 | 10 | NFKNLREFV 0.000176 | 35 |
| HLA-B*40:01 | 1 | 195 | 204 | 10 | KNIDGYFKIY 0.000176 | 16 |
| HLA-B*44:03 | 1 | 202 | 210 | 9 | KIYSKHTPI 0.000176 | 17 |
| HLA-B*40:01 | 1 | 204 | 213 | 10 | YSKHTPINLV 0.000176 | 16 |
| HLA-A*02:03 | 1 | 206 | 214 | 9 | KHTPINLVR 0.000176 | 30 |
| HLA-B*58:01 | 1 | 238 | 247 | 10 | FQTLALHRS 0.000176 | 29 |
| HLA-A*68:02 | 1 | 264 | 273 | 10 | AYYVGYLQPR 0.000176 | 30 |
| HLA-A*11:01 | 1 | 268 | 277 | 10 | GYLQPRFLL 0.000176 | 18 |
| HLA-A*11:01 | 1 | 283 | 291 | 9 | GTITDAVDC 0.000176 | 18 |
| HLA-A*02:03 | 1 | 376 | 384 | 9 | TFKCYGVSP 0.000176 | 30 |
| HLA-A*02:06 | 1 | 381 | 389 | 9 | GVSPTKLN 0.000176 | 37 |
| HLA-A*33:01 | 1 | 398 | 406 | 9 | DSFVIRGDE 0.000176 | 29 |
| HLA-A*26:01 | 1 | 408 | 416 | 9 | RQIAPGQTG 0.000176 | 24 |
| HLA-A*26:01 | 1 | 469 | 478 | 10 | STEIYQAGST 0.000176 | 24 |
| HLA-B*40:01 | 1 | 478 | 486 | 9 | TPCNGVEGF 0.000176 | 16 |
| HLA-B*40:01 | 1 | 481 | 489 | 9 | NGVEGFNCY 0.000176 | 16 |
| HLA-A*03:01 | 1 | 489 | 497 | 9 | YFPLQSYGF 0.000176 | 23 |
| HLA-B*58:01 | 1 | 588 | 597 | 10 | TPCSFGGVS 0.000176 | 29 |
| HLA-A*02:01 | 1 | 707 | 715 | 9 | YSNNSIAIP 0.000176 | 28 |
| HLA-A*33:01 | 1 | 723 | 732 | 10 | TTEILPVSM 0.000176 | 29 |
| HLA-B*44:03 | 1 | 746 | 754 | 9 | STECNLLL 0.000176 | 17 |
| HLA-B*44:02 | 1 | 758 | 767 | 10 | SFCTQLNRL 0.000176 | 18 |
| HLA-A*02:06 | 1 | 771 | 779 | 9 | AVEQDKNTQ 0.000176 | 37 |
| HLA-B*40:01 | 1 | 802 | 811 | 10 | FSQILPDPSK 0.000176 | 16 |
| HLA-B*35:01 | 1 | 857 | 865 | 9 | GLTVLPPLL 0.000176 | 20 |
| HLA-A*68:02 | 1 | 921 | 929 | 9 | KLIANQFNS 0.000176 | 30 |
| HLA-A*03:01 | 1 | 929 | 938 | 10 | SAIGKIQDSL 0.000176 | 23 |
| HLA-A*01:01 | 1 | 937 | 946 | 10 | SLSSTASALG 0.000176 | 38 |
| HLA-B*53:01 | 1 | 971 | 980 | 10 | GAISSVLNDI 0.000176 | 19 |
| HLA-B*15:01 | 1 | 982 | 991 | 10 | SRLDKVEAEV 0.000176 | 28 |
| HLA-B*51:01 | 1 | 985 | 994 | 10 | DKVEAEVQID 0.000176 | 35 |
| HLA-A*33:01 | 1 | 987 | 996 | 10 | VEAEVQIDRL 0.000176 | 29 |
| HLA-B*40:01 | 1 | 998 | 1007 | 10 | TGRLQSLQTY 0.000176 | 16 |
| HLA-B*35:01 | 1 | 1007 | 1016 | 10 | YVTQQLIRAA 0.000176 | 20 |
| HLA-B*07:02 | 1 | 1012 | 1021 | 10 | LIRAAEIRAS 0.000176 | 25 |
| HLA-B*35:01 | 1 | 1025 | 1034 | 10 | AATKMSECVL 0.000176 | 20 |
| HLA-A*68:02 | 1 | 1029 | 1037 | 9 | MSECVLGQS 0.000176 | 30 |
| HLA-A*26:01 | 1 | 1071 | 1079 | 9 | QEKNFHTAP 0.000176 | 24 |
| HLA-B*44:02 | 1 | 1136 | 1144 | 9 | TVYDPLQPE 0.000176 | 18 |
| HLA-A*31:01 | 1 | 1195 | 1203 | 9 | ESLIDLQEL 0.000176 | 29 |
| HLA-A*02:01 | 1 | 1206 | 1214 | 9 | YEQYIKWPW 0.000176 | 28 |
| HLA-B*57:01 | 1 | 1211 | 1219 | 9 | KWPWYIWL 0.000176 | 39 |
| HLA-A*68:01 | 1 | 1259 | 1268 | 10 | DDSEPVKGV 0.000176 | 27 |
| HLA-A*23:01 | 1 | 1 | 9 | 9 | MFVFLVLLP 0.000175 | 17 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*01:01 | 1 | 3 | 11 | 9 | VFLVLLPLV 0.000175 | 38 |
| HLA-B*40:01 | 1 | 43 | 51 | 9 | FRSSVLHST 0.000175 | 16 |
| HLA-B*44:03 | 1 | 70 | 79 | 10 | VSGTNGTKRF 0.000175 | 17 |
| HLA-B*51:01 | 1 | 70 | 78 | 9 | VSGTNGTKR 0.000175 | 35 |
| HLA-B*44:03 | 1 | 144 | 153 | 10 | YYHKNNKSWM 0.000175 | 17 |
| HLA-A*02:01 | 1 | 150 | 158 | 9 | KSWMESEFR 0.000175 | 28 |
| HLA-A*30:02 | 1 | 155 | 164 | 10 | SEFRVYSSAN 0.000175 | 48 |
| HLA-B*15:01 | 1 | 181 | 190 | 10 | GKQGNFKNLR 0.000175 | 28 |
| HLA-A*32:01 | 1 | 188 | 196 | 9 | NLREFVFKN 0.000175 | 22 |
| HLA-A*03:01 | 1 | 232 | 241 | 10 | GINITRFQTL 0.000175 | 23 |
| HLA-A*02:06 | 1 | 237 | 245 | 9 | RFQTLALH 0.000175 | 37 |
| HLA-B*58:01 | 1 | 237 | 246 | 10 | RFQTLALHR 0.000175 | 29 |
| HLA-B*08:01 | 1 | 261 | 270 | 10 | GAAAYVGYL 0.000175 | 39 |
| HLA-A*32:01 | 1 | 307 | 315 | 9 | TVEKGIYQT 0.000175 | 22 |
| HLA-B*07:02 | 1 | 311 | 319 | 9 | GIYQTSNFR 0.000175 | 25 |
| HLA-B*15:01 | 1 | 314 | 322 | 9 | QTSNFRVQP 0.000175 | 28 |
| HLA-B*07:02 | 1 | 454 | 463 | 10 | RLFRKSNLKP 0.000175 | 25 |
| HLA-B*44:03 | 1 | 499 | 508 | 10 | PTNGVGYQPY 0.000175 | 17 |
| HLA-A*30:02 | 1 | 552 | 561 | 10 | LTESNKKFLP 0.000175 | 48 |
| HLA-A*02:01 | 1 | 558 | 566 | 9 | KFLPFQFG 0.000175 | 28 |
| HLA-A*30:01 | 1 | 616 | 625 | 10 | NCTEVPVAIH 0.000175 | 50 |
| HLA-A*02:06 | 1 | 714 | 723 | 10 | IPTNFTISVT 0.000175 | 37 |
| HLA-A*33:01 | 1 | 753 | 762 | 10 | LLQYGSFCTQ 0.000175 | 29 |
| HLA-B*57:01 | 1 | 779 | 787 | 9 | QEVFAQVKQ 0.000175 | 39 |
| HLA-A*01:01 | 1 | 784 | 792 | 9 | QVKQIYKTP 0.000175 | 38 |
| HLA-A*30:02 | 1 | 797 | 806 | 10 | FGGFNFSQIL 0.000175 | 48 |
| HLA-A*03:01 | 1 | 814 | 822 | 9 | KRSFIEDLL 0.000175 | 23 |
| HLA-B*07:02 | 1 | 817 | 826 | 10 | FIEDLLFNKV 0.000175 | 25 |
| HLA-B*58:01 | 1 | 819 | 828 | 10 | EDLLFNKVTL 0.000175 | 29 |
| HLA-A*02:06 | 1 | 846 | 854 | 9 | ARDLICAQK 0.000175 | 37 |
| HLA-A*23:01 | 1 | 872 | 881 | 10 | QYTSALLAGT 0.000175 | 17 |
| HLA-B*15:01 | 1 | 875 | 884 | 10 | SALLAGTITS 0.000175 | 28 |
| HLA-B*53:01 | 1 | 880 | 889 | 10 | GTITSGWTFG 0.000175 | 19 |
| HLA-B*07:02 | 1 | 886 | 895 | 10 | WTFGAGAALQ 0.000175 | 25 |
| HLA-A*26:01 | 1 | 897 | 906 | 10 | PFAMQMAYRF 0.000175 | 24 |
| HLA-B*44:02 | 1 | 918 | 926 | 9 | ENQKLIANQ 0.000175 | 18 |
| HLA-A*33:01 | 1 | 921 | 930 | 10 | KLIANQFNSA 0.000175 | 29 |
| HLA-A*33:01 | 1 | 1047 | 1055 | 9 | YHLMSFPQS 0.000175 | 29 |
| HLA-A*24:02 | 1 | 1104 | 1112 | 9 | VTQRNFYEP 0.000175 | 17 |
| HLA-A*24:02 | 1 | 1122 | 1130 | 9 | VSGNCDVVI 0.000175 | 17 |
| HLA-A*01:01 | 1 | 1132 | 1140 | 9 | IVNNTVYDP 0.000175 | 38 |
| HLA-A*01:01 | 1 | 1170 | 1179 | 10 | SGINASVNI 0.000175 | 38 |
| HLA-A*26:01 | 1 | 1176 | 1185 | 10 | VVNIQKEIDR 0.000175 | 24 |
| HLA-B*08:01 | 1 | 1185 | 1194 | 10 | RLNEVAKNLN 0.000175 | 39 |
| HLA-B*53:01 | 1 | 1196 | 1204 | 9 | SLIDLQELG 0.000175 | 19 |
| HLA-A*23:01 | 1 | 1198 | 1206 | 9 | IDLQELGKY 0.000175 | 17 |
| HLA-A*33:01 | 1 | 1221 | 1229 | 9 | IAGLIAIVM 0.000175 | 29 |
| HLA-A*02:06 | 1 | 1229 | 1238 | 10 | MVTIMLCCMT 0.000175 | 37 |
| HLA-B*07:02 | 1 | 37 | 45 | 9 | YYPDKVFRS 0.000174 | 25 |
| HLA-B*07:02 | 1 | 41 | 50 | 10 | KVFRSSVLHS 0.000174 | 25 |
| HLA-A*02:01 | 1 | 49 | 57 | 9 | HSTQDLFLP 0.000174 | 28 |
| HLA-B*58:01 | 1 | 51 | 60 | 10 | TQDLFLPFFS 0.000174 | 29 |
| HLA-B*51:01 | 1 | 58 | 66 | 9 | FFSNVTWFH 0.000174 | 35 |
| HLA-A*24:02 | 1 | 84 | 93 | 10 | LPFNDGVYFA 0.000174 | 17 |
| HLA-B*57:01 | 1 | 127 | 136 | 10 | VIKVCEFQFC 0.000174 | 39 |
| HLA-B*44:03 | 1 | 189 | 197 | 9 | LREFVFKNI 0.000174 | 17 |
| HLA-A*32:01 | 1 | 205 | 214 | 10 | SKHTPINLVR 0.000174 | 22 |
| HLA-B*57:01 | 1 | 252 | 260 | 9 | GDSSSGWTA 0.000174 | 39 |
| HLA-B*44:02 | 1 | 313 | 321 | 9 | YQTSNFRVQ 0.000174 | 18 |
| HLA-A*01:01 | 1 | 325 | 333 | 9 | SIVRFPNIT 0.000174 | 38 |
| HLA-B*58:01 | 1 | 343 | 352 | 10 | NATRFASVYA 0.000174 | 29 |
| HLA-A*02:01 | 1 | 351 | 359 | 9 | YAWNRKRIS 0.000174 | 28 |
| HLA-A*32:01 | 1 | 372 | 381 | 10 | ASFSTFKCYG 0.000174 | 22 |
| HLA-B*35:01 | 1 | 398 | 407 | 10 | DSFVIRGDEV 0.000174 | 20 |
| HLA-A*30:02 | 1 | 411 | 419 | 9 | APGQTGKIA 0.000174 | 48 |
| HLA-B*58:01 | 1 | 567 | 576 | 10 | RDIADTTDAV 0.000174 | 29 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|----|
| HLA-A*02:03 | 1 | 615 | 623 | 9 | VNCTEVPVA | 0.000174 | 30 |
| HLA-B*44:02 | 1 | 680 | 688 | 9 | SPRRARVA | 0.000174 | 18 |
| HLA-A*33:01 | 1 | 801 | 809 | 9 | NFSQILPDP | 0.000174 | 29 |
| HLA-B*57:01 | 1 | 802 | 810 | 9 | FSQILPDP | 0.000174 | 39 |
| HLA-A*30:01 | 1 | 808 | 816 | 9 | DPSKPSKRS | 0.000174 | 50 |
| HLA-A*02:06 | 1 | 839 | 847 | 9 | DCLGDIAAR | 0.000174 | 37 |
| HLA-B*51:01 | 1 | 844 | 853 | 10 | IAARDLICAQ | 0.000174 | 35 |
| HLA-B*44:03 | 1 | 853 | 862 | 10 | QKFNGLTVLP | 0.000174 | 17 |
| HLA-A*11:01 | 1 | 929 | 937 | 9 | SAIGKIQDS | 0.000174 | 18 |
| HLA-B*44:02 | 1 | 984 | 993 | 10 | LDKVEAEVQI | 0.000174 | 18 |
| HLA-A*23:01 | 1 | 1018 | 1026 | 9 | IRASANLAA | 0.000174 | 17 |
| HLA-B*44:02 | 1 | 1047 | 1056 | 10 | YHLMSFPQSA | 0.000174 | 18 |
| HLA-B*58:01 | 1 | 1048 | 1057 | 10 | HLMSFPQSAP | 0.000174 | 29 |
| HLA-A*11:01 | 1 | 1050 | 1059 | 10 | MSFPQSAPHG | 0.000174 | 18 |
| HLA-A*26:01 | 1 | 1072 | 1081 | 10 | EKNFTTAPAI | 0.000174 | 24 |
| HLA-B*51:01 | 1 | 1081 | 1090 | 10 | ICHDGKAHFP | 0.000174 | 35 |
| HLA-A*23:01 | 1 | 1082 | 1091 | 10 | CHDGKAHFPR | 0.000174 | 17 |
| HLA-B*35:01 | 1 | 1110 | 1119 | 10 | YEPQIITTDN | 0.000174 | 20 |
| HLA-B*40:01 | 1 | 1156 | 1164 | 9 | FKNHTSPDV | 0.000174 | 16 |
| HLA-A*31:01 | 1 | 1203 | 1212 | 10 | LGKYEYIKW | 0.000174 | 30 |
| HLA-A*24:02 | 1 | 1213 | 1222 | 10 | PWYIWLGFIA | 0.000174 | 17 |
| HLA-A*32:01 | 1 | 2 | 11 | 10 | FVFLVLLPLV | 0.000173 | 22 |
| HLA-A*02:03 | 1 | 36 | 45 | 10 | VYYPDKVFRS | 0.000173 | 31 |
| HLA-B*44:02 | 1 | 38 | 46 | 9 | YPDKVFRSS | 0.000173 | 18 |
| HLA-B*44:02 | 1 | 47 | 56 | 10 | VLHSTQDLFL | 0.000173 | 18 |
| HLA-A*01:01 | 1 | 48 | 57 | 10 | LHSTQDLFLP | 0.000173 | 38 |
| HLA-A*31:01 | 1 | 118 | 126 | 9 | LIVNNATNV | 0.000173 | 30 |
| HLA-A*33:01 | 1 | 123 | 131 | 9 | ATNVVIKVC | 0.000173 | 29 |
| HLA-A*23:01 | 1 | 133 | 142 | 10 | FQFCNDPFLG | 0.000173 | 17 |
| HLA-B*44:02 | 1 | 134 | 143 | 10 | QFCNDPFLGV | 0.000173 | 18 |
| HLA-A*33:01 | 1 | 146 | 154 | 9 | HKNNKSWME | 0.000173 | 29 |
| HLA-B*40:01 | 1 | 229 | 237 | 9 | LPIGINITR | 0.000173 | 16 |
| HLA-A*03:01 | 1 | 327 | 336 | 10 | VRFPNITNLC | 0.000173 | 23 |
| HLA-B*40:01 | 1 | 349 | 357 | 9 | SVYAWNRKR | 0.000173 | 16 |
| HLA-B*40:01 | 1 | 381 | 390 | 10 | GVSPTKLNDL | 0.000173 | 16 |
| HLA-B*51:01 | 1 | 403 | 412 | 10 | RGDEVRQIAP | 0.000173 | 35 |
| HLA-B*57:01 | 1 | 403 | 412 | 10 | RGDEVRQIAP | 0.000173 | 39 |
| HLA-A*68:02 | 1 | 421 | 430 | 10 | YNYKLPDDFT | 0.000173 | 30 |
| HLA-A*24:02 | 1 | 440 | 449 | 10 | NLDSKVGGNY | 0.000173 | 17 |
| HLA-A*11:01 | 1 | 466 | 475 | 10 | RDISTEIQQA | 0.000173 | 18 |
| HLA-A*30:02 | 1 | 535 | 544 | 10 | KNKCVNFNFN | 0.000173 | 48 |
| HLA-B*15:01 | 1 | 574 | 583 | 10 | DAVRDPQTL | 0.000173 | 28 |
| HLA-B*08:01 | 1 | 629 | 637 | 9 | LTPTWRVYS | 0.000173 | 40 |
| HLA-B*35:01 | 1 | 635 | 644 | 10 | VYSTGSNVQ | 0.000173 | 20 |
| HLA-B*44:02 | 1 | 654 | 662 | 9 | EHVNNSYEC | 0.000173 | 18 |
| HLA-B*40:01 | 1 | 684 | 693 | 10 | ARSVASQSII | 0.000173 | 16 |
| HLA-B*08:01 | 1 | 713 | 721 | 9 | AIPTNFTIS | 0.000173 | 40 |
| HLA-B*58:01 | 1 | 730 | 738 | 9 | SMTKTSVDC | 0.000173 | 30 |
| HLA-B*35:01 | 1 | 779 | 788 | 10 | QEVFAQVKQI | 0.000173 | 20 |
| HLA-A*23:01 | 1 | 821 | 829 | 9 | LLFNKVTLA | 0.000173 | 17 |
| HLA-B*57:01 | 1 | 861 | 870 | 10 | LPPLLTDEMI | 0.000173 | 39 |
| HLA-A*01:01 | 1 | 875 | 884 | 10 | SALLAGTITS | 0.000173 | 38 |
| HLA-B*57:01 | 1 | 895 | 903 | 9 | QIPFAMQMA | 0.000173 | 39 |
| HLA-A*33:01 | 1 | 908 | 917 | 10 | GIGVTQNVLY | 0.000173 | 29 |
| HLA-A*68:02 | 1 | 910 | 918 | 9 | GVTQNVLYE | 0.000173 | 30 |
| HLA-A*30:01 | 1 | 928 | 936 | 9 | NSAIGKIQD | 0.000173 | 50 |
| HLA-A*11:01 | 1 | 934 | 942 | 9 | IQDLSLSTA | 0.000173 | 18 |
| HLA-A*33:01 | 1 | 934 | 942 | 9 | IQDLSLSTA | 0.000173 | 29 |
| HLA-A*02:06 | 1 | 988 | 997 | 10 | EAEVQIDRLI | 0.000173 | 37 |
| HLA-B*44:02 | 1 | 990 | 999 | 10 | EVQIDRLITG | 0.000173 | 18 |
| HLA-B*15:01 | 1 | 997 | 1005 | 9 | ITGRLQSLQ | 0.000173 | 28 |
| HLA-A*30:02 | 1 | 1015 | 1023 | 9 | AAEIRASAN | 0.000173 | 48 |
| HLA-A*03:01 | 1 | 1018 | 1026 | 9 | IRASANLAA | 0.000173 | 23 |
| HLA-B*57:01 | 1 | 1031 | 1040 | 10 | ECVLGQSKRV | 0.000173 | 39 |
| HLA-A*68:01 | 1 | 1040 | 1049 | 10 | VDFCGKGYHL | 0.000173 | 27 |
| HLA-B*40:01 | 1 | 1056 | 1065 | 10 | APHGVVFLHV | 0.000173 | 16 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*68:02 | 1 | 1071 | 1080 | 10 | QEKNFTTAPA 0.000173 | 30 |
| HLA-B*35:01 | 1 | 1080 | 1088 | 9 | AICHDGKAH 0.000173 | 20 |
| HLA-A*24:02 | 1 | 1082 | 1091 | 10 | CHDGKAHFPR 0.000173 | 17 |
| HLA-A*68:01 | 1 | 1084 | 1092 | 9 | DGKAHFPRE 0.000173 | 27 |
| HLA-A*03:01 | 1 | 1109 | 1117 | 9 | FYEPQIITT 0.000173 | 23 |
| HLA-B*08:01 | 1 | 1111 | 1120 | 10 | EPQIITDNT 0.000173 | 40 |
| HLA-A*30:01 | 1 | 1167 | 1175 | 9 | GDISGINAS 0.000173 | 50 |
| HLA-A*68:02 | 1 | 1226 | 1235 | 10 | AIVMVTIMLC 0.000173 | 30 |
| HLA-A*68:02 | 1 | 1257 | 1266 | 10 | DEDDSEPVLK 0.000173 | 30 |
| HLA-B*58:01 | 1 | 1260 | 1269 | 10 | DSEPVLKGVK 0.000173 | 30 |
| HLA-A*02:01 | 1 | 10 | 19 | 10 | LVSSQCVNLT 0.000172 | 28 |
| HLA-B*07:02 | 1 | 13 | 21 | 9 | SQCVNLTTR 0.000172 | 26 |
| HLA-A*33:01 | 1 | 91 | 100 | 10 | YFASTEKSNI 0.000172 | 29 |
| HLA-B*58:01 | 1 | 114 | 122 | 9 | TQSL LIVNN 0.000172 | 30 |
| HLA-B*57:01 | 1 | 132 | 140 | 9 | EFQFCNDPF 0.000172 | 40 |
| HLA-A*30:01 | 1 | 137 | 146 | 10 | NDPFLGVYYH 0.000172 | 50 |
| HLA-A*02:03 | 1 | 143 | 151 | 9 | VYYHKNNKS 0.000172 | 31 |
| HLA-B*08:01 | 1 | 153 | 162 | 10 | MESEFRVYSS 0.000172 | 40 |
| HLA-B*15:01 | 1 | 153 | 161 | 9 | MESEFRVYS 0.000172 | 28 |
| HLA-A*23:01 | 1 | 172 | 180 | 9 | SQPFMDLE 0.000172 | 17 |
| HLA-A*02:06 | 1 | 183 | 192 | 10 | QGNFKNLREF 0.000172 | 37 |
| HLA-B*08:01 | 1 | 193 | 202 | 10 | VFKNIDGYFK 0.000172 | 40 |
| HLA-B*07:02 | 1 | 205 | 214 | 10 | SKHTPINLVR 0.000172 | 26 |
| HLA-B*44:03 | 1 | 226 | 235 | 10 | LVDLPIGINI 0.000172 | 17 |
| HLA-B*08:01 | 1 | 237 | 246 | 10 | RFQTL LALHR 0.000172 | 40 |
| HLA-A*11:01 | 1 | 243 | 251 | 9 | ALHRSYLTP 0.000172 | 18 |
| HLA-B*07:02 | 1 | 246 | 255 | 10 | RSYLTPGDSS 0.000172 | 26 |
| HLA-B*08:01 | 1 | 253 | 262 | 10 | DSSSGWTAGA 0.000172 | 40 |
| HLA-A*30:01 | 1 | 288 | 297 | 10 | AVDCALDPLS 0.000172 | 50 |
| HLA-A*33:01 | 1 | 314 | 323 | 10 | QTSNFRVQPT 0.000172 | 29 |
| HLA-A*33:01 | 1 | 333 | 341 | 9 | TNLCPFGEV 0.000172 | 29 |
| HLA-A*33:01 | 1 | 338 | 347 | 10 | FGEVFNATRF 0.000172 | 29 |
| HLA-A*30:02 | 1 | 360 | 368 | 9 | NCVADYSVL 0.000172 | 48 |
| HLA-A*33:01 | 1 | 367 | 376 | 10 | VLYNSASFST 0.000172 | 29 |
| HLA-A*30:01 | 1 | 428 | 436 | 9 | DFTGCVIAW 0.000172 | 50 |
| HLA-A*31:01 | 1 | 462 | 470 | 9 | KPFERDIST 0.000172 | 30 |
| HLA-A*02:03 | 1 | 486 | 495 | 10 | FNCYFPLQSY 0.000172 | 31 |
| HLA-A*30:02 | 1 | 501 | 510 | 10 | NGVGYQPYRV 0.000172 | 48 |
| HLA-A*30:02 | 1 | 563 | 571 | 9 | QQFGRDIAD 0.000172 | 48 |
| HLA-A*32:01 | 1 | 568 | 576 | 9 | DIADTTDAV 0.000172 | 22 |
| HLA-A*30:02 | 1 | 579 | 587 | 9 | PQTLEILDI 0.000172 | 48 |
| HLA-A*68:02 | 1 | 581 | 589 | 9 | TLEILDITP 0.000172 | 31 |
| HLA-B*15:01 | 1 | 636 | 644 | 9 | YSTGSNVFQ 0.000172 | 28 |
| HLA-B*07:02 | 1 | 676 | 684 | 9 | TQTNSPRRA 0.000172 | 26 |
| HLA-B*57:01 | 1 | 679 | 688 | 10 | NSPRRARSVA 0.000172 | 40 |
| HLA-A*11:01 | 1 | 694 | 703 | 10 | AYTMSLGAEN 0.000172 | 18 |
| HLA-A*26:01 | 1 | 695 | 704 | 10 | YTMSLGAENS 0.000172 | 24 |
| HLA-B*51:01 | 1 | 708 | 716 | 9 | SNNSIAIPT 0.000172 | 35 |
| HLA-B*57:01 | 1 | 725 | 734 | 10 | EILPVSMTKT 0.000172 | 40 |
| HLA-B*07:02 | 1 | 730 | 738 | 9 | SMTKTSVDC 0.000172 | 26 |
| HLA-B*07:02 | 1 | 748 | 756 | 9 | ECSNLLLQY 0.000172 | 26 |
| HLA-B*07:02 | 1 | 797 | 805 | 9 | FGGFNFSQI 0.000172 | 26 |
| HLA-B*58:01 | 1 | 804 | 813 | 10 | QILPDPSKPS 0.000172 | 30 |
| HLA-B*51:01 | 1 | 840 | 849 | 10 | CLGDIAARDL 0.000172 | 35 |
| HLA-B*53:01 | 1 | 851 | 860 | 10 | CAQKFNGLTV 0.000172 | 19 |
| HLA-A*33:01 | 1 | 888 | 896 | 9 | FGAGAALQI 0.000172 | 29 |
| HLA-A*33:01 | 1 | 906 | 915 | 10 | FNGIGVTQNV 0.000172 | 29 |
| HLA-A*30:02 | 1 | 931 | 940 | 10 | IGKIQDSLSS 0.000172 | 48 |
| HLA-A*03:01 | 1 | 972 | 981 | 10 | AISSVLNDIL 0.000172 | 23 |
| HLA-A*68:01 | 1 | 974 | 982 | 9 | SSVLNDILS 0.000172 | 27 |
| HLA-B*44:02 | 1 | 979 | 987 | 9 | DILSRLDKV 0.000172 | 18 |
| HLA-B*58:01 | 1 | 1006 | 1015 | 10 | TYVTQQLIRA 0.000172 | 30 |
| HLA-A*02:06 | 1 | 1050 | 1059 | 10 | MSFPQSAPHG 0.000172 | 37 |
| HLA-A*30:01 | 1 | 1078 | 1087 | 10 | APAICHGKA 0.000172 | 50 |
| HLA-A*68:01 | 1 | 1081 | 1089 | 9 | ICHGKAHF 0.000172 | 27 |
| HLA-B*44:02 | 1 | 1120 | 1128 | 9 | TFVSGNCDV 0.000172 | 18 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|----|
| HLA-A*02:03 | 1 | 1133 | 1141 | 9 | VNNTVYDPL | 0.000172 | 31 |
| HLA-A*02:06 | 1 | 1195 | 1204 | 10 | ESLIDLQELG | 0.000172 | 37 |
| HLA-B*07:02 | 1 | 1204 | 1212 | 9 | GKYEQYIKW | 0.000172 | 26 |
| HLA-A*01:01 | 1 | 1224 | 1232 | 9 | LIAIVMVTI | 0.000172 | 38 |
| HLA-B*15:01 | 1 | 1227 | 1235 | 9 | IVMVTIMLC | 0.000172 | 28 |
| HLA-A*01:01 | 1 | 106 | 115 | 10 | FGTTLDSKTQ | 0.000171 | 39 |
| HLA-A*33:01 | 1 | 172 | 180 | 9 | SQPFLMDLE | 0.000171 | 29 |
| HLA-B*44:03 | 1 | 173 | 182 | 10 | QPFLMDLEGK | 0.000171 | 17 |
| HLA-A*31:01 | 1 | 213 | 222 | 10 | VRDLPQGFSA | 0.000171 | 30 |
| HLA-B*08:01 | 1 | 256 | 265 | 10 | SGWTAGAAAY | 0.000171 | 40 |
| HLA-A*32:01 | 1 | 277 | 285 | 9 | LKYNENGTI | 0.000171 | 22 |
| HLA-A*11:01 | 1 | 283 | 292 | 10 | GTITDAVDCA | 0.000171 | 18 |
| HLA-B*08:01 | 1 | 328 | 337 | 10 | RFPNITNLCP | 0.000171 | 40 |
| HLA-A*03:01 | 1 | 332 | 340 | 9 | ITNLCPFGE | 0.000171 | 23 |
| HLA-B*08:01 | 1 | 356 | 365 | 10 | KRISNCVADY | 0.000171 | 40 |
| HLA-B*08:01 | 1 | 366 | 375 | 10 | SVLYNSASFS | 0.000171 | 40 |
| HLA-B*57:01 | 1 | 410 | 419 | 10 | IAPGQTGKIA | 0.000171 | 40 |
| HLA-A*02:06 | 1 | 416 | 424 | 9 | GKIADYNYK | 0.000171 | 37 |
| HLA-B*58:01 | 1 | 423 | 431 | 9 | YKLPDDFTG | 0.000171 | 30 |
| HLA-A*30:01 | 1 | 438 | 446 | 9 | SNNLDSKVG | 0.000171 | 51 |
| HLA-A*03:01 | 1 | 455 | 464 | 10 | LFRKSNLKPF | 0.000171 | 23 |
| HLA-A*02:06 | 1 | 468 | 476 | 9 | ISTEIQAG | 0.000171 | 37 |
| HLA-A*33:01 | 1 | 505 | 514 | 10 | YQPYRVVLS | 0.000171 | 29 |
| HLA-A*68:01 | 1 | 512 | 520 | 9 | VLSFELLHA | 0.000171 | 27 |
| HLA-B*57:01 | 1 | 515 | 524 | 10 | FELLHAPATV | 0.000171 | 40 |
| HLA-A*02:03 | 1 | 522 | 530 | 9 | ATVCGPKKS | 0.000171 | 31 |
| HLA-B*51:01 | 1 | 539 | 547 | 9 | VNFNFNGLT | 0.000171 | 35 |
| HLA-A*11:01 | 1 | 545 | 554 | 10 | GLTGTGVLTE | 0.000171 | 18 |
| HLA-A*31:01 | 1 | 583 | 591 | 9 | EILDITPCS | 0.000171 | 30 |
| HLA-A*30:01 | 1 | 594 | 603 | 10 | GVSVITPGTN | 0.000171 | 51 |
| HLA-A*31:01 | 1 | 594 | 602 | 9 | GVSVITPGT | 0.000171 | 30 |
| HLA-B*51:01 | 1 | 637 | 646 | 10 | STGSNVFQTR | 0.000171 | 35 |
| HLA-A*24:02 | 1 | 662 | 670 | 9 | CDIPIGAGI | 0.000171 | 17 |
| HLA-B*35:01 | 1 | 683 | 691 | 9 | RARSVASQS | 0.000171 | 20 |
| HLA-B*44:02 | 1 | 683 | 692 | 10 | RARSVASQSI | 0.000171 | 18 |
| HLA-B*40:01 | 1 | 748 | 756 | 9 | ECSNLLLQY | 0.000171 | 16 |
| HLA-A*30:02 | 1 | 753 | 761 | 9 | LLQYGFSCT | 0.000171 | 48 |
| HLA-A*02:06 | 1 | 766 | 775 | 10 | ALTGIAVEQD | 0.000171 | 37 |
| HLA-A*11:01 | 1 | 773 | 781 | 9 | EQDKNTQEV | 0.000171 | 18 |
| HLA-B*53:01 | 1 | 810 | 819 | 10 | SKPSKRSFIE | 0.000171 | 19 |
| HLA-A*24:02 | 1 | 813 | 822 | 10 | SKRSFIEDLL | 0.000171 | 17 |
| HLA-A*30:01 | 1 | 841 | 850 | 10 | LGDIARDLI | 0.000171 | 51 |
| HLA-A*02:03 | 1 | 854 | 863 | 10 | KFNGLTVLPP | 0.000171 | 31 |
| HLA-B*57:01 | 1 | 884 | 893 | 10 | SGWTFGAGAA | 0.000171 | 40 |
| HLA-B*44:02 | 1 | 913 | 922 | 10 | QNVLYENQKL | 0.000171 | 18 |
| HLA-A*02:06 | 1 | 948 | 957 | 10 | LQDVVNQNAQ | 0.000171 | 37 |
| HLA-B*40:01 | 1 | 950 | 959 | 10 | DVVNQNAQAL | 0.000171 | 16 |
| HLA-A*02:03 | 1 | 951 | 960 | 10 | VVNQNAQALN | 0.000171 | 31 |
| HLA-A*33:01 | 1 | 957 | 966 | 10 | QALNTLVKQL | 0.000171 | 29 |
| HLA-A*11:01 | 1 | 983 | 991 | 9 | RLDKVEAEV | 0.000171 | 18 |
| HLA-B*08:01 | 1 | 1000 | 1009 | 10 | RLQSLQTYVT | 0.000171 | 40 |
| HLA-B*07:02 | 1 | 1011 | 1020 | 10 | QLIRAAEIRA | 0.000171 | 26 |
| HLA-A*30:02 | 1 | 1013 | 1021 | 9 | IRAAEIRAS | 0.000171 | 48 |
| HLA-A*02:06 | 1 | 1039 | 1048 | 10 | RVDFCGKGYH | 0.000171 | 37 |
| HLA-A*02:01 | 1 | 1056 | 1064 | 9 | APHGVVFLH | 0.000171 | 28 |
| HLA-B*44:03 | 1 | 1060 | 1068 | 9 | VVFLHVTYV | 0.000171 | 17 |
| HLA-B*08:01 | 1 | 1084 | 1093 | 10 | DGKAHFPREG | 0.000171 | 40 |
| HLA-B*58:01 | 1 | 1085 | 1094 | 10 | GKAHFPREGV | 0.000171 | 30 |
| HLA-A*01:01 | 1 | 1097 | 1105 | 9 | SNGTHWFVT | 0.000171 | 39 |
| HLA-A*01:01 | 1 | 1124 | 1133 | 10 | GNCDDVIGIV | 0.000171 | 39 |
| HLA-B*08:01 | 1 | 1142 | 1150 | 9 | QPELDSFKE | 0.000171 | 40 |
| HLA-B*35:01 | 1 | 1159 | 1167 | 9 | HTSPDVDLG | 0.000171 | 20 |
| HLA-A*03:01 | 1 | 1168 | 1176 | 9 | DISGINASV | 0.000171 | 23 |
| HLA-B*35:01 | 1 | 1182 | 1191 | 10 | EIDRLNEVAK | 0.000171 | 20 |
| HLA-B*53:01 | 1 | 3 | 11 | 9 | VFLVLLPLV | 0.00017 | 19 |
| HLA-A*02:01 | 1 | 12 | 20 | 9 | SSQCVNLTT | 0.00017 | 28 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*07:02 | 1 | 15 | 23 | 9 | CVNLTTRTQ 0.00017 | 26 |
| HLA-A*31:01 | 1 | 24 | 32 | 9 | LPPAYTNSF 0.00017 | 30 |
| HLA-A*02:06 | 1 | 42 | 51 | 10 | VFRSSVLHST 0.00017 | 37 |
| HLA-B*57:01 | 1 | 53 | 62 | 10 | DLFLPFFSNV 0.00017 | 40 |
| HLA-A*26:01 | 1 | 55 | 63 | 9 | FLPFFSNVT 0.00017 | 24 |
| HLA-A*26:01 | 1 | 76 | 84 | 9 | TKRFDNPVL 0.00017 | 24 |
| HLA-B*58:01 | 1 | 89 | 98 | 10 | GVYFASTEKS 0.00017 | 30 |
| HLA-B*08:01 | 1 | 124 | 132 | 9 | TNVVIKVEG 0.00017 | 40 |
| HLA-A*26:01 | 1 | 173 | 182 | 10 | QPFLMDLEGK 0.00017 | 24 |
| HLA-B*53:01 | 1 | 175 | 183 | 9 | FLMDLEGKQ 0.00017 | 19 |
| HLA-B*57:01 | 1 | 222 | 230 | 9 | ALEPLVDLP 0.00017 | 40 |
| HLA-A*68:02 | 1 | 227 | 236 | 10 | VDLPIGINIT 0.00017 | 31 |
| HLA-B*15:01 | 1 | 247 | 256 | 10 | SYLTPGDSSS 0.00017 | 29 |
| HLA-A*31:01 | 1 | 255 | 264 | 10 | SSGWTAGAAA 0.00017 | 30 |
| HLA-A*11:01 | 1 | 296 | 305 | 10 | LSETKCTLKS 0.00017 | 18 |
| HLA-B*44:03 | 1 | 336 | 344 | 9 | CPFGEVFNA 0.00017 | 17 |
| HLA-A*68:01 | 1 | 393 | 402 | 10 | TNVYADSFVI 0.00017 | 27 |
| HLA-B*53:01 | 1 | 395 | 403 | 9 | VYADSFVIR 0.00017 | 19 |
| HLA-A*01:01 | 1 | 400 | 409 | 10 | FVIRGDEVQR 0.00017 | 39 |
| HLA-A*30:01 | 1 | 430 | 438 | 9 | TGCVIAWNS 0.00017 | 51 |
| HLA-B*40:01 | 1 | 447 | 456 | 10 | GNYNLYRLF 0.00017 | 16 |
| HLA-A*24:02 | 1 | 450 | 459 | 10 | NYLYRLFRRK 0.00017 | 17 |
| HLA-A*01:01 | 1 | 451 | 459 | 9 | YLYRLFRRK 0.00017 | 39 |
| HLA-B*07:02 | 1 | 458 | 466 | 9 | KSNLKPFRER 0.00017 | 26 |
| HLA-B*58:01 | 1 | 460 | 468 | 9 | NLKPFRERDI 0.00017 | 30 |
| HLA-A*11:01 | 1 | 494 | 503 | 10 | SYGFQPTNGV 0.00017 | 18 |
| HLA-A*02:06 | 1 | 517 | 526 | 10 | LLHAPATVCG 0.00017 | 37 |
| HLA-B*58:01 | 1 | 544 | 552 | 9 | NGLTGTGVL 0.00017 | 30 |
| HLA-B*07:02 | 1 | 623 | 632 | 10 | AIHADQLTPT 0.00017 | 26 |
| HLA-A*24:02 | 1 | 659 | 667 | 9 | SYECDIPIG 0.00017 | 17 |
| HLA-B*57:01 | 1 | 668 | 677 | 10 | AGICASYQTQ 0.00017 | 40 |
| HLA-A*32:01 | 1 | 669 | 677 | 9 | GICASYQTQ 0.00017 | 22 |
| HLA-A*02:06 | 1 | 678 | 687 | 10 | TNSPRRARSV 0.00017 | 37 |
| HLA-A*01:01 | 1 | 721 | 730 | 10 | SVTTEILPVS 0.00017 | 39 |
| HLA-A*32:01 | 1 | 730 | 738 | 9 | SMTKTSVDC 0.00017 | 22 |
| HLA-A*23:01 | 1 | 748 | 756 | 9 | ECSNLLLQY 0.00017 | 17 |
| HLA-A*03:01 | 1 | 789 | 797 | 9 | YKTPPIKDF 0.00017 | 23 |
| HLA-A*01:01 | 1 | 795 | 803 | 9 | KDFGGFNFS 0.00017 | 39 |
| HLA-B*57:01 | 1 | 795 | 804 | 10 | KDFGGFNFSQ 0.00017 | 40 |
| HLA-A*03:01 | 1 | 809 | 817 | 9 | PSKPSKRSF 0.00017 | 23 |
| HLA-B*51:01 | 1 | 810 | 819 | 10 | SKPSKRSFIE 0.00017 | 35 |
| HLA-B*51:01 | 1 | 813 | 822 | 10 | SKRSFIEDLL 0.00017 | 35 |
| HLA-B*44:02 | 1 | 888 | 896 | 9 | FGAGAALQI 0.00017 | 18 |
| HLA-A*24:02 | 1 | 889 | 898 | 10 | GAGAALQIPF 0.00017 | 17 |
| HLA-B*07:02 | 1 | 909 | 917 | 9 | IGVTQNVLY 0.00017 | 26 |
| HLA-A*03:01 | 1 | 941 | 949 | 9 | TASALGKLQ 0.00017 | 23 |
| HLA-A*33:01 | 1 | 997 | 1005 | 9 | ITGRLQSLQ 0.00017 | 29 |
| HLA-A*68:01 | 1 | 1003 | 1012 | 10 | SLQTYVTQQL 0.00017 | 27 |
| HLA-B*35:01 | 1 | 1003 | 1012 | 10 | SLQTYVTQQL 0.00017 | 20 |
| HLA-A*68:02 | 1 | 1030 | 1039 | 10 | SECVLGQSKR 0.00017 | 31 |
| HLA-B*15:01 | 1 | 1089 | 1097 | 9 | FPREGVFVS 0.00017 | 29 |
| HLA-A*30:01 | 1 | 1092 | 1100 | 9 | EGVFVSNGT 0.00017 | 51 |
| HLA-A*02:06 | 1 | 1098 | 1107 | 10 | NGTHWFVTQR 0.00017 | 37 |
| HLA-A*30:01 | 1 | 1114 | 1123 | 10 | IITTDNTFVS 0.00017 | 51 |
| HLA-A*30:01 | 1 | 1148 | 1156 | 9 | FKEELDKYF 0.00017 | 51 |
| HLA-B*53:01 | 1 | 1182 | 1191 | 10 | EIDRLNEVAK 0.00017 | 19 |
| HLA-B*44:02 | 1 | 1258 | 1267 | 10 | EDDSEPVLLK 0.00017 | 18 |
| HLA-A*32:01 | 1 | 15 | 23 | 9 | CVNLTTRTQ 0.000169 | 22 |
| HLA-A*32:01 | 1 | 51 | 60 | 10 | TQDLFLPFFS 0.000169 | 22 |
| HLA-A*01:01 | 1 | 52 | 60 | 9 | QDLFLPFFS 0.000169 | 39 |
| HLA-B*51:01 | 1 | 68 | 76 | 9 | IHVSGTNGT 0.000169 | 35 |
| HLA-A*68:02 | 1 | 70 | 78 | 9 | VSGTNGTKR 0.000169 | 31 |
| HLA-A*68:01 | 1 | 132 | 140 | 9 | EFQFCNDPF 0.000169 | 27 |
| HLA-A*24:02 | 1 | 135 | 143 | 9 | FCNDPFLGV 0.000169 | 17 |
| HLA-A*02:03 | 1 | 153 | 161 | 9 | MESEFRVYS 0.000169 | 31 |
| HLA-B*07:02 | 1 | 195 | 204 | 10 | KNIDGYFKIY 0.000169 | 26 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|----|
| HLA-A*02:01 | 1 | 273 | 281 | 9 | RTFLLKYNE | 0.000169 | 28 |
| HLA-B*08:01 | 1 | 393 | 401 | 9 | TNVYADSFV | 0.000169 | 40 |
| HLA-A*01:01 | 1 | 406 | 415 | 10 | EVROIAPGQT | 0.000169 | 39 |
| HLA-B*08:01 | 1 | 407 | 415 | 9 | VRQIAPGQT | 0.000169 | 40 |
| HLA-A*33:01 | 1 | 441 | 449 | 9 | LDSKVGGNY | 0.000169 | 29 |
| HLA-A*01:01 | 1 | 450 | 458 | 9 | NYLYRLFRK | 0.000169 | 39 |
| HLA-B*40:01 | 1 | 462 | 471 | 10 | KPFERDISTE | 0.000169 | 16 |
| HLA-A*03:01 | 1 | 466 | 474 | 9 | RDISTEIQ | 0.000169 | 23 |
| HLA-A*68:02 | 1 | 488 | 496 | 9 | CYFPLQSYG | 0.000169 | 31 |
| HLA-A*02:03 | 1 | 550 | 558 | 9 | GVLTESNKK | 0.000169 | 31 |
| HLA-A*26:01 | 1 | 558 | 567 | 10 | KFLPFQQFGR | 0.000169 | 24 |
| HLA-B*08:01 | 1 | 558 | 566 | 9 | KFLPFQQFG | 0.000169 | 40 |
| HLA-B*15:01 | 1 | 594 | 602 | 9 | GVSVITPGT | 0.000169 | 29 |
| HLA-A*03:01 | 1 | 659 | 668 | 10 | SYECDIPIGA | 0.000169 | 23 |
| HLA-B*51:01 | 1 | 670 | 678 | 9 | ICASYQTQT | 0.000169 | 35 |
| HLA-B*57:01 | 1 | 673 | 682 | 10 | SYQTQTNSPR | 0.000169 | 40 |
| HLA-A*33:01 | 1 | 678 | 687 | 10 | TNSPRRARSV | 0.000169 | 29 |
| HLA-B*40:01 | 1 | 745 | 753 | 9 | DSTECSNLL | 0.000169 | 16 |
| HLA-B*08:01 | 1 | 760 | 768 | 9 | CTQLNRALT | 0.000169 | 40 |
| HLA-A*03:01 | 1 | 773 | 781 | 9 | EQDKNTQEV | 0.000169 | 23 |
| HLA-A*30:01 | 1 | 793 | 801 | 9 | PIKDFGGFN | 0.000169 | 51 |
| HLA-A*23:01 | 1 | 796 | 804 | 9 | DFGGFNFSQ | 0.000169 | 17 |
| HLA-A*01:01 | 1 | 813 | 821 | 9 | SKRSFIEDL | 0.000169 | 39 |
| HLA-B*53:01 | 1 | 875 | 883 | 9 | SALLAGTIT | 0.000169 | 19 |
| HLA-A*02:01 | 1 | 892 | 901 | 10 | AALQIPFAMQ | 0.000169 | 28 |
| HLA-B*40:01 | 1 | 965 | 973 | 9 | QLSSNFGAI | 0.000169 | 16 |
| HLA-A*32:01 | 1 | 997 | 1005 | 9 | ITGRLQSLQ | 0.000169 | 22 |
| HLA-A*11:01 | 1 | 1016 | 1024 | 9 | AEIRASANL | 0.000169 | 18 |
| HLA-A*03:01 | 1 | 1051 | 1060 | 10 | SFPQSAPHGV | 0.000169 | 23 |
| HLA-B*44:03 | 1 | 1082 | 1090 | 9 | CHDGKAHFP | 0.000169 | 17 |
| HLA-B*51:01 | 1 | 1103 | 1111 | 9 | FVTQRNFYE | 0.000169 | 35 |
| HLA-B*58:01 | 1 | 1133 | 1141 | 9 | VNNTVYDPL | 0.000169 | 30 |
| HLA-A*30:01 | 1 | 1150 | 1159 | 10 | EELDKYFKNH | 0.000169 | 51 |
| HLA-B*57:01 | 1 | 1151 | 1159 | 9 | ELDKYFKNH | 0.000169 | 40 |
| HLA-B*58:01 | 1 | 1 | 10 | 10 | MFVFLVLLPL | 0.000168 | 30 |
| HLA-A*01:01 | 1 | 32 | 41 | 10 | FTRGVYYPDK | 0.000168 | 39 |
| HLA-A*02:06 | 1 | 44 | 52 | 9 | RSSVLHSTQ | 0.000168 | 37 |
| HLA-A*02:03 | 1 | 84 | 92 | 9 | LPFNDGVYF | 0.000168 | 31 |
| HLA-B*07:02 | 1 | 115 | 123 | 9 | QSLLVNNA | 0.000168 | 26 |
| HLA-B*51:01 | 1 | 116 | 124 | 9 | SLLVNNA | 0.000168 | 36 |
| HLA-A*33:01 | 1 | 124 | 133 | 10 | TNVVIKVECF | 0.000168 | 29 |
| HLA-A*68:02 | 1 | 127 | 135 | 9 | VIKVECFQ | 0.000168 | 31 |
| HLA-A*68:02 | 1 | 188 | 196 | 9 | NLREFVFKN | 0.000168 | 31 |
| HLA-B*08:01 | 1 | 258 | 266 | 9 | WTAGAAAYY | 0.000168 | 40 |
| HLA-A*01:01 | 1 | 279 | 287 | 9 | YNENGTITD | 0.000168 | 39 |
| HLA-B*58:01 | 1 | 307 | 316 | 10 | TVEKGIYQTS | 0.000168 | 30 |
| HLA-A*02:01 | 1 | 310 | 318 | 9 | KGIIYQTSNF | 0.000168 | 28 |
| HLA-A*26:01 | 1 | 324 | 333 | 10 | ESIVRFPNIT | 0.000168 | 24 |
| HLA-B*44:02 | 1 | 349 | 358 | 10 | SVYAWNRKRI | 0.000168 | 18 |
| HLA-A*33:01 | 1 | 383 | 392 | 10 | SPTKLNDLCF | 0.000168 | 29 |
| HLA-B*07:02 | 1 | 424 | 432 | 9 | KLPDDFTGC | 0.000168 | 26 |
| HLA-A*02:06 | 1 | 486 | 494 | 9 | FNCYFPLQS | 0.000168 | 37 |
| HLA-B*44:03 | 1 | 507 | 515 | 9 | PYRVVLSF | 0.000168 | 17 |
| HLA-B*07:02 | 1 | 530 | 539 | 10 | STNLVKNKCV | 0.000168 | 26 |
| HLA-B*07:02 | 1 | 574 | 583 | 10 | DAVRDPQTL | 0.000168 | 26 |
| HLA-A*33:01 | 1 | 590 | 598 | 9 | CSFGGVSVI | 0.000168 | 29 |
| HLA-B*08:01 | 1 | 591 | 600 | 10 | SFGGVSITP | 0.000168 | 40 |
| HLA-A*23:01 | 1 | 672 | 681 | 10 | ASYQTQNSP | 0.000168 | 17 |
| HLA-B*44:02 | 1 | 674 | 682 | 9 | YQTQNSPR | 0.000168 | 18 |
| HLA-A*02:06 | 1 | 690 | 698 | 9 | QSIAYTMS | 0.000168 | 37 |
| HLA-B*58:01 | 1 | 699 | 708 | 10 | LGAENSVAYS | 0.000168 | 30 |
| HLA-A*31:01 | 1 | 717 | 725 | 9 | NFTISVTTE | 0.000168 | 30 |
| HLA-B*53:01 | 1 | 724 | 732 | 9 | TEILPVSM | 0.000168 | 19 |
| HLA-A*30:01 | 1 | 726 | 735 | 10 | ILPVSMTKTS | 0.000168 | 51 |
| HLA-B*35:01 | 1 | 747 | 755 | 9 | TECSNLLLQ | 0.000168 | 20 |
| HLA-B*08:01 | 1 | 774 | 783 | 10 | QDKNTQEVFA | 0.000168 | 40 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*44:02 | 1 | 792 | 800 | 9 | PPIKDFGGF 0.000168 | 18 |
| HLA-B*57:01 | 1 | 799 | 807 | 9 | GFNFSQILP 0.000168 | 40 |
| HLA-B*15:01 | 1 | 829 | 838 | 10 | ADAGFIKQYG 0.000168 | 29 |
| HLA-B*40:01 | 1 | 854 | 862 | 9 | KFNGLTVLP 0.000168 | 16 |
| HLA-B*07:02 | 1 | 914 | 923 | 10 | NVLYENQKLI 0.000168 | 26 |
| HLA-B*44:03 | 1 | 918 | 926 | 9 | ENQKLIANQ 0.000168 | 17 |
| HLA-A*01:01 | 1 | 928 | 937 | 10 | NSAIGKIQDS 0.000168 | 39 |
| HLA-B*08:01 | 1 | 1004 | 1013 | 10 | LQTYVTQQLI 0.000168 | 40 |
| HLA-B*08:01 | 1 | 1113 | 1122 | 10 | QIITTDNTFV 0.000168 | 40 |
| HLA-A*01:01 | 1 | 1208 | 1217 | 10 | QYIKWPWYIW 0.000168 | 39 |
| HLA-A*32:01 | 1 | 1237 | 1245 | 9 | MTSCCCLK 0.000168 | 22 |
| HLA-A*33:01 | 1 | 1259 | 1268 | 10 | DDSEPVLKG 0.000168 | 29 |
| HLA-B*35:01 | 1 | 1 | 10 | 10 | MFVFLVLLPL 0.000167 | 20 |
| HLA-A*26:01 | 1 | 5 | 14 | 10 | LVLLPLVSSQ 0.000167 | 24 |
| HLA-A*02:03 | 1 | 12 | 20 | 9 | SSQCVNLT 0.000167 | 31 |
| HLA-A*01:01 | 1 | 17 | 26 | 10 | NLTTRTQLPP 0.000167 | 39 |
| HLA-A*33:01 | 1 | 26 | 35 | 10 | PAYTNSFTRG 0.000167 | 29 |
| HLA-A*23:01 | 1 | 54 | 63 | 10 | LFLPFFSNVT 0.000167 | 17 |
| HLA-B*15:01 | 1 | 59 | 67 | 9 | FSNVTWFHA 0.000167 | 29 |
| HLA-B*40:01 | 1 | 220 | 229 | 10 | FSALEPLVDL 0.000167 | 16 |
| HLA-A*23:01 | 1 | 258 | 266 | 9 | WTAGAAAYY 0.000167 | 17 |
| HLA-A*11:01 | 1 | 312 | 320 | 9 | IYQTSNFRV 0.000167 | 18 |
| HLA-B*15:01 | 1 | 312 | 320 | 9 | IYQTSNFRV 0.000167 | 29 |
| HLA-A*26:01 | 1 | 313 | 321 | 9 | YQTSNFRVQ 0.000167 | 24 |
| HLA-A*31:01 | 1 | 314 | 323 | 10 | QTSNFRVQPT 0.000167 | 30 |
| HLA-A*30:02 | 1 | 322 | 330 | 9 | PTESIVRFP 0.000167 | 48 |
| HLA-A*03:01 | 1 | 325 | 334 | 10 | SIVRFPNITN 0.000167 | 24 |
| HLA-A*24:02 | 1 | 350 | 359 | 10 | VYAWNRKRIS 0.000167 | 17 |
| HLA-A*02:06 | 1 | 371 | 380 | 10 | SASFSTFKCY 0.000167 | 38 |
| HLA-A*68:01 | 1 | 383 | 392 | 10 | SPTKLNLCF 0.000167 | 27 |
| HLA-B*58:01 | 1 | 453 | 462 | 10 | YRLFRRKSNLK 0.000167 | 30 |
| HLA-B*51:01 | 1 | 455 | 464 | 10 | LFRKSNLKP 0.000167 | 36 |
| HLA-B*40:01 | 1 | 471 | 479 | 9 | EIYQAGSTP 0.000167 | 16 |
| HLA-A*01:01 | 1 | 545 | 554 | 10 | GLTGTGVLTE 0.000167 | 39 |
| HLA-A*01:01 | 1 | 571 | 579 | 9 | DTTDAVRDP 0.000167 | 39 |
| HLA-A*01:01 | 1 | 587 | 596 | 10 | ITPCSFGGVS 0.000167 | 39 |
| HLA-B*07:02 | 1 | 659 | 668 | 10 | SYECDIPIGA 0.000167 | 26 |
| HLA-B*58:01 | 1 | 668 | 677 | 10 | AGICASYQTQ 0.000167 | 30 |
| HLA-B*35:01 | 1 | 673 | 681 | 9 | SYQTQTNSP 0.000167 | 20 |
| HLA-A*26:01 | 1 | 691 | 700 | 10 | SIIAYTMSLG 0.000167 | 24 |
| HLA-B*53:01 | 1 | 744 | 752 | 9 | GDSTECNSL 0.000167 | 19 |
| HLA-A*30:02 | 1 | 750 | 758 | 9 | SNLLLQYGS 0.000167 | 48 |
| HLA-B*57:01 | 1 | 761 | 769 | 9 | TQLNRALTG 0.000167 | 40 |
| HLA-A*31:01 | 1 | 816 | 824 | 9 | SFIEDLLFN 0.000167 | 30 |
| HLA-A*31:01 | 1 | 818 | 826 | 9 | IEDLLFNKV 0.000167 | 30 |
| HLA-B*35:01 | 1 | 844 | 853 | 10 | IAARDLICAQ 0.000167 | 20 |
| HLA-B*07:02 | 1 | 877 | 885 | 9 | LLAGTITSG 0.000167 | 26 |
| HLA-B*51:01 | 1 | 918 | 926 | 9 | ENQKLIANQ 0.000167 | 36 |
| HLA-A*31:01 | 1 | 942 | 951 | 10 | ASALGKLQDV 0.000167 | 30 |
| HLA-A*02:01 | 1 | 1045 | 1053 | 9 | KGYHLMSFP 0.000167 | 28 |
| HLA-B*40:01 | 1 | 1047 | 1056 | 10 | YHLMSFPQSA 0.000167 | 16 |
| HLA-B*58:01 | 1 | 1074 | 1083 | 10 | NFTTAPAICH 0.000167 | 30 |
| HLA-A*33:01 | 1 | 1097 | 1106 | 10 | SNGTHWFVTQ 0.000167 | 29 |
| HLA-B*40:01 | 1 | 1136 | 1144 | 9 | TVYDPLQPE 0.000167 | 16 |
| HLA-A*02:03 | 1 | 1157 | 1166 | 10 | KNHTSPDVDL 0.000167 | 31 |
| HLA-B*15:01 | 1 | 1182 | 1191 | 10 | EIDRLNEVAK 0.000167 | 29 |
| HLA-A*33:01 | 1 | 1220 | 1229 | 10 | FIAGLIAIVM 0.000167 | 29 |
| HLA-A*02:03 | 1 | 1230 | 1238 | 9 | VTIMLCCMT 0.000167 | 31 |
| HLA-B*57:01 | 1 | 1237 | 1246 | 10 | MTSCCCLKG 0.000167 | 40 |
| HLA-B*58:01 | 1 | 1238 | 1246 | 9 | TSCCCLKG 0.000167 | 30 |
| HLA-B*08:01 | 1 | 44 | 52 | 9 | RSSVLHSTQ 0.000166 | 40 |
| HLA-B*40:01 | 1 | 47 | 56 | 10 | VLHSTQDLFL 0.000166 | 16 |
| HLA-A*02:01 | 1 | 49 | 58 | 10 | HSTQDLFLPF 0.000166 | 28 |
| HLA-A*23:01 | 1 | 59 | 68 | 10 | FSNVTWFHAI 0.000166 | 17 |
| HLA-A*01:01 | 1 | 74 | 83 | 10 | NGTKRFDNPV 0.000166 | 39 |
| HLA-B*44:03 | 1 | 94 | 102 | 9 | STEKSNIIIR 0.000166 | 18 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*02:01 | 1 | 111 | 120 | 10 | DSKTQSLIV 0.000166 | 28 |
| HLA-A*03:01 | 1 | 115 | 123 | 9 | QSLIVNNA 0.000166 | 24 |
| HLA-A*11:01 | 1 | 144 | 152 | 9 | YYHKNNKSW 0.000166 | 18 |
| HLA-B*51:01 | 1 | 150 | 158 | 9 | KSWMESEFR 0.000166 | 36 |
| HLA-A*02:03 | 1 | 162 | 170 | 9 | SANNCTFEY 0.000166 | 31 |
| HLA-A*68:01 | 1 | 167 | 176 | 10 | TFEYVSPFL 0.000166 | 27 |
| HLA-A*03:01 | 1 | 168 | 176 | 9 | FEYVSPFL 0.000166 | 24 |
| HLA-A*02:06 | 1 | 201 | 209 | 9 | FKIYSKHTP 0.000166 | 38 |
| HLA-A*68:02 | 1 | 201 | 209 | 9 | FKIYSKHTP 0.000166 | 31 |
| HLA-A*11:01 | 1 | 204 | 213 | 10 | YSKHTPINLV 0.000166 | 18 |
| HLA-B*08:01 | 1 | 222 | 231 | 10 | ALEPLVDLPI 0.000166 | 40 |
| HLA-A*01:01 | 1 | 232 | 240 | 9 | GINITRFQT 0.000166 | 39 |
| HLA-A*02:01 | 1 | 239 | 248 | 10 | QTLLALHRSY 0.000166 | 28 |
| HLA-B*35:01 | 1 | 316 | 324 | 9 | SNFRVQPT 0.000166 | 20 |
| HLA-B*15:01 | 1 | 348 | 357 | 10 | ASVYAWNRKR 0.000166 | 29 |
| HLA-B*57:01 | 1 | 429 | 438 | 10 | FTGCVIAWNS 0.000166 | 40 |
| HLA-B*57:01 | 1 | 469 | 477 | 9 | STEIYQAGS 0.000166 | 40 |
| HLA-A*01:01 | 1 | 506 | 514 | 9 | QPYRVVLS 0.000166 | 39 |
| HLA-A*32:01 | 1 | 526 | 534 | 9 | GPCKSTNLV 0.000166 | 22 |
| HLA-A*68:01 | 1 | 526 | 534 | 9 | GPCKSTNLV 0.000166 | 27 |
| HLA-A*26:01 | 1 | 555 | 563 | 9 | SNKKFLPFQ 0.000166 | 24 |
| HLA-B*35:01 | 1 | 582 | 590 | 9 | LEILDITPC 0.000166 | 20 |
| HLA-B*58:01 | 1 | 623 | 632 | 10 | AIHADQLTPT 0.000166 | 30 |
| HLA-B*08:01 | 1 | 635 | 644 | 10 | VYSTGSNVFQ 0.000166 | 40 |
| HLA-B*08:01 | 1 | 657 | 666 | 10 | NNSYECDIPI 0.000166 | 40 |
| HLA-B*15:01 | 1 | 682 | 691 | 10 | RRARVASQS 0.000166 | 29 |
| HLA-B*07:02 | 1 | 747 | 756 | 10 | TECSNLLLQY 0.000166 | 26 |
| HLA-B*51:01 | 1 | 783 | 792 | 10 | AQVKQIYKTP 0.000166 | 36 |
| HLA-A*02:03 | 1 | 816 | 825 | 10 | SFIEDLLFNK 0.000166 | 31 |
| HLA-A*24:02 | 1 | 827 | 835 | 9 | TLADAGFIK 0.000166 | 17 |
| HLA-A*03:01 | 1 | 877 | 885 | 9 | LLAGTITSG 0.000166 | 24 |
| HLA-A*33:01 | 1 | 892 | 901 | 10 | AALQIPFAMQ 0.000166 | 29 |
| HLA-B*07:02 | 1 | 944 | 952 | 9 | ALGKLQDVV 0.000166 | 26 |
| HLA-B*40:01 | 1 | 953 | 961 | 9 | NQNAQALNT 0.000166 | 16 |
| HLA-B*51:01 | 1 | 970 | 978 | 9 | FGAISSVLN 0.000166 | 36 |
| HLA-A*30:02 | 1 | 985 | 993 | 9 | DKVEAEVQI 0.000166 | 48 |
| HLA-B*53:01 | 1 | 992 | 1000 | 9 | QIDRLITGR 0.000166 | 19 |
| HLA-B*58:01 | 1 | 1006 | 1014 | 9 | TYVTQQLIR 0.000166 | 30 |
| HLA-A*33:01 | 1 | 1007 | 1016 | 10 | YVTQQLIRAA 0.000166 | 29 |
| HLA-A*30:01 | 1 | 1038 | 1046 | 9 | KRVDFCGKG 0.000166 | 51 |
| HLA-B*08:01 | 1 | 1062 | 1071 | 10 | FLHVTVVPAQ 0.000166 | 40 |
| HLA-A*02:01 | 1 | 1089 | 1097 | 9 | FPREGVFVS 0.000166 | 28 |
| HLA-A*32:01 | 1 | 1121 | 1129 | 9 | FVSGNCDVV 0.000166 | 22 |
| HLA-A*30:02 | 1 | 1124 | 1133 | 10 | GNCVVIGIV 0.000166 | 48 |
| HLA-B*40:01 | 1 | 1139 | 1148 | 10 | DPLQPELDSF 0.000166 | 16 |
| HLA-B*08:01 | 1 | 1163 | 1171 | 9 | DVDLGDISG 0.000166 | 40 |
| HLA-B*07:02 | 1 | 1181 | 1190 | 10 | KEIDRLNEVA 0.000166 | 26 |
| HLA-A*68:01 | 1 | 1196 | 1204 | 9 | SLIDLQELG 0.000166 | 27 |
| HLA-A*01:01 | 1 | 1215 | 1224 | 10 | YIWLGFIAGL 0.000166 | 39 |
| HLA-B*57:01 | 1 | 1241 | 1250 | 10 | CSCLKGCCSC 0.000166 | 40 |
| HLA-B*57:01 | 1 | 7 | 15 | 9 | LLPLVSSQC 0.000165 | 40 |
| HLA-B*15:01 | 1 | 88 | 97 | 10 | DGVYFASTEK 0.000165 | 29 |
| HLA-A*31:01 | 1 | 93 | 101 | 9 | ASTEKSNI 0.000165 | 30 |
| HLA-B*15:01 | 1 | 108 | 116 | 9 | TTLDSKTQS 0.000165 | 29 |
| HLA-B*53:01 | 1 | 185 | 193 | 9 | NFKNLREFV 0.000165 | 19 |
| HLA-B*58:01 | 1 | 284 | 292 | 9 | TITDAVDCA 0.000165 | 30 |
| HLA-A*03:01 | 1 | 298 | 306 | 9 | ETKCTLKSF 0.000165 | 24 |
| HLA-B*58:01 | 1 | 318 | 327 | 10 | FRVQPTESIV 0.000165 | 30 |
| HLA-A*31:01 | 1 | 338 | 347 | 10 | FGEVFNATRF 0.000165 | 30 |
| HLA-B*07:02 | 1 | 338 | 347 | 10 | FGEVFNATRF 0.000165 | 26 |
| HLA-A*03:01 | 1 | 341 | 349 | 9 | VFNATRFAS 0.000165 | 24 |
| HLA-A*23:01 | 1 | 379 | 388 | 10 | CYGVSPTKLN 0.000165 | 17 |
| HLA-B*08:01 | 1 | 399 | 408 | 10 | SFVIRGDEVR 0.000165 | 40 |
| HLA-A*11:01 | 1 | 408 | 416 | 9 | RQIAPGQTG 0.000165 | 18 |
| HLA-B*51:01 | 1 | 424 | 432 | 9 | KLPDDFTGC 0.000165 | 36 |
| HLA-A*33:01 | 1 | 427 | 435 | 9 | DDFTGCVIA 0.000165 | 30 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|----------|----|
| HLA-B*40:01 | 1 | 427 | 435 | 9 | DDFTGCVIA | 0.000165 | 16 |
| HLA-B*51:01 | 1 | 440 | 449 | 10 | NLDSKVGNGY | 0.000165 | 36 |
| HLA-B*51:01 | 1 | 492 | 500 | 9 | LQSYGFQPT | 0.000165 | 36 |
| HLA-A*23:01 | 1 | 502 | 510 | 9 | GVGYQPYPYR | 0.000165 | 17 |
| HLA-A*02:01 | 1 | 510 | 519 | 10 | VVLSFELLH | 0.000165 | 28 |
| HLA-A*11:01 | 1 | 513 | 521 | 9 | LSFELLHAP | 0.000165 | 18 |
| HLA-A*11:01 | 1 | 522 | 530 | 9 | ATVCGPKKS | 0.000165 | 18 |
| HLA-B*40:01 | 1 | 533 | 541 | 9 | LVKNKCVNF | 0.000165 | 16 |
| HLA-A*68:01 | 1 | 535 | 543 | 9 | KNKCVNFNF | 0.000165 | 27 |
| HLA-B*07:02 | 1 | 535 | 543 | 9 | KNKCVNFNF | 0.000165 | 26 |
| HLA-A*30:01 | 1 | 543 | 552 | 10 | FNGLTGTGVL | 0.000165 | 51 |
| HLA-B*08:01 | 1 | 586 | 595 | 10 | DITPCSFGGV | 0.000165 | 40 |
| HLA-A*30:02 | 1 | 594 | 603 | 10 | GVSVITPGTN | 0.000165 | 48 |
| HLA-B*51:01 | 1 | 594 | 602 | 9 | GVSVITPGT | 0.000165 | 36 |
| HLA-B*57:01 | 1 | 611 | 620 | 10 | LYQDVNCTEV | 0.000165 | 40 |
| HLA-A*26:01 | 1 | 617 | 626 | 10 | CTEVPVAIHA | 0.000165 | 24 |
| HLA-B*44:02 | 1 | 675 | 683 | 9 | QTQTNSPRR | 0.000165 | 18 |
| HLA-A*68:01 | 1 | 685 | 694 | 10 | RSVASQSIIA | 0.000165 | 27 |
| HLA-A*31:01 | 1 | 771 | 780 | 10 | AVEQDKNTQE | 0.000165 | 30 |
| HLA-A*68:01 | 1 | 790 | 798 | 9 | KTPPIKDFG | 0.000165 | 27 |
| HLA-B*44:02 | 1 | 795 | 803 | 9 | KDFGGFNFS | 0.000165 | 18 |
| HLA-B*08:01 | 1 | 822 | 830 | 9 | LFNKVTLAD | 0.000165 | 40 |
| HLA-B*44:03 | 1 | 868 | 876 | 9 | EMIAQY TSA | 0.000165 | 18 |
| HLA-A*02:03 | 1 | 878 | 886 | 9 | LAGTITSGW | 0.000165 | 31 |
| HLA-A*33:01 | 1 | 900 | 908 | 9 | MQMAYRFNG | 0.000165 | 30 |
| HLA-B*44:03 | 1 | 901 | 909 | 9 | QMAYRFNGI | 0.000165 | 18 |
| HLA-A*01:01 | 1 | 917 | 925 | 9 | YENQKLIAN | 0.000165 | 39 |
| HLA-A*01:01 | 1 | 935 | 943 | 9 | QDLSSTAS | 0.000165 | 39 |
| HLA-B*15:01 | 1 | 942 | 951 | 10 | ASALGKLQDV | 0.000165 | 29 |
| HLA-B*15:01 | 1 | 971 | 980 | 10 | GAISSVLNDI | 0.000165 | 29 |
| HLA-B*57:01 | 1 | 990 | 999 | 10 | EVQIDRLITG | 0.000165 | 40 |
| HLA-B*44:02 | 1 | 996 | 1004 | 9 | LITGRLQSL | 0.000165 | 18 |
| HLA-A*68:02 | 1 | 1014 | 1023 | 10 | RAAEIRASAN | 0.000165 | 31 |
| HLA-B*51:01 | 1 | 1030 | 1039 | 10 | SECVLGQSKR | 0.000165 | 36 |
| HLA-A*68:01 | 1 | 1032 | 1040 | 9 | CVLQGSKRV | 0.000165 | 27 |
| HLA-A*30:02 | 1 | 1067 | 1076 | 10 | YVPAQEKNT | 0.000165 | 48 |
| HLA-B*08:01 | 1 | 1198 | 1206 | 9 | IDLQELGKY | 0.000165 | 40 |
| HLA-A*30:01 | 1 | 1246 | 1255 | 10 | GCCSCGSCCK | 0.000165 | 51 |
| HLA-B*08:01 | 1 | 1261 | 1269 | 9 | SEPVLKGVK | 0.000165 | 40 |
| HLA-A*02:03 | 1 | 1263 | 1272 | 10 | PVLKGVKLHY | 0.000165 | 31 |
| HLA-A*30:02 | 1 | 10 | 19 | 10 | LVSSQCVNLT | 0.000164 | 48 |
| HLA-A*03:01 | 1 | 16 | 24 | 9 | VNLTTRTQL | 0.000164 | 24 |
| HLA-B*08:01 | 1 | 36 | 45 | 10 | VYYPDKVFRS | 0.000164 | 40 |
| HLA-B*51:01 | 1 | 80 | 89 | 10 | DNPVLPFNDG | 0.000164 | 36 |
| HLA-B*40:01 | 1 | 94 | 102 | 9 | STEKSNIIIR | 0.000164 | 16 |
| HLA-A*30:02 | 1 | 101 | 109 | 9 | IRGWIFGTT | 0.000164 | 48 |
| HLA-A*02:06 | 1 | 136 | 145 | 10 | CNDPFLGVYY | 0.000164 | 38 |
| HLA-A*32:01 | 1 | 139 | 147 | 9 | PFLGVYYHK | 0.000164 | 22 |
| HLA-B*07:02 | 1 | 166 | 175 | 10 | CTFEYVSQPF | 0.000164 | 26 |
| HLA-A*68:02 | 1 | 198 | 207 | 10 | DGYFKIYSKH | 0.000164 | 31 |
| HLA-A*01:01 | 1 | 215 | 224 | 10 | DLPQGFSALE | 0.000164 | 39 |
| HLA-A*30:02 | 1 | 321 | 330 | 10 | QPTESIVRFP | 0.000164 | 48 |
| HLA-A*68:01 | 1 | 324 | 333 | 10 | ESIVRFPNIT | 0.000164 | 27 |
| HLA-B*53:01 | 1 | 350 | 358 | 9 | VYAWNRKRI | 0.000164 | 19 |
| HLA-A*02:06 | 1 | 368 | 377 | 10 | LYNSASFSTF | 0.000164 | 38 |
| HLA-A*03:01 | 1 | 368 | 377 | 10 | LYNSASFSTF | 0.000164 | 24 |
| HLA-B*08:01 | 1 | 378 | 386 | 9 | KCYGVSPTK | 0.000164 | 40 |
| HLA-A*33:01 | 1 | 425 | 433 | 9 | LPDDFTGCV | 0.000164 | 30 |
| HLA-A*24:02 | 1 | 435 | 444 | 10 | AWNSNNLDSK | 0.000164 | 17 |
| HLA-B*51:01 | 1 | 446 | 455 | 10 | GGNYNYLYRL | 0.000164 | 36 |
| HLA-A*32:01 | 1 | 471 | 479 | 9 | EIYQAGSTP | 0.000164 | 22 |
| HLA-B*44:03 | 1 | 495 | 503 | 9 | YGFQPTNGV | 0.000164 | 18 |
| HLA-B*58:01 | 1 | 501 | 509 | 9 | NGVGYQPYPYR | 0.000164 | 30 |
| HLA-A*68:02 | 1 | 526 | 535 | 10 | GPKKSTNLVK | 0.000164 | 31 |
| HLA-B*44:03 | 1 | 532 | 541 | 10 | NLVKNKCVNF | 0.000164 | 18 |
| HLA-A*68:01 | 1 | 569 | 578 | 10 | IADTTDAVRD | 0.000164 | 27 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|----|
| HLA-B*57:01 | 1 | 610 | 618 | 9 | VLYQDVNCT | 0.000164 | 40 |
| HLA-A*01:01 | 1 | 629 | 638 | 10 | LTPTWRVYST | 0.000164 | 39 |
| HLA-A*02:06 | 1 | 692 | 700 | 9 | IIAYTMSLG | 0.000164 | 38 |
| HLA-B*35:01 | 1 | 766 | 774 | 9 | ALTGIAVEQ | 0.000164 | 20 |
| HLA-B*44:03 | 1 | 804 | 812 | 9 | QILPDPSKP | 0.000164 | 18 |
| HLA-A*33:01 | 1 | 828 | 836 | 9 | LADAGFIKQ | 0.000164 | 30 |
| HLA-B*07:02 | 1 | 892 | 901 | 10 | AALQIPFAMQ | 0.000164 | 26 |
| HLA-B*44:03 | 1 | 908 | 917 | 10 | GIGVTQNVLY | 0.000164 | 18 |
| HLA-A*30:01 | 1 | 950 | 959 | 10 | DVVNQNAQAL | 0.000164 | 51 |
| HLA-A*30:02 | 1 | 970 | 978 | 9 | FGAISSVLN | 0.000164 | 48 |
| HLA-A*01:01 | 1 | 971 | 980 | 10 | GAISSVLNDI | 0.000164 | 39 |
| HLA-A*02:06 | 1 | 971 | 979 | 9 | GAISSVLND | 0.000164 | 38 |
| HLA-B*44:03 | 1 | 984 | 993 | 10 | LDKVEAEVQI | 0.000164 | 18 |
| HLA-B*58:01 | 1 | 984 | 993 | 10 | LDKVEAEVQI | 0.000164 | 30 |
| HLA-B*08:01 | 1 | 1011 | 1020 | 10 | QLIRAAEIRA | 0.000164 | 40 |
| HLA-A*33:01 | 1 | 1044 | 1052 | 9 | GKGYHLMSF | 0.000164 | 30 |
| HLA-A*32:01 | 1 | 1045 | 1053 | 9 | KGYHLMSFP | 0.000164 | 22 |
| HLA-A*68:02 | 1 | 1053 | 1061 | 9 | PQSAPHGVV | 0.000164 | 31 |
| HLA-B*58:01 | 1 | 1070 | 1078 | 9 | AQEKNFTTA | 0.000164 | 30 |
| HLA-B*07:02 | 1 | 1074 | 1082 | 9 | NFTTAPAIC | 0.000164 | 26 |
| HLA-A*11:01 | 1 | 1086 | 1095 | 10 | KAHFPREGVF | 0.000164 | 18 |
| HLA-A*30:01 | 1 | 1091 | 1099 | 9 | REGVFSVNG | 0.000164 | 51 |
| HLA-A*11:01 | 1 | 1094 | 1103 | 10 | VFVSNQTHWF | 0.000164 | 18 |
| HLA-B*15:01 | 1 | 1108 | 1116 | 9 | NFYEQIIT | 0.000164 | 29 |
| HLA-A*26:01 | 1 | 1114 | 1122 | 9 | IITDNTFV | 0.000164 | 24 |
| HLA-A*02:01 | 1 | 1116 | 1124 | 9 | TTDNTFVSG | 0.000164 | 29 |
| HLA-A*03:01 | 1 | 1174 | 1182 | 9 | ASVVNIQKE | 0.000164 | 24 |
| HLA-A*33:01 | 1 | 1257 | 1265 | 9 | DEDDSEPVL | 0.000164 | 30 |
| HLA-A*30:02 | 1 | 32 | 40 | 9 | FTRGVYYPD | 0.000163 | 49 |
| HLA-B*44:02 | 1 | 54 | 62 | 9 | LFLPFFSNV | 0.000163 | 18 |
| HLA-A*33:01 | 1 | 71 | 79 | 9 | SGTNGTKRF | 0.000163 | 30 |
| HLA-A*30:02 | 1 | 98 | 107 | 10 | SNIRGWIFG | 0.000163 | 49 |
| HLA-A*33:01 | 1 | 116 | 124 | 9 | SLIVNNAT | 0.000163 | 30 |
| HLA-A*01:01 | 1 | 173 | 182 | 10 | QPFLMDLEGG | 0.000163 | 40 |
| HLA-A*32:01 | 1 | 205 | 213 | 9 | SKHTPINLV | 0.000163 | 22 |
| HLA-B*51:01 | 1 | 212 | 221 | 10 | LVRDLPQGF | 0.000163 | 36 |
| HLA-A*02:06 | 1 | 236 | 245 | 10 | TRFQTLALH | 0.000163 | 38 |
| HLA-A*31:01 | 1 | 254 | 263 | 10 | SSSGWTAGAA | 0.000163 | 30 |
| HLA-B*44:03 | 1 | 254 | 262 | 9 | SSSGWTAGA | 0.000163 | 18 |
| HLA-A*30:02 | 1 | 288 | 297 | 10 | AVDCALDPLS | 0.000163 | 49 |
| HLA-A*02:06 | 1 | 308 | 316 | 9 | VEKGIYQTS | 0.000163 | 38 |
| HLA-B*07:02 | 1 | 342 | 351 | 10 | FNATRFASVY | 0.000163 | 26 |
| HLA-A*02:03 | 1 | 344 | 353 | 10 | ATRFASVYAW | 0.000163 | 31 |
| HLA-A*30:02 | 1 | 345 | 354 | 10 | TRFASVYAWN | 0.000163 | 49 |
| HLA-B*07:02 | 1 | 440 | 449 | 10 | NLDSKVGNGY | 0.000163 | 26 |
| HLA-A*31:01 | 1 | 441 | 449 | 9 | LDSKVGNGY | 0.000163 | 30 |
| HLA-A*30:02 | 1 | 486 | 494 | 9 | FNCYFPLQS | 0.000163 | 49 |
| HLA-A*30:02 | 1 | 525 | 534 | 10 | CGPKKSTNLV | 0.000163 | 49 |
| HLA-B*40:01 | 1 | 535 | 543 | 9 | KNKCVNFN | 0.000163 | 16 |
| HLA-A*02:01 | 1 | 599 | 608 | 10 | TPGTNTSNQV | 0.000163 | 29 |
| HLA-B*58:01 | 1 | 641 | 649 | 9 | NVFQTRAGC | 0.000163 | 30 |
| HLA-B*57:01 | 1 | 651 | 659 | 9 | IGAHEVNNS | 0.000163 | 40 |
| HLA-A*32:01 | 1 | 655 | 664 | 10 | HVNNSYECDI | 0.000163 | 22 |
| HLA-B*40:01 | 1 | 664 | 672 | 9 | IPIGAGICA | 0.000163 | 16 |
| HLA-B*07:02 | 1 | 708 | 716 | 9 | SNNSIAIPT | 0.000163 | 26 |
| HLA-A*03:01 | 1 | 731 | 740 | 10 | MTKTSVDCTM | 0.000163 | 24 |
| HLA-B*58:01 | 1 | 735 | 743 | 9 | SVDCTMYIC | 0.000163 | 30 |
| HLA-B*57:01 | 1 | 740 | 749 | 10 | MYICGDSTEC | 0.000163 | 40 |
| HLA-A*02:03 | 1 | 741 | 750 | 10 | YICGDSTEC | 0.000163 | 31 |
| HLA-A*30:01 | 1 | 764 | 773 | 10 | NRALTGIAVE | 0.000163 | 51 |
| HLA-B*58:01 | 1 | 877 | 885 | 9 | LLAGTITSG | 0.000163 | 30 |
| HLA-A*26:01 | 1 | 903 | 911 | 9 | AYRFNGIGV | 0.000163 | 24 |
| HLA-B*51:01 | 1 | 904 | 912 | 9 | YRFNGIGV | 0.000163 | 36 |
| HLA-A*01:01 | 1 | 984 | 992 | 9 | LDKVEAEVQ | 0.000163 | 40 |
| HLA-A*02:01 | 1 | 987 | 995 | 9 | VEAEVQIDR | 0.000163 | 29 |
| HLA-B*58:01 | 1 | 999 | 1008 | 10 | GRLQSLQTYV | 0.000163 | 30 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|----------|----|
| HLA-A*01:01 | 1 | 1001 | 1009 | 9 | LQSLQTYVT | 0.000163 | 40 |
| HLA-A*31:01 | 1 | 1046 | 1055 | 10 | GYHLMSFPQS | 0.000163 | 30 |
| HLA-A*33:01 | 1 | 1070 | 1078 | 9 | AQEKNFTTA | 0.000163 | 30 |
| HLA-B*07:02 | 1 | 1070 | 1079 | 10 | AQEKNFTTAP | 0.000163 | 26 |
| HLA-A*11:01 | 1 | 1073 | 1081 | 9 | KNFTTAPAI | 0.000163 | 18 |
| HLA-A*68:02 | 1 | 1100 | 1109 | 10 | THWVFTQRNF | 0.000163 | 31 |
| HLA-A*32:01 | 1 | 1183 | 1191 | 9 | IDRLNEVAK | 0.000163 | 22 |
| HLA-A*23:01 | 1 | 1212 | 1221 | 10 | WPWYIWLGFI | 0.000163 | 18 |
| HLA-A*68:02 | 1 | 1237 | 1245 | 9 | MTSCCCLK | 0.000163 | 31 |
| HLA-A*02:01 | 1 | 26 | 34 | 9 | PAYTNSFTR | 0.000162 | 29 |
| HLA-B*15:01 | 1 | 38 | 46 | 9 | YDPKVFRRSS | 0.000162 | 29 |
| HLA-A*31:01 | 1 | 43 | 52 | 10 | FRSSVLHSTQ | 0.000162 | 30 |
| HLA-A*26:01 | 1 | 57 | 66 | 10 | PFFSNVTWFH | 0.000162 | 24 |
| HLA-B*51:01 | 1 | 64 | 72 | 9 | WFHAIHVSG | 0.000162 | 36 |
| HLA-A*01:01 | 1 | 65 | 73 | 9 | FHAIHVSGT | 0.000162 | 40 |
| HLA-A*24:02 | 1 | 68 | 77 | 10 | IHVSGTNGTK | 0.000162 | 17 |
| HLA-A*68:02 | 1 | 68 | 77 | 10 | IHVSGTNGTK | 0.000162 | 31 |
| HLA-A*33:01 | 1 | 75 | 84 | 10 | GTRKFDNPVL | 0.000162 | 30 |
| HLA-A*24:02 | 1 | 110 | 119 | 10 | LDSKTQSLLI | 0.000162 | 17 |
| HLA-A*02:06 | 1 | 172 | 181 | 10 | SQPFLMDLEG | 0.000162 | 38 |
| HLA-B*07:02 | 1 | 223 | 231 | 9 | LEPLVDLPI | 0.000162 | 26 |
| HLA-A*11:01 | 1 | 234 | 242 | 9 | NITRFQTL | 0.000162 | 18 |
| HLA-A*30:02 | 1 | 252 | 261 | 10 | GDSSSGWTAG | 0.000162 | 49 |
| HLA-B*57:01 | 1 | 260 | 268 | 9 | AGAAAYYVG | 0.000162 | 40 |
| HLA-B*58:01 | 1 | 313 | 321 | 9 | YQTSNFRVQ | 0.000162 | 30 |
| HLA-A*11:01 | 1 | 315 | 324 | 10 | TSNFRVQPT | 0.000162 | 18 |
| HLA-B*15:01 | 1 | 316 | 324 | 9 | SNFRVQPT | 0.000162 | 29 |
| HLA-A*01:01 | 1 | 317 | 326 | 10 | NFRVQPTESI | 0.000162 | 40 |
| HLA-B*40:01 | 1 | 340 | 348 | 9 | EVFNATRFA | 0.000162 | 16 |
| HLA-A*68:02 | 1 | 351 | 359 | 9 | YAWNKRKRIS | 0.000162 | 31 |
| HLA-A*01:01 | 1 | 367 | 376 | 10 | VLYNSASFST | 0.000162 | 40 |
| HLA-B*44:02 | 1 | 381 | 390 | 10 | GVSPKLNLDL | 0.000162 | 18 |
| HLA-A*02:01 | 1 | 449 | 457 | 9 | YNYLYRFLR | 0.000162 | 29 |
| HLA-B*58:01 | 1 | 455 | 463 | 9 | LFKRKSNLKP | 0.000162 | 30 |
| HLA-A*26:01 | 1 | 515 | 524 | 10 | FELLHAPATV | 0.000162 | 24 |
| HLA-A*30:02 | 1 | 531 | 539 | 9 | TNLVKNKCV | 0.000162 | 49 |
| HLA-B*15:01 | 1 | 543 | 552 | 10 | FNGLTGTGVL | 0.000162 | 29 |
| HLA-A*32:01 | 1 | 549 | 558 | 10 | TGVLTESNKK | 0.000162 | 22 |
| HLA-A*23:01 | 1 | 587 | 595 | 9 | ITPCSFGGV | 0.000162 | 18 |
| HLA-B*58:01 | 1 | 652 | 661 | 10 | GAEHVNNSYE | 0.000162 | 30 |
| HLA-B*15:01 | 1 | 675 | 684 | 10 | QTQTNSPRRA | 0.000162 | 29 |
| HLA-B*15:01 | 1 | 692 | 701 | 10 | IIAYTMSLGA | 0.000162 | 29 |
| HLA-A*02:06 | 1 | 715 | 724 | 10 | PTNFTISVTT | 0.000162 | 38 |
| HLA-B*57:01 | 1 | 716 | 725 | 10 | TNFTISVTTE | 0.000162 | 40 |
| HLA-A*24:02 | 1 | 759 | 767 | 9 | FCTQLNRAL | 0.000162 | 17 |
| HLA-B*08:01 | 1 | 786 | 795 | 10 | KQIYKTPPIK | 0.000162 | 41 |
| HLA-B*40:01 | 1 | 809 | 817 | 9 | PSKPSKRFS | 0.000162 | 16 |
| HLA-A*02:06 | 1 | 853 | 862 | 10 | QKFNGLTVLP | 0.000162 | 38 |
| HLA-A*26:01 | 1 | 864 | 872 | 9 | LLTDEMIAQ | 0.000162 | 24 |
| HLA-A*31:01 | 1 | 872 | 881 | 10 | QYTSALLAGT | 0.000162 | 30 |
| HLA-A*33:01 | 1 | 887 | 896 | 10 | TFGAGAALQI | 0.000162 | 30 |
| HLA-A*32:01 | 1 | 894 | 903 | 10 | LQIPFAMQMA | 0.000162 | 22 |
| HLA-B*35:01 | 1 | 904 | 912 | 9 | YRFNGIGVT | 0.000162 | 20 |
| HLA-A*23:01 | 1 | 915 | 924 | 10 | VLYENQKLIA | 0.000162 | 18 |
| HLA-A*02:06 | 1 | 930 | 939 | 10 | AIGKIQDSLS | 0.000162 | 38 |
| HLA-A*30:01 | 1 | 996 | 1005 | 10 | LITGRLQSLQ | 0.000162 | 51 |
| HLA-A*03:01 | 1 | 1060 | 1069 | 10 | VVFLHVITYVP | 0.000162 | 24 |
| HLA-A*01:01 | 1 | 1070 | 1079 | 10 | AQEKNFTTAP | 0.000162 | 40 |
| HLA-A*01:01 | 1 | 1071 | 1079 | 9 | QEKNFTTAP | 0.000162 | 40 |
| HLA-B*07:02 | 1 | 1071 | 1080 | 10 | QEKNFTTAPA | 0.000162 | 26 |
| HLA-A*32:01 | 1 | 1108 | 1116 | 9 | NFYEPQIIT | 0.000162 | 22 |
| HLA-B*08:01 | 1 | 1123 | 1132 | 10 | SGNCDVVIGI | 0.000162 | 41 |
| HLA-A*02:01 | 1 | 1130 | 1138 | 9 | IGIVNNTVY | 0.000162 | 29 |
| HLA-A*30:01 | 1 | 1131 | 1140 | 10 | GIVNNTVYDP | 0.000162 | 51 |
| HLA-B*35:01 | 1 | 1135 | 1143 | 9 | NTVYDPLQP | 0.000162 | 20 |
| HLA-A*33:01 | 1 | 1165 | 1174 | 10 | DLGDISGINA | 0.000162 | 30 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*24:02 | 1 | 1263 | 1272 | 10 | PVLKGVKLHY 0.000162 | 17 |
| HLA-A*02:03 | 1 | 11 | 20 | 10 | VSSQCVNLTT 0.000161 | 31 |
| HLA-A*02:06 | 1 | 68 | 77 | 10 | IHVSGTNGTK 0.000161 | 38 |
| HLA-A*26:01 | 1 | 82 | 90 | 9 | PVLPFNDGV 0.000161 | 24 |
| HLA-A*30:01 | 1 | 172 | 181 | 10 | SQPFLMDLEG 0.000161 | 52 |
| HLA-A*68:01 | 1 | 177 | 186 | 10 | MDLEGKQGNF 0.000161 | 27 |
| HLA-B*44:02 | 1 | 177 | 185 | 9 | MDLEGKQGN 0.000161 | 19 |
| HLA-A*24:02 | 1 | 181 | 189 | 9 | GKQGNFKNL 0.000161 | 17 |
| HLA-A*23:01 | 1 | 239 | 248 | 10 | QTLALHRSY 0.000161 | 18 |
| HLA-A*30:02 | 1 | 248 | 257 | 10 | YLTPGDSSSG 0.000161 | 49 |
| HLA-A*33:01 | 1 | 266 | 274 | 9 | YVGYLQPRT 0.000161 | 30 |
| HLA-A*11:01 | 1 | 285 | 293 | 9 | ITDAVDCAL 0.000161 | 18 |
| HLA-A*32:01 | 1 | 315 | 323 | 9 | TSNFRVQPT 0.000161 | 22 |
| HLA-A*31:01 | 1 | 350 | 359 | 10 | VYAWNRKRIS 0.000161 | 30 |
| HLA-B*07:02 | 1 | 416 | 425 | 10 | GKIADYNYKL 0.000161 | 26 |
| HLA-A*02:01 | 1 | 425 | 434 | 10 | LPDDFTGCVI 0.000161 | 29 |
| HLA-A*30:02 | 1 | 436 | 445 | 10 | WNSNNLDSKV 0.000161 | 49 |
| HLA-B*57:01 | 1 | 455 | 463 | 9 | LFRKSNLKP 0.000161 | 40 |
| HLA-B*51:01 | 1 | 466 | 475 | 10 | RDISTEIQQA 0.000161 | 36 |
| HLA-B*07:02 | 1 | 513 | 521 | 9 | LSFELLHAP 0.000161 | 26 |
| HLA-A*33:01 | 1 | 531 | 539 | 9 | TNLVKNKCV 0.000161 | 30 |
| HLA-A*01:01 | 1 | 537 | 546 | 10 | KCVNFNFNGL 0.000161 | 40 |
| HLA-A*02:01 | 1 | 567 | 575 | 9 | RDIADTTDA 0.000161 | 29 |
| HLA-B*53:01 | 1 | 592 | 600 | 9 | FGGVSVITP 0.000161 | 20 |
| HLA-A*32:01 | 1 | 604 | 613 | 10 | TSNQVAVLYQ 0.000161 | 22 |
| HLA-A*26:01 | 1 | 623 | 632 | 10 | AIHADQLTPT 0.000161 | 24 |
| HLA-B*58:01 | 1 | 666 | 675 | 10 | IGAGICASYQ 0.000161 | 30 |
| HLA-A*31:01 | 1 | 705 | 714 | 10 | VAYSNNSIAI 0.000161 | 30 |
| HLA-A*32:01 | 1 | 720 | 729 | 10 | ISVTTEILPV 0.000161 | 22 |
| HLA-A*30:01 | 1 | 739 | 748 | 10 | TMYICGDSTE 0.000161 | 52 |
| HLA-A*32:01 | 1 | 745 | 753 | 9 | DSTECSNLL 0.000161 | 22 |
| HLA-A*03:01 | 1 | 752 | 760 | 9 | LLLQYGSFC 0.000161 | 24 |
| HLA-A*33:01 | 1 | 757 | 766 | 10 | GSFCTQLNRA 0.000161 | 30 |
| HLA-B*44:02 | 1 | 798 | 806 | 9 | GGFNFSQIL 0.000161 | 19 |
| HLA-B*15:01 | 1 | 804 | 813 | 10 | QILPDPSKPS 0.000161 | 29 |
| HLA-A*33:01 | 1 | 823 | 831 | 9 | FNKVTLADA 0.000161 | 30 |
| HLA-A*02:01 | 1 | 846 | 854 | 9 | ARDLICAQK 0.000161 | 29 |
| HLA-A*26:01 | 1 | 919 | 928 | 10 | NQKLIANQFN 0.000161 | 24 |
| HLA-A*02:06 | 1 | 965 | 974 | 10 | QLSSNFGAIS 0.000161 | 38 |
| HLA-B*40:01 | 1 | 1041 | 1049 | 9 | DFCGKGYHL 0.000161 | 16 |
| HLA-A*33:01 | 1 | 1042 | 1050 | 9 | FCGKGYHLM 0.000161 | 30 |
| HLA-A*68:01 | 1 | 1051 | 1060 | 10 | SFQPSAPHG 0.000161 | 27 |
| HLA-B*07:02 | 1 | 1064 | 1072 | 9 | HVTYVPAQE 0.000161 | 26 |
| HLA-A*30:02 | 1 | 1074 | 1082 | 9 | NFTTAPAIC 0.000161 | 49 |
| HLA-B*08:01 | 1 | 1081 | 1090 | 10 | ICHDGKAHFP 0.000161 | 41 |
| HLA-B*40:01 | 1 | 1110 | 1119 | 10 | YEQIITTDN 0.000161 | 16 |
| HLA-A*30:01 | 1 | 1160 | 1169 | 10 | TSPDVLGDI 0.000161 | 52 |
| HLA-A*26:01 | 1 | 1174 | 1182 | 9 | ASVVNIQKE 0.000161 | 24 |
| HLA-B*07:02 | 1 | 1202 | 1210 | 9 | ELGKYEQYI 0.000161 | 26 |
| HLA-A*24:02 | 1 | 1219 | 1228 | 10 | GFIAGLIAIV 0.000161 | 17 |
| HLA-B*58:01 | 1 | 1226 | 1235 | 10 | AIVMVTIMLC 0.000161 | 30 |
| HLA-A*01:01 | 1 | 1236 | 1245 | 10 | CMTSCCCLK 0.000161 | 40 |
| HLA-B*57:01 | 1 | 1238 | 1246 | 9 | TSCCCLKG 0.000161 | 40 |
| HLA-A*32:01 | 1 | 43 | 51 | 9 | FRSSVLHST 0.000161 | 22 |
| HLA-B*15:01 | 1 | 48 | 56 | 9 | LHSTQDLFL 0.000161 | 29 |
| HLA-B*07:02 | 1 | 67 | 75 | 9 | AIHVSGTNG 0.000161 | 26 |
| HLA-A*26:01 | 1 | 77 | 85 | 9 | KRFDNPVLP 0.000161 | 24 |
| HLA-A*26:01 | 1 | 99 | 108 | 10 | NIIRGWIFGT 0.000161 | 24 |
| HLA-A*02:06 | 1 | 161 | 169 | 9 | SSANNCTFE 0.000161 | 38 |
| HLA-A*68:01 | 1 | 163 | 171 | 9 | ANNCTFEYV 0.000161 | 27 |
| HLA-B*51:01 | 1 | 181 | 189 | 9 | GKQGNFKNL 0.000161 | 36 |
| HLA-A*01:01 | 1 | 183 | 191 | 9 | QGNFKNLRE 0.000161 | 40 |
| HLA-A*01:01 | 1 | 186 | 195 | 10 | FKNLREFVFK 0.000161 | 40 |
| HLA-A*32:01 | 1 | 189 | 197 | 9 | LREFVFKNI 0.000161 | 22 |
| HLA-A*68:02 | 1 | 193 | 201 | 9 | VFKNIDGYF 0.000161 | 31 |
| HLA-A*23:01 | 1 | 220 | 229 | 10 | FSALEPLVDL 0.000161 | 18 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*30:01 | 1 | 224 | 233 | 10 | EPLVDLPIGI 0.00016 | 52 |
| HLA-A*33:01 | 1 | 249 | 258 | 10 | LTPGDSSSGW 0.00016 | 30 |
| HLA-A*02:03 | 1 | 278 | 286 | 9 | KYNENGTIT 0.00016 | 31 |
| HLA-A*30:01 | 1 | 309 | 318 | 10 | EKGIYQTSNF 0.00016 | 52 |
| HLA-B*40:01 | 1 | 314 | 322 | 9 | QTSNFRVQP 0.00016 | 17 |
| HLA-B*53:01 | 1 | 338 | 346 | 9 | FGEVFNATR 0.00016 | 20 |
| HLA-A*02:06 | 1 | 369 | 378 | 10 | YNSASFSTFK 0.00016 | 38 |
| HLA-A*03:01 | 1 | 401 | 410 | 10 | VIRGDEVQR 0.00016 | 24 |
| HLA-A*33:01 | 1 | 409 | 418 | 10 | QIAPGQTGKI 0.00016 | 30 |
| HLA-A*32:01 | 1 | 420 | 429 | 10 | DYNYKLPDDF 0.00016 | 22 |
| HLA-B*08:01 | 1 | 442 | 450 | 9 | DSKVGGNYN 0.00016 | 41 |
| HLA-B*44:03 | 1 | 504 | 513 | 10 | GYQPYRVVVL 0.00016 | 18 |
| HLA-A*02:03 | 1 | 538 | 547 | 10 | CVNFNFNGLT 0.00016 | 31 |
| HLA-A*32:01 | 1 | 557 | 566 | 10 | KKFLPFQQFG 0.00016 | 22 |
| HLA-B*08:01 | 1 | 557 | 566 | 10 | KKFLPFQQFG 0.00016 | 41 |
| HLA-A*11:01 | 1 | 597 | 605 | 9 | VITPGTNTS 0.00016 | 18 |
| HLA-B*15:01 | 1 | 607 | 615 | 9 | QVAVLYQDV 0.00016 | 29 |
| HLA-B*40:01 | 1 | 623 | 631 | 9 | AIHADQLTP 0.00016 | 17 |
| HLA-B*58:01 | 1 | 651 | 659 | 9 | IGAEHVNS 0.00016 | 31 |
| HLA-A*68:01 | 1 | 679 | 687 | 9 | NSPRRARSV 0.00016 | 27 |
| HLA-B*15:01 | 1 | 722 | 730 | 9 | VTTEILPVS 0.00016 | 29 |
| HLA-B*58:01 | 1 | 747 | 755 | 9 | TECSNLLLQ 0.00016 | 31 |
| HLA-B*53:01 | 1 | 779 | 787 | 9 | QEVFAQVKQ 0.00016 | 20 |
| HLA-A*02:06 | 1 | 784 | 793 | 10 | QVKQIYKTP 0.00016 | 38 |
| HLA-B*35:01 | 1 | 784 | 792 | 9 | QVKQIYKTP 0.00016 | 21 |
| HLA-A*01:01 | 1 | 825 | 834 | 10 | KVTLADAGFI 0.00016 | 40 |
| HLA-B*35:01 | 1 | 843 | 851 | 9 | DIAARDLIC 0.00016 | 21 |
| HLA-A*68:01 | 1 | 884 | 892 | 9 | SGWTFGAGA 0.00016 | 27 |
| HLA-A*02:06 | 1 | 909 | 918 | 10 | IGVTQNVLYE 0.00016 | 38 |
| HLA-B*44:03 | 1 | 914 | 923 | 10 | NVLYENQKLI 0.00016 | 18 |
| HLA-B*15:01 | 1 | 944 | 953 | 10 | ALGKLQDVVN 0.00016 | 29 |
| HLA-B*15:01 | 1 | 979 | 987 | 9 | DILSRLDKV 0.00016 | 29 |
| HLA-B*53:01 | 1 | 992 | 1001 | 10 | QIDRLITGRL 0.00016 | 20 |
| HLA-A*33:01 | 1 | 1024 | 1032 | 9 | LAATKMSEC 0.00016 | 30 |
| HLA-A*32:01 | 1 | 1025 | 1033 | 9 | AATKMSECV 0.00016 | 22 |
| HLA-A*30:02 | 1 | 1036 | 1044 | 9 | QSKRVDFCG 0.00016 | 49 |
| HLA-B*53:01 | 1 | 1038 | 1047 | 10 | KRVDFCGKGY 0.00016 | 20 |
| HLA-A*68:02 | 1 | 1057 | 1065 | 9 | PHGVVFLHV 0.00016 | 31 |
| HLA-A*24:02 | 1 | 1095 | 1104 | 10 | FVSNGTHWFV 0.00016 | 17 |
| HLA-B*58:01 | 1 | 1098 | 1107 | 10 | NGTHWFVTQR 0.00016 | 31 |
| HLA-B*58:01 | 1 | 1122 | 1131 | 10 | VSGNCDVVIG 0.00016 | 31 |
| HLA-A*24:02 | 1 | 1196 | 1205 | 10 | SLIDLQELGK 0.00016 | 17 |
| HLA-B*58:01 | 1 | 1223 | 1232 | 10 | GLIAIVMVTI 0.00016 | 31 |
| HLA-A*23:01 | 1 | 34 | 42 | 9 | RGVYYPDKV 0.000159 | 18 |
| HLA-B*44:03 | 1 | 35 | 44 | 10 | GVYYPDKVFR 0.000159 | 18 |
| HLA-A*24:02 | 1 | 59 | 68 | 10 | FSNVTWFHAI 0.000159 | 17 |
| HLA-B*44:02 | 1 | 76 | 85 | 10 | TKRFDNPVLP 0.000159 | 19 |
| HLA-B*44:03 | 1 | 97 | 106 | 10 | KSNIIIRGWIF 0.000159 | 18 |
| HLA-A*30:01 | 1 | 105 | 114 | 10 | IFGTTLDSKT 0.000159 | 52 |
| HLA-B*40:01 | 1 | 110 | 119 | 10 | LDSKTQSLLI 0.000159 | 17 |
| HLA-B*58:01 | 1 | 147 | 155 | 9 | KNNKSWMES 0.000159 | 31 |
| HLA-B*35:01 | 1 | 154 | 162 | 9 | ESEFRVYSS 0.000159 | 21 |
| HLA-A*32:01 | 1 | 155 | 163 | 9 | SEFRVYSSA 0.000159 | 22 |
| HLA-A*31:01 | 1 | 188 | 197 | 10 | NLREFVFKNI 0.000159 | 30 |
| HLA-A*68:01 | 1 | 226 | 235 | 10 | LVDLPIGINI 0.000159 | 27 |
| HLA-A*30:02 | 1 | 238 | 247 | 10 | FQTLALHRS 0.000159 | 49 |
| HLA-B*44:02 | 1 | 241 | 249 | 9 | LLALHRSYL 0.000159 | 19 |
| HLA-A*31:01 | 1 | 307 | 316 | 10 | TVEKGIYQTS 0.000159 | 30 |
| HLA-A*26:01 | 1 | 354 | 362 | 9 | NRKRISNCV 0.000159 | 25 |
| HLA-B*44:02 | 1 | 365 | 374 | 10 | YSVLYNSASF 0.000159 | 19 |
| HLA-B*51:01 | 1 | 387 | 396 | 10 | LNDLCFTNVY 0.000159 | 36 |
| HLA-B*58:01 | 1 | 415 | 424 | 10 | TGKIADYNYK 0.000159 | 31 |
| HLA-A*33:01 | 1 | 416 | 425 | 10 | GKIADYNYKL 0.000159 | 30 |
| HLA-B*44:02 | 1 | 467 | 475 | 9 | DISTEIQQA 0.000159 | 19 |
| HLA-A*26:01 | 1 | 470 | 479 | 10 | TEIQAGSTP 0.000159 | 25 |
| HLA-A*30:01 | 1 | 515 | 523 | 9 | FELLHAPAT 0.000159 | 52 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*08:01 | 1 | 524 | 532 | 9 | VCGPKKSTN 0.000159 | 41 |
| HLA-A*68:02 | 1 | 529 | 537 | 9 | KSTNLVKNK 0.000159 | 31 |
| HLA-B*51:01 | 1 | 544 | 553 | 10 | NGLTGTGVLT 0.000159 | 36 |
| HLA-B*44:02 | 1 | 567 | 575 | 9 | RDIADTTDA 0.000159 | 19 |
| HLA-A*33:01 | 1 | 597 | 605 | 9 | VITPGTNTS 0.000159 | 30 |
| HLA-A*68:02 | 1 | 604 | 613 | 10 | TSNQVAVLYQ 0.000159 | 31 |
| HLA-B*08:01 | 1 | 606 | 615 | 10 | NQVAVLYQDV 0.000159 | 41 |
| HLA-B*35:01 | 1 | 637 | 646 | 10 | STGSNVFQTR 0.000159 | 21 |
| HLA-A*26:01 | 1 | 703 | 711 | 9 | NSVAYSNNS 0.000159 | 25 |
| HLA-B*07:02 | 1 | 716 | 724 | 9 | TNFTISVTT 0.000159 | 26 |
| HLA-A*02:06 | 1 | 729 | 738 | 10 | VSMTKTSVDC 0.000159 | 38 |
| HLA-A*02:03 | 1 | 733 | 741 | 9 | KTSVDCTMY 0.000159 | 32 |
| HLA-A*11:01 | 1 | 747 | 755 | 9 | TECSNLLLQ 0.000159 | 18 |
| HLA-A*02:01 | 1 | 761 | 769 | 9 | TQLNRALTG 0.000159 | 29 |
| HLA-A*33:01 | 1 | 762 | 770 | 9 | QLNRALTGI 0.000159 | 30 |
| HLA-A*33:01 | 1 | 775 | 783 | 9 | DKNTQEVFA 0.000159 | 30 |
| HLA-A*23:01 | 1 | 779 | 788 | 10 | QEVFAQVKQI 0.000159 | 18 |
| HLA-A*30:01 | 1 | 789 | 798 | 10 | YKTPPIKDFG 0.000159 | 52 |
| HLA-A*30:02 | 1 | 793 | 801 | 9 | PIKDFGGFN 0.000159 | 49 |
| HLA-A*01:01 | 1 | 795 | 804 | 10 | KDFGGFNFSQ 0.000159 | 40 |
| HLA-B*08:01 | 1 | 831 | 840 | 10 | AGFIKQYGDC 0.000159 | 41 |
| HLA-A*24:02 | 1 | 904 | 913 | 10 | YRFNGIGVTQ 0.000159 | 17 |
| HLA-B*07:02 | 1 | 978 | 987 | 10 | NDILSRLDKV 0.000159 | 26 |
| HLA-A*02:01 | 1 | 998 | 1007 | 10 | TGRLQSLQTY 0.000159 | 29 |
| HLA-A*31:01 | 1 | 1056 | 1065 | 10 | APHGVVFLHV 0.000159 | 30 |
| HLA-A*24:02 | 1 | 1061 | 1070 | 10 | VFLHVTVVPA 0.000159 | 17 |
| HLA-B*53:01 | 1 | 1066 | 1074 | 9 | TYVPAQEK 0.000159 | 20 |
| HLA-B*40:01 | 1 | 1085 | 1094 | 10 | GKAHFPREGV 0.000159 | 17 |
| HLA-B*40:01 | 1 | 1093 | 1101 | 9 | GVFVSNQTH 0.000159 | 17 |
| HLA-B*40:01 | 1 | 1099 | 1107 | 9 | GTHWFVTQR 0.000159 | 17 |
| HLA-A*68:01 | 1 | 1141 | 1150 | 10 | LQPELDSFKE 0.000159 | 27 |
| HLA-B*35:01 | 1 | 1153 | 1161 | 9 | DKYFKNHTS 0.000159 | 21 |
| HLA-A*03:01 | 1 | 1172 | 1180 | 9 | INASVVNIQ 0.000159 | 24 |
| HLA-A*03:01 | 1 | 1179 | 1188 | 10 | IQKEIDRLNE 0.000159 | 24 |
| HLA-A*23:01 | 1 | 1191 | 1200 | 10 | KNLNEIDL 0.000159 | 18 |
| HLA-A*02:03 | 1 | 1194 | 1203 | 10 | NESLIDLQEL 0.000159 | 32 |
| HLA-A*30:01 | 1 | 1195 | 1204 | 10 | ESLIDLQELG 0.000159 | 52 |
| HLA-B*08:01 | 1 | 1212 | 1221 | 10 | WPWYIWLGFI 0.000159 | 41 |
| HLA-A*32:01 | 1 | 32 | 41 | 10 | FTRGVYYPDK 0.000158 | 22 |
| HLA-B*08:01 | 1 | 35 | 44 | 10 | GVYYPDKVFR 0.000158 | 41 |
| HLA-A*02:06 | 1 | 65 | 73 | 9 | FHAIHVSQT 0.000158 | 38 |
| HLA-A*02:03 | 1 | 76 | 85 | 10 | TKRFDNPVLP 0.000158 | 32 |
| HLA-A*01:01 | 1 | 105 | 113 | 9 | IFGTTLD 0.000158 | 40 |
| HLA-B*40:01 | 1 | 136 | 144 | 9 | CNDPFLGVY 0.000158 | 17 |
| HLA-A*68:01 | 1 | 158 | 167 | 10 | RVYSSANNCT 0.000158 | 27 |
| HLA-A*31:01 | 1 | 160 | 169 | 10 | YSSANNCTFE 0.000158 | 31 |
| HLA-B*08:01 | 1 | 175 | 184 | 10 | FLMDLEGKQG 0.000158 | 41 |
| HLA-A*11:01 | 1 | 232 | 240 | 9 | GINITRFQT 0.000158 | 18 |
| HLA-A*01:01 | 1 | 256 | 264 | 9 | SGWTAGAAA 0.000158 | 40 |
| HLA-A*24:02 | 1 | 288 | 296 | 9 | AVDCALDPL 0.000158 | 17 |
| HLA-A*32:01 | 1 | 300 | 309 | 10 | KCTLKSFTVE 0.000158 | 22 |
| HLA-B*08:01 | 1 | 302 | 311 | 10 | TLKSFTVEKG 0.000158 | 41 |
| HLA-A*68:02 | 1 | 310 | 318 | 9 | KGIYQTSNF 0.000158 | 31 |
| HLA-B*51:01 | 1 | 311 | 319 | 9 | GIYQTSNFR 0.000158 | 36 |
| HLA-B*44:03 | 1 | 316 | 324 | 9 | SNFRVQPT 0.000158 | 18 |
| HLA-A*03:01 | 1 | 318 | 326 | 9 | FRVQPTESI 0.000158 | 24 |
| HLA-A*68:01 | 1 | 329 | 338 | 10 | FPNITNLCPF 0.000158 | 27 |
| HLA-B*08:01 | 1 | 334 | 343 | 10 | NLCPFGEVFN 0.000158 | 41 |
| HLA-A*23:01 | 1 | 354 | 362 | 9 | NRKRISNCV 0.000158 | 18 |
| HLA-A*01:01 | 1 | 373 | 382 | 10 | SFSTFKCYGV 0.000158 | 40 |
| HLA-A*11:01 | 1 | 401 | 409 | 9 | VIRGDEVQR 0.000158 | 18 |
| HLA-A*23:01 | 1 | 401 | 410 | 10 | VIRGDEVQRI 0.000158 | 18 |
| HLA-A*30:02 | 1 | 423 | 432 | 10 | YKLPDDFTGC 0.000158 | 49 |
| HLA-A*68:02 | 1 | 427 | 436 | 10 | DDFTGCVIAW 0.000158 | 31 |
| HLA-B*58:01 | 1 | 474 | 482 | 9 | QAGSTPCNG 0.000158 | 31 |
| HLA-A*26:01 | 1 | 513 | 522 | 10 | LSFELLHAPA 0.000158 | 25 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*58:01 | 1 | 523 | 531 | 9 | TVCGPKKST 0.000158 | 31 |
| HLA-A*01:01 | 1 | 528 | 537 | 10 | KKSTNLVKNK 0.000158 | 40 |
| HLA-A*31:01 | 1 | 540 | 549 | 10 | NFNFNGLTGT 0.000158 | 31 |
| HLA-A*33:01 | 1 | 540 | 548 | 9 | NFNFNGLTG 0.000158 | 30 |
| HLA-A*03:01 | 1 | 545 | 553 | 9 | GLTGTGVLT 0.000158 | 24 |
| HLA-B*35:01 | 1 | 547 | 555 | 9 | TGTGVLTES 0.000158 | 21 |
| HLA-A*02:01 | 1 | 554 | 562 | 9 | ESNKKFLPF 0.000158 | 29 |
| HLA-A*68:02 | 1 | 564 | 573 | 10 | QFGRDIADTT 0.000158 | 31 |
| HLA-A*68:01 | 1 | 620 | 629 | 10 | VPVAIHADQL 0.000158 | 27 |
| HLA-A*30:02 | 1 | 630 | 638 | 9 | TPTWRVYST 0.000158 | 49 |
| HLA-A*03:01 | 1 | 684 | 692 | 9 | ARSVASQSI 0.000158 | 24 |
| HLA-A*23:01 | 1 | 785 | 794 | 10 | VKQIYKTPPI 0.000158 | 18 |
| HLA-B*35:01 | 1 | 791 | 799 | 9 | TPPIKDFGG 0.000158 | 21 |
| HLA-A*02:06 | 1 | 793 | 802 | 10 | PIKDFGGFNF 0.000158 | 38 |
| HLA-B*57:01 | 1 | 817 | 826 | 10 | FIEDLLFNKV 0.000158 | 41 |
| HLA-A*23:01 | 1 | 836 | 845 | 10 | QYGDCLGDIA 0.000158 | 18 |
| HLA-B*35:01 | 1 | 886 | 895 | 10 | WTFGAGAALQ 0.000158 | 21 |
| HLA-B*58:01 | 1 | 900 | 909 | 10 | MQMAYRFNGI 0.000158 | 31 |
| HLA-B*40:01 | 1 | 913 | 922 | 10 | QNVLYENQKL 0.000158 | 17 |
| HLA-A*68:02 | 1 | 918 | 926 | 9 | ENQKLIANQ 0.000158 | 31 |
| HLA-B*40:01 | 1 | 975 | 983 | 9 | SVLNDILSR 0.000158 | 17 |
| HLA-B*44:03 | 1 | 1008 | 1016 | 9 | VTQQLIRAA 0.000158 | 18 |
| HLA-B*51:01 | 1 | 1020 | 1028 | 9 | ASANLAATK 0.000158 | 36 |
| HLA-A*31:01 | 1 | 1043 | 1052 | 10 | CGKGYHLMFS 0.000158 | 31 |
| HLA-A*32:01 | 1 | 1056 | 1065 | 10 | APHGVVFLHV 0.000158 | 22 |
| HLA-B*58:01 | 1 | 1081 | 1090 | 10 | ICHDGKAHFP 0.000158 | 31 |
| HLA-A*02:01 | 1 | 1093 | 1101 | 9 | GVFVSNQTH 0.000158 | 29 |
| HLA-A*31:01 | 1 | 1102 | 1111 | 10 | WFVTQRNFYE 0.000158 | 31 |
| HLA-A*33:01 | 1 | 1123 | 1132 | 10 | SGNCDVVIGI 0.000158 | 30 |
| HLA-B*40:01 | 1 | 1141 | 1149 | 9 | LQPELDSFK 0.000158 | 17 |
| HLA-B*40:01 | 1 | 1154 | 1162 | 9 | KYFKNHTSP 0.000158 | 17 |
| HLA-A*02:06 | 1 | 1198 | 1206 | 9 | IDLQELGKY 0.000158 | 38 |
| HLA-A*11:01 | 1 | 1248 | 1256 | 9 | CSCGSCCKF 0.000158 | 18 |
| HLA-B*44:03 | 1 | 1260 | 1269 | 10 | DSEPVLKGVK 0.000158 | 18 |
| HLA-A*03:01 | 1 | 3 | 11 | 9 | VFLVLLPLV 0.000157 | 24 |
| HLA-A*68:02 | 1 | 6 | 14 | 9 | VLLPLVSSQ 0.000157 | 31 |
| HLA-B*40:01 | 1 | 29 | 38 | 10 | TNSFTRGVYY 0.000157 | 17 |
| HLA-B*44:03 | 1 | 47 | 56 | 10 | VLHSTQDLFL 0.000157 | 18 |
| HLA-B*15:01 | 1 | 66 | 74 | 9 | HAIHVSGTN 0.000157 | 29 |
| HLA-A*23:01 | 1 | 68 | 77 | 10 | IHVSGTNGTK 0.000157 | 18 |
| HLA-B*40:01 | 1 | 94 | 103 | 10 | STEKSNIIRG 0.000157 | 17 |
| HLA-B*44:03 | 1 | 115 | 123 | 9 | QSLLVNNA 0.000157 | 18 |
| HLA-A*30:01 | 1 | 124 | 133 | 10 | TNVVIKVICEF 0.000157 | 52 |
| HLA-A*32:01 | 1 | 181 | 189 | 9 | GKQGNFKNL 0.000157 | 22 |
| HLA-B*35:01 | 1 | 220 | 228 | 9 | FSALEPLVD 0.000157 | 21 |
| HLA-B*44:03 | 1 | 270 | 278 | 9 | LQPRTFLLK 0.000157 | 18 |
| HLA-B*15:01 | 1 | 301 | 309 | 9 | CTLKSFTVE 0.000157 | 29 |
| HLA-B*53:01 | 1 | 330 | 338 | 9 | PNITNLCPF 0.000157 | 20 |
| HLA-A*02:06 | 1 | 348 | 356 | 9 | ASVYAWNRK 0.000157 | 38 |
| HLA-A*26:01 | 1 | 364 | 372 | 9 | DYSVLYNSA 0.000157 | 25 |
| HLA-A*26:01 | 1 | 375 | 384 | 10 | STFKCYGVSP 0.000157 | 25 |
| HLA-B*44:02 | 1 | 399 | 407 | 9 | SFVIRGDEV 0.000157 | 19 |
| HLA-B*44:03 | 1 | 403 | 411 | 9 | RGDEVQIA 0.000157 | 18 |
| HLA-A*02:03 | 1 | 407 | 416 | 10 | VRQIAPGQTG 0.000157 | 32 |
| HLA-B*15:01 | 1 | 455 | 463 | 9 | LFRKSNLKP 0.000157 | 29 |
| HLA-A*68:02 | 1 | 472 | 480 | 9 | IYQAGSTPC 0.000157 | 31 |
| HLA-A*02:01 | 1 | 486 | 495 | 10 | FNCYFPLQSY 0.000157 | 29 |
| HLA-A*02:06 | 1 | 568 | 577 | 10 | DIADTTDAVR 0.000157 | 38 |
| HLA-B*40:01 | 1 | 575 | 583 | 9 | AVRDPQTL 0.000157 | 17 |
| HLA-A*01:01 | 1 | 633 | 642 | 10 | WRVYSTGSNV 0.000157 | 40 |
| HLA-B*44:02 | 1 | 639 | 647 | 9 | GSNVFQTRA 0.000157 | 19 |
| HLA-A*30:01 | 1 | 650 | 659 | 10 | LIGAEHVNS 0.000157 | 52 |
| HLA-A*01:01 | 1 | 679 | 688 | 10 | NSPRRARSVA 0.000157 | 40 |
| HLA-B*07:02 | 1 | 684 | 693 | 10 | ARSVASQSII 0.000157 | 26 |
| HLA-B*07:02 | 1 | 697 | 706 | 10 | MSLGAENVA 0.000157 | 26 |
| HLA-A*26:01 | 1 | 726 | 734 | 9 | ILPVSMTKT 0.000157 | 25 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*02:03 | 1 | 761 | 769 | 9 | TQLNRALTG 0.000157 | 32 |
| HLA-A*02:01 | 1 | 778 | 786 | 9 | TQEVFAQVK 0.000157 | 29 |
| HLA-B*08:01 | 1 | 802 | 811 | 10 | FSQILPDPSK 0.000157 | 41 |
| HLA-A*26:01 | 1 | 828 | 836 | 9 | LADAGFIKQ 0.000157 | 25 |
| HLA-A*30:01 | 1 | 847 | 855 | 9 | RDLICAQKF 0.000157 | 52 |
| HLA-B*58:01 | 1 | 849 | 858 | 10 | LICAQKFNGL 0.000157 | 31 |
| HLA-B*51:01 | 1 | 865 | 874 | 10 | LTDEMIAQYT 0.000157 | 36 |
| HLA-B*53:01 | 1 | 887 | 896 | 10 | TFGAGAALQI 0.000157 | 20 |
| HLA-A*02:03 | 1 | 892 | 901 | 10 | AALQIPFAMQ 0.000157 | 32 |
| HLA-B*58:01 | 1 | 912 | 921 | 10 | TQNVLYENQK 0.000157 | 31 |
| HLA-B*58:01 | 1 | 925 | 934 | 10 | NQFNSAIGKI 0.000157 | 31 |
| HLA-B*58:01 | 1 | 945 | 954 | 10 | LGKQLQDVVNQ 0.000157 | 31 |
| HLA-A*33:01 | 1 | 995 | 1003 | 9 | RLITGRLQS 0.000157 | 30 |
| HLA-A*03:01 | 1 | 1011 | 1020 | 10 | QLIRAAEIRA 0.000157 | 24 |
| HLA-A*01:01 | 1 | 1026 | 1035 | 10 | ATKMSECVLG 0.000157 | 40 |
| HLA-A*31:01 | 1 | 1053 | 1062 | 10 | PQSAPHGVVF 0.000157 | 31 |
| HLA-B*35:01 | 1 | 1073 | 1081 | 9 | KNFTTAPAI 0.000157 | 21 |
| HLA-B*07:02 | 1 | 1080 | 1088 | 9 | AICHDGKAH 0.000157 | 26 |
| HLA-A*32:01 | 1 | 1121 | 1130 | 10 | FVSGNCDVVI 0.000157 | 22 |
| HLA-A*30:01 | 1 | 1133 | 1142 | 10 | VNNTVYDPLQ 0.000157 | 52 |
| HLA-A*33:01 | 1 | 1135 | 1143 | 9 | NTVYDPLQP 0.000157 | 30 |
| HLA-B*58:01 | 1 | 1168 | 1176 | 9 | DISGINASV 0.000157 | 31 |
| HLA-A*26:01 | 1 | 1170 | 1179 | 10 | SGINASVVNI 0.000157 | 25 |
| HLA-A*31:01 | 1 | 1213 | 1221 | 9 | PWYIWLGFI 0.000157 | 31 |
| HLA-A*02:01 | 1 | 17 | 26 | 10 | NLTTTRTQLPP 0.000156 | 29 |
| HLA-B*07:02 | 1 | 35 | 44 | 10 | GVYYPDKVFR 0.000156 | 26 |
| HLA-B*58:01 | 1 | 71 | 80 | 10 | SGTNGTKRFD 0.000156 | 31 |
| HLA-A*68:02 | 1 | 94 | 103 | 10 | STEKSNIIIRG 0.000156 | 32 |
| HLA-A*03:01 | 1 | 125 | 133 | 9 | NVVIKVICEF 0.000156 | 24 |
| HLA-A*02:06 | 1 | 199 | 207 | 9 | GYFKIYSKH 0.000156 | 38 |
| HLA-A*02:03 | 1 | 249 | 258 | 10 | LTPGDSSSGW 0.000156 | 32 |
| HLA-A*02:06 | 1 | 250 | 258 | 9 | TPGDSSSGW 0.000156 | 38 |
| HLA-B*58:01 | 1 | 259 | 268 | 10 | TAGAAAYYVG 0.000156 | 31 |
| HLA-B*51:01 | 1 | 260 | 269 | 10 | AGAAAYYVGY 0.000156 | 36 |
| HLA-A*01:01 | 1 | 263 | 272 | 10 | AAYYVGYLQP 0.000156 | 40 |
| HLA-B*07:02 | 1 | 281 | 289 | 9 | ENGTITDAV 0.000156 | 26 |
| HLA-A*31:01 | 1 | 317 | 325 | 9 | NFRVQPTES 0.000156 | 31 |
| HLA-A*68:02 | 1 | 329 | 337 | 9 | FPNITNLCP 0.000156 | 32 |
| HLA-A*03:01 | 1 | 371 | 379 | 9 | SASFSTFKC 0.000156 | 24 |
| HLA-B*08:01 | 1 | 371 | 380 | 10 | SASFSTFKCY 0.000156 | 41 |
| HLA-B*53:01 | 1 | 387 | 396 | 10 | LNDLCFTNVY 0.000156 | 20 |
| HLA-B*58:01 | 1 | 403 | 412 | 10 | RGDEVROIAP 0.000156 | 31 |
| HLA-A*31:01 | 1 | 437 | 445 | 9 | NSNNLDSKV 0.000156 | 31 |
| HLA-B*40:01 | 1 | 494 | 503 | 10 | SYGFQPTNGV 0.000156 | 17 |
| HLA-A*32:01 | 1 | 523 | 531 | 9 | TVCGPKKST 0.000156 | 23 |
| HLA-A*30:01 | 1 | 563 | 571 | 9 | QQFGRDIAD 0.000156 | 52 |
| HLA-B*58:01 | 1 | 609 | 618 | 10 | AVLYQDVNCT 0.000156 | 31 |
| HLA-A*01:01 | 1 | 610 | 619 | 10 | VLYQDVNCTE 0.000156 | 40 |
| HLA-A*68:01 | 1 | 623 | 632 | 10 | AIHADQLTPT 0.000156 | 28 |
| HLA-A*68:01 | 1 | 626 | 635 | 10 | ADQLTPTWRV 0.000156 | 28 |
| HLA-A*02:03 | 1 | 673 | 681 | 9 | SYQTQTNSP 0.000156 | 32 |
| HLA-B*58:01 | 1 | 673 | 681 | 9 | SYQTQTNSP 0.000156 | 31 |
| HLA-A*24:02 | 1 | 677 | 685 | 9 | QTNSPRRAR 0.000156 | 17 |
| HLA-B*57:01 | 1 | 692 | 700 | 9 | IIAYTMSLG 0.000156 | 41 |
| HLA-A*32:01 | 1 | 695 | 703 | 9 | YTMSLGAEN 0.000156 | 23 |
| HLA-A*68:01 | 1 | 713 | 721 | 9 | AIPTNFTIS 0.000156 | 28 |
| HLA-A*01:01 | 1 | 752 | 760 | 9 | LLLQYGSFC 0.000156 | 40 |
| HLA-A*33:01 | 1 | 849 | 858 | 10 | LICAQKFNGL 0.000156 | 30 |
| HLA-A*30:01 | 1 | 861 | 869 | 9 | LPPLLTDEM 0.000156 | 52 |
| HLA-B*44:03 | 1 | 888 | 896 | 9 | FGAGAALQI 0.000156 | 18 |
| HLA-B*08:01 | 1 | 889 | 898 | 10 | GAGAALQIPF 0.000156 | 41 |
| HLA-A*30:01 | 1 | 917 | 925 | 9 | YENQKLIAN 0.000156 | 52 |
| HLA-A*30:02 | 1 | 918 | 926 | 9 | ENQKLIANQ 0.000156 | 49 |
| HLA-A*02:06 | 1 | 920 | 929 | 10 | QKLIANQFNS 0.000156 | 38 |
| HLA-A*24:02 | 1 | 943 | 951 | 9 | SALGKLQDV 0.000156 | 17 |
| HLA-B*58:01 | 1 | 1012 | 1020 | 9 | LIRAAEIRA 0.000156 | 31 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|----|
| HLA-A*03:01 | 1 | 1016 | 1024 | 9 | AEIRASANL | 0.000156 | 24 |
| HLA-A*30:02 | 1 | 1024 | 1033 | 10 | LAATKMSECV | 0.000156 | 49 |
| HLA-B*35:01 | 1 | 1031 | 1039 | 9 | ECVLGQSKR | 0.000156 | 21 |
| HLA-A*23:01 | 1 | 1056 | 1065 | 10 | APHGVVFLHV | 0.000156 | 18 |
| HLA-A*33:01 | 1 | 1065 | 1074 | 10 | VTYVPAQEKN | 0.000156 | 30 |
| HLA-B*57:01 | 1 | 1069 | 1077 | 9 | PAQEKNFTT | 0.000156 | 41 |
| HLA-B*58:01 | 1 | 1077 | 1086 | 10 | TAPAICHGDK | 0.000156 | 31 |
| HLA-A*24:02 | 1 | 1124 | 1132 | 9 | GNCDDVIGI | 0.000156 | 17 |
| HLA-A*30:02 | 1 | 1131 | 1140 | 10 | GIVNNTVYDP | 0.000156 | 49 |
| HLA-A*33:01 | 1 | 1182 | 1190 | 9 | EIDRLNEVA | 0.000156 | 30 |
| HLA-A*31:01 | 1 | 1255 | 1263 | 9 | KFDEDDSEP | 0.000156 | 31 |
| HLA-A*11:01 | 1 | 1264 | 1273 | 10 | VLKGVKLHYT | 0.000156 | 19 |
| HLA-B*44:02 | 1 | 43 | 51 | 9 | FRSSVLHST | 0.000155 | 19 |
| HLA-A*33:01 | 1 | 83 | 91 | 9 | VLPFNDGVY | 0.000155 | 30 |
| HLA-A*03:01 | 1 | 129 | 137 | 9 | KVCEFQFCN | 0.000155 | 24 |
| HLA-A*68:02 | 1 | 145 | 153 | 9 | YHKNNKSWM | 0.000155 | 32 |
| HLA-B*15:01 | 1 | 150 | 159 | 10 | KSWMESEFRV | 0.000155 | 30 |
| HLA-B*53:01 | 1 | 150 | 158 | 9 | KSWMESEFR | 0.000155 | 20 |
| HLA-B*40:01 | 1 | 238 | 246 | 9 | FQTLALHR | 0.000155 | 17 |
| HLA-A*26:01 | 1 | 249 | 257 | 9 | LTPGDSSSG | 0.000155 | 25 |
| HLA-A*23:01 | 1 | 261 | 269 | 9 | GAAAYYVGY | 0.000155 | 18 |
| HLA-B*57:01 | 1 | 271 | 280 | 10 | QPRTFLLKYN | 0.000155 | 41 |
| HLA-A*02:03 | 1 | 279 | 288 | 10 | YNENGTITDA | 0.000155 | 32 |
| HLA-B*35:01 | 1 | 317 | 326 | 10 | NFRVQPTESI | 0.000155 | 21 |
| HLA-A*68:02 | 1 | 320 | 328 | 9 | VQPTESIVR | 0.000155 | 32 |
| HLA-A*01:01 | 1 | 330 | 338 | 9 | PNITNLCPF | 0.000155 | 40 |
| HLA-B*58:01 | 1 | 342 | 350 | 9 | FNATRFASV | 0.000155 | 31 |
| HLA-B*57:01 | 1 | 357 | 366 | 10 | RISNCVADYS | 0.000155 | 41 |
| HLA-B*08:01 | 1 | 370 | 378 | 9 | NSASFSTFK | 0.000155 | 41 |
| HLA-A*02:01 | 1 | 393 | 401 | 9 | TNVYADSFV | 0.000155 | 29 |
| HLA-A*03:01 | 1 | 460 | 468 | 9 | NLKPFERDI | 0.000155 | 24 |
| HLA-A*02:01 | 1 | 464 | 473 | 10 | FERDISTEY | 0.000155 | 29 |
| HLA-A*02:01 | 1 | 522 | 531 | 10 | ATVCGPKKST | 0.000155 | 29 |
| HLA-B*08:01 | 1 | 644 | 652 | 9 | QTRAGCLIG | 0.000155 | 41 |
| HLA-B*44:02 | 1 | 675 | 684 | 10 | QTQTNSPRRA | 0.000155 | 19 |
| HLA-B*44:02 | 1 | 686 | 694 | 9 | SVASQSIIA | 0.000155 | 19 |
| HLA-B*57:01 | 1 | 699 | 708 | 10 | LGAENSVAYS | 0.000155 | 41 |
| HLA-A*02:03 | 1 | 729 | 738 | 10 | VSMTKTSVDC | 0.000155 | 32 |
| HLA-A*30:01 | 1 | 759 | 768 | 10 | FCTQLNRALT | 0.000155 | 52 |
| HLA-B*44:02 | 1 | 759 | 767 | 9 | FCTQLNRAL | 0.000155 | 19 |
| HLA-A*30:02 | 1 | 772 | 780 | 9 | VEQDKNTQE | 0.000155 | 49 |
| HLA-A*01:01 | 1 | 838 | 847 | 10 | GDCLGDIAAR | 0.000155 | 40 |
| HLA-A*11:01 | 1 | 857 | 866 | 10 | GLTVLPPLLT | 0.000155 | 19 |
| HLA-B*40:01 | 1 | 870 | 879 | 10 | IAQYTSALLA | 0.000155 | 17 |
| HLA-A*03:01 | 1 | 881 | 890 | 10 | TITSGWTFGA | 0.000155 | 24 |
| HLA-B*35:01 | 1 | 892 | 901 | 10 | AALQIPFAMQ | 0.000155 | 21 |
| HLA-A*02:03 | 1 | 1009 | 1017 | 9 | TQLLIRAAE | 0.000155 | 32 |
| HLA-B*57:01 | 1 | 1049 | 1057 | 9 | LMSFPQSAP | 0.000155 | 41 |
| HLA-B*57:01 | 1 | 1072 | 1081 | 10 | EKNFTTAPAI | 0.000155 | 41 |
| HLA-B*08:01 | 1 | 1082 | 1091 | 10 | CHDGKAHFPR | 0.000155 | 41 |
| HLA-A*31:01 | 1 | 1088 | 1097 | 10 | HFPREGVFSV | 0.000155 | 31 |
| HLA-B*35:01 | 1 | 1088 | 1096 | 9 | HFPREGVSV | 0.000155 | 21 |
| HLA-A*23:01 | 1 | 1095 | 1104 | 10 | FVSNGTHWV | 0.000155 | 18 |
| HLA-B*07:02 | 1 | 1111 | 1119 | 9 | EPQIITTDN | 0.000155 | 27 |
| HLA-B*58:01 | 1 | 1119 | 1127 | 9 | NTFVSGNCD | 0.000155 | 31 |
| HLA-B*35:01 | 1 | 1125 | 1133 | 9 | NCDVVIGIV | 0.000155 | 21 |
| HLA-A*24:02 | 1 | 1191 | 1200 | 10 | KNLNESLIDL | 0.000155 | 17 |
| HLA-A*30:01 | 1 | 9 | 18 | 10 | PLVSSQCVNL | 0.000154 | 52 |
| HLA-B*08:01 | 1 | 20 | 29 | 10 | TRTQLPPAYT | 0.000154 | 41 |
| HLA-B*57:01 | 1 | 31 | 39 | 9 | SFTRGVVYYP | 0.000154 | 41 |
| HLA-A*68:01 | 1 | 49 | 57 | 9 | HSTQDLFLP | 0.000154 | 28 |
| HLA-B*58:01 | 1 | 76 | 85 | 10 | TKRFDNPVLP | 0.000154 | 31 |
| HLA-B*15:01 | 1 | 104 | 112 | 9 | WIFGTTLDS | 0.000154 | 30 |
| HLA-A*68:02 | 1 | 107 | 116 | 10 | GTTLDSKTQS | 0.000154 | 32 |
| HLA-A*24:02 | 1 | 158 | 167 | 10 | RVYSSANNCT | 0.000154 | 17 |
| HLA-A*68:01 | 1 | 165 | 173 | 9 | NCTFEYVSQ | 0.000154 | 28 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*23:01 | 1 | 222 | 231 | 10 | ALEPLVDLPI 0.000154 | 18 |
| HLA-B*35:01 | 1 | 236 | 245 | 10 | TRFQTLALH 0.000154 | 21 |
| HLA-B*58:01 | 1 | 236 | 245 | 10 | TRFQTLALH 0.000154 | 31 |
| HLA-B*15:01 | 1 | 249 | 257 | 9 | LTPGDSSSG 0.000154 | 30 |
| HLA-A*31:01 | 1 | 285 | 293 | 9 | ITDAVDCAL 0.000154 | 31 |
| HLA-B*40:01 | 1 | 344 | 352 | 9 | ATRFASVYA 0.000154 | 17 |
| HLA-B*07:02 | 1 | 403 | 412 | 10 | RGDEVROIAP 0.000154 | 27 |
| HLA-A*68:02 | 1 | 454 | 463 | 10 | RLFRKSNLKP 0.000154 | 32 |
| HLA-A*01:01 | 1 | 509 | 518 | 10 | RVVVLSEFELL 0.000154 | 41 |
| HLA-B*40:01 | 1 | 517 | 525 | 9 | LLHAPATVC 0.000154 | 17 |
| HLA-A*32:01 | 1 | 572 | 580 | 9 | TTDAVRDPQ 0.000154 | 23 |
| HLA-A*02:06 | 1 | 589 | 597 | 9 | PCSFGGVSV 0.000154 | 39 |
| HLA-A*33:01 | 1 | 617 | 626 | 10 | CTEVPVAIHA 0.000154 | 30 |
| HLA-A*30:01 | 1 | 619 | 627 | 9 | EVPVAIHAD 0.000154 | 52 |
| HLA-A*02:01 | 1 | 622 | 630 | 9 | VAIHADQLT 0.000154 | 29 |
| HLA-A*30:01 | 1 | 630 | 639 | 10 | TPTWRVYSTG 0.000154 | 52 |
| HLA-B*08:01 | 1 | 640 | 648 | 9 | SNVFQTRAG 0.000154 | 41 |
| HLA-A*26:01 | 1 | 663 | 671 | 9 | DIPIGAGIC 0.000154 | 25 |
| HLA-B*08:01 | 1 | 664 | 673 | 10 | IPIGAGICAS 0.000154 | 41 |
| HLA-B*35:01 | 1 | 802 | 810 | 9 | FSQILPDCS 0.000154 | 21 |
| HLA-A*68:01 | 1 | 813 | 821 | 9 | SKRSFIEDL 0.000154 | 28 |
| HLA-B*51:01 | 1 | 854 | 862 | 9 | KFNGLTVLP 0.000154 | 37 |
| HLA-B*08:01 | 1 | 892 | 901 | 10 | AALQIPFAMQ 0.000154 | 41 |
| HLA-B*58:01 | 1 | 965 | 974 | 10 | QLSSNFGAIS 0.000154 | 31 |
| HLA-A*01:01 | 1 | 998 | 1006 | 9 | TGRLQSLQT 0.000154 | 41 |
| HLA-A*33:01 | 1 | 1026 | 1034 | 9 | ATKMSECVL 0.000154 | 30 |
| HLA-B*44:02 | 1 | 1033 | 1042 | 10 | VLGQSKRVDF 0.000154 | 19 |
| HLA-B*57:01 | 1 | 1047 | 1056 | 10 | YHLMSFPQSA 0.000154 | 41 |
| HLA-B*07:02 | 1 | 1051 | 1059 | 9 | SFPQSAPHG 0.000154 | 27 |
| HLA-A*68:01 | 1 | 1060 | 1069 | 10 | VVFLHVITYVP 0.000154 | 28 |
| HLA-A*30:01 | 1 | 1063 | 1072 | 10 | LHVITYVPAQE 0.000154 | 52 |
| HLA-A*01:01 | 1 | 1098 | 1106 | 9 | NGTHWFVTQ 0.000154 | 41 |
| HLA-A*02:06 | 1 | 1115 | 1124 | 10 | ITTDNTFVSG 0.000154 | 39 |
| HLA-A*23:01 | 1 | 1128 | 1137 | 10 | VVIGIVNNTV 0.000154 | 18 |
| HLA-B*35:01 | 1 | 1137 | 1146 | 10 | VYDPLQPELD 0.000154 | 21 |
| HLA-A*68:02 | 1 | 1153 | 1162 | 10 | DKYFKNHTSP 0.000154 | 32 |
| HLA-B*57:01 | 1 | 1163 | 1172 | 10 | DVDLGDISGI 0.000154 | 41 |
| HLA-A*68:02 | 1 | 1227 | 1236 | 10 | IVMVTIMLCC 0.000154 | 32 |
| HLA-A*31:01 | 1 | 1229 | 1237 | 9 | MVTIMLCCM 0.000154 | 31 |
| HLA-A*68:02 | 1 | 1230 | 1239 | 10 | VTIMLCCMTS 0.000154 | 32 |
| HLA-A*01:01 | 1 | 33 | 42 | 10 | TRGVYYPDKV 0.000153 | 41 |
| HLA-A*31:01 | 1 | 34 | 42 | 9 | RGVYYPDKV 0.000153 | 31 |
| HLA-B*57:01 | 1 | 88 | 97 | 10 | DGVYFASTEK 0.000153 | 41 |
| HLA-A*68:02 | 1 | 95 | 104 | 10 | TEKSNIIRGW 0.000153 | 32 |
| HLA-A*30:01 | 1 | 103 | 111 | 9 | GWIFGTLLD 0.000153 | 52 |
| HLA-A*03:01 | 1 | 147 | 155 | 9 | KNKNSWMS 0.000153 | 24 |
| HLA-B*07:02 | 1 | 224 | 232 | 9 | EPLVDLPIG 0.000153 | 27 |
| HLA-A*02:03 | 1 | 230 | 238 | 9 | PIGINITRF 0.000153 | 32 |
| HLA-A*01:01 | 1 | 238 | 247 | 10 | FQTLALHRS 0.000153 | 41 |
| HLA-A*26:01 | 1 | 267 | 276 | 10 | VGYLQPRFTL 0.000153 | 25 |
| HLA-A*31:01 | 1 | 291 | 299 | 9 | CALDPLSET 0.000153 | 31 |
| HLA-A*03:01 | 1 | 333 | 342 | 10 | TNLCPFGEVF 0.000153 | 24 |
| HLA-A*01:01 | 1 | 350 | 358 | 9 | VYAWNKRKI 0.000153 | 41 |
| HLA-A*03:01 | 1 | 368 | 376 | 9 | LYNSASFST 0.000153 | 24 |
| HLA-A*11:01 | 1 | 375 | 383 | 9 | STFKCYGVS 0.000153 | 19 |
| HLA-A*01:01 | 1 | 406 | 414 | 9 | EVRQIAPGQ 0.000153 | 41 |
| HLA-A*02:06 | 1 | 429 | 438 | 10 | FTGCVIAWNS 0.000153 | 39 |
| HLA-A*68:01 | 1 | 466 | 475 | 10 | RDISTEIQQA 0.000153 | 28 |
| HLA-B*44:02 | 1 | 471 | 479 | 9 | EIYQAGSTP 0.000153 | 19 |
| HLA-B*51:01 | 1 | 477 | 485 | 9 | STPCNGVEG 0.000153 | 37 |
| HLA-B*58:01 | 1 | 519 | 527 | 9 | HAPATVCGP 0.000153 | 31 |
| HLA-A*02:03 | 1 | 531 | 539 | 9 | TNLVKNKCV 0.000153 | 32 |
| HLA-A*11:01 | 1 | 551 | 559 | 9 | VLTESNKKF 0.000153 | 19 |
| HLA-B*51:01 | 1 | 573 | 581 | 9 | TDAVRDPQT 0.000153 | 37 |
| HLA-B*51:01 | 1 | 575 | 583 | 9 | AVRDPQTLE 0.000153 | 37 |
| HLA-B*35:01 | 1 | 580 | 588 | 9 | QTLEILDIT 0.000153 | 21 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*68:02 | 1 | 593 | 602 | 10 | GGVSVITPGT 0.000153 | 32 |
| HLA-A*32:01 | 1 | 594 | 602 | 9 | GVSVITPGT 0.000153 | 23 |
| HLA-A*30:01 | 1 | 613 | 622 | 10 | QDVNCTEVPV 0.000153 | 52 |
| HLA-A*03:01 | 1 | 623 | 632 | 10 | AIHADQLTPT 0.000153 | 24 |
| HLA-A*30:01 | 1 | 652 | 661 | 10 | GAEHVNNSYE 0.000153 | 52 |
| HLA-A*33:01 | 1 | 654 | 662 | 9 | EHVNNSYEC 0.000153 | 31 |
| HLA-A*26:01 | 1 | 761 | 770 | 10 | TQLNRALTGI 0.000153 | 25 |
| HLA-A*02:03 | 1 | 801 | 809 | 9 | NFSQILPDP 0.000153 | 32 |
| HLA-A*30:01 | 1 | 817 | 826 | 10 | FIEDLLFNKV 0.000153 | 52 |
| HLA-B*51:01 | 1 | 858 | 867 | 10 | LTVLPPLTLD 0.000153 | 37 |
| HLA-B*40:01 | 1 | 868 | 876 | 9 | EMIAQY TSA 0.000153 | 17 |
| HLA-A*23:01 | 1 | 887 | 895 | 9 | TFGAGAALQ 0.000153 | 18 |
| HLA-A*68:02 | 1 | 889 | 898 | 10 | GAGAALQIPF 0.000153 | 32 |
| HLA-A*33:01 | 1 | 891 | 899 | 9 | GAALQIPFA 0.000153 | 31 |
| HLA-B*08:01 | 1 | 898 | 907 | 10 | FAMQMAYRFN 0.000153 | 41 |
| HLA-B*58:01 | 1 | 912 | 920 | 9 | TQNVLYENQ 0.000153 | 31 |
| HLA-B*44:03 | 1 | 913 | 922 | 10 | QNVLYENQKL 0.000153 | 18 |
| HLA-A*33:01 | 1 | 914 | 923 | 10 | NVLYENQKLI 0.000153 | 31 |
| HLA-B*57:01 | 1 | 1003 | 1011 | 9 | SLQTYVTQQ 0.000153 | 41 |
| HLA-A*31:01 | 1 | 1013 | 1022 | 10 | IRAAEIRASA 0.000153 | 31 |
| HLA-B*15:01 | 1 | 1029 | 1038 | 10 | MSECVLGQSK 0.000153 | 30 |
| HLA-A*31:01 | 1 | 1049 | 1057 | 9 | LMSFPQSAP 0.000153 | 31 |
| HLA-B*58:01 | 1 | 1051 | 1060 | 10 | SFQSAPHGV 0.000153 | 31 |
| HLA-B*58:01 | 1 | 1069 | 1077 | 9 | PAQEKNF TT 0.000153 | 31 |
| HLA-A*26:01 | 1 | 1116 | 1124 | 9 | TTDNTFVSG 0.000153 | 25 |
| HLA-B*58:01 | 1 | 1116 | 1125 | 10 | TTDNTFVSGN 0.000153 | 31 |
| HLA-B*58:01 | 1 | 1179 | 1187 | 9 | IQKEIDRLN 0.000153 | 31 |
| HLA-A*33:01 | 1 | 1180 | 1189 | 10 | QKEIDRLNEV 0.000153 | 31 |
| HLA-A*31:01 | 1 | 1185 | 1194 | 10 | RLNEVAKNLN 0.000153 | 31 |
| HLA-B*08:01 | 1 | 1192 | 1201 | 10 | NLNESLIDLQ 0.000153 | 41 |
| HLA-B*44:02 | 1 | 1196 | 1204 | 9 | SLIDLQELG 0.000153 | 19 |
| HLA-B*40:01 | 1 | 1221 | 1229 | 9 | IAGLIAIVM 0.000153 | 17 |
| HLA-B*51:01 | 1 | 1223 | 1232 | 10 | GLIAIVMVTI 0.000153 | 37 |
| HLA-B*53:01 | 1 | 15 | 24 | 10 | CVNLTRTRQL 0.000152 | 20 |
| HLA-B*51:01 | 1 | 104 | 112 | 9 | WIFGTTLDS 0.000152 | 37 |
| HLA-A*01:01 | 1 | 126 | 134 | 9 | VVIKVECFQ 0.000152 | 41 |
| HLA-B*57:01 | 1 | 153 | 162 | 10 | MESEFRVYSS 0.000152 | 41 |
| HLA-B*53:01 | 1 | 166 | 174 | 9 | CTFEYVSQP 0.000152 | 20 |
| HLA-B*07:02 | 1 | 199 | 207 | 9 | GYFKIYSKH 0.000152 | 27 |
| HLA-B*58:01 | 1 | 205 | 213 | 9 | SKHTPINLV 0.000152 | 31 |
| HLA-B*57:01 | 1 | 206 | 215 | 10 | KHTPINLVRD 0.000152 | 41 |
| HLA-A*33:01 | 1 | 210 | 218 | 9 | INLVRDLPQ 0.000152 | 31 |
| HLA-A*03:01 | 1 | 219 | 227 | 9 | GFSALEPLV 0.000152 | 24 |
| HLA-A*01:01 | 1 | 283 | 291 | 9 | GTITDAVDC 0.000152 | 41 |
| HLA-A*01:01 | 1 | 308 | 316 | 9 | VEKGIYQTS 0.000152 | 41 |
| HLA-A*30:01 | 1 | 331 | 339 | 9 | NITNLCPFG 0.000152 | 52 |
| HLA-A*01:01 | 1 | 334 | 343 | 10 | NLCPFGEVFN 0.000152 | 41 |
| HLA-A*02:03 | 1 | 363 | 371 | 9 | ADYSVLVNS 0.000152 | 32 |
| HLA-A*26:01 | 1 | 386 | 395 | 10 | KLNDLCFTNV 0.000152 | 25 |
| HLA-B*07:02 | 1 | 401 | 409 | 9 | VIRGDEV RQ 0.000152 | 27 |
| HLA-A*11:01 | 1 | 403 | 411 | 9 | RGDEV RQIA 0.000152 | 19 |
| HLA-B*40:01 | 1 | 460 | 468 | 9 | NLKPFERDI 0.000152 | 17 |
| HLA-A*26:01 | 1 | 509 | 518 | 10 | RVVLSFELL 0.000152 | 25 |
| HLA-B*07:02 | 1 | 522 | 531 | 10 | ATVCGPKKST 0.000152 | 27 |
| HLA-A*02:01 | 1 | 525 | 534 | 10 | CGPKKSTNLV 0.000152 | 29 |
| HLA-A*01:01 | 1 | 541 | 549 | 9 | FNFNGLTGT 0.000152 | 41 |
| HLA-A*31:01 | 1 | 551 | 560 | 10 | VLTESNKKFL 0.000152 | 31 |
| HLA-B*40:01 | 1 | 557 | 566 | 10 | KKFLPFQFQG 0.000152 | 17 |
| HLA-B*08:01 | 1 | 558 | 567 | 10 | KFLPFQFQGR 0.000152 | 41 |
| HLA-A*68:01 | 1 | 573 | 582 | 10 | TDAVRDPQTL 0.000152 | 28 |
| HLA-A*31:01 | 1 | 602 | 610 | 9 | TNTSNQVAV 0.000152 | 31 |
| HLA-A*11:01 | 1 | 626 | 635 | 10 | ADQLTPTWRV 0.000152 | 19 |
| HLA-B*15:01 | 1 | 651 | 659 | 9 | IGAHEVNNS 0.000152 | 30 |
| HLA-A*31:01 | 1 | 658 | 666 | 9 | NSYECDIPI 0.000152 | 31 |
| HLA-B*08:01 | 1 | 675 | 684 | 10 | QTQTNSPRRA 0.000152 | 41 |
| HLA-A*02:03 | 1 | 676 | 685 | 10 | TQTNSPRRAR 0.000152 | 32 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*33:01 | 1 | 687 | 696 | 10 | VASQSIIAYT 0.000152 | 31 |
| HLA-A*23:01 | 1 | 726 | 734 | 9 | ILPVSMTKT 0.000152 | 18 |
| HLA-B*53:01 | 1 | 741 | 749 | 9 | YICGDSTEC 0.000152 | 20 |
| HLA-A*32:01 | 1 | 764 | 772 | 9 | NRALTGIAV 0.000152 | 23 |
| HLA-B*08:01 | 1 | 771 | 780 | 10 | AVEQDKNTQE 0.000152 | 41 |
| HLA-A*02:06 | 1 | 788 | 797 | 10 | IYKTPPIKDF 0.000152 | 39 |
| HLA-A*03:01 | 1 | 795 | 803 | 9 | KDFGGFNFS 0.000152 | 24 |
| HLA-A*02:06 | 1 | 800 | 809 | 10 | FNFSQILPDP 0.000152 | 39 |
| HLA-B*08:01 | 1 | 839 | 847 | 9 | DCLGDIAAR 0.000152 | 41 |
| HLA-A*23:01 | 1 | 895 | 904 | 10 | QIPFAMQMAY 0.000152 | 18 |
| HLA-B*58:01 | 1 | 900 | 908 | 9 | MQMAYRFNG 0.000152 | 31 |
| HLA-B*44:02 | 1 | 912 | 921 | 10 | TQNVLYENQK 0.000152 | 19 |
| HLA-B*58:01 | 1 | 922 | 930 | 9 | LIANQFNESA 0.000152 | 31 |
| HLA-B*15:01 | 1 | 932 | 941 | 10 | GKIQDSLST 0.000152 | 30 |
| HLA-A*03:01 | 1 | 936 | 944 | 9 | DSLSTASA 0.000152 | 24 |
| HLA-B*40:01 | 1 | 944 | 952 | 9 | ALGKLQDVV 0.000152 | 17 |
| HLA-B*35:01 | 1 | 992 | 1000 | 9 | QIDRLITGR 0.000152 | 21 |
| HLA-A*26:01 | 1 | 1013 | 1022 | 10 | IRAAEIRASA 0.000152 | 25 |
| HLA-B*07:02 | 1 | 1039 | 1048 | 10 | RVDFCGKGYH 0.000152 | 27 |
| HLA-A*24:02 | 1 | 1046 | 1055 | 10 | GYHLMSFPQS 0.000152 | 17 |
| HLA-A*30:02 | 1 | 1057 | 1065 | 9 | PHGVVFLHV 0.000152 | 50 |
| HLA-B*51:01 | 1 | 1078 | 1086 | 9 | APAICHGDKG 0.000152 | 37 |
| HLA-A*02:03 | 1 | 1080 | 1088 | 9 | AICHGDKAH 0.000152 | 32 |
| HLA-A*02:01 | 1 | 1101 | 1109 | 9 | HWFVTQRNF 0.000152 | 29 |
| HLA-A*01:01 | 1 | 1138 | 1147 | 10 | YDPLQPELDS 0.000152 | 41 |
| HLA-A*31:01 | 1 | 1177 | 1186 | 10 | VNIQKEIDRL 0.000152 | 31 |
| HLA-A*30:01 | 1 | 1194 | 1203 | 10 | NESLIDLQEL 0.000152 | 52 |
| HLA-B*58:01 | 1 | 1204 | 1213 | 10 | GKYEQYIKWP 0.000152 | 31 |
| HLA-B*35:01 | 1 | 1208 | 1217 | 10 | QYIKWPWYIW 0.000152 | 21 |
| HLA-A*03:01 | 1 | 1209 | 1218 | 10 | YIKWPWYIWL 0.000152 | 24 |
| HLA-B*44:02 | 1 | 1260 | 1269 | 10 | DSEPVLKGVK 0.000152 | 19 |
| HLA-A*02:06 | 1 | 1263 | 1271 | 9 | PVLKGVKHL 0.000152 | 39 |
| HLA-B*35:01 | 1 | 104 | 112 | 9 | WIFGTTLDS 0.000151 | 21 |
| HLA-B*58:01 | 1 | 149 | 158 | 10 | NKSWMESEFR 0.000151 | 31 |
| HLA-B*08:01 | 1 | 250 | 259 | 10 | TPGDSSSGWT 0.000151 | 42 |
| HLA-B*58:01 | 1 | 276 | 285 | 10 | LLKYNENGTI 0.000151 | 31 |
| HLA-A*01:01 | 1 | 316 | 324 | 9 | SNFRVQPT 0.000151 | 41 |
| HLA-A*02:01 | 1 | 343 | 352 | 10 | NATRFASVYA 0.000151 | 29 |
| HLA-B*53:01 | 1 | 382 | 390 | 9 | VSPTKLNDL 0.000151 | 20 |
| HLA-B*57:01 | 1 | 387 | 395 | 9 | LNDLCFTNV 0.000151 | 41 |
| HLA-B*51:01 | 1 | 452 | 461 | 10 | LYRLFRKSNL 0.000151 | 37 |
| HLA-B*40:01 | 1 | 454 | 462 | 9 | RLFRKSNLK 0.000151 | 17 |
| HLA-B*44:02 | 1 | 499 | 508 | 10 | PTNGVGYQPY 0.000151 | 19 |
| HLA-A*68:01 | 1 | 522 | 530 | 9 | ATVCGPKKS 0.000151 | 28 |
| HLA-A*02:01 | 1 | 565 | 573 | 9 | FGRDIADTT 0.000151 | 29 |
| HLA-A*03:01 | 1 | 567 | 576 | 10 | RDIADTTDAV 0.000151 | 24 |
| HLA-A*01:01 | 1 | 586 | 595 | 10 | DITPCSFGGV 0.000151 | 41 |
| HLA-B*15:01 | 1 | 632 | 640 | 9 | TWRVYSTGS 0.000151 | 30 |
| HLA-A*26:01 | 1 | 643 | 651 | 9 | FQTRAGCLI 0.000151 | 25 |
| HLA-A*02:01 | 1 | 651 | 660 | 10 | IGAHEVNNYS 0.000151 | 29 |
| HLA-A*01:01 | 1 | 661 | 669 | 9 | ECDIPIGAG 0.000151 | 41 |
| HLA-B*40:01 | 1 | 676 | 685 | 10 | TQTNSPRRAR 0.000151 | 17 |
| HLA-A*31:01 | 1 | 679 | 687 | 9 | NSPRRARSV 0.000151 | 31 |
| HLA-A*01:01 | 1 | 696 | 704 | 9 | TMSLGAENS 0.000151 | 41 |
| HLA-B*07:02 | 1 | 707 | 715 | 9 | YSNNSIAIP 0.000151 | 27 |
| HLA-A*01:01 | 1 | 729 | 737 | 9 | VSMTKTSVD 0.000151 | 41 |
| HLA-B*40:01 | 1 | 733 | 741 | 9 | KTSVDCTMY 0.000151 | 17 |
| HLA-A*02:03 | 1 | 745 | 754 | 10 | DSTECNSLLL 0.000151 | 32 |
| HLA-A*30:01 | 1 | 747 | 755 | 9 | TECSNLLLQ 0.000151 | 52 |
| HLA-B*40:01 | 1 | 758 | 767 | 10 | SFCTQLNRAL 0.000151 | 17 |
| HLA-B*07:02 | 1 | 761 | 770 | 10 | TQLNRALTGI 0.000151 | 27 |
| HLA-B*53:01 | 1 | 770 | 778 | 9 | IAVEQDKNT 0.000151 | 20 |
| HLA-B*58:01 | 1 | 782 | 791 | 10 | FAQVKQIYKT 0.000151 | 31 |
| HLA-A*68:01 | 1 | 788 | 797 | 10 | IYKTPPIKDF 0.000151 | 28 |
| HLA-A*02:01 | 1 | 842 | 850 | 9 | GDIAARDLI 0.000151 | 29 |
| HLA-A*26:01 | 1 | 846 | 854 | 9 | ARDLICAQK 0.000151 | 25 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*44:03 | 1 | 913 | 921 | 9 | QNVLYENQK 0.000151 | 18 |
| HLA-B*08:01 | 1 | 918 | 926 | 9 | ENQKLIANQ 0.000151 | 42 |
| HLA-A*02:03 | 1 | 934 | 943 | 10 | IQDLSLSSTAS 0.000151 | 32 |
| HLA-B*53:01 | 1 | 939 | 948 | 10 | SSTASALGKL 0.000151 | 20 |
| HLA-A*26:01 | 1 | 967 | 975 | 9 | SSNFGAISS 0.000151 | 25 |
| HLA-A*02:06 | 1 | 981 | 990 | 10 | LSRLDKVEAE 0.000151 | 39 |
| HLA-A*02:03 | 1 | 984 | 993 | 10 | LDKVEAEVQI 0.000151 | 32 |
| HLA-A*31:01 | 1 | 1016 | 1024 | 9 | AEIRASANL 0.000151 | 31 |
| HLA-A*33:01 | 1 | 1028 | 1036 | 9 | KMSECVLGQ 0.000151 | 31 |
| HLA-A*33:01 | 1 | 1056 | 1065 | 10 | APHGVVFLHV 0.000151 | 31 |
| HLA-A*68:01 | 1 | 1088 | 1097 | 10 | HFPREGVFSV 0.000151 | 28 |
| HLA-B*40:01 | 1 | 1096 | 1104 | 9 | VSNGTHWFV 0.000151 | 17 |
| HLA-B*15:01 | 1 | 1104 | 1113 | 10 | VTQRNFYEPQ 0.000151 | 30 |
| HLA-B*53:01 | 1 | 1110 | 1119 | 10 | YEPQIITTDN 0.000151 | 20 |
| HLA-A*02:01 | 1 | 1114 | 1123 | 10 | IITDNTFVS 0.000151 | 29 |
| HLA-B*53:01 | 1 | 1120 | 1129 | 10 | TFVSGNCDVV 0.000151 | 20 |
| HLA-B*08:01 | 1 | 1142 | 1151 | 10 | QPELDSFKEE 0.000151 | 42 |
| HLA-A*01:01 | 1 | 1172 | 1180 | 9 | INASVVNIQ 0.000151 | 41 |
| HLA-A*32:01 | 1 | 1176 | 1185 | 10 | VVNIQKEIDR 0.000151 | 23 |
| HLA-A*31:01 | 1 | 1178 | 1186 | 9 | NIQKEIDRL 0.000151 | 31 |
| HLA-A*02:06 | 1 | 1182 | 1191 | 10 | EIDRLNEVAK 0.000151 | 39 |
| HLA-A*26:01 | 1 | 1187 | 1196 | 10 | NEVAKNLNES 0.000151 | 25 |
| HLA-A*26:01 | 1 | 1196 | 1204 | 9 | SLIDLQELG 0.000151 | 25 |
| HLA-B*51:01 | 1 | 1197 | 1206 | 10 | LIDLQELGKY 0.000151 | 37 |
| HLA-A*02:06 | 1 | 1208 | 1217 | 10 | QYIKWPWYIW 0.000151 | 39 |
| HLA-B*08:01 | 1 | 1214 | 1222 | 9 | WYIWLGFIA 0.000151 | 42 |
| HLA-B*08:01 | 1 | 43 | 52 | 10 | FRSSVLHSTQ 0.000151 | 42 |
| HLA-A*30:01 | 1 | 55 | 63 | 9 | FLPFFSNVT 0.000151 | 53 |
| HLA-B*35:01 | 1 | 55 | 63 | 9 | FLPFFSNVT 0.000151 | 21 |
| HLA-B*35:01 | 1 | 59 | 68 | 10 | FSNVTWFHAI 0.000151 | 21 |
| HLA-B*53:01 | 1 | 59 | 67 | 9 | FSNVTWFHA 0.000151 | 20 |
| HLA-A*68:01 | 1 | 148 | 157 | 10 | NNKSWMESEF 0.000151 | 28 |
| HLA-B*08:01 | 1 | 162 | 171 | 10 | SANNCTFEYV 0.000151 | 42 |
| HLA-A*33:01 | 1 | 171 | 180 | 10 | VSQPFLMDLE 0.000151 | 31 |
| HLA-A*26:01 | 1 | 248 | 256 | 9 | YLTPGDSSS 0.000151 | 25 |
| HLA-B*44:02 | 1 | 285 | 293 | 9 | ITDAVDCAL 0.000151 | 19 |
| HLA-A*32:01 | 1 | 359 | 367 | 9 | SNCVADYSV 0.000151 | 23 |
| HLA-A*68:01 | 1 | 359 | 367 | 9 | SNCVADYSV 0.000151 | 28 |
| HLA-A*32:01 | 1 | 363 | 372 | 10 | ADYSVLYNSA 0.000151 | 23 |
| HLA-A*68:01 | 1 | 364 | 372 | 9 | DYSVLYNSA 0.000151 | 28 |
| HLA-A*02:06 | 1 | 368 | 376 | 9 | LYNSASFST 0.000151 | 39 |
| HLA-A*02:03 | 1 | 370 | 379 | 10 | NSASFSTFKC 0.000151 | 32 |
| HLA-A*33:01 | 1 | 466 | 475 | 10 | RDISTEIQQA 0.000151 | 31 |
| HLA-B*15:01 | 1 | 467 | 475 | 9 | DISTEIQQA 0.000151 | 30 |
| HLA-A*02:06 | 1 | 469 | 477 | 9 | STEIQAGS 0.000151 | 39 |
| HLA-A*11:01 | 1 | 505 | 513 | 9 | YQPYRVVVL 0.000151 | 19 |
| HLA-B*53:01 | 1 | 530 | 538 | 9 | STNLVKKNC 0.000151 | 20 |
| HLA-B*44:03 | 1 | 534 | 543 | 10 | VKNKCVNFN 0.000151 | 18 |
| HLA-B*15:01 | 1 | 546 | 554 | 9 | LTGTGVLTE 0.000151 | 30 |
| HLA-A*31:01 | 1 | 552 | 560 | 9 | LTESNKKFL 0.000151 | 31 |
| HLA-A*03:01 | 1 | 559 | 568 | 10 | FLPFQQFGRD 0.000151 | 24 |
| HLA-A*68:01 | 1 | 576 | 585 | 10 | VRDPQTLEIL 0.000151 | 28 |
| HLA-B*51:01 | 1 | 581 | 589 | 9 | TLEILDITP 0.000151 | 37 |
| HLA-A*30:01 | 1 | 589 | 597 | 9 | PCSFGGVSV 0.000151 | 53 |
| HLA-A*31:01 | 1 | 597 | 605 | 9 | VITPGTNTS 0.000151 | 31 |
| HLA-B*07:02 | 1 | 626 | 635 | 10 | ADQLTPTWRV 0.000151 | 27 |
| HLA-A*11:01 | 1 | 704 | 713 | 10 | SVAYSNNNSIA 0.000151 | 19 |
| HLA-B*53:01 | 1 | 704 | 713 | 10 | SVAYSNNNSIA 0.000151 | 20 |
| HLA-B*58:01 | 1 | 813 | 822 | 10 | SKRSFIEDLL 0.000151 | 31 |
| HLA-A*31:01 | 1 | 815 | 824 | 10 | RSFIEDLLFN 0.000151 | 31 |
| HLA-A*30:01 | 1 | 837 | 846 | 10 | YGDCLGDIAA 0.000151 | 53 |
| HLA-B*08:01 | 1 | 840 | 849 | 10 | CLGDIAARDL 0.000151 | 42 |
| HLA-A*68:01 | 1 | 901 | 909 | 9 | QMAYRFNGI 0.000151 | 28 |
| HLA-A*11:01 | 1 | 921 | 930 | 10 | KLIANQFNFA 0.000151 | 19 |
| HLA-A*03:01 | 1 | 943 | 951 | 9 | SALGKLQDV 0.000151 | 24 |
| HLA-A*30:02 | 1 | 946 | 955 | 10 | GKLQDVVNQN 0.000151 | 50 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*23:01 | 1 | 955 | 963 | 9 | NAQALNTLV 0.00015 | 18 |
| HLA-A*03:01 | 1 | 1001 | 1010 | 10 | LQSLQTYVTQ 0.00015 | 24 |
| HLA-A*26:01 | 1 | 1010 | 1019 | 10 | QLLIRAAEIR 0.00015 | 25 |
| HLA-B*57:01 | 1 | 1018 | 1026 | 9 | IRASANLAA 0.00015 | 41 |
| HLA-B*40:01 | 1 | 1025 | 1034 | 10 | AATKMSECVL 0.00015 | 17 |
| HLA-A*02:03 | 1 | 1089 | 1097 | 9 | FPREGVFVS 0.00015 | 32 |
| HLA-B*35:01 | 1 | 1116 | 1124 | 9 | TTDNTFVSG 0.00015 | 21 |
| HLA-B*51:01 | 1 | 1119 | 1127 | 9 | NTFVSGNCD 0.00015 | 37 |
| HLA-B*35:01 | 1 | 1129 | 1137 | 9 | VIGIVNNTV 0.00015 | 21 |
| HLA-A*68:02 | 1 | 1147 | 1156 | 10 | SFKEELDKYF 0.00015 | 32 |
| HLA-B*53:01 | 1 | 1166 | 1174 | 9 | LGDISGINA 0.00015 | 20 |
| HLA-B*15:01 | 1 | 1222 | 1230 | 9 | AGLIAIVMV 0.00015 | 30 |
| HLA-B*53:01 | 1 | 1259 | 1267 | 9 | DDSEPVKLG 0.00015 | 20 |
| HLA-B*51:01 | 1 | 58 | 67 | 10 | FFSNVTWFHA 0.000149 | 37 |
| HLA-A*68:02 | 1 | 66 | 75 | 10 | HAIHVSQTNG 0.000149 | 32 |
| HLA-A*26:01 | 1 | 75 | 84 | 10 | GTKRFDNPVL 0.000149 | 25 |
| HLA-A*03:01 | 1 | 107 | 115 | 9 | GTTLDSTQ 0.000149 | 25 |
| HLA-A*02:03 | 1 | 126 | 135 | 10 | VVIKVFCEQF 0.000149 | 32 |
| HLA-A*33:01 | 1 | 159 | 167 | 9 | VYSSANNCT 0.000149 | 31 |
| HLA-A*33:01 | 1 | 162 | 171 | 10 | SANNCTFEYV 0.000149 | 31 |
| HLA-B*08:01 | 1 | 176 | 184 | 9 | LMDLEGKQG 0.000149 | 42 |
| HLA-A*26:01 | 1 | 180 | 189 | 10 | EGKQGNFKNL 0.000149 | 25 |
| HLA-B*44:02 | 1 | 192 | 201 | 10 | FVFKNIDGYF 0.000149 | 19 |
| HLA-B*53:01 | 1 | 212 | 221 | 10 | LVRDLPQGF 0.000149 | 20 |
| HLA-A*02:01 | 1 | 215 | 224 | 10 | DLPOGFSALE 0.000149 | 29 |
| HLA-B*35:01 | 1 | 267 | 276 | 10 | VGYLQPRFTL 0.000149 | 21 |
| HLA-B*51:01 | 1 | 278 | 286 | 9 | KYNENGTIT 0.000149 | 37 |
| HLA-A*33:01 | 1 | 287 | 296 | 10 | DAVDCALDPL 0.000149 | 31 |
| HLA-B*07:02 | 1 | 327 | 336 | 10 | VRFPNITNLC 0.000149 | 27 |
| HLA-A*26:01 | 1 | 328 | 336 | 9 | RFPNITNLC 0.000149 | 25 |
| HLA-B*57:01 | 1 | 353 | 361 | 9 | WNRKRISNC 0.000149 | 42 |
| HLA-A*33:01 | 1 | 402 | 410 | 9 | IRGDEVRFI 0.000149 | 31 |
| HLA-A*68:02 | 1 | 411 | 419 | 9 | APGQTGKIA 0.000149 | 32 |
| HLA-A*68:01 | 1 | 416 | 425 | 10 | GKIADYNYKL 0.000149 | 28 |
| HLA-B*08:01 | 1 | 457 | 466 | 10 | RKSNLKPFR 0.000149 | 42 |
| HLA-A*23:01 | 1 | 459 | 468 | 10 | SNLKPFRDI 0.000149 | 18 |
| HLA-B*57:01 | 1 | 467 | 476 | 10 | DISTEIQAG 0.000149 | 42 |
| HLA-B*57:01 | 1 | 470 | 479 | 10 | TEIYQAGSTP 0.000149 | 42 |
| HLA-B*35:01 | 1 | 501 | 509 | 9 | NGVGYQPYR 0.000149 | 21 |
| HLA-A*01:01 | 1 | 516 | 525 | 10 | ELLHAPATVC 0.000149 | 41 |
| HLA-B*57:01 | 1 | 533 | 542 | 10 | LVKNKCVNFN 0.000149 | 42 |
| HLA-B*08:01 | 1 | 534 | 543 | 10 | VKNKCVNFN 0.000149 | 42 |
| HLA-B*35:01 | 1 | 540 | 548 | 9 | NFNFNGLTG 0.000149 | 21 |
| HLA-A*01:01 | 1 | 555 | 563 | 9 | SNKKFLPFQ 0.000149 | 41 |
| HLA-A*30:01 | 1 | 571 | 579 | 9 | DTTDAVRDP 0.000149 | 53 |
| HLA-B*08:01 | 1 | 579 | 587 | 9 | PQTLIIDI 0.000149 | 42 |
| HLA-B*08:01 | 1 | 645 | 653 | 9 | TRAGCLIGA 0.000149 | 42 |
| HLA-B*35:01 | 1 | 662 | 670 | 9 | CDIPIGAGI 0.000149 | 21 |
| HLA-B*35:01 | 1 | 712 | 721 | 10 | IAIPTNFTIS 0.000149 | 21 |
| HLA-A*26:01 | 1 | 716 | 724 | 9 | TNFTISVTT 0.000149 | 25 |
| HLA-A*03:01 | 1 | 719 | 727 | 9 | TISVTTEIL 0.000149 | 25 |
| HLA-A*02:06 | 1 | 738 | 747 | 10 | CTMYICGDST 0.000149 | 39 |
| HLA-B*40:01 | 1 | 788 | 797 | 10 | IYKTPPIKDF 0.000149 | 17 |
| HLA-A*32:01 | 1 | 790 | 799 | 10 | KTPPIKDFGG 0.000149 | 23 |
| HLA-A*32:01 | 1 | 791 | 800 | 10 | TPPIKDFGGF 0.000149 | 23 |
| HLA-A*11:01 | 1 | 865 | 874 | 10 | LTDEMIAQYT 0.000149 | 19 |
| HLA-B*35:01 | 1 | 902 | 910 | 9 | MAYRFNGIG 0.000149 | 21 |
| HLA-B*57:01 | 1 | 913 | 921 | 9 | QNVLYENQK 0.000149 | 42 |
| HLA-A*11:01 | 1 | 914 | 922 | 9 | NVLYENQKL 0.000149 | 19 |
| HLA-A*02:06 | 1 | 966 | 974 | 9 | LSSNFGAIS 0.000149 | 39 |
| HLA-A*02:06 | 1 | 997 | 1006 | 10 | ITGRLQSLQT 0.000149 | 39 |
| HLA-A*11:01 | 1 | 1009 | 1017 | 9 | TQQLIRAAE 0.000149 | 19 |
| HLA-A*02:06 | 1 | 1018 | 1027 | 10 | IRASANLAAT 0.000149 | 39 |
| HLA-A*26:01 | 1 | 1024 | 1033 | 10 | LAATKMSECV 0.000149 | 25 |
| HLA-B*44:02 | 1 | 1025 | 1033 | 9 | AATKMSECV 0.000149 | 19 |
| HLA-A*11:01 | 1 | 1095 | 1104 | 10 | FVSNNGTHWF 0.000149 | 19 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|----------|----|
| HLA-B*53:01 | 1 | 1099 | 1107 | 9 | GTHWFVTQR | 0.000149 | 20 |
| HLA-A*31:01 | 1 | 1114 | 1122 | 9 | IITTDNTFV | 0.000149 | 31 |
| HLA-A*23:01 | 1 | 1160 | 1169 | 10 | TSPDVDLGD | 0.000149 | 18 |
| HLA-A*68:02 | 1 | 1174 | 1182 | 9 | ASVVNIQKE | 0.000149 | 32 |
| HLA-B*44:02 | 1 | 1196 | 1205 | 10 | SLIDLQELGK | 0.000149 | 19 |
| HLA-A*24:02 | 1 | 1221 | 1229 | 9 | IAGLIAIVM | 0.000149 | 18 |
| HLA-B*07:02 | 1 | 1224 | 1233 | 10 | LIAIVMVTIM | 0.000149 | 27 |
| HLA-B*07:02 | 1 | 1261 | 1269 | 9 | SEPVLKGVK | 0.000149 | 27 |
| HLA-A*02:03 | 1 | 14 | 22 | 9 | QCVNLTRT | 0.000148 | 32 |
| HLA-B*15:01 | 1 | 26 | 34 | 9 | PAYTNSFTR | 0.000148 | 30 |
| HLA-A*33:01 | 1 | 34 | 43 | 10 | RGVYYPDKVF | 0.000148 | 31 |
| HLA-A*02:06 | 1 | 42 | 50 | 9 | VFRSSVLHS | 0.000148 | 39 |
| HLA-B*08:01 | 1 | 63 | 72 | 10 | TWFHAIHVS | 0.000148 | 42 |
| HLA-A*26:01 | 1 | 100 | 108 | 9 | IIRGWIFGT | 0.000148 | 25 |
| HLA-A*11:01 | 1 | 109 | 118 | 10 | TLDSKTQSL | 0.000148 | 19 |
| HLA-A*23:01 | 1 | 135 | 144 | 10 | FCNDPFLGV | 0.000148 | 18 |
| HLA-B*15:01 | 1 | 142 | 151 | 10 | GVYYHKNNK | 0.000148 | 30 |
| HLA-A*30:02 | 1 | 153 | 162 | 10 | MESEFRVYS | 0.000148 | 50 |
| HLA-B*40:01 | 1 | 233 | 242 | 10 | INITRFQTL | 0.000148 | 17 |
| HLA-A*02:01 | 1 | 255 | 263 | 9 | SSGWTAGAA | 0.000148 | 30 |
| HLA-B*53:01 | 1 | 280 | 288 | 9 | NENGTITDA | 0.000148 | 20 |
| HLA-B*08:01 | 1 | 313 | 322 | 10 | YQTSNFRVQ | 0.000148 | 42 |
| HLA-B*58:01 | 1 | 484 | 492 | 9 | EGFNCYFPL | 0.000148 | 31 |
| HLA-B*08:01 | 1 | 520 | 529 | 10 | APATVCGPK | 0.000148 | 42 |
| HLA-A*01:01 | 1 | 522 | 531 | 10 | ATVCGPKST | 0.000148 | 41 |
| HLA-A*31:01 | 1 | 525 | 533 | 9 | CGPKKSTNL | 0.000148 | 31 |
| HLA-B*51:01 | 1 | 616 | 625 | 10 | NCTEVPVAI | 0.000148 | 37 |
| HLA-B*51:01 | 1 | 674 | 682 | 9 | YQTQTNSPR | 0.000148 | 37 |
| HLA-A*23:01 | 1 | 677 | 685 | 9 | QTNSPRRAR | 0.000148 | 18 |
| HLA-B*08:01 | 1 | 710 | 719 | 10 | NSIAIPTNFT | 0.000148 | 42 |
| HLA-A*30:02 | 1 | 734 | 743 | 10 | TSVDCTMYI | 0.000148 | 50 |
| HLA-B*58:01 | 1 | 787 | 796 | 10 | QIYKTPPIK | 0.000148 | 31 |
| HLA-A*24:02 | 1 | 790 | 798 | 9 | KTPPIKDFG | 0.000148 | 18 |
| HLA-B*44:02 | 1 | 808 | 816 | 9 | DPSKPSKRS | 0.000148 | 19 |
| HLA-A*02:01 | 1 | 813 | 821 | 9 | SKRSFIEDL | 0.000148 | 30 |
| HLA-A*01:01 | 1 | 836 | 845 | 10 | QYGDCLGDIA | 0.000148 | 41 |
| HLA-B*44:03 | 1 | 871 | 880 | 10 | AQYTSALLAG | 0.000148 | 18 |
| HLA-A*03:01 | 1 | 908 | 916 | 9 | GIGVTQNVL | 0.000148 | 25 |
| HLA-A*30:02 | 1 | 981 | 990 | 10 | LSRLDKVEAE | 0.000148 | 50 |
| HLA-A*26:01 | 1 | 1023 | 1031 | 9 | NLAATKMSE | 0.000148 | 25 |
| HLA-A*33:01 | 1 | 1034 | 1042 | 9 | LGQSKRVDF | 0.000148 | 31 |
| HLA-A*26:01 | 1 | 1048 | 1057 | 10 | HLMSFPQSAP | 0.000148 | 25 |
| HLA-B*44:03 | 1 | 1072 | 1080 | 9 | EKNFTTAPA | 0.000148 | 18 |
| HLA-A*33:01 | 1 | 1097 | 1105 | 9 | SNGTHWFVT | 0.000148 | 31 |
| HLA-A*68:01 | 1 | 1133 | 1141 | 9 | VNNTVYDPL | 0.000148 | 28 |
| HLA-B*07:02 | 1 | 1156 | 1164 | 9 | FKNHTSPDV | 0.000148 | 27 |
| HLA-B*44:02 | 1 | 1163 | 1172 | 10 | DVDLGDISGI | 0.000148 | 19 |
| HLA-B*51:01 | 1 | 1172 | 1180 | 9 | INASVVNIQ | 0.000148 | 37 |
| HLA-B*57:01 | 1 | 1180 | 1189 | 10 | QKEIDRLNE | 0.000148 | 42 |
| HLA-A*02:01 | 1 | 1201 | 1209 | 9 | QELGKYEYQ | 0.000148 | 30 |
| HLA-A*01:01 | 1 | 1209 | 1218 | 10 | YIKWPWYIW | 0.000148 | 41 |
| HLA-A*23:01 | 1 | 1214 | 1223 | 10 | WYIWLGFIA | 0.000148 | 18 |
| HLA-A*03:01 | 1 | 1215 | 1224 | 10 | YIWLGFIAGL | 0.000148 | 25 |
| HLA-A*68:01 | 1 | 1230 | 1238 | 9 | VTIMLCCMT | 0.000148 | 28 |
| HLA-B*15:01 | 1 | 9 | 18 | 10 | PLVSSQCVNL | 0.000147 | 30 |
| HLA-A*03:01 | 1 | 57 | 65 | 9 | PFFSNVTWF | 0.000147 | 25 |
| HLA-B*07:02 | 1 | 67 | 76 | 10 | AIHVS GTNGT | 0.000147 | 27 |
| HLA-A*68:01 | 1 | 71 | 79 | 9 | SGTNGTKRF | 0.000147 | 28 |
| HLA-B*35:01 | 1 | 94 | 102 | 9 | STEKSNIIIR | 0.000147 | 21 |
| HLA-A*03:01 | 1 | 116 | 124 | 9 | SLLIVNNAT | 0.000147 | 25 |
| HLA-B*08:01 | 1 | 159 | 167 | 9 | VYSSANNCT | 0.000147 | 42 |
| HLA-A*68:01 | 1 | 183 | 192 | 10 | QGNFKNLREF | 0.000147 | 28 |
| HLA-A*23:01 | 1 | 214 | 222 | 9 | RDLPQGFSA | 0.000147 | 18 |
| HLA-B*15:01 | 1 | 243 | 252 | 10 | ALHRSYLTPG | 0.000147 | 30 |
| HLA-A*02:01 | 1 | 252 | 260 | 9 | GDSSSGWTA | 0.000147 | 30 |
| HLA-B*07:02 | 1 | 291 | 300 | 10 | CALDPLSETK | 0.000147 | 27 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*33:01 | 1 | 316 | 325 | 10 | SNFRVQPTES 0.000147 | 31 |
| HLA-A*30:01 | 1 | 335 | 344 | 10 | LCPFGEVFNFA 0.000147 | 53 |
| HLA-A*68:01 | 1 | 338 | 347 | 10 | FGEVFNATRF 0.000147 | 28 |
| HLA-B*44:03 | 1 | 354 | 362 | 9 | NRKRISNCV 0.000147 | 18 |
| HLA-B*07:02 | 1 | 365 | 373 | 9 | YSVLYNSAS 0.000147 | 27 |
| HLA-A*33:01 | 1 | 367 | 375 | 9 | VLYNSASFSS 0.000147 | 31 |
| HLA-A*26:01 | 1 | 374 | 382 | 9 | FSTFKCYGV 0.000147 | 25 |
| HLA-A*30:01 | 1 | 385 | 393 | 9 | TKLNDLCFT 0.000147 | 53 |
| HLA-A*23:01 | 1 | 393 | 402 | 10 | TNVYADSFVI 0.000147 | 18 |
| HLA-B*53:01 | 1 | 408 | 416 | 9 | RQIAPGQTG 0.000147 | 20 |
| HLA-A*03:01 | 1 | 455 | 463 | 9 | LFRKSNLKP 0.000147 | 25 |
| HLA-A*68:02 | 1 | 464 | 473 | 10 | FERDISTEIIY 0.000147 | 32 |
| HLA-A*01:01 | 1 | 473 | 481 | 9 | YQAGSTPCN 0.000147 | 41 |
| HLA-A*30:02 | 1 | 475 | 484 | 10 | AGSTPCNGVE 0.000147 | 50 |
| HLA-A*03:01 | 1 | 522 | 531 | 10 | ATVCGPKKST 0.000147 | 25 |
| HLA-A*30:02 | 1 | 539 | 548 | 10 | VNFNFNGLTG 0.000147 | 50 |
| HLA-B*51:01 | 1 | 595 | 604 | 10 | VSVITPGTNT 0.000147 | 37 |
| HLA-B*15:01 | 1 | 611 | 620 | 10 | LYQDVNCTEV 0.000147 | 30 |
| HLA-B*07:02 | 1 | 617 | 625 | 9 | CTEVPVAIH 0.000147 | 27 |
| HLA-B*51:01 | 1 | 655 | 664 | 10 | HVNNSYECDI 0.000147 | 37 |
| HLA-A*01:01 | 1 | 656 | 664 | 9 | VNNSYECDI 0.000147 | 41 |
| HLA-A*26:01 | 1 | 690 | 698 | 9 | QSIIAYTMS 0.000147 | 25 |
| HLA-A*68:01 | 1 | 707 | 715 | 9 | YSNNSIAIP 0.000147 | 28 |
| HLA-B*40:01 | 1 | 722 | 731 | 10 | VTTEILPVSM 0.000147 | 17 |
| HLA-A*01:01 | 1 | 738 | 747 | 10 | CTMYICGDST 0.000147 | 41 |
| HLA-A*30:01 | 1 | 741 | 749 | 9 | YICGDSTEC 0.000147 | 53 |
| HLA-A*68:01 | 1 | 755 | 763 | 9 | QYGSFCTQL 0.000147 | 28 |
| HLA-B*40:01 | 1 | 784 | 792 | 9 | QVKQIYKTP 0.000147 | 17 |
| HLA-A*33:01 | 1 | 793 | 802 | 10 | PIKDFGGFNF 0.000147 | 31 |
| HLA-B*07:02 | 1 | 803 | 812 | 10 | SQILPDPSKP 0.000147 | 27 |
| HLA-B*53:01 | 1 | 815 | 824 | 10 | RSFIEDLLFN 0.000147 | 20 |
| HLA-A*23:01 | 1 | 827 | 835 | 9 | TLADAGFIK 0.000147 | 18 |
| HLA-A*24:02 | 1 | 854 | 863 | 10 | KFNGLTVLPP 0.000147 | 18 |
| HLA-A*32:01 | 1 | 858 | 867 | 10 | LTVLPPLTD 0.000147 | 23 |
| HLA-B*44:02 | 1 | 868 | 877 | 10 | EMIAQYTSAL 0.000147 | 19 |
| HLA-B*58:01 | 1 | 872 | 881 | 10 | QYTSALLAGT 0.000147 | 32 |
| HLA-A*31:01 | 1 | 887 | 896 | 10 | TFGAGAALQI 0.000147 | 31 |
| HLA-A*31:01 | 1 | 929 | 937 | 9 | SAIGKIQDS 0.000147 | 31 |
| HLA-A*68:01 | 1 | 933 | 942 | 10 | KIQDLSLSTA 0.000147 | 28 |
| HLA-A*26:01 | 1 | 942 | 951 | 10 | ASALGKLQDV 0.000147 | 25 |
| HLA-B*40:01 | 1 | 956 | 965 | 10 | AQALNTLVKQ 0.000147 | 17 |
| HLA-B*57:01 | 1 | 970 | 978 | 9 | FGAISSVLN 0.000147 | 42 |
| HLA-A*30:02 | 1 | 971 | 979 | 9 | GAISSVLND 0.000147 | 50 |
| HLA-B*15:01 | 1 | 984 | 993 | 10 | LDKVEAEVQI 0.000147 | 30 |
| HLA-A*30:01 | 1 | 985 | 993 | 9 | DKVEAEVQI 0.000147 | 53 |
| HLA-B*35:01 | 1 | 1010 | 1018 | 9 | QLLIRAAEI 0.000147 | 21 |
| HLA-A*33:01 | 1 | 1013 | 1022 | 10 | IRAAEIRASA 0.000147 | 31 |
| HLA-A*68:02 | 1 | 1018 | 1027 | 10 | IRASANLAAT 0.000147 | 32 |
| HLA-B*40:01 | 1 | 1042 | 1050 | 9 | FCGKGYHLM 0.000147 | 17 |
| HLA-B*58:01 | 1 | 1047 | 1056 | 10 | YHLMSFPQSA 0.000147 | 32 |
| HLA-A*68:01 | 1 | 1083 | 1092 | 10 | HDGKAHFPRE 0.000147 | 28 |
| HLA-A*02:06 | 1 | 1098 | 1106 | 9 | NGTHWFVTQ 0.000147 | 39 |
| HLA-B*51:01 | 1 | 1157 | 1166 | 10 | KNHTSPDVDL 0.000147 | 37 |
| HLA-A*30:01 | 1 | 1165 | 1174 | 10 | DLGDISGINA 0.000147 | 53 |
| HLA-B*07:02 | 1 | 1177 | 1186 | 10 | VNIQKEIDRL 0.000147 | 27 |
| HLA-B*08:01 | 1 | 1179 | 1187 | 9 | IQKEIDRLN 0.000147 | 42 |
| HLA-A*30:02 | 1 | 1225 | 1234 | 10 | IAIVMVTIML 0.000147 | 50 |
| HLA-B*57:01 | 1 | 1228 | 1237 | 10 | VMVTIMLCCM 0.000147 | 42 |
| HLA-A*30:02 | 1 | 1241 | 1249 | 9 | CSCCLKGCCS 0.000147 | 50 |
| HLA-A*30:01 | 1 | 7 | 16 | 10 | LLPLVSSQCV 0.000146 | 53 |
| HLA-A*30:01 | 1 | 17 | 26 | 10 | NLTTRTQLPP 0.000146 | 53 |
| HLA-A*32:01 | 1 | 42 | 51 | 10 | VFRSSVLHST 0.000146 | 23 |
| HLA-A*68:02 | 1 | 71 | 79 | 9 | SGTNGTKRF 0.000146 | 32 |
| HLA-A*68:02 | 1 | 106 | 114 | 9 | FGTTLDSKT 0.000146 | 32 |
| HLA-A*30:02 | 1 | 117 | 126 | 10 | LLIVNNATNV 0.000146 | 50 |
| HLA-B*40:01 | 1 | 178 | 186 | 9 | DLEGKQGNF 0.000146 | 17 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*51:01 | 1 | 184 | 193 | 10 | GNFKNLREFV 0.000146 | 37 |
| HLA-B*44:02 | 1 | 219 | 227 | 9 | GFSALEPLV 0.000146 | 19 |
| HLA-A*02:06 | 1 | 226 | 234 | 9 | LVDLPIGIN 0.000146 | 39 |
| HLA-A*30:01 | 1 | 245 | 253 | 9 | HRSYLTPGD 0.000146 | 53 |
| HLA-A*03:01 | 1 | 247 | 255 | 9 | SYLTPGDSS 0.000146 | 25 |
| HLA-A*68:01 | 1 | 256 | 264 | 9 | SGWTAGAAA 0.000146 | 28 |
| HLA-B*08:01 | 1 | 271 | 280 | 10 | QPRTFLLKYN 0.000146 | 42 |
| HLA-A*11:01 | 1 | 328 | 336 | 9 | RFPNITNLC 0.000146 | 19 |
| HLA-A*02:03 | 1 | 345 | 353 | 9 | TRFASVYAW 0.000146 | 32 |
| HLA-A*02:03 | 1 | 357 | 366 | 10 | RISNCVADYS 0.000146 | 32 |
| HLA-A*33:01 | 1 | 378 | 387 | 10 | KCYGVSPTKL 0.000146 | 31 |
| HLA-A*31:01 | 1 | 403 | 412 | 10 | RGDEVROIAP 0.000146 | 31 |
| HLA-A*30:02 | 1 | 423 | 431 | 9 | YKLPDDFTG 0.000146 | 50 |
| HLA-B*40:01 | 1 | 423 | 431 | 9 | YKLPDDFTG 0.000146 | 17 |
| HLA-B*58:01 | 1 | 425 | 433 | 9 | LPDDFTGCV 0.000146 | 32 |
| HLA-A*02:03 | 1 | 444 | 453 | 10 | KVGGNYNYLY 0.000146 | 32 |
| HLA-A*68:02 | 1 | 450 | 458 | 9 | NYLYRLFRLK 0.000146 | 32 |
| HLA-B*51:01 | 1 | 454 | 462 | 9 | RLFRKSNLK 0.000146 | 37 |
| HLA-A*02:06 | 1 | 463 | 472 | 10 | PFERDISTEI 0.000146 | 39 |
| HLA-B*08:01 | 1 | 468 | 476 | 9 | ISTEIQAG 0.000146 | 42 |
| HLA-A*01:01 | 1 | 490 | 499 | 10 | FPLQSYGFQP 0.000146 | 41 |
| HLA-B*07:02 | 1 | 502 | 510 | 9 | GVGYPYRV 0.000146 | 27 |
| HLA-A*68:01 | 1 | 508 | 516 | 9 | YRVVLSFE 0.000146 | 28 |
| HLA-A*68:02 | 1 | 550 | 559 | 10 | GVLTESNKKF 0.000146 | 32 |
| HLA-A*32:01 | 1 | 606 | 615 | 10 | NQVAVLYQDV 0.000146 | 23 |
| HLA-B*44:02 | 1 | 643 | 651 | 9 | FQTRAGCLI 0.000146 | 19 |
| HLA-A*32:01 | 1 | 644 | 653 | 10 | QTRAGCLIGA 0.000146 | 23 |
| HLA-A*33:01 | 1 | 682 | 690 | 9 | RRARSVASQ 0.000146 | 31 |
| HLA-A*01:01 | 1 | 689 | 698 | 10 | SQSIIAYTMS 0.000146 | 41 |
| HLA-A*01:01 | 1 | 692 | 701 | 10 | IIAYTMSLGA 0.000146 | 41 |
| HLA-A*11:01 | 1 | 705 | 713 | 9 | VAYSNNISIA 0.000146 | 19 |
| HLA-A*30:01 | 1 | 727 | 735 | 9 | LPVSMTKTS 0.000146 | 53 |
| HLA-A*24:02 | 1 | 787 | 795 | 9 | QIYKTPPIK 0.000146 | 18 |
| HLA-A*02:01 | 1 | 795 | 803 | 9 | KDFGGFNFS 0.000146 | 30 |
| HLA-A*03:01 | 1 | 804 | 813 | 10 | QILPDPSPKPS 0.000146 | 25 |
| HLA-B*53:01 | 1 | 827 | 835 | 9 | TLADAGFIK 0.000146 | 20 |
| HLA-B*53:01 | 1 | 844 | 852 | 9 | IAARDLICA 0.000146 | 20 |
| HLA-A*02:01 | 1 | 875 | 883 | 9 | SALLAGTIT 0.000146 | 30 |
| HLA-A*02:01 | 1 | 878 | 886 | 9 | LAGTITSGW 0.000146 | 30 |
| HLA-A*26:01 | 1 | 887 | 896 | 10 | TFGAGAALQI 0.000146 | 25 |
| HLA-A*02:06 | 1 | 889 | 897 | 9 | GAGAALQIP 0.000146 | 39 |
| HLA-A*24:02 | 1 | 895 | 904 | 10 | QIPFAMQMAY 0.000146 | 18 |
| HLA-B*57:01 | 1 | 900 | 908 | 9 | MQMAYRFNG 0.000146 | 42 |
| HLA-A*32:01 | 1 | 912 | 921 | 10 | TQNVLYENQK 0.000146 | 23 |
| HLA-B*58:01 | 1 | 913 | 921 | 9 | QNVLYENQK 0.000146 | 32 |
| HLA-A*01:01 | 1 | 918 | 926 | 9 | ENQKLIANQ 0.000146 | 41 |
| HLA-A*30:02 | 1 | 959 | 967 | 9 | LNTLVKQLS 0.000146 | 50 |
| HLA-A*30:01 | 1 | 986 | 994 | 9 | KVEAEVQID 0.000146 | 53 |
| HLA-A*31:01 | 1 | 1012 | 1020 | 9 | LIRAAEIRA 0.000146 | 31 |
| HLA-B*08:01 | 1 | 1014 | 1023 | 10 | RAAEIRASAN 0.000146 | 42 |
| HLA-A*02:01 | 1 | 1086 | 1095 | 10 | KAHFPREGVF 0.000146 | 30 |
| HLA-A*32:01 | 1 | 1099 | 1108 | 10 | GTHWFVTQRN 0.000146 | 23 |
| HLA-B*58:01 | 1 | 1103 | 1111 | 9 | FVTQRNFYE 0.000146 | 32 |
| HLA-A*68:01 | 1 | 1104 | 1112 | 9 | VTQRNFYEP 0.000146 | 28 |
| HLA-A*31:01 | 1 | 1105 | 1114 | 10 | TQRNFYEPQI 0.000146 | 31 |
| HLA-B*08:01 | 1 | 1129 | 1138 | 10 | VIGIVNNTVY 0.000146 | 42 |
| HLA-B*07:02 | 1 | 1143 | 1152 | 10 | PELDSFKEEL 0.000146 | 27 |
| HLA-A*31:01 | 1 | 1155 | 1164 | 10 | YFKNHTSPDV 0.000146 | 31 |
| HLA-B*58:01 | 1 | 1182 | 1190 | 9 | EIDRLNEVA 0.000146 | 32 |
| HLA-B*53:01 | 1 | 1224 | 1233 | 10 | LIAIVMVTIM 0.000146 | 20 |
| HLA-A*01:01 | 1 | 1259 | 1267 | 9 | DDSEPVLKG 0.000146 | 41 |
| HLA-B*08:01 | 1 | 26 | 34 | 9 | PAYTNSFTR 0.000145 | 42 |
| HLA-A*32:01 | 1 | 38 | 47 | 10 | YDPKVFRRSSV 0.000145 | 23 |
| HLA-B*07:02 | 1 | 124 | 133 | 10 | TNVVIKVCFF 0.000145 | 27 |
| HLA-A*68:01 | 1 | 186 | 194 | 9 | FKNLREFV 0.000145 | 28 |
| HLA-B*40:01 | 1 | 207 | 216 | 10 | HTPINLVRDL 0.000145 | 17 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*33:01 | 1 | 212 | 221 | 10 | LVRDLPQGF 0.000145 | 31 |
| HLA-A*24:02 | 1 | 277 | 286 | 10 | LKYNGTIT 0.000145 | 18 |
| HLA-B*40:01 | 1 | 292 | 301 | 10 | ALDPLSEK 0.000145 | 17 |
| HLA-A*68:02 | 1 | 310 | 319 | 10 | KGITYQTSNFR 0.000145 | 32 |
| HLA-B*44:02 | 1 | 312 | 320 | 9 | IYQTSNFRV 0.000145 | 19 |
| HLA-A*31:01 | 1 | 343 | 352 | 10 | NATRFASVYA 0.000145 | 31 |
| HLA-B*08:01 | 1 | 373 | 381 | 9 | SFSTFKCYG 0.000145 | 42 |
| HLA-A*68:01 | 1 | 442 | 450 | 9 | DSKVGGNYN 0.000145 | 28 |
| HLA-B*53:01 | 1 | 494 | 503 | 10 | SYGFQPTNGV 0.000145 | 20 |
| HLA-B*08:01 | 1 | 519 | 527 | 9 | HAPATVCGP 0.000145 | 42 |
| HLA-A*31:01 | 1 | 522 | 531 | 10 | ATVCGPKKST 0.000145 | 31 |
| HLA-A*01:01 | 1 | 548 | 556 | 9 | GTGVLTESN 0.000145 | 42 |
| HLA-B*15:01 | 1 | 559 | 567 | 9 | FLPFQQFGR 0.000145 | 30 |
| HLA-A*01:01 | 1 | 589 | 598 | 10 | PCSFGGVSVI 0.000145 | 42 |
| HLA-B*53:01 | 1 | 596 | 604 | 9 | SVITPGTNT 0.000145 | 20 |
| HLA-A*01:01 | 1 | 623 | 632 | 10 | AIHADQLTPT 0.000145 | 42 |
| HLA-A*30:01 | 1 | 631 | 640 | 10 | PTWRVYSTGS 0.000145 | 53 |
| HLA-A*03:01 | 1 | 660 | 668 | 9 | YECDIPIGA 0.000145 | 25 |
| HLA-B*58:01 | 1 | 714 | 723 | 10 | IPTNFTISVT 0.000145 | 32 |
| HLA-B*35:01 | 1 | 717 | 725 | 9 | NFTISVTTE 0.000145 | 21 |
| HLA-B*15:01 | 1 | 731 | 739 | 9 | MTKTSVDCT 0.000145 | 30 |
| HLA-A*03:01 | 1 | 776 | 784 | 9 | KNTQEVFAQ 0.000145 | 25 |
| HLA-A*03:01 | 1 | 778 | 787 | 10 | TQEVFAQVKQ 0.000145 | 25 |
| HLA-B*40:01 | 1 | 786 | 795 | 10 | KQIYKTPPIK 0.000145 | 17 |
| HLA-B*44:03 | 1 | 795 | 803 | 9 | KDFGGFNFS 0.000145 | 19 |
| HLA-A*32:01 | 1 | 797 | 806 | 10 | FGGFNFSQIL 0.000145 | 23 |
| HLA-A*68:02 | 1 | 860 | 868 | 9 | VLPLLTD 0.000145 | 32 |
| HLA-A*30:01 | 1 | 867 | 876 | 10 | DEMIAQY TSA 0.000145 | 53 |
| HLA-A*31:01 | 1 | 886 | 895 | 10 | WTFGAGAALQ 0.000145 | 31 |
| HLA-B*07:02 | 1 | 904 | 912 | 9 | YRFNGIGVT 0.000145 | 27 |
| HLA-B*15:01 | 1 | 940 | 949 | 10 | STASALGKLQ 0.000145 | 30 |
| HLA-A*23:01 | 1 | 948 | 956 | 9 | LQDVVNQNA 0.000145 | 18 |
| HLA-A*26:01 | 1 | 978 | 987 | 10 | NDILSRLDKV 0.000145 | 25 |
| HLA-B*58:01 | 1 | 985 | 993 | 9 | DKVEAEVQI 0.000145 | 32 |
| HLA-A*24:02 | 1 | 1009 | 1018 | 10 | TQQLIRAAEI 0.000145 | 18 |
| HLA-A*68:01 | 1 | 1024 | 1032 | 9 | LAATKMSEC 0.000145 | 28 |
| HLA-A*24:02 | 1 | 1026 | 1034 | 9 | ATKMSECVL 0.000145 | 18 |
| HLA-B*57:01 | 1 | 1035 | 1044 | 10 | GQSKRVDFCG 0.000145 | 42 |
| HLA-A*23:01 | 1 | 1050 | 1059 | 10 | MSFPQSAPHG 0.000145 | 18 |
| HLA-A*02:03 | 1 | 1053 | 1062 | 10 | PQSAPHGVVF 0.000145 | 32 |
| HLA-B*58:01 | 1 | 1082 | 1091 | 10 | CHDGKAHFPR 0.000145 | 32 |
| HLA-B*44:02 | 1 | 1093 | 1101 | 9 | GVFVSNPTH 0.000145 | 19 |
| HLA-A*68:02 | 1 | 1097 | 1105 | 9 | SNGTHWFVT 0.000145 | 32 |
| HLA-A*33:01 | 1 | 1155 | 1163 | 9 | YFKNHTSPD 0.000145 | 31 |
| HLA-B*51:01 | 1 | 1159 | 1167 | 9 | HTSPDVDLG 0.000145 | 37 |
| HLA-B*15:01 | 1 | 1188 | 1196 | 9 | EVAKNLNES 0.000145 | 30 |
| HLA-B*08:01 | 1 | 1216 | 1225 | 10 | IWLGFIAGLI 0.000145 | 42 |
| HLA-B*53:01 | 1 | 1219 | 1227 | 9 | GFIAGLIAI 0.000145 | 20 |
| HLA-B*58:01 | 1 | 1237 | 1246 | 10 | MTSCCSCLKG 0.000145 | 32 |
| HLA-B*07:02 | 1 | 1257 | 1266 | 10 | DEDDSEPVLK 0.000145 | 27 |
| HLA-A*32:01 | 1 | 7 | 15 | 9 | LLPLVSSQC 0.000144 | 23 |
| HLA-B*07:02 | 1 | 12 | 20 | 9 | SSQCVNLT 0.000144 | 27 |
| HLA-A*68:02 | 1 | 13 | 22 | 10 | SQCVNLTTRT 0.000144 | 32 |
| HLA-B*57:01 | 1 | 16 | 25 | 10 | VNLTTRTQLP 0.000144 | 42 |
| HLA-B*40:01 | 1 | 37 | 45 | 9 | YYPDKVFRS 0.000144 | 17 |
| HLA-A*30:02 | 1 | 65 | 73 | 9 | FHAIHVSGT 0.000144 | 51 |
| HLA-B*51:01 | 1 | 80 | 88 | 9 | DNPVLPFND 0.000144 | 38 |
| HLA-A*30:01 | 1 | 92 | 101 | 10 | FASTEKSNI 0.000144 | 53 |
| HLA-B*07:02 | 1 | 126 | 135 | 10 | VVIKVFQF 0.000144 | 27 |
| HLA-A*30:01 | 1 | 133 | 142 | 10 | FQFCNDPFLG 0.000144 | 53 |
| HLA-B*15:01 | 1 | 182 | 191 | 10 | KQGNFKNLRE 0.000144 | 30 |
| HLA-B*51:01 | 1 | 200 | 208 | 9 | YFKIYSKHT 0.000144 | 38 |
| HLA-A*02:03 | 1 | 210 | 219 | 10 | INLVRDLPQG 0.000144 | 33 |
| HLA-A*02:03 | 1 | 252 | 260 | 9 | GDSSSGWTA 0.000144 | 33 |
| HLA-A*11:01 | 1 | 254 | 263 | 10 | SSSGWTAGAA 0.000144 | 19 |
| HLA-B*15:01 | 1 | 255 | 263 | 9 | SSSGWTAGAA 0.000144 | 30 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|----|
| HLA-A*02:06 | 1 | 271 | 279 | 9 | QPRTFLLKY | 0.000144 | 39 |
| HLA-B*57:01 | 1 | 287 | 296 | 10 | DAVDCALDPL | 0.000144 | 42 |
| HLA-A*02:06 | 1 | 301 | 310 | 10 | CTLKSFTVEK | 0.000144 | 39 |
| HLA-B*35:01 | 1 | 308 | 316 | 9 | VEKGIYQTS | 0.000144 | 21 |
| HLA-B*07:02 | 1 | 370 | 378 | 9 | NSASFSTFK | 0.000144 | 27 |
| HLA-B*44:02 | 1 | 403 | 411 | 9 | RGDEVQRQA | 0.000144 | 19 |
| HLA-B*53:01 | 1 | 418 | 426 | 9 | IADYNYKLP | 0.000144 | 20 |
| HLA-B*51:01 | 1 | 422 | 430 | 9 | NYKLPDDFT | 0.000144 | 38 |
| HLA-A*01:01 | 1 | 434 | 443 | 10 | IAWNSNNLDS | 0.000144 | 42 |
| HLA-A*23:01 | 1 | 435 | 444 | 10 | AWNSNNLDSK | 0.000144 | 18 |
| HLA-B*51:01 | 1 | 458 | 466 | 9 | KSNLKPFFER | 0.000144 | 38 |
| HLA-A*24:02 | 1 | 481 | 489 | 9 | NGVEGFNCY | 0.000144 | 18 |
| HLA-B*51:01 | 1 | 484 | 493 | 10 | EGFNCYFPLQ | 0.000144 | 38 |
| HLA-A*68:01 | 1 | 486 | 494 | 9 | FNCYFPLQS | 0.000144 | 28 |
| HLA-B*35:01 | 1 | 504 | 512 | 9 | GYQPYRVVV | 0.000144 | 21 |
| HLA-B*08:01 | 1 | 512 | 521 | 10 | VLSFELLHAP | 0.000144 | 42 |
| HLA-A*26:01 | 1 | 525 | 533 | 9 | CGPKKSTNL | 0.000144 | 25 |
| HLA-A*01:01 | 1 | 529 | 538 | 10 | KSTNLVKKNC | 0.000144 | 42 |
| HLA-B*51:01 | 1 | 598 | 606 | 9 | ITPGTNTSN | 0.000144 | 38 |
| HLA-A*26:01 | 1 | 606 | 615 | 10 | NQVAVLYQDV | 0.000144 | 25 |
| HLA-A*23:01 | 1 | 645 | 653 | 9 | TRAGCLIGA | 0.000144 | 18 |
| HLA-B*08:01 | 1 | 648 | 656 | 9 | GCLIGAHEV | 0.000144 | 42 |
| HLA-A*02:03 | 1 | 657 | 666 | 10 | NNSYECDIPI | 0.000144 | 33 |
| HLA-B*44:03 | 1 | 675 | 683 | 9 | QTQTNSPRR | 0.000144 | 19 |
| HLA-A*33:01 | 1 | 690 | 698 | 9 | QSIAYTMS | 0.000144 | 31 |
| HLA-A*23:01 | 1 | 694 | 702 | 9 | AYTMSLGAE | 0.000144 | 18 |
| HLA-A*26:01 | 1 | 735 | 743 | 9 | SVDCTMYIC | 0.000144 | 25 |
| HLA-B*15:01 | 1 | 748 | 757 | 10 | ECSNLLLQYG | 0.000144 | 30 |
| HLA-B*40:01 | 1 | 751 | 759 | 9 | NLLLQYGSF | 0.000144 | 17 |
| HLA-A*02:01 | 1 | 765 | 773 | 9 | RALTGIAVE | 0.000144 | 30 |
| HLA-A*03:01 | 1 | 808 | 817 | 10 | DPSKPSKRSF | 0.000144 | 25 |
| HLA-A*68:02 | 1 | 808 | 816 | 9 | DPSKPSKRS | 0.000144 | 32 |
| HLA-B*07:02 | 1 | 858 | 866 | 9 | LTVLPPLLT | 0.000144 | 27 |
| HLA-B*07:02 | 1 | 859 | 867 | 9 | TVLPPLLTD | 0.000144 | 27 |
| HLA-A*01:01 | 1 | 958 | 967 | 10 | ALNTLVKQLS | 0.000144 | 42 |
| HLA-A*68:01 | 1 | 988 | 997 | 10 | EAEVQIDRLI | 0.000144 | 28 |
| HLA-A*01:01 | 1 | 1001 | 1010 | 10 | LQSLQTYVTQ | 0.000144 | 42 |
| HLA-A*32:01 | 1 | 1010 | 1019 | 10 | QQLIRAAEIR | 0.000144 | 23 |
| HLA-A*26:01 | 1 | 1019 | 1027 | 9 | RASANLAAT | 0.000144 | 25 |
| HLA-A*23:01 | 1 | 1026 | 1034 | 9 | ATKMSECVL | 0.000144 | 18 |
| HLA-B*40:01 | 1 | 1038 | 1047 | 10 | KRVDFCGKGY | 0.000144 | 17 |
| HLA-B*08:01 | 1 | 1099 | 1107 | 9 | GTHWFVTQR | 0.000144 | 42 |
| HLA-A*02:03 | 1 | 1114 | 1123 | 10 | IITTDNTFVS | 0.000144 | 33 |
| HLA-A*02:01 | 1 | 1129 | 1138 | 10 | VIGIVNNTVY | 0.000144 | 30 |
| HLA-A*68:02 | 1 | 1157 | 1166 | 10 | KNHTSPDVDL | 0.000144 | 32 |
| HLA-B*07:02 | 1 | 1218 | 1226 | 9 | LGFIAGLIA | 0.000144 | 27 |
| HLA-B*08:01 | 1 | 1223 | 1232 | 10 | GLIAIVMVTI | 0.000144 | 42 |
| HLA-B*07:02 | 1 | 1225 | 1234 | 10 | IAIVMVTIML | 0.000144 | 27 |
| HLA-B*40:01 | 1 | 29 | 37 | 9 | TNSFTRGVY | 0.000143 | 17 |
| HLA-A*02:01 | 1 | 53 | 61 | 9 | DLFLPFFSN | 0.000143 | 30 |
| HLA-A*32:01 | 1 | 70 | 78 | 9 | VSGTNGTKR | 0.000143 | 23 |
| HLA-B*15:01 | 1 | 170 | 178 | 9 | YVSQPFLMD | 0.000143 | 30 |
| HLA-B*15:01 | 1 | 198 | 207 | 10 | DGYFKIYSKH | 0.000143 | 30 |
| HLA-A*01:01 | 1 | 201 | 210 | 10 | FKIYSKHTPI | 0.000143 | 42 |
| HLA-B*53:01 | 1 | 214 | 222 | 9 | RDLPQGFSA | 0.000143 | 20 |
| HLA-B*07:02 | 1 | 219 | 227 | 9 | GFSALEPLV | 0.000143 | 27 |
| HLA-B*44:02 | 1 | 222 | 230 | 9 | ALEPLVDLP | 0.000143 | 19 |
| HLA-B*58:01 | 1 | 222 | 231 | 10 | ALEPLVDLPI | 0.000143 | 32 |
| HLA-A*11:01 | 1 | 226 | 235 | 10 | LVDLPIGINI | 0.000143 | 19 |
| HLA-B*58:01 | 1 | 231 | 240 | 10 | IGINITRFQT | 0.000143 | 32 |
| HLA-B*35:01 | 1 | 235 | 243 | 9 | ITRFQTLLA | 0.000143 | 21 |
| HLA-A*02:06 | 1 | 260 | 269 | 10 | AGAAAYYVGY | 0.000143 | 39 |
| HLA-A*02:03 | 1 | 314 | 323 | 10 | QTSNFRVQPT | 0.000143 | 33 |
| HLA-B*58:01 | 1 | 316 | 325 | 10 | SNFRVQPTES | 0.000143 | 32 |
| HLA-A*01:01 | 1 | 327 | 336 | 10 | VRFPNITNLC | 0.000143 | 42 |
| HLA-B*53:01 | 1 | 356 | 365 | 10 | KRISNCVADY | 0.000143 | 20 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*57:01 | 1 | 367 | 376 | 10 | VLYNSASFST 0.000143 | 42 |
| HLA-B*53:01 | 1 | 427 | 435 | 9 | DDFTGCVIA 0.000143 | 20 |
| HLA-A*30:01 | 1 | 434 | 442 | 9 | IAWNSNLD 0.000143 | 53 |
| HLA-A*23:01 | 1 | 446 | 455 | 10 | GGNYNYLYRL 0.000143 | 18 |
| HLA-A*03:01 | 1 | 456 | 464 | 9 | FRKSNLKP 0.000143 | 25 |
| HLA-A*30:02 | 1 | 468 | 477 | 10 | ISTEIQAGS 0.000143 | 51 |
| HLA-B*44:03 | 1 | 503 | 511 | 9 | VGYPYRVV 0.000143 | 19 |
| HLA-B*35:01 | 1 | 523 | 531 | 9 | TVCGPKKST 0.000143 | 21 |
| HLA-A*02:03 | 1 | 546 | 554 | 9 | LTGTGVLTE 0.000143 | 33 |
| HLA-B*57:01 | 1 | 547 | 555 | 9 | TGTGVLTES 0.000143 | 42 |
| HLA-A*30:02 | 1 | 571 | 579 | 9 | DTTDAVRDP 0.000143 | 51 |
| HLA-B*53:01 | 1 | 616 | 625 | 10 | NCTEVPVAIH 0.000143 | 20 |
| HLA-A*68:02 | 1 | 668 | 676 | 9 | AGICASYQT 0.000143 | 33 |
| HLA-A*31:01 | 1 | 672 | 681 | 10 | ASYQTQTN 0.000143 | 32 |
| HLA-A*32:01 | 1 | 692 | 701 | 10 | IIAYTMSLGA 0.000143 | 23 |
| HLA-A*02:06 | 1 | 693 | 702 | 10 | IAYTMSLGAE 0.000143 | 39 |
| HLA-B*57:01 | 1 | 730 | 739 | 10 | SMTKTSVDCT 0.000143 | 42 |
| HLA-A*03:01 | 1 | 794 | 802 | 9 | IKDFGGFNF 0.000143 | 25 |
| HLA-B*53:01 | 1 | 802 | 811 | 10 | FSQILPDP 0.000143 | 20 |
| HLA-B*15:01 | 1 | 820 | 829 | 10 | DLLFNKVT 0.000143 | 30 |
| HLA-B*57:01 | 1 | 832 | 841 | 10 | GFIKQYGD 0.000143 | 42 |
| HLA-A*02:06 | 1 | 841 | 850 | 10 | LGDI AARDLI 0.000143 | 39 |
| HLA-B*57:01 | 1 | 850 | 859 | 10 | ICAQKFNG 0.000143 | 42 |
| HLA-A*68:01 | 1 | 854 | 862 | 9 | KFNGLTVLP 0.000143 | 28 |
| HLA-B*07:02 | 1 | 882 | 890 | 9 | ITSGWTFGA 0.000143 | 27 |
| HLA-A*31:01 | 1 | 906 | 915 | 10 | FNGIGVTQ 0.000143 | 32 |
| HLA-B*53:01 | 1 | 925 | 933 | 9 | NQFN SAIGK 0.000143 | 20 |
| HLA-A*01:01 | 1 | 951 | 960 | 10 | VVNQNAQALN 0.000143 | 42 |
| HLA-B*53:01 | 1 | 1030 | 1038 | 9 | SECVLGQSK 0.000143 | 20 |
| HLA-A*11:01 | 1 | 1045 | 1054 | 10 | KGYHLM SFPQ 0.000143 | 19 |
| HLA-A*33:01 | 1 | 1104 | 1112 | 9 | VTQRNFYEP 0.000143 | 31 |
| HLA-A*02:06 | 1 | 1110 | 1118 | 9 | YEPQIITTD 0.000143 | 39 |
| HLA-A*68:01 | 1 | 1119 | 1127 | 9 | NTFVSGNCD 0.000143 | 28 |
| HLA-B*15:01 | 1 | 1141 | 1150 | 10 | LQPELDSFKE 0.000143 | 30 |
| HLA-A*02:03 | 1 | 1144 | 1153 | 10 | ELDSFKEELD 0.000143 | 33 |
| HLA-B*35:01 | 1 | 1154 | 1162 | 9 | KYFKNHTSP 0.000143 | 21 |
| HLA-B*44:03 | 1 | 1163 | 1172 | 10 | DVDLGD ISGI 0.000143 | 19 |
| HLA-A*02:06 | 1 | 1166 | 1175 | 10 | LGDISGINAS 0.000143 | 39 |
| HLA-B*07:02 | 1 | 1197 | 1205 | 9 | LIDLQELGK 0.000143 | 27 |
| HLA-A*31:01 | 1 | 1198 | 1206 | 9 | IDLQELGKY 0.000143 | 32 |
| HLA-B*58:01 | 1 | 7 | 15 | 9 | LLPLVSSQC 0.000142 | 32 |
| HLA-A*24:02 | 1 | 8 | 16 | 9 | LPLVSSQCV 0.000142 | 18 |
| HLA-B*40:01 | 1 | 10 | 18 | 9 | LVSSQCVNL 0.000142 | 17 |
| HLA-B*07:02 | 1 | 27 | 36 | 10 | AYTNSFTRGV 0.000142 | 28 |
| HLA-B*58:01 | 1 | 68 | 77 | 10 | IHSVGTNGTK 0.000142 | 32 |
| HLA-B*15:01 | 1 | 93 | 102 | 10 | ASTEKSNIIR 0.000142 | 30 |
| HLA-A*30:01 | 1 | 99 | 108 | 10 | NIIRGWIFGT 0.000142 | 53 |
| HLA-A*02:03 | 1 | 101 | 110 | 10 | IRGWIFGTTL 0.000142 | 33 |
| HLA-A*02:03 | 1 | 117 | 125 | 9 | LLIVNNATN 0.000142 | 33 |
| HLA-A*03:01 | 1 | 137 | 146 | 10 | NDPFLGVYYH 0.000142 | 25 |
| HLA-B*08:01 | 1 | 146 | 155 | 10 | HKNKSWMES 0.000142 | 42 |
| HLA-A*30:01 | 1 | 178 | 186 | 9 | DLEGKQGNF 0.000142 | 53 |
| HLA-B*15:01 | 1 | 180 | 189 | 10 | EGKQGNFKNL 0.000142 | 30 |
| HLA-A*02:03 | 1 | 229 | 238 | 10 | LPIGINITRF 0.000142 | 33 |
| HLA-A*02:06 | 1 | 231 | 239 | 9 | IGINITRFQ 0.000142 | 40 |
| HLA-A*26:01 | 1 | 237 | 246 | 10 | RFQTL LALHR 0.000142 | 26 |
| HLA-B*44:03 | 1 | 237 | 245 | 9 | RFQTL LALH 0.000142 | 19 |
| HLA-A*01:01 | 1 | 293 | 301 | 9 | LDPLSETKC 0.000142 | 42 |
| HLA-A*03:01 | 1 | 297 | 306 | 10 | SETKCT LKSF 0.000142 | 25 |
| HLA-B*44:02 | 1 | 320 | 328 | 9 | VQPTESIVR 0.000142 | 20 |
| HLA-A*26:01 | 1 | 323 | 332 | 10 | TESIVRFPNI 0.000142 | 26 |
| HLA-A*03:01 | 1 | 336 | 344 | 9 | CPFGEVFNA 0.000142 | 25 |
| HLA-B*15:01 | 1 | 365 | 373 | 9 | YSVLYNSAS 0.000142 | 30 |
| HLA-A*02:01 | 1 | 370 | 378 | 9 | NSASFSTFK 0.000142 | 30 |
| HLA-A*26:01 | 1 | 375 | 383 | 9 | STFKCYGVS 0.000142 | 26 |
| HLA-B*08:01 | 1 | 382 | 391 | 10 | VSPTKLN DCL 0.000142 | 42 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|----|
| HLA-A*31:01 | 1 | 460 | 468 | 9 | NLKPFERDI | 0.000142 | 32 |
| HLA-A*68:01 | 1 | 469 | 477 | 9 | STEIYQAGS | 0.000142 | 28 |
| HLA-B*44:02 | 1 | 483 | 491 | 9 | VEGFNCYFP | 0.000142 | 20 |
| HLA-B*44:02 | 1 | 511 | 519 | 9 | VVLSFELLH | 0.000142 | 20 |
| HLA-B*53:01 | 1 | 517 | 525 | 9 | LLHAPATVC | 0.000142 | 20 |
| HLA-A*30:02 | 1 | 538 | 547 | 10 | CVNFNFNGLT | 0.000142 | 51 |
| HLA-A*68:02 | 1 | 546 | 554 | 9 | LTGTGVLTE | 0.000142 | 33 |
| HLA-B*44:03 | 1 | 557 | 566 | 10 | KKFLPFQQFG | 0.000142 | 19 |
| HLA-B*44:03 | 1 | 569 | 577 | 9 | IADTTDAVR | 0.000142 | 19 |
| HLA-A*11:01 | 1 | 580 | 589 | 10 | QTLEILDITP | 0.000142 | 19 |
| HLA-A*01:01 | 1 | 600 | 608 | 9 | PGTNTSNQV | 0.000142 | 42 |
| HLA-A*02:01 | 1 | 615 | 623 | 9 | VNCTEVPVA | 0.000142 | 30 |
| HLA-A*01:01 | 1 | 669 | 677 | 9 | GICASYQTQ | 0.000142 | 42 |
| HLA-B*35:01 | 1 | 671 | 679 | 9 | CASYQTQTN | 0.000142 | 22 |
| HLA-B*53:01 | 1 | 674 | 682 | 9 | YQTQNSPR | 0.000142 | 20 |
| HLA-A*30:01 | 1 | 701 | 709 | 9 | AENSVAYSN | 0.000142 | 53 |
| HLA-A*31:01 | 1 | 713 | 721 | 9 | AIPTNFTIS | 0.000142 | 32 |
| HLA-A*11:01 | 1 | 714 | 722 | 9 | IPTNFTISV | 0.000142 | 19 |
| HLA-A*03:01 | 1 | 739 | 748 | 10 | TMYICGDSTE | 0.000142 | 25 |
| HLA-A*30:01 | 1 | 755 | 764 | 10 | QYGSFCTQLN | 0.000142 | 53 |
| HLA-B*57:01 | 1 | 756 | 764 | 9 | YGSFCTQLN | 0.000142 | 42 |
| HLA-A*02:03 | 1 | 759 | 768 | 10 | FCTQLNRALT | 0.000142 | 33 |
| HLA-A*01:01 | 1 | 765 | 774 | 10 | RALTGIAVEQ | 0.000142 | 42 |
| HLA-A*24:02 | 1 | 796 | 804 | 9 | DFGGFNFSQ | 0.000142 | 18 |
| HLA-B*35:01 | 1 | 827 | 836 | 10 | TLADAGFIKQ | 0.000142 | 22 |
| HLA-B*44:03 | 1 | 835 | 844 | 10 | KQYGDCLGDI | 0.000142 | 19 |
| HLA-A*02:06 | 1 | 838 | 847 | 10 | GDCLGDIAAR | 0.000142 | 40 |
| HLA-A*31:01 | 1 | 880 | 889 | 10 | GTITSGWTFG | 0.000142 | 32 |
| HLA-A*03:01 | 1 | 884 | 892 | 9 | SGWTFGAGA | 0.000142 | 25 |
| HLA-B*53:01 | 1 | 925 | 934 | 10 | NQFNSAIGKI | 0.000142 | 20 |
| HLA-B*08:01 | 1 | 957 | 965 | 9 | QALNTLVKQ | 0.000142 | 42 |
| HLA-A*33:01 | 1 | 979 | 988 | 10 | DILSRLDKVE | 0.000142 | 31 |
| HLA-A*68:02 | 1 | 982 | 990 | 9 | SRLDKVEAE | 0.000142 | 33 |
| HLA-A*68:01 | 1 | 989 | 997 | 9 | AEVQIDRLI | 0.000142 | 28 |
| HLA-A*30:02 | 1 | 993 | 1002 | 10 | IDRLITGRLQ | 0.000142 | 51 |
| HLA-B*07:02 | 1 | 999 | 1008 | 10 | GRLQSLQTYV | 0.000142 | 28 |
| HLA-B*44:02 | 1 | 1032 | 1040 | 9 | CVLQGSKRV | 0.000142 | 20 |
| HLA-B*35:01 | 1 | 1050 | 1059 | 10 | MSFPQSAPHG | 0.000142 | 22 |
| HLA-A*68:02 | 1 | 1051 | 1059 | 9 | SFPQSAPHG | 0.000142 | 33 |
| HLA-A*32:01 | 1 | 1064 | 1072 | 9 | HVTYVPAQE | 0.000142 | 23 |
| HLA-B*35:01 | 1 | 1098 | 1106 | 9 | NGTHWFVTQ | 0.000142 | 22 |
| HLA-B*53:01 | 1 | 1103 | 1111 | 9 | FVTQRNFYE | 0.000142 | 20 |
| HLA-A*02:03 | 1 | 1106 | 1115 | 10 | QRNFYEPQII | 0.000142 | 33 |
| HLA-B*08:01 | 1 | 1196 | 1204 | 9 | SLIDLQELG | 0.000142 | 42 |
| HLA-B*44:03 | 1 | 1196 | 1204 | 9 | SLIDLQELG | 0.000142 | 19 |
| HLA-B*08:01 | 1 | 1200 | 1208 | 9 | LQELGKYEQ | 0.000142 | 42 |
| HLA-A*33:01 | 1 | 1215 | 1223 | 9 | YIWLGFIAG | 0.000142 | 31 |
| HLA-A*30:01 | 1 | 1231 | 1240 | 10 | TIMLCCMTSC | 0.000142 | 53 |
| HLA-B*57:01 | 1 | 1242 | 1250 | 9 | SCLKGCCSC | 0.000142 | 42 |
| HLA-A*33:01 | 1 | 4 | 13 | 10 | FLVLLPLVSS | 0.000141 | 32 |
| HLA-A*68:01 | 1 | 4 | 13 | 10 | FLVLLPLVSS | 0.000141 | 28 |
| HLA-B*08:01 | 1 | 4 | 13 | 10 | FLVLLPLVSS | 0.000141 | 43 |
| HLA-B*57:01 | 1 | 9 | 18 | 10 | PLVSSQCVNL | 0.000141 | 42 |
| HLA-A*24:02 | 1 | 45 | 54 | 10 | SSVLHSTQDL | 0.000141 | 18 |
| HLA-A*26:01 | 1 | 59 | 67 | 9 | FSNVTWFHA | 0.000141 | 26 |
| HLA-B*53:01 | 1 | 89 | 97 | 9 | GVYFASTEK | 0.000141 | 21 |
| HLA-B*53:01 | 1 | 90 | 98 | 9 | VYFASTEKS | 0.000141 | 21 |
| HLA-A*02:06 | 1 | 106 | 114 | 9 | FGTTLDSKT | 0.000141 | 40 |
| HLA-B*53:01 | 1 | 111 | 120 | 10 | DSKTQSLLIV | 0.000141 | 21 |
| HLA-A*02:06 | 1 | 116 | 125 | 10 | SLLIVNNATN | 0.000141 | 40 |
| HLA-A*31:01 | 1 | 132 | 141 | 10 | EFQFCNDPFL | 0.000141 | 32 |
| HLA-A*32:01 | 1 | 138 | 146 | 9 | DPFLGVYYH | 0.000141 | 23 |
| HLA-A*33:01 | 1 | 149 | 157 | 9 | NKSWMESEF | 0.000141 | 32 |
| HLA-A*03:01 | 1 | 161 | 169 | 9 | SSANNCTFE | 0.000141 | 25 |
| HLA-B*53:01 | 1 | 170 | 178 | 9 | YVSQPFLMD | 0.000141 | 21 |
| HLA-A*03:01 | 1 | 177 | 186 | 10 | MDLEGKQGNF | 0.000141 | 25 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*02:01 | 1 | 181 | 189 | 9 | GKQGNFKNL 0.000141 | 30 |
| HLA-B*53:01 | 1 | 199 | 207 | 9 | GYFKIYSKH 0.000141 | 21 |
| HLA-A*68:01 | 1 | 203 | 212 | 10 | IYSKHTPINL 0.000141 | 28 |
| HLA-A*30:02 | 1 | 217 | 226 | 10 | PQGFSALEPL 0.000141 | 51 |
| HLA-A*33:01 | 1 | 228 | 236 | 9 | DLPIGINIT 0.000141 | 32 |
| HLA-A*31:01 | 1 | 273 | 282 | 10 | RTFLLKYNNEN 0.000141 | 32 |
| HLA-B*58:01 | 1 | 317 | 326 | 10 | NFRVQPTESI 0.000141 | 32 |
| HLA-A*11:01 | 1 | 339 | 348 | 10 | GEVFNATRFA 0.000141 | 19 |
| HLA-B*35:01 | 1 | 340 | 349 | 10 | EVFNATRFAS 0.000141 | 22 |
| HLA-A*02:06 | 1 | 357 | 366 | 10 | RISNCVADYS 0.000141 | 40 |
| HLA-B*51:01 | 1 | 363 | 371 | 9 | ADYSVLYNS 0.000141 | 38 |
| HLA-A*31:01 | 1 | 365 | 374 | 10 | YSVLYNSASF 0.000141 | 32 |
| HLA-B*40:01 | 1 | 378 | 386 | 9 | KCYGVSPTK 0.000141 | 17 |
| HLA-A*01:01 | 1 | 386 | 394 | 9 | KLNDLCFTN 0.000141 | 42 |
| HLA-A*03:01 | 1 | 395 | 404 | 10 | VYADSFVIRG 0.000141 | 25 |
| HLA-B*40:01 | 1 | 437 | 445 | 9 | NSNNLDSKV 0.000141 | 17 |
| HLA-B*53:01 | 1 | 460 | 468 | 9 | NLKPFERDI 0.000141 | 21 |
| HLA-A*68:02 | 1 | 487 | 496 | 10 | NCYFPLQSYG 0.000141 | 33 |
| HLA-A*01:01 | 1 | 555 | 564 | 10 | SNKKFLPFQQ 0.000141 | 42 |
| HLA-B*53:01 | 1 | 579 | 587 | 9 | QPTLEILDI 0.000141 | 21 |
| HLA-A*26:01 | 1 | 580 | 589 | 10 | QTLLEILDITP 0.000141 | 26 |
| HLA-B*07:02 | 1 | 614 | 622 | 9 | DVNCTEVPV 0.000141 | 28 |
| HLA-A*02:06 | 1 | 630 | 638 | 9 | TPTWRVYST 0.000141 | 40 |
| HLA-B*15:01 | 1 | 644 | 652 | 9 | QTRAGCLIG 0.000141 | 31 |
| HLA-A*01:01 | 1 | 648 | 656 | 9 | GCLIGAEHV 0.000141 | 42 |
| HLA-B*57:01 | 1 | 659 | 668 | 10 | SYECDIPIGA 0.000141 | 42 |
| HLA-A*23:01 | 1 | 686 | 695 | 10 | SVASQSIIAY 0.000141 | 19 |
| HLA-B*08:01 | 1 | 723 | 732 | 10 | TTEILPVSMT 0.000141 | 43 |
| HLA-A*02:03 | 1 | 744 | 753 | 10 | GDSTECSNLL 0.000141 | 33 |
| HLA-A*02:06 | 1 | 769 | 778 | 10 | GIAVEQDKNT 0.000141 | 40 |
| HLA-A*30:02 | 1 | 774 | 783 | 10 | QDKNTQEVFA 0.000141 | 51 |
| HLA-B*51:01 | 1 | 778 | 786 | 9 | TQEVFAQVK 0.000141 | 38 |
| HLA-B*07:02 | 1 | 786 | 795 | 10 | KQIYKTPPIK 0.000141 | 28 |
| HLA-B*44:02 | 1 | 787 | 795 | 9 | QIYKTPPIK 0.000141 | 20 |
| HLA-A*01:01 | 1 | 812 | 821 | 10 | PSKRSFIEDL 0.000141 | 42 |
| HLA-A*30:02 | 1 | 836 | 845 | 10 | QYGDCLGDIA 0.000141 | 51 |
| HLA-B*57:01 | 1 | 842 | 850 | 9 | GDIAARDLI 0.000141 | 42 |
| HLA-B*07:02 | 1 | 843 | 851 | 9 | DIAARDLIC 0.000141 | 28 |
| HLA-A*68:01 | 1 | 873 | 882 | 10 | YTSALLAGTI 0.000141 | 28 |
| HLA-B*44:02 | 1 | 874 | 882 | 9 | TSALLAGTI 0.000141 | 20 |
| HLA-A*33:01 | 1 | 883 | 892 | 10 | TSGWTFGAGA 0.000141 | 32 |
| HLA-A*02:03 | 1 | 895 | 904 | 10 | QIPFAMQMAY 0.000141 | 33 |
| HLA-A*68:02 | 1 | 904 | 912 | 9 | YRFNGIGVT 0.000141 | 33 |
| HLA-A*03:01 | 1 | 926 | 935 | 10 | QFNSAIGKIQ 0.000141 | 25 |
| HLA-B*44:02 | 1 | 947 | 956 | 10 | KLQDVVNQNA 0.000141 | 20 |
| HLA-A*68:01 | 1 | 972 | 980 | 9 | AISSVLNDI 0.000141 | 28 |
| HLA-B*51:01 | 1 | 1016 | 1025 | 10 | AEIRASANLA 0.000141 | 38 |
| HLA-B*40:01 | 1 | 1020 | 1029 | 10 | ASANLAATKM 0.000141 | 17 |
| HLA-B*44:03 | 1 | 1020 | 1029 | 10 | ASANLAATKM 0.000141 | 19 |
| HLA-A*68:02 | 1 | 1047 | 1055 | 9 | YHLMSFPQS 0.000141 | 33 |
| HLA-B*51:01 | 1 | 1110 | 1119 | 10 | YEPQIITTDN 0.000141 | 38 |
| HLA-A*11:01 | 1 | 1128 | 1137 | 10 | VVIGIVNNTV 0.000141 | 19 |
| HLA-A*24:02 | 1 | 1140 | 1149 | 10 | PLQPELDSFK 0.000141 | 18 |
| HLA-B*44:03 | 1 | 1146 | 1154 | 9 | DSFKEELDK 0.000141 | 19 |
| HLA-A*02:01 | 1 | 1158 | 1166 | 9 | NHTSPDVDL 0.000141 | 30 |
| HLA-B*15:01 | 1 | 1197 | 1205 | 9 | LIDLQELGK 0.000141 | 31 |
| HLA-A*02:06 | 1 | 1214 | 1222 | 9 | WYIWLGFIA 0.000141 | 40 |
| HLA-A*30:01 | 1 | 1228 | 1237 | 10 | VMVTIMLCCM 0.000141 | 53 |
| HLA-A*68:01 | 1 | 1257 | 1265 | 9 | DEDDSEPVL 0.000141 | 28 |
| HLA-B*15:01 | 1 | 34 | 42 | 9 | RGVYYPDKV 0.00014 | 31 |
| HLA-A*24:02 | 1 | 64 | 72 | 9 | WFHAIHVSG 0.00014 | 18 |
| HLA-A*31:01 | 1 | 124 | 133 | 10 | TNVVIKVCFF 0.00014 | 32 |
| HLA-A*68:02 | 1 | 149 | 158 | 10 | NKSWMESEFR 0.00014 | 33 |
| HLA-A*26:01 | 1 | 152 | 161 | 10 | WMESEFRVYS 0.00014 | 26 |
| HLA-B*44:03 | 1 | 163 | 171 | 9 | ANNCTFEYV 0.00014 | 19 |
| HLA-A*24:02 | 1 | 213 | 222 | 10 | VRDLPQGFSA 0.00014 | 18 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*02:01 | 1 | 313 | 321 | 9 | YQTSNFRVQ 0.00014 | 30 |
| HLA-A*02:03 | 1 | 348 | 357 | 10 | ASVYAWNRRKR 0.00014 | 33 |
| HLA-A*68:02 | 1 | 353 | 362 | 10 | WNRKRISNCV 0.00014 | 33 |
| HLA-B*44:02 | 1 | 354 | 362 | 9 | NRKRISNCV 0.00014 | 20 |
| HLA-B*44:02 | 1 | 370 | 378 | 9 | NSASFSTFK 0.00014 | 20 |
| HLA-A*33:01 | 1 | 387 | 395 | 9 | LNDLCFTNV 0.00014 | 32 |
| HLA-B*35:01 | 1 | 408 | 417 | 10 | RQIAPGQTGK 0.00014 | 22 |
| HLA-A*02:01 | 1 | 443 | 451 | 9 | SKVGGNYNY 0.00014 | 30 |
| HLA-A*68:02 | 1 | 448 | 457 | 10 | NYNLYRLFR 0.00014 | 33 |
| HLA-B*44:02 | 1 | 455 | 464 | 10 | LFRKSNLKPF 0.00014 | 20 |
| HLA-A*30:01 | 1 | 461 | 470 | 10 | LKPFERDIST 0.00014 | 54 |
| HLA-A*02:06 | 1 | 469 | 478 | 10 | STEIYQAGST 0.00014 | 40 |
| HLA-A*23:01 | 1 | 486 | 495 | 10 | FNCYFPLQSY 0.00014 | 19 |
| HLA-A*02:03 | 1 | 497 | 506 | 10 | FQPTNGVGYQ 0.00014 | 33 |
| HLA-B*58:01 | 1 | 506 | 514 | 9 | QPYRVVVL 0.00014 | 32 |
| HLA-A*30:02 | 1 | 540 | 549 | 10 | NFNFNGLTGT 0.00014 | 51 |
| HLA-A*68:01 | 1 | 545 | 554 | 10 | GLTGTGVLTE 0.00014 | 28 |
| HLA-B*53:01 | 1 | 582 | 590 | 9 | LEILDITPC 0.00014 | 21 |
| HLA-A*30:02 | 1 | 656 | 664 | 9 | VNNSYECDI 0.00014 | 51 |
| HLA-B*58:01 | 1 | 674 | 682 | 9 | YQTQTNSPR 0.00014 | 32 |
| HLA-B*35:01 | 1 | 683 | 692 | 10 | RARSVASQSI 0.00014 | 22 |
| HLA-A*24:02 | 1 | 694 | 703 | 10 | AYTMSLGAEN 0.00014 | 18 |
| HLA-A*01:01 | 1 | 701 | 709 | 9 | AENSVAYSN 0.00014 | 42 |
| HLA-B*44:02 | 1 | 719 | 727 | 9 | TISVTTEIL 0.00014 | 20 |
| HLA-B*40:01 | 1 | 761 | 769 | 9 | TQLNRALTG 0.00014 | 17 |
| HLA-A*23:01 | 1 | 776 | 785 | 10 | KNTQEVFAQV 0.00014 | 19 |
| HLA-B*35:01 | 1 | 796 | 804 | 9 | DFGGFNFSQ 0.00014 | 22 |
| HLA-A*03:01 | 1 | 799 | 807 | 9 | GFNFSQILP 0.00014 | 25 |
| HLA-A*30:01 | 1 | 800 | 809 | 10 | FNFSQILPDP 0.00014 | 54 |
| HLA-A*01:01 | 1 | 839 | 847 | 9 | DCLGDIAAR 0.00014 | 42 |
| HLA-B*58:01 | 1 | 842 | 850 | 9 | GDIAARDLI 0.00014 | 32 |
| HLA-B*08:01 | 1 | 964 | 972 | 9 | KQLSSNFGA 0.00014 | 43 |
| HLA-A*32:01 | 1 | 1030 | 1038 | 9 | SECVLGQSK 0.00014 | 23 |
| HLA-B*35:01 | 1 | 1058 | 1066 | 9 | HGVVFLHVT 0.00014 | 22 |
| HLA-B*40:01 | 1 | 1065 | 1073 | 9 | VTYVPAQEK 0.00014 | 17 |
| HLA-B*40:01 | 1 | 1072 | 1080 | 9 | EKNFTTAPA 0.00014 | 17 |
| HLA-B*51:01 | 1 | 1076 | 1084 | 9 | TTAPAICHD 0.00014 | 38 |
| HLA-B*57:01 | 1 | 1108 | 1117 | 10 | NFYEQIITT 0.00014 | 42 |
| HLA-A*03:01 | 1 | 1140 | 1148 | 9 | PLQPELDSF 0.00014 | 25 |
| HLA-A*30:01 | 1 | 1140 | 1148 | 9 | PLQPELDSF 0.00014 | 54 |
| HLA-A*01:01 | 1 | 1152 | 1160 | 9 | LDKYFKNHT 0.00014 | 42 |
| HLA-A*30:02 | 1 | 1159 | 1168 | 10 | HTSPDVLGD 0.00014 | 51 |
| HLA-B*08:01 | 1 | 1174 | 1183 | 10 | ASVVNIQKEI 0.00014 | 43 |
| HLA-B*53:01 | 1 | 1196 | 1205 | 10 | SLIDLQELGK 0.00014 | 21 |
| HLA-A*02:06 | 1 | 1199 | 1207 | 9 | DLQELGKYE 0.00014 | 40 |
| HLA-B*44:03 | 1 | 1202 | 1210 | 9 | ELGKYEQYI 0.00014 | 19 |
| HLA-A*02:06 | 1 | 15 | 23 | 9 | CVNLTRRTQ 0.000139 | 40 |
| HLA-A*68:02 | 1 | 25 | 34 | 10 | PPAYTNSFTR 0.000139 | 33 |
| HLA-A*31:01 | 1 | 82 | 91 | 10 | PVLPFNDGVY 0.000139 | 32 |
| HLA-A*30:02 | 1 | 103 | 111 | 9 | GWIFGTTL 0.000139 | 51 |
| HLA-A*68:01 | 1 | 114 | 123 | 10 | TQSLILVNN 0.000139 | 29 |
| HLA-A*03:01 | 1 | 118 | 126 | 9 | LIVNNATNV 0.000139 | 25 |
| HLA-B*57:01 | 1 | 138 | 146 | 9 | DPFLGVYYH 0.000139 | 43 |
| HLA-B*15:01 | 1 | 172 | 181 | 10 | SQPFLMDLEG 0.000139 | 31 |
| HLA-B*57:01 | 1 | 183 | 191 | 9 | QGNFKNLRE 0.000139 | 43 |
| HLA-A*68:02 | 1 | 216 | 224 | 9 | LPQGFSALE 0.000139 | 33 |
| HLA-A*01:01 | 1 | 227 | 236 | 10 | VDLPIGINIT 0.000139 | 42 |
| HLA-A*33:01 | 1 | 247 | 256 | 10 | SYLTPGDSSS 0.000139 | 32 |
| HLA-A*11:01 | 1 | 256 | 264 | 9 | SGWTAGAAA 0.000139 | 19 |
| HLA-A*02:06 | 1 | 342 | 351 | 10 | FNATRFASVY 0.000139 | 40 |
| HLA-B*53:01 | 1 | 361 | 370 | 10 | CVADYSVLVN 0.000139 | 21 |
| HLA-A*03:01 | 1 | 363 | 371 | 9 | ADYSVLVNS 0.000139 | 25 |
| HLA-B*08:01 | 1 | 369 | 378 | 10 | YNSASFSTFK 0.000139 | 43 |
| HLA-B*44:02 | 1 | 384 | 392 | 9 | PTKLNLCF 0.000139 | 20 |
| HLA-A*11:01 | 1 | 388 | 396 | 9 | NLDCFTNVY 0.000139 | 19 |
| HLA-A*68:02 | 1 | 408 | 416 | 9 | RQIAPGQTG 0.000139 | 33 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|----------|----|
| HLA-A*23:01 | 1 | 415 | 423 | 9 | TGKIADYNY | 0.000139 | 19 |
| HLA-B*08:01 | 1 | 421 | 430 | 10 | YNYKLPDDFT | 0.000139 | 43 |
| HLA-A*31:01 | 1 | 480 | 489 | 10 | CNGVEGFNCY | 0.000139 | 32 |
| HLA-A*02:01 | 1 | 495 | 504 | 10 | YGFQPTNGVG | 0.000139 | 30 |
| HLA-B*40:01 | 1 | 509 | 518 | 10 | RVVVLSEFELL | 0.000139 | 17 |
| HLA-B*35:01 | 1 | 519 | 527 | 9 | HAPATVCGP | 0.000139 | 22 |
| HLA-A*11:01 | 1 | 527 | 535 | 9 | PKKSTNLVK | 0.000139 | 19 |
| HLA-B*15:01 | 1 | 543 | 551 | 9 | FNGLTGTGV | 0.000139 | 31 |
| HLA-A*30:01 | 1 | 564 | 572 | 9 | QFGRDIADT | 0.000139 | 54 |
| HLA-A*68:01 | 1 | 587 | 595 | 9 | ITPCSFGGV | 0.000139 | 29 |
| HLA-A*33:01 | 1 | 588 | 597 | 10 | TPCSFGGVS | 0.000139 | 32 |
| HLA-B*58:01 | 1 | 610 | 618 | 9 | VLYQDVNCT | 0.000139 | 32 |
| HLA-A*02:03 | 1 | 622 | 630 | 9 | VAIHADQLT | 0.000139 | 33 |
| HLA-A*02:03 | 1 | 699 | 707 | 9 | LGAENSVAY | 0.000139 | 33 |
| HLA-A*02:03 | 1 | 709 | 718 | 10 | NNSIAIPTNF | 0.000139 | 33 |
| HLA-B*58:01 | 1 | 740 | 749 | 10 | MYICGDSTEC | 0.000139 | 32 |
| HLA-A*30:01 | 1 | 749 | 758 | 10 | CSNLLLQYGS | 0.000139 | 54 |
| HLA-A*33:01 | 1 | 759 | 767 | 9 | FCTQLNRAL | 0.000139 | 32 |
| HLA-B*07:02 | 1 | 776 | 785 | 10 | KNTQEVFAQV | 0.000139 | 28 |
| HLA-A*26:01 | 1 | 816 | 824 | 9 | SFIEDLLFN | 0.000139 | 26 |
| HLA-A*02:06 | 1 | 837 | 845 | 9 | YGDCLGDIA | 0.000139 | 40 |
| HLA-A*02:06 | 1 | 855 | 863 | 9 | FNGLTVLPP | 0.000139 | 40 |
| HLA-A*01:01 | 1 | 867 | 876 | 10 | DEMIAQY TSA | 0.000139 | 42 |
| HLA-A*33:01 | 1 | 911 | 919 | 9 | VTQNVLYEN | 0.000139 | 32 |
| HLA-A*32:01 | 1 | 960 | 968 | 9 | NLTVKQLSS | 0.000139 | 23 |
| HLA-B*44:02 | 1 | 1003 | 1011 | 9 | SLQTYVTQQ | 0.000139 | 20 |
| HLA-A*01:01 | 1 | 1018 | 1026 | 9 | IRASANLAA | 0.000139 | 42 |
| HLA-A*01:01 | 1 | 1023 | 1032 | 10 | NLAATKMSEC | 0.000139 | 42 |
| HLA-A*32:01 | 1 | 1065 | 1074 | 10 | VTYVPAQEKN | 0.000139 | 23 |
| HLA-A*26:01 | 1 | 1073 | 1081 | 9 | KNFTTAPAI | 0.000139 | 26 |
| HLA-A*33:01 | 1 | 1100 | 1108 | 9 | THWFVTQRN | 0.000139 | 32 |
| HLA-A*02:01 | 1 | 1127 | 1136 | 10 | DVVIGIVNNT | 0.000139 | 30 |
| HLA-A*02:03 | 1 | 1129 | 1138 | 10 | VIGIVNNTVY | 0.000139 | 33 |
| HLA-B*57:01 | 1 | 1160 | 1168 | 9 | TSPDVDLGD | 0.000139 | 43 |
| HLA-B*07:02 | 1 | 1201 | 1210 | 10 | QELGKYEQYI | 0.000139 | 28 |
| HLA-A*02:03 | 1 | 8 | 16 | 9 | LPLVSSQCV | 0.000138 | 33 |
| HLA-B*57:01 | 1 | 33 | 42 | 10 | TRGVYYPDKV | 0.000138 | 43 |
| HLA-B*53:01 | 1 | 77 | 85 | 9 | KRFDPVLP | 0.000138 | 21 |
| HLA-A*33:01 | 1 | 81 | 90 | 10 | NPVLPFNDGV | 0.000138 | 32 |
| HLA-A*32:01 | 1 | 91 | 100 | 10 | YFASTEKSNI | 0.000138 | 23 |
| HLA-B*07:02 | 1 | 111 | 120 | 10 | DSKTQSLLIV | 0.000138 | 28 |
| HLA-B*40:01 | 1 | 115 | 123 | 9 | QSLLVNNA | 0.000138 | 18 |
| HLA-A*33:01 | 1 | 120 | 128 | 9 | VNNATNVVI | 0.000138 | 32 |
| HLA-B*07:02 | 1 | 132 | 141 | 10 | EFQFCNDPFL | 0.000138 | 28 |
| HLA-A*26:01 | 1 | 157 | 166 | 10 | FRVYSSANNC | 0.000138 | 26 |
| HLA-B*53:01 | 1 | 162 | 171 | 10 | SANNCTFEYV | 0.000138 | 21 |
| HLA-B*57:01 | 1 | 181 | 189 | 9 | GKQGNFKNL | 0.000138 | 43 |
| HLA-B*44:03 | 1 | 192 | 201 | 10 | FVFKNIDGYF | 0.000138 | 19 |
| HLA-A*31:01 | 1 | 194 | 203 | 10 | FKNIDGYFKI | 0.000138 | 32 |
| HLA-B*08:01 | 1 | 211 | 219 | 9 | NLVRDLPOG | 0.000138 | 43 |
| HLA-A*26:01 | 1 | 233 | 242 | 10 | INITRFQTL | 0.000138 | 26 |
| HLA-A*01:01 | 1 | 250 | 259 | 10 | TPGDSSSGWT | 0.000138 | 43 |
| HLA-B*44:02 | 1 | 270 | 278 | 9 | LQPRTFLK | 0.000138 | 20 |
| HLA-A*23:01 | 1 | 277 | 286 | 10 | LKYNENGTIT | 0.000138 | 19 |
| HLA-B*35:01 | 1 | 314 | 322 | 9 | QTSNFRVQP | 0.000138 | 22 |
| HLA-B*58:01 | 1 | 335 | 344 | 10 | LCPFGEVFNA | 0.000138 | 32 |
| HLA-B*57:01 | 1 | 363 | 372 | 10 | ADYSVLYNSA | 0.000138 | 43 |
| HLA-A*26:01 | 1 | 365 | 373 | 9 | YSVLYNSAS | 0.000138 | 26 |
| HLA-A*03:01 | 1 | 392 | 400 | 9 | FTNVYADSF | 0.000138 | 25 |
| HLA-B*44:03 | 1 | 444 | 452 | 9 | KVGGNYNYL | 0.000138 | 19 |
| HLA-A*32:01 | 1 | 446 | 454 | 9 | GGNYNYLYR | 0.000138 | 23 |
| HLA-A*02:06 | 1 | 448 | 456 | 9 | NYNYLYRLF | 0.000138 | 40 |
| HLA-A*26:01 | 1 | 448 | 457 | 10 | NYNYLYRLF | 0.000138 | 26 |
| HLA-B*51:01 | 1 | 496 | 505 | 10 | GFQPTNGVGY | 0.000138 | 38 |
| HLA-B*51:01 | 1 | 518 | 526 | 9 | LHAPATVCG | 0.000138 | 38 |
| HLA-B*15:01 | 1 | 524 | 533 | 10 | VCGPKKSTNL | 0.000138 | 31 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*01:01 | 1 | 539 | 547 | 9 | VNFNFNGLT 0.000138 | 43 |
| HLA-A*24:02 | 1 | 544 | 552 | 9 | NGLTGTGVL 0.000138 | 18 |
| HLA-A*68:02 | 1 | 553 | 562 | 10 | TESNKKFLPF 0.000138 | 33 |
| HLA-A*30:02 | 1 | 554 | 563 | 10 | ESNKKFLPFQ 0.000138 | 51 |
| HLA-A*02:06 | 1 | 556 | 565 | 10 | NKKFLPFQQF 0.000138 | 40 |
| HLA-B*57:01 | 1 | 559 | 567 | 9 | FLPFQQFGR 0.000138 | 43 |
| HLA-B*44:02 | 1 | 588 | 597 | 10 | TPCSFGGVSU 0.000138 | 20 |
| HLA-A*02:06 | 1 | 605 | 614 | 10 | SNQVAVLYQD 0.000138 | 40 |
| HLA-A*24:02 | 1 | 651 | 660 | 10 | IGAEHVNNYS 0.000138 | 18 |
| HLA-B*44:03 | 1 | 686 | 694 | 9 | SVASQSIIA 0.000138 | 19 |
| HLA-A*32:01 | 1 | 692 | 700 | 9 | IIAYTMSLG 0.000138 | 23 |
| HLA-A*02:01 | 1 | 729 | 738 | 10 | VSMTKTSVDC 0.000138 | 30 |
| HLA-A*01:01 | 1 | 730 | 738 | 9 | SMTKTSVDC 0.000138 | 43 |
| HLA-A*02:06 | 1 | 730 | 739 | 10 | SMTKTSVDC 0.000138 | 40 |
| HLA-B*08:01 | 1 | 747 | 756 | 10 | TECSNLLLQY 0.000138 | 43 |
| HLA-B*57:01 | 1 | 753 | 762 | 10 | LLQYGSFCTQ 0.000138 | 43 |
| HLA-A*02:01 | 1 | 832 | 841 | 10 | GFIKQYGDCL 0.000138 | 30 |
| HLA-A*68:01 | 1 | 881 | 889 | 9 | TITSGWTFG 0.000138 | 29 |
| HLA-B*51:01 | 1 | 939 | 947 | 9 | SSTASALGK 0.000138 | 38 |
| HLA-B*44:03 | 1 | 956 | 965 | 10 | AQALNTLVKQ 0.000138 | 19 |
| HLA-A*24:02 | 1 | 957 | 966 | 10 | QALNTLVKQL 0.000138 | 18 |
| HLA-A*11:01 | 1 | 961 | 970 | 10 | TLVKQLSSNF 0.000138 | 19 |
| HLA-A*01:01 | 1 | 1008 | 1017 | 10 | VTQQLIRAAE 0.000138 | 43 |
| HLA-B*40:01 | 1 | 1020 | 1028 | 9 | ASANLAATK 0.000138 | 18 |
| HLA-B*40:01 | 1 | 1025 | 1033 | 9 | AATKMSECV 0.000138 | 18 |
| HLA-A*23:01 | 1 | 1056 | 1064 | 9 | APHGVVFLH 0.000138 | 19 |
| HLA-A*02:03 | 1 | 1068 | 1077 | 10 | VPAQEKNF 0.000138 | 33 |
| HLA-A*30:02 | 1 | 1069 | 1077 | 9 | PAQEKNF 0.000138 | 51 |
| HLA-A*02:06 | 1 | 1078 | 1087 | 10 | APAICHDGKA 0.000138 | 40 |
| HLA-A*03:01 | 1 | 1095 | 1104 | 10 | FVSNGTHWFV 0.000138 | 25 |
| HLA-A*31:01 | 1 | 1141 | 1150 | 10 | LQPELDSFKE 0.000138 | 32 |
| HLA-B*57:01 | 1 | 1143 | 1152 | 10 | PELDSFKEEL 0.000138 | 43 |
| HLA-A*33:01 | 1 | 1151 | 1160 | 10 | ELDKYFKNHT 0.000138 | 32 |
| HLA-A*33:01 | 1 | 1219 | 1228 | 10 | GFIAGLIAIV 0.000138 | 32 |
| HLA-A*68:01 | 1 | 1246 | 1255 | 10 | GCCSCGSCCK 0.000138 | 29 |
| HLA-A*02:01 | 1 | 12 | 21 | 10 | SSQCVNLTTR 0.000137 | 30 |
| HLA-A*03:01 | 1 | 15 | 24 | 10 | CVNLTTRTQL 0.000137 | 25 |
| HLA-A*32:01 | 1 | 18 | 26 | 9 | LTRTQLPP 0.000137 | 24 |
| HLA-A*32:01 | 1 | 76 | 84 | 9 | TKRFDNPVL 0.000137 | 24 |
| HLA-A*68:01 | 1 | 104 | 112 | 9 | WIFGTTLDS 0.000137 | 29 |
| HLA-B*44:02 | 1 | 110 | 119 | 10 | LDSKTQSLLI 0.000137 | 20 |
| HLA-B*58:01 | 1 | 154 | 162 | 9 | ESEFRVYSS 0.000137 | 32 |
| HLA-A*32:01 | 1 | 179 | 187 | 9 | LEGKQGNFK 0.000137 | 24 |
| HLA-B*53:01 | 1 | 205 | 213 | 9 | SKHTPINLV 0.000137 | 21 |
| HLA-B*53:01 | 1 | 265 | 273 | 9 | YYVGYLQPR 0.000137 | 21 |
| HLA-A*68:02 | 1 | 287 | 295 | 9 | DAVDCALDP 0.000137 | 33 |
| HLA-B*57:01 | 1 | 299 | 308 | 10 | TKCTLKSFTV 0.000137 | 43 |
| HLA-B*51:01 | 1 | 305 | 313 | 9 | SFTVEKGIY 0.000137 | 38 |
| HLA-B*07:02 | 1 | 309 | 318 | 10 | EKGIYQTSNF 0.000137 | 28 |
| HLA-A*02:03 | 1 | 326 | 334 | 9 | IVRFPNITN 0.000137 | 33 |
| HLA-A*24:02 | 1 | 354 | 362 | 9 | NRKRISNCV 0.000137 | 18 |
| HLA-A*02:01 | 1 | 370 | 379 | 10 | NSASFSTFKC 0.000137 | 30 |
| HLA-B*51:01 | 1 | 391 | 400 | 10 | CFTNVYADSF 0.000137 | 38 |
| HLA-A*32:01 | 1 | 452 | 461 | 10 | LYRLFRKSNL 0.000137 | 24 |
| HLA-B*57:01 | 1 | 466 | 474 | 9 | RDISTEIIYQ 0.000137 | 43 |
| HLA-B*44:03 | 1 | 494 | 503 | 10 | SYGFQPTNGV 0.000137 | 19 |
| HLA-A*02:03 | 1 | 498 | 507 | 10 | QPTNGVGYQP 0.000137 | 33 |
| HLA-A*23:01 | 1 | 514 | 522 | 9 | SFELLHAPA 0.000137 | 19 |
| HLA-A*30:01 | 1 | 524 | 532 | 9 | VCGPKKSTN 0.000137 | 54 |
| HLA-A*02:03 | 1 | 546 | 555 | 10 | LTGTGVLTES 0.000137 | 33 |
| HLA-A*02:01 | 1 | 603 | 612 | 10 | NTSNQVAVLY 0.000137 | 30 |
| HLA-B*51:01 | 1 | 609 | 617 | 9 | AVLYQDVNC 0.000137 | 38 |
| HLA-A*03:01 | 1 | 640 | 649 | 10 | SNVFOTRAGC 0.000137 | 25 |
| HLA-B*51:01 | 1 | 668 | 676 | 9 | AGICASYQT 0.000137 | 38 |
| HLA-A*30:02 | 1 | 770 | 778 | 9 | IAVEQDKNT 0.000137 | 51 |
| HLA-B*53:01 | 1 | 784 | 792 | 9 | QVKQIYKTP 0.000137 | 21 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*26:01 | 1 | 803 | 812 | 10 | SQILPDPSKP 0.000137 | 26 |
| HLA-A*03:01 | 1 | 820 | 828 | 9 | DLLFNKVTL 0.000137 | 25 |
| HLA-B*40:01 | 1 | 833 | 841 | 9 | FIKQYGDCL 0.000137 | 18 |
| HLA-A*33:01 | 1 | 864 | 872 | 9 | LLTDEMIAQ 0.000137 | 32 |
| HLA-A*03:01 | 1 | 878 | 886 | 9 | LAGTITSGW 0.000137 | 25 |
| HLA-A*32:01 | 1 | 881 | 890 | 10 | TITSGWTFGA 0.000137 | 24 |
| HLA-A*68:02 | 1 | 911 | 919 | 9 | VTQNVLYEN 0.000137 | 33 |
| HLA-A*02:01 | 1 | 990 | 999 | 10 | EVQIDRLITG 0.000137 | 30 |
| HLA-A*33:01 | 1 | 994 | 1003 | 10 | DRLITGRLQS 0.000137 | 32 |
| HLA-B*57:01 | 1 | 1000 | 1009 | 10 | RLQSLQTYVT 0.000137 | 43 |
| HLA-B*35:01 | 1 | 1003 | 1011 | 9 | SLQTYVTTQQ 0.000137 | 22 |
| HLA-B*35:01 | 1 | 1023 | 1031 | 9 | NLAATKMSE 0.000137 | 22 |
| HLA-A*68:01 | 1 | 1047 | 1056 | 10 | YHLMSFPQSA 0.000137 | 29 |
| HLA-A*24:02 | 1 | 1050 | 1059 | 10 | MSFPQSAPHG 0.000137 | 18 |
| HLA-A*02:06 | 1 | 1058 | 1067 | 10 | HGVVFLHVTY 0.000137 | 40 |
| HLA-A*30:02 | 1 | 1085 | 1093 | 9 | GKAHFPREG 0.000137 | 51 |
| HLA-A*26:01 | 1 | 1167 | 1175 | 9 | GDISGINAS 0.000137 | 26 |
| HLA-A*02:06 | 1 | 1171 | 1180 | 10 | GINASVVNIQ 0.000137 | 40 |
| HLA-A*33:01 | 1 | 1173 | 1182 | 10 | NASVVNIQKE 0.000137 | 32 |
| HLA-B*35:01 | 1 | 1180 | 1189 | 10 | QKEIDRLNEV 0.000137 | 22 |
| HLA-B*44:03 | 1 | 1196 | 1205 | 10 | SLIDLQELGK 0.000137 | 19 |
| HLA-A*33:01 | 1 | 1261 | 1270 | 10 | SEPVLLKGVKL 0.000137 | 32 |
| HLA-B*35:01 | 1 | 25 | 33 | 9 | PPAYTNSFT 0.000136 | 22 |
| HLA-A*02:06 | 1 | 61 | 69 | 9 | NVTWFHAIH 0.000136 | 40 |
| HLA-A*33:01 | 1 | 74 | 83 | 10 | NGTKRFDNPV 0.000136 | 32 |
| HLA-A*01:01 | 1 | 76 | 84 | 9 | TKRFDNPVL 0.000136 | 43 |
| HLA-B*57:01 | 1 | 76 | 85 | 10 | TKRFDNPVLP 0.000136 | 43 |
| HLA-A*02:06 | 1 | 95 | 104 | 10 | TEKSNIIRGW 0.000136 | 40 |
| HLA-B*44:02 | 1 | 119 | 127 | 9 | IVNNATNVV 0.000136 | 20 |
| HLA-A*02:01 | 1 | 140 | 148 | 9 | FLGVYYHKN 0.000136 | 30 |
| HLA-A*02:01 | 1 | 167 | 175 | 9 | TFEYVSQPF 0.000136 | 30 |
| HLA-B*51:01 | 1 | 175 | 183 | 9 | FLMDLEGKQ 0.000136 | 38 |
| HLA-A*02:06 | 1 | 181 | 190 | 10 | GKQGNFKNLR 0.000136 | 40 |
| HLA-A*02:03 | 1 | 191 | 200 | 10 | EFVFKNIDGY 0.000136 | 33 |
| HLA-A*68:01 | 1 | 207 | 215 | 9 | HTPINLVDR 0.000136 | 29 |
| HLA-A*03:01 | 1 | 212 | 221 | 10 | LVRDLPQGF 0.000136 | 25 |
| HLA-B*57:01 | 1 | 217 | 226 | 10 | PQGFSALEPL 0.000136 | 43 |
| HLA-A*03:01 | 1 | 222 | 230 | 9 | ALEPLVDLP 0.000136 | 25 |
| HLA-A*02:03 | 1 | 231 | 240 | 10 | IGINITRFQT 0.000136 | 33 |
| HLA-B*15:01 | 1 | 231 | 239 | 9 | IGINITRFQ 0.000136 | 31 |
| HLA-A*11:01 | 1 | 255 | 264 | 10 | SSGWTAGAAA 0.000136 | 19 |
| HLA-A*32:01 | 1 | 261 | 270 | 10 | GAAAYYVGYL 0.000136 | 24 |
| HLA-A*02:01 | 1 | 265 | 274 | 10 | YYVGYLQPR 0.000136 | 30 |
| HLA-A*02:01 | 1 | 280 | 289 | 10 | NENGTITDAV 0.000136 | 30 |
| HLA-A*30:02 | 1 | 336 | 344 | 9 | CPFGEVFNA 0.000136 | 51 |
| HLA-A*68:01 | 1 | 336 | 345 | 10 | CPFGEVFNAT 0.000136 | 29 |
| HLA-B*15:01 | 1 | 380 | 388 | 9 | YGVSPTKLN 0.000136 | 31 |
| HLA-A*31:01 | 1 | 391 | 400 | 10 | CFTNVYADSF 0.000136 | 32 |
| HLA-A*33:01 | 1 | 401 | 409 | 9 | VIRGDEVQR 0.000136 | 32 |
| HLA-A*33:01 | 1 | 403 | 411 | 9 | RGDEVQRQA 0.000136 | 32 |
| HLA-B*40:01 | 1 | 411 | 419 | 9 | APGQTGKIA 0.000136 | 18 |
| HLA-A*02:06 | 1 | 447 | 456 | 10 | GNVNYLYRLF 0.000136 | 40 |
| HLA-B*44:03 | 1 | 458 | 466 | 9 | KSNLKPFR 0.000136 | 19 |
| HLA-B*57:01 | 1 | 463 | 472 | 10 | PFRDISTEI 0.000136 | 43 |
| HLA-A*02:03 | 1 | 469 | 478 | 10 | STEIYQAGST 0.000136 | 33 |
| HLA-B*57:01 | 1 | 469 | 478 | 10 | STEIYQAGST 0.000136 | 43 |
| HLA-A*11:01 | 1 | 471 | 479 | 9 | EIYQAGSTP 0.000136 | 19 |
| HLA-A*23:01 | 1 | 483 | 492 | 10 | VEGFNCYFPL 0.000136 | 19 |
| HLA-A*11:01 | 1 | 498 | 507 | 10 | QPTNGVGYQP 0.000136 | 19 |
| HLA-B*44:02 | 1 | 551 | 560 | 10 | VLTESNKKFL 0.000136 | 20 |
| HLA-B*58:01 | 1 | 587 | 595 | 9 | ITPCSFGGV 0.000136 | 32 |
| HLA-B*44:02 | 1 | 685 | 693 | 9 | RSVASQSII 0.000136 | 20 |
| HLA-A*11:01 | 1 | 687 | 696 | 10 | VASQSIIAYT 0.000136 | 19 |
| HLA-A*33:01 | 1 | 760 | 768 | 9 | CTQLNRALT 0.000136 | 32 |
| HLA-B*58:01 | 1 | 761 | 769 | 9 | TQLNRALTG 0.000136 | 32 |
| HLA-A*68:01 | 1 | 764 | 773 | 10 | NRALTGIAVE 0.000136 | 29 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*24:02 | 1 | 776 | 785 | 10 | KNTQEVFAQV 0.000136 | 18 |
| HLA-A*02:01 | 1 | 787 | 796 | 10 | QIYKTPPIKD 0.000136 | 30 |
| HLA-A*31:01 | 1 | 805 | 813 | 9 | ILPDPSKPS 0.000136 | 32 |
| HLA-A*32:01 | 1 | 856 | 865 | 10 | NGLTVLPPLL 0.000136 | 24 |
| HLA-A*68:01 | 1 | 913 | 922 | 10 | QNVLYENQKL 0.000136 | 29 |
| HLA-A*24:02 | 1 | 914 | 923 | 10 | NVLYENQKLI 0.000136 | 18 |
| HLA-A*33:01 | 1 | 929 | 937 | 9 | SAIGKIQDS 0.000136 | 32 |
| HLA-A*11:01 | 1 | 936 | 944 | 9 | DSLSSTASA 0.000136 | 19 |
| HLA-B*44:02 | 1 | 936 | 944 | 9 | DSLSSTASA 0.000136 | 20 |
| HLA-B*44:03 | 1 | 936 | 944 | 9 | DSLSSTASA 0.000136 | 19 |
| HLA-B*08:01 | 1 | 947 | 955 | 9 | KLQDVVNQN 0.000136 | 43 |
| HLA-B*51:01 | 1 | 949 | 958 | 10 | QDVVNQNAQA 0.000136 | 38 |
| HLA-A*01:01 | 1 | 959 | 968 | 10 | LNTLVKQLSS 0.000136 | 43 |
| HLA-B*07:02 | 1 | 987 | 995 | 9 | VEAEVQIDR 0.000136 | 28 |
| HLA-B*58:01 | 1 | 1003 | 1011 | 9 | SLQTYVTQQ 0.000136 | 32 |
| HLA-A*68:02 | 1 | 1009 | 1017 | 9 | TQQLIRAAE 0.000136 | 33 |
| HLA-B*44:03 | 1 | 1018 | 1026 | 9 | IRASANLAA 0.000136 | 19 |
| HLA-A*03:01 | 1 | 1027 | 1036 | 10 | TKMSECVLGQ 0.000136 | 25 |
| HLA-B*08:01 | 1 | 1036 | 1044 | 9 | QSKRVDFCG 0.000136 | 43 |
| HLA-A*02:06 | 1 | 1051 | 1059 | 9 | SFPQSAFHG 0.000136 | 40 |
| HLA-A*68:02 | 1 | 1053 | 1062 | 10 | PQSAPHGVVF 0.000136 | 33 |
| HLA-A*30:02 | 1 | 1068 | 1076 | 9 | VPAQEKFT 0.000136 | 51 |
| HLA-A*32:01 | 1 | 1083 | 1091 | 9 | HDGKAHFPR 0.000136 | 24 |
| HLA-B*57:01 | 1 | 1089 | 1098 | 10 | FPREGVFVSN 0.000136 | 43 |
| HLA-B*51:01 | 1 | 1098 | 1107 | 10 | NGTHWFVTQR 0.000136 | 38 |
| HLA-A*31:01 | 1 | 1116 | 1124 | 9 | TTDNTFVSG 0.000136 | 32 |
| HLA-A*02:06 | 1 | 1146 | 1155 | 10 | DSFKEELDKY 0.000136 | 40 |
| HLA-A*33:01 | 1 | 1163 | 1172 | 10 | DVDLGDISGI 0.000136 | 32 |
| HLA-B*58:01 | 1 | 1183 | 1191 | 9 | IDRLNEVAK 0.000136 | 32 |
| HLA-A*26:01 | 1 | 1192 | 1201 | 10 | NLNESLIDLQ 0.000136 | 26 |
| HLA-B*53:01 | 1 | 1227 | 1235 | 9 | IVMVTIMLC 0.000136 | 21 |
| HLA-A*26:01 | 1 | 25 | 34 | 10 | PPAYTNSFTR 0.000135 | 26 |
| HLA-A*23:01 | 1 | 45 | 54 | 10 | SSVLHSTQDL 0.000135 | 19 |
| HLA-A*01:01 | 1 | 101 | 110 | 10 | IRGWIFGTTL 0.000135 | 43 |
| HLA-A*32:01 | 1 | 126 | 134 | 9 | VVIKVCFEQ 0.000135 | 24 |
| HLA-B*53:01 | 1 | 153 | 161 | 9 | MESEFRVYS 0.000135 | 21 |
| HLA-A*33:01 | 1 | 164 | 173 | 10 | NNCTFEYVSQ 0.000135 | 32 |
| HLA-A*68:02 | 1 | 177 | 186 | 10 | MDLEGKQGNF 0.000135 | 33 |
| HLA-B*40:01 | 1 | 183 | 192 | 10 | QGNFKNLREF 0.000135 | 18 |
| HLA-A*03:01 | 1 | 221 | 230 | 10 | SALEPLVDLP 0.000135 | 26 |
| HLA-B*07:02 | 1 | 221 | 230 | 10 | SALEPLVDLP 0.000135 | 28 |
| HLA-A*01:01 | 1 | 247 | 256 | 10 | SYLTPGDSSS 0.000135 | 43 |
| HLA-B*58:01 | 1 | 260 | 268 | 9 | AGAAAYYVG 0.000135 | 33 |
| HLA-B*08:01 | 1 | 290 | 298 | 9 | DCALDPLSE 0.000135 | 43 |
| HLA-A*02:03 | 1 | 299 | 308 | 10 | TKCTLKSFTV 0.000135 | 33 |
| HLA-A*11:01 | 1 | 339 | 347 | 9 | GEVFNATRF 0.000135 | 19 |
| HLA-A*68:01 | 1 | 341 | 349 | 9 | VFNATRFAS 0.000135 | 29 |
| HLA-A*01:01 | 1 | 346 | 355 | 10 | RFASVYAWN 0.000135 | 43 |
| HLA-A*30:02 | 1 | 351 | 360 | 10 | YAWNKRKRISN 0.000135 | 52 |
| HLA-B*07:02 | 1 | 364 | 372 | 9 | DYSVLYNSA 0.000135 | 28 |
| HLA-B*44:03 | 1 | 365 | 374 | 10 | YSVLYNSASF 0.000135 | 19 |
| HLA-A*23:01 | 1 | 378 | 386 | 9 | KCYGVSPK 0.000135 | 19 |
| HLA-B*08:01 | 1 | 446 | 454 | 9 | GGNYNYLYR 0.000135 | 43 |
| HLA-A*01:01 | 1 | 448 | 457 | 10 | NYNYLYRLFR 0.000135 | 43 |
| HLA-B*53:01 | 1 | 463 | 472 | 10 | PFERDISTEI 0.000135 | 21 |
| HLA-B*35:01 | 1 | 470 | 478 | 9 | TEIYQAGST 0.000135 | 22 |
| HLA-B*57:01 | 1 | 477 | 485 | 9 | STPCNGVEG 0.000135 | 43 |
| HLA-A*30:01 | 1 | 481 | 490 | 10 | NGVEGFNCYF 0.000135 | 54 |
| HLA-A*31:01 | 1 | 487 | 496 | 10 | NCYFPLQSYG 0.000135 | 32 |
| HLA-A*24:02 | 1 | 501 | 509 | 9 | NGVGYQPYP 0.000135 | 18 |
| HLA-A*01:01 | 1 | 502 | 511 | 10 | GVGYQPYPVV 0.000135 | 43 |
| HLA-A*11:01 | 1 | 506 | 514 | 9 | QPYPVVVLS 0.000135 | 19 |
| HLA-B*08:01 | 1 | 520 | 528 | 9 | APATVCGPK 0.000135 | 43 |
| HLA-A*23:01 | 1 | 602 | 610 | 9 | TNTSNQVAV 0.000135 | 19 |
| HLA-A*32:01 | 1 | 610 | 619 | 10 | VLYQDVNCTE 0.000135 | 24 |
| HLA-B*57:01 | 1 | 630 | 638 | 9 | TPTWRVYST 0.000135 | 43 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*03:01 | 1 | 676 | 684 | 9 | TQTNSPRRA 0.000135 | 26 |
| HLA-A*31:01 | 1 | 773 | 782 | 10 | EQDKNTQEVF 0.000135 | 32 |
| HLA-A*31:01 | 1 | 783 | 792 | 10 | AQVKQIYKTP 0.000135 | 32 |
| HLA-A*02:03 | 1 | 787 | 796 | 10 | QIYKTPPIKD 0.000135 | 33 |
| HLA-A*24:02 | 1 | 821 | 829 | 9 | LLFNKVTLA 0.000135 | 18 |
| HLA-A*30:02 | 1 | 850 | 859 | 10 | ICAQKFNGLT 0.000135 | 52 |
| HLA-A*02:01 | 1 | 862 | 871 | 10 | PPLLTDEMIA 0.000135 | 31 |
| HLA-A*33:01 | 1 | 872 | 881 | 10 | QYTSALLAGT 0.000135 | 32 |
| HLA-A*68:01 | 1 | 907 | 916 | 10 | NGIGVTQNVL 0.000135 | 29 |
| HLA-A*32:01 | 1 | 911 | 919 | 9 | VTQNVLYEN 0.000135 | 24 |
| HLA-B*51:01 | 1 | 971 | 979 | 9 | GAISSVLND 0.000135 | 38 |
| HLA-B*08:01 | 1 | 980 | 988 | 9 | ILSRLDKVE 0.000135 | 43 |
| HLA-A*30:02 | 1 | 990 | 999 | 10 | EVQIDRLITG 0.000135 | 52 |
| HLA-B*35:01 | 1 | 991 | 999 | 9 | VQIDRLITG 0.000135 | 22 |
| HLA-A*03:01 | 1 | 996 | 1005 | 10 | LITGRLQSLQ 0.000135 | 26 |
| HLA-A*30:02 | 1 | 1012 | 1021 | 10 | LIRAAEIRAS 0.000135 | 52 |
| HLA-A*31:01 | 1 | 1023 | 1031 | 9 | NLAATKMSE 0.000135 | 32 |
| HLA-A*26:01 | 1 | 1060 | 1069 | 10 | VVFLHVTYVP 0.000135 | 26 |
| HLA-A*03:01 | 1 | 1066 | 1075 | 10 | TYVPAQEKNF 0.000135 | 26 |
| HLA-B*57:01 | 1 | 1069 | 1078 | 10 | PAQEKNFTTA 0.000135 | 43 |
| HLA-A*02:06 | 1 | 1080 | 1088 | 9 | AICHDGKAH 0.000135 | 40 |
| HLA-B*58:01 | 1 | 1098 | 1106 | 9 | NGTHWFVTQ 0.000135 | 33 |
| HLA-A*11:01 | 1 | 1116 | 1124 | 9 | TTDNTFVSG 0.000135 | 19 |
| HLA-B*07:02 | 1 | 1116 | 1124 | 9 | TTDNTFVSG 0.000135 | 28 |
| HLA-A*31:01 | 1 | 1171 | 1180 | 10 | GINASVVNIQ 0.000135 | 32 |
| HLA-A*01:01 | 1 | 1177 | 1185 | 9 | VNIQKEIDR 0.000135 | 43 |
| HLA-B*57:01 | 1 | 1183 | 1191 | 9 | IDRLNEVAK 0.000135 | 43 |
| HLA-B*08:01 | 1 | 1217 | 1225 | 9 | WLGFIAGLI 0.000135 | 43 |
| HLA-B*58:01 | 1 | 1262 | 1271 | 10 | EPVLKGVKLV 0.000135 | 33 |
| HLA-B*51:01 | 1 | 22 | 31 | 10 | TQLPPAYTNS 0.000134 | 38 |
| HLA-B*51:01 | 1 | 69 | 77 | 9 | HVSGTNGTK 0.000134 | 38 |
| HLA-A*31:01 | 1 | 83 | 91 | 9 | VLPFNDGVY 0.000134 | 32 |
| HLA-A*26:01 | 1 | 91 | 100 | 10 | YFASTEKSNI 0.000134 | 26 |
| HLA-A*32:01 | 1 | 93 | 102 | 10 | ASTEKSNIIR 0.000134 | 24 |
| HLA-A*68:01 | 1 | 111 | 120 | 10 | DSKTQSLLIV 0.000134 | 29 |
| HLA-A*68:02 | 1 | 132 | 140 | 9 | EFQFCNDPF 0.000134 | 33 |
| HLA-A*68:01 | 1 | 157 | 166 | 10 | FRVYSSANNC 0.000134 | 29 |
| HLA-B*15:01 | 1 | 194 | 203 | 10 | FKNIDGYFKI 0.000134 | 31 |
| HLA-A*68:02 | 1 | 195 | 204 | 10 | KNIDGYFKIY 0.000134 | 33 |
| HLA-A*68:01 | 1 | 212 | 221 | 10 | LVRDLPQGFS 0.000134 | 29 |
| HLA-B*40:01 | 1 | 264 | 272 | 9 | AYYVGYLQP 0.000134 | 18 |
| HLA-B*58:01 | 1 | 264 | 273 | 10 | AYYVGYLQPR 0.000134 | 33 |
| HLA-A*02:06 | 1 | 293 | 301 | 9 | LDPLSETKC 0.000134 | 40 |
| HLA-A*02:03 | 1 | 295 | 304 | 10 | PLSETKCTLK 0.000134 | 33 |
| HLA-B*51:01 | 1 | 319 | 328 | 10 | RVQPTESIVR 0.000134 | 38 |
| HLA-A*02:06 | 1 | 361 | 370 | 10 | CVADYSVLYN 0.000134 | 40 |
| HLA-A*01:01 | 1 | 368 | 376 | 9 | LYNSASFST 0.000134 | 43 |
| HLA-A*31:01 | 1 | 383 | 392 | 10 | SPTKLNLCF 0.000134 | 32 |
| HLA-B*08:01 | 1 | 394 | 403 | 10 | NVYADSFVIR 0.000134 | 43 |
| HLA-A*24:02 | 1 | 399 | 408 | 10 | SFVIRGDEVR 0.000134 | 18 |
| HLA-B*58:01 | 1 | 400 | 409 | 10 | FVIRGDEVRQ 0.000134 | 33 |
| HLA-A*31:01 | 1 | 401 | 410 | 10 | VIRGDEVRQI 0.000134 | 32 |
| HLA-A*02:06 | 1 | 427 | 435 | 9 | DDFTGCVIA 0.000134 | 40 |
| HLA-A*23:01 | 1 | 453 | 462 | 10 | YRLFRKSNLK 0.000134 | 19 |
| HLA-A*24:02 | 1 | 459 | 468 | 10 | SNLKPFERDI 0.000134 | 18 |
| HLA-A*68:02 | 1 | 510 | 519 | 10 | VVLSFELLH 0.000134 | 33 |
| HLA-B*58:01 | 1 | 523 | 532 | 10 | TVCGPKKSTN 0.000134 | 33 |
| HLA-A*68:02 | 1 | 535 | 543 | 9 | KNKCVNFNF 0.000134 | 33 |
| HLA-A*30:02 | 1 | 544 | 553 | 10 | NGLTGTGVLT 0.000134 | 52 |
| HLA-B*40:01 | 1 | 569 | 577 | 9 | IADTTDAVR 0.000134 | 18 |
| HLA-B*08:01 | 1 | 612 | 621 | 10 | YQDVNCTEVP 0.000134 | 43 |
| HLA-B*51:01 | 1 | 640 | 648 | 9 | SNVFQTRAG 0.000134 | 38 |
| HLA-B*15:01 | 1 | 644 | 653 | 10 | QTRAGCLIGA 0.000134 | 31 |
| HLA-A*33:01 | 1 | 683 | 691 | 9 | RARSVASQS 0.000134 | 32 |
| HLA-A*01:01 | 1 | 694 | 703 | 10 | AYTMSLGAEN 0.000134 | 43 |
| HLA-B*58:01 | 1 | 741 | 749 | 9 | YICGDSTEC 0.000134 | 33 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*30:01 | 1 | 744 | 753 | 10 | GDSSTECNLL 0.000134 | 54 |
| HLA-B*15:01 | 1 | 757 | 766 | 10 | GSFCTQLNRA 0.000134 | 31 |
| HLA-A*02:03 | 1 | 769 | 778 | 10 | GIAVEQDKNT 0.000134 | 33 |
| HLA-A*11:01 | 1 | 778 | 787 | 10 | TQEVFAQVKQ 0.000134 | 19 |
| HLA-A*11:01 | 1 | 815 | 824 | 10 | RSFIEDLLFN 0.000134 | 19 |
| HLA-B*51:01 | 1 | 827 | 835 | 9 | TLADAGFIK 0.000134 | 38 |
| HLA-A*02:01 | 1 | 904 | 913 | 10 | YRFNGIGVTQ 0.000134 | 31 |
| HLA-B*57:01 | 1 | 983 | 992 | 10 | RLDKVEAEVQ 0.000134 | 43 |
| HLA-A*02:03 | 1 | 1018 | 1027 | 10 | IRASANLAAT 0.000134 | 33 |
| HLA-A*32:01 | 1 | 1036 | 1045 | 10 | QSKRVDFCGK 0.000134 | 24 |
| HLA-A*03:01 | 1 | 1046 | 1054 | 9 | GYHLMSFPQ 0.000134 | 26 |
| HLA-B*40:01 | 1 | 1051 | 1060 | 10 | SFPQSAPHGV 0.000134 | 18 |
| HLA-A*33:01 | 1 | 1072 | 1080 | 9 | EKNFTTAPA 0.000134 | 32 |
| HLA-A*03:01 | 1 | 1103 | 1111 | 9 | FVTQRNFYE 0.000134 | 26 |
| HLA-A*30:02 | 1 | 1121 | 1130 | 10 | FVSGNCDVVI 0.000134 | 52 |
| HLA-B*07:02 | 1 | 1125 | 1133 | 9 | NCDVVIGIV 0.000134 | 28 |
| HLA-A*02:01 | 1 | 1133 | 1141 | 9 | VNNTVYDPL 0.000134 | 31 |
| HLA-B*35:01 | 1 | 1133 | 1141 | 9 | VNNTVYDPL 0.000134 | 22 |
| HLA-B*44:03 | 1 | 1136 | 1144 | 9 | TVYDPLQPE 0.000134 | 19 |
| HLA-B*35:01 | 1 | 1169 | 1177 | 9 | ISGINASVV 0.000134 | 22 |
| HLA-B*51:01 | 1 | 1191 | 1200 | 10 | KNLNESLIDL 0.000134 | 38 |
| HLA-A*03:01 | 1 | 1207 | 1216 | 10 | EQYIKWPWYI 0.000134 | 26 |
| HLA-B*51:01 | 1 | 1214 | 1222 | 9 | WYIWLGFIA 0.000134 | 38 |
| HLA-B*08:01 | 1 | 1259 | 1267 | 9 | DDSEPVKLG 0.000134 | 43 |
| HLA-A*03:01 | 1 | 1 | 10 | 10 | MFVFLVLLPL 0.000133 | 26 |
| HLA-A*26:01 | 1 | 5 | 13 | 9 | LVLLPLVSS 0.000133 | 26 |
| HLA-B*58:01 | 1 | 25 | 34 | 10 | PPAYTNSFTR 0.000133 | 33 |
| HLA-A*03:01 | 1 | 37 | 45 | 9 | YYPDKVFRS 0.000133 | 26 |
| HLA-A*02:03 | 1 | 58 | 66 | 9 | FFSNVTWFH 0.000133 | 33 |
| HLA-B*53:01 | 1 | 76 | 84 | 9 | TKRFDNPVL 0.000133 | 21 |
| HLA-B*40:01 | 1 | 111 | 119 | 9 | DSKTQSLLI 0.000133 | 18 |
| HLA-A*02:06 | 1 | 176 | 184 | 9 | LMDLEGKQG 0.000133 | 40 |
| HLA-B*35:01 | 1 | 201 | 209 | 9 | FKIYSKHTP 0.000133 | 22 |
| HLA-B*44:03 | 1 | 201 | 209 | 9 | FKIYSKHTP 0.000133 | 19 |
| HLA-A*32:01 | 1 | 221 | 230 | 10 | SALEPLVDLP 0.000133 | 24 |
| HLA-B*53:01 | 1 | 225 | 233 | 9 | PLVDLPIGI 0.000133 | 21 |
| HLA-A*33:01 | 1 | 232 | 241 | 10 | GINITRFQTL 0.000133 | 32 |
| HLA-B*07:02 | 1 | 242 | 250 | 9 | LALHRSYLT 0.000133 | 28 |
| HLA-A*02:06 | 1 | 246 | 254 | 9 | RSYLTPGDS 0.000133 | 40 |
| HLA-A*68:02 | 1 | 247 | 255 | 9 | SYLTPGDSS 0.000133 | 33 |
| HLA-B*35:01 | 1 | 252 | 260 | 9 | GDSSSGWTA 0.000133 | 22 |
| HLA-B*44:03 | 1 | 262 | 270 | 9 | AAAYYVGYL 0.000133 | 19 |
| HLA-B*15:01 | 1 | 263 | 272 | 10 | AAAYYVGYLQP 0.000133 | 31 |
| HLA-B*44:03 | 1 | 319 | 328 | 10 | RVQPTESIVR 0.000133 | 19 |
| HLA-A*30:01 | 1 | 339 | 347 | 9 | GEVFNATRF 0.000133 | 54 |
| HLA-B*53:01 | 1 | 342 | 350 | 9 | FNATRFASV 0.000133 | 21 |
| HLA-B*08:01 | 1 | 403 | 412 | 10 | RGDEVRQIAP 0.000133 | 43 |
| HLA-B*58:01 | 1 | 424 | 432 | 9 | KLPDDFTGC 0.000133 | 33 |
| HLA-A*03:01 | 1 | 453 | 461 | 9 | YRLFRKSNL 0.000133 | 26 |
| HLA-A*02:06 | 1 | 482 | 491 | 10 | GVEGFNCYFP 0.000133 | 40 |
| HLA-B*44:03 | 1 | 498 | 507 | 10 | QPTNGVGYQP 0.000133 | 19 |
| HLA-A*33:01 | 1 | 516 | 525 | 10 | ELLHAPATVC 0.000133 | 32 |
| HLA-A*30:01 | 1 | 541 | 550 | 10 | FNFNGLTGTG 0.000133 | 54 |
| HLA-A*02:03 | 1 | 582 | 591 | 10 | LEILDITPCS 0.000133 | 33 |
| HLA-A*01:01 | 1 | 599 | 607 | 9 | TPGTNTSNQ 0.000133 | 43 |
| HLA-A*30:02 | 1 | 632 | 641 | 10 | TWRVYSTGNS 0.000133 | 52 |
| HLA-B*44:02 | 1 | 637 | 646 | 10 | STGSNVFQTR 0.000133 | 20 |
| HLA-B*44:03 | 1 | 674 | 682 | 9 | YQTQTNSPR 0.000133 | 19 |
| HLA-B*51:01 | 1 | 675 | 683 | 9 | QTQTNSPRR 0.000133 | 39 |
| HLA-A*02:06 | 1 | 703 | 711 | 9 | NSVAYSNNS 0.000133 | 40 |
| HLA-B*58:01 | 1 | 708 | 716 | 9 | SNNSIAIPT 0.000133 | 33 |
| HLA-B*51:01 | 1 | 723 | 732 | 10 | TTEILPVSMT 0.000133 | 39 |
| HLA-A*24:02 | 1 | 748 | 756 | 9 | ECSNLLLQY 0.000133 | 18 |
| HLA-A*03:01 | 1 | 751 | 759 | 9 | NLLLQYGSF 0.000133 | 26 |
| HLA-A*02:01 | 1 | 780 | 789 | 10 | EVFAQVKQIY 0.000133 | 31 |
| HLA-B*08:01 | 1 | 817 | 825 | 9 | FIEDLLFNK 0.000133 | 43 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*01:01 | 1 | 818 | 827 | 10 | IEDLLFNKVT 0.000133 | 43 |
| HLA-A*02:06 | 1 | 824 | 833 | 10 | NKVTLADAGF 0.000133 | 40 |
| HLA-A*33:01 | 1 | 843 | 851 | 9 | DIAARDLIC 0.000133 | 32 |
| HLA-B*53:01 | 1 | 859 | 868 | 10 | TVLPPLLTDE 0.000133 | 21 |
| HLA-A*02:03 | 1 | 872 | 881 | 10 | QYTSALLAGT 0.000133 | 33 |
| HLA-B*44:03 | 1 | 900 | 909 | 10 | MQMAYRFNGI 0.000133 | 19 |
| HLA-A*68:02 | 1 | 979 | 988 | 10 | DILSRLDKVE 0.000133 | 33 |
| HLA-A*24:02 | 1 | 985 | 993 | 9 | DKVEAEVQI 0.000133 | 18 |
| HLA-B*07:02 | 1 | 988 | 997 | 10 | EAEVQIDRLI 0.000133 | 28 |
| HLA-A*11:01 | 1 | 996 | 1004 | 9 | LITGRLQSL 0.000133 | 19 |
| HLA-A*02:01 | 1 | 1009 | 1017 | 9 | TQQLIRAAE 0.000133 | 31 |
| HLA-B*51:01 | 1 | 1023 | 1031 | 9 | NLAATKMSE 0.000133 | 39 |
| HLA-B*57:01 | 1 | 1023 | 1032 | 10 | NLAATKMSEC 0.000133 | 43 |
| HLA-B*57:01 | 1 | 1035 | 1043 | 9 | GQSKRVDFC 0.000133 | 43 |
| HLA-A*02:01 | 1 | 1067 | 1076 | 10 | YVPAQEKNF 0.000133 | 31 |
| HLA-A*30:02 | 1 | 1072 | 1080 | 9 | EKNFTTAPA 0.000133 | 52 |
| HLA-B*53:01 | 1 | 1072 | 1081 | 10 | EKNFTTAPAI 0.000133 | 21 |
| HLA-B*40:01 | 1 | 1089 | 1097 | 9 | FPREGVFVS 0.000133 | 18 |
| HLA-B*07:02 | 1 | 1105 | 1114 | 10 | TQRNFYEQI 0.000133 | 28 |
| HLA-A*68:01 | 1 | 1148 | 1156 | 9 | FKEELDKYF 0.000133 | 29 |
| HLA-B*58:01 | 1 | 1151 | 1159 | 9 | ELDKYFKNH 0.000133 | 33 |
| HLA-A*30:02 | 1 | 1167 | 1175 | 9 | GDISGINAS 0.000133 | 52 |
| HLA-A*11:01 | 1 | 1172 | 1180 | 9 | INASVVNIQ 0.000133 | 19 |
| HLA-A*68:02 | 1 | 1173 | 1182 | 10 | NASVVNIQKE 0.000133 | 33 |
| HLA-A*33:01 | 1 | 1200 | 1208 | 9 | LQELGKYEQ 0.000133 | 32 |
| HLA-A*11:01 | 1 | 18 | 26 | 9 | LTRTQLPP 0.000132 | 20 |
| HLA-A*02:01 | 1 | 21 | 30 | 10 | RTQLPPAYTN 0.000132 | 31 |
| HLA-B*44:03 | 1 | 22 | 31 | 10 | TQLPPAYTNS 0.000132 | 19 |
| HLA-B*57:01 | 1 | 37 | 45 | 9 | YYPDKVFRS 0.000132 | 43 |
| HLA-B*44:03 | 1 | 40 | 49 | 10 | DKVFRSSVLH 0.000132 | 19 |
| HLA-B*40:01 | 1 | 49 | 58 | 10 | HSTQDLFLPF 0.000132 | 18 |
| HLA-A*01:01 | 1 | 117 | 126 | 10 | LLIVNNATNV 0.000132 | 43 |
| HLA-A*23:01 | 1 | 119 | 128 | 10 | IVNNATNVVI 0.000132 | 19 |
| HLA-A*03:01 | 1 | 153 | 161 | 9 | MESEFRVYS 0.000132 | 26 |
| HLA-A*32:01 | 1 | 157 | 166 | 10 | FRVYSSANNC 0.000132 | 24 |
| HLA-A*68:01 | 1 | 206 | 215 | 10 | KHTPINLVRD 0.000132 | 29 |
| HLA-B*58:01 | 1 | 213 | 222 | 10 | VRDLPQGFSA 0.000132 | 33 |
| HLA-B*07:02 | 1 | 215 | 224 | 10 | DLPQGFSALE 0.000132 | 28 |
| HLA-B*08:01 | 1 | 221 | 230 | 10 | SALEPLVDLP 0.000132 | 43 |
| HLA-A*24:02 | 1 | 238 | 246 | 9 | FQTLALHR 0.000132 | 18 |
| HLA-B*35:01 | 1 | 242 | 250 | 9 | LALHRSYLT 0.000132 | 22 |
| HLA-A*33:01 | 1 | 255 | 264 | 10 | SSGWTAGAAA 0.000132 | 32 |
| HLA-B*51:01 | 1 | 277 | 286 | 10 | LKYNENGTIT 0.000132 | 39 |
| HLA-A*32:01 | 1 | 302 | 311 | 10 | TLKSFTVEKG 0.000132 | 24 |
| HLA-B*53:01 | 1 | 307 | 315 | 9 | TVEKGIYQT 0.000132 | 21 |
| HLA-B*08:01 | 1 | 363 | 371 | 9 | ADYSVLVNS 0.000132 | 43 |
| HLA-A*33:01 | 1 | 387 | 396 | 10 | LNDLCFTNVY 0.000132 | 32 |
| HLA-B*58:01 | 1 | 430 | 438 | 9 | TGCVIAWNS 0.000132 | 33 |
| HLA-A*02:06 | 1 | 434 | 443 | 10 | IAWNSNLDLS 0.000132 | 40 |
| HLA-A*32:01 | 1 | 470 | 479 | 10 | TEIYQAGSTP 0.000132 | 24 |
| HLA-A*32:01 | 1 | 475 | 483 | 9 | AGSTPCNGV 0.000132 | 24 |
| HLA-A*30:02 | 1 | 514 | 523 | 10 | SFELLHAPAT 0.000132 | 52 |
| HLA-B*58:01 | 1 | 526 | 535 | 10 | GPKKSTNLVK 0.000132 | 33 |
| HLA-B*44:02 | 1 | 534 | 543 | 10 | VKNKCVNFNF 0.000132 | 20 |
| HLA-A*02:01 | 1 | 546 | 554 | 9 | LTGTGVLTE 0.000132 | 31 |
| HLA-B*57:01 | 1 | 571 | 579 | 9 | DTTDAVRDP 0.000132 | 43 |
| HLA-B*57:01 | 1 | 579 | 588 | 10 | PQTLEILDIT 0.000132 | 43 |
| HLA-A*02:06 | 1 | 593 | 601 | 9 | GGVSVITPG 0.000132 | 40 |
| HLA-B*07:02 | 1 | 595 | 604 | 10 | VSVITPGTNT 0.000132 | 28 |
| HLA-A*26:01 | 1 | 598 | 607 | 10 | ITPGTNTSNQ 0.000132 | 26 |
| HLA-A*68:01 | 1 | 636 | 645 | 10 | YSTGSNVFQT 0.000132 | 29 |
| HLA-A*02:06 | 1 | 667 | 676 | 10 | GAGICASYQT 0.000132 | 40 |
| HLA-B*40:01 | 1 | 677 | 685 | 9 | QTNSPRRAR 0.000132 | 18 |
| HLA-A*11:01 | 1 | 682 | 690 | 9 | RRARVASQ 0.000132 | 20 |
| HLA-B*44:03 | 1 | 708 | 716 | 9 | SNNSIAIPT 0.000132 | 19 |
| HLA-B*57:01 | 1 | 741 | 749 | 9 | YICGDSTEC 0.000132 | 43 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*02:01 | 1 | 750 | 759 | 10 | SNLLLQYGSF 0.000132 | 31 |
| HLA-B*51:01 | 1 | 758 | 766 | 9 | SFCTQLNRA 0.000132 | 39 |
| HLA-A*02:03 | 1 | 766 | 775 | 10 | ALTGIAVEQD 0.000132 | 34 |
| HLA-A*68:02 | 1 | 774 | 783 | 10 | QDKNTQEVFA 0.000132 | 33 |
| HLA-A*02:03 | 1 | 790 | 798 | 9 | KTPPIKDFG 0.000132 | 34 |
| HLA-A*02:03 | 1 | 794 | 802 | 9 | IKDFGGFNF 0.000132 | 34 |
| HLA-B*53:01 | 1 | 796 | 804 | 9 | DFGGFNFSQ 0.000132 | 21 |
| HLA-B*07:02 | 1 | 804 | 813 | 10 | QILPDPSKPS 0.000132 | 28 |
| HLA-B*57:01 | 1 | 804 | 813 | 10 | QILPDPSKPS 0.000132 | 43 |
| HLA-B*57:01 | 1 | 881 | 889 | 9 | TITSGWTFG 0.000132 | 43 |
| HLA-B*07:02 | 1 | 925 | 933 | 9 | NQFNSAIGK 0.000132 | 28 |
| HLA-B*44:02 | 1 | 956 | 965 | 10 | AQALNTLVKQ 0.000132 | 20 |
| HLA-B*57:01 | 1 | 958 | 967 | 10 | ALNTLVKQLS 0.000132 | 43 |
| HLA-A*26:01 | 1 | 971 | 980 | 10 | GAISSVLNDI 0.000132 | 26 |
| HLA-A*68:03 | 1 | 986 | 995 | 10 | KVEAEVQIDR 0.000132 | 34 |
| HLA-A*02:01 | 1 | 993 | 1001 | 9 | IDRLITGRL 0.000132 | 31 |
| HLA-B*35:01 | 1 | 993 | 1001 | 9 | IDRLITGRL 0.000132 | 22 |
| HLA-A*68:02 | 1 | 999 | 1007 | 9 | GRLQSLQTY 0.000132 | 33 |
| HLA-A*30:02 | 1 | 1027 | 1036 | 10 | TKMSECVLQ 0.000132 | 52 |
| HLA-A*31:01 | 1 | 1052 | 1060 | 9 | FPQSAPHGV 0.000132 | 32 |
| HLA-B*35:01 | 1 | 1135 | 1144 | 10 | NTVYDPLQPE 0.000132 | 22 |
| HLA-A*02:01 | 1 | 1171 | 1180 | 10 | GINASVVNIQ 0.000132 | 31 |
| HLA-B*44:03 | 1 | 1179 | 1187 | 9 | IQKEIDRLN 0.000132 | 19 |
| HLA-B*51:01 | 1 | 1196 | 1204 | 9 | SLIDLQELG 0.000132 | 39 |
| HLA-B*08:01 | 1 | 1203 | 1211 | 9 | LGKYEQYIK 0.000132 | 43 |
| HLA-A*32:01 | 1 | 1219 | 1228 | 10 | GFIAGLIAIV 0.000132 | 24 |
| HLA-B*15:01 | 1 | 1228 | 1236 | 9 | VMVTIMLCC 0.000132 | 31 |
| HLA-A*03:01 | 1 | 1247 | 1255 | 9 | CCSCGSCCK 0.000132 | 26 |
| HLA-A*30:01 | 1 | 1259 | 1267 | 9 | DDSEPVKKG 0.000132 | 55 |
| HLA-A*30:02 | 1 | 2 | 11 | 10 | FVFLVLLPLV 0.000131 | 52 |
| HLA-A*02:06 | 1 | 16 | 25 | 10 | VNLTTRTQLP 0.000131 | 41 |
| HLA-A*02:01 | 1 | 18 | 27 | 10 | LTRTQLPPA 0.000131 | 31 |
| HLA-B*57:01 | 1 | 74 | 83 | 10 | NGTKRFDNPV 0.000131 | 43 |
| HLA-A*33:01 | 1 | 78 | 87 | 10 | RFDNPVLPFN 0.000131 | 33 |
| HLA-B*15:01 | 1 | 107 | 115 | 9 | GTTLDSTKQ 0.000131 | 31 |
| HLA-A*31:01 | 1 | 110 | 118 | 9 | LDSKTQSL 0.000131 | 33 |
| HLA-A*26:01 | 1 | 153 | 161 | 9 | MESEFRVYS 0.000131 | 26 |
| HLA-A*26:01 | 1 | 187 | 195 | 9 | KNLREFVFK 0.000131 | 26 |
| HLA-B*51:01 | 1 | 195 | 204 | 10 | KNIDGYFKIY 0.000131 | 39 |
| HLA-A*31:01 | 1 | 203 | 211 | 9 | IYSKHTPIN 0.000131 | 33 |
| HLA-B*57:01 | 1 | 208 | 217 | 10 | TPINLVRDLP 0.000131 | 43 |
| HLA-B*35:01 | 1 | 221 | 230 | 10 | SALEPLVDLP 0.000131 | 22 |
| HLA-A*30:02 | 1 | 223 | 231 | 9 | LEPLVDLPI 0.000131 | 52 |
| HLA-B*40:01 | 1 | 243 | 251 | 9 | ALHRSYLTP 0.000131 | 18 |
| HLA-B*44:03 | 1 | 281 | 289 | 9 | ENGTITDAV 0.000131 | 19 |
| HLA-A*23:01 | 1 | 294 | 303 | 10 | DPLSEKCTL 0.000131 | 19 |
| HLA-A*24:02 | 1 | 294 | 303 | 10 | DPLSEKCTL 0.000131 | 18 |
| HLA-A*68:01 | 1 | 316 | 325 | 10 | SNFRVPTES 0.000131 | 29 |
| HLA-B*40:01 | 1 | 324 | 332 | 9 | ESIVRFPNI 0.000131 | 18 |
| HLA-A*68:02 | 1 | 337 | 346 | 10 | PFGEVFNATR 0.000131 | 33 |
| HLA-B*57:01 | 1 | 341 | 350 | 10 | VFNATRFASV 0.000131 | 43 |
| HLA-B*35:01 | 1 | 366 | 375 | 10 | SVLYNSASFS 0.000131 | 22 |
| HLA-B*08:01 | 1 | 408 | 417 | 10 | RQIAPGQTGK 0.000131 | 44 |
| HLA-B*44:03 | 1 | 425 | 433 | 9 | LPDDFTGCV 0.000131 | 19 |
| HLA-B*57:01 | 1 | 452 | 461 | 10 | LYRLFRRKSNL 0.000131 | 43 |
| HLA-A*30:01 | 1 | 459 | 467 | 9 | SNLKPFRD 0.000131 | 55 |
| HLA-A*02:06 | 1 | 468 | 477 | 10 | ISTEIQAGS 0.000131 | 41 |
| HLA-B*15:01 | 1 | 468 | 476 | 9 | ISTEIQAG 0.000131 | 31 |
| HLA-B*44:03 | 1 | 471 | 479 | 9 | EIQAGSTP 0.000131 | 19 |
| HLA-B*57:01 | 1 | 473 | 481 | 9 | YQAGSTPCN 0.000131 | 43 |
| HLA-A*30:01 | 1 | 480 | 489 | 10 | CNGVEGFNCY 0.000131 | 55 |
| HLA-B*40:01 | 1 | 530 | 538 | 9 | STNLVKKNC 0.000131 | 18 |
| HLA-A*32:01 | 1 | 546 | 554 | 9 | LTGTGVLTE 0.000131 | 24 |
| HLA-B*57:01 | 1 | 547 | 556 | 10 | TGTGVLTESN 0.000131 | 43 |
| HLA-A*31:01 | 1 | 556 | 564 | 9 | NKKFLPFQQ 0.000131 | 33 |
| HLA-B*58:01 | 1 | 569 | 578 | 10 | IADTTDAVRD 0.000131 | 33 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*35:01 | 1 | 624 | 632 | 9 | IHADQLTPT 0.000131 | 22 |
| HLA-A*24:02 | 1 | 641 | 650 | 10 | NVFQTRAGCL 0.000131 | 18 |
| HLA-B*40:01 | 1 | 658 | 666 | 9 | NSYECDIPI 0.000131 | 18 |
| HLA-A*31:01 | 1 | 668 | 677 | 10 | AGICASYQTQ 0.000131 | 33 |
| HLA-A*31:01 | 1 | 687 | 696 | 10 | VASQSIIAYT 0.000131 | 33 |
| HLA-B*15:01 | 1 | 727 | 736 | 10 | LPVSMTKTSV 0.000131 | 31 |
| HLA-B*08:01 | 1 | 740 | 748 | 9 | MYICGDSTE 0.000131 | 44 |
| HLA-A*68:02 | 1 | 762 | 771 | 10 | QLNRALTGIA 0.000131 | 33 |
| HLA-A*26:01 | 1 | 778 | 786 | 9 | TQEVFAQVK 0.000131 | 26 |
| HLA-A*26:01 | 1 | 796 | 804 | 9 | DFGGFNFSQ 0.000131 | 26 |
| HLA-A*68:01 | 1 | 798 | 806 | 9 | GGFNFSQIL 0.000131 | 29 |
| HLA-A*02:06 | 1 | 815 | 824 | 10 | RSFIEDLLFN 0.000131 | 41 |
| HLA-B*40:01 | 1 | 828 | 837 | 10 | LADAGFIKQY 0.000131 | 18 |
| HLA-A*24:02 | 1 | 832 | 840 | 9 | GFIKQYGDC 0.000131 | 18 |
| HLA-A*32:01 | 1 | 875 | 884 | 10 | SALLAGTITS 0.000131 | 24 |
| HLA-A*68:01 | 1 | 888 | 896 | 9 | FGAGAALQI 0.000131 | 29 |
| HLA-B*57:01 | 1 | 893 | 901 | 9 | ALQIPFAMQ 0.000131 | 43 |
| HLA-A*11:01 | 1 | 904 | 913 | 10 | YRFNGIGVTQ 0.000131 | 20 |
| HLA-B*57:01 | 1 | 912 | 920 | 9 | TQNVLYENQ 0.000131 | 43 |
| HLA-B*40:01 | 1 | 936 | 945 | 10 | DSLSSSTASAL 0.000131 | 18 |
| HLA-A*31:01 | 1 | 948 | 956 | 9 | LQDVVNQNA 0.000131 | 33 |
| HLA-A*02:01 | 1 | 957 | 965 | 9 | QALNTLVKQ 0.000131 | 31 |
| HLA-A*03:01 | 1 | 982 | 991 | 10 | SRLDKVEAEV 0.000131 | 26 |
| HLA-A*30:01 | 1 | 1023 | 1032 | 10 | NLAATKMSEC 0.000131 | 55 |
| HLA-B*51:01 | 1 | 1030 | 1038 | 9 | SECVLGQSK 0.000131 | 39 |
| HLA-B*58:01 | 1 | 1030 | 1039 | 10 | SECVLGQSKR 0.000131 | 33 |
| HLA-B*51:01 | 1 | 1031 | 1039 | 9 | ECVLGQSKR 0.000131 | 39 |
| HLA-B*07:02 | 1 | 1043 | 1052 | 10 | CGKGYHLMSF 0.000131 | 28 |
| HLA-A*24:02 | 1 | 1060 | 1069 | 10 | VVFLHVITYVP 0.000131 | 18 |
| HLA-B*40:01 | 1 | 1072 | 1081 | 10 | EKNFTTAPAI 0.000131 | 18 |
| HLA-B*58:01 | 1 | 1080 | 1088 | 9 | AICHDGKAH 0.000131 | 33 |
| HLA-A*68:02 | 1 | 1161 | 1169 | 9 | SPDVDLGDI 0.000131 | 33 |
| HLA-B*58:01 | 1 | 1188 | 1196 | 9 | EVAKNLNES 0.000131 | 33 |
| HLA-A*01:01 | 1 | 1216 | 1224 | 9 | IWLGFIAGL 0.000131 | 44 |
| HLA-A*03:01 | 1 | 1223 | 1232 | 10 | GLIAIVMVTI 0.000131 | 26 |
| HLA-A*03:01 | 1 | 1226 | 1235 | 10 | AIVMVTIMLC 0.000131 | 26 |
| HLA-A*11:01 | 1 | 1257 | 1265 | 9 | DEDDSEPVL 0.000131 | 20 |
| HLA-A*02:01 | 1 | 1 | 9 | 9 | MFVFLVLLP 0.00013 | 31 |
| HLA-A*33:01 | 1 | 12 | 20 | 9 | SSQCVNLTT 0.00013 | 33 |
| HLA-B*35:01 | 1 | 65 | 73 | 9 | FHAIHVSGT 0.00013 | 22 |
| HLA-B*15:01 | 1 | 67 | 76 | 10 | AIHVSGTNGT 0.00013 | 31 |
| HLA-B*35:01 | 1 | 86 | 94 | 9 | FNDGVYFAS 0.00013 | 22 |
| HLA-A*02:03 | 1 | 90 | 98 | 9 | VYFASTEKS 0.00013 | 34 |
| HLA-B*58:01 | 1 | 102 | 111 | 10 | RGWIFGTTLD 0.00013 | 33 |
| HLA-A*03:01 | 1 | 111 | 119 | 9 | DSKTQSLLI 0.00013 | 26 |
| HLA-A*32:01 | 1 | 118 | 127 | 10 | LIVNATNVV 0.00013 | 24 |
| HLA-A*33:01 | 1 | 118 | 126 | 9 | LIVNATNV 0.00013 | 33 |
| HLA-A*24:02 | 1 | 136 | 144 | 9 | CNDPFLGVY 0.00013 | 19 |
| HLA-A*68:02 | 1 | 143 | 151 | 9 | VYYHKNNKS 0.00013 | 34 |
| HLA-A*02:01 | 1 | 161 | 170 | 10 | SSANNCTFEY 0.00013 | 31 |
| HLA-B*58:01 | 1 | 207 | 215 | 9 | HTPINLVVRD 0.00013 | 33 |
| HLA-A*11:01 | 1 | 218 | 226 | 9 | QGFSALEPL 0.00013 | 20 |
| HLA-A*68:01 | 1 | 221 | 230 | 10 | SALEPLVDLP 0.00013 | 29 |
| HLA-B*58:01 | 1 | 253 | 262 | 10 | DSSSGWTAGA 0.00013 | 33 |
| HLA-B*08:01 | 1 | 275 | 284 | 10 | FLLKYNENGT 0.00013 | 44 |
| HLA-A*31:01 | 1 | 308 | 316 | 9 | VEKGIYQTS 0.00013 | 33 |
| HLA-A*02:03 | 1 | 310 | 318 | 9 | KGIYQTSNF 0.00013 | 34 |
| HLA-A*33:01 | 1 | 315 | 324 | 10 | TSNFRVQPT 0.00013 | 33 |
| HLA-A*02:03 | 1 | 328 | 337 | 10 | RFPNITNLCP 0.00013 | 34 |
| HLA-B*53:01 | 1 | 381 | 390 | 10 | GVSPTKLNDL 0.00013 | 21 |
| HLA-A*32:01 | 1 | 399 | 408 | 10 | SFVIRGDEV 0.00013 | 24 |
| HLA-B*07:02 | 1 | 413 | 421 | 9 | GQTGKIADY 0.00013 | 28 |
| HLA-A*01:01 | 1 | 454 | 463 | 10 | RLFRKSNLKP 0.00013 | 44 |
| HLA-B*58:01 | 1 | 471 | 479 | 9 | EIYQAGSTP 0.00013 | 33 |
| HLA-B*40:01 | 1 | 505 | 514 | 10 | YQPYRVVVL 0.00013 | 18 |
| HLA-B*53:01 | 1 | 515 | 523 | 9 | FELLHAPAT 0.00013 | 21 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*33:01 | 1 | 539 | 547 | 9 | VNFNFNGLT 0.00013 | 33 |
| HLA-B*08:01 | 1 | 542 | 550 | 9 | NFNGLTGTG 0.00013 | 44 |
| HLA-A*30:02 | 1 | 589 | 598 | 10 | PCSFGGVSVI 0.00013 | 52 |
| HLA-A*31:01 | 1 | 591 | 600 | 10 | SFGGVSVITP 0.00013 | 33 |
| HLA-B*53:01 | 1 | 615 | 624 | 10 | VNCTEVPVAI 0.00013 | 21 |
| HLA-A*02:03 | 1 | 627 | 636 | 10 | DQLTPTWRVY 0.00013 | 34 |
| HLA-B*08:01 | 1 | 672 | 681 | 10 | ASYQTQTNSP 0.00013 | 44 |
| HLA-B*58:01 | 1 | 700 | 708 | 9 | GAENSVAYS 0.00013 | 33 |
| HLA-B*58:01 | 1 | 715 | 724 | 10 | PTNFTISVTT 0.00013 | 33 |
| HLA-A*02:01 | 1 | 720 | 728 | 9 | ISVTTEILP 0.00013 | 31 |
| HLA-B*57:01 | 1 | 730 | 738 | 9 | SMTKTSVDC 0.00013 | 44 |
| HLA-A*02:01 | 1 | 741 | 750 | 10 | YICGDSTECs 0.00013 | 31 |
| HLA-B*35:01 | 1 | 765 | 774 | 10 | RALTGIAVEQ 0.00013 | 22 |
| HLA-B*44:03 | 1 | 787 | 795 | 9 | QIYKTPPIK 0.00013 | 19 |
| HLA-A*01:01 | 1 | 794 | 803 | 10 | IKDFGGFNFS 0.00013 | 44 |
| HLA-A*30:02 | 1 | 796 | 805 | 10 | DFGGFNFSQI 0.00013 | 52 |
| HLA-B*35:01 | 1 | 797 | 806 | 10 | FGGFNFSQIL 0.00013 | 22 |
| HLA-A*02:06 | 1 | 801 | 809 | 9 | NFSQILPDP 0.00013 | 41 |
| HLA-B*53:01 | 1 | 817 | 826 | 10 | FIEDLLFNKV 0.00013 | 21 |
| HLA-B*57:01 | 1 | 854 | 863 | 10 | KFNGLTVLPP 0.00013 | 44 |
| HLA-A*30:01 | 1 | 855 | 863 | 9 | FNGLTVLPP 0.00013 | 55 |
| HLA-A*24:02 | 1 | 887 | 895 | 9 | TFGAGAALQ 0.00013 | 19 |
| HLA-B*08:01 | 1 | 902 | 910 | 9 | MAYRFNGIG 0.00013 | 44 |
| HLA-B*44:02 | 1 | 949 | 958 | 10 | QDVVNQNAQA 0.00013 | 20 |
| HLA-A*32:01 | 1 | 976 | 985 | 10 | VLNDILSRLD 0.00013 | 24 |
| HLA-A*68:01 | 1 | 993 | 1001 | 9 | IDRLITGRL 0.00013 | 29 |
| HLA-B*08:01 | 1 | 1037 | 1045 | 9 | SKRVDFCGK 0.00013 | 44 |
| HLA-A*23:01 | 1 | 1053 | 1061 | 9 | PQSAPHGVV 0.00013 | 19 |
| HLA-A*24:02 | 1 | 1056 | 1065 | 10 | APHGVVFLHV 0.00013 | 19 |
| HLA-A*01:01 | 1 | 1060 | 1069 | 10 | VVFLHVTVYP 0.00013 | 44 |
| HLA-A*23:01 | 1 | 1063 | 1071 | 9 | LHVTYVPAQ 0.00013 | 19 |
| HLA-B*58:01 | 1 | 1083 | 1091 | 9 | HDGKAHFPR 0.00013 | 33 |
| HLA-B*35:01 | 1 | 1103 | 1111 | 9 | FVTQRNFYE 0.00013 | 22 |
| HLA-A*33:01 | 1 | 1107 | 1115 | 9 | RNFYEPQII 0.00013 | 33 |
| HLA-B*08:01 | 1 | 1118 | 1126 | 9 | DNTFVSGNC 0.00013 | 44 |
| HLA-B*08:01 | 1 | 1135 | 1143 | 9 | NTVYDPLQP 0.00013 | 44 |
| HLA-B*51:01 | 1 | 1175 | 1184 | 10 | SVVNIQKEID 0.00013 | 39 |
| HLA-A*31:01 | 1 | 1188 | 1196 | 9 | EVAKNLNES 0.00013 | 33 |
| HLA-B*57:01 | 1 | 1188 | 1196 | 9 | EVAKNLNES 0.00013 | 44 |
| HLA-A*26:01 | 1 | 1205 | 1214 | 10 | KYEQYIKWPW 0.00013 | 27 |
| HLA-A*30:02 | 1 | 1215 | 1223 | 9 | YIWLGFIAQ 0.00013 | 52 |
| HLA-A*68:02 | 1 | 54 | 63 | 10 | LFLPFFSNVT 0.000129 | 34 |
| HLA-B*35:01 | 1 | 93 | 101 | 9 | ASTEKSNI 0.000129 | 22 |
| HLA-A*02:06 | 1 | 97 | 106 | 10 | KSNIIRGWIF 0.000129 | 41 |
| HLA-A*02:01 | 1 | 126 | 134 | 9 | VVIKVCFEQ 0.000129 | 31 |
| HLA-A*02:06 | 1 | 129 | 137 | 9 | KVCEFQFCN 0.000129 | 41 |
| HLA-A*33:01 | 1 | 165 | 174 | 10 | NCTFEYVSQP 0.000129 | 33 |
| HLA-A*33:01 | 1 | 177 | 186 | 10 | MDLEGKQGNF 0.000129 | 33 |
| HLA-A*02:03 | 1 | 180 | 189 | 10 | EGKQGNFKNL 0.000129 | 34 |
| HLA-A*24:02 | 1 | 222 | 231 | 10 | ALEPLVDLPI 0.000129 | 19 |
| HLA-B*58:01 | 1 | 234 | 243 | 10 | NITRFQTLA 0.000129 | 33 |
| HLA-A*31:01 | 1 | 250 | 258 | 9 | TPGDSSSGW 0.000129 | 33 |
| HLA-A*68:01 | 1 | 281 | 289 | 9 | ENGTITDAV 0.000129 | 29 |
| HLA-B*15:01 | 1 | 284 | 292 | 9 | TITDAVDCA 0.000129 | 31 |
| HLA-B*58:01 | 1 | 324 | 333 | 10 | ESIVRFPNIT 0.000129 | 33 |
| HLA-A*68:02 | 1 | 328 | 337 | 10 | RFPNITNLCP 0.000129 | 34 |
| HLA-B*08:01 | 1 | 337 | 345 | 9 | PFGEVFNAT 0.000129 | 44 |
| HLA-B*57:01 | 1 | 363 | 371 | 9 | ADYSVLYNS 0.000129 | 44 |
| HLA-A*24:02 | 1 | 369 | 378 | 10 | YNSASFSTFK 0.000129 | 19 |
| HLA-B*07:02 | 1 | 402 | 411 | 10 | IRGDEVQRQA 0.000129 | 29 |
| HLA-B*15:01 | 1 | 449 | 457 | 9 | YNYLYRFR 0.000129 | 31 |
| HLA-B*08:01 | 1 | 451 | 460 | 10 | YLYRFRKSN 0.000129 | 44 |
| HLA-A*31:01 | 1 | 459 | 468 | 10 | SNLKPFERDI 0.000129 | 33 |
| HLA-A*68:02 | 1 | 462 | 471 | 10 | KPFERDISTE 0.000129 | 34 |
| HLA-B*58:01 | 1 | 473 | 481 | 9 | YQAGSTPCN 0.000129 | 33 |
| HLA-B*58:01 | 1 | 487 | 496 | 10 | NCYFPLQSYG 0.000129 | 33 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*44:02 | 1 | 498 | 507 | 10 | QPTNGVGYP 0.000129 | 20 |
| HLA-A*24:02 | 1 | 514 | 522 | 9 | SFELLHAPA 0.000129 | 19 |
| HLA-A*30:02 | 1 | 561 | 569 | 9 | PFQQFGRDI 0.000129 | 52 |
| HLA-A*11:01 | 1 | 583 | 591 | 9 | EILDITPCS 0.000129 | 20 |
| HLA-A*11:01 | 1 | 612 | 620 | 9 | YQDVNCTEV 0.000129 | 20 |
| HLA-A*32:01 | 1 | 617 | 625 | 9 | CTEVPVAIH 0.000129 | 24 |
| HLA-A*23:01 | 1 | 641 | 650 | 10 | NVFQTRAGCL 0.000129 | 19 |
| HLA-A*02:03 | 1 | 649 | 657 | 9 | CLIGAEHVN 0.000129 | 34 |
| HLA-A*30:02 | 1 | 671 | 679 | 9 | CASYQTQTN 0.000129 | 52 |
| HLA-B*53:01 | 1 | 677 | 685 | 9 | QTNSPRRAR 0.000129 | 21 |
| HLA-B*53:01 | 1 | 680 | 689 | 10 | SPRRARSVAS 0.000129 | 21 |
| HLA-A*23:01 | 1 | 694 | 703 | 10 | AYTMSLGAEN 0.000129 | 19 |
| HLA-A*33:01 | 1 | 739 | 747 | 9 | TMYICGDST 0.000129 | 33 |
| HLA-A*02:03 | 1 | 770 | 778 | 9 | IAVEQDKNT 0.000129 | 34 |
| HLA-B*07:02 | 1 | 793 | 802 | 10 | PIKDFGGFNF 0.000129 | 29 |
| HLA-B*44:02 | 1 | 793 | 802 | 10 | PIKDFGGFNF 0.000129 | 20 |
| HLA-A*26:01 | 1 | 804 | 813 | 10 | QILPDPSPKPS 0.000129 | 27 |
| HLA-A*68:01 | 1 | 829 | 838 | 10 | ADAGFIKQYG 0.000129 | 29 |
| HLA-A*30:02 | 1 | 849 | 857 | 9 | LICAQKFNG 0.000129 | 52 |
| HLA-A*24:02 | 1 | 868 | 877 | 10 | EMIAQYTSAL 0.000129 | 19 |
| HLA-A*33:01 | 1 | 872 | 880 | 9 | QYTSALLAG 0.000129 | 33 |
| HLA-B*44:03 | 1 | 887 | 896 | 10 | TFGAGAALQI 0.000129 | 19 |
| HLA-A*26:01 | 1 | 897 | 905 | 9 | PFAMQMAYR 0.000129 | 27 |
| HLA-A*03:01 | 1 | 911 | 919 | 9 | VTQNVLYEN 0.000129 | 26 |
| HLA-A*02:01 | 1 | 934 | 943 | 10 | IQDSLSSSTAS 0.000129 | 31 |
| HLA-B*07:02 | 1 | 941 | 949 | 9 | TASALGKLQ 0.000129 | 29 |
| HLA-A*31:01 | 1 | 943 | 952 | 10 | SALGKLDVV 0.000129 | 33 |
| HLA-B*44:03 | 1 | 957 | 965 | 9 | QALNTLVKQ 0.000129 | 19 |
| HLA-B*40:01 | 1 | 961 | 970 | 10 | TLVKQLSSNF 0.000129 | 18 |
| HLA-B*53:01 | 1 | 984 | 993 | 10 | LDKVEAEVQI 0.000129 | 21 |
| HLA-A*02:03 | 1 | 998 | 1007 | 10 | TGRLQSLQTY 0.000129 | 34 |
| HLA-B*07:02 | 1 | 1008 | 1017 | 10 | VTQQLIRAAE 0.000129 | 29 |
| HLA-A*24:02 | 1 | 1052 | 1061 | 10 | FPQSAPHGVV 0.000129 | 19 |
| HLA-A*01:01 | 1 | 1053 | 1061 | 9 | PQSAPHGVV 0.000129 | 44 |
| HLA-A*33:01 | 1 | 1062 | 1071 | 10 | FLHVTVVPAQ 0.000129 | 33 |
| HLA-B*35:01 | 1 | 1072 | 1080 | 9 | EKNFTTAPA 0.000129 | 22 |
| HLA-B*44:03 | 1 | 1108 | 1116 | 9 | NFYEPQIIT 0.000129 | 19 |
| HLA-A*68:01 | 1 | 1114 | 1122 | 9 | IITTDNTFV 0.000129 | 29 |
| HLA-A*33:01 | 1 | 1119 | 1128 | 10 | NTFVSGNCDV 0.000129 | 33 |
| HLA-B*35:01 | 1 | 1128 | 1137 | 10 | VVIGIVNNTV 0.000129 | 22 |
| HLA-B*08:01 | 1 | 1146 | 1154 | 9 | DSFKEELDK 0.000129 | 44 |
| HLA-B*51:01 | 1 | 1150 | 1159 | 10 | EELDKYFKNH 0.000129 | 39 |
| HLA-B*57:01 | 1 | 1168 | 1177 | 10 | DISGINASVV 0.000129 | 44 |
| HLA-B*08:01 | 1 | 1174 | 1182 | 9 | ASVVNIQKE 0.000129 | 44 |
| HLA-B*15:01 | 1 | 1218 | 1227 | 10 | LGFIAGLIAI 0.000129 | 31 |
| HLA-B*51:01 | 1 | 1219 | 1228 | 10 | GFIAGLIAIV 0.000129 | 39 |
| HLA-A*02:03 | 1 | 1229 | 1237 | 9 | MVTIMLCCM 0.000129 | 34 |
| HLA-A*02:06 | 1 | 1257 | 1266 | 10 | DEDDSEPVLK 0.000129 | 41 |
| HLA-A*02:03 | 1 | 1 | 9 | 9 | MFVFLVLLP 0.000128 | 34 |
| HLA-A*32:01 | 1 | 12 | 20 | 9 | SSQCVNLTT 0.000128 | 24 |
| HLA-A*02:01 | 1 | 36 | 45 | 10 | VYYPDKVFRS 0.000128 | 31 |
| HLA-A*03:01 | 1 | 42 | 51 | 10 | VFRSSVLHST 0.000128 | 26 |
| HLA-B*40:01 | 1 | 58 | 66 | 9 | FFSNVTWFH 0.000128 | 18 |
| HLA-B*58:01 | 1 | 60 | 69 | 10 | SNVTWFHAIH 0.000128 | 33 |
| HLA-A*68:01 | 1 | 85 | 93 | 9 | PFNDGVYFA 0.000128 | 29 |
| HLA-B*44:02 | 1 | 89 | 97 | 9 | GVYFASTEK 0.000128 | 20 |
| HLA-A*11:01 | 1 | 167 | 175 | 9 | TFEYVSQPF 0.000128 | 20 |
| HLA-B*57:01 | 1 | 186 | 195 | 10 | FKNLREFVFK 0.000128 | 44 |
| HLA-B*51:01 | 1 | 188 | 196 | 9 | NLREFVFKN 0.000128 | 39 |
| HLA-B*07:02 | 1 | 189 | 197 | 9 | LREFVFKNI 0.000128 | 29 |
| HLA-A*30:01 | 1 | 216 | 224 | 9 | LPQGFSALE 0.000128 | 55 |
| HLA-A*68:02 | 1 | 231 | 240 | 10 | IGINITRFQT 0.000128 | 34 |
| HLA-A*02:06 | 1 | 315 | 324 | 10 | TSNFRVQPT 0.000128 | 41 |
| HLA-A*03:01 | 1 | 325 | 333 | 9 | SIVRFPNIT 0.000128 | 26 |
| HLA-A*02:06 | 1 | 330 | 338 | 9 | PNITNLCPF 0.000128 | 41 |
| HLA-A*32:01 | 1 | 341 | 350 | 10 | VFNATRFASV 0.000128 | 24 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*68:02 | 1 | 374 | 383 | 10 | FSTFKCYGVS 0.000128 | 34 |
| HLA-B*07:02 | 1 | 393 | 402 | 10 | TNVYADSFVI 0.000128 | 29 |
| HLA-B*58:01 | 1 | 401 | 409 | 9 | VIRGDEVRO 0.000128 | 33 |
| HLA-A*02:01 | 1 | 402 | 411 | 10 | IRGDEVROIA 0.000128 | 31 |
| HLA-B*44:03 | 1 | 409 | 418 | 10 | QIAPGQTGKI 0.000128 | 19 |
| HLA-A*01:01 | 1 | 455 | 463 | 9 | LFKSNLKP 0.000128 | 44 |
| HLA-A*24:02 | 1 | 472 | 481 | 10 | IYQAGSTPCN 0.000128 | 19 |
| HLA-A*26:01 | 1 | 498 | 507 | 10 | QPTNGVGYQP 0.000128 | 27 |
| HLA-B*35:01 | 1 | 513 | 522 | 10 | LSFELLHAPA 0.000128 | 22 |
| HLA-A*02:03 | 1 | 544 | 552 | 9 | NGLTGTGVL 0.000128 | 34 |
| HLA-A*32:01 | 1 | 548 | 557 | 10 | GTGVLTESNK 0.000128 | 24 |
| HLA-B*53:01 | 1 | 571 | 579 | 9 | DTTDAVRDP 0.000128 | 21 |
| HLA-A*01:01 | 1 | 597 | 606 | 10 | VITPGTNTSN 0.000128 | 44 |
| HLA-A*23:01 | 1 | 602 | 611 | 10 | TNTSNQVAVL 0.000128 | 19 |
| HLA-B*44:02 | 1 | 620 | 629 | 10 | VPVAIHADQL 0.000128 | 20 |
| HLA-A*24:02 | 1 | 632 | 640 | 9 | TWRVYSTGS 0.000128 | 19 |
| HLA-A*68:01 | 1 | 640 | 649 | 10 | SNVFQTRAGC 0.000128 | 29 |
| HLA-A*32:01 | 1 | 647 | 655 | 9 | AGCLIGAHEH 0.000128 | 24 |
| HLA-B*44:02 | 1 | 652 | 661 | 10 | GAEHVNNSEY 0.000128 | 20 |
| HLA-A*30:02 | 1 | 655 | 663 | 9 | HVNNSYECD 0.000128 | 52 |
| HLA-A*26:01 | 1 | 693 | 701 | 9 | IAYTMSLGA 0.000128 | 27 |
| HLA-A*33:01 | 1 | 694 | 702 | 9 | AYTMSLGAE 0.000128 | 33 |
| HLA-B*58:01 | 1 | 716 | 725 | 10 | TNFTISVTTE 0.000128 | 33 |
| HLA-A*26:01 | 1 | 744 | 752 | 9 | GDSTECSNL 0.000128 | 27 |
| HLA-A*01:01 | 1 | 753 | 762 | 10 | LLQYGSFCTQ 0.000128 | 44 |
| HLA-A*02:06 | 1 | 770 | 779 | 10 | IAVEQDKNTQ 0.000128 | 41 |
| HLA-A*31:01 | 1 | 793 | 802 | 10 | PIKDFGGFNF 0.000128 | 33 |
| HLA-B*58:01 | 1 | 799 | 807 | 9 | GFNFSQILP 0.000128 | 33 |
| HLA-A*03:01 | 1 | 816 | 824 | 9 | SFIEDLLFN 0.000128 | 26 |
| HLA-B*51:01 | 1 | 822 | 831 | 10 | LFNKVTLADA 0.000128 | 39 |
| HLA-B*44:02 | 1 | 827 | 835 | 9 | TLADAGFIK 0.000128 | 20 |
| HLA-A*02:01 | 1 | 846 | 855 | 10 | ARDLICAQKF 0.000128 | 31 |
| HLA-A*02:01 | 1 | 858 | 867 | 10 | LTVLPPLTD 0.000128 | 31 |
| HLA-B*44:03 | 1 | 868 | 877 | 10 | EMIAQYTSAL 0.000128 | 19 |
| HLA-B*58:01 | 1 | 895 | 903 | 9 | QIPFAMQMA 0.000128 | 33 |
| HLA-A*33:01 | 1 | 953 | 961 | 9 | NQNAQALNT 0.000128 | 33 |
| HLA-A*33:01 | 1 | 954 | 963 | 10 | QNAQALNTLV 0.000128 | 33 |
| HLA-A*30:02 | 1 | 973 | 982 | 10 | ISSVLNDILS 0.000128 | 52 |
| HLA-B*44:03 | 1 | 982 | 990 | 9 | SRLDKVEAE 0.000128 | 19 |
| HLA-A*02:01 | 1 | 984 | 993 | 10 | LDKVEAEVQI 0.000128 | 31 |
| HLA-B*08:01 | 1 | 987 | 995 | 9 | VEAEVQIDR 0.000128 | 44 |
| HLA-A*02:06 | 1 | 994 | 1003 | 10 | DRLITGRLQS 0.000128 | 41 |
| HLA-A*68:01 | 1 | 995 | 1004 | 10 | RLITGRLQSL 0.000128 | 29 |
| HLA-A*33:01 | 1 | 1050 | 1059 | 10 | MSFPQSAPHG 0.000128 | 33 |
| HLA-A*01:01 | 1 | 1057 | 1065 | 9 | PHGVVFLHV 0.000128 | 44 |
| HLA-A*68:01 | 1 | 1062 | 1070 | 9 | FLHVTVVPA 0.000128 | 29 |
| HLA-A*32:01 | 1 | 1103 | 1111 | 9 | FVTQRNFYE 0.000128 | 24 |
| HLA-A*03:01 | 1 | 1129 | 1137 | 9 | VIGIVNNTV 0.000128 | 26 |
| HLA-A*31:01 | 1 | 1137 | 1146 | 10 | VYDPLQPELD 0.000128 | 33 |
| HLA-A*33:01 | 1 | 1179 | 1188 | 10 | IQKEIDRLNE 0.000128 | 33 |
| HLA-B*57:01 | 1 | 7 | 16 | 10 | LLPLVSSQCV 0.000127 | 44 |
| HLA-A*01:01 | 1 | 31 | 39 | 9 | SFTRGVVYYP 0.000127 | 44 |
| HLA-A*03:01 | 1 | 45 | 54 | 10 | SSVLHSTQDL 0.000127 | 26 |
| HLA-B*35:01 | 1 | 49 | 57 | 9 | HSTQDLFLP 0.000127 | 22 |
| HLA-A*03:01 | 1 | 188 | 196 | 9 | NLREFVFKN 0.000127 | 26 |
| HLA-B*57:01 | 1 | 189 | 197 | 9 | LREFVFKNI 0.000127 | 44 |
| HLA-A*68:02 | 1 | 200 | 208 | 9 | YFKIYSKHT 0.000127 | 34 |
| HLA-A*32:01 | 1 | 213 | 222 | 10 | VRDLPQGFSA 0.000127 | 24 |
| HLA-A*68:01 | 1 | 214 | 223 | 10 | RDLPQGFSA 0.000127 | 29 |
| HLA-A*02:01 | 1 | 223 | 231 | 9 | LEPLVDLPI 0.000127 | 31 |
| HLA-B*57:01 | 1 | 226 | 234 | 9 | LVDLPIGIN 0.000127 | 44 |
| HLA-A*68:02 | 1 | 262 | 271 | 10 | AAAYVGYLQ 0.000127 | 34 |
| HLA-A*68:01 | 1 | 268 | 277 | 10 | GYLQPRTFLL 0.000127 | 29 |
| HLA-B*58:01 | 1 | 288 | 296 | 9 | AVDCALDPL 0.000127 | 33 |
| HLA-A*33:01 | 1 | 292 | 301 | 10 | ALDPLSETKC 0.000127 | 33 |
| HLA-A*26:01 | 1 | 327 | 336 | 10 | VRFPNITNLC 0.000127 | 27 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*02:06 | 1 | 328 | 337 | 10 | RFPNITNLCP 0.000127 | 41 |
| HLA-A*32:01 | 1 | 358 | 367 | 10 | ISNCVADYSV 0.000127 | 24 |
| HLA-B*44:03 | 1 | 370 | 378 | 9 | NSASFSTFK 0.000127 | 20 |
| HLA-B*57:01 | 1 | 396 | 405 | 10 | YADSFVIRGD 0.000127 | 44 |
| HLA-B*08:01 | 1 | 404 | 412 | 9 | GDEVQRQIAP 0.000127 | 44 |
| HLA-B*51:01 | 1 | 408 | 417 | 10 | RQIAPGQTGK 0.000127 | 39 |
| HLA-B*44:03 | 1 | 410 | 418 | 9 | IAPGQTGKI 0.000127 | 20 |
| HLA-B*07:02 | 1 | 422 | 430 | 9 | NYKLPDDFT 0.000127 | 29 |
| HLA-A*24:02 | 1 | 449 | 457 | 9 | YNYLYRFR 0.000127 | 19 |
| HLA-B*53:01 | 1 | 468 | 476 | 9 | ISTEIQAG 0.000127 | 21 |
| HLA-A*68:01 | 1 | 509 | 518 | 10 | RVVLSFELL 0.000127 | 29 |
| HLA-B*07:02 | 1 | 515 | 523 | 9 | FELLHAPAT 0.000127 | 29 |
| HLA-B*44:03 | 1 | 526 | 535 | 10 | GPKKSTNLVK 0.000127 | 20 |
| HLA-A*11:01 | 1 | 530 | 539 | 10 | STNLVKNKCV 0.000127 | 20 |
| HLA-A*03:01 | 1 | 535 | 543 | 9 | KNKCVNFN 0.000127 | 26 |
| HLA-B*58:01 | 1 | 565 | 573 | 9 | FGRDIADTT 0.000127 | 33 |
| HLA-B*44:03 | 1 | 567 | 576 | 10 | RDIADTTDAV 0.000127 | 20 |
| HLA-A*01:01 | 1 | 581 | 590 | 10 | TLEILDITPC 0.000127 | 44 |
| HLA-A*32:01 | 1 | 589 | 598 | 10 | PCSFGGVSVI 0.000127 | 24 |
| HLA-A*02:06 | 1 | 611 | 619 | 9 | LYQDVNCTE 0.000127 | 41 |
| HLA-A*01:01 | 1 | 619 | 628 | 10 | EVPVAIHADQ 0.000127 | 44 |
| HLA-A*26:01 | 1 | 626 | 634 | 9 | ADQLTPTWR 0.000127 | 27 |
| HLA-A*32:01 | 1 | 642 | 650 | 9 | VFQTRAGCL 0.000127 | 24 |
| HLA-B*35:01 | 1 | 646 | 655 | 10 | RAGCLIGAETH 0.000127 | 22 |
| HLA-B*58:01 | 1 | 655 | 663 | 9 | HVNNSYECD 0.000127 | 33 |
| HLA-B*53:01 | 1 | 679 | 687 | 9 | NSPRRARSV 0.000127 | 21 |
| HLA-B*44:03 | 1 | 683 | 692 | 10 | RARSVASQSI 0.000127 | 20 |
| HLA-A*11:01 | 1 | 697 | 705 | 9 | MSLGAENSV 0.000127 | 20 |
| HLA-A*68:02 | 1 | 700 | 708 | 9 | GAENSVAYS 0.000127 | 34 |
| HLA-B*58:01 | 1 | 708 | 717 | 10 | SNNSIAIPTN 0.000127 | 33 |
| HLA-A*23:01 | 1 | 724 | 733 | 10 | TEILPVSMTK 0.000127 | 19 |
| HLA-B*07:02 | 1 | 729 | 738 | 10 | VSMTKTSVDC 0.000127 | 29 |
| HLA-B*40:01 | 1 | 734 | 742 | 9 | TSVDCTMYI 0.000127 | 18 |
| HLA-B*57:01 | 1 | 771 | 780 | 10 | AVEQDKNTQE 0.000127 | 44 |
| HLA-A*24:02 | 1 | 782 | 790 | 9 | FAQVKQIYK 0.000127 | 19 |
| HLA-B*58:01 | 1 | 795 | 803 | 9 | KDFGGFNFS 0.000127 | 33 |
| HLA-B*35:01 | 1 | 797 | 805 | 9 | FGGFNFSQI 0.000127 | 22 |
| HLA-B*51:01 | 1 | 818 | 827 | 10 | IEDLLFNKVT 0.000127 | 39 |
| HLA-A*01:01 | 1 | 881 | 889 | 9 | TITSGWTFG 0.000127 | 44 |
| HLA-B*53:01 | 1 | 891 | 899 | 9 | GAALQIPFA 0.000127 | 21 |
| HLA-A*02:01 | 1 | 895 | 904 | 10 | QIPFAMQMAY 0.000127 | 31 |
| HLA-A*02:03 | 1 | 908 | 917 | 10 | GIGVTQNVLY 0.000127 | 34 |
| HLA-A*26:01 | 1 | 910 | 918 | 9 | GVTQNVLYE 0.000127 | 27 |
| HLA-B*35:01 | 1 | 926 | 934 | 9 | QFNSAIGKI 0.000127 | 22 |
| HLA-A*24:02 | 1 | 939 | 948 | 10 | SSTASALGKL 0.000127 | 19 |
| HLA-A*01:01 | 1 | 990 | 999 | 10 | EVQIDRLITG 0.000127 | 44 |
| HLA-B*15:01 | 1 | 1002 | 1011 | 10 | QSLQTYVTQQ 0.000127 | 32 |
| HLA-A*02:03 | 1 | 1005 | 1014 | 10 | QTYVTQQLIR 0.000127 | 34 |
| HLA-B*44:02 | 1 | 1034 | 1042 | 9 | LGQSKRVDF 0.000127 | 20 |
| HLA-B*44:03 | 1 | 1047 | 1056 | 10 | YHLMSFPQSA 0.000127 | 20 |
| HLA-B*58:01 | 1 | 1053 | 1061 | 9 | PQSAPHGVV 0.000127 | 33 |
| HLA-A*26:01 | 1 | 1067 | 1076 | 10 | YVPAQEKNT 0.000127 | 27 |
| HLA-B*57:01 | 1 | 1070 | 1078 | 9 | AQEKNTFTA 0.000127 | 44 |
| HLA-A*01:01 | 1 | 1072 | 1081 | 10 | EKNFTTAPAI 0.000127 | 44 |
| HLA-B*53:01 | 1 | 1092 | 1100 | 9 | EGVFVSNGT 0.000127 | 21 |
| HLA-A*68:02 | 1 | 1098 | 1106 | 9 | NGTHWFVTQ 0.000127 | 34 |
| HLA-A*02:06 | 1 | 1112 | 1120 | 9 | PQIITTDNT 0.000127 | 41 |
| HLA-A*26:01 | 1 | 1115 | 1123 | 9 | ITTDNTFVS 0.000127 | 27 |
| HLA-A*32:01 | 1 | 1132 | 1140 | 9 | IVNNTVYDP 0.000127 | 24 |
| HLA-A*33:01 | 1 | 1145 | 1154 | 10 | LDSFKEELDK 0.000127 | 33 |
| HLA-A*01:01 | 1 | 1154 | 1162 | 9 | KYFKNHTSP 0.000127 | 44 |
| HLA-A*32:01 | 1 | 1157 | 1166 | 10 | KNHTSPDVL 0.000127 | 24 |
| HLA-A*26:01 | 1 | 1165 | 1174 | 10 | DLGDISGINA 0.000127 | 27 |
| HLA-A*31:01 | 1 | 7 | 15 | 9 | LLPLVSSQC 0.000126 | 33 |
| HLA-A*26:01 | 1 | 22 | 30 | 9 | TQLPPAYTN 0.000126 | 27 |
| HLA-A*02:01 | 1 | 28 | 37 | 10 | YTNSFTRGVY 0.000126 | 31 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*08:01 | 1 | 33 | 42 | 10 | TRGVYYPDKV 0.000126 | 44 |
| HLA-A*11:01 | 1 | 37 | 45 | 9 | YYPDKVFRS 0.000126 | 20 |
| HLA-B*44:02 | 1 | 37 | 45 | 9 | YYPDKVFRS 0.000126 | 21 |
| HLA-A*03:01 | 1 | 43 | 52 | 10 | FRSSVLHSTQ 0.000126 | 26 |
| HLA-A*02:03 | 1 | 53 | 61 | 9 | DLFLPFFSN 0.000126 | 34 |
| HLA-A*68:02 | 1 | 63 | 72 | 10 | TWFHAIHVSG 0.000126 | 34 |
| HLA-A*11:01 | 1 | 96 | 104 | 9 | EKSNIIRGW 0.000126 | 20 |
| HLA-B*57:01 | 1 | 98 | 107 | 10 | SNIIRGWIFG 0.000126 | 44 |
| HLA-B*57:01 | 1 | 112 | 120 | 9 | SKTQSLIV 0.000126 | 44 |
| HLA-A*02:06 | 1 | 121 | 129 | 9 | NNATNVVIK 0.000126 | 41 |
| HLA-B*35:01 | 1 | 132 | 141 | 10 | EFQFCNDPFL 0.000126 | 22 |
| HLA-B*40:01 | 1 | 193 | 201 | 9 | VFKNIDGYF 0.000126 | 18 |
| HLA-A*03:01 | 1 | 213 | 222 | 10 | VRDLPQGFSFA 0.000126 | 26 |
| HLA-B*07:02 | 1 | 241 | 250 | 10 | LLALHRSYLT 0.000126 | 29 |
| HLA-A*32:01 | 1 | 284 | 293 | 10 | TITDAVDCAL 0.000126 | 24 |
| HLA-B*44:02 | 1 | 288 | 296 | 9 | AVDCALDPL 0.000126 | 21 |
| HLA-B*40:01 | 1 | 302 | 310 | 9 | TLKSFTVEK 0.000126 | 18 |
| HLA-B*57:01 | 1 | 308 | 316 | 9 | VEKGIYQTS 0.000126 | 44 |
| HLA-A*32:01 | 1 | 325 | 334 | 10 | SIVRFPNITN 0.000126 | 24 |
| HLA-A*01:01 | 1 | 341 | 350 | 10 | VFNATRFASV 0.000126 | 44 |
| HLA-A*01:01 | 1 | 351 | 359 | 9 | YAWNKRKRIS 0.000126 | 44 |
| HLA-A*23:01 | 1 | 352 | 361 | 10 | AWNKRKRISNC 0.000126 | 19 |
| HLA-A*26:01 | 1 | 353 | 361 | 9 | WNRKRISNC 0.000126 | 27 |
| HLA-A*02:03 | 1 | 370 | 378 | 9 | NSASFSTFK 0.000126 | 34 |
| HLA-B*07:02 | 1 | 388 | 396 | 9 | NDLCFITNVY 0.000126 | 29 |
| HLA-A*24:02 | 1 | 401 | 410 | 10 | VIRGDEVROI 0.000126 | 19 |
| HLA-A*01:01 | 1 | 423 | 432 | 10 | YKLPDDFTGC 0.000126 | 44 |
| HLA-A*01:01 | 1 | 432 | 441 | 10 | CVIAWNSNNL 0.000126 | 44 |
| HLA-A*01:01 | 1 | 437 | 446 | 10 | NSNNLDSKVG 0.000126 | 44 |
| HLA-A*31:01 | 1 | 462 | 471 | 10 | KPFERDISTE 0.000126 | 33 |
| HLA-A*68:02 | 1 | 486 | 494 | 9 | FNCYFPLQS 0.000126 | 34 |
| HLA-B*51:01 | 1 | 493 | 502 | 10 | QSYGFQPTNG 0.000126 | 39 |
| HLA-A*26:01 | 1 | 512 | 520 | 9 | VLSFELLHA 0.000126 | 27 |
| HLA-A*02:06 | 1 | 535 | 543 | 9 | KNKCVNFNF 0.000126 | 41 |
| HLA-A*68:02 | 1 | 552 | 561 | 10 | LTESNKKFLP 0.000126 | 34 |
| HLA-B*53:01 | 1 | 597 | 605 | 9 | VITPGTNTS 0.000126 | 21 |
| HLA-A*68:02 | 1 | 615 | 623 | 9 | VNCTEVPVA 0.000126 | 34 |
| HLA-B*15:01 | 1 | 622 | 631 | 10 | VAIHADQLTP 0.000126 | 32 |
| HLA-A*02:01 | 1 | 629 | 638 | 10 | LTPTWRVYST 0.000126 | 31 |
| HLA-A*32:01 | 1 | 642 | 651 | 10 | VFQTRAGCLI 0.000126 | 24 |
| HLA-B*57:01 | 1 | 646 | 654 | 9 | RAGCLIGAE 0.000126 | 44 |
| HLA-A*68:02 | 1 | 658 | 667 | 10 | NSYECDIPIG 0.000126 | 34 |
| HLA-A*26:01 | 1 | 664 | 672 | 9 | IPIGAGICA 0.000126 | 27 |
| HLA-B*51:01 | 1 | 675 | 684 | 10 | QTQTNSPRRA 0.000126 | 39 |
| HLA-A*02:01 | 1 | 734 | 743 | 10 | TSVDCTMYIC 0.000126 | 31 |
| HLA-B*07:02 | 1 | 739 | 747 | 9 | TMYICGDST 0.000126 | 29 |
| HLA-B*15:01 | 1 | 745 | 753 | 9 | DSTECSNLL 0.000126 | 32 |
| HLA-A*68:01 | 1 | 751 | 759 | 9 | NLLLQYGSF 0.000126 | 29 |
| HLA-A*32:01 | 1 | 783 | 792 | 10 | AQVKQIYKTP 0.000126 | 24 |
| HLA-A*23:01 | 1 | 802 | 811 | 10 | FSQILPDPSPK 0.000126 | 19 |
| HLA-A*23:01 | 1 | 813 | 821 | 9 | SKRSFIEDL 0.000126 | 19 |
| HLA-A*11:01 | 1 | 816 | 824 | 9 | SFIEDLLFN 0.000126 | 20 |
| HLA-B*08:01 | 1 | 837 | 846 | 10 | YGDCLGDIAA 0.000126 | 44 |
| HLA-B*08:01 | 1 | 845 | 854 | 10 | AARDLICAQK 0.000126 | 44 |
| HLA-A*26:01 | 1 | 860 | 868 | 9 | VLPLLTDDE 0.000126 | 27 |
| HLA-B*57:01 | 1 | 860 | 868 | 9 | VLPLLTDDE 0.000126 | 44 |
| HLA-A*03:01 | 1 | 865 | 874 | 10 | LTDEMIAQYT 0.000126 | 26 |
| HLA-A*01:01 | 1 | 903 | 911 | 9 | AYRFNGIGV 0.000126 | 44 |
| HLA-B*53:01 | 1 | 908 | 916 | 9 | GIGVTQNVL 0.000126 | 21 |
| HLA-B*51:01 | 1 | 938 | 946 | 9 | LSSTASALG 0.000126 | 39 |
| HLA-A*01:01 | 1 | 949 | 957 | 9 | QDVVNQNAQ 0.000126 | 44 |
| HLA-A*01:01 | 1 | 961 | 969 | 9 | TLVKQLSSN 0.000126 | 44 |
| HLA-A*68:01 | 1 | 973 | 981 | 9 | ISSVLNDIL 0.000126 | 29 |
| HLA-A*01:01 | 1 | 981 | 990 | 10 | LSRLDKVEAE 0.000126 | 44 |
| HLA-A*68:02 | 1 | 997 | 1006 | 10 | ITGRLQSLQT 0.000126 | 34 |
| HLA-A*02:06 | 1 | 1002 | 1011 | 10 | QSLQTYVTQQ 0.000126 | 41 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*58:01 | 1 | 1029 | 1037 | 9 | MSECVLGQS 0.000126 | 33 |
| HLA-B*44:02 | 1 | 1041 | 1050 | 10 | DFCGKGYHLM 0.000126 | 21 |
| HLA-A*03:01 | 1 | 1062 | 1070 | 9 | FLHVTVVPA 0.000126 | 26 |
| HLA-A*68:02 | 1 | 1137 | 1146 | 10 | VYDPLQPELD 0.000126 | 34 |
| HLA-A*26:01 | 1 | 1155 | 1164 | 10 | YFKNHTSPDV 0.000126 | 27 |
| HLA-B*58:01 | 1 | 1176 | 1184 | 9 | VVNIQKEID 0.000126 | 33 |
| HLA-B*58:01 | 1 | 1228 | 1236 | 9 | VMVTIMLCC 0.000126 | 33 |
| HLA-A*33:01 | 1 | 1248 | 1256 | 9 | CSCGSCCKF 0.000126 | 33 |
| HLA-A*33:01 | 1 | 4 | 12 | 9 | FLVLLPLVS 0.000125 | 33 |
| HLA-A*68:01 | 1 | 38 | 47 | 10 | YDPKVFSSV 0.000125 | 29 |
| HLA-A*33:01 | 1 | 70 | 79 | 10 | VSGTNGTKRF 0.000125 | 33 |
| HLA-A*32:01 | 1 | 88 | 97 | 10 | DGVYFASTK 0.000125 | 24 |
| HLA-A*11:01 | 1 | 93 | 101 | 9 | ASTEKSNI 0.000125 | 20 |
| HLA-A*02:01 | 1 | 94 | 102 | 9 | STEKSNIIR 0.000125 | 31 |
| HLA-A*26:01 | 1 | 119 | 128 | 10 | IVNNATNVVI 0.000125 | 27 |
| HLA-B*44:03 | 1 | 123 | 131 | 9 | ATNVVIKVC 0.000125 | 20 |
| HLA-B*44:02 | 1 | 126 | 135 | 10 | VVIKVCFFQF 0.000125 | 21 |
| HLA-B*44:03 | 1 | 126 | 135 | 10 | VVIKVCFFQF 0.000125 | 20 |
| HLA-A*24:02 | 1 | 172 | 180 | 9 | SQPFLMDLE 0.000125 | 19 |
| HLA-A*68:01 | 1 | 188 | 196 | 9 | NLREFVFN 0.000125 | 29 |
| HLA-A*30:02 | 1 | 207 | 215 | 9 | HTPINLVRD 0.000125 | 53 |
| HLA-A*02:06 | 1 | 216 | 225 | 10 | LPQGFSALEP 0.000125 | 41 |
| HLA-B*08:01 | 1 | 216 | 225 | 10 | LPQGFSALEP 0.000125 | 44 |
| HLA-A*30:01 | 1 | 227 | 236 | 10 | VDLPIGINIT 0.000125 | 55 |
| HLA-A*02:03 | 1 | 239 | 248 | 10 | QTLALHRSY 0.000125 | 34 |
| HLA-B*35:01 | 1 | 240 | 249 | 10 | TLLALHRSYL 0.000125 | 22 |
| HLA-B*08:01 | 1 | 255 | 264 | 10 | SSGWTAGAAA 0.000125 | 44 |
| HLA-B*07:02 | 1 | 308 | 316 | 9 | VEKGIYQTS 0.000125 | 29 |
| HLA-B*53:01 | 1 | 314 | 322 | 9 | QTSNFRVQP 0.000125 | 22 |
| HLA-A*02:06 | 1 | 321 | 330 | 10 | QPTESIVRFP 0.000125 | 41 |
| HLA-A*02:03 | 1 | 329 | 338 | 10 | FPNITNLCPF 0.000125 | 34 |
| HLA-B*35:01 | 1 | 344 | 352 | 9 | ATRFASVYA 0.000125 | 22 |
| HLA-A*31:01 | 1 | 351 | 359 | 9 | YAWNKRKRIS 0.000125 | 33 |
| HLA-B*58:01 | 1 | 351 | 360 | 10 | YAWNKRKRISN 0.000125 | 34 |
| HLA-A*31:01 | 1 | 420 | 429 | 10 | DYNYKLPDDF 0.000125 | 33 |
| HLA-B*53:01 | 1 | 453 | 461 | 9 | YRLFRKSNL 0.000125 | 22 |
| HLA-A*02:01 | 1 | 473 | 481 | 9 | YQAGSTPCN 0.000125 | 31 |
| HLA-A*30:02 | 1 | 498 | 506 | 9 | QPTNGVGYY 0.000125 | 53 |
| HLA-A*33:01 | 1 | 521 | 529 | 9 | PATVCGPKK 0.000125 | 33 |
| HLA-B*51:01 | 1 | 549 | 557 | 9 | TGVLTESNK 0.000125 | 39 |
| HLA-B*08:01 | 1 | 560 | 568 | 9 | LPFQQFGRD 0.000125 | 44 |
| HLA-B*51:01 | 1 | 617 | 625 | 9 | CTEVPVAIH 0.000125 | 39 |
| HLA-A*68:01 | 1 | 633 | 642 | 10 | WRVYSTGSNV 0.000125 | 29 |
| HLA-B*57:01 | 1 | 642 | 650 | 9 | VFQTRAGCL 0.000125 | 44 |
| HLA-B*07:02 | 1 | 647 | 655 | 9 | AGCLIGAHE 0.000125 | 29 |
| HLA-B*44:03 | 1 | 685 | 693 | 9 | RSVASQSII 0.000125 | 20 |
| HLA-A*33:01 | 1 | 703 | 712 | 10 | NSVAYSNNSI 0.000125 | 33 |
| HLA-A*01:01 | 1 | 715 | 724 | 10 | PTNFTISVTT 0.000125 | 44 |
| HLA-A*24:02 | 1 | 747 | 756 | 10 | TECSNLLLQY 0.000125 | 19 |
| HLA-A*01:01 | 1 | 754 | 762 | 9 | LQYGSFCTQ 0.000125 | 44 |
| HLA-A*11:01 | 1 | 799 | 807 | 9 | GFNFSQLIP 0.000125 | 20 |
| HLA-B*08:01 | 1 | 799 | 807 | 9 | GFNFSQLIP 0.000125 | 44 |
| HLA-A*02:03 | 1 | 800 | 809 | 10 | FNFSQILPDP 0.000125 | 34 |
| HLA-A*01:01 | 1 | 804 | 813 | 10 | QILPDPSPKS 0.000125 | 44 |
| HLA-A*03:01 | 1 | 820 | 829 | 10 | DLLFNKVTLA 0.000125 | 26 |
| HLA-A*68:01 | 1 | 844 | 852 | 9 | IAARDLICA 0.000125 | 29 |
| HLA-B*51:01 | 1 | 853 | 862 | 10 | QKFNGLTVLP 0.000125 | 39 |
| HLA-A*26:01 | 1 | 856 | 864 | 9 | NGLTVLPPL 0.000125 | 27 |
| HLA-A*11:01 | 1 | 878 | 886 | 9 | LAGTITSGW 0.000125 | 20 |
| HLA-B*53:01 | 1 | 882 | 890 | 9 | ITSGWTFGA 0.000125 | 22 |
| HLA-A*31:01 | 1 | 888 | 896 | 9 | FGAGAALQI 0.000125 | 33 |
| HLA-A*30:02 | 1 | 899 | 908 | 10 | AMQMAYRFNG 0.000125 | 53 |
| HLA-B*44:03 | 1 | 912 | 921 | 10 | TQNVLYENQK 0.000125 | 20 |
| HLA-A*33:01 | 1 | 915 | 924 | 10 | VLYENQKLIA 0.000125 | 33 |
| HLA-A*33:01 | 1 | 930 | 938 | 9 | AIGKIQDSL 0.000125 | 33 |
| HLA-B*07:02 | 1 | 953 | 961 | 9 | NQNAQALNT 0.000125 | 29 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*11:01 | 1 | 1001 | 1010 | 10 | LQSLQTYVTQ 0.000125 | 20 |
| HLA-A*02:06 | 1 | 1006 | 1014 | 9 | TYVTQQLIR 0.000125 | 41 |
| HLA-B*35:01 | 1 | 1015 | 1024 | 10 | AAEIRASANL 0.000125 | 22 |
| HLA-B*57:01 | 1 | 1078 | 1086 | 9 | APAICHDGK 0.000125 | 44 |
| HLA-B*40:01 | 1 | 1088 | 1096 | 9 | HFPREGVVFV 0.000125 | 18 |
| HLA-A*26:01 | 1 | 1092 | 1100 | 9 | EGVFVSNGT 0.000125 | 27 |
| HLA-B*58:01 | 1 | 1105 | 1114 | 10 | TQRNFYEQPI 0.000125 | 34 |
| HLA-B*08:01 | 1 | 1152 | 1161 | 10 | LDKYFKNHTS 0.000125 | 44 |
| HLA-A*30:01 | 1 | 1176 | 1184 | 9 | VVNIQKEID 0.000125 | 55 |
| HLA-B*57:01 | 1 | 1205 | 1213 | 9 | KYEQYIKWP 0.000125 | 44 |
| HLA-A*02:01 | 1 | 1232 | 1241 | 10 | IMLCCMTSCC 0.000125 | 31 |
| HLA-B*51:01 | 1 | 1255 | 1263 | 9 | KFDEDDSEP 0.000125 | 39 |
| HLA-B*57:01 | 1 | 1255 | 1264 | 10 | KFDEDDSEPV 0.000125 | 44 |
| HLA-A*68:01 | 1 | 1 | 9 | 9 | MFVFLVLLP 0.000124 | 30 |
| HLA-B*51:01 | 1 | 35 | 44 | 10 | GVYYPDKVFR 0.000124 | 39 |
| HLA-B*15:01 | 1 | 43 | 51 | 9 | FRSSVLHST 0.000124 | 32 |
| HLA-B*07:02 | 1 | 70 | 79 | 10 | VSGTNGTKRF 0.000124 | 29 |
| HLA-A*30:01 | 1 | 96 | 105 | 10 | EKSNIIRGWI 0.000124 | 56 |
| HLA-A*32:01 | 1 | 116 | 124 | 9 | SLLIIVNNAT 0.000124 | 24 |
| HLA-B*57:01 | 1 | 188 | 196 | 9 | NLREFVFN 0.000124 | 44 |
| HLA-B*44:03 | 1 | 198 | 206 | 9 | DGYFKIYSK 0.000124 | 20 |
| HLA-A*31:01 | 1 | 220 | 229 | 10 | FSALEPLVDL 0.000124 | 33 |
| HLA-A*24:02 | 1 | 228 | 237 | 10 | DLPIGINITR 0.000124 | 19 |
| HLA-A*24:02 | 1 | 239 | 248 | 10 | QTLLALHRYS 0.000124 | 19 |
| HLA-B*51:01 | 1 | 247 | 255 | 9 | SYLTPGDSS 0.000124 | 39 |
| HLA-A*03:01 | 1 | 256 | 264 | 9 | SGWTAGAAA 0.000124 | 26 |
| HLA-A*02:01 | 1 | 271 | 279 | 9 | QPRTFLLKY 0.000124 | 32 |
| HLA-B*15:01 | 1 | 300 | 308 | 9 | KCTLKSFTV 0.000124 | 32 |
| HLA-B*40:01 | 1 | 327 | 336 | 10 | VRFPNITNLC 0.000124 | 18 |
| HLA-A*01:01 | 1 | 340 | 349 | 10 | EVFNATRFAS 0.000124 | 45 |
| HLA-A*30:01 | 1 | 361 | 370 | 10 | CVADYSVLYN 0.000124 | 56 |
| HLA-A*30:01 | 1 | 377 | 385 | 9 | FKCYGVSPT 0.000124 | 56 |
| HLA-A*24:02 | 1 | 415 | 423 | 9 | TGKIADYNY 0.000124 | 19 |
| HLA-B*53:01 | 1 | 443 | 452 | 10 | SKVGGNYYL 0.000124 | 22 |
| HLA-B*58:01 | 1 | 469 | 477 | 9 | STEIYQAGS 0.000124 | 34 |
| HLA-A*03:01 | 1 | 471 | 480 | 10 | EIYQAGSTPC 0.000124 | 26 |
| HLA-B*51:01 | 1 | 480 | 489 | 10 | CNGVEGFNCY 0.000124 | 39 |
| HLA-A*31:01 | 1 | 515 | 524 | 10 | FELLHAPATV 0.000124 | 33 |
| HLA-B*51:01 | 1 | 518 | 527 | 10 | LHAPATVCGP 0.000124 | 39 |
| HLA-B*57:01 | 1 | 524 | 532 | 9 | VCGPKKSTN 0.000124 | 44 |
| HLA-A*31:01 | 1 | 546 | 554 | 9 | LTGTGVLTE 0.000124 | 33 |
| HLA-B*51:01 | 1 | 546 | 554 | 9 | LTGTGVLTE 0.000124 | 39 |
| HLA-B*44:02 | 1 | 550 | 558 | 9 | GVLTESNKK 0.000124 | 21 |
| HLA-A*68:01 | 1 | 556 | 565 | 10 | NKKFLPFQF 0.000124 | 30 |
| HLA-B*53:01 | 1 | 565 | 573 | 9 | FGRDIADTT 0.000124 | 22 |
| HLA-A*30:02 | 1 | 631 | 639 | 9 | PTWRVYSTG 0.000124 | 53 |
| HLA-B*15:01 | 1 | 637 | 645 | 9 | STGSNVFQT 0.000124 | 32 |
| HLA-A*31:01 | 1 | 642 | 651 | 10 | VFQTRAGCLI 0.000124 | 33 |
| HLA-B*58:01 | 1 | 645 | 653 | 9 | TRAGCLIGA 0.000124 | 34 |
| HLA-A*68:02 | 1 | 673 | 682 | 10 | SYQTQTNSPR 0.000124 | 34 |
| HLA-B*15:01 | 1 | 673 | 681 | 9 | SYQTQTNSP 0.000124 | 32 |
| HLA-A*02:01 | 1 | 676 | 685 | 10 | TQTNSPRRAR 0.000124 | 32 |
| HLA-B*57:01 | 1 | 691 | 700 | 10 | SIIAYTMSLG 0.000124 | 44 |
| HLA-B*08:01 | 1 | 716 | 725 | 10 | TNFTISVTTE 0.000124 | 44 |
| HLA-B*15:01 | 1 | 726 | 735 | 10 | ILPVSMTKTS 0.000124 | 32 |
| HLA-B*08:01 | 1 | 759 | 768 | 10 | FCTQLNRALT 0.000124 | 44 |
| HLA-B*58:01 | 1 | 760 | 769 | 10 | CTQLNRALTG 0.000124 | 34 |
| HLA-B*15:01 | 1 | 763 | 772 | 10 | LNRLTGIIV 0.000124 | 32 |
| HLA-A*26:01 | 1 | 771 | 779 | 9 | AVEQDKNTQ 0.000124 | 27 |
| HLA-B*35:01 | 1 | 777 | 786 | 10 | NTQEVFAQVK 0.000124 | 23 |
| HLA-A*33:01 | 1 | 779 | 787 | 9 | QEVFAQVKQ 0.000124 | 33 |
| HLA-A*33:01 | 1 | 805 | 813 | 9 | ILPDPSKVS 0.000124 | 33 |
| HLA-B*08:01 | 1 | 818 | 827 | 10 | IEDLLFNKVT 0.000124 | 44 |
| HLA-A*23:01 | 1 | 854 | 863 | 10 | KFNGLTVLPP 0.000124 | 20 |
| HLA-B*08:01 | 1 | 859 | 868 | 10 | TVLPPLLTDE 0.000124 | 44 |
| HLA-B*53:01 | 1 | 886 | 895 | 10 | WTFGAGAALQ 0.000124 | 22 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*30:02 | 1 | 910 | 919 | 10 | GVTQNVLYEN 0.000124 | 53 |
| HLA-B*35:01 | 1 | 917 | 925 | 9 | YENQKLIAN 0.000124 | 23 |
| HLA-A*33:01 | 1 | 948 | 956 | 9 | LQDVVNQNA 0.000124 | 33 |
| HLA-B*44:02 | 1 | 957 | 965 | 9 | QALNTLVKQ 0.000124 | 21 |
| HLA-B*51:01 | 1 | 976 | 985 | 10 | VLNDILSRLD 0.000124 | 39 |
| HLA-B*44:03 | 1 | 979 | 987 | 9 | DILSRLDKV 0.000124 | 20 |
| HLA-B*58:01 | 1 | 983 | 992 | 10 | RLDKVEAEVQ 0.000124 | 34 |
| HLA-A*30:02 | 1 | 994 | 1002 | 9 | DRLITGRLQ 0.000124 | 53 |
| HLA-A*26:01 | 1 | 995 | 1003 | 9 | RLITGRLQS 0.000124 | 27 |
| HLA-B*35:01 | 1 | 1001 | 1009 | 9 | LQSLQTYVT 0.000124 | 23 |
| HLA-A*30:01 | 1 | 1031 | 1040 | 10 | ECVLGQSKRV 0.000124 | 56 |
| HLA-B*58:01 | 1 | 1078 | 1086 | 9 | APAICHDGK 0.000124 | 34 |
| HLA-B*07:02 | 1 | 1083 | 1091 | 9 | HDGKAHFPR 0.000124 | 29 |
| HLA-B*51:01 | 1 | 1124 | 1133 | 10 | GNCDDVIGIV 0.000124 | 39 |
| HLA-A*24:02 | 1 | 1128 | 1137 | 10 | VVIGIVNNTV 0.000124 | 19 |
| HLA-A*02:03 | 1 | 1137 | 1146 | 10 | VYDPLQPELD 0.000124 | 34 |
| HLA-B*40:01 | 1 | 1143 | 1151 | 9 | PELDSFKEE 0.000124 | 18 |
| HLA-B*35:01 | 1 | 1164 | 1172 | 9 | VDLGDISGI 0.000124 | 23 |
| HLA-A*31:01 | 1 | 1184 | 1193 | 10 | DRLNEVAKNL 0.000124 | 33 |
| HLA-A*02:01 | 1 | 1189 | 1198 | 10 | VAKNLNESLI 0.000124 | 32 |
| HLA-B*35:01 | 1 | 1205 | 1214 | 10 | KYEYIKWPPW 0.000124 | 23 |
| HLA-B*15:01 | 1 | 1219 | 1228 | 10 | GFIAGLIAIV 0.000124 | 32 |
| HLA-B*53:01 | 1 | 1256 | 1264 | 9 | FDEDDSEPV 0.000124 | 22 |
| HLA-A*68:01 | 1 | 1264 | 1273 | 10 | VLKGVKLHYT 0.000124 | 30 |
| HLA-A*11:01 | 1 | 12 | 20 | 9 | SSQCVNLTT 0.000123 | 20 |
| HLA-B*44:03 | 1 | 54 | 62 | 9 | LFLPFFSNV 0.000123 | 20 |
| HLA-A*26:01 | 1 | 63 | 71 | 9 | TWFHAIHVS 0.000123 | 27 |
| HLA-A*33:01 | 1 | 97 | 106 | 10 | KSNIIIRGWIF 0.000123 | 33 |
| HLA-A*31:01 | 1 | 112 | 120 | 9 | SKTQSLLIV 0.000123 | 33 |
| HLA-B*51:01 | 1 | 121 | 129 | 9 | NNATNVVIK 0.000123 | 40 |
| HLA-A*30:01 | 1 | 132 | 140 | 9 | EFQFCNDPF 0.000123 | 56 |
| HLA-A*68:01 | 1 | 143 | 152 | 10 | VYYHKNNKSW 0.000123 | 30 |
| HLA-A*68:01 | 1 | 149 | 157 | 9 | NKSWMESEF 0.000123 | 30 |
| HLA-B*35:01 | 1 | 154 | 163 | 10 | ESEFRVYSSA 0.000123 | 23 |
| HLA-B*07:02 | 1 | 161 | 170 | 10 | SSANNCTFEY 0.000123 | 29 |
| HLA-A*01:01 | 1 | 164 | 172 | 9 | NNCTFEYVS 0.000123 | 45 |
| HLA-A*31:01 | 1 | 181 | 189 | 9 | GKQGNFKNL 0.000123 | 33 |
| HLA-A*23:01 | 1 | 217 | 226 | 10 | PQGFSALEPL 0.000123 | 20 |
| HLA-B*57:01 | 1 | 228 | 237 | 10 | DLPIGINITR 0.000123 | 44 |
| HLA-B*44:02 | 1 | 237 | 245 | 9 | RFQTLALH 0.000123 | 21 |
| HLA-A*02:01 | 1 | 243 | 252 | 10 | ALHRSYLTPG 0.000123 | 32 |
| HLA-A*03:01 | 1 | 255 | 264 | 10 | SSGWTAGAAA 0.000123 | 26 |
| HLA-B*44:02 | 1 | 281 | 289 | 9 | ENGTITDAV 0.000123 | 21 |
| HLA-A*24:02 | 1 | 343 | 351 | 9 | NATRFASVY 0.000123 | 19 |
| HLA-A*02:01 | 1 | 344 | 353 | 10 | ATRFASVYAW 0.000123 | 32 |
| HLA-A*02:01 | 1 | 348 | 357 | 10 | ASVYAWNRRK 0.000123 | 32 |
| HLA-A*68:02 | 1 | 358 | 366 | 9 | ISNCVADYS 0.000123 | 34 |
| HLA-A*01:01 | 1 | 380 | 388 | 9 | YGVSPTKLN 0.000123 | 45 |
| HLA-A*30:01 | 1 | 398 | 406 | 9 | DSFVIRGDE 0.000123 | 56 |
| HLA-B*08:01 | 1 | 423 | 432 | 10 | YKLPDDFTGC 0.000123 | 45 |
| HLA-B*44:03 | 1 | 427 | 435 | 9 | DDFTGCVIA 0.000123 | 20 |
| HLA-A*26:01 | 1 | 432 | 440 | 9 | CVIAWNSNN 0.000123 | 27 |
| HLA-A*30:01 | 1 | 436 | 445 | 10 | WNSNNLDSKV 0.000123 | 56 |
| HLA-A*68:02 | 1 | 439 | 447 | 9 | NNLDSKVG 0.000123 | 34 |
| HLA-A*68:01 | 1 | 451 | 459 | 9 | YLYRFRKS 0.000123 | 30 |
| HLA-A*01:01 | 1 | 470 | 478 | 9 | TEIYQAGST 0.000123 | 45 |
| HLA-B*40:01 | 1 | 477 | 486 | 10 | STPCNGVEGF 0.000123 | 18 |
| HLA-B*35:01 | 1 | 518 | 526 | 9 | LHAPATVCG 0.000123 | 23 |
| HLA-B*40:01 | 1 | 525 | 533 | 9 | CGPKKSTNL 0.000123 | 18 |
| HLA-A*01:01 | 1 | 544 | 553 | 10 | NGLTGTGVL 0.000123 | 45 |
| HLA-A*02:01 | 1 | 593 | 602 | 10 | GGVSVITPGT 0.000123 | 32 |
| HLA-B*35:01 | 1 | 598 | 607 | 10 | ITPGTNTSNQ 0.000123 | 23 |
| HLA-A*32:01 | 1 | 602 | 610 | 9 | TNTSNQVAV 0.000123 | 24 |
| HLA-A*31:01 | 1 | 623 | 632 | 10 | AIHADQLTPT 0.000123 | 33 |
| HLA-A*30:02 | 1 | 650 | 659 | 10 | LIGAEHVNN 0.000123 | 53 |
| HLA-A*33:01 | 1 | 683 | 692 | 10 | RARSVASQSI 0.000123 | 33 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|----------|----|
| HLA-A*03:01 | 1 | 698 | 706 | 9 | SLGAENSV | 0.000123 | 26 |
| HLA-B*53:01 | 1 | 722 | 730 | 9 | VTTEILPVS | 0.000123 | 22 |
| HLA-A*30:01 | 1 | 735 | 744 | 10 | SVDCTMYICG | 0.000123 | 56 |
| HLA-B*08:01 | 1 | 735 | 743 | 9 | SVDCTMYIC | 0.000123 | 45 |
| HLA-A*33:01 | 1 | 740 | 749 | 10 | MYICGDSTEC | 0.000123 | 33 |
| HLA-A*03:01 | 1 | 747 | 755 | 9 | TECSNLLLQ | 0.000123 | 26 |
| HLA-B*40:01 | 1 | 762 | 770 | 9 | QLNRALTGI | 0.000123 | 18 |
| HLA-A*01:01 | 1 | 776 | 784 | 9 | KNTQEVFAQ | 0.000123 | 45 |
| HLA-A*30:01 | 1 | 779 | 787 | 9 | QEVFAQVKQ | 0.000123 | 56 |
| HLA-A*33:01 | 1 | 791 | 800 | 10 | TPPIKDFGGF | 0.000123 | 33 |
| HLA-A*26:01 | 1 | 796 | 805 | 10 | DFGGFNFSQI | 0.000123 | 27 |
| HLA-A*68:01 | 1 | 894 | 903 | 10 | LQIPFAMQMA | 0.000123 | 30 |
| HLA-A*01:01 | 1 | 927 | 935 | 9 | FNSAIGKIQ | 0.000123 | 45 |
| HLA-B*44:02 | 1 | 949 | 957 | 9 | QDVVNQNAQ | 0.000123 | 21 |
| HLA-B*57:01 | 1 | 949 | 958 | 10 | QDVVNQNAQA | 0.000123 | 44 |
| HLA-B*57:01 | 1 | 959 | 967 | 9 | LNTLVKQLS | 0.000123 | 44 |
| HLA-A*23:01 | 1 | 967 | 976 | 10 | SSNFGAISSV | 0.000123 | 20 |
| HLA-A*23:01 | 1 | 988 | 996 | 9 | EAEVQIDRL | 0.000123 | 20 |
| HLA-A*33:01 | 1 | 991 | 999 | 9 | VQIDRLITG | 0.000123 | 33 |
| HLA-A*01:01 | 1 | 1011 | 1020 | 10 | QLIRAAEIRA | 0.000123 | 45 |
| HLA-A*03:01 | 1 | 1033 | 1042 | 10 | VLGQSKRVDF | 0.000123 | 26 |
| HLA-A*11:01 | 1 | 1044 | 1052 | 9 | GKGYHLMSF | 0.000123 | 20 |
| HLA-B*58:01 | 1 | 1052 | 1061 | 10 | FPQSAPHGVV | 0.000123 | 34 |
| HLA-A*02:03 | 1 | 1069 | 1077 | 9 | PAQEKNFTT | 0.000123 | 34 |
| HLA-A*30:02 | 1 | 1072 | 1081 | 10 | EKNFTTAPAI | 0.000123 | 53 |
| HLA-B*07:02 | 1 | 1120 | 1128 | 9 | TFVSGNCDV | 0.000123 | 29 |
| HLA-B*08:01 | 1 | 1135 | 1144 | 10 | NTVYDPLQPE | 0.000123 | 45 |
| HLA-B*07:02 | 1 | 1153 | 1161 | 9 | DKYFKNHTS | 0.000123 | 29 |
| HLA-B*58:01 | 1 | 1161 | 1169 | 9 | SPDVDLGDI | 0.000123 | 34 |
| HLA-B*08:01 | 1 | 1179 | 1188 | 10 | IQKEIDRLNE | 0.000123 | 45 |
| HLA-A*30:01 | 1 | 1199 | 1207 | 9 | DLQELGKYE | 0.000123 | 56 |
| HLA-A*26:01 | 1 | 1219 | 1228 | 10 | GFIAGLIAIV | 0.000123 | 27 |
| HLA-A*02:03 | 1 | 1227 | 1236 | 10 | IVMVTIMLCC | 0.000123 | 34 |
| HLA-B*08:01 | 1 | 1232 | 1240 | 9 | IMLCCMTSC | 0.000123 | 45 |
| HLA-A*32:01 | 1 | 1256 | 1265 | 10 | FDEDDSEPV | 0.000123 | 24 |
| HLA-B*57:01 | 1 | 17 | 26 | 10 | NLTTRTQLPP | 0.000122 | 45 |
| HLA-B*40:01 | 1 | 36 | 44 | 9 | VYYPKVFR | 0.000122 | 18 |
| HLA-A*26:01 | 1 | 41 | 50 | 10 | KVFRSSVLHS | 0.000122 | 27 |
| HLA-B*57:01 | 1 | 42 | 50 | 9 | VFRSSVLHS | 0.000122 | 45 |
| HLA-A*02:03 | 1 | 44 | 52 | 9 | RSSVLHSTQ | 0.000122 | 34 |
| HLA-A*01:01 | 1 | 66 | 74 | 9 | HAIHVSGTN | 0.000122 | 45 |
| HLA-A*02:03 | 1 | 68 | 77 | 10 | IHVSGTNGTK | 0.000122 | 34 |
| HLA-A*03:01 | 1 | 90 | 98 | 9 | VYFASTEKS | 0.000122 | 27 |
| HLA-A*02:03 | 1 | 94 | 103 | 10 | STEKSNIIRG | 0.000122 | 34 |
| HLA-B*57:01 | 1 | 137 | 146 | 10 | NDPFLGVYYH | 0.000122 | 45 |
| HLA-B*07:02 | 1 | 143 | 151 | 9 | VYYHKNNKS | 0.000122 | 29 |
| HLA-A*33:01 | 1 | 145 | 154 | 10 | YHKNNKSWME | 0.000122 | 34 |
| HLA-A*02:06 | 1 | 153 | 162 | 10 | MESEFRVYSS | 0.000122 | 41 |
| HLA-A*03:01 | 1 | 168 | 177 | 10 | FEYVSQPFLM | 0.000122 | 27 |
| HLA-B*40:01 | 1 | 170 | 179 | 10 | YVSQPFLMDL | 0.000122 | 18 |
| HLA-B*08:01 | 1 | 255 | 263 | 9 | SSGWTAGAA | 0.000122 | 45 |
| HLA-B*51:01 | 1 | 257 | 265 | 9 | GWTAGAAAY | 0.000122 | 40 |
| HLA-B*58:01 | 1 | 266 | 274 | 9 | YVGYLQPR | 0.000122 | 34 |
| HLA-B*44:03 | 1 | 277 | 285 | 9 | LKYNENGTI | 0.000122 | 20 |
| HLA-A*11:01 | 1 | 298 | 306 | 9 | ETKCTLKSF | 0.000122 | 20 |
| HLA-B*51:01 | 1 | 322 | 330 | 9 | PTESIVRFP | 0.000122 | 40 |
| HLA-A*68:02 | 1 | 339 | 347 | 9 | GEVFNATRF | 0.000122 | 34 |
| HLA-B*40:01 | 1 | 356 | 365 | 10 | KRISNCVADY | 0.000122 | 18 |
| HLA-B*40:01 | 1 | 365 | 374 | 10 | YSVLNYSASF | 0.000122 | 18 |
| HLA-A*30:01 | 1 | 384 | 393 | 10 | PTKLNDLCFT | 0.000122 | 56 |
| HLA-B*51:01 | 1 | 404 | 412 | 9 | GDEVQRQIAP | 0.000122 | 40 |
| HLA-A*03:01 | 1 | 417 | 426 | 10 | KIADYNYKLP | 0.000122 | 27 |
| HLA-B*07:02 | 1 | 453 | 462 | 10 | YRLFRRKSNLK | 0.000122 | 29 |
| HLA-B*15:01 | 1 | 462 | 471 | 10 | KPFERDISTE | 0.000122 | 32 |
| HLA-B*44:02 | 1 | 502 | 510 | 9 | GVGYQPYRV | 0.000122 | 21 |
| HLA-A*24:02 | 1 | 505 | 514 | 10 | YQPYRVVVL | 0.000122 | 19 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*68:02 | 1 | 567 | 575 | 9 | RDIADTTDA 0.000122 | 34 |
| HLA-A*30:02 | 1 | 592 | 600 | 9 | FGGVSVITP 0.000122 | 53 |
| HLA-A*01:01 | 1 | 609 | 617 | 9 | AVLYQDVNC 0.000122 | 45 |
| HLA-A*02:03 | 1 | 642 | 650 | 9 | VFQTRAGCL 0.000122 | 34 |
| HLA-A*23:01 | 1 | 658 | 666 | 9 | NSYECDIPI 0.000122 | 20 |
| HLA-A*02:03 | 1 | 664 | 672 | 9 | IPIGAGICA 0.000122 | 34 |
| HLA-A*33:01 | 1 | 669 | 677 | 9 | GICASYQTQ 0.000122 | 34 |
| HLA-A*02:01 | 1 | 675 | 684 | 10 | QTQTNSPRRA 0.000122 | 32 |
| HLA-B*15:01 | 1 | 716 | 724 | 9 | TNFTISVTT 0.000122 | 32 |
| HLA-A*26:01 | 1 | 721 | 730 | 10 | SVTTEILPVS 0.000122 | 27 |
| HLA-A*02:01 | 1 | 763 | 772 | 10 | LNRLTGIIV 0.000122 | 32 |
| HLA-A*68:02 | 1 | 787 | 796 | 10 | QIYKTPPIKD 0.000122 | 34 |
| HLA-A*68:01 | 1 | 811 | 819 | 9 | KPSKRSFIE 0.000122 | 30 |
| HLA-A*68:01 | 1 | 816 | 824 | 9 | SFIEDLLFN 0.000122 | 30 |
| HLA-A*31:01 | 1 | 817 | 826 | 10 | FIEDLLFNKV 0.000122 | 33 |
| HLA-B*08:01 | 1 | 859 | 867 | 9 | TVLPPLLD 0.000122 | 45 |
| HLA-B*40:01 | 1 | 860 | 869 | 10 | VLPPLLTDEM 0.000122 | 18 |
| HLA-B*15:01 | 1 | 875 | 883 | 9 | SALLAGTIT 0.000122 | 32 |
| HLA-A*30:01 | 1 | 888 | 897 | 10 | FGAGAALQIP 0.000122 | 56 |
| HLA-A*02:03 | 1 | 903 | 912 | 10 | AYRFNGIGVT 0.000122 | 34 |
| HLA-B*35:01 | 1 | 922 | 931 | 10 | LIANQFNSAI 0.000122 | 23 |
| HLA-B*08:01 | 1 | 945 | 953 | 9 | LGKLDVVN 0.000122 | 45 |
| HLA-B*15:01 | 1 | 952 | 961 | 10 | VNQAQALNT 0.000122 | 32 |
| HLA-B*07:02 | 1 | 984 | 993 | 10 | LDKVEAEVQI 0.000122 | 29 |
| HLA-B*35:01 | 1 | 987 | 995 | 9 | VEAEVQIDR 0.000122 | 23 |
| HLA-B*57:01 | 1 | 1017 | 1026 | 10 | EIRASANLAA 0.000122 | 45 |
| HLA-B*58:01 | 1 | 1023 | 1032 | 10 | NLAATKMSEC 0.000122 | 34 |
| HLA-B*07:02 | 1 | 1041 | 1050 | 10 | DFCGKGYHLM 0.000122 | 29 |
| HLA-A*68:01 | 1 | 1052 | 1061 | 10 | FPQSAPHGVV 0.000122 | 30 |
| HLA-A*30:02 | 1 | 1084 | 1092 | 9 | DGKAHFPRE 0.000122 | 53 |
| HLA-B*07:02 | 1 | 1102 | 1110 | 9 | WVFTQRNFY 0.000122 | 29 |
| HLA-B*15:01 | 1 | 1132 | 1140 | 9 | IVNNTVYDP 0.000122 | 32 |
| HLA-B*35:01 | 1 | 1141 | 1149 | 9 | LQPELDSFK 0.000122 | 23 |
| HLA-A*24:02 | 1 | 1169 | 1177 | 9 | ISGINASVV 0.000122 | 19 |
| HLA-B*53:01 | 1 | 1169 | 1177 | 9 | ISGINASVV 0.000122 | 22 |
| HLA-A*31:01 | 1 | 1174 | 1183 | 10 | ASVVNIQKEI 0.000122 | 33 |
| HLA-B*57:01 | 1 | 1176 | 1184 | 9 | VVNIQKEID 0.000122 | 45 |
| HLA-B*08:01 | 1 | 1187 | 1195 | 9 | NEVAKNLNE 0.000122 | 45 |
| HLA-A*11:01 | 1 | 1192 | 1201 | 10 | NLNESLIDLQ 0.000122 | 20 |
| HLA-A*32:01 | 1 | 1201 | 1210 | 10 | QELGKYEYI 0.000122 | 24 |
| HLA-A*03:01 | 1 | 1210 | 1218 | 9 | IKWPWYIWL 0.000122 | 27 |
| HLA-A*03:01 | 1 | 1237 | 1246 | 10 | MTSCCCLKG 0.000122 | 27 |
| HLA-B*58:01 | 1 | 1238 | 1247 | 10 | TSCCCLKGC 0.000122 | 34 |
| HLA-A*30:01 | 1 | 1245 | 1253 | 9 | KGCCSCGSC 0.000122 | 56 |
| HLA-A*31:01 | 1 | 14 | 23 | 10 | QCVNLTRTQ 0.000121 | 33 |
| HLA-A*24:02 | 1 | 55 | 63 | 9 | FLPFFSNVT 0.000121 | 19 |
| HLA-B*07:02 | 1 | 70 | 78 | 9 | VSGTNGTKR 0.000121 | 29 |
| HLA-A*26:01 | 1 | 88 | 96 | 9 | DGVYFASTE 0.000121 | 27 |
| HLA-A*30:02 | 1 | 92 | 101 | 10 | FASTEKSNII 0.000121 | 53 |
| HLA-B*51:01 | 1 | 126 | 134 | 9 | VVIKVCEFQ 0.000121 | 40 |
| HLA-B*15:01 | 1 | 137 | 146 | 10 | NDPFLGVYYH 0.000121 | 32 |
| HLA-A*03:01 | 1 | 143 | 151 | 9 | VYYHKNNKS 0.000121 | 27 |
| HLA-B*58:01 | 1 | 155 | 163 | 9 | SEFRVYSSA 0.000121 | 34 |
| HLA-B*08:01 | 1 | 161 | 170 | 10 | SSANNCTFEY 0.000121 | 45 |
| HLA-B*40:01 | 1 | 219 | 227 | 9 | GFSALEPLV 0.000121 | 18 |
| HLA-B*58:01 | 1 | 219 | 228 | 10 | GFSALEPLVD 0.000121 | 34 |
| HLA-B*53:01 | 1 | 223 | 232 | 10 | LEPLVDLPIG 0.000121 | 22 |
| HLA-A*32:01 | 1 | 232 | 240 | 9 | GINITRFQT 0.000121 | 25 |
| HLA-A*26:01 | 1 | 262 | 271 | 10 | AAAYYVGYLQ 0.000121 | 27 |
| HLA-B*08:01 | 1 | 277 | 286 | 10 | LKYNENGTIT 0.000121 | 45 |
| HLA-A*02:01 | 1 | 281 | 289 | 9 | ENGTITDAV 0.000121 | 32 |
| HLA-B*57:01 | 1 | 285 | 294 | 10 | ITDAVDCALD 0.000121 | 45 |
| HLA-A*01:01 | 1 | 316 | 325 | 10 | SNFRVQPTES 0.000121 | 45 |
| HLA-A*23:01 | 1 | 318 | 327 | 10 | FRVQPTESIV 0.000121 | 20 |
| HLA-B*07:02 | 1 | 394 | 403 | 10 | NVYADSFVIR 0.000121 | 29 |
| HLA-A*68:02 | 1 | 395 | 404 | 10 | VYADSFVIRG 0.000121 | 34 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*40:01 | 1 | 410 | 418 | 9 | IAPGQTGKI 0.000121 | 18 |
| HLA-A*02:03 | 1 | 493 | 502 | 10 | QSYGFQPTNG 0.000121 | 34 |
| HLA-A*26:01 | 1 | 537 | 546 | 10 | KCVNFNFNGL 0.000121 | 27 |
| HLA-A*02:01 | 1 | 547 | 555 | 9 | TGTGVLTES 0.000121 | 32 |
| HLA-A*26:01 | 1 | 548 | 557 | 10 | GTGVLTESNK 0.000121 | 27 |
| HLA-B*57:01 | 1 | 567 | 575 | 9 | RDIADTTDA 0.000121 | 45 |
| HLA-B*44:02 | 1 | 573 | 581 | 9 | TDAVRDPQT 0.000121 | 21 |
| HLA-B*44:02 | 1 | 601 | 609 | 9 | GTNTSNQVA 0.000121 | 21 |
| HLA-A*31:01 | 1 | 602 | 611 | 10 | TNTSNQVAVL 0.000121 | 33 |
| HLA-B*58:01 | 1 | 628 | 637 | 10 | QLTPTWRVYS 0.000121 | 34 |
| HLA-A*26:01 | 1 | 629 | 637 | 9 | LTPTWRVYS 0.000121 | 27 |
| HLA-B*57:01 | 1 | 643 | 652 | 10 | FQTRAGCLIG 0.000121 | 45 |
| HLA-B*15:01 | 1 | 653 | 661 | 9 | AEHVNNSYE 0.000121 | 32 |
| HLA-A*30:01 | 1 | 654 | 662 | 9 | EHVNNSYEC 0.000121 | 56 |
| HLA-B*58:01 | 1 | 660 | 668 | 9 | YECDIPIGA 0.000121 | 34 |
| HLA-A*26:01 | 1 | 699 | 708 | 10 | LGAENSVAYS 0.000121 | 27 |
| HLA-A*33:01 | 1 | 726 | 734 | 9 | ILPVSMTKT 0.000121 | 34 |
| HLA-B*08:01 | 1 | 743 | 752 | 10 | CGDSTECSNL 0.000121 | 45 |
| HLA-A*26:01 | 1 | 795 | 804 | 10 | KDFGGFNFSQ 0.000121 | 27 |
| HLA-B*08:01 | 1 | 796 | 804 | 9 | DFGGFNFSQ 0.000121 | 45 |
| HLA-B*44:03 | 1 | 802 | 811 | 10 | FSQILPDPST 0.000121 | 20 |
| HLA-A*26:01 | 1 | 813 | 822 | 10 | SKRSFIEDLL 0.000121 | 27 |
| HLA-A*33:01 | 1 | 817 | 826 | 10 | FIEDLLFNKV 0.000121 | 34 |
| HLA-A*03:01 | 1 | 847 | 855 | 9 | RDLICAQKF 0.000121 | 27 |
| HLA-B*15:01 | 1 | 867 | 876 | 10 | DEMIAQYTS 0.000121 | 32 |
| HLA-B*15:01 | 1 | 935 | 944 | 10 | QDLSSTASA 0.000121 | 32 |
| HLA-A*02:03 | 1 | 944 | 953 | 10 | ALGKLQDVVN 0.000121 | 34 |
| HLA-A*31:01 | 1 | 965 | 973 | 9 | QLSSNFGAI 0.000121 | 33 |
| HLA-B*08:01 | 1 | 967 | 975 | 9 | SSNFGAISS 0.000121 | 45 |
| HLA-A*26:01 | 1 | 982 | 990 | 9 | SRLDKVEAE 0.000121 | 27 |
| HLA-A*02:01 | 1 | 1005 | 1014 | 10 | QTYVTQQLIR 0.000121 | 32 |
| HLA-B*08:01 | 1 | 1011 | 1019 | 9 | QLIRAAEIR 0.000121 | 45 |
| HLA-B*15:01 | 1 | 1037 | 1045 | 9 | SKRVDFCGK 0.000121 | 32 |
| HLA-A*02:06 | 1 | 1073 | 1082 | 10 | KNFTTAPAIC 0.000121 | 42 |
| HLA-A*30:02 | 1 | 1078 | 1087 | 10 | APAICHDGKA 0.000121 | 53 |
| HLA-B*08:01 | 1 | 1110 | 1118 | 9 | YEPQIITTD 0.000121 | 45 |
| HLA-B*44:02 | 1 | 1117 | 1125 | 9 | TDNTFVSGN 0.000121 | 21 |
| HLA-A*33:01 | 1 | 1167 | 1176 | 10 | GDISGINASV 0.000121 | 34 |
| HLA-B*35:01 | 1 | 1181 | 1190 | 10 | KEIDRLNEVA 0.000121 | 23 |
| HLA-B*58:01 | 1 | 1184 | 1193 | 10 | DRLNEVAKNL 0.000121 | 34 |
| HLA-A*24:02 | 1 | 1198 | 1206 | 9 | IDLQELGKY 0.000121 | 19 |
| HLA-B*53:01 | 1 | 1201 | 1210 | 10 | QELGKYEYI 0.000121 | 22 |
| HLA-A*02:03 | 1 | 1207 | 1215 | 9 | EQYIKWPWY 0.000121 | 34 |
| HLA-B*53:01 | 1 | 5 | 13 | 9 | LVLLPLVSS 0.000121 | 22 |
| HLA-B*07:02 | 1 | 23 | 31 | 9 | QLPPAYTNS 0.000121 | 29 |
| HLA-B*57:01 | 1 | 23 | 31 | 9 | QLPPAYTNS 0.000121 | 45 |
| HLA-B*44:03 | 1 | 38 | 47 | 10 | YDPKVFRRSSV 0.000121 | 20 |
| HLA-A*33:01 | 1 | 47 | 56 | 10 | VLHSTQDLFL 0.000121 | 34 |
| HLA-A*02:03 | 1 | 49 | 58 | 10 | HSTQDLFLPF 0.000121 | 35 |
| HLA-A*02:01 | 1 | 110 | 119 | 10 | LDSKTQSLLI 0.000121 | 32 |
| HLA-B*58:01 | 1 | 112 | 120 | 9 | SKTQSLLIIV 0.000121 | 34 |
| HLA-A*30:02 | 1 | 127 | 136 | 10 | VIKVCEFQFC 0.000121 | 53 |
| HLA-A*30:02 | 1 | 148 | 156 | 9 | NNKSWMESE 0.000121 | 53 |
| HLA-A*68:02 | 1 | 149 | 157 | 9 | NKSWMESEF 0.000121 | 34 |
| HLA-A*11:01 | 1 | 172 | 180 | 9 | SQPFLMDLE 0.000121 | 20 |
| HLA-A*30:01 | 1 | 175 | 183 | 9 | FLMDLEGKQ 0.000121 | 56 |
| HLA-B*40:01 | 1 | 180 | 189 | 10 | EGKQGNFKNL 0.000121 | 18 |
| HLA-A*01:01 | 1 | 216 | 224 | 9 | LPQGFSALE 0.000121 | 45 |
| HLA-B*44:03 | 1 | 228 | 237 | 10 | DLPIGINITR 0.000121 | 20 |
| HLA-B*40:01 | 1 | 250 | 258 | 9 | TPGDSSSGW 0.000121 | 18 |
| HLA-B*58:01 | 1 | 252 | 260 | 9 | GDSSSGWTA 0.000121 | 34 |
| HLA-A*02:03 | 1 | 257 | 266 | 10 | GWTAGAAAYY 0.000121 | 35 |
| HLA-B*53:01 | 1 | 293 | 302 | 10 | LDPLSETKCT 0.000121 | 22 |
| HLA-A*24:02 | 1 | 304 | 313 | 10 | KSFTVEKGIY 0.000121 | 19 |
| HLA-A*03:01 | 1 | 324 | 332 | 9 | ESIVRFPNI 0.000121 | 27 |
| HLA-A*26:01 | 1 | 326 | 334 | 9 | IVRFPNITN 0.000121 | 27 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*44:02 | 1 | 329 | 338 | 10 | FPNITNLCPF 0.00012 | 21 |
| HLA-A*11:01 | 1 | 368 | 377 | 10 | LYNSASFSTF 0.00012 | 20 |
| HLA-B*35:01 | 1 | 389 | 397 | 9 | DLCFTNVYA 0.00012 | 23 |
| HLA-A*33:01 | 1 | 392 | 401 | 10 | FTNVYADSFV 0.00012 | 34 |
| HLA-A*03:01 | 1 | 400 | 409 | 10 | FVIRGDEVRQ 0.00012 | 27 |
| HLA-B*44:03 | 1 | 401 | 410 | 10 | VIRGDEVRQI 0.00012 | 20 |
| HLA-B*35:01 | 1 | 402 | 410 | 9 | IRGDEVRQI 0.00012 | 23 |
| HLA-A*26:01 | 1 | 446 | 454 | 9 | GGNYNYLYR 0.00012 | 27 |
| HLA-A*33:01 | 1 | 474 | 483 | 10 | QAGSTPCNGV 0.00012 | 34 |
| HLA-A*33:01 | 1 | 493 | 501 | 9 | QSYGFQPTN 0.00012 | 34 |
| HLA-A*30:02 | 1 | 518 | 527 | 10 | LHAPATVCGP 0.00012 | 53 |
| HLA-B*35:01 | 1 | 530 | 538 | 9 | STNLVKKNC 0.00012 | 23 |
| HLA-B*08:01 | 1 | 532 | 540 | 9 | NLVKKNKCVN 0.00012 | 45 |
| HLA-A*02:01 | 1 | 543 | 552 | 10 | FNGLTGTGVL 0.00012 | 32 |
| HLA-B*15:01 | 1 | 549 | 558 | 10 | TGVLTESNKK 0.00012 | 32 |
| HLA-A*01:01 | 1 | 567 | 575 | 9 | RDIADTTDA 0.00012 | 45 |
| HLA-B*07:02 | 1 | 594 | 602 | 9 | GVSVITPGT 0.00012 | 29 |
| HLA-A*33:01 | 1 | 601 | 609 | 9 | GTNTSNQVA 0.00012 | 34 |
| HLA-A*32:01 | 1 | 615 | 624 | 10 | VNCTEVPVAI 0.00012 | 25 |
| HLA-B*51:01 | 1 | 619 | 628 | 10 | EVPVAIHADQ 0.00012 | 40 |
| HLA-B*44:02 | 1 | 635 | 644 | 10 | VYSTGSNVFQ 0.00012 | 21 |
| HLA-B*44:03 | 1 | 652 | 661 | 10 | GAEHVNNSYE 0.00012 | 20 |
| HLA-B*08:01 | 1 | 656 | 664 | 9 | VNNSYECDI 0.00012 | 45 |
| HLA-B*44:03 | 1 | 674 | 683 | 10 | YQTQTNSPRR 0.00012 | 20 |
| HLA-A*03:01 | 1 | 755 | 763 | 9 | QYGSFCTQL 0.00012 | 27 |
| HLA-A*26:01 | 1 | 758 | 767 | 10 | SFCTQLNRAL 0.00012 | 27 |
| HLA-B*07:02 | 1 | 760 | 768 | 9 | CTQLNRALT 0.00012 | 29 |
| HLA-A*30:01 | 1 | 796 | 805 | 10 | DFGGFNFSQI 0.00012 | 56 |
| HLA-A*68:02 | 1 | 809 | 817 | 9 | PSKPSKRSF 0.00012 | 34 |
| HLA-A*03:01 | 1 | 813 | 821 | 9 | SKRSFIEDL 0.00012 | 27 |
| HLA-A*31:01 | 1 | 826 | 834 | 9 | VTLADAGFI 0.00012 | 34 |
| HLA-A*23:01 | 1 | 832 | 840 | 9 | GFIKQYGDC 0.00012 | 20 |
| HLA-B*35:01 | 1 | 843 | 852 | 10 | DIAARDLICA 0.00012 | 23 |
| HLA-B*40:01 | 1 | 871 | 880 | 10 | AQYTSALLAG 0.00012 | 18 |
| HLA-B*44:02 | 1 | 887 | 896 | 10 | TFGAGAALQI 0.00012 | 21 |
| HLA-B*44:02 | 1 | 913 | 921 | 9 | QNVLYENQK 0.00012 | 21 |
| HLA-A*03:01 | 1 | 914 | 922 | 9 | NVLYENQKL 0.00012 | 27 |
| HLA-A*02:03 | 1 | 918 | 927 | 10 | ENQKLIANQF 0.00012 | 35 |
| HLA-A*26:01 | 1 | 947 | 956 | 10 | KLQDVVNQNA 0.00012 | 27 |
| HLA-A*03:01 | 1 | 961 | 969 | 9 | TLVKQLSSN 0.00012 | 27 |
| HLA-B*57:01 | 1 | 977 | 986 | 10 | LNDILSRLDK 0.00012 | 45 |
| HLA-A*30:01 | 1 | 987 | 996 | 10 | VEAEVQIDRL 0.00012 | 56 |
| HLA-A*03:01 | 1 | 991 | 999 | 9 | VQIDRLITG 0.00012 | 27 |
| HLA-B*58:01 | 1 | 998 | 1006 | 9 | TGRLQSLQT 0.00012 | 34 |
| HLA-A*32:01 | 1 | 1007 | 1016 | 10 | YVTQQLIRAA 0.00012 | 25 |
| HLA-B*57:01 | 1 | 1028 | 1037 | 10 | KMSECVLGQS 0.00012 | 45 |
| HLA-A*26:01 | 1 | 1033 | 1042 | 10 | VLGQSKRVDF 0.00012 | 27 |
| HLA-B*53:01 | 1 | 1047 | 1056 | 10 | YHLMSFPQSA 0.00012 | 22 |
| HLA-A*01:01 | 1 | 1051 | 1059 | 9 | SFPQSAPHG 0.00012 | 45 |
| HLA-A*23:01 | 1 | 1058 | 1067 | 10 | HGVVFLHVTY 0.00012 | 20 |
| HLA-A*02:06 | 1 | 1088 | 1097 | 10 | HFPREGVFSV 0.00012 | 42 |
| HLA-A*01:01 | 1 | 1105 | 1114 | 10 | TQRNFYEPQI 0.00012 | 45 |
| HLA-B*40:01 | 1 | 1108 | 1116 | 9 | NFYEPQIIT 0.00012 | 18 |
| HLA-A*30:01 | 1 | 1119 | 1127 | 9 | NTFVSGNCD 0.00012 | 56 |
| HLA-B*07:02 | 1 | 1135 | 1144 | 10 | NTVYDPLQPE 0.00012 | 29 |
| HLA-B*44:03 | 1 | 1174 | 1183 | 10 | ASVVNIQKEI 0.00012 | 20 |
| HLA-A*11:01 | 1 | 1219 | 1227 | 9 | GFIAGLIAI 0.00012 | 20 |
| HLA-B*57:01 | 1 | 1219 | 1228 | 10 | GFIAGLIAIV 0.00012 | 45 |
| HLA-A*02:03 | 1 | 57 | 65 | 9 | PFFSNVTWF 0.000119 | 35 |
| HLA-A*03:01 | 1 | 71 | 79 | 9 | SGTNGTKRF 0.000119 | 27 |
| HLA-A*31:01 | 1 | 91 | 100 | 10 | YFASTEKSNI 0.000119 | 34 |
| HLA-B*07:02 | 1 | 110 | 119 | 10 | LDSKTQSLLI 0.000119 | 30 |
| HLA-A*68:01 | 1 | 114 | 122 | 9 | TQSLIVNN 0.000119 | 30 |
| HLA-B*44:02 | 1 | 127 | 135 | 9 | VIKVCEFQF 0.000119 | 21 |
| HLA-A*68:02 | 1 | 175 | 183 | 9 | FLMDLEGKQ 0.000119 | 35 |
| HLA-B*08:01 | 1 | 180 | 188 | 9 | EGKQGNFKN 0.000119 | 45 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|----------|----|
| HLA-B*40:01 | 1 | 182 | 190 | 9 | KQGNFKNLR | 0.000119 | 19 |
| HLA-B*58:01 | 1 | 185 | 193 | 9 | NFKNLREFV | 0.000119 | 34 |
| HLA-A*31:01 | 1 | 225 | 233 | 9 | PLVDLPIGI | 0.000119 | 34 |
| HLA-A*01:01 | 1 | 231 | 239 | 9 | IGINITRFQ | 0.000119 | 45 |
| HLA-A*02:06 | 1 | 264 | 273 | 10 | AYYVGYLQPR | 0.000119 | 42 |
| HLA-B*57:01 | 1 | 284 | 292 | 9 | TITDAVDCA | 0.000119 | 45 |
| HLA-B*08:01 | 1 | 290 | 299 | 10 | DCALDPLSET | 0.000119 | 45 |
| HLA-B*40:01 | 1 | 307 | 315 | 9 | TVEKGIYQT | 0.000119 | 19 |
| HLA-A*68:02 | 1 | 308 | 316 | 9 | VEKGIYQTS | 0.000119 | 35 |
| HLA-A*32:01 | 1 | 375 | 383 | 9 | STFKCYGVS | 0.000119 | 25 |
| HLA-A*30:01 | 1 | 383 | 391 | 9 | SPTKLNLC | 0.000119 | 56 |
| HLA-A*02:03 | 1 | 402 | 411 | 10 | IRGDEVQRQIA | 0.000119 | 35 |
| HLA-B*58:01 | 1 | 424 | 433 | 10 | KLPDDFTGCV | 0.000119 | 34 |
| HLA-B*53:01 | 1 | 432 | 441 | 10 | CVIAWNSNNL | 0.000119 | 22 |
| HLA-A*30:02 | 1 | 434 | 442 | 9 | IAWNSNNL | 0.000119 | 54 |
| HLA-A*68:01 | 1 | 450 | 459 | 10 | NYLYRLFRKS | 0.000119 | 30 |
| HLA-A*26:01 | 1 | 508 | 516 | 9 | YRVVLSFE | 0.000119 | 27 |
| HLA-A*68:01 | 1 | 508 | 517 | 10 | YRVVLSFEL | 0.000119 | 30 |
| HLA-A*26:01 | 1 | 516 | 525 | 10 | ELLHAPATVC | 0.000119 | 27 |
| HLA-B*08:01 | 1 | 518 | 526 | 9 | LHAPATVCG | 0.000119 | 45 |
| HLA-A*02:06 | 1 | 537 | 545 | 9 | KCVNFNFG | 0.000119 | 42 |
| HLA-B*15:01 | 1 | 541 | 549 | 9 | FNFNGLTGT | 0.000119 | 32 |
| HLA-B*07:02 | 1 | 553 | 561 | 9 | TESNKKFLP | 0.000119 | 30 |
| HLA-B*57:01 | 1 | 555 | 564 | 10 | SNKKFLPFQQ | 0.000119 | 45 |
| HLA-A*68:02 | 1 | 556 | 565 | 10 | NKKFLPFQQF | 0.000119 | 35 |
| HLA-B*57:01 | 1 | 568 | 576 | 9 | DIADTTDAV | 0.000119 | 45 |
| HLA-A*68:02 | 1 | 570 | 579 | 10 | ADTTDAVRDP | 0.000119 | 35 |
| HLA-B*57:01 | 1 | 587 | 596 | 10 | ITPCSFGGVS | 0.000119 | 45 |
| HLA-A*30:02 | 1 | 600 | 609 | 10 | PGTNTSNQVA | 0.000119 | 54 |
| HLA-B*58:01 | 1 | 600 | 608 | 9 | PGTNTSNQV | 0.000119 | 34 |
| HLA-B*51:01 | 1 | 612 | 621 | 10 | YQDVNCTEVP | 0.000119 | 40 |
| HLA-A*23:01 | 1 | 659 | 667 | 9 | SYECDIPIG | 0.000119 | 20 |
| HLA-A*33:01 | 1 | 664 | 672 | 9 | IPIGAGICA | 0.000119 | 34 |
| HLA-A*68:01 | 1 | 668 | 677 | 10 | AGICASYQTQ | 0.000119 | 30 |
| HLA-B*58:01 | 1 | 691 | 700 | 10 | SIAYTMSLG | 0.000119 | 34 |
| HLA-A*11:01 | 1 | 731 | 740 | 10 | MTKTSVDCTM | 0.000119 | 20 |
| HLA-A*02:03 | 1 | 765 | 773 | 9 | RALTGIAVE | 0.000119 | 35 |
| HLA-B*08:01 | 1 | 870 | 879 | 10 | IAQYTSALLA | 0.000119 | 45 |
| HLA-B*53:01 | 1 | 885 | 894 | 10 | GWTFGAGAAL | 0.000119 | 22 |
| HLA-A*01:01 | 1 | 931 | 939 | 9 | IGKIQDLSL | 0.000119 | 45 |
| HLA-A*31:01 | 1 | 953 | 962 | 10 | NQNAQALNTL | 0.000119 | 34 |
| HLA-A*68:01 | 1 | 954 | 963 | 10 | QNAQALNTLV | 0.000119 | 30 |
| HLA-A*02:03 | 1 | 988 | 997 | 10 | EAEVQIDRLI | 0.000119 | 35 |
| HLA-A*33:01 | 1 | 988 | 996 | 9 | EAEVQIDRL | 0.000119 | 34 |
| HLA-B*07:02 | 1 | 991 | 1000 | 10 | VQIDRLITGR | 0.000119 | 30 |
| HLA-A*03:01 | 1 | 1017 | 1026 | 10 | EIRASANLAA | 0.000119 | 27 |
| HLA-A*26:01 | 1 | 1018 | 1026 | 9 | IRASANLAA | 0.000119 | 27 |
| HLA-A*33:01 | 1 | 1020 | 1029 | 10 | ASANLAATKM | 0.000119 | 34 |
| HLA-A*01:01 | 1 | 1021 | 1030 | 10 | SANLAATKMS | 0.000119 | 45 |
| HLA-B*40:01 | 1 | 1029 | 1038 | 10 | MSECVLGQSK | 0.000119 | 19 |
| HLA-A*02:03 | 1 | 1056 | 1064 | 9 | APHGVVFLH | 0.000119 | 35 |
| HLA-A*26:01 | 1 | 1062 | 1070 | 9 | FLHVTVVPA | 0.000119 | 27 |
| HLA-A*02:06 | 1 | 1072 | 1080 | 9 | EKNFTTAPA | 0.000119 | 42 |
| HLA-B*51:01 | 1 | 1084 | 1093 | 10 | DGKAHFPREG | 0.000119 | 40 |
| HLA-A*11:01 | 1 | 1092 | 1101 | 10 | EGVFVSNQTH | 0.000119 | 20 |
| HLA-A*30:02 | 1 | 1103 | 1112 | 10 | FVTQRNFYEP | 0.000119 | 54 |
| HLA-A*03:01 | 1 | 1104 | 1113 | 10 | VTQRNFYEPQ | 0.000119 | 27 |
| HLA-B*53:01 | 1 | 1108 | 1117 | 10 | NFYEPQIITT | 0.000119 | 22 |
| HLA-A*30:01 | 1 | 1112 | 1120 | 9 | PQIITTDNT | 0.000119 | 56 |
| HLA-B*07:02 | 1 | 1113 | 1122 | 10 | QIITTDNTFV | 0.000119 | 30 |
| HLA-B*53:01 | 1 | 1116 | 1124 | 9 | TTDNTFVSG | 0.000119 | 22 |
| HLA-A*26:01 | 1 | 1120 | 1128 | 9 | TFVSGNCDV | 0.000119 | 27 |
| HLA-A*30:02 | 1 | 1143 | 1152 | 10 | PELDSFKEEL | 0.000119 | 54 |
| HLA-A*33:01 | 1 | 1150 | 1158 | 9 | EELDKYFKN | 0.000119 | 34 |
| HLA-A*26:01 | 1 | 1156 | 1164 | 9 | FKNHTSPDV | 0.000119 | 27 |
| HLA-A*11:01 | 1 | 1188 | 1196 | 9 | EVAKNLNES | 0.000119 | 20 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*58:01 | 1 | 1190 | 1198 | 9 | AKNLNESLI 0.000119 | 34 |
| HLA-A*02:03 | 1 | 1200 | 1209 | 10 | LQELGKYEQY 0.000119 | 35 |
| HLA-A*03:01 | 1 | 1208 | 1217 | 10 | QYIKWPWYIW 0.000119 | 27 |
| HLA-A*01:01 | 1 | 1210 | 1218 | 9 | IKWPWYIWL 0.000119 | 45 |
| HLA-B*44:03 | 1 | 1258 | 1267 | 10 | EDDSEPVKLG 0.000119 | 20 |
| HLA-B*40:01 | 1 | 39 | 47 | 9 | PDKVFRSSV 0.000118 | 19 |
| HLA-B*07:02 | 1 | 58 | 66 | 9 | FFSNVTWFH 0.000118 | 30 |
| HLA-A*11:01 | 1 | 70 | 79 | 10 | VSGTNGTKRF 0.000118 | 20 |
| HLA-A*31:01 | 1 | 76 | 84 | 9 | TKRFDNPVL 0.000118 | 34 |
| HLA-A*68:01 | 1 | 79 | 87 | 9 | FDPVLPFN 0.000118 | 30 |
| HLA-B*40:01 | 1 | 138 | 146 | 9 | DPFLGVVYH 0.000118 | 19 |
| HLA-A*02:03 | 1 | 186 | 194 | 9 | FKNLREFVF 0.000118 | 35 |
| HLA-B*44:02 | 1 | 203 | 212 | 10 | IYSKHTPINL 0.000118 | 21 |
| HLA-A*33:01 | 1 | 213 | 222 | 10 | VRDLPQGFSA 0.000118 | 34 |
| HLA-B*08:01 | 1 | 247 | 256 | 10 | SYLTPGDSSS 0.000118 | 45 |
| HLA-A*02:01 | 1 | 257 | 266 | 10 | GWTAGAAAYY 0.000118 | 32 |
| HLA-A*68:02 | 1 | 259 | 268 | 10 | TAGAAAYYVG 0.000118 | 35 |
| HLA-B*57:01 | 1 | 277 | 285 | 9 | LKYNENGTI 0.000118 | 45 |
| HLA-A*02:01 | 1 | 315 | 323 | 9 | TSNFRVQPT 0.000118 | 32 |
| HLA-A*02:03 | 1 | 342 | 351 | 10 | FNATRFASVY 0.000118 | 35 |
| HLA-B*08:01 | 1 | 350 | 359 | 10 | VYAWNRRKRIS 0.000118 | 45 |
| HLA-A*68:01 | 1 | 368 | 376 | 9 | LYNSASFST 0.000118 | 30 |
| HLA-A*24:02 | 1 | 378 | 386 | 9 | KCYGVSPTK 0.000118 | 19 |
| HLA-B*53:01 | 1 | 400 | 409 | 10 | FVIRGDEVRQ 0.000118 | 22 |
| HLA-B*44:02 | 1 | 404 | 412 | 9 | GDEVQRQIAP 0.000118 | 21 |
| HLA-B*08:01 | 1 | 405 | 413 | 9 | DEVQRQIAPG 0.000118 | 45 |
| HLA-B*15:01 | 1 | 415 | 424 | 10 | TGKIADYNYK 0.000118 | 32 |
| HLA-B*57:01 | 1 | 435 | 444 | 10 | AWNSNNLDSK 0.000118 | 45 |
| HLA-A*33:01 | 1 | 515 | 524 | 10 | FELLHAPATV 0.000118 | 34 |
| HLA-B*15:01 | 1 | 522 | 531 | 10 | ATVCGPKKST 0.000118 | 32 |
| HLA-A*68:02 | 1 | 529 | 538 | 10 | KSTNLVKKNC 0.000118 | 35 |
| HLA-A*30:01 | 1 | 534 | 542 | 9 | VKNKCVNFN 0.000118 | 56 |
| HLA-A*30:02 | 1 | 541 | 550 | 10 | FNFNGLTGTG 0.000118 | 54 |
| HLA-A*68:02 | 1 | 550 | 558 | 9 | GVLTESNKK 0.000118 | 35 |
| HLA-B*15:01 | 1 | 554 | 563 | 10 | ESNKKFLPFQ 0.000118 | 32 |
| HLA-B*44:02 | 1 | 569 | 577 | 9 | IADTTDAVR 0.000118 | 21 |
| HLA-A*33:01 | 1 | 580 | 589 | 10 | QTLIELDITP 0.000118 | 34 |
| HLA-B*44:02 | 1 | 607 | 615 | 9 | QVAVLYQDV 0.000118 | 21 |
| HLA-A*68:02 | 1 | 631 | 639 | 9 | PTWRVYSTG 0.000118 | 35 |
| HLA-B*51:01 | 1 | 636 | 645 | 10 | YSTGSNVFQT 0.000118 | 40 |
| HLA-B*44:03 | 1 | 643 | 651 | 9 | FQTRAGCLI 0.000118 | 20 |
| HLA-A*02:06 | 1 | 648 | 657 | 10 | GCLIGAHEVN 0.000118 | 42 |
| HLA-A*11:01 | 1 | 659 | 668 | 10 | SYECDIPIGA 0.000118 | 20 |
| HLA-B*58:01 | 1 | 692 | 700 | 9 | IIAYTMSLG 0.000118 | 34 |
| HLA-B*35:01 | 1 | 697 | 706 | 10 | MSLGAENSV 0.000118 | 23 |
| HLA-A*31:01 | 1 | 704 | 713 | 10 | SVAYSNNNSIA 0.000118 | 34 |
| HLA-A*31:01 | 1 | 705 | 713 | 9 | VAYSNNNSIA 0.000118 | 34 |
| HLA-A*32:01 | 1 | 707 | 715 | 9 | YSNNSIAIP 0.000118 | 25 |
| HLA-B*07:02 | 1 | 740 | 749 | 10 | MYICGDSTEC 0.000118 | 30 |
| HLA-B*08:01 | 1 | 766 | 774 | 9 | ALTGIAVEQ 0.000118 | 45 |
| HLA-A*26:01 | 1 | 805 | 813 | 9 | ILPDPSKPS 0.000118 | 28 |
| HLA-B*57:01 | 1 | 816 | 824 | 9 | SFIEDLLFN 0.000118 | 45 |
| HLA-A*30:01 | 1 | 821 | 830 | 10 | LLFNKVTLAD 0.000118 | 56 |
| HLA-A*02:03 | 1 | 833 | 842 | 10 | FIKQYGDCLG 0.000118 | 35 |
| HLA-A*01:01 | 1 | 856 | 864 | 9 | NGLTVLPL 0.000118 | 45 |
| HLA-A*30:01 | 1 | 865 | 874 | 10 | LTDEMIAQYT 0.000118 | 56 |
| HLA-A*31:01 | 1 | 868 | 877 | 10 | EMIAQYTSAL 0.000118 | 34 |
| HLA-A*02:06 | 1 | 874 | 883 | 10 | TSALLAGTIT 0.000118 | 42 |
| HLA-A*32:01 | 1 | 884 | 892 | 9 | SGWTFGAGA 0.000118 | 25 |
| HLA-B*07:02 | 1 | 925 | 934 | 10 | NQFNSAIGKI 0.000118 | 30 |
| HLA-B*44:03 | 1 | 949 | 957 | 9 | QDVVNQNAQ 0.000118 | 20 |
| HLA-B*15:01 | 1 | 950 | 958 | 9 | DVVVNQNAQA 0.000118 | 32 |
| HLA-A*68:01 | 1 | 964 | 972 | 9 | KQLSSNFGA 0.000118 | 30 |
| HLA-A*68:01 | 1 | 983 | 991 | 9 | RLDKVEAEV 0.000118 | 30 |
| HLA-A*31:01 | 1 | 987 | 996 | 10 | VEAEVQIDRL 0.000118 | 34 |
| HLA-A*30:01 | 1 | 988 | 996 | 9 | EAEVQIDRL 0.000118 | 56 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|----|
| HLA-B*53:01 | 1 | 990 | 998 | 9 | EVQIDRLIT | 0.000118 | 22 |
| HLA-A*32:01 | 1 | 1061 | 1069 | 9 | VFLHVTYVP | 0.000118 | 25 |
| HLA-B*44:03 | 1 | 1066 | 1074 | 9 | TYVPAQEKD | 0.000118 | 20 |
| HLA-A*02:03 | 1 | 1075 | 1083 | 9 | FTTAPAICH | 0.000118 | 35 |
| HLA-A*24:02 | 1 | 1086 | 1094 | 9 | KAHFPREGV | 0.000118 | 19 |
| HLA-A*68:01 | 1 | 1107 | 1115 | 9 | RNFYEPQII | 0.000118 | 30 |
| HLA-A*31:01 | 1 | 1113 | 1122 | 10 | QIITTDNTFV | 0.000118 | 34 |
| HLA-A*26:01 | 1 | 1125 | 1133 | 9 | NCDVVIGIV | 0.000118 | 28 |
| HLA-A*30:02 | 1 | 1168 | 1177 | 10 | DISGINASVV | 0.000118 | 54 |
| HLA-A*30:01 | 1 | 1169 | 1178 | 10 | ISGINASVNN | 0.000118 | 56 |
| HLA-B*57:01 | 1 | 1182 | 1190 | 9 | EIDRLNEVA | 0.000118 | 45 |
| HLA-A*68:02 | 1 | 1190 | 1198 | 9 | AKNLNESLI | 0.000118 | 35 |
| HLA-A*31:01 | 1 | 1192 | 1201 | 10 | NLNESLIDLQ | 0.000118 | 34 |
| HLA-B*07:02 | 1 | 1200 | 1209 | 10 | LQELGKYEYQ | 0.000118 | 30 |
| HLA-A*02:03 | 1 | 19 | 28 | 10 | TTRTQLPPAY | 0.000117 | 35 |
| HLA-A*24:02 | 1 | 22 | 31 | 10 | TQLPPAYTNS | 0.000117 | 19 |
| HLA-B*51:01 | 1 | 44 | 52 | 9 | RSSVLHSTQ | 0.000117 | 40 |
| HLA-A*31:01 | 1 | 49 | 57 | 9 | HSTQDLFLP | 0.000117 | 34 |
| HLA-A*30:01 | 1 | 86 | 94 | 9 | FNDGVYFAS | 0.000117 | 56 |
| HLA-B*40:01 | 1 | 86 | 94 | 9 | FNDGVYFAS | 0.000117 | 19 |
| HLA-A*68:02 | 1 | 148 | 157 | 10 | NNKSWMESEF | 0.000117 | 35 |
| HLA-B*51:01 | 1 | 153 | 162 | 10 | MESEFRVYSS | 0.000117 | 40 |
| HLA-A*11:01 | 1 | 159 | 168 | 10 | VYSSANNCTF | 0.000117 | 20 |
| HLA-B*40:01 | 1 | 159 | 168 | 10 | VYSSANNCTF | 0.000117 | 19 |
| HLA-B*07:02 | 1 | 162 | 171 | 10 | SANNCTFEYV | 0.000117 | 30 |
| HLA-A*02:03 | 1 | 176 | 184 | 9 | LMDLEGKQG | 0.000117 | 35 |
| HLA-B*35:01 | 1 | 205 | 213 | 9 | SKHTPINLV | 0.000117 | 23 |
| HLA-B*07:02 | 1 | 222 | 231 | 10 | ALEPLVDLPI | 0.000117 | 30 |
| HLA-A*01:01 | 1 | 228 | 236 | 9 | DLPIGINIT | 0.000117 | 46 |
| HLA-B*15:01 | 1 | 228 | 237 | 10 | DLPIGINITR | 0.000117 | 33 |
| HLA-A*24:02 | 1 | 236 | 245 | 10 | TRFQTLALH | 0.000117 | 19 |
| HLA-A*02:01 | 1 | 264 | 273 | 10 | AYYVGYLQPR | 0.000117 | 32 |
| HLA-A*26:01 | 1 | 266 | 274 | 9 | YVGYLQPR | 0.000117 | 28 |
| HLA-B*58:01 | 1 | 294 | 303 | 10 | DPLSETKCTL | 0.000117 | 34 |
| HLA-A*02:06 | 1 | 336 | 345 | 10 | CPFGEVFNAT | 0.000117 | 42 |
| HLA-A*02:01 | 1 | 339 | 347 | 9 | GEVFNATRF | 0.000117 | 32 |
| HLA-B*51:01 | 1 | 364 | 373 | 10 | DYSVLVNSAS | 0.000117 | 40 |
| HLA-A*31:01 | 1 | 366 | 375 | 10 | SVLVNSASF | 0.000117 | 34 |
| HLA-A*30:01 | 1 | 374 | 383 | 10 | FSTFKCYGVS | 0.000117 | 56 |
| HLA-A*30:01 | 1 | 397 | 406 | 10 | ADSFVIRGDE | 0.000117 | 56 |
| HLA-B*44:02 | 1 | 412 | 421 | 10 | PGQTGKIADY | 0.000117 | 21 |
| HLA-A*33:01 | 1 | 472 | 480 | 9 | IYQAGSTPC | 0.000117 | 34 |
| HLA-A*11:01 | 1 | 504 | 512 | 9 | GYQPYRVVV | 0.000117 | 20 |
| HLA-A*68:02 | 1 | 518 | 527 | 10 | LHAPATVCGP | 0.000117 | 35 |
| HLA-A*23:01 | 1 | 544 | 552 | 9 | NGLTGTGVL | 0.000117 | 20 |
| HLA-B*44:03 | 1 | 568 | 576 | 9 | DIADTTDAV | 0.000117 | 20 |
| HLA-A*03:01 | 1 | 595 | 604 | 10 | VSVITPGTNT | 0.000117 | 27 |
| HLA-B*51:01 | 1 | 598 | 607 | 10 | ITPGTNTSNQ | 0.000117 | 40 |
| HLA-B*57:01 | 1 | 600 | 609 | 10 | PGTNTSNQVA | 0.000117 | 45 |
| HLA-B*35:01 | 1 | 607 | 615 | 9 | QVAVLYQDV | 0.000117 | 23 |
| HLA-B*44:02 | 1 | 623 | 631 | 9 | AIHADQLTP | 0.000117 | 21 |
| HLA-A*33:01 | 1 | 629 | 638 | 10 | LTPTWRVYST | 0.000117 | 34 |
| HLA-A*68:01 | 1 | 629 | 638 | 10 | LTPTWRVYST | 0.000117 | 30 |
| HLA-B*07:02 | 1 | 644 | 652 | 9 | QTRAGCLIG | 0.000117 | 30 |
| HLA-A*26:01 | 1 | 654 | 662 | 9 | EHVNNSYEC | 0.000117 | 28 |
| HLA-B*57:01 | 1 | 655 | 663 | 9 | HVNNSYECD | 0.000117 | 45 |
| HLA-A*30:01 | 1 | 658 | 667 | 10 | NSYECDIPIG | 0.000117 | 56 |
| HLA-B*44:03 | 1 | 675 | 684 | 10 | QTQTNSPRRA | 0.000117 | 20 |
| HLA-A*68:01 | 1 | 678 | 686 | 9 | TNSPRRARS | 0.000117 | 30 |
| HLA-B*35:01 | 1 | 685 | 693 | 9 | RSVASQSII | 0.000117 | 23 |
| HLA-B*07:02 | 1 | 688 | 696 | 9 | ASQSIIAYT | 0.000117 | 30 |
| HLA-A*02:06 | 1 | 699 | 708 | 10 | LGAEVSVYF | 0.000117 | 42 |
| HLA-A*23:01 | 1 | 710 | 719 | 10 | NSIAIPTNFT | 0.000117 | 20 |
| HLA-A*01:01 | 1 | 735 | 744 | 10 | SVDCTMYICG | 0.000117 | 46 |
| HLA-B*07:02 | 1 | 762 | 771 | 10 | QLNRALTGIA | 0.000117 | 30 |
| HLA-A*33:01 | 1 | 799 | 807 | 9 | GFNFSQILP | 0.000117 | 34 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*68:02 | 1 | 800 | 809 | 10 | FNFSQILPDP 0.000117 | 35 |
| HLA-A*68:01 | 1 | 802 | 810 | 9 | FSQILPDPS 0.000117 | 30 |
| HLA-B*07:02 | 1 | 802 | 811 | 10 | FSQILPDPSK 0.000117 | 30 |
| HLA-B*07:02 | 1 | 809 | 818 | 10 | PSKPSKRSFI 0.000117 | 30 |
| HLA-B*58:01 | 1 | 811 | 820 | 10 | KPSKRSFIED 0.000117 | 34 |
| HLA-A*68:01 | 1 | 819 | 828 | 10 | EDLLFNKVTL 0.000117 | 30 |
| HLA-A*33:01 | 1 | 822 | 831 | 10 | LFNKVTLADA 0.000117 | 34 |
| HLA-A*32:01 | 1 | 907 | 916 | 10 | NGIGVTQNVL 0.000117 | 25 |
| HLA-A*30:01 | 1 | 917 | 926 | 10 | YENQKLIANQ 0.000117 | 56 |
| HLA-A*30:02 | 1 | 928 | 937 | 10 | NSAIGKIQDS 0.000117 | 54 |
| HLA-A*33:01 | 1 | 933 | 942 | 10 | KIQDLSSTA 0.000117 | 34 |
| HLA-B*44:02 | 1 | 935 | 944 | 10 | QDLSSTASA 0.000117 | 21 |
| HLA-A*11:01 | 1 | 954 | 962 | 9 | QNAQALNTL 0.000117 | 20 |
| HLA-A*33:01 | 1 | 967 | 975 | 9 | SSNFGAIVS 0.000117 | 34 |
| HLA-A*68:02 | 1 | 1001 | 1009 | 9 | LQSLQTYVT 0.000117 | 35 |
| HLA-A*01:01 | 1 | 1047 | 1055 | 9 | YHLMSFPQS 0.000117 | 46 |
| HLA-A*31:01 | 1 | 1071 | 1079 | 9 | QEKNFITAP 0.000117 | 34 |
| HLA-B*08:01 | 1 | 1093 | 1101 | 9 | GVFVSNPTH 0.000117 | 45 |
| HLA-A*33:01 | 1 | 1104 | 1113 | 10 | VTQRNFYEPQ 0.000117 | 34 |
| HLA-B*35:01 | 1 | 1107 | 1115 | 9 | RNFYEPQII 0.000117 | 23 |
| HLA-B*44:02 | 1 | 1154 | 1162 | 9 | KYFKNHTSP 0.000117 | 21 |
| HLA-A*02:01 | 1 | 1157 | 1166 | 10 | KNHTSPDVLD 0.000117 | 32 |
| HLA-B*57:01 | 1 | 1179 | 1188 | 10 | IQKEIDRLNE 0.000117 | 45 |
| HLA-A*01:01 | 1 | 1185 | 1194 | 10 | RLNEVAKNLN 0.000117 | 46 |
| HLA-B*58:01 | 1 | 1228 | 1237 | 10 | VMVTIMLCCM 0.000117 | 34 |
| HLA-B*40:01 | 1 | 19 | 28 | 10 | TTRTQLPPAY 0.000116 | 19 |
| HLA-B*40:01 | 1 | 40 | 49 | 10 | DKVFRSSVLH 0.000116 | 19 |
| HLA-A*26:01 | 1 | 43 | 52 | 10 | FRSSVLHSTQ 0.000116 | 28 |
| HLA-B*07:02 | 1 | 76 | 85 | 10 | TKRFDNPVLP 0.000116 | 30 |
| HLA-B*58:01 | 1 | 76 | 84 | 9 | TKRFDNPVL 0.000116 | 35 |
| HLA-B*53:01 | 1 | 101 | 110 | 10 | IRGWIFGTTL 0.000116 | 22 |
| HLA-A*30:02 | 1 | 105 | 114 | 10 | IFGTTLDSKT 0.000116 | 54 |
| HLA-B*44:03 | 1 | 127 | 135 | 9 | VIKVCEFQF 0.000116 | 20 |
| HLA-B*44:03 | 1 | 132 | 141 | 10 | EFQFCNDPFL 0.000116 | 20 |
| HLA-A*01:01 | 1 | 139 | 147 | 9 | PFLGVYYHK 0.000116 | 46 |
| HLA-A*68:01 | 1 | 143 | 151 | 9 | VYYHKNNKS 0.000116 | 30 |
| HLA-A*68:01 | 1 | 146 | 154 | 9 | HKNNKSWME 0.000116 | 30 |
| HLA-B*15:01 | 1 | 188 | 196 | 9 | NLREFVFKN 0.000116 | 33 |
| HLA-B*40:01 | 1 | 192 | 201 | 10 | FVFKNIDGYF 0.000116 | 19 |
| HLA-A*30:02 | 1 | 208 | 217 | 10 | TPINLVRDLP 0.000116 | 54 |
| HLA-A*68:02 | 1 | 211 | 219 | 9 | NLVRDLPQG 0.000116 | 35 |
| HLA-B*07:02 | 1 | 264 | 272 | 9 | AYYVGYLQP 0.000116 | 30 |
| HLA-B*15:01 | 1 | 307 | 315 | 9 | TVEKGIYQT 0.000116 | 33 |
| HLA-A*02:06 | 1 | 362 | 370 | 9 | VADYSVLYN 0.000116 | 42 |
| HLA-B*44:02 | 1 | 391 | 400 | 10 | CFTNVYADSF 0.000116 | 21 |
| HLA-B*40:01 | 1 | 405 | 413 | 9 | DEVQRQIAPG 0.000116 | 19 |
| HLA-A*68:02 | 1 | 483 | 492 | 10 | VEGFNCYFPL 0.000116 | 35 |
| HLA-A*33:01 | 1 | 514 | 523 | 10 | SFELLHAPAT 0.000116 | 34 |
| HLA-B*58:01 | 1 | 547 | 555 | 9 | TGTGVLTES 0.000116 | 35 |
| HLA-A*02:06 | 1 | 549 | 558 | 10 | TGVLTESNKK 0.000116 | 42 |
| HLA-A*30:01 | 1 | 582 | 591 | 10 | LEILDITPCS 0.000116 | 57 |
| HLA-B*44:03 | 1 | 637 | 646 | 10 | STGSNVFQTR 0.000116 | 20 |
| HLA-A*23:01 | 1 | 651 | 660 | 10 | IGAHEVNNSY 0.000116 | 20 |
| HLA-B*08:01 | 1 | 653 | 662 | 10 | AEHVNNSEY 0.000116 | 45 |
| HLA-A*02:01 | 1 | 675 | 683 | 9 | QTQTNSPRR 0.000116 | 32 |
| HLA-B*15:01 | 1 | 697 | 706 | 10 | MSLGAENSV 0.000116 | 33 |
| HLA-A*01:01 | 1 | 712 | 721 | 10 | IAIPTNFTIS 0.000116 | 46 |
| HLA-A*68:01 | 1 | 712 | 721 | 10 | IAIPTNFTIS 0.000116 | 30 |
| HLA-A*11:01 | 1 | 719 | 727 | 9 | TISVTTEIL 0.000116 | 20 |
| HLA-B*58:01 | 1 | 727 | 736 | 10 | LPVSMTKTSV 0.000116 | 35 |
| HLA-B*07:02 | 1 | 745 | 754 | 10 | DSTECSNLLL 0.000116 | 30 |
| HLA-B*15:01 | 1 | 746 | 755 | 10 | STECSNLLLQ 0.000116 | 33 |
| HLA-A*02:03 | 1 | 795 | 803 | 9 | KDFGGFNFS 0.000116 | 35 |
| HLA-B*40:01 | 1 | 805 | 814 | 10 | ILPDPSKPSK 0.000116 | 19 |
| HLA-B*15:01 | 1 | 844 | 852 | 9 | IAARDLICA 0.000116 | 33 |
| HLA-A*32:01 | 1 | 845 | 853 | 9 | AARDLICAQ 0.000116 | 25 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|----------|----|
| HLA-A*68:01 | 1 | 852 | 860 | 9 | AQKFNGLTV | 0.000116 | 30 |
| HLA-A*11:01 | 1 | 853 | 861 | 9 | QKFNGLTVL | 0.000116 | 20 |
| HLA-B*07:02 | 1 | 859 | 868 | 10 | TVLPPLLDE | 0.000116 | 30 |
| HLA-B*07:02 | 1 | 873 | 882 | 10 | YTSALLAGTI | 0.000116 | 30 |
| HLA-A*33:01 | 1 | 916 | 924 | 9 | LYENQKLIA | 0.000116 | 34 |
| HLA-A*03:01 | 1 | 923 | 931 | 9 | IANQFNSAI | 0.000116 | 27 |
| HLA-B*53:01 | 1 | 929 | 937 | 9 | SAIGKIQDS | 0.000116 | 22 |
| HLA-B*08:01 | 1 | 961 | 969 | 9 | TLVKQLSSN | 0.000116 | 45 |
| HLA-A*02:03 | 1 | 979 | 988 | 10 | DILSRLDKVE | 0.000116 | 35 |
| HLA-A*32:01 | 1 | 981 | 989 | 9 | LSRLDKVEA | 0.000116 | 25 |
| HLA-B*44:02 | 1 | 982 | 990 | 9 | SRLDKVEAE | 0.000116 | 21 |
| HLA-B*51:01 | 1 | 991 | 1000 | 10 | VQIDRLITGR | 0.000116 | 40 |
| HLA-B*51:01 | 1 | 994 | 1003 | 10 | DRLITGRLQS | 0.000116 | 40 |
| HLA-A*31:01 | 1 | 1007 | 1016 | 10 | YVTQQLIRAA | 0.000116 | 34 |
| HLA-A*30:02 | 1 | 1018 | 1027 | 10 | IRASANLAAT | 0.000116 | 54 |
| HLA-A*02:06 | 1 | 1030 | 1039 | 10 | SECVLGQSKR | 0.000116 | 42 |
| HLA-A*24:02 | 1 | 1053 | 1061 | 9 | PQSAPHGVV | 0.000116 | 19 |
| HLA-A*23:01 | 1 | 1055 | 1064 | 10 | SAPHGVVFLH | 0.000116 | 20 |
| HLA-B*35:01 | 1 | 1092 | 1100 | 9 | EGVFSVNGT | 0.000116 | 23 |
| HLA-A*33:01 | 1 | 1115 | 1123 | 9 | ITTDNTFVS | 0.000116 | 34 |
| HLA-A*30:01 | 1 | 1121 | 1130 | 10 | FVSGNCDVVI | 0.000116 | 57 |
| HLA-A*11:01 | 1 | 1124 | 1132 | 9 | GNCDDVIGI | 0.000116 | 20 |
| HLA-A*32:01 | 1 | 1135 | 1144 | 10 | NTVYDPLQPE | 0.000116 | 25 |
| HLA-A*33:01 | 1 | 1140 | 1148 | 9 | PLQPELDSF | 0.000116 | 34 |
| HLA-B*58:01 | 1 | 1150 | 1159 | 10 | EELDKYFKNH | 0.000116 | 35 |
| HLA-B*44:03 | 1 | 1154 | 1162 | 9 | KYFKNHTSP | 0.000116 | 20 |
| HLA-A*30:01 | 1 | 1157 | 1165 | 9 | KNHTSPDVD | 0.000116 | 57 |
| HLA-B*15:01 | 1 | 1157 | 1166 | 10 | KNHTSPDVDL | 0.000116 | 33 |
| HLA-A*01:01 | 1 | 1194 | 1202 | 9 | NESLIDLQE | 0.000116 | 46 |
| HLA-A*02:03 | 1 | 1195 | 1204 | 10 | ESLIDLQELG | 0.000116 | 35 |
| HLA-A*02:03 | 1 | 1199 | 1207 | 9 | DLQELGKYE | 0.000116 | 35 |
| HLA-A*03:01 | 1 | 2 | 11 | 10 | FVFLVLLPLV | 0.000115 | 27 |
| HLA-A*02:01 | 1 | 11 | 19 | 9 | VSSQCVNLT | 0.000115 | 32 |
| HLA-B*15:01 | 1 | 37 | 45 | 9 | YYPDKVFRS | 0.000115 | 33 |
| HLA-B*15:01 | 1 | 38 | 47 | 10 | YPDKVFRSSV | 0.000115 | 33 |
| HLA-B*44:03 | 1 | 52 | 60 | 9 | QDLFLPFFS | 0.000115 | 20 |
| HLA-B*44:03 | 1 | 58 | 66 | 9 | FFSNVTWFH | 0.000115 | 20 |
| HLA-A*33:01 | 1 | 65 | 73 | 9 | FHAIHVSQT | 0.000115 | 34 |
| HLA-B*44:02 | 1 | 115 | 123 | 9 | QSLLVNNA | 0.000115 | 21 |
| HLA-A*24:02 | 1 | 135 | 144 | 10 | FCNDPFLGVY | 0.000115 | 19 |
| HLA-A*02:06 | 1 | 180 | 189 | 10 | EGKQGNFKNL | 0.000115 | 42 |
| HLA-A*33:01 | 1 | 181 | 189 | 9 | GKQGNFKNL | 0.000115 | 34 |
| HLA-A*31:01 | 1 | 183 | 191 | 9 | QGNFKNLRE | 0.000115 | 34 |
| HLA-A*32:01 | 1 | 193 | 202 | 10 | VFKNIDGYFK | 0.000115 | 25 |
| HLA-B*15:01 | 1 | 211 | 219 | 9 | NLVRDLPQG | 0.000115 | 33 |
| HLA-A*32:01 | 1 | 223 | 231 | 9 | LEPLVDLPI | 0.000115 | 25 |
| HLA-A*02:01 | 1 | 290 | 299 | 10 | DCALDPLSET | 0.000115 | 32 |
| HLA-B*08:01 | 1 | 301 | 309 | 9 | CTLKSFTVE | 0.000115 | 46 |
| HLA-A*32:01 | 1 | 329 | 338 | 10 | FPNITNLCPF | 0.000115 | 25 |
| HLA-A*30:02 | 1 | 353 | 362 | 10 | WNRKRISNCV | 0.000115 | 54 |
| HLA-A*02:03 | 1 | 382 | 391 | 10 | VSPTKLNLC | 0.000115 | 35 |
| HLA-A*30:02 | 1 | 385 | 393 | 9 | TKLNLCFT | 0.000115 | 54 |
| HLA-B*35:01 | 1 | 393 | 402 | 10 | TNVYADSFVI | 0.000115 | 23 |
| HLA-B*40:01 | 1 | 399 | 407 | 9 | SFVIRGDEV | 0.000115 | 19 |
| HLA-B*08:01 | 1 | 422 | 431 | 10 | NYKLPDDFTG | 0.000115 | 46 |
| HLA-A*30:02 | 1 | 430 | 438 | 9 | TGCVIAWNS | 0.000115 | 54 |
| HLA-A*33:01 | 1 | 442 | 450 | 9 | DSKVGGNYN | 0.000115 | 34 |
| HLA-A*02:06 | 1 | 450 | 459 | 10 | NYLYRFLFRKS | 0.000115 | 42 |
| HLA-A*02:01 | 1 | 472 | 480 | 9 | IYQAGSTPC | 0.000115 | 32 |
| HLA-A*01:01 | 1 | 498 | 506 | 9 | QPTNGVGYY | 0.000115 | 46 |
| HLA-A*01:01 | 1 | 503 | 512 | 10 | VGYPYRVVV | 0.000115 | 46 |
| HLA-B*57:01 | 1 | 505 | 514 | 10 | YQPYRVVVLS | 0.000115 | 45 |
| HLA-A*02:06 | 1 | 553 | 561 | 9 | TESNKKFLP | 0.000115 | 42 |
| HLA-A*02:03 | 1 | 582 | 590 | 9 | LEILDITPC | 0.000115 | 35 |
| HLA-A*30:02 | 1 | 589 | 597 | 9 | PCSFGGVSV | 0.000115 | 54 |
| HLA-A*26:01 | 1 | 599 | 608 | 10 | TPGTNTSNQV | 0.000115 | 28 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*23:01 | 1 | 615 | 624 | 10 | VNCTEVPVAI 0.000115 | 20 |
| HLA-B*08:01 | 1 | 616 | 625 | 10 | NCTEVPVAIH 0.000115 | 46 |
| HLA-A*23:01 | 1 | 618 | 626 | 9 | TEVPVAIHA 0.000115 | 20 |
| HLA-B*35:01 | 1 | 621 | 629 | 9 | PVAIHADQL 0.000115 | 23 |
| HLA-A*01:01 | 1 | 644 | 652 | 9 | QTRAGCLIG 0.000115 | 46 |
| HLA-A*03:01 | 1 | 645 | 653 | 9 | TRAGCLIGA 0.000115 | 27 |
| HLA-B*58:01 | 1 | 676 | 684 | 9 | TQTNSPRRA 0.000115 | 35 |
| HLA-B*44:02 | 1 | 708 | 716 | 9 | SNNSIAIPT 0.000115 | 21 |
| HLA-B*44:03 | 1 | 716 | 724 | 9 | TNFTISVTT 0.000115 | 20 |
| HLA-A*23:01 | 1 | 782 | 790 | 9 | FAQVKQIYK 0.000115 | 20 |
| HLA-A*02:01 | 1 | 822 | 831 | 10 | LFNKVTLADA 0.000115 | 32 |
| HLA-A*02:03 | 1 | 853 | 862 | 10 | QKFNGLTVLP 0.000115 | 35 |
| HLA-B*35:01 | 1 | 858 | 866 | 9 | LTVLPLLLT 0.000115 | 23 |
| HLA-A*02:06 | 1 | 861 | 870 | 10 | LPPLLTDEMI 0.000115 | 42 |
| HLA-A*33:01 | 1 | 861 | 869 | 9 | LPPLLTDEM 0.000115 | 34 |
| HLA-A*02:06 | 1 | 862 | 871 | 10 | PPLLTDEMIA 0.000115 | 42 |
| HLA-A*31:01 | 1 | 881 | 890 | 10 | TITSGWTFGA 0.000115 | 34 |
| HLA-A*33:01 | 1 | 884 | 893 | 10 | SGWTFGAGAA 0.000115 | 34 |
| HLA-A*26:01 | 1 | 927 | 935 | 9 | FNSAIGKIQ 0.000115 | 28 |
| HLA-A*68:01 | 1 | 928 | 937 | 10 | NSAIGKIQDS 0.000115 | 30 |
| HLA-A*02:01 | 1 | 930 | 939 | 10 | AIGKIQDLSL 0.000115 | 32 |
| HLA-A*02:06 | 1 | 932 | 940 | 9 | GKIQDSLSS 0.000115 | 42 |
| HLA-A*23:01 | 1 | 939 | 948 | 10 | SSTASALGKL 0.000115 | 20 |
| HLA-A*32:01 | 1 | 955 | 964 | 10 | NAQALNTLVK 0.000115 | 25 |
| HLA-A*03:01 | 1 | 969 | 977 | 9 | NFGAISSVL 0.000115 | 27 |
| HLA-A*01:01 | 1 | 986 | 994 | 9 | KVEAEVQID 0.000115 | 46 |
| HLA-A*02:03 | 1 | 990 | 998 | 9 | EVQIDRLIT 0.000115 | 35 |
| HLA-A*68:02 | 1 | 995 | 1003 | 9 | RLITGRLQS 0.000115 | 35 |
| HLA-A*33:01 | 1 | 1002 | 1011 | 10 | QSLQTYVTQQ 0.000115 | 34 |
| HLA-B*51:01 | 1 | 1029 | 1038 | 10 | MSECVLGQSK 0.000115 | 40 |
| HLA-B*07:02 | 1 | 1047 | 1055 | 9 | YHLMSFPQS 0.000115 | 30 |
| HLA-A*02:03 | 1 | 1071 | 1080 | 10 | QEKNFTTAPA 0.000115 | 35 |
| HLA-B*35:01 | 1 | 1074 | 1083 | 10 | NFTTAPAICH 0.000115 | 23 |
| HLA-B*44:02 | 1 | 1096 | 1104 | 9 | VSNGTHWFV 0.000115 | 21 |
| HLA-B*44:02 | 1 | 1108 | 1116 | 9 | NFYEQIIT 0.000115 | 21 |
| HLA-B*07:02 | 1 | 1129 | 1138 | 10 | VIGIVNNTVY 0.000115 | 30 |
| HLA-A*23:01 | 1 | 1168 | 1176 | 9 | DISGINASV 0.000115 | 20 |
| HLA-B*07:02 | 1 | 1206 | 1215 | 10 | YEQYIKWPWY 0.000115 | 30 |
| HLA-B*51:01 | 1 | 1261 | 1269 | 9 | SEPVLKGVK 0.000115 | 40 |
| HLA-B*07:02 | 1 | 18 | 27 | 10 | LTRTQLPPA 0.000114 | 30 |
| HLA-A*03:01 | 1 | 31 | 39 | 9 | SFTRGVVYP 0.000114 | 27 |
| HLA-A*68:01 | 1 | 42 | 50 | 9 | VFRSSVLHS 0.000114 | 30 |
| HLA-A*02:06 | 1 | 67 | 75 | 9 | AIHVS GTNG 0.000114 | 42 |
| HLA-B*51:01 | 1 | 87 | 95 | 9 | NDGVYFAST 0.000114 | 41 |
| HLA-A*02:06 | 1 | 88 | 97 | 10 | DGVYFAST EK 0.000114 | 42 |
| HLA-A*26:01 | 1 | 92 | 101 | 10 | FASTEKSNII 0.000114 | 28 |
| HLA-A*68:01 | 1 | 100 | 108 | 9 | IIRGWIFGT 0.000114 | 30 |
| HLA-B*35:01 | 1 | 123 | 131 | 9 | ATNVVIKVC 0.000114 | 23 |
| HLA-B*40:01 | 1 | 123 | 131 | 9 | ATNVVIKVC 0.000114 | 19 |
| HLA-A*02:03 | 1 | 140 | 148 | 9 | FLGVYYHKN 0.000114 | 35 |
| HLA-A*30:02 | 1 | 145 | 154 | 10 | YHKNNKSWME 0.000114 | 54 |
| HLA-A*11:01 | 1 | 168 | 176 | 9 | FEYVSQPFL 0.000114 | 21 |
| HLA-B*44:03 | 1 | 177 | 185 | 9 | MDLEGKQGN 0.000114 | 20 |
| HLA-A*33:01 | 1 | 194 | 203 | 10 | FKNIDGYFKI 0.000114 | 34 |
| HLA-A*31:01 | 1 | 200 | 209 | 10 | YFKIYSKHTP 0.000114 | 34 |
| HLA-B*08:01 | 1 | 203 | 211 | 9 | IYSKHTPIN 0.000114 | 46 |
| HLA-B*08:01 | 1 | 213 | 221 | 9 | VRDLPQGF S 0.000114 | 46 |
| HLA-B*35:01 | 1 | 228 | 236 | 9 | DLPIGINIT 0.000114 | 23 |
| HLA-A*01:01 | 1 | 241 | 250 | 10 | LLALHRSYLT 0.000114 | 46 |
| HLA-A*68:01 | 1 | 248 | 256 | 9 | YLTPGDSSS 0.000114 | 30 |
| HLA-B*53:01 | 1 | 248 | 256 | 9 | YLTPGDSSS 0.000114 | 22 |
| HLA-B*07:02 | 1 | 266 | 274 | 9 | YVGYLQPR T 0.000114 | 30 |
| HLA-B*40:01 | 1 | 270 | 278 | 9 | LQPRTFLLK 0.000114 | 19 |
| HLA-A*02:06 | 1 | 278 | 286 | 9 | KYNENGTIT 0.000114 | 42 |
| HLA-A*02:06 | 1 | 285 | 294 | 10 | ITDAVDCAL D 0.000114 | 42 |
| HLA-A*02:06 | 1 | 296 | 304 | 9 | LSETKCTLK 0.000114 | 42 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*35:01 | 1 | 318 | 327 | 10 | FRVQPTESIV 0.000114 | 23 |
| HLA-B*08:01 | 1 | 319 | 328 | 10 | RVQPTESIVR 0.000114 | 46 |
| HLA-B*40:01 | 1 | 323 | 331 | 9 | TESIVRFPN 0.000114 | 19 |
| HLA-A*68:01 | 1 | 328 | 336 | 9 | RFPNITNLC 0.000114 | 30 |
| HLA-B*07:02 | 1 | 338 | 346 | 9 | FGEVFNATR 0.000114 | 30 |
| HLA-A*68:01 | 1 | 351 | 359 | 9 | YAWNRRKRIS 0.000114 | 30 |
| HLA-A*31:01 | 1 | 389 | 397 | 9 | DLCFTNVYA 0.000114 | 34 |
| HLA-A*02:03 | 1 | 396 | 404 | 9 | YADSFVIRG 0.000114 | 35 |
| HLA-B*57:01 | 1 | 397 | 406 | 10 | ADSFVIRGDE 0.000114 | 46 |
| HLA-A*03:01 | 1 | 416 | 425 | 10 | GKIADYNYKL 0.000114 | 27 |
| HLA-A*33:01 | 1 | 432 | 441 | 10 | CVIAWNSNNL 0.000114 | 34 |
| HLA-A*01:01 | 1 | 446 | 455 | 10 | GGNYNYLYRL 0.000114 | 46 |
| HLA-B*58:01 | 1 | 449 | 458 | 10 | YNYLYRLFRK 0.000114 | 35 |
| HLA-A*68:02 | 1 | 456 | 464 | 9 | FRKSNLKPF 0.000114 | 35 |
| HLA-B*08:01 | 1 | 488 | 496 | 9 | CYFPLQSYG 0.000114 | 46 |
| HLA-A*26:01 | 1 | 498 | 506 | 9 | QPTNGVGYQ 0.000114 | 28 |
| HLA-B*40:01 | 1 | 551 | 560 | 10 | VLTESNKKFL 0.000114 | 19 |
| HLA-A*02:03 | 1 | 574 | 583 | 10 | DAVRDPQTLT 0.000114 | 35 |
| HLA-B*57:01 | 1 | 593 | 602 | 10 | GGVSVITPGT 0.000114 | 46 |
| HLA-A*02:01 | 1 | 614 | 623 | 10 | DVNCTEVPVA 0.000114 | 32 |
| HLA-B*35:01 | 1 | 622 | 631 | 10 | VAIHADQLTP 0.000114 | 23 |
| HLA-B*08:01 | 1 | 623 | 632 | 10 | AIHADQLTPT 0.000114 | 46 |
| HLA-A*26:01 | 1 | 642 | 650 | 9 | VFQTRAGCL 0.000114 | 28 |
| HLA-A*03:01 | 1 | 664 | 672 | 9 | IPIGAGICA 0.000114 | 27 |
| HLA-B*58:01 | 1 | 667 | 675 | 9 | GAGICASYQ 0.000114 | 35 |
| HLA-A*30:01 | 1 | 669 | 678 | 10 | GICASYQTQT 0.000114 | 57 |
| HLA-B*44:03 | 1 | 673 | 681 | 9 | SYQTQTNSP 0.000114 | 20 |
| HLA-B*08:01 | 1 | 677 | 686 | 10 | QTNSPRRARS 0.000114 | 46 |
| HLA-B*15:01 | 1 | 712 | 721 | 10 | IAIPTNFTIS 0.000114 | 33 |
| HLA-A*31:01 | 1 | 716 | 725 | 10 | TNFTISVTTE 0.000114 | 34 |
| HLA-B*44:02 | 1 | 734 | 742 | 9 | TSVDCTMYI 0.000114 | 21 |
| HLA-B*08:01 | 1 | 770 | 778 | 9 | IAVEQDKNT 0.000114 | 46 |
| HLA-A*68:02 | 1 | 799 | 807 | 9 | GFNFSQILP 0.000114 | 35 |
| HLA-A*03:01 | 1 | 807 | 815 | 9 | PDPSKPSKR 0.000114 | 27 |
| HLA-A*31:01 | 1 | 833 | 841 | 9 | FIKQYGDCL 0.000114 | 34 |
| HLA-A*26:01 | 1 | 835 | 844 | 10 | KQYGDCLGDI 0.000114 | 28 |
| HLA-B*58:01 | 1 | 846 | 854 | 9 | ARDLICAQK 0.000114 | 35 |
| HLA-B*57:01 | 1 | 849 | 857 | 9 | LICAQKFNG 0.000114 | 46 |
| HLA-A*31:01 | 1 | 864 | 872 | 9 | LLTDEMIAQ 0.000114 | 34 |
| HLA-B*51:01 | 1 | 877 | 885 | 9 | LLAGTITSG 0.000114 | 41 |
| HLA-A*01:01 | 1 | 884 | 892 | 9 | SGWTFGAGA 0.000114 | 46 |
| HLA-B*58:01 | 1 | 888 | 897 | 10 | FGAGAALQIP 0.000114 | 35 |
| HLA-A*33:01 | 1 | 904 | 912 | 9 | YRFNGIGVT 0.000114 | 34 |
| HLA-A*31:01 | 1 | 909 | 918 | 10 | IGVTQNVLYE 0.000114 | 34 |
| HLA-A*02:03 | 1 | 928 | 937 | 10 | NSAIGKIQDS 0.000114 | 35 |
| HLA-A*30:02 | 1 | 963 | 971 | 9 | VKQLSSNFG 0.000114 | 54 |
| HLA-B*35:01 | 1 | 984 | 993 | 10 | LDKVEAEVQI 0.000114 | 23 |
| HLA-B*08:01 | 1 | 1015 | 1023 | 9 | AAEIRASAN 0.000114 | 46 |
| HLA-B*44:02 | 1 | 1072 | 1080 | 9 | EKNFTTAPA 0.000114 | 21 |
| HLA-B*35:01 | 1 | 1077 | 1086 | 10 | TAPAICHGDK 0.000114 | 23 |
| HLA-B*44:03 | 1 | 1083 | 1091 | 9 | HDGKAHFPR 0.000114 | 20 |
| HLA-A*26:01 | 1 | 1084 | 1092 | 9 | DGKAHFPRE 0.000114 | 28 |
| HLA-A*30:02 | 1 | 1091 | 1099 | 9 | REGVFVSNQ 0.000114 | 54 |
| HLA-A*01:01 | 1 | 1109 | 1118 | 10 | FYEPQIITTD 0.000114 | 46 |
| HLA-A*01:01 | 1 | 1117 | 1126 | 10 | TDNTFVSGNC 0.000114 | 46 |
| HLA-B*15:01 | 1 | 1140 | 1149 | 10 | PLQPELDSFK 0.000114 | 33 |
| HLA-A*30:02 | 1 | 1141 | 1150 | 10 | LQPELDSFKE 0.000114 | 54 |
| HLA-A*03:01 | 1 | 1167 | 1176 | 10 | GDISGINASV 0.000114 | 27 |
| HLA-A*26:01 | 1 | 1177 | 1186 | 10 | VNIQKEIDRL 0.000114 | 28 |
| HLA-B*51:01 | 1 | 1228 | 1236 | 9 | VMVTIMLCC 0.000114 | 41 |
| HLA-A*30:02 | 1 | 9 | 18 | 10 | PLVSSQCVNL 0.000113 | 54 |
| HLA-A*33:01 | 1 | 17 | 25 | 9 | NLTTRTQLP 0.000113 | 35 |
| HLA-B*44:02 | 1 | 20 | 29 | 10 | TRTQLPPAYT 0.000113 | 22 |
| HLA-B*44:03 | 1 | 20 | 29 | 10 | TRTQLPPAYT 0.000113 | 20 |
| HLA-A*26:01 | 1 | 22 | 31 | 10 | TQLPPAYTNS 0.000113 | 28 |
| HLA-A*02:01 | 1 | 30 | 39 | 10 | NSFTRGVYYP 0.000113 | 33 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*07:02 | 1 | 34 | 42 | 9 | RGVYYPDKV 0.000113 | 30 |
| HLA-A*01:01 | 1 | 36 | 45 | 10 | VYYPDKVFRS 0.000113 | 46 |
| HLA-A*33:01 | 1 | 48 | 56 | 9 | LHSTQDLFL 0.000113 | 35 |
| HLA-B*35:01 | 1 | 77 | 85 | 9 | KRFDNPVLP 0.000113 | 23 |
| HLA-B*08:01 | 1 | 91 | 99 | 9 | YFASTEKSN 0.000113 | 46 |
| HLA-A*68:01 | 1 | 132 | 141 | 10 | EFQFCNDPFL 0.000113 | 30 |
| HLA-A*30:01 | 1 | 139 | 148 | 10 | PFLGVYYHKN 0.000113 | 57 |
| HLA-A*26:01 | 1 | 141 | 150 | 10 | LGVYYHKNNK 0.000113 | 28 |
| HLA-A*26:01 | 1 | 161 | 169 | 9 | SSANNCTFE 0.000113 | 28 |
| HLA-B*35:01 | 1 | 170 | 178 | 9 | YVSQPFLMD 0.000113 | 23 |
| HLA-A*02:03 | 1 | 172 | 180 | 9 | SQPFLMDLE 0.000113 | 35 |
| HLA-B*44:03 | 1 | 198 | 207 | 10 | DGYFKIYSKH 0.000113 | 20 |
| HLA-B*53:01 | 1 | 201 | 210 | 10 | FKIYSKHTPI 0.000113 | 22 |
| HLA-A*68:02 | 1 | 248 | 257 | 10 | YLTPGDSSSG 0.000113 | 35 |
| HLA-B*51:01 | 1 | 249 | 257 | 9 | LTPGDSSSG 0.000113 | 41 |
| HLA-A*32:01 | 1 | 292 | 301 | 10 | ALDPLSETKC 0.000113 | 25 |
| HLA-B*15:01 | 1 | 296 | 304 | 9 | LSETKCTLK 0.000113 | 33 |
| HLA-B*51:01 | 1 | 307 | 316 | 10 | TVEKGIYQTS 0.000113 | 41 |
| HLA-A*02:01 | 1 | 359 | 368 | 10 | SNCVADYSVL 0.000113 | 33 |
| HLA-A*68:01 | 1 | 363 | 372 | 10 | ADYSVLYNSA 0.000113 | 30 |
| HLA-A*23:01 | 1 | 399 | 408 | 10 | SFVIRGDEVR 0.000113 | 20 |
| HLA-B*58:01 | 1 | 399 | 408 | 10 | SFVIRGDEVR 0.000113 | 35 |
| HLA-B*08:01 | 1 | 441 | 449 | 9 | LDSKVGGNY 0.000113 | 46 |
| HLA-B*51:01 | 1 | 447 | 456 | 10 | GNYNLYRLF 0.000113 | 41 |
| HLA-A*31:01 | 1 | 457 | 465 | 9 | RKSNLKPFE 0.000113 | 34 |
| HLA-A*31:01 | 1 | 481 | 490 | 10 | NGVEGFNCYF 0.000113 | 34 |
| HLA-A*32:01 | 1 | 493 | 502 | 10 | QSYGFQPTNG 0.000113 | 25 |
| HLA-A*31:01 | 1 | 494 | 502 | 9 | SYGFQPTNG 0.000113 | 34 |
| HLA-B*44:02 | 1 | 494 | 503 | 10 | SYGFQPTNGV 0.000113 | 22 |
| HLA-A*23:01 | 1 | 501 | 509 | 9 | NGVGYQPYR 0.000113 | 20 |
| HLA-B*40:01 | 1 | 506 | 514 | 9 | QPYRVVVL 0.000113 | 19 |
| HLA-B*44:02 | 1 | 526 | 535 | 10 | GPKKSTNLVK 0.000113 | 22 |
| HLA-B*15:01 | 1 | 549 | 557 | 9 | TGVLTESNK 0.000113 | 33 |
| HLA-B*08:01 | 1 | 567 | 575 | 9 | RDIADTTDA 0.000113 | 46 |
| HLA-B*44:03 | 1 | 567 | 575 | 9 | RDIADTTDA 0.000113 | 20 |
| HLA-A*32:01 | 1 | 580 | 588 | 9 | QTLEILDIT 0.000113 | 25 |
| HLA-A*11:01 | 1 | 594 | 602 | 9 | GVSVITPGT 0.000113 | 21 |
| HLA-A*02:06 | 1 | 598 | 606 | 9 | ITPGTNTSN 0.000113 | 42 |
| HLA-B*35:01 | 1 | 602 | 611 | 10 | TNTSNQVAVL 0.000113 | 23 |
| HLA-B*40:01 | 1 | 606 | 615 | 10 | NQVAVLYQDV 0.000113 | 19 |
| HLA-B*07:02 | 1 | 687 | 696 | 10 | VASQSIIAYT 0.000113 | 30 |
| HLA-B*44:03 | 1 | 697 | 705 | 9 | MSLGAENSV 0.000113 | 20 |
| HLA-A*31:01 | 1 | 745 | 753 | 9 | DSTECSNLL 0.000113 | 34 |
| HLA-B*35:01 | 1 | 793 | 802 | 10 | PIKDFGGFNF 0.000113 | 23 |
| HLA-A*03:01 | 1 | 796 | 804 | 9 | DFGGFNFSQ 0.000113 | 27 |
| HLA-A*30:01 | 1 | 850 | 859 | 10 | ICAQKFNGLT 0.000113 | 57 |
| HLA-A*31:01 | 1 | 853 | 862 | 10 | QKFNGLTVLP 0.000113 | 34 |
| HLA-B*57:01 | 1 | 868 | 876 | 9 | EMIAQYTS 0.000113 | 46 |
| HLA-B*15:01 | 1 | 873 | 882 | 10 | YTSALLAGTI 0.000113 | 33 |
| HLA-A*31:01 | 1 | 890 | 899 | 10 | AGAALQIPFA 0.000113 | 34 |
| HLA-B*44:03 | 1 | 950 | 959 | 10 | DVVNQNAQAL 0.000113 | 20 |
| HLA-A*68:02 | 1 | 966 | 975 | 10 | LSSNFGAISS 0.000113 | 35 |
| HLA-B*44:03 | 1 | 972 | 980 | 9 | AISSVLNDI 0.000113 | 20 |
| HLA-B*51:01 | 1 | 974 | 983 | 10 | SSVLNDILSR 0.000113 | 41 |
| HLA-A*30:01 | 1 | 976 | 985 | 10 | VLNDILSRLD 0.000113 | 57 |
| HLA-A*32:01 | 1 | 987 | 995 | 9 | VEAEVQIDR 0.000113 | 25 |
| HLA-A*02:06 | 1 | 990 | 998 | 9 | EVQIDRLIT 0.000113 | 42 |
| HLA-A*02:01 | 1 | 996 | 1005 | 10 | LITGRLQSLQ 0.000113 | 33 |
| HLA-B*57:01 | 1 | 1017 | 1025 | 9 | EIRASANLA 0.000113 | 46 |
| HLA-B*44:02 | 1 | 1042 | 1050 | 9 | FCGKGYHLM 0.000113 | 22 |
| HLA-B*51:01 | 1 | 1043 | 1051 | 9 | CGKGYHLMS 0.000113 | 41 |
| HLA-B*53:01 | 1 | 1049 | 1058 | 10 | LMSFPQSAPH 0.000113 | 22 |
| HLA-A*33:01 | 1 | 1051 | 1059 | 9 | SFPQSAPHG 0.000113 | 35 |
| HLA-B*15:01 | 1 | 1051 | 1060 | 10 | SFPQSAPHGV 0.000113 | 33 |
| HLA-B*53:01 | 1 | 1078 | 1087 | 10 | APAICHGDKA 0.000113 | 22 |
| HLA-B*15:01 | 1 | 1079 | 1088 | 10 | PAICHGDKAH 0.000113 | 33 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*53:01 | 1 | 1087 | 1096 | 10 | AHFPREGV FV 0.000113 | 22 |
| HLA-B*57:01 | 1 | 1089 | 1097 | 9 | FPREGV FVS 0.000113 | 46 |
| HLA-A*68:01 | 1 | 1102 | 1111 | 10 | WFVTQRNFYE 0.000113 | 30 |
| HLA-A*01:01 | 1 | 1119 | 1127 | 9 | NTFVSGNCD 0.000113 | 46 |
| HLA-A*03:01 | 1 | 1139 | 1148 | 10 | DPLQPELDSF 0.000113 | 27 |
| HLA-B*07:02 | 1 | 1150 | 1159 | 10 | EELDKYFKNH 0.000113 | 30 |
| HLA-B*15:01 | 1 | 1158 | 1166 | 9 | NHTSPDVDL 0.000113 | 33 |
| HLA-B*57:01 | 1 | 1170 | 1178 | 9 | SGINASVVN 0.000113 | 46 |
| HLA-B*07:02 | 1 | 1183 | 1191 | 9 | IDRLNEVAK 0.000113 | 30 |
| HLA-B*07:02 | 1 | 1197 | 1206 | 10 | LIDLQELGKY 0.000113 | 30 |
| HLA-A*26:01 | 1 | 1210 | 1218 | 9 | IKWPWYIWL 0.000113 | 28 |
| HLA-A*31:01 | 1 | 1221 | 1229 | 9 | IAGLIAIVM 0.000113 | 34 |
| HLA-A*03:01 | 1 | 1257 | 1265 | 9 | DEDDSEPV L 0.000113 | 27 |
| HLA-A*26:01 | 1 | 1261 | 1269 | 9 | SEPV LKGVK 0.000113 | 28 |
| HLA-A*01:01 | 1 | 14 | 22 | 9 | QCVNL TTRT 0.000112 | 47 |
| HLA-A*32:01 | 1 | 30 | 39 | 10 | NSFTRGVYYP 0.000112 | 25 |
| HLA-A*30:01 | 1 | 33 | 42 | 10 | TRGVYYPDKV 0.000112 | 57 |
| HLA-A*02:01 | 1 | 86 | 94 | 9 | FNDGVYFAS 0.000112 | 33 |
| HLA-A*23:01 | 1 | 89 | 97 | 9 | GVYFASTEK 0.000112 | 20 |
| HLA-B*07:02 | 1 | 175 | 183 | 9 | FLMDLEGKQ 0.000112 | 30 |
| HLA-B*58:01 | 1 | 183 | 191 | 9 | QGNFKNLRE 0.000112 | 35 |
| HLA-B*35:01 | 1 | 204 | 213 | 10 | YSKHTPINLV 0.000112 | 23 |
| HLA-A*03:01 | 1 | 249 | 258 | 10 | LTPGDSSSGW 0.000112 | 27 |
| HLA-A*32:01 | 1 | 255 | 264 | 10 | SSGWTAGAAA 0.000112 | 25 |
| HLA-A*02:03 | 1 | 280 | 288 | 9 | NENGTITDA 0.000112 | 35 |
| HLA-A*23:01 | 1 | 288 | 296 | 9 | AVDCALDPL 0.000112 | 20 |
| HLA-A*11:01 | 1 | 315 | 323 | 9 | TSNFRVQPT 0.000112 | 21 |
| HLA-A*02:06 | 1 | 332 | 340 | 9 | ITNLC PFGE 0.000112 | 43 |
| HLA-A*02:06 | 1 | 334 | 343 | 10 | NLCPFGEVFN 0.000112 | 43 |
| HLA-A*02:03 | 1 | 339 | 347 | 9 | GEVFNATRF 0.000112 | 35 |
| HLA-B*07:02 | 1 | 340 | 349 | 10 | EVFNATRFAS 0.000112 | 30 |
| HLA-B*44:02 | 1 | 342 | 350 | 9 | FNATRFASV 0.000112 | 22 |
| HLA-A*02:03 | 1 | 347 | 355 | 9 | FASVYAWNR 0.000112 | 35 |
| HLA-B*07:02 | 1 | 356 | 365 | 10 | KRISNCVADY 0.000112 | 30 |
| HLA-A*26:01 | 1 | 367 | 375 | 9 | VLYNSASF S 0.000112 | 28 |
| HLA-B*15:01 | 1 | 417 | 426 | 10 | KIADYNYKLP 0.000112 | 33 |
| HLA-B*44:02 | 1 | 462 | 471 | 10 | KPFERDISTE 0.000112 | 22 |
| HLA-A*33:01 | 1 | 474 | 482 | 9 | QAGSTPCNG 0.000112 | 35 |
| HLA-A*11:01 | 1 | 506 | 515 | 10 | QPYRVVLSF 0.000112 | 21 |
| HLA-A*31:01 | 1 | 541 | 549 | 9 | FNFNGLTGT 0.000112 | 34 |
| HLA-A*68:02 | 1 | 549 | 557 | 9 | TGVLTESNK 0.000112 | 35 |
| HLA-A*02:06 | 1 | 553 | 562 | 10 | TESNKKFLPF 0.000112 | 43 |
| HLA-B*35:01 | 1 | 559 | 567 | 9 | FLPFQQFGR 0.000112 | 23 |
| HLA-A*30:02 | 1 | 564 | 572 | 9 | QFGRDIADT 0.000112 | 55 |
| HLA-A*68:02 | 1 | 581 | 590 | 10 | TLEILDITPC 0.000112 | 35 |
| HLA-A*02:06 | 1 | 604 | 613 | 10 | TSNQVAVLYQ 0.000112 | 43 |
| HLA-B*44:02 | 1 | 674 | 683 | 10 | YQTQTNSPRR 0.000112 | 22 |
| HLA-A*32:01 | 1 | 689 | 698 | 10 | SQSIIAYTMS 0.000112 | 25 |
| HLA-B*51:01 | 1 | 700 | 708 | 9 | GAENSVAYS 0.000112 | 41 |
| HLA-B*40:01 | 1 | 701 | 710 | 10 | AENSVAYSNN 0.000112 | 19 |
| HLA-A*02:01 | 1 | 707 | 716 | 10 | YSNNSIAIPT 0.000112 | 33 |
| HLA-A*23:01 | 1 | 721 | 729 | 9 | SVTTEILPV 0.000112 | 20 |
| HLA-A*01:01 | 1 | 763 | 772 | 10 | LNRALTGIAV 0.000112 | 47 |
| HLA-A*33:01 | 1 | 774 | 782 | 9 | QDKNTQEVF 0.000112 | 35 |
| HLA-A*02:01 | 1 | 781 | 790 | 10 | VFAQVKQIYK 0.000112 | 33 |
| HLA-B*08:01 | 1 | 802 | 810 | 9 | FSQILPDPS 0.000112 | 46 |
| HLA-B*53:01 | 1 | 839 | 847 | 9 | DCLGDIAAR 0.000112 | 22 |
| HLA-B*15:01 | 1 | 856 | 864 | 9 | NGLTVLPPL 0.000112 | 33 |
| HLA-A*01:01 | 1 | 863 | 871 | 9 | PLLTDEMIA 0.000112 | 47 |
| HLA-A*68:01 | 1 | 876 | 884 | 9 | ALLAGTITS 0.000112 | 31 |
| HLA-A*30:02 | 1 | 916 | 925 | 10 | LYENQKLIAN 0.000112 | 55 |
| HLA-A*01:01 | 1 | 921 | 929 | 9 | KLIANQFNS 0.000112 | 47 |
| HLA-B*51:01 | 1 | 927 | 935 | 9 | FNSAIGKIQ 0.000112 | 41 |
| HLA-A*30:02 | 1 | 988 | 997 | 10 | EAEVQIDRLI 0.000112 | 55 |
| HLA-B*44:03 | 1 | 992 | 1001 | 10 | QIDRLITGRL 0.000112 | 21 |
| HLA-A*01:01 | 1 | 1009 | 1018 | 10 | TQQLIRAAEI 0.000112 | 47 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*31:01 | 1 | 1017 | 1025 | 9 | EIRASANLA 0.000112 | 34 |
| HLA-B*07:02 | 1 | 1031 | 1039 | 9 | ECVLGQSKR 0.000112 | 30 |
| HLA-B*15:01 | 1 | 1065 | 1074 | 10 | VTYVPAQEKD 0.000112 | 33 |
| HLA-B*58:01 | 1 | 1069 | 1078 | 10 | PAQEKNFHTA 0.000112 | 35 |
| HLA-A*01:01 | 1 | 1079 | 1087 | 9 | PAICHGKA 0.000112 | 47 |
| HLA-B*08:01 | 1 | 1083 | 1092 | 10 | HDGKAHFPRE 0.000112 | 46 |
| HLA-A*33:01 | 1 | 1092 | 1100 | 9 | EGVFVSNGT 0.000112 | 35 |
| HLA-B*08:01 | 1 | 1092 | 1100 | 9 | EGVFVSNGT 0.000112 | 46 |
| HLA-A*01:01 | 1 | 1107 | 1116 | 10 | RNFYEQIIT 0.000112 | 47 |
| HLA-B*08:01 | 1 | 1109 | 1118 | 10 | FYEQIITTD 0.000112 | 46 |
| HLA-B*40:01 | 1 | 1140 | 1148 | 9 | PLQPELDSF 0.000112 | 19 |
| HLA-A*30:01 | 1 | 1151 | 1160 | 10 | ELDKYFKNHT 0.000112 | 57 |
| HLA-B*40:01 | 1 | 1151 | 1159 | 9 | ELDKYFKNH 0.000112 | 19 |
| HLA-B*08:01 | 1 | 1197 | 1206 | 10 | LIDLQELGKY 0.000112 | 46 |
| HLA-B*35:01 | 1 | 1201 | 1210 | 10 | QELGKYEYI 0.000112 | 23 |
| HLA-A*31:01 | 1 | 1205 | 1213 | 9 | KYEYIKWP 0.000112 | 34 |
| HLA-A*11:01 | 1 | 3 | 11 | 9 | VFLVLLPLV 0.000111 | 21 |
| HLA-A*03:01 | 1 | 7 | 15 | 9 | LLPLVSSQC 0.000111 | 27 |
| HLA-A*02:01 | 1 | 11 | 20 | 10 | VSSQCVNLTT 0.000111 | 33 |
| HLA-A*11:01 | 1 | 20 | 29 | 10 | TRTQLPPAYT 0.000111 | 21 |
| HLA-B*51:01 | 1 | 42 | 50 | 9 | VFRSSVLHS 0.000111 | 41 |
| HLA-B*51:01 | 1 | 62 | 71 | 10 | VTWFHAIHVS 0.000111 | 41 |
| HLA-B*57:01 | 1 | 128 | 137 | 10 | IKVCEFFQFCN 0.000111 | 46 |
| HLA-A*01:01 | 1 | 141 | 150 | 10 | LGVYYHKNNK 0.000111 | 47 |
| HLA-A*33:01 | 1 | 147 | 155 | 9 | KNNKSWMES 0.000111 | 35 |
| HLA-A*26:01 | 1 | 148 | 156 | 9 | NNKSWMESE 0.000111 | 28 |
| HLA-A*30:02 | 1 | 172 | 181 | 10 | SQPFLMDLEG 0.000111 | 55 |
| HLA-A*23:01 | 1 | 184 | 193 | 10 | GNFKNLREFV 0.000111 | 20 |
| HLA-A*02:06 | 1 | 189 | 197 | 9 | LREFVFKNI 0.000111 | 43 |
| HLA-B*08:01 | 1 | 195 | 204 | 10 | KNIDGYFKIY 0.000111 | 46 |
| HLA-B*44:02 | 1 | 198 | 206 | 9 | DGYFKIYSK 0.000111 | 22 |
| HLA-B*51:01 | 1 | 273 | 281 | 9 | RTFLLKYNE 0.000111 | 41 |
| HLA-B*57:01 | 1 | 282 | 291 | 10 | NGTITDAVDC 0.000111 | 46 |
| HLA-A*01:01 | 1 | 290 | 299 | 10 | DCALDPLSET 0.000111 | 47 |
| HLA-B*35:01 | 1 | 295 | 303 | 9 | PLSETKCTL 0.000111 | 23 |
| HLA-A*30:02 | 1 | 296 | 305 | 10 | LSETKCTLKS 0.000111 | 55 |
| HLA-A*02:03 | 1 | 297 | 306 | 10 | SETKCTLKSF 0.000111 | 35 |
| HLA-B*07:02 | 1 | 307 | 316 | 10 | TVEKGIYQTS 0.000111 | 30 |
| HLA-B*07:02 | 1 | 310 | 319 | 10 | KGIYQTSNFR 0.000111 | 30 |
| HLA-B*07:02 | 1 | 311 | 320 | 10 | GIYQTSNFRV 0.000111 | 30 |
| HLA-B*51:01 | 1 | 315 | 324 | 10 | TSNFRVQPT 0.000111 | 41 |
| HLA-B*44:02 | 1 | 318 | 327 | 10 | FRVQPTESIV 0.000111 | 22 |
| HLA-B*44:02 | 1 | 319 | 328 | 10 | RVQPTESIVR 0.000111 | 22 |
| HLA-A*68:01 | 1 | 327 | 336 | 10 | VRFPNITNLC 0.000111 | 31 |
| HLA-B*44:03 | 1 | 329 | 338 | 10 | FPNITNLCPF 0.000111 | 21 |
| HLA-B*08:01 | 1 | 340 | 349 | 10 | EVFNATRFAS 0.000111 | 46 |
| HLA-A*33:01 | 1 | 346 | 354 | 9 | RFASVYAWN 0.000111 | 35 |
| HLA-A*02:03 | 1 | 350 | 358 | 9 | VYAWNKRRI 0.000111 | 35 |
| HLA-A*31:01 | 1 | 359 | 367 | 9 | SNCVADYSV 0.000111 | 34 |
| HLA-A*02:01 | 1 | 399 | 408 | 10 | SFVIRGDEV 0.000111 | 33 |
| HLA-B*58:01 | 1 | 437 | 446 | 10 | NSNNLDSKVG 0.000111 | 35 |
| HLA-B*53:01 | 1 | 447 | 455 | 9 | GNYNYLYRL 0.000111 | 23 |
| HLA-B*58:01 | 1 | 451 | 459 | 9 | YLYRLFRRS 0.000111 | 35 |
| HLA-A*01:01 | 1 | 505 | 514 | 10 | YQPYRVVVL 0.000111 | 47 |
| HLA-B*44:03 | 1 | 530 | 538 | 9 | STNLVKNKC 0.000111 | 21 |
| HLA-A*33:01 | 1 | 547 | 555 | 9 | TGTGVLTES 0.000111 | 35 |
| HLA-A*68:02 | 1 | 554 | 563 | 10 | ESNKKFLPFQ 0.000111 | 35 |
| HLA-B*07:02 | 1 | 568 | 577 | 10 | DIADTTDAVR 0.000111 | 30 |
| HLA-A*33:01 | 1 | 572 | 581 | 10 | TTDAVRDPQT 0.000111 | 35 |
| HLA-A*30:01 | 1 | 573 | 581 | 9 | TDAVRDPQT 0.000111 | 57 |
| HLA-B*58:01 | 1 | 615 | 623 | 9 | VNCTEVPVA 0.000111 | 35 |
| HLA-A*02:06 | 1 | 617 | 625 | 9 | CTEVPVAIH 0.000111 | 43 |
| HLA-A*11:01 | 1 | 638 | 647 | 10 | TGSNVFQTRA 0.000111 | 21 |
| HLA-A*26:01 | 1 | 639 | 647 | 9 | GSNVFQTRA 0.000111 | 28 |
| HLA-A*33:01 | 1 | 666 | 675 | 10 | IGAGICASYQ 0.000111 | 35 |
| HLA-A*01:01 | 1 | 671 | 680 | 10 | CASYQTQTN 0.000111 | 47 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*26:01 | 1 | 680 | 688 | 9 | SPRRARSVA 0.000111 | 28 |
| HLA-A*24:02 | 1 | 694 | 702 | 9 | AYTMSLGAE 0.000111 | 20 |
| HLA-A*26:01 | 1 | 753 | 762 | 10 | LLQYGSFCTQ 0.000111 | 28 |
| HLA-B*44:02 | 1 | 775 | 783 | 9 | DKNTQEVFA 0.000111 | 22 |
| HLA-A*02:06 | 1 | 781 | 790 | 10 | VFAQVKQIYK 0.000111 | 43 |
| HLA-A*24:02 | 1 | 785 | 794 | 10 | VKQIYKTPPI 0.000111 | 20 |
| HLA-A*01:01 | 1 | 796 | 805 | 10 | DFGGFNFSQI 0.000111 | 47 |
| HLA-A*30:02 | 1 | 808 | 816 | 9 | DPSKPSKRS 0.000111 | 55 |
| HLA-A*33:01 | 1 | 824 | 833 | 10 | NKVTLADAGF 0.000111 | 35 |
| HLA-A*23:01 | 1 | 861 | 870 | 10 | LPPLLTDEMI 0.000111 | 20 |
| HLA-B*44:02 | 1 | 861 | 869 | 9 | LPPLLTDEM 0.000111 | 22 |
| HLA-A*32:01 | 1 | 873 | 881 | 9 | YTSALLAGT 0.000111 | 25 |
| HLA-A*30:01 | 1 | 910 | 919 | 10 | GVTQNVLYEN 0.000111 | 57 |
| HLA-B*44:02 | 1 | 941 | 949 | 9 | TASALGKLQ 0.000111 | 22 |
| HLA-A*03:01 | 1 | 942 | 951 | 10 | ASALGKLQDV 0.000111 | 27 |
| HLA-A*24:02 | 1 | 955 | 963 | 9 | NAQALNTLV 0.000111 | 20 |
| HLA-B*51:01 | 1 | 959 | 967 | 9 | LNTLVKQLS 0.000111 | 41 |
| HLA-B*58:01 | 1 | 970 | 979 | 10 | FGAISSVLND 0.000111 | 35 |
| HLA-A*02:01 | 1 | 982 | 990 | 9 | SRLDKVEAE 0.000111 | 33 |
| HLA-B*07:02 | 1 | 982 | 990 | 9 | SRLDKVEAE 0.000111 | 30 |
| HLA-A*02:01 | 1 | 994 | 1003 | 10 | DRLITGRLQS 0.000111 | 33 |
| HLA-B*44:03 | 1 | 996 | 1004 | 9 | LITGRLQSL 0.000111 | 21 |
| HLA-A*24:02 | 1 | 999 | 1008 | 10 | GRLQSLQTYV 0.000111 | 20 |
| HLA-A*02:03 | 1 | 1019 | 1028 | 10 | RASANLAATK 0.000111 | 35 |
| HLA-B*44:02 | 1 | 1026 | 1034 | 9 | ATKMSECVL 0.000111 | 22 |
| HLA-B*44:03 | 1 | 1034 | 1042 | 9 | LGQSKRVDF 0.000111 | 21 |
| HLA-A*03:01 | 1 | 1041 | 1049 | 9 | DFCGKGYHL 0.000111 | 27 |
| HLA-B*44:03 | 1 | 1042 | 1050 | 9 | FCGKGYHLM 0.000111 | 21 |
| HLA-A*30:02 | 1 | 1044 | 1053 | 10 | GKGHYHLSFP 0.000111 | 55 |
| HLA-A*31:01 | 1 | 1066 | 1074 | 9 | TYVPAQEK 0.000111 | 34 |
| HLA-B*40:01 | 1 | 1094 | 1103 | 10 | VFVSNGTHWF 0.000111 | 19 |
| HLA-A*32:01 | 1 | 1109 | 1117 | 9 | FYEPQIITT 0.000111 | 25 |
| HLA-A*01:01 | 1 | 1120 | 1128 | 9 | TFVSGNCDV 0.000111 | 47 |
| HLA-B*44:02 | 1 | 1129 | 1138 | 10 | VIGIVNNTVY 0.000111 | 22 |
| HLA-A*01:01 | 1 | 1142 | 1150 | 9 | QPELDSFKE 0.000111 | 47 |
| HLA-A*68:02 | 1 | 1158 | 1167 | 10 | NHTSPDVDLG 0.000111 | 35 |
| HLA-A*03:01 | 1 | 1184 | 1193 | 10 | DRLNEVAKNL 0.000111 | 27 |
| HLA-B*07:02 | 1 | 1190 | 1198 | 9 | AKNLNESLI 0.000111 | 30 |
| HLA-A*31:01 | 1 | 1228 | 1236 | 9 | VMVTIMLCC 0.000111 | 34 |
| HLA-A*24:02 | 1 | 2 | 10 | 9 | FVFLVLLPL 0.000111 | 20 |
| HLA-A*03:01 | 1 | 4 | 12 | 9 | FLVLLPLVS 0.000111 | 28 |
| HLA-A*01:01 | 1 | 5 | 13 | 9 | LVLLPLVSS 0.000111 | 47 |
| HLA-A*11:01 | 1 | 38 | 46 | 9 | YDPKVFRSS 0.000111 | 21 |
| HLA-B*07:02 | 1 | 40 | 49 | 10 | DKVFRSSVLH 0.000111 | 30 |
| HLA-A*03:01 | 1 | 56 | 65 | 10 | LPFFSNVTWF 0.000111 | 28 |
| HLA-A*32:01 | 1 | 63 | 71 | 9 | TWFHAIHVS 0.000111 | 25 |
| HLA-A*02:06 | 1 | 137 | 145 | 9 | NDPFLGVY 0.000111 | 43 |
| HLA-A*30:01 | 1 | 197 | 205 | 9 | IDGYFKIYS 0.000111 | 57 |
| HLA-B*08:01 | 1 | 217 | 226 | 10 | PQGFSALEPL 0.000111 | 46 |
| HLA-A*03:01 | 1 | 222 | 231 | 10 | ALEPLVDLPI 0.000111 | 28 |
| HLA-A*68:01 | 1 | 247 | 255 | 9 | SYLTPGDSS 0.000111 | 31 |
| HLA-B*44:02 | 1 | 295 | 303 | 9 | PLSETKCTL 0.000111 | 22 |
| HLA-A*01:01 | 1 | 312 | 321 | 10 | IYQTSNFRVQ 0.000111 | 47 |
| HLA-A*33:01 | 1 | 324 | 333 | 10 | ESIVRFPNIT 0.000111 | 35 |
| HLA-A*01:01 | 1 | 328 | 337 | 10 | RFPNITNLCP 0.000111 | 47 |
| HLA-B*44:02 | 1 | 410 | 418 | 9 | IAPGQTGKI 0.000111 | 22 |
| HLA-A*30:02 | 1 | 442 | 450 | 9 | DSKVGGNYN 0.000111 | 55 |
| HLA-A*02:06 | 1 | 461 | 470 | 10 | LKPFERDIST 0.000111 | 43 |
| HLA-A*26:01 | 1 | 517 | 525 | 9 | LLHAPATVC 0.000111 | 28 |
| HLA-A*33:01 | 1 | 546 | 554 | 9 | LTGTGVLTE 0.000111 | 35 |
| HLA-B*44:03 | 1 | 552 | 560 | 9 | LTESNKKFL 0.000111 | 21 |
| HLA-A*68:02 | 1 | 553 | 561 | 9 | TESNKKFLP 0.000111 | 35 |
| HLA-A*02:06 | 1 | 572 | 580 | 9 | TTDAVRDPQ 0.000111 | 43 |
| HLA-B*15:01 | 1 | 581 | 589 | 9 | TLEILDITP 0.000111 | 33 |
| HLA-B*44:02 | 1 | 599 | 608 | 10 | TPGTNTSNQV 0.000111 | 22 |
| HLA-A*33:01 | 1 | 615 | 623 | 9 | VNCTEVPVA 0.000111 | 35 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*40:01 | 1 | 652 | 661 | 10 | GAEHVNNSYE 0.00011 | 19 |
| HLA-A*01:01 | 1 | 663 | 672 | 10 | DIPIGAGICA 0.00011 | 47 |
| HLA-A*02:01 | 1 | 668 | 676 | 9 | AGICASYQT 0.00011 | 33 |
| HLA-A*33:01 | 1 | 672 | 680 | 9 | ASYQTQTN 0.00011 | 35 |
| HLA-A*24:02 | 1 | 724 | 733 | 10 | TEILPVSMTK 0.00011 | 20 |
| HLA-A*01:01 | 1 | 730 | 739 | 10 | SMTKTSVDCT 0.00011 | 47 |
| HLA-B*51:01 | 1 | 732 | 741 | 10 | TKTSVDCTMY 0.00011 | 41 |
| HLA-B*08:01 | 1 | 744 | 753 | 10 | GDSTECSNLL 0.00011 | 46 |
| HLA-B*57:01 | 1 | 750 | 758 | 9 | SNLLLQYGS 0.00011 | 46 |
| HLA-B*44:03 | 1 | 762 | 770 | 9 | QLNRALTGI 0.00011 | 21 |
| HLA-A*24:02 | 1 | 779 | 788 | 10 | QEVFAQVKQI 0.00011 | 20 |
| HLA-B*15:01 | 1 | 787 | 796 | 10 | QIYKTPPIKD 0.00011 | 33 |
| HLA-A*68:01 | 1 | 792 | 800 | 9 | PPIKDFGGF 0.00011 | 31 |
| HLA-A*26:01 | 1 | 807 | 815 | 9 | PDPSPSKR 0.00011 | 28 |
| HLA-B*44:03 | 1 | 808 | 816 | 9 | DPSKPSKRS 0.00011 | 21 |
| HLA-A*31:01 | 1 | 820 | 829 | 10 | DLLFNKVTLA 0.00011 | 34 |
| HLA-A*11:01 | 1 | 864 | 872 | 9 | LLTDEMIAQ 0.00011 | 21 |
| HLA-B*08:01 | 1 | 864 | 872 | 9 | LLTDEMIAQ 0.00011 | 46 |
| HLA-A*33:01 | 1 | 865 | 874 | 10 | LTDEMIAQYT 0.00011 | 35 |
| HLA-B*53:01 | 1 | 867 | 875 | 9 | DEMIAQYTS 0.00011 | 23 |
| HLA-B*53:01 | 1 | 871 | 879 | 9 | AQYTSALLA 0.00011 | 23 |
| HLA-B*35:01 | 1 | 882 | 890 | 9 | ITSGWTFGA 0.00011 | 23 |
| HLA-A*03:01 | 1 | 895 | 903 | 9 | QIPFAMQMA 0.00011 | 28 |
| HLA-A*23:01 | 1 | 898 | 907 | 10 | FAMQMAYRFN 0.00011 | 20 |
| HLA-A*68:02 | 1 | 905 | 913 | 9 | RFNGIGVTQ 0.00011 | 35 |
| HLA-B*35:01 | 1 | 916 | 924 | 9 | LYENQKLIA 0.00011 | 23 |
| HLA-A*68:01 | 1 | 926 | 935 | 10 | QFNSAIGKIQ 0.00011 | 31 |
| HLA-B*40:01 | 1 | 972 | 981 | 10 | AISSVLNDIL 0.00011 | 19 |
| HLA-A*24:02 | 1 | 988 | 996 | 9 | EAEVQIDRL 0.00011 | 20 |
| HLA-A*33:01 | 1 | 990 | 998 | 9 | EVQIDRLIT 0.00011 | 35 |
| HLA-A*02:06 | 1 | 1034 | 1042 | 9 | LGQSKRVDF 0.00011 | 43 |
| HLA-B*53:01 | 1 | 1050 | 1059 | 10 | MSFPQSAPHG 0.00011 | 23 |
| HLA-A*03:01 | 1 | 1053 | 1062 | 10 | PQSAPHGVVF 0.00011 | 28 |
| HLA-B*44:02 | 1 | 1066 | 1074 | 9 | TYVPAQEK 0.00011 | 22 |
| HLA-A*24:02 | 1 | 1067 | 1076 | 10 | YVPAQEKNT 0.00011 | 20 |
| HLA-B*57:01 | 1 | 1070 | 1079 | 10 | AQEKNTTAP 0.00011 | 46 |
| HLA-A*68:02 | 1 | 1071 | 1079 | 9 | QEKNTTAP 0.00011 | 35 |
| HLA-A*23:01 | 1 | 1082 | 1090 | 9 | CHDGKAHFP 0.00011 | 20 |
| HLA-A*68:02 | 1 | 1082 | 1091 | 10 | CHDGKAHFPR 0.00011 | 35 |
| HLA-B*07:02 | 1 | 1114 | 1122 | 9 | IITTDNTFV 0.00011 | 30 |
| HLA-A*26:01 | 1 | 1132 | 1141 | 10 | IVNNTVYDPL 0.00011 | 28 |
| HLA-A*30:02 | 1 | 1166 | 1175 | 10 | LGDISGINAS 0.00011 | 55 |
| HLA-B*58:01 | 1 | 1167 | 1176 | 10 | GDISGINASV 0.00011 | 35 |
| HLA-A*30:02 | 1 | 1175 | 1184 | 10 | SVVNIQKEID 0.00011 | 55 |
| HLA-A*68:01 | 1 | 1194 | 1203 | 10 | NESLIDLQEL 0.00011 | 31 |
| HLA-A*30:02 | 1 | 1226 | 1235 | 10 | AIVMVTIMLC 0.00011 | 55 |
| HLA-B*08:01 | 1 | 1231 | 1239 | 9 | TIMLCCMTS 0.00011 | 46 |
| HLA-A*02:03 | 1 | 1232 | 1241 | 10 | IMLCCMTSCC 0.00011 | 35 |
| HLA-A*26:01 | 1 | 1237 | 1245 | 9 | MTSCCCLK 0.00011 | 28 |
| HLA-A*30:01 | 1 | 1259 | 1268 | 10 | DDSEPVLKGV 0.00011 | 57 |
| HLA-A*03:01 | 1 | 1262 | 1270 | 9 | EPVLKGVKL 0.00011 | 28 |
| HLA-B*58:01 | 1 | 14 | 22 | 9 | QCVNLTRT 0.000109 | 35 |
| HLA-A*68:01 | 1 | 37 | 46 | 10 | YYPDKVFRSS 0.000109 | 31 |
| HLA-A*02:01 | 1 | 42 | 51 | 10 | VFRSSVLHST 0.000109 | 33 |
| HLA-A*33:01 | 1 | 55 | 63 | 9 | FLPFFSNVT 0.000109 | 35 |
| HLA-B*35:01 | 1 | 69 | 78 | 10 | HVSGTNGTKR 0.000109 | 24 |
| HLA-A*23:01 | 1 | 110 | 119 | 10 | LDSKTQSLLI 0.000109 | 21 |
| HLA-B*53:01 | 1 | 112 | 120 | 9 | SKTQSLIV 0.000109 | 23 |
| HLA-B*40:01 | 1 | 114 | 123 | 10 | TQSLLIVNNA 0.000109 | 19 |
| HLA-A*30:02 | 1 | 117 | 125 | 9 | LLIVNNATN 0.000109 | 55 |
| HLA-B*08:01 | 1 | 127 | 136 | 10 | VIKVFQFC 0.000109 | 46 |
| HLA-B*44:02 | 1 | 132 | 141 | 10 | EFQFCNDPFL 0.000109 | 22 |
| HLA-B*57:01 | 1 | 142 | 151 | 10 | GYYYHKNNKS 0.000109 | 46 |
| HLA-A*01:01 | 1 | 159 | 167 | 9 | VYSSANNCT 0.000109 | 47 |
| HLA-A*01:01 | 1 | 188 | 197 | 10 | NLREFVFKNI 0.000109 | 47 |
| HLA-B*44:03 | 1 | 194 | 203 | 10 | FKNIDGYFKI 0.000109 | 21 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*53:01 | 1 | 205 | 214 | 10 | SKHTPINLVR 0.000109 | 23 |
| HLA-A*33:01 | 1 | 232 | 240 | 9 | GINITRFQT 0.000109 | 35 |
| HLA-B*35:01 | 1 | 270 | 278 | 9 | LQPRTFLLK 0.000109 | 24 |
| HLA-A*26:01 | 1 | 283 | 292 | 10 | GTITDAVDCA 0.000109 | 28 |
| HLA-A*02:01 | 1 | 295 | 304 | 10 | PLSETKCTLK 0.000109 | 33 |
| HLA-A*68:01 | 1 | 312 | 320 | 9 | IYQTSNFRV 0.000109 | 31 |
| HLA-B*51:01 | 1 | 317 | 325 | 9 | NFRVQPTES 0.000109 | 41 |
| HLA-A*02:06 | 1 | 325 | 334 | 10 | SIVRFPNITN 0.000109 | 43 |
| HLA-B*57:01 | 1 | 340 | 349 | 10 | EVFNATRFAS 0.000109 | 46 |
| HLA-A*24:02 | 1 | 373 | 381 | 9 | SFSTFKCYG 0.000109 | 20 |
| HLA-A*32:01 | 1 | 399 | 407 | 9 | SFVIRGDEV 0.000109 | 25 |
| HLA-B*57:01 | 1 | 402 | 411 | 10 | IRGDEVQRQIA 0.000109 | 46 |
| HLA-B*51:01 | 1 | 414 | 423 | 10 | QTGKIADYNY 0.000109 | 41 |
| HLA-A*23:01 | 1 | 435 | 443 | 9 | AWNSNNLDS 0.000109 | 21 |
| HLA-A*26:01 | 1 | 450 | 458 | 9 | NYLYRFLFRK 0.000109 | 28 |
| HLA-B*35:01 | 1 | 468 | 476 | 9 | ISTEIQAG 0.000109 | 24 |
| HLA-A*26:01 | 1 | 490 | 498 | 9 | FPLQSYGFQ 0.000109 | 28 |
| HLA-A*68:01 | 1 | 519 | 527 | 9 | HAPATVCGP 0.000109 | 31 |
| HLA-B*58:01 | 1 | 524 | 532 | 9 | VCGPKKSTN 0.000109 | 35 |
| HLA-A*26:01 | 1 | 534 | 543 | 10 | VKNKCVNFN 0.000109 | 28 |
| HLA-A*31:01 | 1 | 534 | 543 | 10 | VKNKCVNFN 0.000109 | 35 |
| HLA-A*01:01 | 1 | 540 | 548 | 9 | NFNFNGLTG 0.000109 | 47 |
| HLA-A*68:02 | 1 | 549 | 558 | 10 | TGVLTESNKK 0.000109 | 36 |
| HLA-A*30:01 | 1 | 560 | 569 | 10 | LPFQFGRDI 0.000109 | 57 |
| HLA-B*58:01 | 1 | 574 | 583 | 10 | DAVRDPQTL 0.000109 | 35 |
| HLA-A*03:01 | 1 | 609 | 617 | 9 | AVLYQDVNC 0.000109 | 28 |
| HLA-B*53:01 | 1 | 623 | 631 | 9 | AIHADQLTP 0.000109 | 23 |
| HLA-A*30:02 | 1 | 629 | 638 | 10 | LTPTWRVYST 0.000109 | 55 |
| HLA-A*01:01 | 1 | 641 | 649 | 9 | NVFQTRAGC 0.000109 | 47 |
| HLA-B*57:01 | 1 | 645 | 653 | 9 | TRAGCLIGA 0.000109 | 46 |
| HLA-A*31:01 | 1 | 690 | 698 | 9 | QSIAYTMS 0.000109 | 35 |
| HLA-A*68:01 | 1 | 707 | 716 | 10 | YSNNSIAIPT 0.000109 | 31 |
| HLA-A*32:01 | 1 | 735 | 743 | 9 | SVDCTMYIC 0.000109 | 25 |
| HLA-A*01:01 | 1 | 741 | 750 | 10 | YICGDSTEC 0.000109 | 47 |
| HLA-A*01:01 | 1 | 767 | 775 | 9 | LTGIAVEQD 0.000109 | 47 |
| HLA-A*03:01 | 1 | 774 | 782 | 9 | QDKNTQEVF 0.000109 | 28 |
| HLA-A*01:01 | 1 | 792 | 800 | 9 | PPIKDFGGF 0.000109 | 47 |
| HLA-A*30:02 | 1 | 800 | 809 | 10 | FNFSQILPDP 0.000109 | 55 |
| HLA-B*15:01 | 1 | 821 | 830 | 10 | LLFNKVTLAD 0.000109 | 33 |
| HLA-A*33:01 | 1 | 825 | 833 | 9 | KVTLADAGF 0.000109 | 35 |
| HLA-A*24:02 | 1 | 860 | 868 | 9 | VLPPLLTDE 0.000109 | 20 |
| HLA-B*08:01 | 1 | 865 | 874 | 10 | LTDEMIAQYT 0.000109 | 46 |
| HLA-A*68:01 | 1 | 872 | 881 | 10 | QYTSALLAGT 0.000109 | 31 |
| HLA-B*08:01 | 1 | 873 | 881 | 9 | YTSALLAGT 0.000109 | 46 |
| HLA-B*08:01 | 1 | 873 | 882 | 10 | YTSALLAGTI 0.000109 | 46 |
| HLA-B*07:02 | 1 | 904 | 913 | 10 | YRFNGIGVTQ 0.000109 | 31 |
| HLA-A*26:01 | 1 | 908 | 916 | 9 | GIGVTQNVL 0.000109 | 28 |
| HLA-B*44:03 | 1 | 932 | 940 | 9 | GKIQDSLSS 0.000109 | 21 |
| HLA-A*31:01 | 1 | 954 | 963 | 10 | QNAQALNTLV 0.000109 | 35 |
| HLA-B*44:02 | 1 | 954 | 963 | 10 | QNAQALNTLV 0.000109 | 22 |
| HLA-A*26:01 | 1 | 960 | 969 | 10 | NLTVKQLSSN 0.000109 | 28 |
| HLA-B*08:01 | 1 | 974 | 983 | 10 | SSVLNDILSR 0.000109 | 46 |
| HLA-B*57:01 | 1 | 1018 | 1027 | 10 | IRASANLAAT 0.000109 | 46 |
| HLA-A*11:01 | 1 | 1040 | 1048 | 9 | VDFCGKGYH 0.000109 | 21 |
| HLA-B*35:01 | 1 | 1082 | 1090 | 9 | CHDGKAHFP 0.000109 | 24 |
| HLA-A*33:01 | 1 | 1113 | 1122 | 10 | QIITTDNTFV 0.000109 | 35 |
| HLA-A*02:06 | 1 | 1172 | 1181 | 10 | INASVVNIQK 0.000109 | 43 |
| HLA-A*01:01 | 1 | 1193 | 1202 | 10 | LNESLIDLQE 0.000109 | 47 |
| HLA-B*53:01 | 1 | 1194 | 1202 | 9 | NESLIDLQE 0.000109 | 23 |
| HLA-A*02:03 | 1 | 1197 | 1206 | 10 | LIDLQELGKY 0.000109 | 36 |
| HLA-A*30:01 | 1 | 1217 | 1226 | 10 | WLGFIAGLIA 0.000109 | 57 |
| HLA-B*08:01 | 1 | 1233 | 1241 | 9 | MLCCMTSCC 0.000109 | 46 |
| HLA-A*26:01 | 1 | 1255 | 1264 | 10 | KFDEDDSEPV 0.000109 | 28 |
| HLA-B*57:01 | 1 | 1255 | 1263 | 9 | KFDEDDSEP 0.000109 | 46 |
| HLA-A*30:02 | 1 | 1259 | 1268 | 10 | DDSEPVLKGV 0.000109 | 55 |
| HLA-A*23:01 | 1 | 8 | 16 | 9 | LPLVSSQCV 0.000108 | 21 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-A*68:02 | 1 | 17 | 26 | 10 | NLTTTRTQLPP 0.000108 | 36 |
| HLA-A*02:03 | 1 | 18 | 26 | 9 | LTTTRTQLPP 0.000108 | 36 |
| HLA-B*15:01 | 1 | 27 | 36 | 10 | AYTNSFTRGV 0.000108 | 33 |
| HLA-B*08:01 | 1 | 70 | 78 | 9 | VSGTNGTKR 0.000108 | 47 |
| HLA-A*26:01 | 1 | 104 | 112 | 9 | WIFGTTLDS 0.000108 | 28 |
| HLA-A*11:01 | 1 | 107 | 116 | 10 | GTTLDSKTQS 0.000108 | 21 |
| HLA-A*01:01 | 1 | 112 | 121 | 10 | SKTQSLLIVN 0.000108 | 47 |
| HLA-A*31:01 | 1 | 113 | 122 | 10 | KTQSLLIVNN 0.000108 | 35 |
| HLA-B*57:01 | 1 | 117 | 126 | 10 | LLIVNNATNV 0.000108 | 46 |
| HLA-B*58:01 | 1 | 132 | 140 | 9 | EFQFCNDPF 0.000108 | 35 |
| HLA-A*26:01 | 1 | 158 | 167 | 10 | RVYSSANNCT 0.000108 | 28 |
| HLA-A*30:02 | 1 | 169 | 178 | 10 | EYVSQPFLMD 0.000108 | 55 |
| HLA-B*44:03 | 1 | 179 | 188 | 10 | LEGKQGNFKN 0.000108 | 21 |
| HLA-A*68:01 | 1 | 185 | 194 | 10 | NFKNLREFVF 0.000108 | 31 |
| HLA-A*31:01 | 1 | 188 | 196 | 9 | NLREFVFN 0.000108 | 35 |
| HLA-B*40:01 | 1 | 199 | 207 | 9 | GYFKIYSKH 0.000108 | 19 |
| HLA-A*03:01 | 1 | 206 | 215 | 10 | KHTPINLVRD 0.000108 | 28 |
| HLA-B*35:01 | 1 | 212 | 221 | 10 | LVRDLPQGFS 0.000108 | 24 |
| HLA-B*15:01 | 1 | 213 | 222 | 10 | VRDLPQGFS 0.000108 | 33 |
| HLA-B*08:01 | 1 | 231 | 239 | 9 | IGINITRFQ 0.000108 | 47 |
| HLA-A*11:01 | 1 | 252 | 260 | 9 | GDSSSGWTA 0.000108 | 21 |
| HLA-A*30:02 | 1 | 299 | 308 | 10 | TKCTLKSFTV 0.000108 | 55 |
| HLA-A*68:01 | 1 | 300 | 309 | 10 | KCTLKSFTVE 0.000108 | 31 |
| HLA-A*23:01 | 1 | 304 | 313 | 10 | KSFTVEKGIY 0.000108 | 21 |
| HLA-A*23:01 | 1 | 311 | 319 | 9 | GIYQTSNFR 0.000108 | 21 |
| HLA-B*44:03 | 1 | 312 | 320 | 9 | IYQTSNFRV 0.000108 | 21 |
| HLA-A*24:02 | 1 | 345 | 354 | 10 | TRFASVYAWN 0.000108 | 20 |
| HLA-A*11:01 | 1 | 400 | 409 | 10 | FVIRGDEVRO 0.000108 | 21 |
| HLA-A*03:01 | 1 | 402 | 410 | 9 | IRGDEVROI 0.000108 | 28 |
| HLA-A*30:02 | 1 | 422 | 431 | 10 | NYKLPDDFTG 0.000108 | 55 |
| HLA-B*40:01 | 1 | 473 | 481 | 9 | YQAGSTPCN 0.000108 | 19 |
| HLA-A*30:01 | 1 | 476 | 485 | 10 | GSTPCNGVEG 0.000108 | 58 |
| HLA-B*08:01 | 1 | 486 | 494 | 9 | FNCYFPLQS 0.000108 | 47 |
| HLA-A*31:01 | 1 | 512 | 521 | 10 | VLSFELLHAP 0.000108 | 35 |
| HLA-B*08:01 | 1 | 547 | 555 | 9 | TGTGVLTES 0.000108 | 47 |
| HLA-A*26:01 | 1 | 549 | 557 | 9 | TGVLTESNK 0.000108 | 28 |
| HLA-A*11:01 | 1 | 555 | 564 | 10 | SNKKFLPFQQ 0.000108 | 21 |
| HLA-A*01:01 | 1 | 590 | 599 | 10 | CSFSGVSVIT 0.000108 | 47 |
| HLA-B*08:01 | 1 | 596 | 605 | 10 | SVITPGTNTS 0.000108 | 47 |
| HLA-B*40:01 | 1 | 601 | 610 | 10 | GTNTSNQVAV 0.000108 | 19 |
| HLA-A*68:01 | 1 | 672 | 681 | 10 | ASYQTQTNTP 0.000108 | 31 |
| HLA-B*40:01 | 1 | 693 | 701 | 9 | IAYTMSLGA 0.000108 | 19 |
| HLA-A*24:02 | 1 | 710 | 719 | 10 | NSIAIPTNFT 0.000108 | 20 |
| HLA-A*68:01 | 1 | 727 | 735 | 9 | LPVSMTKTS 0.000108 | 31 |
| HLA-A*33:01 | 1 | 728 | 736 | 9 | PVSMTKTSV 0.000108 | 35 |
| HLA-A*11:01 | 1 | 754 | 763 | 10 | LQYGSFCTQL 0.000108 | 21 |
| HLA-A*68:02 | 1 | 775 | 783 | 9 | DKNTQEVFA 0.000108 | 36 |
| HLA-A*33:01 | 1 | 801 | 810 | 10 | NFSQILPDPS 0.000108 | 35 |
| HLA-A*24:02 | 1 | 809 | 818 | 10 | PSKPSKRSFI 0.000108 | 20 |
| HLA-A*30:01 | 1 | 829 | 838 | 10 | ADAGFIKQYG 0.000108 | 58 |
| HLA-B*15:01 | 1 | 844 | 853 | 10 | IAARDLICAQ 0.000108 | 33 |
| HLA-A*30:01 | 1 | 867 | 875 | 9 | DEMIAQYTS 0.000108 | 58 |
| HLA-B*57:01 | 1 | 871 | 880 | 10 | AQYTSALLAG 0.000108 | 46 |
| HLA-B*58:01 | 1 | 871 | 880 | 10 | AQYTSALLAG 0.000108 | 35 |
| HLA-B*58:01 | 1 | 881 | 889 | 9 | TITSGWTFG 0.000108 | 35 |
| HLA-B*08:01 | 1 | 884 | 893 | 10 | SGWTFGAGAA 0.000108 | 47 |
| HLA-A*68:02 | 1 | 902 | 910 | 9 | MAYRFNGIG 0.000108 | 36 |
| HLA-A*68:02 | 1 | 909 | 917 | 9 | IGVTQNVLY 0.000108 | 36 |
| HLA-B*08:01 | 1 | 912 | 920 | 9 | TQNVLYENQ 0.000108 | 47 |
| HLA-A*26:01 | 1 | 917 | 926 | 10 | YENQKLIANQ 0.000108 | 28 |
| HLA-B*07:02 | 1 | 917 | 925 | 9 | YENQKLIAN 0.000108 | 31 |
| HLA-B*08:01 | 1 | 931 | 939 | 9 | IGKIQDSLS 0.000108 | 47 |
| HLA-A*02:06 | 1 | 946 | 954 | 9 | GKLDVVNQ 0.000108 | 43 |
| HLA-A*02:01 | 1 | 967 | 975 | 9 | SSNFGAISS 0.000108 | 33 |
| HLA-B*35:01 | 1 | 1061 | 1069 | 9 | VFLHVTVYP 0.000108 | 24 |
| HLA-A*30:01 | 1 | 1067 | 1076 | 10 | YVPAQEKNT 0.000108 | 58 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*02:01 | 1 | 1069 | 1078 | 10 | PAQEKNFSTA 0.000108 | 33 |
| HLA-B*44:03 | 1 | 1096 | 1104 | 9 | VSNGTHWFV 0.000108 | 21 |
| HLA-B*53:01 | 1 | 1115 | 1123 | 9 | ITTDNTFVS 0.000108 | 23 |
| HLA-A*33:01 | 1 | 1120 | 1129 | 10 | TFVSGNCDVV 0.000108 | 35 |
| HLA-B*51:01 | 1 | 1144 | 1153 | 10 | ELDSFKEELD 0.000108 | 41 |
| HLA-B*51:01 | 1 | 1166 | 1175 | 10 | LGDISGINAS 0.000108 | 41 |
| HLA-A*02:06 | 1 | 1176 | 1185 | 10 | VVNIQKEIDR 0.000108 | 43 |
| HLA-A*30:01 | 1 | 1183 | 1192 | 10 | IDRLNEVAKN 0.000108 | 58 |
| HLA-A*30:01 | 1 | 1197 | 1206 | 10 | LIDLQELGKY 0.000108 | 58 |
| HLA-A*68:01 | 1 | 1209 | 1218 | 10 | YIKWPWYIWL 0.000108 | 31 |
| HLA-B*07:02 | 1 | 1222 | 1230 | 9 | AGLIAIVMV 0.000108 | 31 |
| HLA-A*33:01 | 1 | 1223 | 1231 | 9 | GLIAIVMVT 0.000108 | 35 |
| HLA-A*30:02 | 1 | 1265 | 1273 | 9 | LKGVKLHYT 0.000108 | 55 |
| HLA-A*30:02 | 1 | 4 | 13 | 10 | FLVLLPLVSS 0.000107 | 55 |
| HLA-A*32:01 | 1 | 9 | 18 | 10 | PLVSSQCVNL 0.000107 | 26 |
| HLA-B*51:01 | 1 | 32 | 40 | 9 | FTRGVYYPD 0.000107 | 41 |
| HLA-B*40:01 | 1 | 45 | 54 | 10 | SSVLHSTQDL 0.000107 | 19 |
| HLA-B*57:01 | 1 | 57 | 66 | 10 | PFFSNVTWFH 0.000107 | 47 |
| HLA-B*58:01 | 1 | 67 | 75 | 9 | AIHVSSTNG 0.000107 | 36 |
| HLA-A*01:01 | 1 | 89 | 98 | 10 | GUYFASTKS 0.000107 | 47 |
| HLA-A*33:01 | 1 | 100 | 109 | 10 | IIRGWIFGTT 0.000107 | 35 |
| HLA-A*30:01 | 1 | 117 | 125 | 9 | LLIVNNATN 0.000107 | 58 |
| HLA-B*44:03 | 1 | 121 | 129 | 9 | NNATNVVIK 0.000107 | 21 |
| HLA-B*07:02 | 1 | 136 | 144 | 9 | CNDPFLGVY 0.000107 | 31 |
| HLA-A*30:02 | 1 | 201 | 209 | 9 | FKIYSKHTP 0.000107 | 55 |
| HLA-B*51:01 | 1 | 206 | 214 | 9 | KHTPINLVR 0.000107 | 41 |
| HLA-B*07:02 | 1 | 237 | 245 | 9 | RFQTLALH 0.000107 | 31 |
| HLA-A*33:01 | 1 | 254 | 263 | 10 | SSSGWTAGAA 0.000107 | 35 |
| HLA-A*11:01 | 1 | 264 | 272 | 9 | AYYVGYLQP 0.000107 | 21 |
| HLA-B*53:01 | 1 | 268 | 277 | 10 | GYLQPRTFLL 0.000107 | 23 |
| HLA-A*02:01 | 1 | 288 | 297 | 10 | AVDCALDPLS 0.000107 | 33 |
| HLA-A*02:01 | 1 | 301 | 310 | 10 | CTLKSFTVEK 0.000107 | 33 |
| HLA-B*35:01 | 1 | 306 | 315 | 10 | FTVEKGIYQT 0.000107 | 24 |
| HLA-A*26:01 | 1 | 308 | 316 | 9 | VEKGIYQTS 0.000107 | 29 |
| HLA-B*35:01 | 1 | 319 | 328 | 10 | RVQPTESIVR 0.000107 | 24 |
| HLA-B*58:01 | 1 | 330 | 338 | 9 | PNITNLCPF 0.000107 | 36 |
| HLA-A*26:01 | 1 | 338 | 346 | 9 | FGEVFNATR 0.000107 | 29 |
| HLA-A*33:01 | 1 | 339 | 347 | 9 | GEVFNATRF 0.000107 | 35 |
| HLA-A*30:01 | 1 | 345 | 354 | 10 | TRFASVYAWN 0.000107 | 58 |
| HLA-B*07:02 | 1 | 375 | 384 | 10 | STFKCYGVSP 0.000107 | 31 |
| HLA-A*01:01 | 1 | 401 | 409 | 9 | VIRGDEVQR 0.000107 | 47 |
| HLA-A*02:06 | 1 | 415 | 423 | 9 | TGKIADYNY 0.000107 | 43 |
| HLA-A*02:06 | 1 | 460 | 469 | 10 | NLKPFRDIS 0.000107 | 43 |
| HLA-A*11:01 | 1 | 462 | 470 | 9 | KPFRDIST 0.000107 | 21 |
| HLA-A*32:01 | 1 | 483 | 492 | 10 | VEGFNCYFPL 0.000107 | 26 |
| HLA-A*11:01 | 1 | 489 | 497 | 9 | YFPLQSYGF 0.000107 | 21 |
| HLA-A*01:01 | 1 | 490 | 498 | 9 | FPLQSYGFQ 0.000107 | 47 |
| HLA-A*30:02 | 1 | 491 | 499 | 9 | PLQSYGFQP 0.000107 | 55 |
| HLA-A*01:01 | 1 | 492 | 500 | 9 | LQSYGFQPT 0.000107 | 47 |
| HLA-B*40:01 | 1 | 492 | 500 | 9 | LQSYGFQPT 0.000107 | 19 |
| HLA-B*07:02 | 1 | 511 | 519 | 9 | VVLSFELLH 0.000107 | 31 |
| HLA-A*31:01 | 1 | 542 | 551 | 10 | NFNGLTGTGV 0.000107 | 35 |
| HLA-A*02:06 | 1 | 549 | 557 | 9 | TGVLTESNK 0.000107 | 43 |
| HLA-A*30:01 | 1 | 566 | 575 | 10 | GRDIADTTDA 0.000107 | 58 |
| HLA-A*24:02 | 1 | 602 | 610 | 9 | TNTSNQVAV 0.000107 | 20 |
| HLA-A*33:01 | 1 | 602 | 611 | 10 | TNTSNQVAVL 0.000107 | 35 |
| HLA-A*23:01 | 1 | 632 | 640 | 9 | TWRVYSTGS 0.000107 | 21 |
| HLA-A*68:02 | 1 | 642 | 650 | 9 | VFQTRAGCL 0.000107 | 36 |
| HLA-A*02:06 | 1 | 647 | 655 | 9 | AGCLIGAHE 0.000107 | 43 |
| HLA-A*23:01 | 1 | 653 | 662 | 10 | AEHVNNSEY 0.000107 | 21 |
| HLA-B*08:01 | 1 | 653 | 661 | 9 | AEHVNNSEY 0.000107 | 47 |
| HLA-A*02:01 | 1 | 655 | 664 | 10 | HVNNSYECDI 0.000107 | 33 |
| HLA-A*68:02 | 1 | 669 | 678 | 10 | GICASYQTQT 0.000107 | 36 |
| HLA-B*53:01 | 1 | 671 | 679 | 9 | CASYQTQTN 0.000107 | 23 |
| HLA-B*58:01 | 1 | 682 | 690 | 9 | RRARSVASQ 0.000107 | 36 |
| HLA-B*07:02 | 1 | 695 | 703 | 9 | YTMSLGAEN 0.000107 | 31 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*35:01 | 1 | 725 | 734 | 10 | EILPVSMTKT 0.000107 | 24 |
| HLA-B*53:01 | 1 | 728 | 736 | 9 | PVSMTKTSCV 0.000107 | 23 |
| HLA-A*68:02 | 1 | 741 | 750 | 10 | YICGDSTECSC 0.000107 | 36 |
| HLA-A*02:06 | 1 | 743 | 752 | 10 | CGDSTECSNL 0.000107 | 43 |
| HLA-A*02:06 | 1 | 756 | 765 | 10 | YGSFCTQLNR 0.000107 | 43 |
| HLA-A*31:01 | 1 | 771 | 779 | 9 | AVEQDKNTQ 0.000107 | 35 |
| HLA-A*33:01 | 1 | 772 | 780 | 9 | VEQDKNTQE 0.000107 | 35 |
| HLA-B*58:01 | 1 | 789 | 798 | 10 | YKTPPIKDFG 0.000107 | 36 |
| HLA-A*01:01 | 1 | 801 | 809 | 9 | NFSQILPDP 0.000107 | 47 |
| HLA-B*07:02 | 1 | 807 | 815 | 9 | PDPSKPSKR 0.000107 | 31 |
| HLA-B*58:01 | 1 | 811 | 819 | 9 | KPSKRSEFIE 0.000107 | 36 |
| HLA-A*01:01 | 1 | 832 | 841 | 10 | GFIKQYGDCL 0.000107 | 47 |
| HLA-B*07:02 | 1 | 846 | 854 | 9 | ARDLICAQK 0.000107 | 31 |
| HLA-B*40:01 | 1 | 846 | 854 | 9 | ARDLICAQK 0.000107 | 19 |
| HLA-A*33:01 | 1 | 847 | 855 | 9 | RDLICAQKF 0.000107 | 35 |
| HLA-A*02:06 | 1 | 854 | 863 | 10 | KFNGLTVLPP 0.000107 | 43 |
| HLA-B*44:02 | 1 | 870 | 878 | 9 | IAQYTSALL 0.000107 | 22 |
| HLA-A*03:01 | 1 | 898 | 906 | 9 | FAMQMAYRF 0.000107 | 28 |
| HLA-B*40:01 | 1 | 903 | 911 | 9 | AYRFNGIGV 0.000107 | 19 |
| HLA-A*24:02 | 1 | 905 | 914 | 10 | RFNGIGVTQN 0.000107 | 20 |
| HLA-A*30:02 | 1 | 945 | 954 | 10 | LGKLDVVNQ 0.000107 | 55 |
| HLA-A*24:02 | 1 | 948 | 956 | 9 | LQDVVNQNA 0.000107 | 20 |
| HLA-B*53:01 | 1 | 954 | 963 | 10 | QNAQALNTLV 0.000107 | 23 |
| HLA-B*35:01 | 1 | 967 | 976 | 10 | SSNFGAISSV 0.000107 | 24 |
| HLA-A*68:01 | 1 | 995 | 1003 | 9 | RLITGRLQS 0.000107 | 31 |
| HLA-B*51:01 | 1 | 995 | 1003 | 9 | RLITGRLQS 0.000107 | 41 |
| HLA-A*01:01 | 1 | 1010 | 1019 | 10 | QQLIRAAEIR 0.000107 | 47 |
| HLA-B*58:01 | 1 | 1018 | 1026 | 9 | IRASANLAA 0.000107 | 36 |
| HLA-B*44:02 | 1 | 1052 | 1061 | 10 | FPQSAPHGVV 0.000107 | 22 |
| HLA-A*30:02 | 1 | 1092 | 1100 | 9 | EGVFVSNGT 0.000107 | 55 |
| HLA-B*40:01 | 1 | 1107 | 1116 | 10 | RNFYEPQIIT 0.000107 | 19 |
| HLA-A*32:01 | 1 | 1108 | 1117 | 10 | NFYEPQIITT 0.000107 | 26 |
| HLA-B*51:01 | 1 | 1152 | 1160 | 9 | LDKYFKNHT 0.000107 | 41 |
| HLA-B*35:01 | 1 | 1160 | 1169 | 10 | TSPDVLGDI 0.000107 | 24 |
| HLA-A*30:02 | 1 | 1169 | 1178 | 10 | ISGINASVVN 0.000107 | 55 |
| HLA-A*33:01 | 1 | 1170 | 1179 | 10 | SGINASVVNI 0.000107 | 35 |
| HLA-A*26:01 | 1 | 1172 | 1180 | 9 | INASVVNIQ 0.000107 | 29 |
| HLA-A*01:01 | 1 | 1173 | 1182 | 10 | NASVVNIQKE 0.000107 | 47 |
| HLA-B*57:01 | 1 | 1181 | 1190 | 10 | KEIDRLNEVA 0.000107 | 47 |
| HLA-A*03:01 | 1 | 1202 | 1210 | 9 | ELGKYEYI 0.000107 | 28 |
| HLA-A*68:01 | 1 | 1224 | 1233 | 10 | LIAIVMVTIM 0.000107 | 31 |
| HLA-A*30:01 | 1 | 1236 | 1244 | 9 | CMTSCCSCCL 0.000107 | 58 |
| HLA-B*08:01 | 1 | 1248 | 1256 | 9 | CSCGSCCKF 0.000107 | 47 |
| HLA-A*32:01 | 1 | 1260 | 1268 | 9 | DSEPVLLKGV 0.000107 | 26 |
| HLA-A*01:01 | 1 | 2 | 11 | 10 | FVFLVLLPLV 0.000106 | 48 |
| HLA-A*01:01 | 1 | 16 | 25 | 10 | VNLTRTQLP 0.000106 | 48 |
| HLA-A*68:02 | 1 | 32 | 41 | 10 | FTRGVYYPDK 0.000106 | 36 |
| HLA-A*03:01 | 1 | 43 | 51 | 9 | FRSSVLHST 0.000106 | 28 |
| HLA-A*03:01 | 1 | 59 | 67 | 9 | FSNVTWFHA 0.000106 | 28 |
| HLA-B*35:01 | 1 | 63 | 71 | 9 | TWFHAIHVS 0.000106 | 24 |
| HLA-A*30:01 | 1 | 88 | 96 | 9 | DGVYFASTE 0.000106 | 58 |
| HLA-A*03:01 | 1 | 93 | 101 | 9 | ASTEKSNII 0.000106 | 28 |
| HLA-A*31:01 | 1 | 119 | 128 | 10 | IVNNATNVVI 0.000106 | 35 |
| HLA-B*40:01 | 1 | 146 | 154 | 9 | HKNNKSWME 0.000106 | 19 |
| HLA-A*02:06 | 1 | 154 | 162 | 9 | ESEFRVYSS 0.000106 | 43 |
| HLA-A*24:02 | 1 | 214 | 222 | 9 | RDLPQGFSFA 0.000106 | 20 |
| HLA-A*30:02 | 1 | 216 | 224 | 9 | LPQGFSALE 0.000106 | 55 |
| HLA-A*26:01 | 1 | 223 | 231 | 9 | LEPLVDLPI 0.000106 | 29 |
| HLA-A*03:01 | 1 | 234 | 243 | 10 | NITRFQTLA 0.000106 | 28 |
| HLA-A*30:02 | 1 | 241 | 250 | 10 | LLALHRSYLT 0.000106 | 55 |
| HLA-B*57:01 | 1 | 245 | 254 | 10 | HRSYLTGPGDS 0.000106 | 47 |
| HLA-B*15:01 | 1 | 254 | 263 | 10 | SSSGWTAGAA 0.000106 | 34 |
| HLA-B*44:02 | 1 | 254 | 262 | 9 | SSSGWTAGA 0.000106 | 22 |
| HLA-A*24:02 | 1 | 261 | 269 | 9 | GAAAYYVGY 0.000106 | 20 |
| HLA-A*68:02 | 1 | 270 | 278 | 9 | LQPRTFLLK 0.000106 | 36 |
| HLA-B*44:02 | 1 | 292 | 301 | 10 | ALDPLSETKC 0.000106 | 22 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*51:01 | 1 | 292 | 301 | 10 | ALDPLSETKC 0.000106 | 42 |
| HLA-A*30:02 | 1 | 298 | 307 | 10 | ETKCTLKSFT 0.000106 | 55 |
| HLA-A*01:01 | 1 | 299 | 308 | 10 | TKCTLKSFTV 0.000106 | 48 |
| HLA-B*40:01 | 1 | 309 | 318 | 10 | EKGIYQTSNF 0.000106 | 19 |
| HLA-B*44:03 | 1 | 342 | 350 | 9 | FNATRFASV 0.000106 | 21 |
| HLA-A*03:01 | 1 | 343 | 352 | 10 | NATRFASVYA 0.000106 | 28 |
| HLA-B*15:01 | 1 | 351 | 359 | 9 | YAWNKRKRIS 0.000106 | 34 |
| HLA-A*68:02 | 1 | 368 | 377 | 10 | LYNSASFSTF 0.000106 | 36 |
| HLA-A*02:01 | 1 | 379 | 387 | 9 | CYGVSPTKL 0.000106 | 33 |
| HLA-B*07:02 | 1 | 395 | 403 | 9 | VYADSFVIR 0.000106 | 31 |
| HLA-A*02:06 | 1 | 450 | 458 | 9 | NYLYRLFRK 0.000106 | 43 |
| HLA-A*26:01 | 1 | 462 | 471 | 10 | KPFERDISTE 0.000106 | 29 |
| HLA-A*26:01 | 1 | 467 | 476 | 10 | DISTEIQAG 0.000106 | 29 |
| HLA-B*07:02 | 1 | 470 | 478 | 9 | TEIYQAGST 0.000106 | 31 |
| HLA-A*31:01 | 1 | 508 | 517 | 10 | YRVVLSFEL 0.000106 | 35 |
| HLA-A*23:01 | 1 | 515 | 524 | 10 | FELLHAPATV 0.000106 | 21 |
| HLA-A*33:01 | 1 | 515 | 523 | 9 | FELLHAPAT 0.000106 | 35 |
| HLA-B*57:01 | 1 | 531 | 539 | 9 | TNLVKNKCV 0.000106 | 47 |
| HLA-A*02:03 | 1 | 558 | 567 | 10 | KFLPFQQFGR 0.000106 | 36 |
| HLA-A*68:02 | 1 | 573 | 581 | 9 | TDAVRDPQT 0.000106 | 36 |
| HLA-A*24:02 | 1 | 584 | 593 | 10 | ILDITPCFSG 0.000106 | 20 |
| HLA-A*68:02 | 1 | 598 | 606 | 9 | ITPGTNTSN 0.000106 | 36 |
| HLA-A*68:02 | 1 | 616 | 625 | 10 | NCTEVPVAIH 0.000106 | 36 |
| HLA-A*68:01 | 1 | 622 | 630 | 9 | VAIHADQLT 0.000106 | 31 |
| HLA-B*57:01 | 1 | 623 | 632 | 10 | AIHADQLTPT 0.000106 | 47 |
| HLA-A*02:01 | 1 | 624 | 632 | 9 | IHADQLTPT 0.000106 | 33 |
| HLA-A*11:01 | 1 | 624 | 633 | 10 | IHADQLTPTW 0.000106 | 21 |
| HLA-B*08:01 | 1 | 628 | 637 | 10 | QLTPTWRVYS 0.000106 | 47 |
| HLA-A*24:02 | 1 | 637 | 645 | 9 | STGSNVFQT 0.000106 | 20 |
| HLA-B*58:01 | 1 | 649 | 657 | 9 | CLIGAEHVN 0.000106 | 36 |
| HLA-B*44:03 | 1 | 680 | 688 | 9 | SPRRARSA 0.000106 | 21 |
| HLA-A*68:02 | 1 | 699 | 708 | 10 | LGAENSVAYS 0.000106 | 36 |
| HLA-A*30:02 | 1 | 708 | 717 | 10 | SNNSIAIPTN 0.000106 | 55 |
| HLA-A*31:01 | 1 | 710 | 719 | 10 | NSIAIPTNFT 0.000106 | 35 |
| HLA-A*30:02 | 1 | 716 | 725 | 10 | TNFTISVTTE 0.000106 | 55 |
| HLA-A*11:01 | 1 | 718 | 727 | 10 | FTISVTTEIL 0.000106 | 21 |
| HLA-B*40:01 | 1 | 754 | 762 | 9 | LQYGSFCTQ 0.000106 | 19 |
| HLA-A*33:01 | 1 | 776 | 784 | 9 | KNTQEVFAQ 0.000106 | 35 |
| HLA-A*32:01 | 1 | 813 | 822 | 10 | SKRSFIEDLL 0.000106 | 26 |
| HLA-B*07:02 | 1 | 817 | 825 | 9 | FIEDLLFNK 0.000106 | 31 |
| HLA-A*02:01 | 1 | 837 | 846 | 10 | YGDCLGDIAA 0.000106 | 33 |
| HLA-A*30:02 | 1 | 840 | 849 | 10 | CLGDIAARDL 0.000106 | 55 |
| HLA-A*68:02 | 1 | 841 | 850 | 10 | LGDIAARDLI 0.000106 | 36 |
| HLA-B*07:02 | 1 | 843 | 852 | 10 | DIAARDLICA 0.000106 | 31 |
| HLA-A*03:01 | 1 | 854 | 863 | 10 | KFNGLTVLPP 0.000106 | 28 |
| HLA-B*07:02 | 1 | 867 | 876 | 10 | DEMIAQY TSA 0.000106 | 31 |
| HLA-A*68:01 | 1 | 889 | 898 | 10 | GAGAALQIPF 0.000106 | 31 |
| HLA-A*32:01 | 1 | 892 | 901 | 10 | AALQIPFAMQ 0.000106 | 26 |
| HLA-B*15:01 | 1 | 902 | 910 | 9 | MAYRFNGIG 0.000106 | 34 |
| HLA-A*68:02 | 1 | 904 | 913 | 10 | YRFNGIGVTQ 0.000106 | 36 |
| HLA-B*15:01 | 1 | 904 | 912 | 9 | YRFNGIGVT 0.000106 | 34 |
| HLA-A*11:01 | 1 | 909 | 918 | 10 | IGVTQNVLYE 0.000106 | 21 |
| HLA-A*33:01 | 1 | 921 | 929 | 9 | KLIANQFNS 0.000106 | 35 |
| HLA-A*01:01 | 1 | 928 | 936 | 9 | NSAIGKIQD 0.000106 | 48 |
| HLA-B*08:01 | 1 | 928 | 937 | 10 | NSAIGKIQDS 0.000106 | 47 |
| HLA-A*31:01 | 1 | 941 | 949 | 9 | TASALGKLQ 0.000106 | 35 |
| HLA-B*51:01 | 1 | 947 | 956 | 10 | KLQDVVNQNA 0.000106 | 42 |
| HLA-A*33:01 | 1 | 956 | 965 | 10 | AQALNTLVKQ 0.000106 | 35 |
| HLA-A*01:01 | 1 | 959 | 967 | 9 | LNTLVKQLS 0.000106 | 48 |
| HLA-A*30:02 | 1 | 984 | 993 | 10 | LDKVEAEVQI 0.000106 | 55 |
| HLA-A*23:01 | 1 | 992 | 1001 | 10 | QIDRLITGRL 0.000106 | 21 |
| HLA-A*11:01 | 1 | 999 | 1008 | 10 | GRLQSLQTYV 0.000106 | 21 |
| HLA-A*02:01 | 1 | 1002 | 1011 | 10 | QSLQTYVTQQ 0.000106 | 33 |
| HLA-B*58:01 | 1 | 1011 | 1020 | 10 | QLIRAAEIRA 0.000106 | 36 |
| HLA-A*32:01 | 1 | 1012 | 1020 | 9 | LIRAAEIRA 0.000106 | 26 |
| HLA-A*30:01 | 1 | 1015 | 1023 | 9 | AAEIRASAN 0.000106 | 58 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*02:01 | 1 | 1018 | 1026 | 9 | IRASANLAA 0.000106 | 33 |
| HLA-B*08:01 | 1 | 1038 | 1047 | 10 | KRVDFCGKGY 0.000106 | 47 |
| HLA-A*26:01 | 1 | 1098 | 1106 | 9 | NGTHWFVTQ 0.000106 | 29 |
| HLA-B*51:01 | 1 | 1103 | 1112 | 10 | FVTQRNFYEP 0.000106 | 42 |
| HLA-B*07:02 | 1 | 1106 | 1115 | 10 | QRNFYEPQII 0.000106 | 31 |
| HLA-A*33:01 | 1 | 1116 | 1124 | 9 | TTDNTFVSG 0.000106 | 35 |
| HLA-A*01:01 | 1 | 1141 | 1150 | 10 | LQPELDSFKE 0.000106 | 48 |
| HLA-B*57:01 | 1 | 1150 | 1159 | 10 | EELDKYFKNH 0.000106 | 47 |
| HLA-A*26:01 | 1 | 1154 | 1162 | 9 | KYFKNHTSP 0.000106 | 29 |
| HLA-B*44:02 | 1 | 1179 | 1187 | 9 | IQKEIDRLN 0.000106 | 22 |
| HLA-B*08:01 | 1 | 1194 | 1202 | 9 | NESLIDLQE 0.000106 | 47 |
| HLA-A*30:02 | 1 | 1222 | 1231 | 10 | AGLIAIVMVT 0.000106 | 55 |
| HLA-A*11:01 | 1 | 16 | 24 | 9 | VNLTRTQL 0.000105 | 21 |
| HLA-A*02:03 | 1 | 22 | 30 | 9 | TQLPPAYTN 0.000105 | 36 |
| HLA-A*24:02 | 1 | 54 | 63 | 10 | LFLPFFSNVT 0.000105 | 20 |
| HLA-A*02:01 | 1 | 136 | 144 | 9 | CNDPFLGVY 0.000105 | 33 |
| HLA-A*01:01 | 1 | 138 | 147 | 10 | DPFLGVYYHK 0.000105 | 48 |
| HLA-B*07:02 | 1 | 148 | 157 | 10 | NNKSWMESEF 0.000105 | 31 |
| HLA-B*35:01 | 1 | 150 | 158 | 9 | KSWMESEFR 0.000105 | 24 |
| HLA-A*01:01 | 1 | 158 | 167 | 10 | RVYSSANNCT 0.000105 | 48 |
| HLA-A*32:01 | 1 | 162 | 171 | 10 | SANNCTFEYV 0.000105 | 26 |
| HLA-A*26:01 | 1 | 172 | 180 | 9 | SQPFLMDLE 0.000105 | 29 |
| HLA-B*58:01 | 1 | 177 | 185 | 9 | MDLEGKQGN 0.000105 | 36 |
| HLA-A*32:01 | 1 | 181 | 190 | 10 | GKQGNFKNLR 0.000105 | 26 |
| HLA-B*15:01 | 1 | 200 | 208 | 9 | YFKIYSKHT 0.000105 | 34 |
| HLA-A*02:03 | 1 | 247 | 255 | 9 | SYLTPGDSS 0.000105 | 36 |
| HLA-B*53:01 | 1 | 254 | 262 | 9 | SSSGWTAGA 0.000105 | 23 |
| HLA-A*11:01 | 1 | 267 | 276 | 10 | VGYLQPRTF 0.000105 | 21 |
| HLA-B*44:02 | 1 | 267 | 276 | 10 | VGYLQPRTF 0.000105 | 22 |
| HLA-B*58:01 | 1 | 282 | 291 | 10 | NGTITDAVDC 0.000105 | 36 |
| HLA-A*02:06 | 1 | 300 | 309 | 10 | KCTLKSFTVE 0.000105 | 43 |
| HLA-B*57:01 | 1 | 302 | 311 | 10 | TLKSFTVEKG 0.000105 | 47 |
| HLA-A*02:03 | 1 | 308 | 316 | 9 | VEKGIYQTS 0.000105 | 36 |
| HLA-B*07:02 | 1 | 313 | 321 | 9 | YQTSNFRVQ 0.000105 | 31 |
| HLA-B*57:01 | 1 | 328 | 337 | 10 | RFPNITNLCP 0.000105 | 47 |
| HLA-A*23:01 | 1 | 334 | 343 | 10 | NLCPFGEVFN 0.000105 | 21 |
| HLA-B*07:02 | 1 | 354 | 363 | 10 | NRKRISNCVA 0.000105 | 31 |
| HLA-B*51:01 | 1 | 355 | 363 | 9 | RKRISNCVA 0.000105 | 42 |
| HLA-B*57:01 | 1 | 368 | 376 | 9 | LYNSASFST 0.000105 | 47 |
| HLA-B*40:01 | 1 | 383 | 392 | 10 | SPTKLNDLCF 0.000105 | 19 |
| HLA-B*57:01 | 1 | 399 | 407 | 9 | SFVIRGDEV 0.000105 | 47 |
| HLA-A*32:01 | 1 | 449 | 458 | 10 | YNYLYRFRK 0.000105 | 26 |
| HLA-A*30:02 | 1 | 460 | 469 | 10 | NLKPFERDIS 0.000105 | 56 |
| HLA-B*44:03 | 1 | 462 | 471 | 10 | KPFERDISTE 0.000105 | 21 |
| HLA-B*08:01 | 1 | 474 | 483 | 10 | QAGSTPCNGV 0.000105 | 47 |
| HLA-A*33:01 | 1 | 475 | 483 | 9 | AGSTPCNGV 0.000105 | 35 |
| HLA-A*23:01 | 1 | 505 | 514 | 10 | YQPYRVVVL 0.000105 | 21 |
| HLA-B*40:01 | 1 | 577 | 586 | 10 | RDPQTLEILD 0.000105 | 19 |
| HLA-A*02:06 | 1 | 643 | 652 | 10 | FQTRAGCLIG 0.000105 | 43 |
| HLA-B*40:01 | 1 | 654 | 662 | 9 | EHVNNSYEC 0.000105 | 19 |
| HLA-A*26:01 | 1 | 758 | 766 | 9 | SFCTQLNRA 0.000105 | 29 |
| HLA-A*03:01 | 1 | 761 | 770 | 10 | TQLNRALTGI 0.000105 | 28 |
| HLA-B*07:02 | 1 | 778 | 786 | 9 | TQEVFAQVK 0.000105 | 31 |
| HLA-B*15:01 | 1 | 782 | 791 | 10 | FAQVKQIYKT 0.000105 | 34 |
| HLA-A*30:01 | 1 | 800 | 808 | 9 | FNFSQILPD 0.000105 | 58 |
| HLA-B*58:01 | 1 | 813 | 821 | 9 | SKRSFIEDL 0.000105 | 36 |
| HLA-A*24:02 | 1 | 822 | 830 | 9 | LFNKVTLAD 0.000105 | 20 |
| HLA-A*02:01 | 1 | 835 | 843 | 9 | KQYGDCLGD 0.000105 | 33 |
| HLA-A*02:06 | 1 | 842 | 851 | 10 | GDIAARDLIC 0.000105 | 43 |
| HLA-B*51:01 | 1 | 845 | 854 | 10 | AARDLICAQK 0.000105 | 42 |
| HLA-B*07:02 | 1 | 870 | 879 | 10 | IAQYTSALLA 0.000105 | 31 |
| HLA-A*11:01 | 1 | 873 | 881 | 9 | YTSALLAGT 0.000105 | 21 |
| HLA-A*11:01 | 1 | 887 | 895 | 9 | TFGAGAALQ 0.000105 | 21 |
| HLA-A*33:01 | 1 | 900 | 909 | 10 | MQMAYRFNGI 0.000105 | 35 |
| HLA-A*26:01 | 1 | 915 | 924 | 10 | VLYENQKLIA 0.000105 | 29 |
| HLA-A*32:01 | 1 | 938 | 947 | 10 | LSSTASALGK 0.000105 | 26 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*68:01 | 1 | 949 | 957 | 9 | QDVVNQNAQ 0.000105 | 31 |
| HLA-B*40:01 | 1 | 950 | 958 | 9 | DVVNQNAQA 0.000105 | 19 |
| HLA-B*07:02 | 1 | 954 | 963 | 10 | QNAQALNTLV 0.000105 | 31 |
| HLA-B*07:02 | 1 | 955 | 964 | 10 | NAQALNTLVK 0.000105 | 31 |
| HLA-A*30:01 | 1 | 980 | 988 | 9 | ILSRLDKVE 0.000105 | 58 |
| HLA-B*58:01 | 1 | 982 | 991 | 10 | SRLDKVEAEV 0.000105 | 36 |
| HLA-B*51:01 | 1 | 1033 | 1042 | 10 | VLGQSKRVDF 0.000105 | 42 |
| HLA-A*31:01 | 1 | 1058 | 1066 | 9 | HGVVFLHVT 0.000105 | 35 |
| HLA-B*15:01 | 1 | 1058 | 1066 | 9 | HGVVFLHVT 0.000105 | 34 |
| HLA-B*08:01 | 1 | 1078 | 1086 | 9 | APAICHDGK 0.000105 | 47 |
| HLA-B*44:02 | 1 | 1137 | 1146 | 10 | VYDPLQPELD 0.000105 | 22 |
| HLA-B*40:01 | 1 | 1173 | 1181 | 9 | NASVVNIQK 0.000105 | 19 |
| HLA-A*32:01 | 1 | 1194 | 1203 | 10 | NESLIDLQEL 0.000105 | 26 |
| HLA-B*44:02 | 1 | 1216 | 1224 | 9 | IWLGFIAGL 0.000105 | 22 |
| HLA-B*58:01 | 1 | 1230 | 1239 | 10 | VTIMLCCMTS 0.000105 | 36 |
| HLA-A*30:02 | 1 | 1231 | 1239 | 9 | TIMLCCMTS 0.000105 | 56 |
| HLA-B*35:01 | 1 | 1261 | 1269 | 9 | SEPVLKGVK 0.000105 | 24 |
| HLA-B*08:01 | 1 | 22 | 31 | 10 | TQLPPAYTNS 0.000104 | 47 |
| HLA-A*11:01 | 1 | 45 | 54 | 10 | SSVLHSTQDL 0.000104 | 21 |
| HLA-A*31:01 | 1 | 53 | 61 | 9 | DLFLPFFSN 0.000104 | 35 |
| HLA-A*33:01 | 1 | 59 | 68 | 10 | FSNVTWFHAI 0.000104 | 36 |
| HLA-B*08:01 | 1 | 67 | 75 | 9 | AIHVSGTNG 0.000104 | 47 |
| HLA-A*30:02 | 1 | 74 | 83 | 10 | NGTKRFDNPV 0.000104 | 56 |
| HLA-A*02:01 | 1 | 142 | 151 | 10 | GVYYHKNNKS 0.000104 | 34 |
| HLA-B*51:01 | 1 | 164 | 172 | 9 | NNCTFEYVS 0.000104 | 42 |
| HLA-A*30:02 | 1 | 165 | 174 | 10 | NCTFEYVSQP 0.000104 | 56 |
| HLA-B*07:02 | 1 | 188 | 197 | 10 | NLREFVFKNI 0.000104 | 31 |
| HLA-A*02:03 | 1 | 205 | 214 | 10 | SKHTPINLVR 0.000104 | 36 |
| HLA-B*35:01 | 1 | 205 | 214 | 10 | SKHTPINLVR 0.000104 | 24 |
| HLA-B*08:01 | 1 | 239 | 247 | 9 | QTLALHRS 0.000104 | 47 |
| HLA-B*40:01 | 1 | 259 | 267 | 9 | TAGAAAYYV 0.000104 | 19 |
| HLA-B*08:01 | 1 | 264 | 273 | 10 | AYYVGYLQPR 0.000104 | 47 |
| HLA-A*03:01 | 1 | 300 | 308 | 9 | KCTLKSFTV 0.000104 | 28 |
| HLA-A*02:01 | 1 | 303 | 312 | 10 | LKSFTVEKGI 0.000104 | 34 |
| HLA-B*07:02 | 1 | 323 | 332 | 10 | TESIVRFPNI 0.000104 | 31 |
| HLA-A*11:01 | 1 | 334 | 342 | 9 | NLCPFGEVF 0.000104 | 21 |
| HLA-B*57:01 | 1 | 350 | 359 | 10 | VYAWNRKRIS 0.000104 | 47 |
| HLA-B*44:02 | 1 | 360 | 368 | 9 | NCVADYSVL 0.000104 | 22 |
| HLA-B*58:01 | 1 | 367 | 375 | 9 | VLYNSASFV 0.000104 | 36 |
| HLA-A*03:01 | 1 | 389 | 397 | 9 | DLCFTNVYA 0.000104 | 28 |
| HLA-B*40:01 | 1 | 442 | 451 | 10 | DSKVGGNVNY 0.000104 | 19 |
| HLA-B*44:03 | 1 | 481 | 490 | 10 | NGVEGFNCYF 0.000104 | 21 |
| HLA-A*30:01 | 1 | 490 | 498 | 9 | FPLQSYGFQ 0.000104 | 58 |
| HLA-B*07:02 | 1 | 492 | 500 | 9 | LQSYGFQPT 0.000104 | 31 |
| HLA-A*03:01 | 1 | 498 | 506 | 9 | QPTNGVGYY 0.000104 | 28 |
| HLA-A*33:01 | 1 | 498 | 507 | 10 | QPTNGVGYYQ 0.000104 | 36 |
| HLA-A*32:01 | 1 | 501 | 509 | 9 | NGVGYQPYR 0.000104 | 26 |
| HLA-B*07:02 | 1 | 516 | 525 | 10 | ELLHAPATVC 0.000104 | 31 |
| HLA-A*24:02 | 1 | 526 | 534 | 9 | GPKKSTNLV 0.000104 | 20 |
| HLA-A*30:01 | 1 | 579 | 587 | 9 | PQTLIILDI 0.000104 | 58 |
| HLA-A*30:01 | 1 | 588 | 596 | 9 | TPCSFGGVS 0.000104 | 58 |
| HLA-B*44:03 | 1 | 620 | 629 | 10 | VPVAIHADQL 0.000104 | 21 |
| HLA-A*30:02 | 1 | 653 | 662 | 10 | AEHVNNSYEC 0.000104 | 56 |
| HLA-A*30:01 | 1 | 671 | 679 | 9 | CASYQTQTN 0.000104 | 58 |
| HLA-B*08:01 | 1 | 675 | 683 | 9 | QTQTNSPRR 0.000104 | 47 |
| HLA-A*26:01 | 1 | 676 | 684 | 9 | TQTNSPRRA 0.000104 | 29 |
| HLA-B*57:01 | 1 | 747 | 755 | 9 | TECSNLLLQ 0.000104 | 47 |
| HLA-A*68:01 | 1 | 759 | 767 | 9 | FCTQLNRAL 0.000104 | 31 |
| HLA-B*15:01 | 1 | 763 | 771 | 9 | LNRALTGIA 0.000104 | 34 |
| HLA-B*53:01 | 1 | 777 | 786 | 10 | NTQEVFAQVK 0.000104 | 23 |
| HLA-A*68:02 | 1 | 788 | 797 | 10 | IYKTPPIKDF 0.000104 | 36 |
| HLA-A*02:06 | 1 | 790 | 799 | 10 | KTPPIKDFGG 0.000104 | 43 |
| HLA-A*31:01 | 1 | 819 | 828 | 10 | EDLLFNKVTL 0.000104 | 35 |
| HLA-A*02:06 | 1 | 822 | 831 | 10 | LFNKVTLADA 0.000104 | 43 |
| HLA-A*30:02 | 1 | 847 | 856 | 10 | RDLICAQKFN 0.000104 | 56 |
| HLA-A*24:02 | 1 | 861 | 870 | 10 | LPPLLTDEMI 0.000104 | 20 |

| | | | | | | | |
|-------------|---|------|------|----|------------|----------|----|
| HLA-B*57:01 | 1 | 862 | 870 | 9 | PPLLTDEMI | 0.000104 | 47 |
| HLA-A*31:01 | 1 | 899 | 907 | 9 | AMQMAYRFN | 0.000104 | 35 |
| HLA-B*57:01 | 1 | 901 | 910 | 10 | QMAYRFNGIG | 0.000104 | 47 |
| HLA-A*24:02 | 1 | 908 | 916 | 9 | GIGVTQNVL | 0.000104 | 20 |
| HLA-A*01:01 | 1 | 919 | 928 | 10 | NQKLIANQFN | 0.000104 | 48 |
| HLA-A*68:01 | 1 | 934 | 942 | 9 | IQDLSSTA | 0.000104 | 31 |
| HLA-A*24:02 | 1 | 944 | 952 | 9 | ALGKLQDVV | 0.000104 | 20 |
| HLA-B*53:01 | 1 | 1005 | 1014 | 10 | QTYVVTQLIR | 0.000104 | 23 |
| HLA-A*32:01 | 1 | 1018 | 1026 | 9 | IRASANLAA | 0.000104 | 26 |
| HLA-A*33:01 | 1 | 1032 | 1040 | 9 | CVLGQSKRV | 0.000104 | 36 |
| HLA-B*57:01 | 1 | 1083 | 1091 | 9 | HDGKAHFPR | 0.000104 | 47 |
| HLA-A*68:02 | 1 | 1084 | 1092 | 9 | DGKAHFPRE | 0.000104 | 36 |
| HLA-B*53:01 | 1 | 1093 | 1101 | 9 | GVFVSNQTH | 0.000104 | 23 |
| HLA-B*07:02 | 1 | 1112 | 1121 | 10 | PQIITTDNTF | 0.000104 | 31 |
| HLA-B*57:01 | 1 | 1130 | 1139 | 10 | IGIVNNTVYD | 0.000104 | 47 |
| HLA-A*30:01 | 1 | 1134 | 1143 | 10 | NNTVYDPLQP | 0.000104 | 58 |
| HLA-A*30:01 | 1 | 1187 | 1196 | 10 | NEVAKNLNES | 0.000104 | 58 |
| HLA-A*30:02 | 1 | 1187 | 1196 | 10 | NEVAKNLNES | 0.000104 | 56 |
| HLA-A*03:01 | 1 | 1189 | 1197 | 9 | VAKNLNESL | 0.000104 | 28 |
| HLA-B*35:01 | 1 | 1199 | 1208 | 10 | DLQELGKYEQ | 0.000104 | 24 |
| HLA-A*11:01 | 1 | 1210 | 1218 | 9 | IKWPWYIWL | 0.000104 | 21 |
| HLA-A*24:02 | 1 | 1260 | 1268 | 9 | DSEPVKGV | 0.000104 | 20 |
| HLA-A*68:01 | 1 | 18 | 26 | 9 | LTRTQLPP | 0.000103 | 31 |
| HLA-B*53:01 | 1 | 19 | 27 | 9 | TRTQLPPA | 0.000103 | 23 |
| HLA-A*23:01 | 1 | 21 | 30 | 10 | RTQLPPAYTN | 0.000103 | 21 |
| HLA-A*02:01 | 1 | 57 | 65 | 9 | PFFSNVTF | 0.000103 | 34 |
| HLA-B*57:01 | 1 | 90 | 98 | 9 | VYFASTEKS | 0.000103 | 47 |
| HLA-B*57:01 | 1 | 100 | 109 | 10 | IIRGWIFGTT | 0.000103 | 47 |
| HLA-B*08:01 | 1 | 101 | 109 | 9 | IRGWIFGTT | 0.000103 | 47 |
| HLA-A*32:01 | 1 | 112 | 120 | 9 | SKTQSLIV | 0.000103 | 26 |
| HLA-B*51:01 | 1 | 143 | 151 | 9 | VYYHKNNKS | 0.000103 | 42 |
| HLA-A*32:01 | 1 | 170 | 178 | 9 | YVSQPFLMD | 0.000103 | 26 |
| HLA-A*33:01 | 1 | 191 | 199 | 9 | EFVFKNIDG | 0.000103 | 36 |
| HLA-A*02:01 | 1 | 210 | 219 | 10 | INLVRDLPQG | 0.000103 | 34 |
| HLA-B*53:01 | 1 | 218 | 227 | 10 | QGFSALEPLV | 0.000103 | 23 |
| HLA-B*44:02 | 1 | 228 | 237 | 10 | DLPIGINITR | 0.000103 | 22 |
| HLA-B*53:01 | 1 | 237 | 245 | 9 | RFQTLALH | 0.000103 | 23 |
| HLA-B*58:01 | 1 | 241 | 250 | 10 | LLALHRSYLT | 0.000103 | 36 |
| HLA-B*07:02 | 1 | 263 | 271 | 9 | AAYYVGYLQ | 0.000103 | 31 |
| HLA-A*02:01 | 1 | 304 | 313 | 10 | KSFTVEKGIY | 0.000103 | 34 |
| HLA-B*07:02 | 1 | 304 | 313 | 10 | KSFTVEKGIY | 0.000103 | 31 |
| HLA-A*33:01 | 1 | 328 | 337 | 10 | RFPNITNLCP | 0.000103 | 36 |
| HLA-A*02:01 | 1 | 346 | 355 | 10 | RFASVYAWN | 0.000103 | 34 |
| HLA-B*44:03 | 1 | 350 | 358 | 9 | VYAWNRRKRI | 0.000103 | 21 |
| HLA-B*07:02 | 1 | 376 | 384 | 9 | TFKCYGVSP | 0.000103 | 31 |
| HLA-B*44:03 | 1 | 399 | 407 | 9 | SFVIRGDEV | 0.000103 | 21 |
| HLA-A*02:06 | 1 | 421 | 430 | 10 | YNYKLPDDFT | 0.000103 | 44 |
| HLA-B*51:01 | 1 | 423 | 432 | 10 | YKLDDFTGC | 0.000103 | 42 |
| HLA-B*07:02 | 1 | 442 | 451 | 10 | DSKVGGNVNY | 0.000103 | 31 |
| HLA-A*02:06 | 1 | 457 | 466 | 10 | RKSNLKPFR | 0.000103 | 44 |
| HLA-A*23:01 | 1 | 472 | 481 | 10 | IYQAGSTPCN | 0.000103 | 21 |
| HLA-B*08:01 | 1 | 495 | 504 | 10 | YGFQPTNGVG | 0.000103 | 47 |
| HLA-B*08:01 | 1 | 508 | 516 | 9 | YRVVLSFE | 0.000103 | 47 |
| HLA-A*02:06 | 1 | 574 | 583 | 10 | DAVRDPQTL | 0.000103 | 44 |
| HLA-A*03:01 | 1 | 580 | 589 | 10 | QTLTILDITP | 0.000103 | 28 |
| HLA-B*53:01 | 1 | 580 | 589 | 10 | QTLTILDITP | 0.000103 | 23 |
| HLA-B*08:01 | 1 | 594 | 602 | 9 | GVSVITPGT | 0.000103 | 47 |
| HLA-A*30:02 | 1 | 599 | 607 | 9 | TPGTNTSNQ | 0.000103 | 56 |
| HLA-A*24:02 | 1 | 602 | 611 | 10 | TNTSNQVAVL | 0.000103 | 20 |
| HLA-A*01:01 | 1 | 609 | 618 | 10 | AVLYQDVNCT | 0.000103 | 48 |
| HLA-A*03:01 | 1 | 638 | 647 | 10 | TGSNVFQTRA | 0.000103 | 28 |
| HLA-B*58:01 | 1 | 640 | 649 | 10 | SNVFQTRAG | 0.000103 | 36 |
| HLA-A*30:02 | 1 | 654 | 662 | 9 | EHVNNSYEC | 0.000103 | 56 |
| HLA-A*26:01 | 1 | 683 | 691 | 9 | RARSVASQS | 0.000103 | 29 |
| HLA-B*08:01 | 1 | 730 | 739 | 10 | SMTKTSVDCT | 0.000103 | 47 |
| HLA-A*31:01 | 1 | 731 | 739 | 9 | MTKTSVDCT | 0.000103 | 35 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|----------|----|
| HLA-B*07:02 | 1 | 733 | 741 | 9 | KTSVDCTMY | 0.000103 | 31 |
| HLA-A*30:01 | 1 | 753 | 761 | 9 | LLQYGSFCT | 0.000103 | 58 |
| HLA-A*11:01 | 1 | 755 | 763 | 9 | QYGSFCTQL | 0.000103 | 21 |
| HLA-A*02:03 | 1 | 763 | 771 | 9 | LNRLALTGIA | 0.000103 | 36 |
| HLA-B*07:02 | 1 | 766 | 774 | 9 | ALTGIAVEQ | 0.000103 | 31 |
| HLA-A*68:01 | 1 | 772 | 780 | 9 | VEQDKNTQE | 0.000103 | 31 |
| HLA-A*03:01 | 1 | 773 | 782 | 10 | EQDKNTQEVF | 0.000103 | 28 |
| HLA-B*58:01 | 1 | 816 | 824 | 9 | SFIEDLLFN | 0.000103 | 36 |
| HLA-A*68:01 | 1 | 870 | 879 | 10 | IAQYTSALLA | 0.000103 | 31 |
| HLA-A*23:01 | 1 | 873 | 882 | 10 | YTSALLAGTI | 0.000103 | 21 |
| HLA-B*57:01 | 1 | 876 | 885 | 10 | ALLAGTITSG | 0.000103 | 47 |
| HLA-A*01:01 | 1 | 882 | 891 | 10 | ITSGWTFGAG | 0.000103 | 48 |
| HLA-B*40:01 | 1 | 905 | 913 | 9 | RFNGIGVTQ | 0.000103 | 20 |
| HLA-B*08:01 | 1 | 910 | 918 | 9 | GVTQNVLYE | 0.000103 | 47 |
| HLA-B*44:03 | 1 | 947 | 956 | 10 | KLQDVVNQNA | 0.000103 | 21 |
| HLA-A*01:01 | 1 | 962 | 971 | 10 | LVKQLSSNFG | 0.000103 | 48 |
| HLA-A*01:01 | 1 | 964 | 973 | 10 | KQLSSNFGAI | 0.000103 | 48 |
| HLA-B*07:02 | 1 | 971 | 980 | 10 | GAISSVLNDI | 0.000103 | 31 |
| HLA-A*03:01 | 1 | 981 | 989 | 9 | LSRLDKVEA | 0.000103 | 28 |
| HLA-B*15:01 | 1 | 981 | 990 | 10 | LSRLDKVEA | 0.000103 | 34 |
| HLA-A*01:01 | 1 | 989 | 998 | 10 | AEVQIDRLIT | 0.000103 | 48 |
| HLA-A*24:02 | 1 | 1018 | 1026 | 9 | IRASANLAA | 0.000103 | 20 |
| HLA-A*02:03 | 1 | 1051 | 1059 | 9 | SFQOSAPHG | 0.000103 | 36 |
| HLA-A*02:01 | 1 | 1069 | 1077 | 9 | PAQEKNTFT | 0.000103 | 34 |
| HLA-A*03:01 | 1 | 1081 | 1089 | 9 | ICHDGKAHF | 0.000103 | 28 |
| HLA-A*68:01 | 1 | 1121 | 1130 | 10 | FVSGNCDVVI | 0.000103 | 31 |
| HLA-A*31:01 | 1 | 1133 | 1142 | 10 | VNNTVYDPLQ | 0.000103 | 35 |
| HLA-A*02:06 | 1 | 1134 | 1143 | 10 | NNTVYDPLQP | 0.000103 | 44 |
| HLA-B*51:01 | 1 | 4 | 13 | 10 | FLVLLPLVSS | 0.000102 | 42 |
| HLA-A*01:01 | 1 | 9 | 18 | 10 | PLVSSQCVNL | 0.000102 | 48 |
| HLA-B*44:02 | 1 | 22 | 31 | 10 | TQLPPAYTNS | 0.000102 | 23 |
| HLA-A*02:01 | 1 | 42 | 50 | 9 | VFRSSVLHS | 0.000102 | 34 |
| HLA-B*51:01 | 1 | 52 | 60 | 9 | QDLFLPFFS | 0.000102 | 42 |
| HLA-A*30:01 | 1 | 85 | 94 | 10 | PFNDGVYFAS | 0.000102 | 58 |
| HLA-B*08:01 | 1 | 88 | 97 | 10 | DGVYFASTEK | 0.000102 | 48 |
| HLA-A*31:01 | 1 | 105 | 114 | 10 | IFGTTLDSTK | 0.000102 | 35 |
| HLA-A*01:01 | 1 | 106 | 114 | 9 | FGTTLDSTK | 0.000102 | 48 |
| HLA-A*32:01 | 1 | 117 | 126 | 10 | LLIVNNATNV | 0.000102 | 26 |
| HLA-A*24:02 | 1 | 119 | 128 | 10 | IVNNATNVVI | 0.000102 | 20 |
| HLA-A*30:01 | 1 | 128 | 136 | 9 | IKVCEFQFC | 0.000102 | 58 |
| HLA-A*30:01 | 1 | 156 | 165 | 10 | EFRVYSSANN | 0.000102 | 58 |
| HLA-A*03:01 | 1 | 162 | 171 | 10 | SANNCTFEYV | 0.000102 | 28 |
| HLA-A*30:01 | 1 | 177 | 186 | 10 | MDLEGKQGNF | 0.000102 | 58 |
| HLA-A*30:01 | 1 | 196 | 205 | 10 | NIDGYFKIYS | 0.000102 | 58 |
| HLA-B*44:02 | 1 | 221 | 230 | 10 | SALEPLVDLP | 0.000102 | 23 |
| HLA-B*53:01 | 1 | 240 | 249 | 10 | TLLALHRSYL | 0.000102 | 23 |
| HLA-B*53:01 | 1 | 242 | 250 | 9 | LALHRSYLT | 0.000102 | 23 |
| HLA-A*02:06 | 1 | 262 | 271 | 10 | AAAYYVGYLQ | 0.000102 | 44 |
| HLA-A*31:01 | 1 | 274 | 282 | 9 | TFLLKYNEN | 0.000102 | 35 |
| HLA-A*26:01 | 1 | 277 | 285 | 9 | LKYNGTI | 0.000102 | 29 |
| HLA-A*03:01 | 1 | 285 | 293 | 9 | ITDAVDCAL | 0.000102 | 28 |
| HLA-B*44:03 | 1 | 294 | 303 | 10 | DPLSEKCTL | 0.000102 | 21 |
| HLA-A*68:01 | 1 | 317 | 326 | 10 | NFRVQPTESI | 0.000102 | 31 |
| HLA-A*03:01 | 1 | 321 | 330 | 10 | QPTESIVRFP | 0.000102 | 28 |
| HLA-B*15:01 | 1 | 325 | 334 | 10 | SIVRFPNITN | 0.000102 | 34 |
| HLA-A*31:01 | 1 | 382 | 390 | 9 | VSPTKLNDL | 0.000102 | 35 |
| HLA-A*02:06 | 1 | 383 | 391 | 9 | SPTKLNDLC | 0.000102 | 44 |
| HLA-B*08:01 | 1 | 414 | 423 | 10 | QTGKIADYNY | 0.000102 | 48 |
| HLA-A*33:01 | 1 | 421 | 430 | 10 | YNYKLPDDFT | 0.000102 | 36 |
| HLA-A*01:01 | 1 | 422 | 430 | 9 | NYKLPDDFT | 0.000102 | 48 |
| HLA-B*08:01 | 1 | 448 | 457 | 10 | NYNYLYRLEFR | 0.000102 | 48 |
| HLA-A*32:01 | 1 | 472 | 480 | 9 | IYQAGSTPC | 0.000102 | 26 |
| HLA-B*58:01 | 1 | 488 | 496 | 9 | CYFPLQSYG | 0.000102 | 36 |
| HLA-B*08:01 | 1 | 494 | 502 | 9 | SYGFQPTNG | 0.000102 | 48 |
| HLA-A*31:01 | 1 | 506 | 514 | 9 | QPYRVVVL | 0.000102 | 35 |
| HLA-A*33:01 | 1 | 509 | 518 | 10 | RVVVLSFELL | 0.000102 | 36 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*57:01 | 1 | 539 | 548 | 10 | VNFNFNGLTG 0.000102 | 47 |
| HLA-A*11:01 | 1 | 554 | 563 | 10 | ESNKKFLPFQ 0.000102 | 21 |
| HLA-A*26:01 | 1 | 557 | 566 | 10 | KKFLPFQFG 0.000102 | 29 |
| HLA-A*33:01 | 1 | 620 | 629 | 10 | VPVAIHADQL 0.000102 | 36 |
| HLA-A*30:01 | 1 | 645 | 654 | 10 | TRAGCLIGAE 0.000102 | 58 |
| HLA-B*51:01 | 1 | 653 | 662 | 10 | AEHVNSYEC 0.000102 | 42 |
| HLA-A*30:02 | 1 | 715 | 724 | 10 | PTNFTISVTT 0.000102 | 56 |
| HLA-A*01:01 | 1 | 739 | 747 | 9 | TMYICGDST 0.000102 | 48 |
| HLA-B*57:01 | 1 | 752 | 760 | 9 | LLLQYGSFC 0.000102 | 47 |
| HLA-B*44:02 | 1 | 757 | 765 | 9 | GSFCTQLNR 0.000102 | 23 |
| HLA-B*44:03 | 1 | 758 | 767 | 10 | SFCTQLNRAL 0.000102 | 21 |
| HLA-A*68:02 | 1 | 792 | 800 | 9 | PPIKDFGGF 0.000102 | 36 |
| HLA-B*15:01 | 1 | 797 | 805 | 9 | FGGFNFSQI 0.000102 | 34 |
| HLA-B*51:01 | 1 | 815 | 824 | 10 | RSFIEDLLFN 0.000102 | 42 |
| HLA-A*32:01 | 1 | 824 | 833 | 10 | NKVTLADAGF 0.000102 | 26 |
| HLA-B*08:01 | 1 | 827 | 836 | 10 | TLADAGFIKQ 0.000102 | 48 |
| HLA-B*44:03 | 1 | 827 | 835 | 9 | TLADAGFIK 0.000102 | 21 |
| HLA-B*51:01 | 1 | 836 | 844 | 9 | QYGDCLGDI 0.000102 | 42 |
| HLA-A*23:01 | 1 | 842 | 850 | 9 | GDIAARDLI 0.000102 | 21 |
| HLA-B*58:01 | 1 | 851 | 859 | 9 | CAQKFNGLT 0.000102 | 36 |
| HLA-B*40:01 | 1 | 856 | 865 | 10 | NGLTVLPPLL 0.000102 | 20 |
| HLA-A*26:01 | 1 | 900 | 909 | 10 | MQMAYRFNGI 0.000102 | 29 |
| HLA-A*30:01 | 1 | 984 | 993 | 10 | LDKVEAEVQI 0.000102 | 58 |
| HLA-B*35:01 | 1 | 1000 | 1008 | 9 | RLQSLQTYV 0.000102 | 24 |
| HLA-B*44:02 | 1 | 1078 | 1086 | 9 | APAICHDGK 0.000102 | 23 |
| HLA-A*01:01 | 1 | 1079 | 1088 | 10 | PAICHDGKAH 0.000102 | 48 |
| HLA-A*31:01 | 1 | 1096 | 1105 | 10 | VSNGTHWFVT 0.000102 | 35 |
| HLA-A*30:01 | 1 | 1102 | 1111 | 10 | WFVTQRNFYE 0.000102 | 58 |
| HLA-B*44:02 | 1 | 1109 | 1117 | 9 | FYEPQIITT 0.000102 | 23 |
| HLA-A*26:01 | 1 | 1110 | 1118 | 9 | YEPQIITTD 0.000102 | 29 |
| HLA-B*53:01 | 1 | 1173 | 1182 | 10 | NASVVNIQKE 0.000102 | 23 |
| HLA-A*02:03 | 1 | 1174 | 1182 | 9 | ASVVNIQKE 0.000102 | 36 |
| HLA-A*33:01 | 1 | 1177 | 1186 | 10 | VNIQKEIDRL 0.000102 | 36 |
| HLA-B*07:02 | 1 | 1182 | 1191 | 10 | EIDRLNEVAK 0.000102 | 31 |
| HLA-A*68:01 | 1 | 1193 | 1201 | 9 | LNESLIDLQ 0.000102 | 31 |
| HLA-A*02:03 | 1 | 1201 | 1209 | 9 | QELGKYEY 0.000102 | 36 |
| HLA-B*07:02 | 1 | 1236 | 1244 | 9 | CMTSCCSCL 0.000102 | 31 |
| HLA-A*03:01 | 1 | 4 | 13 | 10 | FLVLLPLVSS 0.000101 | 29 |
| HLA-B*35:01 | 1 | 4 | 12 | 9 | FLVLLPLVS 0.000101 | 24 |
| HLA-B*15:01 | 1 | 42 | 51 | 10 | VFRSSVLHST 0.000101 | 34 |
| HLA-B*15:01 | 1 | 53 | 61 | 9 | DLFLPFFSN 0.000101 | 34 |
| HLA-A*31:01 | 1 | 64 | 72 | 9 | WFHAIHVG 0.000101 | 36 |
| HLA-B*58:01 | 1 | 72 | 81 | 10 | GTNGTKRFDN 0.000101 | 36 |
| HLA-B*58:01 | 1 | 90 | 98 | 9 | VYFASTEKS 0.000101 | 36 |
| HLA-A*31:01 | 1 | 127 | 136 | 10 | VIKVCEFQFC 0.000101 | 36 |
| HLA-B*58:01 | 1 | 153 | 161 | 9 | MESEFRVYS 0.000101 | 36 |
| HLA-B*07:02 | 1 | 159 | 167 | 9 | VYSSANNT 0.000101 | 32 |
| HLA-B*44:02 | 1 | 166 | 175 | 10 | CTFEYVSQPF 0.000101 | 23 |
| HLA-A*24:02 | 1 | 174 | 182 | 9 | PFLMDLEGK 0.000101 | 20 |
| HLA-B*35:01 | 1 | 180 | 189 | 10 | EGKQGNFKNL 0.000101 | 24 |
| HLA-B*35:01 | 1 | 185 | 193 | 9 | NFKNLREFV 0.000101 | 24 |
| HLA-A*24:02 | 1 | 187 | 195 | 9 | KNLREFVFK 0.000101 | 20 |
| HLA-B*44:02 | 1 | 189 | 197 | 9 | LREFVFKNI 0.000101 | 23 |
| HLA-A*01:01 | 1 | 200 | 209 | 10 | YFKIYSKHTP 0.000101 | 48 |
| HLA-B*08:01 | 1 | 248 | 257 | 10 | YLTPGDSSSG 0.000101 | 48 |
| HLA-A*02:06 | 1 | 249 | 257 | 9 | LTPGDSSSG 0.000101 | 44 |
| HLA-A*68:01 | 1 | 253 | 261 | 9 | DSSSGWTAG 0.000101 | 31 |
| HLA-B*35:01 | 1 | 268 | 277 | 10 | GYLQPRFLL 0.000101 | 24 |
| HLA-B*15:01 | 1 | 275 | 283 | 9 | FLLKYNENG 0.000101 | 34 |
| HLA-A*01:01 | 1 | 277 | 286 | 10 | LKYNENGTIT 0.000101 | 48 |
| HLA-B*07:02 | 1 | 279 | 288 | 10 | YNENGTITDA 0.000101 | 32 |
| HLA-B*15:01 | 1 | 279 | 288 | 10 | YNENGTITDA 0.000101 | 34 |
| HLA-A*02:01 | 1 | 299 | 308 | 10 | TKCTLKSFTV 0.000101 | 34 |
| HLA-B*40:01 | 1 | 306 | 314 | 9 | FTVEKGIYQ 0.000101 | 20 |
| HLA-A*24:02 | 1 | 311 | 319 | 9 | GIYQTSNFR 0.000101 | 20 |
| HLA-A*01:01 | 1 | 317 | 325 | 9 | NFRVQPTES 0.000101 | 48 |

| | | | | | | |
|-------------|---|------|------|----|----------------------|----|
| HLA-B*40:01 | 1 | 319 | 328 | 10 | RVQPTESIVR 0.000101 | 20 |
| HLA-A*33:01 | 1 | 325 | 333 | 9 | SIVRFPNIT 0.000101 | 36 |
| HLA-A*31:01 | 1 | 332 | 341 | 10 | ITNLCPFGEV 0.000101 | 36 |
| HLA-A*23:01 | 1 | 373 | 381 | 9 | SFSTFKCYG 0.000101 | 21 |
| HLA-B*08:01 | 1 | 377 | 386 | 10 | FKCYGVSPTK 0.000101 | 48 |
| HLA-A*03:01 | 1 | 412 | 421 | 10 | PGQTGKIADY 0.000101 | 29 |
| HLA-A*30:01 | 1 | 412 | 421 | 10 | PGQTGKIADY 0.000101 | 59 |
| HLA-A*11:01 | 1 | 421 | 429 | 9 | YNYKLPDDF 0.000101 | 21 |
| HLA-A*02:01 | 1 | 497 | 506 | 10 | FQPTNGVGYYQ 0.000101 | 34 |
| HLA-A*02:01 | 1 | 498 | 507 | 10 | QPTNGVGYYQ 0.000101 | 34 |
| HLA-B*53:01 | 1 | 504 | 512 | 9 | GYQPYRVVV 0.000101 | 23 |
| HLA-A*02:03 | 1 | 510 | 519 | 10 | VVLSFELLH 0.000101 | 36 |
| HLA-A*68:02 | 1 | 511 | 519 | 9 | VVLSFELLH 0.000101 | 36 |
| HLA-A*30:01 | 1 | 544 | 553 | 10 | NGLTGTGVLV 0.000101 | 59 |
| HLA-A*68:02 | 1 | 555 | 563 | 9 | SNKKFLPFQ 0.000101 | 36 |
| HLA-B*15:01 | 1 | 583 | 591 | 9 | EILDITPCS 0.000101 | 34 |
| HLA-B*57:01 | 1 | 591 | 600 | 10 | SFGGVSIVTP 0.000101 | 47 |
| HLA-A*03:01 | 1 | 611 | 619 | 9 | LYQDVNCTE 0.000101 | 29 |
| HLA-A*32:01 | 1 | 611 | 620 | 10 | LYQDVNCTEV 0.000101 | 26 |
| HLA-B*53:01 | 1 | 611 | 620 | 10 | LYQDVNCTEV 0.000101 | 23 |
| HLA-A*32:01 | 1 | 630 | 639 | 10 | TPTWRVYSTG 0.000101 | 26 |
| HLA-B*53:01 | 1 | 665 | 674 | 10 | PIGAGICASY 0.000101 | 23 |
| HLA-B*07:02 | 1 | 673 | 682 | 10 | SYQTQTNSPR 0.000101 | 32 |
| HLA-A*32:01 | 1 | 682 | 691 | 10 | RRARSVASQS 0.000101 | 26 |
| HLA-A*26:01 | 1 | 728 | 736 | 9 | PVSMTKTSV 0.000101 | 29 |
| HLA-B*57:01 | 1 | 759 | 768 | 10 | FCTQLNRALT 0.000101 | 47 |
| HLA-B*51:01 | 1 | 784 | 793 | 10 | QVKQIYKTPP 0.000101 | 42 |
| HLA-B*15:01 | 1 | 795 | 803 | 9 | KDFGGFNFS 0.000101 | 34 |
| HLA-A*11:01 | 1 | 807 | 815 | 9 | PDPSKPSKR 0.000101 | 21 |
| HLA-B*08:01 | 1 | 811 | 820 | 10 | KPSKRSFIED 0.000101 | 48 |
| HLA-A*32:01 | 1 | 842 | 850 | 9 | GDIAARDLI 0.000101 | 26 |
| HLA-B*08:01 | 1 | 866 | 874 | 9 | TDEMIAQYT 0.000101 | 48 |
| HLA-A*02:03 | 1 | 904 | 913 | 10 | YRFNGIGVTQ 0.000101 | 36 |
| HLA-A*26:01 | 1 | 912 | 920 | 9 | TQNVLYENQ 0.000101 | 29 |
| HLA-A*03:01 | 1 | 914 | 923 | 10 | NVLYENQKLI 0.000101 | 29 |
| HLA-A*30:02 | 1 | 924 | 932 | 9 | ANQFNSAIG 0.000101 | 56 |
| HLA-A*01:01 | 1 | 930 | 939 | 10 | AIGKIQDLSL 0.000101 | 48 |
| HLA-B*58:01 | 1 | 986 | 994 | 9 | KVEAEVQID 0.000101 | 36 |
| HLA-B*44:03 | 1 | 994 | 1002 | 9 | DRLITGRLQ 0.000101 | 21 |
| HLA-B*51:01 | 1 | 1003 | 1011 | 9 | SLQTYVTQQ 0.000101 | 42 |
| HLA-A*26:01 | 1 | 1004 | 1013 | 10 | LQTYVTQQLI 0.000101 | 29 |
| HLA-A*01:01 | 1 | 1012 | 1020 | 9 | LIRAAEIRA 0.000101 | 48 |
| HLA-A*02:03 | 1 | 1034 | 1043 | 10 | LGQSKRVDFC 0.000101 | 36 |
| HLA-A*26:01 | 1 | 1034 | 1042 | 9 | LGQSKRVDF 0.000101 | 29 |
| HLA-B*08:01 | 1 | 1042 | 1051 | 10 | FCGKGYHLMS 0.000101 | 48 |
| HLA-A*02:03 | 1 | 1061 | 1069 | 9 | VFLHVITYVP 0.000101 | 36 |
| HLA-A*68:01 | 1 | 1067 | 1076 | 10 | YVPAQEKNT 0.000101 | 31 |
| HLA-B*57:01 | 1 | 1097 | 1106 | 10 | SNGTHWFVTQ 0.000101 | 47 |
| HLA-A*32:01 | 1 | 1116 | 1124 | 9 | TTDNTFVSG 0.000101 | 26 |
| HLA-B*08:01 | 1 | 1127 | 1136 | 10 | DVVIQIVNNT 0.000101 | 48 |
| HLA-A*30:01 | 1 | 1142 | 1151 | 10 | QPELDSFKEE 0.000101 | 59 |
| HLA-A*68:02 | 1 | 1159 | 1168 | 10 | HTSPDVLGD 0.000101 | 36 |
| HLA-B*15:01 | 1 | 1164 | 1172 | 9 | VDLGDISGI 0.000101 | 34 |
| HLA-A*03:01 | 1 | 1199 | 1207 | 9 | DLQELGKYE 0.000101 | 29 |
| HLA-B*51:01 | 1 | 1205 | 1214 | 10 | KYEQYIKWPW 0.000101 | 42 |
| HLA-A*32:01 | 1 | 1215 | 1223 | 9 | YIWLGFIAG 0.000101 | 26 |
| HLA-A*31:01 | 1 | 1255 | 1264 | 10 | KFDEDDSEPV 0.000101 | 36 |
| HLA-A*01:01 | 1 | 5 | 14 | 10 | LVLPLVSSQ 0.0001 | 49 |
| HLA-A*01:01 | 1 | 14 | 23 | 10 | QCVNLTRTQ 0.0001 | 49 |
| HLA-A*68:01 | 1 | 15 | 24 | 10 | CVNLTRTQ 0.0001 | 32 |
| HLA-B*57:01 | 1 | 42 | 51 | 10 | VFRSSVLHST 0.0001 | 48 |
| HLA-B*44:03 | 1 | 62 | 70 | 9 | VTWFHAIHV 0.0001 | 22 |
| HLA-B*51:01 | 1 | 65 | 74 | 10 | FHAIHVSGTN 0.0001 | 42 |
| HLA-A*03:01 | 1 | 75 | 84 | 10 | GTKRFDNPVL 0.0001 | 29 |
| HLA-A*03:01 | 1 | 97 | 105 | 9 | KSNIIRGWI 0.0001 | 29 |
| HLA-A*26:01 | 1 | 101 | 110 | 10 | IRGWIFGTTL 0.0001 | 29 |

| | | | | | | |
|-------------|---|------|------|----|--------------------|----|
| HLA-B*44:02 | 1 | 108 | 116 | 9 | TTLDSKTQS 0.0001 | 23 |
| HLA-A*03:01 | 1 | 110 | 118 | 9 | LDSKTQSLL 0.0001 | 29 |
| HLA-A*01:01 | 1 | 116 | 124 | 9 | SLLVNAT 0.0001 | 49 |
| HLA-B*58:01 | 1 | 118 | 127 | 10 | LIVNATNVV 0.0001 | 36 |
| HLA-A*31:01 | 1 | 120 | 128 | 9 | VNATNVVI 0.0001 | 36 |
| HLA-A*68:02 | 1 | 144 | 153 | 10 | YYHKNNKSWM 0.0001 | 36 |
| HLA-A*02:01 | 1 | 145 | 153 | 9 | YHKNNKSWM 0.0001 | 34 |
| HLA-A*26:01 | 1 | 150 | 159 | 10 | KSWMESEFRV 0.0001 | 29 |
| HLA-A*02:01 | 1 | 153 | 161 | 9 | MESEFRVYS 0.0001 | 34 |
| HLA-B*35:01 | 1 | 165 | 173 | 9 | NCTFEYVSQ 0.0001 | 24 |
| HLA-A*02:03 | 1 | 167 | 175 | 9 | TFEYVSQPF 0.0001 | 37 |
| HLA-A*26:01 | 1 | 188 | 197 | 10 | NLREFVFKNI 0.0001 | 29 |
| HLA-A*02:03 | 1 | 201 | 209 | 9 | FKIYSKHTP 0.0001 | 37 |
| HLA-B*40:01 | 1 | 236 | 245 | 10 | TRFQTLALH 0.0001 | 20 |
| HLA-B*40:01 | 1 | 257 | 265 | 9 | GWTAGAAAY 0.0001 | 20 |
| HLA-B*57:01 | 1 | 290 | 299 | 10 | DCALDPLSET 0.0001 | 48 |
| HLA-A*01:01 | 1 | 302 | 311 | 10 | TLKSFTVEKG 0.0001 | 49 |
| HLA-B*15:01 | 1 | 315 | 323 | 9 | TSNFRVQPT 0.0001 | 34 |
| HLA-A*68:01 | 1 | 331 | 340 | 10 | NITNLCPFGE 0.0001 | 32 |
| HLA-A*31:01 | 1 | 339 | 347 | 9 | GEVFNATRF 0.0001 | 36 |
| HLA-A*11:01 | 1 | 363 | 372 | 10 | ADYSVLYNSA 0.0001 | 22 |
| HLA-B*44:03 | 1 | 383 | 391 | 9 | SPTKLNDLC 0.0001 | 22 |
| HLA-B*07:02 | 1 | 386 | 395 | 10 | KLNDLCFTNV 0.0001 | 32 |
| HLA-B*53:01 | 1 | 428 | 437 | 10 | DFTGCVIAWN 0.0001 | 23 |
| HLA-A*03:01 | 1 | 447 | 456 | 10 | GNYNLYRLF 0.0001 | 29 |
| HLA-B*40:01 | 1 | 449 | 457 | 9 | YNYLYRFR 0.0001 | 20 |
| HLA-A*02:01 | 1 | 465 | 473 | 9 | ERDISTEY 0.0001 | 34 |
| HLA-A*03:01 | 1 | 503 | 512 | 10 | VGYPYRVVV 0.0001 | 29 |
| HLA-A*26:01 | 1 | 511 | 520 | 10 | VVLSFELLHA 0.0001 | 29 |
| HLA-B*08:01 | 1 | 522 | 531 | 10 | ATVCGPKKST 0.0001 | 48 |
| HLA-A*02:03 | 1 | 529 | 537 | 9 | KSTNLVKNK 0.0001 | 37 |
| HLA-A*30:01 | 1 | 561 | 570 | 10 | PFQQFGRDIA 0.0001 | 59 |
| HLA-A*30:02 | 1 | 570 | 579 | 10 | ADTTDAVRDP 0.0001 | 56 |
| HLA-B*07:02 | 1 | 572 | 580 | 9 | TTDAVRDPQ 0.0001 | 32 |
| HLA-A*11:01 | 1 | 580 | 588 | 9 | QTLEILDIT 0.0001 | 22 |
| HLA-B*57:01 | 1 | 589 | 597 | 9 | PCSFVGVSV 0.0001 | 48 |
| HLA-B*08:01 | 1 | 605 | 613 | 9 | SNQVAVLYQ 0.0001 | 48 |
| HLA-B*35:01 | 1 | 611 | 619 | 9 | LYQDVNCTE 0.0001 | 24 |
| HLA-A*03:01 | 1 | 617 | 626 | 10 | CTEVPVAIHA 0.0001 | 29 |
| HLA-A*68:02 | 1 | 617 | 625 | 9 | CTEVPVAIH 0.0001 | 36 |
| HLA-A*26:01 | 1 | 646 | 655 | 10 | RAGCLIGAHEH 0.0001 | 29 |
| HLA-A*02:01 | 1 | 689 | 698 | 10 | SQSIIAYTMS 0.0001 | 34 |
| HLA-A*11:01 | 1 | 762 | 770 | 9 | QLNRALTGI 0.0001 | 22 |
| HLA-A*68:02 | 1 | 765 | 773 | 9 | RALTGIAVE 0.0001 | 36 |
| HLA-B*44:02 | 1 | 771 | 779 | 9 | AVEQDKNTQ 0.0001 | 23 |
| HLA-B*58:01 | 1 | 771 | 780 | 10 | AVEQDKNTQE 0.0001 | 36 |
| HLA-B*44:02 | 1 | 799 | 807 | 9 | GFNFSQILP 0.0001 | 23 |
| HLA-B*07:02 | 1 | 820 | 829 | 10 | DLLFNKVTLA 0.0001 | 32 |
| HLA-B*15:01 | 1 | 825 | 834 | 10 | KVTLADAGFI 0.0001 | 34 |
| HLA-A*02:03 | 1 | 840 | 848 | 9 | CLGDIAARD 0.0001 | 37 |
| HLA-B*15:01 | 1 | 840 | 849 | 10 | CLGDIAARDL 0.0001 | 34 |
| HLA-A*02:03 | 1 | 846 | 854 | 9 | ARDLICAQK 0.0001 | 37 |
| HLA-A*68:01 | 1 | 846 | 855 | 10 | ARDLICAQKF 0.0001 | 32 |
| HLA-B*58:01 | 1 | 868 | 877 | 10 | EMIAQYTSAL 0.0001 | 36 |
| HLA-B*08:01 | 1 | 890 | 899 | 10 | AGAALQIPFA 0.0001 | 48 |
| HLA-B*53:01 | 1 | 922 | 930 | 9 | LIANQFNFA 0.0001 | 23 |
| HLA-B*51:01 | 1 | 928 | 937 | 10 | NSAIGKIQDS 0.0001 | 42 |
| HLA-A*32:01 | 1 | 957 | 965 | 9 | QALNTLVKQ 0.0001 | 26 |
| HLA-A*68:02 | 1 | 998 | 1006 | 9 | TGRLQSLQT 0.0001 | 36 |
| HLA-B*44:02 | 1 | 1007 | 1015 | 9 | YVTQQLIRA 0.0001 | 23 |
| HLA-A*03:01 | 1 | 1008 | 1017 | 10 | VTQQLIRAAE 0.0001 | 29 |
| HLA-B*53:01 | 1 | 1020 | 1028 | 9 | ASANLAATK 0.0001 | 23 |
| HLA-B*08:01 | 1 | 1074 | 1083 | 10 | NFTTAPAICH 0.0001 | 48 |
| HLA-A*01:01 | 1 | 1085 | 1094 | 10 | GKAHFPREGV 0.0001 | 49 |
| HLA-A*02:03 | 1 | 1088 | 1097 | 10 | HFPREGVFSV 0.0001 | 37 |
| HLA-A*30:01 | 1 | 1109 | 1118 | 10 | FYEPQIITTD 0.0001 | 59 |

| | | | | | | |
|-------------|---|------|------|----|--------------------|----|
| HLA-B*40:01 | 1 | 1128 | 1137 | 10 | VVIGIVNNTV 0.0001 | 20 |
| HLA-A*68:01 | 1 | 1154 | 1162 | 9 | KYFKNHTSP 0.0001 | 32 |
| HLA-A*02:01 | 1 | 1179 | 1188 | 10 | IQKEIDRLNE 0.0001 | 34 |
| HLA-A*33:01 | 1 | 1181 | 1190 | 10 | KEIDRLNEVA 0.0001 | 36 |
| HLA-A*23:01 | 1 | 1236 | 1244 | 9 | CMTSCCSCL 0.0001 | 21 |
| HLA-A*30:02 | 1 | 1236 | 1244 | 9 | CMTSCCSCL 0.0001 | 56 |
| HLA-A*31:01 | 1 | 12 | 20 | 9 | SSQCVNLTT 9.9e-05 | 36 |
| HLA-B*35:01 | 1 | 45 | 54 | 10 | SSVLHSTQDL 9.9e-05 | 24 |
| HLA-A*02:06 | 1 | 70 | 79 | 10 | VSGTNGTKRF 9.9e-05 | 44 |
| HLA-B*08:01 | 1 | 94 | 102 | 9 | STEKSNIIIR 9.9e-05 | 48 |
| HLA-A*68:01 | 1 | 107 | 116 | 10 | GTTLDSTKQS 9.9e-05 | 32 |
| HLA-B*44:03 | 1 | 114 | 122 | 9 | TQSLLVN 9.9e-05 | 22 |
| HLA-A*02:01 | 1 | 116 | 125 | 10 | SLLVNATN 9.9e-05 | 34 |
| HLA-B*40:01 | 1 | 130 | 139 | 10 | VCEFQFCNDP 9.9e-05 | 20 |
| HLA-A*30:01 | 1 | 169 | 178 | 10 | EYVSQPFLMD 9.9e-05 | 59 |
| HLA-A*23:01 | 1 | 187 | 195 | 9 | KNLREFVFK 9.9e-05 | 21 |
| HLA-B*58:01 | 1 | 200 | 209 | 10 | YFKIYSKHTP 9.9e-05 | 37 |
| HLA-A*33:01 | 1 | 220 | 229 | 10 | FSALEPLVDL 9.9e-05 | 36 |
| HLA-B*44:03 | 1 | 222 | 230 | 9 | ALEPLVDLP 9.9e-05 | 22 |
| HLA-A*02:01 | 1 | 225 | 234 | 10 | PLVDLPIGIN 9.9e-05 | 34 |
| HLA-B*07:02 | 1 | 225 | 233 | 9 | PLVDLPIGI 9.9e-05 | 32 |
| HLA-B*15:01 | 1 | 242 | 251 | 10 | LALHRSYLTP 9.9e-05 | 34 |
| HLA-B*53:01 | 1 | 256 | 264 | 9 | SGWTAGAAA 9.9e-05 | 23 |
| HLA-B*44:02 | 1 | 259 | 267 | 9 | TAGAAAYYV 9.9e-05 | 23 |
| HLA-B*07:02 | 1 | 296 | 304 | 9 | LSEKCTLK 9.9e-05 | 32 |
| HLA-A*03:01 | 1 | 312 | 321 | 10 | IYQTSNFRVQ 9.9e-05 | 29 |
| HLA-A*02:03 | 1 | 324 | 333 | 10 | ESIVRFPNIT 9.9e-05 | 37 |
| HLA-B*51:01 | 1 | 366 | 375 | 10 | SVLYNSASF 9.9e-05 | 42 |
| HLA-B*08:01 | 1 | 367 | 376 | 10 | VLYNSASFST 9.9e-05 | 48 |
| HLA-B*44:03 | 1 | 381 | 390 | 10 | GVSPTKLNDL 9.9e-05 | 22 |
| HLA-A*11:01 | 1 | 383 | 392 | 10 | SPTKLNDLCF 9.9e-05 | 22 |
| HLA-A*02:06 | 1 | 385 | 393 | 9 | TKLNDLCFT 9.9e-05 | 44 |
| HLA-A*30:01 | 1 | 387 | 396 | 10 | LNDLCFTNVY 9.9e-05 | 59 |
| HLA-A*26:01 | 1 | 396 | 404 | 9 | YADSFVIRG 9.9e-05 | 29 |
| HLA-A*02:03 | 1 | 399 | 408 | 10 | SFVIRGDEV 9.9e-05 | 37 |
| HLA-B*57:01 | 1 | 413 | 422 | 10 | GQTGKIADYN 9.9e-05 | 48 |
| HLA-B*57:01 | 1 | 423 | 431 | 9 | YKLPDDFTG 9.9e-05 | 48 |
| HLA-A*68:01 | 1 | 446 | 455 | 10 | GGNYNYLYRL 9.9e-05 | 32 |
| HLA-A*68:01 | 1 | 468 | 476 | 9 | ISTEIQAG 9.9e-05 | 32 |
| HLA-B*58:01 | 1 | 470 | 479 | 10 | TEIQAGSTP 9.9e-05 | 37 |
| HLA-A*02:01 | 1 | 483 | 492 | 10 | VEGFNCYFPL 9.9e-05 | 34 |
| HLA-A*03:01 | 1 | 498 | 507 | 10 | QPTNGVGYQP 9.9e-05 | 29 |
| HLA-A*68:01 | 1 | 503 | 511 | 9 | VGYQPYRVV 9.9e-05 | 32 |
| HLA-A*24:02 | 1 | 515 | 524 | 10 | FELLHAPATV 9.9e-05 | 21 |
| HLA-A*30:01 | 1 | 538 | 547 | 10 | CVNFFNGLT 9.9e-05 | 59 |
| HLA-A*02:01 | 1 | 544 | 552 | 9 | NGLTGTGVL 9.9e-05 | 34 |
| HLA-A*03:01 | 1 | 555 | 564 | 10 | SNKKFLPFQQ 9.9e-05 | 29 |
| HLA-A*02:06 | 1 | 578 | 587 | 10 | DPQTLEILDI 9.9e-05 | 44 |
| HLA-B*53:01 | 1 | 580 | 588 | 9 | QTLEILDIT 9.9e-05 | 23 |
| HLA-B*57:01 | 1 | 584 | 593 | 10 | ILDITPCSF 9.9e-05 | 48 |
| HLA-B*58:01 | 1 | 600 | 609 | 10 | PGTNTSNQVA 9.9e-05 | 37 |
| HLA-A*68:01 | 1 | 611 | 620 | 10 | LYQDVNCTEV 9.9e-05 | 32 |
| HLA-B*40:01 | 1 | 621 | 629 | 9 | PVAIHADQL 9.9e-05 | 20 |
| HLA-B*08:01 | 1 | 637 | 646 | 10 | STGSNVFQTR 9.9e-05 | 48 |
| HLA-A*02:03 | 1 | 643 | 652 | 10 | FQTRAGCLIG 9.9e-05 | 37 |
| HLA-A*68:02 | 1 | 664 | 673 | 10 | IPIGAGICAS 9.9e-05 | 37 |
| HLA-B*44:02 | 1 | 672 | 681 | 10 | ASYQTQTN 9.9e-05 | 23 |
| HLA-B*57:01 | 1 | 673 | 681 | 9 | SYQTQTN 9.9e-05 | 48 |
| HLA-B*44:03 | 1 | 688 | 696 | 9 | ASQSIIAYT 9.9e-05 | 22 |
| HLA-B*15:01 | 1 | 690 | 698 | 9 | QSIIAYTMS 9.9e-05 | 34 |
| HLA-B*53:01 | 1 | 711 | 719 | 9 | SIAIPTNFT 9.9e-05 | 23 |
| HLA-B*08:01 | 1 | 722 | 730 | 9 | VTTEILPVS 9.9e-05 | 48 |
| HLA-A*03:01 | 1 | 726 | 734 | 9 | ILPVSMTKT 9.9e-05 | 29 |
| HLA-A*01:01 | 1 | 743 | 751 | 9 | CGDSTEC 9.9e-05 | 49 |
| HLA-B*07:02 | 1 | 765 | 774 | 10 | RALTGIAVEQ 9.9e-05 | 32 |
| HLA-B*44:02 | 1 | 782 | 790 | 9 | FAQVKQIYK 9.9e-05 | 23 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-B*53:01 | 1 | 821 | 829 | 9 | LLFNKVTLA | 9.9e-05 | 23 |
| HLA-B*44:02 | 1 | 833 | 841 | 9 | FIKQYGDCL | 9.9e-05 | 23 |
| HLA-B*57:01 | 1 | 839 | 847 | 9 | DCLGDIAAR | 9.9e-05 | 48 |
| HLA-B*35:01 | 1 | 845 | 854 | 10 | AARDLICAQK | 9.9e-05 | 24 |
| HLA-A*02:06 | 1 | 851 | 859 | 9 | CAQKFNGLT | 9.9e-05 | 44 |
| HLA-B*57:01 | 1 | 853 | 862 | 10 | QKFNGLTVLP | 9.9e-05 | 48 |
| HLA-A*11:01 | 1 | 870 | 879 | 10 | IAQYTSALLA | 9.9e-05 | 22 |
| HLA-A*31:01 | 1 | 883 | 892 | 10 | TSGWTFGAGA | 9.9e-05 | 36 |
| HLA-A*33:01 | 1 | 891 | 900 | 10 | GAALQIPFAM | 9.9e-05 | 36 |
| HLA-A*11:01 | 1 | 903 | 911 | 9 | AYRFNGIGV | 9.9e-05 | 22 |
| HLA-A*32:01 | 1 | 909 | 918 | 10 | IGVTQNVLYE | 9.9e-05 | 26 |
| HLA-B*44:02 | 1 | 935 | 943 | 9 | QDLSLSTAS | 9.9e-05 | 23 |
| HLA-A*32:01 | 1 | 936 | 944 | 9 | DSLSTASASA | 9.9e-05 | 26 |
| HLA-A*26:01 | 1 | 947 | 955 | 9 | KLQDVVNQN | 9.9e-05 | 29 |
| HLA-A*30:01 | 1 | 960 | 969 | 10 | NTLVKQLSSN | 9.9e-05 | 59 |
| HLA-A*11:01 | 1 | 968 | 977 | 10 | SNFGAISSVL | 9.9e-05 | 22 |
| HLA-A*68:02 | 1 | 1000 | 1009 | 10 | RLQSLQTYVT | 9.9e-05 | 37 |
| HLA-B*44:03 | 1 | 1007 | 1015 | 9 | YVTQQLIRA | 9.9e-05 | 22 |
| HLA-A*02:06 | 1 | 1026 | 1035 | 10 | ATKMSECVLG | 9.9e-05 | 44 |
| HLA-A*30:02 | 1 | 1038 | 1046 | 9 | KRVDFCGKG | 9.9e-05 | 57 |
| HLA-B*08:01 | 1 | 1046 | 1054 | 9 | GYHLMSFPQ | 9.9e-05 | 48 |
| HLA-B*44:02 | 1 | 1083 | 1091 | 9 | HDGKAHFPR | 9.9e-05 | 23 |
| HLA-A*01:01 | 1 | 1088 | 1097 | 10 | HFPREGVFVS | 9.9e-05 | 49 |
| HLA-A*02:06 | 1 | 1092 | 1100 | 9 | EGVFVSNGT | 9.9e-05 | 44 |
| HLA-B*57:01 | 1 | 1140 | 1149 | 10 | PLQPELDSFK | 9.9e-05 | 48 |
| HLA-B*57:01 | 1 | 1149 | 1157 | 9 | KEELDKYFK | 9.9e-05 | 48 |
| HLA-A*02:06 | 1 | 1161 | 1169 | 9 | SPDVDLGDI | 9.9e-05 | 44 |
| HLA-A*11:01 | 1 | 1170 | 1179 | 10 | SGINASVVNI | 9.9e-05 | 22 |
| HLA-A*02:01 | 1 | 1173 | 1181 | 9 | NASVVNIQK | 9.9e-05 | 34 |
| HLA-B*35:01 | 1 | 1184 | 1193 | 10 | DRLNEVAKNL | 9.9e-05 | 24 |
| HLA-A*30:01 | 1 | 1192 | 1201 | 10 | NLNESLIDLQ | 9.9e-05 | 59 |
| HLA-A*68:01 | 1 | 1200 | 1208 | 9 | LQELGKYEQ | 9.9e-05 | 32 |
| HLA-B*57:01 | 1 | 1248 | 1257 | 10 | CSCGSCCKFD | 9.9e-05 | 48 |
| HLA-B*35:01 | 1 | 1258 | 1266 | 9 | EDDSEPVLK | 9.9e-05 | 24 |
| HLA-A*03:01 | 1 | 18 | 26 | 9 | LTTRTLQPP | 9.8e-05 | 29 |
| HLA-A*23:01 | 1 | 22 | 31 | 10 | TQLPPAYTNS | 9.8e-05 | 21 |
| HLA-B*44:02 | 1 | 27 | 36 | 10 | AYTNSFTRGV | 9.8e-05 | 23 |
| HLA-B*44:03 | 1 | 27 | 36 | 10 | AYTNSFTRGV | 9.8e-05 | 22 |
| HLA-B*07:02 | 1 | 55 | 63 | 9 | FLPFFSNVT | 9.8e-05 | 32 |
| HLA-A*11:01 | 1 | 57 | 65 | 9 | PFFSNVTWF | 9.8e-05 | 22 |
| HLA-B*07:02 | 1 | 66 | 74 | 9 | HAIHVSBTN | 9.8e-05 | 32 |
| HLA-B*57:01 | 1 | 67 | 75 | 9 | AIHVSGTNG | 9.8e-05 | 48 |
| HLA-B*07:02 | 1 | 68 | 77 | 10 | IHVSGTNGTK | 9.8e-05 | 32 |
| HLA-A*02:06 | 1 | 79 | 87 | 9 | FDPVLPFN | 9.8e-05 | 44 |
| HLA-A*02:01 | 1 | 86 | 95 | 10 | FNDGVYFAST | 9.8e-05 | 34 |
| HLA-A*33:01 | 1 | 86 | 94 | 9 | FNDGVYFAS | 9.8e-05 | 36 |
| HLA-B*08:01 | 1 | 94 | 103 | 10 | STEKSNIRG | 9.8e-05 | 48 |
| HLA-A*31:01 | 1 | 132 | 140 | 9 | EFQFCNDPF | 9.8e-05 | 36 |
| HLA-A*23:01 | 1 | 142 | 151 | 10 | GVYYHKNNKS | 9.8e-05 | 21 |
| HLA-A*32:01 | 1 | 142 | 151 | 10 | GVYYHKNNKS | 9.8e-05 | 26 |
| HLA-A*02:06 | 1 | 144 | 153 | 10 | YYHKNNKSWM | 9.8e-05 | 44 |
| HLA-A*23:01 | 1 | 145 | 154 | 10 | YHKNNKSWME | 9.8e-05 | 21 |
| HLA-B*35:01 | 1 | 160 | 169 | 10 | YSSANNCTFE | 9.8e-05 | 25 |
| HLA-B*40:01 | 1 | 161 | 170 | 10 | SSANNCTFEY | 9.8e-05 | 20 |
| HLA-B*15:01 | 1 | 176 | 184 | 9 | LMDLEGKQG | 9.8e-05 | 35 |
| HLA-A*30:02 | 1 | 177 | 185 | 9 | MDLEGKQGN | 9.8e-05 | 57 |
| HLA-A*31:01 | 1 | 212 | 221 | 10 | LVRDLPGQFS | 9.8e-05 | 36 |
| HLA-A*31:01 | 1 | 224 | 233 | 10 | EPLVDLPIGI | 9.8e-05 | 36 |
| HLA-A*02:01 | 1 | 237 | 246 | 10 | RFQTLALHR | 9.8e-05 | 34 |
| HLA-A*32:01 | 1 | 258 | 267 | 10 | WTAGAAAYYV | 9.8e-05 | 26 |
| HLA-B*07:02 | 1 | 263 | 272 | 10 | AAYYVGYLQP | 9.8e-05 | 32 |
| HLA-A*30:01 | 1 | 290 | 299 | 10 | DCALDPLSET | 9.8e-05 | 59 |
| HLA-A*24:02 | 1 | 305 | 314 | 10 | SFTVEKGIYQ | 9.8e-05 | 21 |
| HLA-A*32:01 | 1 | 315 | 324 | 10 | TSNFRVQPT | 9.8e-05 | 26 |
| HLA-B*44:03 | 1 | 330 | 338 | 9 | PNITNLCPF | 9.8e-05 | 22 |
| HLA-B*08:01 | 1 | 377 | 385 | 9 | FKCYGVSPT | 9.8e-05 | 48 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*33:01 | 1 | 382 | 390 | 9 | VSPTKLNLDL | 9.8e-05 | 36 |
| HLA-A*02:06 | 1 | 383 | 392 | 10 | SPTKLNLDLCF | 9.8e-05 | 44 |
| HLA-A*68:01 | 1 | 399 | 407 | 9 | SFVIRGDEV | 9.8e-05 | 32 |
| HLA-B*40:01 | 1 | 402 | 411 | 10 | IRGDEVQRQIA | 9.8e-05 | 20 |
| HLA-B*51:01 | 1 | 421 | 430 | 10 | YNYKLPDDFT | 9.8e-05 | 43 |
| HLA-B*57:01 | 1 | 423 | 432 | 10 | YKLPDDFTGC | 9.8e-05 | 48 |
| HLA-A*33:01 | 1 | 424 | 432 | 9 | KLPDDFTGC | 9.8e-05 | 36 |
| HLA-A*01:01 | 1 | 427 | 435 | 9 | DDFTGCVIA | 9.8e-05 | 49 |
| HLA-B*51:01 | 1 | 430 | 438 | 9 | TGCVIAWNS | 9.8e-05 | 43 |
| HLA-A*03:01 | 1 | 448 | 456 | 9 | NYNYLYRLF | 9.8e-05 | 29 |
| HLA-A*02:01 | 1 | 450 | 459 | 10 | NYLYRLFRRKS | 9.8e-05 | 34 |
| HLA-A*30:02 | 1 | 450 | 459 | 10 | NYLYRLFRRKS | 9.8e-05 | 57 |
| HLA-B*44:03 | 1 | 510 | 518 | 9 | VVLSFELL | 9.8e-05 | 22 |
| HLA-A*02:06 | 1 | 539 | 547 | 9 | VNFMFNGLT | 9.8e-05 | 44 |
| HLA-A*02:01 | 1 | 563 | 571 | 9 | QQFGRDIAD | 9.8e-05 | 34 |
| HLA-A*02:01 | 1 | 589 | 597 | 9 | PCSFGGVSV | 9.8e-05 | 34 |
| HLA-B*58:01 | 1 | 610 | 619 | 10 | VLYQDVNCTE | 9.8e-05 | 37 |
| HLA-A*31:01 | 1 | 629 | 638 | 10 | LTPTWRVYST | 9.8e-05 | 36 |
| HLA-A*31:01 | 1 | 651 | 659 | 9 | IGAEHVNNS | 9.8e-05 | 36 |
| HLA-B*08:01 | 1 | 655 | 664 | 10 | HVNNSYECDI | 9.8e-05 | 48 |
| HLA-B*40:01 | 1 | 672 | 680 | 9 | ASYQTQTN | 9.8e-05 | 20 |
| HLA-B*35:01 | 1 | 676 | 685 | 10 | TQTNSPRRAR | 9.8e-05 | 25 |
| HLA-B*15:01 | 1 | 701 | 709 | 9 | AENSVAYSN | 9.8e-05 | 35 |
| HLA-B*58:01 | 1 | 715 | 723 | 9 | PTNFTISVT | 9.8e-05 | 37 |
| HLA-B*44:03 | 1 | 721 | 729 | 9 | SVTTEILPV | 9.8e-05 | 22 |
| HLA-A*11:01 | 1 | 735 | 743 | 9 | SVDCTMYIC | 9.8e-05 | 22 |
| HLA-B*07:02 | 1 | 743 | 752 | 10 | CGDSTECSNL | 9.8e-05 | 32 |
| HLA-A*24:02 | 1 | 745 | 754 | 10 | DSTECSNLLL | 9.8e-05 | 21 |
| HLA-B*58:01 | 1 | 768 | 777 | 10 | TGIAVEQDKN | 9.8e-05 | 37 |
| HLA-B*40:01 | 1 | 785 | 794 | 10 | VKQIYKTPPI | 9.8e-05 | 20 |
| HLA-B*51:01 | 1 | 786 | 795 | 10 | KQIYKTPPIK | 9.8e-05 | 43 |
| HLA-A*68:01 | 1 | 789 | 798 | 10 | YKTPPIKDFG | 9.8e-05 | 32 |
| HLA-B*51:01 | 1 | 800 | 808 | 9 | FNFSQILPD | 9.8e-05 | 43 |
| HLA-B*57:01 | 1 | 831 | 839 | 9 | AGFIKQYGD | 9.8e-05 | 48 |
| HLA-B*44:02 | 1 | 845 | 854 | 10 | AARDLICAQK | 9.8e-05 | 23 |
| HLA-A*68:02 | 1 | 846 | 855 | 10 | ARDLICAQKF | 9.8e-05 | 37 |
| HLA-B*44:03 | 1 | 861 | 869 | 9 | LPPLLTDEM | 9.8e-05 | 22 |
| HLA-B*44:02 | 1 | 932 | 940 | 9 | GKIQDSLSS | 9.8e-05 | 23 |
| HLA-B*40:01 | 1 | 943 | 952 | 10 | SALGKLQDVV | 9.8e-05 | 20 |
| HLA-B*15:01 | 1 | 946 | 954 | 9 | GKLQDVVNQ | 9.8e-05 | 35 |
| HLA-A*01:01 | 1 | 952 | 961 | 10 | VNQAQALNT | 9.8e-05 | 49 |
| HLA-A*02:03 | 1 | 952 | 961 | 10 | VNQAQALNT | 9.8e-05 | 37 |
| HLA-A*33:01 | 1 | 959 | 967 | 9 | LNTLVKQLS | 9.8e-05 | 36 |
| HLA-B*57:01 | 1 | 961 | 969 | 9 | TLVKQLSSN | 9.8e-05 | 48 |
| HLA-A*68:01 | 1 | 966 | 974 | 9 | LSSNFGAIS | 9.8e-05 | 32 |
| HLA-B*15:01 | 1 | 988 | 996 | 9 | EAEVQIDRL | 9.8e-05 | 35 |
| HLA-B*44:03 | 1 | 1003 | 1011 | 9 | SLQTYVTQQ | 9.8e-05 | 22 |
| HLA-A*30:02 | 1 | 1033 | 1041 | 9 | VLGQSKRVD | 9.8e-05 | 57 |
| HLA-A*30:01 | 1 | 1037 | 1046 | 10 | SKRVDFCGKG | 9.8e-05 | 59 |
| HLA-A*33:01 | 1 | 1043 | 1052 | 10 | CGKGYHLMSF | 9.8e-05 | 36 |
| HLA-B*44:02 | 1 | 1064 | 1073 | 10 | HVTYVPAQEK | 9.8e-05 | 23 |
| HLA-A*33:01 | 1 | 1071 | 1079 | 9 | QEKNFITAP | 9.8e-05 | 36 |
| HLA-A*30:01 | 1 | 1077 | 1085 | 9 | TAPAICHDG | 9.8e-05 | 59 |
| HLA-A*11:01 | 1 | 1107 | 1115 | 9 | RNFYEPQII | 9.8e-05 | 22 |
| HLA-A*33:01 | 1 | 1109 | 1118 | 10 | FYEPQIITTD | 9.8e-05 | 36 |
| HLA-A*30:01 | 1 | 1110 | 1118 | 9 | YEPQIITTD | 9.8e-05 | 59 |
| HLA-A*30:02 | 1 | 1112 | 1120 | 9 | PQIITTDNT | 9.8e-05 | 57 |
| HLA-A*02:03 | 1 | 1148 | 1156 | 9 | FKEELDKYF | 9.8e-05 | 37 |
| HLA-A*01:01 | 1 | 1153 | 1162 | 10 | DKYFKNHTSP | 9.8e-05 | 49 |
| HLA-A*26:01 | 1 | 1165 | 1173 | 9 | DLGDISGIN | 9.8e-05 | 30 |
| HLA-B*58:01 | 1 | 1171 | 1180 | 10 | GINASVVNIQ | 9.8e-05 | 37 |
| HLA-B*44:02 | 1 | 1177 | 1186 | 10 | VNIQKEIDRL | 9.8e-05 | 23 |
| HLA-B*53:01 | 1 | 1199 | 1208 | 10 | DLQELGKYEQ | 9.8e-05 | 24 |
| HLA-A*31:01 | 1 | 1202 | 1210 | 9 | ELGKYEQYI | 9.8e-05 | 36 |
| HLA-B*57:01 | 1 | 1202 | 1211 | 10 | ELGKYEQYIK | 9.8e-05 | 48 |
| HLA-A*02:03 | 1 | 1235 | 1244 | 10 | CCMTSCCSCL | 9.8e-05 | 37 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*30:01 | 1 | 1241 | 1249 | 9 | CSCLKGCCS | 9.8e-05 | 59 |
| HLA-A*11:01 | 1 | 23 | 31 | 9 | QLPPAYTNS | 9.7e-05 | 22 |
| HLA-B*35:01 | 1 | 35 | 44 | 10 | GVYYPDKVFR | 9.7e-05 | 25 |
| HLA-A*11:01 | 1 | 42 | 50 | 9 | VFRSSVLHS | 9.7e-05 | 22 |
| HLA-A*32:01 | 1 | 42 | 50 | 9 | VFRSSVLHS | 9.7e-05 | 26 |
| HLA-A*68:02 | 1 | 64 | 72 | 9 | WFHAIHVSG | 9.7e-05 | 37 |
| HLA-A*24:02 | 1 | 89 | 97 | 9 | GVYFASTEK | 9.7e-05 | 21 |
| HLA-A*26:01 | 1 | 117 | 126 | 10 | LLIVNNATNV | 9.7e-05 | 30 |
| HLA-B*40:01 | 1 | 133 | 142 | 10 | FQFCNDPFLG | 9.7e-05 | 20 |
| HLA-A*24:02 | 1 | 161 | 170 | 10 | SSANNCTFEY | 9.7e-05 | 21 |
| HLA-A*33:01 | 1 | 164 | 172 | 9 | NNCTFEYVS | 9.7e-05 | 36 |
| HLA-A*23:01 | 1 | 174 | 182 | 9 | PFLMDLEGG | 9.7e-05 | 21 |
| HLA-A*01:01 | 1 | 189 | 197 | 9 | LREFVFKNI | 9.7e-05 | 49 |
| HLA-A*68:01 | 1 | 223 | 231 | 9 | LEPLVDLPI | 9.7e-05 | 32 |
| HLA-B*53:01 | 1 | 238 | 246 | 9 | FQTLALHR | 9.7e-05 | 24 |
| HLA-A*03:01 | 1 | 254 | 263 | 10 | SSSGWTAGAA | 9.7e-05 | 29 |
| HLA-B*40:01 | 1 | 254 | 262 | 9 | SSSGWTAGA | 9.7e-05 | 20 |
| HLA-A*68:01 | 1 | 255 | 263 | 9 | SSSGWTAGAA | 9.7e-05 | 32 |
| HLA-B*15:01 | 1 | 266 | 274 | 9 | YVGYLQPR | 9.7e-05 | 35 |
| HLA-A*30:01 | 1 | 275 | 283 | 9 | FLLYNENG | 9.7e-05 | 59 |
| HLA-A*32:01 | 1 | 294 | 303 | 10 | DPLSETKCTL | 9.7e-05 | 26 |
| HLA-A*03:01 | 1 | 296 | 305 | 10 | LSETKCTLKS | 9.7e-05 | 29 |
| HLA-B*40:01 | 1 | 300 | 308 | 9 | KCTLKSFTV | 9.7e-05 | 20 |
| HLA-B*07:02 | 1 | 306 | 315 | 10 | FTVEKGIYQT | 9.7e-05 | 32 |
| HLA-B*07:02 | 1 | 339 | 348 | 10 | GEVFNATRFA | 9.7e-05 | 32 |
| HLA-B*40:01 | 1 | 371 | 380 | 10 | SASFSTFKCY | 9.7e-05 | 20 |
| HLA-B*53:01 | 1 | 403 | 411 | 9 | RGDEVQIA | 9.7e-05 | 24 |
| HLA-B*57:01 | 1 | 432 | 440 | 9 | CVIAWNSNN | 9.7e-05 | 48 |
| HLA-A*33:01 | 1 | 454 | 463 | 10 | RLFRKSNLKP | 9.7e-05 | 36 |
| HLA-A*02:03 | 1 | 484 | 492 | 9 | EGFNCFYPL | 9.7e-05 | 37 |
| HLA-B*57:01 | 1 | 541 | 549 | 9 | FNFNGLTGT | 9.7e-05 | 48 |
| HLA-B*40:01 | 1 | 543 | 552 | 10 | FNGLTGTGVL | 9.7e-05 | 20 |
| HLA-A*03:01 | 1 | 552 | 560 | 9 | LTESNKKFL | 9.7e-05 | 29 |
| HLA-A*01:01 | 1 | 594 | 602 | 9 | GVSVITPGT | 9.7e-05 | 49 |
| HLA-B*51:01 | 1 | 604 | 613 | 10 | TSNQVAVLYQ | 9.7e-05 | 43 |
| HLA-A*30:01 | 1 | 663 | 672 | 10 | DIPIGAGICA | 9.7e-05 | 59 |
| HLA-A*11:01 | 1 | 665 | 674 | 10 | PIGAGICASY | 9.7e-05 | 22 |
| HLA-B*40:01 | 1 | 674 | 683 | 10 | YQTQTNSPRR | 9.7e-05 | 20 |
| HLA-B*40:01 | 1 | 709 | 718 | 10 | NNSIAIPTNF | 9.7e-05 | 20 |
| HLA-B*35:01 | 1 | 711 | 719 | 9 | SIAIPTNFT | 9.7e-05 | 25 |
| HLA-A*11:01 | 1 | 716 | 724 | 9 | TNFTISVTT | 9.7e-05 | 22 |
| HLA-A*68:01 | 1 | 732 | 740 | 9 | TKTSVDCTM | 9.7e-05 | 32 |
| HLA-B*08:01 | 1 | 733 | 741 | 9 | KTSVDCTMY | 9.7e-05 | 48 |
| HLA-B*44:03 | 1 | 757 | 765 | 9 | GSFCTQLNR | 9.7e-05 | 22 |
| HLA-B*57:01 | 1 | 758 | 766 | 9 | SFCTQLNRA | 9.7e-05 | 48 |
| HLA-A*24:02 | 1 | 786 | 795 | 10 | KQIYKTPPIK | 9.7e-05 | 21 |
| HLA-A*24:02 | 1 | 806 | 815 | 10 | LPDPSKPSKR | 9.7e-05 | 21 |
| HLA-B*35:01 | 1 | 813 | 821 | 9 | SKRSFIEDL | 9.7e-05 | 25 |
| HLA-A*26:01 | 1 | 842 | 850 | 9 | GDIAARDLI | 9.7e-05 | 30 |
| HLA-A*02:03 | 1 | 846 | 855 | 10 | ARDLICAQKF | 9.7e-05 | 37 |
| HLA-A*01:01 | 1 | 853 | 862 | 10 | QKFNGLTVLP | 9.7e-05 | 49 |
| HLA-B*35:01 | 1 | 859 | 868 | 10 | TVLPPLLTDE | 9.7e-05 | 25 |
| HLA-A*33:01 | 1 | 876 | 884 | 9 | ALLAGTITS | 9.7e-05 | 36 |
| HLA-A*68:01 | 1 | 926 | 934 | 9 | QFNSAIGKI | 9.7e-05 | 32 |
| HLA-B*58:01 | 1 | 931 | 940 | 10 | IGKIQDSLSS | 9.7e-05 | 37 |
| HLA-A*11:01 | 1 | 942 | 951 | 10 | ASALGKLQDV | 9.7e-05 | 22 |
| HLA-A*26:01 | 1 | 949 | 957 | 9 | QDVVNQNAQ | 9.7e-05 | 30 |
| HLA-B*44:03 | 1 | 950 | 958 | 9 | DVVNQNQAQ | 9.7e-05 | 22 |
| HLA-B*44:03 | 1 | 965 | 973 | 9 | QLSSNFGAI | 9.7e-05 | 22 |
| HLA-B*35:01 | 1 | 974 | 983 | 10 | SSVLNDILSR | 9.7e-05 | 25 |
| HLA-A*01:01 | 1 | 977 | 985 | 9 | LNDILSRLD | 9.7e-05 | 49 |
| HLA-B*44:02 | 1 | 992 | 1000 | 9 | QIDRLITGR | 9.7e-05 | 23 |
| HLA-B*58:01 | 1 | 1001 | 1009 | 9 | LQSLQTYVT | 9.7e-05 | 37 |
| HLA-A*68:01 | 1 | 1015 | 1024 | 10 | AAEIRASANL | 9.7e-05 | 32 |
| HLA-A*03:01 | 1 | 1019 | 1027 | 9 | RASANLAAT | 9.7e-05 | 29 |
| HLA-B*07:02 | 1 | 1021 | 1030 | 10 | SANLAATKMS | 9.7e-05 | 32 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*68:01 | 1 | 1027 | 1036 | 10 | TKMSECVLGQ | 9.7e-05 | 32 |
| HLA-B*08:01 | 1 | 1030 | 1038 | 9 | SECVLGQSK | 9.7e-05 | 48 |
| HLA-A*68:02 | 1 | 1074 | 1083 | 10 | NFTTAPAICH | 9.7e-05 | 37 |
| HLA-A*26:01 | 1 | 1078 | 1086 | 9 | APAICHDGK | 9.7e-05 | 30 |
| HLA-B*53:01 | 1 | 1106 | 1115 | 10 | QRNFYEPQII | 9.7e-05 | 24 |
| HLA-B*07:02 | 1 | 1123 | 1132 | 10 | SGNCDVVIGI | 9.7e-05 | 32 |
| HLA-A*30:01 | 1 | 1127 | 1135 | 9 | DVVIGIVNN | 9.7e-05 | 59 |
| HLA-B*53:01 | 1 | 1132 | 1141 | 10 | IVNNTVYDPL | 9.7e-05 | 24 |
| HLA-B*51:01 | 1 | 1150 | 1158 | 9 | EELDKYFKN | 9.7e-05 | 43 |
| HLA-A*01:01 | 1 | 1167 | 1175 | 9 | GDISGINAS | 9.7e-05 | 49 |
| HLA-A*31:01 | 1 | 1167 | 1176 | 10 | GDISGINASV | 9.7e-05 | 36 |
| HLA-A*31:01 | 1 | 1200 | 1208 | 9 | LQELGKYEQ | 9.7e-05 | 36 |
| HLA-A*31:01 | 1 | 1247 | 1255 | 9 | CCSCGSCCK | 9.7e-05 | 36 |
| HLA-B*58:01 | 1 | 1255 | 1263 | 9 | KFDEDDSEP | 9.7e-05 | 37 |
| HLA-B*08:01 | 1 | 25 | 34 | 10 | PPAYTNSFTR | 9.6e-05 | 49 |
| HLA-A*01:01 | 1 | 53 | 61 | 9 | DLFLPFFSN | 9.6e-05 | 49 |
| HLA-A*23:01 | 1 | 59 | 67 | 9 | FSNVTWFHA | 9.6e-05 | 22 |
| HLA-B*07:02 | 1 | 65 | 73 | 9 | FHAIHVSQT | 9.6e-05 | 32 |
| HLA-B*51:01 | 1 | 82 | 91 | 10 | PVLPFNDGVY | 9.6e-05 | 43 |
| HLA-A*01:01 | 1 | 95 | 103 | 9 | TEKSNIIRG | 9.6e-05 | 49 |
| HLA-B*57:01 | 1 | 125 | 134 | 10 | NVVIKVFCEQ | 9.6e-05 | 48 |
| HLA-A*31:01 | 1 | 145 | 153 | 9 | YHKNNKSWM | 9.6e-05 | 36 |
| HLA-A*11:01 | 1 | 153 | 161 | 9 | MESEFRVYS | 9.6e-05 | 22 |
| HLA-A*32:01 | 1 | 194 | 203 | 10 | FKNIDGYFKI | 9.6e-05 | 27 |
| HLA-A*03:01 | 1 | 215 | 224 | 10 | DLPQGFSALE | 9.6e-05 | 29 |
| HLA-B*57:01 | 1 | 219 | 228 | 10 | GFSALEPLVD | 9.6e-05 | 48 |
| HLA-A*11:01 | 1 | 229 | 238 | 10 | LPIGINITRF | 9.6e-05 | 22 |
| HLA-A*01:01 | 1 | 247 | 255 | 9 | SYLTPGDSS | 9.6e-05 | 49 |
| HLA-A*33:01 | 1 | 253 | 261 | 9 | DSSSGWTAG | 9.6e-05 | 37 |
| HLA-A*11:01 | 1 | 258 | 267 | 10 | WTAGAAAYYV | 9.6e-05 | 22 |
| HLA-A*02:03 | 1 | 264 | 273 | 10 | AYYVGYLQPR | 9.6e-05 | 37 |
| HLA-B*57:01 | 1 | 278 | 286 | 9 | KYNENGTIT | 9.6e-05 | 48 |
| HLA-B*40:01 | 1 | 281 | 289 | 9 | ENGTITDAV | 9.6e-05 | 20 |
| HLA-A*02:03 | 1 | 287 | 296 | 10 | DAVDCALDPL | 9.6e-05 | 37 |
| HLA-B*07:02 | 1 | 305 | 313 | 9 | SFTVEKGIY | 9.6e-05 | 32 |
| HLA-A*68:01 | 1 | 325 | 334 | 10 | SIVRFPNITN | 9.6e-05 | 32 |
| HLA-B*44:03 | 1 | 327 | 336 | 10 | VRFPNITNLC | 9.6e-05 | 22 |
| HLA-B*53:01 | 1 | 377 | 386 | 10 | FKCYGVSPTK | 9.6e-05 | 24 |
| HLA-A*30:02 | 1 | 383 | 391 | 9 | SPTKLNLDLC | 9.6e-05 | 57 |
| HLA-B*40:01 | 1 | 393 | 401 | 9 | TNVYADSFV | 9.6e-05 | 20 |
| HLA-A*11:01 | 1 | 395 | 404 | 10 | VYADSFVIRG | 9.6e-05 | 22 |
| HLA-A*68:02 | 1 | 402 | 411 | 10 | IRGDEVQRQA | 9.6e-05 | 37 |
| HLA-A*68:01 | 1 | 425 | 433 | 9 | LPDDFTGCV | 9.6e-05 | 32 |
| HLA-B*53:01 | 1 | 434 | 442 | 9 | IAWNSNNLD | 9.6e-05 | 24 |
| HLA-A*02:01 | 1 | 445 | 453 | 9 | VGGNYNYLY | 9.6e-05 | 34 |
| HLA-B*44:03 | 1 | 467 | 475 | 9 | DISTEIIYQA | 9.6e-05 | 22 |
| HLA-A*31:01 | 1 | 498 | 507 | 10 | QPTNGVGYQP | 9.6e-05 | 36 |
| HLA-A*02:01 | 1 | 506 | 514 | 9 | QPYRVVVL | 9.6e-05 | 34 |
| HLA-A*30:02 | 1 | 516 | 525 | 10 | ELLHAPATVC | 9.6e-05 | 57 |
| HLA-B*35:01 | 1 | 525 | 533 | 9 | CGPKKSTNL | 9.6e-05 | 25 |
| HLA-B*53:01 | 1 | 525 | 533 | 9 | CGPKKSTNL | 9.6e-05 | 24 |
| HLA-A*02:03 | 1 | 563 | 571 | 9 | QQFGRDIAD | 9.6e-05 | 37 |
| HLA-A*33:01 | 1 | 565 | 573 | 9 | FGRDIADTT | 9.6e-05 | 37 |
| HLA-A*68:01 | 1 | 572 | 581 | 10 | TTDAVRDPQT | 9.6e-05 | 32 |
| HLA-A*68:01 | 1 | 590 | 599 | 10 | CSFGGVSVIT | 9.6e-05 | 32 |
| HLA-B*57:01 | 1 | 610 | 619 | 10 | VLYQDVNCTE | 9.6e-05 | 48 |
| HLA-B*51:01 | 1 | 613 | 622 | 10 | QDVNCTEVPV | 9.6e-05 | 43 |
| HLA-A*30:01 | 1 | 664 | 673 | 10 | IPIGAGICAS | 9.6e-05 | 59 |
| HLA-A*31:01 | 1 | 678 | 687 | 10 | TNSPRRARSV | 9.6e-05 | 36 |
| HLA-A*03:01 | 1 | 697 | 705 | 9 | MSLGAENSV | 9.6e-05 | 29 |
| HLA-A*02:06 | 1 | 732 | 741 | 10 | TKTSVDCTMY | 9.6e-05 | 44 |
| HLA-B*35:01 | 1 | 740 | 748 | 9 | MYICGDSTE | 9.6e-05 | 25 |
| HLA-B*53:01 | 1 | 762 | 770 | 9 | QLNRALGTI | 9.6e-05 | 24 |
| HLA-B*35:01 | 1 | 771 | 779 | 9 | AVEQDKNTQ | 9.6e-05 | 25 |
| HLA-B*44:03 | 1 | 777 | 786 | 10 | NTQEVFAQVK | 9.6e-05 | 22 |
| HLA-B*58:01 | 1 | 778 | 787 | 10 | TQEVFAQVKQ | 9.6e-05 | 37 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*02:01 | 1 | 798 | 807 | 10 | GGFNFSQILP | 9.6e-05 | 34 |
| HLA-A*68:01 | 1 | 808 | 816 | 9 | DPSKPSKRS | 9.6e-05 | 32 |
| HLA-A*31:01 | 1 | 813 | 822 | 10 | SKRSFIEDLL | 9.6e-05 | 36 |
| HLA-B*51:01 | 1 | 816 | 825 | 10 | SFIEDLLFNK | 9.6e-05 | 43 |
| HLA-A*11:01 | 1 | 818 | 826 | 9 | IEDLLFNKV | 9.6e-05 | 22 |
| HLA-A*01:01 | 1 | 823 | 831 | 9 | FNKVTLADA | 9.6e-05 | 49 |
| HLA-B*07:02 | 1 | 837 | 845 | 9 | YGDCLGDIA | 9.6e-05 | 32 |
| HLA-A*30:02 | 1 | 841 | 850 | 10 | LGDIAARDLI | 9.6e-05 | 57 |
| HLA-B*53:01 | 1 | 843 | 851 | 9 | DIAARDLIC | 9.6e-05 | 24 |
| HLA-A*01:01 | 1 | 844 | 853 | 10 | IAARDLICAQ | 9.6e-05 | 49 |
| HLA-A*02:03 | 1 | 874 | 883 | 10 | TSALLAGTIT | 9.6e-05 | 37 |
| HLA-A*68:02 | 1 | 880 | 889 | 10 | GTITSGWTFG | 9.6e-05 | 37 |
| HLA-A*01:01 | 1 | 887 | 895 | 9 | TFGAGAALQ | 9.6e-05 | 49 |
| HLA-A*26:01 | 1 | 891 | 899 | 9 | GAALQIPFA | 9.6e-05 | 30 |
| HLA-B*53:01 | 1 | 905 | 913 | 9 | RFNGIGVTQ | 9.6e-05 | 24 |
| HLA-A*68:02 | 1 | 913 | 921 | 9 | QNVLYENQK | 9.6e-05 | 37 |
| HLA-B*07:02 | 1 | 957 | 965 | 9 | QALNTLVKQ | 9.6e-05 | 32 |
| HLA-B*58:01 | 1 | 962 | 971 | 10 | LVKQLSSNFG | 9.6e-05 | 37 |
| HLA-B*08:01 | 1 | 997 | 1006 | 10 | ITGRLQSLQT | 9.6e-05 | 49 |
| HLA-B*58:01 | 1 | 1000 | 1009 | 10 | RLQSLQTYVT | 9.6e-05 | 37 |
| HLA-A*33:01 | 1 | 1001 | 1010 | 10 | LQSLQTYVTQ | 9.6e-05 | 37 |
| HLA-A*33:01 | 1 | 1045 | 1054 | 10 | KGYHLMSFPQ | 9.6e-05 | 37 |
| HLA-B*44:02 | 1 | 1068 | 1076 | 9 | VPAQEKFT | 9.6e-05 | 23 |
| HLA-B*58:01 | 1 | 1071 | 1079 | 9 | QEKFTTAP | 9.6e-05 | 37 |
| HLA-B*15:01 | 1 | 1106 | 1115 | 10 | QRNFYEPQII | 9.6e-05 | 35 |
| HLA-A*02:03 | 1 | 1173 | 1181 | 9 | NASVVNIQK | 9.6e-05 | 37 |
| HLA-B*15:01 | 1 | 1176 | 1185 | 10 | VVNIQKEIDR | 9.6e-05 | 35 |
| HLA-B*58:01 | 1 | 1180 | 1189 | 10 | QKEIDRLNEV | 9.6e-05 | 37 |
| HLA-A*11:01 | 1 | 1206 | 1214 | 9 | YEQYIKWPW | 9.6e-05 | 22 |
| HLA-A*02:06 | 1 | 1212 | 1220 | 9 | WPWYIWLGF | 9.6e-05 | 44 |
| HLA-A*33:01 | 1 | 1218 | 1226 | 9 | LGFIAGLIA | 9.6e-05 | 37 |
| HLA-A*23:01 | 1 | 1220 | 1228 | 9 | FIAGLIAIV | 9.6e-05 | 22 |
| HLA-B*08:01 | 1 | 1221 | 1230 | 10 | IAGLIAIVMV | 9.6e-05 | 49 |
| HLA-A*02:01 | 1 | 1229 | 1237 | 9 | MVTIMLCCM | 9.6e-05 | 34 |
| HLA-A*01:01 | 1 | 13 | 22 | 10 | SQCVNLTTTRT | 9.5e-05 | 50 |
| HLA-B*57:01 | 1 | 13 | 22 | 10 | SQCVNLTTTRT | 9.5e-05 | 48 |
| HLA-A*03:01 | 1 | 20 | 29 | 10 | TRTQLPPAYT | 9.5e-05 | 29 |
| HLA-A*03:01 | 1 | 53 | 62 | 10 | DLFLPFFSNV | 9.5e-05 | 29 |
| HLA-B*35:01 | 1 | 53 | 61 | 9 | DLFLPFFSN | 9.5e-05 | 25 |
| HLA-A*03:01 | 1 | 61 | 70 | 10 | NVTWFHAIHV | 9.5e-05 | 29 |
| HLA-A*11:01 | 1 | 61 | 70 | 10 | NVTWFHAIHV | 9.5e-05 | 22 |
| HLA-B*57:01 | 1 | 63 | 71 | 9 | TWFHAIHVS | 9.5e-05 | 48 |
| HLA-A*68:02 | 1 | 74 | 82 | 9 | NGTKRFDNP | 9.5e-05 | 37 |
| HLA-B*44:02 | 1 | 91 | 100 | 10 | YFASTEKSNI | 9.5e-05 | 23 |
| HLA-A*33:01 | 1 | 114 | 122 | 9 | TQSLLIVNN | 9.5e-05 | 37 |
| HLA-A*30:02 | 1 | 123 | 132 | 10 | ATNVVIVKCE | 9.5e-05 | 57 |
| HLA-A*33:01 | 1 | 129 | 137 | 9 | KVCEFQFCN | 9.5e-05 | 37 |
| HLA-B*08:01 | 1 | 131 | 140 | 10 | CEFQFCNDPF | 9.5e-05 | 49 |
| HLA-B*58:01 | 1 | 139 | 147 | 9 | PFLGVYYHK | 9.5e-05 | 37 |
| HLA-B*58:01 | 1 | 141 | 150 | 10 | LGVYYHKNNK | 9.5e-05 | 37 |
| HLA-A*33:01 | 1 | 158 | 167 | 10 | RVYSSANNCT | 9.5e-05 | 37 |
| HLA-B*51:01 | 1 | 169 | 178 | 10 | EYVSQPFLMD | 9.5e-05 | 43 |
| HLA-B*57:01 | 1 | 175 | 183 | 9 | FLMDLEGKQ | 9.5e-05 | 48 |
| HLA-B*58:01 | 1 | 193 | 202 | 10 | VFKNIDGYFK | 9.5e-05 | 37 |
| HLA-A*11:01 | 1 | 203 | 212 | 10 | IYSKHTPINL | 9.5e-05 | 22 |
| HLA-A*11:01 | 1 | 205 | 213 | 9 | SKHTPINLV | 9.5e-05 | 22 |
| HLA-A*26:01 | 1 | 213 | 222 | 10 | VRDLPQGFSA | 9.5e-05 | 30 |
| HLA-A*26:01 | 1 | 214 | 222 | 9 | RDLPPQGFSA | 9.5e-05 | 30 |
| HLA-B*40:01 | 1 | 222 | 230 | 9 | ALEPLVDLP | 9.5e-05 | 20 |
| HLA-A*68:01 | 1 | 230 | 239 | 10 | PIGINITRFQ | 9.5e-05 | 32 |
| HLA-B*51:01 | 1 | 251 | 260 | 10 | PGDSSSGWTA | 9.5e-05 | 43 |
| HLA-B*07:02 | 1 | 253 | 262 | 10 | DSSSGWTAGA | 9.5e-05 | 32 |
| HLA-A*32:01 | 1 | 256 | 264 | 9 | SGWTAGAAA | 9.5e-05 | 27 |
| HLA-A*01:01 | 1 | 264 | 273 | 10 | AYYVGYLQPR | 9.5e-05 | 50 |
| HLA-A*02:03 | 1 | 273 | 281 | 9 | RTFLLKYNE | 9.5e-05 | 37 |
| HLA-B*53:01 | 1 | 288 | 296 | 9 | AVDCALDPL | 9.5e-05 | 24 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*68:02 | 1 | 301 | 309 | 9 | CTLKSFTVE | 9.5e-05 | 37 |
| HLA-A*33:01 | 1 | 331 | 340 | 10 | NITNLCPFGE | 9.5e-05 | 37 |
| HLA-A*30:02 | 1 | 335 | 344 | 10 | LCPFGEVFNA | 9.5e-05 | 57 |
| HLA-A*30:01 | 1 | 364 | 373 | 10 | DYSVLYNSAS | 9.5e-05 | 60 |
| HLA-A*02:03 | 1 | 368 | 376 | 9 | LYNSASFST | 9.5e-05 | 37 |
| HLA-B*07:02 | 1 | 398 | 407 | 10 | DSFVIRGDEV | 9.5e-05 | 32 |
| HLA-A*33:01 | 1 | 422 | 431 | 10 | NYKLPDDFTG | 9.5e-05 | 37 |
| HLA-B*51:01 | 1 | 423 | 431 | 9 | YKLPDDFTG | 9.5e-05 | 43 |
| HLA-A*23:01 | 1 | 437 | 445 | 9 | NSNNLDSKV | 9.5e-05 | 22 |
| HLA-B*53:01 | 1 | 447 | 456 | 10 | GNYNLYRLF | 9.5e-05 | 24 |
| HLA-A*02:03 | 1 | 461 | 470 | 10 | LKPFERDIST | 9.5e-05 | 37 |
| HLA-A*33:01 | 1 | 492 | 500 | 9 | LQSYGFQPT | 9.5e-05 | 37 |
| HLA-B*44:03 | 1 | 497 | 506 | 10 | FQPTNGVGYQ | 9.5e-05 | 22 |
| HLA-B*35:01 | 1 | 510 | 519 | 10 | VVLSFELLH | 9.5e-05 | 25 |
| HLA-A*68:01 | 1 | 523 | 532 | 10 | TVCGPKKSTN | 9.5e-05 | 32 |
| HLA-B*15:01 | 1 | 528 | 537 | 10 | KKSTNLVKNK | 9.5e-05 | 35 |
| HLA-B*15:01 | 1 | 562 | 571 | 10 | FQQFGRDIAD | 9.5e-05 | 35 |
| HLA-B*07:02 | 1 | 567 | 575 | 9 | RDIADTTDA | 9.5e-05 | 32 |
| HLA-A*30:01 | 1 | 571 | 580 | 10 | DTTDAVRDPQ | 9.5e-05 | 60 |
| HLA-B*08:01 | 1 | 571 | 579 | 9 | DTTDAVRDP | 9.5e-05 | 49 |
| HLA-A*30:01 | 1 | 581 | 589 | 9 | TLEILDITP | 9.5e-05 | 60 |
| HLA-B*07:02 | 1 | 584 | 593 | 10 | ILDITPCSGF | 9.5e-05 | 32 |
| HLA-A*33:01 | 1 | 601 | 610 | 10 | GTNTSNQVAV | 9.5e-05 | 37 |
| HLA-B*44:03 | 1 | 601 | 609 | 9 | GTNTSNQVA | 9.5e-05 | 22 |
| HLA-A*01:01 | 1 | 611 | 619 | 9 | LYQDVNCTE | 9.5e-05 | 50 |
| HLA-A*24:02 | 1 | 615 | 624 | 10 | VNCTEVPVAI | 9.5e-05 | 21 |
| HLA-B*44:02 | 1 | 697 | 705 | 9 | MSLGAENSV | 9.5e-05 | 23 |
| HLA-A*02:06 | 1 | 706 | 715 | 10 | AYSNNIAIP | 9.5e-05 | 45 |
| HLA-B*57:01 | 1 | 738 | 747 | 10 | CTMYICGDST | 9.5e-05 | 48 |
| HLA-A*01:01 | 1 | 770 | 778 | 9 | IAVEQDKNT | 9.5e-05 | 50 |
| HLA-B*15:01 | 1 | 770 | 779 | 10 | IAVEQDKNTQ | 9.5e-05 | 35 |
| HLA-B*53:01 | 1 | 781 | 790 | 10 | VFAQVKQIYK | 9.5e-05 | 24 |
| HLA-A*31:01 | 1 | 804 | 813 | 10 | QILPDPSKPS | 9.5e-05 | 36 |
| HLA-A*24:02 | 1 | 805 | 813 | 9 | ILPDPSKPS | 9.5e-05 | 21 |
| HLA-B*57:01 | 1 | 830 | 838 | 9 | DAGFIKQYG | 9.5e-05 | 48 |
| HLA-A*68:02 | 1 | 845 | 853 | 9 | AARDLICAQ | 9.5e-05 | 37 |
| HLA-B*44:03 | 1 | 850 | 858 | 9 | ICAQKFNGL | 9.5e-05 | 22 |
| HLA-A*31:01 | 1 | 855 | 864 | 10 | FNGLTVLPPL | 9.5e-05 | 36 |
| HLA-A*31:01 | 1 | 865 | 874 | 10 | LTDEMIAQYT | 9.5e-05 | 36 |
| HLA-B*44:02 | 1 | 871 | 880 | 10 | AQYTSALLAG | 9.5e-05 | 23 |
| HLA-A*03:01 | 1 | 873 | 881 | 9 | YTSALLAGT | 9.5e-05 | 29 |
| HLA-A*02:06 | 1 | 882 | 891 | 10 | ITSGWTFGAG | 9.5e-05 | 45 |
| HLA-A*03:01 | 1 | 888 | 896 | 9 | FGAGAALQI | 9.5e-05 | 29 |
| HLA-B*35:01 | 1 | 895 | 903 | 9 | QIPFAMQMA | 9.5e-05 | 25 |
| HLA-A*32:01 | 1 | 935 | 944 | 10 | QDLSSTASA | 9.5e-05 | 27 |
| HLA-A*31:01 | 1 | 958 | 967 | 10 | ALNTLVKQLS | 9.5e-05 | 36 |
| HLA-B*07:02 | 1 | 962 | 971 | 10 | LVKQLSSNFG | 9.5e-05 | 32 |
| HLA-B*44:02 | 1 | 1010 | 1019 | 10 | QLLIRAAEIR | 9.5e-05 | 23 |
| HLA-B*53:01 | 1 | 1011 | 1019 | 9 | QLLIRAAEIR | 9.5e-05 | 24 |
| HLA-A*01:01 | 1 | 1014 | 1023 | 10 | RAAEIRASAN | 9.5e-05 | 50 |
| HLA-B*44:02 | 1 | 1031 | 1039 | 9 | ECVLGQSKR | 9.5e-05 | 23 |
| HLA-A*02:01 | 1 | 1047 | 1055 | 9 | YHLMSFPQS | 9.5e-05 | 34 |
| HLA-A*02:01 | 1 | 1053 | 1062 | 10 | PQSAPHGVVF | 9.5e-05 | 34 |
| HLA-A*30:01 | 1 | 1062 | 1071 | 10 | FLHVTVVPAQ | 9.5e-05 | 60 |
| HLA-A*68:01 | 1 | 1073 | 1081 | 9 | KNFTTAPAI | 9.5e-05 | 32 |
| HLA-A*68:01 | 1 | 1089 | 1098 | 10 | FPREGVSVSN | 9.5e-05 | 32 |
| HLA-B*15:01 | 1 | 1104 | 1112 | 9 | VTQRNFYEP | 9.5e-05 | 35 |
| HLA-B*40:01 | 1 | 1128 | 1136 | 9 | VVIGIVNNT | 9.5e-05 | 20 |
| HLA-B*53:01 | 1 | 1143 | 1152 | 10 | PELDSFKEEL | 9.5e-05 | 24 |
| HLA-B*44:03 | 1 | 1156 | 1164 | 9 | FKNHTSPDV | 9.5e-05 | 22 |
| HLA-A*30:02 | 1 | 1178 | 1187 | 10 | NIQKEIDRLN | 9.5e-05 | 57 |
| HLA-A*03:01 | 1 | 1196 | 1204 | 9 | SLIDLQELG | 9.5e-05 | 29 |
| HLA-A*11:01 | 1 | 1216 | 1224 | 9 | IWLGFIAGL | 9.5e-05 | 22 |
| HLA-A*23:01 | 1 | 1225 | 1234 | 10 | IATVMVTIML | 9.5e-05 | 22 |
| HLA-B*08:01 | 1 | 12 | 20 | 9 | SSQCVNLT | 9.4e-05 | 49 |
| HLA-B*51:01 | 1 | 14 | 22 | 9 | QCVNLTTRT | 9.4e-05 | 43 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*02:03 | 1 | 31 | 39 | 9 | SFTRGVVYYP | 9.4e-05 | 37 |
| HLA-A*31:01 | 1 | 32 | 40 | 9 | FTRGVVYPD | 9.4e-05 | 36 |
| HLA-B*44:03 | 1 | 39 | 47 | 9 | PDKVFRSSV | 9.4e-05 | 22 |
| HLA-A*01:01 | 1 | 42 | 50 | 9 | VFRSSVLHS | 9.4e-05 | 50 |
| HLA-A*68:02 | 1 | 60 | 69 | 10 | SNVTWFHAIH | 9.4e-05 | 37 |
| HLA-B*35:01 | 1 | 64 | 72 | 9 | WFHAIHVSG | 9.4e-05 | 25 |
| HLA-A*03:01 | 1 | 70 | 79 | 10 | VSGTNGTKRF | 9.4e-05 | 29 |
| HLA-B*58:01 | 1 | 81 | 90 | 10 | NPVLPFNDGV | 9.4e-05 | 37 |
| HLA-A*31:01 | 1 | 103 | 112 | 10 | GWIFGTLLDS | 9.4e-05 | 36 |
| HLA-A*01:01 | 1 | 114 | 122 | 9 | TQSLLIVNN | 9.4e-05 | 50 |
| HLA-B*15:01 | 1 | 127 | 136 | 10 | VIKVCEFQFC | 9.4e-05 | 35 |
| HLA-A*11:01 | 1 | 134 | 143 | 10 | QFCNDPFLGV | 9.4e-05 | 22 |
| HLA-B*40:01 | 1 | 135 | 144 | 10 | FCNDPFLGVY | 9.4e-05 | 20 |
| HLA-A*68:02 | 1 | 136 | 145 | 10 | CNDPFLGVVY | 9.4e-05 | 37 |
| HLA-A*23:01 | 1 | 142 | 150 | 9 | GVYYHKNNK | 9.4e-05 | 22 |
| HLA-A*68:02 | 1 | 142 | 151 | 10 | GVYYHKNNKS | 9.4e-05 | 37 |
| HLA-A*11:01 | 1 | 143 | 152 | 10 | VYYHKNNKSW | 9.4e-05 | 22 |
| HLA-A*30:02 | 1 | 165 | 173 | 9 | NCTFEYVSQ | 9.4e-05 | 57 |
| HLA-A*11:01 | 1 | 168 | 177 | 10 | FEYVSQPFLM | 9.4e-05 | 22 |
| HLA-A*01:01 | 1 | 181 | 189 | 9 | GKQGNFKNL | 9.4e-05 | 50 |
| HLA-A*11:01 | 1 | 193 | 201 | 9 | VFKNIDGYF | 9.4e-05 | 22 |
| HLA-B*07:02 | 1 | 200 | 209 | 10 | YFKIYSKHTP | 9.4e-05 | 32 |
| HLA-B*40:01 | 1 | 203 | 212 | 10 | IYSKHTPINL | 9.4e-05 | 20 |
| HLA-A*02:03 | 1 | 225 | 234 | 10 | PLVDLPIGIN | 9.4e-05 | 37 |
| HLA-B*58:01 | 1 | 285 | 294 | 10 | ITDAVDCALD | 9.4e-05 | 37 |
| HLA-A*33:01 | 1 | 290 | 299 | 10 | DCALDPLSET | 9.4e-05 | 37 |
| HLA-B*15:01 | 1 | 327 | 336 | 10 | VRFPNITNLC | 9.4e-05 | 35 |
| HLA-A*24:02 | 1 | 334 | 343 | 10 | NLCPFGEVFN | 9.4e-05 | 21 |
| HLA-A*68:02 | 1 | 337 | 345 | 9 | PFGEVFNAT | 9.4e-05 | 37 |
| HLA-B*07:02 | 1 | 360 | 369 | 10 | NCVADYSVLV | 9.4e-05 | 32 |
| HLA-B*51:01 | 1 | 367 | 376 | 10 | VLYNSASFST | 9.4e-05 | 43 |
| HLA-A*33:01 | 1 | 412 | 421 | 10 | PGQTGKIADY | 9.4e-05 | 37 |
| HLA-A*24:02 | 1 | 435 | 443 | 9 | AWNSNNLDS | 9.4e-05 | 21 |
| HLA-A*01:01 | 1 | 462 | 471 | 10 | KPFERDISTE | 9.4e-05 | 50 |
| HLA-A*26:01 | 1 | 505 | 514 | 10 | YQPYRVVVLV | 9.4e-05 | 30 |
| HLA-B*40:01 | 1 | 511 | 519 | 9 | VVLSFELLH | 9.4e-05 | 20 |
| HLA-A*03:01 | 1 | 512 | 521 | 10 | VLSFELLHAP | 9.4e-05 | 29 |
| HLA-A*02:01 | 1 | 519 | 527 | 9 | HAPATVCGP | 9.4e-05 | 35 |
| HLA-A*11:01 | 1 | 523 | 531 | 9 | TVCGPKKST | 9.4e-05 | 22 |
| HLA-A*24:02 | 1 | 525 | 534 | 10 | CGPKKSTNLV | 9.4e-05 | 21 |
| HLA-A*02:01 | 1 | 529 | 537 | 9 | KSTNLVKNK | 9.4e-05 | 35 |
| HLA-B*44:02 | 1 | 531 | 539 | 9 | TNLVKNKCV | 9.4e-05 | 23 |
| HLA-A*11:01 | 1 | 537 | 546 | 10 | KCVNFNFNGL | 9.4e-05 | 22 |
| HLA-A*03:01 | 1 | 554 | 563 | 10 | ESNKKFLPFQ | 9.4e-05 | 29 |
| HLA-A*32:01 | 1 | 569 | 577 | 9 | IADTTDAVR | 9.4e-05 | 27 |
| HLA-A*23:01 | 1 | 584 | 593 | 10 | ILDITPCSFQ | 9.4e-05 | 22 |
| HLA-A*01:01 | 1 | 592 | 600 | 9 | FGGVSVITP | 9.4e-05 | 50 |
| HLA-A*31:01 | 1 | 617 | 626 | 10 | CTEVPVAIHA | 9.4e-05 | 36 |
| HLA-B*07:02 | 1 | 639 | 647 | 9 | GSNVFQTRA | 9.4e-05 | 32 |
| HLA-B*08:01 | 1 | 647 | 656 | 10 | AGCLIGAHEV | 9.4e-05 | 49 |
| HLA-A*30:02 | 1 | 659 | 667 | 9 | SYECDIPIG | 9.4e-05 | 57 |
| HLA-B*51:01 | 1 | 661 | 669 | 9 | ECDIPIGAG | 9.4e-05 | 43 |
| HLA-B*57:01 | 1 | 668 | 676 | 9 | AGICASYQT | 9.4e-05 | 49 |
| HLA-A*02:03 | 1 | 680 | 688 | 9 | SPRRARSVA | 9.4e-05 | 37 |
| HLA-A*68:02 | 1 | 689 | 698 | 10 | SQSIIAYTMS | 9.4e-05 | 37 |
| HLA-B*51:01 | 1 | 699 | 708 | 10 | LGAENSVAYS | 9.4e-05 | 43 |
| HLA-A*32:01 | 1 | 725 | 734 | 10 | EILPVSMTKT | 9.4e-05 | 27 |
| HLA-A*32:01 | 1 | 756 | 765 | 10 | YGSFCTQLNR | 9.4e-05 | 27 |
| HLA-B*51:01 | 1 | 757 | 765 | 9 | GSFCTQLNR | 9.4e-05 | 43 |
| HLA-A*01:01 | 1 | 797 | 806 | 10 | FGGFNFSQIL | 9.4e-05 | 50 |
| HLA-A*02:01 | 1 | 806 | 815 | 10 | LPDPSKPSKR | 9.4e-05 | 35 |
| HLA-A*31:01 | 1 | 822 | 831 | 10 | LFNKVTLADA | 9.4e-05 | 36 |
| HLA-A*31:01 | 1 | 844 | 853 | 10 | IAARDLICAQ | 9.4e-05 | 36 |
| HLA-B*35:01 | 1 | 870 | 879 | 10 | IAQYTSALLA | 9.4e-05 | 25 |
| HLA-B*57:01 | 1 | 888 | 897 | 10 | FGAGAALQIP | 9.4e-05 | 49 |
| HLA-B*58:01 | 1 | 893 | 901 | 9 | ALQIPFAMQ | 9.4e-05 | 37 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*30:01 | 1 | 906 | 914 | 9 | FNGIGVTQN | 9.4e-05 | 60 |
| HLA-B*15:01 | 1 | 946 | 955 | 10 | GKLQDVVNQN | 9.4e-05 | 35 |
| HLA-B*58:01 | 1 | 960 | 969 | 10 | NLVLKQLSSN | 9.4e-05 | 37 |
| HLA-A*31:01 | 1 | 981 | 990 | 10 | LSRLDKVEAE | 9.4e-05 | 36 |
| HLA-B*08:01 | 1 | 984 | 992 | 9 | LDKVEAEVQ | 9.4e-05 | 49 |
| HLA-B*57:01 | 1 | 985 | 993 | 9 | DKVEAEVQI | 9.4e-05 | 49 |
| HLA-A*02:06 | 1 | 989 | 998 | 10 | AEVQIDRLIT | 9.4e-05 | 45 |
| HLA-A*01:01 | 1 | 991 | 999 | 9 | VQIDRLITG | 9.4e-05 | 50 |
| HLA-A*02:01 | 1 | 1002 | 1010 | 9 | QSLQTYVTQ | 9.4e-05 | 35 |
| HLA-B*57:01 | 1 | 1015 | 1023 | 9 | AAEIRASAN | 9.4e-05 | 49 |
| HLA-B*15:01 | 1 | 1030 | 1039 | 10 | SECVLGQSKR | 9.4e-05 | 35 |
| HLA-B*53:01 | 1 | 1043 | 1052 | 10 | CGKGYHLMSF | 9.4e-05 | 24 |
| HLA-A*33:01 | 1 | 1060 | 1069 | 10 | VVFLHVITYVP | 9.4e-05 | 37 |
| HLA-A*01:01 | 1 | 1061 | 1069 | 9 | VFLHVITYVP | 9.4e-05 | 50 |
| HLA-A*33:01 | 1 | 1076 | 1084 | 9 | TTAPAICHD | 9.4e-05 | 37 |
| HLA-A*01:01 | 1 | 1078 | 1087 | 10 | APAICHDGKA | 9.4e-05 | 50 |
| HLA-A*30:02 | 1 | 1089 | 1097 | 9 | FPREGVFVS | 9.4e-05 | 57 |
| HLA-B*51:01 | 1 | 1100 | 1108 | 9 | THWFVTQRN | 9.4e-05 | 43 |
| HLA-A*68:02 | 1 | 1102 | 1110 | 9 | WFVTQRNFY | 9.4e-05 | 37 |
| HLA-B*57:01 | 1 | 1108 | 1116 | 9 | NFYEPQIIT | 9.4e-05 | 49 |
| HLA-A*68:02 | 1 | 1140 | 1148 | 9 | PLQPELDSF | 9.4e-05 | 37 |
| HLA-B*40:01 | 1 | 1146 | 1155 | 10 | DSFKEELDKY | 9.4e-05 | 20 |
| HLA-A*68:02 | 1 | 1148 | 1156 | 9 | FKEELDKYF | 9.4e-05 | 37 |
| HLA-B*58:01 | 1 | 1149 | 1157 | 9 | KEELDKYFK | 9.4e-05 | 37 |
| HLA-A*32:01 | 1 | 1159 | 1167 | 9 | HTSPDVDLG | 9.4e-05 | 27 |
| HLA-B*44:02 | 1 | 1182 | 1191 | 10 | EIDRLNEVAK | 9.4e-05 | 23 |
| HLA-A*23:01 | 1 | 1190 | 1198 | 9 | AKNLNESLI | 9.4e-05 | 22 |
| HLA-A*31:01 | 1 | 1226 | 1235 | 10 | AIVMVTIMLC | 9.4e-05 | 36 |
| HLA-A*31:01 | 1 | 1228 | 1237 | 10 | VMVTIMLC | 9.4e-05 | 36 |
| HLA-A*31:01 | 1 | 59 | 68 | 10 | FSNVTWFHAI | 9.3e-05 | 36 |
| HLA-A*02:06 | 1 | 78 | 87 | 10 | RFDNPVLPFN | 9.3e-05 | 45 |
| HLA-A*23:01 | 1 | 82 | 90 | 9 | PVLPFNDGV | 9.3e-05 | 22 |
| HLA-A*31:01 | 1 | 100 | 109 | 10 | IIRGWIFGTT | 9.3e-05 | 36 |
| HLA-A*03:01 | 1 | 107 | 116 | 10 | GTTLDSKTQS | 9.3e-05 | 29 |
| HLA-A*32:01 | 1 | 108 | 116 | 9 | TTLDSKTQS | 9.3e-05 | 27 |
| HLA-B*53:01 | 1 | 110 | 119 | 10 | LDSKTQSLLI | 9.3e-05 | 24 |
| HLA-B*15:01 | 1 | 120 | 129 | 10 | VNNATNVVVIK | 9.3e-05 | 35 |
| HLA-A*02:03 | 1 | 126 | 134 | 9 | VVIKVCFFQ | 9.3e-05 | 37 |
| HLA-A*33:01 | 1 | 142 | 151 | 10 | GVYYHKNNKS | 9.3e-05 | 37 |
| HLA-A*03:01 | 1 | 159 | 168 | 10 | VYSSANNCTF | 9.3e-05 | 29 |
| HLA-B*35:01 | 1 | 166 | 174 | 9 | CTFEYVSQP | 9.3e-05 | 25 |
| HLA-B*08:01 | 1 | 170 | 178 | 9 | YVSQPFLMD | 9.3e-05 | 49 |
| HLA-A*68:02 | 1 | 187 | 195 | 9 | KNLREFVFK | 9.3e-05 | 37 |
| HLA-A*26:01 | 1 | 189 | 197 | 9 | LREFVFKNI | 9.3e-05 | 30 |
| HLA-A*02:06 | 1 | 194 | 202 | 9 | FKNIDGYFK | 9.3e-05 | 45 |
| HLA-A*02:03 | 1 | 196 | 205 | 10 | NIDGYFKIYS | 9.3e-05 | 37 |
| HLA-A*02:01 | 1 | 246 | 255 | 10 | RSYLTPGDSS | 9.3e-05 | 35 |
| HLA-A*03:01 | 1 | 248 | 256 | 9 | YLTPGDSSS | 9.3e-05 | 29 |
| HLA-A*03:01 | 1 | 271 | 280 | 10 | QPRTFLLKYN | 9.3e-05 | 29 |
| HLA-B*15:01 | 1 | 306 | 315 | 10 | FTVEKGIYQT | 9.3e-05 | 35 |
| HLA-A*33:01 | 1 | 329 | 338 | 10 | FPNITNLCPF | 9.3e-05 | 37 |
| HLA-A*11:01 | 1 | 336 | 344 | 9 | CPFGEVFNA | 9.3e-05 | 22 |
| HLA-B*53:01 | 1 | 343 | 352 | 10 | NATRFASVYA | 9.3e-05 | 24 |
| HLA-A*30:02 | 1 | 431 | 440 | 10 | GCVIAWNSNN | 9.3e-05 | 57 |
| HLA-B*57:01 | 1 | 475 | 484 | 10 | AGSTPCNGVE | 9.3e-05 | 49 |
| HLA-A*30:02 | 1 | 508 | 516 | 9 | YRVVLSFE | 9.3e-05 | 57 |
| HLA-B*08:01 | 1 | 511 | 520 | 10 | VVLSFELLHA | 9.3e-05 | 49 |
| HLA-B*58:01 | 1 | 525 | 534 | 10 | CGPKKSTNLV | 9.3e-05 | 37 |
| HLA-B*51:01 | 1 | 537 | 546 | 10 | KCVNFNFNGL | 9.3e-05 | 43 |
| HLA-A*01:01 | 1 | 538 | 547 | 10 | CVNFNFNGLT | 9.3e-05 | 50 |
| HLA-B*53:01 | 1 | 541 | 549 | 9 | FNFNGLTGT | 9.3e-05 | 24 |
| HLA-A*68:01 | 1 | 546 | 555 | 10 | LTGTGVLTES | 9.3e-05 | 32 |
| HLA-B*07:02 | 1 | 550 | 558 | 9 | GVLTESNKK | 9.3e-05 | 32 |
| HLA-A*31:01 | 1 | 572 | 581 | 10 | TTDAVRDPQT | 9.3e-05 | 36 |
| HLA-A*68:02 | 1 | 587 | 596 | 10 | ITPCSFSGVS | 9.3e-05 | 37 |
| HLA-B*58:01 | 1 | 591 | 600 | 10 | SFGGVSIVITP | 9.3e-05 | 37 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*68:02 | 1 | 618 | 627 | 10 | TEVPVAIHAD | 9.3e-05 | 37 |
| HLA-A*68:01 | 1 | 623 | 631 | 9 | AIHADQLTP | 9.3e-05 | 32 |
| HLA-B*44:02 | 1 | 642 | 650 | 9 | VFQTRAGCL | 9.3e-05 | 24 |
| HLA-B*58:01 | 1 | 659 | 668 | 10 | SYECDIPIGA | 9.3e-05 | 37 |
| HLA-B*58:01 | 1 | 664 | 672 | 9 | IPIGAGICA | 9.3e-05 | 37 |
| HLA-B*08:01 | 1 | 672 | 680 | 9 | ASYQTQTN | 9.3e-05 | 49 |
| HLA-B*08:01 | 1 | 674 | 683 | 10 | YQTQTNspr | 9.3e-05 | 49 |
| HLA-A*32:01 | 1 | 675 | 684 | 10 | QTQTNspr | 9.3e-05 | 27 |
| HLA-B*40:01 | 1 | 680 | 688 | 9 | SPRRARSVA | 9.3e-05 | 20 |
| HLA-B*53:01 | 1 | 696 | 705 | 10 | TMSLGAENSV | 9.3e-05 | 24 |
| HLA-B*07:02 | 1 | 713 | 721 | 9 | AIPTNFTIS | 9.3e-05 | 32 |
| HLA-A*32:01 | 1 | 727 | 736 | 10 | LPVSMTKTSV | 9.3e-05 | 27 |
| HLA-B*53:01 | 1 | 748 | 757 | 10 | ECSNLLLQYG | 9.3e-05 | 24 |
| HLA-A*32:01 | 1 | 753 | 762 | 10 | LLQYGSFCTQ | 9.3e-05 | 27 |
| HLA-A*68:01 | 1 | 758 | 766 | 9 | SFCTQLNRA | 9.3e-05 | 32 |
| HLA-A*31:01 | 1 | 764 | 772 | 9 | NRALTGIAV | 9.3e-05 | 36 |
| HLA-B*08:01 | 1 | 777 | 786 | 10 | NTQEVFAQVK | 9.3e-05 | 49 |
| HLA-A*02:01 | 1 | 810 | 818 | 9 | SKPSKRSFI | 9.3e-05 | 35 |
| HLA-A*31:01 | 1 | 857 | 866 | 10 | GLTVLPPLT | 9.3e-05 | 36 |
| HLA-A*02:03 | 1 | 858 | 867 | 10 | LTVLPPLTD | 9.3e-05 | 37 |
| HLA-A*03:01 | 1 | 870 | 878 | 9 | IAQYTSALL | 9.3e-05 | 29 |
| HLA-A*23:01 | 1 | 891 | 900 | 10 | GAALQIPFAM | 9.3e-05 | 22 |
| HLA-B*53:01 | 1 | 906 | 915 | 10 | FNGIGVTQNV | 9.3e-05 | 24 |
| HLA-A*68:02 | 1 | 932 | 941 | 10 | GKIQDLSLST | 9.3e-05 | 37 |
| HLA-A*68:01 | 1 | 947 | 955 | 9 | KLQDVVNQN | 9.3e-05 | 32 |
| HLA-B*35:01 | 1 | 990 | 998 | 9 | EVQIDRLIT | 9.3e-05 | 25 |
| HLA-A*24:02 | 1 | 992 | 1001 | 10 | QIDRLITGRL | 9.3e-05 | 21 |
| HLA-B*07:02 | 1 | 1002 | 1010 | 9 | QSLQTYVTQ | 9.3e-05 | 32 |
| HLA-A*32:01 | 1 | 1016 | 1025 | 10 | AEIRASANLA | 9.3e-05 | 27 |
| HLA-B*07:02 | 1 | 1030 | 1039 | 10 | SECVLGQSKR | 9.3e-05 | 32 |
| HLA-A*23:01 | 1 | 1045 | 1054 | 10 | KGYHLMSPFQ | 9.3e-05 | 22 |
| HLA-A*24:02 | 1 | 1082 | 1090 | 9 | CHDGKAHFP | 9.3e-05 | 21 |
| HLA-A*31:01 | 1 | 1083 | 1092 | 10 | HDGKAHFPRE | 9.3e-05 | 36 |
| HLA-A*31:01 | 1 | 1097 | 1105 | 9 | SNGTHWFVT | 9.3e-05 | 36 |
| HLA-B*44:03 | 1 | 1129 | 1138 | 10 | VIGIVNNTVY | 9.3e-05 | 22 |
| HLA-A*33:01 | 1 | 1132 | 1141 | 10 | IVNNTVYDPL | 9.3e-05 | 37 |
| HLA-A*30:02 | 1 | 1134 | 1143 | 10 | NNTVYDPLQP | 9.3e-05 | 57 |
| HLA-B*44:03 | 1 | 1157 | 1166 | 10 | KNHTSPDVDL | 9.3e-05 | 22 |
| HLA-A*30:02 | 1 | 1165 | 1174 | 10 | DLGDISGINA | 9.3e-05 | 57 |
| HLA-A*68:01 | 1 | 1167 | 1176 | 10 | GDISGINASV | 9.3e-05 | 32 |
| HLA-B*44:02 | 1 | 1183 | 1191 | 9 | IDRLNEVAK | 9.3e-05 | 24 |
| HLA-A*30:02 | 1 | 1204 | 1213 | 10 | GKYEYIKWP | 9.3e-05 | 57 |
| HLA-A*68:01 | 1 | 1211 | 1220 | 10 | KWPWYIWLGF | 9.3e-05 | 32 |
| HLA-A*31:01 | 1 | 1218 | 1227 | 10 | LGFIAGLIAI | 9.3e-05 | 36 |
| HLA-A*24:02 | 1 | 1222 | 1230 | 9 | AGLIAIVMV | 9.3e-05 | 21 |
| HLA-A*11:01 | 1 | 1226 | 1235 | 10 | AIVMVTIMLC | 9.3e-05 | 22 |
| HLA-A*02:06 | 1 | 1232 | 1241 | 10 | IMLCMTSCC | 9.3e-05 | 45 |
| HLA-A*01:01 | 1 | 1238 | 1246 | 9 | TSCCCLKG | 9.3e-05 | 50 |
| HLA-A*02:06 | 1 | 1248 | 1256 | 9 | CSCGSCCKF | 9.3e-05 | 45 |
| HLA-B*44:02 | 1 | 1255 | 1264 | 10 | KFDEDDSEPV | 9.3e-05 | 24 |
| HLA-A*32:01 | 1 | 8 | 16 | 9 | LPLVSSQCV | 9.2e-05 | 27 |
| HLA-B*35:01 | 1 | 13 | 21 | 9 | SQCVNLTR | 9.2e-05 | 25 |
| HLA-B*58:01 | 1 | 16 | 25 | 10 | VNLTRTQLP | 9.2e-05 | 38 |
| HLA-A*24:02 | 1 | 40 | 48 | 9 | DKVFRSSVL | 9.2e-05 | 21 |
| HLA-A*02:01 | 1 | 56 | 65 | 10 | LPFFSNVTWF | 9.2e-05 | 35 |
| HLA-B*07:02 | 1 | 59 | 68 | 10 | FSNVTWFHAI | 9.2e-05 | 33 |
| HLA-A*03:01 | 1 | 67 | 75 | 9 | AIHVSQTNG | 9.2e-05 | 30 |
| HLA-A*30:02 | 1 | 71 | 80 | 10 | SGTNGTKRFD | 9.2e-05 | 58 |
| HLA-A*23:01 | 1 | 76 | 84 | 9 | TKRFDNPVL | 9.2e-05 | 22 |
| HLA-B*44:03 | 1 | 84 | 93 | 10 | LPFNDGVYFA | 9.2e-05 | 22 |
| HLA-B*57:01 | 1 | 106 | 114 | 9 | FGTTLDSKT | 9.2e-05 | 49 |
| HLA-A*03:01 | 1 | 123 | 132 | 10 | ATNVVIVKCE | 9.2e-05 | 30 |
| HLA-B*15:01 | 1 | 134 | 143 | 10 | QFCNDPFLGV | 9.2e-05 | 35 |
| HLA-A*11:01 | 1 | 147 | 155 | 9 | KNNKSWMES | 9.2e-05 | 22 |
| HLA-A*68:01 | 1 | 180 | 189 | 10 | EGKQGNFKNL | 9.2e-05 | 32 |
| HLA-B*51:01 | 1 | 207 | 215 | 9 | HTPINLVRD | 9.2e-05 | 43 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*53:01 | 1 | 232 | 241 | 10 | GINITRFQTL 9.2e-05 | 24 |
| HLA-A*03:01 | 1 | 247 | 256 | 10 | SYLTPGDSSS 9.2e-05 | 30 |
| HLA-B*53:01 | 1 | 253 | 261 | 9 | DSSSGWTAG 9.2e-05 | 24 |
| HLA-B*53:01 | 1 | 269 | 278 | 10 | YLPRTFLLK 9.2e-05 | 24 |
| HLA-A*01:01 | 1 | 290 | 298 | 9 | DCALDPLSE 9.2e-05 | 50 |
| HLA-B*44:02 | 1 | 291 | 300 | 10 | CALDPLSEK 9.2e-05 | 24 |
| HLA-B*35:01 | 1 | 328 | 337 | 10 | RFPNITNLCP 9.2e-05 | 25 |
| HLA-A*11:01 | 1 | 337 | 346 | 10 | PFGEVFNATR 9.2e-05 | 22 |
| HLA-B*08:01 | 1 | 339 | 348 | 10 | GEVFNATRFA 9.2e-05 | 49 |
| HLA-A*24:02 | 1 | 352 | 360 | 9 | AWNRKRISN 9.2e-05 | 21 |
| HLA-A*24:02 | 1 | 371 | 379 | 9 | SASFSTFKC 9.2e-05 | 21 |
| HLA-A*33:01 | 1 | 384 | 392 | 9 | PTKLNLCF 9.2e-05 | 37 |
| HLA-A*68:02 | 1 | 415 | 423 | 9 | TGKIADYNY 9.2e-05 | 37 |
| HLA-A*68:01 | 1 | 417 | 426 | 10 | KIADYNYKLP 9.2e-05 | 32 |
| HLA-B*07:02 | 1 | 420 | 429 | 10 | DYNYKLPDDF 9.2e-05 | 33 |
| HLA-A*30:01 | 1 | 423 | 432 | 10 | YKLPDDFTGC 9.2e-05 | 60 |
| HLA-A*26:01 | 1 | 427 | 435 | 9 | DDFTGCVIA 9.2e-05 | 30 |
| HLA-A*30:02 | 1 | 451 | 460 | 10 | YLYRLEFRKSN 9.2e-05 | 58 |
| HLA-A*68:01 | 1 | 453 | 461 | 9 | YRLEFRKSNL 9.2e-05 | 32 |
| HLA-B*51:01 | 1 | 473 | 481 | 9 | YQAGSTPCN 9.2e-05 | 43 |
| HLA-B*44:02 | 1 | 480 | 489 | 10 | CNGVEGFNCY 9.2e-05 | 24 |
| HLA-A*68:01 | 1 | 488 | 496 | 9 | CYFPLQSYG 9.2e-05 | 32 |
| HLA-A*03:01 | 1 | 497 | 506 | 10 | FQPTNGVGYY 9.2e-05 | 30 |
| HLA-B*53:01 | 1 | 518 | 526 | 9 | LHAPATVCG 9.2e-05 | 24 |
| HLA-A*11:01 | 1 | 522 | 531 | 10 | ATVCGPKKST 9.2e-05 | 22 |
| HLA-A*26:01 | 1 | 544 | 552 | 9 | NGLTGTGVL 9.2e-05 | 30 |
| HLA-B*51:01 | 1 | 558 | 566 | 9 | KFLPFQFG 9.2e-05 | 43 |
| HLA-A*31:01 | 1 | 567 | 576 | 10 | RDIADTTDAV 9.2e-05 | 37 |
| HLA-B*53:01 | 1 | 596 | 605 | 10 | SVITPGTNTS 9.2e-05 | 24 |
| HLA-A*02:06 | 1 | 598 | 607 | 10 | ITPGTNTSNQ 9.2e-05 | 45 |
| HLA-B*57:01 | 1 | 606 | 615 | 10 | NQVAVLYQDV 9.2e-05 | 49 |
| HLA-B*07:02 | 1 | 626 | 634 | 9 | ADQLTPTWR 9.2e-05 | 33 |
| HLA-B*51:01 | 1 | 665 | 674 | 10 | PIGAGICASY 9.2e-05 | 43 |
| HLA-A*01:01 | 1 | 668 | 677 | 10 | AGICASYQTQ 9.2e-05 | 50 |
| HLA-A*23:01 | 1 | 674 | 683 | 10 | YQTQTNSPRR 9.2e-05 | 22 |
| HLA-A*02:03 | 1 | 682 | 691 | 10 | RRARSVASQS 9.2e-05 | 38 |
| HLA-B*08:01 | 1 | 697 | 706 | 10 | MSLGAENSV 9.2e-05 | 49 |
| HLA-A*03:01 | 1 | 713 | 721 | 9 | AIPTNFTIS 9.2e-05 | 30 |
| HLA-A*26:01 | 1 | 713 | 721 | 9 | AIPTNFTIS 9.2e-05 | 30 |
| HLA-A*68:01 | 1 | 764 | 772 | 9 | NRALTGI 9.2e-05 | 32 |
| HLA-A*03:01 | 1 | 783 | 792 | 10 | AQVKQIYKTP 9.2e-05 | 30 |
| HLA-A*32:01 | 1 | 795 | 804 | 10 | KDFGGFNFSQ 9.2e-05 | 27 |
| HLA-B*51:01 | 1 | 800 | 809 | 10 | FNFSQILPDP 9.2e-05 | 43 |
| HLA-B*40:01 | 1 | 806 | 815 | 10 | LPDPSKPSKR 9.2e-05 | 20 |
| HLA-A*68:02 | 1 | 809 | 818 | 10 | PSKPSKRSFI 9.2e-05 | 37 |
| HLA-B*44:03 | 1 | 811 | 819 | 9 | KPSKRSFIE 9.2e-05 | 22 |
| HLA-A*11:01 | 1 | 826 | 834 | 9 | VTLADAGFI 9.2e-05 | 22 |
| HLA-A*01:01 | 1 | 830 | 838 | 9 | DAGFIKQYG 9.2e-05 | 50 |
| HLA-B*57:01 | 1 | 838 | 847 | 10 | GDCLGDIAAR 9.2e-05 | 49 |
| HLA-B*40:01 | 1 | 841 | 849 | 9 | LGDI AARDL 9.2e-05 | 20 |
| HLA-A*33:01 | 1 | 844 | 853 | 10 | IAARDLICAQ 9.2e-05 | 37 |
| HLA-B*58:01 | 1 | 853 | 862 | 10 | QKFNGLTVLP 9.2e-05 | 38 |
| HLA-B*44:03 | 1 | 874 | 882 | 9 | TSALLAGTI 9.2e-05 | 22 |
| HLA-B*58:01 | 1 | 883 | 891 | 9 | TSGWTFGAG 9.2e-05 | 38 |
| HLA-A*32:01 | 1 | 891 | 899 | 9 | GAALQIPFA 9.2e-05 | 27 |
| HLA-B*44:02 | 1 | 893 | 901 | 9 | ALQIPFAMQ 9.2e-05 | 24 |
| HLA-B*44:03 | 1 | 900 | 908 | 9 | MQMAYRFNG 9.2e-05 | 22 |
| HLA-B*51:01 | 1 | 911 | 919 | 9 | VTQNVLYEN 9.2e-05 | 43 |
| HLA-B*08:01 | 1 | 913 | 921 | 9 | QNVLYENQK 9.2e-05 | 49 |
| HLA-B*44:02 | 1 | 944 | 952 | 9 | ALGKLQDVV 9.2e-05 | 24 |
| HLA-B*57:01 | 1 | 978 | 987 | 10 | NDILSRLDKV 9.2e-05 | 49 |
| HLA-B*51:01 | 1 | 980 | 989 | 10 | ILSRLDKVEA 9.2e-05 | 43 |
| HLA-A*31:01 | 1 | 989 | 997 | 9 | AEVQIDRLI 9.2e-05 | 37 |
| HLA-B*08:01 | 1 | 1008 | 1017 | 10 | VTQQLIRAAE 9.2e-05 | 49 |
| HLA-A*02:01 | 1 | 1010 | 1019 | 10 | QQLIRAAEIR 9.2e-05 | 35 |
| HLA-A*26:01 | 1 | 1016 | 1025 | 10 | AEIRASANLA 9.2e-05 | 30 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*02:03 | 1 | 1027 | 1036 | 10 | TKMSECVLGQ | 9.2e-05 | 38 |
| HLA-B*44:03 | 1 | 1031 | 1039 | 9 | ECVLGQSKR | 9.2e-05 | 22 |
| HLA-A*33:01 | 1 | 1089 | 1098 | 10 | FPREGVFSVN | 9.2e-05 | 37 |
| HLA-B*58:01 | 1 | 1092 | 1101 | 10 | EGVFVSNQTH | 9.2e-05 | 38 |
| HLA-A*68:01 | 1 | 1129 | 1137 | 9 | VIGIVNNTV | 9.2e-05 | 32 |
| HLA-B*35:01 | 1 | 1130 | 1139 | 10 | IGIVNNTVYD | 9.2e-05 | 25 |
| HLA-B*53:01 | 1 | 1133 | 1141 | 9 | VNNTVYDPL | 9.2e-05 | 24 |
| HLA-A*31:01 | 1 | 1154 | 1163 | 10 | KYFKNHTSPD | 9.2e-05 | 37 |
| HLA-B*51:01 | 1 | 1170 | 1178 | 9 | SGINASVVN | 9.2e-05 | 43 |
| HLA-B*15:01 | 1 | 1172 | 1180 | 9 | INASVVNIQ | 9.2e-05 | 35 |
| HLA-A*23:01 | 1 | 1180 | 1189 | 10 | QKEIDRLNEV | 9.2e-05 | 22 |
| HLA-B*58:01 | 1 | 1181 | 1190 | 10 | KEIDRLNEVA | 9.2e-05 | 38 |
| HLA-A*24:02 | 1 | 1190 | 1198 | 9 | AKNLNESLI | 9.2e-05 | 21 |
| HLA-A*33:01 | 1 | 1194 | 1203 | 10 | NESLIDLQEL | 9.2e-05 | 37 |
| HLA-A*33:01 | 1 | 1196 | 1204 | 9 | SLIDLQELG | 9.2e-05 | 37 |
| HLA-A*02:06 | 1 | 1212 | 1221 | 10 | WPWYIWLGFI | 9.2e-05 | 45 |
| HLA-B*40:01 | 1 | 1255 | 1264 | 10 | KFDEDDSEPV | 9.2e-05 | 20 |
| HLA-B*57:01 | 1 | 31 | 40 | 10 | SFTRGVYYPD | 9.1e-05 | 49 |
| HLA-B*15:01 | 1 | 32 | 41 | 10 | FTRGVYYPDK | 9.1e-05 | 35 |
| HLA-A*32:01 | 1 | 37 | 45 | 9 | YYPDKVFRS | 9.1e-05 | 27 |
| HLA-B*08:01 | 1 | 49 | 57 | 9 | HSTQDLFLP | 9.1e-05 | 49 |
| HLA-B*08:01 | 1 | 51 | 60 | 10 | TQDLFLPFFS | 9.1e-05 | 49 |
| HLA-A*01:01 | 1 | 96 | 105 | 10 | EKSNIIRGWI | 9.1e-05 | 51 |
| HLA-A*03:01 | 1 | 98 | 106 | 9 | SNIIRGWIF | 9.1e-05 | 30 |
| HLA-A*33:01 | 1 | 99 | 107 | 9 | NIIRGWIFG | 9.1e-05 | 37 |
| HLA-B*44:03 | 1 | 119 | 127 | 9 | IVNNATNVV | 9.1e-05 | 22 |
| HLA-B*53:01 | 1 | 123 | 131 | 9 | ATNVVIKVC | 9.1e-05 | 24 |
| HLA-B*57:01 | 1 | 134 | 142 | 9 | QFCNDPFLG | 9.1e-05 | 49 |
| HLA-B*57:01 | 1 | 194 | 202 | 9 | FKNIDGYFK | 9.1e-05 | 49 |
| HLA-B*40:01 | 1 | 200 | 209 | 10 | YFKIYSKHTP | 9.1e-05 | 21 |
| HLA-B*51:01 | 1 | 236 | 245 | 10 | TRFQTLALH | 9.1e-05 | 44 |
| HLA-A*68:01 | 1 | 242 | 250 | 9 | LALHRSYLT | 9.1e-05 | 32 |
| HLA-B*58:01 | 1 | 278 | 286 | 9 | KYNENGTIT | 9.1e-05 | 38 |
| HLA-A*33:01 | 1 | 280 | 288 | 9 | NENGTITDA | 9.1e-05 | 37 |
| HLA-A*26:01 | 1 | 296 | 304 | 9 | LSETKCTLK | 9.1e-05 | 30 |
| HLA-A*33:01 | 1 | 300 | 308 | 9 | KCTLKSFTV | 9.1e-05 | 37 |
| HLA-B*15:01 | 1 | 321 | 330 | 10 | QPTESIVRFP | 9.1e-05 | 35 |
| HLA-B*44:03 | 1 | 348 | 356 | 9 | ASVYAWNRK | 9.1e-05 | 22 |
| HLA-A*26:01 | 1 | 359 | 368 | 10 | SNCVADYSVL | 9.1e-05 | 30 |
| HLA-A*68:02 | 1 | 361 | 370 | 10 | CVADYSVLYN | 9.1e-05 | 38 |
| HLA-B*58:01 | 1 | 396 | 405 | 10 | YADSFVIRGD | 9.1e-05 | 38 |
| HLA-B*44:03 | 1 | 407 | 416 | 10 | VRQIAPGQTG | 9.1e-05 | 22 |
| HLA-A*02:01 | 1 | 410 | 419 | 10 | IAPGQTGKIA | 9.1e-05 | 35 |
| HLA-B*08:01 | 1 | 417 | 426 | 10 | KIADYNYKLP | 9.1e-05 | 49 |
| HLA-B*35:01 | 1 | 434 | 442 | 9 | IAWNSNLD | 9.1e-05 | 25 |
| HLA-B*57:01 | 1 | 436 | 444 | 9 | WNSNLDISK | 9.1e-05 | 49 |
| HLA-A*23:01 | 1 | 440 | 449 | 10 | NLDSKVGGNY | 9.1e-05 | 22 |
| HLA-B*15:01 | 1 | 452 | 461 | 10 | LYRFLFRKSNL | 9.1e-05 | 35 |
| HLA-B*58:01 | 1 | 477 | 485 | 9 | STPCNGVEG | 9.1e-05 | 38 |
| HLA-A*24:02 | 1 | 483 | 492 | 10 | VEGFNCYFPL | 9.1e-05 | 21 |
| HLA-A*68:01 | 1 | 492 | 500 | 9 | LQSYGFQPT | 9.1e-05 | 32 |
| HLA-A*02:01 | 1 | 493 | 501 | 9 | QSYGFQPTN | 9.1e-05 | 35 |
| HLA-B*40:01 | 1 | 500 | 508 | 9 | TNGVGYQPY | 9.1e-05 | 21 |
| HLA-B*58:01 | 1 | 501 | 510 | 10 | NGVGYQPYRV | 9.1e-05 | 38 |
| HLA-B*07:02 | 1 | 513 | 522 | 10 | LSFELLHAPA | 9.1e-05 | 33 |
| HLA-A*24:02 | 1 | 537 | 546 | 10 | KCVNFNFNGL | 9.1e-05 | 21 |
| HLA-A*11:01 | 1 | 558 | 566 | 9 | KFLPFQQFG | 9.1e-05 | 22 |
| HLA-A*32:01 | 1 | 587 | 595 | 9 | ITPCSFGGV | 9.1e-05 | 27 |
| HLA-A*01:01 | 1 | 606 | 615 | 10 | NQVAVLYQDV | 9.1e-05 | 51 |
| HLA-A*02:01 | 1 | 642 | 651 | 10 | VFQTRAGCLI | 9.1e-05 | 35 |
| HLA-A*23:01 | 1 | 684 | 693 | 10 | ARSVASQSII | 9.1e-05 | 22 |
| HLA-A*24:02 | 1 | 686 | 695 | 10 | SVASQSIIAY | 9.1e-05 | 21 |
| HLA-A*01:01 | 1 | 702 | 711 | 10 | ENSVAYSNNS | 9.1e-05 | 51 |
| HLA-B*35:01 | 1 | 703 | 711 | 9 | NSVAYSNNS | 9.1e-05 | 25 |
| HLA-A*31:01 | 1 | 706 | 715 | 10 | AYSNNSIAIP | 9.1e-05 | 37 |
| HLA-A*11:01 | 1 | 708 | 716 | 9 | SNNSIAIPT | 9.1e-05 | 22 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-B*51:01 | 1 | 713 | 721 | 9 | AIPTNFTIS | 9.1e-05 | 44 |
| HLA-B*44:03 | 1 | 734 | 742 | 9 | TSVDCTMYI | 9.1e-05 | 22 |
| HLA-A*33:01 | 1 | 752 | 760 | 9 | LLLQYGSFC | 9.1e-05 | 37 |
| HLA-A*03:01 | 1 | 758 | 766 | 9 | SFCTQLNRA | 9.1e-05 | 30 |
| HLA-A*31:01 | 1 | 761 | 769 | 9 | TQLNRALTG | 9.1e-05 | 37 |
| HLA-A*33:01 | 1 | 803 | 812 | 10 | SQILPDPSKP | 9.1e-05 | 37 |
| HLA-A*02:03 | 1 | 806 | 814 | 9 | LPDPSKPSK | 9.1e-05 | 38 |
| HLA-A*31:01 | 1 | 811 | 819 | 9 | KPSKRSFIE | 9.1e-05 | 37 |
| HLA-A*68:02 | 1 | 816 | 824 | 9 | SFIEDLLFN | 9.1e-05 | 38 |
| HLA-A*68:02 | 1 | 822 | 831 | 10 | LFNKVTLADA | 9.1e-05 | 38 |
| HLA-B*35:01 | 1 | 829 | 838 | 10 | ADAGFIKQYG | 9.1e-05 | 25 |
| HLA-A*68:02 | 1 | 837 | 846 | 10 | YGDCLDIAA | 9.1e-05 | 38 |
| HLA-A*23:01 | 1 | 841 | 849 | 9 | LGDIAARDL | 9.1e-05 | 22 |
| HLA-A*24:02 | 1 | 873 | 882 | 10 | YTSALLAGTI | 9.1e-05 | 21 |
| HLA-A*68:01 | 1 | 880 | 889 | 10 | GTITSGWTFG | 9.1e-05 | 32 |
| HLA-B*44:02 | 1 | 885 | 894 | 10 | GWTFGAGAAL | 9.1e-05 | 24 |
| HLA-A*11:01 | 1 | 895 | 903 | 9 | QIPFAMQMA | 9.1e-05 | 22 |
| HLA-A*23:01 | 1 | 904 | 912 | 9 | YRFNGIGVT | 9.1e-05 | 22 |
| HLA-B*53:01 | 1 | 904 | 913 | 10 | YRFNGIGVTQ | 9.1e-05 | 24 |
| HLA-A*68:02 | 1 | 938 | 946 | 9 | LSSTASALG | 9.1e-05 | 38 |
| HLA-B*44:02 | 1 | 939 | 947 | 9 | SSTASALGK | 9.1e-05 | 24 |
| HLA-B*58:01 | 1 | 950 | 959 | 10 | DVVNQNAQAL | 9.1e-05 | 38 |
| HLA-A*68:01 | 1 | 972 | 981 | 10 | AISSVLNDIL | 9.1e-05 | 32 |
| HLA-A*33:01 | 1 | 973 | 981 | 9 | ISSVLNDIL | 9.1e-05 | 37 |
| HLA-B*58:01 | 1 | 976 | 985 | 10 | VLNDILSRDL | 9.1e-05 | 38 |
| HLA-A*03:01 | 1 | 979 | 987 | 9 | DILSRLDKV | 9.1e-05 | 30 |
| HLA-A*33:01 | 1 | 981 | 990 | 10 | LSRLDKVEAE | 9.1e-05 | 37 |
| HLA-A*33:01 | 1 | 998 | 1006 | 9 | TGRLQSLQT | 9.1e-05 | 37 |
| HLA-A*11:01 | 1 | 1008 | 1017 | 10 | VTQQLIRAAE | 9.1e-05 | 22 |
| HLA-A*31:01 | 1 | 1016 | 1025 | 10 | AEIRASANLA | 9.1e-05 | 37 |
| HLA-A*02:01 | 1 | 1019 | 1028 | 10 | RASANLAATK | 9.1e-05 | 35 |
| HLA-B*08:01 | 1 | 1021 | 1030 | 10 | SANLAATKMS | 9.1e-05 | 49 |
| HLA-A*68:02 | 1 | 1035 | 1043 | 9 | GQSKRVDFC | 9.1e-05 | 38 |
| HLA-B*58:01 | 1 | 1041 | 1050 | 10 | DFCGKGYHLM | 9.1e-05 | 38 |
| HLA-B*08:01 | 1 | 1050 | 1059 | 10 | MSFPQSAPHG | 9.1e-05 | 49 |
| HLA-A*03:01 | 1 | 1070 | 1079 | 10 | AQEKNFHTAP | 9.1e-05 | 30 |
| HLA-B*53:01 | 1 | 1098 | 1106 | 9 | NGTHWFVTQ | 9.1e-05 | 24 |
| HLA-A*02:03 | 1 | 1140 | 1149 | 10 | PLQPELDSFK | 9.1e-05 | 38 |
| HLA-A*68:02 | 1 | 1172 | 1180 | 9 | INASVVNIQ | 9.1e-05 | 38 |
| HLA-A*31:01 | 1 | 1199 | 1208 | 10 | DLQELGKYEQ | 9.1e-05 | 37 |
| HLA-B*07:02 | 1 | 1207 | 1216 | 10 | EQYIKWPWYI | 9.1e-05 | 33 |
| HLA-A*68:01 | 1 | 1210 | 1218 | 9 | IKWPWYIWL | 9.1e-05 | 32 |
| HLA-A*01:01 | 1 | 1222 | 1230 | 9 | AGLIAIVMV | 9.1e-05 | 51 |
| HLA-A*30:02 | 1 | 1242 | 1250 | 9 | SCLKGCCSC | 9.1e-05 | 58 |
| HLA-B*51:01 | 1 | 1242 | 1250 | 9 | SCLKGCCSC | 9.1e-05 | 44 |
| HLA-A*30:02 | 1 | 1245 | 1253 | 9 | KGCCSCGSC | 9.1e-05 | 58 |
| HLA-B*53:01 | 1 | 1255 | 1264 | 10 | KFDEDDSEPV | 9.1e-05 | 24 |
| HLA-B*51:01 | 1 | 1265 | 1273 | 9 | LKGVKLHYT | 9.1e-05 | 44 |
| HLA-A*11:01 | 1 | 1 | 10 | 10 | MFVFLVLLPL | 9e-05 | 22 |
| HLA-B*15:01 | 1 | 4 | 13 | 10 | FLVLLPLVSS | 9e-05 | 36 |
| HLA-B*40:01 | 1 | 21 | 29 | 9 | RTQLPPAYT | 9e-05 | 21 |
| HLA-A*23:01 | 1 | 40 | 48 | 9 | DKVFRSSVL | 9e-05 | 22 |
| HLA-A*02:06 | 1 | 45 | 53 | 9 | SSVLHSTQD | 9e-05 | 45 |
| HLA-A*30:01 | 1 | 48 | 57 | 10 | LHSTQDLFLP | 9e-05 | 60 |
| HLA-B*08:01 | 1 | 89 | 97 | 9 | GVYFASTEK | 9e-05 | 50 |
| HLA-B*53:01 | 1 | 104 | 113 | 10 | WIFGTTLDSK | 9e-05 | 24 |
| HLA-A*31:01 | 1 | 114 | 123 | 10 | TQSLIVNNA | 9e-05 | 37 |
| HLA-B*44:02 | 1 | 142 | 150 | 9 | GVYYHKNNK | 9e-05 | 24 |
| HLA-A*32:01 | 1 | 143 | 151 | 9 | VYYHKNNKS | 9e-05 | 27 |
| HLA-A*68:02 | 1 | 160 | 169 | 10 | YSSANNCTFE | 9e-05 | 38 |
| HLA-B*44:03 | 1 | 166 | 175 | 10 | CTFEYVSQPF | 9e-05 | 22 |
| HLA-B*08:01 | 1 | 173 | 182 | 10 | QPFLMDLEGK | 9e-05 | 50 |
| HLA-B*58:01 | 1 | 181 | 189 | 9 | GKQGNFKNL | 9e-05 | 38 |
| HLA-A*33:01 | 1 | 183 | 191 | 9 | QGNFKNLRE | 9e-05 | 38 |
| HLA-A*68:01 | 1 | 187 | 196 | 10 | KNLREFVFKN | 9e-05 | 33 |
| HLA-B*51:01 | 1 | 197 | 206 | 10 | IDGYFKIYSK | 9e-05 | 44 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-A*02:06 | 1 | 200 | 209 | 10 | YFKIYSKHTP | 9e-05 | 45 |
| HLA-A*01:01 | 1 | 209 | 217 | 9 | PINLVRDLP | 9e-05 | 51 |
| HLA-A*02:03 | 1 | 209 | 217 | 9 | PINLVRDLP | 9e-05 | 38 |
| HLA-A*11:01 | 1 | 221 | 230 | 10 | SALEPLVDLP | 9e-05 | 22 |
| HLA-A*03:01 | 1 | 225 | 233 | 9 | PLVDLPIGI | 9e-05 | 30 |
| HLA-A*68:01 | 1 | 232 | 240 | 9 | GINITRFQT | 9e-05 | 33 |
| HLA-B*15:01 | 1 | 252 | 260 | 9 | GDSSSGWTA | 9e-05 | 36 |
| HLA-B*51:01 | 1 | 254 | 263 | 10 | SSSGWTAGAA | 9e-05 | 44 |
| HLA-A*02:06 | 1 | 257 | 265 | 9 | GWTAGAAAY | 9e-05 | 45 |
| HLA-A*68:01 | 1 | 263 | 272 | 10 | AAYYVGYLQP | 9e-05 | 33 |
| HLA-B*44:03 | 1 | 263 | 271 | 9 | AAYYVGYLQ | 9e-05 | 22 |
| HLA-A*33:01 | 1 | 284 | 293 | 10 | TITDAVDCAL | 9e-05 | 38 |
| HLA-A*11:01 | 1 | 291 | 299 | 9 | CALDPLSET | 9e-05 | 22 |
| HLA-A*68:01 | 1 | 294 | 303 | 10 | DPLSEKCTL | 9e-05 | 33 |
| HLA-B*53:01 | 1 | 311 | 319 | 9 | GIYQTSNFR | 9e-05 | 24 |
| HLA-A*31:01 | 1 | 316 | 325 | 10 | SNFRVQPTES | 9e-05 | 37 |
| HLA-B*15:01 | 1 | 338 | 346 | 9 | FGEVFNATR | 9e-05 | 36 |
| HLA-B*53:01 | 1 | 351 | 359 | 9 | YAWNKRKRIS | 9e-05 | 24 |
| HLA-B*40:01 | 1 | 368 | 377 | 10 | LYNSASFSTF | 9e-05 | 21 |
| HLA-A*24:02 | 1 | 382 | 391 | 10 | VSPTKLNDC | 9e-05 | 21 |
| HLA-B*40:01 | 1 | 407 | 416 | 10 | VRQIAPGQTG | 9e-05 | 21 |
| HLA-A*33:01 | 1 | 408 | 416 | 9 | RQIAPGQTG | 9e-05 | 38 |
| HLA-B*15:01 | 1 | 411 | 419 | 9 | APGQTGKIA | 9e-05 | 36 |
| HLA-B*40:01 | 1 | 425 | 434 | 10 | LPDDFTGCVI | 9e-05 | 21 |
| HLA-B*44:02 | 1 | 433 | 441 | 9 | VIAWNSNNL | 9e-05 | 24 |
| HLA-A*33:01 | 1 | 456 | 465 | 10 | FRKSNLKPFE | 9e-05 | 38 |
| HLA-A*26:01 | 1 | 457 | 466 | 10 | RKSNLKPFE | 9e-05 | 30 |
| HLA-B*08:01 | 1 | 465 | 474 | 10 | ERDISTEIQ | 9e-05 | 50 |
| HLA-B*35:01 | 1 | 473 | 481 | 9 | YQAGSTPCN | 9e-05 | 25 |
| HLA-B*15:01 | 1 | 475 | 483 | 9 | AGSTPCNGV | 9e-05 | 36 |
| HLA-B*58:01 | 1 | 568 | 576 | 9 | DIADTTDAV | 9e-05 | 38 |
| HLA-B*53:01 | 1 | 575 | 583 | 9 | AVRDPQTL | 9e-05 | 24 |
| HLA-A*02:01 | 1 | 582 | 590 | 9 | LEILDITPC | 9e-05 | 35 |
| HLA-A*30:01 | 1 | 584 | 593 | 10 | ILDITPCFSG | 9e-05 | 60 |
| HLA-B*08:01 | 1 | 600 | 608 | 9 | PGTNTSNQV | 9e-05 | 50 |
| HLA-B*44:02 | 1 | 611 | 620 | 10 | LYQDVNCTEV | 9e-05 | 24 |
| HLA-B*58:01 | 1 | 611 | 620 | 10 | LYQDVNCTEV | 9e-05 | 38 |
| HLA-A*33:01 | 1 | 614 | 623 | 10 | DVNCTEVPVA | 9e-05 | 38 |
| HLA-B*07:02 | 1 | 615 | 624 | 10 | VNCTEVPVAI | 9e-05 | 33 |
| HLA-A*30:02 | 1 | 639 | 648 | 10 | GSNVFQTRAG | 9e-05 | 58 |
| HLA-B*51:01 | 1 | 640 | 649 | 10 | SNVFQTRAG | 9e-05 | 44 |
| HLA-B*07:02 | 1 | 645 | 653 | 9 | TRAGCLIGA | 9e-05 | 33 |
| HLA-A*30:01 | 1 | 655 | 663 | 9 | HVNNSYECD | 9e-05 | 60 |
| HLA-A*11:01 | 1 | 690 | 699 | 10 | QSIAYTMSL | 9e-05 | 22 |
| HLA-A*02:03 | 1 | 703 | 711 | 9 | NSVAYSNNS | 9e-05 | 38 |
| HLA-A*02:03 | 1 | 720 | 728 | 9 | ISVTTEILP | 9e-05 | 38 |
| HLA-A*23:01 | 1 | 731 | 740 | 10 | MTKTSVDCTM | 9e-05 | 22 |
| HLA-A*30:02 | 1 | 756 | 764 | 9 | YGSFCTQLN | 9e-05 | 58 |
| HLA-A*30:02 | 1 | 759 | 768 | 10 | FCTQLNRALT | 9e-05 | 58 |
| HLA-A*68:01 | 1 | 762 | 770 | 9 | QLNRALTGI | 9e-05 | 33 |
| HLA-B*44:02 | 1 | 766 | 774 | 9 | ALTGIAVEQ | 9e-05 | 24 |
| HLA-A*02:06 | 1 | 768 | 776 | 9 | TGIAVEQDK | 9e-05 | 45 |
| HLA-B*35:01 | 1 | 772 | 780 | 9 | VEQDKNTQE | 9e-05 | 25 |
| HLA-A*30:02 | 1 | 812 | 821 | 10 | PSKRSFIEDL | 9e-05 | 58 |
| HLA-B*51:01 | 1 | 812 | 821 | 10 | PSKRSFIEDL | 9e-05 | 44 |
| HLA-A*68:02 | 1 | 814 | 823 | 10 | KRSFIEDLLF | 9e-05 | 38 |
| HLA-B*51:01 | 1 | 827 | 836 | 10 | TLADAGFIKQ | 9e-05 | 44 |
| HLA-A*68:01 | 1 | 833 | 841 | 9 | FIKQYGDCL | 9e-05 | 33 |
| HLA-A*24:02 | 1 | 853 | 862 | 10 | QKFNGLTVLP | 9e-05 | 21 |
| HLA-A*01:01 | 1 | 889 | 897 | 9 | GAGAALQIP | 9e-05 | 51 |
| HLA-B*44:02 | 1 | 903 | 911 | 9 | AYRFNGIGV | 9e-05 | 24 |
| HLA-A*23:01 | 1 | 905 | 914 | 10 | RFNGIGVTQN | 9e-05 | 22 |
| HLA-A*23:01 | 1 | 913 | 922 | 10 | QNVLYENQKL | 9e-05 | 22 |
| HLA-B*07:02 | 1 | 915 | 924 | 10 | VLYENQKLIA | 9e-05 | 33 |
| HLA-A*02:06 | 1 | 941 | 949 | 9 | TASALGKLQ | 9e-05 | 45 |
| HLA-B*35:01 | 1 | 960 | 968 | 9 | NTLVKQLSS | 9e-05 | 25 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*32:01 | 1 | 962 | 971 | 10 | LVKQLSSNFG | 9e-05 | 27 |
| HLA-A*32:01 | 1 | 1009 | 1017 | 9 | TQQLIRAAE | 9e-05 | 27 |
| HLA-B*35:01 | 1 | 1019 | 1028 | 10 | RASANLAATK | 9e-05 | 25 |
| HLA-A*31:01 | 1 | 1022 | 1030 | 9 | ANLAATKMS | 9e-05 | 37 |
| HLA-B*57:01 | 1 | 1022 | 1030 | 9 | ANLAATKMS | 9e-05 | 49 |
| HLA-B*44:02 | 1 | 1031 | 1040 | 10 | ECVLGQSKRV | 9e-05 | 24 |
| HLA-B*35:01 | 1 | 1043 | 1052 | 10 | CGKGYHLMSF | 9e-05 | 25 |
| HLA-A*68:01 | 1 | 1053 | 1062 | 10 | PQSAPHGVVF | 9e-05 | 33 |
| HLA-B*57:01 | 1 | 1063 | 1072 | 10 | LHVTYVPAQE | 9e-05 | 49 |
| HLA-B*40:01 | 1 | 1075 | 1083 | 9 | FTTAPAICH | 9e-05 | 21 |
| HLA-A*68:02 | 1 | 1077 | 1085 | 9 | TAPAICHDG | 9e-05 | 38 |
| HLA-A*03:01 | 1 | 1124 | 1132 | 9 | GNCDDVIGI | 9e-05 | 30 |
| HLA-B*44:02 | 1 | 1133 | 1141 | 9 | VNNTVYDPL | 9e-05 | 24 |
| HLA-A*30:01 | 1 | 1139 | 1148 | 10 | DPLQPELDSF | 9e-05 | 60 |
| HLA-A*30:01 | 1 | 1150 | 1158 | 9 | EELDKYFKN | 9e-05 | 60 |
| HLA-B*53:01 | 1 | 1154 | 1162 | 9 | KYFKNHTSP | 9e-05 | 24 |
| HLA-A*68:01 | 1 | 1160 | 1169 | 10 | TSPDVDLGD | 9e-05 | 33 |
| HLA-B*08:01 | 1 | 1160 | 1169 | 10 | TSPDVDLGD | 9e-05 | 50 |
| HLA-A*68:01 | 1 | 1165 | 1174 | 10 | DLGDISGINA | 9e-05 | 33 |
| HLA-A*03:01 | 1 | 1174 | 1183 | 10 | ASVVNIQKEI | 9e-05 | 30 |
| HLA-A*32:01 | 1 | 1174 | 1182 | 9 | ASVVNIQKE | 9e-05 | 27 |
| HLA-B*57:01 | 1 | 1177 | 1185 | 9 | VNIQKEIDR | 9e-05 | 49 |
| HLA-B*58:01 | 1 | 1230 | 1238 | 9 | VTIMLCCMT | 9e-05 | 38 |
| HLA-A*68:01 | 1 | 1231 | 1239 | 9 | TIMLCCMTS | 9e-05 | 33 |
| HLA-A*31:01 | 1 | 1262 | 1270 | 9 | EPVLKGVKL | 9e-05 | 37 |
| HLA-A*30:02 | 1 | 7 | 16 | 10 | LLPLVSSQCV | 8.9e-05 | 58 |
| HLA-A*23:01 | 1 | 9 | 18 | 10 | PLVSSQCVNL | 8.9e-05 | 22 |
| HLA-A*02:03 | 1 | 12 | 21 | 10 | SSQCVNLTR | 8.9e-05 | 38 |
| HLA-B*58:01 | 1 | 17 | 25 | 9 | NLTTRTQLP | 8.9e-05 | 38 |
| HLA-A*68:02 | 1 | 39 | 47 | 9 | PDKVFRSSV | 8.9e-05 | 38 |
| HLA-B*51:01 | 1 | 45 | 53 | 9 | SSVLHSTQD | 8.9e-05 | 44 |
| HLA-A*02:03 | 1 | 49 | 57 | 9 | HSTQDLFLP | 8.9e-05 | 38 |
| HLA-A*11:01 | 1 | 90 | 98 | 9 | VYFASTEKS | 8.9e-05 | 22 |
| HLA-A*68:01 | 1 | 93 | 101 | 9 | ASTEKSNI | 8.9e-05 | 33 |
| HLA-B*53:01 | 1 | 104 | 112 | 9 | WIFGTTLDS | 8.9e-05 | 24 |
| HLA-A*23:01 | 1 | 112 | 120 | 9 | SKTQSLIV | 8.9e-05 | 22 |
| HLA-B*35:01 | 1 | 122 | 131 | 10 | NATNVVIVK | 8.9e-05 | 25 |
| HLA-B*15:01 | 1 | 184 | 193 | 10 | GNFKNLREF | 8.9e-05 | 36 |
| HLA-A*30:02 | 1 | 210 | 218 | 9 | INLVRDLPQ | 8.9e-05 | 58 |
| HLA-B*51:01 | 1 | 222 | 230 | 9 | ALEPLVDLP | 8.9e-05 | 44 |
| HLA-A*30:01 | 1 | 223 | 231 | 9 | LEPLVDLPI | 8.9e-05 | 61 |
| HLA-A*68:01 | 1 | 233 | 242 | 10 | INITRFQTL | 8.9e-05 | 33 |
| HLA-A*02:06 | 1 | 243 | 252 | 10 | ALHRSYLTP | 8.9e-05 | 45 |
| HLA-A*68:01 | 1 | 267 | 276 | 10 | VGYLQPRTF | 8.9e-05 | 33 |
| HLA-A*33:01 | 1 | 271 | 280 | 10 | QPRTFLLKY | 8.9e-05 | 38 |
| HLA-A*02:06 | 1 | 282 | 291 | 10 | NGTITDAVDC | 8.9e-05 | 45 |
| HLA-A*30:02 | 1 | 290 | 299 | 10 | DCALDPLSET | 8.9e-05 | 58 |
| HLA-A*30:01 | 1 | 294 | 303 | 10 | DPLSETKCTL | 8.9e-05 | 61 |
| HLA-A*11:01 | 1 | 306 | 315 | 10 | FTVEKGIYQ | 8.9e-05 | 22 |
| HLA-A*03:01 | 1 | 315 | 324 | 10 | TSNFRVQPT | 8.9e-05 | 30 |
| HLA-B*53:01 | 1 | 328 | 337 | 10 | RFPNITNLCP | 8.9e-05 | 24 |
| HLA-A*11:01 | 1 | 332 | 341 | 10 | ITNLCPFGEV | 8.9e-05 | 22 |
| HLA-B*58:01 | 1 | 338 | 346 | 9 | FGEVFNATR | 8.9e-05 | 38 |
| HLA-A*23:01 | 1 | 360 | 369 | 10 | NCVADYSVLY | 8.9e-05 | 22 |
| HLA-A*31:01 | 1 | 393 | 402 | 10 | TNVYADSFVI | 8.9e-05 | 37 |
| HLA-A*33:01 | 1 | 424 | 433 | 10 | KLPDDFTGCV | 8.9e-05 | 38 |
| HLA-B*58:01 | 1 | 450 | 458 | 9 | NYLYRFLRK | 8.9e-05 | 38 |
| HLA-A*31:01 | 1 | 464 | 472 | 9 | FERDISTEI | 8.9e-05 | 37 |
| HLA-A*01:01 | 1 | 471 | 480 | 10 | EIYQAGSTPC | 8.9e-05 | 51 |
| HLA-B*07:02 | 1 | 474 | 483 | 10 | QAGSTPCNGV | 8.9e-05 | 33 |
| HLA-B*53:01 | 1 | 475 | 483 | 9 | AGSTPCNGV | 8.9e-05 | 24 |
| HLA-A*01:01 | 1 | 476 | 485 | 10 | GSTPCNGVEG | 8.9e-05 | 51 |
| HLA-A*03:01 | 1 | 485 | 493 | 9 | GFNCYFPLQ | 8.9e-05 | 30 |
| HLA-B*44:03 | 1 | 493 | 501 | 9 | QSYGFQPTN | 8.9e-05 | 23 |
| HLA-A*11:01 | 1 | 502 | 511 | 10 | GVGYPYRVV | 8.9e-05 | 22 |
| HLA-B*53:01 | 1 | 519 | 528 | 10 | HAPATVCGPK | 8.9e-05 | 24 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*32:01 | 1 | 522 | 531 | 10 | ATVCGPKKST | 8.9e-05 | 27 |
| HLA-A*02:03 | 1 | 529 | 538 | 10 | KSTNLVKKNC | 8.9e-05 | 38 |
| HLA-B*58:01 | 1 | 531 | 539 | 9 | TNLVKKNCV | 8.9e-05 | 38 |
| HLA-B*44:02 | 1 | 557 | 566 | 10 | KKFLPFQFG | 8.9e-05 | 24 |
| HLA-A*01:01 | 1 | 570 | 579 | 10 | ADTTDAVRDP | 8.9e-05 | 51 |
| HLA-B*57:01 | 1 | 583 | 591 | 9 | EILDITPCS | 8.9e-05 | 49 |
| HLA-B*15:01 | 1 | 593 | 601 | 9 | GGVSVITPG | 8.9e-05 | 36 |
| HLA-A*23:01 | 1 | 624 | 632 | 9 | IHADQLTPT | 8.9e-05 | 22 |
| HLA-B*53:01 | 1 | 629 | 638 | 10 | LTPTWRVYST | 8.9e-05 | 24 |
| HLA-B*53:01 | 1 | 633 | 642 | 10 | WRVYSTGSNV | 8.9e-05 | 24 |
| HLA-A*11:01 | 1 | 641 | 649 | 9 | NVFQTRAGC | 8.9e-05 | 22 |
| HLA-A*30:01 | 1 | 661 | 670 | 10 | ECDIPIGAGI | 8.9e-05 | 61 |
| HLA-B*40:01 | 1 | 666 | 674 | 9 | IGAGICASY | 8.9e-05 | 21 |
| HLA-A*26:01 | 1 | 675 | 684 | 10 | QTQTNSPRRA | 8.9e-05 | 31 |
| HLA-A*26:01 | 1 | 696 | 705 | 10 | TMSLGAENSV | 8.9e-05 | 31 |
| HLA-A*32:01 | 1 | 720 | 728 | 9 | ISVTTEILP | 8.9e-05 | 27 |
| HLA-B*15:01 | 1 | 720 | 728 | 9 | ISVTTEILP | 8.9e-05 | 36 |
| HLA-A*68:02 | 1 | 729 | 738 | 10 | VSMTKTSVDC | 8.9e-05 | 38 |
| HLA-A*30:01 | 1 | 745 | 754 | 10 | DSTECSLLLL | 8.9e-05 | 61 |
| HLA-A*02:03 | 1 | 748 | 756 | 9 | ECSNLLLQY | 8.9e-05 | 38 |
| HLA-A*31:01 | 1 | 752 | 760 | 9 | LLLQYGSFC | 8.9e-05 | 37 |
| HLA-B*08:01 | 1 | 771 | 779 | 9 | AVEQDKNTQ | 8.9e-05 | 50 |
| HLA-A*02:06 | 1 | 795 | 804 | 10 | KDFGGFNFSQ | 8.9e-05 | 45 |
| HLA-B*57:01 | 1 | 795 | 803 | 9 | KDFGGFNFS | 8.9e-05 | 49 |
| HLA-B*53:01 | 1 | 796 | 805 | 10 | DFGGFNFSQI | 8.9e-05 | 24 |
| HLA-B*35:01 | 1 | 805 | 813 | 9 | ILPDPSKPS | 8.9e-05 | 25 |
| HLA-B*44:02 | 1 | 811 | 819 | 9 | KPSKRSFIE | 8.9e-05 | 24 |
| HLA-A*68:01 | 1 | 826 | 834 | 9 | VTLADAGFI | 8.9e-05 | 33 |
| HLA-A*02:06 | 1 | 844 | 853 | 10 | IAARDLICAQ | 8.9e-05 | 45 |
| HLA-B*44:02 | 1 | 853 | 862 | 10 | QKFNGLTVLP | 8.9e-05 | 24 |
| HLA-A*32:01 | 1 | 857 | 866 | 10 | GLTVLPPLL | 8.9e-05 | 27 |
| HLA-A*30:02 | 1 | 867 | 875 | 9 | DEMIAQYTS | 8.9e-05 | 58 |
| HLA-A*31:01 | 1 | 870 | 879 | 10 | IAQYTSALLA | 8.9e-05 | 37 |
| HLA-A*68:02 | 1 | 888 | 897 | 10 | FGAGAALQIP | 8.9e-05 | 38 |
| HLA-A*23:01 | 1 | 908 | 916 | 9 | GIGVTQNVL | 8.9e-05 | 22 |
| HLA-A*31:01 | 1 | 913 | 922 | 10 | QNVLYENQKL | 8.9e-05 | 37 |
| HLA-A*31:01 | 1 | 917 | 926 | 10 | YENQKLIANQ | 8.9e-05 | 37 |
| HLA-A*02:06 | 1 | 928 | 937 | 10 | NSAIGKIQDS | 8.9e-05 | 45 |
| HLA-B*57:01 | 1 | 931 | 940 | 10 | IGKIQDSLSS | 8.9e-05 | 49 |
| HLA-A*31:01 | 1 | 935 | 944 | 10 | QDLSSTASA | 8.9e-05 | 37 |
| HLA-B*07:02 | 1 | 949 | 958 | 10 | QDVVNQNAQA | 8.9e-05 | 33 |
| HLA-B*15:01 | 1 | 988 | 997 | 10 | EAEVQIDRLI | 8.9e-05 | 36 |
| HLA-A*24:02 | 1 | 992 | 1000 | 9 | QIDRLITGR | 8.9e-05 | 21 |
| HLA-A*03:01 | 1 | 1006 | 1015 | 10 | TYVTQQLIRA | 8.9e-05 | 30 |
| HLA-A*01:01 | 1 | 1009 | 1017 | 9 | TQQLIRAAE | 8.9e-05 | 51 |
| HLA-B*44:02 | 1 | 1018 | 1026 | 9 | IRASANLAA | 8.9e-05 | 24 |
| HLA-B*44:03 | 1 | 1025 | 1033 | 9 | AATKMSECV | 8.9e-05 | 23 |
| HLA-B*15:01 | 1 | 1036 | 1045 | 10 | QSKRVDFCGK | 8.9e-05 | 36 |
| HLA-B*57:01 | 1 | 1051 | 1059 | 9 | SFPQSAPHG | 8.9e-05 | 49 |
| HLA-A*23:01 | 1 | 1052 | 1061 | 10 | FPQSAPHGVV | 8.9e-05 | 22 |
| HLA-A*68:01 | 1 | 1072 | 1080 | 9 | EKNFTTAPA | 8.9e-05 | 33 |
| HLA-B*15:01 | 1 | 1074 | 1083 | 10 | NFTTAPAICH | 8.9e-05 | 36 |
| HLA-A*03:01 | 1 | 1098 | 1106 | 9 | NGTHWFVTQ | 8.9e-05 | 30 |
| HLA-A*30:02 | 1 | 1131 | 1139 | 9 | GIVNNTVYD | 8.9e-05 | 58 |
| HLA-A*31:01 | 1 | 1132 | 1140 | 9 | IVNNTVYDP | 8.9e-05 | 37 |
| HLA-A*68:01 | 1 | 1132 | 1141 | 10 | IVNNTVYDPL | 8.9e-05 | 33 |
| HLA-A*11:01 | 1 | 1141 | 1150 | 10 | LQPELDSFKE | 8.9e-05 | 22 |
| HLA-A*01:01 | 1 | 1152 | 1161 | 10 | LDKYFKNHTS | 8.9e-05 | 51 |
| HLA-B*44:02 | 1 | 1157 | 1166 | 10 | KNHTSPDVDL | 8.9e-05 | 24 |
| HLA-B*35:01 | 1 | 1167 | 1176 | 10 | GDISGINASV | 8.9e-05 | 25 |
| HLA-B*08:01 | 1 | 1195 | 1204 | 10 | ESLIDLQELG | 8.9e-05 | 50 |
| HLA-A*31:01 | 1 | 1218 | 1226 | 9 | LGFIAGLIA | 8.9e-05 | 37 |
| HLA-B*51:01 | 1 | 1258 | 1266 | 9 | EDDSEPVLK | 8.9e-05 | 44 |
| HLA-B*51:01 | 1 | 1263 | 1272 | 10 | PVLKGVKLHY | 8.9e-05 | 44 |
| HLA-B*08:01 | 1 | 12 | 21 | 10 | SSQCVNLTTR | 8.8e-05 | 50 |
| HLA-A*23:01 | 1 | 65 | 73 | 9 | FHAIHVSQT | 8.8e-05 | 22 |

| | | | | | | |
|-------------|---|-----|-----|----|---------------------|----|
| HLA-B*35:01 | 1 | 78 | 87 | 10 | RFDNPVLPFN 8.8e-05 | 25 |
| HLA-B*58:01 | 1 | 104 | 113 | 10 | WIFGTTLDISK 8.8e-05 | 38 |
| HLA-B*57:01 | 1 | 131 | 140 | 10 | CEFQFCNDPF 8.8e-05 | 50 |
| HLA-B*57:01 | 1 | 138 | 147 | 10 | DPFLGVYYHK 8.8e-05 | 50 |
| HLA-B*08:01 | 1 | 140 | 148 | 9 | FLGVYYHKN 8.8e-05 | 50 |
| HLA-B*53:01 | 1 | 160 | 169 | 10 | YSSANNCTFE 8.8e-05 | 24 |
| HLA-A*32:01 | 1 | 180 | 189 | 10 | EGKQGNFKNL 8.8e-05 | 27 |
| HLA-B*15:01 | 1 | 185 | 193 | 9 | NFKNLREFV 8.8e-05 | 36 |
| HLA-A*02:06 | 1 | 197 | 206 | 10 | IDGYFKIYSK 8.8e-05 | 46 |
| HLA-B*35:01 | 1 | 203 | 212 | 10 | IYSKHTPINL 8.8e-05 | 25 |
| HLA-A*32:01 | 1 | 217 | 226 | 10 | PQGFSALEPL 8.8e-05 | 27 |
| HLA-A*02:01 | 1 | 230 | 238 | 9 | PIGINITRF 8.8e-05 | 35 |
| HLA-A*68:01 | 1 | 252 | 260 | 9 | GDSSSGWTA 8.8e-05 | 33 |
| HLA-A*02:01 | 1 | 263 | 271 | 9 | AAYYVGYLQ 8.8e-05 | 35 |
| HLA-A*11:01 | 1 | 263 | 272 | 10 | AAYYVGYLQP 8.8e-05 | 23 |
| HLA-A*33:01 | 1 | 318 | 327 | 10 | FRVQPTESIV 8.8e-05 | 38 |
| HLA-B*07:02 | 1 | 333 | 341 | 9 | TNLCPFGEV 8.8e-05 | 33 |
| HLA-B*57:01 | 1 | 333 | 341 | 9 | TNLCPFGEV 8.8e-05 | 50 |
| HLA-A*23:01 | 1 | 360 | 368 | 9 | NCVADYSVL 8.8e-05 | 22 |
| HLA-A*24:02 | 1 | 360 | 369 | 10 | NCVADYSVLY 8.8e-05 | 22 |
| HLA-A*03:01 | 1 | 363 | 372 | 10 | ADYSVLYNSA 8.8e-05 | 30 |
| HLA-A*31:01 | 1 | 376 | 385 | 10 | TFKCYGVSPT 8.8e-05 | 37 |
| HLA-A*30:01 | 1 | 379 | 388 | 10 | CYGVSPKLN 8.8e-05 | 61 |
| HLA-B*08:01 | 1 | 392 | 401 | 10 | FTNVYADSFV 8.8e-05 | 50 |
| HLA-B*44:02 | 1 | 397 | 405 | 9 | ADSFVIRGD 8.8e-05 | 24 |
| HLA-B*44:02 | 1 | 403 | 412 | 10 | RGDEVQIAP 8.8e-05 | 24 |
| HLA-A*24:02 | 1 | 409 | 417 | 9 | QIAPGQTGK 8.8e-05 | 22 |
| HLA-A*31:01 | 1 | 422 | 430 | 9 | NYKLPDDFT 8.8e-05 | 37 |
| HLA-B*35:01 | 1 | 423 | 431 | 9 | YKLPDDFTG 8.8e-05 | 25 |
| HLA-A*68:01 | 1 | 427 | 435 | 9 | DDFTGCVIA 8.8e-05 | 33 |
| HLA-B*07:02 | 1 | 427 | 435 | 9 | DDFTGCVIA 8.8e-05 | 33 |
| HLA-A*24:02 | 1 | 446 | 455 | 10 | GGNYNYLYRL 8.8e-05 | 22 |
| HLA-B*44:03 | 1 | 455 | 464 | 10 | LFRKSNLKPF 8.8e-05 | 23 |
| HLA-B*35:01 | 1 | 460 | 468 | 9 | NLKPFERDI 8.8e-05 | 25 |
| HLA-B*44:03 | 1 | 480 | 489 | 10 | CNGVEGFNCY 8.8e-05 | 23 |
| HLA-B*40:01 | 1 | 486 | 495 | 10 | FNCYFPLQSY 8.8e-05 | 21 |
| HLA-B*08:01 | 1 | 487 | 496 | 10 | NCYFPLQSYG 8.8e-05 | 50 |
| HLA-A*33:01 | 1 | 494 | 502 | 9 | SYGFQPTNG 8.8e-05 | 38 |
| HLA-B*35:01 | 1 | 504 | 513 | 10 | GYQPYRVVVL 8.8e-05 | 25 |
| HLA-B*35:01 | 1 | 541 | 549 | 9 | FNFNGLTGT 8.8e-05 | 25 |
| HLA-B*44:02 | 1 | 542 | 551 | 10 | NFNGLTGTGV 8.8e-05 | 24 |
| HLA-B*07:02 | 1 | 547 | 555 | 9 | TGTGVLTES 8.8e-05 | 33 |
| HLA-A*31:01 | 1 | 577 | 585 | 9 | RDPQTLLEIL 8.8e-05 | 37 |
| HLA-A*68:02 | 1 | 598 | 607 | 10 | ITPGTNTSNQ 8.8e-05 | 38 |
| HLA-B*53:01 | 1 | 598 | 607 | 10 | ITPGTNTSNQ 8.8e-05 | 24 |
| HLA-B*08:01 | 1 | 619 | 627 | 9 | EVPVAIHAD 8.8e-05 | 50 |
| HLA-A*33:01 | 1 | 633 | 642 | 10 | WRVYSTGSNV 8.8e-05 | 38 |
| HLA-B*40:01 | 1 | 638 | 646 | 9 | TGSNVFQTR 8.8e-05 | 21 |
| HLA-B*58:01 | 1 | 641 | 650 | 10 | NVFQTRAGCL 8.8e-05 | 38 |
| HLA-A*30:01 | 1 | 657 | 666 | 10 | NNSYECDIPI 8.8e-05 | 61 |
| HLA-B*51:01 | 1 | 671 | 680 | 10 | CASYQTQTN 8.8e-05 | 44 |
| HLA-A*33:01 | 1 | 684 | 692 | 9 | ARSVASQSI 8.8e-05 | 38 |
| HLA-B*40:01 | 1 | 689 | 698 | 10 | SQSIIAYTMS 8.8e-05 | 21 |
| HLA-A*68:01 | 1 | 705 | 714 | 10 | VAYSNNIAI 8.8e-05 | 33 |
| HLA-A*03:01 | 1 | 707 | 715 | 9 | YSNNIAIIP 8.8e-05 | 30 |
| HLA-A*24:02 | 1 | 731 | 740 | 10 | MTKTSVDCTM 8.8e-05 | 22 |
| HLA-B*07:02 | 1 | 754 | 762 | 9 | LQYGSFCTQ 8.8e-05 | 33 |
| HLA-A*30:02 | 1 | 755 | 764 | 10 | QYGSFCTQLN 8.8e-05 | 58 |
| HLA-B*51:01 | 1 | 781 | 790 | 10 | VFAQVKQIYK 8.8e-05 | 44 |
| HLA-A*11:01 | 1 | 788 | 797 | 10 | IYKTPPIKDF 8.8e-05 | 23 |
| HLA-A*02:03 | 1 | 796 | 805 | 10 | DFGGFNFSQI 8.8e-05 | 38 |
| HLA-A*01:01 | 1 | 798 | 807 | 10 | GGFNFSQILP 8.8e-05 | 51 |
| HLA-A*30:01 | 1 | 843 | 852 | 10 | DIAARDLICA 8.8e-05 | 61 |
| HLA-A*01:01 | 1 | 855 | 863 | 9 | FNGLTVLPP 8.8e-05 | 51 |
| HLA-A*02:03 | 1 | 888 | 897 | 10 | FGAGAALQIP 8.8e-05 | 38 |
| HLA-A*31:01 | 1 | 889 | 898 | 10 | GAGAALQIPF 8.8e-05 | 37 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*11:01 | 1 | 891 | 900 | 10 | GAALQIPFAM | 8.8e-05 | 23 |
| HLA-A*68:02 | 1 | 892 | 901 | 10 | AALQIPFAMQ | 8.8e-05 | 38 |
| HLA-B*40:01 | 1 | 895 | 904 | 10 | QIPFAMQMAY | 8.8e-05 | 21 |
| HLA-A*31:01 | 1 | 908 | 916 | 9 | GIGVTQNVL | 8.8e-05 | 37 |
| HLA-B*35:01 | 1 | 913 | 922 | 10 | QNVLYENQKL | 8.8e-05 | 25 |
| HLA-B*07:02 | 1 | 917 | 926 | 10 | YENQKLIANQ | 8.8e-05 | 33 |
| HLA-A*01:01 | 1 | 932 | 941 | 10 | GKIQDSLSSST | 8.8e-05 | 51 |
| HLA-A*30:01 | 1 | 935 | 943 | 9 | QDSLSSSTAS | 8.8e-05 | 61 |
| HLA-B*44:03 | 1 | 941 | 949 | 9 | TASALGKLQ | 8.8e-05 | 23 |
| HLA-B*58:01 | 1 | 961 | 969 | 9 | TLVKQLSSN | 8.8e-05 | 38 |
| HLA-B*15:01 | 1 | 966 | 974 | 9 | LSSNFGAIS | 8.8e-05 | 36 |
| HLA-B*35:01 | 1 | 978 | 987 | 10 | NDILSRLDKV | 8.8e-05 | 25 |
| HLA-B*58:01 | 1 | 979 | 987 | 9 | DILSRLDKV | 8.8e-05 | 38 |
| HLA-B*57:01 | 1 | 986 | 994 | 9 | KVEAEVQID | 8.8e-05 | 50 |
| HLA-A*31:01 | 1 | 993 | 1001 | 9 | IDRLITGRL | 8.8e-05 | 37 |
| HLA-A*31:01 | 1 | 1022 | 1031 | 10 | ANLAATKMSE | 8.8e-05 | 37 |
| HLA-B*15:01 | 1 | 1023 | 1032 | 10 | NLAATKMSEC | 8.8e-05 | 36 |
| HLA-A*02:03 | 1 | 1047 | 1055 | 9 | YHLMSFPQS | 8.8e-05 | 38 |
| HLA-B*07:02 | 1 | 1059 | 1068 | 10 | GVVFLHVTVV | 8.8e-05 | 33 |
| HLA-A*02:03 | 1 | 1072 | 1081 | 10 | EKNFTTAPAI | 8.8e-05 | 38 |
| HLA-B*07:02 | 1 | 1072 | 1081 | 10 | EKNFTTAPAI | 8.8e-05 | 33 |
| HLA-B*35:01 | 1 | 1084 | 1092 | 9 | DGKAHFPRE | 8.8e-05 | 25 |
| HLA-A*11:01 | 1 | 1087 | 1096 | 10 | AHFPREGVVF | 8.8e-05 | 23 |
| HLA-A*68:01 | 1 | 1107 | 1116 | 10 | RNFYEQIIT | 8.8e-05 | 33 |
| HLA-A*24:02 | 1 | 1121 | 1129 | 9 | FVSGNCDVV | 8.8e-05 | 22 |
| HLA-A*30:01 | 1 | 1123 | 1131 | 9 | SGNCDVVIG | 8.8e-05 | 61 |
| HLA-A*01:01 | 1 | 1134 | 1142 | 9 | NNTVYDPLQ | 8.8e-05 | 51 |
| HLA-B*51:01 | 1 | 1141 | 1150 | 10 | LQPELDSFKE | 8.8e-05 | 44 |
| HLA-A*02:03 | 1 | 1158 | 1166 | 9 | NHTSPDVDL | 8.8e-05 | 38 |
| HLA-A*02:03 | 1 | 1159 | 1167 | 9 | HTSPDVDLG | 8.8e-05 | 38 |
| HLA-A*23:01 | 1 | 1169 | 1177 | 9 | ISGINASVV | 8.8e-05 | 22 |
| HLA-B*57:01 | 1 | 1182 | 1191 | 10 | EIDRLNEVAK | 8.8e-05 | 50 |
| HLA-A*03:01 | 1 | 1188 | 1197 | 10 | EVAKNLNESL | 8.8e-05 | 30 |
| HLA-A*02:01 | 1 | 1199 | 1207 | 9 | DLQELGKYE | 8.8e-05 | 35 |
| HLA-B*40:01 | 1 | 1209 | 1217 | 9 | YIKWPWYIW | 8.8e-05 | 21 |
| HLA-B*53:01 | 1 | 1215 | 1224 | 10 | YIWLGFIAGL | 8.8e-05 | 24 |
| HLA-B*53:01 | 1 | 1260 | 1269 | 10 | DSEPVLKGVK | 8.8e-05 | 24 |
| HLA-A*02:03 | 1 | 1265 | 1273 | 9 | LKGVKLYHT | 8.8e-05 | 38 |
| HLA-B*53:01 | 1 | 1 | 10 | 10 | MFVFLVLLPL | 8.7e-05 | 25 |
| HLA-B*57:01 | 1 | 4 | 13 | 10 | FLVLLPLVSS | 8.7e-05 | 50 |
| HLA-A*02:06 | 1 | 17 | 26 | 10 | NLTTRTQLPP | 8.7e-05 | 46 |
| HLA-A*32:01 | 1 | 22 | 31 | 10 | TQLPPAYTNS | 8.7e-05 | 27 |
| HLA-B*07:02 | 1 | 31 | 39 | 9 | SFTRGVYYP | 8.7e-05 | 33 |
| HLA-A*02:03 | 1 | 33 | 42 | 10 | TRGVYYPDKV | 8.7e-05 | 38 |
| HLA-A*30:01 | 1 | 52 | 60 | 9 | QDLFLPFFS | 8.7e-05 | 61 |
| HLA-B*35:01 | 1 | 91 | 100 | 10 | YFASTEKSNI | 8.7e-05 | 26 |
| HLA-B*40:01 | 1 | 108 | 116 | 9 | TTLDSKTQS | 8.7e-05 | 21 |
| HLA-B*15:01 | 1 | 121 | 129 | 9 | NNATNVVIK | 8.7e-05 | 36 |
| HLA-B*53:01 | 1 | 121 | 129 | 9 | NNATNVVIK | 8.7e-05 | 25 |
| HLA-A*30:01 | 1 | 152 | 161 | 10 | WMESEFRVYS | 8.7e-05 | 61 |
| HLA-A*68:01 | 1 | 183 | 191 | 9 | QGNFKNLRE | 8.7e-05 | 33 |
| HLA-B*44:02 | 1 | 185 | 193 | 9 | NFKNLREFV | 8.7e-05 | 24 |
| HLA-B*44:02 | 1 | 201 | 209 | 9 | FKIYSKHTP | 8.7e-05 | 24 |
| HLA-A*02:01 | 1 | 231 | 240 | 10 | IGINITRFQT | 8.7e-05 | 35 |
| HLA-A*68:02 | 1 | 241 | 250 | 10 | LLALHRSYLT | 8.7e-05 | 38 |
| HLA-A*31:01 | 1 | 261 | 270 | 10 | GAAAYVGYL | 8.7e-05 | 37 |
| HLA-B*58:01 | 1 | 277 | 285 | 9 | LKYNENGTI | 8.7e-05 | 38 |
| HLA-B*35:01 | 1 | 311 | 319 | 9 | GIYQTSNFR | 8.7e-05 | 26 |
| HLA-A*11:01 | 1 | 342 | 350 | 9 | FNATRFASV | 8.7e-05 | 23 |
| HLA-B*08:01 | 1 | 357 | 365 | 9 | RISNCVADY | 8.7e-05 | 50 |
| HLA-B*51:01 | 1 | 373 | 382 | 10 | SFSTFKCYGV | 8.7e-05 | 44 |
| HLA-B*51:01 | 1 | 375 | 383 | 9 | STFKCYGVS | 8.7e-05 | 44 |
| HLA-A*30:01 | 1 | 388 | 396 | 9 | NDLCFITNVY | 8.7e-05 | 61 |
| HLA-A*30:02 | 1 | 398 | 407 | 10 | DSFVIRGDEV | 8.7e-05 | 59 |
| HLA-B*08:01 | 1 | 423 | 431 | 9 | YKLPDDFTG | 8.7e-05 | 50 |
| HLA-A*30:02 | 1 | 433 | 442 | 10 | VIAWNSNNLD | 8.7e-05 | 59 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*32:01 | 1 | 435 | 444 | 10 | AWNSNNLDSK | 8.7e-05 | 27 |
| HLA-A*68:02 | 1 | 437 | 446 | 10 | NSNNLDSKVG | 8.7e-05 | 38 |
| HLA-A*68:01 | 1 | 447 | 456 | 10 | GNYNLYRLFR | 8.7e-05 | 33 |
| HLA-B*57:01 | 1 | 448 | 457 | 10 | NYNLYRLFR | 8.7e-05 | 50 |
| HLA-A*11:01 | 1 | 456 | 464 | 9 | FRKSNLKP | 8.7e-05 | 23 |
| HLA-B*15:01 | 1 | 456 | 465 | 10 | FRKSNLKPFE | 8.7e-05 | 36 |
| HLA-A*33:01 | 1 | 459 | 468 | 10 | SNLKPFERDI | 8.7e-05 | 38 |
| HLA-A*32:01 | 1 | 468 | 476 | 9 | ISTEIQAG | 8.7e-05 | 27 |
| HLA-B*53:01 | 1 | 504 | 513 | 10 | GYQPYRVVVL | 8.7e-05 | 25 |
| HLA-B*58:01 | 1 | 518 | 526 | 9 | LHAPATVCG | 8.7e-05 | 38 |
| HLA-B*15:01 | 1 | 519 | 527 | 9 | HAPATVCGP | 8.7e-05 | 36 |
| HLA-A*02:03 | 1 | 572 | 581 | 10 | TTDAVRDPQT | 8.7e-05 | 38 |
| HLA-B*15:01 | 1 | 598 | 607 | 10 | ITPGTNTSNQ | 8.7e-05 | 36 |
| HLA-B*07:02 | 1 | 609 | 617 | 9 | AVLYQDVNC | 8.7e-05 | 33 |
| HLA-B*35:01 | 1 | 611 | 620 | 10 | LYQDVNCTEV | 8.7e-05 | 26 |
| HLA-A*26:01 | 1 | 623 | 631 | 9 | AIHADQLTP | 8.7e-05 | 31 |
| HLA-A*68:01 | 1 | 624 | 632 | 9 | IHADQLTPT | 8.7e-05 | 33 |
| HLA-A*02:01 | 1 | 636 | 644 | 9 | YSTGSNVFQ | 8.7e-05 | 35 |
| HLA-A*02:06 | 1 | 653 | 662 | 10 | AEHVNNSEYEC | 8.7e-05 | 46 |
| HLA-A*26:01 | 1 | 666 | 675 | 10 | IGAGICASYQ | 8.7e-05 | 31 |
| HLA-A*68:02 | 1 | 671 | 680 | 10 | CASYQTQTN | 8.7e-05 | 38 |
| HLA-A*33:01 | 1 | 676 | 684 | 9 | TQTNSPRRA | 8.7e-05 | 38 |
| HLA-B*57:01 | 1 | 708 | 716 | 9 | SNNSIAIPT | 8.7e-05 | 50 |
| HLA-B*40:01 | 1 | 731 | 740 | 10 | MTKTSVDCTM | 8.7e-05 | 21 |
| HLA-A*68:01 | 1 | 739 | 748 | 10 | TMYICGDSTE | 8.7e-05 | 33 |
| HLA-A*31:01 | 1 | 759 | 767 | 9 | FCTQLNRAL | 8.7e-05 | 37 |
| HLA-A*23:01 | 1 | 761 | 769 | 9 | TQLNRALTG | 8.7e-05 | 22 |
| HLA-A*03:01 | 1 | 762 | 771 | 10 | QLNRALTGIA | 8.7e-05 | 30 |
| HLA-A*11:01 | 1 | 790 | 798 | 9 | KTPPIKDFG | 8.7e-05 | 23 |
| HLA-A*32:01 | 1 | 803 | 812 | 10 | SQILPDPSKP | 8.7e-05 | 27 |
| HLA-A*33:01 | 1 | 830 | 838 | 9 | DAGFIKQYG | 8.7e-05 | 38 |
| HLA-B*58:01 | 1 | 831 | 839 | 9 | AGFIKQYGD | 8.7e-05 | 38 |
| HLA-A*02:01 | 1 | 840 | 848 | 9 | CLGDIAARD | 8.7e-05 | 35 |
| HLA-A*33:01 | 1 | 853 | 862 | 10 | QKFNGLTVLP | 8.7e-05 | 38 |
| HLA-A*31:01 | 1 | 884 | 893 | 10 | SGWTFGAGAA | 8.7e-05 | 37 |
| HLA-B*44:03 | 1 | 894 | 903 | 10 | LQIPFAMQMA | 8.7e-05 | 23 |
| HLA-A*03:01 | 1 | 909 | 918 | 10 | IGVTQNVLYE | 8.7e-05 | 30 |
| HLA-A*02:03 | 1 | 912 | 921 | 10 | TQNVLYENQK | 8.7e-05 | 38 |
| HLA-B*40:01 | 1 | 929 | 937 | 9 | SAIGKIQDS | 8.7e-05 | 21 |
| HLA-A*33:01 | 1 | 935 | 944 | 10 | QDLSSTASA | 8.7e-05 | 38 |
| HLA-A*02:06 | 1 | 942 | 950 | 9 | ASALGKLQD | 8.7e-05 | 46 |
| HLA-A*26:01 | 1 | 956 | 965 | 10 | AQALNTLVKQ | 8.7e-05 | 31 |
| HLA-B*44:02 | 1 | 967 | 976 | 10 | SSNFGAISSV | 8.7e-05 | 24 |
| HLA-A*02:03 | 1 | 1072 | 1080 | 9 | EKNFTTAPA | 8.7e-05 | 38 |
| HLA-A*23:01 | 1 | 1086 | 1094 | 9 | KAHFPREGV | 8.7e-05 | 22 |
| HLA-A*68:01 | 1 | 1087 | 1096 | 10 | AHFPREGV | 8.7e-05 | 33 |
| HLA-A*03:01 | 1 | 1088 | 1096 | 9 | HFPREGV | 8.7e-05 | 30 |
| HLA-B*07:02 | 1 | 1092 | 1101 | 10 | EGVFVSNQTH | 8.7e-05 | 33 |
| HLA-A*32:01 | 1 | 1115 | 1123 | 9 | ITTDNTFVS | 8.7e-05 | 27 |
| HLA-A*01:01 | 1 | 1117 | 1125 | 9 | TDNTFVSGN | 8.7e-05 | 51 |
| HLA-A*30:01 | 1 | 1125 | 1133 | 9 | NCDVIGIV | 8.7e-05 | 61 |
| HLA-B*51:01 | 1 | 1134 | 1143 | 10 | NNTVYDPLQP | 8.7e-05 | 44 |
| HLA-A*03:01 | 1 | 1135 | 1143 | 9 | NTVYDPLQP | 8.7e-05 | 30 |
| HLA-B*53:01 | 1 | 1170 | 1179 | 10 | SGINASVVNI | 8.7e-05 | 25 |
| HLA-A*30:01 | 1 | 1210 | 1219 | 10 | IKWPWYIWL | 8.7e-05 | 61 |
| HLA-A*30:02 | 1 | 1213 | 1221 | 9 | PWYIWLGF | 8.7e-05 | 59 |
| HLA-B*51:01 | 1 | 1213 | 1221 | 9 | PWYIWLGF | 8.7e-05 | 44 |
| HLA-A*23:01 | 1 | 1222 | 1230 | 9 | AGLIAIVMV | 8.7e-05 | 22 |
| HLA-A*02:03 | 1 | 1243 | 1252 | 10 | CLKGCCSCGS | 8.7e-05 | 38 |
| HLA-B*51:01 | 1 | 5 | 14 | 10 | LVLPLVSSQ | 8.6e-05 | 44 |
| HLA-B*51:01 | 1 | 11 | 20 | 10 | VSSQCVNLTT | 8.6e-05 | 44 |
| HLA-B*35:01 | 1 | 12 | 20 | 9 | SSQCVNLTT | 8.6e-05 | 26 |
| HLA-A*02:01 | 1 | 37 | 46 | 10 | YYPDKVFRSS | 8.6e-05 | 36 |
| HLA-A*01:01 | 1 | 42 | 51 | 10 | VFRSSVLHST | 8.6e-05 | 52 |
| HLA-B*44:02 | 1 | 45 | 54 | 10 | SSVLHSTQDL | 8.6e-05 | 24 |
| HLA-A*30:02 | 1 | 48 | 57 | 10 | LHSTQDLFLP | 8.6e-05 | 59 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-A*68:01 | 1 | 52 | 60 | 9 | QDLFLPFFS | 8.6e-05 | 33 |
| HLA-A*11:01 | 1 | 78 | 87 | 10 | RFDNPVLPFN | 8.6e-05 | 23 |
| HLA-A*03:01 | 1 | 84 | 93 | 10 | LPFNDGVYFA | 8.6e-05 | 30 |
| HLA-B*53:01 | 1 | 122 | 131 | 10 | NATNVVIVKVC | 8.6e-05 | 25 |
| HLA-A*23:01 | 1 | 150 | 158 | 9 | KSWMESEFR | 8.6e-05 | 22 |
| HLA-B*08:01 | 1 | 152 | 161 | 10 | WMESEFRVYS | 8.6e-05 | 50 |
| HLA-A*01:01 | 1 | 169 | 178 | 10 | EYVSQPFLMD | 8.6e-05 | 52 |
| HLA-A*02:01 | 1 | 172 | 180 | 9 | SQPFLMDLE | 8.6e-05 | 36 |
| HLA-A*68:02 | 1 | 178 | 187 | 10 | DLEGKQGNFK | 8.6e-05 | 38 |
| HLA-A*33:01 | 1 | 189 | 197 | 9 | LREFVFKNI | 8.6e-05 | 38 |
| HLA-B*58:01 | 1 | 194 | 202 | 9 | FKNIDGYFK | 8.6e-05 | 38 |
| HLA-B*51:01 | 1 | 211 | 219 | 9 | NLVRDLPOG | 8.6e-05 | 44 |
| HLA-A*11:01 | 1 | 215 | 223 | 9 | DLPQGFSAL | 8.6e-05 | 23 |
| HLA-B*44:03 | 1 | 219 | 227 | 9 | GFSALEPLV | 8.6e-05 | 23 |
| HLA-B*15:01 | 1 | 224 | 233 | 10 | EPLVDLPIGI | 8.6e-05 | 36 |
| HLA-A*23:01 | 1 | 228 | 237 | 10 | DLPIGINITR | 8.6e-05 | 22 |
| HLA-B*07:02 | 1 | 265 | 273 | 9 | YYVGYLQPR | 8.6e-05 | 33 |
| HLA-B*08:01 | 1 | 274 | 283 | 10 | TFLLKYNENG | 8.6e-05 | 50 |
| HLA-B*08:01 | 1 | 291 | 300 | 10 | CALDPLSETK | 8.6e-05 | 50 |
| HLA-A*26:01 | 1 | 295 | 303 | 9 | PLSETKCTL | 8.6e-05 | 31 |
| HLA-B*51:01 | 1 | 301 | 309 | 9 | CTLKSFTVE | 8.6e-05 | 44 |
| HLA-A*02:03 | 1 | 305 | 314 | 10 | SFTVEKGIYQ | 8.6e-05 | 38 |
| HLA-B*08:01 | 1 | 314 | 323 | 10 | QTSNFRVQPT | 8.6e-05 | 50 |
| HLA-B*07:02 | 1 | 320 | 328 | 9 | VQPTESIVR | 8.6e-05 | 33 |
| HLA-A*31:01 | 1 | 325 | 334 | 10 | SIVRFPNITN | 8.6e-05 | 37 |
| HLA-A*02:01 | 1 | 334 | 343 | 10 | NLCPFGEVFN | 8.6e-05 | 36 |
| HLA-A*26:01 | 1 | 363 | 372 | 10 | ADYSVLYNSA | 8.6e-05 | 31 |
| HLA-B*08:01 | 1 | 367 | 375 | 9 | VLYNSASFV | 8.6e-05 | 50 |
| HLA-A*33:01 | 1 | 393 | 402 | 10 | TNVYADSFVI | 8.6e-05 | 38 |
| HLA-B*58:01 | 1 | 402 | 411 | 10 | IRGDEVQRQA | 8.6e-05 | 38 |
| HLA-B*51:01 | 1 | 405 | 414 | 10 | DEVQRQIAPGQ | 8.6e-05 | 44 |
| HLA-A*03:01 | 1 | 421 | 429 | 9 | YNYKLPDDF | 8.6e-05 | 30 |
| HLA-B*58:01 | 1 | 435 | 444 | 10 | AWNSNNLDSK | 8.6e-05 | 38 |
| HLA-A*30:01 | 1 | 437 | 446 | 10 | NSNNLDSKVG | 8.6e-05 | 61 |
| HLA-A*02:01 | 1 | 450 | 458 | 9 | NYLYRFLFRK | 8.6e-05 | 36 |
| HLA-B*15:01 | 1 | 457 | 466 | 10 | RKSNLKPFR | 8.6e-05 | 36 |
| HLA-A*30:02 | 1 | 470 | 478 | 9 | TEIYQAGST | 8.6e-05 | 59 |
| HLA-A*68:01 | 1 | 470 | 479 | 10 | TEIYQAGSTP | 8.6e-05 | 33 |
| HLA-A*23:01 | 1 | 471 | 480 | 10 | EIYQAGSTPC | 8.6e-05 | 22 |
| HLA-A*02:03 | 1 | 488 | 497 | 10 | CYFPLQSYGF | 8.6e-05 | 38 |
| HLA-A*02:03 | 1 | 506 | 514 | 9 | QPYRVVVL | 8.6e-05 | 38 |
| HLA-A*03:01 | 1 | 516 | 525 | 10 | ELLHAPATVC | 8.6e-05 | 30 |
| HLA-B*57:01 | 1 | 521 | 529 | 9 | PATVCGPKK | 8.6e-05 | 50 |
| HLA-A*03:01 | 1 | 522 | 530 | 9 | ATVCGPKKS | 8.6e-05 | 30 |
| HLA-A*30:02 | 1 | 534 | 542 | 9 | VKNKCVNFN | 8.6e-05 | 59 |
| HLA-B*15:01 | 1 | 548 | 557 | 10 | GTGVLTESNK | 8.6e-05 | 36 |
| HLA-A*01:01 | 1 | 558 | 566 | 9 | KFLPFQFG | 8.6e-05 | 52 |
| HLA-B*57:01 | 1 | 568 | 577 | 10 | DIADTTDAVR | 8.6e-05 | 50 |
| HLA-A*02:01 | 1 | 579 | 587 | 9 | PQTLEILDI | 8.6e-05 | 36 |
| HLA-A*68:02 | 1 | 582 | 590 | 9 | LEILDITPC | 8.6e-05 | 38 |
| HLA-A*68:02 | 1 | 582 | 591 | 10 | LEILDITPCS | 8.6e-05 | 38 |
| HLA-B*58:01 | 1 | 584 | 593 | 10 | ILDITPCSF | 8.6e-05 | 38 |
| HLA-B*51:01 | 1 | 595 | 603 | 9 | VSVITPGTN | 8.6e-05 | 44 |
| HLA-B*08:01 | 1 | 610 | 619 | 10 | VLYQDVNCTE | 8.6e-05 | 50 |
| HLA-A*33:01 | 1 | 642 | 651 | 10 | VFQTRAGCLI | 8.6e-05 | 38 |
| HLA-B*15:01 | 1 | 668 | 677 | 10 | AGICASYQTQ | 8.6e-05 | 36 |
| HLA-A*24:02 | 1 | 684 | 693 | 10 | ARSVASQSII | 8.6e-05 | 22 |
| HLA-A*68:01 | 1 | 702 | 711 | 10 | ENSVAYSNNS | 8.6e-05 | 33 |
| HLA-A*33:01 | 1 | 703 | 711 | 9 | NSVAYSNNS | 8.6e-05 | 38 |
| HLA-B*40:01 | 1 | 705 | 714 | 10 | VAYSNNSIAI | 8.6e-05 | 21 |
| HLA-A*68:02 | 1 | 706 | 715 | 10 | AYSNNSIAIP | 8.6e-05 | 38 |
| HLA-A*03:01 | 1 | 708 | 716 | 9 | SNNSIAIPT | 8.6e-05 | 30 |
| HLA-B*57:01 | 1 | 709 | 717 | 9 | NNSIAIPTN | 8.6e-05 | 50 |
| HLA-A*02:03 | 1 | 715 | 724 | 10 | PTNFTISVTT | 8.6e-05 | 38 |
| HLA-A*31:01 | 1 | 723 | 732 | 10 | TTEILPVSM | 8.6e-05 | 37 |
| HLA-B*07:02 | 1 | 744 | 753 | 10 | GDSTECSNLL | 8.6e-05 | 33 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*11:01 | 1 | 753 | 762 | 10 | LLQYGSFCTQ | 8.6e-05 | 23 |
| HLA-A*32:01 | 1 | 757 | 766 | 10 | GSFCTQLNRA | 8.6e-05 | 28 |
| HLA-B*57:01 | 1 | 763 | 772 | 10 | LNRAITGIAV | 8.6e-05 | 50 |
| HLA-A*23:01 | 1 | 787 | 796 | 10 | QIYKTPPIKD | 8.6e-05 | 22 |
| HLA-A*24:02 | 1 | 787 | 796 | 10 | QIYKTPPIKD | 8.6e-05 | 22 |
| HLA-A*02:01 | 1 | 796 | 805 | 10 | DFGGFNFSQI | 8.6e-05 | 36 |
| HLA-B*15:01 | 1 | 817 | 826 | 10 | FIEDLLFNKV | 8.6e-05 | 36 |
| HLA-A*23:01 | 1 | 822 | 830 | 9 | LFNKVTLAD | 8.6e-05 | 22 |
| HLA-B*40:01 | 1 | 841 | 850 | 10 | LGDIAARDLI | 8.6e-05 | 21 |
| HLA-B*58:01 | 1 | 855 | 864 | 10 | FNGLTVLPPL | 8.6e-05 | 38 |
| HLA-A*01:01 | 1 | 861 | 870 | 10 | LPPLLTDEMI | 8.6e-05 | 52 |
| HLA-B*51:01 | 1 | 876 | 884 | 9 | ALLAGTITS | 8.6e-05 | 44 |
| HLA-B*15:01 | 1 | 887 | 896 | 10 | TFGAGAALQI | 8.6e-05 | 36 |
| HLA-A*32:01 | 1 | 896 | 905 | 10 | IPFAMQMAYR | 8.6e-05 | 28 |
| HLA-A*68:01 | 1 | 903 | 911 | 9 | AYRFNGIGV | 8.6e-05 | 33 |
| HLA-A*68:01 | 1 | 943 | 952 | 10 | SALGKLQDVV | 8.6e-05 | 33 |
| HLA-A*26:01 | 1 | 994 | 1003 | 10 | DRLITGRLQS | 8.6e-05 | 31 |
| HLA-A*68:02 | 1 | 1029 | 1038 | 10 | MSECVLGQSK | 8.6e-05 | 38 |
| HLA-A*03:01 | 1 | 1061 | 1069 | 9 | VFLHVTVYP | 8.6e-05 | 30 |
| HLA-B*07:02 | 1 | 1069 | 1077 | 9 | PAQEKNFMTT | 8.6e-05 | 33 |
| HLA-A*68:01 | 1 | 1070 | 1078 | 9 | AQEKNFMTT | 8.6e-05 | 33 |
| HLA-A*68:02 | 1 | 1070 | 1079 | 10 | AQEKNFMTT | 8.6e-05 | 38 |
| HLA-A*26:01 | 1 | 1072 | 1080 | 9 | EKNFTTAPA | 8.6e-05 | 31 |
| HLA-B*51:01 | 1 | 1073 | 1082 | 10 | KNFTTAPAIC | 8.6e-05 | 44 |
| HLA-A*26:01 | 1 | 1099 | 1108 | 10 | GTHWFVTQRN | 8.6e-05 | 31 |
| HLA-A*02:01 | 1 | 1106 | 1115 | 10 | QRNFYEPQII | 8.6e-05 | 36 |
| HLA-B*58:01 | 1 | 1108 | 1117 | 10 | NFYEPQIITT | 8.6e-05 | 38 |
| HLA-A*02:06 | 1 | 1146 | 1154 | 9 | DSFKEELDK | 8.6e-05 | 46 |
| HLA-B*44:03 | 1 | 1153 | 1161 | 9 | DKYFKNHTS | 8.6e-05 | 23 |
| HLA-B*58:01 | 1 | 1163 | 1172 | 10 | DVDLGDISGI | 8.6e-05 | 38 |
| HLA-B*35:01 | 1 | 1171 | 1179 | 9 | GINASVVNI | 8.6e-05 | 26 |
| HLA-B*51:01 | 1 | 1194 | 1202 | 9 | NESLIDLQE | 8.6e-05 | 44 |
| HLA-A*68:01 | 1 | 1195 | 1204 | 10 | ESLIDLQELG | 8.6e-05 | 33 |
| HLA-B*07:02 | 1 | 1218 | 1227 | 10 | LGFIAGLIAI | 8.6e-05 | 33 |
| HLA-B*51:01 | 1 | 1223 | 1231 | 9 | GLIAIVMVT | 8.6e-05 | 44 |
| HLA-B*44:02 | 1 | 12 | 21 | 10 | SSQCVNLTTR | 8.5e-05 | 24 |
| HLA-B*51:01 | 1 | 12 | 21 | 10 | SSQCVNLTTR | 8.5e-05 | 45 |
| HLA-A*24:02 | 1 | 24 | 33 | 10 | LPPAYTNSFT | 8.5e-05 | 22 |
| HLA-A*33:01 | 1 | 45 | 54 | 10 | SSVLHSTQDL | 8.5e-05 | 38 |
| HLA-A*11:01 | 1 | 57 | 66 | 10 | PFFSNVTWFH | 8.5e-05 | 23 |
| HLA-B*08:01 | 1 | 60 | 69 | 10 | SNVTWFHAIH | 8.5e-05 | 50 |
| HLA-A*68:02 | 1 | 64 | 73 | 10 | WFHAIHVSQT | 8.5e-05 | 38 |
| HLA-A*02:03 | 1 | 124 | 133 | 10 | TNVVIKVFCE | 8.5e-05 | 39 |
| HLA-A*11:01 | 1 | 133 | 141 | 9 | FQFCNDPFL | 8.5e-05 | 23 |
| HLA-A*23:01 | 1 | 136 | 144 | 9 | CNDPFLGVY | 8.5e-05 | 23 |
| HLA-A*11:01 | 1 | 137 | 146 | 10 | NDPFLGVYYH | 8.5e-05 | 23 |
| HLA-B*15:01 | 1 | 141 | 150 | 10 | LGVYYHKNNK | 8.5e-05 | 36 |
| HLA-A*23:01 | 1 | 155 | 163 | 9 | SEFRVYSSA | 8.5e-05 | 23 |
| HLA-A*33:01 | 1 | 165 | 173 | 9 | NCTFEYVSQ | 8.5e-05 | 38 |
| HLA-B*53:01 | 1 | 198 | 207 | 10 | DGYFKIYSKH | 8.5e-05 | 25 |
| HLA-B*44:03 | 1 | 203 | 212 | 10 | IYSKHTPINL | 8.5e-05 | 23 |
| HLA-B*44:03 | 1 | 204 | 213 | 10 | YSKHTPINLV | 8.5e-05 | 23 |
| HLA-A*03:01 | 1 | 218 | 226 | 9 | QGFSALEPL | 8.5e-05 | 30 |
| HLA-A*32:01 | 1 | 275 | 283 | 9 | FLLKYNENG | 8.5e-05 | 28 |
| HLA-A*33:01 | 1 | 278 | 286 | 9 | KYNENGTIT | 8.5e-05 | 38 |
| HLA-A*03:01 | 1 | 306 | 315 | 10 | FTVEKGIYQT | 8.5e-05 | 30 |
| HLA-A*68:01 | 1 | 308 | 316 | 9 | VEKGIYQTS | 8.5e-05 | 33 |
| HLA-B*08:01 | 1 | 311 | 319 | 9 | GIYQTSNFR | 8.5e-05 | 50 |
| HLA-B*44:03 | 1 | 311 | 319 | 9 | GIYQTSNFR | 8.5e-05 | 23 |
| HLA-B*40:01 | 1 | 312 | 320 | 9 | IYQTSNFRV | 8.5e-05 | 21 |
| HLA-A*32:01 | 1 | 313 | 321 | 9 | YQTSNFRVQ | 8.5e-05 | 28 |
| HLA-B*44:03 | 1 | 318 | 327 | 10 | FRVQPTESIV | 8.5e-05 | 23 |
| HLA-A*03:01 | 1 | 342 | 350 | 9 | FNATRFASV | 8.5e-05 | 30 |
| HLA-B*58:01 | 1 | 363 | 372 | 10 | ADYSVLYNSA | 8.5e-05 | 39 |
| HLA-B*44:02 | 1 | 364 | 372 | 9 | DYSVLYNSA | 8.5e-05 | 24 |
| HLA-A*23:01 | 1 | 388 | 396 | 9 | NDLCFTNVY | 8.5e-05 | 23 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*30:01 | 1 | 388 | 397 | 10 | NDLCFTNVYA | 8.5e-05 | 61 |
| HLA-B*08:01 | 1 | 393 | 402 | 10 | TNVYADSFVI | 8.5e-05 | 50 |
| HLA-B*44:02 | 1 | 406 | 414 | 9 | EVRQIAPGQ | 8.5e-05 | 24 |
| HLA-A*30:02 | 1 | 425 | 434 | 10 | LPDDFTGCVI | 8.5e-05 | 59 |
| HLA-A*30:02 | 1 | 476 | 485 | 10 | GSTPCNGVEG | 8.5e-05 | 59 |
| HLA-A*32:01 | 1 | 492 | 500 | 9 | LQSYGFQPT | 8.5e-05 | 28 |
| HLA-A*23:01 | 1 | 497 | 506 | 10 | FQPTNGVGYQ | 8.5e-05 | 23 |
| HLA-B*08:01 | 1 | 498 | 506 | 9 | QPTNGVGYQ | 8.5e-05 | 50 |
| HLA-B*51:01 | 1 | 541 | 550 | 10 | FNFNGLTGTG | 8.5e-05 | 45 |
| HLA-B*08:01 | 1 | 552 | 561 | 10 | LTESNKKFLP | 8.5e-05 | 50 |
| HLA-B*44:03 | 1 | 556 | 564 | 9 | NKKFLPFQQ | 8.5e-05 | 23 |
| HLA-A*33:01 | 1 | 610 | 618 | 9 | VLYQDVNCT | 8.5e-05 | 38 |
| HLA-B*57:01 | 1 | 660 | 668 | 9 | YECDIPIGA | 8.5e-05 | 50 |
| HLA-A*68:02 | 1 | 661 | 669 | 9 | ECDIPIGAG | 8.5e-05 | 38 |
| HLA-A*31:01 | 1 | 662 | 670 | 9 | CDIPIGAGI | 8.5e-05 | 37 |
| HLA-B*44:02 | 1 | 673 | 682 | 10 | SYQTQTNspr | 8.5e-05 | 24 |
| HLA-B*44:03 | 1 | 682 | 690 | 9 | RRARSVASQ | 8.5e-05 | 23 |
| HLA-A*02:01 | 1 | 692 | 700 | 9 | IIAYTMSLG | 8.5e-05 | 36 |
| HLA-A*68:01 | 1 | 696 | 705 | 10 | TMSLGAENSV | 8.5e-05 | 33 |
| HLA-A*68:01 | 1 | 699 | 708 | 10 | LGAENSVAYS | 8.5e-05 | 33 |
| HLA-A*26:01 | 1 | 701 | 709 | 9 | AENSVAYSN | 8.5e-05 | 31 |
| HLA-A*03:01 | 1 | 716 | 724 | 9 | TNFTISVTT | 8.5e-05 | 30 |
| HLA-B*44:02 | 1 | 716 | 724 | 9 | TNFTISVTT | 8.5e-05 | 24 |
| HLA-A*02:01 | 1 | 724 | 732 | 9 | TEILPVSMT | 8.5e-05 | 36 |
| HLA-A*32:01 | 1 | 729 | 738 | 10 | VSMTKTSVDC | 8.5e-05 | 28 |
| HLA-B*44:02 | 1 | 745 | 754 | 10 | DSTECSNLLL | 8.5e-05 | 24 |
| HLA-B*58:01 | 1 | 752 | 760 | 9 | LLLQYGSFC | 8.5e-05 | 39 |
| HLA-A*31:01 | 1 | 778 | 787 | 10 | TQEVFAQVKQ | 8.5e-05 | 37 |
| HLA-A*33:01 | 1 | 778 | 787 | 10 | TQEVFAQVKQ | 8.5e-05 | 38 |
| HLA-A*31:01 | 1 | 790 | 799 | 10 | KTPPIKDFGG | 8.5e-05 | 37 |
| HLA-A*03:01 | 1 | 793 | 802 | 10 | PIKDFGGFNF | 8.5e-05 | 30 |
| HLA-A*33:01 | 1 | 804 | 813 | 10 | QILPDPSKPS | 8.5e-05 | 38 |
| HLA-B*07:02 | 1 | 822 | 831 | 10 | LFNKVTLADA | 8.5e-05 | 34 |
| HLA-A*02:03 | 1 | 842 | 851 | 10 | GDIAARDLIC | 8.5e-05 | 39 |
| HLA-B*53:01 | 1 | 873 | 881 | 9 | YTSALLAGT | 8.5e-05 | 25 |
| HLA-A*33:01 | 1 | 874 | 882 | 9 | TSALLAGTI | 8.5e-05 | 38 |
| HLA-B*44:03 | 1 | 935 | 944 | 10 | QDLSSTASA | 8.5e-05 | 23 |
| HLA-B*51:01 | 1 | 935 | 943 | 9 | QDLSSTAS | 8.5e-05 | 45 |
| HLA-A*23:01 | 1 | 944 | 952 | 9 | ALGKLQDVV | 8.5e-05 | 23 |
| HLA-A*68:02 | 1 | 951 | 960 | 10 | VVNQAQALN | 8.5e-05 | 38 |
| HLA-B*53:01 | 1 | 953 | 961 | 9 | NQNAQALNT | 8.5e-05 | 25 |
| HLA-B*58:01 | 1 | 958 | 967 | 10 | ALNTLVKQLS | 8.5e-05 | 39 |
| HLA-A*26:01 | 1 | 973 | 981 | 9 | ISSVLNDIL | 8.5e-05 | 31 |
| HLA-B*15:01 | 1 | 1014 | 1023 | 10 | RAAEIRASAN | 8.5e-05 | 36 |
| HLA-A*32:01 | 1 | 1017 | 1025 | 9 | EIRASANLA | 8.5e-05 | 28 |
| HLA-A*31:01 | 1 | 1084 | 1092 | 9 | DGKAHFPRE | 8.5e-05 | 37 |
| HLA-A*30:01 | 1 | 1089 | 1098 | 10 | FPREGVFVSN | 8.5e-05 | 61 |
| HLA-A*26:01 | 1 | 1105 | 1113 | 9 | TQRNFYEPQ | 8.5e-05 | 31 |
| HLA-B*44:03 | 1 | 1117 | 1125 | 9 | TDNTFVSGN | 8.5e-05 | 23 |
| HLA-A*33:01 | 1 | 1137 | 1146 | 10 | VYDPLQPELD | 8.5e-05 | 38 |
| HLA-A*68:02 | 1 | 1151 | 1159 | 9 | ELDKYFKNH | 8.5e-05 | 38 |
| HLA-B*35:01 | 1 | 1173 | 1182 | 10 | NASVVNIQKE | 8.5e-05 | 26 |
| HLA-A*24:02 | 1 | 1174 | 1183 | 10 | ASVVNIQKEI | 8.5e-05 | 22 |
| HLA-A*26:01 | 1 | 1177 | 1185 | 9 | VNIQKEIDR | 8.5e-05 | 31 |
| HLA-A*23:01 | 1 | 1196 | 1205 | 10 | SLIDLQELGK | 8.5e-05 | 23 |
| HLA-A*30:01 | 1 | 1213 | 1222 | 10 | PWYIWLGFIA | 8.5e-05 | 61 |
| HLA-A*23:01 | 1 | 1260 | 1268 | 9 | DSEPVLKGV | 8.5e-05 | 23 |
| HLA-A*33:01 | 1 | 3 | 12 | 10 | VFLVLLPLVS | 8.4e-05 | 38 |
| HLA-B*58:01 | 1 | 13 | 22 | 10 | SQCVNLTTRT | 8.4e-05 | 39 |
| HLA-B*07:02 | 1 | 20 | 29 | 10 | TRTQLPPAYT | 8.4e-05 | 34 |
| HLA-A*03:01 | 1 | 37 | 46 | 10 | YYPDKVFRSS | 8.4e-05 | 30 |
| HLA-A*33:01 | 1 | 52 | 60 | 9 | QDLFLPFFS | 8.4e-05 | 38 |
| HLA-B*44:02 | 1 | 84 | 93 | 10 | LPFNDGVYFA | 8.4e-05 | 25 |
| HLA-A*33:01 | 1 | 95 | 103 | 9 | TEKSNIIRG | 8.4e-05 | 38 |
| HLA-B*08:01 | 1 | 117 | 125 | 9 | LLIVNNATN | 8.4e-05 | 51 |
| HLA-A*02:01 | 1 | 122 | 131 | 10 | NATNVVIKVC | 8.4e-05 | 36 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*02:01 | 1 | 127 | 136 | 10 | VIKVFCEQFC | 8.4e-05 | 36 |
| HLA-B*51:01 | 1 | 148 | 156 | 9 | NNKSWMESE | 8.4e-05 | 45 |
| HLA-A*68:02 | 1 | 152 | 161 | 10 | WMESEFRVYS | 8.4e-05 | 38 |
| HLA-A*30:01 | 1 | 163 | 172 | 10 | ANNCTFEYVS | 8.4e-05 | 61 |
| HLA-A*68:01 | 1 | 169 | 178 | 10 | EYVSQPFLMD | 8.4e-05 | 33 |
| HLA-B*44:03 | 1 | 194 | 202 | 9 | FKNIDGYFK | 8.4e-05 | 23 |
| HLA-A*30:01 | 1 | 217 | 225 | 9 | PQGFSALEP | 8.4e-05 | 61 |
| HLA-A*31:01 | 1 | 246 | 254 | 9 | RSYLTPGDS | 8.4e-05 | 38 |
| HLA-A*68:02 | 1 | 302 | 311 | 10 | TLKSFTVEKG | 8.4e-05 | 38 |
| HLA-B*44:02 | 1 | 313 | 322 | 10 | YQTSNFRVQP | 8.4e-05 | 25 |
| HLA-A*02:01 | 1 | 328 | 337 | 10 | RFPNITNLCP | 8.4e-05 | 36 |
| HLA-A*68:02 | 1 | 341 | 349 | 9 | VFNATRFAS | 8.4e-05 | 38 |
| HLA-A*02:06 | 1 | 346 | 355 | 10 | RFASVYAWNR | 8.4e-05 | 46 |
| HLA-A*68:02 | 1 | 376 | 385 | 10 | TFKCYGVSP | 8.4e-05 | 38 |
| HLA-A*01:01 | 1 | 381 | 389 | 9 | GVSPTKLND | 8.4e-05 | 52 |
| HLA-B*44:03 | 1 | 388 | 397 | 10 | NDLCFTNVYA | 8.4e-05 | 23 |
| HLA-A*24:02 | 1 | 393 | 402 | 10 | TNVYADSFVI | 8.4e-05 | 22 |
| HLA-A*02:01 | 1 | 401 | 409 | 9 | VIRGDEVQR | 8.4e-05 | 36 |
| HLA-A*02:01 | 1 | 407 | 416 | 10 | VRQIAPGQTG | 8.4e-05 | 36 |
| HLA-A*26:01 | 1 | 423 | 432 | 10 | YKLPDDFTGC | 8.4e-05 | 31 |
| HLA-B*44:02 | 1 | 424 | 433 | 10 | KLPDDFTGCV | 8.4e-05 | 25 |
| HLA-A*02:01 | 1 | 460 | 469 | 10 | NLKPFERDIS | 8.4e-05 | 36 |
| HLA-A*02:01 | 1 | 478 | 486 | 9 | TPCNGVEGF | 8.4e-05 | 36 |
| HLA-A*32:01 | 1 | 488 | 496 | 9 | CYFPLQSYG | 8.4e-05 | 28 |
| HLA-B*07:02 | 1 | 500 | 508 | 9 | TNGVGYQPY | 8.4e-05 | 34 |
| HLA-B*58:01 | 1 | 500 | 509 | 10 | TNGVGYQPYP | 8.4e-05 | 39 |
| HLA-B*07:02 | 1 | 512 | 520 | 9 | VLSFELLHA | 8.4e-05 | 34 |
| HLA-B*07:02 | 1 | 514 | 523 | 10 | SFELLHAPAT | 8.4e-05 | 34 |
| HLA-A*33:01 | 1 | 517 | 525 | 9 | LLHAPATVC | 8.4e-05 | 38 |
| HLA-B*44:02 | 1 | 520 | 528 | 9 | APATVCGPK | 8.4e-05 | 25 |
| HLA-B*35:01 | 1 | 535 | 543 | 9 | KNKCVNFNF | 8.4e-05 | 26 |
| HLA-B*44:03 | 1 | 551 | 560 | 10 | VLTESNKKFL | 8.4e-05 | 23 |
| HLA-A*11:01 | 1 | 552 | 560 | 9 | LTESNKKFL | 8.4e-05 | 23 |
| HLA-A*01:01 | 1 | 560 | 569 | 10 | LPFQFGRDI | 8.4e-05 | 52 |
| HLA-A*11:01 | 1 | 567 | 576 | 10 | RDIADTTDAV | 8.4e-05 | 23 |
| HLA-A*68:01 | 1 | 586 | 594 | 9 | DITPCSFVG | 8.4e-05 | 33 |
| HLA-A*02:06 | 1 | 587 | 596 | 10 | ITPCSFGGVS | 8.4e-05 | 46 |
| HLA-B*58:01 | 1 | 589 | 597 | 9 | PCSFGGVSV | 8.4e-05 | 39 |
| HLA-A*33:01 | 1 | 598 | 607 | 10 | ITPGTNTSNQ | 8.4e-05 | 38 |
| HLA-B*58:01 | 1 | 599 | 608 | 10 | TPGTNTSNQV | 8.4e-05 | 39 |
| HLA-A*31:01 | 1 | 609 | 618 | 10 | AVLYQDVNCT | 8.4e-05 | 38 |
| HLA-B*40:01 | 1 | 613 | 622 | 10 | QDVNCTEVPV | 8.4e-05 | 21 |
| HLA-A*02:06 | 1 | 619 | 627 | 9 | EVPVAIHAD | 8.4e-05 | 46 |
| HLA-A*30:01 | 1 | 620 | 628 | 9 | VPVAIHADQ | 8.4e-05 | 61 |
| HLA-A*33:01 | 1 | 623 | 632 | 10 | AIHADQLTPT | 8.4e-05 | 38 |
| HLA-A*02:06 | 1 | 654 | 662 | 9 | EHVNNSYEC | 8.4e-05 | 46 |
| HLA-B*07:02 | 1 | 655 | 664 | 10 | HVNNSYECDI | 8.4e-05 | 34 |
| HLA-A*11:01 | 1 | 664 | 672 | 9 | IPIGAGICA | 8.4e-05 | 23 |
| HLA-A*23:01 | 1 | 674 | 682 | 9 | YQTQTNSPR | 8.4e-05 | 23 |
| HLA-B*53:01 | 1 | 675 | 683 | 9 | QTQTNSPRR | 8.4e-05 | 25 |
| HLA-A*32:01 | 1 | 677 | 686 | 10 | QTNSPRRARS | 8.4e-05 | 28 |
| HLA-A*68:01 | 1 | 685 | 693 | 9 | RSVASQSII | 8.4e-05 | 33 |
| HLA-A*11:01 | 1 | 690 | 698 | 9 | QSIIAYTMS | 8.4e-05 | 23 |
| HLA-A*31:01 | 1 | 695 | 703 | 9 | YTMSLGAEN | 8.4e-05 | 38 |
| HLA-A*32:01 | 1 | 712 | 721 | 10 | IAIPTNFTIS | 8.4e-05 | 28 |
| HLA-B*51:01 | 1 | 748 | 757 | 10 | ECSNLLLQYG | 8.4e-05 | 45 |
| HLA-A*01:01 | 1 | 760 | 769 | 10 | CTQLNRALTG | 8.4e-05 | 52 |
| HLA-B*15:01 | 1 | 795 | 804 | 10 | KDFGGFNFSQ | 8.4e-05 | 36 |
| HLA-A*02:01 | 1 | 801 | 809 | 9 | NFSQILPDP | 8.4e-05 | 36 |
| HLA-B*44:02 | 1 | 802 | 811 | 10 | FSQILPDPSK | 8.4e-05 | 25 |
| HLA-A*11:01 | 1 | 808 | 817 | 10 | DPSKPSKRSF | 8.4e-05 | 23 |
| HLA-B*35:01 | 1 | 817 | 826 | 10 | FIEDLLFNKV | 8.4e-05 | 26 |
| HLA-A*03:01 | 1 | 825 | 834 | 10 | KVTLADAGFI | 8.4e-05 | 30 |
| HLA-A*30:02 | 1 | 843 | 851 | 9 | DIAARDLIC | 8.4e-05 | 59 |
| HLA-B*40:01 | 1 | 851 | 860 | 10 | CAQKFNGLTV | 8.4e-05 | 21 |
| HLA-B*53:01 | 1 | 864 | 872 | 9 | LLTDEMIAQ | 8.4e-05 | 25 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*03:01 | 1 | 876 | 885 | 10 | ALLAGTITSG | 8.4e-05 | 30 |
| HLA-B*07:02 | 1 | 885 | 893 | 9 | GWTFGAGAA | 8.4e-05 | 34 |
| HLA-B*08:01 | 1 | 885 | 893 | 9 | GWTFGAGAA | 8.4e-05 | 51 |
| HLA-A*23:01 | 1 | 924 | 933 | 10 | ANQFNSAIGK | 8.4e-05 | 23 |
| HLA-A*24:02 | 1 | 936 | 945 | 10 | DSLSSTASAL | 8.4e-05 | 22 |
| HLA-A*30:01 | 1 | 948 | 957 | 10 | LQDVVNQNAQ | 8.4e-05 | 61 |
| HLA-A*02:01 | 1 | 951 | 960 | 10 | VVNQNAQALN | 8.4e-05 | 36 |
| HLA-A*01:01 | 1 | 960 | 969 | 10 | NTLVKQLSSN | 8.4e-05 | 52 |
| HLA-A*68:01 | 1 | 961 | 969 | 9 | TLVKQLSSN | 8.4e-05 | 33 |
| HLA-B*57:01 | 1 | 970 | 979 | 10 | FGAISSVLND | 8.4e-05 | 50 |
| HLA-A*03:01 | 1 | 976 | 985 | 10 | VLNDILSRLD | 8.4e-05 | 30 |
| HLA-B*15:01 | 1 | 982 | 990 | 9 | SRLDKVEAE | 8.4e-05 | 36 |
| HLA-A*33:01 | 1 | 993 | 1002 | 10 | IDRLITGRLQ | 8.4e-05 | 38 |
| HLA-B*40:01 | 1 | 995 | 1003 | 9 | RLITGRLQS | 8.4e-05 | 21 |
| HLA-A*03:01 | 1 | 1004 | 1013 | 10 | LQTYVTQQLI | 8.4e-05 | 30 |
| HLA-A*68:01 | 1 | 1004 | 1013 | 10 | LQTYVTQQLI | 8.4e-05 | 33 |
| HLA-B*44:03 | 1 | 1004 | 1013 | 10 | LQTYVTQQLI | 8.4e-05 | 23 |
| HLA-B*35:01 | 1 | 1009 | 1017 | 9 | TQQLIRAAE | 8.4e-05 | 26 |
| HLA-A*02:01 | 1 | 1027 | 1036 | 10 | TKMSECVLGQ | 8.4e-05 | 36 |
| HLA-B*07:02 | 1 | 1038 | 1047 | 10 | KRVDFCGKGY | 8.4e-05 | 34 |
| HLA-B*53:01 | 1 | 1061 | 1069 | 9 | VFLHVITYVP | 8.4e-05 | 25 |
| HLA-A*26:01 | 1 | 1065 | 1074 | 10 | VTYVPAQEKN | 8.4e-05 | 31 |
| HLA-B*57:01 | 1 | 1068 | 1076 | 9 | VPAQEKNFT | 8.4e-05 | 50 |
| HLA-A*02:06 | 1 | 1077 | 1086 | 10 | TAPAICHDBGK | 8.4e-05 | 46 |
| HLA-B*40:01 | 1 | 1082 | 1090 | 9 | CHDGKAHFP | 8.4e-05 | 21 |
| HLA-A*02:03 | 1 | 1096 | 1105 | 10 | VSNGTHWFVT | 8.4e-05 | 39 |
| HLA-B*40:01 | 1 | 1105 | 1113 | 9 | TQRNFYEPQ | 8.4e-05 | 21 |
| HLA-A*11:01 | 1 | 1108 | 1116 | 9 | NFYEPQIIT | 8.4e-05 | 23 |
| HLA-B*58:01 | 1 | 1108 | 1116 | 9 | NFYEPQIIT | 8.4e-05 | 39 |
| HLA-B*44:02 | 1 | 1161 | 1169 | 9 | SPDVLGDI | 8.4e-05 | 25 |
| HLA-A*01:01 | 1 | 1165 | 1173 | 9 | DLGDISGIN | 8.4e-05 | 52 |
| HLA-A*30:01 | 1 | 1168 | 1177 | 10 | DISGINASVV | 8.4e-05 | 61 |
| HLA-A*30:01 | 1 | 1175 | 1184 | 10 | SVVNIQKEID | 8.4e-05 | 61 |
| HLA-A*02:01 | 1 | 1195 | 1204 | 10 | ESLIDLQELG | 8.4e-05 | 36 |
| HLA-A*03:01 | 1 | 1248 | 1256 | 9 | CSCGSCCKF | 8.4e-05 | 30 |
| HLA-A*02:03 | 1 | 1255 | 1263 | 9 | KFDEDDSEP | 8.4e-05 | 39 |
| HLA-A*33:01 | 1 | 15 | 24 | 10 | CVNLTTRTQL | 8.3e-05 | 39 |
| HLA-A*23:01 | 1 | 24 | 33 | 10 | LPPAYTNSFT | 8.3e-05 | 23 |
| HLA-A*23:01 | 1 | 29 | 38 | 10 | TNSFTRGVYY | 8.3e-05 | 23 |
| HLA-B*51:01 | 1 | 39 | 48 | 10 | PDKVFRSSVL | 8.3e-05 | 45 |
| HLA-A*02:06 | 1 | 52 | 61 | 10 | QDLFLPFFSN | 8.3e-05 | 46 |
| HLA-B*15:01 | 1 | 53 | 62 | 10 | DLFLPFFSNV | 8.3e-05 | 36 |
| HLA-A*23:01 | 1 | 55 | 63 | 9 | FLPFFSNVT | 8.3e-05 | 23 |
| HLA-B*44:02 | 1 | 58 | 66 | 9 | FFSNVTWFH | 8.3e-05 | 25 |
| HLA-A*26:01 | 1 | 65 | 73 | 9 | FHAIHVSQT | 8.3e-05 | 31 |
| HLA-B*44:02 | 1 | 69 | 77 | 9 | HVSGTNGTK | 8.3e-05 | 25 |
| HLA-A*33:01 | 1 | 82 | 91 | 10 | PVLPFNDGVY | 8.3e-05 | 39 |
| HLA-A*31:01 | 1 | 90 | 99 | 10 | VYFASTEKSN | 8.3e-05 | 38 |
| HLA-A*01:01 | 1 | 122 | 131 | 10 | NATNVVIVKVC | 8.3e-05 | 52 |
| HLA-B*57:01 | 1 | 147 | 156 | 10 | KNNKSWMESE | 8.3e-05 | 51 |
| HLA-A*24:02 | 1 | 150 | 158 | 9 | KSWMESEFR | 8.3e-05 | 22 |
| HLA-A*68:02 | 1 | 151 | 160 | 10 | SWMESEFRVY | 8.3e-05 | 39 |
| HLA-B*15:01 | 1 | 154 | 163 | 10 | ESEFRVYSSA | 8.3e-05 | 36 |
| HLA-B*07:02 | 1 | 157 | 166 | 10 | FRVYSSANNC | 8.3e-05 | 34 |
| HLA-B*53:01 | 1 | 159 | 167 | 9 | VYSSANNCT | 8.3e-05 | 25 |
| HLA-B*40:01 | 1 | 184 | 193 | 10 | GNFKNLREFV | 8.3e-05 | 21 |
| HLA-A*02:03 | 1 | 195 | 204 | 10 | KNIDGYFKIY | 8.3e-05 | 39 |
| HLA-B*35:01 | 1 | 196 | 205 | 10 | NIDGYFKIYS | 8.3e-05 | 26 |
| HLA-A*03:01 | 1 | 220 | 229 | 10 | FSALEPLVDL | 8.3e-05 | 31 |
| HLA-B*44:02 | 1 | 232 | 241 | 10 | GINITRFQTL | 8.3e-05 | 25 |
| HLA-A*26:01 | 1 | 243 | 251 | 9 | ALHRSYLTP | 8.3e-05 | 31 |
| HLA-B*57:01 | 1 | 248 | 257 | 10 | YLTPGDSSSG | 8.3e-05 | 51 |
| HLA-B*44:03 | 1 | 256 | 264 | 9 | SGWTAGAAA | 8.3e-05 | 23 |
| HLA-A*11:01 | 1 | 259 | 267 | 9 | TAGAAAAYYV | 8.3e-05 | 23 |
| HLA-A*33:01 | 1 | 262 | 271 | 10 | AAAYYVGYLQ | 8.3e-05 | 39 |
| HLA-B*07:02 | 1 | 273 | 281 | 9 | RTFLLKYNE | 8.3e-05 | 34 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*03:01 | 1 | 278 | 286 | 9 | KYNENGTIT | 8.3e-05 | 31 |
| HLA-B*53:01 | 1 | 284 | 292 | 9 | TITDAVDCA | 8.3e-05 | 25 |
| HLA-A*33:01 | 1 | 295 | 303 | 9 | PLSETKCTL | 8.3e-05 | 39 |
| HLA-B*58:01 | 1 | 308 | 316 | 9 | VEKGIYQTS | 8.3e-05 | 39 |
| HLA-A*32:01 | 1 | 332 | 340 | 9 | ITNLCPFGE | 8.3e-05 | 28 |
| HLA-A*03:01 | 1 | 351 | 359 | 9 | YAWNRRKRIS | 8.3e-05 | 31 |
| HLA-A*23:01 | 1 | 359 | 368 | 10 | SNCVADYSVL | 8.3e-05 | 23 |
| HLA-A*32:01 | 1 | 361 | 370 | 10 | CVADYSVLYN | 8.3e-05 | 28 |
| HLA-A*33:01 | 1 | 361 | 370 | 10 | CVADYSVLYN | 8.3e-05 | 39 |
| HLA-A*26:01 | 1 | 363 | 371 | 9 | ADYSVLYNS | 8.3e-05 | 31 |
| HLA-B*58:01 | 1 | 364 | 372 | 9 | DYSVLYNSA | 8.3e-05 | 39 |
| HLA-A*23:01 | 1 | 371 | 379 | 9 | SASFSTFKC | 8.3e-05 | 23 |
| HLA-A*01:01 | 1 | 376 | 384 | 9 | TFKCYGVSP | 8.3e-05 | 52 |
| HLA-B*07:02 | 1 | 377 | 386 | 10 | FKCYGVSPTK | 8.3e-05 | 34 |
| HLA-A*11:01 | 1 | 386 | 394 | 9 | KLNDLCFTN | 8.3e-05 | 23 |
| HLA-A*24:02 | 1 | 386 | 395 | 10 | KLNDLCFTNV | 8.3e-05 | 22 |
| HLA-A*11:01 | 1 | 387 | 396 | 10 | LNDLCFTNVY | 8.3e-05 | 23 |
| HLA-B*58:01 | 1 | 390 | 398 | 9 | LCFTNVYAD | 8.3e-05 | 39 |
| HLA-A*03:01 | 1 | 411 | 419 | 9 | APGQTGKIA | 8.3e-05 | 31 |
| HLA-B*44:03 | 1 | 412 | 421 | 10 | PGQTGKIADY | 8.3e-05 | 23 |
| HLA-B*53:01 | 1 | 423 | 431 | 9 | YKLPDDFTG | 8.3e-05 | 25 |
| HLA-B*58:01 | 1 | 432 | 440 | 9 | CVIAWNSNN | 8.3e-05 | 39 |
| HLA-A*02:06 | 1 | 446 | 454 | 9 | GGNYNYLYR | 8.3e-05 | 46 |
| HLA-B*53:01 | 1 | 471 | 480 | 10 | EIQAGSTPC | 8.3e-05 | 25 |
| HLA-B*53:01 | 1 | 472 | 480 | 9 | IYQAGSTPC | 8.3e-05 | 25 |
| HLA-A*23:01 | 1 | 485 | 493 | 9 | GFNCYFPLQ | 8.3e-05 | 23 |
| HLA-A*24:02 | 1 | 486 | 495 | 10 | FNCYFPLQSY | 8.3e-05 | 22 |
| HLA-A*02:03 | 1 | 493 | 501 | 9 | QSYGFQPTN | 8.3e-05 | 39 |
| HLA-B*58:01 | 1 | 515 | 524 | 10 | FELLHAPATV | 8.3e-05 | 39 |
| HLA-A*23:01 | 1 | 518 | 526 | 9 | LHAPATVCG | 8.3e-05 | 23 |
| HLA-A*31:01 | 1 | 526 | 534 | 9 | GPKKSTNLV | 8.3e-05 | 38 |
| HLA-B*35:01 | 1 | 549 | 557 | 9 | TGVLTESNK | 8.3e-05 | 26 |
| HLA-A*02:06 | 1 | 555 | 563 | 9 | SNKKFLPFQ | 8.3e-05 | 46 |
| HLA-B*08:01 | 1 | 580 | 589 | 10 | QTLEILDITP | 8.3e-05 | 51 |
| HLA-A*02:06 | 1 | 600 | 608 | 9 | PGTNTSNQV | 8.3e-05 | 46 |
| HLA-A*02:01 | 1 | 608 | 617 | 10 | VAVLYQDVNC | 8.3e-05 | 36 |
| HLA-A*26:01 | 1 | 610 | 618 | 9 | VLYQDVNCT | 8.3e-05 | 31 |
| HLA-A*68:02 | 1 | 611 | 619 | 9 | LYQDVNCTE | 8.3e-05 | 39 |
| HLA-B*15:01 | 1 | 612 | 621 | 10 | YQDVNCTEVP | 8.3e-05 | 36 |
| HLA-A*01:01 | 1 | 631 | 639 | 9 | PTWRVYSTG | 8.3e-05 | 52 |
| HLA-B*58:01 | 1 | 633 | 642 | 10 | WRVYSTGSNV | 8.3e-05 | 39 |
| HLA-A*03:01 | 1 | 641 | 650 | 10 | NVFQTRAGCL | 8.3e-05 | 31 |
| HLA-A*33:01 | 1 | 651 | 659 | 9 | IGAELVNNNS | 8.3e-05 | 39 |
| HLA-B*07:02 | 1 | 654 | 662 | 9 | EHVNNSYEC | 8.3e-05 | 34 |
| HLA-B*15:01 | 1 | 659 | 668 | 10 | SYECDIPIGA | 8.3e-05 | 36 |
| HLA-B*53:01 | 1 | 659 | 668 | 10 | SYECDIPIGA | 8.3e-05 | 25 |
| HLA-A*02:03 | 1 | 668 | 676 | 9 | AGICASYQT | 8.3e-05 | 39 |
| HLA-A*31:01 | 1 | 676 | 684 | 9 | TQTNSPRRA | 8.3e-05 | 38 |
| HLA-B*40:01 | 1 | 679 | 687 | 9 | NSPRRARSV | 8.3e-05 | 21 |
| HLA-B*40:01 | 1 | 682 | 690 | 9 | RRARSVASQ | 8.3e-05 | 21 |
| HLA-A*32:01 | 1 | 697 | 706 | 10 | MSLGAENSVA | 8.3e-05 | 28 |
| HLA-B*44:03 | 1 | 719 | 727 | 9 | TISVTTEIL | 8.3e-05 | 23 |
| HLA-B*08:01 | 1 | 726 | 735 | 10 | ILPVSMTKTS | 8.3e-05 | 51 |
| HLA-B*57:01 | 1 | 727 | 735 | 9 | LPVSMTKTS | 8.3e-05 | 51 |
| HLA-A*33:01 | 1 | 733 | 742 | 10 | KTSVDCTMYI | 8.3e-05 | 39 |
| HLA-A*31:01 | 1 | 750 | 758 | 9 | SNLLLQYGS | 8.3e-05 | 38 |
| HLA-A*68:02 | 1 | 753 | 761 | 9 | LLQYGSFCT | 8.3e-05 | 39 |
| HLA-B*57:01 | 1 | 766 | 775 | 10 | ALTGIAVEQD | 8.3e-05 | 51 |
| HLA-A*30:02 | 1 | 775 | 783 | 9 | DKNTQEVFA | 8.3e-05 | 59 |
| HLA-B*44:02 | 1 | 781 | 790 | 10 | VFAQVKQIYK | 8.3e-05 | 25 |
| HLA-B*51:01 | 1 | 799 | 807 | 9 | GFNFSQILP | 8.3e-05 | 45 |
| HLA-B*40:01 | 1 | 804 | 812 | 9 | QILPDPSKP | 8.3e-05 | 21 |
| HLA-A*02:03 | 1 | 809 | 817 | 9 | PSKPSKRSP | 8.3e-05 | 39 |
| HLA-A*02:01 | 1 | 813 | 822 | 10 | SKRSFIEDLL | 8.3e-05 | 36 |
| HLA-B*58:01 | 1 | 835 | 843 | 9 | KQYGDCLGD | 8.3e-05 | 39 |
| HLA-A*11:01 | 1 | 847 | 855 | 9 | RDLICAQKF | 8.3e-05 | 23 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*02:03 | 1 | 850 | 859 | 10 | ICAQKFNGLT 8.3e-05 | 39 |
| HLA-A*02:01 | 1 | 854 | 863 | 10 | KFNGLTVLPP 8.3e-05 | 36 |
| HLA-A*30:02 | 1 | 855 | 864 | 10 | FNGLTVLPL 8.3e-05 | 59 |
| HLA-B*58:01 | 1 | 861 | 870 | 10 | LPPLLTDEMI 8.3e-05 | 39 |
| HLA-A*01:01 | 1 | 867 | 875 | 9 | DEMIAQYTS 8.3e-05 | 52 |
| HLA-B*53:01 | 1 | 870 | 879 | 10 | IAQYTSALLA 8.3e-05 | 25 |
| HLA-A*11:01 | 1 | 877 | 886 | 10 | LLAGTITSGW 8.3e-05 | 23 |
| HLA-A*33:01 | 1 | 889 | 898 | 10 | GAGAALQIPF 8.3e-05 | 39 |
| HLA-B*44:03 | 1 | 893 | 901 | 9 | ALQIPFAMQ 8.3e-05 | 23 |
| HLA-B*44:03 | 1 | 904 | 913 | 10 | YRFNGIGVTQ 8.3e-05 | 23 |
| HLA-B*44:02 | 1 | 905 | 913 | 9 | RFNGIGVTQ 8.3e-05 | 25 |
| HLA-A*02:01 | 1 | 912 | 921 | 10 | TQNVLYENQK 8.3e-05 | 36 |
| HLA-A*26:01 | 1 | 917 | 925 | 9 | YENQKLIAN 8.3e-05 | 31 |
| HLA-A*68:01 | 1 | 921 | 929 | 9 | KLIANQFNS 8.3e-05 | 33 |
| HLA-B*51:01 | 1 | 921 | 930 | 10 | KLIANQFNSA 8.3e-05 | 45 |
| HLA-B*44:02 | 1 | 933 | 941 | 9 | KIQDLSLST 8.3e-05 | 25 |
| HLA-A*23:01 | 1 | 936 | 945 | 10 | DSLSTASAL 8.3e-05 | 23 |
| HLA-A*03:01 | 1 | 948 | 956 | 9 | LQDVVNQNA 8.3e-05 | 31 |
| HLA-B*35:01 | 1 | 990 | 999 | 10 | EVQIDRLITG 8.3e-05 | 26 |
| HLA-A*01:01 | 1 | 994 | 1003 | 10 | DRLITGRLOS 8.3e-05 | 52 |
| HLA-A*11:01 | 1 | 1003 | 1012 | 10 | SLQTYVTQQL 8.3e-05 | 23 |
| HLA-B*51:01 | 1 | 1009 | 1017 | 9 | TQQLIRAAE 8.3e-05 | 45 |
| HLA-B*44:03 | 1 | 1010 | 1019 | 10 | QQLIRAAEIR 8.3e-05 | 23 |
| HLA-B*58:01 | 1 | 1010 | 1019 | 10 | QQLIRAAEIR 8.3e-05 | 39 |
| HLA-B*35:01 | 1 | 1012 | 1020 | 9 | LIRAAEIRA 8.3e-05 | 26 |
| HLA-A*24:02 | 1 | 1015 | 1024 | 10 | AAEIRASANL 8.3e-05 | 22 |
| HLA-A*26:01 | 1 | 1028 | 1036 | 9 | KMSECVLGQ 8.3e-05 | 31 |
| HLA-B*35:01 | 1 | 1033 | 1042 | 10 | VLGQSKRVDF 8.3e-05 | 26 |
| HLA-B*40:01 | 1 | 1033 | 1042 | 10 | VLGQSKRVDF 8.3e-05 | 21 |
| HLA-A*01:01 | 1 | 1042 | 1051 | 10 | FCGKGYHLMS 8.3e-05 | 52 |
| HLA-A*33:01 | 1 | 1043 | 1051 | 9 | CGKGYHLMS 8.3e-05 | 39 |
| HLA-A*02:06 | 1 | 1065 | 1074 | 10 | VTYVPAQEKN 8.3e-05 | 46 |
| HLA-B*15:01 | 1 | 1067 | 1076 | 10 | YVPAQEKNFT 8.3e-05 | 36 |
| HLA-B*08:01 | 1 | 1083 | 1091 | 9 | HDGKAHFPR 8.3e-05 | 51 |
| HLA-A*68:01 | 1 | 1100 | 1108 | 9 | THWFVTQRN 8.3e-05 | 33 |
| HLA-B*53:01 | 1 | 1122 | 1130 | 9 | VSGNCDVVI 8.3e-05 | 25 |
| HLA-A*68:02 | 1 | 1131 | 1140 | 10 | GIVNNTVYDP 8.3e-05 | 39 |
| HLA-A*03:01 | 1 | 1141 | 1150 | 10 | LQPELDSFKE 8.3e-05 | 31 |
| HLA-B*40:01 | 1 | 1148 | 1157 | 10 | FKEELDKYFK 8.3e-05 | 21 |
| HLA-B*40:01 | 1 | 1153 | 1161 | 9 | DKYFKNHTS 8.3e-05 | 21 |
| HLA-B*44:02 | 1 | 1153 | 1161 | 9 | DKYFKNHTS 8.3e-05 | 25 |
| HLA-A*68:01 | 1 | 1174 | 1183 | 10 | ASVVNIQKEI 8.3e-05 | 33 |
| HLA-A*68:01 | 1 | 1180 | 1189 | 10 | QKEIDRLNEV 8.3e-05 | 33 |
| HLA-B*40:01 | 1 | 1182 | 1190 | 9 | EIDRLNEVA 8.3e-05 | 21 |
| HLA-A*68:01 | 1 | 1184 | 1193 | 10 | DRLNEVAKNL 8.3e-05 | 33 |
| HLA-A*02:06 | 1 | 1211 | 1219 | 9 | KWPWYIWLG 8.3e-05 | 46 |
| HLA-A*31:01 | 1 | 1212 | 1220 | 9 | WPWYIWLGF 8.3e-05 | 38 |
| HLA-B*44:02 | 1 | 1226 | 1234 | 9 | AIVMVTIML 8.3e-05 | 25 |
| HLA-A*01:01 | 1 | 1236 | 1244 | 9 | CMTSCCSCS 8.3e-05 | 52 |
| HLA-A*31:01 | 1 | 1261 | 1270 | 10 | SEPVLKGVKL 8.3e-05 | 38 |
| HLA-A*33:01 | 1 | 6 | 15 | 10 | VLLPLVSSQC 8.2e-05 | 39 |
| HLA-B*44:02 | 1 | 10 | 18 | 9 | LVSSQCVNL 8.2e-05 | 25 |
| HLA-B*44:02 | 1 | 12 | 20 | 9 | SSQCVNLT 8.2e-05 | 25 |
| HLA-A*11:01 | 1 | 43 | 52 | 10 | FRSSVLHSTQ 8.2e-05 | 23 |
| HLA-A*01:01 | 1 | 67 | 75 | 9 | AIHVSQTNG 8.2e-05 | 53 |
| HLA-A*32:01 | 1 | 67 | 75 | 9 | AIHVSQTNG 8.2e-05 | 28 |
| HLA-A*26:01 | 1 | 74 | 83 | 10 | NGTKRFDNPV 8.2e-05 | 32 |
| HLA-A*33:01 | 1 | 79 | 87 | 9 | FDNPVLPFN 8.2e-05 | 39 |
| HLA-A*33:01 | 1 | 82 | 90 | 9 | PVLPFNDGV 8.2e-05 | 39 |
| HLA-A*33:01 | 1 | 93 | 101 | 9 | ASTEKSNII 8.2e-05 | 39 |
| HLA-B*44:02 | 1 | 101 | 110 | 10 | IRGWI FGTTL 8.2e-05 | 25 |
| HLA-B*44:03 | 1 | 110 | 119 | 10 | LDSKTQSLLI 8.2e-05 | 23 |
| HLA-B*58:01 | 1 | 133 | 142 | 10 | FQFCNDPFLG 8.2e-05 | 39 |
| HLA-A*30:02 | 1 | 140 | 148 | 9 | FLGVYYHKN 8.2e-05 | 59 |
| HLA-A*30:01 | 1 | 157 | 165 | 9 | FRVYSSANN 8.2e-05 | 62 |
| HLA-B*44:02 | 1 | 158 | 166 | 9 | RVYSSANNC 8.2e-05 | 25 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*01:01 | 1 | 180 | 188 | 9 | EGKQGNFKN | 8.2e-05 | 53 |
| HLA-B*57:01 | 1 | 181 | 190 | 10 | GKQGNFKNLR | 8.2e-05 | 51 |
| HLA-A*26:01 | 1 | 188 | 196 | 9 | NLREFVFKN | 8.2e-05 | 32 |
| HLA-A*02:01 | 1 | 191 | 200 | 10 | EFVFKNIDGY | 8.2e-05 | 36 |
| HLA-A*33:01 | 1 | 196 | 205 | 10 | NIDGYFKIYS | 8.2e-05 | 39 |
| HLA-B*40:01 | 1 | 198 | 206 | 9 | DGYFKIYSK | 8.2e-05 | 21 |
| HLA-A*03:01 | 1 | 224 | 233 | 10 | EPLVDLPIGI | 8.2e-05 | 31 |
| HLA-B*44:02 | 1 | 243 | 251 | 9 | ALHRSYLTP | 8.2e-05 | 25 |
| HLA-A*02:03 | 1 | 249 | 257 | 9 | LTPGDSSSG | 8.2e-05 | 39 |
| HLA-B*51:01 | 1 | 257 | 266 | 10 | GWTAGAAAYY | 8.2e-05 | 45 |
| HLA-B*44:02 | 1 | 263 | 271 | 9 | AAYYVGYLQ | 8.2e-05 | 25 |
| HLA-B*53:01 | 1 | 266 | 274 | 9 | YVGYLQPR | 8.2e-05 | 25 |
| HLA-A*03:01 | 1 | 291 | 299 | 9 | CALDPLSET | 8.2e-05 | 31 |
| HLA-A*32:01 | 1 | 303 | 312 | 10 | LKSFTVEKGI | 8.2e-05 | 28 |
| HLA-B*44:02 | 1 | 307 | 315 | 9 | TVEKGIYQT | 8.2e-05 | 25 |
| HLA-A*26:01 | 1 | 314 | 323 | 10 | QTSNFRVQPT | 8.2e-05 | 32 |
| HLA-A*24:02 | 1 | 318 | 327 | 10 | FRVQPTESIV | 8.2e-05 | 22 |
| HLA-A*68:01 | 1 | 321 | 330 | 10 | QPTESIVRFP | 8.2e-05 | 34 |
| HLA-A*02:01 | 1 | 340 | 349 | 10 | EVFNATRFAS | 8.2e-05 | 36 |
| HLA-A*23:01 | 1 | 343 | 351 | 9 | NATRFASVY | 8.2e-05 | 23 |
| HLA-B*44:03 | 1 | 349 | 358 | 10 | SVYAWNKRRI | 8.2e-05 | 23 |
| HLA-A*32:01 | 1 | 354 | 362 | 9 | NRKRISNCV | 8.2e-05 | 28 |
| HLA-B*57:01 | 1 | 367 | 375 | 9 | VLYNSASF | 8.2e-05 | 51 |
| HLA-A*30:02 | 1 | 374 | 383 | 10 | FSTFKCYGVS | 8.2e-05 | 59 |
| HLA-B*40:01 | 1 | 379 | 387 | 9 | CYGVSPTKL | 8.2e-05 | 21 |
| HLA-A*24:02 | 1 | 387 | 395 | 9 | LNDLCFTNV | 8.2e-05 | 22 |
| HLA-A*30:02 | 1 | 388 | 397 | 10 | NDLCFTNVYA | 8.2e-05 | 59 |
| HLA-A*03:01 | 1 | 393 | 402 | 10 | TNVYADSFVI | 8.2e-05 | 31 |
| HLA-B*51:01 | 1 | 395 | 404 | 10 | VYADSFVIRG | 8.2e-05 | 45 |
| HLA-B*58:01 | 1 | 407 | 416 | 10 | VRQIAPGQTG | 8.2e-05 | 39 |
| HLA-B*44:03 | 1 | 419 | 427 | 9 | ADYNYKLPD | 8.2e-05 | 23 |
| HLA-A*30:01 | 1 | 420 | 429 | 10 | DYNYKLPPDF | 8.2e-05 | 62 |
| HLA-A*02:01 | 1 | 421 | 429 | 9 | YNYKLPPDF | 8.2e-05 | 36 |
| HLA-A*01:01 | 1 | 434 | 442 | 9 | IAWNSNLD | 8.2e-05 | 53 |
| HLA-B*35:01 | 1 | 443 | 452 | 10 | SKVGGNYNYL | 8.2e-05 | 26 |
| HLA-B*58:01 | 1 | 445 | 454 | 10 | VGGNYNYLYR | 8.2e-05 | 39 |
| HLA-A*32:01 | 1 | 448 | 457 | 10 | NYNYLYRFR | 8.2e-05 | 28 |
| HLA-A*23:01 | 1 | 454 | 463 | 10 | RLFRKSNLKP | 8.2e-05 | 23 |
| HLA-B*57:01 | 1 | 471 | 480 | 10 | EIYQAGSTPC | 8.2e-05 | 51 |
| HLA-A*68:01 | 1 | 474 | 483 | 10 | QAGSTPCNGV | 8.2e-05 | 34 |
| HLA-B*51:01 | 1 | 474 | 482 | 9 | QAGSTPCNG | 8.2e-05 | 45 |
| HLA-A*01:01 | 1 | 484 | 492 | 9 | EGFNCYFPL | 8.2e-05 | 53 |
| HLA-A*32:01 | 1 | 498 | 507 | 10 | QPTNGVGYQP | 8.2e-05 | 28 |
| HLA-A*03:01 | 1 | 530 | 539 | 10 | STNLVKNKCV | 8.2e-05 | 31 |
| HLA-A*23:01 | 1 | 562 | 570 | 9 | FQQFGRDIA | 8.2e-05 | 23 |
| HLA-B*44:02 | 1 | 562 | 570 | 9 | FQQFGRDIA | 8.2e-05 | 25 |
| HLA-B*08:01 | 1 | 566 | 575 | 10 | GRDIADTTDA | 8.2e-05 | 51 |
| HLA-A*02:03 | 1 | 587 | 596 | 10 | ITPCSFGGVS | 8.2e-05 | 39 |
| HLA-B*44:03 | 1 | 590 | 598 | 9 | CSFGGVSVI | 8.2e-05 | 23 |
| HLA-A*33:01 | 1 | 594 | 602 | 9 | GVSVITPGT | 8.2e-05 | 39 |
| HLA-B*44:02 | 1 | 621 | 629 | 9 | PVAIHADQL | 8.2e-05 | 25 |
| HLA-A*26:01 | 1 | 624 | 632 | 9 | IHADQLTPT | 8.2e-05 | 32 |
| HLA-B*35:01 | 1 | 659 | 668 | 10 | SYECDIPIGA | 8.2e-05 | 26 |
| HLA-B*44:02 | 1 | 672 | 680 | 9 | ASYQTQTNS | 8.2e-05 | 25 |
| HLA-A*02:01 | 1 | 684 | 693 | 10 | ARSVASQSII | 8.2e-05 | 36 |
| HLA-A*02:03 | 1 | 699 | 708 | 10 | LGAENSVAYS | 8.2e-05 | 39 |
| HLA-B*40:01 | 1 | 700 | 709 | 10 | GAENSVAYS | 8.2e-05 | 21 |
| HLA-A*03:01 | 1 | 705 | 714 | 10 | VAYSNNIAI | 8.2e-05 | 31 |
| HLA-B*08:01 | 1 | 706 | 715 | 10 | AYSNNIAIP | 8.2e-05 | 51 |
| HLA-A*03:01 | 1 | 730 | 738 | 9 | SMTKTSVDC | 8.2e-05 | 31 |
| HLA-A*31:01 | 1 | 739 | 748 | 10 | TMYICGDSTE | 8.2e-05 | 38 |
| HLA-A*02:06 | 1 | 746 | 755 | 10 | STECNLLLQ | 8.2e-05 | 47 |
| HLA-A*31:01 | 1 | 747 | 755 | 9 | TECNLLLQ | 8.2e-05 | 38 |
| HLA-B*58:01 | 1 | 750 | 758 | 9 | SNLLLQYGS | 8.2e-05 | 39 |
| HLA-A*03:01 | 1 | 764 | 772 | 9 | NRALTGIAV | 8.2e-05 | 31 |
| HLA-A*03:01 | 1 | 772 | 781 | 10 | VEQDKNTQEV | 8.2e-05 | 31 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*02:03 | 1 | 778 | 786 | 9 | TQEVFAQVK | 8.2e-05 | 39 |
| HLA-B*08:01 | 1 | 789 | 798 | 10 | YKTPPIKDFG | 8.2e-05 | 51 |
| HLA-A*01:01 | 1 | 800 | 809 | 10 | FNFSQILPDP | 8.2e-05 | 53 |
| HLA-A*02:06 | 1 | 809 | 817 | 9 | PSKPSKRSF | 8.2e-05 | 47 |
| HLA-B*58:01 | 1 | 810 | 818 | 9 | SKPSKRSFI | 8.2e-05 | 39 |
| HLA-A*01:01 | 1 | 822 | 831 | 10 | LFNKVTLADA | 8.2e-05 | 53 |
| HLA-A*32:01 | 1 | 827 | 836 | 10 | TLADAGFIKQ | 8.2e-05 | 28 |
| HLA-A*68:01 | 1 | 843 | 851 | 9 | DIAARDLIC | 8.2e-05 | 34 |
| HLA-A*68:02 | 1 | 846 | 854 | 9 | ARDLICAQK | 8.2e-05 | 39 |
| HLA-B*44:02 | 1 | 854 | 862 | 9 | KFNGLTVLP | 8.2e-05 | 25 |
| HLA-A*30:02 | 1 | 855 | 863 | 9 | FNGLTVLPP | 8.2e-05 | 59 |
| HLA-A*23:01 | 1 | 860 | 868 | 9 | VLPLLTTDE | 8.2e-05 | 23 |
| HLA-A*24:02 | 1 | 871 | 880 | 10 | AQYTSALLAG | 8.2e-05 | 22 |
| HLA-A*24:02 | 1 | 885 | 893 | 9 | GWTFGAGAA | 8.2e-05 | 22 |
| HLA-B*53:01 | 1 | 892 | 901 | 10 | AALQIPFAMQ | 8.2e-05 | 25 |
| HLA-B*15:01 | 1 | 906 | 915 | 10 | FNGIGVTQNV | 8.2e-05 | 37 |
| HLA-B*35:01 | 1 | 914 | 923 | 10 | NVLYENQKLI | 8.2e-05 | 26 |
| HLA-A*30:02 | 1 | 920 | 929 | 10 | QKLIANQFNS | 8.2e-05 | 59 |
| HLA-B*44:02 | 1 | 940 | 949 | 10 | STASALGKLQ | 8.2e-05 | 25 |
| HLA-A*68:01 | 1 | 948 | 957 | 10 | LQDVVNQNAQ | 8.2e-05 | 34 |
| HLA-B*08:01 | 1 | 949 | 958 | 10 | QDVVNQNAQA | 8.2e-05 | 51 |
| HLA-B*51:01 | 1 | 956 | 964 | 9 | AQALNTLVK | 8.2e-05 | 45 |
| HLA-B*58:01 | 1 | 959 | 967 | 9 | LNTLVKQLS | 8.2e-05 | 39 |
| HLA-B*51:01 | 1 | 970 | 979 | 10 | FGAISSVLND | 8.2e-05 | 45 |
| HLA-B*53:01 | 1 | 974 | 983 | 10 | SSVLNDILSR | 8.2e-05 | 25 |
| HLA-B*35:01 | 1 | 982 | 990 | 9 | SRLDKVEAE | 8.2e-05 | 26 |
| HLA-B*44:02 | 1 | 1002 | 1010 | 9 | QSLQTYVTQ | 8.2e-05 | 25 |
| HLA-A*01:01 | 1 | 1022 | 1031 | 10 | ANLAATKMSE | 8.2e-05 | 53 |
| HLA-B*08:01 | 1 | 1026 | 1035 | 10 | ATKMSECVLG | 8.2e-05 | 51 |
| HLA-B*44:02 | 1 | 1053 | 1061 | 9 | PQSAPHGVV | 8.2e-05 | 25 |
| HLA-A*03:01 | 1 | 1062 | 1071 | 10 | FLHVTVVPAQ | 8.2e-05 | 31 |
| HLA-B*58:01 | 1 | 1063 | 1071 | 9 | LHVTVVPAQ | 8.2e-05 | 39 |
| HLA-B*44:03 | 1 | 1064 | 1073 | 10 | HVTVVPAQEK | 8.2e-05 | 23 |
| HLA-B*58:01 | 1 | 1070 | 1079 | 10 | AQEKNFHTAP | 8.2e-05 | 39 |
| HLA-B*44:02 | 1 | 1080 | 1088 | 9 | AICHDGKAH | 8.2e-05 | 25 |
| HLA-A*02:03 | 1 | 1081 | 1090 | 10 | ICHDGKAHFP | 8.2e-05 | 39 |
| HLA-A*32:01 | 1 | 1085 | 1094 | 10 | GKAHFPREGV | 8.2e-05 | 28 |
| HLA-A*03:01 | 1 | 1104 | 1112 | 9 | VTQRNFYEP | 8.2e-05 | 31 |
| HLA-A*31:01 | 1 | 1124 | 1133 | 10 | GNCDDVIGIV | 8.2e-05 | 38 |
| HLA-B*53:01 | 1 | 1135 | 1144 | 10 | NTVYDPLQPE | 8.2e-05 | 25 |
| HLA-A*23:01 | 1 | 1140 | 1149 | 10 | PLQPELDSFK | 8.2e-05 | 23 |
| HLA-B*15:01 | 1 | 1143 | 1152 | 10 | PELDSFKEEL | 8.2e-05 | 37 |
| HLA-B*57:01 | 1 | 1163 | 1171 | 9 | DVDLGDISG | 8.2e-05 | 51 |
| HLA-B*35:01 | 1 | 1172 | 1180 | 9 | INASVVNIQ | 8.2e-05 | 26 |
| HLA-A*03:01 | 1 | 1178 | 1186 | 9 | NIQKEIDRL | 8.2e-05 | 31 |
| HLA-B*35:01 | 1 | 1194 | 1202 | 9 | NESLIDLQE | 8.2e-05 | 26 |
| HLA-B*58:01 | 1 | 1197 | 1205 | 9 | LIDLQELGK | 8.2e-05 | 39 |
| HLA-B*08:01 | 1 | 1211 | 1219 | 9 | KWPWYIWLG | 8.2e-05 | 51 |
| HLA-B*40:01 | 1 | 1255 | 1263 | 9 | KFDEDDSEP | 8.2e-05 | 21 |
| HLA-B*44:02 | 1 | 21 | 29 | 9 | RTQLPPAYT | 8.1e-05 | 25 |
| HLA-B*44:02 | 1 | 40 | 49 | 10 | DKVFRSSVLH | 8.1e-05 | 25 |
| HLA-B*53:01 | 1 | 44 | 52 | 9 | RSSVLHSTQ | 8.1e-05 | 25 |
| HLA-B*15:01 | 1 | 51 | 60 | 10 | TQDLFLPFFS | 8.1e-05 | 37 |
| HLA-A*03:01 | 1 | 58 | 67 | 10 | FFSNVTWFHA | 8.1e-05 | 31 |
| HLA-A*26:01 | 1 | 66 | 75 | 10 | HAIHVSGTNG | 8.1e-05 | 32 |
| HLA-A*23:01 | 1 | 68 | 76 | 9 | IHVSGTNGT | 8.1e-05 | 23 |
| HLA-B*08:01 | 1 | 68 | 77 | 10 | IHVSGTNGTK | 8.1e-05 | 51 |
| HLA-A*01:01 | 1 | 76 | 85 | 10 | TKRFDNPVLP | 8.1e-05 | 53 |
| HLA-B*53:01 | 1 | 82 | 90 | 9 | PVLPFNDGV | 8.1e-05 | 25 |
| HLA-B*35:01 | 1 | 104 | 113 | 10 | WIFGTTLDSK | 8.1e-05 | 26 |
| HLA-A*02:06 | 1 | 128 | 136 | 9 | IKVCEFQFC | 8.1e-05 | 47 |
| HLA-A*01:01 | 1 | 133 | 142 | 10 | FQFCNDPFLG | 8.1e-05 | 53 |
| HLA-A*01:01 | 1 | 148 | 156 | 9 | NNKSWMESE | 8.1e-05 | 53 |
| HLA-A*33:01 | 1 | 153 | 162 | 10 | MESEFRVYSS | 8.1e-05 | 39 |
| HLA-B*07:02 | 1 | 154 | 163 | 10 | ESEFRVYSSA | 8.1e-05 | 34 |
| HLA-B*44:02 | 1 | 162 | 171 | 10 | SANNCTFEYV | 8.1e-05 | 25 |

| | | | | | | |
|-------------|---|-----|-----|----|---------------------|----|
| HLA-A*23:01 | 1 | 180 | 189 | 10 | EGKQGNFKNL 8.1e-05 | 23 |
| HLA-A*23:01 | 1 | 201 | 210 | 10 | FKIYSKHTPI 8.1e-05 | 23 |
| HLA-B*44:02 | 1 | 207 | 216 | 10 | HTPINLVRDL 8.1e-05 | 25 |
| HLA-A*03:01 | 1 | 208 | 216 | 9 | TPINLVRDL 8.1e-05 | 31 |
| HLA-A*30:01 | 1 | 210 | 219 | 10 | INLVRDLPQG 8.1e-05 | 62 |
| HLA-B*44:03 | 1 | 218 | 226 | 9 | QGFSALEPL 8.1e-05 | 24 |
| HLA-A*30:02 | 1 | 227 | 236 | 10 | VDLPIGINIT 8.1e-05 | 60 |
| HLA-B*51:01 | 1 | 231 | 240 | 10 | IGINITRFQT 8.1e-05 | 45 |
| HLA-A*26:01 | 1 | 248 | 257 | 10 | YLTPGDSSSG 8.1e-05 | 32 |
| HLA-B*53:01 | 1 | 263 | 272 | 10 | AAYYVGYLQP 8.1e-05 | 25 |
| HLA-B*58:01 | 1 | 265 | 273 | 9 | YYVGYLQPR 8.1e-05 | 39 |
| HLA-B*44:03 | 1 | 271 | 280 | 10 | QPRTFLLKYN 8.1e-05 | 24 |
| HLA-A*68:01 | 1 | 280 | 289 | 10 | NENGTITDAV 8.1e-05 | 34 |
| HLA-A*23:01 | 1 | 305 | 314 | 10 | SFTVEKGIYQ 8.1e-05 | 23 |
| HLA-A*01:01 | 1 | 337 | 346 | 10 | PFGEVFNATR 8.1e-05 | 53 |
| HLA-A*02:01 | 1 | 338 | 346 | 9 | FGEVFNATR 8.1e-05 | 36 |
| HLA-A*33:01 | 1 | 345 | 354 | 10 | TRFASVYAWN 8.1e-05 | 39 |
| HLA-A*31:01 | 1 | 353 | 361 | 9 | WNRKRISNC 8.1e-05 | 38 |
| HLA-A*32:01 | 1 | 359 | 368 | 10 | SNCVADYSVL 8.1e-05 | 28 |
| HLA-B*40:01 | 1 | 359 | 368 | 10 | SNCVADYSVL 8.1e-05 | 21 |
| HLA-B*58:01 | 1 | 363 | 371 | 9 | ADYSVLYNS 8.1e-05 | 39 |
| HLA-A*02:03 | 1 | 369 | 378 | 10 | YNSASFSTFK 8.1e-05 | 39 |
| HLA-B*35:01 | 1 | 409 | 418 | 10 | QIAPGQTGKI 8.1e-05 | 26 |
| HLA-B*58:01 | 1 | 412 | 421 | 10 | PGQTGKIADY 8.1e-05 | 39 |
| HLA-B*40:01 | 1 | 423 | 432 | 10 | YKLPDDFTGC 8.1e-05 | 21 |
| HLA-B*08:01 | 1 | 439 | 447 | 9 | NNLDSKVGK 8.1e-05 | 51 |
| HLA-B*51:01 | 1 | 483 | 491 | 9 | VEGFNCYFP 8.1e-05 | 45 |
| HLA-A*23:01 | 1 | 530 | 538 | 9 | STNLVKNKC 8.1e-05 | 23 |
| HLA-A*68:01 | 1 | 539 | 547 | 9 | VNFNFNGLT 8.1e-05 | 34 |
| HLA-A*23:01 | 1 | 542 | 550 | 9 | NFNGLTGTG 8.1e-05 | 23 |
| HLA-A*24:02 | 1 | 542 | 550 | 9 | NFNGLTGTG 8.1e-05 | 22 |
| HLA-B*08:01 | 1 | 555 | 564 | 10 | SNKKFLPFQQ 8.1e-05 | 51 |
| HLA-A*68:02 | 1 | 558 | 567 | 10 | KFLPFQQFGR 8.1e-05 | 39 |
| HLA-A*03:01 | 1 | 568 | 576 | 9 | DIADTTDAV 8.1e-05 | 31 |
| HLA-A*32:01 | 1 | 584 | 593 | 10 | ILDITPCSFQ 8.1e-05 | 28 |
| HLA-A*02:03 | 1 | 603 | 612 | 10 | NTSNQVAVLY 8.1e-05 | 39 |
| HLA-B*08:01 | 1 | 622 | 630 | 9 | VATHADQLT 8.1e-05 | 51 |
| HLA-B*40:01 | 1 | 639 | 647 | 9 | GSNVFQTRA 8.1e-05 | 21 |
| HLA-A*01:01 | 1 | 645 | 653 | 9 | TRAGCLIGA 8.1e-05 | 53 |
| HLA-A*26:01 | 1 | 647 | 655 | 9 | AGCLIGAHE 8.1e-05 | 32 |
| HLA-B*44:02 | 1 | 647 | 655 | 9 | AGCLIGAHE 8.1e-05 | 25 |
| HLA-A*30:02 | 1 | 653 | 661 | 9 | AEHVNSYE 8.1e-05 | 60 |
| HLA-A*33:01 | 1 | 668 | 676 | 9 | AGICASYQT 8.1e-05 | 39 |
| HLA-B*51:01 | 1 | 698 | 706 | 9 | SLGAENSV 8.1e-05 | 45 |
| HLA-B*57:01 | 1 | 700 | 708 | 9 | GAENSVAYS 8.1e-05 | 51 |
| HLA-B*44:02 | 1 | 713 | 722 | 10 | AIPTNFTISV 8.1e-05 | 25 |
| HLA-A*11:01 | 1 | 721 | 730 | 10 | SVTTEILPVS 8.1e-05 | 23 |
| HLA-A*33:01 | 1 | 732 | 740 | 9 | TKTSVDCTM 8.1e-05 | 39 |
| HLA-A*68:01 | 1 | 750 | 758 | 9 | SNLLLQYGS 8.1e-05 | 34 |
| HLA-B*15:01 | 1 | 753 | 761 | 9 | LLQYGSFCT 8.1e-05 | 37 |
| HLA-A*02:01 | 1 | 771 | 780 | 10 | AVEQDKNTQE 8.1e-05 | 36 |
| HLA-A*11:01 | 1 | 789 | 797 | 9 | YKTPPIKDF 8.1e-05 | 23 |
| HLA-A*01:01 | 1 | 793 | 801 | 9 | PIKDFGGFN 8.1e-05 | 53 |
| HLA-B*57:01 | 1 | 810 | 819 | 10 | SKPSKRSFIE 8.1e-05 | 51 |
| HLA-A*24:02 | 1 | 817 | 826 | 10 | FIEDLLFNKV 8.1e-05 | 22 |
| HLA-A*01:01 | 1 | 822 | 830 | 9 | LFNKVTLAD 8.1e-05 | 53 |
| HLA-B*08:01 | 1 | 831 | 839 | 9 | AGFIKQYGD 8.1e-05 | 51 |
| HLA-A*30:01 | 1 | 841 | 849 | 9 | LGDI AARDL 8.1e-05 | 62 |
| HLA-A*32:01 | 1 | 844 | 852 | 9 | IAARDLICA 8.1e-05 | 28 |
| HLA-B*07:02 | 1 | 855 | 864 | 10 | FNGLTVLPPL 8.1e-05 | 34 |
| HLA-A*31:01 | 1 | 858 | 867 | 10 | LTVLPPLLD 8.1e-05 | 38 |
| HLA-A*02:01 | 1 | 861 | 870 | 10 | LPPLLTDEMI 8.1e-05 | 36 |
| HLA-B*40:01 | 1 | 864 | 873 | 10 | LLTDEMI AQY 8.1e-05 | 21 |
| HLA-A*01:01 | 1 | 872 | 881 | 10 | QYTSALLAGT 8.1e-05 | 53 |
| HLA-A*02:03 | 1 | 882 | 891 | 10 | ITSGWTFGAG 8.1e-05 | 39 |
| HLA-A*24:02 | 1 | 913 | 922 | 10 | QNVLYENQKL 8.1e-05 | 22 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*31:01 | 1 | 916 | 924 | 9 | LYENQKLI | 8.1e-05 | 38 |
| HLA-B*44:02 | 1 | 936 | 945 | 10 | DSLSSSTASAL | 8.1e-05 | 25 |
| HLA-A*33:01 | 1 | 943 | 952 | 10 | SALGKLQDVV | 8.1e-05 | 39 |
| HLA-A*03:01 | 1 | 944 | 952 | 9 | ALGKLQDVV | 8.1e-05 | 31 |
| HLA-A*33:01 | 1 | 948 | 957 | 10 | LQDVVNQNAQA | 8.1e-05 | 39 |
| HLA-B*44:03 | 1 | 949 | 958 | 10 | QDVVNQNAQA | 8.1e-05 | 24 |
| HLA-B*44:02 | 1 | 950 | 958 | 9 | DVVVNQNAQA | 8.1e-05 | 25 |
| HLA-B*35:01 | 1 | 953 | 961 | 9 | NQNAQALNT | 8.1e-05 | 26 |
| HLA-A*33:01 | 1 | 964 | 973 | 10 | KQLSSNFGAI | 8.1e-05 | 39 |
| HLA-B*07:02 | 1 | 991 | 999 | 9 | VQIDRLITG | 8.1e-05 | 34 |
| HLA-B*44:03 | 1 | 992 | 1000 | 9 | QIDRLITGR | 8.1e-05 | 24 |
| HLA-B*35:01 | 1 | 1005 | 1014 | 10 | QTYVTQQLIR | 8.1e-05 | 26 |
| HLA-B*40:01 | 1 | 1024 | 1032 | 9 | LAATKMSEC | 8.1e-05 | 21 |
| HLA-A*30:01 | 1 | 1027 | 1036 | 10 | TKMSECVLQG | 8.1e-05 | 62 |
| HLA-B*44:03 | 1 | 1033 | 1042 | 10 | VLGQSKRVDF | 8.1e-05 | 24 |
| HLA-A*02:01 | 1 | 1039 | 1048 | 10 | RVDFCGKGYH | 8.1e-05 | 36 |
| HLA-A*31:01 | 1 | 1042 | 1050 | 9 | FCGKGYHLM | 8.1e-05 | 38 |
| HLA-B*58:01 | 1 | 1045 | 1054 | 10 | KGYHLMSFPQ | 8.1e-05 | 39 |
| HLA-A*11:01 | 1 | 1046 | 1054 | 9 | GYHLMSFPQ | 8.1e-05 | 23 |
| HLA-B*44:03 | 1 | 1052 | 1061 | 10 | FPQSAPHGVV | 8.1e-05 | 24 |
| HLA-A*02:03 | 1 | 1076 | 1084 | 9 | TTAPAICHD | 8.1e-05 | 39 |
| HLA-B*57:01 | 1 | 1105 | 1113 | 9 | TQRNFYEPQ | 8.1e-05 | 51 |
| HLA-B*58:01 | 1 | 1130 | 1139 | 10 | IGIVNNTVYD | 8.1e-05 | 39 |
| HLA-B*35:01 | 1 | 1132 | 1141 | 10 | IVNNTVYDPL | 8.1e-05 | 26 |
| HLA-A*33:01 | 1 | 1141 | 1150 | 10 | LQPELDSFKE | 8.1e-05 | 39 |
| HLA-B*44:03 | 1 | 1141 | 1149 | 9 | LQPELDSFK | 8.1e-05 | 24 |
| HLA-B*40:01 | 1 | 1166 | 1174 | 9 | LGDISGINA | 8.1e-05 | 21 |
| HLA-A*68:02 | 1 | 1202 | 1211 | 10 | ELGKYEQYIK | 8.1e-05 | 39 |
| HLA-B*07:02 | 1 | 1208 | 1217 | 10 | QYIKWPWYIW | 8.1e-05 | 34 |
| HLA-A*02:06 | 1 | 1211 | 1220 | 10 | KWPWYIWLGF | 8.1e-05 | 47 |
| HLA-A*31:01 | 1 | 1232 | 1240 | 9 | IMLCCMTSC | 8.1e-05 | 38 |
| HLA-A*02:01 | 1 | 1242 | 1250 | 9 | SCLKGCCSC | 8.1e-05 | 36 |
| HLA-B*58:01 | 1 | 1242 | 1250 | 9 | SCLKGCCSC | 8.1e-05 | 39 |
| HLA-A*32:01 | 1 | 1247 | 1256 | 10 | CCSCGSCCKF | 8.1e-05 | 28 |
| HLA-A*68:02 | 1 | 1261 | 1269 | 9 | SEPVLKGVK | 8.1e-05 | 39 |
| HLA-B*08:01 | 1 | 1263 | 1271 | 9 | PVLKGVKHL | 8.1e-05 | 51 |
| HLA-A*31:01 | 1 | 3 | 12 | 10 | VFLVLLPLVS | 8e-05 | 38 |
| HLA-A*33:01 | 1 | 14 | 22 | 9 | QCVNLTRT | 8e-05 | 39 |
| HLA-A*33:01 | 1 | 21 | 30 | 10 | RTQLPPAYTN | 8e-05 | 39 |
| HLA-B*44:03 | 1 | 21 | 30 | 10 | RTQLPPAYTN | 8e-05 | 24 |
| HLA-B*15:01 | 1 | 24 | 33 | 10 | LPPAYTNSFT | 8e-05 | 37 |
| HLA-A*24:02 | 1 | 29 | 38 | 10 | TNSFTRGVY | 8e-05 | 22 |
| HLA-A*03:01 | 1 | 38 | 47 | 10 | YDPKVFRRSSV | 8e-05 | 31 |
| HLA-B*51:01 | 1 | 48 | 57 | 10 | LHSTQDLFLP | 8e-05 | 45 |
| HLA-B*51:01 | 1 | 54 | 63 | 10 | LFLPFFSNVT | 8e-05 | 45 |
| HLA-A*31:01 | 1 | 55 | 63 | 9 | FLPFFSNVT | 8e-05 | 38 |
| HLA-B*15:01 | 1 | 62 | 71 | 10 | VTWFHAIHVS | 8e-05 | 37 |
| HLA-B*08:01 | 1 | 69 | 77 | 9 | HVSGTNGTK | 8e-05 | 51 |
| HLA-B*40:01 | 1 | 84 | 93 | 10 | LPFNDGVYFA | 8e-05 | 22 |
| HLA-A*30:02 | 1 | 99 | 108 | 10 | NIIRGWIFGT | 8e-05 | 60 |
| HLA-B*44:02 | 1 | 114 | 122 | 9 | TQSLIIVNN | 8e-05 | 25 |
| HLA-B*51:01 | 1 | 128 | 136 | 9 | IKVCEFQFC | 8e-05 | 45 |
| HLA-A*33:01 | 1 | 134 | 142 | 9 | QFCNDPFLG | 8e-05 | 39 |
| HLA-A*01:01 | 1 | 157 | 166 | 10 | FRVYSSANNC | 8e-05 | 53 |
| HLA-A*68:01 | 1 | 164 | 173 | 10 | NNCTFEYVSQ | 8e-05 | 34 |
| HLA-A*31:01 | 1 | 169 | 178 | 10 | EYVSQPFLMD | 8e-05 | 38 |
| HLA-B*57:01 | 1 | 173 | 181 | 9 | QPFLMDLEG | 8e-05 | 51 |
| HLA-A*68:02 | 1 | 183 | 192 | 10 | QGNFKNREF | 8e-05 | 39 |
| HLA-A*30:01 | 1 | 191 | 199 | 9 | EFVFKNIDG | 8e-05 | 62 |
| HLA-A*68:01 | 1 | 194 | 203 | 10 | FKNIDGYFKI | 8e-05 | 34 |
| HLA-B*44:02 | 1 | 204 | 213 | 10 | YSKHTPINLV | 8e-05 | 25 |
| HLA-A*02:06 | 1 | 207 | 215 | 9 | HTPINLVRD | 8e-05 | 47 |
| HLA-A*02:01 | 1 | 212 | 221 | 10 | LVRDLPQGF | 8e-05 | 36 |
| HLA-B*08:01 | 1 | 265 | 274 | 10 | YYVGYLQPR | 8e-05 | 51 |
| HLA-A*68:02 | 1 | 276 | 284 | 9 | LLKYNENGT | 8e-05 | 39 |
| HLA-B*40:01 | 1 | 276 | 285 | 10 | LLKYNENGTI | 8e-05 | 22 |

| | | | | | | |
|-------------|---|------|------|----|-------------------|----|
| HLA-A*11:01 | 1 | 297 | 306 | 10 | SETKCTLKSF 8e-05 | 23 |
| HLA-B*44:03 | 1 | 307 | 315 | 9 | TVEKGIYQT 8e-05 | 24 |
| HLA-B*08:01 | 1 | 315 | 324 | 10 | TSNFRVQPT 8e-05 | 51 |
| HLA-A*02:06 | 1 | 324 | 333 | 10 | ESIVRFPNIT 8e-05 | 47 |
| HLA-A*33:01 | 1 | 337 | 345 | 9 | PFGEVFNAT 8e-05 | 39 |
| HLA-A*03:01 | 1 | 339 | 347 | 9 | GEVFNATRF 8e-05 | 31 |
| HLA-A*31:01 | 1 | 340 | 349 | 10 | EVFNATRFAS 8e-05 | 38 |
| HLA-B*53:01 | 1 | 359 | 367 | 9 | SNCVADYSV 8e-05 | 25 |
| HLA-A*02:01 | 1 | 362 | 371 | 10 | VADYSVLYNS 8e-05 | 36 |
| HLA-A*02:03 | 1 | 362 | 371 | 10 | VADYSVLYNS 8e-05 | 39 |
| HLA-A*03:01 | 1 | 383 | 392 | 10 | SPTKLNLDLCF 8e-05 | 31 |
| HLA-B*53:01 | 1 | 399 | 408 | 10 | SFVIRGDEV 8e-05 | 25 |
| HLA-A*02:03 | 1 | 401 | 409 | 9 | VIRGDEV 8e-05 | 39 |
| HLA-A*30:01 | 1 | 429 | 438 | 10 | FTGCVIAWNS 8e-05 | 62 |
| HLA-B*08:01 | 1 | 436 | 445 | 10 | WNSNNLDSKV 8e-05 | 51 |
| HLA-A*30:02 | 1 | 439 | 447 | 9 | NNLDSKVGG 8e-05 | 60 |
| HLA-A*02:03 | 1 | 443 | 451 | 9 | SKVGGNYNY 8e-05 | 39 |
| HLA-A*11:01 | 1 | 443 | 452 | 10 | SKVGGNYNYL 8e-05 | 23 |
| HLA-A*01:01 | 1 | 476 | 484 | 9 | GSTPCNGVE 8e-05 | 53 |
| HLA-A*33:01 | 1 | 502 | 511 | 10 | GVGYQPYRVV 8e-05 | 39 |
| HLA-B*57:01 | 1 | 516 | 525 | 10 | ELLHAPATVC 8e-05 | 51 |
| HLA-A*68:01 | 1 | 542 | 551 | 10 | NFNGLTGTGV 8e-05 | 34 |
| HLA-A*26:01 | 1 | 543 | 551 | 9 | FNGLTGTGV 8e-05 | 32 |
| HLA-A*02:03 | 1 | 564 | 573 | 10 | QFGRDIADTT 8e-05 | 39 |
| HLA-B*58:01 | 1 | 642 | 651 | 10 | VFQTRAGCLI 8e-05 | 39 |
| HLA-A*01:01 | 1 | 647 | 656 | 10 | AGCLIGAHEV 8e-05 | 53 |
| HLA-B*15:01 | 1 | 655 | 664 | 10 | HVNNSYECDI 8e-05 | 37 |
| HLA-A*68:02 | 1 | 667 | 676 | 10 | GAGICASYQT 8e-05 | 39 |
| HLA-A*03:01 | 1 | 671 | 680 | 10 | CASYQTQTN 8e-05 | 31 |
| HLA-A*26:01 | 1 | 672 | 681 | 10 | ASYQTQTN 8e-05 | 32 |
| HLA-A*24:02 | 1 | 675 | 683 | 9 | QTQTN 8e-05 | 22 |
| HLA-B*57:01 | 1 | 680 | 688 | 9 | SPRRARSVA 8e-05 | 51 |
| HLA-B*53:01 | 1 | 697 | 706 | 10 | MSLGAEN 8e-05 | 25 |
| HLA-A*30:01 | 1 | 702 | 711 | 10 | ENSVAYSNN 8e-05 | 62 |
| HLA-A*33:01 | 1 | 705 | 714 | 10 | VAYSNN 8e-05 | 39 |
| HLA-A*11:01 | 1 | 709 | 718 | 10 | NNSIAIPTNF 8e-05 | 23 |
| HLA-A*01:01 | 1 | 726 | 735 | 10 | ILPVSMTKTS 8e-05 | 53 |
| HLA-A*68:02 | 1 | 730 | 738 | 9 | SMTKTSVDC 8e-05 | 39 |
| HLA-A*03:01 | 1 | 758 | 767 | 10 | SFCTQLNRAL 8e-05 | 31 |
| HLA-B*35:01 | 1 | 758 | 767 | 10 | SFCTQLNRAL 8e-05 | 26 |
| HLA-B*51:01 | 1 | 768 | 776 | 9 | TGIAVEQDK 8e-05 | 45 |
| HLA-A*31:01 | 1 | 785 | 794 | 10 | VKQIYKTPPI 8e-05 | 38 |
| HLA-B*08:01 | 1 | 790 | 798 | 9 | KTPPIKDFG 8e-05 | 51 |
| HLA-A*68:02 | 1 | 794 | 802 | 9 | IKDFGGFNF 8e-05 | 39 |
| HLA-A*68:02 | 1 | 798 | 807 | 10 | GGFNFSQILP 8e-05 | 39 |
| HLA-A*32:01 | 1 | 799 | 807 | 9 | GFNF 8e-05 | 28 |
| HLA-B*57:01 | 1 | 840 | 849 | 10 | CLGDIAARDL 8e-05 | 51 |
| HLA-A*03:01 | 1 | 850 | 858 | 9 | ICAQKF 8e-05 | 31 |
| HLA-A*31:01 | 1 | 856 | 865 | 10 | NGLTVLP 8e-05 | 38 |
| HLA-B*40:01 | 1 | 866 | 874 | 9 | TDEMIAQYT 8e-05 | 22 |
| HLA-B*35:01 | 1 | 873 | 881 | 9 | YTSALLAGT 8e-05 | 26 |
| HLA-B*44:03 | 1 | 885 | 894 | 10 | GWTFGAGAAL 8e-05 | 24 |
| HLA-B*44:02 | 1 | 889 | 898 | 10 | GAGAALQIPF 8e-05 | 25 |
| HLA-B*07:02 | 1 | 890 | 899 | 10 | AGAALQIPFA 8e-05 | 34 |
| HLA-A*01:01 | 1 | 900 | 909 | 10 | MQMAYRFNGI 8e-05 | 53 |
| HLA-A*03:01 | 1 | 918 | 926 | 9 | ENQKLIANQ 8e-05 | 31 |
| HLA-B*08:01 | 1 | 921 | 929 | 9 | KLIANQFNS 8e-05 | 51 |
| HLA-A*68:02 | 1 | 924 | 933 | 10 | ANQFN 8e-05 | 39 |
| HLA-A*01:01 | 1 | 931 | 940 | 10 | IGKIQDSLSS 8e-05 | 53 |
| HLA-B*44:03 | 1 | 935 | 943 | 9 | QDSL 8e-05 | 24 |
| HLA-B*40:01 | 1 | 946 | 954 | 9 | GKLQDVVNQ 8e-05 | 22 |
| HLA-B*44:02 | 1 | 955 | 964 | 10 | NAQALNTLVK 8e-05 | 25 |
| HLA-A*02:06 | 1 | 966 | 975 | 10 | LSSNFGA 8e-05 | 47 |
| HLA-B*51:01 | 1 | 989 | 998 | 10 | AEVQIDRLIT 8e-05 | 45 |
| HLA-B*44:02 | 1 | 994 | 1002 | 9 | DRLIT 8e-05 | 25 |
| HLA-B*57:01 | 1 | 1001 | 1009 | 9 | LQSLQTYVT 8e-05 | 51 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*30:02 | 1 | 1034 | 1043 | 10 | LGQSKRVDFC | 8e-05 | 60 |
| HLA-A*33:01 | 1 | 1048 | 1057 | 10 | HLMSFPQSAP | 8e-05 | 39 |
| HLA-B*08:01 | 1 | 1064 | 1073 | 10 | HVTYVPAQEK | 8e-05 | 51 |
| HLA-A*02:03 | 1 | 1066 | 1075 | 10 | TYVPAQEKNF | 8e-05 | 39 |
| HLA-A*02:01 | 1 | 1072 | 1081 | 10 | EKNFTTAPAI | 8e-05 | 36 |
| HLA-B*44:02 | 1 | 1085 | 1094 | 10 | GKAHFPREGV | 8e-05 | 25 |
| HLA-A*01:01 | 1 | 1105 | 1113 | 9 | TQRNFYEPQ | 8e-05 | 53 |
| HLA-B*35:01 | 1 | 1110 | 1118 | 9 | YEPQIITTD | 8e-05 | 26 |
| HLA-B*35:01 | 1 | 1114 | 1122 | 9 | IITDNTFV | 8e-05 | 26 |
| HLA-A*03:01 | 1 | 1116 | 1124 | 9 | TTDNTFVSG | 8e-05 | 31 |
| HLA-A*30:01 | 1 | 1116 | 1125 | 10 | TTDNTFVSGN | 8e-05 | 62 |
| HLA-A*23:01 | 1 | 1128 | 1136 | 9 | VVIGIVNNT | 8e-05 | 23 |
| HLA-A*30:01 | 1 | 1131 | 1139 | 9 | GIVNNTVYD | 8e-05 | 62 |
| HLA-A*26:01 | 1 | 1133 | 1141 | 9 | VNNTVYDPL | 8e-05 | 32 |
| HLA-A*02:01 | 1 | 1141 | 1150 | 10 | LQPELDSFKE | 8e-05 | 36 |
| HLA-A*68:01 | 1 | 1158 | 1166 | 9 | NHTSPDVDL | 8e-05 | 34 |
| HLA-A*23:01 | 1 | 1170 | 1179 | 10 | SGINASVVNI | 8e-05 | 23 |
| HLA-A*01:01 | 1 | 1171 | 1180 | 10 | GINASVVNIQ | 8e-05 | 53 |
| HLA-A*23:01 | 1 | 1174 | 1183 | 10 | ASVVNIQKEI | 8e-05 | 23 |
| HLA-B*58:01 | 1 | 1175 | 1184 | 10 | SVVNIQKEID | 8e-05 | 39 |
| HLA-A*68:02 | 1 | 1176 | 1185 | 10 | VVNIQKEIDR | 8e-05 | 39 |
| HLA-A*02:06 | 1 | 1179 | 1187 | 9 | IQKEIDRLN | 8e-05 | 47 |
| HLA-A*03:01 | 1 | 1181 | 1190 | 10 | KEIDRLNEVA | 8e-05 | 31 |
| HLA-B*40:01 | 1 | 1189 | 1198 | 10 | VAKNLNESLI | 8e-05 | 22 |
| HLA-A*03:01 | 1 | 1200 | 1208 | 9 | LQELGKYEQ | 8e-05 | 31 |
| HLA-B*58:01 | 1 | 1227 | 1236 | 10 | IVMVTIMLCC | 8e-05 | 39 |
| HLA-A*32:01 | 1 | 1228 | 1236 | 9 | VMVTIMLCC | 8e-05 | 28 |
| HLA-A*24:02 | 1 | 2 | 11 | 10 | FVFLVLLPLV | 7.9e-05 | 22 |
| HLA-A*30:02 | 1 | 8 | 16 | 9 | LPLVSSQCV | 7.9e-05 | 60 |
| HLA-A*26:01 | 1 | 14 | 23 | 10 | QCVNLTRTQ | 7.9e-05 | 32 |
| HLA-A*68:02 | 1 | 51 | 60 | 10 | TQDLFLPFFS | 7.9e-05 | 39 |
| HLA-B*08:01 | 1 | 54 | 63 | 10 | LFLPFFSNVT | 7.9e-05 | 52 |
| HLA-A*68:02 | 1 | 57 | 65 | 9 | PFFSNVTWF | 7.9e-05 | 39 |
| HLA-A*31:01 | 1 | 81 | 90 | 10 | NPVLPFNDGV | 7.9e-05 | 38 |
| HLA-B*35:01 | 1 | 90 | 98 | 9 | VYFASTEKS | 7.9e-05 | 26 |
| HLA-A*23:01 | 1 | 102 | 111 | 10 | RGWIFGTTLD | 7.9e-05 | 23 |
| HLA-A*32:01 | 1 | 105 | 113 | 9 | IFGTTLDSK | 7.9e-05 | 28 |
| HLA-A*30:02 | 1 | 106 | 114 | 9 | FGTTLDSKT | 7.9e-05 | 60 |
| HLA-A*32:01 | 1 | 114 | 122 | 9 | TQSLLVN | 7.9e-05 | 28 |
| HLA-A*01:01 | 1 | 129 | 137 | 9 | KVCEFQFCN | 7.9e-05 | 53 |
| HLA-A*02:03 | 1 | 144 | 153 | 10 | YYHKNNKSWM | 7.9e-05 | 39 |
| HLA-A*31:01 | 1 | 149 | 157 | 9 | NKSWMSEF | 7.9e-05 | 38 |
| HLA-B*35:01 | 1 | 152 | 161 | 10 | WMESEFRVYS | 7.9e-05 | 26 |
| HLA-B*51:01 | 1 | 152 | 161 | 10 | WMESEFRVYS | 7.9e-05 | 46 |
| HLA-B*57:01 | 1 | 165 | 173 | 9 | NCTFEYVSQ | 7.9e-05 | 51 |
| HLA-B*40:01 | 1 | 185 | 194 | 10 | NFKNLREFVF | 7.9e-05 | 22 |
| HLA-A*26:01 | 1 | 193 | 202 | 10 | VFKNIDGYFK | 7.9e-05 | 32 |
| HLA-A*01:01 | 1 | 216 | 225 | 10 | LPQGFSALEP | 7.9e-05 | 53 |
| HLA-A*23:01 | 1 | 224 | 233 | 10 | EPLVDLPIGI | 7.9e-05 | 23 |
| HLA-A*24:02 | 1 | 224 | 233 | 10 | EPLVDLPIGI | 7.9e-05 | 22 |
| HLA-B*40:01 | 1 | 225 | 233 | 9 | PLVDLPIGI | 7.9e-05 | 22 |
| HLA-A*32:01 | 1 | 242 | 250 | 9 | LALHRSYLT | 7.9e-05 | 28 |
| HLA-B*40:01 | 1 | 284 | 293 | 10 | TITDAVDCAL | 7.9e-05 | 22 |
| HLA-A*03:01 | 1 | 307 | 316 | 10 | TVEKGIYQTS | 7.9e-05 | 31 |
| HLA-B*57:01 | 1 | 312 | 321 | 10 | IYQTSNFRVQ | 7.9e-05 | 51 |
| HLA-A*68:02 | 1 | 325 | 334 | 10 | SIVRFPNITN | 7.9e-05 | 39 |
| HLA-A*26:01 | 1 | 332 | 341 | 10 | ITNLCPFGEV | 7.9e-05 | 32 |
| HLA-A*33:01 | 1 | 336 | 345 | 10 | CPFGEVFNAT | 7.9e-05 | 39 |
| HLA-B*44:03 | 1 | 348 | 357 | 10 | ASVYAWNRKR | 7.9e-05 | 24 |
| HLA-A*02:03 | 1 | 352 | 361 | 10 | AWNKRKRISNC | 7.9e-05 | 39 |
| HLA-A*26:01 | 1 | 383 | 391 | 9 | SPTKLNLDLC | 7.9e-05 | 32 |
| HLA-B*44:03 | 1 | 391 | 400 | 10 | CFTNVYADSF | 7.9e-05 | 24 |
| HLA-B*07:02 | 1 | 396 | 404 | 9 | YADSFVIRG | 7.9e-05 | 34 |
| HLA-A*68:01 | 1 | 414 | 422 | 9 | QTGKIADYN | 7.9e-05 | 34 |
| HLA-A*02:03 | 1 | 421 | 429 | 9 | YNYKLPDDF | 7.9e-05 | 39 |
| HLA-B*15:01 | 1 | 423 | 432 | 10 | YKLPDDFTGC | 7.9e-05 | 37 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*26:01 | 1 | 441 | 450 | 10 | LDSKVGGNYN | 7.9e-05 | 32 |
| HLA-B*40:01 | 1 | 445 | 453 | 9 | VGGNYNYLY | 7.9e-05 | 22 |
| HLA-A*03:01 | 1 | 450 | 459 | 10 | NYLYRFLFRKS | 7.9e-05 | 31 |
| HLA-A*02:06 | 1 | 455 | 463 | 9 | LFRKSNLKP | 7.9e-05 | 47 |
| HLA-A*23:01 | 1 | 457 | 466 | 10 | RKSNLKPFR | 7.9e-05 | 23 |
| HLA-A*02:03 | 1 | 468 | 476 | 9 | ISTEIQAG | 7.9e-05 | 39 |
| HLA-B*57:01 | 1 | 484 | 493 | 10 | EGFNCYFPLQ | 7.9e-05 | 51 |
| HLA-A*32:01 | 1 | 492 | 501 | 10 | LQSYGFQPTN | 7.9e-05 | 28 |
| HLA-A*24:02 | 1 | 493 | 502 | 10 | QSYGFQPTNG | 7.9e-05 | 22 |
| HLA-B*15:01 | 1 | 501 | 509 | 9 | NGVGYQPYP | 7.9e-05 | 37 |
| HLA-A*03:01 | 1 | 504 | 513 | 10 | GYQPYRVVVL | 7.9e-05 | 31 |
| HLA-A*02:03 | 1 | 507 | 515 | 9 | PYRVVLSF | 7.9e-05 | 39 |
| HLA-A*26:01 | 1 | 522 | 530 | 9 | ATVCGPKKS | 7.9e-05 | 32 |
| HLA-A*23:01 | 1 | 526 | 534 | 9 | GPKKSTNLV | 7.9e-05 | 23 |
| HLA-A*02:01 | 1 | 531 | 539 | 9 | TNLVKNKCV | 7.9e-05 | 37 |
| HLA-A*32:01 | 1 | 562 | 570 | 9 | FQQFGRDIA | 7.9e-05 | 28 |
| HLA-B*44:03 | 1 | 562 | 570 | 9 | FQQFGRDIA | 7.9e-05 | 24 |
| HLA-B*07:02 | 1 | 577 | 586 | 10 | RDPQTLEILD | 7.9e-05 | 34 |
| HLA-B*07:02 | 1 | 582 | 590 | 9 | LEILDITPC | 7.9e-05 | 34 |
| HLA-A*02:01 | 1 | 589 | 598 | 10 | PCSFGGVSVI | 7.9e-05 | 37 |
| HLA-A*26:01 | 1 | 594 | 602 | 9 | GVSVITPGT | 7.9e-05 | 32 |
| HLA-B*15:01 | 1 | 598 | 606 | 9 | ITPGTNTSN | 7.9e-05 | 37 |
| HLA-B*07:02 | 1 | 610 | 618 | 9 | VLYQDVNCT | 7.9e-05 | 34 |
| HLA-B*35:01 | 1 | 610 | 618 | 9 | VLYQDVNCT | 7.9e-05 | 26 |
| HLA-B*07:02 | 1 | 612 | 621 | 10 | YQDVNCTEVP | 7.9e-05 | 34 |
| HLA-B*44:02 | 1 | 616 | 625 | 10 | NCTEVPVAIH | 7.9e-05 | 25 |
| HLA-A*26:01 | 1 | 620 | 628 | 9 | VPVAIHADQ | 7.9e-05 | 32 |
| HLA-A*68:02 | 1 | 626 | 634 | 9 | ADQLTPTWR | 7.9e-05 | 39 |
| HLA-A*24:02 | 1 | 637 | 646 | 10 | STGSNVFQTR | 7.9e-05 | 22 |
| HLA-B*40:01 | 1 | 642 | 650 | 9 | VFQTRAGCL | 7.9e-05 | 22 |
| HLA-A*68:02 | 1 | 656 | 664 | 9 | VNNSYECDI | 7.9e-05 | 39 |
| HLA-B*44:03 | 1 | 672 | 680 | 9 | ASYQTQTNS | 7.9e-05 | 24 |
| HLA-A*68:01 | 1 | 697 | 706 | 10 | MSLGAENSV | 7.9e-05 | 34 |
| HLA-A*02:03 | 1 | 706 | 715 | 10 | AYSNNSIAIP | 7.9e-05 | 39 |
| HLA-A*01:01 | 1 | 714 | 723 | 10 | IPNFTISVT | 7.9e-05 | 53 |
| HLA-A*02:06 | 1 | 715 | 723 | 9 | PTNFTISVT | 7.9e-05 | 47 |
| HLA-B*51:01 | 1 | 716 | 725 | 10 | TNFTISVTTE | 7.9e-05 | 46 |
| HLA-A*01:01 | 1 | 727 | 735 | 9 | LPVSMTKTS | 7.9e-05 | 53 |
| HLA-A*32:01 | 1 | 746 | 755 | 10 | STECSNLLLQ | 7.9e-05 | 28 |
| HLA-A*02:01 | 1 | 770 | 778 | 9 | IAVEQDKNT | 7.9e-05 | 37 |
| HLA-B*57:01 | 1 | 778 | 787 | 10 | TQEVFAQVKQ | 7.9e-05 | 51 |
| HLA-B*15:01 | 1 | 816 | 825 | 10 | SFIEDLLFNK | 7.9e-05 | 37 |
| HLA-B*51:01 | 1 | 826 | 835 | 10 | VTLADAGFIK | 7.9e-05 | 46 |
| HLA-A*68:01 | 1 | 856 | 864 | 9 | NGLTVLPLPL | 7.9e-05 | 34 |
| HLA-A*11:01 | 1 | 857 | 865 | 9 | GLTVLPLLL | 7.9e-05 | 23 |
| HLA-A*03:01 | 1 | 858 | 867 | 10 | LTVLPLLLTD | 7.9e-05 | 31 |
| HLA-B*51:01 | 1 | 860 | 868 | 9 | VLPLLLTDE | 7.9e-05 | 46 |
| HLA-A*32:01 | 1 | 861 | 869 | 9 | LPPLLTDEM | 7.9e-05 | 28 |
| HLA-A*30:02 | 1 | 863 | 871 | 9 | PLLTDEMIA | 7.9e-05 | 60 |
| HLA-B*44:02 | 1 | 866 | 874 | 9 | TDEMIAQYT | 7.9e-05 | 25 |
| HLA-B*08:01 | 1 | 872 | 880 | 9 | QYTSALLAG | 7.9e-05 | 52 |
| HLA-B*40:01 | 1 | 875 | 883 | 9 | SALLAGTIT | 7.9e-05 | 22 |
| HLA-A*68:02 | 1 | 882 | 891 | 10 | ITSGWTFGAG | 7.9e-05 | 39 |
| HLA-A*32:01 | 1 | 899 | 907 | 9 | AMQMAYRFN | 7.9e-05 | 28 |
| HLA-A*68:01 | 1 | 906 | 915 | 10 | FNGIGVTQNV | 7.9e-05 | 34 |
| HLA-A*26:01 | 1 | 912 | 921 | 10 | TQNVLYENQK | 7.9e-05 | 32 |
| HLA-B*44:03 | 1 | 939 | 947 | 9 | SSTASALGK | 7.9e-05 | 24 |
| HLA-A*30:01 | 1 | 944 | 953 | 10 | ALGKLQDVVN | 7.9e-05 | 62 |
| HLA-A*68:01 | 1 | 947 | 956 | 10 | KLQDVVNQNA | 7.9e-05 | 34 |
| HLA-A*26:01 | 1 | 953 | 961 | 9 | NQNAQALNT | 7.9e-05 | 32 |
| HLA-A*32:01 | 1 | 954 | 963 | 10 | QNAQALNTLV | 7.9e-05 | 28 |
| HLA-B*40:01 | 1 | 972 | 980 | 9 | AISSVLNDI | 7.9e-05 | 22 |
| HLA-A*03:01 | 1 | 982 | 990 | 9 | SRLDKVEAE | 7.9e-05 | 31 |
| HLA-A*68:01 | 1 | 982 | 991 | 10 | SRLDKVEAEV | 7.9e-05 | 34 |
| HLA-A*26:01 | 1 | 1025 | 1033 | 9 | AATKMSECV | 7.9e-05 | 32 |
| HLA-B*08:01 | 1 | 1031 | 1039 | 9 | ECVLGQSKR | 7.9e-05 | 52 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-B*44:03 | 1 | 1053 | 1061 | 9 | PQSAPHGVV | 7.9e-05 | 24 |
| HLA-A*31:01 | 1 | 1063 | 1071 | 9 | LHVTVVPAQ | 7.9e-05 | 38 |
| HLA-A*68:01 | 1 | 1076 | 1085 | 10 | TTAPAICHDG | 7.9e-05 | 34 |
| HLA-B*53:01 | 1 | 1100 | 1108 | 9 | THWFVTQRN | 7.9e-05 | 25 |
| HLA-B*35:01 | 1 | 1106 | 1114 | 9 | QRNFYEPQI | 7.9e-05 | 26 |
| HLA-B*07:02 | 1 | 1120 | 1129 | 10 | TFVSGNCDVV | 7.9e-05 | 34 |
| HLA-B*40:01 | 1 | 1121 | 1129 | 9 | FVSGNCDVV | 7.9e-05 | 22 |
| HLA-A*11:01 | 1 | 1135 | 1143 | 9 | NTVYDPLQP | 7.9e-05 | 23 |
| HLA-A*33:01 | 1 | 1159 | 1167 | 9 | HTSPDVDLG | 7.9e-05 | 39 |
| HLA-A*68:02 | 1 | 1160 | 1168 | 9 | TSPDVDLGD | 7.9e-05 | 39 |
| HLA-A*02:01 | 1 | 1174 | 1182 | 9 | ASVVNIQKE | 7.9e-05 | 37 |
| HLA-A*32:01 | 1 | 1197 | 1205 | 9 | LIDLQELGK | 7.9e-05 | 28 |
| HLA-A*02:01 | 1 | 1230 | 1239 | 10 | VTIMLCCMTS | 7.9e-05 | 37 |
| HLA-A*68:01 | 1 | 12 | 20 | 9 | SSQCVNLTT | 7.8e-05 | 34 |
| HLA-B*44:03 | 1 | 13 | 22 | 10 | SQCVNLTTTRT | 7.8e-05 | 24 |
| HLA-A*02:03 | 1 | 15 | 23 | 9 | CVNLTTTRTQ | 7.8e-05 | 40 |
| HLA-B*08:01 | 1 | 18 | 27 | 10 | LTTRTLPPA | 7.8e-05 | 52 |
| HLA-B*51:01 | 1 | 18 | 27 | 10 | LTTRTLPPA | 7.8e-05 | 46 |
| HLA-B*35:01 | 1 | 20 | 29 | 10 | TRTQLPPAYT | 7.8e-05 | 27 |
| HLA-A*68:02 | 1 | 21 | 30 | 10 | RTQLPPAYTN | 7.8e-05 | 39 |
| HLA-B*58:01 | 1 | 32 | 40 | 9 | FTRGVYYPD | 7.8e-05 | 40 |
| HLA-B*44:03 | 1 | 53 | 62 | 10 | DLFLPFFSNV | 7.8e-05 | 24 |
| HLA-A*24:02 | 1 | 68 | 76 | 9 | IHVSGTNGT | 7.8e-05 | 23 |
| HLA-B*53:01 | 1 | 86 | 94 | 9 | FNDGVYFAS | 7.8e-05 | 26 |
| HLA-A*02:06 | 1 | 105 | 113 | 9 | IFGTTLDSK | 7.8e-05 | 47 |
| HLA-A*02:03 | 1 | 114 | 122 | 9 | TQSLLVN | 7.8e-05 | 40 |
| HLA-B*07:02 | 1 | 150 | 159 | 10 | KSWMESEFRV | 7.8e-05 | 35 |
| HLA-A*02:03 | 1 | 161 | 170 | 10 | SSANNCTFEY | 7.8e-05 | 40 |
| HLA-A*33:01 | 1 | 170 | 178 | 9 | YVSQPFLMD | 7.8e-05 | 39 |
| HLA-B*44:02 | 1 | 170 | 179 | 10 | YVSQPFLMDL | 7.8e-05 | 25 |
| HLA-B*44:02 | 1 | 173 | 182 | 10 | QPFLMDLEGK | 7.8e-05 | 25 |
| HLA-A*30:02 | 1 | 175 | 184 | 10 | FLMDLEGKQG | 7.8e-05 | 60 |
| HLA-A*24:02 | 1 | 180 | 189 | 10 | EGKQGNFKNL | 7.8e-05 | 23 |
| HLA-A*68:02 | 1 | 185 | 194 | 10 | NFKNLREFVF | 7.8e-05 | 39 |
| HLA-A*01:01 | 1 | 208 | 217 | 10 | TPINLVRDLP | 7.8e-05 | 54 |
| HLA-A*11:01 | 1 | 213 | 222 | 10 | VRDLPQGFS | 7.8e-05 | 23 |
| HLA-B*08:01 | 1 | 222 | 230 | 9 | ALEPLVDLP | 7.8e-05 | 52 |
| HLA-A*02:03 | 1 | 223 | 231 | 9 | LEPLVDLPI | 7.8e-05 | 40 |
| HLA-B*51:01 | 1 | 238 | 247 | 10 | FOTLLALHRS | 7.8e-05 | 46 |
| HLA-A*26:01 | 1 | 265 | 274 | 10 | YYVGYLQPR | 7.8e-05 | 32 |
| HLA-A*23:01 | 1 | 277 | 285 | 9 | LKYNENGTI | 7.8e-05 | 23 |
| HLA-A*32:01 | 1 | 278 | 286 | 9 | KYNENGTIT | 7.8e-05 | 28 |
| HLA-B*07:02 | 1 | 284 | 292 | 9 | TITDAVDCA | 7.8e-05 | 35 |
| HLA-A*31:01 | 1 | 295 | 303 | 9 | PLSETKCTL | 7.8e-05 | 39 |
| HLA-B*15:01 | 1 | 300 | 309 | 10 | KCTLKSFTVE | 7.8e-05 | 37 |
| HLA-A*26:01 | 1 | 301 | 309 | 9 | CTLKSFTVE | 7.8e-05 | 32 |
| HLA-A*23:01 | 1 | 313 | 321 | 9 | YQTSNFRVQ | 7.8e-05 | 23 |
| HLA-A*68:01 | 1 | 317 | 325 | 9 | NFRVQPTES | 7.8e-05 | 34 |
| HLA-B*35:01 | 1 | 317 | 325 | 9 | NFRVQPTES | 7.8e-05 | 27 |
| HLA-A*32:01 | 1 | 318 | 327 | 10 | FRVQPTESIV | 7.8e-05 | 28 |
| HLA-A*30:01 | 1 | 330 | 338 | 9 | PNITNLCPF | 7.8e-05 | 63 |
| HLA-B*57:01 | 1 | 334 | 343 | 10 | NLCPFGEVFN | 7.8e-05 | 52 |
| HLA-A*33:01 | 1 | 352 | 361 | 10 | AWNKRISNC | 7.8e-05 | 39 |
| HLA-B*07:02 | 1 | 367 | 376 | 10 | VLYNSASFST | 7.8e-05 | 35 |
| HLA-A*23:01 | 1 | 386 | 395 | 10 | KLNDLCFTNV | 7.8e-05 | 23 |
| HLA-B*58:01 | 1 | 423 | 432 | 10 | YKLPDDFTGC | 7.8e-05 | 40 |
| HLA-A*68:02 | 1 | 440 | 449 | 10 | NLDSKVGNGY | 7.8e-05 | 39 |
| HLA-B*08:01 | 1 | 449 | 458 | 10 | YNYLYRFRK | 7.8e-05 | 52 |
| HLA-B*08:01 | 1 | 450 | 459 | 10 | NYLYRFRKS | 7.8e-05 | 52 |
| HLA-A*02:01 | 1 | 456 | 464 | 9 | FRKSNLKP | 7.8e-05 | 37 |
| HLA-A*30:02 | 1 | 456 | 465 | 10 | FRKSNLKPFE | 7.8e-05 | 60 |
| HLA-A*01:01 | 1 | 458 | 467 | 10 | KSNLKPFERD | 7.8e-05 | 54 |
| HLA-A*30:02 | 1 | 459 | 467 | 9 | SNLKPFERD | 7.8e-05 | 60 |
| HLA-B*15:01 | 1 | 470 | 478 | 9 | TEIYQAGST | 7.8e-05 | 37 |
| HLA-B*53:01 | 1 | 470 | 478 | 9 | TEIYQAGST | 7.8e-05 | 26 |
| HLA-A*31:01 | 1 | 471 | 479 | 9 | EIYQAGSTP | 7.8e-05 | 39 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*11:01 | 1 | 488 | 497 | 10 | CYFPLQSYGF | 7.8e-05 | 23 |
| HLA-A*02:03 | 1 | 499 | 507 | 9 | PTNGVGYQP | 7.8e-05 | 40 |
| HLA-B*53:01 | 1 | 509 | 518 | 10 | RVVVLSEFELL | 7.8e-05 | 26 |
| HLA-B*40:01 | 1 | 524 | 533 | 10 | VCGPKKSTNL | 7.8e-05 | 22 |
| HLA-A*33:01 | 1 | 543 | 551 | 9 | FNGLTGTGV | 7.8e-05 | 39 |
| HLA-B*08:01 | 1 | 544 | 553 | 10 | NGLTGTGVL | 7.8e-05 | 52 |
| HLA-A*02:06 | 1 | 552 | 561 | 10 | LTESNKKFLP | 7.8e-05 | 47 |
| HLA-A*11:01 | 1 | 571 | 580 | 10 | DTTDAVRDPQ | 7.8e-05 | 23 |
| HLA-B*08:01 | 1 | 588 | 596 | 9 | TPCSFGGVS | 7.8e-05 | 52 |
| HLA-B*53:01 | 1 | 635 | 644 | 10 | VYSTGSNVFQ | 7.8e-05 | 26 |
| HLA-A*33:01 | 1 | 640 | 649 | 10 | SNVFQTRAGC | 7.8e-05 | 39 |
| HLA-B*40:01 | 1 | 641 | 649 | 9 | NVFQTRAGC | 7.8e-05 | 22 |
| HLA-B*44:03 | 1 | 647 | 655 | 9 | AGCLIGAEH | 7.8e-05 | 24 |
| HLA-B*40:01 | 1 | 651 | 660 | 10 | IGAEHVNNNSY | 7.8e-05 | 22 |
| HLA-A*30:02 | 1 | 663 | 672 | 10 | DIPIGAGICA | 7.8e-05 | 60 |
| HLA-B*58:01 | 1 | 668 | 676 | 9 | AGICASYQT | 7.8e-05 | 40 |
| HLA-B*15:01 | 1 | 670 | 678 | 9 | ICASYQTQT | 7.8e-05 | 37 |
| HLA-B*53:01 | 1 | 673 | 681 | 9 | SYQTQTNSP | 7.8e-05 | 26 |
| HLA-B*35:01 | 1 | 674 | 683 | 10 | YQTQTNSPRR | 7.8e-05 | 27 |
| HLA-B*07:02 | 1 | 678 | 686 | 9 | TNSPRRARS | 7.8e-05 | 35 |
| HLA-B*44:02 | 1 | 682 | 690 | 9 | RRARSVASQ | 7.8e-05 | 25 |
| HLA-A*68:01 | 1 | 694 | 703 | 10 | AYTMSLGAEN | 7.8e-05 | 34 |
| HLA-A*68:01 | 1 | 719 | 728 | 10 | TISVTTEILP | 7.8e-05 | 34 |
| HLA-B*15:01 | 1 | 729 | 738 | 10 | VSMTKTSVDC | 7.8e-05 | 37 |
| HLA-B*07:02 | 1 | 731 | 739 | 9 | MTKTSVDC | 7.8e-05 | 35 |
| HLA-B*51:01 | 1 | 740 | 748 | 9 | MYICGDSTE | 7.8e-05 | 46 |
| HLA-A*02:01 | 1 | 743 | 752 | 10 | CGDSTECSNL | 7.8e-05 | 37 |
| HLA-B*58:01 | 1 | 743 | 752 | 10 | CGDSTECSNL | 7.8e-05 | 40 |
| HLA-A*02:01 | 1 | 747 | 756 | 10 | TECSNLLLQY | 7.8e-05 | 37 |
| HLA-B*51:01 | 1 | 756 | 765 | 10 | YGSFCTQLNR | 7.8e-05 | 46 |
| HLA-A*30:02 | 1 | 760 | 769 | 10 | CTQLNRALTG | 7.8e-05 | 60 |
| HLA-A*01:01 | 1 | 761 | 769 | 9 | TQLNRALTG | 7.8e-05 | 54 |
| HLA-A*33:01 | 1 | 765 | 774 | 10 | RALTGIAVEQ | 7.8e-05 | 39 |
| HLA-A*68:02 | 1 | 768 | 776 | 9 | TGIAVEQDK | 7.8e-05 | 39 |
| HLA-A*68:02 | 1 | 786 | 795 | 10 | KQIYKTPPIK | 7.8e-05 | 39 |
| HLA-A*02:06 | 1 | 791 | 800 | 10 | TPPIKDFGGF | 7.8e-05 | 47 |
| HLA-A*02:03 | 1 | 798 | 807 | 10 | GGFNFSQILP | 7.8e-05 | 40 |
| HLA-A*02:06 | 1 | 800 | 808 | 9 | FNFSQILPD | 7.8e-05 | 47 |
| HLA-B*15:01 | 1 | 853 | 862 | 10 | QKFNGLTVLP | 7.8e-05 | 37 |
| HLA-B*51:01 | 1 | 864 | 872 | 9 | LLTDEMIAQ | 7.8e-05 | 46 |
| HLA-B*57:01 | 1 | 864 | 872 | 9 | LLTDEMIAQ | 7.8e-05 | 52 |
| HLA-A*01:01 | 1 | 866 | 875 | 10 | TDEMIAQYTS | 7.8e-05 | 54 |
| HLA-B*35:01 | 1 | 877 | 885 | 9 | LLAGTITSG | 7.8e-05 | 27 |
| HLA-A*02:06 | 1 | 903 | 912 | 10 | AYRFGIGVT | 7.8e-05 | 47 |
| HLA-A*02:06 | 1 | 911 | 920 | 10 | VTQNVLYENQ | 7.8e-05 | 47 |
| HLA-A*33:01 | 1 | 913 | 922 | 10 | QNVLYENQKL | 7.8e-05 | 39 |
| HLA-A*33:01 | 1 | 917 | 925 | 9 | YENQKLIAN | 7.8e-05 | 39 |
| HLA-B*58:01 | 1 | 927 | 935 | 9 | FNSAIGKIQ | 7.8e-05 | 40 |
| HLA-A*03:01 | 1 | 935 | 944 | 10 | QDSLSTASA | 7.8e-05 | 31 |
| HLA-A*33:01 | 1 | 942 | 951 | 10 | ASALGKLQDV | 7.8e-05 | 39 |
| HLA-B*40:01 | 1 | 954 | 963 | 10 | QNAQALNTLV | 7.8e-05 | 22 |
| HLA-B*53:01 | 1 | 972 | 981 | 10 | AISSVLNDIL | 7.8e-05 | 26 |
| HLA-A*33:01 | 1 | 989 | 997 | 9 | AEVQIDRLI | 7.8e-05 | 39 |
| HLA-A*68:01 | 1 | 991 | 999 | 9 | VQIDRLITG | 7.8e-05 | 34 |
| HLA-B*07:02 | 1 | 1003 | 1011 | 9 | SLQTYVTQQ | 7.8e-05 | 35 |
| HLA-A*31:01 | 1 | 1024 | 1032 | 9 | LAATKMSEC | 7.8e-05 | 39 |
| HLA-A*01:01 | 1 | 1027 | 1036 | 10 | TKMSECVLGQ | 7.8e-05 | 54 |
| HLA-A*30:01 | 1 | 1027 | 1035 | 9 | TKMSECVLG | 7.8e-05 | 63 |
| HLA-B*35:01 | 1 | 1029 | 1038 | 10 | MSECVLGQSK | 7.8e-05 | 27 |
| HLA-A*24:02 | 1 | 1039 | 1047 | 9 | RVDFCGKGY | 7.8e-05 | 23 |
| HLA-A*02:03 | 1 | 1044 | 1052 | 9 | GKGYHLMSF | 7.8e-05 | 40 |
| HLA-B*53:01 | 1 | 1058 | 1066 | 9 | HGVVFLHVT | 7.8e-05 | 26 |
| HLA-A*33:01 | 1 | 1063 | 1072 | 10 | LHVTYVPAQE | 7.8e-05 | 39 |
| HLA-B*07:02 | 1 | 1077 | 1086 | 10 | TAPAICHGDK | 7.8e-05 | 35 |
| HLA-B*44:03 | 1 | 1078 | 1086 | 9 | APAICHGDK | 7.8e-05 | 24 |
| HLA-B*35:01 | 1 | 1087 | 1096 | 10 | AHFPREGVAV | 7.8e-05 | 27 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*02:01 | 1 | 1096 | 1105 | 10 | VSNQTHWFVT | 7.8e-05 | 37 |
| HLA-A*03:01 | 1 | 1114 | 1122 | 9 | IITTDNTFV | 7.8e-05 | 31 |
| HLA-A*68:01 | 1 | 1132 | 1140 | 9 | IVNNTVYDP | 7.8e-05 | 34 |
| HLA-A*33:01 | 1 | 1166 | 1174 | 9 | LGDISGINA | 7.8e-05 | 39 |
| HLA-A*01:01 | 1 | 1178 | 1187 | 10 | NIQKEIDRLN | 7.8e-05 | 54 |
| HLA-B*44:02 | 1 | 1182 | 1190 | 9 | EIDRLNEVA | 7.8e-05 | 25 |
| HLA-B*08:01 | 1 | 1197 | 1205 | 9 | LIDLQELGK | 7.8e-05 | 52 |
| HLA-B*44:03 | 1 | 1200 | 1208 | 9 | LQELGKYEQ | 7.8e-05 | 24 |
| HLA-A*01:01 | 1 | 1205 | 1213 | 9 | KYEQYIKWP | 7.8e-05 | 54 |
| HLA-A*33:01 | 1 | 1213 | 1221 | 9 | PWYIWLGFY | 7.8e-05 | 39 |
| HLA-A*01:01 | 1 | 1224 | 1233 | 10 | LIAIVMVTIM | 7.8e-05 | 54 |
| HLA-A*68:01 | 1 | 1225 | 1234 | 10 | IAIVMVTIML | 7.8e-05 | 34 |
| HLA-A*32:01 | 1 | 1228 | 1237 | 10 | VMVTIMLCCM | 7.8e-05 | 28 |
| HLA-B*58:01 | 1 | 1255 | 1264 | 10 | KFDEDDSEPV | 7.8e-05 | 40 |
| HLA-B*57:01 | 1 | 1 | 9 | 9 | MFVFLVLLP | 7.7e-05 | 52 |
| HLA-A*33:01 | 1 | 8 | 16 | 9 | LPLVSSQCV | 7.7e-05 | 40 |
| HLA-B*08:01 | 1 | 15 | 23 | 9 | CVNLTRRTQ | 7.7e-05 | 52 |
| HLA-A*24:02 | 1 | 21 | 29 | 9 | RTQLPPAYT | 7.7e-05 | 23 |
| HLA-A*11:01 | 1 | 31 | 39 | 9 | SFTRGVVYP | 7.7e-05 | 24 |
| HLA-A*68:02 | 1 | 45 | 53 | 9 | SSVLHSTQD | 7.7e-05 | 40 |
| HLA-A*11:01 | 1 | 47 | 56 | 10 | VLHSTQDLFL | 7.7e-05 | 24 |
| HLA-A*03:01 | 1 | 49 | 57 | 9 | HSTQDLFLP | 7.7e-05 | 31 |
| HLA-B*58:01 | 1 | 85 | 93 | 9 | PFNDGVYFA | 7.7e-05 | 40 |
| HLA-B*44:03 | 1 | 89 | 97 | 9 | GVYFASTEK | 7.7e-05 | 24 |
| HLA-A*26:01 | 1 | 90 | 98 | 9 | VYFASTEKS | 7.7e-05 | 32 |
| HLA-A*23:01 | 1 | 100 | 108 | 9 | IIRGWIFGT | 7.7e-05 | 23 |
| HLA-A*24:02 | 1 | 102 | 111 | 10 | RGWIFGTTLD | 7.7e-05 | 23 |
| HLA-B*08:01 | 1 | 102 | 111 | 10 | RGWIFGTTLD | 7.7e-05 | 52 |
| HLA-A*32:01 | 1 | 113 | 122 | 10 | KTQSLLIVNN | 7.7e-05 | 29 |
| HLA-A*01:01 | 1 | 115 | 124 | 10 | QSLLIVNNAT | 7.7e-05 | 54 |
| HLA-B*57:01 | 1 | 116 | 125 | 10 | SLLIVNNATN | 7.7e-05 | 52 |
| HLA-A*02:03 | 1 | 122 | 131 | 10 | NATNVVIKVC | 7.7e-05 | 40 |
| HLA-B*57:01 | 1 | 147 | 155 | 9 | KNNKSWMES | 7.7e-05 | 52 |
| HLA-B*57:01 | 1 | 153 | 161 | 9 | MESEFRVYS | 7.7e-05 | 52 |
| HLA-B*15:01 | 1 | 161 | 169 | 9 | SSANNCTFE | 7.7e-05 | 37 |
| HLA-A*68:02 | 1 | 175 | 184 | 10 | FLMDLEGKQG | 7.7e-05 | 40 |
| HLA-A*31:01 | 1 | 177 | 186 | 10 | MDLEGKQGNF | 7.7e-05 | 39 |
| HLA-A*26:01 | 1 | 179 | 187 | 9 | LEGKQGNFK | 7.7e-05 | 32 |
| HLA-A*11:01 | 1 | 182 | 191 | 10 | KQGNFKNLRE | 7.7e-05 | 24 |
| HLA-B*57:01 | 1 | 200 | 209 | 10 | YFKIYSKHTP | 7.7e-05 | 52 |
| HLA-A*30:02 | 1 | 209 | 217 | 9 | PINLVRDLP | 7.7e-05 | 60 |
| HLA-A*31:01 | 1 | 210 | 218 | 9 | INLVRDLPQ | 7.7e-05 | 39 |
| HLA-B*57:01 | 1 | 210 | 219 | 10 | INLVRDLPQG | 7.7e-05 | 52 |
| HLA-B*07:02 | 1 | 213 | 221 | 9 | VRDLPQGF | 7.7e-05 | 35 |
| HLA-A*30:02 | 1 | 220 | 228 | 9 | FSALEPLVD | 7.7e-05 | 60 |
| HLA-A*33:01 | 1 | 225 | 233 | 9 | PLVDLPYGI | 7.7e-05 | 40 |
| HLA-B*15:01 | 1 | 247 | 255 | 9 | SYLTPGDSS | 7.7e-05 | 37 |
| HLA-A*33:01 | 1 | 252 | 260 | 9 | GDSSSGWTA | 7.7e-05 | 40 |
| HLA-B*44:02 | 1 | 269 | 278 | 10 | YLQPRTFLLK | 7.7e-05 | 25 |
| HLA-A*11:01 | 1 | 273 | 282 | 10 | RTFLLKYNE | 7.7e-05 | 24 |
| HLA-A*26:01 | 1 | 273 | 281 | 9 | RTFLLKYNE | 7.7e-05 | 32 |
| HLA-B*57:01 | 1 | 288 | 297 | 10 | AVDCALDPLS | 7.7e-05 | 52 |
| HLA-B*53:01 | 1 | 300 | 308 | 9 | KCTLKSFTV | 7.7e-05 | 26 |
| HLA-A*02:01 | 1 | 305 | 314 | 10 | SFTVEKGIYQ | 7.7e-05 | 37 |
| HLA-B*53:01 | 1 | 313 | 321 | 9 | YQTSNFRVQ | 7.7e-05 | 26 |
| HLA-A*01:01 | 1 | 326 | 334 | 9 | IVRFPNITN | 7.7e-05 | 54 |
| HLA-A*30:01 | 1 | 329 | 337 | 9 | FPNITNLCP | 7.7e-05 | 63 |
| HLA-B*44:02 | 1 | 330 | 338 | 9 | PNITNLCPF | 7.7e-05 | 25 |
| HLA-A*01:01 | 1 | 335 | 344 | 10 | LCPFGEVFNA | 7.7e-05 | 54 |
| HLA-B*07:02 | 1 | 347 | 355 | 9 | FASVYAWNR | 7.7e-05 | 35 |
| HLA-B*57:01 | 1 | 352 | 361 | 10 | AWNRKRISNC | 7.7e-05 | 52 |
| HLA-B*15:01 | 1 | 353 | 361 | 9 | WNRKRISNC | 7.7e-05 | 37 |
| HLA-A*31:01 | 1 | 354 | 362 | 9 | NRKRISNCV | 7.7e-05 | 39 |
| HLA-B*15:01 | 1 | 363 | 372 | 10 | ADYSVLYNSA | 7.7e-05 | 37 |
| HLA-B*44:02 | 1 | 383 | 391 | 9 | SPTKLNDLC | 7.7e-05 | 25 |
| HLA-B*08:01 | 1 | 385 | 393 | 9 | TKLNDLCFT | 7.7e-05 | 52 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*32:01 | 1 | 387 | 396 | 10 | LNDLCFTNVY | 7.7e-05 | 29 |
| HLA-A*30:01 | 1 | 391 | 400 | 10 | CFTNVYADSF | 7.7e-05 | 63 |
| HLA-A*01:01 | 1 | 407 | 415 | 9 | VRQIAPGQT | 7.7e-05 | 54 |
| HLA-B*51:01 | 1 | 413 | 421 | 9 | GQTGKIADY | 7.7e-05 | 46 |
| HLA-B*57:01 | 1 | 429 | 437 | 9 | FTGCVIAWN | 7.7e-05 | 52 |
| HLA-A*68:02 | 1 | 436 | 444 | 9 | WNSNNLDSK | 7.7e-05 | 40 |
| HLA-A*03:01 | 1 | 443 | 452 | 10 | SKVGGNYNYL | 7.7e-05 | 31 |
| HLA-B*08:01 | 1 | 444 | 453 | 10 | KVGGNYNYLY | 7.7e-05 | 52 |
| HLA-A*02:01 | 1 | 463 | 472 | 10 | PFERDISTEI | 7.7e-05 | 37 |
| HLA-A*02:06 | 1 | 466 | 474 | 9 | RDISTEIQ | 7.7e-05 | 47 |
| HLA-A*68:01 | 1 | 469 | 478 | 10 | STEIQAGST | 7.7e-05 | 34 |
| HLA-B*08:01 | 1 | 478 | 487 | 10 | TPCNGVEGFN | 7.7e-05 | 52 |
| HLA-B*44:02 | 1 | 482 | 491 | 10 | GVEGFNCYFP | 7.7e-05 | 25 |
| HLA-A*01:01 | 1 | 518 | 527 | 10 | LHAPATVCGP | 7.7e-05 | 54 |
| HLA-A*33:01 | 1 | 522 | 531 | 10 | ATVCGPKKST | 7.7e-05 | 40 |
| HLA-B*44:02 | 1 | 558 | 566 | 9 | KFLPFQFG | 7.7e-05 | 25 |
| HLA-A*31:01 | 1 | 568 | 576 | 9 | DIADTTDAV | 7.7e-05 | 39 |
| HLA-B*51:01 | 1 | 572 | 581 | 10 | TTDAVRDPQT | 7.7e-05 | 46 |
| HLA-B*08:01 | 1 | 617 | 626 | 10 | CTEVPVAIHA | 7.7e-05 | 52 |
| HLA-A*01:01 | 1 | 621 | 630 | 10 | PVAIHADQLT | 7.7e-05 | 54 |
| HLA-B*07:02 | 1 | 622 | 630 | 9 | VAIHADQLT | 7.7e-05 | 35 |
| HLA-B*57:01 | 1 | 631 | 640 | 10 | PTWRVYSTGS | 7.7e-05 | 52 |
| HLA-B*35:01 | 1 | 637 | 645 | 9 | STGSNVFQT | 7.7e-05 | 27 |
| HLA-B*40:01 | 1 | 647 | 655 | 9 | AGCLIGAEH | 7.7e-05 | 22 |
| HLA-B*57:01 | 1 | 667 | 676 | 10 | GAGICASYQT | 7.7e-05 | 52 |
| HLA-A*26:01 | 1 | 673 | 681 | 9 | SYQTQTNSP | 7.7e-05 | 32 |
| HLA-A*30:01 | 1 | 738 | 747 | 10 | CTMYICGDST | 7.7e-05 | 63 |
| HLA-A*68:02 | 1 | 738 | 746 | 9 | CTMYICGDS | 7.7e-05 | 40 |
| HLA-B*40:01 | 1 | 741 | 749 | 9 | YICGDSTEC | 7.7e-05 | 22 |
| HLA-B*53:01 | 1 | 770 | 779 | 10 | IAVEQDKNTQ | 7.7e-05 | 26 |
| HLA-A*68:02 | 1 | 772 | 780 | 9 | VEQDKNTQE | 7.7e-05 | 40 |
| HLA-B*07:02 | 1 | 814 | 823 | 10 | KRSFIEDLLF | 7.7e-05 | 35 |
| HLA-B*35:01 | 1 | 820 | 829 | 10 | DLLFNKVTLA | 7.7e-05 | 27 |
| HLA-A*23:01 | 1 | 824 | 833 | 10 | NKVTLADAGF | 7.7e-05 | 23 |
| HLA-A*03:01 | 1 | 826 | 834 | 9 | VTLADAGFI | 7.7e-05 | 31 |
| HLA-A*02:01 | 1 | 843 | 851 | 9 | DIAARDLIC | 7.7e-05 | 37 |
| HLA-B*44:02 | 1 | 847 | 856 | 10 | RDLICAQKFN | 7.7e-05 | 25 |
| HLA-A*01:01 | 1 | 850 | 859 | 10 | ICAQKFNGLT | 7.7e-05 | 54 |
| HLA-B*58:01 | 1 | 854 | 863 | 10 | KFNGLTVLPP | 7.7e-05 | 40 |
| HLA-A*32:01 | 1 | 898 | 907 | 10 | FAMQMAYRFN | 7.7e-05 | 29 |
| HLA-B*35:01 | 1 | 901 | 909 | 9 | QMAYRFNGI | 7.7e-05 | 27 |
| HLA-B*53:01 | 1 | 902 | 910 | 9 | MAYRFNGIG | 7.7e-05 | 26 |
| HLA-B*57:01 | 1 | 918 | 926 | 9 | ENQKLIANQ | 7.7e-05 | 52 |
| HLA-B*53:01 | 1 | 956 | 964 | 9 | AQALNTLVK | 7.7e-05 | 26 |
| HLA-A*23:01 | 1 | 982 | 990 | 9 | SRLDKVEAE | 7.7e-05 | 23 |
| HLA-A*03:01 | 1 | 989 | 997 | 9 | AEVQIDRLI | 7.7e-05 | 31 |
| HLA-A*68:01 | 1 | 994 | 1003 | 10 | DRLITGRLQS | 7.7e-05 | 34 |
| HLA-A*33:01 | 1 | 996 | 1005 | 10 | LITGRLQSLQ | 7.7e-05 | 40 |
| HLA-B*15:01 | 1 | 996 | 1005 | 10 | LITGRLQSLQ | 7.7e-05 | 37 |
| HLA-A*03:01 | 1 | 1010 | 1018 | 9 | QLLIRAAEI | 7.7e-05 | 31 |
| HLA-B*51:01 | 1 | 1011 | 1020 | 10 | QLIRAAEIRA | 7.7e-05 | 46 |
| HLA-A*31:01 | 1 | 1014 | 1023 | 10 | RAAEIRASAN | 7.7e-05 | 39 |
| HLA-A*68:01 | 1 | 1048 | 1057 | 10 | HLMSPQASAP | 7.7e-05 | 34 |
| HLA-A*11:01 | 1 | 1051 | 1060 | 10 | SFPQSAPHGV | 7.7e-05 | 24 |
| HLA-A*33:01 | 1 | 1067 | 1076 | 10 | YVPAQEKNT | 7.7e-05 | 40 |
| HLA-A*31:01 | 1 | 1070 | 1079 | 10 | AQEKNTTAP | 7.7e-05 | 39 |
| HLA-B*08:01 | 1 | 1092 | 1101 | 10 | EGVFSNGTH | 7.7e-05 | 52 |
| HLA-A*30:01 | 1 | 1112 | 1121 | 10 | PQIITDNTF | 7.7e-05 | 63 |
| HLA-A*02:03 | 1 | 1116 | 1124 | 9 | TTDNTFVSG | 7.7e-05 | 40 |
| HLA-A*31:01 | 1 | 1120 | 1128 | 9 | TFVSGNCDV | 7.7e-05 | 39 |
| HLA-B*53:01 | 1 | 1127 | 1135 | 9 | DVVGIVNN | 7.7e-05 | 26 |
| HLA-A*03:01 | 1 | 1132 | 1140 | 9 | IVNNTVYDP | 7.7e-05 | 31 |
| HLA-A*23:01 | 1 | 1132 | 1141 | 10 | IVNNTVYDPL | 7.7e-05 | 23 |
| HLA-A*02:03 | 1 | 1134 | 1143 | 10 | NNTVYDPLQP | 7.7e-05 | 40 |
| HLA-B*08:01 | 1 | 1141 | 1149 | 9 | LQPELDSFK | 7.7e-05 | 52 |
| HLA-A*26:01 | 1 | 1143 | 1152 | 10 | PELDSFKEEL | 7.7e-05 | 32 |

| | | | | | | |
|-------------|---|------|------|----|--------------------|----|
| HLA-A*68:01 | 1 | 1170 | 1179 | 10 | SGINASVUNI 7.7e-05 | 34 |
| HLA-A*31:01 | 1 | 1181 | 1190 | 10 | KEIDRLNEVA 7.7e-05 | 39 |
| HLA-A*03:01 | 1 | 1182 | 1190 | 9 | EIDRLNEVA 7.7e-05 | 31 |
| HLA-B*15:01 | 1 | 1182 | 1190 | 9 | EIDRLNEVA 7.7e-05 | 37 |
| HLA-A*26:01 | 1 | 1183 | 1191 | 9 | IDRLNEVAK 7.7e-05 | 32 |
| HLA-A*03:01 | 1 | 1212 | 1220 | 9 | WPWYIWLGF 7.7e-05 | 31 |
| HLA-B*15:01 | 1 | 1222 | 1231 | 10 | AGLIAIVMVT 7.7e-05 | 37 |
| HLA-B*53:01 | 1 | 1222 | 1230 | 9 | AGLIAIVMV 7.7e-05 | 26 |
| HLA-A*26:01 | 1 | 1256 | 1264 | 9 | FDEDDSEPV 7.7e-05 | 32 |
| HLA-B*07:02 | 1 | 1258 | 1266 | 9 | EDDSEPVLK 7.7e-05 | 35 |
| HLA-B*08:01 | 1 | 1 | 9 | 9 | MFVFLVLLP 7.6e-05 | 52 |
| HLA-A*23:01 | 1 | 3 | 12 | 10 | VFLVLLPLVS 7.6e-05 | 24 |
| HLA-A*26:01 | 1 | 3 | 11 | 9 | VFLVLLPLV 7.6e-05 | 32 |
| HLA-B*15:01 | 1 | 17 | 25 | 9 | NLTTRTQLP 7.6e-05 | 38 |
| HLA-B*57:01 | 1 | 26 | 35 | 10 | PAYTNSFTRG 7.6e-05 | 52 |
| HLA-A*68:01 | 1 | 31 | 39 | 9 | SFTRGVVYYP 7.6e-05 | 34 |
| HLA-A*26:01 | 1 | 44 | 52 | 9 | RSSVLHSTQ 7.6e-05 | 32 |
| HLA-B*35:01 | 1 | 47 | 56 | 10 | VLHSTQDLFL 7.6e-05 | 27 |
| HLA-B*44:02 | 1 | 52 | 60 | 9 | QDLFLPFFS 7.6e-05 | 26 |
| HLA-A*11:01 | 1 | 55 | 64 | 10 | FLPFFSNVTW 7.6e-05 | 24 |
| HLA-A*02:01 | 1 | 68 | 77 | 10 | IHVSGTNGTK 7.6e-05 | 37 |
| HLA-B*53:01 | 1 | 69 | 78 | 10 | HVSGTNGTKR 7.6e-05 | 26 |
| HLA-B*08:01 | 1 | 86 | 95 | 10 | FNDGVYFAST 7.6e-05 | 52 |
| HLA-B*08:01 | 1 | 104 | 113 | 10 | WIFGTTLDSK 7.6e-05 | 52 |
| HLA-B*53:01 | 1 | 106 | 114 | 9 | FGTTLDSKT 7.6e-05 | 26 |
| HLA-B*44:02 | 1 | 130 | 139 | 10 | VCEFQFCNDP 7.6e-05 | 26 |
| HLA-B*51:01 | 1 | 131 | 139 | 9 | CEFQFCNDP 7.6e-05 | 46 |
| HLA-A*32:01 | 1 | 132 | 141 | 10 | EFQFCNDPFL 7.6e-05 | 29 |
| HLA-B*40:01 | 1 | 150 | 159 | 10 | KSWMESEFRV 7.6e-05 | 22 |
| HLA-B*08:01 | 1 | 164 | 172 | 9 | NNCTFEYVS 7.6e-05 | 52 |
| HLA-A*30:02 | 1 | 176 | 185 | 10 | LMDLEGKQGN 7.6e-05 | 61 |
| HLA-B*44:02 | 1 | 179 | 188 | 10 | LEGKQGNFKN 7.6e-05 | 26 |
| HLA-A*02:03 | 1 | 198 | 206 | 9 | DGYFKIYSK 7.6e-05 | 40 |
| HLA-A*68:02 | 1 | 199 | 208 | 10 | GYFKIYSKHT 7.6e-05 | 40 |
| HLA-A*02:06 | 1 | 209 | 217 | 9 | PINLVRDLP 7.6e-05 | 48 |
| HLA-B*53:01 | 1 | 235 | 243 | 9 | ITRFQTLA 7.6e-05 | 26 |
| HLA-A*02:01 | 1 | 236 | 245 | 10 | TRFQTLALH 7.6e-05 | 37 |
| HLA-B*15:01 | 1 | 238 | 247 | 10 | FQTLALHRS 7.6e-05 | 38 |
| HLA-B*44:02 | 1 | 240 | 249 | 10 | TLLALHRSYL 7.6e-05 | 26 |
| HLA-B*51:01 | 1 | 246 | 255 | 10 | RSYLTPGDSS 7.6e-05 | 46 |
| HLA-A*30:01 | 1 | 248 | 257 | 10 | YLTPGDSSSG 7.6e-05 | 63 |
| HLA-A*02:01 | 1 | 256 | 265 | 10 | SGWTAGAAAY 7.6e-05 | 37 |
| HLA-A*03:01 | 1 | 315 | 323 | 9 | TSNFRVQPT 7.6e-05 | 32 |
| HLA-B*44:02 | 1 | 348 | 356 | 9 | ASVYAWNRK 7.6e-05 | 26 |
| HLA-A*68:02 | 1 | 353 | 361 | 9 | WNRKRISNC 7.6e-05 | 40 |
| HLA-A*30:01 | 1 | 355 | 364 | 10 | RKRISNCVAD 7.6e-05 | 63 |
| HLA-A*23:01 | 1 | 359 | 367 | 9 | SNCVADYSV 7.6e-05 | 24 |
| HLA-A*02:01 | 1 | 364 | 372 | 9 | DYSVLYNVA 7.6e-05 | 37 |
| HLA-B*07:02 | 1 | 367 | 375 | 9 | VLVNSASFS 7.6e-05 | 35 |
| HLA-A*33:01 | 1 | 375 | 384 | 10 | STFKCYGVSP 7.6e-05 | 40 |
| HLA-A*03:01 | 1 | 379 | 387 | 9 | CYGVSPTKL 7.6e-05 | 32 |
| HLA-A*01:01 | 1 | 384 | 393 | 10 | PTKLNLCFT 7.6e-05 | 54 |
| HLA-B*44:02 | 1 | 407 | 416 | 10 | VRQIAPGQTG 7.6e-05 | 26 |
| HLA-B*58:01 | 1 | 429 | 438 | 10 | FTGCVIAWNS 7.6e-05 | 40 |
| HLA-B*57:01 | 1 | 430 | 439 | 10 | TGCVIAWNSN 7.6e-05 | 52 |
| HLA-A*02:06 | 1 | 433 | 442 | 10 | VIWNSNLD 7.6e-05 | 48 |
| HLA-A*02:03 | 1 | 440 | 448 | 9 | NLDSKVGGN 7.6e-05 | 40 |
| HLA-A*03:01 | 1 | 464 | 472 | 9 | FERDISTEI 7.6e-05 | 32 |
| HLA-B*58:01 | 1 | 475 | 484 | 10 | AGSTPCNGVE 7.6e-05 | 40 |
| HLA-A*30:01 | 1 | 482 | 491 | 10 | GVEGFNCYFP 7.6e-05 | 63 |
| HLA-A*31:01 | 1 | 483 | 492 | 10 | VEGFNCYFPL 7.6e-05 | 39 |
| HLA-B*15:01 | 1 | 488 | 496 | 9 | CYFPLQSYG 7.6e-05 | 38 |
| HLA-A*68:01 | 1 | 502 | 511 | 10 | GVGYQPYRVV 7.6e-05 | 34 |
| HLA-B*51:01 | 1 | 510 | 519 | 10 | VVLSFELLH 7.6e-05 | 46 |
| HLA-A*01:01 | 1 | 518 | 526 | 9 | LHAPATVCG 7.6e-05 | 54 |
| HLA-A*11:01 | 1 | 526 | 534 | 9 | GPKKSTNLV 7.6e-05 | 24 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-B*58:01 | 1 | 547 | 556 | 10 | TGTGVLTESN | 7.6e-05 | 40 |
| HLA-A*26:01 | 1 | 551 | 560 | 10 | VLTESNKKFL | 7.6e-05 | 32 |
| HLA-A*03:01 | 1 | 557 | 566 | 10 | KKFLPFQQFG | 7.6e-05 | 32 |
| HLA-A*24:02 | 1 | 568 | 576 | 9 | DIADTTDAV | 7.6e-05 | 23 |
| HLA-B*08:01 | 1 | 568 | 577 | 10 | DIADTTDAVR | 7.6e-05 | 52 |
| HLA-A*32:01 | 1 | 588 | 597 | 10 | TPCSFGGVS | 7.6e-05 | 29 |
| HLA-A*33:01 | 1 | 591 | 600 | 10 | SFGGVSVITP | 7.6e-05 | 40 |
| HLA-A*33:01 | 1 | 620 | 628 | 9 | VPVAIHADQ | 7.6e-05 | 40 |
| HLA-A*32:01 | 1 | 622 | 631 | 10 | VAIHADQLTP | 7.6e-05 | 29 |
| HLA-B*44:03 | 1 | 623 | 631 | 9 | AIHADQLTP | 7.6e-05 | 24 |
| HLA-B*53:01 | 1 | 626 | 635 | 10 | ADQLTPTWRV | 7.6e-05 | 26 |
| HLA-B*51:01 | 1 | 631 | 639 | 9 | PTWRVYSTG | 7.6e-05 | 46 |
| HLA-A*23:01 | 1 | 637 | 645 | 9 | STGSNVFQT | 7.6e-05 | 24 |
| HLA-A*02:01 | 1 | 669 | 677 | 9 | GICASYQTQ | 7.6e-05 | 37 |
| HLA-A*02:03 | 1 | 669 | 677 | 9 | GICASYQTQ | 7.6e-05 | 40 |
| HLA-A*24:02 | 1 | 674 | 683 | 10 | YQTQTNSPRR | 7.6e-05 | 23 |
| HLA-A*02:01 | 1 | 683 | 691 | 9 | RARSVASQS | 7.6e-05 | 37 |
| HLA-B*44:02 | 1 | 689 | 698 | 10 | SQSIIAYTMS | 7.6e-05 | 26 |
| HLA-B*15:01 | 1 | 703 | 712 | 10 | NSVAYSNNSI | 7.6e-05 | 38 |
| HLA-B*15:01 | 1 | 730 | 739 | 10 | SMTKTSVDCT | 7.6e-05 | 38 |
| HLA-A*23:01 | 1 | 732 | 740 | 9 | TKTSVDCTM | 7.6e-05 | 24 |
| HLA-B*08:01 | 1 | 732 | 741 | 10 | TKTSVDCTMY | 7.6e-05 | 52 |
| HLA-B*07:02 | 1 | 735 | 743 | 9 | SVDCTMYIC | 7.6e-05 | 35 |
| HLA-B*51:01 | 1 | 739 | 748 | 10 | TMYICGDSTE | 7.6e-05 | 46 |
| HLA-A*68:01 | 1 | 744 | 752 | 9 | GDSTECSNL | 7.6e-05 | 34 |
| HLA-A*02:06 | 1 | 747 | 755 | 9 | TECSNLLLQ | 7.6e-05 | 48 |
| HLA-B*51:01 | 1 | 749 | 757 | 9 | CSNLLLQYG | 7.6e-05 | 46 |
| HLA-A*01:01 | 1 | 765 | 773 | 9 | RALTGIAVE | 7.6e-05 | 54 |
| HLA-A*33:01 | 1 | 765 | 773 | 9 | RALTGIAVE | 7.6e-05 | 40 |
| HLA-A*26:01 | 1 | 767 | 776 | 10 | LTGIAVEQDK | 7.6e-05 | 32 |
| HLA-A*03:01 | 1 | 779 | 787 | 9 | QEVFAQVKQ | 7.6e-05 | 32 |
| HLA-A*01:01 | 1 | 783 | 792 | 10 | AQVKQIYKTP | 7.6e-05 | 54 |
| HLA-B*51:01 | 1 | 788 | 796 | 9 | IYKTPPIKD | 7.6e-05 | 46 |
| HLA-B*51:01 | 1 | 789 | 798 | 10 | YKTPPIKDFG | 7.6e-05 | 46 |
| HLA-B*53:01 | 1 | 803 | 812 | 10 | SQILPDPSKP | 7.6e-05 | 26 |
| HLA-A*24:02 | 1 | 813 | 821 | 9 | SKRSFIEDL | 7.6e-05 | 23 |
| HLA-A*02:03 | 1 | 814 | 823 | 10 | KRSFIEDLLF | 7.6e-05 | 40 |
| HLA-A*03:01 | 1 | 822 | 831 | 10 | LFNKVTLADA | 7.6e-05 | 32 |
| HLA-B*44:03 | 1 | 845 | 854 | 10 | AARDLICAQK | 7.6e-05 | 24 |
| HLA-A*33:01 | 1 | 855 | 864 | 10 | FNGLTVLPPL | 7.6e-05 | 40 |
| HLA-B*44:02 | 1 | 865 | 874 | 10 | LTDEMIAQYT | 7.6e-05 | 26 |
| HLA-A*31:01 | 1 | 872 | 880 | 9 | QYTSALLAG | 7.6e-05 | 39 |
| HLA-B*07:02 | 1 | 873 | 881 | 9 | YTSALLAGT | 7.6e-05 | 35 |
| HLA-A*68:01 | 1 | 875 | 884 | 10 | SALLAGTITS | 7.6e-05 | 34 |
| HLA-B*40:01 | 1 | 876 | 884 | 9 | ALLAGTITS | 7.6e-05 | 22 |
| HLA-B*51:01 | 1 | 880 | 889 | 10 | GTITSGWTFG | 7.6e-05 | 46 |
| HLA-A*33:01 | 1 | 881 | 889 | 9 | TITSGWTFG | 7.6e-05 | 40 |
| HLA-B*40:01 | 1 | 884 | 892 | 9 | SGWTFGAGA | 7.6e-05 | 22 |
| HLA-A*03:01 | 1 | 891 | 900 | 10 | GAALQIPFAM | 7.6e-05 | 32 |
| HLA-A*01:01 | 1 | 897 | 905 | 9 | PFAMQMAYR | 7.6e-05 | 54 |
| HLA-B*44:02 | 1 | 900 | 908 | 9 | MQMAYRFNG | 7.6e-05 | 26 |
| HLA-B*40:01 | 1 | 932 | 941 | 10 | GKIQDSLST | 7.6e-05 | 22 |
| HLA-B*08:01 | 1 | 935 | 943 | 9 | QDSLSTAS | 7.6e-05 | 52 |
| HLA-B*40:01 | 1 | 939 | 948 | 10 | SSTASALGKL | 7.6e-05 | 22 |
| HLA-B*57:01 | 1 | 950 | 958 | 9 | DVVNQNAQA | 7.6e-05 | 52 |
| HLA-B*08:01 | 1 | 959 | 968 | 10 | LNTLVKQLSS | 7.6e-05 | 52 |
| HLA-A*32:01 | 1 | 961 | 969 | 9 | TLVKQLSSN | 7.6e-05 | 29 |
| HLA-A*33:01 | 1 | 978 | 987 | 10 | NDILSRLDKV | 7.6e-05 | 40 |
| HLA-B*07:02 | 1 | 981 | 990 | 10 | LSRLDKVEAE | 7.6e-05 | 35 |
| HLA-B*07:02 | 1 | 1000 | 1009 | 10 | RLQSLQTYVT | 7.6e-05 | 35 |
| HLA-B*15:01 | 1 | 1006 | 1014 | 9 | TYVTQQLIR | 7.6e-05 | 38 |
| HLA-A*11:01 | 1 | 1045 | 1053 | 9 | KGYHLMSFP | 7.6e-05 | 24 |
| HLA-A*26:01 | 1 | 1050 | 1059 | 10 | MSFPQSAPHG | 7.6e-05 | 32 |
| HLA-A*24:02 | 1 | 1056 | 1064 | 9 | APHGVVFLH | 7.6e-05 | 23 |
| HLA-A*23:01 | 1 | 1067 | 1076 | 10 | YVPAQEKNTF | 7.6e-05 | 24 |
| HLA-B*53:01 | 1 | 1077 | 1086 | 10 | TAPAICHGDK | 7.6e-05 | 26 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*30:02 | 1 | 1083 | 1092 | 10 | HDGKAHFPRE | 7.6e-05 | 61 |
| HLA-A*02:03 | 1 | 1098 | 1107 | 10 | NGTHWFVTQR | 7.6e-05 | 40 |
| HLA-A*11:01 | 1 | 1107 | 1116 | 10 | RNFYEPQIIT | 7.6e-05 | 24 |
| HLA-B*08:01 | 1 | 1111 | 1119 | 9 | EPQIITTDN | 7.6e-05 | 52 |
| HLA-B*51:01 | 1 | 1138 | 1146 | 9 | YDPLQPELD | 7.6e-05 | 46 |
| HLA-A*30:01 | 1 | 1143 | 1152 | 10 | PELDSFKEEL | 7.6e-05 | 63 |
| HLA-B*35:01 | 1 | 1170 | 1178 | 9 | SGINASVVN | 7.6e-05 | 27 |
| HLA-A*11:01 | 1 | 1189 | 1197 | 9 | VAKNLNESL | 7.6e-05 | 24 |
| HLA-B*57:01 | 1 | 1190 | 1198 | 9 | AKNLNESLI | 7.6e-05 | 52 |
| HLA-B*35:01 | 1 | 1197 | 1205 | 9 | LIDLQELGK | 7.6e-05 | 27 |
| HLA-B*40:01 | 1 | 1209 | 1218 | 10 | YIKWPWYIWL | 7.6e-05 | 22 |
| HLA-A*01:01 | 1 | 1219 | 1227 | 9 | GFIAGLIAI | 7.6e-05 | 54 |
| HLA-A*26:01 | 1 | 1223 | 1232 | 10 | GLIAIVMVTI | 7.6e-05 | 32 |
| HLA-B*44:03 | 1 | 1225 | 1233 | 9 | IAIVMVTIM | 7.6e-05 | 24 |
| HLA-A*30:01 | 1 | 1239 | 1247 | 9 | SCCCLKGC | 7.6e-05 | 63 |
| HLA-B*58:01 | 1 | 1241 | 1250 | 10 | CCLKGCCSC | 7.6e-05 | 40 |
| HLA-B*07:02 | 1 | 1255 | 1263 | 9 | KFDEDDSEP | 7.6e-05 | 35 |
| HLA-A*03:01 | 1 | 1261 | 1270 | 10 | SEPVCLKGVKL | 7.6e-05 | 32 |
| HLA-A*32:01 | 1 | 7 | 16 | 10 | LLPLVSSQCV | 7.5e-05 | 29 |
| HLA-A*24:02 | 1 | 9 | 18 | 10 | PLVSSQCVNL | 7.5e-05 | 23 |
| HLA-A*23:01 | 1 | 21 | 29 | 9 | RTQLPPAYT | 7.5e-05 | 24 |
| HLA-A*01:01 | 1 | 44 | 53 | 10 | RSSVLHSTQD | 7.5e-05 | 54 |
| HLA-A*02:03 | 1 | 56 | 64 | 9 | LPFFSNVTW | 7.5e-05 | 40 |
| HLA-A*68:02 | 1 | 68 | 76 | 9 | IHVSGTNGT | 7.5e-05 | 40 |
| HLA-A*11:01 | 1 | 71 | 79 | 9 | SGTNGTKRF | 7.5e-05 | 24 |
| HLA-A*02:01 | 1 | 97 | 105 | 9 | KSNIRGWI | 7.5e-05 | 37 |
| HLA-A*26:01 | 1 | 99 | 107 | 9 | NIIRGWIFG | 7.5e-05 | 33 |
| HLA-A*02:06 | 1 | 143 | 152 | 10 | VYYHKNNKSW | 7.5e-05 | 48 |
| HLA-A*02:03 | 1 | 149 | 157 | 9 | NKSWMESEF | 7.5e-05 | 40 |
| HLA-A*23:01 | 1 | 158 | 167 | 10 | RVYSSANNCT | 7.5e-05 | 24 |
| HLA-B*57:01 | 1 | 172 | 180 | 9 | SQPFLMDLE | 7.5e-05 | 52 |
| HLA-A*24:02 | 1 | 184 | 193 | 10 | GNFKNLREFV | 7.5e-05 | 23 |
| HLA-B*40:01 | 1 | 189 | 197 | 9 | LREFVFKNI | 7.5e-05 | 22 |
| HLA-A*01:01 | 1 | 200 | 208 | 9 | YFKIYSKHT | 7.5e-05 | 54 |
| HLA-B*57:01 | 1 | 227 | 236 | 10 | VDLPIGINIT | 7.5e-05 | 52 |
| HLA-A*68:01 | 1 | 228 | 236 | 9 | DLPIGINIT | 7.5e-05 | 34 |
| HLA-B*58:01 | 1 | 232 | 240 | 9 | GINITRFQT | 7.5e-05 | 40 |
| HLA-B*44:02 | 1 | 233 | 242 | 10 | INITRFQTL | 7.5e-05 | 26 |
| HLA-A*68:01 | 1 | 261 | 270 | 10 | GAAAYVGYL | 7.5e-05 | 34 |
| HLA-A*33:01 | 1 | 284 | 292 | 9 | TITDAVDCA | 7.5e-05 | 40 |
| HLA-B*51:01 | 1 | 297 | 305 | 9 | SETKCTLKS | 7.5e-05 | 46 |
| HLA-A*01:01 | 1 | 303 | 312 | 10 | LKSFTVEKGI | 7.5e-05 | 54 |
| HLA-A*11:01 | 1 | 307 | 316 | 10 | TVEKGIYQTS | 7.5e-05 | 24 |
| HLA-B*53:01 | 1 | 334 | 343 | 10 | NLCPFGEVFN | 7.5e-05 | 26 |
| HLA-B*58:01 | 1 | 368 | 376 | 9 | LYNSASFST | 7.5e-05 | 40 |
| HLA-A*24:02 | 1 | 388 | 396 | 9 | NDLCFTNVY | 7.5e-05 | 23 |
| HLA-A*01:01 | 1 | 398 | 406 | 9 | DSFVIRGDE | 7.5e-05 | 54 |
| HLA-A*01:01 | 1 | 404 | 412 | 9 | GDEVQRQIAP | 7.5e-05 | 54 |
| HLA-B*44:03 | 1 | 404 | 412 | 9 | GDEVQRQIAP | 7.5e-05 | 24 |
| HLA-A*68:02 | 1 | 444 | 453 | 10 | KVGGNYNYLY | 7.5e-05 | 40 |
| HLA-A*26:01 | 1 | 449 | 458 | 10 | YNYLYRFRK | 7.5e-05 | 33 |
| HLA-B*51:01 | 1 | 454 | 463 | 10 | RLFRKSNLKP | 7.5e-05 | 46 |
| HLA-A*68:01 | 1 | 457 | 465 | 9 | RKSNLKPFE | 7.5e-05 | 34 |
| HLA-B*15:01 | 1 | 465 | 474 | 10 | ERDISTEIQ | 7.5e-05 | 38 |
| HLA-B*15:01 | 1 | 466 | 474 | 9 | RDISTEIQ | 7.5e-05 | 38 |
| HLA-A*01:01 | 1 | 472 | 480 | 9 | IYQAGSTPC | 7.5e-05 | 54 |
| HLA-B*15:01 | 1 | 495 | 504 | 10 | YGFQPTNGVG | 7.5e-05 | 38 |
| HLA-A*33:01 | 1 | 497 | 506 | 10 | FQPTNGVGYQ | 7.5e-05 | 40 |
| HLA-B*44:03 | 1 | 518 | 526 | 9 | LHAPATVCG | 7.5e-05 | 24 |
| HLA-B*07:02 | 1 | 519 | 527 | 9 | HAPATVCGP | 7.5e-05 | 35 |
| HLA-A*33:01 | 1 | 524 | 533 | 10 | VCGPKKSTNL | 7.5e-05 | 40 |
| HLA-A*33:01 | 1 | 537 | 546 | 10 | KCVNFNFNGL | 7.5e-05 | 40 |
| HLA-A*23:01 | 1 | 540 | 549 | 10 | NFNFNGLTGT | 7.5e-05 | 24 |
| HLA-B*51:01 | 1 | 542 | 550 | 9 | NFNGLTGTG | 7.5e-05 | 46 |
| HLA-B*53:01 | 1 | 543 | 552 | 10 | FNGLTGTGVL | 7.5e-05 | 26 |
| HLA-B*07:02 | 1 | 545 | 553 | 9 | GLTGTGVLT | 7.5e-05 | 35 |

| | | | | | | | |
|-------------|---|------|------|----|--------------|---------|----|
| HLA-B*57:01 | 1 | 545 | 553 | 9 | GLTGTGVLTLT | 7.5e-05 | 52 |
| HLA-A*02:01 | 1 | 546 | 555 | 10 | LTGTGVLTLTES | 7.5e-05 | 37 |
| HLA-B*44:02 | 1 | 556 | 564 | 9 | NKKFLPFQQ | 7.5e-05 | 26 |
| HLA-B*08:01 | 1 | 572 | 581 | 10 | TTDAVRDPQT | 7.5e-05 | 52 |
| HLA-A*01:01 | 1 | 578 | 587 | 10 | DPQTLEILDI | 7.5e-05 | 54 |
| HLA-B*07:02 | 1 | 603 | 612 | 10 | NTSNQVAVLY | 7.5e-05 | 35 |
| HLA-B*40:01 | 1 | 611 | 620 | 10 | LYQDVNCTEV | 7.5e-05 | 22 |
| HLA-A*24:02 | 1 | 618 | 626 | 9 | TEVPVAIHA | 7.5e-05 | 23 |
| HLA-B*53:01 | 1 | 637 | 646 | 10 | STGSNVFQTR | 7.5e-05 | 26 |
| HLA-B*07:02 | 1 | 642 | 651 | 10 | VFQTRAGCLI | 7.5e-05 | 35 |
| HLA-A*11:01 | 1 | 645 | 653 | 9 | TRAGCLIGA | 7.5e-05 | 24 |
| HLA-B*51:01 | 1 | 647 | 655 | 9 | AGCLIGAHEH | 7.5e-05 | 46 |
| HLA-A*30:01 | 1 | 649 | 657 | 9 | CLIGAHEHVN | 7.5e-05 | 63 |
| HLA-B*35:01 | 1 | 651 | 659 | 9 | IGAHEHVNNS | 7.5e-05 | 27 |
| HLA-A*02:01 | 1 | 673 | 682 | 10 | SYQTQTNSPR | 7.5e-05 | 37 |
| HLA-A*26:01 | 1 | 678 | 687 | 10 | TNSPRRARSV | 7.5e-05 | 33 |
| HLA-A*02:06 | 1 | 679 | 688 | 10 | NSPRRARSVA | 7.5e-05 | 48 |
| HLA-A*26:01 | 1 | 685 | 694 | 10 | RSVASQSIIA | 7.5e-05 | 33 |
| HLA-A*11:01 | 1 | 707 | 715 | 9 | YSNNSIAIP | 7.5e-05 | 24 |
| HLA-B*07:02 | 1 | 712 | 721 | 10 | IAIPTNFTIS | 7.5e-05 | 35 |
| HLA-A*02:01 | 1 | 731 | 739 | 9 | MTKTSVDCT | 7.5e-05 | 37 |
| HLA-B*53:01 | 1 | 740 | 749 | 10 | MYICGDSTEC | 7.5e-05 | 26 |
| HLA-A*30:02 | 1 | 743 | 752 | 10 | CGDSTECSNL | 7.5e-05 | 61 |
| HLA-A*02:01 | 1 | 744 | 752 | 9 | GDSTECSNL | 7.5e-05 | 37 |
| HLA-B*08:01 | 1 | 750 | 758 | 9 | SNLLQYGS | 7.5e-05 | 52 |
| HLA-A*11:01 | 1 | 774 | 782 | 9 | QDKNTQEVF | 7.5e-05 | 24 |
| HLA-A*68:02 | 1 | 778 | 786 | 9 | TQEVFAQVK | 7.5e-05 | 40 |
| HLA-A*31:01 | 1 | 779 | 787 | 9 | QEVFAQVKQ | 7.5e-05 | 39 |
| HLA-A*11:01 | 1 | 811 | 819 | 9 | KPSKRSFIE | 7.5e-05 | 24 |
| HLA-B*57:01 | 1 | 812 | 820 | 9 | PSKRSFIED | 7.5e-05 | 52 |
| HLA-A*01:01 | 1 | 816 | 824 | 9 | SFIEDLLFN | 7.5e-05 | 54 |
| HLA-B*07:02 | 1 | 826 | 834 | 9 | VTLADAGFI | 7.5e-05 | 35 |
| HLA-B*58:01 | 1 | 832 | 841 | 10 | GFIKQYGDCL | 7.5e-05 | 40 |
| HLA-A*68:01 | 1 | 857 | 866 | 10 | GLTVLPPLLT | 7.5e-05 | 34 |
| HLA-B*07:02 | 1 | 867 | 875 | 9 | DEMIAQYTS | 7.5e-05 | 35 |
| HLA-A*02:06 | 1 | 881 | 889 | 9 | TITSGWTFG | 7.5e-05 | 48 |
| HLA-A*01:01 | 1 | 883 | 891 | 9 | TSGWTFGAG | 7.5e-05 | 54 |
| HLA-B*53:01 | 1 | 901 | 909 | 9 | QMAYRFNGI | 7.5e-05 | 26 |
| HLA-B*07:02 | 1 | 939 | 947 | 9 | SSTASALGK | 7.5e-05 | 35 |
| HLA-A*32:01 | 1 | 950 | 959 | 10 | DVVNQNAQAL | 7.5e-05 | 29 |
| HLA-A*03:01 | 1 | 953 | 962 | 10 | NQNAQALNTL | 7.5e-05 | 32 |
| HLA-B*07:02 | 1 | 974 | 983 | 10 | SSVLNDILSR | 7.5e-05 | 35 |
| HLA-B*58:01 | 1 | 980 | 988 | 9 | ILSRLDKVE | 7.5e-05 | 40 |
| HLA-B*44:02 | 1 | 1004 | 1013 | 10 | LQTYVTQQLI | 7.5e-05 | 26 |
| HLA-A*02:01 | 1 | 1006 | 1014 | 9 | TYVTQQLIR | 7.5e-05 | 37 |
| HLA-B*15:01 | 1 | 1012 | 1021 | 10 | LIRAAEIRAS | 7.5e-05 | 38 |
| HLA-B*44:03 | 1 | 1032 | 1040 | 9 | CVLGQSKRV | 7.5e-05 | 24 |
| HLA-A*23:01 | 1 | 1039 | 1047 | 9 | RVDFCGKGY | 7.5e-05 | 24 |
| HLA-B*58:01 | 1 | 1057 | 1065 | 9 | PHGVVFLHV | 7.5e-05 | 40 |
| HLA-A*01:01 | 1 | 1058 | 1066 | 9 | HGVVFLHVT | 7.5e-05 | 54 |
| HLA-A*68:02 | 1 | 1065 | 1074 | 10 | VTYVPAQEKN | 7.5e-05 | 40 |
| HLA-A*02:01 | 1 | 1066 | 1075 | 10 | TYVPAQEKNF | 7.5e-05 | 37 |
| HLA-A*68:01 | 1 | 1066 | 1074 | 9 | TYVPAQEKN | 7.5e-05 | 34 |
| HLA-B*44:03 | 1 | 1068 | 1076 | 9 | VPAQEKNFT | 7.5e-05 | 24 |
| HLA-B*15:01 | 1 | 1069 | 1078 | 10 | PAQEKNFTTA | 7.5e-05 | 38 |
| HLA-A*33:01 | 1 | 1085 | 1094 | 10 | GKAHFPPREGV | 7.5e-05 | 40 |
| HLA-A*02:01 | 1 | 1088 | 1097 | 10 | HFPREGVFVS | 7.5e-05 | 37 |
| HLA-A*26:01 | 1 | 1088 | 1097 | 10 | HFPREGVFVS | 7.5e-05 | 33 |
| HLA-B*58:01 | 1 | 1089 | 1097 | 9 | FPREGVFVS | 7.5e-05 | 40 |
| HLA-A*02:06 | 1 | 1111 | 1120 | 10 | EPQIITDNT | 7.5e-05 | 48 |
| HLA-B*15:01 | 1 | 1122 | 1130 | 9 | VSGNCDVVI | 7.5e-05 | 38 |
| HLA-A*03:01 | 1 | 1188 | 1196 | 9 | EVAKNLNES | 7.5e-05 | 32 |
| HLA-A*30:01 | 1 | 1198 | 1207 | 10 | IDLQELGKYE | 7.5e-05 | 63 |
| HLA-A*03:01 | 1 | 1199 | 1208 | 10 | DLQELGKYEQ | 7.5e-05 | 32 |
| HLA-A*68:01 | 1 | 1202 | 1210 | 9 | ELGKYEQYI | 7.5e-05 | 34 |
| HLA-B*35:01 | 1 | 1202 | 1210 | 9 | ELGKYEQYI | 7.5e-05 | 27 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*33:01 | 1 | 1218 | 1227 | 10 | LGFIAGLIAI | 7.5e-05 | 40 |
| HLA-A*31:01 | 1 | 1225 | 1234 | 10 | IAIVMTIML | 7.5e-05 | 39 |
| HLA-A*32:01 | 1 | 1232 | 1240 | 9 | IMLCMTSC | 7.5e-05 | 29 |
| HLA-A*01:01 | 1 | 1241 | 1249 | 9 | CCLKGCSS | 7.5e-05 | 54 |
| HLA-B*15:01 | 1 | 2 | 11 | 10 | FVFLVLLPLV | 7.4e-05 | 38 |
| HLA-B*08:01 | 1 | 5 | 14 | 10 | LVLPLVSSQ | 7.4e-05 | 53 |
| HLA-B*07:02 | 1 | 9 | 18 | 10 | PLVSSQCVNL | 7.4e-05 | 35 |
| HLA-B*51:01 | 1 | 15 | 23 | 9 | CVNLTRTQ | 7.4e-05 | 46 |
| HLA-A*24:02 | 1 | 21 | 30 | 10 | RTQLPPAYTN | 7.4e-05 | 23 |
| HLA-B*07:02 | 1 | 63 | 71 | 9 | TWFHAIHVS | 7.4e-05 | 35 |
| HLA-A*01:01 | 1 | 68 | 76 | 9 | IHVSGTNGT | 7.4e-05 | 55 |
| HLA-A*02:03 | 1 | 96 | 104 | 9 | EKSNIIRGW | 7.4e-05 | 40 |
| HLA-A*02:01 | 1 | 105 | 113 | 9 | IFGTTLDSK | 7.4e-05 | 37 |
| HLA-A*03:01 | 1 | 119 | 128 | 10 | IVNNATNVVI | 7.4e-05 | 32 |
| HLA-B*58:01 | 1 | 129 | 138 | 10 | KVCEFQFCND | 7.4e-05 | 41 |
| HLA-A*33:01 | 1 | 131 | 140 | 10 | CEFQFCNDPF | 7.4e-05 | 40 |
| HLA-A*24:02 | 1 | 142 | 150 | 9 | GVYYHKNNK | 7.4e-05 | 23 |
| HLA-B*15:01 | 1 | 143 | 151 | 9 | VYYHKNNKS | 7.4e-05 | 38 |
| HLA-B*53:01 | 1 | 150 | 159 | 10 | KSWMESEFRV | 7.4e-05 | 26 |
| HLA-A*02:03 | 1 | 159 | 168 | 10 | VYSSANNCTF | 7.4e-05 | 40 |
| HLA-A*31:01 | 1 | 180 | 189 | 10 | EGKQGNFKNL | 7.4e-05 | 39 |
| HLA-B*44:03 | 1 | 181 | 190 | 10 | GKQGNFKNLR | 7.4e-05 | 24 |
| HLA-A*32:01 | 1 | 187 | 196 | 10 | KNLREFVFKN | 7.4e-05 | 29 |
| HLA-B*35:01 | 1 | 195 | 203 | 9 | KNIDGYFKI | 7.4e-05 | 27 |
| HLA-A*68:01 | 1 | 196 | 205 | 10 | NIDGYFKIYS | 7.4e-05 | 35 |
| HLA-B*07:02 | 1 | 201 | 209 | 9 | FKIYSKHTP | 7.4e-05 | 35 |
| HLA-B*58:01 | 1 | 202 | 211 | 10 | KIYSKHTPIN | 7.4e-05 | 41 |
| HLA-B*40:01 | 1 | 223 | 232 | 10 | LEPLVDLPIG | 7.4e-05 | 22 |
| HLA-A*11:01 | 1 | 255 | 263 | 9 | SSGWTAGAA | 7.4e-05 | 24 |
| HLA-A*31:01 | 1 | 266 | 274 | 9 | YVGYLQPR | 7.4e-05 | 39 |
| HLA-A*33:01 | 1 | 294 | 302 | 9 | DPLSETKCT | 7.4e-05 | 40 |
| HLA-B*58:01 | 1 | 299 | 308 | 10 | TKCTLKSFTV | 7.4e-05 | 41 |
| HLA-B*35:01 | 1 | 315 | 323 | 9 | TSNFRVQPT | 7.4e-05 | 27 |
| HLA-A*02:03 | 1 | 316 | 324 | 9 | SNFRVQPT | 7.4e-05 | 40 |
| HLA-B*08:01 | 1 | 332 | 341 | 10 | ITNLCPFGEV | 7.4e-05 | 53 |
| HLA-A*26:01 | 1 | 333 | 341 | 9 | TNLCPFGEV | 7.4e-05 | 33 |
| HLA-B*51:01 | 1 | 351 | 360 | 10 | YAWNRKRISN | 7.4e-05 | 46 |
| HLA-B*07:02 | 1 | 352 | 361 | 10 | AWNRKRISNC | 7.4e-05 | 35 |
| HLA-B*35:01 | 1 | 363 | 372 | 10 | ADYSVLYNSA | 7.4e-05 | 27 |
| HLA-B*57:01 | 1 | 364 | 372 | 9 | DYSVLYNSA | 7.4e-05 | 52 |
| HLA-B*58:01 | 1 | 373 | 382 | 10 | SFSTFKCYGV | 7.4e-05 | 41 |
| HLA-B*15:01 | 1 | 410 | 419 | 10 | IAPGQTGKIA | 7.4e-05 | 38 |
| HLA-B*53:01 | 1 | 470 | 479 | 10 | TEIYQAGSTP | 7.4e-05 | 26 |
| HLA-B*07:02 | 1 | 501 | 509 | 9 | NGVGYQPYR | 7.4e-05 | 35 |
| HLA-A*01:01 | 1 | 514 | 523 | 10 | SFELLHAPAT | 7.4e-05 | 55 |
| HLA-A*02:03 | 1 | 514 | 523 | 10 | SFELLHAPAT | 7.4e-05 | 40 |
| HLA-B*08:01 | 1 | 518 | 527 | 10 | LHAPATVCGP | 7.4e-05 | 53 |
| HLA-A*01:01 | 1 | 519 | 527 | 9 | HAPATVCGP | 7.4e-05 | 55 |
| HLA-B*07:02 | 1 | 561 | 569 | 9 | PFQQFGRDI | 7.4e-05 | 35 |
| HLA-A*02:06 | 1 | 571 | 579 | 9 | DTTDAVRDP | 7.4e-05 | 48 |
| HLA-A*11:01 | 1 | 576 | 585 | 10 | VRDPQTLEIL | 7.4e-05 | 24 |
| HLA-A*03:01 | 1 | 591 | 599 | 9 | SFGGVSUIT | 7.4e-05 | 32 |
| HLA-B*51:01 | 1 | 591 | 600 | 10 | SFGGVSUITP | 7.4e-05 | 46 |
| HLA-B*35:01 | 1 | 592 | 600 | 9 | FGGVSUITP | 7.4e-05 | 27 |
| HLA-B*51:01 | 1 | 593 | 601 | 9 | GGVSVITPG | 7.4e-05 | 46 |
| HLA-B*40:01 | 1 | 596 | 605 | 10 | SVITPGTNTS | 7.4e-05 | 22 |
| HLA-B*57:01 | 1 | 607 | 616 | 10 | QVAVLYQDVN | 7.4e-05 | 52 |
| HLA-A*68:01 | 1 | 609 | 617 | 9 | AVLYQDVNC | 7.4e-05 | 35 |
| HLA-A*31:01 | 1 | 616 | 624 | 9 | NCTEVPVAI | 7.4e-05 | 39 |
| HLA-B*15:01 | 1 | 622 | 630 | 9 | VAIHADQLT | 7.4e-05 | 38 |
| HLA-A*01:01 | 1 | 654 | 662 | 9 | EHVNSYEC | 7.4e-05 | 55 |
| HLA-A*11:01 | 1 | 658 | 666 | 9 | NSYECDIPI | 7.4e-05 | 24 |
| HLA-A*01:01 | 1 | 662 | 671 | 10 | CDIPIGAGIC | 7.4e-05 | 55 |
| HLA-B*35:01 | 1 | 672 | 680 | 9 | ASYQTQNTS | 7.4e-05 | 27 |
| HLA-B*15:01 | 1 | 677 | 686 | 10 | QTNsprrars | 7.4e-05 | 38 |
| HLA-B*08:01 | 1 | 685 | 694 | 10 | RSVASQSIIA | 7.4e-05 | 53 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*01:01 | 1 | 692 | 700 | 9 | IIAYTMSLG | 7.4e-05 | 55 |
| HLA-A*68:01 | 1 | 692 | 701 | 10 | IIAYTMSLGA | 7.4e-05 | 35 |
| HLA-A*02:01 | 1 | 715 | 724 | 10 | PTNFTISVTT | 7.4e-05 | 37 |
| HLA-A*31:01 | 1 | 721 | 730 | 10 | SVTTEILPVS | 7.4e-05 | 39 |
| HLA-B*07:02 | 1 | 726 | 734 | 9 | ILPVSMTKT | 7.4e-05 | 35 |
| HLA-B*35:01 | 1 | 731 | 739 | 9 | MTKTSVDCT | 7.4e-05 | 27 |
| HLA-A*30:01 | 1 | 738 | 746 | 9 | CTMYICGDS | 7.4e-05 | 63 |
| HLA-A*30:02 | 1 | 738 | 746 | 9 | CTMYICGDS | 7.4e-05 | 61 |
| HLA-B*44:03 | 1 | 745 | 754 | 10 | DSTECSNLLL | 7.4e-05 | 24 |
| HLA-B*53:01 | 1 | 758 | 767 | 10 | SFCTQLNRAL | 7.4e-05 | 26 |
| HLA-A*02:01 | 1 | 760 | 768 | 9 | CTQLNRALT | 7.4e-05 | 37 |
| HLA-A*02:03 | 1 | 781 | 790 | 10 | VFAQVKQIYK | 7.4e-05 | 40 |
| HLA-A*02:01 | 1 | 790 | 798 | 9 | KTPPIKDFG | 7.4e-05 | 37 |
| HLA-A*32:01 | 1 | 805 | 813 | 9 | ILPDPSKPS | 7.4e-05 | 29 |
| HLA-A*02:06 | 1 | 808 | 817 | 10 | DPSKPSKRSF | 7.4e-05 | 48 |
| HLA-B*15:01 | 1 | 809 | 818 | 10 | PSKPSKRSFI | 7.4e-05 | 38 |
| HLA-A*23:01 | 1 | 817 | 825 | 9 | FIEDLLFNK | 7.4e-05 | 24 |
| HLA-A*33:01 | 1 | 822 | 830 | 9 | LFNKVTLAD | 7.4e-05 | 40 |
| HLA-A*30:02 | 1 | 831 | 840 | 10 | AGFIKQYGDC | 7.4e-05 | 61 |
| HLA-A*24:02 | 1 | 842 | 850 | 9 | GDIAARDLI | 7.4e-05 | 23 |
| HLA-A*26:01 | 1 | 877 | 885 | 9 | LLAGTITSG | 7.4e-05 | 33 |
| HLA-A*68:02 | 1 | 911 | 920 | 10 | VTQNVLYENQ | 7.4e-05 | 40 |
| HLA-A*68:02 | 1 | 928 | 936 | 9 | NSAIGKIQD | 7.4e-05 | 40 |
| HLA-A*32:01 | 1 | 940 | 949 | 10 | STASALGKLQ | 7.4e-05 | 29 |
| HLA-A*68:02 | 1 | 959 | 967 | 9 | LNTLVKQLS | 7.4e-05 | 40 |
| HLA-A*33:01 | 1 | 965 | 973 | 9 | QLSSNFGAI | 7.4e-05 | 40 |
| HLA-B*44:03 | 1 | 974 | 983 | 10 | SSVLNDILSR | 7.4e-05 | 24 |
| HLA-B*53:01 | 1 | 981 | 989 | 9 | LSRLDKVEA | 7.4e-05 | 26 |
| HLA-A*68:01 | 1 | 999 | 1008 | 10 | GRLQSLQTYV | 7.4e-05 | 35 |
| HLA-A*03:01 | 1 | 1024 | 1032 | 9 | LAATKMSEC | 7.4e-05 | 32 |
| HLA-B*44:02 | 1 | 1035 | 1043 | 9 | GQSKRVDFC | 7.4e-05 | 26 |
| HLA-B*40:01 | 1 | 1049 | 1057 | 9 | LMSFPQSAP | 7.4e-05 | 22 |
| HLA-A*30:02 | 1 | 1075 | 1084 | 10 | FTTAPAICHD | 7.4e-05 | 61 |
| HLA-A*02:01 | 1 | 1080 | 1088 | 9 | AICHDGKAH | 7.4e-05 | 37 |
| HLA-A*01:01 | 1 | 1097 | 1106 | 10 | SNGTHWFVTQ | 7.4e-05 | 55 |
| HLA-B*08:01 | 1 | 1098 | 1107 | 10 | NGTHWFVTQR | 7.4e-05 | 53 |
| HLA-A*68:02 | 1 | 1101 | 1110 | 10 | HWFVTQRNFY | 7.4e-05 | 40 |
| HLA-A*01:01 | 1 | 1110 | 1119 | 10 | YEPQIITTDN | 7.4e-05 | 55 |
| HLA-A*33:01 | 1 | 1114 | 1122 | 9 | IITTDNTFV | 7.4e-05 | 40 |
| HLA-A*03:01 | 1 | 1115 | 1123 | 9 | IITTDNTFVS | 7.4e-05 | 32 |
| HLA-B*15:01 | 1 | 1115 | 1123 | 9 | IITTDNTFVS | 7.4e-05 | 38 |
| HLA-A*30:02 | 1 | 1151 | 1160 | 10 | ELDKYFKNHT | 7.4e-05 | 61 |
| HLA-A*31:01 | 1 | 1158 | 1166 | 9 | NHTSPDVDL | 7.4e-05 | 39 |
| HLA-A*02:01 | 1 | 1159 | 1167 | 9 | HTSPDVDLG | 7.4e-05 | 37 |
| HLA-B*08:01 | 1 | 1167 | 1175 | 9 | GDISGINAS | 7.4e-05 | 53 |
| HLA-A*68:01 | 1 | 1194 | 1202 | 9 | NESLIDLQE | 7.4e-05 | 35 |
| HLA-A*30:01 | 1 | 1204 | 1213 | 10 | GKYEQYIKWP | 7.4e-05 | 63 |
| HLA-B*07:02 | 1 | 1205 | 1214 | 10 | KYEQYIKWPW | 7.4e-05 | 35 |
| HLA-B*44:03 | 1 | 1216 | 1224 | 9 | IWLGFIAGL | 7.4e-05 | 24 |
| HLA-B*44:03 | 1 | 1226 | 1234 | 9 | AIVMVTIML | 7.4e-05 | 24 |
| HLA-A*24:02 | 1 | 1256 | 1264 | 9 | FDEDDSEPV | 7.4e-05 | 23 |
| HLA-A*68:02 | 1 | 1259 | 1267 | 9 | DDSEPVLKG | 7.4e-05 | 40 |
| HLA-A*24:02 | 1 | 1 | 9 | 9 | MFVFLVLLP | 7.3e-05 | 23 |
| HLA-A*24:02 | 1 | 7 | 16 | 10 | LLPLVSSQCV | 7.3e-05 | 23 |
| HLA-B*08:01 | 1 | 25 | 33 | 9 | PPAYTNSFT | 7.3e-05 | 53 |
| HLA-B*51:01 | 1 | 36 | 45 | 10 | VYYPDKVFRS | 7.3e-05 | 47 |
| HLA-A*26:01 | 1 | 58 | 67 | 10 | FFSNVTWFHA | 7.3e-05 | 33 |
| HLA-A*02:01 | 1 | 65 | 73 | 9 | FHAIHVSQT | 7.3e-05 | 38 |
| HLA-A*24:02 | 1 | 85 | 94 | 10 | PFNDGVYFAS | 7.3e-05 | 23 |
| HLA-A*03:01 | 1 | 113 | 122 | 10 | KTQSLLIVNN | 7.3e-05 | 32 |
| HLA-A*11:01 | 1 | 113 | 122 | 10 | KTQSLLIVNN | 7.3e-05 | 24 |
| HLA-A*31:01 | 1 | 121 | 130 | 10 | NNATNVVIKV | 7.3e-05 | 39 |
| HLA-B*58:01 | 1 | 134 | 142 | 9 | QFCNDPFLG | 7.3e-05 | 41 |
| HLA-A*26:01 | 1 | 139 | 147 | 9 | PFLGVYYHK | 7.3e-05 | 33 |
| HLA-B*51:01 | 1 | 160 | 169 | 10 | YSSANNCTFE | 7.3e-05 | 47 |
| HLA-B*08:01 | 1 | 161 | 169 | 9 | SSANNCTFE | 7.3e-05 | 53 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*08:01 | 1 | 165 | 174 | 10 | NCTFEYVSQP | 7.3e-05 | 53 |
| HLA-A*31:01 | 1 | 178 | 186 | 9 | DLEGKQGNF | 7.3e-05 | 39 |
| HLA-B*58:01 | 1 | 180 | 188 | 9 | EGKQGNFKN | 7.3e-05 | 41 |
| HLA-A*01:01 | 1 | 181 | 190 | 10 | GKQGNFKNLR | 7.3e-05 | 55 |
| HLA-B*44:02 | 1 | 194 | 202 | 9 | FKNIDGYFK | 7.3e-05 | 26 |
| HLA-B*07:02 | 1 | 202 | 211 | 10 | KIYSKHTPIN | 7.3e-05 | 36 |
| HLA-B*58:01 | 1 | 215 | 223 | 9 | DLPQGFSAL | 7.3e-05 | 41 |
| HLA-B*40:01 | 1 | 239 | 248 | 10 | QTLLALHRSY | 7.3e-05 | 22 |
| HLA-A*11:01 | 1 | 246 | 254 | 9 | RSYLTPGDS | 7.3e-05 | 24 |
| HLA-B*53:01 | 1 | 247 | 255 | 9 | SYLTPGDSS | 7.3e-05 | 26 |
| HLA-A*30:01 | 1 | 251 | 260 | 10 | PGDSSSGWTA | 7.3e-05 | 64 |
| HLA-B*35:01 | 1 | 255 | 264 | 10 | SSGWTAGAAA | 7.3e-05 | 27 |
| HLA-A*01:01 | 1 | 264 | 272 | 9 | AYYVGYLQP | 7.3e-05 | 55 |
| HLA-B*44:03 | 1 | 267 | 276 | 10 | VGYLQPRFVL | 7.3e-05 | 25 |
| HLA-A*02:01 | 1 | 293 | 301 | 9 | LDPLSETKC | 7.3e-05 | 38 |
| HLA-B*44:02 | 1 | 300 | 308 | 9 | KCTLKSFTV | 7.3e-05 | 26 |
| HLA-A*02:03 | 1 | 316 | 325 | 10 | SNFRVQPTES | 7.3e-05 | 40 |
| HLA-A*02:03 | 1 | 317 | 325 | 9 | NFRVQPTES | 7.3e-05 | 40 |
| HLA-A*03:01 | 1 | 332 | 341 | 10 | ITNLCPFGEV | 7.3e-05 | 32 |
| HLA-A*33:01 | 1 | 332 | 341 | 10 | ITNLCPFGEV | 7.3e-05 | 40 |
| HLA-A*30:02 | 1 | 337 | 345 | 9 | PFGEVFNAT | 7.3e-05 | 61 |
| HLA-A*03:01 | 1 | 352 | 360 | 9 | AWNKRKRISN | 7.3e-05 | 32 |
| HLA-B*08:01 | 1 | 356 | 364 | 9 | KRISNCVAD | 7.3e-05 | 53 |
| HLA-B*53:01 | 1 | 368 | 376 | 9 | LYNSASFST | 7.3e-05 | 26 |
| HLA-B*40:01 | 1 | 377 | 386 | 10 | FKCYGVSPK | 7.3e-05 | 22 |
| HLA-B*44:03 | 1 | 397 | 405 | 9 | ADSFVIRGD | 7.3e-05 | 25 |
| HLA-B*44:02 | 1 | 402 | 411 | 10 | IRGDEVQRQA | 7.3e-05 | 26 |
| HLA-B*35:01 | 1 | 411 | 420 | 10 | APGQTGKIAD | 7.3e-05 | 27 |
| HLA-A*02:03 | 1 | 418 | 426 | 9 | IADYNYKLP | 7.3e-05 | 40 |
| HLA-A*33:01 | 1 | 420 | 428 | 9 | DYNYKLPDD | 7.3e-05 | 40 |
| HLA-B*44:02 | 1 | 427 | 435 | 9 | DDFTGCVIA | 7.3e-05 | 26 |
| HLA-A*30:02 | 1 | 440 | 448 | 9 | NLDSKVGGN | 7.3e-05 | 61 |
| HLA-A*03:01 | 1 | 446 | 455 | 10 | GGNYNYLYRL | 7.3e-05 | 32 |
| HLA-A*24:02 | 1 | 453 | 462 | 10 | YRLFRKSNLK | 7.3e-05 | 23 |
| HLA-B*44:03 | 1 | 457 | 466 | 10 | RKSNLKPFR | 7.3e-05 | 25 |
| HLA-A*30:01 | 1 | 470 | 478 | 9 | TEIYQAGST | 7.3e-05 | 64 |
| HLA-B*53:01 | 1 | 474 | 483 | 10 | QAGSTPCNGV | 7.3e-05 | 26 |
| HLA-B*57:01 | 1 | 535 | 544 | 10 | KNKCVNFNFN | 7.3e-05 | 53 |
| HLA-A*68:01 | 1 | 540 | 549 | 10 | NFNFNGLTGT | 7.3e-05 | 35 |
| HLA-B*58:01 | 1 | 553 | 561 | 9 | TESNKKFLP | 7.3e-05 | 41 |
| HLA-A*11:01 | 1 | 559 | 568 | 10 | FLPFQQFGRD | 7.3e-05 | 24 |
| HLA-B*53:01 | 1 | 559 | 568 | 10 | FLPFQQFGRD | 7.3e-05 | 26 |
| HLA-A*31:01 | 1 | 574 | 583 | 10 | DAVRDPQTLE | 7.3e-05 | 39 |
| HLA-B*07:02 | 1 | 611 | 619 | 9 | LYQDVNCTE | 7.3e-05 | 36 |
| HLA-B*57:01 | 1 | 611 | 619 | 9 | LYQDVNCTE | 7.3e-05 | 53 |
| HLA-B*58:01 | 1 | 629 | 638 | 10 | LTPTWRVYST | 7.3e-05 | 41 |
| HLA-A*02:01 | 1 | 642 | 650 | 9 | VFQTRAGCL | 7.3e-05 | 38 |
| HLA-A*30:02 | 1 | 643 | 652 | 10 | FQTRAGCLIG | 7.3e-05 | 61 |
| HLA-B*51:01 | 1 | 645 | 653 | 9 | TRAGCLIGA | 7.3e-05 | 47 |
| HLA-A*30:01 | 1 | 653 | 662 | 10 | AEHVNSYEC | 7.3e-05 | 64 |
| HLA-A*01:01 | 1 | 669 | 678 | 10 | GICASYQTQT | 7.3e-05 | 55 |
| HLA-A*02:06 | 1 | 677 | 686 | 10 | QTNSPRRARS | 7.3e-05 | 48 |
| HLA-B*44:02 | 1 | 678 | 687 | 10 | TNSPRRARSV | 7.3e-05 | 26 |
| HLA-B*44:02 | 1 | 705 | 714 | 10 | VAYSNNSIAI | 7.3e-05 | 26 |
| HLA-B*57:01 | 1 | 724 | 732 | 9 | TEILPVSMT | 7.3e-05 | 53 |
| HLA-A*68:02 | 1 | 726 | 735 | 10 | ILPVSMTKTS | 7.3e-05 | 40 |
| HLA-A*32:01 | 1 | 753 | 761 | 9 | LLQYGSFCT | 7.3e-05 | 29 |
| HLA-B*57:01 | 1 | 764 | 773 | 10 | NRALTGIAVE | 7.3e-05 | 53 |
| HLA-B*15:01 | 1 | 768 | 776 | 9 | TGIAVEQDK | 7.3e-05 | 38 |
| HLA-A*26:01 | 1 | 772 | 780 | 9 | VEQDKNTQE | 7.3e-05 | 33 |
| HLA-B*57:01 | 1 | 785 | 794 | 10 | VKQIYKTPPI | 7.3e-05 | 53 |
| HLA-B*15:01 | 1 | 790 | 798 | 9 | KTPPIKDFG | 7.3e-05 | 38 |
| HLA-B*40:01 | 1 | 795 | 804 | 10 | KDFGGFNFSQ | 7.3e-05 | 22 |
| HLA-A*02:03 | 1 | 806 | 815 | 10 | LPDPSKPSKR | 7.3e-05 | 40 |
| HLA-B*07:02 | 1 | 824 | 833 | 10 | NKVTLADAGF | 7.3e-05 | 36 |
| HLA-A*31:01 | 1 | 825 | 834 | 10 | KVTLADAGFI | 7.3e-05 | 39 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*32:01 | 1 | 840 | 849 | 10 | CLGDIAARDL | 7.3e-05 | 29 |
| HLA-A*68:01 | 1 | 848 | 856 | 9 | DLICAQKFN | 7.3e-05 | 35 |
| HLA-A*32:01 | 1 | 886 | 895 | 10 | WTFGAGAALQ | 7.3e-05 | 29 |
| HLA-B*08:01 | 1 | 886 | 895 | 10 | WTFGAGAALQ | 7.3e-05 | 53 |
| HLA-B*15:01 | 1 | 889 | 897 | 9 | GAGAALQIP | 7.3e-05 | 38 |
| HLA-B*58:01 | 1 | 903 | 911 | 9 | AYRFNGIGV | 7.3e-05 | 41 |
| HLA-B*44:03 | 1 | 905 | 913 | 9 | RFNGIGVTQ | 7.3e-05 | 25 |
| HLA-A*11:01 | 1 | 915 | 924 | 10 | VLYENQLIA | 7.3e-05 | 24 |
| HLA-B*53:01 | 1 | 917 | 925 | 9 | YENQKLIAN | 7.3e-05 | 26 |
| HLA-B*51:01 | 1 | 940 | 949 | 10 | STASALGKLQ | 7.3e-05 | 47 |
| HLA-A*33:01 | 1 | 947 | 955 | 9 | KLQDVVNQN | 7.3e-05 | 40 |
| HLA-A*33:01 | 1 | 949 | 958 | 10 | QDVVNQNAQA | 7.3e-05 | 40 |
| HLA-A*32:01 | 1 | 956 | 965 | 10 | AQALNTLVKQ | 7.3e-05 | 29 |
| HLA-A*11:01 | 1 | 989 | 997 | 9 | AEVQIDRLI | 7.3e-05 | 24 |
| HLA-A*01:01 | 1 | 993 | 1002 | 10 | IDRLITGRLQ | 7.3e-05 | 55 |
| HLA-A*02:01 | 1 | 1001 | 1010 | 10 | LQSLQTYVTQ | 7.3e-05 | 38 |
| HLA-A*33:01 | 1 | 1001 | 1009 | 9 | LQSLQTYVT | 7.3e-05 | 40 |
| HLA-A*02:03 | 1 | 1002 | 1011 | 10 | QSLQTYVTQQ | 7.3e-05 | 40 |
| HLA-B*53:01 | 1 | 1006 | 1014 | 9 | TYVTQLIR | 7.3e-05 | 26 |
| HLA-B*35:01 | 1 | 1011 | 1019 | 9 | QLIRAAEIR | 7.3e-05 | 27 |
| HLA-A*23:01 | 1 | 1015 | 1024 | 10 | AAEIRASANL | 7.3e-05 | 24 |
| HLA-A*31:01 | 1 | 1015 | 1024 | 10 | AAEIRASANL | 7.3e-05 | 39 |
| HLA-B*58:01 | 1 | 1016 | 1025 | 10 | AEIRASANLA | 7.3e-05 | 41 |
| HLA-A*11:01 | 1 | 1019 | 1027 | 9 | RASANLAAT | 7.3e-05 | 24 |
| HLA-B*58:01 | 1 | 1022 | 1030 | 9 | ANLAATKMS | 7.3e-05 | 41 |
| HLA-A*32:01 | 1 | 1023 | 1031 | 9 | NLAATKMSE | 7.3e-05 | 29 |
| HLA-B*58:01 | 1 | 1028 | 1037 | 10 | KMSECVLGQS | 7.3e-05 | 41 |
| HLA-A*02:01 | 1 | 1030 | 1038 | 9 | SECVLGQSK | 7.3e-05 | 38 |
| HLA-A*31:01 | 1 | 1035 | 1043 | 9 | GQSKRVDFC | 7.3e-05 | 39 |
| HLA-B*51:01 | 1 | 1040 | 1048 | 9 | VDFCGKGYH | 7.3e-05 | 47 |
| HLA-A*32:01 | 1 | 1041 | 1050 | 10 | DFCGKGYHLM | 7.3e-05 | 29 |
| HLA-A*11:01 | 1 | 1052 | 1060 | 9 | FPQSAPHGV | 7.3e-05 | 24 |
| HLA-B*44:03 | 1 | 1088 | 1096 | 9 | HFPREGVHV | 7.3e-05 | 25 |
| HLA-B*53:01 | 1 | 1104 | 1112 | 9 | VTQRNFYEP | 7.3e-05 | 26 |
| HLA-B*44:03 | 1 | 1177 | 1186 | 10 | VNIQKEIDRL | 7.3e-05 | 25 |
| HLA-A*01:01 | 1 | 1187 | 1196 | 10 | NEVAKNLNES | 7.3e-05 | 55 |
| HLA-B*08:01 | 1 | 1187 | 1196 | 10 | NEVAKNLNES | 7.3e-05 | 53 |
| HLA-A*11:01 | 1 | 1192 | 1200 | 9 | NLNESLIDL | 7.3e-05 | 24 |
| HLA-A*02:06 | 1 | 1203 | 1212 | 10 | LGKYEQYIKW | 7.3e-05 | 48 |
| HLA-B*51:01 | 1 | 1203 | 1211 | 9 | LGKYEQYIK | 7.3e-05 | 47 |
| HLA-B*08:01 | 1 | 1205 | 1213 | 9 | KYEQYIKWP | 7.3e-05 | 53 |
| HLA-A*30:02 | 1 | 1221 | 1230 | 10 | IAGLIAIVMV | 7.3e-05 | 61 |
| HLA-A*30:02 | 1 | 1246 | 1255 | 10 | GCCSCGSCCK | 7.3e-05 | 61 |
| HLA-B*07:02 | 1 | 12 | 21 | 10 | SSQCVNLTTR | 7.2e-05 | 36 |
| HLA-A*02:06 | 1 | 14 | 23 | 10 | QCVNLTTRTQ | 7.2e-05 | 48 |
| HLA-B*57:01 | 1 | 27 | 35 | 9 | AYTNSFTRG | 7.2e-05 | 53 |
| HLA-A*02:01 | 1 | 29 | 38 | 10 | TNSFTRGVVY | 7.2e-05 | 38 |
| HLA-A*02:03 | 1 | 29 | 38 | 10 | TNSFTRGVVY | 7.2e-05 | 41 |
| HLA-B*07:02 | 1 | 39 | 48 | 10 | PDKVFRSSVL | 7.2e-05 | 36 |
| HLA-B*35:01 | 1 | 60 | 69 | 10 | SNVTWFHAIH | 7.2e-05 | 27 |
| HLA-B*53:01 | 1 | 61 | 70 | 10 | NVTWFHAIHV | 7.2e-05 | 26 |
| HLA-B*08:01 | 1 | 66 | 74 | 9 | HAIHVSQTG | 7.2e-05 | 53 |
| HLA-A*31:01 | 1 | 67 | 75 | 9 | AIHVSQTNG | 7.2e-05 | 40 |
| HLA-B*08:01 | 1 | 73 | 82 | 10 | TNGTKRFDNP | 7.2e-05 | 53 |
| HLA-A*68:01 | 1 | 75 | 84 | 10 | GTKRFDNPVL | 7.2e-05 | 35 |
| HLA-A*02:01 | 1 | 76 | 84 | 9 | TKRFDNPVL | 7.2e-05 | 38 |
| HLA-B*57:01 | 1 | 85 | 93 | 9 | PFNDGVVYFA | 7.2e-05 | 53 |
| HLA-A*68:01 | 1 | 86 | 94 | 9 | FNDGVVYFAS | 7.2e-05 | 35 |
| HLA-A*11:01 | 1 | 97 | 105 | 9 | KSNIIRGWI | 7.2e-05 | 24 |
| HLA-A*03:01 | 1 | 101 | 110 | 10 | IRGWIFGTTL | 7.2e-05 | 32 |
| HLA-B*08:01 | 1 | 105 | 113 | 9 | IFGTTLDSK | 7.2e-05 | 53 |
| HLA-B*58:01 | 1 | 105 | 113 | 9 | IFGTTLDSK | 7.2e-05 | 41 |
| HLA-A*02:03 | 1 | 107 | 116 | 10 | GTTLDSKTQS | 7.2e-05 | 41 |
| HLA-B*51:01 | 1 | 114 | 122 | 9 | TQSLLVNIN | 7.2e-05 | 47 |
| HLA-A*33:01 | 1 | 123 | 132 | 10 | ATNVVIVKVC | 7.2e-05 | 41 |
| HLA-A*24:02 | 1 | 142 | 151 | 10 | GVMYHKNKNS | 7.2e-05 | 23 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-A*03:01 | 1 | 183 | 192 | 10 | QGNFKNLREF | 7.2e-05 | 32 |
| HLA-B*58:01 | 1 | 187 | 196 | 10 | KNLREFVFKN | 7.2e-05 | 41 |
| HLA-A*02:03 | 1 | 199 | 207 | 9 | GYFKIYSKH | 7.2e-05 | 41 |
| HLA-A*02:03 | 1 | 229 | 237 | 9 | LPIGINITR | 7.2e-05 | 41 |
| HLA-B*08:01 | 1 | 263 | 271 | 9 | AAYYVGYLQ | 7.2e-05 | 53 |
| HLA-A*32:01 | 1 | 301 | 309 | 9 | CTLKSFTVE | 7.2e-05 | 29 |
| HLA-A*32:01 | 1 | 316 | 324 | 9 | SNFRVQPT | 7.2e-05 | 29 |
| HLA-B*53:01 | 1 | 323 | 332 | 10 | TESIVRFPNI | 7.2e-05 | 26 |
| HLA-A*02:06 | 1 | 337 | 345 | 9 | PFGEVFNAT | 7.2e-05 | 48 |
| HLA-A*26:01 | 1 | 370 | 379 | 10 | NSASFSTFKC | 7.2e-05 | 33 |
| HLA-A*02:03 | 1 | 381 | 389 | 9 | GVSPTKLND | 7.2e-05 | 41 |
| HLA-A*33:01 | 1 | 388 | 397 | 10 | NDLCFTNVYA | 7.2e-05 | 41 |
| HLA-B*51:01 | 1 | 390 | 398 | 9 | LCFTNVYAD | 7.2e-05 | 47 |
| HLA-B*53:01 | 1 | 392 | 401 | 10 | FTNVYADSFV | 7.2e-05 | 26 |
| HLA-A*31:01 | 1 | 410 | 418 | 9 | IAPGQTGKI | 7.2e-05 | 40 |
| HLA-A*30:01 | 1 | 425 | 433 | 9 | LPDDFTGCV | 7.2e-05 | 64 |
| HLA-A*33:01 | 1 | 430 | 438 | 9 | TGCVIAWNS | 7.2e-05 | 41 |
| HLA-A*02:01 | 1 | 436 | 445 | 10 | WNSNNLDSKV | 7.2e-05 | 38 |
| HLA-B*40:01 | 1 | 446 | 455 | 10 | GGNYNYLYRL | 7.2e-05 | 22 |
| HLA-B*58:01 | 1 | 471 | 480 | 10 | EIYQAGSTPC | 7.2e-05 | 41 |
| HLA-A*02:03 | 1 | 491 | 500 | 10 | PLQSYGFQPT | 7.2e-05 | 41 |
| HLA-B*44:02 | 1 | 497 | 506 | 10 | FQPTNGVG YQ | 7.2e-05 | 26 |
| HLA-B*53:01 | 1 | 499 | 507 | 9 | PTNGVGYQP | 7.2e-05 | 26 |
| HLA-B*53:01 | 1 | 502 | 510 | 9 | GVGYQPYRV | 7.2e-05 | 26 |
| HLA-B*53:01 | 1 | 503 | 512 | 10 | VGYPYRVVVV | 7.2e-05 | 26 |
| HLA-B*15:01 | 1 | 506 | 514 | 9 | QPYRVVVLS | 7.2e-05 | 38 |
| HLA-A*11:01 | 1 | 514 | 522 | 9 | SFELLHAPA | 7.2e-05 | 24 |
| HLA-A*68:01 | 1 | 514 | 522 | 9 | SFELLHAPA | 7.2e-05 | 35 |
| HLA-B*35:01 | 1 | 514 | 522 | 9 | SFELLHAPA | 7.2e-05 | 27 |
| HLA-B*58:01 | 1 | 521 | 529 | 9 | PATVCGPKK | 7.2e-05 | 41 |
| HLA-A*31:01 | 1 | 539 | 547 | 9 | VNFNFNGLT | 7.2e-05 | 40 |
| HLA-B*57:01 | 1 | 539 | 547 | 9 | VNFNFNGLT | 7.2e-05 | 53 |
| HLA-A*31:01 | 1 | 545 | 553 | 9 | GLTGTGVL | 7.2e-05 | 40 |
| HLA-B*51:01 | 1 | 563 | 572 | 10 | QQFGRDIADT | 7.2e-05 | 47 |
| HLA-B*40:01 | 1 | 566 | 575 | 10 | GRDIADTTDA | 7.2e-05 | 22 |
| HLA-B*58:01 | 1 | 571 | 579 | 9 | DTTDAVRDP | 7.2e-05 | 41 |
| HLA-A*33:01 | 1 | 573 | 582 | 10 | TDAVRDPQTL | 7.2e-05 | 41 |
| HLA-A*11:01 | 1 | 574 | 583 | 10 | DAVRDPQTL | 7.2e-05 | 24 |
| HLA-A*68:01 | 1 | 577 | 585 | 9 | RDPQTLLEIL | 7.2e-05 | 35 |
| HLA-B*08:01 | 1 | 580 | 588 | 9 | QTLEILDIT | 7.2e-05 | 53 |
| HLA-B*40:01 | 1 | 588 | 597 | 10 | TPCSFGGVSV | 7.2e-05 | 22 |
| HLA-B*44:02 | 1 | 590 | 598 | 9 | CSFGGVSVI | 7.2e-05 | 26 |
| HLA-A*03:01 | 1 | 599 | 607 | 9 | TPGTNTSNQ | 7.2e-05 | 32 |
| HLA-A*68:02 | 1 | 630 | 639 | 10 | TPTWRVYSTG | 7.2e-05 | 40 |
| HLA-A*01:01 | 1 | 650 | 659 | 10 | LIGAEHVNNS | 7.2e-05 | 55 |
| HLA-A*01:01 | 1 | 658 | 667 | 10 | NSYECDIPIG | 7.2e-05 | 55 |
| HLA-A*30:02 | 1 | 658 | 667 | 10 | NSYECDIPIG | 7.2e-05 | 62 |
| HLA-A*31:01 | 1 | 680 | 688 | 9 | SPRRARSA | 7.2e-05 | 40 |
| HLA-B*08:01 | 1 | 682 | 691 | 10 | RRARSVASQS | 7.2e-05 | 53 |
| HLA-B*40:01 | 1 | 688 | 696 | 9 | ASQSIIAYT | 7.2e-05 | 22 |
| HLA-B*07:02 | 1 | 692 | 701 | 10 | IIAYTMSLGA | 7.2e-05 | 36 |
| HLA-A*68:01 | 1 | 693 | 702 | 10 | IAYTMSLGA | 7.2e-05 | 35 |
| HLA-A*02:01 | 1 | 708 | 716 | 9 | SNNSIAIPT | 7.2e-05 | 38 |
| HLA-B*07:02 | 1 | 725 | 734 | 10 | EILPVSMTKT | 7.2e-05 | 36 |
| HLA-A*26:01 | 1 | 784 | 793 | 10 | QVKQIYKTPP | 7.2e-05 | 33 |
| HLA-A*32:01 | 1 | 784 | 793 | 10 | QVKQIYKTPP | 7.2e-05 | 29 |
| HLA-A*01:01 | 1 | 801 | 810 | 10 | NFSQILPDPS | 7.2e-05 | 55 |
| HLA-A*02:01 | 1 | 816 | 824 | 9 | SFIEDLLFN | 7.2e-05 | 38 |
| HLA-A*02:03 | 1 | 835 | 843 | 9 | KQYGDCLGD | 7.2e-05 | 41 |
| HLA-A*26:01 | 1 | 851 | 860 | 10 | CAQKFNGLTV | 7.2e-05 | 33 |
| HLA-A*30:02 | 1 | 867 | 876 | 10 | DEMIAQY TSA | 7.2e-05 | 62 |
| HLA-A*26:01 | 1 | 876 | 884 | 9 | ALLAGTITS | 7.2e-05 | 33 |
| HLA-A*68:02 | 1 | 878 | 887 | 10 | LAGTITSGWT | 7.2e-05 | 40 |
| HLA-B*40:01 | 1 | 878 | 886 | 9 | LAGTITSGW | 7.2e-05 | 22 |
| HLA-A*24:02 | 1 | 895 | 903 | 9 | QIPFAMQMA | 7.2e-05 | 23 |
| HLA-A*68:02 | 1 | 900 | 908 | 9 | MQMAYRFNG | 7.2e-05 | 40 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-B*57:01 | 1 | 905 | 914 | 10 | RFNGIGVTQN | 7.2e-05 | 53 |
| HLA-A*26:01 | 1 | 932 | 941 | 10 | GKIQDSLSSST | 7.2e-05 | 33 |
| HLA-B*58:01 | 1 | 945 | 953 | 9 | LGKLQDVVN | 7.2e-05 | 41 |
| HLA-B*58:01 | 1 | 949 | 958 | 10 | QDVVNQNAQA | 7.2e-05 | 41 |
| HLA-B*44:03 | 1 | 954 | 963 | 10 | QNAQALNTLV | 7.2e-05 | 25 |
| HLA-B*08:01 | 1 | 971 | 980 | 10 | GAISSVLNDI | 7.2e-05 | 53 |
| HLA-A*68:01 | 1 | 994 | 1002 | 9 | DRLITGRLQ | 7.2e-05 | 35 |
| HLA-B*35:01 | 1 | 1006 | 1014 | 9 | TYVTQQLIR | 7.2e-05 | 27 |
| HLA-A*03:01 | 1 | 1007 | 1016 | 10 | YVTQQLIRAA | 7.2e-05 | 32 |
| HLA-B*57:01 | 1 | 1009 | 1018 | 10 | TQQLIRAAEI | 7.2e-05 | 53 |
| HLA-A*02:03 | 1 | 1010 | 1019 | 10 | QQLIRAAEIR | 7.2e-05 | 41 |
| HLA-A*24:02 | 1 | 1014 | 1022 | 9 | RAAEIRASA | 7.2e-05 | 23 |
| HLA-B*58:01 | 1 | 1015 | 1023 | 9 | AAEIRASAN | 7.2e-05 | 41 |
| HLA-A*68:02 | 1 | 1021 | 1030 | 10 | SANLAATKMS | 7.2e-05 | 40 |
| HLA-B*57:01 | 1 | 1057 | 1065 | 9 | PHGVVFLHV | 7.2e-05 | 53 |
| HLA-A*31:01 | 1 | 1062 | 1071 | 10 | FLHVTVVPAQ | 7.2e-05 | 40 |
| HLA-A*68:02 | 1 | 1078 | 1086 | 9 | APAICHDGK | 7.2e-05 | 40 |
| HLA-A*26:01 | 1 | 1102 | 1111 | 10 | WFVTQRNFYE | 7.2e-05 | 33 |
| HLA-B*08:01 | 1 | 1124 | 1133 | 10 | GNCDDVIGIV | 7.2e-05 | 53 |
| HLA-B*07:02 | 1 | 1153 | 1162 | 10 | DKYFKNHTSP | 7.2e-05 | 36 |
| HLA-B*35:01 | 1 | 1172 | 1181 | 10 | INASVVNIQK | 7.2e-05 | 27 |
| HLA-B*44:03 | 1 | 1183 | 1191 | 9 | IDRLNEVAK | 7.2e-05 | 25 |
| HLA-A*26:01 | 1 | 1190 | 1198 | 9 | AKNLNESLI | 7.2e-05 | 33 |
| HLA-A*30:01 | 1 | 1191 | 1199 | 9 | KNLNESLID | 7.2e-05 | 64 |
| HLA-B*51:01 | 1 | 1196 | 1205 | 10 | SLIDLQELGK | 7.2e-05 | 47 |
| HLA-B*53:01 | 1 | 1199 | 1207 | 9 | DLQELGKYE | 7.2e-05 | 26 |
| HLA-A*11:01 | 1 | 1211 | 1220 | 10 | KWPWYIWLGF | 7.2e-05 | 24 |
| HLA-B*44:02 | 1 | 1264 | 1273 | 10 | VLKGVKLHYT | 7.2e-05 | 26 |
| HLA-B*08:01 | 1 | 8 | 17 | 10 | LPLVSSQCVN | 7.1e-05 | 53 |
| HLA-A*68:02 | 1 | 15 | 23 | 9 | CVNLTRTRTQ | 7.1e-05 | 41 |
| HLA-B*07:02 | 1 | 18 | 26 | 9 | LTRTRQLPP | 7.1e-05 | 36 |
| HLA-B*53:01 | 1 | 18 | 26 | 9 | LTRTRQLPP | 7.1e-05 | 27 |
| HLA-B*40:01 | 1 | 19 | 27 | 9 | TRTRQLPPA | 7.1e-05 | 22 |
| HLA-B*44:03 | 1 | 37 | 45 | 9 | YYPDKVFRS | 7.1e-05 | 25 |
| HLA-A*23:01 | 1 | 38 | 46 | 9 | YPDKVFRSS | 7.1e-05 | 24 |
| HLA-A*02:06 | 1 | 40 | 49 | 10 | DKVFRSSVLH | 7.1e-05 | 48 |
| HLA-B*51:01 | 1 | 60 | 69 | 10 | SNVTWFHAIH | 7.1e-05 | 47 |
| HLA-B*08:01 | 1 | 69 | 78 | 10 | HVSGTNGTKR | 7.1e-05 | 53 |
| HLA-A*02:01 | 1 | 76 | 85 | 10 | TKRFDNPVLP | 7.1e-05 | 38 |
| HLA-B*07:02 | 1 | 90 | 98 | 9 | VYFASTEKS | 7.1e-05 | 36 |
| HLA-B*51:01 | 1 | 94 | 102 | 9 | STEKSNIIR | 7.1e-05 | 47 |
| HLA-A*03:01 | 1 | 121 | 130 | 10 | NNATNVVIVK | 7.1e-05 | 32 |
| HLA-B*44:02 | 1 | 121 | 129 | 9 | NNATNVVIVK | 7.1e-05 | 26 |
| HLA-B*40:01 | 1 | 124 | 133 | 10 | TNVVIVKCEF | 7.1e-05 | 22 |
| HLA-B*51:01 | 1 | 142 | 150 | 9 | GVYYHKNNK | 7.1e-05 | 47 |
| HLA-A*68:02 | 1 | 143 | 152 | 10 | VYYHKNNKSW | 7.1e-05 | 41 |
| HLA-B*15:01 | 1 | 215 | 224 | 10 | DLPQGFSALE | 7.1e-05 | 38 |
| HLA-B*07:02 | 1 | 246 | 254 | 9 | RSYLTPGDS | 7.1e-05 | 36 |
| HLA-A*68:02 | 1 | 247 | 256 | 10 | SYLTPGDSSS | 7.1e-05 | 41 |
| HLA-B*08:01 | 1 | 257 | 266 | 10 | GWTAGAAAYY | 7.1e-05 | 53 |
| HLA-B*07:02 | 1 | 260 | 269 | 10 | AGAAAYYVGY | 7.1e-05 | 36 |
| HLA-B*35:01 | 1 | 278 | 286 | 9 | KYNENGTIT | 7.1e-05 | 27 |
| HLA-A*30:01 | 1 | 303 | 311 | 9 | LKSFTVEKG | 7.1e-05 | 64 |
| HLA-B*44:02 | 1 | 306 | 314 | 9 | FTVEKGIYQ | 7.1e-05 | 26 |
| HLA-B*44:03 | 1 | 313 | 322 | 10 | YQTSNFRVQP | 7.1e-05 | 25 |
| HLA-A*26:01 | 1 | 316 | 324 | 9 | SNFRVQPT | 7.1e-05 | 33 |
| HLA-A*30:01 | 1 | 323 | 331 | 9 | TESIVRFPN | 7.1e-05 | 64 |
| HLA-A*11:01 | 1 | 325 | 334 | 10 | SIVRFPNITN | 7.1e-05 | 24 |
| HLA-B*35:01 | 1 | 326 | 334 | 9 | IVRFPNITN | 7.1e-05 | 27 |
| HLA-B*35:01 | 1 | 334 | 343 | 10 | NLCPFGEVFN | 7.1e-05 | 27 |
| HLA-A*11:01 | 1 | 362 | 370 | 9 | VADYSVLYN | 7.1e-05 | 24 |
| HLA-B*35:01 | 1 | 378 | 387 | 10 | KCYGVSPTKL | 7.1e-05 | 27 |
| HLA-A*30:02 | 1 | 380 | 389 | 10 | YGVSPTKLND | 7.1e-05 | 62 |
| HLA-B*57:01 | 1 | 384 | 393 | 10 | PTKLNLCFT | 7.1e-05 | 53 |
| HLA-B*08:01 | 1 | 398 | 406 | 9 | DSFVIRGDE | 7.1e-05 | 53 |
| HLA-B*58:01 | 1 | 399 | 407 | 9 | SFVIRGDEV | 7.1e-05 | 41 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*02:06 | 1 | 406 | 415 | 10 | EVRQIAPGQT | 7.1e-05 | 48 |
| HLA-A*11:01 | 1 | 416 | 425 | 10 | GKIADYNYKL | 7.1e-05 | 24 |
| HLA-B*44:02 | 1 | 425 | 434 | 10 | LPDDFTGCVI | 7.1e-05 | 26 |
| HLA-B*58:01 | 1 | 436 | 444 | 9 | WNSNNLDSK | 7.1e-05 | 41 |
| HLA-A*68:02 | 1 | 452 | 461 | 10 | LYRLFRKSNL | 7.1e-05 | 41 |
| HLA-B*44:02 | 1 | 454 | 463 | 10 | RLFRKSNLKP | 7.1e-05 | 26 |
| HLA-B*15:01 | 1 | 484 | 492 | 9 | EGFNCYFPL | 7.1e-05 | 38 |
| HLA-A*01:01 | 1 | 485 | 494 | 10 | GFNCYFPLQS | 7.1e-05 | 55 |
| HLA-B*58:01 | 1 | 539 | 548 | 10 | VNFNFNGLTG | 7.1e-05 | 41 |
| HLA-B*08:01 | 1 | 545 | 553 | 9 | GLTGTGVLV | 7.1e-05 | 53 |
| HLA-B*44:03 | 1 | 550 | 558 | 9 | GVLTESNKK | 7.1e-05 | 25 |
| HLA-B*15:01 | 1 | 556 | 564 | 9 | NKKFLPFQQ | 7.1e-05 | 38 |
| HLA-A*01:01 | 1 | 566 | 575 | 10 | GRDIADTTDA | 7.1e-05 | 55 |
| HLA-A*02:01 | 1 | 568 | 577 | 10 | DIADTTDAVR | 7.1e-05 | 38 |
| HLA-A*33:01 | 1 | 587 | 595 | 9 | ITPCSFGGV | 7.1e-05 | 41 |
| HLA-B*51:01 | 1 | 591 | 599 | 9 | SFGGVSUIT | 7.1e-05 | 47 |
| HLA-A*68:01 | 1 | 599 | 608 | 10 | TPGTNTSNQV | 7.1e-05 | 35 |
| HLA-A*30:02 | 1 | 606 | 614 | 9 | NQVAVLYQD | 7.1e-05 | 62 |
| HLA-B*08:01 | 1 | 617 | 625 | 9 | CTEVPVAIH | 7.1e-05 | 53 |
| HLA-B*07:02 | 1 | 619 | 628 | 10 | EVPVAIHADQ | 7.1e-05 | 36 |
| HLA-B*35:01 | 1 | 643 | 651 | 9 | FQTRAGCLI | 7.1e-05 | 27 |
| HLA-A*32:01 | 1 | 644 | 652 | 9 | QTRAGCLIG | 7.1e-05 | 29 |
| HLA-A*24:02 | 1 | 645 | 653 | 9 | TRAGCLIGA | 7.1e-05 | 23 |
| HLA-A*31:01 | 1 | 645 | 653 | 9 | TRAGCLIGA | 7.1e-05 | 40 |
| HLA-A*24:02 | 1 | 652 | 660 | 9 | GAEHVNNSY | 7.1e-05 | 23 |
| HLA-A*02:01 | 1 | 695 | 703 | 9 | YTMSLGAEN | 7.1e-05 | 38 |
| HLA-A*33:01 | 1 | 701 | 709 | 9 | AENSVAYSN | 7.1e-05 | 41 |
| HLA-A*30:01 | 1 | 702 | 710 | 9 | ENSVAYSNN | 7.1e-05 | 64 |
| HLA-B*40:01 | 1 | 707 | 715 | 9 | YSNNSIAIP | 7.1e-05 | 22 |
| HLA-B*07:02 | 1 | 722 | 730 | 9 | VTTEILPVS | 7.1e-05 | 36 |
| HLA-A*31:01 | 1 | 724 | 732 | 9 | TEILPVSMT | 7.1e-05 | 40 |
| HLA-A*31:01 | 1 | 760 | 768 | 9 | CTQLNRALT | 7.1e-05 | 40 |
| HLA-A*24:02 | 1 | 761 | 769 | 9 | TQLNRALTG | 7.1e-05 | 23 |
| HLA-B*53:01 | 1 | 765 | 774 | 10 | RALTGIAVEQ | 7.1e-05 | 27 |
| HLA-A*03:01 | 1 | 788 | 796 | 9 | IYKTPPIKD | 7.1e-05 | 32 |
| HLA-A*03:01 | 1 | 790 | 798 | 9 | KTPPIKDFG | 7.1e-05 | 32 |
| HLA-A*01:01 | 1 | 819 | 827 | 9 | EDLLFNKVT | 7.1e-05 | 55 |
| HLA-B*44:02 | 1 | 835 | 844 | 10 | KQYGDCLGDI | 7.1e-05 | 26 |
| HLA-A*68:02 | 1 | 841 | 849 | 9 | LGDIAARDL | 7.1e-05 | 41 |
| HLA-A*11:01 | 1 | 846 | 855 | 10 | ARDLICAQKF | 7.1e-05 | 24 |
| HLA-A*31:01 | 1 | 875 | 884 | 10 | SALLAGTITS | 7.1e-05 | 40 |
| HLA-B*08:01 | 1 | 875 | 884 | 10 | SALLAGTITS | 7.1e-05 | 53 |
| HLA-B*15:01 | 1 | 899 | 907 | 9 | AMQMAYRFN | 7.1e-05 | 38 |
| HLA-A*23:01 | 1 | 900 | 908 | 9 | MQMAYRFNG | 7.1e-05 | 24 |
| HLA-A*31:01 | 1 | 914 | 923 | 10 | NVLYENQKLI | 7.1e-05 | 40 |
| HLA-B*44:02 | 1 | 916 | 925 | 10 | LYENQKLIAN | 7.1e-05 | 26 |
| HLA-B*57:01 | 1 | 917 | 926 | 10 | YENQKLIANQ | 7.1e-05 | 53 |
| HLA-B*07:02 | 1 | 934 | 943 | 10 | IQDLSSTAS | 7.1e-05 | 36 |
| HLA-A*31:01 | 1 | 950 | 959 | 10 | DVVNQNAQAL | 7.1e-05 | 40 |
| HLA-A*31:01 | 1 | 971 | 980 | 10 | GAISSVLNDI | 7.1e-05 | 40 |
| HLA-A*68:02 | 1 | 978 | 986 | 9 | NDILSRLDK | 7.1e-05 | 41 |
| HLA-A*32:01 | 1 | 983 | 992 | 10 | RLDKVEAEVQ | 7.1e-05 | 29 |
| HLA-A*11:01 | 1 | 991 | 999 | 9 | VQIDRLITG | 7.1e-05 | 24 |
| HLA-A*24:02 | 1 | 1020 | 1029 | 10 | ASANLAATKM | 7.1e-05 | 23 |
| HLA-A*33:01 | 1 | 1033 | 1042 | 10 | VLGQSKRVDF | 7.1e-05 | 41 |
| HLA-A*02:01 | 1 | 1038 | 1047 | 10 | KRVDFCGKGY | 7.1e-05 | 38 |
| HLA-A*03:01 | 1 | 1040 | 1049 | 10 | VDFCGKGYHL | 7.1e-05 | 32 |
| HLA-B*35:01 | 1 | 1040 | 1049 | 10 | VDFCGKGYHL | 7.1e-05 | 27 |
| HLA-A*30:02 | 1 | 1063 | 1072 | 10 | LHVTYVPAQE | 7.1e-05 | 62 |
| HLA-A*26:01 | 1 | 1085 | 1094 | 10 | GKAHFPREGV | 7.1e-05 | 33 |
| HLA-A*11:01 | 1 | 1100 | 1109 | 10 | THWFVTQRNF | 7.1e-05 | 24 |
| HLA-A*23:01 | 1 | 1100 | 1108 | 9 | THWFVTQRN | 7.1e-05 | 24 |
| HLA-B*44:02 | 1 | 1105 | 1113 | 9 | TQRNFYEPQ | 7.1e-05 | 26 |
| HLA-B*07:02 | 1 | 1124 | 1132 | 9 | GNCDDVIGI | 7.1e-05 | 36 |
| HLA-B*53:01 | 1 | 1124 | 1132 | 9 | GNCDDVIGI | 7.1e-05 | 27 |
| HLA-A*30:02 | 1 | 1127 | 1136 | 10 | DVVIGIVNNT | 7.1e-05 | 62 |

| | | | | | | |
|-------------|---|------|------|----|--------------------|----|
| HLA-B*35:01 | 1 | 1127 | 1135 | 9 | DVWIGIVNN 7.1e-05 | 27 |
| HLA-A*11:01 | 1 | 1132 | 1141 | 10 | IVNNTVYDPL 7.1e-05 | 24 |
| HLA-A*31:01 | 1 | 1139 | 1148 | 10 | DPLQPELDSF 7.1e-05 | 40 |
| HLA-B*57:01 | 1 | 1155 | 1164 | 10 | YFKNHTSPDV 7.1e-05 | 53 |
| HLA-B*58:01 | 1 | 1160 | 1168 | 9 | TSPDVLGD 7.1e-05 | 41 |
| HLA-A*32:01 | 1 | 1163 | 1172 | 10 | DVDLGDISGI 7.1e-05 | 29 |
| HLA-B*08:01 | 1 | 1196 | 1205 | 10 | SLIDLQELGK 7.1e-05 | 53 |
| HLA-A*33:01 | 1 | 1198 | 1207 | 10 | IDLQELGKYE 7.1e-05 | 41 |
| HLA-B*15:01 | 1 | 1199 | 1208 | 10 | DLQELGKYE 7.1e-05 | 38 |
| HLA-B*58:01 | 1 | 1200 | 1208 | 9 | LQELGKYE 7.1e-05 | 41 |
| HLA-A*33:01 | 1 | 1212 | 1221 | 10 | WPWYIWLGF 7.1e-05 | 41 |
| HLA-B*40:01 | 1 | 1220 | 1228 | 9 | FIAGLIAIV 7.1e-05 | 22 |
| HLA-A*02:03 | 1 | 1229 | 1238 | 10 | MVTIMLCCMT 7.1e-05 | 41 |
| HLA-A*01:01 | 1 | 1230 | 1238 | 9 | VTIMLCCMT 7.1e-05 | 55 |
| HLA-A*31:01 | 1 | 4 | 13 | 10 | FLVLLPLVSS 7e-05 | 40 |
| HLA-A*02:01 | 1 | 19 | 28 | 10 | TTRTQLPPAY 7e-05 | 38 |
| HLA-B*57:01 | 1 | 24 | 33 | 10 | LPPAYTNSFT 7e-05 | 53 |
| HLA-A*24:02 | 1 | 28 | 37 | 10 | YTNSFTRGVY 7e-05 | 23 |
| HLA-B*44:03 | 1 | 79 | 87 | 9 | FDNPVLPFN 7e-05 | 25 |
| HLA-A*68:02 | 1 | 83 | 91 | 9 | VLPFNDGVY 7e-05 | 41 |
| HLA-A*03:01 | 1 | 100 | 109 | 10 | IIRGWIFGTT 7e-05 | 33 |
| HLA-B*07:02 | 1 | 104 | 113 | 10 | WIFGTTLDSK 7e-05 | 36 |
| HLA-B*08:01 | 1 | 104 | 112 | 9 | WIFGTTLDS 7e-05 | 54 |
| HLA-B*44:02 | 1 | 121 | 130 | 10 | NNATNVVIVK 7e-05 | 27 |
| HLA-A*01:01 | 1 | 123 | 132 | 10 | ATNVVIVKCE 7e-05 | 56 |
| HLA-B*44:03 | 1 | 142 | 150 | 9 | GVYYHKNNK 7e-05 | 25 |
| HLA-B*57:01 | 1 | 169 | 178 | 10 | EYVSQPFLMD 7e-05 | 53 |
| HLA-B*07:02 | 1 | 170 | 178 | 9 | YVSQPFLMD 7e-05 | 36 |
| HLA-B*44:02 | 1 | 181 | 190 | 10 | GKQGNFKNLR 7e-05 | 27 |
| HLA-A*11:01 | 1 | 198 | 207 | 10 | DGYFKIYSKH 7e-05 | 24 |
| HLA-B*08:01 | 1 | 220 | 228 | 9 | FSALEPLVD 7e-05 | 54 |
| HLA-A*68:01 | 1 | 232 | 241 | 10 | GINITRFQTL 7e-05 | 35 |
| HLA-A*03:01 | 1 | 233 | 242 | 10 | INITRFQTL 7e-05 | 33 |
| HLA-B*07:02 | 1 | 244 | 252 | 9 | LHRSYLTGP 7e-05 | 36 |
| HLA-B*57:01 | 1 | 281 | 289 | 9 | ENGTITDAV 7e-05 | 53 |
| HLA-A*02:01 | 1 | 323 | 332 | 10 | TESIVRFPNI 7e-05 | 38 |
| HLA-A*31:01 | 1 | 323 | 332 | 10 | TESIVRFPNI 7e-05 | 40 |
| HLA-A*23:01 | 1 | 333 | 341 | 9 | TNLCPFGEV 7e-05 | 24 |
| HLA-A*03:01 | 1 | 340 | 349 | 10 | EVFNATRFAS 7e-05 | 33 |
| HLA-A*02:01 | 1 | 357 | 366 | 10 | RISNCVADYS 7e-05 | 38 |
| HLA-A*02:01 | 1 | 365 | 373 | 9 | YSVLYNSAS 7e-05 | 38 |
| HLA-A*33:01 | 1 | 366 | 375 | 10 | SVLYNSASFS 7e-05 | 41 |
| HLA-B*58:01 | 1 | 367 | 376 | 10 | VLYNSASFST 7e-05 | 41 |
| HLA-A*68:01 | 1 | 373 | 382 | 10 | SFSTFKCYGV 7e-05 | 35 |
| HLA-A*01:01 | 1 | 374 | 383 | 10 | FSTFKCYGVS 7e-05 | 56 |
| HLA-B*57:01 | 1 | 374 | 383 | 10 | FSTFKCYGVS 7e-05 | 53 |
| HLA-B*53:01 | 1 | 380 | 388 | 9 | YGVSPTKLN 7e-05 | 27 |
| HLA-A*11:01 | 1 | 381 | 389 | 9 | GVSPTKLND 7e-05 | 24 |
| HLA-A*68:01 | 1 | 381 | 389 | 9 | GVSPTKLND 7e-05 | 35 |
| HLA-B*35:01 | 1 | 401 | 409 | 9 | VIRGDEVQR 7e-05 | 28 |
| HLA-B*51:01 | 1 | 405 | 413 | 9 | DEVQRQIAPG 7e-05 | 47 |
| HLA-A*02:01 | 1 | 433 | 442 | 10 | VIAWNSNNLD 7e-05 | 38 |
| HLA-A*68:02 | 1 | 434 | 443 | 10 | IAWNSNNLDS 7e-05 | 41 |
| HLA-A*24:02 | 1 | 437 | 445 | 9 | NSNNLDSKV 7e-05 | 23 |
| HLA-A*31:01 | 1 | 469 | 477 | 9 | STEIYQAGS 7e-05 | 40 |
| HLA-A*01:01 | 1 | 483 | 492 | 10 | VEGFNCYFPL 7e-05 | 56 |
| HLA-A*31:01 | 1 | 485 | 494 | 10 | GFNCYFPLQS 7e-05 | 40 |
| HLA-A*33:01 | 1 | 499 | 507 | 9 | PTNGVGYQP 7e-05 | 41 |
| HLA-B*44:03 | 1 | 502 | 510 | 9 | GVGYQPYRV 7e-05 | 25 |
| HLA-B*15:01 | 1 | 527 | 535 | 9 | PKKSTNLVK 7e-05 | 39 |
| HLA-A*24:02 | 1 | 530 | 538 | 9 | STNLVKKNC 7e-05 | 23 |
| HLA-A*33:01 | 1 | 550 | 559 | 10 | GVLTESNKKF 7e-05 | 41 |
| HLA-A*03:01 | 1 | 551 | 560 | 10 | VLTESNKKFL 7e-05 | 33 |
| HLA-A*23:01 | 1 | 561 | 570 | 10 | PFQQFGRDIA 7e-05 | 24 |
| HLA-B*51:01 | 1 | 563 | 571 | 9 | QQFGRDIAD 7e-05 | 47 |
| HLA-A*33:01 | 1 | 564 | 573 | 10 | QFGRDIADTT 7e-05 | 41 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|-------|----|
| HLA-A*30:01 | 1 | 582 | 590 | 9 | LEILDITPC | 7e-05 | 64 |
| HLA-B*57:01 | 1 | 593 | 601 | 9 | GGVSVITPG | 7e-05 | 53 |
| HLA-B*44:02 | 1 | 596 | 605 | 10 | SVITPGTNTS | 7e-05 | 27 |
| HLA-B*40:01 | 1 | 609 | 617 | 9 | AVLYQDVNC | 7e-05 | 23 |
| HLA-A*02:06 | 1 | 626 | 634 | 9 | ADQLTPTWR | 7e-05 | 49 |
| HLA-A*02:06 | 1 | 642 | 650 | 9 | VFQTRAGCL | 7e-05 | 49 |
| HLA-A*23:01 | 1 | 682 | 690 | 9 | RRARSVASQ | 7e-05 | 24 |
| HLA-A*26:01 | 1 | 684 | 693 | 10 | ARSVASQSII | 7e-05 | 33 |
| HLA-B*44:03 | 1 | 689 | 698 | 10 | SQSIIAYTMS | 7e-05 | 25 |
| HLA-A*03:01 | 1 | 695 | 703 | 9 | YTMSLGAEN | 7e-05 | 33 |
| HLA-A*11:01 | 1 | 713 | 721 | 9 | AIPTNFTIS | 7e-05 | 24 |
| HLA-A*11:01 | 1 | 717 | 726 | 10 | NFTISVTTEI | 7e-05 | 24 |
| HLA-B*07:02 | 1 | 723 | 732 | 10 | TTEILPVSMT | 7e-05 | 36 |
| HLA-B*58:01 | 1 | 730 | 739 | 10 | SMTKTSVDCT | 7e-05 | 41 |
| HLA-B*35:01 | 1 | 744 | 752 | 9 | GDSTECSNL | 7e-05 | 28 |
| HLA-A*33:01 | 1 | 763 | 771 | 9 | LNRLTGIA | 7e-05 | 41 |
| HLA-B*07:02 | 1 | 783 | 791 | 9 | AQVKQIYKT | 7e-05 | 36 |
| HLA-B*07:02 | 1 | 783 | 792 | 10 | AQVKQIYKTP | 7e-05 | 36 |
| HLA-A*33:01 | 1 | 787 | 796 | 10 | QIYKTPPIKD | 7e-05 | 41 |
| HLA-B*08:01 | 1 | 804 | 813 | 10 | QILPDPSPKPS | 7e-05 | 54 |
| HLA-A*32:01 | 1 | 806 | 815 | 10 | LPDPSKPSKR | 7e-05 | 30 |
| HLA-B*51:01 | 1 | 830 | 839 | 10 | DAGFIKQYGD | 7e-05 | 47 |
| HLA-A*02:06 | 1 | 834 | 843 | 10 | IKQYGDCLGD | 7e-05 | 49 |
| HLA-B*44:02 | 1 | 838 | 846 | 9 | GDCLGDIAA | 7e-05 | 27 |
| HLA-A*02:03 | 1 | 842 | 850 | 9 | GDIAARDLI | 7e-05 | 41 |
| HLA-B*57:01 | 1 | 843 | 851 | 9 | DIAARDLIC | 7e-05 | 53 |
| HLA-A*68:01 | 1 | 847 | 855 | 9 | RDLICAQKF | 7e-05 | 35 |
| HLA-A*03:01 | 1 | 849 | 858 | 10 | LICAQKFNGL | 7e-05 | 33 |
| HLA-A*23:01 | 1 | 853 | 862 | 10 | QKFNGLTVLP | 7e-05 | 24 |
| HLA-B*35:01 | 1 | 854 | 862 | 9 | KFNGLTVLP | 7e-05 | 28 |
| HLA-A*33:01 | 1 | 870 | 879 | 10 | IAQYTSALLA | 7e-05 | 41 |
| HLA-B*35:01 | 1 | 880 | 889 | 10 | GTITSGWTFG | 7e-05 | 28 |
| HLA-B*15:01 | 1 | 883 | 892 | 10 | TSGWTFGAGA | 7e-05 | 39 |
| HLA-A*24:02 | 1 | 898 | 907 | 10 | FAMQMAYRFN | 7e-05 | 23 |
| HLA-A*30:02 | 1 | 898 | 907 | 10 | FAMQMAYRFN | 7e-05 | 62 |
| HLA-A*02:01 | 1 | 904 | 912 | 9 | YRFNGIGVT | 7e-05 | 38 |
| HLA-A*32:01 | 1 | 904 | 913 | 10 | YRFNGIGVTQ | 7e-05 | 30 |
| HLA-A*11:01 | 1 | 918 | 926 | 9 | ENQKLIANQ | 7e-05 | 24 |
| HLA-A*30:01 | 1 | 920 | 928 | 9 | QKLIANQFN | 7e-05 | 64 |
| HLA-A*11:01 | 1 | 923 | 931 | 9 | IANQFNSAI | 7e-05 | 24 |
| HLA-B*40:01 | 1 | 934 | 943 | 10 | IQDLSLSTAS | 7e-05 | 23 |
| HLA-A*30:02 | 1 | 944 | 953 | 10 | ALGKLQDVVN | 7e-05 | 62 |
| HLA-A*31:01 | 1 | 944 | 952 | 9 | ALGKLQDVV | 7e-05 | 40 |
| HLA-A*24:02 | 1 | 954 | 963 | 10 | QNAQALNTLV | 7e-05 | 23 |
| HLA-A*02:01 | 1 | 955 | 964 | 10 | NAQALNTLVK | 7e-05 | 38 |
| HLA-A*03:01 | 1 | 971 | 980 | 10 | GAISSVLNDI | 7e-05 | 33 |
| HLA-A*11:01 | 1 | 974 | 982 | 9 | SSVLNDILS | 7e-05 | 24 |
| HLA-A*23:01 | 1 | 992 | 1000 | 9 | QIDRLITGR | 7e-05 | 24 |
| HLA-A*03:01 | 1 | 998 | 1006 | 9 | TGRLQSLQT | 7e-05 | 33 |
| HLA-A*32:01 | 1 | 1001 | 1009 | 9 | LQSLQTYVT | 7e-05 | 30 |
| HLA-A*68:01 | 1 | 1042 | 1050 | 9 | FCGKGYHLM | 7e-05 | 35 |
| HLA-B*07:02 | 1 | 1058 | 1066 | 9 | HGVVFLHVT | 7e-05 | 36 |
| HLA-A*68:01 | 1 | 1062 | 1071 | 10 | FLHVTYVPAQ | 7e-05 | 35 |
| HLA-A*03:01 | 1 | 1063 | 1071 | 9 | LHVTYVPAQ | 7e-05 | 33 |
| HLA-A*11:01 | 1 | 1066 | 1075 | 10 | TYVPAQEKNF | 7e-05 | 24 |
| HLA-A*01:01 | 1 | 1071 | 1080 | 10 | QEKNFTTAPA | 7e-05 | 56 |
| HLA-A*02:06 | 1 | 1075 | 1084 | 10 | FTTAPAICHD | 7e-05 | 49 |
| HLA-B*44:02 | 1 | 1081 | 1090 | 10 | ICHDGKAHFP | 7e-05 | 27 |
| HLA-A*30:01 | 1 | 1084 | 1093 | 10 | DGKAHFPREG | 7e-05 | 64 |
| HLA-B*44:03 | 1 | 1085 | 1093 | 9 | GKAHFPREG | 7e-05 | 25 |
| HLA-A*03:01 | 1 | 1089 | 1097 | 9 | FPREGVFVS | 7e-05 | 33 |
| HLA-A*01:01 | 1 | 1099 | 1108 | 10 | GTHWFVTQRN | 7e-05 | 56 |
| HLA-A*33:01 | 1 | 1105 | 1114 | 10 | TQRNFYEPQI | 7e-05 | 41 |
| HLA-B*08:01 | 1 | 1132 | 1140 | 9 | IVNNTVYDP | 7e-05 | 54 |
| HLA-A*32:01 | 1 | 1137 | 1146 | 10 | VYDPLQPELD | 7e-05 | 30 |
| HLA-A*30:02 | 1 | 1149 | 1158 | 10 | KEELDKYFKN | 7e-05 | 62 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-B*53:01 | 1 | 1150 | 1159 | 10 | EELDKYFKNH | 7e-05 | 27 |
| HLA-B*44:02 | 1 | 1156 | 1164 | 9 | FKNHTSPDV | 7e-05 | 27 |
| HLA-A*23:01 | 1 | 1189 | 1198 | 10 | VAKNLNESLI | 7e-05 | 24 |
| HLA-A*02:01 | 1 | 1190 | 1198 | 9 | AKNLNESLI | 7e-05 | 38 |
| HLA-B*53:01 | 1 | 1190 | 1198 | 9 | AKNLNESLI | 7e-05 | 27 |
| HLA-B*58:01 | 1 | 1205 | 1213 | 9 | KYEQYIKWP | 7e-05 | 41 |
| HLA-B*57:01 | 1 | 1239 | 1247 | 9 | SCCCLKGC | 7e-05 | 53 |
| HLA-B*35:01 | 1 | 1264 | 1273 | 10 | VLKGVKLHYT | 7e-05 | 28 |
| HLA-B*53:01 | 1 | 4 | 12 | 9 | FLVLLPLVS | 6.9e-05 | 27 |
| HLA-B*51:01 | 1 | 16 | 25 | 10 | VNLTRTQLP | 6.9e-05 | 47 |
| HLA-A*23:01 | 1 | 28 | 37 | 10 | YTNSFTRGVY | 6.9e-05 | 24 |
| HLA-B*15:01 | 1 | 43 | 52 | 10 | FRSSVLHSTQ | 6.9e-05 | 39 |
| HLA-A*30:01 | 1 | 52 | 61 | 10 | QDLFLPFFSN | 6.9e-05 | 65 |
| HLA-A*30:02 | 1 | 64 | 73 | 10 | WFHAIHVSQT | 6.9e-05 | 62 |
| HLA-A*01:01 | 1 | 72 | 80 | 9 | GTNGTKRFD | 6.9e-05 | 56 |
| HLA-A*30:01 | 1 | 73 | 81 | 9 | TNGTKRFDN | 6.9e-05 | 65 |
| HLA-B*40:01 | 1 | 75 | 83 | 9 | GTKRFDNPV | 6.9e-05 | 23 |
| HLA-A*26:01 | 1 | 85 | 93 | 9 | PFNDGVYFA | 6.9e-05 | 34 |
| HLA-B*57:01 | 1 | 99 | 107 | 9 | NIIRGWIFG | 6.9e-05 | 53 |
| HLA-A*01:01 | 1 | 113 | 122 | 10 | KTQSLIVNN | 6.9e-05 | 56 |
| HLA-A*31:01 | 1 | 146 | 154 | 9 | HKNKSWME | 6.9e-05 | 40 |
| HLA-B*51:01 | 1 | 161 | 169 | 9 | SSANNCTFE | 6.9e-05 | 47 |
| HLA-A*30:02 | 1 | 164 | 172 | 9 | NNCTFEYVS | 6.9e-05 | 62 |
| HLA-A*26:01 | 1 | 184 | 193 | 10 | GNFKNLREFV | 6.9e-05 | 34 |
| HLA-B*58:01 | 1 | 206 | 215 | 10 | KHTPINLVRD | 6.9e-05 | 42 |
| HLA-A*11:01 | 1 | 220 | 229 | 10 | FSALEPLVDL | 6.9e-05 | 24 |
| HLA-A*26:01 | 1 | 222 | 231 | 10 | ALEPLVDLPI | 6.9e-05 | 34 |
| HLA-A*30:01 | 1 | 230 | 239 | 10 | PIGINITRFQ | 6.9e-05 | 65 |
| HLA-A*31:01 | 1 | 230 | 238 | 9 | PIGINITRF | 6.9e-05 | 40 |
| HLA-B*07:02 | 1 | 230 | 238 | 9 | PIGINITRF | 6.9e-05 | 36 |
| HLA-A*31:01 | 1 | 231 | 240 | 10 | IGINITRFQT | 6.9e-05 | 40 |
| HLA-B*53:01 | 1 | 233 | 242 | 10 | INITRFQTL | 6.9e-05 | 27 |
| HLA-A*02:03 | 1 | 236 | 245 | 10 | TRFQTLALH | 6.9e-05 | 41 |
| HLA-B*57:01 | 1 | 247 | 255 | 9 | SYLTPGDSS | 6.9e-05 | 53 |
| HLA-A*02:01 | 1 | 253 | 262 | 10 | DSSSGWTAGA | 6.9e-05 | 38 |
| HLA-B*08:01 | 1 | 254 | 263 | 10 | SSSGWTAGAA | 6.9e-05 | 54 |
| HLA-A*32:01 | 1 | 262 | 271 | 10 | AAAYVGYLQ | 6.9e-05 | 30 |
| HLA-B*51:01 | 1 | 262 | 271 | 10 | AAAYVGYLQ | 6.9e-05 | 47 |
| HLA-A*01:01 | 1 | 277 | 285 | 9 | LKYNGTI | 6.9e-05 | 56 |
| HLA-A*68:01 | 1 | 288 | 296 | 9 | AVDCALDPL | 6.9e-05 | 35 |
| HLA-B*07:02 | 1 | 290 | 299 | 10 | DCALDPLSET | 6.9e-05 | 36 |
| HLA-B*35:01 | 1 | 304 | 312 | 9 | KSFTVEKGI | 6.9e-05 | 28 |
| HLA-B*44:02 | 1 | 311 | 319 | 9 | GIYQTSNFR | 6.9e-05 | 27 |
| HLA-A*03:01 | 1 | 316 | 325 | 10 | SNFRVQPTES | 6.9e-05 | 33 |
| HLA-A*68:02 | 1 | 317 | 325 | 9 | NFRVQPTES | 6.9e-05 | 41 |
| HLA-B*07:02 | 1 | 332 | 341 | 10 | ITNLCPFGEV | 6.9e-05 | 36 |
| HLA-A*02:01 | 1 | 343 | 351 | 9 | NATRFASVY | 6.9e-05 | 38 |
| HLA-A*02:06 | 1 | 347 | 356 | 10 | FASVYAWNRK | 6.9e-05 | 49 |
| HLA-B*53:01 | 1 | 349 | 358 | 10 | SVYAWNRKRI | 6.9e-05 | 27 |
| HLA-B*51:01 | 1 | 358 | 366 | 9 | ISNCVADYS | 6.9e-05 | 47 |
| HLA-A*30:01 | 1 | 360 | 368 | 9 | NCVADYSVL | 6.9e-05 | 65 |
| HLA-B*08:01 | 1 | 387 | 396 | 10 | LNDLCFTNVY | 6.9e-05 | 54 |
| HLA-B*44:03 | 1 | 402 | 411 | 10 | IRGDEVQRQA | 6.9e-05 | 25 |
| HLA-A*02:01 | 1 | 403 | 412 | 10 | RGDEVQRQIAP | 6.9e-05 | 38 |
| HLA-A*68:02 | 1 | 403 | 412 | 10 | RGDEVQRQIAP | 6.9e-05 | 41 |
| HLA-A*68:02 | 1 | 449 | 458 | 10 | YNYLYRLFRK | 6.9e-05 | 41 |
| HLA-A*24:02 | 1 | 454 | 463 | 10 | RLFRKSNLKP | 6.9e-05 | 24 |
| HLA-A*68:02 | 1 | 455 | 463 | 9 | LFRKSNLKP | 6.9e-05 | 41 |
| HLA-B*58:01 | 1 | 459 | 467 | 9 | SNLKPFRD | 6.9e-05 | 42 |
| HLA-A*01:01 | 1 | 474 | 482 | 9 | QAGSTPCNG | 6.9e-05 | 56 |
| HLA-A*02:01 | 1 | 488 | 497 | 10 | CYFPLQSYGF | 6.9e-05 | 38 |
| HLA-A*31:01 | 1 | 493 | 502 | 10 | QSYGFQPTNG | 6.9e-05 | 40 |
| HLA-B*44:02 | 1 | 493 | 501 | 9 | QSYGFQPTN | 6.9e-05 | 27 |
| HLA-B*07:02 | 1 | 495 | 504 | 10 | YGFQPTNGVG | 6.9e-05 | 36 |
| HLA-A*03:01 | 1 | 507 | 515 | 9 | PYRVVLSF | 6.9e-05 | 33 |
| HLA-A*02:06 | 1 | 508 | 516 | 9 | YRVVLSFE | 6.9e-05 | 49 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*03:01 | 1 | 532 | 541 | 10 | NLVKNKCVNF | 6.9e-05 | 33 |
| HLA-B*40:01 | 1 | 532 | 541 | 10 | NLVKNKCVNF | 6.9e-05 | 23 |
| HLA-A*33:01 | 1 | 534 | 543 | 10 | VKNKCVNFNF | 6.9e-05 | 41 |
| HLA-B*08:01 | 1 | 546 | 554 | 9 | LTGTGVLTE | 6.9e-05 | 54 |
| HLA-B*51:01 | 1 | 554 | 563 | 10 | ESNKKFLPFQ | 6.9e-05 | 47 |
| HLA-B*44:03 | 1 | 558 | 566 | 9 | KFLPFQQFG | 6.9e-05 | 25 |
| HLA-B*58:01 | 1 | 559 | 567 | 9 | FLPFQQFGR | 6.9e-05 | 42 |
| HLA-B*44:03 | 1 | 563 | 571 | 9 | QQFGRDIAD | 6.9e-05 | 25 |
| HLA-B*40:01 | 1 | 580 | 588 | 9 | QTLEILDIT | 6.9e-05 | 23 |
| HLA-A*01:01 | 1 | 591 | 599 | 9 | SFGGVSUIT | 6.9e-05 | 56 |
| HLA-A*33:01 | 1 | 595 | 604 | 10 | VSVITPGTNT | 6.9e-05 | 41 |
| HLA-B*35:01 | 1 | 626 | 635 | 10 | ADQLTPTWRV | 6.9e-05 | 28 |
| HLA-A*02:03 | 1 | 630 | 638 | 9 | TPTWRVYST | 6.9e-05 | 41 |
| HLA-A*31:01 | 1 | 630 | 638 | 9 | TPTWRVYST | 6.9e-05 | 40 |
| HLA-B*07:02 | 1 | 646 | 654 | 9 | RAGCLIGAE | 6.9e-05 | 36 |
| HLA-A*01:01 | 1 | 660 | 669 | 10 | YECDIPIGAG | 6.9e-05 | 56 |
| HLA-B*53:01 | 1 | 661 | 669 | 9 | ECDIPIGAG | 6.9e-05 | 27 |
| HLA-A*23:01 | 1 | 676 | 684 | 9 | TQTNSPRRA | 6.9e-05 | 24 |
| HLA-A*32:01 | 1 | 687 | 696 | 10 | VASQSIIAYT | 6.9e-05 | 30 |
| HLA-B*08:01 | 1 | 687 | 696 | 10 | VASQSIIAYT | 6.9e-05 | 54 |
| HLA-B*51:01 | 1 | 695 | 704 | 10 | YTMSLGAENS | 6.9e-05 | 47 |
| HLA-B*44:03 | 1 | 705 | 713 | 9 | VAYSNNSIA | 6.9e-05 | 25 |
| HLA-B*40:01 | 1 | 708 | 716 | 9 | SNNSIAIPT | 6.9e-05 | 23 |
| HLA-A*03:01 | 1 | 709 | 718 | 10 | NNSIAIPTNF | 6.9e-05 | 33 |
| HLA-A*32:01 | 1 | 710 | 719 | 10 | NSIAIPTNFT | 6.9e-05 | 30 |
| HLA-A*11:01 | 1 | 720 | 728 | 9 | ISVTTEILP | 6.9e-05 | 24 |
| HLA-B*07:02 | 1 | 733 | 742 | 10 | KTSVDCTMYI | 6.9e-05 | 36 |
| HLA-B*35:01 | 1 | 740 | 749 | 10 | MYICGDSTEC | 6.9e-05 | 28 |
| HLA-B*58:01 | 1 | 744 | 752 | 9 | GDSTECSNL | 6.9e-05 | 42 |
| HLA-A*02:03 | 1 | 757 | 765 | 9 | GSFCTQLNR | 6.9e-05 | 41 |
| HLA-B*35:01 | 1 | 757 | 765 | 9 | GSFCTQLNR | 6.9e-05 | 28 |
| HLA-B*07:02 | 1 | 774 | 783 | 10 | QDKNTQEVFA | 6.9e-05 | 36 |
| HLA-B*51:01 | 1 | 774 | 783 | 10 | QDKNTQEVFA | 6.9e-05 | 47 |
| HLA-B*40:01 | 1 | 775 | 783 | 9 | DKNTQEVFA | 6.9e-05 | 23 |
| HLA-B*44:03 | 1 | 781 | 790 | 10 | VFAQVKQIYK | 6.9e-05 | 25 |
| HLA-A*02:06 | 1 | 794 | 803 | 10 | IKDFGGFNFS | 6.9e-05 | 49 |
| HLA-A*01:01 | 1 | 796 | 804 | 9 | DFGGFNFSQ | 6.9e-05 | 56 |
| HLA-A*32:01 | 1 | 804 | 813 | 10 | QILPDPSKPS | 6.9e-05 | 30 |
| HLA-A*23:01 | 1 | 805 | 813 | 9 | ILPDPSKPS | 6.9e-05 | 24 |
| HLA-A*23:01 | 1 | 806 | 815 | 10 | LPDPSKPSKR | 6.9e-05 | 24 |
| HLA-B*07:02 | 1 | 837 | 846 | 10 | YGDCLGDIAA | 6.9e-05 | 36 |
| HLA-A*68:01 | 1 | 850 | 858 | 9 | ICAQKFNGL | 6.9e-05 | 35 |
| HLA-A*23:01 | 1 | 862 | 870 | 9 | PPLLTDEMI | 6.9e-05 | 24 |
| HLA-A*02:01 | 1 | 863 | 872 | 10 | PLLTDEMIAQ | 6.9e-05 | 38 |
| HLA-B*57:01 | 1 | 872 | 880 | 9 | QYTSALLAG | 6.9e-05 | 53 |
| HLA-A*33:01 | 1 | 873 | 882 | 10 | YTSALLAGTI | 6.9e-05 | 41 |
| HLA-B*44:03 | 1 | 889 | 898 | 10 | GAGAALQIPF | 6.9e-05 | 25 |
| HLA-B*57:01 | 1 | 899 | 907 | 9 | AMQMAYRFN | 6.9e-05 | 53 |
| HLA-A*01:01 | 1 | 904 | 912 | 9 | YRFNGIGVT | 6.9e-05 | 56 |
| HLA-A*31:01 | 1 | 907 | 916 | 10 | NGIGVTQNVL | 6.9e-05 | 40 |
| HLA-B*51:01 | 1 | 912 | 920 | 9 | TQNVLYENQ | 6.9e-05 | 47 |
| HLA-B*08:01 | 1 | 931 | 940 | 10 | IGKIQDSLSS | 6.9e-05 | 54 |
| HLA-B*07:02 | 1 | 932 | 940 | 9 | GKIQDSLSS | 6.9e-05 | 36 |
| HLA-B*08:01 | 1 | 946 | 954 | 9 | GKLQDVVNQ | 6.9e-05 | 54 |
| HLA-B*44:03 | 1 | 967 | 976 | 10 | SSNFGAISSV | 6.9e-05 | 25 |
| HLA-A*11:01 | 1 | 972 | 981 | 10 | AISSVLNDIL | 6.9e-05 | 24 |
| HLA-A*03:01 | 1 | 987 | 996 | 10 | VEAEVQIDRL | 6.9e-05 | 33 |
| HLA-B*58:01 | 1 | 990 | 999 | 10 | EVQIDRLITG | 6.9e-05 | 42 |
| HLA-A*03:01 | 1 | 994 | 1003 | 10 | DRLITGRLQS | 6.9e-05 | 33 |
| HLA-B*07:02 | 1 | 1006 | 1015 | 10 | TYVTQQLIRA | 6.9e-05 | 36 |
| HLA-B*51:01 | 1 | 1006 | 1014 | 9 | TYVTQQLIR | 6.9e-05 | 47 |
| HLA-B*53:01 | 1 | 1007 | 1016 | 10 | YVTQQLIRAA | 6.9e-05 | 27 |
| HLA-B*51:01 | 1 | 1019 | 1028 | 10 | RASANLAATK | 6.9e-05 | 47 |
| HLA-B*58:01 | 1 | 1022 | 1031 | 10 | ANLAATKMSE | 6.9e-05 | 42 |
| HLA-A*30:02 | 1 | 1023 | 1032 | 10 | NLAATKMSEC | 6.9e-05 | 62 |
| HLA-A*01:01 | 1 | 1028 | 1037 | 10 | KMSECVLGQS | 6.9e-05 | 56 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-B*07:02 | 1 | 1031 | 1040 | 10 | ECVLGQSKRV | 6.9e-05 | 36 |
| HLA-A*02:06 | 1 | 1071 | 1080 | 10 | QEKNFTTAPA | 6.9e-05 | 49 |
| HLA-B*15:01 | 1 | 1072 | 1080 | 9 | EKNFTTAPA | 6.9e-05 | 39 |
| HLA-B*07:02 | 1 | 1082 | 1090 | 9 | CHDGKAHFP | 6.9e-05 | 36 |
| HLA-B*44:03 | 1 | 1085 | 1094 | 10 | GKAHFPREGV | 6.9e-05 | 25 |
| HLA-B*57:01 | 1 | 1092 | 1100 | 9 | EGVFVSNGT | 6.9e-05 | 53 |
| HLA-B*07:02 | 1 | 1103 | 1111 | 9 | FVTQRNFYE | 6.9e-05 | 36 |
| HLA-B*35:01 | 1 | 1105 | 1113 | 9 | TQRNFYEPQ | 6.9e-05 | 28 |
| HLA-B*35:01 | 1 | 1108 | 1117 | 10 | NFYEPQIITT | 6.9e-05 | 28 |
| HLA-A*01:01 | 1 | 1133 | 1142 | 10 | VNNTVYDPLQ | 6.9e-05 | 56 |
| HLA-B*44:02 | 1 | 1151 | 1160 | 10 | ELDKYFKNHT | 6.9e-05 | 27 |
| HLA-A*30:01 | 1 | 1163 | 1172 | 10 | DVDLGDISGI | 6.9e-05 | 65 |
| HLA-A*02:01 | 1 | 1175 | 1184 | 10 | SVVNIQKEID | 6.9e-05 | 38 |
| HLA-A*30:02 | 1 | 1199 | 1207 | 9 | DLQELGKYE | 6.9e-05 | 62 |
| HLA-B*15:01 | 1 | 1217 | 1225 | 9 | WLGFIAGLI | 6.9e-05 | 39 |
| HLA-A*68:02 | 1 | 1222 | 1231 | 10 | AGLIAIVMVT | 6.9e-05 | 41 |
| HLA-A*26:01 | 1 | 1225 | 1234 | 10 | IAIVMVTIML | 6.9e-05 | 34 |
| HLA-A*33:01 | 1 | 1230 | 1238 | 9 | VTIMLCCTM | 6.9e-05 | 41 |
| HLA-A*30:02 | 1 | 1236 | 1245 | 10 | CMTSCCCLK | 6.9e-05 | 62 |
| HLA-A*26:01 | 1 | 1259 | 1267 | 9 | DDSEPVLKG | 6.9e-05 | 34 |
| HLA-B*51:01 | 1 | 20 | 29 | 10 | TRTQLPPAYT | 6.8e-05 | 48 |
| HLA-A*02:03 | 1 | 26 | 34 | 9 | PAYTNSFTR | 6.8e-05 | 41 |
| HLA-A*26:01 | 1 | 36 | 45 | 10 | VYYPKVFRS | 6.8e-05 | 34 |
| HLA-A*03:01 | 1 | 53 | 61 | 9 | DLFLPFFSN | 6.8e-05 | 33 |
| HLA-A*02:03 | 1 | 64 | 73 | 10 | WFHAIHVSMT | 6.8e-05 | 41 |
| HLA-A*02:03 | 1 | 68 | 76 | 9 | IHSVGTNGT | 6.8e-05 | 41 |
| HLA-B*08:01 | 1 | 68 | 76 | 9 | IHSVGTNGT | 6.8e-05 | 54 |
| HLA-B*44:03 | 1 | 69 | 77 | 9 | HVSGTNGTK | 6.8e-05 | 25 |
| HLA-A*26:01 | 1 | 78 | 87 | 10 | RFDNPVLPFN | 6.8e-05 | 34 |
| HLA-A*02:06 | 1 | 82 | 91 | 10 | PVLPFNDGVY | 6.8e-05 | 49 |
| HLA-B*53:01 | 1 | 88 | 96 | 9 | DGVYFASTE | 6.8e-05 | 27 |
| HLA-A*33:01 | 1 | 89 | 98 | 10 | GVYFASTEKS | 6.8e-05 | 42 |
| HLA-A*02:01 | 1 | 90 | 98 | 9 | VYFASTEKS | 6.8e-05 | 38 |
| HLA-A*02:01 | 1 | 107 | 116 | 10 | GTTLDSKTQS | 6.8e-05 | 38 |
| HLA-A*32:01 | 1 | 138 | 147 | 10 | DPFLGVVYHK | 6.8e-05 | 30 |
| HLA-B*51:01 | 1 | 141 | 150 | 10 | LGVYHKNK | 6.8e-05 | 48 |
| HLA-B*44:02 | 1 | 188 | 197 | 10 | NLREFVFKNI | 6.8e-05 | 27 |
| HLA-B*15:01 | 1 | 200 | 209 | 10 | YFKIYSKHTP | 6.8e-05 | 39 |
| HLA-B*58:01 | 1 | 201 | 210 | 10 | FKIYSKHTPI | 6.8e-05 | 42 |
| HLA-A*02:01 | 1 | 205 | 214 | 10 | SKHTPINLVR | 6.8e-05 | 38 |
| HLA-A*30:02 | 1 | 216 | 225 | 10 | LPQGFSALEP | 6.8e-05 | 62 |
| HLA-B*44:02 | 1 | 216 | 224 | 9 | LPQGFSALE | 6.8e-05 | 27 |
| HLA-A*24:02 | 1 | 217 | 226 | 10 | PQGFSALEPL | 6.8e-05 | 24 |
| HLA-B*44:02 | 1 | 218 | 226 | 9 | QGFSALEPL | 6.8e-05 | 27 |
| HLA-A*26:01 | 1 | 219 | 227 | 9 | GFSALEPLV | 6.8e-05 | 34 |
| HLA-B*44:03 | 1 | 241 | 249 | 9 | LLALHRSYL | 6.8e-05 | 25 |
| HLA-B*58:01 | 1 | 245 | 254 | 10 | HRSYLTPGDS | 6.8e-05 | 42 |
| HLA-B*35:01 | 1 | 277 | 285 | 9 | LKYNENGTI | 6.8e-05 | 28 |
| HLA-A*01:01 | 1 | 289 | 298 | 10 | VDCALDPLSE | 6.8e-05 | 56 |
| HLA-A*02:06 | 1 | 295 | 304 | 10 | PLSETKCTLK | 6.8e-05 | 49 |
| HLA-A*68:02 | 1 | 304 | 313 | 10 | KSFTVEKGIY | 6.8e-05 | 41 |
| HLA-A*32:01 | 1 | 330 | 338 | 9 | PNITNLCPF | 6.8e-05 | 30 |
| HLA-A*26:01 | 1 | 334 | 343 | 10 | NLCPFGEVFN | 6.8e-05 | 34 |
| HLA-A*30:01 | 1 | 338 | 347 | 10 | FGEVFNATRF | 6.8e-05 | 65 |
| HLA-A*02:03 | 1 | 353 | 362 | 10 | WNRKRISNCV | 6.8e-05 | 41 |
| HLA-A*30:02 | 1 | 354 | 363 | 10 | NRKRISNCVA | 6.8e-05 | 62 |
| HLA-A*02:03 | 1 | 368 | 377 | 10 | LYNSASFSTF | 6.8e-05 | 41 |
| HLA-A*02:03 | 1 | 376 | 385 | 10 | TFKCYGVSPT | 6.8e-05 | 41 |
| HLA-A*02:03 | 1 | 377 | 385 | 9 | FKCYGVSPT | 6.8e-05 | 41 |
| HLA-A*30:01 | 1 | 380 | 389 | 10 | YGVSPKLNLD | 6.8e-05 | 65 |
| HLA-A*33:01 | 1 | 386 | 394 | 9 | KLNDLCFTN | 6.8e-05 | 42 |
| HLA-A*03:01 | 1 | 387 | 396 | 10 | LNLDLCFTNVY | 6.8e-05 | 33 |
| HLA-B*51:01 | 1 | 388 | 397 | 10 | NLDLCFTNVYA | 6.8e-05 | 48 |
| HLA-A*30:02 | 1 | 391 | 399 | 9 | CFTNVYADS | 6.8e-05 | 62 |
| HLA-A*68:01 | 1 | 391 | 400 | 10 | CFTNVYADSF | 6.8e-05 | 36 |
| HLA-B*51:01 | 1 | 411 | 420 | 10 | APGQTGKIAD | 6.8e-05 | 48 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-B*44:02 | 1 | 459 | 468 | 10 | SNLKPFERDI | 6.8e-05 | 27 |
| HLA-A*26:01 | 1 | 470 | 478 | 9 | TEIYQAGST | 6.8e-05 | 34 |
| HLA-A*11:01 | 1 | 475 | 483 | 9 | AGSTPCNGV | 6.8e-05 | 25 |
| HLA-A*68:01 | 1 | 475 | 483 | 9 | AGSTPCNGV | 6.8e-05 | 36 |
| HLA-A*03:01 | 1 | 487 | 496 | 10 | NCYFPLQSYG | 6.8e-05 | 33 |
| HLA-A*31:01 | 1 | 505 | 514 | 10 | YQPYRVVLS | 6.8e-05 | 40 |
| HLA-A*30:02 | 1 | 507 | 516 | 10 | PYRVVLSFE | 6.8e-05 | 62 |
| HLA-B*44:03 | 1 | 520 | 528 | 9 | APATVCGPK | 6.8e-05 | 25 |
| HLA-B*44:02 | 1 | 523 | 531 | 9 | TVCGPKKST | 6.8e-05 | 27 |
| HLA-A*24:02 | 1 | 540 | 549 | 10 | NFNFNGLTGT | 6.8e-05 | 24 |
| HLA-A*01:01 | 1 | 547 | 556 | 10 | TGTGVLTESN | 6.8e-05 | 56 |
| HLA-B*57:01 | 1 | 561 | 569 | 9 | PFQQFGRDI | 6.8e-05 | 54 |
| HLA-B*51:01 | 1 | 577 | 586 | 10 | RDPQTLEILD | 6.8e-05 | 48 |
| HLA-B*53:01 | 1 | 600 | 608 | 9 | PGTNTSNQV | 6.8e-05 | 27 |
| HLA-B*44:03 | 1 | 602 | 611 | 10 | TNTSNQVAVL | 6.8e-05 | 25 |
| HLA-A*68:01 | 1 | 612 | 620 | 9 | YQDVNCTEV | 6.8e-05 | 36 |
| HLA-A*30:01 | 1 | 619 | 628 | 10 | EVPVAIHADQ | 6.8e-05 | 65 |
| HLA-B*51:01 | 1 | 635 | 644 | 10 | VYSTGSNVFG | 6.8e-05 | 48 |
| HLA-A*23:01 | 1 | 637 | 646 | 10 | STGNSVVFQTR | 6.8e-05 | 25 |
| HLA-B*07:02 | 1 | 638 | 647 | 10 | TGNSVVFQTRA | 6.8e-05 | 36 |
| HLA-B*35:01 | 1 | 642 | 650 | 9 | VFQTRAGCL | 6.8e-05 | 28 |
| HLA-A*11:01 | 1 | 660 | 668 | 9 | YECDIPIGA | 6.8e-05 | 25 |
| HLA-A*02:03 | 1 | 663 | 671 | 9 | DIPIGAGIC | 6.8e-05 | 41 |
| HLA-A*23:01 | 1 | 675 | 683 | 9 | QTQTNSPRR | 6.8e-05 | 25 |
| HLA-A*01:01 | 1 | 682 | 690 | 9 | RRARSVASQ | 6.8e-05 | 56 |
| HLA-A*24:02 | 1 | 682 | 690 | 9 | RRARSVASQ | 6.8e-05 | 24 |
| HLA-A*33:01 | 1 | 685 | 693 | 9 | RSVASQSII | 6.8e-05 | 42 |
| HLA-B*07:02 | 1 | 695 | 704 | 10 | YTMSLGAENS | 6.8e-05 | 36 |
| HLA-B*07:02 | 1 | 710 | 719 | 10 | NSIAIPTNFT | 6.8e-05 | 36 |
| HLA-B*44:03 | 1 | 713 | 722 | 10 | AIPTNFTISV | 6.8e-05 | 25 |
| HLA-B*51:01 | 1 | 715 | 724 | 10 | PTNFTISVTT | 6.8e-05 | 48 |
| HLA-A*68:02 | 1 | 748 | 757 | 10 | ECSNLLLQYG | 6.8e-05 | 41 |
| HLA-A*68:02 | 1 | 763 | 771 | 9 | LNRALTGIA | 6.8e-05 | 41 |
| HLA-B*51:01 | 1 | 765 | 774 | 10 | RALTGIAVEQ | 6.8e-05 | 48 |
| HLA-B*35:01 | 1 | 768 | 776 | 9 | TGIAVEQDK | 6.8e-05 | 28 |
| HLA-B*57:01 | 1 | 768 | 777 | 10 | TGIAVEQDKN | 6.8e-05 | 54 |
| HLA-B*58:01 | 1 | 784 | 793 | 10 | QVKQIYKTPP | 6.8e-05 | 42 |
| HLA-A*26:01 | 1 | 790 | 798 | 9 | KTPPIKDFG | 6.8e-05 | 34 |
| HLA-B*40:01 | 1 | 799 | 807 | 9 | GFNFSQILP | 6.8e-05 | 23 |
| HLA-A*32:01 | 1 | 817 | 826 | 10 | FIEDLLFNKV | 6.8e-05 | 30 |
| HLA-B*57:01 | 1 | 822 | 831 | 10 | LFNKVTLADA | 6.8e-05 | 54 |
| HLA-A*02:03 | 1 | 828 | 836 | 9 | LADAGFIKQ | 6.8e-05 | 41 |
| HLA-A*24:02 | 1 | 828 | 837 | 10 | LADAGFIKQY | 6.8e-05 | 24 |
| HLA-A*30:02 | 1 | 831 | 839 | 9 | AGFIKQYGD | 6.8e-05 | 62 |
| HLA-B*08:01 | 1 | 836 | 844 | 9 | QYGDCLGDI | 6.8e-05 | 54 |
| HLA-B*57:01 | 1 | 843 | 852 | 10 | DIAARDLICA | 6.8e-05 | 54 |
| HLA-A*33:01 | 1 | 844 | 852 | 9 | IAARDLICA | 6.8e-05 | 42 |
| HLA-B*44:02 | 1 | 845 | 853 | 9 | AARDLICAQ | 6.8e-05 | 27 |
| HLA-A*01:01 | 1 | 863 | 872 | 10 | PLLTDEMIAQ | 6.8e-05 | 56 |
| HLA-A*03:01 | 1 | 868 | 877 | 10 | EMIAQYTSAL | 6.8e-05 | 33 |
| HLA-B*58:01 | 1 | 876 | 885 | 10 | ALLAGTITSG | 6.8e-05 | 42 |
| HLA-A*03:01 | 1 | 890 | 899 | 10 | AGAALQIPFA | 6.8e-05 | 33 |
| HLA-B*57:01 | 1 | 930 | 939 | 10 | AIGKIQDLSL | 6.8e-05 | 54 |
| HLA-A*31:01 | 1 | 936 | 945 | 10 | DSLSSTASAL | 6.8e-05 | 40 |
| HLA-A*33:01 | 1 | 972 | 980 | 9 | AISSVLNDI | 6.8e-05 | 42 |
| HLA-B*53:01 | 1 | 990 | 999 | 10 | EVQIDRLITG | 6.8e-05 | 27 |
| HLA-B*07:02 | 1 | 1001 | 1009 | 9 | LQSLQTYVT | 6.8e-05 | 36 |
| HLA-A*02:01 | 1 | 1012 | 1021 | 10 | LIRAAEIRAS | 6.8e-05 | 38 |
| HLA-A*33:01 | 1 | 1019 | 1027 | 9 | RASANLAAT | 6.8e-05 | 42 |
| HLA-B*58:01 | 1 | 1031 | 1040 | 10 | ECVLGQSKRV | 6.8e-05 | 42 |
| HLA-A*24:02 | 1 | 1045 | 1054 | 10 | KGYHLMSFPQ | 6.8e-05 | 24 |
| HLA-A*33:01 | 1 | 1052 | 1061 | 10 | FPQSAPHGVV | 6.8e-05 | 42 |
| HLA-A*68:01 | 1 | 1058 | 1066 | 9 | HGVVFLHVT | 6.8e-05 | 36 |
| HLA-B*35:01 | 1 | 1059 | 1068 | 10 | GVVFLHVTYV | 6.8e-05 | 28 |
| HLA-B*07:02 | 1 | 1069 | 1078 | 10 | PAQEKNFTTA | 6.8e-05 | 36 |
| HLA-A*33:01 | 1 | 1072 | 1081 | 10 | EKNFTTAPAI | 6.8e-05 | 42 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*24:02 | 1 | 1073 | 1082 | 10 | KNFTTAPAIC | 6.8e-05 | 24 |
| HLA-B*57:01 | 1 | 1077 | 1085 | 9 | TAPAICHDG | 6.8e-05 | 54 |
| HLA-A*26:01 | 1 | 1082 | 1091 | 10 | CHDGKAHFPR | 6.8e-05 | 34 |
| HLA-A*03:01 | 1 | 1088 | 1097 | 10 | HFPREGVFVS | 6.8e-05 | 33 |
| HLA-B*44:03 | 1 | 1100 | 1108 | 9 | THWVFTQRN | 6.8e-05 | 25 |
| HLA-A*02:06 | 1 | 1102 | 1110 | 9 | WVFTQRNFY | 6.8e-05 | 49 |
| HLA-A*26:01 | 1 | 1106 | 1115 | 10 | QRNFYEPQII | 6.8e-05 | 34 |
| HLA-B*44:03 | 1 | 1109 | 1117 | 9 | FYEPQIIIT | 6.8e-05 | 25 |
| HLA-A*68:01 | 1 | 1116 | 1125 | 10 | TTDNTFVSGN | 6.8e-05 | 36 |
| HLA-B*15:01 | 1 | 1116 | 1124 | 9 | TTDNTFVSG | 6.8e-05 | 39 |
| HLA-A*33:01 | 1 | 1124 | 1133 | 10 | GNCDDVIGIV | 6.8e-05 | 42 |
| HLA-B*07:02 | 1 | 1146 | 1155 | 10 | DSFKEELDKY | 6.8e-05 | 36 |
| HLA-B*58:01 | 1 | 1158 | 1166 | 9 | NHTSPDVDL | 6.8e-05 | 42 |
| HLA-A*26:01 | 1 | 1163 | 1171 | 9 | DVDLGDISG | 6.8e-05 | 34 |
| HLA-A*24:02 | 1 | 1168 | 1176 | 9 | DISGINASV | 6.8e-05 | 24 |
| HLA-B*08:01 | 1 | 1178 | 1187 | 10 | NIQKEIDRLN | 6.8e-05 | 54 |
| HLA-A*24:02 | 1 | 1189 | 1198 | 10 | VAKNLNESLI | 6.8e-05 | 24 |
| HLA-A*24:02 | 1 | 1214 | 1223 | 10 | WYIWLGFIAI | 6.8e-05 | 24 |
| HLA-B*58:01 | 1 | 1215 | 1224 | 10 | YIWLGFIAGL | 6.8e-05 | 42 |
| HLA-A*24:02 | 1 | 1220 | 1228 | 9 | FIAGLIAIV | 6.8e-05 | 24 |
| HLA-A*68:02 | 1 | 1228 | 1236 | 9 | VMVTIMLCC | 6.8e-05 | 41 |
| HLA-A*68:02 | 1 | 1255 | 1263 | 9 | KFDEDDSEP | 6.8e-05 | 41 |
| HLA-B*44:02 | 1 | 1256 | 1264 | 9 | FDEDDSEPV | 6.8e-05 | 27 |
| HLA-B*58:01 | 1 | 2 | 11 | 10 | FVFLVLLPLV | 6.7e-05 | 42 |
| HLA-A*23:01 | 1 | 6 | 14 | 9 | VLLPLVSSQ | 6.7e-05 | 25 |
| HLA-A*23:01 | 1 | 15 | 24 | 10 | CVNLTRTQQL | 6.7e-05 | 25 |
| HLA-B*15:01 | 1 | 18 | 27 | 10 | LTRTQQLPPA | 6.7e-05 | 39 |
| HLA-B*58:01 | 1 | 23 | 31 | 9 | QLPPAYTNS | 6.7e-05 | 42 |
| HLA-B*08:01 | 1 | 32 | 40 | 9 | FTRGVYYPD | 6.7e-05 | 54 |
| HLA-A*33:01 | 1 | 49 | 57 | 9 | HSTQDLFLP | 6.7e-05 | 42 |
| HLA-A*02:01 | 1 | 52 | 61 | 10 | QDLFLPFFSN | 6.7e-05 | 39 |
| HLA-B*07:02 | 1 | 59 | 67 | 9 | FSNVTWFHA | 6.7e-05 | 37 |
| HLA-A*30:02 | 1 | 72 | 81 | 10 | GTNGTKRFDN | 6.7e-05 | 63 |
| HLA-A*23:01 | 1 | 76 | 85 | 10 | TKRFDNPVLP | 6.7e-05 | 25 |
| HLA-B*57:01 | 1 | 79 | 88 | 10 | FDNPVLPFND | 6.7e-05 | 54 |
| HLA-A*68:02 | 1 | 87 | 95 | 9 | NDGVYFAST | 6.7e-05 | 41 |
| HLA-A*01:01 | 1 | 90 | 98 | 9 | VYFASTEKS | 6.7e-05 | 56 |
| HLA-B*35:01 | 1 | 101 | 110 | 10 | IRGWIFGTTL | 6.7e-05 | 28 |
| HLA-A*03:01 | 1 | 104 | 112 | 9 | WIFGTTLDS | 6.7e-05 | 33 |
| HLA-B*35:01 | 1 | 111 | 120 | 10 | DSKTQSLLIV | 6.7e-05 | 28 |
| HLA-B*08:01 | 1 | 114 | 122 | 9 | TQSLLIVNN | 6.7e-05 | 54 |
| HLA-B*51:01 | 1 | 115 | 124 | 10 | QSLLIVNNAT | 6.7e-05 | 48 |
| HLA-B*57:01 | 1 | 117 | 125 | 9 | LLIVNNATN | 6.7e-05 | 54 |
| HLA-A*26:01 | 1 | 181 | 190 | 10 | GKQGNFKNLR | 6.7e-05 | 34 |
| HLA-A*02:01 | 1 | 200 | 209 | 10 | YFKIYSKHTP | 6.7e-05 | 39 |
| HLA-A*02:03 | 1 | 208 | 217 | 10 | TPINLVRDLP | 6.7e-05 | 42 |
| HLA-A*68:01 | 1 | 208 | 217 | 10 | TPINLVRDLP | 6.7e-05 | 36 |
| HLA-A*01:01 | 1 | 211 | 219 | 9 | NLVRDLPQG | 6.7e-05 | 56 |
| HLA-B*15:01 | 1 | 264 | 273 | 10 | AYYVGYLQPR | 6.7e-05 | 39 |
| HLA-A*23:01 | 1 | 284 | 293 | 10 | TITDAVDCAL | 6.7e-05 | 25 |
| HLA-A*02:06 | 1 | 316 | 325 | 10 | SNFRVQPTES | 6.7e-05 | 49 |
| HLA-B*53:01 | 1 | 319 | 328 | 10 | RVQPTESIVR | 6.7e-05 | 27 |
| HLA-A*01:01 | 1 | 322 | 331 | 10 | PTESIVRFPN | 6.7e-05 | 56 |
| HLA-A*68:02 | 1 | 338 | 347 | 10 | FGEVFNATRF | 6.7e-05 | 41 |
| HLA-A*02:06 | 1 | 358 | 366 | 9 | ISNCVADYS | 6.7e-05 | 49 |
| HLA-A*68:02 | 1 | 362 | 370 | 9 | VADYSVLYN | 6.7e-05 | 41 |
| HLA-B*44:03 | 1 | 364 | 372 | 9 | DYSVLYNVA | 6.7e-05 | 25 |
| HLA-B*08:01 | 1 | 388 | 397 | 10 | NLCFTNVYA | 6.7e-05 | 54 |
| HLA-B*57:01 | 1 | 390 | 398 | 9 | LCFTNVYAD | 6.7e-05 | 54 |
| HLA-A*26:01 | 1 | 415 | 424 | 10 | TGKIADYNYK | 6.7e-05 | 34 |
| HLA-A*26:01 | 1 | 442 | 450 | 9 | DSKVGGNYN | 6.7e-05 | 34 |
| HLA-B*35:01 | 1 | 447 | 455 | 9 | GNYNLYRL | 6.7e-05 | 28 |
| HLA-A*02:03 | 1 | 448 | 456 | 9 | NYNYLYRLF | 6.7e-05 | 42 |
| HLA-A*11:01 | 1 | 448 | 456 | 9 | NYNYLYRLF | 6.7e-05 | 25 |
| HLA-B*15:01 | 1 | 460 | 469 | 10 | NLKPFERDIS | 6.7e-05 | 39 |
| HLA-A*03:01 | 1 | 488 | 496 | 9 | CYFPLQSYG | 6.7e-05 | 33 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*30:01 | 1 | 516 | 525 | 10 | ELLHAPATVC | 6.7e-05 | 65 |
| HLA-B*57:01 | 1 | 518 | 526 | 9 | LHAPATVCG | 6.7e-05 | 54 |
| HLA-B*53:01 | 1 | 519 | 527 | 9 | HAPATVCGP | 6.7e-05 | 27 |
| HLA-A*30:02 | 1 | 524 | 532 | 9 | VCGPKKSTN | 6.7e-05 | 63 |
| HLA-B*44:02 | 1 | 530 | 539 | 10 | STNLVKNKCV | 6.7e-05 | 27 |
| HLA-A*01:01 | 1 | 540 | 549 | 10 | NFNFNGLTGT | 6.7e-05 | 56 |
| HLA-A*33:01 | 1 | 553 | 561 | 9 | TESNKKFLP | 6.7e-05 | 42 |
| HLA-A*03:01 | 1 | 556 | 565 | 10 | NKKFLPFQQF | 6.7e-05 | 33 |
| HLA-A*26:01 | 1 | 560 | 569 | 10 | LPFQFGRDI | 6.7e-05 | 34 |
| HLA-A*24:02 | 1 | 562 | 570 | 9 | FQFGRDIA | 6.7e-05 | 24 |
| HLA-A*01:01 | 1 | 564 | 573 | 10 | QFGRDIADTT | 6.7e-05 | 56 |
| HLA-A*33:01 | 1 | 567 | 576 | 10 | RDIADTTDAV | 6.7e-05 | 42 |
| HLA-B*51:01 | 1 | 567 | 575 | 9 | RDIADTTDA | 6.7e-05 | 48 |
| HLA-B*57:01 | 1 | 569 | 578 | 10 | IADTTDAVRD | 6.7e-05 | 54 |
| HLA-A*11:01 | 1 | 572 | 581 | 10 | TTDAVRDPQT | 6.7e-05 | 25 |
| HLA-A*31:01 | 1 | 574 | 582 | 9 | DAVRDPQTL | 6.7e-05 | 40 |
| HLA-A*31:01 | 1 | 606 | 615 | 10 | NQVAVLYQDV | 6.7e-05 | 40 |
| HLA-A*30:02 | 1 | 612 | 621 | 10 | YQDVNCTEVP | 6.7e-05 | 63 |
| HLA-A*03:01 | 1 | 620 | 629 | 10 | VPVAIHADQL | 6.7e-05 | 33 |
| HLA-B*07:02 | 1 | 637 | 645 | 9 | STGSNVFQT | 6.7e-05 | 37 |
| HLA-B*53:01 | 1 | 642 | 650 | 9 | VFQTRAGCL | 6.7e-05 | 27 |
| HLA-B*53:01 | 1 | 647 | 655 | 9 | AGCLIGAHEH | 6.7e-05 | 27 |
| HLA-B*58:01 | 1 | 650 | 658 | 9 | LIGAEHVNN | 6.7e-05 | 42 |
| HLA-A*03:01 | 1 | 658 | 666 | 9 | NSYECDIPI | 6.7e-05 | 33 |
| HLA-B*58:01 | 1 | 673 | 682 | 10 | SYQTQTNSPR | 6.7e-05 | 42 |
| HLA-A*31:01 | 1 | 678 | 686 | 9 | TNSPRRARS | 6.7e-05 | 40 |
| HLA-B*51:01 | 1 | 691 | 700 | 10 | SIIAYTMSLG | 6.7e-05 | 48 |
| HLA-A*02:03 | 1 | 695 | 703 | 9 | YTMSLGAEN | 6.7e-05 | 42 |
| HLA-B*51:01 | 1 | 721 | 730 | 10 | SVTTEILPVS | 6.7e-05 | 48 |
| HLA-A*02:03 | 1 | 734 | 743 | 10 | TSVDCTMYIC | 6.7e-05 | 42 |
| HLA-B*08:01 | 1 | 739 | 748 | 10 | TMYICGDSTE | 6.7e-05 | 54 |
| HLA-A*30:01 | 1 | 767 | 775 | 9 | LTGIAVEQD | 6.7e-05 | 65 |
| HLA-B*40:01 | 1 | 787 | 795 | 9 | QIYKTPPIK | 6.7e-05 | 23 |
| HLA-A*24:02 | 1 | 797 | 806 | 10 | FGGFNFSQIL | 6.7e-05 | 24 |
| HLA-A*68:01 | 1 | 813 | 822 | 10 | SKRSFIEDLL | 6.7e-05 | 36 |
| HLA-B*53:01 | 1 | 827 | 836 | 10 | TLADAGFIKQ | 6.7e-05 | 27 |
| HLA-B*58:01 | 1 | 830 | 838 | 9 | DAGFIKQYG | 6.7e-05 | 42 |
| HLA-B*08:01 | 1 | 832 | 840 | 9 | GFIKQYGDC | 6.7e-05 | 54 |
| HLA-A*30:01 | 1 | 843 | 851 | 9 | DIAARDLIC | 6.7e-05 | 65 |
| HLA-B*44:03 | 1 | 854 | 862 | 9 | KFNGLTVLP | 6.7e-05 | 25 |
| HLA-A*68:02 | 1 | 855 | 863 | 9 | FNGLTVLPP | 6.7e-05 | 41 |
| HLA-B*44:03 | 1 | 870 | 878 | 9 | IAQYTSALL | 6.7e-05 | 25 |
| HLA-A*23:01 | 1 | 871 | 880 | 10 | AQYTSALLAG | 6.7e-05 | 25 |
| HLA-A*32:01 | 1 | 871 | 880 | 10 | AQYTSALLAG | 6.7e-05 | 30 |
| HLA-B*15:01 | 1 | 873 | 881 | 9 | YTSALLAGT | 6.7e-05 | 39 |
| HLA-B*58:01 | 1 | 884 | 893 | 10 | SGWTFGAGAA | 6.7e-05 | 42 |
| HLA-B*44:03 | 1 | 891 | 899 | 9 | GAALQIPFA | 6.7e-05 | 25 |
| HLA-A*03:01 | 1 | 902 | 911 | 10 | MAYRFNGIGV | 6.7e-05 | 33 |
| HLA-B*51:01 | 1 | 904 | 913 | 10 | YRFNGIGVTQ | 6.7e-05 | 48 |
| HLA-A*03:01 | 1 | 907 | 915 | 9 | NGIGVTQNV | 6.7e-05 | 33 |
| HLA-B*35:01 | 1 | 913 | 921 | 9 | QNVLYENQK | 6.7e-05 | 28 |
| HLA-A*02:06 | 1 | 917 | 925 | 9 | YENQKLIAN | 6.7e-05 | 49 |
| HLA-B*58:01 | 1 | 918 | 926 | 9 | ENQKLIANQ | 6.7e-05 | 42 |
| HLA-A*30:02 | 1 | 923 | 932 | 10 | IANQFNSAIG | 6.7e-05 | 63 |
| HLA-B*57:01 | 1 | 927 | 935 | 9 | FNSAIGKIQ | 6.7e-05 | 54 |
| HLA-B*44:02 | 1 | 929 | 937 | 9 | SAIGKIQDS | 6.7e-05 | 27 |
| HLA-A*11:01 | 1 | 935 | 944 | 10 | QDSLSTASA | 6.7e-05 | 25 |
| HLA-A*02:01 | 1 | 939 | 947 | 9 | SSTASALGK | 6.7e-05 | 39 |
| HLA-A*31:01 | 1 | 950 | 958 | 9 | DVVNQNAQA | 6.7e-05 | 40 |
| HLA-A*32:01 | 1 | 958 | 967 | 10 | ALNLTLVKQLS | 6.7e-05 | 30 |
| HLA-A*01:01 | 1 | 980 | 988 | 9 | ILSRLDKVE | 6.7e-05 | 56 |
| HLA-A*33:01 | 1 | 980 | 989 | 10 | ILSRLDKVEA | 6.7e-05 | 42 |
| HLA-A*02:03 | 1 | 1008 | 1017 | 10 | VTQQLIRAAE | 6.7e-05 | 42 |
| HLA-A*68:01 | 1 | 1022 | 1031 | 10 | ANLAATKMSE | 6.7e-05 | 36 |
| HLA-B*08:01 | 1 | 1028 | 1036 | 9 | KMSECVLGQ | 6.7e-05 | 54 |
| HLA-A*01:01 | 1 | 1036 | 1044 | 9 | QSKRVDFCG | 6.7e-05 | 56 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-B*35:01 | 1 | 1062 | 1071 | 10 | FLHVTVVPAQ | 6.7e-05 | 28 |
| HLA-A*02:03 | 1 | 1105 | 1113 | 9 | TQRNFYEPQ | 6.7e-05 | 42 |
| HLA-A*30:02 | 1 | 1123 | 1131 | 9 | SGNCDVVIG | 6.7e-05 | 63 |
| HLA-A*03:01 | 1 | 1132 | 1141 | 10 | IVNNTVYDPL | 6.7e-05 | 33 |
| HLA-A*02:03 | 1 | 1141 | 1150 | 10 | LQPELDSFKE | 6.7e-05 | 42 |
| HLA-A*30:02 | 1 | 1153 | 1161 | 9 | DKYFKNHTS | 6.7e-05 | 63 |
| HLA-A*31:01 | 1 | 1153 | 1162 | 10 | DKYFKNHTSP | 6.7e-05 | 40 |
| HLA-A*31:01 | 1 | 1157 | 1166 | 10 | KNHTSPDVDL | 6.7e-05 | 40 |
| HLA-B*51:01 | 1 | 1160 | 1168 | 9 | TSPDVDLGD | 6.7e-05 | 48 |
| HLA-B*40:01 | 1 | 1163 | 1172 | 10 | DVDLGDISGI | 6.7e-05 | 23 |
| HLA-B*53:01 | 1 | 1165 | 1174 | 10 | DLGDISGINA | 6.7e-05 | 27 |
| HLA-A*02:01 | 1 | 1176 | 1185 | 10 | VVNIQKEIDR | 6.7e-05 | 39 |
| HLA-A*30:02 | 1 | 1176 | 1184 | 9 | VVNIQKEID | 6.7e-05 | 63 |
| HLA-A*01:01 | 1 | 1186 | 1195 | 10 | LNEVAKNLNE | 6.7e-05 | 56 |
| HLA-A*26:01 | 1 | 1191 | 1200 | 10 | KNLNESLIDL | 6.7e-05 | 34 |
| HLA-A*26:01 | 1 | 1198 | 1207 | 10 | IDLQELGKYE | 6.7e-05 | 34 |
| HLA-A*31:01 | 1 | 1199 | 1207 | 9 | DLQELGKYE | 6.7e-05 | 40 |
| HLA-B*35:01 | 1 | 1209 | 1218 | 10 | YIKWPWYIWL | 6.7e-05 | 28 |
| HLA-B*07:02 | 1 | 1215 | 1223 | 9 | YIWLGFIAI | 6.7e-05 | 37 |
| HLA-A*01:01 | 1 | 1219 | 1228 | 10 | GFIAGLIAIV | 6.7e-05 | 56 |
| HLA-B*40:01 | 1 | 1222 | 1230 | 9 | AGLIAIVMV | 6.7e-05 | 23 |
| HLA-A*26:01 | 1 | 18 | 27 | 10 | LTRTQLPPA | 6.6e-05 | 34 |
| HLA-B*07:02 | 1 | 26 | 34 | 9 | PAYTNSFTR | 6.6e-05 | 37 |
| HLA-B*53:01 | 1 | 35 | 44 | 10 | GVYYPDKVFR | 6.6e-05 | 27 |
| HLA-B*44:03 | 1 | 45 | 54 | 10 | SSVLHSTQDL | 6.6e-05 | 26 |
| HLA-A*32:01 | 1 | 53 | 61 | 9 | DLFLPFFSN | 6.6e-05 | 30 |
| HLA-A*02:01 | 1 | 70 | 78 | 9 | VSGTNGTKR | 6.6e-05 | 39 |
| HLA-A*23:01 | 1 | 85 | 94 | 10 | PFNDGVYFAS | 6.6e-05 | 25 |
| HLA-A*30:02 | 1 | 96 | 105 | 10 | EKSNIIRGWI | 6.6e-05 | 63 |
| HLA-B*08:01 | 1 | 100 | 109 | 10 | IIRGWIFGTT | 6.6e-05 | 55 |
| HLA-A*02:06 | 1 | 102 | 111 | 10 | RGWIFGTTLD | 6.6e-05 | 49 |
| HLA-A*31:01 | 1 | 107 | 115 | 9 | GTTLDSKTQ | 6.6e-05 | 41 |
| HLA-B*35:01 | 1 | 116 | 124 | 9 | SLLIVNNAT | 6.6e-05 | 28 |
| HLA-B*35:01 | 1 | 125 | 134 | 10 | NVVIKVFCEQ | 6.6e-05 | 28 |
| HLA-A*30:01 | 1 | 129 | 138 | 10 | KVCEFQFCND | 6.6e-05 | 65 |
| HLA-B*53:01 | 1 | 134 | 143 | 10 | QFCNDPFLGV | 6.6e-05 | 27 |
| HLA-A*02:06 | 1 | 160 | 169 | 10 | YSSANNCTFE | 6.6e-05 | 49 |
| HLA-A*02:03 | 1 | 189 | 197 | 9 | LREFVFKNI | 6.6e-05 | 42 |
| HLA-B*07:02 | 1 | 191 | 200 | 10 | EFVFKNIDGY | 6.6e-05 | 37 |
| HLA-A*01:01 | 1 | 201 | 209 | 9 | FKIYSKHTP | 6.6e-05 | 57 |
| HLA-A*68:01 | 1 | 240 | 249 | 10 | TLLALHRSYL | 6.6e-05 | 36 |
| HLA-B*08:01 | 1 | 243 | 252 | 10 | ALHRSYLTPG | 6.6e-05 | 55 |
| HLA-A*32:01 | 1 | 247 | 255 | 9 | SYLTPGDSS | 6.6e-05 | 30 |
| HLA-B*44:03 | 1 | 269 | 278 | 10 | YLQPRTFLLK | 6.6e-05 | 26 |
| HLA-A*01:01 | 1 | 273 | 282 | 10 | RTFLLKYNEN | 6.6e-05 | 57 |
| HLA-B*58:01 | 1 | 281 | 289 | 9 | ENGTITDAV | 6.6e-05 | 42 |
| HLA-A*01:01 | 1 | 289 | 297 | 9 | VDCALDPLS | 6.6e-05 | 57 |
| HLA-B*40:01 | 1 | 308 | 317 | 10 | VEKGIYQTSN | 6.6e-05 | 23 |
| HLA-B*15:01 | 1 | 332 | 341 | 10 | ITNLCPFGEV | 6.6e-05 | 39 |
| HLA-B*40:01 | 1 | 333 | 341 | 9 | TNLCPFGEV | 6.6e-05 | 23 |
| HLA-A*26:01 | 1 | 350 | 358 | 9 | VYAWNRKRI | 6.6e-05 | 34 |
| HLA-B*51:01 | 1 | 357 | 365 | 9 | RISNCVADY | 6.6e-05 | 48 |
| HLA-B*07:02 | 1 | 359 | 367 | 9 | SNCVADYSV | 6.6e-05 | 37 |
| HLA-A*24:02 | 1 | 360 | 368 | 9 | NCVADYSVL | 6.6e-05 | 24 |
| HLA-A*02:01 | 1 | 368 | 376 | 9 | LYNSASFST | 6.6e-05 | 39 |
| HLA-B*40:01 | 1 | 370 | 378 | 9 | NSASFSTFK | 6.6e-05 | 23 |
| HLA-A*02:03 | 1 | 383 | 392 | 10 | SPTKLNLCF | 6.6e-05 | 42 |
| HLA-B*44:03 | 1 | 384 | 392 | 9 | PTKLNLCF | 6.6e-05 | 26 |
| HLA-A*32:01 | 1 | 401 | 409 | 9 | VIRGDEVQR | 6.6e-05 | 30 |
| HLA-A*33:01 | 1 | 401 | 410 | 10 | VIRGDEVQR | 6.6e-05 | 42 |
| HLA-A*26:01 | 1 | 416 | 424 | 9 | GKIADYNYK | 6.6e-05 | 34 |
| HLA-B*57:01 | 1 | 416 | 424 | 9 | GKIADYNYK | 6.6e-05 | 54 |
| HLA-B*51:01 | 1 | 417 | 426 | 10 | KIADYNYKLP | 6.6e-05 | 48 |
| HLA-B*58:01 | 1 | 418 | 427 | 10 | IADYNYKLPD | 6.6e-05 | 42 |
| HLA-A*11:01 | 1 | 462 | 471 | 10 | KPFERDISTE | 6.6e-05 | 25 |
| HLA-B*44:02 | 1 | 478 | 487 | 10 | TPCNGVEGFN | 6.6e-05 | 27 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*11:01 | 1 | 480 | 489 | 10 | CNGVEGFNCY | 6.6e-05 | 25 |
| HLA-A*31:01 | 1 | 486 | 494 | 9 | FNCYFPLQS | 6.6e-05 | 41 |
| HLA-B*51:01 | 1 | 499 | 508 | 10 | PTNGVGYQPY | 6.6e-05 | 48 |
| HLA-A*02:01 | 1 | 506 | 515 | 10 | QPYRVVLSF | 6.6e-05 | 39 |
| HLA-A*02:03 | 1 | 506 | 515 | 10 | QPYRVVLSF | 6.6e-05 | 42 |
| HLA-A*33:01 | 1 | 507 | 516 | 10 | PYRVVLSFE | 6.6e-05 | 42 |
| HLA-A*02:06 | 1 | 518 | 527 | 10 | LHAPATVCGP | 6.6e-05 | 49 |
| HLA-B*15:01 | 1 | 519 | 528 | 10 | HAPATVCGPK | 6.6e-05 | 39 |
| HLA-A*01:01 | 1 | 523 | 532 | 10 | TVCGPKKSTN | 6.6e-05 | 57 |
| HLA-A*32:01 | 1 | 526 | 535 | 10 | GPKKSTNLVK | 6.6e-05 | 30 |
| HLA-A*68:02 | 1 | 541 | 550 | 10 | FNFNGLTGTG | 6.6e-05 | 41 |
| HLA-B*40:01 | 1 | 541 | 549 | 9 | FNFNGLTGT | 6.6e-05 | 23 |
| HLA-B*40:01 | 1 | 543 | 551 | 9 | FNGLTGTGV | 6.6e-05 | 23 |
| HLA-B*58:01 | 1 | 543 | 552 | 10 | FNGLTGTGVL | 6.6e-05 | 42 |
| HLA-B*35:01 | 1 | 546 | 554 | 9 | LTGTGVLTE | 6.6e-05 | 28 |
| HLA-B*51:01 | 1 | 552 | 561 | 10 | LTESNKKFLP | 6.6e-05 | 48 |
| HLA-A*02:06 | 1 | 559 | 568 | 10 | FLPFQQFGRD | 6.6e-05 | 49 |
| HLA-A*30:02 | 1 | 561 | 570 | 10 | PFQQFGRDIA | 6.6e-05 | 63 |
| HLA-A*01:01 | 1 | 582 | 591 | 10 | LEILDITPCS | 6.6e-05 | 57 |
| HLA-B*15:01 | 1 | 587 | 595 | 9 | ITPCSFGGV | 6.6e-05 | 39 |
| HLA-A*23:01 | 1 | 589 | 598 | 10 | PCSFGGVSVI | 6.6e-05 | 25 |
| HLA-A*26:01 | 1 | 598 | 606 | 9 | ITPGTNTSN | 6.6e-05 | 34 |
| HLA-B*44:02 | 1 | 602 | 611 | 10 | TNTSNQVAVL | 6.6e-05 | 27 |
| HLA-A*30:02 | 1 | 613 | 622 | 10 | QDVNCTEVPV | 6.6e-05 | 63 |
| HLA-A*03:01 | 1 | 622 | 631 | 10 | VAIHADQLTP | 6.6e-05 | 33 |
| HLA-B*40:01 | 1 | 648 | 656 | 9 | GCLIGAEHV | 6.6e-05 | 23 |
| HLA-B*44:03 | 1 | 658 | 666 | 9 | NSYECDIPI | 6.6e-05 | 26 |
| HLA-A*30:02 | 1 | 661 | 669 | 9 | ECDIPIGAG | 6.6e-05 | 63 |
| HLA-A*68:01 | 1 | 667 | 675 | 9 | GAGICASYQ | 6.6e-05 | 36 |
| HLA-A*02:06 | 1 | 671 | 680 | 10 | CASYQTQNS | 6.6e-05 | 49 |
| HLA-A*02:06 | 1 | 682 | 691 | 10 | RRARSVASQS | 6.6e-05 | 49 |
| HLA-A*30:02 | 1 | 700 | 709 | 10 | GAENSVAYSN | 6.6e-05 | 63 |
| HLA-B*57:01 | 1 | 713 | 721 | 9 | AIPTNFTIS | 6.6e-05 | 54 |
| HLA-B*51:01 | 1 | 715 | 723 | 9 | PTNFTISVT | 6.6e-05 | 48 |
| HLA-A*23:01 | 1 | 716 | 724 | 9 | TNFTISVTT | 6.6e-05 | 25 |
| HLA-A*03:01 | 1 | 717 | 725 | 9 | NFTISVTE | 6.6e-05 | 33 |
| HLA-B*15:01 | 1 | 720 | 729 | 10 | ISVTTEILPV | 6.6e-05 | 39 |
| HLA-A*30:02 | 1 | 738 | 747 | 10 | CTMYICGDST | 6.6e-05 | 63 |
| HLA-B*07:02 | 1 | 764 | 773 | 10 | NRALTGIAVE | 6.6e-05 | 37 |
| HLA-A*26:01 | 1 | 765 | 773 | 9 | RALTGIAVE | 6.6e-05 | 34 |
| HLA-A*68:02 | 1 | 767 | 776 | 10 | LTGIAVEQDK | 6.6e-05 | 41 |
| HLA-A*68:02 | 1 | 796 | 804 | 9 | DFGGFNFSQ | 6.6e-05 | 41 |
| HLA-A*23:01 | 1 | 812 | 821 | 10 | PSKRSEFIEDL | 6.6e-05 | 25 |
| HLA-A*23:01 | 1 | 851 | 860 | 10 | CAQKFNGLTV | 6.6e-05 | 25 |
| HLA-B*07:02 | 1 | 862 | 871 | 10 | PPLLTDEMIA | 6.6e-05 | 37 |
| HLA-B*53:01 | 1 | 862 | 871 | 10 | PPLLTDEMIA | 6.6e-05 | 27 |
| HLA-A*02:06 | 1 | 863 | 872 | 10 | PLLTDEMIAQ | 6.6e-05 | 49 |
| HLA-B*44:03 | 1 | 866 | 874 | 9 | TDEMIAQYT | 6.6e-05 | 26 |
| HLA-A*68:01 | 1 | 867 | 876 | 10 | DEMIAQYTS | 6.6e-05 | 36 |
| HLA-B*35:01 | 1 | 876 | 884 | 9 | ALLAGTITS | 6.6e-05 | 28 |
| HLA-B*44:02 | 1 | 904 | 913 | 10 | YRFNGIGVTQ | 6.6e-05 | 27 |
| HLA-B*40:01 | 1 | 912 | 920 | 9 | TQNVLYENQ | 6.6e-05 | 23 |
| HLA-A*23:01 | 1 | 921 | 929 | 9 | KLIANQFNS | 6.6e-05 | 25 |
| HLA-B*35:01 | 1 | 935 | 943 | 9 | QDLSSTAS | 6.6e-05 | 28 |
| HLA-B*44:02 | 1 | 939 | 948 | 10 | SSTASALGKL | 6.6e-05 | 27 |
| HLA-A*01:01 | 1 | 941 | 950 | 10 | TASALGKLQD | 6.6e-05 | 57 |
| HLA-B*15:01 | 1 | 960 | 968 | 9 | NTLVKQLSS | 6.6e-05 | 39 |
| HLA-A*02:06 | 1 | 970 | 979 | 10 | FGAISSVLND | 6.6e-05 | 49 |
| HLA-A*31:01 | 1 | 980 | 989 | 10 | ILSRLDKVEA | 6.6e-05 | 41 |
| HLA-A*33:01 | 1 | 988 | 997 | 10 | EAEVQIDRLI | 6.6e-05 | 42 |
| HLA-A*23:01 | 1 | 995 | 1003 | 9 | RLITGRLQS | 6.6e-05 | 25 |
| HLA-B*35:01 | 1 | 998 | 1006 | 9 | TGRLQSLQT | 6.6e-05 | 28 |
| HLA-A*33:01 | 1 | 1018 | 1026 | 9 | IRASANLAA | 6.6e-05 | 42 |
| HLA-B*57:01 | 1 | 1022 | 1031 | 10 | ANLAATKMSE | 6.6e-05 | 54 |
| HLA-A*31:01 | 1 | 1028 | 1037 | 10 | KMSECVLGQS | 6.6e-05 | 41 |
| HLA-B*57:01 | 1 | 1044 | 1053 | 10 | GKGYHLMSFP | 6.6e-05 | 54 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*68:02 | 1 | 1049 | 1058 | 10 | LMSFPQSAPH | 6.6e-05 | 41 |
| HLA-B*44:02 | 1 | 1051 | 1059 | 9 | SFPQSAPHG | 6.6e-05 | 27 |
| HLA-A*30:02 | 1 | 1062 | 1071 | 10 | FLHVTVYVPAQ | 6.6e-05 | 63 |
| HLA-A*33:01 | 1 | 1071 | 1080 | 10 | QEKNFTTAPA | 6.6e-05 | 42 |
| HLA-A*26:01 | 1 | 1076 | 1085 | 10 | TTAPAICHDG | 6.6e-05 | 34 |
| HLA-A*02:06 | 1 | 1081 | 1090 | 10 | ICHDGKAHFP | 6.6e-05 | 49 |
| HLA-A*02:06 | 1 | 1082 | 1090 | 9 | CHDGKAHFP | 6.6e-05 | 49 |
| HLA-A*26:01 | 1 | 1089 | 1098 | 10 | FPREGVFVSN | 6.6e-05 | 34 |
| HLA-A*01:01 | 1 | 1092 | 1100 | 9 | EGVFVSNGT | 6.6e-05 | 57 |
| HLA-A*26:01 | 1 | 1105 | 1114 | 10 | TQRNFYEPQI | 6.6e-05 | 34 |
| HLA-A*02:03 | 1 | 1115 | 1124 | 10 | ITTDNTFVSG | 6.6e-05 | 42 |
| HLA-B*40:01 | 1 | 1129 | 1137 | 9 | VIGIVNNTV | 6.6e-05 | 23 |
| HLA-A*30:02 | 1 | 1133 | 1142 | 10 | VNNTVYDPLQ | 6.6e-05 | 63 |
| HLA-B*44:02 | 1 | 1141 | 1149 | 9 | LQPELDSFK | 6.6e-05 | 27 |
| HLA-A*26:01 | 1 | 1149 | 1157 | 9 | KEELDKYFK | 6.6e-05 | 34 |
| HLA-A*24:02 | 1 | 1151 | 1159 | 9 | ELDKYFKNH | 6.6e-05 | 24 |
| HLA-A*30:02 | 1 | 1152 | 1160 | 9 | LDKYFKNHT | 6.6e-05 | 63 |
| HLA-A*68:01 | 1 | 1167 | 1175 | 9 | GDISGINAS | 6.6e-05 | 36 |
| HLA-A*11:01 | 1 | 1168 | 1176 | 9 | DISGINASV | 6.6e-05 | 25 |
| HLA-A*02:06 | 1 | 1177 | 1185 | 9 | VNIQKEIDR | 6.6e-05 | 49 |
| HLA-A*30:01 | 1 | 1178 | 1187 | 10 | NIQKEIDRLN | 6.6e-05 | 65 |
| HLA-B*44:03 | 1 | 1182 | 1191 | 10 | EIDRLNEVAK | 6.6e-05 | 26 |
| HLA-B*44:03 | 1 | 1193 | 1202 | 10 | LNESLIDLQE | 6.6e-05 | 26 |
| HLA-B*15:01 | 1 | 1198 | 1207 | 10 | IDLQELGKYE | 6.6e-05 | 39 |
| HLA-B*40:01 | 1 | 1203 | 1212 | 10 | LGKYEQYIKW | 6.6e-05 | 23 |
| HLA-B*57:01 | 1 | 1222 | 1231 | 10 | AGLIAIVMVT | 6.6e-05 | 54 |
| HLA-A*30:02 | 1 | 1227 | 1236 | 10 | IVMVTIMLCC | 6.6e-05 | 63 |
| HLA-A*30:02 | 1 | 1230 | 1239 | 10 | VTIMLCCMTS | 6.6e-05 | 63 |
| HLA-A*68:02 | 1 | 1248 | 1256 | 9 | CSCGSCCKF | 6.6e-05 | 41 |
| HLA-B*40:01 | 1 | 1260 | 1268 | 9 | DSEPVKGV | 6.6e-05 | 23 |
| HLA-A*11:01 | 1 | 1262 | 1270 | 9 | EPVLKGVKL | 6.6e-05 | 25 |
| HLA-A*32:01 | 1 | 1262 | 1271 | 10 | EPVLKGVKLV | 6.6e-05 | 30 |
| HLA-B*07:02 | 1 | 3 | 11 | 9 | VFLVLLPLV | 6.5e-05 | 37 |
| HLA-B*07:02 | 1 | 6 | 15 | 10 | VLLPLVSSQC | 6.5e-05 | 37 |
| HLA-B*51:01 | 1 | 9 | 18 | 10 | PLVSSQCVNL | 6.5e-05 | 48 |
| HLA-A*31:01 | 1 | 18 | 27 | 10 | LTRTQLPPA | 6.5e-05 | 41 |
| HLA-A*30:02 | 1 | 24 | 33 | 10 | LPPAYTNSFT | 6.5e-05 | 63 |
| HLA-B*44:02 | 1 | 44 | 52 | 9 | RSSVLHSTQ | 6.5e-05 | 27 |
| HLA-B*53:01 | 1 | 53 | 62 | 10 | DLFLPFFSNV | 6.5e-05 | 27 |
| HLA-A*24:02 | 1 | 59 | 67 | 9 | FSNVTWFHA | 6.5e-05 | 24 |
| HLA-B*35:01 | 1 | 91 | 99 | 9 | YFASTEKSN | 6.5e-05 | 28 |
| HLA-B*44:03 | 1 | 91 | 100 | 10 | YFASTEKSNI | 6.5e-05 | 26 |
| HLA-A*32:01 | 1 | 92 | 101 | 10 | FASTEKSNI | 6.5e-05 | 30 |
| HLA-A*02:03 | 1 | 116 | 125 | 10 | SLLIVNNATN | 6.5e-05 | 42 |
| HLA-B*07:02 | 1 | 121 | 130 | 10 | NNATNVVIVK | 6.5e-05 | 37 |
| HLA-A*68:01 | 1 | 122 | 131 | 10 | NATNVVIVKVC | 6.5e-05 | 36 |
| HLA-A*02:06 | 1 | 143 | 151 | 9 | VYYHKNKNS | 6.5e-05 | 50 |
| HLA-A*32:01 | 1 | 145 | 153 | 9 | YHKNNKNSWM | 6.5e-05 | 30 |
| HLA-A*32:01 | 1 | 149 | 158 | 10 | NKSWMESEFR | 6.5e-05 | 30 |
| HLA-B*40:01 | 1 | 172 | 180 | 9 | SQPFLMDLE | 6.5e-05 | 23 |
| HLA-B*58:01 | 1 | 186 | 195 | 10 | FKNLREFVFK | 6.5e-05 | 43 |
| HLA-A*23:01 | 1 | 188 | 197 | 10 | NLREFVFKNI | 6.5e-05 | 25 |
| HLA-B*58:01 | 1 | 198 | 207 | 10 | DGYFKIYSKH | 6.5e-05 | 43 |
| HLA-B*58:01 | 1 | 216 | 224 | 9 | LPQGFSALE | 6.5e-05 | 43 |
| HLA-B*15:01 | 1 | 221 | 230 | 10 | SALEPLVDLP | 6.5e-05 | 40 |
| HLA-A*02:01 | 1 | 237 | 245 | 9 | RFQTLALH | 6.5e-05 | 39 |
| HLA-A*11:01 | 1 | 241 | 249 | 9 | LLALHRSYL | 6.5e-05 | 25 |
| HLA-A*01:01 | 1 | 245 | 254 | 10 | HRSYLTPGDS | 6.5e-05 | 57 |
| HLA-A*11:01 | 1 | 247 | 255 | 9 | SYLTPGDSS | 6.5e-05 | 25 |
| HLA-B*35:01 | 1 | 247 | 255 | 9 | SYLTPGDSS | 6.5e-05 | 28 |
| HLA-A*26:01 | 1 | 255 | 263 | 9 | SSGWTAGAA | 6.5e-05 | 34 |
| HLA-A*01:01 | 1 | 265 | 274 | 10 | YYVGYLQPR | 6.5e-05 | 57 |
| HLA-B*35:01 | 1 | 266 | 274 | 9 | YVGYLQPR | 6.5e-05 | 28 |
| HLA-A*03:01 | 1 | 295 | 303 | 9 | PLSETKCTL | 6.5e-05 | 34 |
| HLA-A*31:01 | 1 | 318 | 327 | 10 | FRVQPTESIV | 6.5e-05 | 41 |
| HLA-A*30:02 | 1 | 334 | 343 | 10 | NLCPFGEVFN | 6.5e-05 | 63 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*26:01 | 1 | 335 | 344 | 10 | LCPFGEVFN | 6.5e-05 | 34 |
| HLA-A*01:01 | 1 | 341 | 349 | 9 | VFNATRFAS | 6.5e-05 | 57 |
| HLA-A*26:01 | 1 | 376 | 384 | 9 | TFKCYGVSP | 6.5e-05 | 34 |
| HLA-A*11:01 | 1 | 382 | 390 | 9 | VSPTKLNLD | 6.5e-05 | 25 |
| HLA-A*31:01 | 1 | 387 | 396 | 10 | LNLDLFTNV | 6.5e-05 | 41 |
| HLA-B*07:02 | 1 | 393 | 401 | 9 | TNVYADSFV | 6.5e-05 | 37 |
| HLA-B*35:01 | 1 | 399 | 408 | 10 | SFVIRGDEV | 6.5e-05 | 28 |
| HLA-B*40:01 | 1 | 409 | 417 | 9 | QIAPGQTGK | 6.5e-05 | 23 |
| HLA-B*08:01 | 1 | 420 | 428 | 9 | DYNYKLPDD | 6.5e-05 | 55 |
| HLA-B*51:01 | 1 | 422 | 431 | 10 | NYKLPDDFT | 6.5e-05 | 48 |
| HLA-A*03:01 | 1 | 425 | 433 | 9 | LPDDFTGCV | 6.5e-05 | 34 |
| HLA-A*03:01 | 1 | 428 | 436 | 9 | DFTGCVIAW | 6.5e-05 | 34 |
| HLA-A*68:01 | 1 | 429 | 438 | 10 | FTGCVIAWNS | 6.5e-05 | 36 |
| HLA-B*57:01 | 1 | 442 | 450 | 9 | DSKVGGNYN | 6.5e-05 | 54 |
| HLA-A*33:01 | 1 | 452 | 460 | 9 | LYRLFRKSN | 6.5e-05 | 42 |
| HLA-A*26:01 | 1 | 466 | 475 | 10 | RDISTEIQQA | 6.5e-05 | 34 |
| HLA-B*58:01 | 1 | 486 | 494 | 9 | FNCYFPLQS | 6.5e-05 | 43 |
| HLA-A*01:01 | 1 | 492 | 501 | 10 | LQSYGFQPTN | 6.5e-05 | 57 |
| HLA-B*35:01 | 1 | 492 | 500 | 9 | LQSYGFQPT | 6.5e-05 | 28 |
| HLA-A*33:01 | 1 | 512 | 521 | 10 | VLSFELLHAP | 6.5e-05 | 42 |
| HLA-A*32:01 | 1 | 544 | 552 | 9 | NGLTGTGVL | 6.5e-05 | 30 |
| HLA-A*31:01 | 1 | 553 | 561 | 9 | TESNKKFLP | 6.5e-05 | 41 |
| HLA-B*58:01 | 1 | 560 | 569 | 10 | LPFQQFGRDI | 6.5e-05 | 43 |
| HLA-A*23:01 | 1 | 567 | 576 | 10 | RDIADTTDAV | 6.5e-05 | 25 |
| HLA-B*58:01 | 1 | 568 | 577 | 10 | DIADTTDAVR | 6.5e-05 | 43 |
| HLA-A*30:02 | 1 | 582 | 590 | 9 | LEILDITPC | 6.5e-05 | 63 |
| HLA-B*08:01 | 1 | 587 | 595 | 9 | ITPCSFGGV | 6.5e-05 | 55 |
| HLA-B*44:03 | 1 | 588 | 597 | 10 | TPCSFGGVSV | 6.5e-05 | 26 |
| HLA-A*30:01 | 1 | 606 | 614 | 9 | NQVAVLYQD | 6.5e-05 | 65 |
| HLA-A*68:02 | 1 | 608 | 617 | 10 | VAVLYQDVNC | 6.5e-05 | 42 |
| HLA-B*51:01 | 1 | 610 | 619 | 10 | VLYQDVNCTE | 6.5e-05 | 48 |
| HLA-B*51:01 | 1 | 611 | 619 | 9 | LYQDVNCTE | 6.5e-05 | 48 |
| HLA-A*30:01 | 1 | 650 | 658 | 9 | LIGAEHVNN | 6.5e-05 | 65 |
| HLA-A*33:01 | 1 | 655 | 664 | 10 | HVNNSYECDI | 6.5e-05 | 42 |
| HLA-B*44:03 | 1 | 664 | 672 | 9 | IPIGAGICA | 6.5e-05 | 26 |
| HLA-A*30:01 | 1 | 667 | 676 | 10 | GAGICASYQT | 6.5e-05 | 65 |
| HLA-B*58:01 | 1 | 667 | 676 | 10 | GAGICASYQT | 6.5e-05 | 43 |
| HLA-A*31:01 | 1 | 668 | 676 | 9 | AGICASYQT | 6.5e-05 | 41 |
| HLA-B*07:02 | 1 | 670 | 678 | 9 | ICASYQTQT | 6.5e-05 | 37 |
| HLA-A*11:01 | 1 | 673 | 681 | 9 | SYQTQTNSP | 6.5e-05 | 25 |
| HLA-B*07:02 | 1 | 681 | 689 | 9 | PRRARSVAS | 6.5e-05 | 37 |
| HLA-A*02:03 | 1 | 693 | 702 | 10 | IAYTMSLGAE | 6.5e-05 | 42 |
| HLA-A*33:01 | 1 | 696 | 705 | 10 | TMSLGAENSV | 6.5e-05 | 42 |
| HLA-B*51:01 | 1 | 706 | 715 | 10 | AYSNNSIAIP | 6.5e-05 | 48 |
| HLA-A*03:01 | 1 | 720 | 728 | 9 | ISVTTEILP | 6.5e-05 | 34 |
| HLA-A*24:02 | 1 | 721 | 729 | 9 | SVTTEILPV | 6.5e-05 | 24 |
| HLA-A*01:01 | 1 | 740 | 749 | 10 | MYICGDSTEC | 6.5e-05 | 57 |
| HLA-B*58:01 | 1 | 758 | 766 | 9 | SFCTQLNRA | 6.5e-05 | 43 |
| HLA-A*33:01 | 1 | 761 | 770 | 10 | TQLNRALTGI | 6.5e-05 | 42 |
| HLA-A*33:01 | 1 | 764 | 773 | 10 | NRALTGIAVE | 6.5e-05 | 42 |
| HLA-B*07:02 | 1 | 771 | 780 | 10 | AVEQDKNTQE | 6.5e-05 | 37 |
| HLA-A*31:01 | 1 | 772 | 781 | 10 | VEQDKNTQEV | 6.5e-05 | 41 |
| HLA-B*44:02 | 1 | 776 | 785 | 10 | KNTQEVFAQV | 6.5e-05 | 27 |
| HLA-A*33:01 | 1 | 784 | 793 | 10 | QVKQIYKTPP | 6.5e-05 | 42 |
| HLA-A*32:01 | 1 | 795 | 803 | 9 | KDFGGFNFS | 6.5e-05 | 30 |
| HLA-B*44:02 | 1 | 796 | 805 | 10 | DFGGFNFSQI | 6.5e-05 | 27 |
| HLA-A*23:01 | 1 | 797 | 806 | 10 | FGGFNFSQIL | 6.5e-05 | 25 |
| HLA-B*53:01 | 1 | 816 | 824 | 9 | SFIEDLLFN | 6.5e-05 | 27 |
| HLA-A*30:01 | 1 | 819 | 827 | 9 | EDLLFNKVT | 6.5e-05 | 65 |
| HLA-A*23:01 | 1 | 828 | 837 | 10 | LADAGFIKQY | 6.5e-05 | 25 |
| HLA-A*02:06 | 1 | 840 | 848 | 9 | CLGDIAARD | 6.5e-05 | 50 |
| HLA-A*32:01 | 1 | 846 | 854 | 9 | ARDLICAQK | 6.5e-05 | 30 |
| HLA-A*24:02 | 1 | 862 | 870 | 9 | PPLLTDEMI | 6.5e-05 | 24 |
| HLA-A*11:01 | 1 | 880 | 889 | 10 | GTITSGWTFG | 6.5e-05 | 25 |
| HLA-A*30:02 | 1 | 888 | 897 | 10 | FGAGAALQIP | 6.5e-05 | 63 |
| HLA-A*68:01 | 1 | 890 | 899 | 10 | AGAALQIPFA | 6.5e-05 | 36 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*23:01 | 1 | 895 | 903 | 9 | QIPFAMQMA | 6.5e-05 | 25 |
| HLA-A*11:01 | 1 | 907 | 915 | 9 | NGIGVTQNV | 6.5e-05 | 25 |
| HLA-A*03:01 | 1 | 929 | 937 | 9 | SAIGKIQDS | 6.5e-05 | 34 |
| HLA-B*53:01 | 1 | 939 | 947 | 9 | SSTASALGK | 6.5e-05 | 27 |
| HLA-A*68:01 | 1 | 942 | 951 | 10 | ASALGKLQDV | 6.5e-05 | 36 |
| HLA-B*44:02 | 1 | 942 | 951 | 10 | ASALGKLQDV | 6.5e-05 | 27 |
| HLA-A*30:02 | 1 | 945 | 953 | 9 | LGKLQDVVN | 6.5e-05 | 63 |
| HLA-A*68:01 | 1 | 946 | 954 | 9 | GKLQDVVNQ | 6.5e-05 | 36 |
| HLA-B*44:02 | 1 | 947 | 955 | 9 | KLQDVVNQN | 6.5e-05 | 27 |
| HLA-A*02:06 | 1 | 959 | 968 | 10 | LNTLVKQLSS | 6.5e-05 | 50 |
| HLA-A*23:01 | 1 | 972 | 981 | 10 | AISSVLNDIL | 6.5e-05 | 25 |
| HLA-A*68:01 | 1 | 980 | 989 | 10 | ILSRLDKVEA | 6.5e-05 | 36 |
| HLA-A*11:01 | 1 | 982 | 990 | 9 | SRLDKVEAE | 6.5e-05 | 25 |
| HLA-A*32:01 | 1 | 985 | 993 | 9 | DKVEAEVQI | 6.5e-05 | 30 |
| HLA-A*02:01 | 1 | 988 | 997 | 10 | EAEVQIDRLI | 6.5e-05 | 39 |
| HLA-B*57:01 | 1 | 989 | 998 | 10 | AEVQIDRLIT | 6.5e-05 | 54 |
| HLA-B*40:01 | 1 | 1002 | 1010 | 9 | QSLQTYVTQ | 6.5e-05 | 23 |
| HLA-A*32:01 | 1 | 1013 | 1022 | 10 | IRAAEIRASA | 6.5e-05 | 30 |
| HLA-B*53:01 | 1 | 1017 | 1025 | 9 | EIRASANLA | 6.5e-05 | 27 |
| HLA-B*51:01 | 1 | 1018 | 1027 | 10 | IRASANLAAT | 6.5e-05 | 48 |
| HLA-A*31:01 | 1 | 1025 | 1034 | 10 | AATKMSECVL | 6.5e-05 | 41 |
| HLA-B*58:01 | 1 | 1031 | 1039 | 9 | ECVLGQSKR | 6.5e-05 | 43 |
| HLA-A*23:01 | 1 | 1032 | 1040 | 9 | CVLGQSKRV | 6.5e-05 | 25 |
| HLA-A*30:01 | 1 | 1035 | 1044 | 10 | GQSKRVDFCG | 6.5e-05 | 65 |
| HLA-A*02:01 | 1 | 1044 | 1052 | 9 | GKGYHLMSF | 6.5e-05 | 39 |
| HLA-B*44:03 | 1 | 1093 | 1101 | 9 | GVFVSNQTH | 6.5e-05 | 26 |
| HLA-A*33:01 | 1 | 1096 | 1105 | 10 | VSNQTHWFVT | 6.5e-05 | 42 |
| HLA-A*11:01 | 1 | 1106 | 1114 | 9 | QRNFYEPQI | 6.5e-05 | 25 |
| HLA-A*33:01 | 1 | 1106 | 1115 | 10 | QRNFYEPQII | 6.5e-05 | 42 |
| HLA-B*35:01 | 1 | 1127 | 1136 | 10 | DVVIQIVNNT | 6.5e-05 | 28 |
| HLA-B*53:01 | 1 | 1132 | 1140 | 9 | IVNNTVYDP | 6.5e-05 | 27 |
| HLA-B*08:01 | 1 | 1138 | 1147 | 10 | YDPLQPELDS | 6.5e-05 | 55 |
| HLA-A*68:01 | 1 | 1179 | 1188 | 10 | IQKEIDRLNE | 6.5e-05 | 36 |
| HLA-B*08:01 | 1 | 1184 | 1192 | 9 | DRLNEVAKN | 6.5e-05 | 55 |
| HLA-A*68:02 | 1 | 1211 | 1220 | 10 | KWPWYIWLGF | 6.5e-05 | 42 |
| HLA-B*08:01 | 1 | 1213 | 1221 | 9 | PWYIWLGFI | 6.5e-05 | 55 |
| HLA-B*07:02 | 1 | 1219 | 1228 | 10 | GFIAGLIAIV | 6.5e-05 | 37 |
| HLA-B*35:01 | 1 | 1227 | 1235 | 9 | IVMVTIMLC | 6.5e-05 | 28 |
| HLA-A*30:01 | 1 | 1243 | 1251 | 9 | CLKGCCSCG | 6.5e-05 | 65 |
| HLA-B*40:01 | 1 | 1258 | 1266 | 9 | EDDSEPVLK | 6.5e-05 | 23 |
| HLA-A*03:01 | 1 | 1260 | 1268 | 9 | DSEPVLKGV | 6.5e-05 | 34 |
| HLA-A*68:01 | 1 | 14 | 22 | 9 | QCVNLTTRT | 6.4e-05 | 36 |
| HLA-A*02:01 | 1 | 18 | 26 | 9 | LTTRTQLPP | 6.4e-05 | 39 |
| HLA-A*02:03 | 1 | 70 | 78 | 9 | VSGTNGTKR | 6.4e-05 | 42 |
| HLA-B*40:01 | 1 | 89 | 97 | 9 | GVYFASTEK | 6.4e-05 | 23 |
| HLA-A*26:01 | 1 | 96 | 105 | 10 | EKSNIIRGWI | 6.4e-05 | 34 |
| HLA-A*32:01 | 1 | 99 | 107 | 9 | NIIRGWIFG | 6.4e-05 | 30 |
| HLA-A*32:01 | 1 | 102 | 111 | 10 | RGWIFGTTLT | 6.4e-05 | 30 |
| HLA-A*24:02 | 1 | 103 | 112 | 10 | GWIFGTTLDS | 6.4e-05 | 24 |
| HLA-B*08:01 | 1 | 106 | 114 | 9 | FGTTLDSKT | 6.4e-05 | 55 |
| HLA-A*31:01 | 1 | 107 | 116 | 10 | GTTLDSKTQS | 6.4e-05 | 41 |
| HLA-A*30:01 | 1 | 116 | 125 | 10 | SLLIIVNNATN | 6.4e-05 | 66 |
| HLA-A*30:02 | 1 | 125 | 134 | 10 | NVVIKVCEFQ | 6.4e-05 | 63 |
| HLA-A*68:01 | 1 | 129 | 137 | 9 | KVCEFQFCN | 6.4e-05 | 36 |
| HLA-A*31:01 | 1 | 134 | 142 | 9 | QFCNDPFLG | 6.4e-05 | 41 |
| HLA-A*02:03 | 1 | 141 | 150 | 10 | LGVYYHKNNK | 6.4e-05 | 42 |
| HLA-A*01:01 | 1 | 143 | 151 | 9 | VYYHKNNKS | 6.4e-05 | 57 |
| HLA-B*44:03 | 1 | 150 | 158 | 9 | KSWMSEFR | 6.4e-05 | 26 |
| HLA-A*33:01 | 1 | 152 | 161 | 10 | WMESEFRVYS | 6.4e-05 | 42 |
| HLA-A*31:01 | 1 | 154 | 162 | 9 | ESEFRVYSS | 6.4e-05 | 41 |
| HLA-B*44:03 | 1 | 158 | 166 | 9 | RVYSSANNC | 6.4e-05 | 26 |
| HLA-B*51:01 | 1 | 176 | 184 | 9 | LMDELGKQG | 6.4e-05 | 49 |
| HLA-A*68:01 | 1 | 181 | 189 | 9 | GKQGNFKNL | 6.4e-05 | 36 |
| HLA-A*68:02 | 1 | 216 | 225 | 10 | LPQGFSALEP | 6.4e-05 | 42 |
| HLA-A*30:01 | 1 | 220 | 228 | 9 | FSALEPLVD | 6.4e-05 | 66 |
| HLA-B*57:01 | 1 | 223 | 231 | 9 | LEPLVDLPI | 6.4e-05 | 55 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*15:01 | 1 | 239 | 247 | 9 | QTLALHRS | 6.4e-05 | 40 |
| HLA-B*15:01 | 1 | 241 | 250 | 10 | LLALHRSYLT | 6.4e-05 | 40 |
| HLA-B*58:01 | 1 | 248 | 256 | 9 | YLTPGDSSS | 6.4e-05 | 43 |
| HLA-A*03:01 | 1 | 258 | 267 | 10 | WTAGAAAYV | 6.4e-05 | 34 |
| HLA-B*44:02 | 1 | 278 | 286 | 9 | KYNENGTIT | 6.4e-05 | 28 |
| HLA-A*68:02 | 1 | 288 | 297 | 10 | AVDCALDPLS | 6.4e-05 | 42 |
| HLA-B*57:01 | 1 | 289 | 298 | 10 | VDCALDPLSE | 6.4e-05 | 55 |
| HLA-B*53:01 | 1 | 290 | 298 | 9 | DCALDPLSE | 6.4e-05 | 27 |
| HLA-B*44:03 | 1 | 291 | 300 | 10 | CALDPLSETK | 6.4e-05 | 26 |
| HLA-A*68:01 | 1 | 329 | 337 | 9 | FPNITNLCP | 6.4e-05 | 36 |
| HLA-B*53:01 | 1 | 370 | 379 | 10 | NSASFSTFKC | 6.4e-05 | 27 |
| HLA-A*68:02 | 1 | 372 | 381 | 10 | ASFSTFKCYG | 6.4e-05 | 42 |
| HLA-A*02:01 | 1 | 375 | 383 | 9 | STFKCYGVS | 6.4e-05 | 39 |
| HLA-B*58:01 | 1 | 387 | 395 | 9 | LNDLCFTNV | 6.4e-05 | 43 |
| HLA-A*11:01 | 1 | 393 | 402 | 10 | TNVYADSFVI | 6.4e-05 | 25 |
| HLA-B*08:01 | 1 | 426 | 434 | 9 | PDDFTGCVI | 6.4e-05 | 55 |
| HLA-A*30:02 | 1 | 437 | 446 | 10 | NSNNLDSKVG | 6.4e-05 | 63 |
| HLA-A*30:02 | 1 | 438 | 446 | 9 | SNNLDSKVG | 6.4e-05 | 63 |
| HLA-A*11:01 | 1 | 447 | 456 | 10 | GNYNLYRLF | 6.4e-05 | 25 |
| HLA-B*51:01 | 1 | 450 | 458 | 9 | NYLYRFRK | 6.4e-05 | 49 |
| HLA-A*02:01 | 1 | 473 | 482 | 10 | YQAGSTPCNG | 6.4e-05 | 39 |
| HLA-A*03:01 | 1 | 475 | 483 | 9 | AGSTPCNGV | 6.4e-05 | 34 |
| HLA-A*31:01 | 1 | 499 | 507 | 9 | PTNGVGYQP | 6.4e-05 | 41 |
| HLA-A*03:01 | 1 | 515 | 524 | 10 | FELLHAPATV | 6.4e-05 | 34 |
| HLA-B*51:01 | 1 | 534 | 543 | 10 | VKNKCVNFN | 6.4e-05 | 49 |
| HLA-B*57:01 | 1 | 543 | 551 | 9 | FNGLTGTGV | 6.4e-05 | 55 |
| HLA-A*02:03 | 1 | 562 | 571 | 10 | FQQFGRDIAD | 6.4e-05 | 42 |
| HLA-B*53:01 | 1 | 567 | 576 | 10 | RDIADTTDAV | 6.4e-05 | 27 |
| HLA-A*23:01 | 1 | 568 | 576 | 9 | DIADTTDAV | 6.4e-05 | 25 |
| HLA-B*44:02 | 1 | 568 | 577 | 10 | DIADTTDAVR | 6.4e-05 | 28 |
| HLA-B*44:02 | 1 | 570 | 579 | 10 | ADTTDAVRDP | 6.4e-05 | 28 |
| HLA-B*35:01 | 1 | 571 | 579 | 9 | DTTDAVRDP | 6.4e-05 | 28 |
| HLA-B*40:01 | 1 | 573 | 581 | 9 | TDAVRDPQT | 6.4e-05 | 23 |
| HLA-B*57:01 | 1 | 578 | 587 | 10 | DPQTLIILDI | 6.4e-05 | 55 |
| HLA-B*15:01 | 1 | 581 | 590 | 10 | TLEILDITPC | 6.4e-05 | 40 |
| HLA-A*24:02 | 1 | 589 | 598 | 10 | PCSFVGVSVI | 6.4e-05 | 24 |
| HLA-A*11:01 | 1 | 595 | 604 | 10 | VSVITPGTNT | 6.4e-05 | 25 |
| HLA-A*33:01 | 1 | 599 | 608 | 10 | TPGTNTSNQV | 6.4e-05 | 42 |
| HLA-B*07:02 | 1 | 600 | 608 | 9 | PGTNTSNQV | 6.4e-05 | 37 |
| HLA-A*26:01 | 1 | 609 | 618 | 10 | AVLYQDVNCT | 6.4e-05 | 34 |
| HLA-B*08:01 | 1 | 622 | 631 | 10 | VAIHADQLTP | 6.4e-05 | 55 |
| HLA-B*44:02 | 1 | 637 | 645 | 9 | STGSNVFQT | 6.4e-05 | 28 |
| HLA-A*23:01 | 1 | 660 | 668 | 9 | YECDIPIGA | 6.4e-05 | 25 |
| HLA-B*08:01 | 1 | 696 | 704 | 9 | TMSLGAENS | 6.4e-05 | 55 |
| HLA-B*35:01 | 1 | 703 | 712 | 10 | NSVAYSNNSI | 6.4e-05 | 28 |
| HLA-A*02:03 | 1 | 715 | 723 | 9 | PTNFTISVT | 6.4e-05 | 42 |
| HLA-A*02:06 | 1 | 716 | 725 | 10 | TNFTISVTE | 6.4e-05 | 50 |
| HLA-B*44:02 | 1 | 722 | 731 | 10 | VTEILPVSM | 6.4e-05 | 28 |
| HLA-A*30:02 | 1 | 727 | 735 | 9 | LPVSMTKTS | 6.4e-05 | 63 |
| HLA-B*57:01 | 1 | 762 | 771 | 10 | QLNRALTGIA | 6.4e-05 | 55 |
| HLA-B*35:01 | 1 | 764 | 773 | 10 | NRALTGIAVE | 6.4e-05 | 28 |
| HLA-A*02:03 | 1 | 771 | 780 | 10 | AVEQDKNTQE | 6.4e-05 | 42 |
| HLA-B*08:01 | 1 | 775 | 784 | 10 | DKNTQEVFAQ | 6.4e-05 | 55 |
| HLA-B*44:03 | 1 | 776 | 785 | 10 | KNTQEVFAQV | 6.4e-05 | 26 |
| HLA-A*02:06 | 1 | 779 | 787 | 9 | QEVFAQVKQ | 6.4e-05 | 50 |
| HLA-A*68:01 | 1 | 786 | 794 | 9 | KQIYKTPPI | 6.4e-05 | 36 |
| HLA-B*08:01 | 1 | 787 | 796 | 10 | QIYKTPPIKD | 6.4e-05 | 55 |
| HLA-A*02:06 | 1 | 792 | 800 | 9 | PPIKDFGGF | 6.4e-05 | 50 |
| HLA-B*44:03 | 1 | 793 | 802 | 10 | PIKDFGGFNF | 6.4e-05 | 26 |
| HLA-A*23:01 | 1 | 795 | 804 | 10 | KDFGGFNFSQ | 6.4e-05 | 25 |
| HLA-B*51:01 | 1 | 795 | 803 | 9 | KDFGGFNFS | 6.4e-05 | 49 |
| HLA-B*44:03 | 1 | 796 | 805 | 10 | DFGGFNFSQI | 6.4e-05 | 26 |
| HLA-A*31:01 | 1 | 798 | 807 | 10 | GGFNFSQILP | 6.4e-05 | 41 |
| HLA-A*23:01 | 1 | 809 | 818 | 10 | PSKPSKRSFI | 6.4e-05 | 25 |
| HLA-B*57:01 | 1 | 810 | 818 | 9 | SKPSKRSFI | 6.4e-05 | 55 |
| HLA-B*40:01 | 1 | 827 | 835 | 9 | TLADAGFIK | 6.4e-05 | 23 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*68:01 | 1 | 830 | 838 | 9 | DAGFIKQYG | 6.4e-05 | 36 |
| HLA-A*68:02 | 1 | 836 | 844 | 9 | QYGDCLGDI | 6.4e-05 | 42 |
| HLA-A*30:02 | 1 | 837 | 846 | 10 | YGDCLGDIAA | 6.4e-05 | 63 |
| HLA-B*35:01 | 1 | 837 | 846 | 10 | YGDCLGDIAA | 6.4e-05 | 28 |
| HLA-A*33:01 | 1 | 842 | 850 | 9 | GDIAARDLI | 6.4e-05 | 42 |
| HLA-B*07:02 | 1 | 844 | 853 | 10 | IAARDLICAQ | 6.4e-05 | 37 |
| HLA-B*07:02 | 1 | 864 | 872 | 9 | LLTDEMIAQ | 6.4e-05 | 37 |
| HLA-B*58:01 | 1 | 864 | 872 | 9 | LLTDEMIAQ | 6.4e-05 | 43 |
| HLA-A*30:01 | 1 | 866 | 874 | 9 | TDEMIAQYT | 6.4e-05 | 66 |
| HLA-A*31:01 | 1 | 881 | 889 | 9 | TITSGWTFG | 6.4e-05 | 41 |
| HLA-B*07:02 | 1 | 906 | 915 | 10 | FNGIGVTQNV | 6.4e-05 | 37 |
| HLA-B*40:01 | 1 | 914 | 923 | 10 | NVLYENQKLI | 6.4e-05 | 23 |
| HLA-A*11:01 | 1 | 926 | 934 | 9 | QFNSAIGKI | 6.4e-05 | 25 |
| HLA-B*57:01 | 1 | 926 | 935 | 10 | QFNSAIGKIQ | 6.4e-05 | 55 |
| HLA-A*26:01 | 1 | 928 | 937 | 10 | NSAIGKIQDS | 6.4e-05 | 34 |
| HLA-A*03:01 | 1 | 930 | 939 | 10 | AIGKIQDSLS | 6.4e-05 | 34 |
| HLA-A*02:06 | 1 | 931 | 940 | 10 | IGKIQDSLSS | 6.4e-05 | 50 |
| HLA-B*57:01 | 1 | 931 | 939 | 9 | IGKIQDSLS | 6.4e-05 | 55 |
| HLA-A*26:01 | 1 | 938 | 947 | 10 | LSSTASALGK | 6.4e-05 | 34 |
| HLA-A*01:01 | 1 | 952 | 960 | 9 | VNQNQAALN | 6.4e-05 | 57 |
| HLA-A*31:01 | 1 | 963 | 972 | 10 | VKQLSSNFGA | 6.4e-05 | 41 |
| HLA-A*31:01 | 1 | 973 | 981 | 9 | ISSVLNDIL | 6.4e-05 | 41 |
| HLA-A*02:01 | 1 | 974 | 982 | 9 | SSVLNDILS | 6.4e-05 | 39 |
| HLA-B*51:01 | 1 | 982 | 990 | 9 | SRLDKVEAE | 6.4e-05 | 49 |
| HLA-A*32:01 | 1 | 996 | 1005 | 10 | LITGRLQSLQ | 6.4e-05 | 30 |
| HLA-B*40:01 | 1 | 1000 | 1009 | 10 | RLQSLQTYVT | 6.4e-05 | 23 |
| HLA-A*33:01 | 1 | 1004 | 1013 | 10 | LQTYVTQQLI | 6.4e-05 | 42 |
| HLA-B*51:01 | 1 | 1014 | 1023 | 10 | RAAEIRASAN | 6.4e-05 | 49 |
| HLA-B*51:01 | 1 | 1038 | 1047 | 10 | KRVDFCGKGY | 6.4e-05 | 49 |
| HLA-A*24:02 | 1 | 1058 | 1067 | 10 | HGVVFLHVTY | 6.4e-05 | 24 |
| HLA-B*15:01 | 1 | 1061 | 1070 | 10 | VFLHVTYVPA | 6.4e-05 | 40 |
| HLA-A*68:01 | 1 | 1063 | 1071 | 9 | LHVTVVPAQ | 6.4e-05 | 36 |
| HLA-B*44:03 | 1 | 1075 | 1083 | 9 | FTTAPAICH | 6.4e-05 | 26 |
| HLA-B*08:01 | 1 | 1102 | 1111 | 10 | WFVTQRNFYE | 6.4e-05 | 55 |
| HLA-A*31:01 | 1 | 1115 | 1123 | 9 | ITTDNTFVS | 6.4e-05 | 41 |
| HLA-B*35:01 | 1 | 1120 | 1128 | 9 | TFVSGNCDV | 6.4e-05 | 28 |
| HLA-A*02:03 | 1 | 1122 | 1130 | 9 | VSGNCDVVI | 6.4e-05 | 42 |
| HLA-A*02:06 | 1 | 1127 | 1135 | 9 | DVVIGIVNN | 6.4e-05 | 50 |
| HLA-B*44:03 | 1 | 1153 | 1162 | 10 | DKYFKNHTSP | 6.4e-05 | 26 |
| HLA-B*08:01 | 1 | 1158 | 1167 | 10 | NHTSPDVDLG | 6.4e-05 | 55 |
| HLA-B*57:01 | 1 | 1158 | 1166 | 9 | NHTSPDVDL | 6.4e-05 | 55 |
| HLA-A*31:01 | 1 | 1173 | 1182 | 10 | NASVNNIQKE | 6.4e-05 | 41 |
| HLA-A*68:02 | 1 | 1183 | 1191 | 9 | IDRLNEVAK | 6.4e-05 | 42 |
| HLA-A*01:01 | 1 | 1186 | 1194 | 9 | LNEVAKNLN | 6.4e-05 | 57 |
| HLA-A*68:01 | 1 | 1187 | 1195 | 9 | NEVAKNLNE | 6.4e-05 | 36 |
| HLA-B*53:01 | 1 | 1195 | 1204 | 10 | ESLIDLQELG | 6.4e-05 | 27 |
| HLA-B*07:02 | 1 | 1198 | 1206 | 9 | IDLQELGKY | 6.4e-05 | 37 |
| HLA-B*08:01 | 1 | 1202 | 1211 | 10 | ELGKYEQYIK | 6.4e-05 | 55 |
| HLA-B*40:01 | 1 | 1216 | 1224 | 9 | IWLGFIAGL | 6.4e-05 | 23 |
| HLA-B*35:01 | 1 | 1259 | 1267 | 9 | DDSEPVLKG | 6.4e-05 | 28 |
| HLA-B*58:01 | 1 | 9 | 18 | 10 | PLVSSQCVNL | 6.3e-05 | 43 |
| HLA-A*01:01 | 1 | 67 | 76 | 10 | AIHVSGTNGT | 6.3e-05 | 58 |
| HLA-A*03:01 | 1 | 67 | 76 | 10 | AIHVSGTNGT | 6.3e-05 | 34 |
| HLA-A*26:01 | 1 | 89 | 98 | 10 | GVYFASTEKS | 6.3e-05 | 35 |
| HLA-A*32:01 | 1 | 90 | 98 | 9 | VYFASTEKS | 6.3e-05 | 31 |
| HLA-A*26:01 | 1 | 94 | 103 | 10 | STEKSNIIRG | 6.3e-05 | 35 |
| HLA-A*03:01 | 1 | 96 | 104 | 9 | EKSNIIRGW | 6.3e-05 | 34 |
| HLA-B*08:01 | 1 | 99 | 107 | 9 | NIIRGWIFG | 6.3e-05 | 55 |
| HLA-B*58:01 | 1 | 99 | 107 | 9 | NIIRGWIFG | 6.3e-05 | 43 |
| HLA-B*53:01 | 1 | 126 | 134 | 9 | VVIKVCEFQ | 6.3e-05 | 28 |
| HLA-A*01:01 | 1 | 146 | 155 | 10 | HKNKSWMES | 6.3e-05 | 58 |
| HLA-A*23:01 | 1 | 163 | 171 | 9 | ANNCTFEYV | 6.3e-05 | 25 |
| HLA-A*01:01 | 1 | 165 | 173 | 9 | NCTFEYVSQ | 6.3e-05 | 58 |
| HLA-A*32:01 | 1 | 198 | 207 | 10 | DGYFKIYSKH | 6.3e-05 | 31 |
| HLA-B*51:01 | 1 | 199 | 207 | 9 | GYFKIYSKH | 6.3e-05 | 49 |
| HLA-B*35:01 | 1 | 213 | 222 | 10 | VRDLPQGFSA | 6.3e-05 | 29 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-A*30:01 | 1 | 228 | 236 | 9 | DLPIGINIT | 6.3e-05 | 66 |
| HLA-B*35:01 | 1 | 231 | 239 | 9 | IGINITRFQ | 6.3e-05 | 29 |
| HLA-A*02:03 | 1 | 237 | 245 | 9 | RFQTLALH | 6.3e-05 | 42 |
| HLA-B*40:01 | 1 | 240 | 249 | 10 | TLLALHRSYL | 6.3e-05 | 23 |
| HLA-A*32:01 | 1 | 246 | 254 | 9 | RSYLTPGDS | 6.3e-05 | 31 |
| HLA-A*33:01 | 1 | 248 | 256 | 9 | YLTPGDSSS | 6.3e-05 | 43 |
| HLA-A*01:01 | 1 | 252 | 261 | 10 | GDSSSGWTAG | 6.3e-05 | 58 |
| HLA-A*31:01 | 1 | 252 | 260 | 9 | GDSSSGWTA | 6.3e-05 | 41 |
| HLA-B*35:01 | 1 | 255 | 263 | 9 | SSGWTAGAA | 6.3e-05 | 29 |
| HLA-A*30:02 | 1 | 275 | 283 | 9 | FLLKYNENG | 6.3e-05 | 64 |
| HLA-B*44:02 | 1 | 291 | 299 | 9 | CALDPLSET | 6.3e-05 | 28 |
| HLA-B*08:01 | 1 | 295 | 304 | 10 | PLSETKCTLK | 6.3e-05 | 55 |
| HLA-A*31:01 | 1 | 322 | 330 | 9 | PTESIVRFP | 6.3e-05 | 41 |
| HLA-B*15:01 | 1 | 323 | 332 | 10 | TESIVRFPNI | 6.3e-05 | 40 |
| HLA-B*40:01 | 1 | 336 | 344 | 9 | CPFGEVFN | 6.3e-05 | 23 |
| HLA-A*24:02 | 1 | 342 | 351 | 10 | FNATRFASVY | 6.3e-05 | 24 |
| HLA-B*40:01 | 1 | 354 | 362 | 9 | NRKRISNCV | 6.3e-05 | 23 |
| HLA-B*44:03 | 1 | 360 | 368 | 9 | NCVADYSVL | 6.3e-05 | 26 |
| HLA-A*26:01 | 1 | 368 | 376 | 9 | LYNSASFST | 6.3e-05 | 35 |
| HLA-B*07:02 | 1 | 375 | 383 | 9 | STFKCYGVS | 6.3e-05 | 37 |
| HLA-A*02:06 | 1 | 380 | 389 | 10 | YGVSPTKLND | 6.3e-05 | 50 |
| HLA-B*35:01 | 1 | 381 | 390 | 10 | GVSPTKLNDL | 6.3e-05 | 29 |
| HLA-A*26:01 | 1 | 398 | 406 | 9 | DSFVIRGDE | 6.3e-05 | 35 |
| HLA-A*32:01 | 1 | 407 | 416 | 10 | VRQIAPGQTG | 6.3e-05 | 31 |
| HLA-B*08:01 | 1 | 412 | 421 | 10 | PGQTGKIADY | 6.3e-05 | 55 |
| HLA-A*02:06 | 1 | 423 | 431 | 9 | YKLPDDFTG | 6.3e-05 | 50 |
| HLA-A*03:01 | 1 | 432 | 441 | 10 | CVIAWNSNNL | 6.3e-05 | 34 |
| HLA-A*30:01 | 1 | 433 | 442 | 10 | VIAWNSNNLD | 6.3e-05 | 66 |
| HLA-B*44:02 | 1 | 436 | 444 | 9 | WNSNNLDSK | 6.3e-05 | 28 |
| HLA-A*11:01 | 1 | 437 | 445 | 9 | NSNNLDSKV | 6.3e-05 | 25 |
| HLA-A*23:01 | 1 | 441 | 449 | 9 | LDSKVGNGY | 6.3e-05 | 25 |
| HLA-A*02:01 | 1 | 448 | 456 | 9 | NYNLYRLF | 6.3e-05 | 39 |
| HLA-A*02:06 | 1 | 451 | 460 | 10 | YLYRLFRRKSN | 6.3e-05 | 50 |
| HLA-A*02:03 | 1 | 468 | 477 | 10 | ISTEIQAGS | 6.3e-05 | 42 |
| HLA-A*11:01 | 1 | 469 | 477 | 9 | STEIQAGS | 6.3e-05 | 25 |
| HLA-A*26:01 | 1 | 474 | 483 | 10 | QAGSTPCNGV | 6.3e-05 | 35 |
| HLA-B*51:01 | 1 | 492 | 501 | 10 | LQSYGFQPTN | 6.3e-05 | 49 |
| HLA-A*31:01 | 1 | 508 | 516 | 9 | YRVVLSFE | 6.3e-05 | 41 |
| HLA-A*26:01 | 1 | 515 | 523 | 9 | FELLHAPAT | 6.3e-05 | 35 |
| HLA-A*30:02 | 1 | 515 | 523 | 9 | FELLHAPAT | 6.3e-05 | 64 |
| HLA-B*08:01 | 1 | 523 | 532 | 10 | TVCGPKKSTN | 6.3e-05 | 55 |
| HLA-B*44:03 | 1 | 542 | 551 | 10 | NFNGLTGTGV | 6.3e-05 | 26 |
| HLA-A*02:01 | 1 | 549 | 558 | 10 | TGVLTESNKK | 6.3e-05 | 39 |
| HLA-A*02:03 | 1 | 558 | 566 | 9 | KFLPFQFG | 6.3e-05 | 42 |
| HLA-B*57:01 | 1 | 571 | 580 | 10 | DTTDAVRDPQ | 6.3e-05 | 55 |
| HLA-B*57:01 | 1 | 579 | 587 | 9 | PQTLEILDI | 6.3e-05 | 55 |
| HLA-B*15:01 | 1 | 588 | 597 | 10 | TPCSFGGVS | 6.3e-05 | 40 |
| HLA-B*44:03 | 1 | 606 | 615 | 10 | NQVAVLYQDV | 6.3e-05 | 26 |
| HLA-A*32:01 | 1 | 618 | 626 | 9 | TEVPVAIHA | 6.3e-05 | 31 |
| HLA-A*33:01 | 1 | 653 | 661 | 9 | AEHVNSYE | 6.3e-05 | 43 |
| HLA-B*57:01 | 1 | 656 | 664 | 9 | VNSYECDI | 6.3e-05 | 55 |
| HLA-B*51:01 | 1 | 657 | 665 | 9 | NNSYECDIP | 6.3e-05 | 49 |
| HLA-A*02:03 | 1 | 658 | 667 | 10 | NSYECDIPIG | 6.3e-05 | 42 |
| HLA-A*30:02 | 1 | 664 | 673 | 10 | IPIGAGICAS | 6.3e-05 | 64 |
| HLA-B*57:01 | 1 | 669 | 678 | 10 | GICASYQTQT | 6.3e-05 | 55 |
| HLA-A*02:03 | 1 | 690 | 698 | 9 | QSIIAYTMS | 6.3e-05 | 42 |
| HLA-A*11:01 | 1 | 695 | 704 | 10 | YTMSLGAENS | 6.3e-05 | 25 |
| HLA-A*01:01 | 1 | 700 | 709 | 10 | GAENSVAYS | 6.3e-05 | 58 |
| HLA-B*08:01 | 1 | 701 | 709 | 9 | AENSVAYS | 6.3e-05 | 55 |
| HLA-A*68:01 | 1 | 715 | 724 | 10 | PTNFTISVTT | 6.3e-05 | 36 |
| HLA-A*01:01 | 1 | 716 | 725 | 10 | TNFTISVTTE | 6.3e-05 | 58 |
| HLA-B*57:01 | 1 | 726 | 734 | 9 | ILPVSMTKT | 6.3e-05 | 55 |
| HLA-A*68:01 | 1 | 728 | 736 | 9 | PVSMTKTSV | 6.3e-05 | 36 |
| HLA-A*03:01 | 1 | 750 | 759 | 10 | SNLLLQYGSF | 6.3e-05 | 34 |
| HLA-B*40:01 | 1 | 776 | 785 | 10 | KNTQEVFAQV | 6.3e-05 | 23 |
| HLA-B*51:01 | 1 | 792 | 801 | 10 | PPIKDFGGFN | 6.3e-05 | 49 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*02:01 | 1 | 793 | 802 | 10 | PIKDFGGFNF | 6.3e-05 | 39 |
| HLA-A*33:01 | 1 | 804 | 812 | 9 | QILPDPSKP | 6.3e-05 | 43 |
| HLA-A*03:01 | 1 | 813 | 822 | 10 | SKRSFIEDLL | 6.3e-05 | 34 |
| HLA-A*11:01 | 1 | 814 | 822 | 9 | KRSFIEDLL | 6.3e-05 | 25 |
| HLA-B*08:01 | 1 | 816 | 825 | 10 | SFIEDLLFNK | 6.3e-05 | 55 |
| HLA-B*08:01 | 1 | 837 | 845 | 9 | YGDCLGDIA | 6.3e-05 | 55 |
| HLA-A*02:06 | 1 | 838 | 846 | 9 | GDCLGDIAA | 6.3e-05 | 50 |
| HLA-B*58:01 | 1 | 838 | 847 | 10 | GDCLGDIAAR | 6.3e-05 | 43 |
| HLA-B*08:01 | 1 | 841 | 850 | 10 | LGDIAARDLI | 6.3e-05 | 55 |
| HLA-A*02:01 | 1 | 847 | 855 | 9 | RDLICAQKF | 6.3e-05 | 39 |
| HLA-B*07:02 | 1 | 853 | 862 | 10 | QKFNGLTVLP | 6.3e-05 | 37 |
| HLA-A*68:02 | 1 | 854 | 863 | 10 | KFNGLTVLPP | 6.3e-05 | 42 |
| HLA-B*53:01 | 1 | 854 | 862 | 9 | KFNGLTVLP | 6.3e-05 | 28 |
| HLA-A*33:01 | 1 | 867 | 875 | 9 | DEMAIQYTS | 6.3e-05 | 43 |
| HLA-A*03:01 | 1 | 871 | 880 | 10 | AQYTSALLAG | 6.3e-05 | 34 |
| HLA-A*01:01 | 1 | 878 | 887 | 10 | LAGTITSGWT | 6.3e-05 | 58 |
| HLA-B*15:01 | 1 | 884 | 893 | 10 | SGWTFGAGAA | 6.3e-05 | 40 |
| HLA-A*11:01 | 1 | 889 | 898 | 10 | GAGAALQIPF | 6.3e-05 | 25 |
| HLA-A*32:01 | 1 | 895 | 903 | 9 | QIPFAMQMA | 6.3e-05 | 31 |
| HLA-B*44:03 | 1 | 896 | 905 | 10 | IPFAMQMAYR | 6.3e-05 | 26 |
| HLA-A*03:01 | 1 | 899 | 907 | 9 | AMQMAYRFN | 6.3e-05 | 34 |
| HLA-B*53:01 | 1 | 913 | 921 | 9 | QNVLYENQK | 6.3e-05 | 28 |
| HLA-B*44:03 | 1 | 916 | 925 | 10 | LYENQKLIAN | 6.3e-05 | 26 |
| HLA-B*40:01 | 1 | 919 | 928 | 10 | NQKLIANQFN | 6.3e-05 | 23 |
| HLA-B*40:01 | 1 | 933 | 941 | 9 | KIQDSLST | 6.3e-05 | 23 |
| HLA-A*31:01 | 1 | 948 | 957 | 10 | LQDVVNQNAQ | 6.3e-05 | 41 |
| HLA-B*57:01 | 1 | 963 | 972 | 10 | VKQLSSNFGA | 6.3e-05 | 55 |
| HLA-B*53:01 | 1 | 964 | 972 | 9 | KQLSSNFGA | 6.3e-05 | 28 |
| HLA-B*44:02 | 1 | 974 | 983 | 10 | SSVLNDILSR | 6.3e-05 | 28 |
| HLA-B*35:01 | 1 | 992 | 1001 | 10 | QIDRLITGRL | 6.3e-05 | 29 |
| HLA-B*53:01 | 1 | 1001 | 1009 | 9 | LQSLQTYVT | 6.3e-05 | 28 |
| HLA-A*31:01 | 1 | 1018 | 1026 | 9 | IRASANLAA | 6.3e-05 | 41 |
| HLA-B*44:03 | 1 | 1041 | 1050 | 10 | DFCGKGYHLM | 6.3e-05 | 26 |
| HLA-B*53:01 | 1 | 1057 | 1065 | 9 | PHGVVFLHV | 6.3e-05 | 28 |
| HLA-B*40:01 | 1 | 1061 | 1069 | 9 | VFLHVTVYP | 6.3e-05 | 23 |
| HLA-B*51:01 | 1 | 1061 | 1070 | 10 | VFLHVTVVPA | 6.3e-05 | 49 |
| HLA-B*40:01 | 1 | 1068 | 1076 | 9 | VPAQEKNFT | 6.3e-05 | 23 |
| HLA-A*03:01 | 1 | 1071 | 1079 | 9 | QEKNFTTAP | 6.3e-05 | 34 |
| HLA-B*08:01 | 1 | 1080 | 1088 | 9 | AICHDGKAH | 6.3e-05 | 55 |
| HLA-A*02:01 | 1 | 1081 | 1090 | 10 | ICHDGKAHFP | 6.3e-05 | 39 |
| HLA-B*44:02 | 1 | 1088 | 1096 | 9 | HFPREGVFN | 6.3e-05 | 28 |
| HLA-B*44:02 | 1 | 1129 | 1137 | 9 | VIGIVNNTV | 6.3e-05 | 28 |
| HLA-B*57:01 | 1 | 1131 | 1140 | 10 | GIVNNTVYDP | 6.3e-05 | 55 |
| HLA-B*07:02 | 1 | 1135 | 1143 | 9 | NTVYDPLQP | 6.3e-05 | 37 |
| HLA-B*58:01 | 1 | 1143 | 1152 | 10 | PELDSFKEEL | 6.3e-05 | 43 |
| HLA-A*26:01 | 1 | 1173 | 1182 | 10 | NASVVNIQKE | 6.3e-05 | 35 |
| HLA-B*51:01 | 1 | 1182 | 1191 | 10 | IDRLNEVAK | 6.3e-05 | 49 |
| HLA-A*02:06 | 1 | 1183 | 1191 | 9 | IDRLNEVAK | 6.3e-05 | 50 |
| HLA-A*31:01 | 1 | 1198 | 1207 | 10 | IDLQELGKYE | 6.3e-05 | 41 |
| HLA-A*32:01 | 1 | 1204 | 1213 | 10 | GKYEQYIKWP | 6.3e-05 | 31 |
| HLA-A*03:01 | 1 | 1206 | 1214 | 9 | YEQYIKWPW | 6.3e-05 | 34 |
| HLA-A*31:01 | 1 | 1215 | 1223 | 9 | YIWLGFIAI | 6.3e-05 | 41 |
| HLA-A*30:01 | 1 | 1217 | 1225 | 9 | WLGFIAGLI | 6.3e-05 | 66 |
| HLA-B*57:01 | 1 | 1223 | 1231 | 9 | GLIAIVMVT | 6.3e-05 | 55 |
| HLA-A*03:01 | 1 | 1225 | 1233 | 9 | IAIVMVTIM | 6.3e-05 | 34 |
| HLA-A*30:01 | 1 | 1241 | 1250 | 10 | CSCCLKGCCSC | 6.3e-05 | 66 |
| HLA-A*02:01 | 1 | 1263 | 1271 | 9 | PVLKGVKLH | 6.3e-05 | 39 |
| HLA-B*44:03 | 1 | 3 | 11 | 9 | VFLVLLPLV | 6.2e-05 | 26 |
| HLA-B*07:02 | 1 | 5 | 14 | 10 | LVLLPLVSSQ | 6.2e-05 | 38 |
| HLA-B*08:01 | 1 | 14 | 22 | 9 | QCVNLTRT | 6.2e-05 | 56 |
| HLA-B*40:01 | 1 | 21 | 30 | 10 | RTQLPPAYTN | 6.2e-05 | 24 |
| HLA-B*07:02 | 1 | 22 | 31 | 10 | TQLPPAYTNS | 6.2e-05 | 38 |
| HLA-A*26:01 | 1 | 24 | 33 | 10 | LPPAYTNSFT | 6.2e-05 | 35 |
| HLA-A*02:06 | 1 | 32 | 40 | 9 | FTRGVYYPD | 6.2e-05 | 50 |
| HLA-A*32:01 | 1 | 36 | 45 | 10 | VYYPDKVFRS | 6.2e-05 | 31 |
| HLA-B*53:01 | 1 | 37 | 45 | 9 | YYPDKVFRS | 6.2e-05 | 28 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-B*08:01 | 1 | 41 | 50 | 10 | KVFRSSVLHS | 6.2e-05 | 56 |
| HLA-B*53:01 | 1 | 53 | 61 | 9 | DLFLPFFSN | 6.2e-05 | 28 |
| HLA-A*02:03 | 1 | 56 | 65 | 10 | LPFFSNVTWF | 6.2e-05 | 43 |
| HLA-B*44:02 | 1 | 79 | 87 | 9 | FDPVLPFN | 6.2e-05 | 28 |
| HLA-B*08:01 | 1 | 82 | 90 | 9 | PVLPFNDGV | 6.2e-05 | 56 |
| HLA-B*44:02 | 1 | 82 | 91 | 10 | PVLPFNDGVY | 6.2e-05 | 28 |
| HLA-B*40:01 | 1 | 83 | 91 | 9 | VLPFNDGVY | 6.2e-05 | 24 |
| HLA-B*44:02 | 1 | 93 | 102 | 10 | ASTEKSNIIR | 6.2e-05 | 28 |
| HLA-A*11:01 | 1 | 111 | 119 | 9 | DSKTQSLLI | 6.2e-05 | 25 |
| HLA-B*35:01 | 1 | 112 | 120 | 9 | SKTQSLIIV | 6.2e-05 | 29 |
| HLA-A*26:01 | 1 | 120 | 128 | 9 | VNNATNVVI | 6.2e-05 | 35 |
| HLA-A*24:02 | 1 | 136 | 145 | 10 | CNDPFLGVYY | 6.2e-05 | 24 |
| HLA-A*24:02 | 1 | 155 | 163 | 9 | SEFRVYSSA | 6.2e-05 | 24 |
| HLA-A*03:01 | 1 | 172 | 180 | 9 | SQPFMLDLE | 6.2e-05 | 34 |
| HLA-A*03:01 | 1 | 185 | 193 | 9 | NFKNLREFV | 6.2e-05 | 34 |
| HLA-B*15:01 | 1 | 196 | 205 | 10 | NIDGYFKIYS | 6.2e-05 | 40 |
| HLA-A*68:02 | 1 | 197 | 206 | 10 | IDGYFKIYSK | 6.2e-05 | 42 |
| HLA-B*51:01 | 1 | 203 | 211 | 9 | IYSKHTPIN | 6.2e-05 | 49 |
| HLA-A*11:01 | 1 | 206 | 215 | 10 | KHTPINLVRD | 6.2e-05 | 25 |
| HLA-A*11:01 | 1 | 211 | 220 | 10 | NLVRDLPQGF | 6.2e-05 | 25 |
| HLA-B*44:03 | 1 | 216 | 224 | 9 | LPQGFSALE | 6.2e-05 | 26 |
| HLA-B*35:01 | 1 | 219 | 227 | 9 | GFSALEPLV | 6.2e-05 | 29 |
| HLA-A*26:01 | 1 | 226 | 234 | 9 | LVDLPIGIN | 6.2e-05 | 35 |
| HLA-A*01:01 | 1 | 242 | 251 | 10 | LALHRSYLTP | 6.2e-05 | 58 |
| HLA-A*68:02 | 1 | 242 | 251 | 10 | LALHRSYLTP | 6.2e-05 | 42 |
| HLA-A*32:01 | 1 | 243 | 252 | 10 | ALHRSYLTPG | 6.2e-05 | 31 |
| HLA-B*07:02 | 1 | 248 | 257 | 10 | YLTPGDSSSG | 6.2e-05 | 38 |
| HLA-A*03:01 | 1 | 252 | 260 | 9 | GDSSSGWTA | 6.2e-05 | 34 |
| HLA-B*51:01 | 1 | 259 | 268 | 10 | TAGAAAYVYG | 6.2e-05 | 49 |
| HLA-A*26:01 | 1 | 264 | 272 | 9 | AYYVGYLQP | 6.2e-05 | 35 |
| HLA-A*68:01 | 1 | 271 | 280 | 10 | QPRTFLLKYN | 6.2e-05 | 37 |
| HLA-A*68:01 | 1 | 283 | 291 | 9 | GTITDAVDC | 6.2e-05 | 37 |
| HLA-B*08:01 | 1 | 304 | 313 | 10 | KSFTVEKGIY | 6.2e-05 | 56 |
| HLA-A*24:02 | 1 | 310 | 319 | 10 | KGITYQTSNFR | 6.2e-05 | 24 |
| HLA-A*31:01 | 1 | 313 | 322 | 10 | YQTSNFRVQP | 6.2e-05 | 41 |
| HLA-B*07:02 | 1 | 313 | 322 | 10 | YQTSNFRVQP | 6.2e-05 | 38 |
| HLA-A*11:01 | 1 | 318 | 326 | 9 | FRVQPTESI | 6.2e-05 | 25 |
| HLA-A*23:01 | 1 | 342 | 351 | 10 | FNATRFASVY | 6.2e-05 | 25 |
| HLA-B*44:03 | 1 | 372 | 381 | 10 | ASFSTFKCYG | 6.2e-05 | 26 |
| HLA-B*15:01 | 1 | 376 | 384 | 9 | TFKCYGVSP | 6.2e-05 | 40 |
| HLA-B*08:01 | 1 | 405 | 414 | 10 | DEVQRQIAPGQ | 6.2e-05 | 56 |
| HLA-B*35:01 | 1 | 405 | 413 | 9 | DEVQRQIAPG | 6.2e-05 | 29 |
| HLA-A*02:03 | 1 | 406 | 414 | 9 | EVQRQIAPGQ | 6.2e-05 | 43 |
| HLA-A*23:01 | 1 | 409 | 417 | 9 | QIAPGQTGK | 6.2e-05 | 25 |
| HLA-A*02:06 | 1 | 413 | 422 | 10 | GQTGKIADYN | 6.2e-05 | 50 |
| HLA-B*57:01 | 1 | 421 | 430 | 10 | YNYKLPDDFT | 6.2e-05 | 55 |
| HLA-A*02:06 | 1 | 434 | 442 | 9 | IAWNSNLD | 6.2e-05 | 50 |
| HLA-A*02:01 | 1 | 457 | 466 | 10 | RKSNLKPFR | 6.2e-05 | 40 |
| HLA-A*68:02 | 1 | 457 | 466 | 10 | RKSNLKPFR | 6.2e-05 | 42 |
| HLA-A*32:01 | 1 | 473 | 481 | 9 | YQAGSTPCN | 6.2e-05 | 31 |
| HLA-A*02:01 | 1 | 491 | 500 | 10 | PLQSYGFQPT | 6.2e-05 | 40 |
| HLA-A*31:01 | 1 | 514 | 523 | 10 | SFELLHAPAT | 6.2e-05 | 41 |
| HLA-B*44:02 | 1 | 522 | 530 | 9 | ATVCGPKKS | 6.2e-05 | 28 |
| HLA-B*07:02 | 1 | 543 | 551 | 9 | FNGLTGTGV | 6.2e-05 | 38 |
| HLA-A*33:01 | 1 | 544 | 552 | 9 | NGLTGTGVL | 6.2e-05 | 43 |
| HLA-B*58:01 | 1 | 545 | 553 | 9 | GLTGTGVL | 6.2e-05 | 43 |
| HLA-A*32:01 | 1 | 554 | 563 | 10 | ESNKKFLPFQ | 6.2e-05 | 31 |
| HLA-B*53:01 | 1 | 559 | 567 | 9 | FLPFQFGR | 6.2e-05 | 28 |
| HLA-B*57:01 | 1 | 564 | 573 | 10 | QFGRDIADTT | 6.2e-05 | 55 |
| HLA-A*68:01 | 1 | 565 | 573 | 9 | FGRDIADTT | 6.2e-05 | 37 |
| HLA-A*02:03 | 1 | 567 | 575 | 9 | RDIADTTDA | 6.2e-05 | 43 |
| HLA-B*35:01 | 1 | 567 | 576 | 10 | RDIADTTDAV | 6.2e-05 | 29 |
| HLA-A*68:01 | 1 | 597 | 606 | 10 | VITPGTNTSN | 6.2e-05 | 37 |
| HLA-A*03:01 | 1 | 607 | 615 | 9 | QVAVLYQDV | 6.2e-05 | 34 |
| HLA-A*30:02 | 1 | 614 | 623 | 10 | DVNCTEVPVA | 6.2e-05 | 64 |
| HLA-B*40:01 | 1 | 615 | 624 | 10 | VNCTEVPVAI | 6.2e-05 | 24 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*32:01 | 1 | 629 | 637 | 9 | LTPTWRVYS | 6.2e-05 | 31 |
| HLA-A*02:01 | 1 | 630 | 638 | 9 | TPTWRVYST | 6.2e-05 | 40 |
| HLA-B*07:02 | 1 | 632 | 640 | 9 | TWRVYSTGS | 6.2e-05 | 38 |
| HLA-B*44:03 | 1 | 645 | 653 | 9 | TRAGCLIGA | 6.2e-05 | 26 |
| HLA-A*24:02 | 1 | 658 | 666 | 9 | NSYECDIPI | 6.2e-05 | 24 |
| HLA-A*68:01 | 1 | 678 | 687 | 10 | TNSPRRARSV | 6.2e-05 | 37 |
| HLA-A*33:01 | 1 | 685 | 694 | 10 | RSVASQSIIA | 6.2e-05 | 43 |
| HLA-B*40:01 | 1 | 690 | 699 | 10 | QSIIAYTMSL | 6.2e-05 | 24 |
| HLA-B*35:01 | 1 | 696 | 704 | 9 | TMSLGAENS | 6.2e-05 | 29 |
| HLA-B*44:02 | 1 | 705 | 713 | 9 | VAYSNNSIA | 6.2e-05 | 28 |
| HLA-A*68:01 | 1 | 706 | 714 | 9 | AYSNNSIAI | 6.2e-05 | 37 |
| HLA-B*58:01 | 1 | 709 | 717 | 9 | NNSIAIPTN | 6.2e-05 | 43 |
| HLA-A*32:01 | 1 | 719 | 728 | 10 | TISVTTEILP | 6.2e-05 | 31 |
| HLA-A*31:01 | 1 | 728 | 736 | 9 | PVSMTKTSV | 6.2e-05 | 41 |
| HLA-A*68:01 | 1 | 738 | 747 | 10 | CTMYICGDST | 6.2e-05 | 37 |
| HLA-A*33:01 | 1 | 753 | 761 | 9 | LLQYGSFCT | 6.2e-05 | 43 |
| HLA-A*02:01 | 1 | 769 | 778 | 10 | GIAVEQDKNT | 6.2e-05 | 40 |
| HLA-B*07:02 | 1 | 775 | 783 | 9 | DKNTQEVFA | 6.2e-05 | 38 |
| HLA-A*01:01 | 1 | 787 | 796 | 10 | QIYKTPPIKD | 6.2e-05 | 58 |
| HLA-A*02:06 | 1 | 796 | 805 | 10 | DFGGFNFSQI | 6.2e-05 | 50 |
| HLA-A*33:01 | 1 | 810 | 819 | 10 | SKPSKRFSFIE | 6.2e-05 | 43 |
| HLA-A*24:02 | 1 | 812 | 821 | 10 | PSKRFSFIEDL | 6.2e-05 | 24 |
| HLA-B*44:03 | 1 | 816 | 825 | 10 | SFIEDLLFNK | 6.2e-05 | 26 |
| HLA-B*44:02 | 1 | 821 | 829 | 9 | LLFNKVTLA | 6.2e-05 | 28 |
| HLA-B*53:01 | 1 | 841 | 850 | 10 | LGDIAARDLI | 6.2e-05 | 28 |
| HLA-A*02:01 | 1 | 842 | 851 | 10 | GDIAARDLIC | 6.2e-05 | 40 |
| HLA-B*44:03 | 1 | 847 | 856 | 10 | RDLICAQKFN | 6.2e-05 | 26 |
| HLA-A*02:01 | 1 | 853 | 862 | 10 | QKFNGLTVLP | 6.2e-05 | 40 |
| HLA-A*68:01 | 1 | 857 | 865 | 9 | GLTVLPPLL | 6.2e-05 | 37 |
| HLA-B*08:01 | 1 | 857 | 866 | 10 | GLTVLPPLLT | 6.2e-05 | 56 |
| HLA-B*15:01 | 1 | 857 | 866 | 10 | GLTVLPPLLT | 6.2e-05 | 40 |
| HLA-A*23:01 | 1 | 858 | 866 | 9 | LTVLPPLLT | 6.2e-05 | 25 |
| HLA-A*26:01 | 1 | 872 | 881 | 10 | QYTSALLAGT | 6.2e-05 | 35 |
| HLA-A*01:01 | 1 | 876 | 885 | 10 | ALLAGTITSG | 6.2e-05 | 58 |
| HLA-B*44:03 | 1 | 884 | 892 | 9 | SGWTFGAGA | 6.2e-05 | 26 |
| HLA-A*01:01 | 1 | 898 | 907 | 10 | FAMQMAYRFN | 6.2e-05 | 58 |
| HLA-A*33:01 | 1 | 910 | 918 | 9 | GVTQNVLYE | 6.2e-05 | 43 |
| HLA-A*68:01 | 1 | 915 | 924 | 10 | VLYENQKLIA | 6.2e-05 | 37 |
| HLA-B*51:01 | 1 | 931 | 939 | 9 | IGKIQDSLS | 6.2e-05 | 49 |
| HLA-B*58:01 | 1 | 931 | 939 | 9 | IGKIQDSLS | 6.2e-05 | 43 |
| HLA-B*08:01 | 1 | 932 | 941 | 10 | GKIQDSLSST | 6.2e-05 | 56 |
| HLA-B*08:01 | 1 | 941 | 949 | 9 | TASALGKLQ | 6.2e-05 | 56 |
| HLA-B*57:01 | 1 | 945 | 953 | 9 | LGKLQDVVN | 6.2e-05 | 55 |
| HLA-B*44:03 | 1 | 946 | 954 | 9 | GKLQDVVNQ | 6.2e-05 | 26 |
| HLA-A*30:02 | 1 | 960 | 969 | 10 | NTLVKQLSSN | 6.2e-05 | 64 |
| HLA-B*57:01 | 1 | 980 | 988 | 9 | ILSRLDKVE | 6.2e-05 | 55 |
| HLA-B*08:01 | 1 | 993 | 1002 | 10 | IDRLITGRLQ | 6.2e-05 | 56 |
| HLA-A*33:01 | 1 | 1000 | 1009 | 10 | RLQSLQTYVT | 6.2e-05 | 43 |
| HLA-B*44:03 | 1 | 1002 | 1010 | 9 | QSLQTYVTQ | 6.2e-05 | 26 |
| HLA-B*07:02 | 1 | 1011 | 1019 | 9 | QLIRAAEIR | 6.2e-05 | 38 |
| HLA-B*44:02 | 1 | 1011 | 1019 | 9 | QLIRAAEIR | 6.2e-05 | 28 |
| HLA-A*23:01 | 1 | 1014 | 1022 | 9 | RAAEIRASA | 6.2e-05 | 25 |
| HLA-A*02:06 | 1 | 1031 | 1039 | 9 | ECVLGQSKR | 6.2e-05 | 50 |
| HLA-B*53:01 | 1 | 1031 | 1040 | 10 | ECVLGQSKRV | 6.2e-05 | 28 |
| HLA-A*03:01 | 1 | 1034 | 1042 | 9 | LGQSKRVDF | 6.2e-05 | 34 |
| HLA-A*01:01 | 1 | 1035 | 1043 | 9 | GQSKRVDFC | 6.2e-05 | 58 |
| HLA-A*30:02 | 1 | 1042 | 1051 | 10 | FCGKGYHLMS | 6.2e-05 | 64 |
| HLA-B*15:01 | 1 | 1056 | 1065 | 10 | APHGVVFLHV | 6.2e-05 | 40 |
| HLA-A*02:06 | 1 | 1063 | 1072 | 10 | LHVTYVPAQE | 6.2e-05 | 50 |
| HLA-B*15:01 | 1 | 1072 | 1081 | 10 | EKNFTTAPAI | 6.2e-05 | 40 |
| HLA-A*02:01 | 1 | 1098 | 1107 | 10 | NGTHWFVTQR | 6.2e-05 | 40 |
| HLA-A*26:01 | 1 | 1123 | 1132 | 10 | SGNCDVVIGI | 6.2e-05 | 35 |
| HLA-A*02:01 | 1 | 1131 | 1139 | 9 | GIVNNTVYD | 6.2e-05 | 40 |
| HLA-A*01:01 | 1 | 1142 | 1151 | 10 | QPELDSFKEE | 6.2e-05 | 58 |
| HLA-A*33:01 | 1 | 1142 | 1151 | 10 | QPELDSFKEE | 6.2e-05 | 43 |
| HLA-A*02:01 | 1 | 1146 | 1155 | 10 | DSFKEELDKY | 6.2e-05 | 40 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*02:01 | 1 | 1161 | 1169 | 9 | SPDVDLGLDI | 6.2e-05 | 40 |
| HLA-B*15:01 | 1 | 1168 | 1177 | 10 | DISGINASVV | 6.2e-05 | 40 |
| HLA-A*11:01 | 1 | 1174 | 1183 | 10 | ASVVNIQKEI | 6.2e-05 | 25 |
| HLA-B*53:01 | 1 | 1174 | 1183 | 10 | ASVVNIQKEI | 6.2e-05 | 28 |
| HLA-B*58:01 | 1 | 1177 | 1185 | 9 | VNIQKEIDR | 6.2e-05 | 43 |
| HLA-B*35:01 | 1 | 1196 | 1204 | 9 | SLIDLQELG | 6.2e-05 | 29 |
| HLA-B*40:01 | 1 | 1202 | 1210 | 9 | ELGKYEQYI | 6.2e-05 | 24 |
| HLA-A*68:02 | 1 | 1217 | 1226 | 10 | WLGFIAGLIA | 6.2e-05 | 42 |
| HLA-A*03:01 | 1 | 1220 | 1229 | 10 | FIAGLIAIVM | 6.2e-05 | 34 |
| HLA-A*03:01 | 1 | 1222 | 1230 | 9 | AGLIAIVMV | 6.2e-05 | 34 |
| HLA-B*51:01 | 1 | 1236 | 1244 | 9 | CMTSCCSCS | 6.2e-05 | 49 |
| HLA-A*30:01 | 1 | 1256 | 1265 | 10 | FDEDDSEPV | 6.2e-05 | 66 |
| HLA-B*57:01 | 1 | 1258 | 1266 | 9 | EDDSEPVLK | 6.2e-05 | 55 |
| HLA-A*02:06 | 1 | 1262 | 1271 | 10 | EPVLKGVK | 6.2e-05 | 50 |
| HLA-B*53:01 | 1 | 14 | 23 | 10 | QCVNLTRT | 6.1e-05 | 28 |
| HLA-A*24:02 | 1 | 15 | 24 | 10 | CVNLTRTQ | 6.1e-05 | 25 |
| HLA-B*07:02 | 1 | 17 | 25 | 9 | NLTRTQLP | 6.1e-05 | 38 |
| HLA-A*32:01 | 1 | 52 | 61 | 10 | QDLFLPFF | 6.1e-05 | 31 |
| HLA-B*07:02 | 1 | 53 | 62 | 10 | DLFLPFFSN | 6.1e-05 | 38 |
| HLA-B*44:02 | 1 | 53 | 62 | 10 | DLFLPFFSN | 6.1e-05 | 28 |
| HLA-A*33:01 | 1 | 76 | 85 | 10 | TKRFDNPV | 6.1e-05 | 43 |
| HLA-A*23:01 | 1 | 91 | 99 | 9 | YFASTEKSN | 6.1e-05 | 26 |
| HLA-A*02:01 | 1 | 93 | 102 | 10 | ASTEKSNI | 6.1e-05 | 40 |
| HLA-B*07:02 | 1 | 102 | 111 | 10 | RGWIFGTT | 6.1e-05 | 38 |
| HLA-A*02:06 | 1 | 107 | 115 | 9 | GTTLDSKT | 6.1e-05 | 50 |
| HLA-B*44:03 | 1 | 108 | 116 | 9 | TTLDSKTQ | 6.1e-05 | 26 |
| HLA-A*33:01 | 1 | 115 | 124 | 10 | QSLLIIVN | 6.1e-05 | 43 |
| HLA-A*68:01 | 1 | 120 | 128 | 9 | VNNATNVV | 6.1e-05 | 37 |
| HLA-B*44:03 | 1 | 121 | 130 | 10 | NNATNVV | 6.1e-05 | 26 |
| HLA-A*26:01 | 1 | 163 | 171 | 9 | ANNCTFEY | 6.1e-05 | 35 |
| HLA-A*01:01 | 1 | 174 | 183 | 10 | PFLMDLEG | 6.1e-05 | 58 |
| HLA-B*08:01 | 1 | 182 | 190 | 9 | KQGNFKNL | 6.1e-05 | 56 |
| HLA-A*03:01 | 1 | 188 | 197 | 10 | NLREFVFK | 6.1e-05 | 34 |
| HLA-B*44:02 | 1 | 194 | 203 | 10 | FKNIDGYF | 6.1e-05 | 28 |
| HLA-A*03:01 | 1 | 207 | 216 | 10 | HTPINLVR | 6.1e-05 | 34 |
| HLA-A*26:01 | 1 | 216 | 224 | 9 | LPQGFSAE | 6.1e-05 | 35 |
| HLA-B*08:01 | 1 | 227 | 236 | 10 | VDLPIGIN | 6.1e-05 | 56 |
| HLA-B*40:01 | 1 | 227 | 236 | 10 | VDLPIGIN | 6.1e-05 | 24 |
| HLA-B*53:01 | 1 | 242 | 251 | 10 | LALHRSYL | 6.1e-05 | 28 |
| HLA-B*57:01 | 1 | 247 | 256 | 10 | SYLTPGDS | 6.1e-05 | 55 |
| HLA-B*57:01 | 1 | 248 | 256 | 9 | YLTPGDSS | 6.1e-05 | 55 |
| HLA-A*30:02 | 1 | 251 | 260 | 10 | PGDSSSGW | 6.1e-05 | 64 |
| HLA-B*40:01 | 1 | 256 | 265 | 10 | SGWTAGAA | 6.1e-05 | 24 |
| HLA-A*03:01 | 1 | 261 | 270 | 10 | GAAAYVGY | 6.1e-05 | 34 |
| HLA-A*68:02 | 1 | 278 | 286 | 9 | KYNENGTIT | 6.1e-05 | 42 |
| HLA-B*44:03 | 1 | 285 | 293 | 9 | ITDAVDCAL | 6.1e-05 | 26 |
| HLA-A*33:01 | 1 | 297 | 305 | 9 | SETKCTLKS | 6.1e-05 | 43 |
| HLA-A*02:03 | 1 | 301 | 309 | 9 | CTLKSFTVE | 6.1e-05 | 43 |
| HLA-A*32:01 | 1 | 306 | 315 | 10 | FTVEKGIY | 6.1e-05 | 31 |
| HLA-A*30:01 | 1 | 308 | 317 | 10 | VEKGIYQTS | 6.1e-05 | 66 |
| HLA-B*51:01 | 1 | 310 | 319 | 10 | KGIYQTSN | 6.1e-05 | 49 |
| HLA-B*53:01 | 1 | 316 | 324 | 9 | SNFRVQPT | 6.1e-05 | 28 |
| HLA-A*24:02 | 1 | 317 | 325 | 9 | NFRVQPTES | 6.1e-05 | 25 |
| HLA-A*02:01 | 1 | 326 | 334 | 9 | IVRFPNITN | 6.1e-05 | 40 |
| HLA-A*02:06 | 1 | 353 | 361 | 9 | WNRKRISNC | 6.1e-05 | 50 |
| HLA-A*02:06 | 1 | 356 | 365 | 10 | KRISNCVAD | 6.1e-05 | 50 |
| HLA-A*11:01 | 1 | 357 | 366 | 10 | RISNCVADYS | 6.1e-05 | 26 |
| HLA-A*31:01 | 1 | 357 | 366 | 10 | RISNCVADYS | 6.1e-05 | 42 |
| HLA-A*03:01 | 1 | 365 | 374 | 10 | YSVLYNSASF | 6.1e-05 | 34 |
| HLA-A*11:01 | 1 | 368 | 376 | 9 | LYNSASFST | 6.1e-05 | 26 |
| HLA-B*53:01 | 1 | 369 | 378 | 10 | YNSASFSTFK | 6.1e-05 | 28 |
| HLA-A*24:02 | 1 | 370 | 378 | 9 | NSASFSTFK | 6.1e-05 | 25 |
| HLA-A*30:01 | 1 | 391 | 399 | 9 | CFTNVYADS | 6.1e-05 | 66 |
| HLA-A*26:01 | 1 | 411 | 419 | 9 | APGQTGKIA | 6.1e-05 | 35 |
| HLA-B*07:02 | 1 | 423 | 431 | 9 | YKLPDDFTG | 6.1e-05 | 38 |
| HLA-A*32:01 | 1 | 432 | 440 | 9 | CVIAWNSNN | 6.1e-05 | 31 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-A*02:01 | 1 | 440 | 448 | 9 | NLDSKVGGN | 6.1e-05 | 40 |
| HLA-A*02:01 | 1 | 455 | 463 | 9 | LFRKSNLKP | 6.1e-05 | 40 |
| HLA-B*40:01 | 1 | 459 | 468 | 10 | SNLKPFERDI | 6.1e-05 | 24 |
| HLA-A*33:01 | 1 | 483 | 492 | 10 | VEGFNCYFPL | 6.1e-05 | 43 |
| HLA-B*15:01 | 1 | 483 | 492 | 10 | VEGFNCYFPL | 6.1e-05 | 40 |
| HLA-A*68:02 | 1 | 484 | 493 | 10 | EGFNCYFPLQ | 6.1e-05 | 42 |
| HLA-A*31:01 | 1 | 492 | 500 | 9 | LQSYGFQPT | 6.1e-05 | 42 |
| HLA-A*02:01 | 1 | 499 | 507 | 9 | PTNGVGYQP | 6.1e-05 | 40 |
| HLA-B*40:01 | 1 | 502 | 511 | 10 | GVGYQPYRVV | 6.1e-05 | 24 |
| HLA-A*68:01 | 1 | 504 | 512 | 9 | GYQPYRVVV | 6.1e-05 | 37 |
| HLA-A*68:01 | 1 | 512 | 521 | 10 | VLSFELLHAP | 6.1e-05 | 37 |
| HLA-A*02:06 | 1 | 514 | 523 | 10 | SFELLHAPAT | 6.1e-05 | 50 |
| HLA-B*15:01 | 1 | 520 | 529 | 10 | APATVCGPKK | 6.1e-05 | 40 |
| HLA-B*53:01 | 1 | 523 | 531 | 9 | TVCGPKKST | 6.1e-05 | 28 |
| HLA-B*51:01 | 1 | 529 | 537 | 9 | KSTNLVKNK | 6.1e-05 | 49 |
| HLA-B*51:01 | 1 | 540 | 549 | 10 | NFNFNGLTGT | 6.1e-05 | 49 |
| HLA-B*53:01 | 1 | 540 | 548 | 9 | NFNFNGLTG | 6.1e-05 | 28 |
| HLA-A*33:01 | 1 | 551 | 560 | 10 | VLTESNKKFL | 6.1e-05 | 43 |
| HLA-B*53:01 | 1 | 551 | 560 | 10 | VLTESNKKFL | 6.1e-05 | 28 |
| HLA-B*51:01 | 1 | 555 | 563 | 9 | SNKKFLPFQ | 6.1e-05 | 49 |
| HLA-B*51:01 | 1 | 557 | 566 | 10 | KKFLPFQQFG | 6.1e-05 | 49 |
| HLA-A*68:01 | 1 | 558 | 566 | 9 | KFLPFQQFG | 6.1e-05 | 37 |
| HLA-B*51:01 | 1 | 564 | 573 | 10 | QFGRDIADTT | 6.1e-05 | 49 |
| HLA-A*11:01 | 1 | 568 | 576 | 9 | DIADTTDAV | 6.1e-05 | 26 |
| HLA-B*53:01 | 1 | 572 | 580 | 9 | TTDAVRDPQ | 6.1e-05 | 28 |
| HLA-B*08:01 | 1 | 598 | 607 | 10 | ITPGTNTSNQ | 6.1e-05 | 56 |
| HLA-B*44:02 | 1 | 613 | 621 | 9 | QDVNCTEVP | 6.1e-05 | 28 |
| HLA-B*44:03 | 1 | 613 | 621 | 9 | QDVNCTEVP | 6.1e-05 | 26 |
| HLA-A*33:01 | 1 | 636 | 645 | 10 | YSTGSNVFQT | 6.1e-05 | 43 |
| HLA-A*24:02 | 1 | 653 | 662 | 10 | AEHVNNSEYEC | 6.1e-05 | 25 |
| HLA-A*01:01 | 1 | 659 | 667 | 9 | SYECDIPIG | 6.1e-05 | 58 |
| HLA-A*03:01 | 1 | 666 | 675 | 10 | IGAGICASYQ | 6.1e-05 | 34 |
| HLA-B*35:01 | 1 | 666 | 675 | 10 | IGAGICASYQ | 6.1e-05 | 29 |
| HLA-B*51:01 | 1 | 674 | 683 | 10 | YQTQTNSPRR | 6.1e-05 | 49 |
| HLA-A*03:01 | 1 | 690 | 698 | 9 | QSIIAYTMS | 6.1e-05 | 34 |
| HLA-A*02:06 | 1 | 694 | 703 | 10 | AYTMSLGAEN | 6.1e-05 | 50 |
| HLA-A*02:01 | 1 | 709 | 718 | 10 | NNSIAIPTNF | 6.1e-05 | 40 |
| HLA-A*30:02 | 1 | 709 | 717 | 9 | NNSIAIPTN | 6.1e-05 | 64 |
| HLA-B*08:01 | 1 | 719 | 728 | 10 | TISVTTEILP | 6.1e-05 | 56 |
| HLA-B*44:02 | 1 | 727 | 736 | 10 | LPVSMTKTSV | 6.1e-05 | 28 |
| HLA-B*44:03 | 1 | 748 | 757 | 10 | ECSNLLLQYG | 6.1e-05 | 26 |
| HLA-A*01:01 | 1 | 752 | 761 | 10 | LLLQYGSFCT | 6.1e-05 | 58 |
| HLA-B*58:01 | 1 | 764 | 772 | 9 | NRALTGIAV | 6.1e-05 | 44 |
| HLA-B*07:02 | 1 | 772 | 780 | 9 | VEQDKNTQE | 6.1e-05 | 38 |
| HLA-A*23:01 | 1 | 778 | 786 | 9 | TQEVFAQVK | 6.1e-05 | 26 |
| HLA-B*35:01 | 1 | 783 | 791 | 9 | AQVKQIYKT | 6.1e-05 | 29 |
| HLA-B*53:01 | 1 | 783 | 791 | 9 | AQVKQIYKT | 6.1e-05 | 28 |
| HLA-A*31:01 | 1 | 784 | 793 | 10 | QVKQIYKTPP | 6.1e-05 | 42 |
| HLA-A*02:03 | 1 | 793 | 802 | 10 | PIKDFGGFNF | 6.1e-05 | 43 |
| HLA-A*31:01 | 1 | 796 | 805 | 10 | DFGGFNFSQI | 6.1e-05 | 42 |
| HLA-A*11:01 | 1 | 798 | 807 | 10 | GGFNFSQILP | 6.1e-05 | 26 |
| HLA-A*26:01 | 1 | 808 | 816 | 9 | DPSKPSKRS | 6.1e-05 | 35 |
| HLA-A*11:01 | 1 | 809 | 817 | 9 | PSKPSKRSF | 6.1e-05 | 26 |
| HLA-B*08:01 | 1 | 826 | 834 | 9 | VTLADAGFI | 6.1e-05 | 56 |
| HLA-B*40:01 | 1 | 828 | 836 | 9 | LADAGFIKQ | 6.1e-05 | 24 |
| HLA-B*07:02 | 1 | 839 | 847 | 9 | DCLGDIAAR | 6.1e-05 | 38 |
| HLA-A*02:03 | 1 | 841 | 849 | 9 | LGDIAARDL | 6.1e-05 | 43 |
| HLA-A*26:01 | 1 | 854 | 862 | 9 | KFNGLTVLP | 6.1e-05 | 35 |
| HLA-A*23:01 | 1 | 882 | 890 | 9 | ITSGWTFGA | 6.1e-05 | 26 |
| HLA-B*40:01 | 1 | 889 | 898 | 10 | GAGAALQIPF | 6.1e-05 | 24 |
| HLA-B*44:02 | 1 | 891 | 900 | 10 | GAALQIPFAM | 6.1e-05 | 28 |
| HLA-B*15:01 | 1 | 898 | 907 | 10 | FAMQMAYRFN | 6.1e-05 | 40 |
| HLA-A*02:06 | 1 | 916 | 924 | 9 | LYENQKLIA | 6.1e-05 | 50 |
| HLA-B*51:01 | 1 | 928 | 936 | 9 | NSAIGKIQD | 6.1e-05 | 49 |
| HLA-B*15:01 | 1 | 930 | 939 | 10 | AIGKIQDSLS | 6.1e-05 | 40 |
| HLA-B*07:02 | 1 | 940 | 949 | 10 | STASALGKLQ | 6.1e-05 | 38 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*03:01 | 1 | 953 | 961 | 9 | NQNAQALNT | 6.1e-05 | 34 |
| HLA-A*02:03 | 1 | 966 | 974 | 9 | LSSNFGAIS | 6.1e-05 | 43 |
| HLA-A*24:02 | 1 | 969 | 978 | 10 | NFGAISSVLN | 6.1e-05 | 25 |
| HLA-A*03:01 | 1 | 980 | 989 | 10 | ILSRLDKVEA | 6.1e-05 | 34 |
| HLA-B*07:02 | 1 | 986 | 995 | 10 | KVEAEVQIDR | 6.1e-05 | 38 |
| HLA-A*31:01 | 1 | 996 | 1005 | 10 | LITGRLQSLQ | 6.1e-05 | 42 |
| HLA-A*31:01 | 1 | 998 | 1006 | 9 | TGRLQSLQT | 6.1e-05 | 42 |
| HLA-B*08:01 | 1 | 1022 | 1031 | 10 | ANLAATKMSE | 6.1e-05 | 56 |
| HLA-B*07:02 | 1 | 1026 | 1035 | 10 | ATKMSECVLG | 6.1e-05 | 38 |
| HLA-A*02:06 | 1 | 1029 | 1038 | 10 | MSECVLGQSK | 6.1e-05 | 50 |
| HLA-B*53:01 | 1 | 1031 | 1039 | 9 | ECVLGQSKR | 6.1e-05 | 28 |
| HLA-A*26:01 | 1 | 1036 | 1045 | 10 | QSKRVDFCGK | 6.1e-05 | 35 |
| HLA-A*02:03 | 1 | 1039 | 1048 | 10 | RVDFCGKGYH | 6.1e-05 | 43 |
| HLA-A*32:01 | 1 | 1045 | 1054 | 10 | KGYHLMSPFQ | 6.1e-05 | 31 |
| HLA-A*02:01 | 1 | 1051 | 1059 | 9 | SFPQSAPHG | 6.1e-05 | 40 |
| HLA-A*03:01 | 1 | 1061 | 1070 | 10 | VFLHVTVVPA | 6.1e-05 | 34 |
| HLA-B*15:01 | 1 | 1085 | 1094 | 10 | GKAHFPREGV | 6.1e-05 | 40 |
| HLA-A*11:01 | 1 | 1088 | 1096 | 9 | HFPREGVVFV | 6.1e-05 | 26 |
| HLA-B*07:02 | 1 | 1105 | 1113 | 9 | TQRNFYEPQ | 6.1e-05 | 38 |
| HLA-A*33:01 | 1 | 1118 | 1126 | 9 | DNTFVSGNC | 6.1e-05 | 43 |
| HLA-B*57:01 | 1 | 1120 | 1129 | 10 | TFVSGNCDVV | 6.1e-05 | 55 |
| HLA-A*23:01 | 1 | 1129 | 1138 | 10 | VIGIVNNTVY | 6.1e-05 | 26 |
| HLA-A*01:01 | 1 | 1138 | 1146 | 9 | YDPLQPELD | 6.1e-05 | 58 |
| HLA-A*02:03 | 1 | 1146 | 1155 | 10 | DSFKEELDKY | 6.1e-05 | 43 |
| HLA-B*08:01 | 1 | 1148 | 1157 | 10 | FKEELDKYFK | 6.1e-05 | 56 |
| HLA-A*02:06 | 1 | 1163 | 1171 | 9 | DVDLGDISG | 6.1e-05 | 50 |
| HLA-B*40:01 | 1 | 1174 | 1183 | 10 | ASVVNIQKEI | 6.1e-05 | 24 |
| HLA-B*44:02 | 1 | 1174 | 1182 | 9 | ASVVNIQKE | 6.1e-05 | 28 |
| HLA-A*03:01 | 1 | 1180 | 1189 | 10 | QKEIDRLNEV | 6.1e-05 | 34 |
| HLA-A*02:01 | 1 | 1182 | 1191 | 10 | EIDRLNEVAK | 6.1e-05 | 40 |
| HLA-A*30:01 | 1 | 1184 | 1192 | 9 | DRLNEVAKN | 6.1e-05 | 66 |
| HLA-A*30:01 | 1 | 1186 | 1195 | 10 | LNEVAKNLNE | 6.1e-05 | 66 |
| HLA-A*30:02 | 1 | 1193 | 1201 | 9 | LNESLIDLQ | 6.1e-05 | 64 |
| HLA-A*23:01 | 1 | 1196 | 1204 | 9 | SLIDLQELG | 6.1e-05 | 26 |
| HLA-B*07:02 | 1 | 1200 | 1208 | 9 | LQELGKYEQ | 6.1e-05 | 38 |
| HLA-A*11:01 | 1 | 1207 | 1216 | 10 | EQYIKWPWYI | 6.1e-05 | 26 |
| HLA-A*33:01 | 1 | 1225 | 1234 | 10 | IATVMVTIML | 6.1e-05 | 43 |
| HLA-B*58:01 | 1 | 1 | 9 | 9 | MFVFLVLLP | 6e-05 | 44 |
| HLA-A*68:01 | 1 | 7 | 15 | 9 | LLPLVSSQC | 6e-05 | 37 |
| HLA-A*68:01 | 1 | 11 | 19 | 9 | VSSQCVNLT | 6e-05 | 37 |
| HLA-A*02:01 | 1 | 14 | 22 | 9 | QCVNLTRT | 6e-05 | 40 |
| HLA-A*33:01 | 1 | 14 | 23 | 10 | QCVNLTRTQ | 6e-05 | 43 |
| HLA-A*33:01 | 1 | 18 | 27 | 10 | LTTRTQLPPA | 6e-05 | 43 |
| HLA-B*15:01 | 1 | 18 | 26 | 9 | LTTRTQLPP | 6e-05 | 41 |
| HLA-B*07:02 | 1 | 22 | 30 | 9 | TQLPPAYTN | 6e-05 | 38 |
| HLA-B*57:01 | 1 | 40 | 48 | 9 | DKVFRSSVL | 6e-05 | 56 |
| HLA-A*68:02 | 1 | 43 | 52 | 10 | FRSSVLHSTQ | 6e-05 | 43 |
| HLA-B*08:01 | 1 | 45 | 53 | 9 | SSVLHSTQD | 6e-05 | 56 |
| HLA-A*68:01 | 1 | 48 | 56 | 9 | LHSTQDLFL | 6e-05 | 37 |
| HLA-A*02:01 | 1 | 61 | 69 | 9 | NVTWFHAIH | 6e-05 | 40 |
| HLA-B*53:01 | 1 | 68 | 77 | 10 | IHVSGTNGTK | 6e-05 | 28 |
| HLA-A*02:01 | 1 | 78 | 87 | 10 | RFDNPVLPFN | 6e-05 | 40 |
| HLA-B*35:01 | 1 | 85 | 93 | 9 | PFNDGVYFA | 6e-05 | 29 |
| HLA-B*57:01 | 1 | 86 | 94 | 9 | FNDGVYFAS | 6e-05 | 56 |
| HLA-B*58:01 | 1 | 88 | 97 | 10 | DGVYFASTEK | 6e-05 | 44 |
| HLA-A*33:01 | 1 | 112 | 120 | 9 | SKTQSLLIV | 6e-05 | 43 |
| HLA-A*01:01 | 1 | 125 | 134 | 10 | NVVIKVFCEQ | 6e-05 | 59 |
| HLA-A*68:02 | 1 | 125 | 134 | 10 | NVVIKVFCEQ | 6e-05 | 43 |
| HLA-B*57:01 | 1 | 133 | 142 | 10 | FQFCNDPFLG | 6e-05 | 56 |
| HLA-A*02:06 | 1 | 147 | 155 | 9 | KNNKSWMES | 6e-05 | 51 |
| HLA-A*02:01 | 1 | 159 | 168 | 10 | VYSSANNCTF | 6e-05 | 40 |
| HLA-B*58:01 | 1 | 165 | 173 | 9 | NCTFEYVSQ | 6e-05 | 44 |
| HLA-A*02:01 | 1 | 171 | 180 | 10 | VSQPFLMDLE | 6e-05 | 40 |
| HLA-A*02:03 | 1 | 172 | 181 | 10 | SQPFLMDLEG | 6e-05 | 43 |
| HLA-B*57:01 | 1 | 180 | 188 | 9 | EGKQGNFKN | 6e-05 | 56 |
| HLA-B*58:01 | 1 | 188 | 196 | 9 | NLREFVFKN | 6e-05 | 44 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|-------|----|
| HLA-A*30:01 | 1 | 215 | 224 | 10 | DLPQGFSALE | 6e-05 | 67 |
| HLA-B*07:02 | 1 | 218 | 227 | 10 | QGFSALEPLV | 6e-05 | 38 |
| HLA-A*26:01 | 1 | 221 | 230 | 10 | SALEPLVDLP | 6e-05 | 35 |
| HLA-A*11:01 | 1 | 222 | 230 | 9 | ALEPLVDLP | 6e-05 | 26 |
| HLA-B*58:01 | 1 | 226 | 234 | 9 | LVDLPIGIN | 6e-05 | 44 |
| HLA-B*44:03 | 1 | 227 | 236 | 10 | VDLPIGINIT | 6e-05 | 26 |
| HLA-A*33:01 | 1 | 231 | 240 | 10 | IGINITRFQT | 6e-05 | 43 |
| HLA-B*58:01 | 1 | 248 | 257 | 10 | YLTPGDSSSSG | 6e-05 | 44 |
| HLA-B*53:01 | 1 | 270 | 278 | 9 | LQPRTFLLK | 6e-05 | 28 |
| HLA-A*68:02 | 1 | 275 | 284 | 10 | FLLKYNENGT | 6e-05 | 43 |
| HLA-A*31:01 | 1 | 288 | 296 | 9 | AVDCALDPL | 6e-05 | 42 |
| HLA-A*33:01 | 1 | 299 | 308 | 10 | TKCTLKSFTV | 6e-05 | 43 |
| HLA-A*26:01 | 1 | 300 | 308 | 9 | KCTLKSFTV | 6e-05 | 35 |
| HLA-B*53:01 | 1 | 308 | 316 | 9 | VEKGIYQTS | 6e-05 | 28 |
| HLA-A*02:06 | 1 | 322 | 330 | 9 | PTESIVRFP | 6e-05 | 51 |
| HLA-B*53:01 | 1 | 340 | 349 | 10 | EVFNATRFAS | 6e-05 | 28 |
| HLA-B*51:01 | 1 | 348 | 356 | 9 | ASVYAWNRK | 6e-05 | 49 |
| HLA-A*33:01 | 1 | 352 | 360 | 9 | AWNRKRISN | 6e-05 | 43 |
| HLA-A*31:01 | 1 | 361 | 370 | 10 | CVADYSVLYN | 6e-05 | 42 |
| HLA-B*07:02 | 1 | 387 | 395 | 9 | LNDLCFTNV | 6e-05 | 38 |
| HLA-B*40:01 | 1 | 395 | 403 | 9 | VYADSFVIR | 6e-05 | 24 |
| HLA-A*68:01 | 1 | 396 | 404 | 9 | YADSFVIRG | 6e-05 | 37 |
| HLA-A*11:01 | 1 | 424 | 433 | 10 | KLPDDFTGCV | 6e-05 | 26 |
| HLA-A*31:01 | 1 | 427 | 436 | 10 | DDFTGCVIAW | 6e-05 | 42 |
| HLA-B*35:01 | 1 | 436 | 444 | 9 | WNSNNLDSK | 6e-05 | 29 |
| HLA-B*44:03 | 1 | 457 | 465 | 9 | RKSNLKPFE | 6e-05 | 26 |
| HLA-A*68:02 | 1 | 460 | 469 | 10 | NLKPFERDIS | 6e-05 | 43 |
| HLA-B*58:01 | 1 | 469 | 478 | 10 | STEIYQAGST | 6e-05 | 44 |
| HLA-B*35:01 | 1 | 512 | 520 | 9 | VLSFELLHA | 6e-05 | 29 |
| HLA-B*53:01 | 1 | 512 | 520 | 9 | VLSFELLHA | 6e-05 | 28 |
| HLA-B*44:03 | 1 | 513 | 521 | 9 | LSFELLHAP | 6e-05 | 26 |
| HLA-B*07:02 | 1 | 531 | 539 | 9 | TNLVKNKCV | 6e-05 | 38 |
| HLA-B*40:01 | 1 | 538 | 546 | 9 | CVNFNFNGL | 6e-05 | 24 |
| HLA-B*44:02 | 1 | 538 | 546 | 9 | CVNFNFNGL | 6e-05 | 28 |
| HLA-A*24:02 | 1 | 539 | 548 | 10 | VNFNFNGLTG | 6e-05 | 25 |
| HLA-A*26:01 | 1 | 563 | 572 | 10 | QQFGRDIADT | 6e-05 | 35 |
| HLA-A*30:02 | 1 | 569 | 578 | 10 | IADTTDAVRD | 6e-05 | 64 |
| HLA-B*15:01 | 1 | 572 | 580 | 9 | TTDAVRDPQ | 6e-05 | 41 |
| HLA-B*08:01 | 1 | 578 | 586 | 9 | DPQTLCHILD | 6e-05 | 56 |
| HLA-B*58:01 | 1 | 581 | 589 | 9 | TLEILDITP | 6e-05 | 44 |
| HLA-A*30:02 | 1 | 582 | 591 | 10 | LEILDITPCS | 6e-05 | 64 |
| HLA-B*15:01 | 1 | 590 | 599 | 10 | CSFGGVSUIT | 6e-05 | 41 |
| HLA-B*58:01 | 1 | 593 | 601 | 9 | GGVSVITPG | 6e-05 | 44 |
| HLA-B*51:01 | 1 | 605 | 613 | 9 | SNQVAVLYQ | 6e-05 | 49 |
| HLA-B*58:01 | 1 | 611 | 619 | 9 | LYQDVNCTE | 6e-05 | 44 |
| HLA-A*33:01 | 1 | 615 | 624 | 10 | VNCTEVPVAI | 6e-05 | 43 |
| HLA-B*08:01 | 1 | 619 | 628 | 10 | EVPVAIHADQ | 6e-05 | 56 |
| HLA-B*08:01 | 1 | 626 | 634 | 9 | ADQLTPTWR | 6e-05 | 56 |
| HLA-B*07:02 | 1 | 629 | 637 | 9 | LTPTWRVYS | 6e-05 | 38 |
| HLA-B*44:03 | 1 | 648 | 656 | 9 | GCLIGAHEV | 6e-05 | 26 |
| HLA-A*68:01 | 1 | 651 | 659 | 9 | IGAHEVNNS | 6e-05 | 37 |
| HLA-A*23:01 | 1 | 652 | 660 | 9 | GAHEVNNSY | 6e-05 | 26 |
| HLA-B*44:02 | 1 | 658 | 666 | 9 | NSYECDIPI | 6e-05 | 28 |
| HLA-B*51:01 | 1 | 662 | 671 | 10 | CDIPIGAGIC | 6e-05 | 49 |
| HLA-A*02:06 | 1 | 664 | 673 | 10 | IPIGAGICAS | 6e-05 | 51 |
| HLA-B*40:01 | 1 | 683 | 691 | 9 | RARVASQS | 6e-05 | 24 |
| HLA-A*11:01 | 1 | 684 | 692 | 9 | ARVASQSI | 6e-05 | 26 |
| HLA-B*08:01 | 1 | 703 | 711 | 9 | NSVAYSNNS | 6e-05 | 56 |
| HLA-A*31:01 | 1 | 720 | 729 | 10 | ISVTTEILPV | 6e-05 | 42 |
| HLA-A*68:01 | 1 | 734 | 743 | 10 | TSVDCTMYIC | 6e-05 | 37 |
| HLA-B*35:01 | 1 | 739 | 747 | 9 | TMYICGDST | 6e-05 | 29 |
| HLA-B*57:01 | 1 | 744 | 752 | 9 | GDSTECSNL | 6e-05 | 56 |
| HLA-A*23:01 | 1 | 745 | 754 | 10 | DSTECSNLLL | 6e-05 | 26 |
| HLA-B*53:01 | 1 | 747 | 755 | 9 | TECSNLLLQ | 6e-05 | 28 |
| HLA-A*01:01 | 1 | 750 | 758 | 9 | SNLLLQYGS | 6e-05 | 59 |
| HLA-A*01:01 | 1 | 751 | 760 | 10 | NLLLQYGSFC | 6e-05 | 59 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-B*08:01 | 1 | 765 | 774 | 10 | RALTGIAVEQ | 6e-05 | 56 |
| HLA-A*11:01 | 1 | 794 | 802 | 9 | IKDFGGFNF | 6e-05 | 26 |
| HLA-A*32:01 | 1 | 811 | 819 | 9 | KPSKRSFIE | 6e-05 | 31 |
| HLA-A*32:01 | 1 | 835 | 843 | 9 | KQYGDCLGD | 6e-05 | 31 |
| HLA-A*33:01 | 1 | 848 | 856 | 9 | DLICAQKFN | 6e-05 | 43 |
| HLA-A*68:01 | 1 | 853 | 862 | 10 | QKFNGLTVLP | 6e-05 | 37 |
| HLA-B*53:01 | 1 | 867 | 876 | 10 | DEMIAQYTS | 6e-05 | 28 |
| HLA-B*51:01 | 1 | 878 | 887 | 10 | LAGTITSGWT | 6e-05 | 49 |
| HLA-B*44:02 | 1 | 891 | 899 | 9 | GAALQIPFA | 6e-05 | 28 |
| HLA-B*44:02 | 1 | 894 | 903 | 10 | LQIPFAMQMA | 6e-05 | 28 |
| HLA-A*24:02 | 1 | 924 | 933 | 10 | ANQFNSAIGK | 6e-05 | 25 |
| HLA-B*08:01 | 1 | 927 | 935 | 9 | FNSAIGKIQ | 6e-05 | 56 |
| HLA-B*35:01 | 1 | 935 | 944 | 10 | QDLSSTASA | 6e-05 | 29 |
| HLA-A*68:01 | 1 | 945 | 954 | 10 | LGKLQDVVNO | 6e-05 | 37 |
| HLA-A*11:01 | 1 | 948 | 956 | 9 | LQDVVNQNA | 6e-05 | 26 |
| HLA-A*68:01 | 1 | 953 | 961 | 9 | NQNAQALNT | 6e-05 | 37 |
| HLA-A*24:02 | 1 | 972 | 981 | 10 | AISSVLNDIL | 6e-05 | 25 |
| HLA-B*53:01 | 1 | 982 | 991 | 10 | SRLDKVEAEV | 6e-05 | 28 |
| HLA-A*03:01 | 1 | 993 | 1001 | 9 | IDRLITGRL | 6e-05 | 35 |
| HLA-A*23:01 | 1 | 1001 | 1009 | 9 | LQSLQTYVT | 6e-05 | 26 |
| HLA-A*26:01 | 1 | 1002 | 1011 | 10 | QSLQTYVTQQ | 6e-05 | 35 |
| HLA-A*68:02 | 1 | 1008 | 1017 | 10 | VTQQLIRAAE | 6e-05 | 43 |
| HLA-B*08:01 | 1 | 1020 | 1028 | 9 | ASANLAATK | 6e-05 | 56 |
| HLA-A*02:06 | 1 | 1021 | 1030 | 10 | SANLAATKMS | 6e-05 | 51 |
| HLA-A*68:01 | 1 | 1025 | 1033 | 9 | AATKMSECV | 6e-05 | 37 |
| HLA-B*15:01 | 1 | 1033 | 1041 | 9 | VLGQSKRVD | 6e-05 | 41 |
| HLA-B*40:01 | 1 | 1055 | 1064 | 10 | SAPHGVVFLH | 6e-05 | 24 |
| HLA-B*07:02 | 1 | 1063 | 1071 | 9 | LHVTVVPAQ | 6e-05 | 38 |
| HLA-A*02:06 | 1 | 1068 | 1076 | 9 | VPAQEKFT | 6e-05 | 51 |
| HLA-A*26:01 | 1 | 1071 | 1080 | 10 | QEKNFTTAPA | 6e-05 | 35 |
| HLA-B*35:01 | 1 | 1100 | 1108 | 9 | THWVFTQRN | 6e-05 | 29 |
| HLA-B*44:03 | 1 | 1105 | 1113 | 9 | TQRNFYEPQ | 6e-05 | 26 |
| HLA-A*30:02 | 1 | 1110 | 1118 | 9 | YEPQIITTD | 6e-05 | 64 |
| HLA-B*07:02 | 1 | 1110 | 1118 | 9 | YEPQIITTD | 6e-05 | 38 |
| HLA-A*68:01 | 1 | 1114 | 1123 | 10 | IITTDNTFVS | 6e-05 | 37 |
| HLA-A*33:01 | 1 | 1121 | 1129 | 9 | FVSGNCDVV | 6e-05 | 43 |
| HLA-A*68:01 | 1 | 1133 | 1142 | 10 | VNNTVYDPLQ | 6e-05 | 37 |
| HLA-A*23:01 | 1 | 1150 | 1158 | 9 | EELDKYFKN | 6e-05 | 26 |
| HLA-B*53:01 | 1 | 1157 | 1166 | 10 | KNHTSPDVDL | 6e-05 | 28 |
| HLA-A*33:01 | 1 | 1167 | 1175 | 9 | GDISGINAS | 6e-05 | 43 |
| HLA-B*58:01 | 1 | 1182 | 1191 | 10 | EIDRLNEVAK | 6e-05 | 44 |
| HLA-A*03:01 | 1 | 1198 | 1207 | 10 | IDLQELGKYE | 6e-05 | 35 |
| HLA-A*02:03 | 1 | 1202 | 1211 | 10 | ELGKYEQYIK | 6e-05 | 43 |
| HLA-A*02:06 | 1 | 1203 | 1211 | 9 | LGKYEQYIK | 6e-05 | 51 |
| HLA-A*03:01 | 1 | 1205 | 1214 | 10 | KYEQYIKWPW | 6e-05 | 35 |
| HLA-A*11:01 | 1 | 1208 | 1217 | 10 | QYIKWPWYIW | 6e-05 | 26 |
| HLA-A*24:02 | 1 | 1212 | 1221 | 10 | WPWYIWLGFI | 6e-05 | 25 |
| HLA-B*51:01 | 1 | 1227 | 1236 | 10 | IVMVTIMLCC | 6e-05 | 49 |
| HLA-A*33:01 | 1 | 1259 | 1267 | 9 | DDSEPVLLKG | 6e-05 | 43 |
| HLA-B*44:03 | 1 | 1264 | 1273 | 10 | VLKGVKLHYT | 6e-05 | 26 |
| HLA-B*44:02 | 1 | 6 | 14 | 9 | VLLPLVSSQ | 5.9e-05 | 28 |
| HLA-B*44:03 | 1 | 6 | 14 | 9 | VLLPLVSSQ | 5.9e-05 | 27 |
| HLA-B*15:01 | 1 | 8 | 16 | 9 | LPLVSSQCV | 5.9e-05 | 41 |
| HLA-B*44:03 | 1 | 8 | 16 | 9 | LPLVSSQCV | 5.9e-05 | 27 |
| HLA-B*57:01 | 1 | 17 | 25 | 9 | NLTTRTQLP | 5.9e-05 | 56 |
| HLA-B*40:01 | 1 | 34 | 42 | 9 | RGVYYPDKV | 5.9e-05 | 24 |
| HLA-A*31:01 | 1 | 38 | 47 | 10 | YDPKVFRRSSV | 5.9e-05 | 42 |
| HLA-A*01:01 | 1 | 63 | 71 | 9 | TWFHAIHVS | 5.9e-05 | 59 |
| HLA-B*07:02 | 1 | 64 | 72 | 9 | WFHAIHVS | 5.9e-05 | 38 |
| HLA-A*33:01 | 1 | 66 | 74 | 9 | HAIHVSGTN | 5.9e-05 | 44 |
| HLA-B*15:01 | 1 | 66 | 75 | 10 | HAIHVSGTNG | 5.9e-05 | 41 |
| HLA-B*15:01 | 1 | 82 | 90 | 9 | PVLPFNDGV | 5.9e-05 | 41 |
| HLA-B*44:03 | 1 | 82 | 91 | 10 | PVLPFNDGVY | 5.9e-05 | 27 |
| HLA-A*03:01 | 1 | 95 | 104 | 10 | TEKSNIIRGW | 5.9e-05 | 35 |
| HLA-B*51:01 | 1 | 99 | 107 | 9 | NIIRGWIFG | 5.9e-05 | 50 |
| HLA-B*15:01 | 1 | 100 | 109 | 10 | IIRGWIFGTT | 5.9e-05 | 41 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*51:01 | 1 | 124 | 132 | 9 | TNVVIKVCE | 5.9e-05 | 50 |
| HLA-A*03:01 | 1 | 133 | 141 | 9 | FQFCNDPFL | 5.9e-05 | 35 |
| HLA-A*24:02 | 1 | 133 | 142 | 10 | FQFCNDPFLG | 5.9e-05 | 25 |
| HLA-B*40:01 | 1 | 148 | 157 | 10 | NNKSWMESEF | 5.9e-05 | 24 |
| HLA-A*31:01 | 1 | 157 | 166 | 10 | FRVYSSANNC | 5.9e-05 | 42 |
| HLA-A*30:01 | 1 | 179 | 188 | 10 | LEGKQGNFKN | 5.9e-05 | 67 |
| HLA-A*03:01 | 1 | 181 | 189 | 9 | GKQGNFKNL | 5.9e-05 | 35 |
| HLA-A*01:01 | 1 | 188 | 196 | 9 | NLREFVFKN | 5.9e-05 | 59 |
| HLA-B*44:02 | 1 | 198 | 207 | 10 | DGYFKIYSKH | 5.9e-05 | 28 |
| HLA-B*35:01 | 1 | 201 | 210 | 10 | FKIYSKHTPI | 5.9e-05 | 29 |
| HLA-A*02:06 | 1 | 208 | 217 | 10 | TPINLVRDLP | 5.9e-05 | 51 |
| HLA-A*11:01 | 1 | 232 | 241 | 10 | GINITRFQTL | 5.9e-05 | 26 |
| HLA-A*33:01 | 1 | 263 | 272 | 10 | AAYVGYLQP | 5.9e-05 | 44 |
| HLA-A*24:02 | 1 | 281 | 289 | 9 | ENGTITDAV | 5.9e-05 | 25 |
| HLA-B*08:01 | 1 | 293 | 302 | 10 | LDPLSEKCT | 5.9e-05 | 56 |
| HLA-A*01:01 | 1 | 300 | 309 | 10 | KCTLKSFTVE | 5.9e-05 | 59 |
| HLA-A*02:03 | 1 | 334 | 343 | 10 | NLCPFGEVFN | 5.9e-05 | 43 |
| HLA-B*44:02 | 1 | 336 | 344 | 9 | CPFGEVFNA | 5.9e-05 | 28 |
| HLA-A*03:01 | 1 | 346 | 354 | 9 | RFASVYAWN | 5.9e-05 | 35 |
| HLA-B*44:02 | 1 | 348 | 357 | 10 | ASVYAWNRKR | 5.9e-05 | 28 |
| HLA-B*57:01 | 1 | 354 | 362 | 9 | NRKRISNCV | 5.9e-05 | 56 |
| HLA-A*23:01 | 1 | 357 | 365 | 9 | RISNCVADY | 5.9e-05 | 26 |
| HLA-A*32:01 | 1 | 363 | 371 | 9 | ADYSVLYNS | 5.9e-05 | 31 |
| HLA-B*07:02 | 1 | 400 | 409 | 10 | FVIRGDEVRQ | 5.9e-05 | 38 |
| HLA-A*68:01 | 1 | 408 | 416 | 9 | RQIAPGQTG | 5.9e-05 | 37 |
| HLA-B*53:01 | 1 | 408 | 417 | 10 | RQIAPGQTGK | 5.9e-05 | 28 |
| HLA-A*02:03 | 1 | 416 | 424 | 9 | GKIADYNYK | 5.9e-05 | 43 |
| HLA-B*44:02 | 1 | 419 | 427 | 9 | ADYNYKLPD | 5.9e-05 | 28 |
| HLA-B*07:02 | 1 | 426 | 434 | 9 | PDDFTGCVI | 5.9e-05 | 38 |
| HLA-A*24:02 | 1 | 441 | 449 | 9 | LDSKVGNGY | 5.9e-05 | 25 |
| HLA-B*15:01 | 1 | 446 | 454 | 9 | GGNYNYLYR | 5.9e-05 | 41 |
| HLA-B*35:01 | 1 | 451 | 459 | 9 | YLYRFRKS | 5.9e-05 | 29 |
| HLA-A*02:03 | 1 | 483 | 492 | 10 | VEGFNCYFPL | 5.9e-05 | 43 |
| HLA-A*30:02 | 1 | 490 | 498 | 9 | FPLQSYGFQ | 5.9e-05 | 65 |
| HLA-B*51:01 | 1 | 491 | 499 | 9 | PLQSYGFQP | 5.9e-05 | 50 |
| HLA-B*57:01 | 1 | 497 | 506 | 10 | FQPTNGVGYQ | 5.9e-05 | 56 |
| HLA-A*02:01 | 1 | 501 | 509 | 9 | NGVGYPYR | 5.9e-05 | 40 |
| HLA-B*57:01 | 1 | 517 | 526 | 10 | LLHAPATVCG | 5.9e-05 | 56 |
| HLA-B*57:01 | 1 | 518 | 527 | 10 | LHAPATVCGP | 5.9e-05 | 56 |
| HLA-A*31:01 | 1 | 531 | 539 | 9 | TNLVKNKCV | 5.9e-05 | 42 |
| HLA-B*57:01 | 1 | 542 | 551 | 10 | NFNGLTGTGV | 5.9e-05 | 56 |
| HLA-B*40:01 | 1 | 556 | 564 | 9 | NKKFLPFQ | 5.9e-05 | 24 |
| HLA-A*30:02 | 1 | 560 | 569 | 10 | LPFQQFGRDI | 5.9e-05 | 65 |
| HLA-B*35:01 | 1 | 563 | 571 | 9 | QQFGRDIAD | 5.9e-05 | 29 |
| HLA-A*24:02 | 1 | 567 | 576 | 10 | RDIADTTDAV | 5.9e-05 | 25 |
| HLA-B*44:02 | 1 | 591 | 599 | 9 | SFGGVSUIT | 5.9e-05 | 28 |
| HLA-A*02:06 | 1 | 597 | 606 | 10 | VITPGTNTSN | 5.9e-05 | 51 |
| HLA-A*30:02 | 1 | 620 | 628 | 9 | VPVAIHADQ | 5.9e-05 | 65 |
| HLA-A*03:01 | 1 | 642 | 650 | 9 | VFQTRAGCL | 5.9e-05 | 35 |
| HLA-B*51:01 | 1 | 644 | 653 | 10 | QTRAGCLIGA | 5.9e-05 | 50 |
| HLA-A*02:06 | 1 | 646 | 654 | 9 | RAGCLIGAE | 5.9e-05 | 51 |
| HLA-A*68:01 | 1 | 654 | 662 | 9 | EHVNNSYEC | 5.9e-05 | 37 |
| HLA-A*26:01 | 1 | 655 | 664 | 10 | HVNNSYECDI | 5.9e-05 | 35 |
| HLA-B*08:01 | 1 | 661 | 669 | 9 | ECDIPIGAG | 5.9e-05 | 56 |
| HLA-A*68:02 | 1 | 662 | 671 | 10 | CDIPIGAGIC | 5.9e-05 | 43 |
| HLA-A*01:01 | 1 | 668 | 676 | 9 | AGICASYQT | 5.9e-05 | 59 |
| HLA-A*33:01 | 1 | 679 | 688 | 10 | NSPRRARSVA | 5.9e-05 | 44 |
| HLA-B*58:01 | 1 | 679 | 688 | 10 | NSPRRARSVA | 5.9e-05 | 44 |
| HLA-A*02:03 | 1 | 700 | 708 | 9 | GAENSVAYS | 5.9e-05 | 43 |
| HLA-B*08:01 | 1 | 712 | 721 | 10 | IAIPTNFTIS | 5.9e-05 | 56 |
| HLA-A*03:01 | 1 | 723 | 732 | 10 | TTEILPVSMT | 5.9e-05 | 35 |
| HLA-A*03:01 | 1 | 724 | 732 | 9 | TEILPVSMT | 5.9e-05 | 35 |
| HLA-B*58:01 | 1 | 726 | 734 | 9 | ILPVSMTKT | 5.9e-05 | 44 |
| HLA-B*15:01 | 1 | 729 | 737 | 9 | VSMTKTSVD | 5.9e-05 | 41 |
| HLA-B*40:01 | 1 | 732 | 741 | 10 | TKTSVDCTMY | 5.9e-05 | 24 |
| HLA-A*02:06 | 1 | 750 | 758 | 9 | SNLLLQYGS | 5.9e-05 | 51 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*68:01 | 1 | 750 | 759 | 10 | SNLLLQYGSF | 5.9e-05 | 37 |
| HLA-B*07:02 | 1 | 759 | 768 | 10 | FCTQLNRALT | 5.9e-05 | 38 |
| HLA-A*26:01 | 1 | 768 | 776 | 9 | TGIAVEQDK | 5.9e-05 | 35 |
| HLA-A*01:01 | 1 | 769 | 777 | 9 | GIAVEQDKN | 5.9e-05 | 59 |
| HLA-A*24:02 | 1 | 778 | 786 | 9 | TQEVFAQVK | 5.9e-05 | 25 |
| HLA-A*02:01 | 1 | 788 | 797 | 10 | IYKTPPIKDF | 5.9e-05 | 40 |
| HLA-A*26:01 | 1 | 795 | 803 | 9 | KDFGGFNFS | 5.9e-05 | 35 |
| HLA-B*07:02 | 1 | 796 | 805 | 10 | DFGGFNFSQI | 5.9e-05 | 38 |
| HLA-A*33:01 | 1 | 797 | 805 | 9 | FGGFNFSQI | 5.9e-05 | 44 |
| HLA-B*08:01 | 1 | 800 | 809 | 10 | FNFSQILPDP | 5.9e-05 | 56 |
| HLA-B*58:01 | 1 | 800 | 808 | 9 | FNFSQILPD | 5.9e-05 | 44 |
| HLA-B*35:01 | 1 | 803 | 812 | 10 | SQILPDPSPK | 5.9e-05 | 29 |
| HLA-B*44:02 | 1 | 827 | 836 | 10 | TLADAGFIKQ | 5.9e-05 | 28 |
| HLA-B*51:01 | 1 | 832 | 841 | 10 | GFIKQYGDCL | 5.9e-05 | 50 |
| HLA-A*01:01 | 1 | 835 | 844 | 10 | KQYGDCLGDI | 5.9e-05 | 59 |
| HLA-B*08:01 | 1 | 838 | 846 | 9 | GDCLGDIAA | 5.9e-05 | 56 |
| HLA-A*26:01 | 1 | 848 | 856 | 9 | DLICAQKFN | 5.9e-05 | 35 |
| HLA-A*23:01 | 1 | 849 | 858 | 10 | LICAQKFNGL | 5.9e-05 | 26 |
| HLA-A*31:01 | 1 | 874 | 882 | 9 | TSALLAGTI | 5.9e-05 | 42 |
| HLA-B*44:02 | 1 | 908 | 916 | 9 | GIGVTQNVL | 5.9e-05 | 28 |
| HLA-A*30:01 | 1 | 923 | 932 | 10 | IANQFNSAIG | 5.9e-05 | 67 |
| HLA-A*26:01 | 1 | 935 | 944 | 10 | QDLSSTASA | 5.9e-05 | 35 |
| HLA-B*15:01 | 1 | 938 | 947 | 10 | LSSTASALGK | 5.9e-05 | 41 |
| HLA-B*35:01 | 1 | 939 | 947 | 9 | SSTASALGK | 5.9e-05 | 29 |
| HLA-A*24:02 | 1 | 947 | 956 | 10 | KLQDVVNQNA | 5.9e-05 | 25 |
| HLA-A*26:01 | 1 | 964 | 973 | 10 | KQLSSNFGAI | 5.9e-05 | 35 |
| HLA-B*53:01 | 1 | 964 | 973 | 10 | KQLSSNFGAI | 5.9e-05 | 28 |
| HLA-A*11:01 | 1 | 981 | 989 | 9 | LSRLDKVEA | 5.9e-05 | 26 |
| HLA-B*44:02 | 1 | 984 | 992 | 9 | LDKVEAEVQ | 5.9e-05 | 28 |
| HLA-B*44:02 | 1 | 1005 | 1014 | 10 | QTYVTQQLIR | 5.9e-05 | 28 |
| HLA-A*24:02 | 1 | 1011 | 1019 | 9 | QLIRAAEIR | 5.9e-05 | 25 |
| HLA-B*07:02 | 1 | 1015 | 1023 | 9 | AAEIRASAN | 5.9e-05 | 38 |
| HLA-A*68:01 | 1 | 1018 | 1026 | 9 | IRASANLAA | 5.9e-05 | 37 |
| HLA-B*07:02 | 1 | 1018 | 1027 | 10 | IRASANLAAT | 5.9e-05 | 38 |
| HLA-A*32:01 | 1 | 1024 | 1032 | 9 | LAATKMSEC | 5.9e-05 | 31 |
| HLA-A*30:02 | 1 | 1035 | 1044 | 10 | GQSKRVDFCG | 5.9e-05 | 65 |
| HLA-A*02:03 | 1 | 1042 | 1051 | 10 | FCGKGYHLMS | 5.9e-05 | 43 |
| HLA-B*57:01 | 1 | 1043 | 1051 | 9 | CGKGYHLMS | 5.9e-05 | 56 |
| HLA-A*33:01 | 1 | 1049 | 1057 | 9 | LMSFPQSAP | 5.9e-05 | 44 |
| HLA-A*11:01 | 1 | 1060 | 1069 | 10 | VVFLHVTYVP | 5.9e-05 | 26 |
| HLA-B*58:01 | 1 | 1072 | 1081 | 10 | EKNFTTAPAI | 5.9e-05 | 44 |
| HLA-A*31:01 | 1 | 1073 | 1082 | 10 | KNFTTAPAIC | 5.9e-05 | 42 |
| HLA-B*44:03 | 1 | 1080 | 1088 | 9 | AICHDGKAH | 5.9e-05 | 27 |
| HLA-A*02:01 | 1 | 1082 | 1090 | 9 | CHDGKAHFP | 5.9e-05 | 40 |
| HLA-A*32:01 | 1 | 1098 | 1106 | 9 | NGTHWFVTQ | 5.9e-05 | 31 |
| HLA-B*40:01 | 1 | 1109 | 1118 | 10 | FYEPQIITTD | 5.9e-05 | 24 |
| HLA-A*24:02 | 1 | 1110 | 1118 | 9 | YEPQIITTD | 5.9e-05 | 25 |
| HLA-B*53:01 | 1 | 1112 | 1120 | 9 | PQIITTDNT | 5.9e-05 | 28 |
| HLA-A*26:01 | 1 | 1120 | 1129 | 10 | TFVSGNCDVV | 5.9e-05 | 35 |
| HLA-A*68:01 | 1 | 1134 | 1142 | 9 | NNTVYDPLQ | 5.9e-05 | 37 |
| HLA-A*68:01 | 1 | 1134 | 1143 | 10 | NNTVYDPLQP | 5.9e-05 | 37 |
| HLA-B*57:01 | 1 | 1141 | 1150 | 10 | LQPELDSFKE | 5.9e-05 | 56 |
| HLA-A*31:01 | 1 | 1148 | 1156 | 9 | FKEELDKYF | 5.9e-05 | 42 |
| HLA-A*33:01 | 1 | 1174 | 1183 | 10 | ASVVNIQKEI | 5.9e-05 | 44 |
| HLA-A*33:01 | 1 | 1187 | 1195 | 9 | NEVAKNLNE | 5.9e-05 | 44 |
| HLA-B*57:01 | 1 | 1192 | 1201 | 10 | NLNESLIDLQ | 5.9e-05 | 56 |
| HLA-A*31:01 | 1 | 1193 | 1201 | 9 | LNESLIDLQ | 5.9e-05 | 42 |
| HLA-A*03:01 | 1 | 1221 | 1229 | 9 | IAGLIAIVM | 5.9e-05 | 35 |
| HLA-A*26:01 | 1 | 1223 | 1231 | 9 | GLIAIVMVT | 5.9e-05 | 35 |
| HLA-B*44:02 | 1 | 1225 | 1233 | 9 | IAIVMVTIM | 5.9e-05 | 28 |
| HLA-A*23:01 | 1 | 1256 | 1264 | 9 | FDEDDSEPV | 5.9e-05 | 26 |
| HLA-A*30:02 | 1 | 1256 | 1264 | 9 | FDEDDSEPV | 5.9e-05 | 65 |
| HLA-B*57:01 | 1 | 1257 | 1266 | 10 | DEDDSEPVLK | 5.9e-05 | 56 |
| HLA-A*11:01 | 1 | 1260 | 1268 | 9 | DSEPVLKGV | 5.9e-05 | 26 |
| HLA-A*01:01 | 1 | 1 | 9 | 9 | MFVFLVLLP | 5.8e-05 | 59 |
| HLA-A*68:01 | 1 | 18 | 27 | 10 | LTRTQLPPA | 5.8e-05 | 37 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*02:06 | 1 | 25 | 34 | 10 | PPAYTNSFTR | 5.8e-05 | 51 |
| HLA-B*40:01 | 1 | 28 | 37 | 10 | YTNSFTRGVY | 5.8e-05 | 24 |
| HLA-A*33:01 | 1 | 51 | 60 | 10 | TQDLFLPFFS | 5.8e-05 | 44 |
| HLA-B*08:01 | 1 | 52 | 60 | 9 | QDLFLPFFS | 5.8e-05 | 57 |
| HLA-A*68:01 | 1 | 55 | 63 | 9 | FLPFFSNVT | 5.8e-05 | 37 |
| HLA-A*02:03 | 1 | 86 | 95 | 10 | FNDGVYFAST | 5.8e-05 | 44 |
| HLA-A*30:02 | 1 | 86 | 95 | 10 | FNDGVYFAST | 5.8e-05 | 65 |
| HLA-A*33:01 | 1 | 91 | 99 | 9 | YFASTEKSN | 5.8e-05 | 44 |
| HLA-A*01:01 | 1 | 99 | 107 | 9 | NIIRGWIFG | 5.8e-05 | 59 |
| HLA-A*23:01 | 1 | 103 | 112 | 10 | GWIFGTTLDS | 5.8e-05 | 26 |
| HLA-A*03:01 | 1 | 112 | 120 | 9 | SKTQSLIV | 5.8e-05 | 35 |
| HLA-A*31:01 | 1 | 114 | 122 | 9 | TQSLIVNN | 5.8e-05 | 42 |
| HLA-A*31:01 | 1 | 117 | 126 | 10 | LLIVNNATNV | 5.8e-05 | 42 |
| HLA-B*35:01 | 1 | 119 | 128 | 10 | IVNNATNVVI | 5.8e-05 | 29 |
| HLA-B*58:01 | 1 | 138 | 146 | 9 | DPFLGVYYH | 5.8e-05 | 44 |
| HLA-B*08:01 | 1 | 142 | 151 | 10 | GVYYHKNNKS | 5.8e-05 | 57 |
| HLA-A*24:02 | 1 | 145 | 154 | 10 | YHKNNKSWME | 5.8e-05 | 25 |
| HLA-B*08:01 | 1 | 155 | 164 | 10 | SEFRVYSSAN | 5.8e-05 | 57 |
| HLA-A*68:02 | 1 | 171 | 180 | 10 | VSQPFLMDLE | 5.8e-05 | 43 |
| HLA-A*02:01 | 1 | 181 | 190 | 10 | GKQGNFKNLR | 5.8e-05 | 41 |
| HLA-B*08:01 | 1 | 194 | 202 | 9 | FKNIDGYFK | 5.8e-05 | 57 |
| HLA-B*58:01 | 1 | 201 | 209 | 9 | FKIYSKHTP | 5.8e-05 | 44 |
| HLA-A*33:01 | 1 | 203 | 211 | 9 | IYSKHTPIN | 5.8e-05 | 44 |
| HLA-B*57:01 | 1 | 203 | 211 | 9 | IYSKHTPIN | 5.8e-05 | 56 |
| HLA-A*31:01 | 1 | 208 | 216 | 9 | TPINLVRDL | 5.8e-05 | 42 |
| HLA-B*44:03 | 1 | 208 | 217 | 10 | TPINLVRDLP | 5.8e-05 | 27 |
| HLA-B*57:01 | 1 | 211 | 219 | 9 | NLVRDLPQG | 5.8e-05 | 56 |
| HLA-B*57:01 | 1 | 216 | 224 | 9 | LPQGFSALE | 5.8e-05 | 56 |
| HLA-A*30:01 | 1 | 230 | 238 | 9 | PIGINITRF | 5.8e-05 | 67 |
| HLA-A*33:01 | 1 | 230 | 238 | 9 | PIGINITRF | 5.8e-05 | 44 |
| HLA-B*40:01 | 1 | 237 | 245 | 9 | RFQTLALH | 5.8e-05 | 24 |
| HLA-A*23:01 | 1 | 243 | 251 | 9 | ALHRSYLTP | 5.8e-05 | 26 |
| HLA-B*07:02 | 1 | 257 | 266 | 10 | GWTAGAAAYY | 5.8e-05 | 39 |
| HLA-A*03:01 | 1 | 273 | 282 | 10 | RTFLLKYNEN | 5.8e-05 | 35 |
| HLA-B*35:01 | 1 | 273 | 281 | 9 | RTFLLKYNE | 5.8e-05 | 29 |
| HLA-A*11:01 | 1 | 278 | 286 | 9 | KYNENGTIT | 5.8e-05 | 26 |
| HLA-A*01:01 | 1 | 282 | 291 | 10 | NGTITDAVDC | 5.8e-05 | 59 |
| HLA-A*24:02 | 1 | 292 | 301 | 10 | ALDPLSETKC | 5.8e-05 | 25 |
| HLA-B*07:02 | 1 | 316 | 324 | 9 | SNFRVQPTTE | 5.8e-05 | 39 |
| HLA-A*33:01 | 1 | 323 | 332 | 10 | TESIVRFPNI | 5.8e-05 | 44 |
| HLA-B*57:01 | 1 | 329 | 337 | 9 | FPNITNLCP | 5.8e-05 | 56 |
| HLA-A*03:01 | 1 | 350 | 358 | 9 | VYAWNRKRI | 5.8e-05 | 35 |
| HLA-B*40:01 | 1 | 355 | 363 | 9 | RKRISNCVA | 5.8e-05 | 24 |
| HLA-B*08:01 | 1 | 370 | 379 | 10 | NSASFSTFKC | 5.8e-05 | 57 |
| HLA-A*32:01 | 1 | 381 | 389 | 9 | GVSPKTLND | 5.8e-05 | 31 |
| HLA-B*40:01 | 1 | 383 | 391 | 9 | SPTKLNDLC | 5.8e-05 | 24 |
| HLA-A*02:06 | 1 | 384 | 392 | 9 | PTKLNDLCF | 5.8e-05 | 51 |
| HLA-A*31:01 | 1 | 384 | 392 | 9 | PTKLNDLCF | 5.8e-05 | 42 |
| HLA-B*51:01 | 1 | 396 | 405 | 10 | YADSFVIRGD | 5.8e-05 | 50 |
| HLA-A*31:01 | 1 | 412 | 421 | 10 | PGQTGKIADY | 5.8e-05 | 42 |
| HLA-B*58:01 | 1 | 413 | 422 | 10 | GQTGKIADYN | 5.8e-05 | 44 |
| HLA-A*01:01 | 1 | 422 | 431 | 10 | NYKLPDDFTG | 5.8e-05 | 59 |
| HLA-A*32:01 | 1 | 425 | 433 | 9 | LPDDFTGCV | 5.8e-05 | 31 |
| HLA-A*01:01 | 1 | 439 | 448 | 10 | NNLDSKVGGN | 5.8e-05 | 59 |
| HLA-B*51:01 | 1 | 439 | 447 | 9 | NNLDSKVGG | 5.8e-05 | 50 |
| HLA-A*03:01 | 1 | 457 | 465 | 9 | RKSNLKPFE | 5.8e-05 | 35 |
| HLA-A*03:01 | 1 | 459 | 468 | 10 | SNLKPFERDI | 5.8e-05 | 35 |
| HLA-B*53:01 | 1 | 465 | 474 | 10 | ERDISTEIQ | 5.8e-05 | 28 |
| HLA-B*40:01 | 1 | 467 | 475 | 9 | DISTEIQ | 5.8e-05 | 24 |
| HLA-A*02:03 | 1 | 472 | 480 | 9 | IYQAGSTPC | 5.8e-05 | 44 |
| HLA-A*01:01 | 1 | 488 | 496 | 9 | CYFPLQSYG | 5.8e-05 | 59 |
| HLA-A*23:01 | 1 | 493 | 502 | 10 | QSYGFQPTNG | 5.8e-05 | 26 |
| HLA-B*07:02 | 1 | 496 | 504 | 9 | GFQPTNGVG | 5.8e-05 | 39 |
| HLA-A*11:01 | 1 | 497 | 506 | 10 | FQPTNGVGYQ | 5.8e-05 | 26 |
| HLA-B*51:01 | 1 | 500 | 509 | 10 | TNGVGYQPYP | 5.8e-05 | 50 |
| HLA-B*44:03 | 1 | 501 | 509 | 9 | NGVGYQPYP | 5.8e-05 | 27 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*31:01 | 1 | 507 | 516 | 10 | PYRVVLSFE | 5.8e-05 | 42 |
| HLA-A*02:06 | 1 | 519 | 528 | 10 | HAPATVCGPK | 5.8e-05 | 51 |
| HLA-A*31:01 | 1 | 522 | 530 | 9 | ATVCGPKKS | 5.8e-05 | 42 |
| HLA-B*44:02 | 1 | 522 | 531 | 10 | ATVCGPKKST | 5.8e-05 | 29 |
| HLA-A*33:01 | 1 | 525 | 534 | 10 | CGPKKSTNLV | 5.8e-05 | 44 |
| HLA-A*02:01 | 1 | 529 | 538 | 10 | KSTNLVKKNC | 5.8e-05 | 41 |
| HLA-A*24:02 | 1 | 561 | 570 | 10 | PFQQFGRDIA | 5.8e-05 | 25 |
| HLA-A*31:01 | 1 | 569 | 578 | 10 | IADTTDAVRD | 5.8e-05 | 42 |
| HLA-A*30:02 | 1 | 578 | 587 | 10 | DPQTLLEILDI | 5.8e-05 | 65 |
| HLA-A*01:01 | 1 | 579 | 587 | 9 | PQTLLEILDI | 5.8e-05 | 59 |
| HLA-A*02:06 | 1 | 579 | 588 | 10 | PQTLLEILDIT | 5.8e-05 | 51 |
| HLA-B*40:01 | 1 | 579 | 587 | 9 | PQTLLEILDI | 5.8e-05 | 24 |
| HLA-B*57:01 | 1 | 581 | 589 | 9 | TLEILDITP | 5.8e-05 | 56 |
| HLA-B*51:01 | 1 | 582 | 591 | 10 | LEILDITPCS | 5.8e-05 | 50 |
| HLA-A*30:01 | 1 | 586 | 594 | 9 | DITPCSFVG | 5.8e-05 | 67 |
| HLA-A*26:01 | 1 | 605 | 613 | 9 | SNQVAVLYQ | 5.8e-05 | 36 |
| HLA-A*68:01 | 1 | 609 | 618 | 10 | AVLYQDVNCT | 5.8e-05 | 37 |
| HLA-B*44:02 | 1 | 628 | 637 | 10 | QLTPTWRVYS | 5.8e-05 | 29 |
| HLA-A*02:01 | 1 | 648 | 657 | 10 | GCLIGAEHVN | 5.8e-05 | 41 |
| HLA-B*57:01 | 1 | 649 | 657 | 9 | CLIGAEHVN | 5.8e-05 | 56 |
| HLA-B*35:01 | 1 | 676 | 684 | 9 | TQTNSPRRA | 5.8e-05 | 29 |
| HLA-B*08:01 | 1 | 695 | 703 | 9 | YTMSLGAEN | 5.8e-05 | 57 |
| HLA-A*31:01 | 1 | 696 | 705 | 10 | TMSLGAENSV | 5.8e-05 | 42 |
| HLA-B*58:01 | 1 | 696 | 704 | 9 | TMSLGAENS | 5.8e-05 | 44 |
| HLA-A*02:03 | 1 | 744 | 752 | 9 | GDSTECSNL | 5.8e-05 | 44 |
| HLA-A*31:01 | 1 | 753 | 761 | 9 | LLQYGSFCT | 5.8e-05 | 42 |
| HLA-B*51:01 | 1 | 753 | 762 | 10 | LLQYGSFCTQ | 5.8e-05 | 50 |
| HLA-A*26:01 | 1 | 760 | 768 | 9 | CTQLNRALT | 5.8e-05 | 36 |
| HLA-A*31:01 | 1 | 772 | 780 | 9 | VEQDKNTQE | 5.8e-05 | 42 |
| HLA-B*40:01 | 1 | 774 | 783 | 10 | QDKNTQEVFA | 5.8e-05 | 24 |
| HLA-A*33:01 | 1 | 797 | 806 | 10 | FGGFNFSQIL | 5.8e-05 | 44 |
| HLA-B*44:02 | 1 | 816 | 825 | 10 | SFIEDLLFNK | 5.8e-05 | 29 |
| HLA-A*23:01 | 1 | 825 | 834 | 10 | KVTLADAGFI | 5.8e-05 | 26 |
| HLA-A*30:01 | 1 | 833 | 842 | 10 | FIKQYGDCLG | 5.8e-05 | 67 |
| HLA-B*44:03 | 1 | 838 | 846 | 9 | GDCLGDIAA | 5.8e-05 | 27 |
| HLA-B*53:01 | 1 | 842 | 850 | 9 | GDIAARDLI | 5.8e-05 | 28 |
| HLA-A*02:01 | 1 | 845 | 853 | 9 | AARDLICAQ | 5.8e-05 | 41 |
| HLA-B*53:01 | 1 | 849 | 858 | 10 | LICAQKFNGL | 5.8e-05 | 28 |
| HLA-B*35:01 | 1 | 851 | 860 | 10 | CAQKFNGLTV | 5.8e-05 | 29 |
| HLA-A*03:01 | 1 | 853 | 862 | 10 | QKFNGLTVLP | 5.8e-05 | 35 |
| HLA-B*15:01 | 1 | 856 | 865 | 10 | NGLTVLPLLL | 5.8e-05 | 41 |
| HLA-A*02:03 | 1 | 889 | 897 | 9 | GAGAALQIP | 5.8e-05 | 44 |
| HLA-A*30:01 | 1 | 901 | 910 | 10 | QMAYRFNGIG | 5.8e-05 | 67 |
| HLA-A*68:02 | 1 | 916 | 924 | 9 | LYENQKLIA | 5.8e-05 | 43 |
| HLA-B*35:01 | 1 | 933 | 942 | 10 | KIQDLSSTA | 5.8e-05 | 29 |
| HLA-B*15:01 | 1 | 949 | 958 | 10 | QDVVNQNAQA | 5.8e-05 | 41 |
| HLA-A*02:01 | 1 | 952 | 961 | 10 | VNQNAQALNT | 5.8e-05 | 41 |
| HLA-A*31:01 | 1 | 953 | 961 | 9 | NQNAQALNT | 5.8e-05 | 42 |
| HLA-A*02:03 | 1 | 955 | 964 | 10 | NAQALNTLVK | 5.8e-05 | 44 |
| HLA-A*68:02 | 1 | 965 | 974 | 10 | QLSSNFGAIS | 5.8e-05 | 43 |
| HLA-B*51:01 | 1 | 973 | 982 | 10 | ISSVLNDILS | 5.8e-05 | 50 |
| HLA-A*32:01 | 1 | 988 | 996 | 9 | EAEVQIDRL | 5.8e-05 | 31 |
| HLA-B*35:01 | 1 | 991 | 1000 | 10 | VQIDRLITGR | 5.8e-05 | 29 |
| HLA-B*53:01 | 1 | 991 | 999 | 9 | VQIDRLITG | 5.8e-05 | 28 |
| HLA-B*07:02 | 1 | 997 | 1006 | 10 | ITGRLQSLQT | 5.8e-05 | 39 |
| HLA-B*07:02 | 1 | 1006 | 1014 | 9 | TYVTQQLIR | 5.8e-05 | 39 |
| HLA-B*58:01 | 1 | 1017 | 1026 | 10 | EIRASANLAA | 5.8e-05 | 44 |
| HLA-B*15:01 | 1 | 1026 | 1035 | 10 | ATKMSECVLG | 5.8e-05 | 41 |
| HLA-B*44:03 | 1 | 1026 | 1034 | 9 | ATKMSECVL | 5.8e-05 | 27 |
| HLA-A*02:06 | 1 | 1029 | 1037 | 9 | MSECVLGQS | 5.8e-05 | 51 |
| HLA-B*53:01 | 1 | 1029 | 1038 | 10 | MSECVLGQSK | 5.8e-05 | 28 |
| HLA-A*33:01 | 1 | 1045 | 1053 | 9 | KGYHLMSFP | 5.8e-05 | 44 |
| HLA-B*53:01 | 1 | 1063 | 1071 | 9 | LHVTVVPAQ | 5.8e-05 | 28 |
| HLA-B*44:02 | 1 | 1075 | 1083 | 9 | FTTAPAICH | 5.8e-05 | 29 |
| HLA-A*11:01 | 1 | 1076 | 1084 | 9 | TTAPAICH | 5.8e-05 | 26 |
| HLA-B*44:02 | 1 | 1085 | 1093 | 9 | GKAHPREG | 5.8e-05 | 29 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*02:06 | 1 | 1091 | 1100 | 10 | REGVFSNGT | 5.8e-05 | 51 |
| HLA-A*23:01 | 1 | 1110 | 1118 | 9 | YEPQIITD | 5.8e-05 | 26 |
| HLA-A*03:01 | 1 | 1113 | 1122 | 10 | QIITDNTFV | 5.8e-05 | 35 |
| HLA-B*44:03 | 1 | 1161 | 1169 | 9 | SPDVDLGI | 5.8e-05 | 27 |
| HLA-B*15:01 | 1 | 1167 | 1175 | 9 | GDISGINAS | 5.8e-05 | 41 |
| HLA-A*68:02 | 1 | 1177 | 1185 | 9 | VNIQKEIDR | 5.8e-05 | 43 |
| HLA-A*02:03 | 1 | 1197 | 1205 | 9 | LIDLQELGK | 5.8e-05 | 44 |
| HLA-A*03:01 | 1 | 1203 | 1212 | 10 | LGKYEQYIKW | 5.8e-05 | 35 |
| HLA-A*32:01 | 1 | 1203 | 1211 | 9 | LGKYEQYIK | 5.8e-05 | 31 |
| HLA-B*15:01 | 1 | 1204 | 1213 | 10 | GKYEQYIKWP | 5.8e-05 | 41 |
| HLA-A*68:01 | 1 | 1215 | 1223 | 9 | YIWLGFIAI | 5.8e-05 | 37 |
| HLA-A*31:01 | 1 | 1222 | 1231 | 10 | AGLIAIVMVT | 5.8e-05 | 42 |
| HLA-A*30:02 | 1 | 1238 | 1246 | 9 | TSCCSCCLKG | 5.8e-05 | 65 |
| HLA-A*02:06 | 1 | 1258 | 1266 | 9 | EDDSEPVLK | 5.8e-05 | 51 |
| HLA-A*68:01 | 1 | 4 | 12 | 9 | FLVLLPLVS | 5.7e-05 | 38 |
| HLA-A*23:01 | 1 | 7 | 16 | 10 | LLPLVSSQCV | 5.7e-05 | 26 |
| HLA-B*44:02 | 1 | 8 | 16 | 9 | LPLVSSQCV | 5.7e-05 | 29 |
| HLA-B*08:01 | 1 | 27 | 35 | 9 | AYTNSFTRG | 5.7e-05 | 57 |
| HLA-A*23:01 | 1 | 29 | 37 | 9 | TNSFTRGVY | 5.7e-05 | 26 |
| HLA-A*11:01 | 1 | 52 | 60 | 9 | QDLFLPFFS | 5.7e-05 | 26 |
| HLA-A*30:02 | 1 | 52 | 60 | 9 | QDLFLPFFS | 5.7e-05 | 65 |
| HLA-A*24:02 | 1 | 65 | 73 | 9 | FHAIHVSGT | 5.7e-05 | 25 |
| HLA-A*11:01 | 1 | 75 | 84 | 10 | GTKRFDNPVL | 5.7e-05 | 26 |
| HLA-A*24:02 | 1 | 76 | 84 | 9 | TKRFDNPVL | 5.7e-05 | 25 |
| HLA-B*35:01 | 1 | 79 | 87 | 9 | FDPVLPFN | 5.7e-05 | 30 |
| HLA-A*68:01 | 1 | 82 | 90 | 9 | PVLPFNDGV | 5.7e-05 | 38 |
| HLA-A*11:01 | 1 | 95 | 104 | 10 | TEKSNIIRGW | 5.7e-05 | 26 |
| HLA-B*07:02 | 1 | 95 | 103 | 9 | TEKSNIIRG | 5.7e-05 | 39 |
| HLA-B*44:03 | 1 | 101 | 110 | 10 | IRGWIFGTTL | 5.7e-05 | 27 |
| HLA-A*68:02 | 1 | 124 | 132 | 9 | TNVVIKVCE | 5.7e-05 | 43 |
| HLA-B*53:01 | 1 | 134 | 142 | 9 | QFCNDPFLG | 5.7e-05 | 29 |
| HLA-A*68:01 | 1 | 145 | 153 | 9 | YHKNNKSWM | 5.7e-05 | 38 |
| HLA-B*51:01 | 1 | 158 | 167 | 10 | RVYSSANNCT | 5.7e-05 | 50 |
| HLA-A*23:01 | 1 | 161 | 170 | 10 | SSANNCTFEY | 5.7e-05 | 26 |
| HLA-A*03:01 | 1 | 170 | 178 | 9 | YVSQPFLMD | 5.7e-05 | 35 |
| HLA-B*15:01 | 1 | 178 | 187 | 10 | DLEGKQGNFK | 5.7e-05 | 41 |
| HLA-A*68:02 | 1 | 179 | 187 | 9 | LEGKQGNFK | 5.7e-05 | 43 |
| HLA-B*58:01 | 1 | 182 | 191 | 10 | KQGNFKNLRE | 5.7e-05 | 45 |
| HLA-A*02:06 | 1 | 186 | 195 | 10 | FKNLREFVFK | 5.7e-05 | 51 |
| HLA-B*15:01 | 1 | 186 | 195 | 10 | FKNLREFVFK | 5.7e-05 | 41 |
| HLA-B*15:01 | 1 | 187 | 195 | 9 | KNLREFVFK | 5.7e-05 | 41 |
| HLA-A*01:01 | 1 | 197 | 205 | 9 | IDGYFKIYS | 5.7e-05 | 60 |
| HLA-B*15:01 | 1 | 197 | 206 | 10 | IDGYFKIYSK | 5.7e-05 | 41 |
| HLA-A*23:01 | 1 | 202 | 211 | 10 | KIYSKHTPIN | 5.7e-05 | 26 |
| HLA-B*44:03 | 1 | 207 | 216 | 10 | HTPINLVRDL | 5.7e-05 | 27 |
| HLA-B*44:02 | 1 | 208 | 217 | 10 | TPINLVRDLP | 5.7e-05 | 29 |
| HLA-A*02:06 | 1 | 220 | 228 | 9 | FSALEPLVD | 5.7e-05 | 51 |
| HLA-B*35:01 | 1 | 223 | 232 | 10 | LEPLVDLPIG | 5.7e-05 | 30 |
| HLA-B*40:01 | 1 | 224 | 233 | 10 | EPLVDLPIGI | 5.7e-05 | 24 |
| HLA-A*02:01 | 1 | 226 | 234 | 9 | LVDLPIGIN | 5.7e-05 | 41 |
| HLA-A*03:01 | 1 | 255 | 263 | 9 | SSGWTAGAA | 5.7e-05 | 35 |
| HLA-A*32:01 | 1 | 255 | 263 | 9 | SSGWTAGAA | 5.7e-05 | 32 |
| HLA-A*31:01 | 1 | 258 | 267 | 10 | WTAGAAAYV | 5.7e-05 | 42 |
| HLA-B*15:01 | 1 | 262 | 271 | 10 | AAAYYVGYLQ | 5.7e-05 | 41 |
| HLA-A*01:01 | 1 | 276 | 284 | 9 | LLKYNENGT | 5.7e-05 | 60 |
| HLA-A*68:01 | 1 | 280 | 288 | 9 | NENGTITDA | 5.7e-05 | 38 |
| HLA-B*44:02 | 1 | 284 | 292 | 9 | TITDAVDCA | 5.7e-05 | 29 |
| HLA-A*23:01 | 1 | 292 | 301 | 10 | ALDPLSETKC | 5.7e-05 | 26 |
| HLA-B*44:03 | 1 | 292 | 301 | 10 | ALDPLSETKC | 5.7e-05 | 27 |
| HLA-A*01:01 | 1 | 294 | 302 | 9 | DPLSETKCT | 5.7e-05 | 60 |
| HLA-B*57:01 | 1 | 295 | 304 | 10 | PLSETKCTLK | 5.7e-05 | 56 |
| HLA-B*51:01 | 1 | 296 | 304 | 9 | LSETKCTLK | 5.7e-05 | 50 |
| HLA-A*02:01 | 1 | 316 | 324 | 9 | SNFRVQPT | 5.7e-05 | 41 |
| HLA-B*07:02 | 1 | 316 | 325 | 10 | SNFRVQPTES | 5.7e-05 | 39 |
| HLA-A*68:01 | 1 | 323 | 332 | 10 | TESIVRFPNI | 5.7e-05 | 38 |
| HLA-B*58:01 | 1 | 329 | 337 | 9 | FPNITNLCP | 5.7e-05 | 45 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*53:01 | 1 | 359 | 368 | 10 | SNCVADYSVL | 5.7e-05 | 29 |
| HLA-B*08:01 | 1 | 364 | 373 | 10 | DYSVLYNSAS | 5.7e-05 | 57 |
| HLA-B*44:02 | 1 | 369 | 378 | 10 | YNSASFSTFK | 5.7e-05 | 29 |
| HLA-A*02:03 | 1 | 374 | 383 | 10 | FSTFKCYGVS | 5.7e-05 | 44 |
| HLA-A*02:06 | 1 | 380 | 388 | 9 | YGVSPTKLN | 5.7e-05 | 51 |
| HLA-A*68:02 | 1 | 380 | 389 | 10 | YGVSPTKLND | 5.7e-05 | 43 |
| HLA-B*15:01 | 1 | 389 | 397 | 9 | DLCFTNVYA | 5.7e-05 | 41 |
| HLA-B*53:01 | 1 | 401 | 410 | 10 | VIRGDEVQR | 5.7e-05 | 29 |
| HLA-B*40:01 | 1 | 409 | 418 | 10 | QIAPGQTGKI | 5.7e-05 | 24 |
| HLA-B*15:01 | 1 | 425 | 433 | 9 | LPDDFTGCV | 5.7e-05 | 41 |
| HLA-A*24:02 | 1 | 457 | 466 | 10 | RKSNLKPFR | 5.7e-05 | 25 |
| HLA-B*44:03 | 1 | 459 | 468 | 10 | SNLKPFRDI | 5.7e-05 | 27 |
| HLA-A*02:06 | 1 | 472 | 481 | 10 | IYQAGSTPCN | 5.7e-05 | 51 |
| HLA-B*08:01 | 1 | 473 | 481 | 9 | YQAGSTPCN | 5.7e-05 | 57 |
| HLA-A*26:01 | 1 | 488 | 496 | 9 | CYFPLQSYG | 5.7e-05 | 36 |
| HLA-A*26:01 | 1 | 489 | 498 | 10 | YFPLQSYGFQ | 5.7e-05 | 36 |
| HLA-B*57:01 | 1 | 490 | 499 | 10 | FPLQSYGFQP | 5.7e-05 | 56 |
| HLA-A*24:02 | 1 | 497 | 506 | 10 | FQPTNGVGYQ | 5.7e-05 | 25 |
| HLA-B*08:01 | 1 | 499 | 507 | 9 | PTNGVGYQP | 5.7e-05 | 57 |
| HLA-A*02:06 | 1 | 507 | 515 | 9 | PYRVVLSF | 5.7e-05 | 51 |
| HLA-A*11:01 | 1 | 513 | 522 | 10 | LSFELLHAPA | 5.7e-05 | 26 |
| HLA-B*51:01 | 1 | 529 | 538 | 10 | KSTNLVKNKC | 5.7e-05 | 50 |
| HLA-A*11:01 | 1 | 556 | 565 | 10 | NKKFLPFQF | 5.7e-05 | 26 |
| HLA-A*26:01 | 1 | 556 | 564 | 9 | NKKFLPFQQ | 5.7e-05 | 36 |
| HLA-A*33:01 | 1 | 557 | 566 | 10 | KKFLPFQFG | 5.7e-05 | 44 |
| HLA-A*03:01 | 1 | 580 | 588 | 9 | QTLIELDIT | 5.7e-05 | 35 |
| HLA-B*07:02 | 1 | 583 | 591 | 9 | EILDITPCS | 5.7e-05 | 39 |
| HLA-B*51:01 | 1 | 585 | 593 | 9 | LDITPCSG | 5.7e-05 | 50 |
| HLA-B*15:01 | 1 | 597 | 606 | 10 | VITPGTNTSN | 5.7e-05 | 41 |
| HLA-B*44:02 | 1 | 604 | 613 | 10 | TSNQVAVLYQ | 5.7e-05 | 29 |
| HLA-A*24:02 | 1 | 607 | 615 | 9 | QVAVLYQDV | 5.7e-05 | 25 |
| HLA-A*03:01 | 1 | 609 | 618 | 10 | AVLYQDVNCT | 5.7e-05 | 35 |
| HLA-A*26:01 | 1 | 610 | 619 | 10 | VLYQDVNCTE | 5.7e-05 | 36 |
| HLA-B*58:01 | 1 | 621 | 630 | 10 | PVAIHADQLT | 5.7e-05 | 45 |
| HLA-B*40:01 | 1 | 641 | 650 | 10 | NVFQTRAGCL | 5.7e-05 | 24 |
| HLA-A*31:01 | 1 | 647 | 656 | 10 | AGCLIGAEHV | 5.7e-05 | 42 |
| HLA-B*15:01 | 1 | 648 | 657 | 10 | GCLIGAEHVN | 5.7e-05 | 41 |
| HLA-A*03:01 | 1 | 651 | 659 | 9 | IGAEHVNNS | 5.7e-05 | 35 |
| HLA-A*30:02 | 1 | 657 | 666 | 10 | NNSYECDIPI | 5.7e-05 | 65 |
| HLA-A*02:06 | 1 | 658 | 667 | 10 | NSYECDIPIG | 5.7e-05 | 51 |
| HLA-A*31:01 | 1 | 670 | 678 | 9 | ICASYQTQT | 5.7e-05 | 42 |
| HLA-A*33:01 | 1 | 670 | 678 | 9 | ICASYQTQT | 5.7e-05 | 44 |
| HLA-A*02:03 | 1 | 673 | 682 | 10 | SYQTQTNSPR | 5.7e-05 | 44 |
| HLA-A*02:06 | 1 | 682 | 690 | 9 | RRARSVASQ | 5.7e-05 | 51 |
| HLA-A*32:01 | 1 | 682 | 690 | 9 | RRARSVASQ | 5.7e-05 | 32 |
| HLA-A*68:01 | 1 | 692 | 700 | 9 | IIAYTMSLG | 5.7e-05 | 38 |
| HLA-A*31:01 | 1 | 695 | 704 | 10 | YTMSLGAENS | 5.7e-05 | 42 |
| HLA-B*35:01 | 1 | 710 | 719 | 10 | NSIAIPTNFT | 5.7e-05 | 30 |
| HLA-B*58:01 | 1 | 725 | 734 | 10 | EILPVSMTKT | 5.7e-05 | 45 |
| HLA-A*01:01 | 1 | 739 | 748 | 10 | TMYICGDSTE | 5.7e-05 | 60 |
| HLA-A*24:02 | 1 | 739 | 748 | 10 | TMYICGDSTE | 5.7e-05 | 25 |
| HLA-A*68:02 | 1 | 750 | 758 | 9 | SNLLLQYGS | 5.7e-05 | 43 |
| HLA-B*40:01 | 1 | 750 | 759 | 10 | SNLLLQYGSF | 5.7e-05 | 24 |
| HLA-B*58:01 | 1 | 753 | 762 | 10 | LLQYGSFCTQ | 5.7e-05 | 45 |
| HLA-A*11:01 | 1 | 758 | 766 | 9 | SFCTQLNRA | 5.7e-05 | 26 |
| HLA-B*58:01 | 1 | 766 | 775 | 10 | ALTGIAVEQD | 5.7e-05 | 45 |
| HLA-B*07:02 | 1 | 777 | 786 | 10 | NTQEVFAQVK | 5.7e-05 | 39 |
| HLA-A*11:01 | 1 | 779 | 787 | 9 | QEVFAQVKQ | 5.7e-05 | 26 |
| HLA-A*26:01 | 1 | 789 | 798 | 10 | YKTPPIKDFG | 5.7e-05 | 36 |
| HLA-A*23:01 | 1 | 795 | 803 | 9 | KDFGGFNFS | 5.7e-05 | 26 |
| HLA-A*32:01 | 1 | 821 | 830 | 10 | LLFNKVTLAD | 5.7e-05 | 32 |
| HLA-A*68:02 | 1 | 832 | 841 | 10 | GFIKQYGDCL | 5.7e-05 | 43 |
| HLA-B*08:01 | 1 | 835 | 844 | 10 | KQYGDCLGDI | 5.7e-05 | 57 |
| HLA-B*44:03 | 1 | 839 | 847 | 9 | DCLGDIAAR | 5.7e-05 | 27 |
| HLA-B*44:02 | 1 | 860 | 869 | 10 | VLPLLLTDEM | 5.7e-05 | 29 |
| HLA-A*11:01 | 1 | 870 | 878 | 9 | IAQYTSALL | 5.7e-05 | 26 |

| | | | | | | |
|-------------|---|------|------|----|--------------------|----|
| HLA-B*07:02 | 1 | 874 | 883 | 10 | TSALLAGTIT 5.7e-05 | 39 |
| HLA-A*31:01 | 1 | 885 | 893 | 9 | GWTFGAGAA 5.7e-05 | 42 |
| HLA-A*03:01 | 1 | 887 | 896 | 10 | TFGAGAALQI 5.7e-05 | 35 |
| HLA-B*44:03 | 1 | 903 | 911 | 9 | AYRFNGIGV 5.7e-05 | 27 |
| HLA-B*51:01 | 1 | 905 | 913 | 9 | RFNGIGVTQ 5.7e-05 | 50 |
| HLA-B*51:01 | 1 | 908 | 917 | 10 | GIGVTQNVLY 5.7e-05 | 50 |
| HLA-B*58:01 | 1 | 917 | 925 | 9 | YENQKLIAN 5.7e-05 | 45 |
| HLA-B*44:03 | 1 | 933 | 941 | 9 | KIQDLSLST 5.7e-05 | 27 |
| HLA-B*51:01 | 1 | 934 | 943 | 10 | IQDLSLSTAS 5.7e-05 | 50 |
| HLA-A*68:02 | 1 | 937 | 946 | 10 | SLSSTASALG 5.7e-05 | 43 |
| HLA-B*08:01 | 1 | 948 | 957 | 10 | LQDVVNQNAQ 5.7e-05 | 57 |
| HLA-A*03:01 | 1 | 963 | 972 | 10 | VKQLSSNFGA 5.7e-05 | 35 |
| HLA-A*03:01 | 1 | 981 | 990 | 10 | LSRLDKVEAE 5.7e-05 | 35 |
| HLA-A*31:01 | 1 | 993 | 1002 | 10 | IDRLITGRLQ 5.7e-05 | 42 |
| HLA-A*11:01 | 1 | 996 | 1005 | 10 | LITGRLQSLQ 5.7e-05 | 26 |
| HLA-A*02:06 | 1 | 997 | 1005 | 9 | ITGRLQSLQ 5.7e-05 | 51 |
| HLA-A*11:01 | 1 | 1006 | 1015 | 10 | TYVTQQLIRA 5.7e-05 | 26 |
| HLA-A*68:02 | 1 | 1010 | 1019 | 10 | QLLIRAAEIR 5.7e-05 | 43 |
| HLA-A*68:01 | 1 | 1016 | 1025 | 10 | AEIRASANLA 5.7e-05 | 38 |
| HLA-B*53:01 | 1 | 1017 | 1026 | 10 | EIRASANLAA 5.7e-05 | 29 |
| HLA-B*58:01 | 1 | 1018 | 1027 | 10 | IRASANLAAT 5.7e-05 | 45 |
| HLA-A*26:01 | 1 | 1023 | 1032 | 10 | NLAATKMSEC 5.7e-05 | 36 |
| HLA-A*31:01 | 1 | 1025 | 1033 | 9 | AATKMSECV 5.7e-05 | 42 |
| HLA-A*32:01 | 1 | 1035 | 1043 | 9 | GQSKRVDFC 5.7e-05 | 32 |
| HLA-B*44:03 | 1 | 1035 | 1043 | 9 | GQSKRVDFC 5.7e-05 | 27 |
| HLA-A*02:03 | 1 | 1041 | 1050 | 10 | DFCGKGYHLM 5.7e-05 | 44 |
| HLA-B*51:01 | 1 | 1044 | 1053 | 10 | GKGYHLMSFP 5.7e-05 | 50 |
| HLA-A*68:02 | 1 | 1063 | 1072 | 10 | LHVTVVPAQE 5.7e-05 | 43 |
| HLA-B*58:01 | 1 | 1067 | 1076 | 10 | YVPAQEKNF 5.7e-05 | 45 |
| HLA-A*24:02 | 1 | 1074 | 1083 | 10 | NFTTAPAICH 5.7e-05 | 25 |
| HLA-A*02:03 | 1 | 1076 | 1085 | 10 | TTAPAICHDG 5.7e-05 | 44 |
| HLA-A*31:01 | 1 | 1076 | 1084 | 9 | TTAPAICH 5.7e-05 | 42 |
| HLA-A*02:01 | 1 | 1100 | 1109 | 10 | THWFVTQRNF 5.7e-05 | 41 |
| HLA-A*31:01 | 1 | 1106 | 1115 | 10 | QRNFYEPQII 5.7e-05 | 42 |
| HLA-A*68:02 | 1 | 1129 | 1138 | 10 | VIGIVNNTVY 5.7e-05 | 43 |
| HLA-A*01:01 | 1 | 1170 | 1178 | 9 | SGINASVVN 5.7e-05 | 60 |
| HLA-A*11:01 | 1 | 1195 | 1203 | 9 | ESLIDLQEL 5.7e-05 | 26 |
| HLA-A*30:02 | 1 | 1199 | 1208 | 10 | DLQELGKYEQ 5.7e-05 | 65 |
| HLA-B*51:01 | 1 | 1199 | 1208 | 10 | DLQELGKYEQ 5.7e-05 | 50 |
| HLA-A*33:01 | 1 | 1201 | 1210 | 10 | QELGKYEYI 5.7e-05 | 44 |
| HLA-A*23:01 | 1 | 1217 | 1225 | 9 | WLGFIAGLI 5.7e-05 | 26 |
| HLA-A*68:01 | 1 | 1219 | 1227 | 9 | GFIAGLIAI 5.7e-05 | 38 |
| HLA-A*68:01 | 1 | 1223 | 1231 | 9 | GLIAIVMVT 5.7e-05 | 38 |
| HLA-A*30:01 | 1 | 1229 | 1238 | 10 | MVTIMLCCMT 5.7e-05 | 67 |
| HLA-B*15:01 | 1 | 12 | 20 | 9 | SSQCVNLTT 5.6e-05 | 41 |
| HLA-A*02:03 | 1 | 21 | 30 | 10 | RTQLPPAYTN 5.6e-05 | 44 |
| HLA-A*11:01 | 1 | 26 | 35 | 10 | PAYTNSFTRG 5.6e-05 | 26 |
| HLA-A*01:01 | 1 | 39 | 48 | 10 | PDKVFRSSVL 5.6e-05 | 60 |
| HLA-B*44:02 | 1 | 51 | 60 | 10 | TQDLFLPFFS 5.6e-05 | 29 |
| HLA-A*01:01 | 1 | 74 | 82 | 9 | NGTKRFDNP 5.6e-05 | 60 |
| HLA-B*07:02 | 1 | 88 | 97 | 10 | DGVYFASTEK 5.6e-05 | 39 |
| HLA-B*15:01 | 1 | 94 | 103 | 10 | STEKSNIIRG 5.6e-05 | 41 |
| HLA-A*02:03 | 1 | 99 | 107 | 9 | NIIRGWIFG 5.6e-05 | 44 |
| HLA-A*33:01 | 1 | 113 | 121 | 9 | KTQSLLIVN 5.6e-05 | 44 |
| HLA-A*11:01 | 1 | 121 | 130 | 10 | NNATNVVIKV 5.6e-05 | 26 |
| HLA-B*57:01 | 1 | 132 | 141 | 10 | EFQFCNDPFL 5.6e-05 | 57 |
| HLA-A*32:01 | 1 | 137 | 146 | 10 | NDPFLGVYYH 5.6e-05 | 32 |
| HLA-A*01:01 | 1 | 142 | 151 | 10 | GVYYHKNNKS 5.6e-05 | 60 |
| HLA-B*58:01 | 1 | 147 | 156 | 10 | KNNKSWMESE 5.6e-05 | 45 |
| HLA-B*44:02 | 1 | 150 | 158 | 9 | KSWMESEFR 5.6e-05 | 29 |
| HLA-B*44:02 | 1 | 150 | 159 | 10 | KSWMESEFRV 5.6e-05 | 29 |
| HLA-A*24:02 | 1 | 163 | 171 | 9 | ANNCTFEYV 5.6e-05 | 25 |
| HLA-A*32:01 | 1 | 163 | 171 | 9 | ANNCTFEYV 5.6e-05 | 32 |
| HLA-B*58:01 | 1 | 173 | 181 | 9 | QPFLMDLEG 5.6e-05 | 45 |
| HLA-A*30:01 | 1 | 175 | 184 | 10 | FLMDLEGKQG 5.6e-05 | 68 |
| HLA-B*57:01 | 1 | 179 | 187 | 9 | LEGKQGNFK 5.6e-05 | 57 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-A*30:01 | 1 | 190 | 198 | 9 | REFVFKNID | 5.6e-05 | 68 |
| HLA-A*02:01 | 1 | 194 | 202 | 9 | FKNIDGYFK | 5.6e-05 | 41 |
| HLA-A*24:02 | 1 | 201 | 210 | 10 | FKIYSKHTPI | 5.6e-05 | 25 |
| HLA-A*11:01 | 1 | 210 | 218 | 9 | INLVRDLPQ | 5.6e-05 | 26 |
| HLA-B*58:01 | 1 | 211 | 219 | 9 | NLVRDLPQG | 5.6e-05 | 45 |
| HLA-A*24:02 | 1 | 213 | 221 | 9 | VRDLPQGF5 | 5.6e-05 | 25 |
| HLA-B*53:01 | 1 | 213 | 222 | 10 | VRDLPQGFSA | 5.6e-05 | 29 |
| HLA-B*58:01 | 1 | 223 | 231 | 9 | LEPLVDLPI | 5.6e-05 | 45 |
| HLA-B*44:02 | 1 | 225 | 233 | 9 | PLVDLPIGI | 5.6e-05 | 29 |
| HLA-A*68:02 | 1 | 231 | 239 | 9 | IGINITRFQ | 5.6e-05 | 43 |
| HLA-B*44:03 | 1 | 235 | 244 | 10 | ITRFQTLAL | 5.6e-05 | 27 |
| HLA-B*51:01 | 1 | 237 | 245 | 9 | RFQTLALH | 5.6e-05 | 50 |
| HLA-B*44:03 | 1 | 243 | 251 | 9 | ALHRSYLTP | 5.6e-05 | 27 |
| HLA-B*57:01 | 1 | 251 | 260 | 10 | PGDSSSGWTA | 5.6e-05 | 57 |
| HLA-B*53:01 | 1 | 258 | 267 | 10 | WTAGAAAYYV | 5.6e-05 | 29 |
| HLA-B*07:02 | 1 | 270 | 278 | 9 | LQPRTFLLK | 5.6e-05 | 39 |
| HLA-A*68:01 | 1 | 290 | 298 | 9 | DCALDPLSE | 5.6e-05 | 38 |
| HLA-B*15:01 | 1 | 295 | 304 | 10 | PLSETKCTLK | 5.6e-05 | 41 |
| HLA-A*32:01 | 1 | 296 | 304 | 9 | LSETKCTLK | 5.6e-05 | 32 |
| HLA-B*08:01 | 1 | 301 | 310 | 10 | CTLKSFTVEK | 5.6e-05 | 57 |
| HLA-B*40:01 | 1 | 311 | 319 | 9 | GIYQTSNFR | 5.6e-05 | 25 |
| HLA-A*68:01 | 1 | 312 | 321 | 10 | IYQTSNFRVQ | 5.6e-05 | 38 |
| HLA-A*03:01 | 1 | 314 | 323 | 10 | QTSNFRVQPT | 5.6e-05 | 35 |
| HLA-A*68:01 | 1 | 318 | 327 | 10 | FRVQPTESIV | 5.6e-05 | 38 |
| HLA-A*03:01 | 1 | 328 | 337 | 10 | RFPNITNLCP | 5.6e-05 | 35 |
| HLA-A*26:01 | 1 | 341 | 350 | 10 | VFNATRFASV | 5.6e-05 | 36 |
| HLA-A*31:01 | 1 | 355 | 363 | 9 | RKRISNCVA | 5.6e-05 | 43 |
| HLA-A*24:02 | 1 | 359 | 368 | 10 | SNCVADYSVL | 5.6e-05 | 25 |
| HLA-A*32:01 | 1 | 368 | 376 | 9 | LYNSASFST | 5.6e-05 | 32 |
| HLA-B*53:01 | 1 | 375 | 384 | 10 | STFKCYGVSP | 5.6e-05 | 29 |
| HLA-A*02:06 | 1 | 377 | 385 | 9 | FKCYGVSP | 5.6e-05 | 52 |
| HLA-B*15:01 | 1 | 381 | 389 | 9 | GVSPTKLND | 5.6e-05 | 41 |
| HLA-B*53:01 | 1 | 389 | 397 | 9 | DLCFTNVYA | 5.6e-05 | 29 |
| HLA-B*44:03 | 1 | 394 | 403 | 10 | NVYADSFVIR | 5.6e-05 | 27 |
| HLA-B*07:02 | 1 | 399 | 408 | 10 | SFVIRGDEV | 5.6e-05 | 39 |
| HLA-A*02:06 | 1 | 411 | 419 | 9 | APGQTGKIA | 5.6e-05 | 52 |
| HLA-A*30:01 | 1 | 423 | 431 | 9 | YKLPDDFTG | 5.6e-05 | 68 |
| HLA-A*11:01 | 1 | 427 | 436 | 10 | DDFTGCVIAW | 5.6e-05 | 26 |
| HLA-A*01:01 | 1 | 429 | 438 | 10 | FTGCVIAWNS | 5.6e-05 | 60 |
| HLA-A*02:06 | 1 | 430 | 438 | 9 | TGCVIAWNS | 5.6e-05 | 52 |
| HLA-B*07:02 | 1 | 459 | 468 | 10 | SNLKPFERDI | 5.6e-05 | 39 |
| HLA-B*35:01 | 1 | 465 | 474 | 10 | ERDISTEIQ | 5.6e-05 | 30 |
| HLA-A*02:06 | 1 | 477 | 485 | 9 | STPCNGVEG | 5.6e-05 | 52 |
| HLA-B*35:01 | 1 | 494 | 503 | 10 | SYGFQPTNGV | 5.6e-05 | 30 |
| HLA-B*44:03 | 1 | 498 | 506 | 9 | QPTNGVGYY | 5.6e-05 | 27 |
| HLA-A*24:02 | 1 | 512 | 520 | 9 | VLSFELLHA | 5.6e-05 | 25 |
| HLA-A*03:01 | 1 | 513 | 522 | 10 | LSFELLHAPA | 5.6e-05 | 35 |
| HLA-B*15:01 | 1 | 530 | 539 | 10 | STNLVKNKCV | 5.6e-05 | 41 |
| HLA-A*02:01 | 1 | 538 | 547 | 10 | CVNFNFNGLT | 5.6e-05 | 41 |
| HLA-A*02:03 | 1 | 539 | 547 | 9 | VNFNFNGLT | 5.6e-05 | 44 |
| HLA-B*53:01 | 1 | 542 | 551 | 10 | NFNGLTGTGV | 5.6e-05 | 29 |
| HLA-B*07:02 | 1 | 564 | 573 | 10 | QFGRDIADTT | 5.6e-05 | 39 |
| HLA-B*35:01 | 1 | 571 | 580 | 10 | DTTDAVRDPQ | 5.6e-05 | 30 |
| HLA-A*30:02 | 1 | 586 | 595 | 10 | DITPCSFGGV | 5.6e-05 | 66 |
| HLA-A*01:01 | 1 | 591 | 600 | 10 | SFGGVSIVITP | 5.6e-05 | 60 |
| HLA-B*07:02 | 1 | 616 | 625 | 10 | NCTEVPVAIH | 5.6e-05 | 39 |
| HLA-A*68:02 | 1 | 621 | 630 | 10 | PVAIHADQLT | 5.6e-05 | 43 |
| HLA-A*33:01 | 1 | 622 | 630 | 9 | VAIHADQLT | 5.6e-05 | 44 |
| HLA-B*07:02 | 1 | 622 | 631 | 10 | VAIHADQLTP | 5.6e-05 | 39 |
| HLA-A*32:01 | 1 | 623 | 632 | 10 | AIHADQLTPT | 5.6e-05 | 32 |
| HLA-B*58:01 | 1 | 630 | 638 | 9 | TPTWRVYST | 5.6e-05 | 45 |
| HLA-B*35:01 | 1 | 645 | 653 | 9 | TRAGCLIGA | 5.6e-05 | 30 |
| HLA-B*53:01 | 1 | 646 | 655 | 10 | RAGCLIGAHE | 5.6e-05 | 29 |
| HLA-A*68:01 | 1 | 650 | 659 | 10 | LIGAHEVNNS | 5.6e-05 | 38 |
| HLA-A*03:01 | 1 | 662 | 670 | 9 | CDIPIGAGI | 5.6e-05 | 35 |
| HLA-B*53:01 | 1 | 672 | 681 | 10 | ASYQTQTNSP | 5.6e-05 | 29 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*32:01 | 1 | 676 | 684 | 9 | TQTNSPRRA | 5.6e-05 | 32 |
| HLA-A*11:01 | 1 | 683 | 692 | 10 | RARSVASQSI | 5.6e-05 | 26 |
| HLA-A*03:01 | 1 | 693 | 702 | 10 | IAYTMSLGAE | 5.6e-05 | 35 |
| HLA-A*68:02 | 1 | 694 | 703 | 10 | AYTMSLGAEN | 5.6e-05 | 43 |
| HLA-A*33:01 | 1 | 713 | 721 | 9 | AIPTNFTIS | 5.6e-05 | 44 |
| HLA-B*40:01 | 1 | 717 | 726 | 10 | NFTISVTTEI | 5.6e-05 | 25 |
| HLA-B*44:03 | 1 | 722 | 731 | 10 | VTTEILPVSM | 5.6e-05 | 27 |
| HLA-A*33:01 | 1 | 727 | 736 | 10 | LPVSMTKTSV | 5.6e-05 | 44 |
| HLA-A*68:02 | 1 | 746 | 755 | 10 | STECNLLLQ | 5.6e-05 | 43 |
| HLA-A*68:02 | 1 | 765 | 774 | 10 | RALTGIAVEQ | 5.6e-05 | 43 |
| HLA-B*40:01 | 1 | 765 | 773 | 9 | RALTGIAVE | 5.6e-05 | 25 |
| HLA-B*44:03 | 1 | 771 | 779 | 9 | AVEQDKNTQ | 5.6e-05 | 27 |
| HLA-A*68:01 | 1 | 772 | 781 | 10 | VEQDKNTQEV | 5.6e-05 | 38 |
| HLA-B*51:01 | 1 | 772 | 780 | 9 | VEQDKNTQE | 5.6e-05 | 50 |
| HLA-A*01:01 | 1 | 775 | 783 | 9 | DKNTQEVFA | 5.6e-05 | 60 |
| HLA-A*68:01 | 1 | 783 | 792 | 10 | AQVKQIYKTP | 5.6e-05 | 38 |
| HLA-B*07:02 | 1 | 785 | 794 | 10 | VKQIYKTPPI | 5.6e-05 | 39 |
| HLA-A*30:01 | 1 | 791 | 799 | 9 | TPPIKDFGG | 5.6e-05 | 68 |
| HLA-B*51:01 | 1 | 796 | 804 | 9 | DFGGFNFSQ | 5.6e-05 | 50 |
| HLA-B*15:01 | 1 | 799 | 807 | 9 | GFNFSQILP | 5.6e-05 | 41 |
| HLA-A*23:01 | 1 | 817 | 826 | 10 | FIEDLLFNKV | 5.6e-05 | 26 |
| HLA-A*24:02 | 1 | 817 | 825 | 9 | FIEDLLFNK | 5.6e-05 | 25 |
| HLA-A*32:01 | 1 | 820 | 829 | 10 | DLLFNKVTLA | 5.6e-05 | 32 |
| HLA-A*03:01 | 1 | 821 | 830 | 10 | LLFNKVTLAD | 5.6e-05 | 35 |
| HLA-A*30:02 | 1 | 821 | 830 | 10 | LLFNKVTLAD | 5.6e-05 | 66 |
| HLA-A*33:01 | 1 | 832 | 841 | 10 | GFIKQYGDCL | 5.6e-05 | 44 |
| HLA-B*44:03 | 1 | 833 | 841 | 9 | FIKQYGDCL | 5.6e-05 | 27 |
| HLA-B*57:01 | 1 | 835 | 843 | 9 | KQYGDCLGD | 5.6e-05 | 57 |
| HLA-A*68:02 | 1 | 836 | 845 | 10 | QYGDCLGDIA | 5.6e-05 | 43 |
| HLA-A*03:01 | 1 | 844 | 853 | 10 | IAARDLICAQ | 5.6e-05 | 35 |
| HLA-A*26:01 | 1 | 853 | 862 | 10 | QKFNGLTVLP | 5.6e-05 | 36 |
| HLA-A*11:01 | 1 | 860 | 869 | 10 | VLPLLLTDEM | 5.6e-05 | 26 |
| HLA-A*23:01 | 1 | 868 | 876 | 9 | EMIAQY TSA | 5.6e-05 | 26 |
| HLA-B*44:02 | 1 | 872 | 880 | 9 | QYTSALLAG | 5.6e-05 | 29 |
| HLA-A*68:01 | 1 | 875 | 883 | 9 | SALLAGTIT | 5.6e-05 | 38 |
| HLA-A*01:01 | 1 | 884 | 893 | 10 | SGWTFGAGAA | 5.6e-05 | 60 |
| HLA-A*01:01 | 1 | 888 | 897 | 10 | FGAGAALQIP | 5.6e-05 | 60 |
| HLA-B*58:01 | 1 | 901 | 910 | 10 | QMAYRFNGIG | 5.6e-05 | 45 |
| HLA-A*03:01 | 1 | 913 | 922 | 10 | QNVLYENQKL | 5.6e-05 | 35 |
| HLA-B*51:01 | 1 | 917 | 926 | 10 | YENQKLIANQ | 5.6e-05 | 50 |
| HLA-A*03:01 | 1 | 932 | 941 | 10 | GKIQDSLSSST | 5.6e-05 | 35 |
| HLA-B*35:01 | 1 | 948 | 957 | 10 | LQDVVNQNAQ | 5.6e-05 | 30 |
| HLA-A*03:01 | 1 | 950 | 959 | 10 | DVVNQNQAAL | 5.6e-05 | 35 |
| HLA-B*51:01 | 1 | 956 | 965 | 10 | AQALNTLVKQ | 5.6e-05 | 50 |
| HLA-B*08:01 | 1 | 959 | 967 | 9 | LNTLVKQLS | 5.6e-05 | 57 |
| HLA-A*26:01 | 1 | 964 | 972 | 9 | KQLSSNFGA | 5.6e-05 | 36 |
| HLA-B*35:01 | 1 | 974 | 982 | 9 | SSVLNDILS | 5.6e-05 | 30 |
| HLA-A*68:01 | 1 | 979 | 988 | 10 | DILSRLDKVE | 5.6e-05 | 38 |
| HLA-A*68:02 | 1 | 998 | 1007 | 10 | TGRLQSLQTY | 5.6e-05 | 43 |
| HLA-A*68:02 | 1 | 1003 | 1011 | 9 | SLQTYVTQQ | 5.6e-05 | 43 |
| HLA-B*08:01 | 1 | 1005 | 1014 | 10 | QTYVTQQLIR | 5.6e-05 | 57 |
| HLA-B*44:03 | 1 | 1005 | 1014 | 10 | QTYVTQQLIR | 5.6e-05 | 27 |
| HLA-A*02:03 | 1 | 1006 | 1014 | 9 | TYVTQQLIR | 5.6e-05 | 44 |
| HLA-A*26:01 | 1 | 1012 | 1020 | 9 | LIRAAEIRA | 5.6e-05 | 36 |
| HLA-B*08:01 | 1 | 1030 | 1039 | 10 | SECVLGQSKR | 5.6e-05 | 57 |
| HLA-B*57:01 | 1 | 1037 | 1045 | 9 | SKRVDFCGK | 5.6e-05 | 57 |
| HLA-A*01:01 | 1 | 1045 | 1053 | 9 | KGYHLSMFP | 5.6e-05 | 60 |
| HLA-A*68:01 | 1 | 1049 | 1057 | 9 | LMSFPQSAP | 5.6e-05 | 38 |
| HLA-A*03:01 | 1 | 1051 | 1059 | 9 | SFPQSAPHG | 5.6e-05 | 35 |
| HLA-A*24:02 | 1 | 1063 | 1071 | 9 | LHVTVVPAQ | 5.6e-05 | 25 |
| HLA-B*35:01 | 1 | 1066 | 1074 | 9 | TYVPAQEK | 5.6e-05 | 30 |
| HLA-B*53:01 | 1 | 1071 | 1079 | 9 | QEKNTTAP | 5.6e-05 | 29 |
| HLA-A*02:03 | 1 | 1078 | 1087 | 10 | APAICHDGKA | 5.6e-05 | 44 |
| HLA-A*31:01 | 1 | 1082 | 1090 | 9 | CHDGKAHFP | 5.6e-05 | 43 |
| HLA-B*51:01 | 1 | 1096 | 1105 | 10 | VSNGTHWVFT | 5.6e-05 | 50 |
| HLA-A*02:03 | 1 | 1100 | 1109 | 10 | THWVFTQRNF | 5.6e-05 | 44 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*11:01 | 1 | 1109 | 1117 | 9 | FYEPQIITT | 5.6e-05 | 26 |
| HLA-B*44:03 | 1 | 1120 | 1128 | 9 | TFVSGNCDV | 5.6e-05 | 27 |
| HLA-B*53:01 | 1 | 1150 | 1158 | 9 | EELDKYFKN | 5.6e-05 | 29 |
| HLA-B*51:01 | 1 | 1151 | 1160 | 10 | ELDKYFKNHT | 5.6e-05 | 50 |
| HLA-A*23:01 | 1 | 1155 | 1163 | 9 | YFKNHTSPD | 5.6e-05 | 26 |
| HLA-A*02:06 | 1 | 1159 | 1168 | 10 | HTSPDVDLGD | 5.6e-05 | 52 |
| HLA-A*02:03 | 1 | 1166 | 1175 | 10 | LGDISGINAS | 5.6e-05 | 44 |
| HLA-A*24:02 | 1 | 1170 | 1179 | 10 | SGINASVVNI | 5.6e-05 | 25 |
| HLA-B*53:01 | 1 | 1172 | 1181 | 10 | INASVVNIQK | 5.6e-05 | 29 |
| HLA-A*01:01 | 1 | 1175 | 1184 | 10 | SVVNIQKEID | 5.6e-05 | 60 |
| HLA-B*58:01 | 1 | 1176 | 1185 | 10 | VVNIQKEIDR | 5.6e-05 | 45 |
| HLA-A*01:01 | 1 | 1179 | 1187 | 9 | IQKEIDRLN | 5.6e-05 | 60 |
| HLA-B*44:03 | 1 | 1182 | 1190 | 9 | EIDRLNEVA | 5.6e-05 | 27 |
| HLA-B*40:01 | 1 | 1193 | 1202 | 10 | LNESLIDLQE | 5.6e-05 | 25 |
| HLA-A*30:02 | 1 | 1217 | 1226 | 10 | WLGFIAGLIA | 5.6e-05 | 66 |
| HLA-A*03:01 | 1 | 1219 | 1228 | 10 | GFIAGLIAIV | 5.6e-05 | 35 |
| HLA-A*32:01 | 1 | 1226 | 1235 | 10 | AIVMVTIMLC | 5.6e-05 | 32 |
| HLA-A*30:02 | 1 | 1254 | 1263 | 10 | CKFDEDDSEP | 5.6e-05 | 66 |
| HLA-A*68:01 | 1 | 1256 | 1265 | 10 | FDEDDSEPV | 5.6e-05 | 38 |
| HLA-A*02:06 | 1 | 1261 | 1269 | 9 | SEPVLKGVK | 5.6e-05 | 52 |
| HLA-B*07:02 | 1 | 1264 | 1273 | 10 | VLKGVKLHYT | 5.6e-05 | 39 |
| HLA-A*68:01 | 1 | 10 | 19 | 10 | LVSSQCVNLT | 5.5e-05 | 38 |
| HLA-B*44:03 | 1 | 12 | 21 | 10 | SSQCVNLTTT | 5.5e-05 | 27 |
| HLA-B*44:02 | 1 | 13 | 22 | 10 | SQCVNLTTTR | 5.5e-05 | 29 |
| HLA-A*68:02 | 1 | 16 | 25 | 10 | VNLTRTQLP | 5.5e-05 | 44 |
| HLA-B*58:01 | 1 | 17 | 26 | 10 | NLTTTRTQLP | 5.5e-05 | 45 |
| HLA-A*03:01 | 1 | 26 | 35 | 10 | PAYTNSFTRG | 5.5e-05 | 36 |
| HLA-B*53:01 | 1 | 34 | 42 | 9 | RGVYYPDKV | 5.5e-05 | 29 |
| HLA-A*24:02 | 1 | 38 | 46 | 9 | YDPKVFRRSS | 5.5e-05 | 26 |
| HLA-A*31:01 | 1 | 38 | 46 | 9 | YDPKVFRRSS | 5.5e-05 | 43 |
| HLA-A*26:01 | 1 | 62 | 71 | 10 | VTWFHAIHVS | 5.5e-05 | 36 |
| HLA-B*57:01 | 1 | 65 | 74 | 10 | FHAIHVSGETN | 5.5e-05 | 57 |
| HLA-A*02:06 | 1 | 68 | 76 | 9 | IHVSGTNGT | 5.5e-05 | 52 |
| HLA-A*68:02 | 1 | 79 | 87 | 9 | FDNPVLPFN | 5.5e-05 | 44 |
| HLA-A*02:06 | 1 | 94 | 103 | 10 | STEKSNIIRG | 5.5e-05 | 52 |
| HLA-A*02:03 | 1 | 95 | 104 | 10 | TEKSNIIRGW | 5.5e-05 | 44 |
| HLA-B*35:01 | 1 | 95 | 103 | 9 | TEKSNIIRG | 5.5e-05 | 30 |
| HLA-A*23:01 | 1 | 98 | 107 | 10 | SNIIRGWIFG | 5.5e-05 | 26 |
| HLA-B*58:01 | 1 | 98 | 107 | 10 | SNIIRGWIFG | 5.5e-05 | 45 |
| HLA-A*32:01 | 1 | 100 | 109 | 10 | IIRGWIFGTT | 5.5e-05 | 32 |
| HLA-A*02:01 | 1 | 113 | 121 | 9 | KTQSLLVN | 5.5e-05 | 41 |
| HLA-A*30:01 | 1 | 125 | 134 | 10 | NVVIKVECFQ | 5.5e-05 | 68 |
| HLA-A*68:02 | 1 | 137 | 146 | 10 | NDPFLGVYYH | 5.5e-05 | 44 |
| HLA-B*44:03 | 1 | 138 | 147 | 10 | DPFLGVYYHK | 5.5e-05 | 27 |
| HLA-A*68:01 | 1 | 144 | 153 | 10 | YYHKNNKSWM | 5.5e-05 | 38 |
| HLA-B*58:01 | 1 | 153 | 162 | 10 | MESEFRVYSS | 5.5e-05 | 45 |
| HLA-A*33:01 | 1 | 156 | 165 | 10 | EFRVYSSANN | 5.5e-05 | 45 |
| HLA-B*40:01 | 1 | 163 | 171 | 9 | ANNCTFEYV | 5.5e-05 | 25 |
| HLA-A*11:01 | 1 | 175 | 183 | 9 | FLMDLEGKQ | 5.5e-05 | 26 |
| HLA-B*57:01 | 1 | 182 | 191 | 10 | KQGNFKNLRE | 5.5e-05 | 57 |
| HLA-B*44:02 | 1 | 184 | 193 | 10 | GNFKNLREFV | 5.5e-05 | 29 |
| HLA-A*30:02 | 1 | 197 | 205 | 9 | IDGYFKIYS | 5.5e-05 | 66 |
| HLA-B*08:01 | 1 | 199 | 208 | 10 | GYFKIYSKHT | 5.5e-05 | 58 |
| HLA-B*57:01 | 1 | 209 | 217 | 9 | PINLVRDLP | 5.5e-05 | 57 |
| HLA-A*26:01 | 1 | 211 | 219 | 9 | NLVRDLPQG | 5.5e-05 | 36 |
| HLA-B*44:03 | 1 | 221 | 230 | 10 | SALEPLVDLP | 5.5e-05 | 27 |
| HLA-B*44:02 | 1 | 227 | 236 | 10 | VDLPIGINIT | 5.5e-05 | 29 |
| HLA-B*35:01 | 1 | 232 | 241 | 10 | GINITRFQTL | 5.5e-05 | 30 |
| HLA-A*33:01 | 1 | 243 | 251 | 9 | ALHRSYLTP | 5.5e-05 | 45 |
| HLA-A*02:01 | 1 | 247 | 255 | 9 | SYLTPGDSS | 5.5e-05 | 41 |
| HLA-A*68:02 | 1 | 250 | 259 | 10 | TPGDSSSGWT | 5.5e-05 | 44 |
| HLA-B*40:01 | 1 | 263 | 271 | 9 | AAYYVGYLQ | 5.5e-05 | 25 |
| HLA-B*35:01 | 1 | 269 | 278 | 10 | YLQPRTFLLK | 5.5e-05 | 30 |
| HLA-B*44:02 | 1 | 277 | 285 | 9 | LKYNGTI | 5.5e-05 | 29 |
| HLA-A*02:01 | 1 | 296 | 304 | 9 | LSETKCTLK | 5.5e-05 | 41 |
| HLA-B*08:01 | 1 | 303 | 312 | 10 | LKSFTVEKGI | 5.5e-05 | 58 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*44:03 | 1 | 306 | 314 | 9 | FTVEKGIYQ | 5.5e-05 | 27 |
| HLA-A*33:01 | 1 | 313 | 322 | 10 | YQTSNFRVQP | 5.5e-05 | 45 |
| HLA-A*03:01 | 1 | 317 | 325 | 9 | NFRVQPTES | 5.5e-05 | 36 |
| HLA-A*02:03 | 1 | 321 | 330 | 10 | QPTESIVRFP | 5.5e-05 | 44 |
| HLA-A*11:01 | 1 | 325 | 333 | 9 | SIVRFPNIT | 5.5e-05 | 26 |
| HLA-A*01:01 | 1 | 353 | 361 | 9 | WNRKRISNC | 5.5e-05 | 60 |
| HLA-A*31:01 | 1 | 362 | 371 | 10 | VADYSVLYNS | 5.5e-05 | 43 |
| HLA-B*44:03 | 1 | 377 | 386 | 10 | FKCYGVSPTK | 5.5e-05 | 27 |
| HLA-A*03:01 | 1 | 382 | 390 | 9 | VSPTKLNDL | 5.5e-05 | 36 |
| HLA-A*03:01 | 1 | 388 | 396 | 9 | NDLCFITNVY | 5.5e-05 | 36 |
| HLA-B*08:01 | 1 | 401 | 409 | 9 | VIRGDEVQR | 5.5e-05 | 58 |
| HLA-B*51:01 | 1 | 407 | 415 | 9 | VRQIAPGQT | 5.5e-05 | 51 |
| HLA-B*40:01 | 1 | 416 | 424 | 9 | GKIADYNYK | 5.5e-05 | 25 |
| HLA-A*68:01 | 1 | 422 | 430 | 9 | NYKLPDDFT | 5.5e-05 | 38 |
| HLA-B*44:03 | 1 | 423 | 431 | 9 | YKLPDDFTG | 5.5e-05 | 27 |
| HLA-A*24:02 | 1 | 425 | 433 | 9 | LPDDFTGCV | 5.5e-05 | 26 |
| HLA-A*68:01 | 1 | 436 | 445 | 10 | WNSNNLDSKV | 5.5e-05 | 38 |
| HLA-A*11:01 | 1 | 453 | 461 | 9 | YRLFRRKSNL | 5.5e-05 | 26 |
| HLA-B*44:02 | 1 | 457 | 466 | 10 | RKSNLKPFR | 5.5e-05 | 29 |
| HLA-A*01:01 | 1 | 460 | 469 | 10 | NLKPFRDIS | 5.5e-05 | 60 |
| HLA-B*58:01 | 1 | 467 | 476 | 10 | DISTEIYQAG | 5.5e-05 | 45 |
| HLA-A*11:01 | 1 | 470 | 479 | 10 | TEIYQAGSTP | 5.5e-05 | 26 |
| HLA-A*68:01 | 1 | 477 | 485 | 9 | STPCNGVEG | 5.5e-05 | 38 |
| HLA-A*24:02 | 1 | 485 | 493 | 9 | GFNCYFPLQ | 5.5e-05 | 26 |
| HLA-A*02:01 | 1 | 486 | 494 | 9 | FNCYFPLQS | 5.5e-05 | 41 |
| HLA-B*40:01 | 1 | 488 | 497 | 10 | CYFPLQSYGF | 5.5e-05 | 25 |
| HLA-A*03:01 | 1 | 493 | 502 | 10 | QSYGFQPTNG | 5.5e-05 | 36 |
| HLA-A*23:01 | 1 | 496 | 504 | 9 | GFQPTNGVG | 5.5e-05 | 26 |
| HLA-A*11:01 | 1 | 499 | 507 | 9 | PTNGVGYQP | 5.5e-05 | 26 |
| HLA-A*23:01 | 1 | 500 | 508 | 9 | TNGVGYQPY | 5.5e-05 | 26 |
| HLA-B*07:02 | 1 | 518 | 526 | 9 | LHAPATVCG | 5.5e-05 | 39 |
| HLA-A*30:02 | 1 | 532 | 540 | 9 | NLVKNKCVN | 5.5e-05 | 66 |
| HLA-B*51:01 | 1 | 539 | 548 | 10 | VNFNFNGLTG | 5.5e-05 | 51 |
| HLA-A*02:06 | 1 | 548 | 557 | 10 | GTGVLTESNK | 5.5e-05 | 52 |
| HLA-A*02:01 | 1 | 559 | 568 | 10 | FLPFQQFGRD | 5.5e-05 | 41 |
| HLA-B*53:01 | 1 | 584 | 593 | 10 | ILDITPCSF | 5.5e-05 | 29 |
| HLA-A*23:01 | 1 | 603 | 612 | 10 | NTSNQVAVLY | 5.5e-05 | 26 |
| HLA-A*01:01 | 1 | 608 | 616 | 9 | VAVLYQDVN | 5.5e-05 | 60 |
| HLA-A*24:02 | 1 | 624 | 632 | 9 | IHADQLTPT | 5.5e-05 | 26 |
| HLA-A*30:02 | 1 | 630 | 639 | 10 | TPTWRVYSTG | 5.5e-05 | 66 |
| HLA-B*44:03 | 1 | 633 | 642 | 10 | WRVYSTGSNV | 5.5e-05 | 27 |
| HLA-B*58:01 | 1 | 642 | 650 | 9 | VFQTRAGCL | 5.5e-05 | 45 |
| HLA-A*02:06 | 1 | 646 | 655 | 10 | RAGCLIGAEH | 5.5e-05 | 52 |
| HLA-B*58:01 | 1 | 646 | 654 | 9 | RAGCLIGAE | 5.5e-05 | 45 |
| HLA-A*02:06 | 1 | 656 | 664 | 9 | VNNSYECDI | 5.5e-05 | 52 |
| HLA-A*11:01 | 1 | 667 | 675 | 9 | GAGICASYQ | 5.5e-05 | 26 |
| HLA-B*57:01 | 1 | 667 | 675 | 9 | GAGICASYQ | 5.5e-05 | 57 |
| HLA-B*08:01 | 1 | 668 | 676 | 9 | AGICASYQT | 5.5e-05 | 58 |
| HLA-A*01:01 | 1 | 680 | 689 | 10 | SPRRARSVAS | 5.5e-05 | 60 |
| HLA-A*02:06 | 1 | 680 | 688 | 9 | SPRRARSV | 5.5e-05 | 52 |
| HLA-B*53:01 | 1 | 683 | 691 | 9 | RARSVASQS | 5.5e-05 | 29 |
| HLA-A*26:01 | 1 | 692 | 700 | 9 | IIAYTMSLG | 5.5e-05 | 36 |
| HLA-A*30:01 | 1 | 748 | 757 | 10 | ECSNLLLQYG | 5.5e-05 | 68 |
| HLA-B*15:01 | 1 | 758 | 766 | 9 | SFCTQLNRA | 5.5e-05 | 42 |
| HLA-B*44:03 | 1 | 766 | 774 | 9 | ALTGIAVEQ | 5.5e-05 | 27 |
| HLA-B*53:01 | 1 | 766 | 774 | 9 | ALTGIAVEQ | 5.5e-05 | 29 |
| HLA-A*68:02 | 1 | 771 | 779 | 9 | AVEQDKNTQ | 5.5e-05 | 44 |
| HLA-A*68:02 | 1 | 779 | 787 | 9 | QEVFAQVKQ | 5.5e-05 | 44 |
| HLA-B*07:02 | 1 | 799 | 807 | 9 | GFNFSQILP | 5.5e-05 | 39 |
| HLA-A*30:02 | 1 | 801 | 810 | 10 | NFSQILPDPS | 5.5e-05 | 66 |
| HLA-A*23:01 | 1 | 803 | 812 | 10 | SQILPDPSKP | 5.5e-05 | 26 |
| HLA-B*58:01 | 1 | 817 | 826 | 10 | FIEDLLFNKV | 5.5e-05 | 45 |
| HLA-B*40:01 | 1 | 832 | 841 | 10 | GFIKQYGDCL | 5.5e-05 | 25 |
| HLA-A*30:02 | 1 | 837 | 845 | 9 | YGDCLGDIA | 5.5e-05 | 66 |
| HLA-A*02:03 | 1 | 855 | 863 | 9 | FNGLTVLPP | 5.5e-05 | 44 |
| HLA-B*58:01 | 1 | 868 | 876 | 9 | EMIAQY TSA | 5.5e-05 | 45 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*03:01 | 1 | 874 | 882 | 9 | TSALLAGTI | 5.5e-05 | 36 |
| HLA-B*08:01 | 1 | 876 | 885 | 10 | ALLAGTITSG | 5.5e-05 | 58 |
| HLA-A*11:01 | 1 | 883 | 892 | 10 | TSGWTFGAGA | 5.5e-05 | 26 |
| HLA-A*11:01 | 1 | 890 | 899 | 10 | AGAALQIPFA | 5.5e-05 | 26 |
| HLA-A*23:01 | 1 | 894 | 903 | 10 | LQIPFAMQMA | 5.5e-05 | 26 |
| HLA-A*02:03 | 1 | 899 | 908 | 10 | AMQMAYRFNG | 5.5e-05 | 44 |
| HLA-A*32:01 | 1 | 906 | 915 | 10 | FNGIGVTQNV | 5.5e-05 | 32 |
| HLA-B*15:01 | 1 | 913 | 921 | 9 | QNVLYENQK | 5.5e-05 | 42 |
| HLA-B*57:01 | 1 | 916 | 924 | 9 | LYENQKLIA | 5.5e-05 | 57 |
| HLA-B*51:01 | 1 | 919 | 928 | 10 | NOKLIANQFN | 5.5e-05 | 51 |
| HLA-B*44:03 | 1 | 929 | 937 | 9 | SAIGKIQDS | 5.5e-05 | 27 |
| HLA-B*07:02 | 1 | 935 | 943 | 9 | QDLSSTAS | 5.5e-05 | 39 |
| HLA-A*03:01 | 1 | 946 | 954 | 9 | GKLQDVVNQ | 5.5e-05 | 36 |
| HLA-B*44:03 | 1 | 947 | 955 | 9 | KLQDVVNQN | 5.5e-05 | 27 |
| HLA-B*51:01 | 1 | 951 | 960 | 10 | VVNQNAQALN | 5.5e-05 | 51 |
| HLA-A*03:01 | 1 | 955 | 963 | 9 | NAQALNTLV | 5.5e-05 | 36 |
| HLA-B*51:01 | 1 | 962 | 971 | 10 | LVKQLSSNFG | 5.5e-05 | 51 |
| HLA-A*01:01 | 1 | 971 | 979 | 9 | GAISSVLND | 5.5e-05 | 60 |
| HLA-B*58:01 | 1 | 977 | 986 | 10 | LNDILSRLDK | 5.5e-05 | 45 |
| HLA-B*08:01 | 1 | 978 | 986 | 9 | NDILSRLDK | 5.5e-05 | 58 |
| HLA-B*07:02 | 1 | 1013 | 1021 | 9 | IRAAEIRAS | 5.5e-05 | 39 |
| HLA-A*33:01 | 1 | 1016 | 1025 | 10 | AEIRASANLA | 5.5e-05 | 45 |
| HLA-A*11:01 | 1 | 1017 | 1025 | 9 | EIRASANLA | 5.5e-05 | 26 |
| HLA-B*08:01 | 1 | 1018 | 1027 | 10 | IRASANLAAT | 5.5e-05 | 58 |
| HLA-B*44:02 | 1 | 1019 | 1028 | 10 | RASANLAATK | 5.5e-05 | 29 |
| HLA-A*30:02 | 1 | 1027 | 1035 | 9 | TKMSECVLG | 5.5e-05 | 66 |
| HLA-A*68:01 | 1 | 1061 | 1070 | 10 | VFLHVTVVPA | 5.5e-05 | 38 |
| HLA-B*57:01 | 1 | 1063 | 1071 | 9 | LHVTVVPAQ | 5.5e-05 | 57 |
| HLA-A*01:01 | 1 | 1066 | 1074 | 9 | TYVPAQEK | 5.5e-05 | 60 |
| HLA-B*15:01 | 1 | 1110 | 1118 | 9 | YEQIITTD | 5.5e-05 | 42 |
| HLA-B*07:02 | 1 | 1115 | 1123 | 9 | ITDNTFVS | 5.5e-05 | 39 |
| HLA-A*24:02 | 1 | 1121 | 1130 | 10 | FVSGNCDVVI | 5.5e-05 | 26 |
| HLA-A*68:01 | 1 | 1123 | 1132 | 10 | SGNCDVVI | 5.5e-05 | 38 |
| HLA-A*02:03 | 1 | 1131 | 1139 | 9 | GIVNNTVYD | 5.5e-05 | 44 |
| HLA-A*11:01 | 1 | 1132 | 1140 | 9 | IVNNTVYDP | 5.5e-05 | 26 |
| HLA-A*02:06 | 1 | 1153 | 1161 | 9 | DKYFKNHTS | 5.5e-05 | 52 |
| HLA-A*02:06 | 1 | 1173 | 1182 | 10 | NASVNIQKE | 5.5e-05 | 52 |
| HLA-A*30:02 | 1 | 1173 | 1182 | 10 | NASVNIQKE | 5.5e-05 | 66 |
| HLA-A*26:01 | 1 | 1189 | 1198 | 10 | VAKNLNESLI | 5.5e-05 | 36 |
| HLA-A*68:02 | 1 | 1192 | 1201 | 10 | NLNLNLI | 5.5e-05 | 44 |
| HLA-B*51:01 | 1 | 1222 | 1231 | 10 | AGLIAIVMVT | 5.5e-05 | 51 |
| HLA-B*58:01 | 1 | 1223 | 1231 | 9 | GLIAIVMVT | 5.5e-05 | 45 |
| HLA-A*01:01 | 1 | 1237 | 1246 | 10 | MTSCCCLKG | 5.5e-05 | 60 |
| HLA-B*07:02 | 1 | 1242 | 1250 | 9 | SCLKGCCSC | 5.5e-05 | 39 |
| HLA-B*57:01 | 1 | 1245 | 1253 | 9 | KGCCSCGSC | 5.5e-05 | 57 |
| HLA-A*02:01 | 1 | 1257 | 1266 | 10 | DEDDSEPVLK | 5.5e-05 | 41 |
| HLA-B*08:01 | 1 | 1260 | 1269 | 10 | DSEPVLKGVK | 5.5e-05 | 58 |
| HLA-A*01:01 | 1 | 4 | 13 | 10 | FLVLLPLVSS | 5.4e-05 | 61 |
| HLA-A*23:01 | 1 | 6 | 15 | 10 | VLLPLVSSQC | 5.4e-05 | 27 |
| HLA-B*35:01 | 1 | 7 | 15 | 9 | LLPLVSSQC | 5.4e-05 | 30 |
| HLA-A*33:01 | 1 | 9 | 18 | 10 | PLVSSQCVNL | 5.4e-05 | 45 |
| HLA-A*33:01 | 1 | 34 | 42 | 9 | RGVYYPDKV | 5.4e-05 | 45 |
| HLA-A*02:03 | 1 | 39 | 47 | 9 | PDKVFRSSV | 5.4e-05 | 44 |
| HLA-A*30:02 | 1 | 39 | 47 | 9 | PDKVFRSSV | 5.4e-05 | 66 |
| HLA-A*33:01 | 1 | 39 | 47 | 9 | PDKVFRSSV | 5.4e-05 | 45 |
| HLA-B*58:01 | 1 | 42 | 51 | 10 | VFRSSVLHST | 5.4e-05 | 45 |
| HLA-B*35:01 | 1 | 68 | 76 | 9 | IHSVGTNGT | 5.4e-05 | 30 |
| HLA-B*07:02 | 1 | 74 | 83 | 10 | NGTKRFDNPV | 5.4e-05 | 40 |
| HLA-A*23:01 | 1 | 82 | 91 | 10 | PVLPFNDGVY | 5.4e-05 | 27 |
| HLA-A*24:02 | 1 | 91 | 99 | 9 | YFASTEKSN | 5.4e-05 | 26 |
| HLA-B*40:01 | 1 | 92 | 101 | 10 | FASTEKSNII | 5.4e-05 | 25 |
| HLA-B*51:01 | 1 | 93 | 102 | 10 | ASTEKSNII | 5.4e-05 | 51 |
| HLA-A*68:02 | 1 | 100 | 109 | 10 | IIRGWIFGTT | 5.4e-05 | 44 |
| HLA-B*51:01 | 1 | 100 | 109 | 10 | IIRGWIFGTT | 5.4e-05 | 51 |
| HLA-A*32:01 | 1 | 101 | 109 | 9 | IRGWIFGTT | 5.4e-05 | 32 |
| HLA-B*58:01 | 1 | 106 | 114 | 9 | FGTTLDSKT | 5.4e-05 | 45 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*40:01 | 1 | 116 | 124 | 9 | SLLIVNNAT | 5.4e-05 | 25 |
| HLA-B*57:01 | 1 | 116 | 124 | 9 | SLLIVNNAT | 5.4e-05 | 57 |
| HLA-B*58:01 | 1 | 116 | 124 | 9 | SLLIVNNAT | 5.4e-05 | 45 |
| HLA-B*35:01 | 1 | 126 | 134 | 9 | VVIKVEFQ | 5.4e-05 | 30 |
| HLA-A*68:02 | 1 | 136 | 144 | 9 | CNDPFLGVY | 5.4e-05 | 44 |
| HLA-B*07:02 | 1 | 150 | 158 | 9 | KSWMESEFR | 5.4e-05 | 40 |
| HLA-B*53:01 | 1 | 154 | 163 | 10 | ESEFRVYSSA | 5.4e-05 | 29 |
| HLA-A*33:01 | 1 | 157 | 166 | 10 | FRVYSSANNC | 5.4e-05 | 45 |
| HLA-A*30:01 | 1 | 164 | 172 | 9 | NNCTFEYVS | 5.4e-05 | 68 |
| HLA-B*53:01 | 1 | 165 | 174 | 10 | NCTFEYVSQP | 5.4e-05 | 29 |
| HLA-A*26:01 | 1 | 194 | 202 | 9 | FKNIDGYFK | 5.4e-05 | 37 |
| HLA-A*03:01 | 1 | 196 | 205 | 10 | NIDGYFKIYS | 5.4e-05 | 36 |
| HLA-B*51:01 | 1 | 197 | 205 | 9 | IDGYFKIYS | 5.4e-05 | 51 |
| HLA-B*08:01 | 1 | 207 | 215 | 9 | HTPINLVRD | 5.4e-05 | 58 |
| HLA-A*30:02 | 1 | 217 | 225 | 9 | PQGFSALEP | 5.4e-05 | 66 |
| HLA-A*31:01 | 1 | 222 | 230 | 9 | ALEPLVDLP | 5.4e-05 | 43 |
| HLA-B*44:02 | 1 | 235 | 244 | 10 | ITRFQTLAL | 5.4e-05 | 29 |
| HLA-B*07:02 | 1 | 238 | 246 | 9 | FQTLALHR | 5.4e-05 | 40 |
| HLA-A*32:01 | 1 | 242 | 251 | 10 | LALHRSYLT | 5.4e-05 | 32 |
| HLA-B*07:02 | 1 | 253 | 261 | 9 | DSSSGWTAG | 5.4e-05 | 40 |
| HLA-B*15:01 | 1 | 253 | 261 | 9 | DSSSGWTAG | 5.4e-05 | 42 |
| HLA-A*26:01 | 1 | 255 | 264 | 10 | SSGWTAGAAA | 5.4e-05 | 37 |
| HLA-B*44:02 | 1 | 271 | 280 | 10 | QPRTFLLKYN | 5.4e-05 | 29 |
| HLA-A*11:01 | 1 | 284 | 292 | 9 | TITDAVDCA | 5.4e-05 | 27 |
| HLA-B*51:01 | 1 | 298 | 307 | 10 | ETKCTLKSFT | 5.4e-05 | 51 |
| HLA-B*40:01 | 1 | 305 | 313 | 9 | SFTVEKGIY | 5.4e-05 | 25 |
| HLA-B*08:01 | 1 | 312 | 321 | 10 | IYQTSNFRVQ | 5.4e-05 | 58 |
| HLA-A*03:01 | 1 | 318 | 327 | 10 | FRVQPTESIV | 5.4e-05 | 36 |
| HLA-A*68:02 | 1 | 331 | 339 | 9 | NITNLCPFG | 5.4e-05 | 44 |
| HLA-B*15:01 | 1 | 341 | 350 | 10 | VFNATRFASV | 5.4e-05 | 42 |
| HLA-A*23:01 | 1 | 352 | 360 | 9 | AWNKRKISN | 5.4e-05 | 27 |
| HLA-A*24:02 | 1 | 359 | 367 | 9 | SNCVADYSV | 5.4e-05 | 26 |
| HLA-A*02:01 | 1 | 369 | 378 | 10 | YNSASFSTFK | 5.4e-05 | 41 |
| HLA-B*44:02 | 1 | 382 | 390 | 9 | VSPTKLNDL | 5.4e-05 | 29 |
| HLA-A*68:01 | 1 | 388 | 397 | 10 | NDLCFTNVYA | 5.4e-05 | 38 |
| HLA-A*32:01 | 1 | 389 | 397 | 9 | DLCFTNVYA | 5.4e-05 | 32 |
| HLA-A*31:01 | 1 | 393 | 401 | 9 | TNVYADSFV | 5.4e-05 | 43 |
| HLA-A*03:01 | 1 | 410 | 418 | 9 | IAPGQTGKI | 5.4e-05 | 36 |
| HLA-A*30:01 | 1 | 413 | 422 | 10 | GQTGKIADYN | 5.4e-05 | 68 |
| HLA-B*58:01 | 1 | 416 | 424 | 9 | GKIADYNYK | 5.4e-05 | 45 |
| HLA-B*57:01 | 1 | 428 | 437 | 10 | DFTGCVIAWN | 5.4e-05 | 57 |
| HLA-B*58:01 | 1 | 429 | 437 | 9 | FTGCVIAWN | 5.4e-05 | 45 |
| HLA-A*68:02 | 1 | 433 | 442 | 10 | VIAWNSNNLD | 5.4e-05 | 44 |
| HLA-B*44:03 | 1 | 433 | 441 | 9 | VIAWNSNNL | 5.4e-05 | 28 |
| HLA-A*68:02 | 1 | 434 | 442 | 9 | IAWNSNNLD | 5.4e-05 | 44 |
| HLA-A*03:01 | 1 | 437 | 445 | 9 | NSNNLDSKV | 5.4e-05 | 36 |
| HLA-A*24:02 | 1 | 442 | 451 | 10 | DSKVGGNYNY | 5.4e-05 | 26 |
| HLA-B*57:01 | 1 | 461 | 470 | 10 | LKPFERDIST | 5.4e-05 | 57 |
| HLA-A*02:01 | 1 | 481 | 489 | 9 | NGVEGFNCY | 5.4e-05 | 41 |
| HLA-A*02:01 | 1 | 482 | 491 | 10 | GVEGFNCYFP | 5.4e-05 | 41 |
| HLA-A*68:01 | 1 | 493 | 502 | 10 | QSYGFQPTNG | 5.4e-05 | 38 |
| HLA-A*01:01 | 1 | 495 | 504 | 10 | YGFQPTNGVG | 5.4e-05 | 61 |
| HLA-B*51:01 | 1 | 514 | 523 | 10 | SFELLHAPAT | 5.4e-05 | 51 |
| HLA-A*02:03 | 1 | 518 | 527 | 10 | LHAPATVCGP | 5.4e-05 | 44 |
| HLA-B*57:01 | 1 | 520 | 528 | 9 | APATVCGPK | 5.4e-05 | 57 |
| HLA-B*53:01 | 1 | 547 | 555 | 9 | TGTGVLTES | 5.4e-05 | 29 |
| HLA-A*03:01 | 1 | 556 | 564 | 9 | NKKFLPFQQ | 5.4e-05 | 36 |
| HLA-B*15:01 | 1 | 568 | 577 | 10 | DIADTTDAVR | 5.4e-05 | 42 |
| HLA-B*08:01 | 1 | 572 | 580 | 9 | TTDAVRDPQ | 5.4e-05 | 58 |
| HLA-A*33:01 | 1 | 577 | 585 | 9 | RDPQTLLEIL | 5.4e-05 | 45 |
| HLA-A*26:01 | 1 | 578 | 587 | 10 | DPQTLLEIL | 5.4e-05 | 37 |
| HLA-A*33:01 | 1 | 599 | 607 | 9 | TPGTNTSNQ | 5.4e-05 | 45 |
| HLA-A*24:02 | 1 | 603 | 612 | 10 | NTSNQVAVLY | 5.4e-05 | 26 |
| HLA-B*44:03 | 1 | 611 | 620 | 10 | LYQDVNCTEV | 5.4e-05 | 28 |
| HLA-B*40:01 | 1 | 615 | 623 | 9 | VNCTEVPVA | 5.4e-05 | 25 |
| HLA-B*15:01 | 1 | 617 | 626 | 10 | CTEVPVAIHA | 5.4e-05 | 42 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-B*44:02 | 1 | 624 | 632 | 9 | IHADQLTPT | 5.4e-05 | 29 |
| HLA-A*01:01 | 1 | 653 | 662 | 10 | AEHVNNSEYEC | 5.4e-05 | 61 |
| HLA-B*44:02 | 1 | 664 | 672 | 9 | IPIGAGICA | 5.4e-05 | 29 |
| HLA-B*07:02 | 1 | 675 | 684 | 10 | QTQTNSPRRA | 5.4e-05 | 40 |
| HLA-B*35:01 | 1 | 690 | 698 | 9 | QSIIAYTMS | 5.4e-05 | 30 |
| HLA-A*31:01 | 1 | 692 | 701 | 10 | IIAYTMSLGA | 5.4e-05 | 43 |
| HLA-A*03:01 | 1 | 716 | 725 | 10 | TNFTISVTTE | 5.4e-05 | 36 |
| HLA-A*03:01 | 1 | 721 | 730 | 10 | SVTTEILPVS | 5.4e-05 | 36 |
| HLA-B*15:01 | 1 | 744 | 752 | 9 | GDSTECSNL | 5.4e-05 | 42 |
| HLA-A*68:01 | 1 | 759 | 768 | 10 | FCTQLNRALT | 5.4e-05 | 38 |
| HLA-A*26:01 | 1 | 764 | 773 | 10 | NRALTGIAVE | 5.4e-05 | 37 |
| HLA-B*57:01 | 1 | 764 | 772 | 9 | NRALTGIAV | 5.4e-05 | 57 |
| HLA-A*02:01 | 1 | 771 | 779 | 9 | AVEQDKNTQ | 5.4e-05 | 41 |
| HLA-A*02:06 | 1 | 772 | 780 | 9 | VEQDKNTQE | 5.4e-05 | 52 |
| HLA-A*26:01 | 1 | 778 | 787 | 10 | TQEVFAQVKQ | 5.4e-05 | 37 |
| HLA-A*26:01 | 1 | 783 | 792 | 10 | AQVKQIYKTP | 5.4e-05 | 37 |
| HLA-B*57:01 | 1 | 788 | 796 | 9 | IYKTPPIKD | 5.4e-05 | 57 |
| HLA-A*31:01 | 1 | 797 | 806 | 10 | FGGFNFSQIL | 5.4e-05 | 43 |
| HLA-A*68:02 | 1 | 800 | 808 | 9 | FNFSQILPD | 5.4e-05 | 44 |
| HLA-B*07:02 | 1 | 835 | 844 | 10 | KQYGDCLGDI | 5.4e-05 | 40 |
| HLA-B*40:01 | 1 | 837 | 845 | 9 | YGDCLGDIA | 5.4e-05 | 25 |
| HLA-B*53:01 | 1 | 837 | 845 | 9 | YGDCLGDIA | 5.4e-05 | 29 |
| HLA-A*30:02 | 1 | 842 | 851 | 10 | GDIAARDLIC | 5.4e-05 | 66 |
| HLA-B*08:01 | 1 | 854 | 863 | 10 | KFNGLTVLPP | 5.4e-05 | 58 |
| HLA-A*68:02 | 1 | 867 | 875 | 9 | DEMIAQYTS | 5.4e-05 | 44 |
| HLA-B*51:01 | 1 | 872 | 880 | 9 | QYTSALLAG | 5.4e-05 | 51 |
| HLA-B*53:01 | 1 | 875 | 884 | 10 | SALLAGTITS | 5.4e-05 | 29 |
| HLA-A*33:01 | 1 | 885 | 893 | 9 | GWTFGAGAA | 5.4e-05 | 45 |
| HLA-A*68:01 | 1 | 887 | 896 | 10 | TFGAGAALQI | 5.4e-05 | 38 |
| HLA-B*15:01 | 1 | 890 | 899 | 10 | AGAALQIPFA | 5.4e-05 | 42 |
| HLA-B*53:01 | 1 | 894 | 903 | 10 | LQIPFAMQMA | 5.4e-05 | 29 |
| HLA-A*24:02 | 1 | 896 | 905 | 10 | IPFAMQMAYR | 5.4e-05 | 26 |
| HLA-A*30:02 | 1 | 901 | 910 | 10 | QMAYRFNGIG | 5.4e-05 | 66 |
| HLA-B*57:01 | 1 | 919 | 928 | 10 | NQKLIANQFN | 5.4e-05 | 57 |
| HLA-A*31:01 | 1 | 927 | 935 | 9 | FNSAIGKIQ | 5.4e-05 | 43 |
| HLA-B*08:01 | 1 | 930 | 939 | 10 | ATGKIQDSL | 5.4e-05 | 58 |
| HLA-A*02:03 | 1 | 932 | 940 | 9 | GKIQDSLSS | 5.4e-05 | 44 |
| HLA-B*35:01 | 1 | 933 | 941 | 9 | KIQDSLSS | 5.4e-05 | 30 |
| HLA-A*03:01 | 1 | 936 | 945 | 10 | DSLSSTASAL | 5.4e-05 | 36 |
| HLA-A*02:03 | 1 | 939 | 947 | 9 | SSTASALGK | 5.4e-05 | 44 |
| HLA-B*40:01 | 1 | 939 | 947 | 9 | SSTASALGK | 5.4e-05 | 25 |
| HLA-A*26:01 | 1 | 944 | 952 | 9 | ALGKLQDVV | 5.4e-05 | 37 |
| HLA-A*03:01 | 1 | 948 | 957 | 10 | LQDVVNQNAQ | 5.4e-05 | 36 |
| HLA-A*23:01 | 1 | 950 | 959 | 10 | DVVNQNQAAL | 5.4e-05 | 27 |
| HLA-A*68:02 | 1 | 963 | 972 | 10 | VKQLSSNFGA | 5.4e-05 | 44 |
| HLA-B*58:01 | 1 | 963 | 972 | 10 | VKQLSSNFGA | 5.4e-05 | 45 |
| HLA-A*03:01 | 1 | 980 | 988 | 9 | ILSRLDKVE | 5.4e-05 | 36 |
| HLA-B*53:01 | 1 | 987 | 995 | 9 | VEAEVQIDR | 5.4e-05 | 29 |
| HLA-A*31:01 | 1 | 994 | 1002 | 9 | DRLITGRLQ | 5.4e-05 | 43 |
| HLA-B*53:01 | 1 | 1019 | 1027 | 9 | RASANLAAT | 5.4e-05 | 29 |
| HLA-A*23:01 | 1 | 1020 | 1029 | 10 | ASANLAATKM | 5.4e-05 | 27 |
| HLA-B*15:01 | 1 | 1024 | 1033 | 10 | LAATKMSECV | 5.4e-05 | 42 |
| HLA-A*68:01 | 1 | 1025 | 1034 | 10 | AATKMSECVL | 5.4e-05 | 38 |
| HLA-A*11:01 | 1 | 1032 | 1040 | 9 | CVLGQSKRV | 5.4e-05 | 27 |
| HLA-A*24:02 | 1 | 1032 | 1040 | 9 | CVLGQSKRV | 5.4e-05 | 26 |
| HLA-A*03:01 | 1 | 1035 | 1043 | 9 | GQSKRVDFC | 5.4e-05 | 36 |
| HLA-A*23:01 | 1 | 1035 | 1043 | 9 | GQSKRVDFC | 5.4e-05 | 27 |
| HLA-A*02:06 | 1 | 1041 | 1050 | 10 | DFCGKGYHLM | 5.4e-05 | 52 |
| HLA-A*03:01 | 1 | 1041 | 1050 | 10 | DFCGKGYHLM | 5.4e-05 | 36 |
| HLA-A*68:01 | 1 | 1046 | 1054 | 9 | GYHLMSFPQ | 5.4e-05 | 38 |
| HLA-A*32:01 | 1 | 1052 | 1061 | 10 | FPQSAPHGVV | 5.4e-05 | 32 |
| HLA-A*68:01 | 1 | 1061 | 1069 | 9 | VFLHVTYVP | 5.4e-05 | 38 |
| HLA-A*01:01 | 1 | 1063 | 1071 | 9 | LHVTYVPAQ | 5.4e-05 | 61 |
| HLA-A*26:01 | 1 | 1066 | 1074 | 9 | TYVPAQEK | 5.4e-05 | 37 |
| HLA-B*35:01 | 1 | 1072 | 1081 | 10 | EKNFTTAPAI | 5.4e-05 | 30 |
| HLA-A*23:01 | 1 | 1073 | 1082 | 10 | KNFTTAPAIC | 5.4e-05 | 27 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-B*57:01 | 1 | 1079 | 1088 | 10 | PAICHDGKAH | 5.4e-05 | 57 |
| HLA-A*23:01 | 1 | 1081 | 1090 | 10 | ICHDGKAHFP | 5.4e-05 | 27 |
| HLA-B*58:01 | 1 | 1097 | 1106 | 10 | SNGTHWFVTQ | 5.4e-05 | 45 |
| HLA-B*51:01 | 1 | 1115 | 1124 | 10 | ITDNTFVSG | 5.4e-05 | 51 |
| HLA-A*68:02 | 1 | 1116 | 1125 | 10 | TTDNTFVSGN | 5.4e-05 | 44 |
| HLA-B*08:01 | 1 | 1122 | 1130 | 9 | VSGNCDVVI | 5.4e-05 | 58 |
| HLA-A*24:02 | 1 | 1132 | 1141 | 10 | IVNNTVYDPL | 5.4e-05 | 26 |
| HLA-A*02:06 | 1 | 1145 | 1154 | 10 | LDSFKEELDK | 5.4e-05 | 52 |
| HLA-A*33:01 | 1 | 1152 | 1161 | 10 | LDKYFKNHTS | 5.4e-05 | 45 |
| HLA-A*11:01 | 1 | 1167 | 1175 | 9 | GDISGINAS | 5.4e-05 | 27 |
| HLA-B*08:01 | 1 | 1172 | 1180 | 9 | INASVVNIQ | 5.4e-05 | 58 |
| HLA-B*53:01 | 1 | 1177 | 1186 | 10 | VNIQKEIDRL | 5.4e-05 | 29 |
| HLA-A*32:01 | 1 | 1182 | 1191 | 10 | EIDRLNEVAK | 5.4e-05 | 32 |
| HLA-B*51:01 | 1 | 1183 | 1191 | 9 | IDRLNEVAK | 5.4e-05 | 51 |
| HLA-B*35:01 | 1 | 1189 | 1198 | 10 | VAKNLNESLI | 5.4e-05 | 30 |
| HLA-B*15:01 | 1 | 1202 | 1211 | 10 | ELGKYEQYIK | 5.4e-05 | 42 |
| HLA-A*68:02 | 1 | 1211 | 1219 | 9 | KWPWYIWLG | 5.4e-05 | 44 |
| HLA-A*11:01 | 1 | 1224 | 1232 | 9 | LIAIVMVTI | 5.4e-05 | 27 |
| HLA-A*23:01 | 1 | 1228 | 1236 | 9 | VMVTIMLCC | 5.4e-05 | 27 |
| HLA-A*02:01 | 1 | 1229 | 1238 | 10 | MVTIMLCCMT | 5.4e-05 | 41 |
| HLA-B*53:01 | 1 | 1255 | 1263 | 9 | KFDEDSESEP | 5.4e-05 | 29 |
| HLA-B*53:01 | 1 | 1257 | 1266 | 10 | DEDDSEPVLK | 5.4e-05 | 29 |
| HLA-B*07:02 | 1 | 1263 | 1272 | 10 | PVLKGVKLHY | 5.4e-05 | 40 |
| HLA-B*35:01 | 1 | 5 | 14 | 10 | LVLLPLVSSQ | 5.3e-05 | 30 |
| HLA-B*08:01 | 1 | 13 | 22 | 10 | SQCVNLTTTRT | 5.3e-05 | 58 |
| HLA-B*07:02 | 1 | 14 | 23 | 10 | QCVNLTTTRTQ | 5.3e-05 | 40 |
| HLA-A*30:02 | 1 | 31 | 40 | 10 | SFTRGVVYYPD | 5.3e-05 | 66 |
| HLA-A*23:01 | 1 | 33 | 41 | 9 | TRGVVYYPDK | 5.3e-05 | 27 |
| HLA-B*15:01 | 1 | 45 | 53 | 9 | SSVLHSTQD | 5.3e-05 | 42 |
| HLA-A*23:01 | 1 | 48 | 57 | 10 | LHSTQDLFLP | 5.3e-05 | 27 |
| HLA-B*44:03 | 1 | 51 | 60 | 10 | TQDLFLPFFS | 5.3e-05 | 28 |
| HLA-B*35:01 | 1 | 68 | 77 | 10 | IHVSGTNGTK | 5.3e-05 | 30 |
| HLA-A*02:03 | 1 | 71 | 79 | 9 | SGTNGTKRF | 5.3e-05 | 45 |
| HLA-B*44:02 | 1 | 75 | 84 | 10 | GTKRFDNPVL | 5.3e-05 | 30 |
| HLA-B*57:01 | 1 | 90 | 99 | 10 | VYFASTEKSN | 5.3e-05 | 58 |
| HLA-A*31:01 | 1 | 92 | 100 | 9 | FASTEKSNI | 5.3e-05 | 43 |
| HLA-A*30:01 | 1 | 106 | 114 | 9 | FGTTLDSKT | 5.3e-05 | 69 |
| HLA-A*24:02 | 1 | 112 | 120 | 9 | SKTQSLLIIV | 5.3e-05 | 26 |
| HLA-A*02:06 | 1 | 113 | 122 | 10 | KTQSLLIIVNN | 5.3e-05 | 52 |
| HLA-B*44:02 | 1 | 114 | 123 | 10 | TQSLLIIVNNA | 5.3e-05 | 30 |
| HLA-A*23:01 | 1 | 123 | 131 | 9 | ATNVVIKVC | 5.3e-05 | 27 |
| HLA-B*08:01 | 1 | 147 | 155 | 9 | KNNKSWMES | 5.3e-05 | 58 |
| HLA-B*08:01 | 1 | 165 | 173 | 9 | NCTFEYVSQ | 5.3e-05 | 58 |
| HLA-B*58:01 | 1 | 189 | 197 | 9 | LREFVFKNI | 5.3e-05 | 46 |
| HLA-A*30:02 | 1 | 190 | 198 | 9 | REFVFKNID | 5.3e-05 | 66 |
| HLA-B*51:01 | 1 | 205 | 214 | 10 | SKHTPINLVR | 5.3e-05 | 51 |
| HLA-A*26:01 | 1 | 207 | 215 | 9 | HTPINLVRD | 5.3e-05 | 37 |
| HLA-A*23:01 | 1 | 215 | 224 | 10 | DLPQGFSALE | 5.3e-05 | 27 |
| HLA-B*58:01 | 1 | 228 | 237 | 10 | DLPIGINITR | 5.3e-05 | 46 |
| HLA-A*31:01 | 1 | 234 | 243 | 10 | NITRFQTLA | 5.3e-05 | 43 |
| HLA-B*44:03 | 1 | 237 | 246 | 10 | RFQTLALHR | 5.3e-05 | 28 |
| HLA-A*03:01 | 1 | 238 | 247 | 10 | FQTLALHRS | 5.3e-05 | 36 |
| HLA-B*35:01 | 1 | 249 | 257 | 9 | LTPGDSSSG | 5.3e-05 | 30 |
| HLA-B*53:01 | 1 | 262 | 271 | 10 | AAAYYVGYLQ | 5.3e-05 | 29 |
| HLA-A*31:01 | 1 | 272 | 281 | 10 | PRTFLLKYNE | 5.3e-05 | 43 |
| HLA-B*40:01 | 1 | 278 | 286 | 9 | KYNENGTIT | 5.3e-05 | 25 |
| HLA-B*40:01 | 1 | 293 | 301 | 9 | LDPLSETKC | 5.3e-05 | 25 |
| HLA-B*08:01 | 1 | 299 | 307 | 9 | TKCTLKSFT | 5.3e-05 | 58 |
| HLA-A*02:03 | 1 | 304 | 313 | 10 | KSFTVEKGIY | 5.3e-05 | 45 |
| HLA-B*40:01 | 1 | 304 | 313 | 10 | KSFTVEKGIY | 5.3e-05 | 25 |
| HLA-A*11:01 | 1 | 314 | 323 | 10 | QTSNFRVQPT | 5.3e-05 | 27 |
| HLA-A*24:02 | 1 | 321 | 330 | 10 | QPTESIVRFP | 5.3e-05 | 26 |
| HLA-A*01:01 | 1 | 325 | 334 | 10 | SIVRFPNITN | 5.3e-05 | 61 |
| HLA-A*24:02 | 1 | 333 | 341 | 9 | TNLCPFGEV | 5.3e-05 | 26 |
| HLA-B*53:01 | 1 | 333 | 341 | 9 | TNLCPFGEV | 5.3e-05 | 29 |
| HLA-A*02:03 | 1 | 341 | 349 | 9 | VFNATRFAS | 5.3e-05 | 45 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*44:02 | 1 | 344 | 352 | 9 | ATRFASVYA | 5.3e-05 | 30 |
| HLA-B*44:03 | 1 | 344 | 352 | 9 | ATRFASVYA | 5.3e-05 | 28 |
| HLA-A*33:01 | 1 | 359 | 368 | 10 | SNCVADYSVL | 5.3e-05 | 45 |
| HLA-B*44:02 | 1 | 371 | 379 | 9 | SASFSTFKC | 5.3e-05 | 30 |
| HLA-A*24:02 | 1 | 374 | 382 | 9 | FSTFKCYGV | 5.3e-05 | 26 |
| HLA-A*03:01 | 1 | 381 | 389 | 9 | GVSPTKLN | 5.3e-05 | 36 |
| HLA-A*68:02 | 1 | 381 | 389 | 9 | GVSPTKLN | 5.3e-05 | 44 |
| HLA-A*68:01 | 1 | 384 | 392 | 9 | PTKLNLCF | 5.3e-05 | 38 |
| HLA-A*02:03 | 1 | 411 | 419 | 9 | APGQTGKIA | 5.3e-05 | 45 |
| HLA-A*01:01 | 1 | 416 | 424 | 9 | GKIADYNYK | 5.3e-05 | 61 |
| HLA-A*68:01 | 1 | 420 | 429 | 10 | DYNYKLPDDF | 5.3e-05 | 38 |
| HLA-A*26:01 | 1 | 425 | 434 | 10 | LPDDFTGCVI | 5.3e-05 | 37 |
| HLA-B*57:01 | 1 | 431 | 440 | 10 | GCVIAWNSNN | 5.3e-05 | 58 |
| HLA-A*31:01 | 1 | 452 | 460 | 9 | LYRLEFRKSN | 5.3e-05 | 43 |
| HLA-B*35:01 | 1 | 458 | 466 | 9 | KSNLKPFR | 5.3e-05 | 30 |
| HLA-A*33:01 | 1 | 463 | 472 | 10 | PFERDISTEI | 5.3e-05 | 45 |
| HLA-B*58:01 | 1 | 483 | 492 | 10 | VEGFNCYFPL | 5.3e-05 | 46 |
| HLA-A*31:01 | 1 | 484 | 493 | 10 | EGFNCYFPLQ | 5.3e-05 | 43 |
| HLA-B*15:01 | 1 | 498 | 507 | 10 | QPTNGVGYQP | 5.3e-05 | 42 |
| HLA-A*23:01 | 1 | 499 | 508 | 10 | PTNGVGYQPY | 5.3e-05 | 27 |
| HLA-B*58:01 | 1 | 505 | 514 | 10 | YQPYRVVVL | 5.3e-05 | 46 |
| HLA-A*32:01 | 1 | 506 | 514 | 9 | QPYRVVVL | 5.3e-05 | 32 |
| HLA-B*44:02 | 1 | 528 | 537 | 10 | KKSTNLVKNK | 5.3e-05 | 30 |
| HLA-B*35:01 | 1 | 542 | 550 | 9 | NFNGLTGTG | 5.3e-05 | 30 |
| HLA-B*44:03 | 1 | 563 | 572 | 10 | QQFGRDIADT | 5.3e-05 | 28 |
| HLA-A*02:06 | 1 | 564 | 573 | 10 | QFGRDIADTT | 5.3e-05 | 52 |
| HLA-B*44:03 | 1 | 573 | 581 | 9 | TDAVRDPQT | 5.3e-05 | 28 |
| HLA-A*03:01 | 1 | 577 | 585 | 9 | RDPQTLLEIL | 5.3e-05 | 36 |
| HLA-B*44:03 | 1 | 583 | 591 | 9 | EILDITPCS | 5.3e-05 | 28 |
| HLA-A*30:02 | 1 | 586 | 594 | 9 | DITPCSF | 5.3e-05 | 66 |
| HLA-A*26:01 | 1 | 599 | 607 | 9 | TPGTNTSNQ | 5.3e-05 | 37 |
| HLA-B*08:01 | 1 | 609 | 618 | 10 | AVLYQDVNCT | 5.3e-05 | 58 |
| HLA-B*35:01 | 1 | 615 | 623 | 9 | VNCTEVPVA | 5.3e-05 | 30 |
| HLA-B*44:02 | 1 | 641 | 650 | 10 | NVFQTRAGCL | 5.3e-05 | 30 |
| HLA-A*68:02 | 1 | 644 | 652 | 9 | QTRAGCLIG | 5.3e-05 | 44 |
| HLA-B*15:01 | 1 | 669 | 678 | 10 | GICASYQTQT | 5.3e-05 | 42 |
| HLA-B*51:01 | 1 | 701 | 709 | 9 | AENSVAYSN | 5.3e-05 | 51 |
| HLA-A*26:01 | 1 | 702 | 711 | 10 | ENSVAYSNNS | 5.3e-05 | 37 |
| HLA-A*31:01 | 1 | 707 | 715 | 9 | YSNNSIAIP | 5.3e-05 | 43 |
| HLA-A*24:02 | 1 | 716 | 724 | 9 | TNFTISVTT | 5.3e-05 | 26 |
| HLA-A*03:01 | 1 | 717 | 726 | 10 | NFTISVTTEI | 5.3e-05 | 36 |
| HLA-A*26:01 | 1 | 720 | 729 | 10 | ISVTTEILPV | 5.3e-05 | 37 |
| HLA-B*44:02 | 1 | 748 | 757 | 10 | ECSNLLLQYG | 5.3e-05 | 30 |
| HLA-B*44:03 | 1 | 754 | 762 | 9 | LQYGSFCTQ | 5.3e-05 | 28 |
| HLA-B*35:01 | 1 | 758 | 766 | 9 | SFCTQLNRA | 5.3e-05 | 30 |
| HLA-A*03:01 | 1 | 761 | 769 | 9 | TQLNRALTG | 5.3e-05 | 36 |
| HLA-B*57:01 | 1 | 763 | 771 | 9 | LNRLALTGIA | 5.3e-05 | 58 |
| HLA-B*57:01 | 1 | 774 | 783 | 10 | QDKNTQEVFA | 5.3e-05 | 58 |
| HLA-B*53:01 | 1 | 778 | 786 | 9 | TQEVFAQVK | 5.3e-05 | 29 |
| HLA-A*68:02 | 1 | 790 | 799 | 10 | KTPPIKDFGG | 5.3e-05 | 44 |
| HLA-B*44:03 | 1 | 821 | 829 | 9 | LLFNKVTLA | 5.3e-05 | 28 |
| HLA-A*02:01 | 1 | 823 | 831 | 9 | FNKVTLADA | 5.3e-05 | 42 |
| HLA-A*02:01 | 1 | 838 | 847 | 10 | GDCLGDIAAR | 5.3e-05 | 42 |
| HLA-B*35:01 | 1 | 842 | 850 | 9 | GDIAARDLI | 5.3e-05 | 30 |
| HLA-A*31:01 | 1 | 844 | 852 | 9 | IAARDLICA | 5.3e-05 | 43 |
| HLA-A*02:06 | 1 | 850 | 859 | 10 | ICAQKFNGLT | 5.3e-05 | 52 |
| HLA-A*68:01 | 1 | 851 | 860 | 10 | CAQKFNGLTV | 5.3e-05 | 38 |
| HLA-B*53:01 | 1 | 877 | 885 | 9 | LLAGTITSG | 5.3e-05 | 29 |
| HLA-B*51:01 | 1 | 881 | 890 | 10 | TITSGWTFGA | 5.3e-05 | 51 |
| HLA-A*11:01 | 1 | 888 | 896 | 9 | FGAGAALQI | 5.3e-05 | 27 |
| HLA-A*33:01 | 1 | 890 | 899 | 10 | AGAALQIPFA | 5.3e-05 | 45 |
| HLA-B*44:03 | 1 | 891 | 900 | 10 | GAALQIPFAM | 5.3e-05 | 28 |
| HLA-A*26:01 | 1 | 892 | 901 | 10 | AALQIPFAMQ | 5.3e-05 | 37 |
| HLA-A*30:01 | 1 | 898 | 907 | 10 | FAMQMAYRFN | 5.3e-05 | 69 |
| HLA-A*32:01 | 1 | 899 | 908 | 10 | AMQMAYRFNG | 5.3e-05 | 32 |
| HLA-A*33:01 | 1 | 905 | 914 | 10 | RFNGIGVTQN | 5.3e-05 | 45 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*30:02 | 1 | 928 | 936 | 9 | NSAIGKIQD | 5.3e-05 | 66 |
| HLA-A*68:02 | 1 | 935 | 943 | 9 | QDLSSTAS | 5.3e-05 | 44 |
| HLA-B*40:01 | 1 | 935 | 943 | 9 | QDLSSTAS | 5.3e-05 | 25 |
| HLA-B*40:01 | 1 | 935 | 944 | 10 | QDLSSTASA | 5.3e-05 | 25 |
| HLA-A*68:02 | 1 | 938 | 947 | 10 | LSSTASALGK | 5.3e-05 | 44 |
| HLA-A*02:01 | 1 | 940 | 949 | 10 | STASALGKLQ | 5.3e-05 | 42 |
| HLA-A*01:01 | 1 | 946 | 955 | 10 | GKLQDVVNQN | 5.3e-05 | 61 |
| HLA-A*31:01 | 1 | 949 | 958 | 10 | QDVVNQNAQA | 5.3e-05 | 43 |
| HLA-A*68:01 | 1 | 965 | 973 | 9 | QLSSNFGAI | 5.3e-05 | 38 |
| HLA-A*68:02 | 1 | 973 | 982 | 10 | ISSVLNDILS | 5.3e-05 | 44 |
| HLA-A*68:01 | 1 | 983 | 992 | 10 | RLDKVEAEVQ | 5.3e-05 | 38 |
| HLA-A*02:03 | 1 | 989 | 998 | 10 | AEVQIDRLIT | 5.3e-05 | 45 |
| HLA-B*44:03 | 1 | 1011 | 1019 | 9 | QLIRAAEIR | 5.3e-05 | 28 |
| HLA-B*08:01 | 1 | 1012 | 1021 | 10 | LIRAAEIRAS | 5.3e-05 | 58 |
| HLA-B*44:03 | 1 | 1012 | 1020 | 9 | LIRAAEIRA | 5.3e-05 | 28 |
| HLA-B*53:01 | 1 | 1024 | 1033 | 10 | LAATKMSECV | 5.3e-05 | 29 |
| HLA-B*40:01 | 1 | 1034 | 1042 | 9 | LGQSKRVDF | 5.3e-05 | 25 |
| HLA-B*07:02 | 1 | 1050 | 1059 | 10 | MSFPQSAPHG | 5.3e-05 | 40 |
| HLA-A*24:02 | 1 | 1081 | 1090 | 10 | ICHDGKAHFP | 5.3e-05 | 26 |
| HLA-A*31:01 | 1 | 1085 | 1094 | 10 | GKAHFPREGV | 5.3e-05 | 43 |
| HLA-B*44:03 | 1 | 1133 | 1141 | 9 | VNNTVYDPL | 5.3e-05 | 28 |
| HLA-A*33:01 | 1 | 1134 | 1142 | 9 | NNTVYDPLQ | 5.3e-05 | 45 |
| HLA-A*02:03 | 1 | 1153 | 1161 | 9 | DKYFKNHTS | 5.3e-05 | 45 |
| HLA-A*68:01 | 1 | 1166 | 1174 | 9 | LGDISGINA | 5.3e-05 | 38 |
| HLA-B*35:01 | 1 | 1174 | 1182 | 9 | ASVVNIQKE | 5.3e-05 | 30 |
| HLA-A*02:03 | 1 | 1176 | 1185 | 10 | VVNIQKEIDR | 5.3e-05 | 45 |
| HLA-A*01:01 | 1 | 1179 | 1188 | 10 | IQKEIDRLNE | 5.3e-05 | 61 |
| HLA-A*03:01 | 1 | 1179 | 1187 | 9 | IQKEIDRLN | 5.3e-05 | 36 |
| HLA-A*24:02 | 1 | 1180 | 1189 | 10 | QKEIDRLNEV | 5.3e-05 | 26 |
| HLA-A*33:01 | 1 | 1187 | 1196 | 10 | NEVAKNLNES | 5.3e-05 | 45 |
| HLA-A*68:02 | 1 | 1203 | 1212 | 10 | LGKYEYIKW | 5.3e-05 | 44 |
| HLA-B*40:01 | 1 | 1204 | 1213 | 10 | GKYEYIKWP | 5.3e-05 | 25 |
| HLA-B*53:01 | 1 | 1204 | 1213 | 10 | GKYEYIKWP | 5.3e-05 | 29 |
| HLA-B*53:01 | 1 | 1217 | 1225 | 9 | WLGFIAGLI | 5.3e-05 | 29 |
| HLA-B*08:01 | 1 | 1227 | 1236 | 10 | IVMVTIMLCC | 5.3e-05 | 58 |
| HLA-A*01:01 | 1 | 1228 | 1237 | 10 | VMVTIMLCCM | 5.3e-05 | 61 |
| HLA-A*03:01 | 1 | 1228 | 1237 | 10 | VMVTIMLCCM | 5.3e-05 | 36 |
| HLA-A*33:01 | 1 | 1231 | 1239 | 9 | TIMLCCMTS | 5.3e-05 | 45 |
| HLA-B*51:01 | 1 | 1232 | 1240 | 9 | IMLCCMTSC | 5.3e-05 | 51 |
| HLA-A*33:01 | 1 | 1247 | 1255 | 9 | CCSCGSCCK | 5.3e-05 | 45 |
| HLA-B*35:01 | 1 | 1255 | 1263 | 9 | KFDEDDSEP | 5.3e-05 | 30 |
| HLA-B*44:02 | 1 | 1255 | 1263 | 9 | KFDEDDSEP | 5.3e-05 | 30 |
| HLA-B*53:01 | 1 | 1258 | 1266 | 9 | EDDSEPVLK | 5.3e-05 | 29 |
| HLA-A*23:01 | 1 | 1259 | 1268 | 10 | DDSEPVLKGV | 5.3e-05 | 27 |
| HLA-B*53:01 | 1 | 1 | 9 | 9 | MFVFLVLLP | 5.2e-05 | 30 |
| HLA-B*15:01 | 1 | 3 | 11 | 9 | VFLVLLPLV | 5.2e-05 | 42 |
| HLA-A*24:02 | 1 | 6 | 14 | 9 | VLLPLVSSQ | 5.2e-05 | 26 |
| HLA-B*44:02 | 1 | 14 | 22 | 9 | QCVNLTTRT | 5.2e-05 | 30 |
| HLA-B*44:02 | 1 | 23 | 31 | 9 | QLPPAYTNS | 5.2e-05 | 30 |
| HLA-B*57:01 | 1 | 54 | 63 | 10 | LFLPFFSNVT | 5.2e-05 | 58 |
| HLA-B*44:03 | 1 | 61 | 69 | 9 | NVTWFHAIH | 5.2e-05 | 28 |
| HLA-A*33:01 | 1 | 68 | 76 | 9 | IHVSGTNGT | 5.2e-05 | 46 |
| HLA-B*07:02 | 1 | 82 | 90 | 9 | PVLPFNDGV | 5.2e-05 | 40 |
| HLA-A*24:02 | 1 | 92 | 101 | 10 | FASTEKSNI | 5.2e-05 | 26 |
| HLA-A*26:01 | 1 | 95 | 103 | 9 | TEKSNIIRG | 5.2e-05 | 37 |
| HLA-A*31:01 | 1 | 99 | 107 | 9 | NIIRGWIFG | 5.2e-05 | 44 |
| HLA-A*30:01 | 1 | 106 | 115 | 10 | FGTTLDSKTQ | 5.2e-05 | 69 |
| HLA-A*02:01 | 1 | 114 | 122 | 9 | TQSLLIVNN | 5.2e-05 | 42 |
| HLA-A*31:01 | 1 | 124 | 132 | 9 | TNVVIKVCE | 5.2e-05 | 44 |
| HLA-B*53:01 | 1 | 169 | 178 | 10 | EYVSQPFLMD | 5.2e-05 | 30 |
| HLA-B*51:01 | 1 | 172 | 180 | 9 | SQPFLMDLE | 5.2e-05 | 52 |
| HLA-B*08:01 | 1 | 181 | 190 | 10 | GKQGNFKNLR | 5.2e-05 | 59 |
| HLA-B*44:03 | 1 | 184 | 193 | 10 | GNFKNLFREFV | 5.2e-05 | 28 |
| HLA-A*68:02 | 1 | 193 | 202 | 10 | VFKNIDGYFK | 5.2e-05 | 44 |
| HLA-A*02:01 | 1 | 199 | 207 | 9 | GYFKIYSKH | 5.2e-05 | 42 |
| HLA-A*03:01 | 1 | 200 | 208 | 9 | YFKIYSKHT | 5.2e-05 | 36 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-B*35:01 | 1 | 200 | 208 | 9 | YFKIYSKHT | 5.2e-05 | 31 |
| HLA-A*03:01 | 1 | 203 | 211 | 9 | IYSKHTPIN | 5.2e-05 | 36 |
| HLA-A*26:01 | 1 | 208 | 217 | 10 | TPINLVRDLP | 5.2e-05 | 37 |
| HLA-B*58:01 | 1 | 208 | 217 | 10 | TPINLVRDLP | 5.2e-05 | 46 |
| HLA-B*40:01 | 1 | 221 | 230 | 10 | SALEPLVDLP | 5.2e-05 | 25 |
| HLA-B*44:02 | 1 | 230 | 238 | 9 | PIGINITRF | 5.2e-05 | 30 |
| HLA-A*02:03 | 1 | 237 | 246 | 10 | RFQTLALHR | 5.2e-05 | 45 |
| HLA-B*58:01 | 1 | 247 | 256 | 10 | SYLTPGDSSS | 5.2e-05 | 46 |
| HLA-B*51:01 | 1 | 248 | 257 | 10 | YLTPGDSSSG | 5.2e-05 | 52 |
| HLA-A*24:02 | 1 | 252 | 260 | 9 | GDSSSGWTA | 5.2e-05 | 26 |
| HLA-A*02:03 | 1 | 263 | 271 | 9 | AAYYVGYLQ | 5.2e-05 | 45 |
| HLA-B*08:01 | 1 | 263 | 272 | 10 | AAYYVGYLQP | 5.2e-05 | 59 |
| HLA-B*57:01 | 1 | 275 | 283 | 9 | FLLKYNENG | 5.2e-05 | 58 |
| HLA-A*33:01 | 1 | 288 | 296 | 9 | AVDCALDPL | 5.2e-05 | 46 |
| HLA-B*58:01 | 1 | 289 | 298 | 10 | VDCALDPLSE | 5.2e-05 | 46 |
| HLA-B*44:03 | 1 | 291 | 299 | 9 | CALDPLSET | 5.2e-05 | 28 |
| HLA-B*44:03 | 1 | 295 | 303 | 9 | PLSETKCTL | 5.2e-05 | 28 |
| HLA-A*23:01 | 1 | 310 | 319 | 10 | KGITYQTSNFR | 5.2e-05 | 27 |
| HLA-B*51:01 | 1 | 316 | 325 | 10 | SNFRVQPTES | 5.2e-05 | 52 |
| HLA-A*32:01 | 1 | 321 | 330 | 10 | QPTESIVRFP | 5.2e-05 | 32 |
| HLA-B*58:01 | 1 | 328 | 337 | 10 | RFPNITNLCP | 5.2e-05 | 46 |
| HLA-A*11:01 | 1 | 343 | 352 | 10 | NATRFASVYA | 5.2e-05 | 27 |
| HLA-A*68:01 | 1 | 360 | 368 | 9 | NCVADYSVL | 5.2e-05 | 39 |
| HLA-B*40:01 | 1 | 360 | 369 | 10 | NCVADYSVLV | 5.2e-05 | 25 |
| HLA-B*35:01 | 1 | 369 | 378 | 10 | YNSASFSTFK | 5.2e-05 | 31 |
| HLA-B*40:01 | 1 | 401 | 410 | 10 | VIRGDEVROI | 5.2e-05 | 25 |
| HLA-A*23:01 | 1 | 402 | 411 | 10 | IRGDEVROI | 5.2e-05 | 27 |
| HLA-A*68:02 | 1 | 405 | 414 | 10 | DEVROIAPGQ | 5.2e-05 | 44 |
| HLA-B*07:02 | 1 | 407 | 415 | 9 | VRQIAPGQT | 5.2e-05 | 40 |
| HLA-B*07:02 | 1 | 418 | 426 | 9 | IADYNYKLP | 5.2e-05 | 40 |
| HLA-A*02:03 | 1 | 427 | 435 | 9 | DDFTGCVIA | 5.2e-05 | 45 |
| HLA-A*02:06 | 1 | 428 | 436 | 9 | DFTGCVIAW | 5.2e-05 | 53 |
| HLA-B*08:01 | 1 | 438 | 446 | 9 | SNNLDSKVG | 5.2e-05 | 59 |
| HLA-B*44:03 | 1 | 449 | 457 | 9 | YNYLYRFR | 5.2e-05 | 28 |
| HLA-B*44:03 | 1 | 454 | 463 | 10 | RLFRKSNLKP | 5.2e-05 | 28 |
| HLA-A*03:01 | 1 | 492 | 500 | 9 | LQSYGFQPT | 5.2e-05 | 36 |
| HLA-B*57:01 | 1 | 492 | 500 | 9 | LQSYGFQPT | 5.2e-05 | 58 |
| HLA-A*23:01 | 1 | 495 | 504 | 10 | YGFQPTNGVG | 5.2e-05 | 27 |
| HLA-B*08:01 | 1 | 496 | 504 | 9 | GFQPTNGVG | 5.2e-05 | 59 |
| HLA-A*11:01 | 1 | 498 | 506 | 9 | QPTNGVGYQ | 5.2e-05 | 27 |
| HLA-A*02:06 | 1 | 500 | 509 | 10 | TNGVGYQPYR | 5.2e-05 | 53 |
| HLA-B*40:01 | 1 | 502 | 510 | 9 | GVGYQPYRV | 5.2e-05 | 25 |
| HLA-A*68:01 | 1 | 507 | 515 | 9 | PYRVVLSF | 5.2e-05 | 39 |
| HLA-A*68:02 | 1 | 514 | 523 | 10 | SFELLHAPAT | 5.2e-05 | 44 |
| HLA-B*08:01 | 1 | 517 | 526 | 10 | LLHAPATVCG | 5.2e-05 | 59 |
| HLA-A*32:01 | 1 | 520 | 529 | 10 | APATVCGPKK | 5.2e-05 | 32 |
| HLA-B*58:01 | 1 | 539 | 547 | 9 | VNFNGLT | 5.2e-05 | 46 |
| HLA-A*02:01 | 1 | 540 | 549 | 10 | NFNFNGLTGT | 5.2e-05 | 42 |
| HLA-B*07:02 | 1 | 549 | 557 | 9 | TGVLTESNK | 5.2e-05 | 40 |
| HLA-B*57:01 | 1 | 553 | 561 | 9 | TESNKKFLP | 5.2e-05 | 58 |
| HLA-A*23:01 | 1 | 564 | 573 | 10 | QFGRDIADTT | 5.2e-05 | 27 |
| HLA-A*02:01 | 1 | 578 | 587 | 10 | DPQTLIIDI | 5.2e-05 | 42 |
| HLA-B*15:01 | 1 | 580 | 588 | 9 | QTLIIDI | 5.2e-05 | 42 |
| HLA-B*40:01 | 1 | 581 | 589 | 9 | TLEILDITP | 5.2e-05 | 25 |
| HLA-A*01:01 | 1 | 585 | 593 | 9 | LDITPCSF | 5.2e-05 | 62 |
| HLA-A*33:01 | 1 | 586 | 594 | 9 | DITPCSF | 5.2e-05 | 46 |
| HLA-B*58:01 | 1 | 593 | 602 | 10 | GGVSVITPGT | 5.2e-05 | 46 |
| HLA-A*32:01 | 1 | 595 | 604 | 10 | VSVITPGTNT | 5.2e-05 | 32 |
| HLA-A*23:01 | 1 | 607 | 615 | 9 | QVAVLYQDV | 5.2e-05 | 27 |
| HLA-B*35:01 | 1 | 608 | 616 | 9 | VAVLYQDVN | 5.2e-05 | 31 |
| HLA-A*68:02 | 1 | 610 | 619 | 10 | VLYQDVNCTE | 5.2e-05 | 44 |
| HLA-A*01:01 | 1 | 619 | 627 | 9 | EVPVAIHAD | 5.2e-05 | 62 |
| HLA-A*02:03 | 1 | 625 | 634 | 10 | HADQLTPTWR | 5.2e-05 | 45 |
| HLA-B*40:01 | 1 | 626 | 634 | 9 | ADQLTPTWR | 5.2e-05 | 25 |
| HLA-B*08:01 | 1 | 636 | 644 | 9 | YSTGSNVFQ | 5.2e-05 | 59 |
| HLA-B*57:01 | 1 | 640 | 648 | 9 | SNVFQTRAG | 5.2e-05 | 58 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*24:02 | 1 | 660 | 668 | 9 | YECDIPIGA | 5.2e-05 | 26 |
| HLA-B*57:01 | 1 | 661 | 669 | 9 | ECDIPIGAG | 5.2e-05 | 58 |
| HLA-B*07:02 | 1 | 674 | 683 | 10 | YQTQTNSPRR | 5.2e-05 | 40 |
| HLA-A*02:03 | 1 | 675 | 683 | 9 | QTQTNSPRR | 5.2e-05 | 45 |
| HLA-B*40:01 | 1 | 675 | 684 | 10 | QTQTNSPRRA | 5.2e-05 | 25 |
| HLA-A*02:03 | 1 | 677 | 686 | 10 | QTNSPRRARS | 5.2e-05 | 45 |
| HLA-B*08:01 | 1 | 690 | 698 | 9 | QSIIAYTMS | 5.2e-05 | 59 |
| HLA-A*03:01 | 1 | 706 | 715 | 10 | AYSNNSIAIP | 5.2e-05 | 36 |
| HLA-A*02:01 | 1 | 714 | 723 | 10 | IPTNFTISVT | 5.2e-05 | 42 |
| HLA-A*11:01 | 1 | 723 | 732 | 10 | TTEILPVSMT | 5.2e-05 | 27 |
| HLA-A*11:01 | 1 | 731 | 739 | 9 | MTKTSVDCT | 5.2e-05 | 27 |
| HLA-A*03:01 | 1 | 739 | 747 | 9 | TMYICGDST | 5.2e-05 | 36 |
| HLA-A*32:01 | 1 | 741 | 749 | 9 | YICGDSTEC | 5.2e-05 | 32 |
| HLA-A*24:02 | 1 | 743 | 752 | 10 | CGDSTEC SNL | 5.2e-05 | 26 |
| HLA-A*24:02 | 1 | 744 | 752 | 9 | GDSTEC SNL | 5.2e-05 | 26 |
| HLA-A*30:01 | 1 | 756 | 764 | 9 | YGSFCTQLN | 5.2e-05 | 69 |
| HLA-A*31:01 | 1 | 762 | 771 | 10 | QLNRALTGIA | 5.2e-05 | 44 |
| HLA-B*40:01 | 1 | 766 | 774 | 9 | ALTGIAVEQ | 5.2e-05 | 25 |
| HLA-A*32:01 | 1 | 767 | 776 | 10 | LTGIAVEQDK | 5.2e-05 | 32 |
| HLA-B*08:01 | 1 | 768 | 776 | 9 | TGIAVEQDK | 5.2e-05 | 59 |
| HLA-A*68:02 | 1 | 770 | 779 | 10 | IAVEQDKNTQ | 5.2e-05 | 44 |
| HLA-B*07:02 | 1 | 770 | 779 | 10 | IAVEQDKNTQ | 5.2e-05 | 40 |
| HLA-B*35:01 | 1 | 775 | 783 | 9 | DKNTQEVFA | 5.2e-05 | 31 |
| HLA-A*33:01 | 1 | 790 | 798 | 9 | KTPPIKDFG | 5.2e-05 | 46 |
| HLA-A*68:02 | 1 | 793 | 802 | 10 | PIKDFGGFNF | 5.2e-05 | 44 |
| HLA-A*02:01 | 1 | 839 | 847 | 9 | DCLGDIAAR | 5.2e-05 | 42 |
| HLA-A*24:02 | 1 | 841 | 850 | 10 | LGDIAARDLI | 5.2e-05 | 26 |
| HLA-B*15:01 | 1 | 842 | 850 | 9 | GDIAARDLI | 5.2e-05 | 42 |
| HLA-A*24:02 | 1 | 849 | 858 | 10 | LICAQKFNGL | 5.2e-05 | 26 |
| HLA-B*08:01 | 1 | 862 | 871 | 10 | PPLLTDEMI | 5.2e-05 | 59 |
| HLA-A*26:01 | 1 | 867 | 875 | 9 | DEMIAQYTS | 5.2e-05 | 37 |
| HLA-A*02:01 | 1 | 888 | 897 | 10 | FGAGAALQIP | 5.2e-05 | 42 |
| HLA-A*24:02 | 1 | 891 | 900 | 10 | GAALQIPFAM | 5.2e-05 | 26 |
| HLA-A*11:01 | 1 | 894 | 903 | 10 | LQIPFAMQMA | 5.2e-05 | 27 |
| HLA-A*68:02 | 1 | 897 | 905 | 9 | PFAMQMAYR | 5.2e-05 | 44 |
| HLA-B*51:01 | 1 | 900 | 908 | 9 | MQMAYRFNG | 5.2e-05 | 52 |
| HLA-B*58:01 | 1 | 905 | 914 | 10 | RFNGIGVTQN | 5.2e-05 | 46 |
| HLA-A*01:01 | 1 | 910 | 919 | 10 | GVTQNVLYEN | 5.2e-05 | 62 |
| HLA-B*08:01 | 1 | 916 | 925 | 10 | LYENQKLIAN | 5.2e-05 | 59 |
| HLA-B*51:01 | 1 | 945 | 954 | 10 | LGKLQDVVNQ | 5.2e-05 | 52 |
| HLA-A*11:01 | 1 | 946 | 954 | 9 | GKLQDVVNQ | 5.2e-05 | 27 |
| HLA-A*31:01 | 1 | 946 | 954 | 9 | GKLQDVVNQ | 5.2e-05 | 44 |
| HLA-B*08:01 | 1 | 956 | 965 | 10 | AQALNTLVKQ | 5.2e-05 | 59 |
| HLA-A*68:01 | 1 | 960 | 969 | 10 | NTLVKQLSSN | 5.2e-05 | 39 |
| HLA-B*53:01 | 1 | 960 | 968 | 9 | NTLVKQLSS | 5.2e-05 | 30 |
| HLA-B*53:01 | 1 | 967 | 975 | 9 | SSNFGAISS | 5.2e-05 | 30 |
| HLA-A*33:01 | 1 | 983 | 992 | 10 | RLDKVEAEVQ | 5.2e-05 | 46 |
| HLA-A*26:01 | 1 | 997 | 1005 | 9 | ITGRLQSLQ | 5.2e-05 | 37 |
| HLA-A*03:01 | 1 | 1013 | 1022 | 10 | IRAAEIRASA | 5.2e-05 | 36 |
| HLA-B*40:01 | 1 | 1013 | 1022 | 10 | IRAAEIRASA | 5.2e-05 | 25 |
| HLA-B*58:01 | 1 | 1017 | 1025 | 9 | EIRASANLA | 5.2e-05 | 46 |
| HLA-A*68:01 | 1 | 1024 | 1033 | 10 | LAATKMSECV | 5.2e-05 | 39 |
| HLA-A*68:02 | 1 | 1026 | 1035 | 10 | ATKMSECVLG | 5.2e-05 | 44 |
| HLA-A*68:01 | 1 | 1044 | 1052 | 9 | GKGYHLMSF | 5.2e-05 | 39 |
| HLA-B*08:01 | 1 | 1044 | 1053 | 10 | GKGYHLMSFP | 5.2e-05 | 59 |
| HLA-A*02:01 | 1 | 1050 | 1059 | 10 | MSFPQSAPHG | 5.2e-05 | 42 |
| HLA-A*33:01 | 1 | 1053 | 1062 | 10 | PQSAPHGVV | 5.2e-05 | 46 |
| HLA-B*57:01 | 1 | 1053 | 1061 | 9 | PQSAPHGVV | 5.2e-05 | 58 |
| HLA-A*68:01 | 1 | 1068 | 1076 | 9 | VPAQEKNF | 5.2e-05 | 39 |
| HLA-A*26:01 | 1 | 1070 | 1079 | 10 | AQEKNF | 5.2e-05 | 37 |
| HLA-A*02:01 | 1 | 1073 | 1082 | 10 | KNFTTAPAIC | 5.2e-05 | 42 |
| HLA-B*53:01 | 1 | 1074 | 1083 | 10 | NFTTAPAICH | 5.2e-05 | 30 |
| HLA-B*57:01 | 1 | 1084 | 1092 | 9 | DGKAHFPRE | 5.2e-05 | 58 |
| HLA-B*58:01 | 1 | 1100 | 1108 | 9 | THWFTQRN | 5.2e-05 | 46 |
| HLA-A*02:01 | 1 | 1102 | 1110 | 9 | WFTQRNFY | 5.2e-05 | 42 |
| HLA-B*57:01 | 1 | 1127 | 1135 | 9 | DVVIGIVNN | 5.2e-05 | 58 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-B*53:01 | 1 | 1141 | 1149 | 9 | LQPELDSFK | 5.2e-05 | 30 |
| HLA-B*51:01 | 1 | 1165 | 1173 | 9 | DLGDISGIN | 5.2e-05 | 52 |
| HLA-A*02:03 | 1 | 1182 | 1191 | 10 | EIDRLNEVAK | 5.2e-05 | 45 |
| HLA-B*44:02 | 1 | 1198 | 1207 | 10 | IDLQELGKYE | 5.2e-05 | 30 |
| HLA-B*44:02 | 1 | 1199 | 1207 | 9 | DLQELGKYE | 5.2e-05 | 30 |
| HLA-B*57:01 | 1 | 1200 | 1208 | 9 | LQELGKYEQ | 5.2e-05 | 58 |
| HLA-A*02:06 | 1 | 1204 | 1213 | 10 | GKYEQYIKWP | 5.2e-05 | 53 |
| HLA-B*35:01 | 1 | 1207 | 1216 | 10 | EQYIKWPWYI | 5.2e-05 | 31 |
| HLA-B*58:01 | 1 | 1216 | 1225 | 10 | IWLGFIAGLI | 5.2e-05 | 46 |
| HLA-A*02:03 | 1 | 1230 | 1239 | 10 | VTIMLCCMTS | 5.2e-05 | 45 |
| HLA-A*30:01 | 1 | 1238 | 1247 | 10 | TSCCCLKGC | 5.2e-05 | 69 |
| HLA-A*01:01 | 1 | 1247 | 1255 | 9 | CCSCGSCCK | 5.2e-05 | 62 |
| HLA-A*01:01 | 1 | 1 | 10 | 10 | MFVFLVLLPL | 5.1e-05 | 62 |
| HLA-B*44:02 | 1 | 3 | 11 | 9 | VFLVLLPLV | 5.1e-05 | 30 |
| HLA-A*26:01 | 1 | 7 | 16 | 10 | LLPLVSSQCV | 5.1e-05 | 37 |
| HLA-B*58:01 | 1 | 7 | 16 | 10 | LLPLVSSQCV | 5.1e-05 | 46 |
| HLA-A*31:01 | 1 | 11 | 19 | 9 | VSSQCVNLT | 5.1e-05 | 44 |
| HLA-A*23:01 | 1 | 12 | 21 | 10 | SSQCVNLTTR | 5.1e-05 | 27 |
| HLA-A*30:02 | 1 | 17 | 26 | 10 | NLTTRTQLPP | 5.1e-05 | 67 |
| HLA-B*08:01 | 1 | 18 | 26 | 9 | LTRTQLPP | 5.1e-05 | 59 |
| HLA-A*33:01 | 1 | 27 | 35 | 9 | AYTNSFTRG | 5.1e-05 | 46 |
| HLA-B*44:02 | 1 | 30 | 39 | 10 | NSFTRGVYYP | 5.1e-05 | 30 |
| HLA-A*03:01 | 1 | 34 | 42 | 9 | RGVYYPDKV | 5.1e-05 | 37 |
| HLA-B*58:01 | 1 | 40 | 48 | 9 | DKVFRSSVL | 5.1e-05 | 46 |
| HLA-A*02:06 | 1 | 43 | 52 | 10 | FRSSVLHSTQ | 5.1e-05 | 53 |
| HLA-A*68:02 | 1 | 44 | 52 | 9 | RSSVLHSTQ | 5.1e-05 | 45 |
| HLA-B*51:01 | 1 | 51 | 60 | 10 | TQDLFLPFFS | 5.1e-05 | 52 |
| HLA-B*07:02 | 1 | 61 | 70 | 10 | NVTWFHAIHV | 5.1e-05 | 40 |
| HLA-B*57:01 | 1 | 63 | 72 | 10 | TWFHAIHVSG | 5.1e-05 | 58 |
| HLA-B*58:01 | 1 | 65 | 74 | 10 | FHAIHVSGTN | 5.1e-05 | 46 |
| HLA-B*53:01 | 1 | 79 | 87 | 9 | FDNPVLPFN | 5.1e-05 | 30 |
| HLA-B*51:01 | 1 | 86 | 95 | 10 | FNDGVYFAST | 5.1e-05 | 52 |
| HLA-A*02:06 | 1 | 88 | 96 | 9 | DGVYFASTE | 5.1e-05 | 53 |
| HLA-B*53:01 | 1 | 96 | 105 | 10 | EKSNIIRGWI | 5.1e-05 | 30 |
| HLA-A*11:01 | 1 | 100 | 108 | 9 | IIRGWIFGT | 5.1e-05 | 27 |
| HLA-A*68:02 | 1 | 105 | 113 | 9 | IFGTTLDISK | 5.1e-05 | 45 |
| HLA-B*51:01 | 1 | 105 | 113 | 9 | IFGTTLDISK | 5.1e-05 | 52 |
| HLA-B*58:01 | 1 | 117 | 125 | 9 | LLIVNNATN | 5.1e-05 | 46 |
| HLA-A*03:01 | 1 | 120 | 128 | 9 | VNNATNVVI | 5.1e-05 | 37 |
| HLA-A*11:01 | 1 | 124 | 133 | 10 | TNVVIKVICEF | 5.1e-05 | 27 |
| HLA-B*58:01 | 1 | 132 | 141 | 10 | EFQFCNDPFL | 5.1e-05 | 46 |
| HLA-B*58:01 | 1 | 138 | 147 | 10 | DPFLGVYYHK | 5.1e-05 | 46 |
| HLA-A*03:01 | 1 | 147 | 156 | 10 | KNKSWMESE | 5.1e-05 | 37 |
| HLA-B*07:02 | 1 | 153 | 162 | 10 | MESEFRVYSS | 5.1e-05 | 40 |
| HLA-B*07:02 | 1 | 154 | 162 | 9 | ESEFRVYSS | 5.1e-05 | 40 |
| HLA-A*30:02 | 1 | 156 | 165 | 10 | EFRVYSSANN | 5.1e-05 | 67 |
| HLA-B*40:01 | 1 | 166 | 174 | 9 | CTFEYVSQP | 5.1e-05 | 25 |
| HLA-A*01:01 | 1 | 173 | 181 | 9 | QPFLMDLEG | 5.1e-05 | 62 |
| HLA-B*44:03 | 1 | 197 | 206 | 10 | IDGYFKIYSK | 5.1e-05 | 28 |
| HLA-B*44:03 | 1 | 232 | 241 | 10 | GINITRFQTL | 5.1e-05 | 28 |
| HLA-B*35:01 | 1 | 263 | 272 | 10 | AAYVGYLQP | 5.1e-05 | 31 |
| HLA-A*68:01 | 1 | 264 | 272 | 9 | AAYVGYLQP | 5.1e-05 | 39 |
| HLA-A*02:03 | 1 | 271 | 279 | 9 | QPRTFLLKY | 5.1e-05 | 45 |
| HLA-B*15:01 | 1 | 277 | 286 | 10 | LKYNENGTIT | 5.1e-05 | 43 |
| HLA-B*58:01 | 1 | 288 | 297 | 10 | AVDCALDPLS | 5.1e-05 | 46 |
| HLA-A*30:01 | 1 | 294 | 302 | 9 | DPLSETKCT | 5.1e-05 | 69 |
| HLA-A*68:02 | 1 | 296 | 304 | 9 | LSETKCTLK | 5.1e-05 | 45 |
| HLA-A*31:01 | 1 | 309 | 318 | 10 | EKGITYQSNF | 5.1e-05 | 44 |
| HLA-A*24:02 | 1 | 313 | 321 | 9 | YQTSNFRVQ | 5.1e-05 | 26 |
| HLA-A*23:01 | 1 | 317 | 325 | 9 | NFRVQPTES | 5.1e-05 | 27 |
| HLA-A*11:01 | 1 | 333 | 342 | 10 | TNLCPFGEVF | 5.1e-05 | 27 |
| HLA-A*68:01 | 1 | 333 | 341 | 9 | TNLCPFGEV | 5.1e-05 | 39 |
| HLA-A*02:06 | 1 | 341 | 349 | 9 | VFNATRFAS | 5.1e-05 | 53 |
| HLA-B*08:01 | 1 | 346 | 355 | 10 | RFASVYAWN | 5.1e-05 | 59 |
| HLA-A*32:01 | 1 | 347 | 356 | 10 | FASVYAWNRK | 5.1e-05 | 33 |
| HLA-B*44:02 | 1 | 351 | 359 | 9 | YAWNRKRIS | 5.1e-05 | 30 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*51:01 | 1 | 354 | 363 | 10 | NRKRISNCVA | 5.1e-05 | 52 |
| HLA-A*03:01 | 1 | 362 | 370 | 9 | VADYSVLYN | 5.1e-05 | 37 |
| HLA-B*44:03 | 1 | 369 | 378 | 10 | YNSASFSTFK | 5.1e-05 | 28 |
| HLA-A*02:01 | 1 | 371 | 380 | 10 | SASFSTFKCY | 5.1e-05 | 42 |
| HLA-A*02:06 | 1 | 374 | 383 | 10 | FSTFKCYGVS | 5.1e-05 | 53 |
| HLA-A*02:06 | 1 | 376 | 384 | 9 | TFKCYGVSP | 5.1e-05 | 53 |
| HLA-B*51:01 | 1 | 377 | 385 | 9 | FKCYGVSP | 5.1e-05 | 52 |
| HLA-A*02:01 | 1 | 382 | 391 | 10 | VSPTKLNLC | 5.1e-05 | 42 |
| HLA-B*15:01 | 1 | 392 | 401 | 10 | FTNVYADSFV | 5.1e-05 | 43 |
| HLA-B*40:01 | 1 | 405 | 414 | 10 | DEVROIAPGQ | 5.1e-05 | 25 |
| HLA-A*23:01 | 1 | 423 | 432 | 10 | YKLPDDFTGC | 5.1e-05 | 27 |
| HLA-A*23:01 | 1 | 425 | 433 | 9 | LPDDFTGCV | 5.1e-05 | 27 |
| HLA-A*01:01 | 1 | 435 | 443 | 9 | AWNSNNLDS | 5.1e-05 | 62 |
| HLA-A*23:01 | 1 | 442 | 451 | 10 | DSKVGGNYNY | 5.1e-05 | 27 |
| HLA-A*68:02 | 1 | 446 | 454 | 9 | GGNYNYLYR | 5.1e-05 | 45 |
| HLA-A*26:01 | 1 | 463 | 472 | 10 | PFERDISTEI | 5.1e-05 | 37 |
| HLA-A*26:01 | 1 | 477 | 485 | 9 | STPCNGVEG | 5.1e-05 | 37 |
| HLA-A*68:02 | 1 | 482 | 491 | 10 | GVEGFNCYFP | 5.1e-05 | 45 |
| HLA-A*02:03 | 1 | 486 | 494 | 9 | FNCYFPLQS | 5.1e-05 | 45 |
| HLA-B*57:01 | 1 | 486 | 494 | 9 | FNCYFPLQS | 5.1e-05 | 58 |
| HLA-A*30:02 | 1 | 490 | 499 | 10 | FPLQSYGFQP | 5.1e-05 | 67 |
| HLA-A*68:02 | 1 | 490 | 498 | 9 | FPLQSYGFQ | 5.1e-05 | 45 |
| HLA-A*02:01 | 1 | 492 | 501 | 10 | LQSYGFQPTN | 5.1e-05 | 42 |
| HLA-A*24:02 | 1 | 500 | 508 | 9 | TNGVGYQPY | 5.1e-05 | 26 |
| HLA-A*32:01 | 1 | 505 | 514 | 10 | YQPYRVVLS | 5.1e-05 | 33 |
| HLA-B*58:01 | 1 | 520 | 528 | 9 | APATVCGPK | 5.1e-05 | 46 |
| HLA-B*15:01 | 1 | 522 | 530 | 9 | ATVCGPKKS | 5.1e-05 | 43 |
| HLA-B*58:01 | 1 | 535 | 544 | 10 | KNKCVNFNFN | 5.1e-05 | 46 |
| HLA-A*26:01 | 1 | 543 | 552 | 10 | FNGLTGTGVL | 5.1e-05 | 37 |
| HLA-A*02:01 | 1 | 562 | 571 | 10 | FQQFGRDIAD | 5.1e-05 | 42 |
| HLA-A*26:01 | 1 | 562 | 570 | 9 | FQQFGRDIA | 5.1e-05 | 37 |
| HLA-B*58:01 | 1 | 563 | 571 | 9 | QQFGRDIAD | 5.1e-05 | 46 |
| HLA-A*02:03 | 1 | 569 | 577 | 9 | IADTTDAVR | 5.1e-05 | 45 |
| HLA-A*31:01 | 1 | 587 | 595 | 9 | ITPCSFGGV | 5.1e-05 | 44 |
| HLA-B*35:01 | 1 | 587 | 596 | 10 | ITPCSFGGVS | 5.1e-05 | 31 |
| HLA-B*44:03 | 1 | 604 | 613 | 10 | TSNQVAVLYQ | 5.1e-05 | 28 |
| HLA-B*53:01 | 1 | 609 | 617 | 9 | AVLYQDVNC | 5.1e-05 | 30 |
| HLA-B*07:02 | 1 | 613 | 622 | 10 | QDVNCTEVPV | 5.1e-05 | 40 |
| HLA-B*57:01 | 1 | 614 | 622 | 9 | DVNCTEVPV | 5.1e-05 | 58 |
| HLA-A*03:01 | 1 | 616 | 624 | 9 | NCTEVPVAI | 5.1e-05 | 37 |
| HLA-A*31:01 | 1 | 619 | 628 | 10 | EVVVAIHADQ | 5.1e-05 | 44 |
| HLA-A*31:01 | 1 | 620 | 629 | 10 | VPVAIHADQL | 5.1e-05 | 44 |
| HLA-A*11:01 | 1 | 628 | 637 | 10 | QLTPTWRVYS | 5.1e-05 | 27 |
| HLA-A*24:02 | 1 | 629 | 637 | 9 | LTPTWRVYS | 5.1e-05 | 26 |
| HLA-A*03:01 | 1 | 632 | 640 | 9 | TWRVYSTGS | 5.1e-05 | 37 |
| HLA-A*30:02 | 1 | 648 | 657 | 10 | GCLIGAEHVN | 5.1e-05 | 67 |
| HLA-B*57:01 | 1 | 650 | 658 | 9 | LIGAEHVNN | 5.1e-05 | 58 |
| HLA-A*01:01 | 1 | 653 | 661 | 9 | AEHVNNSEY | 5.1e-05 | 62 |
| HLA-B*51:01 | 1 | 666 | 675 | 10 | IGAGICASYQ | 5.1e-05 | 52 |
| HLA-A*32:01 | 1 | 668 | 677 | 10 | AGICASYQTQ | 5.1e-05 | 33 |
| HLA-A*24:02 | 1 | 674 | 682 | 9 | YQTQTNSPR | 5.1e-05 | 26 |
| HLA-B*51:01 | 1 | 676 | 685 | 10 | TQTNSPRRAR | 5.1e-05 | 52 |
| HLA-B*44:02 | 1 | 683 | 691 | 9 | RARVASQS | 5.1e-05 | 30 |
| HLA-B*15:01 | 1 | 693 | 702 | 10 | IAYTMSLGAE | 5.1e-05 | 43 |
| HLA-A*31:01 | 1 | 694 | 703 | 10 | AYTMSLGAEN | 5.1e-05 | 44 |
| HLA-A*02:01 | 1 | 700 | 708 | 9 | GAENSVAYS | 5.1e-05 | 42 |
| HLA-B*53:01 | 1 | 701 | 709 | 9 | AENSVAYSN | 5.1e-05 | 30 |
| HLA-B*57:01 | 1 | 701 | 709 | 9 | AENSVAYSN | 5.1e-05 | 58 |
| HLA-B*44:02 | 1 | 704 | 713 | 10 | SVAYSNNSIA | 5.1e-05 | 30 |
| HLA-B*44:03 | 1 | 705 | 714 | 10 | VAYSNNSIAI | 5.1e-05 | 28 |
| HLA-B*15:01 | 1 | 725 | 734 | 10 | EILPVSMTKT | 5.1e-05 | 43 |
| HLA-B*44:03 | 1 | 727 | 735 | 9 | LPVSMTKTS | 5.1e-05 | 28 |
| HLA-A*24:02 | 1 | 744 | 753 | 10 | GDSTECSNLL | 5.1e-05 | 26 |
| HLA-B*53:01 | 1 | 754 | 762 | 9 | LQYGSFCTQ | 5.1e-05 | 30 |
| HLA-B*51:01 | 1 | 766 | 774 | 9 | ALTGIAVEQ | 5.1e-05 | 52 |
| HLA-B*58:01 | 1 | 772 | 780 | 9 | VEQDKNTQE | 5.1e-05 | 46 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*11:01 | 1 | 773 | 782 | 10 | EQDKNTQEVF 5.1e-05 | 27 |
| HLA-A*33:01 | 1 | 783 | 792 | 10 | AQVKQIYKTP 5.1e-05 | 46 |
| HLA-B*51:01 | 1 | 804 | 813 | 10 | QILPDPSPKPS 5.1e-05 | 52 |
| HLA-B*44:02 | 1 | 807 | 815 | 9 | PDPSKPSKR 5.1e-05 | 30 |
| HLA-B*51:01 | 1 | 807 | 816 | 10 | PDPSKPSKRS 5.1e-05 | 52 |
| HLA-A*01:01 | 1 | 808 | 816 | 9 | DPSKPSKRS 5.1e-05 | 62 |
| HLA-A*26:01 | 1 | 815 | 824 | 10 | RSFIEDLLFN 5.1e-05 | 37 |
| HLA-B*53:01 | 1 | 816 | 825 | 10 | SFIEDLLFNK 5.1e-05 | 30 |
| HLA-A*23:01 | 1 | 822 | 831 | 10 | LFNKVTLADA 5.1e-05 | 27 |
| HLA-B*07:02 | 1 | 825 | 834 | 10 | KVTLADAGFI 5.1e-05 | 40 |
| HLA-B*57:01 | 1 | 842 | 851 | 10 | GDIAARDLIC 5.1e-05 | 58 |
| HLA-A*01:01 | 1 | 854 | 863 | 10 | KFNGLTVLPP 5.1e-05 | 62 |
| HLA-B*40:01 | 1 | 869 | 878 | 10 | MIAQYTSALL 5.1e-05 | 25 |
| HLA-A*11:01 | 1 | 875 | 884 | 10 | SALLAGTITS 5.1e-05 | 27 |
| HLA-A*03:01 | 1 | 883 | 892 | 10 | TSGWTFGAGA 5.1e-05 | 37 |
| HLA-B*53:01 | 1 | 884 | 892 | 9 | SGWTFGAGA 5.1e-05 | 30 |
| HLA-A*02:01 | 1 | 889 | 897 | 9 | GAGAALQIP 5.1e-05 | 42 |
| HLA-A*02:06 | 1 | 896 | 905 | 10 | IPFAMQMAYR 5.1e-05 | 53 |
| HLA-B*07:02 | 1 | 902 | 910 | 9 | MAYRFNGIG 5.1e-05 | 40 |
| HLA-B*58:01 | 1 | 930 | 939 | 10 | AIGKIQDSLS 5.1e-05 | 46 |
| HLA-B*44:02 | 1 | 946 | 954 | 9 | GKLQDVVNQ 5.1e-05 | 30 |
| HLA-B*57:01 | 1 | 948 | 957 | 10 | LQDVVNQNAQ 5.1e-05 | 58 |
| HLA-A*03:01 | 1 | 950 | 958 | 9 | DVVNQNQAQ 5.1e-05 | 37 |
| HLA-A*23:01 | 1 | 954 | 963 | 10 | QNAQALNTLV 5.1e-05 | 27 |
| HLA-A*11:01 | 1 | 971 | 980 | 10 | GAISSVLNDI 5.1e-05 | 27 |
| HLA-B*40:01 | 1 | 981 | 989 | 9 | LSRLDKVEA 5.1e-05 | 25 |
| HLA-B*15:01 | 1 | 984 | 992 | 9 | LDKVEAEVQ 5.1e-05 | 43 |
| HLA-A*02:03 | 1 | 987 | 995 | 9 | VEAEVQIDR 5.1e-05 | 45 |
| HLA-A*03:01 | 1 | 997 | 1006 | 10 | ITGRLQSLQT 5.1e-05 | 37 |
| HLA-B*08:01 | 1 | 1001 | 1010 | 10 | LQSLQTYVTQ 5.1e-05 | 59 |
| HLA-A*32:01 | 1 | 1002 | 1011 | 10 | QSLQTYVTQQ 5.1e-05 | 33 |
| HLA-B*57:01 | 1 | 1009 | 1017 | 9 | TQQLIRAAE 5.1e-05 | 58 |
| HLA-A*11:01 | 1 | 1012 | 1020 | 9 | LIRAAEIRA 5.1e-05 | 27 |
| HLA-A*32:01 | 1 | 1014 | 1023 | 10 | RAAEIRASAN 5.1e-05 | 33 |
| HLA-A*33:01 | 1 | 1025 | 1033 | 9 | AATKMSECV 5.1e-05 | 46 |
| HLA-A*33:01 | 1 | 1027 | 1036 | 10 | TKMSECVLQ 5.1e-05 | 46 |
| HLA-A*01:01 | 1 | 1043 | 1051 | 9 | CGKGYHMLS 5.1e-05 | 62 |
| HLA-B*40:01 | 1 | 1047 | 1055 | 9 | YHLMSFPQS 5.1e-05 | 25 |
| HLA-B*53:01 | 1 | 1047 | 1055 | 9 | YHLMSFPQS 5.1e-05 | 30 |
| HLA-B*35:01 | 1 | 1048 | 1057 | 10 | HLSFPQSAP 5.1e-05 | 31 |
| HLA-A*26:01 | 1 | 1049 | 1057 | 9 | LMSFPQSAP 5.1e-05 | 37 |
| HLA-A*23:01 | 1 | 1050 | 1058 | 9 | MSFPQSAPH 5.1e-05 | 27 |
| HLA-A*01:01 | 1 | 1074 | 1082 | 9 | NFTTAPAIC 5.1e-05 | 62 |
| HLA-A*02:06 | 1 | 1076 | 1085 | 10 | TTAPAICHDG 5.1e-05 | 53 |
| HLA-A*01:01 | 1 | 1084 | 1092 | 9 | DGKAHFPRE 5.1e-05 | 62 |
| HLA-B*58:01 | 1 | 1092 | 1100 | 9 | EGVFVSNGT 5.1e-05 | 46 |
| HLA-A*11:01 | 1 | 1096 | 1105 | 10 | VSNGTHWFVT 5.1e-05 | 27 |
| HLA-A*11:01 | 1 | 1098 | 1106 | 9 | NGTHWFVTQ 5.1e-05 | 27 |
| HLA-B*07:02 | 1 | 1101 | 1110 | 10 | HWFVTQRNFY 5.1e-05 | 40 |
| HLA-B*44:03 | 1 | 1107 | 1116 | 10 | RNFYEQIIT 5.1e-05 | 28 |
| HLA-B*15:01 | 1 | 1108 | 1117 | 10 | NFYEQIITT 5.1e-05 | 43 |
| HLA-A*02:01 | 1 | 1112 | 1121 | 10 | PQIITDNTF 5.1e-05 | 42 |
| HLA-A*24:02 | 1 | 1114 | 1122 | 9 | IITDNTFV 5.1e-05 | 26 |
| HLA-A*30:01 | 1 | 1117 | 1125 | 9 | TDNTFVSGN 5.1e-05 | 69 |
| HLA-A*26:01 | 1 | 1134 | 1143 | 10 | NNTVYDPLQP 5.1e-05 | 37 |
| HLA-A*26:01 | 1 | 1140 | 1149 | 10 | PLQPELDSFK 5.1e-05 | 37 |
| HLA-A*11:01 | 1 | 1147 | 1156 | 10 | SFKEELDKYF 5.1e-05 | 27 |
| HLA-A*30:01 | 1 | 1149 | 1158 | 10 | KEELDKYFKN 5.1e-05 | 69 |
| HLA-A*26:01 | 1 | 1153 | 1162 | 10 | DKYFKNHTSP 5.1e-05 | 37 |
| HLA-B*44:02 | 1 | 1166 | 1174 | 9 | LGDISGINA 5.1e-05 | 30 |
| HLA-A*33:01 | 1 | 1174 | 1182 | 9 | ASVVNIQKE 5.1e-05 | 46 |
| HLA-B*58:01 | 1 | 1179 | 1188 | 10 | IQKEIDRLNE 5.1e-05 | 46 |
| HLA-A*30:01 | 1 | 1187 | 1195 | 9 | NEVAKNLNE 5.1e-05 | 69 |
| HLA-A*30:02 | 1 | 1195 | 1204 | 10 | ESLIDLQELG 5.1e-05 | 67 |
| HLA-A*11:01 | 1 | 1200 | 1208 | 9 | LQELGKYEQ 5.1e-05 | 27 |
| HLA-B*58:01 | 1 | 1202 | 1211 | 10 | ELGKYEQYIK 5.1e-05 | 46 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*02:01 | 1 | 1211 | 1219 | 9 | KWPWYIWLG | 5.1e-05 | 42 |
| HLA-B*58:01 | 1 | 1211 | 1219 | 9 | KWPWYIWLG | 5.1e-05 | 46 |
| HLA-B*08:01 | 1 | 1217 | 1226 | 10 | WLGFIAGLIA | 5.1e-05 | 59 |
| HLA-B*44:03 | 1 | 1221 | 1229 | 9 | IAGLIAIVM | 5.1e-05 | 28 |
| HLA-A*31:01 | 1 | 1224 | 1233 | 10 | LIAIVMVTIM | 5.1e-05 | 44 |
| HLA-A*01:01 | 1 | 1225 | 1234 | 10 | IAIVMVTIML | 5.1e-05 | 62 |
| HLA-A*33:01 | 1 | 1228 | 1236 | 9 | VMVTIMLCC | 5.1e-05 | 46 |
| HLA-B*08:01 | 1 | 1235 | 1243 | 9 | CCMTSCCSC | 5.1e-05 | 59 |
| HLA-A*68:02 | 1 | 1238 | 1247 | 10 | TSCCCLKGC | 5.1e-05 | 45 |
| HLA-B*35:01 | 1 | 15 | 24 | 10 | CVNLTRTQL | 5e-05 | 31 |
| HLA-A*31:01 | 1 | 18 | 26 | 9 | LTRTQLPP | 5e-05 | 44 |
| HLA-A*26:01 | 1 | 21 | 30 | 10 | RTQLPPAYTN | 5e-05 | 37 |
| HLA-B*44:02 | 1 | 31 | 39 | 9 | SFTRGVYYP | 5e-05 | 30 |
| HLA-B*57:01 | 1 | 52 | 61 | 10 | QDLFLPFFSN | 5e-05 | 59 |
| HLA-B*40:01 | 1 | 57 | 65 | 9 | PFFSNVTWF | 5e-05 | 25 |
| HLA-B*58:01 | 1 | 57 | 66 | 10 | PFFSNVTWFH | 5e-05 | 47 |
| HLA-A*32:01 | 1 | 64 | 72 | 9 | WFHAIHVSG | 5e-05 | 33 |
| HLA-A*30:02 | 1 | 65 | 74 | 10 | FHAIHVSGTN | 5e-05 | 67 |
| HLA-A*30:02 | 1 | 74 | 82 | 9 | NGTKRFDNP | 5e-05 | 67 |
| HLA-A*23:01 | 1 | 75 | 84 | 10 | GTKRFDNPVL | 5e-05 | 27 |
| HLA-B*53:01 | 1 | 78 | 87 | 10 | RFDNPVLPFN | 5e-05 | 30 |
| HLA-A*02:01 | 1 | 98 | 106 | 9 | SNIRGWIF | 5e-05 | 42 |
| HLA-B*53:01 | 1 | 108 | 116 | 9 | TTLDSKTQS | 5e-05 | 30 |
| HLA-A*32:01 | 1 | 114 | 123 | 10 | TQSLLVNNA | 5e-05 | 33 |
| HLA-A*30:02 | 1 | 116 | 125 | 10 | SLLVNNA | 5e-05 | 67 |
| HLA-A*30:02 | 1 | 122 | 131 | 10 | NATNVVIVKVC | 5e-05 | 67 |
| HLA-A*23:01 | 1 | 136 | 145 | 10 | CNDPFLGVVY | 5e-05 | 27 |
| HLA-A*23:01 | 1 | 139 | 148 | 10 | PFLGVVYHKN | 5e-05 | 27 |
| HLA-A*68:01 | 1 | 147 | 156 | 10 | KNNKSWMESE | 5e-05 | 39 |
| HLA-A*68:02 | 1 | 147 | 155 | 9 | KNNKSWMES | 5e-05 | 45 |
| HLA-A*02:03 | 1 | 150 | 158 | 9 | KSWMESEFR | 5e-05 | 45 |
| HLA-A*68:01 | 1 | 153 | 162 | 10 | MESEFRVYSS | 5e-05 | 39 |
| HLA-A*11:01 | 1 | 167 | 176 | 10 | TFEYVSQPFL | 5e-05 | 27 |
| HLA-B*51:01 | 1 | 175 | 184 | 10 | FLMDLEGKQG | 5e-05 | 52 |
| HLA-A*11:01 | 1 | 177 | 186 | 10 | MDLEGKQGNF | 5e-05 | 27 |
| HLA-A*31:01 | 1 | 222 | 231 | 10 | ALEPLVDLPI | 5e-05 | 44 |
| HLA-B*15:01 | 1 | 234 | 243 | 10 | NITRFQTLA | 5e-05 | 43 |
| HLA-A*68:02 | 1 | 237 | 246 | 10 | RFQTLALHR | 5e-05 | 45 |
| HLA-A*11:01 | 1 | 240 | 249 | 10 | TLLALHRSYL | 5e-05 | 27 |
| HLA-B*35:01 | 1 | 264 | 272 | 9 | AYYVGYLQP | 5e-05 | 31 |
| HLA-A*68:02 | 1 | 275 | 283 | 9 | FLLKYNENG | 5e-05 | 45 |
| HLA-A*02:01 | 1 | 277 | 285 | 9 | LKYNENGTI | 5e-05 | 42 |
| HLA-A*02:01 | 1 | 279 | 288 | 10 | YNENGTITDA | 5e-05 | 42 |
| HLA-B*35:01 | 1 | 279 | 288 | 10 | YNENGTITDA | 5e-05 | 31 |
| HLA-A*31:01 | 1 | 284 | 293 | 10 | TITDAVDCAL | 5e-05 | 44 |
| HLA-A*11:01 | 1 | 290 | 298 | 9 | DCALDPLSE | 5e-05 | 27 |
| HLA-B*58:01 | 1 | 290 | 299 | 10 | DCALDPLSET | 5e-05 | 47 |
| HLA-A*32:01 | 1 | 291 | 299 | 9 | CALDPLSET | 5e-05 | 33 |
| HLA-A*01:01 | 1 | 293 | 302 | 10 | LDPLSETKCT | 5e-05 | 62 |
| HLA-A*68:02 | 1 | 294 | 302 | 9 | DPLSETKCT | 5e-05 | 45 |
| HLA-A*11:01 | 1 | 297 | 305 | 9 | SETKCTLKS | 5e-05 | 27 |
| HLA-A*02:03 | 1 | 298 | 307 | 10 | ETKCTLKSFT | 5e-05 | 45 |
| HLA-B*57:01 | 1 | 331 | 340 | 10 | NITNLCPFGE | 5e-05 | 59 |
| HLA-A*31:01 | 1 | 333 | 341 | 9 | TNLCPFGEV | 5e-05 | 44 |
| HLA-A*33:01 | 1 | 350 | 359 | 10 | VYAWNRKRIS | 5e-05 | 46 |
| HLA-A*11:01 | 1 | 365 | 374 | 10 | YSVLYNSASF | 5e-05 | 27 |
| HLA-A*02:03 | 1 | 371 | 380 | 10 | SASFSTFKCY | 5e-05 | 45 |
| HLA-A*02:01 | 1 | 381 | 389 | 9 | GVSPTKLND | 5e-05 | 42 |
| HLA-A*11:01 | 1 | 389 | 397 | 9 | DLCFTNVYA | 5e-05 | 27 |
| HLA-B*57:01 | 1 | 398 | 406 | 9 | DSFVIRGDE | 5e-05 | 59 |
| HLA-A*26:01 | 1 | 401 | 409 | 9 | VIRGDEVIRQ | 5e-05 | 37 |
| HLA-A*30:01 | 1 | 411 | 420 | 10 | APGQTGKIAD | 5e-05 | 69 |
| HLA-B*51:01 | 1 | 415 | 424 | 10 | TGKIADYNYK | 5e-05 | 52 |
| HLA-A*01:01 | 1 | 418 | 427 | 10 | IADYNYKLPD | 5e-05 | 62 |
| HLA-A*02:03 | 1 | 421 | 430 | 10 | YNYKLPPDFT | 5e-05 | 45 |
| HLA-A*23:01 | 1 | 432 | 441 | 10 | CVIAWNSNNL | 5e-05 | 27 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|-------|----|
| HLA-B*08:01 | 1 | 440 | 448 | 9 | NLDSKVGGN | 5e-05 | 59 |
| HLA-B*07:02 | 1 | 451 | 459 | 9 | YLYRLEFRKS | 5e-05 | 41 |
| HLA-A*02:06 | 1 | 455 | 464 | 10 | LFRKSNLKPFP | 5e-05 | 53 |
| HLA-A*03:01 | 1 | 465 | 474 | 10 | ERDISTEIQ | 5e-05 | 37 |
| HLA-A*26:01 | 1 | 469 | 477 | 9 | STEIQAGS | 5e-05 | 37 |
| HLA-A*31:01 | 1 | 471 | 480 | 10 | EIQAGSTPC | 5e-05 | 44 |
| HLA-A*02:03 | 1 | 478 | 486 | 9 | TPCNGVEGF | 5e-05 | 45 |
| HLA-A*11:01 | 1 | 481 | 490 | 10 | NGVEGFNCYF | 5e-05 | 27 |
| HLA-A*68:02 | 1 | 496 | 505 | 10 | GFQPTNGVGY | 5e-05 | 45 |
| HLA-A*68:02 | 1 | 500 | 508 | 9 | TNGVGYQPY | 5e-05 | 45 |
| HLA-A*24:02 | 1 | 518 | 526 | 9 | LHAPATVCG | 5e-05 | 26 |
| HLA-A*33:01 | 1 | 519 | 527 | 9 | HAPATVCGP | 5e-05 | 46 |
| HLA-B*40:01 | 1 | 523 | 531 | 9 | TVCGPKKST | 5e-05 | 25 |
| HLA-A*31:01 | 1 | 524 | 533 | 10 | VCGPKKSTNL | 5e-05 | 44 |
| HLA-A*68:02 | 1 | 542 | 550 | 9 | NFNGLTGTG | 5e-05 | 45 |
| HLA-B*35:01 | 1 | 543 | 552 | 10 | FNGLTGTGVL | 5e-05 | 31 |
| HLA-A*31:01 | 1 | 547 | 555 | 9 | TGTGVLTES | 5e-05 | 44 |
| HLA-A*24:02 | 1 | 550 | 558 | 9 | GVLTESNKK | 5e-05 | 26 |
| HLA-B*35:01 | 1 | 553 | 561 | 9 | TESNKKFLP | 5e-05 | 31 |
| HLA-B*07:02 | 1 | 559 | 568 | 10 | FLPFQFGRD | 5e-05 | 41 |
| HLA-A*11:01 | 1 | 569 | 578 | 10 | IADTTDAVRD | 5e-05 | 27 |
| HLA-A*02:03 | 1 | 579 | 587 | 9 | PQTLEILDI | 5e-05 | 45 |
| HLA-A*01:01 | 1 | 588 | 596 | 9 | TPCSFGGVS | 5e-05 | 62 |
| HLA-A*68:01 | 1 | 591 | 599 | 9 | SFGGVSVIT | 5e-05 | 39 |
| HLA-B*15:01 | 1 | 595 | 603 | 9 | VSVITPGTN | 5e-05 | 43 |
| HLA-B*44:02 | 1 | 599 | 607 | 9 | TPGTNTSNQ | 5e-05 | 30 |
| HLA-B*44:02 | 1 | 601 | 610 | 10 | GTNTSNQVAV | 5e-05 | 30 |
| HLA-B*40:01 | 1 | 603 | 612 | 10 | NTSNQVAVLY | 5e-05 | 25 |
| HLA-A*33:01 | 1 | 606 | 614 | 9 | NQVAVLYQD | 5e-05 | 46 |
| HLA-B*53:01 | 1 | 611 | 619 | 9 | LYQDVNCTE | 5e-05 | 30 |
| HLA-A*30:01 | 1 | 612 | 621 | 10 | YQDVNCTEVP | 5e-05 | 69 |
| HLA-B*53:01 | 1 | 614 | 623 | 10 | DVNCTEVPVA | 5e-05 | 30 |
| HLA-A*02:06 | 1 | 616 | 625 | 10 | NCTEVPVAIH | 5e-05 | 53 |
| HLA-A*30:01 | 1 | 621 | 630 | 10 | PVAIHADQLT | 5e-05 | 69 |
| HLA-B*40:01 | 1 | 625 | 634 | 10 | HADQLTPTWR | 5e-05 | 25 |
| HLA-B*44:03 | 1 | 637 | 645 | 9 | STGSNVFQT | 5e-05 | 29 |
| HLA-B*40:01 | 1 | 645 | 653 | 9 | TRAGCLIGA | 5e-05 | 25 |
| HLA-A*11:01 | 1 | 651 | 659 | 9 | IGAHEVNNS | 5e-05 | 27 |
| HLA-A*11:01 | 1 | 666 | 675 | 10 | IGAGICASYQ | 5e-05 | 27 |
| HLA-A*26:01 | 1 | 669 | 677 | 9 | GICASYQTQ | 5e-05 | 37 |
| HLA-B*53:01 | 1 | 670 | 678 | 9 | ICASYQTQT | 5e-05 | 30 |
| HLA-B*44:03 | 1 | 672 | 681 | 10 | ASYQTQTNSP | 5e-05 | 29 |
| HLA-A*11:01 | 1 | 676 | 684 | 9 | TQTNSPRRA | 5e-05 | 27 |
| HLA-A*33:01 | 1 | 680 | 689 | 10 | SPRRARSVAS | 5e-05 | 46 |
| HLA-A*68:01 | 1 | 682 | 691 | 10 | RRARSVASQS | 5e-05 | 39 |
| HLA-B*35:01 | 1 | 688 | 696 | 9 | ASQSIIAYT | 5e-05 | 31 |
| HLA-A*68:01 | 1 | 701 | 709 | 9 | AENSVAYSN | 5e-05 | 39 |
| HLA-B*35:01 | 1 | 720 | 728 | 9 | ISVTTEILP | 5e-05 | 31 |
| HLA-B*07:02 | 1 | 721 | 730 | 10 | SVTTEILPVS | 5e-05 | 41 |
| HLA-A*31:01 | 1 | 729 | 738 | 10 | VSMTKTSVDC | 5e-05 | 44 |
| HLA-A*31:01 | 1 | 730 | 738 | 9 | SMTKTSVDC | 5e-05 | 44 |
| HLA-A*02:01 | 1 | 738 | 747 | 10 | CTMYICGDST | 5e-05 | 42 |
| HLA-A*68:02 | 1 | 740 | 748 | 9 | MYICGDSTE | 5e-05 | 45 |
| HLA-A*30:02 | 1 | 741 | 750 | 10 | YICGDSTECS | 5e-05 | 67 |
| HLA-A*26:01 | 1 | 744 | 753 | 10 | GDSTECSNLL | 5e-05 | 37 |
| HLA-B*08:01 | 1 | 753 | 762 | 10 | LLQYGSFACTQ | 5e-05 | 59 |
| HLA-B*07:02 | 1 | 761 | 769 | 9 | TQLNRALTG | 5e-05 | 41 |
| HLA-B*40:01 | 1 | 763 | 772 | 10 | LNRLALGIIV | 5e-05 | 25 |
| HLA-B*15:01 | 1 | 774 | 783 | 10 | QDKNTQEVFA | 5e-05 | 43 |
| HLA-A*03:01 | 1 | 784 | 793 | 10 | QVKQIYKTPP | 5e-05 | 37 |
| HLA-A*32:01 | 1 | 809 | 818 | 10 | PSKPSKRSFI | 5e-05 | 33 |
| HLA-A*03:01 | 1 | 810 | 818 | 9 | SKPSKRSFI | 5e-05 | 37 |
| HLA-A*30:02 | 1 | 810 | 819 | 10 | SKPSKRSFIE | 5e-05 | 67 |
| HLA-A*31:01 | 1 | 822 | 830 | 9 | LFNKVTLAD | 5e-05 | 44 |
| HLA-B*15:01 | 1 | 823 | 831 | 9 | FNKVTLADA | 5e-05 | 43 |
| HLA-B*07:02 | 1 | 840 | 849 | 10 | CLGDIAARDL | 5e-05 | 41 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-B*07:02 | 1 | 841 | 850 | 10 | LGDI AARDLI | 5e-05 | 41 |
| HLA-A*01:01 | 1 | 842 | 851 | 10 | GDIAARDLIC | 5e-05 | 62 |
| HLA-B*58:01 | 1 | 843 | 851 | 9 | DIAARDLIC | 5e-05 | 47 |
| HLA-A*33:01 | 1 | 851 | 859 | 9 | CAQKFNGLT | 5e-05 | 46 |
| HLA-A*01:01 | 1 | 855 | 864 | 10 | FNGLTVLPPL | 5e-05 | 62 |
| HLA-A*32:01 | 1 | 864 | 872 | 9 | LLTDEMIAQ | 5e-05 | 33 |
| HLA-A*11:01 | 1 | 874 | 882 | 9 | TSALLAGTI | 5e-05 | 27 |
| HLA-B*07:02 | 1 | 881 | 890 | 10 | TITSGWTFGA | 5e-05 | 41 |
| HLA-B*08:01 | 1 | 887 | 895 | 9 | TFGAGAALQ | 5e-05 | 59 |
| HLA-B*53:01 | 1 | 895 | 903 | 9 | QIPFAMQMA | 5e-05 | 30 |
| HLA-A*03:01 | 1 | 900 | 909 | 10 | MQMAYRFNGI | 5e-05 | 37 |
| HLA-A*24:02 | 1 | 904 | 912 | 9 | YRFNGIGVT | 5e-05 | 26 |
| HLA-B*07:02 | 1 | 930 | 939 | 10 | AIGKIQDSLS | 5e-05 | 41 |
| HLA-A*23:01 | 1 | 933 | 942 | 10 | KIQDSLSSTA | 5e-05 | 27 |
| HLA-B*15:01 | 1 | 938 | 946 | 9 | LSSTASALG | 5e-05 | 43 |
| HLA-A*68:02 | 1 | 942 | 950 | 9 | ASALGKLQD | 5e-05 | 45 |
| HLA-A*02:06 | 1 | 945 | 954 | 10 | LGKLQDVVNQ | 5e-05 | 53 |
| HLA-B*58:01 | 1 | 946 | 954 | 9 | GKLQDVVNQ | 5e-05 | 47 |
| HLA-A*26:01 | 1 | 948 | 956 | 9 | LQDVVNQNA | 5e-05 | 37 |
| HLA-A*68:01 | 1 | 948 | 956 | 9 | LQDVVNQNA | 5e-05 | 39 |
| HLA-A*68:01 | 1 | 959 | 967 | 9 | LNTLVKQLS | 5e-05 | 39 |
| HLA-B*07:02 | 1 | 966 | 974 | 9 | LSSNFGAIS | 5e-05 | 41 |
| HLA-A*02:06 | 1 | 973 | 982 | 10 | ISSVLNDILS | 5e-05 | 53 |
| HLA-A*32:01 | 1 | 980 | 989 | 10 | ILSRLDKVEA | 5e-05 | 33 |
| HLA-B*08:01 | 1 | 983 | 992 | 10 | RLDKVEAEVQ | 5e-05 | 59 |
| HLA-A*30:01 | 1 | 988 | 997 | 10 | EAEVQIDRLI | 5e-05 | 69 |
| HLA-B*58:01 | 1 | 1009 | 1018 | 10 | TQQLIRAAEI | 5e-05 | 47 |
| HLA-A*02:03 | 1 | 1013 | 1021 | 9 | IRAAEIRAS | 5e-05 | 45 |
| HLA-A*11:01 | 1 | 1024 | 1032 | 9 | LAATKMSEC | 5e-05 | 27 |
| HLA-A*26:01 | 1 | 1025 | 1034 | 10 | AATKMSECVL | 5e-05 | 37 |
| HLA-B*53:01 | 1 | 1049 | 1057 | 9 | LMSFPQSAP | 5e-05 | 30 |
| HLA-B*58:01 | 1 | 1051 | 1059 | 9 | SFPQSAPHG | 5e-05 | 47 |
| HLA-A*11:01 | 1 | 1056 | 1065 | 10 | APHGVVFLHV | 5e-05 | 27 |
| HLA-A*02:01 | 1 | 1058 | 1067 | 10 | HGVVFLHVTY | 5e-05 | 42 |
| HLA-B*51:01 | 1 | 1070 | 1079 | 10 | AQEKNFTTAP | 5e-05 | 52 |
| HLA-B*08:01 | 1 | 1073 | 1082 | 10 | KNFTTAPAIC | 5e-05 | 59 |
| HLA-A*68:02 | 1 | 1110 | 1118 | 9 | YEPQIITTD | 5e-05 | 45 |
| HLA-B*44:02 | 1 | 1128 | 1137 | 10 | VVIGIVNNTV | 5e-05 | 30 |
| HLA-B*58:01 | 1 | 1140 | 1149 | 10 | PLQPELDSFK | 5e-05 | 47 |
| HLA-B*15:01 | 1 | 1145 | 1154 | 10 | LDSFKEELDK | 5e-05 | 43 |
| HLA-B*15:01 | 1 | 1148 | 1157 | 10 | FKEELDKYFK | 5e-05 | 43 |
| HLA-A*24:02 | 1 | 1155 | 1163 | 9 | YFKNHTSPD | 5e-05 | 26 |
| HLA-B*07:02 | 1 | 1155 | 1163 | 9 | YFKNHTSPD | 5e-05 | 41 |
| HLA-A*31:01 | 1 | 1159 | 1167 | 9 | HTSPDVDLG | 5e-05 | 44 |
| HLA-A*03:01 | 1 | 1164 | 1172 | 9 | VDLGDISGI | 5e-05 | 37 |
| HLA-A*31:01 | 1 | 1166 | 1174 | 9 | LGDISGINA | 5e-05 | 44 |
| HLA-A*68:01 | 1 | 1177 | 1186 | 10 | VNIQKEIDRL | 5e-05 | 39 |
| HLA-A*11:01 | 1 | 1178 | 1186 | 9 | NIQKEIDRL | 5e-05 | 27 |
| HLA-B*58:01 | 1 | 1192 | 1201 | 10 | NLNESLIDLQ | 5e-05 | 47 |
| HLA-A*32:01 | 1 | 1202 | 1211 | 10 | ELGKYEQYIK | 5e-05 | 33 |
| HLA-A*02:01 | 1 | 1206 | 1215 | 10 | YEQYIKWPWY | 5e-05 | 42 |
| HLA-A*32:01 | 1 | 1213 | 1221 | 9 | PWYIWLGFI | 5e-05 | 33 |
| HLA-A*03:01 | 1 | 1222 | 1231 | 10 | AGLIAIVMVT | 5e-05 | 37 |
| HLA-B*58:01 | 1 | 1222 | 1231 | 10 | AGLIAIVMVT | 5e-05 | 47 |
| HLA-A*03:01 | 1 | 1227 | 1236 | 10 | IVMVTIMLCC | 5e-05 | 37 |
| HLA-B*35:01 | 1 | 1255 | 1264 | 10 | KFDEDDSEPV | 5e-05 | 31 |
| HLA-A*24:02 | 1 | 6 | 15 | 10 | VLLPLVSSQC | 4.9e-05 | 27 |
| HLA-A*11:01 | 1 | 11 | 19 | 9 | VSSQCVNLT | 4.9e-05 | 27 |
| HLA-A*02:01 | 1 | 15 | 23 | 9 | CVNLTTRTQ | 4.9e-05 | 43 |
| HLA-A*33:01 | 1 | 18 | 26 | 9 | LTRTQLPPL | 4.9e-05 | 47 |
| HLA-B*07:02 | 1 | 21 | 30 | 10 | RTQLPPAYTN | 4.9e-05 | 41 |
| HLA-B*44:02 | 1 | 21 | 30 | 10 | RTQLPPAYTN | 4.9e-05 | 31 |
| HLA-A*01:01 | 1 | 24 | 33 | 10 | LPPAYTNSFT | 4.9e-05 | 63 |
| HLA-B*44:03 | 1 | 26 | 34 | 9 | PAYTNSFTR | 4.9e-05 | 29 |
| HLA-B*15:01 | 1 | 37 | 46 | 10 | YYPDKVFRSS | 4.9e-05 | 43 |
| HLA-B*40:01 | 1 | 51 | 60 | 10 | TQDLFLPFFS | 4.9e-05 | 26 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*44:02 | 1 | 70 | 78 | 9 | VSGTNGTKR | 4.9e-05 | 31 |
| HLA-A*03:01 | 1 | 76 | 84 | 9 | TKRFDNPVL | 4.9e-05 | 37 |
| HLA-B*51:01 | 1 | 78 | 87 | 10 | RFDNPVLPFN | 4.9e-05 | 52 |
| HLA-A*11:01 | 1 | 84 | 93 | 10 | LPFNDGVYFA | 4.9e-05 | 27 |
| HLA-B*07:02 | 1 | 104 | 112 | 9 | WIFGTTLDS | 4.9e-05 | 41 |
| HLA-B*44:03 | 1 | 114 | 123 | 10 | TQSLLVNNA | 4.9e-05 | 29 |
| HLA-B*58:01 | 1 | 117 | 126 | 10 | LLIVNNATNV | 4.9e-05 | 47 |
| HLA-B*15:01 | 1 | 125 | 134 | 10 | NVVIKVFCEQ | 4.9e-05 | 43 |
| HLA-A*68:02 | 1 | 127 | 136 | 10 | VIKVCEFQFC | 4.9e-05 | 45 |
| HLA-B*51:01 | 1 | 133 | 142 | 10 | FQFCNDPFLG | 4.9e-05 | 52 |
| HLA-B*40:01 | 1 | 136 | 145 | 10 | CNDPFLGVVY | 4.9e-05 | 26 |
| HLA-B*58:01 | 1 | 142 | 151 | 10 | GVYYHKNNKS | 4.9e-05 | 47 |
| HLA-A*26:01 | 1 | 143 | 151 | 9 | VYYHKNNKS | 4.9e-05 | 38 |
| HLA-A*31:01 | 1 | 154 | 163 | 10 | ESEFRVYSSA | 4.9e-05 | 44 |
| HLA-B*07:02 | 1 | 163 | 171 | 9 | ANNCTFEYV | 4.9e-05 | 41 |
| HLA-B*40:01 | 1 | 166 | 175 | 10 | CTFEYVSQPF | 4.9e-05 | 26 |
| HLA-B*07:02 | 1 | 178 | 187 | 10 | DLEGKQGNFK | 4.9e-05 | 41 |
| HLA-B*57:01 | 1 | 179 | 188 | 10 | LEGKQGNFKN | 4.9e-05 | 59 |
| HLA-A*68:02 | 1 | 186 | 194 | 9 | FKNLREFVF | 4.9e-05 | 45 |
| HLA-B*08:01 | 1 | 187 | 195 | 9 | KNLREFVFK | 4.9e-05 | 60 |
| HLA-B*35:01 | 1 | 194 | 202 | 9 | FKNIDGYFK | 4.9e-05 | 31 |
| HLA-B*07:02 | 1 | 200 | 208 | 9 | YFKIYSKHT | 4.9e-05 | 41 |
| HLA-A*33:01 | 1 | 213 | 221 | 9 | VRDLPQGF | 4.9e-05 | 47 |
| HLA-B*15:01 | 1 | 218 | 227 | 10 | QGFSALEPLV | 4.9e-05 | 43 |
| HLA-B*40:01 | 1 | 218 | 227 | 10 | QGFSALEPLV | 4.9e-05 | 26 |
| HLA-B*53:01 | 1 | 231 | 239 | 9 | IGINITRFQ | 4.9e-05 | 30 |
| HLA-A*68:02 | 1 | 236 | 245 | 10 | TRFQTLALH | 4.9e-05 | 45 |
| HLA-A*24:02 | 1 | 243 | 251 | 9 | ALHRSYLT | 4.9e-05 | 27 |
| HLA-B*40:01 | 1 | 248 | 256 | 9 | YLTPGDSS | 4.9e-05 | 26 |
| HLA-B*40:01 | 1 | 255 | 264 | 10 | SSGWTAGAAA | 4.9e-05 | 26 |
| HLA-B*08:01 | 1 | 258 | 267 | 10 | WTAGAAAYV | 4.9e-05 | 60 |
| HLA-B*51:01 | 1 | 260 | 268 | 9 | AGAAAYVVG | 4.9e-05 | 52 |
| HLA-A*32:01 | 1 | 266 | 274 | 9 | YVGYLQPR | 4.9e-05 | 33 |
| HLA-A*31:01 | 1 | 278 | 287 | 10 | KYNENGTITD | 4.9e-05 | 44 |
| HLA-A*33:01 | 1 | 280 | 289 | 10 | NENGTITDAV | 4.9e-05 | 47 |
| HLA-A*24:02 | 1 | 284 | 293 | 10 | TITDAVDCAL | 4.9e-05 | 27 |
| HLA-B*44:03 | 1 | 300 | 308 | 9 | KCTLKSFTV | 4.9e-05 | 29 |
| HLA-B*53:01 | 1 | 306 | 315 | 10 | FTVEKGIYQT | 4.9e-05 | 30 |
| HLA-A*32:01 | 1 | 313 | 322 | 10 | YQTSNFRVQP | 4.9e-05 | 33 |
| HLA-A*02:03 | 1 | 325 | 334 | 10 | SIVRFPNITN | 4.9e-05 | 46 |
| HLA-B*53:01 | 1 | 326 | 334 | 9 | IVRFPNITN | 4.9e-05 | 30 |
| HLA-B*44:02 | 1 | 327 | 336 | 10 | VRFPNITNLC | 4.9e-05 | 31 |
| HLA-A*11:01 | 1 | 341 | 349 | 9 | VFNATRFAS | 4.9e-05 | 27 |
| HLA-B*51:01 | 1 | 341 | 349 | 9 | VFNATRFAS | 4.9e-05 | 52 |
| HLA-B*44:03 | 1 | 347 | 355 | 9 | FASVYAWNR | 4.9e-05 | 29 |
| HLA-B*35:01 | 1 | 354 | 362 | 9 | NRKRISNCV | 4.9e-05 | 31 |
| HLA-B*15:01 | 1 | 359 | 367 | 9 | SNCVADYSV | 4.9e-05 | 43 |
| HLA-B*15:01 | 1 | 363 | 371 | 9 | ADYSVLVNS | 4.9e-05 | 43 |
| HLA-A*30:02 | 1 | 398 | 406 | 9 | DSFVIRGDE | 4.9e-05 | 68 |
| HLA-B*35:01 | 1 | 416 | 425 | 10 | GKIADYNYKL | 4.9e-05 | 31 |
| HLA-A*33:01 | 1 | 423 | 432 | 10 | YKLPDDFTGC | 4.9e-05 | 47 |
| HLA-A*68:01 | 1 | 424 | 433 | 10 | KLPDDFTGCV | 4.9e-05 | 39 |
| HLA-A*33:01 | 1 | 428 | 437 | 10 | DFTGCVIAWN | 4.9e-05 | 47 |
| HLA-B*07:02 | 1 | 428 | 436 | 9 | DFTGCVIAW | 4.9e-05 | 41 |
| HLA-A*68:02 | 1 | 430 | 438 | 9 | TGCVIAWNS | 4.9e-05 | 45 |
| HLA-B*35:01 | 1 | 432 | 441 | 10 | CVIAWNSNLL | 4.9e-05 | 31 |
| HLA-A*68:02 | 1 | 441 | 449 | 9 | LDSKVGNGY | 4.9e-05 | 45 |
| HLA-A*26:01 | 1 | 456 | 465 | 10 | FRKSNLKPFE | 4.9e-05 | 38 |
| HLA-A*02:01 | 1 | 461 | 470 | 10 | LKPFERDIST | 4.9e-05 | 43 |
| HLA-A*02:01 | 1 | 462 | 471 | 10 | KPFERDISTE | 4.9e-05 | 43 |
| HLA-A*03:01 | 1 | 480 | 489 | 10 | CNGVEGFNCY | 4.9e-05 | 37 |
| HLA-A*01:01 | 1 | 483 | 491 | 9 | VEGFNCYF | 4.9e-05 | 63 |
| HLA-A*01:01 | 1 | 485 | 493 | 9 | GFNCYFPLQ | 4.9e-05 | 63 |
| HLA-A*26:01 | 1 | 493 | 502 | 10 | QSYGFQPTNG | 4.9e-05 | 38 |
| HLA-A*24:02 | 1 | 495 | 504 | 10 | YGFQPTNGVG | 4.9e-05 | 27 |
| HLA-B*53:01 | 1 | 495 | 504 | 10 | YGFQPTNGVG | 4.9e-05 | 30 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*23:01 | 1 | 512 | 520 | 9 | VLSFELLHA | 4.9e-05 | 28 |
| HLA-A*24:02 | 1 | 531 | 539 | 9 | TNLVKNKCV | 4.9e-05 | 27 |
| HLA-A*23:01 | 1 | 539 | 548 | 10 | VNFNFNGLTG | 4.9e-05 | 28 |
| HLA-B*15:01 | 1 | 579 | 587 | 9 | PQTLIILDI | 4.9e-05 | 43 |
| HLA-A*68:01 | 1 | 588 | 596 | 9 | TPCSFGGVS | 4.9e-05 | 39 |
| HLA-B*08:01 | 1 | 595 | 604 | 10 | VSVITPGTNT | 4.9e-05 | 60 |
| HLA-A*11:01 | 1 | 599 | 607 | 9 | TPGTNTSNQ | 4.9e-05 | 27 |
| HLA-A*68:01 | 1 | 606 | 614 | 9 | NQVAVLYQD | 4.9e-05 | 39 |
| HLA-B*58:01 | 1 | 607 | 616 | 10 | QVAVLYQDVN | 4.9e-05 | 47 |
| HLA-A*30:02 | 1 | 608 | 617 | 10 | VAVLYQDVNC | 4.9e-05 | 68 |
| HLA-A*26:01 | 1 | 609 | 617 | 9 | AVLYQDVNC | 4.9e-05 | 38 |
| HLA-A*32:01 | 1 | 609 | 618 | 10 | AVLYQDVNCT | 4.9e-05 | 33 |
| HLA-A*01:01 | 1 | 613 | 621 | 9 | QDVNCTEVP | 4.9e-05 | 63 |
| HLA-B*40:01 | 1 | 613 | 621 | 9 | QDVNCTEVP | 4.9e-05 | 26 |
| HLA-B*35:01 | 1 | 619 | 627 | 9 | EVPVAIHAD | 4.9e-05 | 31 |
| HLA-B*44:02 | 1 | 622 | 631 | 10 | VAIHADQLTP | 4.9e-05 | 31 |
| HLA-B*40:01 | 1 | 624 | 632 | 9 | IHADQLTPT | 4.9e-05 | 26 |
| HLA-B*58:01 | 1 | 626 | 634 | 9 | ADQLTPTWR | 4.9e-05 | 47 |
| HLA-B*07:02 | 1 | 628 | 637 | 10 | QLTPTWRVYS | 4.9e-05 | 41 |
| HLA-B*35:01 | 1 | 628 | 637 | 10 | QLTPTWRVYS | 4.9e-05 | 31 |
| HLA-B*44:03 | 1 | 628 | 637 | 10 | QLTPTWRVYS | 4.9e-05 | 29 |
| HLA-B*44:03 | 1 | 635 | 644 | 10 | VYSTGSNVFQ | 4.9e-05 | 29 |
| HLA-A*02:03 | 1 | 648 | 657 | 10 | GCLIGAHEVN | 4.9e-05 | 46 |
| HLA-B*44:02 | 1 | 648 | 656 | 9 | GCLIGAHEV | 4.9e-05 | 31 |
| HLA-B*07:02 | 1 | 653 | 661 | 9 | AEHVNSY | 4.9e-05 | 41 |
| HLA-A*68:01 | 1 | 673 | 681 | 9 | SYQTQTNSP | 4.9e-05 | 39 |
| HLA-A*32:01 | 1 | 678 | 687 | 10 | TNSPRRARSV | 4.9e-05 | 33 |
| HLA-A*68:01 | 1 | 689 | 698 | 10 | SQSIIAYTMS | 4.9e-05 | 39 |
| HLA-A*23:01 | 1 | 696 | 705 | 10 | TMSLGAENSV | 4.9e-05 | 28 |
| HLA-A*68:01 | 1 | 727 | 736 | 10 | LPVSMTKTSV | 4.9e-05 | 39 |
| HLA-A*02:06 | 1 | 729 | 737 | 9 | VSMTKTSVD | 4.9e-05 | 54 |
| HLA-A*02:01 | 1 | 732 | 740 | 9 | TKTSVDCTM | 4.9e-05 | 43 |
| HLA-A*02:03 | 1 | 732 | 740 | 9 | TKTSVDCTM | 4.9e-05 | 46 |
| HLA-A*31:01 | 1 | 740 | 749 | 10 | MYICGDSTEC | 4.9e-05 | 44 |
| HLA-B*44:03 | 1 | 750 | 758 | 9 | SNLLQYGS | 4.9e-05 | 29 |
| HLA-B*08:01 | 1 | 752 | 761 | 10 | LLLQYGSFCT | 4.9e-05 | 60 |
| HLA-A*31:01 | 1 | 755 | 764 | 10 | QYGSFCTQLN | 4.9e-05 | 44 |
| HLA-B*08:01 | 1 | 755 | 764 | 10 | QYGSFCTQLN | 4.9e-05 | 60 |
| HLA-A*68:02 | 1 | 764 | 773 | 10 | NRALTGIAVE | 4.9e-05 | 45 |
| HLA-B*58:01 | 1 | 769 | 777 | 9 | GIAVEQDKN | 4.9e-05 | 47 |
| HLA-A*33:01 | 1 | 774 | 783 | 10 | QDKNTQEVFA | 4.9e-05 | 47 |
| HLA-A*02:01 | 1 | 784 | 793 | 10 | QVKQIYKTPP | 4.9e-05 | 43 |
| HLA-A*68:01 | 1 | 793 | 802 | 10 | PIKDFGGFNF | 4.9e-05 | 39 |
| HLA-A*24:02 | 1 | 795 | 804 | 10 | KDFGGFNFSQ | 4.9e-05 | 27 |
| HLA-B*07:02 | 1 | 795 | 803 | 9 | KDFGGFNFS | 4.9e-05 | 41 |
| HLA-B*15:01 | 1 | 798 | 807 | 10 | GGFNFSQILP | 4.9e-05 | 43 |
| HLA-A*02:03 | 1 | 802 | 810 | 9 | FSQILPDPS | 4.9e-05 | 46 |
| HLA-A*11:01 | 1 | 805 | 813 | 9 | ILPDPSKPS | 4.9e-05 | 27 |
| HLA-B*07:02 | 1 | 812 | 821 | 10 | PSKRSFIEDL | 4.9e-05 | 41 |
| HLA-B*08:01 | 1 | 816 | 824 | 9 | SFIEDLLFN | 4.9e-05 | 60 |
| HLA-A*26:01 | 1 | 823 | 831 | 9 | FNKVTLADA | 4.9e-05 | 38 |
| HLA-A*11:01 | 1 | 844 | 852 | 9 | IAARDLICA | 4.9e-05 | 27 |
| HLA-B*58:01 | 1 | 862 | 870 | 9 | PPLLTDEMI | 4.9e-05 | 47 |
| HLA-A*30:01 | 1 | 863 | 871 | 9 | PLLTDEMIA | 4.9e-05 | 70 |
| HLA-B*15:01 | 1 | 867 | 875 | 9 | DEMIAQYTS | 4.9e-05 | 43 |
| HLA-A*31:01 | 1 | 873 | 882 | 10 | YTSALLAGTI | 4.9e-05 | 44 |
| HLA-B*44:03 | 1 | 882 | 890 | 9 | ITSGWTFGA | 4.9e-05 | 29 |
| HLA-A*23:01 | 1 | 896 | 905 | 10 | IPFAMQMAYR | 4.9e-05 | 28 |
| HLA-A*33:01 | 1 | 903 | 912 | 10 | AYRFNGIGVT | 4.9e-05 | 47 |
| HLA-A*68:01 | 1 | 904 | 912 | 9 | YRFNGIGVT | 4.9e-05 | 39 |
| HLA-A*02:06 | 1 | 913 | 921 | 9 | QNVLYENQK | 4.9e-05 | 54 |
| HLA-A*03:01 | 1 | 922 | 931 | 10 | LIANQFNSAI | 4.9e-05 | 37 |
| HLA-B*08:01 | 1 | 926 | 935 | 10 | QFNSAIGKIQ | 4.9e-05 | 60 |
| HLA-A*33:01 | 1 | 928 | 937 | 10 | NSAIGKIQDS | 4.9e-05 | 47 |
| HLA-A*02:03 | 1 | 931 | 940 | 10 | IGKIQDSLSS | 4.9e-05 | 46 |
| HLA-A*30:01 | 1 | 941 | 950 | 10 | TASALGKLQD | 4.9e-05 | 70 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-B*53:01 | 1 | 944 | 952 | 9 | ALGKLQDVV | 4.9e-05 | 30 |
| HLA-A*31:01 | 1 | 945 | 954 | 10 | LGKLQDVVNQ | 4.9e-05 | 44 |
| HLA-A*26:01 | 1 | 946 | 954 | 9 | GKLQDVVNQ | 4.9e-05 | 38 |
| HLA-A*30:01 | 1 | 946 | 955 | 10 | GKLQDVVNQN | 4.9e-05 | 70 |
| HLA-B*44:03 | 1 | 955 | 964 | 10 | NAQALNTLVK | 4.9e-05 | 29 |
| HLA-B*40:01 | 1 | 957 | 965 | 9 | QALNTLVKQ | 4.9e-05 | 26 |
| HLA-A*01:01 | 1 | 963 | 972 | 10 | VKQLSSNFGA | 4.9e-05 | 63 |
| HLA-B*35:01 | 1 | 964 | 972 | 9 | KQLSSNFGA | 4.9e-05 | 31 |
| HLA-B*15:01 | 1 | 965 | 974 | 10 | QLSSNFGAIS | 4.9e-05 | 43 |
| HLA-B*35:01 | 1 | 972 | 980 | 9 | AISSVLNDI | 4.9e-05 | 31 |
| HLA-A*02:03 | 1 | 974 | 982 | 9 | SSVLNDILS | 4.9e-05 | 46 |
| HLA-A*31:01 | 1 | 976 | 985 | 10 | VLNDILSRLD | 4.9e-05 | 44 |
| HLA-A*24:02 | 1 | 982 | 990 | 9 | SRLDKVEAE | 4.9e-05 | 27 |
| HLA-B*51:01 | 1 | 997 | 1005 | 9 | ITGRLQSLQ | 4.9e-05 | 52 |
| HLA-B*51:01 | 1 | 1011 | 1019 | 9 | QLIRAAEIR | 4.9e-05 | 52 |
| HLA-A*33:01 | 1 | 1015 | 1024 | 10 | AAEIRASANL | 4.9e-05 | 47 |
| HLA-B*44:02 | 1 | 1017 | 1026 | 10 | EIRASANLAA | 4.9e-05 | 31 |
| HLA-B*58:01 | 1 | 1040 | 1048 | 9 | VDFCGKGYH | 4.9e-05 | 47 |
| HLA-A*31:01 | 1 | 1043 | 1051 | 9 | CGKGYHLMS | 4.9e-05 | 44 |
| HLA-A*33:01 | 1 | 1046 | 1055 | 10 | GYHLSFPPQS | 4.9e-05 | 47 |
| HLA-A*11:01 | 1 | 1053 | 1062 | 10 | PQSAPHGVVF | 4.9e-05 | 27 |
| HLA-A*02:03 | 1 | 1058 | 1067 | 10 | HGVVFLHVTY | 4.9e-05 | 46 |
| HLA-B*57:01 | 1 | 1074 | 1082 | 9 | NFTTAPAIC | 4.9e-05 | 59 |
| HLA-B*44:03 | 1 | 1081 | 1090 | 10 | ICHDGKAHP | 4.9e-05 | 29 |
| HLA-B*40:01 | 1 | 1102 | 1110 | 9 | WFVTQRNFY | 4.9e-05 | 26 |
| HLA-B*15:01 | 1 | 1103 | 1111 | 9 | FVTQRNFYE | 4.9e-05 | 43 |
| HLA-A*03:01 | 1 | 1105 | 1114 | 10 | TQRNFYEPQI | 4.9e-05 | 37 |
| HLA-A*23:01 | 1 | 1121 | 1130 | 10 | FVSGNCDVVI | 4.9e-05 | 28 |
| HLA-A*01:01 | 1 | 1150 | 1158 | 9 | EELDKYFKN | 4.9e-05 | 63 |
| HLA-A*30:02 | 1 | 1152 | 1161 | 10 | LDKYFKNHTS | 4.9e-05 | 68 |
| HLA-A*03:01 | 1 | 1157 | 1166 | 10 | KNHTSPDVDL | 4.9e-05 | 37 |
| HLA-B*08:01 | 1 | 1161 | 1170 | 10 | SPDVDLGDIS | 4.9e-05 | 60 |
| HLA-A*02:03 | 1 | 1167 | 1175 | 9 | GDISGINAS | 4.9e-05 | 46 |
| HLA-B*51:01 | 1 | 1167 | 1175 | 9 | GDISGINAS | 4.9e-05 | 52 |
| HLA-B*15:01 | 1 | 1170 | 1178 | 9 | SGINASVVN | 4.9e-05 | 43 |
| HLA-B*08:01 | 1 | 1176 | 1185 | 10 | VVNIQKEIDR | 4.9e-05 | 60 |
| HLA-B*40:01 | 1 | 1183 | 1191 | 9 | IDRLNEVAK | 4.9e-05 | 26 |
| HLA-B*51:01 | 1 | 1187 | 1196 | 10 | NEVAKNLNES | 4.9e-05 | 52 |
| HLA-B*44:02 | 1 | 1188 | 1196 | 9 | EVAKNLNES | 4.9e-05 | 31 |
| HLA-B*08:01 | 1 | 1198 | 1207 | 10 | IDLQELGKYE | 4.9e-05 | 60 |
| HLA-B*35:01 | 1 | 1203 | 1211 | 9 | LGKYEQYIK | 4.9e-05 | 31 |
| HLA-B*53:01 | 1 | 1215 | 1223 | 9 | YIWLGFIAI | 4.9e-05 | 30 |
| HLA-A*01:01 | 1 | 1216 | 1225 | 10 | IWLGFIAGLI | 4.9e-05 | 63 |
| HLA-A*26:01 | 1 | 1228 | 1237 | 10 | VMVTIMLCCM | 4.9e-05 | 38 |
| HLA-B*51:01 | 1 | 1230 | 1238 | 9 | VTIMLCCMT | 4.9e-05 | 52 |
| HLA-A*31:01 | 1 | 1236 | 1244 | 9 | CMTSCCSCL | 4.9e-05 | 44 |
| HLA-A*01:01 | 1 | 1238 | 1247 | 10 | TSCCSCLKGC | 4.9e-05 | 63 |
| HLA-B*44:03 | 1 | 1256 | 1264 | 9 | FDEDDSEPV | 4.9e-05 | 29 |
| HLA-B*15:01 | 1 | 1257 | 1266 | 10 | DEDDSEPVLK | 4.9e-05 | 43 |
| HLA-A*23:01 | 1 | 30 | 39 | 10 | NSFTRGVYYP | 4.8e-05 | 28 |
| HLA-B*58:01 | 1 | 32 | 41 | 10 | FTRGVYYPDK | 4.8e-05 | 47 |
| HLA-A*02:01 | 1 | 44 | 52 | 9 | RSSVLHSTQ | 4.8e-05 | 43 |
| HLA-A*02:03 | 1 | 51 | 60 | 10 | TQDLFLPFFS | 4.8e-05 | 46 |
| HLA-A*02:06 | 1 | 60 | 69 | 10 | SNVTWFHAIH | 4.8e-05 | 54 |
| HLA-B*58:01 | 1 | 63 | 71 | 9 | TWFHAIHVS | 4.8e-05 | 47 |
| HLA-B*15:01 | 1 | 64 | 72 | 9 | WFHAIHVSG | 4.8e-05 | 43 |
| HLA-A*26:01 | 1 | 67 | 76 | 10 | AIHVSGTNGT | 4.8e-05 | 38 |
| HLA-B*44:03 | 1 | 75 | 84 | 10 | GTRKFDNPVL | 4.8e-05 | 29 |
| HLA-A*31:01 | 1 | 76 | 85 | 10 | TKRFDNPVLP | 4.8e-05 | 45 |
| HLA-B*44:02 | 1 | 87 | 95 | 9 | NDGVYFAST | 4.8e-05 | 31 |
| HLA-A*23:01 | 1 | 95 | 103 | 9 | TEKSNIIRG | 4.8e-05 | 28 |
| HLA-B*57:01 | 1 | 95 | 103 | 9 | TEKSNIIRG | 4.8e-05 | 59 |
| HLA-A*68:01 | 1 | 97 | 106 | 10 | KSNIIRGWIF | 4.8e-05 | 40 |
| HLA-B*07:02 | 1 | 117 | 126 | 10 | LLIVNNATNV | 4.8e-05 | 41 |
| HLA-A*24:02 | 1 | 121 | 129 | 9 | NNATNVVIK | 4.8e-05 | 27 |
| HLA-A*02:01 | 1 | 143 | 152 | 10 | VYYHKNNKSW | 4.8e-05 | 43 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*68:01 | 1 | 147 | 155 | 9 | KNNKSWMES | 4.8e-05 | 40 |
| HLA-B*53:01 | 1 | 149 | 158 | 10 | NKSWMESEFR | 4.8e-05 | 30 |
| HLA-B*53:01 | 1 | 154 | 162 | 9 | ESEFRVYSS | 4.8e-05 | 30 |
| HLA-A*02:01 | 1 | 176 | 185 | 10 | LMDLEGKQGN | 4.8e-05 | 43 |
| HLA-A*24:02 | 1 | 188 | 197 | 10 | NLREFVFKNI | 4.8e-05 | 27 |
| HLA-A*68:01 | 1 | 201 | 210 | 10 | FKIYSKHTPI | 4.8e-05 | 40 |
| HLA-B*51:01 | 1 | 213 | 221 | 9 | VRDLPQGF | 4.8e-05 | 53 |
| HLA-A*30:01 | 1 | 216 | 225 | 10 | LPQGFSALEP | 4.8e-05 | 70 |
| HLA-B*53:01 | 1 | 220 | 228 | 9 | FSALEPLVD | 4.8e-05 | 30 |
| HLA-A*32:01 | 1 | 222 | 230 | 9 | ALEPLVDLP | 4.8e-05 | 33 |
| HLA-A*32:01 | 1 | 231 | 239 | 9 | IGINITRFQ | 4.8e-05 | 33 |
| HLA-B*51:01 | 1 | 232 | 240 | 9 | GINITRFQT | 4.8e-05 | 53 |
| HLA-B*44:02 | 1 | 237 | 246 | 10 | RFQTLALHR | 4.8e-05 | 31 |
| HLA-A*01:01 | 1 | 251 | 259 | 9 | PGDSSSGWT | 4.8e-05 | 63 |
| HLA-A*26:01 | 1 | 252 | 260 | 9 | GDSSSGWTA | 4.8e-05 | 38 |
| HLA-A*23:01 | 1 | 273 | 281 | 9 | RTFLLKYNE | 4.8e-05 | 28 |
| HLA-A*33:01 | 1 | 276 | 284 | 9 | LLKYNENGT | 4.8e-05 | 47 |
| HLA-B*44:03 | 1 | 278 | 286 | 9 | KYNENGTIT | 4.8e-05 | 29 |
| HLA-A*31:01 | 1 | 283 | 292 | 10 | GTITDAVDCA | 4.8e-05 | 45 |
| HLA-A*31:01 | 1 | 284 | 292 | 9 | TITDAVDCA | 4.8e-05 | 45 |
| HLA-B*58:01 | 1 | 290 | 298 | 9 | DCALDPLSE | 4.8e-05 | 47 |
| HLA-A*24:02 | 1 | 291 | 300 | 10 | CALDPLSETK | 4.8e-05 | 27 |
| HLA-A*30:02 | 1 | 308 | 317 | 10 | VEKGIYQTSN | 4.8e-05 | 68 |
| HLA-A*33:01 | 1 | 329 | 337 | 9 | FPNITNLCP | 4.8e-05 | 47 |
| HLA-B*40:01 | 1 | 330 | 338 | 9 | PNITNLCPF | 4.8e-05 | 26 |
| HLA-A*31:01 | 1 | 336 | 344 | 9 | CPFGEVFNA | 4.8e-05 | 45 |
| HLA-A*33:01 | 1 | 353 | 362 | 10 | WNRKRISNCV | 4.8e-05 | 47 |
| HLA-A*02:01 | 1 | 354 | 362 | 9 | NRKRISNCV | 4.8e-05 | 43 |
| HLA-B*44:02 | 1 | 359 | 367 | 9 | SNCVADYSV | 4.8e-05 | 31 |
| HLA-A*32:01 | 1 | 362 | 371 | 10 | VADYSVLYNS | 4.8e-05 | 33 |
| HLA-A*68:01 | 1 | 362 | 371 | 10 | VADYSVLYNS | 4.8e-05 | 40 |
| HLA-A*23:01 | 1 | 370 | 378 | 9 | NSASFSTFK | 4.8e-05 | 28 |
| HLA-A*23:01 | 1 | 371 | 380 | 10 | SASFSTFKCY | 4.8e-05 | 28 |
| HLA-A*02:06 | 1 | 372 | 381 | 10 | ASFSTFKCYG | 4.8e-05 | 54 |
| HLA-A*02:06 | 1 | 385 | 394 | 10 | TKLNDLCFTN | 4.8e-05 | 54 |
| HLA-A*33:01 | 1 | 391 | 399 | 9 | CFTNVYADS | 4.8e-05 | 47 |
| HLA-A*24:02 | 1 | 403 | 411 | 9 | RGDEVQRQA | 4.8e-05 | 27 |
| HLA-B*08:01 | 1 | 407 | 416 | 10 | VRQIAPGQTG | 4.8e-05 | 60 |
| HLA-B*57:01 | 1 | 418 | 427 | 10 | IADYNYKLPD | 4.8e-05 | 59 |
| HLA-B*57:01 | 1 | 422 | 431 | 10 | NYKLPDDFTG | 4.8e-05 | 59 |
| HLA-A*24:02 | 1 | 423 | 432 | 10 | YKLPDDFTGC | 4.8e-05 | 27 |
| HLA-A*31:01 | 1 | 435 | 443 | 9 | AWNSNNLDS | 4.8e-05 | 45 |
| HLA-B*44:02 | 1 | 438 | 446 | 9 | SNNLDSKVG | 4.8e-05 | 31 |
| HLA-B*44:02 | 1 | 457 | 465 | 9 | RKSNLKPFE | 4.8e-05 | 31 |
| HLA-B*15:01 | 1 | 472 | 481 | 10 | IYQAGSTPCN | 4.8e-05 | 43 |
| HLA-A*01:01 | 1 | 475 | 484 | 10 | AGSTPCNGVE | 4.8e-05 | 63 |
| HLA-B*15:01 | 1 | 477 | 485 | 9 | STPCNGVEG | 4.8e-05 | 43 |
| HLA-A*68:01 | 1 | 485 | 493 | 9 | GFNCYFPLQ | 4.8e-05 | 40 |
| HLA-B*57:01 | 1 | 489 | 498 | 10 | YFPLQSYGFQ | 4.8e-05 | 59 |
| HLA-B*58:01 | 1 | 492 | 500 | 9 | LQSYGFQPT | 4.8e-05 | 47 |
| HLA-B*08:01 | 1 | 493 | 501 | 9 | QSYGFQPTN | 4.8e-05 | 60 |
| HLA-B*15:01 | 1 | 496 | 504 | 9 | GFQPTNGVG | 4.8e-05 | 43 |
| HLA-B*44:02 | 1 | 498 | 506 | 9 | QPTNGVG YQ | 4.8e-05 | 31 |
| HLA-A*03:01 | 1 | 514 | 522 | 9 | SFELLHAPA | 4.8e-05 | 37 |
| HLA-B*58:01 | 1 | 541 | 549 | 9 | FNFNGLTGT | 4.8e-05 | 47 |
| HLA-B*07:02 | 1 | 542 | 550 | 9 | NFNGLTGTG | 4.8e-05 | 41 |
| HLA-B*44:02 | 1 | 544 | 552 | 9 | NGLTGTGVL | 4.8e-05 | 31 |
| HLA-B*57:01 | 1 | 544 | 553 | 10 | NGLTGTGVL | 4.8e-05 | 59 |
| HLA-B*53:01 | 1 | 562 | 570 | 9 | FQQFGRDIA | 4.8e-05 | 30 |
| HLA-A*31:01 | 1 | 573 | 582 | 10 | TDAVRDPQTL | 4.8e-05 | 45 |
| HLA-B*35:01 | 1 | 580 | 589 | 10 | QTLEILDITP | 4.8e-05 | 31 |
| HLA-A*03:01 | 1 | 588 | 597 | 10 | TPCSFGGVS | 4.8e-05 | 37 |
| HLA-B*15:01 | 1 | 589 | 598 | 10 | PCSFGGVS | 4.8e-05 | 43 |
| HLA-A*03:01 | 1 | 591 | 600 | 10 | SFGGVS | 4.8e-05 | 37 |
| HLA-B*51:01 | 1 | 606 | 614 | 9 | NQVAVLYQD | 4.8e-05 | 53 |
| HLA-A*30:02 | 1 | 608 | 616 | 9 | VAVLYQDVN | 4.8e-05 | 68 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-B*15:01 | 1 | 615 | 623 | 9 | VNCTEVPVA | 4.8e-05 | 43 |
| HLA-A*02:03 | 1 | 619 | 627 | 9 | EVPVAIHAD | 4.8e-05 | 46 |
| HLA-A*68:01 | 1 | 621 | 629 | 9 | PVAIHADQL | 4.8e-05 | 40 |
| HLA-A*32:01 | 1 | 631 | 639 | 9 | PTWRVYSTG | 4.8e-05 | 33 |
| HLA-A*01:01 | 1 | 640 | 649 | 10 | SNVFAQTRAG | 4.8e-05 | 63 |
| HLA-B*07:02 | 1 | 648 | 656 | 9 | GCLIGAEHV | 4.8e-05 | 41 |
| HLA-A*68:01 | 1 | 653 | 661 | 9 | AEHVNNNSYE | 4.8e-05 | 40 |
| HLA-B*15:01 | 1 | 653 | 662 | 10 | AEHVNNNSYEC | 4.8e-05 | 43 |
| HLA-B*35:01 | 1 | 661 | 669 | 9 | ECDIPIGAG | 4.8e-05 | 31 |
| HLA-A*02:06 | 1 | 668 | 677 | 10 | AGICASYQTQ | 4.8e-05 | 54 |
| HLA-B*08:01 | 1 | 692 | 701 | 10 | IIAYTMSLGA | 4.8e-05 | 60 |
| HLA-A*32:01 | 1 | 698 | 706 | 9 | SLGAENSVVA | 4.8e-05 | 33 |
| HLA-A*31:01 | 1 | 703 | 711 | 9 | NSVAYSNNNS | 4.8e-05 | 45 |
| HLA-B*51:01 | 1 | 707 | 716 | 10 | YSNNSIAIPT | 4.8e-05 | 53 |
| HLA-B*57:01 | 1 | 726 | 735 | 10 | ILPVSMTKTS | 4.8e-05 | 59 |
| HLA-A*68:01 | 1 | 730 | 739 | 10 | SMTKTSVDCT | 4.8e-05 | 40 |
| HLA-A*23:01 | 1 | 739 | 748 | 10 | TMYICGDSTE | 4.8e-05 | 28 |
| HLA-A*68:02 | 1 | 743 | 752 | 10 | CGDSTECSNL | 4.8e-05 | 45 |
| HLA-A*30:01 | 1 | 744 | 752 | 9 | GDSTECSNL | 4.8e-05 | 70 |
| HLA-A*11:01 | 1 | 779 | 788 | 10 | QEVFAQVKQI | 4.8e-05 | 28 |
| HLA-A*02:03 | 1 | 790 | 799 | 10 | KTPPIKDFGG | 4.8e-05 | 46 |
| HLA-A*24:02 | 1 | 790 | 799 | 10 | KTPPIKDFGG | 4.8e-05 | 27 |
| HLA-B*08:01 | 1 | 792 | 801 | 10 | PPIKDFGGFN | 4.8e-05 | 60 |
| HLA-B*08:01 | 1 | 794 | 803 | 10 | IKDFGGFNFS | 4.8e-05 | 60 |
| HLA-B*08:01 | 1 | 795 | 803 | 9 | KDFGGFNFS | 4.8e-05 | 60 |
| HLA-A*24:02 | 1 | 803 | 812 | 10 | SQLPDPSPK | 4.8e-05 | 27 |
| HLA-A*33:01 | 1 | 808 | 816 | 9 | DPSKPSKRS | 4.8e-05 | 47 |
| HLA-A*11:01 | 1 | 813 | 821 | 9 | SKRSFIEDL | 4.8e-05 | 28 |
| HLA-B*53:01 | 1 | 813 | 822 | 10 | SKRSFIEDLL | 4.8e-05 | 30 |
| HLA-A*68:02 | 1 | 838 | 847 | 10 | GDCLGDIAAR | 4.8e-05 | 45 |
| HLA-B*35:01 | 1 | 838 | 846 | 9 | GDCLGDIAA | 4.8e-05 | 31 |
| HLA-A*02:03 | 1 | 839 | 847 | 9 | DCLGDIAAR | 4.8e-05 | 46 |
| HLA-A*02:01 | 1 | 841 | 850 | 10 | LGDIAARDLI | 4.8e-05 | 43 |
| HLA-B*44:03 | 1 | 845 | 853 | 9 | AARDLICAQ | 4.8e-05 | 29 |
| HLA-A*23:01 | 1 | 855 | 864 | 10 | FNGLTVLPLP | 4.8e-05 | 28 |
| HLA-A*24:02 | 1 | 858 | 866 | 9 | LTVLPLLLT | 4.8e-05 | 27 |
| HLA-A*02:03 | 1 | 861 | 870 | 10 | LPPLLTDEMI | 4.8e-05 | 46 |
| HLA-A*02:06 | 1 | 867 | 875 | 9 | DEMIAQYTS | 4.8e-05 | 54 |
| HLA-B*40:01 | 1 | 877 | 886 | 10 | LLAGTITSGW | 4.8e-05 | 26 |
| HLA-B*08:01 | 1 | 881 | 890 | 10 | TITSGWTFGA | 4.8e-05 | 60 |
| HLA-B*35:01 | 1 | 894 | 903 | 10 | LQIPFAMQMA | 4.8e-05 | 31 |
| HLA-A*68:01 | 1 | 900 | 908 | 9 | MQMAYRFNG | 4.8e-05 | 40 |
| HLA-A*26:01 | 1 | 911 | 919 | 9 | VTQNVLYEN | 4.8e-05 | 38 |
| HLA-B*07:02 | 1 | 932 | 941 | 10 | GKIQDSLSST | 4.8e-05 | 41 |
| HLA-B*44:03 | 1 | 936 | 945 | 10 | DSLSSTASAL | 4.8e-05 | 29 |
| HLA-B*51:01 | 1 | 941 | 950 | 10 | TASALGKLQD | 4.8e-05 | 53 |
| HLA-B*08:01 | 1 | 945 | 954 | 10 | LGKLQDVVNQ | 4.8e-05 | 60 |
| HLA-A*02:03 | 1 | 959 | 968 | 10 | LNTLVKQLSS | 4.8e-05 | 46 |
| HLA-A*11:01 | 1 | 979 | 987 | 9 | DILSRLDKV | 4.8e-05 | 28 |
| HLA-B*58:01 | 1 | 989 | 998 | 10 | AEVQIDRLIT | 4.8e-05 | 47 |
| HLA-A*26:01 | 1 | 994 | 1002 | 9 | DRLITGRLQ | 4.8e-05 | 38 |
| HLA-A*02:01 | 1 | 997 | 1006 | 10 | ITGRLQSLQT | 4.8e-05 | 43 |
| HLA-B*44:03 | 1 | 1006 | 1014 | 9 | TYVTQLLIR | 4.8e-05 | 29 |
| HLA-A*24:02 | 1 | 1009 | 1017 | 9 | TQQLIRAAE | 4.8e-05 | 27 |
| HLA-A*26:01 | 1 | 1009 | 1017 | 9 | TQQLIRAAE | 4.8e-05 | 38 |
| HLA-A*11:01 | 1 | 1023 | 1031 | 9 | NLAATKMSE | 4.8e-05 | 28 |
| HLA-A*02:03 | 1 | 1026 | 1035 | 10 | ATKMSECVLG | 4.8e-05 | 46 |
| HLA-B*35:01 | 1 | 1032 | 1040 | 9 | CVLGQSKRV | 4.8e-05 | 31 |
| HLA-A*02:03 | 1 | 1038 | 1047 | 10 | KRVDFCGKGY | 4.8e-05 | 46 |
| HLA-A*68:01 | 1 | 1045 | 1054 | 10 | KGYHLMSFPQ | 4.8e-05 | 40 |
| HLA-A*26:01 | 1 | 1053 | 1061 | 9 | PQSAPHGVV | 4.8e-05 | 38 |
| HLA-B*07:02 | 1 | 1061 | 1069 | 9 | VFLHVTVYP | 4.8e-05 | 41 |
| HLA-B*57:01 | 1 | 1061 | 1070 | 10 | VFLHVTVYVPA | 4.8e-05 | 59 |
| HLA-B*51:01 | 1 | 1071 | 1080 | 10 | QEKNFTTAPA | 4.8e-05 | 53 |
| HLA-B*35:01 | 1 | 1074 | 1082 | 9 | NFTTAPAIC | 4.8e-05 | 31 |
| HLA-B*15:01 | 1 | 1076 | 1084 | 9 | TTAPAICHD | 4.8e-05 | 43 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*68:02 | 1 | 1089 | 1098 | 10 | FPREGVFVSN | 4.8e-05 | 45 |
| HLA-A*02:06 | 1 | 1097 | 1105 | 9 | SNGTHWFVT | 4.8e-05 | 54 |
| HLA-B*08:01 | 1 | 1097 | 1106 | 10 | SNGTHWFVTQ | 4.8e-05 | 60 |
| HLA-B*08:01 | 1 | 1115 | 1123 | 9 | ITTDNTFVS | 4.8e-05 | 60 |
| HLA-B*58:01 | 1 | 1120 | 1129 | 10 | TFVSGNCDVV | 4.8e-05 | 47 |
| HLA-B*57:01 | 1 | 1123 | 1131 | 9 | SGNCDVVIG | 4.8e-05 | 59 |
| HLA-A*11:01 | 1 | 1133 | 1141 | 9 | VNNTVYDPL | 4.8e-05 | 28 |
| HLA-B*57:01 | 1 | 1133 | 1142 | 10 | VNNTVYDPLQ | 4.8e-05 | 59 |
| HLA-B*15:01 | 1 | 1137 | 1146 | 10 | VYDPLQPELD | 4.8e-05 | 43 |
| HLA-A*23:01 | 1 | 1141 | 1150 | 10 | LQPELDSFKE | 4.8e-05 | 28 |
| HLA-B*08:01 | 1 | 1143 | 1151 | 9 | PELDSFKEE | 4.8e-05 | 60 |
| HLA-A*01:01 | 1 | 1153 | 1161 | 9 | DKYFKNHTS | 4.8e-05 | 63 |
| HLA-B*35:01 | 1 | 1165 | 1174 | 10 | DLGDISGINA | 4.8e-05 | 31 |
| HLA-A*02:03 | 1 | 1172 | 1181 | 10 | INASVVNIQK | 4.8e-05 | 46 |
| HLA-A*02:03 | 1 | 1178 | 1187 | 10 | NIQKEIDRLN | 4.8e-05 | 46 |
| HLA-B*15:01 | 1 | 1178 | 1187 | 10 | NIQKEIDRLN | 4.8e-05 | 43 |
| HLA-A*31:01 | 1 | 1179 | 1187 | 9 | IQKEIDRLN | 4.8e-05 | 45 |
| HLA-B*07:02 | 1 | 1185 | 1194 | 10 | RLNEVAKNLN | 4.8e-05 | 41 |
| HLA-A*11:01 | 1 | 1188 | 1197 | 10 | EVAKNLNESL | 4.8e-05 | 28 |
| HLA-A*33:01 | 1 | 1194 | 1202 | 9 | NESLIDLQE | 4.8e-05 | 47 |
| HLA-B*51:01 | 1 | 1197 | 1205 | 9 | LIDLQELGK | 4.8e-05 | 53 |
| HLA-A*02:01 | 1 | 1202 | 1211 | 10 | ELGKYEQYIK | 4.8e-05 | 43 |
| HLA-B*44:02 | 1 | 1205 | 1213 | 9 | KYEQYIKWP | 4.8e-05 | 31 |
| HLA-A*11:01 | 1 | 1220 | 1228 | 9 | FIAGLIAIV | 4.8e-05 | 28 |
| HLA-A*01:01 | 1 | 1231 | 1239 | 9 | TIMLCCMTS | 4.8e-05 | 63 |
| HLA-A*02:03 | 1 | 1233 | 1242 | 10 | MLCCMTSCCS | 4.8e-05 | 46 |
| HLA-A*30:01 | 1 | 1247 | 1256 | 10 | CCSCGSCCKF | 4.8e-05 | 70 |
| HLA-B*08:01 | 1 | 1254 | 1263 | 10 | CKFDEDDSEP | 4.8e-05 | 60 |
| HLA-B*35:01 | 1 | 1254 | 1262 | 9 | CKFDEDDSE | 4.8e-05 | 31 |
| HLA-B*53:01 | 1 | 5 | 14 | 10 | LVLLPLVSSQ | 4.7e-05 | 31 |
| HLA-A*32:01 | 1 | 11 | 19 | 9 | VSSQCVNLT | 4.7e-05 | 33 |
| HLA-A*32:01 | 1 | 20 | 29 | 10 | TRTQLPPAYT | 4.7e-05 | 33 |
| HLA-B*51:01 | 1 | 26 | 35 | 10 | PAYTNSFTRG | 4.7e-05 | 53 |
| HLA-A*02:03 | 1 | 32 | 40 | 9 | FTRGVYYPD | 4.7e-05 | 46 |
| HLA-A*68:01 | 1 | 40 | 48 | 9 | DKVFRSSVL | 4.7e-05 | 40 |
| HLA-B*51:01 | 1 | 42 | 51 | 10 | VFRSSVLHST | 4.7e-05 | 53 |
| HLA-B*51:01 | 1 | 43 | 52 | 10 | FRSSVLHSTQ | 4.7e-05 | 53 |
| HLA-A*03:01 | 1 | 48 | 56 | 9 | LHSTQDLFL | 4.7e-05 | 38 |
| HLA-A*30:02 | 1 | 52 | 61 | 10 | QDLFLPFFSN | 4.7e-05 | 68 |
| HLA-A*68:01 | 1 | 67 | 76 | 10 | AIHVSGTNGT | 4.7e-05 | 40 |
| HLA-B*57:01 | 1 | 67 | 76 | 10 | AIHVSGTNGT | 4.7e-05 | 60 |
| HLA-B*44:02 | 1 | 68 | 77 | 10 | IHVSGTNGTK | 4.7e-05 | 31 |
| HLA-B*44:02 | 1 | 75 | 83 | 9 | GTKRFDNPV | 4.7e-05 | 31 |
| HLA-A*30:02 | 1 | 81 | 89 | 9 | NPVLPFNDG | 4.7e-05 | 68 |
| HLA-A*32:01 | 1 | 81 | 90 | 10 | NPVLPFNDGV | 4.7e-05 | 33 |
| HLA-B*07:02 | 1 | 89 | 98 | 10 | GYYFASTEKS | 4.7e-05 | 42 |
| HLA-A*01:01 | 1 | 91 | 99 | 9 | YFASTEKSN | 4.7e-05 | 64 |
| HLA-B*40:01 | 1 | 97 | 106 | 10 | KSNIIIRGWIF | 4.7e-05 | 26 |
| HLA-A*30:02 | 1 | 106 | 115 | 10 | FGTTLDSKTQ | 4.7e-05 | 68 |
| HLA-A*11:01 | 1 | 110 | 118 | 9 | LDSKTQSLL | 4.7e-05 | 28 |
| HLA-A*26:01 | 1 | 110 | 119 | 10 | LDSKTQSLLI | 4.7e-05 | 38 |
| HLA-A*31:01 | 1 | 110 | 119 | 10 | LDSKTQSLLI | 4.7e-05 | 45 |
| HLA-A*03:01 | 1 | 114 | 122 | 9 | TQSLLIVNN | 4.7e-05 | 38 |
| HLA-A*01:01 | 1 | 117 | 125 | 9 | LLIVNNATN | 4.7e-05 | 64 |
| HLA-B*58:01 | 1 | 127 | 136 | 10 | VIKVCEFQFC | 4.7e-05 | 48 |
| HLA-A*01:01 | 1 | 140 | 148 | 9 | FLGVYYHKN | 4.7e-05 | 64 |
| HLA-B*44:03 | 1 | 157 | 166 | 10 | FRVYSSANNC | 4.7e-05 | 29 |
| HLA-A*11:01 | 1 | 160 | 169 | 10 | YSSANNCTFE | 4.7e-05 | 28 |
| HLA-A*03:01 | 1 | 165 | 174 | 10 | NCTFEYVSQP | 4.7e-05 | 38 |
| HLA-A*02:03 | 1 | 174 | 183 | 10 | PFLMDLEGKQ | 4.7e-05 | 46 |
| HLA-B*57:01 | 1 | 175 | 184 | 10 | FLMDLEGKQG | 4.7e-05 | 60 |
| HLA-A*30:02 | 1 | 180 | 188 | 9 | EGKQGNFKN | 4.7e-05 | 68 |
| HLA-B*07:02 | 1 | 184 | 193 | 10 | GNFKNLREFV | 4.7e-05 | 42 |
| HLA-A*30:02 | 1 | 191 | 199 | 9 | EFVFKNIDG | 4.7e-05 | 68 |
| HLA-B*57:01 | 1 | 201 | 209 | 9 | FKIYSKHTP | 4.7e-05 | 60 |
| HLA-B*51:01 | 1 | 202 | 211 | 10 | KIYSKHTPIN | 4.7e-05 | 53 |

| | | | | | | |
|-------------|---|-----|-----|----|---------------------|----|
| HLA-A*68:01 | 1 | 213 | 222 | 10 | VRDLPQGFSFA 4.7e-05 | 40 |
| HLA-A*03:01 | 1 | 216 | 224 | 9 | LPQGFSALE 4.7e-05 | 38 |
| HLA-A*01:01 | 1 | 217 | 226 | 10 | PQGFSALEPL 4.7e-05 | 64 |
| HLA-A*33:01 | 1 | 221 | 230 | 10 | SALEPLVDLP 4.7e-05 | 47 |
| HLA-A*01:01 | 1 | 231 | 240 | 10 | IGINITRFQT 4.7e-05 | 64 |
| HLA-B*44:02 | 1 | 239 | 247 | 9 | QTLLALHRS 4.7e-05 | 31 |
| HLA-B*51:01 | 1 | 241 | 250 | 10 | LLALHRSYLT 4.7e-05 | 53 |
| HLA-A*30:02 | 1 | 250 | 259 | 10 | TPGDSSSGWT 4.7e-05 | 68 |
| HLA-A*24:02 | 1 | 274 | 283 | 10 | TFLLKYNENG 4.7e-05 | 27 |
| HLA-A*30:01 | 1 | 275 | 284 | 10 | FLLKYNENGT 4.7e-05 | 70 |
| HLA-B*58:01 | 1 | 275 | 283 | 9 | FLLKYNENG 4.7e-05 | 48 |
| HLA-A*26:01 | 1 | 292 | 301 | 10 | ALDPLSETKC 4.7e-05 | 38 |
| HLA-A*33:01 | 1 | 300 | 309 | 10 | KCTLKSFTVE 4.7e-05 | 47 |
| HLA-B*08:01 | 1 | 308 | 317 | 10 | VEKGIYQTSN 4.7e-05 | 60 |
| HLA-A*30:01 | 1 | 317 | 326 | 10 | NFRVQPTESI 4.7e-05 | 38 |
| HLA-A*33:01 | 1 | 334 | 343 | 10 | NLCPFGEVFN 4.7e-05 | 47 |
| HLA-A*33:01 | 1 | 335 | 344 | 10 | LCPFGEVFNA 4.7e-05 | 47 |
| HLA-A*26:01 | 1 | 336 | 345 | 10 | CPFGEVFNAT 4.7e-05 | 38 |
| HLA-A*32:01 | 1 | 336 | 344 | 9 | CPFGEVFNA 4.7e-05 | 33 |
| HLA-A*03:01 | 1 | 341 | 350 | 10 | VFNATRFASV 4.7e-05 | 38 |
| HLA-B*15:01 | 1 | 347 | 355 | 9 | FASVYAWNR 4.7e-05 | 44 |
| HLA-A*02:06 | 1 | 350 | 358 | 9 | VYAWNRKRI 4.7e-05 | 54 |
| HLA-B*07:02 | 1 | 351 | 360 | 10 | YAWNRKRISN 4.7e-05 | 42 |
| HLA-B*44:03 | 1 | 359 | 367 | 9 | SNCVADYSV 4.7e-05 | 29 |
| HLA-A*33:01 | 1 | 360 | 368 | 9 | NCVADYSVL 4.7e-05 | 47 |
| HLA-A*68:01 | 1 | 362 | 370 | 9 | VADYSVLYN 4.7e-05 | 40 |
| HLA-B*44:03 | 1 | 371 | 379 | 9 | SASFSTFKC 4.7e-05 | 29 |
| HLA-A*30:02 | 1 | 379 | 388 | 10 | CYGVSPKLN 4.7e-05 | 68 |
| HLA-B*44:02 | 1 | 394 | 403 | 10 | NVYADSFVIR 4.7e-05 | 31 |
| HLA-A*31:01 | 1 | 396 | 404 | 9 | YADSFVIRG 4.7e-05 | 45 |
| HLA-B*40:01 | 1 | 396 | 404 | 9 | YADSFVIRG 4.7e-05 | 26 |
| HLA-A*30:01 | 1 | 397 | 405 | 9 | ADSFVIRGD 4.7e-05 | 70 |
| HLA-B*40:01 | 1 | 415 | 423 | 9 | TGKIADYNY 4.7e-05 | 26 |
| HLA-A*02:03 | 1 | 429 | 438 | 10 | FTGCVIAWNS 4.7e-05 | 46 |
| HLA-A*02:06 | 1 | 432 | 440 | 9 | CVIAWNSNN 4.7e-05 | 54 |
| HLA-A*24:02 | 1 | 432 | 441 | 10 | CVIAWNSNNL 4.7e-05 | 27 |
| HLA-A*02:01 | 1 | 434 | 443 | 10 | IAWNSNNLDS 4.7e-05 | 43 |
| HLA-A*30:02 | 1 | 438 | 447 | 10 | SNNLDSKVG 4.7e-05 | 68 |
| HLA-B*53:01 | 1 | 449 | 457 | 9 | YNYLYRFR 4.7e-05 | 31 |
| HLA-A*02:03 | 1 | 462 | 471 | 10 | KPFERDISTE 4.7e-05 | 46 |
| HLA-B*58:01 | 1 | 463 | 472 | 10 | PFERDISTEI 4.7e-05 | 48 |
| HLA-B*07:02 | 1 | 469 | 478 | 10 | STEIQAGST 4.7e-05 | 42 |
| HLA-A*02:06 | 1 | 475 | 484 | 10 | AGSTPCNGVE 4.7e-05 | 54 |
| HLA-A*03:01 | 1 | 489 | 498 | 10 | YFPLQSYGFQ 4.7e-05 | 38 |
| HLA-B*08:01 | 1 | 491 | 499 | 9 | PLQSYGFQP 4.7e-05 | 60 |
| HLA-A*24:02 | 1 | 499 | 508 | 10 | PTNGVGYQPY 4.7e-05 | 27 |
| HLA-A*32:01 | 1 | 499 | 507 | 9 | PTNGVGYQP 4.7e-05 | 33 |
| HLA-B*44:02 | 1 | 501 | 509 | 9 | NGVGYQPYP 4.7e-05 | 31 |
| HLA-B*44:02 | 1 | 508 | 517 | 10 | YRVVLSFEL 4.7e-05 | 31 |
| HLA-A*11:01 | 1 | 516 | 524 | 9 | ELLHAPATV 4.7e-05 | 28 |
| HLA-B*58:01 | 1 | 516 | 525 | 10 | ELLHAPATVC 4.7e-05 | 48 |
| HLA-A*03:01 | 1 | 525 | 533 | 9 | CGPKKSTNL 4.7e-05 | 38 |
| HLA-A*02:06 | 1 | 534 | 543 | 10 | VKNKCVNFN 4.7e-05 | 54 |
| HLA-A*68:01 | 1 | 538 | 547 | 10 | CVNFNFNGLT 4.7e-05 | 40 |
| HLA-A*02:06 | 1 | 570 | 579 | 10 | ADTTDAVRDP 4.7e-05 | 54 |
| HLA-B*53:01 | 1 | 577 | 586 | 10 | RDPQTLEILD 4.7e-05 | 31 |
| HLA-B*58:01 | 1 | 579 | 587 | 9 | PQTLEILDI 4.7e-05 | 48 |
| HLA-B*07:02 | 1 | 580 | 588 | 9 | QTLLEILDIT 4.7e-05 | 42 |
| HLA-B*35:01 | 1 | 581 | 589 | 9 | TLEILDITP 4.7e-05 | 32 |
| HLA-A*11:01 | 1 | 587 | 595 | 9 | ITPCSFGGV 4.7e-05 | 28 |
| HLA-A*02:03 | 1 | 598 | 607 | 10 | ITPGTNTSNQ 4.7e-05 | 46 |
| HLA-A*24:02 | 1 | 600 | 608 | 9 | PGTNTSNQV 4.7e-05 | 27 |
| HLA-A*68:01 | 1 | 606 | 615 | 10 | NQVAVLYQDV 4.7e-05 | 40 |
| HLA-B*44:03 | 1 | 607 | 615 | 9 | QVAVLYQDV 4.7e-05 | 29 |
| HLA-A*11:01 | 1 | 610 | 619 | 10 | VLYQDVNCTE 4.7e-05 | 28 |
| HLA-B*57:01 | 1 | 621 | 630 | 10 | PVAIHADQLT 4.7e-05 | 60 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-B*53:01 | 1 | 637 | 645 | 9 | STGSNVFQT | 4.7e-05 | 31 |
| HLA-A*68:02 | 1 | 642 | 651 | 10 | VFQTRAGCLI | 4.7e-05 | 46 |
| HLA-B*58:01 | 1 | 656 | 664 | 9 | VNNSYECDI | 4.7e-05 | 48 |
| HLA-B*07:02 | 1 | 663 | 671 | 9 | DIPIGAGIC | 4.7e-05 | 42 |
| HLA-A*01:01 | 1 | 667 | 675 | 9 | GAGICASYQ | 4.7e-05 | 64 |
| HLA-A*01:01 | 1 | 670 | 679 | 10 | ICASYQTQTN | 4.7e-05 | 64 |
| HLA-B*35:01 | 1 | 670 | 678 | 9 | ICASYQTQT | 4.7e-05 | 32 |
| HLA-A*33:01 | 1 | 692 | 701 | 10 | IIAYTMSLGA | 4.7e-05 | 47 |
| HLA-B*07:02 | 1 | 693 | 702 | 10 | IAYTMSLGAE | 4.7e-05 | 42 |
| HLA-B*15:01 | 1 | 695 | 704 | 10 | YTMSLGAENS | 4.7e-05 | 44 |
| HLA-A*11:01 | 1 | 705 | 714 | 10 | VAYSNNISIAI | 4.7e-05 | 28 |
| HLA-A*01:01 | 1 | 708 | 717 | 10 | SNNSIAIPTN | 4.7e-05 | 64 |
| HLA-A*23:01 | 1 | 712 | 721 | 10 | IAIPTNFTIS | 4.7e-05 | 28 |
| HLA-B*15:01 | 1 | 721 | 730 | 10 | SVTTEILPVS | 4.7e-05 | 44 |
| HLA-A*32:01 | 1 | 726 | 734 | 9 | ILPVSMTKT | 4.7e-05 | 33 |
| HLA-A*26:01 | 1 | 727 | 735 | 9 | LPVSMTKTS | 4.7e-05 | 38 |
| HLA-B*53:01 | 1 | 735 | 743 | 9 | SVDCTMYIC | 4.7e-05 | 31 |
| HLA-B*58:01 | 1 | 738 | 747 | 10 | CTMYICGDST | 4.7e-05 | 48 |
| HLA-B*53:01 | 1 | 740 | 748 | 9 | MYICGDSTE | 4.7e-05 | 31 |
| HLA-B*51:01 | 1 | 747 | 755 | 9 | TECSNLLLQ | 4.7e-05 | 53 |
| HLA-A*68:02 | 1 | 752 | 760 | 9 | LLLQYGSFC | 4.7e-05 | 46 |
| HLA-B*07:02 | 1 | 757 | 765 | 9 | GSFCTQLNR | 4.7e-05 | 42 |
| HLA-A*32:01 | 1 | 762 | 771 | 10 | QLNRALTGIA | 4.7e-05 | 33 |
| HLA-B*58:01 | 1 | 764 | 773 | 10 | NRALTGIAVE | 4.7e-05 | 48 |
| HLA-A*30:02 | 1 | 769 | 777 | 9 | GIAVEQDKN | 4.7e-05 | 68 |
| HLA-A*26:01 | 1 | 771 | 780 | 10 | AVEQDKNTQE | 4.7e-05 | 38 |
| HLA-A*33:01 | 1 | 771 | 780 | 10 | AVEQDKNTQE | 4.7e-05 | 47 |
| HLA-B*51:01 | 1 | 790 | 799 | 10 | KTPPIKDFGG | 4.7e-05 | 53 |
| HLA-A*02:03 | 1 | 800 | 808 | 9 | FNFSQILPD | 4.7e-05 | 46 |
| HLA-B*57:01 | 1 | 801 | 809 | 9 | NFSQILPDP | 4.7e-05 | 60 |
| HLA-A*02:01 | 1 | 802 | 810 | 9 | FSQILPDPS | 4.7e-05 | 43 |
| HLA-A*24:02 | 1 | 802 | 811 | 10 | FSQILPDPSK | 4.7e-05 | 27 |
| HLA-A*02:03 | 1 | 808 | 817 | 10 | DPSKPSKRSF | 4.7e-05 | 46 |
| HLA-A*02:03 | 1 | 812 | 821 | 10 | PSKRSFIEDL | 4.7e-05 | 46 |
| HLA-A*24:02 | 1 | 825 | 834 | 10 | KVTLADAGFI | 4.7e-05 | 27 |
| HLA-B*15:01 | 1 | 833 | 842 | 10 | FIKQYGDCLG | 4.7e-05 | 44 |
| HLA-A*01:01 | 1 | 836 | 844 | 9 | QYGDCLGDI | 4.7e-05 | 64 |
| HLA-B*08:01 | 1 | 851 | 859 | 9 | CAQKFNGLT | 4.7e-05 | 60 |
| HLA-B*35:01 | 1 | 856 | 865 | 10 | NGLTVLPPLL | 4.7e-05 | 32 |
| HLA-A*24:02 | 1 | 882 | 890 | 9 | ITSGWTFGA | 4.7e-05 | 27 |
| HLA-A*32:01 | 1 | 882 | 891 | 10 | ITSGWTFGAG | 4.7e-05 | 33 |
| HLA-B*40:01 | 1 | 901 | 909 | 9 | QMAYRFNGI | 4.7e-05 | 26 |
| HLA-B*07:02 | 1 | 910 | 918 | 9 | GVTQNVLYE | 4.7e-05 | 42 |
| HLA-B*15:01 | 1 | 911 | 919 | 9 | VTQNVLYEN | 4.7e-05 | 44 |
| HLA-B*51:01 | 1 | 924 | 933 | 10 | ANQFNSAIGK | 4.7e-05 | 53 |
| HLA-B*15:01 | 1 | 931 | 939 | 9 | IGKIQDSLS | 4.7e-05 | 44 |
| HLA-A*02:06 | 1 | 938 | 946 | 9 | LSSTASALG | 4.7e-05 | 54 |
| HLA-B*44:02 | 1 | 943 | 952 | 10 | SALGKLQDVV | 4.7e-05 | 31 |
| HLA-A*02:06 | 1 | 944 | 953 | 10 | ALGKLQDVVN | 4.7e-05 | 54 |
| HLA-A*24:02 | 1 | 950 | 959 | 10 | DVVNQNAQAL | 4.7e-05 | 27 |
| HLA-A*11:01 | 1 | 953 | 961 | 9 | NQNAQALNT | 4.7e-05 | 28 |
| HLA-A*02:03 | 1 | 957 | 965 | 9 | QALNTLVKQ | 4.7e-05 | 46 |
| HLA-A*02:06 | 1 | 979 | 988 | 10 | DILSRLDKVE | 4.7e-05 | 54 |
| HLA-B*57:01 | 1 | 982 | 990 | 9 | SRLDKVEAE | 4.7e-05 | 60 |
| HLA-B*07:02 | 1 | 990 | 999 | 10 | EVQIDRLITG | 4.7e-05 | 42 |
| HLA-A*02:01 | 1 | 998 | 1006 | 9 | TGRLQSLQT | 4.7e-05 | 43 |
| HLA-A*23:01 | 1 | 1008 | 1016 | 9 | VTQQLIRAA | 4.7e-05 | 28 |
| HLA-B*40:01 | 1 | 1019 | 1027 | 9 | RASANLAAT | 4.7e-05 | 26 |
| HLA-B*07:02 | 1 | 1029 | 1038 | 10 | MSECVLGQSK | 4.7e-05 | 42 |
| HLA-A*31:01 | 1 | 1031 | 1040 | 10 | ECVLGQSKRV | 4.7e-05 | 45 |
| HLA-A*02:01 | 1 | 1034 | 1043 | 10 | LGQSKRVDFC | 4.7e-05 | 43 |
| HLA-A*68:02 | 1 | 1039 | 1047 | 9 | RVDFCGKGY | 4.7e-05 | 46 |
| HLA-A*03:01 | 1 | 1043 | 1052 | 10 | CGKGYHLMSF | 4.7e-05 | 38 |
| HLA-B*08:01 | 1 | 1066 | 1074 | 9 | TYVPAQEK | 4.7e-05 | 60 |
| HLA-A*23:01 | 1 | 1074 | 1083 | 10 | NFTTAPAICH | 4.7e-05 | 28 |
| HLA-B*57:01 | 1 | 1078 | 1087 | 10 | APAICHDGKA | 4.7e-05 | 60 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*30:01 | 1 | 1079 | 1087 | 9 | PAICHDGKA | 4.7e-05 | 70 |
| HLA-A*68:02 | 1 | 1082 | 1090 | 9 | CHDGKAHFP | 4.7e-05 | 46 |
| HLA-A*03:01 | 1 | 1097 | 1106 | 10 | SNGTHWFVQT | 4.7e-05 | 38 |
| HLA-B*51:01 | 1 | 1109 | 1118 | 10 | FYEPQIITTD | 4.7e-05 | 53 |
| HLA-B*07:02 | 1 | 1110 | 1119 | 10 | YEPQIITTDN | 4.7e-05 | 42 |
| HLA-B*44:02 | 1 | 1113 | 1122 | 10 | QIITTDNTFV | 4.7e-05 | 31 |
| HLA-A*68:01 | 1 | 1120 | 1129 | 10 | TFVSGNCDVV | 4.7e-05 | 40 |
| HLA-A*30:02 | 1 | 1127 | 1135 | 9 | DVVIGIVNN | 4.7e-05 | 68 |
| HLA-A*24:02 | 1 | 1128 | 1136 | 9 | VVIGIVNNT | 4.7e-05 | 27 |
| HLA-A*02:01 | 1 | 1134 | 1143 | 10 | NNTVYDPLQP | 4.7e-05 | 43 |
| HLA-A*03:01 | 1 | 1137 | 1146 | 10 | VYDPLQPELD | 4.7e-05 | 38 |
| HLA-A*26:01 | 1 | 1153 | 1161 | 9 | DKYFKNHTS | 4.7e-05 | 38 |
| HLA-A*30:02 | 1 | 1158 | 1167 | 10 | NHTSPDVDLG | 4.7e-05 | 68 |
| HLA-B*08:01 | 1 | 1159 | 1167 | 9 | HTSPDVDLG | 4.7e-05 | 60 |
| HLA-A*30:02 | 1 | 1165 | 1173 | 9 | DLGDISGIN | 4.7e-05 | 68 |
| HLA-A*30:01 | 1 | 1193 | 1201 | 9 | LNESLIDLQ | 4.7e-05 | 70 |
| HLA-A*68:01 | 1 | 1201 | 1210 | 10 | QELGKYEQYI | 4.7e-05 | 40 |
| HLA-A*03:01 | 1 | 1211 | 1219 | 9 | KWPWYIWLG | 4.7e-05 | 38 |
| HLA-A*02:03 | 1 | 1213 | 1221 | 9 | PWYIWLGFI | 4.7e-05 | 46 |
| HLA-B*15:01 | 1 | 1217 | 1226 | 10 | WLGFIAGLIA | 4.7e-05 | 44 |
| HLA-A*24:02 | 1 | 1225 | 1234 | 10 | IAIVMVTIML | 4.7e-05 | 27 |
| HLA-A*31:01 | 1 | 1227 | 1236 | 10 | IVMVTIMLCC | 4.7e-05 | 45 |
| HLA-A*68:01 | 1 | 1229 | 1238 | 10 | MVTIMLCCMT | 4.7e-05 | 40 |
| HLA-A*30:01 | 1 | 1238 | 1246 | 9 | TSCCSCCLKG | 4.7e-05 | 70 |
| HLA-A*03:01 | 1 | 1256 | 1265 | 10 | FDEDDSEPVL | 4.7e-05 | 38 |
| HLA-A*31:01 | 1 | 1257 | 1265 | 9 | DEDDSEPVL | 4.7e-05 | 45 |
| HLA-B*35:01 | 1 | 1263 | 1271 | 9 | PVLKGVKLH | 4.7e-05 | 32 |
| HLA-A*02:06 | 1 | 1265 | 1273 | 9 | LKGVKLHYT | 4.7e-05 | 54 |
| HLA-A*33:01 | 1 | 1265 | 1273 | 9 | LKGVKLHYT | 4.7e-05 | 47 |
| HLA-B*08:01 | 1 | 3 | 12 | 10 | VFLVLLPLVS | 4.6e-05 | 61 |
| HLA-A*68:02 | 1 | 5 | 14 | 10 | LVLLPLVSSQ | 4.6e-05 | 46 |
| HLA-B*44:03 | 1 | 10 | 18 | 9 | LVSSQCVNL | 4.6e-05 | 29 |
| HLA-A*03:01 | 1 | 18 | 27 | 10 | LTRTQLPPA | 4.6e-05 | 38 |
| HLA-B*58:01 | 1 | 26 | 35 | 10 | PAYTNSFTRG | 4.6e-05 | 48 |
| HLA-B*07:02 | 1 | 36 | 45 | 10 | VYYPDKVFRS | 4.6e-05 | 42 |
| HLA-B*44:02 | 1 | 37 | 46 | 10 | YYPDKVFRSS | 4.6e-05 | 31 |
| HLA-B*51:01 | 1 | 41 | 50 | 10 | KVFRSSVLHS | 4.6e-05 | 53 |
| HLA-B*58:01 | 1 | 42 | 50 | 9 | VFRSSVLHS | 4.6e-05 | 48 |
| HLA-A*11:01 | 1 | 51 | 60 | 10 | TQDLFLPFFS | 4.6e-05 | 28 |
| HLA-B*40:01 | 1 | 54 | 62 | 9 | LFLPFFSNV | 4.6e-05 | 26 |
| HLA-B*57:01 | 1 | 74 | 82 | 9 | NGTKRFDNP | 4.6e-05 | 60 |
| HLA-B*53:01 | 1 | 80 | 89 | 10 | DNPVLPFNDG | 4.6e-05 | 31 |
| HLA-A*24:02 | 1 | 82 | 90 | 9 | PVLPFNDGV | 4.6e-05 | 27 |
| HLA-A*30:01 | 1 | 87 | 95 | 9 | NDGVYFAST | 4.6e-05 | 71 |
| HLA-A*02:01 | 1 | 95 | 104 | 10 | TEKSNIIRGW | 4.6e-05 | 44 |
| HLA-B*08:01 | 1 | 99 | 108 | 10 | NIIRGWIFGT | 4.6e-05 | 61 |
| HLA-A*68:02 | 1 | 113 | 121 | 9 | KTQSLLIVN | 4.6e-05 | 46 |
| HLA-A*03:01 | 1 | 114 | 123 | 10 | TQSLLIVNNA | 4.6e-05 | 38 |
| HLA-B*40:01 | 1 | 114 | 122 | 9 | TQSLLIVNN | 4.6e-05 | 26 |
| HLA-A*11:01 | 1 | 118 | 126 | 9 | LIVNNATNV | 4.6e-05 | 28 |
| HLA-A*02:01 | 1 | 121 | 129 | 9 | NNATNVVIK | 4.6e-05 | 44 |
| HLA-B*07:02 | 1 | 121 | 129 | 9 | NNATNVVIK | 4.6e-05 | 42 |
| HLA-A*03:01 | 1 | 124 | 133 | 10 | TNVVIKVCEF | 4.6e-05 | 38 |
| HLA-B*57:01 | 1 | 124 | 132 | 9 | TNVVIKVCE | 4.6e-05 | 60 |
| HLA-A*68:02 | 1 | 133 | 142 | 10 | FQFCNDPFLG | 4.6e-05 | 46 |
| HLA-A*68:02 | 1 | 141 | 150 | 10 | LGVYYHKNNK | 4.6e-05 | 46 |
| HLA-A*26:01 | 1 | 142 | 151 | 10 | GVYYHKNNKS | 4.6e-05 | 38 |
| HLA-B*44:03 | 1 | 150 | 159 | 10 | KSWMSEFRV | 4.6e-05 | 29 |
| HLA-B*53:01 | 1 | 157 | 166 | 10 | FRVYSSANNC | 4.6e-05 | 31 |
| HLA-B*08:01 | 1 | 160 | 169 | 10 | YSSANNCTFE | 4.6e-05 | 61 |
| HLA-A*31:01 | 1 | 170 | 178 | 9 | YVSQPFLMD | 4.6e-05 | 45 |
| HLA-B*58:01 | 1 | 175 | 183 | 9 | FLMDLEGKQ | 4.6e-05 | 48 |
| HLA-B*53:01 | 1 | 181 | 189 | 9 | GKQGNFKNL | 4.6e-05 | 31 |
| HLA-A*11:01 | 1 | 183 | 192 | 10 | QGNFKNLREF | 4.6e-05 | 28 |
| HLA-A*03:01 | 1 | 186 | 194 | 9 | FKNLREFVF | 4.6e-05 | 38 |
| HLA-A*23:01 | 1 | 213 | 221 | 9 | VRDLPQGFS | 4.6e-05 | 28 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-A*11:01 | 1 | 216 | 224 | 9 | LPQGFSALE | 4.6e-05 | 28 |
| HLA-A*01:01 | 1 | 217 | 225 | 9 | PQGFSALEP | 4.6e-05 | 64 |
| HLA-B*15:01 | 1 | 228 | 236 | 9 | DLPIGINIT | 4.6e-05 | 44 |
| HLA-A*03:01 | 1 | 230 | 238 | 9 | PIGINITRF | 4.6e-05 | 38 |
| HLA-A*68:02 | 1 | 230 | 238 | 9 | PIGINITRF | 4.6e-05 | 46 |
| HLA-B*53:01 | 1 | 236 | 245 | 10 | TRFQTLALH | 4.6e-05 | 31 |
| HLA-A*03:01 | 1 | 242 | 250 | 9 | LALHRSYLT | 4.6e-05 | 38 |
| HLA-B*51:01 | 1 | 246 | 254 | 9 | RSYLTPGDS | 4.6e-05 | 53 |
| HLA-A*02:03 | 1 | 250 | 258 | 9 | TPGDSSSGW | 4.6e-05 | 47 |
| HLA-B*44:02 | 1 | 256 | 264 | 9 | SGWTAGAAA | 4.6e-05 | 31 |
| HLA-A*03:01 | 1 | 259 | 267 | 9 | TAGAAAYV | 4.6e-05 | 38 |
| HLA-A*30:02 | 1 | 279 | 287 | 9 | YNENGTITD | 4.6e-05 | 69 |
| HLA-A*33:01 | 1 | 279 | 288 | 10 | YNENGTITDA | 4.6e-05 | 48 |
| HLA-B*58:01 | 1 | 287 | 296 | 10 | DAVDCALDPL | 4.6e-05 | 48 |
| HLA-A*32:01 | 1 | 295 | 304 | 10 | PLSETKCTLK | 4.6e-05 | 34 |
| HLA-A*02:01 | 1 | 298 | 306 | 9 | ETKCTLKSF | 4.6e-05 | 44 |
| HLA-A*31:01 | 1 | 299 | 307 | 9 | TKCTLKSFT | 4.6e-05 | 45 |
| HLA-B*07:02 | 1 | 299 | 308 | 10 | TKCTLKSFTV | 4.6e-05 | 42 |
| HLA-A*03:01 | 1 | 308 | 316 | 9 | VEKGIYQTS | 4.6e-05 | 38 |
| HLA-A*23:01 | 1 | 321 | 330 | 10 | QPTESIVRFP | 4.6e-05 | 28 |
| HLA-B*15:01 | 1 | 340 | 349 | 10 | EVFNATRFAS | 4.6e-05 | 44 |
| HLA-A*32:01 | 1 | 351 | 359 | 9 | YAWNKRKRIS | 4.6e-05 | 34 |
| HLA-A*30:02 | 1 | 356 | 364 | 9 | KRISNCVAD | 4.6e-05 | 69 |
| HLA-A*32:01 | 1 | 360 | 368 | 9 | NCVADYSVL | 4.6e-05 | 34 |
| HLA-A*11:01 | 1 | 384 | 392 | 9 | PTKLNDLCF | 4.6e-05 | 28 |
| HLA-A*23:01 | 1 | 387 | 395 | 9 | LNDLCFTNV | 4.6e-05 | 28 |
| HLA-A*23:01 | 1 | 396 | 404 | 9 | YADSFVIRG | 4.6e-05 | 28 |
| HLA-A*32:01 | 1 | 396 | 404 | 9 | YADSFVIRG | 4.6e-05 | 34 |
| HLA-A*24:02 | 1 | 402 | 411 | 10 | IRGDEVQRQIA | 4.6e-05 | 27 |
| HLA-A*02:03 | 1 | 403 | 412 | 10 | RGDEVQRQIAP | 4.6e-05 | 47 |
| HLA-B*44:03 | 1 | 406 | 414 | 9 | EVQRQIAPGQ | 4.6e-05 | 29 |
| HLA-A*68:02 | 1 | 415 | 424 | 10 | TGKIADYNYK | 4.6e-05 | 46 |
| HLA-A*23:01 | 1 | 423 | 431 | 9 | YKLPDDFTG | 4.6e-05 | 28 |
| HLA-A*26:01 | 1 | 435 | 444 | 10 | AWNSNNLDSK | 4.6e-05 | 38 |
| HLA-A*02:01 | 1 | 451 | 460 | 10 | YLYRLEFRKSN | 4.6e-05 | 44 |
| HLA-B*40:01 | 1 | 455 | 464 | 10 | LFRKSNLKPFP | 4.6e-05 | 26 |
| HLA-B*57:01 | 1 | 459 | 467 | 9 | SNLKPFRD | 4.6e-05 | 60 |
| HLA-B*35:01 | 1 | 463 | 472 | 10 | PFRDISTEI | 4.6e-05 | 32 |
| HLA-A*32:01 | 1 | 467 | 475 | 9 | DISTEIQQA | 4.6e-05 | 34 |
| HLA-B*08:01 | 1 | 469 | 478 | 10 | STEIQAGST | 4.6e-05 | 61 |
| HLA-A*03:01 | 1 | 473 | 481 | 9 | YQAGSTPCN | 4.6e-05 | 38 |
| HLA-B*57:01 | 1 | 473 | 482 | 10 | YQAGSTPCNG | 4.6e-05 | 60 |
| HLA-B*44:02 | 1 | 475 | 483 | 9 | AGSTPCNGV | 4.6e-05 | 31 |
| HLA-B*57:01 | 1 | 482 | 491 | 10 | GVEGFNCYFP | 4.6e-05 | 60 |
| HLA-A*30:01 | 1 | 490 | 499 | 10 | FPLQSYGFQP | 4.6e-05 | 71 |
| HLA-A*03:01 | 1 | 499 | 507 | 9 | PTNGVGYQP | 4.6e-05 | 38 |
| HLA-B*08:01 | 1 | 507 | 516 | 10 | PYRVVLSFE | 4.6e-05 | 61 |
| HLA-A*02:01 | 1 | 522 | 530 | 9 | ATVCGPKKS | 4.6e-05 | 44 |
| HLA-A*23:01 | 1 | 525 | 534 | 10 | CGPKKSTNLV | 4.6e-05 | 28 |
| HLA-B*44:03 | 1 | 531 | 539 | 9 | TNLVKNKCV | 4.6e-05 | 29 |
| HLA-A*68:01 | 1 | 537 | 546 | 10 | KCVNFNFNGL | 4.6e-05 | 40 |
| HLA-A*32:01 | 1 | 545 | 554 | 10 | GLTGTGVLTE | 4.6e-05 | 34 |
| HLA-B*58:01 | 1 | 555 | 564 | 10 | SNKKFLPFQQ | 4.6e-05 | 48 |
| HLA-B*07:02 | 1 | 591 | 600 | 10 | SFGGVSIVITP | 4.6e-05 | 42 |
| HLA-B*44:03 | 1 | 596 | 605 | 10 | SVITPGTNTS | 4.6e-05 | 29 |
| HLA-A*68:02 | 1 | 605 | 613 | 9 | SNQVAVLYQ | 4.6e-05 | 46 |
| HLA-B*44:02 | 1 | 606 | 615 | 10 | NQVAVLYQDV | 4.6e-05 | 31 |
| HLA-A*68:01 | 1 | 610 | 618 | 9 | VLYQDVNCT | 4.6e-05 | 40 |
| HLA-A*11:01 | 1 | 611 | 619 | 9 | LYQDVNCTE | 4.6e-05 | 28 |
| HLA-B*57:01 | 1 | 619 | 628 | 10 | EVPVAIHADQ | 4.6e-05 | 60 |
| HLA-B*44:03 | 1 | 624 | 632 | 9 | IHADQLTPT | 4.6e-05 | 29 |
| HLA-A*26:01 | 1 | 629 | 638 | 10 | LTPTWRVYST | 4.6e-05 | 38 |
| HLA-A*23:01 | 1 | 633 | 642 | 10 | WRVYSTGSNV | 4.6e-05 | 28 |
| HLA-B*35:01 | 1 | 639 | 647 | 9 | GSNVFQTRA | 4.6e-05 | 32 |
| HLA-A*11:01 | 1 | 640 | 649 | 10 | SNVVFQTRAGC | 4.6e-05 | 28 |
| HLA-B*57:01 | 1 | 650 | 659 | 10 | LIGAEHVNNS | 4.6e-05 | 60 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-B*58:01 | 1 | 654 | 662 | 9 | EHVNSYEC | 4.6e-05 | 48 |
| HLA-A*30:02 | 1 | 670 | 679 | 10 | ICASYQTQTN | 4.6e-05 | 69 |
| HLA-A*30:02 | 1 | 680 | 689 | 10 | SPRRARSVAS | 4.6e-05 | 69 |
| HLA-A*31:01 | 1 | 691 | 700 | 10 | SIAYTMSLG | 4.6e-05 | 45 |
| HLA-A*26:01 | 1 | 692 | 701 | 10 | IIAYTMSLGA | 4.6e-05 | 38 |
| HLA-B*51:01 | 1 | 692 | 700 | 9 | IIAYTMSLG | 4.6e-05 | 53 |
| HLA-B*08:01 | 1 | 699 | 708 | 10 | LGAENSVAYS | 4.6e-05 | 61 |
| HLA-A*68:01 | 1 | 715 | 723 | 9 | PTNFTISVT | 4.6e-05 | 40 |
| HLA-A*11:01 | 1 | 716 | 725 | 10 | TNFTISVTTE | 4.6e-05 | 28 |
| HLA-B*08:01 | 1 | 720 | 729 | 10 | ISVTTEILPV | 4.6e-05 | 61 |
| HLA-B*15:01 | 1 | 740 | 749 | 10 | MYICGDSTEC | 4.6e-05 | 44 |
| HLA-A*30:01 | 1 | 743 | 752 | 10 | CGDSTECSNL | 4.6e-05 | 71 |
| HLA-B*08:01 | 1 | 757 | 766 | 10 | GSFCTQLNRA | 4.6e-05 | 61 |
| HLA-A*68:01 | 1 | 758 | 767 | 10 | SFCTQLNRAL | 4.6e-05 | 40 |
| HLA-B*51:01 | 1 | 760 | 768 | 9 | CTQLNRALT | 4.6e-05 | 53 |
| HLA-B*08:01 | 1 | 770 | 779 | 10 | IAVEQDKNTQ | 4.6e-05 | 61 |
| HLA-A*02:06 | 1 | 789 | 798 | 10 | YKTPPIKDFG | 4.6e-05 | 54 |
| HLA-A*68:01 | 1 | 794 | 803 | 10 | IKDFGGFNFS | 4.6e-05 | 40 |
| HLA-B*57:01 | 1 | 796 | 805 | 10 | DFGGFNFSQI | 4.6e-05 | 60 |
| HLA-B*44:03 | 1 | 799 | 807 | 9 | GFNFSQILP | 4.6e-05 | 29 |
| HLA-A*31:01 | 1 | 801 | 809 | 9 | NFSQILPDP | 4.6e-05 | 45 |
| HLA-B*44:03 | 1 | 807 | 815 | 9 | PDPSKPSKR | 4.6e-05 | 29 |
| HLA-A*30:02 | 1 | 811 | 820 | 10 | KPSKRSFIED | 4.6e-05 | 69 |
| HLA-A*68:02 | 1 | 812 | 821 | 10 | PSKRSFIEDL | 4.6e-05 | 46 |
| HLA-B*51:01 | 1 | 816 | 824 | 9 | SFIEDLLFN | 4.6e-05 | 53 |
| HLA-A*24:02 | 1 | 822 | 831 | 10 | LFNKVTLADA | 4.6e-05 | 27 |
| HLA-A*30:01 | 1 | 834 | 842 | 9 | IKQYGDCLG | 4.6e-05 | 71 |
| HLA-A*68:01 | 1 | 842 | 850 | 9 | GDIAARDLI | 4.6e-05 | 40 |
| HLA-A*02:01 | 1 | 855 | 863 | 9 | FNGLTVLPP | 4.6e-05 | 44 |
| HLA-A*11:01 | 1 | 860 | 868 | 9 | VLPLLTDDE | 4.6e-05 | 28 |
| HLA-B*44:03 | 1 | 865 | 874 | 10 | LTDEMIAQYT | 4.6e-05 | 29 |
| HLA-A*30:02 | 1 | 866 | 874 | 9 | TDEMIAQYT | 4.6e-05 | 69 |
| HLA-A*24:02 | 1 | 868 | 876 | 9 | EMIAQY TSA | 4.6e-05 | 27 |
| HLA-B*44:03 | 1 | 870 | 879 | 10 | IAQYTSALLA | 4.6e-05 | 29 |
| HLA-B*08:01 | 1 | 880 | 889 | 10 | GTITSGWTFG | 4.6e-05 | 61 |
| HLA-A*02:01 | 1 | 889 | 898 | 10 | GAGAALQIPF | 4.6e-05 | 44 |
| HLA-A*03:01 | 1 | 889 | 898 | 10 | GAGAALQIPF | 4.6e-05 | 38 |
| HLA-A*68:02 | 1 | 893 | 901 | 9 | ALQIPFAMQ | 4.6e-05 | 46 |
| HLA-B*07:02 | 1 | 894 | 903 | 10 | LQIPFAMQMA | 4.6e-05 | 42 |
| HLA-B*35:01 | 1 | 909 | 918 | 10 | IGVTQNVLYE | 4.6e-05 | 32 |
| HLA-A*68:02 | 1 | 912 | 921 | 10 | TQNVLYENQK | 4.6e-05 | 46 |
| HLA-A*02:03 | 1 | 916 | 924 | 9 | LYENQK LIA | 4.6e-05 | 47 |
| HLA-A*02:01 | 1 | 918 | 927 | 10 | ENQKLIANQF | 4.6e-05 | 44 |
| HLA-B*15:01 | 1 | 927 | 935 | 9 | FNSAIGKIQ | 4.6e-05 | 44 |
| HLA-B*44:03 | 1 | 944 | 952 | 9 | ALGKLQDVV | 4.6e-05 | 29 |
| HLA-A*23:01 | 1 | 969 | 978 | 10 | NFGAISSVLN | 4.6e-05 | 28 |
| HLA-A*02:06 | 1 | 970 | 978 | 9 | FGAISSVLN | 4.6e-05 | 54 |
| HLA-B*07:02 | 1 | 976 | 985 | 10 | VLNDILSRDL | 4.6e-05 | 42 |
| HLA-A*02:03 | 1 | 981 | 990 | 10 | LSRLDKVEAE | 4.6e-05 | 47 |
| HLA-B*58:01 | 1 | 982 | 990 | 9 | SRLDKVEAE | 4.6e-05 | 48 |
| HLA-A*68:02 | 1 | 997 | 1005 | 9 | ITGRLQSLQ | 4.6e-05 | 46 |
| HLA-B*07:02 | 1 | 1005 | 1014 | 10 | QTYVTQQLIR | 4.6e-05 | 42 |
| HLA-A*11:01 | 1 | 1007 | 1016 | 10 | YVTQQLIRAA | 4.6e-05 | 28 |
| HLA-A*24:02 | 1 | 1008 | 1016 | 9 | VTQQLIRAA | 4.6e-05 | 27 |
| HLA-A*11:01 | 1 | 1010 | 1018 | 9 | QLLIRAAEI | 4.6e-05 | 28 |
| HLA-B*44:02 | 1 | 1017 | 1025 | 9 | EIRASANLA | 4.6e-05 | 31 |
| HLA-A*32:01 | 1 | 1030 | 1039 | 10 | SECVLGQSKR | 4.6e-05 | 34 |
| HLA-B*40:01 | 1 | 1039 | 1048 | 10 | RVDFCGKGYH | 4.6e-05 | 26 |
| HLA-B*40:01 | 1 | 1048 | 1057 | 10 | HLMSPQ SAP | 4.6e-05 | 26 |
| HLA-B*15:01 | 1 | 1063 | 1071 | 9 | LHVTVVPAQ | 4.6e-05 | 44 |
| HLA-B*51:01 | 1 | 1065 | 1074 | 10 | VTYVPAQEK | 4.6e-05 | 53 |
| HLA-B*58:01 | 1 | 1068 | 1076 | 9 | VPAQEK NFT | 4.6e-05 | 48 |
| HLA-A*02:03 | 1 | 1073 | 1082 | 10 | KNFTTAPAIC | 4.6e-05 | 47 |
| HLA-B*51:01 | 1 | 1074 | 1083 | 10 | NFTTAPAICH | 4.6e-05 | 53 |
| HLA-B*08:01 | 1 | 1076 | 1085 | 10 | TTAPAICH DG | 4.6e-05 | 61 |
| HLA-A*01:01 | 1 | 1083 | 1092 | 10 | HDGKAHPRE | 4.6e-05 | 64 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-B*51:01 | 1 | 1091 | 1100 | 10 | REGVFSVNGT | 4.6e-05 | 53 |
| HLA-A*32:01 | 1 | 1092 | 1101 | 10 | EGVFSVNGTH | 4.6e-05 | 34 |
| HLA-B*51:01 | 1 | 1097 | 1105 | 9 | SNGTHWFVT | 4.6e-05 | 53 |
| HLA-B*57:01 | 1 | 1100 | 1108 | 9 | THWFVTQRN | 4.6e-05 | 60 |
| HLA-A*02:03 | 1 | 1130 | 1138 | 9 | IGIVNNTVY | 4.6e-05 | 47 |
| HLA-B*08:01 | 1 | 1134 | 1143 | 10 | NNTVYDPLQP | 4.6e-05 | 61 |
| HLA-B*44:03 | 1 | 1137 | 1146 | 10 | VYDPLQPELD | 4.6e-05 | 29 |
| HLA-A*11:01 | 1 | 1139 | 1148 | 10 | DPLQPELDSF | 4.6e-05 | 28 |
| HLA-A*32:01 | 1 | 1146 | 1154 | 9 | DSFKEELDK | 4.6e-05 | 34 |
| HLA-A*23:01 | 1 | 1151 | 1159 | 9 | ELDKYFKNH | 4.6e-05 | 28 |
| HLA-B*15:01 | 1 | 1153 | 1161 | 9 | DKYFKNHTS | 4.6e-05 | 44 |
| HLA-A*30:01 | 1 | 1163 | 1171 | 9 | DVDLGDISG | 4.6e-05 | 71 |
| HLA-B*58:01 | 1 | 1168 | 1177 | 10 | DISGINASVV | 4.6e-05 | 48 |
| HLA-A*01:01 | 1 | 1169 | 1178 | 10 | ISGINASVVN | 4.6e-05 | 64 |
| HLA-B*08:01 | 1 | 1173 | 1182 | 10 | NASVVNIQKE | 4.6e-05 | 61 |
| HLA-B*44:03 | 1 | 1174 | 1182 | 9 | ASVVNIQKE | 4.6e-05 | 29 |
| HLA-B*15:01 | 1 | 1177 | 1185 | 9 | VNIQKEIDR | 4.6e-05 | 44 |
| HLA-A*31:01 | 1 | 1180 | 1189 | 10 | QKEIDRLNEV | 4.6e-05 | 45 |
| HLA-A*32:01 | 1 | 1180 | 1189 | 10 | QKEIDRLNEV | 4.6e-05 | 34 |
| HLA-B*40:01 | 1 | 1186 | 1195 | 10 | LNEVAKNLNE | 4.6e-05 | 26 |
| HLA-B*44:02 | 1 | 1193 | 1202 | 10 | LNESLIDLQE | 4.6e-05 | 31 |
| HLA-B*15:01 | 1 | 1199 | 1207 | 9 | DLQELGKYE | 4.6e-05 | 44 |
| HLA-B*40:01 | 1 | 1212 | 1220 | 9 | WPWYIWLGF | 4.6e-05 | 26 |
| HLA-B*15:01 | 1 | 1232 | 1240 | 9 | IMLCCMTSC | 4.6e-05 | 44 |
| HLA-A*33:01 | 1 | 1256 | 1265 | 10 | FDEDDSEPV | 4.6e-05 | 48 |
| HLA-B*40:01 | 1 | 1262 | 1271 | 10 | EPVLKGVKHL | 4.6e-05 | 26 |
| HLA-B*53:01 | 1 | 1264 | 1273 | 10 | VLKGVKLHYT | 4.6e-05 | 31 |
| HLA-A*03:01 | 1 | 7 | 16 | 10 | LLPLVSSQCV | 4.5e-05 | 38 |
| HLA-A*31:01 | 1 | 7 | 16 | 10 | LLPLVSSQCV | 4.5e-05 | 46 |
| HLA-B*53:01 | 1 | 7 | 15 | 9 | LLPLVSSQC | 4.5e-05 | 31 |
| HLA-A*33:01 | 1 | 11 | 19 | 9 | VSSQCVNLT | 4.5e-05 | 48 |
| HLA-A*24:02 | 1 | 12 | 21 | 10 | SSQCVNLTTR | 4.5e-05 | 27 |
| HLA-A*68:01 | 1 | 17 | 25 | 9 | NLTTRTQLP | 4.5e-05 | 40 |
| HLA-B*53:01 | 1 | 31 | 39 | 9 | SFTRGVYYP | 4.5e-05 | 31 |
| HLA-A*31:01 | 1 | 51 | 60 | 10 | TQDLFLPFFS | 4.5e-05 | 46 |
| HLA-A*02:06 | 1 | 66 | 74 | 9 | HAIHVSGTN | 4.5e-05 | 55 |
| HLA-B*08:01 | 1 | 66 | 75 | 10 | HAIHVSGTNG | 4.5e-05 | 61 |
| HLA-B*53:01 | 1 | 66 | 75 | 10 | HAIHVSGTNG | 4.5e-05 | 31 |
| HLA-B*08:01 | 1 | 67 | 76 | 10 | AIHVSGTNGT | 4.5e-05 | 61 |
| HLA-A*02:01 | 1 | 74 | 83 | 10 | NGTKRFDNPV | 4.5e-05 | 44 |
| HLA-A*02:06 | 1 | 74 | 82 | 9 | NGTKRFDNP | 4.5e-05 | 55 |
| HLA-A*03:01 | 1 | 76 | 85 | 10 | TKRFDNPVLP | 4.5e-05 | 38 |
| HLA-A*68:01 | 1 | 76 | 85 | 10 | TKRFDNPVLP | 4.5e-05 | 40 |
| HLA-B*44:02 | 1 | 78 | 87 | 10 | RFDNPVLPFN | 4.5e-05 | 32 |
| HLA-B*08:01 | 1 | 82 | 91 | 10 | PVLPFNDGVY | 4.5e-05 | 61 |
| HLA-A*32:01 | 1 | 84 | 93 | 10 | LPFNDGVYFA | 4.5e-05 | 34 |
| HLA-B*08:01 | 1 | 93 | 102 | 10 | ASTEKSNIIR | 4.5e-05 | 61 |
| HLA-B*08:01 | 1 | 115 | 124 | 10 | QSLIVNNAT | 4.5e-05 | 61 |
| HLA-B*40:01 | 1 | 118 | 126 | 9 | LIVNNATNV | 4.5e-05 | 26 |
| HLA-A*33:01 | 1 | 147 | 156 | 10 | KNNKSWMESE | 4.5e-05 | 48 |
| HLA-A*02:01 | 1 | 154 | 163 | 10 | ESEFRVYSSA | 4.5e-05 | 44 |
| HLA-A*33:01 | 1 | 160 | 169 | 10 | YSSANNCTFE | 4.5e-05 | 48 |
| HLA-A*68:02 | 1 | 172 | 180 | 9 | SQPFLMDLE | 4.5e-05 | 46 |
| HLA-B*58:01 | 1 | 179 | 187 | 9 | LEGKQGNFK | 4.5e-05 | 48 |
| HLA-B*44:03 | 1 | 185 | 193 | 9 | NFKNLREFV | 4.5e-05 | 30 |
| HLA-A*33:01 | 1 | 187 | 196 | 10 | KNLREFVFKN | 4.5e-05 | 48 |
| HLA-A*68:02 | 1 | 194 | 202 | 9 | FKNIDGYFK | 4.5e-05 | 46 |
| HLA-A*02:06 | 1 | 200 | 208 | 9 | YFKIYSKHT | 4.5e-05 | 55 |
| HLA-A*03:01 | 1 | 200 | 209 | 10 | YFKIYSKHTP | 4.5e-05 | 38 |
| HLA-B*44:03 | 1 | 201 | 210 | 10 | FKIYSKHTPI | 4.5e-05 | 30 |
| HLA-A*24:02 | 1 | 202 | 211 | 10 | KIYSKHTPIN | 4.5e-05 | 27 |
| HLA-A*02:01 | 1 | 209 | 217 | 9 | PINLVRDLP | 4.5e-05 | 44 |
| HLA-A*68:02 | 1 | 209 | 217 | 9 | PINLVRDLP | 4.5e-05 | 46 |
| HLA-B*53:01 | 1 | 222 | 231 | 10 | ALEPLVDLPI | 4.5e-05 | 31 |
| HLA-B*44:03 | 1 | 233 | 242 | 10 | INITRFQTL | 4.5e-05 | 30 |
| HLA-A*68:01 | 1 | 247 | 256 | 10 | SYLTPGDSSS | 4.5e-05 | 40 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-A*02:01 | 1 | 250 | 258 | 9 | TPGDSSSGW | 4.5e-05 | 44 |
| HLA-B*44:03 | 1 | 265 | 273 | 9 | YYVGYLQPR | 4.5e-05 | 30 |
| HLA-B*51:01 | 1 | 265 | 274 | 10 | YYVGYLQPR | 4.5e-05 | 54 |
| HLA-A*31:01 | 1 | 271 | 280 | 10 | QPRTFLLKYN | 4.5e-05 | 46 |
| HLA-A*24:02 | 1 | 277 | 285 | 9 | LKYNGENGTI | 4.5e-05 | 27 |
| HLA-A*26:01 | 1 | 279 | 288 | 10 | YNENGTITDA | 4.5e-05 | 39 |
| HLA-A*23:01 | 1 | 281 | 289 | 9 | ENGTITDAV | 4.5e-05 | 28 |
| HLA-B*51:01 | 1 | 283 | 291 | 9 | GTITDAVDC | 4.5e-05 | 54 |
| HLA-A*03:01 | 1 | 288 | 296 | 9 | AVDCALDPL | 4.5e-05 | 38 |
| HLA-A*23:01 | 1 | 291 | 300 | 10 | CALDPLSETK | 4.5e-05 | 28 |
| HLA-A*68:01 | 1 | 296 | 305 | 10 | LSETKCTLKS | 4.5e-05 | 40 |
| HLA-A*26:01 | 1 | 297 | 305 | 9 | SETKCTLKS | 4.5e-05 | 39 |
| HLA-B*15:01 | 1 | 308 | 317 | 10 | VEKGIYQTSN | 4.5e-05 | 44 |
| HLA-B*08:01 | 1 | 310 | 319 | 10 | KGIYQTSNFR | 4.5e-05 | 61 |
| HLA-A*02:06 | 1 | 312 | 321 | 10 | IYQTSNFRVQ | 4.5e-05 | 55 |
| HLA-A*26:01 | 1 | 313 | 322 | 10 | YQTSNFRVQP | 4.5e-05 | 39 |
| HLA-A*30:02 | 1 | 331 | 339 | 9 | NITNLCPFG | 4.5e-05 | 69 |
| HLA-B*57:01 | 1 | 336 | 345 | 10 | CPFGEVFNAT | 4.5e-05 | 60 |
| HLA-A*32:01 | 1 | 338 | 346 | 9 | FGEVFNATR | 4.5e-05 | 34 |
| HLA-A*02:03 | 1 | 343 | 351 | 9 | NATRFASVY | 4.5e-05 | 47 |
| HLA-A*33:01 | 1 | 351 | 360 | 10 | YAWNKRKRISN | 4.5e-05 | 48 |
| HLA-A*68:01 | 1 | 358 | 366 | 9 | ISNCVADYS | 4.5e-05 | 40 |
| HLA-A*02:01 | 1 | 368 | 377 | 10 | LYNSASFSTF | 4.5e-05 | 44 |
| HLA-B*35:01 | 1 | 372 | 381 | 10 | ASFSTFKCYG | 4.5e-05 | 32 |
| HLA-B*44:02 | 1 | 372 | 381 | 10 | ASFSTFKCYG | 4.5e-05 | 32 |
| HLA-B*07:02 | 1 | 374 | 382 | 9 | FSTFKCYGV | 4.5e-05 | 42 |
| HLA-B*44:02 | 1 | 377 | 386 | 10 | FKCYGVSPTK | 4.5e-05 | 32 |
| HLA-A*31:01 | 1 | 388 | 396 | 9 | NDLCFTNVY | 4.5e-05 | 46 |
| HLA-B*44:02 | 1 | 404 | 413 | 10 | GDEVROIAPG | 4.5e-05 | 32 |
| HLA-B*51:01 | 1 | 433 | 442 | 10 | VIAWNSNNLD | 4.5e-05 | 54 |
| HLA-A*68:02 | 1 | 442 | 450 | 9 | DSKVGGNYN | 4.5e-05 | 46 |
| HLA-B*07:02 | 1 | 444 | 453 | 10 | KVGGNYNYLY | 4.5e-05 | 42 |
| HLA-A*23:01 | 1 | 451 | 459 | 9 | YLYRFRKS | 4.5e-05 | 28 |
| HLA-B*44:02 | 1 | 453 | 462 | 10 | YRFRKSNLK | 4.5e-05 | 32 |
| HLA-A*02:03 | 1 | 465 | 473 | 9 | ERDISTEIIY | 4.5e-05 | 47 |
| HLA-B*35:01 | 1 | 466 | 475 | 10 | RDISTEIIYQA | 4.5e-05 | 32 |
| HLA-B*08:01 | 1 | 467 | 476 | 10 | DISTEIIYQAG | 4.5e-05 | 61 |
| HLA-B*15:01 | 1 | 472 | 480 | 9 | IYQAGSTPC | 4.5e-05 | 44 |
| HLA-A*03:01 | 1 | 485 | 494 | 10 | GFNCYFPLQS | 4.5e-05 | 38 |
| HLA-B*08:01 | 1 | 485 | 493 | 9 | GFNCYFPLQ | 4.5e-05 | 61 |
| HLA-B*58:01 | 1 | 490 | 499 | 10 | FPLQSYGFQP | 4.5e-05 | 48 |
| HLA-A*02:03 | 1 | 492 | 501 | 10 | LQSYGFQPTN | 4.5e-05 | 47 |
| HLA-A*03:01 | 1 | 505 | 514 | 10 | YQPYRVVVL | 4.5e-05 | 38 |
| HLA-A*11:01 | 1 | 517 | 525 | 9 | LLHAPATVC | 4.5e-05 | 28 |
| HLA-B*15:01 | 1 | 553 | 561 | 9 | TESNKKFLP | 4.5e-05 | 44 |
| HLA-B*44:02 | 1 | 555 | 563 | 9 | SNKKFLPFQ | 4.5e-05 | 32 |
| HLA-A*31:01 | 1 | 564 | 573 | 10 | QFGRDIADTT | 4.5e-05 | 46 |
| HLA-B*58:01 | 1 | 564 | 573 | 10 | QFGRDIADTT | 4.5e-05 | 48 |
| HLA-A*30:01 | 1 | 565 | 574 | 10 | FGRDIADTTD | 4.5e-05 | 71 |
| HLA-B*44:03 | 1 | 568 | 577 | 10 | DIADTTDAVR | 4.5e-05 | 30 |
| HLA-A*03:01 | 1 | 571 | 580 | 10 | DTTDAVRDPQ | 4.5e-05 | 38 |
| HLA-B*44:02 | 1 | 583 | 591 | 9 | EILDITPCS | 4.5e-05 | 32 |
| HLA-B*51:01 | 1 | 586 | 594 | 9 | DITPCSFVG | 4.5e-05 | 54 |
| HLA-B*53:01 | 1 | 589 | 597 | 9 | PCSFVGVSV | 4.5e-05 | 31 |
| HLA-A*68:02 | 1 | 600 | 609 | 10 | PGTNTSNQVA | 4.5e-05 | 46 |
| HLA-A*30:01 | 1 | 613 | 621 | 9 | QDVNCTEVP | 4.5e-05 | 71 |
| HLA-A*31:01 | 1 | 615 | 624 | 10 | VNCTEVPVAI | 4.5e-05 | 46 |
| HLA-B*44:03 | 1 | 616 | 625 | 10 | NCTEVPVAIH | 4.5e-05 | 30 |
| HLA-A*30:01 | 1 | 618 | 627 | 10 | TEVPVAIHAD | 4.5e-05 | 71 |
| HLA-B*51:01 | 1 | 618 | 627 | 10 | TEVPVAIHAD | 4.5e-05 | 54 |
| HLA-A*02:06 | 1 | 619 | 628 | 10 | EVPVAIHADQ | 4.5e-05 | 55 |
| HLA-A*30:02 | 1 | 621 | 630 | 10 | PVAIHADQLT | 4.5e-05 | 69 |
| HLA-A*11:01 | 1 | 630 | 638 | 9 | TPTWRVYST | 4.5e-05 | 28 |
| HLA-B*08:01 | 1 | 646 | 655 | 10 | RAGCLIGAEH | 4.5e-05 | 61 |
| HLA-B*57:01 | 1 | 648 | 657 | 10 | GCLIGAEHVN | 4.5e-05 | 60 |
| HLA-A*68:01 | 1 | 652 | 661 | 10 | GAEHVNSYSE | 4.5e-05 | 40 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*01:01 | 1 | 655 | 663 | 9 | HVNNSYECD | 4.5e-05 | 64 |
| HLA-A*30:02 | 1 | 667 | 676 | 10 | GAGICASYQT | 4.5e-05 | 69 |
| HLA-A*03:01 | 1 | 669 | 678 | 10 | GICASYQTQT | 4.5e-05 | 38 |
| HLA-B*44:03 | 1 | 673 | 682 | 10 | SYQTQTNSPR | 4.5e-05 | 30 |
| HLA-B*57:01 | 1 | 678 | 686 | 9 | TNSPRRARS | 4.5e-05 | 60 |
| HLA-A*11:01 | 1 | 680 | 688 | 9 | SPRRARSVA | 4.5e-05 | 28 |
| HLA-A*26:01 | 1 | 694 | 703 | 10 | AYTMSLGAEN | 4.5e-05 | 39 |
| HLA-B*44:02 | 1 | 698 | 706 | 9 | SLGAENSVA | 4.5e-05 | 32 |
| HLA-A*11:01 | 1 | 700 | 708 | 9 | GAENSVAYS | 4.5e-05 | 28 |
| HLA-A*30:01 | 1 | 700 | 709 | 10 | GAENSVAYSN | 4.5e-05 | 71 |
| HLA-A*31:01 | 1 | 712 | 721 | 10 | IAIPTNFTIS | 4.5e-05 | 46 |
| HLA-A*23:01 | 1 | 728 | 736 | 9 | PVSMTKTSV | 4.5e-05 | 28 |
| HLA-B*15:01 | 1 | 744 | 753 | 10 | GDSTECSNLL | 4.5e-05 | 44 |
| HLA-B*51:01 | 1 | 750 | 758 | 9 | SNLLQYGS | 4.5e-05 | 54 |
| HLA-A*02:01 | 1 | 756 | 765 | 10 | YGSFCTQLNR | 4.5e-05 | 44 |
| HLA-B*40:01 | 1 | 757 | 765 | 9 | GSFCTQLNR | 4.5e-05 | 26 |
| HLA-B*07:02 | 1 | 758 | 766 | 9 | SFCTQLNRA | 4.5e-05 | 42 |
| HLA-B*08:01 | 1 | 760 | 769 | 10 | CTQLNRALTG | 4.5e-05 | 61 |
| HLA-A*30:02 | 1 | 764 | 773 | 10 | NRALTGIAVE | 4.5e-05 | 69 |
| HLA-A*32:01 | 1 | 768 | 776 | 9 | TGIAVEQDK | 4.5e-05 | 34 |
| HLA-B*07:02 | 1 | 770 | 778 | 9 | IAVEQDKNT | 4.5e-05 | 42 |
| HLA-B*44:03 | 1 | 776 | 784 | 9 | KNTQEVFAQ | 4.5e-05 | 30 |
| HLA-B*08:01 | 1 | 790 | 799 | 10 | KTPPIKDFGG | 4.5e-05 | 61 |
| HLA-A*03:01 | 1 | 791 | 800 | 10 | TPPIKDFGGF | 4.5e-05 | 38 |
| HLA-A*02:01 | 1 | 800 | 809 | 10 | FNFSQILPDP | 4.5e-05 | 44 |
| HLA-A*68:02 | 1 | 801 | 810 | 10 | NFSQILPDPS | 4.5e-05 | 46 |
| HLA-A*33:01 | 1 | 802 | 810 | 9 | FSQILPDPS | 4.5e-05 | 48 |
| HLA-B*53:01 | 1 | 810 | 818 | 9 | SKPSKRSFI | 4.5e-05 | 31 |
| HLA-A*68:01 | 1 | 815 | 824 | 10 | RSFIEDLLFN | 4.5e-05 | 40 |
| HLA-B*40:01 | 1 | 819 | 827 | 9 | EDLLFNKVT | 4.5e-05 | 26 |
| HLA-B*57:01 | 1 | 820 | 829 | 10 | DLLFNKVTLA | 4.5e-05 | 60 |
| HLA-A*01:01 | 1 | 821 | 830 | 10 | LLFNKVTLAD | 4.5e-05 | 64 |
| HLA-A*30:01 | 1 | 823 | 832 | 10 | FNKVTLADAG | 4.5e-05 | 71 |
| HLA-A*33:01 | 1 | 826 | 834 | 9 | VTLADAGFI | 4.5e-05 | 48 |
| HLA-B*51:01 | 1 | 838 | 846 | 9 | GDCLGDIAA | 4.5e-05 | 54 |
| HLA-B*58:01 | 1 | 850 | 859 | 10 | ICAQKFNGLT | 4.5e-05 | 48 |
| HLA-A*31:01 | 1 | 851 | 860 | 10 | CAQKFNGLTV | 4.5e-05 | 46 |
| HLA-B*44:02 | 1 | 858 | 866 | 9 | LTVLPPLLT | 4.5e-05 | 32 |
| HLA-B*44:03 | 1 | 860 | 869 | 10 | VLPPLLTDEM | 4.5e-05 | 30 |
| HLA-B*58:01 | 1 | 860 | 868 | 9 | VLPPLLTDE | 4.5e-05 | 48 |
| HLA-A*01:01 | 1 | 872 | 880 | 9 | QYTSALLAG | 4.5e-05 | 64 |
| HLA-A*33:01 | 1 | 875 | 883 | 9 | SALLAGTIT | 4.5e-05 | 48 |
| HLA-A*68:02 | 1 | 883 | 891 | 9 | TSGWTFGAG | 4.5e-05 | 46 |
| HLA-A*02:03 | 1 | 885 | 893 | 9 | GWTFGAGAA | 4.5e-05 | 47 |
| HLA-A*02:03 | 1 | 889 | 898 | 10 | GAGAALQIPF | 4.5e-05 | 47 |
| HLA-A*68:02 | 1 | 903 | 912 | 10 | AYRFNGIGVT | 4.5e-05 | 46 |
| HLA-A*33:01 | 1 | 908 | 916 | 9 | GIGVTQNVL | 4.5e-05 | 48 |
| HLA-B*15:01 | 1 | 911 | 920 | 10 | VTQNVLYENQ | 4.5e-05 | 44 |
| HLA-A*02:01 | 1 | 912 | 920 | 9 | TQNVLYENQ | 4.5e-05 | 44 |
| HLA-B*51:01 | 1 | 913 | 921 | 9 | QNVLYENQK | 4.5e-05 | 54 |
| HLA-B*35:01 | 1 | 925 | 934 | 10 | NQFNSAIGKI | 4.5e-05 | 32 |
| HLA-A*68:02 | 1 | 947 | 955 | 9 | KLQDVVNQN | 4.5e-05 | 46 |
| HLA-A*02:03 | 1 | 966 | 975 | 10 | LSSNFGAISS | 4.5e-05 | 47 |
| HLA-A*03:01 | 1 | 973 | 981 | 9 | ISSVLNDIL | 4.5e-05 | 38 |
| HLA-B*07:02 | 1 | 978 | 986 | 9 | NDILSRLDK | 4.5e-05 | 42 |
| HLA-B*53:01 | 1 | 978 | 987 | 10 | NDILSRLDKV | 4.5e-05 | 31 |
| HLA-A*11:01 | 1 | 982 | 991 | 10 | SRLDKVEAEV | 4.5e-05 | 28 |
| HLA-B*08:01 | 1 | 989 | 998 | 10 | AEVQIDRLIT | 4.5e-05 | 61 |
| HLA-B*51:01 | 1 | 997 | 1006 | 10 | ITGRLQSLQT | 4.5e-05 | 54 |
| HLA-A*32:01 | 1 | 1001 | 1010 | 10 | LQSLQTYVTQ | 4.5e-05 | 34 |
| HLA-B*44:02 | 1 | 1013 | 1021 | 9 | IRAAEIRAS | 4.5e-05 | 32 |
| HLA-B*44:03 | 1 | 1013 | 1021 | 9 | IRAAEIRAS | 4.5e-05 | 30 |
| HLA-B*57:01 | 1 | 1013 | 1021 | 9 | IRAAEIRAS | 4.5e-05 | 60 |
| HLA-B*44:03 | 1 | 1017 | 1026 | 10 | EIRASANLAA | 4.5e-05 | 30 |
| HLA-A*11:01 | 1 | 1018 | 1026 | 9 | IRASANLAA | 4.5e-05 | 28 |
| HLA-B*53:01 | 1 | 1019 | 1028 | 10 | RASANLAATK | 4.5e-05 | 31 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-B*57:01 | 1 | 1023 | 1031 | 9 | NLAATKMSE | 4.5e-05 | 60 |
| HLA-B*44:03 | 1 | 1031 | 1040 | 10 | ECVLGQSKRV | 4.5e-05 | 30 |
| HLA-A*24:02 | 1 | 1035 | 1043 | 9 | GQSKRVDFC | 4.5e-05 | 27 |
| HLA-B*07:02 | 1 | 1037 | 1045 | 9 | SKRVDFCGK | 4.5e-05 | 42 |
| HLA-A*02:01 | 1 | 1041 | 1050 | 10 | DFCGKGYHLM | 4.5e-05 | 44 |
| HLA-B*44:03 | 1 | 1048 | 1057 | 10 | HLMSFPQSAP | 4.5e-05 | 30 |
| HLA-A*11:01 | 1 | 1049 | 1057 | 9 | LMSFPQSAP | 4.5e-05 | 28 |
| HLA-A*33:01 | 1 | 1057 | 1065 | 9 | PHGVVFLHV | 4.5e-05 | 48 |
| HLA-B*57:01 | 1 | 1062 | 1070 | 9 | FLHVTYVPA | 4.5e-05 | 60 |
| HLA-B*53:01 | 1 | 1069 | 1077 | 9 | PAQEKNFST | 4.5e-05 | 31 |
| HLA-A*68:02 | 1 | 1073 | 1082 | 10 | KNFTTAPAIC | 4.5e-05 | 46 |
| HLA-A*02:06 | 1 | 1074 | 1082 | 9 | NFTTAPAIC | 4.5e-05 | 55 |
| HLA-B*53:01 | 1 | 1074 | 1082 | 9 | NFTTAPAIC | 4.5e-05 | 31 |
| HLA-A*01:01 | 1 | 1089 | 1098 | 10 | FPREGVFVSN | 4.5e-05 | 64 |
| HLA-A*30:01 | 1 | 1090 | 1098 | 9 | PREGVFVSN | 4.5e-05 | 71 |
| HLA-A*68:02 | 1 | 1099 | 1108 | 10 | GTHWFVTQRN | 4.5e-05 | 46 |
| HLA-B*53:01 | 1 | 1110 | 1118 | 9 | YEPQIITTD | 4.5e-05 | 31 |
| HLA-A*68:01 | 1 | 1112 | 1121 | 10 | PQIITTDNTF | 4.5e-05 | 40 |
| HLA-A*11:01 | 1 | 1114 | 1122 | 9 | IITTDNTFV | 4.5e-05 | 28 |
| HLA-A*31:01 | 1 | 1119 | 1128 | 10 | NTFVSGNCDV | 4.5e-05 | 46 |
| HLA-B*44:02 | 1 | 1123 | 1132 | 10 | SGNCDVVIGI | 4.5e-05 | 32 |
| HLA-A*33:01 | 1 | 1133 | 1142 | 10 | VNNTVYDPLQ | 4.5e-05 | 48 |
| HLA-A*32:01 | 1 | 1140 | 1149 | 10 | PLQPELDSFK | 4.5e-05 | 34 |
| HLA-B*08:01 | 1 | 1141 | 1150 | 10 | LQPELDSFKE | 4.5e-05 | 61 |
| HLA-B*58:01 | 1 | 1141 | 1150 | 10 | LQPELDSFKE | 4.5e-05 | 48 |
| HLA-B*07:02 | 1 | 1144 | 1153 | 10 | ELDSFKEELD | 4.5e-05 | 42 |
| HLA-A*02:01 | 1 | 1150 | 1159 | 10 | EELDKYFKNH | 4.5e-05 | 44 |
| HLA-A*68:01 | 1 | 1159 | 1168 | 10 | HTSPDVLGD | 4.5e-05 | 40 |
| HLA-B*15:01 | 1 | 1159 | 1167 | 9 | HTSPDVLGD | 4.5e-05 | 44 |
| HLA-A*26:01 | 1 | 1161 | 1169 | 9 | SPDVLGDI | 4.5e-05 | 39 |
| HLA-A*68:01 | 1 | 1164 | 1172 | 9 | VDLGDISGI | 4.5e-05 | 40 |
| HLA-A*26:01 | 1 | 1169 | 1177 | 9 | ISGINASVV | 4.5e-05 | 39 |
| HLA-A*32:01 | 1 | 1171 | 1180 | 10 | GINASVVNIQ | 4.5e-05 | 34 |
| HLA-A*02:01 | 1 | 1187 | 1196 | 10 | NEVAKNLNES | 4.5e-05 | 44 |
| HLA-B*35:01 | 1 | 1187 | 1195 | 9 | NEVAKNLNE | 4.5e-05 | 32 |
| HLA-B*51:01 | 1 | 1187 | 1195 | 9 | NEVAKNLNE | 4.5e-05 | 54 |
| HLA-B*44:02 | 1 | 1189 | 1198 | 10 | VAKNLNESLI | 4.5e-05 | 32 |
| HLA-B*44:02 | 1 | 1191 | 1200 | 10 | KNLNESLIDL | 4.5e-05 | 32 |
| HLA-A*03:01 | 1 | 1195 | 1203 | 9 | ESLIDLQEL | 4.5e-05 | 38 |
| HLA-B*44:03 | 1 | 1203 | 1211 | 9 | LGKYEYQIK | 4.5e-05 | 30 |
| HLA-B*57:01 | 1 | 1210 | 1219 | 10 | IKWPWYIWL | 4.5e-05 | 60 |
| HLA-A*30:01 | 1 | 1214 | 1223 | 10 | WYIWLGFIA | 4.5e-05 | 71 |
| HLA-B*53:01 | 1 | 1218 | 1227 | 10 | LGFIAGLIAI | 4.5e-05 | 31 |
| HLA-A*01:01 | 1 | 1223 | 1231 | 9 | GLIAIVMVT | 4.5e-05 | 64 |
| HLA-A*03:01 | 1 | 1224 | 1233 | 10 | LIAIVMVTIM | 4.5e-05 | 38 |
| HLA-A*02:03 | 1 | 1243 | 1251 | 9 | CLKGCCSCG | 4.5e-05 | 47 |
| HLA-B*08:01 | 1 | 1243 | 1251 | 9 | CLKGCCSCG | 4.5e-05 | 61 |
| HLA-A*01:01 | 1 | 3 | 12 | 10 | VFLVLLPLVS | 4.4e-05 | 65 |
| HLA-A*11:01 | 1 | 15 | 24 | 10 | CVNLTRTRQL | 4.4e-05 | 29 |
| HLA-A*26:01 | 1 | 17 | 25 | 9 | NLTRTRQLP | 4.4e-05 | 39 |
| HLA-B*44:03 | 1 | 21 | 29 | 9 | RTQLPPAYT | 4.4e-05 | 30 |
| HLA-B*44:03 | 1 | 23 | 31 | 9 | QLPPAYTNS | 4.4e-05 | 30 |
| HLA-A*02:06 | 1 | 24 | 33 | 10 | LPPAYTNSFT | 4.4e-05 | 55 |
| HLA-B*35:01 | 1 | 43 | 52 | 10 | FRSSVLHSTQ | 4.4e-05 | 32 |
| HLA-B*08:01 | 1 | 48 | 57 | 10 | LHSTQDLFLP | 4.4e-05 | 61 |
| HLA-A*68:02 | 1 | 52 | 60 | 9 | QDLFLPFFS | 4.4e-05 | 47 |
| HLA-B*08:01 | 1 | 62 | 71 | 10 | VTWFHAIHVS | 4.4e-05 | 61 |
| HLA-A*68:02 | 1 | 70 | 79 | 10 | VSGTNGTKRF | 4.4e-05 | 47 |
| HLA-A*24:02 | 1 | 75 | 84 | 10 | GTKRFDNPVL | 4.4e-05 | 28 |
| HLA-A*02:03 | 1 | 94 | 102 | 9 | STEKSNIIR | 4.4e-05 | 47 |
| HLA-A*02:03 | 1 | 105 | 113 | 9 | IFGTTLDSK | 4.4e-05 | 47 |
| HLA-A*11:01 | 1 | 114 | 123 | 10 | TQSLLIIVNNA | 4.4e-05 | 29 |
| HLA-A*24:02 | 1 | 123 | 131 | 9 | ATNVVIVKC | 4.4e-05 | 28 |
| HLA-B*58:01 | 1 | 131 | 140 | 10 | CEFQFCNDPF | 4.4e-05 | 49 |
| HLA-A*30:02 | 1 | 141 | 149 | 9 | LGVYYHKNN | 4.4e-05 | 69 |
| HLA-A*02:06 | 1 | 149 | 158 | 10 | NKSWMESEFR | 4.4e-05 | 55 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*32:01 | 1 | 154 | 163 | 10 | ESEFRVYSSA | 4.4e-05 | 34 |
| HLA-B*08:01 | 1 | 158 | 167 | 10 | RVYSSANNCT | 4.4e-05 | 61 |
| HLA-B*51:01 | 1 | 165 | 173 | 9 | NCTFEYVVSQ | 4.4e-05 | 54 |
| HLA-A*24:02 | 1 | 215 | 224 | 10 | DLPQGFSALE | 4.4e-05 | 28 |
| HLA-B*44:03 | 1 | 216 | 225 | 10 | LPQGFSALEP | 4.4e-05 | 30 |
| HLA-A*11:01 | 1 | 219 | 227 | 9 | GFSALEPLV | 4.4e-05 | 29 |
| HLA-B*07:02 | 1 | 239 | 247 | 9 | QTLALHRS | 4.4e-05 | 42 |
| HLA-A*68:01 | 1 | 249 | 257 | 9 | LTPGDSSSG | 4.4e-05 | 40 |
| HLA-B*53:01 | 1 | 252 | 260 | 9 | GDSSSGWTA | 4.4e-05 | 31 |
| HLA-A*02:03 | 1 | 262 | 271 | 10 | AAAYYVGYLQ | 4.4e-05 | 47 |
| HLA-B*40:01 | 1 | 273 | 281 | 9 | RTFLLKYNE | 4.4e-05 | 27 |
| HLA-B*51:01 | 1 | 337 | 345 | 9 | PFGEVFNAT | 4.4e-05 | 54 |
| HLA-A*02:03 | 1 | 338 | 346 | 9 | FGEVFNATR | 4.4e-05 | 47 |
| HLA-B*58:01 | 1 | 341 | 350 | 10 | VFNATRFASV | 4.4e-05 | 49 |
| HLA-A*32:01 | 1 | 352 | 361 | 10 | AWNKRISINC | 4.4e-05 | 34 |
| HLA-A*31:01 | 1 | 359 | 368 | 10 | SNCVADYSVL | 4.4e-05 | 46 |
| HLA-B*35:01 | 1 | 359 | 367 | 9 | SNCVADYSV | 4.4e-05 | 32 |
| HLA-A*33:01 | 1 | 362 | 371 | 10 | VADYSVLVNS | 4.4e-05 | 48 |
| HLA-A*33:01 | 1 | 372 | 381 | 10 | ASFSTFKCYG | 4.4e-05 | 48 |
| HLA-A*68:02 | 1 | 377 | 385 | 9 | FKCYGVSP | 4.4e-05 | 47 |
| HLA-A*68:02 | 1 | 389 | 398 | 10 | DLCFTNVYAD | 4.4e-05 | 47 |
| HLA-A*31:01 | 1 | 392 | 401 | 10 | FTNVYADSFV | 4.4e-05 | 46 |
| HLA-A*24:02 | 1 | 396 | 404 | 9 | YADSFVIRG | 4.4e-05 | 28 |
| HLA-A*68:01 | 1 | 401 | 410 | 10 | VIRGDEVQR | 4.4e-05 | 40 |
| HLA-B*58:01 | 1 | 406 | 414 | 9 | EVRQIAPGQ | 4.4e-05 | 49 |
| HLA-A*33:01 | 1 | 410 | 418 | 9 | IAPGQTGKI | 4.4e-05 | 48 |
| HLA-B*51:01 | 1 | 428 | 437 | 10 | DFTGCVIAWN | 4.4e-05 | 54 |
| HLA-B*15:01 | 1 | 435 | 444 | 10 | AWNSNNLDSK | 4.4e-05 | 45 |
| HLA-B*44:03 | 1 | 441 | 450 | 10 | LDSKVGGNYN | 4.4e-05 | 30 |
| HLA-B*51:01 | 1 | 444 | 453 | 10 | KVGGNYNYLY | 4.4e-05 | 54 |
| HLA-A*11:01 | 1 | 451 | 459 | 9 | YLYRFRKS | 4.4e-05 | 29 |
| HLA-B*57:01 | 1 | 451 | 460 | 10 | YLYRFRKSN | 4.4e-05 | 61 |
| HLA-B*40:01 | 1 | 454 | 463 | 10 | RLFRKSNLKP | 4.4e-05 | 27 |
| HLA-A*33:01 | 1 | 457 | 465 | 9 | RKSNLKPFE | 4.4e-05 | 48 |
| HLA-A*33:01 | 1 | 460 | 469 | 10 | NLKPFERDIS | 4.4e-05 | 48 |
| HLA-A*31:01 | 1 | 463 | 472 | 10 | PFERDISTEI | 4.4e-05 | 46 |
| HLA-A*31:01 | 1 | 465 | 474 | 10 | ERDISTEIYQ | 4.4e-05 | 46 |
| HLA-A*32:01 | 1 | 471 | 480 | 10 | EIYQAGSTPC | 4.4e-05 | 34 |
| HLA-B*57:01 | 1 | 472 | 480 | 9 | IYQAGSTPC | 4.4e-05 | 61 |
| HLA-A*26:01 | 1 | 473 | 481 | 9 | YQAGSTPCN | 4.4e-05 | 39 |
| HLA-B*58:01 | 1 | 473 | 482 | 10 | YQAGSTPCNG | 4.4e-05 | 49 |
| HLA-A*24:02 | 1 | 475 | 483 | 9 | AGSTPCNGV | 4.4e-05 | 28 |
| HLA-A*02:06 | 1 | 488 | 496 | 9 | CYFPLQSYG | 4.4e-05 | 55 |
| HLA-A*24:02 | 1 | 496 | 504 | 9 | GFQPTNGVG | 4.4e-05 | 28 |
| HLA-B*57:01 | 1 | 498 | 506 | 9 | QPTNGVGYQ | 4.4e-05 | 61 |
| HLA-B*40:01 | 1 | 507 | 515 | 9 | PYRVVLSF | 4.4e-05 | 27 |
| HLA-B*35:01 | 1 | 509 | 518 | 10 | RVVLSFELL | 4.4e-05 | 32 |
| HLA-B*53:01 | 1 | 513 | 522 | 10 | LSFELLHAPA | 4.4e-05 | 31 |
| HLA-A*01:01 | 1 | 527 | 535 | 9 | PKKSTNLVK | 4.4e-05 | 65 |
| HLA-B*44:03 | 1 | 528 | 537 | 10 | KKSTNLVKNK | 4.4e-05 | 30 |
| HLA-B*40:01 | 1 | 537 | 546 | 10 | KCVNFNFNGL | 4.4e-05 | 27 |
| HLA-B*53:01 | 1 | 557 | 566 | 10 | KKFLPFQQFG | 4.4e-05 | 31 |
| HLA-B*15:01 | 1 | 558 | 566 | 9 | KFLPFQQFG | 4.4e-05 | 45 |
| HLA-B*08:01 | 1 | 562 | 571 | 10 | FQQFGRDIAD | 4.4e-05 | 61 |
| HLA-B*35:01 | 1 | 567 | 575 | 9 | RDIADTTDA | 4.4e-05 | 32 |
| HLA-B*53:01 | 1 | 567 | 575 | 9 | RDIADTTDA | 4.4e-05 | 31 |
| HLA-A*33:01 | 1 | 569 | 578 | 10 | IADTTDAVRD | 4.4e-05 | 48 |
| HLA-B*44:03 | 1 | 570 | 579 | 10 | ADTTDAVRDP | 4.4e-05 | 30 |
| HLA-B*08:01 | 1 | 589 | 598 | 10 | PCSFGGVSVI | 4.4e-05 | 61 |
| HLA-B*15:01 | 1 | 605 | 613 | 9 | SNQVAVLYQ | 4.4e-05 | 45 |
| HLA-B*15:01 | 1 | 606 | 614 | 9 | NQVAVLYQD | 4.4e-05 | 45 |
| HLA-B*57:01 | 1 | 614 | 623 | 10 | DVNCTEVPVA | 4.4e-05 | 61 |
| HLA-B*57:01 | 1 | 620 | 628 | 9 | VPVAIHADQ | 4.4e-05 | 61 |
| HLA-B*08:01 | 1 | 636 | 645 | 10 | YSTGSNVFQT | 4.4e-05 | 61 |
| HLA-A*01:01 | 1 | 639 | 648 | 10 | GSNVFQTRAG | 4.4e-05 | 65 |
| HLA-B*58:01 | 1 | 643 | 652 | 10 | FQTRAGCLIG | 4.4e-05 | 49 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-B*51:01 | 1 | 660 | 669 | 10 | YECDIPIGAG | 4.4e-05 | 54 |
| HLA-A*31:01 | 1 | 664 | 672 | 9 | IPIGAGICA | 4.4e-05 | 46 |
| HLA-A*30:01 | 1 | 670 | 679 | 10 | ICASYQTQTN | 4.4e-05 | 71 |
| HLA-A*02:03 | 1 | 671 | 680 | 10 | CASYQTQTN | 4.4e-05 | 47 |
| HLA-A*02:01 | 1 | 673 | 681 | 9 | SYQTQTN | 4.4e-05 | 44 |
| HLA-A*32:01 | 1 | 673 | 681 | 9 | SYQTQTN | 4.4e-05 | 34 |
| HLA-A*03:01 | 1 | 680 | 689 | 10 | SPRRARSVAS | 4.4e-05 | 39 |
| HLA-B*44:02 | 1 | 690 | 699 | 10 | QSIIAYTMSL | 4.4e-05 | 32 |
| HLA-A*01:01 | 1 | 691 | 700 | 10 | SIIAYTMSLG | 4.4e-05 | 65 |
| HLA-B*53:01 | 1 | 699 | 708 | 10 | LGAENSVAYS | 4.4e-05 | 31 |
| HLA-A*02:06 | 1 | 701 | 709 | 9 | AENSVAYSN | 4.4e-05 | 55 |
| HLA-B*08:01 | 1 | 709 | 717 | 9 | NNSIAIPTN | 4.4e-05 | 61 |
| HLA-A*24:02 | 1 | 713 | 721 | 9 | AIPTNFTIS | 4.4e-05 | 28 |
| HLA-A*68:02 | 1 | 717 | 725 | 9 | NFTISVTE | 4.4e-05 | 47 |
| HLA-A*32:01 | 1 | 731 | 739 | 9 | MTKTSVDCT | 4.4e-05 | 34 |
| HLA-A*32:01 | 1 | 732 | 740 | 9 | TKTSVDCTM | 4.4e-05 | 34 |
| HLA-A*02:06 | 1 | 738 | 746 | 9 | CTMYICGDS | 4.4e-05 | 55 |
| HLA-A*30:01 | 1 | 741 | 750 | 10 | YICGDSTEC | 4.4e-05 | 71 |
| HLA-A*31:01 | 1 | 745 | 754 | 10 | DSTECNLLL | 4.4e-05 | 46 |
| HLA-A*68:02 | 1 | 750 | 759 | 10 | SNLLQYGSF | 4.4e-05 | 47 |
| HLA-A*03:01 | 1 | 753 | 761 | 9 | LLQYGSFCT | 4.4e-05 | 39 |
| HLA-B*44:02 | 1 | 768 | 776 | 9 | TGIAVEQDK | 4.4e-05 | 32 |
| HLA-B*53:01 | 1 | 768 | 776 | 9 | TGIAVEQDK | 4.4e-05 | 31 |
| HLA-A*33:01 | 1 | 772 | 781 | 10 | VEQDKNTQEV | 4.4e-05 | 48 |
| HLA-B*07:02 | 1 | 781 | 790 | 10 | VFAQVKQIYK | 4.4e-05 | 42 |
| HLA-A*23:01 | 1 | 784 | 792 | 9 | QVKQIYKTP | 4.4e-05 | 29 |
| HLA-B*53:01 | 1 | 792 | 801 | 10 | PPIKDFGGFN | 4.4e-05 | 31 |
| HLA-A*11:01 | 1 | 796 | 804 | 9 | DFGGFNFSQ | 4.4e-05 | 29 |
| HLA-A*68:02 | 1 | 821 | 830 | 10 | LLFNKVTLAD | 4.4e-05 | 47 |
| HLA-A*24:02 | 1 | 824 | 833 | 10 | NKVTLADAGF | 4.4e-05 | 28 |
| HLA-B*51:01 | 1 | 836 | 845 | 10 | QYGDCLGDIA | 4.4e-05 | 54 |
| HLA-B*58:01 | 1 | 839 | 847 | 9 | DCLGDIAAR | 4.4e-05 | 49 |
| HLA-A*68:01 | 1 | 849 | 858 | 10 | LICAQKFNGL | 4.4e-05 | 40 |
| HLA-B*40:01 | 1 | 858 | 866 | 9 | LTVLPPLLT | 4.4e-05 | 27 |
| HLA-A*32:01 | 1 | 865 | 874 | 10 | LTDEMIAQYT | 4.4e-05 | 34 |
| HLA-B*15:01 | 1 | 881 | 889 | 9 | TITSGWTFG | 4.4e-05 | 45 |
| HLA-A*68:01 | 1 | 897 | 906 | 10 | PFAMQMAYRF | 4.4e-05 | 40 |
| HLA-A*02:06 | 1 | 899 | 908 | 10 | AMQMAYRFNG | 4.4e-05 | 55 |
| HLA-A*03:01 | 1 | 900 | 908 | 9 | MQMAYRFNG | 4.4e-05 | 39 |
| HLA-A*32:01 | 1 | 902 | 910 | 9 | MAYRFNGIG | 4.4e-05 | 34 |
| HLA-B*07:02 | 1 | 908 | 917 | 10 | GIGVTQNVLY | 4.4e-05 | 42 |
| HLA-A*23:01 | 1 | 922 | 931 | 10 | LIANQFNSAI | 4.4e-05 | 29 |
| HLA-B*53:01 | 1 | 927 | 935 | 9 | FNSAIGKIQ | 4.4e-05 | 31 |
| HLA-B*44:03 | 1 | 939 | 948 | 10 | SSTASALGKL | 4.4e-05 | 30 |
| HLA-B*57:01 | 1 | 944 | 953 | 10 | ALGKLQDVVN | 4.4e-05 | 61 |
| HLA-A*11:01 | 1 | 955 | 963 | 9 | NAQALNTLV | 4.4e-05 | 29 |
| HLA-B*08:01 | 1 | 960 | 969 | 10 | NTLVKQLSSN | 4.4e-05 | 61 |
| HLA-B*51:01 | 1 | 961 | 969 | 9 | TLVKQLSSN | 4.4e-05 | 54 |
| HLA-A*02:03 | 1 | 962 | 971 | 10 | LVKQLSSNFG | 4.4e-05 | 47 |
| HLA-B*53:01 | 1 | 962 | 971 | 10 | LVKQLSSNFG | 4.4e-05 | 31 |
| HLA-A*11:01 | 1 | 964 | 973 | 10 | KQLSSNFGAI | 4.4e-05 | 29 |
| HLA-A*24:02 | 1 | 967 | 976 | 10 | SSNFGAISSV | 4.4e-05 | 28 |
| HLA-A*30:02 | 1 | 969 | 978 | 10 | NFGAISSVLN | 4.4e-05 | 69 |
| HLA-B*44:02 | 1 | 971 | 980 | 10 | GAISSVLNDI | 4.4e-05 | 32 |
| HLA-B*51:01 | 1 | 981 | 990 | 10 | LSRLDKVEAE | 4.4e-05 | 54 |
| HLA-B*57:01 | 1 | 990 | 998 | 9 | EVQIDRLIT | 4.4e-05 | 61 |
| HLA-A*24:02 | 1 | 1001 | 1009 | 9 | LQSLQTYVT | 4.4e-05 | 28 |
| HLA-A*24:02 | 1 | 1007 | 1015 | 9 | YVTQQLIRA | 4.4e-05 | 28 |
| HLA-A*23:01 | 1 | 1011 | 1019 | 9 | QLIRAAEIR | 4.4e-05 | 29 |
| HLA-B*57:01 | 1 | 1012 | 1021 | 10 | LIRAAEIRAS | 4.4e-05 | 61 |
| HLA-B*15:01 | 1 | 1015 | 1023 | 9 | AAEIRASAN | 4.4e-05 | 45 |
| HLA-B*08:01 | 1 | 1027 | 1035 | 9 | TKMSECVLG | 4.4e-05 | 61 |
| HLA-B*07:02 | 1 | 1035 | 1043 | 9 | GQSKRVDFC | 4.4e-05 | 42 |
| HLA-B*51:01 | 1 | 1035 | 1043 | 9 | GQSKRVDFC | 4.4e-05 | 54 |
| HLA-A*26:01 | 1 | 1051 | 1059 | 9 | SFPQSAPHG | 4.4e-05 | 39 |
| HLA-B*53:01 | 1 | 1077 | 1085 | 9 | TAPAICHDG | 4.4e-05 | 31 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*68:02 | 1 | 1081 | 1090 | 10 | ICHDGKAHFP | 4.4e-05 | 47 |
| HLA-A*33:01 | 1 | 1082 | 1090 | 9 | CHDGKAHFP | 4.4e-05 | 48 |
| HLA-B*44:02 | 1 | 1092 | 1101 | 10 | EGVFSVNGTH | 4.4e-05 | 32 |
| HLA-A*32:01 | 1 | 1096 | 1105 | 10 | VSNGTHWFVT | 4.4e-05 | 34 |
| HLA-B*51:01 | 1 | 1105 | 1113 | 9 | TQRNFYEPQ | 4.4e-05 | 54 |
| HLA-A*02:03 | 1 | 1112 | 1121 | 10 | PQIITDNTF | 4.4e-05 | 47 |
| HLA-A*68:01 | 1 | 1117 | 1125 | 9 | TDNTFVSGN | 4.4e-05 | 40 |
| HLA-A*30:02 | 1 | 1119 | 1127 | 9 | NTFVSGNCD | 4.4e-05 | 69 |
| HLA-A*01:01 | 1 | 1127 | 1135 | 9 | DVVGIVNN | 4.4e-05 | 65 |
| HLA-B*08:01 | 1 | 1127 | 1135 | 9 | DVVGIVNN | 4.4e-05 | 61 |
| HLA-A*30:01 | 1 | 1130 | 1139 | 10 | IGIVNNTVYD | 4.4e-05 | 71 |
| HLA-A*68:02 | 1 | 1130 | 1138 | 9 | IGIVNNTVY | 4.4e-05 | 47 |
| HLA-A*31:01 | 1 | 1135 | 1143 | 9 | NTVYDPLQP | 4.4e-05 | 46 |
| HLA-A*68:01 | 1 | 1140 | 1148 | 9 | PLQPELDSF | 4.4e-05 | 40 |
| HLA-B*15:01 | 1 | 1165 | 1174 | 10 | DLGDISGINA | 4.4e-05 | 45 |
| HLA-B*07:02 | 1 | 1167 | 1175 | 9 | GDISGINAS | 4.4e-05 | 42 |
| HLA-A*30:01 | 1 | 1180 | 1188 | 9 | QKEIDRLNE | 4.4e-05 | 71 |
| HLA-A*68:01 | 1 | 1181 | 1190 | 10 | KEIDRLNEVA | 4.4e-05 | 40 |
| HLA-B*53:01 | 1 | 1181 | 1190 | 10 | KEIDRLNEVA | 4.4e-05 | 31 |
| HLA-A*31:01 | 1 | 1182 | 1190 | 9 | EIDRLNEVA | 4.4e-05 | 46 |
| HLA-A*30:02 | 1 | 1191 | 1199 | 9 | KNLNESLID | 4.4e-05 | 69 |
| HLA-B*57:01 | 1 | 1193 | 1201 | 9 | LNESLIDLQ | 4.4e-05 | 61 |
| HLA-B*58:01 | 1 | 1194 | 1202 | 9 | NESLIDLQE | 4.4e-05 | 49 |
| HLA-B*44:02 | 1 | 1200 | 1208 | 9 | LQELGKYEQ | 4.4e-05 | 32 |
| HLA-A*30:02 | 1 | 1210 | 1219 | 10 | IKWPWYIWL | 4.4e-05 | 69 |
| HLA-A*30:01 | 1 | 1232 | 1241 | 10 | IMLCCMTSCC | 4.4e-05 | 71 |
| HLA-A*30:01 | 1 | 1243 | 1252 | 10 | CLKGCCSCGS | 4.4e-05 | 71 |
| HLA-A*24:02 | 1 | 1247 | 1256 | 10 | CCSCGSCCKF | 4.4e-05 | 28 |
| HLA-A*03:01 | 1 | 1259 | 1268 | 10 | DDSEPVLKGV | 4.4e-05 | 39 |
| HLA-A*32:01 | 1 | 1 | 9 | 9 | MFVFLVLLP | 4.3e-05 | 34 |
| HLA-B*57:01 | 1 | 3 | 12 | 10 | VFLVLLPLVS | 4.3e-05 | 61 |
| HLA-A*03:01 | 1 | 11 | 20 | 10 | VSSQCVNLTT | 4.3e-05 | 39 |
| HLA-A*03:01 | 1 | 12 | 20 | 9 | SSQCVNLTT | 4.3e-05 | 39 |
| HLA-B*53:01 | 1 | 12 | 20 | 9 | SSQCVNLTT | 4.3e-05 | 32 |
| HLA-B*44:03 | 1 | 14 | 22 | 9 | QCVNLTRT | 4.3e-05 | 30 |
| HLA-B*35:01 | 1 | 22 | 31 | 10 | TQLPPAYTNS | 4.3e-05 | 33 |
| HLA-A*02:06 | 1 | 29 | 37 | 9 | TNSFTRGVY | 4.3e-05 | 55 |
| HLA-B*44:02 | 1 | 34 | 42 | 9 | RGVYYPDKV | 4.3e-05 | 32 |
| HLA-B*15:01 | 1 | 36 | 45 | 10 | VYYPDKVFRS | 4.3e-05 | 45 |
| HLA-B*44:03 | 1 | 44 | 52 | 9 | RSSVLHSTQ | 4.3e-05 | 30 |
| HLA-A*01:01 | 1 | 66 | 75 | 10 | HAIHVSNGTH | 4.3e-05 | 65 |
| HLA-B*44:03 | 1 | 68 | 77 | 10 | IHVSGTNGTK | 4.3e-05 | 30 |
| HLA-B*51:01 | 1 | 68 | 77 | 10 | IHVSGTNGTK | 4.3e-05 | 54 |
| HLA-B*44:02 | 1 | 69 | 78 | 10 | HVSGTNGTKR | 4.3e-05 | 32 |
| HLA-A*26:01 | 1 | 79 | 87 | 9 | FDNPVLPFN | 4.3e-05 | 39 |
| HLA-B*07:02 | 1 | 85 | 93 | 9 | PFNDGVYFA | 4.3e-05 | 43 |
| HLA-A*02:01 | 1 | 88 | 97 | 10 | DGVYFASTEK | 4.3e-05 | 44 |
| HLA-B*44:02 | 1 | 88 | 97 | 10 | DGVYFASTEK | 4.3e-05 | 32 |
| HLA-A*68:01 | 1 | 91 | 100 | 10 | YFASTEKSNI | 4.3e-05 | 41 |
| HLA-B*51:01 | 1 | 91 | 99 | 9 | YFASTEKSN | 4.3e-05 | 54 |
| HLA-A*31:01 | 1 | 99 | 108 | 10 | NIIRGWIFGT | 4.3e-05 | 46 |
| HLA-A*68:02 | 1 | 106 | 115 | 10 | FGTTLDSKTQ | 4.3e-05 | 47 |
| HLA-B*15:01 | 1 | 107 | 116 | 10 | GTTLDSKTQS | 4.3e-05 | 45 |
| HLA-B*51:01 | 1 | 113 | 121 | 9 | KTQSLLIIVN | 4.3e-05 | 54 |
| HLA-A*68:01 | 1 | 131 | 140 | 10 | CEFQFCNDPF | 4.3e-05 | 41 |
| HLA-B*08:01 | 1 | 133 | 142 | 10 | FQFCNDPFLG | 4.3e-05 | 62 |
| HLA-A*01:01 | 1 | 145 | 154 | 10 | YHKNNKSWME | 4.3e-05 | 65 |
| HLA-A*01:01 | 1 | 146 | 154 | 9 | HKNNKSWME | 4.3e-05 | 65 |
| HLA-B*51:01 | 1 | 149 | 158 | 10 | NKSWMESEFR | 4.3e-05 | 54 |
| HLA-A*68:01 | 1 | 159 | 167 | 9 | VYSSANNCT | 4.3e-05 | 41 |
| HLA-A*26:01 | 1 | 160 | 169 | 10 | YSSANNCTFE | 4.3e-05 | 39 |
| HLA-B*07:02 | 1 | 166 | 174 | 9 | CTFEYVSQP | 4.3e-05 | 43 |
| HLA-A*01:01 | 1 | 182 | 191 | 10 | KQGNFKNLRE | 4.3e-05 | 65 |
| HLA-B*58:01 | 1 | 188 | 197 | 10 | NLREFVFKNI | 4.3e-05 | 49 |
| HLA-A*02:01 | 1 | 197 | 206 | 10 | IDGYFKIYSK | 4.3e-05 | 44 |
| HLA-B*44:02 | 1 | 197 | 206 | 10 | IDGYFKIYSK | 4.3e-05 | 32 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-A*68:02 | 1 | 199 | 207 | 9 | GYFKIYSKH | 4.3e-05 | 47 |
| HLA-A*33:01 | 1 | 201 | 209 | 9 | FKIYSKHTP | 4.3e-05 | 49 |
| HLA-A*31:01 | 1 | 213 | 221 | 9 | VRDLPQGFS | 4.3e-05 | 46 |
| HLA-A*23:01 | 1 | 235 | 243 | 9 | ITRFQTLA | 4.3e-05 | 29 |
| HLA-A*31:01 | 1 | 241 | 250 | 10 | LLALHRSYLT | 4.3e-05 | 46 |
| HLA-A*33:01 | 1 | 241 | 250 | 10 | LLALHRSYLT | 4.3e-05 | 49 |
| HLA-B*51:01 | 1 | 244 | 252 | 9 | LHRSYLTGP | 4.3e-05 | 54 |
| HLA-A*03:01 | 1 | 284 | 292 | 9 | TITDAVDCA | 4.3e-05 | 39 |
| HLA-B*44:02 | 1 | 294 | 302 | 9 | DPLSEKCT | 4.3e-05 | 32 |
| HLA-B*58:01 | 1 | 302 | 311 | 10 | TLKSFTVEKG | 4.3e-05 | 49 |
| HLA-A*11:01 | 1 | 312 | 321 | 10 | IYQTSNFRVQ | 4.3e-05 | 29 |
| HLA-B*58:01 | 1 | 312 | 321 | 10 | IYQTSNFRVQ | 4.3e-05 | 49 |
| HLA-A*02:01 | 1 | 314 | 323 | 10 | QTSNFRVQPT | 4.3e-05 | 44 |
| HLA-A*30:02 | 1 | 324 | 333 | 10 | ESIVRFPNIT | 4.3e-05 | 70 |
| HLA-A*68:01 | 1 | 328 | 337 | 10 | RFPNITNLCP | 4.3e-05 | 41 |
| HLA-A*32:01 | 1 | 333 | 341 | 9 | TNLCPFGEV | 4.3e-05 | 34 |
| HLA-A*31:01 | 1 | 337 | 345 | 9 | PFGEVFNAT | 4.3e-05 | 46 |
| HLA-A*23:01 | 1 | 347 | 355 | 9 | FASVYAWNR | 4.3e-05 | 29 |
| HLA-B*51:01 | 1 | 352 | 361 | 10 | AWNKRKISNC | 4.3e-05 | 54 |
| HLA-B*57:01 | 1 | 353 | 362 | 10 | WNRKRISNCV | 4.3e-05 | 61 |
| HLA-A*03:01 | 1 | 355 | 363 | 9 | RKRISNCVA | 4.3e-05 | 39 |
| HLA-A*26:01 | 1 | 359 | 367 | 9 | SNCVADYSV | 4.3e-05 | 39 |
| HLA-A*23:01 | 1 | 366 | 375 | 10 | SVLYNSASFV | 4.3e-05 | 29 |
| HLA-B*15:01 | 1 | 368 | 376 | 9 | LYNSASFST | 4.3e-05 | 45 |
| HLA-A*31:01 | 1 | 381 | 389 | 9 | GVSPTKLND | 4.3e-05 | 46 |
| HLA-B*44:02 | 1 | 386 | 395 | 10 | KLNDLCFTNV | 4.3e-05 | 32 |
| HLA-A*23:01 | 1 | 393 | 401 | 9 | TNVYADSFV | 4.3e-05 | 29 |
| HLA-A*30:02 | 1 | 397 | 406 | 10 | ADSFVIRGDE | 4.3e-05 | 70 |
| HLA-B*44:02 | 1 | 413 | 422 | 10 | GQTGKIADYN | 4.3e-05 | 32 |
| HLA-B*44:02 | 1 | 417 | 426 | 10 | KIADYNYKLP | 4.3e-05 | 32 |
| HLA-A*33:01 | 1 | 418 | 426 | 9 | IADYNYKLP | 4.3e-05 | 49 |
| HLA-B*44:03 | 1 | 424 | 433 | 10 | KLPDDFTGCV | 4.3e-05 | 30 |
| HLA-A*02:01 | 1 | 427 | 435 | 9 | DDFTGCVIA | 4.3e-05 | 44 |
| HLA-A*01:01 | 1 | 433 | 442 | 10 | VIAWNSNLD | 4.3e-05 | 65 |
| HLA-B*40:01 | 1 | 440 | 449 | 10 | NLDSKVGNGY | 4.3e-05 | 27 |
| HLA-B*58:01 | 1 | 452 | 461 | 10 | LYRLFRRKSNL | 4.3e-05 | 49 |
| HLA-A*26:01 | 1 | 454 | 463 | 10 | RLFRKSNLKP | 4.3e-05 | 39 |
| HLA-B*15:01 | 1 | 461 | 470 | 10 | LKPFERDIST | 4.3e-05 | 45 |
| HLA-B*51:01 | 1 | 468 | 477 | 10 | ISTEIQAGS | 4.3e-05 | 54 |
| HLA-B*44:03 | 1 | 473 | 481 | 9 | YQAGSTPCN | 4.3e-05 | 30 |
| HLA-A*02:03 | 1 | 481 | 490 | 10 | NGVEGFNCYF | 4.3e-05 | 48 |
| HLA-A*11:01 | 1 | 484 | 492 | 9 | EGFNCYFPL | 4.3e-05 | 29 |
| HLA-B*08:01 | 1 | 484 | 493 | 10 | EGFNCYFPLQ | 4.3e-05 | 62 |
| HLA-A*02:03 | 1 | 488 | 496 | 9 | CYFPLQSYG | 4.3e-05 | 48 |
| HLA-B*57:01 | 1 | 490 | 498 | 9 | FPLQSYGFQ | 4.3e-05 | 61 |
| HLA-A*11:01 | 1 | 503 | 512 | 10 | VGYPYRVVV | 4.3e-05 | 29 |
| HLA-B*57:01 | 1 | 507 | 516 | 10 | PYRVVLSFE | 4.3e-05 | 61 |
| HLA-B*53:01 | 1 | 512 | 521 | 10 | VLSFELLHAP | 4.3e-05 | 32 |
| HLA-B*40:01 | 1 | 520 | 528 | 9 | APATVCGPK | 4.3e-05 | 27 |
| HLA-B*44:03 | 1 | 523 | 531 | 9 | TVCGPKKST | 4.3e-05 | 30 |
| HLA-B*15:01 | 1 | 529 | 538 | 10 | KSTNLVKNK | 4.3e-05 | 45 |
| HLA-A*01:01 | 1 | 539 | 548 | 10 | VNFNFNGLTG | 4.3e-05 | 65 |
| HLA-B*07:02 | 1 | 540 | 548 | 9 | NFNFNGLTG | 4.3e-05 | 43 |
| HLA-A*03:01 | 1 | 541 | 549 | 9 | FNFGTLTGT | 4.3e-05 | 39 |
| HLA-A*23:01 | 1 | 543 | 552 | 10 | FNGLTGTGVL | 4.3e-05 | 29 |
| HLA-A*24:02 | 1 | 543 | 552 | 10 | FNGLTGTGVL | 4.3e-05 | 28 |
| HLA-B*44:03 | 1 | 544 | 552 | 9 | NGLTGTGVL | 4.3e-05 | 30 |
| HLA-A*31:01 | 1 | 545 | 554 | 10 | GLTGTGVLTE | 4.3e-05 | 46 |
| HLA-B*07:02 | 1 | 546 | 554 | 9 | LTGTGVLTE | 4.3e-05 | 43 |
| HLA-B*53:01 | 1 | 553 | 561 | 9 | TESNKKFLP | 4.3e-05 | 32 |
| HLA-B*35:01 | 1 | 554 | 563 | 10 | ESNKKFLPFQ | 4.3e-05 | 33 |
| HLA-A*02:03 | 1 | 560 | 569 | 10 | LPFQQFGRDI | 4.3e-05 | 48 |
| HLA-A*24:02 | 1 | 564 | 573 | 10 | QFGRDIADTT | 4.3e-05 | 28 |
| HLA-B*07:02 | 1 | 566 | 575 | 10 | GRDIADTTDA | 4.3e-05 | 43 |
| HLA-A*26:01 | 1 | 572 | 581 | 10 | TTDAVRDPQT | 4.3e-05 | 39 |
| HLA-B*07:02 | 1 | 572 | 581 | 10 | TTDAVRDPQT | 4.3e-05 | 43 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*68:01 | 1 | 582 | 591 | 10 | LEILDITPCS | 4.3e-05 | 41 |
| HLA-B*57:01 | 1 | 582 | 591 | 10 | LEILDITPCS | 4.3e-05 | 61 |
| HLA-B*58:01 | 1 | 583 | 591 | 9 | EILDITPCS | 4.3e-05 | 49 |
| HLA-A*30:02 | 1 | 585 | 593 | 9 | LDITPCSF | 4.3e-05 | 70 |
| HLA-A*11:01 | 1 | 602 | 611 | 10 | TNTSNQVAVL | 4.3e-05 | 29 |
| HLA-A*23:01 | 1 | 606 | 615 | 10 | NQVAVLYQDV | 4.3e-05 | 29 |
| HLA-A*31:01 | 1 | 615 | 623 | 9 | VNCTEVPVA | 4.3e-05 | 46 |
| HLA-B*35:01 | 1 | 638 | 647 | 10 | TGSNVFQTRA | 4.3e-05 | 33 |
| HLA-A*31:01 | 1 | 646 | 654 | 9 | RAGCLIGAE | 4.3e-05 | 46 |
| HLA-B*15:01 | 1 | 648 | 656 | 9 | GCLIGAEHV | 4.3e-05 | 45 |
| HLA-B*53:01 | 1 | 655 | 664 | 10 | HVNNSYECDI | 4.3e-05 | 32 |
| HLA-B*08:01 | 1 | 660 | 669 | 10 | YECDIPIGAG | 4.3e-05 | 62 |
| HLA-A*32:01 | 1 | 661 | 670 | 10 | ECDIPIGAGI | 4.3e-05 | 34 |
| HLA-B*58:01 | 1 | 669 | 678 | 10 | GICASYQTQT | 4.3e-05 | 49 |
| HLA-A*24:02 | 1 | 676 | 684 | 9 | TQTNSPRRA | 4.3e-05 | 28 |
| HLA-A*02:01 | 1 | 678 | 687 | 10 | TNSPRRARSV | 4.3e-05 | 44 |
| HLA-A*24:02 | 1 | 678 | 687 | 10 | TNSPRRARSV | 4.3e-05 | 28 |
| HLA-B*44:03 | 1 | 678 | 687 | 10 | TNSPRRARSV | 4.3e-05 | 30 |
| HLA-B*15:01 | 1 | 679 | 688 | 10 | NSPRRARSVA | 4.3e-05 | 45 |
| HLA-A*26:01 | 1 | 682 | 691 | 10 | RRARSVASQS | 4.3e-05 | 39 |
| HLA-A*03:01 | 1 | 684 | 693 | 10 | ARSVASQSII | 4.3e-05 | 39 |
| HLA-A*03:01 | 1 | 692 | 700 | 9 | IIAYTMSLG | 4.3e-05 | 39 |
| HLA-A*11:01 | 1 | 692 | 701 | 10 | IIAYTMSLGA | 4.3e-05 | 29 |
| HLA-A*03:01 | 1 | 694 | 703 | 10 | AYTMSLGAEN | 4.3e-05 | 39 |
| HLA-B*08:01 | 1 | 694 | 702 | 9 | AYTMSLGAE | 4.3e-05 | 62 |
| HLA-A*03:01 | 1 | 696 | 705 | 10 | TMSLGAENSV | 4.3e-05 | 39 |
| HLA-A*31:01 | 1 | 697 | 706 | 10 | MSLGAENSVA | 4.3e-05 | 46 |
| HLA-B*35:01 | 1 | 698 | 706 | 9 | SLGAENSVA | 4.3e-05 | 33 |
| HLA-A*33:01 | 1 | 707 | 715 | 9 | YSNNSIAIP | 4.3e-05 | 49 |
| HLA-B*15:01 | 1 | 708 | 716 | 9 | SNNSIAIPT | 4.3e-05 | 45 |
| HLA-B*40:01 | 1 | 713 | 722 | 10 | AIPTNFTISV | 4.3e-05 | 27 |
| HLA-A*03:01 | 1 | 728 | 736 | 9 | PVSMTKTSV | 4.3e-05 | 39 |
| HLA-B*35:01 | 1 | 735 | 743 | 9 | SVDCTMYIC | 4.3e-05 | 33 |
| HLA-A*68:01 | 1 | 741 | 749 | 9 | YICGDSTEC | 4.3e-05 | 41 |
| HLA-A*30:01 | 1 | 743 | 751 | 9 | CGDSTECSN | 4.3e-05 | 72 |
| HLA-A*33:01 | 1 | 763 | 772 | 10 | LNRLTGIIV | 4.3e-05 | 49 |
| HLA-A*02:06 | 1 | 764 | 773 | 10 | NRALTGIAVE | 4.3e-05 | 55 |
| HLA-A*01:01 | 1 | 769 | 778 | 10 | GIAVEQDKNT | 4.3e-05 | 65 |
| HLA-B*57:01 | 1 | 772 | 780 | 9 | VEQDKNTQE | 4.3e-05 | 61 |
| HLA-B*07:02 | 1 | 779 | 787 | 9 | QEVFAQVKQ | 4.3e-05 | 43 |
| HLA-A*68:02 | 1 | 794 | 803 | 10 | IKDFGGFNFS | 4.3e-05 | 47 |
| HLA-A*11:01 | 1 | 810 | 818 | 9 | SKPSKRFSI | 4.3e-05 | 29 |
| HLA-B*53:01 | 1 | 811 | 820 | 10 | KPSKRFSIED | 4.3e-05 | 32 |
| HLA-A*33:01 | 1 | 821 | 830 | 10 | LLFNKVTLAD | 4.3e-05 | 49 |
| HLA-B*08:01 | 1 | 842 | 851 | 10 | GDIAARDLIC | 4.3e-05 | 62 |
| HLA-A*11:01 | 1 | 844 | 853 | 10 | IAARDLICAQ | 4.3e-05 | 29 |
| HLA-B*53:01 | 1 | 845 | 854 | 10 | AARDLICAQK | 4.3e-05 | 32 |
| HLA-A*32:01 | 1 | 855 | 864 | 10 | FNGLTVLPPL | 4.3e-05 | 34 |
| HLA-B*07:02 | 1 | 860 | 868 | 9 | VLPLLTTDE | 4.3e-05 | 43 |
| HLA-A*68:02 | 1 | 864 | 872 | 9 | LLTDEMIAQ | 4.3e-05 | 47 |
| HLA-A*01:01 | 1 | 871 | 880 | 10 | AQYTSALLAG | 4.3e-05 | 65 |
| HLA-A*02:03 | 1 | 880 | 889 | 10 | GTITSGWTFG | 4.3e-05 | 48 |
| HLA-B*08:01 | 1 | 883 | 892 | 10 | TSGWTFGAGA | 4.3e-05 | 62 |
| HLA-A*23:01 | 1 | 885 | 893 | 9 | GWTFGAGAA | 4.3e-05 | 29 |
| HLA-A*26:01 | 1 | 887 | 895 | 9 | TFGAGAALQ | 4.3e-05 | 39 |
| HLA-A*11:01 | 1 | 900 | 908 | 9 | MQMAYRFNG | 4.3e-05 | 29 |
| HLA-A*03:01 | 1 | 903 | 912 | 10 | AYRFNGIGVT | 4.3e-05 | 39 |
| HLA-B*35:01 | 1 | 903 | 911 | 9 | AYRFNGIGV | 4.3e-05 | 33 |
| HLA-B*08:01 | 1 | 908 | 917 | 10 | GIGVTQNVLY | 4.3e-05 | 62 |
| HLA-B*53:01 | 1 | 916 | 924 | 9 | LYENQKLIA | 4.3e-05 | 32 |
| HLA-B*40:01 | 1 | 922 | 930 | 9 | LIANQFNFA | 4.3e-05 | 27 |
| HLA-A*32:01 | 1 | 937 | 946 | 10 | SLSSTASALG | 4.3e-05 | 34 |
| HLA-A*68:02 | 1 | 958 | 967 | 10 | ALNTLVKQLS | 4.3e-05 | 47 |
| HLA-A*33:01 | 1 | 966 | 974 | 9 | LSSNFGAIS | 4.3e-05 | 49 |
| HLA-A*68:02 | 1 | 971 | 979 | 9 | GAISSVLND | 4.3e-05 | 47 |
| HLA-B*35:01 | 1 | 972 | 981 | 10 | AISSVLNDIL | 4.3e-05 | 33 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-B*57:01 | 1 | 993 | 1002 | 10 | IDRLITGRLQ | 4.3e-05 | 61 |
| HLA-B*35:01 | 1 | 999 | 1008 | 10 | GRLQSLQTYV | 4.3e-05 | 33 |
| HLA-A*02:03 | 1 | 1001 | 1010 | 10 | LQSLQTYVTTQ | 4.3e-05 | 48 |
| HLA-B*51:01 | 1 | 1002 | 1011 | 10 | QSLQTYVTQQ | 4.3e-05 | 54 |
| HLA-A*24:02 | 1 | 1020 | 1028 | 9 | ASANLAATK | 4.3e-05 | 28 |
| HLA-A*33:01 | 1 | 1022 | 1031 | 10 | ANLAATKMSE | 4.3e-05 | 49 |
| HLA-A*24:02 | 1 | 1025 | 1033 | 9 | AATKMSECV | 4.3e-05 | 28 |
| HLA-A*32:01 | 1 | 1026 | 1035 | 10 | ATKMSECVLG | 4.3e-05 | 34 |
| HLA-B*44:02 | 1 | 1027 | 1035 | 9 | TKMSECVLG | 4.3e-05 | 32 |
| HLA-B*44:03 | 1 | 1027 | 1035 | 9 | TKMSECVLG | 4.3e-05 | 30 |
| HLA-B*51:01 | 1 | 1029 | 1037 | 9 | MSECVLGQS | 4.3e-05 | 54 |
| HLA-B*08:01 | 1 | 1035 | 1044 | 10 | GQSKRVDFCG | 4.3e-05 | 62 |
| HLA-B*51:01 | 1 | 1042 | 1051 | 10 | FCGKGYHLMS | 4.3e-05 | 54 |
| HLA-B*08:01 | 1 | 1045 | 1053 | 9 | KGYHLMSFP | 4.3e-05 | 62 |
| HLA-B*53:01 | 1 | 1048 | 1057 | 10 | HLMSFPQSAP | 4.3e-05 | 32 |
| HLA-A*02:03 | 1 | 1074 | 1082 | 9 | NFTTAPAIC | 4.3e-05 | 48 |
| HLA-A*30:02 | 1 | 1077 | 1085 | 9 | TAPAICHDG | 4.3e-05 | 70 |
| HLA-B*57:01 | 1 | 1083 | 1092 | 10 | HDGKAHFPRE | 4.3e-05 | 61 |
| HLA-B*07:02 | 1 | 1084 | 1092 | 9 | DGKAHFPRE | 4.3e-05 | 43 |
| HLA-A*02:03 | 1 | 1092 | 1100 | 9 | EGVFSVNGT | 4.3e-05 | 48 |
| HLA-B*15:01 | 1 | 1098 | 1107 | 10 | NGTHWFVTQR | 4.3e-05 | 45 |
| HLA-A*03:01 | 1 | 1100 | 1108 | 9 | THWFVTQRN | 4.3e-05 | 39 |
| HLA-B*07:02 | 1 | 1104 | 1112 | 9 | VTQRNFYEP | 4.3e-05 | 43 |
| HLA-B*44:02 | 1 | 1108 | 1117 | 10 | NFYEQIITT | 4.3e-05 | 32 |
| HLA-A*23:01 | 1 | 1123 | 1132 | 10 | SGNCDVVIGI | 4.3e-05 | 29 |
| HLA-A*11:01 | 1 | 1129 | 1137 | 9 | VIGIVNNTV | 4.3e-05 | 29 |
| HLA-B*44:03 | 1 | 1129 | 1137 | 9 | VIGIVNNTV | 4.3e-05 | 30 |
| HLA-B*07:02 | 1 | 1141 | 1149 | 9 | LQPELDSFK | 4.3e-05 | 43 |
| HLA-B*57:01 | 1 | 1142 | 1150 | 9 | QPELDSFK | 4.3e-05 | 61 |
| HLA-A*02:06 | 1 | 1148 | 1157 | 10 | FKEELDKYFK | 4.3e-05 | 55 |
| HLA-B*35:01 | 1 | 1153 | 1162 | 10 | DKYFKNHTSP | 4.3e-05 | 33 |
| HLA-A*02:01 | 1 | 1167 | 1175 | 9 | GDISGINAS | 4.3e-05 | 44 |
| HLA-A*02:01 | 1 | 1172 | 1181 | 10 | INASVVNIQK | 4.3e-05 | 44 |
| HLA-A*01:01 | 1 | 1187 | 1195 | 9 | NEVAKNLNE | 4.3e-05 | 65 |
| HLA-A*31:01 | 1 | 1189 | 1198 | 10 | VAKNLNESLI | 4.3e-05 | 46 |
| HLA-B*44:03 | 1 | 1191 | 1200 | 10 | KNLNESLIDL | 4.3e-05 | 30 |
| HLA-A*33:01 | 1 | 1193 | 1201 | 9 | LNESLIDLQ | 4.3e-05 | 49 |
| HLA-A*33:01 | 1 | 1195 | 1204 | 10 | ESLIDLQELG | 4.3e-05 | 49 |
| HLA-B*51:01 | 1 | 1204 | 1213 | 10 | GKYEQYIKWP | 4.3e-05 | 54 |
| HLA-A*11:01 | 1 | 1205 | 1214 | 10 | KYEQYIKWP | 4.3e-05 | 29 |
| HLA-A*30:01 | 1 | 1212 | 1220 | 9 | WPWYIWLGF | 4.3e-05 | 72 |
| HLA-A*02:06 | 1 | 1213 | 1221 | 9 | PWYIWLGFI | 4.3e-05 | 55 |
| HLA-A*02:01 | 1 | 1214 | 1222 | 9 | WYIWLGFIA | 4.3e-05 | 44 |
| HLA-A*68:01 | 1 | 1214 | 1222 | 9 | WYIWLGFIA | 4.3e-05 | 41 |
| HLA-B*58:01 | 1 | 1219 | 1228 | 10 | GFIAGLIAIV | 4.3e-05 | 49 |
| HLA-A*01:01 | 1 | 1228 | 1236 | 9 | VMVTIMLCC | 4.3e-05 | 65 |
| HLA-A*02:01 | 1 | 1235 | 1243 | 9 | CCMTSCCSC | 4.3e-05 | 44 |
| HLA-A*32:01 | 1 | 1236 | 1244 | 9 | CMTSCCSC | 4.3e-05 | 34 |
| HLA-A*23:01 | 1 | 1263 | 1271 | 9 | PVLKGVKLH | 4.3e-05 | 29 |
| HLA-A*24:02 | 1 | 3 | 12 | 10 | VFLVLLPLVS | 4.2e-05 | 28 |
| HLA-B*53:01 | 1 | 13 | 22 | 10 | SQCVNLTTTR | 4.2e-05 | 32 |
| HLA-A*68:02 | 1 | 25 | 33 | 9 | PPAYTNSFT | 4.2e-05 | 47 |
| HLA-B*44:02 | 1 | 27 | 35 | 9 | AYTNSFTRG | 4.2e-05 | 33 |
| HLA-B*07:02 | 1 | 30 | 39 | 10 | NSFTRGVYYP | 4.2e-05 | 43 |
| HLA-A*33:01 | 1 | 33 | 42 | 10 | TRGVYYPDKV | 4.2e-05 | 49 |
| HLA-A*32:01 | 1 | 57 | 66 | 10 | PFFSNVTWFH | 4.2e-05 | 35 |
| HLA-B*51:01 | 1 | 63 | 72 | 10 | TWFHAIHVSG | 4.2e-05 | 55 |
| HLA-B*07:02 | 1 | 66 | 75 | 10 | HAIHVSGTNG | 4.2e-05 | 43 |
| HLA-B*58:01 | 1 | 67 | 76 | 10 | AIHVSGTNGT | 4.2e-05 | 49 |
| HLA-B*40:01 | 1 | 69 | 77 | 9 | HVSGTNGTK | 4.2e-05 | 27 |
| HLA-B*15:01 | 1 | 76 | 85 | 10 | TKRFDNPVLP | 4.2e-05 | 45 |
| HLA-A*01:01 | 1 | 87 | 95 | 9 | NDGVYFAST | 4.2e-05 | 66 |
| HLA-A*02:03 | 1 | 93 | 102 | 10 | ASTEKSNIIR | 4.2e-05 | 48 |
| HLA-A*32:01 | 1 | 94 | 103 | 10 | STEKSNIIRG | 4.2e-05 | 35 |
| HLA-A*68:02 | 1 | 114 | 122 | 9 | TQSLILVNN | 4.2e-05 | 47 |
| HLA-A*23:01 | 1 | 118 | 126 | 9 | LIVNNATNV | 4.2e-05 | 29 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*24:02 | 1 | 118 | 126 | 9 | LIVNNATNV | 4.2e-05 | 28 |
| HLA-B*40:01 | 1 | 137 | 146 | 10 | NDPFLGVYYH | 4.2e-05 | 27 |
| HLA-B*44:02 | 1 | 138 | 147 | 10 | DPFLGVYYHK | 4.2e-05 | 33 |
| HLA-B*15:01 | 1 | 147 | 155 | 9 | KNNKSWMES | 4.2e-05 | 45 |
| HLA-A*03:01 | 1 | 148 | 156 | 9 | NNKSWMESE | 4.2e-05 | 39 |
| HLA-A*11:01 | 1 | 170 | 178 | 9 | YVSQPFLMD | 4.2e-05 | 29 |
| HLA-A*02:01 | 1 | 174 | 183 | 10 | PFLMDLEGKQ | 4.2e-05 | 45 |
| HLA-B*07:02 | 1 | 179 | 187 | 9 | LEGKQGNFK | 4.2e-05 | 43 |
| HLA-A*02:06 | 1 | 183 | 191 | 9 | QGNFKNLRE | 4.2e-05 | 56 |
| HLA-A*02:03 | 1 | 187 | 196 | 10 | KNLREFVFKN | 4.2e-05 | 48 |
| HLA-B*44:02 | 1 | 187 | 195 | 9 | KNLREFVFK | 4.2e-05 | 33 |
| HLA-B*44:03 | 1 | 188 | 197 | 10 | NLREFVFKNI | 4.2e-05 | 31 |
| HLA-B*15:01 | 1 | 189 | 197 | 9 | LREFVFKNI | 4.2e-05 | 45 |
| HLA-A*23:01 | 1 | 197 | 206 | 10 | IDGYFKIYSK | 4.2e-05 | 29 |
| HLA-A*02:03 | 1 | 199 | 208 | 10 | GYFKIYSKHT | 4.2e-05 | 48 |
| HLA-B*57:01 | 1 | 216 | 225 | 10 | LPQGFSALEP | 4.2e-05 | 61 |
| HLA-A*31:01 | 1 | 245 | 253 | 9 | HRSYLTPGD | 4.2e-05 | 47 |
| HLA-A*68:02 | 1 | 246 | 254 | 9 | RSYLTPGDS | 4.2e-05 | 47 |
| HLA-B*35:01 | 1 | 246 | 255 | 10 | RSYLTPGDSS | 4.2e-05 | 33 |
| HLA-B*51:01 | 1 | 247 | 256 | 10 | SYLTPGDSSS | 4.2e-05 | 55 |
| HLA-A*23:01 | 1 | 252 | 260 | 9 | GDSSSGWTA | 4.2e-05 | 29 |
| HLA-B*44:02 | 1 | 264 | 273 | 10 | AYYVGYLQPR | 4.2e-05 | 33 |
| HLA-A*03:01 | 1 | 266 | 274 | 9 | YVGYLQPR | 4.2e-05 | 39 |
| HLA-A*03:01 | 1 | 276 | 285 | 10 | LLKYNENGTI | 4.2e-05 | 39 |
| HLA-B*35:01 | 1 | 279 | 287 | 9 | YNENGTITD | 4.2e-05 | 33 |
| HLA-A*31:01 | 1 | 281 | 289 | 9 | ENGTITDAV | 4.2e-05 | 47 |
| HLA-A*02:01 | 1 | 301 | 309 | 9 | CTLKSFTVE | 4.2e-05 | 45 |
| HLA-A*02:01 | 1 | 321 | 330 | 10 | QPTESIVRFP | 4.2e-05 | 45 |
| HLA-A*31:01 | 1 | 321 | 330 | 10 | QPTESIVRFP | 4.2e-05 | 47 |
| HLA-A*02:03 | 1 | 346 | 355 | 10 | RFASVYAWNR | 4.2e-05 | 48 |
| HLA-A*02:01 | 1 | 361 | 370 | 10 | CVADYSVLYN | 4.2e-05 | 45 |
| HLA-A*30:02 | 1 | 364 | 373 | 10 | DYSVLVNSAS | 4.2e-05 | 70 |
| HLA-A*26:01 | 1 | 367 | 376 | 10 | VLVNSASFST | 4.2e-05 | 40 |
| HLA-B*57:01 | 1 | 379 | 388 | 10 | CYGVSPTKLN | 4.2e-05 | 61 |
| HLA-B*08:01 | 1 | 386 | 394 | 9 | KLNDLCFTN | 4.2e-05 | 62 |
| HLA-A*31:01 | 1 | 387 | 395 | 9 | LNDLCFTNV | 4.2e-05 | 47 |
| HLA-B*35:01 | 1 | 398 | 406 | 9 | DSFVIRGDE | 4.2e-05 | 33 |
| HLA-A*24:02 | 1 | 417 | 426 | 10 | KIADYNYKLP | 4.2e-05 | 28 |
| HLA-A*68:01 | 1 | 424 | 432 | 9 | KLPDDFTGC | 4.2e-05 | 41 |
| HLA-A*02:03 | 1 | 425 | 434 | 10 | LPDDFTGCVI | 4.2e-05 | 48 |
| HLA-A*23:01 | 1 | 428 | 437 | 10 | DFTGCVIAWN | 4.2e-05 | 29 |
| HLA-A*31:01 | 1 | 430 | 438 | 9 | TGCVIAWNS | 4.2e-05 | 47 |
| HLA-A*68:02 | 1 | 432 | 440 | 9 | CVIAWNSNN | 4.2e-05 | 47 |
| HLA-A*26:01 | 1 | 436 | 445 | 10 | WNSNNLDSKV | 4.2e-05 | 40 |
| HLA-A*02:06 | 1 | 449 | 458 | 10 | YNYLYRFRK | 4.2e-05 | 56 |
| HLA-B*44:03 | 1 | 453 | 462 | 10 | YRFRKSNLK | 4.2e-05 | 31 |
| HLA-A*02:03 | 1 | 455 | 464 | 10 | LFRKSNLKP | 4.2e-05 | 48 |
| HLA-B*40:01 | 1 | 458 | 466 | 9 | KSNLKPFR | 4.2e-05 | 27 |
| HLA-A*68:02 | 1 | 466 | 474 | 9 | RDISTEIQ | 4.2e-05 | 47 |
| HLA-A*02:03 | 1 | 467 | 476 | 10 | DISTEIQAG | 4.2e-05 | 48 |
| HLA-A*33:01 | 1 | 470 | 479 | 10 | TEIQAGSTP | 4.2e-05 | 49 |
| HLA-B*57:01 | 1 | 478 | 487 | 10 | TPCNGVEGFN | 4.2e-05 | 61 |
| HLA-A*02:01 | 1 | 481 | 490 | 10 | NGVEGFNCYF | 4.2e-05 | 45 |
| HLA-B*53:01 | 1 | 488 | 496 | 9 | CYFPLQSYG | 4.2e-05 | 32 |
| HLA-A*68:02 | 1 | 489 | 498 | 10 | YFPLQSYGFQ | 4.2e-05 | 47 |
| HLA-B*53:01 | 1 | 492 | 500 | 9 | LQSYGFQPT | 4.2e-05 | 32 |
| HLA-B*15:01 | 1 | 493 | 502 | 10 | QSYGFQPTNG | 4.2e-05 | 45 |
| HLA-B*44:02 | 1 | 502 | 511 | 10 | GVGYQPYRVV | 4.2e-05 | 33 |
| HLA-B*40:01 | 1 | 513 | 522 | 10 | LSFELLHAPA | 4.2e-05 | 27 |
| HLA-B*08:01 | 1 | 527 | 535 | 9 | PKKSTNLVK | 4.2e-05 | 62 |
| HLA-A*24:02 | 1 | 529 | 537 | 9 | KSTNLVKNK | 4.2e-05 | 28 |
| HLA-B*07:02 | 1 | 529 | 537 | 9 | KSTNLVKNK | 4.2e-05 | 43 |
| HLA-B*15:01 | 1 | 532 | 540 | 9 | NLVKNKCVN | 4.2e-05 | 45 |
| HLA-A*26:01 | 1 | 533 | 542 | 10 | LVKNKCVNFN | 4.2e-05 | 40 |
| HLA-B*57:01 | 1 | 538 | 547 | 10 | CVNFNFNGLT | 4.2e-05 | 61 |
| HLA-A*02:03 | 1 | 541 | 550 | 10 | FNFNGLTGTG | 4.2e-05 | 48 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-B*08:01 | 1 | 541 | 550 | 10 | FNFNGLTGTG | 4.2e-05 | 62 |
| HLA-A*26:01 | 1 | 546 | 554 | 9 | LTGTGVLTE | 4.2e-05 | 40 |
| HLA-B*57:01 | 1 | 565 | 574 | 10 | FRDIADTTD | 4.2e-05 | 61 |
| HLA-A*02:03 | 1 | 571 | 579 | 9 | DTTDAVRDP | 4.2e-05 | 48 |
| HLA-A*02:06 | 1 | 573 | 581 | 9 | TDAVRDPQT | 4.2e-05 | 56 |
| HLA-A*32:01 | 1 | 579 | 587 | 9 | PQTLEILDI | 4.2e-05 | 35 |
| HLA-B*15:01 | 1 | 580 | 589 | 10 | QTLEILDITP | 4.2e-05 | 45 |
| HLA-B*53:01 | 1 | 586 | 594 | 9 | DITPCSFVG | 4.2e-05 | 32 |
| HLA-B*07:02 | 1 | 587 | 595 | 9 | ITPCSFGGV | 4.2e-05 | 43 |
| HLA-A*30:02 | 1 | 588 | 596 | 9 | TPCSFGGVS | 4.2e-05 | 70 |
| HLA-B*53:01 | 1 | 589 | 598 | 10 | PCSFGGVSVI | 4.2e-05 | 32 |
| HLA-A*32:01 | 1 | 591 | 599 | 9 | SFGGVSVIT | 4.2e-05 | 35 |
| HLA-B*44:03 | 1 | 599 | 608 | 10 | TPGTNTSNQV | 4.2e-05 | 31 |
| HLA-B*44:02 | 1 | 605 | 613 | 9 | SNQVAVLYQ | 4.2e-05 | 33 |
| HLA-B*44:03 | 1 | 605 | 613 | 9 | SNQVAVLYQ | 4.2e-05 | 31 |
| HLA-B*15:01 | 1 | 611 | 619 | 9 | LYQDVNCTE | 4.2e-05 | 45 |
| HLA-B*44:02 | 1 | 613 | 622 | 10 | QDVNCTEVPV | 4.2e-05 | 33 |
| HLA-B*40:01 | 1 | 622 | 630 | 9 | VAIHADQLT | 4.2e-05 | 27 |
| HLA-B*53:01 | 1 | 624 | 632 | 9 | IHADQLTPT | 4.2e-05 | 32 |
| HLA-B*57:01 | 1 | 626 | 634 | 9 | ADQLTPTWR | 4.2e-05 | 61 |
| HLA-A*01:01 | 1 | 631 | 640 | 10 | PTWRVYSTGS | 4.2e-05 | 66 |
| HLA-B*07:02 | 1 | 635 | 644 | 10 | VYSTGSNVFQ | 4.2e-05 | 43 |
| HLA-A*26:01 | 1 | 636 | 645 | 10 | YSTGSNVFQT | 4.2e-05 | 40 |
| HLA-A*31:01 | 1 | 636 | 645 | 10 | YSTGSNVFQT | 4.2e-05 | 47 |
| HLA-A*02:03 | 1 | 644 | 652 | 9 | QTRAGCLIG | 4.2e-05 | 48 |
| HLA-B*58:01 | 1 | 648 | 657 | 10 | GCLIGAHEVHN | 4.2e-05 | 49 |
| HLA-A*30:01 | 1 | 656 | 665 | 10 | VNNSYECDIP | 4.2e-05 | 72 |
| HLA-A*02:03 | 1 | 665 | 674 | 10 | PIGAGICASY | 4.2e-05 | 48 |
| HLA-A*03:01 | 1 | 679 | 687 | 9 | NSPRRARSV | 4.2e-05 | 39 |
| HLA-B*58:01 | 1 | 680 | 688 | 9 | SPRRARSVA | 4.2e-05 | 49 |
| HLA-B*08:01 | 1 | 681 | 690 | 10 | PRRARSVASQ | 4.2e-05 | 62 |
| HLA-A*01:01 | 1 | 682 | 691 | 10 | RRARSVASQS | 4.2e-05 | 66 |
| HLA-B*51:01 | 1 | 689 | 698 | 10 | SQSIIAYTMS | 4.2e-05 | 55 |
| HLA-A*31:01 | 1 | 693 | 702 | 10 | IAYTMSLGAE | 4.2e-05 | 47 |
| HLA-A*33:01 | 1 | 693 | 702 | 10 | IAYTMSLGAE | 4.2e-05 | 49 |
| HLA-A*68:01 | 1 | 696 | 704 | 9 | TMSLGAENS | 4.2e-05 | 41 |
| HLA-B*57:01 | 1 | 702 | 711 | 10 | ENSVAYSNNS | 4.2e-05 | 61 |
| HLA-B*07:02 | 1 | 706 | 715 | 10 | AYSNNSIAIP | 4.2e-05 | 43 |
| HLA-B*15:01 | 1 | 706 | 715 | 10 | AYSNNSIAIP | 4.2e-05 | 45 |
| HLA-B*44:02 | 1 | 711 | 719 | 9 | SIAIPTNFT | 4.2e-05 | 33 |
| HLA-A*33:01 | 1 | 715 | 724 | 10 | PTNFTISVTT | 4.2e-05 | 49 |
| HLA-A*33:01 | 1 | 721 | 730 | 10 | SVTTEILPVS | 4.2e-05 | 49 |
| HLA-A*24:02 | 1 | 728 | 736 | 9 | PVSMTKTSV | 4.2e-05 | 28 |
| HLA-A*24:02 | 1 | 732 | 740 | 9 | TKTSVDCTM | 4.2e-05 | 28 |
| HLA-A*68:02 | 1 | 737 | 746 | 10 | DCTMYICGDS | 4.2e-05 | 47 |
| HLA-A*31:01 | 1 | 739 | 747 | 9 | TMYICGDST | 4.2e-05 | 47 |
| HLA-B*58:01 | 1 | 742 | 751 | 10 | ICGDSTECSN | 4.2e-05 | 49 |
| HLA-A*23:01 | 1 | 744 | 753 | 10 | GDSTECSNLL | 4.2e-05 | 29 |
| HLA-A*32:01 | 1 | 744 | 753 | 10 | GDSTECSNLL | 4.2e-05 | 35 |
| HLA-A*23:01 | 1 | 754 | 762 | 9 | LQYGSFCTQ | 4.2e-05 | 29 |
| HLA-A*02:01 | 1 | 759 | 768 | 10 | FCTQLNRALT | 4.2e-05 | 45 |
| HLA-A*01:01 | 1 | 763 | 771 | 9 | LNRLTGIA | 4.2e-05 | 66 |
| HLA-A*32:01 | 1 | 763 | 772 | 10 | LNRLTGIAV | 4.2e-05 | 35 |
| HLA-A*02:03 | 1 | 774 | 782 | 9 | QDKNTQEVF | 4.2e-05 | 48 |
| HLA-A*26:01 | 1 | 782 | 791 | 10 | FAQVKQIYKT | 4.2e-05 | 40 |
| HLA-A*24:02 | 1 | 784 | 792 | 9 | QVKQIYKTP | 4.2e-05 | 28 |
| HLA-B*58:01 | 1 | 788 | 796 | 9 | IYKTPPIKD | 4.2e-05 | 49 |
| HLA-B*44:03 | 1 | 796 | 804 | 9 | DFGGFNFSQ | 4.2e-05 | 31 |
| HLA-B*57:01 | 1 | 805 | 813 | 9 | ILPDPSKPS | 4.2e-05 | 61 |
| HLA-B*07:02 | 1 | 827 | 836 | 10 | TLADAGFIKQ | 4.2e-05 | 43 |
| HLA-B*44:03 | 1 | 828 | 836 | 9 | LADAGFIKQ | 4.2e-05 | 31 |
| HLA-A*30:02 | 1 | 833 | 842 | 10 | FIKQYGDCLG | 4.2e-05 | 70 |
| HLA-A*68:02 | 1 | 837 | 845 | 9 | YGDCLGDIA | 4.2e-05 | 47 |
| HLA-A*03:01 | 1 | 844 | 852 | 9 | IAARDLICA | 4.2e-05 | 39 |
| HLA-A*32:01 | 1 | 854 | 863 | 10 | KFNGLTVLPP | 4.2e-05 | 35 |
| HLA-A*33:01 | 1 | 854 | 863 | 10 | KFNGLTVLPP | 4.2e-05 | 49 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*02:03 | 1 | 862 | 871 | 10 | PPLLTDEMLIA | 4.2e-05 | 48 |
| HLA-A*33:01 | 1 | 866 | 874 | 9 | TDEMLIAQYT | 4.2e-05 | 49 |
| HLA-A*11:01 | 1 | 869 | 878 | 10 | MIAQYTSALL | 4.2e-05 | 29 |
| HLA-A*31:01 | 1 | 877 | 885 | 9 | LLAGTITSG | 4.2e-05 | 47 |
| HLA-B*44:02 | 1 | 884 | 892 | 9 | SGWTFGAGA | 4.2e-05 | 33 |
| HLA-A*11:01 | 1 | 902 | 911 | 10 | MAYRFNGIGV | 4.2e-05 | 29 |
| HLA-B*15:01 | 1 | 903 | 912 | 10 | AYRFNGIGVT | 4.2e-05 | 45 |
| HLA-A*02:01 | 1 | 909 | 918 | 10 | IGVTQNVLYE | 4.2e-05 | 45 |
| HLA-A*03:01 | 1 | 917 | 926 | 10 | YENQKLIANQ | 4.2e-05 | 39 |
| HLA-A*33:01 | 1 | 919 | 928 | 10 | NQKLIANQFN | 4.2e-05 | 49 |
| HLA-A*01:01 | 1 | 926 | 935 | 10 | QFNSAIGKIQ | 4.2e-05 | 66 |
| HLA-A*68:02 | 1 | 927 | 935 | 9 | FNSAIGKIQ | 4.2e-05 | 47 |
| HLA-B*51:01 | 1 | 931 | 940 | 10 | IGKIQDSLSS | 4.2e-05 | 55 |
| HLA-B*08:01 | 1 | 934 | 943 | 10 | IQDSLSSSTAS | 4.2e-05 | 62 |
| HLA-B*35:01 | 1 | 939 | 948 | 10 | SSTASALGKL | 4.2e-05 | 33 |
| HLA-B*57:01 | 1 | 946 | 954 | 9 | GKLQDVVNQ | 4.2e-05 | 61 |
| HLA-B*58:01 | 1 | 950 | 958 | 9 | DVVNQNAQA | 4.2e-05 | 49 |
| HLA-A*32:01 | 1 | 953 | 961 | 9 | NQNAQALNT | 4.2e-05 | 35 |
| HLA-B*35:01 | 1 | 962 | 971 | 10 | LVKQLSSNFG | 4.2e-05 | 33 |
| HLA-B*40:01 | 1 | 963 | 972 | 10 | VKQLSSNFGA | 4.2e-05 | 27 |
| HLA-A*30:01 | 1 | 969 | 978 | 10 | NFGAISSVLN | 4.2e-05 | 72 |
| HLA-A*33:01 | 1 | 972 | 981 | 10 | AISSVLNDIL | 4.2e-05 | 49 |
| HLA-B*44:02 | 1 | 973 | 981 | 9 | ISSVLNDIL | 4.2e-05 | 33 |
| HLA-A*24:02 | 1 | 974 | 983 | 10 | SSVLNDILSR | 4.2e-05 | 28 |
| HLA-A*68:01 | 1 | 978 | 987 | 10 | NDILSRLDKV | 4.2e-05 | 41 |
| HLA-A*01:01 | 1 | 982 | 990 | 9 | SRLDKVEAE | 4.2e-05 | 66 |
| HLA-B*07:02 | 1 | 989 | 998 | 10 | AEVQIDRLIT | 4.2e-05 | 43 |
| HLA-A*02:01 | 1 | 990 | 998 | 9 | EVQIDRLIT | 4.2e-05 | 45 |
| HLA-A*33:01 | 1 | 997 | 1006 | 10 | ITGRLQSLQT | 4.2e-05 | 49 |
| HLA-B*53:01 | 1 | 999 | 1008 | 10 | GRLQSLQTYV | 4.2e-05 | 32 |
| HLA-B*51:01 | 1 | 1001 | 1010 | 10 | LQSLQTYVTQ | 4.2e-05 | 55 |
| HLA-A*23:01 | 1 | 1007 | 1015 | 9 | YVTQQLIRA | 4.2e-05 | 29 |
| HLA-A*31:01 | 1 | 1009 | 1018 | 10 | TQQLIRAAEI | 4.2e-05 | 47 |
| HLA-A*11:01 | 1 | 1022 | 1031 | 10 | ANLAATKMSE | 4.2e-05 | 29 |
| HLA-A*32:01 | 1 | 1022 | 1031 | 10 | ANLAATKMSE | 4.2e-05 | 35 |
| HLA-B*44:03 | 1 | 1047 | 1055 | 9 | YHLMFSPQS | 4.2e-05 | 31 |
| HLA-B*44:02 | 1 | 1048 | 1057 | 10 | HLMFSPQSAP | 4.2e-05 | 33 |
| HLA-B*15:01 | 1 | 1061 | 1069 | 9 | VFLHVTVYP | 4.2e-05 | 45 |
| HLA-A*11:01 | 1 | 1063 | 1071 | 9 | LHVTVVPAQ | 4.2e-05 | 29 |
| HLA-A*31:01 | 1 | 1063 | 1072 | 10 | LHVTVVPAQE | 4.2e-05 | 47 |
| HLA-A*68:01 | 1 | 1072 | 1081 | 10 | EKNFTTAPAI | 4.2e-05 | 41 |
| HLA-A*32:01 | 1 | 1074 | 1083 | 10 | NFTTAPAICH | 4.2e-05 | 35 |
| HLA-B*58:01 | 1 | 1077 | 1085 | 9 | TAPAICHDG | 4.2e-05 | 49 |
| HLA-B*07:02 | 1 | 1098 | 1106 | 9 | NGTHWFVTQ | 4.2e-05 | 43 |
| HLA-A*01:01 | 1 | 1100 | 1108 | 9 | THWFVTQRN | 4.2e-05 | 66 |
| HLA-B*44:02 | 1 | 1100 | 1108 | 9 | THWFVTQRN | 4.2e-05 | 33 |
| HLA-A*11:01 | 1 | 1108 | 1117 | 10 | NFYEQIITT | 4.2e-05 | 29 |
| HLA-A*68:02 | 1 | 1109 | 1118 | 10 | FYEQIITTD | 4.2e-05 | 47 |
| HLA-A*02:01 | 1 | 1115 | 1124 | 10 | ITTDNTFVSG | 4.2e-05 | 45 |
| HLA-A*11:01 | 1 | 1116 | 1125 | 10 | TTDNTFVSGN | 4.2e-05 | 29 |
| HLA-A*01:01 | 1 | 1123 | 1131 | 9 | SGNCDVVG | 4.2e-05 | 66 |
| HLA-A*01:01 | 1 | 1131 | 1140 | 10 | GIVNNTVYDP | 4.2e-05 | 66 |
| HLA-A*32:01 | 1 | 1135 | 1143 | 9 | NTVYDPLQP | 4.2e-05 | 35 |
| HLA-A*23:01 | 1 | 1149 | 1157 | 9 | KEELDKYFK | 4.2e-05 | 29 |
| HLA-B*15:01 | 1 | 1149 | 1157 | 9 | KEELDKYFK | 4.2e-05 | 45 |
| HLA-B*40:01 | 1 | 1149 | 1158 | 10 | KEELDKYFKN | 4.2e-05 | 27 |
| HLA-B*44:02 | 1 | 1152 | 1160 | 9 | LDKYFKNHT | 4.2e-05 | 33 |
| HLA-B*53:01 | 1 | 1153 | 1162 | 10 | DKYFKNHTSP | 4.2e-05 | 32 |
| HLA-B*53:01 | 1 | 1158 | 1167 | 10 | NHTSPDVDLG | 4.2e-05 | 32 |
| HLA-A*03:01 | 1 | 1165 | 1174 | 10 | DLGDISGINA | 4.2e-05 | 39 |
| HLA-A*33:01 | 1 | 1179 | 1187 | 9 | IQKEIDRLN | 4.2e-05 | 49 |
| HLA-A*33:01 | 1 | 1189 | 1198 | 10 | VAKNLNESLI | 4.2e-05 | 49 |
| HLA-B*58:01 | 1 | 1193 | 1201 | 9 | LNESLIDLQ | 4.2e-05 | 49 |
| HLA-A*02:01 | 1 | 1212 | 1220 | 9 | WPWYIWLGF | 4.2e-05 | 45 |
| HLA-A*01:01 | 1 | 1217 | 1226 | 10 | WLGFIAGLIA | 4.2e-05 | 66 |
| HLA-A*33:01 | 1 | 1223 | 1232 | 10 | GLIAIVMVTI | 4.2e-05 | 49 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*30:01 | 1 | 1245 | 1254 | 10 | KGCCSCGSCC | 4.2e-05 | 72 |
| HLA-B*58:01 | 1 | 1248 | 1257 | 10 | CSCGSCCKFD | 4.2e-05 | 49 |
| HLA-A*30:01 | 1 | 1256 | 1264 | 9 | FDEDDSEPV | 4.2e-05 | 72 |
| HLA-A*26:01 | 1 | 4 | 13 | 10 | FLVLLPLVSS | 4.1e-05 | 40 |
| HLA-A*26:01 | 1 | 12 | 20 | 9 | SSQCVNLTT | 4.1e-05 | 40 |
| HLA-B*40:01 | 1 | 13 | 22 | 10 | SQCVNLTRRT | 4.1e-05 | 27 |
| HLA-A*24:02 | 1 | 29 | 37 | 9 | TNSFTRGVY | 4.1e-05 | 28 |
| HLA-B*58:01 | 1 | 37 | 45 | 9 | YYPDKVFRS | 4.1e-05 | 50 |
| HLA-A*68:01 | 1 | 47 | 56 | 10 | VLHSTQDLFL | 4.1e-05 | 41 |
| HLA-A*02:06 | 1 | 48 | 57 | 10 | LHSTQDLFLP | 4.1e-05 | 56 |
| HLA-A*11:01 | 1 | 56 | 65 | 10 | LPFFSNVTWF | 4.1e-05 | 29 |
| HLA-A*31:01 | 1 | 67 | 76 | 10 | AIHVSGTNGT | 4.1e-05 | 47 |
| HLA-B*51:01 | 1 | 69 | 78 | 10 | HVSGTNGTKR | 4.1e-05 | 55 |
| HLA-A*02:01 | 1 | 71 | 79 | 9 | SGTNGTKRF | 4.1e-05 | 45 |
| HLA-B*44:03 | 1 | 75 | 83 | 9 | GTKRFDNPV | 4.1e-05 | 31 |
| HLA-A*68:02 | 1 | 82 | 91 | 10 | PVLPFNDGVY | 4.1e-05 | 47 |
| HLA-A*11:01 | 1 | 85 | 93 | 9 | PFNDGVYFA | 4.1e-05 | 29 |
| HLA-A*33:01 | 1 | 85 | 94 | 10 | PFNDGVYFAS | 4.1e-05 | 49 |
| HLA-B*07:02 | 1 | 86 | 94 | 9 | FNDGVYFAS | 4.1e-05 | 43 |
| HLA-A*01:01 | 1 | 99 | 108 | 10 | NIIRGWIFGT | 4.1e-05 | 66 |
| HLA-A*02:01 | 1 | 99 | 107 | 9 | NIIRGWIFG | 4.1e-05 | 45 |
| HLA-A*03:01 | 1 | 103 | 112 | 10 | GWIFGTTLDS | 4.1e-05 | 40 |
| HLA-B*07:02 | 1 | 114 | 123 | 10 | TQSLLIVNNA | 4.1e-05 | 43 |
| HLA-A*68:01 | 1 | 119 | 128 | 10 | IVNATNVVI | 4.1e-05 | 41 |
| HLA-A*68:02 | 1 | 120 | 129 | 10 | VNATNVVIK | 4.1e-05 | 47 |
| HLA-B*07:02 | 1 | 145 | 154 | 10 | YHKNNKSWME | 4.1e-05 | 43 |
| HLA-B*58:01 | 1 | 169 | 178 | 10 | EYVSQPFLMD | 4.1e-05 | 50 |
| HLA-A*02:03 | 1 | 171 | 180 | 10 | VSQPFLMDLE | 4.1e-05 | 48 |
| HLA-B*08:01 | 1 | 172 | 180 | 9 | SQPFLMDLE | 4.1e-05 | 62 |
| HLA-A*68:02 | 1 | 173 | 181 | 9 | QPFLMDLEG | 4.1e-05 | 47 |
| HLA-B*35:01 | 1 | 179 | 187 | 9 | LEGKQGNFK | 4.1e-05 | 33 |
| HLA-B*07:02 | 1 | 182 | 190 | 9 | KQGNFKNLR | 4.1e-05 | 43 |
| HLA-A*11:01 | 1 | 184 | 193 | 10 | GNFKNLREFV | 4.1e-05 | 29 |
| HLA-B*51:01 | 1 | 187 | 195 | 9 | KNLREFVFK | 4.1e-05 | 55 |
| HLA-A*02:01 | 1 | 189 | 197 | 9 | LREFVFKNI | 4.1e-05 | 45 |
| HLA-A*30:02 | 1 | 190 | 199 | 10 | REFVFKNIDG | 4.1e-05 | 70 |
| HLA-B*51:01 | 1 | 191 | 199 | 9 | EFVFKNIDG | 4.1e-05 | 55 |
| HLA-A*26:01 | 1 | 200 | 208 | 9 | YFKIYSKHT | 4.1e-05 | 40 |
| HLA-A*11:01 | 1 | 202 | 211 | 10 | KIYSKHTPIN | 4.1e-05 | 29 |
| HLA-B*58:01 | 1 | 203 | 211 | 9 | IYSKHTPIN | 4.1e-05 | 50 |
| HLA-A*68:01 | 1 | 210 | 218 | 9 | INLVRDLPQ | 4.1e-05 | 41 |
| HLA-A*11:01 | 1 | 212 | 221 | 10 | LVRDLPQGF | 4.1e-05 | 29 |
| HLA-A*02:06 | 1 | 217 | 225 | 9 | PQGFALEP | 4.1e-05 | 56 |
| HLA-A*68:01 | 1 | 218 | 227 | 10 | QGFSALEPLV | 4.1e-05 | 41 |
| HLA-A*01:01 | 1 | 219 | 228 | 10 | GFALEPLVD | 4.1e-05 | 66 |
| HLA-B*07:02 | 1 | 222 | 230 | 9 | ALEPLVDLP | 4.1e-05 | 43 |
| HLA-A*30:02 | 1 | 230 | 239 | 10 | PIGINITRFQ | 4.1e-05 | 70 |
| HLA-B*44:03 | 1 | 240 | 249 | 10 | TLLALHRSYL | 4.1e-05 | 31 |
| HLA-B*57:01 | 1 | 243 | 252 | 10 | ALHRSYLTPG | 4.1e-05 | 62 |
| HLA-A*32:01 | 1 | 248 | 256 | 9 | YLTPGDSSS | 4.1e-05 | 35 |
| HLA-B*53:01 | 1 | 249 | 257 | 9 | LTPGDSSSG | 4.1e-05 | 32 |
| HLA-B*35:01 | 1 | 262 | 271 | 10 | AAAYVGYLQ | 4.1e-05 | 33 |
| HLA-B*57:01 | 1 | 280 | 289 | 10 | NENGTITDAV | 4.1e-05 | 62 |
| HLA-A*26:01 | 1 | 283 | 291 | 9 | GTITDAVDC | 4.1e-05 | 40 |
| HLA-B*15:01 | 1 | 283 | 291 | 9 | GTITDAVDC | 4.1e-05 | 46 |
| HLA-B*57:01 | 1 | 290 | 298 | 9 | DCALDPLSE | 4.1e-05 | 62 |
| HLA-A*68:02 | 1 | 293 | 301 | 9 | LDPLSETKC | 4.1e-05 | 47 |
| HLA-A*02:06 | 1 | 297 | 305 | 9 | SETKCTLKS | 4.1e-05 | 56 |
| HLA-B*58:01 | 1 | 298 | 307 | 10 | ETKCTLKSFT | 4.1e-05 | 50 |
| HLA-B*53:01 | 1 | 307 | 316 | 10 | TVEKGIYQTS | 4.1e-05 | 32 |
| HLA-A*30:01 | 1 | 329 | 338 | 10 | FPNITNLCPF | 4.1e-05 | 72 |
| HLA-B*44:02 | 1 | 338 | 346 | 9 | FGEVFNATR | 4.1e-05 | 33 |
| HLA-B*53:01 | 1 | 344 | 352 | 9 | ATRFASVYA | 4.1e-05 | 32 |
| HLA-A*31:01 | 1 | 345 | 354 | 10 | TRFASVYAWN | 4.1e-05 | 47 |
| HLA-B*35:01 | 1 | 347 | 356 | 10 | FASVYAWNRK | 4.1e-05 | 33 |
| HLA-B*07:02 | 1 | 348 | 357 | 10 | ASVYAWNRKR | 4.1e-05 | 43 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*33:01 | 1 | 365 | 373 | 9 | YSVLYNSAS | 4.1e-05 | 49 |
| HLA-B*53:01 | 1 | 366 | 375 | 10 | SVLYNSASF | 4.1e-05 | 32 |
| HLA-A*03:01 | 1 | 376 | 384 | 9 | TFKCYGVSP | 4.1e-05 | 40 |
| HLA-A*01:01 | 1 | 380 | 389 | 10 | YGVSPTKLND | 4.1e-05 | 66 |
| HLA-A*68:02 | 1 | 384 | 392 | 9 | PTKLNDLCF | 4.1e-05 | 47 |
| HLA-A*24:02 | 1 | 398 | 407 | 10 | DSFVIRGDEV | 4.1e-05 | 28 |
| HLA-B*44:03 | 1 | 400 | 408 | 9 | FVIRGDEV | 4.1e-05 | 31 |
| HLA-A*30:01 | 1 | 405 | 413 | 9 | DEVQRQIAPG | 4.1e-05 | 72 |
| HLA-A*02:03 | 1 | 422 | 430 | 9 | NYKLPDDFT | 4.1e-05 | 48 |
| HLA-A*68:02 | 1 | 429 | 437 | 9 | FTGCVIAWN | 4.1e-05 | 47 |
| HLA-B*44:02 | 1 | 435 | 444 | 10 | AWNSNNLDSK | 4.1e-05 | 33 |
| HLA-A*02:06 | 1 | 442 | 451 | 10 | DSKVGGNYN | 4.1e-05 | 56 |
| HLA-B*58:01 | 1 | 442 | 450 | 9 | DSKVGGNYN | 4.1e-05 | 50 |
| HLA-B*15:01 | 1 | 446 | 455 | 10 | GGNYNYLYRL | 4.1e-05 | 46 |
| HLA-B*35:01 | 1 | 449 | 457 | 9 | YNYLYRFR | 4.1e-05 | 33 |
| HLA-A*02:03 | 1 | 457 | 466 | 10 | RKSNLKPFR | 4.1e-05 | 48 |
| HLA-A*11:01 | 1 | 464 | 472 | 9 | FERDISTEI | 4.1e-05 | 29 |
| HLA-B*07:02 | 1 | 468 | 476 | 9 | ISTEIQAG | 4.1e-05 | 43 |
| HLA-A*03:01 | 1 | 472 | 480 | 9 | IYQAGSTPC | 4.1e-05 | 40 |
| HLA-B*07:02 | 1 | 473 | 481 | 9 | YQAGSTPCN | 4.1e-05 | 43 |
| HLA-B*44:02 | 1 | 473 | 481 | 9 | YQAGSTPCN | 4.1e-05 | 33 |
| HLA-B*53:01 | 1 | 473 | 481 | 9 | YQAGSTPCN | 4.1e-05 | 32 |
| HLA-B*08:01 | 1 | 477 | 485 | 9 | STPCNGVEG | 4.1e-05 | 62 |
| HLA-A*03:01 | 1 | 481 | 490 | 10 | NGVEGFNCYF | 4.1e-05 | 40 |
| HLA-A*26:01 | 1 | 492 | 500 | 9 | LQSYGFQPT | 4.1e-05 | 40 |
| HLA-A*01:01 | 1 | 494 | 502 | 9 | SYGFQPTNG | 4.1e-05 | 66 |
| HLA-A*26:01 | 1 | 499 | 507 | 9 | PTNGVGYQP | 4.1e-05 | 40 |
| HLA-A*26:01 | 1 | 501 | 510 | 10 | NGVGYQPYRV | 4.1e-05 | 40 |
| HLA-B*08:01 | 1 | 510 | 519 | 10 | VVLSFELLH | 4.1e-05 | 62 |
| HLA-A*01:01 | 1 | 517 | 526 | 10 | LLHAPATVCG | 4.1e-05 | 66 |
| HLA-B*51:01 | 1 | 521 | 529 | 9 | PATVCGPKK | 4.1e-05 | 55 |
| HLA-B*44:02 | 1 | 525 | 534 | 10 | CGPKKSTNLV | 4.1e-05 | 33 |
| HLA-B*40:01 | 1 | 526 | 535 | 10 | GPKKSTNLVK | 4.1e-05 | 27 |
| HLA-A*26:01 | 1 | 540 | 549 | 10 | NFNFLGTGT | 4.1e-05 | 40 |
| HLA-A*31:01 | 1 | 542 | 550 | 9 | NFNFLGTGT | 4.1e-05 | 47 |
| HLA-A*33:01 | 1 | 546 | 555 | 10 | LTGTGVLTES | 4.1e-05 | 49 |
| HLA-B*53:01 | 1 | 549 | 557 | 9 | TGVLTESNK | 4.1e-05 | 32 |
| HLA-B*44:02 | 1 | 560 | 569 | 10 | LPFQFGRDI | 4.1e-05 | 33 |
| HLA-A*01:01 | 1 | 561 | 569 | 9 | PFQFGRDI | 4.1e-05 | 66 |
| HLA-B*08:01 | 1 | 561 | 570 | 10 | PFQFGRDIA | 4.1e-05 | 62 |
| HLA-B*44:02 | 1 | 563 | 572 | 10 | QQFGRDIADT | 4.1e-05 | 33 |
| HLA-B*51:01 | 1 | 565 | 574 | 10 | FGRDIADTTD | 4.1e-05 | 55 |
| HLA-A*33:01 | 1 | 571 | 579 | 9 | DTTDAVRDP | 4.1e-05 | 49 |
| HLA-A*30:02 | 1 | 581 | 590 | 10 | TLEILDITPC | 4.1e-05 | 70 |
| HLA-A*01:01 | 1 | 586 | 594 | 9 | DITPCSF | 4.1e-05 | 66 |
| HLA-A*26:01 | 1 | 586 | 594 | 9 | DITPCSF | 4.1e-05 | 40 |
| HLA-A*68:02 | 1 | 588 | 596 | 9 | TPCSF | 4.1e-05 | 47 |
| HLA-B*44:03 | 1 | 599 | 607 | 9 | TPGTNTSNQ | 4.1e-05 | 31 |
| HLA-A*03:01 | 1 | 602 | 610 | 9 | TNTSNQVAV | 4.1e-05 | 40 |
| HLA-B*07:02 | 1 | 614 | 623 | 10 | DVNCTEVPVA | 4.1e-05 | 43 |
| HLA-B*35:01 | 1 | 615 | 624 | 10 | VNCTEVPVAI | 4.1e-05 | 33 |
| HLA-A*11:01 | 1 | 623 | 632 | 10 | AIHADQLTPT | 4.1e-05 | 29 |
| HLA-A*03:01 | 1 | 644 | 652 | 9 | QTRAGCLIG | 4.1e-05 | 40 |
| HLA-B*51:01 | 1 | 644 | 652 | 9 | QTRAGCLIG | 4.1e-05 | 55 |
| HLA-B*44:02 | 1 | 645 | 653 | 9 | TRAGCLIGA | 4.1e-05 | 33 |
| HLA-A*68:01 | 1 | 655 | 664 | 10 | HVNNSYECDI | 4.1e-05 | 41 |
| HLA-B*44:02 | 1 | 678 | 686 | 9 | TNSPRRARS | 4.1e-05 | 33 |
| HLA-A*02:03 | 1 | 682 | 690 | 9 | RRARVASQ | 4.1e-05 | 48 |
| HLA-B*44:03 | 1 | 683 | 691 | 9 | RARVASQS | 4.1e-05 | 31 |
| HLA-A*03:01 | 1 | 695 | 704 | 10 | YTMSLGAENS | 4.1e-05 | 40 |
| HLA-A*24:02 | 1 | 696 | 705 | 10 | TMSLGAENSV | 4.1e-05 | 28 |
| HLA-B*08:01 | 1 | 707 | 716 | 10 | YSNNSIAIPT | 4.1e-05 | 62 |
| HLA-A*03:01 | 1 | 719 | 728 | 10 | TISVTTEILP | 4.1e-05 | 40 |
| HLA-B*44:03 | 1 | 731 | 740 | 10 | MTKTSVDCTM | 4.1e-05 | 31 |
| HLA-A*26:01 | 1 | 739 | 748 | 10 | TMYICGDSTE | 4.1e-05 | 40 |
| HLA-A*32:01 | 1 | 739 | 747 | 9 | TMYICGDST | 4.1e-05 | 35 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*23:01 | 1 | 744 | 752 | 9 | GDSSTECNL | 4.1e-05 | 30 |
| HLA-B*15:01 | 1 | 756 | 765 | 10 | YGSFCTQLNR | 4.1e-05 | 46 |
| HLA-A*30:01 | 1 | 769 | 778 | 10 | GIAVEQDKNT | 4.1e-05 | 72 |
| HLA-A*33:01 | 1 | 775 | 784 | 10 | DKNTQEVFAQ | 4.1e-05 | 49 |
| HLA-B*44:03 | 1 | 782 | 790 | 9 | FAQVKQIYK | 4.1e-05 | 31 |
| HLA-B*51:01 | 1 | 785 | 793 | 9 | VKQIYKTPP | 4.1e-05 | 55 |
| HLA-B*51:01 | 1 | 794 | 803 | 10 | IKDFGGFNFS | 4.1e-05 | 55 |
| HLA-A*24:02 | 1 | 798 | 807 | 10 | GGFNFSQILP | 4.1e-05 | 28 |
| HLA-B*57:01 | 1 | 800 | 808 | 9 | FNFSQILPD | 4.1e-05 | 62 |
| HLA-B*40:01 | 1 | 835 | 843 | 9 | KQYGDCLGD | 4.1e-05 | 27 |
| HLA-A*33:01 | 1 | 836 | 844 | 9 | QYGDCLGDI | 4.1e-05 | 49 |
| HLA-A*30:02 | 1 | 843 | 852 | 10 | DIAARDLICA | 4.1e-05 | 70 |
| HLA-A*68:02 | 1 | 848 | 857 | 10 | DLICAQKFNG | 4.1e-05 | 47 |
| HLA-B*58:01 | 1 | 849 | 857 | 9 | LICAQKFNG | 4.1e-05 | 50 |
| HLA-B*51:01 | 1 | 850 | 859 | 10 | ICAQKFNGLT | 4.1e-05 | 55 |
| HLA-A*11:01 | 1 | 868 | 876 | 9 | EMIAQY TSA | 4.1e-05 | 29 |
| HLA-A*02:03 | 1 | 881 | 889 | 9 | TITSGWTFG | 4.1e-05 | 48 |
| HLA-A*02:01 | 1 | 882 | 891 | 10 | ITSGWTFGAG | 4.1e-05 | 45 |
| HLA-B*44:03 | 1 | 897 | 906 | 10 | PFAMQMAYRF | 4.1e-05 | 31 |
| HLA-A*24:02 | 1 | 911 | 919 | 9 | VTQNVLYEN | 4.1e-05 | 28 |
| HLA-A*02:03 | 1 | 912 | 920 | 9 | TQNVLYENQ | 4.1e-05 | 48 |
| HLA-B*58:01 | 1 | 917 | 926 | 10 | YENQKLIANQ | 4.1e-05 | 50 |
| HLA-A*23:01 | 1 | 947 | 956 | 10 | KLQDVVNQNA | 4.1e-05 | 30 |
| HLA-B*35:01 | 1 | 954 | 963 | 10 | QNAQALNTLV | 4.1e-05 | 33 |
| HLA-A*02:03 | 1 | 971 | 979 | 9 | GAISSVLND | 4.1e-05 | 48 |
| HLA-A*01:01 | 1 | 979 | 988 | 10 | DILSRLDKVE | 4.1e-05 | 66 |
| HLA-A*31:01 | 1 | 1001 | 1009 | 9 | LQSLQTYVT | 4.1e-05 | 47 |
| HLA-A*32:01 | 1 | 1011 | 1020 | 10 | QLIRAAEIRA | 4.1e-05 | 35 |
| HLA-B*53:01 | 1 | 1012 | 1020 | 9 | LIRAAEIRA | 4.1e-05 | 32 |
| HLA-A*11:01 | 1 | 1016 | 1025 | 10 | AEIRASANLA | 4.1e-05 | 29 |
| HLA-A*31:01 | 1 | 1017 | 1026 | 10 | EIRASANLAA | 4.1e-05 | 47 |
| HLA-B*53:01 | 1 | 1018 | 1026 | 9 | IRASANLAA | 4.1e-05 | 32 |
| HLA-B*44:02 | 1 | 1022 | 1030 | 9 | ANLAATKMS | 4.1e-05 | 33 |
| HLA-B*53:01 | 1 | 1023 | 1031 | 9 | NLAATKMSE | 4.1e-05 | 32 |
| HLA-B*15:01 | 1 | 1031 | 1039 | 9 | ECVLGQSKR | 4.1e-05 | 46 |
| HLA-B*57:01 | 1 | 1032 | 1041 | 10 | CVLGQSKRVD | 4.1e-05 | 62 |
| HLA-B*44:02 | 1 | 1039 | 1048 | 10 | RVDFCGKGYH | 4.1e-05 | 33 |
| HLA-A*68:01 | 1 | 1045 | 1053 | 9 | KGYHLSMFP | 4.1e-05 | 41 |
| HLA-A*02:06 | 1 | 1057 | 1065 | 9 | PHGVVFLHV | 4.1e-05 | 56 |
| HLA-B*07:02 | 1 | 1060 | 1069 | 10 | VVFLHVITYVP | 4.1e-05 | 43 |
| HLA-A*11:01 | 1 | 1068 | 1076 | 9 | VPAQEKFTT | 4.1e-05 | 29 |
| HLA-B*44:02 | 1 | 1068 | 1077 | 10 | VPAQEKFTT | 4.1e-05 | 33 |
| HLA-B*35:01 | 1 | 1069 | 1077 | 9 | PAQEKFTT | 4.1e-05 | 33 |
| HLA-A*30:02 | 1 | 1079 | 1087 | 9 | PAICHDGKA | 4.1e-05 | 70 |
| HLA-B*57:01 | 1 | 1082 | 1091 | 10 | CHDGKAHFPR | 4.1e-05 | 62 |
| HLA-A*68:02 | 1 | 1093 | 1101 | 9 | GVFVSNQTH | 4.1e-05 | 47 |
| HLA-A*11:01 | 1 | 1097 | 1106 | 10 | SNGTHWFVTQ | 4.1e-05 | 29 |
| HLA-A*68:01 | 1 | 1103 | 1112 | 10 | FVTQRNFYEP | 4.1e-05 | 41 |
| HLA-A*33:01 | 1 | 1112 | 1121 | 10 | PQIITTDNTF | 4.1e-05 | 49 |
| HLA-B*53:01 | 1 | 1119 | 1128 | 10 | NTFVSGNCDV | 4.1e-05 | 32 |
| HLA-A*68:01 | 1 | 1120 | 1128 | 9 | TFVSGNCDV | 4.1e-05 | 41 |
| HLA-A*23:01 | 1 | 1121 | 1129 | 9 | FVSGNCDVV | 4.1e-05 | 30 |
| HLA-A*03:01 | 1 | 1133 | 1141 | 9 | VNNTVYDPL | 4.1e-05 | 40 |
| HLA-B*57:01 | 1 | 1148 | 1157 | 10 | FKEELDKYFK | 4.1e-05 | 62 |
| HLA-A*11:01 | 1 | 1150 | 1159 | 10 | EELDKYFKNH | 4.1e-05 | 29 |
| HLA-B*51:01 | 1 | 1152 | 1161 | 10 | LDKYFKNHTS | 4.1e-05 | 55 |
| HLA-A*11:01 | 1 | 1159 | 1167 | 9 | HTSPDVLG | 4.1e-05 | 29 |
| HLA-B*58:01 | 1 | 1163 | 1171 | 9 | DVDLGDISG | 4.1e-05 | 50 |
| HLA-B*15:01 | 1 | 1166 | 1174 | 9 | LGDISGINA | 4.1e-05 | 46 |
| HLA-B*08:01 | 1 | 1170 | 1178 | 9 | SGINASVVN | 4.1e-05 | 62 |
| HLA-A*02:06 | 1 | 1178 | 1187 | 10 | NIQKEIDRLN | 4.1e-05 | 56 |
| HLA-B*35:01 | 1 | 1183 | 1191 | 9 | IDRLNEVAK | 4.1e-05 | 33 |
| HLA-A*30:02 | 1 | 1187 | 1195 | 9 | NEVAKNLNE | 4.1e-05 | 70 |
| HLA-A*33:01 | 1 | 1191 | 1200 | 10 | KNLNEIDL | 4.1e-05 | 49 |
| HLA-A*30:01 | 1 | 1194 | 1202 | 9 | NESLIDLQE | 4.1e-05 | 72 |
| HLA-A*68:01 | 1 | 1205 | 1214 | 10 | KYEQYIKWPW | 4.1e-05 | 41 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-B*51:01 | 1 | 1205 | 1213 | 9 | KYEQYIKWP | 4.1e-05 | 55 |
| HLA-A*01:01 | 1 | 1211 | 1219 | 9 | KWPWYIWLG | 4.1e-05 | 66 |
| HLA-B*44:02 | 1 | 1221 | 1229 | 9 | IAGLIAIVM | 4.1e-05 | 33 |
| HLA-A*30:01 | 1 | 1233 | 1241 | 9 | MLCCMTSCC | 4.1e-05 | 72 |
| HLA-A*30:01 | 1 | 1235 | 1243 | 9 | CCMTSCCSC | 4.1e-05 | 72 |
| HLA-B*58:01 | 1 | 1239 | 1247 | 9 | SCCSCLKGC | 4.1e-05 | 50 |
| HLA-A*30:02 | 1 | 1259 | 1267 | 9 | DDSEPVLKG | 4.1e-05 | 70 |
| HLA-A*02:06 | 1 | 1260 | 1269 | 10 | DSEPVLKGVK | 4.1e-05 | 56 |
| HLA-B*58:01 | 1 | 1261 | 1269 | 9 | SEPVLKGVK | 4.1e-05 | 50 |
| HLA-B*44:02 | 1 | 1263 | 1271 | 9 | PVLKGVKLH | 4.1e-05 | 33 |
| HLA-B*51:01 | 1 | 1264 | 1273 | 10 | VLKGVKLHYT | 4.1e-05 | 55 |
| HLA-B*08:01 | 1 | 11 | 19 | 9 | VSSQCVNLT | 4e-05 | 63 |
| HLA-A*24:02 | 1 | 30 | 39 | 10 | NSFTRGVYYP | 4e-05 | 29 |
| HLA-A*02:01 | 1 | 33 | 42 | 10 | TRGVYYPDKV | 4e-05 | 45 |
| HLA-A*24:02 | 1 | 33 | 41 | 9 | TRGVYYPDK | 4e-05 | 29 |
| HLA-B*53:01 | 1 | 65 | 73 | 9 | FHAIHVSQT | 4e-05 | 32 |
| HLA-B*40:01 | 1 | 68 | 77 | 10 | IHSVGTNGTK | 4e-05 | 28 |
| HLA-A*02:06 | 1 | 87 | 95 | 9 | NDGVYFAST | 4e-05 | 56 |
| HLA-B*44:03 | 1 | 93 | 102 | 10 | ASTEKSNIIR | 4e-05 | 31 |
| HLA-B*58:01 | 1 | 95 | 103 | 9 | TEKSNIIRG | 4e-05 | 50 |
| HLA-B*57:01 | 1 | 99 | 108 | 10 | NIIRGWIFGT | 4e-05 | 62 |
| HLA-A*68:02 | 1 | 101 | 109 | 9 | IRGWIFGTT | 4e-05 | 48 |
| HLA-A*26:01 | 1 | 107 | 115 | 9 | GTTLDSKTQ | 4e-05 | 40 |
| HLA-A*68:01 | 1 | 116 | 124 | 9 | SLLIVNNAT | 4e-05 | 42 |
| HLA-B*53:01 | 1 | 118 | 127 | 10 | LIVNNATNVV | 4e-05 | 32 |
| HLA-A*02:06 | 1 | 125 | 134 | 10 | NVVIKVCFEQ | 4e-05 | 56 |
| HLA-B*08:01 | 1 | 128 | 136 | 9 | IKVCEFCFC | 4e-05 | 63 |
| HLA-A*02:01 | 1 | 136 | 145 | 10 | CNDPFLGVVY | 4e-05 | 45 |
| HLA-B*07:02 | 1 | 136 | 145 | 10 | CNDPFLGVVY | 4e-05 | 44 |
| HLA-B*08:01 | 1 | 139 | 147 | 9 | PFLGVVYHK | 4e-05 | 63 |
| HLA-B*57:01 | 1 | 148 | 156 | 9 | NNKSWMESE | 4e-05 | 62 |
| HLA-B*08:01 | 1 | 149 | 158 | 10 | NKSWMESEFR | 4e-05 | 63 |
| HLA-B*57:01 | 1 | 172 | 181 | 10 | SQPFLMDLEG | 4e-05 | 62 |
| HLA-A*30:02 | 1 | 174 | 183 | 10 | PFLMDLEGKQ | 4e-05 | 71 |
| HLA-A*02:03 | 1 | 183 | 192 | 10 | QGNFKNLREF | 4e-05 | 49 |
| HLA-A*03:01 | 1 | 183 | 191 | 9 | QGNFKNLRE | 4e-05 | 40 |
| HLA-B*44:02 | 1 | 201 | 210 | 10 | FKIYSKHTPI | 4e-05 | 33 |
| HLA-A*11:01 | 1 | 207 | 216 | 10 | HTPINLVRDL | 4e-05 | 30 |
| HLA-B*07:02 | 1 | 217 | 226 | 10 | PQGFSALEPL | 4e-05 | 44 |
| HLA-A*68:01 | 1 | 226 | 234 | 9 | LVDLPIGIN | 4e-05 | 42 |
| HLA-A*31:01 | 1 | 230 | 239 | 10 | PIGINITRFQ | 4e-05 | 47 |
| HLA-B*44:03 | 1 | 230 | 238 | 9 | PIGINITRF | 4e-05 | 31 |
| HLA-A*24:02 | 1 | 235 | 243 | 9 | ITRFQTLA | 4e-05 | 29 |
| HLA-B*07:02 | 1 | 249 | 257 | 9 | LTPGDSSSG | 4e-05 | 44 |
| HLA-B*57:01 | 1 | 278 | 287 | 10 | KYNENGTITD | 4e-05 | 62 |
| HLA-A*11:01 | 1 | 284 | 293 | 10 | TITDAVDCAL | 4e-05 | 30 |
| HLA-A*02:01 | 1 | 285 | 294 | 10 | ITDAVDCALD | 4e-05 | 45 |
| HLA-A*30:01 | 1 | 287 | 295 | 9 | DAVDCALDP | 4e-05 | 73 |
| HLA-B*57:01 | 1 | 287 | 295 | 9 | DAVDCALDP | 4e-05 | 62 |
| HLA-A*68:02 | 1 | 290 | 298 | 9 | DCALDPLSE | 4e-05 | 48 |
| HLA-A*01:01 | 1 | 299 | 307 | 9 | TKCTLKSFT | 4e-05 | 67 |
| HLA-A*30:02 | 1 | 299 | 307 | 9 | TKCTLKSFT | 4e-05 | 71 |
| HLA-A*11:01 | 1 | 308 | 316 | 9 | VEKGIYQTS | 4e-05 | 30 |
| HLA-B*40:01 | 1 | 311 | 320 | 10 | GIYQTSNFRV | 4e-05 | 28 |
| HLA-B*53:01 | 1 | 315 | 324 | 10 | TSNFRVQPT | 4e-05 | 32 |
| HLA-B*53:01 | 1 | 320 | 328 | 9 | VQPTESIVR | 4e-05 | 32 |
| HLA-A*30:02 | 1 | 323 | 331 | 9 | TESIVRFPN | 4e-05 | 71 |
| HLA-B*51:01 | 1 | 323 | 331 | 9 | TESIVRFPN | 4e-05 | 55 |
| HLA-A*26:01 | 1 | 325 | 334 | 10 | SIVRFPNITN | 4e-05 | 40 |
| HLA-B*35:01 | 1 | 325 | 333 | 9 | SIVRFPNIT | 4e-05 | 33 |
| HLA-B*40:01 | 1 | 329 | 338 | 10 | FPNITNLCPF | 4e-05 | 28 |
| HLA-B*44:02 | 1 | 333 | 341 | 9 | TNLCPFGEV | 4e-05 | 33 |
| HLA-B*40:01 | 1 | 342 | 351 | 10 | FNATRFASVY | 4e-05 | 28 |
| HLA-B*57:01 | 1 | 346 | 354 | 9 | RFASVYAWN | 4e-05 | 62 |
| HLA-B*40:01 | 1 | 349 | 358 | 10 | SVYAWNRRKRI | 4e-05 | 28 |
| HLA-A*02:01 | 1 | 362 | 370 | 9 | VADYSVLYN | 4e-05 | 45 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-A*02:03 | 1 | 372 | 381 | 10 | ASFSTFKCYG 4e-05 | 49 |
| HLA-B*08:01 | 1 | 379 | 388 | 10 | CYGVSPTKLN 4e-05 | 63 |
| HLA-B*58:01 | 1 | 397 | 405 | 9 | ADSFVIRGD 4e-05 | 50 |
| HLA-B*08:01 | 1 | 411 | 420 | 10 | APGQTGKIAD 4e-05 | 63 |
| HLA-A*68:02 | 1 | 414 | 422 | 9 | QTGKIADYN 4e-05 | 48 |
| HLA-B*08:01 | 1 | 415 | 424 | 10 | TGKIADYNYK 4e-05 | 63 |
| HLA-A*02:01 | 1 | 416 | 424 | 9 | GKIADYNYK 4e-05 | 45 |
| HLA-A*24:02 | 1 | 416 | 424 | 9 | GKIADYNYK 4e-05 | 29 |
| HLA-B*40:01 | 1 | 432 | 441 | 10 | CVIAWNSNNL 4e-05 | 28 |
| HLA-B*08:01 | 1 | 433 | 442 | 10 | VIAWNSNNLD 4e-05 | 63 |
| HLA-A*01:01 | 1 | 438 | 446 | 9 | SNNLDSKVG 4e-05 | 67 |
| HLA-B*44:02 | 1 | 449 | 457 | 9 | YNYLYRLEFR 4e-05 | 33 |
| HLA-A*02:03 | 1 | 452 | 461 | 10 | LYRLEFRKSNL 4e-05 | 49 |
| HLA-A*02:06 | 1 | 452 | 461 | 10 | LYRLEFRKSNL 4e-05 | 56 |
| HLA-A*01:01 | 1 | 463 | 471 | 9 | PFERDISTE 4e-05 | 67 |
| HLA-A*02:06 | 1 | 491 | 500 | 10 | PLQSYGFQPT 4e-05 | 56 |
| HLA-B*07:02 | 1 | 493 | 501 | 9 | QSYGFQPTN 4e-05 | 44 |
| HLA-B*57:01 | 1 | 508 | 516 | 9 | YRVVLSFE 4e-05 | 62 |
| HLA-B*15:01 | 1 | 523 | 532 | 10 | TVCGPKKSTN 4e-05 | 46 |
| HLA-A*30:01 | 1 | 527 | 536 | 10 | PKKSTNLVKN 4e-05 | 73 |
| HLA-B*57:01 | 1 | 541 | 550 | 10 | FNFNGLTGTG 4e-05 | 62 |
| HLA-A*68:01 | 1 | 542 | 550 | 9 | NFNGLTGTG 4e-05 | 42 |
| HLA-A*02:03 | 1 | 553 | 562 | 10 | TESNKKFLPF 4e-05 | 49 |
| HLA-A*33:01 | 1 | 562 | 570 | 9 | FQFGRDIA 4e-05 | 50 |
| HLA-A*68:01 | 1 | 563 | 572 | 10 | QQFGRDIADT 4e-05 | 42 |
| HLA-B*44:02 | 1 | 563 | 571 | 9 | QQFGRDIAD 4e-05 | 33 |
| HLA-B*58:01 | 1 | 567 | 575 | 9 | RDIADTTDA 4e-05 | 50 |
| HLA-A*30:02 | 1 | 573 | 581 | 9 | TDAVRDPQT 4e-05 | 71 |
| HLA-A*68:02 | 1 | 579 | 588 | 10 | PQLEILDIT 4e-05 | 48 |
| HLA-A*01:01 | 1 | 582 | 590 | 9 | LEILDITPC 4e-05 | 67 |
| HLA-B*57:01 | 1 | 591 | 599 | 9 | SFGGVSUIT 4e-05 | 62 |
| HLA-A*03:01 | 1 | 597 | 606 | 10 | VITPGTNTSN 4e-05 | 40 |
| HLA-A*32:01 | 1 | 597 | 606 | 10 | VITPGTNTSN 4e-05 | 35 |
| HLA-A*68:02 | 1 | 599 | 607 | 9 | TPGTNTSNQ 4e-05 | 48 |
| HLA-A*02:01 | 1 | 606 | 614 | 9 | NQVAVLYQD 4e-05 | 45 |
| HLA-A*01:01 | 1 | 608 | 617 | 10 | VAVLYQDVNC 4e-05 | 67 |
| HLA-A*02:01 | 1 | 611 | 619 | 9 | LYQDVNCTE 4e-05 | 45 |
| HLA-A*26:01 | 1 | 611 | 619 | 9 | LYQDVNCTE 4e-05 | 40 |
| HLA-A*03:01 | 1 | 621 | 629 | 9 | PVAIHADQL 4e-05 | 40 |
| HLA-A*31:01 | 1 | 621 | 629 | 9 | PVAIHADQL 4e-05 | 47 |
| HLA-B*40:01 | 1 | 633 | 642 | 10 | WRVYSTGSNV 4e-05 | 28 |
| HLA-B*53:01 | 1 | 638 | 647 | 10 | TGSNVFQTRA 4e-05 | 32 |
| HLA-B*44:03 | 1 | 642 | 650 | 9 | VFQTRAGCL 4e-05 | 31 |
| HLA-A*01:01 | 1 | 649 | 657 | 9 | CLIGAEHVN 4e-05 | 67 |
| HLA-B*58:01 | 1 | 650 | 659 | 10 | LIGAEHVNS 4e-05 | 50 |
| HLA-A*32:01 | 1 | 660 | 668 | 9 | YECDIPIGA 4e-05 | 35 |
| HLA-A*68:01 | 1 | 664 | 673 | 10 | IPIGAGICAS 4e-05 | 42 |
| HLA-B*51:01 | 1 | 673 | 682 | 10 | SYQTQTNspr 4e-05 | 55 |
| HLA-A*68:01 | 1 | 683 | 692 | 10 | RARSVASQSI 4e-05 | 42 |
| HLA-A*33:01 | 1 | 689 | 698 | 10 | SQSIIAYTMS 4e-05 | 50 |
| HLA-B*57:01 | 1 | 696 | 704 | 9 | TMSLGAENS 4e-05 | 62 |
| HLA-A*31:01 | 1 | 700 | 708 | 9 | GAENSVAYS 4e-05 | 47 |
| HLA-A*03:01 | 1 | 710 | 719 | 10 | NSIAIPTNFT 4e-05 | 40 |
| HLA-A*02:03 | 1 | 716 | 725 | 10 | TNFTISVTTE 4e-05 | 49 |
| HLA-B*15:01 | 1 | 716 | 725 | 10 | TNFTISVTTE 4e-05 | 46 |
| HLA-B*07:02 | 1 | 717 | 725 | 9 | NFTISVTTE 4e-05 | 44 |
| HLA-A*31:01 | 1 | 726 | 735 | 10 | ILPVSMTKTS 4e-05 | 47 |
| HLA-B*58:01 | 1 | 727 | 735 | 9 | LPVSMTKTS 4e-05 | 50 |
| HLA-B*44:02 | 1 | 731 | 740 | 10 | MTKTSVDCTM 4e-05 | 33 |
| HLA-A*30:02 | 1 | 735 | 744 | 10 | SVDCTMYICG 4e-05 | 71 |
| HLA-A*26:01 | 1 | 740 | 749 | 10 | MYICGDSTEC 4e-05 | 40 |
| HLA-B*53:01 | 1 | 744 | 753 | 10 | GDSTECSNLL 4e-05 | 32 |
| HLA-B*44:02 | 1 | 754 | 762 | 9 | LQYGSFCTQ 4e-05 | 33 |
| HLA-A*33:01 | 1 | 759 | 768 | 10 | FCTQLNRALT 4e-05 | 50 |
| HLA-A*26:01 | 1 | 765 | 774 | 10 | RALTGIAVEQ 4e-05 | 40 |
| HLA-A*30:01 | 1 | 768 | 777 | 10 | TGIAVEQDKN 4e-05 | 73 |

| | | | | | | |
|-------------|---|------|------|----|------------------|----|
| HLA-B*57:01 | 1 | 769 | 778 | 10 | GIAVEQDKNT 4e-05 | 62 |
| HLA-A*03:01 | 1 | 772 | 780 | 9 | VEQDKNTQE 4e-05 | 40 |
| HLA-B*08:01 | 1 | 779 | 787 | 9 | QEVFAQVKQ 4e-05 | 63 |
| HLA-B*53:01 | 1 | 782 | 791 | 10 | FAQVKQIYKT 4e-05 | 32 |
| HLA-A*01:01 | 1 | 784 | 793 | 10 | QVKQIYKTPP 4e-05 | 67 |
| HLA-A*30:02 | 1 | 785 | 793 | 9 | VKQIYKTPP 4e-05 | 71 |
| HLA-B*07:02 | 1 | 790 | 799 | 10 | KTPPIKDFGG 4e-05 | 44 |
| HLA-A*26:01 | 1 | 797 | 805 | 9 | FGGFNFSQI 4e-05 | 40 |
| HLA-A*33:01 | 1 | 800 | 808 | 9 | FNFSQILPD 4e-05 | 50 |
| HLA-B*08:01 | 1 | 807 | 815 | 9 | PDPSKPSKR 4e-05 | 63 |
| HLA-A*03:01 | 1 | 819 | 828 | 10 | EDLLFNKVTL 4e-05 | 40 |
| HLA-A*31:01 | 1 | 831 | 840 | 10 | AGFIKQYGDC 4e-05 | 47 |
| HLA-B*07:02 | 1 | 833 | 842 | 10 | FIKQYGDCLG 4e-05 | 44 |
| HLA-A*30:02 | 1 | 834 | 842 | 9 | IKQYGDCLG 4e-05 | 71 |
| HLA-A*30:01 | 1 | 842 | 851 | 10 | GDIAARDLIC 4e-05 | 73 |
| HLA-B*40:01 | 1 | 845 | 854 | 10 | AARDLICAQK 4e-05 | 28 |
| HLA-A*30:02 | 1 | 878 | 887 | 10 | LAGTITSGWT 4e-05 | 71 |
| HLA-B*44:02 | 1 | 882 | 890 | 9 | ITSGWTFGA 4e-05 | 33 |
| HLA-A*30:01 | 1 | 897 | 906 | 10 | PFAMQMAYRF 4e-05 | 73 |
| HLA-B*44:02 | 1 | 907 | 916 | 10 | NGIGVTQNVL 4e-05 | 33 |
| HLA-A*32:01 | 1 | 912 | 920 | 9 | TQNVLYENQ 4e-05 | 35 |
| HLA-B*35:01 | 1 | 915 | 924 | 10 | VLYENQKLIA 4e-05 | 33 |
| HLA-A*30:02 | 1 | 920 | 928 | 9 | QKLIANQFN 4e-05 | 71 |
| HLA-A*24:02 | 1 | 921 | 929 | 9 | KLIANQFNS 4e-05 | 29 |
| HLA-B*51:01 | 1 | 921 | 929 | 9 | KLIANQFNS 4e-05 | 55 |
| HLA-B*08:01 | 1 | 928 | 936 | 9 | NSAIGKIQD 4e-05 | 63 |
| HLA-A*24:02 | 1 | 933 | 942 | 10 | KIQDLSLSTA 4e-05 | 29 |
| HLA-B*58:01 | 1 | 948 | 957 | 10 | LQDVVNQNAQ 4e-05 | 50 |
| HLA-B*35:01 | 1 | 970 | 978 | 9 | FGAISSVLN 4e-05 | 33 |
| HLA-A*24:02 | 1 | 986 | 995 | 10 | KVEAEVQIDR 4e-05 | 29 |
| HLA-A*68:02 | 1 | 1002 | 1011 | 10 | QSLQTYVTQQ 4e-05 | 48 |
| HLA-A*02:01 | 1 | 1008 | 1017 | 10 | VTQLIRAAE 4e-05 | 45 |
| HLA-B*58:01 | 1 | 1009 | 1017 | 9 | TQQLIRAAE 4e-05 | 50 |
| HLA-A*23:01 | 1 | 1013 | 1022 | 10 | IRAAEIRASA 4e-05 | 30 |
| HLA-B*35:01 | 1 | 1013 | 1021 | 9 | IRAAEIRAS 4e-05 | 33 |
| HLA-B*35:01 | 1 | 1040 | 1048 | 9 | VDFCGKGYH 4e-05 | 33 |
| HLA-A*24:02 | 1 | 1049 | 1057 | 9 | LMSFPQSAP 4e-05 | 29 |
| HLA-A*01:01 | 1 | 1061 | 1070 | 10 | VFLHVTVVPA 4e-05 | 67 |
| HLA-A*26:01 | 1 | 1063 | 1071 | 9 | LHVTVVPAQ 4e-05 | 40 |
| HLA-A*33:01 | 1 | 1068 | 1077 | 10 | VPAQEKNFTT 4e-05 | 50 |
| HLA-B*51:01 | 1 | 1075 | 1084 | 10 | FTTAPAICHD 4e-05 | 55 |
| HLA-B*53:01 | 1 | 1080 | 1088 | 9 | AICHDGKAH 4e-05 | 32 |
| HLA-B*53:01 | 1 | 1081 | 1090 | 10 | ICHDGKAHFP 4e-05 | 32 |
| HLA-B*44:02 | 1 | 1082 | 1091 | 10 | CHDGKAHFP 4e-05 | 33 |
| HLA-B*53:01 | 1 | 1082 | 1090 | 9 | CHDGKAHFP 4e-05 | 32 |
| HLA-B*57:01 | 1 | 1097 | 1105 | 9 | SNGTHWFVT 4e-05 | 62 |
| HLA-A*26:01 | 1 | 1104 | 1112 | 9 | VTQRNFYEP 4e-05 | 40 |
| HLA-A*02:01 | 1 | 1105 | 1113 | 9 | TQRNFYEPQ 4e-05 | 45 |
| HLA-A*26:01 | 1 | 1111 | 1120 | 10 | EPQIITDNT 4e-05 | 40 |
| HLA-A*30:01 | 1 | 1111 | 1120 | 10 | EPQIITDNT 4e-05 | 73 |
| HLA-A*26:01 | 1 | 1116 | 1125 | 10 | TTDNTFVSGN 4e-05 | 40 |
| HLA-A*68:02 | 1 | 1117 | 1126 | 10 | TDNTFVSGNC 4e-05 | 48 |
| HLA-B*07:02 | 1 | 1119 | 1128 | 10 | NTFVSGNCDV 4e-05 | 44 |
| HLA-A*31:01 | 1 | 1121 | 1129 | 9 | FVSGNCDVV 4e-05 | 47 |
| HLA-A*11:01 | 1 | 1123 | 1132 | 10 | SGNCDVVIGI 4e-05 | 30 |
| HLA-A*32:01 | 1 | 1143 | 1152 | 10 | PELDSFKEEL 4e-05 | 35 |
| HLA-A*24:02 | 1 | 1149 | 1157 | 9 | KEELDKYFK 4e-05 | 29 |
| HLA-B*44:02 | 1 | 1153 | 1162 | 10 | DKYFKNHTSP 4e-05 | 33 |
| HLA-B*57:01 | 1 | 1153 | 1162 | 10 | DKYFKNHTSP 4e-05 | 62 |
| HLA-A*30:01 | 1 | 1158 | 1167 | 10 | NHTSPDVDLG 4e-05 | 73 |
| HLA-B*07:02 | 1 | 1163 | 1171 | 9 | DVDLGDISG 4e-05 | 44 |
| HLA-A*11:01 | 1 | 1181 | 1190 | 10 | KEIDRLNEVA 4e-05 | 30 |
| HLA-B*40:01 | 1 | 1196 | 1205 | 10 | SLIDLQELGK 4e-05 | 28 |
| HLA-B*44:03 | 1 | 1198 | 1207 | 10 | IDLQELGKYE 4e-05 | 31 |
| HLA-A*03:01 | 1 | 1201 | 1210 | 10 | QELGKYEQYI 4e-05 | 40 |
| HLA-A*02:06 | 1 | 1202 | 1211 | 10 | ELGKYEQYIK 4e-05 | 56 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*31:01 | 1 | 1213 | 1222 | 10 | PWYIWLGFIA | 4e-05 | 47 |
| HLA-A*23:01 | 1 | 1223 | 1232 | 10 | GLIAIVMVTI | 4e-05 | 30 |
| HLA-B*40:01 | 1 | 1223 | 1231 | 9 | GLIAIVMVT | 4e-05 | 28 |
| HLA-A*11:01 | 1 | 1225 | 1233 | 9 | IAIVMVTIM | 4e-05 | 30 |
| HLA-B*08:01 | 1 | 1226 | 1235 | 10 | AIVMVTIMLC | 4e-05 | 63 |
| HLA-B*08:01 | 1 | 1231 | 1240 | 10 | TIMLCMTSC | 4e-05 | 63 |
| HLA-B*07:02 | 1 | 1260 | 1269 | 10 | DSEPVKGVK | 4e-05 | 44 |
| HLA-B*15:01 | 1 | 1260 | 1268 | 9 | DSEPVKGV | 4e-05 | 46 |
| HLA-A*31:01 | 1 | 4 | 12 | 9 | FLVLLPLVS | 3.9e-05 | 48 |
| HLA-B*53:01 | 1 | 22 | 31 | 10 | TQLPPAYTNS | 3.9e-05 | 33 |
| HLA-B*35:01 | 1 | 23 | 31 | 9 | QLPPAYTNS | 3.9e-05 | 34 |
| HLA-A*30:01 | 1 | 24 | 33 | 10 | LPPAYTNSFT | 3.9e-05 | 73 |
| HLA-A*01:01 | 1 | 25 | 33 | 9 | PPAYTNSFT | 3.9e-05 | 67 |
| HLA-A*01:01 | 1 | 27 | 35 | 9 | AYTNSFTRG | 3.9e-05 | 67 |
| HLA-A*68:01 | 1 | 45 | 53 | 9 | SSVLHSTQD | 3.9e-05 | 42 |
| HLA-B*44:02 | 1 | 60 | 69 | 10 | SNVTWFHAIH | 3.9e-05 | 34 |
| HLA-B*53:01 | 1 | 63 | 71 | 9 | TWFHAIHVS | 3.9e-05 | 33 |
| HLA-A*26:01 | 1 | 76 | 85 | 10 | TKRFDNPVLP | 3.9e-05 | 41 |
| HLA-B*53:01 | 1 | 91 | 99 | 9 | YFASTEKSN | 3.9e-05 | 33 |
| HLA-A*02:03 | 1 | 95 | 103 | 9 | TEKSNIIRG | 3.9e-05 | 49 |
| HLA-B*58:01 | 1 | 100 | 108 | 9 | IIRGWIFGT | 3.9e-05 | 51 |
| HLA-A*33:01 | 1 | 105 | 114 | 10 | IFGTTLDSTK | 3.9e-05 | 50 |
| HLA-B*15:01 | 1 | 111 | 120 | 10 | DSKTQSLIV | 3.9e-05 | 46 |
| HLA-B*51:01 | 1 | 117 | 125 | 9 | LLIVNNATN | 3.9e-05 | 56 |
| HLA-A*68:01 | 1 | 118 | 127 | 10 | LIVNNATNVV | 3.9e-05 | 42 |
| HLA-B*51:01 | 1 | 120 | 129 | 10 | VNNATNVVIK | 3.9e-05 | 56 |
| HLA-A*02:03 | 1 | 121 | 129 | 9 | NNATNVVIK | 3.9e-05 | 49 |
| HLA-A*02:06 | 1 | 123 | 132 | 10 | ATNVVIVKCE | 3.9e-05 | 57 |
| HLA-A*30:01 | 1 | 141 | 149 | 9 | LGVYYHKNN | 3.9e-05 | 73 |
| HLA-B*53:01 | 1 | 142 | 150 | 9 | GVYYHKNNK | 3.9e-05 | 33 |
| HLA-A*11:01 | 1 | 148 | 156 | 9 | NNKSWMESE | 3.9e-05 | 30 |
| HLA-A*03:01 | 1 | 154 | 163 | 10 | ESEFRVYSSA | 3.9e-05 | 40 |
| HLA-A*11:01 | 1 | 157 | 166 | 10 | FRVYSSANNC | 3.9e-05 | 30 |
| HLA-A*02:06 | 1 | 159 | 167 | 9 | VYSSANNCT | 3.9e-05 | 57 |
| HLA-A*23:01 | 1 | 160 | 169 | 10 | YSSANNCTFE | 3.9e-05 | 30 |
| HLA-B*44:03 | 1 | 162 | 171 | 10 | SANNCTFEYV | 3.9e-05 | 31 |
| HLA-A*01:01 | 1 | 164 | 173 | 10 | NNCTFEYVSQ | 3.9e-05 | 67 |
| HLA-A*68:02 | 1 | 165 | 173 | 9 | NCTFEYVSQ | 3.9e-05 | 48 |
| HLA-B*44:02 | 1 | 166 | 174 | 9 | CTFEYVSQP | 3.9e-05 | 34 |
| HLA-A*02:06 | 1 | 187 | 196 | 10 | KNLREFVFKN | 3.9e-05 | 57 |
| HLA-A*31:01 | 1 | 196 | 205 | 10 | NIDGYFKIYS | 3.9e-05 | 48 |
| HLA-B*07:02 | 1 | 198 | 207 | 10 | DGYFKIYSKH | 3.9e-05 | 44 |
| HLA-B*57:01 | 1 | 199 | 208 | 10 | GYFKIYSKHT | 3.9e-05 | 63 |
| HLA-A*23:01 | 1 | 206 | 215 | 10 | KHTPINLVRD | 3.9e-05 | 30 |
| HLA-A*11:01 | 1 | 208 | 216 | 9 | TPINLVRDL | 3.9e-05 | 30 |
| HLA-A*02:01 | 1 | 216 | 225 | 10 | LPQGFSALEP | 3.9e-05 | 46 |
| HLA-A*02:03 | 1 | 216 | 225 | 10 | LPQGFSALEP | 3.9e-05 | 49 |
| HLA-A*23:01 | 1 | 222 | 230 | 9 | ALEPLVDLP | 3.9e-05 | 30 |
| HLA-A*24:02 | 1 | 222 | 230 | 9 | ALEPLVDLP | 3.9e-05 | 29 |
| HLA-A*02:01 | 1 | 231 | 239 | 9 | IGINITRFQ | 3.9e-05 | 46 |
| HLA-A*11:01 | 1 | 238 | 247 | 10 | FQTLALHRS | 3.9e-05 | 30 |
| HLA-B*08:01 | 1 | 238 | 247 | 10 | FQTLALHRS | 3.9e-05 | 63 |
| HLA-A*31:01 | 1 | 255 | 263 | 9 | SSGWTAGAA | 3.9e-05 | 48 |
| HLA-B*40:01 | 1 | 257 | 266 | 10 | GWTAGAAAYY | 3.9e-05 | 28 |
| HLA-B*08:01 | 1 | 260 | 269 | 10 | AGAAAYYVGY | 3.9e-05 | 63 |
| HLA-B*53:01 | 1 | 264 | 272 | 9 | AYYVGYLQP | 3.9e-05 | 33 |
| HLA-A*01:01 | 1 | 275 | 283 | 9 | FLLKYNENG | 3.9e-05 | 67 |
| HLA-A*03:01 | 1 | 284 | 293 | 10 | TITDAVDCAL | 3.9e-05 | 40 |
| HLA-B*44:02 | 1 | 284 | 293 | 10 | TITDAVDCAL | 3.9e-05 | 34 |
| HLA-B*15:01 | 1 | 287 | 296 | 10 | DAVDCALDPL | 3.9e-05 | 46 |
| HLA-B*53:01 | 1 | 292 | 301 | 10 | ALDPLSETKC | 3.9e-05 | 33 |
| HLA-B*44:03 | 1 | 299 | 308 | 10 | TKCTLKSFTV | 3.9e-05 | 31 |
| HLA-A*11:01 | 1 | 313 | 322 | 10 | YQTSNFRVQP | 3.9e-05 | 30 |
| HLA-A*32:01 | 1 | 314 | 323 | 10 | QTSNFRVQPT | 3.9e-05 | 35 |
| HLA-A*01:01 | 1 | 331 | 340 | 10 | NITNLCPFGE | 3.9e-05 | 67 |
| HLA-A*02:01 | 1 | 332 | 340 | 9 | ITNLCPFGE | 3.9e-05 | 46 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-A*02:03 | 1 | 332 | 340 | 9 | ITNLCPFGE | 3.9e-05 | 49 |
| HLA-A*68:02 | 1 | 332 | 340 | 9 | ITNLCPFGE | 3.9e-05 | 48 |
| HLA-A*30:01 | 1 | 336 | 345 | 10 | CPFGEVFNAT | 3.9e-05 | 73 |
| HLA-B*08:01 | 1 | 337 | 346 | 10 | PFGEVFNATR | 3.9e-05 | 63 |
| HLA-B*08:01 | 1 | 345 | 354 | 10 | TRFASVYAWN | 3.9e-05 | 63 |
| HLA-A*24:02 | 1 | 347 | 355 | 9 | FASVYAWNR | 3.9e-05 | 29 |
| HLA-A*24:02 | 1 | 348 | 356 | 9 | ASVYAWNRK | 3.9e-05 | 29 |
| HLA-A*26:01 | 1 | 357 | 366 | 10 | RISNCVADYS | 3.9e-05 | 41 |
| HLA-A*03:01 | 1 | 364 | 372 | 9 | DYSVLYNSA | 3.9e-05 | 40 |
| HLA-A*24:02 | 1 | 371 | 380 | 10 | SASFSTFKCY | 3.9e-05 | 29 |
| HLA-A*01:01 | 1 | 373 | 381 | 9 | SFSTFKCYG | 3.9e-05 | 67 |
| HLA-A*68:01 | 1 | 373 | 381 | 9 | SFSTFKCYG | 3.9e-05 | 42 |
| HLA-B*07:02 | 1 | 377 | 385 | 9 | FKCYGVSPT | 3.9e-05 | 44 |
| HLA-B*35:01 | 1 | 380 | 388 | 9 | YGVSPTKLN | 3.9e-05 | 34 |
| HLA-B*40:01 | 1 | 393 | 402 | 10 | TNVYADSFVI | 3.9e-05 | 28 |
| HLA-A*02:06 | 1 | 395 | 404 | 10 | VYADSFVIRG | 3.9e-05 | 57 |
| HLA-A*02:06 | 1 | 396 | 405 | 10 | YADSFVIRGD | 3.9e-05 | 57 |
| HLA-B*44:03 | 1 | 404 | 413 | 10 | GDEVQRAPG | 3.9e-05 | 31 |
| HLA-B*58:01 | 1 | 411 | 419 | 9 | APGQTGKIA | 3.9e-05 | 51 |
| HLA-B*08:01 | 1 | 430 | 438 | 9 | TGCVIAWNS | 3.9e-05 | 63 |
| HLA-A*11:01 | 1 | 432 | 440 | 9 | CVIAWNSNN | 3.9e-05 | 30 |
| HLA-A*02:06 | 1 | 435 | 444 | 10 | AWNSNNLDSK | 3.9e-05 | 57 |
| HLA-B*15:01 | 1 | 436 | 444 | 9 | WNSNNLDSK | 3.9e-05 | 46 |
| HLA-A*02:01 | 1 | 446 | 454 | 9 | GGNYNYLYR | 3.9e-05 | 46 |
| HLA-B*15:01 | 1 | 451 | 460 | 10 | YLYRLFRRSN | 3.9e-05 | 46 |
| HLA-B*07:02 | 1 | 457 | 466 | 10 | RKSNLKPFR | 3.9e-05 | 44 |
| HLA-A*24:02 | 1 | 466 | 475 | 10 | RDISTEIQQA | 3.9e-05 | 29 |
| HLA-A*26:01 | 1 | 466 | 474 | 9 | RDISTEIIYQ | 3.9e-05 | 41 |
| HLA-A*01:01 | 1 | 467 | 476 | 10 | DISTEIIYQAG | 3.9e-05 | 67 |
| HLA-A*31:01 | 1 | 470 | 479 | 10 | TEIIYQAGSTP | 3.9e-05 | 48 |
| HLA-A*31:01 | 1 | 472 | 481 | 10 | IYQAGSTPCN | 3.9e-05 | 48 |
| HLA-A*02:03 | 1 | 477 | 485 | 9 | STPCNGVEG | 3.9e-05 | 49 |
| HLA-A*30:02 | 1 | 484 | 493 | 10 | EGFNCYFPLQ | 3.9e-05 | 71 |
| HLA-A*33:01 | 1 | 485 | 494 | 10 | GFNCYFPLQS | 3.9e-05 | 50 |
| HLA-A*02:03 | 1 | 487 | 496 | 10 | NCYFPLQSYG | 3.9e-05 | 49 |
| HLA-A*33:01 | 1 | 498 | 506 | 9 | QPTNGVGYQ | 3.9e-05 | 50 |
| HLA-A*02:06 | 1 | 499 | 508 | 10 | PTNGVGYQPY | 3.9e-05 | 57 |
| HLA-B*53:01 | 1 | 502 | 511 | 10 | GVGYQPYRVV | 3.9e-05 | 33 |
| HLA-A*11:01 | 1 | 504 | 513 | 10 | GYQPYRVVVL | 3.9e-05 | 30 |
| HLA-B*15:01 | 1 | 514 | 522 | 9 | SFELLHAPA | 3.9e-05 | 46 |
| HLA-B*58:01 | 1 | 517 | 526 | 10 | LLHAPATVCG | 3.9e-05 | 51 |
| HLA-B*40:01 | 1 | 520 | 529 | 10 | APATVCGPKK | 3.9e-05 | 28 |
| HLA-A*68:02 | 1 | 523 | 532 | 10 | TVCGPKKSTN | 3.9e-05 | 48 |
| HLA-A*02:06 | 1 | 541 | 550 | 10 | FNFNGLTGTG | 3.9e-05 | 57 |
| HLA-B*53:01 | 1 | 546 | 554 | 9 | LTGTGVLTE | 3.9e-05 | 33 |
| HLA-A*02:06 | 1 | 557 | 566 | 10 | KKFLPFQQFG | 3.9e-05 | 57 |
| HLA-A*68:02 | 1 | 558 | 566 | 9 | KFLPFQQFG | 3.9e-05 | 48 |
| HLA-B*51:01 | 1 | 562 | 571 | 10 | FQQFGRDIAD | 3.9e-05 | 56 |
| HLA-A*30:02 | 1 | 566 | 575 | 10 | GRDIADTTDA | 3.9e-05 | 71 |
| HLA-A*11:01 | 1 | 574 | 582 | 9 | DAVRDPQTL | 3.9e-05 | 30 |
| HLA-B*51:01 | 1 | 581 | 590 | 10 | TLEILDITPC | 3.9e-05 | 56 |
| HLA-A*30:01 | 1 | 586 | 595 | 10 | DITPCSFGGV | 3.9e-05 | 73 |
| HLA-B*07:02 | 1 | 589 | 598 | 10 | PCSFGGVSVI | 3.9e-05 | 44 |
| HLA-A*02:01 | 1 | 598 | 606 | 9 | ITPGTNTSN | 3.9e-05 | 46 |
| HLA-A*02:03 | 1 | 600 | 608 | 9 | PGTNTSNQV | 3.9e-05 | 49 |
| HLA-A*03:01 | 1 | 602 | 611 | 10 | TNTSNQVAVL | 3.9e-05 | 40 |
| HLA-B*58:01 | 1 | 606 | 615 | 10 | NQVAVLYQDV | 3.9e-05 | 51 |
| HLA-B*58:01 | 1 | 614 | 622 | 9 | DVNCTEVPV | 3.9e-05 | 51 |
| HLA-A*02:01 | 1 | 617 | 625 | 9 | CTEVPVAIH | 3.9e-05 | 46 |
| HLA-A*03:01 | 1 | 630 | 638 | 9 | TPTWRVYST | 3.9e-05 | 40 |
| HLA-A*33:01 | 1 | 643 | 651 | 9 | FQTRAGCLI | 3.9e-05 | 50 |
| HLA-A*02:01 | 1 | 647 | 655 | 9 | AGCLIGAEN | 3.9e-05 | 46 |
| HLA-A*26:01 | 1 | 650 | 659 | 10 | LIGAHEVNN | 3.9e-05 | 41 |
| HLA-A*30:02 | 1 | 660 | 669 | 10 | YECDIPIGAG | 3.9e-05 | 71 |
| HLA-A*02:06 | 1 | 663 | 671 | 9 | DIPIGAGIC | 3.9e-05 | 57 |
| HLA-A*33:01 | 1 | 668 | 677 | 10 | AGICASYQTQ | 3.9e-05 | 50 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-B*53:01 | 1 | 672 | 680 | 9 | ASYQTQTNS | 3.9e-05 | 33 |
| HLA-B*51:01 | 1 | 678 | 686 | 9 | TNSPRRARS | 3.9e-05 | 56 |
| HLA-A*11:01 | 1 | 682 | 691 | 10 | RRARSVASQS | 3.9e-05 | 30 |
| HLA-A*23:01 | 1 | 689 | 698 | 10 | SQSIIAYTMS | 3.9e-05 | 30 |
| HLA-A*32:01 | 1 | 690 | 698 | 9 | QSIIAYTMS | 3.9e-05 | 35 |
| HLA-B*35:01 | 1 | 696 | 705 | 10 | TMSLGAENSV | 3.9e-05 | 34 |
| HLA-A*33:01 | 1 | 707 | 716 | 10 | YSNNSIAIPT | 3.9e-05 | 50 |
| HLA-A*26:01 | 1 | 717 | 725 | 9 | NFTISVTTE | 3.9e-05 | 41 |
| HLA-A*11:01 | 1 | 724 | 732 | 9 | TEILPVSMT | 3.9e-05 | 30 |
| HLA-B*58:01 | 1 | 724 | 732 | 9 | TEILPVSMT | 3.9e-05 | 51 |
| HLA-A*68:01 | 1 | 726 | 734 | 9 | ILPVSMTKT | 3.9e-05 | 42 |
| HLA-A*02:01 | 1 | 732 | 741 | 10 | TKTSVDCTMY | 3.9e-05 | 46 |
| HLA-B*07:02 | 1 | 747 | 755 | 9 | TECSNLLLQ | 3.9e-05 | 44 |
| HLA-B*44:02 | 1 | 758 | 766 | 9 | SFCTQLNRA | 3.9e-05 | 34 |
| HLA-B*53:01 | 1 | 761 | 770 | 10 | TQLNRALTGI | 3.9e-05 | 33 |
| HLA-A*26:01 | 1 | 763 | 772 | 10 | LNRLTGIADV | 3.9e-05 | 41 |
| HLA-B*53:01 | 1 | 772 | 780 | 9 | VEQDKNTQE | 3.9e-05 | 33 |
| HLA-A*02:01 | 1 | 774 | 782 | 9 | QDKNTQEVF | 3.9e-05 | 46 |
| HLA-A*23:01 | 1 | 798 | 807 | 10 | GGFNFSQILP | 3.9e-05 | 30 |
| HLA-A*30:01 | 1 | 799 | 808 | 10 | GFNFSQILPD | 3.9e-05 | 73 |
| HLA-A*01:01 | 1 | 800 | 808 | 9 | FNFSQILPD | 3.9e-05 | 67 |
| HLA-B*51:01 | 1 | 811 | 820 | 10 | KPSKRSFIED | 3.9e-05 | 56 |
| HLA-B*57:01 | 1 | 822 | 830 | 9 | LFNKVTLAD | 3.9e-05 | 63 |
| HLA-B*57:01 | 1 | 823 | 831 | 9 | FNKVTLADA | 3.9e-05 | 63 |
| HLA-A*30:02 | 1 | 830 | 838 | 9 | DAGFIKQYG | 3.9e-05 | 71 |
| HLA-A*02:06 | 1 | 831 | 840 | 10 | AGFIKQYDC | 3.9e-05 | 57 |
| HLA-A*02:03 | 1 | 841 | 850 | 10 | LGDIJAARDLI | 3.9e-05 | 49 |
| HLA-A*26:01 | 1 | 844 | 853 | 10 | IAARDLICAQ | 3.9e-05 | 41 |
| HLA-A*02:03 | 1 | 851 | 859 | 9 | CAQKFNGLT | 3.9e-05 | 49 |
| HLA-B*15:01 | 1 | 855 | 864 | 10 | FNGLTVLPPPL | 3.9e-05 | 46 |
| HLA-B*35:01 | 1 | 855 | 864 | 10 | FNGLTVLPPPL | 3.9e-05 | 34 |
| HLA-A*26:01 | 1 | 857 | 866 | 10 | GLTVLPPLLT | 3.9e-05 | 41 |
| HLA-A*23:01 | 1 | 859 | 867 | 9 | TVLPPLLTD | 3.9e-05 | 30 |
| HLA-B*51:01 | 1 | 863 | 871 | 9 | PLLTDEMIA | 3.9e-05 | 56 |
| HLA-B*51:01 | 1 | 866 | 875 | 10 | TDEMIAQYTS | 3.9e-05 | 56 |
| HLA-A*33:01 | 1 | 875 | 884 | 10 | SALLAGTITS | 3.9e-05 | 50 |
| HLA-B*44:02 | 1 | 876 | 884 | 9 | ALLAGTITS | 3.9e-05 | 34 |
| HLA-B*44:03 | 1 | 892 | 901 | 10 | AALQIPFAMQ | 3.9e-05 | 31 |
| HLA-A*02:03 | 1 | 896 | 904 | 9 | IPFAMQMAY | 3.9e-05 | 49 |
| HLA-B*07:02 | 1 | 900 | 908 | 9 | MQMAYRFNG | 3.9e-05 | 44 |
| HLA-A*32:01 | 1 | 919 | 928 | 10 | NQKLIANQFN | 3.9e-05 | 35 |
| HLA-B*35:01 | 1 | 919 | 928 | 10 | NQKLIANQFN | 3.9e-05 | 34 |
| HLA-B*35:01 | 1 | 927 | 935 | 9 | FNSAIGKIQ | 3.9e-05 | 34 |
| HLA-B*35:01 | 1 | 932 | 940 | 9 | GKIQDSLSS | 3.9e-05 | 34 |
| HLA-A*02:03 | 1 | 938 | 946 | 9 | LSSTASALG | 3.9e-05 | 49 |
| HLA-B*44:03 | 1 | 942 | 951 | 10 | ASALGKLQDV | 3.9e-05 | 31 |
| HLA-A*30:01 | 1 | 949 | 957 | 9 | QDVVNQNAQ | 3.9e-05 | 73 |
| HLA-A*33:01 | 1 | 949 | 957 | 9 | QDVVNQNAQ | 3.9e-05 | 50 |
| HLA-B*08:01 | 1 | 949 | 957 | 9 | QDVVNQNAQ | 3.9e-05 | 63 |
| HLA-A*33:01 | 1 | 963 | 972 | 10 | VKQLSSNFGA | 3.9e-05 | 50 |
| HLA-B*51:01 | 1 | 966 | 975 | 10 | LSSNFGAISS | 3.9e-05 | 56 |
| HLA-B*44:03 | 1 | 973 | 981 | 9 | ISSVLNDIL | 3.9e-05 | 31 |
| HLA-A*26:01 | 1 | 976 | 985 | 10 | VLNDILSRDL | 3.9e-05 | 41 |
| HLA-A*26:01 | 1 | 979 | 988 | 10 | DILSRDLKVE | 3.9e-05 | 41 |
| HLA-B*07:02 | 1 | 983 | 992 | 10 | RLDKVEAEVQ | 3.9e-05 | 44 |
| HLA-A*02:06 | 1 | 986 | 994 | 9 | KVEAEVQID | 3.9e-05 | 57 |
| HLA-A*23:01 | 1 | 987 | 995 | 9 | VEAEVQIDR | 3.9e-05 | 30 |
| HLA-B*07:02 | 1 | 994 | 1003 | 10 | DRLITGRLQS | 3.9e-05 | 44 |
| HLA-B*44:03 | 1 | 995 | 1003 | 9 | RLITGRLQS | 3.9e-05 | 31 |
| HLA-B*15:01 | 1 | 997 | 1006 | 10 | ITGRLQSLQT | 3.9e-05 | 46 |
| HLA-A*11:01 | 1 | 1004 | 1013 | 10 | LQTYVTQQLI | 3.9e-05 | 30 |
| HLA-B*44:02 | 1 | 1006 | 1014 | 9 | TYVTQQLIR | 3.9e-05 | 34 |
| HLA-B*51:01 | 1 | 1013 | 1021 | 9 | IRAAEIRAS | 3.9e-05 | 56 |
| HLA-A*03:01 | 1 | 1015 | 1024 | 10 | AAEIRASANL | 3.9e-05 | 40 |
| HLA-B*44:03 | 1 | 1017 | 1025 | 9 | EIRASANLA | 3.9e-05 | 31 |
| HLA-A*02:03 | 1 | 1021 | 1030 | 10 | SANLAATKMS | 3.9e-05 | 49 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*32:01 | 1 | 1028 | 1037 | 10 | KMSECVLGQS | 3.9e-05 | 35 |
| HLA-B*58:01 | 1 | 1034 | 1043 | 10 | LGQSKRVDFC | 3.9e-05 | 51 |
| HLA-A*68:02 | 1 | 1036 | 1045 | 10 | QSKRVDFCGK | 3.9e-05 | 48 |
| HLA-B*07:02 | 1 | 1040 | 1048 | 9 | VDFCGKGYH | 3.9e-05 | 44 |
| HLA-B*57:01 | 1 | 1040 | 1048 | 9 | VDFCGKGYH | 3.9e-05 | 63 |
| HLA-B*58:01 | 1 | 1043 | 1051 | 9 | CGKGYHLMS | 3.9e-05 | 51 |
| HLA-B*07:02 | 1 | 1045 | 1053 | 9 | KGYHLMSFP | 3.9e-05 | 44 |
| HLA-B*44:03 | 1 | 1051 | 1059 | 9 | SFPQSAPHG | 3.9e-05 | 31 |
| HLA-B*51:01 | 1 | 1066 | 1074 | 9 | TYVPAQEK | 3.9e-05 | 56 |
| HLA-B*57:01 | 1 | 1071 | 1079 | 9 | QEKNF | 3.9e-05 | 63 |
| HLA-A*01:01 | 1 | 1077 | 1085 | 9 | TAPAICH | 3.9e-05 | 67 |
| HLA-A*11:01 | 1 | 1089 | 1097 | 9 | FPREGVFVS | 3.9e-05 | 30 |
| HLA-B*44:03 | 1 | 1089 | 1097 | 9 | FPREGVFVS | 3.9e-05 | 31 |
| HLA-A*03:01 | 1 | 1096 | 1105 | 10 | VSNGTHWFV | 3.9e-05 | 40 |
| HLA-A*03:01 | 1 | 1123 | 1132 | 10 | SGNCDVVIG | 3.9e-05 | 40 |
| HLA-B*53:01 | 1 | 1123 | 1132 | 10 | SGNCDVVIG | 3.9e-05 | 33 |
| HLA-B*44:02 | 1 | 1128 | 1136 | 9 | VVIGIVNNT | 3.9e-05 | 34 |
| HLA-B*58:01 | 1 | 1131 | 1140 | 10 | GIVNNTVYD | 3.9e-05 | 51 |
| HLA-A*32:01 | 1 | 1149 | 1157 | 9 | KEELDKYFK | 3.9e-05 | 35 |
| HLA-A*02:06 | 1 | 1150 | 1159 | 10 | EELDKYFKNH | 3.9e-05 | 57 |
| HLA-A*68:01 | 1 | 1155 | 1164 | 10 | YFKNHTSPDV | 3.9e-05 | 42 |
| HLA-A*32:01 | 1 | 1158 | 1166 | 9 | NHTSPD | 3.9e-05 | 35 |
| HLA-B*35:01 | 1 | 1167 | 1175 | 9 | GDISGINAS | 3.9e-05 | 34 |
| HLA-B*53:01 | 1 | 1167 | 1176 | 10 | GDISGINASV | 3.9e-05 | 33 |
| HLA-A*26:01 | 1 | 1175 | 1184 | 10 | SVVNIQKEID | 3.9e-05 | 41 |
| HLA-A*68:01 | 1 | 1189 | 1198 | 10 | VAKNLNESLI | 3.9e-05 | 42 |
| HLA-B*44:02 | 1 | 1193 | 1201 | 9 | LNESLIDLQ | 3.9e-05 | 34 |
| HLA-A*02:01 | 1 | 1198 | 1206 | 9 | IDLQELGKY | 3.9e-05 | 46 |
| HLA-A*02:06 | 1 | 1205 | 1214 | 10 | KYEQYIKWPW | 3.9e-05 | 57 |
| HLA-A*02:01 | 1 | 1208 | 1217 | 10 | QYIKWPWYIW | 3.9e-05 | 46 |
| HLA-A*11:01 | 1 | 1209 | 1218 | 10 | YIKWPWYIWL | 3.9e-05 | 30 |
| HLA-B*08:01 | 1 | 1210 | 1219 | 10 | IKWPWYIWL | 3.9e-05 | 63 |
| HLA-A*30:01 | 1 | 1212 | 1221 | 10 | WPWYIWLGF | 3.9e-05 | 73 |
| HLA-A*02:03 | 1 | 1214 | 1222 | 9 | WYIWLGFIA | 3.9e-05 | 49 |
| HLA-B*35:01 | 1 | 1214 | 1222 | 9 | WYIWLGFIA | 3.9e-05 | 34 |
| HLA-A*01:01 | 1 | 1221 | 1230 | 10 | IAGLIAIVMV | 3.9e-05 | 67 |
| HLA-A*11:01 | 1 | 1223 | 1231 | 9 | GLIAIVMVT | 3.9e-05 | 30 |
| HLA-A*30:02 | 1 | 1229 | 1238 | 10 | MVTIMLCCMT | 3.9e-05 | 71 |
| HLA-A*02:06 | 1 | 1239 | 1247 | 9 | SCCCLKGC | 3.9e-05 | 57 |
| HLA-A*01:01 | 1 | 1241 | 1250 | 10 | CCLKGCCSC | 3.9e-05 | 67 |
| HLA-B*44:03 | 1 | 1248 | 1256 | 9 | CSCGSCCKF | 3.9e-05 | 31 |
| HLA-A*68:02 | 1 | 1263 | 1272 | 10 | PVLKGVKLHY | 3.9e-05 | 48 |
| HLA-A*03:01 | 1 | 1 | 9 | 9 | MFVFLVLLP | 3.8e-05 | 41 |
| HLA-B*15:01 | 1 | 3 | 12 | 10 | VFLVLLPLVS | 3.8e-05 | 47 |
| HLA-B*07:02 | 1 | 4 | 13 | 10 | FLVLLPLVSS | 3.8e-05 | 45 |
| HLA-A*01:01 | 1 | 26 | 35 | 10 | PAYTNSFTRG | 3.8e-05 | 68 |
| HLA-A*32:01 | 1 | 31 | 39 | 9 | SFTRGVYYP | 3.8e-05 | 36 |
| HLA-B*44:03 | 1 | 49 | 57 | 9 | HSTQDLFLP | 3.8e-05 | 32 |
| HLA-A*02:03 | 1 | 52 | 61 | 10 | QDLFLPFFSN | 3.8e-05 | 49 |
| HLA-A*01:01 | 1 | 54 | 63 | 10 | LFLPFFSNVT | 3.8e-05 | 68 |
| HLA-B*08:01 | 1 | 57 | 66 | 10 | PFFSNVTWFH | 3.8e-05 | 64 |
| HLA-A*03:01 | 1 | 63 | 72 | 10 | TWFHAIHVSG | 3.8e-05 | 41 |
| HLA-A*32:01 | 1 | 63 | 72 | 10 | TWFHAIHVSG | 3.8e-05 | 36 |
| HLA-A*02:03 | 1 | 66 | 75 | 10 | HAIHVSGTNG | 3.8e-05 | 49 |
| HLA-B*44:03 | 1 | 69 | 78 | 10 | HVSGTNGTKR | 3.8e-05 | 32 |
| HLA-B*44:03 | 1 | 70 | 78 | 9 | VSGTNGTKR | 3.8e-05 | 32 |
| HLA-B*53:01 | 1 | 76 | 85 | 10 | TKRFDNPVLP | 3.8e-05 | 33 |
| HLA-B*57:01 | 1 | 91 | 99 | 9 | YFASTEKSN | 3.8e-05 | 63 |
| HLA-A*24:02 | 1 | 94 | 102 | 9 | STEKSNIIR | 3.8e-05 | 29 |
| HLA-A*02:06 | 1 | 96 | 105 | 10 | EKSNIIRGWI | 3.8e-05 | 57 |
| HLA-A*33:01 | 1 | 97 | 105 | 9 | KSNIIRGWI | 3.8e-05 | 51 |
| HLA-A*31:01 | 1 | 102 | 111 | 10 | RGWIFGTTLD | 3.8e-05 | 48 |
| HLA-B*15:01 | 1 | 103 | 112 | 10 | GWIFGTTLDS | 3.8e-05 | 47 |
| HLA-A*01:01 | 1 | 105 | 114 | 10 | IFGTTLDSKT | 3.8e-05 | 68 |
| HLA-A*02:03 | 1 | 106 | 114 | 9 | FGTTLDSKT | 3.8e-05 | 49 |
| HLA-A*11:01 | 1 | 114 | 122 | 9 | TQSLIVNN | 3.8e-05 | 30 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-B*57:01 | 1 | 128 | 136 | 9 | IKVCEFAQFC | 3.8e-05 | 63 |
| HLA-A*02:03 | 1 | 136 | 144 | 9 | CNDPFLGVY | 3.8e-05 | 49 |
| HLA-A*68:02 | 1 | 139 | 147 | 9 | PFLGVYYHK | 3.8e-05 | 48 |
| HLA-A*32:01 | 1 | 175 | 183 | 9 | FLMDLEGKQ | 3.8e-05 | 36 |
| HLA-A*01:01 | 1 | 177 | 185 | 9 | MDLEGKQGN | 3.8e-05 | 68 |
| HLA-A*02:06 | 1 | 179 | 187 | 9 | LEGKQGNFK | 3.8e-05 | 57 |
| HLA-B*35:01 | 1 | 181 | 189 | 9 | GKQGNFKNL | 3.8e-05 | 34 |
| HLA-A*31:01 | 1 | 189 | 197 | 9 | LREFVFKNI | 3.8e-05 | 48 |
| HLA-B*44:02 | 1 | 193 | 202 | 10 | VFKNIDGYFK | 3.8e-05 | 34 |
| HLA-B*44:02 | 1 | 200 | 209 | 10 | YFKIYSKHTP | 3.8e-05 | 34 |
| HLA-A*68:01 | 1 | 219 | 227 | 9 | GFSALEPLV | 3.8e-05 | 42 |
| HLA-A*01:01 | 1 | 225 | 234 | 10 | PLVDLPIGIN | 3.8e-05 | 68 |
| HLA-A*26:01 | 1 | 231 | 239 | 9 | IGINITRFQ | 3.8e-05 | 41 |
| HLA-B*35:01 | 1 | 239 | 247 | 9 | QTLALHRS | 3.8e-05 | 34 |
| HLA-B*44:03 | 1 | 239 | 247 | 9 | QTLALHRS | 3.8e-05 | 32 |
| HLA-A*26:01 | 1 | 246 | 255 | 10 | RSYLTPGDSS | 3.8e-05 | 41 |
| HLA-B*08:01 | 1 | 246 | 255 | 10 | RSYLTPGDSS | 3.8e-05 | 64 |
| HLA-A*11:01 | 1 | 247 | 256 | 10 | SYLTPGDSSS | 3.8e-05 | 30 |
| HLA-B*58:01 | 1 | 247 | 255 | 9 | SYLTPGDSS | 3.8e-05 | 51 |
| HLA-B*15:01 | 1 | 259 | 267 | 9 | TAGAAAYV | 3.8e-05 | 47 |
| HLA-B*44:03 | 1 | 259 | 267 | 9 | TAGAAAYV | 3.8e-05 | 32 |
| HLA-B*51:01 | 1 | 275 | 283 | 9 | FLLKYNENG | 3.8e-05 | 56 |
| HLA-B*53:01 | 1 | 276 | 285 | 10 | LLKYNENGTI | 3.8e-05 | 33 |
| HLA-A*02:01 | 1 | 278 | 286 | 9 | KYNENGTIT | 3.8e-05 | 46 |
| HLA-A*30:02 | 1 | 285 | 294 | 10 | ITDAVDCALD | 3.8e-05 | 71 |
| HLA-A*01:01 | 1 | 287 | 295 | 9 | DAVDCALDP | 3.8e-05 | 68 |
| HLA-A*30:01 | 1 | 287 | 296 | 10 | DAVDCALDPL | 3.8e-05 | 73 |
| HLA-A*02:01 | 1 | 297 | 306 | 10 | SETKCTLKSF | 3.8e-05 | 46 |
| HLA-A*03:01 | 1 | 297 | 305 | 9 | SETKCTLKS | 3.8e-05 | 41 |
| HLA-B*35:01 | 1 | 301 | 309 | 9 | CTLKSFTVE | 3.8e-05 | 34 |
| HLA-A*03:01 | 1 | 313 | 322 | 10 | YQTSNFRVQP | 3.8e-05 | 41 |
| HLA-B*07:02 | 1 | 314 | 323 | 10 | QTSNFRVQPT | 3.8e-05 | 45 |
| HLA-A*02:06 | 1 | 331 | 339 | 9 | NITNLCFPG | 3.8e-05 | 57 |
| HLA-B*44:03 | 1 | 333 | 341 | 9 | TNLCFPGEV | 3.8e-05 | 32 |
| HLA-B*35:01 | 1 | 339 | 348 | 10 | GEVFNATRFA | 3.8e-05 | 34 |
| HLA-B*35:01 | 1 | 341 | 349 | 9 | VFNATRFAS | 3.8e-05 | 34 |
| HLA-A*32:01 | 1 | 343 | 352 | 10 | NATRFASVYA | 3.8e-05 | 36 |
| HLA-A*01:01 | 1 | 351 | 360 | 10 | YAWNKRKRISN | 3.8e-05 | 68 |
| HLA-B*44:02 | 1 | 355 | 363 | 9 | RKRISNCVA | 3.8e-05 | 34 |
| HLA-B*07:02 | 1 | 363 | 371 | 9 | ADYSVLYNS | 3.8e-05 | 45 |
| HLA-A*01:01 | 1 | 364 | 373 | 10 | DYSVLYNSAS | 3.8e-05 | 68 |
| HLA-A*23:01 | 1 | 364 | 373 | 10 | DYSVLYNSAS | 3.8e-05 | 30 |
| HLA-A*11:01 | 1 | 367 | 376 | 10 | VLYNSASFST | 3.8e-05 | 30 |
| HLA-B*53:01 | 1 | 374 | 382 | 9 | FSTFKCYGV | 3.8e-05 | 33 |
| HLA-B*35:01 | 1 | 376 | 384 | 9 | TFKCYGVSP | 3.8e-05 | 34 |
| HLA-A*68:01 | 1 | 379 | 387 | 9 | CYGVSPTKL | 3.8e-05 | 42 |
| HLA-A*03:01 | 1 | 382 | 391 | 10 | VSPTKLNDLC | 3.8e-05 | 41 |
| HLA-A*68:01 | 1 | 382 | 390 | 9 | VSPTKLNDL | 3.8e-05 | 42 |
| HLA-A*02:01 | 1 | 385 | 394 | 10 | TKLNDLCFTN | 3.8e-05 | 46 |
| HLA-B*53:01 | 1 | 387 | 395 | 9 | LNDLCFTNV | 3.8e-05 | 33 |
| HLA-A*32:01 | 1 | 392 | 401 | 10 | FTNVYADSFV | 3.8e-05 | 36 |
| HLA-A*23:01 | 1 | 403 | 411 | 9 | RGDEVQRQA | 3.8e-05 | 30 |
| HLA-A*01:01 | 1 | 405 | 414 | 10 | DEVQRQIAPGQ | 3.8e-05 | 68 |
| HLA-A*01:01 | 1 | 407 | 416 | 10 | VRQIAPGQTG | 3.8e-05 | 68 |
| HLA-A*02:01 | 1 | 411 | 419 | 9 | APGQTGKIA | 3.8e-05 | 46 |
| HLA-B*57:01 | 1 | 411 | 419 | 9 | APGQTGKIA | 3.8e-05 | 63 |
| HLA-A*23:01 | 1 | 414 | 423 | 10 | QTGKIADYNY | 3.8e-05 | 30 |
| HLA-A*24:02 | 1 | 418 | 426 | 9 | IADYNYKLP | 3.8e-05 | 29 |
| HLA-B*44:02 | 1 | 418 | 426 | 9 | IADYNYKLP | 3.8e-05 | 34 |
| HLA-B*40:01 | 1 | 424 | 433 | 10 | KLPDDFTGCV | 3.8e-05 | 28 |
| HLA-A*03:01 | 1 | 432 | 440 | 9 | CVIAWNSNN | 3.8e-05 | 41 |
| HLA-B*44:03 | 1 | 436 | 444 | 9 | WNSNNLDSK | 3.8e-05 | 32 |
| HLA-A*02:06 | 1 | 440 | 448 | 9 | NLDSKVGGN | 3.8e-05 | 57 |
| HLA-A*02:06 | 1 | 441 | 449 | 9 | LDSKVGGNY | 3.8e-05 | 57 |
| HLA-A*68:02 | 1 | 447 | 456 | 10 | GNYNLYRLF | 3.8e-05 | 48 |
| HLA-A*32:01 | 1 | 458 | 467 | 10 | KSNLKPFFERD | 3.8e-05 | 36 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*40:01 | 1 | 461 | 470 | 10 | LKPFERDIST | 3.8e-05 | 28 |
| HLA-B*57:01 | 1 | 465 | 474 | 10 | ERDISTEIQ | 3.8e-05 | 63 |
| HLA-A*23:01 | 1 | 467 | 475 | 9 | DISTEIQQA | 3.8e-05 | 30 |
| HLA-A*02:01 | 1 | 469 | 477 | 9 | STEIQAGS | 3.8e-05 | 46 |
| HLA-A*02:03 | 1 | 469 | 477 | 9 | STEIQAGS | 3.8e-05 | 49 |
| HLA-A*33:01 | 1 | 469 | 477 | 9 | STEIQAGS | 3.8e-05 | 51 |
| HLA-A*68:01 | 1 | 473 | 481 | 9 | YQAGSTPCN | 3.8e-05 | 42 |
| HLA-A*26:01 | 1 | 475 | 483 | 9 | AGSTPCNGV | 3.8e-05 | 41 |
| HLA-B*40:01 | 1 | 475 | 483 | 9 | AGSTPCNGV | 3.8e-05 | 28 |
| HLA-A*01:01 | 1 | 478 | 487 | 10 | TPCNGVEGFN | 3.8e-05 | 68 |
| HLA-A*01:01 | 1 | 480 | 488 | 9 | CNGVEGFNC | 3.8e-05 | 68 |
| HLA-A*03:01 | 1 | 490 | 498 | 9 | FPLQSYGFQ | 3.8e-05 | 41 |
| HLA-A*33:01 | 1 | 493 | 502 | 10 | QSYGFQPTNG | 3.8e-05 | 51 |
| HLA-B*07:02 | 1 | 494 | 502 | 9 | SYGFQPTNG | 3.8e-05 | 45 |
| HLA-A*23:01 | 1 | 508 | 516 | 9 | YRVVLSFE | 3.8e-05 | 30 |
| HLA-B*44:03 | 1 | 508 | 517 | 10 | YRVVLSFEL | 3.8e-05 | 32 |
| HLA-B*44:02 | 1 | 513 | 521 | 9 | LSFELLHAP | 3.8e-05 | 34 |
| HLA-B*44:02 | 1 | 518 | 526 | 9 | LHAPATVCG | 3.8e-05 | 34 |
| HLA-B*58:01 | 1 | 518 | 527 | 10 | LHAPATVCGP | 3.8e-05 | 51 |
| HLA-B*53:01 | 1 | 524 | 533 | 10 | VCGPKKSTNL | 3.8e-05 | 33 |
| HLA-A*02:03 | 1 | 528 | 537 | 10 | KKSTNLVKNK | 3.8e-05 | 49 |
| HLA-A*02:06 | 1 | 528 | 537 | 10 | KKSTNLVKNK | 3.8e-05 | 57 |
| HLA-B*08:01 | 1 | 529 | 538 | 10 | KSTNLVKNKC | 3.8e-05 | 64 |
| HLA-A*68:02 | 1 | 540 | 548 | 9 | NFNFNGLTG | 3.8e-05 | 48 |
| HLA-B*15:01 | 1 | 542 | 551 | 10 | NFNGLTGTGV | 3.8e-05 | 47 |
| HLA-A*23:01 | 1 | 543 | 551 | 9 | FNGLTGTGV | 3.8e-05 | 30 |
| HLA-A*03:01 | 1 | 553 | 561 | 9 | TESNKKFLP | 3.8e-05 | 41 |
| HLA-A*23:01 | 1 | 553 | 561 | 9 | TESNKKFLP | 3.8e-05 | 30 |
| HLA-A*01:01 | 1 | 557 | 566 | 10 | KKFLPFQFG | 3.8e-05 | 68 |
| HLA-B*15:01 | 1 | 558 | 567 | 10 | KFLPFQFGR | 3.8e-05 | 47 |
| HLA-B*07:02 | 1 | 559 | 567 | 9 | FLPFQFGR | 3.8e-05 | 45 |
| HLA-A*32:01 | 1 | 563 | 571 | 9 | QQFGRDIAD | 3.8e-05 | 36 |
| HLA-B*58:01 | 1 | 565 | 574 | 10 | FGRDIADTTD | 3.8e-05 | 51 |
| HLA-A*02:03 | 1 | 578 | 587 | 10 | DPQTLIELDI | 3.8e-05 | 49 |
| HLA-A*30:01 | 1 | 581 | 590 | 10 | TLEILDITPC | 3.8e-05 | 73 |
| HLA-B*53:01 | 1 | 581 | 589 | 9 | TLEILDITP | 3.8e-05 | 33 |
| HLA-B*58:01 | 1 | 586 | 594 | 9 | DITPCSFEG | 3.8e-05 | 51 |
| HLA-B*15:01 | 1 | 591 | 599 | 9 | SFGGVSUIT | 3.8e-05 | 47 |
| HLA-B*40:01 | 1 | 597 | 605 | 9 | VITPGTNTS | 3.8e-05 | 28 |
| HLA-A*31:01 | 1 | 598 | 606 | 9 | ITPGTNTSN | 3.8e-05 | 48 |
| HLA-A*33:01 | 1 | 609 | 617 | 9 | AVLYQDVNC | 3.8e-05 | 51 |
| HLA-B*15:01 | 1 | 620 | 628 | 9 | VPVAIHADQ | 3.8e-05 | 47 |
| HLA-A*33:01 | 1 | 621 | 629 | 9 | PVAIHADQL | 3.8e-05 | 51 |
| HLA-B*40:01 | 1 | 630 | 638 | 9 | TPTWRVYST | 3.8e-05 | 28 |
| HLA-A*68:02 | 1 | 635 | 644 | 10 | VYSTGSNVFQ | 3.8e-05 | 48 |
| HLA-B*44:02 | 1 | 641 | 649 | 9 | NVFQTRAGC | 3.8e-05 | 34 |
| HLA-B*40:01 | 1 | 642 | 651 | 10 | VFQTRAGCLI | 3.8e-05 | 28 |
| HLA-A*68:01 | 1 | 649 | 657 | 9 | CLIGAEHVN | 3.8e-05 | 42 |
| HLA-B*51:01 | 1 | 654 | 663 | 10 | EHVNNSYECD | 3.8e-05 | 56 |
| HLA-A*32:01 | 1 | 659 | 668 | 10 | SYECDIPIGA | 3.8e-05 | 36 |
| HLA-B*15:01 | 1 | 661 | 670 | 10 | ECDIPIGAGI | 3.8e-05 | 47 |
| HLA-A*03:01 | 1 | 667 | 675 | 9 | GAGICASYQ | 3.8e-05 | 41 |
| HLA-A*68:01 | 1 | 676 | 684 | 9 | TQTNSPRRA | 3.8e-05 | 42 |
| HLA-B*57:01 | 1 | 680 | 689 | 10 | SPRRARSVAS | 3.8e-05 | 63 |
| HLA-A*33:01 | 1 | 696 | 704 | 9 | TMSLGAENS | 3.8e-05 | 51 |
| HLA-B*40:01 | 1 | 696 | 705 | 10 | TMSLGAENSV | 3.8e-05 | 28 |
| HLA-A*33:01 | 1 | 697 | 706 | 10 | MSLGAENSV | 3.8e-05 | 51 |
| HLA-B*44:03 | 1 | 698 | 706 | 9 | SLGAENSV | 3.8e-05 | 32 |
| HLA-B*58:01 | 1 | 698 | 706 | 9 | SLGAENSV | 3.8e-05 | 51 |
| HLA-A*31:01 | 1 | 707 | 716 | 10 | YSNNSIAIPT | 3.8e-05 | 48 |
| HLA-B*44:03 | 1 | 711 | 719 | 9 | SIAIPTNFT | 3.8e-05 | 32 |
| HLA-A*33:01 | 1 | 712 | 721 | 10 | IAIPTNFTIS | 3.8e-05 | 51 |
| HLA-B*58:01 | 1 | 713 | 721 | 9 | AIPTNFTIS | 3.8e-05 | 51 |
| HLA-A*26:01 | 1 | 715 | 723 | 9 | PTNFTISVT | 3.8e-05 | 41 |
| HLA-A*33:01 | 1 | 715 | 723 | 9 | PTNFTISVT | 3.8e-05 | 51 |
| HLA-B*44:03 | 1 | 718 | 727 | 10 | FTISVTTEIL | 3.8e-05 | 32 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*68:01 | 1 | 720 | 729 | 10 | ISVTTEILPV | 3.8e-05 | 42 |
| HLA-B*15:01 | 1 | 723 | 732 | 10 | TTEILPVSM | 3.8e-05 | 47 |
| HLA-B*40:01 | 1 | 727 | 736 | 10 | LPVSMKTSV | 3.8e-05 | 28 |
| HLA-A*23:01 | 1 | 730 | 738 | 9 | SMTKTSVDC | 3.8e-05 | 30 |
| HLA-B*40:01 | 1 | 735 | 743 | 9 | SVDCTMYIC | 3.8e-05 | 28 |
| HLA-A*68:02 | 1 | 751 | 760 | 10 | NLLLQYGSFC | 3.8e-05 | 48 |
| HLA-B*51:01 | 1 | 753 | 761 | 9 | LLQYGSFCT | 3.8e-05 | 56 |
| HLA-A*24:02 | 1 | 757 | 765 | 9 | GSFCTQLNR | 3.8e-05 | 29 |
| HLA-A*11:01 | 1 | 760 | 768 | 9 | CTQLNRALT | 3.8e-05 | 30 |
| HLA-A*31:01 | 1 | 763 | 772 | 10 | LNRALTGIAV | 3.8e-05 | 48 |
| HLA-A*01:01 | 1 | 768 | 777 | 10 | TGIAVEQDKN | 3.8e-05 | 68 |
| HLA-B*40:01 | 1 | 771 | 779 | 9 | AVEQDKNTQ | 3.8e-05 | 28 |
| HLA-B*53:01 | 1 | 771 | 779 | 9 | AVEQDKNTQ | 3.8e-05 | 33 |
| HLA-A*30:01 | 1 | 775 | 784 | 10 | DKNTQEVFAQ | 3.8e-05 | 73 |
| HLA-B*44:02 | 1 | 796 | 804 | 9 | DFGGFNFSQ | 3.8e-05 | 34 |
| HLA-A*02:03 | 1 | 809 | 818 | 10 | PSKPSKRSFI | 3.8e-05 | 49 |
| HLA-A*68:01 | 1 | 810 | 818 | 9 | SKPSKRSFI | 3.8e-05 | 42 |
| HLA-B*40:01 | 1 | 811 | 819 | 9 | KPSKRSFIE | 3.8e-05 | 28 |
| HLA-B*35:01 | 1 | 826 | 835 | 10 | VTLADAGFIK | 3.8e-05 | 34 |
| HLA-B*44:03 | 1 | 827 | 836 | 10 | TLADAGFIKQ | 3.8e-05 | 32 |
| HLA-B*44:02 | 1 | 828 | 836 | 9 | LADAGFIKQ | 3.8e-05 | 34 |
| HLA-A*26:01 | 1 | 830 | 838 | 9 | DAGFIKQYG | 3.8e-05 | 41 |
| HLA-B*40:01 | 1 | 842 | 851 | 10 | GDIAARDLIC | 3.8e-05 | 28 |
| HLA-B*57:01 | 1 | 847 | 856 | 10 | RDLICAQKFN | 3.8e-05 | 63 |
| HLA-A*26:01 | 1 | 856 | 865 | 10 | NGLTVLPLLL | 3.8e-05 | 41 |
| HLA-A*02:06 | 1 | 862 | 870 | 9 | PPLLTDEMI | 3.8e-05 | 57 |
| HLA-B*44:02 | 1 | 875 | 883 | 9 | SALLAGTIT | 3.8e-05 | 34 |
| HLA-A*02:01 | 1 | 880 | 889 | 10 | GTITSGWTFG | 3.8e-05 | 46 |
| HLA-A*03:01 | 1 | 880 | 889 | 10 | GTITSGWTFG | 3.8e-05 | 41 |
| HLA-A*32:01 | 1 | 881 | 889 | 9 | TITSGWTFG | 3.8e-05 | 36 |
| HLA-A*03:01 | 1 | 884 | 893 | 10 | SGWTFGAGAA | 3.8e-05 | 41 |
| HLA-B*53:01 | 1 | 888 | 897 | 10 | FGAGAALQIP | 3.8e-05 | 33 |
| HLA-B*44:02 | 1 | 897 | 906 | 10 | PFAMQMAYRF | 3.8e-05 | 34 |
| HLA-B*44:03 | 1 | 904 | 912 | 9 | YRFNGIGVT | 3.8e-05 | 32 |
| HLA-B*07:02 | 1 | 923 | 932 | 10 | IANQFNSAIG | 3.8e-05 | 45 |
| HLA-A*03:01 | 1 | 927 | 935 | 9 | FNSAIGKIQ | 3.8e-05 | 41 |
| HLA-B*15:01 | 1 | 931 | 940 | 10 | IGKIQDSLSS | 3.8e-05 | 47 |
| HLA-A*23:01 | 1 | 943 | 952 | 10 | SALGKLQDVV | 3.8e-05 | 30 |
| HLA-A*02:01 | 1 | 948 | 957 | 10 | LQDVVNQNAQ | 3.8e-05 | 46 |
| HLA-B*40:01 | 1 | 949 | 957 | 9 | QDVVNQNAQ | 3.8e-05 | 28 |
| HLA-B*58:01 | 1 | 953 | 961 | 9 | NQNAQALNT | 3.8e-05 | 51 |
| HLA-B*15:01 | 1 | 954 | 963 | 10 | QNAQALNTLV | 3.8e-05 | 47 |
| HLA-B*44:02 | 1 | 958 | 967 | 10 | ALNTLVKQLS | 3.8e-05 | 34 |
| HLA-A*33:01 | 1 | 959 | 968 | 10 | LNTLVKQLSS | 3.8e-05 | 51 |
| HLA-B*08:01 | 1 | 974 | 982 | 9 | SSVLNDILS | 3.8e-05 | 64 |
| HLA-B*40:01 | 1 | 979 | 987 | 9 | DILSRLDKV | 3.8e-05 | 28 |
| HLA-B*51:01 | 1 | 994 | 1002 | 9 | DRLITGRLQ | 3.8e-05 | 56 |
| HLA-A*26:01 | 1 | 996 | 1005 | 10 | LITGRLQSLQ | 3.8e-05 | 41 |
| HLA-A*68:01 | 1 | 998 | 1006 | 9 | TGRLQSLQT | 3.8e-05 | 42 |
| HLA-B*08:01 | 1 | 1019 | 1028 | 10 | RASANLAATK | 3.8e-05 | 64 |
| HLA-B*44:03 | 1 | 1022 | 1030 | 9 | ANLAATKMS | 3.8e-05 | 32 |
| HLA-A*68:01 | 1 | 1029 | 1037 | 9 | MSECVLGQS | 3.8e-05 | 42 |
| HLA-A*30:01 | 1 | 1033 | 1041 | 9 | VLGQSKRVD | 3.8e-05 | 73 |
| HLA-A*02:03 | 1 | 1037 | 1045 | 9 | SKRVDFCGK | 3.8e-05 | 49 |
| HLA-B*58:01 | 1 | 1037 | 1045 | 9 | SKRVDFCGK | 3.8e-05 | 51 |
| HLA-A*11:01 | 1 | 1047 | 1056 | 10 | YHLMSFPQSA | 3.8e-05 | 30 |
| HLA-B*44:03 | 1 | 1057 | 1065 | 9 | PHGVVFLHV | 3.8e-05 | 32 |
| HLA-B*40:01 | 1 | 1058 | 1067 | 10 | HGVVFLHVTY | 3.8e-05 | 28 |
| HLA-A*03:01 | 1 | 1063 | 1072 | 10 | LHVTVVPAQE | 3.8e-05 | 41 |
| HLA-A*26:01 | 1 | 1079 | 1088 | 10 | PAICHGKKAH | 3.8e-05 | 41 |
| HLA-A*02:01 | 1 | 1082 | 1091 | 10 | CHDGKAHFPR | 3.8e-05 | 46 |
| HLA-B*57:01 | 1 | 1091 | 1100 | 10 | REGVFSVNGT | 3.8e-05 | 63 |
| HLA-A*02:06 | 1 | 1099 | 1108 | 10 | GTHWFVTQRN | 3.8e-05 | 57 |
| HLA-A*24:02 | 1 | 1100 | 1108 | 9 | THWFVTQRN | 3.8e-05 | 29 |
| HLA-A*26:01 | 1 | 1110 | 1119 | 10 | YEPQIITTDN | 3.8e-05 | 41 |
| HLA-A*30:01 | 1 | 1118 | 1126 | 9 | DNTFVSGNC | 3.8e-05 | 73 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-B*44:02 | 1 | 1120 | 1129 | 10 | TFVSGNCDVV | 3.8e-05 | 34 |
| HLA-B*40:01 | 1 | 1121 | 1130 | 10 | FVSGNCDVVI | 3.8e-05 | 28 |
| HLA-A*01:01 | 1 | 1125 | 1134 | 10 | NCDVVIGIVN | 3.8e-05 | 68 |
| HLA-A*01:01 | 1 | 1127 | 1136 | 10 | DVVIGIVNNT | 3.8e-05 | 68 |
| HLA-A*31:01 | 1 | 1127 | 1136 | 10 | DVVIGIVNNT | 3.8e-05 | 48 |
| HLA-B*40:01 | 1 | 1135 | 1143 | 9 | NTVYDPLQP | 3.8e-05 | 28 |
| HLA-A*30:02 | 1 | 1150 | 1158 | 9 | EELDKYFKN | 3.8e-05 | 71 |
| HLA-A*26:01 | 1 | 1157 | 1166 | 10 | KNHTSPDVDL | 3.8e-05 | 41 |
| HLA-B*57:01 | 1 | 1166 | 1175 | 10 | LGDISGINAS | 3.8e-05 | 63 |
| HLA-B*08:01 | 1 | 1172 | 1181 | 10 | INASVVNIQK | 3.8e-05 | 64 |
| HLA-A*02:03 | 1 | 1179 | 1187 | 9 | IQKEIDRLN | 3.8e-05 | 49 |
| HLA-A*11:01 | 1 | 1179 | 1188 | 10 | IQKEIDRLNE | 3.8e-05 | 30 |
| HLA-B*51:01 | 1 | 1179 | 1187 | 9 | IQKEIDRLN | 3.8e-05 | 56 |
| HLA-A*03:01 | 1 | 1183 | 1192 | 10 | IDRLNEVAKN | 3.8e-05 | 41 |
| HLA-A*68:02 | 1 | 1185 | 1194 | 10 | RLNEVAKNLN | 3.8e-05 | 48 |
| HLA-A*30:01 | 1 | 1186 | 1194 | 9 | LNEVAKNLN | 3.8e-05 | 73 |
| HLA-A*26:01 | 1 | 1187 | 1195 | 9 | NEVAKNLNE | 3.8e-05 | 41 |
| HLA-B*44:03 | 1 | 1189 | 1198 | 10 | VAKNLNESLI | 3.8e-05 | 32 |
| HLA-A*24:02 | 1 | 1196 | 1204 | 9 | SLIDLQELG | 3.8e-05 | 29 |
| HLA-B*57:01 | 1 | 1198 | 1207 | 10 | IDLQELGKYE | 3.8e-05 | 63 |
| HLA-B*44:03 | 1 | 1199 | 1207 | 9 | DLQELGKYE | 3.8e-05 | 32 |
| HLA-A*33:01 | 1 | 1214 | 1223 | 10 | WYIWLGFIAI | 3.8e-05 | 51 |
| HLA-A*01:01 | 1 | 1218 | 1227 | 10 | LGFIAGLIAI | 3.8e-05 | 68 |
| HLA-A*03:01 | 1 | 1218 | 1226 | 9 | LGFIAGLIA | 3.8e-05 | 41 |
| HLA-B*07:02 | 1 | 1223 | 1231 | 9 | GLIAIVMVT | 3.8e-05 | 45 |
| HLA-A*11:01 | 1 | 1229 | 1237 | 9 | MVTIMLCCM | 3.8e-05 | 30 |
| HLA-A*01:01 | 1 | 1230 | 1239 | 10 | VTIMLCCMTS | 3.8e-05 | 68 |
| HLA-A*24:02 | 1 | 1236 | 1244 | 9 | CMTSCCSCCL | 3.8e-05 | 29 |
| HLA-B*51:01 | 1 | 1247 | 1256 | 10 | CCSCGSCCKF | 3.8e-05 | 56 |
| HLA-B*57:01 | 1 | 1251 | 1259 | 9 | GSCCKFDED | 3.8e-05 | 63 |
| HLA-B*58:01 | 1 | 1257 | 1266 | 10 | DEDDSEPVLK | 3.8e-05 | 51 |
| HLA-B*40:01 | 1 | 3 | 11 | 9 | VFLVLLPLV | 3.7e-05 | 28 |
| HLA-A*33:01 | 1 | 7 | 16 | 10 | LLPLVSSQCV | 3.7e-05 | 51 |
| HLA-B*51:01 | 1 | 10 | 19 | 10 | LVSSQCVNLT | 3.7e-05 | 57 |
| HLA-A*03:01 | 1 | 11 | 19 | 9 | VSSQCVNLT | 3.7e-05 | 41 |
| HLA-B*15:01 | 1 | 11 | 19 | 9 | VSSQCVNLT | 3.7e-05 | 47 |
| HLA-B*44:03 | 1 | 12 | 20 | 9 | SSQCVNLTT | 3.7e-05 | 32 |
| HLA-A*26:01 | 1 | 13 | 22 | 10 | SQCVNLTRT | 3.7e-05 | 41 |
| HLA-A*23:01 | 1 | 33 | 42 | 10 | TRGVYYPDKV | 3.7e-05 | 31 |
| HLA-B*44:03 | 1 | 34 | 42 | 9 | RGVYYPDKV | 3.7e-05 | 32 |
| HLA-B*15:01 | 1 | 49 | 57 | 9 | HSTQDLFLP | 3.7e-05 | 47 |
| HLA-A*26:01 | 1 | 51 | 60 | 10 | TQDLFLPFFS | 3.7e-05 | 41 |
| HLA-A*68:01 | 1 | 59 | 68 | 10 | FSNVTWFHAI | 3.7e-05 | 43 |
| HLA-A*30:01 | 1 | 65 | 74 | 10 | FHAIHVSBTN | 3.7e-05 | 74 |
| HLA-A*68:01 | 1 | 66 | 75 | 10 | HAIHVSGTNG | 3.7e-05 | 43 |
| HLA-B*35:01 | 1 | 70 | 78 | 9 | VSGTNGTKR | 3.7e-05 | 34 |
| HLA-A*01:01 | 1 | 71 | 80 | 10 | SGTNGTKRFD | 3.7e-05 | 68 |
| HLA-B*44:02 | 1 | 81 | 90 | 10 | NPVLPFNDGV | 3.7e-05 | 34 |
| HLA-B*44:03 | 1 | 88 | 97 | 10 | DGVYFASTK | 3.7e-05 | 32 |
| HLA-B*58:01 | 1 | 91 | 99 | 9 | YFASTKSN | 3.7e-05 | 51 |
| HLA-B*07:02 | 1 | 93 | 102 | 10 | ASTEKSNIIR | 3.7e-05 | 45 |
| HLA-B*57:01 | 1 | 101 | 109 | 9 | IRGWIFGTT | 3.7e-05 | 63 |
| HLA-B*58:01 | 1 | 104 | 112 | 9 | WIFGTTLDS | 3.7e-05 | 51 |
| HLA-A*03:01 | 1 | 105 | 114 | 10 | IFGTTLDSKT | 3.7e-05 | 41 |
| HLA-A*26:01 | 1 | 122 | 131 | 10 | NATNVVIKVC | 3.7e-05 | 41 |
| HLA-B*51:01 | 1 | 125 | 134 | 10 | NVVIKVCCEFQ | 3.7e-05 | 57 |
| HLA-B*08:01 | 1 | 126 | 134 | 9 | VVIKVCCEFQ | 3.7e-05 | 64 |
| HLA-B*53:01 | 1 | 139 | 147 | 9 | PFLGVYHK | 3.7e-05 | 33 |
| HLA-B*44:02 | 1 | 146 | 154 | 9 | HKNKSWME | 3.7e-05 | 34 |
| HLA-B*15:01 | 1 | 155 | 164 | 10 | SEFRVYSSAN | 3.7e-05 | 47 |
| HLA-A*31:01 | 1 | 164 | 173 | 10 | NNCTFEYVSQ | 3.7e-05 | 48 |
| HLA-A*02:03 | 1 | 178 | 187 | 10 | DLEGKQGNFK | 3.7e-05 | 50 |
| HLA-A*03:01 | 1 | 185 | 194 | 10 | NFKNLREFVF | 3.7e-05 | 41 |
| HLA-B*08:01 | 1 | 196 | 205 | 10 | NIDGYFKIYS | 3.7e-05 | 64 |
| HLA-A*30:02 | 1 | 210 | 219 | 10 | INLVRDLPQG | 3.7e-05 | 72 |
| HLA-A*31:01 | 1 | 217 | 226 | 10 | PQGFSALEPL | 3.7e-05 | 48 |

| | | | | | | |
|-------------|---|-----|-----|----|--------------------|----|
| HLA-A*26:01 | 1 | 218 | 227 | 10 | QGFSALEPLV 3.7e-05 | 41 |
| HLA-A*30:02 | 1 | 219 | 228 | 10 | GFSALEPLVD 3.7e-05 | 72 |
| HLA-A*33:01 | 1 | 227 | 236 | 10 | VDLPIGINIT 3.7e-05 | 51 |
| HLA-A*23:01 | 1 | 239 | 247 | 9 | QTLALHRS 3.7e-05 | 31 |
| HLA-A*02:01 | 1 | 246 | 254 | 9 | RSYLTPGDS 3.7e-05 | 47 |
| HLA-A*68:02 | 1 | 256 | 265 | 10 | SGWTAGAAAY 3.7e-05 | 49 |
| HLA-A*11:01 | 1 | 261 | 270 | 10 | GAAAYVGYL 3.7e-05 | 30 |
| HLA-B*07:02 | 1 | 264 | 273 | 10 | AYYVGYLQPR 3.7e-05 | 45 |
| HLA-B*58:01 | 1 | 272 | 281 | 10 | PRTFLLKYNE 3.7e-05 | 51 |
| HLA-A*23:01 | 1 | 276 | 285 | 10 | LLKYNGTI 3.7e-05 | 31 |
| HLA-B*53:01 | 1 | 279 | 288 | 10 | YNENGTITDA 3.7e-05 | 33 |
| HLA-B*44:03 | 1 | 288 | 296 | 9 | AVDCALDPL 3.7e-05 | 32 |
| HLA-B*07:02 | 1 | 301 | 309 | 9 | CTLKSFTVE 3.7e-05 | 45 |
| HLA-A*32:01 | 1 | 305 | 314 | 10 | SFTVEKGIYQ 3.7e-05 | 36 |
| HLA-A*32:01 | 1 | 307 | 316 | 10 | TVEKGIYQTS 3.7e-05 | 36 |
| HLA-A*11:01 | 1 | 327 | 336 | 10 | VRFPNITNLC 3.7e-05 | 30 |
| HLA-A*68:01 | 1 | 332 | 341 | 10 | ITNLCPFGEV 3.7e-05 | 43 |
| HLA-B*58:01 | 1 | 340 | 349 | 10 | EVFNATRFAS 3.7e-05 | 51 |
| HLA-A*24:02 | 1 | 344 | 352 | 9 | ATRFASVYA 3.7e-05 | 29 |
| HLA-A*02:03 | 1 | 348 | 356 | 9 | ASVYAWNRK 3.7e-05 | 50 |
| HLA-B*44:02 | 1 | 359 | 368 | 10 | SNCVADYSVL 3.7e-05 | 34 |
| HLA-B*35:01 | 1 | 363 | 371 | 9 | ADYSVLYNS 3.7e-05 | 34 |
| HLA-B*53:01 | 1 | 386 | 394 | 9 | KLNDLCFTN 3.7e-05 | 33 |
| HLA-A*32:01 | 1 | 393 | 401 | 9 | TNVYADSFV 3.7e-05 | 36 |
| HLA-B*35:01 | 1 | 393 | 401 | 9 | TNVYADSFV 3.7e-05 | 34 |
| HLA-B*15:01 | 1 | 396 | 404 | 9 | YADSFVIRG 3.7e-05 | 47 |
| HLA-A*23:01 | 1 | 398 | 407 | 10 | DSFVIRGDEV 3.7e-05 | 31 |
| HLA-B*07:02 | 1 | 407 | 416 | 10 | VRQIAPGQTG 3.7e-05 | 45 |
| HLA-B*51:01 | 1 | 407 | 416 | 10 | VRQIAPGQTG 3.7e-05 | 57 |
| HLA-A*02:06 | 1 | 414 | 423 | 10 | QTGKIADYNY 3.7e-05 | 57 |
| HLA-B*44:02 | 1 | 415 | 424 | 10 | TGKIADYNYK 3.7e-05 | 34 |
| HLA-A*23:01 | 1 | 417 | 426 | 10 | KIADYNYKLP 3.7e-05 | 31 |
| HLA-B*40:01 | 1 | 418 | 426 | 9 | IADYNYKLP 3.7e-05 | 28 |
| HLA-A*31:01 | 1 | 423 | 432 | 10 | YKLPDDFTGC 3.7e-05 | 48 |
| HLA-A*30:01 | 1 | 427 | 436 | 10 | DDFTGCVIAW 3.7e-05 | 74 |
| HLA-A*68:01 | 1 | 430 | 438 | 9 | TGCVIAWNS 3.7e-05 | 43 |
| HLA-B*08:01 | 1 | 435 | 444 | 10 | AWNSNNLDSK 3.7e-05 | 64 |
| HLA-B*07:02 | 1 | 449 | 457 | 9 | YNYLYRFR 3.7e-05 | 45 |
| HLA-A*68:01 | 1 | 455 | 464 | 10 | LFRKSNLKP 3.7e-05 | 43 |
| HLA-A*68:01 | 1 | 456 | 465 | 10 | FRKSNLKPFE 3.7e-05 | 43 |
| HLA-B*58:01 | 1 | 457 | 465 | 9 | RKSNLKPFE 3.7e-05 | 51 |
| HLA-A*30:02 | 1 | 463 | 471 | 9 | PFERDISTE 3.7e-05 | 72 |
| HLA-A*32:01 | 1 | 463 | 472 | 10 | PFERDISTEI 3.7e-05 | 36 |
| HLA-A*31:01 | 1 | 468 | 476 | 9 | ISTEIQAG 3.7e-05 | 48 |
| HLA-A*03:01 | 1 | 469 | 477 | 9 | STEIQAGS 3.7e-05 | 41 |
| HLA-B*58:01 | 1 | 482 | 491 | 10 | GVEGFNCYFP 3.7e-05 | 51 |
| HLA-A*01:01 | 1 | 484 | 493 | 10 | EGFNCYFPLQ 3.7e-05 | 68 |
| HLA-A*32:01 | 1 | 487 | 496 | 10 | NCYFPLQSYG 3.7e-05 | 36 |
| HLA-A*23:01 | 1 | 514 | 523 | 10 | SFELLHAPAT 3.7e-05 | 31 |
| HLA-A*68:02 | 1 | 517 | 526 | 10 | LLHAPATVCG 3.7e-05 | 49 |
| HLA-A*02:06 | 1 | 520 | 529 | 10 | APATVCGPKK 3.7e-05 | 57 |
| HLA-A*23:01 | 1 | 531 | 539 | 9 | TNLVKNKCV 3.7e-05 | 31 |
| HLA-A*31:01 | 1 | 533 | 542 | 10 | LVKNKCVNFN 3.7e-05 | 48 |
| HLA-B*07:02 | 1 | 541 | 549 | 9 | FNFNGLTGT 3.7e-05 | 45 |
| HLA-A*24:02 | 1 | 543 | 551 | 9 | FNGLTGTGV 3.7e-05 | 29 |
| HLA-B*35:01 | 1 | 543 | 551 | 9 | FNGLTGTGV 3.7e-05 | 34 |
| HLA-B*58:01 | 1 | 543 | 551 | 9 | FNGLTGTGV 3.7e-05 | 51 |
| HLA-A*33:01 | 1 | 544 | 553 | 10 | NGLTGTGVLT 3.7e-05 | 51 |
| HLA-B*40:01 | 1 | 545 | 553 | 9 | GLTGTGVLT 3.7e-05 | 28 |
| HLA-B*51:01 | 1 | 545 | 553 | 9 | GLTGTGVLT 3.7e-05 | 57 |
| HLA-A*03:01 | 1 | 546 | 555 | 10 | LTGTGVLTES 3.7e-05 | 41 |
| HLA-A*68:02 | 1 | 548 | 557 | 10 | GTGVLTESNK 3.7e-05 | 49 |
| HLA-A*32:01 | 1 | 549 | 557 | 9 | TGVLTESNK 3.7e-05 | 36 |
| HLA-A*26:01 | 1 | 555 | 564 | 10 | SNKKFLPFQQ 3.7e-05 | 41 |
| HLA-A*01:01 | 1 | 563 | 572 | 10 | QQFGRDIADT 3.7e-05 | 68 |
| HLA-B*57:01 | 1 | 563 | 571 | 9 | QQFGRDIAD 3.7e-05 | 63 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*51:01 | 1 | 569 | 578 | 10 | IADTTDAVRD | 3.7e-05 | 57 |
| HLA-A*02:01 | 1 | 571 | 579 | 9 | DTTDAVRDP | 3.7e-05 | 47 |
| HLA-A*31:01 | 1 | 571 | 580 | 10 | DTTDAVRDPQ | 3.7e-05 | 48 |
| HLA-B*51:01 | 1 | 572 | 580 | 9 | TTDAVRDPQ | 3.7e-05 | 57 |
| HLA-B*07:02 | 1 | 573 | 581 | 9 | TDAVRDPQT | 3.7e-05 | 45 |
| HLA-A*11:01 | 1 | 577 | 585 | 9 | RDPQTLLEIL | 3.7e-05 | 30 |
| HLA-A*31:01 | 1 | 588 | 597 | 10 | TPCSFGGVSV | 3.7e-05 | 48 |
| HLA-A*26:01 | 1 | 590 | 599 | 10 | CSFGGVSVIT | 3.7e-05 | 41 |
| HLA-B*07:02 | 1 | 592 | 600 | 9 | FGGVSVITP | 3.7e-05 | 45 |
| HLA-B*15:01 | 1 | 592 | 600 | 9 | FGGVSVITP | 3.7e-05 | 47 |
| HLA-A*11:01 | 1 | 598 | 606 | 9 | ITPGTNTSN | 3.7e-05 | 30 |
| HLA-B*44:02 | 1 | 642 | 651 | 10 | VFQTRAGCLI | 3.7e-05 | 34 |
| HLA-A*33:01 | 1 | 645 | 654 | 10 | TRAGCLIGAE | 3.7e-05 | 51 |
| HLA-B*07:02 | 1 | 647 | 656 | 10 | AGCLIGAEHV | 3.7e-05 | 45 |
| HLA-A*30:01 | 1 | 649 | 658 | 10 | CLIGAEHVNN | 3.7e-05 | 74 |
| HLA-B*07:02 | 1 | 651 | 659 | 9 | IGAEHVNNS | 3.7e-05 | 45 |
| HLA-A*02:06 | 1 | 653 | 661 | 9 | AEHVNNSYE | 3.7e-05 | 57 |
| HLA-A*24:02 | 1 | 656 | 664 | 9 | VNNSYECDI | 3.7e-05 | 29 |
| HLA-A*02:03 | 1 | 664 | 673 | 10 | IPIGAGICAS | 3.7e-05 | 50 |
| HLA-A*02:06 | 1 | 665 | 674 | 10 | PIGAGICASY | 3.7e-05 | 57 |
| HLA-A*31:01 | 1 | 667 | 675 | 9 | GAGICASYQ | 3.7e-05 | 48 |
| HLA-A*23:01 | 1 | 676 | 685 | 10 | TQTNSPRRAR | 3.7e-05 | 31 |
| HLA-A*24:02 | 1 | 676 | 685 | 10 | TQTNSPRRAR | 3.7e-05 | 29 |
| HLA-A*03:01 | 1 | 691 | 700 | 10 | SIAYTMSLG | 3.7e-05 | 41 |
| HLA-B*53:01 | 1 | 692 | 701 | 10 | IIAYTMSLGA | 3.7e-05 | 33 |
| HLA-A*31:01 | 1 | 701 | 709 | 9 | AENSVAYSN | 3.7e-05 | 48 |
| HLA-B*35:01 | 1 | 708 | 716 | 9 | SNNSIAIPT | 3.7e-05 | 34 |
| HLA-A*01:01 | 1 | 709 | 717 | 9 | NNSIAIPTN | 3.7e-05 | 68 |
| HLA-A*24:02 | 1 | 712 | 721 | 10 | IAIPTNFTIS | 3.7e-05 | 29 |
| HLA-B*44:02 | 1 | 718 | 727 | 10 | FTISVTTEIL | 3.7e-05 | 34 |
| HLA-A*03:01 | 1 | 727 | 736 | 10 | LPVSMTKTSV | 3.7e-05 | 41 |
| HLA-B*44:02 | 1 | 727 | 735 | 9 | LPVSMTKTS | 3.7e-05 | 34 |
| HLA-B*40:01 | 1 | 745 | 754 | 10 | DSTECSNLLL | 3.7e-05 | 28 |
| HLA-A*02:03 | 1 | 747 | 756 | 10 | TECSNLLLQY | 3.7e-05 | 50 |
| HLA-A*33:01 | 1 | 751 | 760 | 10 | NLLLQYGSFC | 3.7e-05 | 51 |
| HLA-A*30:01 | 1 | 752 | 761 | 10 | LLLQYGSFCT | 3.7e-05 | 74 |
| HLA-B*58:01 | 1 | 759 | 768 | 10 | FCTQLNRALT | 3.7e-05 | 51 |
| HLA-A*68:02 | 1 | 769 | 778 | 10 | GIAVEQDKNT | 3.7e-05 | 49 |
| HLA-B*40:01 | 1 | 782 | 790 | 9 | FAQVKQIYK | 3.7e-05 | 28 |
| HLA-A*01:01 | 1 | 785 | 794 | 10 | VKQIYKTPPI | 3.7e-05 | 68 |
| HLA-B*44:02 | 1 | 789 | 798 | 10 | YKTPPIKDFG | 3.7e-05 | 34 |
| HLA-A*31:01 | 1 | 791 | 800 | 10 | TPPIKDFGGF | 3.7e-05 | 48 |
| HLA-A*68:02 | 1 | 795 | 804 | 10 | KDFGGFNFSQ | 3.7e-05 | 49 |
| HLA-B*35:01 | 1 | 815 | 824 | 10 | RSFIEDLLFN | 3.7e-05 | 34 |
| HLA-B*08:01 | 1 | 823 | 832 | 10 | FNKVTLADAG | 3.7e-05 | 64 |
| HLA-B*44:02 | 1 | 826 | 834 | 9 | VTLADAGFI | 3.7e-05 | 34 |
| HLA-A*32:01 | 1 | 832 | 841 | 10 | GFIKQYGDCL | 3.7e-05 | 36 |
| HLA-B*44:02 | 1 | 832 | 841 | 10 | GFIKQYGDCL | 3.7e-05 | 34 |
| HLA-A*30:02 | 1 | 838 | 846 | 9 | GDCLGDIAA | 3.7e-05 | 72 |
| HLA-B*44:03 | 1 | 838 | 847 | 10 | GDCLGDIAAR | 3.7e-05 | 32 |
| HLA-B*44:02 | 1 | 839 | 847 | 9 | DCLGDIAAR | 3.7e-05 | 34 |
| HLA-B*58:01 | 1 | 840 | 849 | 10 | CLGDIAARDL | 3.7e-05 | 51 |
| HLA-B*58:01 | 1 | 843 | 852 | 10 | DIAARDLICA | 3.7e-05 | 51 |
| HLA-A*68:01 | 1 | 858 | 867 | 10 | LTVLPPLD | 3.7e-05 | 43 |
| HLA-A*30:01 | 1 | 866 | 875 | 10 | TDEMIAQYTS | 3.7e-05 | 74 |
| HLA-A*68:02 | 1 | 866 | 874 | 9 | TDEMIAQYT | 3.7e-05 | 49 |
| HLA-A*26:01 | 1 | 870 | 879 | 10 | IAQYTSALLA | 3.7e-05 | 41 |
| HLA-B*44:02 | 1 | 875 | 884 | 10 | SALLAGTITS | 3.7e-05 | 34 |
| HLA-A*26:01 | 1 | 881 | 889 | 9 | TITSGWTFG | 3.7e-05 | 41 |
| HLA-B*53:01 | 1 | 889 | 897 | 9 | GAGAALQIP | 3.7e-05 | 33 |
| HLA-B*44:02 | 1 | 892 | 901 | 10 | AALQIPFAMQ | 3.7e-05 | 34 |
| HLA-B*08:01 | 1 | 899 | 908 | 10 | AMQMAYRFNG | 3.7e-05 | 64 |
| HLA-B*40:01 | 1 | 900 | 908 | 9 | MQMAYRFNG | 3.7e-05 | 28 |
| HLA-A*23:01 | 1 | 906 | 915 | 10 | FNGIGVTQNV | 3.7e-05 | 31 |
| HLA-A*68:01 | 1 | 908 | 916 | 9 | GIGVTQNVL | 3.7e-05 | 43 |
| HLA-B*44:03 | 1 | 908 | 916 | 9 | GIGVTQNVL | 3.7e-05 | 32 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*26:01 | 1 | 911 | 920 | 10 | VTQNVLYENQ | 3.7e-05 | 41 |
| HLA-B*58:01 | 1 | 919 | 928 | 10 | NQKLIANQFN | 3.7e-05 | 51 |
| HLA-B*53:01 | 1 | 935 | 944 | 10 | QDSLSTASA | 3.7e-05 | 33 |
| HLA-B*51:01 | 1 | 938 | 947 | 10 | LSSTASALGK | 3.7e-05 | 57 |
| HLA-A*33:01 | 1 | 945 | 954 | 10 | LGKLQDVVNQ | 3.7e-05 | 51 |
| HLA-B*57:01 | 1 | 946 | 955 | 10 | GKLQDVVNQN | 3.7e-05 | 63 |
| HLA-B*58:01 | 1 | 952 | 960 | 9 | VNQAQALN | 3.7e-05 | 51 |
| HLA-B*44:02 | 1 | 967 | 975 | 9 | SSNFGAISS | 3.7e-05 | 34 |
| HLA-A*01:01 | 1 | 969 | 978 | 10 | NFGAISSVLN | 3.7e-05 | 68 |
| HLA-A*68:02 | 1 | 970 | 979 | 10 | FGAISSVLND | 3.7e-05 | 49 |
| HLA-B*35:01 | 1 | 982 | 991 | 10 | SRLDKVEAEV | 3.7e-05 | 34 |
| HLA-A*26:01 | 1 | 984 | 993 | 10 | LDKVEAEVQI | 3.7e-05 | 41 |
| HLA-B*44:03 | 1 | 984 | 992 | 9 | LDKVEAEVQ | 3.7e-05 | 32 |
| HLA-B*58:01 | 1 | 990 | 998 | 9 | EVQIDRLIT | 3.7e-05 | 51 |
| HLA-B*07:02 | 1 | 1004 | 1013 | 10 | LQTYVTQQLI | 3.7e-05 | 45 |
| HLA-B*44:02 | 1 | 1013 | 1022 | 10 | IRAAEIRASA | 3.7e-05 | 34 |
| HLA-A*32:01 | 1 | 1017 | 1026 | 10 | EIRASANLAA | 3.7e-05 | 36 |
| HLA-B*44:03 | 1 | 1019 | 1028 | 10 | RASANLAATK | 3.7e-05 | 32 |
| HLA-A*23:01 | 1 | 1020 | 1028 | 9 | ASANLAATK | 3.7e-05 | 31 |
| HLA-B*58:01 | 1 | 1023 | 1031 | 9 | NLAATKMESE | 3.7e-05 | 51 |
| HLA-A*33:01 | 1 | 1035 | 1043 | 9 | GQSKRVDFC | 3.7e-05 | 51 |
| HLA-A*68:01 | 1 | 1047 | 1055 | 9 | YHLMSFPQS | 3.7e-05 | 43 |
| HLA-A*24:02 | 1 | 1050 | 1058 | 9 | MSFPQSAPH | 3.7e-05 | 29 |
| HLA-A*32:01 | 1 | 1053 | 1061 | 9 | PQSAPHGVV | 3.7e-05 | 36 |
| HLA-A*01:01 | 1 | 1062 | 1071 | 10 | FLHVTVVPAQ | 3.7e-05 | 68 |
| HLA-A*01:01 | 1 | 1063 | 1072 | 10 | LHVTVVPAQE | 3.7e-05 | 68 |
| HLA-A*33:01 | 1 | 1068 | 1076 | 9 | VPAQEKNF | 3.7e-05 | 51 |
| HLA-A*03:01 | 1 | 1071 | 1080 | 10 | QEKNFTTAPA | 3.7e-05 | 41 |
| HLA-A*01:01 | 1 | 1072 | 1080 | 9 | EKNFTTAPA | 3.7e-05 | 68 |
| HLA-A*68:01 | 1 | 1096 | 1105 | 10 | VSNGTHWFVT | 3.7e-05 | 43 |
| HLA-A*31:01 | 1 | 1100 | 1108 | 9 | THWFVTQRN | 3.7e-05 | 48 |
| HLA-A*68:01 | 1 | 1106 | 1114 | 9 | QRNFYEPQI | 3.7e-05 | 43 |
| HLA-B*44:03 | 1 | 1108 | 1117 | 10 | NFYEPQIITT | 3.7e-05 | 32 |
| HLA-A*26:01 | 1 | 1117 | 1125 | 9 | TDNTFVSGN | 3.7e-05 | 41 |
| HLA-A*26:01 | 1 | 1119 | 1127 | 9 | NTFVSGNCD | 3.7e-05 | 41 |
| HLA-A*24:02 | 1 | 1129 | 1138 | 10 | VIGIVNNTVY | 3.7e-05 | 29 |
| HLA-B*51:01 | 1 | 1130 | 1139 | 10 | IGIVNNTVYD | 3.7e-05 | 57 |
| HLA-B*15:01 | 1 | 1135 | 1143 | 9 | NTVYDPLQP | 3.7e-05 | 47 |
| HLA-A*26:01 | 1 | 1150 | 1158 | 9 | EELDKYFKN | 3.7e-05 | 41 |
| HLA-B*44:03 | 1 | 1151 | 1160 | 10 | ELDKYFKNHT | 3.7e-05 | 32 |
| HLA-B*44:03 | 1 | 1152 | 1160 | 9 | LDKYFKNHT | 3.7e-05 | 32 |
| HLA-A*68:01 | 1 | 1153 | 1161 | 9 | DKYFKNHTS | 3.7e-05 | 43 |
| HLA-A*68:01 | 1 | 1163 | 1171 | 9 | DVDLGDISG | 3.7e-05 | 43 |
| HLA-A*26:01 | 1 | 1171 | 1180 | 10 | GINASVVNIQ | 3.7e-05 | 41 |
| HLA-A*02:06 | 1 | 1172 | 1180 | 9 | INASVVNIQ | 3.7e-05 | 57 |
| HLA-A*32:01 | 1 | 1179 | 1188 | 10 | IQKEIDRLNE | 3.7e-05 | 36 |
| HLA-B*58:01 | 1 | 1187 | 1196 | 10 | NEVAKNLNES | 3.7e-05 | 51 |
| HLA-B*51:01 | 1 | 1192 | 1201 | 10 | NLNESLIDLQ | 3.7e-05 | 57 |
| HLA-A*02:01 | 1 | 1211 | 1220 | 10 | KWPWYIWLGF | 3.7e-05 | 47 |
| HLA-A*33:01 | 1 | 1213 | 1222 | 10 | PWYIWLGFIA | 3.7e-05 | 51 |
| HLA-A*01:01 | 1 | 1214 | 1222 | 9 | WYIWLGFIA | 3.7e-05 | 68 |
| HLA-A*01:01 | 1 | 1226 | 1235 | 10 | AIVMVTIMLC | 3.7e-05 | 68 |
| HLA-A*11:01 | 1 | 1231 | 1239 | 9 | TIMLCCMTS | 3.7e-05 | 30 |
| HLA-B*15:01 | 1 | 1237 | 1245 | 9 | MTSCCCLK | 3.7e-05 | 47 |
| HLA-A*24:02 | 1 | 1259 | 1268 | 10 | DDSEPVLKGV | 3.7e-05 | 29 |
| HLA-B*07:02 | 1 | 1263 | 1271 | 9 | PVLKGVKLH | 3.7e-05 | 45 |
| HLA-A*68:01 | 1 | 3 | 11 | 9 | VFLVLLPLV | 3.6e-05 | 43 |
| HLA-B*35:01 | 1 | 3 | 11 | 9 | VFLVLLPLV | 3.6e-05 | 35 |
| HLA-B*07:02 | 1 | 4 | 12 | 9 | FLVLLPLVS | 3.6e-05 | 45 |
| HLA-B*58:01 | 1 | 4 | 12 | 9 | FLVLLPLVS | 3.6e-05 | 52 |
| HLA-B*40:01 | 1 | 15 | 24 | 10 | CVNLTRTRQL | 3.6e-05 | 29 |
| HLA-A*24:02 | 1 | 26 | 35 | 10 | PAYTNSFTRG | 3.6e-05 | 30 |
| HLA-A*30:02 | 1 | 26 | 35 | 10 | PAYTNSFTRG | 3.6e-05 | 72 |
| HLA-B*44:03 | 1 | 30 | 39 | 10 | NSFTRGVYYP | 3.6e-05 | 32 |
| HLA-A*02:06 | 1 | 32 | 41 | 10 | FTRGVYYPDK | 3.6e-05 | 58 |
| HLA-A*01:01 | 1 | 33 | 41 | 9 | TRGVYYPDK | 3.6e-05 | 69 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-B*58:01 | 1 | 33 | 42 | 10 | TRGVVYPDKV | 3.6e-05 | 52 |
| HLA-B*44:02 | 1 | 39 | 48 | 10 | PDKVFRSSVL | 3.6e-05 | 35 |
| HLA-A*68:01 | 1 | 51 | 60 | 10 | TQDLFLPFFS | 3.6e-05 | 43 |
| HLA-A*11:01 | 1 | 58 | 67 | 10 | FFSNVTWFHA | 3.6e-05 | 31 |
| HLA-B*07:02 | 1 | 60 | 69 | 10 | SNVTWFHAIH | 3.6e-05 | 45 |
| HLA-A*31:01 | 1 | 64 | 73 | 10 | WFHAIHVSGT | 3.6e-05 | 49 |
| HLA-A*26:01 | 1 | 67 | 75 | 9 | AIHVSGTNG | 3.6e-05 | 42 |
| HLA-A*02:03 | 1 | 70 | 79 | 10 | VSGTNGTKRF | 3.6e-05 | 50 |
| HLA-B*35:01 | 1 | 75 | 84 | 10 | GTKRFDNPVL | 3.6e-05 | 35 |
| HLA-A*11:01 | 1 | 81 | 90 | 10 | NPVLPFNDGV | 3.6e-05 | 31 |
| HLA-A*24:02 | 1 | 82 | 91 | 10 | PVLPFNDGVY | 3.6e-05 | 30 |
| HLA-A*03:01 | 1 | 85 | 93 | 9 | PFNDGVYFA | 3.6e-05 | 41 |
| HLA-A*31:01 | 1 | 85 | 94 | 10 | PFNDGVYFAS | 3.6e-05 | 49 |
| HLA-A*01:01 | 1 | 88 | 96 | 9 | DGVYFASTE | 3.6e-05 | 69 |
| HLA-A*02:03 | 1 | 96 | 105 | 10 | EKSNIIRGWI | 3.6e-05 | 50 |
| HLA-A*02:06 | 1 | 98 | 107 | 10 | SNIIRGWIFG | 3.6e-05 | 58 |
| HLA-A*02:01 | 1 | 102 | 111 | 10 | RGWIFGTTLD | 3.6e-05 | 47 |
| HLA-A*02:01 | 1 | 106 | 114 | 9 | FGTTLD SKT | 3.6e-05 | 47 |
| HLA-B*51:01 | 1 | 106 | 115 | 10 | FGTTLD SKTQ | 3.6e-05 | 57 |
| HLA-A*33:01 | 1 | 107 | 116 | 10 | GTTLD SKTQS | 3.6e-05 | 51 |
| HLA-A*26:01 | 1 | 120 | 129 | 10 | VNNATNVVIK | 3.6e-05 | 42 |
| HLA-A*01:01 | 1 | 127 | 136 | 10 | VIKVCEFQFC | 3.6e-05 | 69 |
| HLA-A*33:01 | 1 | 133 | 142 | 10 | FQFCNDPFLG | 3.6e-05 | 51 |
| HLA-A*02:06 | 1 | 141 | 150 | 10 | LGVYYHKNNK | 3.6e-05 | 58 |
| HLA-B*08:01 | 1 | 141 | 150 | 10 | LGVYYHKNNK | 3.6e-05 | 65 |
| HLA-B*07:02 | 1 | 142 | 151 | 10 | GVYYHKNNKS | 3.6e-05 | 45 |
| HLA-B*35:01 | 1 | 142 | 150 | 9 | GVYYHKNNK | 3.6e-05 | 35 |
| HLA-A*02:01 | 1 | 144 | 153 | 10 | YYHKNNKSWM | 3.6e-05 | 47 |
| HLA-A*68:01 | 1 | 145 | 154 | 10 | YHKNNKSWME | 3.6e-05 | 43 |
| HLA-B*15:01 | 1 | 165 | 174 | 10 | NCTFEYVSQP | 3.6e-05 | 47 |
| HLA-B*53:01 | 1 | 165 | 173 | 9 | NCTFEYVSQ | 3.6e-05 | 34 |
| HLA-A*30:02 | 1 | 179 | 188 | 10 | LEGKQGNFKN | 3.6e-05 | 72 |
| HLA-B*08:01 | 1 | 179 | 187 | 9 | LEGKQGNFK | 3.6e-05 | 65 |
| HLA-B*51:01 | 1 | 180 | 188 | 9 | EGKQGNFKN | 3.6e-05 | 57 |
| HLA-A*02:03 | 1 | 182 | 191 | 10 | KQGNFKNLRE | 3.6e-05 | 50 |
| HLA-A*02:01 | 1 | 187 | 195 | 9 | KNLREFVFK | 3.6e-05 | 47 |
| HLA-A*02:01 | 1 | 187 | 196 | 10 | KNLREFVFKN | 3.6e-05 | 47 |
| HLA-B*44:03 | 1 | 200 | 209 | 10 | YFKIYSKHTP | 3.6e-05 | 32 |
| HLA-B*53:01 | 1 | 201 | 209 | 9 | FKIYSKHTP | 3.6e-05 | 34 |
| HLA-A*68:02 | 1 | 202 | 211 | 10 | KIYSKHTPIN | 3.6e-05 | 49 |
| HLA-A*33:01 | 1 | 207 | 215 | 9 | HTPINLVRD | 3.6e-05 | 51 |
| HLA-A*31:01 | 1 | 216 | 224 | 9 | LPOGFSALE | 3.6e-05 | 49 |
| HLA-B*58:01 | 1 | 217 | 226 | 10 | PQGFSALEPL | 3.6e-05 | 52 |
| HLA-A*68:02 | 1 | 224 | 232 | 9 | EPLVDLPIG | 3.6e-05 | 49 |
| HLA-A*03:01 | 1 | 226 | 234 | 9 | LVDLPIGIN | 3.6e-05 | 41 |
| HLA-A*11:01 | 1 | 226 | 234 | 9 | LVDLPIGIN | 3.6e-05 | 31 |
| HLA-A*26:01 | 1 | 247 | 255 | 9 | SYLTPGDSS | 3.6e-05 | 42 |
| HLA-B*53:01 | 1 | 253 | 262 | 10 | DSSSGWTAGA | 3.6e-05 | 34 |
| HLA-B*57:01 | 1 | 265 | 274 | 10 | YYVGYLQPRT | 3.6e-05 | 64 |
| HLA-A*24:02 | 1 | 273 | 281 | 9 | RTFLLKYNE | 3.6e-05 | 30 |
| HLA-A*33:01 | 1 | 290 | 298 | 9 | DCALDPLSE | 3.6e-05 | 51 |
| HLA-B*58:01 | 1 | 295 | 304 | 10 | PLSETKCTLK | 3.6e-05 | 52 |
| HLA-B*08:01 | 1 | 297 | 305 | 9 | SETKCTLKS | 3.6e-05 | 65 |
| HLA-A*31:01 | 1 | 298 | 307 | 10 | ETKCTLKSFT | 3.6e-05 | 49 |
| HLA-B*35:01 | 1 | 323 | 332 | 10 | TESIVRFPNI | 3.6e-05 | 35 |
| HLA-B*44:03 | 1 | 328 | 336 | 9 | RFPNITNLC | 3.6e-05 | 32 |
| HLA-B*51:01 | 1 | 331 | 339 | 9 | NITNLCPFG | 3.6e-05 | 57 |
| HLA-B*51:01 | 1 | 334 | 343 | 10 | NLCPFGVFN | 3.6e-05 | 57 |
| HLA-B*53:01 | 1 | 339 | 348 | 10 | GEVFNATRFA | 3.6e-05 | 34 |
| HLA-B*57:01 | 1 | 341 | 349 | 9 | VFNATRFAS | 3.6e-05 | 64 |
| HLA-A*02:01 | 1 | 348 | 356 | 9 | ASVYAWNRK | 3.6e-05 | 47 |
| HLA-B*40:01 | 1 | 350 | 358 | 9 | VYAWNRKRI | 3.6e-05 | 29 |
| HLA-A*26:01 | 1 | 351 | 359 | 9 | YAWNRKRIS | 3.6e-05 | 42 |
| HLA-A*02:03 | 1 | 356 | 365 | 10 | KRISNCVADY | 3.6e-05 | 50 |
| HLA-A*24:02 | 1 | 357 | 365 | 9 | RISNCVADY | 3.6e-05 | 30 |
| HLA-A*31:01 | 1 | 358 | 367 | 10 | ISNCVADYSV | 3.6e-05 | 49 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-A*24:02 | 1 | 364 | 373 | 10 | DYSVLVNSAS | 3.6e-05 | 30 |
| HLA-B*07:02 | 1 | 369 | 378 | 10 | YNSASFSTFK | 3.6e-05 | 45 |
| HLA-B*07:02 | 1 | 373 | 382 | 10 | SFSTFKCYGV | 3.6e-05 | 45 |
| HLA-A*68:01 | 1 | 380 | 388 | 9 | YGVSPTKLN | 3.6e-05 | 43 |
| HLA-A*33:01 | 1 | 382 | 391 | 10 | VSPTKLN DLC | 3.6e-05 | 51 |
| HLA-A*68:01 | 1 | 383 | 391 | 9 | SPTKLN DLC | 3.6e-05 | 43 |
| HLA-B*58:01 | 1 | 385 | 394 | 10 | TKLN DLCFTN | 3.6e-05 | 52 |
| HLA-B*07:02 | 1 | 389 | 397 | 9 | DLCFTNVYA | 3.6e-05 | 45 |
| HLA-B*07:02 | 1 | 391 | 400 | 10 | CFTNVYADF | 3.6e-05 | 45 |
| HLA-A*26:01 | 1 | 395 | 404 | 10 | VYADFVIRG | 3.6e-05 | 42 |
| HLA-A*32:01 | 1 | 406 | 414 | 9 | EVRQIAPGQ | 3.6e-05 | 36 |
| HLA-A*26:01 | 1 | 410 | 419 | 10 | IAPGQTGKIA | 3.6e-05 | 42 |
| HLA-A*11:01 | 1 | 411 | 419 | 9 | APGQTGKIA | 3.6e-05 | 31 |
| HLA-A*24:02 | 1 | 414 | 423 | 10 | QTGKIADYNY | 3.6e-05 | 30 |
| HLA-A*11:01 | 1 | 417 | 426 | 10 | KIADYNYKLP | 3.6e-05 | 31 |
| HLA-B*57:01 | 1 | 438 | 446 | 9 | SNNLDSKVG | 3.6e-05 | 64 |
| HLA-A*24:02 | 1 | 446 | 454 | 9 | GGNYNYLYR | 3.6e-05 | 30 |
| HLA-A*26:01 | 1 | 446 | 455 | 10 | GGNYNYLYRL | 3.6e-05 | 42 |
| HLA-B*35:01 | 1 | 454 | 462 | 9 | RLFRKSNLK | 3.6e-05 | 35 |
| HLA-A*32:01 | 1 | 455 | 463 | 9 | LFRKSNLKP | 3.6e-05 | 36 |
| HLA-B*51:01 | 1 | 460 | 469 | 10 | NLKPFERDIS | 3.6e-05 | 57 |
| HLA-A*01:01 | 1 | 461 | 470 | 10 | LKPFERDIST | 3.6e-05 | 69 |
| HLA-A*24:02 | 1 | 463 | 471 | 9 | PFERDISTE | 3.6e-05 | 30 |
| HLA-A*02:06 | 1 | 465 | 474 | 10 | ERDISTEIQ | 3.6e-05 | 58 |
| HLA-A*30:01 | 1 | 467 | 476 | 10 | DISTEIQAG | 3.6e-05 | 74 |
| HLA-A*33:01 | 1 | 468 | 476 | 9 | ISTEIQAG | 3.6e-05 | 51 |
| HLA-A*23:01 | 1 | 475 | 483 | 9 | AGSTPCNGV | 3.6e-05 | 31 |
| HLA-A*11:01 | 1 | 476 | 484 | 9 | GSTPCNGVE | 3.6e-05 | 31 |
| HLA-A*02:03 | 1 | 481 | 489 | 9 | NGVEGFNCY | 3.6e-05 | 50 |
| HLA-B*40:01 | 1 | 484 | 492 | 9 | EGFNCYFPL | 3.6e-05 | 29 |
| HLA-B*15:01 | 1 | 498 | 506 | 9 | QPTNGVGYQ | 3.6e-05 | 47 |
| HLA-B*44:02 | 1 | 503 | 512 | 10 | VGYQPYRVVV | 3.6e-05 | 35 |
| HLA-B*07:02 | 1 | 511 | 520 | 10 | VVLSFELLHA | 3.6e-05 | 45 |
| HLA-B*15:01 | 1 | 518 | 526 | 9 | LHAPATVCG | 3.6e-05 | 47 |
| HLA-A*33:01 | 1 | 529 | 538 | 10 | KSTNLVKNKC | 3.6e-05 | 51 |
| HLA-A*02:06 | 1 | 532 | 540 | 9 | NLVKNKCVN | 3.6e-05 | 58 |
| HLA-A*33:01 | 1 | 533 | 542 | 10 | LVKNKCVNFN | 3.6e-05 | 51 |
| HLA-B*35:01 | 1 | 534 | 543 | 10 | VKNKCVNFN | 3.6e-05 | 35 |
| HLA-A*31:01 | 1 | 544 | 552 | 9 | NGLTGTGVL | 3.6e-05 | 49 |
| HLA-B*44:03 | 1 | 555 | 563 | 9 | SNKKFLPFQ | 3.6e-05 | 32 |
| HLA-B*35:01 | 1 | 559 | 568 | 10 | FLPFQQFGRD | 3.6e-05 | 35 |
| HLA-A*32:01 | 1 | 560 | 569 | 10 | LPFQQFGRDI | 3.6e-05 | 36 |
| HLA-B*08:01 | 1 | 564 | 572 | 9 | QFGRDIADT | 3.6e-05 | 65 |
| HLA-A*30:01 | 1 | 569 | 578 | 10 | IADTTDAVRD | 3.6e-05 | 74 |
| HLA-A*03:01 | 1 | 572 | 581 | 10 | TTDAVRDPQT | 3.6e-05 | 41 |
| HLA-A*03:01 | 1 | 573 | 582 | 10 | TDAVRDPQTL | 3.6e-05 | 41 |
| HLA-A*03:01 | 1 | 574 | 582 | 9 | DAVRDPQTL | 3.6e-05 | 41 |
| HLA-A*26:01 | 1 | 582 | 590 | 9 | LEILDITPC | 3.6e-05 | 42 |
| HLA-A*33:01 | 1 | 582 | 590 | 9 | LEILDITPC | 3.6e-05 | 51 |
| HLA-B*35:01 | 1 | 584 | 593 | 10 | ILDITPCSF | 3.6e-05 | 35 |
| HLA-A*68:01 | 1 | 587 | 596 | 10 | ITPCSFSGV | 3.6e-05 | 43 |
| HLA-B*35:01 | 1 | 591 | 599 | 9 | SFGGVSVIT | 3.6e-05 | 35 |
| HLA-A*03:01 | 1 | 598 | 606 | 9 | ITPGTNTSN | 3.6e-05 | 41 |
| HLA-B*40:01 | 1 | 607 | 615 | 9 | QVAVLYQDV | 3.6e-05 | 29 |
| HLA-A*30:01 | 1 | 608 | 616 | 9 | VAVLYQDVN | 3.6e-05 | 74 |
| HLA-B*15:01 | 1 | 615 | 624 | 10 | VNCTEVPVAI | 3.6e-05 | 47 |
| HLA-B*53:01 | 1 | 617 | 626 | 10 | CTEVPVAIHA | 3.6e-05 | 34 |
| HLA-A*26:01 | 1 | 618 | 627 | 10 | TEVPVAIHAD | 3.6e-05 | 42 |
| HLA-B*44:02 | 1 | 623 | 632 | 10 | AIHADQLTPT | 3.6e-05 | 35 |
| HLA-B*15:01 | 1 | 629 | 637 | 9 | LTPTWRVYS | 3.6e-05 | 47 |
| HLA-A*26:01 | 1 | 635 | 644 | 10 | VYSTGSNVFQ | 3.6e-05 | 42 |
| HLA-B*44:02 | 1 | 638 | 647 | 10 | TGSNVFQTRA | 3.6e-05 | 35 |
| HLA-B*58:01 | 1 | 640 | 648 | 9 | SNVFQTRAG | 3.6e-05 | 52 |
| HLA-A*02:06 | 1 | 644 | 652 | 9 | QTRAGCLIG | 3.6e-05 | 58 |
| HLA-A*68:01 | 1 | 645 | 654 | 10 | TRAGCLIGAE | 3.6e-05 | 43 |
| HLA-A*30:02 | 1 | 649 | 658 | 10 | CLIGAEHVNN | 3.6e-05 | 72 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*03:01 | 1 | 653 | 661 | 9 | AEHVNNSEYE | 3.6e-05 | 41 |
| HLA-A*02:01 | 1 | 654 | 662 | 9 | EHVNNSEYEC | 3.6e-05 | 47 |
| HLA-A*31:01 | 1 | 655 | 664 | 10 | HVNNSYECDI | 3.6e-05 | 49 |
| HLA-A*23:01 | 1 | 661 | 670 | 10 | ECDIPIGAGI | 3.6e-05 | 31 |
| HLA-B*40:01 | 1 | 672 | 681 | 10 | ASYQTQTNSP | 3.6e-05 | 29 |
| HLA-A*30:02 | 1 | 681 | 690 | 10 | PRRARSVASQ | 3.6e-05 | 72 |
| HLA-B*53:01 | 1 | 688 | 696 | 9 | ASQSIIAYT | 3.6e-05 | 34 |
| HLA-A*31:01 | 1 | 698 | 706 | 9 | SLGAENSPA | 3.6e-05 | 49 |
| HLA-B*07:02 | 1 | 707 | 716 | 10 | YSNNSIAIPT | 3.6e-05 | 45 |
| HLA-B*35:01 | 1 | 730 | 738 | 9 | SMTKTSVDC | 3.6e-05 | 35 |
| HLA-A*31:01 | 1 | 735 | 743 | 9 | SVDCTMYIC | 3.6e-05 | 49 |
| HLA-A*01:01 | 1 | 738 | 746 | 9 | CTMYICGDS | 3.6e-05 | 69 |
| HLA-A*01:01 | 1 | 749 | 758 | 10 | CSNLLLQYGS | 3.6e-05 | 69 |
| HLA-A*23:01 | 1 | 757 | 765 | 9 | GSFCTQLNR | 3.6e-05 | 31 |
| HLA-B*53:01 | 1 | 757 | 765 | 9 | GSFCTQLNR | 3.6e-05 | 34 |
| HLA-A*33:01 | 1 | 761 | 769 | 9 | TQLNRALTG | 3.6e-05 | 51 |
| HLA-B*35:01 | 1 | 762 | 770 | 9 | QLNRALTGI | 3.6e-05 | 35 |
| HLA-B*51:01 | 1 | 762 | 771 | 10 | QLNRALTGIA | 3.6e-05 | 57 |
| HLA-A*02:06 | 1 | 767 | 776 | 10 | LTGIAVEQDK | 3.6e-05 | 58 |
| HLA-A*30:02 | 1 | 767 | 775 | 9 | LTGIAVEQD | 3.6e-05 | 72 |
| HLA-A*30:02 | 1 | 769 | 778 | 10 | GIAVEQDKNT | 3.6e-05 | 72 |
| HLA-A*11:01 | 1 | 770 | 779 | 10 | IAVEQDKNTQ | 3.6e-05 | 31 |
| HLA-B*15:01 | 1 | 770 | 778 | 9 | IAVEQDKNT | 3.6e-05 | 47 |
| HLA-A*02:06 | 1 | 776 | 784 | 9 | KNTQEVFAQ | 3.6e-05 | 58 |
| HLA-B*35:01 | 1 | 778 | 787 | 10 | TQEVFAQVKQ | 3.6e-05 | 35 |
| HLA-A*26:01 | 1 | 787 | 796 | 10 | QIYKTPPIKD | 3.6e-05 | 42 |
| HLA-A*68:01 | 1 | 796 | 805 | 10 | DFGGFNFSQI | 3.6e-05 | 43 |
| HLA-B*57:01 | 1 | 800 | 809 | 10 | FNFSQILPDP | 3.6e-05 | 64 |
| HLA-A*01:01 | 1 | 810 | 819 | 10 | SKPSKRSEIE | 3.6e-05 | 69 |
| HLA-B*53:01 | 1 | 820 | 829 | 10 | DLLFNKVTLA | 3.6e-05 | 34 |
| HLA-A*30:01 | 1 | 838 | 846 | 9 | GDCLGDIAA | 3.6e-05 | 74 |
| HLA-A*03:01 | 1 | 840 | 849 | 10 | CLGDIAARDL | 3.6e-05 | 41 |
| HLA-A*26:01 | 1 | 844 | 852 | 9 | IAARDLICA | 3.6e-05 | 42 |
| HLA-B*08:01 | 1 | 844 | 853 | 10 | IAARDLICAQ | 3.6e-05 | 65 |
| HLA-B*35:01 | 1 | 846 | 854 | 9 | ARDLICAQK | 3.6e-05 | 35 |
| HLA-B*58:01 | 1 | 855 | 863 | 9 | FNGLTVLPP | 3.6e-05 | 52 |
| HLA-A*03:01 | 1 | 856 | 865 | 10 | NGLTVLPPLL | 3.6e-05 | 41 |
| HLA-A*32:01 | 1 | 860 | 868 | 9 | VLPLLTTDE | 3.6e-05 | 36 |
| HLA-B*07:02 | 1 | 865 | 874 | 10 | LTDEMIAQYT | 3.6e-05 | 45 |
| HLA-B*44:02 | 1 | 869 | 878 | 10 | MIAQYTSALL | 3.6e-05 | 35 |
| HLA-A*23:01 | 1 | 870 | 879 | 10 | IAQYTSALLA | 3.6e-05 | 31 |
| HLA-A*31:01 | 1 | 871 | 880 | 10 | AQYTSALLAG | 3.6e-05 | 49 |
| HLA-A*68:01 | 1 | 877 | 885 | 9 | LLAGTITSG | 3.6e-05 | 43 |
| HLA-B*07:02 | 1 | 883 | 892 | 10 | TSGWTFGAGA | 3.6e-05 | 45 |
| HLA-A*24:02 | 1 | 884 | 893 | 10 | SGWTFGAGAA | 3.6e-05 | 30 |
| HLA-A*02:01 | 1 | 899 | 908 | 10 | AMQMAYRFNG | 3.6e-05 | 47 |
| HLA-A*24:02 | 1 | 900 | 908 | 9 | MQMAYRFNG | 3.6e-05 | 30 |
| HLA-A*33:01 | 1 | 909 | 918 | 10 | IGVTQNVLYE | 3.6e-05 | 51 |
| HLA-A*68:01 | 1 | 917 | 925 | 9 | YENQKLIAN | 3.6e-05 | 43 |
| HLA-B*35:01 | 1 | 917 | 926 | 10 | YENQKLIANQ | 3.6e-05 | 35 |
| HLA-A*26:01 | 1 | 921 | 929 | 9 | KLIANQFNS | 3.6e-05 | 42 |
| HLA-A*24:02 | 1 | 926 | 935 | 10 | QFNSAIGKIQ | 3.6e-05 | 30 |
| HLA-B*44:03 | 1 | 943 | 952 | 10 | SALGKLQDVV | 3.6e-05 | 32 |
| HLA-A*33:01 | 1 | 944 | 952 | 9 | ALGKLQDVV | 3.6e-05 | 51 |
| HLA-A*26:01 | 1 | 948 | 957 | 10 | LQDVVNQNAQ | 3.6e-05 | 42 |
| HLA-A*11:01 | 1 | 949 | 957 | 9 | QDVVNQNAQ | 3.6e-05 | 31 |
| HLA-B*07:02 | 1 | 956 | 965 | 10 | AQALNTLVKQ | 3.6e-05 | 45 |
| HLA-A*11:01 | 1 | 957 | 966 | 10 | QALNTLVKQL | 3.6e-05 | 31 |
| HLA-A*68:02 | 1 | 961 | 969 | 9 | TLVKQLSSN | 3.6e-05 | 49 |
| HLA-B*51:01 | 1 | 963 | 972 | 10 | VKQLSSNFGA | 3.6e-05 | 57 |
| HLA-A*02:01 | 1 | 979 | 988 | 10 | DILSRLDKVE | 3.6e-05 | 47 |
| HLA-A*24:02 | 1 | 987 | 995 | 9 | VEAEVQIDR | 3.6e-05 | 30 |
| HLA-A*68:01 | 1 | 997 | 1006 | 10 | ITGRLQSLQT | 3.6e-05 | 43 |
| HLA-A*26:01 | 1 | 1001 | 1010 | 10 | LQSLQTYVTQ | 3.6e-05 | 42 |
| HLA-B*53:01 | 1 | 1003 | 1011 | 9 | SLQTYVTQQ | 3.6e-05 | 34 |
| HLA-A*31:01 | 1 | 1027 | 1036 | 10 | TKMSECVLQG | 3.6e-05 | 49 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-B*15:01 | 1 | 1027 | 1036 | 10 | TKMSECVLGQ | 3.6e-05 | 47 |
| HLA-A*02:03 | 1 | 1031 | 1039 | 9 | ECVLGQSKR | 3.6e-05 | 50 |
| HLA-B*35:01 | 1 | 1031 | 1040 | 10 | ECVLGQSKRV | 3.6e-05 | 35 |
| HLA-A*01:01 | 1 | 1034 | 1043 | 10 | LGQSKRVDFC | 3.6e-05 | 69 |
| HLA-A*03:01 | 1 | 1052 | 1061 | 10 | FPQSAPHGVV | 3.6e-05 | 41 |
| HLA-A*03:01 | 1 | 1066 | 1074 | 9 | TYVPAQEK | 3.6e-05 | 41 |
| HLA-A*03:01 | 1 | 1068 | 1076 | 9 | VPAQEKNF | 3.6e-05 | 41 |
| HLA-A*68:01 | 1 | 1070 | 1079 | 10 | AQEKNF | 3.6e-05 | 43 |
| HLA-B*35:01 | 1 | 1071 | 1080 | 10 | QEKNF | 3.6e-05 | 35 |
| HLA-A*01:01 | 1 | 1073 | 1082 | 10 | KNF | 3.6e-05 | 69 |
| HLA-B*40:01 | 1 | 1083 | 1091 | 9 | HDGKAHFPR | 3.6e-05 | 29 |
| HLA-B*44:02 | 1 | 1107 | 1116 | 10 | RNFYEQIIT | 3.6e-05 | 35 |
| HLA-A*68:01 | 1 | 1111 | 1120 | 10 | EPQIIT | 3.6e-05 | 43 |
| HLA-A*23:01 | 1 | 1113 | 1122 | 10 | QIIT | 3.6e-05 | 31 |
| HLA-B*44:02 | 1 | 1114 | 1122 | 9 | IIT | 3.6e-05 | 35 |
| HLA-B*57:01 | 1 | 1117 | 1126 | 10 | TDNTFVSGNC | 3.6e-05 | 64 |
| HLA-B*15:01 | 1 | 1120 | 1128 | 9 | TFVSGNCDV | 3.6e-05 | 47 |
| HLA-B*08:01 | 1 | 1123 | 1131 | 9 | SGNCDV | 3.6e-05 | 65 |
| HLA-B*57:01 | 1 | 1127 | 1136 | 10 | DVIGIVNNT | 3.6e-05 | 64 |
| HLA-B*53:01 | 1 | 1148 | 1157 | 10 | FKEELDKYFK | 3.6e-05 | 34 |
| HLA-A*02:06 | 1 | 1149 | 1157 | 9 | KEELDKYFK | 3.6e-05 | 58 |
| HLA-B*57:01 | 1 | 1150 | 1158 | 9 | EELDKYFKN | 3.6e-05 | 64 |
| HLA-A*68:01 | 1 | 1152 | 1161 | 10 | LDKYFKNHTS | 3.6e-05 | 43 |
| HLA-A*68:02 | 1 | 1152 | 1160 | 9 | LDKYFKNHT | 3.6e-05 | 49 |
| HLA-B*15:01 | 1 | 1153 | 1162 | 10 | DKYFKNHTSP | 3.6e-05 | 47 |
| HLA-A*23:01 | 1 | 1156 | 1164 | 9 | FKNHTSPDV | 3.6e-05 | 31 |
| HLA-A*24:02 | 1 | 1167 | 1176 | 10 | GDISGINASV | 3.6e-05 | 30 |
| HLA-B*57:01 | 1 | 1178 | 1187 | 10 | NIQKEIDRLN | 3.6e-05 | 64 |
| HLA-B*44:03 | 1 | 1179 | 1188 | 10 | IQKEIDRLNE | 3.6e-05 | 32 |
| HLA-A*11:01 | 1 | 1182 | 1190 | 9 | EIDRLNEVA | 3.6e-05 | 31 |
| HLA-B*35:01 | 1 | 1196 | 1205 | 10 | SLIDLQELGK | 3.6e-05 | 35 |
| HLA-A*31:01 | 1 | 1201 | 1210 | 10 | QELGKYEQYI | 3.6e-05 | 49 |
| HLA-B*58:01 | 1 | 1215 | 1223 | 9 | YIWLGFIA | 3.6e-05 | 52 |
| HLA-A*68:01 | 1 | 1218 | 1226 | 9 | LGFIAGLIA | 3.6e-05 | 43 |
| HLA-A*33:01 | 1 | 1221 | 1230 | 10 | IAGLIAIVMV | 3.6e-05 | 51 |
| HLA-A*01:01 | 1 | 1223 | 1232 | 10 | GLIAIVMVTI | 3.6e-05 | 69 |
| HLA-B*44:02 | 1 | 1224 | 1232 | 9 | LIAIVMVTI | 3.6e-05 | 35 |
| HLA-A*32:01 | 1 | 1231 | 1239 | 9 | TIMLCCMTS | 3.6e-05 | 36 |
| HLA-B*51:01 | 1 | 1231 | 1239 | 9 | TIMLCCMTS | 3.6e-05 | 57 |
| HLA-A*02:01 | 1 | 1235 | 1244 | 10 | CCMTSCC | 3.6e-05 | 47 |
| HLA-B*57:01 | 1 | 1241 | 1249 | 9 | CCLKGC | 3.6e-05 | 64 |
| HLA-A*30:01 | 1 | 1242 | 1251 | 10 | SCLKGC | 3.6e-05 | 74 |
| HLA-B*44:02 | 1 | 1248 | 1256 | 9 | CSCGSCCKF | 3.6e-05 | 35 |
| HLA-A*03:01 | 1 | 1255 | 1264 | 10 | KFDEDDSEPV | 3.6e-05 | 41 |
| HLA-A*33:01 | 1 | 1255 | 1264 | 10 | KFDEDDSEPV | 3.6e-05 | 51 |
| HLA-B*58:01 | 1 | 1258 | 1266 | 9 | EDDSEPV | 3.6e-05 | 52 |
| HLA-B*51:01 | 1 | 1263 | 1271 | 9 | PVLKGVK | 3.6e-05 | 57 |
| HLA-B*40:01 | 1 | 7 | 15 | 9 | LLPLVSSQC | 3.5e-05 | 29 |
| HLA-B*40:01 | 1 | 8 | 16 | 9 | LPLVSSQCV | 3.5e-05 | 29 |
| HLA-A*31:01 | 1 | 9 | 18 | 10 | PLVSSQCV | 3.5e-05 | 49 |
| HLA-B*51:01 | 1 | 13 | 22 | 10 | SQCVNLT | 3.5e-05 | 58 |
| HLA-A*23:01 | 1 | 20 | 29 | 10 | TRTQLPP | 3.5e-05 | 31 |
| HLA-B*53:01 | 1 | 21 | 30 | 10 | RTQLPP | 3.5e-05 | 34 |
| HLA-B*44:02 | 1 | 26 | 34 | 9 | PAYTNSF | 3.5e-05 | 35 |
| HLA-B*58:01 | 1 | 27 | 35 | 9 | AYTNSF | 3.5e-05 | 52 |
| HLA-A*32:01 | 1 | 32 | 40 | 9 | FTRGVY | 3.5e-05 | 37 |
| HLA-A*26:01 | 1 | 34 | 42 | 9 | RGVY | 3.5e-05 | 42 |
| HLA-A*23:01 | 1 | 41 | 50 | 10 | KVFRSSV | 3.5e-05 | 31 |
| HLA-A*11:01 | 1 | 43 | 51 | 9 | FRSSV | 3.5e-05 | 31 |
| HLA-B*35:01 | 1 | 53 | 62 | 10 | DLFLP | 3.5e-05 | 35 |
| HLA-B*15:01 | 1 | 57 | 66 | 10 | PFFSNV | 3.5e-05 | 48 |
| HLA-B*44:03 | 1 | 60 | 69 | 10 | SNVTW | 3.5e-05 | 33 |
| HLA-A*68:01 | 1 | 64 | 72 | 9 | WFHAIH | 3.5e-05 | 43 |
| HLA-A*11:01 | 1 | 76 | 85 | 10 | TKRFDN | 3.5e-05 | 31 |
| HLA-B*08:01 | 1 | 79 | 87 | 9 | FDNPV | 3.5e-05 | 65 |
| HLA-A*33:01 | 1 | 90 | 99 | 10 | VYFAST | 3.5e-05 | 52 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-A*23:01 | 1 | 92 | 101 | 10 | FASTEKSNI | 3.5e-05 | 31 |
| HLA-A*68:01 | 1 | 92 | 101 | 10 | FASTEKSNI | 3.5e-05 | 43 |
| HLA-B*07:02 | 1 | 96 | 105 | 10 | EKSNIIRGWI | 3.5e-05 | 46 |
| HLA-B*07:02 | 1 | 101 | 109 | 9 | IRGWIFGTT | 3.5e-05 | 46 |
| HLA-A*31:01 | 1 | 103 | 111 | 9 | GWIFGTTLD | 3.5e-05 | 49 |
| HLA-B*57:01 | 1 | 104 | 112 | 9 | WIFGTTLDS | 3.5e-05 | 64 |
| HLA-A*26:01 | 1 | 113 | 121 | 9 | KTQSLLIVN | 3.5e-05 | 42 |
| HLA-A*03:01 | 1 | 117 | 126 | 10 | LLIVNNATNV | 3.5e-05 | 42 |
| HLA-B*35:01 | 1 | 118 | 127 | 10 | LIVNNATNVV | 3.5e-05 | 35 |
| HLA-A*33:01 | 1 | 119 | 128 | 10 | IVNNATNVVI | 3.5e-05 | 52 |
| HLA-B*08:01 | 1 | 120 | 129 | 10 | VNNATNVVIK | 3.5e-05 | 65 |
| HLA-A*03:01 | 1 | 125 | 134 | 10 | NVVIKVCEFQ | 3.5e-05 | 42 |
| HLA-B*53:01 | 1 | 125 | 134 | 10 | NVVIKVCEFQ | 3.5e-05 | 34 |
| HLA-A*31:01 | 1 | 133 | 142 | 10 | FQFCNDPFLG | 3.5e-05 | 49 |
| HLA-A*02:01 | 1 | 149 | 157 | 9 | NKSWMESEF | 3.5e-05 | 47 |
| HLA-A*02:03 | 1 | 153 | 162 | 10 | MESEFRVYSS | 3.5e-05 | 50 |
| HLA-B*15:01 | 1 | 153 | 162 | 10 | MESEFRVYSS | 3.5e-05 | 48 |
| HLA-A*02:03 | 1 | 154 | 162 | 9 | ESEFRVYSS | 3.5e-05 | 50 |
| HLA-B*58:01 | 1 | 172 | 181 | 10 | SQPFLMDLEG | 3.5e-05 | 52 |
| HLA-A*02:03 | 1 | 181 | 190 | 10 | GKQGNFKNLR | 3.5e-05 | 50 |
| HLA-A*68:02 | 1 | 182 | 190 | 9 | KQGNFKNLR | 3.5e-05 | 49 |
| HLA-A*11:01 | 1 | 183 | 191 | 9 | QGNFKNLR | 3.5e-05 | 31 |
| HLA-A*32:01 | 1 | 184 | 193 | 10 | GNFKNLREFV | 3.5e-05 | 37 |
| HLA-B*44:03 | 1 | 187 | 195 | 9 | KNLREFVFK | 3.5e-05 | 33 |
| HLA-B*40:01 | 1 | 191 | 200 | 10 | EFVFKNIDGY | 3.5e-05 | 29 |
| HLA-B*40:01 | 1 | 194 | 202 | 9 | FKNIDGYFK | 3.5e-05 | 29 |
| HLA-A*03:01 | 1 | 199 | 208 | 10 | GYFKIYSKHT | 3.5e-05 | 42 |
| HLA-A*02:01 | 1 | 208 | 217 | 10 | TPINLVRDLP | 3.5e-05 | 47 |
| HLA-A*03:01 | 1 | 213 | 221 | 9 | VRDLPQGF | 3.5e-05 | 42 |
| HLA-A*31:01 | 1 | 215 | 224 | 10 | DLPQGFSALE | 3.5e-05 | 49 |
| HLA-B*58:01 | 1 | 216 | 225 | 10 | LPGGFSALEP | 3.5e-05 | 52 |
| HLA-A*02:06 | 1 | 225 | 234 | 10 | PLVDLPIGIN | 3.5e-05 | 58 |
| HLA-B*07:02 | 1 | 228 | 236 | 9 | DLPIGINIT | 3.5e-05 | 46 |
| HLA-A*03:01 | 1 | 241 | 250 | 10 | LLALHRSYLT | 3.5e-05 | 42 |
| HLA-A*68:01 | 1 | 243 | 251 | 9 | ALHRSYLT | 3.5e-05 | 43 |
| HLA-B*44:02 | 1 | 247 | 255 | 9 | SYLTPGDSS | 3.5e-05 | 35 |
| HLA-A*31:01 | 1 | 248 | 256 | 9 | YLTPGDSS | 3.5e-05 | 49 |
| HLA-A*02:01 | 1 | 257 | 265 | 9 | GWTAGAAAY | 3.5e-05 | 47 |
| HLA-B*44:03 | 1 | 263 | 272 | 10 | AAYVGYLQP | 3.5e-05 | 33 |
| HLA-B*44:02 | 1 | 265 | 273 | 9 | YYVGYLQPR | 3.5e-05 | 35 |
| HLA-A*01:01 | 1 | 275 | 284 | 10 | FLLKYNENGT | 3.5e-05 | 69 |
| HLA-A*30:02 | 1 | 275 | 284 | 10 | FLLKYNENGT | 3.5e-05 | 73 |
| HLA-A*02:03 | 1 | 277 | 286 | 10 | LKYNENGTIT | 3.5e-05 | 50 |
| HLA-A*23:01 | 1 | 280 | 289 | 10 | NENGTITDAV | 3.5e-05 | 31 |
| HLA-A*11:01 | 1 | 288 | 297 | 10 | AVDCALDPLS | 3.5e-05 | 31 |
| HLA-B*15:01 | 1 | 298 | 307 | 10 | ETKCTLKSFT | 3.5e-05 | 48 |
| HLA-B*51:01 | 1 | 303 | 311 | 9 | LKSFTVEKG | 3.5e-05 | 58 |
| HLA-A*02:03 | 1 | 315 | 324 | 10 | TSNFRVQPT | 3.5e-05 | 50 |
| HLA-B*58:01 | 1 | 336 | 345 | 10 | CPFGEVFNAT | 3.5e-05 | 52 |
| HLA-B*15:01 | 1 | 345 | 354 | 10 | TRFASVYAWN | 3.5e-05 | 48 |
| HLA-B*35:01 | 1 | 350 | 358 | 9 | VYAWNKRRI | 3.5e-05 | 35 |
| HLA-A*02:01 | 1 | 356 | 365 | 10 | KRISNCVADY | 3.5e-05 | 47 |
| HLA-B*35:01 | 1 | 377 | 385 | 9 | FKCYGVSP | 3.5e-05 | 35 |
| HLA-A*68:02 | 1 | 380 | 388 | 9 | YGVSPTKLN | 3.5e-05 | 49 |
| HLA-A*02:01 | 1 | 383 | 391 | 9 | SPTKLNLC | 3.5e-05 | 47 |
| HLA-A*68:02 | 1 | 384 | 393 | 10 | PTKLNLCFT | 3.5e-05 | 49 |
| HLA-A*31:01 | 1 | 402 | 411 | 10 | IRGDEVQRQIA | 3.5e-05 | 49 |
| HLA-B*07:02 | 1 | 414 | 423 | 10 | QTGKIADYNY | 3.5e-05 | 46 |
| HLA-B*07:02 | 1 | 416 | 424 | 9 | GKIADYNYK | 3.5e-05 | 46 |
| HLA-A*30:02 | 1 | 426 | 434 | 9 | PDDFTGCVI | 3.5e-05 | 73 |
| HLA-B*44:02 | 1 | 426 | 434 | 9 | PDDFTGCVI | 3.5e-05 | 35 |
| HLA-B*08:01 | 1 | 428 | 437 | 10 | DFTGCVIAWN | 3.5e-05 | 65 |
| HLA-A*02:01 | 1 | 429 | 438 | 10 | FTGCVIAWNS | 3.5e-05 | 47 |
| HLA-A*01:01 | 1 | 430 | 438 | 9 | TGCVIAWNS | 3.5e-05 | 69 |
| HLA-A*31:01 | 1 | 432 | 440 | 9 | CVIAWNSNN | 3.5e-05 | 49 |
| HLA-A*68:01 | 1 | 460 | 468 | 9 | NLKPFERDI | 3.5e-05 | 43 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-A*32:01 | 1 | 462 | 471 | 10 | KPFERDISTE | 3.5e-05 | 37 |
| HLA-A*24:02 | 1 | 467 | 475 | 9 | DISTEIYQA | 3.5e-05 | 30 |
| HLA-A*68:01 | 1 | 467 | 476 | 10 | DISTEIYQAG | 3.5e-05 | 43 |
| HLA-A*02:01 | 1 | 468 | 476 | 9 | ISTEIYQAG | 3.5e-05 | 47 |
| HLA-A*02:01 | 1 | 468 | 477 | 10 | ISTEIYQAGS | 3.5e-05 | 47 |
| HLA-A*31:01 | 1 | 474 | 483 | 10 | QAGSTPCNGV | 3.5e-05 | 49 |
| HLA-A*11:01 | 1 | 485 | 493 | 9 | GFNCYFPLQ | 3.5e-05 | 31 |
| HLA-B*58:01 | 1 | 497 | 506 | 10 | FQPTNGVGYQ | 3.5e-05 | 52 |
| HLA-B*35:01 | 1 | 503 | 512 | 10 | VGYPYRVVV | 3.5e-05 | 35 |
| HLA-A*68:02 | 1 | 507 | 515 | 9 | PYRVVLSF | 3.5e-05 | 49 |
| HLA-A*23:01 | 1 | 513 | 521 | 9 | LSFELLHAP | 3.5e-05 | 31 |
| HLA-A*68:02 | 1 | 518 | 526 | 9 | LHAPATVCG | 3.5e-05 | 49 |
| HLA-A*33:01 | 1 | 522 | 530 | 9 | ATVCGPKKS | 3.5e-05 | 52 |
| HLA-B*44:02 | 1 | 524 | 533 | 10 | VCGPKKSTNL | 3.5e-05 | 35 |
| HLA-B*40:01 | 1 | 534 | 543 | 10 | VKNKCVNFNF | 3.5e-05 | 29 |
| HLA-A*11:01 | 1 | 541 | 549 | 9 | FNFNGLTGT | 3.5e-05 | 31 |
| HLA-B*44:02 | 1 | 543 | 551 | 9 | FNGLTGTGV | 3.5e-05 | 35 |
| HLA-B*07:02 | 1 | 544 | 553 | 10 | NGLTGTGVL | 3.5e-05 | 46 |
| HLA-B*53:01 | 1 | 549 | 558 | 10 | TGVLTESNKK | 3.5e-05 | 34 |
| HLA-A*31:01 | 1 | 552 | 561 | 10 | LTESNKKFLP | 3.5e-05 | 49 |
| HLA-A*68:01 | 1 | 552 | 561 | 10 | LTESNKKFLP | 3.5e-05 | 43 |
| HLA-A*01:01 | 1 | 556 | 564 | 9 | NKKFLPFQQ | 3.5e-05 | 69 |
| HLA-B*57:01 | 1 | 556 | 564 | 9 | NKKFLPFQQ | 3.5e-05 | 64 |
| HLA-B*44:02 | 1 | 558 | 567 | 10 | KFLPFQQFGR | 3.5e-05 | 35 |
| HLA-A*01:01 | 1 | 559 | 568 | 10 | FLPFQQFGRD | 3.5e-05 | 69 |
| HLA-B*08:01 | 1 | 559 | 568 | 10 | FLPFQQFGRD | 3.5e-05 | 65 |
| HLA-A*02:06 | 1 | 560 | 569 | 10 | LPFQQFGRDI | 3.5e-05 | 58 |
| HLA-A*30:01 | 1 | 560 | 568 | 9 | LPFQQFGRD | 3.5e-05 | 74 |
| HLA-B*44:03 | 1 | 560 | 569 | 10 | LPFQQFGRDI | 3.5e-05 | 33 |
| HLA-B*07:02 | 1 | 563 | 572 | 10 | QQFGRDIADT | 3.5e-05 | 46 |
| HLA-B*44:02 | 1 | 571 | 579 | 9 | DTTDAVRDP | 3.5e-05 | 35 |
| HLA-B*58:01 | 1 | 579 | 588 | 10 | PQTLEILDIT | 3.5e-05 | 52 |
| HLA-B*40:01 | 1 | 580 | 589 | 10 | QTLEILDITP | 3.5e-05 | 29 |
| HLA-A*03:01 | 1 | 581 | 590 | 10 | TLEILDITPC | 3.5e-05 | 42 |
| HLA-B*57:01 | 1 | 586 | 594 | 9 | DITPCSFEG | 3.5e-05 | 64 |
| HLA-A*30:01 | 1 | 592 | 601 | 10 | FGGVSVITPG | 3.5e-05 | 74 |
| HLA-A*33:01 | 1 | 598 | 606 | 9 | ITPGTNTSN | 3.5e-05 | 52 |
| HLA-A*02:03 | 1 | 606 | 614 | 9 | NQVAVLYQD | 3.5e-05 | 50 |
| HLA-A*68:01 | 1 | 615 | 623 | 9 | VNCTEVPVA | 3.5e-05 | 43 |
| HLA-A*03:01 | 1 | 620 | 628 | 9 | VPVAIHADQ | 3.5e-05 | 42 |
| HLA-A*31:01 | 1 | 622 | 631 | 10 | VAIHADQLTP | 3.5e-05 | 49 |
| HLA-B*15:01 | 1 | 626 | 634 | 9 | ADQLTPTWR | 3.5e-05 | 48 |
| HLA-A*11:01 | 1 | 633 | 642 | 10 | WRVYSTGSNV | 3.5e-05 | 31 |
| HLA-B*51:01 | 1 | 646 | 655 | 10 | RAGCLIGAHEH | 3.5e-05 | 58 |
| HLA-A*33:01 | 1 | 647 | 656 | 10 | AGCLIGAHEHV | 3.5e-05 | 52 |
| HLA-A*02:03 | 1 | 649 | 658 | 10 | CLIGAHEVNN | 3.5e-05 | 50 |
| HLA-B*15:01 | 1 | 650 | 659 | 10 | LIGAHEVNNS | 3.5e-05 | 48 |
| HLA-B*07:02 | 1 | 660 | 669 | 10 | YECDIPIGAG | 3.5e-05 | 46 |
| HLA-B*57:01 | 1 | 664 | 673 | 10 | IPIGAGICAS | 3.5e-05 | 64 |
| HLA-A*02:01 | 1 | 665 | 674 | 10 | PIGAGICASY | 3.5e-05 | 47 |
| HLA-A*68:01 | 1 | 671 | 680 | 10 | CASYQTQTNS | 3.5e-05 | 43 |
| HLA-B*40:01 | 1 | 673 | 682 | 10 | SYQTQTNSPR | 3.5e-05 | 29 |
| HLA-A*26:01 | 1 | 679 | 688 | 10 | NSPRRARSVA | 3.5e-05 | 42 |
| HLA-B*44:03 | 1 | 690 | 699 | 10 | QSIIAYTMSL | 3.5e-05 | 33 |
| HLA-A*33:01 | 1 | 694 | 703 | 10 | AYTMSLGAEN | 3.5e-05 | 52 |
| HLA-A*68:01 | 1 | 700 | 708 | 9 | GAENSVAYS | 3.5e-05 | 43 |
| HLA-B*51:01 | 1 | 702 | 711 | 10 | ENSVAYSNNS | 3.5e-05 | 58 |
| HLA-A*11:01 | 1 | 706 | 715 | 10 | AYSNNIAIP | 3.5e-05 | 31 |
| HLA-A*68:01 | 1 | 714 | 723 | 10 | IPNFTISVT | 3.5e-05 | 43 |
| HLA-B*08:01 | 1 | 715 | 723 | 9 | PTNFTISVT | 3.5e-05 | 65 |
| HLA-B*53:01 | 1 | 717 | 725 | 9 | NFTISVTTE | 3.5e-05 | 34 |
| HLA-A*03:01 | 1 | 731 | 739 | 9 | MTKTSVDCT | 3.5e-05 | 42 |
| HLA-A*33:01 | 1 | 734 | 743 | 10 | TSVDCTMYIC | 3.5e-05 | 52 |
| HLA-A*30:01 | 1 | 742 | 750 | 9 | ICGDSTEC | 3.5e-05 | 74 |
| HLA-A*33:01 | 1 | 744 | 753 | 10 | GDSTECSNLL | 3.5e-05 | 52 |
| HLA-B*44:02 | 1 | 750 | 758 | 9 | SNLLLQYGS | 3.5e-05 | 35 |

| | | | | | | |
|-------------|---|------|------|----|--------------------|----|
| HLA-B*51:01 | 1 | 751 | 760 | 10 | NLLLQYGSFC 3.5e-05 | 58 |
| HLA-B*07:02 | 1 | 752 | 760 | 9 | LLLQYGSFC 3.5e-05 | 46 |
| HLA-B*57:01 | 1 | 755 | 764 | 10 | QYGSFCTQLN 3.5e-05 | 64 |
| HLA-B*35:01 | 1 | 761 | 769 | 9 | TQLNRALTG 3.5e-05 | 35 |
| HLA-A*68:01 | 1 | 774 | 783 | 10 | QDKNTQEVFA 3.5e-05 | 43 |
| HLA-A*02:03 | 1 | 775 | 783 | 9 | DKNTQEVFA 3.5e-05 | 50 |
| HLA-B*07:02 | 1 | 782 | 791 | 10 | FAQVKQIYKT 3.5e-05 | 46 |
| HLA-A*68:01 | 1 | 788 | 796 | 9 | IYKTPPIKD 3.5e-05 | 43 |
| HLA-B*44:03 | 1 | 789 | 798 | 10 | YKTPPIKDFG 3.5e-05 | 33 |
| HLA-A*11:01 | 1 | 804 | 813 | 10 | QILPDPSKPS 3.5e-05 | 31 |
| HLA-A*24:02 | 1 | 804 | 812 | 9 | QILPDPSKP 3.5e-05 | 30 |
| HLA-A*02:06 | 1 | 812 | 821 | 10 | PSKRSFIEDL 3.5e-05 | 58 |
| HLA-A*30:02 | 1 | 818 | 827 | 10 | IEDLLFNKVT 3.5e-05 | 73 |
| HLA-A*31:01 | 1 | 821 | 830 | 10 | LLFNKVTLAD 3.5e-05 | 49 |
| HLA-A*24:02 | 1 | 826 | 835 | 10 | VTLADAGFIK 3.5e-05 | 30 |
| HLA-A*02:06 | 1 | 833 | 842 | 10 | FIKQYGDCLG 3.5e-05 | 58 |
| HLA-B*57:01 | 1 | 837 | 845 | 9 | YGDCLGDIA 3.5e-05 | 64 |
| HLA-A*03:01 | 1 | 842 | 850 | 9 | GDIAARDLI 3.5e-05 | 42 |
| HLA-A*01:01 | 1 | 862 | 870 | 9 | PPLLTDEMI 3.5e-05 | 69 |
| HLA-A*02:03 | 1 | 863 | 872 | 10 | PLLTDEMIHQ 3.5e-05 | 50 |
| HLA-B*44:02 | 1 | 870 | 879 | 10 | IAQYTSALLA 3.5e-05 | 35 |
| HLA-B*08:01 | 1 | 871 | 880 | 10 | AQYTSALLAG 3.5e-05 | 65 |
| HLA-B*35:01 | 1 | 872 | 880 | 9 | QYTSALLAG 3.5e-05 | 35 |
| HLA-B*58:01 | 1 | 872 | 880 | 9 | QYTSALLAG 3.5e-05 | 52 |
| HLA-A*03:01 | 1 | 881 | 889 | 9 | TITSGWTFG 3.5e-05 | 42 |
| HLA-A*26:01 | 1 | 898 | 907 | 10 | FAMQMAYRFN 3.5e-05 | 42 |
| HLA-A*11:01 | 1 | 901 | 909 | 9 | QMAYRFNGI 3.5e-05 | 31 |
| HLA-A*26:01 | 1 | 903 | 912 | 10 | AYRFNGIGVT 3.5e-05 | 42 |
| HLA-A*31:01 | 1 | 904 | 912 | 9 | YRFNGIGVT 3.5e-05 | 49 |
| HLA-B*15:01 | 1 | 905 | 914 | 10 | RFNGIGVTQN 3.5e-05 | 48 |
| HLA-A*23:01 | 1 | 912 | 921 | 10 | TQNVLYENQK 3.5e-05 | 31 |
| HLA-A*02:01 | 1 | 916 | 924 | 9 | LYENQKLIQA 3.5e-05 | 47 |
| HLA-A*11:01 | 1 | 917 | 926 | 10 | YENQKLIANQ 3.5e-05 | 31 |
| HLA-B*35:01 | 1 | 918 | 926 | 9 | ENQKLIANQ 3.5e-05 | 35 |
| HLA-B*08:01 | 1 | 924 | 933 | 10 | ANQFNSAIGK 3.5e-05 | 65 |
| HLA-A*33:01 | 1 | 938 | 946 | 9 | LSSTASALG 3.5e-05 | 52 |
| HLA-B*08:01 | 1 | 940 | 949 | 10 | STASALGKLQ 3.5e-05 | 65 |
| HLA-A*01:01 | 1 | 944 | 953 | 10 | ALGKLQDVVN 3.5e-05 | 69 |
| HLA-A*33:01 | 1 | 946 | 954 | 9 | GKLQDVVNQ 3.5e-05 | 52 |
| HLA-A*31:01 | 1 | 959 | 967 | 9 | LNTLVKQLS 3.5e-05 | 49 |
| HLA-B*15:01 | 1 | 971 | 979 | 9 | GAISSVLND 3.5e-05 | 48 |
| HLA-A*11:01 | 1 | 973 | 981 | 9 | ISSVLNDIL 3.5e-05 | 31 |
| HLA-A*30:01 | 1 | 979 | 988 | 10 | DILSRLDKVE 3.5e-05 | 74 |
| HLA-A*26:01 | 1 | 981 | 989 | 9 | LSRLDKVEA 3.5e-05 | 42 |
| HLA-A*23:01 | 1 | 986 | 995 | 10 | KVEAEVQIDR 3.5e-05 | 31 |
| HLA-A*24:02 | 1 | 988 | 997 | 10 | EAEVQIDRLI 3.5e-05 | 30 |
| HLA-B*15:01 | 1 | 989 | 998 | 10 | AEVQIDRLIT 3.5e-05 | 48 |
| HLA-A*32:01 | 1 | 990 | 999 | 10 | EVQIDRLITG 3.5e-05 | 37 |
| HLA-A*11:01 | 1 | 994 | 1002 | 9 | DRLITGRLQ 3.5e-05 | 31 |
| HLA-A*31:01 | 1 | 997 | 1006 | 10 | ITGRLQSLQT 3.5e-05 | 49 |
| HLA-B*08:01 | 1 | 997 | 1005 | 9 | ITGRLQSLQ 3.5e-05 | 65 |
| HLA-A*03:01 | 1 | 1001 | 1009 | 9 | LQSLQTYVT 3.5e-05 | 42 |
| HLA-A*32:01 | 1 | 1008 | 1017 | 10 | VTQQLIRAAE 3.5e-05 | 37 |
| HLA-A*68:02 | 1 | 1012 | 1021 | 10 | LIRAAEIRAS 3.5e-05 | 49 |
| HLA-A*68:01 | 1 | 1021 | 1030 | 10 | SANLAATKMS 3.5e-05 | 43 |
| HLA-B*15:01 | 1 | 1021 | 1030 | 10 | SANLAATKMS 3.5e-05 | 48 |
| HLA-B*44:03 | 1 | 1038 | 1046 | 9 | KRVDFCGKG 3.5e-05 | 33 |
| HLA-A*02:03 | 1 | 1043 | 1051 | 9 | CGKGYHLMS 3.5e-05 | 50 |
| HLA-B*15:01 | 1 | 1043 | 1051 | 9 | CGKGYHLMS 3.5e-05 | 48 |
| HLA-A*33:01 | 1 | 1070 | 1079 | 10 | AQEKNFTTAP 3.5e-05 | 52 |
| HLA-A*11:01 | 1 | 1071 | 1079 | 9 | QEKNFTTAP 3.5e-05 | 31 |
| HLA-A*03:01 | 1 | 1072 | 1080 | 9 | EKNFTTAPA 3.5e-05 | 42 |
| HLA-A*03:01 | 1 | 1073 | 1082 | 10 | KNFTTAPAIC 3.5e-05 | 42 |
| HLA-B*58:01 | 1 | 1074 | 1082 | 9 | NFTTAPAIC 3.5e-05 | 52 |
| HLA-A*26:01 | 1 | 1075 | 1084 | 10 | FTTAPAICHD 3.5e-05 | 42 |
| HLA-B*53:01 | 1 | 1076 | 1084 | 9 | TTAPAICHD 3.5e-05 | 34 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*32:01 | 1 | 1078 | 1086 | 9 | APAICHDGK | 3.5e-05 | 37 |
| HLA-A*30:02 | 1 | 1089 | 1098 | 10 | FPREGV FVSN | 3.5e-05 | 73 |
| HLA-B*53:01 | 1 | 1098 | 1107 | 10 | NGTHWFVTQR | 3.5e-05 | 34 |
| HLA-A*03:01 | 1 | 1106 | 1115 | 10 | QRNFYEPQII | 3.5e-05 | 42 |
| HLA-B*44:03 | 1 | 1113 | 1122 | 10 | QIITTDNTFV | 3.5e-05 | 33 |
| HLA-A*23:01 | 1 | 1114 | 1122 | 9 | IITTDNTFV | 3.5e-05 | 31 |
| HLA-A*30:01 | 1 | 1117 | 1126 | 10 | TDNTFVSGNC | 3.5e-05 | 74 |
| HLA-B*58:01 | 1 | 1117 | 1125 | 9 | TDNTFVSGN | 3.5e-05 | 52 |
| HLA-A*30:02 | 1 | 1118 | 1126 | 9 | DNTFVSGNC | 3.5e-05 | 73 |
| HLA-B*57:01 | 1 | 1120 | 1128 | 9 | TFVSGNCDV | 3.5e-05 | 64 |
| HLA-B*53:01 | 1 | 1127 | 1136 | 10 | DVVIGIVNNT | 3.5e-05 | 34 |
| HLA-B*07:02 | 1 | 1132 | 1140 | 9 | IVNNTVYDP | 3.5e-05 | 46 |
| HLA-B*58:01 | 1 | 1133 | 1142 | 10 | VNNTVYDPLQ | 3.5e-05 | 52 |
| HLA-A*30:01 | 1 | 1134 | 1142 | 9 | NNTVYDPLQ | 3.5e-05 | 74 |
| HLA-B*57:01 | 1 | 1142 | 1151 | 10 | QPELDSFKEE | 3.5e-05 | 64 |
| HLA-A*26:01 | 1 | 1148 | 1157 | 10 | FKEELDKYFK | 3.5e-05 | 42 |
| HLA-A*26:01 | 1 | 1151 | 1160 | 10 | ELDKYFKNHT | 3.5e-05 | 42 |
| HLA-A*01:01 | 1 | 1155 | 1163 | 9 | YFKNHTSPD | 3.5e-05 | 69 |
| HLA-A*26:01 | 1 | 1159 | 1168 | 10 | HTSPDVDLGD | 3.5e-05 | 42 |
| HLA-B*44:03 | 1 | 1159 | 1167 | 9 | HTSPDVDLG | 3.5e-05 | 33 |
| HLA-A*02:06 | 1 | 1160 | 1168 | 9 | TSPDVDLGD | 3.5e-05 | 58 |
| HLA-A*02:03 | 1 | 1161 | 1169 | 9 | SPDVDLGDI | 3.5e-05 | 50 |
| HLA-A*33:01 | 1 | 1171 | 1180 | 10 | GINASVVNIQ | 3.5e-05 | 52 |
| HLA-A*11:01 | 1 | 1203 | 1212 | 10 | LGKYEQYIKW | 3.5e-05 | 31 |
| HLA-B*53:01 | 1 | 1203 | 1211 | 9 | LGKYEQYIK | 3.5e-05 | 34 |
| HLA-B*58:01 | 1 | 1210 | 1219 | 10 | IKWPWYIWLG | 3.5e-05 | 52 |
| HLA-B*57:01 | 1 | 1213 | 1221 | 9 | PWYIWLGF | 3.5e-05 | 64 |
| HLA-B*57:01 | 1 | 1215 | 1223 | 9 | YIWLGF | 3.5e-05 | 64 |
| HLA-A*24:02 | 1 | 1217 | 1225 | 9 | WLGFIAGLI | 3.5e-05 | 30 |
| HLA-A*11:01 | 1 | 1222 | 1230 | 9 | AGLIAIVMV | 3.5e-05 | 31 |
| HLA-A*33:01 | 1 | 1224 | 1233 | 10 | LIAIVMVTIM | 3.5e-05 | 52 |
| HLA-A*31:01 | 1 | 1230 | 1238 | 9 | VTIMLCCMT | 3.5e-05 | 49 |
| HLA-B*51:01 | 1 | 1237 | 1245 | 9 | MTSCCCLK | 3.5e-05 | 58 |
| HLA-A*02:06 | 1 | 1254 | 1263 | 10 | CKFDEDDSEP | 3.5e-05 | 58 |
| HLA-B*44:03 | 1 | 1254 | 1263 | 10 | CKFDEDDSEP | 3.5e-05 | 33 |
| HLA-A*68:01 | 1 | 1259 | 1267 | 9 | DDSEPVKKG | 3.5e-05 | 43 |
| HLA-B*15:01 | 1 | 1260 | 1269 | 10 | DSEPVKGVK | 3.5e-05 | 48 |
| HLA-A*11:01 | 1 | 1261 | 1270 | 10 | SEPVKGVKL | 3.5e-05 | 31 |
| HLA-A*23:01 | 1 | 1264 | 1273 | 10 | VLKGVKLHYT | 3.5e-05 | 31 |
| HLA-B*44:02 | 1 | 2 | 10 | 9 | FVFLVLLPL | 3.4e-05 | 35 |
| HLA-B*53:01 | 1 | 13 | 21 | 9 | SQCVNLTR | 3.4e-05 | 34 |
| HLA-A*11:01 | 1 | 18 | 27 | 10 | LTRTQLPPA | 3.4e-05 | 31 |
| HLA-B*51:01 | 1 | 21 | 30 | 10 | RTQLPPAYTN | 3.4e-05 | 58 |
| HLA-B*44:02 | 1 | 33 | 42 | 10 | TRGVYYPDKV | 3.4e-05 | 35 |
| HLA-A*30:01 | 1 | 39 | 48 | 10 | PKVFRSSVL | 3.4e-05 | 75 |
| HLA-A*68:01 | 1 | 42 | 51 | 10 | VFRSSVLHST | 3.4e-05 | 44 |
| HLA-A*02:06 | 1 | 52 | 60 | 9 | QDLFLPFFS | 3.4e-05 | 58 |
| HLA-A*32:01 | 1 | 55 | 63 | 9 | FLPFFSNVT | 3.4e-05 | 37 |
| HLA-A*02:03 | 1 | 61 | 69 | 9 | NVTWFHAIH | 3.4e-05 | 51 |
| HLA-A*02:06 | 1 | 63 | 72 | 10 | TWFHAIHVSG | 3.4e-05 | 58 |
| HLA-B*44:03 | 1 | 68 | 76 | 9 | IHSVGTNGT | 3.4e-05 | 33 |
| HLA-B*40:01 | 1 | 70 | 79 | 10 | VSGTNGTKRF | 3.4e-05 | 29 |
| HLA-A*31:01 | 1 | 72 | 80 | 9 | GTNGTKRFD | 3.4e-05 | 50 |
| HLA-A*03:01 | 1 | 82 | 90 | 9 | PVLPFNDGV | 3.4e-05 | 42 |
| HLA-B*51:01 | 1 | 87 | 96 | 10 | NDGVYFASTE | 3.4e-05 | 58 |
| HLA-A*33:01 | 1 | 96 | 105 | 10 | EKSNIIRGWI | 3.4e-05 | 52 |
| HLA-A*01:01 | 1 | 100 | 108 | 9 | IIRGWIFGT | 3.4e-05 | 70 |
| HLA-A*11:01 | 1 | 104 | 112 | 9 | WIFGTTLDS | 3.4e-05 | 31 |
| HLA-A*33:01 | 1 | 106 | 115 | 10 | FGTTLDSKTQ | 3.4e-05 | 52 |
| HLA-B*35:01 | 1 | 106 | 114 | 9 | FGTTLDSKT | 3.4e-05 | 35 |
| HLA-A*33:01 | 1 | 117 | 126 | 10 | LLIVNNATNV | 3.4e-05 | 52 |
| HLA-A*32:01 | 1 | 123 | 132 | 10 | ATNVVIVKVC | 3.4e-05 | 37 |
| HLA-A*30:02 | 1 | 124 | 132 | 9 | TNVVIVKVC | 3.4e-05 | 73 |
| HLA-A*11:01 | 1 | 143 | 151 | 9 | VYYHKNNKS | 3.4e-05 | 31 |
| HLA-B*57:01 | 1 | 143 | 151 | 9 | VYYHKNNKS | 3.4e-05 | 65 |
| HLA-A*01:01 | 1 | 147 | 156 | 10 | KNNKSWMESE | 3.4e-05 | 70 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-A*32:01 | 1 | 147 | 155 | 9 | KNNKSWMES | 3.4e-05 | 37 |
| HLA-B*35:01 | 1 | 153 | 162 | 10 | MESEFRVYSS | 3.4e-05 | 35 |
| HLA-B*57:01 | 1 | 159 | 167 | 9 | VYSSANNCT | 3.4e-05 | 65 |
| HLA-A*24:02 | 1 | 160 | 169 | 10 | YSSANNCTFE | 3.4e-05 | 30 |
| HLA-B*15:01 | 1 | 163 | 171 | 9 | ANNCTFEYV | 3.4e-05 | 48 |
| HLA-A*30:01 | 1 | 177 | 185 | 9 | MDLEGKQGN | 3.4e-05 | 75 |
| HLA-B*51:01 | 1 | 178 | 187 | 10 | DLEGKQGNFK | 3.4e-05 | 58 |
| HLA-A*02:06 | 1 | 193 | 202 | 10 | VFKNIDGYFK | 3.4e-05 | 58 |
| HLA-B*44:03 | 1 | 193 | 202 | 10 | VFKNIDGYFK | 3.4e-05 | 33 |
| HLA-A*02:01 | 1 | 201 | 209 | 9 | FKIYSKHTP | 3.4e-05 | 48 |
| HLA-A*24:02 | 1 | 206 | 215 | 10 | KHTPINLVRD | 3.4e-05 | 30 |
| HLA-A*03:01 | 1 | 210 | 218 | 9 | INLVRDLPO | 3.4e-05 | 42 |
| HLA-B*08:01 | 1 | 210 | 219 | 10 | INLVRDLPOG | 3.4e-05 | 66 |
| HLA-A*68:01 | 1 | 222 | 230 | 9 | ALEPLVDLP | 3.4e-05 | 44 |
| HLA-A*30:01 | 1 | 224 | 232 | 9 | EPLVDLPIG | 3.4e-05 | 75 |
| HLA-A*32:01 | 1 | 234 | 243 | 10 | NITRFQTLA | 3.4e-05 | 37 |
| HLA-B*40:01 | 1 | 235 | 243 | 9 | ITRFQTLA | 3.4e-05 | 29 |
| HLA-B*07:02 | 1 | 258 | 267 | 10 | WTAGAAAYV | 3.4e-05 | 46 |
| HLA-A*24:02 | 1 | 260 | 269 | 10 | AGAAAYVVG | 3.4e-05 | 30 |
| HLA-B*58:01 | 1 | 271 | 280 | 10 | QPRTFLLKYN | 3.4e-05 | 53 |
| HLA-A*26:01 | 1 | 276 | 285 | 10 | LLKYNENGTI | 3.4e-05 | 42 |
| HLA-A*03:01 | 1 | 280 | 288 | 9 | NENGTITDA | 3.4e-05 | 42 |
| HLA-B*08:01 | 1 | 287 | 295 | 9 | DAVDCALDP | 3.4e-05 | 66 |
| HLA-A*02:03 | 1 | 288 | 297 | 10 | AVDCALDPLS | 3.4e-05 | 51 |
| HLA-A*30:02 | 1 | 289 | 298 | 10 | VDCALDPLSE | 3.4e-05 | 73 |
| HLA-B*15:01 | 1 | 303 | 312 | 10 | LKSFTVEKGI | 3.4e-05 | 48 |
| HLA-B*07:02 | 1 | 305 | 314 | 10 | SFTVEKGIYQ | 3.4e-05 | 46 |
| HLA-A*23:01 | 1 | 313 | 322 | 10 | YQTSNFRVQP | 3.4e-05 | 32 |
| HLA-A*11:01 | 1 | 321 | 330 | 10 | QPTESIVRFP | 3.4e-05 | 31 |
| HLA-A*32:01 | 1 | 328 | 337 | 10 | RFPNITNLCP | 3.4e-05 | 37 |
| HLA-A*02:06 | 1 | 329 | 337 | 9 | FPNITNLCP | 3.4e-05 | 58 |
| HLA-A*33:01 | 1 | 330 | 338 | 9 | PNITNLCPF | 3.4e-05 | 52 |
| HLA-B*58:01 | 1 | 333 | 341 | 9 | TNLCPFGEV | 3.4e-05 | 53 |
| HLA-A*32:01 | 1 | 334 | 343 | 10 | NLCPFGEVFN | 3.4e-05 | 37 |
| HLA-A*68:01 | 1 | 334 | 343 | 10 | NLCPFGEVFN | 3.4e-05 | 44 |
| HLA-A*02:01 | 1 | 338 | 347 | 10 | FGEVFNATRF | 3.4e-05 | 48 |
| HLA-A*26:01 | 1 | 345 | 354 | 10 | TRFASVYAWN | 3.4e-05 | 42 |
| HLA-B*15:01 | 1 | 347 | 356 | 10 | FASVYAWNRK | 3.4e-05 | 48 |
| HLA-B*44:02 | 1 | 347 | 355 | 9 | FASVYAWNR | 3.4e-05 | 35 |
| HLA-A*01:01 | 1 | 354 | 363 | 10 | NRKRISNCVA | 3.4e-05 | 70 |
| HLA-A*31:01 | 1 | 358 | 366 | 9 | ISNCVADYS | 3.4e-05 | 50 |
| HLA-B*15:01 | 1 | 364 | 372 | 9 | DYSVLYNSA | 3.4e-05 | 48 |
| HLA-A*68:02 | 1 | 373 | 381 | 9 | SFSTFKCYG | 3.4e-05 | 50 |
| HLA-B*15:01 | 1 | 374 | 382 | 9 | FSTFKCYGV | 3.4e-05 | 48 |
| HLA-B*40:01 | 1 | 375 | 384 | 10 | STFKCYGVSP | 3.4e-05 | 29 |
| HLA-A*31:01 | 1 | 382 | 391 | 10 | VSPTKLNLDLC | 3.4e-05 | 50 |
| HLA-A*02:01 | 1 | 383 | 392 | 10 | SPTKLNLDLCF | 3.4e-05 | 48 |
| HLA-A*30:02 | 1 | 384 | 393 | 10 | PTKLNLDLCFT | 3.4e-05 | 73 |
| HLA-A*11:01 | 1 | 387 | 395 | 9 | LNDLCFTNV | 3.4e-05 | 31 |
| HLA-B*51:01 | 1 | 389 | 398 | 10 | DLCFTNVYAD | 3.4e-05 | 58 |
| HLA-B*15:01 | 1 | 393 | 401 | 9 | TNVYADSFV | 3.4e-05 | 48 |
| HLA-B*44:03 | 1 | 396 | 404 | 9 | YADSFVIRG | 3.4e-05 | 33 |
| HLA-A*23:01 | 1 | 400 | 408 | 9 | FVIRGDEV | 3.4e-05 | 32 |
| HLA-B*44:02 | 1 | 400 | 408 | 9 | FVIRGDEV | 3.4e-05 | 35 |
| HLA-B*35:01 | 1 | 404 | 412 | 9 | GDEVQRQIAP | 3.4e-05 | 35 |
| HLA-B*57:01 | 1 | 406 | 415 | 10 | EVQRQIAPGQT | 3.4e-05 | 65 |
| HLA-B*53:01 | 1 | 411 | 420 | 10 | APGQTGKIAD | 3.4e-05 | 34 |
| HLA-A*02:01 | 1 | 415 | 423 | 9 | TGKIADYNY | 3.4e-05 | 48 |
| HLA-A*02:06 | 1 | 415 | 424 | 10 | TGKIADYNYK | 3.4e-05 | 58 |
| HLA-A*68:01 | 1 | 418 | 426 | 9 | IADYNYKLP | 3.4e-05 | 44 |
| HLA-B*44:03 | 1 | 423 | 432 | 10 | YKLPDDFTGC | 3.4e-05 | 33 |
| HLA-B*53:01 | 1 | 423 | 432 | 10 | YKLPDDFTGC | 3.4e-05 | 34 |
| HLA-B*07:02 | 1 | 433 | 442 | 10 | VIAWNSNNLD | 3.4e-05 | 46 |
| HLA-A*02:06 | 1 | 436 | 444 | 9 | WNSNNLDSK | 3.4e-05 | 58 |
| HLA-B*08:01 | 1 | 445 | 454 | 10 | VGGNYNYLYR | 3.4e-05 | 66 |
| HLA-B*44:02 | 1 | 450 | 458 | 9 | NYLYRLFRK | 3.4e-05 | 35 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*53:01 | 1 | 458 | 466 | 9 | KSNLKPFER | 3.4e-05 | 34 |
| HLA-A*02:03 | 1 | 470 | 478 | 9 | TEIYQAGST | 3.4e-05 | 51 |
| HLA-B*40:01 | 1 | 481 | 490 | 10 | NGVEGFNCYF | 3.4e-05 | 29 |
| HLA-A*11:01 | 1 | 492 | 500 | 9 | LQSYGFQPT | 3.4e-05 | 31 |
| HLA-A*31:01 | 1 | 496 | 504 | 9 | GFQPTNGVG | 3.4e-05 | 50 |
| HLA-A*23:01 | 1 | 502 | 511 | 10 | GVGYQPYRVV | 3.4e-05 | 32 |
| HLA-A*26:01 | 1 | 503 | 512 | 10 | VGYPYRVVV | 3.4e-05 | 42 |
| HLA-A*26:01 | 1 | 512 | 521 | 10 | VLSFELLHAP | 3.4e-05 | 42 |
| HLA-A*24:02 | 1 | 514 | 523 | 10 | SFELLHAPAT | 3.4e-05 | 30 |
| HLA-B*44:02 | 1 | 525 | 533 | 9 | CGPKKSTNL | 3.4e-05 | 35 |
| HLA-A*01:01 | 1 | 533 | 542 | 10 | LVKNKCVNFN | 3.4e-05 | 70 |
| HLA-A*01:01 | 1 | 542 | 550 | 9 | NFNGLTGTG | 3.4e-05 | 70 |
| HLA-A*23:01 | 1 | 550 | 558 | 9 | GVLTESNKK | 3.4e-05 | 32 |
| HLA-B*53:01 | 1 | 558 | 567 | 10 | KFLPFQQFGR | 3.4e-05 | 34 |
| HLA-A*30:02 | 1 | 565 | 574 | 10 | FGRDIADTTD | 3.4e-05 | 73 |
| HLA-A*32:01 | 1 | 568 | 577 | 10 | DIADTTDAVR | 3.4e-05 | 37 |
| HLA-A*02:01 | 1 | 574 | 583 | 10 | DAVRDPQTL | 3.4e-05 | 48 |
| HLA-B*44:02 | 1 | 574 | 583 | 10 | DAVRDPQTL | 3.4e-05 | 35 |
| HLA-B*44:03 | 1 | 580 | 588 | 9 | QTLEILDIT | 3.4e-05 | 33 |
| HLA-B*07:02 | 1 | 581 | 589 | 9 | TLEILDITP | 3.4e-05 | 46 |
| HLA-A*26:01 | 1 | 589 | 598 | 10 | PCSFGGVSVI | 3.4e-05 | 42 |
| HLA-A*03:01 | 1 | 590 | 599 | 10 | CSFGGVSVIT | 3.4e-05 | 42 |
| HLA-B*53:01 | 1 | 591 | 599 | 9 | SFGGVSVIT | 3.4e-05 | 34 |
| HLA-A*02:01 | 1 | 600 | 608 | 9 | PGTNTSNQV | 3.4e-05 | 48 |
| HLA-B*08:01 | 1 | 604 | 613 | 10 | TSNQVAVLYQ | 3.4e-05 | 66 |
| HLA-B*35:01 | 1 | 612 | 621 | 10 | YQDVNCTEVP | 3.4e-05 | 35 |
| HLA-B*58:01 | 1 | 614 | 623 | 10 | DVNCTEVPVA | 3.4e-05 | 53 |
| HLA-A*30:02 | 1 | 619 | 627 | 9 | EVPVAIHAD | 3.4e-05 | 73 |
| HLA-A*30:02 | 1 | 619 | 628 | 10 | EVPVAIHADQ | 3.4e-05 | 73 |
| HLA-A*26:01 | 1 | 622 | 630 | 9 | VAIHADQLT | 3.4e-05 | 42 |
| HLA-A*23:01 | 1 | 630 | 638 | 9 | TPTWRVYST | 3.4e-05 | 32 |
| HLA-B*44:03 | 1 | 630 | 638 | 9 | TPTWRVYST | 3.4e-05 | 33 |
| HLA-A*02:03 | 1 | 636 | 644 | 9 | YSTGSNVFQ | 3.4e-05 | 51 |
| HLA-A*32:01 | 1 | 636 | 644 | 9 | YSTGSNVFQ | 3.4e-05 | 37 |
| HLA-B*07:02 | 1 | 653 | 662 | 10 | AEHVNNSEY | 3.4e-05 | 46 |
| HLA-B*57:01 | 1 | 654 | 662 | 9 | EHVNNSEY | 3.4e-05 | 65 |
| HLA-A*30:01 | 1 | 661 | 669 | 9 | ECDIPIGAG | 3.4e-05 | 75 |
| HLA-B*58:01 | 1 | 664 | 673 | 10 | IPIGAGICAS | 3.4e-05 | 53 |
| HLA-A*02:06 | 1 | 666 | 675 | 10 | IGAGICASYQ | 3.4e-05 | 58 |
| HLA-B*07:02 | 1 | 669 | 677 | 9 | GICASYQTQ | 3.4e-05 | 46 |
| HLA-A*68:01 | 1 | 671 | 679 | 9 | CASYQTQTN | 3.4e-05 | 44 |
| HLA-A*31:01 | 1 | 684 | 693 | 10 | ARSVASQSII | 3.4e-05 | 50 |
| HLA-A*68:01 | 1 | 684 | 692 | 9 | ARSVASQSI | 3.4e-05 | 44 |
| HLA-B*44:02 | 1 | 696 | 705 | 10 | TMSLGAENSV | 3.4e-05 | 35 |
| HLA-B*58:01 | 1 | 701 | 709 | 9 | AENSVAYSN | 3.4e-05 | 53 |
| HLA-A*24:02 | 1 | 703 | 712 | 10 | NSVAYSNNSI | 3.4e-05 | 30 |
| HLA-A*32:01 | 1 | 708 | 716 | 9 | SNNSIAIPT | 3.4e-05 | 37 |
| HLA-A*03:01 | 1 | 712 | 721 | 10 | IAIPTNFTIS | 3.4e-05 | 42 |
| HLA-A*26:01 | 1 | 716 | 725 | 10 | TNFTISVTTE | 3.4e-05 | 42 |
| HLA-A*03:01 | 1 | 720 | 729 | 10 | ISVTTEILPV | 3.4e-05 | 42 |
| HLA-A*68:01 | 1 | 720 | 728 | 9 | ISVTTEILP | 3.4e-05 | 44 |
| HLA-A*33:01 | 1 | 735 | 743 | 9 | SVDCTMYIC | 3.4e-05 | 52 |
| HLA-A*31:01 | 1 | 741 | 749 | 9 | YICGDSTEC | 3.4e-05 | 50 |
| HLA-B*08:01 | 1 | 747 | 755 | 9 | TECSNLLLQ | 3.4e-05 | 66 |
| HLA-A*33:01 | 1 | 748 | 757 | 10 | ECSNLLLQYG | 3.4e-05 | 52 |
| HLA-B*07:02 | 1 | 753 | 761 | 9 | LLQYGSFCT | 3.4e-05 | 46 |
| HLA-A*03:01 | 1 | 763 | 771 | 9 | LNRLTGTIA | 3.4e-05 | 42 |
| HLA-A*33:01 | 1 | 771 | 779 | 9 | AVEQDKNTQ | 3.4e-05 | 52 |
| HLA-A*33:01 | 1 | 792 | 800 | 9 | PPIKDFGGF | 3.4e-05 | 52 |
| HLA-A*03:01 | 1 | 798 | 807 | 10 | GGFNFSQILP | 3.4e-05 | 42 |
| HLA-A*68:01 | 1 | 799 | 807 | 9 | GFNFSQILP | 3.4e-05 | 44 |
| HLA-B*07:02 | 1 | 807 | 816 | 10 | PDPSKPSKRS | 3.4e-05 | 46 |
| HLA-A*02:01 | 1 | 808 | 817 | 10 | DPSKPSKRSF | 3.4e-05 | 48 |
| HLA-B*44:02 | 1 | 809 | 818 | 10 | PSKPSKRSFI | 3.4e-05 | 35 |
| HLA-B*15:01 | 1 | 812 | 821 | 10 | PSKRSFIEDL | 3.4e-05 | 48 |
| HLA-B*53:01 | 1 | 813 | 821 | 9 | SKRSFIEDL | 3.4e-05 | 34 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-B*58:01 | 1 | 822 | 831 | 10 | LFNKVTLADA | 3.4e-05 | 53 |
| HLA-A*26:01 | 1 | 832 | 841 | 10 | GFIKQYGDCL | 3.4e-05 | 42 |
| HLA-A*33:01 | 1 | 835 | 844 | 10 | KQYGDCLGDI | 3.4e-05 | 52 |
| HLA-B*58:01 | 1 | 842 | 851 | 10 | GDIAARDLIC | 3.4e-05 | 53 |
| HLA-A*23:01 | 1 | 845 | 854 | 10 | AARDLICAQK | 3.4e-05 | 32 |
| HLA-A*03:01 | 1 | 856 | 864 | 9 | NGLTVLPPL | 3.4e-05 | 42 |
| HLA-A*03:01 | 1 | 861 | 869 | 9 | LPPLLTDEM | 3.4e-05 | 42 |
| HLA-A*11:01 | 1 | 861 | 869 | 9 | LPPLLTDEM | 3.4e-05 | 31 |
| HLA-A*68:02 | 1 | 862 | 870 | 9 | PPLLTDEMI | 3.4e-05 | 50 |
| HLA-B*44:03 | 1 | 875 | 883 | 9 | SALLAGTIT | 3.4e-05 | 33 |
| HLA-B*07:02 | 1 | 889 | 897 | 9 | GAGAALQIP | 3.4e-05 | 46 |
| HLA-B*35:01 | 1 | 889 | 897 | 9 | GAGAALQIP | 3.4e-05 | 35 |
| HLA-A*31:01 | 1 | 899 | 908 | 10 | AMQMAYRFNG | 3.4e-05 | 50 |
| HLA-A*03:01 | 1 | 904 | 912 | 9 | YRFNGIGVT | 3.4e-05 | 42 |
| HLA-B*35:01 | 1 | 910 | 918 | 9 | GVTQNVLYE | 3.4e-05 | 35 |
| HLA-B*51:01 | 1 | 910 | 918 | 9 | GVTQNVLYE | 3.4e-05 | 58 |
| HLA-A*11:01 | 1 | 913 | 922 | 10 | QNVLYENQKL | 3.4e-05 | 31 |
| HLA-A*02:06 | 1 | 917 | 926 | 10 | YENQKLIANQ | 3.4e-05 | 58 |
| HLA-A*68:02 | 1 | 920 | 929 | 10 | QKLIANQFNS | 3.4e-05 | 50 |
| HLA-B*07:02 | 1 | 921 | 929 | 9 | KLIANQFNS | 3.4e-05 | 46 |
| HLA-B*44:02 | 1 | 932 | 941 | 10 | GKIQDLSLST | 3.4e-05 | 35 |
| HLA-B*57:01 | 1 | 932 | 941 | 10 | GKIQDLSLST | 3.4e-05 | 65 |
| HLA-B*58:01 | 1 | 934 | 943 | 10 | IQDLSLSTAS | 3.4e-05 | 53 |
| HLA-A*02:06 | 1 | 938 | 947 | 10 | LSSTASALGK | 3.4e-05 | 58 |
| HLA-A*11:01 | 1 | 953 | 962 | 10 | NQNAQALNTL | 3.4e-05 | 31 |
| HLA-B*07:02 | 1 | 958 | 967 | 10 | ALNTLVKQLS | 3.4e-05 | 46 |
| HLA-A*03:01 | 1 | 966 | 974 | 9 | LSSNFGAIS | 3.4e-05 | 42 |
| HLA-B*07:02 | 1 | 969 | 978 | 10 | NFGAISSVLN | 3.4e-05 | 46 |
| HLA-A*32:01 | 1 | 978 | 987 | 10 | NDILSRLDKV | 3.4e-05 | 37 |
| HLA-B*44:03 | 1 | 983 | 992 | 10 | RLDKVEAEVQ | 3.4e-05 | 33 |
| HLA-A*02:01 | 1 | 989 | 998 | 10 | AEVQIDRLIT | 3.4e-05 | 48 |
| HLA-A*03:01 | 1 | 993 | 1002 | 10 | IDRLITGRLQ | 3.4e-05 | 42 |
| HLA-B*35:01 | 1 | 994 | 1003 | 10 | DRLITGRLQS | 3.4e-05 | 35 |
| HLA-B*35:01 | 1 | 1001 | 1010 | 10 | LQSLQTYVTQ | 3.4e-05 | 35 |
| HLA-A*26:01 | 1 | 1018 | 1027 | 10 | IRASANLAAT | 3.4e-05 | 42 |
| HLA-A*24:02 | 1 | 1025 | 1034 | 10 | AATKMSECVL | 3.4e-05 | 30 |
| HLA-A*26:01 | 1 | 1037 | 1045 | 9 | SKRVDFCGK | 3.4e-05 | 42 |
| HLA-B*44:02 | 1 | 1037 | 1045 | 9 | SKRVDFCGK | 3.4e-05 | 35 |
| HLA-A*68:02 | 1 | 1044 | 1052 | 9 | GKGYHLMSF | 3.4e-05 | 50 |
| HLA-A*11:01 | 1 | 1048 | 1057 | 10 | HLMSFPQSAP | 3.4e-05 | 31 |
| HLA-B*15:01 | 1 | 1051 | 1059 | 9 | SFPQSAPHG | 3.4e-05 | 48 |
| HLA-B*51:01 | 1 | 1063 | 1072 | 10 | LHVTYVPAQE | 3.4e-05 | 58 |
| HLA-A*24:02 | 1 | 1064 | 1073 | 10 | HVTYVPAQEK | 3.4e-05 | 30 |
| HLA-A*02:01 | 1 | 1068 | 1076 | 9 | VPAQEKNF | 3.4e-05 | 48 |
| HLA-A*11:01 | 1 | 1070 | 1079 | 10 | AQEKNF | 3.4e-05 | 31 |
| HLA-A*32:01 | 1 | 1070 | 1079 | 10 | AQEKNF | 3.4e-05 | 37 |
| HLA-B*44:02 | 1 | 1078 | 1087 | 10 | APAICHDGKA | 3.4e-05 | 35 |
| HLA-A*11:01 | 1 | 1081 | 1089 | 9 | ICHDGKAHF | 3.4e-05 | 31 |
| HLA-A*31:01 | 1 | 1081 | 1090 | 10 | ICHDGKAHFP | 3.4e-05 | 50 |
| HLA-A*68:01 | 1 | 1085 | 1094 | 10 | GKAHF | 3.4e-05 | 44 |
| HLA-B*15:01 | 1 | 1102 | 1111 | 10 | WFVTQRNFYE | 3.4e-05 | 48 |
| HLA-A*33:01 | 1 | 1117 | 1126 | 10 | TDNTFVSGNC | 3.4e-05 | 52 |
| HLA-B*51:01 | 1 | 1117 | 1126 | 10 | TDNTFVSGNC | 3.4e-05 | 58 |
| HLA-B*58:01 | 1 | 1131 | 1139 | 9 | GIVNNTVYD | 3.4e-05 | 53 |
| HLA-A*26:01 | 1 | 1137 | 1146 | 10 | VYDPLQPELD | 3.4e-05 | 42 |
| HLA-B*35:01 | 1 | 1143 | 1152 | 10 | PELDSFKEEL | 3.4e-05 | 35 |
| HLA-B*15:01 | 1 | 1146 | 1154 | 9 | DSFKEELDK | 3.4e-05 | 48 |
| HLA-B*53:01 | 1 | 1149 | 1157 | 9 | KEELDKYFK | 3.4e-05 | 34 |
| HLA-A*31:01 | 1 | 1155 | 1163 | 9 | YFKNHTSPD | 3.4e-05 | 50 |
| HLA-B*35:01 | 1 | 1157 | 1166 | 10 | KNHTSPD | 3.4e-05 | 35 |
| HLA-A*30:01 | 1 | 1160 | 1168 | 9 | TSPD | 3.4e-05 | 75 |
| HLA-A*68:02 | 1 | 1165 | 1173 | 9 | DLGDISGIN | 3.4e-05 | 50 |
| HLA-A*03:01 | 1 | 1166 | 1174 | 9 | LGDISGINA | 3.4e-05 | 42 |
| HLA-B*35:01 | 1 | 1166 | 1175 | 10 | LGDISGINAS | 3.4e-05 | 35 |
| HLA-A*11:01 | 1 | 1167 | 1176 | 10 | GDISGINASV | 3.4e-05 | 31 |
| HLA-A*23:01 | 1 | 1167 | 1176 | 10 | GDISGINASV | 3.4e-05 | 32 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-B*07:02 | 1 | 1170 | 1178 | 9 | SGINASVVN | 3.4e-05 | 46 |
| HLA-A*01:01 | 1 | 1176 | 1184 | 9 | VVNIQKEID | 3.4e-05 | 70 |
| HLA-B*40:01 | 1 | 1179 | 1187 | 9 | IQKEIDRLN | 3.4e-05 | 29 |
| HLA-B*51:01 | 1 | 1185 | 1194 | 10 | RLNEVAKNLN | 3.4e-05 | 58 |
| HLA-B*44:03 | 1 | 1186 | 1195 | 10 | LNEVAKNLNE | 3.4e-05 | 33 |
| HLA-A*68:02 | 1 | 1187 | 1195 | 9 | NEVAKNLNE | 3.4e-05 | 50 |
| HLA-B*44:03 | 1 | 1188 | 1196 | 9 | EVAKNLNES | 3.4e-05 | 33 |
| HLA-A*32:01 | 1 | 1190 | 1198 | 9 | AKNLNESLI | 3.4e-05 | 37 |
| HLA-A*68:02 | 1 | 1197 | 1205 | 9 | LIDLQELGK | 3.4e-05 | 50 |
| HLA-B*44:02 | 1 | 1199 | 1208 | 10 | DLQELGKYEQ | 3.4e-05 | 35 |
| HLA-A*32:01 | 1 | 1218 | 1226 | 9 | LGFIAGLIA | 3.4e-05 | 37 |
| HLA-A*23:01 | 1 | 1220 | 1229 | 10 | FIAGLIAIVM | 3.4e-05 | 32 |
| HLA-A*23:01 | 1 | 1228 | 1237 | 10 | VMVTIMLCCM | 3.4e-05 | 32 |
| HLA-A*23:01 | 1 | 1229 | 1237 | 9 | MVTIMLCCM | 3.4e-05 | 32 |
| HLA-B*08:01 | 1 | 1247 | 1256 | 10 | CCSCGSCCKF | 3.4e-05 | 66 |
| HLA-B*53:01 | 1 | 1247 | 1256 | 10 | CCSCGSCCKF | 3.4e-05 | 34 |
| HLA-B*57:01 | 1 | 1253 | 1262 | 10 | CCKFDEDDSE | 3.4e-05 | 65 |
| HLA-A*02:06 | 1 | 1254 | 1262 | 9 | CKFDEDDSE | 3.4e-05 | 58 |
| HLA-B*07:02 | 1 | 1259 | 1267 | 9 | DDSEPVLKG | 3.4e-05 | 46 |
| HLA-B*57:01 | 1 | 1259 | 1267 | 9 | DDSEPVLKG | 3.4e-05 | 65 |
| HLA-B*53:01 | 1 | 1263 | 1271 | 9 | PVLKGVKLH | 3.4e-05 | 34 |
| HLA-B*08:01 | 1 | 10 | 19 | 10 | LVSSQCVNLT | 3.3e-05 | 66 |
| HLA-A*31:01 | 1 | 14 | 22 | 9 | QCVNLTRT | 3.3e-05 | 50 |
| HLA-A*32:01 | 1 | 14 | 23 | 10 | QCVNLTRTQ | 3.3e-05 | 37 |
| HLA-A*03:01 | 1 | 17 | 25 | 9 | NLTRTQLP | 3.3e-05 | 43 |
| HLA-B*53:01 | 1 | 21 | 29 | 9 | RTQLPPAYT | 3.3e-05 | 35 |
| HLA-A*30:02 | 1 | 25 | 33 | 9 | PPAYTNSFT | 3.3e-05 | 73 |
| HLA-B*40:01 | 1 | 35 | 44 | 10 | GVYYPDKVFR | 3.3e-05 | 30 |
| HLA-A*32:01 | 1 | 38 | 46 | 9 | YPDKVFRSS | 3.3e-05 | 37 |
| HLA-A*24:02 | 1 | 41 | 50 | 10 | KVFRSSVLHS | 3.3e-05 | 31 |
| HLA-B*40:01 | 1 | 49 | 57 | 9 | HSTQDLFLP | 3.3e-05 | 30 |
| HLA-B*57:01 | 1 | 53 | 61 | 9 | DLFLPFFSN | 3.3e-05 | 65 |
| HLA-B*53:01 | 1 | 55 | 63 | 9 | FLPFFSNVT | 3.3e-05 | 35 |
| HLA-B*15:01 | 1 | 61 | 70 | 10 | NVTWFHAIHV | 3.3e-05 | 48 |
| HLA-B*44:02 | 1 | 74 | 82 | 9 | NGTKRFDNP | 3.3e-05 | 36 |
| HLA-B*44:03 | 1 | 81 | 90 | 10 | NPVLPFNDGV | 3.3e-05 | 33 |
| HLA-A*01:01 | 1 | 85 | 94 | 10 | PFNDGVYFAS | 3.3e-05 | 70 |
| HLA-A*02:03 | 1 | 86 | 94 | 9 | FNDGVYFAS | 3.3e-05 | 51 |
| HLA-B*40:01 | 1 | 91 | 100 | 10 | YFASTEKSNI | 3.3e-05 | 30 |
| HLA-A*02:01 | 1 | 96 | 104 | 9 | EKSNIIRGW | 3.3e-05 | 48 |
| HLA-B*51:01 | 1 | 101 | 109 | 9 | IRGWIFGTT | 3.3e-05 | 59 |
| HLA-A*33:01 | 1 | 103 | 112 | 10 | GWIFGTTLDS | 3.3e-05 | 53 |
| HLA-A*26:01 | 1 | 106 | 115 | 10 | FGTTLDSKTQ | 3.3e-05 | 43 |
| HLA-B*44:02 | 1 | 107 | 115 | 9 | GTTLDSKTQ | 3.3e-05 | 36 |
| HLA-A*03:01 | 1 | 110 | 119 | 10 | LDSKTQSLLI | 3.3e-05 | 43 |
| HLA-A*03:01 | 1 | 118 | 127 | 10 | LIVNATNVV | 3.3e-05 | 43 |
| HLA-A*02:06 | 1 | 120 | 129 | 10 | VNNATNVVIK | 3.3e-05 | 59 |
| HLA-B*07:02 | 1 | 122 | 131 | 10 | NATNVVIKVC | 3.3e-05 | 47 |
| HLA-A*33:01 | 1 | 127 | 136 | 10 | VIKVCEFQFC | 3.3e-05 | 53 |
| HLA-B*07:02 | 1 | 156 | 164 | 9 | EFRVYSSAN | 3.3e-05 | 47 |
| HLA-B*44:03 | 1 | 166 | 174 | 9 | CTFEYVSQP | 3.3e-05 | 33 |
| HLA-B*07:02 | 1 | 169 | 178 | 10 | EYVSQPFLMD | 3.3e-05 | 47 |
| HLA-B*44:03 | 1 | 170 | 179 | 10 | YVSQPFLMDL | 3.3e-05 | 33 |
| HLA-A*30:02 | 1 | 173 | 181 | 9 | QPFLMDLEG | 3.3e-05 | 73 |
| HLA-A*30:01 | 1 | 176 | 184 | 9 | LMDLEGKQG | 3.3e-05 | 75 |
| HLA-B*44:03 | 1 | 182 | 191 | 10 | KQGNFKNLRE | 3.3e-05 | 33 |
| HLA-B*40:01 | 1 | 185 | 193 | 9 | NFKNLREFV | 3.3e-05 | 30 |
| HLA-A*23:01 | 1 | 194 | 202 | 9 | FKNIDGYFK | 3.3e-05 | 32 |
| HLA-A*11:01 | 1 | 196 | 205 | 10 | NIDGYFKIYS | 3.3e-05 | 32 |
| HLA-A*33:01 | 1 | 197 | 205 | 9 | IDGYFKIYS | 3.3e-05 | 53 |
| HLA-A*30:02 | 1 | 215 | 224 | 10 | DLPQGFSALE | 3.3e-05 | 73 |
| HLA-B*07:02 | 1 | 223 | 232 | 10 | LEPLVDLPIG | 3.3e-05 | 47 |
| HLA-A*24:02 | 1 | 242 | 250 | 9 | LALHRSYLT | 3.3e-05 | 31 |
| HLA-A*30:02 | 1 | 245 | 253 | 9 | HRSYLTPGD | 3.3e-05 | 73 |
| HLA-B*44:03 | 1 | 255 | 264 | 10 | SSGWTAGAAA | 3.3e-05 | 33 |
| HLA-A*26:01 | 1 | 256 | 264 | 9 | SGWTAGAAA | 3.3e-05 | 43 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*07:02 | 1 | 276 | 284 | 9 | LLKYNENGT | 3.3e-05 | 47 |
| HLA-B*07:02 | 1 | 277 | 286 | 10 | LKYNENGTIT | 3.3e-05 | 47 |
| HLA-A*01:01 | 1 | 278 | 287 | 10 | KYNENGTITD | 3.3e-05 | 70 |
| HLA-A*26:01 | 1 | 278 | 286 | 9 | KYNENGTIT | 3.3e-05 | 43 |
| HLA-B*53:01 | 1 | 278 | 286 | 9 | KYNENGTIT | 3.3e-05 | 35 |
| HLA-B*51:01 | 1 | 282 | 291 | 10 | NGTITDAVDC | 3.3e-05 | 59 |
| HLA-B*40:01 | 1 | 287 | 296 | 10 | DAVDCALDPL | 3.3e-05 | 30 |
| HLA-A*30:02 | 1 | 290 | 298 | 9 | DCALDPLSE | 3.3e-05 | 73 |
| HLA-A*68:02 | 1 | 297 | 305 | 9 | SETKCTLKS | 3.3e-05 | 50 |
| HLA-B*15:01 | 1 | 297 | 305 | 9 | SETKCTLKS | 3.3e-05 | 48 |
| HLA-B*35:01 | 1 | 300 | 308 | 9 | KCTLKSFTV | 3.3e-05 | 36 |
| HLA-B*53:01 | 1 | 303 | 312 | 10 | LKSFTVEKGI | 3.3e-05 | 35 |
| HLA-B*15:01 | 1 | 317 | 325 | 9 | NFRVQPTES | 3.3e-05 | 48 |
| HLA-B*53:01 | 1 | 328 | 336 | 9 | RFPNITNLC | 3.3e-05 | 35 |
| HLA-A*02:01 | 1 | 336 | 345 | 10 | CPFGEVFNAT | 3.3e-05 | 48 |
| HLA-B*15:01 | 1 | 336 | 344 | 9 | CPFGEVFNA | 3.3e-05 | 48 |
| HLA-B*07:02 | 1 | 337 | 345 | 9 | PFGEVFNAT | 3.3e-05 | 47 |
| HLA-B*44:02 | 1 | 341 | 350 | 10 | VFNATRFASV | 3.3e-05 | 36 |
| HLA-A*23:01 | 1 | 348 | 356 | 9 | ASVYAWNRK | 3.3e-05 | 32 |
| HLA-A*11:01 | 1 | 359 | 367 | 9 | SNCVADYSV | 3.3e-05 | 32 |
| HLA-A*68:01 | 1 | 359 | 368 | 10 | SNCVADYSVL | 3.3e-05 | 44 |
| HLA-B*51:01 | 1 | 372 | 381 | 10 | ASFSTFKCYG | 3.3e-05 | 59 |
| HLA-A*32:01 | 1 | 373 | 382 | 10 | SFSTFKCYGV | 3.3e-05 | 37 |
| HLA-A*68:01 | 1 | 376 | 384 | 9 | TFKCYGVSP | 3.3e-05 | 44 |
| HLA-B*07:02 | 1 | 376 | 385 | 10 | TFKCYGVSP | 3.3e-05 | 47 |
| HLA-A*68:02 | 1 | 385 | 393 | 9 | TKLNDLCFT | 3.3e-05 | 50 |
| HLA-B*40:01 | 1 | 386 | 395 | 10 | KLNDLCFTNV | 3.3e-05 | 30 |
| HLA-A*68:02 | 1 | 388 | 396 | 9 | NDLCFTNVY | 3.3e-05 | 50 |
| HLA-B*44:02 | 1 | 393 | 401 | 9 | TNVYADSFV | 3.3e-05 | 36 |
| HLA-B*44:02 | 1 | 393 | 402 | 10 | TNVYADSFVI | 3.3e-05 | 36 |
| HLA-B*57:01 | 1 | 397 | 405 | 9 | ADSFVIRGD | 3.3e-05 | 65 |
| HLA-A*32:01 | 1 | 400 | 409 | 10 | FVIRGDEVQR | 3.3e-05 | 37 |
| HLA-A*68:01 | 1 | 412 | 421 | 10 | PGQTGKIADY | 3.3e-05 | 44 |
| HLA-A*32:01 | 1 | 415 | 424 | 10 | TGKIADYNYK | 3.3e-05 | 37 |
| HLA-A*68:02 | 1 | 420 | 429 | 10 | DYNYKLPDDF | 3.3e-05 | 50 |
| HLA-A*11:01 | 1 | 425 | 433 | 9 | LPDDFTGCV | 3.3e-05 | 32 |
| HLA-B*15:01 | 1 | 425 | 434 | 10 | LPDDFTGCVI | 3.3e-05 | 48 |
| HLA-A*24:02 | 1 | 428 | 437 | 10 | DFTGCVIAWN | 3.3e-05 | 31 |
| HLA-A*01:01 | 1 | 429 | 437 | 9 | FTGCVIAWN | 3.3e-05 | 70 |
| HLA-A*30:01 | 1 | 431 | 439 | 9 | GCVIAWNSN | 3.3e-05 | 75 |
| HLA-B*57:01 | 1 | 431 | 439 | 9 | GCVIAWNSN | 3.3e-05 | 65 |
| HLA-A*33:01 | 1 | 432 | 440 | 9 | CVIAWNSNN | 3.3e-05 | 53 |
| HLA-B*35:01 | 1 | 447 | 456 | 10 | GNYNLYRLF | 3.3e-05 | 36 |
| HLA-A*68:02 | 1 | 450 | 459 | 10 | NYLYRLFRRK | 3.3e-05 | 50 |
| HLA-A*11:01 | 1 | 455 | 464 | 10 | LFRRKSNLKP | 3.3e-05 | 32 |
| HLA-A*01:01 | 1 | 459 | 467 | 9 | SNLKPFRD | 3.3e-05 | 70 |
| HLA-A*30:01 | 1 | 463 | 471 | 9 | PFRDISTE | 3.3e-05 | 75 |
| HLA-B*08:01 | 1 | 474 | 482 | 9 | QAGSTPCNG | 3.3e-05 | 66 |
| HLA-A*31:01 | 1 | 476 | 484 | 9 | GSTPCNGVE | 3.3e-05 | 50 |
| HLA-A*30:01 | 1 | 480 | 488 | 9 | CNGVEGFNC | 3.3e-05 | 75 |
| HLA-A*11:01 | 1 | 490 | 498 | 9 | FPLQSYGFQ | 3.3e-05 | 32 |
| HLA-A*68:02 | 1 | 491 | 499 | 9 | PLQSYGFQP | 3.3e-05 | 50 |
| HLA-B*07:02 | 1 | 501 | 510 | 10 | NGVGYQPYRV | 3.3e-05 | 47 |
| HLA-B*07:02 | 1 | 510 | 519 | 10 | VVLSFELLH | 3.3e-05 | 47 |
| HLA-B*44:02 | 1 | 512 | 520 | 9 | VLSFELLHA | 3.3e-05 | 36 |
| HLA-A*02:01 | 1 | 514 | 523 | 10 | SFELLHAPAT | 3.3e-05 | 48 |
| HLA-B*40:01 | 1 | 518 | 527 | 10 | LHAPATVCGP | 3.3e-05 | 30 |
| HLA-A*02:03 | 1 | 519 | 528 | 10 | HAPATVCGPK | 3.3e-05 | 51 |
| HLA-B*08:01 | 1 | 519 | 528 | 10 | HAPATVCGPK | 3.3e-05 | 66 |
| HLA-B*15:01 | 1 | 520 | 528 | 9 | APATVCGPK | 3.3e-05 | 48 |
| HLA-B*51:01 | 1 | 522 | 530 | 9 | ATVCGPKKS | 3.3e-05 | 59 |
| HLA-A*03:01 | 1 | 523 | 532 | 10 | TVCGPKKSTN | 3.3e-05 | 43 |
| HLA-B*08:01 | 1 | 529 | 537 | 9 | KSTNLVKNK | 3.3e-05 | 66 |
| HLA-B*40:01 | 1 | 531 | 539 | 9 | TNLVKNKCV | 3.3e-05 | 30 |
| HLA-B*44:03 | 1 | 538 | 546 | 9 | CVNFNFNGL | 3.3e-05 | 33 |
| HLA-B*44:02 | 1 | 540 | 548 | 9 | NFNFNGLTG | 3.3e-05 | 36 |

| | | | | | | |
|-------------|---|-----|-----|----|---------------------|----|
| HLA-B*51:01 | 1 | 549 | 558 | 10 | TGVLTESNKK 3.3e-05 | 59 |
| HLA-A*11:01 | 1 | 552 | 561 | 10 | LTESNKKFLP 3.3e-05 | 32 |
| HLA-B*07:02 | 1 | 554 | 563 | 10 | ESNKKFLPFQ 3.3e-05 | 47 |
| HLA-A*02:03 | 1 | 555 | 563 | 9 | SNKKFLPFQ 3.3e-05 | 51 |
| HLA-A*11:01 | 1 | 557 | 566 | 10 | KKFLPFQQFG 3.3e-05 | 32 |
| HLA-B*44:03 | 1 | 558 | 567 | 10 | KFLPFQQFGR 3.3e-05 | 33 |
| HLA-A*11:01 | 1 | 567 | 575 | 9 | RDIADTTDA 3.3e-05 | 32 |
| HLA-B*44:02 | 1 | 579 | 587 | 9 | PQTLEILDI 3.3e-05 | 36 |
| HLA-B*44:02 | 1 | 580 | 589 | 10 | QTLEILDITP 3.3e-05 | 36 |
| HLA-B*57:01 | 1 | 605 | 614 | 10 | SNQVAVLYQD 3.3e-05 | 65 |
| HLA-A*32:01 | 1 | 614 | 622 | 9 | DVNCTEVPV 3.3e-05 | 37 |
| HLA-B*44:02 | 1 | 614 | 622 | 9 | DVNCTEVPV 3.3e-05 | 36 |
| HLA-A*02:01 | 1 | 616 | 625 | 10 | NCTEVPVAIH 3.3e-05 | 48 |
| HLA-A*32:01 | 1 | 630 | 638 | 9 | TPTWRVYST 3.3e-05 | 37 |
| HLA-B*07:02 | 1 | 636 | 644 | 9 | YSTGSNVFQ 3.3e-05 | 47 |
| HLA-A*68:02 | 1 | 640 | 648 | 9 | SNVQTRAG 3.3e-05 | 50 |
| HLA-A*31:01 | 1 | 643 | 651 | 9 | FQTRAGCLI 3.3e-05 | 50 |
| HLA-A*31:01 | 1 | 648 | 656 | 9 | GCLIGAHEV 3.3e-05 | 50 |
| HLA-B*51:01 | 1 | 652 | 661 | 10 | GAEHVNNSE 3.3e-05 | 59 |
| HLA-A*30:01 | 1 | 657 | 665 | 9 | NNSYECDIP 3.3e-05 | 75 |
| HLA-A*31:01 | 1 | 661 | 670 | 10 | ECDIPIGAGI 3.3e-05 | 50 |
| HLA-A*03:01 | 1 | 678 | 686 | 9 | TNSPRRARS 3.3e-05 | 43 |
| HLA-A*11:01 | 1 | 679 | 687 | 9 | NSPRRARSV 3.3e-05 | 32 |
| HLA-A*33:01 | 1 | 681 | 690 | 10 | PRRARSVASQ 3.3e-05 | 53 |
| HLA-A*31:01 | 1 | 689 | 698 | 10 | SQSIIAYTMS 3.3e-05 | 50 |
| HLA-B*35:01 | 1 | 693 | 702 | 10 | IAYTMSLGAE 3.3e-05 | 36 |
| HLA-A*03:01 | 1 | 694 | 702 | 9 | AYTMSLGAE 3.3e-05 | 43 |
| HLA-B*08:01 | 1 | 695 | 704 | 10 | YTMSLGAENS 3.3e-05 | 66 |
| HLA-B*40:01 | 1 | 704 | 713 | 10 | SVAYSNNNSIA 3.3e-05 | 30 |
| HLA-A*11:01 | 1 | 720 | 729 | 10 | ISVTTEILPV 3.3e-05 | 32 |
| HLA-B*35:01 | 1 | 728 | 736 | 9 | PVSMTKTSV 3.3e-05 | 36 |
| HLA-B*07:02 | 1 | 729 | 737 | 9 | VSMTKTSVD 3.3e-05 | 47 |
| HLA-A*24:02 | 1 | 730 | 738 | 9 | SMTKTSVDC 3.3e-05 | 31 |
| HLA-A*68:01 | 1 | 738 | 746 | 9 | CTMYICGDS 3.3e-05 | 44 |
| HLA-A*02:06 | 1 | 740 | 748 | 9 | MYICGDSTE 3.3e-05 | 59 |
| HLA-A*01:01 | 1 | 742 | 751 | 10 | ICGDSTECSN 3.3e-05 | 70 |
| HLA-A*30:02 | 1 | 752 | 761 | 10 | LLLQYGSFCT 3.3e-05 | 73 |
| HLA-B*53:01 | 1 | 756 | 765 | 10 | YGSFCTQLNR 3.3e-05 | 35 |
| HLA-A*23:01 | 1 | 763 | 772 | 10 | LNRRALTGIIV 3.3e-05 | 32 |
| HLA-A*03:01 | 1 | 770 | 779 | 10 | IAVEQDKNTQ 3.3e-05 | 43 |
| HLA-A*02:01 | 1 | 778 | 787 | 10 | TQEVFAQVKQ 3.3e-05 | 48 |
| HLA-B*35:01 | 1 | 782 | 791 | 10 | FAQVKQIYKT 3.3e-05 | 36 |
| HLA-A*33:01 | 1 | 794 | 803 | 10 | IKDFGGFNFS 3.3e-05 | 53 |
| HLA-A*32:01 | 1 | 796 | 805 | 10 | DFGGFNFSQI 3.3e-05 | 37 |
| HLA-B*08:01 | 1 | 798 | 807 | 10 | GGFNFSQILP 3.3e-05 | 66 |
| HLA-A*30:02 | 1 | 799 | 808 | 10 | GFNFSQILPD 3.3e-05 | 73 |
| HLA-B*15:01 | 1 | 802 | 810 | 9 | FSQILPDPS 3.3e-05 | 48 |
| HLA-B*53:01 | 1 | 802 | 810 | 9 | FSQILPDPS 3.3e-05 | 35 |
| HLA-A*32:01 | 1 | 816 | 824 | 9 | SFIEDLLFN 3.3e-05 | 37 |
| HLA-A*23:01 | 1 | 821 | 830 | 10 | LLFNKVTLAD 3.3e-05 | 32 |
| HLA-B*35:01 | 1 | 822 | 830 | 9 | LFNKVTLAD 3.3e-05 | 36 |
| HLA-B*53:01 | 1 | 826 | 835 | 10 | VTLADAGFIK 3.3e-05 | 35 |
| HLA-A*03:01 | 1 | 829 | 838 | 10 | ADAGFIKQYG 3.3e-05 | 43 |
| HLA-A*02:03 | 1 | 837 | 846 | 10 | YGDCLGDIAA 3.3e-05 | 51 |
| HLA-B*57:01 | 1 | 837 | 846 | 10 | YGDCLGDIAA 3.3e-05 | 65 |
| HLA-B*58:01 | 1 | 837 | 846 | 10 | YGDCLGDIAA 3.3e-05 | 53 |
| HLA-A*23:01 | 1 | 840 | 849 | 10 | CLGDIAARDL 3.3e-05 | 32 |
| HLA-B*07:02 | 1 | 854 | 863 | 10 | KFNGLTVLPP 3.3e-05 | 47 |
| HLA-B*57:01 | 1 | 855 | 863 | 9 | FNGLTVLPP 3.3e-05 | 65 |
| HLA-A*02:01 | 1 | 872 | 881 | 10 | QYTSALLAGT 3.3e-05 | 48 |
| HLA-B*44:03 | 1 | 876 | 884 | 9 | ALLAGTITS 3.3e-05 | 33 |
| HLA-A*32:01 | 1 | 878 | 887 | 10 | LAGTITSGWT 3.3e-05 | 37 |
| HLA-A*68:02 | 1 | 889 | 897 | 9 | GAGAALQIP 3.3e-05 | 50 |
| HLA-B*57:01 | 1 | 897 | 905 | 9 | PFAMQMAYR 3.3e-05 | 65 |
| HLA-A*01:01 | 1 | 902 | 910 | 9 | MAYRFNGIG 3.3e-05 | 70 |
| HLA-B*40:01 | 1 | 903 | 912 | 10 | AYRFNGIGVT 3.3e-05 | 30 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*11:01 | 1 | 905 | 914 | 10 | RFNGIGVTQN | 3.3e-05 | 32 |
| HLA-A*11:01 | 1 | 908 | 916 | 9 | GIGVTQNVL | 3.3e-05 | 32 |
| HLA-B*40:01 | 1 | 908 | 917 | 10 | GIGVTQNVLY | 3.3e-05 | 30 |
| HLA-B*51:01 | 1 | 909 | 918 | 10 | IGVTQNVLYE | 3.3e-05 | 59 |
| HLA-A*02:01 | 1 | 911 | 919 | 9 | VTQNVLYEN | 3.3e-05 | 48 |
| HLA-A*01:01 | 1 | 920 | 929 | 10 | QKLIANQFNS | 3.3e-05 | 70 |
| HLA-B*44:02 | 1 | 921 | 930 | 10 | KLIANQFNFA | 3.3e-05 | 36 |
| HLA-A*24:02 | 1 | 922 | 931 | 10 | LIANQFNFAI | 3.3e-05 | 31 |
| HLA-A*68:01 | 1 | 922 | 931 | 10 | LIANQFNFAI | 3.3e-05 | 44 |
| HLA-B*44:02 | 1 | 922 | 930 | 9 | LIANQFNFA | 3.3e-05 | 36 |
| HLA-A*68:01 | 1 | 928 | 936 | 9 | NSAIGKIQD | 3.3e-05 | 44 |
| HLA-A*30:02 | 1 | 935 | 943 | 9 | QDSLSTAS | 3.3e-05 | 73 |
| HLA-B*51:01 | 1 | 937 | 946 | 10 | SLSSTASALG | 3.3e-05 | 59 |
| HLA-A*32:01 | 1 | 938 | 946 | 9 | LSSTASALG | 3.3e-05 | 37 |
| HLA-A*24:02 | 1 | 943 | 952 | 10 | SALGKLQDVV | 3.3e-05 | 31 |
| HLA-B*51:01 | 1 | 945 | 953 | 9 | LGKLQDVVN | 3.3e-05 | 59 |
| HLA-B*07:02 | 1 | 947 | 955 | 9 | KLQDVVNQN | 3.3e-05 | 47 |
| HLA-A*03:01 | 1 | 949 | 958 | 10 | QDVVNQNAQA | 3.3e-05 | 43 |
| HLA-B*35:01 | 1 | 949 | 957 | 9 | QDVVNQNAQ | 3.3e-05 | 36 |
| HLA-A*24:02 | 1 | 955 | 964 | 10 | NAQALNTLVK | 3.3e-05 | 31 |
| HLA-A*11:01 | 1 | 965 | 973 | 9 | QLSSNFGAI | 3.3e-05 | 32 |
| HLA-A*68:01 | 1 | 966 | 975 | 10 | LSSNFGAISS | 3.3e-05 | 44 |
| HLA-B*35:01 | 1 | 966 | 974 | 9 | LSSNFGAIS | 3.3e-05 | 36 |
| HLA-A*23:01 | 1 | 974 | 983 | 10 | SSVLNDILSR | 3.3e-05 | 32 |
| HLA-B*35:01 | 1 | 978 | 986 | 9 | NDILSRDK | 3.3e-05 | 36 |
| HLA-A*33:01 | 1 | 984 | 992 | 9 | LDKVEAEVQ | 3.3e-05 | 53 |
| HLA-B*40:01 | 1 | 990 | 999 | 10 | EVQIDRLITG | 3.3e-05 | 30 |
| HLA-B*44:02 | 1 | 995 | 1003 | 9 | RLITGRLQS | 3.3e-05 | 36 |
| HLA-B*53:01 | 1 | 997 | 1005 | 9 | ITGRLQSLQ | 3.3e-05 | 35 |
| HLA-A*33:01 | 1 | 1009 | 1018 | 10 | TQQLIRAAEI | 3.3e-05 | 53 |
| HLA-B*40:01 | 1 | 1010 | 1019 | 10 | QLLIRAAEIR | 3.3e-05 | 30 |
| HLA-A*26:01 | 1 | 1011 | 1020 | 10 | QLIRAAEIRA | 3.3e-05 | 43 |
| HLA-B*44:03 | 1 | 1011 | 1020 | 10 | QLIRAAEIRA | 3.3e-05 | 33 |
| HLA-B*51:01 | 1 | 1015 | 1023 | 9 | AAEIRASAN | 3.3e-05 | 59 |
| HLA-A*33:01 | 1 | 1022 | 1030 | 9 | ANLAATKMS | 3.3e-05 | 53 |
| HLA-A*02:06 | 1 | 1027 | 1036 | 10 | TKMSECVLGQ | 3.3e-05 | 59 |
| HLA-B*57:01 | 1 | 1027 | 1036 | 10 | TKMSECVLGQ | 3.3e-05 | 65 |
| HLA-A*02:03 | 1 | 1043 | 1052 | 10 | CGKGYHLMSF | 3.3e-05 | 51 |
| HLA-A*31:01 | 1 | 1047 | 1055 | 9 | YHLMSFPQS | 3.3e-05 | 50 |
| HLA-A*32:01 | 1 | 1057 | 1065 | 9 | PHGVVFLHV | 3.3e-05 | 37 |
| HLA-A*32:01 | 1 | 1061 | 1070 | 10 | VFLHVTVVPA | 3.3e-05 | 37 |
| HLA-B*07:02 | 1 | 1062 | 1071 | 10 | FLHVTVVPAQ | 3.3e-05 | 47 |
| HLA-B*44:03 | 1 | 1063 | 1071 | 9 | LHVTVVPAQ | 3.3e-05 | 33 |
| HLA-A*03:01 | 1 | 1075 | 1084 | 10 | FTTAPAICHD | 3.3e-05 | 43 |
| HLA-B*58:01 | 1 | 1078 | 1087 | 10 | APAICHDGKA | 3.3e-05 | 53 |
| HLA-A*02:03 | 1 | 1082 | 1090 | 9 | CHDGKAHFP | 3.3e-05 | 51 |
| HLA-B*35:01 | 1 | 1083 | 1091 | 9 | HDGKAHFP | 3.3e-05 | 36 |
| HLA-B*08:01 | 1 | 1091 | 1099 | 9 | REGVFVSNQ | 3.3e-05 | 66 |
| HLA-A*26:01 | 1 | 1107 | 1116 | 10 | RNFYEPQIIT | 3.3e-05 | 43 |
| HLA-A*01:01 | 1 | 1111 | 1120 | 10 | EPQIITDNT | 3.3e-05 | 70 |
| HLA-A*68:02 | 1 | 1112 | 1120 | 9 | PQIITDNT | 3.3e-05 | 50 |
| HLA-A*68:01 | 1 | 1115 | 1124 | 10 | ITDNTFVSG | 3.3e-05 | 44 |
| HLA-A*02:06 | 1 | 1116 | 1125 | 10 | TTDNTFVSGN | 3.3e-05 | 59 |
| HLA-B*44:02 | 1 | 1117 | 1126 | 10 | TDNTFVSGNC | 3.3e-05 | 36 |
| HLA-B*15:01 | 1 | 1119 | 1128 | 10 | NTFVSGNCDV | 3.3e-05 | 48 |
| HLA-B*07:02 | 1 | 1141 | 1150 | 10 | LQPELDSFKE | 3.3e-05 | 47 |
| HLA-A*68:01 | 1 | 1142 | 1151 | 10 | QPELDSFKEE | 3.3e-05 | 44 |
| HLA-B*44:02 | 1 | 1142 | 1150 | 9 | QPELDSFKE | 3.3e-05 | 36 |
| HLA-A*33:01 | 1 | 1149 | 1158 | 10 | KEELDKYFKN | 3.3e-05 | 53 |
| HLA-B*35:01 | 1 | 1150 | 1158 | 9 | EELDKYFKN | 3.3e-05 | 36 |
| HLA-B*44:02 | 1 | 1159 | 1167 | 9 | HTSPDVDLG | 3.3e-05 | 36 |
| HLA-A*02:06 | 1 | 1170 | 1178 | 9 | SGINASVVN | 3.3e-05 | 59 |
| HLA-B*53:01 | 1 | 1172 | 1180 | 9 | INASVVNIQ | 3.3e-05 | 35 |
| HLA-B*07:02 | 1 | 1177 | 1185 | 9 | VNIQKEIDR | 3.3e-05 | 47 |
| HLA-A*68:01 | 1 | 1178 | 1187 | 10 | NIQKEIDRLN | 3.3e-05 | 44 |
| HLA-B*40:01 | 1 | 1179 | 1188 | 10 | IQKEIDRLNE | 3.3e-05 | 30 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*02:03 | 1 | 1183 | 1191 | 9 | IDRLNEVAK | 3.3e-05 | 51 |
| HLA-B*07:02 | 1 | 1187 | 1196 | 10 | NEVAKNLNES | 3.3e-05 | 47 |
| HLA-A*30:01 | 1 | 1199 | 1208 | 10 | DLQELGKYEQ | 3.3e-05 | 75 |
| HLA-B*53:01 | 1 | 1200 | 1208 | 9 | LQELGKYEQ | 3.3e-05 | 35 |
| HLA-B*07:02 | 1 | 1205 | 1213 | 9 | KYEQYIKWP | 3.3e-05 | 47 |
| HLA-A*11:01 | 1 | 1212 | 1220 | 9 | WPWYIWLGF | 3.3e-05 | 32 |
| HLA-B*35:01 | 1 | 1222 | 1230 | 9 | AGLIAIVMV | 3.3e-05 | 36 |
| HLA-A*02:06 | 1 | 1235 | 1244 | 10 | CCMTSCCSC | 3.3e-05 | 59 |
| HLA-A*01:01 | 1 | 1242 | 1250 | 9 | SCLKGCCSC | 3.3e-05 | 70 |
| HLA-B*44:03 | 1 | 1255 | 1264 | 10 | KFDEDDSEPV | 3.3e-05 | 33 |
| HLA-B*35:01 | 1 | 1 | 9 | 9 | MFVFLVLLP | 3.2e-05 | 36 |
| HLA-B*51:01 | 1 | 3 | 12 | 10 | VFLVLLPLVS | 3.2e-05 | 59 |
| HLA-B*44:02 | 1 | 17 | 25 | 9 | NLTTTRTQLP | 3.2e-05 | 36 |
| HLA-B*08:01 | 1 | 33 | 41 | 9 | TRGVYYPDK | 3.2e-05 | 67 |
| HLA-B*07:02 | 1 | 43 | 52 | 10 | FRSSVLHSTQ | 3.2e-05 | 47 |
| HLA-A*23:01 | 1 | 49 | 57 | 9 | HSTQDLFLP | 3.2e-05 | 32 |
| HLA-A*03:01 | 1 | 51 | 60 | 10 | TQDLFLPFFS | 3.2e-05 | 43 |
| HLA-B*57:01 | 1 | 52 | 60 | 9 | QDLFLPFFS | 3.2e-05 | 66 |
| HLA-B*58:01 | 1 | 53 | 62 | 10 | DLFLPFFSNV | 3.2e-05 | 54 |
| HLA-B*58:01 | 1 | 63 | 72 | 10 | TWFHAIHVS | 3.2e-05 | 54 |
| HLA-A*02:01 | 1 | 67 | 75 | 9 | AIHVSNGTNG | 3.2e-05 | 49 |
| HLA-A*33:01 | 1 | 67 | 76 | 10 | AIHVSNGTNG | 3.2e-05 | 53 |
| HLA-B*53:01 | 1 | 70 | 78 | 9 | VSGTNGTKR | 3.2e-05 | 35 |
| HLA-A*68:02 | 1 | 81 | 89 | 9 | NPVLPFNDG | 3.2e-05 | 51 |
| HLA-B*44:03 | 1 | 87 | 95 | 9 | NDGVYFAST | 3.2e-05 | 34 |
| HLA-B*15:01 | 1 | 91 | 99 | 9 | YFASTEKSN | 3.2e-05 | 49 |
| HLA-A*23:01 | 1 | 94 | 102 | 9 | STEKSNIIR | 3.2e-05 | 32 |
| HLA-B*53:01 | 1 | 97 | 105 | 9 | KSNIIRGWI | 3.2e-05 | 35 |
| HLA-A*02:06 | 1 | 112 | 121 | 10 | SKTQSLLIVN | 3.2e-05 | 59 |
| HLA-A*11:01 | 1 | 112 | 121 | 10 | SKTQSLLIVN | 3.2e-05 | 32 |
| HLA-A*68:01 | 1 | 112 | 120 | 9 | SKTQSLLIV | 3.2e-05 | 44 |
| HLA-A*23:01 | 1 | 121 | 129 | 9 | NNATNVVIK | 3.2e-05 | 32 |
| HLA-A*33:01 | 1 | 122 | 131 | 10 | NATNVVIKVC | 3.2e-05 | 53 |
| HLA-A*02:01 | 1 | 124 | 133 | 10 | TNVVIKVC | 3.2e-05 | 49 |
| HLA-A*02:01 | 1 | 129 | 137 | 9 | KVCEFQFCN | 3.2e-05 | 49 |
| HLA-A*02:06 | 1 | 134 | 142 | 9 | QFCNDPFLG | 3.2e-05 | 59 |
| HLA-A*02:06 | 1 | 139 | 147 | 9 | PFLGVYYHK | 3.2e-05 | 59 |
| HLA-A*24:02 | 1 | 139 | 148 | 10 | PFLGVYYHKN | 3.2e-05 | 31 |
| HLA-B*40:01 | 1 | 143 | 152 | 10 | VYYHKNNKSW | 3.2e-05 | 30 |
| HLA-B*15:01 | 1 | 146 | 154 | 9 | HKNNKSWME | 3.2e-05 | 49 |
| HLA-B*58:01 | 1 | 148 | 156 | 9 | NNKSWMESE | 3.2e-05 | 54 |
| HLA-B*08:01 | 1 | 150 | 158 | 9 | KSWMESEFR | 3.2e-05 | 67 |
| HLA-B*35:01 | 1 | 169 | 178 | 10 | EYVSQPFLMD | 3.2e-05 | 36 |
| HLA-B*58:01 | 1 | 176 | 185 | 10 | LMDLEGKQGN | 3.2e-05 | 54 |
| HLA-B*35:01 | 1 | 177 | 185 | 9 | MDLEGKQGN | 3.2e-05 | 36 |
| HLA-A*02:01 | 1 | 180 | 189 | 10 | EGKQGNFKNL | 3.2e-05 | 49 |
| HLA-B*58:01 | 1 | 181 | 190 | 10 | GKQGNFKNLR | 3.2e-05 | 54 |
| HLA-B*53:01 | 1 | 189 | 197 | 9 | LREFVFKNI | 3.2e-05 | 35 |
| HLA-A*68:02 | 1 | 191 | 199 | 9 | EFVFKNIDG | 3.2e-05 | 51 |
| HLA-A*68:01 | 1 | 197 | 205 | 9 | IDGYFKIYS | 3.2e-05 | 44 |
| HLA-B*58:01 | 1 | 210 | 219 | 10 | INLVRDLPQG | 3.2e-05 | 54 |
| HLA-A*02:06 | 1 | 216 | 224 | 9 | LPQGFSALE | 3.2e-05 | 59 |
| HLA-A*03:01 | 1 | 218 | 227 | 10 | QGFSALEPLV | 3.2e-05 | 43 |
| HLA-B*44:02 | 1 | 223 | 232 | 10 | LEPLVDLPIG | 3.2e-05 | 36 |
| HLA-B*15:01 | 1 | 227 | 236 | 10 | VDLPIGINIT | 3.2e-05 | 49 |
| HLA-A*24:02 | 1 | 228 | 236 | 9 | DLPIGINIT | 3.2e-05 | 31 |
| HLA-A*33:01 | 1 | 246 | 255 | 10 | RSYLTPGDSS | 3.2e-05 | 53 |
| HLA-B*53:01 | 1 | 247 | 256 | 10 | SYLTPGDSS | 3.2e-05 | 35 |
| HLA-B*15:01 | 1 | 260 | 268 | 9 | AGAAAYYVG | 3.2e-05 | 49 |
| HLA-A*33:01 | 1 | 261 | 270 | 10 | GAAAYYVGYL | 3.2e-05 | 53 |
| HLA-B*53:01 | 1 | 261 | 270 | 10 | GAAAYYVGYL | 3.2e-05 | 35 |
| HLA-B*44:02 | 1 | 263 | 272 | 10 | AAYYVGYLQP | 3.2e-05 | 36 |
| HLA-A*30:02 | 1 | 272 | 281 | 10 | PRTFLLKYNE | 3.2e-05 | 74 |
| HLA-A*68:01 | 1 | 272 | 281 | 10 | PRTFLLKYNE | 3.2e-05 | 44 |
| HLA-B*15:01 | 1 | 273 | 282 | 10 | RTFLLKYNEN | 3.2e-05 | 49 |
| HLA-A*23:01 | 1 | 274 | 283 | 10 | TFLLKYNENG | 3.2e-05 | 32 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*57:01 | 1 | 279 | 288 | 10 | YNENGTITDA | 3.2e-05 | 66 |
| HLA-B*40:01 | 1 | 283 | 291 | 9 | GTITDAVDC | 3.2e-05 | 30 |
| HLA-B*44:03 | 1 | 294 | 302 | 9 | DPLSETKCT | 3.2e-05 | 34 |
| HLA-B*44:02 | 1 | 299 | 308 | 10 | TKCTLKSFTV | 3.2e-05 | 36 |
| HLA-A*30:02 | 1 | 303 | 311 | 9 | LKSFTVEKG | 3.2e-05 | 74 |
| HLA-A*23:01 | 1 | 308 | 316 | 9 | VEKGIYQTS | 3.2e-05 | 32 |
| HLA-B*15:01 | 1 | 315 | 324 | 10 | TSNFRVQPT | 3.2e-05 | 49 |
| HLA-A*23:01 | 1 | 316 | 324 | 9 | SNFRVQPT | 3.2e-05 | 32 |
| HLA-A*33:01 | 1 | 321 | 330 | 10 | QPTESIVRFP | 3.2e-05 | 53 |
| HLA-B*08:01 | 1 | 322 | 330 | 9 | PTESIVRFP | 3.2e-05 | 67 |
| HLA-A*02:03 | 1 | 336 | 345 | 10 | CPFGEVFNAT | 3.2e-05 | 52 |
| HLA-A*11:01 | 1 | 340 | 349 | 10 | EVFNATRFAS | 3.2e-05 | 32 |
| HLA-A*68:01 | 1 | 354 | 362 | 9 | NRKRISNCV | 3.2e-05 | 44 |
| HLA-B*58:01 | 1 | 354 | 362 | 9 | NRKRISNCV | 3.2e-05 | 54 |
| HLA-A*33:01 | 1 | 358 | 367 | 10 | ISNCVADYSV | 3.2e-05 | 53 |
| HLA-A*68:01 | 1 | 367 | 376 | 10 | VLYNSASFST | 3.2e-05 | 44 |
| HLA-A*03:01 | 1 | 373 | 382 | 10 | SFSTFKCYGV | 3.2e-05 | 43 |
| HLA-A*68:01 | 1 | 386 | 395 | 10 | KLNDLCFTNV | 3.2e-05 | 44 |
| HLA-B*57:01 | 1 | 389 | 397 | 9 | DLCFNTVYA | 3.2e-05 | 66 |
| HLA-B*08:01 | 1 | 390 | 398 | 9 | LCFTNVYAD | 3.2e-05 | 67 |
| HLA-A*02:06 | 1 | 391 | 400 | 10 | CFTNVYADSF | 3.2e-05 | 59 |
| HLA-A*03:01 | 1 | 399 | 407 | 9 | SFVIRGDEV | 3.2e-05 | 43 |
| HLA-B*44:02 | 1 | 401 | 409 | 9 | VIRGDEVQR | 3.2e-05 | 36 |
| HLA-B*40:01 | 1 | 404 | 413 | 10 | GDEVQRQIAP | 3.2e-05 | 30 |
| HLA-B*07:02 | 1 | 405 | 414 | 10 | DEVQRQIAPG | 3.2e-05 | 47 |
| HLA-B*35:01 | 1 | 405 | 414 | 10 | DEVQRQIAPG | 3.2e-05 | 36 |
| HLA-B*51:01 | 1 | 418 | 427 | 10 | IADYNYKLPD | 3.2e-05 | 59 |
| HLA-B*15:01 | 1 | 423 | 431 | 9 | YKLPDDFTG | 3.2e-05 | 49 |
| HLA-A*24:02 | 1 | 425 | 434 | 10 | LPDDFTGCVI | 3.2e-05 | 31 |
| HLA-B*44:03 | 1 | 425 | 434 | 10 | LPDDFTGCVI | 3.2e-05 | 34 |
| HLA-A*03:01 | 1 | 427 | 436 | 10 | DDFTGCVIAW | 3.2e-05 | 43 |
| HLA-A*11:01 | 1 | 430 | 438 | 9 | TGCVIAWNS | 3.2e-05 | 32 |
| HLA-A*11:01 | 1 | 432 | 441 | 10 | CVIAWNSNNL | 3.2e-05 | 32 |
| HLA-B*51:01 | 1 | 437 | 446 | 10 | NSNNLDSKVG | 3.2e-05 | 59 |
| HLA-B*15:01 | 1 | 441 | 450 | 10 | LDSKVGGNYN | 3.2e-05 | 49 |
| HLA-B*44:02 | 1 | 448 | 457 | 10 | NYNLYRLFR | 3.2e-05 | 36 |
| HLA-B*58:01 | 1 | 448 | 457 | 10 | NYNLYRLFR | 3.2e-05 | 54 |
| HLA-A*01:01 | 1 | 452 | 461 | 10 | LYRLFRKSNL | 3.2e-05 | 71 |
| HLA-B*53:01 | 1 | 454 | 462 | 9 | RLFRKSNLK | 3.2e-05 | 35 |
| HLA-B*08:01 | 1 | 459 | 467 | 9 | SNLKPFERD | 3.2e-05 | 67 |
| HLA-A*23:01 | 1 | 466 | 475 | 10 | RDISTEIQQA | 3.2e-05 | 32 |
| HLA-A*26:01 | 1 | 468 | 476 | 9 | ISTEIQAG | 3.2e-05 | 43 |
| HLA-B*51:01 | 1 | 469 | 478 | 10 | STEIQAGST | 3.2e-05 | 59 |
| HLA-B*40:01 | 1 | 493 | 501 | 9 | QSYGFQPTN | 3.2e-05 | 30 |
| HLA-B*08:01 | 1 | 499 | 508 | 10 | PTNGVGYQPY | 3.2e-05 | 67 |
| HLA-B*15:01 | 1 | 500 | 509 | 10 | TNGVGYQPYP | 3.2e-05 | 49 |
| HLA-B*53:01 | 1 | 511 | 520 | 10 | VVLSFELLHA | 3.2e-05 | 35 |
| HLA-A*26:01 | 1 | 514 | 522 | 9 | SFELLHAPA | 3.2e-05 | 43 |
| HLA-B*44:02 | 1 | 514 | 522 | 9 | SFELLHAPA | 3.2e-05 | 36 |
| HLA-A*01:01 | 1 | 524 | 532 | 9 | VCGPKKSTN | 3.2e-05 | 71 |
| HLA-A*23:01 | 1 | 529 | 537 | 9 | KSTNLVKNK | 3.2e-05 | 32 |
| HLA-A*30:01 | 1 | 532 | 540 | 9 | NLVKNKCVN | 3.2e-05 | 76 |
| HLA-A*26:01 | 1 | 540 | 548 | 9 | NFNFNGLTG | 3.2e-05 | 43 |
| HLA-A*31:01 | 1 | 540 | 548 | 9 | NFNFNGLTG | 3.2e-05 | 51 |
| HLA-A*26:01 | 1 | 542 | 550 | 9 | NFNGLTGTG | 3.2e-05 | 43 |
| HLA-B*58:01 | 1 | 542 | 551 | 10 | NFNGLTGTGV | 3.2e-05 | 54 |
| HLA-A*26:01 | 1 | 546 | 555 | 10 | LTGTGVLTES | 3.2e-05 | 43 |
| HLA-B*53:01 | 1 | 550 | 558 | 9 | GVLTESNKK | 3.2e-05 | 35 |
| HLA-B*51:01 | 1 | 561 | 570 | 10 | PFQQFGRDIA | 3.2e-05 | 59 |
| HLA-B*40:01 | 1 | 565 | 573 | 9 | FGRDIADTT | 3.2e-05 | 30 |
| HLA-A*68:01 | 1 | 567 | 575 | 9 | RDIADTTDA | 3.2e-05 | 44 |
| HLA-A*30:02 | 1 | 571 | 580 | 10 | DTTDAVRDPQ | 3.2e-05 | 74 |
| HLA-A*02:06 | 1 | 577 | 586 | 10 | RDPQTLEILD | 3.2e-05 | 59 |
| HLA-B*44:02 | 1 | 580 | 588 | 9 | QTLIELDIT | 3.2e-05 | 36 |
| HLA-A*33:01 | 1 | 582 | 591 | 10 | LEILDITPCS | 3.2e-05 | 53 |
| HLA-B*57:01 | 1 | 582 | 590 | 9 | LEILDITPC | 3.2e-05 | 66 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*40:01 | 1 | 583 | 591 | 9 | EILDITPCS | 3.2e-05 | 30 |
| HLA-B*51:01 | 1 | 584 | 593 | 10 | ILDITPCSF3 | 3.2e-05 | 59 |
| HLA-A*11:01 | 1 | 591 | 599 | 9 | SFGGVSUIT | 3.2e-05 | 32 |
| HLA-A*02:03 | 1 | 593 | 601 | 9 | GGVSVITPG | 3.2e-05 | 52 |
| HLA-A*02:03 | 1 | 597 | 606 | 10 | VITPGTNTSN | 3.2e-05 | 52 |
| HLA-B*15:01 | 1 | 599 | 607 | 9 | TPGTNTSNQ | 3.2e-05 | 49 |
| HLA-A*11:01 | 1 | 602 | 610 | 9 | TNTSNQVAV | 3.2e-05 | 32 |
| HLA-B*07:02 | 1 | 610 | 619 | 10 | VLYQDVNCTE | 3.2e-05 | 47 |
| HLA-B*58:01 | 1 | 612 | 621 | 10 | YQDVNCTEVP | 3.2e-05 | 54 |
| HLA-B*15:01 | 1 | 614 | 622 | 9 | DVNCTEVPV | 3.2e-05 | 49 |
| HLA-A*02:03 | 1 | 617 | 625 | 9 | CTEVPVAIH | 3.2e-05 | 52 |
| HLA-B*07:02 | 1 | 617 | 626 | 10 | CTEVPVAIHA | 3.2e-05 | 47 |
| HLA-A*01:01 | 1 | 618 | 627 | 10 | TEVPVAIHAD | 3.2e-05 | 71 |
| HLA-A*03:01 | 1 | 619 | 628 | 10 | EVPVAIHADQ | 3.2e-05 | 43 |
| HLA-A*01:01 | 1 | 620 | 628 | 9 | VPVAIHADQ | 3.2e-05 | 71 |
| HLA-A*68:01 | 1 | 622 | 631 | 10 | VAIHADQLTP | 3.2e-05 | 44 |
| HLA-B*44:02 | 1 | 622 | 630 | 9 | VAIHADQLT | 3.2e-05 | 36 |
| HLA-A*26:01 | 1 | 638 | 647 | 10 | TGSNVFQTRA | 3.2e-05 | 43 |
| HLA-B*15:01 | 1 | 638 | 647 | 10 | TGSNVFQTRA | 3.2e-05 | 49 |
| HLA-A*32:01 | 1 | 657 | 666 | 10 | NNSYECDIPI | 3.2e-05 | 38 |
| HLA-A*24:02 | 1 | 661 | 670 | 10 | ECDIPIGAGI | 3.2e-05 | 31 |
| HLA-A*33:01 | 1 | 672 | 681 | 10 | ASYQTQTNSP | 3.2e-05 | 53 |
| HLA-B*07:02 | 1 | 694 | 702 | 9 | AYTMSLGAE | 3.2e-05 | 47 |
| HLA-B*44:03 | 1 | 696 | 705 | 10 | TMSLGAENSV | 3.2e-05 | 34 |
| HLA-B*07:02 | 1 | 700 | 708 | 9 | GAENSVAYS | 3.2e-05 | 47 |
| HLA-A*30:02 | 1 | 701 | 710 | 10 | AENSVAYSNN | 3.2e-05 | 74 |
| HLA-A*23:01 | 1 | 703 | 712 | 10 | NSVAYSNNSI | 3.2e-05 | 32 |
| HLA-A*26:01 | 1 | 708 | 716 | 9 | SNNSIAIPT | 3.2e-05 | 43 |
| HLA-A*26:01 | 1 | 712 | 721 | 10 | IAIPTNFTIS | 3.2e-05 | 43 |
| HLA-A*24:02 | 1 | 716 | 725 | 10 | TNFTISVTTE | 3.2e-05 | 31 |
| HLA-B*08:01 | 1 | 720 | 728 | 9 | ISVTTEILP | 3.2e-05 | 67 |
| HLA-B*40:01 | 1 | 722 | 730 | 9 | VTTEILPVS | 3.2e-05 | 30 |
| HLA-B*15:01 | 1 | 727 | 735 | 9 | LPVSMTKTS | 3.2e-05 | 49 |
| HLA-A*26:01 | 1 | 740 | 748 | 9 | MYICGDSTE | 3.2e-05 | 43 |
| HLA-A*30:02 | 1 | 751 | 760 | 10 | NLLLQYGSFC | 3.2e-05 | 74 |
| HLA-A*33:01 | 1 | 755 | 764 | 10 | QYGSFCTQLN | 3.2e-05 | 53 |
| HLA-A*03:01 | 1 | 760 | 768 | 9 | CTQLNRALT | 3.2e-05 | 43 |
| HLA-A*02:01 | 1 | 770 | 779 | 10 | IAVEQDKNTQ | 3.2e-05 | 49 |
| HLA-B*15:01 | 1 | 775 | 783 | 9 | DKNTQEVFA | 3.2e-05 | 49 |
| HLA-B*44:02 | 1 | 776 | 784 | 9 | KNTQEVFAQ | 3.2e-05 | 36 |
| HLA-B*53:01 | 1 | 776 | 785 | 10 | KNTQEVFAQV | 3.2e-05 | 35 |
| HLA-A*68:01 | 1 | 790 | 799 | 10 | KTPPIKDFGG | 3.2e-05 | 44 |
| HLA-A*23:01 | 1 | 794 | 803 | 10 | IKDFGGFNFS | 3.2e-05 | 32 |
| HLA-A*26:01 | 1 | 794 | 803 | 10 | IKDFGGFNFS | 3.2e-05 | 43 |
| HLA-A*33:01 | 1 | 798 | 807 | 10 | GGFNFSQILP | 3.2e-05 | 53 |
| HLA-B*53:01 | 1 | 805 | 813 | 9 | ILPDPSKPS | 3.2e-05 | 35 |
| HLA-A*02:01 | 1 | 815 | 824 | 10 | RSFIEDLLFN | 3.2e-05 | 49 |
| HLA-A*02:03 | 1 | 816 | 824 | 9 | SFIEDLLFN | 3.2e-05 | 52 |
| HLA-A*68:02 | 1 | 819 | 827 | 9 | EDLLFNKVT | 3.2e-05 | 51 |
| HLA-B*35:01 | 1 | 819 | 827 | 9 | EDLLFNKVT | 3.2e-05 | 36 |
| HLA-B*57:01 | 1 | 821 | 830 | 10 | LLFNKVTLAD | 3.2e-05 | 66 |
| HLA-B*15:01 | 1 | 822 | 831 | 10 | LFNKVTLADA | 3.2e-05 | 49 |
| HLA-A*30:01 | 1 | 824 | 833 | 10 | NKVTLADAGF | 3.2e-05 | 76 |
| HLA-A*01:01 | 1 | 833 | 842 | 10 | FIKQYGDCLG | 3.2e-05 | 71 |
| HLA-A*32:01 | 1 | 836 | 844 | 9 | QYGDCLGDI | 3.2e-05 | 38 |
| HLA-B*08:01 | 1 | 836 | 845 | 10 | QYGDCLGDIA | 3.2e-05 | 67 |
| HLA-A*02:03 | 1 | 838 | 847 | 10 | GDCLGDIAAR | 3.2e-05 | 52 |
| HLA-A*31:01 | 1 | 839 | 848 | 10 | DCLGDIAARD | 3.2e-05 | 51 |
| HLA-A*24:02 | 1 | 840 | 849 | 10 | CLGDIAARDL | 3.2e-05 | 31 |
| HLA-A*26:01 | 1 | 841 | 849 | 9 | LGDIAARDL | 3.2e-05 | 43 |
| HLA-A*33:01 | 1 | 849 | 857 | 9 | LICAQKFNG | 3.2e-05 | 53 |
| HLA-A*33:01 | 1 | 857 | 866 | 10 | GLTVLPPLLT | 3.2e-05 | 53 |
| HLA-B*08:01 | 1 | 863 | 871 | 9 | PLLTDEMIA | 3.2e-05 | 67 |
| HLA-A*26:01 | 1 | 872 | 880 | 9 | QYTSALLAG | 3.2e-05 | 43 |
| HLA-B*07:02 | 1 | 872 | 880 | 9 | QYTSALLAG | 3.2e-05 | 47 |
| HLA-A*31:01 | 1 | 875 | 883 | 9 | SALLAGTIT | 3.2e-05 | 51 |

| | | | | | | |
|-------------|---|------|------|----|--------------------|----|
| HLA-A*31:01 | 1 | 876 | 885 | 10 | ALLAGTITSG 3.2e-05 | 51 |
| HLA-A*02:03 | 1 | 878 | 887 | 10 | LAGTITSGWT 3.2e-05 | 52 |
| HLA-A*26:01 | 1 | 883 | 892 | 10 | TSGWTFGAGA 3.2e-05 | 43 |
| HLA-B*07:02 | 1 | 883 | 891 | 9 | TSGWTFGAG 3.2e-05 | 47 |
| HLA-B*35:01 | 1 | 887 | 895 | 9 | TFGAGAALQ 3.2e-05 | 36 |
| HLA-A*33:01 | 1 | 899 | 907 | 9 | AMQMAYRFN 3.2e-05 | 53 |
| HLA-B*53:01 | 1 | 900 | 909 | 10 | MQMAYRFNGI 3.2e-05 | 35 |
| HLA-B*08:01 | 1 | 905 | 914 | 10 | RFNGIGVTQN 3.2e-05 | 67 |
| HLA-A*24:02 | 1 | 906 | 915 | 10 | FNGIGVTQNV 3.2e-05 | 31 |
| HLA-A*30:02 | 1 | 906 | 914 | 9 | FNGIGVTQN 3.2e-05 | 74 |
| HLA-A*26:01 | 1 | 909 | 918 | 10 | IGVTQNVLYE 3.2e-05 | 43 |
| HLA-A*03:01 | 1 | 916 | 924 | 9 | LYENQKLIA 3.2e-05 | 43 |
| HLA-A*03:01 | 1 | 918 | 927 | 10 | ENQKLIANQF 3.2e-05 | 43 |
| HLA-B*44:03 | 1 | 922 | 930 | 9 | LIANQFNFA 3.2e-05 | 34 |
| HLA-B*07:02 | 1 | 924 | 933 | 10 | ANQFNFAIGK 3.2e-05 | 47 |
| HLA-B*58:01 | 1 | 926 | 935 | 10 | QFNFAIGKIQ 3.2e-05 | 54 |
| HLA-B*53:01 | 1 | 938 | 946 | 9 | LSSTASALG 3.2e-05 | 35 |
| HLA-A*30:02 | 1 | 941 | 950 | 10 | TASALGKLQD 3.2e-05 | 74 |
| HLA-A*11:01 | 1 | 943 | 952 | 10 | SALGKLQDVV 3.2e-05 | 32 |
| HLA-A*01:01 | 1 | 945 | 953 | 9 | LGKLQDVVN 3.2e-05 | 71 |
| HLA-B*07:02 | 1 | 949 | 957 | 9 | QDVVNQNAQ 3.2e-05 | 47 |
| HLA-B*35:01 | 1 | 956 | 965 | 10 | AQALNTLVKQ 3.2e-05 | 36 |
| HLA-A*33:01 | 1 | 958 | 967 | 10 | ALNTLVKQLS 3.2e-05 | 53 |
| HLA-A*03:01 | 1 | 959 | 968 | 10 | LNTLVKQLSS 3.2e-05 | 43 |
| HLA-A*68:02 | 1 | 959 | 968 | 10 | LNTLVKQLSS 3.2e-05 | 51 |
| HLA-A*33:01 | 1 | 961 | 969 | 9 | TLVKQLSSN 3.2e-05 | 53 |
| HLA-B*40:01 | 1 | 967 | 975 | 9 | SSNFGAISS 3.2e-05 | 30 |
| HLA-B*44:03 | 1 | 971 | 980 | 10 | GAISSVLNDI 3.2e-05 | 34 |
| HLA-A*68:01 | 1 | 985 | 993 | 9 | DKVEAEVQI 3.2e-05 | 44 |
| HLA-A*23:01 | 1 | 988 | 997 | 10 | EAEVQIDRLI 3.2e-05 | 32 |
| HLA-B*44:02 | 1 | 993 | 1002 | 10 | IDRLITGRLQ 3.2e-05 | 36 |
| HLA-B*51:01 | 1 | 996 | 1005 | 10 | LITGRLQSLQ 3.2e-05 | 59 |
| HLA-B*44:02 | 1 | 1001 | 1009 | 9 | LQSLQTYVT 3.2e-05 | 36 |
| HLA-B*15:01 | 1 | 1013 | 1021 | 9 | IRAAEIRAS 3.2e-05 | 49 |
| HLA-A*02:01 | 1 | 1014 | 1023 | 10 | RAAEIRASAN 3.2e-05 | 49 |
| HLA-A*68:01 | 1 | 1014 | 1023 | 10 | RAAEIRASAN 3.2e-05 | 44 |
| HLA-B*35:01 | 1 | 1024 | 1033 | 10 | LAATKMSECV 3.2e-05 | 36 |
| HLA-A*02:03 | 1 | 1030 | 1038 | 9 | SECVLGQSK 3.2e-05 | 52 |
| HLA-A*02:03 | 1 | 1032 | 1041 | 10 | CVLGQSKRVD 3.2e-05 | 52 |
| HLA-B*08:01 | 1 | 1033 | 1041 | 9 | VLGQSKRVD 3.2e-05 | 67 |
| HLA-B*44:03 | 1 | 1039 | 1048 | 10 | RVDFCGKGYH 3.2e-05 | 34 |
| HLA-A*26:01 | 1 | 1047 | 1055 | 9 | YHLMSFPQS 3.2e-05 | 43 |
| HLA-B*07:02 | 1 | 1061 | 1070 | 10 | VFLHVTVVPA 3.2e-05 | 47 |
| HLA-B*51:01 | 1 | 1062 | 1071 | 10 | FLHVTVVPAQ 3.2e-05 | 59 |
| HLA-A*68:01 | 1 | 1071 | 1079 | 9 | QEKNFTTAP 3.2e-05 | 44 |
| HLA-B*07:02 | 1 | 1074 | 1083 | 10 | NFTTAPAICH 3.2e-05 | 47 |
| HLA-B*40:01 | 1 | 1080 | 1088 | 9 | AICHDGKAH 3.2e-05 | 30 |
| HLA-A*31:01 | 1 | 1089 | 1097 | 9 | FPREGVFVS 3.2e-05 | 51 |
| HLA-B*15:01 | 1 | 1089 | 1098 | 10 | FPREGVFVSN 3.2e-05 | 49 |
| HLA-A*02:06 | 1 | 1101 | 1110 | 10 | HWFVTQRNFY 3.2e-05 | 59 |
| HLA-B*40:01 | 1 | 1108 | 1117 | 10 | NFYEQIITT 3.2e-05 | 30 |
| HLA-A*02:03 | 1 | 1110 | 1118 | 9 | YEQIITTD 3.2e-05 | 52 |
| HLA-B*40:01 | 1 | 1116 | 1124 | 9 | TTDNTFVSG 3.2e-05 | 30 |
| HLA-B*44:02 | 1 | 1116 | 1124 | 9 | TTDNTFVSG 3.2e-05 | 36 |
| HLA-A*31:01 | 1 | 1120 | 1129 | 10 | TFVSGNCDVV 3.2e-05 | 51 |
| HLA-B*07:02 | 1 | 1122 | 1130 | 9 | VSGNCDVVI 3.2e-05 | 47 |
| HLA-A*24:02 | 1 | 1123 | 1132 | 10 | SGNCDVVIGI 3.2e-05 | 31 |
| HLA-B*58:01 | 1 | 1123 | 1131 | 9 | SGNCDVVIG 3.2e-05 | 54 |
| HLA-B*44:02 | 1 | 1135 | 1143 | 9 | NTVYDPLQP 3.2e-05 | 36 |
| HLA-A*23:01 | 1 | 1136 | 1144 | 9 | TVYDPLQPE 3.2e-05 | 32 |
| HLA-A*11:01 | 1 | 1140 | 1148 | 9 | PLQPELDSF 3.2e-05 | 32 |
| HLA-A*68:01 | 1 | 1142 | 1150 | 9 | QPELDSFKE 3.2e-05 | 44 |
| HLA-B*15:01 | 1 | 1155 | 1163 | 9 | YFKNHTSPD 3.2e-05 | 49 |
| HLA-B*15:01 | 1 | 1160 | 1169 | 10 | TSPDVLGDI 3.2e-05 | 49 |
| HLA-B*58:01 | 1 | 1165 | 1174 | 10 | DLGDISGINA 3.2e-05 | 54 |
| HLA-B*44:02 | 1 | 1170 | 1179 | 10 | SGINASVVNI 3.2e-05 | 36 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*02:01 | 1 | 1178 | 1187 | 10 | NIQKEIDRLN | 3.2e-05 | 49 |
| HLA-A*31:01 | 1 | 1190 | 1198 | 9 | AKNLNESLI | 3.2e-05 | 51 |
| HLA-A*30:01 | 1 | 1193 | 1202 | 10 | LNESLIDLQE | 3.2e-05 | 76 |
| HLA-B*07:02 | 1 | 1196 | 1204 | 9 | SLIDLQELG | 3.2e-05 | 47 |
| HLA-B*51:01 | 1 | 1200 | 1208 | 9 | LQELGKYEQ | 3.2e-05 | 59 |
| HLA-A*02:03 | 1 | 1206 | 1215 | 10 | YEQYIKWPWY | 3.2e-05 | 52 |
| HLA-A*26:01 | 1 | 1211 | 1219 | 9 | KWPWYIWLG | 3.2e-05 | 43 |
| HLA-B*40:01 | 1 | 1211 | 1220 | 10 | KWPWYIWLGF | 3.2e-05 | 30 |
| HLA-B*57:01 | 1 | 1217 | 1225 | 9 | WLGFIAGLI | 3.2e-05 | 66 |
| HLA-A*31:01 | 1 | 1221 | 1230 | 10 | IAGLIAIVMV | 3.2e-05 | 51 |
| HLA-B*40:01 | 1 | 1224 | 1232 | 9 | LIAIVMVTI | 3.2e-05 | 30 |
| HLA-A*32:01 | 1 | 1227 | 1236 | 10 | IVMVTIMLCC | 3.2e-05 | 38 |
| HLA-A*33:01 | 1 | 1228 | 1237 | 10 | VMVTIMLCCM | 3.2e-05 | 53 |
| HLA-B*51:01 | 1 | 1228 | 1237 | 10 | VMVTIMLCCM | 3.2e-05 | 59 |
| HLA-B*15:01 | 1 | 1233 | 1241 | 9 | MLCCMTSCC | 3.2e-05 | 49 |
| HLA-B*15:01 | 1 | 1256 | 1264 | 9 | FDEDDSEPV | 3.2e-05 | 49 |
| HLA-A*24:02 | 1 | 1258 | 1266 | 9 | EDDSEPVLK | 3.2e-05 | 31 |
| HLA-A*11:01 | 1 | 1259 | 1268 | 10 | DDSEPVLKGV | 3.2e-05 | 32 |
| HLA-B*40:01 | 1 | 12 | 20 | 9 | SSQCVNLTT | 3.1e-05 | 30 |
| HLA-B*51:01 | 1 | 17 | 26 | 10 | NLTTRTQLPP | 3.1e-05 | 59 |
| HLA-B*35:01 | 1 | 21 | 29 | 9 | RTQLPPAYT | 3.1e-05 | 36 |
| HLA-A*02:03 | 1 | 32 | 41 | 10 | FTRGVYYPDK | 3.1e-05 | 52 |
| HLA-B*40:01 | 1 | 52 | 60 | 9 | QDLFLPFFS | 3.1e-05 | 30 |
| HLA-B*58:01 | 1 | 52 | 61 | 10 | QDLFLPFFSN | 3.1e-05 | 54 |
| HLA-B*53:01 | 1 | 57 | 66 | 10 | PFFSNVTWFH | 3.1e-05 | 35 |
| HLA-A*31:01 | 1 | 68 | 76 | 9 | IHSVGTNGT | 3.1e-05 | 51 |
| HLA-A*01:01 | 1 | 72 | 81 | 10 | GTNGTKRFDN | 3.1e-05 | 71 |
| HLA-B*58:01 | 1 | 79 | 88 | 10 | FDPVLPFND | 3.1e-05 | 54 |
| HLA-A*02:01 | 1 | 82 | 91 | 10 | PVLPFNDGVY | 3.1e-05 | 49 |
| HLA-B*57:01 | 1 | 88 | 96 | 9 | DGVYFASTE | 3.1e-05 | 66 |
| HLA-A*68:01 | 1 | 91 | 99 | 9 | YFASTEKSN | 3.1e-05 | 45 |
| HLA-A*02:03 | 1 | 98 | 106 | 9 | SMIRGWIF | 3.1e-05 | 52 |
| HLA-A*32:01 | 1 | 104 | 112 | 9 | WIFGTTLDS | 3.1e-05 | 38 |
| HLA-A*02:06 | 1 | 106 | 115 | 10 | FGTTLDSKTQ | 3.1e-05 | 60 |
| HLA-A*31:01 | 1 | 111 | 120 | 10 | DSKTQSLLIV | 3.1e-05 | 51 |
| HLA-A*31:01 | 1 | 115 | 124 | 10 | QSLLIVNNAT | 3.1e-05 | 51 |
| HLA-B*44:03 | 1 | 116 | 124 | 9 | SLLIVNNAT | 3.1e-05 | 34 |
| HLA-B*58:01 | 1 | 116 | 125 | 10 | SLLIVNNATN | 3.1e-05 | 54 |
| HLA-A*33:01 | 1 | 118 | 127 | 10 | LIVNNATNVV | 3.1e-05 | 54 |
| HLA-B*44:02 | 1 | 118 | 126 | 9 | LIVNNATNV | 3.1e-05 | 37 |
| HLA-A*11:01 | 1 | 119 | 128 | 10 | IVNNATNVVI | 3.1e-05 | 32 |
| HLA-A*23:01 | 1 | 121 | 130 | 10 | NNATNVVIKV | 3.1e-05 | 33 |
| HLA-A*30:02 | 1 | 128 | 136 | 9 | IKVCFQFC | 3.1e-05 | 74 |
| HLA-A*02:06 | 1 | 131 | 140 | 10 | CEFQFCNDPF | 3.1e-05 | 60 |
| HLA-A*02:01 | 1 | 139 | 147 | 9 | PFLGVYYHK | 3.1e-05 | 49 |
| HLA-B*57:01 | 1 | 141 | 149 | 9 | LGVYYHKNN | 3.1e-05 | 66 |
| HLA-A*02:03 | 1 | 143 | 152 | 10 | VYYHKNNKSW | 3.1e-05 | 52 |
| HLA-A*03:01 | 1 | 145 | 153 | 9 | YHKNNKSWM | 3.1e-05 | 44 |
| HLA-A*31:01 | 1 | 145 | 154 | 10 | YHKNNKSWME | 3.1e-05 | 51 |
| HLA-A*03:01 | 1 | 146 | 154 | 9 | HKNNKSWME | 3.1e-05 | 44 |
| HLA-A*23:01 | 1 | 153 | 161 | 9 | MESEFRVYS | 3.1e-05 | 33 |
| HLA-A*26:01 | 1 | 153 | 162 | 10 | MESEFRVYSS | 3.1e-05 | 44 |
| HLA-A*68:02 | 1 | 164 | 172 | 9 | NNCTFEYVS | 3.1e-05 | 51 |
| HLA-B*44:03 | 1 | 172 | 180 | 9 | SQPFLMDLE | 3.1e-05 | 34 |
| HLA-B*58:01 | 1 | 172 | 180 | 9 | SQPFLMDLE | 3.1e-05 | 54 |
| HLA-A*32:01 | 1 | 173 | 182 | 10 | QPFLMDLEGK | 3.1e-05 | 38 |
| HLA-A*02:06 | 1 | 176 | 185 | 10 | LMDLEGKQGN | 3.1e-05 | 60 |
| HLA-B*57:01 | 1 | 176 | 185 | 10 | LMDLEGKQGN | 3.1e-05 | 66 |
| HLA-B*08:01 | 1 | 182 | 191 | 10 | KQGNFKNLRE | 3.1e-05 | 67 |
| HLA-A*02:03 | 1 | 186 | 195 | 10 | FKNLREFVFK | 3.1e-05 | 52 |
| HLA-A*02:03 | 1 | 187 | 195 | 9 | KNLREFVFK | 3.1e-05 | 52 |
| HLA-B*07:02 | 1 | 194 | 203 | 10 | FKNIDGYFKI | 3.1e-05 | 48 |
| HLA-A*02:06 | 1 | 213 | 221 | 9 | VRDLPQGFS | 3.1e-05 | 60 |
| HLA-A*26:01 | 1 | 222 | 230 | 9 | ALEPLVDLP | 3.1e-05 | 44 |
| HLA-B*44:03 | 1 | 225 | 233 | 9 | PLVDLPIGI | 3.1e-05 | 34 |
| HLA-B*58:01 | 1 | 227 | 236 | 10 | VDLPIGINIT | 3.1e-05 | 54 |

| | | | | | | |
|-------------|---|-----|-----|----|---------------------|----|
| HLA-A*03:01 | 1 | 230 | 239 | 10 | PIGINITRFQ 3.1e-05 | 44 |
| HLA-B*57:01 | 1 | 230 | 239 | 10 | PIGINITRFQ 3.1e-05 | 66 |
| HLA-B*53:01 | 1 | 239 | 247 | 9 | QTLALHRS 3.1e-05 | 35 |
| HLA-A*31:01 | 1 | 253 | 262 | 10 | DSSSGWTAGA 3.1e-05 | 51 |
| HLA-A*01:01 | 1 | 260 | 268 | 9 | AGAAAYYVG 3.1e-05 | 71 |
| HLA-A*02:03 | 1 | 260 | 269 | 10 | AGAAAYYVGY 3.1e-05 | 52 |
| HLA-A*32:01 | 1 | 271 | 280 | 10 | QPRTFLLKYN 3.1e-05 | 38 |
| HLA-B*53:01 | 1 | 273 | 281 | 9 | RTFLLKYNE 3.1e-05 | 35 |
| HLA-A*33:01 | 1 | 283 | 292 | 10 | GTITDAVDCA 3.1e-05 | 54 |
| HLA-B*15:01 | 1 | 283 | 292 | 10 | GTITDAVDCA 3.1e-05 | 49 |
| HLA-B*51:01 | 1 | 286 | 295 | 10 | TDAVDCALDP 3.1e-05 | 59 |
| HLA-B*44:03 | 1 | 287 | 295 | 9 | DAVDCALDP 3.1e-05 | 34 |
| HLA-A*03:01 | 1 | 294 | 303 | 10 | DPLSETKCTL 3.1e-05 | 44 |
| HLA-B*35:01 | 1 | 297 | 305 | 9 | SETKCTLKS 3.1e-05 | 36 |
| HLA-B*44:02 | 1 | 311 | 320 | 10 | GIYQTSNFRV 3.1e-05 | 37 |
| HLA-B*51:01 | 1 | 312 | 321 | 10 | IYQTSNFRVQ 3.1e-05 | 59 |
| HLA-B*57:01 | 1 | 322 | 331 | 10 | PTESIVRFPN 3.1e-05 | 66 |
| HLA-B*08:01 | 1 | 325 | 334 | 10 | SIVRFPNITN 3.1e-05 | 67 |
| HLA-A*32:01 | 1 | 341 | 349 | 9 | VFNATRFAS 3.1e-05 | 38 |
| HLA-A*31:01 | 1 | 351 | 360 | 10 | YAWNKRKRISN 3.1e-05 | 51 |
| HLA-B*35:01 | 1 | 359 | 368 | 10 | SNCVADYSVL 3.1e-05 | 36 |
| HLA-B*53:01 | 1 | 363 | 372 | 10 | ADYSVLYNSA 3.1e-05 | 35 |
| HLA-B*53:01 | 1 | 365 | 373 | 9 | YSVLYNSAS 3.1e-05 | 35 |
| HLA-A*23:01 | 1 | 377 | 386 | 10 | FKCYGVSPTK 3.1e-05 | 33 |
| HLA-B*44:03 | 1 | 382 | 390 | 9 | VSPTKLNDL 3.1e-05 | 34 |
| HLA-A*30:02 | 1 | 385 | 394 | 10 | TKLNDLCFTN 3.1e-05 | 74 |
| HLA-A*11:01 | 1 | 403 | 412 | 10 | RGDEVQRQIAP 3.1e-05 | 32 |
| HLA-A*68:01 | 1 | 403 | 411 | 9 | RGDEVQRQIA 3.1e-05 | 45 |
| HLA-B*15:01 | 1 | 405 | 414 | 10 | DEVQRQIAPGQ 3.1e-05 | 49 |
| HLA-A*02:01 | 1 | 406 | 415 | 10 | EVQRQIAPGQT 3.1e-05 | 49 |
| HLA-B*40:01 | 1 | 406 | 414 | 9 | EVQRQIAPGQ 3.1e-05 | 30 |
| HLA-A*32:01 | 1 | 412 | 421 | 10 | PGQTGKIADY 3.1e-05 | 38 |
| HLA-A*02:03 | 1 | 413 | 422 | 10 | GQTGKIADYN 3.1e-05 | 52 |
| HLA-A*32:01 | 1 | 416 | 424 | 9 | GKIADYNYK 3.1e-05 | 38 |
| HLA-A*30:01 | 1 | 419 | 427 | 9 | ADYNYKLPD 3.1e-05 | 76 |
| HLA-A*30:01 | 1 | 420 | 428 | 9 | DYNYKLPDD 3.1e-05 | 76 |
| HLA-A*31:01 | 1 | 422 | 431 | 10 | NYKLPDDFTG 3.1e-05 | 51 |
| HLA-B*08:01 | 1 | 436 | 444 | 9 | WNSNNLDSK 3.1e-05 | 67 |
| HLA-B*51:01 | 1 | 436 | 444 | 9 | WNSNNLDSK 3.1e-05 | 59 |
| HLA-B*58:01 | 1 | 438 | 446 | 9 | SNNLDSKVG 3.1e-05 | 54 |
| HLA-B*44:02 | 1 | 441 | 450 | 10 | LDSKVGGNYN 3.1e-05 | 37 |
| HLA-A*23:01 | 1 | 446 | 454 | 9 | GGNYNYLYR 3.1e-05 | 33 |
| HLA-B*44:03 | 1 | 450 | 458 | 9 | NYLYRLFRK 3.1e-05 | 34 |
| HLA-B*08:01 | 1 | 457 | 465 | 9 | RKSNLKPFE 3.1e-05 | 67 |
| HLA-A*26:01 | 1 | 459 | 468 | 10 | SNLKPFERDI 3.1e-05 | 44 |
| HLA-B*07:02 | 1 | 460 | 469 | 10 | NLKPFERDIS 3.1e-05 | 48 |
| HLA-A*68:01 | 1 | 461 | 470 | 10 | LKPFERDIST 3.1e-05 | 45 |
| HLA-A*02:06 | 1 | 470 | 478 | 9 | TEIYQAGST 3.1e-05 | 60 |
| HLA-B*07:02 | 1 | 477 | 485 | 9 | STPCNGVEG 3.1e-05 | 48 |
| HLA-B*08:01 | 1 | 480 | 489 | 10 | CNGVEGFNCY 3.1e-05 | 67 |
| HLA-B*35:01 | 1 | 486 | 494 | 9 | FNCYFPLQS 3.1e-05 | 36 |
| HLA-B*53:01 | 1 | 493 | 502 | 10 | QSYGFQPTNG 3.1e-05 | 35 |
| HLA-A*68:02 | 1 | 497 | 506 | 10 | FQPTNGVGYQ 3.1e-05 | 51 |
| HLA-A*24:02 | 1 | 501 | 510 | 10 | NGVGYQPYRV 3.1e-05 | 31 |
| HLA-A*68:01 | 1 | 503 | 512 | 10 | VGYPYRVVV 3.1e-05 | 45 |
| HLA-A*02:03 | 1 | 508 | 516 | 9 | YRVVLSFE 3.1e-05 | 52 |
| HLA-B*44:02 | 1 | 509 | 518 | 10 | RVVLSFELL 3.1e-05 | 37 |
| HLA-A*11:01 | 1 | 512 | 521 | 10 | VLSFELLHAP 3.1e-05 | 32 |
| HLA-A*23:01 | 1 | 515 | 523 | 9 | FELLHAPAT 3.1e-05 | 33 |
| HLA-A*32:01 | 1 | 519 | 528 | 10 | HAPATVCGPK 3.1e-05 | 38 |
| HLA-A*11:01 | 1 | 525 | 533 | 9 | CGPKKSTNL 3.1e-05 | 32 |
| HLA-B*58:01 | 1 | 528 | 536 | 9 | KKSTNLVKN 3.1e-05 | 54 |
| HLA-A*68:01 | 1 | 540 | 548 | 9 | NFNFNGLTG 3.1e-05 | 45 |
| HLA-A*68:01 | 1 | 543 | 551 | 9 | FNGLTGTGV 3.1e-05 | 45 |
| HLA-A*02:03 | 1 | 552 | 561 | 10 | LTESNKKFLP 3.1e-05 | 52 |
| HLA-B*35:01 | 1 | 556 | 564 | 9 | NKKFLPFQQ 3.1e-05 | 36 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-A*30:02 | 1 | 562 | 571 | 10 | FQFGRDIAD | 3.1e-05 | 74 |
| HLA-B*57:01 | 1 | 563 | 572 | 10 | QQFGRDIADT | 3.1e-05 | 66 |
| HLA-A*02:06 | 1 | 566 | 575 | 10 | GRDIADTTDA | 3.1e-05 | 60 |
| HLA-B*15:01 | 1 | 567 | 575 | 9 | RDIADTTDA | 3.1e-05 | 49 |
| HLA-B*44:03 | 1 | 574 | 583 | 10 | DAVRDPQTL | 3.1e-05 | 34 |
| HLA-A*68:02 | 1 | 579 | 587 | 9 | PQTLLEILDI | 3.1e-05 | 51 |
| HLA-B*15:01 | 1 | 582 | 591 | 10 | LEILDITPCS | 3.1e-05 | 49 |
| HLA-A*24:02 | 1 | 588 | 597 | 10 | TPCSFGGVSV | 3.1e-05 | 31 |
| HLA-B*35:01 | 1 | 589 | 597 | 9 | PCSFGGVSV | 3.1e-05 | 36 |
| HLA-A*33:01 | 1 | 590 | 599 | 10 | CSFGGVSVIT | 3.1e-05 | 54 |
| HLA-B*58:01 | 1 | 591 | 599 | 9 | SFGGVSVIT | 3.1e-05 | 54 |
| HLA-A*02:01 | 1 | 598 | 607 | 10 | ITPGTNTSNQ | 3.1e-05 | 49 |
| HLA-A*02:03 | 1 | 598 | 606 | 9 | ITPGTNTSN | 3.1e-05 | 52 |
| HLA-A*68:02 | 1 | 606 | 614 | 9 | NQVAVLYQD | 3.1e-05 | 51 |
| HLA-B*57:01 | 1 | 606 | 614 | 9 | NQVAVLYQD | 3.1e-05 | 66 |
| HLA-A*11:01 | 1 | 607 | 615 | 9 | QVAVLYQDV | 3.1e-05 | 32 |
| HLA-A*68:01 | 1 | 613 | 622 | 10 | QDVNCTEVPV | 3.1e-05 | 45 |
| HLA-B*15:01 | 1 | 614 | 623 | 10 | DVNCTEVPVA | 3.1e-05 | 49 |
| HLA-A*11:01 | 1 | 619 | 628 | 10 | EVPVAIHADQ | 3.1e-05 | 32 |
| HLA-B*57:01 | 1 | 619 | 627 | 9 | EVPVAIHAD | 3.1e-05 | 66 |
| HLA-A*68:02 | 1 | 620 | 628 | 9 | VPVAIHADQ | 3.1e-05 | 51 |
| HLA-B*51:01 | 1 | 628 | 637 | 10 | QLTPTWRVYS | 3.1e-05 | 59 |
| HLA-B*44:02 | 1 | 630 | 638 | 9 | TPTWRVYST | 3.1e-05 | 37 |
| HLA-A*31:01 | 1 | 631 | 639 | 9 | PTWRVYSTG | 3.1e-05 | 51 |
| HLA-B*15:01 | 1 | 640 | 648 | 9 | SNVFQTRAG | 3.1e-05 | 49 |
| HLA-A*11:01 | 1 | 641 | 650 | 10 | NVFQTRAGCL | 3.1e-05 | 32 |
| HLA-B*08:01 | 1 | 645 | 654 | 10 | TRAGCLIGAE | 3.1e-05 | 67 |
| HLA-A*33:01 | 1 | 657 | 666 | 10 | NNSYECDIPI | 3.1e-05 | 54 |
| HLA-B*15:01 | 1 | 663 | 672 | 10 | DIPIGAGICA | 3.1e-05 | 49 |
| HLA-A*30:02 | 1 | 665 | 673 | 9 | PIGAGICAS | 3.1e-05 | 74 |
| HLA-A*68:01 | 1 | 670 | 678 | 9 | ICASYQTQT | 3.1e-05 | 45 |
| HLA-B*08:01 | 1 | 671 | 679 | 9 | CASYQTQTN | 3.1e-05 | 67 |
| HLA-A*11:01 | 1 | 684 | 693 | 10 | ARSVASQSII | 3.1e-05 | 32 |
| HLA-B*44:02 | 1 | 687 | 696 | 10 | VASQSIIAYT | 3.1e-05 | 37 |
| HLA-A*68:01 | 1 | 691 | 700 | 10 | SIIAYTMSLG | 3.1e-05 | 45 |
| HLA-A*32:01 | 1 | 694 | 703 | 10 | AYTMSLGAEN | 3.1e-05 | 38 |
| HLA-B*51:01 | 1 | 696 | 704 | 9 | TMSLGAENS | 3.1e-05 | 59 |
| HLA-A*03:01 | 1 | 700 | 708 | 9 | GAENSVAYS | 3.1e-05 | 44 |
| HLA-A*03:01 | 1 | 701 | 709 | 9 | AENSVAYSN | 3.1e-05 | 44 |
| HLA-B*51:01 | 1 | 702 | 710 | 9 | ENSVAYSNN | 3.1e-05 | 59 |
| HLA-B*44:02 | 1 | 703 | 712 | 10 | NSVAYSNNSI | 3.1e-05 | 37 |
| HLA-B*44:03 | 1 | 704 | 713 | 10 | SVAYSNNNSIA | 3.1e-05 | 34 |
| HLA-A*23:01 | 1 | 716 | 725 | 10 | TNFTISVTTE | 3.1e-05 | 33 |
| HLA-A*01:01 | 1 | 717 | 725 | 9 | NFTISVTTE | 3.1e-05 | 71 |
| HLA-A*02:06 | 1 | 717 | 725 | 9 | NFTISVTTE | 3.1e-05 | 60 |
| HLA-A*33:01 | 1 | 720 | 729 | 10 | ISVTTEILPV | 3.1e-05 | 54 |
| HLA-A*03:01 | 1 | 729 | 738 | 10 | VSMTKTSVDC | 3.1e-05 | 44 |
| HLA-A*11:01 | 1 | 734 | 743 | 10 | TSVDCTMYIC | 3.1e-05 | 32 |
| HLA-A*68:01 | 1 | 735 | 743 | 9 | SVDCTMYIC | 3.1e-05 | 45 |
| HLA-B*35:01 | 1 | 739 | 748 | 10 | TMYICGDSTE | 3.1e-05 | 36 |
| HLA-A*30:02 | 1 | 742 | 750 | 9 | ICGDSTECS | 3.1e-05 | 74 |
| HLA-A*30:02 | 1 | 749 | 758 | 10 | CSNLLLQYGS | 3.1e-05 | 74 |
| HLA-A*26:01 | 1 | 757 | 766 | 10 | GSFCTQLNRA | 3.1e-05 | 44 |
| HLA-A*30:02 | 1 | 766 | 775 | 10 | ALTGIAVEQD | 3.1e-05 | 74 |
| HLA-B*44:03 | 1 | 768 | 776 | 9 | TGIAVEQDK | 3.1e-05 | 34 |
| HLA-B*58:01 | 1 | 769 | 778 | 10 | GIAVEQDKNT | 3.1e-05 | 54 |
| HLA-A*32:01 | 1 | 771 | 780 | 10 | AVEQDKNTQE | 3.1e-05 | 38 |
| HLA-A*11:01 | 1 | 783 | 792 | 10 | AQVKQIYKTP | 3.1e-05 | 32 |
| HLA-A*30:01 | 1 | 791 | 800 | 10 | TPPIKDFGGF | 3.1e-05 | 76 |
| HLA-A*30:02 | 1 | 791 | 799 | 9 | TPPIKDFGG | 3.1e-05 | 74 |
| HLA-B*40:01 | 1 | 791 | 800 | 10 | TPPIKDFGGF | 3.1e-05 | 30 |
| HLA-A*03:01 | 1 | 792 | 800 | 9 | PPIKDFGGF | 3.1e-05 | 44 |
| HLA-A*31:01 | 1 | 792 | 800 | 9 | PPIKDFGGF | 3.1e-05 | 51 |
| HLA-A*31:01 | 1 | 797 | 805 | 9 | FGGFNFSQI | 3.1e-05 | 51 |
| HLA-A*32:01 | 1 | 798 | 807 | 10 | GGFNFSQILP | 3.1e-05 | 38 |
| HLA-A*31:01 | 1 | 823 | 831 | 9 | FNKVTLADA | 3.1e-05 | 51 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*11:01 | 1 | 825 | 834 | 10 | KVTLADAGFI | 3.1e-05 | 32 |
| HLA-A*23:01 | 1 | 826 | 835 | 10 | VTLADAGFIK | 3.1e-05 | 33 |
| HLA-B*44:03 | 1 | 831 | 839 | 9 | AGFIKQYGD | 3.1e-05 | 34 |
| HLA-A*03:01 | 1 | 833 | 841 | 9 | FIKQYGDCL | 3.1e-05 | 44 |
| HLA-A*30:01 | 1 | 840 | 849 | 10 | CLGDIAARDL | 3.1e-05 | 76 |
| HLA-A*33:01 | 1 | 858 | 867 | 10 | LTVLPPLD | 3.1e-05 | 54 |
| HLA-A*24:02 | 1 | 859 | 867 | 9 | TVLPPLD | 3.1e-05 | 31 |
| HLA-B*35:01 | 1 | 862 | 871 | 10 | PPLLD | 3.1e-05 | 36 |
| HLA-B*07:02 | 1 | 871 | 880 | 10 | AQYTSALLAG | 3.1e-05 | 48 |
| HLA-B*51:01 | 1 | 871 | 880 | 10 | AQYTSALLAG | 3.1e-05 | 59 |
| HLA-B*08:01 | 1 | 888 | 897 | 10 | FGAGAALQIP | 3.1e-05 | 67 |
| HLA-B*51:01 | 1 | 893 | 901 | 9 | ALQIPFAMQ | 3.1e-05 | 59 |
| HLA-A*24:02 | 1 | 894 | 903 | 10 | LQIPFAMQMA | 3.1e-05 | 31 |
| HLA-B*57:01 | 1 | 899 | 908 | 10 | AMQMAYRFNG | 3.1e-05 | 66 |
| HLA-B*35:01 | 1 | 900 | 908 | 9 | MQMAYRFNG | 3.1e-05 | 36 |
| HLA-B*51:01 | 1 | 903 | 912 | 10 | AYRFNGIGVT | 3.1e-05 | 59 |
| HLA-A*68:02 | 1 | 908 | 917 | 10 | GIGVTQNVLY | 3.1e-05 | 51 |
| HLA-A*02:03 | 1 | 909 | 917 | 9 | IGVTQNVLY | 3.1e-05 | 52 |
| HLA-A*68:02 | 1 | 909 | 918 | 10 | IGVTQNVLYE | 3.1e-05 | 51 |
| HLA-A*32:01 | 1 | 911 | 920 | 10 | VTQNVLYENQ | 3.1e-05 | 38 |
| HLA-B*53:01 | 1 | 919 | 928 | 10 | NQKLIANQFN | 3.1e-05 | 35 |
| HLA-B*57:01 | 1 | 920 | 929 | 10 | QKLIANQFNS | 3.1e-05 | 66 |
| HLA-A*31:01 | 1 | 922 | 931 | 10 | LIANQFN | 3.1e-05 | 51 |
| HLA-A*11:01 | 1 | 926 | 935 | 10 | QFNSAIGKIQ | 3.1e-05 | 32 |
| HLA-A*01:01 | 1 | 927 | 936 | 10 | FNSAIGKIQD | 3.1e-05 | 71 |
| HLA-A*68:02 | 1 | 930 | 939 | 10 | AIGKIQD | 3.1e-05 | 51 |
| HLA-B*08:01 | 1 | 939 | 947 | 9 | SSTASALGK | 3.1e-05 | 67 |
| HLA-B*44:03 | 1 | 940 | 949 | 10 | STASALGKLQ | 3.1e-05 | 34 |
| HLA-B*15:01 | 1 | 945 | 954 | 10 | LGKLDV | 3.1e-05 | 49 |
| HLA-A*11:01 | 1 | 948 | 957 | 10 | LQDVV | 3.1e-05 | 32 |
| HLA-A*23:01 | 1 | 953 | 961 | 9 | NQNAQALNT | 3.1e-05 | 33 |
| HLA-A*23:01 | 1 | 955 | 964 | 10 | NAQALNTLVK | 3.1e-05 | 33 |
| HLA-B*07:02 | 1 | 961 | 969 | 9 | TLVKQLSSN | 3.1e-05 | 48 |
| HLA-B*35:01 | 1 | 971 | 980 | 10 | GAISSVLNDI | 3.1e-05 | 36 |
| HLA-A*32:01 | 1 | 974 | 982 | 9 | SSVLNDILS | 3.1e-05 | 38 |
| HLA-B*40:01 | 1 | 978 | 986 | 9 | NDILSRDK | 3.1e-05 | 30 |
| HLA-A*02:01 | 1 | 981 | 990 | 10 | LSRLDKVEAE | 3.1e-05 | 49 |
| HLA-A*23:01 | 1 | 984 | 993 | 10 | LDKVEAEVQI | 3.1e-05 | 33 |
| HLA-A*11:01 | 1 | 987 | 996 | 10 | VEAEVQIDRL | 3.1e-05 | 32 |
| HLA-B*35:01 | 1 | 994 | 1002 | 9 | DRLITGRLQ | 3.1e-05 | 36 |
| HLA-B*08:01 | 1 | 1002 | 1011 | 10 | QSLQTYVTQQ | 3.1e-05 | 67 |
| HLA-A*11:01 | 1 | 1011 | 1020 | 10 | QLIRAAEIRA | 3.1e-05 | 32 |
| HLA-A*02:06 | 1 | 1013 | 1021 | 9 | IRAAEIRAS | 3.1e-05 | 60 |
| HLA-A*02:01 | 1 | 1018 | 1027 | 10 | IRASANLAAT | 3.1e-05 | 49 |
| HLA-B*07:02 | 1 | 1022 | 1031 | 10 | ANLAATKMSE | 3.1e-05 | 48 |
| HLA-A*23:01 | 1 | 1025 | 1034 | 10 | AATKMSECVL | 3.1e-05 | 33 |
| HLA-B*51:01 | 1 | 1027 | 1035 | 9 | TKMSECVLG | 3.1e-05 | 59 |
| HLA-B*15:01 | 1 | 1034 | 1043 | 10 | LGQSKRVDFC | 3.1e-05 | 49 |
| HLA-A*02:06 | 1 | 1043 | 1052 | 10 | CGKGYHLMSF | 3.1e-05 | 60 |
| HLA-B*40:01 | 1 | 1057 | 1065 | 9 | PHGVVFLHV | 3.1e-05 | 30 |
| HLA-B*53:01 | 1 | 1059 | 1068 | 10 | GVVFLHVTYV | 3.1e-05 | 35 |
| HLA-A*02:03 | 1 | 1065 | 1074 | 10 | VTYVPAQEKN | 3.1e-05 | 52 |
| HLA-A*02:01 | 1 | 1071 | 1079 | 9 | QEKNFTTAP | 3.1e-05 | 49 |
| HLA-A*02:01 | 1 | 1074 | 1082 | 9 | NFTTAPAIC | 3.1e-05 | 49 |
| HLA-A*02:01 | 1 | 1076 | 1084 | 9 | TTAPAICH | 3.1e-05 | 49 |
| HLA-B*08:01 | 1 | 1077 | 1086 | 10 | TAPAICH | 3.1e-05 | 67 |
| HLA-B*15:01 | 1 | 1077 | 1086 | 10 | TAPAICH | 3.1e-05 | 49 |
| HLA-B*44:02 | 1 | 1084 | 1092 | 9 | DGKAHPRE | 3.1e-05 | 37 |
| HLA-B*08:01 | 1 | 1096 | 1105 | 10 | VSNGTHWFVT | 3.1e-05 | 67 |
| HLA-A*68:02 | 1 | 1100 | 1108 | 9 | THWFVTQRN | 3.1e-05 | 51 |
| HLA-A*31:01 | 1 | 1103 | 1112 | 10 | FVTQRNFYEP | 3.1e-05 | 51 |
| HLA-A*02:06 | 1 | 1109 | 1118 | 10 | FYEPQIITD | 3.1e-05 | 60 |
| HLA-A*30:02 | 1 | 1109 | 1118 | 10 | FYEPQIITD | 3.1e-05 | 74 |
| HLA-A*31:01 | 1 | 1109 | 1118 | 10 | FYEPQIITD | 3.1e-05 | 51 |
| HLA-A*33:01 | 1 | 1125 | 1133 | 9 | NCDVVIGIV | 3.1e-05 | 54 |
| HLA-B*44:02 | 1 | 1125 | 1133 | 9 | NCDVVIGIV | 3.1e-05 | 37 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*01:01 | 1 | 1131 | 1139 | 9 | GIVNNTVYD | 3.1e-05 | 71 |
| HLA-A*11:01 | 1 | 1142 | 1150 | 9 | QPELDSFKE | 3.1e-05 | 32 |
| HLA-A*32:01 | 1 | 1145 | 1154 | 10 | LDSFKEELDK | 3.1e-05 | 38 |
| HLA-A*02:01 | 1 | 1146 | 1154 | 9 | DSFKEELDK | 3.1e-05 | 49 |
| HLA-B*51:01 | 1 | 1148 | 1157 | 10 | FKEELDKYFK | 3.1e-05 | 59 |
| HLA-B*08:01 | 1 | 1149 | 1157 | 9 | KEELDKYFK | 3.1e-05 | 67 |
| HLA-A*68:01 | 1 | 1153 | 1162 | 10 | DKYFKNHTSP | 3.1e-05 | 45 |
| HLA-A*30:01 | 1 | 1161 | 1169 | 9 | SPDVDLGDI | 3.1e-05 | 76 |
| HLA-B*40:01 | 1 | 1161 | 1169 | 9 | SPDVDLGDI | 3.1e-05 | 30 |
| HLA-A*23:01 | 1 | 1163 | 1172 | 10 | DVDLGDISGI | 3.1e-05 | 33 |
| HLA-B*15:01 | 1 | 1163 | 1172 | 10 | DVDLGDISGI | 3.1e-05 | 49 |
| HLA-A*30:02 | 1 | 1164 | 1173 | 10 | VDLGDISGIN | 3.1e-05 | 74 |
| HLA-A*33:01 | 1 | 1164 | 1172 | 9 | VDLGDISGI | 3.1e-05 | 54 |
| HLA-A*03:01 | 1 | 1169 | 1177 | 9 | ISGINASVV | 3.1e-05 | 44 |
| HLA-A*32:01 | 1 | 1181 | 1190 | 10 | KEIDRLNEVA | 3.1e-05 | 38 |
| HLA-A*11:01 | 1 | 1191 | 1200 | 10 | KNLNESLIDL | 3.1e-05 | 32 |
| HLA-B*58:01 | 1 | 1191 | 1199 | 9 | KNLNESLID | 3.1e-05 | 54 |
| HLA-B*07:02 | 1 | 1196 | 1205 | 10 | SLIDLQELGK | 3.1e-05 | 48 |
| HLA-A*02:01 | 1 | 1200 | 1208 | 9 | LQELGKYEQ | 3.1e-05 | 49 |
| HLA-B*08:01 | 1 | 1204 | 1213 | 10 | GKYEQYIKWP | 3.1e-05 | 67 |
| HLA-A*03:01 | 1 | 1215 | 1223 | 9 | YIWLGFIAAG | 3.1e-05 | 44 |
| HLA-B*15:01 | 1 | 1216 | 1225 | 10 | IWLGFIAGLI | 3.1e-05 | 49 |
| HLA-A*03:01 | 1 | 1217 | 1226 | 10 | WLGFIAGLIA | 3.1e-05 | 44 |
| HLA-A*03:01 | 1 | 1225 | 1234 | 10 | IAIVMTIML | 3.1e-05 | 44 |
| HLA-A*01:01 | 1 | 1235 | 1244 | 10 | CCMTSCCSC | 3.1e-05 | 71 |
| HLA-B*57:01 | 1 | 1245 | 1254 | 10 | KGCCSCGCC | 3.1e-05 | 66 |
| HLA-A*30:02 | 1 | 1248 | 1257 | 10 | CSCGSCCKFD | 3.1e-05 | 74 |
| HLA-A*30:01 | 1 | 1254 | 1263 | 10 | CKFDEDDSEP | 3.1e-05 | 76 |
| HLA-A*33:01 | 1 | 1256 | 1264 | 9 | FDEDDSEPV | 3.1e-05 | 54 |
| HLA-B*57:01 | 1 | 4 | 12 | 9 | FLVLLPLVS | 3e-05 | 67 |
| HLA-B*58:01 | 1 | 4 | 13 | 10 | FLVLLPLVSS | 3e-05 | 55 |
| HLA-A*03:01 | 1 | 8 | 16 | 9 | LPLVSSQCV | 3e-05 | 44 |
| HLA-A*68:01 | 1 | 8 | 16 | 9 | LPLVSSQCV | 3e-05 | 45 |
| HLA-A*11:01 | 1 | 11 | 20 | 10 | VSSQCVNLTT | 3e-05 | 33 |
| HLA-A*32:01 | 1 | 11 | 20 | 10 | VSSQCVNLTT | 3e-05 | 38 |
| HLA-A*32:01 | 1 | 18 | 27 | 10 | LTRTQLPPA | 3e-05 | 38 |
| HLA-B*35:01 | 1 | 18 | 26 | 9 | LTRTQLPP | 3e-05 | 37 |
| HLA-B*57:01 | 1 | 33 | 41 | 9 | TRGVYYPDK | 3e-05 | 67 |
| HLA-B*40:01 | 1 | 39 | 48 | 10 | PDKVFRSSVL | 3e-05 | 31 |
| HLA-A*33:01 | 1 | 52 | 61 | 10 | QDLFLPFFSN | 3e-05 | 55 |
| HLA-B*35:01 | 1 | 58 | 67 | 10 | FFSNVTWFHA | 3e-05 | 37 |
| HLA-B*44:02 | 1 | 61 | 69 | 9 | NVTWFHAIH | 3e-05 | 37 |
| HLA-A*02:03 | 1 | 64 | 72 | 9 | WFHAIHVSG | 3e-05 | 53 |
| HLA-B*40:01 | 1 | 65 | 73 | 9 | FHAIHVSGT | 3e-05 | 31 |
| HLA-B*51:01 | 1 | 67 | 75 | 9 | AIHVSGTNG | 3e-05 | 60 |
| HLA-B*44:02 | 1 | 68 | 76 | 9 | IHVSGTNGT | 3e-05 | 37 |
| HLA-A*24:02 | 1 | 69 | 78 | 10 | HVSGTNGTKR | 3e-05 | 32 |
| HLA-B*58:01 | 1 | 74 | 83 | 10 | NGTKRFDNPV | 3e-05 | 55 |
| HLA-A*68:01 | 1 | 78 | 87 | 10 | RFDNPVLPFN | 3e-05 | 45 |
| HLA-A*03:01 | 1 | 81 | 90 | 10 | NPVLPFNDGV | 3e-05 | 44 |
| HLA-B*07:02 | 1 | 82 | 91 | 10 | PVLPFNDGVY | 3e-05 | 48 |
| HLA-A*30:02 | 1 | 85 | 94 | 10 | PFNDGVYFAS | 3e-05 | 75 |
| HLA-A*31:01 | 1 | 91 | 99 | 9 | YFASTEKSN | 3e-05 | 52 |
| HLA-A*68:02 | 1 | 95 | 103 | 9 | TEKSNIIRG | 3e-05 | 51 |
| HLA-A*11:01 | 1 | 105 | 114 | 10 | IFGTTLDSKT | 3e-05 | 33 |
| HLA-A*68:01 | 1 | 105 | 114 | 10 | IFGTTLDSKT | 3e-05 | 45 |
| HLA-A*02:03 | 1 | 113 | 121 | 9 | KTQSLLIVN | 3e-05 | 53 |
| HLA-A*26:01 | 1 | 114 | 123 | 10 | TQSLLIVNNA | 3e-05 | 44 |
| HLA-A*23:01 | 1 | 115 | 123 | 9 | QSLLIVNNA | 3e-05 | 33 |
| HLA-A*32:01 | 1 | 116 | 125 | 10 | SLLIVNNATN | 3e-05 | 38 |
| HLA-A*32:01 | 1 | 117 | 125 | 9 | LLIVNNATN | 3e-05 | 38 |
| HLA-A*24:02 | 1 | 121 | 130 | 10 | NNATNVVIVK | 3e-05 | 32 |
| HLA-A*32:01 | 1 | 121 | 129 | 9 | NNATNVVIVK | 3e-05 | 38 |
| HLA-A*32:01 | 1 | 133 | 142 | 10 | FQFCNDPFLG | 3e-05 | 38 |
| HLA-B*51:01 | 1 | 145 | 154 | 10 | YHKNNKSWME | 3e-05 | 60 |
| HLA-A*11:01 | 1 | 147 | 156 | 10 | KNNKSWMESE | 3e-05 | 33 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-A*03:01 | 1 | 152 | 161 | 10 | WMESEFRVYS 3e-05 | 44 |
| HLA-A*24:02 | 1 | 153 | 161 | 9 | MESEFRVYS 3e-05 | 32 |
| HLA-B*51:01 | 1 | 155 | 164 | 10 | SEFRVYSSAN 3e-05 | 60 |
| HLA-A*30:02 | 1 | 157 | 165 | 9 | FRVYSSANN 3e-05 | 75 |
| HLA-A*02:03 | 1 | 161 | 169 | 9 | SSANNCTFE 3e-05 | 53 |
| HLA-B*35:01 | 1 | 161 | 169 | 9 | SSANNCTFE 3e-05 | 37 |
| HLA-A*30:02 | 1 | 163 | 172 | 10 | ANNCTFEYVS 3e-05 | 75 |
| HLA-A*31:01 | 1 | 165 | 174 | 10 | NCTFEYVVSQP 3e-05 | 52 |
| HLA-A*32:01 | 1 | 171 | 180 | 10 | VSQPFLMDLE 3e-05 | 38 |
| HLA-A*02:06 | 1 | 178 | 187 | 10 | DLEGKQGNFK 3e-05 | 60 |
| HLA-B*53:01 | 1 | 179 | 187 | 9 | LEGKQGNFK 3e-05 | 36 |
| HLA-B*08:01 | 1 | 190 | 198 | 9 | REFVFKNID 3e-05 | 68 |
| HLA-B*53:01 | 1 | 196 | 205 | 10 | NIDGYFKIYS 3e-05 | 36 |
| HLA-B*57:01 | 1 | 196 | 205 | 10 | NIDGYFKIYS 3e-05 | 67 |
| HLA-B*51:01 | 1 | 209 | 217 | 9 | PINLVRDLP 3e-05 | 60 |
| HLA-B*15:01 | 1 | 216 | 225 | 10 | LPQGFSALEP 3e-05 | 50 |
| HLA-A*33:01 | 1 | 217 | 226 | 10 | PQGFSALEPL 3e-05 | 55 |
| HLA-B*44:02 | 1 | 220 | 229 | 10 | FSALEPLVDL 3e-05 | 37 |
| HLA-A*23:01 | 1 | 228 | 236 | 9 | DLPIGINIT 3e-05 | 33 |
| HLA-A*11:01 | 1 | 234 | 243 | 10 | NITRFQTLA 3e-05 | 33 |
| HLA-B*44:02 | 1 | 255 | 264 | 10 | SSGWTAGAAA 3e-05 | 37 |
| HLA-B*44:03 | 1 | 264 | 273 | 10 | AYVGYLQPR 3e-05 | 35 |
| HLA-A*33:01 | 1 | 272 | 281 | 10 | PRTFLLKYNE 3e-05 | 55 |
| HLA-B*44:03 | 1 | 273 | 281 | 9 | RTFLLKYNE 3e-05 | 35 |
| HLA-B*58:01 | 1 | 280 | 289 | 10 | NENGTITDAV 3e-05 | 55 |
| HLA-A*68:01 | 1 | 282 | 291 | 10 | NGTITDAVDC 3e-05 | 45 |
| HLA-A*26:01 | 1 | 287 | 295 | 9 | DAVDCALDP 3e-05 | 44 |
| HLA-A*68:01 | 1 | 294 | 302 | 9 | DPLSETKCT 3e-05 | 45 |
| HLA-A*26:01 | 1 | 295 | 304 | 10 | PLSETKCTLK 3e-05 | 44 |
| HLA-A*31:01 | 1 | 296 | 305 | 10 | LSETKCTLKS 3e-05 | 52 |
| HLA-B*07:02 | 1 | 297 | 305 | 9 | SETKCTLKS 3e-05 | 48 |
| HLA-B*15:01 | 1 | 299 | 308 | 10 | TKCTLKSFTV 3e-05 | 50 |
| HLA-B*35:01 | 1 | 307 | 316 | 10 | TVEKGIYQTS 3e-05 | 37 |
| HLA-B*53:01 | 1 | 311 | 320 | 10 | GIYQTSNFRV 3e-05 | 36 |
| HLA-A*11:01 | 1 | 323 | 332 | 10 | TESIVRFPNI 3e-05 | 33 |
| HLA-A*68:01 | 1 | 331 | 339 | 9 | NITNLCPPG 3e-05 | 45 |
| HLA-A*68:01 | 1 | 337 | 346 | 10 | PFGEVFNATR 3e-05 | 44 |
| HLA-A*24:02 | 1 | 338 | 346 | 9 | FGEVFNATR 3e-05 | 32 |
| HLA-B*53:01 | 1 | 347 | 356 | 10 | FASVYAWNRK 3e-05 | 36 |
| HLA-A*01:01 | 1 | 353 | 362 | 10 | WNRKRISNCV 3e-05 | 72 |
| HLA-A*03:01 | 1 | 353 | 361 | 9 | WNRKRISNC 3e-05 | 44 |
| HLA-A*68:02 | 1 | 354 | 363 | 10 | NRKRISNCVA 3e-05 | 51 |
| HLA-B*08:01 | 1 | 362 | 370 | 9 | VADYSVLYN 3e-05 | 68 |
| HLA-B*44:02 | 1 | 368 | 376 | 9 | LYNSASFST 3e-05 | 37 |
| HLA-B*57:01 | 1 | 373 | 381 | 9 | SFSTFKCYG 3e-05 | 67 |
| HLA-B*58:01 | 1 | 374 | 383 | 10 | FSTFKCYGVS 3e-05 | 55 |
| HLA-A*23:01 | 1 | 382 | 391 | 10 | VSPTKLNDLC 3e-05 | 33 |
| HLA-A*30:01 | 1 | 385 | 394 | 10 | TKLNDLCFTN 3e-05 | 77 |
| HLA-A*02:06 | 1 | 387 | 396 | 10 | LNDLCFTNVY 3e-05 | 60 |
| HLA-B*40:01 | 1 | 387 | 395 | 9 | LNDLCFTNV 3e-05 | 31 |
| HLA-A*26:01 | 1 | 388 | 397 | 10 | NDLCFTNVYA 3e-05 | 44 |
| HLA-B*07:02 | 1 | 392 | 401 | 10 | FTNVYADSFV 3e-05 | 48 |
| HLA-A*02:01 | 1 | 396 | 405 | 10 | YADSFVIRGD 3e-05 | 49 |
| HLA-A*68:02 | 1 | 396 | 405 | 10 | YADSFVIRGD 3e-05 | 51 |
| HLA-B*44:02 | 1 | 396 | 404 | 9 | YADSFVIRG 3e-05 | 37 |
| HLA-B*08:01 | 1 | 400 | 409 | 10 | FVIRGDEVQR 3e-05 | 68 |
| HLA-A*33:01 | 1 | 402 | 411 | 10 | IRGDEVQRQA 3e-05 | 55 |
| HLA-B*15:01 | 1 | 402 | 411 | 10 | IRGDEVQRQA 3e-05 | 50 |
| HLA-A*03:01 | 1 | 403 | 412 | 10 | RGDEVQRQIAP 3e-05 | 44 |
| HLA-B*15:01 | 1 | 406 | 415 | 10 | EVQRQIAPGQT 3e-05 | 50 |
| HLA-A*31:01 | 1 | 407 | 416 | 10 | VRQIAPGQTG 3e-05 | 52 |
| HLA-A*26:01 | 1 | 417 | 426 | 10 | KIADYNYKLP 3e-05 | 44 |
| HLA-B*07:02 | 1 | 417 | 426 | 10 | KIADYNYKLP 3e-05 | 48 |
| HLA-A*23:01 | 1 | 418 | 426 | 9 | IADYNYKLP 3e-05 | 33 |
| HLA-A*02:01 | 1 | 421 | 430 | 10 | YNYKLPPDDFT 3e-05 | 49 |
| HLA-B*53:01 | 1 | 422 | 430 | 9 | NYKLPPDDFT 3e-05 | 36 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-B*07:02 | 1 | 423 | 432 | 10 | YKLPDFDFTGC 3e-05 | 48 |
| HLA-A*31:01 | 1 | 425 | 433 | 9 | LPDDFTGCV 3e-05 | 52 |
| HLA-A*02:01 | 1 | 428 | 436 | 9 | DFTGCVIAW 3e-05 | 49 |
| HLA-A*33:01 | 1 | 429 | 438 | 10 | FTGCVIAWNS 3e-05 | 55 |
| HLA-A*68:01 | 1 | 434 | 443 | 10 | IAWNSNLDLS 3e-05 | 45 |
| HLA-B*58:01 | 1 | 438 | 447 | 10 | SNNLDSKVG 3e-05 | 55 |
| HLA-A*32:01 | 1 | 445 | 454 | 10 | VGGNYNYLYR 3e-05 | 38 |
| HLA-B*51:01 | 1 | 446 | 454 | 9 | GGNYNYLYR 3e-05 | 60 |
| HLA-A*02:01 | 1 | 447 | 456 | 10 | GNVNYLYRLF 3e-05 | 49 |
| HLA-A*02:03 | 1 | 449 | 458 | 10 | YNYLYRLF 3e-05 | 53 |
| HLA-B*35:01 | 1 | 450 | 458 | 9 | NYLYRLF 3e-05 | 37 |
| HLA-B*53:01 | 1 | 453 | 462 | 10 | YRLF 3e-05 | 36 |
| HLA-A*01:01 | 1 | 457 | 465 | 9 | RKSNLKPFE 3e-05 | 72 |
| HLA-B*57:01 | 1 | 457 | 465 | 9 | RKSNLKPFE 3e-05 | 67 |
| HLA-A*26:01 | 1 | 461 | 470 | 10 | LKPFERDIST 3e-05 | 44 |
| HLA-A*68:01 | 1 | 468 | 477 | 10 | ISTEIQAGS 3e-05 | 45 |
| HLA-B*08:01 | 1 | 469 | 477 | 9 | STEIQAGS 3e-05 | 68 |
| HLA-B*58:01 | 1 | 472 | 480 | 9 | IYQAGSTPC 3e-05 | 55 |
| HLA-A*30:01 | 1 | 483 | 491 | 9 | VEGFNCYFP 3e-05 | 77 |
| HLA-B*44:03 | 1 | 488 | 496 | 9 | CYFPLQSYG 3e-05 | 35 |
| HLA-A*31:01 | 1 | 490 | 498 | 9 | FPLQSYGFQ 3e-05 | 52 |
| HLA-B*57:01 | 1 | 496 | 504 | 9 | GFQPTNGVG 3e-05 | 67 |
| HLA-A*23:01 | 1 | 501 | 510 | 10 | NGVGYQPYRV 3e-05 | 33 |
| HLA-B*44:03 | 1 | 512 | 520 | 9 | VLSFELLHA 3e-05 | 35 |
| HLA-A*23:01 | 1 | 518 | 527 | 10 | LHAPATVCGP 3e-05 | 33 |
| HLA-B*35:01 | 1 | 530 | 539 | 10 | STNLVKNKCV 3e-05 | 37 |
| HLA-B*44:03 | 1 | 530 | 539 | 10 | STNLVKNKCV 3e-05 | 35 |
| HLA-B*08:01 | 1 | 539 | 547 | 9 | VNFNFNGLT 3e-05 | 68 |
| HLA-B*07:02 | 1 | 540 | 549 | 10 | NFNFNGLTGT 3e-05 | 48 |
| HLA-B*15:01 | 1 | 540 | 548 | 9 | NFNFNGLTG 3e-05 | 50 |
| HLA-A*32:01 | 1 | 545 | 553 | 9 | GLTGTGVL 3e-05 | 38 |
| HLA-A*30:01 | 1 | 547 | 556 | 10 | TGTGVLTESN 3e-05 | 77 |
| HLA-A*30:02 | 1 | 547 | 556 | 10 | TGTGVLTESN 3e-05 | 75 |
| HLA-B*35:01 | 1 | 550 | 558 | 9 | GVLTESNKK 3e-05 | 37 |
| HLA-A*11:01 | 1 | 553 | 561 | 9 | TESNKKFLP 3e-05 | 33 |
| HLA-A*24:02 | 1 | 553 | 561 | 9 | TESNKKFLP 3e-05 | 32 |
| HLA-B*07:02 | 1 | 555 | 563 | 9 | SNKKFLPFQ 3e-05 | 48 |
| HLA-B*40:01 | 1 | 558 | 567 | 10 | KFLPFQFGR 3e-05 | 31 |
| HLA-B*53:01 | 1 | 558 | 566 | 9 | KFLPFQFG 3e-05 | 36 |
| HLA-A*03:01 | 1 | 567 | 575 | 9 | RDIADTTDA 3e-05 | 44 |
| HLA-A*02:03 | 1 | 570 | 579 | 10 | ADTTDAVRDP 3e-05 | 53 |
| HLA-B*35:01 | 1 | 577 | 586 | 10 | RDPTLEILD 3e-05 | 37 |
| HLA-A*33:01 | 1 | 578 | 587 | 10 | DPQTLEILDI 3e-05 | 55 |
| HLA-B*57:01 | 1 | 581 | 590 | 10 | TLEILDITPC 3e-05 | 67 |
| HLA-A*32:01 | 1 | 583 | 591 | 9 | EILDITPCS 3e-05 | 38 |
| HLA-B*57:01 | 1 | 586 | 595 | 10 | DITPCSFGGV 3e-05 | 67 |
| HLA-A*23:01 | 1 | 588 | 597 | 10 | TPCSFGGVSV 3e-05 | 33 |
| HLA-B*44:03 | 1 | 591 | 599 | 9 | SFGGVSvit 3e-05 | 35 |
| HLA-A*01:01 | 1 | 594 | 603 | 10 | GVSvitPGTN 3e-05 | 72 |
| HLA-B*44:02 | 1 | 594 | 602 | 9 | GVSvitPGT 3e-05 | 37 |
| HLA-B*57:01 | 1 | 599 | 607 | 9 | TPGTNTSNQ 3e-05 | 67 |
| HLA-B*08:01 | 1 | 613 | 622 | 10 | QDVNCTEVPV 3e-05 | 68 |
| HLA-B*57:01 | 1 | 613 | 622 | 10 | QDVNCTEVPV 3e-05 | 67 |
| HLA-A*31:01 | 1 | 614 | 622 | 9 | DVNCTEVPV 3e-05 | 52 |
| HLA-B*40:01 | 1 | 616 | 625 | 10 | NCTEVPVAIH 3e-05 | 31 |
| HLA-A*02:06 | 1 | 618 | 627 | 10 | TEVPVAIHAD 3e-05 | 60 |
| HLA-B*58:01 | 1 | 619 | 627 | 9 | EVPVAIHAD 3e-05 | 55 |
| HLA-B*58:01 | 1 | 620 | 628 | 9 | VPVAIHADQ 3e-05 | 55 |
| HLA-A*26:01 | 1 | 644 | 652 | 9 | QTRAGCLIG 3e-05 | 44 |
| HLA-A*32:01 | 1 | 648 | 656 | 9 | GCLIGAEHV 3e-05 | 38 |
| HLA-A*02:06 | 1 | 649 | 658 | 10 | CLIGAEHVNN 3e-05 | 60 |
| HLA-A*02:06 | 1 | 652 | 661 | 10 | GAEHVNNSYE 3e-05 | 60 |
| HLA-A*11:01 | 1 | 653 | 661 | 9 | AEHVNNNSYE 3e-05 | 33 |
| HLA-B*35:01 | 1 | 653 | 662 | 10 | AEHVNNSYEC 3e-05 | 37 |
| HLA-B*51:01 | 1 | 653 | 661 | 9 | AEHVNNNSYE 3e-05 | 60 |
| HLA-A*02:06 | 1 | 662 | 671 | 10 | CDIPIGAGIC 3e-05 | 60 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-B*44:02 | 1 | 677 | 686 | 10 | QTNSPRRARS 3e-05 | 37 |
| HLA-A*02:01 | 1 | 680 | 688 | 9 | SPRRARSVA 3e-05 | 49 |
| HLA-B*40:01 | 1 | 685 | 694 | 10 | RSVASQSIIA 3e-05 | 31 |
| HLA-A*02:01 | 1 | 699 | 708 | 10 | LGAENSVAYS 3e-05 | 49 |
| HLA-B*35:01 | 1 | 701 | 709 | 9 | AENSVAYSN 3e-05 | 37 |
| HLA-B*15:01 | 1 | 707 | 716 | 10 | YSNNSIAIPT 3e-05 | 50 |
| HLA-A*23:01 | 1 | 724 | 732 | 9 | TEILPVSMT 3e-05 | 33 |
| HLA-A*31:01 | 1 | 727 | 736 | 10 | LPVSMTKTSV 3e-05 | 52 |
| HLA-B*53:01 | 1 | 733 | 742 | 10 | KTSVDCTMYI 3e-05 | 36 |
| HLA-B*07:02 | 1 | 739 | 748 | 10 | TMYICGDSTE 3e-05 | 48 |
| HLA-A*03:01 | 1 | 740 | 748 | 9 | MYICGDSTE 3e-05 | 44 |
| HLA-A*32:01 | 1 | 745 | 754 | 10 | DSTECSNLLL 3e-05 | 38 |
| HLA-A*31:01 | 1 | 749 | 757 | 9 | CSNLLLQYG 3e-05 | 52 |
| HLA-B*58:01 | 1 | 762 | 771 | 10 | QLNRALTGIA 3e-05 | 55 |
| HLA-B*58:01 | 1 | 763 | 772 | 10 | LNRLTGIIV 3e-05 | 55 |
| HLA-A*31:01 | 1 | 770 | 779 | 10 | IAVEQDKNTQ 3e-05 | 52 |
| HLA-A*02:03 | 1 | 771 | 779 | 9 | AVEQDKNTQ 3e-05 | 53 |
| HLA-B*53:01 | 1 | 774 | 783 | 10 | QDKNTQEVFA 3e-05 | 36 |
| HLA-B*58:01 | 1 | 774 | 783 | 10 | QDKNTQEVFA 3e-05 | 55 |
| HLA-A*01:01 | 1 | 788 | 796 | 9 | IYKTPPIKD 3e-05 | 72 |
| HLA-B*57:01 | 1 | 794 | 803 | 10 | IKDFGGFNFS 3e-05 | 67 |
| HLA-A*68:01 | 1 | 801 | 809 | 9 | NFSQILPDP 3e-05 | 45 |
| HLA-B*44:02 | 1 | 804 | 813 | 10 | QILPDPSPKPS 3e-05 | 37 |
| HLA-A*32:01 | 1 | 812 | 821 | 10 | PSKRSEFIEDL 3e-05 | 38 |
| HLA-B*07:02 | 1 | 823 | 831 | 9 | FNKVTLADA 3e-05 | 48 |
| HLA-B*07:02 | 1 | 832 | 840 | 9 | GFIKQYGDC 3e-05 | 48 |
| HLA-B*57:01 | 1 | 836 | 844 | 9 | QYGDCLGDI 3e-05 | 67 |
| HLA-A*30:01 | 1 | 837 | 845 | 9 | YGDCLGDIA 3e-05 | 77 |
| HLA-A*68:02 | 1 | 838 | 846 | 9 | GDCLGDIAA 3e-05 | 51 |
| HLA-B*44:02 | 1 | 838 | 847 | 10 | GDCLGDIAAR 3e-05 | 37 |
| HLA-A*11:01 | 1 | 842 | 850 | 9 | GDIAARDLI 3e-05 | 33 |
| HLA-B*53:01 | 1 | 843 | 852 | 10 | DIAARDLICA 3e-05 | 36 |
| HLA-B*53:01 | 1 | 846 | 854 | 9 | ARDLICAQK 3e-05 | 36 |
| HLA-A*68:01 | 1 | 849 | 857 | 9 | LICAQKFNG 3e-05 | 45 |
| HLA-A*68:02 | 1 | 850 | 859 | 10 | ICAQKFNGLT 3e-05 | 51 |
| HLA-A*11:01 | 1 | 856 | 864 | 9 | NGLTVLPPL 3e-05 | 33 |
| HLA-B*44:03 | 1 | 856 | 864 | 9 | NGLTVLPPL 3e-05 | 35 |
| HLA-A*31:01 | 1 | 861 | 869 | 9 | LPPLLTDEM 3e-05 | 52 |
| HLA-A*30:02 | 1 | 862 | 870 | 9 | PPLLTDEMI 3e-05 | 75 |
| HLA-A*68:02 | 1 | 863 | 871 | 9 | PLLTDEMI 3e-05 | 51 |
| HLA-B*35:01 | 1 | 873 | 882 | 10 | YTSALLAGTI 3e-05 | 37 |
| HLA-A*68:02 | 1 | 876 | 885 | 10 | ALLAGTITSG 3e-05 | 51 |
| HLA-B*53:01 | 1 | 876 | 884 | 9 | ALLAGTITS 3e-05 | 36 |
| HLA-A*32:01 | 1 | 883 | 892 | 10 | TSGWTFGAGA 3e-05 | 38 |
| HLA-B*35:01 | 1 | 887 | 896 | 10 | TFGAGAALQI 3e-05 | 37 |
| HLA-B*40:01 | 1 | 887 | 896 | 10 | TFGAGAALQI 3e-05 | 31 |
| HLA-B*44:02 | 1 | 896 | 905 | 10 | IPFAMQMAYR 3e-05 | 37 |
| HLA-A*68:01 | 1 | 905 | 914 | 10 | RFNGIGVTQN 3e-05 | 45 |
| HLA-A*01:01 | 1 | 906 | 914 | 9 | FNGIGVTQN 3e-05 | 72 |
| HLA-B*51:01 | 1 | 906 | 914 | 9 | FNGIGVTQN 3e-05 | 60 |
| HLA-A*23:01 | 1 | 912 | 920 | 9 | TQNVLYENQ 3e-05 | 33 |
| HLA-B*08:01 | 1 | 912 | 921 | 10 | TQNVLYENQK 3e-05 | 68 |
| HLA-A*03:01 | 1 | 917 | 925 | 9 | YENQKLIAN 3e-05 | 44 |
| HLA-B*57:01 | 1 | 917 | 925 | 9 | YENQKLIAN 3e-05 | 67 |
| HLA-A*68:01 | 1 | 932 | 941 | 10 | GKIQDSLSS 3e-05 | 45 |
| HLA-B*58:01 | 1 | 932 | 940 | 9 | GKIQDSLSS 3e-05 | 55 |
| HLA-B*53:01 | 1 | 933 | 942 | 10 | KIQDSLSSA 3e-05 | 36 |
| HLA-A*03:01 | 1 | 937 | 946 | 10 | SLSSASALG 3e-05 | 44 |
| HLA-B*40:01 | 1 | 942 | 951 | 10 | ASALGKLQDV 3e-05 | 31 |
| HLA-B*58:01 | 1 | 944 | 953 | 10 | ALGKLQDVVN 3e-05 | 55 |
| HLA-A*01:01 | 1 | 945 | 954 | 10 | LGKLQDVVNQ 3e-05 | 72 |
| HLA-B*35:01 | 1 | 951 | 960 | 10 | VVNQNAQALN 3e-05 | 37 |
| HLA-B*51:01 | 1 | 958 | 967 | 10 | ALNTLVKQLS 3e-05 | 60 |
| HLA-A*31:01 | 1 | 959 | 968 | 10 | LNTLVKQLSS 3e-05 | 52 |
| HLA-A*11:01 | 1 | 966 | 974 | 9 | LSSNFGAIS 3e-05 | 33 |
| HLA-A*31:01 | 1 | 966 | 974 | 9 | LSSNFGAIS 3e-05 | 52 |

| | | | | | | |
|-------------|---|------|------|----|------------------|----|
| HLA-A*33:01 | 1 | 966 | 975 | 10 | LSSNFGAISS 3e-05 | 55 |
| HLA-A*68:02 | 1 | 970 | 978 | 9 | FGAISSVLN 3e-05 | 51 |
| HLA-B*53:01 | 1 | 974 | 982 | 9 | SSVLNDILS 3e-05 | 36 |
| HLA-A*23:01 | 1 | 976 | 985 | 10 | VLNDILSRLD 3e-05 | 33 |
| HLA-B*58:01 | 1 | 977 | 985 | 9 | LNDILSRLD 3e-05 | 55 |
| HLA-A*23:01 | 1 | 978 | 987 | 10 | NDILSRLDKV 3e-05 | 33 |
| HLA-B*51:01 | 1 | 978 | 986 | 9 | NDILSRLDK 3e-05 | 60 |
| HLA-B*53:01 | 1 | 982 | 990 | 9 | SRLDKVEAE 3e-05 | 36 |
| HLA-A*68:02 | 1 | 989 | 998 | 10 | AEVQIDRLIT 3e-05 | 51 |
| HLA-A*11:01 | 1 | 1000 | 1009 | 10 | RLQSLQTYVT 3e-05 | 33 |
| HLA-A*02:03 | 1 | 1002 | 1010 | 9 | QSLQTYVTQ 3e-05 | 53 |
| HLA-A*23:01 | 1 | 1002 | 1010 | 9 | QSLQTYVTQ 3e-05 | 33 |
| HLA-A*24:02 | 1 | 1003 | 1011 | 9 | SLQTYVTQQ 3e-05 | 32 |
| HLA-B*15:01 | 1 | 1006 | 1015 | 10 | TYVTQQLIRA 3e-05 | 50 |
| HLA-B*51:01 | 1 | 1008 | 1017 | 10 | VTQQLIRAAE 3e-05 | 60 |
| HLA-A*11:01 | 1 | 1015 | 1024 | 10 | AAEIRASANL 3e-05 | 33 |
| HLA-A*11:01 | 1 | 1017 | 1026 | 10 | EIRASANLAA 3e-05 | 33 |
| HLA-B*44:02 | 1 | 1021 | 1030 | 10 | SANLAATKMS 3e-05 | 37 |
| HLA-A*33:01 | 1 | 1024 | 1033 | 10 | LAATKMSECV 3e-05 | 55 |
| HLA-A*03:01 | 1 | 1025 | 1034 | 10 | AATKMSECVL 3e-05 | 44 |
| HLA-A*02:03 | 1 | 1030 | 1039 | 10 | SECVLGQSKR 3e-05 | 53 |
| HLA-A*02:03 | 1 | 1033 | 1041 | 9 | VLGQSKRVD 3e-05 | 53 |
| HLA-A*11:01 | 1 | 1035 | 1043 | 9 | GQSKRVDFC 3e-05 | 33 |
| HLA-B*58:01 | 1 | 1035 | 1044 | 10 | GQSKRVDFCG 3e-05 | 55 |
| HLA-B*35:01 | 1 | 1039 | 1048 | 10 | RVDFCGKGYH 3e-05 | 37 |
| HLA-A*11:01 | 1 | 1040 | 1049 | 10 | VDFCGKGYHL 3e-05 | 33 |
| HLA-B*57:01 | 1 | 1042 | 1051 | 10 | FCGKGYHLMS 3e-05 | 67 |
| HLA-A*02:06 | 1 | 1043 | 1051 | 9 | CGKGYHLMS 3e-05 | 60 |
| HLA-B*58:01 | 1 | 1063 | 1072 | 10 | LHVTVVPAQE 3e-05 | 55 |
| HLA-A*02:03 | 1 | 1068 | 1076 | 9 | VPAQEKNF 3e-05 | 53 |
| HLA-A*03:01 | 1 | 1068 | 1077 | 10 | VPAQEKNF 3e-05 | 44 |
| HLA-A*68:01 | 1 | 1068 | 1077 | 10 | VPAQEKNF 3e-05 | 45 |
| HLA-A*30:01 | 1 | 1075 | 1084 | 10 | FTTAPAICH 3e-05 | 77 |
| HLA-A*33:01 | 1 | 1075 | 1084 | 10 | FTTAPAICH 3e-05 | 55 |
| HLA-A*02:03 | 1 | 1077 | 1086 | 10 | TAPAICHDGK 3e-05 | 53 |
| HLA-A*31:01 | 1 | 1079 | 1088 | 10 | PAICHDGKAH 3e-05 | 52 |
| HLA-B*08:01 | 1 | 1079 | 1088 | 10 | PAICHDGKAH 3e-05 | 68 |
| HLA-B*07:02 | 1 | 1081 | 1090 | 10 | ICHDGKAHFP 3e-05 | 48 |
| HLA-B*58:01 | 1 | 1082 | 1090 | 9 | CHDGKAHFP 3e-05 | 55 |
| HLA-A*02:06 | 1 | 1083 | 1091 | 9 | HDGKAHFPR 3e-05 | 60 |
| HLA-B*15:01 | 1 | 1083 | 1091 | 9 | HDGKAHFPR 3e-05 | 50 |
| HLA-A*02:06 | 1 | 1084 | 1092 | 9 | DGKAHFPR 3e-05 | 60 |
| HLA-B*40:01 | 1 | 1085 | 1093 | 9 | GKAHFPR 3e-05 | 31 |
| HLA-B*58:01 | 1 | 1089 | 1098 | 10 | FPREGVFVSN 3e-05 | 55 |
| HLA-A*24:02 | 1 | 1102 | 1111 | 10 | WFVTQRNFYE 3e-05 | 32 |
| HLA-B*35:01 | 1 | 1104 | 1112 | 9 | VTQRNFYEP 3e-05 | 37 |
| HLA-B*44:02 | 1 | 1109 | 1118 | 10 | FYEPQIITD 3e-05 | 37 |
| HLA-A*33:01 | 1 | 1110 | 1118 | 9 | YEPQIITD 3e-05 | 55 |
| HLA-B*51:01 | 1 | 1114 | 1123 | 10 | IITTDNTFVS 3e-05 | 60 |
| HLA-B*35:01 | 1 | 1120 | 1129 | 10 | TFVSGNCDVV 3e-05 | 37 |
| HLA-B*15:01 | 1 | 1123 | 1132 | 10 | SGNCDVVIGI 3e-05 | 50 |
| HLA-B*44:03 | 1 | 1123 | 1132 | 10 | SGNCDVVIGI 3e-05 | 35 |
| HLA-B*44:03 | 1 | 1134 | 1143 | 10 | NNTVYDPLQ 3e-05 | 35 |
| HLA-A*24:02 | 1 | 1141 | 1150 | 10 | LQPELDSFKE 3e-05 | 32 |
| HLA-A*02:01 | 1 | 1145 | 1154 | 10 | LDSFKEELDK 3e-05 | 49 |
| HLA-A*24:02 | 1 | 1150 | 1158 | 9 | EELDKYFKN 3e-05 | 32 |
| HLA-A*23:01 | 1 | 1153 | 1161 | 9 | DKYFKNHTS 3e-05 | 33 |
| HLA-B*08:01 | 1 | 1154 | 1163 | 10 | KYFKNHTSPD 3e-05 | 68 |
| HLA-B*57:01 | 1 | 1154 | 1163 | 10 | KYFKNHTSPD 3e-05 | 67 |
| HLA-A*33:01 | 1 | 1156 | 1164 | 9 | FKNHTSPDV 3e-05 | 55 |
| HLA-B*57:01 | 1 | 1156 | 1164 | 9 | FKNHTSPDV 3e-05 | 67 |
| HLA-B*58:01 | 1 | 1156 | 1164 | 9 | FKNHTSPDV 3e-05 | 55 |
| HLA-A*03:01 | 1 | 1159 | 1167 | 9 | HTSPDVDLG 3e-05 | 44 |
| HLA-A*02:01 | 1 | 1163 | 1171 | 9 | DVDLGDISG 3e-05 | 49 |
| HLA-A*24:02 | 1 | 1163 | 1172 | 10 | DVDLGDISGI 3e-05 | 32 |
| HLA-B*07:02 | 1 | 1165 | 1174 | 10 | DLGDISGINA 3e-05 | 48 |

| | | | | | | |
|-------------|---|------|------|----|--------------------|----|
| HLA-A*68:01 | 1 | 1166 | 1175 | 10 | LGDISGINAS 3e-05 | 45 |
| HLA-B*58:01 | 1 | 1166 | 1175 | 10 | LGDISGINAS 3e-05 | 55 |
| HLA-A*31:01 | 1 | 1167 | 1175 | 9 | GDISGINAS 3e-05 | 52 |
| HLA-B*40:01 | 1 | 1170 | 1179 | 10 | SGINASVVNI 3e-05 | 31 |
| HLA-B*07:02 | 1 | 1176 | 1185 | 10 | VVNIQKEIDR 3e-05 | 48 |
| HLA-B*44:03 | 1 | 1177 | 1185 | 9 | VNIQKEIDR 3e-05 | 35 |
| HLA-A*30:02 | 1 | 1193 | 1202 | 10 | LNESLIDLQE 3e-05 | 75 |
| HLA-A*30:02 | 1 | 1194 | 1202 | 9 | NESLIDLQE 3e-05 | 75 |
| HLA-B*15:01 | 1 | 1194 | 1202 | 9 | NESLIDLQE 3e-05 | 50 |
| HLA-B*44:03 | 1 | 1199 | 1208 | 10 | DLQELGKYEQ 3e-05 | 35 |
| HLA-A*26:01 | 1 | 1200 | 1208 | 9 | LQELGKYEQ 3e-05 | 44 |
| HLA-A*02:03 | 1 | 1204 | 1213 | 10 | GKYEQYIKWP 3e-05 | 53 |
| HLA-B*44:02 | 1 | 1209 | 1218 | 10 | YIKWPYIWL 3e-05 | 37 |
| HLA-B*44:02 | 1 | 1222 | 1230 | 9 | AGLIAIVMV 3e-05 | 37 |
| HLA-B*07:02 | 1 | 1223 | 1232 | 10 | GLIAIVMVTI 3e-05 | 48 |
| HLA-A*01:01 | 1 | 1233 | 1241 | 9 | MLCCMTSCC 3e-05 | 72 |
| HLA-A*02:06 | 1 | 1237 | 1245 | 9 | MTSCCCLK 3e-05 | 60 |
| HLA-A*26:01 | 1 | 1247 | 1256 | 10 | CCSCGSCCKF 3e-05 | 44 |
| HLA-B*51:01 | 1 | 1254 | 1263 | 10 | CKFDEDDSEP 3e-05 | 60 |
| HLA-B*44:03 | 1 | 1255 | 1263 | 9 | KFDEDDSEP 3e-05 | 35 |
| HLA-A*68:01 | 1 | 1258 | 1267 | 10 | EDDSEPVKLG 3e-05 | 45 |
| HLA-A*02:03 | 1 | 1263 | 1271 | 9 | PVLKGVKLH 3e-05 | 53 |
| HLA-B*44:03 | 1 | 1263 | 1271 | 9 | PVLKGVKLH 3e-05 | 35 |
| HLA-B*44:03 | 1 | 2 | 10 | 9 | FVFLVLLPL 2.9e-05 | 35 |
| HLA-B*53:01 | 1 | 11 | 19 | 9 | VSSQCVNLT 2.9e-05 | 36 |
| HLA-A*32:01 | 1 | 13 | 22 | 10 | SQCVNLTTRT 2.9e-05 | 39 |
| HLA-B*15:01 | 1 | 14 | 22 | 9 | QCVNLTTRT 2.9e-05 | 50 |
| HLA-B*53:01 | 1 | 14 | 22 | 9 | QCVNLTTRT 2.9e-05 | 36 |
| HLA-B*53:01 | 1 | 17 | 25 | 9 | NLTTRTQLP 2.9e-05 | 36 |
| HLA-A*26:01 | 1 | 42 | 51 | 10 | VFRSSVLHST 2.9e-05 | 45 |
| HLA-A*02:03 | 1 | 43 | 52 | 10 | FRSSVLHSTQ 2.9e-05 | 53 |
| HLA-B*53:01 | 1 | 43 | 52 | 10 | FRSSVLHSTQ 2.9e-05 | 36 |
| HLA-A*24:02 | 1 | 48 | 57 | 10 | LHSTQDLFLP 2.9e-05 | 32 |
| HLA-A*68:02 | 1 | 48 | 57 | 10 | LHSTQDLFLP 2.9e-05 | 52 |
| HLA-A*03:01 | 1 | 52 | 61 | 10 | QDLFLPFFSN 2.9e-05 | 45 |
| HLA-B*58:01 | 1 | 52 | 60 | 9 | QDLFLPFFS 2.9e-05 | 55 |
| HLA-B*15:01 | 1 | 58 | 67 | 10 | FFSNVTFHHA 2.9e-05 | 50 |
| HLA-B*35:01 | 1 | 61 | 70 | 10 | NVTWFHAIHV 2.9e-05 | 37 |
| HLA-B*44:03 | 1 | 78 | 87 | 10 | RFDNPVLPFN 2.9e-05 | 35 |
| HLA-B*35:01 | 1 | 80 | 89 | 10 | DNPVLPFNDG 2.9e-05 | 37 |
| HLA-A*03:01 | 1 | 91 | 99 | 9 | YFASTEKSN 2.9e-05 | 45 |
| HLA-B*53:01 | 1 | 95 | 103 | 9 | TEKSNIIRG 2.9e-05 | 36 |
| HLA-A*01:01 | 1 | 98 | 107 | 10 | SNIIRGWIFG 2.9e-05 | 72 |
| HLA-A*32:01 | 1 | 98 | 107 | 10 | SNIIRGWIFG 2.9e-05 | 39 |
| HLA-A*26:01 | 1 | 100 | 109 | 10 | IIRGWIFGTT 2.9e-05 | 45 |
| HLA-A*01:01 | 1 | 103 | 112 | 10 | GWIFGTTLDS 2.9e-05 | 72 |
| HLA-A*26:01 | 1 | 105 | 113 | 9 | IFGTTLDSK 2.9e-05 | 45 |
| HLA-A*32:01 | 1 | 107 | 116 | 10 | GTTLDSKTQS 2.9e-05 | 39 |
| HLA-A*68:01 | 1 | 110 | 119 | 10 | LDSKTQSLLI 2.9e-05 | 46 |
| HLA-B*15:01 | 1 | 113 | 122 | 10 | KTQSLLVNN 2.9e-05 | 50 |
| HLA-B*44:02 | 1 | 116 | 124 | 9 | SLLVNNT 2.9e-05 | 38 |
| HLA-A*02:03 | 1 | 123 | 132 | 10 | ATNVVIVKVC 2.9e-05 | 53 |
| HLA-B*40:01 | 1 | 126 | 135 | 10 | VVIKVCDFQF 2.9e-05 | 31 |
| HLA-B*08:01 | 1 | 131 | 139 | 9 | CEFQFCNDP 2.9e-05 | 68 |
| HLA-A*02:01 | 1 | 134 | 142 | 9 | QFCNDPFLG 2.9e-05 | 50 |
| HLA-A*02:06 | 1 | 138 | 147 | 10 | DPFLGVYYHK 2.9e-05 | 61 |
| HLA-B*07:02 | 1 | 141 | 150 | 10 | LGVYYHKNNK 2.9e-05 | 49 |
| HLA-B*35:01 | 1 | 143 | 151 | 9 | VYYHKNNKS 2.9e-05 | 37 |
| HLA-A*31:01 | 1 | 152 | 161 | 10 | WMESEFRVYS 2.9e-05 | 52 |
| HLA-B*53:01 | 1 | 152 | 161 | 10 | WMESEFRVYS 2.9e-05 | 36 |
| HLA-A*23:01 | 1 | 157 | 166 | 10 | FRVYSSANNC 2.9e-05 | 33 |
| HLA-A*30:01 | 1 | 165 | 173 | 9 | NCTFEYVSQ 2.9e-05 | 77 |
| HLA-A*23:01 | 1 | 171 | 180 | 10 | VSQPFLMDLE 2.9e-05 | 33 |
| HLA-B*35:01 | 1 | 172 | 180 | 9 | SQPFLMDLE 2.9e-05 | 37 |
| HLA-A*31:01 | 1 | 174 | 183 | 10 | PFLMDLEGKQ 2.9e-05 | 52 |
| HLA-B*15:01 | 1 | 176 | 185 | 10 | LMDLEGKQGN 2.9e-05 | 50 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-B*58:01 | 1 | 176 | 184 | 9 | LMDLEGKQG | 2.9e-05 | 55 |
| HLA-B*53:01 | 1 | 194 | 202 | 9 | FKNIDGYFK | 2.9e-05 | 36 |
| HLA-A*01:01 | 1 | 230 | 239 | 10 | PIGINITRFQ | 2.9e-05 | 72 |
| HLA-B*44:03 | 1 | 247 | 255 | 9 | SYLTPGDSS | 2.9e-05 | 35 |
| HLA-A*68:02 | 1 | 251 | 260 | 10 | PGDSSSGWTA | 2.9e-05 | 52 |
| HLA-A*30:01 | 1 | 259 | 268 | 10 | TAGAAAYVVG | 2.9e-05 | 77 |
| HLA-A*23:01 | 1 | 260 | 269 | 10 | AGAAAYVVG | 2.9e-05 | 33 |
| HLA-A*68:02 | 1 | 270 | 279 | 10 | LQPRTFLLKY | 2.9e-05 | 52 |
| HLA-A*68:01 | 1 | 273 | 282 | 10 | RTFLLKYNEN | 2.9e-05 | 46 |
| HLA-A*24:02 | 1 | 276 | 285 | 10 | LLKYNENGTI | 2.9e-05 | 32 |
| HLA-B*51:01 | 1 | 276 | 284 | 9 | LLKYNENGT | 2.9e-05 | 60 |
| HLA-B*58:01 | 1 | 278 | 287 | 10 | KYNENGTITD | 2.9e-05 | 55 |
| HLA-B*44:03 | 1 | 284 | 292 | 9 | TITDAVDCA | 2.9e-05 | 35 |
| HLA-A*01:01 | 1 | 286 | 295 | 10 | TDAVDCALDP | 2.9e-05 | 72 |
| HLA-B*40:01 | 1 | 299 | 308 | 10 | TKCTLKSFTV | 2.9e-05 | 31 |
| HLA-A*26:01 | 1 | 302 | 311 | 10 | TLKSFTVEKG | 2.9e-05 | 45 |
| HLA-A*23:01 | 1 | 307 | 315 | 9 | TVEKGIYQT | 2.9e-05 | 33 |
| HLA-A*02:01 | 1 | 315 | 324 | 10 | TSNFRVQPT | 2.9e-05 | 50 |
| HLA-A*01:01 | 1 | 323 | 331 | 9 | TESIVRFPN | 2.9e-05 | 72 |
| HLA-B*40:01 | 1 | 325 | 333 | 9 | SIVRFPNIT | 2.9e-05 | 31 |
| HLA-B*44:02 | 1 | 328 | 336 | 9 | RFPNITNLC | 2.9e-05 | 38 |
| HLA-B*51:01 | 1 | 332 | 340 | 9 | ITNLCPFGE | 2.9e-05 | 60 |
| HLA-B*58:01 | 1 | 334 | 343 | 10 | NLCPFGEVFN | 2.9e-05 | 55 |
| HLA-B*57:01 | 1 | 337 | 346 | 10 | PFGEVFNATR | 2.9e-05 | 67 |
| HLA-A*02:03 | 1 | 338 | 347 | 10 | FGEVFNATRF | 2.9e-05 | 53 |
| HLA-A*32:01 | 1 | 340 | 349 | 10 | EVFNATRFAS | 2.9e-05 | 39 |
| HLA-A*01:01 | 1 | 345 | 354 | 10 | TRFASVYAWN | 2.9e-05 | 72 |
| HLA-B*35:01 | 1 | 351 | 360 | 10 | YAWNRRKRISN | 2.9e-05 | 37 |
| HLA-A*68:01 | 1 | 357 | 366 | 10 | RISNCVADYS | 2.9e-05 | 46 |
| HLA-A*11:01 | 1 | 358 | 366 | 9 | ISNCVADYS | 2.9e-05 | 33 |
| HLA-B*15:01 | 1 | 358 | 367 | 10 | ISNCVADYSV | 2.9e-05 | 50 |
| HLA-A*23:01 | 1 | 363 | 371 | 9 | ADYSVLYNS | 2.9e-05 | 33 |
| HLA-A*24:02 | 1 | 366 | 375 | 10 | SVLYNSASFS | 2.9e-05 | 32 |
| HLA-A*02:03 | 1 | 380 | 389 | 10 | YGVSPTKLND | 2.9e-05 | 53 |
| HLA-B*51:01 | 1 | 386 | 394 | 9 | KLNDLCFTN | 2.9e-05 | 60 |
| HLA-A*31:01 | 1 | 388 | 397 | 10 | NDLCFTNVYA | 2.9e-05 | 52 |
| HLA-B*53:01 | 1 | 401 | 409 | 9 | VIRGDEVRQ | 2.9e-05 | 36 |
| HLA-A*03:01 | 1 | 402 | 411 | 10 | IRGDEVRQIA | 2.9e-05 | 45 |
| HLA-A*26:01 | 1 | 414 | 422 | 9 | QTGKIADYN | 2.9e-05 | 45 |
| HLA-A*02:03 | 1 | 415 | 424 | 10 | TGKIADYNYK | 2.9e-05 | 53 |
| HLA-A*23:01 | 1 | 416 | 424 | 9 | GKIADYNYK | 2.9e-05 | 33 |
| HLA-A*01:01 | 1 | 423 | 431 | 9 | YKLPDDFTG | 2.9e-05 | 72 |
| HLA-A*02:06 | 1 | 427 | 436 | 10 | DDFTGCVIAW | 2.9e-05 | 61 |
| HLA-A*30:02 | 1 | 431 | 439 | 9 | GCVIAWNSN | 2.9e-05 | 75 |
| HLA-B*58:01 | 1 | 431 | 439 | 9 | GCVIAWNSN | 2.9e-05 | 55 |
| HLA-B*08:01 | 1 | 435 | 443 | 9 | AWNSNNLDS | 2.9e-05 | 68 |
| HLA-B*40:01 | 1 | 444 | 453 | 10 | KVGGNYNYLY | 2.9e-05 | 31 |
| HLA-B*07:02 | 1 | 445 | 453 | 9 | VGGNYNYLY | 2.9e-05 | 49 |
| HLA-A*23:01 | 1 | 452 | 460 | 9 | LYRLFRKSN | 2.9e-05 | 33 |
| HLA-B*58:01 | 1 | 461 | 470 | 10 | LKPFERDIST | 2.9e-05 | 55 |
| HLA-A*23:01 | 1 | 462 | 470 | 9 | KPFERDIST | 2.9e-05 | 33 |
| HLA-A*23:01 | 1 | 463 | 471 | 9 | PFERDISTE | 2.9e-05 | 33 |
| HLA-A*11:01 | 1 | 465 | 474 | 10 | ERDISTEIYQ | 2.9e-05 | 33 |
| HLA-B*08:01 | 1 | 466 | 474 | 9 | RDISTEIYQ | 2.9e-05 | 68 |
| HLA-B*53:01 | 1 | 467 | 476 | 10 | DISTEIYQAG | 2.9e-05 | 36 |
| HLA-B*07:02 | 1 | 483 | 492 | 10 | VEGFNCYFPL | 2.9e-05 | 49 |
| HLA-B*58:01 | 1 | 484 | 493 | 10 | EGFNCYFPLQ | 2.9e-05 | 55 |
| HLA-A*30:01 | 1 | 491 | 500 | 10 | PLQSYGFQPT | 2.9e-05 | 77 |
| HLA-A*01:01 | 1 | 496 | 504 | 9 | GFQPTNGVG | 2.9e-05 | 72 |
| HLA-A*02:03 | 1 | 501 | 509 | 9 | NGVGYQPYR | 2.9e-05 | 53 |
| HLA-A*03:01 | 1 | 508 | 516 | 9 | YRVVLSFE | 2.9e-05 | 45 |
| HLA-A*24:02 | 1 | 513 | 521 | 9 | LSFELLHAP | 2.9e-05 | 32 |
| HLA-A*68:01 | 1 | 515 | 523 | 9 | FELLHAPAT | 2.9e-05 | 46 |
| HLA-A*68:01 | 1 | 516 | 525 | 10 | ELLHAPATVC | 2.9e-05 | 46 |
| HLA-B*53:01 | 1 | 516 | 525 | 10 | ELLHAPATVC | 2.9e-05 | 36 |
| HLA-A*23:01 | 1 | 517 | 525 | 9 | LLHAPATVC | 2.9e-05 | 33 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*02:06 | 1 | 520 | 528 | 9 | APATVCGPK | 2.9e-05 | 61 |
| HLA-B*44:03 | 1 | 522 | 531 | 10 | ATVCGPKKST | 2.9e-05 | 35 |
| HLA-A*26:01 | 1 | 523 | 532 | 10 | TVCGPKKSTN | 2.9e-05 | 45 |
| HLA-A*26:01 | 1 | 528 | 537 | 10 | KKSTNLVKNK | 2.9e-05 | 45 |
| HLA-A*68:01 | 1 | 534 | 543 | 10 | VKNKCVNFNF | 2.9e-05 | 46 |
| HLA-A*11:01 | 1 | 546 | 555 | 10 | LTGTGVLTES | 2.9e-05 | 33 |
| HLA-A*11:01 | 1 | 547 | 555 | 9 | TGTGVLTES | 2.9e-05 | 33 |
| HLA-A*02:03 | 1 | 549 | 558 | 10 | TGVLTESNKK | 2.9e-05 | 53 |
| HLA-B*35:01 | 1 | 558 | 566 | 9 | KFLPFQFG | 2.9e-05 | 37 |
| HLA-A*32:01 | 1 | 561 | 569 | 9 | PFQQGRDI | 2.9e-05 | 39 |
| HLA-A*68:01 | 1 | 562 | 570 | 9 | FQQGRDIA | 2.9e-05 | 46 |
| HLA-A*31:01 | 1 | 563 | 572 | 10 | QQFGRDIADT | 2.9e-05 | 52 |
| HLA-A*01:01 | 1 | 565 | 574 | 10 | FGRDIADTTD | 2.9e-05 | 72 |
| HLA-A*26:01 | 1 | 567 | 575 | 9 | RDIADTTDA | 2.9e-05 | 45 |
| HLA-B*44:02 | 1 | 572 | 580 | 9 | TTDAVRDPQ | 2.9e-05 | 38 |
| HLA-A*01:01 | 1 | 579 | 588 | 10 | PQTLEILDIT | 2.9e-05 | 72 |
| HLA-B*08:01 | 1 | 582 | 591 | 10 | LEILDITPCS | 2.9e-05 | 68 |
| HLA-A*31:01 | 1 | 590 | 599 | 10 | CSFGGVSVIT | 2.9e-05 | 52 |
| HLA-A*02:06 | 1 | 594 | 603 | 10 | GVSVITPGTN | 2.9e-05 | 61 |
| HLA-B*53:01 | 1 | 594 | 602 | 9 | GVSVITPGT | 2.9e-05 | 36 |
| HLA-A*23:01 | 1 | 596 | 604 | 9 | SVITPGTNT | 2.9e-05 | 33 |
| HLA-B*40:01 | 1 | 599 | 608 | 10 | TPGTNTSNQV | 2.9e-05 | 31 |
| HLA-B*08:01 | 1 | 606 | 614 | 9 | NQVAVLYQD | 2.9e-05 | 68 |
| HLA-B*44:03 | 1 | 610 | 618 | 9 | VLYQDVNCT | 2.9e-05 | 35 |
| HLA-B*53:01 | 1 | 610 | 618 | 9 | VLYQDVNCT | 2.9e-05 | 36 |
| HLA-B*08:01 | 1 | 613 | 621 | 9 | QDVNCTEVP | 2.9e-05 | 68 |
| HLA-B*57:01 | 1 | 613 | 621 | 9 | QDVNCTEVP | 2.9e-05 | 67 |
| HLA-A*32:01 | 1 | 617 | 626 | 10 | CTEVPVAIHA | 2.9e-05 | 39 |
| HLA-B*53:01 | 1 | 619 | 627 | 9 | EVPVAIHAD | 2.9e-05 | 36 |
| HLA-B*51:01 | 1 | 623 | 632 | 10 | AIHADQLTPT | 2.9e-05 | 60 |
| HLA-B*53:01 | 1 | 628 | 637 | 10 | QLTPTWRVYS | 2.9e-05 | 36 |
| HLA-A*32:01 | 1 | 635 | 644 | 10 | VYSTGSNVFQ | 2.9e-05 | 39 |
| HLA-B*53:01 | 1 | 648 | 656 | 9 | GCLIGAEHV | 2.9e-05 | 36 |
| HLA-B*57:01 | 1 | 649 | 658 | 10 | CLIGAEHVNN | 2.9e-05 | 67 |
| HLA-B*53:01 | 1 | 651 | 659 | 9 | IGAEHVNN | 2.9e-05 | 36 |
| HLA-B*40:01 | 1 | 675 | 683 | 9 | QTQTNSPRR | 2.9e-05 | 31 |
| HLA-A*68:02 | 1 | 680 | 689 | 10 | SPRRARSVAS | 2.9e-05 | 52 |
| HLA-B*53:01 | 1 | 684 | 693 | 10 | ARSVASQSII | 2.9e-05 | 36 |
| HLA-A*11:01 | 1 | 689 | 698 | 10 | SQSIIAYTMS | 2.9e-05 | 33 |
| HLA-A*01:01 | 1 | 693 | 702 | 10 | IAYTMSLGAE | 2.9e-05 | 72 |
| HLA-B*44:03 | 1 | 693 | 701 | 9 | IAYTMSLGA | 2.9e-05 | 35 |
| HLA-B*44:02 | 1 | 694 | 703 | 10 | AYTMSLGAEN | 2.9e-05 | 38 |
| HLA-A*03:01 | 1 | 696 | 704 | 9 | TMSLGAENS | 2.9e-05 | 45 |
| HLA-A*33:01 | 1 | 698 | 706 | 9 | SLGAENSV | 2.9e-05 | 55 |
| HLA-B*15:01 | 1 | 700 | 708 | 9 | GAENSVAYS | 2.9e-05 | 50 |
| HLA-B*40:01 | 1 | 711 | 719 | 9 | SIAIPTNFT | 2.9e-05 | 31 |
| HLA-B*35:01 | 1 | 713 | 721 | 9 | AIPTNFTIS | 2.9e-05 | 37 |
| HLA-B*07:02 | 1 | 720 | 729 | 10 | ISVTTEILPV | 2.9e-05 | 49 |
| HLA-A*03:01 | 1 | 726 | 735 | 10 | ILPVSMTKTS | 2.9e-05 | 45 |
| HLA-A*24:02 | 1 | 729 | 738 | 10 | VSMTKTSVDC | 2.9e-05 | 32 |
| HLA-B*08:01 | 1 | 733 | 742 | 10 | KTSVDCTMYI | 2.9e-05 | 68 |
| HLA-B*07:02 | 1 | 740 | 748 | 9 | MYICGDSTE | 2.9e-05 | 49 |
| HLA-A*03:01 | 1 | 745 | 753 | 9 | DSTECNLL | 2.9e-05 | 45 |
| HLA-A*30:01 | 1 | 751 | 760 | 10 | NLLLQYGSFC | 2.9e-05 | 77 |
| HLA-B*15:01 | 1 | 751 | 760 | 10 | NLLLQYGSFC | 2.9e-05 | 50 |
| HLA-B*51:01 | 1 | 759 | 768 | 10 | FCTQLNRALT | 2.9e-05 | 60 |
| HLA-A*68:01 | 1 | 768 | 777 | 10 | TGIAVEQDKN | 2.9e-05 | 46 |
| HLA-B*07:02 | 1 | 768 | 776 | 9 | TGIAVEQDK | 2.9e-05 | 49 |
| HLA-A*26:01 | 1 | 770 | 779 | 10 | IAVEQDKNTQ | 2.9e-05 | 45 |
| HLA-A*33:01 | 1 | 770 | 779 | 10 | IAVEQDKNTQ | 2.9e-05 | 55 |
| HLA-A*30:02 | 1 | 775 | 784 | 10 | DKNTQEVFAQ | 2.9e-05 | 75 |
| HLA-B*08:01 | 1 | 778 | 787 | 10 | TQEVFAQVKQ | 2.9e-05 | 68 |
| HLA-B*07:02 | 1 | 785 | 793 | 9 | VKQIYKTPP | 2.9e-05 | 49 |
| HLA-A*23:01 | 1 | 790 | 799 | 10 | KTPPIKDFGG | 2.9e-05 | 33 |
| HLA-A*02:01 | 1 | 795 | 804 | 10 | KDFGGFNFSQ | 2.9e-05 | 50 |
| HLA-A*33:01 | 1 | 800 | 809 | 10 | FNFSQILPDP | 2.9e-05 | 55 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-B*08:01 | 1 | 801 | 810 | 10 | NFSQILPDPS | 2.9e-05 | 68 |
| HLA-B*35:01 | 1 | 801 | 809 | 9 | NFSQILPDP | 2.9e-05 | 37 |
| HLA-B*53:01 | 1 | 801 | 809 | 9 | NFSQILPDP | 2.9e-05 | 36 |
| HLA-B*35:01 | 1 | 811 | 820 | 10 | KPSKRSFIED | 2.9e-05 | 37 |
| HLA-A*11:01 | 1 | 813 | 822 | 10 | SKRSFIEDLL | 2.9e-05 | 33 |
| HLA-B*44:02 | 1 | 817 | 825 | 9 | FIEDLLFNK | 2.9e-05 | 38 |
| HLA-A*23:01 | 1 | 841 | 850 | 10 | LGDIAARDLI | 2.9e-05 | 33 |
| HLA-A*32:01 | 1 | 841 | 850 | 10 | LGDIAARDLI | 2.9e-05 | 39 |
| HLA-B*40:01 | 1 | 844 | 852 | 9 | IAARDLICA | 2.9e-05 | 31 |
| HLA-A*03:01 | 1 | 851 | 860 | 10 | CAQKFNGLTV | 2.9e-05 | 45 |
| HLA-A*24:02 | 1 | 851 | 860 | 10 | CAQKFNGLTV | 2.9e-05 | 32 |
| HLA-B*40:01 | 1 | 855 | 864 | 10 | FNGLTVLPPL | 2.9e-05 | 31 |
| HLA-B*08:01 | 1 | 872 | 881 | 10 | QYTSALLAGT | 2.9e-05 | 68 |
| HLA-B*44:03 | 1 | 872 | 880 | 9 | QYTSALLAG | 2.9e-05 | 35 |
| HLA-A*02:01 | 1 | 874 | 883 | 10 | TSALLAGTIT | 2.9e-05 | 50 |
| HLA-A*02:06 | 1 | 878 | 887 | 10 | LAGTITSGWT | 2.9e-05 | 61 |
| HLA-B*44:03 | 1 | 880 | 889 | 10 | GTITSGWTFG | 2.9e-05 | 35 |
| HLA-B*15:01 | 1 | 881 | 890 | 10 | TITSGWTFGA | 2.9e-05 | 50 |
| HLA-A*11:01 | 1 | 887 | 896 | 10 | TFGAGAALQI | 2.9e-05 | 33 |
| HLA-B*58:01 | 1 | 899 | 907 | 9 | AMQMAYRFN | 2.9e-05 | 55 |
| HLA-A*11:01 | 1 | 900 | 909 | 10 | MQMAYRFNGI | 2.9e-05 | 33 |
| HLA-A*32:01 | 1 | 905 | 914 | 10 | RFNGIGVTQN | 2.9e-05 | 39 |
| HLA-B*40:01 | 1 | 906 | 915 | 10 | FNGIGVTQNV | 2.9e-05 | 31 |
| HLA-B*53:01 | 1 | 910 | 918 | 9 | GVTQNVLYE | 2.9e-05 | 36 |
| HLA-A*68:02 | 1 | 912 | 920 | 9 | TQNVLYENQ | 2.9e-05 | 52 |
| HLA-A*24:02 | 1 | 916 | 925 | 10 | LYENQKLIAN | 2.9e-05 | 32 |
| HLA-A*23:01 | 1 | 921 | 930 | 10 | KLIANQFNSA | 2.9e-05 | 33 |
| HLA-A*24:02 | 1 | 922 | 930 | 9 | LIANQFNSA | 2.9e-05 | 32 |
| HLA-A*30:01 | 1 | 927 | 936 | 10 | FNSAIGKIQD | 2.9e-05 | 77 |
| HLA-A*03:01 | 1 | 943 | 952 | 10 | SALGKLQDVV | 2.9e-05 | 45 |
| HLA-A*11:01 | 1 | 950 | 958 | 9 | DVVNQNAQA | 2.9e-05 | 33 |
| HLA-A*02:01 | 1 | 959 | 968 | 10 | LNTLVKQLSS | 2.9e-05 | 50 |
| HLA-A*31:01 | 1 | 962 | 971 | 10 | LVKQLSSNFG | 2.9e-05 | 52 |
| HLA-B*08:01 | 1 | 963 | 972 | 10 | VKQLSSNFGA | 2.9e-05 | 68 |
| HLA-A*32:01 | 1 | 966 | 974 | 9 | LSSNFGAIS | 2.9e-05 | 39 |
| HLA-A*11:01 | 1 | 981 | 990 | 10 | LSRLDKVEAE | 2.9e-05 | 33 |
| HLA-A*32:01 | 1 | 984 | 993 | 10 | LDKVEAEVQI | 2.9e-05 | 39 |
| HLA-B*51:01 | 1 | 986 | 995 | 10 | KVEAEVQIDR | 2.9e-05 | 60 |
| HLA-A*01:01 | 1 | 994 | 1002 | 9 | DRLITGRLQ | 2.9e-05 | 72 |
| HLA-A*11:01 | 1 | 997 | 1006 | 10 | ITGRLQSLQT | 2.9e-05 | 33 |
| HLA-B*53:01 | 1 | 998 | 1006 | 9 | TGRLQSLQT | 2.9e-05 | 36 |
| HLA-B*40:01 | 1 | 1007 | 1016 | 10 | YVTQQLIRAA | 2.9e-05 | 31 |
| HLA-A*23:01 | 1 | 1013 | 1021 | 9 | IRAAEIRAS | 2.9e-05 | 33 |
| HLA-A*26:01 | 1 | 1013 | 1021 | 9 | IRAAEIRAS | 2.9e-05 | 45 |
| HLA-B*44:03 | 1 | 1013 | 1022 | 10 | IRAAEIRASA | 2.9e-05 | 35 |
| HLA-B*35:01 | 1 | 1021 | 1030 | 10 | SANLAATKMS | 2.9e-05 | 37 |
| HLA-A*23:01 | 1 | 1025 | 1033 | 9 | AATKMSECV | 2.9e-05 | 33 |
| HLA-A*02:01 | 1 | 1026 | 1035 | 10 | ATKMSECVLG | 2.9e-05 | 50 |
| HLA-A*02:01 | 1 | 1030 | 1039 | 10 | SECVLGQSKR | 2.9e-05 | 50 |
| HLA-A*32:01 | 1 | 1031 | 1039 | 9 | ECVLGQSKR | 2.9e-05 | 39 |
| HLA-B*51:01 | 1 | 1036 | 1044 | 9 | QSKRVDFCG | 2.9e-05 | 60 |
| HLA-A*02:06 | 1 | 1044 | 1053 | 10 | GKGYHLMSFP | 2.9e-05 | 61 |
| HLA-B*58:01 | 1 | 1047 | 1055 | 9 | YHLMSFPQS | 2.9e-05 | 55 |
| HLA-B*53:01 | 1 | 1053 | 1061 | 9 | PQSAPHGVV | 2.9e-05 | 36 |
| HLA-A*03:01 | 1 | 1076 | 1084 | 9 | TTAPAICHD | 2.9e-05 | 45 |
| HLA-A*68:01 | 1 | 1078 | 1087 | 10 | APAICHDGKA | 2.9e-05 | 46 |
| HLA-B*58:01 | 1 | 1088 | 1097 | 10 | HFPREGVFVS | 2.9e-05 | 55 |
| HLA-B*44:03 | 1 | 1092 | 1101 | 10 | EGVFVSNQTH | 2.9e-05 | 35 |
| HLA-B*15:01 | 1 | 1098 | 1106 | 9 | NGTHWFVTQ | 2.9e-05 | 50 |
| HLA-B*57:01 | 1 | 1102 | 1111 | 10 | WFVTQRNFYE | 2.9e-05 | 67 |
| HLA-A*33:01 | 1 | 1103 | 1112 | 10 | FVTQRNFYEP | 2.9e-05 | 55 |
| HLA-B*58:01 | 1 | 1105 | 1113 | 9 | TQRNFYEPQ | 2.9e-05 | 55 |
| HLA-B*08:01 | 1 | 1110 | 1119 | 10 | YEPQIITTDN | 2.9e-05 | 68 |
| HLA-A*02:03 | 1 | 1111 | 1120 | 10 | EPQIITTDNT | 2.9e-05 | 53 |
| HLA-B*44:03 | 1 | 1114 | 1122 | 9 | IITTDNTFV | 2.9e-05 | 35 |
| HLA-A*33:01 | 1 | 1115 | 1124 | 10 | IITTDNTFVSG | 2.9e-05 | 55 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*68:01 | 1 | 1118 | 1126 | 9 | DNTFVSGNC | 2.9e-05 | 46 |
| HLA-B*44:02 | 1 | 1119 | 1128 | 10 | NTFVSGNCDV | 2.9e-05 | 38 |
| HLA-B*08:01 | 1 | 1140 | 1149 | 10 | PLQPELDSFK | 2.9e-05 | 68 |
| HLA-A*30:01 | 1 | 1142 | 1150 | 9 | QPELDSFKE | 2.9e-05 | 77 |
| HLA-A*68:02 | 1 | 1152 | 1161 | 10 | LDKYFKNHTS | 2.9e-05 | 52 |
| HLA-B*40:01 | 1 | 1152 | 1160 | 9 | LDKYFKNHT | 2.9e-05 | 31 |
| HLA-A*30:02 | 1 | 1157 | 1165 | 9 | KNHTSPDVD | 2.9e-05 | 75 |
| HLA-A*32:01 | 1 | 1160 | 1169 | 10 | TSPDVLGDI | 2.9e-05 | 39 |
| HLA-A*30:02 | 1 | 1161 | 1170 | 10 | SPDVLGDIS | 2.9e-05 | 75 |
| HLA-A*03:01 | 1 | 1163 | 1172 | 10 | DVDLGDISGI | 2.9e-05 | 45 |
| HLA-A*68:02 | 1 | 1166 | 1175 | 10 | LGDISGINAS | 2.9e-05 | 52 |
| HLA-B*07:02 | 1 | 1172 | 1181 | 10 | INASVVNIQK | 2.9e-05 | 49 |
| HLA-A*03:01 | 1 | 1177 | 1186 | 10 | VNIQKEIDRL | 2.9e-05 | 45 |
| HLA-B*51:01 | 1 | 1178 | 1187 | 10 | NIQKEIDRLN | 2.9e-05 | 60 |
| HLA-B*51:01 | 1 | 1193 | 1201 | 9 | LNESLIDLQ | 2.9e-05 | 60 |
| HLA-B*57:01 | 1 | 1193 | 1202 | 10 | LNESLIDLQE | 2.9e-05 | 67 |
| HLA-B*58:01 | 1 | 1193 | 1202 | 10 | LNESLIDLQE | 2.9e-05 | 55 |
| HLA-A*02:06 | 1 | 1194 | 1202 | 9 | NESLIDLQE | 2.9e-05 | 61 |
| HLA-B*07:02 | 1 | 1194 | 1202 | 9 | NESLIDLQE | 2.9e-05 | 49 |
| HLA-A*24:02 | 1 | 1197 | 1206 | 10 | LIDLQELGKY | 2.9e-05 | 32 |
| HLA-B*44:03 | 1 | 1202 | 1211 | 10 | ELGKYEQYIK | 2.9e-05 | 35 |
| HLA-B*07:02 | 1 | 1203 | 1211 | 9 | LGKYEQYIK | 2.9e-05 | 49 |
| HLA-B*40:01 | 1 | 1215 | 1224 | 10 | YIWLGFIAGL | 2.9e-05 | 31 |
| HLA-B*40:01 | 1 | 1220 | 1229 | 10 | FIAGLIAIVM | 2.9e-05 | 31 |
| HLA-A*68:01 | 1 | 1230 | 1239 | 10 | VTIMLCCMTS | 2.9e-05 | 46 |
| HLA-A*30:02 | 1 | 1231 | 1240 | 10 | TIMLCCMTSC | 2.9e-05 | 75 |
| HLA-A*31:01 | 1 | 1231 | 1239 | 9 | TIMLCCMTS | 2.9e-05 | 52 |
| HLA-A*68:02 | 1 | 1231 | 1240 | 10 | TIMLCCMTSC | 2.9e-05 | 52 |
| HLA-A*68:02 | 1 | 1233 | 1241 | 9 | MLCCMTSCC | 2.9e-05 | 52 |
| HLA-A*30:01 | 1 | 1235 | 1244 | 10 | CCMTSCCSC | 2.9e-05 | 77 |
| HLA-A*02:03 | 1 | 1242 | 1250 | 9 | SCLKGCCSC | 2.9e-05 | 53 |
| HLA-A*31:01 | 1 | 1256 | 1265 | 10 | FDEDDSEPV | 2.9e-05 | 52 |
| HLA-A*30:01 | 1 | 1258 | 1267 | 10 | EDDSEPVK | 2.9e-05 | 77 |
| HLA-A*31:01 | 1 | 1259 | 1268 | 10 | DDSEPVKGV | 2.9e-05 | 52 |
| HLA-A*26:01 | 1 | 4 | 12 | 9 | FLVLLPLVS | 2.8e-05 | 45 |
| HLA-A*23:01 | 1 | 11 | 19 | 9 | VSSQCVNLT | 2.8e-05 | 34 |
| HLA-A*26:01 | 1 | 18 | 26 | 9 | LTRTQLPP | 2.8e-05 | 45 |
| HLA-B*08:01 | 1 | 21 | 30 | 10 | RTQLPPAYTN | 2.8e-05 | 69 |
| HLA-B*07:02 | 1 | 32 | 41 | 10 | FTRGVYYPDK | 2.8e-05 | 49 |
| HLA-A*68:01 | 1 | 34 | 42 | 9 | RGVYYPDKV | 2.8e-05 | 46 |
| HLA-A*26:01 | 1 | 42 | 50 | 9 | VFRSSVLHS | 2.8e-05 | 45 |
| HLA-B*35:01 | 1 | 42 | 50 | 9 | VFRSSVLHS | 2.8e-05 | 37 |
| HLA-A*24:02 | 1 | 49 | 57 | 9 | HSTQDLFLP | 2.8e-05 | 32 |
| HLA-B*40:01 | 1 | 61 | 69 | 9 | NVTWFHAIH | 2.8e-05 | 31 |
| HLA-B*15:01 | 1 | 63 | 72 | 10 | TWFHAIHVSG | 2.8e-05 | 51 |
| HLA-A*01:01 | 1 | 64 | 72 | 9 | WFHAIHVSG | 2.8e-05 | 73 |
| HLA-B*08:01 | 1 | 65 | 74 | 10 | FHAIHVSGTN | 2.8e-05 | 69 |
| HLA-B*58:01 | 1 | 68 | 76 | 9 | IHVSGTNGT | 2.8e-05 | 56 |
| HLA-A*11:01 | 1 | 72 | 80 | 9 | GTNGTKRFD | 2.8e-05 | 33 |
| HLA-A*68:01 | 1 | 72 | 80 | 9 | GTNGTKRFD | 2.8e-05 | 46 |
| HLA-A*24:02 | 1 | 76 | 85 | 10 | TKRFDNPVLP | 2.8e-05 | 32 |
| HLA-A*02:03 | 1 | 82 | 91 | 10 | PVLPFNDGVY | 2.8e-05 | 54 |
| HLA-A*02:03 | 1 | 97 | 106 | 10 | KSNIIRGWIF | 2.8e-05 | 54 |
| HLA-A*24:02 | 1 | 105 | 114 | 10 | IFGTTLDSTK | 2.8e-05 | 32 |
| HLA-B*57:01 | 1 | 105 | 114 | 10 | IFGTTLDSTK | 2.8e-05 | 68 |
| HLA-A*33:01 | 1 | 107 | 115 | 9 | GTTLDSTKQ | 2.8e-05 | 56 |
| HLA-A*11:01 | 1 | 112 | 120 | 9 | SKTQSLLI | 2.8e-05 | 33 |
| HLA-A*26:01 | 1 | 114 | 122 | 9 | TQSLLI | 2.8e-05 | 45 |
| HLA-A*32:01 | 1 | 120 | 129 | 10 | VNNATNVVIK | 2.8e-05 | 39 |
| HLA-B*58:01 | 1 | 124 | 132 | 9 | TNVVIK | 2.8e-05 | 56 |
| HLA-A*30:02 | 1 | 129 | 138 | 10 | KVCEFQFCND | 2.8e-05 | 76 |
| HLA-A*30:01 | 1 | 131 | 140 | 10 | CEFQFCNDPF | 2.8e-05 | 78 |
| HLA-A*33:01 | 1 | 140 | 148 | 9 | FLGVYHKN | 2.8e-05 | 56 |
| HLA-B*51:01 | 1 | 156 | 164 | 9 | EFRVYSSAN | 2.8e-05 | 61 |
| HLA-B*07:02 | 1 | 161 | 169 | 9 | SSANNCTFE | 2.8e-05 | 49 |
| HLA-A*31:01 | 1 | 164 | 172 | 9 | NNCTFEYVS | 2.8e-05 | 53 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*44:02 | 1 | 180 | 188 | 9 | EGKQGNFKN | 2.8e-05 | 38 |
| HLA-A*02:01 | 1 | 183 | 192 | 10 | QGNFKNLREF | 2.8e-05 | 50 |
| HLA-B*51:01 | 1 | 183 | 191 | 9 | QGNFKNLRE | 2.8e-05 | 61 |
| HLA-B*51:01 | 1 | 190 | 198 | 9 | REFVFKNID | 2.8e-05 | 61 |
| HLA-A*68:01 | 1 | 200 | 209 | 10 | YFKIYSKHTP | 2.8e-05 | 46 |
| HLA-A*01:01 | 1 | 210 | 218 | 9 | INLVRDLPO | 2.8e-05 | 73 |
| HLA-B*15:01 | 1 | 216 | 224 | 9 | LPQGFSALE | 2.8e-05 | 51 |
| HLA-A*11:01 | 1 | 233 | 242 | 10 | INITRFQTLT | 2.8e-05 | 33 |
| HLA-A*11:01 | 1 | 242 | 250 | 9 | LALHRSYLT | 2.8e-05 | 33 |
| HLA-B*58:01 | 1 | 243 | 252 | 10 | ALHRSYLTPG | 2.8e-05 | 56 |
| HLA-A*23:01 | 1 | 244 | 252 | 9 | LHRSYLTPG | 2.8e-05 | 34 |
| HLA-B*08:01 | 1 | 249 | 257 | 9 | LTPGDSSSG | 2.8e-05 | 69 |
| HLA-A*26:01 | 1 | 250 | 259 | 10 | TPGDSSSGWT | 2.8e-05 | 45 |
| HLA-A*02:06 | 1 | 251 | 260 | 10 | PGDSSSGWTA | 2.8e-05 | 61 |
| HLA-B*58:01 | 1 | 251 | 260 | 10 | PGDSSSGWTA | 2.8e-05 | 56 |
| HLA-B*44:02 | 1 | 252 | 261 | 10 | GDSSSGWTAG | 2.8e-05 | 38 |
| HLA-A*33:01 | 1 | 255 | 263 | 9 | SSGWTAGAA | 2.8e-05 | 56 |
| HLA-A*23:01 | 1 | 258 | 267 | 10 | WTAGAAAYYV | 2.8e-05 | 34 |
| HLA-A*26:01 | 1 | 263 | 272 | 10 | AAYYVGYLQP | 2.8e-05 | 45 |
| HLA-A*03:01 | 1 | 265 | 274 | 10 | YYVGYLQPR | 2.8e-05 | 45 |
| HLA-B*40:01 | 1 | 269 | 278 | 10 | YLQPRTFLLK | 2.8e-05 | 31 |
| HLA-A*03:01 | 1 | 283 | 292 | 10 | GTITDAVDCA | 2.8e-05 | 45 |
| HLA-B*40:01 | 1 | 291 | 299 | 9 | CALDPLSET | 2.8e-05 | 31 |
| HLA-B*51:01 | 1 | 301 | 310 | 10 | CTLKSFTVEK | 2.8e-05 | 61 |
| HLA-B*53:01 | 1 | 301 | 310 | 10 | CTLKSFTVEK | 2.8e-05 | 36 |
| HLA-B*35:01 | 1 | 305 | 314 | 10 | SFTVEKGIYQ | 2.8e-05 | 37 |
| HLA-A*24:02 | 1 | 314 | 322 | 9 | QTSNFRVQP | 2.8e-05 | 32 |
| HLA-A*02:01 | 1 | 325 | 334 | 10 | SIVRFPNITN | 2.8e-05 | 50 |
| HLA-A*31:01 | 1 | 330 | 338 | 9 | PNITNLCPF | 2.8e-05 | 53 |
| HLA-A*02:06 | 1 | 331 | 340 | 10 | NITNLCPFGE | 2.8e-05 | 61 |
| HLA-A*03:01 | 1 | 354 | 362 | 9 | NRKRISNCV | 2.8e-05 | 45 |
| HLA-A*02:03 | 1 | 358 | 366 | 9 | ISNCVADYS | 2.8e-05 | 54 |
| HLA-B*08:01 | 1 | 358 | 367 | 10 | ISNCVADYSV | 2.8e-05 | 69 |
| HLA-A*02:03 | 1 | 361 | 370 | 10 | CVADYSVLYN | 2.8e-05 | 54 |
| HLA-B*44:02 | 1 | 366 | 375 | 10 | SVLYNSASF | 2.8e-05 | 38 |
| HLA-A*32:01 | 1 | 370 | 379 | 10 | NSASFSTFKC | 2.8e-05 | 39 |
| HLA-A*23:01 | 1 | 374 | 382 | 9 | FSTFKCYGV | 2.8e-05 | 34 |
| HLA-B*08:01 | 1 | 380 | 388 | 9 | YGVSPTKLN | 2.8e-05 | 69 |
| HLA-B*51:01 | 1 | 380 | 389 | 10 | YGVSPTKLND | 2.8e-05 | 61 |
| HLA-B*51:01 | 1 | 381 | 389 | 9 | GVSPTKLND | 2.8e-05 | 61 |
| HLA-A*31:01 | 1 | 391 | 399 | 9 | CFTNVYADS | 2.8e-05 | 53 |
| HLA-B*35:01 | 1 | 392 | 401 | 10 | FTNVYADSFV | 2.8e-05 | 37 |
| HLA-B*51:01 | 1 | 399 | 408 | 10 | SFVIRGDEV | 2.8e-05 | 61 |
| HLA-A*68:02 | 1 | 401 | 409 | 9 | VIRGDEV | 2.8e-05 | 52 |
| HLA-B*53:01 | 1 | 412 | 421 | 10 | PGQTGKIADY | 2.8e-05 | 36 |
| HLA-A*68:02 | 1 | 413 | 421 | 9 | GQTGKIADY | 2.8e-05 | 52 |
| HLA-A*11:01 | 1 | 414 | 422 | 9 | QTGKIADYN | 2.8e-05 | 33 |
| HLA-A*31:01 | 1 | 418 | 426 | 9 | IADYNYKLP | 2.8e-05 | 53 |
| HLA-A*31:01 | 1 | 421 | 430 | 10 | YNYKLPPDFT | 2.8e-05 | 53 |
| HLA-B*08:01 | 1 | 434 | 442 | 9 | IAWNSNLD | 2.8e-05 | 69 |
| HLA-B*57:01 | 1 | 438 | 447 | 10 | SNLDSKVG | 2.8e-05 | 68 |
| HLA-A*33:01 | 1 | 439 | 447 | 9 | NNLDSKVG | 2.8e-05 | 56 |
| HLA-B*51:01 | 1 | 448 | 457 | 10 | NYNYLRLFR | 2.8e-05 | 61 |
| HLA-B*53:01 | 1 | 450 | 458 | 9 | NYLYRLFRK | 2.8e-05 | 36 |
| HLA-A*31:01 | 1 | 456 | 465 | 10 | FRKSNLKPFE | 2.8e-05 | 53 |
| HLA-B*40:01 | 1 | 457 | 465 | 9 | RKSNLKPFE | 2.8e-05 | 31 |
| HLA-B*44:03 | 1 | 461 | 470 | 10 | LKPFERDIST | 2.8e-05 | 36 |
| HLA-B*53:01 | 1 | 466 | 475 | 10 | RDISTEIQ | 2.8e-05 | 36 |
| HLA-A*01:01 | 1 | 473 | 482 | 10 | YQAGSTPCNG | 2.8e-05 | 73 |
| HLA-A*68:02 | 1 | 473 | 481 | 9 | YQAGSTPCN | 2.8e-05 | 52 |
| HLA-A*26:01 | 1 | 478 | 487 | 10 | TPCNGVEGF | 2.8e-05 | 45 |
| HLA-A*11:01 | 1 | 487 | 496 | 10 | NCYFPLQSYG | 2.8e-05 | 33 |
| HLA-B*35:01 | 1 | 488 | 496 | 9 | CYFPLQSYG | 2.8e-05 | 37 |
| HLA-A*11:01 | 1 | 489 | 498 | 10 | YFPLQSYGFQ | 2.8e-05 | 33 |
| HLA-A*68:01 | 1 | 490 | 499 | 10 | FPLQSYGFQP | 2.8e-05 | 46 |
| HLA-A*23:01 | 1 | 492 | 500 | 9 | LQSYGFQPT | 2.8e-05 | 34 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*44:02 | 1 | 501 | 510 | 10 | NGVGYQPYRV | 2.8e-05 | 38 |
| HLA-A*24:02 | 1 | 502 | 511 | 10 | GVGYQPYRVV | 2.8e-05 | 32 |
| HLA-B*44:03 | 1 | 502 | 511 | 10 | GVGYQPYRVV | 2.8e-05 | 36 |
| HLA-B*58:01 | 1 | 508 | 516 | 9 | YRVVLSFE | 2.8e-05 | 56 |
| HLA-B*07:02 | 1 | 512 | 521 | 10 | VLSFELLHAP | 2.8e-05 | 49 |
| HLA-A*31:01 | 1 | 515 | 523 | 9 | FELLHAPAT | 2.8e-05 | 53 |
| HLA-B*58:01 | 1 | 532 | 540 | 9 | NLVKNKCVN | 2.8e-05 | 56 |
| HLA-A*26:01 | 1 | 538 | 547 | 10 | CVNFNFNGLT | 2.8e-05 | 45 |
| HLA-B*58:01 | 1 | 540 | 548 | 9 | NFNFNGLTG | 2.8e-05 | 56 |
| HLA-B*08:01 | 1 | 545 | 554 | 10 | GLTGTGVLTE | 2.8e-05 | 69 |
| HLA-B*40:01 | 1 | 555 | 563 | 9 | SNKKFLPFQ | 2.8e-05 | 31 |
| HLA-A*26:01 | 1 | 558 | 566 | 9 | KFLPFQFG | 2.8e-05 | 45 |
| HLA-B*51:01 | 1 | 558 | 567 | 10 | KFLPFQFGR | 2.8e-05 | 61 |
| HLA-A*02:01 | 1 | 560 | 569 | 10 | LPFQFGRDI | 2.8e-05 | 50 |
| HLA-B*44:02 | 1 | 564 | 573 | 10 | QFGRDIADTT | 2.8e-05 | 38 |
| HLA-A*31:01 | 1 | 565 | 573 | 9 | FGRDIADTT | 2.8e-05 | 53 |
| HLA-B*44:02 | 1 | 572 | 581 | 10 | TTDAVRDPQT | 2.8e-05 | 38 |
| HLA-A*30:02 | 1 | 579 | 588 | 10 | PQTLEILDIT | 2.8e-05 | 76 |
| HLA-B*44:03 | 1 | 579 | 587 | 9 | PQTLEILDI | 2.8e-05 | 36 |
| HLA-A*03:01 | 1 | 581 | 589 | 9 | TLEILDITP | 2.8e-05 | 45 |
| HLA-A*30:01 | 1 | 585 | 593 | 9 | LDITPCSG | 2.8e-05 | 78 |
| HLA-B*35:01 | 1 | 598 | 606 | 9 | ITPGTNTSN | 2.8e-05 | 37 |
| HLA-B*40:01 | 1 | 606 | 614 | 9 | NQVAVLYQD | 2.8e-05 | 31 |
| HLA-B*44:02 | 1 | 610 | 618 | 9 | VLYQDVNCT | 2.8e-05 | 38 |
| HLA-A*03:01 | 1 | 611 | 620 | 10 | LYQDVNCTEV | 2.8e-05 | 45 |
| HLA-B*44:02 | 1 | 617 | 625 | 9 | CTEVPVAIH | 2.8e-05 | 38 |
| HLA-B*08:01 | 1 | 618 | 627 | 10 | TEVPVAIHAD | 2.8e-05 | 69 |
| HLA-B*58:01 | 1 | 619 | 628 | 10 | EVPVAIHADQ | 2.8e-05 | 56 |
| HLA-B*44:03 | 1 | 621 | 629 | 9 | PVAIHADQL | 2.8e-05 | 36 |
| HLA-B*44:03 | 1 | 623 | 632 | 10 | AIHADQLTPT | 2.8e-05 | 36 |
| HLA-A*03:01 | 1 | 624 | 632 | 9 | IHADQLTPT | 2.8e-05 | 45 |
| HLA-B*15:01 | 1 | 624 | 632 | 9 | IHADQLTPT | 2.8e-05 | 51 |
| HLA-A*02:06 | 1 | 635 | 644 | 10 | VYSTGSNVFQ | 2.8e-05 | 61 |
| HLA-A*11:01 | 1 | 636 | 645 | 10 | YSTGSNVFQT | 2.8e-05 | 33 |
| HLA-A*32:01 | 1 | 638 | 647 | 10 | TGSNVFQTRA | 2.8e-05 | 39 |
| HLA-A*01:01 | 1 | 640 | 648 | 9 | SNVFQTRAG | 2.8e-05 | 73 |
| HLA-A*31:01 | 1 | 644 | 652 | 9 | QTRAGCLIG | 2.8e-05 | 53 |
| HLA-A*32:01 | 1 | 649 | 657 | 9 | CLIGAEHVN | 2.8e-05 | 39 |
| HLA-B*51:01 | 1 | 650 | 659 | 10 | LIGAEHVNS | 2.8e-05 | 61 |
| HLA-A*02:06 | 1 | 660 | 669 | 10 | YECDIPIGAG | 2.8e-05 | 61 |
| HLA-A*30:01 | 1 | 660 | 669 | 10 | YECDIPIGAG | 2.8e-05 | 78 |
| HLA-A*11:01 | 1 | 662 | 670 | 9 | CDIPIGAGI | 2.8e-05 | 33 |
| HLA-B*44:02 | 1 | 665 | 674 | 10 | PIGAGICASY | 2.8e-05 | 38 |
| HLA-A*23:01 | 1 | 678 | 687 | 10 | TNSPRRARSV | 2.8e-05 | 34 |
| HLA-B*51:01 | 1 | 682 | 691 | 10 | RRARSVASQS | 2.8e-05 | 61 |
| HLA-A*24:02 | 1 | 688 | 696 | 9 | ASQSIIAYT | 2.8e-05 | 32 |
| HLA-B*08:01 | 1 | 693 | 702 | 10 | IAYTMSLGAE | 2.8e-05 | 69 |
| HLA-A*68:01 | 1 | 694 | 702 | 9 | AYTMSLGAE | 2.8e-05 | 46 |
| HLA-A*03:01 | 1 | 699 | 708 | 10 | LGAENSVAYS | 2.8e-05 | 45 |
| HLA-A*30:01 | 1 | 701 | 710 | 10 | AENSVAYSNN | 2.8e-05 | 78 |
| HLA-A*02:01 | 1 | 706 | 715 | 10 | AYSNNSIAIP | 2.8e-05 | 50 |
| HLA-B*44:02 | 1 | 706 | 715 | 10 | AYSNNSIAIP | 2.8e-05 | 38 |
| HLA-A*31:01 | 1 | 719 | 728 | 10 | TISVTTEILP | 2.8e-05 | 53 |
| HLA-A*31:01 | 1 | 720 | 728 | 9 | ISVTTEILP | 2.8e-05 | 53 |
| HLA-B*58:01 | 1 | 726 | 735 | 10 | ILPVSMTKTS | 2.8e-05 | 56 |
| HLA-B*44:03 | 1 | 727 | 736 | 10 | LPVSMTKTSV | 2.8e-05 | 36 |
| HLA-B*44:02 | 1 | 728 | 736 | 9 | PVSMTKTSV | 2.8e-05 | 38 |
| HLA-A*11:01 | 1 | 729 | 738 | 10 | VSMTKTSVDC | 2.8e-05 | 33 |
| HLA-A*03:01 | 1 | 735 | 743 | 9 | SVDCTMYIC | 2.8e-05 | 45 |
| HLA-A*02:03 | 1 | 738 | 746 | 9 | CTMYICGDS | 2.8e-05 | 54 |
| HLA-A*68:01 | 1 | 739 | 747 | 9 | TMYICGDST | 2.8e-05 | 46 |
| HLA-B*57:01 | 1 | 739 | 747 | 9 | TMYICGDST | 2.8e-05 | 68 |
| HLA-A*01:01 | 1 | 742 | 750 | 9 | ICGDSTEC | 2.8e-05 | 73 |
| HLA-A*11:01 | 1 | 745 | 753 | 9 | DSTECSNLL | 2.8e-05 | 33 |
| HLA-A*11:01 | 1 | 750 | 759 | 10 | SNLLQYGSF | 2.8e-05 | 33 |
| HLA-B*44:03 | 1 | 758 | 766 | 9 | SFCTQLNRA | 2.8e-05 | 36 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*11:01 | 1 | 761 | 769 | 9 | TQLNRALTG | 2.8e-05 | 33 |
| HLA-A*11:01 | 1 | 761 | 770 | 10 | TQLNRALTGI | 2.8e-05 | 33 |
| HLA-A*68:01 | 1 | 770 | 778 | 9 | IAVEQDKNT | 2.8e-05 | 46 |
| HLA-A*68:01 | 1 | 775 | 784 | 10 | DKNTQEVFAQ | 2.8e-05 | 46 |
| HLA-B*08:01 | 1 | 776 | 784 | 9 | KNTQEVFAQ | 2.8e-05 | 69 |
| HLA-B*15:01 | 1 | 776 | 784 | 9 | KNTQEVFAQ | 2.8e-05 | 51 |
| HLA-A*23:01 | 1 | 783 | 792 | 10 | AQVKQIYKTP | 2.8e-05 | 34 |
| HLA-B*53:01 | 1 | 789 | 798 | 10 | YKTPPIKDFG | 2.8e-05 | 36 |
| HLA-A*02:01 | 1 | 790 | 799 | 10 | KTPPIKDFG | 2.8e-05 | 50 |
| HLA-B*07:02 | 1 | 790 | 798 | 9 | KTPPIKDFG | 2.8e-05 | 49 |
| HLA-A*01:01 | 1 | 812 | 820 | 9 | PSKRSFIED | 2.8e-05 | 73 |
| HLA-B*35:01 | 1 | 816 | 824 | 9 | SFIEDLLFN | 2.8e-05 | 37 |
| HLA-B*35:01 | 1 | 823 | 831 | 9 | FNKVTLADA | 2.8e-05 | 37 |
| HLA-B*53:01 | 1 | 835 | 844 | 10 | KQYGDCLGDI | 2.8e-05 | 36 |
| HLA-A*02:01 | 1 | 838 | 846 | 9 | GDCLGDIAA | 2.8e-05 | 50 |
| HLA-A*01:01 | 1 | 840 | 848 | 9 | CLGDIAARD | 2.8e-05 | 73 |
| HLA-A*68:02 | 1 | 848 | 856 | 9 | DLICAQKFN | 2.8e-05 | 52 |
| HLA-B*08:01 | 1 | 848 | 857 | 10 | DLICAQKFN | 2.8e-05 | 69 |
| HLA-B*07:02 | 1 | 851 | 859 | 9 | CAQKFNGLT | 2.8e-05 | 49 |
| HLA-B*51:01 | 1 | 857 | 866 | 10 | GLTVLPPLT | 2.8e-05 | 61 |
| HLA-B*44:02 | 1 | 859 | 867 | 9 | TVLPPLT | 2.8e-05 | 38 |
| HLA-A*30:02 | 1 | 866 | 875 | 10 | TDEMIAQYTS | 2.8e-05 | 76 |
| HLA-A*11:01 | 1 | 871 | 880 | 10 | AQYTSALLAG | 2.8e-05 | 33 |
| HLA-A*33:01 | 1 | 877 | 885 | 9 | LLAGTITSG | 2.8e-05 | 56 |
| HLA-B*44:02 | 1 | 887 | 895 | 9 | TFGAGAALQ | 2.8e-05 | 38 |
| HLA-B*07:02 | 1 | 888 | 897 | 10 | FGAGAALQIP | 2.8e-05 | 49 |
| HLA-B*40:01 | 1 | 889 | 897 | 9 | GAGAALQIP | 2.8e-05 | 31 |
| HLA-A*32:01 | 1 | 890 | 899 | 10 | AGAALQIPFA | 2.8e-05 | 39 |
| HLA-B*07:02 | 1 | 897 | 906 | 10 | PFAMQMAYRF | 2.8e-05 | 49 |
| HLA-B*57:01 | 1 | 903 | 912 | 10 | AYRFNGIGVT | 2.8e-05 | 68 |
| HLA-B*44:03 | 1 | 907 | 916 | 10 | NGIGVTQNVL | 2.8e-05 | 36 |
| HLA-B*15:01 | 1 | 916 | 924 | 9 | LYENQKLIA | 2.8e-05 | 51 |
| HLA-B*44:03 | 1 | 921 | 930 | 10 | KLIANQFN | 2.8e-05 | 36 |
| HLA-A*33:01 | 1 | 922 | 931 | 10 | LIANQFN | 2.8e-05 | 56 |
| HLA-A*23:01 | 1 | 926 | 935 | 10 | QFN | 2.8e-05 | 34 |
| HLA-B*44:02 | 1 | 927 | 935 | 9 | FNSAIGKIQ | 2.8e-05 | 38 |
| HLA-B*35:01 | 1 | 938 | 946 | 9 | LSSTASALG | 2.8e-05 | 37 |
| HLA-B*07:02 | 1 | 948 | 957 | 10 | LQDVVNQNAQ | 2.8e-05 | 49 |
| HLA-B*51:01 | 1 | 948 | 957 | 10 | LQDVVNQNAQ | 2.8e-05 | 61 |
| HLA-A*03:01 | 1 | 949 | 957 | 9 | QDVVNQNAQ | 2.8e-05 | 45 |
| HLA-A*31:01 | 1 | 952 | 960 | 9 | VNQAALN | 2.8e-05 | 53 |
| HLA-A*31:01 | 1 | 961 | 969 | 9 | TLVKQLSSN | 2.8e-05 | 53 |
| HLA-A*26:01 | 1 | 966 | 974 | 9 | LSSNFGAIS | 2.8e-05 | 45 |
| HLA-A*11:01 | 1 | 969 | 977 | 9 | NFGAISSVL | 2.8e-05 | 33 |
| HLA-B*53:01 | 1 | 970 | 978 | 9 | FGAISSVLN | 2.8e-05 | 36 |
| HLA-B*58:01 | 1 | 978 | 987 | 10 | NDILSRDLKV | 2.8e-05 | 56 |
| HLA-A*31:01 | 1 | 980 | 988 | 9 | ILSRDLKVE | 2.8e-05 | 53 |
| HLA-A*26:01 | 1 | 983 | 992 | 10 | RLDKVEAEVQ | 2.8e-05 | 45 |
| HLA-B*51:01 | 1 | 984 | 992 | 9 | LDKVEAEVQ | 2.8e-05 | 61 |
| HLA-B*44:02 | 1 | 990 | 998 | 9 | EVQIDRLIT | 2.8e-05 | 38 |
| HLA-A*03:01 | 1 | 994 | 1002 | 9 | DRLITGRLQ | 2.8e-05 | 45 |
| HLA-B*40:01 | 1 | 1011 | 1019 | 9 | QLIRAAEIR | 2.8e-05 | 31 |
| HLA-B*44:02 | 1 | 1011 | 1020 | 10 | QLIRAAEIRA | 2.8e-05 | 38 |
| HLA-A*03:01 | 1 | 1013 | 1021 | 9 | IRAAEIRAS | 2.8e-05 | 45 |
| HLA-A*03:01 | 1 | 1014 | 1023 | 10 | RAAEIRASAN | 2.8e-05 | 45 |
| HLA-A*01:01 | 1 | 1022 | 1030 | 9 | ANLAATKMS | 2.8e-05 | 73 |
| HLA-A*03:01 | 1 | 1023 | 1032 | 10 | NLAATKMSEC | 2.8e-05 | 45 |
| HLA-B*44:02 | 1 | 1028 | 1036 | 9 | KMSECVLGQ | 2.8e-05 | 38 |
| HLA-A*31:01 | 1 | 1068 | 1077 | 10 | VPAQEKNF | 2.8e-05 | 53 |
| HLA-B*40:01 | 1 | 1068 | 1077 | 10 | VPAQEKNF | 2.8e-05 | 31 |
| HLA-B*15:01 | 1 | 1073 | 1082 | 10 | KNFTTAPAIC | 2.8e-05 | 51 |
| HLA-B*51:01 | 1 | 1076 | 1085 | 10 | TTAPAICHDG | 2.8e-05 | 61 |
| HLA-A*32:01 | 1 | 1077 | 1086 | 10 | TAPAICHDGK | 2.8e-05 | 39 |
| HLA-B*08:01 | 1 | 1079 | 1087 | 9 | PAICHDGKA | 2.8e-05 | 69 |
| HLA-A*02:06 | 1 | 1082 | 1091 | 10 | CHDGKAHFPR | 2.8e-05 | 61 |
| HLA-B*51:01 | 1 | 1083 | 1091 | 9 | HDGKAHFPR | 2.8e-05 | 61 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*02:03 | 1 | 1091 | 1100 | 10 | REGVSVSNGT 2.8e-05 | 54 |
| HLA-B*58:01 | 1 | 1091 | 1100 | 10 | REGVSVSNGT 2.8e-05 | 56 |
| HLA-B*15:01 | 1 | 1099 | 1108 | 10 | GTHWFVTQRN 2.8e-05 | 51 |
| HLA-B*57:01 | 1 | 1109 | 1118 | 10 | FYEPQIITTD 2.8e-05 | 68 |
| HLA-B*44:03 | 1 | 1116 | 1124 | 9 | TTDNTFVSG 2.8e-05 | 36 |
| HLA-B*44:03 | 1 | 1128 | 1136 | 9 | VVIGIVNNT 2.8e-05 | 36 |
| HLA-B*57:01 | 1 | 1131 | 1139 | 9 | GIVNNTVYD 2.8e-05 | 68 |
| HLA-A*30:02 | 1 | 1142 | 1151 | 10 | QPELDSFKEE 2.8e-05 | 76 |
| HLA-B*58:01 | 1 | 1142 | 1150 | 9 | QPELDSFKEE 2.8e-05 | 56 |
| HLA-B*58:01 | 1 | 1142 | 1151 | 10 | QPELDSFKEE 2.8e-05 | 56 |
| HLA-A*30:01 | 1 | 1143 | 1151 | 9 | PELDSFKEE 2.8e-05 | 78 |
| HLA-B*57:01 | 1 | 1144 | 1153 | 10 | ELDSFKEELD 2.8e-05 | 68 |
| HLA-A*31:01 | 1 | 1151 | 1160 | 10 | ELDKYFKNHT 2.8e-05 | 53 |
| HLA-A*68:01 | 1 | 1152 | 1160 | 9 | LDKYFKNHT 2.8e-05 | 46 |
| HLA-B*35:01 | 1 | 1155 | 1164 | 10 | YFKNHTSPDV 2.8e-05 | 37 |
| HLA-A*03:01 | 1 | 1158 | 1166 | 9 | NHTSPDVDL 2.8e-05 | 45 |
| HLA-A*02:01 | 1 | 1159 | 1168 | 10 | HTSPDVDLGD 2.8e-05 | 50 |
| HLA-B*44:03 | 1 | 1165 | 1174 | 10 | DLGDISGINA 2.8e-05 | 36 |
| HLA-B*57:01 | 1 | 1165 | 1174 | 10 | DLGDISGINA 2.8e-05 | 68 |
| HLA-A*11:01 | 1 | 1166 | 1174 | 9 | LGDISGINA 2.8e-05 | 33 |
| HLA-A*68:01 | 1 | 1169 | 1177 | 9 | ISGINASVV 2.8e-05 | 46 |
| HLA-B*57:01 | 1 | 1187 | 1196 | 10 | NEVAKNLNES 2.8e-05 | 68 |
| HLA-A*03:01 | 1 | 1190 | 1198 | 9 | AKNLNESLI 2.8e-05 | 45 |
| HLA-B*44:02 | 1 | 1192 | 1201 | 10 | NLNESLIDLQ 2.8e-05 | 38 |
| HLA-A*11:01 | 1 | 1194 | 1202 | 9 | NESLIDLQE 2.8e-05 | 33 |
| HLA-A*23:01 | 1 | 1197 | 1206 | 10 | LIDLQELGKY 2.8e-05 | 34 |
| HLA-B*58:01 | 1 | 1198 | 1207 | 10 | IDLQELGKYE 2.8e-05 | 56 |
| HLA-A*02:01 | 1 | 1203 | 1211 | 9 | LGKYEQYIK 2.8e-05 | 50 |
| HLA-A*26:01 | 1 | 1203 | 1211 | 9 | LGKYEQYIK 2.8e-05 | 45 |
| HLA-B*44:03 | 1 | 1209 | 1218 | 10 | YIKWPWYIWL 2.8e-05 | 36 |
| HLA-B*44:02 | 1 | 1220 | 1228 | 9 | FIAGLIAIV 2.8e-05 | 38 |
| HLA-B*44:03 | 1 | 1222 | 1230 | 9 | AGLIAIVMV 2.8e-05 | 36 |
| HLA-B*51:01 | 1 | 1226 | 1235 | 10 | AIVMTIMLC 2.8e-05 | 61 |
| HLA-B*53:01 | 1 | 1237 | 1245 | 9 | MTSCCCLK 2.8e-05 | 36 |
| HLA-A*33:01 | 1 | 1246 | 1255 | 10 | GCCSCGSCCK 2.8e-05 | 56 |
| HLA-B*15:01 | 1 | 1255 | 1263 | 9 | KFDEDDSEP 2.8e-05 | 51 |
| HLA-B*15:01 | 1 | 1255 | 1264 | 10 | KFDEDDSEPV 2.8e-05 | 51 |
| HLA-A*02:01 | 1 | 1258 | 1266 | 9 | EDDSEPVLK 2.8e-05 | 50 |
| HLA-B*58:01 | 1 | 1259 | 1267 | 9 | DDSEPVKLG 2.8e-05 | 56 |
| HLA-A*02:03 | 1 | 1262 | 1271 | 10 | EPVLKGVKLN 2.8e-05 | 54 |
| HLA-A*01:01 | 1 | 1265 | 1273 | 9 | LKGVKLHYT 2.8e-05 | 73 |
| HLA-A*32:01 | 1 | 4 | 13 | 10 | FLVLLPLVSS 2.7e-05 | 40 |
| HLA-B*53:01 | 1 | 6 | 15 | 10 | VLLPLVSSQC 2.7e-05 | 37 |
| HLA-A*33:01 | 1 | 10 | 19 | 10 | LVSSQCVNLT 2.7e-05 | 56 |
| HLA-A*02:01 | 1 | 14 | 23 | 10 | QCVNLTRTQ 2.7e-05 | 51 |
| HLA-B*35:01 | 1 | 14 | 23 | 10 | QCVNLTRTQ 2.7e-05 | 38 |
| HLA-A*33:01 | 1 | 16 | 25 | 10 | VNLTRTQLP 2.7e-05 | 56 |
| HLA-A*30:01 | 1 | 25 | 33 | 9 | PPAYTNSFT 2.7e-05 | 78 |
| HLA-A*02:06 | 1 | 39 | 47 | 9 | PDKVFRSSV 2.7e-05 | 62 |
| HLA-A*02:03 | 1 | 45 | 53 | 9 | SSVLHSTQD 2.7e-05 | 54 |
| HLA-A*31:01 | 1 | 52 | 61 | 10 | QDLFLPFFSN 2.7e-05 | 53 |
| HLA-B*07:02 | 1 | 62 | 71 | 10 | VTWFHAIHVS 2.7e-05 | 50 |
| HLA-B*57:01 | 1 | 64 | 72 | 9 | WFHAIHVS 2.7e-05 | 68 |
| HLA-A*68:02 | 1 | 67 | 75 | 9 | AIHVSNGTNG 2.7e-05 | 53 |
| HLA-B*44:02 | 1 | 67 | 76 | 10 | AIHVSNGTNG 2.7e-05 | 39 |
| HLA-A*26:01 | 1 | 68 | 76 | 9 | IHVSGTNGT 2.7e-05 | 46 |
| HLA-A*02:01 | 1 | 70 | 79 | 10 | VSGTNGTKRF 2.7e-05 | 51 |
| HLA-B*53:01 | 1 | 75 | 84 | 10 | GTRKRFNDPVL 2.7e-05 | 37 |
| HLA-A*31:01 | 1 | 79 | 87 | 9 | FDNPVLPFN 2.7e-05 | 53 |
| HLA-A*30:01 | 1 | 81 | 89 | 9 | NPVLPFNDG 2.7e-05 | 78 |
| HLA-A*11:01 | 1 | 82 | 90 | 9 | PVLPFNDGV 2.7e-05 | 34 |
| HLA-B*57:01 | 1 | 86 | 95 | 10 | FNDGVYFAST 2.7e-05 | 68 |
| HLA-B*58:01 | 1 | 86 | 94 | 9 | FNDGVYFAS 2.7e-05 | 56 |
| HLA-A*24:02 | 1 | 88 | 97 | 10 | DGVYFAST 2.7e-05 | 33 |
| HLA-A*31:01 | 1 | 95 | 103 | 9 | TEKSNIIRG 2.7e-05 | 53 |
| HLA-A*24:02 | 1 | 98 | 107 | 10 | SNIIRGWIFG 2.7e-05 | 33 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*26:01 | 1 | 101 | 109 | 9 | IRGWIFGTT | 2.7e-05 | 46 |
| HLA-B*07:02 | 1 | 107 | 115 | 9 | GTTLDSKTQ | 2.7e-05 | 50 |
| HLA-B*44:02 | 1 | 111 | 120 | 10 | DSKTQSLIV | 2.7e-05 | 39 |
| HLA-B*15:01 | 1 | 116 | 125 | 10 | SLLVNNTATN | 2.7e-05 | 51 |
| HLA-A*31:01 | 1 | 118 | 127 | 10 | LIVNNTNVV | 2.7e-05 | 53 |
| HLA-B*40:01 | 1 | 119 | 128 | 10 | IVNNTNVVI | 2.7e-05 | 32 |
| HLA-A*01:01 | 1 | 124 | 132 | 9 | TNVVIKVCE | 2.7e-05 | 74 |
| HLA-A*11:01 | 1 | 125 | 134 | 10 | NVVIKVCEFQ | 2.7e-05 | 34 |
| HLA-A*30:01 | 1 | 130 | 139 | 10 | VCEFQFCNDP | 2.7e-05 | 78 |
| HLA-B*07:02 | 1 | 131 | 140 | 10 | CEFQFCNDPF | 2.7e-05 | 50 |
| HLA-B*44:03 | 1 | 133 | 142 | 10 | FQFCNDPFLG | 2.7e-05 | 36 |
| HLA-A*02:01 | 1 | 137 | 145 | 9 | NDPFLGVYY | 2.7e-05 | 51 |
| HLA-A*02:01 | 1 | 141 | 150 | 10 | LGVYYHKNNK | 2.7e-05 | 51 |
| HLA-B*44:03 | 1 | 146 | 154 | 9 | HKNNKSWME | 2.7e-05 | 36 |
| HLA-B*58:01 | 1 | 146 | 154 | 9 | HKNNKSWME | 2.7e-05 | 56 |
| HLA-A*11:01 | 1 | 154 | 162 | 9 | ESEFRVYSS | 2.7e-05 | 34 |
| HLA-A*11:01 | 1 | 154 | 163 | 10 | ESEFRVYSSA | 2.7e-05 | 34 |
| HLA-B*35:01 | 1 | 159 | 167 | 9 | VYSSANNCT | 2.7e-05 | 38 |
| HLA-B*07:02 | 1 | 160 | 169 | 10 | YSSANNCTFE | 2.7e-05 | 50 |
| HLA-A*02:01 | 1 | 161 | 169 | 9 | SSANNCTFE | 2.7e-05 | 51 |
| HLA-A*68:01 | 1 | 164 | 172 | 9 | NNCTFEYVS | 2.7e-05 | 47 |
| HLA-A*30:01 | 1 | 173 | 181 | 9 | QPFLMDLEG | 2.7e-05 | 78 |
| HLA-A*30:01 | 1 | 174 | 183 | 10 | PFLMDLEGKQ | 2.7e-05 | 78 |
| HLA-B*08:01 | 1 | 177 | 185 | 9 | MDLEGKQGN | 2.7e-05 | 69 |
| HLA-B*57:01 | 1 | 177 | 185 | 9 | MDLEGKQGN | 2.7e-05 | 68 |
| HLA-A*11:01 | 1 | 181 | 189 | 9 | GKQGNFKNL | 2.7e-05 | 34 |
| HLA-A*02:01 | 1 | 182 | 191 | 10 | KQGNFKNLRE | 2.7e-05 | 51 |
| HLA-A*32:01 | 1 | 182 | 191 | 10 | KQGNFKNLRE | 2.7e-05 | 40 |
| HLA-B*15:01 | 1 | 183 | 191 | 9 | QGNFKNLRE | 2.7e-05 | 51 |
| HLA-B*44:03 | 1 | 183 | 191 | 9 | QGNFKNLRE | 2.7e-05 | 36 |
| HLA-A*02:06 | 1 | 199 | 208 | 10 | GYFKIYSKHT | 2.7e-05 | 62 |
| HLA-A*02:01 | 1 | 200 | 208 | 9 | YFKIYSKHT | 2.7e-05 | 51 |
| HLA-A*01:01 | 1 | 203 | 211 | 9 | IYSKHTPIN | 2.7e-05 | 74 |
| HLA-B*44:02 | 1 | 212 | 221 | 10 | LVRDLPQGF | 2.7e-05 | 39 |
| HLA-A*68:02 | 1 | 220 | 228 | 9 | FSALEPLVD | 2.7e-05 | 53 |
| HLA-B*53:01 | 1 | 222 | 230 | 9 | ALEPLVDLP | 2.7e-05 | 37 |
| HLA-A*68:01 | 1 | 225 | 233 | 9 | PLVDLPIGI | 2.7e-05 | 47 |
| HLA-B*07:02 | 1 | 242 | 251 | 10 | LALHRSYLTP | 2.7e-05 | 50 |
| HLA-A*68:02 | 1 | 245 | 254 | 10 | HRSYLTPGDS | 2.7e-05 | 53 |
| HLA-B*07:02 | 1 | 245 | 254 | 10 | HRSYLTPGDS | 2.7e-05 | 50 |
| HLA-B*40:01 | 1 | 249 | 258 | 10 | LTPGDSSSGW | 2.7e-05 | 32 |
| HLA-A*32:01 | 1 | 250 | 259 | 10 | TPGDSSSGWT | 2.7e-05 | 40 |
| HLA-A*03:01 | 1 | 253 | 262 | 10 | DSSSGWTAGA | 2.7e-05 | 46 |
| HLA-B*35:01 | 1 | 261 | 270 | 10 | GAAAYVGYL | 2.7e-05 | 38 |
| HLA-A*02:01 | 1 | 280 | 288 | 9 | NENGTITDA | 2.7e-05 | 51 |
| HLA-B*44:02 | 1 | 287 | 296 | 10 | DAVDCALDPL | 2.7e-05 | 39 |
| HLA-A*30:02 | 1 | 294 | 302 | 9 | DPLSETKCT | 2.7e-05 | 76 |
| HLA-A*31:01 | 1 | 294 | 303 | 10 | DPLSETKCTL | 2.7e-05 | 53 |
| HLA-A*02:03 | 1 | 296 | 304 | 9 | LSETKCTLK | 2.7e-05 | 54 |
| HLA-A*02:01 | 1 | 300 | 309 | 10 | KCTLKSFTVE | 2.7e-05 | 51 |
| HLA-A*24:02 | 1 | 313 | 322 | 10 | YQTSNFRVQP | 2.7e-05 | 33 |
| HLA-B*40:01 | 1 | 316 | 325 | 10 | SNFRVQPTE | 2.7e-05 | 32 |
| HLA-A*30:02 | 1 | 329 | 337 | 9 | FPNITNLCP | 2.7e-05 | 76 |
| HLA-A*01:01 | 1 | 336 | 345 | 10 | CPFGEVFNAT | 2.7e-05 | 74 |
| HLA-A*68:01 | 1 | 341 | 350 | 10 | VFNATRFASV | 2.7e-05 | 47 |
| HLA-B*07:02 | 1 | 346 | 355 | 10 | RFASVYAWN | 2.7e-05 | 50 |
| HLA-B*15:01 | 1 | 346 | 355 | 10 | RFASVYAWN | 2.7e-05 | 51 |
| HLA-A*02:01 | 1 | 347 | 356 | 10 | FASVYAWNRK | 2.7e-05 | 51 |
| HLA-B*07:02 | 1 | 348 | 356 | 9 | ASVYAWNRK | 2.7e-05 | 50 |
| HLA-B*35:01 | 1 | 348 | 356 | 9 | ASVYAWNRK | 2.7e-05 | 38 |
| HLA-A*02:01 | 1 | 350 | 358 | 9 | VYAWNRKRI | 2.7e-05 | 51 |
| HLA-A*01:01 | 1 | 352 | 360 | 9 | AWNKRKRIS | 2.7e-05 | 74 |
| HLA-B*51:01 | 1 | 356 | 365 | 10 | KRISNCVADY | 2.7e-05 | 61 |
| HLA-A*68:02 | 1 | 357 | 365 | 9 | RISNCVADY | 2.7e-05 | 53 |
| HLA-A*11:01 | 1 | 364 | 372 | 9 | DYSVLYNSA | 2.7e-05 | 34 |
| HLA-A*31:01 | 1 | 365 | 373 | 9 | YSVLYNSAS | 2.7e-05 | 53 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-B*07:02 | 1 | 370 | 379 | 10 | NSASFSTFKC | 2.7e-05 | 50 |
| HLA-A*11:01 | 1 | 374 | 382 | 9 | FSTFKCYGV | 2.7e-05 | 34 |
| HLA-B*08:01 | 1 | 375 | 383 | 9 | STFKCYGVS | 2.7e-05 | 69 |
| HLA-A*02:01 | 1 | 376 | 384 | 9 | TFKCYGVSP | 2.7e-05 | 51 |
| HLA-A*11:01 | 1 | 379 | 387 | 9 | CYGVSPTKL | 2.7e-05 | 34 |
| HLA-A*33:01 | 1 | 379 | 388 | 10 | CYGVSPTKLN | 2.7e-05 | 56 |
| HLA-A*23:01 | 1 | 386 | 394 | 9 | KLNDLCFTN | 2.7e-05 | 34 |
| HLA-B*44:02 | 1 | 387 | 395 | 9 | LNDLCFTNV | 2.7e-05 | 39 |
| HLA-A*24:02 | 1 | 391 | 399 | 9 | CFTNVYADS | 2.7e-05 | 33 |
| HLA-B*08:01 | 1 | 395 | 404 | 10 | VYADSFVIRG | 2.7e-05 | 69 |
| HLA-A*26:01 | 1 | 405 | 413 | 9 | DEVQRQIAPG | 2.7e-05 | 46 |
| HLA-A*23:01 | 1 | 407 | 416 | 10 | VRQIAPGQTG | 2.7e-05 | 34 |
| HLA-A*11:01 | 1 | 410 | 418 | 9 | IAPGQTGKI | 2.7e-05 | 34 |
| HLA-B*58:01 | 1 | 421 | 430 | 10 | YNYKLPDDFT | 2.7e-05 | 56 |
| HLA-A*23:01 | 1 | 425 | 434 | 10 | LPDDFTGCVI | 2.7e-05 | 34 |
| HLA-B*53:01 | 1 | 426 | 434 | 9 | PDDFTGCVI | 2.7e-05 | 37 |
| HLA-A*24:02 | 1 | 427 | 435 | 9 | DDFTGCVIA | 2.7e-05 | 33 |
| HLA-A*11:01 | 1 | 428 | 436 | 9 | DFTGCVIAW | 2.7e-05 | 34 |
| HLA-B*08:01 | 1 | 437 | 446 | 10 | NSNNLDSKVG | 2.7e-05 | 69 |
| HLA-A*68:02 | 1 | 445 | 453 | 9 | VGGNYNYLY | 2.7e-05 | 53 |
| HLA-B*44:03 | 1 | 448 | 457 | 10 | NYNYLYRLLFR | 2.7e-05 | 36 |
| HLA-B*35:01 | 1 | 455 | 463 | 9 | LFRKSNLKP | 2.7e-05 | 38 |
| HLA-B*07:02 | 1 | 456 | 465 | 10 | FRKSNLKPFE | 2.7e-05 | 50 |
| HLA-B*58:01 | 1 | 465 | 474 | 10 | ERDISTEIQ | 2.7e-05 | 56 |
| HLA-B*35:01 | 1 | 466 | 474 | 9 | RDISTEIQ | 2.7e-05 | 38 |
| HLA-A*02:06 | 1 | 476 | 484 | 9 | GSTPCNGVE | 2.7e-05 | 62 |
| HLA-A*68:01 | 1 | 476 | 484 | 9 | GSTPCNGVE | 2.7e-05 | 47 |
| HLA-A*68:02 | 1 | 478 | 487 | 10 | TPCNGVEGFN | 2.7e-05 | 53 |
| HLA-A*03:01 | 1 | 491 | 499 | 9 | PLQSYGFQP | 2.7e-05 | 46 |
| HLA-A*23:01 | 1 | 493 | 501 | 9 | QSYGFQPTN | 2.7e-05 | 34 |
| HLA-A*11:01 | 1 | 501 | 510 | 10 | NGVGYPYRV | 2.7e-05 | 34 |
| HLA-B*53:01 | 1 | 501 | 510 | 10 | NGVGYPYRV | 2.7e-05 | 37 |
| HLA-B*44:03 | 1 | 503 | 512 | 10 | VGYPYRVVV | 2.7e-05 | 36 |
| HLA-A*68:01 | 1 | 504 | 513 | 10 | GYQPYRVVVL | 2.7e-05 | 47 |
| HLA-A*11:01 | 1 | 508 | 517 | 10 | YRVVLSFEL | 2.7e-05 | 34 |
| HLA-B*40:01 | 1 | 512 | 521 | 10 | VLSFELLHAP | 2.7e-05 | 32 |
| HLA-A*68:01 | 1 | 515 | 524 | 10 | FELLHAPATV | 2.7e-05 | 47 |
| HLA-A*24:02 | 1 | 517 | 525 | 9 | LLHAPATVC | 2.7e-05 | 33 |
| HLA-A*31:01 | 1 | 519 | 527 | 9 | HAPATVCGP | 2.7e-05 | 53 |
| HLA-A*32:01 | 1 | 520 | 528 | 9 | APATVCGPK | 2.7e-05 | 40 |
| HLA-A*30:01 | 1 | 521 | 530 | 10 | PATVCGPKKS | 2.7e-05 | 78 |
| HLA-A*02:03 | 1 | 526 | 535 | 10 | GPKKSTNLVK | 2.7e-05 | 54 |
| HLA-A*23:01 | 1 | 541 | 549 | 9 | FNFNGLTGT | 2.7e-05 | 34 |
| HLA-A*26:01 | 1 | 547 | 555 | 9 | TGTGVLTES | 2.7e-05 | 46 |
| HLA-B*44:02 | 1 | 549 | 557 | 9 | TGVLTESNK | 2.7e-05 | 39 |
| HLA-A*02:03 | 1 | 553 | 561 | 9 | TESNKKFLP | 2.7e-05 | 54 |
| HLA-B*53:01 | 1 | 554 | 563 | 10 | ESNKKFLPFQ | 2.7e-05 | 37 |
| HLA-A*68:02 | 1 | 563 | 571 | 9 | QQFGRDIAD | 2.7e-05 | 53 |
| HLA-B*58:01 | 1 | 563 | 572 | 10 | QQFGRDIADT | 2.7e-05 | 56 |
| HLA-A*24:02 | 1 | 564 | 572 | 9 | QFGRDIADT | 2.7e-05 | 33 |
| HLA-B*15:01 | 1 | 564 | 573 | 10 | QFGRDIADTT | 2.7e-05 | 51 |
| HLA-B*51:01 | 1 | 571 | 580 | 10 | DTTDAVRDPQ | 2.7e-05 | 61 |
| HLA-B*58:01 | 1 | 571 | 580 | 10 | DTTDAVRDPQ | 2.7e-05 | 56 |
| HLA-A*32:01 | 1 | 581 | 589 | 9 | TLEILDITP | 2.7e-05 | 40 |
| HLA-B*57:01 | 1 | 592 | 601 | 10 | FGGVSVITPG | 2.7e-05 | 68 |
| HLA-B*44:03 | 1 | 597 | 605 | 9 | VITPGTNTS | 2.7e-05 | 36 |
| HLA-A*23:01 | 1 | 600 | 608 | 9 | PGTNTSNQV | 2.7e-05 | 34 |
| HLA-B*53:01 | 1 | 601 | 609 | 9 | GTNTSNQVA | 2.7e-05 | 37 |
| HLA-A*02:06 | 1 | 605 | 613 | 9 | SNQVAVLYQ | 2.7e-05 | 62 |
| HLA-B*44:03 | 1 | 606 | 614 | 9 | NQVAVLYQD | 2.7e-05 | 36 |
| HLA-A*11:01 | 1 | 609 | 618 | 10 | AVLYQDVNCT | 2.7e-05 | 34 |
| HLA-A*68:02 | 1 | 612 | 621 | 10 | YQDVNCTEVP | 2.7e-05 | 53 |
| HLA-B*57:01 | 1 | 612 | 621 | 10 | YQDVNCTEVP | 2.7e-05 | 68 |
| HLA-A*30:02 | 1 | 613 | 621 | 9 | QDVNCTEVP | 2.7e-05 | 76 |
| HLA-B*35:01 | 1 | 617 | 626 | 10 | CTEVPVAIHA | 2.7e-05 | 38 |
| HLA-A*11:01 | 1 | 620 | 629 | 10 | VPVAIHADQL | 2.7e-05 | 34 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*26:01 | 1 | 640 | 648 | 9 | SNVFQTRAG | 2.7e-05 | 46 |
| HLA-B*44:03 | 1 | 641 | 649 | 9 | NVFQTRAGC | 2.7e-05 | 36 |
| HLA-B*44:03 | 1 | 641 | 650 | 10 | NVFQTRAGCL | 2.7e-05 | 36 |
| HLA-B*08:01 | 1 | 643 | 652 | 10 | FQTRAGCLIG | 2.7e-05 | 69 |
| HLA-A*30:02 | 1 | 645 | 654 | 10 | TRAGCLIGAE | 2.7e-05 | 76 |
| HLA-B*53:01 | 1 | 652 | 661 | 10 | GAEHVNNSYE | 2.7e-05 | 37 |
| HLA-A*31:01 | 1 | 654 | 662 | 9 | EHVNNSYEC | 2.7e-05 | 53 |
| HLA-B*53:01 | 1 | 657 | 666 | 10 | NNSYECDIPI | 2.7e-05 | 37 |
| HLA-A*03:01 | 1 | 661 | 670 | 10 | ECDIPIGAGI | 2.7e-05 | 46 |
| HLA-A*01:01 | 1 | 663 | 671 | 9 | DIPIGAGIC | 2.7e-05 | 74 |
| HLA-A*68:02 | 1 | 665 | 674 | 10 | PIGAGICASY | 2.7e-05 | 53 |
| HLA-B*44:02 | 1 | 670 | 678 | 9 | ICASYQTQT | 2.7e-05 | 39 |
| HLA-B*15:01 | 1 | 671 | 680 | 10 | CASYQTQTNS | 2.7e-05 | 51 |
| HLA-B*58:01 | 1 | 678 | 686 | 9 | TNSPRRARS | 2.7e-05 | 56 |
| HLA-B*53:01 | 1 | 679 | 688 | 10 | NSPRRARSVA | 2.7e-05 | 37 |
| HLA-A*02:01 | 1 | 693 | 702 | 10 | IAYTMSLGAE | 2.7e-05 | 51 |
| HLA-A*32:01 | 1 | 695 | 704 | 10 | YTMSLGAENS | 2.7e-05 | 40 |
| HLA-A*26:01 | 1 | 707 | 716 | 10 | YSNNSIAIPT | 2.7e-05 | 46 |
| HLA-A*11:01 | 1 | 710 | 719 | 10 | NSIAIPTNFT | 2.7e-05 | 34 |
| HLA-A*23:01 | 1 | 711 | 719 | 9 | SIAIPTNFT | 2.7e-05 | 34 |
| HLA-A*33:01 | 1 | 727 | 735 | 9 | LPVSMTKTS | 2.7e-05 | 56 |
| HLA-B*53:01 | 1 | 730 | 738 | 9 | SMTKTSVDC | 2.7e-05 | 37 |
| HLA-B*53:01 | 1 | 731 | 739 | 9 | MTKTSVDCT | 2.7e-05 | 37 |
| HLA-B*58:01 | 1 | 739 | 748 | 10 | TMYICGDSTE | 2.7e-05 | 56 |
| HLA-A*68:01 | 1 | 741 | 750 | 10 | YICGDSTECS | 2.7e-05 | 47 |
| HLA-A*68:02 | 1 | 747 | 755 | 9 | TECSNLLLQ | 2.7e-05 | 53 |
| HLA-A*03:01 | 1 | 748 | 757 | 10 | ECSNLLLQYG | 2.7e-05 | 46 |
| HLA-B*57:01 | 1 | 753 | 761 | 9 | LLQYGSFCT | 2.7e-05 | 68 |
| HLA-A*68:02 | 1 | 761 | 769 | 9 | TQLNRALTG | 2.7e-05 | 53 |
| HLA-A*11:01 | 1 | 764 | 772 | 9 | NRALTGIIV | 2.7e-05 | 34 |
| HLA-A*02:01 | 1 | 768 | 776 | 9 | TGIAVEQDK | 2.7e-05 | 51 |
| HLA-B*53:01 | 1 | 775 | 783 | 9 | DKNTQEVFA | 2.7e-05 | 37 |
| HLA-A*26:01 | 1 | 776 | 784 | 9 | KNTQEVFAQ | 2.7e-05 | 46 |
| HLA-A*24:02 | 1 | 777 | 786 | 10 | NTQEVFAQVK | 2.7e-05 | 33 |
| HLA-A*33:01 | 1 | 789 | 798 | 10 | YKTPPIKDFG | 2.7e-05 | 56 |
| HLA-A*24:02 | 1 | 795 | 803 | 9 | KDFGGFNFS | 2.7e-05 | 33 |
| HLA-B*44:02 | 1 | 801 | 809 | 9 | NFSQILPDP | 2.7e-05 | 39 |
| HLA-B*58:01 | 1 | 801 | 809 | 9 | NFSQILPDP | 2.7e-05 | 56 |
| HLA-A*33:01 | 1 | 809 | 818 | 10 | PSKPSKRSFI | 2.7e-05 | 56 |
| HLA-B*35:01 | 1 | 810 | 818 | 9 | SKPSKRSFI | 2.7e-05 | 38 |
| HLA-B*58:01 | 1 | 812 | 820 | 9 | PSKRSFIED | 2.7e-05 | 56 |
| HLA-B*44:03 | 1 | 817 | 825 | 9 | FIEDLLFNK | 2.7e-05 | 36 |
| HLA-B*07:02 | 1 | 826 | 835 | 10 | VTLADAGFIK | 2.7e-05 | 50 |
| HLA-A*32:01 | 1 | 828 | 836 | 9 | LADAGFIKQ | 2.7e-05 | 40 |
| HLA-B*57:01 | 1 | 833 | 842 | 10 | FIKQYGDCLG | 2.7e-05 | 68 |
| HLA-A*26:01 | 1 | 836 | 844 | 9 | QYGDCLGDI | 2.7e-05 | 46 |
| HLA-B*51:01 | 1 | 848 | 856 | 9 | DLICAQKFN | 2.7e-05 | 61 |
| HLA-A*02:01 | 1 | 851 | 859 | 9 | CAQKFNGLT | 2.7e-05 | 51 |
| HLA-A*11:01 | 1 | 875 | 883 | 9 | SALLAGTIT | 2.7e-05 | 34 |
| HLA-A*26:01 | 1 | 875 | 884 | 10 | SALLAGTITS | 2.7e-05 | 46 |
| HLA-B*07:02 | 1 | 876 | 885 | 10 | ALLAGTITSG | 2.7e-05 | 50 |
| HLA-B*35:01 | 1 | 888 | 897 | 10 | FGAGAALQIP | 2.7e-05 | 38 |
| HLA-B*15:01 | 1 | 899 | 908 | 10 | AMQMAYRFNG | 2.7e-05 | 51 |
| HLA-B*08:01 | 1 | 906 | 914 | 9 | FNGIGVTQN | 2.7e-05 | 69 |
| HLA-B*58:01 | 1 | 916 | 924 | 9 | LYENQKLI | 2.7e-05 | 56 |
| HLA-B*40:01 | 1 | 921 | 930 | 10 | KLIANQFN | 2.7e-05 | 32 |
| HLA-B*44:03 | 1 | 927 | 935 | 9 | FNSAIGKIQ | 2.7e-05 | 36 |
| HLA-A*03:01 | 1 | 934 | 943 | 10 | IQDLSSTAS | 2.7e-05 | 46 |
| HLA-B*57:01 | 1 | 934 | 943 | 10 | IQDLSSTAS | 2.7e-05 | 68 |
| HLA-B*40:01 | 1 | 948 | 957 | 10 | LQDVVNQNAQ | 2.7e-05 | 32 |
| HLA-B*57:01 | 1 | 952 | 960 | 9 | VNQAQALN | 2.7e-05 | 68 |
| HLA-B*57:01 | 1 | 952 | 961 | 10 | VNQAQALNT | 2.7e-05 | 68 |
| HLA-B*58:01 | 1 | 952 | 961 | 10 | VNQAQALNT | 2.7e-05 | 56 |
| HLA-A*11:01 | 1 | 959 | 968 | 10 | LNTLVKQLSS | 2.7e-05 | 34 |
| HLA-A*02:03 | 1 | 960 | 969 | 10 | NTLVKQLSS | 2.7e-05 | 54 |
| HLA-B*53:01 | 1 | 971 | 979 | 9 | GAISSVLND | 2.7e-05 | 37 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*33:01 | 1 | 976 | 985 | 10 | VLNDILSRDL | 2.7e-05 | 56 |
| HLA-A*68:02 | 1 | 981 | 990 | 10 | LSRLDKVEAE | 2.7e-05 | 53 |
| HLA-B*08:01 | 1 | 985 | 994 | 10 | DKVEAEVQID | 2.7e-05 | 69 |
| HLA-A*11:01 | 1 | 988 | 996 | 9 | EAEVQIDRL | 2.7e-05 | 34 |
| HLA-A*68:01 | 1 | 993 | 1002 | 10 | IDRLITGRLQ | 2.7e-05 | 47 |
| HLA-B*44:03 | 1 | 993 | 1002 | 10 | IDRLITGRLQ | 2.7e-05 | 36 |
| HLA-B*15:01 | 1 | 994 | 1003 | 10 | DRLITGRLQS | 2.7e-05 | 51 |
| HLA-A*02:03 | 1 | 997 | 1005 | 9 | ITGRLQSLQ | 2.7e-05 | 54 |
| HLA-B*51:01 | 1 | 1000 | 1009 | 10 | RLQSLQTYVT | 2.7e-05 | 61 |
| HLA-A*68:01 | 1 | 1001 | 1009 | 9 | LQSLQTYVT | 2.7e-05 | 47 |
| HLA-B*35:01 | 1 | 1002 | 1011 | 10 | QSLQTYVTQQ | 2.7e-05 | 38 |
| HLA-A*23:01 | 1 | 1010 | 1019 | 10 | QLLIRAAEIR | 2.7e-05 | 34 |
| HLA-B*07:02 | 1 | 1010 | 1019 | 10 | QLLIRAAEIR | 2.7e-05 | 50 |
| HLA-B*53:01 | 1 | 1021 | 1030 | 10 | SANLAATKMS | 2.7e-05 | 37 |
| HLA-B*44:02 | 1 | 1025 | 1034 | 10 | AATKMSECVL | 2.7e-05 | 39 |
| HLA-B*08:01 | 1 | 1029 | 1038 | 10 | MSECVLGQSK | 2.7e-05 | 69 |
| HLA-A*32:01 | 1 | 1031 | 1040 | 10 | ECVLGQSKRV | 2.7e-05 | 40 |
| HLA-A*02:01 | 1 | 1034 | 1042 | 9 | LGQSKRVDF | 2.7e-05 | 51 |
| HLA-B*57:01 | 1 | 1038 | 1046 | 9 | KRVDFCGKG | 2.7e-05 | 68 |
| HLA-B*53:01 | 1 | 1045 | 1053 | 9 | KGYHLMSFP | 2.7e-05 | 37 |
| HLA-B*15:01 | 1 | 1047 | 1055 | 9 | YHLMSFPQS | 2.7e-05 | 51 |
| HLA-B*40:01 | 1 | 1063 | 1071 | 9 | LHVTYVPAQ | 2.7e-05 | 32 |
| HLA-A*31:01 | 1 | 1074 | 1082 | 9 | NFTTAPAIC | 2.7e-05 | 53 |
| HLA-B*44:02 | 1 | 1077 | 1086 | 10 | TAPAICHGDK | 2.7e-05 | 39 |
| HLA-B*40:01 | 1 | 1084 | 1092 | 9 | DGKAHFPRE | 2.7e-05 | 32 |
| HLA-A*02:01 | 1 | 1098 | 1106 | 9 | NGTHWFVTQ | 2.7e-05 | 51 |
| HLA-B*51:01 | 1 | 1112 | 1120 | 9 | PQIITTDNT | 2.7e-05 | 61 |
| HLA-A*11:01 | 1 | 1113 | 1122 | 10 | QIITTDNTFV | 2.7e-05 | 34 |
| HLA-A*32:01 | 1 | 1115 | 1124 | 10 | ITTDNTFVSG | 2.7e-05 | 40 |
| HLA-B*15:01 | 1 | 1120 | 1129 | 10 | TFVSGNCDVV | 2.7e-05 | 51 |
| HLA-A*03:01 | 1 | 1121 | 1129 | 9 | FVSGNCDVV | 2.7e-05 | 46 |
| HLA-B*35:01 | 1 | 1132 | 1140 | 9 | IVNNTVYDP | 2.7e-05 | 38 |
| HLA-A*24:02 | 1 | 1136 | 1144 | 9 | TVYDPLQPE | 2.7e-05 | 33 |
| HLA-A*01:01 | 1 | 1145 | 1153 | 9 | LDSFKEELD | 2.7e-05 | 74 |
| HLA-A*26:01 | 1 | 1145 | 1154 | 10 | LDSFKEELDK | 2.7e-05 | 46 |
| HLA-A*03:01 | 1 | 1148 | 1156 | 9 | FKEELDKYF | 2.7e-05 | 46 |
| HLA-B*53:01 | 1 | 1153 | 1161 | 9 | DKYFKNHTS | 2.7e-05 | 37 |
| HLA-A*03:01 | 1 | 1155 | 1164 | 10 | YFKNHTSPDV | 2.7e-05 | 46 |
| HLA-A*32:01 | 1 | 1155 | 1164 | 10 | YFKNHTSPDV | 2.7e-05 | 40 |
| HLA-A*33:01 | 1 | 1157 | 1166 | 10 | KNHTSPVDVL | 2.7e-05 | 56 |
| HLA-A*30:02 | 1 | 1160 | 1168 | 9 | TSPDVDLGD | 2.7e-05 | 76 |
| HLA-B*57:01 | 1 | 1167 | 1175 | 9 | GDISGINAS | 2.7e-05 | 68 |
| HLA-A*32:01 | 1 | 1177 | 1185 | 9 | VNIQKEIDR | 2.7e-05 | 40 |
| HLA-A*23:01 | 1 | 1179 | 1187 | 9 | IQKEIDRLN | 2.7e-05 | 34 |
| HLA-B*44:02 | 1 | 1186 | 1195 | 10 | LNEVAKNLNE | 2.7e-05 | 39 |
| HLA-A*26:01 | 1 | 1194 | 1202 | 9 | NESLIDLQE | 2.7e-05 | 46 |
| HLA-A*11:01 | 1 | 1196 | 1204 | 9 | SLIDLQELG | 2.7e-05 | 34 |
| HLA-A*02:01 | 1 | 1199 | 1208 | 10 | DLQELGKYEQ | 2.7e-05 | 51 |
| HLA-B*07:02 | 1 | 1199 | 1207 | 9 | DLQELGKYE | 2.7e-05 | 50 |
| HLA-B*07:02 | 1 | 1199 | 1208 | 10 | DLQELGKYEQ | 2.7e-05 | 50 |
| HLA-B*44:02 | 1 | 1215 | 1224 | 10 | YIWLGFIAGL | 2.7e-05 | 39 |
| HLA-B*53:01 | 1 | 1221 | 1230 | 10 | IAGLIAIVMV | 2.7e-05 | 37 |
| HLA-B*40:01 | 1 | 1223 | 1232 | 10 | GLIAIVMVTI | 2.7e-05 | 32 |
| HLA-B*44:03 | 1 | 1224 | 1232 | 9 | LIAIVMVTI | 2.7e-05 | 36 |
| HLA-A*33:01 | 1 | 1227 | 1236 | 10 | IVMVTIMLCC | 2.7e-05 | 56 |
| HLA-A*03:01 | 1 | 1231 | 1239 | 9 | TIMLCCMTS | 2.7e-05 | 46 |
| HLA-B*58:01 | 1 | 1241 | 1249 | 9 | CSCCLKGCCS | 2.7e-05 | 56 |
| HLA-A*23:01 | 1 | 1247 | 1256 | 10 | CSCSGCCKF | 2.7e-05 | 34 |
| HLA-A*02:01 | 1 | 1248 | 1256 | 9 | CSCSGCCKF | 2.7e-05 | 51 |
| HLA-B*07:02 | 1 | 1248 | 1256 | 9 | CSCSGCCKF | 2.7e-05 | 50 |
| HLA-A*68:01 | 1 | 1255 | 1264 | 10 | KFDEDDSEPV | 2.7e-05 | 47 |
| HLA-A*68:02 | 1 | 1258 | 1267 | 10 | EDDSEPVLKG | 2.7e-05 | 53 |
| HLA-B*40:01 | 1 | 1259 | 1267 | 9 | DDSEPVLKG | 2.7e-05 | 32 |
| HLA-A*11:01 | 1 | 4 | 13 | 10 | FLVLLPLVSS | 2.6e-05 | 34 |
| HLA-A*26:01 | 1 | 6 | 15 | 10 | VLLPLVSSQC | 2.6e-05 | 46 |
| HLA-A*30:02 | 1 | 9 | 17 | 9 | PLVSSQCVN | 2.6e-05 | 77 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*32:01 | 1 | 25 | 34 | 10 | PPAYTNSFTR | 2.6e-05 | 40 |
| HLA-A*23:01 | 1 | 26 | 35 | 10 | PAYTNSFTRG | 2.6e-05 | 35 |
| HLA-A*23:01 | 1 | 31 | 40 | 10 | SFTRGVYYPD | 2.6e-05 | 35 |
| HLA-A*24:02 | 1 | 31 | 40 | 10 | SFTRGVYYPD | 2.6e-05 | 33 |
| HLA-A*01:01 | 1 | 32 | 40 | 9 | FTRGVYYPD | 2.6e-05 | 74 |
| HLA-B*51:01 | 1 | 32 | 41 | 10 | FTRGVYYPDK | 2.6e-05 | 62 |
| HLA-B*58:01 | 1 | 37 | 46 | 10 | YYPDKVFRSS | 2.6e-05 | 57 |
| HLA-A*02:01 | 1 | 40 | 49 | 10 | DKVFRSSVLH | 2.6e-05 | 51 |
| HLA-A*02:03 | 1 | 40 | 49 | 10 | DKVFRSSVLH | 2.6e-05 | 55 |
| HLA-A*23:01 | 1 | 61 | 69 | 9 | NVTWFHAIH | 2.6e-05 | 35 |
| HLA-A*01:01 | 1 | 65 | 74 | 10 | FHAIHVSQTN | 2.6e-05 | 74 |
| HLA-A*24:02 | 1 | 70 | 78 | 9 | VSGTNGTKR | 2.6e-05 | 33 |
| HLA-B*08:01 | 1 | 71 | 80 | 10 | SGTNGTKRFD | 2.6e-05 | 70 |
| HLA-A*32:01 | 1 | 76 | 85 | 10 | TKRFDNPVLP | 2.6e-05 | 40 |
| HLA-A*31:01 | 1 | 86 | 94 | 9 | FNDGVYFAS | 2.6e-05 | 54 |
| HLA-A*30:02 | 1 | 88 | 96 | 9 | DGVYFASTE | 2.6e-05 | 77 |
| HLA-A*26:01 | 1 | 97 | 105 | 9 | KSNIIRGWI | 2.6e-05 | 46 |
| HLA-A*68:02 | 1 | 98 | 107 | 10 | SNIIRGWIFG | 2.6e-05 | 53 |
| HLA-B*51:01 | 1 | 98 | 107 | 10 | SNIIRGWIFG | 2.6e-05 | 62 |
| HLA-A*23:01 | 1 | 101 | 109 | 9 | IRGWIFGTT | 2.6e-05 | 35 |
| HLA-A*33:01 | 1 | 106 | 114 | 9 | FGTTLDSKT | 2.6e-05 | 57 |
| HLA-A*33:01 | 1 | 110 | 119 | 10 | LDSKTQSLLI | 2.6e-05 | 57 |
| HLA-A*23:01 | 1 | 114 | 122 | 9 | TQSLLVN | 2.6e-05 | 35 |
| HLA-B*35:01 | 1 | 114 | 122 | 9 | TQSLLVN | 2.6e-05 | 38 |
| HLA-A*11:01 | 1 | 116 | 124 | 9 | SLLVNAT | 2.6e-05 | 34 |
| HLA-B*40:01 | 1 | 121 | 130 | 10 | NNATNVVIVK | 2.6e-05 | 32 |
| HLA-A*02:06 | 1 | 132 | 140 | 9 | EFQFCNDPF | 2.6e-05 | 62 |
| HLA-A*03:01 | 1 | 132 | 140 | 9 | EFQFCNDPF | 2.6e-05 | 46 |
| HLA-B*08:01 | 1 | 134 | 142 | 9 | QFCNDPFLG | 2.6e-05 | 70 |
| HLA-A*02:03 | 1 | 137 | 145 | 9 | NDPFLGVYY | 2.6e-05 | 55 |
| HLA-B*15:01 | 1 | 148 | 156 | 9 | NNKSWMESE | 2.6e-05 | 52 |
| HLA-A*03:01 | 1 | 149 | 157 | 9 | NKSWMESEF | 2.6e-05 | 46 |
| HLA-A*32:01 | 1 | 153 | 161 | 9 | MESEFRVYS | 2.6e-05 | 40 |
| HLA-B*53:01 | 1 | 153 | 162 | 10 | MESEFRVYSS | 2.6e-05 | 37 |
| HLA-A*32:01 | 1 | 160 | 169 | 10 | YSSANNCTFE | 2.6e-05 | 40 |
| HLA-B*58:01 | 1 | 175 | 184 | 10 | FLMDLEGKQG | 2.6e-05 | 57 |
| HLA-B*57:01 | 1 | 176 | 184 | 9 | LMDLEGKQG | 2.6e-05 | 69 |
| HLA-A*02:01 | 1 | 178 | 187 | 10 | DLEGKQGNFK | 2.6e-05 | 51 |
| HLA-B*51:01 | 1 | 179 | 187 | 9 | LEGKQGNFK | 2.6e-05 | 62 |
| HLA-A*11:01 | 1 | 185 | 193 | 9 | NFKNLREFV | 2.6e-05 | 34 |
| HLA-A*11:01 | 1 | 186 | 194 | 9 | FKNLREFV | 2.6e-05 | 34 |
| HLA-A*23:01 | 1 | 191 | 199 | 9 | EFVFKNIDG | 2.6e-05 | 35 |
| HLA-A*02:01 | 1 | 193 | 202 | 10 | VFKNIDGYFK | 2.6e-05 | 51 |
| HLA-B*51:01 | 1 | 196 | 205 | 10 | NIDGYFKIYS | 2.6e-05 | 62 |
| HLA-A*30:01 | 1 | 209 | 218 | 10 | PINLVRDLPQ | 2.6e-05 | 78 |
| HLA-B*44:02 | 1 | 218 | 227 | 10 | QGFSALEPLV | 2.6e-05 | 39 |
| HLA-A*03:01 | 1 | 231 | 240 | 10 | IGINITRFQT | 2.6e-05 | 46 |
| HLA-A*23:01 | 1 | 242 | 250 | 9 | LALHRSYLT | 2.6e-05 | 35 |
| HLA-A*01:01 | 1 | 244 | 252 | 9 | LHRSYLTGP | 2.6e-05 | 74 |
| HLA-B*40:01 | 1 | 246 | 255 | 10 | RSYLTPGDSS | 2.6e-05 | 32 |
| HLA-B*08:01 | 1 | 260 | 268 | 9 | AGAAAYYVG | 2.6e-05 | 70 |
| HLA-B*44:02 | 1 | 273 | 281 | 9 | RTFLLKYNE | 2.6e-05 | 39 |
| HLA-A*30:02 | 1 | 274 | 283 | 10 | TFLLKYNENG | 2.6e-05 | 77 |
| HLA-B*15:01 | 1 | 275 | 284 | 10 | FLLKYNENGT | 2.6e-05 | 52 |
| HLA-A*03:01 | 1 | 276 | 284 | 9 | LLKYNENGT | 2.6e-05 | 46 |
| HLA-A*68:01 | 1 | 278 | 286 | 9 | KYNENGTIT | 2.6e-05 | 47 |
| HLA-B*58:01 | 1 | 287 | 295 | 9 | DAVDCALDP | 2.6e-05 | 57 |
| HLA-A*30:01 | 1 | 289 | 297 | 9 | VDCALDPLS | 2.6e-05 | 78 |
| HLA-A*30:01 | 1 | 290 | 298 | 9 | DCALDPLSE | 2.6e-05 | 78 |
| HLA-A*02:06 | 1 | 298 | 307 | 10 | ETKCTLKSFT | 2.6e-05 | 62 |
| HLA-A*02:03 | 1 | 300 | 309 | 10 | KCTLKSFTVE | 2.6e-05 | 55 |
| HLA-B*07:02 | 1 | 301 | 310 | 10 | CTLKSFTVEK | 2.6e-05 | 50 |
| HLA-A*02:06 | 1 | 309 | 318 | 10 | EKGIYQTSNF | 2.6e-05 | 62 |
| HLA-A*23:01 | 1 | 314 | 322 | 9 | QTSNFRVQP | 2.6e-05 | 35 |
| HLA-B*53:01 | 1 | 327 | 336 | 10 | VRFPNITNLC | 2.6e-05 | 37 |
| HLA-B*35:01 | 1 | 328 | 336 | 9 | RFPNITNLC | 2.6e-05 | 38 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*23:01 | 1 | 338 | 346 | 9 | FGEVFNATR | 2.6e-05 | 35 |
| HLA-B*15:01 | 1 | 341 | 349 | 9 | VFNATRFAS | 2.6e-05 | 52 |
| HLA-B*40:01 | 1 | 348 | 356 | 9 | ASVYAWNRRK | 2.6e-05 | 32 |
| HLA-B*53:01 | 1 | 348 | 356 | 9 | ASVYAWNRRK | 2.6e-05 | 37 |
| HLA-A*11:01 | 1 | 350 | 358 | 9 | VYAWNRRKRI | 2.6e-05 | 34 |
| HLA-B*44:03 | 1 | 355 | 363 | 9 | RKRISNCVA | 2.6e-05 | 37 |
| HLA-B*53:01 | 1 | 358 | 367 | 10 | ISNCVADYSV | 2.6e-05 | 37 |
| HLA-B*51:01 | 1 | 361 | 370 | 10 | CVADYSVLYN | 2.6e-05 | 62 |
| HLA-A*03:01 | 1 | 362 | 371 | 10 | VADYSVLYNS | 2.6e-05 | 46 |
| HLA-A*11:01 | 1 | 362 | 371 | 10 | VADYSVLYNS | 2.6e-05 | 34 |
| HLA-B*44:02 | 1 | 373 | 382 | 10 | SFSTFKCYGV | 2.6e-05 | 39 |
| HLA-A*23:01 | 1 | 375 | 384 | 10 | STFKCYGVSP | 2.6e-05 | 35 |
| HLA-A*33:01 | 1 | 380 | 388 | 9 | YGVSPTKLN | 2.6e-05 | 57 |
| HLA-B*44:02 | 1 | 380 | 388 | 9 | YGVSPTKLN | 2.6e-05 | 39 |
| HLA-A*68:02 | 1 | 391 | 400 | 10 | CFTNVYADSF | 2.6e-05 | 53 |
| HLA-B*44:03 | 1 | 398 | 407 | 10 | DSFVIRGDEV | 2.6e-05 | 37 |
| HLA-B*44:02 | 1 | 399 | 408 | 10 | SFVIRGDEV | 2.6e-05 | 39 |
| HLA-A*11:01 | 1 | 401 | 410 | 10 | VIRGDEV | 2.6e-05 | 34 |
| HLA-A*68:01 | 1 | 402 | 410 | 9 | IRGDEV | 2.6e-05 | 47 |
| HLA-B*40:01 | 1 | 403 | 412 | 10 | RGDEV | 2.6e-05 | 32 |
| HLA-A*02:01 | 1 | 406 | 414 | 9 | EV | 2.6e-05 | 51 |
| HLA-B*44:03 | 1 | 413 | 422 | 10 | GQTGKIADYN | 2.6e-05 | 37 |
| HLA-A*33:01 | 1 | 417 | 426 | 10 | KIADYN | 2.6e-05 | 57 |
| HLA-B*15:01 | 1 | 418 | 426 | 9 | IADYN | 2.6e-05 | 52 |
| HLA-A*23:01 | 1 | 420 | 428 | 9 | DYN | 2.6e-05 | 35 |
| HLA-B*53:01 | 1 | 422 | 431 | 10 | NYKLPDDFTG | 2.6e-05 | 37 |
| HLA-A*02:06 | 1 | 429 | 437 | 9 | FTGCVIAWN | 2.6e-05 | 62 |
| HLA-B*58:01 | 1 | 439 | 447 | 9 | NNLDSKVGG | 2.6e-05 | 57 |
| HLA-A*24:02 | 1 | 452 | 460 | 9 | LYR | 2.6e-05 | 33 |
| HLA-A*68:02 | 1 | 475 | 484 | 10 | AGSTPCNGVE | 2.6e-05 | 53 |
| HLA-B*44:03 | 1 | 475 | 483 | 9 | AGSTPCNGV | 2.6e-05 | 37 |
| HLA-A*23:01 | 1 | 485 | 494 | 10 | GFNCYFPLQS | 2.6e-05 | 35 |
| HLA-A*03:01 | 1 | 486 | 494 | 9 | FNCYFPLQS | 2.6e-05 | 46 |
| HLA-B*44:02 | 1 | 488 | 496 | 9 | CYFPLQSYG | 2.6e-05 | 39 |
| HLA-A*33:01 | 1 | 490 | 499 | 10 | FPLQSYGFQP | 2.6e-05 | 57 |
| HLA-B*15:01 | 1 | 490 | 498 | 9 | FPLQSYGFQ | 2.6e-05 | 52 |
| HLA-A*01:01 | 1 | 491 | 500 | 10 | PLQSYGFQPT | 2.6e-05 | 74 |
| HLA-A*23:01 | 1 | 491 | 499 | 9 | PLQSYGFQP | 2.6e-05 | 35 |
| HLA-A*24:02 | 1 | 493 | 501 | 9 | QSYGFQPTN | 2.6e-05 | 33 |
| HLA-B*57:01 | 1 | 494 | 502 | 9 | SYGFQPTNG | 2.6e-05 | 69 |
| HLA-A*33:01 | 1 | 495 | 504 | 10 | YGFQPTNGVG | 2.6e-05 | 57 |
| HLA-B*40:01 | 1 | 503 | 512 | 10 | VGYQPYRVVV | 2.6e-05 | 32 |
| HLA-A*11:01 | 1 | 505 | 514 | 10 | YQPYRVVVL | 2.6e-05 | 34 |
| HLA-B*40:01 | 1 | 512 | 520 | 9 | VLSFELLHA | 2.6e-05 | 32 |
| HLA-B*40:01 | 1 | 514 | 522 | 9 | SFELLHAPA | 2.6e-05 | 32 |
| HLA-B*51:01 | 1 | 522 | 531 | 10 | ATVCGPKKST | 2.6e-05 | 62 |
| HLA-A*68:01 | 1 | 525 | 533 | 9 | CGPKKSTNL | 2.6e-05 | 47 |
| HLA-A*30:01 | 1 | 536 | 544 | 9 | NKCVNFNFN | 2.6e-05 | 78 |
| HLA-B*08:01 | 1 | 539 | 548 | 10 | VNFNFNGLTG | 2.6e-05 | 70 |
| HLA-A*01:01 | 1 | 541 | 550 | 10 | FNFNGLTGTG | 2.6e-05 | 74 |
| HLA-B*35:01 | 1 | 542 | 551 | 10 | NFNGLTGTGV | 2.6e-05 | 38 |
| HLA-B*51:01 | 1 | 546 | 555 | 10 | LTGTGVLTES | 2.6e-05 | 62 |
| HLA-B*15:01 | 1 | 547 | 555 | 9 | TGTGVLTES | 2.6e-05 | 52 |
| HLA-B*44:02 | 1 | 549 | 558 | 10 | TGVLTESNKK | 2.6e-05 | 39 |
| HLA-B*08:01 | 1 | 550 | 558 | 9 | GVLTESNKK | 2.6e-05 | 70 |
| HLA-A*33:01 | 1 | 552 | 561 | 10 | LTESNKKFLP | 2.6e-05 | 57 |
| HLA-B*44:03 | 1 | 555 | 564 | 10 | SNKKFLPFQQ | 2.6e-05 | 37 |
| HLA-A*02:03 | 1 | 556 | 565 | 10 | NKKFLPFQQF | 2.6e-05 | 55 |
| HLA-B*57:01 | 1 | 562 | 570 | 9 | FQQFGRDIA | 2.6e-05 | 69 |
| HLA-B*58:01 | 1 | 562 | 570 | 9 | FQQFGRDIA | 2.6e-05 | 57 |
| HLA-A*30:02 | 1 | 566 | 574 | 9 | GRDIADTTD | 2.6e-05 | 77 |
| HLA-B*57:01 | 1 | 566 | 575 | 10 | GRDIADTTDA | 2.6e-05 | 69 |
| HLA-B*44:03 | 1 | 571 | 579 | 9 | DTTDAVRDP | 2.6e-05 | 37 |
| HLA-B*08:01 | 1 | 577 | 586 | 10 | RDPTLEILD | 2.6e-05 | 70 |
| HLA-B*44:02 | 1 | 578 | 587 | 10 | DPQTLEILDI | 2.6e-05 | 39 |
| HLA-B*07:02 | 1 | 580 | 589 | 10 | QTLEILDITP | 2.6e-05 | 50 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-B*44:03 | 1 | 580 | 589 | 10 | QTLEILDITP | 2.6e-05 | 37 |
| HLA-A*33:01 | 1 | 581 | 590 | 10 | TLEILDITPC | 2.6e-05 | 57 |
| HLA-B*07:02 | 1 | 581 | 590 | 10 | TLEILDITPC | 2.6e-05 | 50 |
| HLA-A*24:02 | 1 | 592 | 600 | 9 | FGGVSVITP | 2.6e-05 | 33 |
| HLA-B*08:01 | 1 | 593 | 601 | 9 | GGVSVITPG | 2.6e-05 | 70 |
| HLA-A*03:01 | 1 | 595 | 603 | 9 | VSVITPGTN | 2.6e-05 | 46 |
| HLA-A*23:01 | 1 | 597 | 605 | 9 | VITPGTNTS | 2.6e-05 | 35 |
| HLA-B*07:02 | 1 | 597 | 606 | 10 | VITPGTNTSN | 2.6e-05 | 50 |
| HLA-B*58:01 | 1 | 606 | 614 | 9 | NQVAVLYQD | 2.6e-05 | 57 |
| HLA-B*07:02 | 1 | 609 | 618 | 10 | AVLYQDVNCT | 2.6e-05 | 50 |
| HLA-B*51:01 | 1 | 609 | 618 | 10 | AVLYQDVNCT | 2.6e-05 | 62 |
| HLA-A*02:03 | 1 | 611 | 619 | 9 | LYQDVNCTE | 2.6e-05 | 55 |
| HLA-A*33:01 | 1 | 613 | 622 | 10 | QDVNCTEVPV | 2.6e-05 | 57 |
| HLA-B*44:03 | 1 | 613 | 622 | 10 | QDVNCTEVPV | 2.6e-05 | 37 |
| HLA-B*44:03 | 1 | 615 | 623 | 9 | VNCTEVPVA | 2.6e-05 | 37 |
| HLA-A*30:02 | 1 | 618 | 627 | 10 | TEVPVAIHAD | 2.6e-05 | 77 |
| HLA-B*57:01 | 1 | 618 | 627 | 10 | TEVPVAIHAD | 2.6e-05 | 69 |
| HLA-A*23:01 | 1 | 619 | 627 | 9 | EVPVAIHAD | 2.6e-05 | 35 |
| HLA-A*11:01 | 1 | 620 | 628 | 9 | VPVAIHADQ | 2.6e-05 | 34 |
| HLA-B*44:03 | 1 | 620 | 628 | 9 | VPVAIHADQ | 2.6e-05 | 37 |
| HLA-B*51:01 | 1 | 621 | 630 | 10 | PVAIHADQLT | 2.6e-05 | 62 |
| HLA-A*30:02 | 1 | 631 | 640 | 10 | PTWRVYSTGS | 2.6e-05 | 77 |
| HLA-A*24:02 | 1 | 633 | 642 | 10 | WRVYSTGSNV | 2.6e-05 | 33 |
| HLA-B*40:01 | 1 | 637 | 645 | 9 | STGSNVFQT | 2.6e-05 | 32 |
| HLA-B*44:03 | 1 | 638 | 647 | 10 | TGSNVFQTRA | 2.6e-05 | 37 |
| HLA-B*53:01 | 1 | 639 | 647 | 9 | GSNVFQTRA | 2.6e-05 | 37 |
| HLA-A*03:01 | 1 | 642 | 651 | 10 | VFQTRAGCLI | 2.6e-05 | 46 |
| HLA-A*02:01 | 1 | 643 | 652 | 10 | FQTRAGCLIG | 2.6e-05 | 51 |
| HLA-A*68:01 | 1 | 644 | 652 | 9 | QTRAGCLIG | 2.6e-05 | 47 |
| HLA-A*32:01 | 1 | 645 | 653 | 9 | TRAGCLIGA | 2.6e-05 | 40 |
| HLA-A*01:01 | 1 | 650 | 658 | 9 | LIGAEHVNN | 2.6e-05 | 74 |
| HLA-B*08:01 | 1 | 652 | 661 | 10 | GAEHVNNSYE | 2.6e-05 | 70 |
| HLA-A*24:02 | 1 | 653 | 661 | 9 | AEHVNNNSYE | 2.6e-05 | 33 |
| HLA-B*58:01 | 1 | 653 | 662 | 10 | AEHVNNNSYEC | 2.6e-05 | 57 |
| HLA-A*02:03 | 1 | 654 | 662 | 9 | EHVNNSYEC | 2.6e-05 | 55 |
| HLA-A*68:01 | 1 | 655 | 663 | 9 | HVNNSYECD | 2.6e-05 | 47 |
| HLA-A*30:01 | 1 | 665 | 673 | 9 | PIGAGICAS | 2.6e-05 | 78 |
| HLA-B*51:01 | 1 | 670 | 679 | 10 | ICASYQTQTN | 2.6e-05 | 62 |
| HLA-B*40:01 | 1 | 673 | 681 | 9 | SYQTQTNSP | 2.6e-05 | 32 |
| HLA-A*02:03 | 1 | 678 | 686 | 9 | TNSPRRARS | 2.6e-05 | 55 |
| HLA-A*26:01 | 1 | 678 | 686 | 9 | TNSPRRARS | 2.6e-05 | 46 |
| HLA-A*68:01 | 1 | 680 | 689 | 10 | SPRRARSVAS | 2.6e-05 | 47 |
| HLA-A*23:01 | 1 | 688 | 696 | 9 | ASQSIIAYT | 2.6e-05 | 35 |
| HLA-A*02:01 | 1 | 690 | 698 | 9 | QSIIAYTMS | 2.6e-05 | 51 |
| HLA-A*68:02 | 1 | 693 | 702 | 10 | IAYTMSLGAE | 2.6e-05 | 53 |
| HLA-B*44:02 | 1 | 693 | 701 | 9 | IAYTMSLGA | 2.6e-05 | 39 |
| HLA-B*15:01 | 1 | 694 | 703 | 10 | AYTMSLGAEN | 2.6e-05 | 52 |
| HLA-A*31:01 | 1 | 696 | 704 | 9 | TMSLGAENS | 2.6e-05 | 54 |
| HLA-B*57:01 | 1 | 698 | 706 | 9 | SLGAENSVA | 2.6e-05 | 69 |
| HLA-A*11:01 | 1 | 701 | 709 | 9 | AENSVAYSN | 2.6e-05 | 34 |
| HLA-A*02:01 | 1 | 703 | 711 | 9 | NSVAYSNNS | 2.6e-05 | 51 |
| HLA-A*11:01 | 1 | 707 | 716 | 10 | YSNNSIAIPT | 2.6e-05 | 34 |
| HLA-A*02:03 | 1 | 717 | 725 | 9 | NFTISVTTE | 2.6e-05 | 55 |
| HLA-A*02:06 | 1 | 727 | 735 | 9 | LPVSMTKTS | 2.6e-05 | 62 |
| HLA-A*30:01 | 1 | 728 | 737 | 10 | PVSMTKTSVD | 2.6e-05 | 78 |
| HLA-A*03:01 | 1 | 732 | 740 | 9 | TKTSVDCTM | 2.6e-05 | 46 |
| HLA-A*26:01 | 1 | 734 | 743 | 10 | TSVDCTMYIC | 2.6e-05 | 46 |
| HLA-B*57:01 | 1 | 738 | 746 | 9 | CTMYICGDS | 2.6e-05 | 69 |
| HLA-A*03:01 | 1 | 741 | 749 | 9 | YICGDSTEC | 2.6e-05 | 46 |
| HLA-A*30:01 | 1 | 742 | 751 | 10 | ICGDSTECNS | 2.6e-05 | 78 |
| HLA-A*31:01 | 1 | 744 | 753 | 10 | GDSTECSNLL | 2.6e-05 | 54 |
| HLA-A*68:02 | 1 | 749 | 757 | 9 | CSNLLLQYG | 2.6e-05 | 53 |
| HLA-B*58:01 | 1 | 753 | 761 | 9 | LLQYGSFCT | 2.6e-05 | 57 |
| HLA-B*15:01 | 1 | 760 | 768 | 9 | CTQLNRALT | 2.6e-05 | 52 |
| HLA-A*01:01 | 1 | 766 | 775 | 10 | ALTGIAVEQD | 2.6e-05 | 74 |
| HLA-A*30:01 | 1 | 769 | 777 | 9 | GIAVEQDKN | 2.6e-05 | 78 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*23:01 | 1 | 777 | 786 | 10 | NTQEVFAQVK | 2.6e-05 | 35 |
| HLA-B*40:01 | 1 | 777 | 786 | 10 | NTQEVFAQVK | 2.6e-05 | 32 |
| HLA-B*51:01 | 1 | 778 | 787 | 10 | TQEVFAQVKQ | 2.6e-05 | 62 |
| HLA-A*24:02 | 1 | 783 | 792 | 10 | AQVKQIYKTP | 2.6e-05 | 33 |
| HLA-B*07:02 | 1 | 787 | 796 | 10 | QIYKTPPIKD | 2.6e-05 | 50 |
| HLA-A*02:03 | 1 | 789 | 798 | 10 | YKTPPIKDFG | 2.6e-05 | 55 |
| HLA-A*11:01 | 1 | 790 | 799 | 10 | KTPPIKDFGG | 2.6e-05 | 34 |
| HLA-B*35:01 | 1 | 796 | 805 | 10 | DFGGFNFSQI | 2.6e-05 | 38 |
| HLA-A*31:01 | 1 | 809 | 818 | 10 | PSKPSKRSFI | 2.6e-05 | 54 |
| HLA-A*03:01 | 1 | 810 | 819 | 10 | SKPSKRSFIE | 2.6e-05 | 46 |
| HLA-B*08:01 | 1 | 815 | 824 | 10 | RSFIEDLLFN | 2.6e-05 | 70 |
| HLA-B*53:01 | 1 | 819 | 827 | 9 | EDLLFNKVT | 2.6e-05 | 37 |
| HLA-A*11:01 | 1 | 820 | 828 | 9 | DLLFNKVTL | 2.6e-05 | 34 |
| HLA-B*51:01 | 1 | 821 | 830 | 10 | LLFNKVTLAD | 2.6e-05 | 62 |
| HLA-A*02:06 | 1 | 822 | 830 | 9 | LFNKVTLAD | 2.6e-05 | 62 |
| HLA-A*03:01 | 1 | 822 | 830 | 9 | LFNKVTLAD | 2.6e-05 | 46 |
| HLA-A*02:03 | 1 | 832 | 840 | 9 | GFIKQYGDC | 2.6e-05 | 55 |
| HLA-A*31:01 | 1 | 832 | 840 | 9 | GFIKQYGDC | 2.6e-05 | 54 |
| HLA-A*31:01 | 1 | 836 | 844 | 9 | QYGDCLGDI | 2.6e-05 | 54 |
| HLA-B*35:01 | 1 | 841 | 850 | 10 | LGDIARDLI | 2.6e-05 | 38 |
| HLA-B*15:01 | 1 | 843 | 851 | 9 | DIAARDLIC | 2.6e-05 | 52 |
| HLA-A*68:02 | 1 | 844 | 853 | 10 | IAARDLICAQ | 2.6e-05 | 53 |
| HLA-B*53:01 | 1 | 844 | 853 | 10 | IAARDLICAQ | 2.6e-05 | 37 |
| HLA-B*08:01 | 1 | 849 | 857 | 9 | LICAQKFNG | 2.6e-05 | 70 |
| HLA-B*44:02 | 1 | 851 | 860 | 10 | CAQKFNGLTV | 2.6e-05 | 39 |
| HLA-A*68:01 | 1 | 866 | 874 | 9 | TDEMIAQYT | 2.6e-05 | 47 |
| HLA-A*68:02 | 1 | 866 | 875 | 10 | TDEMIAQYTS | 2.6e-05 | 53 |
| HLA-B*44:02 | 1 | 873 | 882 | 10 | YTSALLAGTI | 2.6e-05 | 39 |
| HLA-B*44:02 | 1 | 880 | 889 | 10 | GTITSGWTFG | 2.6e-05 | 39 |
| HLA-B*15:01 | 1 | 887 | 895 | 9 | TFGAGAALQ | 2.6e-05 | 52 |
| HLA-B*53:01 | 1 | 893 | 901 | 9 | ALQIPFAMQ | 2.6e-05 | 37 |
| HLA-B*08:01 | 1 | 897 | 905 | 9 | PFAMQMAYR | 2.6e-05 | 70 |
| HLA-A*01:01 | 1 | 900 | 908 | 9 | MQMAYRFNG | 2.6e-05 | 74 |
| HLA-B*40:01 | 1 | 902 | 911 | 10 | MAYRFNGIGV | 2.6e-05 | 32 |
| HLA-B*57:01 | 1 | 904 | 912 | 9 | YRFNGIGVT | 2.6e-05 | 69 |
| HLA-A*23:01 | 1 | 908 | 917 | 10 | GIGVTQNVLY | 2.6e-05 | 35 |
| HLA-A*02:03 | 1 | 909 | 918 | 10 | IGVTQNVLYE | 2.6e-05 | 55 |
| HLA-A*02:06 | 1 | 910 | 919 | 10 | GVTQNVLYEN | 2.6e-05 | 62 |
| HLA-B*53:01 | 1 | 911 | 919 | 9 | VTQNVLYEN | 2.6e-05 | 37 |
| HLA-A*24:02 | 1 | 912 | 920 | 9 | TQNVLYENQ | 2.6e-05 | 33 |
| HLA-B*53:01 | 1 | 915 | 924 | 10 | VLYENQKLIA | 2.6e-05 | 37 |
| HLA-A*01:01 | 1 | 916 | 925 | 10 | LYENQKLIAN | 2.6e-05 | 74 |
| HLA-A*11:01 | 1 | 916 | 924 | 9 | LYENQKLIA | 2.6e-05 | 34 |
| HLA-B*40:01 | 1 | 916 | 925 | 10 | LYENQKLIAN | 2.6e-05 | 32 |
| HLA-A*24:02 | 1 | 921 | 930 | 10 | KLIANQFNESA | 2.6e-05 | 33 |
| HLA-A*26:01 | 1 | 926 | 935 | 10 | QFNESAIGKIQ | 2.6e-05 | 46 |
| HLA-A*31:01 | 1 | 932 | 941 | 10 | GKIQDSLST | 2.6e-05 | 54 |
| HLA-B*44:03 | 1 | 932 | 941 | 10 | GKIQDSLST | 2.6e-05 | 37 |
| HLA-A*23:01 | 1 | 933 | 941 | 9 | KIQDSLST | 2.6e-05 | 35 |
| HLA-A*68:02 | 1 | 934 | 943 | 10 | IQDSLSTAS | 2.6e-05 | 53 |
| HLA-B*53:01 | 1 | 941 | 950 | 10 | TASALGKLQD | 2.6e-05 | 37 |
| HLA-A*30:02 | 1 | 949 | 957 | 9 | QDVVNQNAQ | 2.6e-05 | 77 |
| HLA-B*35:01 | 1 | 949 | 958 | 10 | QDVVNQNAQA | 2.6e-05 | 38 |
| HLA-A*26:01 | 1 | 951 | 960 | 10 | VVNQNAQALN | 2.6e-05 | 46 |
| HLA-A*68:02 | 1 | 952 | 961 | 10 | VNQNAQALNT | 2.6e-05 | 53 |
| HLA-B*57:01 | 1 | 953 | 961 | 9 | NQNAQALNT | 2.6e-05 | 69 |
| HLA-A*68:02 | 1 | 956 | 965 | 10 | AQALNTLVKQ | 2.6e-05 | 53 |
| HLA-A*02:01 | 1 | 966 | 974 | 9 | LSSNFGAIS | 2.6e-05 | 51 |
| HLA-B*44:03 | 1 | 967 | 975 | 9 | SSNFGAISS | 2.6e-05 | 37 |
| HLA-A*33:01 | 1 | 969 | 978 | 10 | NFGAISSVLN | 2.6e-05 | 57 |
| HLA-A*30:01 | 1 | 977 | 985 | 9 | LNDILSRDL | 2.6e-05 | 78 |
| HLA-B*57:01 | 1 | 978 | 986 | 9 | NDILSRDLK | 2.6e-05 | 69 |
| HLA-B*58:01 | 1 | 978 | 986 | 9 | NDILSRDLK | 2.6e-05 | 57 |
| HLA-A*30:01 | 1 | 984 | 992 | 9 | LDKVEAEVQ | 2.6e-05 | 78 |
| HLA-B*44:03 | 1 | 1001 | 1009 | 9 | LQSLQTYVT | 2.6e-05 | 37 |
| HLA-A*24:02 | 1 | 1002 | 1010 | 9 | QSLQTYVTQ | 2.6e-05 | 33 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-B*35:01 | 1 | 1006 | 1015 | 10 | TYVTQQLIRA | 2.6e-05 | 38 |
| HLA-B*40:01 | 1 | 1006 | 1014 | 9 | TYVTQQLIR | 2.6e-05 | 32 |
| HLA-A*03:01 | 1 | 1012 | 1021 | 10 | LIRAAEIRAS | 2.6e-05 | 46 |
| HLA-B*40:01 | 1 | 1012 | 1020 | 9 | LIRAAEIRA | 2.6e-05 | 32 |
| HLA-A*01:01 | 1 | 1013 | 1021 | 9 | IRAAEIRAS | 2.6e-05 | 74 |
| HLA-A*01:01 | 1 | 1018 | 1027 | 10 | IRASANLAAT | 2.6e-05 | 74 |
| HLA-A*23:01 | 1 | 1019 | 1028 | 10 | RASANLAATK | 2.6e-05 | 35 |
| HLA-A*24:02 | 1 | 1019 | 1028 | 10 | RASANLAATK | 2.6e-05 | 33 |
| HLA-B*44:02 | 1 | 1019 | 1027 | 9 | RASANLAAT | 2.6e-05 | 39 |
| HLA-A*02:06 | 1 | 1022 | 1030 | 9 | ANLAATKMS | 2.6e-05 | 62 |
| HLA-A*11:01 | 1 | 1027 | 1036 | 10 | TKMSECVLGQ | 2.6e-05 | 34 |
| HLA-B*35:01 | 1 | 1028 | 1036 | 9 | KMSECVLGQ | 2.6e-05 | 38 |
| HLA-A*03:01 | 1 | 1031 | 1040 | 10 | ECVLGQSKRV | 2.6e-05 | 46 |
| HLA-A*30:02 | 1 | 1032 | 1041 | 10 | CVLGQSKRVD | 2.6e-05 | 77 |
| HLA-B*51:01 | 1 | 1034 | 1043 | 10 | LGQSKRVDFC | 2.6e-05 | 62 |
| HLA-B*08:01 | 1 | 1040 | 1048 | 9 | VDFCGKGYH | 2.6e-05 | 70 |
| HLA-A*03:01 | 1 | 1042 | 1050 | 9 | FCGKGYHLM | 2.6e-05 | 46 |
| HLA-B*58:01 | 1 | 1044 | 1053 | 10 | GKGYHLMSPF | 2.6e-05 | 57 |
| HLA-B*07:02 | 1 | 1046 | 1054 | 9 | GYHLMSPFQ | 2.6e-05 | 50 |
| HLA-A*03:01 | 1 | 1047 | 1055 | 9 | YHLMSPFQS | 2.6e-05 | 46 |
| HLA-A*32:01 | 1 | 1058 | 1066 | 9 | HGVVFLHVT | 2.6e-05 | 40 |
| HLA-B*57:01 | 1 | 1062 | 1071 | 10 | FLHVTVVPAQ | 2.6e-05 | 69 |
| HLA-B*07:02 | 1 | 1066 | 1074 | 9 | TYVPAQEK | 2.6e-05 | 50 |
| HLA-A*26:01 | 1 | 1068 | 1076 | 9 | VPAQEKNF | 2.6e-05 | 46 |
| HLA-B*44:03 | 1 | 1068 | 1077 | 10 | VPAQEKNF | 2.6e-05 | 37 |
| HLA-A*31:01 | 1 | 1071 | 1080 | 10 | QEKNF | 2.6e-05 | 54 |
| HLA-B*53:01 | 1 | 1072 | 1080 | 9 | EKNF | 2.6e-05 | 37 |
| HLA-A*32:01 | 1 | 1076 | 1084 | 9 | TTAPAICH | 2.6e-05 | 40 |
| HLA-B*44:02 | 1 | 1095 | 1104 | 10 | FVSN | 2.6e-05 | 39 |
| HLA-A*24:02 | 1 | 1098 | 1107 | 10 | NGTHWF | 2.6e-05 | 33 |
| HLA-B*08:01 | 1 | 1100 | 1108 | 9 | THWF | 2.6e-05 | 70 |
| HLA-A*30:02 | 1 | 1111 | 1120 | 10 | EPQIIT | 2.6e-05 | 77 |
| HLA-A*31:01 | 1 | 1112 | 1121 | 10 | PQIIT | 2.6e-05 | 54 |
| HLA-B*15:01 | 1 | 1112 | 1120 | 9 | PQIIT | 2.6e-05 | 52 |
| HLA-A*32:01 | 1 | 1120 | 1129 | 10 | TFVSG | 2.6e-05 | 40 |
| HLA-A*30:01 | 1 | 1122 | 1131 | 10 | VSGN | 2.6e-05 | 78 |
| HLA-B*35:01 | 1 | 1122 | 1130 | 9 | VSGN | 2.6e-05 | 38 |
| HLA-A*26:01 | 1 | 1124 | 1133 | 10 | GNC | 2.6e-05 | 46 |
| HLA-A*68:02 | 1 | 1131 | 1139 | 9 | GIVN | 2.6e-05 | 53 |
| HLA-A*03:01 | 1 | 1133 | 1142 | 10 | VNNT | 2.6e-05 | 46 |
| HLA-B*51:01 | 1 | 1134 | 1142 | 9 | NNT | 2.6e-05 | 62 |
| HLA-A*33:01 | 1 | 1143 | 1152 | 10 | PEL | 2.6e-05 | 57 |
| HLA-B*44:02 | 1 | 1145 | 1154 | 10 | LDS | 2.6e-05 | 39 |
| HLA-A*31:01 | 1 | 1153 | 1161 | 9 | DKY | 2.6e-05 | 54 |
| HLA-B*40:01 | 1 | 1153 | 1162 | 10 | DKY | 2.6e-05 | 32 |
| HLA-A*24:02 | 1 | 1156 | 1164 | 9 | FKN | 2.6e-05 | 33 |
| HLA-A*02:06 | 1 | 1164 | 1173 | 10 | VDL | 2.6e-05 | 62 |
| HLA-A*31:01 | 1 | 1164 | 1172 | 9 | VDL | 2.6e-05 | 54 |
| HLA-B*53:01 | 1 | 1177 | 1185 | 9 | VNI | 2.6e-05 | 37 |
| HLA-B*58:01 | 1 | 1178 | 1187 | 10 | NIQ | 2.6e-05 | 57 |
| HLA-A*24:02 | 1 | 1179 | 1187 | 9 | IQ | 2.6e-05 | 33 |
| HLA-A*68:01 | 1 | 1179 | 1187 | 9 | IQ | 2.6e-05 | 47 |
| HLA-A*30:02 | 1 | 1180 | 1188 | 9 | QK | 2.6e-05 | 77 |
| HLA-B*40:01 | 1 | 1188 | 1196 | 9 | EVAK | 2.6e-05 | 32 |
| HLA-A*31:01 | 1 | 1194 | 1203 | 10 | NES | 2.6e-05 | 54 |
| HLA-A*02:03 | 1 | 1198 | 1206 | 9 | IDL | 2.6e-05 | 55 |
| HLA-B*44:03 | 1 | 1205 | 1213 | 9 | KYE | 2.6e-05 | 37 |
| HLA-A*68:02 | 1 | 1213 | 1221 | 9 | PWY | 2.6e-05 | 53 |
| HLA-A*11:01 | 1 | 1218 | 1226 | 9 | LG | 2.6e-05 | 34 |
| HLA-A*32:01 | 1 | 1221 | 1230 | 10 | IAG | 2.6e-05 | 40 |
| HLA-A*11:01 | 1 | 1227 | 1236 | 10 | IVM | 2.6e-05 | 34 |
| HLA-B*57:01 | 1 | 1229 | 1238 | 10 | MVT | 2.6e-05 | 69 |
| HLA-B*15:01 | 1 | 1231 | 1239 | 9 | TIM | 2.6e-05 | 52 |
| HLA-A*33:01 | 1 | 1232 | 1240 | 9 | IML | 2.6e-05 | 57 |
| HLA-A*02:01 | 1 | 1233 | 1242 | 10 | MLC | 2.6e-05 | 51 |
| HLA-B*57:01 | 1 | 1235 | 1244 | 10 | CCM | 2.6e-05 | 69 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*30:02 | 1 | 1241 | 1250 | 10 | CSCLKGCCSC | 2.6e-05 | 77 |
| HLA-A*30:02 | 1 | 1245 | 1254 | 10 | KGCCSCGSCC | 2.6e-05 | 77 |
| HLA-A*33:01 | 1 | 1247 | 1256 | 10 | CCSCGSCCKF | 2.6e-05 | 57 |
| HLA-A*23:01 | 1 | 1259 | 1267 | 9 | DDSEPVKKG | 2.6e-05 | 35 |
| HLA-A*02:01 | 1 | 1262 | 1271 | 10 | EPVLKGVKLH | 2.6e-05 | 51 |
| HLA-A*11:01 | 1 | 2 | 11 | 10 | FVFLVLLPLV | 2.5e-05 | 35 |
| HLA-B*40:01 | 1 | 6 | 14 | 9 | VLLPLVSSQ | 2.5e-05 | 32 |
| HLA-A*31:01 | 1 | 10 | 19 | 10 | LVSSQCVNLT | 2.5e-05 | 54 |
| HLA-B*08:01 | 1 | 11 | 20 | 10 | VSSQCVNLT | 2.5e-05 | 71 |
| HLA-B*44:02 | 1 | 15 | 24 | 10 | CVNLTTRTQL | 2.5e-05 | 40 |
| HLA-B*07:02 | 1 | 16 | 25 | 10 | VNLTTRTQLP | 2.5e-05 | 51 |
| HLA-A*24:02 | 1 | 17 | 25 | 9 | NLTTRTQLP | 2.5e-05 | 34 |
| HLA-A*24:02 | 1 | 20 | 29 | 10 | TRTQLPPAYT | 2.5e-05 | 34 |
| HLA-A*02:03 | 1 | 24 | 33 | 10 | LPPAYTNSFT | 2.5e-05 | 55 |
| HLA-A*31:01 | 1 | 31 | 40 | 10 | SFTRGVYYPD | 2.5e-05 | 54 |
| HLA-B*08:01 | 1 | 32 | 41 | 10 | FTRGVYYPDK | 2.5e-05 | 71 |
| HLA-B*44:03 | 1 | 33 | 42 | 10 | TRGVYYPDKV | 2.5e-05 | 37 |
| HLA-A*32:01 | 1 | 40 | 48 | 9 | DKVFRSSVL | 2.5e-05 | 40 |
| HLA-A*11:01 | 1 | 53 | 62 | 10 | DLFLPFFSNV | 2.5e-05 | 35 |
| HLA-B*44:03 | 1 | 59 | 67 | 9 | FSNVTWFHA | 2.5e-05 | 37 |
| HLA-B*44:02 | 1 | 65 | 73 | 9 | FHAIHVSGT | 2.5e-05 | 40 |
| HLA-A*02:03 | 1 | 74 | 82 | 9 | NGTKRFDNP | 2.5e-05 | 55 |
| HLA-A*31:01 | 1 | 74 | 83 | 10 | NGTKRFDNPV | 2.5e-05 | 54 |
| HLA-B*58:01 | 1 | 74 | 82 | 9 | NGTKRFDNP | 2.5e-05 | 58 |
| HLA-A*68:01 | 1 | 76 | 84 | 9 | TKRFDNPVL | 2.5e-05 | 48 |
| HLA-A*01:01 | 1 | 79 | 88 | 10 | FDNPVLPFND | 2.5e-05 | 75 |
| HLA-A*11:01 | 1 | 79 | 87 | 9 | FDNPVLPFN | 2.5e-05 | 35 |
| HLA-A*31:01 | 1 | 88 | 96 | 9 | DGVYFASTE | 2.5e-05 | 54 |
| HLA-A*02:06 | 1 | 95 | 103 | 9 | TEKSNIRG | 2.5e-05 | 63 |
| HLA-A*31:01 | 1 | 98 | 107 | 10 | SNIRGWIFG | 2.5e-05 | 54 |
| HLA-A*03:01 | 1 | 99 | 107 | 9 | NIIRGWIFG | 2.5e-05 | 47 |
| HLA-A*23:01 | 1 | 105 | 114 | 10 | IFGTTLDST | 2.5e-05 | 35 |
| HLA-B*15:01 | 1 | 105 | 113 | 9 | IFGTTLDST | 2.5e-05 | 52 |
| HLA-A*68:01 | 1 | 112 | 121 | 10 | SKTQSLLIVN | 2.5e-05 | 48 |
| HLA-B*53:01 | 1 | 113 | 121 | 9 | KTQSLLIVN | 2.5e-05 | 38 |
| HLA-A*68:01 | 1 | 115 | 124 | 10 | QSLLIVNNAT | 2.5e-05 | 48 |
| HLA-A*68:01 | 1 | 117 | 125 | 9 | LLIVNNATN | 2.5e-05 | 48 |
| HLA-B*44:03 | 1 | 118 | 126 | 9 | LIVNNATNV | 2.5e-05 | 37 |
| HLA-B*15:01 | 1 | 123 | 132 | 10 | ATNVVIVKVC | 2.5e-05 | 52 |
| HLA-B*15:01 | 1 | 129 | 137 | 9 | KVCEFQFCN | 2.5e-05 | 52 |
| HLA-B*40:01 | 1 | 134 | 143 | 10 | QFCNDPFLGV | 2.5e-05 | 32 |
| HLA-A*31:01 | 1 | 153 | 162 | 10 | MESEFRVYSS | 2.5e-05 | 54 |
| HLA-B*08:01 | 1 | 156 | 165 | 10 | EFRVYSSANN | 2.5e-05 | 71 |
| HLA-B*15:01 | 1 | 159 | 167 | 9 | VYSSANNCT | 2.5e-05 | 52 |
| HLA-A*23:01 | 1 | 170 | 178 | 9 | YVSQPFLMD | 2.5e-05 | 35 |
| HLA-A*01:01 | 1 | 172 | 181 | 10 | SQPFLMDLEG | 2.5e-05 | 75 |
| HLA-A*11:01 | 1 | 178 | 186 | 9 | DLEGKQGNF | 2.5e-05 | 35 |
| HLA-A*01:01 | 1 | 179 | 188 | 10 | LEGKQGNFKN | 2.5e-05 | 75 |
| HLA-A*33:01 | 1 | 180 | 188 | 9 | EGKQGNFKN | 2.5e-05 | 58 |
| HLA-A*68:01 | 1 | 180 | 188 | 9 | EGKQGNFKN | 2.5e-05 | 48 |
| HLA-A*03:01 | 1 | 184 | 193 | 10 | GNFKNLREFV | 2.5e-05 | 47 |
| HLA-A*02:03 | 1 | 193 | 202 | 10 | VFKNIDGYFK | 2.5e-05 | 55 |
| HLA-B*35:01 | 1 | 194 | 203 | 10 | FKNIDGYFKI | 2.5e-05 | 39 |
| HLA-B*51:01 | 1 | 194 | 202 | 9 | FKNIDGYFK | 2.5e-05 | 63 |
| HLA-A*26:01 | 1 | 201 | 209 | 9 | FKIYSKHTP | 2.5e-05 | 47 |
| HLA-B*15:01 | 1 | 213 | 221 | 9 | VRDLPQGF | 2.5e-05 | 52 |
| HLA-B*44:03 | 1 | 223 | 232 | 10 | LEPLVDLPIG | 2.5e-05 | 37 |
| HLA-A*24:02 | 1 | 227 | 236 | 10 | VDLPIGINIT | 2.5e-05 | 34 |
| HLA-A*33:01 | 1 | 230 | 239 | 10 | PIGINITRFQ | 2.5e-05 | 58 |
| HLA-B*07:02 | 1 | 231 | 239 | 9 | IGINITRFQ | 2.5e-05 | 51 |
| HLA-B*08:01 | 1 | 245 | 253 | 9 | HRSYLTPGD | 2.5e-05 | 71 |
| HLA-B*53:01 | 1 | 255 | 264 | 10 | SSGWTAGAAA | 2.5e-05 | 38 |
| HLA-A*02:03 | 1 | 257 | 265 | 9 | GWTAGAAAY | 2.5e-05 | 55 |
| HLA-A*02:01 | 1 | 260 | 269 | 10 | AGAAAYVGY | 2.5e-05 | 52 |
| HLA-A*23:01 | 1 | 261 | 270 | 10 | GAAAYVGYL | 2.5e-05 | 35 |
| HLA-A*33:01 | 1 | 273 | 282 | 10 | RTFLLKYNEN | 2.5e-05 | 58 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-B*57:01 | 1 | 276 | 284 | 9 | LLKYNENGT | 2.5e-05 | 70 |
| HLA-A*24:02 | 1 | 280 | 289 | 10 | NENGTITDAV | 2.5e-05 | 34 |
| HLA-B*57:01 | 1 | 280 | 288 | 9 | NENGTITDA | 2.5e-05 | 70 |
| HLA-A*30:01 | 1 | 282 | 291 | 10 | NGTITDAVDC | 2.5e-05 | 79 |
| HLA-B*51:01 | 1 | 283 | 292 | 10 | GTITDAVDCA | 2.5e-05 | 63 |
| HLA-B*44:03 | 1 | 287 | 296 | 10 | DAVDCALDPL | 2.5e-05 | 37 |
| HLA-B*57:01 | 1 | 289 | 297 | 9 | VDCALDPLS | 2.5e-05 | 70 |
| HLA-A*11:01 | 1 | 300 | 308 | 9 | KCTLKSFTV | 2.5e-05 | 35 |
| HLA-A*31:01 | 1 | 303 | 312 | 10 | LKSFTVEKGI | 2.5e-05 | 54 |
| HLA-A*24:02 | 1 | 306 | 314 | 9 | FTVEKGIYQ | 2.5e-05 | 34 |
| HLA-A*24:02 | 1 | 307 | 315 | 9 | TVEKGIYQT | 2.5e-05 | 34 |
| HLA-A*02:01 | 1 | 308 | 316 | 9 | VEKGIYQTS | 2.5e-05 | 52 |
| HLA-A*32:01 | 1 | 308 | 316 | 9 | VEKGIYQTS | 2.5e-05 | 40 |
| HLA-A*26:01 | 1 | 323 | 331 | 9 | TESIVRFPN | 2.5e-05 | 47 |
| HLA-A*26:01 | 1 | 328 | 337 | 10 | RFPNITNLCP | 2.5e-05 | 47 |
| HLA-B*15:01 | 1 | 328 | 337 | 10 | RFPNITNLCP | 2.5e-05 | 52 |
| HLA-A*31:01 | 1 | 329 | 338 | 10 | FPNITNLCPF | 2.5e-05 | 54 |
| HLA-A*01:01 | 1 | 335 | 343 | 9 | LCPFGEVFN | 2.5e-05 | 75 |
| HLA-A*23:01 | 1 | 336 | 344 | 9 | CPFGEVFN | 2.5e-05 | 35 |
| HLA-A*23:01 | 1 | 340 | 348 | 9 | EVFNATRFA | 2.5e-05 | 35 |
| HLA-A*23:01 | 1 | 344 | 352 | 9 | ATRFASVYA | 2.5e-05 | 35 |
| HLA-B*51:01 | 1 | 345 | 354 | 10 | TRFASVYAWN | 2.5e-05 | 63 |
| HLA-A*32:01 | 1 | 346 | 354 | 9 | RFASVYAWN | 2.5e-05 | 40 |
| HLA-B*51:01 | 1 | 348 | 357 | 10 | ASVYAWNRKR | 2.5e-05 | 63 |
| HLA-A*02:06 | 1 | 351 | 360 | 10 | YAWNRKRISN | 2.5e-05 | 63 |
| HLA-A*68:02 | 1 | 351 | 360 | 10 | YAWNRKRISN | 2.5e-05 | 54 |
| HLA-B*40:01 | 1 | 351 | 359 | 9 | YAWNRKRIS | 2.5e-05 | 32 |
| HLA-A*02:06 | 1 | 353 | 362 | 10 | WNRKRISNCV | 2.5e-05 | 63 |
| HLA-A*26:01 | 1 | 353 | 362 | 10 | WNRKRISNCV | 2.5e-05 | 47 |
| HLA-A*23:01 | 1 | 356 | 364 | 9 | KRISNCVAD | 2.5e-05 | 35 |
| HLA-A*32:01 | 1 | 365 | 373 | 9 | YSVLYNSAS | 2.5e-05 | 40 |
| HLA-A*11:01 | 1 | 373 | 382 | 10 | SFSTFKCYGV | 2.5e-05 | 35 |
| HLA-A*30:02 | 1 | 377 | 385 | 9 | FKCYGVSPT | 2.5e-05 | 77 |
| HLA-A*31:01 | 1 | 379 | 388 | 10 | CYGVSPKLN | 2.5e-05 | 54 |
| HLA-A*32:01 | 1 | 382 | 391 | 10 | VSPTKLNLC | 2.5e-05 | 40 |
| HLA-A*03:01 | 1 | 384 | 392 | 9 | PTKLNLCF | 2.5e-05 | 47 |
| HLA-A*30:01 | 1 | 390 | 398 | 9 | LCFTNVYAD | 2.5e-05 | 79 |
| HLA-A*30:01 | 1 | 390 | 399 | 10 | LCFTNVYADS | 2.5e-05 | 79 |
| HLA-B*44:02 | 1 | 397 | 406 | 10 | ADSFVIRGDE | 2.5e-05 | 40 |
| HLA-A*11:01 | 1 | 399 | 407 | 9 | SFVIRGDEV | 2.5e-05 | 35 |
| HLA-A*24:02 | 1 | 400 | 408 | 9 | FVIRGDEV | 2.5e-05 | 34 |
| HLA-A*26:01 | 1 | 402 | 411 | 10 | IRGDEVRIA | 2.5e-05 | 47 |
| HLA-B*44:03 | 1 | 403 | 412 | 10 | RGDEVRIAP | 2.5e-05 | 37 |
| HLA-B*57:01 | 1 | 405 | 414 | 10 | DEVRIAPGQ | 2.5e-05 | 70 |
| HLA-B*35:01 | 1 | 406 | 415 | 10 | EVRIAPGQT | 2.5e-05 | 39 |
| HLA-A*68:01 | 1 | 421 | 430 | 10 | YNYKLPDDFT | 2.5e-05 | 48 |
| HLA-B*07:02 | 1 | 421 | 430 | 10 | YNYKLPDDFT | 2.5e-05 | 51 |
| HLA-B*44:03 | 1 | 426 | 434 | 9 | PDDFTGCVI | 2.5e-05 | 37 |
| HLA-A*68:01 | 1 | 434 | 442 | 9 | IAWNSNLD | 2.5e-05 | 48 |
| HLA-B*44:03 | 1 | 435 | 444 | 10 | AWNSNLDISK | 2.5e-05 | 37 |
| HLA-B*44:03 | 1 | 438 | 446 | 9 | SNLDKSVG | 2.5e-05 | 37 |
| HLA-A*03:01 | 1 | 440 | 448 | 9 | NLDKSVGGN | 2.5e-05 | 47 |
| HLA-B*07:02 | 1 | 446 | 455 | 10 | GGNYNYLYRL | 2.5e-05 | 51 |
| HLA-A*02:03 | 1 | 447 | 456 | 10 | GGNYNYLYRLF | 2.5e-05 | 55 |
| HLA-B*07:02 | 1 | 450 | 458 | 9 | NYLYRLFRK | 2.5e-05 | 51 |
| HLA-A*32:01 | 1 | 451 | 460 | 10 | YLYRLFRKSN | 2.5e-05 | 40 |
| HLA-B*08:01 | 1 | 463 | 471 | 9 | PFERDISTE | 2.5e-05 | 71 |
| HLA-A*30:02 | 1 | 467 | 476 | 10 | DISTEIQAG | 2.5e-05 | 77 |
| HLA-A*33:01 | 1 | 469 | 478 | 10 | STEIQAGST | 2.5e-05 | 58 |
| HLA-B*15:01 | 1 | 469 | 477 | 9 | STEIQAGS | 2.5e-05 | 52 |
| HLA-B*44:02 | 1 | 474 | 483 | 10 | QAGSTPCNGV | 2.5e-05 | 40 |
| HLA-B*15:01 | 1 | 476 | 484 | 9 | GSTPCNGVE | 2.5e-05 | 52 |
| HLA-A*02:03 | 1 | 485 | 494 | 10 | GFNCYFPLQS | 2.5e-05 | 55 |
| HLA-B*44:03 | 1 | 487 | 496 | 10 | NCYFPLQSYG | 2.5e-05 | 37 |
| HLA-B*15:01 | 1 | 490 | 499 | 10 | FPLQSYGFQP | 2.5e-05 | 52 |
| HLA-A*30:02 | 1 | 491 | 500 | 10 | PLQSYGFQPT | 2.5e-05 | 77 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*02:01 | 1 | 493 | 502 | 10 | QSYGFQPTNG | 2.5e-05 | 52 |
| HLA-B*40:01 | 1 | 497 | 506 | 10 | FQPTNGVGYQ | 2.5e-05 | 32 |
| HLA-B*07:02 | 1 | 499 | 508 | 10 | PTNGVGYQPY | 2.5e-05 | 51 |
| HLA-A*23:01 | 1 | 506 | 514 | 9 | QPYRVVVL | 2.5e-05 | 35 |
| HLA-A*31:01 | 1 | 516 | 525 | 10 | ELLHAPATVC | 2.5e-05 | 54 |
| HLA-A*02:01 | 1 | 518 | 527 | 10 | LHAPATVCGP | 2.5e-05 | 52 |
| HLA-B*44:03 | 1 | 518 | 527 | 10 | LHAPATVCGP | 2.5e-05 | 37 |
| HLA-A*02:03 | 1 | 520 | 529 | 10 | APATVCGPKK | 2.5e-05 | 55 |
| HLA-A*32:01 | 1 | 522 | 530 | 9 | ATVCGPKKS | 2.5e-05 | 40 |
| HLA-B*44:03 | 1 | 522 | 530 | 9 | ATVCGPKKS | 2.5e-05 | 37 |
| HLA-A*23:01 | 1 | 523 | 531 | 9 | TVCGPKKST | 2.5e-05 | 35 |
| HLA-A*68:01 | 1 | 525 | 534 | 10 | CGPKKSTNLV | 2.5e-05 | 48 |
| HLA-A*31:01 | 1 | 537 | 545 | 9 | KCVNFNFG | 2.5e-05 | 54 |
| HLA-A*31:01 | 1 | 538 | 547 | 10 | CVNFNFNGLT | 2.5e-05 | 54 |
| HLA-A*02:01 | 1 | 539 | 547 | 9 | VNFNFNGLT | 2.5e-05 | 52 |
| HLA-A*33:01 | 1 | 543 | 552 | 10 | FNGLTGTGVL | 2.5e-05 | 58 |
| HLA-A*68:01 | 1 | 544 | 552 | 9 | NGLTGTGVL | 2.5e-05 | 48 |
| HLA-A*31:01 | 1 | 546 | 555 | 10 | LTGTGVLTES | 2.5e-05 | 54 |
| HLA-A*03:01 | 1 | 547 | 555 | 9 | TGTGVLTES | 2.5e-05 | 47 |
| HLA-A*02:03 | 1 | 548 | 557 | 10 | GTGVLTESNK | 2.5e-05 | 55 |
| HLA-A*02:01 | 1 | 549 | 557 | 9 | TGVLTESNK | 2.5e-05 | 52 |
| HLA-B*07:02 | 1 | 549 | 558 | 10 | TGVLTESNKK | 2.5e-05 | 51 |
| HLA-B*35:01 | 1 | 549 | 558 | 10 | TGVLTESNKK | 2.5e-05 | 39 |
| HLA-B*35:01 | 1 | 551 | 560 | 10 | VLTESNKKFL | 2.5e-05 | 39 |
| HLA-A*02:01 | 1 | 552 | 561 | 10 | LTESNKKFLP | 2.5e-05 | 52 |
| HLA-A*68:01 | 1 | 553 | 561 | 9 | TESNKKFLP | 2.5e-05 | 48 |
| HLA-A*32:01 | 1 | 555 | 563 | 9 | SNKKFLPFQ | 2.5e-05 | 40 |
| HLA-B*15:01 | 1 | 555 | 564 | 10 | SNKKFLPFQQ | 2.5e-05 | 52 |
| HLA-B*51:01 | 1 | 556 | 564 | 9 | NKKFLPFQQ | 2.5e-05 | 63 |
| HLA-A*02:01 | 1 | 557 | 566 | 10 | KKFLPFQQFG | 2.5e-05 | 52 |
| HLA-A*01:01 | 1 | 561 | 570 | 10 | PFQQFGRDIA | 2.5e-05 | 75 |
| HLA-A*24:02 | 1 | 569 | 577 | 9 | IADTTDAVR | 2.5e-05 | 34 |
| HLA-A*01:01 | 1 | 570 | 578 | 9 | ADTTDAVRD | 2.5e-05 | 75 |
| HLA-A*01:01 | 1 | 577 | 586 | 10 | RDPQTLEILD | 2.5e-05 | 75 |
| HLA-B*58:01 | 1 | 577 | 586 | 10 | RDPQTLEILD | 2.5e-05 | 58 |
| HLA-A*23:01 | 1 | 578 | 587 | 10 | DPQTLEILDI | 2.5e-05 | 35 |
| HLA-A*24:02 | 1 | 578 | 587 | 10 | DPQTLEILDI | 2.5e-05 | 34 |
| HLA-A*03:01 | 1 | 582 | 591 | 10 | LEILDITPCS | 2.5e-05 | 47 |
| HLA-A*26:01 | 1 | 591 | 599 | 9 | SFGGVSUIT | 2.5e-05 | 47 |
| HLA-A*32:01 | 1 | 591 | 600 | 10 | SFGGVSUITP | 2.5e-05 | 40 |
| HLA-A*24:02 | 1 | 597 | 605 | 9 | VITPGTNTS | 2.5e-05 | 34 |
| HLA-B*44:03 | 1 | 601 | 610 | 10 | GTNTSNQVAV | 2.5e-05 | 37 |
| HLA-A*01:01 | 1 | 607 | 616 | 10 | QVAVLYQDVN | 2.5e-05 | 75 |
| HLA-B*08:01 | 1 | 608 | 617 | 10 | VAVLYQDVNC | 2.5e-05 | 71 |
| HLA-A*26:01 | 1 | 613 | 622 | 10 | QDVNCTEVPV | 2.5e-05 | 47 |
| HLA-A*26:01 | 1 | 615 | 624 | 10 | VNCTEVPVAI | 2.5e-05 | 47 |
| HLA-B*44:03 | 1 | 617 | 625 | 9 | CTEVPVAIH | 2.5e-05 | 37 |
| HLA-A*31:01 | 1 | 620 | 628 | 9 | VPVAIHADQ | 2.5e-05 | 54 |
| HLA-B*51:01 | 1 | 626 | 634 | 9 | ADQLTPTWR | 2.5e-05 | 63 |
| HLA-A*24:02 | 1 | 630 | 638 | 9 | TPTWRVYST | 2.5e-05 | 34 |
| HLA-B*07:02 | 1 | 640 | 648 | 9 | SNVFQTRAG | 2.5e-05 | 51 |
| HLA-A*01:01 | 1 | 643 | 652 | 10 | FQTRAGCLIG | 2.5e-05 | 75 |
| HLA-A*31:01 | 1 | 650 | 659 | 10 | LIGAHEVNNS | 2.5e-05 | 54 |
| HLA-A*02:03 | 1 | 653 | 662 | 10 | AHEVNNSYEC | 2.5e-05 | 55 |
| HLA-B*15:01 | 1 | 654 | 662 | 9 | EHVNNSYEC | 2.5e-05 | 52 |
| HLA-A*23:01 | 1 | 656 | 664 | 9 | VNNSYECDI | 2.5e-05 | 35 |
| HLA-A*68:02 | 1 | 660 | 669 | 10 | YECDIPIGAG | 2.5e-05 | 54 |
| HLA-B*53:01 | 1 | 660 | 669 | 10 | YECDIPIGAG | 2.5e-05 | 38 |
| HLA-B*07:02 | 1 | 661 | 669 | 9 | ECDIPIGAG | 2.5e-05 | 51 |
| HLA-A*02:03 | 1 | 662 | 671 | 10 | CDIPIGAGIC | 2.5e-05 | 55 |
| HLA-A*01:01 | 1 | 664 | 673 | 10 | IPIGAGICAS | 2.5e-05 | 75 |
| HLA-A*02:03 | 1 | 668 | 677 | 10 | AGICASYQTQ | 2.5e-05 | 55 |
| HLA-A*31:01 | 1 | 669 | 678 | 10 | GICASYQTQT | 2.5e-05 | 54 |
| HLA-B*53:01 | 1 | 674 | 683 | 10 | YQTQNTSPRR | 2.5e-05 | 38 |
| HLA-A*68:01 | 1 | 679 | 688 | 10 | NSPRRARSVA | 2.5e-05 | 48 |
| HLA-A*30:02 | 1 | 681 | 689 | 9 | PRRARSVAS | 2.5e-05 | 77 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*68:02 | 1 | 682 | 691 | 10 | RRARSVASQS | 2.5e-05 | 54 |
| HLA-A*11:01 | 1 | 697 | 706 | 10 | MSLGAENSVA | 2.5e-05 | 35 |
| HLA-B*40:01 | 1 | 698 | 706 | 9 | SLGAENSVA | 2.5e-05 | 32 |
| HLA-B*53:01 | 1 | 698 | 706 | 9 | SLGAENSVA | 2.5e-05 | 38 |
| HLA-B*07:02 | 1 | 699 | 708 | 10 | LGAENSVAYS | 2.5e-05 | 51 |
| HLA-B*58:01 | 1 | 702 | 711 | 10 | ENSVAYSNNS | 2.5e-05 | 58 |
| HLA-A*24:02 | 1 | 707 | 715 | 9 | YSNNSIAIP | 2.5e-05 | 34 |
| HLA-B*44:02 | 1 | 707 | 715 | 9 | YSNNSIAIP | 2.5e-05 | 40 |
| HLA-B*44:02 | 1 | 709 | 717 | 9 | NNSIAIPTN | 2.5e-05 | 40 |
| HLA-B*44:02 | 1 | 710 | 719 | 10 | NSIAIPTNFT | 2.5e-05 | 40 |
| HLA-B*35:01 | 1 | 716 | 725 | 10 | TNFTISVTTE | 2.5e-05 | 39 |
| HLA-B*15:01 | 1 | 719 | 728 | 10 | TISVTTEILP | 2.5e-05 | 52 |
| HLA-A*32:01 | 1 | 721 | 730 | 10 | SVTTEILPVS | 2.5e-05 | 40 |
| HLA-B*44:02 | 1 | 722 | 730 | 9 | VTTEILPVS | 2.5e-05 | 40 |
| HLA-B*35:01 | 1 | 723 | 732 | 10 | TTEILPVSMT | 2.5e-05 | 39 |
| HLA-B*44:02 | 1 | 725 | 734 | 10 | EILPVSMTKT | 2.5e-05 | 40 |
| HLA-B*07:02 | 1 | 732 | 741 | 10 | TKTSVDCTMY | 2.5e-05 | 51 |
| HLA-B*53:01 | 1 | 734 | 743 | 10 | TSVDCTMYIC | 2.5e-05 | 38 |
| HLA-B*53:01 | 1 | 739 | 747 | 9 | TMYICGDST | 2.5e-05 | 38 |
| HLA-B*57:01 | 1 | 739 | 748 | 10 | TMYICGDSTE | 2.5e-05 | 70 |
| HLA-B*57:01 | 1 | 740 | 748 | 9 | MYICGDSTE | 2.5e-05 | 70 |
| HLA-B*58:01 | 1 | 742 | 750 | 9 | ICGDSTECS | 2.5e-05 | 58 |
| HLA-B*51:01 | 1 | 746 | 755 | 10 | STECSNLLLQ | 2.5e-05 | 63 |
| HLA-A*02:06 | 1 | 749 | 758 | 10 | CSNLLLQYGS | 2.5e-05 | 63 |
| HLA-B*08:01 | 1 | 749 | 757 | 9 | CSNLLLQYG | 2.5e-05 | 71 |
| HLA-A*32:01 | 1 | 760 | 768 | 9 | CTQLNRALT | 2.5e-05 | 40 |
| HLA-A*26:01 | 1 | 762 | 771 | 10 | QLNRALTGIA | 2.5e-05 | 47 |
| HLA-A*26:01 | 1 | 774 | 783 | 10 | QDKNTQEVFA | 2.5e-05 | 47 |
| HLA-A*33:01 | 1 | 790 | 799 | 10 | KTPPIKDFGG | 2.5e-05 | 58 |
| HLA-A*23:01 | 1 | 804 | 812 | 9 | QILPDPSKP | 2.5e-05 | 35 |
| HLA-A*33:01 | 1 | 812 | 821 | 10 | PSKRSFIEDL | 2.5e-05 | 58 |
| HLA-A*32:01 | 1 | 822 | 831 | 10 | LFNKVTLADA | 2.5e-05 | 40 |
| HLA-B*44:02 | 1 | 826 | 835 | 10 | VTLADAGFIK | 2.5e-05 | 40 |
| HLA-B*08:01 | 1 | 829 | 838 | 10 | ADAGFIKQYG | 2.5e-05 | 71 |
| HLA-B*40:01 | 1 | 829 | 838 | 10 | ADAGFIKQYG | 2.5e-05 | 32 |
| HLA-B*07:02 | 1 | 836 | 844 | 9 | QYGDCLGDI | 2.5e-05 | 51 |
| HLA-B*08:01 | 1 | 838 | 847 | 10 | GDCLGDIAAR | 2.5e-05 | 71 |
| HLA-B*15:01 | 1 | 839 | 847 | 9 | DCLGDIAAR | 2.5e-05 | 52 |
| HLA-A*26:01 | 1 | 840 | 849 | 10 | CLGDIAARDL | 2.5e-05 | 47 |
| HLA-A*31:01 | 1 | 840 | 849 | 10 | CLGDIAARDL | 2.5e-05 | 54 |
| HLA-A*33:01 | 1 | 840 | 849 | 10 | CLGDIAARDL | 2.5e-05 | 58 |
| HLA-A*31:01 | 1 | 842 | 850 | 9 | GDIAARDLI | 2.5e-05 | 54 |
| HLA-A*30:01 | 1 | 848 | 857 | 10 | DLICAQKFNG | 2.5e-05 | 79 |
| HLA-A*32:01 | 1 | 849 | 857 | 9 | LICAQKFNG | 2.5e-05 | 40 |
| HLA-A*24:02 | 1 | 855 | 864 | 10 | FNGLTVLPPL | 2.5e-05 | 34 |
| HLA-B*53:01 | 1 | 855 | 864 | 10 | FNGLTVLPPL | 2.5e-05 | 38 |
| HLA-B*53:01 | 1 | 858 | 867 | 10 | LTVLPPLTD | 2.5e-05 | 38 |
| HLA-A*01:01 | 1 | 862 | 871 | 10 | PPLLTDEMIA | 2.5e-05 | 75 |
| HLA-A*03:01 | 1 | 863 | 872 | 10 | PLLTDEMIAQ | 2.5e-05 | 47 |
| HLA-B*44:03 | 1 | 869 | 878 | 10 | MIAQYTSALL | 2.5e-05 | 37 |
| HLA-B*08:01 | 1 | 874 | 883 | 10 | TSALLAGTIT | 2.5e-05 | 71 |
| HLA-A*26:01 | 1 | 875 | 883 | 9 | SALLAGTIT | 2.5e-05 | 47 |
| HLA-A*11:01 | 1 | 881 | 889 | 9 | TITSGWTFG | 2.5e-05 | 35 |
| HLA-B*08:01 | 1 | 881 | 889 | 9 | TITSGWTFG | 2.5e-05 | 71 |
| HLA-B*35:01 | 1 | 884 | 893 | 10 | SGWTFGAGAA | 2.5e-05 | 39 |
| HLA-A*02:06 | 1 | 898 | 907 | 10 | FAMQMAYRFN | 2.5e-05 | 63 |
| HLA-A*02:03 | 1 | 902 | 910 | 9 | MAYRFNGIG | 2.5e-05 | 55 |
| HLA-B*58:01 | 1 | 904 | 912 | 9 | YRFNGIGVT | 2.5e-05 | 58 |
| HLA-A*02:06 | 1 | 918 | 926 | 9 | ENQKLIANQ | 2.5e-05 | 63 |
| HLA-A*31:01 | 1 | 920 | 929 | 10 | QKLIANQFNS | 2.5e-05 | 54 |
| HLA-B*58:01 | 1 | 920 | 929 | 10 | QKLIANQFNS | 2.5e-05 | 58 |
| HLA-A*23:01 | 1 | 922 | 930 | 9 | LIANQFNSA | 2.5e-05 | 35 |
| HLA-A*01:01 | 1 | 923 | 932 | 10 | IANQFNSAIG | 2.5e-05 | 75 |
| HLA-B*08:01 | 1 | 923 | 932 | 10 | IANQFNSAIG | 2.5e-05 | 71 |
| HLA-A*11:01 | 1 | 927 | 935 | 9 | FNSAIGKIQ | 2.5e-05 | 35 |
| HLA-A*33:01 | 1 | 928 | 936 | 9 | NSAIGKIQD | 2.5e-05 | 58 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-B*58:01 | 1 | 932 | 941 | 10 | GKIQDLSLSST | 2.5e-05 | 58 |
| HLA-B*35:01 | 1 | 934 | 943 | 10 | IQDLSLSSTAS | 2.5e-05 | 39 |
| HLA-A*68:01 | 1 | 938 | 946 | 9 | LSSTASALG | 2.5e-05 | 48 |
| HLA-B*15:01 | 1 | 942 | 950 | 9 | ASALGKQLQD | 2.5e-05 | 52 |
| HLA-A*03:01 | 1 | 945 | 954 | 10 | LGKLQDVVNQ | 2.5e-05 | 47 |
| HLA-B*53:01 | 1 | 947 | 955 | 9 | KLQDVVNQN | 2.5e-05 | 38 |
| HLA-A*03:01 | 1 | 954 | 963 | 10 | QNAQALNTLV | 2.5e-05 | 47 |
| HLA-A*11:01 | 1 | 958 | 967 | 10 | ALNTLVKQLS | 2.5e-05 | 35 |
| HLA-B*44:03 | 1 | 958 | 967 | 10 | ALNTLVKQLS | 2.5e-05 | 37 |
| HLA-A*02:06 | 1 | 960 | 969 | 10 | NTLVKQLSSN | 2.5e-05 | 63 |
| HLA-A*68:02 | 1 | 962 | 971 | 10 | LVKQLSSNFG | 2.5e-05 | 54 |
| HLA-A*32:01 | 1 | 963 | 972 | 10 | VKQLSSNFGA | 2.5e-05 | 40 |
| HLA-A*68:01 | 1 | 970 | 978 | 9 | FGAISSVLN | 2.5e-05 | 48 |
| HLA-B*08:01 | 1 | 970 | 978 | 9 | FGAISSVLN | 2.5e-05 | 71 |
| HLA-A*23:01 | 1 | 971 | 980 | 10 | GAISSVLNDI | 2.5e-05 | 35 |
| HLA-B*44:02 | 1 | 972 | 981 | 10 | AISSVLNDIL | 2.5e-05 | 40 |
| HLA-A*26:01 | 1 | 974 | 982 | 9 | SSVLNDILS | 2.5e-05 | 47 |
| HLA-B*15:01 | 1 | 974 | 982 | 9 | SSVLNDILS | 2.5e-05 | 52 |
| HLA-A*33:01 | 1 | 980 | 988 | 9 | ILSRLDKVE | 2.5e-05 | 58 |
| HLA-A*68:01 | 1 | 980 | 988 | 9 | ILSRLDKVE | 2.5e-05 | 48 |
| HLA-B*51:01 | 1 | 980 | 988 | 9 | ILSRLDKVE | 2.5e-05 | 63 |
| HLA-A*24:02 | 1 | 984 | 993 | 10 | LDKVEAEVQI | 2.5e-05 | 34 |
| HLA-A*33:01 | 1 | 984 | 993 | 10 | LDKVEAEVQI | 2.5e-05 | 58 |
| HLA-A*32:01 | 1 | 988 | 997 | 10 | EAEVQIDRLI | 2.5e-05 | 40 |
| HLA-A*31:01 | 1 | 990 | 999 | 10 | EVQIDRLITG | 2.5e-05 | 54 |
| HLA-A*24:02 | 1 | 995 | 1003 | 9 | RLITGRLQS | 2.5e-05 | 34 |
| HLA-A*23:01 | 1 | 1003 | 1011 | 9 | SLQTYVTQQ | 2.5e-05 | 35 |
| HLA-B*51:01 | 1 | 1010 | 1019 | 10 | QLLIRAAEIR | 2.5e-05 | 63 |
| HLA-A*68:01 | 1 | 1013 | 1021 | 9 | IRAAEIRAS | 2.5e-05 | 48 |
| HLA-B*35:01 | 1 | 1016 | 1025 | 10 | AEIRASANLA | 2.5e-05 | 39 |
| HLA-A*33:01 | 1 | 1023 | 1032 | 10 | NLAATKMSEC | 2.5e-05 | 58 |
| HLA-A*68:01 | 1 | 1023 | 1032 | 10 | NLAATKMSEC | 2.5e-05 | 48 |
| HLA-A*02:01 | 1 | 1031 | 1039 | 9 | ECVLGQSKR | 2.5e-05 | 52 |
| HLA-A*11:01 | 1 | 1034 | 1042 | 9 | LGQSKRVDF | 2.5e-05 | 35 |
| HLA-B*08:01 | 1 | 1036 | 1045 | 10 | QSKRVDFCGK | 2.5e-05 | 71 |
| HLA-A*02:06 | 1 | 1037 | 1045 | 9 | SKRVDFCGK | 2.5e-05 | 63 |
| HLA-B*08:01 | 1 | 1039 | 1048 | 10 | RVDFCGKGYH | 2.5e-05 | 71 |
| HLA-A*02:03 | 1 | 1044 | 1053 | 10 | GKGYHLMSFP | 2.5e-05 | 55 |
| HLA-B*44:02 | 1 | 1047 | 1055 | 9 | YHLMSFPQS | 2.5e-05 | 40 |
| HLA-A*23:01 | 1 | 1049 | 1057 | 9 | LMSFPQSAP | 2.5e-05 | 35 |
| HLA-A*26:01 | 1 | 1061 | 1069 | 9 | VFLHVITYVP | 2.5e-05 | 47 |
| HLA-B*58:01 | 1 | 1062 | 1070 | 9 | FLHVITYVPA | 2.5e-05 | 58 |
| HLA-A*02:01 | 1 | 1063 | 1072 | 10 | LHVITYVPAQE | 2.5e-05 | 52 |
| HLA-A*02:03 | 1 | 1063 | 1072 | 10 | LHVITYVPAQE | 2.5e-05 | 55 |
| HLA-A*02:06 | 1 | 1063 | 1071 | 9 | LHVITYVPAQ | 2.5e-05 | 63 |
| HLA-B*44:02 | 1 | 1063 | 1071 | 9 | LHVITYVPAQ | 2.5e-05 | 40 |
| HLA-B*40:01 | 1 | 1064 | 1073 | 10 | HVITYVPAQEK | 2.5e-05 | 32 |
| HLA-A*02:01 | 1 | 1065 | 1074 | 10 | VTYVPAQEK | 2.5e-05 | 52 |
| HLA-A*31:01 | 1 | 1069 | 1077 | 9 | PAQEKNF | 2.5e-05 | 54 |
| HLA-A*33:01 | 1 | 1069 | 1077 | 9 | PAQEKNF | 2.5e-05 | 58 |
| HLA-A*23:01 | 1 | 1071 | 1079 | 9 | QEKNF | 2.5e-05 | 35 |
| HLA-A*24:02 | 1 | 1071 | 1079 | 9 | QEKNF | 2.5e-05 | 34 |
| HLA-A*03:01 | 1 | 1078 | 1087 | 10 | APAICHDGKA | 2.5e-05 | 47 |
| HLA-A*30:01 | 1 | 1079 | 1088 | 10 | PAICHDGKAH | 2.5e-05 | 79 |
| HLA-A*33:01 | 1 | 1079 | 1088 | 10 | PAICHDGKAH | 2.5e-05 | 58 |
| HLA-B*07:02 | 1 | 1082 | 1091 | 10 | CHDGKAHFPR | 2.5e-05 | 51 |
| HLA-B*44:03 | 1 | 1082 | 1091 | 10 | CHDGKAHFPR | 2.5e-05 | 37 |
| HLA-B*15:01 | 1 | 1084 | 1092 | 9 | DGKAHFPRE | 2.5e-05 | 52 |
| HLA-A*23:01 | 1 | 1102 | 1111 | 10 | WFTQRNFYE | 2.5e-05 | 35 |
| HLA-A*02:06 | 1 | 1104 | 1113 | 10 | VTQRNFYEPQ | 2.5e-05 | 63 |
| HLA-B*57:01 | 1 | 1117 | 1125 | 9 | TDNTFVSGN | 2.5e-05 | 70 |
| HLA-A*01:01 | 1 | 1118 | 1126 | 9 | DNTFVSGNC | 2.5e-05 | 75 |
| HLA-A*32:01 | 1 | 1119 | 1128 | 10 | NTFVSGNCDV | 2.5e-05 | 40 |
| HLA-A*33:01 | 1 | 1119 | 1127 | 9 | NTFVSGNCD | 2.5e-05 | 58 |
| HLA-B*35:01 | 1 | 1119 | 1127 | 9 | NTFVSGNCD | 2.5e-05 | 39 |
| HLA-A*11:01 | 1 | 1121 | 1129 | 9 | FVSGNCDVV | 2.5e-05 | 35 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-B*44:02 | 1 | 1121 | 1129 | 9 | FVSGNCDVV | 2.5e-05 | 40 |
| HLA-B*40:01 | 1 | 1129 | 1138 | 10 | VIGIVNNTVY | 2.5e-05 | 32 |
| HLA-A*02:06 | 1 | 1130 | 1139 | 10 | IGIVNNTVYD | 2.5e-05 | 63 |
| HLA-A*33:01 | 1 | 1132 | 1140 | 9 | IVNNTVYDP | 2.5e-05 | 58 |
| HLA-A*33:01 | 1 | 1134 | 1143 | 10 | NNTVYDPLQP | 2.5e-05 | 58 |
| HLA-A*68:01 | 1 | 1139 | 1147 | 9 | DPLQPELDS | 2.5e-05 | 48 |
| HLA-A*11:01 | 1 | 1142 | 1151 | 10 | QPELDSFKEE | 2.5e-05 | 35 |
| HLA-B*15:01 | 1 | 1142 | 1151 | 10 | QPELDSFKEE | 2.5e-05 | 52 |
| HLA-B*35:01 | 1 | 1148 | 1157 | 10 | FKEELDKYFK | 2.5e-05 | 39 |
| HLA-A*01:01 | 1 | 1149 | 1158 | 10 | KEELDKYFKN | 2.5e-05 | 75 |
| HLA-A*02:06 | 1 | 1150 | 1158 | 9 | EELDKYFKN | 2.5e-05 | 63 |
| HLA-A*32:01 | 1 | 1150 | 1159 | 10 | EELDKYFKNH | 2.5e-05 | 40 |
| HLA-B*51:01 | 1 | 1155 | 1163 | 9 | YFKNHTSPD | 2.5e-05 | 63 |
| HLA-A*01:01 | 1 | 1162 | 1171 | 10 | PDVDLGDISG | 2.5e-05 | 75 |
| HLA-A*02:01 | 1 | 1166 | 1175 | 10 | LGDISGINAS | 2.5e-05 | 52 |
| HLA-A*31:01 | 1 | 1168 | 1177 | 10 | DISGINASVV | 2.5e-05 | 54 |
| HLA-B*44:02 | 1 | 1172 | 1181 | 10 | INASVVNIQK | 2.5e-05 | 40 |
| HLA-B*07:02 | 1 | 1179 | 1188 | 10 | IQKEIDRLNE | 2.5e-05 | 51 |
| HLA-B*08:01 | 1 | 1180 | 1188 | 9 | QKEIDRLNE | 2.5e-05 | 71 |
| HLA-A*33:01 | 1 | 1190 | 1198 | 9 | AKNLNESLI | 2.5e-05 | 58 |
| HLA-B*35:01 | 1 | 1190 | 1198 | 9 | AKNLNESLI | 2.5e-05 | 39 |
| HLA-A*32:01 | 1 | 1192 | 1201 | 10 | NLNESLIDLQ | 2.5e-05 | 40 |
| HLA-A*03:01 | 1 | 1194 | 1202 | 9 | NESLIDLQE | 2.5e-05 | 47 |
| HLA-B*44:02 | 1 | 1195 | 1204 | 10 | ESLIDLQELG | 2.5e-05 | 40 |
| HLA-A*68:02 | 1 | 1199 | 1208 | 10 | DLQELGKYEQ | 2.5e-05 | 54 |
| HLA-A*02:03 | 1 | 1211 | 1219 | 9 | KWPWYIWLG | 2.5e-05 | 55 |
| HLA-A*02:03 | 1 | 1212 | 1221 | 10 | WPWYIWLGFI | 2.5e-05 | 55 |
| HLA-A*01:01 | 1 | 1215 | 1223 | 9 | YIWLGFIAAG | 2.5e-05 | 75 |
| HLA-B*40:01 | 1 | 1225 | 1234 | 10 | IAIVMVTIML | 2.5e-05 | 32 |
| HLA-A*01:01 | 1 | 1227 | 1236 | 10 | IVMVTIMLCC | 2.5e-05 | 75 |
| HLA-B*35:01 | 1 | 1231 | 1239 | 9 | TIMLCCMTS | 2.5e-05 | 39 |
| HLA-A*01:01 | 1 | 1248 | 1257 | 10 | CSCGSCCKFD | 2.5e-05 | 75 |
| HLA-A*03:01 | 1 | 1255 | 1263 | 9 | KFDEDDSEP | 2.5e-05 | 47 |
| HLA-A*11:01 | 1 | 1258 | 1267 | 10 | EDDSEPVKLG | 2.5e-05 | 35 |
| HLA-A*24:02 | 1 | 1263 | 1271 | 9 | PVLKGVKLH | 2.5e-05 | 34 |
| HLA-A*26:01 | 1 | 1 | 9 | 9 | MFVFLVLLP | 2.4e-05 | 47 |
| HLA-A*32:01 | 1 | 4 | 12 | 9 | FLVLLPLVS | 2.4e-05 | 41 |
| HLA-A*11:01 | 1 | 6 | 15 | 10 | VLLPLVSSQC | 2.4e-05 | 35 |
| HLA-B*35:01 | 1 | 12 | 21 | 10 | SSQCVNLTTR | 2.4e-05 | 39 |
| HLA-A*02:03 | 1 | 14 | 23 | 10 | QCVNLTTRTQ | 2.4e-05 | 56 |
| HLA-B*53:01 | 1 | 23 | 31 | 9 | QLPPAYTNS | 2.4e-05 | 38 |
| HLA-A*33:01 | 1 | 31 | 40 | 10 | SFTRGVYYPD | 2.4e-05 | 58 |
| HLA-B*44:03 | 1 | 31 | 39 | 9 | SFTRGVYYP | 2.4e-05 | 38 |
| HLA-A*11:01 | 1 | 37 | 46 | 10 | YYPDKVFRSS | 2.4e-05 | 35 |
| HLA-A*02:01 | 1 | 40 | 48 | 9 | DKVFRSSVL | 2.4e-05 | 53 |
| HLA-B*44:02 | 1 | 42 | 51 | 10 | VFRSSVLHST | 2.4e-05 | 40 |
| HLA-A*23:01 | 1 | 43 | 52 | 10 | FRSSVLHSTQ | 2.4e-05 | 36 |
| HLA-A*03:01 | 1 | 44 | 53 | 10 | RSSVLHSTQD | 2.4e-05 | 47 |
| HLA-B*07:02 | 1 | 49 | 57 | 9 | HSTQDLFLP | 2.4e-05 | 52 |
| HLA-A*03:01 | 1 | 52 | 60 | 9 | QDLFLPFFS | 2.4e-05 | 47 |
| HLA-A*03:01 | 1 | 55 | 63 | 9 | FLPFFSNVT | 2.4e-05 | 47 |
| HLA-A*02:03 | 1 | 63 | 72 | 10 | TWFHAIHVSG | 2.4e-05 | 56 |
| HLA-A*23:01 | 1 | 64 | 73 | 10 | WFHAIHVSGT | 2.4e-05 | 36 |
| HLA-A*68:01 | 1 | 65 | 73 | 9 | FHAIHVSGT | 2.4e-05 | 48 |
| HLA-A*32:01 | 1 | 66 | 74 | 9 | HAIHVSGTN | 2.4e-05 | 41 |
| HLA-B*35:01 | 1 | 66 | 75 | 10 | HAIHVSGTNG | 2.4e-05 | 39 |
| HLA-A*02:01 | 1 | 74 | 82 | 9 | NGTKRFDNP | 2.4e-05 | 53 |
| HLA-B*35:01 | 1 | 75 | 83 | 9 | GTKRFDNPV | 2.4e-05 | 39 |
| HLA-B*44:02 | 1 | 85 | 93 | 9 | PFNDGVYFA | 2.4e-05 | 40 |
| HLA-B*53:01 | 1 | 85 | 93 | 9 | PFNDGVYFA | 2.4e-05 | 38 |
| HLA-B*51:01 | 1 | 89 | 98 | 10 | GVYFASTEKS | 2.4e-05 | 63 |
| HLA-A*03:01 | 1 | 92 | 100 | 9 | FASTEKSNI | 2.4e-05 | 47 |
| HLA-A*33:01 | 1 | 92 | 101 | 10 | FASTEKSNI | 2.4e-05 | 58 |
| HLA-B*44:02 | 1 | 92 | 101 | 10 | FASTEKSNI | 2.4e-05 | 40 |
| HLA-B*40:01 | 1 | 96 | 105 | 10 | EKSNIIRGWI | 2.4e-05 | 33 |
| HLA-A*11:01 | 1 | 99 | 107 | 9 | NIIRGWIFG | 2.4e-05 | 35 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-B*57:01 | 1 | 103 | 112 | 10 | GWIFGTTLDS | 2.4e-05 | 70 |
| HLA-A*24:02 | 1 | 104 | 113 | 10 | WIFGTTLDSK | 2.4e-05 | 34 |
| HLA-A*33:01 | 1 | 104 | 112 | 9 | WIFGTTLDS | 2.4e-05 | 58 |
| HLA-B*35:01 | 1 | 110 | 119 | 10 | LDSKTQSLLI | 2.4e-05 | 39 |
| HLA-A*24:02 | 1 | 111 | 120 | 10 | DSKTQSLLIIV | 2.4e-05 | 34 |
| HLA-B*07:02 | 1 | 115 | 124 | 10 | QSLLIIVNAT | 2.4e-05 | 52 |
| HLA-A*03:01 | 1 | 117 | 125 | 9 | LLIIVNATN | 2.4e-05 | 47 |
| HLA-A*11:01 | 1 | 120 | 128 | 9 | VNATNVVI | 2.4e-05 | 35 |
| HLA-A*01:01 | 1 | 131 | 139 | 9 | CEFQFCNDP | 2.4e-05 | 76 |
| HLA-A*02:06 | 1 | 148 | 156 | 9 | NNKSWMESE | 2.4e-05 | 63 |
| HLA-B*35:01 | 1 | 149 | 158 | 10 | NKSWMESEFR | 2.4e-05 | 39 |
| HLA-A*02:01 | 1 | 154 | 162 | 9 | ESEFRVYSS | 2.4e-05 | 53 |
| HLA-A*02:03 | 1 | 159 | 167 | 9 | VYSSANNCT | 2.4e-05 | 56 |
| HLA-A*32:01 | 1 | 165 | 174 | 10 | NCTFEYVSQP | 2.4e-05 | 41 |
| HLA-B*08:01 | 1 | 172 | 181 | 10 | SQPFLMDLEG | 2.4e-05 | 71 |
| HLA-B*44:02 | 1 | 176 | 184 | 9 | LMDLEGKQG | 2.4e-05 | 40 |
| HLA-A*68:01 | 1 | 179 | 188 | 10 | LEGKQGNFKN | 2.4e-05 | 48 |
| HLA-A*23:01 | 1 | 186 | 195 | 10 | FKNLREFVFK | 2.4e-05 | 36 |
| HLA-B*07:02 | 1 | 188 | 196 | 9 | NLREFVFKN | 2.4e-05 | 52 |
| HLA-B*44:03 | 1 | 188 | 196 | 9 | NLREFVFKN | 2.4e-05 | 38 |
| HLA-A*33:01 | 1 | 190 | 198 | 9 | REFVFKNID | 2.4e-05 | 58 |
| HLA-A*24:02 | 1 | 191 | 199 | 9 | EFVFKNIDG | 2.4e-05 | 34 |
| HLA-A*02:03 | 1 | 194 | 202 | 9 | FKNIDGYFK | 2.4e-05 | 56 |
| HLA-A*26:01 | 1 | 200 | 209 | 10 | YFKIYSKHTP | 2.4e-05 | 47 |
| HLA-B*53:01 | 1 | 200 | 209 | 10 | YFKIYSKHTP | 2.4e-05 | 38 |
| HLA-A*31:01 | 1 | 207 | 215 | 9 | HTPINLVRD | 2.4e-05 | 55 |
| HLA-B*58:01 | 1 | 209 | 217 | 9 | PINLVRDLP | 2.4e-05 | 58 |
| HLA-A*02:03 | 1 | 213 | 221 | 9 | VRDLPQGF | 2.4e-05 | 56 |
| HLA-A*26:01 | 1 | 217 | 226 | 10 | PQGFSALEPL | 2.4e-05 | 47 |
| HLA-B*44:03 | 1 | 217 | 226 | 10 | PQGFSALEPL | 2.4e-05 | 38 |
| HLA-A*11:01 | 1 | 218 | 227 | 10 | QGFSALEPLV | 2.4e-05 | 35 |
| HLA-A*02:03 | 1 | 219 | 228 | 10 | GFSALEPLVD | 2.4e-05 | 56 |
| HLA-B*15:01 | 1 | 226 | 234 | 9 | LVDLPIGIN | 2.4e-05 | 53 |
| HLA-A*30:02 | 1 | 228 | 236 | 9 | DLPIGINIT | 2.4e-05 | 78 |
| HLA-B*35:01 | 1 | 233 | 242 | 10 | INITRFQTL | 2.4e-05 | 39 |
| HLA-B*40:01 | 1 | 239 | 247 | 9 | QTLALHRS | 2.4e-05 | 33 |
| HLA-A*26:01 | 1 | 242 | 250 | 9 | LALHRSYLT | 2.4e-05 | 47 |
| HLA-B*15:01 | 1 | 242 | 250 | 9 | LALHRSYLT | 2.4e-05 | 53 |
| HLA-A*03:01 | 1 | 243 | 252 | 10 | ALHRSYLT | 2.4e-05 | 47 |
| HLA-B*53:01 | 1 | 246 | 255 | 10 | RSYLT | 2.4e-05 | 38 |
| HLA-B*44:02 | 1 | 247 | 256 | 10 | SYLT | 2.4e-05 | 40 |
| HLA-A*11:01 | 1 | 253 | 262 | 10 | DSSSGWTAGA | 2.4e-05 | 35 |
| HLA-A*11:01 | 1 | 271 | 280 | 10 | QPRTFLLKYN | 2.4e-05 | 35 |
| HLA-A*30:01 | 1 | 279 | 287 | 9 | YNENGTITD | 2.4e-05 | 80 |
| HLA-B*51:01 | 1 | 279 | 287 | 9 | YNENGTITD | 2.4e-05 | 63 |
| HLA-A*11:01 | 1 | 280 | 289 | 10 | NENGTITDAV | 2.4e-05 | 35 |
| HLA-A*03:01 | 1 | 283 | 291 | 9 | GTITDAVDC | 2.4e-05 | 47 |
| HLA-A*30:01 | 1 | 285 | 294 | 10 | ITDAVDCALD | 2.4e-05 | 80 |
| HLA-B*44:02 | 1 | 287 | 295 | 9 | DAVDCALDP | 2.4e-05 | 40 |
| HLA-A*03:01 | 1 | 288 | 297 | 10 | AVDCALDPLS | 2.4e-05 | 47 |
| HLA-A*02:06 | 1 | 289 | 298 | 10 | VDCALDPLSE | 2.4e-05 | 63 |
| HLA-A*30:01 | 1 | 289 | 298 | 10 | VDCALDPLSE | 2.4e-05 | 80 |
| HLA-A*30:02 | 1 | 289 | 297 | 9 | VDCALDPLS | 2.4e-05 | 78 |
| HLA-B*07:02 | 1 | 293 | 301 | 9 | LDPLSETKC | 2.4e-05 | 52 |
| HLA-B*58:01 | 1 | 297 | 305 | 9 | SETKCTLKS | 2.4e-05 | 58 |
| HLA-B*08:01 | 1 | 300 | 309 | 10 | KCTLKSFTVE | 2.4e-05 | 71 |
| HLA-B*51:01 | 1 | 305 | 314 | 10 | SFTVEKGIYQ | 2.4e-05 | 63 |
| HLA-B*08:01 | 1 | 309 | 317 | 9 | EKGIYQTSN | 2.4e-05 | 71 |
| HLA-A*11:01 | 1 | 316 | 325 | 10 | SNFRVQPTES | 2.4e-05 | 35 |
| HLA-A*33:01 | 1 | 323 | 331 | 9 | TESIVRFPN | 2.4e-05 | 58 |
| HLA-A*03:01 | 1 | 329 | 337 | 9 | FPNITNLCP | 2.4e-05 | 47 |
| HLA-A*03:01 | 1 | 329 | 338 | 10 | FPNITNLCPF | 2.4e-05 | 47 |
| HLA-B*15:01 | 1 | 329 | 337 | 9 | FPNITNLCP | 2.4e-05 | 53 |
| HLA-B*44:03 | 1 | 329 | 337 | 9 | FPNITNLCP | 2.4e-05 | 38 |
| HLA-A*24:02 | 1 | 336 | 344 | 9 | CPFGEVFNA | 2.4e-05 | 34 |
| HLA-A*02:01 | 1 | 337 | 345 | 9 | PFGEVFNAT | 2.4e-05 | 53 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-B*58:01 | 1 | 346 | 354 | 9 | RFASVYAWN | 2.4e-05 | 58 |
| HLA-B*58:01 | 1 | 350 | 359 | 10 | VYAWNRRKRIS | 2.4e-05 | 58 |
| HLA-B*44:03 | 1 | 359 | 368 | 10 | SNCVADYSVL | 2.4e-05 | 38 |
| HLA-B*35:01 | 1 | 375 | 383 | 9 | STFKCYGVS | 2.4e-05 | 39 |
| HLA-A*68:01 | 1 | 376 | 385 | 10 | TFKCYGVSPT | 2.4e-05 | 48 |
| HLA-B*44:02 | 1 | 376 | 384 | 9 | TFKCYGVSP | 2.4e-05 | 40 |
| HLA-B*57:01 | 1 | 385 | 394 | 10 | TKLNDLCFTN | 2.4e-05 | 70 |
| HLA-A*02:03 | 1 | 389 | 398 | 10 | DLCFTNVYAD | 2.4e-05 | 56 |
| HLA-A*24:02 | 1 | 393 | 401 | 9 | TNVYADSFV | 2.4e-05 | 34 |
| HLA-B*44:03 | 1 | 393 | 402 | 10 | TNVYADSFVI | 2.4e-05 | 38 |
| HLA-B*44:03 | 1 | 399 | 408 | 10 | SFVIRGDEV | 2.4e-05 | 38 |
| HLA-A*02:03 | 1 | 412 | 421 | 10 | PGQTGKIADY | 2.4e-05 | 56 |
| HLA-B*51:01 | 1 | 412 | 421 | 10 | PGQTGKIADY | 2.4e-05 | 63 |
| HLA-B*44:03 | 1 | 415 | 424 | 10 | TGKIADYNYK | 2.4e-05 | 38 |
| HLA-B*35:01 | 1 | 422 | 430 | 9 | NYKLPDDFT | 2.4e-05 | 39 |
| HLA-B*58:01 | 1 | 422 | 431 | 10 | NYKLPDDFTG | 2.4e-05 | 58 |
| HLA-A*32:01 | 1 | 425 | 434 | 10 | LPDDFTGCVI | 2.4e-05 | 41 |
| HLA-A*30:02 | 1 | 427 | 435 | 9 | DDFTGCVIA | 2.4e-05 | 78 |
| HLA-A*01:01 | 1 | 432 | 440 | 9 | CVIAWNSNN | 2.4e-05 | 76 |
| HLA-B*15:01 | 1 | 432 | 440 | 9 | CVIAWNSNN | 2.4e-05 | 53 |
| HLA-A*02:03 | 1 | 450 | 458 | 9 | NYLYRFRK | 2.4e-05 | 56 |
| HLA-B*07:02 | 1 | 452 | 460 | 9 | LYRFRKSN | 2.4e-05 | 52 |
| HLA-B*44:02 | 1 | 459 | 467 | 9 | SNLKPFRD | 2.4e-05 | 40 |
| HLA-A*33:01 | 1 | 461 | 470 | 10 | LKPFERDIST | 2.4e-05 | 58 |
| HLA-A*32:01 | 1 | 466 | 474 | 9 | RDISTEIQ | 2.4e-05 | 41 |
| HLA-A*02:06 | 1 | 467 | 476 | 10 | DISTEIQAG | 2.4e-05 | 63 |
| HLA-A*30:02 | 1 | 478 | 487 | 10 | TPCNGVEGFN | 2.4e-05 | 78 |
| HLA-B*58:01 | 1 | 478 | 487 | 10 | TPCNGVEGFN | 2.4e-05 | 58 |
| HLA-A*68:01 | 1 | 483 | 492 | 10 | VEGFNCYFPL | 2.4e-05 | 48 |
| HLA-B*53:01 | 1 | 483 | 492 | 10 | VEGFNCYFPL | 2.4e-05 | 38 |
| HLA-B*44:02 | 1 | 484 | 492 | 9 | EGFNCYFPL | 2.4e-05 | 40 |
| HLA-B*44:03 | 1 | 484 | 492 | 9 | EGFNCYFPL | 2.4e-05 | 38 |
| HLA-A*24:02 | 1 | 485 | 494 | 10 | GFNCYFPLQS | 2.4e-05 | 34 |
| HLA-A*02:06 | 1 | 487 | 496 | 10 | NCYFPLQSYG | 2.4e-05 | 63 |
| HLA-B*44:02 | 1 | 487 | 496 | 10 | NCYFPLQSYG | 2.4e-05 | 40 |
| HLA-B*15:01 | 1 | 489 | 498 | 10 | YFPLQSYGFQ | 2.4e-05 | 53 |
| HLA-A*03:01 | 1 | 492 | 501 | 10 | LQSYGFQPTN | 2.4e-05 | 47 |
| HLA-B*08:01 | 1 | 493 | 502 | 10 | QSYGFQPTNG | 2.4e-05 | 71 |
| HLA-A*31:01 | 1 | 498 | 506 | 9 | QPTNGVGYYQ | 2.4e-05 | 55 |
| HLA-A*68:02 | 1 | 498 | 506 | 9 | QPTNGVGYYQ | 2.4e-05 | 54 |
| HLA-B*58:01 | 1 | 498 | 506 | 9 | QPTNGVGYYQ | 2.4e-05 | 58 |
| HLA-A*24:02 | 1 | 499 | 507 | 9 | PTNGVGYYQP | 2.4e-05 | 34 |
| HLA-B*07:02 | 1 | 499 | 507 | 9 | PTNGVGYYQP | 2.4e-05 | 52 |
| HLA-A*32:01 | 1 | 500 | 509 | 10 | TNGVGYYQPYR | 2.4e-05 | 41 |
| HLA-A*03:01 | 1 | 508 | 517 | 10 | YRVVLSFEL | 2.4e-05 | 47 |
| HLA-B*51:01 | 1 | 508 | 516 | 9 | YRVVLSFE | 2.4e-05 | 63 |
| HLA-A*32:01 | 1 | 516 | 525 | 10 | ELLHAPATVC | 2.4e-05 | 41 |
| HLA-A*03:01 | 1 | 517 | 526 | 10 | LLHAPATVCG | 2.4e-05 | 47 |
| HLA-A*24:02 | 1 | 518 | 527 | 10 | LHAPATVCGP | 2.4e-05 | 34 |
| HLA-A*31:01 | 1 | 518 | 526 | 9 | LHAPATVCG | 2.4e-05 | 55 |
| HLA-A*02:01 | 1 | 520 | 529 | 10 | APATVCGPKK | 2.4e-05 | 53 |
| HLA-B*40:01 | 1 | 522 | 530 | 9 | ATVCGPKKS | 2.4e-05 | 33 |
| HLA-A*02:06 | 1 | 526 | 535 | 10 | GPKKSTNLVK | 2.4e-05 | 63 |
| HLA-B*07:02 | 1 | 529 | 538 | 10 | KSTNLVKNK | 2.4e-05 | 52 |
| HLA-B*40:01 | 1 | 530 | 539 | 10 | STNLVKNKCV | 2.4e-05 | 33 |
| HLA-A*02:01 | 1 | 535 | 543 | 9 | KNKCVNFNF | 2.4e-05 | 53 |
| HLA-A*03:01 | 1 | 539 | 547 | 9 | VNFNFNGLT | 2.4e-05 | 47 |
| HLA-A*32:01 | 1 | 543 | 552 | 10 | FNGLTGTGVL | 2.4e-05 | 41 |
| HLA-B*40:01 | 1 | 550 | 558 | 9 | GVLTESNKK | 2.4e-05 | 33 |
| HLA-B*51:01 | 1 | 550 | 558 | 9 | GVLTESNKK | 2.4e-05 | 63 |
| HLA-A*68:01 | 1 | 551 | 560 | 10 | VLTESNKKFL | 2.4e-05 | 48 |
| HLA-A*02:06 | 1 | 554 | 563 | 10 | ESNKKFLPFQ | 2.4e-05 | 63 |
| HLA-B*07:02 | 1 | 563 | 571 | 9 | QQFGRDIAD | 2.4e-05 | 52 |
| HLA-A*02:01 | 1 | 564 | 573 | 10 | QFGRDIADTT | 2.4e-05 | 53 |
| HLA-B*44:02 | 1 | 566 | 575 | 10 | GRDIADTTDA | 2.4e-05 | 40 |
| HLA-B*53:01 | 1 | 571 | 580 | 10 | DTTDAVRDPQ | 2.4e-05 | 38 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*31:01 | 1 | 582 | 591 | 10 | LEILDITPCS | 2.4e-05 | 55 |
| HLA-B*53:01 | 1 | 587 | 596 | 10 | ITPCSFGGVS | 2.4e-05 | 38 |
| HLA-A*68:01 | 1 | 589 | 598 | 10 | PCSFGGVSVI | 2.4e-05 | 48 |
| HLA-A*32:01 | 1 | 590 | 599 | 10 | CSFGGVSVIT | 2.4e-05 | 41 |
| HLA-A*23:01 | 1 | 592 | 600 | 9 | FGGVSVITP | 2.4e-05 | 36 |
| HLA-B*40:01 | 1 | 594 | 602 | 9 | GVSVITPGT | 2.4e-05 | 33 |
| HLA-A*02:06 | 1 | 600 | 609 | 10 | PGTNTSNQVA | 2.4e-05 | 63 |
| HLA-B*53:01 | 1 | 606 | 615 | 10 | NQVAVLYQDV | 2.4e-05 | 38 |
| HLA-A*68:02 | 1 | 607 | 616 | 10 | QVAVLYQDVN | 2.4e-05 | 54 |
| HLA-A*02:03 | 1 | 608 | 617 | 10 | VAVLYQDVNC | 2.4e-05 | 56 |
| HLA-B*51:01 | 1 | 613 | 621 | 9 | QDVNCTEVP | 2.4e-05 | 63 |
| HLA-B*57:01 | 1 | 624 | 632 | 9 | IHADQLTPT | 2.4e-05 | 70 |
| HLA-B*58:01 | 1 | 624 | 632 | 9 | IHADQLTPT | 2.4e-05 | 58 |
| HLA-A*32:01 | 1 | 626 | 634 | 9 | ADQLTPTWR | 2.4e-05 | 41 |
| HLA-B*35:01 | 1 | 629 | 637 | 9 | LTPTWRVYS | 2.4e-05 | 39 |
| HLA-A*01:01 | 1 | 630 | 639 | 10 | TPTWRVYSTG | 2.4e-05 | 76 |
| HLA-A*33:01 | 1 | 631 | 639 | 9 | PTWRVYSTG | 2.4e-05 | 58 |
| HLA-A*30:01 | 1 | 633 | 641 | 9 | WRVYSTGSN | 2.4e-05 | 80 |
| HLA-B*15:01 | 1 | 645 | 653 | 9 | TRAGCLIGA | 2.4e-05 | 53 |
| HLA-B*58:01 | 1 | 649 | 658 | 10 | CLIGAEHVNN | 2.4e-05 | 58 |
| HLA-A*33:01 | 1 | 650 | 659 | 10 | LIGAEHVNNS | 2.4e-05 | 58 |
| HLA-B*44:02 | 1 | 651 | 659 | 9 | IGAEHVNNS | 2.4e-05 | 40 |
| HLA-B*44:02 | 1 | 655 | 664 | 10 | HVNNSYECDI | 2.4e-05 | 40 |
| HLA-A*02:03 | 1 | 667 | 676 | 10 | GAGICASYQT | 2.4e-05 | 56 |
| HLA-B*51:01 | 1 | 667 | 675 | 9 | GAGICASYQ | 2.4e-05 | 63 |
| HLA-B*35:01 | 1 | 669 | 677 | 9 | GICASYQTQ | 2.4e-05 | 39 |
| HLA-A*03:01 | 1 | 670 | 678 | 9 | ICASYQTQT | 2.4e-05 | 47 |
| HLA-B*53:01 | 1 | 676 | 684 | 9 | TQTNSPRRA | 2.4e-05 | 38 |
| HLA-A*33:01 | 1 | 682 | 691 | 10 | RRARSVASQS | 2.4e-05 | 58 |
| HLA-A*26:01 | 1 | 689 | 698 | 10 | SQSIIAYTMS | 2.4e-05 | 47 |
| HLA-B*07:02 | 1 | 689 | 698 | 10 | SQSIIAYTMS | 2.4e-05 | 52 |
| HLA-B*07:02 | 1 | 692 | 700 | 9 | IIAYTMSLG | 2.4e-05 | 52 |
| HLA-A*26:01 | 1 | 697 | 706 | 10 | MSLGAENSV | 2.4e-05 | 47 |
| HLA-A*31:01 | 1 | 703 | 712 | 10 | NSVAYSNNSI | 2.4e-05 | 55 |
| HLA-B*07:02 | 1 | 703 | 711 | 9 | NSVAYSNNS | 2.4e-05 | 52 |
| HLA-B*53:01 | 1 | 703 | 711 | 9 | NSVAYSNNS | 2.4e-05 | 38 |
| HLA-B*53:01 | 1 | 709 | 717 | 9 | NNSIAIPTN | 2.4e-05 | 38 |
| HLA-A*11:01 | 1 | 712 | 721 | 10 | IAIPTNFTIS | 2.4e-05 | 35 |
| HLA-A*02:01 | 1 | 715 | 723 | 9 | PTNFTISVT | 2.4e-05 | 53 |
| HLA-B*57:01 | 1 | 717 | 725 | 9 | NFTISVTTE | 2.4e-05 | 70 |
| HLA-A*11:01 | 1 | 719 | 728 | 10 | TISVTTEILP | 2.4e-05 | 35 |
| HLA-B*40:01 | 1 | 720 | 728 | 9 | ISVTTEILP | 2.4e-05 | 33 |
| HLA-A*03:01 | 1 | 727 | 735 | 9 | LPVSMTKTS | 2.4e-05 | 47 |
| HLA-B*57:01 | 1 | 735 | 744 | 10 | SVDCTMYICG | 2.4e-05 | 70 |
| HLA-B*57:01 | 1 | 742 | 750 | 9 | ICGDSTECS | 2.4e-05 | 70 |
| HLA-A*03:01 | 1 | 745 | 754 | 10 | DSTECSNLLL | 2.4e-05 | 47 |
| HLA-A*01:01 | 1 | 764 | 773 | 10 | NRALTGIAVE | 2.4e-05 | 76 |
| HLA-A*02:06 | 1 | 775 | 783 | 9 | DKNTQEVFA | 2.4e-05 | 63 |
| HLA-B*40:01 | 1 | 782 | 791 | 10 | FAQVKQIYKT | 2.4e-05 | 33 |
| HLA-B*44:03 | 1 | 785 | 794 | 10 | VKQIYKTPPI | 2.4e-05 | 38 |
| HLA-B*07:02 | 1 | 788 | 796 | 9 | IYKTPPIKD | 2.4e-05 | 52 |
| HLA-A*11:01 | 1 | 792 | 800 | 9 | PPIKDFGGF | 2.4e-05 | 35 |
| HLA-A*30:01 | 1 | 792 | 800 | 9 | PPIKDFGGF | 2.4e-05 | 80 |
| HLA-A*24:02 | 1 | 794 | 803 | 10 | IKDFGGFNFS | 2.4e-05 | 34 |
| HLA-B*40:01 | 1 | 797 | 806 | 10 | FGGFNFSQIL | 2.4e-05 | 33 |
| HLA-B*07:02 | 1 | 802 | 810 | 9 | FSQILPDPSP | 2.4e-05 | 52 |
| HLA-B*58:01 | 1 | 805 | 813 | 9 | ILPDPSPKPS | 2.4e-05 | 58 |
| HLA-A*02:06 | 1 | 809 | 818 | 10 | PSKPSKRSFI | 2.4e-05 | 63 |
| HLA-A*68:01 | 1 | 810 | 819 | 10 | SKPSKRSFIE | 2.4e-05 | 48 |
| HLA-B*15:01 | 1 | 811 | 819 | 9 | KPSKRSFIE | 2.4e-05 | 53 |
| HLA-A*30:02 | 1 | 812 | 820 | 9 | PSKRSFIED | 2.4e-05 | 78 |
| HLA-B*35:01 | 1 | 813 | 822 | 10 | SKRSFIEDLL | 2.4e-05 | 39 |
| HLA-B*07:02 | 1 | 819 | 827 | 9 | EDLLFNKVT | 2.4e-05 | 52 |
| HLA-A*68:01 | 1 | 823 | 831 | 9 | FNKVTLADA | 2.4e-05 | 48 |
| HLA-A*26:01 | 1 | 825 | 834 | 10 | KVTLADAGFI | 2.4e-05 | 47 |
| HLA-B*51:01 | 1 | 829 | 838 | 10 | ADAGFIKQYG | 2.4e-05 | 63 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-B*51:01 | 1 | 831 | 839 | 9 | AGFIKQYGD | 2.4e-05 | 63 |
| HLA-A*02:01 | 1 | 833 | 842 | 10 | FIKQYGDCLG | 2.4e-05 | 53 |
| HLA-A*02:01 | 1 | 837 | 845 | 9 | YGDCLGDIA | 2.4e-05 | 53 |
| HLA-B*44:02 | 1 | 841 | 850 | 10 | LGDIAAARDLI | 2.4e-05 | 40 |
| HLA-A*24:02 | 1 | 845 | 854 | 10 | AARDLICAQK | 2.4e-05 | 34 |
| HLA-A*01:01 | 1 | 848 | 856 | 9 | DLICAQKFN | 2.4e-05 | 76 |
| HLA-A*31:01 | 1 | 849 | 857 | 9 | LICAQKFNG | 2.4e-05 | 55 |
| HLA-B*35:01 | 1 | 849 | 858 | 10 | LICAQKFNGL | 2.4e-05 | 39 |
| HLA-A*11:01 | 1 | 850 | 858 | 9 | ICAQKFNGL | 2.4e-05 | 35 |
| HLA-A*11:01 | 1 | 854 | 863 | 10 | KFNGLTVLPP | 2.4e-05 | 35 |
| HLA-A*26:01 | 1 | 855 | 864 | 10 | FNGLTVLPP | 2.4e-05 | 47 |
| HLA-B*44:03 | 1 | 859 | 867 | 9 | TVLPPLLD | 2.4e-05 | 38 |
| HLA-A*02:01 | 1 | 862 | 870 | 9 | PPLLDDEMI | 2.4e-05 | 53 |
| HLA-A*30:02 | 1 | 863 | 872 | 10 | PLLDDEMIQ | 2.4e-05 | 78 |
| HLA-A*02:06 | 1 | 866 | 874 | 9 | TDEMIQY | 2.4e-05 | 63 |
| HLA-A*03:01 | 1 | 873 | 882 | 10 | YTSALLAGTI | 2.4e-05 | 47 |
| HLA-A*30:01 | 1 | 878 | 887 | 10 | LAGTITSGWT | 2.4e-05 | 80 |
| HLA-B*57:01 | 1 | 879 | 887 | 9 | AGTITSGWT | 2.4e-05 | 70 |
| HLA-B*40:01 | 1 | 882 | 890 | 9 | ITSGWTFGA | 2.4e-05 | 33 |
| HLA-A*68:01 | 1 | 884 | 893 | 10 | SGWTFGAGAA | 2.4e-05 | 48 |
| HLA-B*35:01 | 1 | 906 | 915 | 10 | FNGIGVTQNV | 2.4e-05 | 39 |
| HLA-A*24:02 | 1 | 908 | 917 | 10 | GIGVTQNVLY | 2.4e-05 | 34 |
| HLA-B*40:01 | 1 | 912 | 921 | 10 | TONVLYENQK | 2.4e-05 | 33 |
| HLA-B*44:03 | 1 | 915 | 924 | 10 | VLNENQKLI | 2.4e-05 | 38 |
| HLA-B*53:01 | 1 | 918 | 926 | 9 | ENQKLIANQ | 2.4e-05 | 38 |
| HLA-A*11:01 | 1 | 942 | 950 | 9 | ASALGKLQD | 2.4e-05 | 35 |
| HLA-B*40:01 | 1 | 949 | 958 | 10 | QDVVNQNAQA | 2.4e-05 | 33 |
| HLA-B*40:01 | 1 | 955 | 964 | 10 | NAQALNTLVK | 2.4e-05 | 33 |
| HLA-A*03:01 | 1 | 966 | 975 | 10 | LSSNFGAISS | 2.4e-05 | 47 |
| HLA-B*51:01 | 1 | 969 | 978 | 10 | NFGAISSVLN | 2.4e-05 | 63 |
| HLA-A*68:01 | 1 | 971 | 980 | 10 | GAISSVLNDI | 2.4e-05 | 48 |
| HLA-B*40:01 | 1 | 974 | 982 | 9 | SSVLNDILS | 2.4e-05 | 33 |
| HLA-B*40:01 | 1 | 974 | 983 | 10 | SSVLNDILSR | 2.4e-05 | 33 |
| HLA-A*24:02 | 1 | 976 | 985 | 10 | VLNDILSRLD | 2.4e-05 | 34 |
| HLA-B*57:01 | 1 | 977 | 985 | 9 | LNDILSRLD | 2.4e-05 | 70 |
| HLA-A*02:06 | 1 | 978 | 986 | 9 | NDILSRLDK | 2.4e-05 | 63 |
| HLA-A*24:02 | 1 | 978 | 987 | 10 | NDILSRLDKV | 2.4e-05 | 34 |
| HLA-B*44:02 | 1 | 983 | 992 | 10 | RLDKVEAEVQ | 2.4e-05 | 40 |
| HLA-B*58:01 | 1 | 984 | 992 | 9 | LDKVEAEVQ | 2.4e-05 | 58 |
| HLA-A*03:01 | 1 | 989 | 998 | 10 | AEVQIDRLIT | 2.4e-05 | 47 |
| HLA-B*35:01 | 1 | 989 | 998 | 10 | AEVQIDRLIT | 2.4e-05 | 39 |
| HLA-A*03:01 | 1 | 990 | 998 | 9 | EVQIDRLIT | 2.4e-05 | 47 |
| HLA-B*35:01 | 1 | 995 | 1003 | 9 | RLITGRLQS | 2.4e-05 | 39 |
| HLA-A*23:01 | 1 | 1009 | 1017 | 9 | TQQLIRAAE | 2.4e-05 | 36 |
| HLA-A*26:01 | 1 | 1009 | 1018 | 10 | TQQLIRAAEI | 2.4e-05 | 47 |
| HLA-A*24:02 | 1 | 1013 | 1022 | 10 | IRAAEIRASA | 2.4e-05 | 34 |
| HLA-B*40:01 | 1 | 1017 | 1026 | 10 | EIRASANLAA | 2.4e-05 | 33 |
| HLA-A*33:01 | 1 | 1025 | 1034 | 10 | AATKMSECVL | 2.4e-05 | 58 |
| HLA-B*58:01 | 1 | 1027 | 1036 | 10 | TKMSECVLGQ | 2.4e-05 | 58 |
| HLA-B*44:03 | 1 | 1028 | 1036 | 9 | KMSECVLGQ | 2.4e-05 | 38 |
| HLA-A*02:01 | 1 | 1029 | 1038 | 10 | MSECVLGQSK | 2.4e-05 | 53 |
| HLA-A*31:01 | 1 | 1036 | 1044 | 9 | QSKRVDFCG | 2.4e-05 | 55 |
| HLA-A*11:01 | 1 | 1041 | 1049 | 9 | DFCGKGYHL | 2.4e-05 | 35 |
| HLA-A*02:06 | 1 | 1042 | 1051 | 10 | FCGKGYHLMS | 2.4e-05 | 63 |
| HLA-A*33:01 | 1 | 1042 | 1051 | 10 | FCGKGYHLMS | 2.4e-05 | 58 |
| HLA-A*11:01 | 1 | 1043 | 1051 | 9 | CGKGYHLMS | 2.4e-05 | 35 |
| HLA-A*68:01 | 1 | 1051 | 1059 | 9 | SFPQSAPHG | 2.4e-05 | 48 |
| HLA-B*35:01 | 1 | 1051 | 1059 | 9 | SFPQSAPHG | 2.4e-05 | 39 |
| HLA-A*31:01 | 1 | 1052 | 1061 | 10 | FPQSAPHGVV | 2.4e-05 | 55 |
| HLA-B*40:01 | 1 | 1062 | 1070 | 9 | FLHVTVVPA | 2.4e-05 | 33 |
| HLA-A*68:02 | 1 | 1066 | 1074 | 9 | TYVPAQEK | 2.4e-05 | 54 |
| HLA-A*32:01 | 1 | 1067 | 1076 | 10 | YVPAQEKNT | 2.4e-05 | 41 |
| HLA-B*40:01 | 1 | 1069 | 1078 | 10 | PAQEKNTFTA | 2.4e-05 | 33 |
| HLA-B*53:01 | 1 | 1069 | 1078 | 10 | PAQEKNTFTA | 2.4e-05 | 38 |
| HLA-A*32:01 | 1 | 1073 | 1082 | 10 | KNFTTAPAIC | 2.4e-05 | 41 |
| HLA-A*23:01 | 1 | 1075 | 1083 | 9 | FTTAPAICH | 2.4e-05 | 36 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-B*08:01 | 1 | 1076 | 1084 | 9 | TTAPAICH | 2.4e-05 | 71 |
| HLA-A*24:02 | 1 | 1077 | 1086 | 10 | TAPAICHGK | 2.4e-05 | 34 |
| HLA-A*68:02 | 1 | 1079 | 1087 | 9 | PAICHGKA | 2.4e-05 | 54 |
| HLA-B*15:01 | 1 | 1088 | 1097 | 10 | HFPREGVFS | 2.4e-05 | 53 |
| HLA-A*02:06 | 1 | 1092 | 1101 | 10 | EGVFSNGTH | 2.4e-05 | 63 |
| HLA-B*40:01 | 1 | 1095 | 1104 | 10 | FVSNGTHWFV | 2.4e-05 | 33 |
| HLA-A*02:03 | 1 | 1097 | 1105 | 9 | SNGTHWFVT | 2.4e-05 | 56 |
| HLA-A*24:02 | 1 | 1097 | 1105 | 9 | SNGTHWFVT | 2.4e-05 | 34 |
| HLA-A*23:01 | 1 | 1098 | 1107 | 10 | NGTHWFVTQR | 2.4e-05 | 36 |
| HLA-B*53:01 | 1 | 1105 | 1114 | 10 | TQRNFYEQI | 2.4e-05 | 38 |
| HLA-B*44:03 | 1 | 1109 | 1118 | 10 | FYEQIITTD | 2.4e-05 | 38 |
| HLA-A*68:01 | 1 | 1110 | 1118 | 9 | YEQIITTD | 2.4e-05 | 48 |
| HLA-A*24:02 | 1 | 1113 | 1122 | 10 | QIITTDNTFV | 2.4e-05 | 34 |
| HLA-B*40:01 | 1 | 1113 | 1122 | 10 | QIITTDNTFV | 2.4e-05 | 33 |
| HLA-A*23:01 | 1 | 1119 | 1128 | 10 | NTFVSGNCDV | 2.4e-05 | 36 |
| HLA-A*24:02 | 1 | 1119 | 1128 | 10 | NTFVSGNCDV | 2.4e-05 | 34 |
| HLA-B*40:01 | 1 | 1120 | 1128 | 9 | TFVSGNCDV | 2.4e-05 | 33 |
| HLA-B*58:01 | 1 | 1120 | 1128 | 9 | TFVSGNCDV | 2.4e-05 | 58 |
| HLA-A*02:03 | 1 | 1127 | 1135 | 9 | DVVIGIVNN | 2.4e-05 | 56 |
| HLA-B*44:03 | 1 | 1135 | 1143 | 9 | NTVYDPLQP | 2.4e-05 | 38 |
| HLA-A*30:02 | 1 | 1139 | 1147 | 9 | DPLQPELDS | 2.4e-05 | 78 |
| HLA-A*03:01 | 1 | 1142 | 1151 | 10 | QPELDSFKEE | 2.4e-05 | 47 |
| HLA-B*44:03 | 1 | 1142 | 1150 | 9 | QPELDSFKE | 2.4e-05 | 38 |
| HLA-B*40:01 | 1 | 1146 | 1154 | 9 | DSFKEELDK | 2.4e-05 | 33 |
| HLA-A*68:01 | 1 | 1149 | 1158 | 10 | KEELDKYFKN | 2.4e-05 | 48 |
| HLA-B*58:01 | 1 | 1150 | 1158 | 9 | EELDKYFKN | 2.4e-05 | 58 |
| HLA-A*02:03 | 1 | 1152 | 1161 | 10 | LDKYFKNHTS | 2.4e-05 | 56 |
| HLA-A*03:01 | 1 | 1153 | 1161 | 9 | DKYFKNHTS | 2.4e-05 | 47 |
| HLA-A*68:01 | 1 | 1157 | 1166 | 10 | KNHTSPDVDL | 2.4e-05 | 48 |
| HLA-B*07:02 | 1 | 1159 | 1167 | 9 | HTSPDVDLG | 2.4e-05 | 52 |
| HLA-A*01:01 | 1 | 1164 | 1173 | 10 | VDLGDISGIN | 2.4e-05 | 76 |
| HLA-A*68:02 | 1 | 1171 | 1180 | 10 | GINASVVNIQ | 2.4e-05 | 54 |
| HLA-A*32:01 | 1 | 1179 | 1187 | 9 | IQKEIDRLN | 2.4e-05 | 41 |
| HLA-A*30:02 | 1 | 1183 | 1192 | 10 | IDRLNEVAKN | 2.4e-05 | 78 |
| HLA-A*30:02 | 1 | 1186 | 1194 | 9 | LNEVAKNLN | 2.4e-05 | 78 |
| HLA-B*53:01 | 1 | 1191 | 1200 | 10 | KNLNEIDL | 2.4e-05 | 38 |
| HLA-A*02:03 | 1 | 1203 | 1212 | 10 | LGKYEQYIKW | 2.4e-05 | 56 |
| HLA-A*68:01 | 1 | 1211 | 1219 | 9 | KWPWYIWLG | 2.4e-05 | 48 |
| HLA-A*01:01 | 1 | 1212 | 1221 | 10 | WPWYIWLGFI | 2.4e-05 | 76 |
| HLA-A*02:01 | 1 | 1212 | 1221 | 10 | WPWYIWLGFI | 2.4e-05 | 53 |
| HLA-B*57:01 | 1 | 1212 | 1221 | 10 | WPWYIWLGFI | 2.4e-05 | 70 |
| HLA-A*30:02 | 1 | 1213 | 1222 | 10 | PWYIWLGFIA | 2.4e-05 | 78 |
| HLA-A*68:02 | 1 | 1213 | 1222 | 10 | PWYIWLGFIA | 2.4e-05 | 54 |
| HLA-B*08:01 | 1 | 1214 | 1223 | 10 | WYIWLGFIA | 2.4e-05 | 71 |
| HLA-A*11:01 | 1 | 1215 | 1224 | 10 | YIWLGFIA | 2.4e-05 | 35 |
| HLA-B*40:01 | 1 | 1218 | 1226 | 9 | LGFIAGLIA | 2.4e-05 | 33 |
| HLA-A*26:01 | 1 | 1226 | 1235 | 10 | AIVMVTIMLC | 2.4e-05 | 47 |
| HLA-A*33:01 | 1 | 1236 | 1244 | 9 | CMTSCCSC | 2.4e-05 | 58 |
| HLA-A*30:02 | 1 | 1239 | 1247 | 9 | SCCCLKGC | 2.4e-05 | 78 |
| HLA-B*08:01 | 1 | 1241 | 1249 | 9 | CCLKGCCS | 2.4e-05 | 71 |
| HLA-A*30:02 | 1 | 1243 | 1251 | 9 | CLKGCCSCG | 2.4e-05 | 78 |
| HLA-A*01:01 | 1 | 1246 | 1255 | 10 | GCCSCGSCC | 2.4e-05 | 76 |
| HLA-B*58:01 | 1 | 1246 | 1254 | 9 | GCCSCGSCC | 2.4e-05 | 58 |
| HLA-A*33:01 | 1 | 1255 | 1263 | 9 | KFDEDDSEP | 2.4e-05 | 58 |
| HLA-B*57:01 | 1 | 1256 | 1264 | 9 | FDEDDSEPV | 2.4e-05 | 70 |
| HLA-A*24:02 | 1 | 1259 | 1267 | 9 | DDSEPVKKG | 2.4e-05 | 34 |
| HLA-B*57:01 | 1 | 1261 | 1269 | 9 | SEPVKKGVK | 2.4e-05 | 70 |
| HLA-A*03:01 | 1 | 3 | 12 | 10 | VFLVLLPLVS | 2.3e-05 | 48 |
| HLA-A*26:01 | 1 | 10 | 19 | 10 | LVSSQCVNLT | 2.3e-05 | 48 |
| HLA-B*07:02 | 1 | 14 | 22 | 9 | QCVNLTTRT | 2.3e-05 | 52 |
| HLA-B*35:01 | 1 | 14 | 22 | 9 | QCVNLTTRT | 2.3e-05 | 40 |
| HLA-B*44:03 | 1 | 17 | 25 | 9 | NLTTRTQLP | 2.3e-05 | 38 |
| HLA-B*53:01 | 1 | 20 | 29 | 10 | TRTQLPPAYT | 2.3e-05 | 39 |
| HLA-B*58:01 | 1 | 24 | 33 | 10 | LPPAYTNSFT | 2.3e-05 | 59 |
| HLA-A*26:01 | 1 | 32 | 40 | 9 | FTRGVYYPD | 2.3e-05 | 48 |
| HLA-B*35:01 | 1 | 34 | 42 | 9 | RGVYYPDKV | 2.3e-05 | 40 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-B*44:03 | 1 | 42 | 51 | 10 | VFRSSVLHST | 2.3e-05 | 38 |
| HLA-A*11:01 | 1 | 44 | 53 | 10 | RSSVLHSTQD | 2.3e-05 | 36 |
| HLA-B*44:02 | 1 | 49 | 57 | 9 | HSTQDLFLP | 2.3e-05 | 41 |
| HLA-A*31:01 | 1 | 52 | 60 | 9 | QDLFLPFFS | 2.3e-05 | 55 |
| HLA-B*58:01 | 1 | 53 | 61 | 9 | DLFLPFFSN | 2.3e-05 | 59 |
| HLA-A*01:01 | 1 | 64 | 73 | 10 | WFHAIHVSGT | 2.3e-05 | 76 |
| HLA-A*02:01 | 1 | 68 | 76 | 9 | IHVSGTNGT | 2.3e-05 | 53 |
| HLA-B*53:01 | 1 | 68 | 76 | 9 | IHVSGTNGT | 2.3e-05 | 39 |
| HLA-B*57:01 | 1 | 68 | 76 | 9 | IHVSGTNGT | 2.3e-05 | 71 |
| HLA-B*44:02 | 1 | 82 | 90 | 9 | PVLPFNDGV | 2.3e-05 | 41 |
| HLA-A*30:01 | 1 | 86 | 95 | 10 | FNDGVYFAST | 2.3e-05 | 80 |
| HLA-B*07:02 | 1 | 86 | 95 | 10 | FNDGVYFAST | 2.3e-05 | 52 |
| HLA-B*44:03 | 1 | 90 | 98 | 9 | VYFASTEKS | 2.3e-05 | 38 |
| HLA-B*07:02 | 1 | 91 | 99 | 9 | YFASTEKS | 2.3e-05 | 52 |
| HLA-A*68:01 | 1 | 96 | 105 | 10 | EKSNIIRGWI | 2.3e-05 | 49 |
| HLA-A*68:02 | 1 | 97 | 106 | 10 | KSNIIRGWIF | 2.3e-05 | 55 |
| HLA-B*51:01 | 1 | 99 | 108 | 10 | NIIRGWIFGT | 2.3e-05 | 64 |
| HLA-B*53:01 | 1 | 106 | 115 | 10 | FGTTLDSKTQ | 2.3e-05 | 39 |
| HLA-A*23:01 | 1 | 111 | 120 | 10 | DSKTQSLLIV | 2.3e-05 | 36 |
| HLA-B*07:02 | 1 | 113 | 121 | 9 | KTQSLLIVN | 2.3e-05 | 52 |
| HLA-A*24:02 | 1 | 115 | 123 | 9 | QSLLIVNNA | 2.3e-05 | 35 |
| HLA-A*26:01 | 1 | 117 | 125 | 9 | LLIVNNATN | 2.3e-05 | 48 |
| HLA-B*44:02 | 1 | 119 | 128 | 10 | IVNNATNVVI | 2.3e-05 | 41 |
| HLA-B*40:01 | 1 | 121 | 129 | 9 | NNATNVVIK | 2.3e-05 | 33 |
| HLA-A*11:01 | 1 | 124 | 132 | 9 | TNVVIKVCE | 2.3e-05 | 36 |
| HLA-B*35:01 | 1 | 134 | 143 | 10 | QFCNDPFLGV | 2.3e-05 | 40 |
| HLA-B*15:01 | 1 | 138 | 147 | 10 | DPFLGVVYHK | 2.3e-05 | 53 |
| HLA-B*53:01 | 1 | 141 | 150 | 10 | LGVYHKNK | 2.3e-05 | 39 |
| HLA-A*02:01 | 1 | 143 | 151 | 9 | VYHKNKNS | 2.3e-05 | 53 |
| HLA-B*58:01 | 1 | 143 | 151 | 9 | VYHKNKNS | 2.3e-05 | 59 |
| HLA-A*03:01 | 1 | 144 | 153 | 10 | YHKNKNSWM | 2.3e-05 | 48 |
| HLA-A*26:01 | 1 | 146 | 154 | 9 | HKNKNSWME | 2.3e-05 | 48 |
| HLA-A*02:03 | 1 | 147 | 155 | 9 | KNKNSWMES | 2.3e-05 | 56 |
| HLA-A*02:06 | 1 | 148 | 157 | 10 | NNKNSWMESEF | 2.3e-05 | 64 |
| HLA-B*40:01 | 1 | 150 | 158 | 9 | KSWMESEFR | 2.3e-05 | 33 |
| HLA-B*57:01 | 1 | 152 | 161 | 10 | WMESEFRVYS | 2.3e-05 | 71 |
| HLA-A*03:01 | 1 | 154 | 162 | 9 | ESEFRVYSS | 2.3e-05 | 48 |
| HLA-B*40:01 | 1 | 157 | 166 | 10 | FRVYSSANNC | 2.3e-05 | 33 |
| HLA-A*03:01 | 1 | 163 | 171 | 9 | ANNCTFEYV | 2.3e-05 | 48 |
| HLA-B*57:01 | 1 | 164 | 173 | 10 | NNCTFEYVSQ | 2.3e-05 | 71 |
| HLA-B*44:02 | 1 | 172 | 180 | 9 | SQPFLMDLE | 2.3e-05 | 41 |
| HLA-A*68:01 | 1 | 184 | 193 | 10 | GNFKNLREFV | 2.3e-05 | 49 |
| HLA-A*02:06 | 1 | 185 | 194 | 10 | NFKNLREFVF | 2.3e-05 | 64 |
| HLA-A*02:01 | 1 | 186 | 195 | 10 | FKNLREFVFK | 2.3e-05 | 53 |
| HLA-A*26:01 | 1 | 186 | 195 | 10 | FKNLREFVFK | 2.3e-05 | 48 |
| HLA-B*15:01 | 1 | 187 | 196 | 10 | KNLREFVFKN | 2.3e-05 | 53 |
| HLA-A*02:06 | 1 | 197 | 205 | 9 | IDGYFKIYS | 2.3e-05 | 64 |
| HLA-A*24:02 | 1 | 197 | 206 | 10 | IDGYFKIYSK | 2.3e-05 | 35 |
| HLA-A*02:06 | 1 | 198 | 207 | 10 | DGYFKIYSKH | 2.3e-05 | 64 |
| HLA-B*15:01 | 1 | 199 | 208 | 10 | GYFKIYSKHT | 2.3e-05 | 53 |
| HLA-A*68:01 | 1 | 200 | 208 | 9 | YFKIYSKHT | 2.3e-05 | 49 |
| HLA-A*01:01 | 1 | 202 | 211 | 10 | KIYSKHTPIN | 2.3e-05 | 76 |
| HLA-B*51:01 | 1 | 210 | 218 | 9 | INLVLDLPQ | 2.3e-05 | 64 |
| HLA-A*23:01 | 1 | 212 | 221 | 10 | LVRDLPQGFS | 2.3e-05 | 36 |
| HLA-B*44:02 | 1 | 213 | 221 | 9 | VRDLPQGFS | 2.3e-05 | 41 |
| HLA-B*51:01 | 1 | 217 | 225 | 9 | PQGFSALEP | 2.3e-05 | 64 |
| HLA-A*30:01 | 1 | 219 | 228 | 10 | GFSALEPLVD | 2.3e-05 | 80 |
| HLA-B*44:03 | 1 | 220 | 229 | 10 | FSALEPLVDL | 2.3e-05 | 38 |
| HLA-A*33:01 | 1 | 222 | 231 | 10 | ALEPLVDLPI | 2.3e-05 | 59 |
| HLA-A*02:03 | 1 | 226 | 234 | 9 | LVLDLPIGIN | 2.3e-05 | 56 |
| HLA-A*68:01 | 1 | 230 | 238 | 9 | PIGINITRF | 2.3e-05 | 49 |
| HLA-A*02:03 | 1 | 231 | 239 | 9 | IGINITRFQ | 2.3e-05 | 56 |
| HLA-B*53:01 | 1 | 234 | 243 | 10 | NITRFQTLA | 2.3e-05 | 39 |
| HLA-B*35:01 | 1 | 247 | 256 | 10 | SYLTPGDSSS | 2.3e-05 | 40 |
| HLA-A*02:06 | 1 | 259 | 268 | 10 | TAGAAAYYVG | 2.3e-05 | 64 |
| HLA-A*02:06 | 1 | 260 | 268 | 9 | AGAAAYYVG | 2.3e-05 | 64 |

| | | | | | | |
|-------------|---|-----|-----|----|---------------------|----|
| HLA-B*40:01 | 1 | 260 | 269 | 10 | AGAAAYVGY 2.3e-05 | 33 |
| HLA-B*51:01 | 1 | 264 | 273 | 10 | AYVGYLQPR 2.3e-05 | 64 |
| HLA-A*11:01 | 1 | 265 | 274 | 10 | YVGYLQPR 2.3e-05 | 36 |
| HLA-A*02:06 | 1 | 273 | 282 | 10 | RTFLLKYNEN 2.3e-05 | 64 |
| HLA-A*02:06 | 1 | 274 | 283 | 10 | TFLLKYNENG 2.3e-05 | 64 |
| HLA-A*33:01 | 1 | 275 | 284 | 10 | FLLKYNENGT 2.3e-05 | 59 |
| HLA-A*32:01 | 1 | 283 | 291 | 9 | GTITDAVDC 2.3e-05 | 42 |
| HLA-B*40:01 | 1 | 284 | 292 | 9 | TITDAVDCA 2.3e-05 | 33 |
| HLA-B*35:01 | 1 | 292 | 301 | 10 | ALDPLSETKC 2.3e-05 | 40 |
| HLA-A*02:06 | 1 | 294 | 302 | 9 | DPLSETKCT 2.3e-05 | 64 |
| HLA-B*35:01 | 1 | 296 | 304 | 9 | LSETKCTLK 2.3e-05 | 40 |
| HLA-B*44:02 | 1 | 299 | 307 | 9 | TKCTLKSFT 2.3e-05 | 41 |
| HLA-B*53:01 | 1 | 315 | 323 | 9 | TSNFRVQPT 2.3e-05 | 39 |
| HLA-B*07:02 | 1 | 323 | 331 | 9 | TESIVRFPN 2.3e-05 | 52 |
| HLA-B*07:02 | 1 | 324 | 333 | 10 | ESIVRFPNIT 2.3e-05 | 52 |
| HLA-A*33:01 | 1 | 325 | 334 | 10 | SIVRFPNITN 2.3e-05 | 59 |
| HLA-B*53:01 | 1 | 325 | 333 | 9 | SIVRFPNIT 2.3e-05 | 39 |
| HLA-A*02:03 | 1 | 337 | 345 | 9 | PFGEVFNAT 2.3e-05 | 56 |
| HLA-B*40:01 | 1 | 338 | 346 | 9 | FGEVFNATR 2.3e-05 | 33 |
| HLA-A*02:01 | 1 | 342 | 351 | 10 | FNATRFASVY 2.3e-05 | 53 |
| HLA-A*68:01 | 1 | 345 | 354 | 10 | TRFASVYAWN 2.3e-05 | 49 |
| HLA-B*35:01 | 1 | 345 | 354 | 10 | TRFASVYAWN 2.3e-05 | 40 |
| HLA-B*44:02 | 1 | 346 | 355 | 10 | RFASVYAWN 2.3e-05 | 41 |
| HLA-B*07:02 | 1 | 350 | 359 | 10 | VYAWNKRIS 2.3e-05 | 52 |
| HLA-A*68:02 | 1 | 357 | 366 | 10 | RISNCVADYS 2.3e-05 | 55 |
| HLA-A*24:02 | 1 | 363 | 371 | 9 | ADYSVLYNS 2.3e-05 | 35 |
| HLA-A*26:01 | 1 | 364 | 373 | 10 | DYSVLYNSAS 2.3e-05 | 48 |
| HLA-A*11:01 | 1 | 373 | 381 | 9 | SFSTFKCYG 2.3e-05 | 36 |
| HLA-A*24:02 | 1 | 375 | 384 | 10 | STFKCYGVSP 2.3e-05 | 35 |
| HLA-A*32:01 | 1 | 385 | 394 | 10 | TKLNDLCFTN 2.3e-05 | 42 |
| HLA-A*68:01 | 1 | 386 | 394 | 9 | KLNDLCFTN 2.3e-05 | 49 |
| HLA-B*35:01 | 1 | 390 | 398 | 9 | LCFTNVYAD 2.3e-05 | 40 |
| HLA-A*03:01 | 1 | 391 | 400 | 10 | CFTNVYADSF 2.3e-05 | 48 |
| HLA-A*23:01 | 1 | 391 | 399 | 9 | CFTNVYADS 2.3e-05 | 36 |
| HLA-B*40:01 | 1 | 394 | 403 | 10 | NVYADSFVIR 2.3e-05 | 33 |
| HLA-A*02:01 | 1 | 395 | 404 | 10 | VYADSFVIRG 2.3e-05 | 53 |
| HLA-A*02:03 | 1 | 395 | 404 | 10 | VYADSFVIRG 2.3e-05 | 56 |
| HLA-A*68:01 | 1 | 397 | 406 | 10 | ADSFVIRGDE 2.3e-05 | 49 |
| HLA-B*53:01 | 1 | 398 | 406 | 9 | DSFVIRGDE 2.3e-05 | 39 |
| HLA-B*51:01 | 1 | 400 | 409 | 10 | FVIRGDEVQR 2.3e-05 | 64 |
| HLA-A*03:01 | 1 | 405 | 414 | 10 | DEVQRQIAPGQ 2.3e-05 | 48 |
| HLA-B*15:01 | 1 | 405 | 413 | 9 | DEVQRQIAPG 2.3e-05 | 53 |
| HLA-A*03:01 | 1 | 406 | 415 | 10 | EVQRQIAPGQT 2.3e-05 | 48 |
| HLA-A*68:02 | 1 | 416 | 424 | 9 | GKIADYNYK 2.3e-05 | 55 |
| HLA-A*24:02 | 1 | 426 | 434 | 9 | PDDFTGCVI 2.3e-05 | 35 |
| HLA-A*02:01 | 1 | 435 | 444 | 10 | AWNSNNLDSK 2.3e-05 | 53 |
| HLA-B*07:02 | 1 | 436 | 445 | 10 | WNSNNLDSKV 2.3e-05 | 52 |
| HLA-B*44:03 | 1 | 439 | 447 | 9 | NNLDSKVGG 2.3e-05 | 38 |
| HLA-B*57:01 | 1 | 439 | 447 | 9 | NNLDSKVGG 2.3e-05 | 71 |
| HLA-A*02:03 | 1 | 441 | 449 | 9 | LDSKVGGNY 2.3e-05 | 56 |
| HLA-A*24:02 | 1 | 451 | 459 | 9 | YLYRFRKS 2.3e-05 | 35 |
| HLA-B*44:03 | 1 | 459 | 467 | 9 | SNLKPFRD 2.3e-05 | 38 |
| HLA-A*02:01 | 1 | 469 | 478 | 10 | STEIQAGST 2.3e-05 | 53 |
| HLA-B*44:02 | 1 | 469 | 477 | 9 | STEIQAGS 2.3e-05 | 41 |
| HLA-A*23:01 | 1 | 471 | 479 | 9 | EIQAGSTP 2.3e-05 | 36 |
| HLA-B*57:01 | 1 | 472 | 481 | 10 | IYQAGSTPCN 2.3e-05 | 71 |
| HLA-A*32:01 | 1 | 480 | 489 | 10 | CNGVEGFNCY 2.3e-05 | 42 |
| HLA-B*58:01 | 1 | 480 | 488 | 9 | CNGVEGFNC 2.3e-05 | 59 |
| HLA-A*02:03 | 1 | 482 | 491 | 10 | GVEGFNCYFP 2.3e-05 | 56 |
| HLA-A*02:06 | 1 | 483 | 491 | 9 | VEGFNCYFP 2.3e-05 | 64 |
| HLA-A*31:01 | 1 | 492 | 501 | 10 | LQSYGFQPTN 2.3e-05 | 55 |
| HLA-B*35:01 | 1 | 495 | 504 | 10 | YGFQPTNGVG 2.3e-05 | 40 |
| HLA-A*23:01 | 1 | 499 | 507 | 9 | PTNGVGYQP 2.3e-05 | 36 |
| HLA-B*08:01 | 1 | 500 | 509 | 10 | TNGVGYQP 2.3e-05 | 72 |
| HLA-A*24:02 | 1 | 515 | 523 | 9 | FELLHAPAT 2.3e-05 | 35 |
| HLA-A*32:01 | 1 | 517 | 526 | 10 | LLHAPATVCG 2.3e-05 | 42 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*51:01 | 1 | 517 | 526 | 10 | LLHAPATVCG | 2.3e-05 | 64 |
| HLA-B*07:02 | 1 | 518 | 527 | 10 | LHAPATVCGP | 2.3e-05 | 52 |
| HLA-A*11:01 | 1 | 523 | 532 | 10 | TVCGPKKSTN | 2.3e-05 | 36 |
| HLA-B*57:01 | 1 | 527 | 535 | 9 | PKKSTNLVK | 2.3e-05 | 71 |
| HLA-A*32:01 | 1 | 542 | 551 | 10 | NFNGLTGTGV | 2.3e-05 | 42 |
| HLA-B*53:01 | 1 | 542 | 550 | 9 | NFNGLTGTG | 2.3e-05 | 39 |
| HLA-B*58:01 | 1 | 544 | 553 | 10 | NGLTGTGVLT | 2.3e-05 | 59 |
| HLA-A*11:01 | 1 | 545 | 553 | 9 | GLTGTGVLT | 2.3e-05 | 36 |
| HLA-A*02:03 | 1 | 549 | 557 | 9 | TGVLTESNK | 2.3e-05 | 56 |
| HLA-B*08:01 | 1 | 549 | 558 | 10 | TGVLTESNKK | 2.3e-05 | 72 |
| HLA-A*02:01 | 1 | 553 | 562 | 10 | TESNKKFLPF | 2.3e-05 | 53 |
| HLA-A*02:01 | 1 | 555 | 563 | 9 | SNKKFLPFQ | 2.3e-05 | 53 |
| HLA-A*02:01 | 1 | 556 | 565 | 10 | NKKFLPFQF | 2.3e-05 | 53 |
| HLA-B*44:02 | 1 | 561 | 569 | 9 | PFQQFGRDI | 2.3e-05 | 41 |
| HLA-B*53:01 | 1 | 561 | 569 | 9 | PFQQFGRDI | 2.3e-05 | 39 |
| HLA-A*01:01 | 1 | 563 | 571 | 9 | QQFGRDIAD | 2.3e-05 | 76 |
| HLA-A*23:01 | 1 | 564 | 572 | 9 | QFGRDIADT | 2.3e-05 | 36 |
| HLA-A*23:01 | 1 | 569 | 577 | 9 | IADTTDAVR | 2.3e-05 | 36 |
| HLA-B*44:02 | 1 | 570 | 578 | 9 | ADTTDAVRD | 2.3e-05 | 41 |
| HLA-A*68:01 | 1 | 573 | 581 | 9 | TDAVRDPQT | 2.3e-05 | 49 |
| HLA-B*07:02 | 1 | 578 | 586 | 9 | DPQTLEILD | 2.3e-05 | 52 |
| HLA-A*03:01 | 1 | 584 | 593 | 10 | ILDITPCSG | 2.3e-05 | 48 |
| HLA-B*07:02 | 1 | 586 | 595 | 10 | DITPCSGGV | 2.3e-05 | 52 |
| HLA-B*44:03 | 1 | 594 | 602 | 9 | GVSVITPGT | 2.3e-05 | 38 |
| HLA-A*11:01 | 1 | 595 | 603 | 9 | VSVITPGTN | 2.3e-05 | 36 |
| HLA-A*02:01 | 1 | 597 | 606 | 10 | VITPGTNTSN | 2.3e-05 | 53 |
| HLA-B*44:02 | 1 | 597 | 605 | 9 | VITPGTNTS | 2.3e-05 | 41 |
| HLA-A*30:02 | 1 | 605 | 614 | 10 | SNQVAVLYQD | 2.3e-05 | 78 |
| HLA-A*30:02 | 1 | 607 | 616 | 10 | QVAVLYQDVN | 2.3e-05 | 78 |
| HLA-A*23:01 | 1 | 609 | 617 | 9 | AVLYQDVNC | 2.3e-05 | 36 |
| HLA-A*33:01 | 1 | 609 | 618 | 10 | AVLYQDVNCT | 2.3e-05 | 59 |
| HLA-A*02:06 | 1 | 613 | 621 | 9 | QDVNCTEVP | 2.3e-05 | 64 |
| HLA-B*07:02 | 1 | 615 | 623 | 9 | VNCTEVPVA | 2.3e-05 | 52 |
| HLA-B*44:02 | 1 | 615 | 624 | 10 | VNCTEVPVAI | 2.3e-05 | 41 |
| HLA-B*44:03 | 1 | 615 | 624 | 10 | VNCTEVPVAI | 2.3e-05 | 38 |
| HLA-B*53:01 | 1 | 615 | 623 | 9 | VNCTEVPVA | 2.3e-05 | 39 |
| HLA-A*68:01 | 1 | 618 | 627 | 10 | TEVPVAIHAD | 2.3e-05 | 49 |
| HLA-A*11:01 | 1 | 622 | 631 | 10 | VAIHADQLTP | 2.3e-05 | 36 |
| HLA-A*26:01 | 1 | 622 | 631 | 10 | VAIHADQLTP | 2.3e-05 | 48 |
| HLA-A*31:01 | 1 | 622 | 630 | 9 | VAIHADQLT | 2.3e-05 | 55 |
| HLA-A*23:01 | 1 | 629 | 637 | 9 | LTPTWRVYS | 2.3e-05 | 36 |
| HLA-B*40:01 | 1 | 637 | 646 | 10 | STGSNVFQTR | 2.3e-05 | 33 |
| HLA-B*44:02 | 1 | 640 | 648 | 9 | SNVFQTRAG | 2.3e-05 | 41 |
| HLA-A*02:01 | 1 | 646 | 655 | 10 | RAGCLIGAHE | 2.3e-05 | 53 |
| HLA-B*51:01 | 1 | 649 | 657 | 9 | CLIGAHEVN | 2.3e-05 | 64 |
| HLA-A*26:01 | 1 | 651 | 659 | 9 | IGAHEVNNS | 2.3e-05 | 48 |
| HLA-A*02:01 | 1 | 653 | 662 | 10 | AHEVNNSYEC | 2.3e-05 | 53 |
| HLA-A*68:02 | 1 | 655 | 663 | 9 | HVNNSYEC | 2.3e-05 | 55 |
| HLA-B*15:01 | 1 | 660 | 669 | 10 | YECDIPIGAG | 2.3e-05 | 53 |
| HLA-B*44:02 | 1 | 661 | 669 | 9 | ECDIPIGAG | 2.3e-05 | 41 |
| HLA-A*30:02 | 1 | 662 | 671 | 10 | CDIPIGAGIC | 2.3e-05 | 78 |
| HLA-B*08:01 | 1 | 665 | 674 | 10 | PIGAGICASY | 2.3e-05 | 72 |
| HLA-B*15:01 | 1 | 671 | 679 | 9 | CASYQTQTN | 2.3e-05 | 53 |
| HLA-B*35:01 | 1 | 672 | 681 | 10 | ASYQTQTN | 2.3e-05 | 40 |
| HLA-A*24:02 | 1 | 689 | 698 | 10 | SQSIIAYTMS | 2.3e-05 | 35 |
| HLA-B*53:01 | 1 | 690 | 698 | 9 | QSIIAYTMS | 2.3e-05 | 39 |
| HLA-B*35:01 | 1 | 692 | 701 | 10 | IIAYTMSLGA | 2.3e-05 | 40 |
| HLA-A*32:01 | 1 | 696 | 704 | 9 | TMSLGAENS | 2.3e-05 | 42 |
| HLA-A*03:01 | 1 | 697 | 706 | 10 | MSLGAENSV | 2.3e-05 | 48 |
| HLA-A*11:01 | 1 | 699 | 708 | 10 | LGAENSVAYS | 2.3e-05 | 36 |
| HLA-B*15:01 | 1 | 714 | 723 | 10 | IPNFTISVT | 2.3e-05 | 53 |
| HLA-B*07:02 | 1 | 719 | 728 | 10 | TISVTTEILP | 2.3e-05 | 52 |
| HLA-B*08:01 | 1 | 721 | 730 | 10 | SVTTEILPVS | 2.3e-05 | 72 |
| HLA-A*23:01 | 1 | 722 | 730 | 9 | VTEILPVS | 2.3e-05 | 36 |
| HLA-A*68:02 | 1 | 729 | 737 | 9 | VSMTKTSVD | 2.3e-05 | 55 |
| HLA-B*44:03 | 1 | 730 | 738 | 9 | SMTKTSVDC | 2.3e-05 | 38 |

| | | | | | | |
|-------------|---|-----|-----|----|---------------------|----|
| HLA-A*23:01 | 1 | 732 | 741 | 10 | TKTSVDCTMY 2.3e-05 | 36 |
| HLA-A*02:01 | 1 | 746 | 755 | 10 | STECNLLLLQ 2.3e-05 | 53 |
| HLA-A*31:01 | 1 | 748 | 757 | 10 | ECSNLLLLQYG 2.3e-05 | 55 |
| HLA-A*11:01 | 1 | 751 | 759 | 9 | NLLLLQYGSF 2.3e-05 | 36 |
| HLA-A*24:02 | 1 | 754 | 762 | 9 | LQYGSFCTQ 2.3e-05 | 35 |
| HLA-A*26:01 | 1 | 759 | 768 | 10 | FCTQLNRALT 2.3e-05 | 48 |
| HLA-A*31:01 | 1 | 763 | 771 | 9 | LNRALTGIA 2.3e-05 | 55 |
| HLA-B*15:01 | 1 | 767 | 776 | 10 | LTGIAVEQDK 2.3e-05 | 53 |
| HLA-A*68:02 | 1 | 771 | 780 | 10 | AVEQDKNTQE 2.3e-05 | 55 |
| HLA-A*11:01 | 1 | 772 | 781 | 10 | VEQDKNTQEV 2.3e-05 | 36 |
| HLA-A*03:01 | 1 | 774 | 783 | 10 | QDKNTQEVFA 2.3e-05 | 48 |
| HLA-A*32:01 | 1 | 776 | 784 | 9 | KNTQEVFAQ 2.3e-05 | 42 |
| HLA-B*40:01 | 1 | 792 | 800 | 9 | PPIKDFGGF 2.3e-05 | 33 |
| HLA-B*58:01 | 1 | 796 | 804 | 9 | DFGGFNFSQ 2.3e-05 | 59 |
| HLA-A*26:01 | 1 | 797 | 806 | 10 | FGGFNFSQIL 2.3e-05 | 48 |
| HLA-A*30:02 | 1 | 800 | 808 | 9 | FNFSQILPD 2.3e-05 | 78 |
| HLA-B*58:01 | 1 | 800 | 809 | 10 | FNFSQILPDP 2.3e-05 | 59 |
| HLA-A*03:01 | 1 | 801 | 809 | 9 | NFSQILPDP 2.3e-05 | 48 |
| HLA-A*24:02 | 1 | 807 | 815 | 9 | PDPSKPSKR 2.3e-05 | 35 |
| HLA-A*02:01 | 1 | 809 | 817 | 9 | PSKPSKRSF 2.3e-05 | 53 |
| HLA-B*44:03 | 1 | 816 | 824 | 9 | SFIEDLLFN 2.3e-05 | 38 |
| HLA-B*08:01 | 1 | 826 | 835 | 10 | VTLADAGFIK 2.3e-05 | 72 |
| HLA-B*40:01 | 1 | 826 | 834 | 9 | VTLADAGFI 2.3e-05 | 33 |
| HLA-B*44:03 | 1 | 826 | 835 | 10 | VTLADAGFIK 2.3e-05 | 38 |
| HLA-B*58:01 | 1 | 837 | 845 | 9 | YGDCLGDIA 2.3e-05 | 59 |
| HLA-B*57:01 | 1 | 840 | 848 | 9 | CLGDIAARD 2.3e-05 | 71 |
| HLA-A*68:01 | 1 | 841 | 849 | 9 | LGDIAARDL 2.3e-05 | 49 |
| HLA-B*15:01 | 1 | 841 | 849 | 9 | LGDIAARDL 2.3e-05 | 53 |
| HLA-B*44:02 | 1 | 841 | 849 | 9 | LGDIAARDL 2.3e-05 | 41 |
| HLA-B*51:01 | 1 | 842 | 851 | 10 | GDIAARDLIC 2.3e-05 | 64 |
| HLA-A*02:01 | 1 | 850 | 859 | 10 | ICAQKFNGLT 2.3e-05 | 53 |
| HLA-A*33:01 | 1 | 851 | 860 | 10 | CAQKFNGLTV 2.3e-05 | 59 |
| HLA-A*68:01 | 1 | 856 | 865 | 10 | NGLTVLPPL 2.3e-05 | 49 |
| HLA-B*44:02 | 1 | 856 | 864 | 9 | NGLTVLPPL 2.3e-05 | 41 |
| HLA-B*07:02 | 1 | 866 | 874 | 9 | TDEMIAQYT 2.3e-05 | 52 |
| HLA-B*35:01 | 1 | 866 | 874 | 9 | TDEMIAQYT 2.3e-05 | 40 |
| HLA-A*68:01 | 1 | 867 | 875 | 9 | DEMIAQYTS 2.3e-05 | 49 |
| HLA-A*68:01 | 1 | 874 | 883 | 10 | TSALLAGTIT 2.3e-05 | 49 |
| HLA-A*03:01 | 1 | 875 | 883 | 9 | SALLAGTIT 2.3e-05 | 48 |
| HLA-A*23:01 | 1 | 876 | 884 | 9 | ALLAGTITS 2.3e-05 | 36 |
| HLA-A*33:01 | 1 | 880 | 889 | 10 | GTITSGWTFG 2.3e-05 | 59 |
| HLA-A*02:01 | 1 | 881 | 889 | 9 | TITSGWTFG 2.3e-05 | 53 |
| HLA-B*51:01 | 1 | 883 | 891 | 9 | TSGWTFGAG 2.3e-05 | 64 |
| HLA-A*11:01 | 1 | 884 | 893 | 10 | SGWTFGAGAA 2.3e-05 | 36 |
| HLA-A*02:01 | 1 | 885 | 893 | 9 | GWTFGAGAA 2.3e-05 | 53 |
| HLA-A*68:02 | 1 | 885 | 893 | 9 | GWTFGAGAA 2.3e-05 | 55 |
| HLA-B*15:01 | 1 | 885 | 893 | 9 | GWTFGAGAA 2.3e-05 | 53 |
| HLA-B*51:01 | 1 | 887 | 895 | 9 | TFGAGAALQ 2.3e-05 | 64 |
| HLA-B*58:01 | 1 | 887 | 895 | 9 | TFGAGAALQ 2.3e-05 | 59 |
| HLA-B*08:01 | 1 | 899 | 907 | 9 | AMQMAYRFN 2.3e-05 | 72 |
| HLA-A*02:01 | 1 | 903 | 912 | 10 | AYRFNGIGVT 2.3e-05 | 53 |
| HLA-B*53:01 | 1 | 904 | 912 | 9 | YRFNGIGVT 2.3e-05 | 39 |
| HLA-B*35:01 | 1 | 912 | 920 | 9 | TQNVLYENQ 2.3e-05 | 40 |
| HLA-A*23:01 | 1 | 916 | 925 | 10 | LYENQKLIAN 2.3e-05 | 36 |
| HLA-B*15:01 | 1 | 926 | 935 | 10 | QFNSAIGKIQ 2.3e-05 | 53 |
| HLA-A*32:01 | 1 | 929 | 937 | 9 | SAIGKIQDS 2.3e-05 | 42 |
| HLA-B*51:01 | 1 | 932 | 941 | 10 | GKIQDSLST 2.3e-05 | 64 |
| HLA-A*24:02 | 1 | 933 | 941 | 9 | KIQDSLST 2.3e-05 | 35 |
| HLA-A*31:01 | 1 | 934 | 943 | 10 | IQDSLSTAS 2.3e-05 | 55 |
| HLA-A*02:03 | 1 | 938 | 947 | 10 | LSSTASALGK 2.3e-05 | 56 |
| HLA-B*35:01 | 1 | 944 | 952 | 9 | ALGKLQDVV 2.3e-05 | 40 |
| HLA-B*58:01 | 1 | 946 | 955 | 10 | GKLQDVVNQN 2.3e-05 | 59 |
| HLA-A*24:02 | 1 | 947 | 955 | 9 | KLQDVVNQN 2.3e-05 | 35 |
| HLA-B*51:01 | 1 | 947 | 955 | 9 | KLQDVVNQN 2.3e-05 | 64 |
| HLA-A*03:01 | 1 | 951 | 960 | 10 | VVNQNAQALN 2.3e-05 | 48 |
| HLA-A*68:01 | 1 | 951 | 960 | 10 | VVNQNAQALN 2.3e-05 | 49 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-B*51:01 | 1 | 952 | 961 | 10 | VNQNAAALNT | 2.3e-05 | 64 |
| HLA-B*07:02 | 1 | 965 | 974 | 10 | QLSSNFGAIS | 2.3e-05 | 52 |
| HLA-A*02:01 | 1 | 966 | 975 | 10 | LSSNFGAISS | 2.3e-05 | 53 |
| HLA-A*11:01 | 1 | 966 | 975 | 10 | LSSNFGAISS | 2.3e-05 | 36 |
| HLA-A*31:01 | 1 | 969 | 978 | 10 | NFGAISSVLN | 2.3e-05 | 55 |
| HLA-B*35:01 | 1 | 971 | 979 | 9 | GAISSVLND | 2.3e-05 | 40 |
| HLA-B*40:01 | 1 | 971 | 980 | 10 | GAISSVLNDI | 2.3e-05 | 33 |
| HLA-B*35:01 | 1 | 984 | 992 | 9 | LDKVEAEVQ | 2.3e-05 | 40 |
| HLA-A*11:01 | 1 | 998 | 1006 | 9 | TGRLQSLQT | 2.3e-05 | 36 |
| HLA-B*40:01 | 1 | 1001 | 1010 | 10 | LQSLQTYVTQ | 2.3e-05 | 33 |
| HLA-B*53:01 | 1 | 1002 | 1011 | 10 | QSLQTYVTQQ | 2.3e-05 | 39 |
| HLA-B*44:03 | 1 | 1019 | 1027 | 9 | RASANLAAT | 2.3e-05 | 38 |
| HLA-A*31:01 | 1 | 1021 | 1030 | 10 | SANLAATKMS | 2.3e-05 | 55 |
| HLA-A*03:01 | 1 | 1022 | 1030 | 9 | ANLAATKMS | 2.3e-05 | 48 |
| HLA-A*31:01 | 1 | 1026 | 1035 | 10 | ATKMSECVLG | 2.3e-05 | 55 |
| HLA-B*44:03 | 1 | 1037 | 1045 | 9 | SKRVDFCGK | 2.3e-05 | 38 |
| HLA-B*40:01 | 1 | 1041 | 1050 | 10 | DFCGKGYHLM | 2.3e-05 | 33 |
| HLA-A*03:01 | 1 | 1043 | 1051 | 9 | CGKGYHLM | 2.3e-05 | 48 |
| HLA-A*02:01 | 1 | 1057 | 1065 | 9 | PHGVVFLHV | 2.3e-05 | 53 |
| HLA-A*02:03 | 1 | 1057 | 1065 | 9 | PHGVVFLHV | 2.3e-05 | 56 |
| HLA-A*31:01 | 1 | 1057 | 1065 | 9 | PHGVVFLHV | 2.3e-05 | 55 |
| HLA-B*53:01 | 1 | 1062 | 1070 | 9 | FLHVITYVPA | 2.3e-05 | 39 |
| HLA-A*26:01 | 1 | 1068 | 1077 | 10 | VPAQEKNFTT | 2.3e-05 | 48 |
| HLA-A*24:02 | 1 | 1070 | 1079 | 10 | AQEKNFTTAP | 2.3e-05 | 35 |
| HLA-A*31:01 | 1 | 1075 | 1084 | 10 | FTTAPAICH | 2.3e-05 | 55 |
| HLA-B*44:03 | 1 | 1084 | 1092 | 9 | DGKAHFPRE | 2.3e-05 | 38 |
| HLA-B*53:01 | 1 | 1084 | 1092 | 9 | DGKAHFPRE | 2.3e-05 | 39 |
| HLA-A*32:01 | 1 | 1088 | 1097 | 10 | HFPREGVFS | 2.3e-05 | 42 |
| HLA-B*44:02 | 1 | 1089 | 1097 | 9 | FPREGVFS | 2.3e-05 | 41 |
| HLA-A*30:02 | 1 | 1090 | 1098 | 9 | PREGVFSN | 2.3e-05 | 78 |
| HLA-B*51:01 | 1 | 1091 | 1099 | 9 | REGVFSVNG | 2.3e-05 | 64 |
| HLA-B*07:02 | 1 | 1092 | 1100 | 9 | EGVFSVNGT | 2.3e-05 | 52 |
| HLA-B*40:01 | 1 | 1101 | 1110 | 10 | HWFVTQRNFY | 2.3e-05 | 33 |
| HLA-A*68:01 | 1 | 1105 | 1114 | 10 | TQRNFYEPQI | 2.3e-05 | 49 |
| HLA-A*33:01 | 1 | 1111 | 1120 | 10 | EPQIITDNT | 2.3e-05 | 59 |
| HLA-A*11:01 | 1 | 1114 | 1123 | 10 | IITDNTFVS | 2.3e-05 | 36 |
| HLA-B*40:01 | 1 | 1125 | 1133 | 9 | NCDVVIGIV | 2.3e-05 | 33 |
| HLA-B*58:01 | 1 | 1127 | 1135 | 9 | DVVIGIVNN | 2.3e-05 | 59 |
| HLA-A*03:01 | 1 | 1131 | 1140 | 10 | GIVNNTVYDP | 2.3e-05 | 48 |
| HLA-A*30:02 | 1 | 1134 | 1142 | 9 | NNTVYDPLQ | 2.3e-05 | 78 |
| HLA-A*30:02 | 1 | 1144 | 1153 | 10 | ELDSFKEELD | 2.3e-05 | 78 |
| HLA-B*58:01 | 1 | 1148 | 1157 | 10 | FKEELDKYFK | 2.3e-05 | 59 |
| HLA-A*02:03 | 1 | 1150 | 1159 | 10 | EELDKYFKNH | 2.3e-05 | 56 |
| HLA-A*03:01 | 1 | 1151 | 1160 | 10 | ELDKYFKNHT | 2.3e-05 | 48 |
| HLA-B*58:01 | 1 | 1157 | 1165 | 9 | KNHTSPDVD | 2.3e-05 | 59 |
| HLA-B*44:02 | 1 | 1165 | 1174 | 10 | DLGDISGINA | 2.3e-05 | 41 |
| HLA-B*53:01 | 1 | 1170 | 1178 | 9 | SGINASVVN | 2.3e-05 | 39 |
| HLA-A*02:01 | 1 | 1177 | 1185 | 9 | VNIQKEIDR | 2.3e-05 | 53 |
| HLA-B*35:01 | 1 | 1177 | 1186 | 10 | VNIQKEIDRL | 2.3e-05 | 40 |
| HLA-B*51:01 | 1 | 1177 | 1185 | 9 | VNIQKEIDR | 2.3e-05 | 64 |
| HLA-B*44:03 | 1 | 1178 | 1187 | 10 | NIQKEIDRLN | 2.3e-05 | 38 |
| HLA-B*51:01 | 1 | 1179 | 1188 | 10 | IQKEIDRLNE | 2.3e-05 | 64 |
| HLA-A*02:01 | 1 | 1183 | 1191 | 9 | IDRLNEVAK | 2.3e-05 | 53 |
| HLA-B*44:03 | 1 | 1184 | 1192 | 9 | DRLNEVAKN | 2.3e-05 | 38 |
| HLA-B*53:01 | 1 | 1187 | 1195 | 9 | NEVAKNLNE | 2.3e-05 | 39 |
| HLA-A*03:01 | 1 | 1194 | 1203 | 10 | NESLIDLQEL | 2.3e-05 | 48 |
| HLA-A*31:01 | 1 | 1195 | 1204 | 10 | ESLIDLQELG | 2.3e-05 | 55 |
| HLA-A*68:01 | 1 | 1198 | 1207 | 10 | IDLQELGKYE | 2.3e-05 | 49 |
| HLA-B*51:01 | 1 | 1198 | 1207 | 10 | IDLQELGKYE | 2.3e-05 | 64 |
| HLA-A*68:02 | 1 | 1203 | 1211 | 9 | LGKYEQYIK | 2.3e-05 | 55 |
| HLA-A*23:01 | 1 | 1204 | 1213 | 10 | GKYEQYIKWP | 2.3e-05 | 36 |
| HLA-A*26:01 | 1 | 1204 | 1213 | 10 | GKYEQYIKWP | 2.3e-05 | 48 |
| HLA-A*02:06 | 1 | 1205 | 1213 | 9 | KYEQYIKWP | 2.3e-05 | 64 |
| HLA-B*44:03 | 1 | 1215 | 1224 | 10 | YIWLGFIAGL | 2.3e-05 | 38 |
| HLA-B*58:01 | 1 | 1217 | 1225 | 9 | WLGFIAGLI | 2.3e-05 | 59 |
| HLA-A*68:01 | 1 | 1222 | 1230 | 9 | AGLIAIVMV | 2.3e-05 | 49 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-B*07:02 | 1 | 1228 | 1236 | 9 | VMVTIMLCC | 2.3e-05 | 52 |
| HLA-A*30:02 | 1 | 1233 | 1241 | 9 | MLCCMTSCC | 2.3e-05 | 78 |
| HLA-A*33:01 | 1 | 1233 | 1241 | 9 | MLCCMTSCC | 2.3e-05 | 59 |
| HLA-B*15:01 | 1 | 1235 | 1244 | 10 | CCMTSCCSCL | 2.3e-05 | 53 |
| HLA-B*53:01 | 1 | 1236 | 1244 | 9 | CMTSCCSCL | 2.3e-05 | 39 |
| HLA-B*57:01 | 1 | 1239 | 1248 | 10 | SCCSCLKGCC | 2.3e-05 | 71 |
| HLA-A*68:02 | 1 | 1242 | 1250 | 9 | SCLKGCCSC | 2.3e-05 | 55 |
| HLA-A*30:02 | 1 | 1247 | 1255 | 9 | CCSCGSCCK | 2.3e-05 | 78 |
| HLA-B*57:01 | 1 | 1258 | 1267 | 10 | EDDSEPVLKG | 2.3e-05 | 71 |
| HLA-A*02:03 | 1 | 1261 | 1269 | 9 | SEPVLKGVK | 2.3e-05 | 56 |
| HLA-A*24:02 | 1 | 1264 | 1273 | 10 | VLKGVKLHYT | 2.3e-05 | 35 |
| HLA-A*68:02 | 1 | 1265 | 1273 | 9 | LKGVKLHYT | 2.3e-05 | 55 |
| HLA-B*07:02 | 1 | 11 | 19 | 9 | VSSQCVNLT | 2.2e-05 | 53 |
| HLA-B*15:01 | 1 | 11 | 20 | 10 | VSSQCVNLT | 2.2e-05 | 54 |
| HLA-A*26:01 | 1 | 14 | 22 | 9 | QCVNLTRT | 2.2e-05 | 49 |
| HLA-A*31:01 | 1 | 16 | 25 | 10 | VNLTRTQLP | 2.2e-05 | 56 |
| HLA-B*44:02 | 1 | 19 | 27 | 9 | TTRTQLPPA | 2.2e-05 | 42 |
| HLA-B*44:03 | 1 | 27 | 35 | 9 | AYTNSFTRG | 2.2e-05 | 39 |
| HLA-A*26:01 | 1 | 31 | 39 | 9 | SFTRGVVYP | 2.2e-05 | 49 |
| HLA-B*53:01 | 1 | 36 | 45 | 10 | VYYPDKVFRS | 2.2e-05 | 39 |
| HLA-B*57:01 | 1 | 39 | 48 | 10 | PDKVFRSSVL | 2.2e-05 | 72 |
| HLA-B*44:03 | 1 | 43 | 52 | 10 | FRSSVLHSTQ | 2.2e-05 | 39 |
| HLA-A*32:01 | 1 | 45 | 53 | 9 | SSVLHSTQD | 2.2e-05 | 42 |
| HLA-A*11:01 | 1 | 48 | 56 | 9 | LHSTQDLFL | 2.2e-05 | 36 |
| HLA-A*01:01 | 1 | 52 | 61 | 10 | QDLFLPFFSN | 2.2e-05 | 77 |
| HLA-B*15:01 | 1 | 52 | 61 | 10 | QDLFLPFFSN | 2.2e-05 | 54 |
| HLA-A*23:01 | 1 | 61 | 70 | 10 | NVTWFHAIHV | 2.2e-05 | 37 |
| HLA-A*11:01 | 1 | 67 | 75 | 9 | AIHVSGTNG | 2.2e-05 | 36 |
| HLA-B*40:01 | 1 | 68 | 76 | 9 | IHVSGTNGT | 2.2e-05 | 34 |
| HLA-A*23:01 | 1 | 75 | 83 | 9 | GTKRFDNPV | 2.2e-05 | 37 |
| HLA-A*30:01 | 1 | 80 | 88 | 9 | DNPVLPFND | 2.2e-05 | 81 |
| HLA-A*11:01 | 1 | 86 | 94 | 9 | FNDGVYFAS | 2.2e-05 | 36 |
| HLA-A*33:01 | 1 | 87 | 95 | 9 | NDGVYFAST | 2.2e-05 | 60 |
| HLA-A*68:01 | 1 | 87 | 96 | 10 | NDGVYFASTE | 2.2e-05 | 50 |
| HLA-B*15:01 | 1 | 99 | 107 | 9 | NIIRGWIFG | 2.2e-05 | 54 |
| HLA-A*68:01 | 1 | 113 | 122 | 10 | KTQSLLIVNN | 2.2e-05 | 50 |
| HLA-A*24:02 | 1 | 114 | 122 | 9 | TQSLLIVNN | 2.2e-05 | 35 |
| HLA-A*32:01 | 1 | 121 | 130 | 10 | NNATNVVIKV | 2.2e-05 | 42 |
| HLA-A*03:01 | 1 | 124 | 132 | 9 | TNVVIKVCE | 2.2e-05 | 49 |
| HLA-B*58:01 | 1 | 125 | 134 | 10 | NVVIKVCEFQ | 2.2e-05 | 60 |
| HLA-A*32:01 | 1 | 127 | 136 | 10 | VIKVCEFQFC | 2.2e-05 | 42 |
| HLA-B*40:01 | 1 | 127 | 135 | 9 | VIKVCEFQF | 2.2e-05 | 34 |
| HLA-B*51:01 | 1 | 127 | 136 | 10 | VIKVCEFQFC | 2.2e-05 | 65 |
| HLA-A*68:01 | 1 | 139 | 148 | 10 | PFLGVYYHKN | 2.2e-05 | 50 |
| HLA-A*32:01 | 1 | 140 | 148 | 9 | FLGVYYHKN | 2.2e-05 | 42 |
| HLA-B*40:01 | 1 | 142 | 150 | 9 | GVYYHKNNK | 2.2e-05 | 34 |
| HLA-B*57:01 | 1 | 146 | 155 | 10 | HKNNKSWMES | 2.2e-05 | 72 |
| HLA-B*58:01 | 1 | 152 | 161 | 10 | WMESEFRVYS | 2.2e-05 | 60 |
| HLA-B*44:02 | 1 | 159 | 167 | 9 | VYSSANNCT | 2.2e-05 | 42 |
| HLA-A*01:01 | 1 | 163 | 172 | 10 | ANNCTFEYVS | 2.2e-05 | 77 |
| HLA-A*02:06 | 1 | 165 | 173 | 9 | NCTFEYVSQ | 2.2e-05 | 64 |
| HLA-A*24:02 | 1 | 173 | 182 | 10 | QFLMDLEGK | 2.2e-05 | 35 |
| HLA-A*33:01 | 1 | 174 | 183 | 10 | PFLMDLEGKQ | 2.2e-05 | 60 |
| HLA-B*07:02 | 1 | 175 | 184 | 10 | FLMDLEGKQG | 2.2e-05 | 53 |
| HLA-B*07:02 | 1 | 176 | 184 | 9 | LMDLEGKQG | 2.2e-05 | 53 |
| HLA-A*23:01 | 1 | 178 | 187 | 10 | DLEGKQGNFK | 2.2e-05 | 37 |
| HLA-A*23:01 | 1 | 181 | 190 | 10 | GKQGNFKNLR | 2.2e-05 | 37 |
| HLA-B*51:01 | 1 | 182 | 190 | 9 | KQGNFKNLR | 2.2e-05 | 65 |
| HLA-A*01:01 | 1 | 187 | 196 | 10 | KNLREFVFKN | 2.2e-05 | 77 |
| HLA-B*53:01 | 1 | 188 | 197 | 10 | NLREFVFKNI | 2.2e-05 | 39 |
| HLA-B*53:01 | 1 | 193 | 202 | 10 | VFKNIDGYFK | 2.2e-05 | 39 |
| HLA-A*68:02 | 1 | 197 | 205 | 9 | IDGYFKIYS | 2.2e-05 | 55 |
| HLA-A*26:01 | 1 | 199 | 208 | 10 | GYFKIYSKHT | 2.2e-05 | 49 |
| HLA-B*40:01 | 1 | 213 | 221 | 9 | VRDLPQGF | 2.2e-05 | 34 |
| HLA-B*44:02 | 1 | 216 | 225 | 10 | LPQGFSALEP | 2.2e-05 | 42 |
| HLA-B*35:01 | 1 | 222 | 230 | 9 | ALEPLVDLP | 2.2e-05 | 40 |

| | | | | | | |
|-------------|---|-----|-----|----|--------------------|----|
| HLA-A*03:01 | 1 | 227 | 236 | 10 | VDLPIGINIT 2.2e-05 | 49 |
| HLA-B*40:01 | 1 | 237 | 246 | 10 | RFQTLALHR 2.2e-05 | 34 |
| HLA-B*35:01 | 1 | 243 | 251 | 9 | ALHRSYLTP 2.2e-05 | 40 |
| HLA-A*68:01 | 1 | 246 | 254 | 9 | RSYLTPGDS 2.2e-05 | 50 |
| HLA-A*26:01 | 1 | 247 | 256 | 10 | SYLTPGDSSS 2.2e-05 | 49 |
| HLA-B*15:01 | 1 | 253 | 262 | 10 | DSSSGWTAGA 2.2e-05 | 54 |
| HLA-B*40:01 | 1 | 261 | 270 | 10 | GAAAYVGYL 2.2e-05 | 34 |
| HLA-B*08:01 | 1 | 273 | 282 | 10 | RTFLLKYEN 2.2e-05 | 73 |
| HLA-B*58:01 | 1 | 279 | 288 | 10 | YNENGTITDA 2.2e-05 | 60 |
| HLA-A*11:01 | 1 | 280 | 288 | 9 | NENGTITDA 2.2e-05 | 36 |
| HLA-A*68:02 | 1 | 281 | 290 | 10 | ENGTITDAVD 2.2e-05 | 55 |
| HLA-A*02:01 | 1 | 282 | 291 | 10 | NGTITDAVDC 2.2e-05 | 54 |
| HLA-B*08:01 | 1 | 283 | 292 | 10 | GTITDAVDCA 2.2e-05 | 73 |
| HLA-A*68:02 | 1 | 285 | 294 | 10 | ITDAVDCALD 2.2e-05 | 55 |
| HLA-A*68:01 | 1 | 288 | 297 | 10 | AVDCALDPLS 2.2e-05 | 50 |
| HLA-B*51:01 | 1 | 289 | 297 | 9 | VDCALDPLS 2.2e-05 | 65 |
| HLA-B*58:01 | 1 | 293 | 301 | 9 | LDPLSETKC 2.2e-05 | 60 |
| HLA-A*33:01 | 1 | 296 | 305 | 10 | LSETKCTLKS 2.2e-05 | 60 |
| HLA-A*31:01 | 1 | 297 | 305 | 9 | SETKCTLKS 2.2e-05 | 56 |
| HLA-A*23:01 | 1 | 299 | 308 | 10 | TKCTLKSFTV 2.2e-05 | 37 |
| HLA-A*33:01 | 1 | 299 | 307 | 9 | TKCTLKSFT 2.2e-05 | 60 |
| HLA-A*33:01 | 1 | 303 | 312 | 10 | LKSFTVEKGI 2.2e-05 | 60 |
| HLA-B*08:01 | 1 | 303 | 311 | 9 | LKSFTVEKG 2.2e-05 | 73 |
| HLA-B*58:01 | 1 | 303 | 311 | 9 | LKSFTVEKG 2.2e-05 | 60 |
| HLA-B*44:02 | 1 | 305 | 314 | 10 | SFTVEKGIYQ 2.2e-05 | 42 |
| HLA-A*03:01 | 1 | 309 | 318 | 10 | EKGIYQTSNF 2.2e-05 | 49 |
| HLA-B*35:01 | 1 | 313 | 322 | 10 | YQTSNFRVQP 2.2e-05 | 40 |
| HLA-B*53:01 | 1 | 313 | 322 | 10 | YQTSNFRVQP 2.2e-05 | 39 |
| HLA-A*26:01 | 1 | 315 | 324 | 10 | TSNFRVQPT 2.2e-05 | 49 |
| HLA-A*02:03 | 1 | 322 | 330 | 9 | PTESIVRFP 2.2e-05 | 57 |
| HLA-A*02:01 | 1 | 329 | 338 | 10 | FPNITNLCPF 2.2e-05 | 54 |
| HLA-B*07:02 | 1 | 330 | 338 | 9 | PNITNLCPF 2.2e-05 | 53 |
| HLA-A*31:01 | 1 | 331 | 340 | 10 | NITNLCPFGE 2.2e-05 | 56 |
| HLA-B*15:01 | 1 | 333 | 341 | 9 | TNLCPFGEV 2.2e-05 | 54 |
| HLA-A*30:01 | 1 | 334 | 343 | 10 | NLCPFGEVFN 2.2e-05 | 81 |
| HLA-A*03:01 | 1 | 335 | 344 | 10 | LCPFGEVFNA 2.2e-05 | 49 |
| HLA-A*30:02 | 1 | 336 | 345 | 10 | CPFGEVFNAT 2.2e-05 | 79 |
| HLA-A*23:01 | 1 | 339 | 348 | 10 | GEVFNATRFA 2.2e-05 | 37 |
| HLA-A*02:01 | 1 | 341 | 349 | 9 | VFNATRFAS 2.2e-05 | 54 |
| HLA-B*44:02 | 1 | 341 | 349 | 9 | VFNATRFAS 2.2e-05 | 42 |
| HLA-A*68:01 | 1 | 346 | 354 | 9 | RFASVYAWN 2.2e-05 | 50 |
| HLA-A*02:03 | 1 | 347 | 356 | 10 | FASVYAWNRK 2.2e-05 | 57 |
| HLA-B*44:03 | 1 | 351 | 359 | 9 | YAWNRKRIS 2.2e-05 | 39 |
| HLA-A*03:01 | 1 | 352 | 361 | 10 | AWNRKRISNC 2.2e-05 | 49 |
| HLA-B*15:01 | 1 | 353 | 362 | 10 | WNRKRISNCV 2.2e-05 | 54 |
| HLA-A*01:01 | 1 | 355 | 363 | 9 | RKRISNCVA 2.2e-05 | 77 |
| HLA-B*57:01 | 1 | 356 | 364 | 9 | KRISNCVAD 2.2e-05 | 72 |
| HLA-A*33:01 | 1 | 358 | 366 | 9 | ISNCVADYS 2.2e-05 | 60 |
| HLA-A*03:01 | 1 | 359 | 367 | 9 | SNCVADYSV 2.2e-05 | 49 |
| HLA-B*44:03 | 1 | 366 | 375 | 10 | SVLYNSASF 2.2e-05 | 39 |
| HLA-B*44:03 | 1 | 368 | 376 | 9 | LYNSASFST 2.2e-05 | 39 |
| HLA-A*26:01 | 1 | 373 | 382 | 10 | SFSTFKCYGV 2.2e-05 | 49 |
| HLA-B*44:02 | 1 | 375 | 384 | 10 | STFKCYGVSP 2.2e-05 | 42 |
| HLA-B*07:02 | 1 | 381 | 389 | 9 | GVSPTKLND 2.2e-05 | 53 |
| HLA-A*02:03 | 1 | 383 | 391 | 9 | SPTKLNDLC 2.2e-05 | 57 |
| HLA-A*01:01 | 1 | 385 | 394 | 10 | TKLNDLCFTN 2.2e-05 | 77 |
| HLA-B*51:01 | 1 | 385 | 393 | 9 | TKLNDLCFT 2.2e-05 | 65 |
| HLA-A*24:02 | 1 | 386 | 394 | 9 | KLNDLCFTN 2.2e-05 | 35 |
| HLA-A*11:01 | 1 | 388 | 397 | 10 | NDLCFTNVYA 2.2e-05 | 36 |
| HLA-B*08:01 | 1 | 389 | 398 | 10 | DLCFTNVYAD 2.2e-05 | 73 |
| HLA-A*02:06 | 1 | 390 | 398 | 9 | LCFTNVYAD 2.2e-05 | 64 |
| HLA-A*02:06 | 1 | 390 | 399 | 10 | LCFTNVYADS 2.2e-05 | 64 |
| HLA-B*57:01 | 1 | 390 | 399 | 10 | LCFTNVYADS 2.2e-05 | 72 |
| HLA-B*58:01 | 1 | 397 | 406 | 10 | ADSFVIRGDE 2.2e-05 | 60 |
| HLA-A*30:01 | 1 | 404 | 412 | 9 | GDEVQRQIAP 2.2e-05 | 81 |
| HLA-A*24:02 | 1 | 407 | 416 | 10 | VRQIAPGQTG 2.2e-05 | 35 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*44:02 | 1 | 410 | 419 | 10 | IAPGQTGKIA | 2.2e-05 | 42 |
| HLA-B*53:01 | 1 | 417 | 426 | 10 | KIADYNYKLP | 2.2e-05 | 39 |
| HLA-B*35:01 | 1 | 423 | 432 | 10 | YKLPDDFTGC | 2.2e-05 | 40 |
| HLA-B*58:01 | 1 | 430 | 439 | 10 | TGCVIAWNSN | 2.2e-05 | 60 |
| HLA-A*30:01 | 1 | 431 | 440 | 10 | GCVIAWNSNN | 2.2e-05 | 81 |
| HLA-A*02:01 | 1 | 434 | 442 | 9 | IAWNSNLD | 2.2e-05 | 54 |
| HLA-A*02:03 | 1 | 434 | 443 | 10 | IAWNSNLD | 2.2e-05 | 57 |
| HLA-A*02:03 | 1 | 435 | 444 | 10 | AWNSNLD | 2.2e-05 | 57 |
| HLA-A*33:01 | 1 | 436 | 445 | 10 | WNSNLD | 2.2e-05 | 60 |
| HLA-B*35:01 | 1 | 442 | 450 | 9 | DSKVGGNYN | 2.2e-05 | 40 |
| HLA-B*57:01 | 1 | 450 | 459 | 10 | NYLYRFRKS | 2.2e-05 | 72 |
| HLA-A*31:01 | 1 | 451 | 460 | 10 | YLYRFRKSN | 2.2e-05 | 56 |
| HLA-A*33:01 | 1 | 451 | 460 | 10 | YLYRFRKSN | 2.2e-05 | 60 |
| HLA-B*44:02 | 1 | 452 | 461 | 10 | LYRFRKSNL | 2.2e-05 | 42 |
| HLA-B*40:01 | 1 | 453 | 462 | 10 | YRFRKSNLK | 2.2e-05 | 34 |
| HLA-B*51:01 | 1 | 459 | 467 | 9 | SNLKPFERD | 2.2e-05 | 65 |
| HLA-B*53:01 | 1 | 459 | 468 | 10 | SNLKPFERDI | 2.2e-05 | 39 |
| HLA-A*30:02 | 1 | 461 | 470 | 10 | LKPFERDIST | 2.2e-05 | 79 |
| HLA-A*68:02 | 1 | 465 | 474 | 10 | ERDISTEIQ | 2.2e-05 | 55 |
| HLA-A*33:01 | 1 | 467 | 476 | 10 | DISTEIQAG | 2.2e-05 | 60 |
| HLA-A*31:01 | 1 | 468 | 477 | 10 | ISTEIQAGS | 2.2e-05 | 56 |
| HLA-A*33:01 | 1 | 470 | 478 | 9 | TEIQAGST | 2.2e-05 | 60 |
| HLA-A*68:01 | 1 | 470 | 478 | 9 | TEIQAGST | 2.2e-05 | 50 |
| HLA-A*33:01 | 1 | 473 | 481 | 9 | YQAGSTPCN | 2.2e-05 | 60 |
| HLA-B*35:01 | 1 | 477 | 485 | 9 | STPCNGVEG | 2.2e-05 | 40 |
| HLA-B*44:03 | 1 | 478 | 487 | 10 | TPCNGVEGFN | 2.2e-05 | 39 |
| HLA-A*68:02 | 1 | 480 | 489 | 10 | CNGVEGFNCY | 2.2e-05 | 55 |
| HLA-A*11:01 | 1 | 493 | 502 | 10 | QSYGFQPTNG | 2.2e-05 | 36 |
| HLA-A*03:01 | 1 | 501 | 510 | 10 | NGVGYQPYRV | 2.2e-05 | 49 |
| HLA-A*02:01 | 1 | 508 | 516 | 9 | YRVVLSFE | 2.2e-05 | 54 |
| HLA-B*44:03 | 1 | 509 | 518 | 10 | RVVLSFELL | 2.2e-05 | 39 |
| HLA-A*31:01 | 1 | 518 | 527 | 10 | LHAPATVCGP | 2.2e-05 | 56 |
| HLA-A*33:01 | 1 | 518 | 526 | 9 | LHAPATVCG | 2.2e-05 | 60 |
| HLA-B*07:02 | 1 | 522 | 530 | 9 | ATVCGPKKS | 2.2e-05 | 53 |
| HLA-A*33:01 | 1 | 523 | 532 | 10 | TVCGPKKSTN | 2.2e-05 | 60 |
| HLA-A*26:01 | 1 | 524 | 533 | 10 | VCGPKKSTNL | 2.2e-05 | 49 |
| HLA-B*44:03 | 1 | 528 | 536 | 9 | KKSTNLVKN | 2.2e-05 | 39 |
| HLA-B*57:01 | 1 | 528 | 536 | 9 | KKSTNLVKN | 2.2e-05 | 72 |
| HLA-A*26:01 | 1 | 531 | 539 | 9 | TNLVKNKCV | 2.2e-05 | 49 |
| HLA-B*08:01 | 1 | 531 | 540 | 10 | TNLVKNKCVN | 2.2e-05 | 73 |
| HLA-A*02:03 | 1 | 535 | 543 | 9 | KNKCVN | 2.2e-05 | 57 |
| HLA-A*33:01 | 1 | 541 | 550 | 10 | FNFNGLTGTG | 2.2e-05 | 60 |
| HLA-B*58:01 | 1 | 541 | 550 | 10 | FNFNGLTGTG | 2.2e-05 | 60 |
| HLA-A*26:01 | 1 | 545 | 553 | 9 | GLTGTGVL | 2.2e-05 | 49 |
| HLA-A*68:01 | 1 | 545 | 553 | 9 | GLTGTGVL | 2.2e-05 | 50 |
| HLA-A*68:01 | 1 | 557 | 566 | 10 | KKFLPFQFG | 2.2e-05 | 50 |
| HLA-B*07:02 | 1 | 557 | 566 | 10 | KKFLPFQFG | 2.2e-05 | 53 |
| HLA-B*07:02 | 1 | 558 | 566 | 9 | KFLPFQFG | 2.2e-05 | 53 |
| HLA-B*57:01 | 1 | 560 | 568 | 9 | LPFQFGRD | 2.2e-05 | 72 |
| HLA-A*33:01 | 1 | 561 | 569 | 9 | PFQFGRDI | 2.2e-05 | 60 |
| HLA-A*32:01 | 1 | 563 | 572 | 10 | QQFGRDIADT | 2.2e-05 | 42 |
| HLA-A*26:01 | 1 | 565 | 573 | 9 | FGRDIADTT | 2.2e-05 | 49 |
| HLA-B*15:01 | 1 | 566 | 575 | 10 | GRDIADTTDA | 2.2e-05 | 54 |
| HLA-B*44:03 | 1 | 578 | 587 | 10 | DPQTLEILDI | 2.2e-05 | 39 |
| HLA-A*26:01 | 1 | 581 | 590 | 10 | TLEILDITPC | 2.2e-05 | 49 |
| HLA-B*53:01 | 1 | 586 | 595 | 10 | DITPCSFGGV | 2.2e-05 | 39 |
| HLA-B*58:01 | 1 | 587 | 596 | 10 | ITPCSFGGVS | 2.2e-05 | 60 |
| HLA-B*57:01 | 1 | 588 | 596 | 9 | TPCSFGGVS | 2.2e-05 | 72 |
| HLA-A*68:01 | 1 | 593 | 602 | 10 | GGVSVITPGT | 2.2e-05 | 50 |
| HLA-A*33:01 | 1 | 600 | 608 | 9 | PGTNTSNQV | 2.2e-05 | 60 |
| HLA-B*35:01 | 1 | 605 | 613 | 9 | SNQVAVLYQ | 2.2e-05 | 40 |
| HLA-B*44:02 | 1 | 612 | 621 | 10 | YQDVNCTEVP | 2.2e-05 | 42 |
| HLA-B*15:01 | 1 | 613 | 622 | 10 | QDVNCTEVPV | 2.2e-05 | 54 |
| HLA-A*68:01 | 1 | 615 | 624 | 10 | VNCTEVPVAI | 2.2e-05 | 50 |
| HLA-A*03:01 | 1 | 629 | 638 | 10 | LTPTWRVYST | 2.2e-05 | 49 |
| HLA-A*68:01 | 1 | 632 | 640 | 9 | TWRVYSTGS | 2.2e-05 | 50 |

| | | | | | | |
|-------------|---|-----|-----|----|---------------------|----|
| HLA-B*53:01 | 1 | 636 | 645 | 10 | YSTGSNVFQT 2.2e-05 | 39 |
| HLA-B*15:01 | 1 | 646 | 654 | 9 | RAGCLIGAE 2.2e-05 | 54 |
| HLA-A*02:01 | 1 | 649 | 658 | 10 | CLIGAEHVNN 2.2e-05 | 54 |
| HLA-A*02:06 | 1 | 650 | 658 | 9 | LIGAEHVNN 2.2e-05 | 64 |
| HLA-A*68:02 | 1 | 653 | 662 | 10 | AEHVNNSEYEC 2.2e-05 | 55 |
| HLA-B*57:01 | 1 | 653 | 662 | 10 | AEHVNNSEYEC 2.2e-05 | 72 |
| HLA-A*02:06 | 1 | 655 | 663 | 9 | HVNNSYECD 2.2e-05 | 64 |
| HLA-A*02:01 | 1 | 656 | 664 | 9 | VNNSYECDI 2.2e-05 | 54 |
| HLA-A*01:01 | 1 | 657 | 665 | 9 | NNSYECDIP 2.2e-05 | 77 |
| HLA-A*02:01 | 1 | 658 | 667 | 10 | NSYECDIPIG 2.2e-05 | 54 |
| HLA-B*57:01 | 1 | 659 | 667 | 9 | SYECDIPIG 2.2e-05 | 72 |
| HLA-B*58:01 | 1 | 661 | 669 | 9 | ECDIPIGAG 2.2e-05 | 60 |
| HLA-B*35:01 | 1 | 663 | 671 | 9 | DIPIGAGIC 2.2e-05 | 40 |
| HLA-A*02:01 | 1 | 664 | 673 | 10 | IPIGAGICAS 2.2e-05 | 54 |
| HLA-A*02:01 | 1 | 668 | 677 | 10 | AGICASYQTQ 2.2e-05 | 54 |
| HLA-B*08:01 | 1 | 668 | 677 | 10 | AGICASYQTQ 2.2e-05 | 73 |
| HLA-B*51:01 | 1 | 668 | 677 | 10 | AGICASYQTQ 2.2e-05 | 65 |
| HLA-B*15:01 | 1 | 678 | 687 | 10 | TNSPRRARSV 2.2e-05 | 54 |
| HLA-A*32:01 | 1 | 680 | 688 | 9 | SPRRARSVA 2.2e-05 | 42 |
| HLA-A*24:02 | 1 | 686 | 694 | 9 | SVASQSIIA 2.2e-05 | 35 |
| HLA-A*03:01 | 1 | 689 | 698 | 10 | SQSIIAYTMS 2.2e-05 | 49 |
| HLA-A*23:01 | 1 | 690 | 698 | 9 | QSIIAYTMS 2.2e-05 | 37 |
| HLA-A*31:01 | 1 | 692 | 700 | 9 | IIAYTMSLG 2.2e-05 | 56 |
| HLA-A*32:01 | 1 | 693 | 702 | 10 | IAYTMSLGAE 2.2e-05 | 42 |
| HLA-B*53:01 | 1 | 695 | 704 | 10 | YTMSLGAENS 2.2e-05 | 39 |
| HLA-A*26:01 | 1 | 698 | 706 | 9 | SLGAENSVVA 2.2e-05 | 49 |
| HLA-A*33:01 | 1 | 699 | 708 | 10 | LGAENSVAYS 2.2e-05 | 60 |
| HLA-B*08:01 | 1 | 700 | 708 | 9 | GAENSVAYS 2.2e-05 | 73 |
| HLA-A*30:02 | 1 | 702 | 711 | 10 | ENSVAYSNNS 2.2e-05 | 79 |
| HLA-B*15:01 | 1 | 703 | 711 | 9 | NSVAYSNNS 2.2e-05 | 54 |
| HLA-A*23:01 | 1 | 705 | 713 | 9 | VAYSNNNSIA 2.2e-05 | 37 |
| HLA-A*24:02 | 1 | 711 | 719 | 9 | SIAIPTNFT 2.2e-05 | 35 |
| HLA-A*32:01 | 1 | 713 | 721 | 9 | AIPTNFTIS 2.2e-05 | 42 |
| HLA-A*03:01 | 1 | 714 | 723 | 10 | IPNFTISVT 2.2e-05 | 49 |
| HLA-B*35:01 | 1 | 721 | 730 | 10 | SVTTEILPVS 2.2e-05 | 40 |
| HLA-B*53:01 | 1 | 723 | 732 | 10 | TTEILPVSMT 2.2e-05 | 39 |
| HLA-A*24:02 | 1 | 726 | 735 | 10 | ILPVSMTKTS 2.2e-05 | 35 |
| HLA-A*33:01 | 1 | 726 | 735 | 10 | ILPVSMTKTS 2.2e-05 | 60 |
| HLA-A*24:02 | 1 | 727 | 736 | 10 | LPVSMTKTSV 2.2e-05 | 35 |
| HLA-A*32:01 | 1 | 729 | 737 | 9 | VSMTKTSVD 2.2e-05 | 42 |
| HLA-B*40:01 | 1 | 730 | 738 | 9 | SMTKTSVDC 2.2e-05 | 34 |
| HLA-B*44:02 | 1 | 730 | 738 | 9 | SMTKTSVDC 2.2e-05 | 42 |
| HLA-B*44:02 | 1 | 733 | 742 | 10 | KTSVDCTMYI 2.2e-05 | 42 |
| HLA-B*44:02 | 1 | 735 | 743 | 9 | SVDCTMYIC 2.2e-05 | 42 |
| HLA-A*68:02 | 1 | 739 | 748 | 10 | TMYICGDSTE 2.2e-05 | 55 |
| HLA-B*58:01 | 1 | 739 | 747 | 9 | TMYICGDST 2.2e-05 | 60 |
| HLA-B*57:01 | 1 | 742 | 751 | 10 | ICGDSTECNS 2.2e-05 | 72 |
| HLA-B*53:01 | 1 | 743 | 752 | 10 | CGDSTECNSL 2.2e-05 | 39 |
| HLA-A*03:01 | 1 | 744 | 752 | 9 | GDSTECNSL 2.2e-05 | 49 |
| HLA-A*11:01 | 1 | 745 | 754 | 10 | DSTECNSLLL 2.2e-05 | 36 |
| HLA-B*15:01 | 1 | 745 | 754 | 10 | DSTECNSLLL 2.2e-05 | 54 |
| HLA-A*23:01 | 1 | 752 | 760 | 9 | LLLQYGSFC 2.2e-05 | 37 |
| HLA-B*35:01 | 1 | 756 | 765 | 10 | YGSFCTQLNR 2.2e-05 | 40 |
| HLA-A*03:01 | 1 | 759 | 767 | 9 | FCTQLNRAL 2.2e-05 | 49 |
| HLA-A*33:01 | 1 | 762 | 771 | 10 | QLNRALTGIA 2.2e-05 | 60 |
| HLA-B*53:01 | 1 | 763 | 772 | 10 | LNRLALTGIAV 2.2e-05 | 39 |
| HLA-A*31:01 | 1 | 764 | 773 | 10 | NRALTGIAVE 2.2e-05 | 56 |
| HLA-B*44:03 | 1 | 765 | 773 | 9 | RALTGIAVE 2.2e-05 | 39 |
| HLA-A*30:02 | 1 | 768 | 777 | 10 | TGIAVEQDKN 2.2e-05 | 79 |
| HLA-B*57:01 | 1 | 769 | 777 | 9 | GIAVEQDKN 2.2e-05 | 72 |
| HLA-A*32:01 | 1 | 771 | 779 | 9 | AVEQDKNTQ 2.2e-05 | 42 |
| HLA-A*02:06 | 1 | 774 | 783 | 10 | QDKNTQEVFA 2.2e-05 | 64 |
| HLA-A*02:03 | 1 | 778 | 787 | 10 | TQEVFAQVKQ 2.2e-05 | 57 |
| HLA-A*02:01 | 1 | 779 | 787 | 9 | QEVFAQVKQ 2.2e-05 | 54 |
| HLA-A*26:01 | 1 | 785 | 794 | 10 | VKQIYKTPPI 2.2e-05 | 49 |
| HLA-A*02:03 | 1 | 791 | 800 | 10 | TPPIKDFGGF 2.2e-05 | 57 |

| | | | | | | |
|-------------|---|------|------|----|--------------------|----|
| HLA-A*68:01 | 1 | 798 | 807 | 10 | GGFNFSQILP 2.2e-05 | 50 |
| HLA-B*35:01 | 1 | 799 | 807 | 9 | GFNFSQILP 2.2e-05 | 40 |
| HLA-A*02:03 | 1 | 801 | 810 | 10 | NFSQILPDPS 2.2e-05 | 57 |
| HLA-B*07:02 | 1 | 801 | 809 | 9 | NFSQILPDP 2.2e-05 | 53 |
| HLA-A*31:01 | 1 | 802 | 810 | 9 | FSQILPDPS 2.2e-05 | 56 |
| HLA-B*53:01 | 1 | 804 | 813 | 10 | QILPDPSKPS 2.2e-05 | 39 |
| HLA-B*15:01 | 1 | 808 | 816 | 9 | DPSKPSKRS 2.2e-05 | 54 |
| HLA-A*03:01 | 1 | 809 | 818 | 10 | PSKPSKRSFI 2.2e-05 | 49 |
| HLA-A*02:03 | 1 | 815 | 824 | 10 | RSFIEDLLFN 2.2e-05 | 57 |
| HLA-A*02:06 | 1 | 818 | 827 | 10 | IEDLLFNKVT 2.2e-05 | 64 |
| HLA-A*02:06 | 1 | 819 | 827 | 9 | EDLLFNKVT 2.2e-05 | 64 |
| HLA-B*44:02 | 1 | 820 | 829 | 10 | DLLFNKVTLA 2.2e-05 | 42 |
| HLA-B*53:01 | 1 | 822 | 830 | 9 | LFNKVTLAD 2.2e-05 | 39 |
| HLA-B*35:01 | 1 | 826 | 834 | 9 | VTLADAGFI 2.2e-05 | 40 |
| HLA-B*44:03 | 1 | 826 | 834 | 9 | VTLADAGFI 2.2e-05 | 39 |
| HLA-A*33:01 | 1 | 829 | 838 | 10 | ADAGFIKQYG 2.2e-05 | 60 |
| HLA-A*02:01 | 1 | 831 | 840 | 10 | AGFIKQYGDC 2.2e-05 | 54 |
| HLA-B*51:01 | 1 | 831 | 840 | 10 | AGFIKQYGDC 2.2e-05 | 65 |
| HLA-A*68:02 | 1 | 833 | 842 | 10 | FIKQYGDCLG 2.2e-05 | 55 |
| HLA-B*58:01 | 1 | 836 | 844 | 9 | QYGDCLGDI 2.2e-05 | 60 |
| HLA-B*51:01 | 1 | 839 | 848 | 10 | DCLGDIAARD 2.2e-05 | 65 |
| HLA-A*02:03 | 1 | 844 | 853 | 10 | IAARDLICAQ 2.2e-05 | 57 |
| HLA-A*01:01 | 1 | 847 | 856 | 10 | RDLICAQKFN 2.2e-05 | 77 |
| HLA-A*68:02 | 1 | 847 | 855 | 9 | RDLICAQKF 2.2e-05 | 55 |
| HLA-A*30:01 | 1 | 848 | 856 | 9 | DLICAQKFN 2.2e-05 | 81 |
| HLA-B*15:01 | 1 | 858 | 867 | 10 | LTVLPPLTLD 2.2e-05 | 54 |
| HLA-A*23:01 | 1 | 859 | 868 | 10 | TVLPPLLTDE 2.2e-05 | 37 |
| HLA-A*24:02 | 1 | 859 | 868 | 10 | TVLPPLLTDE 2.2e-05 | 35 |
| HLA-B*35:01 | 1 | 860 | 868 | 9 | VLPPLLTDE 2.2e-05 | 40 |
| HLA-B*15:01 | 1 | 861 | 870 | 10 | LPPLLTDEMI 2.2e-05 | 54 |
| HLA-B*07:02 | 1 | 872 | 881 | 10 | QYTSALLAGT 2.2e-05 | 53 |
| HLA-B*15:01 | 1 | 872 | 880 | 9 | QYTSALLAG 2.2e-05 | 54 |
| HLA-A*26:01 | 1 | 884 | 892 | 9 | SGWTFGAGA 2.2e-05 | 49 |
| HLA-A*68:02 | 1 | 887 | 895 | 9 | TFGAGAALQ 2.2e-05 | 55 |
| HLA-A*23:01 | 1 | 893 | 901 | 9 | ALQIPFAMQ 2.2e-05 | 37 |
| HLA-B*53:01 | 1 | 897 | 905 | 9 | PFAMQMAYR 2.2e-05 | 39 |
| HLA-A*02:06 | 1 | 899 | 907 | 9 | AMQMAYRFN 2.2e-05 | 64 |
| HLA-A*01:01 | 1 | 905 | 914 | 10 | RFNGIGVTQN 2.2e-05 | 77 |
| HLA-A*23:01 | 1 | 911 | 919 | 9 | VTQNVLYEN 2.2e-05 | 37 |
| HLA-A*24:02 | 1 | 912 | 921 | 10 | TQNVLYENQK 2.2e-05 | 35 |
| HLA-B*51:01 | 1 | 912 | 921 | 10 | TQNVLYENQK 2.2e-05 | 65 |
| HLA-B*40:01 | 1 | 915 | 924 | 10 | VLYENQKLIA 2.2e-05 | 34 |
| HLA-A*31:01 | 1 | 916 | 925 | 10 | LYENQKLIAN 2.2e-05 | 56 |
| HLA-B*53:01 | 1 | 917 | 926 | 10 | YENQKLIANQ 2.2e-05 | 39 |
| HLA-B*08:01 | 1 | 924 | 932 | 9 | ANQFNSAIG 2.2e-05 | 73 |
| HLA-B*44:02 | 1 | 926 | 935 | 10 | QFNSAIGKIQ 2.2e-05 | 42 |
| HLA-A*31:01 | 1 | 931 | 939 | 9 | IGKIQDSL 2.2e-05 | 56 |
| HLA-A*01:01 | 1 | 932 | 940 | 9 | GKIQDSLSS 2.2e-05 | 77 |
| HLA-B*35:01 | 1 | 940 | 949 | 10 | STASALGKLQ 2.2e-05 | 40 |
| HLA-A*03:01 | 1 | 946 | 955 | 10 | GKLQDVVNQN 2.2e-05 | 49 |
| HLA-A*32:01 | 1 | 951 | 960 | 10 | VVNQNAQALN 2.2e-05 | 42 |
| HLA-A*24:02 | 1 | 956 | 965 | 10 | AQALNTLVKQ 2.2e-05 | 35 |
| HLA-A*68:01 | 1 | 965 | 974 | 10 | QLSSNFGAIS 2.2e-05 | 50 |
| HLA-B*07:02 | 1 | 966 | 975 | 10 | LSSNFGAISS 2.2e-05 | 53 |
| HLA-A*03:01 | 1 | 974 | 982 | 9 | SSVLNDILS 2.2e-05 | 49 |
| HLA-B*51:01 | 1 | 977 | 985 | 9 | LNDILSRLD 2.2e-05 | 65 |
| HLA-A*03:01 | 1 | 988 | 996 | 9 | EAEVQIDRL 2.2e-05 | 49 |
| HLA-A*26:01 | 1 | 989 | 998 | 10 | AEVQIDRLIT 2.2e-05 | 49 |
| HLA-B*51:01 | 1 | 993 | 1002 | 10 | IDRLITGRLQ 2.2e-05 | 65 |
| HLA-A*31:01 | 1 | 994 | 1003 | 10 | DRLITGRLQS 2.2e-05 | 56 |
| HLA-B*53:01 | 1 | 994 | 1002 | 9 | DRLITGRLQ 2.2e-05 | 39 |
| HLA-A*02:01 | 1 | 997 | 1005 | 9 | ITGRLQSLQ 2.2e-05 | 54 |
| HLA-A*32:01 | 1 | 997 | 1006 | 10 | ITGRLQSLQT 2.2e-05 | 42 |
| HLA-B*44:02 | 1 | 1002 | 1011 | 10 | QSLQTYVTQQ 2.2e-05 | 42 |
| HLA-A*68:01 | 1 | 1010 | 1018 | 9 | QLLIRAAEI 2.2e-05 | 50 |
| HLA-A*68:02 | 1 | 1013 | 1021 | 9 | IRAAEIRAS 2.2e-05 | 55 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-B*53:01 | 1 | 1016 | 1025 | 10 | AEIRASANLA 2.2e-05 | 39 |
| HLA-B*40:01 | 1 | 1017 | 1025 | 9 | EIRASANLA 2.2e-05 | 34 |
| HLA-A*68:02 | 1 | 1022 | 1030 | 9 | ANLAATKMS 2.2e-05 | 55 |
| HLA-A*68:01 | 1 | 1026 | 1035 | 10 | ATKMSECVLG 2.2e-05 | 50 |
| HLA-B*35:01 | 1 | 1030 | 1039 | 10 | SECVLGQSKR 2.2e-05 | 40 |
| HLA-A*02:03 | 1 | 1034 | 1042 | 9 | LGQSKRVDF 2.2e-05 | 57 |
| HLA-A*33:01 | 1 | 1036 | 1044 | 9 | QSKRVDFCG 2.2e-05 | 60 |
| HLA-B*44:02 | 1 | 1036 | 1045 | 10 | QSKRVDFCGK 2.2e-05 | 42 |
| HLA-A*23:01 | 1 | 1048 | 1057 | 10 | HLMSPQSAP 2.2e-05 | 37 |
| HLA-A*26:01 | 1 | 1062 | 1071 | 10 | FLHVTVVPAQ 2.2e-05 | 49 |
| HLA-B*53:01 | 1 | 1062 | 1071 | 10 | FLHVTVVPAQ 2.2e-05 | 39 |
| HLA-A*23:01 | 1 | 1064 | 1073 | 10 | HVTYVPAQEK 2.2e-05 | 37 |
| HLA-A*31:01 | 1 | 1067 | 1076 | 10 | YVPAQEKNFT 2.2e-05 | 56 |
| HLA-B*15:01 | 1 | 1068 | 1076 | 9 | VPAQEKNFT 2.2e-05 | 54 |
| HLA-A*11:01 | 1 | 1071 | 1080 | 10 | QEKNFTTAPA 2.2e-05 | 36 |
| HLA-A*32:01 | 1 | 1072 | 1081 | 10 | EKNFTTAPAI 2.2e-05 | 42 |
| HLA-A*33:01 | 1 | 1073 | 1082 | 10 | KNFTTAPAIC 2.2e-05 | 60 |
| HLA-B*07:02 | 1 | 1073 | 1082 | 10 | KNFTTAPAIC 2.2e-05 | 53 |
| HLA-A*02:03 | 1 | 1075 | 1084 | 10 | FTTAPAICHD 2.2e-05 | 57 |
| HLA-A*32:01 | 1 | 1076 | 1085 | 10 | TTAPAICHDG 2.2e-05 | 42 |
| HLA-B*35:01 | 1 | 1082 | 1091 | 10 | CHDGKAHFPR 2.2e-05 | 40 |
| HLA-A*68:02 | 1 | 1091 | 1100 | 10 | REGVFSVNGT 2.2e-05 | 55 |
| HLA-B*07:02 | 1 | 1096 | 1105 | 10 | VSNGETHWFVT 2.2e-05 | 53 |
| HLA-A*02:03 | 1 | 1099 | 1108 | 10 | GTHWFVTQRN 2.2e-05 | 57 |
| HLA-B*35:01 | 1 | 1102 | 1111 | 10 | WFVTQRNFYE 2.2e-05 | 40 |
| HLA-B*07:02 | 1 | 1109 | 1118 | 10 | FYEPQIITTD 2.2e-05 | 53 |
| HLA-A*68:02 | 1 | 1112 | 1121 | 10 | PQIITTDNTF 2.2e-05 | 55 |
| HLA-B*40:01 | 1 | 1115 | 1123 | 9 | ITTDNTFVS 2.2e-05 | 34 |
| HLA-B*57:01 | 1 | 1118 | 1126 | 9 | DNTFVSGNC 2.2e-05 | 72 |
| HLA-A*03:01 | 1 | 1127 | 1136 | 10 | DVVIGIVNNT 2.2e-05 | 49 |
| HLA-A*68:02 | 1 | 1140 | 1149 | 10 | PLQPELDSFK 2.2e-05 | 55 |
| HLA-A*03:01 | 1 | 1142 | 1150 | 9 | QPELDSFKE 2.2e-05 | 49 |
| HLA-A*02:03 | 1 | 1146 | 1154 | 9 | DSFKEELDK 2.2e-05 | 57 |
| HLA-A*68:01 | 1 | 1151 | 1160 | 10 | ELDKYFKNHT 2.2e-05 | 50 |
| HLA-B*07:02 | 1 | 1151 | 1160 | 10 | ELDKYFKNHT 2.2e-05 | 53 |
| HLA-B*44:02 | 1 | 1152 | 1161 | 10 | LDKYFKNHTS 2.2e-05 | 42 |
| HLA-B*51:01 | 1 | 1154 | 1163 | 10 | KYFKNHTSPD 2.2e-05 | 65 |
| HLA-A*68:01 | 1 | 1158 | 1167 | 10 | NHTSPDVDLG 2.2e-05 | 50 |
| HLA-A*31:01 | 1 | 1165 | 1174 | 10 | DLGDISGINA 2.2e-05 | 56 |
| HLA-B*08:01 | 1 | 1166 | 1175 | 10 | LGDISGINAS 2.2e-05 | 73 |
| HLA-A*03:01 | 1 | 1167 | 1175 | 9 | GDISGINAS 2.2e-05 | 49 |
| HLA-A*11:01 | 1 | 1169 | 1177 | 9 | ISGINASVV 2.2e-05 | 36 |
| HLA-A*31:01 | 1 | 1169 | 1177 | 9 | ISGINASVV 2.2e-05 | 56 |
| HLA-B*40:01 | 1 | 1169 | 1177 | 9 | ISGINASVV 2.2e-05 | 34 |
| HLA-B*44:03 | 1 | 1172 | 1181 | 10 | INASVVNIQK 2.2e-05 | 39 |
| HLA-B*53:01 | 1 | 1174 | 1182 | 9 | ASVVNIQKE 2.2e-05 | 39 |
| HLA-B*44:02 | 1 | 1177 | 1185 | 9 | VNIQKEIDR 2.2e-05 | 42 |
| HLA-B*44:02 | 1 | 1178 | 1187 | 10 | NIQKEIDRLN 2.2e-05 | 42 |
| HLA-B*44:02 | 1 | 1179 | 1188 | 10 | IQKEIDRLNE 2.2e-05 | 42 |
| HLA-A*11:01 | 1 | 1180 | 1189 | 10 | QKEIDRLNEV 2.2e-05 | 36 |
| HLA-B*44:02 | 1 | 1185 | 1194 | 10 | RLNEVAKNLN 2.2e-05 | 42 |
| HLA-A*32:01 | 1 | 1188 | 1196 | 9 | EVAKNLNES 2.2e-05 | 42 |
| HLA-B*07:02 | 1 | 1192 | 1201 | 10 | NLNEIDLQ 2.2e-05 | 53 |
| HLA-A*68:02 | 1 | 1194 | 1202 | 9 | NESLIDLQE 2.2e-05 | 55 |
| HLA-A*02:06 | 1 | 1199 | 1208 | 10 | DLQELGKYEQ 2.2e-05 | 64 |
| HLA-B*07:02 | 1 | 1203 | 1212 | 10 | LGKYEQYIKW 2.2e-05 | 53 |
| HLA-A*68:02 | 1 | 1205 | 1214 | 10 | KYEQYIKWPW 2.2e-05 | 55 |
| HLA-B*40:01 | 1 | 1208 | 1217 | 10 | QYIKWPWYIW 2.2e-05 | 34 |
| HLA-A*31:01 | 1 | 1210 | 1219 | 10 | IKWPWYIWLG 2.2e-05 | 56 |
| HLA-A*11:01 | 1 | 1211 | 1219 | 9 | KWPWYIWLG 2.2e-05 | 36 |
| HLA-A*30:02 | 1 | 1212 | 1221 | 10 | WPWYIWLGFI 2.2e-05 | 79 |
| HLA-A*32:01 | 1 | 1214 | 1222 | 9 | WYIWLGFIA 2.2e-05 | 42 |
| HLA-A*03:01 | 1 | 1216 | 1225 | 10 | IWLGFIAGLI 2.2e-05 | 49 |
| HLA-A*26:01 | 1 | 1218 | 1227 | 10 | LGFIAGLIAI 2.2e-05 | 49 |
| HLA-B*40:01 | 1 | 1219 | 1228 | 10 | GFIAGLIAIV 2.2e-05 | 34 |
| HLA-B*44:03 | 1 | 1220 | 1228 | 9 | FIAGLIAIIV 2.2e-05 | 39 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*68:02 | 1 | 1228 | 1237 | 10 | VMVTIMLCCM 2.2e-05 | 55 |
| HLA-A*03:01 | 1 | 1232 | 1240 | 9 | IMLCCMTSC 2.2e-05 | 49 |
| HLA-B*57:01 | 1 | 1236 | 1245 | 10 | CMTSCCCLK 2.2e-05 | 72 |
| HLA-B*35:01 | 1 | 1237 | 1245 | 9 | MTSCCCLK 2.2e-05 | 40 |
| HLA-A*02:06 | 1 | 1238 | 1247 | 10 | TSCCCLKGC 2.2e-05 | 64 |
| HLA-A*32:01 | 1 | 1255 | 1264 | 10 | KFDEDDSEPV 2.2e-05 | 42 |
| HLA-B*51:01 | 1 | 1258 | 1267 | 10 | EDDSEPVKLG 2.2e-05 | 65 |
| HLA-A*02:06 | 1 | 1259 | 1267 | 9 | DDSEPVKLG 2.2e-05 | 64 |
| HLA-A*02:03 | 1 | 1260 | 1269 | 10 | DSEPVKGVK 2.2e-05 | 57 |
| HLA-A*02:01 | 1 | 1265 | 1273 | 9 | LKGVKLHYT 2.2e-05 | 54 |
| HLA-A*11:01 | 1 | 1 | 9 | 9 | MFVFLVLLP 2.1e-05 | 37 |
| HLA-B*44:03 | 1 | 1 | 10 | 10 | MFVFLVLLPL 2.1e-05 | 40 |
| HLA-B*15:01 | 1 | 8 | 17 | 10 | LPLVSSQCVN 2.1e-05 | 55 |
| HLA-B*15:01 | 1 | 10 | 19 | 10 | LVSSQCVNLT 2.1e-05 | 55 |
| HLA-A*26:01 | 1 | 11 | 19 | 9 | VSSQCVNLT 2.1e-05 | 49 |
| HLA-A*31:01 | 1 | 11 | 20 | 10 | VSSQCVNLTT 2.1e-05 | 57 |
| HLA-B*40:01 | 1 | 12 | 21 | 10 | SSQCVNLTR 2.1e-05 | 34 |
| HLA-B*08:01 | 1 | 14 | 23 | 10 | QCVNLTRTQ 2.1e-05 | 73 |
| HLA-B*44:02 | 1 | 14 | 23 | 10 | QCVNLTRTQ 2.1e-05 | 43 |
| HLA-B*44:02 | 1 | 15 | 23 | 9 | CVNLTRTQ 2.1e-05 | 43 |
| HLA-A*31:01 | 1 | 17 | 25 | 9 | NLTRTQLP 2.1e-05 | 57 |
| HLA-A*02:01 | 1 | 25 | 34 | 10 | PPAYTNSFTR 2.1e-05 | 55 |
| HLA-B*35:01 | 1 | 31 | 39 | 9 | SFTRGVYYP 2.1e-05 | 41 |
| HLA-A*11:01 | 1 | 34 | 42 | 9 | RGVYYPDKV 2.1e-05 | 37 |
| HLA-A*30:02 | 1 | 39 | 48 | 10 | PDKVFRSSVL 2.1e-05 | 79 |
| HLA-A*03:01 | 1 | 40 | 48 | 9 | DKVFRSSVL 2.1e-05 | 50 |
| HLA-B*44:03 | 1 | 52 | 61 | 10 | QDLFLPFFSN 2.1e-05 | 40 |
| HLA-A*32:01 | 1 | 58 | 67 | 10 | FFSNVTWFHA 2.1e-05 | 43 |
| HLA-B*07:02 | 1 | 58 | 67 | 10 | FFSNVTWFHA 2.1e-05 | 54 |
| HLA-B*44:02 | 1 | 63 | 71 | 9 | TWFHAIHVS 2.1e-05 | 43 |
| HLA-A*31:01 | 1 | 65 | 73 | 9 | FHAIHVSGT 2.1e-05 | 57 |
| HLA-A*68:02 | 1 | 65 | 74 | 10 | FHAIHVSGTN 2.1e-05 | 56 |
| HLA-B*44:03 | 1 | 65 | 73 | 9 | FHAIHVSGT 2.1e-05 | 40 |
| HLA-A*02:03 | 1 | 66 | 74 | 9 | HAIHVSGTN 2.1e-05 | 58 |
| HLA-A*31:01 | 1 | 66 | 74 | 9 | HAIHVSGTN 2.1e-05 | 57 |
| HLA-A*68:01 | 1 | 67 | 75 | 9 | AIHVSGTNG 2.1e-05 | 50 |
| HLA-A*23:01 | 1 | 70 | 78 | 9 | VSGTNGTKR 2.1e-05 | 37 |
| HLA-A*32:01 | 1 | 85 | 93 | 9 | PFNDGVYFA 2.1e-05 | 43 |
| HLA-A*26:01 | 1 | 86 | 94 | 9 | FNDGVYFAS 2.1e-05 | 49 |
| HLA-A*33:01 | 1 | 86 | 95 | 10 | FNDGVYFAST 2.1e-05 | 61 |
| HLA-B*58:01 | 1 | 90 | 99 | 10 | VYFASTEKSN 2.1e-05 | 60 |
| HLA-B*44:03 | 1 | 92 | 101 | 10 | FASTEKSNII 2.1e-05 | 40 |
| HLA-A*02:01 | 1 | 94 | 103 | 10 | STEKSNIIIRG 2.1e-05 | 55 |
| HLA-A*68:01 | 1 | 97 | 105 | 9 | KSNIIRGWI 2.1e-05 | 50 |
| HLA-B*44:02 | 1 | 97 | 105 | 9 | KSNIIRGWI 2.1e-05 | 43 |
| HLA-A*68:02 | 1 | 103 | 112 | 10 | GWIFGTTLDS 2.1e-05 | 56 |
| HLA-A*23:01 | 1 | 104 | 113 | 10 | WIFGTTLDSK 2.1e-05 | 37 |
| HLA-A*02:03 | 1 | 105 | 114 | 10 | IFGTTLDSKT 2.1e-05 | 58 |
| HLA-B*35:01 | 1 | 106 | 115 | 10 | FGTTLDSKTQ 2.1e-05 | 41 |
| HLA-A*01:01 | 1 | 130 | 139 | 10 | VCEFQFCNDP 2.1e-05 | 78 |
| HLA-B*07:02 | 1 | 147 | 155 | 9 | KNNKSWMES 2.1e-05 | 54 |
| HLA-A*68:02 | 1 | 152 | 160 | 9 | WMESEFRVY 2.1e-05 | 56 |
| HLA-B*35:01 | 1 | 157 | 166 | 10 | FRVYSSANNC 2.1e-05 | 41 |
| HLA-B*44:03 | 1 | 159 | 167 | 9 | VYSSANNCT 2.1e-05 | 40 |
| HLA-B*58:01 | 1 | 159 | 167 | 9 | VYSSANNCT 2.1e-05 | 60 |
| HLA-B*35:01 | 1 | 165 | 174 | 10 | NCTFEYVSQP 2.1e-05 | 41 |
| HLA-A*02:01 | 1 | 172 | 181 | 10 | SQPFLMDLEG 2.1e-05 | 55 |
| HLA-B*15:01 | 1 | 173 | 181 | 9 | QPFLMDLEG 2.1e-05 | 55 |
| HLA-A*02:06 | 1 | 174 | 183 | 10 | PFLMDLEGKQ 2.1e-05 | 65 |
| HLA-B*44:02 | 1 | 175 | 183 | 9 | FLMDLEGKQ 2.1e-05 | 43 |
| HLA-B*53:01 | 1 | 176 | 184 | 9 | LMDLEGKQG 2.1e-05 | 40 |
| HLA-B*51:01 | 1 | 177 | 185 | 9 | MDLEGKQGN 2.1e-05 | 65 |
| HLA-B*58:01 | 1 | 179 | 188 | 10 | LEGKQGNFKN 2.1e-05 | 60 |
| HLA-B*44:03 | 1 | 180 | 188 | 9 | EKGQGNFKN 2.1e-05 | 40 |
| HLA-B*40:01 | 1 | 182 | 191 | 10 | KQGNFKNLRE 2.1e-05 | 34 |
| HLA-A*68:01 | 1 | 188 | 197 | 10 | NLREFVFKNI 2.1e-05 | 50 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-A*03:01 | 1 | 194 | 203 | 10 | FKNIDGYFKI | 2.1e-05 | 50 |
| HLA-B*08:01 | 1 | 209 | 217 | 9 | PINLVRDLP | 2.1e-05 | 73 |
| HLA-A*31:01 | 1 | 211 | 219 | 9 | NLVRDLPQG | 2.1e-05 | 57 |
| HLA-B*53:01 | 1 | 211 | 219 | 9 | NLVRDLPQG | 2.1e-05 | 40 |
| HLA-B*44:02 | 1 | 217 | 226 | 10 | PQGFSALEPL | 2.1e-05 | 43 |
| HLA-B*35:01 | 1 | 226 | 234 | 9 | LVDLPIGIN | 2.1e-05 | 41 |
| HLA-A*24:02 | 1 | 239 | 247 | 9 | QTLALHRS | 2.1e-05 | 36 |
| HLA-A*02:01 | 1 | 249 | 257 | 9 | LTPGDSSSG | 2.1e-05 | 55 |
| HLA-B*35:01 | 1 | 254 | 263 | 10 | SSSGWTAGAA | 2.1e-05 | 41 |
| HLA-A*02:03 | 1 | 256 | 265 | 10 | SGWTAGAAAY | 2.1e-05 | 58 |
| HLA-A*23:01 | 1 | 256 | 264 | 9 | SGWTAGAAA | 2.1e-05 | 37 |
| HLA-A*02:06 | 1 | 277 | 286 | 10 | LKYNENGTIT | 2.1e-05 | 65 |
| HLA-A*03:01 | 1 | 280 | 289 | 10 | NENGTITDAV | 2.1e-05 | 50 |
| HLA-A*68:01 | 1 | 295 | 303 | 9 | PLSETKCTL | 2.1e-05 | 50 |
| HLA-B*57:01 | 1 | 297 | 305 | 9 | SETKCTLKS | 2.1e-05 | 72 |
| HLA-B*07:02 | 1 | 298 | 307 | 10 | ETKCTLKSFT | 2.1e-05 | 54 |
| HLA-B*35:01 | 1 | 298 | 307 | 10 | ETKCTLKSFT | 2.1e-05 | 41 |
| HLA-A*01:01 | 1 | 308 | 317 | 10 | VEKGIYQTSN | 2.1e-05 | 78 |
| HLA-A*24:02 | 1 | 308 | 316 | 9 | VEKGIYQTS | 2.1e-05 | 36 |
| HLA-B*07:02 | 1 | 312 | 321 | 10 | IYQTSNFRVQ | 2.1e-05 | 54 |
| HLA-A*02:01 | 1 | 316 | 325 | 10 | SNFRVQPTES | 2.1e-05 | 55 |
| HLA-A*32:01 | 1 | 316 | 325 | 10 | SNFRVQPTES | 2.1e-05 | 43 |
| HLA-B*40:01 | 1 | 321 | 330 | 10 | QPTESIVRFP | 2.1e-05 | 34 |
| HLA-B*08:01 | 1 | 323 | 331 | 9 | TESIVRFPN | 2.1e-05 | 73 |
| HLA-A*26:01 | 1 | 329 | 337 | 9 | FPNITNLCP | 2.1e-05 | 49 |
| HLA-A*33:01 | 1 | 331 | 339 | 9 | NITNLCPFG | 2.1e-05 | 61 |
| HLA-B*08:01 | 1 | 332 | 340 | 9 | ITNLCPFGE | 2.1e-05 | 73 |
| HLA-A*31:01 | 1 | 335 | 344 | 10 | LCPFGEVFNA | 2.1e-05 | 57 |
| HLA-A*31:01 | 1 | 362 | 370 | 9 | VADYSVLYN | 2.1e-05 | 57 |
| HLA-A*11:01 | 1 | 365 | 373 | 9 | YSVLYNSAS | 2.1e-05 | 37 |
| HLA-B*15:01 | 1 | 370 | 379 | 10 | NSASFSTFKC | 2.1e-05 | 55 |
| HLA-B*08:01 | 1 | 372 | 381 | 10 | ASFSTFKCYG | 2.1e-05 | 73 |
| HLA-A*03:01 | 1 | 373 | 381 | 9 | SFSTFKCYG | 2.1e-05 | 50 |
| HLA-B*07:02 | 1 | 373 | 381 | 9 | SFSTFKCYG | 2.1e-05 | 54 |
| HLA-B*57:01 | 1 | 376 | 384 | 9 | TFKCYGVSP | 2.1e-05 | 72 |
| HLA-B*44:03 | 1 | 386 | 395 | 10 | KLNDLCFTNV | 2.1e-05 | 40 |
| HLA-B*53:01 | 1 | 390 | 398 | 9 | LCFTNVYAD | 2.1e-05 | 40 |
| HLA-A*11:01 | 1 | 391 | 400 | 10 | CFTNVYADSF | 2.1e-05 | 37 |
| HLA-A*11:01 | 1 | 402 | 410 | 9 | IRGDEVQRQI | 2.1e-05 | 37 |
| HLA-A*26:01 | 1 | 403 | 411 | 9 | RGDEVQRQIA | 2.1e-05 | 49 |
| HLA-B*53:01 | 1 | 403 | 412 | 10 | RGDEVQRQIAP | 2.1e-05 | 40 |
| HLA-A*03:01 | 1 | 407 | 416 | 10 | VRQIAPGQTG | 2.1e-05 | 50 |
| HLA-B*57:01 | 1 | 407 | 415 | 9 | VRQIAPGQT | 2.1e-05 | 72 |
| HLA-A*11:01 | 1 | 412 | 421 | 10 | PGQTGKIADY | 2.1e-05 | 37 |
| HLA-B*44:03 | 1 | 418 | 426 | 9 | IADYNYKLP | 2.1e-05 | 40 |
| HLA-A*01:01 | 1 | 419 | 427 | 9 | ADYNYKLPD | 2.1e-05 | 78 |
| HLA-A*68:01 | 1 | 423 | 432 | 10 | YKLPDDFTGC | 2.1e-05 | 50 |
| HLA-B*44:02 | 1 | 424 | 432 | 9 | KLPDDFTGC | 2.1e-05 | 43 |
| HLA-A*30:01 | 1 | 426 | 434 | 9 | PDDFTGCVI | 2.1e-05 | 81 |
| HLA-A*02:03 | 1 | 428 | 436 | 9 | DFTGCVIAW | 2.1e-05 | 58 |
| HLA-B*15:01 | 1 | 433 | 442 | 10 | VIAWSNNLD | 2.1e-05 | 55 |
| HLA-B*51:01 | 1 | 435 | 444 | 10 | AWNSNNLDSK | 2.1e-05 | 65 |
| HLA-B*53:01 | 1 | 436 | 445 | 10 | WNSNNLDSKV | 2.1e-05 | 40 |
| HLA-B*44:02 | 1 | 439 | 447 | 9 | NNLDSKVG | 2.1e-05 | 43 |
| HLA-B*07:02 | 1 | 442 | 450 | 9 | DSKVGGNYN | 2.1e-05 | 54 |
| HLA-A*03:01 | 1 | 451 | 460 | 10 | YLYRFRKSN | 2.1e-05 | 50 |
| HLA-A*26:01 | 1 | 455 | 463 | 9 | LFRKSNLKP | 2.1e-05 | 49 |
| HLA-A*24:02 | 1 | 462 | 470 | 9 | KPFERDIST | 2.1e-05 | 36 |
| HLA-A*23:01 | 1 | 468 | 476 | 9 | ISTEIQAG | 2.1e-05 | 37 |
| HLA-B*44:02 | 1 | 471 | 480 | 10 | EIQAGSTPC | 2.1e-05 | 43 |
| HLA-A*01:01 | 1 | 472 | 481 | 10 | IYQAGSTPCN | 2.1e-05 | 78 |
| HLA-A*26:01 | 1 | 472 | 480 | 9 | IYQAGSTPC | 2.1e-05 | 49 |
| HLA-B*07:02 | 1 | 472 | 481 | 10 | IYQAGSTPCN | 2.1e-05 | 54 |
| HLA-A*23:01 | 1 | 473 | 481 | 9 | YQAGSTPCN | 2.1e-05 | 37 |
| HLA-A*02:06 | 1 | 480 | 489 | 10 | CNGVEGFNCY | 2.1e-05 | 65 |
| HLA-A*03:01 | 1 | 484 | 492 | 9 | EGFNCFYFPL | 2.1e-05 | 50 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*58:01 | 1 | 490 | 498 | 9 | FPLQSYGFQ | 2.1e-05 | 60 |
| HLA-B*35:01 | 1 | 499 | 507 | 9 | PTNGVGYQP | 2.1e-05 | 41 |
| HLA-B*44:02 | 1 | 500 | 509 | 10 | TNGVGYQPYR | 2.1e-05 | 43 |
| HLA-B*44:02 | 1 | 505 | 514 | 10 | YQPYRVVLS | 2.1e-05 | 43 |
| HLA-A*68:02 | 1 | 508 | 516 | 9 | YRVVLSFE | 2.1e-05 | 56 |
| HLA-B*15:01 | 1 | 508 | 516 | 9 | YRVVLSFE | 2.1e-05 | 55 |
| HLA-B*57:01 | 1 | 514 | 522 | 9 | SFELLHAPA | 2.1e-05 | 72 |
| HLA-B*35:01 | 1 | 516 | 525 | 10 | ELLHAPATVC | 2.1e-05 | 41 |
| HLA-B*15:01 | 1 | 525 | 534 | 10 | CGPKKSTNLV | 2.1e-05 | 55 |
| HLA-A*02:01 | 1 | 526 | 535 | 10 | GPKKSTNLVK | 2.1e-05 | 55 |
| HLA-B*07:02 | 1 | 527 | 535 | 9 | PKKSTNLVK | 2.1e-05 | 54 |
| HLA-A*03:01 | 1 | 534 | 543 | 10 | VKNKCVNFN | 2.1e-05 | 50 |
| HLA-A*32:01 | 1 | 537 | 545 | 9 | KCVNFNFN | 2.1e-05 | 43 |
| HLA-B*44:02 | 1 | 537 | 546 | 10 | KCVNFNFNGL | 2.1e-05 | 43 |
| HLA-A*33:01 | 1 | 545 | 553 | 9 | GLTGTGVL | 2.1e-05 | 61 |
| HLA-B*15:01 | 1 | 546 | 555 | 10 | LTGTGVLTES | 2.1e-05 | 55 |
| HLA-A*11:01 | 1 | 548 | 556 | 9 | GTGVLTESN | 2.1e-05 | 37 |
| HLA-A*01:01 | 1 | 560 | 568 | 9 | LPFQQFGRD | 2.1e-05 | 78 |
| HLA-A*31:01 | 1 | 561 | 569 | 9 | PFQQFGRDI | 2.1e-05 | 57 |
| HLA-A*03:01 | 1 | 562 | 570 | 9 | FQQFGRDIA | 2.1e-05 | 50 |
| HLA-B*35:01 | 1 | 563 | 572 | 10 | QQFGRDIADT | 2.1e-05 | 41 |
| HLA-A*02:03 | 1 | 564 | 572 | 9 | QFGRDIADT | 2.1e-05 | 58 |
| HLA-B*51:01 | 1 | 566 | 575 | 10 | GRDIADTTDA | 2.1e-05 | 65 |
| HLA-A*11:01 | 1 | 571 | 579 | 9 | DTTDAVRDP | 2.1e-05 | 37 |
| HLA-A*02:03 | 1 | 573 | 581 | 9 | TDAVRDPQT | 2.1e-05 | 58 |
| HLA-B*40:01 | 1 | 574 | 583 | 10 | DAVRDPQTLE | 2.1e-05 | 34 |
| HLA-B*07:02 | 1 | 590 | 599 | 10 | CSFGGVSUIT | 2.1e-05 | 54 |
| HLA-A*24:02 | 1 | 596 | 604 | 9 | SVITPGTNT | 2.1e-05 | 36 |
| HLA-A*68:02 | 1 | 597 | 606 | 10 | VITPGTNTSN | 2.1e-05 | 56 |
| HLA-B*07:02 | 1 | 598 | 606 | 9 | ITPGTNTSN | 2.1e-05 | 54 |
| HLA-A*01:01 | 1 | 606 | 614 | 9 | NQVAVLYQD | 2.1e-05 | 78 |
| HLA-A*03:01 | 1 | 606 | 615 | 10 | NQVAVLYQDV | 2.1e-05 | 50 |
| HLA-A*24:02 | 1 | 606 | 615 | 10 | NQVAVLYQDV | 2.1e-05 | 36 |
| HLA-A*31:01 | 1 | 608 | 617 | 10 | VAVLYQDVNC | 2.1e-05 | 57 |
| HLA-B*35:01 | 1 | 609 | 617 | 9 | AVLYQDVNC | 2.1e-05 | 41 |
| HLA-B*44:02 | 1 | 609 | 617 | 9 | AVLYQDVNC | 2.1e-05 | 43 |
| HLA-B*40:01 | 1 | 610 | 618 | 9 | VLYQDVNCT | 2.1e-05 | 34 |
| HLA-B*40:01 | 1 | 614 | 622 | 9 | DVNCTEVPV | 2.1e-05 | 34 |
| HLA-A*23:01 | 1 | 615 | 623 | 9 | VNCTEVPVA | 2.1e-05 | 37 |
| HLA-B*44:02 | 1 | 615 | 623 | 9 | VNCTEVPVA | 2.1e-05 | 43 |
| HLA-B*44:03 | 1 | 622 | 631 | 10 | VAIHADQLTP | 2.1e-05 | 40 |
| HLA-B*51:01 | 1 | 632 | 640 | 9 | TWRVYSTGS | 2.1e-05 | 65 |
| HLA-B*35:01 | 1 | 633 | 642 | 10 | WRVYSTGSNV | 2.1e-05 | 41 |
| HLA-B*44:02 | 1 | 633 | 642 | 10 | WRVYSTGSNV | 2.1e-05 | 43 |
| HLA-B*40:01 | 1 | 636 | 644 | 9 | YSTGSNVFQ | 2.1e-05 | 34 |
| HLA-A*68:01 | 1 | 643 | 651 | 9 | FQTRAGCLI | 2.1e-05 | 50 |
| HLA-B*51:01 | 1 | 643 | 652 | 10 | FQTRAGCLIG | 2.1e-05 | 65 |
| HLA-A*11:01 | 1 | 644 | 652 | 9 | QTRAGCLIG | 2.1e-05 | 37 |
| HLA-B*08:01 | 1 | 646 | 654 | 9 | RAGCLIGAE | 2.1e-05 | 73 |
| HLA-B*15:01 | 1 | 647 | 656 | 10 | AGCLIGAEHV | 2.1e-05 | 55 |
| HLA-B*08:01 | 1 | 649 | 657 | 9 | CLIGAEHVN | 2.1e-05 | 73 |
| HLA-A*03:01 | 1 | 650 | 659 | 10 | LIGAEHVNNS | 2.1e-05 | 50 |
| HLA-A*03:01 | 1 | 652 | 661 | 10 | GAEHVNNSYE | 2.1e-05 | 50 |
| HLA-A*11:01 | 1 | 652 | 661 | 10 | GAEHVNNSYE | 2.1e-05 | 37 |
| HLA-B*07:02 | 1 | 652 | 661 | 10 | GAEHVNNSYE | 2.1e-05 | 54 |
| HLA-A*33:01 | 1 | 653 | 662 | 10 | AHVNNSYEC | 2.1e-05 | 61 |
| HLA-B*08:01 | 1 | 655 | 663 | 9 | HVNNSYECD | 2.1e-05 | 73 |
| HLA-B*57:01 | 1 | 662 | 671 | 10 | CDIPIGAGIC | 2.1e-05 | 72 |
| HLA-B*57:01 | 1 | 663 | 672 | 10 | DIPIGAGICA | 2.1e-05 | 72 |
| HLA-B*07:02 | 1 | 665 | 674 | 10 | PIGAGICASY | 2.1e-05 | 54 |
| HLA-B*08:01 | 1 | 669 | 678 | 10 | GICASYQTQT | 2.1e-05 | 73 |
| HLA-B*44:02 | 1 | 669 | 677 | 9 | GICASYQTQ | 2.1e-05 | 43 |
| HLA-A*33:01 | 1 | 692 | 700 | 9 | IIAYTMSLG | 2.1e-05 | 61 |
| HLA-B*44:02 | 1 | 695 | 703 | 9 | YTMSLGAEN | 2.1e-05 | 43 |
| HLA-B*53:01 | 1 | 696 | 704 | 9 | TMSLGAENS | 2.1e-05 | 40 |
| HLA-A*31:01 | 1 | 699 | 708 | 10 | LGAENSVAYS | 2.1e-05 | 57 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*01:01 | 1 | 701 | 710 | 10 | AENSVAYSNN | 2.1e-05 | 78 |
| HLA-B*44:03 | 1 | 707 | 715 | 9 | YSNNSIAIP | 2.1e-05 | 40 |
| HLA-A*23:01 | 1 | 713 | 721 | 9 | AIPNFTIS | 2.1e-05 | 37 |
| HLA-A*26:01 | 1 | 714 | 723 | 10 | IPNFTISVT | 2.1e-05 | 49 |
| HLA-A*33:01 | 1 | 714 | 723 | 10 | IPNFTISVT | 2.1e-05 | 61 |
| HLA-B*53:01 | 1 | 719 | 728 | 10 | TISVTTEILP | 2.1e-05 | 40 |
| HLA-A*24:02 | 1 | 722 | 730 | 9 | VTTEILPVS | 2.1e-05 | 36 |
| HLA-B*44:03 | 1 | 722 | 730 | 9 | VTTEILPVS | 2.1e-05 | 40 |
| HLA-A*24:02 | 1 | 724 | 732 | 9 | TEILPVSMT | 2.1e-05 | 36 |
| HLA-B*35:01 | 1 | 726 | 734 | 9 | ILPVSMTKT | 2.1e-05 | 41 |
| HLA-A*33:01 | 1 | 730 | 738 | 9 | SMTKTSVDC | 2.1e-05 | 61 |
| HLA-B*58:01 | 1 | 735 | 744 | 10 | SVDCTMYICG | 2.1e-05 | 60 |
| HLA-A*33:01 | 1 | 741 | 749 | 9 | YICGDSTEC | 2.1e-05 | 61 |
| HLA-A*30:02 | 1 | 743 | 751 | 9 | CGDSTECSN | 2.1e-05 | 79 |
| HLA-A*33:01 | 1 | 752 | 761 | 10 | LLQYGSFCT | 2.1e-05 | 61 |
| HLA-B*35:01 | 1 | 753 | 762 | 10 | LLQYGSFCTQ | 2.1e-05 | 41 |
| HLA-A*02:03 | 1 | 756 | 765 | 10 | YGSFCTQLNR | 2.1e-05 | 58 |
| HLA-B*08:01 | 1 | 757 | 765 | 9 | GSFCTQLNR | 2.1e-05 | 73 |
| HLA-B*44:02 | 1 | 765 | 773 | 9 | RALTGIAVE | 2.1e-05 | 43 |
| HLA-A*03:01 | 1 | 766 | 775 | 10 | ALTGIAVEQD | 2.1e-05 | 50 |
| HLA-B*51:01 | 1 | 771 | 779 | 9 | AVEQDKNTQ | 2.1e-05 | 65 |
| HLA-A*02:03 | 1 | 774 | 783 | 10 | QDKNTQEVFA | 2.1e-05 | 58 |
| HLA-A*23:01 | 1 | 779 | 787 | 9 | QEVFAQVKQ | 2.1e-05 | 37 |
| HLA-B*44:02 | 1 | 785 | 793 | 9 | VKQIYKTPP | 2.1e-05 | 43 |
| HLA-B*58:01 | 1 | 785 | 794 | 10 | VKQIYKTPPI | 2.1e-05 | 60 |
| HLA-B*07:02 | 1 | 792 | 801 | 10 | PPIKDFGGFN | 2.1e-05 | 54 |
| HLA-A*02:03 | 1 | 794 | 803 | 10 | IKDFGGFNFS | 2.1e-05 | 58 |
| HLA-B*44:02 | 1 | 798 | 807 | 10 | GGFNFSQILP | 2.1e-05 | 43 |
| HLA-A*68:01 | 1 | 800 | 808 | 9 | FNFSQILPD | 2.1e-05 | 50 |
| HLA-A*03:01 | 1 | 808 | 816 | 9 | DPSKPSKRS | 2.1e-05 | 50 |
| HLA-B*15:01 | 1 | 816 | 824 | 9 | SFIEDLLFN | 2.1e-05 | 55 |
| HLA-A*30:02 | 1 | 819 | 827 | 9 | EDLLFNKVT | 2.1e-05 | 79 |
| HLA-A*68:01 | 1 | 822 | 831 | 10 | LFNKVTLADA | 2.1e-05 | 50 |
| HLA-B*51:01 | 1 | 822 | 830 | 9 | LFNKVTLAD | 2.1e-05 | 65 |
| HLA-A*24:02 | 1 | 827 | 836 | 10 | TLADAGFIKQ | 2.1e-05 | 36 |
| HLA-A*68:02 | 1 | 829 | 838 | 10 | ADAGFIKQYG | 2.1e-05 | 56 |
| HLA-B*53:01 | 1 | 829 | 838 | 10 | ADAGFIKQYG | 2.1e-05 | 40 |
| HLA-B*57:01 | 1 | 830 | 839 | 10 | DAGFIKQYGD | 2.1e-05 | 72 |
| HLA-A*31:01 | 1 | 831 | 839 | 9 | AGFIKQYGD | 2.1e-05 | 57 |
| HLA-A*33:01 | 1 | 831 | 840 | 10 | AGFIKQYGDC | 2.1e-05 | 61 |
| HLA-B*44:03 | 1 | 832 | 841 | 10 | GFIKQYGDCL | 2.1e-05 | 40 |
| HLA-B*57:01 | 1 | 832 | 840 | 9 | GFIKQYGDC | 2.1e-05 | 72 |
| HLA-A*02:06 | 1 | 836 | 844 | 9 | QYGDCLGDI | 2.1e-05 | 65 |
| HLA-B*53:01 | 1 | 836 | 844 | 9 | QYGDCLGDI | 2.1e-05 | 40 |
| HLA-B*53:01 | 1 | 837 | 846 | 10 | YGDCLGDIAA | 2.1e-05 | 40 |
| HLA-B*07:02 | 1 | 838 | 846 | 9 | GDCLGDIAA | 2.1e-05 | 54 |
| HLA-A*02:01 | 1 | 844 | 853 | 10 | IAARDLICAQ | 2.1e-05 | 55 |
| HLA-A*02:06 | 1 | 849 | 857 | 9 | LICAQKFNG | 2.1e-05 | 65 |
| HLA-A*68:01 | 1 | 854 | 863 | 10 | KFNGLTVLPP | 2.1e-05 | 50 |
| HLA-B*44:03 | 1 | 859 | 868 | 10 | TVLPPLLTDE | 2.1e-05 | 40 |
| HLA-A*33:01 | 1 | 866 | 875 | 10 | TDEMIAQYTS | 2.1e-05 | 61 |
| HLA-A*68:02 | 1 | 871 | 880 | 10 | AQYTSALLAG | 2.1e-05 | 56 |
| HLA-B*40:01 | 1 | 875 | 884 | 10 | SALLAGTITS | 2.1e-05 | 34 |
| HLA-B*40:01 | 1 | 880 | 889 | 10 | GTITSGWTFG | 2.1e-05 | 34 |
| HLA-B*07:02 | 1 | 881 | 889 | 9 | TITSGWTFG | 2.1e-05 | 54 |
| HLA-B*51:01 | 1 | 881 | 889 | 9 | TITSGWTFG | 2.1e-05 | 65 |
| HLA-B*53:01 | 1 | 881 | 890 | 10 | TITSGWTFGA | 2.1e-05 | 40 |
| HLA-A*32:01 | 1 | 884 | 893 | 10 | SGWTFGAGAA | 2.1e-05 | 43 |
| HLA-B*57:01 | 1 | 887 | 895 | 9 | TFGAGAALQ | 2.1e-05 | 72 |
| HLA-A*02:01 | 1 | 896 | 905 | 10 | IPFAMQMAYR | 2.1e-05 | 55 |
| HLA-A*02:03 | 1 | 896 | 905 | 10 | IPFAMQMAYR | 2.1e-05 | 58 |
| HLA-A*11:01 | 1 | 914 | 923 | 10 | NVLYENQKLI | 2.1e-05 | 37 |
| HLA-B*44:02 | 1 | 915 | 924 | 10 | VLYENQKLIA | 2.1e-05 | 43 |
| HLA-B*44:02 | 1 | 922 | 931 | 10 | LIANQFNSAI | 2.1e-05 | 43 |
| HLA-B*51:01 | 1 | 926 | 935 | 10 | QFNSAIGKIQ | 2.1e-05 | 65 |
| HLA-A*68:01 | 1 | 935 | 943 | 9 | QDLSLSTAS | 2.1e-05 | 50 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*11:01 | 1 | 936 | 945 | 10 | DSLSSTASAL | 2.1e-05 | 37 |
| HLA-A*24:02 | 1 | 939 | 947 | 9 | SSTASALGK | 2.1e-05 | 36 |
| HLA-B*53:01 | 1 | 940 | 949 | 10 | STASALGKLQ | 2.1e-05 | 40 |
| HLA-A*32:01 | 1 | 941 | 949 | 9 | TASALGKLQ | 2.1e-05 | 43 |
| HLA-B*40:01 | 1 | 941 | 949 | 9 | TASALGKLQ | 2.1e-05 | 34 |
| HLA-A*02:03 | 1 | 942 | 950 | 9 | ASALGKLQD | 2.1e-05 | 58 |
| HLA-A*32:01 | 1 | 946 | 955 | 10 | GKLQDVVNQN | 2.1e-05 | 43 |
| HLA-A*23:01 | 1 | 947 | 955 | 9 | KLQDVVNQN | 2.1e-05 | 37 |
| HLA-B*51:01 | 1 | 949 | 957 | 9 | QDVVNQNAQ | 2.1e-05 | 65 |
| HLA-B*53:01 | 1 | 949 | 958 | 10 | QDVVNQNAQA | 2.1e-05 | 40 |
| HLA-A*31:01 | 1 | 951 | 960 | 10 | VVNQNAQALN | 2.1e-05 | 57 |
| HLA-A*33:01 | 1 | 952 | 961 | 10 | VNNAQALNT | 2.1e-05 | 61 |
| HLA-A*03:01 | 1 | 962 | 971 | 10 | LVKQLSSNFG | 2.1e-05 | 50 |
| HLA-A*23:01 | 1 | 962 | 971 | 10 | LVKQLSSNFG | 2.1e-05 | 37 |
| HLA-A*03:01 | 1 | 965 | 974 | 10 | QLSSNFGAIS | 2.1e-05 | 50 |
| HLA-A*68:01 | 1 | 971 | 979 | 9 | GAISSVLND | 2.1e-05 | 50 |
| HLA-A*68:02 | 1 | 983 | 992 | 10 | RLDKVEAEVQ | 2.1e-05 | 56 |
| HLA-B*53:01 | 1 | 1006 | 1015 | 10 | TYVTQQLIRA | 2.1e-05 | 40 |
| HLA-A*26:01 | 1 | 1008 | 1017 | 10 | VTQQLIRAAE | 2.1e-05 | 49 |
| HLA-B*53:01 | 1 | 1009 | 1018 | 10 | TQQLIRAAEI | 2.1e-05 | 40 |
| HLA-B*58:01 | 1 | 1013 | 1021 | 9 | IRAAEIRAS | 2.1e-05 | 60 |
| HLA-B*35:01 | 1 | 1014 | 1023 | 10 | RAAEIRASAN | 2.1e-05 | 41 |
| HLA-B*08:01 | 1 | 1022 | 1030 | 9 | ANLAATKMS | 2.1e-05 | 73 |
| HLA-A*31:01 | 1 | 1023 | 1032 | 10 | NLAATKMSEC | 2.1e-05 | 57 |
| HLA-A*11:01 | 1 | 1025 | 1033 | 9 | AATKMSECV | 2.1e-05 | 37 |
| HLA-A*33:01 | 1 | 1029 | 1037 | 9 | MSECVLGQS | 2.1e-05 | 61 |
| HLA-A*23:01 | 1 | 1030 | 1038 | 9 | SECVLGQSK | 2.1e-05 | 37 |
| HLA-B*53:01 | 1 | 1030 | 1039 | 10 | SECVLGQSKR | 2.1e-05 | 40 |
| HLA-B*15:01 | 1 | 1036 | 1044 | 9 | QSKRVDFCG | 2.1e-05 | 55 |
| HLA-A*68:02 | 1 | 1038 | 1047 | 10 | KRVDFCGKGY | 2.1e-05 | 56 |
| HLA-B*15:01 | 1 | 1046 | 1054 | 9 | GYHLSFPQ | 2.1e-05 | 55 |
| HLA-A*24:02 | 1 | 1048 | 1057 | 10 | HLSFPQSAP | 2.1e-05 | 36 |
| HLA-B*40:01 | 1 | 1049 | 1058 | 10 | LMSFPQSAPH | 2.1e-05 | 34 |
| HLA-B*44:02 | 1 | 1049 | 1058 | 10 | LMSFPQSAPH | 2.1e-05 | 43 |
| HLA-B*44:02 | 1 | 1057 | 1065 | 9 | PHGVVFLHV | 2.1e-05 | 43 |
| HLA-A*11:01 | 1 | 1061 | 1069 | 9 | VFLHVTVVP | 2.1e-05 | 37 |
| HLA-A*23:01 | 1 | 1063 | 1072 | 10 | LHVTVVPAQE | 2.1e-05 | 37 |
| HLA-B*08:01 | 1 | 1063 | 1072 | 10 | LHVTVVPAQE | 2.1e-05 | 73 |
| HLA-A*11:01 | 1 | 1066 | 1074 | 9 | TYVPAQEKN | 2.1e-05 | 37 |
| HLA-A*24:02 | 1 | 1069 | 1077 | 9 | PAQEKNFTT | 2.1e-05 | 36 |
| HLA-B*35:01 | 1 | 1069 | 1078 | 10 | PAQEKNFTTA | 2.1e-05 | 41 |
| HLA-A*68:01 | 1 | 1071 | 1080 | 10 | QEKNFTTAPA | 2.1e-05 | 50 |
| HLA-A*23:01 | 1 | 1072 | 1081 | 10 | EKNFTTAPAI | 2.1e-05 | 37 |
| HLA-A*11:01 | 1 | 1075 | 1084 | 10 | FTTAPAICH | 2.1e-05 | 37 |
| HLA-B*44:03 | 1 | 1078 | 1087 | 10 | APAICHDGKA | 2.1e-05 | 40 |
| HLA-A*68:01 | 1 | 1079 | 1088 | 10 | PAICHDGKAH | 2.1e-05 | 50 |
| HLA-B*35:01 | 1 | 1079 | 1088 | 10 | PAICHDGKAH | 2.1e-05 | 41 |
| HLA-B*58:01 | 1 | 1079 | 1088 | 10 | PAICHDGKAH | 2.1e-05 | 60 |
| HLA-A*03:01 | 1 | 1085 | 1094 | 10 | GKAHFPREGV | 2.1e-05 | 50 |
| HLA-B*08:01 | 1 | 1091 | 1100 | 10 | REGVFSVNGT | 2.1e-05 | 73 |
| HLA-B*51:01 | 1 | 1097 | 1106 | 10 | SNGTHWFVTQ | 2.1e-05 | 65 |
| HLA-B*35:01 | 1 | 1098 | 1107 | 10 | NGTHWFVTQR | 2.1e-05 | 41 |
| HLA-A*26:01 | 1 | 1100 | 1108 | 9 | THWFVTQRN | 2.1e-05 | 49 |
| HLA-A*02:01 | 1 | 1101 | 1110 | 10 | HWFVTQRNFY | 2.1e-05 | 55 |
| HLA-A*30:01 | 1 | 1110 | 1119 | 10 | YEPQIITTDN | 2.1e-05 | 81 |
| HLA-B*57:01 | 1 | 1110 | 1118 | 9 | YEPQIITTD | 2.1e-05 | 72 |
| HLA-A*02:03 | 1 | 1112 | 1120 | 9 | PQIITTDNT | 2.1e-05 | 58 |
| HLA-A*23:01 | 1 | 1115 | 1123 | 9 | ITTDNTFVS | 2.1e-05 | 37 |
| HLA-A*03:01 | 1 | 1116 | 1125 | 10 | TTDNTFVSGN | 2.1e-05 | 50 |
| HLA-A*02:06 | 1 | 1117 | 1125 | 9 | TDNTFVSGN | 2.1e-05 | 65 |
| HLA-A*03:01 | 1 | 1119 | 1128 | 10 | NTFVSGNCDV | 2.1e-05 | 50 |
| HLA-A*11:01 | 1 | 1119 | 1128 | 10 | NTFVSGNCDV | 2.1e-05 | 37 |
| HLA-B*08:01 | 1 | 1119 | 1127 | 9 | NTFVSGNCD | 2.1e-05 | 73 |
| HLA-B*53:01 | 1 | 1119 | 1127 | 9 | NTFVSGNCD | 2.1e-05 | 40 |
| HLA-B*40:01 | 1 | 1122 | 1130 | 9 | VSGNCDVVI | 2.1e-05 | 34 |
| HLA-A*68:01 | 1 | 1124 | 1133 | 10 | GNCDVVIGIV | 2.1e-05 | 50 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*24:02 | 1 | 1125 | 1133 | 9 | NCDVVIGIV | 2.1e-05 | 36 |
| HLA-A*30:01 | 1 | 1125 | 1134 | 10 | NCDVVIGIVN | 2.1e-05 | 81 |
| HLA-A*31:01 | 1 | 1131 | 1140 | 10 | GIVNNTVYDP | 2.1e-05 | 57 |
| HLA-B*15:01 | 1 | 1131 | 1139 | 9 | GIVNNTVYD | 2.1e-05 | 55 |
| HLA-B*15:01 | 1 | 1131 | 1140 | 10 | GIVNNTVYDP | 2.1e-05 | 55 |
| HLA-B*53:01 | 1 | 1134 | 1143 | 10 | NNTVYDPLQP | 2.1e-05 | 40 |
| HLA-A*68:02 | 1 | 1148 | 1157 | 10 | FKEELDKYFK | 2.1e-05 | 56 |
| HLA-A*68:02 | 1 | 1149 | 1157 | 9 | KEELDKYFK | 2.1e-05 | 56 |
| HLA-A*68:02 | 1 | 1150 | 1159 | 10 | EELDKYFKNH | 2.1e-05 | 56 |
| HLA-B*07:02 | 1 | 1152 | 1160 | 9 | LDKYFKNHT | 2.1e-05 | 54 |
| HLA-A*02:03 | 1 | 1153 | 1162 | 10 | DKYFKNHTSP | 2.1e-05 | 58 |
| HLA-A*23:01 | 1 | 1161 | 1169 | 9 | SPDVDLGDI | 2.1e-05 | 37 |
| HLA-B*53:01 | 1 | 1167 | 1175 | 9 | GDISGINAS | 2.1e-05 | 40 |
| HLA-B*44:03 | 1 | 1172 | 1180 | 9 | INASVVNIQ | 2.1e-05 | 40 |
| HLA-B*08:01 | 1 | 1175 | 1184 | 10 | SVVNIQKEID | 2.1e-05 | 73 |
| HLA-A*68:01 | 1 | 1183 | 1192 | 10 | IDRLNEVAKN | 2.1e-05 | 50 |
| HLA-A*30:02 | 1 | 1186 | 1195 | 10 | LNEVAKNLNE | 2.1e-05 | 79 |
| HLA-A*02:06 | 1 | 1187 | 1195 | 9 | NEVAKNLNE | 2.1e-05 | 65 |
| HLA-A*68:01 | 1 | 1193 | 1202 | 10 | LNESLIDLQE | 2.1e-05 | 50 |
| HLA-B*35:01 | 1 | 1195 | 1204 | 10 | ESLIDLQELG | 2.1e-05 | 41 |
| HLA-B*44:03 | 1 | 1195 | 1204 | 10 | ESLIDLQELG | 2.1e-05 | 40 |
| HLA-A*02:03 | 1 | 1199 | 1208 | 10 | DLQELGKYEQ | 2.1e-05 | 58 |
| HLA-B*51:01 | 1 | 1202 | 1211 | 10 | ELGKYEQYIK | 2.1e-05 | 65 |
| HLA-A*02:03 | 1 | 1206 | 1214 | 9 | YEQYIKWPW | 2.1e-05 | 58 |
| HLA-A*02:06 | 1 | 1210 | 1219 | 10 | IKWPWYIWL | 2.1e-05 | 65 |
| HLA-A*02:06 | 1 | 1214 | 1223 | 10 | WYIWLGFIA | 2.1e-05 | 65 |
| HLA-B*53:01 | 1 | 1216 | 1225 | 10 | IWLGFIAGLI | 2.1e-05 | 40 |
| HLA-A*03:01 | 1 | 1217 | 1225 | 9 | WLGFIAGLI | 2.1e-05 | 50 |
| HLA-B*44:02 | 1 | 1219 | 1228 | 10 | GFIAGLIAIV | 2.1e-05 | 43 |
| HLA-B*08:01 | 1 | 1222 | 1231 | 10 | AGLIAIVMVT | 2.1e-05 | 73 |
| HLA-A*11:01 | 1 | 1228 | 1236 | 9 | VMVTIMLCC | 2.1e-05 | 37 |
| HLA-B*57:01 | 1 | 1235 | 1243 | 9 | CCMTSCCSC | 2.1e-05 | 72 |
| HLA-A*31:01 | 1 | 1237 | 1246 | 10 | MTSCCCLKG | 2.1e-05 | 57 |
| HLA-B*15:01 | 1 | 1243 | 1251 | 9 | CLKGCCSCG | 2.1e-05 | 55 |
| HLA-B*58:01 | 1 | 1245 | 1253 | 9 | KGCCSCGSC | 2.1e-05 | 60 |
| HLA-B*57:01 | 1 | 1246 | 1255 | 10 | GCCSCGSCCK | 2.1e-05 | 72 |
| HLA-A*31:01 | 1 | 1247 | 1256 | 10 | CCSCGSCCKF | 2.1e-05 | 57 |
| HLA-A*02:03 | 1 | 1248 | 1256 | 9 | CSCGSCCKF | 2.1e-05 | 58 |
| HLA-B*58:01 | 1 | 1251 | 1260 | 10 | GSCCKFDEDD | 2.1e-05 | 60 |
| HLA-B*53:01 | 1 | 1254 | 1263 | 10 | CKFDEDDSEP | 2.1e-05 | 40 |
| HLA-A*68:01 | 1 | 1256 | 1264 | 9 | FDEDDSEPV | 2.1e-05 | 50 |
| HLA-B*40:01 | 1 | 1263 | 1272 | 10 | PVLKGVKLHY | 2.1e-05 | 34 |
| HLA-B*44:02 | 1 | 1 | 10 | 10 | MFVFLVLLPL | 2e-05 | 43 |
| HLA-B*07:02 | 1 | 10 | 19 | 10 | LVSSQCVNLT | 2e-05 | 55 |
| HLA-A*24:02 | 1 | 11 | 19 | 9 | VSSQCVNLT | 2e-05 | 36 |
| HLA-B*07:02 | 1 | 11 | 20 | 10 | VSSQCVNLTT | 2e-05 | 55 |
| HLA-A*23:01 | 1 | 13 | 22 | 10 | SQCVNLTRT | 2e-05 | 38 |
| HLA-B*07:02 | 1 | 13 | 22 | 10 | SQCVNLTRT | 2e-05 | 55 |
| HLA-A*03:01 | 1 | 14 | 22 | 9 | QCVNLTRT | 2e-05 | 50 |
| HLA-A*23:01 | 1 | 17 | 25 | 9 | NLTTTRTQLP | 2e-05 | 38 |
| HLA-B*07:02 | 1 | 17 | 26 | 10 | NLTTTRTQLPP | 2e-05 | 55 |
| HLA-A*24:02 | 1 | 19 | 27 | 9 | TTRTQLPPA | 2e-05 | 36 |
| HLA-B*15:01 | 1 | 25 | 34 | 10 | PPAYTNSFTR | 2e-05 | 55 |
| HLA-B*07:02 | 1 | 27 | 35 | 9 | AYTNSFTRG | 2e-05 | 55 |
| HLA-B*07:02 | 1 | 33 | 42 | 10 | TRGVYYPDKV | 2e-05 | 55 |
| HLA-B*40:01 | 1 | 37 | 46 | 10 | YYPDKVFRSS | 2e-05 | 35 |
| HLA-B*44:03 | 1 | 37 | 46 | 10 | YYPDKVFRSS | 2e-05 | 40 |
| HLA-A*11:01 | 1 | 38 | 47 | 10 | YYPDKVFRSSV | 2e-05 | 38 |
| HLA-B*15:01 | 1 | 39 | 48 | 10 | PDKVFRSSVL | 2e-05 | 55 |
| HLA-B*44:02 | 1 | 43 | 52 | 10 | FRSSVLHSTQ | 2e-05 | 43 |
| HLA-A*68:02 | 1 | 57 | 66 | 10 | PFFSNVTWFH | 2e-05 | 57 |
| HLA-A*68:01 | 1 | 63 | 72 | 10 | TWFHAIHVSG | 2e-05 | 51 |
| HLA-B*15:01 | 1 | 65 | 73 | 9 | FHAIHVSGT | 2e-05 | 55 |
| HLA-A*03:01 | 1 | 66 | 74 | 9 | HAIHVSGTN | 2e-05 | 50 |
| HLA-B*40:01 | 1 | 69 | 78 | 10 | HVSGTNGTKR | 2e-05 | 35 |
| HLA-A*33:01 | 1 | 72 | 80 | 9 | GTNGTKRFD | 2e-05 | 61 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-A*02:03 | 1 | 78 | 87 | 10 | RFDNPVLPFN 2e-05 | 58 |
| HLA-A*03:01 | 1 | 79 | 87 | 9 | FDNPVLPFN 2e-05 | 50 |
| HLA-B*15:01 | 1 | 79 | 87 | 9 | FDNPVLPFN 2e-05 | 55 |
| HLA-B*40:01 | 1 | 88 | 96 | 9 | DGVYFASTE 2e-05 | 35 |
| HLA-B*58:01 | 1 | 88 | 96 | 9 | DGVYFASTE 2e-05 | 61 |
| HLA-A*03:01 | 1 | 91 | 100 | 10 | YFASTEKSNI 2e-05 | 50 |
| HLA-A*26:01 | 1 | 91 | 99 | 9 | YFASTEKSNI 2e-05 | 50 |
| HLA-A*11:01 | 1 | 92 | 100 | 9 | FASTEKSNI 2e-05 | 38 |
| HLA-B*07:02 | 1 | 94 | 103 | 10 | STEKSNIIRG 2e-05 | 55 |
| HLA-A*24:02 | 1 | 95 | 103 | 9 | TEKSNIIRG 2e-05 | 36 |
| HLA-A*32:01 | 1 | 99 | 108 | 10 | NIIRGWIFGT 2e-05 | 43 |
| HLA-A*02:03 | 1 | 101 | 109 | 9 | IRGWIFGTT 2e-05 | 58 |
| HLA-A*33:01 | 1 | 103 | 111 | 9 | GWIFGTTLD 2e-05 | 61 |
| HLA-B*08:01 | 1 | 107 | 116 | 10 | GTTLD SKTQS 2e-05 | 74 |
| HLA-B*08:01 | 1 | 113 | 121 | 9 | KTQSL LIVN 2e-05 | 74 |
| HLA-B*53:01 | 1 | 116 | 124 | 9 | SLLIVNNAT 2e-05 | 41 |
| HLA-A*02:03 | 1 | 120 | 129 | 10 | VNNATNVVIK 2e-05 | 58 |
| HLA-B*44:02 | 1 | 133 | 142 | 10 | FQFCNDPFLG 2e-05 | 43 |
| HLA-B*53:01 | 1 | 133 | 142 | 10 | FQFCNDPFLG 2e-05 | 41 |
| HLA-A*30:01 | 1 | 140 | 148 | 9 | FLGVYYHKN 2e-05 | 82 |
| HLA-B*57:01 | 1 | 146 | 154 | 9 | HKNNKSWME 2e-05 | 73 |
| HLA-B*44:02 | 1 | 147 | 155 | 9 | KNNKSWMES 2e-05 | 43 |
| HLA-A*02:01 | 1 | 153 | 162 | 10 | MESEFRVYSS 2e-05 | 55 |
| HLA-A*03:01 | 1 | 153 | 162 | 10 | MESEFRVYSS 2e-05 | 50 |
| HLA-B*44:02 | 1 | 154 | 162 | 9 | ESEFRVYSS 2e-05 | 43 |
| HLA-A*24:02 | 1 | 162 | 171 | 10 | SANNCTFEYV 2e-05 | 36 |
| HLA-A*11:01 | 1 | 165 | 174 | 10 | NCTFEYVSQP 2e-05 | 38 |
| HLA-A*02:06 | 1 | 169 | 178 | 10 | EYVSQPFLMD 2e-05 | 66 |
| HLA-A*32:01 | 1 | 172 | 181 | 10 | SQPFLMDLEG 2e-05 | 43 |
| HLA-A*23:01 | 1 | 173 | 182 | 10 | QPFLMDLEGK 2e-05 | 38 |
| HLA-B*44:03 | 1 | 173 | 181 | 9 | QPFLMDLEG 2e-05 | 40 |
| HLA-B*44:03 | 1 | 175 | 183 | 9 | FLMDLEGKQ 2e-05 | 40 |
| HLA-B*35:01 | 1 | 176 | 184 | 9 | LMDLEGKQG 2e-05 | 42 |
| HLA-A*24:02 | 1 | 178 | 187 | 10 | DLEGKQGNFK 2e-05 | 36 |
| HLA-B*40:01 | 1 | 181 | 190 | 10 | GKQGNFKNLR 2e-05 | 35 |
| HLA-A*32:01 | 1 | 194 | 202 | 9 | FKNIDGYFK 2e-05 | 43 |
| HLA-A*02:03 | 1 | 197 | 206 | 10 | IDGYFKIYSK 2e-05 | 58 |
| HLA-B*35:01 | 1 | 197 | 206 | 10 | IDGYFKIYSK 2e-05 | 42 |
| HLA-A*68:01 | 1 | 199 | 208 | 10 | GYFKIYSKHT 2e-05 | 51 |
| HLA-B*07:02 | 1 | 199 | 208 | 10 | GYFKIYSKHT 2e-05 | 55 |
| HLA-B*35:01 | 1 | 200 | 209 | 10 | YFKIYSKHTP 2e-05 | 42 |
| HLA-B*57:01 | 1 | 200 | 208 | 9 | YFKIYSKHT 2e-05 | 73 |
| HLA-A*68:01 | 1 | 201 | 209 | 9 | FKIYSKHTP 2e-05 | 51 |
| HLA-A*01:01 | 1 | 206 | 215 | 10 | KHTPINLVRD 2e-05 | 78 |
| HLA-B*57:01 | 1 | 213 | 221 | 9 | VRDLPQGF 2e-05 | 73 |
| HLA-B*44:03 | 1 | 218 | 227 | 10 | QGFSALEPLV 2e-05 | 40 |
| HLA-A*02:01 | 1 | 220 | 228 | 9 | FSALEPLVD 2e-05 | 55 |
| HLA-A*11:01 | 1 | 222 | 231 | 10 | ALEPLVDLPI 2e-05 | 38 |
| HLA-B*57:01 | 1 | 224 | 232 | 9 | EPLVDLPIG 2e-05 | 73 |
| HLA-A*68:02 | 1 | 226 | 234 | 9 | LVDLPIGIN 2e-05 | 57 |
| HLA-A*03:01 | 1 | 242 | 251 | 10 | LALHRSYLTP 2e-05 | 50 |
| HLA-B*07:02 | 1 | 243 | 252 | 10 | ALHRSYLTPG 2e-05 | 55 |
| HLA-A*30:01 | 1 | 244 | 253 | 10 | LHRSYLTPGD 2e-05 | 82 |
| HLA-B*44:03 | 1 | 247 | 256 | 10 | SYLTPGDSSS 2e-05 | 40 |
| HLA-A*30:01 | 1 | 250 | 259 | 10 | TPGDSSSGWT 2e-05 | 82 |
| HLA-B*53:01 | 1 | 255 | 263 | 9 | SSGWTAGAA 2e-05 | 41 |
| HLA-B*08:01 | 1 | 262 | 271 | 10 | AAAYVGYLQ 2e-05 | 74 |
| HLA-A*31:01 | 1 | 275 | 283 | 9 | FLLYNENG 2e-05 | 57 |
| HLA-A*31:01 | 1 | 276 | 285 | 10 | LLKYNENGTI 2e-05 | 57 |
| HLA-A*33:01 | 1 | 277 | 285 | 9 | LKYNENGTI 2e-05 | 61 |
| HLA-A*31:01 | 1 | 283 | 291 | 9 | GTITDAVDC 2e-05 | 57 |
| HLA-B*44:03 | 1 | 284 | 293 | 10 | TITDAVDCAL 2e-05 | 40 |
| HLA-A*31:01 | 1 | 288 | 297 | 10 | AVDCALDPLS 2e-05 | 57 |
| HLA-B*07:02 | 1 | 290 | 298 | 9 | DCALDPLSE 2e-05 | 55 |
| HLA-B*44:03 | 1 | 296 | 305 | 10 | LSETKCTLKS 2e-05 | 40 |
| HLA-A*68:01 | 1 | 297 | 305 | 9 | SETKCTLKS 2e-05 | 51 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-B*53:01 | 1 | 298 | 307 | 10 | ETKCTLKSFT 2e-05 | 41 |
| HLA-B*57:01 | 1 | 303 | 311 | 9 | LKSFTVEKG 2e-05 | 73 |
| HLA-A*23:01 | 1 | 306 | 314 | 9 | FTVEKGIYQ 2e-05 | 38 |
| HLA-B*07:02 | 1 | 315 | 324 | 10 | TSNFRVQPTTE 2e-05 | 55 |
| HLA-B*44:02 | 1 | 316 | 325 | 10 | SNFRVQPTES 2e-05 | 43 |
| HLA-A*03:01 | 1 | 322 | 330 | 9 | PTESIVRFP 2e-05 | 50 |
| HLA-A*68:01 | 1 | 323 | 331 | 9 | TESIVRFPN 2e-05 | 51 |
| HLA-A*02:01 | 1 | 324 | 333 | 10 | ESIVRFPNIT 2e-05 | 55 |
| HLA-A*30:01 | 1 | 331 | 340 | 10 | NITNLCPFGE 2e-05 | 82 |
| HLA-B*57:01 | 1 | 331 | 339 | 9 | NITNLCPFGE 2e-05 | 73 |
| HLA-B*15:01 | 1 | 332 | 340 | 9 | ITNLCPFGE 2e-05 | 55 |
| HLA-A*31:01 | 1 | 334 | 343 | 10 | NLCPFGEVFN 2e-05 | 57 |
| HLA-A*01:01 | 1 | 337 | 345 | 9 | PFGEVFNAT 2e-05 | 78 |
| HLA-B*44:03 | 1 | 341 | 350 | 10 | VFNATRFASV 2e-05 | 40 |
| HLA-A*01:01 | 1 | 350 | 359 | 10 | VYAWNRKRIS 2e-05 | 78 |
| HLA-A*02:03 | 1 | 355 | 363 | 9 | RKRISNCVA 2e-05 | 58 |
| HLA-A*68:01 | 1 | 358 | 367 | 10 | ISNCVADYSV 2e-05 | 51 |
| HLA-B*35:01 | 1 | 367 | 375 | 9 | VLYNSASFS 2e-05 | 42 |
| HLA-B*58:01 | 1 | 373 | 381 | 9 | SFSTFKCYG 2e-05 | 61 |
| HLA-A*31:01 | 1 | 380 | 388 | 9 | YGVSPTKLN 2e-05 | 57 |
| HLA-A*02:03 | 1 | 384 | 392 | 9 | PTKLNDLCF 2e-05 | 58 |
| HLA-A*32:01 | 1 | 387 | 395 | 9 | LNDLCFTNV 2e-05 | 43 |
| HLA-B*07:02 | 1 | 387 | 396 | 10 | LNDLCFTNVY 2e-05 | 55 |
| HLA-B*35:01 | 1 | 387 | 395 | 9 | LNDLCFTNV 2e-05 | 42 |
| HLA-A*03:01 | 1 | 396 | 404 | 9 | YADSFVIRG 2e-05 | 50 |
| HLA-A*30:02 | 1 | 396 | 405 | 10 | YADSFVIRGD 2e-05 | 80 |
| HLA-A*31:01 | 1 | 398 | 407 | 10 | DSFVIRGDEV 2e-05 | 57 |
| HLA-B*53:01 | 1 | 402 | 411 | 10 | IRGDEVQRQIA 2e-05 | 41 |
| HLA-A*26:01 | 1 | 407 | 416 | 10 | VRQIAPGQTG 2e-05 | 50 |
| HLA-A*68:01 | 1 | 410 | 419 | 10 | IAPGQTGKIA 2e-05 | 51 |
| HLA-A*03:01 | 1 | 413 | 422 | 10 | GQTGKIADYN 2e-05 | 50 |
| HLA-A*02:01 | 1 | 414 | 423 | 10 | QTGKIADYNY 2e-05 | 55 |
| HLA-A*02:06 | 1 | 422 | 430 | 9 | NYKLPDDFT 2e-05 | 66 |
| HLA-A*68:02 | 1 | 423 | 431 | 9 | YKLPDDFTG 2e-05 | 57 |
| HLA-B*44:03 | 1 | 424 | 432 | 9 | KLPDDFTGC 2e-05 | 40 |
| HLA-B*53:01 | 1 | 424 | 432 | 9 | KLPDDFTGC 2e-05 | 41 |
| HLA-A*30:01 | 1 | 425 | 434 | 10 | LPDDFTGCVI 2e-05 | 82 |
| HLA-A*01:01 | 1 | 426 | 435 | 10 | PDDFTGCVIA 2e-05 | 78 |
| HLA-B*35:01 | 1 | 434 | 443 | 10 | IAWNSNNLDS 2e-05 | 42 |
| HLA-B*15:01 | 1 | 442 | 450 | 9 | DSKVGGNYN 2e-05 | 55 |
| HLA-B*53:01 | 1 | 442 | 450 | 9 | DSKVGGNYN 2e-05 | 41 |
| HLA-A*24:02 | 1 | 445 | 454 | 10 | VGGNYNYLYR 2e-05 | 36 |
| HLA-A*02:03 | 1 | 446 | 454 | 9 | GGNYNYLYR 2e-05 | 58 |
| HLA-B*53:01 | 1 | 446 | 454 | 9 | GGNYNYLYR 2e-05 | 41 |
| HLA-B*40:01 | 1 | 451 | 459 | 9 | YLYRFRKS 2e-05 | 35 |
| HLA-A*02:01 | 1 | 452 | 461 | 10 | LYRFRKSNL 2e-05 | 55 |
| HLA-A*26:01 | 1 | 452 | 461 | 10 | LYRFRKSNL 2e-05 | 50 |
| HLA-B*57:01 | 1 | 456 | 465 | 10 | FRKSNLKPF 2e-05 | 73 |
| HLA-A*33:01 | 1 | 459 | 467 | 9 | SNLKPFERD 2e-05 | 61 |
| HLA-B*51:01 | 1 | 465 | 474 | 10 | ERDISTEIQ 2e-05 | 66 |
| HLA-A*02:01 | 1 | 466 | 474 | 9 | RDISTEIQ 2e-05 | 55 |
| HLA-A*68:01 | 1 | 472 | 480 | 9 | IYQAGSTPC 2e-05 | 51 |
| HLA-B*58:01 | 1 | 472 | 481 | 10 | IYQAGSTPCN 2e-05 | 61 |
| HLA-A*31:01 | 1 | 473 | 481 | 9 | YQAGSTPCN 2e-05 | 57 |
| HLA-B*35:01 | 1 | 474 | 483 | 10 | QAGSTPCNGV 2e-05 | 42 |
| HLA-B*53:01 | 1 | 474 | 482 | 9 | QAGSTPCNG 2e-05 | 41 |
| HLA-A*03:01 | 1 | 476 | 484 | 9 | GSTPCNGVE 2e-05 | 50 |
| HLA-B*44:02 | 1 | 492 | 500 | 9 | LQSYGFQPT 2e-05 | 43 |
| HLA-B*40:01 | 1 | 498 | 507 | 10 | QPTNGVGYQP 2e-05 | 35 |
| HLA-B*15:01 | 1 | 499 | 507 | 9 | PTNGVGYQP 2e-05 | 55 |
| HLA-B*44:03 | 1 | 505 | 514 | 10 | YQPYRVVLS 2e-05 | 40 |
| HLA-A*02:06 | 1 | 523 | 532 | 10 | TVCGPKKSTN 2e-05 | 66 |
| HLA-A*32:01 | 1 | 523 | 532 | 10 | TVCGPKKSTN 2e-05 | 43 |
| HLA-A*32:01 | 1 | 525 | 534 | 10 | CGPKKSTNLV 2e-05 | 43 |
| HLA-B*44:03 | 1 | 527 | 535 | 9 | PKKSTNLVK 2e-05 | 40 |
| HLA-B*35:01 | 1 | 529 | 537 | 9 | KSTNLVKNK 2e-05 | 42 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-A*24:02 | 1 | 530 | 539 | 10 | STNLVKNKCV 2e-05 | 36 |
| HLA-A*01:01 | 1 | 532 | 540 | 9 | NLVKNKCVN 2e-05 | 78 |
| HLA-B*58:01 | 1 | 533 | 542 | 10 | LVKNKCVNFN 2e-05 | 61 |
| HLA-A*33:01 | 1 | 538 | 547 | 10 | CVNFNFNGLT 2e-05 | 61 |
| HLA-A*31:01 | 1 | 539 | 548 | 10 | VNFNFNGLTG 2e-05 | 57 |
| HLA-A*32:01 | 1 | 539 | 548 | 10 | VNFNFNGLTG 2e-05 | 43 |
| HLA-A*03:01 | 1 | 540 | 549 | 10 | NFNFNGLTGT 2e-05 | 50 |
| HLA-B*44:02 | 1 | 542 | 550 | 9 | NFNGLTGTG 2e-05 | 43 |
| HLA-A*31:01 | 1 | 543 | 551 | 9 | FNGLTGTGV 2e-05 | 57 |
| HLA-A*33:01 | 1 | 545 | 554 | 10 | GLTGTGVLTE 2e-05 | 61 |
| HLA-A*11:01 | 1 | 551 | 560 | 10 | VLTESNKKFL 2e-05 | 38 |
| HLA-A*23:01 | 1 | 554 | 563 | 10 | ESNKKFLPFQ 2e-05 | 38 |
| HLA-B*44:02 | 1 | 555 | 564 | 10 | SNKKFLPFQ 2e-05 | 43 |
| HLA-A*02:06 | 1 | 561 | 570 | 10 | PFQQFGRDIA 2e-05 | 66 |
| HLA-A*03:01 | 1 | 563 | 572 | 10 | QQFGRDIADT 2e-05 | 50 |
| HLA-A*33:01 | 1 | 563 | 572 | 10 | QQFGRDIADT 2e-05 | 61 |
| HLA-B*08:01 | 1 | 565 | 574 | 10 | FGRDIADTTD 2e-05 | 74 |
| HLA-B*44:03 | 1 | 566 | 575 | 10 | GRDIADTTDA 2e-05 | 40 |
| HLA-A*03:01 | 1 | 569 | 578 | 10 | IADTTDAVRD 2e-05 | 50 |
| HLA-B*44:03 | 1 | 572 | 580 | 9 | TTDAVRDPQ 2e-05 | 40 |
| HLA-A*33:01 | 1 | 573 | 581 | 9 | TDAVRDPQT 2e-05 | 61 |
| HLA-B*57:01 | 1 | 577 | 586 | 10 | RDPQTLLEILD 2e-05 | 73 |
| HLA-B*58:01 | 1 | 582 | 591 | 10 | LEILDITPCS 2e-05 | 61 |
| HLA-A*02:01 | 1 | 587 | 596 | 10 | ITPCSFGGVS 2e-05 | 55 |
| HLA-A*03:01 | 1 | 587 | 595 | 9 | ITPCSFGGV 2e-05 | 50 |
| HLA-A*11:01 | 1 | 588 | 597 | 10 | TPCSFGGVSV 2e-05 | 38 |
| HLA-B*40:01 | 1 | 589 | 597 | 9 | PCSFGGVSV 2e-05 | 35 |
| HLA-B*51:01 | 1 | 593 | 602 | 10 | GGVSVITPGT 2e-05 | 66 |
| HLA-A*32:01 | 1 | 594 | 603 | 10 | GVSVITPGTN 2e-05 | 43 |
| HLA-B*44:02 | 1 | 595 | 604 | 10 | VSVITPGTNT 2e-05 | 43 |
| HLA-A*26:01 | 1 | 597 | 606 | 10 | VITPGTNTSN 2e-05 | 50 |
| HLA-A*31:01 | 1 | 597 | 606 | 10 | VITPGTNTSN 2e-05 | 57 |
| HLA-B*08:01 | 1 | 598 | 606 | 9 | ITPGTNTSN 2e-05 | 74 |
| HLA-B*53:01 | 1 | 598 | 606 | 9 | ITPGTNTSN 2e-05 | 41 |
| HLA-A*31:01 | 1 | 599 | 607 | 9 | TPGTNTSNQ 2e-05 | 57 |
| HLA-B*58:01 | 1 | 599 | 607 | 9 | TPGTNTSNQ 2e-05 | 61 |
| HLA-B*51:01 | 1 | 600 | 609 | 10 | PGTNTSNQVA 2e-05 | 66 |
| HLA-B*35:01 | 1 | 601 | 610 | 10 | GTNTSNQVAV 2e-05 | 42 |
| HLA-A*30:01 | 1 | 605 | 614 | 10 | SNQVAVLYQD 2e-05 | 82 |
| HLA-B*53:01 | 1 | 605 | 613 | 9 | SNQVAVLYQ 2e-05 | 41 |
| HLA-A*26:01 | 1 | 606 | 614 | 9 | NQVAVLYQD 2e-05 | 50 |
| HLA-B*07:02 | 1 | 606 | 615 | 10 | NQVAVLYQDV 2e-05 | 55 |
| HLA-A*30:01 | 1 | 607 | 616 | 10 | QVAVLYQDVN 2e-05 | 82 |
| HLA-B*53:01 | 1 | 608 | 616 | 9 | VAVLYQDVN 2e-05 | 41 |
| HLA-A*11:01 | 1 | 610 | 618 | 9 | VLYQDVNCT 2e-05 | 38 |
| HLA-A*11:01 | 1 | 611 | 620 | 10 | LYQDVNCTEV 2e-05 | 38 |
| HLA-B*44:03 | 1 | 611 | 619 | 9 | LYQDVNCTE 2e-05 | 40 |
| HLA-B*35:01 | 1 | 618 | 627 | 10 | TEVPVAIHAD 2e-05 | 42 |
| HLA-B*15:01 | 1 | 619 | 628 | 10 | EVPVAIHADQ 2e-05 | 55 |
| HLA-B*44:02 | 1 | 620 | 628 | 9 | VPVAIHADQ 2e-05 | 43 |
| HLA-B*44:03 | 1 | 622 | 630 | 9 | VAIHADQLT 2e-05 | 40 |
| HLA-A*33:01 | 1 | 631 | 640 | 10 | PTWRVYSTGS 2e-05 | 61 |
| HLA-A*03:01 | 1 | 636 | 645 | 10 | YSTGSNVFQT 2e-05 | 50 |
| HLA-A*02:03 | 1 | 640 | 648 | 9 | SNVFQTRAG 2e-05 | 58 |
| HLA-A*03:01 | 1 | 643 | 651 | 9 | FQTRAGCLI 2e-05 | 50 |
| HLA-A*02:03 | 1 | 647 | 655 | 9 | AGCLIGAHEH 2e-05 | 58 |
| HLA-A*32:01 | 1 | 651 | 659 | 9 | IGAEHVNNS 2e-05 | 43 |
| HLA-A*68:02 | 1 | 653 | 661 | 9 | AEHVNNSYE 2e-05 | 57 |
| HLA-A*32:01 | 1 | 656 | 664 | 9 | VNNSYECDI 2e-05 | 43 |
| HLA-B*35:01 | 1 | 660 | 669 | 10 | YECDIPIGAG 2e-05 | 42 |
| HLA-A*02:01 | 1 | 663 | 671 | 9 | DIPIGAGIC 2e-05 | 55 |
| HLA-A*68:01 | 1 | 663 | 671 | 9 | DIPIGAGIC 2e-05 | 51 |
| HLA-B*15:01 | 1 | 664 | 673 | 10 | IPIGAGICAS 2e-05 | 55 |
| HLA-A*01:01 | 1 | 665 | 673 | 9 | PIGAGICAS 2e-05 | 78 |
| HLA-B*15:01 | 1 | 667 | 675 | 9 | GAGICASYQ 2e-05 | 55 |
| HLA-B*07:02 | 1 | 668 | 676 | 9 | AGICASYQT 2e-05 | 55 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-A*02:01 | 1 | 671 | 680 | 10 | CASYQTQTN5 2e-05 | 55 |
| HLA-B*53:01 | 1 | 676 | 685 | 10 | TQTNSPRRAR 2e-05 | 41 |
| HLA-A*02:01 | 1 | 679 | 688 | 10 | NSPRRARSVA 2e-05 | 55 |
| HLA-B*15:01 | 1 | 680 | 689 | 10 | SPRRARSVAS 2e-05 | 55 |
| HLA-B*35:01 | 1 | 682 | 690 | 9 | RRARSVASQ 2e-05 | 42 |
| HLA-A*68:01 | 1 | 684 | 693 | 10 | ARSVASQSII 2e-05 | 51 |
| HLA-B*07:02 | 1 | 690 | 698 | 9 | QSIIAYTMS 2e-05 | 55 |
| HLA-B*35:01 | 1 | 700 | 708 | 9 | GAENSVAYS 2e-05 | 42 |
| HLA-B*40:01 | 1 | 700 | 708 | 9 | GAENSVAYS 2e-05 | 35 |
| HLA-A*01:01 | 1 | 702 | 710 | 9 | ENSVAYSNN 2e-05 | 78 |
| HLA-A*33:01 | 1 | 706 | 715 | 10 | AYSNNSIAIP 2e-05 | 61 |
| HLA-B*08:01 | 1 | 715 | 724 | 10 | PTNFTISVTT 2e-05 | 74 |
| HLA-B*07:02 | 1 | 720 | 728 | 9 | ISVTTEILP 2e-05 | 55 |
| HLA-A*32:01 | 1 | 723 | 732 | 10 | TTEILPVSMT 2e-05 | 43 |
| HLA-B*40:01 | 1 | 727 | 735 | 9 | LPVSMTKTS 2e-05 | 35 |
| HLA-A*02:03 | 1 | 729 | 737 | 9 | VSMTKTSVD 2e-05 | 58 |
| HLA-A*31:01 | 1 | 732 | 740 | 9 | TKTSVDCTM 2e-05 | 57 |
| HLA-A*03:01 | 1 | 734 | 743 | 10 | TSVDCTMYIC 2e-05 | 50 |
| HLA-A*11:01 | 1 | 741 | 749 | 9 | YICGDSTEC 2e-05 | 38 |
| HLA-A*02:06 | 1 | 742 | 750 | 9 | ICGDSTEC 2e-05 | 66 |
| HLA-B*08:01 | 1 | 746 | 755 | 10 | STECNLLLQ 2e-05 | 74 |
| HLA-A*32:01 | 1 | 749 | 757 | 9 | CSNLLLQYG 2e-05 | 43 |
| HLA-A*11:01 | 1 | 750 | 758 | 9 | SNLLLQYGS 2e-05 | 38 |
| HLA-B*08:01 | 1 | 756 | 765 | 10 | YGSFCTQLNR 2e-05 | 74 |
| HLA-A*11:01 | 1 | 758 | 767 | 10 | SFCTQLNRAL 2e-05 | 38 |
| HLA-A*02:06 | 1 | 760 | 769 | 10 | CTQLNRALTG 2e-05 | 66 |
| HLA-B*53:01 | 1 | 761 | 769 | 9 | TQLNRALTG 2e-05 | 41 |
| HLA-A*02:06 | 1 | 763 | 771 | 9 | LNRLALTGIA 2e-05 | 66 |
| HLA-B*53:01 | 1 | 764 | 773 | 10 | NRALTGIAVE 2e-05 | 41 |
| HLA-B*44:02 | 1 | 765 | 774 | 10 | RALTGIAVEQ 2e-05 | 43 |
| HLA-A*03:01 | 1 | 775 | 783 | 9 | DKNTQEVFA 2e-05 | 50 |
| HLA-A*26:01 | 1 | 775 | 783 | 9 | DKNTQEVFA 2e-05 | 50 |
| HLA-A*03:01 | 1 | 785 | 794 | 10 | VKQIYKTPPI 2e-05 | 50 |
| HLA-B*44:03 | 1 | 785 | 793 | 9 | VKQIYKTPP 2e-05 | 40 |
| HLA-B*51:01 | 1 | 787 | 796 | 10 | QIYKTPPIKD 2e-05 | 66 |
| HLA-A*03:01 | 1 | 790 | 799 | 10 | KTPPIKDFGG 2e-05 | 50 |
| HLA-A*11:01 | 1 | 791 | 800 | 10 | TPPIKDFGGF 2e-05 | 38 |
| HLA-A*68:02 | 1 | 791 | 799 | 9 | TPPIKDFGG 2e-05 | 57 |
| HLA-B*44:03 | 1 | 801 | 809 | 9 | NFSQILPDP 2e-05 | 40 |
| HLA-B*58:01 | 1 | 801 | 810 | 10 | NFSQILPDPS 2e-05 | 61 |
| HLA-A*11:01 | 1 | 802 | 810 | 9 | FSQILPDPS 2e-05 | 38 |
| HLA-A*26:01 | 1 | 811 | 819 | 9 | KPSKRSFIE 2e-05 | 50 |
| HLA-A*33:01 | 1 | 815 | 824 | 10 | RSFIEDLLFN 2e-05 | 61 |
| HLA-B*44:02 | 1 | 816 | 824 | 9 | SFIEDLLFN 2e-05 | 43 |
| HLA-B*44:03 | 1 | 820 | 829 | 10 | DLLFNKVTLA 2e-05 | 40 |
| HLA-A*02:06 | 1 | 832 | 840 | 9 | GFIKQYGDCL 2e-05 | 66 |
| HLA-B*35:01 | 1 | 832 | 841 | 10 | GFIKQYGDCL 2e-05 | 42 |
| HLA-B*51:01 | 1 | 833 | 842 | 10 | FIKQYGDCLG 2e-05 | 66 |
| HLA-A*30:02 | 1 | 834 | 843 | 10 | IKQYGDCLGD 2e-05 | 80 |
| HLA-A*11:01 | 1 | 835 | 844 | 10 | KQYGDCLGDI 2e-05 | 38 |
| HLA-B*44:03 | 1 | 835 | 843 | 9 | KQYGDCLGD 2e-05 | 40 |
| HLA-A*32:01 | 1 | 839 | 847 | 9 | DCLGDIAAR 2e-05 | 43 |
| HLA-B*44:02 | 1 | 842 | 851 | 10 | GDIAARDLIC 2e-05 | 43 |
| HLA-B*51:01 | 1 | 846 | 854 | 9 | ARDLICAQK 2e-05 | 66 |
| HLA-B*58:01 | 1 | 847 | 856 | 10 | RDLICAQKFN 2e-05 | 61 |
| HLA-B*08:01 | 1 | 848 | 856 | 9 | DLICAQKFN 2e-05 | 74 |
| HLA-B*44:03 | 1 | 851 | 860 | 10 | CAQKFNGLTV 2e-05 | 40 |
| HLA-B*44:03 | 1 | 858 | 866 | 9 | LTVLPLLT 2e-05 | 40 |
| HLA-A*33:01 | 1 | 863 | 872 | 10 | PLLTDEMIAQ 2e-05 | 61 |
| HLA-A*31:01 | 1 | 867 | 876 | 10 | DEMIAQY TSA 2e-05 | 57 |
| HLA-A*68:02 | 1 | 872 | 880 | 9 | QYTSALLAG 2e-05 | 57 |
| HLA-A*32:01 | 1 | 875 | 883 | 9 | SALLAGTIT 2e-05 | 43 |
| HLA-A*24:02 | 1 | 876 | 884 | 9 | ALLAGTITS 2e-05 | 36 |
| HLA-A*26:01 | 1 | 876 | 885 | 10 | ALLAGTITSG 2e-05 | 50 |
| HLA-B*53:01 | 1 | 887 | 895 | 9 | TFGAGAALQ 2e-05 | 41 |
| HLA-A*24:02 | 1 | 893 | 901 | 9 | ALQIPFAMQ 2e-05 | 36 |

| | | | | | | |
|-------------|---|------|------|----|------------------|----|
| HLA-A*02:06 | 1 | 897 | 906 | 10 | PFAMQMAYRF 2e-05 | 66 |
| HLA-A*03:01 | 1 | 897 | 906 | 10 | PFAMQMAYRF 2e-05 | 50 |
| HLA-A*01:01 | 1 | 899 | 907 | 9 | AMQMAYRFN 2e-05 | 78 |
| HLA-A*01:01 | 1 | 903 | 912 | 10 | AYRFNGIGVT 2e-05 | 78 |
| HLA-B*53:01 | 1 | 903 | 911 | 9 | AYRFNGIGV 2e-05 | 41 |
| HLA-B*44:02 | 1 | 904 | 912 | 9 | YRFNGIGVT 2e-05 | 43 |
| HLA-B*57:01 | 1 | 906 | 914 | 9 | FNGIGVTQN 2e-05 | 73 |
| HLA-B*08:01 | 1 | 909 | 918 | 10 | IGVTQNVLYE 2e-05 | 74 |
| HLA-A*11:01 | 1 | 910 | 919 | 10 | GVTQNVLYEN 2e-05 | 38 |
| HLA-A*32:01 | 1 | 913 | 921 | 9 | QNVLYENQK 2e-05 | 43 |
| HLA-A*31:01 | 1 | 917 | 925 | 9 | YENQKLIAN 2e-05 | 57 |
| HLA-A*68:02 | 1 | 917 | 926 | 10 | YENQKLIANQ 2e-05 | 57 |
| HLA-A*02:01 | 1 | 918 | 926 | 9 | ENQKLIANQ 2e-05 | 55 |
| HLA-B*15:01 | 1 | 918 | 926 | 9 | ENQKLIANQ 2e-05 | 55 |
| HLA-B*44:03 | 1 | 921 | 929 | 9 | KLIANQFNS 2e-05 | 40 |
| HLA-A*01:01 | 1 | 924 | 932 | 9 | ANQFNSAIG 2e-05 | 78 |
| HLA-A*02:01 | 1 | 931 | 940 | 10 | IGKIQDSLSS 2e-05 | 55 |
| HLA-A*02:03 | 1 | 931 | 939 | 9 | IGKIQDSLSS 2e-05 | 58 |
| HLA-A*02:01 | 1 | 932 | 940 | 9 | GKIQDSLSS 2e-05 | 55 |
| HLA-B*51:01 | 1 | 932 | 940 | 9 | GKIQDSLSS 2e-05 | 66 |
| HLA-B*53:01 | 1 | 933 | 941 | 9 | KIQDSLSS 2e-05 | 41 |
| HLA-A*02:01 | 1 | 941 | 949 | 9 | TASALGKLQ 2e-05 | 55 |
| HLA-B*08:01 | 1 | 944 | 953 | 10 | ALGKLQDVVN 2e-05 | 74 |
| HLA-A*24:02 | 1 | 953 | 961 | 9 | NQNAQALNT 2e-05 | 36 |
| HLA-B*51:01 | 1 | 959 | 968 | 10 | LNTLVKQLSS 2e-05 | 66 |
| HLA-B*53:01 | 1 | 961 | 969 | 9 | TLVKQLSSN 2e-05 | 41 |
| HLA-B*08:01 | 1 | 965 | 974 | 10 | QLSSNFGAIS 2e-05 | 74 |
| HLA-B*15:01 | 1 | 966 | 975 | 10 | LSSNFGAISS 2e-05 | 55 |
| HLA-B*58:01 | 1 | 969 | 978 | 10 | NFGAISSVLN 2e-05 | 61 |
| HLA-A*02:01 | 1 | 973 | 982 | 10 | ISSVLNDILS 2e-05 | 55 |
| HLA-A*33:01 | 1 | 974 | 982 | 9 | SSVLNDILS 2e-05 | 61 |
| HLA-A*32:01 | 1 | 980 | 988 | 9 | ILSRDKVE 2e-05 | 43 |
| HLA-B*44:03 | 1 | 981 | 989 | 9 | LSRDKVEA 2e-05 | 40 |
| HLA-A*03:01 | 1 | 985 | 993 | 9 | DKVEAEVQI 2e-05 | 50 |
| HLA-B*15:01 | 1 | 986 | 994 | 9 | KVEAEVQID 2e-05 | 55 |
| HLA-A*11:01 | 1 | 990 | 998 | 9 | EVQIDRLIT 2e-05 | 38 |
| HLA-B*53:01 | 1 | 991 | 1000 | 10 | VQIDRLITGR 2e-05 | 41 |
| HLA-B*57:01 | 1 | 994 | 1003 | 10 | DRLITGRQLS 2e-05 | 73 |
| HLA-A*68:02 | 1 | 996 | 1005 | 10 | LITGRQLSLQ 2e-05 | 57 |
| HLA-A*68:01 | 1 | 1012 | 1021 | 10 | LIRAAEIRAS 2e-05 | 51 |
| HLA-A*32:01 | 1 | 1023 | 1032 | 10 | NLAATKMSEC 2e-05 | 43 |
| HLA-A*11:01 | 1 | 1026 | 1035 | 10 | ATKMSECVLG 2e-05 | 38 |
| HLA-B*07:02 | 1 | 1028 | 1036 | 9 | KMSECVLGQ 2e-05 | 55 |
| HLA-B*15:01 | 1 | 1031 | 1040 | 10 | ECVLGQSKRV 2e-05 | 55 |
| HLA-A*02:06 | 1 | 1032 | 1041 | 10 | CVLGQSKRVD 2e-05 | 66 |
| HLA-B*40:01 | 1 | 1032 | 1040 | 9 | CVLGQSKRV 2e-05 | 35 |
| HLA-A*02:06 | 1 | 1033 | 1041 | 9 | VLGQSKRVD 2e-05 | 66 |
| HLA-B*58:01 | 1 | 1033 | 1041 | 9 | VLGQSKRVD 2e-05 | 61 |
| HLA-B*53:01 | 1 | 1036 | 1044 | 9 | QSKRVDFCG 2e-05 | 41 |
| HLA-A*30:02 | 1 | 1037 | 1046 | 10 | SKRVDFCGKG 2e-05 | 80 |
| HLA-A*26:01 | 1 | 1038 | 1046 | 9 | KRVDFCGKG 2e-05 | 50 |
| HLA-B*44:02 | 1 | 1043 | 1052 | 10 | CGKGYHLMSF 2e-05 | 43 |
| HLA-A*02:06 | 1 | 1046 | 1055 | 10 | GYHLMSFPQS 2e-05 | 66 |
| HLA-A*32:01 | 1 | 1051 | 1059 | 9 | SFPQSAPHG 2e-05 | 43 |
| HLA-B*53:01 | 1 | 1051 | 1059 | 9 | SFPQSAPHG 2e-05 | 41 |
| HLA-A*03:01 | 1 | 1053 | 1061 | 9 | PQSAPHGVV 2e-05 | 50 |
| HLA-B*15:01 | 1 | 1068 | 1077 | 10 | VPAQEKNF 2e-05 | 55 |
| HLA-B*35:01 | 1 | 1070 | 1079 | 10 | AQEKNF 2e-05 | 42 |
| HLA-A*33:01 | 1 | 1076 | 1085 | 10 | TTAPAICHDG 2e-05 | 61 |
| HLA-B*35:01 | 1 | 1076 | 1084 | 9 | TTAPAICH 2e-05 | 42 |
| HLA-B*44:02 | 1 | 1076 | 1084 | 9 | TTAPAICH 2e-05 | 43 |
| HLA-A*02:01 | 1 | 1077 | 1086 | 10 | TAPAICH 2e-05 | 55 |
| HLA-B*08:01 | 1 | 1085 | 1093 | 9 | GKAHFPREG 2e-05 | 74 |
| HLA-A*01:01 | 1 | 1091 | 1100 | 10 | REGVFSNGT 2e-05 | 78 |
| HLA-B*15:01 | 1 | 1096 | 1105 | 10 | VSNQTHW 2e-05 | 55 |
| HLA-B*07:02 | 1 | 1098 | 1107 | 10 | NGTHW 2e-05 | 55 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-B*07:02 | 1 | 1103 | 1112 | 10 | FVTQRNFYEP | 2e-05 | 55 |
| HLA-A*32:01 | 1 | 1104 | 1113 | 10 | VTQRNFYEPQ | 2e-05 | 43 |
| HLA-A*68:02 | 1 | 1105 | 1113 | 9 | TQRNFYEPQ | 2e-05 | 57 |
| HLA-A*30:02 | 1 | 1111 | 1119 | 9 | EPQIITTDN | 2e-05 | 80 |
| HLA-B*40:01 | 1 | 1114 | 1122 | 9 | IITTDNTFV | 2e-05 | 35 |
| HLA-A*24:02 | 1 | 1115 | 1123 | 9 | ITTDNTFVS | 2e-05 | 36 |
| HLA-B*08:01 | 1 | 1115 | 1124 | 10 | ITTDNTFVSG | 2e-05 | 74 |
| HLA-B*15:01 | 1 | 1115 | 1124 | 10 | ITTDNTFVSG | 2e-05 | 55 |
| HLA-A*23:01 | 1 | 1116 | 1124 | 9 | TTDNTFVSG | 2e-05 | 38 |
| HLA-A*30:02 | 1 | 1117 | 1125 | 9 | TDNTFVSGN | 2e-05 | 80 |
| HLA-B*08:01 | 1 | 1117 | 1126 | 10 | TDNTFVSGNC | 2e-05 | 74 |
| HLA-B*51:01 | 1 | 1118 | 1127 | 10 | DNTFVSGNCD | 2e-05 | 66 |
| HLA-A*02:06 | 1 | 1119 | 1127 | 9 | NTFVSGNCD | 2e-05 | 66 |
| HLA-B*35:01 | 1 | 1119 | 1128 | 10 | NTFVSGNCDV | 2e-05 | 42 |
| HLA-B*40:01 | 1 | 1123 | 1132 | 10 | SGNCDVVIGI | 2e-05 | 35 |
| HLA-B*51:01 | 1 | 1123 | 1131 | 9 | SGNCDVVIG | 2e-05 | 66 |
| HLA-B*44:03 | 1 | 1125 | 1133 | 9 | NCDVVIGIV | 2e-05 | 40 |
| HLA-A*68:01 | 1 | 1131 | 1140 | 10 | GIVNNTVYDP | 2e-05 | 51 |
| HLA-A*30:01 | 1 | 1139 | 1147 | 9 | DPLQPELDS | 2e-05 | 82 |
| HLA-B*44:03 | 1 | 1140 | 1149 | 10 | PLQPELDSFK | 2e-05 | 40 |
| HLA-A*68:02 | 1 | 1145 | 1154 | 10 | LDSFKEELDK | 2e-05 | 57 |
| HLA-B*35:01 | 1 | 1149 | 1157 | 9 | KEELDKYFK | 2e-05 | 42 |
| HLA-B*51:01 | 1 | 1149 | 1157 | 9 | KEELDKYFK | 2e-05 | 66 |
| HLA-A*31:01 | 1 | 1150 | 1158 | 9 | EELDKYFKN | 2e-05 | 57 |
| HLA-A*31:01 | 1 | 1152 | 1160 | 9 | LDKYFKNHT | 2e-05 | 57 |
| HLA-A*03:01 | 1 | 1153 | 1162 | 10 | DKYFKNHTSP | 2e-05 | 50 |
| HLA-B*40:01 | 1 | 1155 | 1164 | 10 | YFKNHTSPDV | 2e-05 | 35 |
| HLA-B*51:01 | 1 | 1158 | 1167 | 10 | NHTSPDVDLG | 2e-05 | 66 |
| HLA-A*02:01 | 1 | 1160 | 1168 | 9 | TSPDVDLGD | 2e-05 | 55 |
| HLA-B*53:01 | 1 | 1160 | 1168 | 9 | TSPDVDLGD | 2e-05 | 41 |
| HLA-A*02:03 | 1 | 1164 | 1173 | 10 | VDLGDISGIN | 2e-05 | 58 |
| HLA-A*30:01 | 1 | 1164 | 1173 | 10 | VDLGDISGIN | 2e-05 | 82 |
| HLA-A*33:01 | 1 | 1169 | 1177 | 9 | ISGINASVV | 2e-05 | 61 |
| HLA-B*51:01 | 1 | 1169 | 1178 | 10 | ISGINASVVN | 2e-05 | 66 |
| HLA-A*68:01 | 1 | 1170 | 1178 | 9 | SGINASVVN | 2e-05 | 51 |
| HLA-B*44:03 | 1 | 1170 | 1179 | 10 | SGINASVVNI | 2e-05 | 40 |
| HLA-A*26:01 | 1 | 1178 | 1187 | 10 | NIQKEIDRLN | 2e-05 | 50 |
| HLA-A*33:01 | 1 | 1178 | 1187 | 10 | NIQKEIDRLN | 2e-05 | 61 |
| HLA-A*23:01 | 1 | 1181 | 1190 | 10 | KEIDRLNEVA | 2e-05 | 38 |
| HLA-A*01:01 | 1 | 1183 | 1192 | 10 | IDRLNEVAKN | 2e-05 | 78 |
| HLA-A*30:02 | 1 | 1184 | 1192 | 9 | DRLNEVAKN | 2e-05 | 80 |
| HLA-B*15:01 | 1 | 1187 | 1195 | 9 | NEVAKNLNE | 2e-05 | 55 |
| HLA-B*58:01 | 1 | 1187 | 1195 | 9 | NEVAKNLNE | 2e-05 | 61 |
| HLA-A*02:06 | 1 | 1193 | 1202 | 10 | LNESLIDLQE | 2e-05 | 66 |
| HLA-B*57:01 | 1 | 1194 | 1202 | 9 | NESLIDLQE | 2e-05 | 73 |
| HLA-B*57:01 | 1 | 1199 | 1208 | 10 | DLQELGKYEQ | 2e-05 | 73 |
| HLA-A*24:02 | 1 | 1200 | 1208 | 9 | LQELGKYEQ | 2e-05 | 36 |
| HLA-A*26:01 | 1 | 1212 | 1221 | 10 | WPWYIWLGF | 2e-05 | 50 |
| HLA-A*26:01 | 1 | 1214 | 1222 | 9 | WYIWLGFIA | 2e-05 | 50 |
| HLA-B*44:02 | 1 | 1214 | 1222 | 9 | WYIWLGFIA | 2e-05 | 43 |
| HLA-B*44:02 | 1 | 1216 | 1225 | 10 | IWLGFIAGLI | 2e-05 | 43 |
| HLA-A*26:01 | 1 | 1222 | 1230 | 9 | AGLIAIVMV | 2e-05 | 50 |
| HLA-A*03:01 | 1 | 1229 | 1237 | 9 | MVTIMLCCM | 2e-05 | 50 |
| HLA-A*31:01 | 1 | 1230 | 1239 | 10 | VTIMLCCMTS | 2e-05 | 57 |
| HLA-A*31:01 | 1 | 1231 | 1240 | 10 | TIMLCCMTSC | 2e-05 | 57 |
| HLA-B*07:02 | 1 | 1231 | 1239 | 9 | TIMLCCMTS | 2e-05 | 55 |
| HLA-A*68:02 | 1 | 1236 | 1244 | 9 | CMTSCCSCL | 2e-05 | 57 |
| HLA-A*02:01 | 1 | 1254 | 1263 | 10 | CKFDEDDSEP | 2e-05 | 55 |
| HLA-B*58:01 | 1 | 1254 | 1263 | 10 | CKFDEDDSEP | 2e-05 | 61 |
| HLA-B*15:01 | 1 | 1258 | 1266 | 9 | EDDSEPVLK | 2e-05 | 55 |
| HLA-B*53:01 | 1 | 2 | 11 | 10 | FVFLVLLPLV | 1.9e-05 | 41 |
| HLA-B*40:01 | 1 | 5 | 13 | 9 | LVLPLVSS | 1.9e-05 | 35 |
| HLA-A*03:01 | 1 | 10 | 19 | 10 | LVSSQCVNLT | 1.9e-05 | 51 |
| HLA-B*35:01 | 1 | 17 | 25 | 9 | NLTTRTQLP | 1.9e-05 | 42 |
| HLA-A*03:01 | 1 | 27 | 35 | 9 | AYTNSFTRG | 1.9e-05 | 51 |
| HLA-B*53:01 | 1 | 27 | 36 | 10 | AYTNSFTRGV | 1.9e-05 | 41 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*40:01 | 1 | 31 | 39 | 9 | SFTRGVYYP | 1.9e-05 | 35 |
| HLA-B*07:02 | 1 | 32 | 40 | 9 | FTRGVYYPD | 1.9e-05 | 55 |
| HLA-A*24:02 | 1 | 39 | 47 | 9 | PDKVFRSSV | 1.9e-05 | 37 |
| HLA-A*33:01 | 1 | 39 | 48 | 10 | PDKVFRSSVL | 1.9e-05 | 62 |
| HLA-A*31:01 | 1 | 40 | 48 | 9 | DKVFRSSVL | 1.9e-05 | 58 |
| HLA-A*11:01 | 1 | 42 | 51 | 10 | VFRSSVLHST | 1.9e-05 | 38 |
| HLA-A*02:01 | 1 | 43 | 52 | 10 | FRSSVLHSTQ | 1.9e-05 | 56 |
| HLA-B*53:01 | 1 | 48 | 57 | 10 | LHSTQDLFLP | 1.9e-05 | 41 |
| HLA-B*57:01 | 1 | 55 | 63 | 9 | FLPFFSNVT | 1.9e-05 | 74 |
| HLA-B*35:01 | 1 | 57 | 66 | 10 | PFFSNVTWFH | 1.9e-05 | 42 |
| HLA-B*40:01 | 1 | 59 | 67 | 9 | FSNVTWFHA | 1.9e-05 | 35 |
| HLA-B*40:01 | 1 | 59 | 68 | 10 | FSNVTWFHAI | 1.9e-05 | 35 |
| HLA-A*02:03 | 1 | 60 | 69 | 10 | SNVTWFHAIH | 1.9e-05 | 59 |
| HLA-A*26:01 | 1 | 63 | 72 | 10 | TWFHAIHVSG | 1.9e-05 | 51 |
| HLA-B*51:01 | 1 | 64 | 73 | 10 | WFHAIHVSGT | 1.9e-05 | 67 |
| HLA-A*32:01 | 1 | 66 | 75 | 10 | HAIHVSGTNG | 1.9e-05 | 44 |
| HLA-A*32:01 | 1 | 67 | 76 | 10 | AIHVSGTNGT | 1.9e-05 | 44 |
| HLA-B*44:03 | 1 | 67 | 76 | 10 | AIHVSGTNGT | 1.9e-05 | 41 |
| HLA-A*23:01 | 1 | 69 | 78 | 10 | HVSGTNGTKR | 1.9e-05 | 39 |
| HLA-B*08:01 | 1 | 73 | 81 | 9 | TNGTKRFDN | 1.9e-05 | 75 |
| HLA-B*35:01 | 1 | 82 | 90 | 9 | PVLPFNDGV | 1.9e-05 | 42 |
| HLA-B*07:02 | 1 | 88 | 96 | 9 | DGVYFASTE | 1.9e-05 | 55 |
| HLA-B*44:02 | 1 | 90 | 98 | 9 | VYFASTEKS | 1.9e-05 | 44 |
| HLA-B*35:01 | 1 | 93 | 102 | 10 | ASTEKSNIIR | 1.9e-05 | 42 |
| HLA-B*51:01 | 1 | 94 | 103 | 10 | STEKSNIIRG | 1.9e-05 | 67 |
| HLA-A*03:01 | 1 | 99 | 108 | 10 | NIIRGWIFGT | 1.9e-05 | 51 |
| HLA-A*01:01 | 1 | 101 | 109 | 9 | IRGWIFGTT | 1.9e-05 | 79 |
| HLA-A*68:01 | 1 | 101 | 110 | 10 | IRGWIFGTTL | 1.9e-05 | 52 |
| HLA-A*02:06 | 1 | 105 | 114 | 10 | IFGTTLDSKT | 1.9e-05 | 66 |
| HLA-B*07:02 | 1 | 105 | 113 | 9 | IFGTTLDISK | 1.9e-05 | 55 |
| HLA-B*08:01 | 1 | 105 | 114 | 10 | IFGTTLDSKT | 1.9e-05 | 75 |
| HLA-B*53:01 | 1 | 105 | 113 | 9 | IFGTTLDISK | 1.9e-05 | 41 |
| HLA-A*32:01 | 1 | 107 | 115 | 9 | GTTLDSKTQ | 1.9e-05 | 44 |
| HLA-B*35:01 | 1 | 107 | 115 | 9 | GTTLDSKTQ | 1.9e-05 | 42 |
| HLA-A*01:01 | 1 | 116 | 125 | 10 | SLLIVNNATN | 1.9e-05 | 79 |
| HLA-B*35:01 | 1 | 131 | 139 | 9 | CEFQFCNDP | 1.9e-05 | 42 |
| HLA-A*02:06 | 1 | 146 | 154 | 9 | HKNNKSWME | 1.9e-05 | 66 |
| HLA-A*03:01 | 1 | 148 | 157 | 10 | NNKSWMESEF | 1.9e-05 | 51 |
| HLA-B*44:02 | 1 | 148 | 156 | 9 | NNKSWMESE | 1.9e-05 | 44 |
| HLA-A*33:01 | 1 | 155 | 164 | 10 | SEFRVYSSAN | 1.9e-05 | 62 |
| HLA-A*26:01 | 1 | 156 | 164 | 9 | EFRVYSSAN | 1.9e-05 | 51 |
| HLA-A*31:01 | 1 | 156 | 164 | 9 | EFRVYSSAN | 1.9e-05 | 58 |
| HLA-B*35:01 | 1 | 156 | 164 | 9 | EFRVYSSAN | 1.9e-05 | 42 |
| HLA-A*02:01 | 1 | 160 | 169 | 10 | YSSANNCTFE | 1.9e-05 | 56 |
| HLA-A*03:01 | 1 | 160 | 169 | 10 | YSSANNCTFE | 1.9e-05 | 51 |
| HLA-A*30:01 | 1 | 164 | 173 | 10 | NNCTFEYVSQ | 1.9e-05 | 82 |
| HLA-B*44:02 | 1 | 169 | 178 | 10 | EYVSQPFLMD | 1.9e-05 | 44 |
| HLA-B*15:01 | 1 | 171 | 180 | 10 | VSQPFLMDLE | 1.9e-05 | 56 |
| HLA-B*40:01 | 1 | 172 | 181 | 10 | SQPFLMDLEG | 1.9e-05 | 35 |
| HLA-A*01:01 | 1 | 174 | 182 | 9 | PFLMDLEGK | 1.9e-05 | 79 |
| HLA-B*53:01 | 1 | 175 | 184 | 10 | FLMDLEGKQG | 1.9e-05 | 41 |
| HLA-A*30:01 | 1 | 176 | 185 | 10 | LMDLEGKQGN | 1.9e-05 | 82 |
| HLA-B*35:01 | 1 | 178 | 187 | 10 | DLEGKQGNFK | 1.9e-05 | 42 |
| HLA-B*53:01 | 1 | 178 | 187 | 10 | DLEGKQGNFK | 1.9e-05 | 41 |
| HLA-B*44:02 | 1 | 182 | 191 | 10 | KQGNFKNLRE | 1.9e-05 | 44 |
| HLA-A*02:01 | 1 | 185 | 194 | 10 | NFKNLREFVF | 1.9e-05 | 56 |
| HLA-B*07:02 | 1 | 187 | 195 | 9 | KNLREFVFK | 1.9e-05 | 55 |
| HLA-A*31:01 | 1 | 190 | 198 | 9 | REFVFNID | 1.9e-05 | 58 |
| HLA-A*11:01 | 1 | 201 | 210 | 10 | FKIYSKHTPI | 1.9e-05 | 38 |
| HLA-B*35:01 | 1 | 203 | 211 | 9 | IYSKHTPIN | 1.9e-05 | 42 |
| HLA-A*02:03 | 1 | 207 | 215 | 9 | HTPINLVRD | 1.9e-05 | 59 |
| HLA-A*01:01 | 1 | 209 | 218 | 10 | PINLVRDLPQ | 1.9e-05 | 79 |
| HLA-B*35:01 | 1 | 211 | 219 | 9 | NLVRDLPQG | 1.9e-05 | 42 |
| HLA-A*26:01 | 1 | 213 | 221 | 9 | VRDLPQGF | 1.9e-05 | 51 |
| HLA-A*68:02 | 1 | 213 | 221 | 9 | VRDLPQGF | 1.9e-05 | 57 |
| HLA-B*44:03 | 1 | 213 | 221 | 9 | VRDLPQGF | 1.9e-05 | 41 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*40:01 | 1 | 216 | 225 | 10 | LPQGFSALEP | 1.9e-05 | 35 |
| HLA-B*40:01 | 1 | 217 | 225 | 9 | PQGFSALEP | 1.9e-05 | 35 |
| HLA-B*53:01 | 1 | 217 | 226 | 10 | PQGFSALEPL | 1.9e-05 | 41 |
| HLA-A*68:02 | 1 | 219 | 228 | 10 | GFSALEPLVD | 1.9e-05 | 57 |
| HLA-A*33:01 | 1 | 223 | 231 | 9 | LEPLVDLPI | 1.9e-05 | 62 |
| HLA-A*11:01 | 1 | 224 | 233 | 10 | EPLVDLPIGI | 1.9e-05 | 38 |
| HLA-B*40:01 | 1 | 228 | 237 | 10 | DLPIGINITR | 1.9e-05 | 35 |
| HLA-B*53:01 | 1 | 228 | 236 | 9 | DLPIGINIT | 1.9e-05 | 41 |
| HLA-B*53:01 | 1 | 243 | 251 | 9 | ALHRSYLTP | 1.9e-05 | 41 |
| HLA-A*33:01 | 1 | 246 | 254 | 9 | RSYLTPGDS | 1.9e-05 | 62 |
| HLA-B*53:01 | 1 | 248 | 257 | 10 | YLTPGDSSSG | 1.9e-05 | 41 |
| HLA-B*08:01 | 1 | 251 | 260 | 10 | PGDSSSGWTA | 1.9e-05 | 75 |
| HLA-B*40:01 | 1 | 255 | 263 | 9 | SSGWTAGAA | 1.9e-05 | 35 |
| HLA-A*01:01 | 1 | 259 | 268 | 10 | TAGAAAYYVG | 1.9e-05 | 79 |
| HLA-B*07:02 | 1 | 262 | 271 | 10 | AAAYYVGYLQ | 1.9e-05 | 55 |
| HLA-B*58:01 | 1 | 265 | 274 | 10 | YYVGYLQPR | 1.9e-05 | 62 |
| HLA-A*31:01 | 1 | 276 | 284 | 9 | LLKYNENGT | 1.9e-05 | 58 |
| HLA-B*40:01 | 1 | 277 | 286 | 10 | LKYNENGTIT | 1.9e-05 | 35 |
| HLA-A*31:01 | 1 | 280 | 288 | 9 | NENGTITDA | 1.9e-05 | 58 |
| HLA-A*11:01 | 1 | 281 | 289 | 9 | ENGTITDAV | 1.9e-05 | 38 |
| HLA-B*15:01 | 1 | 281 | 289 | 9 | ENGTITDAV | 1.9e-05 | 56 |
| HLA-B*44:02 | 1 | 290 | 298 | 9 | DCALDPLSE | 1.9e-05 | 44 |
| HLA-B*44:02 | 1 | 290 | 299 | 10 | DCALDPLSET | 1.9e-05 | 44 |
| HLA-A*30:01 | 1 | 293 | 301 | 9 | LDPLSETKC | 1.9e-05 | 82 |
| HLA-B*53:01 | 1 | 297 | 305 | 9 | SETKCTLKS | 1.9e-05 | 41 |
| HLA-A*24:02 | 1 | 299 | 308 | 10 | TKCTLKSFTV | 1.9e-05 | 37 |
| HLA-A*68:02 | 1 | 299 | 307 | 9 | TKCTLKSFT | 1.9e-05 | 57 |
| HLA-A*24:02 | 1 | 301 | 310 | 10 | CTLKSFTVEK | 1.9e-05 | 37 |
| HLA-B*44:03 | 1 | 303 | 312 | 10 | LKSFTVEKGI | 1.9e-05 | 41 |
| HLA-B*44:03 | 1 | 305 | 314 | 10 | SFTVEKGIYQ | 1.9e-05 | 41 |
| HLA-B*51:01 | 1 | 308 | 317 | 10 | VEKGIYQTSN | 1.9e-05 | 67 |
| HLA-B*57:01 | 1 | 308 | 317 | 10 | VEKGIYQTSN | 1.9e-05 | 74 |
| HLA-B*44:03 | 1 | 311 | 320 | 10 | GIYQTSNFRV | 1.9e-05 | 41 |
| HLA-A*26:01 | 1 | 312 | 321 | 10 | IYQTSNFRVQ | 1.9e-05 | 51 |
| HLA-B*51:01 | 1 | 314 | 323 | 10 | QTSNFRVQPT | 1.9e-05 | 67 |
| HLA-A*02:01 | 1 | 322 | 330 | 9 | PTESIVRFP | 1.9e-05 | 56 |
| HLA-A*68:01 | 1 | 322 | 330 | 9 | PTESIVRFP | 1.9e-05 | 52 |
| HLA-A*03:01 | 1 | 323 | 332 | 10 | TESIVRFPNI | 1.9e-05 | 51 |
| HLA-B*35:01 | 1 | 327 | 336 | 10 | VRFPNITNLC | 1.9e-05 | 42 |
| HLA-A*02:01 | 1 | 329 | 337 | 9 | FPNITNLC | 1.9e-05 | 56 |
| HLA-A*11:01 | 1 | 329 | 338 | 10 | FPNITNLC | 1.9e-05 | 38 |
| HLA-A*01:01 | 1 | 331 | 339 | 9 | NITNLC | 1.9e-05 | 79 |
| HLA-B*44:02 | 1 | 334 | 343 | 10 | NLC | 1.9e-05 | 44 |
| HLA-B*40:01 | 1 | 335 | 344 | 10 | LC | 1.9e-05 | 35 |
| HLA-B*44:03 | 1 | 335 | 344 | 10 | LC | 1.9e-05 | 41 |
| HLA-B*44:03 | 1 | 338 | 346 | 9 | FGEVFNATR | 1.9e-05 | 41 |
| HLA-B*58:01 | 1 | 341 | 349 | 9 | VFNATRFAS | 1.9e-05 | 62 |
| HLA-B*08:01 | 1 | 347 | 356 | 10 | FASVYAWNRK | 1.9e-05 | 75 |
| HLA-A*23:01 | 1 | 358 | 367 | 10 | ISNCVADYSV | 1.9e-05 | 39 |
| HLA-B*35:01 | 1 | 358 | 366 | 9 | ISNCVADYS | 1.9e-05 | 42 |
| HLA-B*35:01 | 1 | 364 | 373 | 10 | DYSVLVNSAS | 1.9e-05 | 42 |
| HLA-A*23:01 | 1 | 367 | 375 | 9 | VLVNSASF | 1.9e-05 | 39 |
| HLA-A*23:01 | 1 | 370 | 379 | 10 | NSASFSTFKC | 1.9e-05 | 39 |
| HLA-A*33:01 | 1 | 377 | 385 | 9 | FKCYGVSPT | 1.9e-05 | 62 |
| HLA-B*15:01 | 1 | 377 | 385 | 9 | FKCYGVSPT | 1.9e-05 | 56 |
| HLA-B*08:01 | 1 | 381 | 389 | 9 | GVSP | 1.9e-05 | 75 |
| HLA-A*11:01 | 1 | 382 | 391 | 10 | VSPT | 1.9e-05 | 38 |
| HLA-B*40:01 | 1 | 384 | 392 | 9 | PTK | 1.9e-05 | 35 |
| HLA-B*07:02 | 1 | 388 | 397 | 10 | NDLCFTNVYA | 1.9e-05 | 55 |
| HLA-A*03:01 | 1 | 392 | 401 | 10 | FTNVYADSFV | 1.9e-05 | 51 |
| HLA-B*44:02 | 1 | 398 | 407 | 10 | DSFVIRGDEV | 1.9e-05 | 44 |
| HLA-B*58:01 | 1 | 398 | 406 | 9 | DSFVIRGDE | 1.9e-05 | 62 |
| HLA-B*51:01 | 1 | 401 | 409 | 9 | VIRGDEVRQ | 1.9e-05 | 67 |
| HLA-B*35:01 | 1 | 402 | 411 | 10 | IRGDEVRQIA | 1.9e-05 | 42 |
| HLA-B*15:01 | 1 | 403 | 412 | 10 | RGDEVRQIAP | 1.9e-05 | 56 |
| HLA-B*07:02 | 1 | 405 | 413 | 9 | DEV | 1.9e-05 | 55 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*23:01 | 1 | 407 | 415 | 9 | VRQIAPGQT | 1.9e-05 | 39 |
| HLA-B*44:03 | 1 | 407 | 415 | 9 | VRQIAPGQT | 1.9e-05 | 41 |
| HLA-A*03:01 | 1 | 418 | 426 | 9 | IADYNYKLP | 1.9e-05 | 51 |
| HLA-A*30:01 | 1 | 419 | 428 | 10 | ADYNYKLPDD | 1.9e-05 | 82 |
| HLA-A*24:02 | 1 | 420 | 428 | 9 | DYNYKLPDD | 1.9e-05 | 37 |
| HLA-A*30:02 | 1 | 420 | 428 | 9 | DYNYKLPDD | 1.9e-05 | 81 |
| HLA-B*35:01 | 1 | 422 | 431 | 10 | NYKLPDDFTG | 1.9e-05 | 42 |
| HLA-A*03:01 | 1 | 423 | 432 | 10 | YKLPDDFTGC | 1.9e-05 | 51 |
| HLA-A*03:01 | 1 | 427 | 435 | 9 | DDFTGCVIA | 1.9e-05 | 51 |
| HLA-B*15:01 | 1 | 427 | 435 | 9 | DDFTGCVIA | 1.9e-05 | 56 |
| HLA-A*30:01 | 1 | 430 | 439 | 10 | TGCVIAWNSN | 1.9e-05 | 82 |
| HLA-A*33:01 | 1 | 435 | 443 | 9 | AWNSNNLDS | 1.9e-05 | 62 |
| HLA-B*15:01 | 1 | 435 | 443 | 9 | AWNSNNLDS | 1.9e-05 | 56 |
| HLA-B*44:02 | 1 | 436 | 445 | 10 | WNSNNLDSKV | 1.9e-05 | 44 |
| HLA-B*51:01 | 1 | 438 | 446 | 9 | SNNLDSKVG | 1.9e-05 | 67 |
| HLA-A*30:01 | 1 | 439 | 448 | 10 | NNLDSKVGGN | 1.9e-05 | 82 |
| HLA-A*02:03 | 1 | 442 | 451 | 10 | DSKVGGNYY | 1.9e-05 | 59 |
| HLA-B*15:01 | 1 | 445 | 454 | 10 | VGGNYNYLYR | 1.9e-05 | 56 |
| HLA-B*51:01 | 1 | 449 | 458 | 10 | YNYLYRFRK | 1.9e-05 | 67 |
| HLA-B*51:01 | 1 | 450 | 459 | 10 | NYLYRFRKS | 1.9e-05 | 67 |
| HLA-B*53:01 | 1 | 451 | 459 | 9 | YLYRFRKS | 1.9e-05 | 41 |
| HLA-B*53:01 | 1 | 454 | 463 | 10 | RLFRKSNLKP | 1.9e-05 | 41 |
| HLA-A*03:01 | 1 | 456 | 465 | 10 | FRKSNLKPF | 1.9e-05 | 51 |
| HLA-B*15:01 | 1 | 457 | 465 | 9 | RKSNLKPF | 1.9e-05 | 56 |
| HLA-B*51:01 | 1 | 461 | 469 | 9 | LKPFERDIS | 1.9e-05 | 67 |
| HLA-A*23:01 | 1 | 465 | 474 | 10 | ERDISTEIQ | 1.9e-05 | 39 |
| HLA-B*35:01 | 1 | 467 | 476 | 10 | DISTEIQAG | 1.9e-05 | 42 |
| HLA-A*33:01 | 1 | 468 | 477 | 10 | ISTEIQAGS | 1.9e-05 | 62 |
| HLA-B*15:01 | 1 | 469 | 478 | 10 | STEIQAGST | 1.9e-05 | 56 |
| HLA-B*51:01 | 1 | 469 | 477 | 9 | STEIQAGS | 1.9e-05 | 67 |
| HLA-A*11:01 | 1 | 473 | 481 | 9 | YQAGSTPCN | 1.9e-05 | 38 |
| HLA-B*08:01 | 1 | 473 | 482 | 10 | YQAGSTPCNG | 1.9e-05 | 75 |
| HLA-B*51:01 | 1 | 473 | 482 | 10 | YQAGSTPCNG | 1.9e-05 | 67 |
| HLA-A*31:01 | 1 | 475 | 484 | 10 | AGSTPCNGVE | 1.9e-05 | 58 |
| HLA-B*57:01 | 1 | 480 | 488 | 9 | CNGVEGFNC | 1.9e-05 | 74 |
| HLA-A*02:06 | 1 | 485 | 494 | 10 | GFNCYFPLQS | 1.9e-05 | 66 |
| HLA-B*57:01 | 1 | 485 | 493 | 9 | GFNCYFPLQ | 1.9e-05 | 74 |
| HLA-A*11:01 | 1 | 486 | 494 | 9 | FNCYFPLQS | 1.9e-05 | 38 |
| HLA-B*07:02 | 1 | 488 | 496 | 9 | CYFPLQSYG | 1.9e-05 | 55 |
| HLA-B*44:03 | 1 | 490 | 499 | 10 | FPLQSYGFQP | 1.9e-05 | 41 |
| HLA-A*24:02 | 1 | 491 | 499 | 9 | PLQSYGFQP | 1.9e-05 | 37 |
| HLA-A*02:01 | 1 | 507 | 515 | 9 | PYRVVLSF | 1.9e-05 | 56 |
| HLA-B*44:02 | 1 | 516 | 525 | 10 | ELLHAPATVC | 1.9e-05 | 44 |
| HLA-B*07:02 | 1 | 517 | 526 | 10 | LLHAPATVCG | 1.9e-05 | 55 |
| HLA-A*31:01 | 1 | 523 | 532 | 10 | TVCGPKKSTN | 1.9e-05 | 58 |
| HLA-A*31:01 | 1 | 525 | 534 | 10 | CGPKKSTNLV | 1.9e-05 | 58 |
| HLA-B*44:02 | 1 | 528 | 536 | 9 | KKSTNLVKN | 1.9e-05 | 44 |
| HLA-A*23:01 | 1 | 530 | 539 | 10 | STNLVKNKCV | 1.9e-05 | 39 |
| HLA-B*51:01 | 1 | 532 | 540 | 9 | NLVKNKCVN | 1.9e-05 | 67 |
| HLA-B*53:01 | 1 | 537 | 546 | 10 | KCVNFNFNGL | 1.9e-05 | 41 |
| HLA-B*44:03 | 1 | 540 | 548 | 9 | NFNFNGLTG | 1.9e-05 | 41 |
| HLA-B*15:01 | 1 | 542 | 550 | 9 | NFNGLTGTG | 1.9e-05 | 56 |
| HLA-B*44:03 | 1 | 543 | 551 | 9 | FNGLTGTGV | 1.9e-05 | 41 |
| HLA-A*03:01 | 1 | 544 | 552 | 9 | NGLTGTGVL | 1.9e-05 | 51 |
| HLA-A*68:02 | 1 | 545 | 554 | 10 | GLTGTGVLTE | 1.9e-05 | 57 |
| HLA-A*02:01 | 1 | 548 | 557 | 10 | GTGVLTESNK | 1.9e-05 | 56 |
| HLA-B*44:03 | 1 | 549 | 557 | 9 | TGVLTESNK | 1.9e-05 | 41 |
| HLA-A*03:01 | 1 | 552 | 561 | 10 | LTESNKKFLP | 1.9e-05 | 51 |
| HLA-A*32:01 | 1 | 552 | 561 | 10 | LTESNKKFLP | 1.9e-05 | 44 |
| HLA-A*02:01 | 1 | 553 | 561 | 9 | TESNKKFLP | 1.9e-05 | 56 |
| HLA-A*24:02 | 1 | 554 | 563 | 10 | ESNKKFLPFQ | 1.9e-05 | 37 |
| HLA-B*15:01 | 1 | 560 | 569 | 10 | LPFQQFGRDI | 1.9e-05 | 56 |
| HLA-A*01:01 | 1 | 562 | 571 | 10 | FQQFGRDIAD | 1.9e-05 | 79 |
| HLA-A*31:01 | 1 | 562 | 570 | 9 | FQQFGRDIA | 1.9e-05 | 58 |
| HLA-A*23:01 | 1 | 563 | 571 | 9 | QQFGRDIAD | 1.9e-05 | 39 |
| HLA-B*53:01 | 1 | 563 | 572 | 10 | QQFGRDIADT | 1.9e-05 | 41 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*30:01 | 1 | 566 | 574 | 9 | GRDIADTTD | 1.9e-05 | 82 |
| HLA-B*51:01 | 1 | 566 | 574 | 9 | GRDIADTTD | 1.9e-05 | 67 |
| HLA-B*44:03 | 1 | 570 | 578 | 9 | ADTTDAVRD | 1.9e-05 | 41 |
| HLA-A*11:01 | 1 | 573 | 582 | 10 | TDAVRDPQTL | 1.9e-05 | 38 |
| HLA-A*31:01 | 1 | 584 | 593 | 10 | ILDITPCSF | 1.9e-05 | 58 |
| HLA-A*33:01 | 1 | 584 | 593 | 10 | ILDITPCSF | 1.9e-05 | 62 |
| HLA-A*33:01 | 1 | 585 | 593 | 9 | LDITPCSF | 1.9e-05 | 62 |
| HLA-B*57:01 | 1 | 585 | 594 | 10 | LDITPCSF | 1.9e-05 | 74 |
| HLA-B*58:01 | 1 | 585 | 593 | 9 | LDITPCSF | 1.9e-05 | 62 |
| HLA-A*26:01 | 1 | 588 | 596 | 9 | TPCSF | 1.9e-05 | 51 |
| HLA-A*11:01 | 1 | 590 | 599 | 10 | CSF | 1.9e-05 | 38 |
| HLA-B*44:02 | 1 | 591 | 600 | 10 | SF | 1.9e-05 | 44 |
| HLA-B*44:03 | 1 | 591 | 600 | 10 | SF | 1.9e-05 | 41 |
| HLA-A*01:01 | 1 | 593 | 602 | 10 | GGV | 1.9e-05 | 79 |
| HLA-A*68:02 | 1 | 593 | 601 | 9 | GGV | 1.9e-05 | 57 |
| HLA-A*68:01 | 1 | 595 | 603 | 9 | VSV | 1.9e-05 | 52 |
| HLA-A*03:01 | 1 | 599 | 608 | 10 | TPGT | 1.9e-05 | 51 |
| HLA-A*24:02 | 1 | 599 | 608 | 10 | TPGT | 1.9e-05 | 37 |
| HLA-A*02:03 | 1 | 600 | 609 | 10 | PGT | 1.9e-05 | 59 |
| HLA-A*02:01 | 1 | 604 | 613 | 10 | TSNQ | 1.9e-05 | 56 |
| HLA-A*01:01 | 1 | 605 | 614 | 10 | SNQ | 1.9e-05 | 79 |
| HLA-B*53:01 | 1 | 608 | 617 | 10 | VAV | 1.9e-05 | 41 |
| HLA-B*44:02 | 1 | 611 | 619 | 9 | LYQ | 1.9e-05 | 44 |
| HLA-A*02:03 | 1 | 621 | 630 | 10 | PVAI | 1.9e-05 | 59 |
| HLA-A*23:01 | 1 | 622 | 630 | 9 | VAI | 1.9e-05 | 39 |
| HLA-A*32:01 | 1 | 622 | 630 | 9 | VAI | 1.9e-05 | 44 |
| HLA-A*23:01 | 1 | 623 | 632 | 10 | AI | 1.9e-05 | 39 |
| HLA-A*02:01 | 1 | 626 | 634 | 9 | ADQ | 1.9e-05 | 56 |
| HLA-B*08:01 | 1 | 631 | 639 | 9 | PTW | 1.9e-05 | 75 |
| HLA-B*08:01 | 1 | 632 | 641 | 10 | TW | 1.9e-05 | 75 |
| HLA-A*68:01 | 1 | 640 | 648 | 9 | SNV | 1.9e-05 | 52 |
| HLA-A*23:01 | 1 | 641 | 649 | 9 | NV | 1.9e-05 | 39 |
| HLA-B*44:02 | 1 | 644 | 653 | 10 | Q | 1.9e-05 | 44 |
| HLA-B*53:01 | 1 | 645 | 653 | 9 | TRAG | 1.9e-05 | 41 |
| HLA-B*08:01 | 1 | 650 | 659 | 10 | LIGA | 1.9e-05 | 75 |
| HLA-A*31:01 | 1 | 652 | 661 | 10 | GAE | 1.9e-05 | 58 |
| HLA-B*58:01 | 1 | 653 | 661 | 9 | AEH | 1.9e-05 | 62 |
| HLA-A*68:01 | 1 | 657 | 666 | 10 | NNS | 1.9e-05 | 52 |
| HLA-B*08:01 | 1 | 659 | 667 | 9 | SYE | 1.9e-05 | 75 |
| HLA-B*51:01 | 1 | 659 | 667 | 9 | SYE | 1.9e-05 | 67 |
| HLA-A*32:01 | 1 | 664 | 672 | 9 | IPI | 1.9e-05 | 44 |
| HLA-A*02:06 | 1 | 665 | 673 | 9 | PIG | 1.9e-05 | 66 |
| HLA-A*02:01 | 1 | 667 | 676 | 10 | GAG | 1.9e-05 | 56 |
| HLA-B*51:01 | 1 | 667 | 676 | 10 | GAG | 1.9e-05 | 67 |
| HLA-B*15:01 | 1 | 668 | 676 | 9 | AGI | 1.9e-05 | 56 |
| HLA-A*68:01 | 1 | 669 | 678 | 10 | GIC | 1.9e-05 | 52 |
| HLA-B*51:01 | 1 | 669 | 677 | 9 | GIC | 1.9e-05 | 67 |
| HLA-B*40:01 | 1 | 670 | 678 | 9 | IC | 1.9e-05 | 35 |
| HLA-B*44:03 | 1 | 670 | 678 | 9 | IC | 1.9e-05 | 41 |
| HLA-A*32:01 | 1 | 671 | 679 | 9 | C | 1.9e-05 | 44 |
| HLA-B*44:02 | 1 | 671 | 679 | 9 | C | 1.9e-05 | 44 |
| HLA-B*35:01 | 1 | 673 | 682 | 10 | SYQ | 1.9e-05 | 42 |
| HLA-A*03:01 | 1 | 678 | 687 | 10 | TNS | 1.9e-05 | 51 |
| HLA-A*31:01 | 1 | 680 | 689 | 10 | SPR | 1.9e-05 | 58 |
| HLA-A*02:01 | 1 | 682 | 690 | 9 | RR | 1.9e-05 | 56 |
| HLA-B*44:02 | 1 | 682 | 691 | 10 | RR | 1.9e-05 | 44 |
| HLA-B*07:02 | 1 | 696 | 704 | 9 | TMS | 1.9e-05 | 55 |
| HLA-A*03:01 | 1 | 703 | 711 | 9 | NSV | 1.9e-05 | 51 |
| HLA-A*32:01 | 1 | 706 | 715 | 10 | AYS | 1.9e-05 | 44 |
| HLA-A*23:01 | 1 | 707 | 715 | 9 | YS | 1.9e-05 | 39 |
| HLA-A*33:01 | 1 | 709 | 717 | 9 | NNS | 1.9e-05 | 62 |
| HLA-A*33:01 | 1 | 720 | 728 | 9 | ISV | 1.9e-05 | 62 |
| HLA-B*44:03 | 1 | 725 | 734 | 10 | EIL | 1.9e-05 | 41 |
| HLA-A*68:01 | 1 | 726 | 735 | 10 | ILP | 1.9e-05 | 52 |
| HLA-B*57:01 | 1 | 728 | 737 | 10 | PV | 1.9e-05 | 74 |
| HLA-A*11:01 | 1 | 730 | 738 | 9 | SMT | 1.9e-05 | 38 |

| | | | | | | |
|-------------|---|-----|-----|----|--------------------|----|
| HLA-A*31:01 | 1 | 730 | 739 | 10 | SMTKTSVDCT 1.9e-05 | 58 |
| HLA-B*07:02 | 1 | 730 | 739 | 10 | SMTKTSVDCT 1.9e-05 | 55 |
| HLA-A*24:02 | 1 | 732 | 741 | 10 | TKTSVDCTMY 1.9e-05 | 37 |
| HLA-A*31:01 | 1 | 734 | 743 | 10 | TSVDCTMYIC 1.9e-05 | 58 |
| HLA-A*26:01 | 1 | 738 | 747 | 10 | CTMYICGDST 1.9e-05 | 51 |
| HLA-A*68:01 | 1 | 740 | 749 | 10 | MYICGDSTEC 1.9e-05 | 52 |
| HLA-B*07:02 | 1 | 741 | 750 | 10 | YICGDSTEC 1.9e-05 | 55 |
| HLA-B*58:01 | 1 | 741 | 750 | 10 | YICGDSTEC 1.9e-05 | 62 |
| HLA-A*02:03 | 1 | 743 | 752 | 10 | CGDSTEC 1.9e-05 | 59 |
| HLA-A*23:01 | 1 | 743 | 752 | 10 | CGDSTEC 1.9e-05 | 39 |
| HLA-A*32:01 | 1 | 744 | 752 | 9 | GDSTEC 1.9e-05 | 44 |
| HLA-A*68:01 | 1 | 744 | 753 | 10 | GDSTEC 1.9e-05 | 52 |
| HLA-B*35:01 | 1 | 744 | 753 | 10 | GDSTEC 1.9e-05 | 42 |
| HLA-A*23:01 | 1 | 747 | 755 | 9 | TECSNLLQ 1.9e-05 | 39 |
| HLA-A*02:06 | 1 | 749 | 757 | 9 | CSNLLQYG 1.9e-05 | 66 |
| HLA-A*33:01 | 1 | 749 | 757 | 9 | CSNLLQYG 1.9e-05 | 62 |
| HLA-A*02:03 | 1 | 768 | 776 | 9 | TGIAVEQDK 1.9e-05 | 59 |
| HLA-A*32:01 | 1 | 779 | 787 | 9 | QEVFAQVKQ 1.9e-05 | 44 |
| HLA-A*11:01 | 1 | 784 | 793 | 10 | QVKQIYKTPP 1.9e-05 | 38 |
| HLA-B*44:02 | 1 | 784 | 793 | 10 | QVKQIYKTPP 1.9e-05 | 44 |
| HLA-B*53:01 | 1 | 784 | 793 | 10 | QVKQIYKTPP 1.9e-05 | 41 |
| HLA-A*33:01 | 1 | 785 | 794 | 10 | VKQIYKTPPI 1.9e-05 | 62 |
| HLA-B*40:01 | 1 | 785 | 793 | 9 | VKQIYKTPP 1.9e-05 | 35 |
| HLA-A*23:01 | 1 | 789 | 798 | 10 | YKTPPIKDFG 1.9e-05 | 39 |
| HLA-B*53:01 | 1 | 790 | 798 | 9 | KTPPIKDFG 1.9e-05 | 41 |
| HLA-B*58:01 | 1 | 794 | 803 | 10 | IKDFGGFNFS 1.9e-05 | 62 |
| HLA-B*07:02 | 1 | 795 | 804 | 10 | KDFGGFNFSQ 1.9e-05 | 55 |
| HLA-B*35:01 | 1 | 795 | 803 | 9 | KDFGGFNFS 1.9e-05 | 42 |
| HLA-A*02:06 | 1 | 796 | 804 | 9 | DFGGFNFSQ 1.9e-05 | 66 |
| HLA-A*31:01 | 1 | 801 | 810 | 10 | NFSQILPDPS 1.9e-05 | 58 |
| HLA-B*57:01 | 1 | 801 | 810 | 10 | NFSQILPDPS 1.9e-05 | 74 |
| HLA-B*44:03 | 1 | 804 | 813 | 10 | QILPDPSKPS 1.9e-05 | 41 |
| HLA-B*57:01 | 1 | 808 | 816 | 9 | DPSKPSKRS 1.9e-05 | 74 |
| HLA-A*31:01 | 1 | 810 | 819 | 10 | SKPSKRSFIE 1.9e-05 | 58 |
| HLA-A*02:06 | 1 | 811 | 819 | 9 | KPSKRSFIE 1.9e-05 | 66 |
| HLA-B*40:01 | 1 | 815 | 824 | 10 | RSFIEDLLFN 1.9e-05 | 35 |
| HLA-B*35:01 | 1 | 816 | 825 | 10 | SFIEDLLFNK 1.9e-05 | 42 |
| HLA-A*33:01 | 1 | 818 | 827 | 10 | IEDLLFNKVT 1.9e-05 | 62 |
| HLA-A*11:01 | 1 | 819 | 828 | 10 | EDLLFNKVT 1.9e-05 | 38 |
| HLA-B*58:01 | 1 | 821 | 830 | 10 | LLFNKVT 1.9e-05 | 62 |
| HLA-A*02:01 | 1 | 824 | 833 | 10 | NKVT 1.9e-05 | 56 |
| HLA-B*08:01 | 1 | 825 | 834 | 10 | KVT 1.9e-05 | 75 |
| HLA-A*02:06 | 1 | 829 | 838 | 10 | ADAGFIKQYG 1.9e-05 | 66 |
| HLA-A*11:01 | 1 | 829 | 838 | 10 | ADAGFIKQYG 1.9e-05 | 38 |
| HLA-A*31:01 | 1 | 829 | 838 | 10 | ADAGFIKQYG 1.9e-05 | 58 |
| HLA-A*02:03 | 1 | 831 | 840 | 10 | AGFIKQYGDC 1.9e-05 | 59 |
| HLA-A*02:06 | 1 | 831 | 839 | 9 | AGFIKQYG 1.9e-05 | 66 |
| HLA-B*44:02 | 1 | 831 | 839 | 9 | AGFIKQYG 1.9e-05 | 44 |
| HLA-B*51:01 | 1 | 854 | 863 | 10 | KFNGLTVLPP 1.9e-05 | 67 |
| HLA-A*11:01 | 1 | 858 | 867 | 10 | LTVLPP 1.9e-05 | 38 |
| HLA-A*30:01 | 1 | 861 | 870 | 10 | LP 1.9e-05 | 82 |
| HLA-A*30:02 | 1 | 861 | 870 | 10 | LP 1.9e-05 | 81 |
| HLA-A*32:01 | 1 | 862 | 870 | 9 | P 1.9e-05 | 44 |
| HLA-B*44:02 | 1 | 864 | 872 | 9 | LL 1.9e-05 | 44 |
| HLA-B*08:01 | 1 | 866 | 875 | 10 | T 1.9e-05 | 75 |
| HLA-A*02:06 | 1 | 872 | 880 | 9 | QY 1.9e-05 | 66 |
| HLA-A*03:01 | 1 | 872 | 880 | 9 | QY 1.9e-05 | 51 |
| HLA-A*68:01 | 1 | 872 | 880 | 9 | QY 1.9e-05 | 52 |
| HLA-B*40:01 | 1 | 873 | 881 | 9 | Y 1.9e-05 | 35 |
| HLA-B*07:02 | 1 | 880 | 889 | 10 | GT 1.9e-05 | 55 |
| HLA-B*51:01 | 1 | 885 | 893 | 9 | GW 1.9e-05 | 67 |
| HLA-A*02:06 | 1 | 887 | 895 | 9 | TF 1.9e-05 | 66 |
| HLA-B*44:03 | 1 | 887 | 895 | 9 | TF 1.9e-05 | 41 |
| HLA-B*08:01 | 1 | 889 | 897 | 9 | G 1.9e-05 | 75 |
| HLA-B*35:01 | 1 | 890 | 899 | 10 | AG 1.9e-05 | 42 |
| HLA-B*44:02 | 1 | 899 | 908 | 10 | AM 1.9e-05 | 44 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-B*58:01 | 1 | 899 | 908 | 10 | AMQMAYRFNG | 1.9e-05 | 62 |
| HLA-A*68:01 | 1 | 902 | 910 | 9 | MAYRFNGIG | 1.9e-05 | 52 |
| HLA-A*02:06 | 1 | 905 | 914 | 10 | RFNGIGVTQN | 1.9e-05 | 66 |
| HLA-A*02:03 | 1 | 911 | 919 | 9 | VTQNVLYEN | 1.9e-05 | 59 |
| HLA-B*08:01 | 1 | 911 | 919 | 9 | VTQNVLYEN | 1.9e-05 | 75 |
| HLA-B*07:02 | 1 | 913 | 921 | 9 | QNVLYENQK | 1.9e-05 | 55 |
| HLA-A*02:03 | 1 | 917 | 926 | 10 | YENQKLIANQ | 1.9e-05 | 59 |
| HLA-A*68:02 | 1 | 923 | 932 | 10 | IANQFNSAIG | 1.9e-05 | 57 |
| HLA-B*57:01 | 1 | 924 | 932 | 9 | ANQFNSAIG | 1.9e-05 | 74 |
| HLA-A*02:01 | 1 | 928 | 937 | 10 | NSAIGKIQDS | 1.9e-05 | 56 |
| HLA-B*07:02 | 1 | 928 | 937 | 10 | NSAIGKIQDS | 1.9e-05 | 55 |
| HLA-A*32:01 | 1 | 930 | 939 | 10 | AIGKIQDLSL | 1.9e-05 | 44 |
| HLA-A*24:02 | 1 | 942 | 951 | 10 | ASALGKLQDV | 1.9e-05 | 37 |
| HLA-B*51:01 | 1 | 942 | 950 | 9 | ASALGKLQD | 1.9e-05 | 67 |
| HLA-A*01:01 | 1 | 946 | 954 | 9 | GKLQDVVNQ | 1.9e-05 | 79 |
| HLA-B*53:01 | 1 | 956 | 965 | 10 | AQALNTLVKQ | 1.9e-05 | 41 |
| HLA-A*68:02 | 1 | 960 | 969 | 10 | NTLVKQLSSN | 1.9e-05 | 57 |
| HLA-B*44:02 | 1 | 960 | 968 | 9 | NTLVKQLSS | 1.9e-05 | 44 |
| HLA-A*02:06 | 1 | 962 | 971 | 10 | LVKQLSSNFG | 1.9e-05 | 66 |
| HLA-A*33:01 | 1 | 962 | 971 | 10 | LVKQLSSNFG | 1.9e-05 | 62 |
| HLA-A*31:01 | 1 | 966 | 975 | 10 | LSSNFGAISS | 1.9e-05 | 58 |
| HLA-A*02:01 | 1 | 971 | 979 | 9 | GAISSVLND | 1.9e-05 | 56 |
| HLA-A*33:01 | 1 | 971 | 980 | 10 | GAISSVLNDI | 1.9e-05 | 62 |
| HLA-B*44:03 | 1 | 972 | 981 | 10 | AISSVLNDIL | 1.9e-05 | 41 |
| HLA-A*31:01 | 1 | 978 | 987 | 10 | NDILSRLDKV | 1.9e-05 | 58 |
| HLA-B*35:01 | 1 | 980 | 988 | 9 | ILSRLDKVE | 1.9e-05 | 42 |
| HLA-B*44:02 | 1 | 981 | 989 | 9 | LSRDLKVEA | 1.9e-05 | 44 |
| HLA-A*68:01 | 1 | 984 | 992 | 9 | LDKVEAEVQ | 1.9e-05 | 52 |
| HLA-A*68:01 | 1 | 984 | 993 | 10 | LDKVEAEVQI | 1.9e-05 | 52 |
| HLA-A*31:01 | 1 | 988 | 996 | 9 | EAEVQIDRL | 1.9e-05 | 58 |
| HLA-A*03:01 | 1 | 990 | 999 | 10 | EVQIDRLITG | 1.9e-05 | 51 |
| HLA-B*15:01 | 1 | 993 | 1002 | 10 | IDRLITGRLQ | 1.9e-05 | 56 |
| HLA-B*07:02 | 1 | 1002 | 1011 | 10 | QSLQTYVTQQ | 1.9e-05 | 55 |
| HLA-B*40:01 | 1 | 1008 | 1017 | 10 | VTQQLIRAAE | 1.9e-05 | 35 |
| HLA-B*44:02 | 1 | 1012 | 1020 | 9 | LIRAAEIRA | 1.9e-05 | 44 |
| HLA-A*31:01 | 1 | 1024 | 1033 | 10 | LAATKMSECV | 1.9e-05 | 58 |
| HLA-A*11:01 | 1 | 1029 | 1037 | 9 | MSECVLGQS | 1.9e-05 | 38 |
| HLA-A*30:01 | 1 | 1032 | 1041 | 10 | CVLGQSKRVD | 1.9e-05 | 82 |
| HLA-A*68:01 | 1 | 1034 | 1042 | 9 | LGQSKRVDF | 1.9e-05 | 52 |
| HLA-A*02:06 | 1 | 1036 | 1045 | 10 | QSKRVDFCGK | 1.9e-05 | 66 |
| HLA-A*01:01 | 1 | 1037 | 1045 | 9 | SKRVDFCGK | 1.9e-05 | 79 |
| HLA-A*68:01 | 1 | 1043 | 1052 | 10 | CGKGYHLMSF | 1.9e-05 | 52 |
| HLA-A*68:02 | 1 | 1043 | 1051 | 9 | CGKGYHLMS | 1.9e-05 | 57 |
| HLA-B*44:03 | 1 | 1043 | 1052 | 10 | CGKGYHLMSF | 1.9e-05 | 41 |
| HLA-A*23:01 | 1 | 1045 | 1053 | 9 | KGYHLMSFP | 1.9e-05 | 39 |
| HLA-B*15:01 | 1 | 1045 | 1054 | 10 | KGYHLMSFPQ | 1.9e-05 | 56 |
| HLA-A*03:01 | 1 | 1046 | 1055 | 10 | GYHLMSFPQS | 1.9e-05 | 51 |
| HLA-B*44:03 | 1 | 1049 | 1057 | 9 | LMSFPQSAP | 1.9e-05 | 41 |
| HLA-B*07:02 | 1 | 1057 | 1065 | 9 | PHGVVFLHV | 1.9e-05 | 55 |
| HLA-B*53:01 | 1 | 1060 | 1069 | 10 | VVFLHVTVYP | 1.9e-05 | 41 |
| HLA-A*11:01 | 1 | 1061 | 1070 | 10 | VFLHVTVYVPA | 1.9e-05 | 38 |
| HLA-A*26:01 | 1 | 1063 | 1072 | 10 | LHVTVYVPAQE | 1.9e-05 | 51 |
| HLA-A*03:01 | 1 | 1083 | 1092 | 10 | HDGKAHFPRE | 1.9e-05 | 51 |
| HLA-A*02:03 | 1 | 1084 | 1092 | 9 | DGKAHFPRE | 1.9e-05 | 59 |
| HLA-A*03:01 | 1 | 1084 | 1092 | 9 | DGKAHFPRE | 1.9e-05 | 51 |
| HLA-A*03:01 | 1 | 1089 | 1098 | 10 | FPREGVFSVN | 1.9e-05 | 51 |
| HLA-B*58:01 | 1 | 1097 | 1105 | 9 | SNGTHWFVT | 1.9e-05 | 62 |
| HLA-A*03:01 | 1 | 1102 | 1111 | 10 | WFTVQRNFYE | 1.9e-05 | 51 |
| HLA-A*26:01 | 1 | 1109 | 1118 | 10 | FYEQIITTD | 1.9e-05 | 51 |
| HLA-A*02:06 | 1 | 1110 | 1119 | 10 | YEQIITTDN | 1.9e-05 | 66 |
| HLA-B*58:01 | 1 | 1110 | 1118 | 9 | YEQIITTD | 1.9e-05 | 62 |
| HLA-A*30:01 | 1 | 1111 | 1119 | 9 | EPQIITTDN | 1.9e-05 | 82 |
| HLA-A*01:01 | 1 | 1112 | 1120 | 9 | PQIITTDN | 1.9e-05 | 79 |
| HLA-A*30:02 | 1 | 1117 | 1126 | 10 | TDNTFVSGNC | 1.9e-05 | 81 |
| HLA-A*32:01 | 1 | 1120 | 1128 | 9 | TFVSGNCDV | 1.9e-05 | 44 |
| HLA-B*44:03 | 1 | 1128 | 1137 | 10 | VVIGIVNNTV | 1.9e-05 | 41 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-B*44:02 | 1 | 1134 | 1143 | 10 | NNTVYDPLQP | 1.9e-05 | 44 |
| HLA-A*30:01 | 1 | 1138 | 1146 | 9 | YDPLQPELD | 1.9e-05 | 82 |
| HLA-B*51:01 | 1 | 1140 | 1149 | 10 | PLQPELDSFK | 1.9e-05 | 67 |
| HLA-A*68:02 | 1 | 1142 | 1151 | 10 | QPELDSFKEE | 1.9e-05 | 57 |
| HLA-B*44:02 | 1 | 1144 | 1153 | 10 | ELDSFKKEELD | 1.9e-05 | 44 |
| HLA-B*07:02 | 1 | 1149 | 1157 | 9 | KEELDKYFK | 1.9e-05 | 55 |
| HLA-A*24:02 | 1 | 1161 | 1169 | 9 | SPDVDLGDI | 1.9e-05 | 37 |
| HLA-A*68:02 | 1 | 1161 | 1170 | 10 | SPDVDLGDIS | 1.9e-05 | 57 |
| HLA-B*40:01 | 1 | 1161 | 1170 | 10 | SPDVDLGDIS | 1.9e-05 | 35 |
| HLA-A*31:01 | 1 | 1163 | 1172 | 10 | DVDLGDISGI | 1.9e-05 | 58 |
| HLA-B*51:01 | 1 | 1164 | 1173 | 10 | VDLGDISGIN | 1.9e-05 | 67 |
| HLA-B*53:01 | 1 | 1165 | 1173 | 9 | DLGDISGIN | 1.9e-05 | 41 |
| HLA-B*07:02 | 1 | 1166 | 1175 | 10 | LGDISGINAS | 1.9e-05 | 55 |
| HLA-A*02:03 | 1 | 1172 | 1180 | 9 | INASVVNIQ | 1.9e-05 | 59 |
| HLA-A*24:02 | 1 | 1174 | 1182 | 9 | ASVVNIQKE | 1.9e-05 | 37 |
| HLA-A*68:01 | 1 | 1175 | 1184 | 10 | SVVNIQKEID | 1.9e-05 | 52 |
| HLA-A*31:01 | 1 | 1183 | 1192 | 10 | IDRLNEVAKN | 1.9e-05 | 58 |
| HLA-A*11:01 | 1 | 1185 | 1194 | 10 | RLNEVAKNLN | 1.9e-05 | 38 |
| HLA-A*03:01 | 1 | 1187 | 1195 | 9 | NEVAKNLE | 1.9e-05 | 51 |
| HLA-B*35:01 | 1 | 1187 | 1196 | 10 | NEVAKNLNES | 1.9e-05 | 42 |
| HLA-A*33:01 | 1 | 1193 | 1202 | 10 | LNESLIDLQE | 1.9e-05 | 62 |
| HLA-A*23:01 | 1 | 1194 | 1202 | 9 | NESLIDLQE | 1.9e-05 | 39 |
| HLA-A*68:02 | 1 | 1197 | 1206 | 10 | LIDLQELGKY | 1.9e-05 | 57 |
| HLA-B*40:01 | 1 | 1197 | 1206 | 10 | LIDLQELGKY | 1.9e-05 | 35 |
| HLA-B*53:01 | 1 | 1202 | 1211 | 10 | ELGKYEQYIK | 1.9e-05 | 41 |
| HLA-A*03:01 | 1 | 1205 | 1213 | 9 | KYEQYIKWP | 1.9e-05 | 51 |
| HLA-A*02:03 | 1 | 1208 | 1217 | 10 | QYIKWPWYIW | 1.9e-05 | 59 |
| HLA-A*11:01 | 1 | 1221 | 1229 | 9 | IAGLIAIVM | 1.9e-05 | 38 |
| HLA-A*11:01 | 1 | 1230 | 1239 | 10 | VTIMLCCMTS | 1.9e-05 | 38 |
| HLA-A*30:02 | 1 | 1235 | 1244 | 10 | CCMTSCCSCS | 1.9e-05 | 81 |
| HLA-B*15:01 | 1 | 1254 | 1262 | 9 | CKFDEDDSE | 1.9e-05 | 56 |
| HLA-B*51:01 | 1 | 1254 | 1262 | 9 | CKFDEDDSE | 1.9e-05 | 67 |
| HLA-A*23:01 | 1 | 1258 | 1266 | 9 | EDDSEPVLK | 1.9e-05 | 39 |
| HLA-A*30:02 | 1 | 1258 | 1267 | 10 | EDDSEPVLKG | 1.9e-05 | 81 |
| HLA-A*32:01 | 1 | 1260 | 1269 | 10 | DSEPVLKGVK | 1.9e-05 | 44 |
| HLA-B*07:02 | 1 | 2 | 11 | 10 | FVFLVLLPLV | 1.8e-05 | 56 |
| HLA-A*03:01 | 1 | 9 | 18 | 10 | PLVSSQCVNL | 1.8e-05 | 52 |
| HLA-A*68:01 | 1 | 11 | 20 | 10 | VSSQCVNLTT | 1.8e-05 | 52 |
| HLA-A*68:02 | 1 | 14 | 23 | 10 | QCVNLTRTQ | 1.8e-05 | 58 |
| HLA-B*15:01 | 1 | 31 | 39 | 9 | SFTRGVYYP | 1.8e-05 | 57 |
| HLA-A*24:02 | 1 | 33 | 42 | 10 | TRGVYYPDKV | 1.8e-05 | 38 |
| HLA-B*15:01 | 1 | 39 | 47 | 9 | PDKVFRSSV | 1.8e-05 | 57 |
| HLA-B*44:02 | 1 | 52 | 61 | 10 | QDLFLPFFSN | 1.8e-05 | 45 |
| HLA-B*51:01 | 1 | 52 | 61 | 10 | QDLFLPFFSN | 1.8e-05 | 67 |
| HLA-A*23:01 | 1 | 53 | 61 | 9 | DLFLPFFSN | 1.8e-05 | 39 |
| HLA-B*40:01 | 1 | 53 | 62 | 10 | DLFLPFFSNV | 1.8e-05 | 36 |
| HLA-B*53:01 | 1 | 58 | 67 | 10 | FFSNVTFHAI | 1.8e-05 | 42 |
| HLA-B*40:01 | 1 | 60 | 69 | 10 | SNVTFHAIH | 1.8e-05 | 36 |
| HLA-A*02:01 | 1 | 63 | 72 | 10 | TWFHAIHVSG | 1.8e-05 | 57 |
| HLA-B*44:03 | 1 | 63 | 71 | 9 | TWFHAIHVS | 1.8e-05 | 42 |
| HLA-B*53:01 | 1 | 64 | 72 | 9 | WFHAIHVSG | 1.8e-05 | 42 |
| HLA-B*53:01 | 1 | 65 | 74 | 10 | FHAIHVSGTN | 1.8e-05 | 42 |
| HLA-B*44:02 | 1 | 67 | 75 | 9 | AIHVSGTNG | 1.8e-05 | 45 |
| HLA-A*68:01 | 1 | 68 | 76 | 9 | IHVSGTNGT | 1.8e-05 | 52 |
| HLA-A*33:01 | 1 | 74 | 82 | 9 | NGTKRFDNP | 1.8e-05 | 63 |
| HLA-A*24:02 | 1 | 75 | 83 | 9 | GTKRFDNPV | 1.8e-05 | 38 |
| HLA-B*08:01 | 1 | 80 | 88 | 9 | DNPVLPFND | 1.8e-05 | 76 |
| HLA-A*01:01 | 1 | 87 | 96 | 10 | NDGVYFASTE | 1.8e-05 | 80 |
| HLA-A*03:01 | 1 | 90 | 99 | 10 | VYFASTEKSN | 1.8e-05 | 52 |
| HLA-B*53:01 | 1 | 93 | 102 | 10 | ASTEKSNIIR | 1.8e-05 | 42 |
| HLA-A*32:01 | 1 | 96 | 105 | 10 | EKSNIIRGWI | 1.8e-05 | 44 |
| HLA-A*02:01 | 1 | 97 | 106 | 10 | KSNIIRGWIF | 1.8e-05 | 57 |
| HLA-B*44:03 | 1 | 97 | 105 | 9 | KSNIIRGWI | 1.8e-05 | 42 |
| HLA-A*02:03 | 1 | 98 | 107 | 10 | SNIIRGWIFG | 1.8e-05 | 60 |
| HLA-B*53:01 | 1 | 99 | 107 | 9 | NIIRGWIFG | 1.8e-05 | 42 |
| HLA-A*68:02 | 1 | 107 | 115 | 9 | GTTLDSKTQ | 1.8e-05 | 58 |

| | | | | | | |
|-------------|---|-----|-----|----|--------------------|----|
| HLA-A*32:01 | 1 | 111 | 120 | 10 | DSKTQSLIV 1.8e-05 | 44 |
| HLA-A*03:01 | 1 | 112 | 121 | 10 | SKTQSLIVN 1.8e-05 | 52 |
| HLA-B*51:01 | 1 | 112 | 121 | 10 | SKTQSLIVN 1.8e-05 | 67 |
| HLA-A*26:01 | 1 | 116 | 124 | 9 | SLIVNAT 1.8e-05 | 51 |
| HLA-A*03:01 | 1 | 127 | 136 | 10 | VIKVEFQFC 1.8e-05 | 52 |
| HLA-A*33:01 | 1 | 128 | 136 | 9 | IKVCEQFC 1.8e-05 | 63 |
| HLA-A*02:06 | 1 | 138 | 146 | 9 | DPFLGVYYH 1.8e-05 | 67 |
| HLA-A*30:02 | 1 | 139 | 148 | 10 | PFLGVYYHKN 1.8e-05 | 81 |
| HLA-A*31:01 | 1 | 140 | 148 | 9 | FLGVYYHKN 1.8e-05 | 59 |
| HLA-B*07:02 | 1 | 146 | 154 | 9 | HKNKSWME 1.8e-05 | 56 |
| HLA-B*35:01 | 1 | 146 | 154 | 9 | HKNKSWME 1.8e-05 | 43 |
| HLA-B*08:01 | 1 | 147 | 156 | 10 | KNNKSWMESE 1.8e-05 | 76 |
| HLA-A*02:01 | 1 | 149 | 158 | 10 | NKSWMESEFR 1.8e-05 | 57 |
| HLA-B*44:02 | 1 | 149 | 158 | 10 | NKSWMESEFR 1.8e-05 | 45 |
| HLA-A*68:01 | 1 | 152 | 161 | 10 | WMESEFRVYS 1.8e-05 | 52 |
| HLA-B*07:02 | 1 | 152 | 161 | 10 | WMESEFRVYS 1.8e-05 | 56 |
| HLA-B*44:03 | 1 | 154 | 162 | 9 | ESEFRVYSS 1.8e-05 | 42 |
| HLA-A*03:01 | 1 | 159 | 167 | 9 | VYSSANNCT 1.8e-05 | 52 |
| HLA-A*26:01 | 1 | 159 | 167 | 9 | VYSSANNCT 1.8e-05 | 51 |
| HLA-A*24:02 | 1 | 181 | 190 | 10 | GKQGNFKNLR 1.8e-05 | 38 |
| HLA-A*68:02 | 1 | 186 | 195 | 10 | FKNLREFVFK 1.8e-05 | 58 |
| HLA-B*44:02 | 1 | 186 | 195 | 10 | FKNLREFVFK 1.8e-05 | 45 |
| HLA-B*51:01 | 1 | 186 | 195 | 10 | FKNLREFVFK 1.8e-05 | 67 |
| HLA-A*32:01 | 1 | 200 | 209 | 10 | YFKIYSKHTP 1.8e-05 | 44 |
| HLA-A*31:01 | 1 | 201 | 209 | 9 | FKIYSKHTP 1.8e-05 | 59 |
| HLA-B*15:01 | 1 | 203 | 211 | 9 | IYSKHTPIN 1.8e-05 | 57 |
| HLA-B*53:01 | 1 | 203 | 211 | 9 | IYSKHTPIN 1.8e-05 | 42 |
| HLA-B*58:01 | 1 | 213 | 221 | 9 | VRDLPQGF 1.8e-05 | 63 |
| HLA-B*15:01 | 1 | 217 | 225 | 9 | PQGSALEP 1.8e-05 | 57 |
| HLA-A*26:01 | 1 | 224 | 232 | 9 | EPLVDLPIG 1.8e-05 | 51 |
| HLA-A*11:01 | 1 | 225 | 233 | 9 | PLVDLPIGI 1.8e-05 | 39 |
| HLA-B*07:02 | 1 | 226 | 234 | 9 | LVDLPIGIN 1.8e-05 | 56 |
| HLA-A*31:01 | 1 | 227 | 236 | 10 | VDLPIGINIT 1.8e-05 | 59 |
| HLA-B*07:02 | 1 | 227 | 236 | 10 | VDLPIGINIT 1.8e-05 | 56 |
| HLA-B*53:01 | 1 | 227 | 236 | 10 | VDLPIGINIT 1.8e-05 | 42 |
| HLA-A*03:01 | 1 | 228 | 236 | 9 | DLPIGINIT 1.8e-05 | 52 |
| HLA-A*68:01 | 1 | 231 | 240 | 10 | IGINITRFQT 1.8e-05 | 52 |
| HLA-B*07:02 | 1 | 237 | 246 | 10 | RFQTLALHR 1.8e-05 | 56 |
| HLA-A*31:01 | 1 | 242 | 251 | 10 | LALHRSYLTP 1.8e-05 | 59 |
| HLA-B*35:01 | 1 | 242 | 251 | 10 | LALHRSYLTP 1.8e-05 | 43 |
| HLA-A*31:01 | 1 | 243 | 252 | 10 | ALHRSYLTPG 1.8e-05 | 59 |
| HLA-B*44:03 | 1 | 246 | 255 | 10 | RSYLTPGDSS 1.8e-05 | 42 |
| HLA-A*68:01 | 1 | 248 | 257 | 10 | YLTPGDSSSG 1.8e-05 | 52 |
| HLA-B*35:01 | 1 | 248 | 257 | 10 | YLTPGDSSSG 1.8e-05 | 43 |
| HLA-A*30:02 | 1 | 251 | 259 | 9 | PGDSSSGWT 1.8e-05 | 81 |
| HLA-A*32:01 | 1 | 252 | 260 | 9 | GDSSSGWTA 1.8e-05 | 44 |
| HLA-B*44:03 | 1 | 252 | 261 | 10 | GDSSSGWTAG 1.8e-05 | 42 |
| HLA-A*31:01 | 1 | 253 | 261 | 9 | DSSSGWTAG 1.8e-05 | 59 |
| HLA-B*44:02 | 1 | 253 | 262 | 10 | DSSSGWTAGA 1.8e-05 | 45 |
| HLA-A*24:02 | 1 | 254 | 262 | 9 | SSSGWTAGA 1.8e-05 | 38 |
| HLA-A*24:02 | 1 | 258 | 267 | 10 | WTAGAAAYV 1.8e-05 | 38 |
| HLA-B*51:01 | 1 | 274 | 282 | 9 | TFLLKYNEN 1.8e-05 | 67 |
| HLA-A*32:01 | 1 | 276 | 284 | 9 | LLKYNENGT 1.8e-05 | 44 |
| HLA-B*44:03 | 1 | 276 | 285 | 10 | LLKYNENGTI 1.8e-05 | 42 |
| HLA-A*68:02 | 1 | 277 | 286 | 10 | LKYNENGTIT 1.8e-05 | 58 |
| HLA-B*58:01 | 1 | 279 | 287 | 9 | YNENGTITD 1.8e-05 | 63 |
| HLA-B*57:01 | 1 | 286 | 295 | 10 | TDAVDCALDP 1.8e-05 | 75 |
| HLA-B*44:03 | 1 | 290 | 299 | 10 | DCALDPLSET 1.8e-05 | 42 |
| HLA-A*02:06 | 1 | 296 | 305 | 10 | LSETKCTLKS 1.8e-05 | 67 |
| HLA-B*44:02 | 1 | 302 | 311 | 10 | TLKSFTVEKG 1.8e-05 | 45 |
| HLA-B*35:01 | 1 | 310 | 319 | 10 | KGIYQTSNFR 1.8e-05 | 43 |
| HLA-B*44:03 | 1 | 310 | 319 | 10 | KGIYQTSNFR 1.8e-05 | 42 |
| HLA-B*53:01 | 1 | 312 | 321 | 10 | IYQTSNFRVQ 1.8e-05 | 42 |
| HLA-A*24:02 | 1 | 316 | 324 | 9 | SNFRVQPT 1.8e-05 | 38 |
| HLA-B*15:01 | 1 | 316 | 325 | 10 | SNFRVQPTES 1.8e-05 | 57 |
| HLA-B*53:01 | 1 | 324 | 333 | 10 | ESIVRFPNIT 1.8e-05 | 42 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-B*44:03 | 1 | 325 | 333 | 9 | SIVRFPNIT | 1.8e-05 | 42 |
| HLA-B*40:01 | 1 | 329 | 337 | 9 | FPNITNLC | 1.8e-05 | 36 |
| HLA-A*11:01 | 1 | 333 | 341 | 9 | TNLCPPFGEV | 1.8e-05 | 39 |
| HLA-A*68:02 | 1 | 334 | 343 | 10 | NLCPPFGEVFN | 1.8e-05 | 58 |
| HLA-A*24:02 | 1 | 336 | 345 | 10 | CPFGEVFNAT | 1.8e-05 | 38 |
| HLA-B*44:03 | 1 | 341 | 349 | 9 | VFNATRFAS | 1.8e-05 | 42 |
| HLA-A*11:01 | 1 | 346 | 354 | 9 | RFASVYAWN | 1.8e-05 | 39 |
| HLA-A*23:01 | 1 | 348 | 357 | 10 | ASVYAWNRKR | 1.8e-05 | 39 |
| HLA-B*08:01 | 1 | 348 | 357 | 10 | ASVYAWNRKR | 1.8e-05 | 76 |
| HLA-A*11:01 | 1 | 352 | 360 | 9 | AWNRKRISN | 1.8e-05 | 39 |
| HLA-A*33:01 | 1 | 354 | 363 | 10 | NRKRISNCVA | 1.8e-05 | 63 |
| HLA-A*03:01 | 1 | 365 | 373 | 9 | YSVLYNSAS | 1.8e-05 | 52 |
| HLA-B*40:01 | 1 | 368 | 376 | 9 | LYNSASFST | 1.8e-05 | 36 |
| HLA-B*44:02 | 1 | 370 | 379 | 10 | NSASFSTFKC | 1.8e-05 | 45 |
| HLA-B*44:03 | 1 | 373 | 382 | 10 | SFSTFKCYGV | 1.8e-05 | 42 |
| HLA-A*24:02 | 1 | 376 | 385 | 10 | TFKCYGVSPT | 1.8e-05 | 38 |
| HLA-A*23:01 | 1 | 383 | 391 | 9 | SPTKLNLC | 1.8e-05 | 39 |
| HLA-A*01:01 | 1 | 385 | 393 | 9 | TKLNLCFT | 1.8e-05 | 80 |
| HLA-A*02:03 | 1 | 385 | 393 | 9 | TKLNLCFT | 1.8e-05 | 60 |
| HLA-A*24:02 | 1 | 387 | 396 | 10 | LNDLCFTNVY | 1.8e-05 | 38 |
| HLA-A*03:01 | 1 | 388 | 397 | 10 | NDLCFTNVYA | 1.8e-05 | 52 |
| HLA-A*02:01 | 1 | 390 | 399 | 10 | LCFTNVYADS | 1.8e-05 | 57 |
| HLA-B*44:03 | 1 | 393 | 401 | 9 | TNVYADSFV | 1.8e-05 | 42 |
| HLA-B*35:01 | 1 | 401 | 410 | 10 | VIRGDEVQR | 1.8e-05 | 43 |
| HLA-B*53:01 | 1 | 405 | 413 | 9 | DEVQR | 1.8e-05 | 42 |
| HLA-A*31:01 | 1 | 406 | 415 | 10 | EVQR | 1.8e-05 | 59 |
| HLA-B*44:02 | 1 | 407 | 415 | 9 | VRQR | 1.8e-05 | 45 |
| HLA-A*33:01 | 1 | 410 | 419 | 10 | IAPGQTGKIA | 1.8e-05 | 63 |
| HLA-A*02:06 | 1 | 412 | 421 | 10 | PGQTGKIADY | 1.8e-05 | 67 |
| HLA-B*44:03 | 1 | 417 | 426 | 10 | KIADYNYKLP | 1.8e-05 | 42 |
| HLA-B*51:01 | 1 | 419 | 427 | 9 | ADYNYKLPD | 1.8e-05 | 67 |
| HLA-B*53:01 | 1 | 421 | 430 | 10 | YNYKLPDDFT | 1.8e-05 | 42 |
| HLA-A*26:01 | 1 | 422 | 430 | 9 | NYKLPDDFT | 1.8e-05 | 51 |
| HLA-A*24:02 | 1 | 423 | 431 | 9 | YKLPDDFTG | 1.8e-05 | 38 |
| HLA-B*44:02 | 1 | 423 | 431 | 9 | YKLPDDFTG | 1.8e-05 | 45 |
| HLA-A*31:01 | 1 | 434 | 443 | 10 | IAWNSNLD | 1.8e-05 | 59 |
| HLA-B*15:01 | 1 | 434 | 443 | 10 | IAWNSNLD | 1.8e-05 | 57 |
| HLA-A*01:01 | 1 | 438 | 447 | 10 | SNLD | 1.8e-05 | 80 |
| HLA-A*68:01 | 1 | 441 | 450 | 10 | LDSKVG | 1.8e-05 | 52 |
| HLA-A*02:01 | 1 | 449 | 458 | 10 | YNYLYR | 1.8e-05 | 57 |
| HLA-A*68:01 | 1 | 455 | 463 | 9 | LFRK | 1.8e-05 | 52 |
| HLA-B*40:01 | 1 | 457 | 466 | 10 | RKSNL | 1.8e-05 | 36 |
| HLA-A*30:01 | 1 | 461 | 469 | 9 | LKPF | 1.8e-05 | 83 |
| HLA-B*40:01 | 1 | 465 | 474 | 10 | ERDISTEIQ | 1.8e-05 | 36 |
| HLA-B*51:01 | 1 | 466 | 474 | 9 | RDISTEIQ | 1.8e-05 | 67 |
| HLA-A*11:01 | 1 | 471 | 480 | 10 | EIQAGSTPC | 1.8e-05 | 39 |
| HLA-B*40:01 | 1 | 471 | 480 | 10 | EIQAGSTPC | 1.8e-05 | 36 |
| HLA-A*68:02 | 1 | 473 | 482 | 10 | YQAGSTPCNG | 1.8e-05 | 58 |
| HLA-A*68:02 | 1 | 474 | 482 | 9 | QAGSTPCNG | 1.8e-05 | 58 |
| HLA-A*30:01 | 1 | 478 | 487 | 10 | TPCNGVEGFN | 1.8e-05 | 83 |
| HLA-A*01:01 | 1 | 479 | 488 | 10 | PCNGVEGFNC | 1.8e-05 | 80 |
| HLA-A*30:02 | 1 | 480 | 488 | 9 | CNGVEGFNC | 1.8e-05 | 81 |
| HLA-A*11:01 | 1 | 482 | 491 | 10 | GVEGFNCYFP | 1.8e-05 | 39 |
| HLA-A*26:01 | 1 | 482 | 491 | 10 | GVEGFNCYFP | 1.8e-05 | 51 |
| HLA-A*26:01 | 1 | 484 | 493 | 10 | EGFNCYFPLQ | 1.8e-05 | 51 |
| HLA-B*53:01 | 1 | 486 | 494 | 9 | FNCYFPLQS | 1.8e-05 | 42 |
| HLA-A*11:01 | 1 | 488 | 496 | 9 | CYFPLQSYG | 1.8e-05 | 39 |
| HLA-A*03:01 | 1 | 490 | 499 | 10 | FPLQSYGFQP | 1.8e-05 | 52 |
| HLA-A*33:01 | 1 | 491 | 499 | 9 | PLQSYGFQP | 1.8e-05 | 63 |
| HLA-B*15:01 | 1 | 491 | 499 | 9 | PLQSYGFQP | 1.8e-05 | 57 |
| HLA-B*51:01 | 1 | 496 | 504 | 9 | GFQPTNGVG | 1.8e-05 | 67 |
| HLA-A*02:01 | 1 | 499 | 508 | 10 | PTNGVGYQPY | 1.8e-05 | 57 |
| HLA-A*24:02 | 1 | 506 | 514 | 9 | QPYRVVLS | 1.8e-05 | 38 |
| HLA-A*23:01 | 1 | 510 | 519 | 10 | VVLSFELLH | 1.8e-05 | 39 |
| HLA-B*57:01 | 1 | 515 | 523 | 9 | FELLHAPAT | 1.8e-05 | 75 |
| HLA-B*58:01 | 1 | 515 | 523 | 9 | FELLHAPAT | 1.8e-05 | 63 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*08:01 | 1 | 522 | 530 | 9 | ATVCGPKKS | 1.8e-05 | 76 |
| HLA-B*07:02 | 1 | 523 | 532 | 10 | TVCGPKKSTN | 1.8e-05 | 56 |
| HLA-A*26:01 | 1 | 527 | 535 | 9 | PKKSTNLVK | 1.8e-05 | 51 |
| HLA-B*58:01 | 1 | 527 | 535 | 9 | PKKSTNLVK | 1.8e-05 | 63 |
| HLA-A*01:01 | 1 | 528 | 536 | 9 | KKSTNLVKN | 1.8e-05 | 80 |
| HLA-B*53:01 | 1 | 530 | 539 | 10 | STNLVKNKCV | 1.8e-05 | 42 |
| HLA-A*32:01 | 1 | 533 | 542 | 10 | LVKNKCVNFN | 1.8e-05 | 44 |
| HLA-A*03:01 | 1 | 538 | 547 | 10 | CVNFNFNGLT | 1.8e-05 | 52 |
| HLA-B*15:01 | 1 | 539 | 547 | 9 | VNFNFNGLT | 1.8e-05 | 57 |
| HLA-A*03:01 | 1 | 540 | 548 | 9 | NFNFNGLTG | 1.8e-05 | 52 |
| HLA-B*57:01 | 1 | 540 | 548 | 9 | NFNFNGLTG | 1.8e-05 | 75 |
| HLA-A*68:01 | 1 | 548 | 556 | 9 | GTGVLTESN | 1.8e-05 | 52 |
| HLA-B*15:01 | 1 | 548 | 556 | 9 | GTGVLTESN | 1.8e-05 | 57 |
| HLA-B*44:02 | 1 | 554 | 563 | 10 | ESNKKFLPFQ | 1.8e-05 | 45 |
| HLA-A*33:01 | 1 | 560 | 569 | 10 | LPFQQFGRDI | 1.8e-05 | 63 |
| HLA-A*02:03 | 1 | 561 | 570 | 10 | PFQQFGRDIA | 1.8e-05 | 60 |
| HLA-B*15:01 | 1 | 561 | 569 | 9 | PFQQFGRDI | 1.8e-05 | 57 |
| HLA-A*30:01 | 1 | 562 | 571 | 10 | FQQFGRDIAD | 1.8e-05 | 83 |
| HLA-A*03:01 | 1 | 564 | 573 | 10 | QFGRDIADTT | 1.8e-05 | 52 |
| HLA-A*24:02 | 1 | 566 | 575 | 10 | GRDIADTTDA | 1.8e-05 | 38 |
| HLA-B*40:01 | 1 | 572 | 581 | 10 | TTDAVRDPQT | 1.8e-05 | 36 |
| HLA-A*02:01 | 1 | 573 | 581 | 9 | TDAVRDPQT | 1.8e-05 | 57 |
| HLA-A*23:01 | 1 | 575 | 583 | 9 | AVRDPQTLE | 1.8e-05 | 39 |
| HLA-B*58:01 | 1 | 578 | 587 | 10 | DPQTLEILDI | 1.8e-05 | 63 |
| HLA-B*07:02 | 1 | 579 | 587 | 9 | PQTLEILDI | 1.8e-05 | 56 |
| HLA-B*58:01 | 1 | 582 | 590 | 9 | LEILDITPC | 1.8e-05 | 63 |
| HLA-B*08:01 | 1 | 586 | 594 | 9 | DITPCSFEGG | 1.8e-05 | 76 |
| HLA-B*40:01 | 1 | 591 | 599 | 9 | SFGGVSUIT | 1.8e-05 | 36 |
| HLA-B*51:01 | 1 | 592 | 601 | 10 | FGGVSUITPG | 1.8e-05 | 67 |
| HLA-B*58:01 | 1 | 592 | 601 | 10 | FGGVSUITPG | 1.8e-05 | 63 |
| HLA-A*01:01 | 1 | 593 | 601 | 9 | GGVSUITPG | 1.8e-05 | 80 |
| HLA-B*35:01 | 1 | 594 | 602 | 9 | GVSUITPGT | 1.8e-05 | 43 |
| HLA-B*53:01 | 1 | 595 | 603 | 9 | VSVITPGTN | 1.8e-05 | 42 |
| HLA-A*23:01 | 1 | 599 | 608 | 10 | TPGTNTSNQV | 1.8e-05 | 39 |
| HLA-A*23:01 | 1 | 601 | 610 | 10 | GTNTSNQVAV | 1.8e-05 | 39 |
| HLA-B*58:01 | 1 | 605 | 614 | 10 | SNQVAVLYQD | 1.8e-05 | 63 |
| HLA-A*23:01 | 1 | 610 | 618 | 9 | VLYQDVNCT | 1.8e-05 | 39 |
| HLA-A*02:03 | 1 | 619 | 628 | 10 | EVPVAIHADQ | 1.8e-05 | 60 |
| HLA-A*33:01 | 1 | 623 | 631 | 9 | AIHADQLTP | 1.8e-05 | 63 |
| HLA-A*68:01 | 1 | 630 | 639 | 10 | TPTWRVYSTG | 1.8e-05 | 52 |
| HLA-A*23:01 | 1 | 631 | 639 | 9 | PTWRVYSTG | 1.8e-05 | 39 |
| HLA-B*15:01 | 1 | 649 | 658 | 10 | CLIGAHEVNN | 1.8e-05 | 57 |
| HLA-A*30:02 | 1 | 656 | 665 | 10 | VNNSYECDIP | 1.8e-05 | 81 |
| HLA-B*07:02 | 1 | 657 | 666 | 10 | NNSYECDIPI | 1.8e-05 | 56 |
| HLA-B*58:01 | 1 | 660 | 669 | 10 | YECDIPIGAG | 1.8e-05 | 63 |
| HLA-A*11:01 | 1 | 661 | 670 | 10 | ECDIPIGAGI | 1.8e-05 | 39 |
| HLA-A*33:01 | 1 | 663 | 671 | 9 | DIPIGAGIC | 1.8e-05 | 63 |
| HLA-A*03:01 | 1 | 664 | 673 | 10 | IPIGAGICAS | 1.8e-05 | 52 |
| HLA-A*23:01 | 1 | 664 | 672 | 9 | IPIGAGICA | 1.8e-05 | 39 |
| HLA-A*68:02 | 1 | 666 | 675 | 10 | IGAGICASYQ | 1.8e-05 | 58 |
| HLA-B*53:01 | 1 | 666 | 675 | 10 | IGAGICASYQ | 1.8e-05 | 42 |
| HLA-A*01:01 | 1 | 667 | 676 | 10 | GAGICASYQT | 1.8e-05 | 80 |
| HLA-B*53:01 | 1 | 669 | 677 | 9 | GICASYQTQ | 1.8e-05 | 42 |
| HLA-A*68:02 | 1 | 671 | 679 | 9 | CASYQTQTN | 1.8e-05 | 58 |
| HLA-B*53:01 | 1 | 673 | 682 | 10 | SYQTQTNspr | 1.8e-05 | 42 |
| HLA-B*44:03 | 1 | 677 | 686 | 10 | QTNsprRARS | 1.8e-05 | 42 |
| HLA-A*11:01 | 1 | 678 | 686 | 9 | TNSPRRARS | 1.8e-05 | 39 |
| HLA-A*31:01 | 1 | 679 | 688 | 10 | NSPRRARSVA | 1.8e-05 | 59 |
| HLA-B*44:02 | 1 | 680 | 689 | 10 | SPRRARSVAS | 1.8e-05 | 45 |
| HLA-A*68:02 | 1 | 682 | 690 | 9 | RRARSVASQ | 1.8e-05 | 58 |
| HLA-B*44:03 | 1 | 682 | 691 | 10 | RRARSVASQS | 1.8e-05 | 42 |
| HLA-B*51:01 | 1 | 682 | 690 | 9 | RRARSVASQ | 1.8e-05 | 67 |
| HLA-A*33:01 | 1 | 684 | 693 | 10 | ARSVASQSII | 1.8e-05 | 63 |
| HLA-B*44:02 | 1 | 685 | 694 | 10 | RSVASQSIIA | 1.8e-05 | 45 |
| HLA-B*44:03 | 1 | 687 | 696 | 10 | VASQSIIAYT | 1.8e-05 | 42 |
| HLA-A*23:01 | 1 | 693 | 702 | 10 | IAYTMSLGAE | 1.8e-05 | 39 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*44:02 | 1 | 700 | 708 | 9 | GAENSVAYS | 1.8e-05 | 45 |
| HLA-A*26:01 | 1 | 706 | 715 | 10 | AYSNNSIAIP | 1.8e-05 | 51 |
| HLA-A*68:01 | 1 | 709 | 717 | 9 | NNSIAIPTN | 1.8e-05 | 52 |
| HLA-B*44:03 | 1 | 710 | 719 | 10 | NSIAIPTNFT | 1.8e-05 | 42 |
| HLA-A*31:01 | 1 | 715 | 724 | 10 | PTNFTISVTT | 1.8e-05 | 59 |
| HLA-A*32:01 | 1 | 715 | 724 | 10 | PTNFTISVTT | 1.8e-05 | 44 |
| HLA-A*33:01 | 1 | 719 | 728 | 10 | TISVTTEILP | 1.8e-05 | 63 |
| HLA-B*53:01 | 1 | 720 | 729 | 10 | ISVTTEILPV | 1.8e-05 | 42 |
| HLA-A*11:01 | 1 | 726 | 734 | 9 | ILPVSMTKT | 1.8e-05 | 39 |
| HLA-A*32:01 | 1 | 726 | 735 | 10 | ILPVSMTKTS | 1.8e-05 | 44 |
| HLA-B*44:03 | 1 | 728 | 736 | 9 | PVSMTKTSV | 1.8e-05 | 42 |
| HLA-A*33:01 | 1 | 730 | 739 | 10 | SMTKTSVDCT | 1.8e-05 | 63 |
| HLA-A*02:03 | 1 | 732 | 741 | 10 | TKTSVDCTMY | 1.8e-05 | 60 |
| HLA-A*03:01 | 1 | 740 | 749 | 10 | MYICGDSTEC | 1.8e-05 | 52 |
| HLA-B*15:01 | 1 | 741 | 750 | 10 | YICGDSTEC | 1.8e-05 | 57 |
| HLA-B*57:01 | 1 | 741 | 750 | 10 | YICGDSTEC | 1.8e-05 | 75 |
| HLA-B*58:01 | 1 | 743 | 751 | 9 | CGDSTEC | 1.8e-05 | 63 |
| HLA-A*68:01 | 1 | 749 | 757 | 9 | CSNLLLQYG | 1.8e-05 | 52 |
| HLA-A*11:01 | 1 | 752 | 760 | 9 | LLLQYGSFC | 1.8e-05 | 39 |
| HLA-A*31:01 | 1 | 752 | 761 | 10 | LLLQYGSFCT | 1.8e-05 | 59 |
| HLA-B*15:01 | 1 | 752 | 761 | 10 | LLLQYGSFCT | 1.8e-05 | 57 |
| HLA-A*01:01 | 1 | 755 | 764 | 10 | QYGSFCTQLN | 1.8e-05 | 80 |
| HLA-B*51:01 | 1 | 756 | 764 | 9 | YGSFCTQLN | 1.8e-05 | 67 |
| HLA-A*68:01 | 1 | 761 | 770 | 10 | TQLNRALTGI | 1.8e-05 | 52 |
| HLA-A*02:03 | 1 | 770 | 779 | 10 | IAVEQDKNTQ | 1.8e-05 | 60 |
| HLA-A*26:01 | 1 | 770 | 778 | 9 | IAVEQDKNT | 1.8e-05 | 51 |
| HLA-B*44:02 | 1 | 785 | 794 | 10 | VKQIYKTPPI | 1.8e-05 | 45 |
| HLA-A*32:01 | 1 | 788 | 796 | 9 | IYKTPPIKD | 1.8e-05 | 44 |
| HLA-A*30:02 | 1 | 792 | 801 | 10 | PPIKDFGGFN | 1.8e-05 | 81 |
| HLA-A*02:01 | 1 | 794 | 803 | 10 | IKDFGGFNFS | 1.8e-05 | 57 |
| HLA-B*15:01 | 1 | 794 | 803 | 10 | IKDFGGFNFS | 1.8e-05 | 57 |
| HLA-B*44:02 | 1 | 794 | 803 | 10 | IKDFGGFNFS | 1.8e-05 | 45 |
| HLA-B*58:01 | 1 | 796 | 805 | 10 | DFGGFNFSQI | 1.8e-05 | 63 |
| HLA-B*44:02 | 1 | 797 | 805 | 9 | FGGFNFSQI | 1.8e-05 | 45 |
| HLA-A*26:01 | 1 | 799 | 807 | 9 | GFNFSQILP | 1.8e-05 | 51 |
| HLA-B*35:01 | 1 | 800 | 808 | 9 | FNFSQILPD | 1.8e-05 | 43 |
| HLA-A*26:01 | 1 | 801 | 809 | 9 | NFSQILPDP | 1.8e-05 | 51 |
| HLA-A*01:01 | 1 | 807 | 816 | 10 | PDPSKPSKRS | 1.8e-05 | 80 |
| HLA-A*33:01 | 1 | 807 | 816 | 10 | PDPSKPSKRS | 1.8e-05 | 63 |
| HLA-B*40:01 | 1 | 808 | 816 | 9 | DPSKPSKRS | 1.8e-05 | 36 |
| HLA-B*58:01 | 1 | 808 | 816 | 9 | DPSKPSKRS | 1.8e-05 | 63 |
| HLA-B*44:02 | 1 | 815 | 824 | 10 | RSFIEDLLFN | 1.8e-05 | 45 |
| HLA-A*31:01 | 1 | 824 | 833 | 10 | NKVTLADAGF | 1.8e-05 | 59 |
| HLA-A*32:01 | 1 | 829 | 838 | 10 | ADAGFIKQYG | 1.8e-05 | 44 |
| HLA-A*33:01 | 1 | 831 | 839 | 9 | AGFIKQYGD | 1.8e-05 | 63 |
| HLA-B*44:03 | 1 | 831 | 840 | 10 | AGFIKQYGDC | 1.8e-05 | 42 |
| HLA-B*40:01 | 1 | 837 | 846 | 10 | YGDCLGDIAA | 1.8e-05 | 36 |
| HLA-A*33:01 | 1 | 838 | 846 | 9 | GDCLGDIAA | 1.8e-05 | 63 |
| HLA-A*32:01 | 1 | 841 | 849 | 9 | LGDIAARDL | 1.8e-05 | 44 |
| HLA-A*33:01 | 1 | 841 | 849 | 9 | LGDIAARDL | 1.8e-05 | 63 |
| HLA-B*44:03 | 1 | 841 | 850 | 10 | LGDIAARDLI | 1.8e-05 | 42 |
| HLA-A*33:01 | 1 | 848 | 857 | 10 | DLICAQKFNG | 1.8e-05 | 63 |
| HLA-B*40:01 | 1 | 849 | 858 | 10 | LICAQKFNGL | 1.8e-05 | 36 |
| HLA-A*68:01 | 1 | 851 | 859 | 9 | CAQKFNGLT | 1.8e-05 | 52 |
| HLA-B*53:01 | 1 | 853 | 862 | 10 | QKFNGLTVLP | 1.8e-05 | 42 |
| HLA-A*33:01 | 1 | 855 | 863 | 9 | FNGLTVLPP | 1.8e-05 | 63 |
| HLA-A*31:01 | 1 | 866 | 874 | 9 | TDEMIAQYT | 1.8e-05 | 59 |
| HLA-B*53:01 | 1 | 866 | 874 | 9 | TDEMIAQYT | 1.8e-05 | 42 |
| HLA-A*03:01 | 1 | 867 | 876 | 10 | DEMIAQYTS | 1.8e-05 | 52 |
| HLA-A*33:01 | 1 | 871 | 880 | 10 | AQYTSALLAG | 1.8e-05 | 63 |
| HLA-A*68:01 | 1 | 871 | 880 | 10 | AQYTSALLAG | 1.8e-05 | 52 |
| HLA-B*53:01 | 1 | 881 | 889 | 9 | TITSGWTFG | 1.8e-05 | 42 |
| HLA-A*68:01 | 1 | 882 | 891 | 10 | ITSGWTFGAG | 1.8e-05 | 52 |
| HLA-A*02:03 | 1 | 883 | 891 | 9 | TSGWTFGAG | 1.8e-05 | 60 |
| HLA-A*33:01 | 1 | 883 | 891 | 9 | TSGWTFGAG | 1.8e-05 | 63 |
| HLA-A*23:01 | 1 | 884 | 893 | 10 | SGWTFGAGAA | 1.8e-05 | 39 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*24:02 | 1 | 884 | 892 | 9 | SGWTFGAGA | 1.8e-05 | 38 |
| HLA-B*44:02 | 1 | 889 | 897 | 9 | GAGAALQIP | 1.8e-05 | 45 |
| HLA-A*26:01 | 1 | 890 | 899 | 10 | AGAALQIPFA | 1.8e-05 | 51 |
| HLA-A*33:01 | 1 | 898 | 907 | 10 | FAMQMAYRFN | 1.8e-05 | 63 |
| HLA-A*68:01 | 1 | 900 | 909 | 10 | MQMAYRFNGI | 1.8e-05 | 52 |
| HLA-B*51:01 | 1 | 901 | 910 | 10 | QMAYRFNGIG | 1.8e-05 | 67 |
| HLA-B*40:01 | 1 | 910 | 918 | 9 | GVTQNVLYE | 1.8e-05 | 36 |
| HLA-A*26:01 | 1 | 916 | 924 | 9 | LYENQKLIA | 1.8e-05 | 51 |
| HLA-A*11:01 | 1 | 917 | 925 | 9 | YENQKLIAN | 1.8e-05 | 39 |
| HLA-A*11:01 | 1 | 918 | 927 | 10 | ENQKLIANQF | 1.8e-05 | 39 |
| HLA-B*07:02 | 1 | 918 | 926 | 9 | ENQKLIANQ | 1.8e-05 | 56 |
| HLA-A*02:03 | 1 | 923 | 932 | 10 | IANQFNSAIG | 1.8e-05 | 60 |
| HLA-A*33:01 | 1 | 931 | 939 | 9 | IGKIQDSLS | 1.8e-05 | 63 |
| HLA-A*33:01 | 1 | 932 | 941 | 10 | GKIQDSLSST | 1.8e-05 | 63 |
| HLA-B*57:01 | 1 | 932 | 940 | 9 | GKIQDSLS | 1.8e-05 | 75 |
| HLA-A*02:01 | 1 | 938 | 947 | 10 | LSSTASALGK | 1.8e-05 | 57 |
| HLA-A*26:01 | 1 | 938 | 946 | 9 | LSSTASALG | 1.8e-05 | 51 |
| HLA-A*03:01 | 1 | 942 | 950 | 9 | ASALGKLQD | 1.8e-05 | 52 |
| HLA-B*44:02 | 1 | 946 | 955 | 10 | GKLQDVVNQN | 1.8e-05 | 45 |
| HLA-A*11:01 | 1 | 950 | 959 | 10 | DVVNQNAQAL | 1.8e-05 | 39 |
| HLA-A*31:01 | 1 | 952 | 961 | 10 | VNQNAQALNT | 1.8e-05 | 59 |
| HLA-A*11:01 | 1 | 954 | 963 | 10 | QNAQALNTLV | 1.8e-05 | 39 |
| HLA-A*33:01 | 1 | 960 | 969 | 10 | NTLVKQLSSN | 1.8e-05 | 63 |
| HLA-B*40:01 | 1 | 960 | 968 | 9 | NTLVKQLSS | 1.8e-05 | 36 |
| HLA-A*32:01 | 1 | 966 | 975 | 10 | LSSNFGAISS | 1.8e-05 | 44 |
| HLA-B*57:01 | 1 | 969 | 978 | 10 | NFGAISSVLN | 1.8e-05 | 75 |
| HLA-A*24:02 | 1 | 971 | 980 | 10 | GAISSVLNDI | 1.8e-05 | 38 |
| HLA-A*68:01 | 1 | 973 | 982 | 10 | ISSVLNDILS | 1.8e-05 | 52 |
| HLA-A*31:01 | 1 | 974 | 982 | 9 | SSVLNDILS | 1.8e-05 | 59 |
| HLA-B*07:02 | 1 | 974 | 982 | 9 | SSVLNDILS | 1.8e-05 | 56 |
| HLA-A*03:01 | 1 | 978 | 987 | 10 | NDILSRLDKV | 1.8e-05 | 52 |
| HLA-B*57:01 | 1 | 979 | 988 | 10 | DILSRLDKVE | 1.8e-05 | 75 |
| HLA-B*07:02 | 1 | 980 | 988 | 9 | ILSRLDKVE | 1.8e-05 | 56 |
| HLA-B*53:01 | 1 | 989 | 998 | 10 | AEVQIDRLIT | 1.8e-05 | 42 |
| HLA-B*15:01 | 1 | 990 | 998 | 9 | EVQIDRLIT | 1.8e-05 | 57 |
| HLA-B*07:02 | 1 | 993 | 1002 | 10 | IDRLITGRLQ | 1.8e-05 | 56 |
| HLA-B*07:02 | 1 | 994 | 1002 | 9 | DRLITGRLQ | 1.8e-05 | 56 |
| HLA-A*23:01 | 1 | 1000 | 1009 | 10 | RLQSLQTYVT | 1.8e-05 | 39 |
| HLA-B*07:02 | 1 | 1001 | 1010 | 10 | LQSLQTYVTQ | 1.8e-05 | 56 |
| HLA-B*44:03 | 1 | 1002 | 1011 | 10 | QSLQTYVTQQ | 1.8e-05 | 42 |
| HLA-B*44:03 | 1 | 1006 | 1015 | 10 | TYVTQQLIRA | 1.8e-05 | 42 |
| HLA-B*44:03 | 1 | 1008 | 1017 | 10 | VTQQLIRAAE | 1.8e-05 | 42 |
| HLA-B*53:01 | 1 | 1009 | 1017 | 9 | TQQLIRAAE | 1.8e-05 | 42 |
| HLA-A*31:01 | 1 | 1013 | 1021 | 9 | IRAAEIRAS | 1.8e-05 | 59 |
| HLA-A*33:01 | 1 | 1014 | 1023 | 10 | RAAEIRASAN | 1.8e-05 | 63 |
| HLA-B*53:01 | 1 | 1014 | 1023 | 10 | RAAEIRASAN | 1.8e-05 | 42 |
| HLA-A*33:01 | 1 | 1018 | 1027 | 10 | IRASANLAAT | 1.8e-05 | 63 |
| HLA-A*26:01 | 1 | 1021 | 1030 | 10 | SANLAATKMS | 1.8e-05 | 51 |
| HLA-B*44:02 | 1 | 1024 | 1032 | 9 | LAATKMSEC | 1.8e-05 | 45 |
| HLA-A*11:01 | 1 | 1025 | 1034 | 10 | AATKMSECVL | 1.8e-05 | 39 |
| HLA-B*57:01 | 1 | 1027 | 1035 | 9 | TKMSECVLG | 1.8e-05 | 75 |
| HLA-A*26:01 | 1 | 1028 | 1037 | 10 | KMSECVLGQS | 1.8e-05 | 51 |
| HLA-B*57:01 | 1 | 1033 | 1041 | 9 | VLGQSKRVD | 1.8e-05 | 75 |
| HLA-A*33:01 | 1 | 1034 | 1043 | 10 | LGQSKRVDFC | 1.8e-05 | 63 |
| HLA-A*68:02 | 1 | 1034 | 1042 | 9 | LGQSKRVDF | 1.8e-05 | 58 |
| HLA-B*53:01 | 1 | 1039 | 1048 | 10 | RVDFCGKGYH | 1.8e-05 | 42 |
| HLA-B*08:01 | 1 | 1046 | 1055 | 10 | GYHLMSFPQS | 1.8e-05 | 76 |
| HLA-B*35:01 | 1 | 1046 | 1054 | 9 | GYHLMSFPQ | 1.8e-05 | 43 |
| HLA-B*57:01 | 1 | 1047 | 1055 | 9 | YHLMSFPQS | 1.8e-05 | 75 |
| HLA-A*23:01 | 1 | 1058 | 1066 | 9 | HGVVFLHVT | 1.8e-05 | 39 |
| HLA-B*40:01 | 1 | 1058 | 1066 | 9 | HGVVFLHVT | 1.8e-05 | 36 |
| HLA-B*53:01 | 1 | 1065 | 1074 | 10 | VTYVPAQEKN | 1.8e-05 | 42 |
| HLA-A*23:01 | 1 | 1070 | 1079 | 10 | AQEKNFTTAP | 1.8e-05 | 39 |
| HLA-A*02:01 | 1 | 1071 | 1080 | 10 | QEKNFTTAPA | 1.8e-05 | 57 |
| HLA-A*24:02 | 1 | 1075 | 1083 | 9 | FTTAPAICH | 1.8e-05 | 38 |
| HLA-A*26:01 | 1 | 1078 | 1087 | 10 | APAICHDGKA | 1.8e-05 | 51 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*03:01 | 1 | 1079 | 1088 | 10 | PAICHDGKAH | 1.8e-05 | 52 |
| HLA-B*07:02 | 1 | 1079 | 1088 | 10 | PAICHDGKAH | 1.8e-05 | 56 |
| HLA-A*02:01 | 1 | 1092 | 1100 | 9 | EGVFVSNGT | 1.8e-05 | 57 |
| HLA-B*44:02 | 1 | 1092 | 1100 | 9 | EGVFVSNGT | 1.8e-05 | 45 |
| HLA-A*02:06 | 1 | 1097 | 1106 | 10 | SNGTHWFVTQ | 1.8e-05 | 67 |
| HLA-A*02:03 | 1 | 1102 | 1110 | 9 | WVVTQRNFY | 1.8e-05 | 60 |
| HLA-A*02:01 | 1 | 1111 | 1120 | 10 | EPQIITTDNT | 1.8e-05 | 57 |
| HLA-A*03:01 | 1 | 1115 | 1124 | 10 | ITTDNTFVSG | 1.8e-05 | 52 |
| HLA-A*26:01 | 1 | 1115 | 1124 | 10 | ITTDNTFVSG | 1.8e-05 | 51 |
| HLA-A*31:01 | 1 | 1115 | 1124 | 10 | ITTDNTFVSG | 1.8e-05 | 59 |
| HLA-A*33:01 | 1 | 1116 | 1125 | 10 | TTDNTFVSGN | 1.8e-05 | 63 |
| HLA-B*44:03 | 1 | 1117 | 1126 | 10 | TDNTFVSGNC | 1.8e-05 | 42 |
| HLA-B*58:01 | 1 | 1117 | 1126 | 10 | TDNTFVSGNC | 1.8e-05 | 63 |
| HLA-A*33:01 | 1 | 1121 | 1130 | 10 | FVSGNCDVVI | 1.8e-05 | 63 |
| HLA-A*03:01 | 1 | 1127 | 1135 | 9 | DVIVIGIVNN | 1.8e-05 | 52 |
| HLA-A*68:01 | 1 | 1131 | 1139 | 9 | GIVNNTVYD | 1.8e-05 | 52 |
| HLA-A*26:01 | 1 | 1132 | 1140 | 9 | IVNNTVYDP | 1.8e-05 | 51 |
| HLA-B*40:01 | 1 | 1132 | 1141 | 10 | IVNNTVYDPL | 1.8e-05 | 36 |
| HLA-A*11:01 | 1 | 1133 | 1142 | 10 | VNNTVYDPLQ | 1.8e-05 | 39 |
| HLA-B*58:01 | 1 | 1134 | 1142 | 9 | NNTVYDPLQ | 1.8e-05 | 63 |
| HLA-B*44:02 | 1 | 1135 | 1144 | 10 | NTVYDPLQPE | 1.8e-05 | 45 |
| HLA-A*68:02 | 1 | 1141 | 1150 | 10 | LQPELDSFKE | 1.8e-05 | 58 |
| HLA-A*02:06 | 1 | 1142 | 1151 | 10 | QPELDSFKEE | 1.8e-05 | 67 |
| HLA-A*26:01 | 1 | 1142 | 1151 | 10 | QPELDSFKEE | 1.8e-05 | 51 |
| HLA-A*30:02 | 1 | 1142 | 1150 | 9 | QPELDSFKE | 1.8e-05 | 81 |
| HLA-A*31:01 | 1 | 1142 | 1151 | 10 | QPELDSFKEE | 1.8e-05 | 59 |
| HLA-B*51:01 | 1 | 1143 | 1151 | 9 | PELDSFKEE | 1.8e-05 | 67 |
| HLA-A*26:01 | 1 | 1144 | 1153 | 10 | ELDSFKEELD | 1.8e-05 | 51 |
| HLA-A*02:01 | 1 | 1148 | 1157 | 10 | FKEELDKYFK | 1.8e-05 | 57 |
| HLA-A*03:01 | 1 | 1150 | 1158 | 9 | EELDKYFKN | 1.8e-05 | 52 |
| HLA-B*58:01 | 1 | 1155 | 1164 | 10 | YFKNHTSPDV | 1.8e-05 | 63 |
| HLA-A*11:01 | 1 | 1157 | 1166 | 10 | KNHTSPDVDL | 1.8e-05 | 39 |
| HLA-B*35:01 | 1 | 1158 | 1167 | 10 | NHTSPDVDLG | 1.8e-05 | 43 |
| HLA-A*31:01 | 1 | 1160 | 1169 | 10 | TSPDVLDGDI | 1.8e-05 | 59 |
| HLA-A*33:01 | 1 | 1160 | 1169 | 10 | TSPDVLDGDI | 1.8e-05 | 63 |
| HLA-A*11:01 | 1 | 1164 | 1172 | 9 | VDLGDISGI | 1.8e-05 | 39 |
| HLA-A*26:01 | 1 | 1166 | 1175 | 10 | LGDISGINAS | 1.8e-05 | 51 |
| HLA-A*33:01 | 1 | 1166 | 1175 | 10 | LGDISGINAS | 1.8e-05 | 63 |
| HLA-B*44:03 | 1 | 1166 | 1174 | 9 | LGDISGINA | 1.8e-05 | 42 |
| HLA-B*35:01 | 1 | 1170 | 1179 | 10 | SGINASVVNI | 1.8e-05 | 43 |
| HLA-B*44:02 | 1 | 1172 | 1180 | 9 | INASVVNIQ | 1.8e-05 | 45 |
| HLA-A*23:01 | 1 | 1174 | 1182 | 9 | ASVVNIQKE | 1.8e-05 | 39 |
| HLA-B*07:02 | 1 | 1174 | 1182 | 9 | ASVVNIQKE | 1.8e-05 | 56 |
| HLA-B*08:01 | 1 | 1176 | 1184 | 9 | VVNIQKEID | 1.8e-05 | 76 |
| HLA-A*68:02 | 1 | 1178 | 1187 | 10 | NIQKEIDRLN | 1.8e-05 | 58 |
| HLA-A*24:02 | 1 | 1181 | 1190 | 10 | KEIDRLNEVA | 1.8e-05 | 38 |
| HLA-A*26:01 | 1 | 1184 | 1192 | 9 | DRLNEVAKN | 1.8e-05 | 51 |
| HLA-B*51:01 | 1 | 1184 | 1192 | 9 | DRLNEVAKN | 1.8e-05 | 67 |
| HLA-A*33:01 | 1 | 1186 | 1195 | 10 | LNEVAKNLNE | 1.8e-05 | 63 |
| HLA-B*07:02 | 1 | 1187 | 1195 | 9 | NEVAKNLNE | 1.8e-05 | 56 |
| HLA-B*35:01 | 1 | 1192 | 1201 | 10 | NLNESLIDLQ | 1.8e-05 | 43 |
| HLA-B*35:01 | 1 | 1198 | 1207 | 10 | IDLQELGKYE | 1.8e-05 | 43 |
| HLA-A*23:01 | 1 | 1200 | 1208 | 9 | LQELGKYEQ | 1.8e-05 | 39 |
| HLA-A*02:01 | 1 | 1203 | 1212 | 10 | LGKYEQYIKW | 1.8e-05 | 57 |
| HLA-A*24:02 | 1 | 1203 | 1211 | 9 | LGKYEQYIK | 1.8e-05 | 38 |
| HLA-A*01:01 | 1 | 1204 | 1213 | 10 | GKYEQYIKWP | 1.8e-05 | 80 |
| HLA-A*24:02 | 1 | 1204 | 1213 | 10 | GKYEQYIKWP | 1.8e-05 | 38 |
| HLA-A*68:02 | 1 | 1204 | 1213 | 10 | GKYEQYIKWP | 1.8e-05 | 58 |
| HLA-A*68:02 | 1 | 1206 | 1215 | 10 | YEQYIKWPWY | 1.8e-05 | 58 |
| HLA-A*02:03 | 1 | 1211 | 1220 | 10 | KWPWYIWLGF | 1.8e-05 | 60 |
| HLA-B*07:02 | 1 | 1214 | 1222 | 9 | WYIWLGFIA | 1.8e-05 | 56 |
| HLA-A*26:01 | 1 | 1215 | 1223 | 9 | YIWLGFIAI | 1.8e-05 | 51 |
| HLA-B*35:01 | 1 | 1218 | 1227 | 10 | LGFIAGLIAI | 1.8e-05 | 43 |
| HLA-A*68:01 | 1 | 1219 | 1228 | 10 | GFIAGLIAIV | 1.8e-05 | 52 |
| HLA-A*68:01 | 1 | 1226 | 1235 | 10 | AIVMVTIMLC | 1.8e-05 | 52 |
| HLA-A*24:02 | 1 | 1229 | 1237 | 9 | MVTIMLCCM | 1.8e-05 | 38 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*03:01 | 1 | 1230 | 1239 | 10 | VTIMLCCMTS | 1.8e-05 | 52 |
| HLA-A*11:01 | 1 | 1230 | 1238 | 9 | VTIMLCCMT | 1.8e-05 | 39 |
| HLA-B*08:01 | 1 | 1230 | 1238 | 9 | VTIMLCCMT | 1.8e-05 | 76 |
| HLA-A*02:03 | 1 | 1236 | 1245 | 10 | CMTSCCSCCLK | 1.8e-05 | 60 |
| HLA-A*02:03 | 1 | 1237 | 1245 | 9 | MTSCCSCCLK | 1.8e-05 | 60 |
| HLA-A*02:06 | 1 | 1241 | 1250 | 10 | CSCLKGCCSC | 1.8e-05 | 67 |
| HLA-B*08:01 | 1 | 1242 | 1251 | 10 | SCLKGCCSCG | 1.8e-05 | 76 |
| HLA-B*57:01 | 1 | 1246 | 1254 | 9 | GCCSCGSCC | 1.8e-05 | 75 |
| HLA-B*35:01 | 1 | 1247 | 1256 | 10 | CCSCGSCCKF | 1.8e-05 | 43 |
| HLA-B*58:01 | 1 | 1256 | 1264 | 9 | FDEDDSEPV | 1.8e-05 | 63 |
| HLA-B*40:01 | 1 | 1 | 10 | 10 | MFVFLVLLPL | 1.7e-05 | 37 |
| HLA-B*44:02 | 1 | 1 | 9 | 9 | MFVFLVLLP | 1.7e-05 | 46 |
| HLA-B*44:03 | 1 | 1 | 9 | 9 | MFVFLVLLP | 1.7e-05 | 43 |
| HLA-A*30:02 | 1 | 8 | 17 | 10 | LPLVSSQCVN | 1.7e-05 | 82 |
| HLA-B*15:01 | 1 | 16 | 25 | 10 | VNLTRTQLP | 1.7e-05 | 58 |
| HLA-A*32:01 | 1 | 17 | 25 | 9 | NLTRTQLP | 1.7e-05 | 45 |
| HLA-A*23:01 | 1 | 19 | 27 | 9 | TTRTQLPPA | 1.7e-05 | 40 |
| HLA-B*40:01 | 1 | 23 | 31 | 9 | QLPPAYTNS | 1.7e-05 | 37 |
| HLA-B*40:01 | 1 | 27 | 36 | 10 | AYTNSFTRGV | 1.7e-05 | 37 |
| HLA-A*32:01 | 1 | 37 | 46 | 10 | YYPDKVFRSS | 1.7e-05 | 45 |
| HLA-B*40:01 | 1 | 44 | 52 | 9 | RSSVLHSTQ | 1.7e-05 | 37 |
| HLA-A*03:01 | 1 | 54 | 63 | 10 | LFLPFFSNVT | 1.7e-05 | 53 |
| HLA-B*07:02 | 1 | 54 | 63 | 10 | LFLPFFSNVT | 1.7e-05 | 57 |
| HLA-B*51:01 | 1 | 57 | 66 | 10 | PFFSNVTWFH | 1.7e-05 | 68 |
| HLA-A*11:01 | 1 | 59 | 68 | 10 | FSNVTWFHAI | 1.7e-05 | 40 |
| HLA-A*03:01 | 1 | 64 | 72 | 9 | WFHAIHVS | 1.7e-05 | 53 |
| HLA-A*24:02 | 1 | 64 | 73 | 10 | WFHAIHVS | 1.7e-05 | 39 |
| HLA-A*11:01 | 1 | 66 | 74 | 9 | HAIHVS | 1.7e-05 | 40 |
| HLA-A*33:01 | 1 | 66 | 75 | 10 | HAIHVS | 1.7e-05 | 64 |
| HLA-A*24:02 | 1 | 67 | 76 | 10 | AIHVS | 1.7e-05 | 39 |
| HLA-B*53:01 | 1 | 75 | 83 | 9 | GTKRFDNPV | 1.7e-05 | 43 |
| HLA-B*40:01 | 1 | 79 | 87 | 9 | FDNPVLPFN | 1.7e-05 | 37 |
| HLA-B*44:02 | 1 | 88 | 96 | 9 | DGVYFASTE | 1.7e-05 | 46 |
| HLA-A*03:01 | 1 | 95 | 103 | 9 | TEKSNIIRG | 1.7e-05 | 53 |
| HLA-B*40:01 | 1 | 97 | 105 | 9 | KSNIIRGWI | 1.7e-05 | 37 |
| HLA-A*33:01 | 1 | 98 | 107 | 10 | SNIRGWIFG | 1.7e-05 | 64 |
| HLA-A*24:02 | 1 | 101 | 109 | 9 | IRGWIFGTT | 1.7e-05 | 39 |
| HLA-A*31:01 | 1 | 104 | 112 | 9 | WIFGTTLDS | 1.7e-05 | 60 |
| HLA-A*11:01 | 1 | 106 | 115 | 10 | FGTTLDSKTQ | 1.7e-05 | 40 |
| HLA-A*31:01 | 1 | 106 | 115 | 10 | FGTTLDSKTQ | 1.7e-05 | 60 |
| HLA-B*08:01 | 1 | 106 | 115 | 10 | FGTTLDSKTQ | 1.7e-05 | 76 |
| HLA-A*26:01 | 1 | 107 | 116 | 10 | GTTLDSKTQS | 1.7e-05 | 52 |
| HLA-B*44:03 | 1 | 111 | 120 | 10 | DSKTQSLIIV | 1.7e-05 | 43 |
| HLA-A*31:01 | 1 | 122 | 131 | 10 | NATNVVIKVC | 1.7e-05 | 60 |
| HLA-B*35:01 | 1 | 124 | 132 | 9 | TNVVIKVC | 1.7e-05 | 44 |
| HLA-A*02:01 | 1 | 128 | 136 | 9 | IKVCFQFC | 1.7e-05 | 58 |
| HLA-A*02:06 | 1 | 129 | 138 | 10 | KVCFQFCND | 1.7e-05 | 68 |
| HLA-A*32:01 | 1 | 129 | 138 | 10 | KVCFQFCND | 1.7e-05 | 45 |
| HLA-B*40:01 | 1 | 132 | 140 | 9 | EFQFCNDPF | 1.7e-05 | 37 |
| HLA-A*68:01 | 1 | 134 | 142 | 9 | QFCNDPFLG | 1.7e-05 | 53 |
| HLA-A*23:01 | 1 | 138 | 146 | 9 | DPFLGVYYH | 1.7e-05 | 40 |
| HLA-B*51:01 | 1 | 139 | 147 | 9 | PFLGVYYHK | 1.7e-05 | 68 |
| HLA-B*44:02 | 1 | 143 | 151 | 9 | VYYHKNNKS | 1.7e-05 | 46 |
| HLA-A*02:06 | 1 | 145 | 154 | 10 | YHKNNKSWME | 1.7e-05 | 68 |
| HLA-A*68:02 | 1 | 146 | 155 | 10 | HKNNKSWMES | 1.7e-05 | 59 |
| HLA-A*02:03 | 1 | 148 | 157 | 10 | NNKSWMESEF | 1.7e-05 | 61 |
| HLA-B*44:03 | 1 | 148 | 156 | 9 | NNKSWMESE | 1.7e-05 | 43 |
| HLA-A*11:01 | 1 | 149 | 157 | 9 | NKSWMESEF | 1.7e-05 | 40 |
| HLA-B*15:01 | 1 | 149 | 158 | 10 | NKSWMESEFR | 1.7e-05 | 58 |
| HLA-B*57:01 | 1 | 155 | 164 | 10 | SEFRVYSSAN | 1.7e-05 | 75 |
| HLA-A*23:01 | 1 | 162 | 171 | 10 | SANNCTFEYV | 1.7e-05 | 40 |
| HLA-B*53:01 | 1 | 163 | 171 | 9 | ANNCTFEYV | 1.7e-05 | 43 |
| HLA-A*24:02 | 1 | 171 | 180 | 10 | VSQPFLMDLE | 1.7e-05 | 39 |
| HLA-B*44:02 | 1 | 172 | 181 | 10 | SQPFLMDLEG | 1.7e-05 | 46 |
| HLA-B*44:03 | 1 | 172 | 181 | 10 | SQPFLMDLEG | 1.7e-05 | 43 |
| HLA-B*57:01 | 1 | 174 | 182 | 9 | PFLMDLEGK | 1.7e-05 | 75 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*44:03 | 1 | 176 | 184 | 9 | LMDLEKQKQG | 1.7e-05 | 43 |
| HLA-B*57:01 | 1 | 178 | 187 | 10 | DLEKQGNFK | 1.7e-05 | 75 |
| HLA-B*58:01 | 1 | 178 | 187 | 10 | DLEKQGNFK | 1.7e-05 | 64 |
| HLA-B*40:01 | 1 | 179 | 188 | 10 | LEGKQGNFKN | 1.7e-05 | 37 |
| HLA-B*53:01 | 1 | 180 | 188 | 9 | EGKQGNFKN | 1.7e-05 | 43 |
| HLA-B*35:01 | 1 | 188 | 196 | 9 | NLREFVFKN | 1.7e-05 | 44 |
| HLA-A*24:02 | 1 | 194 | 202 | 9 | FKNIDGYFK | 1.7e-05 | 39 |
| HLA-A*23:01 | 1 | 201 | 209 | 9 | FKIYSKHTP | 1.7e-05 | 40 |
| HLA-A*33:01 | 1 | 202 | 211 | 10 | KIYSKHTPIN | 1.7e-05 | 64 |
| HLA-A*32:01 | 1 | 203 | 211 | 9 | IYSKHTPIN | 1.7e-05 | 45 |
| HLA-A*33:01 | 1 | 208 | 217 | 10 | TPINLVRDLP | 1.7e-05 | 64 |
| HLA-A*11:01 | 1 | 213 | 221 | 9 | VRDLPQGF | 1.7e-05 | 40 |
| HLA-B*40:01 | 1 | 216 | 224 | 9 | LPQGFSALE | 1.7e-05 | 37 |
| HLA-A*02:01 | 1 | 217 | 225 | 9 | PQGFSALEP | 1.7e-05 | 58 |
| HLA-A*02:03 | 1 | 217 | 225 | 9 | PQGFSALEP | 1.7e-05 | 61 |
| HLA-B*44:03 | 1 | 217 | 225 | 9 | PQGFSALEP | 1.7e-05 | 43 |
| HLA-A*02:01 | 1 | 219 | 228 | 10 | GFSALEPLVD | 1.7e-05 | 58 |
| HLA-A*33:01 | 1 | 222 | 230 | 9 | ALEPLVDLP | 1.7e-05 | 64 |
| HLA-A*30:01 | 1 | 225 | 234 | 10 | PLVDLPIGIN | 1.7e-05 | 84 |
| HLA-B*35:01 | 1 | 225 | 233 | 9 | PLVDLPIGIN | 1.7e-05 | 44 |
| HLA-A*68:01 | 1 | 227 | 236 | 10 | VDLPIGINIT | 1.7e-05 | 53 |
| HLA-B*44:02 | 1 | 232 | 240 | 9 | GINITRFQT | 1.7e-05 | 46 |
| HLA-B*44:02 | 1 | 235 | 243 | 9 | ITRFQTLA | 1.7e-05 | 46 |
| HLA-B*44:03 | 1 | 235 | 243 | 9 | ITRFQTLA | 1.7e-05 | 43 |
| HLA-A*32:01 | 1 | 238 | 247 | 10 | FQTLALHRS | 1.7e-05 | 45 |
| HLA-B*08:01 | 1 | 246 | 254 | 9 | RSYLTPGDS | 1.7e-05 | 76 |
| HLA-A*23:01 | 1 | 248 | 256 | 9 | YLTPGDSSS | 1.7e-05 | 40 |
| HLA-A*23:01 | 1 | 254 | 262 | 9 | SSSGWTAGA | 1.7e-05 | 40 |
| HLA-A*30:02 | 1 | 259 | 268 | 10 | TAGAAAYVYG | 1.7e-05 | 82 |
| HLA-A*24:02 | 1 | 261 | 270 | 10 | GAAAYVGYL | 1.7e-05 | 39 |
| HLA-A*02:01 | 1 | 262 | 271 | 10 | AAAYVGYLQ | 1.7e-05 | 58 |
| HLA-B*40:01 | 1 | 263 | 272 | 10 | AAYVGYLQP | 1.7e-05 | 37 |
| HLA-B*35:01 | 1 | 264 | 273 | 10 | AYVGYLQPR | 1.7e-05 | 44 |
| HLA-A*11:01 | 1 | 266 | 274 | 9 | YVGYLQPR | 1.7e-05 | 40 |
| HLA-A*33:01 | 1 | 274 | 283 | 10 | TFLLKYNENG | 1.7e-05 | 64 |
| HLA-A*33:01 | 1 | 275 | 283 | 9 | FLLKYNENG | 1.7e-05 | 64 |
| HLA-B*51:01 | 1 | 275 | 284 | 10 | FLLKYNENGT | 1.7e-05 | 68 |
| HLA-A*33:01 | 1 | 276 | 285 | 10 | LLKYNENGTI | 1.7e-05 | 64 |
| HLA-A*03:01 | 1 | 279 | 288 | 10 | YNENGTITDA | 1.7e-05 | 53 |
| HLA-A*68:01 | 1 | 279 | 288 | 10 | YNENGTITDA | 1.7e-05 | 53 |
| HLA-B*08:01 | 1 | 283 | 291 | 9 | GTITDAVDC | 1.7e-05 | 76 |
| HLA-A*32:01 | 1 | 284 | 292 | 9 | TITDAVDC | 1.7e-05 | 45 |
| HLA-A*68:01 | 1 | 287 | 295 | 9 | DAVDCALDP | 1.7e-05 | 53 |
| HLA-A*02:01 | 1 | 289 | 298 | 10 | VDCALDPLSE | 1.7e-05 | 58 |
| HLA-A*23:01 | 1 | 293 | 301 | 9 | LDPLSETKC | 1.7e-05 | 40 |
| HLA-A*02:01 | 1 | 294 | 302 | 9 | DPLSETKCT | 1.7e-05 | 58 |
| HLA-A*24:02 | 1 | 295 | 304 | 10 | PLSETKCTLK | 1.7e-05 | 39 |
| HLA-B*44:02 | 1 | 296 | 304 | 9 | LSETKCTLK | 1.7e-05 | 46 |
| HLA-B*44:02 | 1 | 296 | 305 | 10 | LSETKCTLKS | 1.7e-05 | 46 |
| HLA-A*31:01 | 1 | 299 | 308 | 10 | TKCTLKSFTV | 1.7e-05 | 60 |
| HLA-B*51:01 | 1 | 299 | 307 | 9 | TKCTLKSFT | 1.7e-05 | 68 |
| HLA-B*53:01 | 1 | 301 | 309 | 9 | CTLKSFTVE | 1.7e-05 | 43 |
| HLA-A*68:01 | 1 | 303 | 312 | 10 | LKSFTVEKGI | 1.7e-05 | 53 |
| HLA-A*68:02 | 1 | 305 | 313 | 9 | SFTVEKGIY | 1.7e-05 | 59 |
| HLA-B*40:01 | 1 | 306 | 315 | 10 | FTVEKGIYQT | 1.7e-05 | 37 |
| HLA-B*53:01 | 1 | 310 | 319 | 10 | KGIYQTSNFR | 1.7e-05 | 43 |
| HLA-B*35:01 | 1 | 315 | 324 | 10 | TSNFRVQPT | 1.7e-05 | 44 |
| HLA-A*11:01 | 1 | 322 | 330 | 9 | PTESIVRFP | 1.7e-05 | 40 |
| HLA-A*33:01 | 1 | 322 | 330 | 9 | PTESIVRFP | 1.7e-05 | 64 |
| HLA-A*31:01 | 1 | 324 | 333 | 10 | ESIVRFPNIT | 1.7e-05 | 60 |
| HLA-A*02:03 | 1 | 329 | 337 | 9 | FPNITNLCP | 1.7e-05 | 61 |
| HLA-A*02:01 | 1 | 331 | 339 | 9 | NITNLCPFG | 1.7e-05 | 58 |
| HLA-A*11:01 | 1 | 338 | 347 | 10 | FGEVFNATRF | 1.7e-05 | 40 |
| HLA-A*24:02 | 1 | 340 | 348 | 9 | EVFNATRFA | 1.7e-05 | 39 |
| HLA-B*44:02 | 1 | 340 | 349 | 10 | EVFNATRFAS | 1.7e-05 | 46 |
| HLA-A*24:02 | 1 | 348 | 357 | 10 | ASVYAWNRKR | 1.7e-05 | 39 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-B*08:01 | 1 | 348 | 356 | 9 | ASVYAWNRRK | 1.7e-05 | 76 |
| HLA-A*11:01 | 1 | 351 | 359 | 9 | YAWNRRKRIS | 1.7e-05 | 40 |
| HLA-A*68:01 | 1 | 351 | 360 | 10 | YAWNRRKRISN | 1.7e-05 | 53 |
| HLA-A*02:01 | 1 | 353 | 361 | 9 | WNRKRISNC | 1.7e-05 | 58 |
| HLA-A*02:06 | 1 | 356 | 364 | 9 | KRISNCVAD | 1.7e-05 | 68 |
| HLA-B*40:01 | 1 | 357 | 365 | 9 | RISNCVADY | 1.7e-05 | 37 |
| HLA-B*53:01 | 1 | 358 | 366 | 9 | ISNCVADYS | 1.7e-05 | 43 |
| HLA-B*44:02 | 1 | 361 | 370 | 10 | CVADYSVLYN | 1.7e-05 | 46 |
| HLA-B*40:01 | 1 | 365 | 373 | 9 | YSVLYNSAS | 1.7e-05 | 37 |
| HLA-B*53:01 | 1 | 367 | 375 | 9 | VLYNSASF | 1.7e-05 | 43 |
| HLA-A*33:01 | 1 | 374 | 383 | 10 | FSTFKCYGVS | 1.7e-05 | 64 |
| HLA-B*35:01 | 1 | 374 | 382 | 9 | FSTFKCYGV | 1.7e-05 | 44 |
| HLA-B*35:01 | 1 | 375 | 384 | 10 | STFKCYGVSP | 1.7e-05 | 44 |
| HLA-B*44:03 | 1 | 375 | 384 | 10 | STFKCYGVSP | 1.7e-05 | 43 |
| HLA-A*02:01 | 1 | 380 | 389 | 10 | YGVSPTKLND | 1.7e-05 | 58 |
| HLA-B*58:01 | 1 | 384 | 393 | 10 | PTKLNDLCFT | 1.7e-05 | 64 |
| HLA-B*44:03 | 1 | 386 | 394 | 9 | KLNDLCFTN | 1.7e-05 | 43 |
| HLA-B*57:01 | 1 | 388 | 397 | 10 | NLDCFTNVYA | 1.7e-05 | 75 |
| HLA-A*01:01 | 1 | 389 | 398 | 10 | DLCFTNVYAD | 1.7e-05 | 81 |
| HLA-A*23:01 | 1 | 389 | 397 | 9 | DLCFTNVYA | 1.7e-05 | 40 |
| HLA-B*58:01 | 1 | 389 | 397 | 9 | DLCFTNVYA | 1.7e-05 | 64 |
| HLA-A*01:01 | 1 | 397 | 406 | 10 | ADSFVIRGDE | 1.7e-05 | 81 |
| HLA-B*40:01 | 1 | 399 | 408 | 10 | SFVIRGDEV | 1.7e-05 | 37 |
| HLA-B*44:03 | 1 | 401 | 409 | 9 | VIRGDEV | 1.7e-05 | 43 |
| HLA-B*07:02 | 1 | 404 | 412 | 9 | GDEV | 1.7e-05 | 57 |
| HLA-A*31:01 | 1 | 405 | 414 | 10 | DEV | 1.7e-05 | 60 |
| HLA-A*26:01 | 1 | 407 | 415 | 9 | VRQIAPG | 1.7e-05 | 52 |
| HLA-A*68:02 | 1 | 407 | 416 | 10 | VRQIAPG | 1.7e-05 | 59 |
| HLA-B*40:01 | 1 | 414 | 423 | 10 | QTGKIADYNY | 1.7e-05 | 37 |
| HLA-B*07:02 | 1 | 415 | 424 | 10 | TGKIADYNYK | 1.7e-05 | 57 |
| HLA-B*40:01 | 1 | 417 | 426 | 10 | KIADYNYKLP | 1.7e-05 | 37 |
| HLA-B*40:01 | 1 | 420 | 429 | 10 | DYNYKLPDD | 1.7e-05 | 37 |
| HLA-B*58:01 | 1 | 422 | 430 | 9 | NYKLPDD | 1.7e-05 | 64 |
| HLA-B*51:01 | 1 | 426 | 435 | 10 | PDDFTGCVIA | 1.7e-05 | 68 |
| HLA-A*33:01 | 1 | 434 | 443 | 10 | IAWNSNLD | 1.7e-05 | 64 |
| HLA-A*02:01 | 1 | 436 | 444 | 9 | WNSNLD | 1.7e-05 | 58 |
| HLA-A*02:01 | 1 | 442 | 451 | 10 | DSKVGGNYNY | 1.7e-05 | 58 |
| HLA-B*44:03 | 1 | 446 | 455 | 10 | GGNYNYLYRL | 1.7e-05 | 43 |
| HLA-B*15:01 | 1 | 449 | 458 | 10 | YNYLYRFRK | 1.7e-05 | 58 |
| HLA-B*15:01 | 1 | 450 | 458 | 9 | NYLYRFRK | 1.7e-05 | 58 |
| HLA-A*03:01 | 1 | 452 | 461 | 10 | LYRFRKSNL | 1.7e-05 | 53 |
| HLA-B*40:01 | 1 | 452 | 461 | 10 | LYRFRKSNL | 1.7e-05 | 37 |
| HLA-A*02:01 | 1 | 455 | 464 | 10 | LFRKSNL | 1.7e-05 | 58 |
| HLA-A*11:01 | 1 | 455 | 463 | 9 | LFRKSNL | 1.7e-05 | 40 |
| HLA-A*01:01 | 1 | 456 | 465 | 10 | FRKSNL | 1.7e-05 | 81 |
| HLA-A*02:03 | 1 | 456 | 465 | 10 | FRKSNL | 1.7e-05 | 61 |
| HLA-A*23:01 | 1 | 456 | 465 | 10 | FRKSNL | 1.7e-05 | 40 |
| HLA-A*31:01 | 1 | 459 | 467 | 9 | SNL | 1.7e-05 | 60 |
| HLA-A*68:01 | 1 | 459 | 468 | 10 | SNL | 1.7e-05 | 53 |
| HLA-B*57:01 | 1 | 460 | 469 | 10 | NL | 1.7e-05 | 75 |
| HLA-B*44:02 | 1 | 461 | 470 | 10 | L | 1.7e-05 | 46 |
| HLA-B*07:02 | 1 | 465 | 474 | 10 | ERDISTE | 1.7e-05 | 57 |
| HLA-A*11:01 | 1 | 472 | 480 | 9 | IYQAG | 1.7e-05 | 40 |
| HLA-A*02:03 | 1 | 475 | 484 | 10 | AG | 1.7e-05 | 61 |
| HLA-A*24:02 | 1 | 477 | 485 | 9 | ST | 1.7e-05 | 39 |
| HLA-A*31:01 | 1 | 477 | 485 | 9 | ST | 1.7e-05 | 60 |
| HLA-B*40:01 | 1 | 482 | 491 | 10 | G | 1.7e-05 | 37 |
| HLA-A*30:02 | 1 | 483 | 491 | 9 | VEGF | 1.7e-05 | 82 |
| HLA-B*08:01 | 1 | 483 | 491 | 9 | VEGF | 1.7e-05 | 76 |
| HLA-B*07:02 | 1 | 487 | 496 | 10 | NCY | 1.7e-05 | 57 |
| HLA-B*07:02 | 1 | 493 | 502 | 10 | QSY | 1.7e-05 | 57 |
| HLA-B*58:01 | 1 | 494 | 502 | 9 | SY | 1.7e-05 | 64 |
| HLA-B*58:01 | 1 | 496 | 504 | 9 | GF | 1.7e-05 | 64 |
| HLA-B*44:03 | 1 | 501 | 510 | 10 | NG | 1.7e-05 | 43 |
| HLA-A*01:01 | 1 | 508 | 516 | 9 | YR | 1.7e-05 | 81 |
| HLA-B*35:01 | 1 | 512 | 521 | 10 | VLS | 1.7e-05 | 44 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*53:01 | 1 | 514 | 522 | 9 | SFELLHAPA | 1.7e-05 | 43 |
| HLA-B*44:03 | 1 | 516 | 525 | 10 | ELLHAPATVC | 1.7e-05 | 43 |
| HLA-A*68:01 | 1 | 517 | 525 | 9 | LLHAPATVC | 1.7e-05 | 53 |
| HLA-B*35:01 | 1 | 518 | 527 | 10 | LHAPATVCGP | 1.7e-05 | 44 |
| HLA-A*02:01 | 1 | 519 | 528 | 10 | HAPATVCGPK | 1.7e-05 | 58 |
| HLA-A*02:03 | 1 | 520 | 528 | 9 | APATVCGPK | 1.7e-05 | 61 |
| HLA-B*35:01 | 1 | 521 | 529 | 9 | PATVCGPKK | 1.7e-05 | 44 |
| HLA-A*03:01 | 1 | 524 | 533 | 10 | VCGPKKSTNL | 1.7e-05 | 53 |
| HLA-B*35:01 | 1 | 524 | 533 | 10 | VCGPKKSTNL | 1.7e-05 | 44 |
| HLA-A*02:01 | 1 | 528 | 537 | 10 | KKSTNLVKNK | 1.7e-05 | 58 |
| HLA-A*30:01 | 1 | 531 | 540 | 10 | TNLVKNKCVN | 1.7e-05 | 84 |
| HLA-A*23:01 | 1 | 533 | 542 | 10 | LVKNKCVNFN | 1.7e-05 | 40 |
| HLA-B*40:01 | 1 | 539 | 547 | 9 | VNFNFNGLT | 1.7e-05 | 37 |
| HLA-A*32:01 | 1 | 541 | 549 | 9 | FNFNGLTGT | 1.7e-05 | 45 |
| HLA-B*15:01 | 1 | 541 | 550 | 10 | FNFNGLTGTG | 1.7e-05 | 58 |
| HLA-A*26:01 | 1 | 545 | 554 | 10 | GLTGTGVLTE | 1.7e-05 | 52 |
| HLA-B*07:02 | 1 | 545 | 554 | 10 | GLTGTGVLTE | 1.7e-05 | 57 |
| HLA-B*44:03 | 1 | 549 | 558 | 10 | TGVLTESNKK | 1.7e-05 | 43 |
| HLA-A*11:01 | 1 | 556 | 564 | 9 | NKKFLPFQQ | 1.7e-05 | 40 |
| HLA-A*30:02 | 1 | 559 | 568 | 10 | FLPFQQFGRD | 1.7e-05 | 82 |
| HLA-B*40:01 | 1 | 559 | 567 | 9 | FLPFQQFGR | 1.7e-05 | 37 |
| HLA-B*40:01 | 1 | 560 | 569 | 10 | LPFQQFGRDI | 1.7e-05 | 37 |
| HLA-B*58:01 | 1 | 561 | 569 | 9 | PFQQFGRDI | 1.7e-05 | 64 |
| HLA-A*26:01 | 1 | 563 | 571 | 9 | QQFGRDIAD | 1.7e-05 | 52 |
| HLA-A*33:01 | 1 | 567 | 575 | 9 | RDIADTTDA | 1.7e-05 | 64 |
| HLA-A*02:01 | 1 | 572 | 580 | 9 | TTDAVRDPQ | 1.7e-05 | 58 |
| HLA-A*30:01 | 1 | 579 | 588 | 10 | PQTLEILDIT | 1.7e-05 | 84 |
| HLA-A*31:01 | 1 | 581 | 589 | 9 | TLEILDITP | 1.7e-05 | 60 |
| HLA-A*31:01 | 1 | 581 | 590 | 10 | TLEILDITPC | 1.7e-05 | 60 |
| HLA-A*33:01 | 1 | 581 | 589 | 9 | TLEILDITP | 1.7e-05 | 64 |
| HLA-A*68:01 | 1 | 581 | 589 | 9 | TLEILDITP | 1.7e-05 | 53 |
| HLA-B*58:01 | 1 | 581 | 590 | 10 | TLEILDITPC | 1.7e-05 | 64 |
| HLA-A*26:01 | 1 | 582 | 591 | 10 | LEILDITPCS | 1.7e-05 | 52 |
| HLA-B*35:01 | 1 | 586 | 594 | 9 | DITPCSFGG | 1.7e-05 | 44 |
| HLA-A*03:01 | 1 | 587 | 596 | 10 | ITPCSFGGVS | 1.7e-05 | 53 |
| HLA-A*03:01 | 1 | 588 | 596 | 9 | TPCSFGGVS | 1.7e-05 | 53 |
| HLA-A*11:01 | 1 | 588 | 596 | 9 | TPCSFGGVS | 1.7e-05 | 40 |
| HLA-A*31:01 | 1 | 592 | 600 | 9 | FGGVSVITP | 1.7e-05 | 60 |
| HLA-A*31:01 | 1 | 593 | 602 | 10 | GGVSVITPGT | 1.7e-05 | 60 |
| HLA-A*32:01 | 1 | 598 | 606 | 9 | ITPGTNTSN | 1.7e-05 | 45 |
| HLA-B*44:02 | 1 | 600 | 608 | 9 | PGTNTSNQV | 1.7e-05 | 46 |
| HLA-B*44:02 | 1 | 606 | 614 | 9 | NQVAVLYQD | 1.7e-05 | 46 |
| HLA-A*32:01 | 1 | 608 | 617 | 10 | VAVLYQDVNC | 1.7e-05 | 45 |
| HLA-B*44:03 | 1 | 612 | 621 | 10 | YQDVNCTEVP | 1.7e-05 | 43 |
| HLA-A*03:01 | 1 | 614 | 622 | 9 | DVNCTEVPV | 1.7e-05 | 53 |
| HLA-A*11:01 | 1 | 614 | 622 | 9 | DVNCTEVPV | 1.7e-05 | 40 |
| HLA-A*03:01 | 1 | 615 | 623 | 9 | VNCTEVPVA | 1.7e-05 | 53 |
| HLA-A*24:02 | 1 | 615 | 623 | 9 | VNCTEVPVA | 1.7e-05 | 39 |
| HLA-A*11:01 | 1 | 616 | 624 | 9 | NCTEVPVAI | 1.7e-05 | 40 |
| HLA-B*53:01 | 1 | 618 | 627 | 10 | TEVPVAIHAD | 1.7e-05 | 43 |
| HLA-B*58:01 | 1 | 618 | 627 | 10 | TEVPVAIHAD | 1.7e-05 | 64 |
| HLA-A*02:01 | 1 | 619 | 627 | 9 | EVPVAIHAD | 1.7e-05 | 58 |
| HLA-B*07:02 | 1 | 619 | 627 | 9 | EVPVAIHAD | 1.7e-05 | 57 |
| HLA-A*02:06 | 1 | 621 | 630 | 10 | PVAIHADQLT | 1.7e-05 | 68 |
| HLA-A*11:01 | 1 | 621 | 629 | 9 | PVAIHADQL | 1.7e-05 | 40 |
| HLA-A*11:01 | 1 | 629 | 638 | 10 | LTPTWRVYST | 1.7e-05 | 40 |
| HLA-A*32:01 | 1 | 629 | 638 | 10 | LTPTWRVYST | 1.7e-05 | 45 |
| HLA-A*68:02 | 1 | 631 | 640 | 10 | PTWRVYSTGS | 1.7e-05 | 59 |
| HLA-A*30:02 | 1 | 633 | 641 | 9 | WRVYSTGSN | 1.7e-05 | 82 |
| HLA-B*07:02 | 1 | 636 | 645 | 10 | YSTGSNVFQT | 1.7e-05 | 57 |
| HLA-A*31:01 | 1 | 640 | 648 | 9 | SNVFQTRAG | 1.7e-05 | 60 |
| HLA-B*44:03 | 1 | 640 | 648 | 9 | SNVFQTRAG | 1.7e-05 | 43 |
| HLA-A*26:01 | 1 | 645 | 654 | 10 | TRAGCLIGAE | 1.7e-05 | 52 |
| HLA-A*31:01 | 1 | 645 | 654 | 10 | TRAGCLIGAE | 1.7e-05 | 60 |
| HLA-B*44:02 | 1 | 646 | 655 | 10 | RAGCLIGAEH | 1.7e-05 | 46 |
| HLA-B*51:01 | 1 | 646 | 654 | 9 | RAGCLIGAE | 1.7e-05 | 68 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*01:01 | 1 | 648 | 657 | 10 | GCLIGAEHVN | 1.7e-05 | 81 |
| HLA-A*33:01 | 1 | 648 | 656 | 9 | GCLIGAEHV | 1.7e-05 | 64 |
| HLA-B*53:01 | 1 | 649 | 657 | 9 | CLIGAEHVN | 1.7e-05 | 43 |
| HLA-A*32:01 | 1 | 650 | 659 | 10 | LIGAEHVNNS | 1.7e-05 | 45 |
| HLA-A*23:01 | 1 | 651 | 659 | 9 | IGAEHVNNS | 1.7e-05 | 40 |
| HLA-B*44:03 | 1 | 651 | 659 | 9 | IGAEHVNNS | 1.7e-05 | 43 |
| HLA-A*26:01 | 1 | 657 | 666 | 10 | NNSYECDIPI | 1.7e-05 | 52 |
| HLA-B*08:01 | 1 | 658 | 667 | 10 | NSYECDIPIG | 1.7e-05 | 76 |
| HLA-A*31:01 | 1 | 659 | 667 | 9 | SYECDIPIG | 1.7e-05 | 60 |
| HLA-B*58:01 | 1 | 662 | 671 | 10 | CDIPIGAGIC | 1.7e-05 | 64 |
| HLA-A*03:01 | 1 | 663 | 672 | 10 | DIPIGAGICA | 1.7e-05 | 53 |
| HLA-A*11:01 | 1 | 663 | 672 | 10 | DIPIGAGICA | 1.7e-05 | 40 |
| HLA-A*26:01 | 1 | 664 | 673 | 10 | IPIGAGICAS | 1.7e-05 | 52 |
| HLA-B*07:02 | 1 | 671 | 680 | 10 | CASYQTQTN | 1.7e-05 | 57 |
| HLA-A*23:01 | 1 | 680 | 688 | 9 | SPRRARVA | 1.7e-05 | 40 |
| HLA-A*23:01 | 1 | 686 | 694 | 9 | SVASQSIIA | 1.7e-05 | 40 |
| HLA-B*08:01 | 1 | 692 | 700 | 9 | IIAYTMSLG | 1.7e-05 | 76 |
| HLA-A*23:01 | 1 | 693 | 701 | 9 | IAYTMSLGA | 1.7e-05 | 40 |
| HLA-A*24:02 | 1 | 693 | 702 | 10 | IAYTMSLGA | 1.7e-05 | 39 |
| HLA-B*35:01 | 1 | 695 | 704 | 10 | YTMSLGAENS | 1.7e-05 | 44 |
| HLA-B*44:03 | 1 | 696 | 704 | 9 | TMSLGAENS | 1.7e-05 | 43 |
| HLA-A*33:01 | 1 | 700 | 708 | 9 | GAENSVAYS | 1.7e-05 | 64 |
| HLA-B*07:02 | 1 | 701 | 709 | 9 | AENSVAYSN | 1.7e-05 | 57 |
| HLA-A*03:01 | 1 | 703 | 712 | 10 | NSVAYSNNSI | 1.7e-05 | 53 |
| HLA-A*03:01 | 1 | 707 | 716 | 10 | YSNNSIAIPT | 1.7e-05 | 53 |
| HLA-B*44:02 | 1 | 708 | 717 | 10 | SNNSIAIPTN | 1.7e-05 | 46 |
| HLA-A*68:02 | 1 | 709 | 717 | 9 | NNSIAIPTN | 1.7e-05 | 59 |
| HLA-A*31:01 | 1 | 715 | 723 | 9 | PTNFTISVT | 1.7e-05 | 60 |
| HLA-B*07:02 | 1 | 715 | 723 | 9 | PTNFTISVT | 1.7e-05 | 57 |
| HLA-A*02:01 | 1 | 716 | 725 | 10 | TNFTISVTTE | 1.7e-05 | 58 |
| HLA-B*53:01 | 1 | 716 | 725 | 10 | TNFTISVTTE | 1.7e-05 | 43 |
| HLA-B*53:01 | 1 | 721 | 730 | 10 | SVTTEILPVS | 1.7e-05 | 43 |
| HLA-A*02:03 | 1 | 727 | 735 | 9 | LPVSMTKTS | 1.7e-05 | 61 |
| HLA-A*23:01 | 1 | 727 | 736 | 10 | LPVSMTKTSV | 1.7e-05 | 40 |
| HLA-B*40:01 | 1 | 728 | 736 | 9 | PVSMTKTSV | 1.7e-05 | 37 |
| HLA-A*26:01 | 1 | 739 | 747 | 9 | TMYICGDST | 1.7e-05 | 52 |
| HLA-B*57:01 | 1 | 743 | 751 | 9 | CGDSTECSN | 1.7e-05 | 75 |
| HLA-A*02:03 | 1 | 749 | 757 | 9 | CSNLLLQYG | 1.7e-05 | 61 |
| HLA-A*02:01 | 1 | 750 | 758 | 9 | SNLLLQYGS | 1.7e-05 | 58 |
| HLA-B*07:02 | 1 | 753 | 762 | 10 | LLQYGSFCTQ | 1.7e-05 | 57 |
| HLA-B*35:01 | 1 | 753 | 761 | 9 | LLQYGSFCT | 1.7e-05 | 44 |
| HLA-B*07:02 | 1 | 757 | 766 | 10 | GSFCTQLNRA | 1.7e-05 | 57 |
| HLA-A*32:01 | 1 | 758 | 766 | 9 | SFCTQLNRA | 1.7e-05 | 45 |
| HLA-B*53:01 | 1 | 758 | 766 | 9 | SFCTQLNRA | 1.7e-05 | 43 |
| HLA-A*26:01 | 1 | 761 | 769 | 9 | TQLNRALTG | 1.7e-05 | 52 |
| HLA-A*24:02 | 1 | 763 | 772 | 10 | LNRLTGIIV | 1.7e-05 | 39 |
| HLA-B*51:01 | 1 | 767 | 776 | 10 | LTGIAVEQDK | 1.7e-05 | 68 |
| HLA-A*02:01 | 1 | 772 | 780 | 9 | VEQDKNTQE | 1.7e-05 | 58 |
| HLA-A*31:01 | 1 | 774 | 783 | 10 | QDKNTQEVFA | 1.7e-05 | 60 |
| HLA-B*35:01 | 1 | 786 | 795 | 10 | KQIYKTPPIK | 1.7e-05 | 44 |
| HLA-B*35:01 | 1 | 789 | 798 | 10 | YKTPPIKDFG | 1.7e-05 | 44 |
| HLA-B*40:01 | 1 | 793 | 802 | 10 | PIKDFGGFNF | 1.7e-05 | 37 |
| HLA-B*44:03 | 1 | 794 | 803 | 10 | IKDFGGFNFS | 1.7e-05 | 43 |
| HLA-A*02:01 | 1 | 800 | 808 | 9 | FNFSQILPD | 1.7e-05 | 58 |
| HLA-A*68:01 | 1 | 800 | 809 | 10 | FNFSQILPDP | 1.7e-05 | 53 |
| HLA-A*23:01 | 1 | 807 | 815 | 9 | PDPSKPSKR | 1.7e-05 | 40 |
| HLA-A*30:01 | 1 | 807 | 816 | 10 | PDPSKPSKRS | 1.7e-05 | 84 |
| HLA-B*44:02 | 1 | 810 | 819 | 10 | SKPSKRSFIE | 1.7e-05 | 46 |
| HLA-B*44:02 | 1 | 811 | 820 | 10 | KPSKRSFIED | 1.7e-05 | 46 |
| HLA-B*07:02 | 1 | 822 | 830 | 9 | LFNKVTLAD | 1.7e-05 | 57 |
| HLA-B*35:01 | 1 | 822 | 831 | 10 | LFNKVTLADA | 1.7e-05 | 44 |
| HLA-B*58:01 | 1 | 822 | 830 | 9 | LFNKVTLAD | 1.7e-05 | 64 |
| HLA-A*02:03 | 1 | 824 | 833 | 10 | NKVTLADAGF | 1.7e-05 | 61 |
| HLA-A*03:01 | 1 | 824 | 833 | 10 | NKVTLADAGF | 1.7e-05 | 53 |
| HLA-A*33:01 | 1 | 825 | 834 | 10 | KVTLADAGFI | 1.7e-05 | 64 |
| HLA-B*40:01 | 1 | 827 | 836 | 10 | TLADAGFIKQ | 1.7e-05 | 37 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-B*07:02 | 1 | 830 | 838 | 9 | DAGFIKQYG | 1.7e-05 | 57 |
| HLA-B*51:01 | 1 | 832 | 840 | 9 | GFIKQYGDC | 1.7e-05 | 68 |
| HLA-A*02:03 | 1 | 836 | 844 | 9 | QYGDCLGDI | 1.7e-05 | 61 |
| HLA-B*07:02 | 1 | 836 | 845 | 10 | QYGDCLGDIA | 1.7e-05 | 57 |
| HLA-B*07:02 | 1 | 838 | 847 | 10 | GDCLGDIAAR | 1.7e-05 | 57 |
| HLA-A*26:01 | 1 | 839 | 848 | 10 | DCLGDIAARD | 1.7e-05 | 52 |
| HLA-A*30:02 | 1 | 840 | 848 | 9 | CLGDIAARD | 1.7e-05 | 82 |
| HLA-B*44:03 | 1 | 842 | 851 | 10 | GDIAARDLIC | 1.7e-05 | 43 |
| HLA-A*03:01 | 1 | 843 | 851 | 9 | DIAARDLIC | 1.7e-05 | 53 |
| HLA-B*44:03 | 1 | 844 | 852 | 9 | IAARDLICA | 1.7e-05 | 43 |
| HLA-A*31:01 | 1 | 851 | 859 | 9 | CAQKFNGLT | 1.7e-05 | 60 |
| HLA-B*44:02 | 1 | 856 | 865 | 10 | NGLTVLPPLL | 1.7e-05 | 46 |
| HLA-A*26:01 | 1 | 858 | 867 | 10 | LTVLPPLD | 1.7e-05 | 52 |
| HLA-A*32:01 | 1 | 861 | 870 | 10 | LPPLLTDEMI | 1.7e-05 | 45 |
| HLA-B*57:01 | 1 | 867 | 876 | 10 | DEMIAQY TSA | 1.7e-05 | 75 |
| HLA-A*24:02 | 1 | 870 | 879 | 10 | IAQYTSALLA | 1.7e-05 | 39 |
| HLA-A*23:01 | 1 | 877 | 885 | 9 | LLAGTITSG | 1.7e-05 | 40 |
| HLA-A*01:01 | 1 | 879 | 887 | 9 | AGTITSGWT | 1.7e-05 | 81 |
| HLA-A*02:06 | 1 | 879 | 887 | 9 | AGTITSGWT | 1.7e-05 | 68 |
| HLA-B*58:01 | 1 | 879 | 887 | 9 | AGTITSGWT | 1.7e-05 | 64 |
| HLA-B*53:01 | 1 | 883 | 892 | 10 | TSGWTFGAGA | 1.7e-05 | 43 |
| HLA-A*23:01 | 1 | 884 | 892 | 9 | SGWTFGAGA | 1.7e-05 | 40 |
| HLA-B*40:01 | 1 | 884 | 893 | 10 | SGWTFGAGAA | 1.7e-05 | 37 |
| HLA-B*35:01 | 1 | 893 | 901 | 9 | ALQIPFAMQ | 1.7e-05 | 44 |
| HLA-A*02:03 | 1 | 899 | 907 | 9 | AMQMAYRFN | 1.7e-05 | 61 |
| HLA-A*02:06 | 1 | 902 | 910 | 9 | MAYRFNGIG | 1.7e-05 | 68 |
| HLA-A*03:01 | 1 | 907 | 916 | 10 | NGIGVTQNVL | 1.7e-05 | 53 |
| HLA-A*68:01 | 1 | 910 | 919 | 10 | GVTQNVLYEN | 1.7e-05 | 53 |
| HLA-B*40:01 | 1 | 913 | 921 | 9 | QNVLYENQK | 1.7e-05 | 37 |
| HLA-B*44:02 | 1 | 916 | 924 | 9 | LYENQKLIA | 1.7e-05 | 46 |
| HLA-A*03:01 | 1 | 920 | 929 | 10 | QKLIANQFNS | 1.7e-05 | 53 |
| HLA-A*33:01 | 1 | 920 | 929 | 10 | QKLIANQFNS | 1.7e-05 | 64 |
| HLA-B*07:02 | 1 | 931 | 939 | 9 | IGKIQDSLS | 1.7e-05 | 57 |
| HLA-A*26:01 | 1 | 932 | 940 | 9 | GKIQDSLSS | 1.7e-05 | 52 |
| HLA-A*11:01 | 1 | 934 | 943 | 10 | IQDLSLSTAS | 1.7e-05 | 40 |
| HLA-B*44:02 | 1 | 934 | 943 | 10 | IQDLSLSTAS | 1.7e-05 | 46 |
| HLA-A*26:01 | 1 | 935 | 943 | 9 | QDLSLSTAS | 1.7e-05 | 52 |
| HLA-B*53:01 | 1 | 935 | 943 | 9 | QDLSLSTAS | 1.7e-05 | 43 |
| HLA-B*57:01 | 1 | 935 | 943 | 9 | QDLSLSTAS | 1.7e-05 | 75 |
| HLA-A*23:01 | 1 | 936 | 944 | 9 | DSLSTASA | 1.7e-05 | 40 |
| HLA-B*08:01 | 1 | 938 | 946 | 9 | LSSTASALG | 1.7e-05 | 76 |
| HLA-A*31:01 | 1 | 942 | 950 | 9 | ASALGKLQD | 1.7e-05 | 60 |
| HLA-A*68:01 | 1 | 944 | 952 | 9 | ALGKLQDVV | 1.7e-05 | 53 |
| HLA-B*15:01 | 1 | 945 | 953 | 9 | LGKLQDVVN | 1.7e-05 | 58 |
| HLA-B*15:01 | 1 | 949 | 957 | 9 | QDVVNQNAQ | 1.7e-05 | 58 |
| HLA-A*32:01 | 1 | 950 | 958 | 9 | DVVNQNQAQ | 1.7e-05 | 45 |
| HLA-A*03:01 | 1 | 952 | 961 | 10 | VNQNQAALNT | 1.7e-05 | 53 |
| HLA-B*08:01 | 1 | 952 | 961 | 10 | VNQNQAALNT | 1.7e-05 | 76 |
| HLA-A*23:01 | 1 | 956 | 965 | 10 | AQALNTLVKQ | 1.7e-05 | 40 |
| HLA-A*02:06 | 1 | 959 | 967 | 9 | LNTLVKQLS | 1.7e-05 | 68 |
| HLA-B*08:01 | 1 | 963 | 971 | 9 | VKQLSSNFG | 1.7e-05 | 76 |
| HLA-B*44:03 | 1 | 963 | 972 | 10 | VKQLSSNFGA | 1.7e-05 | 43 |
| HLA-A*02:03 | 1 | 973 | 982 | 10 | ISSVLNDILS | 1.7e-05 | 61 |
| HLA-B*44:02 | 1 | 977 | 986 | 10 | LNDILSRLDK | 1.7e-05 | 46 |
| HLA-B*53:01 | 1 | 978 | 986 | 9 | NDILSRLDK | 1.7e-05 | 43 |
| HLA-A*30:02 | 1 | 984 | 992 | 9 | LDKVEAEVQ | 1.7e-05 | 82 |
| HLA-B*40:01 | 1 | 994 | 1002 | 9 | DRLITGRLQ | 1.7e-05 | 37 |
| HLA-B*40:01 | 1 | 1003 | 1011 | 9 | SLQTYVTQQ | 1.7e-05 | 37 |
| HLA-B*40:01 | 1 | 1005 | 1014 | 10 | QTYVTQQLIR | 1.7e-05 | 37 |
| HLA-A*24:02 | 1 | 1010 | 1019 | 10 | QLLIRAAEIR | 1.7e-05 | 39 |
| HLA-A*01:01 | 1 | 1012 | 1021 | 10 | LIRAAEIRAS | 1.7e-05 | 81 |
| HLA-A*33:01 | 1 | 1012 | 1021 | 10 | LIRAAEIRAS | 1.7e-05 | 64 |
| HLA-A*33:01 | 1 | 1013 | 1021 | 9 | IRAAEIRAS | 1.7e-05 | 64 |
| HLA-B*40:01 | 1 | 1013 | 1021 | 9 | IRAAEIRAS | 1.7e-05 | 37 |
| HLA-A*11:01 | 1 | 1014 | 1023 | 10 | RAAEIRASAN | 1.7e-05 | 40 |
| HLA-B*35:01 | 1 | 1015 | 1023 | 9 | AAEIRASAN | 1.7e-05 | 44 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*23:01 | 1 | 1017 | 1026 | 10 | EIRASANLAA | 1.7e-05 | 40 |
| HLA-A*23:01 | 1 | 1018 | 1027 | 10 | IRASANLAAT | 1.7e-05 | 40 |
| HLA-A*23:01 | 1 | 1024 | 1032 | 9 | LAATKMSEC | 1.7e-05 | 40 |
| HLA-A*03:01 | 1 | 1026 | 1035 | 10 | ATKMSECVLG | 1.7e-05 | 53 |
| HLA-A*26:01 | 1 | 1027 | 1036 | 10 | TKMSECVLGQ | 1.7e-05 | 52 |
| HLA-B*08:01 | 1 | 1027 | 1036 | 10 | TKMSECVLGQ | 1.7e-05 | 76 |
| HLA-A*11:01 | 1 | 1028 | 1037 | 10 | KMSECVLGQS | 1.7e-05 | 40 |
| HLA-A*02:01 | 1 | 1029 | 1037 | 9 | MSECVLGQS | 1.7e-05 | 58 |
| HLA-A*24:02 | 1 | 1030 | 1038 | 9 | SECVLGQSK | 1.7e-05 | 39 |
| HLA-B*15:01 | 1 | 1035 | 1044 | 10 | GQSKRVDFCG | 1.7e-05 | 58 |
| HLA-A*23:01 | 1 | 1038 | 1046 | 9 | KRVDFCGKG | 1.7e-05 | 40 |
| HLA-A*31:01 | 1 | 1044 | 1053 | 10 | GKGYHLMSFP | 1.7e-05 | 60 |
| HLA-B*15:01 | 1 | 1044 | 1053 | 10 | GKGYHLMSFP | 1.7e-05 | 58 |
| HLA-B*44:02 | 1 | 1049 | 1057 | 9 | LMSFPQSAP | 1.7e-05 | 46 |
| HLA-A*26:01 | 1 | 1058 | 1066 | 9 | HGVVFLHVT | 1.7e-05 | 52 |
| HLA-B*44:02 | 1 | 1059 | 1068 | 10 | GVVFLHVTVV | 1.7e-05 | 46 |
| HLA-B*15:01 | 1 | 1063 | 1072 | 10 | LHVTVVPAQE | 1.7e-05 | 58 |
| HLA-A*02:01 | 1 | 1072 | 1080 | 9 | EKNFTTAPA | 1.7e-05 | 58 |
| HLA-A*31:01 | 1 | 1072 | 1080 | 9 | EKNFTTAPA | 1.7e-05 | 60 |
| HLA-A*02:06 | 1 | 1074 | 1083 | 10 | NFTTAPAICH | 1.7e-05 | 68 |
| HLA-B*44:03 | 1 | 1074 | 1083 | 10 | NFTTAPAICH | 1.7e-05 | 43 |
| HLA-A*02:01 | 1 | 1083 | 1091 | 9 | HDGKAHFPR | 1.7e-05 | 58 |
| HLA-A*23:01 | 1 | 1083 | 1091 | 9 | HDGKAHFPR | 1.7e-05 | 40 |
| HLA-B*51:01 | 1 | 1085 | 1093 | 9 | GKAHFPR | 1.7e-05 | 68 |
| HLA-A*02:06 | 1 | 1089 | 1098 | 10 | FPREGVFSN | 1.7e-05 | 68 |
| HLA-A*23:01 | 1 | 1089 | 1097 | 9 | FPREGVFSV | 1.7e-05 | 40 |
| HLA-A*03:01 | 1 | 1097 | 1105 | 9 | SNGTHWFVT | 1.7e-05 | 53 |
| HLA-A*11:01 | 1 | 1097 | 1105 | 9 | SNGTHWFVT | 1.7e-05 | 40 |
| HLA-A*26:01 | 1 | 1097 | 1106 | 10 | SNGTHWFVTQ | 1.7e-05 | 52 |
| HLA-A*68:01 | 1 | 1097 | 1105 | 9 | SNGTHWFVT | 1.7e-05 | 53 |
| HLA-A*02:06 | 1 | 1102 | 1111 | 10 | WFVTQRNFYE | 1.7e-05 | 68 |
| HLA-A*26:01 | 1 | 1103 | 1112 | 10 | FVTQRNFYEP | 1.7e-05 | 52 |
| HLA-B*53:01 | 1 | 1103 | 1112 | 10 | FVTQRNFYEP | 1.7e-05 | 43 |
| HLA-B*40:01 | 1 | 1104 | 1112 | 9 | VTQRNFYEP | 1.7e-05 | 37 |
| HLA-A*11:01 | 1 | 1105 | 1114 | 10 | TQRNFYEPQI | 1.7e-05 | 40 |
| HLA-A*02:03 | 1 | 1109 | 1118 | 10 | FYEPQIITD | 1.7e-05 | 61 |
| HLA-A*24:02 | 1 | 1116 | 1124 | 9 | TTDNFVSG | 1.7e-05 | 39 |
| HLA-B*51:01 | 1 | 1117 | 1125 | 9 | TDNDFVSGN | 1.7e-05 | 68 |
| HLA-A*01:01 | 1 | 1118 | 1127 | 10 | DNDFVSGNCD | 1.7e-05 | 81 |
| HLA-A*68:02 | 1 | 1118 | 1127 | 10 | DNDFVSGNCD | 1.7e-05 | 59 |
| HLA-A*11:01 | 1 | 1120 | 1128 | 9 | TFVSGNCDV | 1.7e-05 | 40 |
| HLA-A*01:01 | 1 | 1122 | 1131 | 10 | VSGNCDVIG | 1.7e-05 | 81 |
| HLA-A*26:01 | 1 | 1130 | 1139 | 10 | IGIVNNTVYD | 1.7e-05 | 52 |
| HLA-B*53:01 | 1 | 1134 | 1142 | 9 | NNTVYDPLQ | 1.7e-05 | 43 |
| HLA-B*53:01 | 1 | 1140 | 1149 | 10 | PLQPELDSFK | 1.7e-05 | 43 |
| HLA-B*40:01 | 1 | 1141 | 1150 | 10 | LQPELDSFKE | 1.7e-05 | 37 |
| HLA-A*31:01 | 1 | 1143 | 1152 | 10 | PELDSFKEEL | 1.7e-05 | 60 |
| HLA-B*07:02 | 1 | 1146 | 1154 | 9 | DSFKEELDK | 1.7e-05 | 57 |
| HLA-B*15:01 | 1 | 1150 | 1158 | 9 | EELDKYFKN | 1.7e-05 | 58 |
| HLA-B*40:01 | 1 | 1152 | 1161 | 10 | LDKYFKNHTS | 1.7e-05 | 37 |
| HLA-B*58:01 | 1 | 1153 | 1162 | 10 | DKYFKNHTSP | 1.7e-05 | 64 |
| HLA-A*03:01 | 1 | 1154 | 1163 | 10 | KYFKNHTSPD | 1.7e-05 | 53 |
| HLA-B*40:01 | 1 | 1160 | 1169 | 10 | TSPDVLGDI | 1.7e-05 | 37 |
| HLA-B*44:03 | 1 | 1165 | 1173 | 9 | DLGDISGIN | 1.7e-05 | 43 |
| HLA-A*03:01 | 1 | 1168 | 1177 | 10 | DISGINASVV | 1.7e-05 | 53 |
| HLA-A*68:02 | 1 | 1170 | 1178 | 9 | SGINASVVN | 1.7e-05 | 59 |
| HLA-A*23:01 | 1 | 1172 | 1181 | 10 | INASVVNIQK | 1.7e-05 | 40 |
| HLA-A*24:02 | 1 | 1172 | 1181 | 10 | INASVVNIQK | 1.7e-05 | 39 |
| HLA-B*35:01 | 1 | 1174 | 1183 | 10 | ASVVNIQKEI | 1.7e-05 | 44 |
| HLA-A*02:03 | 1 | 1177 | 1185 | 9 | VNIQKEIDR | 1.7e-05 | 61 |
| HLA-A*11:01 | 1 | 1177 | 1186 | 10 | VNIQKEIDRL | 1.7e-05 | 40 |
| HLA-A*33:01 | 1 | 1185 | 1194 | 10 | RLNEVAKNLN | 1.7e-05 | 64 |
| HLA-B*35:01 | 1 | 1191 | 1200 | 10 | KNLNEIDL | 1.7e-05 | 44 |
| HLA-B*53:01 | 1 | 1192 | 1201 | 10 | NLNEIDLQ | 1.7e-05 | 43 |
| HLA-A*68:02 | 1 | 1198 | 1206 | 9 | IDLQELGKY | 1.7e-05 | 59 |
| HLA-A*11:01 | 1 | 1199 | 1207 | 9 | DLQELGKYE | 1.7e-05 | 40 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-B*57:01 | 1 | 1214 | 1222 | 9 | WYIWLGFIA | 1.7e-05 | 75 |
| HLA-A*26:01 | 1 | 1217 | 1225 | 9 | WLGFIAGLI | 1.7e-05 | 52 |
| HLA-A*33:01 | 1 | 1217 | 1225 | 9 | WLGFIAGLI | 1.7e-05 | 64 |
| HLA-A*24:02 | 1 | 1223 | 1232 | 10 | GLIAIVMVTI | 1.7e-05 | 39 |
| HLA-A*24:02 | 1 | 1228 | 1236 | 9 | VMVTIMLCC | 1.7e-05 | 39 |
| HLA-B*44:02 | 1 | 1229 | 1237 | 9 | MVTIMLCCM | 1.7e-05 | 46 |
| HLA-A*03:01 | 1 | 1230 | 1238 | 9 | VTIMLCCMT | 1.7e-05 | 53 |
| HLA-B*57:01 | 1 | 1232 | 1240 | 9 | IMLCCMTSC | 1.7e-05 | 75 |
| HLA-B*58:01 | 1 | 1245 | 1254 | 10 | KGCCSCGSCC | 1.7e-05 | 64 |
| HLA-A*30:02 | 1 | 1246 | 1254 | 9 | GCCSCGSCC | 1.7e-05 | 82 |
| HLA-A*11:01 | 1 | 1247 | 1256 | 10 | CCSCGSCCKF | 1.7e-05 | 40 |
| HLA-B*58:01 | 1 | 1247 | 1255 | 9 | CCSCGSCCK | 1.7e-05 | 64 |
| HLA-B*58:01 | 1 | 1253 | 1262 | 10 | CKFDEDDSE | 1.7e-05 | 64 |
| HLA-A*11:01 | 1 | 1255 | 1264 | 10 | KFDEDDSEPV | 1.7e-05 | 40 |
| HLA-A*11:01 | 1 | 1256 | 1265 | 10 | FDEDDSEPV | 1.7e-05 | 40 |
| HLA-A*23:01 | 1 | 1257 | 1266 | 10 | DEDDSEPVK | 1.7e-05 | 40 |
| HLA-A*24:02 | 1 | 1257 | 1266 | 10 | DEDDSEPVK | 1.7e-05 | 39 |
| HLA-A*32:01 | 1 | 1258 | 1266 | 9 | EDDSEPVK | 1.7e-05 | 45 |
| HLA-A*03:01 | 1 | 1259 | 1267 | 9 | DDSEPVK | 1.7e-05 | 53 |
| HLA-B*15:01 | 1 | 1 | 9 | 9 | MFVFLVLLP | 1.6e-05 | 59 |
| HLA-B*40:01 | 1 | 2 | 11 | 10 | FVFLVLLPLV | 1.6e-05 | 37 |
| HLA-A*11:01 | 1 | 7 | 15 | 9 | LLPLVSSQC | 1.6e-05 | 41 |
| HLA-A*26:01 | 1 | 9 | 18 | 10 | PLVSSQCVNL | 1.6e-05 | 53 |
| HLA-B*35:01 | 1 | 11 | 19 | 9 | VSSQCVNLT | 1.6e-05 | 44 |
| HLA-B*44:03 | 1 | 19 | 27 | 9 | TTRTQLPPA | 1.6e-05 | 44 |
| HLA-A*68:01 | 1 | 24 | 33 | 10 | LPPAYTNSFT | 1.6e-05 | 54 |
| HLA-A*23:01 | 1 | 25 | 34 | 10 | PPAYTNSFTR | 1.6e-05 | 41 |
| HLA-A*24:02 | 1 | 25 | 34 | 10 | PPAYTNSFTR | 1.6e-05 | 39 |
| HLA-B*08:01 | 1 | 31 | 40 | 10 | SFTRGVYYP | 1.6e-05 | 77 |
| HLA-B*58:01 | 1 | 31 | 40 | 10 | SFTRGVYYP | 1.6e-05 | 65 |
| HLA-B*44:02 | 1 | 36 | 45 | 10 | VYYPDKVFRS | 1.6e-05 | 47 |
| HLA-B*44:03 | 1 | 36 | 45 | 10 | VYYPDKVFRS | 1.6e-05 | 44 |
| HLA-A*23:01 | 1 | 39 | 48 | 10 | PDKVFRSSVL | 1.6e-05 | 41 |
| HLA-A*26:01 | 1 | 39 | 47 | 9 | PDKVFRSSV | 1.6e-05 | 53 |
| HLA-A*24:02 | 1 | 44 | 52 | 9 | RSSVLHSTQ | 1.6e-05 | 39 |
| HLA-A*11:01 | 1 | 45 | 53 | 9 | SSVLHSTQD | 1.6e-05 | 41 |
| HLA-A*31:01 | 1 | 45 | 53 | 9 | SSVLHSTQD | 1.6e-05 | 61 |
| HLA-B*07:02 | 1 | 53 | 61 | 9 | DLFLPFFSN | 1.6e-05 | 58 |
| HLA-B*15:01 | 1 | 54 | 63 | 10 | LFLPFFSNVT | 1.6e-05 | 59 |
| HLA-B*40:01 | 1 | 63 | 71 | 9 | TWFHAIHVS | 1.6e-05 | 37 |
| HLA-A*68:01 | 1 | 65 | 74 | 10 | FHAIHVSGTN | 1.6e-05 | 54 |
| HLA-B*58:01 | 1 | 65 | 73 | 9 | FHAIHVS | 1.6e-05 | 65 |
| HLA-A*02:06 | 1 | 66 | 75 | 10 | HAIHVS | 1.6e-05 | 69 |
| HLA-A*23:01 | 1 | 67 | 76 | 10 | AIHVS | 1.6e-05 | 41 |
| HLA-A*23:01 | 1 | 69 | 77 | 9 | HVSGTNGTK | 1.6e-05 | 41 |
| HLA-A*02:06 | 1 | 72 | 80 | 9 | GTNGTKRFD | 1.6e-05 | 69 |
| HLA-A*03:01 | 1 | 72 | 80 | 9 | GTNGTKRFD | 1.6e-05 | 54 |
| HLA-A*03:01 | 1 | 72 | 81 | 10 | GTNGTKRFDN | 1.6e-05 | 54 |
| HLA-A*11:01 | 1 | 72 | 81 | 10 | GTNGTKRFDN | 1.6e-05 | 41 |
| HLA-A*01:01 | 1 | 73 | 82 | 10 | TNGTKRFDNP | 1.6e-05 | 82 |
| HLA-A*24:02 | 1 | 74 | 82 | 9 | NGTKRFDNP | 1.6e-05 | 39 |
| HLA-B*35:01 | 1 | 76 | 85 | 10 | TKRFDNPVLP | 1.6e-05 | 44 |
| HLA-A*02:01 | 1 | 79 | 87 | 9 | FDNPVLPFN | 1.6e-05 | 59 |
| HLA-A*03:01 | 1 | 86 | 94 | 9 | FNDGVYFAS | 1.6e-05 | 54 |
| HLA-A*02:03 | 1 | 88 | 96 | 9 | DGVYFASTE | 1.6e-05 | 62 |
| HLA-A*23:01 | 1 | 88 | 97 | 10 | DGVYFASTEK | 1.6e-05 | 41 |
| HLA-B*08:01 | 1 | 89 | 98 | 10 | GVYFASTEKS | 1.6e-05 | 77 |
| HLA-B*51:01 | 1 | 90 | 99 | 10 | VYFASTEKSN | 1.6e-05 | 69 |
| HLA-B*07:02 | 1 | 99 | 108 | 10 | NIIRGWIFGT | 1.6e-05 | 58 |
| HLA-B*35:01 | 1 | 99 | 107 | 9 | NIIRGWIFG | 1.6e-05 | 44 |
| HLA-A*11:01 | 1 | 101 | 110 | 10 | IRGWIFGTTL | 1.6e-05 | 41 |
| HLA-A*32:01 | 1 | 103 | 112 | 10 | GWIFGTTLDS | 1.6e-05 | 46 |
| HLA-B*44:02 | 1 | 105 | 113 | 9 | IFGTTLDSK | 1.6e-05 | 47 |
| HLA-A*03:01 | 1 | 106 | 115 | 10 | FGTTLDSKTQ | 1.6e-05 | 54 |
| HLA-B*07:02 | 1 | 106 | 114 | 9 | FGTTLDSKT | 1.6e-05 | 58 |
| HLA-A*02:01 | 1 | 107 | 115 | 9 | GTTLDSKTQ | 1.6e-05 | 59 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*32:01 | 1 | 115 | 124 | 10 | QSLIVNNAT | 1.6e-05 | 46 |
| HLA-A*31:01 | 1 | 116 | 125 | 10 | SLIVNNATN | 1.6e-05 | 61 |
| HLA-A*68:01 | 1 | 117 | 126 | 10 | LLIVNNATNV | 1.6e-05 | 54 |
| HLA-B*08:01 | 1 | 123 | 132 | 10 | ATNVVIKVC | 1.6e-05 | 77 |
| HLA-A*30:01 | 1 | 128 | 137 | 10 | IKVCEFAQFC | 1.6e-05 | 84 |
| HLA-B*58:01 | 1 | 128 | 137 | 10 | IKVCEFAQFC | 1.6e-05 | 65 |
| HLA-A*02:06 | 1 | 131 | 139 | 9 | CEFAQFCNDP | 1.6e-05 | 69 |
| HLA-B*44:03 | 1 | 139 | 147 | 9 | PFLGVYYHK | 1.6e-05 | 44 |
| HLA-B*51:01 | 1 | 140 | 148 | 9 | FLGVYYHKN | 1.6e-05 | 69 |
| HLA-A*03:01 | 1 | 145 | 154 | 10 | YHKNNKSWME | 1.6e-05 | 54 |
| HLA-A*33:01 | 1 | 146 | 155 | 10 | HKNNKSWMES | 1.6e-05 | 65 |
| HLA-B*44:03 | 1 | 147 | 155 | 9 | KNNKSWMES | 1.6e-05 | 44 |
| HLA-A*03:01 | 1 | 156 | 164 | 9 | EFRVYSSAN | 1.6e-05 | 54 |
| HLA-B*44:02 | 1 | 157 | 166 | 10 | FRVYSSANNC | 1.6e-05 | 47 |
| HLA-A*32:01 | 1 | 161 | 169 | 9 | SSANNCTFE | 1.6e-05 | 46 |
| HLA-A*26:01 | 1 | 165 | 173 | 9 | NCTFEYVSQ | 1.6e-05 | 53 |
| HLA-A*23:01 | 1 | 166 | 174 | 9 | CTFEYVSQP | 1.6e-05 | 41 |
| HLA-A*24:02 | 1 | 170 | 178 | 9 | YVSQPFMD | 1.6e-05 | 39 |
| HLA-A*68:01 | 1 | 174 | 183 | 10 | PFLMDLEGKQ | 1.6e-05 | 54 |
| HLA-A*02:03 | 1 | 176 | 185 | 10 | LMDLEGKQGN | 1.6e-05 | 62 |
| HLA-B*35:01 | 1 | 190 | 198 | 9 | REFVFKNID | 1.6e-05 | 44 |
| HLA-B*07:02 | 1 | 197 | 206 | 10 | IDGYFKIYSK | 1.6e-05 | 58 |
| HLA-B*08:01 | 1 | 197 | 205 | 9 | IDGYFKIYS | 1.6e-05 | 77 |
| HLA-A*32:01 | 1 | 199 | 208 | 10 | GYFKIYSKHT | 1.6e-05 | 46 |
| HLA-A*11:01 | 1 | 203 | 211 | 9 | IYSKHTPIN | 1.6e-05 | 41 |
| HLA-B*07:02 | 1 | 203 | 211 | 9 | IYSKHTPIN | 1.6e-05 | 58 |
| HLA-A*02:01 | 1 | 207 | 215 | 9 | HTPINLVRD | 1.6e-05 | 59 |
| HLA-A*24:02 | 1 | 207 | 215 | 9 | HTPINLVRD | 1.6e-05 | 39 |
| HLA-B*57:01 | 1 | 210 | 218 | 9 | INLVRDLPQ | 1.6e-05 | 76 |
| HLA-A*68:01 | 1 | 211 | 219 | 9 | NLVRDLPQG | 1.6e-05 | 54 |
| HLA-A*24:02 | 1 | 212 | 221 | 10 | LVRDLPQGFS | 1.6e-05 | 39 |
| HLA-B*44:03 | 1 | 215 | 224 | 10 | DLPQGFSALE | 1.6e-05 | 44 |
| HLA-B*57:01 | 1 | 215 | 224 | 10 | DLPQGFSALE | 1.6e-05 | 76 |
| HLA-B*35:01 | 1 | 218 | 227 | 10 | QGFSALEPLV | 1.6e-05 | 44 |
| HLA-A*02:03 | 1 | 220 | 228 | 9 | FSALEPLVD | 1.6e-05 | 62 |
| HLA-B*35:01 | 1 | 222 | 231 | 10 | ALEPLVDLPI | 1.6e-05 | 44 |
| HLA-B*08:01 | 1 | 223 | 232 | 10 | LEPLVDLPIG | 1.6e-05 | 77 |
| HLA-B*58:01 | 1 | 224 | 232 | 9 | EPLVDLPIG | 1.6e-05 | 65 |
| HLA-A*30:02 | 1 | 225 | 234 | 10 | PLVDLPIGIN | 1.6e-05 | 83 |
| HLA-B*08:01 | 1 | 226 | 234 | 9 | LVLDLPIGIN | 1.6e-05 | 77 |
| HLA-A*23:01 | 1 | 227 | 236 | 10 | VDLPIGINIT | 1.6e-05 | 41 |
| HLA-B*35:01 | 1 | 227 | 236 | 10 | VDLPIGINIT | 1.6e-05 | 44 |
| HLA-B*07:02 | 1 | 231 | 240 | 10 | IGINITRFQT | 1.6e-05 | 58 |
| HLA-A*26:01 | 1 | 232 | 240 | 9 | GINITRFQT | 1.6e-05 | 53 |
| HLA-A*33:01 | 1 | 242 | 251 | 10 | LALHRSYLTP | 1.6e-05 | 65 |
| HLA-A*02:03 | 1 | 245 | 254 | 10 | HRSYLTPGDS | 1.6e-05 | 62 |
| HLA-B*57:01 | 1 | 245 | 253 | 9 | HRSYLTPGD | 1.6e-05 | 76 |
| HLA-B*40:01 | 1 | 247 | 255 | 9 | SYLTPGDSS | 1.6e-05 | 37 |
| HLA-A*30:01 | 1 | 251 | 259 | 9 | PGDSSSGWT | 1.6e-05 | 84 |
| HLA-B*44:02 | 1 | 254 | 263 | 10 | SSSGWTAGAA | 1.6e-05 | 47 |
| HLA-A*24:02 | 1 | 256 | 264 | 9 | SGWTAGAAA | 1.6e-05 | 39 |
| HLA-A*02:01 | 1 | 259 | 268 | 10 | TAGAAAYYVG | 1.6e-05 | 59 |
| HLA-B*44:02 | 1 | 261 | 270 | 10 | GAAAYYVGYL | 1.6e-05 | 47 |
| HLA-B*07:02 | 1 | 265 | 274 | 10 | YYVGYLQPR | 1.6e-05 | 58 |
| HLA-A*23:01 | 1 | 266 | 274 | 9 | YVGYLQPR | 1.6e-05 | 41 |
| HLA-B*57:01 | 1 | 274 | 283 | 10 | TFLLKYNENG | 1.6e-05 | 76 |
| HLA-B*44:02 | 1 | 276 | 285 | 10 | LLKYNENGTI | 1.6e-05 | 47 |
| HLA-A*31:01 | 1 | 279 | 288 | 10 | YNENGTITDA | 1.6e-05 | 61 |
| HLA-B*08:01 | 1 | 279 | 287 | 9 | YNENGTITD | 1.6e-05 | 77 |
| HLA-A*23:01 | 1 | 280 | 288 | 9 | NENGTITDA | 1.6e-05 | 41 |
| HLA-A*32:01 | 1 | 280 | 289 | 10 | NENGTITDAV | 1.6e-05 | 46 |
| HLA-B*58:01 | 1 | 280 | 288 | 9 | NENGTITDA | 1.6e-05 | 65 |
| HLA-A*32:01 | 1 | 281 | 289 | 9 | ENGTITDAV | 1.6e-05 | 46 |
| HLA-B*58:01 | 1 | 286 | 295 | 10 | TDAVDCALDP | 1.6e-05 | 65 |
| HLA-B*07:02 | 1 | 287 | 295 | 9 | DAVDCALDP | 1.6e-05 | 58 |
| HLA-B*44:02 | 1 | 289 | 298 | 10 | VDCALDPLSE | 1.6e-05 | 47 |

| | | | | | | |
|-------------|---|-----|-----|----|--------------------|----|
| HLA-B*44:03 | 1 | 289 | 298 | 10 | VDCALDPLSE 1.6e-05 | 44 |
| HLA-A*02:06 | 1 | 290 | 298 | 9 | DCALDPLSE 1.6e-05 | 69 |
| HLA-A*26:01 | 1 | 290 | 298 | 9 | DCALDPLSE 1.6e-05 | 53 |
| HLA-B*53:01 | 1 | 296 | 304 | 9 | LSETKCTLK 1.6e-05 | 44 |
| HLA-A*23:01 | 1 | 301 | 310 | 10 | CTLKSFTVEK 1.6e-05 | 41 |
| HLA-B*07:02 | 1 | 302 | 311 | 10 | TLKSFTVEKG 1.6e-05 | 58 |
| HLA-B*51:01 | 1 | 302 | 311 | 10 | TLKSFTVEKG 1.6e-05 | 69 |
| HLA-B*07:02 | 1 | 303 | 312 | 10 | LKSFTVEKGI 1.6e-05 | 58 |
| HLA-B*40:01 | 1 | 303 | 312 | 10 | LKSFTVEKGI 1.6e-05 | 37 |
| HLA-B*44:02 | 1 | 303 | 312 | 10 | LKSFTVEKGI 1.6e-05 | 47 |
| HLA-B*53:01 | 1 | 305 | 314 | 10 | SFTVEKGIYQ 1.6e-05 | 44 |
| HLA-A*02:03 | 1 | 309 | 318 | 10 | EKGIYQTSNF 1.6e-05 | 62 |
| HLA-B*44:02 | 1 | 310 | 319 | 10 | KGIYQTSNFR 1.6e-05 | 47 |
| HLA-A*68:02 | 1 | 313 | 321 | 9 | YQTSNFRVQ 1.6e-05 | 60 |
| HLA-B*44:02 | 1 | 315 | 323 | 9 | TSNFRVQPT 1.6e-05 | 47 |
| HLA-B*44:03 | 1 | 316 | 325 | 10 | SNFRVQPTES 1.6e-05 | 44 |
| HLA-A*26:01 | 1 | 317 | 325 | 9 | NFRVQPTES 1.6e-05 | 53 |
| HLA-A*03:01 | 1 | 331 | 340 | 10 | NITNLCPFGE 1.6e-05 | 54 |
| HLA-B*08:01 | 1 | 331 | 339 | 9 | NITNLCPFG 1.6e-05 | 77 |
| HLA-A*24:02 | 1 | 332 | 341 | 10 | ITNLCPFGEV 1.6e-05 | 39 |
| HLA-B*35:01 | 1 | 333 | 341 | 9 | TNLCPFGEV 1.6e-05 | 44 |
| HLA-A*23:01 | 1 | 336 | 345 | 10 | CPFGEVFNAT 1.6e-05 | 41 |
| HLA-A*31:01 | 1 | 336 | 345 | 10 | CPFGEVFNAT 1.6e-05 | 61 |
| HLA-B*44:02 | 1 | 336 | 345 | 10 | CPFGEVFNAT 1.6e-05 | 47 |
| HLA-A*68:01 | 1 | 350 | 358 | 9 | VYAWNRKRI 1.6e-05 | 54 |
| HLA-B*51:01 | 1 | 350 | 359 | 10 | VYAWNRKRIS 1.6e-05 | 69 |
| HLA-B*07:02 | 1 | 352 | 360 | 9 | AWNRKRISN 1.6e-05 | 58 |
| HLA-B*57:01 | 1 | 352 | 360 | 9 | AWNRKRISN 1.6e-05 | 76 |
| HLA-B*58:01 | 1 | 353 | 361 | 9 | WNRKRISNC 1.6e-05 | 65 |
| HLA-B*53:01 | 1 | 354 | 362 | 9 | NRKRISNCV 1.6e-05 | 44 |
| HLA-A*02:03 | 1 | 362 | 370 | 9 | VADYSVLYN 1.6e-05 | 62 |
| HLA-B*07:02 | 1 | 362 | 370 | 9 | VADYSVLYN 1.6e-05 | 58 |
| HLA-B*57:01 | 1 | 364 | 373 | 10 | DYSVLYNSAS 1.6e-05 | 76 |
| HLA-A*02:01 | 1 | 377 | 385 | 9 | FKCYGVSPT 1.6e-05 | 59 |
| HLA-B*15:01 | 1 | 383 | 391 | 9 | SPTKLNDLC 1.6e-05 | 59 |
| HLA-A*02:01 | 1 | 384 | 392 | 9 | PTKLNDLCF 1.6e-05 | 59 |
| HLA-A*33:01 | 1 | 385 | 393 | 9 | TKLNDLCFT 1.6e-05 | 65 |
| HLA-A*03:01 | 1 | 387 | 395 | 9 | LNDLCFTNV 1.6e-05 | 54 |
| HLA-A*23:01 | 1 | 387 | 396 | 10 | LNDLCFTNVY 1.6e-05 | 41 |
| HLA-B*35:01 | 1 | 388 | 397 | 10 | NDLCFTNVYA 1.6e-05 | 44 |
| HLA-A*11:01 | 1 | 392 | 401 | 10 | FTNVYADSFV 1.6e-05 | 41 |
| HLA-B*40:01 | 1 | 398 | 407 | 10 | DSFVIRGDEV 1.6e-05 | 37 |
| HLA-A*30:02 | 1 | 405 | 414 | 10 | DEVQRAPGQ 1.6e-05 | 83 |
| HLA-B*53:01 | 1 | 406 | 415 | 10 | EVQRAPGQT 1.6e-05 | 44 |
| HLA-B*35:01 | 1 | 407 | 416 | 10 | VRQIAPGQTG 1.6e-05 | 44 |
| HLA-A*68:01 | 1 | 411 | 419 | 9 | APGQTGKIA 1.6e-05 | 54 |
| HLA-A*02:03 | 1 | 414 | 423 | 10 | QTGKIADYNY 1.6e-05 | 62 |
| HLA-B*08:01 | 1 | 419 | 427 | 9 | ADYNYKLPD 1.6e-05 | 77 |
| HLA-B*40:01 | 1 | 419 | 427 | 9 | ADYNYKLPD 1.6e-05 | 37 |
| HLA-B*07:02 | 1 | 422 | 431 | 10 | NYKLPDDFTG 1.6e-05 | 58 |
| HLA-B*35:01 | 1 | 424 | 432 | 9 | KLPDDFTGC 1.6e-05 | 44 |
| HLA-A*23:01 | 1 | 426 | 434 | 9 | PDDFTGCVI 1.6e-05 | 41 |
| HLA-A*68:02 | 1 | 428 | 437 | 10 | DFTGCVIAWN 1.6e-05 | 60 |
| HLA-A*68:01 | 1 | 429 | 437 | 9 | FTGCVIAWN 1.6e-05 | 54 |
| HLA-A*23:01 | 1 | 434 | 443 | 10 | IAWNSNNLDS 1.6e-05 | 41 |
| HLA-B*53:01 | 1 | 434 | 443 | 10 | IAWNSNNLDS 1.6e-05 | 44 |
| HLA-A*03:01 | 1 | 435 | 443 | 9 | AWNSNNLDS 1.6e-05 | 54 |
| HLA-B*15:01 | 1 | 440 | 448 | 9 | NLDSKVGGN 1.6e-05 | 59 |
| HLA-B*15:01 | 1 | 448 | 457 | 10 | NYNYLYRLFR 1.6e-05 | 59 |
| HLA-A*11:01 | 1 | 450 | 459 | 10 | NYLYRLFRKS 1.6e-05 | 41 |
| HLA-B*44:02 | 1 | 451 | 459 | 9 | YLYRLFRKS 1.6e-05 | 47 |
| HLA-B*53:01 | 1 | 455 | 463 | 9 | LFRKSNLKP 1.6e-05 | 44 |
| HLA-B*08:01 | 1 | 458 | 467 | 10 | KSNLKPFERD 1.6e-05 | 77 |
| HLA-A*03:01 | 1 | 461 | 470 | 10 | LKPFERDIST 1.6e-05 | 54 |
| HLA-B*08:01 | 1 | 461 | 469 | 9 | LKPFERDIS 1.6e-05 | 77 |
| HLA-A*03:01 | 1 | 463 | 472 | 10 | PFERDISTEI 1.6e-05 | 54 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-A*24:02 | 1 | 465 | 474 | 10 | ERDISTEIIYQ | 1.6e-05 | 39 |
| HLA-B*53:01 | 1 | 466 | 474 | 9 | RDISTEIIYQ | 1.6e-05 | 44 |
| HLA-A*24:02 | 1 | 468 | 476 | 9 | ISTEIIYQAG | 1.6e-05 | 39 |
| HLA-A*24:02 | 1 | 471 | 479 | 9 | EIIYQAGSTP | 1.6e-05 | 39 |
| HLA-B*07:02 | 1 | 474 | 482 | 9 | QAGSTPCNG | 1.6e-05 | 58 |
| HLA-A*11:01 | 1 | 475 | 484 | 10 | AGSTPCNGVE | 1.6e-05 | 41 |
| HLA-B*35:01 | 1 | 475 | 483 | 9 | AGSTPCNGV | 1.6e-05 | 44 |
| HLA-A*31:01 | 1 | 482 | 491 | 10 | GVEGFNCYFP | 1.6e-05 | 61 |
| HLA-B*57:01 | 1 | 485 | 494 | 10 | GFNCYFP LQS | 1.6e-05 | 76 |
| HLA-A*32:01 | 1 | 489 | 498 | 10 | YFPLQSYGFQ | 1.6e-05 | 46 |
| HLA-A*26:01 | 1 | 490 | 499 | 10 | FPLQSYGFQ | 1.6e-05 | 53 |
| HLA-B*40:01 | 1 | 490 | 499 | 10 | FPLQSYGFQ | 1.6e-05 | 37 |
| HLA-A*32:01 | 1 | 501 | 510 | 10 | NGVGYQPYRV | 1.6e-05 | 46 |
| HLA-B*15:01 | 1 | 507 | 516 | 10 | PYRVVLSFE | 1.6e-05 | 59 |
| HLA-B*44:03 | 1 | 510 | 519 | 10 | VVLSFELLH | 1.6e-05 | 44 |
| HLA-B*44:02 | 1 | 517 | 525 | 9 | LLHAPATVC | 1.6e-05 | 47 |
| HLA-A*68:01 | 1 | 518 | 527 | 10 | LHAPATVCGP | 1.6e-05 | 54 |
| HLA-A*24:02 | 1 | 519 | 528 | 10 | HAPATVCGPK | 1.6e-05 | 39 |
| HLA-A*01:01 | 1 | 521 | 530 | 10 | PATVCGPKKS | 1.6e-05 | 82 |
| HLA-A*02:03 | 1 | 523 | 532 | 10 | TVCGPKKSTN | 1.6e-05 | 62 |
| HLA-B*44:03 | 1 | 525 | 534 | 10 | CGPKKSTNLV | 1.6e-05 | 44 |
| HLA-B*44:02 | 1 | 527 | 535 | 9 | PKKSTNLVK | 1.6e-05 | 47 |
| HLA-A*68:02 | 1 | 528 | 537 | 10 | KKSTNLVKNK | 1.6e-05 | 60 |
| HLA-B*57:01 | 1 | 531 | 540 | 10 | TNLVKNKCVN | 1.6e-05 | 76 |
| HLA-A*11:01 | 1 | 539 | 547 | 9 | VNFNFNGLT | 1.6e-05 | 41 |
| HLA-A*26:01 | 1 | 539 | 547 | 9 | VNFNFNGLT | 1.6e-05 | 53 |
| HLA-A*03:01 | 1 | 542 | 551 | 10 | NFNGLTGTGV | 1.6e-05 | 54 |
| HLA-B*57:01 | 1 | 542 | 550 | 9 | NFNGLTGTG | 1.6e-05 | 76 |
| HLA-A*68:01 | 1 | 544 | 553 | 10 | NGLTGTGVLT | 1.6e-05 | 54 |
| HLA-A*32:01 | 1 | 548 | 556 | 9 | GTGVLTESN | 1.6e-05 | 46 |
| HLA-B*35:01 | 1 | 555 | 563 | 9 | SNKKFLPFQ | 1.6e-05 | 44 |
| HLA-A*02:03 | 1 | 557 | 566 | 10 | KKFLPFQQFG | 1.6e-05 | 62 |
| HLA-B*07:02 | 1 | 558 | 567 | 10 | KFLPFQQFGR | 1.6e-05 | 58 |
| HLA-A*31:01 | 1 | 563 | 571 | 9 | QQFGRDIAD | 1.6e-05 | 61 |
| HLA-A*01:01 | 1 | 564 | 572 | 9 | QFGRDIADT | 1.6e-05 | 82 |
| HLA-A*03:01 | 1 | 565 | 573 | 9 | FGRDIADTT | 1.6e-05 | 54 |
| HLA-A*01:01 | 1 | 566 | 574 | 9 | GRDIADTTD | 1.6e-05 | 82 |
| HLA-A*02:03 | 1 | 566 | 575 | 10 | GRDIADTTDA | 1.6e-05 | 62 |
| HLA-A*23:01 | 1 | 566 | 575 | 10 | GRDIADTTDA | 1.6e-05 | 41 |
| HLA-A*31:01 | 1 | 567 | 575 | 9 | RDIADTTDA | 1.6e-05 | 61 |
| HLA-A*02:01 | 1 | 570 | 579 | 10 | ADTTDAVRDP | 1.6e-05 | 59 |
| HLA-B*08:01 | 1 | 571 | 580 | 10 | DTTDAVRDPQ | 1.6e-05 | 77 |
| HLA-B*44:03 | 1 | 572 | 581 | 10 | TTDAVRDPQT | 1.6e-05 | 44 |
| HLA-B*53:01 | 1 | 572 | 581 | 10 | TTDAVRDPQT | 1.6e-05 | 44 |
| HLA-A*02:01 | 1 | 579 | 588 | 10 | PQTLIELDIT | 1.6e-05 | 59 |
| HLA-A*31:01 | 1 | 582 | 590 | 9 | LEILDITPC | 1.6e-05 | 61 |
| HLA-A*26:01 | 1 | 584 | 593 | 10 | ILDITPCSFG | 1.6e-05 | 53 |
| HLA-A*26:01 | 1 | 587 | 596 | 10 | ITPCSFGGVS | 1.6e-05 | 53 |
| HLA-A*68:01 | 1 | 591 | 600 | 10 | SFGGVSVITP | 1.6e-05 | 54 |
| HLA-B*15:01 | 1 | 591 | 600 | 10 | SFGGVSVITP | 1.6e-05 | 59 |
| HLA-A*02:03 | 1 | 592 | 601 | 10 | FGGVSVITPG | 1.6e-05 | 62 |
| HLA-A*02:06 | 1 | 595 | 603 | 9 | VSVITPGTN | 1.6e-05 | 69 |
| HLA-B*35:01 | 1 | 610 | 619 | 10 | VLYQDVNCTE | 1.6e-05 | 44 |
| HLA-B*53:01 | 1 | 610 | 619 | 10 | VLYQDVNCTE | 1.6e-05 | 44 |
| HLA-B*40:01 | 1 | 611 | 619 | 9 | LYQDVNCTE | 1.6e-05 | 37 |
| HLA-B*53:01 | 1 | 612 | 621 | 10 | YQDVNCTEVP | 1.6e-05 | 44 |
| HLA-A*32:01 | 1 | 613 | 622 | 10 | QDVNCTEVPV | 1.6e-05 | 46 |
| HLA-A*03:01 | 1 | 615 | 624 | 10 | VNCTEVPVAI | 1.6e-05 | 54 |
| HLA-A*32:01 | 1 | 616 | 625 | 10 | NCTEVPVAIH | 1.6e-05 | 46 |
| HLA-A*24:02 | 1 | 619 | 627 | 9 | EVPVAIHAD | 1.6e-05 | 39 |
| HLA-B*40:01 | 1 | 622 | 631 | 10 | VAIHADQLTP | 1.6e-05 | 37 |
| HLA-A*24:02 | 1 | 631 | 639 | 9 | PTWRVYSTG | 1.6e-05 | 39 |
| HLA-A*01:01 | 1 | 632 | 640 | 9 | TWRVYSTGS | 1.6e-05 | 82 |
| HLA-B*44:03 | 1 | 642 | 651 | 10 | VFQTRAGCLI | 1.6e-05 | 44 |
| HLA-A*33:01 | 1 | 644 | 652 | 9 | QTRAGCLIG | 1.6e-05 | 65 |
| HLA-B*57:01 | 1 | 645 | 654 | 10 | TRAGCLIGAE | 1.6e-05 | 76 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*32:01 | 1 | 647 | 656 | 10 | AGCLIGAHEV | 1.6e-05 | 46 |
| HLA-A*03:01 | 1 | 649 | 657 | 9 | CLIGAHEVN | 1.6e-05 | 54 |
| HLA-B*35:01 | 1 | 649 | 657 | 9 | CLIGAHEVN | 1.6e-05 | 44 |
| HLA-B*07:02 | 1 | 650 | 659 | 10 | LIGAHEVNNS | 1.6e-05 | 58 |
| HLA-A*33:01 | 1 | 652 | 661 | 10 | GAHEVNNSYE | 1.6e-05 | 65 |
| HLA-A*26:01 | 1 | 653 | 661 | 9 | AEHVNSYE | 1.6e-05 | 53 |
| HLA-A*23:01 | 1 | 655 | 664 | 10 | HVNNSYECDI | 1.6e-05 | 41 |
| HLA-A*26:01 | 1 | 660 | 669 | 10 | YECDIPIGAG | 1.6e-05 | 53 |
| HLA-A*33:01 | 1 | 662 | 671 | 10 | CDIPIGAGIC | 1.6e-05 | 65 |
| HLA-A*02:03 | 1 | 665 | 673 | 9 | PIGAGICAS | 1.6e-05 | 62 |
| HLA-B*44:03 | 1 | 665 | 674 | 10 | PIGAGICASY | 1.6e-05 | 44 |
| HLA-A*02:01 | 1 | 666 | 675 | 10 | IGAGICASYQ | 1.6e-05 | 59 |
| HLA-A*32:01 | 1 | 669 | 678 | 10 | GICASYQTQT | 1.6e-05 | 46 |
| HLA-A*33:01 | 1 | 669 | 678 | 10 | GICASYQTQT | 1.6e-05 | 65 |
| HLA-A*11:01 | 1 | 671 | 680 | 10 | CASYQTQTN | 1.6e-05 | 41 |
| HLA-A*02:01 | 1 | 677 | 686 | 10 | QTNSPRRARS | 1.6e-05 | 59 |
| HLA-A*02:06 | 1 | 678 | 686 | 9 | TNSPRRARS | 1.6e-05 | 69 |
| HLA-B*44:03 | 1 | 678 | 686 | 9 | TNSPRRARS | 1.6e-05 | 44 |
| HLA-A*24:02 | 1 | 680 | 688 | 9 | SPRRARVA | 1.6e-05 | 39 |
| HLA-B*35:01 | 1 | 685 | 694 | 10 | RSVASQSIIA | 1.6e-05 | 44 |
| HLA-A*11:01 | 1 | 694 | 702 | 9 | AYTMSLGAE | 1.6e-05 | 41 |
| HLA-B*44:03 | 1 | 695 | 703 | 9 | YTMSLGAEN | 1.6e-05 | 44 |
| HLA-A*11:01 | 1 | 696 | 705 | 10 | TMSLGAENSV | 1.6e-05 | 41 |
| HLA-A*11:01 | 1 | 698 | 706 | 9 | SLGAENVA | 1.6e-05 | 41 |
| HLA-A*68:01 | 1 | 708 | 717 | 10 | SNNSIAIPTN | 1.6e-05 | 54 |
| HLA-A*03:01 | 1 | 715 | 723 | 9 | PTNFTISVT | 1.6e-05 | 54 |
| HLA-A*32:01 | 1 | 716 | 725 | 10 | TNFTISVTTE | 1.6e-05 | 46 |
| HLA-A*32:01 | 1 | 717 | 725 | 9 | NFTISVTTE | 1.6e-05 | 46 |
| HLA-A*26:01 | 1 | 719 | 728 | 10 | TISVTTEILP | 1.6e-05 | 53 |
| HLA-B*08:01 | 1 | 734 | 743 | 10 | TSVDCTMYIC | 1.6e-05 | 77 |
| HLA-B*15:01 | 1 | 740 | 748 | 9 | MYICGDSTE | 1.6e-05 | 59 |
| HLA-A*03:01 | 1 | 744 | 753 | 10 | GDSTECNLL | 1.6e-05 | 54 |
| HLA-B*08:01 | 1 | 748 | 757 | 10 | ECSNLLQYG | 1.6e-05 | 77 |
| HLA-A*31:01 | 1 | 751 | 760 | 10 | NLLLQYGSFC | 1.6e-05 | 61 |
| HLA-B*57:01 | 1 | 751 | 760 | 10 | NLLLQYGSFC | 1.6e-05 | 76 |
| HLA-B*57:01 | 1 | 752 | 761 | 10 | LLLQYGSFCT | 1.6e-05 | 76 |
| HLA-B*53:01 | 1 | 753 | 762 | 10 | LLQYGSFCTQ | 1.6e-05 | 44 |
| HLA-B*58:01 | 1 | 755 | 764 | 10 | QYGSFCTQLN | 1.6e-05 | 65 |
| HLA-B*53:01 | 1 | 756 | 764 | 9 | YGSFCTQLN | 1.6e-05 | 44 |
| HLA-A*23:01 | 1 | 757 | 766 | 10 | GSFCTQLNRA | 1.6e-05 | 41 |
| HLA-A*03:01 | 1 | 763 | 772 | 10 | LNRLTGIADV | 1.6e-05 | 54 |
| HLA-A*68:01 | 1 | 763 | 771 | 9 | LNRLTGVIA | 1.6e-05 | 54 |
| HLA-B*44:02 | 1 | 763 | 772 | 10 | LNRLTGVIAV | 1.6e-05 | 47 |
| HLA-A*23:01 | 1 | 766 | 774 | 9 | ALTGIAVEQ | 1.6e-05 | 41 |
| HLA-B*15:01 | 1 | 766 | 775 | 10 | ALTGIAVEQD | 1.6e-05 | 59 |
| HLA-A*02:01 | 1 | 767 | 776 | 10 | LTGIAVEQDK | 1.6e-05 | 59 |
| HLA-B*44:02 | 1 | 770 | 778 | 9 | IAVEQDKNT | 1.6e-05 | 47 |
| HLA-B*53:01 | 1 | 778 | 787 | 10 | TQEVFAQVKQ | 1.6e-05 | 44 |
| HLA-B*53:01 | 1 | 786 | 795 | 10 | KQIYKTPPIK | 1.6e-05 | 44 |
| HLA-A*02:03 | 1 | 788 | 796 | 9 | IYKTPPIKD | 1.6e-05 | 62 |
| HLA-A*68:02 | 1 | 788 | 796 | 9 | IYKTPPIKD | 1.6e-05 | 60 |
| HLA-A*02:01 | 1 | 789 | 798 | 10 | YKTPPIKDFG | 1.6e-05 | 59 |
| HLA-B*57:01 | 1 | 791 | 799 | 9 | TPPIKDFGG | 1.6e-05 | 76 |
| HLA-B*40:01 | 1 | 794 | 803 | 10 | IKDFGGFNFS | 1.6e-05 | 37 |
| HLA-A*02:03 | 1 | 795 | 804 | 10 | KDFGGFNFSQ | 1.6e-05 | 62 |
| HLA-B*08:01 | 1 | 795 | 804 | 10 | KDFGGFNFSQ | 1.6e-05 | 77 |
| HLA-B*51:01 | 1 | 795 | 804 | 10 | KDFGGFNFSQ | 1.6e-05 | 69 |
| HLA-B*57:01 | 1 | 796 | 804 | 9 | DFGGFNFSQ | 1.6e-05 | 76 |
| HLA-A*02:06 | 1 | 801 | 810 | 10 | NFSQILPDPS | 1.6e-05 | 69 |
| HLA-A*03:01 | 1 | 802 | 810 | 9 | FSQILPDPS | 1.6e-05 | 54 |
| HLA-B*08:01 | 1 | 807 | 816 | 10 | PDPSKPSKRS | 1.6e-05 | 77 |
| HLA-B*51:01 | 1 | 807 | 815 | 9 | PDPSKPSKR | 1.6e-05 | 69 |
| HLA-B*44:03 | 1 | 815 | 824 | 10 | RSFIEDLLFN | 1.6e-05 | 44 |
| HLA-A*23:01 | 1 | 827 | 836 | 10 | TLADAGFIKQ | 1.6e-05 | 41 |
| HLA-B*08:01 | 1 | 830 | 839 | 10 | DAGFIKQYGD | 1.6e-05 | 77 |
| HLA-A*03:01 | 1 | 832 | 841 | 10 | GFIKQYGDCL | 1.6e-05 | 54 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*23:01 | 1 | 835 | 843 | 9 | KQYGDCLGD | 1.6e-05 | 41 |
| HLA-A*02:06 | 1 | 836 | 845 | 10 | QYGDCLGDIA | 1.6e-05 | 69 |
| HLA-A*33:01 | 1 | 836 | 845 | 10 | QYGDCLGDIA | 1.6e-05 | 65 |
| HLA-B*15:01 | 1 | 836 | 844 | 9 | QYGDCLGDI | 1.6e-05 | 59 |
| HLA-B*44:02 | 1 | 836 | 844 | 9 | QYGDCLGDI | 1.6e-05 | 47 |
| HLA-B*15:01 | 1 | 838 | 847 | 10 | GDCLGDIAAR | 1.6e-05 | 59 |
| HLA-B*15:01 | 1 | 842 | 851 | 10 | GDIAARDLIC | 1.6e-05 | 59 |
| HLA-A*03:01 | 1 | 847 | 856 | 10 | RDICAQKFN | 1.6e-05 | 54 |
| HLA-B*51:01 | 1 | 849 | 857 | 9 | LICAQKFNG | 1.6e-05 | 69 |
| HLA-B*35:01 | 1 | 853 | 862 | 10 | QKFNGLTVLP | 1.6e-05 | 44 |
| HLA-B*15:01 | 1 | 854 | 863 | 10 | KFNGLTVLPP | 1.6e-05 | 59 |
| HLA-B*07:02 | 1 | 857 | 866 | 10 | GLTVLPPLLT | 1.6e-05 | 58 |
| HLA-B*40:01 | 1 | 859 | 867 | 9 | TVLPPLTTD | 1.6e-05 | 37 |
| HLA-B*44:03 | 1 | 873 | 882 | 10 | YTSALLAGTI | 1.6e-05 | 44 |
| HLA-B*53:01 | 1 | 876 | 885 | 10 | ALLAGTITSG | 1.6e-05 | 44 |
| HLA-A*24:02 | 1 | 891 | 899 | 9 | GAALQIPFA | 1.6e-05 | 39 |
| HLA-A*02:01 | 1 | 899 | 907 | 9 | AMQMAYRFN | 1.6e-05 | 59 |
| HLA-A*01:01 | 1 | 901 | 910 | 10 | QMAYRFNGIG | 1.6e-05 | 82 |
| HLA-A*33:01 | 1 | 902 | 910 | 9 | MAYRFNGIG | 1.6e-05 | 65 |
| HLA-B*51:01 | 1 | 911 | 920 | 10 | VTQNVLYENQ | 1.6e-05 | 69 |
| HLA-A*02:03 | 1 | 917 | 925 | 9 | YENQKLIAN | 1.6e-05 | 62 |
| HLA-A*02:06 | 1 | 919 | 928 | 10 | NQKLIANQFN | 1.6e-05 | 69 |
| HLA-B*07:02 | 1 | 919 | 928 | 10 | NQKLIANQFN | 1.6e-05 | 58 |
| HLA-B*35:01 | 1 | 921 | 930 | 10 | KLIANQFNFA | 1.6e-05 | 44 |
| HLA-B*40:01 | 1 | 921 | 929 | 9 | KLIANQFNS | 1.6e-05 | 37 |
| HLA-B*44:02 | 1 | 921 | 929 | 9 | KLIANQFNS | 1.6e-05 | 47 |
| HLA-B*15:01 | 1 | 923 | 932 | 10 | IANQFNFAIG | 1.6e-05 | 59 |
| HLA-B*07:02 | 1 | 927 | 935 | 9 | FNSAIGKIQ | 1.6e-05 | 58 |
| HLA-B*40:01 | 1 | 927 | 935 | 9 | FNSAIGKIQ | 1.6e-05 | 37 |
| HLA-A*31:01 | 1 | 930 | 939 | 10 | AIGKIQDLSL | 1.6e-05 | 61 |
| HLA-A*68:01 | 1 | 930 | 939 | 10 | AIGKIQDLSL | 1.6e-05 | 54 |
| HLA-B*07:02 | 1 | 931 | 940 | 10 | IGKIQDLSLS | 1.6e-05 | 58 |
| HLA-A*03:01 | 1 | 932 | 940 | 9 | GKIQDLSLS | 1.6e-05 | 54 |
| HLA-A*68:01 | 1 | 932 | 940 | 9 | GKIQDLSLS | 1.6e-05 | 54 |
| HLA-A*24:02 | 1 | 936 | 944 | 9 | DSLSSTASA | 1.6e-05 | 39 |
| HLA-A*02:03 | 1 | 941 | 949 | 9 | TASALGKLQ | 1.6e-05 | 62 |
| HLA-A*02:06 | 1 | 941 | 950 | 10 | TASALGKLQD | 1.6e-05 | 69 |
| HLA-A*23:01 | 1 | 942 | 951 | 10 | ASALGKLQDV | 1.6e-05 | 41 |
| HLA-A*11:01 | 1 | 944 | 952 | 9 | ALGKLQDVV | 1.6e-05 | 41 |
| HLA-B*35:01 | 1 | 945 | 953 | 9 | LGKLQDVVN | 1.6e-05 | 44 |
| HLA-B*35:01 | 1 | 946 | 954 | 9 | GKLQDVVNO | 1.6e-05 | 44 |
| HLA-B*44:03 | 1 | 948 | 957 | 10 | LQDVVNQNAQ | 1.6e-05 | 44 |
| HLA-A*11:01 | 1 | 949 | 958 | 10 | QDVVNQNAQA | 1.6e-05 | 41 |
| HLA-B*58:01 | 1 | 949 | 957 | 9 | QDVVNQNAQ | 1.6e-05 | 65 |
| HLA-B*53:01 | 1 | 951 | 960 | 10 | VVNQNAQALN | 1.6e-05 | 44 |
| HLA-A*26:01 | 1 | 958 | 967 | 10 | ALNTLVKQLS | 1.6e-05 | 53 |
| HLA-B*44:02 | 1 | 963 | 972 | 10 | VKQLSSNFGA | 1.6e-05 | 47 |
| HLA-B*51:01 | 1 | 965 | 974 | 10 | QLSSNFGAIS | 1.6e-05 | 69 |
| HLA-B*15:01 | 1 | 970 | 978 | 9 | FGAISSVLN | 1.6e-05 | 59 |
| HLA-A*30:02 | 1 | 977 | 985 | 9 | LNDILSRLD | 1.6e-05 | 83 |
| HLA-B*15:01 | 1 | 978 | 986 | 9 | NDILSRLDK | 1.6e-05 | 59 |
| HLA-A*30:02 | 1 | 979 | 988 | 10 | DILSRLDKVE | 1.6e-05 | 83 |
| HLA-A*32:01 | 1 | 981 | 990 | 10 | LSRLDKVEAE | 1.6e-05 | 46 |
| HLA-A*32:01 | 1 | 982 | 990 | 9 | SRLDKVEAE | 1.6e-05 | 46 |
| HLA-B*35:01 | 1 | 983 | 992 | 10 | RLDKVEAEVQ | 1.6e-05 | 44 |
| HLA-B*08:01 | 1 | 986 | 995 | 10 | KVEAEVQIDR | 1.6e-05 | 77 |
| HLA-B*15:01 | 1 | 994 | 1002 | 9 | DRLITGRLQ | 1.6e-05 | 59 |
| HLA-B*44:02 | 1 | 1000 | 1009 | 10 | RLQSLQTYVT | 1.6e-05 | 47 |
| HLA-B*44:03 | 1 | 1000 | 1009 | 10 | RLQSLQTYVT | 1.6e-05 | 44 |
| HLA-B*35:01 | 1 | 1004 | 1013 | 10 | LQTYVTQQLI | 1.6e-05 | 44 |
| HLA-A*32:01 | 1 | 1006 | 1015 | 10 | TYVTQQLIRA | 1.6e-05 | 46 |
| HLA-B*44:02 | 1 | 1006 | 1015 | 10 | TYVTQQLIRA | 1.6e-05 | 47 |
| HLA-A*31:01 | 1 | 1012 | 1021 | 10 | LIRAAEIRAS | 1.6e-05 | 61 |
| HLA-A*11:01 | 1 | 1013 | 1022 | 10 | IRAAEIRASA | 1.6e-05 | 41 |
| HLA-A*24:02 | 1 | 1024 | 1032 | 9 | LAATKMSEC | 1.6e-05 | 39 |
| HLA-B*44:03 | 1 | 1025 | 1034 | 10 | AATKMSECVL | 1.6e-05 | 44 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*02:06 | 1 | 1027 | 1035 | 9 | TKMSECVLG | 1.6e-05 | 69 |
| HLA-B*15:01 | 1 | 1027 | 1035 | 9 | TKMSECVLG | 1.6e-05 | 59 |
| HLA-B*40:01 | 1 | 1027 | 1035 | 9 | TKMSECVLG | 1.6e-05 | 37 |
| HLA-A*33:01 | 1 | 1028 | 1037 | 10 | KMSECVLGQS | 1.6e-05 | 65 |
| HLA-A*02:03 | 1 | 1029 | 1038 | 10 | MSECVLGQSK | 1.6e-05 | 62 |
| HLA-A*31:01 | 1 | 1029 | 1037 | 9 | MSECVLGQS | 1.6e-05 | 61 |
| HLA-A*01:01 | 1 | 1033 | 1041 | 9 | VLGQSKRVD | 1.6e-05 | 82 |
| HLA-A*68:02 | 1 | 1033 | 1042 | 10 | VLGQSKRVDF | 1.6e-05 | 60 |
| HLA-A*02:06 | 1 | 1035 | 1044 | 10 | QSKRVDFCG | 1.6e-05 | 69 |
| HLA-A*02:03 | 1 | 1036 | 1045 | 10 | QSKRVDFCGK | 1.6e-05 | 62 |
| HLA-A*68:01 | 1 | 1036 | 1044 | 9 | QSKRVDFCG | 1.6e-05 | 54 |
| HLA-A*68:02 | 1 | 1036 | 1044 | 9 | QSKRVDFCG | 1.6e-05 | 60 |
| HLA-B*44:03 | 1 | 1036 | 1045 | 10 | QSKRVDFCGK | 1.6e-05 | 44 |
| HLA-A*02:06 | 1 | 1040 | 1048 | 9 | VDFCGKGYH | 1.6e-05 | 69 |
| HLA-A*23:01 | 1 | 1059 | 1068 | 10 | GVVFLHVITYV | 1.6e-05 | 41 |
| HLA-B*40:01 | 1 | 1059 | 1068 | 10 | GVVFLHVITYV | 1.6e-05 | 37 |
| HLA-B*44:03 | 1 | 1061 | 1069 | 9 | VFLHVITYVP | 1.6e-05 | 44 |
| HLA-A*23:01 | 1 | 1062 | 1071 | 10 | FLHVITYVPAQ | 1.6e-05 | 41 |
| HLA-B*40:01 | 1 | 1064 | 1072 | 9 | HVITYVPAQE | 1.6e-05 | 37 |
| HLA-B*15:01 | 1 | 1066 | 1074 | 9 | TYVPAQEK | 1.6e-05 | 59 |
| HLA-A*33:01 | 1 | 1069 | 1078 | 10 | PAQEKNFITA | 1.6e-05 | 65 |
| HLA-A*02:01 | 1 | 1074 | 1083 | 10 | NFTTAPAICH | 1.6e-05 | 59 |
| HLA-A*02:06 | 1 | 1077 | 1085 | 9 | TAPAICHDG | 1.6e-05 | 69 |
| HLA-A*23:01 | 1 | 1077 | 1086 | 10 | TAPAICHDGK | 1.6e-05 | 41 |
| HLA-B*15:01 | 1 | 1078 | 1086 | 9 | APAICHDGK | 1.6e-05 | 59 |
| HLA-B*58:01 | 1 | 1084 | 1092 | 9 | DGKAHFPRE | 1.6e-05 | 65 |
| HLA-B*40:01 | 1 | 1088 | 1097 | 10 | HFPREGVFS | 1.6e-05 | 37 |
| HLA-A*31:01 | 1 | 1092 | 1100 | 9 | EGVFSNGT | 1.6e-05 | 61 |
| HLA-B*44:03 | 1 | 1095 | 1104 | 10 | FVSNGTHWFV | 1.6e-05 | 44 |
| HLA-A*23:01 | 1 | 1097 | 1105 | 9 | SNGTHWFVT | 1.6e-05 | 41 |
| HLA-A*23:01 | 1 | 1098 | 1106 | 9 | NGTHWFVTQ | 1.6e-05 | 41 |
| HLA-B*08:01 | 1 | 1104 | 1113 | 10 | VTQRNFYEPQ | 1.6e-05 | 77 |
| HLA-B*44:02 | 1 | 1104 | 1112 | 9 | VTQRNFYEP | 1.6e-05 | 47 |
| HLA-A*02:01 | 1 | 1112 | 1120 | 9 | PQIITTDNT | 1.6e-05 | 59 |
| HLA-A*03:01 | 1 | 1112 | 1121 | 10 | PQIITTDNTF | 1.6e-05 | 54 |
| HLA-A*26:01 | 1 | 1118 | 1126 | 9 | DNTFVSGNC | 1.6e-05 | 53 |
| HLA-B*44:02 | 1 | 1118 | 1126 | 9 | DNTFVSGNC | 1.6e-05 | 47 |
| HLA-A*03:01 | 1 | 1120 | 1128 | 9 | TFVSGNCDV | 1.6e-05 | 54 |
| HLA-B*44:03 | 1 | 1120 | 1129 | 10 | TFVSGNCDVV | 1.6e-05 | 44 |
| HLA-B*51:01 | 1 | 1125 | 1134 | 10 | NCDVIGIVN | 1.6e-05 | 69 |
| HLA-B*07:02 | 1 | 1127 | 1136 | 10 | DVVIGIVNNT | 1.6e-05 | 58 |
| HLA-B*58:01 | 1 | 1127 | 1136 | 10 | DVVIGIVNNT | 1.6e-05 | 65 |
| HLA-A*31:01 | 1 | 1134 | 1142 | 9 | NNTVYDPLQ | 1.6e-05 | 61 |
| HLA-B*08:01 | 1 | 1134 | 1142 | 9 | NNTVYDPLQ | 1.6e-05 | 77 |
| HLA-A*23:01 | 1 | 1135 | 1143 | 9 | NTVYDPLQP | 1.6e-05 | 41 |
| HLA-B*44:03 | 1 | 1135 | 1144 | 10 | NTVYDPLQPE | 1.6e-05 | 44 |
| HLA-A*30:01 | 1 | 1138 | 1147 | 10 | YDPLQPELDS | 1.6e-05 | 84 |
| HLA-B*44:03 | 1 | 1139 | 1147 | 9 | DPLQPELDS | 1.6e-05 | 44 |
| HLA-B*44:03 | 1 | 1145 | 1154 | 10 | LDSFKEELDK | 1.6e-05 | 44 |
| HLA-A*02:03 | 1 | 1152 | 1160 | 9 | LDKYFKNHT | 1.6e-05 | 62 |
| HLA-B*15:01 | 1 | 1152 | 1160 | 9 | LDKYFKNHT | 1.6e-05 | 59 |
| HLA-B*57:01 | 1 | 1152 | 1160 | 9 | LDKYFKNHT | 1.6e-05 | 76 |
| HLA-B*57:01 | 1 | 1152 | 1161 | 10 | LDKYFKNHTS | 1.6e-05 | 76 |
| HLA-A*02:01 | 1 | 1153 | 1161 | 9 | DKYFKNHTS | 1.6e-05 | 59 |
| HLA-B*53:01 | 1 | 1155 | 1164 | 10 | YFKNHTSPDV | 1.6e-05 | 44 |
| HLA-A*02:03 | 1 | 1158 | 1167 | 10 | NHTSPDVLG | 1.6e-05 | 62 |
| HLA-A*26:01 | 1 | 1158 | 1167 | 10 | NHTSPDVLG | 1.6e-05 | 53 |
| HLA-A*23:01 | 1 | 1159 | 1167 | 9 | HTSPDVLG | 1.6e-05 | 41 |
| HLA-A*11:01 | 1 | 1161 | 1169 | 9 | SPDVLGDI | 1.6e-05 | 41 |
| HLA-A*11:01 | 1 | 1161 | 1170 | 10 | SPDVLGDIS | 1.6e-05 | 41 |
| HLA-A*30:01 | 1 | 1161 | 1170 | 10 | SPDVLGDIS | 1.6e-05 | 84 |
| HLA-A*32:01 | 1 | 1161 | 1169 | 9 | SPDVLGDI | 1.6e-05 | 46 |
| HLA-B*15:01 | 1 | 1161 | 1169 | 9 | SPDVLGDI | 1.6e-05 | 59 |
| HLA-B*57:01 | 1 | 1161 | 1170 | 10 | SPDVLGDIS | 1.6e-05 | 76 |
| HLA-A*33:01 | 1 | 1163 | 1171 | 9 | DVDLGDISG | 1.6e-05 | 65 |
| HLA-A*68:01 | 1 | 1165 | 1173 | 9 | DLGDISGIN | 1.6e-05 | 54 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-B*08:01 | 1 | 1165 | 1173 | 9 | DLGDISGIN | 1.6e-05 | 77 |
| HLA-A*24:02 | 1 | 1166 | 1174 | 9 | LGDISGINA | 1.6e-05 | 39 |
| HLA-B*58:01 | 1 | 1167 | 1175 | 9 | GDISGINAS | 1.6e-05 | 65 |
| HLA-A*32:01 | 1 | 1168 | 1177 | 10 | DISGINASVV | 1.6e-05 | 46 |
| HLA-A*11:01 | 1 | 1170 | 1178 | 9 | SGINASVVN | 1.6e-05 | 41 |
| HLA-B*07:02 | 1 | 1175 | 1184 | 10 | SVVNIQKEID | 1.6e-05 | 58 |
| HLA-B*35:01 | 1 | 1179 | 1188 | 10 | IQKEIDRLNE | 1.6e-05 | 44 |
| HLA-A*26:01 | 1 | 1185 | 1194 | 10 | RLNEVAKNLN | 1.6e-05 | 53 |
| HLA-A*68:01 | 1 | 1191 | 1200 | 10 | KNLNEIDLQ | 1.6e-05 | 54 |
| HLA-A*11:01 | 1 | 1193 | 1201 | 9 | LNESLIDLQ | 1.6e-05 | 41 |
| HLA-A*26:01 | 1 | 1193 | 1201 | 9 | LNESLIDLQ | 1.6e-05 | 53 |
| HLA-B*44:03 | 1 | 1193 | 1201 | 9 | LNESLIDLQ | 1.6e-05 | 44 |
| HLA-B*44:02 | 1 | 1197 | 1205 | 9 | LIDLQELGK | 1.6e-05 | 47 |
| HLA-A*33:01 | 1 | 1210 | 1219 | 10 | IKWPWYIWL | 1.6e-05 | 65 |
| HLA-A*02:01 | 1 | 1213 | 1221 | 9 | PWYIWLGF | 1.6e-05 | 59 |
| HLA-B*44:03 | 1 | 1214 | 1222 | 9 | WYIWLGFIA | 1.6e-05 | 44 |
| HLA-A*26:01 | 1 | 1216 | 1225 | 10 | IWLGFIAGLI | 1.6e-05 | 53 |
| HLA-A*03:01 | 1 | 1218 | 1227 | 10 | LGFIAGLIAI | 1.6e-05 | 54 |
| HLA-A*24:02 | 1 | 1220 | 1229 | 10 | FIAGLIAIVM | 1.6e-05 | 39 |
| HLA-B*07:02 | 1 | 1221 | 1230 | 10 | IAGLIAIVMV | 1.6e-05 | 58 |
| HLA-B*15:01 | 1 | 1221 | 1230 | 10 | IAGLIAIVMV | 1.6e-05 | 59 |
| HLA-B*44:02 | 1 | 1223 | 1232 | 10 | GLIAIVMVTI | 1.6e-05 | 47 |
| HLA-B*15:01 | 1 | 1226 | 1235 | 10 | AIVMVTIMLC | 1.6e-05 | 59 |
| HLA-A*03:01 | 1 | 1233 | 1241 | 9 | MLCCMTSCC | 1.6e-05 | 54 |
| HLA-A*31:01 | 1 | 1233 | 1241 | 9 | MLCCMTSCC | 1.6e-05 | 61 |
| HLA-A*68:02 | 1 | 1235 | 1243 | 9 | CCMTSCCSC | 1.6e-05 | 60 |
| HLA-A*30:02 | 1 | 1237 | 1246 | 10 | MTSCCSCCLKG | 1.6e-05 | 83 |
| HLA-A*11:01 | 1 | 1241 | 1249 | 9 | CSCCLKGCCS | 1.6e-05 | 41 |
| HLA-A*02:03 | 1 | 1242 | 1251 | 10 | SCLKGCCSCG | 1.6e-05 | 62 |
| HLA-A*30:02 | 1 | 1242 | 1251 | 10 | SCLKGCCSCG | 1.6e-05 | 83 |
| HLA-A*31:01 | 1 | 1242 | 1250 | 9 | SCLKGCCSC | 1.6e-05 | 61 |
| HLA-B*57:01 | 1 | 1247 | 1255 | 9 | CCSCGSCCK | 1.6e-05 | 76 |
| HLA-A*30:01 | 1 | 1254 | 1262 | 9 | CKFDEDDSE | 1.6e-05 | 84 |
| HLA-B*53:01 | 1 | 1254 | 1262 | 9 | CKFDEDDSE | 1.6e-05 | 44 |
| HLA-A*03:01 | 1 | 1258 | 1267 | 10 | EDDSEPVKLG | 1.6e-05 | 54 |
| HLA-A*26:01 | 1 | 1258 | 1267 | 10 | EDDSEPVKLG | 1.6e-05 | 53 |
| HLA-A*02:01 | 1 | 1260 | 1269 | 10 | DSEPVKLGVK | 1.6e-05 | 59 |
| HLA-A*23:01 | 1 | 1261 | 1269 | 9 | SEPVKLGVK | 1.6e-05 | 41 |
| HLA-A*31:01 | 1 | 1265 | 1273 | 9 | LKGVKLHYT | 1.6e-05 | 61 |
| HLA-A*68:02 | 1 | 3 | 12 | 10 | VFLVLLPLVS | 1.5e-05 | 60 |
| HLA-A*68:01 | 1 | 6 | 15 | 10 | VLLPLVSSQC | 1.5e-05 | 55 |
| HLA-A*31:01 | 1 | 8 | 16 | 9 | LPLVSSQCV | 1.5e-05 | 62 |
| HLA-A*01:01 | 1 | 9 | 17 | 9 | PLVSSQCVN | 1.5e-05 | 83 |
| HLA-B*44:03 | 1 | 14 | 23 | 10 | QCVNLTRTQ | 1.5e-05 | 44 |
| HLA-B*51:01 | 1 | 14 | 23 | 10 | QCVNLTRTQ | 1.5e-05 | 70 |
| HLA-A*03:01 | 1 | 16 | 25 | 10 | VNLTRTQLP | 1.5e-05 | 55 |
| HLA-A*26:01 | 1 | 27 | 35 | 9 | AYTNSFTRG | 1.5e-05 | 54 |
| HLA-A*02:01 | 1 | 32 | 41 | 10 | FTRGVYYPDK | 1.5e-05 | 60 |
| HLA-A*32:01 | 1 | 43 | 52 | 10 | FRSSVLHSTQ | 1.5e-05 | 47 |
| HLA-A*31:01 | 1 | 44 | 53 | 10 | RSSVLHSTQD | 1.5e-05 | 62 |
| HLA-B*07:02 | 1 | 45 | 53 | 9 | SSVLHSTQD | 1.5e-05 | 59 |
| HLA-A*02:01 | 1 | 48 | 57 | 10 | LHSTQDLFLP | 1.5e-05 | 60 |
| HLA-A*68:01 | 1 | 52 | 61 | 10 | QDLFLPFFSN | 1.5e-05 | 55 |
| HLA-B*44:02 | 1 | 59 | 68 | 10 | FSNVTWFHAI | 1.5e-05 | 48 |
| HLA-B*44:03 | 1 | 59 | 68 | 10 | FSNVTWFHAI | 1.5e-05 | 44 |
| HLA-A*02:06 | 1 | 64 | 73 | 10 | WFHAIHVSGT | 1.5e-05 | 69 |
| HLA-A*26:01 | 1 | 64 | 72 | 9 | WFHAIHVSG | 1.5e-05 | 54 |
| HLA-B*07:02 | 1 | 64 | 73 | 10 | WFHAIHVSGT | 1.5e-05 | 59 |
| HLA-B*51:01 | 1 | 67 | 76 | 10 | AIHVSGTNGT | 1.5e-05 | 70 |
| HLA-A*24:02 | 1 | 69 | 77 | 9 | HVSGTNGTK | 1.5e-05 | 40 |
| HLA-B*44:03 | 1 | 85 | 93 | 9 | PFNDGVYFA | 1.5e-05 | 44 |
| HLA-A*02:01 | 1 | 87 | 95 | 9 | NDGVYFAST | 1.5e-05 | 60 |
| HLA-A*02:03 | 1 | 87 | 95 | 9 | NDGVYFAST | 1.5e-05 | 63 |
| HLA-A*30:01 | 1 | 87 | 96 | 10 | NDGVYFASTE | 1.5e-05 | 85 |
| HLA-A*33:01 | 1 | 87 | 96 | 10 | NDGVYFASTE | 1.5e-05 | 66 |
| HLA-B*15:01 | 1 | 96 | 105 | 10 | EKSNIIRGWI | 1.5e-05 | 60 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-A*02:06 | 1 | 101 | 109 | 9 | IRGWIFGTT | 1.5e-05 | 69 |
| HLA-A*33:01 | 1 | 101 | 109 | 9 | IRGWIFGTT | 1.5e-05 | 66 |
| HLA-A*33:01 | 1 | 102 | 111 | 10 | RGWIFGTTLD | 1.5e-05 | 66 |
| HLA-B*08:01 | 1 | 103 | 111 | 9 | GWIFGTTLD | 1.5e-05 | 78 |
| HLA-A*11:01 | 1 | 110 | 119 | 10 | LDSKTQSLLI | 1.5e-05 | 41 |
| HLA-A*03:01 | 1 | 111 | 120 | 10 | DSKTQSLLIIV | 1.5e-05 | 55 |
| HLA-A*68:02 | 1 | 112 | 121 | 10 | SKTQSLIIVN | 1.5e-05 | 60 |
| HLA-A*23:01 | 1 | 114 | 123 | 10 | TQSLIIVNNA | 1.5e-05 | 42 |
| HLA-B*53:01 | 1 | 114 | 122 | 9 | TQSLIIVNN | 1.5e-05 | 45 |
| HLA-B*07:02 | 1 | 120 | 129 | 10 | VNNATNVVVIK | 1.5e-05 | 59 |
| HLA-A*68:02 | 1 | 123 | 132 | 10 | ATNVVVIKVCE | 1.5e-05 | 60 |
| HLA-B*53:01 | 1 | 124 | 132 | 9 | TNVVVIKVCE | 1.5e-05 | 45 |
| HLA-A*02:01 | 1 | 125 | 134 | 10 | NVVVIKVCEFQ | 1.5e-05 | 60 |
| HLA-A*02:01 | 1 | 138 | 147 | 10 | DPFLGVVYHK | 1.5e-05 | 60 |
| HLA-B*58:01 | 1 | 141 | 149 | 9 | LGVYVHKNN | 1.5e-05 | 66 |
| HLA-B*35:01 | 1 | 145 | 154 | 10 | YHKNNKSWME | 1.5e-05 | 45 |
| HLA-B*58:01 | 1 | 146 | 155 | 10 | HKNNKSWMES | 1.5e-05 | 66 |
| HLA-A*02:03 | 1 | 148 | 156 | 9 | NNKSWMESE | 1.5e-05 | 63 |
| HLA-B*44:03 | 1 | 149 | 158 | 10 | NKSWMESEFR | 1.5e-05 | 44 |
| HLA-A*32:01 | 1 | 154 | 162 | 9 | ESEFRVYSS | 1.5e-05 | 47 |
| HLA-B*07:02 | 1 | 155 | 164 | 10 | SEFRVYSSAN | 1.5e-05 | 59 |
| HLA-B*53:01 | 1 | 156 | 164 | 9 | EFRVYSSAN | 1.5e-05 | 45 |
| HLA-A*11:01 | 1 | 159 | 167 | 9 | VYSSANNCT | 1.5e-05 | 41 |
| HLA-A*02:03 | 1 | 160 | 169 | 10 | YSSANNCTFE | 1.5e-05 | 63 |
| HLA-B*40:01 | 1 | 162 | 171 | 10 | SANNCTFEYV | 1.5e-05 | 38 |
| HLA-A*30:02 | 1 | 164 | 173 | 10 | NNCTFEYVSQ | 1.5e-05 | 83 |
| HLA-B*35:01 | 1 | 164 | 172 | 9 | NNCTFEYVS | 1.5e-05 | 45 |
| HLA-B*07:02 | 1 | 165 | 174 | 10 | NCTFEYVSQP | 1.5e-05 | 59 |
| HLA-A*26:01 | 1 | 171 | 180 | 10 | VSQPFLMDLE | 1.5e-05 | 54 |
| HLA-B*08:01 | 1 | 171 | 180 | 10 | VSQPFLMDLE | 1.5e-05 | 78 |
| HLA-A*68:02 | 1 | 172 | 181 | 10 | SQPFLMDLEG | 1.5e-05 | 60 |
| HLA-A*02:06 | 1 | 173 | 182 | 10 | QPFLMDLEGK | 1.5e-05 | 69 |
| HLA-B*40:01 | 1 | 175 | 183 | 9 | FLMDLEGKQ | 1.5e-05 | 38 |
| HLA-B*53:01 | 1 | 188 | 196 | 9 | NLREFVFKN | 1.5e-05 | 45 |
| HLA-B*44:03 | 1 | 189 | 198 | 10 | LREFVFKNID | 1.5e-05 | 44 |
| HLA-A*11:01 | 1 | 194 | 203 | 10 | FKNIDGYFKI | 1.5e-05 | 41 |
| HLA-B*44:02 | 1 | 196 | 205 | 10 | NIDGYFKIYS | 1.5e-05 | 48 |
| HLA-A*01:01 | 1 | 199 | 208 | 10 | GYFKIYSKHT | 1.5e-05 | 83 |
| HLA-A*26:01 | 1 | 202 | 211 | 10 | KIYSKHTPIN | 1.5e-05 | 54 |
| HLA-A*03:01 | 1 | 208 | 217 | 10 | TPINLVRDLP | 1.5e-05 | 55 |
| HLA-B*44:02 | 1 | 211 | 219 | 9 | NLVRDLPQG | 1.5e-05 | 48 |
| HLA-B*44:03 | 1 | 211 | 219 | 9 | NLVRDLPQG | 1.5e-05 | 44 |
| HLA-B*57:01 | 1 | 217 | 225 | 9 | PQGFSALEP | 1.5e-05 | 77 |
| HLA-A*24:02 | 1 | 219 | 228 | 10 | GFSALEPLVD | 1.5e-05 | 40 |
| HLA-B*15:01 | 1 | 231 | 240 | 10 | IGINITRFQT | 1.5e-05 | 60 |
| HLA-B*44:03 | 1 | 232 | 240 | 9 | GINITRFQT | 1.5e-05 | 44 |
| HLA-A*03:01 | 1 | 244 | 252 | 9 | LHRSYLTGP | 1.5e-05 | 55 |
| HLA-B*15:01 | 1 | 244 | 252 | 9 | LHRSYLTGP | 1.5e-05 | 60 |
| HLA-B*44:02 | 1 | 246 | 255 | 10 | RSYLTPGDSS | 1.5e-05 | 48 |
| HLA-A*32:01 | 1 | 247 | 256 | 10 | SYLTPGDSSS | 1.5e-05 | 47 |
| HLA-A*24:02 | 1 | 248 | 257 | 10 | YLTPGDSSSSG | 1.5e-05 | 40 |
| HLA-A*33:01 | 1 | 249 | 257 | 9 | LTPGDSSSSG | 1.5e-05 | 66 |
| HLA-B*40:01 | 1 | 252 | 261 | 10 | GDSSSGWTAG | 1.5e-05 | 38 |
| HLA-A*02:03 | 1 | 259 | 268 | 10 | TAGAAAYVVG | 1.5e-05 | 63 |
| HLA-A*01:01 | 1 | 274 | 282 | 9 | TFLLKYNNEN | 1.5e-05 | 83 |
| HLA-A*02:01 | 1 | 274 | 283 | 10 | TFLLKYNNENG | 1.5e-05 | 60 |
| HLA-B*58:01 | 1 | 276 | 284 | 9 | LLKYNNENGT | 1.5e-05 | 66 |
| HLA-A*03:01 | 1 | 277 | 285 | 9 | LKYNNENGTI | 1.5e-05 | 55 |
| HLA-A*33:01 | 1 | 277 | 286 | 10 | LKYNNENGTIT | 1.5e-05 | 66 |
| HLA-B*35:01 | 1 | 277 | 286 | 10 | LKYNNENGTIT | 1.5e-05 | 45 |
| HLA-B*53:01 | 1 | 279 | 287 | 9 | YNENGTITD | 1.5e-05 | 45 |
| HLA-A*24:02 | 1 | 280 | 288 | 9 | NENGTITDA | 1.5e-05 | 40 |
| HLA-A*02:03 | 1 | 282 | 291 | 10 | NGTITDAVDC | 1.5e-05 | 63 |
| HLA-B*08:01 | 1 | 282 | 291 | 10 | NGTITDAVDC | 1.5e-05 | 78 |
| HLA-B*07:02 | 1 | 283 | 291 | 9 | GTITDAVDC | 1.5e-05 | 59 |
| HLA-B*08:01 | 1 | 285 | 294 | 10 | ITDAVDCALD | 1.5e-05 | 78 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*51:01 | 1 | 285 | 294 | 10 | ITDAVDCALD | 1.5e-05 | 70 |
| HLA-A*02:06 | 1 | 287 | 295 | 9 | DAVDCALDP | 1.5e-05 | 69 |
| HLA-A*03:01 | 1 | 290 | 299 | 10 | DCALDPLSET | 1.5e-05 | 55 |
| HLA-B*44:02 | 1 | 293 | 301 | 9 | LDPLSETKC | 1.5e-05 | 48 |
| HLA-B*57:01 | 1 | 293 | 301 | 9 | LDPLSETKC | 1.5e-05 | 77 |
| HLA-A*68:01 | 1 | 299 | 307 | 9 | TKCTLKSFT | 1.5e-05 | 55 |
| HLA-B*44:03 | 1 | 299 | 307 | 9 | TKCTLKSFT | 1.5e-05 | 44 |
| HLA-B*53:01 | 1 | 299 | 308 | 10 | TKCTLKSFTV | 1.5e-05 | 45 |
| HLA-B*44:02 | 1 | 301 | 310 | 10 | CTLKSFTVEK | 1.5e-05 | 48 |
| HLA-B*44:03 | 1 | 302 | 311 | 10 | TLKSFTVEKG | 1.5e-05 | 44 |
| HLA-A*02:06 | 1 | 305 | 313 | 9 | SFTVEKGIY | 1.5e-05 | 69 |
| HLA-A*33:01 | 1 | 308 | 317 | 10 | VEKGIYQTSN | 1.5e-05 | 66 |
| HLA-A*11:01 | 1 | 309 | 318 | 10 | EKGIYQTSNF | 1.5e-05 | 41 |
| HLA-A*11:01 | 1 | 328 | 337 | 10 | RFPNITNLCP | 1.5e-05 | 41 |
| HLA-B*44:02 | 1 | 329 | 337 | 9 | FPNITNLCP | 1.5e-05 | 48 |
| HLA-A*02:01 | 1 | 331 | 340 | 10 | NITNLCPFGE | 1.5e-05 | 60 |
| HLA-A*23:01 | 1 | 332 | 341 | 10 | ITNLCPFGEV | 1.5e-05 | 42 |
| HLA-A*03:01 | 1 | 334 | 343 | 10 | NLCPFGEVFN | 1.5e-05 | 55 |
| HLA-A*02:06 | 1 | 335 | 343 | 9 | LCPFGEVFN | 1.5e-05 | 69 |
| HLA-A*03:01 | 1 | 350 | 359 | 10 | VYAWNRKRIS | 1.5e-05 | 55 |
| HLA-A*01:01 | 1 | 352 | 361 | 10 | AWNRKRISNC | 1.5e-05 | 83 |
| HLA-B*15:01 | 1 | 352 | 361 | 10 | AWNRKRISNC | 1.5e-05 | 60 |
| HLA-A*02:03 | 1 | 354 | 363 | 10 | NRKRISNCVA | 1.5e-05 | 63 |
| HLA-A*33:01 | 1 | 355 | 363 | 9 | RKRISNCVA | 1.5e-05 | 66 |
| HLA-A*32:01 | 1 | 357 | 366 | 10 | RISNCVADYS | 1.5e-05 | 47 |
| HLA-B*07:02 | 1 | 358 | 367 | 10 | ISNCVADYSV | 1.5e-05 | 59 |
| HLA-A*26:01 | 1 | 362 | 370 | 9 | VADYSVLYN | 1.5e-05 | 54 |
| HLA-B*08:01 | 1 | 362 | 371 | 10 | VADYSVLYNS | 1.5e-05 | 78 |
| HLA-B*15:01 | 1 | 362 | 370 | 9 | VADYSVLYN | 1.5e-05 | 60 |
| HLA-B*53:01 | 1 | 362 | 371 | 10 | VADYSVLYNS | 1.5e-05 | 45 |
| HLA-B*53:01 | 1 | 363 | 371 | 9 | ADYSVLYNS | 1.5e-05 | 45 |
| HLA-A*24:02 | 1 | 370 | 379 | 10 | NSASFSTFKC | 1.5e-05 | 40 |
| HLA-B*35:01 | 1 | 370 | 379 | 10 | NSASFSTFKC | 1.5e-05 | 45 |
| HLA-B*53:01 | 1 | 372 | 381 | 10 | ASFSTFKCYG | 1.5e-05 | 45 |
| HLA-B*44:02 | 1 | 373 | 381 | 9 | SFSTFKCYG | 1.5e-05 | 48 |
| HLA-A*03:01 | 1 | 374 | 382 | 9 | FSTFKCYGV | 1.5e-05 | 55 |
| HLA-A*24:02 | 1 | 377 | 386 | 10 | FKCYGVSPTK | 1.5e-05 | 40 |
| HLA-A*01:01 | 1 | 379 | 388 | 10 | CYGVSPTKLN | 1.5e-05 | 83 |
| HLA-B*53:01 | 1 | 380 | 389 | 10 | YGVSPKLNLD | 1.5e-05 | 45 |
| HLA-A*03:01 | 1 | 383 | 391 | 9 | SPTKLNDLC | 1.5e-05 | 55 |
| HLA-A*24:02 | 1 | 383 | 391 | 9 | SPTKLNDLC | 1.5e-05 | 40 |
| HLA-B*08:01 | 1 | 384 | 393 | 10 | PTKLNDLCFT | 1.5e-05 | 78 |
| HLA-A*02:01 | 1 | 385 | 393 | 9 | TKLNDLCFT | 1.5e-05 | 60 |
| HLA-A*02:06 | 1 | 388 | 396 | 9 | NLDCFTNVY | 1.5e-05 | 69 |
| HLA-A*02:01 | 1 | 389 | 398 | 10 | DLCFTNVYAD | 1.5e-05 | 60 |
| HLA-A*33:01 | 1 | 389 | 398 | 10 | DLCFTNVYAD | 1.5e-05 | 66 |
| HLA-B*51:01 | 1 | 390 | 399 | 10 | LCFTNVYADS | 1.5e-05 | 70 |
| HLA-A*11:01 | 1 | 396 | 404 | 9 | YADSFVIRG | 1.5e-05 | 41 |
| HLA-B*44:03 | 1 | 397 | 406 | 10 | ADSFVIRGDE | 1.5e-05 | 44 |
| HLA-B*15:01 | 1 | 398 | 407 | 10 | DSFVIRGDEV | 1.5e-05 | 60 |
| HLA-B*44:02 | 1 | 400 | 409 | 10 | FVIRGDEVQR | 1.5e-05 | 48 |
| HLA-A*02:06 | 1 | 404 | 412 | 9 | GDEVQRQIAP | 1.5e-05 | 69 |
| HLA-B*58:01 | 1 | 406 | 415 | 10 | EVRQIAPGQT | 1.5e-05 | 66 |
| HLA-B*53:01 | 1 | 407 | 416 | 10 | VRQIAPGQTG | 1.5e-05 | 45 |
| HLA-A*24:02 | 1 | 410 | 419 | 10 | IAPGQTGKIA | 1.5e-05 | 40 |
| HLA-A*24:02 | 1 | 412 | 421 | 10 | PGQTGKIADY | 1.5e-05 | 40 |
| HLA-A*30:01 | 1 | 412 | 420 | 9 | PGQTGKIAD | 1.5e-05 | 85 |
| HLA-A*31:01 | 1 | 413 | 422 | 10 | GQTGKIADYN | 1.5e-05 | 62 |
| HLA-A*23:01 | 1 | 415 | 424 | 10 | TGKIADYNYK | 1.5e-05 | 42 |
| HLA-A*24:02 | 1 | 415 | 424 | 10 | TGKIADYNYK | 1.5e-05 | 40 |
| HLA-A*30:01 | 1 | 418 | 427 | 10 | IADYNYKLPD | 1.5e-05 | 85 |
| HLA-B*58:01 | 1 | 427 | 435 | 9 | DDFTGCVIA | 1.5e-05 | 66 |
| HLA-A*30:01 | 1 | 429 | 437 | 9 | FTGCVIAWN | 1.5e-05 | 85 |
| HLA-A*02:06 | 1 | 431 | 440 | 10 | GCVIAWNSNN | 1.5e-05 | 69 |
| HLA-B*58:01 | 1 | 431 | 440 | 10 | GCVIAWNSNN | 1.5e-05 | 66 |
| HLA-A*02:03 | 1 | 432 | 440 | 9 | CVIAWNSNN | 1.5e-05 | 63 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*32:01 | 1 | 433 | 442 | 10 | VIAWNSNNLD | 1.5e-05 | 47 |
| HLA-A*68:02 | 1 | 435 | 444 | 10 | AWNSNNLDSK | 1.5e-05 | 60 |
| HLA-B*53:01 | 1 | 436 | 444 | 9 | WNSNNLDSK | 1.5e-05 | 45 |
| HLA-A*02:01 | 1 | 441 | 449 | 9 | LDSKVGGNY | 1.5e-05 | 60 |
| HLA-A*02:06 | 1 | 445 | 454 | 10 | VGGNYNYLYR | 1.5e-05 | 69 |
| HLA-A*23:01 | 1 | 445 | 454 | 10 | VGGNYNYLYR | 1.5e-05 | 42 |
| HLA-B*51:01 | 1 | 445 | 454 | 10 | VGGNYNYLYR | 1.5e-05 | 70 |
| HLA-B*44:03 | 1 | 446 | 454 | 9 | GGNYNYLYR | 1.5e-05 | 44 |
| HLA-B*07:02 | 1 | 447 | 456 | 10 | GNYYNYLRLF | 1.5e-05 | 59 |
| HLA-B*44:03 | 1 | 452 | 461 | 10 | LYRLFRKSNL | 1.5e-05 | 44 |
| HLA-A*11:01 | 1 | 457 | 465 | 9 | RKSNLKPFE | 1.5e-05 | 41 |
| HLA-A*23:01 | 1 | 458 | 467 | 10 | KSNLKPFERD | 1.5e-05 | 42 |
| HLA-A*24:02 | 1 | 458 | 467 | 10 | KSNLKPFERD | 1.5e-05 | 40 |
| HLA-A*24:02 | 1 | 462 | 471 | 10 | KPFERDISTE | 1.5e-05 | 40 |
| HLA-A*31:01 | 1 | 469 | 478 | 10 | STEIQAGST | 1.5e-05 | 62 |
| HLA-A*33:01 | 1 | 472 | 481 | 10 | IYQAGSTPCN | 1.5e-05 | 66 |
| HLA-A*24:02 | 1 | 473 | 481 | 9 | YQAGSTPCN | 1.5e-05 | 40 |
| HLA-B*40:01 | 1 | 473 | 482 | 10 | YQAGSTPCNG | 1.5e-05 | 38 |
| HLA-B*57:01 | 1 | 479 | 488 | 10 | PCNGVEGFNC | 1.5e-05 | 77 |
| HLA-A*02:06 | 1 | 484 | 493 | 10 | EGFNCYFPLQ | 1.5e-05 | 69 |
| HLA-A*02:01 | 1 | 485 | 494 | 10 | GFNCYFPLQS | 1.5e-05 | 60 |
| HLA-B*58:01 | 1 | 485 | 494 | 10 | GFNCYFPLQS | 1.5e-05 | 66 |
| HLA-A*02:01 | 1 | 488 | 496 | 9 | CYFPLQSYG | 1.5e-05 | 60 |
| HLA-B*58:01 | 1 | 489 | 498 | 10 | YFPLQSYGFQ | 1.5e-05 | 66 |
| HLA-A*31:01 | 1 | 491 | 499 | 9 | PLQSYGFQP | 1.5e-05 | 62 |
| HLA-B*07:02 | 1 | 491 | 499 | 9 | PLQSYGFQP | 1.5e-05 | 59 |
| HLA-B*57:01 | 1 | 491 | 499 | 9 | PLQSYGFQP | 1.5e-05 | 77 |
| HLA-A*68:01 | 1 | 492 | 501 | 10 | LQSYGFQPTN | 1.5e-05 | 55 |
| HLA-B*44:02 | 1 | 493 | 502 | 10 | QSYGFQPTNG | 1.5e-05 | 48 |
| HLA-B*51:01 | 1 | 494 | 502 | 9 | SYGFQPTNG | 1.5e-05 | 70 |
| HLA-A*31:01 | 1 | 495 | 504 | 10 | YGFQPTNGVG | 1.5e-05 | 62 |
| HLA-A*02:03 | 1 | 496 | 504 | 9 | GFQPTNGVG | 1.5e-05 | 63 |
| HLA-A*02:01 | 1 | 500 | 509 | 10 | TNGVGYQPYP | 1.5e-05 | 60 |
| HLA-A*23:01 | 1 | 512 | 521 | 10 | VLSFELLHAP | 1.5e-05 | 42 |
| HLA-B*44:03 | 1 | 514 | 522 | 9 | SFELLHAPA | 1.5e-05 | 44 |
| HLA-B*44:03 | 1 | 517 | 525 | 9 | LLHAPATVC | 1.5e-05 | 44 |
| HLA-A*26:01 | 1 | 518 | 526 | 9 | LHAPATVCG | 1.5e-05 | 54 |
| HLA-B*44:02 | 1 | 518 | 527 | 10 | LHAPATVCGP | 1.5e-05 | 48 |
| HLA-B*53:01 | 1 | 518 | 527 | 10 | LHAPATVCGP | 1.5e-05 | 45 |
| HLA-A*24:02 | 1 | 529 | 538 | 10 | KSTNLVKNKC | 1.5e-05 | 40 |
| HLA-B*53:01 | 1 | 529 | 537 | 9 | KSTNLVKNK | 1.5e-05 | 45 |
| HLA-A*68:01 | 1 | 531 | 539 | 9 | TNLVKNKCV | 1.5e-05 | 55 |
| HLA-B*35:01 | 1 | 531 | 539 | 9 | TNLVKNKCV | 1.5e-05 | 45 |
| HLA-B*53:01 | 1 | 531 | 539 | 9 | TNLVKNKCV | 1.5e-05 | 45 |
| HLA-A*02:03 | 1 | 533 | 542 | 10 | LVKNKCVNFN | 1.5e-05 | 63 |
| HLA-A*03:01 | 1 | 533 | 542 | 10 | LVKNKCVNFN | 1.5e-05 | 55 |
| HLA-B*07:02 | 1 | 534 | 543 | 10 | VKNKCVNFN | 1.5e-05 | 59 |
| HLA-A*31:01 | 1 | 535 | 544 | 10 | KNKCVNFNFN | 1.5e-05 | 62 |
| HLA-A*68:02 | 1 | 539 | 548 | 10 | VNFNFNGLTG | 1.5e-05 | 60 |
| HLA-A*02:03 | 1 | 540 | 548 | 9 | NFNFNGLTG | 1.5e-05 | 63 |
| HLA-A*26:01 | 1 | 541 | 550 | 10 | FNFNGLTGTG | 1.5e-05 | 54 |
| HLA-B*44:03 | 1 | 542 | 550 | 9 | NFNGLTGTG | 1.5e-05 | 44 |
| HLA-B*58:01 | 1 | 542 | 550 | 9 | NFNGLTGTG | 1.5e-05 | 66 |
| HLA-B*44:03 | 1 | 545 | 553 | 9 | GLTGTGVLT | 1.5e-05 | 44 |
| HLA-B*07:02 | 1 | 552 | 561 | 10 | LTESNKKFLP | 1.5e-05 | 59 |
| HLA-A*26:01 | 1 | 553 | 561 | 9 | TESNKKFLP | 1.5e-05 | 54 |
| HLA-B*53:01 | 1 | 556 | 564 | 9 | NKKFLPFQ | 1.5e-05 | 45 |
| HLA-B*35:01 | 1 | 557 | 566 | 10 | KKFLPFQFG | 1.5e-05 | 45 |
| HLA-B*44:03 | 1 | 559 | 567 | 9 | FLPFQFGR | 1.5e-05 | 44 |
| HLA-A*03:01 | 1 | 560 | 569 | 10 | LPFQFGRDI | 1.5e-05 | 55 |
| HLA-A*11:01 | 1 | 562 | 570 | 9 | FQFGRDIA | 1.5e-05 | 41 |
| HLA-A*68:01 | 1 | 564 | 573 | 10 | QFGRDIADTT | 1.5e-05 | 55 |
| HLA-B*44:03 | 1 | 564 | 573 | 10 | QFGRDIADTT | 1.5e-05 | 44 |
| HLA-A*26:01 | 1 | 566 | 575 | 10 | GRDIADTTDA | 1.5e-05 | 54 |
| HLA-B*08:01 | 1 | 566 | 574 | 9 | GRDIADTTD | 1.5e-05 | 78 |
| HLA-B*07:02 | 1 | 571 | 580 | 10 | DTTDAVRDPQ | 1.5e-05 | 59 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*57:01 | 1 | 573 | 581 | 9 | TDAVRDPQT | 1.5e-05 | 77 |
| HLA-A*23:01 | 1 | 580 | 588 | 9 | QTLEILDIT | 1.5e-05 | 42 |
| HLA-A*68:01 | 1 | 582 | 590 | 9 | LEILDITPC | 1.5e-05 | 55 |
| HLA-B*53:01 | 1 | 582 | 591 | 10 | LEILDITPCS | 1.5e-05 | 45 |
| HLA-B*15:01 | 1 | 587 | 596 | 10 | ITPCSFGGVS | 1.5e-05 | 60 |
| HLA-B*15:01 | 1 | 589 | 597 | 9 | PCSFGGVSV | 1.5e-05 | 60 |
| HLA-A*26:01 | 1 | 591 | 600 | 10 | SFGGVSVITP | 1.5e-05 | 54 |
| HLA-B*40:01 | 1 | 591 | 600 | 10 | SFGGVSVITP | 1.5e-05 | 38 |
| HLA-A*68:02 | 1 | 592 | 601 | 10 | FGGVSVITPG | 1.5e-05 | 60 |
| HLA-B*40:01 | 1 | 592 | 600 | 9 | FGGVSVITP | 1.5e-05 | 38 |
| HLA-A*31:01 | 1 | 593 | 601 | 9 | GGVSVITPG | 1.5e-05 | 62 |
| HLA-A*33:01 | 1 | 593 | 601 | 9 | GGVSVITPG | 1.5e-05 | 66 |
| HLA-B*53:01 | 1 | 595 | 604 | 10 | VSVITPGTNT | 1.5e-05 | 45 |
| HLA-A*33:01 | 1 | 597 | 606 | 10 | VITPGTNTSN | 1.5e-05 | 66 |
| HLA-B*51:01 | 1 | 597 | 606 | 10 | VITPGTNTSN | 1.5e-05 | 70 |
| HLA-B*53:01 | 1 | 601 | 610 | 10 | GTNTSNQVAV | 1.5e-05 | 45 |
| HLA-B*07:02 | 1 | 605 | 613 | 9 | SNQVAVLYQ | 1.5e-05 | 59 |
| HLA-B*35:01 | 1 | 613 | 622 | 10 | QDVNCTEVPV | 1.5e-05 | 45 |
| HLA-B*58:01 | 1 | 613 | 622 | 10 | QDVNCTEVPV | 1.5e-05 | 66 |
| HLA-B*44:02 | 1 | 614 | 623 | 10 | DVNCTEVPVA | 1.5e-05 | 48 |
| HLA-A*02:03 | 1 | 616 | 625 | 10 | NCTEVPVAIH | 1.5e-05 | 63 |
| HLA-A*33:01 | 1 | 618 | 627 | 10 | TEVPVAIHAD | 1.5e-05 | 66 |
| HLA-B*15:01 | 1 | 618 | 627 | 10 | TEVPVAIHAD | 1.5e-05 | 60 |
| HLA-A*33:01 | 1 | 630 | 639 | 10 | TPTWRVYSTG | 1.5e-05 | 66 |
| HLA-A*02:06 | 1 | 631 | 639 | 9 | PTWRVYSTG | 1.5e-05 | 69 |
| HLA-B*44:02 | 1 | 636 | 644 | 9 | YSTGSNVFQ | 1.5e-05 | 48 |
| HLA-A*33:01 | 1 | 640 | 648 | 9 | SNVFQTRAG | 1.5e-05 | 66 |
| HLA-B*40:01 | 1 | 640 | 649 | 10 | SNVFQTRAGC | 1.5e-05 | 38 |
| HLA-B*44:03 | 1 | 644 | 653 | 10 | QTRAGCLIGA | 1.5e-05 | 44 |
| HLA-A*02:03 | 1 | 646 | 655 | 10 | RAGCLIGAEH | 1.5e-05 | 63 |
| HLA-A*68:01 | 1 | 646 | 654 | 9 | RAGCLIGAE | 1.5e-05 | 55 |
| HLA-B*44:03 | 1 | 646 | 655 | 10 | RAGCLIGAEH | 1.5e-05 | 44 |
| HLA-B*35:01 | 1 | 648 | 656 | 9 | GCLIGAEHV | 1.5e-05 | 45 |
| HLA-B*15:01 | 1 | 650 | 658 | 9 | LIGAEHVNN | 1.5e-05 | 60 |
| HLA-A*24:02 | 1 | 651 | 659 | 9 | IGAEHVNNS | 1.5e-05 | 40 |
| HLA-A*31:01 | 1 | 653 | 661 | 9 | AEHVNNSYE | 1.5e-05 | 62 |
| HLA-B*35:01 | 1 | 653 | 661 | 9 | AEHVNNSYE | 1.5e-05 | 45 |
| HLA-A*03:01 | 1 | 655 | 664 | 10 | HVNNSYECDI | 1.5e-05 | 55 |
| HLA-A*11:01 | 1 | 655 | 664 | 10 | HVNNSYECDI | 1.5e-05 | 41 |
| HLA-A*02:03 | 1 | 656 | 664 | 9 | VNNSYECDI | 1.5e-05 | 63 |
| HLA-B*08:01 | 1 | 657 | 665 | 9 | NNSYECDIP | 1.5e-05 | 78 |
| HLA-B*57:01 | 1 | 660 | 669 | 10 | YECDIPIGAG | 1.5e-05 | 77 |
| HLA-B*40:01 | 1 | 662 | 671 | 10 | CDIPIGAGIC | 1.5e-05 | 38 |
| HLA-A*31:01 | 1 | 663 | 672 | 10 | DIPIGAGICA | 1.5e-05 | 62 |
| HLA-A*26:01 | 1 | 669 | 678 | 10 | GICASYQTQT | 1.5e-05 | 54 |
| HLA-B*07:02 | 1 | 669 | 678 | 10 | GICASYQTQT | 1.5e-05 | 59 |
| HLA-B*44:02 | 1 | 669 | 678 | 10 | GICASYQTQT | 1.5e-05 | 48 |
| HLA-B*44:03 | 1 | 669 | 677 | 9 | GICASYQTQ | 1.5e-05 | 44 |
| HLA-A*03:01 | 1 | 679 | 688 | 10 | NSPRRARSVA | 1.5e-05 | 55 |
| HLA-A*33:01 | 1 | 691 | 700 | 10 | SIIAYTMSLG | 1.5e-05 | 66 |
| HLA-A*11:01 | 1 | 693 | 702 | 10 | IAYTMSLGAE | 1.5e-05 | 41 |
| HLA-A*11:01 | 1 | 703 | 711 | 9 | NSVAYSNNS | 1.5e-05 | 41 |
| HLA-B*40:01 | 1 | 703 | 712 | 10 | NSVAYSNNSI | 1.5e-05 | 38 |
| HLA-B*44:03 | 1 | 703 | 712 | 10 | NSVAYSNNSI | 1.5e-05 | 44 |
| HLA-A*31:01 | 1 | 708 | 717 | 10 | SNNSIAIPTN | 1.5e-05 | 62 |
| HLA-B*53:01 | 1 | 708 | 716 | 9 | SNNSIAIPT | 1.5e-05 | 45 |
| HLA-B*15:01 | 1 | 715 | 723 | 9 | PTNFTISVT | 1.5e-05 | 60 |
| HLA-A*26:01 | 1 | 726 | 735 | 10 | ILPVSMTKTS | 1.5e-05 | 54 |
| HLA-A*11:01 | 1 | 727 | 735 | 9 | LPVSMTKTS | 1.5e-05 | 41 |
| HLA-A*11:01 | 1 | 728 | 736 | 9 | PVSMTKTSV | 1.5e-05 | 41 |
| HLA-A*33:01 | 1 | 738 | 747 | 10 | CTMYICGDST | 1.5e-05 | 66 |
| HLA-A*11:01 | 1 | 744 | 753 | 10 | GDSTECSNLL | 1.5e-05 | 41 |
| HLA-A*02:03 | 1 | 746 | 755 | 10 | STECSNLLLQ | 1.5e-05 | 63 |
| HLA-B*35:01 | 1 | 746 | 755 | 10 | STECSNLLLQ | 1.5e-05 | 45 |
| HLA-A*02:01 | 1 | 747 | 755 | 9 | TECSNLLLQ | 1.5e-05 | 60 |
| HLA-A*03:01 | 1 | 752 | 761 | 10 | LLLQYGSFCT | 1.5e-05 | 55 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*40:01 | 1 | 757 | 766 | 10 | GSFCTQLNRA | 1.5e-05 | 38 |
| HLA-B*44:03 | 1 | 757 | 766 | 10 | GSFCTQLNRA | 1.5e-05 | 44 |
| HLA-A*26:01 | 1 | 763 | 771 | 9 | LNRLTGVIA | 1.5e-05 | 54 |
| HLA-A*68:01 | 1 | 763 | 772 | 10 | LNRLTGVIAV | 1.5e-05 | 55 |
| HLA-A*30:01 | 1 | 766 | 775 | 10 | ALTGIAVEQD | 1.5e-05 | 85 |
| HLA-A*32:01 | 1 | 766 | 775 | 10 | ALTGIAVEQD | 1.5e-05 | 47 |
| HLA-A*02:03 | 1 | 767 | 776 | 10 | LTGIAVEQDK | 1.5e-05 | 63 |
| HLA-B*51:01 | 1 | 767 | 775 | 9 | LTGIAVEQD | 1.5e-05 | 70 |
| HLA-B*15:01 | 1 | 769 | 777 | 9 | GIAVEQDKN | 1.5e-05 | 60 |
| HLA-A*11:01 | 1 | 772 | 780 | 9 | VEQDKNTQE | 1.5e-05 | 41 |
| HLA-B*35:01 | 1 | 774 | 783 | 10 | QDKNTQEVFA | 1.5e-05 | 45 |
| HLA-A*68:01 | 1 | 775 | 783 | 9 | DKNTQEVFA | 1.5e-05 | 55 |
| HLA-B*51:01 | 1 | 775 | 784 | 10 | DKNTQEVFAQ | 1.5e-05 | 70 |
| HLA-B*35:01 | 1 | 776 | 784 | 9 | KNTQEVFAQ | 1.5e-05 | 45 |
| HLA-B*40:01 | 1 | 776 | 784 | 9 | KNTQEVFAQ | 1.5e-05 | 38 |
| HLA-A*68:02 | 1 | 778 | 787 | 10 | TQEVFAQVKQ | 1.5e-05 | 60 |
| HLA-B*40:01 | 1 | 784 | 793 | 10 | QVKQIYKTPP | 1.5e-05 | 38 |
| HLA-B*44:02 | 1 | 788 | 796 | 9 | IYKTPPIKD | 1.5e-05 | 48 |
| HLA-B*35:01 | 1 | 790 | 798 | 9 | KTPPIKDFG | 1.5e-05 | 45 |
| HLA-A*02:01 | 1 | 791 | 800 | 10 | TPPIKDFGGF | 1.5e-05 | 60 |
| HLA-A*33:01 | 1 | 791 | 799 | 9 | TPPIKDFGG | 1.5e-05 | 66 |
| HLA-A*11:01 | 1 | 793 | 802 | 10 | PIKDFGGFNF | 1.5e-05 | 41 |
| HLA-A*03:01 | 1 | 794 | 803 | 10 | IKDFGGFNFS | 1.5e-05 | 55 |
| HLA-B*53:01 | 1 | 800 | 808 | 9 | FNFSQILPD | 1.5e-05 | 45 |
| HLA-A*24:02 | 1 | 801 | 810 | 10 | NFSQILPDPS | 1.5e-05 | 40 |
| HLA-B*35:01 | 1 | 807 | 815 | 9 | PDPSPKRSKR | 1.5e-05 | 45 |
| HLA-B*44:03 | 1 | 809 | 818 | 10 | PSKPSKRSFI | 1.5e-05 | 44 |
| HLA-B*53:01 | 1 | 809 | 818 | 10 | PSKPSKRSFI | 1.5e-05 | 45 |
| HLA-B*58:01 | 1 | 810 | 819 | 10 | SKPSKRSFIE | 1.5e-05 | 66 |
| HLA-A*01:01 | 1 | 811 | 820 | 10 | KPSKRSFIED | 1.5e-05 | 83 |
| HLA-A*68:02 | 1 | 811 | 819 | 9 | KPSKRSFIE | 1.5e-05 | 60 |
| HLA-A*31:01 | 1 | 812 | 821 | 10 | PSKRSFIEDL | 1.5e-05 | 62 |
| HLA-A*30:01 | 1 | 818 | 827 | 10 | IEDLLFNKVT | 1.5e-05 | 85 |
| HLA-A*33:01 | 1 | 819 | 827 | 9 | EDLLFNKVT | 1.5e-05 | 66 |
| HLA-A*23:01 | 1 | 820 | 829 | 10 | DLLFNKVTLA | 1.5e-05 | 42 |
| HLA-B*58:01 | 1 | 820 | 829 | 10 | DLLFNKVTLA | 1.5e-05 | 66 |
| HLA-A*02:03 | 1 | 822 | 830 | 9 | LFNKVTLAD | 1.5e-05 | 63 |
| HLA-B*40:01 | 1 | 823 | 831 | 9 | FNKVTLADA | 1.5e-05 | 38 |
| HLA-B*44:02 | 1 | 830 | 838 | 9 | DAGFIKQYG | 1.5e-05 | 48 |
| HLA-A*03:01 | 1 | 831 | 840 | 10 | AGFIKQYGDC | 1.5e-05 | 55 |
| HLA-A*24:02 | 1 | 831 | 840 | 10 | AGFIKQYGDC | 1.5e-05 | 40 |
| HLA-A*02:03 | 1 | 836 | 845 | 10 | QYGDCLGDIA | 1.5e-05 | 63 |
| HLA-A*32:01 | 1 | 838 | 847 | 10 | GDCLGDIAAR | 1.5e-05 | 47 |
| HLA-B*51:01 | 1 | 838 | 847 | 10 | GDCLGDIAAR | 1.5e-05 | 70 |
| HLA-B*44:02 | 1 | 844 | 852 | 9 | IAARDLICA | 1.5e-05 | 48 |
| HLA-A*11:01 | 1 | 849 | 858 | 10 | LICAQKFNGL | 1.5e-05 | 41 |
| HLA-B*07:02 | 1 | 850 | 859 | 10 | ICAQKFNGLT | 1.5e-05 | 59 |
| HLA-B*15:01 | 1 | 851 | 859 | 9 | CAQKFNGLT | 1.5e-05 | 60 |
| HLA-A*68:01 | 1 | 855 | 864 | 10 | FNGLTVLPPL | 1.5e-05 | 55 |
| HLA-B*07:02 | 1 | 863 | 871 | 9 | PLLTDEMIA | 1.5e-05 | 59 |
| HLA-B*15:01 | 1 | 863 | 871 | 9 | PLLTDEMIA | 1.5e-05 | 60 |
| HLA-A*02:06 | 1 | 866 | 875 | 10 | TDEMIAQYTS | 1.5e-05 | 69 |
| HLA-A*23:01 | 1 | 866 | 874 | 9 | TDEMIAQYT | 1.5e-05 | 42 |
| HLA-A*24:02 | 1 | 866 | 874 | 9 | TDEMIAQYT | 1.5e-05 | 40 |
| HLA-A*11:01 | 1 | 868 | 877 | 10 | EMIAQYTSAL | 1.5e-05 | 41 |
| HLA-B*53:01 | 1 | 872 | 880 | 9 | QYTSALLAG | 1.5e-05 | 45 |
| HLA-A*33:01 | 1 | 874 | 883 | 10 | TSALLAGTIT | 1.5e-05 | 66 |
| HLA-B*44:02 | 1 | 881 | 890 | 10 | TITSGWTFGA | 1.5e-05 | 48 |
| HLA-B*35:01 | 1 | 883 | 892 | 10 | TSGWTFGAGA | 1.5e-05 | 45 |
| HLA-A*03:01 | 1 | 889 | 897 | 9 | GAGAALQIP | 1.5e-05 | 55 |
| HLA-B*40:01 | 1 | 890 | 899 | 10 | AGAALQIPFA | 1.5e-05 | 38 |
| HLA-A*23:01 | 1 | 891 | 899 | 9 | GAALQIPFA | 1.5e-05 | 42 |
| HLA-B*44:02 | 1 | 895 | 903 | 9 | QIPFAMQMA | 1.5e-05 | 48 |
| HLA-B*44:03 | 1 | 895 | 903 | 9 | QIPFAMQMA | 1.5e-05 | 44 |
| HLA-A*11:01 | 1 | 899 | 907 | 9 | AMQMAYRFN | 1.5e-05 | 41 |
| HLA-B*44:03 | 1 | 899 | 908 | 10 | AMQMAYRFNG | 1.5e-05 | 44 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-B*44:02 | 1 | 902 | 911 | 10 | MAYRFNGIGV | 1.5e-05 | 48 |
| HLA-A*68:01 | 1 | 903 | 912 | 10 | AYRFNGIGVT | 1.5e-05 | 55 |
| HLA-B*58:01 | 1 | 903 | 912 | 10 | AYRFNGIGVT | 1.5e-05 | 66 |
| HLA-B*58:01 | 1 | 906 | 914 | 9 | FNGIGVTQN | 1.5e-05 | 66 |
| HLA-A*32:01 | 1 | 910 | 919 | 10 | GVTQNVLYEN | 1.5e-05 | 47 |
| HLA-B*35:01 | 1 | 911 | 919 | 9 | VTQNVLYEN | 1.5e-05 | 45 |
| HLA-B*40:01 | 1 | 916 | 924 | 9 | LYENQKLIA | 1.5e-05 | 38 |
| HLA-A*02:06 | 1 | 923 | 932 | 10 | IANQFNSAIG | 1.5e-05 | 69 |
| HLA-B*44:02 | 1 | 924 | 932 | 9 | ANQFNSAIG | 1.5e-05 | 48 |
| HLA-B*53:01 | 1 | 924 | 933 | 10 | ANQFNSAIGK | 1.5e-05 | 45 |
| HLA-B*58:01 | 1 | 924 | 932 | 9 | ANQFNSAIG | 1.5e-05 | 66 |
| HLA-A*68:02 | 1 | 927 | 936 | 10 | FNSAIGKIQD | 1.5e-05 | 60 |
| HLA-A*02:06 | 1 | 928 | 936 | 9 | NSAIGKIQD | 1.5e-05 | 69 |
| HLA-A*31:01 | 1 | 928 | 937 | 10 | NSAIGKIQDS | 1.5e-05 | 62 |
| HLA-A*02:06 | 1 | 931 | 939 | 9 | IGKIQDLSL | 1.5e-05 | 69 |
| HLA-A*68:02 | 1 | 931 | 939 | 9 | IGKIQDLSL | 1.5e-05 | 60 |
| HLA-A*32:01 | 1 | 932 | 940 | 9 | GKIQDSLSS | 1.5e-05 | 47 |
| HLA-A*68:01 | 1 | 934 | 943 | 10 | IQDLSLSTAS | 1.5e-05 | 55 |
| HLA-B*44:03 | 1 | 934 | 943 | 10 | IQDLSLSTAS | 1.5e-05 | 44 |
| HLA-A*11:01 | 1 | 935 | 943 | 9 | QDLSLSTAS | 1.5e-05 | 41 |
| HLA-B*58:01 | 1 | 935 | 943 | 9 | QDLSLSTAS | 1.5e-05 | 66 |
| HLA-A*68:01 | 1 | 942 | 950 | 9 | ASALGKLQD | 1.5e-05 | 55 |
| HLA-A*11:01 | 1 | 945 | 954 | 10 | LGKLQDVVNQ | 1.5e-05 | 41 |
| HLA-B*35:01 | 1 | 947 | 956 | 10 | KLQDVVNQNA | 1.5e-05 | 45 |
| HLA-A*11:01 | 1 | 951 | 960 | 10 | VVNQNAQALN | 1.5e-05 | 41 |
| HLA-A*68:01 | 1 | 958 | 967 | 10 | ALNTLVKQLS | 1.5e-05 | 55 |
| HLA-B*35:01 | 1 | 961 | 969 | 9 | TLVKQLSSN | 1.5e-05 | 45 |
| HLA-A*11:01 | 1 | 963 | 972 | 10 | VKQLSSNFGA | 1.5e-05 | 41 |
| HLA-B*07:02 | 1 | 963 | 972 | 10 | VKQLSSNFGA | 1.5e-05 | 59 |
| HLA-B*08:01 | 1 | 966 | 974 | 9 | LSSNFGAIS | 1.5e-05 | 78 |
| HLA-A*26:01 | 1 | 977 | 986 | 10 | LNDILSRLDK | 1.5e-05 | 54 |
| HLA-A*02:03 | 1 | 978 | 986 | 9 | NDILSRLDK | 1.5e-05 | 63 |
| HLA-A*11:01 | 1 | 980 | 989 | 10 | ILSRLDKVEA | 1.5e-05 | 41 |
| HLA-A*31:01 | 1 | 985 | 993 | 9 | DKVEAEVQI | 1.5e-05 | 62 |
| HLA-A*31:01 | 1 | 990 | 998 | 9 | EVQIDRLIT | 1.5e-05 | 62 |
| HLA-B*44:03 | 1 | 990 | 998 | 9 | EVQIDRLIT | 1.5e-05 | 44 |
| HLA-B*40:01 | 1 | 992 | 1000 | 9 | QIDRLITGR | 1.5e-05 | 38 |
| HLA-B*58:01 | 1 | 993 | 1002 | 10 | IDRLITGRLQ | 1.5e-05 | 66 |
| HLA-B*58:01 | 1 | 994 | 1003 | 10 | DRLITGRLQS | 1.5e-05 | 66 |
| HLA-B*53:01 | 1 | 995 | 1003 | 9 | RLITGRLQS | 1.5e-05 | 45 |
| HLA-B*35:01 | 1 | 997 | 1005 | 9 | ITGRLQSLQ | 1.5e-05 | 45 |
| HLA-A*32:01 | 1 | 998 | 1006 | 9 | TGRLQSLQT | 1.5e-05 | 47 |
| HLA-A*24:02 | 1 | 1000 | 1009 | 10 | RLQSLQTYVT | 1.5e-05 | 40 |
| HLA-A*26:01 | 1 | 1001 | 1009 | 9 | LQSLQTYVT | 1.5e-05 | 54 |
| HLA-A*68:01 | 1 | 1009 | 1018 | 10 | TQQLIRAAEI | 1.5e-05 | 55 |
| HLA-A*31:01 | 1 | 1018 | 1027 | 10 | IRASANLAAT | 1.5e-05 | 62 |
| HLA-A*02:01 | 1 | 1021 | 1030 | 10 | SANLAATKMS | 1.5e-05 | 60 |
| HLA-A*68:01 | 1 | 1022 | 1030 | 9 | ANLAATKMS | 1.5e-05 | 55 |
| HLA-B*35:01 | 1 | 1023 | 1032 | 10 | NLAATKMSEC | 1.5e-05 | 45 |
| HLA-B*44:03 | 1 | 1023 | 1031 | 9 | NLAATKMSEC | 1.5e-05 | 44 |
| HLA-B*53:01 | 1 | 1023 | 1032 | 10 | NLAATKMSEC | 1.5e-05 | 45 |
| HLA-A*03:01 | 1 | 1025 | 1033 | 9 | AATKMSECV | 1.5e-05 | 55 |
| HLA-B*44:02 | 1 | 1026 | 1035 | 10 | ATKMSECVLG | 1.5e-05 | 48 |
| HLA-A*02:03 | 1 | 1027 | 1035 | 9 | TKMSECVLG | 1.5e-05 | 63 |
| HLA-A*02:03 | 1 | 1029 | 1037 | 9 | MSECVLGQS | 1.5e-05 | 63 |
| HLA-A*68:02 | 1 | 1032 | 1041 | 10 | CVLGQSKRVD | 1.5e-05 | 60 |
| HLA-A*31:01 | 1 | 1034 | 1043 | 10 | LGQSKRVDFC | 1.5e-05 | 62 |
| HLA-B*07:02 | 1 | 1034 | 1043 | 10 | LGQSKRVDFC | 1.5e-05 | 59 |
| HLA-A*26:01 | 1 | 1035 | 1043 | 9 | GQSKRVDFC | 1.5e-05 | 54 |
| HLA-A*02:01 | 1 | 1044 | 1053 | 10 | GKGYHLMSFP | 1.5e-05 | 60 |
| HLA-A*01:01 | 1 | 1045 | 1054 | 10 | KGYHLMSFPQ | 1.5e-05 | 83 |
| HLA-A*26:01 | 1 | 1046 | 1054 | 9 | GYHLMSFPQ | 1.5e-05 | 54 |
| HLA-A*11:01 | 1 | 1051 | 1059 | 9 | SFPQSAPHG | 1.5e-05 | 41 |
| HLA-A*30:01 | 1 | 1057 | 1066 | 10 | PHGVVFLHVT | 1.5e-05 | 85 |
| HLA-B*51:01 | 1 | 1057 | 1066 | 10 | PHGVVFLHVT | 1.5e-05 | 70 |
| HLA-A*03:01 | 1 | 1058 | 1066 | 9 | HGVVFLHVT | 1.5e-05 | 55 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-B*44:03 | 1 | 1059 | 1068 | 10 | GVVFLHVTYV | 1.5e-05 | 44 |
| HLA-A*11:01 | 1 | 1062 | 1070 | 9 | FLHVTYVPA | 1.5e-05 | 41 |
| HLA-B*53:01 | 1 | 1063 | 1072 | 10 | LHVTYVPAQE | 1.5e-05 | 45 |
| HLA-A*32:01 | 1 | 1068 | 1077 | 10 | VPAQEKNFTT | 1.5e-05 | 47 |
| HLA-A*68:01 | 1 | 1069 | 1077 | 9 | PAQEKNFTT | 1.5e-05 | 55 |
| HLA-A*32:01 | 1 | 1071 | 1079 | 9 | QEKNFTTAP | 1.5e-05 | 47 |
| HLA-B*57:01 | 1 | 1071 | 1080 | 10 | QEKNFTTAPA | 1.5e-05 | 77 |
| HLA-A*24:02 | 1 | 1072 | 1081 | 10 | EKNFTTAPAI | 1.5e-05 | 40 |
| HLA-A*11:01 | 1 | 1073 | 1082 | 10 | KNFTTAPAIC | 1.5e-05 | 41 |
| HLA-B*40:01 | 1 | 1073 | 1082 | 10 | KNFTTAPAIC | 1.5e-05 | 38 |
| HLA-A*68:01 | 1 | 1074 | 1082 | 9 | NFTTAPAIC | 1.5e-05 | 55 |
| HLA-A*02:01 | 1 | 1075 | 1084 | 10 | FTTAPAICHD | 1.5e-05 | 60 |
| HLA-A*11:01 | 1 | 1078 | 1087 | 10 | APAICHDGKA | 1.5e-05 | 41 |
| HLA-B*51:01 | 1 | 1080 | 1088 | 9 | AICHDGKAH | 1.5e-05 | 70 |
| HLA-B*35:01 | 1 | 1081 | 1090 | 10 | ICHDGKAHFP | 1.5e-05 | 45 |
| HLA-A*32:01 | 1 | 1082 | 1091 | 10 | CHDGKAHFPR | 1.5e-05 | 47 |
| HLA-A*11:01 | 1 | 1083 | 1092 | 10 | HDGKAHFPRE | 1.5e-05 | 41 |
| HLA-A*02:03 | 1 | 1089 | 1098 | 10 | FPREGVFVSN | 1.5e-05 | 63 |
| HLA-A*02:01 | 1 | 1091 | 1100 | 10 | REGVFVSNGT | 1.5e-05 | 60 |
| HLA-B*44:03 | 1 | 1092 | 1100 | 9 | EGVFVSNGT | 1.5e-05 | 44 |
| HLA-A*68:02 | 1 | 1097 | 1106 | 10 | SNGTHWFVTQ | 1.5e-05 | 60 |
| HLA-A*32:01 | 1 | 1100 | 1108 | 9 | THWFVTQRN | 1.5e-05 | 47 |
| HLA-A*02:03 | 1 | 1101 | 1110 | 10 | HWFVTQRNFY | 1.5e-05 | 63 |
| HLA-A*11:01 | 1 | 1102 | 1111 | 10 | WVFTQRNFYE | 1.5e-05 | 41 |
| HLA-A*23:01 | 1 | 1103 | 1111 | 9 | FVTQRNFYE | 1.5e-05 | 42 |
| HLA-A*68:01 | 1 | 1106 | 1115 | 10 | QRNFYEPQII | 1.5e-05 | 55 |
| HLA-B*53:01 | 1 | 1107 | 1116 | 10 | RNFYEPQIIT | 1.5e-05 | 45 |
| HLA-B*58:01 | 1 | 1109 | 1118 | 10 | FYEPQIITTD | 1.5e-05 | 66 |
| HLA-B*44:03 | 1 | 1111 | 1119 | 9 | EPQIITTDN | 1.5e-05 | 44 |
| HLA-B*07:02 | 1 | 1114 | 1123 | 10 | IITTDNTFVS | 1.5e-05 | 59 |
| HLA-A*11:01 | 1 | 1115 | 1124 | 10 | ITTDNTFVSG | 1.5e-05 | 41 |
| HLA-B*44:03 | 1 | 1121 | 1129 | 9 | FVSGNCDVV | 1.5e-05 | 44 |
| HLA-B*35:01 | 1 | 1124 | 1132 | 9 | GNCVVIGI | 1.5e-05 | 45 |
| HLA-A*23:01 | 1 | 1125 | 1133 | 9 | NCDVVIGIV | 1.5e-05 | 42 |
| HLA-B*53:01 | 1 | 1130 | 1139 | 10 | IGIVNNTVYD | 1.5e-05 | 45 |
| HLA-B*35:01 | 1 | 1134 | 1142 | 9 | NNTVYDPLQ | 1.5e-05 | 45 |
| HLA-B*08:01 | 1 | 1138 | 1146 | 9 | YDPLQPELD | 1.5e-05 | 78 |
| HLA-A*68:02 | 1 | 1139 | 1147 | 9 | DPLQPELDS | 1.5e-05 | 60 |
| HLA-B*44:02 | 1 | 1140 | 1149 | 10 | PLQPELDSFK | 1.5e-05 | 48 |
| HLA-A*33:01 | 1 | 1143 | 1151 | 9 | PELDSFKEE | 1.5e-05 | 66 |
| HLA-B*58:01 | 1 | 1144 | 1153 | 10 | ELDSFKEELD | 1.5e-05 | 66 |
| HLA-A*23:01 | 1 | 1148 | 1157 | 10 | FKEELDKYFK | 1.5e-05 | 42 |
| HLA-B*15:01 | 1 | 1151 | 1160 | 10 | ELDKYFKNHT | 1.5e-05 | 60 |
| HLA-B*57:01 | 1 | 1151 | 1160 | 10 | ELDKYFKNHT | 1.5e-05 | 77 |
| HLA-B*57:01 | 1 | 1153 | 1161 | 9 | DKYFKNHTS | 1.5e-05 | 77 |
| HLA-B*44:02 | 1 | 1155 | 1164 | 10 | YFKNHTSPDV | 1.5e-05 | 48 |
| HLA-A*68:01 | 1 | 1156 | 1164 | 9 | FKNHTSPDV | 1.5e-05 | 55 |
| HLA-A*02:03 | 1 | 1159 | 1168 | 10 | HTSPDVLGDI | 1.5e-05 | 63 |
| HLA-A*03:01 | 1 | 1160 | 1169 | 10 | TSPDVLGDI | 1.5e-05 | 55 |
| HLA-B*44:02 | 1 | 1160 | 1169 | 10 | TSPDVLGDI | 1.5e-05 | 48 |
| HLA-A*03:01 | 1 | 1161 | 1169 | 9 | SPDVLGDI | 1.5e-05 | 55 |
| HLA-A*68:01 | 1 | 1161 | 1170 | 10 | SPDVLGDIS | 1.5e-05 | 55 |
| HLA-A*11:01 | 1 | 1163 | 1172 | 10 | DVDLGDISGI | 1.5e-05 | 41 |
| HLA-B*15:01 | 1 | 1166 | 1175 | 10 | LGDISGINAS | 1.5e-05 | 60 |
| HLA-A*68:01 | 1 | 1169 | 1178 | 10 | ISGINASVVN | 1.5e-05 | 55 |
| HLA-A*02:01 | 1 | 1172 | 1180 | 9 | INASVVNIQ | 1.5e-05 | 60 |
| HLA-A*68:02 | 1 | 1179 | 1188 | 10 | IQKEIDRLNE | 1.5e-05 | 60 |
| HLA-B*44:02 | 1 | 1184 | 1192 | 9 | DRLNEVAKN | 1.5e-05 | 48 |
| HLA-B*44:03 | 1 | 1185 | 1194 | 10 | RLNEVAKNLN | 1.5e-05 | 44 |
| HLA-A*68:01 | 1 | 1186 | 1195 | 10 | LNEVAKNLNE | 1.5e-05 | 55 |
| HLA-A*31:01 | 1 | 1187 | 1195 | 9 | NEVAKNLNE | 1.5e-05 | 62 |
| HLA-B*53:01 | 1 | 1187 | 1196 | 10 | NEVAKNLNES | 1.5e-05 | 45 |
| HLA-A*11:01 | 1 | 1194 | 1203 | 10 | NESLIDLQEL | 1.5e-05 | 41 |
| HLA-A*11:01 | 1 | 1202 | 1210 | 9 | ELGKYEQYI | 1.5e-05 | 41 |
| HLA-A*02:03 | 1 | 1203 | 1211 | 9 | LGKYEQYIK | 1.5e-05 | 63 |
| HLA-A*02:01 | 1 | 1205 | 1214 | 10 | KYEQYIKWPW | 1.5e-05 | 60 |

| | | | | | | |
|-------------|---|------|------|----|--------------------|----|
| HLA-B*58:01 | 1 | 1213 | 1221 | 9 | PWYIWLGF 1.5e-05 | 66 |
| HLA-B*44:03 | 1 | 1216 | 1225 | 10 | IWLGFIAGLI 1.5e-05 | 44 |
| HLA-B*44:03 | 1 | 1219 | 1228 | 10 | GFIAGLIAIV 1.5e-05 | 44 |
| HLA-A*11:01 | 1 | 1220 | 1229 | 10 | FIAGLIAIVM 1.5e-05 | 41 |
| HLA-A*33:01 | 1 | 1222 | 1231 | 10 | AGLIAIVMVT 1.5e-05 | 66 |
| HLA-B*40:01 | 1 | 1227 | 1235 | 9 | IVMVTIMLC 1.5e-05 | 38 |
| HLA-B*35:01 | 1 | 1228 | 1237 | 10 | VMVTIMLCCM 1.5e-05 | 45 |
| HLA-A*01:01 | 1 | 1229 | 1238 | 10 | MVTIMLCCMT 1.5e-05 | 83 |
| HLA-A*03:01 | 1 | 1231 | 1240 | 10 | TIMLCCMTSC 1.5e-05 | 55 |
| HLA-B*57:01 | 1 | 1231 | 1239 | 9 | TIMLCCMTS 1.5e-05 | 77 |
| HLA-A*30:01 | 1 | 1233 | 1242 | 10 | MLCCMTSCCS 1.5e-05 | 85 |
| HLA-B*51:01 | 1 | 1233 | 1241 | 9 | MLCCMTSCC 1.5e-05 | 70 |
| HLA-B*57:01 | 1 | 1233 | 1241 | 9 | MLCCMTSCC 1.5e-05 | 77 |
| HLA-B*51:01 | 1 | 1235 | 1244 | 10 | CCMTSCCSCL 1.5e-05 | 70 |
| HLA-B*57:01 | 1 | 1236 | 1244 | 9 | CMTSCCSCL 1.5e-05 | 77 |
| HLA-B*58:01 | 1 | 1236 | 1244 | 9 | CMTSCCSCL 1.5e-05 | 66 |
| HLA-A*01:01 | 1 | 1239 | 1247 | 9 | SCCSCLKGC 1.5e-05 | 83 |
| HLA-A*30:01 | 1 | 1240 | 1249 | 10 | CCSCLKGCCS 1.5e-05 | 85 |
| HLA-B*08:01 | 1 | 1241 | 1250 | 10 | CCLKGCCSC 1.5e-05 | 78 |
| HLA-B*40:01 | 1 | 1254 | 1262 | 9 | CKFDEDDSE 1.5e-05 | 38 |
| HLA-B*40:01 | 1 | 1254 | 1263 | 10 | CKFDEDDSEP 1.5e-05 | 38 |
| HLA-B*44:02 | 1 | 1254 | 1263 | 10 | CKFDEDDSEP 1.5e-05 | 48 |
| HLA-B*53:01 | 1 | 9 | 18 | 10 | PLVSSQCVNL 1.4e-05 | 46 |
| HLA-A*32:01 | 1 | 10 | 19 | 10 | LVSSQCVNLT 1.4e-05 | 48 |
| HLA-B*44:02 | 1 | 11 | 19 | 9 | VSSQCVNLT 1.4e-05 | 49 |
| HLA-A*68:01 | 1 | 17 | 26 | 10 | NLTTRTQLPP 1.4e-05 | 56 |
| HLA-B*44:03 | 1 | 25 | 34 | 10 | PPAYTNSFTR 1.4e-05 | 46 |
| HLA-B*51:01 | 1 | 27 | 35 | 9 | AYTNSFTRG 1.4e-05 | 71 |
| HLA-B*44:03 | 1 | 33 | 41 | 9 | TRGVYYPDK 1.4e-05 | 46 |
| HLA-A*23:01 | 1 | 39 | 47 | 9 | PDKVFRSSV 1.4e-05 | 43 |
| HLA-B*57:01 | 1 | 39 | 47 | 9 | PDKVFRSSV 1.4e-05 | 78 |
| HLA-B*44:02 | 1 | 42 | 50 | 9 | VFRSSVLHS 1.4e-05 | 49 |
| HLA-B*15:01 | 1 | 44 | 53 | 10 | RSSVLHSTQD 1.4e-05 | 60 |
| HLA-B*44:03 | 1 | 48 | 57 | 10 | LHSTQDLFLP 1.4e-05 | 46 |
| HLA-B*53:01 | 1 | 51 | 60 | 10 | TQDLFLPFFS 1.4e-05 | 46 |
| HLA-A*23:01 | 1 | 52 | 60 | 9 | QDLFLPFFS 1.4e-05 | 43 |
| HLA-A*26:01 | 1 | 52 | 60 | 9 | QDLFLPFFS 1.4e-05 | 55 |
| HLA-B*08:01 | 1 | 52 | 61 | 10 | QDLFLPFFSN 1.4e-05 | 79 |
| HLA-B*53:01 | 1 | 60 | 69 | 10 | SNVTWFHAIH 1.4e-05 | 46 |
| HLA-A*24:02 | 1 | 61 | 70 | 10 | NVTWFHAIHV 1.4e-05 | 41 |
| HLA-A*02:06 | 1 | 64 | 72 | 9 | WFHAIHVSG 1.4e-05 | 70 |
| HLA-B*58:01 | 1 | 64 | 72 | 9 | WFHAIHVSG 1.4e-05 | 67 |
| HLA-A*02:06 | 1 | 65 | 74 | 10 | FHAIHVSGTN 1.4e-05 | 70 |
| HLA-B*44:02 | 1 | 66 | 74 | 9 | HAIHVSGTN 1.4e-05 | 49 |
| HLA-A*32:01 | 1 | 72 | 80 | 9 | GTNGTKRFD 1.4e-05 | 48 |
| HLA-B*07:02 | 1 | 80 | 89 | 10 | DNPVLPFNDG 1.4e-05 | 60 |
| HLA-B*08:01 | 1 | 80 | 89 | 10 | DNPVLPFNDG 1.4e-05 | 79 |
| HLA-B*40:01 | 1 | 81 | 90 | 10 | NPVLPFNDGV 1.4e-05 | 39 |
| HLA-A*68:01 | 1 | 95 | 103 | 9 | TEKSNIIRG 1.4e-05 | 56 |
| HLA-B*07:02 | 1 | 99 | 107 | 9 | NIIRGWIFG 1.4e-05 | 60 |
| HLA-A*02:03 | 1 | 102 | 111 | 10 | RGWIFGTTL 1.4e-05 | 64 |
| HLA-B*15:01 | 1 | 102 | 111 | 10 | RGWIFGTTL 1.4e-05 | 60 |
| HLA-A*68:02 | 1 | 105 | 114 | 10 | IFGTTLDSKT 1.4e-05 | 61 |
| HLA-B*35:01 | 1 | 105 | 113 | 9 | IFGTTLDSK 1.4e-05 | 46 |
| HLA-A*68:01 | 1 | 106 | 114 | 9 | FGTTLDSKT 1.4e-05 | 56 |
| HLA-B*07:02 | 1 | 107 | 116 | 10 | GTTLDSTQS 1.4e-05 | 60 |
| HLA-A*03:01 | 1 | 115 | 124 | 10 | QSLIVNNAT 1.4e-05 | 56 |
| HLA-A*33:01 | 1 | 117 | 125 | 9 | LLIVNNATN 1.4e-05 | 67 |
| HLA-B*44:03 | 1 | 119 | 128 | 10 | IVNNATNVVI 1.4e-05 | 46 |
| HLA-A*02:01 | 1 | 120 | 129 | 10 | VNNATNVVIK 1.4e-05 | 61 |
| HLA-A*26:01 | 1 | 123 | 132 | 10 | ATNVVIKVCE 1.4e-05 | 55 |
| HLA-A*02:06 | 1 | 124 | 132 | 9 | TNVVIKVCE 1.4e-05 | 70 |
| HLA-A*02:03 | 1 | 125 | 134 | 10 | NVVIKVCEFQ 1.4e-05 | 64 |
| HLA-A*02:03 | 1 | 128 | 136 | 9 | IKVCEFQFC 1.4e-05 | 64 |
| HLA-B*58:01 | 1 | 128 | 136 | 9 | IKVCEFQFC 1.4e-05 | 67 |
| HLA-A*03:01 | 1 | 132 | 141 | 10 | EFQFCNDPFL 1.4e-05 | 56 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*24:02 | 1 | 140 | 148 | 9 | FLGVVYHKN | 1.4e-05 | 41 |
| HLA-B*44:03 | 1 | 143 | 151 | 9 | VYYHKNKNS | 1.4e-05 | 46 |
| HLA-A*11:01 | 1 | 145 | 153 | 9 | YHKNNKSWM | 1.4e-05 | 42 |
| HLA-A*68:02 | 1 | 145 | 154 | 10 | YHKNNKSWME | 1.4e-05 | 61 |
| HLA-A*31:01 | 1 | 146 | 155 | 10 | HKNNKSWMES | 1.4e-05 | 63 |
| HLA-A*02:06 | 1 | 147 | 156 | 10 | KNNKSWMESE | 1.4e-05 | 70 |
| HLA-B*35:01 | 1 | 148 | 156 | 9 | NNKSWMESE | 1.4e-05 | 46 |
| HLA-A*31:01 | 1 | 155 | 164 | 10 | SEFRVYSSAN | 1.4e-05 | 63 |
| HLA-A*24:02 | 1 | 157 | 166 | 10 | FRVYSSANNC | 1.4e-05 | 41 |
| HLA-B*08:01 | 1 | 164 | 173 | 10 | NNCTFEYVSQ | 1.4e-05 | 79 |
| HLA-B*57:01 | 1 | 164 | 172 | 9 | NNCTFEYVS | 1.4e-05 | 78 |
| HLA-A*31:01 | 1 | 165 | 173 | 9 | NCTFEYVSQ | 1.4e-05 | 63 |
| HLA-B*15:01 | 1 | 165 | 173 | 9 | NCTFEYVSQ | 1.4e-05 | 60 |
| HLA-A*02:01 | 1 | 169 | 178 | 10 | EYVSQPFLMD | 1.4e-05 | 61 |
| HLA-B*44:03 | 1 | 169 | 178 | 10 | EYVSQPFLMD | 1.4e-05 | 46 |
| HLA-A*33:01 | 1 | 179 | 188 | 10 | LEGKQGNFKN | 1.4e-05 | 67 |
| HLA-A*03:01 | 1 | 180 | 189 | 10 | EGKQGNFKNL | 1.4e-05 | 56 |
| HLA-A*68:02 | 1 | 180 | 188 | 9 | EGKQGNFKN | 1.4e-05 | 61 |
| HLA-A*68:02 | 1 | 183 | 191 | 9 | QGNFKNLRE | 1.4e-05 | 61 |
| HLA-B*07:02 | 1 | 183 | 191 | 9 | QGNFKNLRE | 1.4e-05 | 60 |
| HLA-B*44:02 | 1 | 183 | 191 | 9 | QGNFKNLRE | 1.4e-05 | 49 |
| HLA-A*02:03 | 1 | 185 | 194 | 10 | NFKNLREFVF | 1.4e-05 | 64 |
| HLA-A*32:01 | 1 | 186 | 195 | 10 | FKNLREFVFK | 1.4e-05 | 48 |
| HLA-B*44:03 | 1 | 186 | 195 | 10 | FKNLREFVFK | 1.4e-05 | 46 |
| HLA-B*35:01 | 1 | 187 | 195 | 9 | KNLREFVFK | 1.4e-05 | 46 |
| HLA-B*44:02 | 1 | 188 | 196 | 9 | NLREFVFKN | 1.4e-05 | 49 |
| HLA-B*07:02 | 1 | 193 | 202 | 10 | VFKNIDGYFK | 1.4e-05 | 60 |
| HLA-B*35:01 | 1 | 193 | 202 | 10 | VFKNIDGYFK | 1.4e-05 | 46 |
| HLA-A*31:01 | 1 | 197 | 205 | 9 | IDGYFKIYS | 1.4e-05 | 63 |
| HLA-A*02:01 | 1 | 198 | 207 | 10 | DGYFKIYSKH | 1.4e-05 | 61 |
| HLA-A*02:01 | 1 | 199 | 208 | 10 | GYFKIYSKHT | 1.4e-05 | 61 |
| HLA-B*44:02 | 1 | 200 | 208 | 9 | YFKIYSKHT | 1.4e-05 | 49 |
| HLA-A*23:01 | 1 | 207 | 215 | 9 | HTPINLVRD | 1.4e-05 | 43 |
| HLA-A*30:02 | 1 | 209 | 218 | 10 | PINLVRDLPQ | 1.4e-05 | 84 |
| HLA-A*26:01 | 1 | 210 | 218 | 9 | INLVRDLPQ | 1.4e-05 | 55 |
| HLA-B*15:01 | 1 | 210 | 218 | 9 | INLVRDLPQ | 1.4e-05 | 60 |
| HLA-B*44:02 | 1 | 217 | 225 | 9 | PQGSALEP | 1.4e-05 | 49 |
| HLA-A*23:01 | 1 | 219 | 228 | 10 | GFSALEPLVD | 1.4e-05 | 43 |
| HLA-B*15:01 | 1 | 220 | 228 | 9 | FSALEPLVD | 1.4e-05 | 60 |
| HLA-A*23:01 | 1 | 221 | 230 | 10 | SALEPLVDLP | 1.4e-05 | 43 |
| HLA-A*68:01 | 1 | 222 | 231 | 10 | ALEPLVDLPI | 1.4e-05 | 56 |
| HLA-A*03:01 | 1 | 223 | 231 | 9 | LEPLVDLPI | 1.4e-05 | 56 |
| HLA-A*30:02 | 1 | 224 | 232 | 9 | EPLVDLPIG | 1.4e-05 | 84 |
| HLA-B*35:01 | 1 | 232 | 240 | 9 | GINITRFQT | 1.4e-05 | 46 |
| HLA-A*32:01 | 1 | 241 | 250 | 10 | LLALHRSYLT | 1.4e-05 | 48 |
| HLA-A*01:01 | 1 | 243 | 252 | 10 | ALHRSYLTPG | 1.4e-05 | 84 |
| HLA-A*24:02 | 1 | 248 | 256 | 9 | YLTPGDSSS | 1.4e-05 | 41 |
| HLA-B*53:01 | 1 | 254 | 263 | 10 | SSSGWTAGAA | 1.4e-05 | 46 |
| HLA-A*23:01 | 1 | 263 | 271 | 9 | AAYVGYLQ | 1.4e-05 | 43 |
| HLA-B*53:01 | 1 | 264 | 273 | 10 | AYVGYLQPR | 1.4e-05 | 46 |
| HLA-A*03:01 | 1 | 278 | 287 | 10 | KYNENGTITD | 1.4e-05 | 56 |
| HLA-B*08:01 | 1 | 278 | 287 | 10 | KYNENGTITD | 1.4e-05 | 79 |
| HLA-A*31:01 | 1 | 280 | 289 | 10 | NENGTITDAV | 1.4e-05 | 63 |
| HLA-A*03:01 | 1 | 281 | 289 | 9 | ENGTITDAV | 1.4e-05 | 56 |
| HLA-B*51:01 | 1 | 282 | 290 | 9 | NGTITDAVD | 1.4e-05 | 71 |
| HLA-A*32:01 | 1 | 283 | 292 | 10 | GTITDAVDCA | 1.4e-05 | 48 |
| HLA-B*07:02 | 1 | 283 | 292 | 10 | GTITDAVDCA | 1.4e-05 | 60 |
| HLA-B*40:01 | 1 | 283 | 292 | 10 | GTITDAVDCA | 1.4e-05 | 39 |
| HLA-B*07:02 | 1 | 285 | 294 | 10 | ITDAVDCALD | 1.4e-05 | 60 |
| HLA-B*44:02 | 1 | 288 | 297 | 10 | AVDCALDPLS | 1.4e-05 | 49 |
| HLA-A*30:02 | 1 | 293 | 301 | 9 | LDPLSETKC | 1.4e-05 | 84 |
| HLA-B*53:01 | 1 | 293 | 301 | 9 | LDPLSETKC | 1.4e-05 | 46 |
| HLA-A*26:01 | 1 | 294 | 302 | 9 | DPLSETKCT | 1.4e-05 | 55 |
| HLA-B*08:01 | 1 | 296 | 305 | 10 | LSETKCTLKS | 1.4e-05 | 79 |
| HLA-B*51:01 | 1 | 296 | 305 | 10 | LSETKCTLKS | 1.4e-05 | 71 |
| HLA-A*24:02 | 1 | 297 | 305 | 9 | SETKCTLKS | 1.4e-05 | 41 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*07:02 | 1 | 299 | 307 | 9 | TKCTLKSFT | 1.4e-05 | 60 |
| HLA-B*07:02 | 1 | 300 | 309 | 10 | KCTLKSFTVE | 1.4e-05 | 60 |
| HLA-A*02:03 | 1 | 305 | 313 | 9 | SFTVEKGIY | 1.4e-05 | 64 |
| HLA-B*35:01 | 1 | 312 | 321 | 10 | IYQTSNFRVQ | 1.4e-05 | 46 |
| HLA-B*53:01 | 1 | 317 | 325 | 9 | NFRVQPTES | 1.4e-05 | 46 |
| HLA-B*53:01 | 1 | 322 | 330 | 9 | PTESIVRFP | 1.4e-05 | 46 |
| HLA-B*44:02 | 1 | 325 | 333 | 9 | SIVRFPNIT | 1.4e-05 | 49 |
| HLA-B*44:03 | 1 | 328 | 337 | 10 | RFPNITNLCP | 1.4e-05 | 46 |
| HLA-A*11:01 | 1 | 329 | 337 | 9 | FPNITNLCP | 1.4e-05 | 42 |
| HLA-A*02:03 | 1 | 331 | 339 | 9 | NITNLCPFPG | 1.4e-05 | 64 |
| HLA-B*58:01 | 1 | 331 | 339 | 9 | NITNLCPFPG | 1.4e-05 | 67 |
| HLA-B*58:01 | 1 | 331 | 340 | 10 | NITNLCPFGE | 1.4e-05 | 67 |
| HLA-A*03:01 | 1 | 333 | 341 | 9 | TNLCPFGEV | 1.4e-05 | 56 |
| HLA-A*11:01 | 1 | 335 | 344 | 10 | LCPFGEVFNA | 1.4e-05 | 42 |
| HLA-A*30:02 | 1 | 335 | 343 | 9 | LCPFGEVFN | 1.4e-05 | 84 |
| HLA-A*32:01 | 1 | 335 | 344 | 10 | LCPFGEVFNA | 1.4e-05 | 48 |
| HLA-B*15:01 | 1 | 335 | 344 | 10 | LCPFGEVFNA | 1.4e-05 | 60 |
| HLA-B*51:01 | 1 | 335 | 343 | 9 | LCPFGEVFN | 1.4e-05 | 71 |
| HLA-B*44:03 | 1 | 336 | 345 | 10 | CPFGEVFNAT | 1.4e-05 | 46 |
| HLA-A*02:06 | 1 | 337 | 346 | 10 | PFGEVFNATR | 1.4e-05 | 70 |
| HLA-B*44:02 | 1 | 343 | 352 | 10 | NATRFASVYA | 1.4e-05 | 49 |
| HLA-B*08:01 | 1 | 346 | 354 | 9 | RFASVYAWN | 1.4e-05 | 79 |
| HLA-B*44:03 | 1 | 346 | 355 | 10 | RFASVYAWN | 1.4e-05 | 46 |
| HLA-B*35:01 | 1 | 349 | 358 | 10 | SVYAWNRKRI | 1.4e-05 | 46 |
| HLA-B*15:01 | 1 | 351 | 360 | 10 | YAWNRKRISN | 1.4e-05 | 60 |
| HLA-B*53:01 | 1 | 351 | 360 | 10 | YAWNRKRISN | 1.4e-05 | 46 |
| HLA-A*68:02 | 1 | 352 | 361 | 10 | AWNRKRISNC | 1.4e-05 | 61 |
| HLA-B*15:01 | 1 | 354 | 363 | 10 | NRKRISNCVA | 1.4e-05 | 60 |
| HLA-A*30:02 | 1 | 355 | 364 | 10 | RKRISNCVAD | 1.4e-05 | 84 |
| HLA-B*08:01 | 1 | 355 | 364 | 10 | RKRISNCVAD | 1.4e-05 | 79 |
| HLA-A*02:01 | 1 | 358 | 366 | 9 | ISNCVADYS | 1.4e-05 | 61 |
| HLA-A*24:02 | 1 | 358 | 367 | 10 | ISNCVADYSV | 1.4e-05 | 41 |
| HLA-A*31:01 | 1 | 360 | 368 | 9 | NCVADYSVL | 1.4e-05 | 63 |
| HLA-A*33:01 | 1 | 362 | 370 | 9 | VADYSVLYN | 1.4e-05 | 67 |
| HLA-A*32:01 | 1 | 364 | 372 | 9 | DYSVLYN | 1.4e-05 | 48 |
| HLA-A*68:01 | 1 | 364 | 373 | 10 | DYSVLYN | 1.4e-05 | 56 |
| HLA-B*40:01 | 1 | 364 | 372 | 9 | DYSVLYN | 1.4e-05 | 39 |
| HLA-B*08:01 | 1 | 374 | 383 | 10 | FSTFKCYGVS | 1.4e-05 | 79 |
| HLA-A*23:01 | 1 | 376 | 385 | 10 | TFKCYGVSPT | 1.4e-05 | 43 |
| HLA-A*32:01 | 1 | 376 | 384 | 9 | TFKCYGVSP | 1.4e-05 | 48 |
| HLA-B*58:01 | 1 | 379 | 388 | 10 | CYGVSPTKLN | 1.4e-05 | 67 |
| HLA-A*68:01 | 1 | 380 | 389 | 10 | YGVSPTKLND | 1.4e-05 | 56 |
| HLA-A*33:01 | 1 | 381 | 389 | 9 | GVSPTKLND | 1.4e-05 | 67 |
| HLA-B*53:01 | 1 | 381 | 389 | 9 | GVSPTKLND | 1.4e-05 | 46 |
| HLA-A*31:01 | 1 | 383 | 391 | 9 | SPTKLNDLC | 1.4e-05 | 63 |
| HLA-A*33:01 | 1 | 383 | 391 | 9 | SPTKLNDLC | 1.4e-05 | 67 |
| HLA-A*26:01 | 1 | 386 | 394 | 9 | KLNDLCFTN | 1.4e-05 | 55 |
| HLA-B*40:01 | 1 | 387 | 396 | 10 | LNDLCFTNVY | 1.4e-05 | 39 |
| HLA-B*44:03 | 1 | 387 | 395 | 9 | LNDLCFTNV | 1.4e-05 | 46 |
| HLA-A*30:02 | 1 | 390 | 398 | 9 | LCFTNVYAD | 1.4e-05 | 84 |
| HLA-A*11:01 | 1 | 393 | 401 | 9 | TNVYADSFV | 1.4e-05 | 42 |
| HLA-A*30:01 | 1 | 396 | 405 | 10 | YADSFVIRGD | 1.4e-05 | 86 |
| HLA-B*40:01 | 1 | 398 | 406 | 9 | DSFVIRGDE | 1.4e-05 | 39 |
| HLA-A*11:01 | 1 | 402 | 411 | 10 | IRGDEVRQIA | 1.4e-05 | 42 |
| HLA-A*32:01 | 1 | 403 | 412 | 10 | RGDEVRQIAP | 1.4e-05 | 48 |
| HLA-B*35:01 | 1 | 403 | 412 | 10 | RGDEVRQIAP | 1.4e-05 | 46 |
| HLA-B*44:02 | 1 | 406 | 415 | 10 | EVRQIAPGQT | 1.4e-05 | 49 |
| HLA-B*40:01 | 1 | 410 | 419 | 10 | IAPGQTGKIA | 1.4e-05 | 39 |
| HLA-B*57:01 | 1 | 411 | 420 | 10 | APGQTGKIAD | 1.4e-05 | 78 |
| HLA-A*31:01 | 1 | 414 | 422 | 9 | QTGKIADYN | 1.4e-05 | 63 |
| HLA-A*02:03 | 1 | 415 | 423 | 9 | TGKIADYNY | 1.4e-05 | 64 |
| HLA-B*35:01 | 1 | 415 | 424 | 10 | TGKIADYNYK | 1.4e-05 | 46 |
| HLA-A*32:01 | 1 | 418 | 426 | 9 | IADYNYKLP | 1.4e-05 | 48 |
| HLA-A*03:01 | 1 | 420 | 429 | 10 | DYNYKLPDDF | 1.4e-05 | 56 |
| HLA-B*40:01 | 1 | 421 | 430 | 10 | YNYKLPDDFT | 1.4e-05 | 39 |
| HLA-A*30:01 | 1 | 426 | 435 | 10 | PDDFTGCVIA | 1.4e-05 | 86 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*68:02 | 1 | 426 | 434 | 9 | PDDFTGCVI | 1.4e-05 | 61 |
| HLA-A*30:02 | 1 | 428 | 437 | 10 | DFTGCVIAWN | 1.4e-05 | 84 |
| HLA-B*15:01 | 1 | 436 | 445 | 10 | WNSNNLDSKV | 1.4e-05 | 60 |
| HLA-A*01:01 | 1 | 439 | 447 | 9 | NNLDSKVG | 1.4e-05 | 84 |
| HLA-A*31:01 | 1 | 439 | 447 | 9 | NNLDSKVG | 1.4e-05 | 63 |
| HLA-A*03:01 | 1 | 442 | 450 | 9 | DSKVGGNYN | 1.4e-05 | 56 |
| HLA-A*11:01 | 1 | 442 | 450 | 9 | DSKVGGNYN | 1.4e-05 | 42 |
| HLA-B*44:02 | 1 | 446 | 454 | 9 | GGNYNYLYR | 1.4e-05 | 49 |
| HLA-B*44:02 | 1 | 446 | 455 | 10 | GGNYNYLYR | 1.4e-05 | 49 |
| HLA-B*07:02 | 1 | 451 | 460 | 10 | YLYRFRKSN | 1.4e-05 | 60 |
| HLA-B*44:03 | 1 | 451 | 459 | 9 | YLYRFRKS | 1.4e-05 | 46 |
| HLA-A*02:06 | 1 | 459 | 467 | 9 | SNLKPFRD | 1.4e-05 | 70 |
| HLA-A*23:01 | 1 | 462 | 471 | 10 | KPFRDISTE | 1.4e-05 | 43 |
| HLA-B*07:02 | 1 | 466 | 474 | 9 | RDISTEIQ | 1.4e-05 | 60 |
| HLA-A*03:01 | 1 | 469 | 478 | 10 | STEIQAGST | 1.4e-05 | 56 |
| HLA-A*11:01 | 1 | 469 | 478 | 10 | STEIQAGST | 1.4e-05 | 42 |
| HLA-A*32:01 | 1 | 474 | 483 | 10 | QAGSTPCNGV | 1.4e-05 | 48 |
| HLA-B*15:01 | 1 | 474 | 483 | 10 | QAGSTPCNGV | 1.4e-05 | 60 |
| HLA-A*68:01 | 1 | 475 | 484 | 10 | AGSTPCNGVE | 1.4e-05 | 56 |
| HLA-B*51:01 | 1 | 480 | 488 | 9 | CNGVEGFC | 1.4e-05 | 71 |
| HLA-A*68:01 | 1 | 482 | 491 | 10 | GVEGFNCYFP | 1.4e-05 | 56 |
| HLA-B*15:01 | 1 | 482 | 491 | 10 | GVEGFNCYFP | 1.4e-05 | 60 |
| HLA-A*26:01 | 1 | 483 | 492 | 10 | VEGFNCYFPL | 1.4e-05 | 55 |
| HLA-A*02:01 | 1 | 487 | 496 | 10 | NCYFPLQSYG | 1.4e-05 | 61 |
| HLA-A*32:01 | 1 | 490 | 499 | 10 | FPLQSYGFQ | 1.4e-05 | 48 |
| HLA-A*24:02 | 1 | 492 | 500 | 9 | LQSYGFQPT | 1.4e-05 | 41 |
| HLA-A*68:02 | 1 | 492 | 501 | 10 | LQSYGFQPTN | 1.4e-05 | 61 |
| HLA-B*08:01 | 1 | 492 | 501 | 10 | LQSYGFQPTN | 1.4e-05 | 79 |
| HLA-A*68:01 | 1 | 494 | 502 | 9 | SYGFQPTNG | 1.4e-05 | 56 |
| HLA-B*44:02 | 1 | 494 | 502 | 9 | SYGFQPTNG | 1.4e-05 | 49 |
| HLA-A*02:03 | 1 | 500 | 509 | 10 | TNGVGYQPYR | 1.4e-05 | 64 |
| HLA-B*07:02 | 1 | 500 | 509 | 10 | TNGVGYQPYR | 1.4e-05 | 60 |
| HLA-B*44:03 | 1 | 500 | 509 | 10 | TNGVGYQPYR | 1.4e-05 | 46 |
| HLA-B*35:01 | 1 | 502 | 510 | 9 | GVGYQPYRV | 1.4e-05 | 46 |
| HLA-A*11:01 | 1 | 507 | 515 | 9 | PYRVVLSF | 1.4e-05 | 42 |
| HLA-A*32:01 | 1 | 507 | 516 | 10 | PYRVVLSFE | 1.4e-05 | 48 |
| HLA-B*35:01 | 1 | 508 | 516 | 9 | YRVVLSFE | 1.4e-05 | 46 |
| HLA-A*23:01 | 1 | 511 | 520 | 10 | VVLSFELLHA | 1.4e-05 | 43 |
| HLA-B*57:01 | 1 | 514 | 523 | 10 | SFELLHAPAT | 1.4e-05 | 78 |
| HLA-B*15:01 | 1 | 521 | 529 | 9 | PATVCGPKK | 1.4e-05 | 60 |
| HLA-A*24:02 | 1 | 523 | 531 | 9 | TVCGPKKST | 1.4e-05 | 41 |
| HLA-B*44:03 | 1 | 524 | 533 | 10 | VCGPKKSTNL | 1.4e-05 | 46 |
| HLA-A*03:01 | 1 | 528 | 536 | 9 | KKSTNLVKN | 1.4e-05 | 56 |
| HLA-B*08:01 | 1 | 528 | 537 | 10 | KKSTNLVKNK | 1.4e-05 | 79 |
| HLA-A*32:01 | 1 | 531 | 539 | 9 | TNLVKNKCV | 1.4e-05 | 48 |
| HLA-A*32:01 | 1 | 538 | 547 | 10 | CVNFNFNGLT | 1.4e-05 | 48 |
| HLA-B*08:01 | 1 | 538 | 547 | 10 | CVNFNFNGLT | 1.4e-05 | 79 |
| HLA-B*58:01 | 1 | 538 | 547 | 10 | CVNFNFNGLT | 1.4e-05 | 67 |
| HLA-A*02:06 | 1 | 539 | 548 | 10 | VNFNFNGLTG | 1.4e-05 | 70 |
| HLA-A*02:06 | 1 | 540 | 548 | 9 | NFNFNGLTG | 1.4e-05 | 70 |
| HLA-B*44:02 | 1 | 540 | 549 | 10 | NFNFNGLTGT | 1.4e-05 | 49 |
| HLA-B*57:01 | 1 | 540 | 549 | 10 | NFNFNGLTGT | 1.4e-05 | 78 |
| HLA-A*31:01 | 1 | 543 | 552 | 10 | FNGLTGTGVL | 1.4e-05 | 63 |
| HLA-A*68:01 | 1 | 543 | 552 | 10 | FNGLTGTGVL | 1.4e-05 | 56 |
| HLA-B*44:03 | 1 | 554 | 563 | 10 | ESNKKFLPFQ | 1.4e-05 | 46 |
| HLA-A*02:06 | 1 | 555 | 564 | 10 | SNKKFLPFQQ | 1.4e-05 | 70 |
| HLA-A*68:02 | 1 | 555 | 564 | 10 | SNKKFLPFQQ | 1.4e-05 | 61 |
| HLA-A*30:01 | 1 | 559 | 568 | 10 | FLPFQQFGRD | 1.4e-05 | 86 |
| HLA-A*68:02 | 1 | 559 | 568 | 10 | FLPFQQFGRD | 1.4e-05 | 61 |
| HLA-B*44:02 | 1 | 559 | 567 | 9 | FLPFQQFGR | 1.4e-05 | 49 |
| HLA-B*57:01 | 1 | 559 | 568 | 10 | FLPFQQFGRD | 1.4e-05 | 78 |
| HLA-B*44:03 | 1 | 561 | 569 | 9 | PFQQFGRDI | 1.4e-05 | 46 |
| HLA-B*40:01 | 1 | 562 | 571 | 10 | FQQFGRDIAD | 1.4e-05 | 39 |
| HLA-A*68:01 | 1 | 563 | 571 | 9 | QQFGRDIAD | 1.4e-05 | 56 |
| HLA-B*53:01 | 1 | 563 | 571 | 9 | QQFGRDIAD | 1.4e-05 | 46 |
| HLA-A*68:02 | 1 | 564 | 572 | 9 | QFGRDIADT | 1.4e-05 | 61 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*02:01 | 1 | 566 | 575 | 10 | GRDIADTTDA | 1.4e-05 | 61 |
| HLA-A*68:02 | 1 | 566 | 575 | 10 | GRDIADTTDA | 1.4e-05 | 61 |
| HLA-B*58:01 | 1 | 566 | 575 | 10 | GRDIADTTDA | 1.4e-05 | 67 |
| HLA-B*51:01 | 1 | 570 | 579 | 10 | ADTTDAVRDP | 1.4e-05 | 71 |
| HLA-B*35:01 | 1 | 579 | 587 | 9 | PQTLEILDI | 1.4e-05 | 46 |
| HLA-A*11:01 | 1 | 581 | 589 | 9 | TLEILDITP | 1.4e-05 | 42 |
| HLA-B*35:01 | 1 | 581 | 590 | 10 | TLEILDITPC | 1.4e-05 | 46 |
| HLA-B*44:02 | 1 | 581 | 589 | 9 | TLEILDITP | 1.4e-05 | 49 |
| HLA-B*53:01 | 1 | 581 | 590 | 10 | TLEILDITPC | 1.4e-05 | 46 |
| HLA-A*68:02 | 1 | 584 | 593 | 10 | ILDITPCSF | 1.4e-05 | 61 |
| HLA-B*44:02 | 1 | 584 | 593 | 10 | ILDITPCSF | 1.4e-05 | 49 |
| HLA-A*30:02 | 1 | 585 | 594 | 10 | LDITPCSF | 1.4e-05 | 84 |
| HLA-B*58:01 | 1 | 585 | 594 | 10 | LDITPCSF | 1.4e-05 | 67 |
| HLA-A*02:06 | 1 | 586 | 594 | 9 | DITPCSF | 1.4e-05 | 70 |
| HLA-A*31:01 | 1 | 586 | 595 | 10 | DITPCSF | 1.4e-05 | 63 |
| HLA-B*08:01 | 1 | 590 | 599 | 10 | CSF | 1.4e-05 | 79 |
| HLA-A*11:01 | 1 | 591 | 600 | 10 | SF | 1.4e-05 | 42 |
| HLA-A*02:06 | 1 | 592 | 601 | 10 | FG | 1.4e-05 | 70 |
| HLA-A*33:01 | 1 | 592 | 600 | 9 | FG | 1.4e-05 | 67 |
| HLA-A*03:01 | 1 | 593 | 602 | 10 | GG | 1.4e-05 | 56 |
| HLA-B*35:01 | 1 | 593 | 601 | 9 | GG | 1.4e-05 | 46 |
| HLA-B*15:01 | 1 | 594 | 603 | 10 | G | 1.4e-05 | 60 |
| HLA-A*23:01 | 1 | 596 | 605 | 10 | SV | 1.4e-05 | 43 |
| HLA-A*24:02 | 1 | 601 | 610 | 10 | GT | 1.4e-05 | 41 |
| HLA-B*07:02 | 1 | 613 | 621 | 9 | QD | 1.4e-05 | 60 |
| HLA-A*02:03 | 1 | 618 | 627 | 10 | TE | 1.4e-05 | 64 |
| HLA-B*58:01 | 1 | 631 | 640 | 10 | PT | 1.4e-05 | 67 |
| HLA-A*33:01 | 1 | 632 | 641 | 10 | TW | 1.4e-05 | 67 |
| HLA-A*02:01 | 1 | 635 | 644 | 10 | VY | 1.4e-05 | 61 |
| HLA-A*24:02 | 1 | 639 | 647 | 9 | GS | 1.4e-05 | 41 |
| HLA-B*07:02 | 1 | 645 | 654 | 10 | TR | 1.4e-05 | 60 |
| HLA-A*01:01 | 1 | 649 | 658 | 10 | CL | 1.4e-05 | 84 |
| HLA-A*68:01 | 1 | 650 | 658 | 9 | LI | 1.4e-05 | 56 |
| HLA-B*15:01 | 1 | 655 | 663 | 9 | HV | 1.4e-05 | 60 |
| HLA-B*07:02 | 1 | 656 | 664 | 9 | VN | 1.4e-05 | 60 |
| HLA-B*44:03 | 1 | 656 | 664 | 9 | VN | 1.4e-05 | 46 |
| HLA-B*15:01 | 1 | 657 | 666 | 10 | NN | 1.4e-05 | 60 |
| HLA-A*23:01 | 1 | 658 | 667 | 10 | NS | 1.4e-05 | 43 |
| HLA-B*53:01 | 1 | 658 | 667 | 10 | NS | 1.4e-05 | 46 |
| HLA-A*33:01 | 1 | 660 | 669 | 10 | YE | 1.4e-05 | 67 |
| HLA-A*26:01 | 1 | 661 | 669 | 9 | EC | 1.4e-05 | 55 |
| HLA-A*30:01 | 1 | 663 | 671 | 9 | DI | 1.4e-05 | 86 |
| HLA-A*24:02 | 1 | 664 | 672 | 9 | IP | 1.4e-05 | 41 |
| HLA-A*33:01 | 1 | 667 | 675 | 9 | GA | 1.4e-05 | 67 |
| HLA-A*26:01 | 1 | 668 | 677 | 10 | AG | 1.4e-05 | 55 |
| HLA-B*08:01 | 1 | 669 | 677 | 9 | GI | 1.4e-05 | 79 |
| HLA-B*44:02 | 1 | 679 | 688 | 10 | NS | 1.4e-05 | 49 |
| HLA-A*02:01 | 1 | 682 | 691 | 10 | RR | 1.4e-05 | 61 |
| HLA-B*44:03 | 1 | 685 | 694 | 10 | RS | 1.4e-05 | 46 |
| HLA-A*11:01 | 1 | 696 | 704 | 9 | TM | 1.4e-05 | 42 |
| HLA-A*26:01 | 1 | 696 | 704 | 9 | TM | 1.4e-05 | 55 |
| HLA-A*30:02 | 1 | 702 | 710 | 9 | EN | 1.4e-05 | 84 |
| HLA-B*57:01 | 1 | 702 | 710 | 9 | EN | 1.4e-05 | 78 |
| HLA-B*44:03 | 1 | 706 | 715 | 10 | AY | 1.4e-05 | 46 |
| HLA-A*31:01 | 1 | 714 | 723 | 10 | IP | 1.4e-05 | 63 |
| HLA-A*02:01 | 1 | 717 | 725 | 9 | NT | 1.4e-05 | 61 |
| HLA-A*23:01 | 1 | 720 | 729 | 10 | IS | 1.4e-05 | 43 |
| HLA-B*58:01 | 1 | 728 | 737 | 10 | PV | 1.4e-05 | 67 |
| HLA-A*68:01 | 1 | 729 | 737 | 9 | VS | 1.4e-05 | 56 |
| HLA-A*02:06 | 1 | 735 | 744 | 10 | SV | 1.4e-05 | 70 |
| HLA-A*01:01 | 1 | 740 | 748 | 9 | MY | 1.4e-05 | 84 |
| HLA-B*44:02 | 1 | 741 | 749 | 9 | YI | 1.4e-05 | 49 |
| HLA-B*44:03 | 1 | 741 | 749 | 9 | YI | 1.4e-05 | 46 |
| HLA-B*07:02 | 1 | 746 | 755 | 10 | ST | 1.4e-05 | 60 |
| HLA-B*07:02 | 1 | 751 | 760 | 10 | NL | 1.4e-05 | 60 |
| HLA-A*24:02 | 1 | 752 | 760 | 9 | LL | 1.4e-05 | 41 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*24:02 | 1 | 757 | 766 | 10 | GSFCTQLNRA | 1.4e-05 | 41 |
| HLA-B*44:02 | 1 | 762 | 771 | 10 | QLNRALTGIA | 1.4e-05 | 49 |
| HLA-A*02:03 | 1 | 764 | 773 | 10 | NRALTGIAVE | 1.4e-05 | 64 |
| HLA-A*11:01 | 1 | 768 | 777 | 10 | TGIAVEQDKN | 1.4e-05 | 42 |
| HLA-B*40:01 | 1 | 770 | 778 | 9 | IAVEQDKNT | 1.4e-05 | 39 |
| HLA-B*44:02 | 1 | 770 | 779 | 10 | IAVEQDKNTQ | 1.4e-05 | 49 |
| HLA-B*44:03 | 1 | 770 | 778 | 9 | IAVEQDKNT | 1.4e-05 | 46 |
| HLA-A*01:01 | 1 | 775 | 784 | 10 | DKNTQEVFAQ | 1.4e-05 | 84 |
| HLA-A*23:01 | 1 | 775 | 783 | 9 | DKNTQEVFA | 1.4e-05 | 43 |
| HLA-B*44:02 | 1 | 775 | 784 | 10 | DKNTQEVFAQ | 1.4e-05 | 49 |
| HLA-A*02:01 | 1 | 776 | 784 | 9 | KNTQEVFAQ | 1.4e-05 | 61 |
| HLA-A*11:01 | 1 | 788 | 796 | 9 | IYKTPPIKD | 1.4e-05 | 42 |
| HLA-B*53:01 | 1 | 788 | 796 | 9 | IYKTPPIKD | 1.4e-05 | 46 |
| HLA-A*31:01 | 1 | 789 | 798 | 10 | YKTPPIKDFG | 1.4e-05 | 63 |
| HLA-A*31:01 | 1 | 794 | 803 | 10 | IKDFGGFNFS | 1.4e-05 | 63 |
| HLA-B*53:01 | 1 | 795 | 803 | 9 | KDFGGFNFS | 1.4e-05 | 46 |
| HLA-A*68:01 | 1 | 797 | 805 | 9 | FGGFNFSQI | 1.4e-05 | 56 |
| HLA-A*68:01 | 1 | 797 | 806 | 10 | FGGFNFSQIL | 1.4e-05 | 56 |
| HLA-B*44:03 | 1 | 797 | 805 | 9 | FGGFNFSQI | 1.4e-05 | 46 |
| HLA-B*53:01 | 1 | 799 | 807 | 9 | GFNFSQILP | 1.4e-05 | 46 |
| HLA-A*23:01 | 1 | 800 | 809 | 10 | FNFSQILPDP | 1.4e-05 | 43 |
| HLA-A*26:01 | 1 | 802 | 810 | 9 | FSQILPDPS | 1.4e-05 | 55 |
| HLA-A*68:02 | 1 | 807 | 815 | 9 | PDPSKPSKR | 1.4e-05 | 61 |
| HLA-B*35:01 | 1 | 807 | 816 | 10 | PDPSKPSKRS | 1.4e-05 | 46 |
| HLA-A*02:03 | 1 | 808 | 816 | 9 | DPSKPSKRS | 1.4e-05 | 64 |
| HLA-A*02:01 | 1 | 809 | 818 | 10 | PSKPSKRSFI | 1.4e-05 | 61 |
| HLA-B*07:02 | 1 | 816 | 825 | 10 | SFIEDLLFNK | 1.4e-05 | 60 |
| HLA-A*68:02 | 1 | 818 | 827 | 10 | IEDLLFNKVT | 1.4e-05 | 61 |
| HLA-A*26:01 | 1 | 822 | 831 | 10 | LFNKVTLADA | 1.4e-05 | 55 |
| HLA-A*03:01 | 1 | 823 | 831 | 9 | FNKVTLADA | 1.4e-05 | 56 |
| HLA-B*08:01 | 1 | 824 | 832 | 9 | NKVTLADAG | 1.4e-05 | 79 |
| HLA-A*03:01 | 1 | 835 | 843 | 9 | KQYGDCLGD | 1.4e-05 | 56 |
| HLA-A*31:01 | 1 | 836 | 845 | 10 | QYGDCLGDIA | 1.4e-05 | 63 |
| HLA-A*03:01 | 1 | 841 | 849 | 9 | LGDIAARDL | 1.4e-05 | 56 |
| HLA-A*01:01 | 1 | 849 | 857 | 9 | LICAQKFNG | 1.4e-05 | 84 |
| HLA-B*53:01 | 1 | 851 | 859 | 9 | CAQKFNGLT | 1.4e-05 | 46 |
| HLA-A*11:01 | 1 | 853 | 862 | 10 | QKFNGLTVLP | 1.4e-05 | 42 |
| HLA-A*32:01 | 1 | 853 | 862 | 10 | QKFNGLTVLP | 1.4e-05 | 48 |
| HLA-B*44:02 | 1 | 859 | 868 | 10 | TVLPPLLTDE | 1.4e-05 | 49 |
| HLA-A*68:01 | 1 | 861 | 870 | 10 | LPPLLTDEMI | 1.4e-05 | 56 |
| HLA-A*31:01 | 1 | 863 | 872 | 10 | PLLTDEMIAQ | 1.4e-05 | 63 |
| HLA-A*68:01 | 1 | 863 | 872 | 10 | PLLTDEMIAQ | 1.4e-05 | 56 |
| HLA-B*57:01 | 1 | 863 | 871 | 9 | PLLTDEMIA | 1.4e-05 | 78 |
| HLA-B*44:03 | 1 | 864 | 872 | 9 | LLTDEMIAQ | 1.4e-05 | 46 |
| HLA-A*32:01 | 1 | 867 | 876 | 10 | DEMIAQYTSA | 1.4e-05 | 48 |
| HLA-A*26:01 | 1 | 871 | 880 | 10 | AQYTSALLAG | 1.4e-05 | 55 |
| HLA-B*40:01 | 1 | 873 | 882 | 10 | YTSALLAGTI | 1.4e-05 | 39 |
| HLA-B*53:01 | 1 | 874 | 883 | 10 | TSALLAGTIT | 1.4e-05 | 46 |
| HLA-B*08:01 | 1 | 883 | 891 | 9 | TSGWTFGAG | 1.4e-05 | 79 |
| HLA-A*03:01 | 1 | 885 | 893 | 9 | GWTFGAGAA | 1.4e-05 | 56 |
| HLA-B*44:03 | 1 | 889 | 897 | 9 | GAGAALQIP | 1.4e-05 | 46 |
| HLA-B*44:02 | 1 | 890 | 899 | 10 | AGAALQIPFA | 1.4e-05 | 49 |
| HLA-A*24:02 | 1 | 899 | 907 | 9 | AMQMAYRFN | 1.4e-05 | 41 |
| HLA-B*53:01 | 1 | 900 | 908 | 9 | MQMAYRFNG | 1.4e-05 | 46 |
| HLA-A*02:06 | 1 | 901 | 910 | 10 | QMAYRFNGIG | 1.4e-05 | 70 |
| HLA-A*02:03 | 1 | 911 | 920 | 10 | VTQNVLYENQ | 1.4e-05 | 64 |
| HLA-B*07:02 | 1 | 912 | 921 | 10 | TQNVLYENQK | 1.4e-05 | 60 |
| HLA-A*32:01 | 1 | 917 | 925 | 9 | YENQKLIAN | 1.4e-05 | 48 |
| HLA-A*02:06 | 1 | 927 | 935 | 9 | FNSAIGKIQ | 1.4e-05 | 70 |
| HLA-B*53:01 | 1 | 928 | 936 | 9 | NSAIGKIQD | 1.4e-05 | 46 |
| HLA-A*23:01 | 1 | 929 | 937 | 9 | SAIGKIQDS | 1.4e-05 | 43 |
| HLA-B*51:01 | 1 | 930 | 939 | 10 | AIGKIQDLSL | 1.4e-05 | 71 |
| HLA-A*33:01 | 1 | 935 | 943 | 9 | QDLSLSTAS | 1.4e-05 | 67 |
| HLA-A*26:01 | 1 | 937 | 946 | 10 | SLSSTASALG | 1.4e-05 | 55 |
| HLA-A*03:01 | 1 | 938 | 946 | 9 | LSSTASALG | 1.4e-05 | 56 |
| HLA-B*07:02 | 1 | 938 | 946 | 9 | LSSTASALG | 1.4e-05 | 60 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-B*53:01 | 1 | 942 | 951 | 10 | ASALGKLQDV | 1.4e-05 | 46 |
| HLA-A*02:01 | 1 | 946 | 954 | 9 | GKLQDVVNQ | 1.4e-05 | 61 |
| HLA-B*35:01 | 1 | 947 | 955 | 9 | KLQDVVNQN | 1.4e-05 | 46 |
| HLA-B*53:01 | 1 | 947 | 956 | 10 | KLQDVVNQNA | 1.4e-05 | 46 |
| HLA-B*44:02 | 1 | 948 | 957 | 10 | LQDVVNQNAQ | 1.4e-05 | 49 |
| HLA-B*51:01 | 1 | 952 | 960 | 9 | VNQNAQALN | 1.4e-05 | 71 |
| HLA-A*32:01 | 1 | 959 | 968 | 10 | LNTLVKQLSS | 1.4e-05 | 48 |
| HLA-A*68:01 | 1 | 959 | 968 | 10 | LNTLVKQLSS | 1.4e-05 | 56 |
| HLA-B*07:02 | 1 | 959 | 968 | 10 | LNTLVKQLSS | 1.4e-05 | 60 |
| HLA-B*44:03 | 1 | 960 | 968 | 9 | NTLVKQLSS | 1.4e-05 | 46 |
| HLA-A*01:01 | 1 | 963 | 971 | 9 | VKQLSSNFG | 1.4e-05 | 84 |
| HLA-A*68:01 | 1 | 963 | 972 | 10 | VKQLSSNFGA | 1.4e-05 | 56 |
| HLA-B*53:01 | 1 | 966 | 974 | 9 | LSSNFGAIS | 1.4e-05 | 46 |
| HLA-A*30:02 | 1 | 970 | 979 | 10 | FGAISSVLND | 1.4e-05 | 84 |
| HLA-B*44:02 | 1 | 976 | 985 | 10 | VLNDILSRDL | 1.4e-05 | 49 |
| HLA-B*35:01 | 1 | 979 | 988 | 10 | DILSRDLKVE | 1.4e-05 | 46 |
| HLA-B*53:01 | 1 | 979 | 988 | 10 | DILSRDLKVE | 1.4e-05 | 46 |
| HLA-B*51:01 | 1 | 983 | 992 | 10 | RLDKVEAEVQ | 1.4e-05 | 71 |
| HLA-A*26:01 | 1 | 984 | 992 | 9 | LDKVEAEVQ | 1.4e-05 | 55 |
| HLA-A*26:01 | 1 | 993 | 1002 | 10 | IDRLITGRLQ | 1.4e-05 | 55 |
| HLA-B*57:01 | 1 | 994 | 1002 | 9 | DRLITGRLQ | 1.4e-05 | 78 |
| HLA-B*53:01 | 1 | 996 | 1005 | 10 | LITGRLQSLQ | 1.4e-05 | 46 |
| HLA-B*07:02 | 1 | 997 | 1005 | 9 | ITGRLQSLQ | 1.4e-05 | 60 |
| HLA-B*44:02 | 1 | 997 | 1005 | 9 | ITGRLQSLQ | 1.4e-05 | 49 |
| HLA-A*68:01 | 1 | 1000 | 1009 | 10 | RLQSLQTYVT | 1.4e-05 | 56 |
| HLA-A*11:01 | 1 | 1001 | 1009 | 9 | LQSLQTYVT | 1.4e-05 | 42 |
| HLA-B*53:01 | 1 | 1001 | 1010 | 10 | LQSLQTYVTQ | 1.4e-05 | 46 |
| HLA-B*53:01 | 1 | 1010 | 1019 | 10 | QLLIRAAEIR | 1.4e-05 | 46 |
| HLA-B*58:01 | 1 | 1012 | 1021 | 10 | LIRAAEIRAS | 1.4e-05 | 67 |
| HLA-A*24:02 | 1 | 1013 | 1021 | 9 | IRAAEIRAS | 1.4e-05 | 41 |
| HLA-A*03:01 | 1 | 1015 | 1023 | 9 | AAEIRASAN | 1.4e-05 | 56 |
| HLA-B*44:02 | 1 | 1015 | 1023 | 9 | AAEIRASAN | 1.4e-05 | 49 |
| HLA-B*44:03 | 1 | 1015 | 1023 | 9 | AAEIRASAN | 1.4e-05 | 46 |
| HLA-A*03:01 | 1 | 1021 | 1030 | 10 | SANLAATKMS | 1.4e-05 | 56 |
| HLA-A*33:01 | 1 | 1021 | 1030 | 10 | SANLAATKMS | 1.4e-05 | 67 |
| HLA-B*44:02 | 1 | 1023 | 1031 | 9 | NLAATKMSE | 1.4e-05 | 49 |
| HLA-B*44:03 | 1 | 1027 | 1036 | 10 | TKMSECVLGQ | 1.4e-05 | 46 |
| HLA-B*53:01 | 1 | 1028 | 1036 | 9 | KMSECVLGQ | 1.4e-05 | 46 |
| HLA-B*15:01 | 1 | 1029 | 1037 | 9 | MSECVLGQS | 1.4e-05 | 60 |
| HLA-A*02:01 | 1 | 1033 | 1041 | 9 | VLGQSKRVD | 1.4e-05 | 61 |
| HLA-A*32:01 | 1 | 1036 | 1044 | 9 | QSKRVDFCG | 1.4e-05 | 48 |
| HLA-B*08:01 | 1 | 1038 | 1046 | 9 | KRVDFCGKG | 1.4e-05 | 79 |
| HLA-A*01:01 | 1 | 1044 | 1053 | 10 | GKGYHLMSFP | 1.4e-05 | 84 |
| HLA-A*68:02 | 1 | 1044 | 1053 | 10 | GKGYHLMSFP | 1.4e-05 | 61 |
| HLA-A*02:06 | 1 | 1045 | 1054 | 10 | KGYHLMSFPQ | 1.4e-05 | 70 |
| HLA-B*44:03 | 1 | 1045 | 1053 | 9 | KGYHLMSFP | 1.4e-05 | 46 |
| HLA-B*51:01 | 1 | 1045 | 1054 | 10 | KGYHLMSFPQ | 1.4e-05 | 71 |
| HLA-B*57:01 | 1 | 1046 | 1054 | 9 | GYHLMSFPQ | 1.4e-05 | 78 |
| HLA-B*44:03 | 1 | 1049 | 1058 | 10 | LMSFPQSAPH | 1.4e-05 | 46 |
| HLA-A*11:01 | 1 | 1058 | 1066 | 9 | HGVVFLHVT | 1.4e-05 | 42 |
| HLA-A*24:02 | 1 | 1058 | 1066 | 9 | HGVVFLHVT | 1.4e-05 | 41 |
| HLA-B*44:02 | 1 | 1058 | 1066 | 9 | HGVVFLHVT | 1.4e-05 | 49 |
| HLA-B*35:01 | 1 | 1060 | 1069 | 10 | VVFLHVTYVP | 1.4e-05 | 46 |
| HLA-B*58:01 | 1 | 1061 | 1070 | 10 | VFLHVTYVPA | 1.4e-05 | 67 |
| HLA-A*68:02 | 1 | 1062 | 1071 | 10 | FLHVTYVPAQ | 1.4e-05 | 61 |
| HLA-A*11:01 | 1 | 1063 | 1072 | 10 | LHVTYVPAQE | 1.4e-05 | 42 |
| HLA-B*35:01 | 1 | 1063 | 1072 | 10 | LHVTYVPAQE | 1.4e-05 | 46 |
| HLA-B*44:03 | 1 | 1064 | 1072 | 9 | HVTYVPAQE | 1.4e-05 | 46 |
| HLA-A*23:01 | 1 | 1069 | 1077 | 9 | PAQEKNFST | 1.4e-05 | 43 |
| HLA-B*44:02 | 1 | 1069 | 1078 | 10 | PAQEKNFSTA | 1.4e-05 | 49 |
| HLA-B*44:02 | 1 | 1074 | 1083 | 10 | NFTTAPAICH | 1.4e-05 | 49 |
| HLA-A*31:01 | 1 | 1076 | 1085 | 10 | TTAPAICHDG | 1.4e-05 | 63 |
| HLA-B*44:03 | 1 | 1077 | 1086 | 10 | TAPAICHDGK | 1.4e-05 | 46 |
| HLA-A*24:02 | 1 | 1083 | 1091 | 9 | HDGKAHFPR | 1.4e-05 | 41 |
| HLA-B*53:01 | 1 | 1083 | 1091 | 9 | HDGKAHFPR | 1.4e-05 | 46 |
| HLA-B*44:02 | 1 | 1084 | 1093 | 10 | DGKAHFPR | 1.4e-05 | 49 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-B*15:01 | 1 | 1085 | 1093 | 9 | GKAHFPREG | 1.4e-05 | 60 |
| HLA-B*53:01 | 1 | 1085 | 1094 | 10 | GKAHFPREGV | 1.4e-05 | 46 |
| HLA-B*57:01 | 1 | 1091 | 1099 | 9 | REGVFSVNG | 1.4e-05 | 78 |
| HLA-A*24:02 | 1 | 1098 | 1106 | 9 | NGTHWFVTQ | 1.4e-05 | 41 |
| HLA-B*35:01 | 1 | 1107 | 1116 | 10 | RNFYEPQIIT | 1.4e-05 | 46 |
| HLA-A*02:01 | 1 | 1110 | 1118 | 9 | YEPQIITTD | 1.4e-05 | 61 |
| HLA-B*15:01 | 1 | 1110 | 1119 | 10 | YEPQIITTDN | 1.4e-05 | 60 |
| HLA-B*08:01 | 1 | 1112 | 1120 | 9 | PQIITTDNT | 1.4e-05 | 79 |
| HLA-A*03:01 | 1 | 1114 | 1123 | 10 | IITTDNTFVS | 1.4e-05 | 56 |
| HLA-A*33:01 | 1 | 1114 | 1123 | 10 | IITTDNTFVS | 1.4e-05 | 67 |
| HLA-A*33:01 | 1 | 1117 | 1125 | 9 | TDNTFVSGN | 1.4e-05 | 67 |
| HLA-B*58:01 | 1 | 1118 | 1126 | 9 | DNTFVSGNC | 1.4e-05 | 67 |
| HLA-B*44:02 | 1 | 1121 | 1130 | 10 | FVSGNCDVVI | 1.4e-05 | 49 |
| HLA-A*30:02 | 1 | 1122 | 1131 | 10 | VSGNCDVVI | 1.4e-05 | 84 |
| HLA-A*31:01 | 1 | 1125 | 1133 | 9 | NCDVIGIV | 1.4e-05 | 63 |
| HLA-A*68:01 | 1 | 1125 | 1133 | 9 | NCDVIGIV | 1.4e-05 | 56 |
| HLA-B*57:01 | 1 | 1126 | 1135 | 10 | CDVIGIVNN | 1.4e-05 | 78 |
| HLA-B*08:01 | 1 | 1133 | 1142 | 10 | VNNTVYDPLQ | 1.4e-05 | 79 |
| HLA-A*26:01 | 1 | 1141 | 1150 | 10 | LQPELDSFKE | 1.4e-05 | 55 |
| HLA-A*01:01 | 1 | 1143 | 1151 | 9 | PELDSFKEE | 1.4e-05 | 84 |
| HLA-A*02:01 | 1 | 1149 | 1157 | 9 | KEELDKYFK | 1.4e-05 | 61 |
| HLA-B*08:01 | 1 | 1149 | 1158 | 10 | KEELDKYFKN | 1.4e-05 | 79 |
| HLA-A*02:06 | 1 | 1152 | 1161 | 10 | LDKYFKNHTS | 1.4e-05 | 70 |
| HLA-A*02:06 | 1 | 1153 | 1162 | 10 | DKYFKNHTSP | 1.4e-05 | 70 |
| HLA-A*24:02 | 1 | 1153 | 1161 | 9 | DKYFKNHTS | 1.4e-05 | 41 |
| HLA-A*33:01 | 1 | 1154 | 1163 | 10 | KYFKNHTSPD | 1.4e-05 | 67 |
| HLA-A*26:01 | 1 | 1155 | 1163 | 9 | YFKNHTSPD | 1.4e-05 | 55 |
| HLA-B*44:02 | 1 | 1158 | 1167 | 10 | NHTSPDVLG | 1.4e-05 | 49 |
| HLA-B*51:01 | 1 | 1159 | 1168 | 10 | HTSPDVLGD | 1.4e-05 | 71 |
| HLA-A*11:01 | 1 | 1160 | 1169 | 10 | TSPDVLGDI | 1.4e-05 | 42 |
| HLA-A*68:01 | 1 | 1160 | 1168 | 9 | TSPDVLGD | 1.4e-05 | 56 |
| HLA-A*02:06 | 1 | 1161 | 1170 | 10 | SPDVLGDIS | 1.4e-05 | 70 |
| HLA-B*15:01 | 1 | 1161 | 1170 | 10 | SPDVLGDIS | 1.4e-05 | 60 |
| HLA-B*58:01 | 1 | 1161 | 1170 | 10 | SPDVLGDIS | 1.4e-05 | 67 |
| HLA-A*02:03 | 1 | 1165 | 1173 | 9 | DLGDISGIN | 1.4e-05 | 64 |
| HLA-A*23:01 | 1 | 1166 | 1174 | 9 | LGDISGINA | 1.4e-05 | 43 |
| HLA-B*44:02 | 1 | 1168 | 1177 | 10 | DISGINASVV | 1.4e-05 | 49 |
| HLA-B*51:01 | 1 | 1171 | 1180 | 10 | GINASVVNIQ | 1.4e-05 | 71 |
| HLA-A*02:01 | 1 | 1173 | 1182 | 10 | NASVVNIQKE | 1.4e-05 | 61 |
| HLA-B*40:01 | 1 | 1174 | 1182 | 9 | ASVVNIQKE | 1.4e-05 | 39 |
| HLA-B*15:01 | 1 | 1175 | 1184 | 10 | SVVNIQKEID | 1.4e-05 | 60 |
| HLA-A*23:01 | 1 | 1176 | 1185 | 10 | VVNIQKEIDR | 1.4e-05 | 43 |
| HLA-A*68:01 | 1 | 1176 | 1184 | 9 | VVNIQKEID | 1.4e-05 | 56 |
| HLA-A*26:01 | 1 | 1179 | 1188 | 10 | IQKEIDRLNE | 1.4e-05 | 55 |
| HLA-B*35:01 | 1 | 1179 | 1187 | 9 | IQKEIDRLN | 1.4e-05 | 46 |
| HLA-B*44:02 | 1 | 1180 | 1188 | 9 | QKEIDRLNE | 1.4e-05 | 49 |
| HLA-A*33:01 | 1 | 1183 | 1192 | 10 | IDRLNEVAKN | 1.4e-05 | 67 |
| HLA-B*57:01 | 1 | 1191 | 1199 | 9 | KNLNESLID | 1.4e-05 | 78 |
| HLA-B*15:01 | 1 | 1195 | 1204 | 10 | ESLIDLQELG | 1.4e-05 | 60 |
| HLA-A*68:02 | 1 | 1200 | 1209 | 10 | LQELGKYEYQ | 1.4e-05 | 61 |
| HLA-B*35:01 | 1 | 1202 | 1211 | 10 | ELGKYEYQYIK | 1.4e-05 | 46 |
| HLA-A*23:01 | 1 | 1203 | 1211 | 9 | LGKYEYQYIK | 1.4e-05 | 43 |
| HLA-A*33:01 | 1 | 1205 | 1213 | 9 | KYEYQYIKWP | 1.4e-05 | 67 |
| HLA-B*51:01 | 1 | 1211 | 1219 | 9 | KWPWYIWL | 1.4e-05 | 71 |
| HLA-A*32:01 | 1 | 1212 | 1221 | 10 | WPWYIWLGFI | 1.4e-05 | 48 |
| HLA-A*68:01 | 1 | 1212 | 1221 | 10 | WPWYIWLGFI | 1.4e-05 | 56 |
| HLA-B*58:01 | 1 | 1212 | 1221 | 10 | WPWYIWLGFI | 1.4e-05 | 67 |
| HLA-B*57:01 | 1 | 1217 | 1226 | 10 | WLGFIAGLIA | 1.4e-05 | 78 |
| HLA-B*40:01 | 1 | 1218 | 1227 | 10 | LGFIAGLIAI | 1.4e-05 | 39 |
| HLA-A*11:01 | 1 | 1219 | 1228 | 10 | GFIAGLIAIIV | 1.4e-05 | 42 |
| HLA-A*01:01 | 1 | 1222 | 1231 | 10 | AGLIAIVMVT | 1.4e-05 | 84 |
| HLA-B*53:01 | 1 | 1223 | 1232 | 10 | GLIAIVMVTI | 1.4e-05 | 46 |
| HLA-A*33:01 | 1 | 1226 | 1235 | 10 | AIVMVTIMLC | 1.4e-05 | 67 |
| HLA-A*02:06 | 1 | 1233 | 1242 | 10 | MLCCMTSCCS | 1.4e-05 | 70 |
| HLA-B*57:01 | 1 | 1234 | 1243 | 10 | LCCMTSCCSC | 1.4e-05 | 78 |
| HLA-B*58:01 | 1 | 1236 | 1245 | 10 | CMTSCCCLK | 1.4e-05 | 67 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*02:01 | 1 | 1237 | 1245 | 9 | MTSCCSCLK | 1.4e-05 | 61 |
| HLA-A*68:02 | 1 | 1237 | 1246 | 10 | MTSCCSCLKG | 1.4e-05 | 61 |
| HLA-B*44:02 | 1 | 1237 | 1245 | 9 | MTSCCSCLK | 1.4e-05 | 49 |
| HLA-A*31:01 | 1 | 1239 | 1247 | 9 | SCCSCLKGC | 1.4e-05 | 63 |
| HLA-A*68:02 | 1 | 1241 | 1250 | 10 | CCLKGCCSC | 1.4e-05 | 61 |
| HLA-B*15:01 | 1 | 1242 | 1250 | 9 | SCLKGCCSC | 1.4e-05 | 60 |
| HLA-B*58:01 | 1 | 1251 | 1259 | 9 | GSCCKFDED | 1.4e-05 | 67 |
| HLA-A*02:03 | 1 | 1254 | 1263 | 10 | CKFDEDDSEP | 1.4e-05 | 64 |
| HLA-A*11:01 | 1 | 1255 | 1263 | 9 | KFDEDDSEP | 1.4e-05 | 42 |
| HLA-A*02:03 | 1 | 1257 | 1266 | 10 | DEDDSEPVLK | 1.4e-05 | 64 |
| HLA-B*53:01 | 1 | 1258 | 1267 | 10 | EDDSEPVKLG | 1.4e-05 | 46 |
| HLA-B*40:01 | 1 | 6 | 15 | 10 | VLLPLVSSQC | 1.3e-05 | 40 |
| HLA-A*30:01 | 1 | 8 | 17 | 10 | LPLVSSQCVN | 1.3e-05 | 86 |
| HLA-B*57:01 | 1 | 8 | 17 | 10 | LPLVSSQCVN | 1.3e-05 | 79 |
| HLA-B*53:01 | 1 | 11 | 20 | 10 | VSSQCVNLTT | 1.3e-05 | 47 |
| HLA-B*53:01 | 1 | 12 | 21 | 10 | SSQCVNLTR | 1.3e-05 | 47 |
| HLA-A*24:02 | 1 | 16 | 25 | 10 | VNLTRTQLP | 1.3e-05 | 42 |
| HLA-B*40:01 | 1 | 20 | 29 | 10 | TRTQLPPAYT | 1.3e-05 | 40 |
| HLA-A*33:01 | 1 | 24 | 33 | 10 | LPPAYTNSFT | 1.3e-05 | 69 |
| HLA-B*44:02 | 1 | 24 | 33 | 10 | LPPAYTNSFT | 1.3e-05 | 50 |
| HLA-B*40:01 | 1 | 26 | 34 | 9 | PAYTNSFTR | 1.3e-05 | 40 |
| HLA-A*02:06 | 1 | 27 | 35 | 9 | AYTNSFTRG | 1.3e-05 | 71 |
| HLA-A*02:01 | 1 | 29 | 37 | 9 | TNSFTRGVY | 1.3e-05 | 62 |
| HLA-A*02:03 | 1 | 29 | 37 | 9 | TNSFTRGVY | 1.3e-05 | 65 |
| HLA-B*15:01 | 1 | 32 | 40 | 9 | FRGVYYPD | 1.3e-05 | 62 |
| HLA-B*58:01 | 1 | 33 | 41 | 9 | TRGVYYPDK | 1.3e-05 | 68 |
| HLA-B*40:01 | 1 | 41 | 50 | 10 | KVFRSSVLHS | 1.3e-05 | 40 |
| HLA-A*26:01 | 1 | 45 | 53 | 9 | SSVLHSTQD | 1.3e-05 | 56 |
| HLA-B*44:02 | 1 | 45 | 53 | 9 | SSVLHSTQD | 1.3e-05 | 50 |
| HLA-A*02:03 | 1 | 48 | 57 | 10 | LHSTQDLFLP | 1.3e-05 | 65 |
| HLA-B*07:02 | 1 | 51 | 60 | 10 | TQDLFLPFFS | 1.3e-05 | 61 |
| HLA-B*44:03 | 1 | 53 | 61 | 9 | DLFLPFFSN | 1.3e-05 | 47 |
| HLA-A*32:01 | 1 | 54 | 63 | 10 | LFLPFFSNVT | 1.3e-05 | 48 |
| HLA-B*53:01 | 1 | 62 | 71 | 10 | VTWFHAIHVS | 1.3e-05 | 47 |
| HLA-A*01:01 | 1 | 63 | 72 | 10 | TWFHAIHVSG | 1.3e-05 | 85 |
| HLA-B*07:02 | 1 | 63 | 72 | 10 | TWFHAIHVSG | 1.3e-05 | 61 |
| HLA-A*11:01 | 1 | 67 | 76 | 10 | AIHVSGTNGT | 1.3e-05 | 43 |
| HLA-A*33:01 | 1 | 67 | 75 | 9 | AIHVSGTNG | 1.3e-05 | 69 |
| HLA-A*23:01 | 1 | 74 | 83 | 10 | NGTKRFDNPV | 1.3e-05 | 44 |
| HLA-A*33:01 | 1 | 80 | 88 | 9 | DNPVLPFND | 1.3e-05 | 69 |
| HLA-B*15:01 | 1 | 81 | 90 | 10 | NPVLPFNDGV | 1.3e-05 | 62 |
| HLA-A*23:01 | 1 | 86 | 94 | 9 | FNDGVYFAS | 1.3e-05 | 44 |
| HLA-A*30:02 | 1 | 87 | 95 | 9 | NDGVYFAST | 1.3e-05 | 85 |
| HLA-B*07:02 | 1 | 87 | 95 | 9 | NDGVYFAST | 1.3e-05 | 61 |
| HLA-B*15:01 | 1 | 88 | 96 | 9 | DGVYFASTE | 1.3e-05 | 62 |
| HLA-A*01:01 | 1 | 90 | 99 | 10 | VYFASTEKSN | 1.3e-05 | 85 |
| HLA-B*40:01 | 1 | 93 | 102 | 10 | ASTEKSNIIR | 1.3e-05 | 40 |
| HLA-B*58:01 | 1 | 99 | 108 | 10 | NIIRGWIFGT | 1.3e-05 | 68 |
| HLA-A*01:01 | 1 | 100 | 109 | 10 | IIRGWIFGTT | 1.3e-05 | 85 |
| HLA-A*03:01 | 1 | 101 | 109 | 9 | IRGWIFGTT | 1.3e-05 | 57 |
| HLA-B*58:01 | 1 | 103 | 112 | 10 | GWIFGTTLDS | 1.3e-05 | 68 |
| HLA-A*02:01 | 1 | 105 | 114 | 10 | IFGTTLDSKT | 1.3e-05 | 62 |
| HLA-B*15:01 | 1 | 106 | 115 | 10 | FGTTLDSKTQ | 1.3e-05 | 62 |
| HLA-B*08:01 | 1 | 107 | 115 | 9 | GTTLDSKTQ | 1.3e-05 | 80 |
| HLA-B*44:03 | 1 | 107 | 115 | 9 | GTTLDSKTQ | 1.3e-05 | 47 |
| HLA-A*26:01 | 1 | 112 | 121 | 10 | SKTQSLLIVN | 1.3e-05 | 56 |
| HLA-B*35:01 | 1 | 113 | 121 | 9 | KTQSLLIVN | 1.3e-05 | 47 |
| HLA-A*03:01 | 1 | 116 | 125 | 10 | LLIVNNATN | 1.3e-05 | 57 |
| HLA-B*35:01 | 1 | 117 | 125 | 9 | LLIVNNATN | 1.3e-05 | 47 |
| HLA-B*40:01 | 1 | 117 | 126 | 10 | LLIVNNATNV | 1.3e-05 | 40 |
| HLA-B*53:01 | 1 | 117 | 126 | 10 | LLIVNNATNV | 1.3e-05 | 47 |
| HLA-A*11:01 | 1 | 118 | 127 | 10 | LIVNNATNVV | 1.3e-05 | 43 |
| HLA-B*07:02 | 1 | 125 | 134 | 10 | NVVIKVCEFQ | 1.3e-05 | 61 |
| HLA-A*68:02 | 1 | 131 | 139 | 9 | CEFQFCNDP | 1.3e-05 | 62 |
| HLA-A*68:01 | 1 | 133 | 142 | 10 | FQFCNDPFLG | 1.3e-05 | 57 |
| HLA-A*24:02 | 1 | 138 | 146 | 9 | DPFLGVYYH | 1.3e-05 | 42 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*35:01 | 1 | 139 | 147 | 9 | PFLGVYYHK | 1.3e-05 | 47 |
| HLA-B*53:01 | 1 | 143 | 151 | 9 | VYYHKNNKS | 1.3e-05 | 47 |
| HLA-B*44:02 | 1 | 145 | 154 | 10 | YHKNNKSWME | 1.3e-05 | 50 |
| HLA-B*53:01 | 1 | 145 | 154 | 10 | YHKNNKSWME | 1.3e-05 | 47 |
| HLA-A*03:01 | 1 | 146 | 155 | 10 | HKNNKSWMES | 1.3e-05 | 57 |
| HLA-A*23:01 | 1 | 146 | 154 | 9 | HKNNKSWME | 1.3e-05 | 44 |
| HLA-A*68:02 | 1 | 146 | 154 | 9 | HKNNKSWME | 1.3e-05 | 62 |
| HLA-B*51:01 | 1 | 146 | 154 | 9 | HKNNKSWME | 1.3e-05 | 72 |
| HLA-A*23:01 | 1 | 149 | 158 | 10 | NKSWMESEFR | 1.3e-05 | 44 |
| HLA-B*35:01 | 1 | 150 | 159 | 10 | KSWMESEFRV | 1.3e-05 | 47 |
| HLA-A*01:01 | 1 | 155 | 164 | 10 | SEFRVYSSAN | 1.3e-05 | 85 |
| HLA-A*68:01 | 1 | 156 | 164 | 9 | EFRVYSSAN | 1.3e-05 | 57 |
| HLA-A*68:02 | 1 | 163 | 172 | 10 | ANNCTFEYVS | 1.3e-05 | 62 |
| HLA-B*44:02 | 1 | 165 | 174 | 10 | NCTFEYVSQP | 1.3e-05 | 50 |
| HLA-B*44:03 | 1 | 165 | 174 | 10 | NCTFEYVSQP | 1.3e-05 | 47 |
| HLA-A*23:01 | 1 | 172 | 181 | 10 | SQPFLMDLEG | 1.3e-05 | 44 |
| HLA-B*07:02 | 1 | 172 | 180 | 9 | SQPFLMDLE | 1.3e-05 | 61 |
| HLA-B*15:01 | 1 | 173 | 182 | 10 | QPFLMDLEGK | 1.3e-05 | 62 |
| HLA-B*44:02 | 1 | 173 | 181 | 9 | QPFLMDLEG | 1.3e-05 | 50 |
| HLA-A*33:01 | 1 | 176 | 185 | 10 | LMDLEGKQGN | 1.3e-05 | 69 |
| HLA-B*40:01 | 1 | 177 | 185 | 9 | MDLEGKQGN | 1.3e-05 | 40 |
| HLA-A*02:01 | 1 | 179 | 187 | 9 | LEGKQGNFK | 1.3e-05 | 62 |
| HLA-A*02:03 | 1 | 179 | 187 | 9 | LEGKQGNFK | 1.3e-05 | 65 |
| HLA-B*35:01 | 1 | 180 | 188 | 9 | EGKQGNFKN | 1.3e-05 | 47 |
| HLA-A*68:02 | 1 | 181 | 190 | 10 | GKQGNFKNLR | 1.3e-05 | 62 |
| HLA-A*11:01 | 1 | 185 | 194 | 10 | NFKNLREFVF | 1.3e-05 | 43 |
| HLA-A*24:02 | 1 | 186 | 195 | 10 | FKNLREFVFK | 1.3e-05 | 42 |
| HLA-B*08:01 | 1 | 190 | 199 | 10 | REFVFKNIDG | 1.3e-05 | 80 |
| HLA-B*57:01 | 1 | 190 | 198 | 9 | REFVFKNID | 1.3e-05 | 79 |
| HLA-B*51:01 | 1 | 193 | 202 | 10 | VFKNIDGYFK | 1.3e-05 | 72 |
| HLA-B*58:01 | 1 | 196 | 205 | 10 | NIDGYFKIYS | 1.3e-05 | 68 |
| HLA-B*07:02 | 1 | 206 | 215 | 10 | KHTPINLVRD | 1.3e-05 | 61 |
| HLA-B*15:01 | 1 | 208 | 217 | 10 | TPINLVRDLP | 1.3e-05 | 62 |
| HLA-A*32:01 | 1 | 211 | 219 | 9 | NLVRDLPQG | 1.3e-05 | 48 |
| HLA-B*44:03 | 1 | 212 | 221 | 10 | LVRDLPQGFS | 1.3e-05 | 47 |
| HLA-B*44:02 | 1 | 215 | 224 | 10 | DLPQGFSALE | 1.3e-05 | 50 |
| HLA-A*68:02 | 1 | 217 | 225 | 9 | PQGFSALEP | 1.3e-05 | 62 |
| HLA-B*08:01 | 1 | 217 | 225 | 9 | PQGFSALEP | 1.3e-05 | 80 |
| HLA-A*02:06 | 1 | 219 | 228 | 10 | GFSALEPLVD | 1.3e-05 | 71 |
| HLA-B*44:02 | 1 | 231 | 239 | 9 | IGINITRFQ | 1.3e-05 | 50 |
| HLA-A*68:02 | 1 | 237 | 245 | 9 | RFQTLALH | 1.3e-05 | 62 |
| HLA-B*58:01 | 1 | 245 | 253 | 9 | HRSYLTPGD | 1.3e-05 | 68 |
| HLA-A*26:01 | 1 | 246 | 254 | 9 | RSYLTPGDS | 1.3e-05 | 56 |
| HLA-B*44:03 | 1 | 248 | 256 | 9 | YLTPGDSSS | 1.3e-05 | 47 |
| HLA-B*15:01 | 1 | 250 | 259 | 10 | TPGDSSSGWT | 1.3e-05 | 62 |
| HLA-A*02:01 | 1 | 251 | 260 | 10 | PGDSSSGWTA | 1.3e-05 | 62 |
| HLA-B*44:02 | 1 | 251 | 260 | 10 | PGDSSSGWTA | 1.3e-05 | 50 |
| HLA-B*51:01 | 1 | 251 | 259 | 9 | PGDSSSGWT | 1.3e-05 | 72 |
| HLA-A*11:01 | 1 | 253 | 261 | 9 | DSSSGWTAG | 1.3e-05 | 43 |
| HLA-B*44:03 | 1 | 254 | 263 | 10 | SSSGWTAGAA | 1.3e-05 | 47 |
| HLA-A*68:02 | 1 | 257 | 265 | 9 | GWTAGAAAY | 1.3e-05 | 62 |
| HLA-B*07:02 | 1 | 260 | 268 | 9 | AGAAAYYVG | 1.3e-05 | 61 |
| HLA-A*24:02 | 1 | 266 | 274 | 9 | YVGYLQPRT | 1.3e-05 | 42 |
| HLA-B*44:02 | 1 | 266 | 274 | 9 | YVGYLQPRT | 1.3e-05 | 50 |
| HLA-B*44:03 | 1 | 266 | 274 | 9 | YVGYLQPRT | 1.3e-05 | 47 |
| HLA-A*03:01 | 1 | 272 | 281 | 10 | PRTFLLKYNE | 1.3e-05 | 57 |
| HLA-A*30:01 | 1 | 272 | 280 | 9 | PRTFLLKYN | 1.3e-05 | 86 |
| HLA-A*24:02 | 1 | 273 | 282 | 10 | RTFLLKYNEN | 1.3e-05 | 42 |
| HLA-A*03:01 | 1 | 274 | 282 | 9 | TFLLKYNEN | 1.3e-05 | 57 |
| HLA-A*31:01 | 1 | 274 | 283 | 10 | TFLLKYNENG | 1.3e-05 | 64 |
| HLA-B*57:01 | 1 | 275 | 284 | 10 | FLLKYNENGT | 1.3e-05 | 79 |
| HLA-A*31:01 | 1 | 277 | 286 | 10 | LKYNENGTIT | 1.3e-05 | 64 |
| HLA-B*53:01 | 1 | 283 | 291 | 9 | GTITDAVDC | 1.3e-05 | 47 |
| HLA-A*33:01 | 1 | 289 | 298 | 10 | VDCALDPLSE | 1.3e-05 | 69 |
| HLA-A*68:01 | 1 | 289 | 298 | 10 | VDCALDPLSE | 1.3e-05 | 57 |
| HLA-B*44:03 | 1 | 289 | 297 | 9 | VDCALDPLS | 1.3e-05 | 47 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*30:01 | 1 | 293 | 302 | 10 | LDPLSETKCT | 1.3e-05 | 86 |
| HLA-B*35:01 | 1 | 293 | 301 | 9 | LDPLSETKC | 1.3e-05 | 47 |
| HLA-A*68:01 | 1 | 300 | 308 | 9 | KCTLKSFTV | 1.3e-05 | 57 |
| HLA-B*35:01 | 1 | 301 | 310 | 10 | CTLKSFTVEK | 1.3e-05 | 47 |
| HLA-B*44:03 | 1 | 301 | 310 | 10 | CTLKSFTVEK | 1.3e-05 | 47 |
| HLA-A*26:01 | 1 | 303 | 312 | 10 | LKSFTVEKGI | 1.3e-05 | 56 |
| HLA-B*35:01 | 1 | 303 | 311 | 9 | LKSFTVEKG | 1.3e-05 | 47 |
| HLA-A*02:01 | 1 | 305 | 313 | 9 | SFTVEKGIY | 1.3e-05 | 62 |
| HLA-A*23:01 | 1 | 306 | 315 | 10 | FTVEKGIYQT | 1.3e-05 | 44 |
| HLA-A*02:03 | 1 | 312 | 321 | 10 | IYQTSNFRVQ | 1.3e-05 | 65 |
| HLA-B*15:01 | 1 | 314 | 323 | 10 | QTSNFRVQPT | 1.3e-05 | 62 |
| HLA-B*57:01 | 1 | 317 | 325 | 9 | NFRVQPTES | 1.3e-05 | 79 |
| HLA-A*24:02 | 1 | 322 | 330 | 9 | PTESIVRFP | 1.3e-05 | 42 |
| HLA-B*35:01 | 1 | 323 | 331 | 9 | TESIVRFPN | 1.3e-05 | 47 |
| HLA-B*57:01 | 1 | 323 | 331 | 9 | TESIVRFPN | 1.3e-05 | 79 |
| HLA-A*23:01 | 1 | 325 | 333 | 9 | SIVRFPNIT | 1.3e-05 | 44 |
| HLA-B*07:02 | 1 | 334 | 343 | 10 | NLCPFGEVFN | 1.3e-05 | 61 |
| HLA-B*57:01 | 1 | 335 | 343 | 9 | LCPFGEVFN | 1.3e-05 | 79 |
| HLA-B*58:01 | 1 | 335 | 343 | 9 | LCPFGEVFN | 1.3e-05 | 68 |
| HLA-A*02:01 | 1 | 337 | 346 | 10 | PFGEVFNATR | 1.3e-05 | 62 |
| HLA-B*58:01 | 1 | 337 | 346 | 10 | PFGEVFNATR | 1.3e-05 | 68 |
| HLA-A*03:01 | 1 | 338 | 347 | 10 | FGEVFNATRF | 1.3e-05 | 57 |
| HLA-B*53:01 | 1 | 341 | 349 | 9 | VFNATRFAS | 1.3e-05 | 47 |
| HLA-B*51:01 | 1 | 346 | 355 | 10 | RFASVYAWN | 1.3e-05 | 72 |
| HLA-B*35:01 | 1 | 348 | 357 | 10 | ASVYAWNRR | 1.3e-05 | 47 |
| HLA-A*24:02 | 1 | 351 | 360 | 10 | YAWNRRKRI | 1.3e-05 | 42 |
| HLA-A*02:06 | 1 | 352 | 361 | 10 | AWNRRKRIS | 1.3e-05 | 71 |
| HLA-B*15:01 | 1 | 352 | 360 | 9 | AWNRRKRIS | 1.3e-05 | 62 |
| HLA-A*24:02 | 1 | 356 | 364 | 9 | KRISNCVAD | 1.3e-05 | 42 |
| HLA-A*33:01 | 1 | 357 | 366 | 10 | RISNCVADYS | 1.3e-05 | 69 |
| HLA-A*03:01 | 1 | 359 | 368 | 10 | SNCVADYSVL | 1.3e-05 | 57 |
| HLA-B*51:01 | 1 | 373 | 381 | 9 | SFSTFKCYG | 1.3e-05 | 72 |
| HLA-B*15:01 | 1 | 374 | 383 | 10 | FSTFKCYGVS | 1.3e-05 | 62 |
| HLA-B*44:03 | 1 | 376 | 384 | 9 | TFKCYGVSP | 1.3e-05 | 47 |
| HLA-B*53:01 | 1 | 376 | 384 | 9 | TFKCYGVSP | 1.3e-05 | 47 |
| HLA-A*11:01 | 1 | 383 | 391 | 9 | SPTKLNLC | 1.3e-05 | 43 |
| HLA-A*02:06 | 1 | 384 | 393 | 10 | PTKLNLCFT | 1.3e-05 | 71 |
| HLA-A*02:03 | 1 | 385 | 394 | 10 | TKLNLCFTN | 1.3e-05 | 65 |
| HLA-B*15:01 | 1 | 388 | 397 | 10 | NLCFTNVYA | 1.3e-05 | 62 |
| HLA-A*24:02 | 1 | 389 | 397 | 9 | DLCFTNVYA | 1.3e-05 | 42 |
| HLA-B*40:01 | 1 | 389 | 397 | 9 | DLCFTNVYA | 1.3e-05 | 40 |
| HLA-B*44:02 | 1 | 389 | 397 | 9 | DLCFTNVYA | 1.3e-05 | 50 |
| HLA-A*02:01 | 1 | 390 | 398 | 9 | LCFTNVYAD | 1.3e-05 | 62 |
| HLA-A*01:01 | 1 | 397 | 405 | 9 | ADSFVIRGD | 1.3e-05 | 85 |
| HLA-A*68:01 | 1 | 402 | 411 | 10 | IRGDEVRIA | 1.3e-05 | 57 |
| HLA-A*24:02 | 1 | 407 | 415 | 9 | VRQIAPGQT | 1.3e-05 | 42 |
| HLA-A*68:01 | 1 | 407 | 416 | 10 | VRQIAPGQT | 1.3e-05 | 57 |
| HLA-A*68:02 | 1 | 407 | 415 | 9 | VRQIAPGQT | 1.3e-05 | 62 |
| HLA-A*31:01 | 1 | 411 | 419 | 9 | APGQTGKIA | 1.3e-05 | 64 |
| HLA-A*23:01 | 1 | 412 | 421 | 10 | PGQTGKIADY | 1.3e-05 | 44 |
| HLA-B*07:02 | 1 | 412 | 421 | 10 | PGQTGKIADY | 1.3e-05 | 61 |
| HLA-B*40:01 | 1 | 412 | 421 | 10 | PGQTGKIADY | 1.3e-05 | 40 |
| HLA-B*08:01 | 1 | 413 | 422 | 10 | GQTGKIADYN | 1.3e-05 | 80 |
| HLA-B*40:01 | 1 | 413 | 422 | 10 | GQTGKIADYN | 1.3e-05 | 40 |
| HLA-A*30:02 | 1 | 418 | 427 | 10 | IADYNYKLPD | 1.3e-05 | 85 |
| HLA-A*26:01 | 1 | 421 | 430 | 10 | YNYKLPDDFT | 1.3e-05 | 56 |
| HLA-B*15:01 | 1 | 421 | 430 | 10 | YNYKLPDDFT | 1.3e-05 | 62 |
| HLA-A*68:02 | 1 | 422 | 431 | 10 | NYKLPDDFTG | 1.3e-05 | 62 |
| HLA-A*02:01 | 1 | 423 | 431 | 9 | YKLPDDFTG | 1.3e-05 | 62 |
| HLA-B*44:02 | 1 | 423 | 432 | 10 | YKLPDDFTGC | 1.3e-05 | 50 |
| HLA-A*11:01 | 1 | 427 | 435 | 9 | DDFTGCVIA | 1.3e-05 | 43 |
| HLA-B*57:01 | 1 | 427 | 435 | 9 | DDFTGCVIA | 1.3e-05 | 79 |
| HLA-A*02:01 | 1 | 430 | 438 | 9 | TGCVIAWNS | 1.3e-05 | 62 |
| HLA-A*24:02 | 1 | 434 | 443 | 10 | IAWNSNNLDS | 1.3e-05 | 42 |
| HLA-A*02:06 | 1 | 435 | 443 | 9 | AWNSNNLDS | 1.3e-05 | 71 |
| HLA-B*07:02 | 1 | 435 | 444 | 10 | AWNSNNLDSK | 1.3e-05 | 61 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*32:01 | 1 | 436 | 444 | 9 | WNSNNLDSK | 1.3e-05 | 48 |
| HLA-B*07:02 | 1 | 436 | 444 | 9 | WNSNNLDSK | 1.3e-05 | 61 |
| HLA-B*08:01 | 1 | 438 | 447 | 10 | SNNLDSKVG | 1.3e-05 | 80 |
| HLA-B*35:01 | 1 | 439 | 447 | 9 | NNLDSKVG | 1.3e-05 | 47 |
| HLA-A*31:01 | 1 | 440 | 448 | 9 | NLDSKVG | 1.3e-05 | 64 |
| HLA-B*35:01 | 1 | 448 | 457 | 10 | NYNYLYR | 1.3e-05 | 47 |
| HLA-B*15:01 | 1 | 452 | 460 | 9 | LYRFRKSN | 1.3e-05 | 62 |
| HLA-B*35:01 | 1 | 453 | 462 | 10 | YRFRKSNL | 1.3e-05 | 47 |
| HLA-A*31:01 | 1 | 460 | 469 | 10 | NLKPFRDIS | 1.3e-05 | 64 |
| HLA-A*03:01 | 1 | 468 | 476 | 9 | ISTEIQAG | 1.3e-05 | 57 |
| HLA-A*03:01 | 1 | 468 | 477 | 10 | ISTEIQAGS | 1.3e-05 | 57 |
| HLA-B*07:02 | 1 | 469 | 477 | 9 | STEIQAGS | 1.3e-05 | 61 |
| HLA-B*44:03 | 1 | 469 | 477 | 9 | STEIQAGS | 1.3e-05 | 47 |
| HLA-A*23:01 | 1 | 470 | 479 | 10 | TEIQAGSTP | 1.3e-05 | 44 |
| HLA-B*08:01 | 1 | 472 | 481 | 10 | IYQAGSTPCN | 1.3e-05 | 80 |
| HLA-B*44:02 | 1 | 472 | 480 | 9 | IYQAGSTPC | 1.3e-05 | 50 |
| HLA-A*02:06 | 1 | 476 | 485 | 10 | GSTPCNGVEG | 1.3e-05 | 71 |
| HLA-A*02:01 | 1 | 477 | 485 | 9 | STPCNGVEG | 1.3e-05 | 62 |
| HLA-A*33:01 | 1 | 477 | 485 | 9 | STPCNGVEG | 1.3e-05 | 69 |
| HLA-B*53:01 | 1 | 477 | 485 | 9 | STPCNGVEG | 1.3e-05 | 47 |
| HLA-B*15:01 | 1 | 478 | 487 | 10 | TPCNGVEGFN | 1.3e-05 | 62 |
| HLA-A*03:01 | 1 | 484 | 493 | 10 | EGFNCYFPLQ | 1.3e-05 | 57 |
| HLA-A*23:01 | 1 | 486 | 494 | 9 | FNCYFPLQS | 1.3e-05 | 44 |
| HLA-B*44:03 | 1 | 492 | 500 | 9 | LQSYGFQPT | 1.3e-05 | 47 |
| HLA-A*03:01 | 1 | 494 | 502 | 9 | SYGFQPTNG | 1.3e-05 | 57 |
| HLA-A*26:01 | 1 | 494 | 502 | 9 | SYGFQPTNG | 1.3e-05 | 56 |
| HLA-A*32:01 | 1 | 494 | 502 | 9 | SYGFQPTNG | 1.3e-05 | 48 |
| HLA-A*03:01 | 1 | 496 | 504 | 9 | GFQPTNGVG | 1.3e-05 | 57 |
| HLA-B*44:03 | 1 | 499 | 507 | 9 | PTNGVGYQP | 1.3e-05 | 47 |
| HLA-A*02:06 | 1 | 500 | 508 | 9 | TNGVGYQPY | 1.3e-05 | 71 |
| HLA-A*24:02 | 1 | 500 | 509 | 10 | TNGVGYQPYR | 1.3e-05 | 42 |
| HLA-B*07:02 | 1 | 508 | 516 | 9 | YRVVLSFE | 1.3e-05 | 61 |
| HLA-B*35:01 | 1 | 511 | 520 | 10 | VVLSFELLHA | 1.3e-05 | 47 |
| HLA-B*44:02 | 1 | 512 | 521 | 10 | VLSFELLHAP | 1.3e-05 | 50 |
| HLA-A*03:01 | 1 | 514 | 523 | 10 | SFELLHAPAT | 1.3e-05 | 57 |
| HLA-A*32:01 | 1 | 514 | 522 | 9 | SFELLHAPA | 1.3e-05 | 48 |
| HLA-B*15:01 | 1 | 514 | 523 | 10 | SFELLHAPAT | 1.3e-05 | 62 |
| HLA-B*40:01 | 1 | 516 | 525 | 10 | ELLHAPATVC | 1.3e-05 | 40 |
| HLA-A*02:03 | 1 | 518 | 526 | 9 | LHAPATVCG | 1.3e-05 | 65 |
| HLA-B*40:01 | 1 | 518 | 526 | 9 | LHAPATVCG | 1.3e-05 | 40 |
| HLA-B*44:03 | 1 | 519 | 528 | 10 | HAPATVCGPK | 1.3e-05 | 47 |
| HLA-A*02:01 | 1 | 520 | 528 | 9 | APATVCGPK | 1.3e-05 | 62 |
| HLA-B*57:01 | 1 | 521 | 530 | 10 | PATVCGPKKS | 1.3e-05 | 79 |
| HLA-A*68:01 | 1 | 524 | 533 | 10 | VCGPKKSTNL | 1.3e-05 | 57 |
| HLA-A*03:01 | 1 | 525 | 534 | 10 | CGPKKSTNLV | 1.3e-05 | 57 |
| HLA-B*44:03 | 1 | 525 | 533 | 9 | CGPKKSTNL | 1.3e-05 | 47 |
| HLA-A*23:01 | 1 | 528 | 537 | 10 | KKSTNLVKNK | 1.3e-05 | 44 |
| HLA-A*24:02 | 1 | 533 | 542 | 10 | LVKNKCVNFN | 1.3e-05 | 42 |
| HLA-A*30:02 | 1 | 536 | 544 | 9 | NKCVNFNFN | 1.3e-05 | 85 |
| HLA-B*44:03 | 1 | 537 | 546 | 10 | KCVNFNFNGL | 1.3e-05 | 47 |
| HLA-A*11:01 | 1 | 538 | 547 | 10 | CVNFNFNGLT | 1.3e-05 | 43 |
| HLA-A*02:03 | 1 | 539 | 548 | 10 | VNFNFNGLTG | 1.3e-05 | 65 |
| HLA-A*33:01 | 1 | 539 | 548 | 10 | VNFNFNGLTG | 1.3e-05 | 69 |
| HLA-A*23:01 | 1 | 541 | 550 | 10 | FNFNGLTGTG | 1.3e-05 | 44 |
| HLA-B*44:03 | 1 | 541 | 549 | 9 | FNFNGLTGT | 1.3e-05 | 47 |
| HLA-A*02:03 | 1 | 542 | 550 | 9 | NFNGLTGTG | 1.3e-05 | 65 |
| HLA-B*15:01 | 1 | 544 | 553 | 10 | NGLTGTGVLT | 1.3e-05 | 62 |
| HLA-B*53:01 | 1 | 544 | 553 | 10 | NGLTGTGVLT | 1.3e-05 | 47 |
| HLA-B*44:02 | 1 | 545 | 553 | 9 | GLTGTGVLT | 1.3e-05 | 50 |
| HLA-B*44:03 | 1 | 547 | 555 | 9 | TGTGVLTES | 1.3e-05 | 47 |
| HLA-B*53:01 | 1 | 548 | 556 | 9 | GTGVLTESN | 1.3e-05 | 47 |
| HLA-A*24:02 | 1 | 549 | 558 | 10 | TGVLTESNKK | 1.3e-05 | 42 |
| HLA-B*58:01 | 1 | 556 | 564 | 9 | NKKFLPFQQ | 1.3e-05 | 68 |
| HLA-A*30:02 | 1 | 560 | 568 | 9 | LPFQQFGRD | 1.3e-05 | 85 |
| HLA-A*68:01 | 1 | 560 | 569 | 10 | LPFQQFGRDI | 1.3e-05 | 57 |
| HLA-A*33:01 | 1 | 563 | 571 | 9 | QQFGRDIAD | 1.3e-05 | 69 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*44:03 | 1 | 565 | 573 | 9 | FGRDIADTT | 1.3e-05 | 47 |
| HLA-A*02:06 | 1 | 571 | 580 | 10 | DTTDAVRDPQ | 1.3e-05 | 71 |
| HLA-B*07:02 | 1 | 571 | 579 | 9 | DTTDAVRDP | 1.3e-05 | 61 |
| HLA-B*35:01 | 1 | 573 | 581 | 9 | TDAVRDPQT | 1.3e-05 | 47 |
| HLA-A*24:02 | 1 | 575 | 583 | 9 | AVRDPQTLE | 1.3e-05 | 42 |
| HLA-A*23:01 | 1 | 577 | 586 | 10 | RDPQTLEILD | 1.3e-05 | 44 |
| HLA-A*30:02 | 1 | 577 | 586 | 10 | RDPQTLEILD | 1.3e-05 | 85 |
| HLA-A*30:01 | 1 | 578 | 587 | 10 | DPQTLEILDI | 1.3e-05 | 86 |
| HLA-A*23:01 | 1 | 580 | 589 | 10 | QTLEILDITP | 1.3e-05 | 44 |
| HLA-B*44:03 | 1 | 581 | 589 | 9 | TLEILDITP | 1.3e-05 | 47 |
| HLA-A*03:01 | 1 | 582 | 590 | 9 | LEILDITPC | 1.3e-05 | 57 |
| HLA-A*23:01 | 1 | 583 | 591 | 9 | EILDITPCS | 1.3e-05 | 44 |
| HLA-B*57:01 | 1 | 585 | 593 | 9 | LDITPCSF | 1.3e-05 | 79 |
| HLA-A*23:01 | 1 | 589 | 597 | 9 | PCSF | 1.3e-05 | 44 |
| HLA-B*44:02 | 1 | 589 | 597 | 9 | PCSF | 1.3e-05 | 50 |
| HLA-B*44:03 | 1 | 592 | 600 | 9 | FGGVS | 1.3e-05 | 47 |
| HLA-B*07:02 | 1 | 593 | 601 | 9 | GGVSVITPG | 1.3e-05 | 61 |
| HLA-B*08:01 | 1 | 593 | 602 | 10 | GGVSVITPGT | 1.3e-05 | 80 |
| HLA-A*02:03 | 1 | 594 | 603 | 10 | GVS | 1.3e-05 | 65 |
| HLA-B*15:01 | 1 | 599 | 608 | 10 | TPGTNTSNQV | 1.3e-05 | 62 |
| HLA-A*02:03 | 1 | 604 | 613 | 10 | TSNQVAVLYQ | 1.3e-05 | 65 |
| HLA-A*23:01 | 1 | 606 | 614 | 9 | NQVAVLYQD | 1.3e-05 | 44 |
| HLA-A*02:06 | 1 | 608 | 616 | 9 | VAVLYQDVN | 1.3e-05 | 71 |
| HLA-B*44:03 | 1 | 609 | 617 | 9 | AVLYQDVNC | 1.3e-05 | 47 |
| HLA-A*24:02 | 1 | 610 | 618 | 9 | VLYQDVNCT | 1.3e-05 | 42 |
| HLA-B*44:02 | 1 | 610 | 619 | 10 | VLYQDVNCTE | 1.3e-05 | 50 |
| HLA-B*44:03 | 1 | 614 | 622 | 9 | DVNCTEVPV | 1.3e-05 | 47 |
| HLA-A*11:01 | 1 | 615 | 623 | 9 | VNCTEVPVA | 1.3e-05 | 43 |
| HLA-A*26:01 | 1 | 615 | 623 | 9 | VNCTEVPVA | 1.3e-05 | 56 |
| HLA-A*02:01 | 1 | 619 | 628 | 10 | EVPVAIHADQ | 1.3e-05 | 62 |
| HLA-A*31:01 | 1 | 619 | 627 | 9 | EVPVAIHAD | 1.3e-05 | 64 |
| HLA-A*11:01 | 1 | 624 | 632 | 9 | IHADQLTPT | 1.3e-05 | 43 |
| HLA-A*02:03 | 1 | 626 | 634 | 9 | ADQLTPTWR | 1.3e-05 | 65 |
| HLA-B*35:01 | 1 | 626 | 634 | 9 | ADQLTPTWR | 1.3e-05 | 47 |
| HLA-A*24:02 | 1 | 628 | 637 | 10 | QLTPTWRVYS | 1.3e-05 | 42 |
| HLA-A*31:01 | 1 | 632 | 641 | 10 | TWRVYSTG | 1.3e-05 | 64 |
| HLA-A*02:03 | 1 | 635 | 644 | 10 | VYSTG | 1.3e-05 | 65 |
| HLA-B*15:01 | 1 | 636 | 645 | 10 | YSTG | 1.3e-05 | 62 |
| HLA-B*44:03 | 1 | 636 | 644 | 9 | YSTG | 1.3e-05 | 47 |
| HLA-A*24:02 | 1 | 638 | 647 | 10 | TG | 1.3e-05 | 42 |
| HLA-A*32:01 | 1 | 640 | 648 | 9 | SNV | 1.3e-05 | 48 |
| HLA-B*53:01 | 1 | 640 | 649 | 10 | SNV | 1.3e-05 | 47 |
| HLA-A*11:01 | 1 | 642 | 650 | 9 | VFQ | 1.3e-05 | 43 |
| HLA-A*26:01 | 1 | 642 | 651 | 10 | VFQ | 1.3e-05 | 56 |
| HLA-A*23:01 | 1 | 644 | 653 | 10 | Q | 1.3e-05 | 44 |
| HLA-B*58:01 | 1 | 645 | 654 | 10 | TRAG | 1.3e-05 | 68 |
| HLA-A*01:01 | 1 | 646 | 654 | 9 | RAG | 1.3e-05 | 85 |
| HLA-A*11:01 | 1 | 646 | 654 | 9 | RAG | 1.3e-05 | 43 |
| HLA-B*40:01 | 1 | 646 | 655 | 10 | RAG | 1.3e-05 | 40 |
| HLA-A*24:02 | 1 | 647 | 656 | 10 | AG | 1.3e-05 | 42 |
| HLA-B*44:02 | 1 | 647 | 656 | 10 | AG | 1.3e-05 | 50 |
| HLA-A*26:01 | 1 | 648 | 656 | 9 | G | 1.3e-05 | 56 |
| HLA-A*30:01 | 1 | 648 | 657 | 10 | G | 1.3e-05 | 86 |
| HLA-A*31:01 | 1 | 649 | 657 | 9 | CL | 1.3e-05 | 64 |
| HLA-B*40:01 | 1 | 651 | 659 | 9 | I | 1.3e-05 | 40 |
| HLA-B*53:01 | 1 | 653 | 662 | 10 | A | 1.3e-05 | 47 |
| HLA-B*35:01 | 1 | 655 | 664 | 10 | H | 1.3e-05 | 47 |
| HLA-A*01:01 | 1 | 656 | 665 | 10 | V | 1.3e-05 | 85 |
| HLA-A*33:01 | 1 | 656 | 664 | 9 | V | 1.3e-05 | 69 |
| HLA-B*44:02 | 1 | 656 | 664 | 9 | V | 1.3e-05 | 50 |
| HLA-A*02:01 | 1 | 662 | 671 | 10 | CD | 1.3e-05 | 62 |
| HLA-A*30:01 | 1 | 662 | 671 | 10 | CD | 1.3e-05 | 86 |
| HLA-B*44:02 | 1 | 662 | 671 | 10 | CD | 1.3e-05 | 50 |
| HLA-B*44:03 | 1 | 662 | 671 | 10 | CD | 1.3e-05 | 47 |
| HLA-B*53:01 | 1 | 663 | 671 | 9 | D | 1.3e-05 | 47 |
| HLA-A*32:01 | 1 | 671 | 680 | 10 | C | 1.3e-05 | 48 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-A*33:01 | 1 | 671 | 680 | 10 | CASYQTQTNLS | 1.3e-05 | 69 |
| HLA-A*11:01 | 1 | 678 | 687 | 10 | TNSPRRARSV | 1.3e-05 | 43 |
| HLA-A*02:03 | 1 | 680 | 689 | 10 | SPRRARSVAS | 1.3e-05 | 65 |
| HLA-A*03:01 | 1 | 681 | 690 | 10 | PRRARSVASQ | 1.3e-05 | 57 |
| HLA-A*23:01 | 1 | 682 | 691 | 10 | RRARSVASQS | 1.3e-05 | 44 |
| HLA-B*53:01 | 1 | 685 | 694 | 10 | RSVASQSIIA | 1.3e-05 | 47 |
| HLA-A*11:01 | 1 | 691 | 700 | 10 | SIIAYTMSLG | 1.3e-05 | 43 |
| HLA-B*35:01 | 1 | 691 | 700 | 10 | SIIAYTMSLG | 1.3e-05 | 47 |
| HLA-A*24:02 | 1 | 693 | 701 | 9 | IAYTMSLGA | 1.3e-05 | 42 |
| HLA-B*53:01 | 1 | 693 | 702 | 10 | IAYTMSLGAE | 1.3e-05 | 47 |
| HLA-B*44:02 | 1 | 696 | 704 | 9 | TMSLGAENS | 1.3e-05 | 50 |
| HLA-A*68:01 | 1 | 698 | 706 | 9 | SLGAENSVA | 1.3e-05 | 57 |
| HLA-A*26:01 | 1 | 700 | 708 | 9 | GAENSVAYS | 1.3e-05 | 56 |
| HLA-A*32:01 | 1 | 701 | 709 | 9 | AENSVAYSN | 1.3e-05 | 48 |
| HLA-A*33:01 | 1 | 702 | 711 | 10 | ENSVAYSNNS | 1.3e-05 | 69 |
| HLA-B*08:01 | 1 | 702 | 710 | 9 | ENSVAYSNN | 1.3e-05 | 80 |
| HLA-A*68:01 | 1 | 706 | 715 | 10 | AYSNNSIAIP | 1.3e-05 | 57 |
| HLA-A*32:01 | 1 | 707 | 716 | 10 | YSNNSIAIPT | 1.3e-05 | 48 |
| HLA-B*08:01 | 1 | 708 | 717 | 10 | SNNSIAIPTN | 1.3e-05 | 80 |
| HLA-A*11:01 | 1 | 714 | 723 | 10 | IPTNFTISVT | 1.3e-05 | 43 |
| HLA-B*44:02 | 1 | 716 | 725 | 10 | TNFTISVTTE | 1.3e-05 | 50 |
| HLA-B*58:01 | 1 | 717 | 725 | 9 | NFTISVTTE | 1.3e-05 | 68 |
| HLA-B*44:02 | 1 | 720 | 728 | 9 | ISVTTEILP | 1.3e-05 | 50 |
| HLA-B*44:02 | 1 | 726 | 735 | 10 | ILPVSMTKTS | 1.3e-05 | 50 |
| HLA-A*32:01 | 1 | 727 | 735 | 9 | LPVSMTKTS | 1.3e-05 | 48 |
| HLA-A*01:01 | 1 | 728 | 737 | 10 | PVSMTKTSVD | 1.3e-05 | 85 |
| HLA-A*03:01 | 1 | 729 | 737 | 9 | VSMTKTSVD | 1.3e-05 | 57 |
| HLA-A*31:01 | 1 | 729 | 737 | 9 | VSMTKTSVD | 1.3e-05 | 64 |
| HLA-B*35:01 | 1 | 729 | 737 | 9 | VSMTKTSVD | 1.3e-05 | 47 |
| HLA-A*03:01 | 1 | 730 | 739 | 10 | SMTKTSVDCT | 1.3e-05 | 57 |
| HLA-A*32:01 | 1 | 739 | 748 | 10 | TMYICGDSTE | 1.3e-05 | 48 |
| HLA-B*53:01 | 1 | 739 | 748 | 10 | TMYICGDSTE | 1.3e-05 | 47 |
| HLA-A*68:02 | 1 | 742 | 750 | 9 | ICGDSTECS | 1.3e-05 | 62 |
| HLA-A*33:01 | 1 | 743 | 752 | 10 | CGDSTECSNL | 1.3e-05 | 69 |
| HLA-B*35:01 | 1 | 743 | 752 | 10 | CGDSTECSNL | 1.3e-05 | 47 |
| HLA-B*44:02 | 1 | 743 | 752 | 10 | CGDSTECSNL | 1.3e-05 | 50 |
| HLA-A*33:01 | 1 | 744 | 752 | 9 | GDSTECSNL | 1.3e-05 | 69 |
| HLA-A*68:02 | 1 | 749 | 758 | 10 | CSNLLLQYGS | 1.3e-05 | 62 |
| HLA-A*03:01 | 1 | 750 | 758 | 9 | SNLLLQYGS | 1.3e-05 | 57 |
| HLA-B*35:01 | 1 | 752 | 760 | 9 | LLLQYGSFCT | 1.3e-05 | 47 |
| HLA-A*68:02 | 1 | 753 | 762 | 10 | LLQYGSFCTQ | 1.3e-05 | 62 |
| HLA-A*24:02 | 1 | 756 | 765 | 10 | YGSFCTQLNR | 1.3e-05 | 42 |
| HLA-B*07:02 | 1 | 756 | 765 | 10 | YGSFCTQLNR | 1.3e-05 | 61 |
| HLA-B*15:01 | 1 | 760 | 769 | 10 | CTQLNRALTG | 1.3e-05 | 62 |
| HLA-A*68:01 | 1 | 761 | 769 | 9 | TQLNRALTG | 1.3e-05 | 57 |
| HLA-A*68:01 | 1 | 762 | 771 | 10 | QLNRALTGIA | 1.3e-05 | 57 |
| HLA-B*44:03 | 1 | 762 | 771 | 10 | QLNRALTGIA | 1.3e-05 | 47 |
| HLA-B*44:03 | 1 | 765 | 774 | 10 | RALTGIAVEQ | 1.3e-05 | 47 |
| HLA-A*02:03 | 1 | 772 | 780 | 9 | VEQDKNTQE | 1.3e-05 | 65 |
| HLA-A*32:01 | 1 | 778 | 787 | 10 | TQEVFAQVKQ | 1.3e-05 | 48 |
| HLA-A*32:01 | 1 | 782 | 791 | 10 | FAQVKQIYKT | 1.3e-05 | 48 |
| HLA-A*01:01 | 1 | 785 | 793 | 9 | VKQIYKTPP | 1.3e-05 | 85 |
| HLA-B*15:01 | 1 | 788 | 796 | 9 | IYKTPPIKD | 1.3e-05 | 62 |
| HLA-A*26:01 | 1 | 790 | 799 | 10 | KTPPIKDFGG | 1.3e-05 | 56 |
| HLA-A*30:01 | 1 | 792 | 801 | 10 | PPIKDFGGFN | 1.3e-05 | 86 |
| HLA-B*07:02 | 1 | 794 | 803 | 10 | IKDFGGFNFS | 1.3e-05 | 61 |
| HLA-B*35:01 | 1 | 795 | 804 | 10 | KDFGGFNFSQ | 1.3e-05 | 47 |
| HLA-B*40:01 | 1 | 797 | 805 | 9 | FGGFNFSQI | 1.3e-05 | 40 |
| HLA-B*57:01 | 1 | 799 | 808 | 10 | GFNFSQILPD | 1.3e-05 | 79 |
| HLA-A*23:01 | 1 | 801 | 810 | 10 | NFSQILPDP | 1.3e-05 | 44 |
| HLA-A*68:01 | 1 | 801 | 810 | 10 | NFSQILPDP | 1.3e-05 | 57 |
| HLA-B*35:01 | 1 | 804 | 813 | 10 | QILPDPSPKPS | 1.3e-05 | 47 |
| HLA-B*40:01 | 1 | 805 | 813 | 9 | ILPDPSPKPS | 1.3e-05 | 40 |
| HLA-A*11:01 | 1 | 810 | 819 | 10 | SKPSKRSFIE | 1.3e-05 | 43 |
| HLA-A*68:02 | 1 | 815 | 824 | 10 | RSFIEDLLFN | 1.3e-05 | 62 |
| HLA-B*53:01 | 1 | 818 | 827 | 10 | IEDLLFNKVT | 1.3e-05 | 47 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-A*11:01 | 1 | 820 | 829 | 10 | DLLFNKVTLA | 1.3e-05 | 43 |
| HLA-A*02:01 | 1 | 822 | 830 | 9 | LFNKVTLAD | 1.3e-05 | 62 |
| HLA-B*53:01 | 1 | 825 | 834 | 10 | KVTLADAGFI | 1.3e-05 | 47 |
| HLA-A*23:01 | 1 | 831 | 840 | 10 | AGFIKQYGDC | 1.3e-05 | 44 |
| HLA-A*01:01 | 1 | 832 | 840 | 9 | GFIKQYGDC | 1.3e-05 | 85 |
| HLA-B*58:01 | 1 | 834 | 843 | 10 | IKQYGDCCLGD | 1.3e-05 | 68 |
| HLA-A*31:01 | 1 | 835 | 843 | 9 | KQYGDCLGD | 1.3e-05 | 64 |
| HLA-A*02:01 | 1 | 836 | 844 | 9 | QYGDCLGDI | 1.3e-05 | 62 |
| HLA-B*57:01 | 1 | 836 | 845 | 10 | QYGDCLGDIA | 1.3e-05 | 79 |
| HLA-A*02:03 | 1 | 837 | 845 | 9 | YGDCLGDIA | 1.3e-05 | 65 |
| HLA-A*33:01 | 1 | 837 | 846 | 10 | YGDCLGDIAA | 1.3e-05 | 69 |
| HLA-A*68:01 | 1 | 837 | 846 | 10 | YGDCLGDIAA | 1.3e-05 | 57 |
| HLA-B*44:03 | 1 | 841 | 849 | 9 | LGDIAARDL | 1.3e-05 | 47 |
| HLA-B*07:02 | 1 | 842 | 851 | 10 | GDIAARDLIC | 1.3e-05 | 61 |
| HLA-B*15:01 | 1 | 843 | 852 | 10 | DIAARDLICA | 1.3e-05 | 62 |
| HLA-B*44:02 | 1 | 843 | 852 | 10 | DIAARDLICA | 1.3e-05 | 50 |
| HLA-A*02:03 | 1 | 848 | 857 | 10 | DLICAQKFNG | 1.3e-05 | 65 |
| HLA-A*30:02 | 1 | 848 | 856 | 9 | DLICAQKFN | 1.3e-05 | 85 |
| HLA-A*33:01 | 1 | 850 | 859 | 10 | ICAQKFNGLT | 1.3e-05 | 69 |
| HLA-B*53:01 | 1 | 860 | 868 | 9 | VLPPLLTDE | 1.3e-05 | 47 |
| HLA-B*57:01 | 1 | 866 | 875 | 10 | TDEMIAQYTS | 1.3e-05 | 79 |
| HLA-A*11:01 | 1 | 867 | 875 | 9 | DEMIAQYTS | 1.3e-05 | 43 |
| HLA-B*57:01 | 1 | 867 | 875 | 9 | DEMIAQYTS | 1.3e-05 | 79 |
| HLA-A*03:01 | 1 | 872 | 881 | 10 | QYTSALLAGT | 1.3e-05 | 57 |
| HLA-A*11:01 | 1 | 872 | 880 | 9 | QYTSALLAG | 1.3e-05 | 43 |
| HLA-B*35:01 | 1 | 874 | 883 | 10 | TSALLAGTIT | 1.3e-05 | 47 |
| HLA-B*44:03 | 1 | 875 | 884 | 10 | SALLAGTITS | 1.3e-05 | 47 |
| HLA-A*02:03 | 1 | 879 | 887 | 9 | AGTITSGWT | 1.3e-05 | 65 |
| HLA-B*15:01 | 1 | 883 | 891 | 9 | TSGWTFGAG | 1.3e-05 | 62 |
| HLA-A*24:02 | 1 | 886 | 895 | 10 | WTFGAGAALQ | 1.3e-05 | 42 |
| HLA-B*07:02 | 1 | 887 | 895 | 9 | TFGAGAALQ | 1.3e-05 | 61 |
| HLA-A*23:01 | 1 | 890 | 899 | 10 | AGAALQIPFA | 1.3e-05 | 44 |
| HLA-B*40:01 | 1 | 895 | 903 | 9 | QIPFAMQMA | 1.3e-05 | 40 |
| HLA-A*68:02 | 1 | 898 | 907 | 10 | FAMQMAYRFN | 1.3e-05 | 62 |
| HLA-A*23:01 | 1 | 899 | 907 | 9 | AMQMAYRFN | 1.3e-05 | 44 |
| HLA-A*02:01 | 1 | 901 | 910 | 10 | QMAYRFNGIG | 1.3e-05 | 62 |
| HLA-B*15:01 | 1 | 901 | 910 | 10 | QMAYRFNGIG | 1.3e-05 | 62 |
| HLA-B*07:02 | 1 | 905 | 914 | 10 | RFNGIGVTQN | 1.3e-05 | 61 |
| HLA-B*44:03 | 1 | 906 | 915 | 10 | FNGIGVTQNV | 1.3e-05 | 47 |
| HLA-B*53:01 | 1 | 909 | 918 | 10 | IGVTQNVLYE | 1.3e-05 | 47 |
| HLA-A*03:01 | 1 | 910 | 919 | 10 | GVTQNVLYEN | 1.3e-05 | 57 |
| HLA-A*31:01 | 1 | 910 | 919 | 10 | GVTQNVLYEN | 1.3e-05 | 64 |
| HLA-A*02:01 | 1 | 911 | 920 | 10 | VTQNVLYENQ | 1.3e-05 | 62 |
| HLA-B*35:01 | 1 | 912 | 921 | 10 | TQNVLYENQK | 1.3e-05 | 47 |
| HLA-B*53:01 | 1 | 912 | 921 | 10 | TQNVLYENQK | 1.3e-05 | 47 |
| HLA-A*02:01 | 1 | 913 | 921 | 9 | QNVLYENQK | 1.3e-05 | 62 |
| HLA-A*02:03 | 1 | 913 | 921 | 9 | QNVLYENQK | 1.3e-05 | 65 |
| HLA-A*33:01 | 1 | 916 | 925 | 10 | LYENQKLIAN | 1.3e-05 | 69 |
| HLA-B*44:03 | 1 | 916 | 924 | 9 | LYENQKLIA | 1.3e-05 | 47 |
| HLA-A*68:02 | 1 | 917 | 925 | 9 | YENQKLIAN | 1.3e-05 | 62 |
| HLA-A*68:01 | 1 | 920 | 929 | 10 | QKLIANQFN | 1.3e-05 | 57 |
| HLA-B*53:01 | 1 | 921 | 930 | 10 | KLIANQFN | 1.3e-05 | 47 |
| HLA-B*44:03 | 1 | 926 | 935 | 10 | QFNSAIGKIQ | 1.3e-05 | 47 |
| HLA-A*30:02 | 1 | 927 | 936 | 10 | FNSAIGKIQD | 1.3e-05 | 85 |
| HLA-B*35:01 | 1 | 928 | 936 | 9 | NSAIGKIQD | 1.3e-05 | 47 |
| HLA-B*44:02 | 1 | 930 | 939 | 10 | AIGKIQDSL | 1.3e-05 | 50 |
| HLA-A*31:01 | 1 | 931 | 940 | 10 | IGKIQDSLSS | 1.3e-05 | 64 |
| HLA-A*68:01 | 1 | 931 | 939 | 9 | IGKIQDSL | 1.3e-05 | 57 |
| HLA-A*68:02 | 1 | 932 | 940 | 9 | GKIQDSLSS | 1.3e-05 | 62 |
| HLA-A*33:01 | 1 | 934 | 943 | 10 | IQDSLSSSTAS | 1.3e-05 | 69 |
| HLA-B*44:02 | 1 | 937 | 946 | 10 | SLSSTASALG | 1.3e-05 | 50 |
| HLA-A*32:01 | 1 | 942 | 950 | 9 | ASALGKLQD | 1.3e-05 | 48 |
| HLA-A*03:01 | 1 | 944 | 953 | 10 | ALGKLQDVVN | 1.3e-05 | 57 |
| HLA-B*07:02 | 1 | 945 | 953 | 9 | LGKLQDVVN | 1.3e-05 | 61 |
| HLA-A*02:03 | 1 | 946 | 954 | 9 | GKLQDVVNQ | 1.3e-05 | 65 |
| HLA-A*32:01 | 1 | 949 | 958 | 10 | QDVVNQNAQA | 1.3e-05 | 48 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*68:01 | 1 | 952 | 960 | 9 | VNQNAQALN | 1.3e-05 | 57 |
| HLA-A*03:01 | 1 | 959 | 967 | 9 | LNTLVKQLS | 1.3e-05 | 57 |
| HLA-B*15:01 | 1 | 960 | 969 | 10 | NTLVKQLSSN | 1.3e-05 | 62 |
| HLA-A*24:02 | 1 | 962 | 971 | 10 | LVKQLSSNFG | 1.3e-05 | 42 |
| HLA-B*35:01 | 1 | 964 | 973 | 10 | KQLSSNFGAI | 1.3e-05 | 47 |
| HLA-A*68:02 | 1 | 969 | 978 | 10 | NFGAISSVLN | 1.3e-05 | 62 |
| HLA-A*11:01 | 1 | 973 | 982 | 10 | ISSVLNDILS | 1.3e-05 | 43 |
| HLA-B*15:01 | 1 | 978 | 987 | 10 | NDILSRLDKV | 1.3e-05 | 62 |
| HLA-A*26:01 | 1 | 981 | 990 | 10 | LSRLDKVEAE | 1.3e-05 | 56 |
| HLA-B*35:01 | 1 | 981 | 990 | 10 | LSRLDKVEAE | 1.3e-05 | 47 |
| HLA-B*07:02 | 1 | 984 | 992 | 9 | LDKVEAEVQ | 1.3e-05 | 61 |
| HLA-B*40:01 | 1 | 984 | 992 | 9 | LDKVEAEVQ | 1.3e-05 | 40 |
| HLA-B*57:01 | 1 | 984 | 992 | 9 | LDKVEAEVQ | 1.3e-05 | 79 |
| HLA-B*35:01 | 1 | 986 | 995 | 10 | KVEAEVQIDR | 1.3e-05 | 47 |
| HLA-B*53:01 | 1 | 986 | 995 | 10 | KVEAEVQIDR | 1.3e-05 | 47 |
| HLA-A*11:01 | 1 | 993 | 1001 | 9 | IDRLITGRL | 1.3e-05 | 43 |
| HLA-B*44:02 | 1 | 998 | 1006 | 9 | TGRLQSLQT | 1.3e-05 | 50 |
| HLA-A*26:01 | 1 | 1012 | 1021 | 10 | LIRAAEIRAS | 1.3e-05 | 56 |
| HLA-A*02:01 | 1 | 1013 | 1021 | 9 | IRAAEIRAS | 1.3e-05 | 62 |
| HLA-A*26:01 | 1 | 1014 | 1023 | 10 | RAAEIRASAN | 1.3e-05 | 56 |
| HLA-A*68:01 | 1 | 1018 | 1027 | 10 | IRASANLAAT | 1.3e-05 | 57 |
| HLA-B*40:01 | 1 | 1019 | 1028 | 10 | RASANLAATK | 1.3e-05 | 40 |
| HLA-A*02:03 | 1 | 1022 | 1030 | 9 | ANLAATKMS | 1.3e-05 | 65 |
| HLA-B*40:01 | 1 | 1022 | 1030 | 9 | ANLAATKMS | 1.3e-05 | 40 |
| HLA-A*23:01 | 1 | 1023 | 1031 | 9 | NLAATKMSE | 1.3e-05 | 44 |
| HLA-A*32:01 | 1 | 1024 | 1033 | 10 | LAATKMSECV | 1.3e-05 | 48 |
| HLA-B*44:02 | 1 | 1027 | 1036 | 10 | TKMSECVLGQ | 1.3e-05 | 50 |
| HLA-B*58:01 | 1 | 1027 | 1035 | 9 | TKMSECVLG | 1.3e-05 | 68 |
| HLA-A*68:02 | 1 | 1028 | 1037 | 10 | KMSECVLGQS | 1.3e-05 | 62 |
| HLA-A*26:01 | 1 | 1029 | 1037 | 9 | MSECVLGQS | 1.3e-05 | 56 |
| HLA-A*01:01 | 1 | 1032 | 1041 | 10 | CVLGQSKRVD | 1.3e-05 | 85 |
| HLA-B*44:02 | 1 | 1038 | 1046 | 9 | KRVDFCGKG | 1.3e-05 | 50 |
| HLA-A*02:01 | 1 | 1042 | 1051 | 10 | FCGKGYHLMS | 1.3e-05 | 62 |
| HLA-B*15:01 | 1 | 1042 | 1051 | 10 | FCGKGYHLMS | 1.3e-05 | 62 |
| HLA-B*07:02 | 1 | 1043 | 1051 | 9 | CGKGYHLMS | 1.3e-05 | 61 |
| HLA-A*24:02 | 1 | 1045 | 1053 | 9 | KGYHLMSFP | 1.3e-05 | 42 |
| HLA-A*01:01 | 1 | 1046 | 1054 | 9 | GYHLMSFPQ | 1.3e-05 | 85 |
| HLA-A*11:01 | 1 | 1047 | 1055 | 9 | YHLMSFPQS | 1.3e-05 | 43 |
| HLA-B*40:01 | 1 | 1051 | 1059 | 9 | SFPQSAPHG | 1.3e-05 | 40 |
| HLA-A*31:01 | 1 | 1053 | 1061 | 9 | PQSAPHGVV | 1.3e-05 | 64 |
| HLA-A*33:01 | 1 | 1053 | 1061 | 9 | PQSAPHGVV | 1.3e-05 | 69 |
| HLA-B*35:01 | 1 | 1053 | 1061 | 9 | PQSAPHGVV | 1.3e-05 | 47 |
| HLA-B*44:03 | 1 | 1058 | 1066 | 9 | HGVVFLHVT | 1.3e-05 | 47 |
| HLA-A*23:01 | 1 | 1062 | 1070 | 9 | FLHVTVVPA | 1.3e-05 | 44 |
| HLA-B*44:02 | 1 | 1064 | 1072 | 9 | HVTYVPAQE | 1.3e-05 | 50 |
| HLA-A*03:01 | 1 | 1067 | 1076 | 10 | YVPAQEKNFT | 1.3e-05 | 57 |
| HLA-A*24:02 | 1 | 1068 | 1077 | 10 | VPAQEKNFTT | 1.3e-05 | 42 |
| HLA-A*31:01 | 1 | 1068 | 1076 | 9 | VPAQEKNFT | 1.3e-05 | 64 |
| HLA-A*03:01 | 1 | 1069 | 1078 | 10 | PAQEKNFTTA | 1.3e-05 | 57 |
| HLA-A*23:01 | 1 | 1069 | 1078 | 10 | PAQEKNFTTA | 1.3e-05 | 44 |
| HLA-A*26:01 | 1 | 1074 | 1082 | 9 | NFTTAPAIC | 1.3e-05 | 56 |
| HLA-A*03:01 | 1 | 1076 | 1085 | 10 | TTAPAICHDG | 1.3e-05 | 57 |
| HLA-A*02:01 | 1 | 1078 | 1087 | 10 | APAICHDGKA | 1.3e-05 | 62 |
| HLA-A*02:03 | 1 | 1079 | 1087 | 9 | PAICHDGKA | 1.3e-05 | 65 |
| HLA-B*51:01 | 1 | 1079 | 1088 | 10 | PAICHDGKAH | 1.3e-05 | 72 |
| HLA-B*57:01 | 1 | 1082 | 1090 | 9 | CHDGKAHFP | 1.3e-05 | 79 |
| HLA-A*01:01 | 1 | 1084 | 1093 | 10 | DGKAHFPREG | 1.3e-05 | 85 |
| HLA-A*24:02 | 1 | 1089 | 1097 | 9 | FPREGVFVS | 1.3e-05 | 42 |
| HLA-A*32:01 | 1 | 1089 | 1097 | 9 | FPREGVFVS | 1.3e-05 | 48 |
| HLA-B*07:02 | 1 | 1091 | 1099 | 9 | REGVFVSNG | 1.3e-05 | 61 |
| HLA-B*40:01 | 1 | 1092 | 1101 | 10 | EGVFVSNGTH | 1.3e-05 | 40 |
| HLA-B*44:03 | 1 | 1098 | 1107 | 10 | NGTHWFVTQR | 1.3e-05 | 47 |
| HLA-A*02:01 | 1 | 1099 | 1108 | 10 | GTHWFVTQRN | 1.3e-05 | 62 |
| HLA-A*11:01 | 1 | 1100 | 1108 | 9 | THWFVTQRN | 1.3e-05 | 43 |
| HLA-B*51:01 | 1 | 1102 | 1111 | 10 | WFVTQRNFYE | 1.3e-05 | 72 |
| HLA-B*53:01 | 1 | 1109 | 1118 | 10 | FYEPQIITTD | 1.3e-05 | 47 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*30:02 | 1 | 1110 | 1119 | 10 | YEPQIITTDN | 1.3e-05 | 85 |
| HLA-B*15:01 | 1 | 1111 | 1120 | 10 | EPQIITTDNT | 1.3e-05 | 62 |
| HLA-B*44:03 | 1 | 1111 | 1120 | 10 | EPQIITTDNT | 1.3e-05 | 47 |
| HLA-A*02:03 | 1 | 1118 | 1126 | 9 | DNTFVSGNC | 1.3e-05 | 65 |
| HLA-A*30:01 | 1 | 1118 | 1127 | 10 | DNTFVSGNCD | 1.3e-05 | 86 |
| HLA-A*11:01 | 1 | 1120 | 1129 | 10 | TFVSGNCDVV | 1.3e-05 | 43 |
| HLA-B*53:01 | 1 | 1123 | 1131 | 9 | SGNCDVVIG | 1.3e-05 | 47 |
| HLA-A*03:01 | 1 | 1124 | 1133 | 10 | GNCDVVIGIV | 1.3e-05 | 57 |
| HLA-A*31:01 | 1 | 1134 | 1143 | 10 | NNTVYDPLQP | 1.3e-05 | 64 |
| HLA-A*02:06 | 1 | 1138 | 1147 | 10 | YDPLQPELDS | 1.3e-05 | 71 |
| HLA-A*33:01 | 1 | 1139 | 1147 | 9 | DPLQPELDS | 1.3e-05 | 69 |
| HLA-A*03:01 | 1 | 1143 | 1152 | 10 | PELDSFKEEL | 1.3e-05 | 57 |
| HLA-B*53:01 | 1 | 1144 | 1153 | 10 | ELDSFKEELD | 1.3e-05 | 47 |
| HLA-B*51:01 | 1 | 1145 | 1154 | 10 | LDSFKEELDK | 1.3e-05 | 72 |
| HLA-A*11:01 | 1 | 1150 | 1158 | 9 | EELDKYFKN | 1.3e-05 | 43 |
| HLA-A*23:01 | 1 | 1150 | 1159 | 10 | EELDKYFKNH | 1.3e-05 | 44 |
| HLA-A*68:01 | 1 | 1150 | 1158 | 9 | EELDKYFKN | 1.3e-05 | 57 |
| HLA-A*02:06 | 1 | 1152 | 1160 | 9 | LDKYFKNHT | 1.3e-05 | 71 |
| HLA-B*15:01 | 1 | 1152 | 1161 | 10 | LDKYFKNHTS | 1.3e-05 | 62 |
| HLA-B*44:03 | 1 | 1152 | 1161 | 10 | LDKYFKNHTS | 1.3e-05 | 47 |
| HLA-A*02:03 | 1 | 1155 | 1163 | 9 | YFKNHTSPD | 1.3e-05 | 65 |
| HLA-A*03:01 | 1 | 1155 | 1163 | 9 | YFKNHTSPD | 1.3e-05 | 57 |
| HLA-B*44:03 | 1 | 1155 | 1164 | 10 | YFKNHTSPDV | 1.3e-05 | 47 |
| HLA-A*31:01 | 1 | 1156 | 1164 | 9 | FKNHTSPDV | 1.3e-05 | 64 |
| HLA-A*23:01 | 1 | 1158 | 1167 | 10 | NHTSPDVDLG | 1.3e-05 | 44 |
| HLA-B*44:03 | 1 | 1158 | 1167 | 10 | NHTSPDVDLG | 1.3e-05 | 47 |
| HLA-B*53:01 | 1 | 1159 | 1168 | 10 | HTSPDVDLGD | 1.3e-05 | 47 |
| HLA-A*26:01 | 1 | 1160 | 1168 | 9 | TSPDVDLGD | 1.3e-05 | 56 |
| HLA-B*44:02 | 1 | 1161 | 1170 | 10 | SPDVDLGDIS | 1.3e-05 | 50 |
| HLA-A*02:01 | 1 | 1164 | 1173 | 10 | VDLGDISGIN | 1.3e-05 | 62 |
| HLA-B*57:01 | 1 | 1164 | 1173 | 10 | VDLGDISGIN | 1.3e-05 | 79 |
| HLA-B*07:02 | 1 | 1173 | 1182 | 10 | NASVVNIQKE | 1.3e-05 | 61 |
| HLA-A*02:01 | 1 | 1179 | 1187 | 9 | IQKEIDRLN | 1.3e-05 | 62 |
| HLA-A*26:01 | 1 | 1179 | 1187 | 9 | IQKEIDRLN | 1.3e-05 | 56 |
| HLA-A*01:01 | 1 | 1180 | 1188 | 9 | QKEIDRLNE | 1.3e-05 | 85 |
| HLA-A*03:01 | 1 | 1180 | 1188 | 9 | QKEIDRLNE | 1.3e-05 | 57 |
| HLA-A*32:01 | 1 | 1182 | 1190 | 9 | EIDRLNEVA | 1.3e-05 | 48 |
| HLA-A*68:01 | 1 | 1185 | 1194 | 10 | RLNEVAKNLN | 1.3e-05 | 57 |
| HLA-B*40:01 | 1 | 1185 | 1194 | 10 | RLNEVAKNLN | 1.3e-05 | 40 |
| HLA-A*31:01 | 1 | 1187 | 1196 | 10 | NEVAKNLNES | 1.3e-05 | 64 |
| HLA-B*15:01 | 1 | 1187 | 1196 | 10 | NEVAKNLNES | 1.3e-05 | 62 |
| HLA-A*03:01 | 1 | 1189 | 1198 | 10 | VAKNLNESLI | 1.3e-05 | 57 |
| HLA-A*03:01 | 1 | 1193 | 1201 | 9 | LNESLIDLQ | 1.3e-05 | 57 |
| HLA-B*35:01 | 1 | 1193 | 1201 | 9 | LNESLIDLQ | 1.3e-05 | 47 |
| HLA-B*51:01 | 1 | 1193 | 1202 | 10 | LNESLIDLQE | 1.3e-05 | 72 |
| HLA-B*53:01 | 1 | 1193 | 1201 | 9 | LNESLIDLQ | 1.3e-05 | 47 |
| HLA-B*07:02 | 1 | 1195 | 1204 | 10 | ESLIDLQELG | 1.3e-05 | 61 |
| HLA-A*11:01 | 1 | 1201 | 1210 | 10 | QELGKYEYI | 1.3e-05 | 43 |
| HLA-B*44:02 | 1 | 1202 | 1211 | 10 | ELGKYEYIK | 1.3e-05 | 50 |
| HLA-A*31:01 | 1 | 1217 | 1225 | 9 | WLGFIAGLI | 1.3e-05 | 64 |
| HLA-A*68:01 | 1 | 1223 | 1232 | 10 | GLIAIVMVTI | 1.3e-05 | 57 |
| HLA-B*44:03 | 1 | 1223 | 1231 | 9 | GLIAIVMVT | 1.3e-05 | 47 |
| HLA-A*11:01 | 1 | 1225 | 1234 | 10 | IAIVMVTIML | 1.3e-05 | 43 |
| HLA-B*15:01 | 1 | 1227 | 1236 | 10 | IVMVTIMLCC | 1.3e-05 | 62 |
| HLA-B*15:01 | 1 | 1230 | 1238 | 9 | VTIMLCCMT | 1.3e-05 | 62 |
| HLA-B*57:01 | 1 | 1231 | 1240 | 10 | TIMLCCMTSC | 1.3e-05 | 79 |
| HLA-A*03:01 | 1 | 1236 | 1244 | 9 | CMTSCCSCL | 1.3e-05 | 57 |
| HLA-A*11:01 | 1 | 1238 | 1247 | 10 | TSCCSCLKGC | 1.3e-05 | 43 |
| HLA-A*30:02 | 1 | 1238 | 1247 | 10 | TSCCSCLKGC | 1.3e-05 | 85 |
| HLA-A*02:01 | 1 | 1239 | 1247 | 9 | SCCSCLKGC | 1.3e-05 | 62 |
| HLA-B*51:01 | 1 | 1239 | 1247 | 9 | SCCSCLKGC | 1.3e-05 | 72 |
| HLA-A*30:01 | 1 | 1246 | 1254 | 9 | GCCSCGSCC | 1.3e-05 | 86 |
| HLA-A*03:01 | 1 | 1247 | 1256 | 10 | CCSCGSCCKF | 1.3e-05 | 57 |
| HLA-A*68:01 | 1 | 1247 | 1256 | 10 | CCSCGSCCKF | 1.3e-05 | 57 |
| HLA-A*02:03 | 1 | 1258 | 1266 | 9 | EDDSEPVLK | 1.3e-05 | 65 |
| HLA-A*33:01 | 1 | 1258 | 1267 | 10 | EDDSEPVLKG | 1.3e-05 | 69 |

| | | | | | | |
|-------------|---|-----|-----|----|--------------------|----|
| HLA-A*68:01 | 1 | 7 | 16 | 10 | LLPLVSSQCV 1.2e-05 | 58 |
| HLA-B*40:01 | 1 | 7 | 16 | 10 | LLPLVSSQCV 1.2e-05 | 41 |
| HLA-A*23:01 | 1 | 16 | 25 | 10 | VNLTRTQLP 1.2e-05 | 45 |
| HLA-A*32:01 | 1 | 16 | 25 | 10 | VNLTRTQLP 1.2e-05 | 50 |
| HLA-A*02:03 | 1 | 25 | 34 | 10 | PPAYTNSFTR 1.2e-05 | 66 |
| HLA-A*33:01 | 1 | 25 | 33 | 9 | PPAYTNSFT 1.2e-05 | 70 |
| HLA-A*11:01 | 1 | 27 | 35 | 9 | AYTNSFTRG 1.2e-05 | 45 |
| HLA-B*15:01 | 1 | 27 | 35 | 9 | AYTNSFTRG 1.2e-05 | 63 |
| HLA-A*02:01 | 1 | 32 | 40 | 9 | FTRGVYYPD 1.2e-05 | 63 |
| HLA-A*68:02 | 1 | 33 | 41 | 9 | TRGVYYPDK 1.2e-05 | 63 |
| HLA-B*44:02 | 1 | 33 | 41 | 9 | TRGVYYPDK 1.2e-05 | 52 |
| HLA-A*24:02 | 1 | 39 | 48 | 10 | PDKVFRSSVL 1.2e-05 | 43 |
| HLA-A*32:01 | 1 | 39 | 47 | 9 | PDKVFRSSV 1.2e-05 | 50 |
| HLA-B*44:03 | 1 | 39 | 48 | 10 | PDKVFRSSVL 1.2e-05 | 48 |
| HLA-B*44:02 | 1 | 41 | 50 | 10 | KVFRSSVLHS 1.2e-05 | 52 |
| HLA-A*23:01 | 1 | 44 | 52 | 9 | RSSVLHSTQ 1.2e-05 | 45 |
| HLA-A*33:01 | 1 | 45 | 53 | 9 | SSVLHSTQD 1.2e-05 | 70 |
| HLA-A*68:02 | 1 | 52 | 61 | 10 | QDLFLPFFSN 1.2e-05 | 63 |
| HLA-A*11:01 | 1 | 53 | 61 | 9 | DLFLPFFSN 1.2e-05 | 45 |
| HLA-A*03:01 | 1 | 59 | 68 | 10 | FSNVTWFHAI 1.2e-05 | 59 |
| HLA-B*35:01 | 1 | 67 | 75 | 9 | AIHVSGTNG 1.2e-05 | 48 |
| HLA-B*15:01 | 1 | 68 | 76 | 9 | IHVSGTNGT 1.2e-05 | 63 |
| HLA-B*08:01 | 1 | 72 | 80 | 9 | GTNGTKRFD 1.2e-05 | 82 |
| HLA-A*30:02 | 1 | 73 | 81 | 9 | TNGTKRFDN 1.2e-05 | 86 |
| HLA-B*57:01 | 1 | 73 | 82 | 10 | TNGTKRFDNP 1.2e-05 | 80 |
| HLA-A*32:01 | 1 | 74 | 83 | 10 | NGTKRFDNPV 1.2e-05 | 50 |
| HLA-B*35:01 | 1 | 74 | 82 | 9 | NGTKRFDNP 1.2e-05 | 48 |
| HLA-A*11:01 | 1 | 76 | 84 | 9 | TKRFDNPVL 1.2e-05 | 45 |
| HLA-B*40:01 | 1 | 78 | 87 | 10 | RFDNPVLPFN 1.2e-05 | 41 |
| HLA-A*02:03 | 1 | 79 | 87 | 9 | FDNPVLPFN 1.2e-05 | 66 |
| HLA-B*51:01 | 1 | 79 | 88 | 10 | FDNPVLPFND 1.2e-05 | 73 |
| HLA-A*23:01 | 1 | 81 | 90 | 10 | NPVLPFNDGV 1.2e-05 | 45 |
| HLA-B*44:03 | 1 | 82 | 90 | 9 | PVLPFNDGV 1.2e-05 | 48 |
| HLA-A*30:02 | 1 | 87 | 96 | 10 | NDGVYFASTE 1.2e-05 | 86 |
| HLA-B*44:03 | 1 | 88 | 96 | 9 | DGVYFASTE 1.2e-05 | 48 |
| HLA-A*02:01 | 1 | 98 | 107 | 10 | SNIIRGWIFG 1.2e-05 | 63 |
| HLA-B*15:01 | 1 | 98 | 107 | 10 | SNIIRGWIFG 1.2e-05 | 63 |
| HLA-A*68:01 | 1 | 103 | 112 | 10 | GWIFGTTLDS 1.2e-05 | 58 |
| HLA-A*02:03 | 1 | 107 | 115 | 9 | GTTLDSTQ 1.2e-05 | 66 |
| HLA-B*44:02 | 1 | 113 | 121 | 9 | KTQSLLIVN 1.2e-05 | 52 |
| HLA-B*15:01 | 1 | 115 | 124 | 10 | QSLLIVNNAT 1.2e-05 | 63 |
| HLA-B*44:02 | 1 | 115 | 124 | 10 | QSLLIVNNAT 1.2e-05 | 52 |
| HLA-A*23:01 | 1 | 116 | 124 | 9 | SLLIVNNAT 1.2e-05 | 45 |
| HLA-A*31:01 | 1 | 117 | 125 | 9 | LLIVNNATN 1.2e-05 | 65 |
| HLA-B*53:01 | 1 | 117 | 125 | 9 | LLIVNNATN 1.2e-05 | 48 |
| HLA-A*02:01 | 1 | 123 | 132 | 10 | ATNVVIVKVE 1.2e-05 | 63 |
| HLA-A*26:01 | 1 | 124 | 132 | 9 | TNVVIVKVE 1.2e-05 | 57 |
| HLA-B*07:02 | 1 | 126 | 134 | 9 | VVIKVEFQ 1.2e-05 | 63 |
| HLA-B*07:02 | 1 | 133 | 142 | 10 | FQFCNDPFLG 1.2e-05 | 63 |
| HLA-A*02:01 | 1 | 138 | 146 | 9 | DPFLGVYYH 1.2e-05 | 63 |
| HLA-A*03:01 | 1 | 139 | 148 | 10 | PFLGVYYHKN 1.2e-05 | 59 |
| HLA-A*11:01 | 1 | 144 | 153 | 10 | YYHKNNKSWM 1.2e-05 | 45 |
| HLA-B*58:01 | 1 | 145 | 154 | 10 | YHKNNKSWME 1.2e-05 | 69 |
| HLA-A*02:01 | 1 | 147 | 155 | 9 | KNNKSWMES 1.2e-05 | 63 |
| HLA-A*24:02 | 1 | 149 | 158 | 10 | NKSWMESEFR 1.2e-05 | 43 |
| HLA-B*08:01 | 1 | 157 | 165 | 9 | FRVYSSANN 1.2e-05 | 82 |
| HLA-B*44:02 | 1 | 158 | 167 | 10 | RVYSSANNCT 1.2e-05 | 52 |
| HLA-A*02:01 | 1 | 159 | 167 | 9 | VYSSANNCT 1.2e-05 | 63 |
| HLA-B*58:01 | 1 | 163 | 172 | 10 | ANNCTFEYVS 1.2e-05 | 69 |
| HLA-A*02:03 | 1 | 169 | 178 | 10 | EYVSQPFLMD 1.2e-05 | 66 |
| HLA-A*03:01 | 1 | 169 | 178 | 10 | EYVSQPFLMD 1.2e-05 | 59 |
| HLA-B*53:01 | 1 | 172 | 180 | 9 | SQPFLMDLE 1.2e-05 | 48 |
| HLA-A*68:01 | 1 | 173 | 181 | 9 | QPFLMDLEG 1.2e-05 | 58 |
| HLA-A*23:01 | 1 | 174 | 183 | 10 | PFLMDLEGKQ 1.2e-05 | 45 |
| HLA-A*31:01 | 1 | 175 | 184 | 10 | FLMDLEGKQG 1.2e-05 | 65 |
| HLA-A*33:01 | 1 | 175 | 184 | 10 | FLMDLEGKQG 1.2e-05 | 70 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*03:01 | 1 | 176 | 184 | 9 | LMDLEGKQG | 1.2e-05 | 59 |
| HLA-A*24:02 | 1 | 179 | 187 | 9 | LEGKQGNFK | 1.2e-05 | 43 |
| HLA-B*08:01 | 1 | 179 | 188 | 10 | LEGKQGNFKN | 1.2e-05 | 82 |
| HLA-A*02:03 | 1 | 183 | 191 | 9 | QGNFKNLRE | 1.2e-05 | 66 |
| HLA-A*03:01 | 1 | 189 | 197 | 9 | LREFVFKNI | 1.2e-05 | 59 |
| HLA-A*68:01 | 1 | 189 | 197 | 9 | LREFVFKNI | 1.2e-05 | 58 |
| HLA-A*02:06 | 1 | 190 | 198 | 9 | REFVFKNID | 1.2e-05 | 72 |
| HLA-A*03:01 | 1 | 197 | 205 | 9 | IDGYFKIYS | 1.2e-05 | 59 |
| HLA-B*44:02 | 1 | 197 | 205 | 9 | IDGYFKIYS | 1.2e-05 | 52 |
| HLA-B*44:03 | 1 | 197 | 205 | 9 | IDGYFKIYS | 1.2e-05 | 48 |
| HLA-B*44:03 | 1 | 199 | 208 | 10 | GYFKIYSKHT | 1.2e-05 | 48 |
| HLA-B*58:01 | 1 | 199 | 208 | 10 | GYFKIYSKHT | 1.2e-05 | 69 |
| HLA-B*53:01 | 1 | 207 | 215 | 9 | HTPINLVRD | 1.2e-05 | 48 |
| HLA-B*40:01 | 1 | 208 | 217 | 10 | TPINLVRDLP | 1.2e-05 | 41 |
| HLA-A*03:01 | 1 | 209 | 218 | 10 | PINLVRDLPQ | 1.2e-05 | 59 |
| HLA-B*15:01 | 1 | 210 | 219 | 10 | INLVRDLPQG | 1.2e-05 | 63 |
| HLA-B*35:01 | 1 | 210 | 218 | 9 | INLVRDLPQ | 1.2e-05 | 48 |
| HLA-A*03:01 | 1 | 211 | 219 | 9 | NLVRDLPQG | 1.2e-05 | 59 |
| HLA-A*33:01 | 1 | 211 | 219 | 9 | NLVRDLPQG | 1.2e-05 | 70 |
| HLA-A*02:01 | 1 | 213 | 221 | 9 | VRDLPQGF | 1.2e-05 | 63 |
| HLA-A*03:01 | 1 | 216 | 225 | 10 | LPQGFSALEP | 1.2e-05 | 59 |
| HLA-A*68:01 | 1 | 216 | 225 | 10 | LPQGFSALEP | 1.2e-05 | 58 |
| HLA-A*24:02 | 1 | 217 | 225 | 9 | PQGFSALEP | 1.2e-05 | 43 |
| HLA-A*02:06 | 1 | 224 | 232 | 9 | EPLVDLPIG | 1.2e-05 | 72 |
| HLA-A*23:01 | 1 | 231 | 239 | 9 | IGINITRFQ | 1.2e-05 | 45 |
| HLA-B*51:01 | 1 | 237 | 246 | 10 | RFQTLALHR | 1.2e-05 | 73 |
| HLA-A*26:01 | 1 | 238 | 247 | 10 | FQTLALHRS | 1.2e-05 | 57 |
| HLA-B*44:02 | 1 | 242 | 251 | 10 | LALHRSYLTP | 1.2e-05 | 52 |
| HLA-B*08:01 | 1 | 245 | 254 | 10 | HRSYLTPGDS | 1.2e-05 | 82 |
| HLA-A*11:01 | 1 | 248 | 256 | 9 | YLTPGDSSS | 1.2e-05 | 45 |
| HLA-B*44:02 | 1 | 248 | 256 | 9 | YLTPGDSSS | 1.2e-05 | 52 |
| HLA-A*24:02 | 1 | 250 | 259 | 10 | TPGDSSSGWT | 1.2e-05 | 43 |
| HLA-A*68:01 | 1 | 250 | 259 | 10 | TPGDSSSGWT | 1.2e-05 | 58 |
| HLA-A*03:01 | 1 | 253 | 261 | 9 | DSSSGWTAG | 1.2e-05 | 59 |
| HLA-B*44:02 | 1 | 255 | 263 | 9 | SSSGWTAGAA | 1.2e-05 | 52 |
| HLA-A*32:01 | 1 | 260 | 268 | 9 | AGAAAYYVG | 1.2e-05 | 50 |
| HLA-A*68:02 | 1 | 260 | 268 | 9 | AGAAAYYVG | 1.2e-05 | 63 |
| HLA-B*44:03 | 1 | 261 | 270 | 10 | GAAAYYVGYL | 1.2e-05 | 48 |
| HLA-A*01:01 | 1 | 272 | 281 | 10 | PRTFLLKYNE | 1.2e-05 | 86 |
| HLA-A*30:02 | 1 | 272 | 280 | 9 | PRTFLLKYN | 1.2e-05 | 86 |
| HLA-A*02:03 | 1 | 274 | 283 | 10 | TFLLKYNENG | 1.2e-05 | 66 |
| HLA-B*57:01 | 1 | 274 | 282 | 9 | TFLLKYNEN | 1.2e-05 | 80 |
| HLA-B*58:01 | 1 | 274 | 283 | 10 | TFLLKYNENG | 1.2e-05 | 69 |
| HLA-A*23:01 | 1 | 275 | 283 | 9 | FLLKYNENG | 1.2e-05 | 45 |
| HLA-A*31:01 | 1 | 275 | 284 | 10 | FLLKYNENGT | 1.2e-05 | 65 |
| HLA-B*53:01 | 1 | 275 | 283 | 9 | FLLKYNENG | 1.2e-05 | 48 |
| HLA-A*68:01 | 1 | 276 | 284 | 9 | LLKYNENGT | 1.2e-05 | 58 |
| HLA-B*35:01 | 1 | 276 | 285 | 10 | LLKYNENGTI | 1.2e-05 | 48 |
| HLA-B*44:02 | 1 | 283 | 292 | 10 | GTITDAVDCA | 1.2e-05 | 52 |
| HLA-A*30:01 | 1 | 286 | 295 | 10 | TDAVDCALDP | 1.2e-05 | 87 |
| HLA-A*23:01 | 1 | 287 | 296 | 10 | DAVDCALDPL | 1.2e-05 | 45 |
| HLA-A*30:02 | 1 | 287 | 295 | 9 | DAVDCALDP | 1.2e-05 | 86 |
| HLA-B*51:01 | 1 | 288 | 297 | 10 | AVDCALDPLS | 1.2e-05 | 73 |
| HLA-B*58:01 | 1 | 289 | 297 | 9 | VDCALDPLS | 1.2e-05 | 69 |
| HLA-B*15:01 | 1 | 290 | 299 | 10 | DCALDPLSET | 1.2e-05 | 63 |
| HLA-A*23:01 | 1 | 291 | 299 | 9 | CALDPLSET | 1.2e-05 | 45 |
| HLA-A*24:02 | 1 | 291 | 299 | 9 | CALDPLSET | 1.2e-05 | 43 |
| HLA-B*40:01 | 1 | 291 | 300 | 10 | CALDPLSETK | 1.2e-05 | 41 |
| HLA-A*02:03 | 1 | 293 | 301 | 9 | LDPLSETKC | 1.2e-05 | 66 |
| HLA-B*44:03 | 1 | 293 | 301 | 9 | LDPLSETKC | 1.2e-05 | 48 |
| HLA-A*24:02 | 1 | 296 | 304 | 9 | LSETKCTLK | 1.2e-05 | 43 |
| HLA-A*02:03 | 1 | 297 | 305 | 9 | SETKCTLKS | 1.2e-05 | 66 |
| HLA-B*44:02 | 1 | 298 | 307 | 10 | ETKCTLKSFT | 1.2e-05 | 52 |
| HLA-A*01:01 | 1 | 303 | 311 | 9 | LKSFTVEKG | 1.2e-05 | 86 |
| HLA-B*15:01 | 1 | 303 | 311 | 9 | LKSFTVEKG | 1.2e-05 | 63 |
| HLA-A*24:02 | 1 | 306 | 315 | 10 | FTVEKGIYQT | 1.2e-05 | 43 |

| | | | | | | |
|-------------|---|-----|-----|----|---------------------|----|
| HLA-B*58:01 | 1 | 308 | 317 | 10 | VEKGIYQTSN 1.2e-05 | 69 |
| HLA-B*44:02 | 1 | 309 | 317 | 9 | EKGIYQTSN 1.2e-05 | 52 |
| HLA-A*24:02 | 1 | 316 | 325 | 10 | SNFRVQPTES 1.2e-05 | 43 |
| HLA-A*02:06 | 1 | 317 | 325 | 9 | NFRVQPTES 1.2e-05 | 72 |
| HLA-A*11:01 | 1 | 317 | 325 | 9 | NFRVQPTES 1.2e-05 | 45 |
| HLA-A*11:01 | 1 | 317 | 326 | 10 | NFRVQPTESI 1.2e-05 | 45 |
| HLA-A*11:01 | 1 | 318 | 327 | 10 | FRVQPTESIV 1.2e-05 | 45 |
| HLA-A*03:01 | 1 | 324 | 333 | 10 | ESIVRFPNIT 1.2e-05 | 59 |
| HLA-B*44:02 | 1 | 324 | 333 | 10 | ESIVRFPNIT 1.2e-05 | 52 |
| HLA-B*51:01 | 1 | 325 | 334 | 10 | SIVRFPNITN 1.2e-05 | 73 |
| HLA-A*68:01 | 1 | 330 | 338 | 9 | PNITNLCPF 1.2e-05 | 58 |
| HLA-A*30:02 | 1 | 331 | 340 | 10 | NITNLCPFGE 1.2e-05 | 86 |
| HLA-A*68:02 | 1 | 331 | 340 | 10 | NITNLCPFGE 1.2e-05 | 63 |
| HLA-B*08:01 | 1 | 331 | 340 | 10 | NITNLCPFGE 1.2e-05 | 82 |
| HLA-B*53:01 | 1 | 331 | 339 | 9 | NITNLCPFGE 1.2e-05 | 48 |
| HLA-B*53:01 | 1 | 332 | 340 | 9 | ITNLCPFGE 1.2e-05 | 48 |
| HLA-A*30:01 | 1 | 335 | 343 | 9 | LCPFGEVFN 1.2e-05 | 87 |
| HLA-A*11:01 | 1 | 341 | 350 | 10 | VFNATRFASV 1.2e-05 | 45 |
| HLA-B*40:01 | 1 | 341 | 350 | 10 | VFNATRFASV 1.2e-05 | 41 |
| HLA-A*02:06 | 1 | 346 | 354 | 9 | RFASVYAWN 1.2e-05 | 72 |
| HLA-A*26:01 | 1 | 346 | 354 | 9 | RFASVYAWN 1.2e-05 | 57 |
| HLA-B*53:01 | 1 | 346 | 355 | 10 | RFASVYAWN 1.2e-05 | 48 |
| HLA-B*40:01 | 1 | 348 | 357 | 10 | ASVYAWNRRKR 1.2e-05 | 41 |
| HLA-A*03:01 | 1 | 351 | 360 | 10 | YAWNRRKRISN 1.2e-05 | 59 |
| HLA-A*02:01 | 1 | 353 | 362 | 10 | WNRKRISNCV 1.2e-05 | 63 |
| HLA-A*24:02 | 1 | 353 | 361 | 9 | WNRKRISNC 1.2e-05 | 43 |
| HLA-A*68:01 | 1 | 353 | 361 | 9 | WNRKRISNC 1.2e-05 | 58 |
| HLA-A*68:02 | 1 | 355 | 363 | 9 | RKRISNCVA 1.2e-05 | 63 |
| HLA-B*07:02 | 1 | 362 | 371 | 10 | VADYSVLVNS 1.2e-05 | 63 |
| HLA-A*24:02 | 1 | 367 | 375 | 9 | VLYNSASF 1.2e-05 | 43 |
| HLA-A*02:01 | 1 | 374 | 383 | 10 | FSTFKCYGVS 1.2e-05 | 63 |
| HLA-A*68:01 | 1 | 374 | 383 | 10 | FSTFKCYGVS 1.2e-05 | 58 |
| HLA-A*03:01 | 1 | 376 | 385 | 10 | TFKCYGVSPT 1.2e-05 | 59 |
| HLA-B*51:01 | 1 | 376 | 385 | 10 | TFKCYGVSPT 1.2e-05 | 73 |
| HLA-A*03:01 | 1 | 380 | 388 | 9 | YGVSPKLN 1.2e-05 | 59 |
| HLA-A*26:01 | 1 | 380 | 388 | 9 | YGVSPKLN 1.2e-05 | 57 |
| HLA-A*26:01 | 1 | 381 | 389 | 9 | GVSPKLN 1.2e-05 | 57 |
| HLA-A*26:01 | 1 | 382 | 391 | 10 | VSPKLN 1.2e-05 | 57 |
| HLA-B*07:02 | 1 | 385 | 393 | 9 | TKLNLCFT 1.2e-05 | 63 |
| HLA-A*02:01 | 1 | 387 | 396 | 10 | LNLDCFTNVY 1.2e-05 | 63 |
| HLA-B*15:01 | 1 | 387 | 395 | 9 | LNLDCFTNV 1.2e-05 | 63 |
| HLA-B*40:01 | 1 | 388 | 397 | 10 | NLDCFTNVYA 1.2e-05 | 41 |
| HLA-A*02:06 | 1 | 389 | 398 | 10 | DLCFTNVYAD 1.2e-05 | 72 |
| HLA-A*68:02 | 1 | 390 | 399 | 10 | LCFTNVYADS 1.2e-05 | 63 |
| HLA-A*02:03 | 1 | 391 | 400 | 10 | CFTNVYADS 1.2e-05 | 66 |
| HLA-A*68:02 | 1 | 391 | 399 | 9 | CFTNVYADS 1.2e-05 | 63 |
| HLA-B*08:01 | 1 | 391 | 399 | 9 | CFTNVYADS 1.2e-05 | 82 |
| HLA-A*03:01 | 1 | 398 | 406 | 9 | DSFVIRGDE 1.2e-05 | 59 |
| HLA-A*31:01 | 1 | 398 | 406 | 9 | DSFVIRGDE 1.2e-05 | 65 |
| HLA-A*32:01 | 1 | 398 | 407 | 10 | DSFVIRGDEV 1.2e-05 | 50 |
| HLA-B*07:02 | 1 | 398 | 406 | 9 | DSFVIRGDE 1.2e-05 | 63 |
| HLA-A*01:01 | 1 | 405 | 413 | 9 | DEVQRQIAPG 1.2e-05 | 86 |
| HLA-B*53:01 | 1 | 405 | 414 | 10 | DEVQRQIAPGQ 1.2e-05 | 48 |
| HLA-A*02:03 | 1 | 407 | 415 | 9 | VRQIAPGQT 1.2e-05 | 66 |
| HLA-A*02:06 | 1 | 407 | 415 | 9 | VRQIAPGQT 1.2e-05 | 72 |
| HLA-B*58:01 | 1 | 407 | 415 | 9 | VRQIAPGQT 1.2e-05 | 69 |
| HLA-B*44:03 | 1 | 410 | 419 | 10 | IAPGQTGKIA 1.2e-05 | 48 |
| HLA-A*30:02 | 1 | 411 | 420 | 10 | APGQTGKIAD 1.2e-05 | 86 |
| HLA-A*02:01 | 1 | 415 | 424 | 10 | TGKIADYNYK 1.2e-05 | 63 |
| HLA-B*35:01 | 1 | 417 | 426 | 10 | KIADYNYKLP 1.2e-05 | 48 |
| HLA-A*32:01 | 1 | 419 | 427 | 9 | ADYNYKLPD 1.2e-05 | 50 |
| HLA-A*02:06 | 1 | 420 | 429 | 10 | DYNYKLPDDF 1.2e-05 | 72 |
| HLA-A*03:01 | 1 | 422 | 430 | 9 | NYKLPDDFT 1.2e-05 | 59 |
| HLA-B*57:01 | 1 | 422 | 430 | 9 | NYKLPDDFT 1.2e-05 | 80 |
| HLA-A*03:01 | 1 | 425 | 434 | 10 | LPDDFTGCVI 1.2e-05 | 59 |
| HLA-A*23:01 | 1 | 427 | 435 | 9 | DDFTGCVIA 1.2e-05 | 45 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*31:01 | 1 | 427 | 435 | 9 | DDFTGCVIA | 1.2e-05 | 65 |
| HLA-B*44:02 | 1 | 428 | 437 | 10 | DFTGCVIAWN | 1.2e-05 | 52 |
| HLA-A*01:01 | 1 | 431 | 439 | 9 | GCVIAWNSN | 1.2e-05 | 86 |
| HLA-B*44:02 | 1 | 432 | 441 | 10 | CVIAWNSNNL | 1.2e-05 | 52 |
| HLA-A*32:01 | 1 | 434 | 442 | 9 | IAWNSNLD | 1.2e-05 | 50 |
| HLA-B*40:01 | 1 | 436 | 445 | 10 | WNSNLDISKV | 1.2e-05 | 41 |
| HLA-A*68:02 | 1 | 438 | 447 | 10 | SNNLDSKVG | 1.2e-05 | 63 |
| HLA-A*33:01 | 1 | 441 | 450 | 10 | LDSKVGGNYN | 1.2e-05 | 70 |
| HLA-A*02:01 | 1 | 445 | 454 | 10 | VGGNYNYLYR | 1.2e-05 | 63 |
| HLA-B*35:01 | 1 | 446 | 454 | 9 | GGNYNYLYR | 1.2e-05 | 48 |
| HLA-B*15:01 | 1 | 450 | 459 | 10 | NYLYRFRKS | 1.2e-05 | 63 |
| HLA-B*35:01 | 1 | 452 | 461 | 10 | LYRFRKSNL | 1.2e-05 | 48 |
| HLA-A*02:06 | 1 | 457 | 465 | 9 | RKSNLKPFE | 1.2e-05 | 72 |
| HLA-B*07:02 | 1 | 457 | 465 | 9 | RKSNLKPFE | 1.2e-05 | 63 |
| HLA-A*23:01 | 1 | 466 | 474 | 9 | RDISTEIQ | 1.2e-05 | 45 |
| HLA-B*44:03 | 1 | 471 | 480 | 10 | EIQAGSTPC | 1.2e-05 | 48 |
| HLA-B*40:01 | 1 | 472 | 480 | 9 | IYQAGSTPC | 1.2e-05 | 41 |
| HLA-A*03:01 | 1 | 474 | 483 | 10 | QAGSTPCNGV | 1.2e-05 | 59 |
| HLA-B*44:03 | 1 | 474 | 483 | 10 | QAGSTPCNGV | 1.2e-05 | 48 |
| HLA-B*15:01 | 1 | 475 | 484 | 10 | AGSTPCNGVE | 1.2e-05 | 63 |
| HLA-A*68:02 | 1 | 476 | 485 | 10 | GSTPCNGVEG | 1.2e-05 | 63 |
| HLA-A*33:01 | 1 | 483 | 491 | 9 | VEGFNCYFP | 1.2e-05 | 70 |
| HLA-A*11:01 | 1 | 485 | 494 | 10 | GFNCYFPLQS | 1.2e-05 | 45 |
| HLA-B*58:01 | 1 | 485 | 493 | 9 | GFNCYFPLQ | 1.2e-05 | 69 |
| HLA-A*02:06 | 1 | 490 | 498 | 9 | FPLQSYGFQ | 1.2e-05 | 72 |
| HLA-A*68:01 | 1 | 495 | 504 | 10 | YGFQPTNGVG | 1.2e-05 | 58 |
| HLA-B*44:02 | 1 | 499 | 507 | 9 | PTNGVGYQP | 1.2e-05 | 52 |
| HLA-B*53:01 | 1 | 500 | 509 | 10 | TNGVGYQPYR | 1.2e-05 | 48 |
| HLA-B*53:01 | 1 | 508 | 516 | 9 | YRVVLSFE | 1.2e-05 | 48 |
| HLA-A*24:02 | 1 | 510 | 519 | 10 | VVLSFELLH | 1.2e-05 | 43 |
| HLA-B*58:01 | 1 | 514 | 522 | 9 | SFELLHAPA | 1.2e-05 | 69 |
| HLA-A*33:01 | 1 | 518 | 527 | 10 | LHAPATVCGP | 1.2e-05 | 70 |
| HLA-A*03:01 | 1 | 519 | 527 | 9 | HAPATVCGP | 1.2e-05 | 59 |
| HLA-A*11:01 | 1 | 519 | 527 | 9 | HAPATVCGP | 1.2e-05 | 45 |
| HLA-B*44:02 | 1 | 519 | 528 | 10 | HAPATVCGPK | 1.2e-05 | 52 |
| HLA-A*23:01 | 1 | 520 | 529 | 10 | APATVCGPKK | 1.2e-05 | 45 |
| HLA-B*51:01 | 1 | 523 | 532 | 10 | TVCGPKKSTN | 1.2e-05 | 73 |
| HLA-B*40:01 | 1 | 525 | 534 | 10 | CGPKKSTNLV | 1.2e-05 | 41 |
| HLA-A*31:01 | 1 | 528 | 536 | 9 | KKSTNLVKN | 1.2e-05 | 65 |
| HLA-A*68:01 | 1 | 528 | 536 | 9 | KKSTNLVKN | 1.2e-05 | 58 |
| HLA-B*44:02 | 1 | 529 | 538 | 10 | KSTNLVKNKC | 1.2e-05 | 52 |
| HLA-A*03:01 | 1 | 531 | 539 | 9 | TNLVKNKCV | 1.2e-05 | 59 |
| HLA-A*11:01 | 1 | 532 | 541 | 10 | NLVKNKCVNF | 1.2e-05 | 45 |
| HLA-B*07:02 | 1 | 532 | 540 | 9 | NLVKNKCVN | 1.2e-05 | 63 |
| HLA-A*02:01 | 1 | 534 | 543 | 10 | VKNKCVNFNF | 1.2e-05 | 63 |
| HLA-B*08:01 | 1 | 535 | 544 | 10 | KNKCVNFNFN | 1.2e-05 | 82 |
| HLA-B*15:01 | 1 | 535 | 544 | 10 | KNKCVNFNFN | 1.2e-05 | 63 |
| HLA-B*35:01 | 1 | 537 | 546 | 10 | KCVNFNFNGL | 1.2e-05 | 48 |
| HLA-A*32:01 | 1 | 540 | 548 | 9 | NFNFNGLTG | 1.2e-05 | 50 |
| HLA-A*32:01 | 1 | 540 | 549 | 10 | NFNFNGLTGT | 1.2e-05 | 50 |
| HLA-A*24:02 | 1 | 541 | 549 | 9 | NFNFNGLTGT | 1.2e-05 | 43 |
| HLA-A*68:01 | 1 | 541 | 550 | 10 | NFNFNGLTGT | 1.2e-05 | 58 |
| HLA-B*44:02 | 1 | 541 | 549 | 9 | NFNFNGLTGT | 1.2e-05 | 52 |
| HLA-A*31:01 | 1 | 544 | 553 | 10 | NGLTGTGVL | 1.2e-05 | 65 |
| HLA-B*07:02 | 1 | 546 | 555 | 10 | LTGTGVLTES | 1.2e-05 | 63 |
| HLA-B*40:01 | 1 | 547 | 555 | 9 | TGTGVLTES | 1.2e-05 | 41 |
| HLA-B*44:02 | 1 | 547 | 555 | 9 | TGTGVLTES | 1.2e-05 | 52 |
| HLA-A*02:06 | 1 | 548 | 556 | 9 | GTGVLTESN | 1.2e-05 | 72 |
| HLA-A*32:01 | 1 | 553 | 561 | 9 | TESNKKFLP | 1.2e-05 | 50 |
| HLA-A*68:02 | 1 | 557 | 566 | 10 | KKFLPFQQFG | 1.2e-05 | 63 |
| HLA-A*26:01 | 1 | 559 | 568 | 10 | FLPFQQFGRD | 1.2e-05 | 57 |
| HLA-B*58:01 | 1 | 560 | 568 | 9 | LPFQQFGRD | 1.2e-05 | 69 |
| HLA-A*02:03 | 1 | 561 | 569 | 9 | PFQQFGRDI | 1.2e-05 | 66 |
| HLA-A*68:02 | 1 | 561 | 570 | 10 | PFQQFGRDIA | 1.2e-05 | 63 |
| HLA-A*23:01 | 1 | 565 | 573 | 9 | FGRDIADTT | 1.2e-05 | 45 |
| HLA-A*68:01 | 1 | 570 | 579 | 10 | ADTTDAVRDP | 1.2e-05 | 58 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*35:01 | 1 | 572 | 581 | 10 | TTDAVRDPQT | 1.2e-05 | 48 |
| HLA-B*53:01 | 1 | 573 | 581 | 9 | TDAVRDPQT | 1.2e-05 | 48 |
| HLA-A*30:01 | 1 | 577 | 586 | 10 | RDPQTLEILD | 1.2e-05 | 87 |
| HLA-A*02:03 | 1 | 579 | 588 | 10 | PQTLEILDIT | 1.2e-05 | 66 |
| HLA-A*26:01 | 1 | 579 | 587 | 9 | PQTLEILDI | 1.2e-05 | 57 |
| HLA-A*33:01 | 1 | 579 | 587 | 9 | PQTLEILDI | 1.2e-05 | 70 |
| HLA-B*08:01 | 1 | 585 | 593 | 9 | LDITPCSF | 1.2e-05 | 82 |
| HLA-B*40:01 | 1 | 585 | 593 | 9 | LDITPCSF | 1.2e-05 | 41 |
| HLA-B*44:02 | 1 | 585 | 593 | 9 | LDITPCSF | 1.2e-05 | 52 |
| HLA-B*44:03 | 1 | 585 | 593 | 9 | LDITPCSF | 1.2e-05 | 48 |
| HLA-A*02:03 | 1 | 586 | 594 | 9 | DITPCSF | 1.2e-05 | 66 |
| HLA-A*11:01 | 1 | 587 | 596 | 10 | ITPCSF | 1.2e-05 | 45 |
| HLA-A*33:01 | 1 | 587 | 596 | 10 | ITPCSF | 1.2e-05 | 70 |
| HLA-B*53:01 | 1 | 587 | 595 | 9 | ITPCSF | 1.2e-05 | 48 |
| HLA-A*24:02 | 1 | 589 | 597 | 9 | PCSF | 1.2e-05 | 43 |
| HLA-A*32:01 | 1 | 589 | 597 | 9 | PCSF | 1.2e-05 | 50 |
| HLA-B*15:01 | 1 | 593 | 602 | 10 | GGVSVIT | 1.2e-05 | 63 |
| HLA-A*32:01 | 1 | 599 | 608 | 10 | TPGTNTSN | 1.2e-05 | 50 |
| HLA-B*07:02 | 1 | 604 | 613 | 10 | TSNQVAV | 1.2e-05 | 63 |
| HLA-A*31:01 | 1 | 606 | 614 | 9 | NQVAVLY | 1.2e-05 | 65 |
| HLA-B*53:01 | 1 | 606 | 614 | 9 | NQVAVLY | 1.2e-05 | 48 |
| HLA-B*08:01 | 1 | 608 | 616 | 9 | VAVLYQ | 1.2e-05 | 82 |
| HLA-A*24:02 | 1 | 609 | 617 | 9 | AVLYQ | 1.2e-05 | 43 |
| HLA-B*44:03 | 1 | 610 | 619 | 10 | VLYQ | 1.2e-05 | 48 |
| HLA-A*03:01 | 1 | 613 | 622 | 10 | QDVNCTE | 1.2e-05 | 59 |
| HLA-A*31:01 | 1 | 613 | 622 | 10 | QDVNCTE | 1.2e-05 | 65 |
| HLA-B*15:01 | 1 | 619 | 627 | 9 | EVPVAI | 1.2e-05 | 63 |
| HLA-B*08:01 | 1 | 621 | 630 | 10 | PVAIHAD | 1.2e-05 | 82 |
| HLA-A*24:02 | 1 | 622 | 630 | 9 | VAIHAD | 1.2e-05 | 43 |
| HLA-A*23:01 | 1 | 623 | 631 | 9 | AIHAD | 1.2e-05 | 45 |
| HLA-A*24:02 | 1 | 623 | 631 | 9 | AIHAD | 1.2e-05 | 43 |
| HLA-A*23:01 | 1 | 626 | 634 | 9 | ADQLT | 1.2e-05 | 45 |
| HLA-A*23:01 | 1 | 628 | 637 | 10 | QLTPT | 1.2e-05 | 45 |
| HLA-A*24:02 | 1 | 629 | 638 | 10 | LTPT | 1.2e-05 | 43 |
| HLA-B*08:01 | 1 | 633 | 641 | 9 | WRVYST | 1.2e-05 | 82 |
| HLA-B*35:01 | 1 | 636 | 645 | 10 | YSTGS | 1.2e-05 | 48 |
| HLA-A*23:01 | 1 | 639 | 647 | 9 | GSNV | 1.2e-05 | 45 |
| HLA-B*08:01 | 1 | 639 | 648 | 10 | GSNV | 1.2e-05 | 82 |
| HLA-B*35:01 | 1 | 640 | 649 | 10 | SNV | 1.2e-05 | 48 |
| HLA-A*24:02 | 1 | 641 | 649 | 9 | NV | 1.2e-05 | 43 |
| HLA-B*53:01 | 1 | 642 | 651 | 10 | VF | 1.2e-05 | 48 |
| HLA-B*35:01 | 1 | 644 | 653 | 10 | Q | 1.2e-05 | 48 |
| HLA-A*02:03 | 1 | 646 | 654 | 9 | RAG | 1.2e-05 | 66 |
| HLA-A*03:01 | 1 | 646 | 654 | 9 | RAG | 1.2e-05 | 59 |
| HLA-A*03:01 | 1 | 647 | 656 | 10 | AG | 1.2e-05 | 59 |
| HLA-A*23:01 | 1 | 647 | 656 | 10 | AG | 1.2e-05 | 45 |
| HLA-A*03:01 | 1 | 648 | 656 | 9 | G | 1.2e-05 | 59 |
| HLA-A*26:01 | 1 | 649 | 657 | 9 | CL | 1.2e-05 | 57 |
| HLA-A*31:01 | 1 | 650 | 658 | 9 | L | 1.2e-05 | 65 |
| HLA-A*68:02 | 1 | 652 | 661 | 10 | GA | 1.2e-05 | 63 |
| HLA-A*26:01 | 1 | 653 | 662 | 10 | AE | 1.2e-05 | 57 |
| HLA-A*31:01 | 1 | 655 | 663 | 9 | HV | 1.2e-05 | 65 |
| HLA-A*31:01 | 1 | 656 | 664 | 9 | VN | 1.2e-05 | 65 |
| HLA-A*33:01 | 1 | 661 | 669 | 9 | E | 1.2e-05 | 70 |
| HLA-B*58:01 | 1 | 663 | 672 | 10 | DI | 1.2e-05 | 69 |
| HLA-A*02:03 | 1 | 666 | 675 | 10 | I | 1.2e-05 | 66 |
| HLA-A*32:01 | 1 | 666 | 675 | 10 | I | 1.2e-05 | 50 |
| HLA-A*02:06 | 1 | 667 | 675 | 9 | G | 1.2e-05 | 72 |
| HLA-A*68:01 | 1 | 668 | 676 | 9 | A | 1.2e-05 | 58 |
| HLA-B*44:03 | 1 | 669 | 678 | 10 | G | 1.2e-05 | 48 |
| HLA-A*02:06 | 1 | 671 | 679 | 9 | C | 1.2e-05 | 72 |
| HLA-B*40:01 | 1 | 678 | 687 | 10 | T | 1.2e-05 | 41 |
| HLA-A*26:01 | 1 | 680 | 689 | 10 | S | 1.2e-05 | 57 |
| HLA-B*53:01 | 1 | 682 | 690 | 9 | R | 1.2e-05 | 48 |
| HLA-A*24:02 | 1 | 690 | 698 | 9 | Q | 1.2e-05 | 43 |
| HLA-B*44:02 | 1 | 690 | 698 | 9 | Q | 1.2e-05 | 52 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-B*40:01 | 1 | 697 | 706 | 10 | MSLGAENSVVA | 1.2e-05 | 41 |
| HLA-B*44:03 | 1 | 697 | 706 | 10 | MSLGAENSVVA | 1.2e-05 | 48 |
| HLA-B*15:01 | 1 | 700 | 709 | 10 | GAENSVAYSNN | 1.2e-05 | 63 |
| HLA-B*53:01 | 1 | 700 | 708 | 9 | GAENSVAYS | 1.2e-05 | 48 |
| HLA-A*24:02 | 1 | 701 | 709 | 9 | AENSVAYSNN | 1.2e-05 | 43 |
| HLA-A*68:02 | 1 | 701 | 709 | 9 | AENSVAYSNN | 1.2e-05 | 63 |
| HLA-B*57:01 | 1 | 701 | 710 | 10 | AENSVAYSNN | 1.2e-05 | 80 |
| HLA-A*02:03 | 1 | 702 | 711 | 10 | ENSVAYSNNNS | 1.2e-05 | 66 |
| HLA-B*44:02 | 1 | 703 | 711 | 9 | NSVAYSNNNS | 1.2e-05 | 52 |
| HLA-A*24:02 | 1 | 705 | 713 | 9 | VAYSNNNSIA | 1.2e-05 | 43 |
| HLA-B*35:01 | 1 | 707 | 716 | 10 | YSNNSIAIPT | 1.2e-05 | 48 |
| HLA-A*02:06 | 1 | 708 | 717 | 10 | SNNSIAIPTN | 1.2e-05 | 72 |
| HLA-A*23:01 | 1 | 708 | 716 | 9 | SNNSIAIPT | 1.2e-05 | 45 |
| HLA-B*35:01 | 1 | 709 | 717 | 9 | NNSIAIPTN | 1.2e-05 | 48 |
| HLA-B*44:03 | 1 | 709 | 717 | 9 | NNSIAIPTN | 1.2e-05 | 48 |
| HLA-A*11:01 | 1 | 717 | 725 | 9 | NFTISVTTE | 1.2e-05 | 45 |
| HLA-B*15:01 | 1 | 717 | 725 | 9 | NFTISVTTE | 1.2e-05 | 63 |
| HLA-A*23:01 | 1 | 720 | 728 | 9 | ISVTTEILP | 1.2e-05 | 45 |
| HLA-A*23:01 | 1 | 726 | 735 | 10 | ILPVSMTKTS | 1.2e-05 | 45 |
| HLA-A*31:01 | 1 | 727 | 735 | 9 | LPVSMTKTS | 1.2e-05 | 65 |
| HLA-B*40:01 | 1 | 733 | 742 | 10 | KTSVDCTMYI | 1.2e-05 | 41 |
| HLA-A*23:01 | 1 | 735 | 743 | 9 | SVDCTMYIC | 1.2e-05 | 45 |
| HLA-B*15:01 | 1 | 735 | 743 | 9 | SVDCTMYIC | 1.2e-05 | 63 |
| HLA-A*23:01 | 1 | 739 | 747 | 9 | TMYICGDST | 1.2e-05 | 45 |
| HLA-A*02:01 | 1 | 740 | 748 | 9 | MYICGDSTE | 1.2e-05 | 63 |
| HLA-A*02:03 | 1 | 740 | 748 | 9 | MYICGDSTE | 1.2e-05 | 66 |
| HLA-A*11:01 | 1 | 740 | 748 | 9 | MYICGDSTE | 1.2e-05 | 45 |
| HLA-B*44:03 | 1 | 740 | 749 | 10 | MYICGDSTEC | 1.2e-05 | 48 |
| HLA-B*15:01 | 1 | 749 | 757 | 9 | CSNLLLQYG | 1.2e-05 | 63 |
| HLA-B*40:01 | 1 | 750 | 758 | 9 | SNLLLQYGS | 1.2e-05 | 41 |
| HLA-A*03:01 | 1 | 751 | 760 | 10 | NLLLQYGSFC | 1.2e-05 | 59 |
| HLA-A*23:01 | 1 | 751 | 760 | 10 | NLLLQYGSFC | 1.2e-05 | 45 |
| HLA-B*44:02 | 1 | 751 | 760 | 10 | NLLLQYGSFC | 1.2e-05 | 52 |
| HLA-A*68:02 | 1 | 752 | 761 | 10 | LLLQYGSFCT | 1.2e-05 | 63 |
| HLA-B*53:01 | 1 | 752 | 760 | 9 | LLLQYGSFC | 1.2e-05 | 48 |
| HLA-A*68:01 | 1 | 753 | 761 | 9 | LLQYGSFCT | 1.2e-05 | 58 |
| HLA-A*02:06 | 1 | 756 | 764 | 9 | YGSFCTQLN | 1.2e-05 | 72 |
| HLA-B*44:02 | 1 | 757 | 766 | 10 | GSFCTQLNRA | 1.2e-05 | 52 |
| HLA-B*40:01 | 1 | 758 | 766 | 9 | SFCTQLNRA | 1.2e-05 | 41 |
| HLA-A*31:01 | 1 | 759 | 768 | 10 | FCTQLNRALT | 1.2e-05 | 65 |
| HLA-A*02:03 | 1 | 760 | 769 | 10 | CTQLNRALTG | 1.2e-05 | 66 |
| HLA-A*23:01 | 1 | 760 | 768 | 9 | CTQLNRALT | 1.2e-05 | 45 |
| HLA-A*32:01 | 1 | 760 | 769 | 10 | CTQLNRALTG | 1.2e-05 | 50 |
| HLA-B*35:01 | 1 | 761 | 770 | 10 | TQLNRALTGI | 1.2e-05 | 48 |
| HLA-B*44:02 | 1 | 764 | 773 | 10 | NRALTGIAVE | 1.2e-05 | 52 |
| HLA-A*24:02 | 1 | 766 | 774 | 9 | ALTGIAVEQ | 1.2e-05 | 43 |
| HLA-A*02:06 | 1 | 767 | 775 | 9 | LTGIAVEQD | 1.2e-05 | 72 |
| HLA-A*68:01 | 1 | 767 | 775 | 9 | LTGIAVEQD | 1.2e-05 | 58 |
| HLA-B*08:01 | 1 | 769 | 778 | 10 | GIAVEQDKNT | 1.2e-05 | 82 |
| HLA-B*15:01 | 1 | 769 | 778 | 10 | GIAVEQDKNT | 1.2e-05 | 63 |
| HLA-A*11:01 | 1 | 774 | 783 | 10 | QDKNTQEVFA | 1.2e-05 | 45 |
| HLA-A*24:02 | 1 | 774 | 783 | 10 | QDKNTQEVFA | 1.2e-05 | 43 |
| HLA-B*44:03 | 1 | 775 | 784 | 10 | DKNTQEVFAQ | 1.2e-05 | 48 |
| HLA-B*35:01 | 1 | 783 | 792 | 10 | AQVKQIYKTP | 1.2e-05 | 48 |
| HLA-B*44:03 | 1 | 784 | 793 | 10 | QVKQIYKTPP | 1.2e-05 | 48 |
| HLA-A*33:01 | 1 | 785 | 793 | 9 | VKQIYKTPP | 1.2e-05 | 70 |
| HLA-A*24:02 | 1 | 789 | 798 | 10 | YKTPPIKDFG | 1.2e-05 | 43 |
| HLA-B*07:02 | 1 | 789 | 798 | 10 | YKTPPIKDFG | 1.2e-05 | 63 |
| HLA-B*15:01 | 1 | 790 | 799 | 10 | KTPPIKDFGG | 1.2e-05 | 63 |
| HLA-A*02:06 | 1 | 791 | 799 | 9 | TPPIKDFGG | 1.2e-05 | 72 |
| HLA-A*02:01 | 1 | 792 | 800 | 9 | PPIKDFGGF | 1.2e-05 | 63 |
| HLA-B*15:01 | 1 | 796 | 805 | 10 | DFGGFNFSQI | 1.2e-05 | 63 |
| HLA-B*40:01 | 1 | 798 | 807 | 10 | GGFNFSQILP | 1.2e-05 | 41 |
| HLA-A*24:02 | 1 | 800 | 809 | 10 | FNFSQILPDP | 1.2e-05 | 43 |
| HLA-A*31:01 | 1 | 800 | 809 | 10 | FNFSQILPDP | 1.2e-05 | 65 |
| HLA-B*51:01 | 1 | 801 | 810 | 10 | NFSQILPDPS | 1.2e-05 | 73 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-B*53:01 | 1 | 807 | 816 | 10 | PDPSKPSKRS | 1.2e-05 | 48 |
| HLA-A*02:06 | 1 | 808 | 816 | 9 | DPSKPSKRS | 1.2e-05 | 72 |
| HLA-A*68:02 | 1 | 810 | 819 | 10 | SKPSKRSFIE | 1.2e-05 | 63 |
| HLA-B*44:03 | 1 | 810 | 819 | 10 | SKPSKRSFIE | 1.2e-05 | 48 |
| HLA-A*02:01 | 1 | 812 | 821 | 10 | PSKRSFIEDL | 1.2e-05 | 63 |
| HLA-A*24:02 | 1 | 820 | 829 | 10 | DLLFNKVTLA | 1.2e-05 | 43 |
| HLA-A*30:02 | 1 | 823 | 832 | 10 | FNKVTLADAG | 1.2e-05 | 86 |
| HLA-B*44:03 | 1 | 824 | 832 | 9 | NKVTLADAG | 1.2e-05 | 48 |
| HLA-B*51:01 | 1 | 824 | 832 | 9 | NKVTLADAG | 1.2e-05 | 73 |
| HLA-A*23:01 | 1 | 828 | 836 | 9 | LADAGFIKQ | 1.2e-05 | 45 |
| HLA-A*68:02 | 1 | 831 | 840 | 10 | AGFIKQYGDC | 1.2e-05 | 63 |
| HLA-B*15:01 | 1 | 832 | 840 | 9 | GFIKQYGDC | 1.2e-05 | 63 |
| HLA-B*53:01 | 1 | 832 | 841 | 10 | GFIKQYGDC | 1.2e-05 | 48 |
| HLA-A*11:01 | 1 | 833 | 841 | 9 | FIKQYGDC | 1.2e-05 | 45 |
| HLA-B*44:02 | 1 | 835 | 843 | 9 | KQYGDCLGD | 1.2e-05 | 52 |
| HLA-B*51:01 | 1 | 835 | 843 | 9 | KQYGDCLGD | 1.2e-05 | 73 |
| HLA-B*53:01 | 1 | 835 | 843 | 9 | KQYGDCLGD | 1.2e-05 | 48 |
| HLA-A*31:01 | 1 | 837 | 846 | 10 | YGDCLGDIAA | 1.2e-05 | 65 |
| HLA-B*53:01 | 1 | 840 | 849 | 10 | CLGDIAARDL | 1.2e-05 | 48 |
| HLA-B*58:01 | 1 | 840 | 848 | 9 | CLGDIAARD | 1.2e-05 | 69 |
| HLA-A*33:01 | 1 | 841 | 850 | 10 | LGDIAARDLI | 1.2e-05 | 70 |
| HLA-A*31:01 | 1 | 843 | 852 | 10 | DIAARDLICA | 1.2e-05 | 65 |
| HLA-A*01:01 | 1 | 848 | 857 | 10 | DLICAQKFNG | 1.2e-05 | 86 |
| HLA-A*03:01 | 1 | 849 | 857 | 9 | LICAQKFNG | 1.2e-05 | 59 |
| HLA-B*44:03 | 1 | 856 | 865 | 10 | NGLTVLPPLL | 1.2e-05 | 48 |
| HLA-A*24:02 | 1 | 857 | 866 | 10 | GLTVLPPLL | 1.2e-05 | 43 |
| HLA-A*26:01 | 1 | 861 | 870 | 10 | LPPLLTDEMI | 1.2e-05 | 57 |
| HLA-B*58:01 | 1 | 866 | 874 | 9 | TDEMIAQYT | 1.2e-05 | 69 |
| HLA-A*03:01 | 1 | 867 | 875 | 9 | DEMIAQYTS | 1.2e-05 | 59 |
| HLA-B*58:01 | 1 | 867 | 875 | 9 | DEMIAQYTS | 1.2e-05 | 69 |
| HLA-B*44:02 | 1 | 873 | 881 | 9 | YTSALLAGT | 1.2e-05 | 52 |
| HLA-A*33:01 | 1 | 876 | 885 | 10 | ALLAGTITSG | 1.2e-05 | 70 |
| HLA-A*24:02 | 1 | 877 | 885 | 9 | LLAGTITSG | 1.2e-05 | 43 |
| HLA-B*44:02 | 1 | 878 | 887 | 10 | LAGTITSGWT | 1.2e-05 | 52 |
| HLA-B*51:01 | 1 | 879 | 887 | 9 | AGTITSGWT | 1.2e-05 | 73 |
| HLA-B*35:01 | 1 | 881 | 889 | 9 | TITSGWTFG | 1.2e-05 | 48 |
| HLA-B*35:01 | 1 | 881 | 890 | 10 | TITSGWTFGA | 1.2e-05 | 48 |
| HLA-B*15:01 | 1 | 882 | 891 | 10 | ITSGWTFGAG | 1.2e-05 | 63 |
| HLA-A*32:01 | 1 | 889 | 897 | 9 | GAGAALQIP | 1.2e-05 | 50 |
| HLA-B*40:01 | 1 | 892 | 901 | 10 | AALQIPFAMQ | 1.2e-05 | 41 |
| HLA-A*68:02 | 1 | 897 | 906 | 10 | PFAMQMAYRF | 1.2e-05 | 63 |
| HLA-A*68:02 | 1 | 901 | 910 | 10 | QMAYRFNGIG | 1.2e-05 | 63 |
| HLA-A*26:01 | 1 | 905 | 914 | 10 | RFNGIGVTQN | 1.2e-05 | 57 |
| HLA-A*03:01 | 1 | 906 | 915 | 10 | FNGIGVTQNV | 1.2e-05 | 59 |
| HLA-A*11:01 | 1 | 907 | 916 | 10 | NGIGVTQNVL | 1.2e-05 | 45 |
| HLA-A*23:01 | 1 | 910 | 918 | 9 | GVTQNVLYE | 1.2e-05 | 45 |
| HLA-B*44:03 | 1 | 911 | 920 | 10 | VTQNVLYENQ | 1.2e-05 | 48 |
| HLA-A*68:01 | 1 | 916 | 924 | 9 | LYENQKLI | 1.2e-05 | 58 |
| HLA-A*02:03 | 1 | 919 | 928 | 10 | NQKLIANQFN | 1.2e-05 | 66 |
| HLA-A*31:01 | 1 | 919 | 928 | 10 | NQKLIANQFN | 1.2e-05 | 65 |
| HLA-A*68:01 | 1 | 919 | 928 | 10 | NQKLIANQFN | 1.2e-05 | 58 |
| HLA-A*32:01 | 1 | 920 | 929 | 10 | QKLIANQFNS | 1.2e-05 | 50 |
| HLA-B*08:01 | 1 | 920 | 929 | 10 | QKLIANQFNS | 1.2e-05 | 82 |
| HLA-B*44:02 | 1 | 920 | 928 | 9 | QKLIANQFN | 1.2e-05 | 52 |
| HLA-B*44:03 | 1 | 920 | 928 | 9 | QKLIANQFN | 1.2e-05 | 48 |
| HLA-B*35:01 | 1 | 924 | 933 | 10 | ANQFNSAIGK | 1.2e-05 | 48 |
| HLA-B*51:01 | 1 | 924 | 932 | 9 | ANQFNSAIG | 1.2e-05 | 73 |
| HLA-B*07:02 | 1 | 926 | 935 | 10 | QFNSAIGKIQ | 1.2e-05 | 63 |
| HLA-A*11:01 | 1 | 930 | 939 | 10 | AIGKIQDLSL | 1.2e-05 | 45 |
| HLA-A*03:01 | 1 | 931 | 940 | 10 | IGKIQDLSLSS | 1.2e-05 | 59 |
| HLA-A*11:01 | 1 | 932 | 941 | 10 | GKIQDLSLSS | 1.2e-05 | 45 |
| HLA-B*53:01 | 1 | 932 | 940 | 9 | GKIQDLSLSS | 1.2e-05 | 48 |
| HLA-A*02:06 | 1 | 935 | 943 | 9 | QDLSLSTAS | 1.2e-05 | 72 |
| HLA-A*03:01 | 1 | 935 | 943 | 9 | QDLSLSTAS | 1.2e-05 | 59 |
| HLA-A*02:01 | 1 | 938 | 946 | 9 | LSSTASALG | 1.2e-05 | 63 |
| HLA-A*23:01 | 1 | 939 | 947 | 9 | SSTASALGK | 1.2e-05 | 45 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*02:01 | 1 | 942 | 950 | 9 | ASALGKLQD | 1.2e-05 | 63 |
| HLA-A*26:01 | 1 | 946 | 955 | 10 | GKLQDVVNQN | 1.2e-05 | 57 |
| HLA-A*31:01 | 1 | 946 | 955 | 10 | GKLQDVVNQN | 1.2e-05 | 65 |
| HLA-B*40:01 | 1 | 947 | 955 | 9 | KLQDVVNQN | 1.2e-05 | 41 |
| HLA-A*02:03 | 1 | 948 | 957 | 10 | LQDVVNQNAQ | 1.2e-05 | 66 |
| HLA-B*53:01 | 1 | 948 | 957 | 10 | LQDVVNQNAQ | 1.2e-05 | 48 |
| HLA-B*44:03 | 1 | 952 | 961 | 10 | VNNAQALNT | 1.2e-05 | 48 |
| HLA-A*02:03 | 1 | 959 | 967 | 9 | NLTLVKQLS | 1.2e-05 | 66 |
| HLA-A*23:01 | 1 | 960 | 968 | 9 | NTLVKQLSS | 1.2e-05 | 45 |
| HLA-A*24:02 | 1 | 960 | 968 | 9 | NTLVKQLSS | 1.2e-05 | 43 |
| HLA-A*11:01 | 1 | 961 | 969 | 9 | TLVKQLSSN | 1.2e-05 | 45 |
| HLA-A*68:01 | 1 | 962 | 971 | 10 | LVKQLSSNFG | 1.2e-05 | 58 |
| HLA-B*53:01 | 1 | 963 | 972 | 10 | VKQLSSNFGA | 1.2e-05 | 48 |
| HLA-A*31:01 | 1 | 965 | 974 | 10 | QLSSNFGAIS | 1.2e-05 | 65 |
| HLA-A*01:01 | 1 | 970 | 979 | 10 | FGAISSVLND | 1.2e-05 | 86 |
| HLA-A*32:01 | 1 | 971 | 979 | 9 | GAISSVLND | 1.2e-05 | 50 |
| HLA-B*08:01 | 1 | 971 | 979 | 9 | GAISSVLND | 1.2e-05 | 82 |
| HLA-B*35:01 | 1 | 980 | 989 | 10 | ILSRLDKVEA | 1.2e-05 | 48 |
| HLA-B*40:01 | 1 | 980 | 989 | 10 | ILSRLDKVEA | 1.2e-05 | 41 |
| HLA-A*03:01 | 1 | 984 | 993 | 10 | LDKVEAEVQI | 1.2e-05 | 59 |
| HLA-A*33:01 | 1 | 989 | 998 | 10 | AEVQIDRLIT | 1.2e-05 | 70 |
| HLA-A*23:01 | 1 | 990 | 999 | 10 | EVQIDRLITG | 1.2e-05 | 45 |
| HLA-A*26:01 | 1 | 1000 | 1009 | 10 | RLQSLQTYVT | 1.2e-05 | 57 |
| HLA-A*68:02 | 1 | 1001 | 1010 | 10 | LQSLQTYVTQ | 1.2e-05 | 63 |
| HLA-B*44:02 | 1 | 1001 | 1010 | 10 | LQSLQTYVTQ | 1.2e-05 | 52 |
| HLA-B*44:03 | 1 | 1001 | 1010 | 10 | LQSLQTYVTQ | 1.2e-05 | 48 |
| HLA-B*44:02 | 1 | 1007 | 1016 | 10 | YVTQQLIRAA | 1.2e-05 | 52 |
| HLA-B*35:01 | 1 | 1010 | 1019 | 10 | QQLIRAAEIR | 1.2e-05 | 48 |
| HLA-B*51:01 | 1 | 1012 | 1021 | 10 | LIRAAEIRAS | 1.2e-05 | 73 |
| HLA-A*11:01 | 1 | 1022 | 1030 | 9 | ANLAATKMS | 1.2e-05 | 45 |
| HLA-A*26:01 | 1 | 1022 | 1031 | 10 | ANLAATKMS | 1.2e-05 | 57 |
| HLA-B*15:01 | 1 | 1022 | 1030 | 9 | ANLAATKMS | 1.2e-05 | 63 |
| HLA-B*51:01 | 1 | 1022 | 1030 | 9 | ANLAATKMS | 1.2e-05 | 73 |
| HLA-A*03:01 | 1 | 1024 | 1033 | 10 | LAATKMSECV | 1.2e-05 | 59 |
| HLA-B*44:03 | 1 | 1024 | 1032 | 9 | LAATKMSEC | 1.2e-05 | 48 |
| HLA-A*33:01 | 1 | 1026 | 1035 | 10 | ATKMSECVLG | 1.2e-05 | 70 |
| HLA-B*44:03 | 1 | 1026 | 1035 | 10 | ATKMSECVLG | 1.2e-05 | 48 |
| HLA-B*35:01 | 1 | 1027 | 1035 | 9 | TKMSECVLG | 1.2e-05 | 48 |
| HLA-A*23:01 | 1 | 1028 | 1036 | 9 | KMSECVLGQ | 1.2e-05 | 45 |
| HLA-B*40:01 | 1 | 1028 | 1036 | 9 | KMSECVLGQ | 1.2e-05 | 41 |
| HLA-A*11:01 | 1 | 1033 | 1042 | 10 | VLGQSKRVDF | 1.2e-05 | 45 |
| HLA-B*07:02 | 1 | 1036 | 1044 | 9 | QSKRVDFCG | 1.2e-05 | 63 |
| HLA-B*08:01 | 1 | 1037 | 1046 | 10 | SKRVDFCGKG | 1.2e-05 | 82 |
| HLA-A*31:01 | 1 | 1038 | 1046 | 9 | KRVDFCGKG | 1.2e-05 | 65 |
| HLA-B*51:01 | 1 | 1039 | 1048 | 10 | RVDFCGKGYH | 1.2e-05 | 73 |
| HLA-B*08:01 | 1 | 1045 | 1054 | 10 | KGYHLMSFPQ | 1.2e-05 | 82 |
| HLA-A*02:03 | 1 | 1046 | 1055 | 10 | GYHLMSFPQS | 1.2e-05 | 66 |
| HLA-A*32:01 | 1 | 1046 | 1054 | 9 | GYHLMSFPQ | 1.2e-05 | 50 |
| HLA-A*68:02 | 1 | 1046 | 1054 | 9 | GYHLMSFPQ | 1.2e-05 | 63 |
| HLA-A*68:02 | 1 | 1046 | 1055 | 10 | GYHLMSFPQS | 1.2e-05 | 63 |
| HLA-B*57:01 | 1 | 1046 | 1055 | 10 | GYHLMSFPQS | 1.2e-05 | 80 |
| HLA-B*44:02 | 1 | 1061 | 1069 | 9 | VFLHVTYVP | 1.2e-05 | 52 |
| HLA-A*32:01 | 1 | 1062 | 1071 | 10 | FLHVTYVPAQ | 1.2e-05 | 50 |
| HLA-B*58:01 | 1 | 1062 | 1071 | 10 | FLHVTYVPAQ | 1.2e-05 | 69 |
| HLA-B*07:02 | 1 | 1063 | 1072 | 10 | LHVTYVPAQE | 1.2e-05 | 63 |
| HLA-A*11:01 | 1 | 1068 | 1077 | 10 | VPAQEKNFTT | 1.2e-05 | 45 |
| HLA-A*24:02 | 1 | 1069 | 1078 | 10 | PAQEKNFTTA | 1.2e-05 | 43 |
| HLA-B*44:03 | 1 | 1069 | 1078 | 10 | PAQEKNFTTA | 1.2e-05 | 48 |
| HLA-A*31:01 | 1 | 1072 | 1081 | 10 | EKNFTTAPAI | 1.2e-05 | 65 |
| HLA-B*35:01 | 1 | 1077 | 1085 | 9 | TAPAICHDG | 1.2e-05 | 48 |
| HLA-A*33:01 | 1 | 1081 | 1090 | 10 | ICHDGKAHFP | 1.2e-05 | 70 |
| HLA-B*40:01 | 1 | 1081 | 1090 | 10 | ICHDGKAHFP | 1.2e-05 | 41 |
| HLA-B*51:01 | 1 | 1082 | 1091 | 10 | CHDGKAHFPR | 1.2e-05 | 73 |
| HLA-B*44:02 | 1 | 1083 | 1092 | 10 | HDGKAHFPRE | 1.2e-05 | 52 |
| HLA-A*11:01 | 1 | 1084 | 1092 | 9 | DGKAHFPRE | 1.2e-05 | 45 |
| HLA-A*23:01 | 1 | 1084 | 1092 | 9 | DGKAHFPRE | 1.2e-05 | 45 |

| | | | | | | | |
|-------------|---|------|------|----|------------|---------|----|
| HLA-A*11:01 | 1 | 1088 | 1097 | 10 | HFPREGVFSV | 1.2e-05 | 45 |
| HLA-B*15:01 | 1 | 1091 | 1099 | 9 | REGVFVSNG | 1.2e-05 | 63 |
| HLA-B*15:01 | 1 | 1091 | 1100 | 10 | REGVFVSNGT | 1.2e-05 | 63 |
| HLA-B*07:02 | 1 | 1097 | 1105 | 9 | SNGTHWFVT | 1.2e-05 | 63 |
| HLA-B*15:01 | 1 | 1097 | 1106 | 10 | SNGTHWFVTQ | 1.2e-05 | 63 |
| HLA-B*44:02 | 1 | 1098 | 1107 | 10 | NGTHWFVTQR | 1.2e-05 | 52 |
| HLA-A*03:01 | 1 | 1103 | 1112 | 10 | FVTQRNFYEP | 1.2e-05 | 59 |
| HLA-A*23:01 | 1 | 1103 | 1112 | 10 | FVTQRNFYEP | 1.2e-05 | 45 |
| HLA-A*24:02 | 1 | 1103 | 1111 | 9 | FVTQRNFYE | 1.2e-05 | 43 |
| HLA-B*15:01 | 1 | 1103 | 1112 | 10 | FVTQRNFYEP | 1.2e-05 | 63 |
| HLA-A*26:01 | 1 | 1111 | 1119 | 9 | EPQIITTDN | 1.2e-05 | 57 |
| HLA-B*44:02 | 1 | 1111 | 1120 | 10 | EPQIITTDNT | 1.2e-05 | 52 |
| HLA-A*31:01 | 1 | 1114 | 1123 | 10 | IITTDNTFVS | 1.2e-05 | 65 |
| HLA-A*31:01 | 1 | 1116 | 1125 | 10 | TTDNTFVSGN | 1.2e-05 | 65 |
| HLA-B*57:01 | 1 | 1118 | 1127 | 10 | DNTFVSGNCD | 1.2e-05 | 80 |
| HLA-A*31:01 | 1 | 1121 | 1130 | 10 | FVSGNCDVVI | 1.2e-05 | 65 |
| HLA-B*44:03 | 1 | 1122 | 1130 | 9 | VSGNCDVVI | 1.2e-05 | 48 |
| HLA-B*15:01 | 1 | 1124 | 1133 | 10 | GNCDDVIGIV | 1.2e-05 | 63 |
| HLA-B*40:01 | 1 | 1124 | 1133 | 10 | GNCDDVIGIV | 1.2e-05 | 41 |
| HLA-B*44:02 | 1 | 1124 | 1133 | 10 | GNCDDVIGIV | 1.2e-05 | 52 |
| HLA-A*01:01 | 1 | 1126 | 1134 | 9 | CDVIGIVN | 1.2e-05 | 86 |
| HLA-A*68:02 | 1 | 1130 | 1139 | 10 | IGIVNNTVYD | 1.2e-05 | 63 |
| HLA-A*11:01 | 1 | 1131 | 1140 | 10 | GIVNNTVYDP | 1.2e-05 | 45 |
| HLA-B*44:02 | 1 | 1132 | 1140 | 9 | IVNNTVYDP | 1.2e-05 | 52 |
| HLA-B*57:01 | 1 | 1134 | 1142 | 9 | NNTVYDPLQ | 1.2e-05 | 80 |
| HLA-A*24:02 | 1 | 1135 | 1143 | 9 | NTVYDPLQP | 1.2e-05 | 43 |
| HLA-A*11:01 | 1 | 1137 | 1146 | 10 | VYDPLQPELD | 1.2e-05 | 45 |
| HLA-A*24:02 | 1 | 1138 | 1146 | 9 | YDPLQPELD | 1.2e-05 | 43 |
| HLA-A*30:02 | 1 | 1138 | 1147 | 10 | YDPLQPELDS | 1.2e-05 | 86 |
| HLA-B*40:01 | 1 | 1138 | 1146 | 9 | YDPLQPELD | 1.2e-05 | 41 |
| HLA-B*57:01 | 1 | 1138 | 1147 | 10 | YDPLQPELDS | 1.2e-05 | 80 |
| HLA-A*01:01 | 1 | 1139 | 1147 | 9 | DPLQPELDS | 1.2e-05 | 86 |
| HLA-B*44:03 | 1 | 1141 | 1150 | 10 | LQPELDSFKE | 1.2e-05 | 48 |
| HLA-A*02:03 | 1 | 1143 | 1151 | 9 | PELDSFKEE | 1.2e-05 | 66 |
| HLA-B*44:03 | 1 | 1144 | 1153 | 10 | ELDSFKEELD | 1.2e-05 | 48 |
| HLA-A*31:01 | 1 | 1149 | 1158 | 10 | KEELDKYFKN | 1.2e-05 | 65 |
| HLA-A*24:02 | 1 | 1150 | 1159 | 10 | EELDKYFKNH | 1.2e-05 | 43 |
| HLA-A*68:02 | 1 | 1150 | 1158 | 9 | EELDKYFKN | 1.2e-05 | 63 |
| HLA-B*07:02 | 1 | 1152 | 1161 | 10 | LDKYFKNHTS | 1.2e-05 | 63 |
| HLA-B*58:01 | 1 | 1152 | 1161 | 10 | LDKYFKNHTS | 1.2e-05 | 69 |
| HLA-A*68:02 | 1 | 1155 | 1163 | 9 | YFKNHTSPD | 1.2e-05 | 63 |
| HLA-B*35:01 | 1 | 1155 | 1163 | 9 | YFKNHTSPD | 1.2e-05 | 48 |
| HLA-A*03:01 | 1 | 1156 | 1164 | 9 | FKNHTSPDV | 1.2e-05 | 59 |
| HLA-A*32:01 | 1 | 1156 | 1164 | 9 | FKNHTSPDV | 1.2e-05 | 50 |
| HLA-A*11:01 | 1 | 1158 | 1166 | 9 | NHTSPDVL | 1.2e-05 | 45 |
| HLA-A*24:02 | 1 | 1158 | 1167 | 10 | NHTSPDVLG | 1.2e-05 | 43 |
| HLA-A*24:02 | 1 | 1159 | 1167 | 9 | HTSPDVLG | 1.2e-05 | 43 |
| HLA-B*44:03 | 1 | 1160 | 1169 | 10 | TSPDVLGDI | 1.2e-05 | 48 |
| HLA-B*44:03 | 1 | 1161 | 1170 | 10 | SPDVLGDIS | 1.2e-05 | 48 |
| HLA-B*51:01 | 1 | 1162 | 1170 | 9 | PDVLDGDIS | 1.2e-05 | 73 |
| HLA-A*02:03 | 1 | 1163 | 1171 | 9 | DVDLGDISG | 1.2e-05 | 66 |
| HLA-A*31:01 | 1 | 1163 | 1171 | 9 | DVDLGDISG | 1.2e-05 | 65 |
| HLA-B*15:01 | 1 | 1163 | 1171 | 9 | DVDLGDISG | 1.2e-05 | 63 |
| HLA-B*15:01 | 1 | 1165 | 1173 | 9 | DLGDISGIN | 1.2e-05 | 63 |
| HLA-A*02:06 | 1 | 1169 | 1178 | 10 | ISGINASVVN | 1.2e-05 | 72 |
| HLA-B*08:01 | 1 | 1171 | 1180 | 10 | GINASVVNIQ | 1.2e-05 | 82 |
| HLA-B*07:02 | 1 | 1172 | 1180 | 9 | INASVVNIQ | 1.2e-05 | 63 |
| HLA-B*40:01 | 1 | 1172 | 1180 | 9 | INASVVNIQ | 1.2e-05 | 41 |
| HLA-B*44:02 | 1 | 1175 | 1184 | 10 | SVVNIQKEID | 1.2e-05 | 52 |
| HLA-A*23:01 | 1 | 1177 | 1185 | 9 | VNIQKEIDR | 1.2e-05 | 45 |
| HLA-B*53:01 | 1 | 1183 | 1191 | 9 | IDRLNEVAK | 1.2e-05 | 48 |
| HLA-A*23:01 | 1 | 1187 | 1195 | 9 | NEVAKNLNE | 1.2e-05 | 45 |
| HLA-A*31:01 | 1 | 1193 | 1202 | 10 | LNESLIDLQE | 1.2e-05 | 65 |
| HLA-A*24:02 | 1 | 1194 | 1202 | 9 | NESLIDLQE | 1.2e-05 | 43 |
| HLA-A*31:01 | 1 | 1194 | 1202 | 9 | NESLIDLQE | 1.2e-05 | 65 |
| HLA-B*58:01 | 1 | 1199 | 1208 | 10 | DLQELGKYEQ | 1.2e-05 | 69 |

| | | | | | | |
|-------------|---|------|------|----|---------------------|----|
| HLA-A*31:01 | 1 | 1204 | 1213 | 10 | GKYEQYIKWP 1.2e-05 | 65 |
| HLA-A*33:01 | 1 | 1204 | 1213 | 10 | GKYEQYIKWP 1.2e-05 | 70 |
| HLA-A*02:03 | 1 | 1205 | 1213 | 9 | KYEQYIKWP 1.2e-05 | 66 |
| HLA-A*31:01 | 1 | 1212 | 1221 | 10 | WPWYIWLGFIA 1.2e-05 | 65 |
| HLA-A*01:01 | 1 | 1213 | 1222 | 10 | PWYIWLGFIA 1.2e-05 | 86 |
| HLA-A*03:01 | 1 | 1213 | 1221 | 9 | PWYIWLGFIA 1.2e-05 | 59 |
| HLA-B*08:01 | 1 | 1213 | 1222 | 10 | PWYIWLGFIA 1.2e-05 | 82 |
| HLA-B*51:01 | 1 | 1213 | 1222 | 10 | PWYIWLGFIA 1.2e-05 | 73 |
| HLA-A*30:02 | 1 | 1214 | 1223 | 10 | WYIWLGFIA 1.2e-05 | 86 |
| HLA-A*31:01 | 1 | 1214 | 1223 | 10 | WYIWLGFIA 1.2e-05 | 65 |
| HLA-B*15:01 | 1 | 1214 | 1222 | 9 | WYIWLGFIA 1.2e-05 | 63 |
| HLA-B*53:01 | 1 | 1214 | 1222 | 9 | WYIWLGFIA 1.2e-05 | 48 |
| HLA-B*07:02 | 1 | 1216 | 1225 | 10 | IWLGFIA 1.2e-05 | 63 |
| HLA-A*23:01 | 1 | 1218 | 1226 | 9 | LGFIAGLIA 1.2e-05 | 45 |
| HLA-B*35:01 | 1 | 1221 | 1230 | 10 | IAGLIAIVMV 1.2e-05 | 48 |
| HLA-A*32:01 | 1 | 1222 | 1231 | 10 | AGLIAIVMVT 1.2e-05 | 50 |
| HLA-A*11:01 | 1 | 1223 | 1232 | 10 | GLIAIVMVTI 1.2e-05 | 45 |
| HLA-B*35:01 | 1 | 1223 | 1231 | 9 | GLIAIVMVT 1.2e-05 | 48 |
| HLA-B*44:02 | 1 | 1223 | 1231 | 9 | GLIAIVMVT 1.2e-05 | 52 |
| HLA-A*11:01 | 1 | 1224 | 1233 | 10 | LIAIVMVTIM 1.2e-05 | 45 |
| HLA-B*07:02 | 1 | 1226 | 1235 | 10 | AIVMVTIMLC 1.2e-05 | 63 |
| HLA-B*07:02 | 1 | 1228 | 1237 | 10 | VMVTIMLC 1.2e-05 | 63 |
| HLA-A*33:01 | 1 | 1229 | 1238 | 10 | MVTIMLC 1.2e-05 | 70 |
| HLA-B*08:01 | 1 | 1229 | 1238 | 10 | MVTIMLC 1.2e-05 | 82 |
| HLA-A*26:01 | 1 | 1230 | 1238 | 9 | VTIMLC 1.2e-05 | 57 |
| HLA-A*01:01 | 1 | 1232 | 1240 | 9 | IMLC 1.2e-05 | 86 |
| HLA-A*01:01 | 1 | 1233 | 1242 | 10 | MLC 1.2e-05 | 86 |
| HLA-B*58:01 | 1 | 1233 | 1241 | 9 | MLC 1.2e-05 | 69 |
| HLA-A*30:01 | 1 | 1234 | 1242 | 9 | LCC 1.2e-05 | 87 |
| HLA-B*07:02 | 1 | 1235 | 1244 | 10 | CC 1.2e-05 | 63 |
| HLA-A*33:01 | 1 | 1239 | 1247 | 9 | SC 1.2e-05 | 70 |
| HLA-A*33:01 | 1 | 1242 | 1250 | 9 | SCL 1.2e-05 | 70 |
| HLA-B*44:02 | 1 | 1247 | 1256 | 10 | CC 1.2e-05 | 52 |
| HLA-A*01:01 | 1 | 1251 | 1259 | 9 | G 1.2e-05 | 86 |
| HLA-B*58:01 | 1 | 1252 | 1260 | 9 | SC 1.2e-05 | 69 |
| HLA-A*01:01 | 1 | 1254 | 1262 | 9 | CK 1.2e-05 | 86 |
| HLA-B*08:01 | 1 | 1254 | 1262 | 9 | CK 1.2e-05 | 82 |
| HLA-A*31:01 | 1 | 1256 | 1264 | 9 | F 1.2e-05 | 65 |
| HLA-B*08:01 | 1 | 1258 | 1267 | 10 | ED 1.2e-05 | 82 |
| HLA-B*58:01 | 1 | 1258 | 1267 | 10 | ED 1.2e-05 | 69 |
| HLA-A*11:01 | 1 | 1259 | 1267 | 9 | DD 1.2e-05 | 45 |
| HLA-B*15:01 | 1 | 1259 | 1267 | 9 | DD 1.2e-05 | 63 |
| HLA-A*02:01 | 1 | 1261 | 1269 | 9 | SEP 1.2e-05 | 63 |
| HLA-A*24:02 | 1 | 1261 | 1269 | 9 | SEP 1.2e-05 | 43 |
| HLA-B*53:01 | 1 | 1261 | 1269 | 9 | SEP 1.2e-05 | 48 |
| HLA-B*40:01 | 1 | 1263 | 1271 | 9 | P 1.2e-05 | 41 |
| HLA-B*07:02 | 1 | 1 | 9 | 9 | MF 1.1e-05 | 64 |
| HLA-B*40:01 | 1 | 1 | 9 | 9 | MF 1.1e-05 | 42 |
| HLA-A*11:01 | 1 | 4 | 12 | 9 | FL 1.1e-05 | 46 |
| HLA-B*44:02 | 1 | 5 | 13 | 9 | LV 1.1e-05 | 53 |
| HLA-B*44:03 | 1 | 5 | 13 | 9 | LV 1.1e-05 | 49 |
| HLA-B*44:02 | 1 | 6 | 15 | 10 | V 1.1e-05 | 53 |
| HLA-A*01:01 | 1 | 8 | 17 | 10 | L 1.1e-05 | 87 |
| HLA-A*33:01 | 1 | 11 | 20 | 10 | V 1.1e-05 | 72 |
| HLA-B*40:01 | 1 | 11 | 19 | 9 | V 1.1e-05 | 42 |
| HLA-A*23:01 | 1 | 12 | 20 | 9 | SS 1.1e-05 | 46 |
| HLA-B*40:01 | 1 | 14 | 22 | 9 | QC 1.1e-05 | 42 |
| HLA-B*44:03 | 1 | 15 | 24 | 10 | C 1.1e-05 | 49 |
| HLA-B*44:02 | 1 | 16 | 25 | 10 | V 1.1e-05 | 53 |
| HLA-B*40:01 | 1 | 17 | 25 | 9 | N 1.1e-05 | 42 |
| HLA-B*35:01 | 1 | 21 | 30 | 10 | RT 1.1e-05 | 50 |
| HLA-A*02:01 | 1 | 24 | 33 | 10 | L 1.1e-05 | 64 |
| HLA-B*44:02 | 1 | 25 | 34 | 10 | P 1.1e-05 | 53 |
| HLA-A*32:01 | 1 | 27 | 35 | 9 | A 1.1e-05 | 51 |
| HLA-A*68:01 | 1 | 31 | 40 | 10 | S 1.1e-05 | 59 |
| HLA-A*31:01 | 1 | 33 | 42 | 10 | TR 1.1e-05 | 67 |

| | | | | | | |
|-------------|---|-----|-----|----|--------------------|----|
| HLA-B*35:01 | 1 | 36 | 45 | 10 | VYYPDKVFRS 1.1e-05 | 50 |
| HLA-B*53:01 | 1 | 42 | 51 | 10 | VFRSSVLHST 1.1e-05 | 49 |
| HLA-A*24:02 | 1 | 43 | 52 | 10 | FRSSVLHSTQ 1.1e-05 | 44 |
| HLA-B*40:01 | 1 | 43 | 52 | 10 | FRSSVLHSTQ 1.1e-05 | 42 |
| HLA-A*32:01 | 1 | 44 | 53 | 10 | RSSVLHSTQD 1.1e-05 | 51 |
| HLA-A*03:01 | 1 | 45 | 53 | 9 | SSVLHSTQD 1.1e-05 | 60 |
| HLA-B*44:02 | 1 | 48 | 57 | 10 | LHSTQDLFLP 1.1e-05 | 53 |
| HLA-A*02:01 | 1 | 52 | 60 | 9 | QDLFLPFFS 1.1e-05 | 64 |
| HLA-B*44:02 | 1 | 53 | 61 | 9 | DLFLPFFSN 1.1e-05 | 53 |
| HLA-B*44:02 | 1 | 61 | 70 | 10 | NVTWFHAIHV 1.1e-05 | 53 |
| HLA-B*35:01 | 1 | 62 | 71 | 10 | VTWFHAIHVS 1.1e-05 | 50 |
| HLA-B*44:02 | 1 | 64 | 72 | 9 | WFHAIHVSG 1.1e-05 | 53 |
| HLA-B*35:01 | 1 | 65 | 74 | 10 | FHAIHVSGTN 1.1e-05 | 50 |
| HLA-B*44:03 | 1 | 66 | 74 | 9 | HAIHVSGTN 1.1e-05 | 49 |
| HLA-B*44:03 | 1 | 67 | 75 | 9 | AIHVSGTNG 1.1e-05 | 49 |
| HLA-B*44:02 | 1 | 71 | 80 | 10 | SGTNGTKRFD 1.1e-05 | 53 |
| HLA-A*24:02 | 1 | 74 | 83 | 10 | NGTKRFDNPV 1.1e-05 | 44 |
| HLA-B*15:01 | 1 | 74 | 83 | 10 | NGTKRFDNPV 1.1e-05 | 64 |
| HLA-A*32:01 | 1 | 79 | 87 | 9 | FDNPVLPFN 1.1e-05 | 51 |
| HLA-B*44:02 | 1 | 81 | 89 | 9 | NPVLPFNDG 1.1e-05 | 53 |
| HLA-B*40:01 | 1 | 82 | 90 | 9 | PVLPFNDGV 1.1e-05 | 42 |
| HLA-B*08:01 | 1 | 85 | 94 | 10 | PFNDGVYFAS 1.1e-05 | 83 |
| HLA-B*57:01 | 1 | 85 | 94 | 10 | PFNDGVYFAS 1.1e-05 | 81 |
| HLA-B*40:01 | 1 | 87 | 95 | 9 | NDGVYFAST 1.1e-05 | 42 |
| HLA-B*57:01 | 1 | 87 | 96 | 10 | NDGVYFASTE 1.1e-05 | 81 |
| HLA-A*68:01 | 1 | 90 | 99 | 10 | VYFASTEKSN 1.1e-05 | 59 |
| HLA-A*02:06 | 1 | 91 | 99 | 9 | YFASTEKSN 1.1e-05 | 73 |
| HLA-A*23:01 | 1 | 96 | 105 | 10 | EKSNIIRGWI 1.1e-05 | 46 |
| HLA-A*03:01 | 1 | 98 | 107 | 10 | SNIIRGWIFG 1.1e-05 | 60 |
| HLA-A*68:01 | 1 | 98 | 107 | 10 | SNIIRGWIFG 1.1e-05 | 59 |
| HLA-A*01:01 | 1 | 102 | 111 | 10 | RGWIFGTTLD 1.1e-05 | 87 |
| HLA-A*02:06 | 1 | 103 | 111 | 9 | GWIFGTTLD 1.1e-05 | 73 |
| HLA-A*26:01 | 1 | 103 | 112 | 10 | GWIFGTTLDS 1.1e-05 | 59 |
| HLA-B*57:01 | 1 | 103 | 111 | 9 | GWIFGTTLD 1.1e-05 | 81 |
| HLA-B*15:01 | 1 | 106 | 114 | 9 | FGTTLDSKT 1.1e-05 | 64 |
| HLA-A*23:01 | 1 | 108 | 116 | 9 | TTLDSKTQS 1.1e-05 | 46 |
| HLA-B*40:01 | 1 | 111 | 120 | 10 | DSKTQSLLIV 1.1e-05 | 42 |
| HLA-A*31:01 | 1 | 112 | 121 | 10 | SKTQSLLIVN 1.1e-05 | 67 |
| HLA-B*08:01 | 1 | 112 | 121 | 10 | SKTQSLLIVN 1.1e-05 | 83 |
| HLA-A*02:01 | 1 | 113 | 122 | 10 | KTQSLLIVNN 1.1e-05 | 64 |
| HLA-A*33:01 | 1 | 113 | 122 | 10 | KTQSLLIVNN 1.1e-05 | 72 |
| HLA-B*35:01 | 1 | 114 | 123 | 10 | TQSLLIVNNA 1.1e-05 | 50 |
| HLA-B*53:01 | 1 | 114 | 123 | 10 | TQSLLIVNNA 1.1e-05 | 49 |
| HLA-A*24:02 | 1 | 116 | 124 | 9 | LLIVNNAT 1.1e-05 | 44 |
| HLA-B*08:01 | 1 | 116 | 125 | 10 | LLIVNNATN 1.1e-05 | 83 |
| HLA-A*23:01 | 1 | 117 | 126 | 10 | LLIVNNATNV 1.1e-05 | 46 |
| HLA-A*68:02 | 1 | 117 | 125 | 9 | LLIVNNATN 1.1e-05 | 65 |
| HLA-B*40:01 | 1 | 118 | 127 | 10 | LIVNNATNVV 1.1e-05 | 42 |
| HLA-B*44:02 | 1 | 120 | 129 | 10 | VNNATNVVIV 1.1e-05 | 53 |
| HLA-B*15:01 | 1 | 121 | 130 | 10 | NNATNVVIVK 1.1e-05 | 64 |
| HLA-A*23:01 | 1 | 125 | 134 | 10 | NVVIVKVEFQ 1.1e-05 | 46 |
| HLA-B*57:01 | 1 | 130 | 139 | 10 | VCEFQFCNDP 1.1e-05 | 81 |
| HLA-B*58:01 | 1 | 130 | 138 | 9 | VCEFQFCND 1.1e-05 | 71 |
| HLA-A*30:02 | 1 | 131 | 139 | 9 | CEFQFCNDP 1.1e-05 | 87 |
| HLA-A*31:01 | 1 | 131 | 140 | 10 | CEFQFCNDPF 1.1e-05 | 67 |
| HLA-A*11:01 | 1 | 134 | 142 | 9 | QFCNDPFLG 1.1e-05 | 46 |
| HLA-A*02:03 | 1 | 136 | 145 | 10 | CNDPFLGVYY 1.1e-05 | 67 |
| HLA-A*02:03 | 1 | 138 | 147 | 10 | DPFLGVYYHK 1.1e-05 | 67 |
| HLA-A*02:06 | 1 | 140 | 149 | 10 | FLGVYYHKNN 1.1e-05 | 73 |
| HLA-A*23:01 | 1 | 140 | 148 | 9 | FLGVYYHKNN 1.1e-05 | 46 |
| HLA-B*57:01 | 1 | 140 | 149 | 10 | FLGVYYHKNN 1.1e-05 | 81 |
| HLA-B*51:01 | 1 | 141 | 149 | 9 | LGVYYHKNN 1.1e-05 | 75 |
| HLA-B*15:01 | 1 | 145 | 154 | 10 | YHKNNKSWME 1.1e-05 | 64 |
| HLA-A*11:01 | 1 | 146 | 154 | 9 | HKNNKSWME 1.1e-05 | 46 |
| HLA-A*24:02 | 1 | 146 | 154 | 9 | HKNNKSWME 1.1e-05 | 44 |
| HLA-B*40:01 | 1 | 147 | 155 | 9 | KNNKSWMES 1.1e-05 | 42 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-B*51:01 | 1 | 147 | 155 | 9 | KNNKSWMES | 1.1e-05 | 75 |
| HLA-A*01:01 | 1 | 156 | 164 | 9 | EFRVYSSAN | 1.1e-05 | 87 |
| HLA-A*68:01 | 1 | 156 | 165 | 10 | EFRVYSSANN | 1.1e-05 | 59 |
| HLA-A*23:01 | 1 | 157 | 165 | 9 | FRVYSSANN | 1.1e-05 | 46 |
| HLA-B*53:01 | 1 | 161 | 169 | 9 | SSANNCTFE | 1.1e-05 | 49 |
| HLA-B*57:01 | 1 | 163 | 172 | 10 | ANNCTFEYVS | 1.1e-05 | 81 |
| HLA-B*58:01 | 1 | 164 | 172 | 9 | NNCTFEYVS | 1.1e-05 | 71 |
| HLA-B*58:01 | 1 | 164 | 173 | 10 | NNCTFEYVSQ | 1.1e-05 | 71 |
| HLA-A*02:01 | 1 | 165 | 173 | 9 | NCTFEYVSQ | 1.1e-05 | 64 |
| HLA-A*03:01 | 1 | 165 | 173 | 9 | NCTFEYVSQ | 1.1e-05 | 60 |
| HLA-A*02:06 | 1 | 173 | 181 | 9 | QPFLMDLEG | 1.1e-05 | 73 |
| HLA-A*03:01 | 1 | 173 | 181 | 9 | QPFLMDLEG | 1.1e-05 | 60 |
| HLA-A*33:01 | 1 | 173 | 181 | 9 | QPFLMDLEG | 1.1e-05 | 72 |
| HLA-B*40:01 | 1 | 173 | 182 | 10 | QPFLMDLEGK | 1.1e-05 | 42 |
| HLA-B*35:01 | 1 | 175 | 184 | 10 | FLMDLEGKQG | 1.1e-05 | 50 |
| HLA-A*68:01 | 1 | 177 | 185 | 9 | MDLEGKQGN | 1.1e-05 | 59 |
| HLA-A*32:01 | 1 | 178 | 187 | 10 | DLEGKQGNFK | 1.1e-05 | 51 |
| HLA-A*26:01 | 1 | 182 | 191 | 10 | KQGNFKNLRE | 1.1e-05 | 59 |
| HLA-A*02:01 | 1 | 183 | 191 | 9 | QGNFKNLRE | 1.1e-05 | 64 |
| HLA-B*40:01 | 1 | 187 | 195 | 9 | KNLREFVFK | 1.1e-05 | 42 |
| HLA-B*53:01 | 1 | 187 | 195 | 9 | KNLREFVFK | 1.1e-05 | 49 |
| HLA-A*11:01 | 1 | 188 | 196 | 9 | NLREFVFKN | 1.1e-05 | 46 |
| HLA-A*23:01 | 1 | 188 | 196 | 9 | NLREFVFKN | 1.1e-05 | 46 |
| HLA-B*40:01 | 1 | 188 | 197 | 10 | NLREFVFKNI | 1.1e-05 | 42 |
| HLA-B*44:02 | 1 | 189 | 198 | 10 | LREFVFKNID | 1.1e-05 | 53 |
| HLA-B*53:01 | 1 | 190 | 198 | 9 | REFVFKNID | 1.1e-05 | 49 |
| HLA-B*58:01 | 1 | 190 | 198 | 9 | REFVFKNID | 1.1e-05 | 71 |
| HLA-B*07:02 | 1 | 194 | 202 | 9 | FKNIDGYFK | 1.1e-05 | 64 |
| HLA-B*07:02 | 1 | 196 | 205 | 10 | NIDGYFKIYS | 1.1e-05 | 64 |
| HLA-A*02:03 | 1 | 198 | 207 | 10 | DGYFKIYSKH | 1.1e-05 | 67 |
| HLA-B*40:01 | 1 | 198 | 207 | 10 | DGYFKIYSKH | 1.1e-05 | 42 |
| HLA-B*44:02 | 1 | 199 | 208 | 10 | GYFKIYSKHT | 1.1e-05 | 53 |
| HLA-A*26:01 | 1 | 203 | 211 | 9 | IYSKHTPIN | 1.1e-05 | 59 |
| HLA-A*02:06 | 1 | 206 | 215 | 10 | KHTPINLVRD | 1.1e-05 | 73 |
| HLA-A*32:01 | 1 | 206 | 215 | 10 | KHTPINLVRD | 1.1e-05 | 51 |
| HLA-A*11:01 | 1 | 208 | 217 | 10 | TPINLVRDLP | 1.1e-05 | 46 |
| HLA-A*32:01 | 1 | 208 | 217 | 10 | TPINLVRDLP | 1.1e-05 | 51 |
| HLA-B*58:01 | 1 | 210 | 218 | 9 | INLVRDLPQ | 1.1e-05 | 71 |
| HLA-A*23:01 | 1 | 211 | 219 | 9 | NLVRDLPQG | 1.1e-05 | 46 |
| HLA-B*07:02 | 1 | 211 | 219 | 9 | NLVRDLPQG | 1.1e-05 | 64 |
| HLA-A*11:01 | 1 | 215 | 224 | 10 | DLPQGFSALE | 1.1e-05 | 46 |
| HLA-A*68:01 | 1 | 217 | 226 | 10 | PQGFSALEPL | 1.1e-05 | 59 |
| HLA-A*31:01 | 1 | 228 | 236 | 9 | DLPIGINIT | 1.1e-05 | 67 |
| HLA-A*11:01 | 1 | 230 | 238 | 9 | PIGINITRF | 1.1e-05 | 46 |
| HLA-B*40:01 | 1 | 230 | 238 | 9 | PIGINITRF | 1.1e-05 | 42 |
| HLA-A*32:01 | 1 | 231 | 240 | 10 | IGINITRFQT | 1.1e-05 | 51 |
| HLA-B*40:01 | 1 | 242 | 250 | 9 | LALHRSYLT | 1.1e-05 | 42 |
| HLA-A*03:01 | 1 | 248 | 257 | 10 | YLTPGDSSSG | 1.1e-05 | 60 |
| HLA-A*03:01 | 1 | 250 | 259 | 10 | TPGDSSSGWT | 1.1e-05 | 60 |
| HLA-A*32:01 | 1 | 253 | 262 | 10 | DSSSGWTAGA | 1.1e-05 | 51 |
| HLA-B*44:02 | 1 | 258 | 267 | 10 | WTAGAAAYYV | 1.1e-05 | 53 |
| HLA-B*08:01 | 1 | 259 | 268 | 10 | TAGAAAYYVG | 1.1e-05 | 83 |
| HLA-A*32:01 | 1 | 272 | 281 | 10 | PRTFLLKYNE | 1.1e-05 | 51 |
| HLA-A*68:01 | 1 | 274 | 282 | 9 | TFLLKYNEN | 1.1e-05 | 59 |
| HLA-A*03:01 | 1 | 275 | 283 | 9 | FLLKYNENG | 1.1e-05 | 60 |
| HLA-A*26:01 | 1 | 277 | 286 | 10 | LKYNENGTIT | 1.1e-05 | 59 |
| HLA-A*02:06 | 1 | 278 | 287 | 10 | KYNENGTITD | 1.1e-05 | 73 |
| HLA-A*32:01 | 1 | 278 | 287 | 10 | KYNENGTITD | 1.1e-05 | 51 |
| HLA-A*33:01 | 1 | 278 | 287 | 10 | KYNENGTITD | 1.1e-05 | 72 |
| HLA-A*68:02 | 1 | 286 | 295 | 10 | TDAVDCALDP | 1.1e-05 | 65 |
| HLA-B*07:02 | 1 | 288 | 297 | 10 | AVDCALDPLS | 1.1e-05 | 64 |
| HLA-A*03:01 | 1 | 289 | 298 | 10 | VDCALDPLSE | 1.1e-05 | 60 |
| HLA-B*08:01 | 1 | 289 | 298 | 10 | VDCALDPLSE | 1.1e-05 | 83 |
| HLA-B*40:01 | 1 | 289 | 297 | 9 | VDCALDPLS | 1.1e-05 | 42 |
| HLA-A*24:02 | 1 | 293 | 301 | 9 | LDPLSETKC | 1.1e-05 | 44 |
| HLA-A*68:02 | 1 | 295 | 304 | 10 | PLSETKCTLK | 1.1e-05 | 65 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-A*02:01 | 1 | 297 | 305 | 9 | SETKCTLKS | 1.1e-05 | 64 |
| HLA-A*23:01 | 1 | 297 | 305 | 9 | SETKCTLKS | 1.1e-05 | 46 |
| HLA-A*03:01 | 1 | 299 | 308 | 10 | TKCTLKSFTV | 1.1e-05 | 60 |
| HLA-A*26:01 | 1 | 299 | 308 | 10 | TKCTLKSFTV | 1.1e-05 | 59 |
| HLA-A*26:01 | 1 | 300 | 309 | 10 | KCTLKSFTVE | 1.1e-05 | 59 |
| HLA-B*51:01 | 1 | 300 | 309 | 10 | KCTLKSFTVE | 1.1e-05 | 75 |
| HLA-A*02:03 | 1 | 303 | 311 | 9 | LKSFTVEKG | 1.1e-05 | 67 |
| HLA-B*44:03 | 1 | 303 | 311 | 9 | LKSFTVEKG | 1.1e-05 | 49 |
| HLA-B*40:01 | 1 | 305 | 314 | 10 | SFTVEKGIYQ | 1.1e-05 | 42 |
| HLA-B*44:02 | 1 | 314 | 323 | 10 | QTSNFRVQPT | 1.1e-05 | 53 |
| HLA-A*32:01 | 1 | 322 | 330 | 9 | PTESIVRFP | 1.1e-05 | 51 |
| HLA-B*57:01 | 1 | 337 | 345 | 9 | PFGEVFNAT | 1.1e-05 | 81 |
| HLA-B*35:01 | 1 | 341 | 350 | 10 | VFNATRFASV | 1.1e-05 | 50 |
| HLA-B*07:02 | 1 | 347 | 356 | 10 | FASVYAWNRRK | 1.1e-05 | 64 |
| HLA-A*68:01 | 1 | 352 | 360 | 9 | AWNRRKRISN | 1.1e-05 | 59 |
| HLA-B*44:02 | 1 | 352 | 360 | 9 | AWNRRKRISN | 1.1e-05 | 53 |
| HLA-B*35:01 | 1 | 355 | 363 | 9 | RKRISNCVA | 1.1e-05 | 50 |
| HLA-B*57:01 | 1 | 355 | 363 | 9 | RKRISNCVA | 1.1e-05 | 81 |
| HLA-A*11:01 | 1 | 358 | 367 | 10 | ISNCVADYSV | 1.1e-05 | 46 |
| HLA-B*35:01 | 1 | 358 | 367 | 10 | ISNCVADYSV | 1.1e-05 | 50 |
| HLA-A*32:01 | 1 | 362 | 370 | 9 | VADYSVLVN | 1.1e-05 | 51 |
| HLA-B*15:01 | 1 | 362 | 371 | 10 | VADYSVLVNS | 1.1e-05 | 64 |
| HLA-B*35:01 | 1 | 362 | 371 | 10 | VADYSVLVNS | 1.1e-05 | 50 |
| HLA-A*02:01 | 1 | 372 | 381 | 10 | ASFSTFKCYG | 1.1e-05 | 64 |
| HLA-A*23:01 | 1 | 372 | 381 | 10 | ASFSTFKCYG | 1.1e-05 | 46 |
| HLA-B*15:01 | 1 | 373 | 382 | 10 | SFSTFKCYGV | 1.1e-05 | 64 |
| HLA-A*01:01 | 1 | 377 | 385 | 9 | FKCYGVSPT | 1.1e-05 | 87 |
| HLA-B*07:02 | 1 | 380 | 388 | 9 | YGVSPKLN | 1.1e-05 | 64 |
| HLA-B*08:01 | 1 | 380 | 389 | 10 | YGVSPKLN | 1.1e-05 | 83 |
| HLA-B*44:03 | 1 | 380 | 388 | 9 | YGVSPKLN | 1.1e-05 | 49 |
| HLA-A*68:01 | 1 | 382 | 391 | 10 | VSPTKLNLC | 1.1e-05 | 59 |
| HLA-B*44:02 | 1 | 382 | 391 | 10 | VSPTKLNLC | 1.1e-05 | 53 |
| HLA-A*02:03 | 1 | 384 | 393 | 10 | PTKLNLCFT | 1.1e-05 | 67 |
| HLA-A*31:01 | 1 | 385 | 393 | 9 | TKLNLCFT | 1.1e-05 | 67 |
| HLA-B*07:02 | 1 | 386 | 394 | 9 | KLNLCFTN | 1.1e-05 | 64 |
| HLA-B*35:01 | 1 | 386 | 394 | 9 | KLNLCFTN | 1.1e-05 | 50 |
| HLA-A*26:01 | 1 | 387 | 395 | 9 | LNLCFTNV | 1.1e-05 | 59 |
| HLA-B*44:03 | 1 | 389 | 397 | 9 | DLCFTNVYA | 1.1e-05 | 49 |
| HLA-A*68:01 | 1 | 391 | 399 | 9 | CFTNVYADS | 1.1e-05 | 59 |
| HLA-A*32:01 | 1 | 395 | 404 | 10 | VYADSFVIRG | 1.1e-05 | 51 |
| HLA-B*44:02 | 1 | 395 | 404 | 10 | VYADSFVIRG | 1.1e-05 | 53 |
| HLA-B*53:01 | 1 | 395 | 404 | 10 | VYADSFVIRG | 1.1e-05 | 49 |
| HLA-B*53:01 | 1 | 396 | 405 | 10 | YADSFVIRGD | 1.1e-05 | 49 |
| HLA-A*02:06 | 1 | 397 | 406 | 10 | ADSFVIRGDE | 1.1e-05 | 73 |
| HLA-B*44:03 | 1 | 406 | 415 | 10 | EVQIAPGQT | 1.1e-05 | 49 |
| HLA-A*33:01 | 1 | 407 | 416 | 10 | VRQIAPGQTG | 1.1e-05 | 72 |
| HLA-B*15:01 | 1 | 407 | 415 | 9 | VRQIAPGQT | 1.1e-05 | 64 |
| HLA-B*40:01 | 1 | 407 | 415 | 9 | VRQIAPGQT | 1.1e-05 | 42 |
| HLA-A*03:01 | 1 | 410 | 419 | 10 | IAPGQTGKIA | 1.1e-05 | 60 |
| HLA-A*31:01 | 1 | 410 | 419 | 10 | IAPGQTGKIA | 1.1e-05 | 67 |
| HLA-A*33:01 | 1 | 413 | 422 | 10 | GQTGKIADYN | 1.1e-05 | 72 |
| HLA-A*03:01 | 1 | 414 | 422 | 9 | QTGKIADYN | 1.1e-05 | 60 |
| HLA-A*33:01 | 1 | 414 | 422 | 9 | QTGKIADYN | 1.1e-05 | 72 |
| HLA-B*53:01 | 1 | 414 | 422 | 9 | QTGKIADYN | 1.1e-05 | 49 |
| HLA-B*53:01 | 1 | 415 | 424 | 10 | TGKIADYNYK | 1.1e-05 | 49 |
| HLA-B*08:01 | 1 | 416 | 424 | 9 | GKIADYNYK | 1.1e-05 | 83 |
| HLA-A*02:01 | 1 | 427 | 436 | 10 | DDFTGCVIAW | 1.1e-05 | 64 |
| HLA-A*30:02 | 1 | 429 | 438 | 10 | FTGCVIAWNS | 1.1e-05 | 87 |
| HLA-B*07:02 | 1 | 434 | 443 | 10 | IAWNSNNLDS | 1.1e-05 | 64 |
| HLA-B*15:01 | 1 | 434 | 442 | 9 | IAWNSNNLD | 1.1e-05 | 64 |
| HLA-A*31:01 | 1 | 436 | 445 | 10 | WNSNNLDSKV | 1.1e-05 | 67 |
| HLA-A*30:02 | 1 | 439 | 448 | 10 | NNLDSKVGGN | 1.1e-05 | 87 |
| HLA-B*08:01 | 1 | 441 | 450 | 10 | LDSKVGGNYN | 1.1e-05 | 83 |
| HLA-A*26:01 | 1 | 445 | 454 | 10 | VGGNYNYLYR | 1.1e-05 | 59 |
| HLA-B*40:01 | 1 | 446 | 454 | 9 | GGNYNYLYR | 1.1e-05 | 42 |
| HLA-B*53:01 | 1 | 448 | 457 | 10 | NYNYLYRFLR | 1.1e-05 | 49 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-B*44:03 | 1 | 449 | 458 | 10 | YNYLYRFLFRK | 1.1e-05 | 49 |
| HLA-A*01:01 | 1 | 450 | 459 | 10 | NYLYRFLFRKS | 1.1e-05 | 87 |
| HLA-A*02:06 | 1 | 456 | 465 | 10 | FRKSNLKPFE | 1.1e-05 | 73 |
| HLA-A*24:02 | 1 | 456 | 465 | 10 | FRKSNLKPFE | 1.1e-05 | 44 |
| HLA-A*02:03 | 1 | 459 | 467 | 9 | SNLKPFERD | 1.1e-05 | 67 |
| HLA-A*68:01 | 1 | 459 | 467 | 9 | SNLKPFERD | 1.1e-05 | 59 |
| HLA-A*68:01 | 1 | 460 | 469 | 10 | NLKPFERDIS | 1.1e-05 | 59 |
| HLA-A*31:01 | 1 | 463 | 471 | 9 | PFERDISTE | 1.1e-05 | 67 |
| HLA-A*33:01 | 1 | 463 | 471 | 9 | PFERDISTE | 1.1e-05 | 72 |
| HLA-A*02:01 | 1 | 467 | 476 | 10 | DISTEIQAG | 1.1e-05 | 64 |
| HLA-A*32:01 | 1 | 469 | 477 | 9 | STEIQAGS | 1.1e-05 | 51 |
| HLA-A*03:01 | 1 | 472 | 481 | 10 | IYQAGSTPCN | 1.1e-05 | 60 |
| HLA-A*23:01 | 1 | 473 | 482 | 10 | YQAGSTPCNG | 1.1e-05 | 46 |
| HLA-A*03:01 | 1 | 475 | 484 | 10 | AGSTPCNGVE | 1.1e-05 | 60 |
| HLA-B*51:01 | 1 | 475 | 484 | 10 | AGSTPCNGVE | 1.1e-05 | 75 |
| HLA-B*15:01 | 1 | 476 | 485 | 10 | GSTPCNGVEG | 1.1e-05 | 64 |
| HLA-A*23:01 | 1 | 478 | 487 | 10 | TPCNGVEGFN | 1.1e-05 | 46 |
| HLA-A*68:01 | 1 | 478 | 487 | 10 | TPCNGVEGFN | 1.1e-05 | 59 |
| HLA-A*03:01 | 1 | 483 | 492 | 10 | VEGFNCYFPL | 1.1e-05 | 60 |
| HLA-B*08:01 | 1 | 485 | 494 | 10 | GFNCYFPLQS | 1.1e-05 | 83 |
| HLA-B*15:01 | 1 | 486 | 494 | 9 | FNCYFPLQS | 1.1e-05 | 64 |
| HLA-A*23:01 | 1 | 490 | 499 | 10 | FPLQSYGFQP | 1.1e-05 | 46 |
| HLA-A*31:01 | 1 | 490 | 499 | 10 | FPLQSYGFQP | 1.1e-05 | 67 |
| HLA-B*44:02 | 1 | 490 | 499 | 10 | FPLQSYGFQP | 1.1e-05 | 53 |
| HLA-A*68:02 | 1 | 491 | 500 | 10 | PLQSYGFQPT | 1.1e-05 | 65 |
| HLA-B*44:02 | 1 | 491 | 499 | 9 | PLQSYGFQP | 1.1e-05 | 53 |
| HLA-B*53:01 | 1 | 492 | 501 | 10 | LQSYGFQPTN | 1.1e-05 | 49 |
| HLA-A*68:02 | 1 | 494 | 502 | 9 | SYGFQPTNG | 1.1e-05 | 65 |
| HLA-B*44:02 | 1 | 496 | 504 | 9 | GFQPTNGVG | 1.1e-05 | 53 |
| HLA-B*44:03 | 1 | 496 | 504 | 9 | GFQPTNGVG | 1.1e-05 | 49 |
| HLA-A*11:01 | 1 | 508 | 516 | 9 | YRVVLSFE | 1.1e-05 | 46 |
| HLA-B*44:02 | 1 | 510 | 519 | 10 | VVLSFELLH | 1.1e-05 | 53 |
| HLA-A*24:02 | 1 | 511 | 520 | 10 | VVLSFELLHA | 1.1e-05 | 44 |
| HLA-B*44:02 | 1 | 511 | 520 | 10 | VVLSFELLHA | 1.1e-05 | 53 |
| HLA-A*03:01 | 1 | 515 | 523 | 9 | FELLHAPAT | 1.1e-05 | 60 |
| HLA-B*53:01 | 1 | 517 | 526 | 10 | LLHAPATVCG | 1.1e-05 | 49 |
| HLA-A*02:06 | 1 | 518 | 526 | 9 | LHAPATVCG | 1.1e-05 | 73 |
| HLA-A*68:01 | 1 | 518 | 526 | 9 | LHAPATVCG | 1.1e-05 | 59 |
| HLA-B*15:01 | 1 | 524 | 532 | 9 | VCGPKKSTN | 1.1e-05 | 64 |
| HLA-A*24:02 | 1 | 528 | 537 | 10 | KKSTNLVKNK | 1.1e-05 | 44 |
| HLA-B*15:01 | 1 | 528 | 536 | 9 | KKSTNLVKNK | 1.1e-05 | 64 |
| HLA-A*23:01 | 1 | 529 | 538 | 10 | KSTNLVKNK | 1.1e-05 | 46 |
| HLA-A*26:01 | 1 | 529 | 538 | 10 | KSTNLVKNK | 1.1e-05 | 59 |
| HLA-B*40:01 | 1 | 529 | 537 | 9 | KSTNLVKNK | 1.1e-05 | 42 |
| HLA-B*44:03 | 1 | 529 | 538 | 10 | KSTNLVKNK | 1.1e-05 | 49 |
| HLA-A*30:02 | 1 | 531 | 540 | 10 | TNLVKNKCVN | 1.1e-05 | 87 |
| HLA-B*15:01 | 1 | 531 | 539 | 9 | TNLVKNKCV | 1.1e-05 | 64 |
| HLA-A*68:01 | 1 | 533 | 542 | 10 | LVKNKCVNFN | 1.1e-05 | 59 |
| HLA-A*11:01 | 1 | 534 | 543 | 10 | VKNKCVNFN | 1.1e-05 | 46 |
| HLA-A*23:01 | 1 | 539 | 547 | 9 | VNFNFNGLT | 1.1e-05 | 46 |
| HLA-B*15:01 | 1 | 539 | 548 | 10 | VNFNFNGLTG | 1.1e-05 | 64 |
| HLA-B*44:03 | 1 | 539 | 547 | 9 | VNFNFNGLT | 1.1e-05 | 49 |
| HLA-B*40:01 | 1 | 542 | 551 | 10 | NFNGLTGTGV | 1.1e-05 | 42 |
| HLA-A*32:01 | 1 | 546 | 555 | 10 | LTGTGVLTES | 1.1e-05 | 51 |
| HLA-B*15:01 | 1 | 552 | 561 | 10 | LTESNKKFLP | 1.1e-05 | 64 |
| HLA-A*02:03 | 1 | 554 | 563 | 10 | ESNKKFLPFQ | 1.1e-05 | 67 |
| HLA-A*23:01 | 1 | 555 | 563 | 9 | SNKKFLPFQ | 1.1e-05 | 46 |
| HLA-B*44:03 | 1 | 560 | 568 | 9 | LFPQQFGRD | 1.1e-05 | 49 |
| HLA-A*68:02 | 1 | 561 | 569 | 9 | PFQQFGRDI | 1.1e-05 | 65 |
| HLA-A*32:01 | 1 | 565 | 573 | 9 | FGRDIADTT | 1.1e-05 | 51 |
| HLA-B*44:02 | 1 | 565 | 573 | 9 | FGRDIADTT | 1.1e-05 | 53 |
| HLA-A*24:02 | 1 | 566 | 574 | 9 | GRDIADTTD | 1.1e-05 | 44 |
| HLA-A*02:06 | 1 | 569 | 578 | 10 | IADTTDAVRD | 1.1e-05 | 73 |
| HLA-B*08:01 | 1 | 570 | 579 | 10 | ADTTDAVRDP | 1.1e-05 | 83 |
| HLA-B*40:01 | 1 | 572 | 580 | 9 | TTDAVRDPQ | 1.1e-05 | 42 |
| HLA-A*26:01 | 1 | 573 | 581 | 9 | TDAVRDPQT | 1.1e-05 | 59 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|---------|----|
| HLA-A*30:01 | 1 | 578 | 586 | 9 | DPQLEILD | 1.1e-05 | 88 |
| HLA-A*68:01 | 1 | 578 | 587 | 10 | DPQLEILDI | 1.1e-05 | 59 |
| HLA-B*15:01 | 1 | 578 | 587 | 10 | DPQLEILDI | 1.1e-05 | 64 |
| HLA-A*24:02 | 1 | 580 | 588 | 9 | QLEILDIT | 1.1e-05 | 44 |
| HLA-A*23:01 | 1 | 581 | 589 | 9 | TLEILDITP | 1.1e-05 | 46 |
| HLA-A*24:02 | 1 | 581 | 589 | 9 | TLEILDITP | 1.1e-05 | 44 |
| HLA-A*68:01 | 1 | 585 | 593 | 9 | LDITPCSG | 1.1e-05 | 59 |
| HLA-A*31:01 | 1 | 589 | 597 | 9 | PCSFQGVSV | 1.1e-05 | 67 |
| HLA-B*44:03 | 1 | 589 | 597 | 9 | PCSFQGVSV | 1.1e-05 | 49 |
| HLA-A*02:01 | 1 | 593 | 601 | 9 | GGVSVITPG | 1.1e-05 | 64 |
| HLA-A*68:02 | 1 | 595 | 603 | 9 | VSVITPGTN | 1.1e-05 | 65 |
| HLA-B*35:01 | 1 | 595 | 604 | 10 | VSVITPGTNT | 1.1e-05 | 50 |
| HLA-A*11:01 | 1 | 597 | 606 | 10 | VITPGTNTSN | 1.1e-05 | 46 |
| HLA-A*24:02 | 1 | 598 | 606 | 9 | ITPGTNTSN | 1.1e-05 | 44 |
| HLA-A*31:01 | 1 | 599 | 608 | 10 | TPGTNTSNQV | 1.1e-05 | 67 |
| HLA-A*02:01 | 1 | 600 | 609 | 10 | PGTNTSNQVA | 1.1e-05 | 64 |
| HLA-A*32:01 | 1 | 605 | 613 | 9 | SNQVAVLYQ | 1.1e-05 | 51 |
| HLA-B*15:01 | 1 | 605 | 614 | 10 | SNQVAVLYQD | 1.1e-05 | 64 |
| HLA-B*35:01 | 1 | 606 | 614 | 9 | NQVAVLYQD | 1.1e-05 | 50 |
| HLA-B*15:01 | 1 | 613 | 621 | 9 | QDVNCTEVP | 1.1e-05 | 64 |
| HLA-B*35:01 | 1 | 613 | 621 | 9 | QDVNCTEVP | 1.1e-05 | 50 |
| HLA-B*40:01 | 1 | 614 | 623 | 10 | DVNCTEVPVA | 1.1e-05 | 42 |
| HLA-A*02:01 | 1 | 618 | 627 | 10 | TEVPVAIHAD | 1.1e-05 | 64 |
| HLA-B*07:02 | 1 | 618 | 627 | 10 | TEVPVAIHAD | 1.1e-05 | 64 |
| HLA-A*23:01 | 1 | 622 | 631 | 10 | VAIHADQLTP | 1.1e-05 | 46 |
| HLA-A*33:01 | 1 | 622 | 631 | 10 | VAIHADQLTP | 1.1e-05 | 72 |
| HLA-B*40:01 | 1 | 623 | 632 | 10 | AIHADQLTPT | 1.1e-05 | 42 |
| HLA-A*24:02 | 1 | 626 | 634 | 9 | ADQLTPTWR | 1.1e-05 | 44 |
| HLA-B*15:01 | 1 | 630 | 638 | 9 | TPTWRVYST | 1.1e-05 | 64 |
| HLA-A*02:03 | 1 | 632 | 640 | 9 | TWRVYSTGS | 1.1e-05 | 67 |
| HLA-A*11:01 | 1 | 632 | 640 | 9 | TWRVYSTGS | 1.1e-05 | 46 |
| HLA-A*68:02 | 1 | 632 | 640 | 9 | TWRVYSTGS | 1.1e-05 | 65 |
| HLA-B*15:01 | 1 | 639 | 648 | 10 | GSNVFQTRAG | 1.1e-05 | 64 |
| HLA-B*35:01 | 1 | 644 | 652 | 9 | QTRAGCLIG | 1.1e-05 | 50 |
| HLA-B*53:01 | 1 | 644 | 653 | 10 | QTRAGCLIGA | 1.1e-05 | 49 |
| HLA-A*23:01 | 1 | 648 | 656 | 9 | GCLIGAEHV | 1.1e-05 | 46 |
| HLA-A*33:01 | 1 | 649 | 657 | 9 | CLIGAEHVN | 1.1e-05 | 72 |
| HLA-A*32:01 | 1 | 650 | 658 | 9 | LIGAEHVNN | 1.1e-05 | 51 |
| HLA-A*33:01 | 1 | 650 | 658 | 9 | LIGAEHVNN | 1.1e-05 | 72 |
| HLA-A*02:03 | 1 | 653 | 661 | 9 | AEHVNNSYE | 1.1e-05 | 67 |
| HLA-A*03:01 | 1 | 654 | 662 | 9 | EHVNNSYEC | 1.1e-05 | 60 |
| HLA-B*08:01 | 1 | 654 | 663 | 10 | EHVNNSYECD | 1.1e-05 | 83 |
| HLA-A*24:02 | 1 | 655 | 664 | 10 | HVNNSYECDI | 1.1e-05 | 44 |
| HLA-A*33:01 | 1 | 655 | 663 | 9 | HVNNSYECD | 1.1e-05 | 72 |
| HLA-A*23:01 | 1 | 657 | 666 | 10 | NNSYECDIPI | 1.1e-05 | 46 |
| HLA-A*31:01 | 1 | 657 | 666 | 10 | NNSYECDIPI | 1.1e-05 | 67 |
| HLA-A*24:02 | 1 | 658 | 667 | 10 | NSYECDIPIG | 1.1e-05 | 44 |
| HLA-A*26:01 | 1 | 658 | 667 | 10 | NSYECDIPIG | 1.1e-05 | 59 |
| HLA-A*02:03 | 1 | 660 | 669 | 10 | YECDIPIGAG | 1.1e-05 | 67 |
| HLA-A*68:01 | 1 | 660 | 669 | 10 | YECDIPIGAG | 1.1e-05 | 59 |
| HLA-A*33:01 | 1 | 664 | 673 | 10 | IPIGAGICAS | 1.1e-05 | 72 |
| HLA-B*40:01 | 1 | 664 | 673 | 10 | IPIGAGICAS | 1.1e-05 | 42 |
| HLA-A*23:01 | 1 | 665 | 674 | 10 | PIGAGICASY | 1.1e-05 | 46 |
| HLA-A*11:01 | 1 | 668 | 676 | 9 | AGICASYQT | 1.1e-05 | 46 |
| HLA-A*32:01 | 1 | 668 | 676 | 9 | AGICASYQT | 1.1e-05 | 51 |
| HLA-B*44:02 | 1 | 668 | 676 | 9 | AGICASYQT | 1.1e-05 | 53 |
| HLA-A*31:01 | 1 | 671 | 680 | 10 | CASYQTQTN | 1.1e-05 | 67 |
| HLA-A*24:02 | 1 | 672 | 680 | 9 | ASYQTQTN | 1.1e-05 | 44 |
| HLA-B*53:01 | 1 | 675 | 684 | 10 | QTQTNSPRRA | 1.1e-05 | 49 |
| HLA-B*51:01 | 1 | 677 | 686 | 10 | QTNSPRRARS | 1.1e-05 | 75 |
| HLA-A*11:01 | 1 | 680 | 689 | 10 | SPRRARSVAS | 1.1e-05 | 46 |
| HLA-B*53:01 | 1 | 689 | 698 | 10 | SQSIIAYTMS | 1.1e-05 | 49 |
| HLA-B*40:01 | 1 | 690 | 698 | 9 | QSIIAYTMS | 1.1e-05 | 42 |
| HLA-B*51:01 | 1 | 694 | 702 | 9 | AYTMSLGAE | 1.1e-05 | 75 |
| HLA-B*40:01 | 1 | 695 | 703 | 9 | YTMSLGAEN | 1.1e-05 | 42 |
| HLA-B*44:02 | 1 | 695 | 704 | 10 | YTMSLGAENS | 1.1e-05 | 53 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|---------|----|
| HLA-B*44:02 | 1 | 697 | 706 | 10 | MSLGAENSVVA | 1.1e-05 | 53 |
| HLA-B*44:02 | 1 | 699 | 708 | 10 | LGAENSVAYS | 1.1e-05 | 53 |
| HLA-B*44:03 | 1 | 700 | 708 | 9 | GAENSVAYS | 1.1e-05 | 49 |
| HLA-A*02:06 | 1 | 702 | 711 | 10 | ENSVAYSNNS | 1.1e-05 | 73 |
| HLA-A*68:01 | 1 | 702 | 710 | 9 | ENSVAYSNN | 1.1e-05 | 59 |
| HLA-B*44:03 | 1 | 703 | 711 | 9 | NSVAYSNNS | 1.1e-05 | 49 |
| HLA-B*40:01 | 1 | 712 | 721 | 10 | IAIPTNFTIS | 1.1e-05 | 42 |
| HLA-A*32:01 | 1 | 714 | 723 | 10 | IPTNFTISVT | 1.1e-05 | 51 |
| HLA-A*03:01 | 1 | 715 | 724 | 10 | PTNFTISVTT | 1.1e-05 | 60 |
| HLA-A*24:02 | 1 | 720 | 728 | 9 | ISVTTEILP | 1.1e-05 | 44 |
| HLA-A*24:02 | 1 | 720 | 729 | 10 | ISVTTEILPV | 1.1e-05 | 44 |
| HLA-A*26:01 | 1 | 720 | 728 | 9 | ISVTTEILP | 1.1e-05 | 59 |
| HLA-A*26:01 | 1 | 730 | 739 | 10 | SMTKTSVDCT | 1.1e-05 | 59 |
| HLA-B*44:03 | 1 | 733 | 742 | 10 | KTSVDCTMYI | 1.1e-05 | 49 |
| HLA-A*32:01 | 1 | 734 | 743 | 10 | TSVDCTMYIC | 1.1e-05 | 51 |
| HLA-A*24:02 | 1 | 735 | 743 | 9 | SVDCTMYIC | 1.1e-05 | 44 |
| HLA-B*44:03 | 1 | 735 | 743 | 9 | SVDCTMYIC | 1.1e-05 | 49 |
| HLA-A*01:01 | 1 | 736 | 744 | 9 | VDCTMYICG | 1.1e-05 | 87 |
| HLA-A*03:01 | 1 | 738 | 747 | 10 | CTMYICGDST | 1.1e-05 | 60 |
| HLA-A*11:01 | 1 | 738 | 747 | 10 | CTMYICGDST | 1.1e-05 | 46 |
| HLA-B*58:01 | 1 | 738 | 746 | 9 | CTMYICGDS | 1.1e-05 | 71 |
| HLA-B*44:02 | 1 | 740 | 749 | 10 | MYICGDSTEC | 1.1e-05 | 53 |
| HLA-A*23:01 | 1 | 741 | 749 | 9 | YICGDSTEC | 1.1e-05 | 46 |
| HLA-B*08:01 | 1 | 741 | 750 | 10 | YICGDSTEC | 1.1e-05 | 83 |
| HLA-B*44:03 | 1 | 743 | 752 | 10 | CGDSTEC | 1.1e-05 | 49 |
| HLA-A*11:01 | 1 | 744 | 752 | 9 | GDSTEC | 1.1e-05 | 46 |
| HLA-A*24:02 | 1 | 747 | 755 | 9 | TECSNLLLQ | 1.1e-05 | 44 |
| HLA-A*32:01 | 1 | 752 | 761 | 10 | LLLQYGSFCT | 1.1e-05 | 51 |
| HLA-B*40:01 | 1 | 752 | 760 | 9 | LLLQYGSFCT | 1.1e-05 | 42 |
| HLA-B*58:01 | 1 | 752 | 761 | 10 | LLLQYGSFCT | 1.1e-05 | 71 |
| HLA-A*11:01 | 1 | 753 | 761 | 9 | LLQYGSFCT | 1.1e-05 | 46 |
| HLA-B*40:01 | 1 | 763 | 771 | 9 | LNRLTGTIA | 1.1e-05 | 42 |
| HLA-A*03:01 | 1 | 764 | 773 | 10 | NRALTGIAVE | 1.1e-05 | 60 |
| HLA-B*40:01 | 1 | 765 | 774 | 10 | RALTGIAVEQ | 1.1e-05 | 42 |
| HLA-B*51:01 | 1 | 769 | 778 | 10 | GIAVEQDKNT | 1.1e-05 | 75 |
| HLA-A*33:01 | 1 | 770 | 778 | 9 | IAVEQDKNT | 1.1e-05 | 72 |
| HLA-A*23:01 | 1 | 772 | 780 | 9 | VEQDKNTQE | 1.1e-05 | 46 |
| HLA-A*24:02 | 1 | 772 | 780 | 9 | VEQDKNTQE | 1.1e-05 | 44 |
| HLA-A*24:02 | 1 | 775 | 783 | 9 | DKNTQEVFA | 1.1e-05 | 44 |
| HLA-A*26:01 | 1 | 775 | 784 | 10 | DKNTQEVFAQ | 1.1e-05 | 59 |
| HLA-B*57:01 | 1 | 775 | 784 | 10 | DKNTQEVFAQ | 1.1e-05 | 81 |
| HLA-B*58:01 | 1 | 775 | 783 | 9 | DKNTQEVFA | 1.1e-05 | 71 |
| HLA-B*44:03 | 1 | 782 | 791 | 10 | FAQVKQIYKT | 1.1e-05 | 49 |
| HLA-B*53:01 | 1 | 787 | 796 | 10 | QIYKTPPIKD | 1.1e-05 | 49 |
| HLA-B*35:01 | 1 | 788 | 796 | 9 | IYKTPPIKD | 1.1e-05 | 50 |
| HLA-A*01:01 | 1 | 792 | 801 | 10 | PPIKDFGGFN | 1.1e-05 | 87 |
| HLA-B*35:01 | 1 | 794 | 803 | 10 | IKDFGGFNFS | 1.1e-05 | 50 |
| HLA-B*53:01 | 1 | 794 | 803 | 10 | IKDFGGFNFS | 1.1e-05 | 49 |
| HLA-B*44:03 | 1 | 798 | 807 | 10 | GGFNFSQILP | 1.1e-05 | 49 |
| HLA-A*23:01 | 1 | 799 | 808 | 10 | GFNFSQILPD | 1.1e-05 | 46 |
| HLA-B*44:02 | 1 | 805 | 813 | 9 | ILPDPSKPS | 1.1e-05 | 53 |
| HLA-A*11:01 | 1 | 808 | 816 | 9 | DPSKPSKRS | 1.1e-05 | 46 |
| HLA-A*26:01 | 1 | 809 | 818 | 10 | PSKPSKRFSI | 1.1e-05 | 59 |
| HLA-B*08:01 | 1 | 812 | 820 | 9 | PSKRFSIED | 1.1e-05 | 83 |
| HLA-B*40:01 | 1 | 817 | 825 | 9 | FIEDLLFNK | 1.1e-05 | 42 |
| HLA-B*07:02 | 1 | 818 | 827 | 10 | IEDLLFNKVT | 1.1e-05 | 64 |
| HLA-B*40:01 | 1 | 820 | 829 | 10 | DLLFNKVTLA | 1.1e-05 | 42 |
| HLA-B*15:01 | 1 | 822 | 830 | 9 | LFNKVTLAD | 1.1e-05 | 64 |
| HLA-B*35:01 | 1 | 824 | 832 | 9 | NKVTLADAG | 1.1e-05 | 50 |
| HLA-B*44:02 | 1 | 825 | 834 | 10 | KVTLADAGFI | 1.1e-05 | 53 |
| HLA-B*44:03 | 1 | 830 | 838 | 9 | DAGFIKQYG | 1.1e-05 | 49 |
| HLA-A*32:01 | 1 | 831 | 840 | 10 | AGFIKQYGDC | 1.1e-05 | 51 |
| HLA-A*33:01 | 1 | 832 | 840 | 9 | GFIKQYGDC | 1.1e-05 | 72 |
| HLA-B*58:01 | 1 | 833 | 842 | 10 | FIKQYGDCLG | 1.1e-05 | 71 |
| HLA-A*03:01 | 1 | 842 | 851 | 10 | GDIAARDLIC | 1.1e-05 | 60 |
| HLA-A*24:02 | 1 | 844 | 852 | 9 | IAARDLICA | 1.1e-05 | 44 |

| | | | | | | |
|-------------|---|-----|-----|----|--------------------|----|
| HLA-B*51:01 | 1 | 848 | 857 | 10 | DLICAQKFNG 1.1e-05 | 75 |
| HLA-B*44:02 | 1 | 849 | 858 | 10 | LICAQKFNGL 1.1e-05 | 53 |
| HLA-A*11:01 | 1 | 851 | 860 | 10 | CAQKFNGLTV 1.1e-05 | 46 |
| HLA-A*26:01 | 1 | 851 | 859 | 9 | CAQKFNGLT 1.1e-05 | 59 |
| HLA-A*26:01 | 1 | 854 | 863 | 10 | KFNGLTVLPP 1.1e-05 | 59 |
| HLA-B*44:02 | 1 | 854 | 863 | 10 | KFNGLTVLPP 1.1e-05 | 53 |
| HLA-B*07:02 | 1 | 855 | 863 | 9 | FNGLTVLPP 1.1e-05 | 64 |
| HLA-A*23:01 | 1 | 857 | 866 | 10 | GLTVLPPLT 1.1e-05 | 46 |
| HLA-A*03:01 | 1 | 866 | 874 | 9 | TDEMIAQYT 1.1e-05 | 60 |
| HLA-B*57:01 | 1 | 866 | 874 | 9 | TDEMIAQYT 1.1e-05 | 81 |
| HLA-A*11:01 | 1 | 872 | 881 | 10 | QYTSALLAGT 1.1e-05 | 46 |
| HLA-A*26:01 | 1 | 874 | 883 | 10 | TSALLAGTIT 1.1e-05 | 59 |
| HLA-B*15:01 | 1 | 874 | 883 | 10 | TSALLAGTIT 1.1e-05 | 64 |
| HLA-B*44:02 | 1 | 874 | 883 | 10 | TSALLAGTIT 1.1e-05 | 53 |
| HLA-B*40:01 | 1 | 877 | 885 | 9 | LLAGTITSG 1.1e-05 | 42 |
| HLA-B*44:02 | 1 | 884 | 893 | 10 | SGWTFGAGAA 1.1e-05 | 53 |
| HLA-B*44:03 | 1 | 884 | 893 | 10 | SGWTFGAGAA 1.1e-05 | 49 |
| HLA-A*01:01 | 1 | 885 | 893 | 9 | GWTFGAGAA 1.1e-05 | 87 |
| HLA-A*23:01 | 1 | 886 | 895 | 10 | WTFGAGAALQ 1.1e-05 | 46 |
| HLA-B*44:02 | 1 | 886 | 895 | 10 | WTFGAGAALQ 1.1e-05 | 53 |
| HLA-A*68:01 | 1 | 889 | 897 | 9 | GAGAALQIP 1.1e-05 | 59 |
| HLA-B*44:03 | 1 | 890 | 899 | 10 | AGAALQIPFA 1.1e-05 | 49 |
| HLA-A*68:01 | 1 | 898 | 907 | 10 | FAMQMAYRFN 1.1e-05 | 59 |
| HLA-B*07:02 | 1 | 898 | 907 | 10 | FAMQMAYRFN 1.1e-05 | 64 |
| HLA-A*26:01 | 1 | 902 | 910 | 9 | MAYRFNGIG 1.1e-05 | 59 |
| HLA-B*44:03 | 1 | 902 | 911 | 10 | MAYRFNGIGV 1.1e-05 | 49 |
| HLA-A*11:01 | 1 | 903 | 912 | 10 | AYRFNGIGVT 1.1e-05 | 46 |
| HLA-B*44:03 | 1 | 903 | 912 | 10 | AYRFNGIGVT 1.1e-05 | 49 |
| HLA-A*02:01 | 1 | 905 | 914 | 10 | RFNGIGVTQN 1.1e-05 | 64 |
| HLA-A*02:03 | 1 | 905 | 914 | 10 | RFNGIGVTQN 1.1e-05 | 67 |
| HLA-B*44:02 | 1 | 906 | 915 | 10 | FNGIGVTQNV 1.1e-05 | 53 |
| HLA-A*02:01 | 1 | 917 | 925 | 9 | YENQKLIAN 1.1e-05 | 64 |
| HLA-A*23:01 | 1 | 917 | 925 | 9 | YENQKLIAN 1.1e-05 | 46 |
| HLA-B*15:01 | 1 | 920 | 929 | 10 | QKLIANQFNS 1.1e-05 | 64 |
| HLA-B*51:01 | 1 | 920 | 929 | 10 | QKLIANQFNS 1.1e-05 | 75 |
| HLA-B*35:01 | 1 | 921 | 929 | 9 | KLIANQFNS 1.1e-05 | 50 |
| HLA-A*68:02 | 1 | 926 | 935 | 10 | QFNSAIGKIQ 1.1e-05 | 65 |
| HLA-A*33:01 | 1 | 930 | 939 | 10 | AIGKIQDLSL 1.1e-05 | 72 |
| HLA-A*33:01 | 1 | 931 | 940 | 10 | IGKIQDLSLS 1.1e-05 | 72 |
| HLA-B*15:01 | 1 | 935 | 943 | 9 | QDLSLSTAS 1.1e-05 | 64 |
| HLA-A*31:01 | 1 | 937 | 946 | 10 | SLSSTASALG 1.1e-05 | 67 |
| HLA-B*07:02 | 1 | 938 | 947 | 10 | LSSTASALGK 1.1e-05 | 64 |
| HLA-B*35:01 | 1 | 938 | 947 | 10 | LSSTASALGK 1.1e-05 | 50 |
| HLA-A*68:02 | 1 | 941 | 950 | 10 | TASALGKLQD 1.1e-05 | 65 |
| HLA-B*07:02 | 1 | 942 | 950 | 9 | ASALGKLQD 1.1e-05 | 64 |
| HLA-B*08:01 | 1 | 942 | 950 | 9 | ASALGKLQD 1.1e-05 | 83 |
| HLA-B*35:01 | 1 | 942 | 951 | 10 | ASALGKLQDV 1.1e-05 | 50 |
| HLA-A*32:01 | 1 | 944 | 953 | 10 | ALGKLQDVVN 1.1e-05 | 51 |
| HLA-A*68:01 | 1 | 946 | 955 | 10 | GKLQDVVNQN 1.1e-05 | 59 |
| HLA-B*44:03 | 1 | 946 | 955 | 10 | GKLQDVVNQN 1.1e-05 | 49 |
| HLA-A*33:01 | 1 | 952 | 960 | 9 | VNQAQALN 1.1e-05 | 72 |
| HLA-A*23:01 | 1 | 957 | 965 | 9 | QALNTLVKQ 1.1e-05 | 46 |
| HLA-B*44:02 | 1 | 961 | 969 | 9 | TLVKQLSSN 1.1e-05 | 53 |
| HLA-A*26:01 | 1 | 965 | 974 | 10 | QLSSNFGAIS 1.1e-05 | 59 |
| HLA-A*30:01 | 1 | 970 | 979 | 10 | FGAISSVLND 1.1e-05 | 88 |
| HLA-A*33:01 | 1 | 970 | 978 | 9 | FGAISSVLN 1.1e-05 | 72 |
| HLA-B*07:02 | 1 | 971 | 979 | 9 | GAISSVLND 1.1e-05 | 64 |
| HLA-A*33:01 | 1 | 973 | 982 | 10 | ISSVLNDILS 1.1e-05 | 72 |
| HLA-B*44:02 | 1 | 974 | 982 | 9 | SSVLNDILS 1.1e-05 | 53 |
| HLA-B*08:01 | 1 | 977 | 986 | 10 | LNDILSRLDK 1.1e-05 | 83 |
| HLA-B*44:03 | 1 | 977 | 986 | 10 | LNDILSRLDK 1.1e-05 | 49 |
| HLA-A*02:01 | 1 | 978 | 986 | 9 | NDILSRLDK 1.1e-05 | 64 |
| HLA-A*03:01 | 1 | 979 | 988 | 10 | DILSRLDKVE 1.1e-05 | 60 |
| HLA-B*07:02 | 1 | 979 | 988 | 10 | DILSRLDKVE 1.1e-05 | 64 |
| HLA-A*31:01 | 1 | 984 | 993 | 10 | LDKVEAEVQI 1.1e-05 | 67 |
| HLA-A*68:02 | 1 | 985 | 994 | 10 | DKVEAEVQID 1.1e-05 | 65 |

| | | | | | | |
|-------------|---|------|------|----|--------------------|----|
| HLA-A*11:01 | 1 | 989 | 998 | 10 | AEVQIDRLIT 1.1e-05 | 46 |
| HLA-A*31:01 | 1 | 989 | 998 | 10 | AEVQIDRLIT 1.1e-05 | 67 |
| HLA-A*11:01 | 1 | 993 | 1002 | 10 | IDRLITGRLQ 1.1e-05 | 46 |
| HLA-B*44:02 | 1 | 994 | 1003 | 10 | DRLITGRLQS 1.1e-05 | 53 |
| HLA-B*44:03 | 1 | 998 | 1006 | 9 | TGRLQSLQT 1.1e-05 | 49 |
| HLA-B*44:03 | 1 | 1007 | 1016 | 10 | YVTQQLIRAA 1.1e-05 | 49 |
| HLA-A*03:01 | 1 | 1009 | 1018 | 10 | TQQLIRAAEI 1.1e-05 | 60 |
| HLA-A*32:01 | 1 | 1013 | 1021 | 9 | IRAAEIRAS 1.1e-05 | 51 |
| HLA-A*11:01 | 1 | 1015 | 1023 | 9 | AAEIRASAN 1.1e-05 | 46 |
| HLA-A*24:02 | 1 | 1016 | 1025 | 10 | AEIRASANLA 1.1e-05 | 44 |
| HLA-A*24:02 | 1 | 1017 | 1026 | 10 | EIRASANLAA 1.1e-05 | 44 |
| HLA-B*15:01 | 1 | 1018 | 1027 | 10 | IRASANLAAT 1.1e-05 | 64 |
| HLA-A*11:01 | 1 | 1021 | 1030 | 10 | SANLAATKMS 1.1e-05 | 46 |
| HLA-B*44:02 | 1 | 1022 | 1031 | 10 | ANLAATKMSE 1.1e-05 | 53 |
| HLA-A*24:02 | 1 | 1023 | 1031 | 9 | NLAATKMSE 1.1e-05 | 44 |
| HLA-B*44:02 | 1 | 1023 | 1032 | 10 | NLAATKMSEC 1.1e-05 | 53 |
| HLA-A*24:02 | 1 | 1028 | 1036 | 9 | KMSECVLGQ 1.1e-05 | 44 |
| HLA-B*07:02 | 1 | 1028 | 1037 | 10 | KMSECVLGQS 1.1e-05 | 64 |
| HLA-A*68:02 | 1 | 1034 | 1043 | 10 | LGQSKRVDFC 1.1e-05 | 65 |
| HLA-A*02:01 | 1 | 1037 | 1045 | 9 | SKRVDFCGK 1.1e-05 | 64 |
| HLA-A*26:01 | 1 | 1037 | 1046 | 10 | SKRVDFCGKG 1.1e-05 | 59 |
| HLA-A*32:01 | 1 | 1040 | 1048 | 9 | VDFCGKGYH 1.1e-05 | 51 |
| HLA-B*53:01 | 1 | 1040 | 1048 | 9 | VDFCGKGYH 1.1e-05 | 49 |
| HLA-B*58:01 | 1 | 1042 | 1051 | 10 | FCGKGYHLMS 1.1e-05 | 71 |
| HLA-A*11:01 | 1 | 1043 | 1052 | 10 | CGKGYHLMSF 1.1e-05 | 46 |
| HLA-A*01:01 | 1 | 1046 | 1055 | 10 | GYHLMSFPQS 1.1e-05 | 87 |
| HLA-A*02:01 | 1 | 1046 | 1055 | 10 | GYHLMSFPQS 1.1e-05 | 64 |
| HLA-A*32:01 | 1 | 1047 | 1055 | 9 | YHLMSFPQS 1.1e-05 | 51 |
| HLA-A*23:01 | 1 | 1049 | 1058 | 10 | LMSFPQSAPH 1.1e-05 | 46 |
| HLA-A*11:01 | 1 | 1052 | 1061 | 10 | FPQSAPHGVV 1.1e-05 | 46 |
| HLA-A*26:01 | 1 | 1061 | 1070 | 10 | VFLHVTVVPA 1.1e-05 | 59 |
| HLA-A*02:01 | 1 | 1063 | 1071 | 9 | LHVTVVPAQ 1.1e-05 | 64 |
| HLA-A*23:01 | 1 | 1064 | 1072 | 9 | HVTVVPAQE 1.1e-05 | 46 |
| HLA-A*03:01 | 1 | 1074 | 1082 | 9 | NFTTAPAIC 1.1e-05 | 60 |
| HLA-A*02:01 | 1 | 1076 | 1085 | 10 | TTAPAICHDG 1.1e-05 | 64 |
| HLA-A*33:01 | 1 | 1078 | 1087 | 10 | APAICHDGKA 1.1e-05 | 72 |
| HLA-B*15:01 | 1 | 1078 | 1087 | 10 | APAICHDGKA 1.1e-05 | 64 |
| HLA-B*53:01 | 1 | 1082 | 1091 | 10 | CHDGKAHFPR 1.1e-05 | 49 |
| HLA-A*24:02 | 1 | 1084 | 1092 | 9 | DGKAHFPRE 1.1e-05 | 44 |
| HLA-B*58:01 | 1 | 1085 | 1093 | 9 | GKAHFREG 1.1e-05 | 71 |
| HLA-B*44:03 | 1 | 1088 | 1097 | 10 | HFPREGVFVS 1.1e-05 | 49 |
| HLA-A*01:01 | 1 | 1091 | 1099 | 9 | REGVFVSNQ 1.1e-05 | 87 |
| HLA-A*02:06 | 1 | 1091 | 1099 | 9 | REGVFVSNQ 1.1e-05 | 73 |
| HLA-A*31:01 | 1 | 1091 | 1100 | 10 | REGVFVSNQT 1.1e-05 | 67 |
| HLA-A*33:01 | 1 | 1091 | 1100 | 10 | REGVFVSNQT 1.1e-05 | 72 |
| HLA-A*02:03 | 1 | 1092 | 1101 | 10 | EGVFVSNQTH 1.1e-05 | 67 |
| HLA-A*02:01 | 1 | 1097 | 1105 | 9 | SNGTHWFVT 1.1e-05 | 64 |
| HLA-A*32:01 | 1 | 1097 | 1106 | 10 | SNGTHWFVTQ 1.1e-05 | 51 |
| HLA-B*07:02 | 1 | 1100 | 1108 | 9 | THWFVTQRN 1.1e-05 | 64 |
| HLA-A*68:02 | 1 | 1102 | 1111 | 10 | WFVTQRNFYE 1.1e-05 | 65 |
| HLA-B*35:01 | 1 | 1103 | 1112 | 10 | FVTQRNFYEP 1.1e-05 | 50 |
| HLA-A*26:01 | 1 | 1104 | 1113 | 10 | VTQRNFYEPQ 1.1e-05 | 59 |
| HLA-A*68:02 | 1 | 1104 | 1113 | 10 | VTQRNFYEPQ 1.1e-05 | 65 |
| HLA-B*53:01 | 1 | 1105 | 1113 | 9 | TQRNFYEPQ 1.1e-05 | 49 |
| HLA-B*35:01 | 1 | 1106 | 1115 | 10 | QRNFYEPQII 1.1e-05 | 50 |
| HLA-A*02:01 | 1 | 1109 | 1118 | 10 | FYEPQIITTD 1.1e-05 | 64 |
| HLA-A*31:01 | 1 | 1110 | 1118 | 9 | YEPQIITTD 1.1e-05 | 67 |
| HLA-A*01:01 | 1 | 1111 | 1119 | 9 | EPQIITTDN 1.1e-05 | 87 |
| HLA-B*44:02 | 1 | 1111 | 1119 | 9 | EPQIITTDN 1.1e-05 | 53 |
| HLA-B*57:01 | 1 | 1111 | 1120 | 10 | EPQIITTDNT 1.1e-05 | 81 |
| HLA-A*02:01 | 1 | 1116 | 1125 | 10 | TTDNTFVSGN 1.1e-05 | 64 |
| HLA-A*68:01 | 1 | 1117 | 1126 | 10 | TDNTFVSGNC 1.1e-05 | 59 |
| HLA-B*40:01 | 1 | 1120 | 1129 | 10 | TFVSGNCDVV 1.1e-05 | 42 |
| HLA-A*03:01 | 1 | 1130 | 1139 | 10 | IGIVNNTVYD 1.1e-05 | 60 |
| HLA-A*68:01 | 1 | 1130 | 1139 | 10 | IGIVNNTVYD 1.1e-05 | 59 |
| HLA-B*08:01 | 1 | 1131 | 1139 | 9 | GIVNNTVYD 1.1e-05 | 83 |

| | | | | | | |
|-------------|---|------|------|----|--------------------|----|
| HLA-B*44:02 | 1 | 1132 | 1141 | 10 | IVNNTVYDPL 1.1e-05 | 53 |
| HLA-B*44:02 | 1 | 1134 | 1142 | 9 | NNTVYDPLQ 1.1e-05 | 53 |
| HLA-A*68:01 | 1 | 1137 | 1146 | 10 | VYDPLQPELD 1.1e-05 | 59 |
| HLA-A*31:01 | 1 | 1143 | 1151 | 9 | PELDSFKEE 1.1e-05 | 67 |
| HLA-A*68:01 | 1 | 1143 | 1152 | 10 | PELDSFKEEL 1.1e-05 | 59 |
| HLA-A*02:03 | 1 | 1145 | 1154 | 10 | LDSFKEELDK 1.1e-05 | 67 |
| HLA-B*51:01 | 1 | 1145 | 1153 | 9 | LDSFKEELD 1.1e-05 | 75 |
| HLA-A*26:01 | 1 | 1152 | 1161 | 10 | LDKYFKNHTS 1.1e-05 | 59 |
| HLA-A*31:01 | 1 | 1152 | 1161 | 10 | LDKYFKNHTS 1.1e-05 | 67 |
| HLA-A*02:01 | 1 | 1153 | 1162 | 10 | DKYFKNHTSP 1.1e-05 | 64 |
| HLA-B*58:01 | 1 | 1153 | 1161 | 9 | DKYFKNHTS 1.1e-05 | 71 |
| HLA-A*33:01 | 1 | 1158 | 1167 | 10 | NHTSPDVDLG 1.1e-05 | 72 |
| HLA-B*07:02 | 1 | 1158 | 1167 | 10 | NHTSPDVDLG 1.1e-05 | 64 |
| HLA-A*33:01 | 1 | 1159 | 1168 | 10 | HTSPDVDLGD 1.1e-05 | 72 |
| HLA-A*32:01 | 1 | 1166 | 1174 | 9 | LGDISGINA 1.1e-05 | 51 |
| HLA-B*44:02 | 1 | 1169 | 1177 | 9 | ISGINASVV 1.1e-05 | 53 |
| HLA-B*44:03 | 1 | 1169 | 1177 | 9 | ISGINASVV 1.1e-05 | 49 |
| HLA-A*03:01 | 1 | 1170 | 1178 | 9 | SGINASVVN 1.1e-05 | 60 |
| HLA-A*31:01 | 1 | 1170 | 1178 | 9 | SGINASVVN 1.1e-05 | 67 |
| HLA-B*07:02 | 1 | 1171 | 1180 | 10 | GINASVVNIQ 1.1e-05 | 64 |
| HLA-A*32:01 | 1 | 1172 | 1180 | 9 | INASVVNIQ 1.1e-05 | 51 |
| HLA-A*02:03 | 1 | 1173 | 1182 | 10 | NASVVNIQKE 1.1e-05 | 67 |
| HLA-B*44:02 | 1 | 1173 | 1182 | 10 | NASVVNIQKE 1.1e-05 | 53 |
| HLA-B*53:01 | 1 | 1175 | 1184 | 10 | SVVNIQKEID 1.1e-05 | 49 |
| HLA-B*51:01 | 1 | 1176 | 1185 | 10 | VVNIQKEIDR 1.1e-05 | 75 |
| HLA-B*53:01 | 1 | 1176 | 1185 | 10 | VVNIQKEIDR 1.1e-05 | 49 |
| HLA-A*24:02 | 1 | 1177 | 1185 | 9 | VNIQKEIDR 1.1e-05 | 44 |
| HLA-B*35:01 | 1 | 1177 | 1185 | 9 | VNIQKEIDR 1.1e-05 | 50 |
| HLA-B*07:02 | 1 | 1178 | 1187 | 10 | NIQKEIDRLN 1.1e-05 | 64 |
| HLA-B*40:01 | 1 | 1180 | 1188 | 9 | QKEIDRLNE 1.1e-05 | 42 |
| HLA-B*44:03 | 1 | 1180 | 1188 | 9 | QKEIDRLNE 1.1e-05 | 49 |
| HLA-B*08:01 | 1 | 1186 | 1195 | 10 | LNEVAKNLNE 1.1e-05 | 83 |
| HLA-A*11:01 | 1 | 1190 | 1198 | 9 | AKNLNESLI 1.1e-05 | 46 |
| HLA-A*02:01 | 1 | 1194 | 1202 | 9 | NESLIDLQE 1.1e-05 | 64 |
| HLA-A*23:01 | 1 | 1197 | 1205 | 9 | LIDLQELGK 1.1e-05 | 46 |
| HLA-A*24:02 | 1 | 1197 | 1205 | 9 | LIDLQELGK 1.1e-05 | 44 |
| HLA-B*44:03 | 1 | 1197 | 1205 | 9 | LIDLQELGK 1.1e-05 | 49 |
| HLA-A*32:01 | 1 | 1200 | 1208 | 9 | LQELGKYEQ 1.1e-05 | 51 |
| HLA-B*07:02 | 1 | 1202 | 1211 | 10 | ELGKYEQYIK 1.1e-05 | 64 |
| HLA-B*44:02 | 1 | 1203 | 1211 | 9 | LGKYEQYIK 1.1e-05 | 53 |
| HLA-A*02:01 | 1 | 1204 | 1213 | 10 | GKYEQYIKWP 1.1e-05 | 64 |
| HLA-B*51:01 | 1 | 1210 | 1219 | 10 | IKWPWYIWLG 1.1e-05 | 75 |
| HLA-A*26:01 | 1 | 1213 | 1221 | 9 | PWYIWLGFI 1.1e-05 | 59 |
| HLA-A*02:01 | 1 | 1214 | 1223 | 10 | WYIWLGFIA 1.1e-05 | 64 |
| HLA-A*11:01 | 1 | 1214 | 1222 | 9 | WYIWLGFIA 1.1e-05 | 46 |
| HLA-A*68:02 | 1 | 1214 | 1223 | 10 | WYIWLGFIA 1.1e-05 | 65 |
| HLA-A*68:01 | 1 | 1216 | 1225 | 10 | IWLGFIAGLI 1.1e-05 | 59 |
| HLA-A*33:01 | 1 | 1217 | 1226 | 10 | WLGFIAGLIA 1.1e-05 | 72 |
| HLA-B*07:02 | 1 | 1217 | 1225 | 9 | WLGFIAGLIA 1.1e-05 | 64 |
| HLA-B*07:02 | 1 | 1217 | 1226 | 10 | WLGFIAGLIA 1.1e-05 | 64 |
| HLA-B*58:01 | 1 | 1217 | 1226 | 10 | WLGFIAGLIA 1.1e-05 | 71 |
| HLA-B*44:02 | 1 | 1220 | 1229 | 10 | FIAGLIAIVM 1.1e-05 | 53 |
| HLA-A*23:01 | 1 | 1221 | 1230 | 10 | IAGLIAIVMV 1.1e-05 | 46 |
| HLA-A*68:01 | 1 | 1228 | 1237 | 10 | VMVTIMLCCM 1.1e-05 | 59 |
| HLA-A*33:01 | 1 | 1230 | 1239 | 10 | VTIMLCCMTC 1.1e-05 | 72 |
| HLA-A*33:01 | 1 | 1231 | 1240 | 10 | TIMLCCMTSC 1.1e-05 | 72 |
| HLA-A*30:02 | 1 | 1232 | 1241 | 10 | IMLCCMTSCC 1.1e-05 | 87 |
| HLA-B*58:01 | 1 | 1232 | 1240 | 9 | IMLCCMTSC 1.1e-05 | 71 |
| HLA-A*30:01 | 1 | 1234 | 1243 | 10 | LCCMTSCCSC 1.1e-05 | 88 |
| HLA-B*57:01 | 1 | 1234 | 1242 | 9 | LCCMTSCCS 1.1e-05 | 81 |
| HLA-A*01:01 | 1 | 1235 | 1243 | 9 | CCMTSCCSC 1.1e-05 | 87 |
| HLA-A*02:03 | 1 | 1235 | 1243 | 9 | CCMTSCCSC 1.1e-05 | 67 |
| HLA-A*02:01 | 1 | 1236 | 1245 | 10 | CMTSCCCLK 1.1e-05 | 64 |
| HLA-A*32:01 | 1 | 1236 | 1245 | 10 | CMTSCCCLK 1.1e-05 | 51 |
| HLA-A*33:01 | 1 | 1237 | 1246 | 10 | MTSCCCLKG 1.1e-05 | 72 |
| HLA-B*51:01 | 1 | 1238 | 1246 | 9 | TSCCCLKG 1.1e-05 | 75 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|---------|----|
| HLA-A*02:03 | 1 | 1239 | 1247 | 9 | SCCSCLKGC | 1.1e-05 | 67 |
| HLA-B*57:01 | 1 | 1240 | 1248 | 9 | CCSCLKGCC | 1.1e-05 | 81 |
| HLA-A*33:01 | 1 | 1241 | 1249 | 9 | CCLKGCCS | 1.1e-05 | 72 |
| HLA-B*15:01 | 1 | 1241 | 1249 | 9 | CCLKGCCS | 1.1e-05 | 64 |
| HLA-A*32:01 | 1 | 1242 | 1250 | 9 | SCLKGCCSC | 1.1e-05 | 51 |
| HLA-B*58:01 | 1 | 1246 | 1255 | 10 | GCCSCGSCCK | 1.1e-05 | 71 |
| HLA-B*44:03 | 1 | 1247 | 1256 | 10 | CCSCGSCCKF | 1.1e-05 | 49 |
| HLA-A*30:01 | 1 | 1251 | 1259 | 9 | GSCCKFDED | 1.1e-05 | 88 |
| HLA-A*01:01 | 1 | 1253 | 1262 | 10 | CCKFDEDDSE | 1.1e-05 | 87 |
| HLA-A*26:01 | 1 | 1255 | 1263 | 9 | KFDEDDSEP | 1.1e-05 | 59 |
| HLA-B*35:01 | 1 | 1258 | 1267 | 10 | EDDSEPVKLG | 1.1e-05 | 50 |
| HLA-A*02:03 | 1 | 1259 | 1267 | 9 | DDSEPVKLG | 1.1e-05 | 67 |
| HLA-B*40:01 | 1 | 1260 | 1269 | 10 | DSEPVKGVK | 1.1e-05 | 42 |
| HLA-B*35:01 | 1 | 2 | 11 | 10 | FVFLVLLPLV | 1e-05 | 51 |
| HLA-A*23:01 | 1 | 5 | 13 | 9 | LVLLPLVSS | 1e-05 | 48 |
| HLA-B*44:03 | 1 | 6 | 15 | 10 | VLLPLVSSQC | 1e-05 | 51 |
| HLA-B*44:02 | 1 | 7 | 16 | 10 | LLPLVSSQCV | 1e-05 | 55 |
| HLA-A*11:01 | 1 | 8 | 16 | 9 | LPLVSSQCV | 1e-05 | 47 |
| HLA-B*58:01 | 1 | 8 | 17 | 10 | LPLVSSQCVN | 1e-05 | 72 |
| HLA-B*40:01 | 1 | 9 | 18 | 10 | PLVSSQCVNL | 1e-05 | 43 |
| HLA-A*24:02 | 1 | 12 | 20 | 9 | SSQCVNLTT | 1e-05 | 46 |
| HLA-A*24:02 | 1 | 13 | 22 | 10 | SQCVNLTTTRT | 1e-05 | 46 |
| HLA-A*32:01 | 1 | 14 | 22 | 9 | QCVNLTTTRT | 1e-05 | 52 |
| HLA-B*44:03 | 1 | 24 | 33 | 10 | LPPAYTNSFT | 1e-05 | 51 |
| HLA-A*26:01 | 1 | 33 | 42 | 10 | TRGVYYPDKV | 1e-05 | 60 |
| HLA-A*32:01 | 1 | 33 | 41 | 9 | TRGVYYPDK | 1e-05 | 52 |
| HLA-B*53:01 | 1 | 33 | 42 | 10 | TRGVYYPDKV | 1e-05 | 51 |
| HLA-A*68:02 | 1 | 39 | 48 | 10 | PDKVFRSSVL | 1e-05 | 66 |
| HLA-B*44:03 | 1 | 42 | 50 | 9 | VFRSSVLHS | 1e-05 | 51 |
| HLA-B*53:01 | 1 | 42 | 50 | 9 | VFRSSVLHS | 1e-05 | 51 |
| HLA-A*02:06 | 1 | 44 | 53 | 10 | RSSVLHSTQD | 1e-05 | 74 |
| HLA-A*02:01 | 1 | 45 | 53 | 9 | SSVLHSTQD | 1e-05 | 66 |
| HLA-B*58:01 | 1 | 54 | 63 | 10 | LFLPFFSNVT | 1e-05 | 72 |
| HLA-B*44:02 | 1 | 59 | 67 | 9 | FSNVTWFHA | 1e-05 | 55 |
| HLA-A*02:01 | 1 | 60 | 69 | 10 | SNVTWFHAIH | 1e-05 | 66 |
| HLA-B*40:01 | 1 | 61 | 70 | 10 | NVTWFHAIHV | 1e-05 | 43 |
| HLA-B*44:03 | 1 | 61 | 70 | 10 | NVTWFHAIHV | 1e-05 | 51 |
| HLA-A*02:03 | 1 | 65 | 74 | 10 | FHAIHVSQTN | 1e-05 | 68 |
| HLA-A*26:01 | 1 | 65 | 74 | 10 | FHAIHVSQTN | 1e-05 | 60 |
| HLA-B*57:01 | 1 | 65 | 73 | 9 | FHAIHVSQT | 1e-05 | 83 |
| HLA-B*51:01 | 1 | 71 | 80 | 10 | SGTNGTKRFD | 1e-05 | 76 |
| HLA-A*31:01 | 1 | 74 | 82 | 9 | NGTKRFDNP | 1e-05 | 68 |
| HLA-B*07:02 | 1 | 74 | 82 | 9 | NGTKRFDNP | 1e-05 | 65 |
| HLA-A*68:02 | 1 | 78 | 87 | 10 | RFDNPVLPFN | 1e-05 | 66 |
| HLA-A*24:02 | 1 | 81 | 90 | 10 | NPVLPFNDGV | 1e-05 | 46 |
| HLA-A*68:02 | 1 | 85 | 94 | 10 | PFNDGVYFAS | 1e-05 | 66 |
| HLA-A*24:02 | 1 | 86 | 94 | 9 | FNDGVYFAS | 1e-05 | 46 |
| HLA-A*32:01 | 1 | 86 | 94 | 9 | FNDGVYFAS | 1e-05 | 52 |
| HLA-A*26:01 | 1 | 87 | 96 | 10 | NDGVYFASTE | 1e-05 | 60 |
| HLA-A*68:01 | 1 | 87 | 95 | 9 | NDGVYFAST | 1e-05 | 61 |
| HLA-A*26:01 | 1 | 90 | 99 | 10 | VYFASTEKSN | 1e-05 | 60 |
| HLA-A*68:02 | 1 | 90 | 99 | 10 | VYFASTEKSN | 1e-05 | 66 |
| HLA-B*08:01 | 1 | 90 | 99 | 10 | VYFASTEKSN | 1e-05 | 84 |
| HLA-B*15:01 | 1 | 90 | 99 | 10 | VYFASTEKSN | 1e-05 | 65 |
| HLA-A*68:02 | 1 | 91 | 99 | 9 | YFASTEKSN | 1e-05 | 66 |
| HLA-B*44:02 | 1 | 91 | 99 | 9 | YFASTEKSN | 1e-05 | 55 |
| HLA-A*11:01 | 1 | 98 | 107 | 10 | SNIRGWIFG | 1e-05 | 47 |
| HLA-B*44:02 | 1 | 98 | 107 | 10 | SNIRGWIFG | 1e-05 | 55 |
| HLA-A*23:01 | 1 | 99 | 107 | 9 | NIIRGWIFG | 1e-05 | 48 |
| HLA-A*31:01 | 1 | 101 | 109 | 9 | IRGWIFGTT | 1e-05 | 68 |
| HLA-B*08:01 | 1 | 103 | 112 | 10 | GWIFGTTLDS | 1e-05 | 84 |
| HLA-B*58:01 | 1 | 105 | 114 | 10 | IFGTTLDSKT | 1e-05 | 72 |
| HLA-A*02:01 | 1 | 106 | 115 | 10 | FGTTLDSKTQ | 1e-05 | 66 |
| HLA-A*31:01 | 1 | 106 | 114 | 9 | FGTTLDSKT | 1e-05 | 68 |
| HLA-B*44:02 | 1 | 107 | 116 | 10 | GTTLDSKTQS | 1e-05 | 55 |
| HLA-B*53:01 | 1 | 107 | 115 | 9 | GTTLDSKTQ | 1e-05 | 51 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-A*32:01 | 1 | 112 | 121 | 10 | SKTQSL LIVN 1e-05 | 52 |
| HLA-B*07:02 | 1 | 114 | 122 | 9 | TQSL LIVN 1e-05 | 65 |
| HLA-B*44:02 | 1 | 123 | 132 | 10 | ATNVV IKVCE 1e-05 | 55 |
| HLA-A*32:01 | 1 | 125 | 134 | 10 | NVVIKVCE FQ 1e-05 | 52 |
| HLA-A*23:01 | 1 | 128 | 136 | 9 | IKVCE FQFC 1e-05 | 48 |
| HLA-A*30:02 | 1 | 128 | 137 | 10 | IKVCE FQFCN 1e-05 | 88 |
| HLA-A*31:01 | 1 | 129 | 138 | 10 | KVCE FQFCND 1e-05 | 68 |
| HLA-B*15:01 | 1 | 131 | 139 | 9 | CE FQFCNDP 1e-05 | 65 |
| HLA-A*03:01 | 1 | 134 | 142 | 9 | QFCNDP FLG 1e-05 | 62 |
| HLA-A*32:01 | 1 | 134 | 142 | 9 | QFCNDP FLG 1e-05 | 52 |
| HLA-A*68:02 | 1 | 134 | 142 | 9 | QFCNDP FLG 1e-05 | 66 |
| HLA-A*02:06 | 1 | 137 | 146 | 10 | NDP FLGVYYH 1e-05 | 74 |
| HLA-B*15:01 | 1 | 140 | 148 | 9 | FLGVYYHKN 1e-05 | 65 |
| HLA-B*40:01 | 1 | 145 | 154 | 10 | YHKNNKSWME 1e-05 | 43 |
| HLA-A*02:01 | 1 | 146 | 154 | 9 | HKNNKSWME 1e-05 | 66 |
| HLA-B*07:02 | 1 | 146 | 155 | 10 | HKNNKSWMES 1e-05 | 65 |
| HLA-B*53:01 | 1 | 146 | 154 | 9 | HKNNKSWME 1e-05 | 51 |
| HLA-A*02:03 | 1 | 147 | 156 | 10 | KNNKSWMESE 1e-05 | 68 |
| HLA-A*26:01 | 1 | 147 | 155 | 9 | KNNKSWMES 1e-05 | 60 |
| HLA-A*23:01 | 1 | 148 | 156 | 9 | NNKSWMESE 1e-05 | 48 |
| HLA-B*07:02 | 1 | 148 | 156 | 9 | NNKSWMESE 1e-05 | 65 |
| HLA-A*02:03 | 1 | 149 | 158 | 10 | NKSWMESEFR 1e-05 | 68 |
| HLA-B*07:02 | 1 | 149 | 158 | 10 | NKSWMESEFR 1e-05 | 65 |
| HLA-A*32:01 | 1 | 152 | 161 | 10 | WMESEFRVYS 1e-05 | 52 |
| HLA-A*11:01 | 1 | 153 | 162 | 10 | MESEFRVYSS 1e-05 | 47 |
| HLA-B*15:01 | 1 | 154 | 162 | 9 | ESEFRVYSS 1e-05 | 65 |
| HLA-A*03:01 | 1 | 155 | 164 | 10 | SEFRVYSSAN 1e-05 | 62 |
| HLA-A*26:01 | 1 | 155 | 164 | 10 | SEFRVYSSAN 1e-05 | 60 |
| HLA-B*15:01 | 1 | 156 | 164 | 9 | EFRVYSSAN 1e-05 | 65 |
| HLA-B*07:02 | 1 | 165 | 173 | 9 | NCTFEYVSQ 1e-05 | 65 |
| HLA-A*24:02 | 1 | 172 | 181 | 10 | SQPFLMDLEG 1e-05 | 46 |
| HLA-A*32:01 | 1 | 172 | 180 | 9 | SQPFLMDLE 1e-05 | 52 |
| HLA-A*03:01 | 1 | 174 | 183 | 10 | PFLMDLEGKQ 1e-05 | 62 |
| HLA-A*03:01 | 1 | 175 | 184 | 10 | FLMDLEGKQG 1e-05 | 62 |
| HLA-A*24:02 | 1 | 175 | 183 | 9 | FLMDLEGKQ 1e-05 | 46 |
| HLA-A*26:01 | 1 | 175 | 184 | 10 | FLMDLEGKQG 1e-05 | 60 |
| HLA-B*44:02 | 1 | 175 | 184 | 10 | FLMDLEGKQG 1e-05 | 55 |
| HLA-B*40:01 | 1 | 178 | 187 | 10 | DLEGKQGNFK 1e-05 | 43 |
| HLA-A*31:01 | 1 | 180 | 188 | 9 | EGKQGNFKN 1e-05 | 68 |
| HLA-B*35:01 | 1 | 186 | 195 | 10 | FKNLREFVFK 1e-05 | 51 |
| HLA-B*53:01 | 1 | 186 | 195 | 10 | FKNLREFVFK 1e-05 | 51 |
| HLA-A*30:01 | 1 | 189 | 198 | 10 | LREFVFKNID 1e-05 | 89 |
| HLA-B*40:01 | 1 | 189 | 198 | 10 | LREFVFKNID 1e-05 | 43 |
| HLA-B*15:01 | 1 | 190 | 198 | 9 | REFVFKNID 1e-05 | 65 |
| HLA-A*02:03 | 1 | 191 | 199 | 9 | EFVFKNIDG 1e-05 | 68 |
| HLA-A*02:01 | 1 | 197 | 205 | 9 | IDGYFKIYS 1e-05 | 66 |
| HLA-B*57:01 | 1 | 197 | 205 | 9 | IDGYFKIYS 1e-05 | 83 |
| HLA-A*02:01 | 1 | 206 | 215 | 10 | KHTPINLVRD 1e-05 | 66 |
| HLA-B*08:01 | 1 | 206 | 215 | 10 | KHTPINLVRD 1e-05 | 84 |
| HLA-B*44:03 | 1 | 206 | 215 | 10 | KHTPINLVRD 1e-05 | 51 |
| HLA-B*15:01 | 1 | 207 | 215 | 9 | HTPINLVRD 1e-05 | 65 |
| HLA-A*31:01 | 1 | 209 | 217 | 9 | PINLVRDLP 1e-05 | 68 |
| HLA-A*68:01 | 1 | 209 | 218 | 10 | PINLVRDLPQ 1e-05 | 61 |
| HLA-A*02:01 | 1 | 216 | 224 | 9 | LPQGFSALE 1e-05 | 66 |
| HLA-A*03:01 | 1 | 217 | 225 | 9 | PQGFSALEP 1e-05 | 62 |
| HLA-A*03:01 | 1 | 217 | 226 | 10 | PQGFSALEPL 1e-05 | 62 |
| HLA-A*32:01 | 1 | 220 | 228 | 9 | FSALEPLVD 1e-05 | 52 |
| HLA-A*68:01 | 1 | 220 | 228 | 9 | FSALEPLVD 1e-05 | 61 |
| HLA-A*24:02 | 1 | 221 | 230 | 10 | SALEPLVDLP 1e-05 | 46 |
| HLA-A*01:01 | 1 | 223 | 232 | 10 | LEPLVDLPIG 1e-05 | 88 |
| HLA-B*57:01 | 1 | 223 | 232 | 10 | LEPLVDLPIG 1e-05 | 83 |
| HLA-A*26:01 | 1 | 227 | 236 | 10 | VDLPIGINIT 1e-05 | 60 |
| HLA-A*24:02 | 1 | 231 | 239 | 9 | IGINITRFQ 1e-05 | 46 |
| HLA-B*44:03 | 1 | 231 | 239 | 9 | IGINITRFQ 1e-05 | 51 |
| HLA-B*44:02 | 1 | 234 | 243 | 10 | NITRFQTLA 1e-05 | 55 |
| HLA-A*30:02 | 1 | 244 | 253 | 10 | LHRSYLT PGD 1e-05 | 88 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-A*33:01 | 1 | 248 | 257 | 10 | YLTPGDSSSSG 1e-05 | 73 |
| HLA-B*44:03 | 1 | 251 | 260 | 10 | PGDSSSGWTA 1e-05 | 51 |
| HLA-B*08:01 | 1 | 252 | 261 | 10 | GDSSSGWTAG 1e-05 | 84 |
| HLA-B*15:01 | 1 | 252 | 261 | 10 | GDSSSGWTAG 1e-05 | 65 |
| HLA-B*51:01 | 1 | 252 | 261 | 10 | GDSSSGWTAG 1e-05 | 76 |
| HLA-B*44:02 | 1 | 253 | 261 | 9 | DSSSGWTAG 1e-05 | 55 |
| HLA-B*40:01 | 1 | 254 | 263 | 10 | SSSGWTAGAA 1e-05 | 43 |
| HLA-A*31:01 | 1 | 260 | 268 | 9 | AGAAAYYVG 1e-05 | 68 |
| HLA-B*35:01 | 1 | 260 | 268 | 9 | AGAAAYYVG 1e-05 | 51 |
| HLA-B*44:02 | 1 | 262 | 271 | 10 | AAAYYVGYLQ 1e-05 | 55 |
| HLA-A*24:02 | 1 | 263 | 271 | 9 | AAYYVGYLQ 1e-05 | 46 |
| HLA-B*35:01 | 1 | 275 | 283 | 9 | FLLKYNENG 1e-05 | 51 |
| HLA-B*44:03 | 1 | 276 | 284 | 9 | LLKYNENGIT 1e-05 | 51 |
| HLA-B*57:01 | 1 | 277 | 286 | 10 | LKYNENGTIT 1e-05 | 83 |
| HLA-B*58:01 | 1 | 277 | 286 | 10 | LKYNENGTIT 1e-05 | 72 |
| HLA-B*44:02 | 1 | 278 | 287 | 10 | KYNENGTITD 1e-05 | 55 |
| HLA-B*57:01 | 1 | 279 | 287 | 9 | YNENGTITD 1e-05 | 83 |
| HLA-A*30:02 | 1 | 282 | 291 | 10 | NGTITDAVDC 1e-05 | 88 |
| HLA-B*44:03 | 1 | 286 | 295 | 10 | TDAVDCALDP 1e-05 | 51 |
| HLA-A*32:01 | 1 | 288 | 297 | 10 | AVDCALDPLS 1e-05 | 52 |
| HLA-B*15:01 | 1 | 289 | 298 | 10 | VDCALDPLSE 1e-05 | 65 |
| HLA-B*44:02 | 1 | 289 | 297 | 9 | VDCALDPLS 1e-05 | 55 |
| HLA-B*51:01 | 1 | 289 | 298 | 10 | VDCALDPLSE 1e-05 | 76 |
| HLA-A*31:01 | 1 | 290 | 299 | 10 | DCALDPLSET 1e-05 | 68 |
| HLA-B*15:01 | 1 | 290 | 298 | 9 | DCALDPLSE 1e-05 | 65 |
| HLA-B*15:01 | 1 | 293 | 301 | 9 | LDPLSETKC 1e-05 | 65 |
| HLA-A*02:03 | 1 | 294 | 302 | 9 | DPLSETKCT 1e-05 | 68 |
| HLA-A*24:02 | 1 | 294 | 302 | 9 | DPLSETKCT 1e-05 | 46 |
| HLA-B*57:01 | 1 | 294 | 302 | 9 | DPLSETKCT 1e-05 | 83 |
| HLA-A*23:01 | 1 | 295 | 304 | 10 | PLSETKCTLK 1e-05 | 48 |
| HLA-B*07:02 | 1 | 295 | 304 | 10 | PLSETKCTLK 1e-05 | 65 |
| HLA-A*68:02 | 1 | 296 | 305 | 10 | LSETKCTLKS 1e-05 | 66 |
| HLA-B*40:01 | 1 | 296 | 305 | 10 | LSETKCTLKS 1e-05 | 43 |
| HLA-A*03:01 | 1 | 298 | 307 | 10 | ETKCTLKSFT 1e-05 | 62 |
| HLA-A*26:01 | 1 | 299 | 307 | 9 | TKCTLKSFT 1e-05 | 60 |
| HLA-A*32:01 | 1 | 299 | 308 | 10 | TKCTLKSFTV 1e-05 | 52 |
| HLA-A*23:01 | 1 | 303 | 312 | 10 | LKSFTVEKGI 1e-05 | 48 |
| HLA-A*30:01 | 1 | 309 | 317 | 9 | EKGIYQTSN 1e-05 | 89 |
| HLA-B*44:03 | 1 | 309 | 317 | 9 | EKGIYQTSN 1e-05 | 51 |
| HLA-B*44:02 | 1 | 315 | 324 | 10 | TSNFRVQPT 1e-05 | 55 |
| HLA-A*23:01 | 1 | 316 | 325 | 10 | SNFRVQPTES 1e-05 | 48 |
| HLA-A*26:01 | 1 | 316 | 325 | 10 | SNFRVQPTES 1e-05 | 60 |
| HLA-A*30:01 | 1 | 322 | 331 | 10 | PTESIVRFPN 1e-05 | 89 |
| HLA-B*53:01 | 1 | 323 | 331 | 9 | TESIVRFPN 1e-05 | 51 |
| HLA-B*58:01 | 1 | 323 | 331 | 9 | TESIVRFPN 1e-05 | 72 |
| HLA-B*53:01 | 1 | 325 | 334 | 10 | SIVRFPNITN 1e-05 | 51 |
| HLA-B*44:02 | 1 | 328 | 337 | 10 | RFPNITNLCP 1e-05 | 55 |
| HLA-A*31:01 | 1 | 329 | 337 | 9 | FPNITNLCP 1e-05 | 68 |
| HLA-A*02:03 | 1 | 330 | 338 | 9 | PNITNLCPF 1e-05 | 68 |
| HLA-B*44:03 | 1 | 334 | 343 | 10 | NLCPFGEVFN 1e-05 | 51 |
| HLA-B*44:02 | 1 | 335 | 344 | 10 | LCPFGEVFN 1e-05 | 55 |
| HLA-A*26:01 | 1 | 337 | 345 | 9 | PFGEVFNAT 1e-05 | 60 |
| HLA-A*24:02 | 1 | 339 | 348 | 10 | GEVFNATRFA 1e-05 | 46 |
| HLA-B*44:03 | 1 | 340 | 349 | 10 | EVFNATRFAS 1e-05 | 51 |
| HLA-A*32:01 | 1 | 351 | 360 | 10 | YAWNRKRISN 1e-05 | 52 |
| HLA-A*32:01 | 1 | 352 | 360 | 9 | AWNRKRISN 1e-05 | 52 |
| HLA-A*23:01 | 1 | 353 | 361 | 9 | WNRKRISNC 1e-05 | 48 |
| HLA-A*68:02 | 1 | 356 | 365 | 10 | KRISNCVADY 1e-05 | 66 |
| HLA-B*07:02 | 1 | 357 | 366 | 10 | RISNCVADYS 1e-05 | 65 |
| HLA-A*26:01 | 1 | 358 | 367 | 10 | ISNCVADYSV 1e-05 | 60 |
| HLA-B*15:01 | 1 | 358 | 366 | 9 | ISNCVADYS 1e-05 | 65 |
| HLA-B*44:03 | 1 | 361 | 370 | 10 | CVADYSVLYN 1e-05 | 51 |
| HLA-B*44:02 | 1 | 367 | 376 | 10 | VLYNSASFST 1e-05 | 55 |
| HLA-B*40:01 | 1 | 369 | 378 | 10 | YNSASFSTFK 1e-05 | 43 |
| HLA-A*02:06 | 1 | 376 | 385 | 10 | TFKCYGVSPT 1e-05 | 74 |
| HLA-B*58:01 | 1 | 376 | 384 | 9 | TFKCYGVSP 1e-05 | 72 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-A*26:01 | 1 | 377 | 385 | 9 | FKCYGVSPT | 1e-05 | 60 |
| HLA-A*11:01 | 1 | 380 | 388 | 9 | YGVSPTKLN | 1e-05 | 47 |
| HLA-B*44:02 | 1 | 381 | 389 | 9 | GVSPTKLN | 1e-05 | 55 |
| HLA-B*15:01 | 1 | 382 | 391 | 10 | VSPTKLN | 1e-05 | 65 |
| HLA-B*57:01 | 1 | 385 | 393 | 9 | TKLNLCFT | 1e-05 | 83 |
| HLA-B*44:02 | 1 | 386 | 394 | 9 | KLNLCFTN | 1e-05 | 55 |
| HLA-A*30:02 | 1 | 390 | 399 | 10 | LCFTNVYADS | 1e-05 | 88 |
| HLA-A*02:01 | 1 | 391 | 400 | 10 | CFTNVYADSF | 1e-05 | 66 |
| HLA-A*03:01 | 1 | 393 | 401 | 9 | TNVYADSFV | 1e-05 | 62 |
| HLA-A*30:02 | 1 | 397 | 405 | 9 | ADSFVIRGD | 1e-05 | 88 |
| HLA-A*31:01 | 1 | 397 | 406 | 10 | ADSFVIRGDE | 1e-05 | 68 |
| HLA-A*68:01 | 1 | 397 | 405 | 9 | ADSFVIRGD | 1e-05 | 61 |
| HLA-B*51:01 | 1 | 397 | 405 | 9 | ADSFVIRGD | 1e-05 | 76 |
| HLA-A*03:01 | 1 | 398 | 407 | 10 | DSFVIRGDEV | 1e-05 | 62 |
| HLA-B*44:03 | 1 | 400 | 409 | 10 | FVIRGDEV | 1e-05 | 51 |
| HLA-A*30:02 | 1 | 404 | 412 | 9 | GDEV | 1e-05 | 88 |
| HLA-A*02:06 | 1 | 405 | 414 | 10 | DEV | 1e-05 | 74 |
| HLA-A*31:01 | 1 | 407 | 415 | 9 | VRQIAPGQT | 1e-05 | 68 |
| HLA-A*33:01 | 1 | 407 | 415 | 9 | VRQIAPGQT | 1e-05 | 73 |
| HLA-A*02:01 | 1 | 412 | 421 | 10 | PGQTGKIADY | 1e-05 | 66 |
| HLA-A*68:01 | 1 | 413 | 422 | 10 | GQTGKIADYN | 1e-05 | 61 |
| HLA-A*32:01 | 1 | 414 | 422 | 9 | QTGKIADYN | 1e-05 | 52 |
| HLA-A*26:01 | 1 | 418 | 426 | 9 | IADYNYKLP | 1e-05 | 60 |
| HLA-A*33:01 | 1 | 419 | 427 | 9 | ADYNYKLPD | 1e-05 | 73 |
| HLA-A*32:01 | 1 | 423 | 431 | 9 | YKLPDDFTG | 1e-05 | 52 |
| HLA-A*68:01 | 1 | 425 | 434 | 10 | LPDDFTGCVI | 1e-05 | 61 |
| HLA-A*02:06 | 1 | 426 | 434 | 9 | PDDFTGCVI | 1e-05 | 74 |
| HLA-B*57:01 | 1 | 426 | 434 | 9 | PDDFTGCVI | 1e-05 | 83 |
| HLA-B*40:01 | 1 | 428 | 436 | 9 | DFTGCVIAW | 1e-05 | 43 |
| HLA-B*58:01 | 1 | 428 | 437 | 10 | DFTGCVIAWN | 1e-05 | 72 |
| HLA-A*30:02 | 1 | 429 | 437 | 9 | FTGCVIAWN | 1e-05 | 88 |
| HLA-A*31:01 | 1 | 429 | 438 | 10 | FTGCVIAWNS | 1e-05 | 68 |
| HLA-A*01:01 | 1 | 430 | 439 | 10 | TGCVIAWNSN | 1e-05 | 88 |
| HLA-A*02:03 | 1 | 430 | 438 | 9 | TGCVIAWNS | 1e-05 | 68 |
| HLA-A*30:02 | 1 | 430 | 439 | 10 | TGCVIAWNSN | 1e-05 | 88 |
| HLA-B*35:01 | 1 | 430 | 438 | 9 | TGCVIAWNS | 1e-05 | 51 |
| HLA-A*01:01 | 1 | 431 | 440 | 10 | GCVIAWNSNN | 1e-05 | 88 |
| HLA-A*68:01 | 1 | 433 | 442 | 10 | VIWNSNNLD | 1e-05 | 61 |
| HLA-A*31:01 | 1 | 434 | 442 | 9 | IWNSNNLD | 1e-05 | 68 |
| HLA-A*33:01 | 1 | 434 | 442 | 9 | IWNSNNLD | 1e-05 | 73 |
| HLA-A*11:01 | 1 | 435 | 443 | 9 | AWNSNNLDS | 1e-05 | 47 |
| HLA-A*68:02 | 1 | 435 | 443 | 9 | AWNSNNLDS | 1e-05 | 66 |
| HLA-B*57:01 | 1 | 435 | 443 | 9 | AWNSNNLDS | 1e-05 | 83 |
| HLA-B*44:03 | 1 | 436 | 445 | 10 | WNSNNLDSKV | 1e-05 | 51 |
| HLA-A*68:01 | 1 | 439 | 447 | 9 | NNLDSKVGG | 1e-05 | 61 |
| HLA-A*30:01 | 1 | 440 | 448 | 9 | NLDSKVGGN | 1e-05 | 89 |
| HLA-B*35:01 | 1 | 441 | 450 | 10 | LDSKVGGNYN | 1e-05 | 51 |
| HLA-A*31:01 | 1 | 442 | 450 | 9 | DSKVGGNYN | 1e-05 | 68 |
| HLA-B*07:02 | 1 | 446 | 454 | 9 | GGNYNYLYR | 1e-05 | 65 |
| HLA-A*02:06 | 1 | 448 | 457 | 10 | NYNYLYR | 1e-05 | 74 |
| HLA-B*07:02 | 1 | 448 | 457 | 10 | NYNYLYR | 1e-05 | 65 |
| HLA-B*44:02 | 1 | 455 | 463 | 9 | LFRKSNLKP | 1e-05 | 55 |
| HLA-A*32:01 | 1 | 457 | 465 | 9 | RKSNLKPFE | 1e-05 | 52 |
| HLA-A*02:06 | 1 | 458 | 467 | 10 | KSNLKPFERD | 1e-05 | 74 |
| HLA-A*11:01 | 1 | 459 | 468 | 10 | SNLKPFERDI | 1e-05 | 47 |
| HLA-A*30:02 | 1 | 461 | 469 | 9 | LKPFERDIS | 1e-05 | 88 |
| HLA-A*02:01 | 1 | 465 | 474 | 10 | ERDISTEIQ | 1e-05 | 66 |
| HLA-A*26:01 | 1 | 473 | 482 | 10 | YQAGSTPCNG | 1e-05 | 60 |
| HLA-B*07:02 | 1 | 473 | 482 | 10 | YQAGSTPCNG | 1e-05 | 65 |
| HLA-A*24:02 | 1 | 474 | 483 | 10 | QAGSTPCNGV | 1e-05 | 46 |
| HLA-A*33:01 | 1 | 475 | 484 | 10 | AGSTPCNGVE | 1e-05 | 73 |
| HLA-A*02:03 | 1 | 476 | 485 | 10 | GSTPCNGVEG | 1e-05 | 68 |
| HLA-B*07:02 | 1 | 476 | 484 | 9 | GSTPCNGVE | 1e-05 | 65 |
| HLA-B*51:01 | 1 | 476 | 485 | 10 | GSTPCNGVEG | 1e-05 | 76 |
| HLA-A*11:01 | 1 | 477 | 485 | 9 | STPCNGVEG | 1e-05 | 47 |
| HLA-B*58:01 | 1 | 479 | 488 | 10 | PCNGVEGFNC | 1e-05 | 72 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-A*02:06 | 1 | 480 | 488 | 9 | CNGVEGFNC | 1e-05 | 74 |
| HLA-A*03:01 | 1 | 482 | 491 | 10 | GVEGFNCYFP | 1e-05 | 62 |
| HLA-A*32:01 | 1 | 482 | 491 | 10 | GVEGFNCYFP | 1e-05 | 52 |
| HLA-B*08:01 | 1 | 482 | 491 | 10 | GVEGFNCYFP | 1e-05 | 84 |
| HLA-A*68:02 | 1 | 483 | 491 | 9 | VEGFNCYFP | 1e-05 | 66 |
| HLA-A*11:01 | 1 | 484 | 493 | 10 | EGFNCYFPLQ | 1e-05 | 47 |
| HLA-B*53:01 | 1 | 484 | 493 | 10 | EGFNCYFPLQ | 1e-05 | 51 |
| HLA-A*24:02 | 1 | 486 | 494 | 9 | FNCYFPLQS | 1e-05 | 46 |
| HLA-A*26:01 | 1 | 486 | 494 | 9 | FNCYFPLQS | 1e-05 | 60 |
| HLA-A*32:01 | 1 | 486 | 494 | 9 | FNCYFPLQS | 1e-05 | 52 |
| HLA-A*02:06 | 1 | 489 | 498 | 10 | YFPLQSYGFQ | 1e-05 | 74 |
| HLA-B*44:03 | 1 | 489 | 498 | 10 | YFPLQSYGFQ | 1e-05 | 51 |
| HLA-B*08:01 | 1 | 491 | 500 | 10 | PLQSYGFQPT | 1e-05 | 84 |
| HLA-A*23:01 | 1 | 492 | 501 | 10 | LQSYGFQPTN | 1e-05 | 48 |
| HLA-A*33:01 | 1 | 492 | 501 | 10 | LQSYGFQPTN | 1e-05 | 73 |
| HLA-A*11:01 | 1 | 494 | 502 | 9 | SYGFQPTNG | 1e-05 | 47 |
| HLA-B*44:03 | 1 | 494 | 502 | 9 | SYGFQPTNG | 1e-05 | 51 |
| HLA-A*02:06 | 1 | 496 | 504 | 9 | GFQPTNGVG | 1e-05 | 74 |
| HLA-B*35:01 | 1 | 496 | 504 | 9 | GFQPTNGVG | 1e-05 | 51 |
| HLA-A*23:01 | 1 | 500 | 509 | 10 | TNGVGYQPYP | 1e-05 | 48 |
| HLA-B*35:01 | 1 | 500 | 509 | 10 | TNGVGYQPYP | 1e-05 | 51 |
| HLA-B*40:01 | 1 | 501 | 509 | 9 | NGVGYQPYP | 1e-05 | 43 |
| HLA-B*40:01 | 1 | 510 | 519 | 10 | VVLSFELLH | 1e-05 | 43 |
| HLA-B*35:01 | 1 | 514 | 523 | 10 | SFELLHAPAT | 1e-05 | 51 |
| HLA-A*31:01 | 1 | 517 | 526 | 10 | LLHAPATVCG | 1e-05 | 68 |
| HLA-A*03:01 | 1 | 518 | 526 | 9 | LHAPATVCG | 1e-05 | 62 |
| HLA-A*68:02 | 1 | 521 | 529 | 9 | PATVCGPKK | 1e-05 | 66 |
| HLA-B*40:01 | 1 | 522 | 531 | 10 | ATVCGPKKST | 1e-05 | 43 |
| HLA-B*53:01 | 1 | 523 | 532 | 10 | TVCGPKKSTN | 1e-05 | 51 |
| HLA-B*51:01 | 1 | 527 | 535 | 9 | PKKSTNLVK | 1e-05 | 76 |
| HLA-A*26:01 | 1 | 528 | 536 | 9 | KKSTNLVKN | 1e-05 | 60 |
| HLA-B*08:01 | 1 | 528 | 536 | 9 | KKSTNLVKN | 1e-05 | 84 |
| HLA-A*33:01 | 1 | 532 | 540 | 9 | NLVKNKCVN | 1e-05 | 73 |
| HLA-B*07:02 | 1 | 533 | 542 | 10 | LVKNKCVNFN | 1e-05 | 65 |
| HLA-B*53:01 | 1 | 540 | 549 | 10 | NFNFNGLTGT | 1e-05 | 51 |
| HLA-B*58:01 | 1 | 540 | 549 | 10 | NFNFNGLTGT | 1e-05 | 72 |
| HLA-A*32:01 | 1 | 543 | 551 | 9 | FNGLTGTGV | 1e-05 | 52 |
| HLA-A*03:01 | 1 | 544 | 553 | 10 | NGLTGTGVLT | 1e-05 | 62 |
| HLA-A*11:01 | 1 | 544 | 552 | 9 | NGLTGTGVL | 1e-05 | 47 |
| HLA-A*26:01 | 1 | 544 | 553 | 10 | NGLTGTGVLT | 1e-05 | 60 |
| HLA-B*51:01 | 1 | 545 | 554 | 10 | GLTGTGVLTE | 1e-05 | 76 |
| HLA-B*51:01 | 1 | 548 | 557 | 10 | GTGVLTESNK | 1e-05 | 76 |
| HLA-A*23:01 | 1 | 556 | 564 | 9 | NKKFLPFQQ | 1e-05 | 48 |
| HLA-A*31:01 | 1 | 560 | 569 | 10 | LPFQQFGRDI | 1e-05 | 68 |
| HLA-B*07:02 | 1 | 561 | 570 | 10 | PFQQFGRDIA | 1e-05 | 65 |
| HLA-B*15:01 | 1 | 561 | 570 | 10 | PFQQFGRDIA | 1e-05 | 65 |
| HLA-A*68:02 | 1 | 562 | 571 | 10 | FQQFGRDIAD | 1e-05 | 66 |
| HLA-B*57:01 | 1 | 562 | 571 | 10 | FQQFGRDIAD | 1e-05 | 83 |
| HLA-A*24:02 | 1 | 563 | 571 | 9 | QQFGRDIAD | 1e-05 | 46 |
| HLA-A*02:06 | 1 | 564 | 572 | 9 | QFGRDIADT | 1e-05 | 74 |
| HLA-A*33:01 | 1 | 564 | 572 | 9 | QFGRDIADT | 1e-05 | 73 |
| HLA-A*11:01 | 1 | 565 | 573 | 9 | FGRDIADTT | 1e-05 | 47 |
| HLA-A*24:02 | 1 | 565 | 573 | 9 | FGRDIADTT | 1e-05 | 46 |
| HLA-B*40:01 | 1 | 566 | 574 | 9 | GRDIADTTD | 1e-05 | 43 |
| HLA-A*03:01 | 1 | 571 | 579 | 9 | DTTDAVRDP | 1e-05 | 62 |
| HLA-A*32:01 | 1 | 574 | 583 | 10 | DAVRDPQTLE | 1e-05 | 52 |
| HLA-B*40:01 | 1 | 578 | 587 | 10 | DPQTLEILD | 1e-05 | 43 |
| HLA-B*44:03 | 1 | 578 | 586 | 9 | DPQTLEILD | 1e-05 | 51 |
| HLA-A*11:01 | 1 | 582 | 591 | 10 | LEILDITPCS | 1e-05 | 47 |
| HLA-B*07:02 | 1 | 582 | 591 | 10 | LEILDITPCS | 1e-05 | 65 |
| HLA-B*44:03 | 1 | 584 | 593 | 10 | ILDITPCFSG | 1e-05 | 51 |
| HLA-A*03:01 | 1 | 586 | 595 | 10 | DITPCFSGGV | 1e-05 | 62 |
| HLA-A*03:01 | 1 | 589 | 598 | 10 | PCFSGGVSVI | 1e-05 | 62 |
| HLA-B*53:01 | 1 | 591 | 600 | 10 | SFGGVSVITP | 1e-05 | 51 |
| HLA-A*33:01 | 1 | 593 | 602 | 10 | GGVSVITPGT | 1e-05 | 73 |
| HLA-A*03:01 | 1 | 594 | 603 | 10 | GVSVITPGTN | 1e-05 | 62 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-A*32:01 | 1 | 595 | 603 | 9 | VSVITPGTN 1e-05 | 52 |
| HLA-B*35:01 | 1 | 595 | 603 | 9 | VSVITPGTN 1e-05 | 51 |
| HLA-B*53:01 | 1 | 597 | 606 | 10 | VITPGTNTSN 1e-05 | 51 |
| HLA-A*32:01 | 1 | 598 | 607 | 10 | ITPGTNTSNQ 1e-05 | 52 |
| HLA-B*08:01 | 1 | 600 | 609 | 10 | PGTNTSNQVA 1e-05 | 84 |
| HLA-A*32:01 | 1 | 606 | 614 | 9 | NQVAVLYQD 1e-05 | 52 |
| HLA-A*02:03 | 1 | 607 | 616 | 10 | QVAVLYQDVN 1e-05 | 68 |
| HLA-A*03:01 | 1 | 608 | 617 | 10 | VAVLYQDVNC 1e-05 | 62 |
| HLA-A*23:01 | 1 | 612 | 621 | 10 | YQDVNCTEVP 1e-05 | 48 |
| HLA-A*24:02 | 1 | 612 | 621 | 10 | YQDVNCTEVP 1e-05 | 46 |
| HLA-A*11:01 | 1 | 613 | 622 | 10 | QDVNCTEVPV 1e-05 | 47 |
| HLA-A*03:01 | 1 | 614 | 623 | 10 | DVNCTEVPVA 1e-05 | 62 |
| HLA-A*31:01 | 1 | 614 | 623 | 10 | DVNCTEVPVA 1e-05 | 68 |
| HLA-A*23:01 | 1 | 618 | 627 | 10 | TEVPVAIHAD 1e-05 | 48 |
| HLA-A*03:01 | 1 | 622 | 630 | 9 | VAIHADQLT 1e-05 | 62 |
| HLA-A*24:02 | 1 | 623 | 632 | 10 | AIHADQLTPT 1e-05 | 46 |
| HLA-A*26:01 | 1 | 630 | 639 | 10 | TPTWRVYSTG 1e-05 | 60 |
| HLA-A*68:01 | 1 | 631 | 640 | 10 | PTWRVYSTGS 1e-05 | 61 |
| HLA-A*24:02 | 1 | 636 | 645 | 10 | YSTGSNVFQT 1e-05 | 46 |
| HLA-A*32:01 | 1 | 636 | 645 | 10 | YSTGSNVFQT 1e-05 | 52 |
| HLA-A*23:01 | 1 | 638 | 647 | 10 | TGSNVFQTRA 1e-05 | 48 |
| HLA-A*02:03 | 1 | 639 | 648 | 10 | GSNVFQTRAG 1e-05 | 68 |
| HLA-B*40:01 | 1 | 647 | 656 | 10 | AGCLIGAEHV 1e-05 | 43 |
| HLA-A*24:02 | 1 | 648 | 656 | 9 | GCLIGAEHV 1e-05 | 46 |
| HLA-A*32:01 | 1 | 649 | 658 | 10 | CLIGAEHVNN 1e-05 | 52 |
| HLA-A*26:01 | 1 | 655 | 663 | 9 | HVNNSYECD 1e-05 | 60 |
| HLA-B*53:01 | 1 | 655 | 663 | 9 | HVNNSYECD 1e-05 | 51 |
| HLA-A*03:01 | 1 | 656 | 664 | 9 | VNNSYECDI 1e-05 | 62 |
| HLA-A*68:02 | 1 | 657 | 665 | 9 | NNSYECDIP 1e-05 | 66 |
| HLA-B*35:01 | 1 | 657 | 666 | 10 | NNSYECDIPI 1e-05 | 51 |
| HLA-B*15:01 | 1 | 658 | 667 | 10 | NSYECDIPIG 1e-05 | 65 |
| HLA-B*44:03 | 1 | 661 | 669 | 9 | ECDIPIGAG 1e-05 | 51 |
| HLA-B*08:01 | 1 | 662 | 671 | 10 | CDIPIGAGIC 1e-05 | 84 |
| HLA-A*30:02 | 1 | 663 | 671 | 9 | DIPIGAGIC 1e-05 | 88 |
| HLA-B*44:02 | 1 | 663 | 672 | 10 | DIPIGAGICA 1e-05 | 55 |
| HLA-A*11:01 | 1 | 664 | 673 | 10 | IPIGAGICAS 1e-05 | 47 |
| HLA-A*02:01 | 1 | 665 | 673 | 9 | PIGAGICAS 1e-05 | 66 |
| HLA-B*08:01 | 1 | 671 | 680 | 10 | CASYQTQTN 1e-05 | 84 |
| HLA-A*23:01 | 1 | 672 | 680 | 9 | ASYQTQTN 1e-05 | 48 |
| HLA-A*23:01 | 1 | 675 | 684 | 10 | QTQTN SPRRA 1e-05 | 48 |
| HLA-A*24:02 | 1 | 682 | 691 | 10 | RRARSVASQS 1e-05 | 46 |
| HLA-B*35:01 | 1 | 684 | 693 | 10 | ARSVASQSII 1e-05 | 51 |
| HLA-B*35:01 | 1 | 689 | 698 | 10 | SQSIIAYTMS 1e-05 | 51 |
| HLA-B*53:01 | 1 | 691 | 700 | 10 | SIIAYTMSLG 1e-05 | 51 |
| HLA-A*11:01 | 1 | 692 | 700 | 9 | IIAYTMSLG 1e-05 | 47 |
| HLA-A*26:01 | 1 | 694 | 702 | 9 | AYTMSLGAE 1e-05 | 60 |
| HLA-B*15:01 | 1 | 694 | 702 | 9 | AYTMSLGAE 1e-05 | 65 |
| HLA-A*23:01 | 1 | 696 | 704 | 9 | TMSLGAENS 1e-05 | 48 |
| HLA-B*51:01 | 1 | 700 | 709 | 10 | GAENSVAYSN 1e-05 | 76 |
| HLA-A*26:01 | 1 | 701 | 710 | 10 | AENSVAYSNN 1e-05 | 60 |
| HLA-A*33:01 | 1 | 701 | 710 | 10 | AENSVAYSNN 1e-05 | 73 |
| HLA-B*15:01 | 1 | 701 | 710 | 10 | AENSVAYSNN 1e-05 | 65 |
| HLA-A*26:01 | 1 | 702 | 710 | 9 | ENSVAYSNN 1e-05 | 60 |
| HLA-A*33:01 | 1 | 702 | 710 | 9 | ENSVAYSNN 1e-05 | 73 |
| HLA-B*08:01 | 1 | 702 | 711 | 10 | ENSVAYSNNS 1e-05 | 84 |
| HLA-A*32:01 | 1 | 703 | 711 | 9 | NSVAYSNNS 1e-05 | 52 |
| HLA-A*31:01 | 1 | 709 | 717 | 9 | NNSIAIPTN 1e-05 | 68 |
| HLA-A*11:01 | 1 | 715 | 723 | 9 | PTNFTISVT 1e-05 | 47 |
| HLA-A*32:01 | 1 | 715 | 723 | 9 | PTNFTISVT 1e-05 | 52 |
| HLA-B*40:01 | 1 | 716 | 725 | 10 | TNFTISVTTE 1e-05 | 43 |
| HLA-B*44:03 | 1 | 716 | 725 | 10 | TNFTISVTTE 1e-05 | 51 |
| HLA-B*53:01 | 1 | 726 | 734 | 9 | ILPVSMTKT 1e-05 | 51 |
| HLA-A*02:01 | 1 | 727 | 735 | 9 | LPVSMTKTS 1e-05 | 66 |
| HLA-A*30:02 | 1 | 728 | 737 | 10 | PVSMTKTSVD 1e-05 | 88 |
| HLA-A*11:01 | 1 | 729 | 737 | 9 | VSMTKTSVD 1e-05 | 47 |
| HLA-A*33:01 | 1 | 729 | 737 | 9 | VSMTKTSVD 1e-05 | 73 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|-------|----|
| HLA-A*11:01 | 1 | 730 | 739 | 10 | SMTKTSVDCT | 1e-05 | 47 |
| HLA-A*11:01 | 1 | 732 | 740 | 9 | TKTSVDCTM | 1e-05 | 47 |
| HLA-A*30:01 | 1 | 736 | 744 | 9 | VDCTMYICG | 1e-05 | 89 |
| HLA-A*02:01 | 1 | 738 | 746 | 9 | CTMYICGDS | 1e-05 | 66 |
| HLA-B*08:01 | 1 | 738 | 747 | 10 | CTMYICGDST | 1e-05 | 84 |
| HLA-A*11:01 | 1 | 739 | 748 | 10 | TMYICGDSTE | 1e-05 | 47 |
| HLA-A*30:02 | 1 | 742 | 751 | 10 | ICGDSTECSN | 1e-05 | 88 |
| HLA-B*53:01 | 1 | 746 | 755 | 10 | STECSNLLLQ | 1e-05 | 51 |
| HLA-A*32:01 | 1 | 747 | 755 | 9 | TECSNLLLQ | 1e-05 | 52 |
| HLA-A*33:01 | 1 | 749 | 758 | 10 | CSNLLLQYGS | 1e-05 | 73 |
| HLA-A*68:01 | 1 | 749 | 758 | 10 | CSNLLLQYGS | 1e-05 | 61 |
| HLA-A*02:03 | 1 | 750 | 758 | 9 | SNLLLQYGS | 1e-05 | 68 |
| HLA-A*32:01 | 1 | 750 | 758 | 9 | SNLLLQYGS | 1e-05 | 52 |
| HLA-A*23:01 | 1 | 756 | 765 | 10 | YGSFCTQLNR | 1e-05 | 48 |
| HLA-B*35:01 | 1 | 756 | 764 | 9 | YGSFCTQLN | 1e-05 | 51 |
| HLA-B*44:03 | 1 | 763 | 772 | 10 | LNRLTGIADV | 1e-05 | 51 |
| HLA-B*58:01 | 1 | 763 | 771 | 9 | LNRLTGVIA | 1e-05 | 72 |
| HLA-A*02:01 | 1 | 764 | 773 | 10 | NRALTGIAVE | 1e-05 | 66 |
| HLA-B*15:01 | 1 | 764 | 773 | 10 | NRALTGIAVE | 1e-05 | 65 |
| HLA-A*68:02 | 1 | 767 | 775 | 9 | LTGIAVEQD | 1e-05 | 66 |
| HLA-B*44:02 | 1 | 769 | 778 | 10 | GIAVEQDKNT | 1e-05 | 55 |
| HLA-B*35:01 | 1 | 771 | 780 | 10 | AVEQDKNTQE | 1e-05 | 51 |
| HLA-A*02:01 | 1 | 774 | 783 | 10 | QDKNTQEVFA | 1e-05 | 66 |
| HLA-A*31:01 | 1 | 775 | 783 | 9 | DKNTQEVFA | 1e-05 | 68 |
| HLA-B*51:01 | 1 | 776 | 784 | 9 | KNTQEVFAQ | 1e-05 | 76 |
| HLA-B*53:01 | 1 | 776 | 784 | 9 | KNTQEVFAQ | 1e-05 | 51 |
| HLA-A*23:01 | 1 | 778 | 787 | 10 | TQEVFAQVKQ | 1e-05 | 48 |
| HLA-B*07:02 | 1 | 778 | 787 | 10 | TQEVFAQVKQ | 1e-05 | 65 |
| HLA-B*40:01 | 1 | 781 | 790 | 10 | VFAQVKQIYK | 1e-05 | 43 |
| HLA-B*44:02 | 1 | 782 | 791 | 10 | FAQVKQIYKT | 1e-05 | 55 |
| HLA-B*53:01 | 1 | 783 | 792 | 10 | AQVKQIYKTP | 1e-05 | 51 |
| HLA-B*35:01 | 1 | 784 | 793 | 10 | QVKQIYKTPP | 1e-05 | 51 |
| HLA-A*11:01 | 1 | 785 | 794 | 10 | VKQIYKTPPI | 1e-05 | 47 |
| HLA-A*02:03 | 1 | 792 | 800 | 9 | PPIKDFGGF | 1e-05 | 68 |
| HLA-B*57:01 | 1 | 792 | 801 | 10 | PPIKDFGGFN | 1e-05 | 83 |
| HLA-A*33:01 | 1 | 793 | 801 | 9 | PIKDFGGFN | 1e-05 | 73 |
| HLA-B*53:01 | 1 | 795 | 804 | 10 | KDFGGFNFSQ | 1e-05 | 51 |
| HLA-B*07:02 | 1 | 798 | 807 | 10 | GGFNFSQILP | 1e-05 | 65 |
| HLA-A*32:01 | 1 | 801 | 809 | 9 | NFSQILPDP | 1e-05 | 52 |
| HLA-A*24:02 | 1 | 804 | 813 | 10 | QILPDPSPKPS | 1e-05 | 46 |
| HLA-B*44:03 | 1 | 805 | 813 | 9 | ILPDPSPKPS | 1e-05 | 51 |
| HLA-A*31:01 | 1 | 808 | 816 | 9 | DPSKPSKRS | 1e-05 | 68 |
| HLA-A*02:01 | 1 | 811 | 819 | 9 | KPSKRSFIE | 1e-05 | 66 |
| HLA-A*23:01 | 1 | 811 | 819 | 9 | KPSKRSFIE | 1e-05 | 48 |
| HLA-A*24:02 | 1 | 811 | 819 | 9 | KPSKRSFIE | 1e-05 | 46 |
| HLA-B*35:01 | 1 | 818 | 827 | 10 | IEDLLFNKVT | 1e-05 | 51 |
| HLA-B*57:01 | 1 | 819 | 827 | 9 | EDLLFNKVT | 1e-05 | 83 |
| HLA-B*44:02 | 1 | 822 | 831 | 10 | LFNKVTLADA | 1e-05 | 55 |
| HLA-B*44:02 | 1 | 824 | 832 | 9 | NKVTLADAG | 1e-05 | 55 |
| HLA-A*68:01 | 1 | 825 | 834 | 10 | KVTLADAGFI | 1e-05 | 61 |
| HLA-A*31:01 | 1 | 830 | 838 | 9 | DAGFIKQYG | 1e-05 | 68 |
| HLA-A*01:01 | 1 | 831 | 840 | 10 | AGFIKQYGDC | 1e-05 | 88 |
| HLA-A*32:01 | 1 | 831 | 839 | 9 | AGFIKQYGD | 1e-05 | 52 |
| HLA-A*68:01 | 1 | 832 | 841 | 10 | GFIKQYGDCL | 1e-05 | 61 |
| HLA-A*24:02 | 1 | 835 | 843 | 9 | KQYGDCLGD | 1e-05 | 46 |
| HLA-A*68:01 | 1 | 835 | 843 | 9 | KQYGDCLGD | 1e-05 | 61 |
| HLA-B*44:03 | 1 | 836 | 844 | 9 | QYGDCLGDI | 1e-05 | 51 |
| HLA-B*58:01 | 1 | 838 | 846 | 9 | GDCLGDIAA | 1e-05 | 72 |
| HLA-A*68:02 | 1 | 839 | 848 | 10 | DCLGDIAARD | 1e-05 | 66 |
| HLA-A*31:01 | 1 | 841 | 849 | 9 | LGDIAAARDL | 1e-05 | 68 |
| HLA-A*03:01 | 1 | 843 | 852 | 10 | DIAARDLICA | 1e-05 | 62 |
| HLA-A*32:01 | 1 | 843 | 851 | 9 | DIAARDLIC | 1e-05 | 52 |
| HLA-A*32:01 | 1 | 844 | 853 | 10 | IAARDLICAQ | 1e-05 | 52 |
| HLA-A*23:01 | 1 | 847 | 856 | 10 | RDLICAQKFN | 1e-05 | 48 |
| HLA-A*31:01 | 1 | 847 | 856 | 10 | RDLICAQKFN | 1e-05 | 68 |
| HLA-A*02:01 | 1 | 849 | 857 | 9 | LICAQKFNG | 1e-05 | 66 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-A*02:03 | 1 | 849 | 857 | 9 | LICAQKFNG | 1e-05 | 68 |
| HLA-B*44:02 | 1 | 851 | 859 | 9 | CAQKFNGLT | 1e-05 | 55 |
| HLA-B*44:03 | 1 | 854 | 863 | 10 | KFNGLTVLPP | 1e-05 | 51 |
| HLA-A*11:01 | 1 | 856 | 865 | 10 | NGLTVLPPLL | 1e-05 | 47 |
| HLA-B*44:02 | 1 | 857 | 866 | 10 | GLTVLPPLLT | 1e-05 | 55 |
| HLA-A*33:01 | 1 | 861 | 870 | 10 | LPPLLTDEMI | 1e-05 | 73 |
| HLA-A*30:02 | 1 | 862 | 871 | 10 | PPLLTDEMIA | 1e-05 | 88 |
| HLA-B*40:01 | 1 | 862 | 870 | 9 | PPLLTDEMI | 1e-05 | 43 |
| HLA-B*15:01 | 1 | 863 | 872 | 10 | PLLTDEMIAQ | 1e-05 | 65 |
| HLA-B*58:01 | 1 | 863 | 871 | 9 | PLLTDEMIA | 1e-05 | 72 |
| HLA-A*26:01 | 1 | 866 | 874 | 9 | TDEMIAQYT | 1e-05 | 60 |
| HLA-A*02:01 | 1 | 867 | 875 | 9 | DEMIAQYTS | 1e-05 | 66 |
| HLA-A*11:01 | 1 | 867 | 876 | 10 | DEMIAQYTS | 1e-05 | 47 |
| HLA-A*23:01 | 1 | 867 | 875 | 9 | DEMIAQYTS | 1e-05 | 48 |
| HLA-A*23:01 | 1 | 867 | 876 | 10 | DEMIAQYTS | 1e-05 | 48 |
| HLA-A*31:01 | 1 | 867 | 875 | 9 | DEMIAQYTS | 1e-05 | 68 |
| HLA-B*58:01 | 1 | 867 | 876 | 10 | DEMIAQYTS | 1e-05 | 72 |
| HLA-A*32:01 | 1 | 872 | 880 | 9 | QYTSALLAG | 1e-05 | 52 |
| HLA-B*51:01 | 1 | 872 | 881 | 10 | QYTSALLAGT | 1e-05 | 76 |
| HLA-A*11:01 | 1 | 873 | 882 | 10 | YTSALLAGTI | 1e-05 | 47 |
| HLA-A*68:01 | 1 | 876 | 885 | 10 | ALLAGTITSG | 1e-05 | 61 |
| HLA-A*11:01 | 1 | 877 | 885 | 9 | LLAGTITSG | 1e-05 | 47 |
| HLA-A*68:02 | 1 | 879 | 887 | 9 | AGTITSGWT | 1e-05 | 66 |
| HLA-A*03:01 | 1 | 882 | 891 | 10 | ITSGWTFGAG | 1e-05 | 62 |
| HLA-A*33:01 | 1 | 882 | 891 | 10 | ITSGWTFGAG | 1e-05 | 73 |
| HLA-A*02:06 | 1 | 883 | 891 | 9 | TSGWTFGAG | 1e-05 | 74 |
| HLA-B*44:03 | 1 | 883 | 892 | 10 | TSGWTFGAGA | 1e-05 | 51 |
| HLA-B*40:01 | 1 | 886 | 895 | 10 | WTFGAGAALQ | 1e-05 | 43 |
| HLA-B*44:03 | 1 | 886 | 895 | 10 | WTFGAGAALQ | 1e-05 | 51 |
| HLA-A*02:01 | 1 | 887 | 895 | 9 | TFGAGAALQ | 1e-05 | 66 |
| HLA-A*02:03 | 1 | 887 | 895 | 9 | TFGAGAALQ | 1e-05 | 68 |
| HLA-A*11:01 | 1 | 889 | 897 | 9 | GAGAALQIP | 1e-05 | 47 |
| HLA-A*31:01 | 1 | 889 | 897 | 9 | GAGAALQIP | 1e-05 | 68 |
| HLA-B*53:01 | 1 | 890 | 899 | 10 | AGAALQIPFA | 1e-05 | 51 |
| HLA-B*35:01 | 1 | 900 | 909 | 10 | MQMAYRFNGI | 1e-05 | 51 |
| HLA-B*44:02 | 1 | 903 | 912 | 10 | AYRFNGIGVT | 1e-05 | 55 |
| HLA-A*11:01 | 1 | 904 | 912 | 9 | YRFNGIGVT | 1e-05 | 47 |
| HLA-A*24:02 | 1 | 910 | 918 | 9 | GVTQNVLYE | 1e-05 | 46 |
| HLA-B*44:03 | 1 | 910 | 918 | 9 | GVTQNVLYE | 1e-05 | 51 |
| HLA-B*53:01 | 1 | 912 | 920 | 9 | TQNVLYENQ | 1e-05 | 51 |
| HLA-A*02:01 | 1 | 917 | 926 | 10 | YENQKLIANQ | 1e-05 | 66 |
| HLA-B*57:01 | 1 | 920 | 928 | 9 | QKLIANQFN | 1e-05 | 83 |
| HLA-B*40:01 | 1 | 922 | 931 | 10 | LIANQFNSAI | 1e-05 | 43 |
| HLA-B*44:03 | 1 | 922 | 931 | 10 | LIANQFNSAI | 1e-05 | 51 |
| HLA-B*53:01 | 1 | 923 | 932 | 10 | IANQFNSAIG | 1e-05 | 51 |
| HLA-B*44:03 | 1 | 924 | 932 | 9 | ANQFNSAIG | 1e-05 | 51 |
| HLA-A*02:03 | 1 | 927 | 935 | 9 | FNSAIGKIQ | 1e-05 | 68 |
| HLA-A*02:06 | 1 | 927 | 936 | 10 | FNSAIGKIQD | 1e-05 | 74 |
| HLA-A*03:01 | 1 | 928 | 937 | 10 | NSAIGKIQDS | 1e-05 | 62 |
| HLA-A*31:01 | 1 | 928 | 936 | 9 | NSAIGKIQD | 1e-05 | 68 |
| HLA-A*26:01 | 1 | 930 | 939 | 10 | AIGKIQDLSL | 1e-05 | 60 |
| HLA-B*35:01 | 1 | 931 | 940 | 10 | IGKIQDLSLS | 1e-05 | 51 |
| HLA-A*11:01 | 1 | 932 | 940 | 9 | GKIQDLSLS | 1e-05 | 47 |
| HLA-A*32:01 | 1 | 932 | 941 | 10 | GKIQDLSLST | 1e-05 | 52 |
| HLA-A*23:01 | 1 | 934 | 943 | 10 | IQDLSLSTAS | 1e-05 | 48 |
| HLA-A*26:01 | 1 | 934 | 943 | 10 | IQDLSLSTAS | 1e-05 | 60 |
| HLA-B*53:01 | 1 | 938 | 947 | 10 | LSSTASALGK | 1e-05 | 51 |
| HLA-A*68:01 | 1 | 941 | 950 | 10 | TASALGKLQD | 1e-05 | 61 |
| HLA-B*44:02 | 1 | 942 | 950 | 9 | ASALGKLQD | 1e-05 | 55 |
| HLA-A*31:01 | 1 | 949 | 957 | 9 | QDVVNQNAQ | 1e-05 | 68 |
| HLA-B*53:01 | 1 | 949 | 957 | 9 | QDVVNQNAQ | 1e-05 | 51 |
| HLA-B*44:02 | 1 | 951 | 960 | 10 | VVNQAQALN | 1e-05 | 55 |
| HLA-A*03:01 | 1 | 952 | 960 | 9 | VNQAQALN | 1e-05 | 62 |
| HLA-B*08:01 | 1 | 952 | 960 | 9 | VNQAQALN | 1e-05 | 84 |
| HLA-B*44:02 | 1 | 952 | 960 | 9 | VNQAQALN | 1e-05 | 55 |
| HLA-B*44:02 | 1 | 952 | 961 | 10 | VNQAQALNT | 1e-05 | 55 |

| | | | | | | | |
|-------------|---|------|------|----|------------|-------|----|
| HLA-B*44:02 | 1 | 959 | 967 | 9 | LNTLVKQLS | 1e-05 | 55 |
| HLA-B*53:01 | 1 | 959 | 967 | 9 | LNTLVKQLS | 1e-05 | 51 |
| HLA-A*23:01 | 1 | 963 | 972 | 10 | VKQLSSNFGA | 1e-05 | 48 |
| HLA-B*51:01 | 1 | 963 | 971 | 9 | VKQLSSNFG | 1e-05 | 76 |
| HLA-A*33:01 | 1 | 965 | 974 | 10 | QLSSNFGAIS | 1e-05 | 73 |
| HLA-A*02:01 | 1 | 970 | 978 | 9 | FGAISSVLN | 1e-05 | 66 |
| HLA-B*15:01 | 1 | 977 | 986 | 10 | LNDILSRLDK | 1e-05 | 65 |
| HLA-B*51:01 | 1 | 977 | 986 | 10 | LNDILSRLDK | 1e-05 | 76 |
| HLA-A*31:01 | 1 | 979 | 988 | 10 | DILSRLDKVE | 1e-05 | 68 |
| HLA-B*40:01 | 1 | 983 | 992 | 10 | RLDKVEAEVQ | 1e-05 | 43 |
| HLA-A*24:02 | 1 | 990 | 999 | 10 | EVQIDRLITG | 1e-05 | 46 |
| HLA-A*23:01 | 1 | 994 | 1003 | 10 | DRLITGRLQS | 1e-05 | 48 |
| HLA-B*44:03 | 1 | 994 | 1003 | 10 | DRLITGRLQS | 1e-05 | 51 |
| HLA-A*23:01 | 1 | 998 | 1006 | 9 | TGRLQSLQT | 1e-05 | 48 |
| HLA-A*24:02 | 1 | 998 | 1006 | 9 | TGRLQSLQT | 1e-05 | 46 |
| HLA-A*26:01 | 1 | 998 | 1006 | 9 | TGRLQSLQT | 1e-05 | 60 |
| HLA-B*40:01 | 1 | 998 | 1006 | 9 | TGRLQSLQT | 1e-05 | 43 |
| HLA-A*23:01 | 1 | 1001 | 1010 | 10 | LQSLQTYVTQ | 1e-05 | 48 |
| HLA-B*35:01 | 1 | 1009 | 1018 | 10 | TQQLIRAAEI | 1e-05 | 51 |
| HLA-B*40:01 | 1 | 1011 | 1020 | 10 | QLIRAAEIRA | 1e-05 | 43 |
| HLA-B*44:02 | 1 | 1014 | 1023 | 10 | RAAEIRASAN | 1e-05 | 55 |
| HLA-A*68:01 | 1 | 1015 | 1023 | 9 | AAEIRASAN | 1e-05 | 61 |
| HLA-A*23:01 | 1 | 1016 | 1025 | 10 | AEIRASANLA | 1e-05 | 48 |
| HLA-A*24:02 | 1 | 1018 | 1027 | 10 | IRASANLAAT | 1e-05 | 46 |
| HLA-A*68:02 | 1 | 1022 | 1031 | 10 | ANLAATKMSE | 1e-05 | 66 |
| HLA-B*44:03 | 1 | 1022 | 1031 | 10 | ANLAATKMSE | 1e-05 | 51 |
| HLA-A*26:01 | 1 | 1026 | 1035 | 10 | ATKMSECVLG | 1e-05 | 60 |
| HLA-B*51:01 | 1 | 1026 | 1035 | 10 | ATKMSECVLG | 1e-05 | 76 |
| HLA-A*01:01 | 1 | 1027 | 1035 | 9 | TKMSECVLG | 1e-05 | 88 |
| HLA-B*08:01 | 1 | 1028 | 1037 | 10 | KMSECVLGQS | 1e-05 | 84 |
| HLA-B*53:01 | 1 | 1029 | 1037 | 9 | MSECVLGQS | 1e-05 | 51 |
| HLA-A*68:01 | 1 | 1035 | 1043 | 9 | GQSKRVDFC | 1e-05 | 61 |
| HLA-B*44:03 | 1 | 1035 | 1044 | 10 | GQSKRVDFCG | 1e-05 | 51 |
| HLA-A*02:01 | 1 | 1036 | 1045 | 10 | QSKRVDFCGK | 1e-05 | 66 |
| HLA-B*58:01 | 1 | 1038 | 1046 | 9 | KRVDFCGKG | 1e-05 | 72 |
| HLA-A*68:02 | 1 | 1039 | 1048 | 10 | RVDFCGKGYH | 1e-05 | 66 |
| HLA-A*68:02 | 1 | 1040 | 1048 | 9 | VDFCGKGYH | 1e-05 | 66 |
| HLA-A*11:01 | 1 | 1042 | 1050 | 9 | FCGKGYHLM | 1e-05 | 47 |
| HLA-A*68:02 | 1 | 1042 | 1051 | 10 | FCGKGYHLMS | 1e-05 | 66 |
| HLA-B*44:03 | 1 | 1044 | 1053 | 10 | GKGYHLMSFP | 1e-05 | 51 |
| HLA-A*26:01 | 1 | 1045 | 1053 | 9 | KGYHLMSFP | 1e-05 | 60 |
| HLA-B*44:02 | 1 | 1045 | 1053 | 9 | KGYHLMSFP | 1e-05 | 55 |
| HLA-B*07:02 | 1 | 1046 | 1055 | 10 | GYHLMSFPQS | 1e-05 | 65 |
| HLA-B*58:01 | 1 | 1046 | 1054 | 9 | GYHLMSFPQ | 1e-05 | 72 |
| HLA-B*35:01 | 1 | 1057 | 1065 | 9 | PHGVVFLHV | 1e-05 | 51 |
| HLA-A*68:02 | 1 | 1063 | 1071 | 9 | LHVTVVPAQ | 1e-05 | 66 |
| HLA-A*11:01 | 1 | 1067 | 1076 | 10 | YVPAQEKNT | 1e-05 | 47 |
| HLA-B*44:02 | 1 | 1067 | 1076 | 10 | YVPAQEKNT | 1e-05 | 55 |
| HLA-B*44:03 | 1 | 1067 | 1076 | 10 | YVPAQEKNT | 1e-05 | 51 |
| HLA-A*26:01 | 1 | 1069 | 1078 | 10 | PAQEKNTTAA | 1e-05 | 60 |
| HLA-A*31:01 | 1 | 1069 | 1078 | 10 | PAQEKNTTAA | 1e-05 | 68 |
| HLA-B*15:01 | 1 | 1069 | 1077 | 9 | PAQEKNTT | 1e-05 | 65 |
| HLA-B*53:01 | 1 | 1070 | 1079 | 10 | AQEKNTTAP | 1e-05 | 51 |
| HLA-B*58:01 | 1 | 1071 | 1080 | 10 | QEKNTTAPA | 1e-05 | 72 |
| HLA-B*44:02 | 1 | 1074 | 1082 | 9 | NFTTAPAIC | 1e-05 | 55 |
| HLA-A*11:01 | 1 | 1076 | 1085 | 10 | TTAPAICHDG | 1e-05 | 47 |
| HLA-A*23:01 | 1 | 1076 | 1084 | 9 | TTAPAICHD | 1e-05 | 48 |
| HLA-B*07:02 | 1 | 1076 | 1084 | 9 | TTAPAICHD | 1e-05 | 65 |
| HLA-B*07:02 | 1 | 1079 | 1087 | 9 | PAICHDGKA | 1e-05 | 65 |
| HLA-B*57:01 | 1 | 1079 | 1087 | 9 | PAICHDGKA | 1e-05 | 83 |
| HLA-A*03:01 | 1 | 1081 | 1090 | 10 | ICHDGKAHFP | 1e-05 | 62 |
| HLA-A*03:01 | 1 | 1082 | 1090 | 9 | CHDGKAHFP | 1e-05 | 62 |
| HLA-A*26:01 | 1 | 1082 | 1090 | 9 | CHDGKAHFP | 1e-05 | 60 |
| HLA-A*26:01 | 1 | 1083 | 1092 | 10 | HDGKAHFPRE | 1e-05 | 60 |
| HLA-A*68:02 | 1 | 1083 | 1092 | 10 | HDGKAHFPRE | 1e-05 | 66 |
| HLA-A*30:02 | 1 | 1084 | 1093 | 10 | DGKAHFREG | 1e-05 | 88 |

| | | | | | | | |
|-------------|---|------|------|----|------------|-------|----|
| HLA-B*57:01 | 1 | 1084 | 1093 | 10 | DGKAHFPREG | 1e-05 | 83 |
| HLA-A*11:01 | 1 | 1085 | 1094 | 10 | GKAHFPREGV | 1e-05 | 47 |
| HLA-A*33:01 | 1 | 1091 | 1099 | 9 | REGVFSVNG | 1e-05 | 73 |
| HLA-A*02:01 | 1 | 1092 | 1101 | 10 | EGVFSVNGTH | 1e-05 | 66 |
| HLA-A*23:01 | 1 | 1096 | 1105 | 10 | VSNGTHWFVT | 1e-05 | 48 |
| HLA-B*44:02 | 1 | 1097 | 1105 | 9 | SNGTHWFVT | 1e-05 | 55 |
| HLA-B*44:03 | 1 | 1097 | 1105 | 9 | SNGTHWFVT | 1e-05 | 51 |
| HLA-A*02:03 | 1 | 1098 | 1106 | 9 | NGTHWFVTQ | 1e-05 | 68 |
| HLA-B*44:02 | 1 | 1098 | 1106 | 9 | NGTHWFVTQ | 1e-05 | 55 |
| HLA-A*02:06 | 1 | 1100 | 1108 | 9 | THWFVTQRN | 1e-05 | 74 |
| HLA-A*32:01 | 1 | 1103 | 1112 | 10 | FVTQRNFYEP | 1e-05 | 52 |
| HLA-A*02:03 | 1 | 1104 | 1113 | 10 | VTQRNFYEPQ | 1e-05 | 68 |
| HLA-B*44:03 | 1 | 1104 | 1112 | 9 | VTQRNFYEP | 1e-05 | 51 |
| HLA-A*11:01 | 1 | 1106 | 1115 | 10 | QRNFYEPQII | 1e-05 | 47 |
| HLA-A*23:01 | 1 | 1110 | 1119 | 10 | YEPQIITTDN | 1e-05 | 48 |
| HLA-A*68:01 | 1 | 1111 | 1119 | 9 | EPQIITTDN | 1e-05 | 61 |
| HLA-B*15:01 | 1 | 1114 | 1123 | 10 | IITDNTFVS | 1e-05 | 65 |
| HLA-B*44:03 | 1 | 1115 | 1123 | 9 | IITDNTFVS | 1e-05 | 51 |
| HLA-A*02:06 | 1 | 1117 | 1126 | 10 | TDNTFVSGNC | 1e-05 | 74 |
| HLA-A*02:06 | 1 | 1118 | 1126 | 9 | DNTFVSGNC | 1e-05 | 74 |
| HLA-B*35:01 | 1 | 1118 | 1126 | 9 | DNTFVSGNC | 1e-05 | 51 |
| HLA-B*44:03 | 1 | 1118 | 1126 | 9 | DNTFVSGNC | 1e-05 | 51 |
| HLA-B*53:01 | 1 | 1118 | 1126 | 9 | DNTFVSGNC | 1e-05 | 51 |
| HLA-B*44:03 | 1 | 1119 | 1128 | 10 | NTFVSGNCDV | 1e-05 | 51 |
| HLA-A*03:01 | 1 | 1120 | 1129 | 10 | TFVSGNCDVV | 1e-05 | 62 |
| HLA-A*03:01 | 1 | 1121 | 1130 | 10 | FVSGNCDVVI | 1e-05 | 62 |
| HLA-A*03:01 | 1 | 1122 | 1130 | 9 | VSGNCDVVI | 1e-05 | 62 |
| HLA-A*31:01 | 1 | 1122 | 1130 | 9 | VSGNCDVVI | 1e-05 | 68 |
| HLA-A*33:01 | 1 | 1122 | 1130 | 9 | VSGNCDVVI | 1e-05 | 73 |
| HLA-B*44:02 | 1 | 1122 | 1130 | 9 | VSGNCDVVI | 1e-05 | 55 |
| HLA-B*35:01 | 1 | 1123 | 1132 | 10 | SGNCDVIGI | 1e-05 | 51 |
| HLA-A*11:01 | 1 | 1124 | 1133 | 10 | GNCDDVIGIV | 1e-05 | 47 |
| HLA-B*44:03 | 1 | 1124 | 1133 | 10 | GNCDDVIGIV | 1e-05 | 51 |
| HLA-A*03:01 | 1 | 1125 | 1133 | 9 | NCDVIGIV | 1e-05 | 62 |
| HLA-B*44:03 | 1 | 1126 | 1134 | 9 | CDVIGIVN | 1e-05 | 51 |
| HLA-A*02:01 | 1 | 1127 | 1135 | 9 | DVVIGIVNN | 1e-05 | 66 |
| HLA-A*11:01 | 1 | 1127 | 1135 | 9 | DVVIGIVNN | 1e-05 | 47 |
| HLA-A*31:01 | 1 | 1127 | 1135 | 9 | DVVIGIVNN | 1e-05 | 68 |
| HLA-B*15:01 | 1 | 1127 | 1135 | 9 | DVVIGIVNN | 1e-05 | 65 |
| HLA-B*15:01 | 1 | 1127 | 1136 | 10 | DVVIGIVNNT | 1e-05 | 65 |
| HLA-B*08:01 | 1 | 1130 | 1139 | 10 | IGIVNNTVYD | 1e-05 | 84 |
| HLA-A*32:01 | 1 | 1131 | 1139 | 9 | GIVNNTVYD | 1e-05 | 52 |
| HLA-B*08:01 | 1 | 1131 | 1140 | 10 | GIVNNTVYDP | 1e-05 | 84 |
| HLA-A*23:01 | 1 | 1132 | 1140 | 9 | IVNNTVYDP | 1e-05 | 48 |
| HLA-A*03:01 | 1 | 1134 | 1143 | 10 | NNTVYDPLQP | 1e-05 | 62 |
| HLA-A*02:01 | 1 | 1138 | 1147 | 10 | YDPLQPELDS | 1e-05 | 66 |
| HLA-A*68:02 | 1 | 1142 | 1150 | 9 | QPELDSFKE | 1e-05 | 66 |
| HLA-B*15:01 | 1 | 1142 | 1150 | 9 | QPELDSFKE | 1e-05 | 65 |
| HLA-A*30:02 | 1 | 1143 | 1151 | 9 | PELDSFKEE | 1e-05 | 88 |
| HLA-B*15:01 | 1 | 1143 | 1151 | 9 | PELDSFKEE | 1e-05 | 65 |
| HLA-A*33:01 | 1 | 1144 | 1153 | 10 | ELDSFKEELD | 1e-05 | 73 |
| HLA-B*35:01 | 1 | 1144 | 1153 | 10 | ELDSFKEELD | 1e-05 | 51 |
| HLA-B*53:01 | 1 | 1145 | 1154 | 10 | LDSFKEELDK | 1e-05 | 51 |
| HLA-A*11:01 | 1 | 1148 | 1156 | 9 | FKEELDKYF | 1e-05 | 47 |
| HLA-A*24:02 | 1 | 1148 | 1157 | 10 | FKEELDKYFK | 1e-05 | 46 |
| HLA-B*07:02 | 1 | 1148 | 1157 | 10 | FKEELDKYFK | 1e-05 | 65 |
| HLA-A*03:01 | 1 | 1149 | 1158 | 10 | KEELDKYFKN | 1e-05 | 62 |
| HLA-B*58:01 | 1 | 1151 | 1160 | 10 | ELDKYFKNHT | 1e-05 | 72 |
| HLA-A*03:01 | 1 | 1152 | 1160 | 9 | LDKYFKNHT | 1e-05 | 62 |
| HLA-A*26:01 | 1 | 1152 | 1160 | 9 | LDKYFKNHT | 1e-05 | 60 |
| HLA-B*35:01 | 1 | 1152 | 1160 | 9 | LDKYFKNHT | 1e-05 | 51 |
| HLA-B*58:01 | 1 | 1154 | 1163 | 10 | KYFKNHTSPD | 1e-05 | 72 |
| HLA-A*02:03 | 1 | 1160 | 1168 | 9 | TSPDVLGD | 1e-05 | 68 |
| HLA-A*03:01 | 1 | 1163 | 1171 | 9 | DVDLGDISG | 1e-05 | 62 |
| HLA-B*44:03 | 1 | 1164 | 1173 | 10 | VDLGDISGIN | 1e-05 | 51 |
| HLA-A*11:01 | 1 | 1165 | 1174 | 10 | DLGDISGINA | 1e-05 | 47 |

| | | | | | | | |
|-------------|---|------|------|----|------------|-------|----|
| HLA-B*40:01 | 1 | 1165 | 1174 | 10 | DLGDISGINA | 1e-05 | 43 |
| HLA-A*31:01 | 1 | 1166 | 1175 | 10 | LGDISGINAS | 1e-05 | 68 |
| HLA-B*53:01 | 1 | 1166 | 1175 | 10 | LGDISGINAS | 1e-05 | 51 |
| HLA-B*40:01 | 1 | 1168 | 1177 | 10 | DISGINASVV | 1e-05 | 43 |
| HLA-B*15:01 | 1 | 1169 | 1178 | 10 | ISGINASVVN | 1e-05 | 65 |
| HLA-B*40:01 | 1 | 1172 | 1181 | 10 | INASVVNIQK | 1e-05 | 43 |
| HLA-A*32:01 | 1 | 1175 | 1184 | 10 | SVVNIQKEID | 1e-05 | 52 |
| HLA-A*02:06 | 1 | 1176 | 1184 | 9 | VVNIQKEID | 1e-05 | 74 |
| HLA-B*40:01 | 1 | 1177 | 1185 | 9 | VNIQKEIDR | 1e-05 | 43 |
| HLA-A*23:01 | 1 | 1182 | 1190 | 9 | EIDRLNEVA | 1e-05 | 48 |
| HLA-A*11:01 | 1 | 1183 | 1192 | 10 | IDRLNEVAKN | 1e-05 | 47 |
| HLA-B*57:01 | 1 | 1183 | 1192 | 10 | IDRLNEVAKN | 1e-05 | 83 |
| HLA-A*33:01 | 1 | 1184 | 1192 | 9 | DRLNEVAKN | 1e-05 | 73 |
| HLA-B*51:01 | 1 | 1186 | 1194 | 9 | LNEVAKNLN | 1e-05 | 76 |
| HLA-A*23:01 | 1 | 1188 | 1196 | 9 | EVAKNLNES | 1e-05 | 48 |
| HLA-A*01:01 | 1 | 1190 | 1199 | 10 | AKNLNESLID | 1e-05 | 88 |
| HLA-A*30:02 | 1 | 1190 | 1199 | 10 | AKNLNESLID | 1e-05 | 88 |
| HLA-A*11:01 | 1 | 1198 | 1207 | 10 | IDLQELGKYE | 1e-05 | 47 |
| HLA-A*11:01 | 1 | 1199 | 1208 | 10 | DLQELGKYEQ | 1e-05 | 47 |
| HLA-B*35:01 | 1 | 1204 | 1213 | 10 | GKYEQYIKWP | 1e-05 | 51 |
| HLA-A*31:01 | 1 | 1217 | 1226 | 10 | WLGFIAGLIA | 1e-05 | 68 |
| HLA-B*44:03 | 1 | 1223 | 1232 | 10 | GLIAIVMVTI | 1e-05 | 51 |
| HLA-A*11:01 | 1 | 1228 | 1237 | 10 | VMVTIMLCCM | 1e-05 | 47 |
| HLA-A*24:02 | 1 | 1228 | 1237 | 10 | VMVTIMLCCM | 1e-05 | 46 |
| HLA-A*26:01 | 1 | 1228 | 1236 | 9 | VMVTIMLCC | 1e-05 | 60 |
| HLA-A*31:01 | 1 | 1232 | 1241 | 10 | IMLCCMTSCC | 1e-05 | 68 |
| HLA-B*07:02 | 1 | 1232 | 1240 | 9 | IMLCCMTSC | 1e-05 | 65 |
| HLA-A*32:01 | 1 | 1233 | 1241 | 9 | MLCCMTSCC | 1e-05 | 52 |
| HLA-B*07:02 | 1 | 1233 | 1241 | 9 | MLCCMTSCC | 1e-05 | 65 |
| HLA-B*51:01 | 1 | 1235 | 1243 | 9 | CCMTSCCCS | 1e-05 | 76 |
| HLA-A*30:01 | 1 | 1239 | 1248 | 10 | SCCSCLKGCC | 1e-05 | 89 |
| HLA-B*58:01 | 1 | 1239 | 1248 | 10 | SCCSCLKGCC | 1e-05 | 72 |
| HLA-A*01:01 | 1 | 1240 | 1249 | 10 | CCSCLKGCCS | 1e-05 | 88 |
| HLA-A*02:06 | 1 | 1241 | 1249 | 9 | CSCLKGCCS | 1e-05 | 74 |
| HLA-A*02:01 | 1 | 1243 | 1252 | 10 | CLKGCCSCGS | 1e-05 | 66 |
| HLA-A*30:02 | 1 | 1243 | 1252 | 10 | CLKGCCSCGS | 1e-05 | 88 |
| HLA-A*01:01 | 1 | 1246 | 1254 | 9 | GCCSCGSCC | 1e-05 | 88 |
| HLA-A*68:01 | 1 | 1254 | 1262 | 9 | CKFDEDDSE | 1e-05 | 61 |
| HLA-A*68:02 | 1 | 1254 | 1263 | 10 | CKFDEDDSEP | 1e-05 | 66 |
| HLA-B*57:01 | 1 | 1254 | 1263 | 10 | CKFDEDDSEP | 1e-05 | 83 |
| HLA-A*32:01 | 1 | 1255 | 1263 | 9 | KFDEDDSEP | 1e-05 | 52 |
| HLA-A*11:01 | 1 | 1256 | 1264 | 9 | FDEDDSEPV | 1e-05 | 47 |
| HLA-A*32:01 | 1 | 1261 | 1269 | 9 | SEPVCLKGVK | 1e-05 | 52 |
| HLA-B*07:02 | 1 | 1265 | 1273 | 9 | LKGVKLHYT | 1e-05 | 65 |
| HLA-B*58:01 | 1 | 3 | 12 | 10 | VFLVLLPLVS | 9e-06 | 74 |
| HLA-B*35:01 | 1 | 4 | 13 | 10 | FLVLLPLVSS | 9e-06 | 52 |
| HLA-B*35:01 | 1 | 6 | 15 | 10 | VLLPLVSSQC | 9e-06 | 52 |
| HLA-A*02:06 | 1 | 8 | 17 | 10 | LPLVSSQCVN | 9e-06 | 76 |
| HLA-A*30:01 | 1 | 9 | 17 | 9 | PLVSSQCVN | 9e-06 | 90 |
| HLA-B*15:01 | 1 | 9 | 17 | 9 | PLVSSQCVN | 9e-06 | 67 |
| HLA-A*11:01 | 1 | 10 | 19 | 10 | LVSSQCVNLT | 9e-06 | 49 |
| HLA-B*44:02 | 1 | 11 | 20 | 10 | VSSQCVNLTT | 9e-06 | 57 |
| HLA-B*44:03 | 1 | 15 | 23 | 9 | CVNLTRRTQ | 9e-06 | 53 |
| HLA-A*11:01 | 1 | 17 | 25 | 9 | NLTRRTQLP | 9e-06 | 49 |
| HLA-A*33:01 | 1 | 17 | 26 | 10 | NLTRRTQLPP | 9e-06 | 75 |
| HLA-A*03:01 | 1 | 24 | 33 | 10 | LPPAYTNSFT | 9e-06 | 64 |
| HLA-A*32:01 | 1 | 24 | 33 | 10 | LPPAYTNSFT | 9e-06 | 53 |
| HLA-B*40:01 | 1 | 30 | 39 | 10 | NSFTRGVYYP | 9e-06 | 45 |
| HLA-A*02:06 | 1 | 33 | 41 | 9 | TRGVYYPDK | 9e-06 | 76 |
| HLA-A*23:01 | 1 | 40 | 49 | 10 | DKVFRSSVLH | 9e-06 | 49 |
| HLA-B*35:01 | 1 | 41 | 50 | 10 | KVFRSSVLHS | 9e-06 | 52 |
| HLA-B*44:03 | 1 | 41 | 50 | 10 | KVFRSSVLHS | 9e-06 | 53 |
| HLA-B*35:01 | 1 | 45 | 53 | 9 | SSVLHSTQD | 9e-06 | 52 |
| HLA-B*07:02 | 1 | 48 | 57 | 10 | LHSTQDLFLP | 9e-06 | 67 |
| HLA-A*26:01 | 1 | 52 | 61 | 10 | QDLFLPFFSN | 9e-06 | 62 |
| HLA-B*35:01 | 1 | 52 | 60 | 9 | QDLFLPFFS | 9e-06 | 52 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-A*26:01 | 1 | 54 | 63 | 10 | LFLPFFSNVT 9e-06 | 62 |
| HLA-A*68:01 | 1 | 54 | 63 | 10 | LFLPFFSNVT 9e-06 | 63 |
| HLA-B*40:01 | 1 | 55 | 63 | 9 | FLPFFSNVT 9e-06 | 45 |
| HLA-A*23:01 | 1 | 60 | 69 | 10 | SNVTWFHAIH 9e-06 | 49 |
| HLA-A*24:02 | 1 | 61 | 69 | 9 | NVTWFHAIH 9e-06 | 47 |
| HLA-B*44:02 | 1 | 63 | 72 | 10 | TWFHAIHVSG 9e-06 | 57 |
| HLA-A*02:01 | 1 | 64 | 72 | 9 | WFHAIHVSG 9e-06 | 67 |
| HLA-A*02:01 | 1 | 64 | 73 | 10 | WFHAIHVSGT 9e-06 | 67 |
| HLA-A*68:01 | 1 | 64 | 73 | 10 | WFHAIHVSGT 9e-06 | 63 |
| HLA-A*03:01 | 1 | 65 | 73 | 9 | FHAIHVSGT 9e-06 | 64 |
| HLA-B*07:02 | 1 | 65 | 74 | 10 | FHAIHVSGTN 9e-06 | 67 |
| HLA-A*31:01 | 1 | 66 | 75 | 10 | HAIHVSGTNG 9e-06 | 70 |
| HLA-A*03:01 | 1 | 68 | 76 | 9 | IHVSGTNGT 9e-06 | 64 |
| HLA-B*40:01 | 1 | 70 | 78 | 9 | VSGTNGTKR 9e-06 | 45 |
| HLA-B*15:01 | 1 | 71 | 80 | 10 | SGTNGTKRFD 9e-06 | 67 |
| HLA-B*15:01 | 1 | 72 | 80 | 9 | GTNGTKRFD 9e-06 | 67 |
| HLA-A*01:01 | 1 | 73 | 81 | 9 | TNGTKRFDN 9e-06 | 89 |
| HLA-A*30:02 | 1 | 73 | 82 | 10 | TNGTKRFDNP 9e-06 | 89 |
| HLA-B*53:01 | 1 | 74 | 82 | 9 | NGTKRFDNP 9e-06 | 52 |
| HLA-A*02:06 | 1 | 79 | 88 | 10 | FDNPVLPFND 9e-06 | 76 |
| HLA-A*23:01 | 1 | 79 | 87 | 9 | FDNPVLPFN 9e-06 | 49 |
| HLA-B*07:02 | 1 | 79 | 87 | 9 | FDNPVLPFN 9e-06 | 67 |
| HLA-A*01:01 | 1 | 80 | 88 | 9 | DNPVLPFND 9e-06 | 89 |
| HLA-B*15:01 | 1 | 85 | 93 | 9 | PFNDGVYFA 9e-06 | 67 |
| HLA-A*68:01 | 1 | 86 | 95 | 10 | FNDGVYFAST 9e-06 | 63 |
| HLA-B*40:01 | 1 | 86 | 95 | 10 | FNDGVYFAST 9e-06 | 45 |
| HLA-B*08:01 | 1 | 87 | 96 | 10 | NDGVYFASTE 9e-06 | 85 |
| HLA-A*32:01 | 1 | 90 | 99 | 10 | VYFASTEKSN 9e-06 | 53 |
| HLA-B*40:01 | 1 | 90 | 98 | 9 | VYFASTEKS 9e-06 | 45 |
| HLA-B*53:01 | 1 | 90 | 99 | 10 | VYFASTEKSN 9e-06 | 52 |
| HLA-A*02:03 | 1 | 91 | 99 | 9 | YFASTEKSN 9e-06 | 70 |
| HLA-A*11:01 | 1 | 91 | 99 | 9 | YFASTEKSN 9e-06 | 49 |
| HLA-A*31:01 | 1 | 92 | 101 | 10 | FASTEKSNII 9e-06 | 70 |
| HLA-A*23:01 | 1 | 93 | 102 | 10 | ASTEKSNIIR 9e-06 | 49 |
| HLA-A*24:02 | 1 | 93 | 102 | 10 | ASTEKSNIIR 9e-06 | 47 |
| HLA-A*02:01 | 1 | 95 | 103 | 9 | TEKSNIIRG 9e-06 | 67 |
| HLA-A*11:01 | 1 | 95 | 103 | 9 | TEKSNIIRG 9e-06 | 49 |
| HLA-B*35:01 | 1 | 96 | 105 | 10 | EKSNIIRGWI 9e-06 | 52 |
| HLA-B*44:03 | 1 | 98 | 107 | 10 | SNIIRGWIFG 9e-06 | 53 |
| HLA-B*53:01 | 1 | 98 | 107 | 10 | SNIIRGWIFG 9e-06 | 52 |
| HLA-B*35:01 | 1 | 100 | 108 | 9 | IIRGWIFGT 9e-06 | 52 |
| HLA-B*58:01 | 1 | 100 | 109 | 10 | IIRGWIFGTT 9e-06 | 74 |
| HLA-B*58:01 | 1 | 101 | 109 | 9 | IRGWIFGTT 9e-06 | 74 |
| HLA-A*11:01 | 1 | 103 | 112 | 10 | GWIFGTTLDS 9e-06 | 49 |
| HLA-B*44:03 | 1 | 105 | 113 | 9 | IFGTTLDSK 9e-06 | 53 |
| HLA-B*51:01 | 1 | 105 | 114 | 10 | IFGTTLDSKT 9e-06 | 77 |
| HLA-B*51:01 | 1 | 107 | 115 | 9 | GTTLDSKTQ 9e-06 | 77 |
| HLA-A*24:02 | 1 | 113 | 121 | 9 | KTQSLLIVN 9e-06 | 47 |
| HLA-B*44:03 | 1 | 113 | 121 | 9 | KTQSLLIVN 9e-06 | 53 |
| HLA-B*44:03 | 1 | 113 | 122 | 10 | KTQSLLIVNN 9e-06 | 53 |
| HLA-B*07:02 | 1 | 117 | 125 | 9 | LLIVNNATN 9e-06 | 67 |
| HLA-A*23:01 | 1 | 118 | 127 | 10 | LIVNNATNVV 9e-06 | 49 |
| HLA-A*24:02 | 1 | 120 | 129 | 10 | VNNATNVVIK 9e-06 | 47 |
| HLA-B*40:01 | 1 | 120 | 129 | 10 | VNNATNVVIK 9e-06 | 45 |
| HLA-B*44:03 | 1 | 120 | 129 | 10 | VNNATNVVIK 9e-06 | 53 |
| HLA-A*03:01 | 1 | 122 | 131 | 10 | NATNVVIKVC 9e-06 | 64 |
| HLA-B*15:01 | 1 | 122 | 131 | 10 | NATNVVIKVC 9e-06 | 67 |
| HLA-A*23:01 | 1 | 127 | 136 | 10 | VIKVFQFC 9e-06 | 49 |
| HLA-A*01:01 | 1 | 129 | 138 | 10 | KVCEFQFCND 9e-06 | 89 |
| HLA-A*23:01 | 1 | 129 | 137 | 9 | KVCEFQFCN 9e-06 | 49 |
| HLA-B*53:01 | 1 | 129 | 137 | 9 | KVCEFQFCN 9e-06 | 52 |
| HLA-A*03:01 | 1 | 131 | 140 | 10 | CEFQFCNDPF 9e-06 | 64 |
| HLA-A*11:01 | 1 | 131 | 140 | 10 | CEFQFCNDPF 9e-06 | 49 |
| HLA-A*30:01 | 1 | 131 | 139 | 9 | CEFQFCNDP 9e-06 | 90 |
| HLA-A*11:01 | 1 | 132 | 140 | 9 | EFQFCNDPF 9e-06 | 49 |
| HLA-B*51:01 | 1 | 134 | 142 | 9 | QFCNDPFLG 9e-06 | 77 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-B*40:01 | 1 | 138 | 147 | 10 | DPFLGVYYHK 9e-06 | 45 |
| HLA-A*02:03 | 1 | 140 | 149 | 10 | FLGVYYHKNN 9e-06 | 70 |
| HLA-B*44:03 | 1 | 145 | 154 | 10 | YHKNNKSWME 9e-06 | 53 |
| HLA-A*02:03 | 1 | 146 | 155 | 10 | HKNNKSWMES 9e-06 | 70 |
| HLA-A*68:01 | 1 | 146 | 155 | 10 | HKNNKSWMES 9e-06 | 63 |
| HLA-A*02:01 | 1 | 148 | 156 | 9 | NNKSWMESE 9e-06 | 67 |
| HLA-B*53:01 | 1 | 148 | 156 | 9 | NNKSWMESE 9e-06 | 52 |
| HLA-A*23:01 | 1 | 154 | 162 | 9 | ESEFRVYSS 9e-06 | 49 |
| HLA-A*68:02 | 1 | 155 | 164 | 10 | SEFRVYSSAN 9e-06 | 67 |
| HLA-B*58:01 | 1 | 155 | 164 | 10 | SEFRVYSSAN 9e-06 | 74 |
| HLA-B*07:02 | 1 | 157 | 165 | 9 | FRVYSSANN 9e-06 | 67 |
| HLA-B*40:01 | 1 | 158 | 167 | 10 | RVYSSANNCT 9e-06 | 45 |
| HLA-B*35:01 | 1 | 163 | 171 | 9 | ANNCTFEYV 9e-06 | 52 |
| HLA-B*51:01 | 1 | 164 | 173 | 10 | NNCTFEYVSQ 9e-06 | 77 |
| HLA-A*11:01 | 1 | 165 | 173 | 9 | NCTFEYVSQ 9e-06 | 49 |
| HLA-A*24:02 | 1 | 166 | 174 | 9 | CTFEYVSQP 9e-06 | 47 |
| HLA-B*53:01 | 1 | 171 | 180 | 10 | VSQPFLMDLE 9e-06 | 52 |
| HLA-A*02:01 | 1 | 173 | 182 | 10 | QPFLMDLEGK 9e-06 | 67 |
| HLA-B*57:01 | 1 | 174 | 183 | 10 | PFLMDLEGKQ 9e-06 | 84 |
| HLA-A*23:01 | 1 | 175 | 183 | 9 | FLMDLEGKQ 9e-06 | 49 |
| HLA-A*68:01 | 1 | 175 | 184 | 10 | FLMDLEGKQG 9e-06 | 63 |
| HLA-A*32:01 | 1 | 176 | 184 | 9 | LMDLEGKQG 9e-06 | 53 |
| HLA-B*08:01 | 1 | 176 | 185 | 10 | LMDLEGKQGN 9e-06 | 85 |
| HLA-A*02:06 | 1 | 177 | 185 | 9 | MDLEGKQGN 9e-06 | 76 |
| HLA-B*53:01 | 1 | 177 | 185 | 9 | MDLEGKQGN 9e-06 | 52 |
| HLA-A*23:01 | 1 | 179 | 187 | 9 | LEGKQGNFK 9e-06 | 49 |
| HLA-B*07:02 | 1 | 180 | 188 | 9 | EGKQGNFKN 9e-06 | 67 |
| HLA-B*07:02 | 1 | 186 | 195 | 10 | FKNLREFVFK 9e-06 | 67 |
| HLA-B*35:01 | 1 | 188 | 197 | 10 | NLREFVFKNI 9e-06 | 52 |
| HLA-B*51:01 | 1 | 189 | 198 | 10 | LREFVFKNID 9e-06 | 77 |
| HLA-A*01:01 | 1 | 190 | 198 | 9 | REFVFKNID 9e-06 | 89 |
| HLA-B*51:01 | 1 | 190 | 199 | 10 | REFVFKNIDG 9e-06 | 77 |
| HLA-A*01:01 | 1 | 191 | 199 | 9 | EFVFKNIDG 9e-06 | 89 |
| HLA-A*26:01 | 1 | 191 | 199 | 9 | EFVFKNIDG 9e-06 | 62 |
| HLA-A*68:01 | 1 | 191 | 199 | 9 | EFVFKNIDG 9e-06 | 63 |
| HLA-B*44:02 | 1 | 191 | 199 | 9 | EFVFKNIDG 9e-06 | 57 |
| HLA-B*44:03 | 1 | 196 | 205 | 10 | NIDGYFKIYS 9e-06 | 53 |
| HLA-B*53:01 | 1 | 197 | 206 | 10 | IDGYFKIYSK 9e-06 | 52 |
| HLA-B*51:01 | 1 | 199 | 208 | 10 | GYFKIYSKHT 9e-06 | 77 |
| HLA-A*24:02 | 1 | 201 | 209 | 9 | FKIYSKHTP 9e-06 | 47 |
| HLA-A*68:01 | 1 | 203 | 211 | 9 | IYSKHTPIN 9e-06 | 63 |
| HLA-A*26:01 | 1 | 206 | 215 | 10 | KHTPINLVRD 9e-06 | 62 |
| HLA-B*44:02 | 1 | 206 | 215 | 10 | KHTPINLVRD 9e-06 | 57 |
| HLA-A*03:01 | 1 | 207 | 215 | 9 | HTPINLVRD 9e-06 | 64 |
| HLA-A*11:01 | 1 | 207 | 215 | 9 | HTPINLVRD 9e-06 | 49 |
| HLA-B*35:01 | 1 | 207 | 215 | 9 | HTPINLVRD 9e-06 | 52 |
| HLA-A*31:01 | 1 | 208 | 217 | 10 | TPINLVRDLP 9e-06 | 70 |
| HLA-B*15:01 | 1 | 209 | 217 | 9 | PINLVRDLP 9e-06 | 67 |
| HLA-B*57:01 | 1 | 209 | 218 | 10 | PINLVRDLPQ 9e-06 | 84 |
| HLA-B*07:02 | 1 | 210 | 218 | 9 | INLVRDLPQ 9e-06 | 67 |
| HLA-A*24:02 | 1 | 211 | 219 | 9 | NLVRDLPQG 9e-06 | 47 |
| HLA-A*23:01 | 1 | 217 | 225 | 9 | PQGFSALEP 9e-06 | 49 |
| HLA-B*58:01 | 1 | 217 | 225 | 9 | PQGFSALEP 9e-06 | 74 |
| HLA-B*07:02 | 1 | 220 | 228 | 9 | FSALEPLVD 9e-06 | 67 |
| HLA-A*31:01 | 1 | 223 | 231 | 9 | LEPLVDLPI 9e-06 | 70 |
| HLA-A*11:01 | 1 | 227 | 236 | 10 | VDLPIGINIT 9e-06 | 49 |
| HLA-B*44:03 | 1 | 228 | 236 | 9 | DLPIGINIT 9e-06 | 53 |
| HLA-A*11:01 | 1 | 231 | 240 | 10 | IGINITRFQT 9e-06 | 49 |
| HLA-B*35:01 | 1 | 234 | 243 | 10 | NITRFQTLA 9e-06 | 52 |
| HLA-B*35:01 | 1 | 237 | 246 | 10 | RFQTLALHR 9e-06 | 52 |
| HLA-B*40:01 | 1 | 238 | 247 | 10 | FQTLALHRS 9e-06 | 45 |
| HLA-A*68:01 | 1 | 241 | 250 | 10 | LLALHRSYLT 9e-06 | 63 |
| HLA-A*33:01 | 1 | 244 | 252 | 9 | LHRSYLTGP 9e-06 | 75 |
| HLA-B*35:01 | 1 | 244 | 252 | 9 | LHRSYLTGP 9e-06 | 52 |
| HLA-A*03:01 | 1 | 245 | 254 | 10 | HRSYLTPGDS 9e-06 | 64 |
| HLA-A*33:01 | 1 | 245 | 254 | 10 | HRSYLTPGDS 9e-06 | 75 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-A*24:02 | 1 | 249 | 257 | 9 | LTPGDSSSG | 9e-06 | 47 |
| HLA-A*02:06 | 1 | 250 | 259 | 10 | TPGDSSSGWT | 9e-06 | 76 |
| HLA-A*33:01 | 1 | 250 | 259 | 10 | TPGDSSSGWT | 9e-06 | 75 |
| HLA-A*02:03 | 1 | 253 | 261 | 9 | DSSSGWTAG | 9e-06 | 70 |
| HLA-B*40:01 | 1 | 253 | 261 | 9 | DSSSGWTAG | 9e-06 | 45 |
| HLA-B*44:03 | 1 | 253 | 261 | 9 | DSSSGWTAG | 9e-06 | 53 |
| HLA-B*44:03 | 1 | 255 | 263 | 9 | SSGWTAGAA | 9e-06 | 53 |
| HLA-A*23:01 | 1 | 260 | 268 | 9 | AGAAAYYVG | 9e-06 | 49 |
| HLA-B*15:01 | 1 | 265 | 274 | 10 | YYVGYLQPR | 9e-06 | 67 |
| HLA-A*23:01 | 1 | 273 | 282 | 10 | RTFLLKYNEN | 9e-06 | 49 |
| HLA-A*01:01 | 1 | 274 | 283 | 10 | TFLLKYNENG | 9e-06 | 89 |
| HLA-A*03:01 | 1 | 275 | 284 | 10 | FLLKYNENGT | 9e-06 | 64 |
| HLA-A*02:01 | 1 | 277 | 286 | 10 | LKYNENGTIT | 9e-06 | 67 |
| HLA-A*31:01 | 1 | 277 | 285 | 9 | LKYNENGTI | 9e-06 | 70 |
| HLA-A*02:06 | 1 | 279 | 287 | 9 | YNENGTITD | 9e-06 | 76 |
| HLA-A*23:01 | 1 | 279 | 287 | 9 | YNENGTITD | 9e-06 | 49 |
| HLA-B*08:01 | 1 | 281 | 290 | 10 | ENGTITDAVD | 9e-06 | 85 |
| HLA-A*26:01 | 1 | 282 | 291 | 10 | NGTITDAVDC | 9e-06 | 62 |
| HLA-B*35:01 | 1 | 283 | 292 | 10 | GTITDAVDCA | 9e-06 | 52 |
| HLA-B*44:02 | 1 | 283 | 291 | 9 | GTITDAVDC | 9e-06 | 57 |
| HLA-A*30:02 | 1 | 286 | 295 | 10 | TDAVDCALDP | 9e-06 | 89 |
| HLA-A*11:01 | 1 | 287 | 296 | 10 | DAVDCALDPL | 9e-06 | 49 |
| HLA-A*24:02 | 1 | 287 | 296 | 10 | DAVDCALDPL | 9e-06 | 47 |
| HLA-A*33:01 | 1 | 287 | 295 | 9 | DAVDCALDP | 9e-06 | 75 |
| HLA-A*31:01 | 1 | 289 | 298 | 10 | VDCALDPLSE | 9e-06 | 70 |
| HLA-A*11:01 | 1 | 290 | 299 | 10 | DCALDPLSET | 9e-06 | 49 |
| HLA-A*33:01 | 1 | 293 | 301 | 9 | LDPLSETKC | 9e-06 | 75 |
| HLA-A*68:02 | 1 | 293 | 302 | 10 | LDPLSETKCT | 9e-06 | 67 |
| HLA-A*11:01 | 1 | 294 | 303 | 10 | DPLSETKCTL | 9e-06 | 49 |
| HLA-B*51:01 | 1 | 295 | 304 | 10 | PLSETKCTLK | 9e-06 | 77 |
| HLA-A*23:01 | 1 | 296 | 304 | 9 | LSETKCTLK | 9e-06 | 49 |
| HLA-A*68:02 | 1 | 300 | 309 | 10 | KCTLKSFTVE | 9e-06 | 67 |
| HLA-A*03:01 | 1 | 303 | 312 | 10 | LKSFTVEKGI | 9e-06 | 64 |
| HLA-A*26:01 | 1 | 308 | 317 | 10 | VEKGIYQTSN | 9e-06 | 62 |
| HLA-A*02:01 | 1 | 312 | 321 | 10 | IYQTSNFRVQ | 9e-06 | 67 |
| HLA-A*68:02 | 1 | 312 | 321 | 10 | IYQTSNFRVQ | 9e-06 | 67 |
| HLA-B*53:01 | 1 | 316 | 325 | 10 | SNFRVQPTES | 9e-06 | 52 |
| HLA-A*23:01 | 1 | 322 | 330 | 9 | PTESIVRFP | 9e-06 | 49 |
| HLA-A*26:01 | 1 | 322 | 330 | 9 | PTESIVRFP | 9e-06 | 62 |
| HLA-A*11:01 | 1 | 323 | 331 | 9 | TESIVRFPN | 9e-06 | 49 |
| HLA-B*35:01 | 1 | 324 | 333 | 10 | ESIVRFPNIT | 9e-06 | 52 |
| HLA-A*24:02 | 1 | 325 | 333 | 9 | SIVRFPNIT | 9e-06 | 47 |
| HLA-A*23:01 | 1 | 326 | 334 | 9 | IVRFPNITN | 9e-06 | 49 |
| HLA-A*03:01 | 1 | 330 | 338 | 9 | PNITNLCPF | 9e-06 | 64 |
| HLA-B*53:01 | 1 | 332 | 341 | 10 | ITNLCPFGEV | 9e-06 | 52 |
| HLA-A*23:01 | 1 | 335 | 344 | 10 | LCPFGEVFNA | 9e-06 | 49 |
| HLA-A*24:02 | 1 | 335 | 344 | 10 | LCPFGEVFNA | 9e-06 | 47 |
| HLA-A*02:03 | 1 | 337 | 346 | 10 | PFGEVFNATR | 9e-06 | 70 |
| HLA-A*32:01 | 1 | 337 | 346 | 10 | PFGEVFNATR | 9e-06 | 53 |
| HLA-A*01:01 | 1 | 346 | 354 | 9 | RFASVYAWN | 9e-06 | 89 |
| HLA-B*40:01 | 1 | 347 | 355 | 9 | FASVYAWNR | 9e-06 | 45 |
| HLA-B*53:01 | 1 | 348 | 357 | 10 | ASVYAWNRKR | 9e-06 | 52 |
| HLA-A*02:01 | 1 | 351 | 360 | 10 | YAWNRKRISN | 9e-06 | 67 |
| HLA-A*02:03 | 1 | 351 | 360 | 10 | YAWNRKRISN | 9e-06 | 70 |
| HLA-A*26:01 | 1 | 352 | 361 | 10 | AWNRKRISNC | 9e-06 | 62 |
| HLA-A*23:01 | 1 | 353 | 362 | 10 | WNRKRISNCV | 9e-06 | 49 |
| HLA-A*31:01 | 1 | 353 | 362 | 10 | WNRKRISNCV | 9e-06 | 70 |
| HLA-B*40:01 | 1 | 353 | 362 | 10 | WNRKRISNCV | 9e-06 | 45 |
| HLA-A*03:01 | 1 | 354 | 363 | 10 | NRKRISNCVA | 9e-06 | 64 |
| HLA-A*68:01 | 1 | 354 | 363 | 10 | NRKRISNCVA | 9e-06 | 63 |
| HLA-B*44:02 | 1 | 354 | 363 | 10 | NRKRISNCVA | 9e-06 | 57 |
| HLA-B*07:02 | 1 | 356 | 364 | 9 | KRISNCVAD | 9e-06 | 67 |
| HLA-A*03:01 | 1 | 358 | 366 | 9 | ISNCVADYS | 9e-06 | 64 |
| HLA-A*03:01 | 1 | 360 | 368 | 9 | NCVADYSVL | 9e-06 | 64 |
| HLA-B*44:02 | 1 | 362 | 371 | 10 | VADYSVLVNS | 9e-06 | 57 |
| HLA-B*58:01 | 1 | 364 | 373 | 10 | DYSVLVNSAS | 9e-06 | 74 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-B*44:03 | 1 | 365 | 373 | 9 | YSVLYNSAS | 9e-06 | 53 |
| HLA-B*53:01 | 1 | 367 | 376 | 10 | VLNSASFST | 9e-06 | 52 |
| HLA-A*02:03 | 1 | 373 | 381 | 9 | SFSTFKCYG | 9e-06 | 70 |
| HLA-A*02:06 | 1 | 373 | 381 | 9 | SFSTFKCYG | 9e-06 | 76 |
| HLA-A*31:01 | 1 | 374 | 383 | 10 | FSTFKCYGVS | 9e-06 | 70 |
| HLA-B*51:01 | 1 | 374 | 383 | 10 | FSTFKCYGVS | 9e-06 | 77 |
| HLA-A*23:01 | 1 | 375 | 383 | 9 | STFKCYGVS | 9e-06 | 49 |
| HLA-B*53:01 | 1 | 375 | 383 | 9 | STFKCYGVS | 9e-06 | 52 |
| HLA-A*01:01 | 1 | 376 | 385 | 10 | TFKCYGVSPT | 9e-06 | 89 |
| HLA-A*11:01 | 1 | 376 | 384 | 9 | TFKCYGVSP | 9e-06 | 49 |
| HLA-B*15:01 | 1 | 376 | 385 | 10 | TFKCYGVSPT | 9e-06 | 67 |
| HLA-A*02:03 | 1 | 380 | 388 | 9 | YGVSPTKLN | 9e-06 | 70 |
| HLA-B*07:02 | 1 | 380 | 389 | 10 | YGVSPTKLND | 9e-06 | 67 |
| HLA-B*15:01 | 1 | 385 | 394 | 10 | TKLNDLCFTN | 9e-06 | 67 |
| HLA-B*58:01 | 1 | 388 | 397 | 10 | NLDCFTNVYA | 9e-06 | 74 |
| HLA-A*02:03 | 1 | 390 | 399 | 10 | LCFTNVYADS | 9e-06 | 70 |
| HLA-B*08:01 | 1 | 390 | 399 | 10 | LCFTNVYADS | 9e-06 | 85 |
| HLA-B*58:01 | 1 | 390 | 399 | 10 | LCFTNVYADS | 9e-06 | 74 |
| HLA-B*07:02 | 1 | 395 | 404 | 10 | VYADSFVIRG | 9e-06 | 67 |
| HLA-A*03:01 | 1 | 397 | 406 | 10 | ADSFVIRGDE | 9e-06 | 64 |
| HLA-A*33:01 | 1 | 397 | 406 | 10 | ADSFVIRGDE | 9e-06 | 75 |
| HLA-B*53:01 | 1 | 404 | 412 | 9 | GDEVRQIAP | 9e-06 | 52 |
| HLA-A*33:01 | 1 | 405 | 413 | 9 | DEVRQIAPG | 9e-06 | 75 |
| HLA-A*23:01 | 1 | 410 | 419 | 10 | IAPGQTGKIA | 9e-06 | 49 |
| HLA-A*32:01 | 1 | 410 | 419 | 10 | IAPGQTGKIA | 9e-06 | 53 |
| HLA-A*01:01 | 1 | 411 | 420 | 10 | APGQTGKIAD | 9e-06 | 89 |
| HLA-B*51:01 | 1 | 416 | 424 | 9 | GKIADYNYK | 9e-06 | 77 |
| HLA-A*30:02 | 1 | 419 | 427 | 9 | ADYNYKLPD | 9e-06 | 89 |
| HLA-A*30:02 | 1 | 419 | 428 | 10 | ADYNYKLPPD | 9e-06 | 89 |
| HLA-B*15:01 | 1 | 419 | 427 | 9 | ADYNYKLPD | 9e-06 | 67 |
| HLA-B*58:01 | 1 | 419 | 427 | 9 | ADYNYKLPD | 9e-06 | 74 |
| HLA-A*11:01 | 1 | 422 | 430 | 9 | NYKLPDDFT | 9e-06 | 49 |
| HLA-B*44:03 | 1 | 422 | 431 | 10 | NYKLPDDFTG | 9e-06 | 53 |
| HLA-A*26:01 | 1 | 423 | 431 | 9 | YKLPDDFTG | 9e-06 | 62 |
| HLA-A*11:01 | 1 | 425 | 434 | 10 | LPDDFTGCVI | 9e-06 | 49 |
| HLA-A*33:01 | 1 | 425 | 434 | 10 | LPDDFTGCVI | 9e-06 | 75 |
| HLA-B*58:01 | 1 | 426 | 434 | 9 | PDDFTGCVI | 9e-06 | 74 |
| HLA-A*02:03 | 1 | 427 | 436 | 10 | DDFTGCVIAW | 9e-06 | 70 |
| HLA-A*03:01 | 1 | 430 | 438 | 9 | TGCVIAWNS | 9e-06 | 64 |
| HLA-B*53:01 | 1 | 430 | 438 | 9 | TGCVIAWNS | 9e-06 | 52 |
| HLA-B*51:01 | 1 | 432 | 440 | 9 | CVIAWNSNN | 9e-06 | 77 |
| HLA-B*53:01 | 1 | 433 | 442 | 10 | VIAWNSNNLD | 9e-06 | 52 |
| HLA-A*03:01 | 1 | 434 | 443 | 10 | IAWNSNNLDS | 9e-06 | 64 |
| HLA-B*08:01 | 1 | 434 | 443 | 10 | IAWNSNNLDS | 9e-06 | 85 |
| HLA-B*58:01 | 1 | 435 | 443 | 9 | AWNSNNLDS | 9e-06 | 74 |
| HLA-A*02:03 | 1 | 436 | 444 | 9 | WNSNNLDSK | 9e-06 | 70 |
| HLA-B*15:01 | 1 | 438 | 446 | 9 | SNNLDSKVG | 9e-06 | 67 |
| HLA-B*44:02 | 1 | 438 | 447 | 10 | SNNLDSKVG | 9e-06 | 57 |
| HLA-A*26:01 | 1 | 439 | 447 | 9 | NNLDSKVG | 9e-06 | 62 |
| HLA-A*03:01 | 1 | 441 | 450 | 10 | LDSKVGGNYN | 9e-06 | 64 |
| HLA-B*51:01 | 1 | 441 | 450 | 10 | LDSKVGGNYN | 9e-06 | 77 |
| HLA-A*68:02 | 1 | 445 | 454 | 10 | VGGNYNYLYR | 9e-06 | 67 |
| HLA-B*44:02 | 1 | 449 | 458 | 10 | YNYLYRFRK | 9e-06 | 57 |
| HLA-A*26:01 | 1 | 450 | 459 | 10 | NYLYRFRKS | 9e-06 | 62 |
| HLA-A*01:01 | 1 | 451 | 460 | 10 | YLYRFRKSN | 9e-06 | 89 |
| HLA-A*68:01 | 1 | 452 | 461 | 10 | LYRFRKSNL | 9e-06 | 63 |
| HLA-B*51:01 | 1 | 452 | 460 | 9 | LYRFRKSN | 9e-06 | 77 |
| HLA-B*53:01 | 1 | 452 | 461 | 10 | LYRFRKSNL | 9e-06 | 52 |
| HLA-B*57:01 | 1 | 452 | 460 | 9 | LYRFRKSN | 9e-06 | 84 |
| HLA-A*68:02 | 1 | 455 | 464 | 10 | LFRKSNLKP | 9e-06 | 67 |
| HLA-B*40:01 | 1 | 455 | 463 | 9 | LFRKSNLKP | 9e-06 | 45 |
| HLA-B*51:01 | 1 | 456 | 465 | 10 | FRKSNLKPFE | 9e-06 | 77 |
| HLA-B*58:01 | 1 | 456 | 465 | 10 | FRKSNLKPFE | 9e-06 | 74 |
| HLA-A*02:03 | 1 | 457 | 465 | 9 | RKSNLKPFE | 9e-06 | 70 |
| HLA-A*26:01 | 1 | 457 | 465 | 9 | RKSNLKPFE | 9e-06 | 62 |
| HLA-A*68:02 | 1 | 459 | 467 | 9 | SNLKPFERD | 9e-06 | 67 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-A*03:01 | 1 | 460 | 469 | 10 | NLKPFERDIS 9e-06 | 64 |
| HLA-B*58:01 | 1 | 460 | 469 | 10 | NLKPFERDIS 9e-06 | 74 |
| HLA-A*03:01 | 1 | 463 | 471 | 9 | PFERDISTE 9e-06 | 64 |
| HLA-B*51:01 | 1 | 463 | 471 | 9 | PFERDISTE 9e-06 | 77 |
| HLA-B*53:01 | 1 | 463 | 471 | 9 | PFERDISTE 9e-06 | 52 |
| HLA-B*08:01 | 1 | 468 | 477 | 10 | ISTEIQAGS 9e-06 | 85 |
| HLA-B*15:01 | 1 | 468 | 477 | 10 | ISTEIQAGS 9e-06 | 67 |
| HLA-B*44:02 | 1 | 468 | 476 | 9 | ISTEIQAG 9e-06 | 57 |
| HLA-A*11:01 | 1 | 470 | 478 | 9 | TEIQAGST 9e-06 | 49 |
| HLA-B*44:03 | 1 | 472 | 480 | 9 | IYQAGSTPC 9e-06 | 53 |
| HLA-B*44:02 | 1 | 473 | 482 | 10 | YQAGSTPCNG 9e-06 | 57 |
| HLA-B*15:01 | 1 | 474 | 482 | 9 | QAGSTPCNG 9e-06 | 67 |
| HLA-B*35:01 | 1 | 474 | 482 | 9 | QAGSTPCNG 9e-06 | 52 |
| HLA-B*44:02 | 1 | 474 | 482 | 9 | QAGSTPCNG 9e-06 | 57 |
| HLA-B*07:02 | 1 | 475 | 484 | 10 | AGSTPCNGVE 9e-06 | 67 |
| HLA-B*08:01 | 1 | 475 | 484 | 10 | AGSTPCNGVE 9e-06 | 85 |
| HLA-A*33:01 | 1 | 476 | 484 | 9 | GSTPCNGVE 9e-06 | 75 |
| HLA-A*23:01 | 1 | 477 | 485 | 9 | STPCNGVEG 9e-06 | 49 |
| HLA-B*07:02 | 1 | 480 | 489 | 10 | CNGVEGFNCY 9e-06 | 67 |
| HLA-B*40:01 | 1 | 480 | 489 | 10 | CNGVEGFNCY 9e-06 | 45 |
| HLA-B*51:01 | 1 | 482 | 491 | 10 | GVEGFNCYFP 9e-06 | 77 |
| HLA-B*35:01 | 1 | 483 | 492 | 10 | VEGFNCYFPL 9e-06 | 52 |
| HLA-A*32:01 | 1 | 485 | 493 | 9 | GFNCYFPLQ 9e-06 | 53 |
| HLA-B*40:01 | 1 | 486 | 494 | 9 | FNCYFPLQS 9e-06 | 45 |
| HLA-A*32:01 | 1 | 491 | 499 | 9 | PLQSYGFQP 9e-06 | 53 |
| HLA-B*44:03 | 1 | 491 | 499 | 9 | PLQSYGFQP 9e-06 | 53 |
| HLA-B*44:03 | 1 | 492 | 501 | 10 | LQSYGFQPTN 9e-06 | 53 |
| HLA-B*44:03 | 1 | 493 | 502 | 10 | QSYGFQPTNG 9e-06 | 53 |
| HLA-A*03:01 | 1 | 495 | 504 | 10 | YGFQPTNGVG 9e-06 | 64 |
| HLA-A*26:01 | 1 | 495 | 504 | 10 | YGFQPTNGVG 9e-06 | 62 |
| HLA-A*32:01 | 1 | 495 | 504 | 10 | YGFQPTNGVG 9e-06 | 53 |
| HLA-A*33:01 | 1 | 496 | 504 | 9 | GFQPTNGVG 9e-06 | 75 |
| HLA-A*32:01 | 1 | 497 | 506 | 10 | FQPTNGVGYQ 9e-06 | 53 |
| HLA-A*23:01 | 1 | 498 | 507 | 10 | QPTNGVGYQP 9e-06 | 49 |
| HLA-A*02:03 | 1 | 499 | 508 | 10 | PTNGVGYQPY 9e-06 | 70 |
| HLA-B*40:01 | 1 | 499 | 508 | 10 | PTNGVGYQPY 9e-06 | 45 |
| HLA-B*35:01 | 1 | 501 | 510 | 10 | NGVGYQPYRV 9e-06 | 52 |
| HLA-B*35:01 | 1 | 502 | 511 | 10 | GVGYPYRVV 9e-06 | 52 |
| HLA-A*24:02 | 1 | 512 | 521 | 10 | VLSFELLHAP 9e-06 | 47 |
| HLA-B*44:03 | 1 | 512 | 521 | 10 | VLSFELLHAP 9e-06 | 53 |
| HLA-A*23:01 | 1 | 516 | 525 | 10 | ELLHAPATVC 9e-06 | 49 |
| HLA-A*32:01 | 1 | 517 | 526 | 10 | LLHAPATVCG 9e-06 | 49 |
| HLA-B*44:03 | 1 | 517 | 526 | 10 | LLHAPATVCG 9e-06 | 53 |
| HLA-A*03:01 | 1 | 518 | 527 | 10 | LHAPATVCGP 9e-06 | 64 |
| HLA-A*23:01 | 1 | 519 | 528 | 10 | HAPATVCGPK 9e-06 | 49 |
| HLA-A*24:02 | 1 | 519 | 527 | 9 | HAPATVCGP 9e-06 | 47 |
| HLA-A*32:01 | 1 | 519 | 527 | 9 | HAPATVCGP 9e-06 | 53 |
| HLA-A*02:01 | 1 | 523 | 532 | 10 | TVCGPKKSTN 9e-06 | 67 |
| HLA-A*02:06 | 1 | 524 | 532 | 9 | VCGPKKSTN 9e-06 | 76 |
| HLA-A*02:03 | 1 | 527 | 535 | 9 | PKKSTNLVK 9e-06 | 70 |
| HLA-A*02:01 | 1 | 532 | 540 | 9 | NLVKNKCVN 9e-06 | 67 |
| HLA-A*02:03 | 1 | 532 | 540 | 9 | NLVKNKCVN 9e-06 | 70 |
| HLA-A*26:01 | 1 | 532 | 540 | 9 | NLVKNKCVN 9e-06 | 62 |
| HLA-A*68:01 | 1 | 532 | 540 | 9 | NLVKNKCVN 9e-06 | 63 |
| HLA-B*57:01 | 1 | 532 | 540 | 9 | NLVKNKCVN 9e-06 | 84 |
| HLA-A*01:01 | 1 | 535 | 544 | 10 | KNKCVNFNFN 9e-06 | 89 |
| HLA-A*02:01 | 1 | 537 | 545 | 9 | KCVNFNFNG 9e-06 | 67 |
| HLA-A*32:01 | 1 | 539 | 547 | 9 | VNFNFNGLT 9e-06 | 53 |
| HLA-B*44:02 | 1 | 539 | 547 | 9 | VNFNFNGLT 9e-06 | 57 |
| HLA-A*02:01 | 1 | 541 | 550 | 10 | FNFNGLTGTG 9e-06 | 67 |
| HLA-A*24:02 | 1 | 541 | 550 | 10 | FNFNGLTGTG 9e-06 | 47 |
| HLA-A*03:01 | 1 | 543 | 551 | 9 | FNGLTGTGV 9e-06 | 64 |
| HLA-A*23:01 | 1 | 545 | 553 | 9 | GLTGTGVL 9e-06 | 49 |
| HLA-B*35:01 | 1 | 545 | 553 | 9 | GLTGTGVL 9e-06 | 52 |
| HLA-A*23:01 | 1 | 546 | 554 | 9 | LTGTGVLTE 9e-06 | 49 |
| HLA-B*08:01 | 1 | 546 | 555 | 10 | LTGTGVLTES 9e-06 | 85 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-A*03:01 | 1 | 548 | 556 | 9 | GTGVLTESN | 9e-06 | 64 |
| HLA-A*31:01 | 1 | 548 | 556 | 9 | GTGVLTESN | 9e-06 | 70 |
| HLA-A*02:03 | 1 | 555 | 564 | 10 | SNKKFLPFQQ | 9e-06 | 70 |
| HLA-B*51:01 | 1 | 555 | 564 | 10 | SNKKFLPFQQ | 9e-06 | 77 |
| HLA-A*32:01 | 1 | 556 | 564 | 9 | NKKFLPFQQ | 9e-06 | 53 |
| HLA-A*68:02 | 1 | 556 | 564 | 9 | NKKFLPFQQ | 9e-06 | 67 |
| HLA-B*07:02 | 1 | 556 | 564 | 9 | NKKFLPFQQ | 9e-06 | 67 |
| HLA-A*02:01 | 1 | 561 | 569 | 9 | PFQQFGRDI | 9e-06 | 67 |
| HLA-A*02:06 | 1 | 561 | 569 | 9 | PFQQFGRDI | 9e-06 | 76 |
| HLA-B*07:02 | 1 | 562 | 571 | 10 | FQQFGRDIAD | 9e-06 | 67 |
| HLA-A*03:01 | 1 | 563 | 571 | 9 | QQFGRDIAD | 9e-06 | 64 |
| HLA-A*23:01 | 1 | 563 | 572 | 10 | QQFGRDIADT | 9e-06 | 49 |
| HLA-A*02:01 | 1 | 564 | 572 | 9 | QFGRDIADT | 9e-06 | 67 |
| HLA-B*53:01 | 1 | 564 | 573 | 10 | QFGRDIADTT | 9e-06 | 52 |
| HLA-B*07:02 | 1 | 565 | 574 | 10 | FGRDIADTTD | 9e-06 | 67 |
| HLA-B*53:01 | 1 | 565 | 574 | 10 | FGRDIADTTD | 9e-06 | 52 |
| HLA-A*23:01 | 1 | 566 | 574 | 9 | GRDIADTTD | 9e-06 | 49 |
| HLA-B*53:01 | 1 | 569 | 578 | 10 | IADTTDAVRD | 9e-06 | 52 |
| HLA-A*26:01 | 1 | 570 | 579 | 10 | ADTTDAVRDP | 9e-06 | 62 |
| HLA-B*15:01 | 1 | 572 | 581 | 10 | TTDAVRDPQT | 9e-06 | 67 |
| HLA-A*03:01 | 1 | 573 | 581 | 9 | TDAVRDPQT | 9e-06 | 64 |
| HLA-B*58:01 | 1 | 573 | 581 | 9 | TDAVRDPQT | 9e-06 | 74 |
| HLA-A*02:01 | 1 | 577 | 586 | 10 | RDPQTLEILD | 9e-06 | 67 |
| HLA-B*35:01 | 1 | 582 | 591 | 10 | LEILDITPCS | 9e-06 | 52 |
| HLA-A*01:01 | 1 | 585 | 594 | 10 | LDITPCSFVG | 9e-06 | 89 |
| HLA-A*02:06 | 1 | 585 | 594 | 10 | LDITPCSFVG | 9e-06 | 76 |
| HLA-A*26:01 | 1 | 585 | 593 | 9 | LDITPCSFVG | 9e-06 | 62 |
| HLA-A*30:01 | 1 | 585 | 594 | 10 | LDITPCSFVG | 9e-06 | 90 |
| HLA-A*68:02 | 1 | 585 | 593 | 9 | LDITPCSFVG | 9e-06 | 67 |
| HLA-B*58:01 | 1 | 586 | 595 | 10 | DITPCSFGGV | 9e-06 | 74 |
| HLA-A*31:01 | 1 | 587 | 596 | 10 | ITPCSFGGVS | 9e-06 | 70 |
| HLA-A*33:01 | 1 | 588 | 596 | 9 | TPCSFGGVS | 9e-06 | 75 |
| HLA-B*44:03 | 1 | 588 | 596 | 9 | TPCSFGGVS | 9e-06 | 53 |
| HLA-A*68:01 | 1 | 589 | 597 | 9 | PCSFGGVSV | 9e-06 | 63 |
| HLA-B*35:01 | 1 | 591 | 600 | 10 | SFGGVSVITP | 9e-06 | 52 |
| HLA-B*07:02 | 1 | 593 | 602 | 10 | GGVSVITPGT | 9e-06 | 67 |
| HLA-A*23:01 | 1 | 595 | 604 | 10 | VSVITPGTNT | 9e-06 | 49 |
| HLA-A*26:01 | 1 | 595 | 603 | 9 | VSVITPGTN | 9e-06 | 62 |
| HLA-A*24:02 | 1 | 596 | 605 | 10 | SVITPGTNTS | 9e-06 | 47 |
| HLA-B*08:01 | 1 | 597 | 606 | 10 | VITPGTNTSN | 9e-06 | 85 |
| HLA-B*07:02 | 1 | 600 | 609 | 10 | PGTNTSNQVA | 9e-06 | 67 |
| HLA-A*02:01 | 1 | 605 | 613 | 9 | SNQVAVLYQ | 9e-06 | 67 |
| HLA-A*02:01 | 1 | 605 | 614 | 10 | SNQVAVLYQD | 9e-06 | 67 |
| HLA-A*24:02 | 1 | 606 | 614 | 9 | NQVAVLYQD | 9e-06 | 47 |
| HLA-B*51:01 | 1 | 607 | 616 | 10 | QVAVLYQDVN | 9e-06 | 77 |
| HLA-A*11:01 | 1 | 608 | 617 | 10 | VAVLYQDVNC | 9e-06 | 49 |
| HLA-A*68:01 | 1 | 608 | 617 | 10 | VAVLYQDVNC | 9e-06 | 63 |
| HLA-B*07:02 | 1 | 608 | 617 | 10 | VAVLYQDVNC | 9e-06 | 67 |
| HLA-B*44:02 | 1 | 609 | 618 | 10 | AVLYQDVNCT | 9e-06 | 57 |
| HLA-B*44:03 | 1 | 609 | 618 | 10 | AVLYQDVNCT | 9e-06 | 53 |
| HLA-A*68:02 | 1 | 613 | 621 | 9 | QDVNCTEVP | 9e-06 | 67 |
| HLA-A*32:01 | 1 | 615 | 623 | 9 | VNCTEVPVA | 9e-06 | 53 |
| HLA-B*40:01 | 1 | 620 | 628 | 9 | VPVAIHADQ | 9e-06 | 45 |
| HLA-A*11:01 | 1 | 622 | 630 | 9 | VAIHADQLT | 9e-06 | 49 |
| HLA-B*53:01 | 1 | 629 | 637 | 9 | LTPTWRVYS | 9e-06 | 52 |
| HLA-A*02:06 | 1 | 630 | 639 | 10 | TPTWRVYSTG | 9e-06 | 76 |
| HLA-A*31:01 | 1 | 630 | 639 | 10 | TPTWRVYSTG | 9e-06 | 70 |
| HLA-A*68:01 | 1 | 631 | 639 | 9 | PTWRVYSTG | 9e-06 | 63 |
| HLA-A*23:01 | 1 | 636 | 645 | 10 | YSTGSNVFQT | 9e-06 | 49 |
| HLA-B*40:01 | 1 | 638 | 647 | 10 | TGSNVFQTRA | 9e-06 | 45 |
| HLA-B*35:01 | 1 | 640 | 648 | 9 | SNVFQTRAG | 9e-06 | 52 |
| HLA-B*44:02 | 1 | 640 | 649 | 10 | SNVFQTRAGC | 9e-06 | 57 |
| HLA-B*53:01 | 1 | 640 | 648 | 9 | SNVFQTRAG | 9e-06 | 52 |
| HLA-A*11:01 | 1 | 643 | 651 | 9 | FQTRAGCLI | 9e-06 | 49 |
| HLA-B*07:02 | 1 | 643 | 652 | 10 | FQTRAGCLIG | 9e-06 | 67 |
| HLA-A*02:01 | 1 | 644 | 652 | 9 | QTRAGCLIG | 9e-06 | 67 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-A*03:01 | 1 | 645 | 654 | 10 | TRAGCLIGAE 9e-06 | 64 |
| HLA-A*68:02 | 1 | 645 | 654 | 10 | TRAGCLIGAE 9e-06 | 67 |
| HLA-B*35:01 | 1 | 646 | 654 | 9 | RAGCLIGAE 9e-06 | 52 |
| HLA-B*44:03 | 1 | 647 | 656 | 10 | AGCLIGAEHV 9e-06 | 53 |
| HLA-A*03:01 | 1 | 649 | 658 | 10 | CLIGAEHVNN 9e-06 | 64 |
| HLA-B*07:02 | 1 | 649 | 657 | 9 | CLIGAEHVN 9e-06 | 67 |
| HLA-A*68:01 | 1 | 653 | 662 | 10 | AHVNNNSYEC 9e-06 | 63 |
| HLA-A*32:01 | 1 | 654 | 662 | 9 | EHVNNNSYEC 9e-06 | 53 |
| HLA-A*26:01 | 1 | 656 | 664 | 9 | VNNSYECDI 9e-06 | 62 |
| HLA-B*40:01 | 1 | 656 | 664 | 9 | VNNSYECDI 9e-06 | 45 |
| HLA-B*53:01 | 1 | 656 | 664 | 9 | VNNSYECDI 9e-06 | 52 |
| HLA-A*02:06 | 1 | 659 | 667 | 9 | SYECDIPIG 9e-06 | 76 |
| HLA-A*02:01 | 1 | 660 | 669 | 10 | YECDIPIGAG 9e-06 | 67 |
| HLA-A*02:06 | 1 | 661 | 669 | 9 | ECDIPIGAG 9e-06 | 76 |
| HLA-B*15:01 | 1 | 661 | 669 | 9 | ECDIPIGAG 9e-06 | 67 |
| HLA-B*15:01 | 1 | 663 | 671 | 9 | DIPIGAGIC 9e-06 | 67 |
| HLA-A*24:02 | 1 | 665 | 674 | 10 | PIGAGICASY 9e-06 | 47 |
| HLA-A*68:02 | 1 | 665 | 673 | 9 | PIGAGICAS 9e-06 | 67 |
| HLA-B*35:01 | 1 | 668 | 676 | 9 | AGICASYQT 9e-06 | 52 |
| HLA-B*53:01 | 1 | 668 | 676 | 9 | AGICASYQT 9e-06 | 52 |
| HLA-A*11:01 | 1 | 669 | 678 | 10 | GICASYQTQT 9e-06 | 49 |
| HLA-B*07:02 | 1 | 671 | 679 | 9 | CASYQTQTN 9e-06 | 67 |
| HLA-B*35:01 | 1 | 675 | 684 | 10 | QTQTNSPRRA 9e-06 | 52 |
| HLA-B*53:01 | 1 | 677 | 686 | 10 | QTNSPRRARS 9e-06 | 52 |
| HLA-A*32:01 | 1 | 678 | 686 | 9 | TNSPRRARS 9e-06 | 53 |
| HLA-B*35:01 | 1 | 678 | 687 | 10 | TNSPRRARSV 9e-06 | 52 |
| HLA-A*24:02 | 1 | 679 | 688 | 10 | NSPRRARSVA 9e-06 | 47 |
| HLA-A*32:01 | 1 | 679 | 688 | 10 | NSPRRARSVA 9e-06 | 53 |
| HLA-A*02:06 | 1 | 680 | 689 | 10 | SPRRARSVAS 9e-06 | 76 |
| HLA-B*44:03 | 1 | 680 | 689 | 10 | SPRRARSVAS 9e-06 | 53 |
| HLA-B*58:01 | 1 | 680 | 689 | 10 | SPRRARSVAS 9e-06 | 74 |
| HLA-A*24:02 | 1 | 683 | 691 | 9 | RARSVASQS 9e-06 | 47 |
| HLA-B*40:01 | 1 | 687 | 696 | 10 | VASQSIIAYT 9e-06 | 45 |
| HLA-B*53:01 | 1 | 692 | 700 | 9 | IIAYTMSLG 9e-06 | 52 |
| HLA-A*01:01 | 1 | 694 | 702 | 9 | AYTMSLGAE 9e-06 | 89 |
| HLA-A*02:03 | 1 | 694 | 703 | 10 | AYTMSLGAEN 9e-06 | 70 |
| HLA-B*44:03 | 1 | 694 | 703 | 10 | AYTMSLGAEN 9e-06 | 53 |
| HLA-B*57:01 | 1 | 694 | 702 | 9 | AYTMSLGAE 9e-06 | 84 |
| HLA-A*23:01 | 1 | 695 | 703 | 9 | YTMSLGAEN 9e-06 | 49 |
| HLA-A*23:01 | 1 | 701 | 709 | 9 | AENSVAYSN 9e-06 | 49 |
| HLA-B*44:02 | 1 | 702 | 710 | 9 | ENSVAYSNN 9e-06 | 57 |
| HLA-B*58:01 | 1 | 702 | 710 | 9 | ENSVAYSNN 9e-06 | 74 |
| HLA-A*11:01 | 1 | 703 | 712 | 10 | NSVAYSNNSI 9e-06 | 49 |
| HLA-B*35:01 | 1 | 706 | 715 | 10 | AYSNNIAIP 9e-06 | 52 |
| HLA-B*53:01 | 1 | 706 | 715 | 10 | AYSNNIAIP 9e-06 | 52 |
| HLA-A*33:01 | 1 | 708 | 717 | 10 | SNNSIAIPTN 9e-06 | 75 |
| HLA-A*02:06 | 1 | 709 | 717 | 9 | NNSIAIPTN 9e-06 | 76 |
| HLA-B*40:01 | 1 | 714 | 723 | 10 | IPNFTISVT 9e-06 | 45 |
| HLA-A*26:01 | 1 | 715 | 724 | 10 | PTNFTISVTT 9e-06 | 62 |
| HLA-A*32:01 | 1 | 724 | 732 | 9 | TEILPVSMT 9e-06 | 53 |
| HLA-A*23:01 | 1 | 725 | 734 | 10 | EILPVSMTKT 9e-06 | 49 |
| HLA-A*24:02 | 1 | 725 | 734 | 10 | EILPVSMTKT 9e-06 | 47 |
| HLA-B*44:02 | 1 | 726 | 734 | 9 | ILPVSMTKT 9e-06 | 57 |
| HLA-A*33:01 | 1 | 729 | 738 | 10 | VSMTKTSVDC 9e-06 | 75 |
| HLA-B*35:01 | 1 | 733 | 742 | 10 | KTSVDCTMYI 9e-06 | 52 |
| HLA-B*07:02 | 1 | 734 | 743 | 10 | TSVDCTMYIC 9e-06 | 67 |
| HLA-A*11:01 | 1 | 738 | 746 | 9 | CTMYICGDS 9e-06 | 49 |
| HLA-B*40:01 | 1 | 739 | 747 | 9 | TMYICGDST 9e-06 | 45 |
| HLA-A*32:01 | 1 | 740 | 749 | 10 | MYICGDSTEC 9e-06 | 53 |
| HLA-B*58:01 | 1 | 740 | 748 | 9 | MYICGDSTE 9e-06 | 74 |
| HLA-A*03:01 | 1 | 741 | 750 | 10 | YICGDSTEC 9e-06 | 64 |
| HLA-A*26:01 | 1 | 741 | 750 | 10 | YICGDSTEC 9e-06 | 62 |
| HLA-A*68:01 | 1 | 743 | 752 | 10 | CGDSTEC 9e-06 | 63 |
| HLA-A*03:01 | 1 | 749 | 757 | 9 | CSNLLLQYG 9e-06 | 64 |
| HLA-A*31:01 | 1 | 749 | 758 | 10 | CSNLLLQYGS 9e-06 | 70 |
| HLA-B*53:01 | 1 | 749 | 757 | 9 | CSNLLLQYG 9e-06 | 52 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-B*35:01 | 1 | 750 | 758 | 9 | SNLLLQYGS 9e-06 | 52 |
| HLA-A*24:02 | 1 | 751 | 760 | 10 | NLLLQYGSFC 9e-06 | 47 |
| HLA-A*26:01 | 1 | 751 | 760 | 10 | NLLLQYGSFC 9e-06 | 62 |
| HLA-B*58:01 | 1 | 751 | 760 | 10 | NLLLQYGSFC 9e-06 | 74 |
| HLA-B*51:01 | 1 | 752 | 761 | 10 | LLLQYGSFCT 9e-06 | 77 |
| HLA-A*24:02 | 1 | 753 | 761 | 9 | LLQYGSFCT 9e-06 | 47 |
| HLA-A*68:01 | 1 | 756 | 764 | 9 | YGSFCTQLN 9e-06 | 63 |
| HLA-A*24:02 | 1 | 760 | 768 | 9 | CTQLNRALT 9e-06 | 47 |
| HLA-B*35:01 | 1 | 763 | 772 | 10 | LNRLTGIADV 9e-06 | 52 |
| HLA-A*11:01 | 1 | 764 | 773 | 10 | NRALTGIAVE 9e-06 | 49 |
| HLA-B*44:03 | 1 | 764 | 773 | 10 | NRALTGIAVE 9e-06 | 53 |
| HLA-A*02:06 | 1 | 769 | 777 | 9 | GIAVEQDKN 9e-06 | 76 |
| HLA-A*02:01 | 1 | 775 | 783 | 9 | DKNTQEVFA 9e-06 | 67 |
| HLA-A*03:01 | 1 | 775 | 784 | 10 | DKNTQEVFAQ 9e-06 | 64 |
| HLA-A*11:01 | 1 | 775 | 784 | 10 | DKNTQEVFAQ 9e-06 | 49 |
| HLA-B*57:01 | 1 | 775 | 783 | 9 | DKNTQEVFA 9e-06 | 84 |
| HLA-B*07:02 | 1 | 776 | 784 | 9 | KNTQEVFAQ 9e-06 | 67 |
| HLA-B*35:01 | 1 | 776 | 785 | 10 | KNTQEVFAQV 9e-06 | 52 |
| HLA-A*24:02 | 1 | 778 | 787 | 10 | TQEVFAQVKQ 9e-06 | 47 |
| HLA-B*15:01 | 1 | 785 | 793 | 9 | VKQIYKTPP 9e-06 | 67 |
| HLA-B*44:02 | 1 | 790 | 798 | 9 | KTPPIKDFG 9e-06 | 57 |
| HLA-B*44:03 | 1 | 790 | 798 | 9 | KTPPIKDFG 9e-06 | 53 |
| HLA-A*26:01 | 1 | 793 | 801 | 9 | PIKDFGGFN 9e-06 | 62 |
| HLA-B*15:01 | 1 | 793 | 801 | 9 | PIKDFGGFN 9e-06 | 67 |
| HLA-B*57:01 | 1 | 793 | 801 | 9 | PIKDFGGFN 9e-06 | 84 |
| HLA-A*03:01 | 1 | 797 | 806 | 10 | FGGFNFSQIL 9e-06 | 64 |
| HLA-A*01:01 | 1 | 799 | 808 | 10 | GFNFSQILPD 9e-06 | 89 |
| HLA-A*24:02 | 1 | 799 | 808 | 10 | GFNFSQILPD 9e-06 | 47 |
| HLA-A*31:01 | 1 | 799 | 808 | 10 | GFNFSQILPD 9e-06 | 70 |
| HLA-A*03:01 | 1 | 800 | 809 | 10 | FNFSQILPDP 9e-06 | 64 |
| HLA-A*26:01 | 1 | 800 | 809 | 10 | FNFSQILPDP 9e-06 | 62 |
| HLA-A*68:01 | 1 | 809 | 818 | 10 | PSKPSKRSFI 9e-06 | 63 |
| HLA-B*40:01 | 1 | 810 | 819 | 10 | SKPSKRSFIE 9e-06 | 45 |
| HLA-B*44:03 | 1 | 811 | 820 | 10 | KPSKRSFIED 9e-06 | 53 |
| HLA-A*02:01 | 1 | 818 | 827 | 10 | IEDLLFNKVT 9e-06 | 67 |
| HLA-A*24:02 | 1 | 818 | 827 | 10 | IEDLLFNKVT 9e-06 | 47 |
| HLA-A*02:03 | 1 | 819 | 827 | 9 | EDLLFNKVT 9e-06 | 70 |
| HLA-A*26:01 | 1 | 819 | 827 | 9 | EDLLFNKVT 9e-06 | 62 |
| HLA-A*68:01 | 1 | 819 | 827 | 9 | EDLLFNKVT 9e-06 | 63 |
| HLA-A*32:01 | 1 | 822 | 830 | 9 | LFNKVTLAD 9e-06 | 53 |
| HLA-A*68:01 | 1 | 822 | 830 | 9 | LFNKVTLAD 9e-06 | 63 |
| HLA-B*44:03 | 1 | 822 | 831 | 10 | LFNKVTLADA 9e-06 | 53 |
| HLA-A*24:02 | 1 | 828 | 836 | 9 | LADAGFIKQ 9e-06 | 47 |
| HLA-A*02:03 | 1 | 829 | 838 | 10 | ADAGFIKQYG 9e-06 | 70 |
| HLA-A*11:01 | 1 | 831 | 840 | 10 | AGFIKQYGDC 9e-06 | 49 |
| HLA-A*02:01 | 1 | 832 | 840 | 9 | GFIKQYGDC 9e-06 | 67 |
| HLA-A*68:02 | 1 | 832 | 840 | 9 | GFIKQYGDC 9e-06 | 67 |
| HLA-B*15:01 | 1 | 834 | 843 | 10 | IKQYGDCLGD 9e-06 | 67 |
| HLA-B*57:01 | 1 | 834 | 843 | 10 | IKQYGDCLGD 9e-06 | 84 |
| HLA-A*01:01 | 1 | 835 | 843 | 9 | KQYGDCLGD 9e-06 | 89 |
| HLA-A*68:01 | 1 | 835 | 844 | 10 | KQYGDCLGDI 9e-06 | 63 |
| HLA-B*58:01 | 1 | 836 | 845 | 10 | QYGDCLGDIA 9e-06 | 74 |
| HLA-B*40:01 | 1 | 838 | 847 | 10 | GDCLGDIAAR 9e-06 | 45 |
| HLA-B*57:01 | 1 | 838 | 846 | 9 | GDCLGDIAA 9e-06 | 84 |
| HLA-A*01:01 | 1 | 839 | 848 | 10 | DCLGDIAARD 9e-06 | 89 |
| HLA-B*15:01 | 1 | 840 | 848 | 9 | CLGDIAARD 9e-06 | 67 |
| HLA-B*44:02 | 1 | 840 | 849 | 10 | CLGDIAARDL 9e-06 | 57 |
| HLA-A*68:02 | 1 | 842 | 851 | 10 | GDIAARDLIC 9e-06 | 67 |
| HLA-A*31:01 | 1 | 843 | 851 | 9 | DIAARDLIC 9e-06 | 70 |
| HLA-A*02:06 | 1 | 847 | 856 | 10 | RDLICAQKFN 9e-06 | 76 |
| HLA-A*24:02 | 1 | 847 | 856 | 10 | RDLICAQKFN 9e-06 | 47 |
| HLA-B*35:01 | 1 | 851 | 859 | 9 | CAQKFNGLT 9e-06 | 52 |
| HLA-B*40:01 | 1 | 854 | 863 | 10 | KFNGLTVLPP 9e-06 | 45 |
| HLA-A*03:01 | 1 | 855 | 864 | 10 | FNGLTVLPP 9e-06 | 64 |
| HLA-B*15:01 | 1 | 855 | 863 | 9 | FNGLTVLPP 9e-06 | 67 |
| HLA-B*40:01 | 1 | 855 | 863 | 9 | FNGLTVLPP 9e-06 | 45 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-B*08:01 | 1 | 858 | 867 | 10 | LTVLPPLD 9e-06 | 85 |
| HLA-B*44:03 | 1 | 862 | 870 | 9 | PPLDDEMI 9e-06 | 53 |
| HLA-A*03:01 | 1 | 863 | 871 | 9 | PLDDEMI 9e-06 | 64 |
| HLA-A*26:01 | 1 | 863 | 872 | 10 | PLDDEMI 9e-06 | 62 |
| HLA-A*33:01 | 1 | 863 | 871 | 9 | PLDDEMI 9e-06 | 75 |
| HLA-B*53:01 | 1 | 863 | 871 | 9 | PLDDEMI 9e-06 | 52 |
| HLA-B*57:01 | 1 | 863 | 872 | 10 | PLDDEMI 9e-06 | 84 |
| HLA-B*40:01 | 1 | 865 | 874 | 10 | LDDEMI 9e-06 | 45 |
| HLA-A*11:01 | 1 | 866 | 874 | 9 | DEMI 9e-06 | 49 |
| HLA-B*35:01 | 1 | 866 | 875 | 10 | DEMI 9e-06 | 52 |
| HLA-A*24:02 | 1 | 867 | 875 | 9 | DEMI 9e-06 | 47 |
| HLA-B*44:02 | 1 | 872 | 881 | 10 | QYTSALLAGT 9e-06 | 57 |
| HLA-A*23:01 | 1 | 873 | 881 | 9 | YTSALLAGT 9e-06 | 49 |
| HLA-A*11:01 | 1 | 876 | 885 | 10 | ALLAGTITSG 9e-06 | 49 |
| HLA-B*51:01 | 1 | 876 | 885 | 10 | ALLAGTITSG 9e-06 | 77 |
| HLA-B*44:02 | 1 | 877 | 885 | 9 | LLAGTITSG 9e-06 | 57 |
| HLA-A*02:01 | 1 | 878 | 887 | 10 | LAGTITSGWT 9e-06 | 67 |
| HLA-B*08:01 | 1 | 879 | 887 | 9 | AGTITSGWT 9e-06 | 85 |
| HLA-B*44:03 | 1 | 881 | 890 | 10 | TITSGWTFGA 9e-06 | 53 |
| HLA-A*11:01 | 1 | 882 | 891 | 10 | ITSGWTFGAG 9e-06 | 49 |
| HLA-B*51:01 | 1 | 882 | 891 | 10 | ITSGWTFGAG 9e-06 | 77 |
| HLA-B*53:01 | 1 | 884 | 893 | 10 | SGWTFGAGAA 9e-06 | 52 |
| HLA-A*68:01 | 1 | 885 | 893 | 9 | GWTFGAGAA 9e-06 | 63 |
| HLA-B*40:01 | 1 | 885 | 893 | 9 | GWTFGAGAA 9e-06 | 45 |
| HLA-B*57:01 | 1 | 885 | 893 | 9 | GWTFGAGAA 9e-06 | 84 |
| HLA-B*15:01 | 1 | 888 | 897 | 10 | FGAGAALQIP 9e-06 | 67 |
| HLA-B*40:01 | 1 | 896 | 905 | 10 | IPFAMQMAYR 9e-06 | 45 |
| HLA-A*32:01 | 1 | 897 | 905 | 9 | PFAMQMAYR 9e-06 | 53 |
| HLA-B*44:02 | 1 | 897 | 905 | 9 | PFAMQMAYR 9e-06 | 57 |
| HLA-B*51:01 | 1 | 897 | 905 | 9 | PFAMQMAYR 9e-06 | 77 |
| HLA-B*58:01 | 1 | 897 | 905 | 9 | PFAMQMAYR 9e-06 | 74 |
| HLA-A*03:01 | 1 | 899 | 908 | 10 | AMQMAYRFNG 9e-06 | 64 |
| HLA-A*26:01 | 1 | 900 | 908 | 9 | MQMAYRFNG 9e-06 | 62 |
| HLA-A*31:01 | 1 | 902 | 910 | 9 | MAYRFNGIG 9e-06 | 70 |
| HLA-A*32:01 | 1 | 903 | 912 | 10 | AYRFNGIGVT 9e-06 | 53 |
| HLA-A*33:01 | 1 | 906 | 914 | 9 | FNGIGVTQN 9e-06 | 75 |
| HLA-A*26:01 | 1 | 910 | 919 | 10 | GVTQNVLYEN 9e-06 | 62 |
| HLA-B*15:01 | 1 | 910 | 919 | 10 | GVTQNVLYEN 9e-06 | 67 |
| HLA-B*44:02 | 1 | 910 | 918 | 9 | GVTQNVLYE 9e-06 | 57 |
| HLA-B*07:02 | 1 | 912 | 920 | 9 | TQNVLYENQ 9e-06 | 67 |
| HLA-A*11:01 | 1 | 922 | 931 | 10 | LIANQFNQSAI 9e-06 | 49 |
| HLA-A*02:03 | 1 | 926 | 935 | 10 | QFNQSAIQ 9e-06 | 70 |
| HLA-B*08:01 | 1 | 927 | 936 | 10 | FNSAIQIQD 9e-06 | 85 |
| HLA-B*51:01 | 1 | 927 | 936 | 10 | FNSAIQIQD 9e-06 | 77 |
| HLA-A*11:01 | 1 | 928 | 937 | 10 | NSAIQIQDS 9e-06 | 49 |
| HLA-B*07:02 | 1 | 928 | 936 | 9 | NSAIQIQD 9e-06 | 67 |
| HLA-B*35:01 | 1 | 928 | 937 | 10 | NSAIQIQDS 9e-06 | 52 |
| HLA-A*03:01 | 1 | 931 | 939 | 9 | IGKIQDLSL 9e-06 | 64 |
| HLA-A*68:02 | 1 | 931 | 940 | 10 | IGKIQDLSL 9e-06 | 67 |
| HLA-B*35:01 | 1 | 931 | 939 | 9 | IGKIQDLSL 9e-06 | 52 |
| HLA-A*24:02 | 1 | 934 | 943 | 10 | IQDLSLSTAS 9e-06 | 47 |
| HLA-A*68:01 | 1 | 937 | 946 | 10 | SLSTASALG 9e-06 | 63 |
| HLA-B*44:02 | 1 | 938 | 947 | 10 | LSSTASALGK 9e-06 | 57 |
| HLA-B*08:01 | 1 | 941 | 950 | 10 | TASALGKLQD 9e-06 | 85 |
| HLA-A*02:01 | 1 | 945 | 954 | 10 | LGKLQDVVNQ 9e-06 | 67 |
| HLA-A*02:03 | 1 | 945 | 954 | 10 | LGKLQDVVNQ 9e-06 | 70 |
| HLA-B*08:01 | 1 | 946 | 955 | 10 | GKLQDVVNQN 9e-06 | 85 |
| HLA-B*57:01 | 1 | 949 | 957 | 9 | QDVVNQNAQ 9e-06 | 84 |
| HLA-A*33:01 | 1 | 951 | 960 | 10 | VVNQNAQALN 9e-06 | 75 |
| HLA-A*11:01 | 1 | 959 | 967 | 9 | LNTLVKQLS 9e-06 | 49 |
| HLA-A*23:01 | 1 | 959 | 967 | 9 | LNTLVKQLS 9e-06 | 49 |
| HLA-B*51:01 | 1 | 960 | 969 | 10 | NLVKQLSSN 9e-06 | 77 |
| HLA-A*24:02 | 1 | 963 | 972 | 10 | VKQLSSNFGA 9e-06 | 47 |
| HLA-B*44:02 | 1 | 963 | 971 | 9 | VKQLSSNFG 9e-06 | 57 |
| HLA-A*68:01 | 1 | 964 | 973 | 10 | KQLSSNFGAI 9e-06 | 63 |
| HLA-A*26:01 | 1 | 966 | 975 | 10 | LSSNFGAISS 9e-06 | 62 |

| | | | | | | |
|-------------|---|------|------|----|------------------|----|
| HLA-A*68:01 | 1 | 969 | 978 | 10 | NFGAISSVLN 9e-06 | 63 |
| HLA-A*02:03 | 1 | 970 | 979 | 10 | FGAISSVLND 9e-06 | 70 |
| HLA-A*11:01 | 1 | 971 | 979 | 9 | GAISSVLND 9e-06 | 49 |
| HLA-A*26:01 | 1 | 971 | 979 | 9 | GAISSVLND 9e-06 | 62 |
| HLA-A*03:01 | 1 | 973 | 982 | 10 | ISSVLNDILS 9e-06 | 64 |
| HLA-A*11:01 | 1 | 978 | 987 | 10 | NDILSRLDKV 9e-06 | 49 |
| HLA-B*15:01 | 1 | 979 | 988 | 10 | DILSRLDKVE 9e-06 | 67 |
| HLA-B*53:01 | 1 | 980 | 989 | 10 | ILSRLDKVEA 9e-06 | 52 |
| HLA-B*53:01 | 1 | 983 | 992 | 10 | RLDKVEAEVQ 9e-06 | 52 |
| HLA-A*01:01 | 1 | 985 | 994 | 10 | DKVEAEVQID 9e-06 | 89 |
| HLA-A*02:01 | 1 | 986 | 994 | 9 | KVEAEVQID 9e-06 | 67 |
| HLA-A*68:01 | 1 | 986 | 994 | 9 | KVEAEVQID 9e-06 | 63 |
| HLA-A*03:01 | 1 | 988 | 997 | 10 | EAEVQIDRLI 9e-06 | 64 |
| HLA-A*31:01 | 1 | 988 | 997 | 10 | EAEVQIDRLI 9e-06 | 70 |
| HLA-A*23:01 | 1 | 994 | 1002 | 9 | DRLITGRLQ 9e-06 | 49 |
| HLA-B*53:01 | 1 | 994 | 1003 | 10 | DRLITGRLQS 9e-06 | 52 |
| HLA-B*35:01 | 1 | 996 | 1005 | 10 | LITGRLQSLQ 9e-06 | 52 |
| HLA-B*40:01 | 1 | 1006 | 1015 | 10 | TYVTQQLIRA 9e-06 | 45 |
| HLA-B*35:01 | 1 | 1012 | 1021 | 10 | LIRAAEIRAS 9e-06 | 52 |
| HLA-A*23:01 | 1 | 1019 | 1027 | 9 | RASANLAAT 9e-06 | 49 |
| HLA-A*24:02 | 1 | 1019 | 1027 | 9 | RASANLAAT 9e-06 | 47 |
| HLA-A*11:01 | 1 | 1024 | 1033 | 10 | LAATKMSECV 9e-06 | 49 |
| HLA-B*53:01 | 1 | 1027 | 1036 | 10 | TKMSECVLGQ 9e-06 | 52 |
| HLA-B*51:01 | 1 | 1028 | 1036 | 9 | KMSECVLGQ 9e-06 | 77 |
| HLA-A*24:02 | 1 | 1029 | 1038 | 10 | MSECVLGQSK 9e-06 | 47 |
| HLA-A*23:01 | 1 | 1030 | 1039 | 10 | SECVLGQSKR 9e-06 | 49 |
| HLA-A*02:01 | 1 | 1032 | 1041 | 10 | CVLGQSKRVD 9e-06 | 67 |
| HLA-B*58:01 | 1 | 1032 | 1041 | 10 | CVLGQSKRVD 9e-06 | 74 |
| HLA-A*68:01 | 1 | 1033 | 1042 | 10 | VLGQSKRVDF 9e-06 | 63 |
| HLA-B*07:02 | 1 | 1036 | 1045 | 10 | QSKRVDFCGK 9e-06 | 67 |
| HLA-B*51:01 | 1 | 1036 | 1045 | 10 | QSKRVDFCGK 9e-06 | 77 |
| HLA-A*02:06 | 1 | 1038 | 1046 | 9 | KRVDFCGKG 9e-06 | 76 |
| HLA-A*24:02 | 1 | 1038 | 1046 | 9 | KRVDFCGKG 9e-06 | 47 |
| HLA-A*11:01 | 1 | 1041 | 1050 | 10 | DFCGKGYHLM 9e-06 | 49 |
| HLA-A*02:01 | 1 | 1043 | 1051 | 9 | CGKGYHLM 9e-06 | 67 |
| HLA-A*68:01 | 1 | 1043 | 1051 | 9 | CGKGYHLM 9e-06 | 63 |
| HLA-A*68:02 | 1 | 1043 | 1052 | 10 | CGKGYHLM 9e-06 | 67 |
| HLA-B*51:01 | 1 | 1046 | 1055 | 10 | GYHLM 9e-06 | 77 |
| HLA-B*44:02 | 1 | 1050 | 1059 | 10 | MSFPQSAPHG 9e-06 | 57 |
| HLA-A*26:01 | 1 | 1057 | 1065 | 9 | PHGVVFLHV 9e-06 | 62 |
| HLA-A*11:01 | 1 | 1062 | 1071 | 10 | FLHVTVVPAQ 9e-06 | 49 |
| HLA-A*24:02 | 1 | 1062 | 1070 | 9 | FLHVTVVPA 9e-06 | 47 |
| HLA-A*02:03 | 1 | 1063 | 1071 | 9 | LHVTVVPAQ 9e-06 | 70 |
| HLA-B*07:02 | 1 | 1065 | 1074 | 10 | VTYVPAQEKN 9e-06 | 67 |
| HLA-B*08:01 | 1 | 1065 | 1074 | 10 | VTYVPAQEKN 9e-06 | 85 |
| HLA-B*44:02 | 1 | 1065 | 1074 | 10 | VTYVPAQEKN 9e-06 | 57 |
| HLA-A*02:06 | 1 | 1066 | 1074 | 9 | TYVPAQEKN 9e-06 | 76 |
| HLA-A*32:01 | 1 | 1066 | 1074 | 9 | TYVPAQEKN 9e-06 | 53 |
| HLA-A*32:01 | 1 | 1069 | 1077 | 9 | PAQEKNFTT 9e-06 | 53 |
| HLA-B*53:01 | 1 | 1071 | 1080 | 10 | QEKNFTTAPA 9e-06 | 52 |
| HLA-B*58:01 | 1 | 1072 | 1080 | 9 | EKNFTTAPA 9e-06 | 74 |
| HLA-A*68:01 | 1 | 1073 | 1082 | 10 | KNFTTAPAIC 9e-06 | 63 |
| HLA-B*08:01 | 1 | 1075 | 1084 | 10 | FTTAPAICH 9e-06 | 85 |
| HLA-B*15:01 | 1 | 1075 | 1084 | 10 | FTTAPAICH 9e-06 | 67 |
| HLA-A*24:02 | 1 | 1076 | 1084 | 9 | TTAPAICH 9e-06 | 47 |
| HLA-B*53:01 | 1 | 1076 | 1085 | 10 | TTAPAICH 9e-06 | 52 |
| HLA-A*02:03 | 1 | 1077 | 1085 | 9 | TAPAICH 9e-06 | 70 |
| HLA-B*07:02 | 1 | 1077 | 1085 | 9 | TAPAICH 9e-06 | 67 |
| HLA-A*02:06 | 1 | 1079 | 1087 | 9 | PAICH 9e-06 | 76 |
| HLA-B*58:01 | 1 | 1079 | 1087 | 9 | PAICH 9e-06 | 74 |
| HLA-A*02:06 | 1 | 1083 | 1092 | 10 | HDGKAHFPRE 9e-06 | 76 |
| HLA-B*15:01 | 1 | 1083 | 1092 | 10 | HDGKAHFPRE 9e-06 | 67 |
| HLA-A*02:01 | 1 | 1084 | 1092 | 9 | DGKAHFPRE 9e-06 | 67 |
| HLA-B*57:01 | 1 | 1085 | 1093 | 9 | GKAHFPREG 9e-06 | 84 |
| HLA-B*44:02 | 1 | 1088 | 1097 | 10 | HFPREGV 9e-06 | 57 |
| HLA-A*31:01 | 1 | 1089 | 1098 | 10 | FPREGV 9e-06 | 70 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|-------|----|
| HLA-A*30:02 | 1 | 1090 | 1099 | 10 | PREGVFSVNSG | 9e-06 | 89 |
| HLA-B*07:02 | 1 | 1091 | 1100 | 10 | REGVFSVNSGT | 9e-06 | 67 |
| HLA-A*32:01 | 1 | 1097 | 1105 | 9 | SNGTHWFVT | 9e-06 | 53 |
| HLA-B*15:01 | 1 | 1097 | 1105 | 9 | SNGTHWFVT | 9e-06 | 67 |
| HLA-B*40:01 | 1 | 1097 | 1105 | 9 | SNGTHWFVT | 9e-06 | 45 |
| HLA-B*15:01 | 1 | 1100 | 1108 | 9 | THWFVTQRN | 9e-06 | 67 |
| HLA-B*53:01 | 1 | 1102 | 1111 | 10 | WFVTQRNFYE | 9e-06 | 52 |
| HLA-A*11:01 | 1 | 1103 | 1112 | 10 | FVTQRNFYEP | 9e-06 | 49 |
| HLA-A*23:01 | 1 | 1105 | 1113 | 9 | TQRNFYEPQ | 9e-06 | 49 |
| HLA-B*35:01 | 1 | 1105 | 1114 | 10 | TQRNFYEPQI | 9e-06 | 52 |
| HLA-A*03:01 | 1 | 1109 | 1118 | 10 | FYEPQIITTD | 9e-06 | 64 |
| HLA-A*68:01 | 1 | 1109 | 1118 | 10 | FYEPQIITTD | 9e-06 | 63 |
| HLA-B*35:01 | 1 | 1109 | 1118 | 10 | FYEPQIITTD | 9e-06 | 52 |
| HLA-A*32:01 | 1 | 1110 | 1118 | 9 | YEPQIITTD | 9e-06 | 53 |
| HLA-A*32:01 | 1 | 1110 | 1119 | 10 | YEPQIITTDN | 9e-06 | 75 |
| HLA-B*57:01 | 1 | 1110 | 1119 | 10 | YEPQIITTDN | 9e-06 | 84 |
| HLA-A*33:01 | 1 | 1112 | 1120 | 9 | PQIITTDNT | 9e-06 | 75 |
| HLA-B*57:01 | 1 | 1112 | 1120 | 9 | PQIITTDNT | 9e-06 | 84 |
| HLA-A*26:01 | 1 | 1114 | 1123 | 10 | IITTDNTFVS | 9e-06 | 62 |
| HLA-A*32:01 | 1 | 1114 | 1123 | 10 | IITTDNTFVS | 9e-06 | 53 |
| HLA-B*08:01 | 1 | 1114 | 1123 | 10 | IITTDNTFVS | 9e-06 | 85 |
| HLA-B*44:02 | 1 | 1115 | 1123 | 9 | IITTDNTFVS | 9e-06 | 57 |
| HLA-A*26:01 | 1 | 1118 | 1127 | 10 | DNTFVSGNCD | 9e-06 | 62 |
| HLA-B*40:01 | 1 | 1118 | 1126 | 9 | DNTFVSGNC | 9e-06 | 45 |
| HLA-A*23:01 | 1 | 1124 | 1133 | 10 | GNCVVIGIV | 9e-06 | 49 |
| HLA-A*32:01 | 1 | 1124 | 1133 | 10 | GNCVVIGIV | 9e-06 | 53 |
| HLA-A*11:01 | 1 | 1125 | 1133 | 9 | NCDVVIGIV | 9e-06 | 49 |
| HLA-B*57:01 | 1 | 1125 | 1134 | 10 | NCDVVIGIVN | 9e-06 | 84 |
| HLA-A*30:01 | 1 | 1126 | 1135 | 10 | CDVVIGIVNN | 9e-06 | 90 |
| HLA-A*02:01 | 1 | 1130 | 1139 | 10 | IGIVNNTVYD | 9e-06 | 67 |
| HLA-A*31:01 | 1 | 1130 | 1139 | 10 | IGIVNNTVYD | 9e-06 | 70 |
| HLA-A*26:01 | 1 | 1131 | 1140 | 10 | GIVNNTVYDP | 9e-06 | 62 |
| HLA-B*51:01 | 1 | 1133 | 1142 | 10 | VNNTVYDPLQ | 9e-06 | 77 |
| HLA-B*15:01 | 1 | 1139 | 1147 | 9 | DPLQPELDS | 9e-06 | 67 |
| HLA-B*57:01 | 1 | 1139 | 1147 | 9 | DPLQPELDS | 9e-06 | 84 |
| HLA-B*35:01 | 1 | 1140 | 1149 | 10 | PLQPELDSFK | 9e-06 | 52 |
| HLA-A*33:01 | 1 | 1142 | 1150 | 9 | QPELDSFKE | 9e-06 | 75 |
| HLA-A*26:01 | 1 | 1143 | 1151 | 9 | PELDSFKEE | 9e-06 | 62 |
| HLA-A*23:01 | 1 | 1144 | 1153 | 10 | ELDSFKEELD | 9e-06 | 49 |
| HLA-A*24:02 | 1 | 1144 | 1153 | 10 | ELDSFKEELD | 9e-06 | 47 |
| HLA-B*40:01 | 1 | 1144 | 1153 | 10 | ELDSFKEELD | 9e-06 | 45 |
| HLA-A*02:03 | 1 | 1148 | 1157 | 10 | FKEELDKYFK | 9e-06 | 70 |
| HLA-B*58:01 | 1 | 1152 | 1160 | 9 | LDKYFKNHT | 9e-06 | 74 |
| HLA-B*07:02 | 1 | 1154 | 1163 | 10 | KYFKNHTSPD | 9e-06 | 67 |
| HLA-A*68:01 | 1 | 1155 | 1163 | 9 | YFKNHTSPD | 9e-06 | 63 |
| HLA-B*08:01 | 1 | 1160 | 1168 | 9 | TSPDVDLGD | 9e-06 | 85 |
| HLA-B*44:02 | 1 | 1163 | 1171 | 9 | DVDLGDISG | 9e-06 | 57 |
| HLA-A*23:01 | 1 | 1165 | 1174 | 10 | DLGDISGINA | 9e-06 | 49 |
| HLA-A*30:01 | 1 | 1165 | 1173 | 9 | DLGDISGIN | 9e-06 | 90 |
| HLA-A*03:01 | 1 | 1166 | 1175 | 10 | LGDISGINAS | 9e-06 | 64 |
| HLA-B*44:02 | 1 | 1170 | 1178 | 9 | SGINASVVN | 9e-06 | 57 |
| HLA-B*44:03 | 1 | 1170 | 1178 | 9 | SGINASVVN | 9e-06 | 53 |
| HLA-A*23:01 | 1 | 1172 | 1180 | 9 | INASVVNIQ | 9e-06 | 49 |
| HLA-A*33:01 | 1 | 1175 | 1184 | 10 | SVVNIQKEID | 9e-06 | 75 |
| HLA-A*24:02 | 1 | 1176 | 1185 | 10 | VVNIQKEIDR | 9e-06 | 47 |
| HLA-B*15:01 | 1 | 1176 | 1184 | 9 | VVNIQKEID | 9e-06 | 67 |
| HLA-A*11:01 | 1 | 1179 | 1187 | 9 | IQKEIDRLN | 9e-06 | 49 |
| HLA-B*53:01 | 1 | 1179 | 1187 | 9 | IQKEIDRLN | 9e-06 | 52 |
| HLA-A*24:02 | 1 | 1182 | 1190 | 9 | EIDRLNEVA | 9e-06 | 47 |
| HLA-B*15:01 | 1 | 1183 | 1192 | 10 | IDRLNEVAKN | 9e-06 | 67 |
| HLA-A*11:01 | 1 | 1184 | 1193 | 10 | DRLNEVAKNL | 9e-06 | 49 |
| HLA-A*31:01 | 1 | 1186 | 1195 | 10 | LNEVAKNLNE | 9e-06 | 70 |
| HLA-B*57:01 | 1 | 1186 | 1195 | 10 | LNEVAKNLNE | 9e-06 | 84 |
| HLA-A*11:01 | 1 | 1189 | 1198 | 10 | VAKNLNESLI | 9e-06 | 49 |
| HLA-B*44:03 | 1 | 1192 | 1201 | 10 | NLNESLIDLQ | 9e-06 | 53 |
| HLA-A*03:01 | 1 | 1193 | 1202 | 10 | LNESLIDLQE | 9e-06 | 64 |

| | | | | | | | |
|-------------|---|------|------|----|------------|-------|----|
| HLA-B*08:01 | 1 | 1193 | 1201 | 9 | LNESLIDLQ | 9e-06 | 85 |
| HLA-B*08:01 | 1 | 1193 | 1202 | 10 | LNESLIDLQE | 9e-06 | 85 |
| HLA-B*53:01 | 1 | 1193 | 1202 | 10 | LNESLIDLQE | 9e-06 | 52 |
| HLA-B*53:01 | 1 | 1198 | 1207 | 10 | IDLQELGKYE | 9e-06 | 52 |
| HLA-A*68:01 | 1 | 1204 | 1213 | 10 | GKYEQYIKWP | 9e-06 | 63 |
| HLA-A*02:01 | 1 | 1205 | 1213 | 9 | KYEQYIKWP | 9e-06 | 67 |
| HLA-A*32:01 | 1 | 1205 | 1213 | 9 | KYEQYIKWP | 9e-06 | 53 |
| HLA-A*68:02 | 1 | 1205 | 1213 | 9 | KYEQYIKWP | 9e-06 | 67 |
| HLA-B*58:01 | 1 | 1214 | 1222 | 9 | WYIWLGFIA | 9e-06 | 74 |
| HLA-A*68:01 | 1 | 1218 | 1227 | 10 | LGFIAGLIAI | 9e-06 | 63 |
| HLA-B*44:02 | 1 | 1218 | 1227 | 10 | LGFIAGLIAI | 9e-06 | 57 |
| HLA-B*44:03 | 1 | 1220 | 1229 | 10 | FIAGLIAIVM | 9e-06 | 53 |
| HLA-A*68:01 | 1 | 1222 | 1231 | 10 | AGLIAIVMVT | 9e-06 | 63 |
| HLA-A*23:01 | 1 | 1223 | 1231 | 9 | GLIAIVMVT | 9e-06 | 49 |
| HLA-B*53:01 | 1 | 1223 | 1231 | 9 | GLIAIVMVT | 9e-06 | 52 |
| HLA-A*68:01 | 1 | 1227 | 1236 | 10 | IVMVTIMLCC | 9e-06 | 63 |
| HLA-B*07:02 | 1 | 1227 | 1236 | 10 | IVMVTIMLCC | 9e-06 | 67 |
| HLA-B*53:01 | 1 | 1228 | 1236 | 9 | VMVTIMLCC | 9e-06 | 52 |
| HLA-B*58:01 | 1 | 1229 | 1238 | 10 | MVTIMLCCMT | 9e-06 | 74 |
| HLA-A*32:01 | 1 | 1230 | 1238 | 9 | VTIMLCCMT | 9e-06 | 53 |
| HLA-B*58:01 | 1 | 1231 | 1239 | 9 | TIMLCCMTS | 9e-06 | 74 |
| HLA-B*58:01 | 1 | 1231 | 1240 | 10 | TIMLCCMTSC | 9e-06 | 74 |
| HLA-B*08:01 | 1 | 1232 | 1241 | 10 | IMLCCMTSCC | 9e-06 | 85 |
| HLA-A*01:01 | 1 | 1234 | 1242 | 9 | LCCMTSCCS | 9e-06 | 89 |
| HLA-B*58:01 | 1 | 1235 | 1243 | 9 | CCMTSCCSC | 9e-06 | 74 |
| HLA-B*58:01 | 1 | 1235 | 1244 | 10 | CCMTSCCSC | 9e-06 | 74 |
| HLA-B*07:02 | 1 | 1237 | 1245 | 9 | MTSCCCLK | 9e-06 | 67 |
| HLA-A*02:01 | 1 | 1238 | 1247 | 10 | TSCCCLKGC | 9e-06 | 67 |
| HLA-A*68:01 | 1 | 1238 | 1246 | 9 | TSCCCLKGC | 9e-06 | 63 |
| HLA-B*08:01 | 1 | 1239 | 1247 | 9 | SCCCLKGC | 9e-06 | 85 |
| HLA-A*31:01 | 1 | 1241 | 1250 | 10 | CCLKGCCSC | 9e-06 | 70 |
| HLA-B*35:01 | 1 | 1242 | 1250 | 9 | SCLKGCCSC | 9e-06 | 52 |
| HLA-B*57:01 | 1 | 1242 | 1251 | 10 | SCLKGCCSCG | 9e-06 | 84 |
| HLA-A*02:06 | 1 | 1245 | 1253 | 9 | KGCCSCGSC | 9e-06 | 76 |
| HLA-B*51:01 | 1 | 1245 | 1253 | 9 | KGCCSCGSC | 9e-06 | 77 |
| HLA-B*57:01 | 1 | 1251 | 1260 | 10 | GSCCKFDEDD | 9e-06 | 84 |
| HLA-A*02:06 | 1 | 1253 | 1262 | 10 | CCKFDEDDSE | 9e-06 | 76 |
| HLA-A*02:01 | 1 | 1254 | 1262 | 9 | CKFDEDDSE | 9e-06 | 67 |
| HLA-A*26:01 | 1 | 1254 | 1262 | 9 | CKFDEDDSE | 9e-06 | 62 |
| HLA-A*30:02 | 1 | 1254 | 1262 | 9 | CKFDEDDSE | 9e-06 | 89 |
| HLA-A*03:01 | 1 | 1256 | 1264 | 9 | FDEDDSEPV | 9e-06 | 64 |
| HLA-A*32:01 | 1 | 1256 | 1264 | 9 | FDEDDSEPV | 9e-06 | 53 |
| HLA-A*02:06 | 1 | 1258 | 1267 | 10 | EDDSEPVKLG | 9e-06 | 76 |
| HLA-A*23:01 | 1 | 1258 | 1267 | 10 | EDDSEPVKLG | 9e-06 | 49 |
| HLA-A*32:01 | 1 | 1259 | 1268 | 10 | DDSEPVKLG | 9e-06 | 53 |
| HLA-A*68:02 | 1 | 1263 | 1271 | 9 | PVLKGVKLG | 9e-06 | 67 |
| HLA-A*23:01 | 1 | 4 | 12 | 9 | FLVLLPLVS | 8e-06 | 51 |
| HLA-B*40:01 | 1 | 4 | 12 | 9 | FLVLLPLVS | 8e-06 | 46 |
| HLA-B*53:01 | 1 | 4 | 13 | 10 | FLVLLPLVSS | 8e-06 | 54 |
| HLA-B*53:01 | 1 | 10 | 19 | 10 | LVSSQCVNLT | 8e-06 | 54 |
| HLA-A*26:01 | 1 | 11 | 20 | 10 | VSSQCVNLTT | 8e-06 | 64 |
| HLA-B*44:03 | 1 | 11 | 19 | 9 | VSSQCVNLT | 8e-06 | 55 |
| HLA-B*40:01 | 1 | 16 | 25 | 10 | VNLTRTQLP | 8e-06 | 46 |
| HLA-B*44:03 | 1 | 16 | 25 | 10 | VNLTRTQLP | 8e-06 | 55 |
| HLA-A*26:01 | 1 | 17 | 26 | 10 | NLTRTQLPP | 8e-06 | 64 |
| HLA-A*32:01 | 1 | 17 | 26 | 10 | NLTRTQLPP | 8e-06 | 55 |
| HLA-A*02:03 | 1 | 27 | 35 | 9 | AYTNSFTRG | 8e-06 | 72 |
| HLA-A*68:01 | 1 | 27 | 35 | 9 | AYTNSFTRG | 8e-06 | 64 |
| HLA-A*68:02 | 1 | 27 | 35 | 9 | AYTNSFTRG | 8e-06 | 69 |
| HLA-B*35:01 | 1 | 27 | 36 | 10 | AYTNSFTRGV | 8e-06 | 54 |
| HLA-B*35:01 | 1 | 32 | 40 | 9 | FTRGVYYPD | 8e-06 | 54 |
| HLA-A*32:01 | 1 | 33 | 42 | 10 | TRGVYYPDKV | 8e-06 | 55 |
| HLA-A*02:01 | 1 | 39 | 47 | 9 | PDKVFRSSV | 8e-06 | 69 |
| HLA-A*03:01 | 1 | 39 | 47 | 9 | PDKVFRSSV | 8e-06 | 66 |
| HLA-A*26:01 | 1 | 39 | 48 | 10 | PDKVFRSSVL | 8e-06 | 64 |
| HLA-A*31:01 | 1 | 39 | 47 | 9 | PDKVFRSSV | 8e-06 | 72 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-B*58:01 | 1 | 39 | 48 | 10 | PDKVFRSSVL 8e-06 | 75 |
| HLA-B*53:01 | 1 | 41 | 50 | 10 | KVFRSSVLHS 8e-06 | 54 |
| HLA-B*35:01 | 1 | 42 | 51 | 10 | VFRSSVLHST 8e-06 | 54 |
| HLA-B*53:01 | 1 | 45 | 53 | 9 | SSVLHSTQD 8e-06 | 54 |
| HLA-A*03:01 | 1 | 48 | 57 | 10 | LHSTQDLFLP 8e-06 | 66 |
| HLA-A*31:01 | 1 | 48 | 57 | 10 | LHSTQDLFLP 8e-06 | 72 |
| HLA-B*35:01 | 1 | 48 | 57 | 10 | LHSTQDLFLP 8e-06 | 54 |
| HLA-A*11:01 | 1 | 52 | 61 | 10 | QDLFLPFFSN 8e-06 | 51 |
| HLA-B*53:01 | 1 | 52 | 60 | 9 | QDLFLPFFS 8e-06 | 54 |
| HLA-A*24:02 | 1 | 53 | 61 | 9 | DLFLPFFSN 8e-06 | 49 |
| HLA-B*58:01 | 1 | 55 | 63 | 9 | FLPFFSNVT 8e-06 | 75 |
| HLA-A*02:06 | 1 | 57 | 66 | 10 | PFFSNVTWFH 8e-06 | 77 |
| HLA-B*44:03 | 1 | 57 | 66 | 10 | PFFSNVTWFH 8e-06 | 55 |
| HLA-A*26:01 | 1 | 64 | 73 | 10 | WFHAIHVSGT 8e-06 | 64 |
| HLA-A*03:01 | 1 | 66 | 75 | 10 | HAIHVSGTNG 8e-06 | 66 |
| HLA-A*31:01 | 1 | 72 | 81 | 10 | GTNGTKRFDN 8e-06 | 72 |
| HLA-A*68:02 | 1 | 73 | 82 | 10 | TNGTKRFDNP 8e-06 | 69 |
| HLA-B*58:01 | 1 | 73 | 82 | 10 | TNGTKRFDNP 8e-06 | 75 |
| HLA-A*23:01 | 1 | 74 | 82 | 9 | NGTKRFDNP 8e-06 | 51 |
| HLA-B*44:03 | 1 | 74 | 82 | 9 | NGTKRFDNP 8e-06 | 55 |
| HLA-A*26:01 | 1 | 81 | 89 | 9 | NPVLPFNDG 8e-06 | 64 |
| HLA-B*44:03 | 1 | 81 | 89 | 9 | NPVLPFNDG 8e-06 | 55 |
| HLA-B*57:01 | 1 | 81 | 89 | 9 | NPVLPFNDG 8e-06 | 85 |
| HLA-A*02:06 | 1 | 85 | 94 | 10 | PFNDGVYFAS 8e-06 | 77 |
| HLA-A*26:01 | 1 | 86 | 95 | 10 | FNDGVYFAST 8e-06 | 64 |
| HLA-B*15:01 | 1 | 86 | 94 | 9 | FNDGVYFAS 8e-06 | 68 |
| HLA-B*44:03 | 1 | 86 | 94 | 9 | FNDGVYFAS 8e-06 | 55 |
| HLA-A*02:06 | 1 | 87 | 96 | 10 | NDGVYFASTE 8e-06 | 77 |
| HLA-A*26:01 | 1 | 87 | 95 | 9 | NDGVYFAST 8e-06 | 64 |
| HLA-B*44:03 | 1 | 87 | 96 | 10 | NDGVYFASTE 8e-06 | 55 |
| HLA-A*02:01 | 1 | 88 | 96 | 9 | DGVYFASTE 8e-06 | 69 |
| HLA-A*03:01 | 1 | 88 | 96 | 9 | DGVYFASTE 8e-06 | 66 |
| HLA-A*11:01 | 1 | 91 | 100 | 10 | YFASTEKSNI 8e-06 | 51 |
| HLA-A*24:02 | 1 | 96 | 105 | 10 | EKSNIIRGWI 8e-06 | 49 |
| HLA-A*31:01 | 1 | 96 | 105 | 10 | EKSNIIRGWI 8e-06 | 72 |
| HLA-A*24:02 | 1 | 100 | 108 | 9 | IIRGWIFGT 8e-06 | 49 |
| HLA-A*68:01 | 1 | 100 | 109 | 10 | IIRGWIFGTT 8e-06 | 64 |
| HLA-A*03:01 | 1 | 102 | 111 | 10 | RGWIFGTTLD 8e-06 | 66 |
| HLA-B*07:02 | 1 | 103 | 112 | 10 | GWIFGTTLDS 8e-06 | 69 |
| HLA-A*02:03 | 1 | 106 | 115 | 10 | FGTTLDSKTQ 8e-06 | 72 |
| HLA-B*07:02 | 1 | 106 | 115 | 10 | FGTTLDSKTQ 8e-06 | 69 |
| HLA-B*40:01 | 1 | 107 | 116 | 10 | GTTLDSKTQS 8e-06 | 46 |
| HLA-B*51:01 | 1 | 107 | 116 | 10 | GTTLDSKTQS 8e-06 | 79 |
| HLA-A*24:02 | 1 | 108 | 116 | 9 | TTLDSKTQS 8e-06 | 49 |
| HLA-A*11:01 | 1 | 115 | 124 | 10 | QSLIVNNAT 8e-06 | 51 |
| HLA-A*26:01 | 1 | 115 | 124 | 10 | QSLIVNNAT 8e-06 | 64 |
| HLA-B*44:03 | 1 | 115 | 124 | 10 | QSLIVNNAT 8e-06 | 55 |
| HLA-A*24:02 | 1 | 117 | 126 | 10 | LLIVNNATNV 8e-06 | 49 |
| HLA-B*44:02 | 1 | 118 | 127 | 10 | LIVNNATNVV 8e-06 | 59 |
| HLA-A*23:01 | 1 | 120 | 129 | 10 | VNNATNVVVK 8e-06 | 51 |
| HLA-B*44:02 | 1 | 122 | 131 | 10 | NATNVVVKVC 8e-06 | 59 |
| HLA-A*02:03 | 1 | 124 | 132 | 9 | TNVVVKVCE 8e-06 | 72 |
| HLA-B*07:02 | 1 | 124 | 132 | 9 | TNVVVKVCE 8e-06 | 69 |
| HLA-A*24:02 | 1 | 127 | 136 | 10 | VIKVFQFC 8e-06 | 49 |
| HLA-A*31:01 | 1 | 128 | 136 | 9 | IKVFQFC 8e-06 | 72 |
| HLA-A*30:02 | 1 | 130 | 139 | 10 | VCFQFCNDP 8e-06 | 90 |
| HLA-B*51:01 | 1 | 130 | 139 | 10 | VCFQFCNDP 8e-06 | 79 |
| HLA-B*53:01 | 1 | 131 | 139 | 9 | CFQFCNDP 8e-06 | 54 |
| HLA-A*02:01 | 1 | 132 | 140 | 9 | EFQFCNDPF 8e-06 | 69 |
| HLA-A*02:03 | 1 | 134 | 142 | 9 | QFCNDPFLG 8e-06 | 72 |
| HLA-A*26:01 | 1 | 134 | 142 | 9 | QFCNDPFLG 8e-06 | 64 |
| HLA-A*24:02 | 1 | 137 | 146 | 10 | NDPFLGVYYH 8e-06 | 49 |
| HLA-A*11:01 | 1 | 139 | 148 | 10 | PFLGVYYHKN 8e-06 | 51 |
| HLA-B*44:02 | 1 | 139 | 147 | 9 | PFLGVYYHK 8e-06 | 59 |
| HLA-A*01:01 | 1 | 141 | 149 | 9 | LGVYYHKNN 8e-06 | 90 |
| HLA-A*23:01 | 1 | 141 | 150 | 10 | LGVYYHKNNK 8e-06 | 51 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-B*51:01 | 1 | 142 | 151 | 10 | GVYYHKNNKS 8e-06 | 79 |
| HLA-A*26:01 | 1 | 145 | 154 | 10 | YHKNNKSWME 8e-06 | 64 |
| HLA-B*57:01 | 1 | 145 | 154 | 10 | YHKNNKSWME 8e-06 | 85 |
| HLA-A*32:01 | 1 | 146 | 154 | 9 | HKNNKSWME 8e-06 | 55 |
| HLA-B*15:01 | 1 | 146 | 155 | 10 | HKNNKSWMES 8e-06 | 68 |
| HLA-A*11:01 | 1 | 148 | 157 | 10 | NNKSWMESEF 8e-06 | 51 |
| HLA-A*32:01 | 1 | 148 | 156 | 9 | NNKSWMESE 8e-06 | 55 |
| HLA-A*11:01 | 1 | 152 | 161 | 10 | WMESEFRVYS 8e-06 | 51 |
| HLA-A*02:06 | 1 | 155 | 164 | 10 | SEFRVYSSAN 8e-06 | 77 |
| HLA-A*23:01 | 1 | 156 | 164 | 9 | EFRVYSSAN 8e-06 | 51 |
| HLA-B*44:03 | 1 | 158 | 167 | 10 | RVYSSANNCT 8e-06 | 55 |
| HLA-B*44:02 | 1 | 160 | 169 | 10 | YSSANNCTFE 8e-06 | 59 |
| HLA-B*44:02 | 1 | 161 | 169 | 9 | SSANNCTFE 8e-06 | 59 |
| HLA-A*11:01 | 1 | 164 | 173 | 10 | NNCTFEYVSQ 8e-06 | 51 |
| HLA-B*44:02 | 1 | 165 | 173 | 9 | NCTFEYVSQ 8e-06 | 59 |
| HLA-A*02:03 | 1 | 173 | 181 | 9 | QPFLMDLEG 8e-06 | 72 |
| HLA-A*11:01 | 1 | 173 | 181 | 9 | QPFLMDLEG 8e-06 | 51 |
| HLA-B*40:01 | 1 | 173 | 181 | 9 | QPFLMDLEG 8e-06 | 46 |
| HLA-A*02:01 | 1 | 174 | 182 | 9 | PFLMDLEGK 8e-06 | 69 |
| HLA-A*26:01 | 1 | 174 | 182 | 9 | PFLMDLEGK 8e-06 | 64 |
| HLA-B*15:01 | 1 | 174 | 183 | 10 | PFLMDLEGKQ 8e-06 | 68 |
| HLA-A*32:01 | 1 | 175 | 184 | 10 | FLMDLEGKQG 8e-06 | 55 |
| HLA-A*03:01 | 1 | 176 | 185 | 10 | LMDLEGKQGN 8e-06 | 66 |
| HLA-A*32:01 | 1 | 176 | 185 | 10 | LMDLEGKQGN 8e-06 | 55 |
| HLA-A*33:01 | 1 | 177 | 185 | 9 | MDLEGKQGN 8e-06 | 77 |
| HLA-A*68:02 | 1 | 177 | 185 | 9 | MDLEGKQGN 8e-06 | 69 |
| HLA-A*26:01 | 1 | 180 | 188 | 9 | EGKQGNFKN 8e-06 | 64 |
| HLA-B*07:02 | 1 | 181 | 190 | 10 | GKQGNFKNLR 8e-06 | 69 |
| HLA-B*35:01 | 1 | 182 | 190 | 9 | KQGNFKNLR 8e-06 | 54 |
| HLA-A*32:01 | 1 | 183 | 191 | 9 | QGNFKNLR 8e-06 | 55 |
| HLA-B*35:01 | 1 | 183 | 191 | 9 | QGNFKNLR 8e-06 | 54 |
| HLA-B*53:01 | 1 | 184 | 193 | 10 | GNFKNLREFV 8e-06 | 54 |
| HLA-A*24:02 | 1 | 188 | 196 | 9 | NLREFVFKN 8e-06 | 49 |
| HLA-B*57:01 | 1 | 190 | 199 | 10 | REFVFKNIDG 8e-06 | 85 |
| HLA-A*32:01 | 1 | 196 | 205 | 10 | NIDGYFKIYS 8e-06 | 55 |
| HLA-A*02:03 | 1 | 197 | 205 | 9 | IDGYFKIYS 8e-06 | 72 |
| HLA-B*58:01 | 1 | 197 | 205 | 9 | IDGYFKIYS 8e-06 | 75 |
| HLA-A*11:01 | 1 | 199 | 208 | 10 | GYFKIYSKHT 8e-06 | 51 |
| HLA-A*11:01 | 1 | 200 | 209 | 10 | YFKIYSKHTP 8e-06 | 51 |
| HLA-B*44:03 | 1 | 200 | 208 | 9 | YFKIYSKHT 8e-06 | 55 |
| HLA-B*53:01 | 1 | 200 | 208 | 9 | YFKIYSKHT 8e-06 | 54 |
| HLA-B*58:01 | 1 | 200 | 208 | 9 | YFKIYSKHT 8e-06 | 75 |
| HLA-B*44:02 | 1 | 203 | 211 | 9 | IYSKHTPIN 8e-06 | 59 |
| HLA-B*51:01 | 1 | 206 | 215 | 10 | KHTPINLVRD 8e-06 | 79 |
| HLA-A*03:01 | 1 | 209 | 217 | 9 | PINLVRDLP 8e-06 | 66 |
| HLA-A*01:01 | 1 | 210 | 219 | 10 | INLVRDLPQG 8e-06 | 90 |
| HLA-A*02:06 | 1 | 210 | 218 | 9 | INLVRDLPQ 8e-06 | 77 |
| HLA-A*68:01 | 1 | 213 | 221 | 9 | VRDLPQGFS 8e-06 | 64 |
| HLA-A*23:01 | 1 | 216 | 224 | 9 | LPQGFSALE 8e-06 | 51 |
| HLA-A*32:01 | 1 | 216 | 224 | 9 | LPQGFSALE 8e-06 | 55 |
| HLA-B*08:01 | 1 | 219 | 228 | 10 | GFSALEPLVD 8e-06 | 87 |
| HLA-A*26:01 | 1 | 220 | 228 | 9 | FSALEPLVD 8e-06 | 64 |
| HLA-A*01:01 | 1 | 224 | 232 | 9 | EPLVDLPIG 8e-06 | 90 |
| HLA-B*44:02 | 1 | 224 | 232 | 9 | EPLVDLPIG 8e-06 | 59 |
| HLA-B*44:03 | 1 | 224 | 232 | 9 | EPLVDLPIG 8e-06 | 55 |
| HLA-A*31:01 | 1 | 226 | 234 | 9 | LVDLPIGIN 8e-06 | 72 |
| HLA-B*40:01 | 1 | 228 | 236 | 9 | DLPIGINIT 8e-06 | 46 |
| HLA-A*26:01 | 1 | 230 | 239 | 10 | PIGINITRFQ 8e-06 | 64 |
| HLA-B*53:01 | 1 | 232 | 240 | 9 | GINITRFQT 8e-06 | 54 |
| HLA-A*23:01 | 1 | 234 | 243 | 10 | NITRFQTLA 8e-06 | 51 |
| HLA-A*11:01 | 1 | 242 | 251 | 10 | LALHRSYLTP 8e-06 | 51 |
| HLA-A*26:01 | 1 | 242 | 251 | 10 | LALHRSYLTP 8e-06 | 64 |
| HLA-A*68:01 | 1 | 242 | 251 | 10 | LALHRSYLTP 8e-06 | 64 |
| HLA-A*31:01 | 1 | 244 | 252 | 9 | LHRSYLTPG 8e-06 | 72 |
| HLA-A*02:06 | 1 | 245 | 254 | 10 | HRSYLTPGDS 8e-06 | 77 |
| HLA-A*31:01 | 1 | 245 | 254 | 10 | HRSYLTPGDS 8e-06 | 72 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-B*35:01 | 1 | 246 | 254 | 9 | RSYLTPGDS | 8e-06 | 54 |
| HLA-B*40:01 | 1 | 246 | 254 | 9 | RSYLTPGDS | 8e-06 | 46 |
| HLA-A*23:01 | 1 | 248 | 257 | 10 | YLTPGDSSSG | 8e-06 | 51 |
| HLA-A*11:01 | 1 | 249 | 257 | 9 | LTPGDSSSG | 8e-06 | 51 |
| HLA-A*23:01 | 1 | 249 | 257 | 9 | LTPGDSSSG | 8e-06 | 51 |
| HLA-A*31:01 | 1 | 249 | 257 | 9 | LTPGDSSSG | 8e-06 | 72 |
| HLA-A*32:01 | 1 | 249 | 257 | 9 | LTPGDSSSG | 8e-06 | 55 |
| HLA-A*02:03 | 1 | 251 | 260 | 10 | PGDSSSGWTA | 8e-06 | 72 |
| HLA-A*24:02 | 1 | 251 | 260 | 10 | PGDSSSGWTA | 8e-06 | 49 |
| HLA-A*31:01 | 1 | 251 | 260 | 10 | PGDSSSGWTA | 8e-06 | 72 |
| HLA-A*33:01 | 1 | 251 | 260 | 10 | PGDSSSGWTA | 8e-06 | 77 |
| HLA-B*07:02 | 1 | 251 | 260 | 10 | PGDSSSGWTA | 8e-06 | 69 |
| HLA-A*68:02 | 1 | 252 | 261 | 10 | GDSSSGWTAG | 8e-06 | 69 |
| HLA-A*02:06 | 1 | 253 | 261 | 9 | DSSSGWTAG | 8e-06 | 77 |
| HLA-A*32:01 | 1 | 253 | 261 | 9 | DSSSGWTAG | 8e-06 | 55 |
| HLA-B*40:01 | 1 | 253 | 262 | 10 | DSSSGWTAGA | 8e-06 | 46 |
| HLA-B*44:03 | 1 | 253 | 262 | 10 | DSSSGWTAGA | 8e-06 | 55 |
| HLA-B*44:03 | 1 | 258 | 267 | 10 | WTAGAAAYYV | 8e-06 | 55 |
| HLA-B*53:01 | 1 | 259 | 268 | 10 | TAGAAAYYVG | 8e-06 | 54 |
| HLA-A*02:03 | 1 | 260 | 268 | 9 | AGAAAYYVG | 8e-06 | 72 |
| HLA-A*24:02 | 1 | 260 | 268 | 9 | AGAAAYYVG | 8e-06 | 49 |
| HLA-A*33:01 | 1 | 260 | 268 | 9 | AGAAAYYVG | 8e-06 | 77 |
| HLA-B*44:03 | 1 | 262 | 271 | 10 | AAAYYVGYLQ | 8e-06 | 55 |
| HLA-B*40:01 | 1 | 264 | 273 | 10 | AYYVGYLQPR | 8e-06 | 46 |
| HLA-A*11:01 | 1 | 272 | 281 | 10 | PRTFLLKYNE | 8e-06 | 51 |
| HLA-A*02:03 | 1 | 273 | 282 | 10 | RTFLLKYNEN | 8e-06 | 72 |
| HLA-B*35:01 | 1 | 274 | 282 | 9 | TFLLKYNEN | 8e-06 | 54 |
| HLA-B*07:02 | 1 | 275 | 284 | 10 | FLLKYNENGT | 8e-06 | 69 |
| HLA-A*23:01 | 1 | 279 | 288 | 10 | YNENGTITDA | 8e-06 | 51 |
| HLA-A*30:01 | 1 | 282 | 290 | 9 | NGTITDAVD | 8e-06 | 91 |
| HLA-A*02:03 | 1 | 285 | 294 | 10 | ITDAVDCALD | 8e-06 | 72 |
| HLA-A*01:01 | 1 | 286 | 294 | 9 | TDAVDCALD | 8e-06 | 90 |
| HLA-A*02:03 | 1 | 287 | 295 | 9 | DAVDCALDP | 8e-06 | 72 |
| HLA-A*03:01 | 1 | 287 | 296 | 10 | DAVDCALDPL | 8e-06 | 66 |
| HLA-A*33:01 | 1 | 288 | 297 | 10 | AVDCALDPLS | 8e-06 | 77 |
| HLA-B*15:01 | 1 | 288 | 297 | 10 | AVDCALDPLS | 8e-06 | 68 |
| HLA-A*02:06 | 1 | 289 | 297 | 9 | VDCALDPLS | 8e-06 | 77 |
| HLA-B*57:01 | 1 | 293 | 302 | 10 | LDPLSEKCT | 8e-06 | 85 |
| HLA-A*03:01 | 1 | 294 | 302 | 9 | DPLSEKCT | 8e-06 | 66 |
| HLA-A*23:01 | 1 | 294 | 302 | 9 | DPLSEKCT | 8e-06 | 51 |
| HLA-B*15:01 | 1 | 294 | 302 | 9 | DPLSEKCT | 8e-06 | 68 |
| HLA-B*58:01 | 1 | 294 | 302 | 9 | DPLSEKCT | 8e-06 | 75 |
| HLA-A*02:03 | 1 | 296 | 305 | 10 | LSEKCTLKS | 8e-06 | 72 |
| HLA-B*44:03 | 1 | 296 | 304 | 9 | LSEKCTLK | 8e-06 | 55 |
| HLA-A*68:01 | 1 | 299 | 308 | 10 | TKCTLKSFTV | 8e-06 | 64 |
| HLA-A*23:01 | 1 | 301 | 309 | 9 | CTLKSFTVE | 8e-06 | 51 |
| HLA-A*24:02 | 1 | 303 | 312 | 10 | LKSFTVEKGI | 8e-06 | 49 |
| HLA-B*44:02 | 1 | 303 | 311 | 9 | LKSFTVEKG | 8e-06 | 59 |
| HLA-B*44:02 | 1 | 306 | 315 | 10 | FTVEKGIYQT | 8e-06 | 59 |
| HLA-B*07:02 | 1 | 308 | 317 | 10 | VEKGIYQTSN | 8e-06 | 69 |
| HLA-A*30:02 | 1 | 309 | 317 | 9 | EKGIYQTSN | 8e-06 | 90 |
| HLA-B*51:01 | 1 | 309 | 317 | 9 | EKGIYQTSN | 8e-06 | 79 |
| HLA-B*44:02 | 1 | 312 | 321 | 10 | IYQTSNFRVQ | 8e-06 | 59 |
| HLA-A*23:01 | 1 | 315 | 323 | 9 | TSNFRVQPT | 8e-06 | 51 |
| HLA-B*40:01 | 1 | 315 | 323 | 9 | TSNFRVQPT | 8e-06 | 46 |
| HLA-B*44:03 | 1 | 315 | 324 | 10 | TSNFRVQPT | 8e-06 | 55 |
| HLA-B*44:02 | 1 | 317 | 325 | 9 | NFRVQPTES | 8e-06 | 59 |
| HLA-B*58:01 | 1 | 322 | 331 | 10 | PTESIVRFPN | 8e-06 | 75 |
| HLA-A*31:01 | 1 | 323 | 331 | 9 | TESIVRFPN | 8e-06 | 72 |
| HLA-A*68:02 | 1 | 323 | 331 | 9 | TESIVRFPN | 8e-06 | 69 |
| HLA-B*15:01 | 1 | 323 | 331 | 9 | TESIVRFPN | 8e-06 | 68 |
| HLA-B*44:03 | 1 | 324 | 333 | 10 | ESIVRFPNIT | 8e-06 | 55 |
| HLA-A*68:02 | 1 | 330 | 338 | 9 | PNITNLCPF | 8e-06 | 69 |
| HLA-A*03:01 | 1 | 336 | 345 | 10 | CPFGEVFNAT | 8e-06 | 66 |
| HLA-A*26:01 | 1 | 341 | 349 | 9 | VFNATRFAS | 8e-06 | 64 |
| HLA-B*53:01 | 1 | 341 | 350 | 10 | VFNATRFASV | 8e-06 | 54 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-A*03:01 | 1 | 345 | 354 | 10 | TRFASVYAWN 8e-06 | 66 |
| HLA-A*11:01 | 1 | 345 | 354 | 10 | TRFASVYAWN 8e-06 | 51 |
| HLA-A*68:02 | 1 | 345 | 354 | 10 | TRFASVYAWN 8e-06 | 69 |
| HLA-B*07:02 | 1 | 345 | 354 | 10 | TRFASVYAWN 8e-06 | 69 |
| HLA-B*44:02 | 1 | 347 | 356 | 10 | FASVYAWNRK 8e-06 | 59 |
| HLA-A*02:06 | 1 | 350 | 359 | 10 | VYAWNRKRIS 8e-06 | 77 |
| HLA-B*15:01 | 1 | 350 | 359 | 10 | VYAWNRKRIS 8e-06 | 68 |
| HLA-A*02:01 | 1 | 352 | 361 | 10 | AWNRKRISNC 8e-06 | 69 |
| HLA-B*44:03 | 1 | 352 | 360 | 9 | AWNRKRISN 8e-06 | 55 |
| HLA-B*58:01 | 1 | 352 | 360 | 9 | AWNRKRISN 8e-06 | 75 |
| HLA-A*11:01 | 1 | 354 | 362 | 9 | NRKRISNCV 8e-06 | 51 |
| HLA-A*23:01 | 1 | 354 | 363 | 10 | NRKRISNCVA 8e-06 | 51 |
| HLA-B*35:01 | 1 | 354 | 363 | 10 | NRKRISNCVA 8e-06 | 54 |
| HLA-A*02:06 | 1 | 355 | 363 | 9 | RKRISNCVA 8e-06 | 77 |
| HLA-A*11:01 | 1 | 355 | 363 | 9 | RKRISNCVA 8e-06 | 51 |
| HLA-A*03:01 | 1 | 358 | 367 | 10 | ISNCVADYSV 8e-06 | 66 |
| HLA-A*32:01 | 1 | 358 | 366 | 9 | ISNCVADYS 8e-06 | 55 |
| HLA-B*44:03 | 1 | 362 | 371 | 10 | VADYSVLVNS 8e-06 | 55 |
| HLA-A*02:03 | 1 | 364 | 373 | 10 | DYSVLVNSAS 8e-06 | 72 |
| HLA-A*02:06 | 1 | 364 | 373 | 10 | DYSVLVNSAS 8e-06 | 77 |
| HLA-A*31:01 | 1 | 364 | 373 | 10 | DYSVLVNSAS 8e-06 | 72 |
| HLA-B*07:02 | 1 | 364 | 373 | 10 | DYSVLVNSAS 8e-06 | 69 |
| HLA-B*35:01 | 1 | 367 | 376 | 10 | VLYNSASFST 8e-06 | 54 |
| HLA-B*44:02 | 1 | 367 | 375 | 9 | VLYNSASF 8e-06 | 59 |
| HLA-B*44:03 | 1 | 367 | 375 | 9 | VLYNSASF 8e-06 | 55 |
| HLA-B*44:03 | 1 | 370 | 379 | 10 | NSASFSTFKC 8e-06 | 55 |
| HLA-B*07:02 | 1 | 372 | 381 | 10 | ASFSTFKCYG 8e-06 | 69 |
| HLA-B*40:01 | 1 | 372 | 381 | 10 | ASFSTFKCYG 8e-06 | 46 |
| HLA-A*26:01 | 1 | 373 | 381 | 9 | SFSTFKCYG 8e-06 | 64 |
| HLA-A*26:01 | 1 | 376 | 385 | 10 | TFKCYGVSPT 8e-06 | 64 |
| HLA-B*40:01 | 1 | 376 | 384 | 9 | TFKCYGVSP 8e-06 | 46 |
| HLA-B*07:02 | 1 | 379 | 388 | 10 | CYGVSPKLN 8e-06 | 69 |
| HLA-B*51:01 | 1 | 379 | 388 | 10 | CYGVSPKLN 8e-06 | 79 |
| HLA-A*02:01 | 1 | 380 | 388 | 9 | YGVSPKLN 8e-06 | 69 |
| HLA-B*15:01 | 1 | 380 | 389 | 10 | YGVSPKLN 8e-06 | 68 |
| HLA-B*44:03 | 1 | 381 | 389 | 9 | GVSPTKLN 8e-06 | 55 |
| HLA-A*32:01 | 1 | 383 | 391 | 9 | SPTKLN 8e-06 | 55 |
| HLA-A*68:02 | 1 | 386 | 394 | 9 | KLNDLCFTN 8e-06 | 69 |
| HLA-B*53:01 | 1 | 386 | 395 | 10 | KLNDLCFTN 8e-06 | 54 |
| HLA-A*32:01 | 1 | 388 | 397 | 10 | NLDCFTNVYA 8e-06 | 55 |
| HLA-A*26:01 | 1 | 389 | 398 | 10 | DLCFTNVYAD 8e-06 | 64 |
| HLA-B*40:01 | 1 | 391 | 400 | 10 | CFTNVYADSF 8e-06 | 46 |
| HLA-A*23:01 | 1 | 392 | 401 | 10 | FTNVYADSFV 8e-06 | 51 |
| HLA-A*24:02 | 1 | 392 | 401 | 10 | FTNVYADSFV 8e-06 | 49 |
| HLA-A*11:01 | 1 | 397 | 406 | 10 | ADSFVIRGDE 8e-06 | 51 |
| HLA-A*32:01 | 1 | 397 | 405 | 9 | ADSFVIRGD 8e-06 | 55 |
| HLA-A*32:01 | 1 | 402 | 411 | 10 | IRGDEVRQIA 8e-06 | 55 |
| HLA-A*33:01 | 1 | 403 | 412 | 10 | RGDEVRQIAP 8e-06 | 77 |
| HLA-A*68:02 | 1 | 404 | 412 | 9 | GDEVRQIAP 8e-06 | 69 |
| HLA-B*57:01 | 1 | 404 | 412 | 9 | GDEVRQIAP 8e-06 | 85 |
| HLA-A*30:02 | 1 | 405 | 413 | 9 | DEVQRQIAPG 8e-06 | 90 |
| HLA-B*58:01 | 1 | 405 | 414 | 10 | DEVQRQIAPG 8e-06 | 75 |
| HLA-A*03:01 | 1 | 407 | 415 | 9 | VRQIAPGQT 8e-06 | 66 |
| HLA-A*11:01 | 1 | 407 | 416 | 10 | VRQIAPGQTG 8e-06 | 51 |
| HLA-A*33:01 | 1 | 411 | 419 | 9 | APGQTGKIA 8e-06 | 77 |
| HLA-B*44:02 | 1 | 411 | 420 | 10 | APGQTGKIAD 8e-06 | 59 |
| HLA-B*44:03 | 1 | 411 | 420 | 10 | APGQTGKIAD 8e-06 | 55 |
| HLA-A*02:01 | 1 | 413 | 422 | 10 | QTGKIADYN 8e-06 | 69 |
| HLA-A*02:06 | 1 | 414 | 422 | 9 | QTGKIADYN 8e-06 | 77 |
| HLA-B*51:01 | 1 | 414 | 422 | 9 | QTGKIADYN 8e-06 | 79 |
| HLA-A*11:01 | 1 | 418 | 426 | 9 | IADYNYKLP 8e-06 | 51 |
| HLA-A*02:03 | 1 | 420 | 429 | 10 | DYNYKLPDDF 8e-06 | 72 |
| HLA-A*02:01 | 1 | 422 | 430 | 9 | NYKLPDDFT 8e-06 | 69 |
| HLA-B*44:02 | 1 | 422 | 431 | 10 | NYKLPDDFTG 8e-06 | 59 |
| HLA-A*33:01 | 1 | 423 | 431 | 9 | YKLPDDFTG 8e-06 | 77 |
| HLA-B*08:01 | 1 | 426 | 435 | 10 | PDDFTGCVIA 8e-06 | 87 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-A*01:01 | 1 | 428 | 437 | 10 | DFTGCVIAWN | 8e-06 | 90 |
| HLA-A*03:01 | 1 | 429 | 438 | 10 | FTGCVIAWNS | 8e-06 | 66 |
| HLA-A*26:01 | 1 | 431 | 440 | 10 | GCVIAWNSNN | 8e-06 | 64 |
| HLA-A*32:01 | 1 | 431 | 440 | 10 | GCVIAWNSNN | 8e-06 | 55 |
| HLA-A*02:01 | 1 | 432 | 440 | 9 | CVIAWNSNN | 8e-06 | 69 |
| HLA-A*31:01 | 1 | 433 | 442 | 10 | VIAWNSNNLD | 8e-06 | 72 |
| HLA-A*33:01 | 1 | 433 | 442 | 10 | VIAWNSNNLD | 8e-06 | 77 |
| HLA-B*07:02 | 1 | 434 | 442 | 9 | IAWNSNNLD | 8e-06 | 69 |
| HLA-A*23:01 | 1 | 436 | 445 | 10 | WNSNNLDSKV | 8e-06 | 51 |
| HLA-A*32:01 | 1 | 436 | 445 | 10 | WNSNNLDSKV | 8e-06 | 55 |
| HLA-B*35:01 | 1 | 436 | 445 | 10 | WNSNNLDSKV | 8e-06 | 54 |
| HLA-A*31:01 | 1 | 438 | 447 | 10 | SNNLDSKVG | 8e-06 | 72 |
| HLA-A*33:01 | 1 | 440 | 448 | 9 | NLDSKVGGN | 8e-06 | 77 |
| HLA-B*51:01 | 1 | 440 | 448 | 9 | NLDSKVGGN | 8e-06 | 79 |
| HLA-A*02:03 | 1 | 445 | 453 | 9 | VGGNYNYLY | 8e-06 | 72 |
| HLA-A*02:01 | 1 | 448 | 457 | 10 | NYNYLYRFR | 8e-06 | 69 |
| HLA-A*32:01 | 1 | 450 | 459 | 10 | NYLYRFRKS | 8e-06 | 55 |
| HLA-B*51:01 | 1 | 451 | 460 | 10 | YLYRFRKSN | 8e-06 | 79 |
| HLA-B*58:01 | 1 | 451 | 460 | 10 | YLYRFRKSN | 8e-06 | 75 |
| HLA-A*03:01 | 1 | 452 | 460 | 9 | LYRFRKSN | 8e-06 | 66 |
| HLA-A*03:01 | 1 | 459 | 467 | 9 | SNLKPFERD | 8e-06 | 66 |
| HLA-A*23:01 | 1 | 459 | 467 | 9 | SNLKPFERD | 8e-06 | 51 |
| HLA-B*53:01 | 1 | 459 | 467 | 9 | SNLKPFERD | 8e-06 | 54 |
| HLA-A*11:01 | 1 | 460 | 468 | 9 | NLKPFERDI | 8e-06 | 51 |
| HLA-B*44:02 | 1 | 460 | 469 | 10 | NLKPFERDIS | 8e-06 | 59 |
| HLA-B*07:02 | 1 | 463 | 471 | 9 | PFERDISTE | 8e-06 | 69 |
| HLA-A*11:01 | 1 | 468 | 476 | 9 | ISTEIQAG | 8e-06 | 51 |
| HLA-B*44:03 | 1 | 468 | 476 | 9 | ISTEIQAG | 8e-06 | 55 |
| HLA-A*32:01 | 1 | 469 | 478 | 10 | STEIQAGST | 8e-06 | 55 |
| HLA-A*03:01 | 1 | 470 | 478 | 9 | TEIQAGST | 8e-06 | 66 |
| HLA-A*24:02 | 1 | 470 | 479 | 10 | TEIQAGSTP | 8e-06 | 49 |
| HLA-B*57:01 | 1 | 470 | 478 | 9 | TEIQAGST | 8e-06 | 85 |
| HLA-B*51:01 | 1 | 472 | 481 | 10 | IYQAGSTPCN | 8e-06 | 79 |
| HLA-A*11:01 | 1 | 474 | 483 | 10 | QAGSTPCNGV | 8e-06 | 51 |
| HLA-A*02:01 | 1 | 475 | 484 | 10 | AGSTPCNGVE | 8e-06 | 69 |
| HLA-B*08:01 | 1 | 476 | 484 | 9 | GSTPCNGVE | 8e-06 | 87 |
| HLA-B*08:01 | 1 | 476 | 485 | 10 | GSTPCNGVEG | 8e-06 | 87 |
| HLA-B*44:02 | 1 | 477 | 485 | 9 | STPCNGVEG | 8e-06 | 59 |
| HLA-A*01:01 | 1 | 479 | 487 | 9 | PCNGVEGFN | 8e-06 | 90 |
| HLA-A*02:03 | 1 | 480 | 489 | 10 | CNGVEGFNCY | 8e-06 | 72 |
| HLA-B*08:01 | 1 | 480 | 488 | 9 | CNGVEGFNC | 8e-06 | 87 |
| HLA-A*02:01 | 1 | 483 | 491 | 9 | VEGFNCYFP | 8e-06 | 69 |
| HLA-A*11:01 | 1 | 483 | 492 | 10 | VEGFNCYFPL | 8e-06 | 51 |
| HLA-B*58:01 | 1 | 483 | 491 | 9 | VEGFNCYFP | 8e-06 | 75 |
| HLA-B*35:01 | 1 | 484 | 493 | 10 | EGFNCYFPLQ | 8e-06 | 54 |
| HLA-A*02:01 | 1 | 485 | 493 | 9 | GFNCYFPLQ | 8e-06 | 69 |
| HLA-A*02:06 | 1 | 485 | 493 | 9 | GFNCYFPLQ | 8e-06 | 77 |
| HLA-B*15:01 | 1 | 485 | 493 | 9 | GFNCYFPLQ | 8e-06 | 68 |
| HLA-B*44:03 | 1 | 486 | 494 | 9 | FNCYFPLQS | 8e-06 | 55 |
| HLA-A*11:01 | 1 | 490 | 499 | 10 | FPLQSYGFQP | 8e-06 | 51 |
| HLA-B*44:03 | 1 | 490 | 498 | 9 | FPLQSYGFQ | 8e-06 | 55 |
| HLA-B*58:01 | 1 | 491 | 499 | 9 | PLQSYGFQP | 8e-06 | 75 |
| HLA-A*11:01 | 1 | 492 | 501 | 10 | LQSYGFQPTN | 8e-06 | 51 |
| HLA-B*35:01 | 1 | 494 | 502 | 9 | SYGFQPTNG | 8e-06 | 54 |
| HLA-A*24:02 | 1 | 498 | 507 | 10 | QPTNGVGYQP | 8e-06 | 49 |
| HLA-B*44:03 | 1 | 508 | 516 | 9 | YRVVLSFE | 8e-06 | 55 |
| HLA-B*44:03 | 1 | 511 | 520 | 10 | VVLSFELLHA | 8e-06 | 55 |
| HLA-B*44:02 | 1 | 513 | 522 | 10 | LSFELLHAPA | 8e-06 | 59 |
| HLA-A*11:01 | 1 | 515 | 523 | 9 | FELLHAPAT | 8e-06 | 51 |
| HLA-A*33:01 | 1 | 517 | 526 | 10 | LLHAPATVCG | 8e-06 | 77 |
| HLA-A*02:01 | 1 | 518 | 526 | 9 | LHAPATVCG | 8e-06 | 69 |
| HLA-A*26:01 | 1 | 518 | 527 | 10 | LHAPATVCGP | 8e-06 | 64 |
| HLA-B*44:03 | 1 | 519 | 527 | 9 | HAPATVCGP | 8e-06 | 55 |
| HLA-A*24:02 | 1 | 520 | 529 | 10 | APATVCGPKK | 8e-06 | 49 |
| HLA-A*26:01 | 1 | 521 | 529 | 9 | PATVCGPKK | 8e-06 | 64 |
| HLA-B*53:01 | 1 | 522 | 531 | 10 | ATVCGPKKST | 8e-06 | 54 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-A*11:01 | 1 | 524 | 533 | 10 | VCGPKKSTNL 8e-06 | 51 |
| HLA-B*51:01 | 1 | 524 | 532 | 9 | VCGPKKSTN 8e-06 | 79 |
| HLA-A*23:01 | 1 | 526 | 535 | 10 | GPKKSTNLVK 8e-06 | 51 |
| HLA-A*32:01 | 1 | 528 | 536 | 9 | KKSTNLVKN 8e-06 | 55 |
| HLA-B*07:02 | 1 | 528 | 537 | 10 | KKSTNLVKNK 8e-06 | 69 |
| HLA-A*02:06 | 1 | 533 | 542 | 10 | LVKNKCVNFN 8e-06 | 77 |
| HLA-B*51:01 | 1 | 533 | 542 | 10 | LVKNKCVNFN 8e-06 | 79 |
| HLA-A*30:01 | 1 | 536 | 545 | 10 | NKCVNFNFN 8e-06 | 91 |
| HLA-B*08:01 | 1 | 536 | 544 | 9 | NKCVNFNFN 8e-06 | 87 |
| HLA-B*57:01 | 1 | 536 | 545 | 10 | NKCVNFNFN 8e-06 | 85 |
| HLA-B*51:01 | 1 | 538 | 547 | 10 | CVNFNFNGLT 8e-06 | 79 |
| HLA-A*03:01 | 1 | 539 | 548 | 10 | VNFNFNGLTG 8e-06 | 66 |
| HLA-B*53:01 | 1 | 539 | 547 | 9 | VNFNFNGLT 8e-06 | 54 |
| HLA-A*02:01 | 1 | 540 | 548 | 9 | NFNFNGLTG 8e-06 | 69 |
| HLA-A*11:01 | 1 | 540 | 549 | 10 | NFNFNGLTGT 8e-06 | 51 |
| HLA-B*35:01 | 1 | 540 | 549 | 10 | NFNFNGLTGT 8e-06 | 54 |
| HLA-B*44:03 | 1 | 540 | 549 | 10 | NFNFNGLTGT 8e-06 | 55 |
| HLA-A*31:01 | 1 | 541 | 550 | 10 | FNFNGLTGTG 8e-06 | 72 |
| HLA-A*24:02 | 1 | 545 | 553 | 9 | GLTGTGVLT 8e-06 | 49 |
| HLA-B*53:01 | 1 | 545 | 553 | 9 | GLTGTGVLT 8e-06 | 54 |
| HLA-A*24:02 | 1 | 546 | 554 | 9 | LTGTGVLTE 8e-06 | 49 |
| HLA-B*44:02 | 1 | 546 | 554 | 9 | LTGTGVLTE 8e-06 | 59 |
| HLA-B*51:01 | 1 | 547 | 556 | 10 | TGTGVLTESN 8e-06 | 79 |
| HLA-A*23:01 | 1 | 549 | 558 | 10 | TGVLTESNKK 8e-06 | 51 |
| HLA-B*40:01 | 1 | 549 | 557 | 9 | TGVLTESNK 8e-06 | 46 |
| HLA-A*23:01 | 1 | 552 | 561 | 10 | LTESNKKFLP 8e-06 | 51 |
| HLA-A*02:01 | 1 | 554 | 563 | 10 | ESNKKFLPFQ 8e-06 | 69 |
| HLA-B*35:01 | 1 | 558 | 567 | 10 | KFLPFQFGR 8e-06 | 54 |
| HLA-A*68:02 | 1 | 560 | 568 | 9 | LPFQFGRD 8e-06 | 69 |
| HLA-B*35:01 | 1 | 561 | 569 | 9 | PFQFGRDI 8e-06 | 54 |
| HLA-B*57:01 | 1 | 561 | 570 | 10 | PFQFGRDIA 8e-06 | 85 |
| HLA-B*58:01 | 1 | 562 | 571 | 10 | FQFGRDIAD 8e-06 | 75 |
| HLA-B*35:01 | 1 | 564 | 573 | 10 | QFGRDIADTT 8e-06 | 54 |
| HLA-A*02:06 | 1 | 565 | 574 | 10 | FGRDIADTTD 8e-06 | 77 |
| HLA-A*68:02 | 1 | 565 | 574 | 10 | FGRDIADTTD 8e-06 | 69 |
| HLA-A*11:01 | 1 | 566 | 575 | 10 | GRDIADTTDA 8e-06 | 51 |
| HLA-A*32:01 | 1 | 567 | 575 | 9 | RDIADTTDA 8e-06 | 55 |
| HLA-A*24:02 | 1 | 568 | 577 | 10 | DIADTTDAVR 8e-06 | 49 |
| HLA-B*15:01 | 1 | 570 | 579 | 10 | ADTTDAVRDP 8e-06 | 68 |
| HLA-B*40:01 | 1 | 570 | 579 | 10 | ADTTDAVRDP 8e-06 | 46 |
| HLA-A*24:02 | 1 | 574 | 583 | 10 | DAVRDPQTL 8e-06 | 49 |
| HLA-A*24:02 | 1 | 577 | 586 | 10 | RDPQTLEILD 8e-06 | 49 |
| HLA-A*26:01 | 1 | 577 | 586 | 10 | RDPQTLEILD 8e-06 | 64 |
| HLA-B*44:02 | 1 | 577 | 586 | 10 | RDPQTLEILD 8e-06 | 59 |
| HLA-B*44:03 | 1 | 577 | 586 | 10 | RDPQTLEILD 8e-06 | 55 |
| HLA-A*32:01 | 1 | 578 | 587 | 10 | DPQTLEILDI 8e-06 | 55 |
| HLA-A*24:02 | 1 | 580 | 589 | 10 | QTLIEDITP 8e-06 | 49 |
| HLA-A*68:01 | 1 | 581 | 590 | 10 | TLEILDITPC 8e-06 | 64 |
| HLA-A*32:01 | 1 | 582 | 591 | 10 | LEILDITPCS 8e-06 | 55 |
| HLA-A*24:02 | 1 | 583 | 591 | 9 | EILDITPCS 8e-06 | 49 |
| HLA-A*02:06 | 1 | 585 | 593 | 9 | LDITPCSF 8e-06 | 77 |
| HLA-A*02:01 | 1 | 586 | 594 | 9 | DITPCSF 8e-06 | 69 |
| HLA-B*08:01 | 1 | 587 | 596 | 10 | ITPCSF 8e-06 | 87 |
| HLA-B*15:01 | 1 | 588 | 596 | 9 | TPCSF 8e-06 | 68 |
| HLA-B*40:01 | 1 | 588 | 596 | 9 | TPCSF 8e-06 | 46 |
| HLA-B*58:01 | 1 | 588 | 596 | 9 | TPCSF 8e-06 | 75 |
| HLA-A*31:01 | 1 | 589 | 598 | 10 | PCSF 8e-06 | 72 |
| HLA-A*33:01 | 1 | 589 | 598 | 10 | PCSF 8e-06 | 77 |
| HLA-A*23:01 | 1 | 590 | 599 | 10 | CSF 8e-06 | 51 |
| HLA-B*53:01 | 1 | 590 | 599 | 10 | CSF 8e-06 | 54 |
| HLA-A*30:02 | 1 | 592 | 601 | 10 | FGG 8e-06 | 90 |
| HLA-A*68:01 | 1 | 592 | 600 | 9 | FGG 8e-06 | 64 |
| HLA-A*68:01 | 1 | 594 | 603 | 10 | GVS 8e-06 | 64 |
| HLA-A*68:02 | 1 | 594 | 603 | 10 | GVS 8e-06 | 69 |
| HLA-A*02:03 | 1 | 595 | 603 | 9 | VSV 8e-06 | 72 |
| HLA-A*24:02 | 1 | 595 | 604 | 10 | VSV 8e-06 | 49 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-A*31:01 | 1 | 595 | 603 | 9 | VSVITPGTN | 8e-06 | 72 |
| HLA-B*07:02 | 1 | 595 | 603 | 9 | VSVITPGTN | 8e-06 | 69 |
| HLA-B*35:01 | 1 | 597 | 606 | 10 | VITPGTNTSN | 8e-06 | 54 |
| HLA-A*11:01 | 1 | 599 | 608 | 10 | TPGTNTSNQV | 8e-06 | 51 |
| HLA-B*44:03 | 1 | 600 | 608 | 9 | PGTNTSNQV | 8e-06 | 55 |
| HLA-A*24:02 | 1 | 601 | 609 | 9 | GTNTSNQVA | 8e-06 | 49 |
| HLA-A*02:03 | 1 | 605 | 614 | 10 | SNQVAVLYQD | 8e-06 | 72 |
| HLA-A*02:06 | 1 | 607 | 616 | 10 | QVAVLYQDVN | 8e-06 | 77 |
| HLA-A*33:01 | 1 | 608 | 617 | 10 | VAVLYQDVNC | 8e-06 | 77 |
| HLA-B*35:01 | 1 | 608 | 617 | 10 | VAVLYQDVNC | 8e-06 | 54 |
| HLA-A*32:01 | 1 | 611 | 619 | 9 | LYQDVNCTE | 8e-06 | 55 |
| HLA-A*02:01 | 1 | 613 | 621 | 9 | QDVNCTEVP | 8e-06 | 69 |
| HLA-B*53:01 | 1 | 613 | 621 | 9 | QDVNCTEVP | 8e-06 | 54 |
| HLA-B*58:01 | 1 | 613 | 621 | 9 | QDVNCTEVP | 8e-06 | 75 |
| HLA-A*02:01 | 1 | 621 | 630 | 10 | PVAIHADQLT | 8e-06 | 69 |
| HLA-A*24:02 | 1 | 622 | 631 | 10 | VAIHADQLTP | 8e-06 | 49 |
| HLA-B*35:01 | 1 | 623 | 632 | 10 | AIHADQLTPT | 8e-06 | 54 |
| HLA-B*44:02 | 1 | 630 | 639 | 10 | TPTWRVYSTG | 8e-06 | 59 |
| HLA-A*02:03 | 1 | 631 | 639 | 9 | PTWRVYSTG | 8e-06 | 72 |
| HLA-A*23:01 | 1 | 632 | 641 | 10 | TWRVYSTGSN | 8e-06 | 51 |
| HLA-A*26:01 | 1 | 632 | 640 | 9 | TWRVYSTGS | 8e-06 | 64 |
| HLA-A*02:06 | 1 | 640 | 648 | 9 | SNVFQTRAG | 8e-06 | 77 |
| HLA-A*03:01 | 1 | 640 | 648 | 9 | SNVFQTRAG | 8e-06 | 66 |
| HLA-A*68:01 | 1 | 642 | 650 | 9 | VFQTRAGCL | 8e-06 | 64 |
| HLA-A*24:02 | 1 | 644 | 653 | 10 | QTRAGCLIGA | 8e-06 | 49 |
| HLA-B*40:01 | 1 | 644 | 653 | 10 | QTRAGCLIGA | 8e-06 | 46 |
| HLA-A*02:03 | 1 | 645 | 654 | 10 | TRAGCLIGAE | 8e-06 | 72 |
| HLA-A*33:01 | 1 | 646 | 654 | 9 | RAGCLIGAE | 8e-06 | 77 |
| HLA-A*24:02 | 1 | 647 | 655 | 9 | AGCLIGAEH | 8e-06 | 49 |
| HLA-A*03:01 | 1 | 650 | 658 | 9 | LIGAEHVNN | 8e-06 | 66 |
| HLA-A*11:01 | 1 | 650 | 659 | 10 | LIGAEHVNNS | 8e-06 | 51 |
| HLA-A*02:03 | 1 | 652 | 661 | 10 | GAEHVNNSYE | 8e-06 | 72 |
| HLA-A*03:01 | 1 | 653 | 662 | 10 | AEHVNNSYEC | 8e-06 | 66 |
| HLA-A*23:01 | 1 | 653 | 661 | 9 | AEHVNNSYE | 8e-06 | 51 |
| HLA-A*02:01 | 1 | 655 | 663 | 9 | HVNNSYECD | 8e-06 | 69 |
| HLA-A*02:03 | 1 | 655 | 663 | 9 | HVNNSYECD | 8e-06 | 72 |
| HLA-A*68:01 | 1 | 658 | 667 | 10 | NSYECDIPIG | 8e-06 | 64 |
| HLA-A*26:01 | 1 | 662 | 671 | 10 | CDIPIGAGIC | 8e-06 | 64 |
| HLA-B*07:02 | 1 | 662 | 671 | 10 | CDIPIGAGIC | 8e-06 | 69 |
| HLA-A*31:01 | 1 | 664 | 673 | 10 | IPIGAGICAS | 8e-06 | 72 |
| HLA-B*07:02 | 1 | 666 | 675 | 10 | IGAGICASYQ | 8e-06 | 69 |
| HLA-B*08:01 | 1 | 666 | 675 | 10 | IGAGICASYQ | 8e-06 | 87 |
| HLA-B*44:02 | 1 | 666 | 675 | 10 | IGAGICASYQ | 8e-06 | 59 |
| HLA-B*07:02 | 1 | 667 | 675 | 9 | GAGICASYQ | 8e-06 | 69 |
| HLA-B*07:02 | 1 | 668 | 677 | 10 | AGICASYQTQ | 8e-06 | 69 |
| HLA-B*44:02 | 1 | 668 | 677 | 10 | AGICASYQTQ | 8e-06 | 59 |
| HLA-B*44:03 | 1 | 668 | 676 | 9 | AGICASYQT | 8e-06 | 55 |
| HLA-A*68:02 | 1 | 669 | 677 | 9 | GICASYQTQ | 8e-06 | 69 |
| HLA-B*51:01 | 1 | 669 | 678 | 10 | GICASYQTQT | 8e-06 | 79 |
| HLA-A*11:01 | 1 | 670 | 678 | 9 | ICASYQTQT | 8e-06 | 51 |
| HLA-A*26:01 | 1 | 670 | 678 | 9 | ICASYQTQT | 8e-06 | 64 |
| HLA-B*53:01 | 1 | 670 | 679 | 10 | ICASYQTQTN | 8e-06 | 54 |
| HLA-A*26:01 | 1 | 671 | 679 | 9 | CASYQTQTN | 8e-06 | 64 |
| HLA-B*53:01 | 1 | 671 | 680 | 10 | CASYQTQTN | 8e-06 | 54 |
| HLA-A*23:01 | 1 | 677 | 686 | 10 | QTNSPRRARS | 8e-06 | 51 |
| HLA-A*11:01 | 1 | 679 | 688 | 10 | NSPRRARSVA | 8e-06 | 51 |
| HLA-B*35:01 | 1 | 682 | 691 | 10 | RRARSVASQS | 8e-06 | 54 |
| HLA-B*44:03 | 1 | 690 | 698 | 9 | QSIIAYTMS | 8e-06 | 55 |
| HLA-A*23:01 | 1 | 691 | 700 | 10 | SIIAYTMSLG | 8e-06 | 51 |
| HLA-A*02:06 | 1 | 694 | 702 | 9 | AYTMSLGAE | 8e-06 | 77 |
| HLA-B*07:02 | 1 | 694 | 703 | 10 | AYTMSLGAEN | 8e-06 | 69 |
| HLA-B*08:01 | 1 | 694 | 703 | 10 | AYTMSLGAEN | 8e-06 | 87 |
| HLA-B*40:01 | 1 | 695 | 704 | 10 | YTMSLGAENS | 8e-06 | 46 |
| HLA-A*24:02 | 1 | 696 | 704 | 9 | TMSLGAENS | 8e-06 | 49 |
| HLA-B*44:03 | 1 | 699 | 708 | 10 | LGAENSVAYS | 8e-06 | 55 |
| HLA-A*68:01 | 1 | 700 | 709 | 10 | GAENSVAYS | 8e-06 | 64 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-A*02:01 | 1 | 701 | 709 | 9 | AENSVAYSN 8e-06 | 69 |
| HLA-B*08:01 | 1 | 701 | 710 | 10 | AENSVAYSNN 8e-06 | 87 |
| HLA-B*44:02 | 1 | 702 | 711 | 10 | ENSVAYSNNS 8e-06 | 59 |
| HLA-B*53:01 | 1 | 707 | 716 | 10 | YSNNSIAIPT 8e-06 | 54 |
| HLA-A*24:02 | 1 | 708 | 716 | 9 | SNNSIAIPT 8e-06 | 49 |
| HLA-A*26:01 | 1 | 709 | 717 | 9 | NNSIAIPTN 8e-06 | 64 |
| HLA-B*53:01 | 1 | 713 | 721 | 9 | AIPTNFTIS 8e-06 | 54 |
| HLA-B*07:02 | 1 | 716 | 725 | 10 | TNFTISVTTE 8e-06 | 69 |
| HLA-B*44:02 | 1 | 717 | 725 | 9 | NFTISVTTE 8e-06 | 59 |
| HLA-B*44:02 | 1 | 719 | 728 | 10 | TISVTTEILP 8e-06 | 59 |
| HLA-B*35:01 | 1 | 720 | 729 | 10 | ISVTTEILPV 8e-06 | 54 |
| HLA-B*44:02 | 1 | 720 | 729 | 10 | ISVTTEILPV 8e-06 | 59 |
| HLA-B*44:03 | 1 | 720 | 728 | 9 | ISVTTEILP 8e-06 | 55 |
| HLA-A*11:01 | 1 | 727 | 736 | 10 | LPVSMTKTSV 8e-06 | 51 |
| HLA-A*02:03 | 1 | 728 | 737 | 10 | PVSMTKTSVD 8e-06 | 72 |
| HLA-A*68:01 | 1 | 729 | 738 | 10 | VSMTKTSVDC 8e-06 | 64 |
| HLA-B*53:01 | 1 | 729 | 737 | 9 | VSMTKTSVD 8e-06 | 54 |
| HLA-A*68:01 | 1 | 730 | 738 | 9 | SMTKTSVDC 8e-06 | 64 |
| HLA-B*44:02 | 1 | 731 | 739 | 9 | MTKTSVDC 8e-06 | 59 |
| HLA-A*02:03 | 1 | 735 | 744 | 10 | SVDCMYICTG 8e-06 | 72 |
| HLA-A*11:01 | 1 | 739 | 747 | 9 | TMYICGDST 8e-06 | 51 |
| HLA-A*11:01 | 1 | 740 | 749 | 10 | MYICGDSTEC 8e-06 | 51 |
| HLA-B*40:01 | 1 | 740 | 749 | 10 | MYICGDSTEC 8e-06 | 46 |
| HLA-A*24:02 | 1 | 741 | 749 | 9 | YICGDSTEC 8e-06 | 49 |
| HLA-A*33:01 | 1 | 741 | 750 | 10 | YICGDSTEC 8e-06 | 77 |
| HLA-B*51:01 | 1 | 741 | 750 | 10 | YICGDSTEC 8e-06 | 79 |
| HLA-A*02:01 | 1 | 742 | 750 | 9 | ICGDSTEC 8e-06 | 69 |
| HLA-B*51:01 | 1 | 742 | 750 | 9 | ICGDSTEC 8e-06 | 79 |
| HLA-A*31:01 | 1 | 744 | 752 | 9 | GDSTECNL 8e-06 | 72 |
| HLA-A*02:03 | 1 | 749 | 758 | 10 | CSNLLLQYGS 8e-06 | 72 |
| HLA-A*11:01 | 1 | 749 | 757 | 9 | CSNLLLQYG 8e-06 | 51 |
| HLA-A*11:01 | 1 | 749 | 758 | 10 | CSNLLLQYGS 8e-06 | 51 |
| HLA-A*23:01 | 1 | 750 | 758 | 9 | SNLLLQYGS 8e-06 | 51 |
| HLA-A*32:01 | 1 | 751 | 760 | 10 | NLLLQYGSFC 8e-06 | 55 |
| HLA-A*26:01 | 1 | 752 | 760 | 9 | LLLQYGSFC 8e-06 | 64 |
| HLA-A*33:01 | 1 | 756 | 764 | 9 | YGSFCTQLN 8e-06 | 77 |
| HLA-B*51:01 | 1 | 760 | 769 | 10 | CTQLNRALTG 8e-06 | 79 |
| HLA-A*24:02 | 1 | 764 | 773 | 10 | NRALTGIAVE 8e-06 | 49 |
| HLA-A*23:01 | 1 | 765 | 773 | 9 | RALTGIAVE 8e-06 | 51 |
| HLA-B*35:01 | 1 | 767 | 776 | 10 | LTGIAVEQDK 8e-06 | 54 |
| HLA-A*31:01 | 1 | 768 | 777 | 10 | TGIAVEQDKN 8e-06 | 72 |
| HLA-B*51:01 | 1 | 768 | 777 | 10 | TGIAVEQDKN 8e-06 | 79 |
| HLA-A*31:01 | 1 | 770 | 778 | 9 | IAVEQDKNT 8e-06 | 72 |
| HLA-B*44:03 | 1 | 770 | 779 | 10 | IAVEQDKNTQ 8e-06 | 55 |
| HLA-A*23:01 | 1 | 774 | 783 | 10 | QDKNTQEVFA 8e-06 | 51 |
| HLA-B*58:01 | 1 | 775 | 784 | 10 | DKNTQEVFAQ 8e-06 | 75 |
| HLA-A*23:01 | 1 | 776 | 784 | 9 | KNTQEVFAQ 8e-06 | 51 |
| HLA-A*68:02 | 1 | 776 | 784 | 9 | KNTQEVFAQ 8e-06 | 69 |
| HLA-A*23:01 | 1 | 782 | 791 | 10 | FAQVKQIYKT 8e-06 | 51 |
| HLA-B*35:01 | 1 | 785 | 794 | 10 | VKQIYKTPPI 8e-06 | 54 |
| HLA-B*44:03 | 1 | 787 | 796 | 10 | QIYKTPPIKD 8e-06 | 55 |
| HLA-A*02:06 | 1 | 788 | 796 | 9 | IYKTPPIKD 8e-06 | 77 |
| HLA-B*40:01 | 1 | 789 | 798 | 10 | YKTPPIKDFG 8e-06 | 46 |
| HLA-A*01:01 | 1 | 791 | 799 | 9 | TPPIKDFGG 8e-06 | 90 |
| HLA-A*11:01 | 1 | 794 | 803 | 10 | IKDFGGFNFS 8e-06 | 51 |
| HLA-A*02:01 | 1 | 796 | 804 | 9 | DFGGFNFSQ 8e-06 | 69 |
| HLA-A*03:01 | 1 | 796 | 805 | 10 | DFGGFNFSQI 8e-06 | 66 |
| HLA-A*32:01 | 1 | 796 | 804 | 9 | DFGGFNFSQ 8e-06 | 55 |
| HLA-B*07:02 | 1 | 796 | 804 | 9 | DFGGFNFSQ 8e-06 | 69 |
| HLA-B*15:01 | 1 | 796 | 804 | 9 | DFGGFNFSQ 8e-06 | 68 |
| HLA-A*03:01 | 1 | 797 | 805 | 9 | FGGFNFSQI 8e-06 | 66 |
| HLA-A*11:01 | 1 | 797 | 806 | 10 | FGGFNFSQIL 8e-06 | 51 |
| HLA-B*53:01 | 1 | 798 | 807 | 10 | GGFNFSQILP 8e-06 | 54 |
| HLA-A*02:01 | 1 | 801 | 810 | 10 | NFSQILPDPS 8e-06 | 69 |
| HLA-B*07:02 | 1 | 801 | 810 | 10 | NFSQILPDPS 8e-06 | 69 |
| HLA-B*40:01 | 1 | 801 | 809 | 9 | NFSQILPDP 8e-06 | 46 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-A*23:01 | 1 | 804 | 813 | 10 | QILPDPSPKS 8e-06 | 51 |
| HLA-A*02:06 | 1 | 807 | 815 | 9 | PDPSKPSKR 8e-06 | 77 |
| HLA-B*15:01 | 1 | 810 | 819 | 10 | SKPSKRSFIE 8e-06 | 68 |
| HLA-A*32:01 | 1 | 811 | 820 | 10 | KPSKRSFIED 8e-06 | 55 |
| HLA-A*68:02 | 1 | 811 | 820 | 10 | KPSKRSFIED 8e-06 | 69 |
| HLA-B*57:01 | 1 | 818 | 827 | 10 | IEDLLFNKVT 8e-06 | 85 |
| HLA-A*03:01 | 1 | 819 | 827 | 9 | EDLLFNKVT 8e-06 | 66 |
| HLA-A*24:02 | 1 | 821 | 830 | 10 | LLFNKVTLAD 8e-06 | 49 |
| HLA-B*40:01 | 1 | 825 | 834 | 10 | KVTLADAGFI 8e-06 | 46 |
| HLA-A*02:03 | 1 | 830 | 838 | 9 | DAGFIKQYG 8e-06 | 72 |
| HLA-A*68:02 | 1 | 830 | 839 | 10 | DAGFIKQYGD 8e-06 | 69 |
| HLA-B*58:01 | 1 | 830 | 839 | 10 | DAGFIKQYGD 8e-06 | 75 |
| HLA-A*01:01 | 1 | 831 | 839 | 9 | AGFIKQYGD 8e-06 | 90 |
| HLA-B*35:01 | 1 | 835 | 844 | 10 | KQYGDCLGDI 8e-06 | 54 |
| HLA-B*44:02 | 1 | 836 | 845 | 10 | QYGDCLGDIA 8e-06 | 59 |
| HLA-A*33:01 | 1 | 837 | 845 | 9 | YGDCLGDIA 8e-06 | 77 |
| HLA-B*44:03 | 1 | 837 | 846 | 10 | YGDCLGDIAA 8e-06 | 55 |
| HLA-A*03:01 | 1 | 838 | 846 | 9 | GDCLGDIAA 8e-06 | 66 |
| HLA-A*11:01 | 1 | 838 | 846 | 9 | GDCLGDIAA 8e-06 | 51 |
| HLA-A*68:01 | 1 | 838 | 846 | 9 | GDCLGDIAA 8e-06 | 64 |
| HLA-B*15:01 | 1 | 838 | 846 | 9 | GDCLGDIAA 8e-06 | 68 |
| HLA-B*53:01 | 1 | 838 | 846 | 9 | GDCLGDIAA 8e-06 | 54 |
| HLA-A*02:03 | 1 | 839 | 848 | 10 | DCLGDIAARD 8e-06 | 72 |
| HLA-A*30:01 | 1 | 839 | 848 | 10 | DCLGDIAARD 8e-06 | 91 |
| HLA-A*32:01 | 1 | 840 | 848 | 9 | CLGDIAARD 8e-06 | 55 |
| HLA-A*02:03 | 1 | 847 | 856 | 10 | RDLICAQKFN 8e-06 | 72 |
| HLA-B*15:01 | 1 | 847 | 856 | 10 | RDLICAQKFN 8e-06 | 68 |
| HLA-A*26:01 | 1 | 848 | 857 | 10 | DLICAQKFNG 8e-06 | 64 |
| HLA-B*15:01 | 1 | 849 | 857 | 9 | LICAQKFNG 8e-06 | 68 |
| HLA-A*03:01 | 1 | 851 | 859 | 9 | CAQKFNGLT 8e-06 | 66 |
| HLA-A*23:01 | 1 | 855 | 863 | 9 | FNGLTVLPP 8e-06 | 51 |
| HLA-B*35:01 | 1 | 855 | 863 | 9 | FNGLTVLPP 8e-06 | 54 |
| HLA-B*07:02 | 1 | 858 | 867 | 10 | LTVLPPLLTD 8e-06 | 69 |
| HLA-B*40:01 | 1 | 861 | 870 | 10 | LPPLLTDEMI 8e-06 | 46 |
| HLA-A*02:03 | 1 | 862 | 870 | 9 | PPLLTDEMI 8e-06 | 72 |
| HLA-A*30:01 | 1 | 862 | 871 | 10 | PPLLTDEMIA 8e-06 | 91 |
| HLA-B*40:01 | 1 | 864 | 872 | 9 | LLTDEMIAQ 8e-06 | 46 |
| HLA-A*68:01 | 1 | 866 | 875 | 10 | TDEMIAQYTS 8e-06 | 64 |
| HLA-B*07:02 | 1 | 866 | 875 | 10 | TDEMIAQYTS 8e-06 | 69 |
| HLA-A*02:03 | 1 | 867 | 875 | 9 | DEMIAQYTS 8e-06 | 72 |
| HLA-A*24:02 | 1 | 867 | 876 | 10 | DEMIAQY TSA 8e-06 | 49 |
| HLA-B*44:03 | 1 | 873 | 881 | 9 | YTSALLAGT 8e-06 | 55 |
| HLA-A*03:01 | 1 | 874 | 883 | 10 | TSALLAGTIT 8e-06 | 66 |
| HLA-A*11:01 | 1 | 874 | 883 | 10 | TSALLAGTIT 8e-06 | 51 |
| HLA-B*07:02 | 1 | 878 | 887 | 10 | LAGTITSGWT 8e-06 | 69 |
| HLA-B*08:01 | 1 | 878 | 887 | 10 | LAGTITSGWT 8e-06 | 87 |
| HLA-A*32:01 | 1 | 883 | 891 | 9 | TSGWTFGAG 8e-06 | 55 |
| HLA-A*68:01 | 1 | 883 | 891 | 9 | TSGWTFGAG 8e-06 | 64 |
| HLA-B*40:01 | 1 | 883 | 892 | 10 | TSGWTFGAGA 8e-06 | 46 |
| HLA-B*44:02 | 1 | 885 | 893 | 9 | GWTFGAGAA 8e-06 | 59 |
| HLA-A*32:01 | 1 | 887 | 895 | 9 | TFGAGAALQ 8e-06 | 55 |
| HLA-B*40:01 | 1 | 893 | 901 | 9 | ALQIPFAMQ 8e-06 | 46 |
| HLA-A*31:01 | 1 | 898 | 907 | 10 | FAMQMAYRFN 8e-06 | 72 |
| HLA-A*32:01 | 1 | 901 | 910 | 10 | QMAYRFNGIG 8e-06 | 55 |
| HLA-B*44:02 | 1 | 905 | 914 | 10 | RFNGIGVTQN 8e-06 | 59 |
| HLA-A*11:01 | 1 | 906 | 915 | 10 | FNGIGVTQNV 8e-06 | 51 |
| HLA-A*68:01 | 1 | 906 | 914 | 9 | FNGIGVTQN 8e-06 | 64 |
| HLA-A*02:01 | 1 | 910 | 919 | 10 | GVTQNVLYEN 8e-06 | 69 |
| HLA-A*24:02 | 1 | 917 | 925 | 9 | YENQKLIAN 8e-06 | 49 |
| HLA-A*32:01 | 1 | 917 | 926 | 10 | YENQKLIANQ 8e-06 | 55 |
| HLA-A*23:01 | 1 | 918 | 926 | 9 | ENQKLIANQ 8e-06 | 51 |
| HLA-A*32:01 | 1 | 918 | 926 | 9 | ENQKLIANQ 8e-06 | 55 |
| HLA-A*26:01 | 1 | 920 | 929 | 10 | QKLIANQFNS 8e-06 | 64 |
| HLA-B*44:02 | 1 | 920 | 929 | 10 | QKLIANQFNS 8e-06 | 59 |
| HLA-B*53:01 | 1 | 928 | 937 | 10 | NSAIGKIQDS 8e-06 | 54 |
| HLA-A*24:02 | 1 | 929 | 937 | 9 | SAIGKIQDS 8e-06 | 49 |

| | | | | | | |
|-------------|---|------|------|----|-------------------|----|
| HLA-B*44:03 | 1 | 930 | 939 | 10 | AIGKIQDSL 8e-06 | 55 |
| HLA-A*31:01 | 1 | 932 | 940 | 9 | GKIQDSLSS 8e-06 | 72 |
| HLA-B*53:01 | 1 | 934 | 943 | 10 | IQDSLSSSTAS 8e-06 | 54 |
| HLA-A*33:01 | 1 | 937 | 946 | 10 | SLSSTASALG 8e-06 | 77 |
| HLA-B*40:01 | 1 | 937 | 946 | 10 | SLSSTASALG 8e-06 | 46 |
| HLA-A*11:01 | 1 | 938 | 946 | 9 | LSSTASALG 8e-06 | 51 |
| HLA-B*07:02 | 1 | 941 | 950 | 10 | TASALGKLQD 8e-06 | 69 |
| HLA-A*33:01 | 1 | 942 | 950 | 9 | ASALGKLQD 8e-06 | 77 |
| HLA-A*32:01 | 1 | 946 | 954 | 9 | GKLQDVVNQ 8e-06 | 55 |
| HLA-B*07:02 | 1 | 946 | 954 | 9 | GKLQDVVNQ 8e-06 | 69 |
| HLA-A*68:01 | 1 | 952 | 961 | 10 | VNQAQALNT 8e-06 | 64 |
| HLA-B*44:03 | 1 | 952 | 960 | 9 | VNQAQALN 8e-06 | 55 |
| HLA-B*40:01 | 1 | 959 | 967 | 9 | LNTLVKQLS 8e-06 | 46 |
| HLA-B*44:03 | 1 | 959 | 967 | 9 | LNTLVKQLS 8e-06 | 55 |
| HLA-B*44:03 | 1 | 961 | 969 | 9 | TLVKQLSSN 8e-06 | 55 |
| HLA-B*44:03 | 1 | 963 | 971 | 9 | VKQLSSNFG 8e-06 | 55 |
| HLA-A*11:01 | 1 | 965 | 974 | 10 | QLSSNFGAIS 8e-06 | 51 |
| HLA-A*32:01 | 1 | 965 | 974 | 10 | QLSSNFGAIS 8e-06 | 55 |
| HLA-B*44:02 | 1 | 966 | 974 | 9 | LSSNFGAIS 8e-06 | 59 |
| HLA-A*02:03 | 1 | 970 | 978 | 9 | FGAISSVLN 8e-06 | 72 |
| HLA-A*31:01 | 1 | 970 | 978 | 9 | FGAISSVLN 8e-06 | 72 |
| HLA-A*31:01 | 1 | 971 | 979 | 9 | GAISSVLND 8e-06 | 72 |
| HLA-B*44:02 | 1 | 971 | 979 | 9 | GAISSVLND 8e-06 | 59 |
| HLA-A*32:01 | 1 | 973 | 982 | 10 | ISSVLNDILS 8e-06 | 55 |
| HLA-B*44:03 | 1 | 974 | 982 | 9 | SSVLNDILS 8e-06 | 55 |
| HLA-B*44:03 | 1 | 976 | 985 | 10 | VLNDILSRLD 8e-06 | 55 |
| HLA-B*53:01 | 1 | 976 | 985 | 10 | VLNDILSRLD 8e-06 | 54 |
| HLA-A*02:03 | 1 | 977 | 986 | 10 | LNDILSRLDK 8e-06 | 72 |
| HLA-A*02:06 | 1 | 977 | 986 | 10 | LNDILSRLDK 8e-06 | 77 |
| HLA-B*44:02 | 1 | 980 | 989 | 10 | ILSRLDKVEA 8e-06 | 59 |
| HLA-A*23:01 | 1 | 983 | 992 | 10 | RLDKVEAEVQ 8e-06 | 51 |
| HLA-A*24:02 | 1 | 983 | 992 | 10 | RLDKVEAEVQ 8e-06 | 49 |
| HLA-A*03:01 | 1 | 984 | 992 | 9 | LDKVEAEVQ 8e-06 | 66 |
| HLA-A*31:01 | 1 | 984 | 992 | 9 | LDKVEAEVQ 8e-06 | 72 |
| HLA-B*53:01 | 1 | 984 | 992 | 9 | LDKVEAEVQ 8e-06 | 54 |
| HLA-B*44:03 | 1 | 985 | 994 | 10 | DKVEAEVQID 8e-06 | 55 |
| HLA-A*03:01 | 1 | 986 | 994 | 9 | KVEAEVQID 8e-06 | 66 |
| HLA-A*68:01 | 1 | 989 | 998 | 10 | AEVQIDRLIT 8e-06 | 64 |
| HLA-A*32:01 | 1 | 994 | 1003 | 10 | DRLITGRLQS 8e-06 | 55 |
| HLA-B*58:01 | 1 | 994 | 1002 | 9 | DRLITGRLQ 8e-06 | 75 |
| HLA-B*44:03 | 1 | 997 | 1005 | 9 | ITGRLQSLQ 8e-06 | 55 |
| HLA-B*53:01 | 1 | 1011 | 1020 | 10 | QLIRAAEIRA 8e-06 | 54 |
| HLA-A*32:01 | 1 | 1012 | 1021 | 10 | LIRAAEIRAS 8e-06 | 55 |
| HLA-A*11:01 | 1 | 1013 | 1021 | 9 | IRAAEIRAS 8e-06 | 51 |
| HLA-A*03:01 | 1 | 1018 | 1027 | 10 | IRASANLAAT 8e-06 | 66 |
| HLA-B*35:01 | 1 | 1018 | 1027 | 10 | IRASANLAAT 8e-06 | 54 |
| HLA-A*32:01 | 1 | 1021 | 1030 | 10 | SANLAATKMS 8e-06 | 55 |
| HLA-B*44:03 | 1 | 1021 | 1030 | 10 | SANLAATKMS 8e-06 | 55 |
| HLA-B*07:02 | 1 | 1022 | 1030 | 9 | ANLAATKMS 8e-06 | 69 |
| HLA-B*51:01 | 1 | 1022 | 1031 | 10 | ANLAATKMSE 8e-06 | 79 |
| HLA-A*32:01 | 1 | 1027 | 1036 | 10 | TKMSECVLGQ 8e-06 | 55 |
| HLA-A*68:02 | 1 | 1027 | 1035 | 9 | TKMSECVLG 8e-06 | 69 |
| HLA-A*68:01 | 1 | 1028 | 1037 | 10 | KMSECVLGQS 8e-06 | 64 |
| HLA-A*68:02 | 1 | 1028 | 1036 | 9 | KMSECVLGQ 8e-06 | 69 |
| HLA-A*23:01 | 1 | 1029 | 1038 | 10 | MSECVLGQSK 8e-06 | 51 |
| HLA-B*08:01 | 1 | 1029 | 1037 | 9 | MSECVLGQS 8e-06 | 87 |
| HLA-B*40:01 | 1 | 1031 | 1039 | 9 | ECVLGQSKR 8e-06 | 46 |
| HLA-A*01:01 | 1 | 1035 | 1044 | 10 | GQSKRVDFCG 8e-06 | 90 |
| HLA-A*02:03 | 1 | 1035 | 1044 | 10 | GQSKRVDFCG 8e-06 | 72 |
| HLA-B*44:02 | 1 | 1035 | 1044 | 10 | GQSKRVDFCG 8e-06 | 59 |
| HLA-B*35:01 | 1 | 1036 | 1045 | 10 | QSKRVDFCGK 8e-06 | 54 |
| HLA-B*44:02 | 1 | 1037 | 1046 | 10 | SKRVDFCGKG 8e-06 | 59 |
| HLA-B*40:01 | 1 | 1043 | 1052 | 10 | CGKGYHLMSF 8e-06 | 46 |
| HLA-A*02:06 | 1 | 1046 | 1054 | 9 | GYHLMSFPQ 8e-06 | 77 |
| HLA-B*51:01 | 1 | 1046 | 1054 | 9 | GYHLMSFPQ 8e-06 | 79 |
| HLA-B*44:03 | 1 | 1050 | 1059 | 10 | MSFPQSAPHG 8e-06 | 55 |

| | | | | | | |
|-------------|---|------|------|----|-------------------|----|
| HLA-B*44:02 | 1 | 1060 | 1069 | 10 | VVFLHVITYVP 8e-06 | 59 |
| HLA-B*44:02 | 1 | 1062 | 1070 | 9 | FLHVITYVPA 8e-06 | 59 |
| HLA-B*44:03 | 1 | 1063 | 1072 | 10 | LHVITYVPAQE 8e-06 | 55 |
| HLA-A*23:01 | 1 | 1068 | 1077 | 10 | VPAQEKNFTT 8e-06 | 51 |
| HLA-A*68:01 | 1 | 1069 | 1078 | 10 | PAQEKNFTTA 8e-06 | 64 |
| HLA-B*40:01 | 1 | 1069 | 1077 | 9 | PAQEKNFTT 8e-06 | 46 |
| HLA-A*03:01 | 1 | 1072 | 1081 | 10 | EKNFTTAPAI 8e-06 | 66 |
| HLA-B*57:01 | 1 | 1072 | 1080 | 9 | EKNFTTAPA 8e-06 | 85 |
| HLA-A*02:03 | 1 | 1074 | 1083 | 10 | NFTTAPAICH 8e-06 | 72 |
| HLA-B*44:03 | 1 | 1074 | 1082 | 9 | NFTTAPAIC 8e-06 | 55 |
| HLA-B*07:02 | 1 | 1076 | 1085 | 10 | TTAPAICHDG 8e-06 | 69 |
| HLA-B*15:01 | 1 | 1076 | 1085 | 10 | TTAPAICHDG 8e-06 | 68 |
| HLA-A*68:01 | 1 | 1077 | 1085 | 9 | TAPAICHDG 8e-06 | 64 |
| HLA-B*40:01 | 1 | 1078 | 1086 | 9 | APAICHDGK 8e-06 | 46 |
| HLA-B*40:01 | 1 | 1082 | 1091 | 10 | CHDGKAHFPR 8e-06 | 46 |
| HLA-A*02:03 | 1 | 1083 | 1091 | 9 | HDGKAHFPR 8e-06 | 72 |
| HLA-B*51:01 | 1 | 1083 | 1092 | 10 | HDGKAHFPRE 8e-06 | 79 |
| HLA-B*58:01 | 1 | 1083 | 1092 | 10 | HDGKAHFPRE 8e-06 | 75 |
| HLA-B*44:03 | 1 | 1084 | 1093 | 10 | DGKAHFPRREG 8e-06 | 55 |
| HLA-A*01:01 | 1 | 1085 | 1093 | 9 | GKAHFPRREG 8e-06 | 90 |
| HLA-A*31:01 | 1 | 1085 | 1093 | 9 | GKAHFPRREG 8e-06 | 72 |
| HLA-A*68:01 | 1 | 1085 | 1093 | 9 | GKAHFPRREG 8e-06 | 64 |
| HLA-B*44:02 | 1 | 1089 | 1098 | 10 | FPREGVFVSN 8e-06 | 59 |
| HLA-B*44:03 | 1 | 1089 | 1098 | 10 | FPREGVFVSN 8e-06 | 55 |
| HLA-A*01:01 | 1 | 1090 | 1098 | 9 | PREGVFVSN 8e-06 | 90 |
| HLA-B*08:01 | 1 | 1090 | 1098 | 9 | PREGVFVSN 8e-06 | 87 |
| HLA-A*03:01 | 1 | 1091 | 1099 | 9 | REGVFVSNNG 8e-06 | 66 |
| HLA-A*03:01 | 1 | 1091 | 1100 | 10 | REGVFVSNGT 8e-06 | 66 |
| HLA-A*68:01 | 1 | 1091 | 1099 | 9 | REGVFVSNNG 8e-06 | 64 |
| HLA-B*58:01 | 1 | 1091 | 1099 | 9 | REGVFVSNNG 8e-06 | 75 |
| HLA-A*24:02 | 1 | 1096 | 1105 | 10 | VSNGTHWFVT 8e-06 | 49 |
| HLA-A*23:01 | 1 | 1099 | 1108 | 10 | GTHWFVTQRN 8e-06 | 51 |
| HLA-A*24:02 | 1 | 1099 | 1108 | 10 | GTHWFVTQRN 8e-06 | 49 |
| HLA-B*40:01 | 1 | 1100 | 1108 | 9 | THWFVTQRN 8e-06 | 46 |
| HLA-A*02:01 | 1 | 1102 | 1111 | 10 | WFVTQRNFYE 8e-06 | 69 |
| HLA-A*32:01 | 1 | 1102 | 1111 | 10 | WFVTQRNFYE 8e-06 | 55 |
| HLA-B*58:01 | 1 | 1102 | 1111 | 10 | WFVTQRNFYE 8e-06 | 75 |
| HLA-A*24:02 | 1 | 1105 | 1113 | 9 | TQRNFYEPQ 8e-06 | 49 |
| HLA-A*68:01 | 1 | 1110 | 1119 | 10 | YEPQIITTDN 8e-06 | 64 |
| HLA-A*68:02 | 1 | 1110 | 1119 | 10 | YEPQIITTDN 8e-06 | 69 |
| HLA-B*58:01 | 1 | 1110 | 1119 | 10 | YEPQIITTDN 8e-06 | 75 |
| HLA-B*07:02 | 1 | 1115 | 1124 | 10 | ITTDNTFVSG 8e-06 | 69 |
| HLA-B*53:01 | 1 | 1115 | 1124 | 10 | ITTDNTFVSG 8e-06 | 54 |
| HLA-B*44:02 | 1 | 1116 | 1125 | 10 | TTDNTFVSGN 8e-06 | 59 |
| HLA-A*02:03 | 1 | 1117 | 1126 | 10 | TDNTFVSGNC 8e-06 | 72 |
| HLA-A*11:01 | 1 | 1117 | 1126 | 10 | TDNTFVSGNC 8e-06 | 51 |
| HLA-B*08:01 | 1 | 1117 | 1125 | 9 | TDNTFVSGN 8e-06 | 87 |
| HLA-A*31:01 | 1 | 1118 | 1126 | 9 | DNTFVSGNC 8e-06 | 72 |
| HLA-B*15:01 | 1 | 1119 | 1127 | 9 | NTFVSGNCD 8e-06 | 68 |
| HLA-B*40:01 | 1 | 1119 | 1128 | 10 | NTFVSGNCDV 8e-06 | 46 |
| HLA-B*44:03 | 1 | 1121 | 1130 | 10 | FVSGNCDVVI 8e-06 | 55 |
| HLA-A*26:01 | 1 | 1122 | 1130 | 9 | VSGNCDVVI 8e-06 | 64 |
| HLA-A*68:01 | 1 | 1122 | 1130 | 9 | VSGNCDVVI 8e-06 | 64 |
| HLA-A*32:01 | 1 | 1125 | 1133 | 9 | NCDVIGIV 8e-06 | 55 |
| HLA-B*15:01 | 1 | 1125 | 1133 | 9 | NCDVIGIV 8e-06 | 68 |
| HLA-B*44:02 | 1 | 1126 | 1134 | 9 | CDVIGIVN 8e-06 | 59 |
| HLA-A*33:01 | 1 | 1130 | 1139 | 10 | IGIVNNTVYD 8e-06 | 77 |
| HLA-A*31:01 | 1 | 1131 | 1139 | 9 | GIVNNTVYD 8e-06 | 72 |
| HLA-A*32:01 | 1 | 1131 | 1140 | 10 | GIVNNTVYDP 8e-06 | 55 |
| HLA-B*51:01 | 1 | 1131 | 1140 | 10 | GIVNNTVYDP 8e-06 | 79 |
| HLA-A*24:02 | 1 | 1132 | 1140 | 9 | IVNNTVYDP 8e-06 | 49 |
| HLA-B*44:03 | 1 | 1134 | 1142 | 9 | NNTVYDPLQ 8e-06 | 55 |
| HLA-A*23:01 | 1 | 1138 | 1146 | 9 | YDPLQPELD 8e-06 | 51 |
| HLA-A*68:02 | 1 | 1138 | 1147 | 10 | YDPLQPELDS 8e-06 | 69 |
| HLA-B*40:01 | 1 | 1138 | 1147 | 10 | YDPLQPELDS 8e-06 | 46 |
| HLA-B*58:01 | 1 | 1138 | 1147 | 10 | YDPLQPELDS 8e-06 | 75 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|-------|----|
| HLA-A*02:06 | 1 | 1139 | 1147 | 9 | DPLQPELDS | 8e-06 | 77 |
| HLA-A*24:02 | 1 | 1139 | 1147 | 9 | DPLQPELDS | 8e-06 | 49 |
| HLA-B*44:02 | 1 | 1139 | 1147 | 9 | DPLQPELDS | 8e-06 | 59 |
| HLA-A*30:01 | 1 | 1144 | 1153 | 10 | ELDSFKEELD | 8e-06 | 91 |
| HLA-B*57:01 | 1 | 1149 | 1158 | 10 | KEELDKYFKN | 8e-06 | 85 |
| HLA-B*07:02 | 1 | 1150 | 1158 | 9 | EELDKYFKN | 8e-06 | 69 |
| HLA-A*03:01 | 1 | 1152 | 1161 | 10 | LDKYFKNHTS | 8e-06 | 66 |
| HLA-B*08:01 | 1 | 1156 | 1165 | 10 | FKNHTSPDVD | 8e-06 | 87 |
| HLA-A*02:06 | 1 | 1158 | 1167 | 10 | NHTSPDVDLG | 8e-06 | 77 |
| HLA-A*31:01 | 1 | 1159 | 1168 | 10 | HTSPDVDLGD | 8e-06 | 72 |
| HLA-A*32:01 | 1 | 1159 | 1168 | 10 | HTSPDVDLGD | 8e-06 | 55 |
| HLA-A*03:01 | 1 | 1161 | 1170 | 10 | SPDVDLGDIS | 8e-06 | 66 |
| HLA-B*15:01 | 1 | 1164 | 1173 | 10 | VDLGDISGIN | 8e-06 | 68 |
| HLA-A*11:01 | 1 | 1166 | 1175 | 10 | LGDISGINAS | 8e-06 | 51 |
| HLA-B*44:03 | 1 | 1168 | 1177 | 10 | DISGINASVV | 8e-06 | 55 |
| HLA-A*68:02 | 1 | 1176 | 1184 | 9 | VVNIQKEID | 8e-06 | 69 |
| HLA-B*44:02 | 1 | 1176 | 1185 | 10 | VVNIQKEIDR | 8e-06 | 59 |
| HLA-B*44:03 | 1 | 1176 | 1185 | 10 | VVNIQKEIDR | 8e-06 | 55 |
| HLA-B*08:01 | 1 | 1183 | 1192 | 10 | IDRLNEVAKN | 8e-06 | 87 |
| HLA-A*23:01 | 1 | 1185 | 1194 | 10 | RLNEVAKNLN | 8e-06 | 51 |
| HLA-A*24:02 | 1 | 1185 | 1194 | 10 | RLNEVAKNLN | 8e-06 | 49 |
| HLA-B*57:01 | 1 | 1187 | 1195 | 9 | NEVAKNLNE | 8e-06 | 85 |
| HLA-A*24:02 | 1 | 1188 | 1196 | 9 | EVAKNLNES | 8e-06 | 49 |
| HLA-A*01:01 | 1 | 1191 | 1199 | 9 | KNLNESLID | 8e-06 | 90 |
| HLA-A*23:01 | 1 | 1192 | 1201 | 10 | NLNESLIDLQ | 8e-06 | 51 |
| HLA-A*03:01 | 1 | 1195 | 1204 | 10 | ESLIDLQELG | 8e-06 | 66 |
| HLA-A*24:02 | 1 | 1199 | 1208 | 10 | DLQELGKYEQ | 8e-06 | 49 |
| HLA-B*57:01 | 1 | 1199 | 1207 | 9 | DLQELGKYE | 8e-06 | 85 |
| HLA-A*02:03 | 1 | 1200 | 1208 | 9 | LQELGKYEQ | 8e-06 | 72 |
| HLA-A*03:01 | 1 | 1204 | 1213 | 10 | GKYEQYIKWP | 8e-06 | 66 |
| HLA-A*11:01 | 1 | 1205 | 1213 | 9 | KYEQYIKWP | 8e-06 | 51 |
| HLA-A*01:01 | 1 | 1210 | 1219 | 10 | IKWPWYIWL | 8e-06 | 90 |
| HLA-A*02:01 | 1 | 1210 | 1219 | 10 | IKWPWYIWL | 8e-06 | 69 |
| HLA-A*02:03 | 1 | 1212 | 1220 | 9 | WPWYIWLGF | 8e-06 | 72 |
| HLA-A*03:01 | 1 | 1212 | 1221 | 10 | WPWYIWLGFI | 8e-06 | 66 |
| HLA-A*01:01 | 1 | 1214 | 1223 | 10 | WYIWLGFIA | 8e-06 | 90 |
| HLA-A*02:03 | 1 | 1214 | 1223 | 10 | WYIWLGFIA | 8e-06 | 72 |
| HLA-A*03:01 | 1 | 1214 | 1222 | 9 | WYIWLGFIA | 8e-06 | 66 |
| HLA-A*11:01 | 1 | 1215 | 1223 | 9 | YIWLGFIA | 8e-06 | 51 |
| HLA-B*44:02 | 1 | 1217 | 1225 | 9 | WLGFIAGLI | 8e-06 | 59 |
| HLA-A*24:02 | 1 | 1218 | 1226 | 9 | LGFIAGLIA | 8e-06 | 49 |
| HLA-B*44:03 | 1 | 1218 | 1226 | 9 | LGFIAGLIA | 8e-06 | 55 |
| HLA-B*44:02 | 1 | 1227 | 1235 | 9 | IVMVTIMLC | 8e-06 | 59 |
| HLA-A*31:01 | 1 | 1229 | 1238 | 10 | MVTIMLCCMT | 8e-06 | 72 |
| HLA-B*44:03 | 1 | 1229 | 1237 | 9 | MVTIMLCCM | 8e-06 | 55 |
| HLA-A*01:01 | 1 | 1231 | 1240 | 10 | TIMLCCMTSC | 8e-06 | 90 |
| HLA-A*03:01 | 1 | 1232 | 1241 | 10 | IMLCCMTSC | 8e-06 | 66 |
| HLA-A*23:01 | 1 | 1232 | 1240 | 9 | IMLCCMTSC | 8e-06 | 51 |
| HLA-A*68:02 | 1 | 1232 | 1240 | 9 | IMLCCMTSC | 8e-06 | 69 |
| HLA-B*15:01 | 1 | 1232 | 1241 | 10 | IMLCCMTSC | 8e-06 | 68 |
| HLA-A*03:01 | 1 | 1233 | 1242 | 10 | MLCCMTSCCS | 8e-06 | 66 |
| HLA-B*58:01 | 1 | 1234 | 1243 | 10 | LCCMTSCCSC | 8e-06 | 75 |
| HLA-A*30:02 | 1 | 1235 | 1243 | 9 | CCMTSCCSC | 8e-06 | 90 |
| HLA-A*26:01 | 1 | 1236 | 1244 | 9 | CMTSCCSCSCL | 8e-06 | 64 |
| HLA-A*26:01 | 1 | 1236 | 1245 | 10 | CMTSCCSCCLK | 8e-06 | 64 |
| HLA-B*15:01 | 1 | 1236 | 1245 | 10 | CMTSCCSCCLK | 8e-06 | 68 |
| HLA-B*35:01 | 1 | 1236 | 1244 | 9 | CMTSCCSCSCL | 8e-06 | 54 |
| HLA-B*44:02 | 1 | 1236 | 1244 | 9 | CMTSCCSCSCL | 8e-06 | 59 |
| HLA-A*02:01 | 1 | 1241 | 1250 | 10 | CSCLKGCCSC | 8e-06 | 69 |
| HLA-A*31:01 | 1 | 1241 | 1249 | 9 | CSCLKGCCS | 8e-06 | 72 |
| HLA-B*08:01 | 1 | 1243 | 1252 | 10 | CLKGCCSCGS | 8e-06 | 87 |
| HLA-A*30:01 | 1 | 1244 | 1252 | 9 | LKGCCSCGS | 8e-06 | 91 |
| HLA-A*02:01 | 1 | 1245 | 1253 | 9 | KGCCSCGSC | 8e-06 | 69 |
| HLA-A*31:01 | 1 | 1245 | 1253 | 9 | KGCCSCGSC | 8e-06 | 72 |
| HLA-A*02:06 | 1 | 1247 | 1256 | 10 | CCSCGSCCKF | 8e-06 | 77 |
| HLA-B*40:01 | 1 | 1248 | 1256 | 9 | CSCGSCCKF | 8e-06 | 46 |

| | | | | | | |
|-------------|---|------|------|----|-------------------|----|
| HLA-A*24:02 | 1 | 1254 | 1263 | 10 | CKFDEDDSEP 8e-06 | 49 |
| HLA-B*07:02 | 1 | 1254 | 1263 | 10 | CKFDEDDSEP 8e-06 | 69 |
| HLA-B*44:03 | 1 | 1254 | 1262 | 9 | CKFDEDDSE 8e-06 | 55 |
| HLA-A*68:01 | 1 | 1255 | 1263 | 9 | KFDEDDSEP 8e-06 | 64 |
| HLA-A*32:01 | 1 | 1257 | 1266 | 10 | DEDDSEPVLK 8e-06 | 55 |
| HLA-A*31:01 | 1 | 1258 | 1267 | 10 | EDDSEPVLKG 8e-06 | 72 |
| HLA-A*31:01 | 1 | 1259 | 1267 | 9 | DDSEPVLKG 8e-06 | 72 |
| HLA-B*15:01 | 1 | 1259 | 1268 | 10 | DDSEPVLKG 8e-06 | 68 |
| HLA-B*07:02 | 1 | 3 | 12 | 10 | VFLVLLPLVS 7e-06 | 71 |
| HLA-B*44:02 | 1 | 7 | 15 | 9 | LLPLVSSQC 7e-06 | 62 |
| HLA-B*44:03 | 1 | 7 | 16 | 10 | LLPLVSSQCV 7e-06 | 57 |
| HLA-A*68:01 | 1 | 9 | 18 | 10 | PLVSSQCVNL 7e-06 | 66 |
| HLA-B*44:02 | 1 | 9 | 18 | 10 | PLVSSQCVNL 7e-06 | 62 |
| HLA-A*03:01 | 1 | 17 | 26 | 10 | NLTTTRQLPP 7e-06 | 68 |
| HLA-B*57:01 | 1 | 25 | 33 | 9 | PPAYTNSFT 7e-06 | 87 |
| HLA-A*02:03 | 1 | 26 | 35 | 10 | PAYTNSFTRG 7e-06 | 74 |
| HLA-B*08:01 | 1 | 26 | 35 | 10 | PAYTNSFTRG 7e-06 | 88 |
| HLA-B*35:01 | 1 | 27 | 35 | 9 | AYTNSFTRG 7e-06 | 56 |
| HLA-A*32:01 | 1 | 31 | 40 | 10 | SFTRGVVYPD 7e-06 | 57 |
| HLA-A*03:01 | 1 | 32 | 40 | 9 | FTRGVVYPD 7e-06 | 68 |
| HLA-B*35:01 | 1 | 32 | 41 | 10 | FTRGVVYDPK 7e-06 | 56 |
| HLA-B*40:01 | 1 | 33 | 42 | 10 | TRGVVYDPKV 7e-06 | 48 |
| HLA-B*40:01 | 1 | 36 | 45 | 10 | VVYVDPKVFRS 7e-06 | 48 |
| HLA-A*02:03 | 1 | 39 | 48 | 10 | PKVFRSSVL 7e-06 | 74 |
| HLA-B*44:03 | 1 | 45 | 53 | 9 | SSVLHSTQD 7e-06 | 57 |
| HLA-A*32:01 | 1 | 48 | 57 | 10 | LHSTQDLFLP 7e-06 | 57 |
| HLA-B*40:01 | 1 | 48 | 57 | 10 | LHSTQDLFLP 7e-06 | 48 |
| HLA-A*24:02 | 1 | 52 | 60 | 9 | QDLFLPFFS 7e-06 | 51 |
| HLA-A*32:01 | 1 | 52 | 60 | 9 | QDLFLPFFS 7e-06 | 57 |
| HLA-A*02:01 | 1 | 57 | 66 | 10 | PFFSNVTWFH 7e-06 | 71 |
| HLA-B*44:02 | 1 | 58 | 67 | 10 | FFSNVTWFHA 7e-06 | 62 |
| HLA-B*44:03 | 1 | 64 | 72 | 9 | WFHAIHVSG 7e-06 | 57 |
| HLA-A*23:01 | 1 | 65 | 74 | 10 | FHAIHVSGTN 7e-06 | 53 |
| HLA-B*15:01 | 1 | 65 | 74 | 10 | FHAIHVSGTN 7e-06 | 70 |
| HLA-A*02:01 | 1 | 66 | 74 | 9 | HAIHVSGTN 7e-06 | 71 |
| HLA-B*44:02 | 1 | 66 | 75 | 10 | HAIHVSGTNG 7e-06 | 62 |
| HLA-B*53:01 | 1 | 67 | 75 | 9 | AIHVSGTNG 7e-06 | 56 |
| HLA-A*31:01 | 1 | 71 | 80 | 10 | SGTNGTKRFD 7e-06 | 74 |
| HLA-A*33:01 | 1 | 71 | 80 | 10 | SGTNGTKRFD 7e-06 | 79 |
| HLA-A*68:01 | 1 | 71 | 80 | 10 | SGTNGTKRFD 7e-06 | 66 |
| HLA-B*07:02 | 1 | 71 | 80 | 10 | SGTNGTKRFD 7e-06 | 71 |
| HLA-A*02:03 | 1 | 72 | 80 | 9 | GTNGTKRFD 7e-06 | 74 |
| HLA-A*68:02 | 1 | 72 | 80 | 9 | GTNGTKRFD 7e-06 | 70 |
| HLA-B*44:02 | 1 | 72 | 80 | 9 | GTNGTKRFD 7e-06 | 62 |
| HLA-B*51:01 | 1 | 73 | 82 | 10 | TNGTKRFDNP 7e-06 | 81 |
| HLA-A*23:01 | 1 | 80 | 88 | 9 | DNPVLPFND 7e-06 | 53 |
| HLA-A*24:02 | 1 | 80 | 88 | 9 | DNPVLPFND 7e-06 | 51 |
| HLA-A*30:01 | 1 | 80 | 89 | 10 | DNPVLPFNDG 7e-06 | 92 |
| HLA-A*01:01 | 1 | 81 | 89 | 9 | NPVLPFNDG 7e-06 | 92 |
| HLA-A*68:01 | 1 | 81 | 89 | 9 | NPVLPFNDG 7e-06 | 66 |
| HLA-A*03:01 | 1 | 86 | 95 | 10 | FNDGVYFAST 7e-06 | 68 |
| HLA-A*31:01 | 1 | 86 | 95 | 10 | FNDGVYFAST 7e-06 | 74 |
| HLA-B*44:02 | 1 | 86 | 94 | 9 | FNDGVYFAS 7e-06 | 62 |
| HLA-B*58:01 | 1 | 86 | 95 | 10 | FNDGVYFAST 7e-06 | 77 |
| HLA-B*44:02 | 1 | 89 | 98 | 10 | GVYFASTEKS 7e-06 | 62 |
| HLA-B*53:01 | 1 | 89 | 98 | 10 | GVYFASTEKS 7e-06 | 56 |
| HLA-A*26:01 | 1 | 98 | 107 | 10 | SNIIRGWIFG 7e-06 | 66 |
| HLA-A*11:01 | 1 | 99 | 108 | 10 | NIIRGWIFGT 7e-06 | 53 |
| HLA-A*68:02 | 1 | 102 | 111 | 10 | RGWIFGTTLD 7e-06 | 70 |
| HLA-A*01:01 | 1 | 103 | 111 | 9 | GWIFGTTLD 7e-06 | 92 |
| HLA-A*02:03 | 1 | 103 | 111 | 9 | GWIFGTTLD 7e-06 | 74 |
| HLA-B*44:02 | 1 | 104 | 113 | 10 | WIFGTTLDSK 7e-06 | 62 |
| HLA-B*44:03 | 1 | 104 | 113 | 10 | WIFGTTLDSK 7e-06 | 57 |
| HLA-A*24:02 | 1 | 106 | 114 | 9 | FGTTLDSKT 7e-06 | 51 |
| HLA-A*11:01 | 1 | 111 | 120 | 10 | DSKTQSLLI 7e-06 | 53 |
| HLA-A*02:03 | 1 | 112 | 121 | 10 | SKTQSLLI 7e-06 | 74 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-A*33:01 | 1 | 112 | 121 | 10 | SKTQSLIVN 7e-06 | 79 |
| HLA-A*02:03 | 1 | 113 | 122 | 10 | KTQSLIVNN 7e-06 | 74 |
| HLA-A*23:01 | 1 | 113 | 121 | 9 | KTQSLIVN 7e-06 | 53 |
| HLA-B*40:01 | 1 | 113 | 121 | 9 | KTQSLIVN 7e-06 | 48 |
| HLA-A*24:02 | 1 | 114 | 123 | 10 | TQSLIVNNA 7e-06 | 51 |
| HLA-A*26:01 | 1 | 116 | 125 | 10 | SLLIVNNATN 7e-06 | 66 |
| HLA-B*07:02 | 1 | 116 | 125 | 10 | SLLIVNNATN 7e-06 | 71 |
| HLA-B*35:01 | 1 | 117 | 126 | 10 | LLIVNNATNV 7e-06 | 56 |
| HLA-A*24:02 | 1 | 118 | 127 | 10 | LIVNNATNVV 7e-06 | 51 |
| HLA-B*35:01 | 1 | 120 | 129 | 10 | VNNATNVVVK 7e-06 | 56 |
| HLA-B*53:01 | 1 | 120 | 129 | 10 | VNNATNVVVK 7e-06 | 56 |
| HLA-A*32:01 | 1 | 122 | 131 | 10 | NATNVVVKVC 7e-06 | 57 |
| HLA-B*07:02 | 1 | 123 | 132 | 10 | ATNVVVKVCE 7e-06 | 71 |
| HLA-B*51:01 | 1 | 123 | 132 | 10 | ATNVVVKVCE 7e-06 | 81 |
| HLA-B*44:02 | 1 | 124 | 132 | 9 | TNVVVKVCE 7e-06 | 62 |
| HLA-B*44:03 | 1 | 124 | 132 | 9 | TNVVVKVCE 7e-06 | 57 |
| HLA-A*23:01 | 1 | 126 | 134 | 9 | VVVKVCFEQ 7e-06 | 53 |
| HLA-B*07:02 | 1 | 127 | 136 | 10 | VVKVCFEQFC 7e-06 | 71 |
| HLA-A*02:03 | 1 | 129 | 137 | 9 | KVCFEQFCN 7e-06 | 74 |
| HLA-A*24:02 | 1 | 129 | 137 | 9 | KVCFEQFCN 7e-06 | 51 |
| HLA-A*26:01 | 1 | 129 | 137 | 9 | KVCFEQFCN 7e-06 | 66 |
| HLA-B*51:01 | 1 | 129 | 137 | 9 | KVCFEQFCN 7e-06 | 81 |
| HLA-A*68:02 | 1 | 131 | 140 | 10 | CEFQFCNDPF 7e-06 | 70 |
| HLA-B*07:02 | 1 | 131 | 139 | 9 | CEFQFCNDP 7e-06 | 71 |
| HLA-A*03:01 | 1 | 133 | 142 | 10 | FQFCNDPFLG 7e-06 | 68 |
| HLA-A*26:01 | 1 | 133 | 142 | 10 | FQFCNDPFLG 7e-06 | 66 |
| HLA-B*44:02 | 1 | 134 | 142 | 9 | QFCNDPFLG 7e-06 | 62 |
| HLA-A*23:01 | 1 | 137 | 146 | 10 | NDPFLGVYYH 7e-06 | 53 |
| HLA-A*02:03 | 1 | 138 | 146 | 9 | DPFLGVYYH 7e-06 | 74 |
| HLA-B*44:02 | 1 | 142 | 151 | 10 | GVYYHKNNKS 7e-06 | 62 |
| HLA-A*02:01 | 1 | 145 | 154 | 10 | YHKNNKSWME 7e-06 | 71 |
| HLA-A*02:03 | 1 | 146 | 154 | 9 | HKNNKSWME 7e-06 | 74 |
| HLA-A*26:01 | 1 | 146 | 155 | 10 | HKNNKSWMES 7e-06 | 66 |
| HLA-B*44:02 | 1 | 146 | 155 | 10 | HKNNKSWMES 7e-06 | 62 |
| HLA-B*44:03 | 1 | 146 | 155 | 10 | HKNNKSWMES 7e-06 | 57 |
| HLA-B*51:01 | 1 | 146 | 155 | 10 | HKNNKSWMES 7e-06 | 81 |
| HLA-B*15:01 | 1 | 147 | 156 | 10 | KNNKSWMESE 7e-06 | 70 |
| HLA-A*02:01 | 1 | 148 | 157 | 10 | NNKSWMESEF 7e-06 | 71 |
| HLA-A*32:01 | 1 | 153 | 162 | 10 | MESEFRVYSS 7e-06 | 57 |
| HLA-A*23:01 | 1 | 154 | 163 | 10 | ESEFRVYSSA 7e-06 | 53 |
| HLA-A*24:02 | 1 | 154 | 162 | 9 | ESEFRVYSS 7e-06 | 51 |
| HLA-B*40:01 | 1 | 154 | 162 | 9 | ESEFRVYSS 7e-06 | 48 |
| HLA-A*24:02 | 1 | 156 | 164 | 9 | EFRVYSSAN 7e-06 | 51 |
| HLA-A*26:01 | 1 | 157 | 165 | 9 | FRVYSSANN 7e-06 | 66 |
| HLA-A*23:01 | 1 | 161 | 169 | 9 | SSANNCTFE 7e-06 | 53 |
| HLA-A*24:02 | 1 | 161 | 169 | 9 | SSANNCTFE 7e-06 | 51 |
| HLA-B*44:03 | 1 | 164 | 172 | 9 | NNCTFEYVS 7e-06 | 57 |
| HLA-B*40:01 | 1 | 165 | 174 | 10 | NCTFEYVSQP 7e-06 | 48 |
| HLA-B*15:01 | 1 | 169 | 178 | 10 | EYVSQPFLMD 7e-06 | 70 |
| HLA-B*07:02 | 1 | 171 | 180 | 10 | VSQPFLMDLE 7e-06 | 71 |
| HLA-A*31:01 | 1 | 172 | 181 | 10 | SQPFLMDLEG 7e-06 | 74 |
| HLA-A*26:01 | 1 | 173 | 181 | 9 | QPFLMDLEG 7e-06 | 66 |
| HLA-A*24:02 | 1 | 174 | 183 | 10 | PFLMDLEGKQ 7e-06 | 51 |
| HLA-B*08:01 | 1 | 174 | 182 | 9 | PFLMDLEGK 7e-06 | 88 |
| HLA-B*44:03 | 1 | 175 | 184 | 10 | FLMDLEGKQG 7e-06 | 57 |
| HLA-A*23:01 | 1 | 176 | 184 | 9 | LMDLEGKQG 7e-06 | 53 |
| HLA-A*24:02 | 1 | 176 | 184 | 9 | LMDLEGKQG 7e-06 | 51 |
| HLA-A*31:01 | 1 | 176 | 184 | 9 | LMDLEGKQG 7e-06 | 74 |
| HLA-B*51:01 | 1 | 181 | 190 | 10 | GKQGNFKNLR 7e-06 | 81 |
| HLA-A*26:01 | 1 | 183 | 191 | 9 | QGNFKNLRE 7e-06 | 66 |
| HLA-B*08:01 | 1 | 187 | 196 | 10 | KNLREFVFKN 7e-06 | 88 |
| HLA-A*30:02 | 1 | 189 | 198 | 10 | LREFVFKNID 7e-06 | 91 |
| HLA-B*35:01 | 1 | 189 | 197 | 9 | LREFVFKNI 7e-06 | 56 |
| HLA-A*24:02 | 1 | 190 | 198 | 9 | REFVFKNID 7e-06 | 51 |
| HLA-A*31:01 | 1 | 190 | 199 | 10 | REFVFKNIDG 7e-06 | 74 |
| HLA-A*31:01 | 1 | 191 | 199 | 9 | EFVFKNIDG 7e-06 | 74 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-A*11:01 | 1 | 197 | 205 | 9 | IDGYFKIYS 7e-06 | 53 |
| HLA-B*40:01 | 1 | 197 | 205 | 9 | IDGYFKIYS 7e-06 | 48 |
| HLA-B*40:01 | 1 | 197 | 206 | 10 | IDGYFKIYSK 7e-06 | 48 |
| HLA-A*32:01 | 1 | 200 | 208 | 9 | YFKIYSKHT 7e-06 | 57 |
| HLA-A*03:01 | 1 | 201 | 209 | 9 | FKIYSKHTP 7e-06 | 68 |
| HLA-A*68:02 | 1 | 206 | 215 | 10 | KHTPINLVRD 7e-06 | 70 |
| HLA-A*32:01 | 1 | 207 | 215 | 9 | HTPINLVRD 7e-06 | 57 |
| HLA-A*31:01 | 1 | 209 | 218 | 10 | PINLVRDLPQ 7e-06 | 74 |
| HLA-A*33:01 | 1 | 209 | 217 | 9 | PINLVRDLP 7e-06 | 79 |
| HLA-A*68:01 | 1 | 209 | 217 | 9 | PINLVRDLP 7e-06 | 66 |
| HLA-B*40:01 | 1 | 212 | 221 | 10 | LVRDLPQGFS 7e-06 | 48 |
| HLA-B*53:01 | 1 | 213 | 221 | 9 | VRDLPQGFS 7e-06 | 56 |
| HLA-B*58:01 | 1 | 215 | 224 | 10 | DLPQGFSALE 7e-06 | 77 |
| HLA-A*02:03 | 1 | 216 | 224 | 9 | LPQGFSALE 7e-06 | 74 |
| HLA-A*11:01 | 1 | 216 | 225 | 10 | LPQGFSALEP 7e-06 | 53 |
| HLA-A*24:02 | 1 | 216 | 224 | 9 | LPQGFSALE 7e-06 | 51 |
| HLA-A*26:01 | 1 | 216 | 225 | 10 | LPQGFSALEP 7e-06 | 66 |
| HLA-A*31:01 | 1 | 216 | 225 | 10 | LPQGFSALEP 7e-06 | 74 |
| HLA-B*35:01 | 1 | 217 | 226 | 10 | PQGFSALEPL 7e-06 | 56 |
| HLA-A*31:01 | 1 | 219 | 228 | 10 | GFSALEPLVD 7e-06 | 74 |
| HLA-A*30:01 | 1 | 223 | 232 | 10 | LEPLVDLPIG 7e-06 | 92 |
| HLA-B*58:01 | 1 | 223 | 232 | 10 | LEPLVDLPIG 7e-06 | 77 |
| HLA-B*15:01 | 1 | 224 | 232 | 9 | EPLVDLPIG 7e-06 | 70 |
| HLA-A*68:02 | 1 | 225 | 234 | 10 | PLVDLPIGIN 7e-06 | 70 |
| HLA-B*57:01 | 1 | 225 | 234 | 10 | PLVDLPIGIN 7e-06 | 87 |
| HLA-A*32:01 | 1 | 226 | 234 | 9 | LVDLPIGIN 7e-06 | 57 |
| HLA-B*44:02 | 1 | 228 | 236 | 9 | DLPIGINIT 7e-06 | 62 |
| HLA-B*57:01 | 1 | 228 | 236 | 9 | DLPIGINIT 7e-06 | 87 |
| HLA-A*02:06 | 1 | 230 | 239 | 10 | PIGINITRFQ 7e-06 | 79 |
| HLA-B*08:01 | 1 | 230 | 239 | 10 | PIGINITRFQ 7e-06 | 88 |
| HLA-B*58:01 | 1 | 230 | 239 | 10 | PIGINITRFQ 7e-06 | 77 |
| HLA-B*40:01 | 1 | 231 | 239 | 9 | IGINITRFQ 7e-06 | 48 |
| HLA-A*23:01 | 1 | 232 | 240 | 9 | GINITRFQT 7e-06 | 53 |
| HLA-B*40:01 | 1 | 232 | 240 | 9 | GINITRFQT 7e-06 | 48 |
| HLA-A*24:02 | 1 | 234 | 243 | 10 | NITRFQTLA 7e-06 | 51 |
| HLA-B*44:03 | 1 | 234 | 243 | 10 | NITRFQTLA 7e-06 | 57 |
| HLA-B*53:01 | 1 | 237 | 246 | 10 | RFQTLALHR 7e-06 | 56 |
| HLA-A*23:01 | 1 | 238 | 247 | 10 | FQTLALHRS 7e-06 | 53 |
| HLA-B*44:02 | 1 | 243 | 252 | 10 | ALHRSYLTPG 7e-06 | 62 |
| HLA-A*24:02 | 1 | 244 | 252 | 9 | LHRSYLTPG 7e-06 | 51 |
| HLA-A*23:01 | 1 | 245 | 253 | 9 | HRSYLTPGD 7e-06 | 53 |
| HLA-A*26:01 | 1 | 245 | 254 | 10 | HRSYLTPGDS 7e-06 | 66 |
| HLA-B*15:01 | 1 | 245 | 254 | 10 | HRSYLTPGDS 7e-06 | 70 |
| HLA-A*31:01 | 1 | 248 | 257 | 10 | YLTPGDSSSG 7e-06 | 74 |
| HLA-A*02:03 | 1 | 250 | 259 | 10 | TPGDSSSGWT 7e-06 | 74 |
| HLA-A*11:01 | 1 | 250 | 259 | 10 | TPGDSSSGWT 7e-06 | 53 |
| HLA-A*23:01 | 1 | 250 | 259 | 10 | TPGDSSSGWT 7e-06 | 53 |
| HLA-A*68:01 | 1 | 251 | 260 | 10 | PGDSSSGWTA 7e-06 | 66 |
| HLA-B*53:01 | 1 | 251 | 260 | 10 | PGDSSSGWTA 7e-06 | 56 |
| HLA-B*53:01 | 1 | 260 | 268 | 9 | AGAAAYYVG 7e-06 | 56 |
| HLA-B*53:01 | 1 | 265 | 274 | 10 | YYVGYLQPR 7e-06 | 56 |
| HLA-A*68:02 | 1 | 273 | 282 | 10 | RTFLLKYNEN 7e-06 | 70 |
| HLA-B*44:02 | 1 | 273 | 282 | 10 | RTFLLKYNEN 7e-06 | 62 |
| HLA-A*32:01 | 1 | 275 | 284 | 10 | FLLKYNENGT 7e-06 | 57 |
| HLA-B*44:02 | 1 | 277 | 286 | 10 | LKYNENGTIT 7e-06 | 62 |
| HLA-B*53:01 | 1 | 277 | 286 | 10 | LKYNENGTIT 7e-06 | 56 |
| HLA-B*07:02 | 1 | 278 | 287 | 10 | KYNENGTITD 7e-06 | 71 |
| HLA-A*24:02 | 1 | 279 | 288 | 10 | YNENGTITDA 7e-06 | 51 |
| HLA-B*51:01 | 1 | 281 | 290 | 10 | ENGTITDAVD 7e-06 | 81 |
| HLA-B*53:01 | 1 | 282 | 290 | 9 | NGTITDAVD 7e-06 | 56 |
| HLA-B*57:01 | 1 | 282 | 290 | 9 | NGTITDAVD 7e-06 | 87 |
| HLA-B*58:01 | 1 | 282 | 290 | 9 | NGTITDAVD 7e-06 | 77 |
| HLA-B*35:01 | 1 | 283 | 291 | 9 | GTITDAVDC 7e-06 | 56 |
| HLA-A*23:01 | 1 | 284 | 292 | 9 | TITDAVDCA 7e-06 | 53 |
| HLA-B*44:02 | 1 | 286 | 295 | 10 | TDAVDCALDP 7e-06 | 62 |
| HLA-A*02:01 | 1 | 287 | 295 | 9 | DAVDCALDP 7e-06 | 71 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-A*31:01 | 1 | 287 | 296 | 10 | DAVDCALDPL 7e-06 | 74 |
| HLA-B*40:01 | 1 | 288 | 297 | 10 | AVDCALDPLS 7e-06 | 48 |
| HLA-A*68:01 | 1 | 289 | 297 | 9 | VDCALDPLS 7e-06 | 66 |
| HLA-A*03:01 | 1 | 290 | 298 | 9 | DCALDPLSE 7e-06 | 68 |
| HLA-B*40:01 | 1 | 290 | 299 | 10 | DCALDPLSET 7e-06 | 48 |
| HLA-A*68:01 | 1 | 293 | 301 | 9 | LDPLSETKC 7e-06 | 66 |
| HLA-A*11:01 | 1 | 294 | 302 | 9 | DPLSETKCT 7e-06 | 53 |
| HLA-B*40:01 | 1 | 294 | 302 | 9 | DPLSETKCT 7e-06 | 48 |
| HLA-A*11:01 | 1 | 295 | 303 | 9 | PLSETKCTL 7e-06 | 53 |
| HLA-A*02:01 | 1 | 296 | 305 | 10 | LSETKCTLKS 7e-06 | 71 |
| HLA-A*32:01 | 1 | 298 | 307 | 10 | ETKCTLKSFT 7e-06 | 57 |
| HLA-B*44:03 | 1 | 306 | 315 | 10 | FTVEKGIYQT 7e-06 | 57 |
| HLA-A*23:01 | 1 | 307 | 316 | 10 | TVEKGIYQTS 7e-06 | 53 |
| HLA-B*40:01 | 1 | 310 | 319 | 10 | KGIYQTSNFR 7e-06 | 48 |
| HLA-B*44:03 | 1 | 314 | 323 | 10 | QTSNFRVQPT 7e-06 | 57 |
| HLA-A*24:02 | 1 | 315 | 323 | 9 | TSNFRVQPT 7e-06 | 51 |
| HLA-B*44:03 | 1 | 315 | 323 | 9 | TSNFRVQPT 7e-06 | 57 |
| HLA-B*35:01 | 1 | 322 | 330 | 9 | PTESIVRFP 7e-06 | 56 |
| HLA-A*02:06 | 1 | 323 | 331 | 9 | TESIVRFPN 7e-06 | 79 |
| HLA-B*40:01 | 1 | 328 | 337 | 10 | RFPNITNLCP 7e-06 | 48 |
| HLA-A*30:01 | 1 | 330 | 339 | 10 | PNITNLCPFG 7e-06 | 92 |
| HLA-A*11:01 | 1 | 331 | 340 | 10 | NITNLCPFGE 7e-06 | 53 |
| HLA-A*26:01 | 1 | 331 | 340 | 10 | NITNLCPFGE 7e-06 | 66 |
| HLA-B*51:01 | 1 | 331 | 340 | 10 | NITNLCPFGE 7e-06 | 81 |
| HLA-A*26:01 | 1 | 332 | 340 | 9 | ITNLCPFGE 7e-06 | 66 |
| HLA-B*15:01 | 1 | 336 | 345 | 10 | CPFGEVFNAT 7e-06 | 70 |
| HLA-B*35:01 | 1 | 337 | 345 | 9 | PFGEVFNAT 7e-06 | 56 |
| HLA-B*51:01 | 1 | 337 | 346 | 10 | PFGEVFNATR 7e-06 | 81 |
| HLA-A*23:01 | 1 | 340 | 349 | 10 | EVFNATRFAS 7e-06 | 53 |
| HLA-B*40:01 | 1 | 343 | 352 | 10 | NATRFASVYA 7e-06 | 48 |
| HLA-B*44:03 | 1 | 343 | 352 | 10 | NATRFASVYA 7e-06 | 57 |
| HLA-A*68:02 | 1 | 346 | 354 | 9 | RFASVYAWN 7e-06 | 70 |
| HLA-B*35:01 | 1 | 346 | 355 | 10 | RFASVYAWN 7e-06 | 56 |
| HLA-A*02:03 | 1 | 350 | 359 | 10 | VYAWNKRKRIS 7e-06 | 74 |
| HLA-A*32:01 | 1 | 350 | 359 | 10 | VYAWNKRKRIS 7e-06 | 57 |
| HLA-B*44:02 | 1 | 352 | 361 | 10 | AWNKRKRISNC 7e-06 | 62 |
| HLA-A*32:01 | 1 | 353 | 361 | 9 | WNRKRISNC 7e-06 | 57 |
| HLA-B*35:01 | 1 | 353 | 361 | 9 | WNRKRISNC 7e-06 | 56 |
| HLA-B*40:01 | 1 | 353 | 361 | 9 | WNRKRISNC 7e-06 | 48 |
| HLA-B*44:02 | 1 | 353 | 361 | 9 | WNRKRISNC 7e-06 | 62 |
| HLA-B*58:01 | 1 | 353 | 362 | 10 | WNRKRISNCV 7e-06 | 77 |
| HLA-B*57:01 | 1 | 354 | 363 | 10 | NRKRISNCVA 7e-06 | 87 |
| HLA-A*32:01 | 1 | 355 | 363 | 9 | RKRISNCVA 7e-06 | 57 |
| HLA-B*07:02 | 1 | 355 | 364 | 10 | RKRISNCVAD 7e-06 | 71 |
| HLA-B*58:01 | 1 | 355 | 363 | 9 | RKRISNCVA 7e-06 | 77 |
| HLA-A*31:01 | 1 | 356 | 364 | 9 | KRISNCVAD 7e-06 | 74 |
| HLA-B*40:01 | 1 | 356 | 364 | 9 | KRISNCVAD 7e-06 | 48 |
| HLA-B*58:01 | 1 | 356 | 364 | 9 | KRISNCVAD 7e-06 | 77 |
| HLA-B*08:01 | 1 | 361 | 370 | 10 | CVADYSVLYN 7e-06 | 88 |
| HLA-A*26:01 | 1 | 362 | 371 | 10 | VADYSVLYNS 7e-06 | 66 |
| HLA-B*44:02 | 1 | 365 | 373 | 9 | YSVLYNSAS 7e-06 | 62 |
| HLA-A*24:02 | 1 | 372 | 381 | 10 | ASFSTFKCYG 7e-06 | 51 |
| HLA-B*44:03 | 1 | 373 | 381 | 9 | SFSTFKCYG 7e-06 | 57 |
| HLA-B*53:01 | 1 | 373 | 382 | 10 | SFSTFKCYGV 7e-06 | 56 |
| HLA-A*26:01 | 1 | 374 | 383 | 10 | FSTFKCYGVS 7e-06 | 66 |
| HLA-A*68:01 | 1 | 377 | 385 | 9 | FKCYGVSPT 7e-06 | 66 |
| HLA-A*32:01 | 1 | 380 | 388 | 9 | YGVSPTKLN 7e-06 | 57 |
| HLA-A*33:01 | 1 | 380 | 389 | 10 | YGVSPTKLND 7e-06 | 79 |
| HLA-B*44:03 | 1 | 382 | 391 | 10 | VSPTKLNDLC 7e-06 | 57 |
| HLA-A*31:01 | 1 | 385 | 394 | 10 | TKLNDLCFTN 7e-06 | 74 |
| HLA-A*33:01 | 1 | 385 | 394 | 10 | TKLNDLCFTN 7e-06 | 79 |
| HLA-B*35:01 | 1 | 386 | 395 | 10 | KLNDLCFTNV 7e-06 | 56 |
| HLA-A*68:01 | 1 | 387 | 395 | 9 | LNDLCFTNV 7e-06 | 66 |
| HLA-B*53:01 | 1 | 388 | 397 | 10 | NLDCFTNVYA 7e-06 | 56 |
| HLA-B*57:01 | 1 | 389 | 398 | 10 | DLCFTNVYAD 7e-06 | 87 |
| HLA-A*01:01 | 1 | 390 | 398 | 9 | LCFTNVYAD 7e-06 | 92 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-A*02:03 | 1 | 390 | 398 | 9 | LCFTNVYAD 7e-06 | 74 |
| HLA-A*68:02 | 1 | 390 | 398 | 9 | LCFTNVYAD 7e-06 | 70 |
| HLA-A*01:01 | 1 | 391 | 399 | 9 | CFTNVYADS 7e-06 | 92 |
| HLA-A*02:03 | 1 | 391 | 399 | 9 | CFTNVYADS 7e-06 | 74 |
| HLA-B*15:01 | 1 | 395 | 404 | 10 | VYADSFVIRG 7e-06 | 70 |
| HLA-B*44:03 | 1 | 395 | 404 | 10 | VYADSFVIRG 7e-06 | 57 |
| HLA-A*02:06 | 1 | 397 | 405 | 9 | ADSFVIRGD 7e-06 | 79 |
| HLA-A*33:01 | 1 | 397 | 405 | 9 | ADSFVIRGD 7e-06 | 79 |
| HLA-A*11:01 | 1 | 398 | 407 | 10 | DSFVIRGDEV 7e-06 | 53 |
| HLA-B*58:01 | 1 | 404 | 412 | 9 | GDEVQRQIAP 7e-06 | 77 |
| HLA-A*11:01 | 1 | 405 | 414 | 10 | DEVQRQIAPGQ 7e-06 | 53 |
| HLA-B*57:01 | 1 | 405 | 413 | 9 | DEVQRQIAPG 7e-06 | 87 |
| HLA-A*32:01 | 1 | 407 | 415 | 9 | VRQIAPGQT 7e-06 | 57 |
| HLA-A*68:01 | 1 | 407 | 415 | 9 | VRQIAPGQT 7e-06 | 66 |
| HLA-A*32:01 | 1 | 411 | 419 | 9 | APGQTGKIA 7e-06 | 57 |
| HLA-B*58:01 | 1 | 411 | 420 | 10 | APGQTGKIAD 7e-06 | 77 |
| HLA-B*35:01 | 1 | 413 | 422 | 10 | GQTGKIADYN 7e-06 | 56 |
| HLA-A*01:01 | 1 | 419 | 428 | 10 | ADYNYKLPPD 7e-06 | 92 |
| HLA-A*68:01 | 1 | 419 | 427 | 9 | ADYNYKLPD 7e-06 | 66 |
| HLA-A*02:06 | 1 | 422 | 431 | 10 | NYKLPDDFTG 7e-06 | 79 |
| HLA-A*26:01 | 1 | 422 | 431 | 10 | NYKLPDDFTG 7e-06 | 66 |
| HLA-A*32:01 | 1 | 423 | 432 | 10 | YKLPDDFTGC 7e-06 | 57 |
| HLA-A*02:01 | 1 | 426 | 434 | 9 | PDDFTGCVI 7e-06 | 71 |
| HLA-A*30:02 | 1 | 426 | 435 | 10 | PDDFTGCVIA 7e-06 | 91 |
| HLA-A*32:01 | 1 | 426 | 434 | 9 | PDDFTGCVI 7e-06 | 57 |
| HLA-B*35:01 | 1 | 426 | 434 | 9 | PDDFTGCVI 7e-06 | 56 |
| HLA-A*26:01 | 1 | 428 | 437 | 10 | DFTGCVIAWN 7e-06 | 66 |
| HLA-A*30:01 | 1 | 428 | 437 | 10 | DFTGCVIAWN 7e-06 | 92 |
| HLA-A*11:01 | 1 | 429 | 438 | 10 | FTGCVIAWNS 7e-06 | 53 |
| HLA-B*51:01 | 1 | 429 | 438 | 10 | FTGCVIAWNS 7e-06 | 81 |
| HLA-B*44:03 | 1 | 432 | 441 | 10 | CVIAWNSNNL 7e-06 | 57 |
| HLA-A*11:01 | 1 | 434 | 443 | 10 | IAWNSNNLDS 7e-06 | 53 |
| HLA-A*02:03 | 1 | 435 | 443 | 9 | AWNSNNLDS 7e-06 | 74 |
| HLA-A*68:01 | 1 | 435 | 443 | 9 | AWNSNNLDS 7e-06 | 66 |
| HLA-B*07:02 | 1 | 435 | 443 | 9 | AWNSNNLDS 7e-06 | 71 |
| HLA-B*44:02 | 1 | 435 | 443 | 9 | AWNSNNLDS 7e-06 | 62 |
| HLA-B*53:01 | 1 | 435 | 444 | 10 | AWNSNNLDSK 7e-06 | 56 |
| HLA-A*11:01 | 1 | 436 | 445 | 10 | WNSNNLDSKV 7e-06 | 53 |
| HLA-B*44:02 | 1 | 437 | 446 | 10 | NSNNLDSKVG 7e-06 | 62 |
| HLA-B*53:01 | 1 | 437 | 446 | 10 | NSNNLDSKVG 7e-06 | 56 |
| HLA-A*33:01 | 1 | 438 | 447 | 10 | SNNLDSKVG 7e-06 | 79 |
| HLA-B*35:01 | 1 | 438 | 446 | 9 | SNNLDSKVG 7e-06 | 56 |
| HLA-B*53:01 | 1 | 438 | 446 | 9 | SNNLDSKVG 7e-06 | 56 |
| HLA-A*02:03 | 1 | 439 | 448 | 10 | NNLDSKVG 7e-06 | 74 |
| HLA-A*02:06 | 1 | 439 | 447 | 9 | NNLDSKVG 7e-06 | 79 |
| HLA-B*08:01 | 1 | 439 | 448 | 10 | NNLDSKVG 7e-06 | 88 |
| HLA-B*40:01 | 1 | 439 | 447 | 9 | NNLDSKVG 7e-06 | 48 |
| HLA-B*53:01 | 1 | 439 | 447 | 9 | NNLDSKVG 7e-06 | 56 |
| HLA-A*68:02 | 1 | 440 | 448 | 9 | NLDSKVG 7e-06 | 70 |
| HLA-B*07:02 | 1 | 440 | 448 | 9 | NLDSKVG 7e-06 | 71 |
| HLA-A*31:01 | 1 | 441 | 450 | 10 | LDSKVG 7e-06 | 74 |
| HLA-B*53:01 | 1 | 446 | 455 | 10 | GGNYNYLYRL 7e-06 | 56 |
| HLA-B*07:02 | 1 | 449 | 458 | 10 | YNYLYRLFRK 7e-06 | 71 |
| HLA-B*44:03 | 1 | 455 | 463 | 9 | LFRKSNLKP 7e-06 | 57 |
| HLA-A*11:01 | 1 | 456 | 465 | 10 | FRKSNLKPFE 7e-06 | 53 |
| HLA-B*35:01 | 1 | 456 | 465 | 10 | FRKSNLKPFE 7e-06 | 56 |
| HLA-B*44:02 | 1 | 456 | 465 | 10 | FRKSNLKPFE 7e-06 | 62 |
| HLA-B*35:01 | 1 | 457 | 466 | 10 | RKSNLKPFE 7e-06 | 56 |
| HLA-A*23:01 | 1 | 460 | 469 | 10 | NLKPFERDIS 7e-06 | 53 |
| HLA-A*31:01 | 1 | 461 | 470 | 10 | LKPFERDIST 7e-06 | 74 |
| HLA-A*68:01 | 1 | 463 | 472 | 10 | PFERDISTEI 7e-06 | 66 |
| HLA-A*02:03 | 1 | 466 | 474 | 9 | RDISTEIQ 7e-06 | 74 |
| HLA-A*24:02 | 1 | 466 | 474 | 9 | RDISTEIQ 7e-06 | 51 |
| HLA-B*07:02 | 1 | 467 | 476 | 10 | DISTEIQAG 7e-06 | 71 |
| HLA-A*11:01 | 1 | 468 | 477 | 10 | ISTEIQAGS 7e-06 | 53 |
| HLA-A*26:01 | 1 | 468 | 477 | 10 | ISTEIQAGS 7e-06 | 66 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-B*35:01 | 1 | 469 | 477 | 9 | STEIYQAGS | 7e-06 | 56 |
| HLA-B*58:01 | 1 | 470 | 478 | 9 | TEIYQAGST | 7e-06 | 77 |
| HLA-A*03:01 | 1 | 473 | 482 | 10 | YQAGSTPCNG | 7e-06 | 68 |
| HLA-B*44:03 | 1 | 473 | 482 | 10 | YQAGSTPCNG | 7e-06 | 57 |
| HLA-A*23:01 | 1 | 474 | 483 | 10 | QAGSTPCNGV | 7e-06 | 53 |
| HLA-A*26:01 | 1 | 474 | 482 | 9 | QAGSTPCNG | 7e-06 | 66 |
| HLA-A*68:01 | 1 | 474 | 482 | 9 | QAGSTPCNG | 7e-06 | 66 |
| HLA-A*02:01 | 1 | 476 | 484 | 9 | GSTPCNGVE | 7e-06 | 71 |
| HLA-B*51:01 | 1 | 476 | 484 | 9 | GSTPCNGVE | 7e-06 | 81 |
| HLA-A*24:02 | 1 | 478 | 487 | 10 | TPCNGVEGFN | 7e-06 | 51 |
| HLA-A*23:01 | 1 | 480 | 489 | 10 | CNGVEGFNCY | 7e-06 | 53 |
| HLA-A*24:02 | 1 | 480 | 489 | 10 | CNGVEGFNCY | 7e-06 | 51 |
| HLA-A*33:01 | 1 | 482 | 491 | 10 | GVEGFNCYFP | 7e-06 | 79 |
| HLA-A*23:01 | 1 | 483 | 491 | 9 | VEGFNCYFP | 7e-06 | 53 |
| HLA-A*24:02 | 1 | 483 | 491 | 9 | VEGFNCYFP | 7e-06 | 51 |
| HLA-B*35:01 | 1 | 483 | 491 | 9 | VEGFNCYFP | 7e-06 | 56 |
| HLA-A*68:01 | 1 | 485 | 494 | 10 | GFNCYFPLQS | 7e-06 | 66 |
| HLA-B*07:02 | 1 | 485 | 493 | 9 | GFNCYFPLQ | 7e-06 | 71 |
| HLA-B*51:01 | 1 | 485 | 493 | 9 | GFNCYFPLQ | 7e-06 | 81 |
| HLA-B*07:02 | 1 | 486 | 494 | 9 | FNCYFPLQS | 7e-06 | 71 |
| HLA-B*44:02 | 1 | 486 | 494 | 9 | FNCYFPLQS | 7e-06 | 62 |
| HLA-B*44:02 | 1 | 489 | 498 | 10 | YFPLQSYGFQ | 7e-06 | 62 |
| HLA-B*40:01 | 1 | 490 | 498 | 9 | FPLQSYGFQ | 7e-06 | 48 |
| HLA-B*44:02 | 1 | 490 | 498 | 9 | FPLQSYGFQ | 7e-06 | 62 |
| HLA-A*33:01 | 1 | 491 | 500 | 10 | PLQSYGFQPT | 7e-06 | 79 |
| HLA-A*68:01 | 1 | 491 | 499 | 9 | PLQSYGFQP | 7e-06 | 66 |
| HLA-A*26:01 | 1 | 492 | 501 | 10 | LQSYGFQPTN | 7e-06 | 66 |
| HLA-B*40:01 | 1 | 492 | 501 | 10 | LQSYGFQPTN | 7e-06 | 48 |
| HLA-A*02:06 | 1 | 494 | 502 | 9 | SYGFQPTNG | 7e-06 | 79 |
| HLA-B*15:01 | 1 | 494 | 502 | 9 | SYGFQPTNG | 7e-06 | 70 |
| HLA-B*40:01 | 1 | 499 | 507 | 9 | PTNGVGYQP | 7e-06 | 48 |
| HLA-B*40:01 | 1 | 501 | 510 | 10 | NGVGYQPYRV | 7e-06 | 48 |
| HLA-A*24:02 | 1 | 508 | 516 | 9 | YRVVLSFE | 7e-06 | 51 |
| HLA-B*44:02 | 1 | 508 | 516 | 9 | YRVVLSFE | 7e-06 | 62 |
| HLA-B*40:01 | 1 | 511 | 520 | 10 | VVLSFELLHA | 7e-06 | 48 |
| HLA-A*11:01 | 1 | 514 | 523 | 10 | SFELLHAPAT | 7e-06 | 53 |
| HLA-A*68:01 | 1 | 514 | 523 | 10 | SFELLHAPAT | 7e-06 | 66 |
| HLA-A*11:01 | 1 | 515 | 524 | 10 | FELLHAPATV | 7e-06 | 53 |
| HLA-A*32:01 | 1 | 515 | 523 | 9 | FELLHAPAT | 7e-06 | 57 |
| HLA-B*35:01 | 1 | 517 | 526 | 10 | LLHAPATVCG | 7e-06 | 56 |
| HLA-B*44:02 | 1 | 517 | 526 | 10 | LLHAPATVCG | 7e-06 | 62 |
| HLA-A*11:01 | 1 | 518 | 526 | 9 | LHAPATVCG | 7e-06 | 53 |
| HLA-A*32:01 | 1 | 518 | 526 | 9 | LHAPATVCG | 7e-06 | 57 |
| HLA-A*23:01 | 1 | 519 | 527 | 9 | HAPATVCGP | 7e-06 | 53 |
| HLA-A*02:06 | 1 | 521 | 529 | 9 | PATVCGPKK | 7e-06 | 79 |
| HLA-B*08:01 | 1 | 521 | 529 | 9 | PATVCGPKK | 7e-06 | 88 |
| HLA-A*24:02 | 1 | 526 | 535 | 10 | GPKKSTNLVK | 7e-06 | 51 |
| HLA-A*30:02 | 1 | 527 | 536 | 10 | PKKSTNLVKN | 7e-06 | 91 |
| HLA-A*02:06 | 1 | 528 | 536 | 9 | KKSTNLVKN | 7e-06 | 79 |
| HLA-A*33:01 | 1 | 528 | 536 | 9 | KKSTNLVKN | 7e-06 | 79 |
| HLA-B*53:01 | 1 | 529 | 538 | 10 | KSTNLVKNKC | 7e-06 | 56 |
| HLA-A*68:02 | 1 | 534 | 543 | 10 | VKNKCVNFNF | 7e-06 | 70 |
| HLA-A*23:01 | 1 | 535 | 544 | 10 | KNKCVNFNFN | 7e-06 | 53 |
| HLA-A*01:01 | 1 | 537 | 545 | 9 | KCVNFNFNG | 7e-06 | 92 |
| HLA-A*03:01 | 1 | 537 | 545 | 9 | KCVNFNFNG | 7e-06 | 68 |
| HLA-A*33:01 | 1 | 537 | 545 | 9 | KCVNFNFNG | 7e-06 | 79 |
| HLA-A*68:02 | 1 | 537 | 545 | 9 | KCVNFNFNG | 7e-06 | 70 |
| HLA-B*51:01 | 1 | 537 | 545 | 9 | KCVNFNFNG | 7e-06 | 81 |
| HLA-B*07:02 | 1 | 539 | 547 | 9 | VNFNFNGLT | 7e-06 | 71 |
| HLA-B*07:02 | 1 | 539 | 548 | 10 | VNFNFNGLTG | 7e-06 | 71 |
| HLA-B*07:02 | 1 | 541 | 550 | 10 | FNFNGLTGTG | 7e-06 | 71 |
| HLA-B*53:01 | 1 | 541 | 550 | 10 | FNFNGLTGTG | 7e-06 | 56 |
| HLA-A*03:01 | 1 | 542 | 550 | 9 | NFNGLTGTG | 7e-06 | 68 |
| HLA-A*03:01 | 1 | 543 | 552 | 10 | FNGLTGTGVL | 7e-06 | 68 |
| HLA-B*44:02 | 1 | 543 | 552 | 10 | FNGLTGTGVL | 7e-06 | 62 |
| HLA-A*33:01 | 1 | 548 | 556 | 9 | GTGVLTESN | 7e-06 | 79 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-B*07:02 | 1 | 548 | 557 | 10 | GTGVLTESNK 7e-06 | 71 |
| HLA-B*08:01 | 1 | 548 | 556 | 9 | GTGVLTESN 7e-06 | 88 |
| HLA-A*24:02 | 1 | 549 | 557 | 9 | TGVLTESNK 7e-06 | 51 |
| HLA-A*24:02 | 1 | 552 | 561 | 10 | LTESNKKFLP 7e-06 | 51 |
| HLA-B*53:01 | 1 | 555 | 563 | 9 | SNKKFLPFQ 7e-06 | 56 |
| HLA-A*23:01 | 1 | 559 | 568 | 10 | FLPFQQFGRD 7e-06 | 53 |
| HLA-B*58:01 | 1 | 559 | 568 | 10 | FLPFQQFGRD 7e-06 | 77 |
| HLA-A*02:03 | 1 | 560 | 568 | 9 | LPFQQFGRD 7e-06 | 74 |
| HLA-A*26:01 | 1 | 560 | 568 | 9 | LPFQQFGRD 7e-06 | 66 |
| HLA-B*35:01 | 1 | 562 | 571 | 10 | FQQFGRDIAD 7e-06 | 56 |
| HLA-A*11:01 | 1 | 563 | 572 | 10 | QQFGRDIADT 7e-06 | 53 |
| HLA-A*26:01 | 1 | 564 | 573 | 10 | QFGRDIADTT 7e-06 | 66 |
| HLA-A*31:01 | 1 | 564 | 572 | 9 | QFGRDIADT 7e-06 | 74 |
| HLA-B*07:02 | 1 | 564 | 572 | 9 | QFGRDIADT 7e-06 | 71 |
| HLA-B*44:02 | 1 | 564 | 572 | 9 | QFGRDIADT 7e-06 | 62 |
| HLA-B*57:01 | 1 | 564 | 572 | 9 | QFGRDIADT 7e-06 | 87 |
| HLA-B*58:01 | 1 | 566 | 574 | 9 | GRDIADTTD 7e-06 | 77 |
| HLA-A*11:01 | 1 | 570 | 579 | 10 | ADTTDAVRDP 7e-06 | 53 |
| HLA-B*58:01 | 1 | 570 | 578 | 9 | ADTTDAVRD 7e-06 | 77 |
| HLA-A*02:03 | 1 | 572 | 580 | 9 | TTDAVRDPQ 7e-06 | 74 |
| HLA-A*32:01 | 1 | 572 | 581 | 10 | TTDAVRDPQT 7e-06 | 57 |
| HLA-A*23:01 | 1 | 574 | 583 | 10 | DAVRDPQTL 7e-06 | 53 |
| HLA-A*01:01 | 1 | 578 | 586 | 9 | DPQTLIELD 7e-06 | 92 |
| HLA-A*30:02 | 1 | 578 | 586 | 9 | DPQTLIELD 7e-06 | 91 |
| HLA-B*44:02 | 1 | 578 | 586 | 9 | DPQTLIELD 7e-06 | 62 |
| HLA-B*51:01 | 1 | 579 | 588 | 10 | PQTLIELDIT 7e-06 | 81 |
| HLA-A*26:01 | 1 | 581 | 589 | 9 | TLEILDITP 7e-06 | 66 |
| HLA-A*23:01 | 1 | 582 | 590 | 9 | LEILDITPC 7e-06 | 53 |
| HLA-A*31:01 | 1 | 586 | 594 | 9 | DITPCSF GG 7e-06 | 74 |
| HLA-B*35:01 | 1 | 586 | 595 | 10 | DITPCSF GGV 7e-06 | 56 |
| HLA-A*31:01 | 1 | 588 | 596 | 9 | TPCSF GGV 7e-06 | 74 |
| HLA-A*24:02 | 1 | 590 | 599 | 10 | CSF GGVSVIT 7e-06 | 51 |
| HLA-A*03:01 | 1 | 592 | 600 | 9 | FGGVSVITP 7e-06 | 68 |
| HLA-A*32:01 | 1 | 592 | 600 | 9 | FGGVSVITP 7e-06 | 57 |
| HLA-B*08:01 | 1 | 592 | 601 | 10 | FGGVSVITPG 7e-06 | 88 |
| HLA-A*32:01 | 1 | 593 | 601 | 9 | GGVSVITPG 7e-06 | 57 |
| HLA-A*02:01 | 1 | 594 | 603 | 10 | GVSITPGTN 7e-06 | 71 |
| HLA-B*08:01 | 1 | 595 | 603 | 9 | VSVITPGTN 7e-06 | 88 |
| HLA-B*40:01 | 1 | 595 | 604 | 10 | VSVITPGTNT 7e-06 | 48 |
| HLA-A*23:01 | 1 | 598 | 606 | 9 | ITPGTNTSN 7e-06 | 53 |
| HLA-A*24:02 | 1 | 598 | 607 | 10 | ITPGTNTSNQ 7e-06 | 51 |
| HLA-B*44:03 | 1 | 598 | 607 | 10 | ITPGTNTSNQ 7e-06 | 57 |
| HLA-A*31:01 | 1 | 600 | 608 | 9 | PGTNTSNQV 7e-06 | 74 |
| HLA-A*23:01 | 1 | 601 | 609 | 9 | GTNTSNQVA 7e-06 | 53 |
| HLA-A*11:01 | 1 | 606 | 615 | 10 | NQVAVLYQDV 7e-06 | 53 |
| HLA-B*15:01 | 1 | 608 | 616 | 9 | VAVLYQDVN 7e-06 | 70 |
| HLA-B*15:01 | 1 | 608 | 617 | 10 | VAVLYQDVNC 7e-06 | 70 |
| HLA-A*26:01 | 1 | 612 | 621 | 10 | YQDVNCTEVP 7e-06 | 66 |
| HLA-A*23:01 | 1 | 613 | 621 | 9 | QDVNCTEVP 7e-06 | 53 |
| HLA-A*24:02 | 1 | 613 | 622 | 10 | QDVNCTEVPV 7e-06 | 51 |
| HLA-B*44:03 | 1 | 614 | 623 | 10 | DVNCTEVPVA 7e-06 | 57 |
| HLA-B*40:01 | 1 | 617 | 625 | 9 | CTEVPVAIH 7e-06 | 48 |
| HLA-B*44:02 | 1 | 619 | 628 | 10 | EVPVAIHADQ 7e-06 | 62 |
| HLA-A*32:01 | 1 | 624 | 632 | 9 | IHADQLTPT 7e-06 | 57 |
| HLA-B*15:01 | 1 | 629 | 638 | 10 | LTPTWRVYST 7e-06 | 70 |
| HLA-A*02:03 | 1 | 630 | 639 | 10 | TPTWRVYSTG 7e-06 | 74 |
| HLA-A*02:01 | 1 | 631 | 639 | 9 | PTWRVYSTG 7e-06 | 71 |
| HLA-A*31:01 | 1 | 631 | 640 | 10 | PTWRVYSTGS 7e-06 | 74 |
| HLA-A*32:01 | 1 | 631 | 640 | 10 | PTWRVYSTGS 7e-06 | 57 |
| HLA-B*15:01 | 1 | 631 | 639 | 9 | PTWRVYSTG 7e-06 | 70 |
| HLA-A*01:01 | 1 | 632 | 641 | 10 | TWRVYSTGSN 7e-06 | 92 |
| HLA-A*24:02 | 1 | 632 | 641 | 10 | TWRVYSTGSN 7e-06 | 51 |
| HLA-B*57:01 | 1 | 632 | 640 | 9 | TWRVYSTGS 7e-06 | 87 |
| HLA-A*02:06 | 1 | 639 | 648 | 10 | GSNVFQTRAG 7e-06 | 79 |
| HLA-B*44:03 | 1 | 640 | 649 | 10 | SNVFQTRAGC 7e-06 | 57 |
| HLA-A*11:01 | 1 | 642 | 651 | 10 | VFQTRAGCLI 7e-06 | 53 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-A*68:02 | 1 | 643 | 652 | 10 | FQTRAGCLIG 7e-06 | 70 |
| HLA-B*44:02 | 1 | 644 | 652 | 9 | QTRAGCLIG 7e-06 | 62 |
| HLA-B*53:01 | 1 | 644 | 652 | 9 | TRAGCLIG 7e-06 | 56 |
| HLA-A*01:01 | 1 | 645 | 654 | 10 | TRAGCLIGAE 7e-06 | 92 |
| HLA-A*02:06 | 1 | 645 | 654 | 10 | TRAGCLIGAE 7e-06 | 79 |
| HLA-A*02:01 | 1 | 646 | 654 | 9 | RAGCLIGAE 7e-06 | 71 |
| HLA-A*68:02 | 1 | 646 | 654 | 9 | RAGCLIGAE 7e-06 | 70 |
| HLA-A*11:01 | 1 | 647 | 656 | 10 | AGCLIGAEHV 7e-06 | 53 |
| HLA-A*23:01 | 1 | 647 | 655 | 9 | AGCLIGAEH 7e-06 | 53 |
| HLA-A*68:01 | 1 | 647 | 656 | 10 | AGCLIGAEHV 7e-06 | 66 |
| HLA-B*53:01 | 1 | 647 | 656 | 10 | AGCLIGAEHV 7e-06 | 56 |
| HLA-A*68:02 | 1 | 649 | 657 | 9 | CLIGAEHVN 7e-06 | 70 |
| HLA-A*02:01 | 1 | 650 | 658 | 9 | LIGAEHVNN 7e-06 | 71 |
| HLA-A*02:03 | 1 | 650 | 658 | 9 | LIGAEHVNN 7e-06 | 74 |
| HLA-A*02:01 | 1 | 652 | 661 | 10 | GAEHVNSYE 7e-06 | 71 |
| HLA-A*31:01 | 1 | 653 | 662 | 10 | AEHVNNSYEC 7e-06 | 74 |
| HLA-A*01:01 | 1 | 654 | 663 | 10 | EHVNNSYECD 7e-06 | 92 |
| HLA-A*68:02 | 1 | 654 | 663 | 10 | EHVNNSYECD 7e-06 | 70 |
| HLA-B*57:01 | 1 | 656 | 665 | 10 | VNNSYECDIP 7e-06 | 87 |
| HLA-A*30:02 | 1 | 657 | 665 | 9 | NNSYECDIP 7e-06 | 91 |
| HLA-B*40:01 | 1 | 657 | 666 | 10 | NNSYECDIPI 7e-06 | 48 |
| HLA-B*44:02 | 1 | 657 | 666 | 10 | NNSYECDIPI 7e-06 | 62 |
| HLA-B*58:01 | 1 | 659 | 667 | 9 | SYECDIPIG 7e-06 | 77 |
| HLA-A*03:01 | 1 | 662 | 671 | 10 | CDIPIGAGIC 7e-06 | 68 |
| HLA-A*31:01 | 1 | 662 | 671 | 10 | CDIPIGAGIC 7e-06 | 74 |
| HLA-A*68:01 | 1 | 662 | 671 | 10 | CDIPIGAGIC 7e-06 | 66 |
| HLA-B*40:01 | 1 | 663 | 672 | 10 | DIPIGAGICA 7e-06 | 48 |
| HLA-B*44:03 | 1 | 663 | 672 | 10 | DIPIGAGICA 7e-06 | 57 |
| HLA-B*57:01 | 1 | 663 | 671 | 9 | DIPIGAGIC 7e-06 | 87 |
| HLA-B*44:03 | 1 | 664 | 673 | 10 | IPIGAGICAS 7e-06 | 57 |
| HLA-B*40:01 | 1 | 668 | 676 | 9 | AGICASYQT 7e-06 | 48 |
| HLA-A*26:01 | 1 | 671 | 680 | 10 | CASYQTQTN 7e-06 | 66 |
| HLA-A*24:02 | 1 | 677 | 686 | 10 | QTNSPRRARS 7e-06 | 51 |
| HLA-B*15:01 | 1 | 678 | 686 | 9 | TNSPRRARS 7e-06 | 70 |
| HLA-B*53:01 | 1 | 678 | 687 | 10 | TNSPRRARSV 7e-06 | 56 |
| HLA-A*33:01 | 1 | 681 | 689 | 9 | PRRARSVAS 7e-06 | 79 |
| HLA-B*15:01 | 1 | 681 | 689 | 9 | PRRARSVAS 7e-06 | 70 |
| HLA-B*57:01 | 1 | 681 | 690 | 10 | PRRARSVASQ 7e-06 | 87 |
| HLA-B*40:01 | 1 | 682 | 691 | 10 | RRARSVASQS 7e-06 | 48 |
| HLA-A*23:01 | 1 | 683 | 691 | 9 | RARSVASQS 7e-06 | 53 |
| HLA-B*44:02 | 1 | 691 | 700 | 10 | SIIAYTMSLG 7e-06 | 62 |
| HLA-A*26:01 | 1 | 693 | 702 | 10 | IAYTMSLGAE 7e-06 | 66 |
| HLA-A*68:02 | 1 | 694 | 702 | 9 | AYTMSLGAE 7e-06 | 70 |
| HLA-B*51:01 | 1 | 701 | 710 | 10 | AENSVAYSNN 7e-06 | 81 |
| HLA-A*03:01 | 1 | 708 | 717 | 10 | SNNSIAIPTN 7e-06 | 68 |
| HLA-B*44:03 | 1 | 708 | 717 | 10 | SNNSIAIPTN 7e-06 | 57 |
| HLA-B*51:01 | 1 | 708 | 717 | 10 | SNNSIAIPTN 7e-06 | 81 |
| HLA-A*03:01 | 1 | 709 | 717 | 9 | NNSIAIPTN 7e-06 | 68 |
| HLA-B*44:02 | 1 | 712 | 721 | 10 | IAIPTNFTIS 7e-06 | 62 |
| HLA-B*44:02 | 1 | 713 | 721 | 9 | AIPTNFTIS 7e-06 | 62 |
| HLA-B*44:02 | 1 | 714 | 723 | 10 | IPTNFTISVT 7e-06 | 62 |
| HLA-B*35:01 | 1 | 719 | 728 | 10 | TISVTTEILP 7e-06 | 56 |
| HLA-B*08:01 | 1 | 728 | 737 | 10 | PVSMTKTSVD 7e-06 | 88 |
| HLA-A*02:01 | 1 | 729 | 737 | 9 | VSMTKTSVD 7e-06 | 71 |
| HLA-A*26:01 | 1 | 729 | 738 | 10 | VSMTKTSVDC 7e-06 | 66 |
| HLA-A*26:01 | 1 | 730 | 738 | 9 | SMTKTSVDC 7e-06 | 66 |
| HLA-B*40:01 | 1 | 731 | 739 | 9 | MTKTSVDCT 7e-06 | 48 |
| HLA-B*15:01 | 1 | 734 | 743 | 10 | TSVDCTMYIC 7e-06 | 70 |
| HLA-A*02:01 | 1 | 735 | 744 | 10 | SVDCTMYICG 7e-06 | 71 |
| HLA-A*68:02 | 1 | 735 | 744 | 10 | SVDCTMYICG 7e-06 | 70 |
| HLA-B*51:01 | 1 | 736 | 744 | 9 | VDCTMYICG 7e-06 | 81 |
| HLA-A*01:01 | 1 | 737 | 746 | 10 | DCTMYICGDS 7e-06 | 92 |
| HLA-A*32:01 | 1 | 738 | 747 | 10 | CTMYICGDST 7e-06 | 57 |
| HLA-B*15:01 | 1 | 738 | 747 | 10 | CTMYICGDST 7e-06 | 70 |
| HLA-A*11:01 | 1 | 741 | 750 | 10 | YICGDSTEC 7e-06 | 53 |
| HLA-B*08:01 | 1 | 742 | 750 | 9 | ICGDSTEC 7e-06 | 88 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-A*26:01 | 1 | 743 | 752 | 10 | CGDSTECNSL 7e-06 | 66 |
| HLA-B*15:01 | 1 | 743 | 752 | 10 | CGDSTECNSL 7e-06 | 70 |
| HLA-B*40:01 | 1 | 743 | 752 | 10 | CGDSTECNSL 7e-06 | 48 |
| HLA-B*51:01 | 1 | 743 | 751 | 9 | CGDSTECNSL 7e-06 | 81 |
| HLA-A*02:03 | 1 | 747 | 755 | 9 | TECSNLLLQ 7e-06 | 74 |
| HLA-B*15:01 | 1 | 750 | 758 | 9 | SNLLLQYGS 7e-06 | 70 |
| HLA-B*53:01 | 1 | 751 | 760 | 10 | NLLLQYGSFC 7e-06 | 56 |
| HLA-A*23:01 | 1 | 753 | 761 | 9 | LLQYGSFCT 7e-06 | 53 |
| HLA-B*44:02 | 1 | 753 | 761 | 9 | LLQYGSFCT 7e-06 | 62 |
| HLA-B*44:03 | 1 | 753 | 761 | 9 | LLQYGSFCT 7e-06 | 57 |
| HLA-B*44:02 | 1 | 755 | 764 | 10 | QYGSFCTQLN 7e-06 | 62 |
| HLA-B*07:02 | 1 | 756 | 764 | 9 | YGSFCTQLN 7e-06 | 71 |
| HLA-B*44:03 | 1 | 756 | 765 | 10 | YGSFCTQLNR 7e-06 | 57 |
| HLA-B*53:01 | 1 | 757 | 766 | 10 | GSFCTQLNRA 7e-06 | 56 |
| HLA-B*15:01 | 1 | 759 | 768 | 10 | FCTQLNRALT 7e-06 | 70 |
| HLA-B*53:01 | 1 | 759 | 768 | 10 | FCTQLNRALT 7e-06 | 56 |
| HLA-B*07:02 | 1 | 760 | 769 | 10 | CTQLNRALTG 7e-06 | 71 |
| HLA-A*11:01 | 1 | 762 | 771 | 10 | QLNRALTGIA 7e-06 | 53 |
| HLA-A*02:01 | 1 | 763 | 771 | 9 | LNRLALTGIA 7e-06 | 71 |
| HLA-B*35:01 | 1 | 763 | 771 | 9 | LNRLALTGIA 7e-06 | 56 |
| HLA-A*23:01 | 1 | 764 | 773 | 10 | NRALTGIAVE 7e-06 | 53 |
| HLA-A*31:01 | 1 | 766 | 775 | 10 | ALTGIAVEQD 7e-06 | 74 |
| HLA-B*53:01 | 1 | 767 | 776 | 10 | LTGIAVEQDK 7e-06 | 56 |
| HLA-A*24:02 | 1 | 768 | 776 | 9 | TGIAVEQDK 7e-06 | 51 |
| HLA-B*40:01 | 1 | 768 | 776 | 9 | TGIAVEQDK 7e-06 | 48 |
| HLA-A*68:01 | 1 | 769 | 778 | 10 | GIAVEQDKNT 7e-06 | 66 |
| HLA-B*51:01 | 1 | 771 | 780 | 10 | AVEQDKNTQE 7e-06 | 81 |
| HLA-B*35:01 | 1 | 775 | 784 | 10 | DKNTQEVFAQ 7e-06 | 56 |
| HLA-B*53:01 | 1 | 775 | 784 | 10 | DKNTQEVFAQ 7e-06 | 56 |
| HLA-A*02:03 | 1 | 779 | 787 | 9 | QEVFAQVKQ 7e-06 | 74 |
| HLA-A*24:02 | 1 | 779 | 787 | 9 | QEVFAQVKQ 7e-06 | 51 |
| HLA-B*44:02 | 1 | 787 | 796 | 10 | QIYKTPPIKD 7e-06 | 62 |
| HLA-A*26:01 | 1 | 788 | 796 | 9 | IYKTPPIKD 7e-06 | 66 |
| HLA-B*44:03 | 1 | 788 | 796 | 9 | IYKTPPIKD 7e-06 | 57 |
| HLA-B*40:01 | 1 | 790 | 798 | 9 | KTPPIKDFG 7e-06 | 48 |
| HLA-B*35:01 | 1 | 792 | 801 | 10 | PPIKDFGGFN 7e-06 | 56 |
| HLA-B*51:01 | 1 | 793 | 801 | 9 | PIKDFGGFN 7e-06 | 81 |
| HLA-A*03:01 | 1 | 799 | 808 | 10 | GFNFSQILPD 7e-06 | 68 |
| HLA-A*26:01 | 1 | 800 | 808 | 9 | FNFSQILPD 7e-06 | 66 |
| HLA-A*32:01 | 1 | 800 | 808 | 9 | FNFSQILPD 7e-06 | 57 |
| HLA-A*02:03 | 1 | 807 | 815 | 9 | PDPSKPSKR 7e-06 | 74 |
| HLA-A*31:01 | 1 | 807 | 816 | 10 | PDPSKPSKRS 7e-06 | 74 |
| HLA-B*15:01 | 1 | 807 | 815 | 9 | PDPSKPSKR 7e-06 | 70 |
| HLA-B*44:02 | 1 | 807 | 816 | 10 | PDPSKPSKRS 7e-06 | 62 |
| HLA-A*02:03 | 1 | 810 | 819 | 10 | SKPSKRSFIE 7e-06 | 74 |
| HLA-A*26:01 | 1 | 810 | 819 | 10 | SKPSKRSFIE 7e-06 | 66 |
| HLA-A*02:03 | 1 | 811 | 819 | 9 | KPSKRSFIE 7e-06 | 74 |
| HLA-A*03:01 | 1 | 811 | 820 | 10 | KPSKRSFIED 7e-06 | 68 |
| HLA-A*31:01 | 1 | 811 | 820 | 10 | KPSKRSFIED 7e-06 | 74 |
| HLA-B*51:01 | 1 | 812 | 820 | 9 | PSKRSFIED 7e-06 | 81 |
| HLA-B*07:02 | 1 | 815 | 824 | 10 | RSFIEDLLFN 7e-06 | 71 |
| HLA-B*07:02 | 1 | 816 | 824 | 9 | SFIEDLLFN 7e-06 | 71 |
| HLA-B*40:01 | 1 | 816 | 825 | 10 | SFIEDLLFNK 7e-06 | 48 |
| HLA-A*26:01 | 1 | 818 | 827 | 10 | IEDLLFNKVT 7e-06 | 66 |
| HLA-B*58:01 | 1 | 818 | 827 | 10 | IEDLLFNKVT 7e-06 | 77 |
| HLA-A*02:01 | 1 | 819 | 827 | 9 | EDLLFNKVT 7e-06 | 71 |
| HLA-A*23:01 | 1 | 819 | 827 | 9 | EDLLFNKVT 7e-06 | 53 |
| HLA-B*58:01 | 1 | 819 | 827 | 9 | EDLLFNKVT 7e-06 | 77 |
| HLA-B*07:02 | 1 | 821 | 830 | 10 | LLFNKVTLAD 7e-06 | 71 |
| HLA-A*11:01 | 1 | 822 | 831 | 10 | LFNKVTLADA 7e-06 | 53 |
| HLA-A*68:02 | 1 | 822 | 830 | 9 | LFNKVTLAD 7e-06 | 70 |
| HLA-B*51:01 | 1 | 823 | 832 | 10 | FNKVTLADAG 7e-06 | 81 |
| HLA-B*58:01 | 1 | 823 | 831 | 9 | FNKVTLADA 7e-06 | 77 |
| HLA-B*53:01 | 1 | 824 | 832 | 9 | NKVTLADAG 7e-06 | 56 |
| HLA-B*44:03 | 1 | 825 | 834 | 10 | KVTLADAGFI 7e-06 | 57 |
| HLA-B*40:01 | 1 | 826 | 835 | 10 | VTLADAGFIK 7e-06 | 48 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-B*07:02 | 1 | 829 | 838 | 10 | ADAGFIKQYG 7e-06 | 71 |
| HLA-A*30:01 | 1 | 830 | 839 | 10 | DAGFIKQYGD 7e-06 | 92 |
| HLA-A*02:01 | 1 | 831 | 839 | 9 | AGFIKQYGD 7e-06 | 71 |
| HLA-B*07:02 | 1 | 831 | 840 | 10 | AGFIKQYGDC 7e-06 | 71 |
| HLA-A*01:01 | 1 | 834 | 842 | 9 | IKQYGDCLG 7e-06 | 92 |
| HLA-A*30:01 | 1 | 834 | 843 | 10 | IKQYGDCLGD 7e-06 | 92 |
| HLA-A*68:02 | 1 | 835 | 843 | 9 | KQYGDCLGD 7e-06 | 70 |
| HLA-A*02:01 | 1 | 836 | 845 | 10 | QYGDCLGDIA 7e-06 | 71 |
| HLA-A*03:01 | 1 | 836 | 845 | 10 | QYGDCLGDIA 7e-06 | 68 |
| HLA-B*53:01 | 1 | 836 | 845 | 10 | QYGDCLGDIA 7e-06 | 56 |
| HLA-B*15:01 | 1 | 837 | 846 | 10 | YGDCLGDIAA 7e-06 | 70 |
| HLA-A*02:03 | 1 | 838 | 846 | 9 | GDCLGDIAA 7e-06 | 74 |
| HLA-A*23:01 | 1 | 838 | 847 | 10 | GDCLGDIAAR 7e-06 | 53 |
| HLA-A*26:01 | 1 | 838 | 846 | 9 | GDCLGDIAA 7e-06 | 66 |
| HLA-B*40:01 | 1 | 839 | 847 | 9 | DCLGDIAAR 7e-06 | 48 |
| HLA-B*57:01 | 1 | 839 | 848 | 10 | DCLGDIAARD 7e-06 | 87 |
| HLA-A*30:01 | 1 | 840 | 848 | 9 | CLGDIAARD 7e-06 | 92 |
| HLA-A*68:02 | 1 | 840 | 848 | 9 | CLGDIAARD 7e-06 | 70 |
| HLA-A*31:01 | 1 | 842 | 851 | 10 | GDIAARDLIC 7e-06 | 74 |
| HLA-A*33:01 | 1 | 842 | 851 | 10 | GDIAARDLIC 7e-06 | 79 |
| HLA-A*11:01 | 1 | 843 | 852 | 10 | DIAARDLICA 7e-06 | 53 |
| HLA-B*44:02 | 1 | 843 | 851 | 9 | DIAARDLIC 7e-06 | 62 |
| HLA-A*23:01 | 1 | 844 | 852 | 9 | IAARDLICA 7e-06 | 53 |
| HLA-A*02:03 | 1 | 847 | 855 | 9 | RDICAQKF 7e-06 | 74 |
| HLA-B*44:03 | 1 | 851 | 859 | 9 | CAQKFNGLT 7e-06 | 57 |
| HLA-B*40:01 | 1 | 857 | 866 | 10 | GLTVLPPLLT 7e-06 | 48 |
| HLA-B*40:01 | 1 | 859 | 868 | 10 | TVLPPLLTDE 7e-06 | 48 |
| HLA-B*44:03 | 1 | 860 | 868 | 9 | VLPPLLTDE 7e-06 | 57 |
| HLA-B*44:02 | 1 | 861 | 870 | 10 | LPPLLTDEMI 7e-06 | 62 |
| HLA-A*30:01 | 1 | 862 | 870 | 9 | PPLLTDEMI 7e-06 | 92 |
| HLA-A*68:02 | 1 | 862 | 871 | 10 | PPLLTDEMIA 7e-06 | 70 |
| HLA-B*15:01 | 1 | 862 | 870 | 9 | PPLLTDEMI 7e-06 | 70 |
| HLA-B*44:02 | 1 | 862 | 870 | 9 | PPLLTDEMI 7e-06 | 62 |
| HLA-A*24:02 | 1 | 864 | 872 | 9 | LLTDEMIAQ 7e-06 | 51 |
| HLA-A*24:02 | 1 | 865 | 874 | 10 | LTDEMIAQYT 7e-06 | 51 |
| HLA-A*02:01 | 1 | 866 | 874 | 9 | TDEMIAQYT 7e-06 | 71 |
| HLA-A*02:03 | 1 | 866 | 874 | 9 | TDEMIAQYT 7e-06 | 74 |
| HLA-A*26:01 | 1 | 866 | 875 | 10 | TDEMIAQYTS 7e-06 | 66 |
| HLA-B*15:01 | 1 | 866 | 875 | 10 | TDEMIAQYTS 7e-06 | 70 |
| HLA-B*53:01 | 1 | 866 | 875 | 10 | TDEMIAQYTS 7e-06 | 56 |
| HLA-B*58:01 | 1 | 866 | 875 | 10 | TDEMIAQYTS 7e-06 | 77 |
| HLA-B*53:01 | 1 | 871 | 880 | 10 | AQYTSALLAG 7e-06 | 56 |
| HLA-A*31:01 | 1 | 874 | 883 | 10 | TSALLAGTIT 7e-06 | 74 |
| HLA-A*32:01 | 1 | 874 | 883 | 10 | TSALLAGTIT 7e-06 | 57 |
| HLA-A*23:01 | 1 | 875 | 883 | 9 | SALLAGTIT 7e-06 | 53 |
| HLA-B*44:02 | 1 | 876 | 885 | 10 | ALLAGTITSG 7e-06 | 62 |
| HLA-B*44:03 | 1 | 877 | 885 | 9 | LLAGTITSG 7e-06 | 57 |
| HLA-A*26:01 | 1 | 878 | 887 | 10 | LAGTITSGWT 7e-06 | 66 |
| HLA-B*35:01 | 1 | 878 | 887 | 10 | LAGTITSGWT 7e-06 | 56 |
| HLA-A*26:01 | 1 | 882 | 891 | 10 | ITSGWTFGAG 7e-06 | 66 |
| HLA-A*31:01 | 1 | 882 | 891 | 10 | ITSGWTFGAG 7e-06 | 74 |
| HLA-B*44:02 | 1 | 883 | 892 | 10 | TSGWTFGAGA 7e-06 | 62 |
| HLA-A*26:01 | 1 | 885 | 893 | 9 | GWTFGAGAA 7e-06 | 66 |
| HLA-B*58:01 | 1 | 885 | 893 | 9 | GWTFGAGAA 7e-06 | 77 |
| HLA-A*23:01 | 1 | 888 | 897 | 10 | FGAGAALQIP 7e-06 | 53 |
| HLA-A*24:02 | 1 | 890 | 899 | 10 | AGAALQIPFA 7e-06 | 51 |
| HLA-A*02:01 | 1 | 897 | 906 | 10 | PFAMQMAYRF 7e-06 | 71 |
| HLA-A*02:03 | 1 | 897 | 905 | 9 | PFAMQMAYR 7e-06 | 74 |
| HLA-A*02:01 | 1 | 898 | 907 | 10 | FAMQMAYRFN 7e-06 | 71 |
| HLA-A*11:01 | 1 | 899 | 908 | 10 | AMQMAYRFNG 7e-06 | 53 |
| HLA-B*07:02 | 1 | 899 | 907 | 9 | AMQMAYRFN 7e-06 | 71 |
| HLA-A*03:01 | 1 | 902 | 910 | 9 | MAYRFNGIG 7e-06 | 68 |
| HLA-B*44:03 | 1 | 905 | 914 | 10 | RFNGIGVTQN 7e-06 | 57 |
| HLA-B*51:01 | 1 | 905 | 914 | 10 | RFNGIGVTQN 7e-06 | 81 |
| HLA-B*53:01 | 1 | 905 | 914 | 10 | RFNGIGVTQN 7e-06 | 56 |
| HLA-B*15:01 | 1 | 906 | 914 | 9 | FNGIGVTQN 7e-06 | 70 |

| | | | | | | |
|-------------|---|------|------|----|-------------------|----|
| HLA-B*35:01 | 1 | 911 | 920 | 10 | VTQNVLYENQ 7e-06 | 56 |
| HLA-A*23:01 | 1 | 913 | 921 | 9 | QNVLYENQK 7e-06 | 53 |
| HLA-B*51:01 | 1 | 916 | 925 | 10 | LYENQKLIAN 7e-06 | 81 |
| HLA-B*57:01 | 1 | 916 | 925 | 10 | LYENQKLIAN 7e-06 | 87 |
| HLA-A*02:03 | 1 | 918 | 926 | 9 | ENQKLIANQ 7e-06 | 74 |
| HLA-B*44:03 | 1 | 920 | 929 | 10 | QKLIANQFNS 7e-06 | 57 |
| HLA-B*58:01 | 1 | 920 | 928 | 9 | QKLIANQFN 7e-06 | 77 |
| HLA-B*53:01 | 1 | 921 | 929 | 9 | KLIANQFNS 7e-06 | 56 |
| HLA-A*02:01 | 1 | 923 | 932 | 10 | IANQFNSAIG 7e-06 | 71 |
| HLA-A*02:03 | 1 | 924 | 932 | 9 | ANQFNSAIG 7e-06 | 74 |
| HLA-A*32:01 | 1 | 926 | 935 | 10 | QFNSAIGKIQ 7e-06 | 57 |
| HLA-A*26:01 | 1 | 928 | 936 | 9 | NSAIGKIQD 7e-06 | 66 |
| HLA-B*15:01 | 1 | 928 | 937 | 10 | NSAIGKIQDS 7e-06 | 70 |
| HLA-B*44:02 | 1 | 931 | 939 | 9 | IGKIQDSL 7e-06 | 62 |
| HLA-A*33:01 | 1 | 932 | 940 | 9 | GKIQDSLSS 7e-06 | 79 |
| HLA-A*32:01 | 1 | 934 | 943 | 10 | IQDSLSSSTAS 7e-06 | 57 |
| HLA-A*31:01 | 1 | 938 | 946 | 9 | LSSTASALG 7e-06 | 74 |
| HLA-B*44:03 | 1 | 942 | 950 | 9 | ASALGKLQD 7e-06 | 57 |
| HLA-A*26:01 | 1 | 945 | 954 | 10 | LGKLQDVVNQ 7e-06 | 66 |
| HLA-B*35:01 | 1 | 945 | 954 | 10 | LGKLQDVVNQ 7e-06 | 56 |
| HLA-B*53:01 | 1 | 946 | 954 | 9 | GKLQDVVNQ 7e-06 | 56 |
| HLA-A*24:02 | 1 | 948 | 957 | 10 | LQDVVNQNAQ 7e-06 | 51 |
| HLA-A*32:01 | 1 | 948 | 957 | 10 | LQDVVNQNAQ 7e-06 | 57 |
| HLA-A*23:01 | 1 | 950 | 958 | 9 | DVVNQNAQA 7e-06 | 53 |
| HLA-A*24:02 | 1 | 957 | 965 | 9 | QALNTLVKQ 7e-06 | 51 |
| HLA-B*40:01 | 1 | 958 | 967 | 10 | ALNTLVKQLS 7e-06 | 48 |
| HLA-B*35:01 | 1 | 959 | 967 | 9 | LNTLVKQLS 7e-06 | 56 |
| HLA-A*02:01 | 1 | 960 | 969 | 10 | NTLVKQLSSN 7e-06 | 71 |
| HLA-A*03:01 | 1 | 960 | 969 | 10 | NTLVKQLSSN 7e-06 | 68 |
| HLA-A*31:01 | 1 | 960 | 969 | 10 | NTLVKQLSSN 7e-06 | 74 |
| HLA-A*02:01 | 1 | 962 | 971 | 10 | LVKQLSSNFG 7e-06 | 71 |
| HLA-B*44:02 | 1 | 965 | 974 | 10 | QLSSNFGAIS 7e-06 | 62 |
| HLA-B*08:01 | 1 | 966 | 975 | 10 | LSSNFGAISS 7e-06 | 88 |
| HLA-A*02:01 | 1 | 970 | 979 | 10 | FGAISSVLND 7e-06 | 71 |
| HLA-B*53:01 | 1 | 970 | 979 | 10 | FGAISSVLND 7e-06 | 56 |
| HLA-A*03:01 | 1 | 971 | 979 | 9 | GAISSVLND 7e-06 | 68 |
| HLA-B*08:01 | 1 | 973 | 982 | 10 | ISSVLNDILS 7e-06 | 88 |
| HLA-A*68:01 | 1 | 976 | 985 | 10 | VLNDILSRLD 7e-06 | 66 |
| HLA-B*44:02 | 1 | 977 | 985 | 9 | LNDILSRLD 7e-06 | 62 |
| HLA-B*44:03 | 1 | 977 | 985 | 9 | LNDILSRLD 7e-06 | 57 |
| HLA-A*32:01 | 1 | 978 | 986 | 9 | NDILSRLDK 7e-06 | 57 |
| HLA-A*11:01 | 1 | 980 | 988 | 9 | ILSRLDKVE 7e-06 | 53 |
| HLA-A*26:01 | 1 | 980 | 989 | 10 | ILSRLDKVEA 7e-06 | 66 |
| HLA-B*44:02 | 1 | 980 | 988 | 9 | ILSRLDKVE 7e-06 | 62 |
| HLA-B*44:03 | 1 | 980 | 988 | 9 | ILSRLDKVE 7e-06 | 57 |
| HLA-B*53:01 | 1 | 980 | 988 | 9 | ILSRLDKVE 7e-06 | 56 |
| HLA-A*11:01 | 1 | 985 | 993 | 9 | DKVEAEVQI 7e-06 | 53 |
| HLA-B*53:01 | 1 | 985 | 994 | 10 | DKVEAEVQID 7e-06 | 56 |
| HLA-A*02:03 | 1 | 986 | 994 | 9 | KVEAEVQID 7e-06 | 74 |
| HLA-A*32:01 | 1 | 986 | 994 | 9 | KVEAEVQID 7e-06 | 57 |
| HLA-A*11:01 | 1 | 988 | 997 | 10 | EAEVQIDRLI 7e-06 | 53 |
| HLA-A*11:01 | 1 | 990 | 999 | 10 | EVQIDRLITG 7e-06 | 53 |
| HLA-B*40:01 | 1 | 993 | 1002 | 10 | IDRLITGRLQ 7e-06 | 48 |
| HLA-A*23:01 | 1 | 997 | 1005 | 9 | ITGRLQSLQ 7e-06 | 53 |
| HLA-A*26:01 | 1 | 997 | 1006 | 10 | ITGRLQSLQT 7e-06 | 66 |
| HLA-A*23:01 | 1 | 1007 | 1016 | 10 | YVTQQLIRAA 7e-06 | 53 |
| HLA-A*24:02 | 1 | 1007 | 1016 | 10 | YVTQQLIRAA 7e-06 | 51 |
| HLA-B*44:02 | 1 | 1008 | 1017 | 10 | VTQQLIRAAE 7e-06 | 62 |
| HLA-A*11:01 | 1 | 1009 | 1018 | 10 | TQQLIRAAEI 7e-06 | 53 |
| HLA-B*35:01 | 1 | 1011 | 1020 | 10 | QLIRAAEIRA 7e-06 | 56 |
| HLA-B*53:01 | 1 | 1013 | 1021 | 9 | IRAAEIRAS 7e-06 | 56 |
| HLA-B*40:01 | 1 | 1014 | 1023 | 10 | RAAEIRASAN 7e-06 | 48 |
| HLA-A*32:01 | 1 | 1018 | 1027 | 10 | IRASANLAAT 7e-06 | 57 |
| HLA-B*44:02 | 1 | 1018 | 1027 | 10 | IRASANLAAT 7e-06 | 62 |
| HLA-A*02:01 | 1 | 1022 | 1030 | 9 | ANLAATKMS 7e-06 | 71 |
| HLA-A*26:01 | 1 | 1022 | 1030 | 9 | ANLAATKMS 7e-06 | 66 |

| | | | | | | | |
|-------------|---|------|------|----|------------|-------|----|
| HLA-B*40:01 | 1 | 1023 | 1031 | 9 | NLAATKMSE | 7e-06 | 48 |
| HLA-A*23:01 | 1 | 1027 | 1035 | 9 | TKMSECVLG | 7e-06 | 53 |
| HLA-A*33:01 | 1 | 1027 | 1035 | 9 | TKMSECVLG | 7e-06 | 79 |
| HLA-B*35:01 | 1 | 1027 | 1036 | 10 | TKMSECVLGQ | 7e-06 | 56 |
| HLA-B*40:01 | 1 | 1027 | 1036 | 10 | TKMSECVLGQ | 7e-06 | 48 |
| HLA-B*53:01 | 1 | 1027 | 1035 | 9 | TKMSECVLG | 7e-06 | 56 |
| HLA-B*35:01 | 1 | 1029 | 1037 | 9 | MSECVLGQS | 7e-06 | 56 |
| HLA-A*32:01 | 1 | 1033 | 1041 | 9 | VLGQSKRVD | 7e-06 | 57 |
| HLA-B*35:01 | 1 | 1035 | 1043 | 9 | GQSKRVDFC | 7e-06 | 56 |
| HLA-A*11:01 | 1 | 1036 | 1044 | 9 | QSKRVDFCG | 7e-06 | 53 |
| HLA-A*23:01 | 1 | 1036 | 1045 | 10 | QSKRVDFCGK | 7e-06 | 53 |
| HLA-B*35:01 | 1 | 1036 | 1044 | 9 | QSKRVDFCG | 7e-06 | 56 |
| HLA-A*32:01 | 1 | 1037 | 1045 | 9 | SKRVDFCGK | 7e-06 | 57 |
| HLA-A*33:01 | 1 | 1037 | 1046 | 10 | SKRVDFCGKG | 7e-06 | 79 |
| HLA-B*15:01 | 1 | 1038 | 1046 | 9 | KRVDFCGKG | 7e-06 | 70 |
| HLA-A*02:01 | 1 | 1040 | 1048 | 9 | VDFCGKGYH | 7e-06 | 71 |
| HLA-A*31:01 | 1 | 1042 | 1051 | 10 | FCGKGYHLMS | 7e-06 | 74 |
| HLA-A*03:01 | 1 | 1044 | 1053 | 10 | GKGYHLMSFP | 7e-06 | 68 |
| HLA-A*26:01 | 1 | 1044 | 1053 | 10 | GKGYHLMSFP | 7e-06 | 66 |
| HLA-A*32:01 | 1 | 1044 | 1053 | 10 | GKGYHLMSFP | 7e-06 | 57 |
| HLA-A*02:03 | 1 | 1045 | 1054 | 10 | KGYHLMSFPQ | 7e-06 | 74 |
| HLA-B*35:01 | 1 | 1045 | 1053 | 9 | KGYHLMSFP | 7e-06 | 56 |
| HLA-B*40:01 | 1 | 1045 | 1053 | 9 | KGYHLMSFP | 7e-06 | 48 |
| HLA-B*53:01 | 1 | 1046 | 1054 | 9 | GYHLMSFPQ | 7e-06 | 56 |
| HLA-A*24:02 | 1 | 1049 | 1058 | 10 | LMSFPQSAPH | 7e-06 | 51 |
| HLA-A*30:02 | 1 | 1057 | 1066 | 10 | PHGVVFLHVT | 7e-06 | 91 |
| HLA-B*57:01 | 1 | 1057 | 1066 | 10 | PHGVVFLHVT | 7e-06 | 87 |
| HLA-A*24:02 | 1 | 1059 | 1068 | 10 | GVVFLHVTYV | 7e-06 | 51 |
| HLA-A*24:02 | 1 | 1064 | 1072 | 9 | HVTYVPAQE | 7e-06 | 51 |
| HLA-B*35:01 | 1 | 1065 | 1074 | 10 | VTYVPAQEKN | 7e-06 | 56 |
| HLA-B*44:03 | 1 | 1065 | 1074 | 10 | VTYVPAQEKN | 7e-06 | 57 |
| HLA-B*40:01 | 1 | 1066 | 1074 | 9 | TYVPAQEKN | 7e-06 | 48 |
| HLA-B*40:01 | 1 | 1067 | 1076 | 10 | YVPAQEKNFT | 7e-06 | 48 |
| HLA-A*23:01 | 1 | 1068 | 1076 | 9 | VPAQEKNFT | 7e-06 | 53 |
| HLA-A*03:01 | 1 | 1069 | 1077 | 9 | PAQEKNFTT | 7e-06 | 68 |
| HLA-B*40:01 | 1 | 1074 | 1082 | 9 | NFTTAPAIC | 7e-06 | 48 |
| HLA-B*40:01 | 1 | 1074 | 1083 | 10 | NFTTAPAICH | 7e-06 | 48 |
| HLA-A*02:06 | 1 | 1078 | 1086 | 9 | APAICHDGK | 7e-06 | 79 |
| HLA-B*40:01 | 1 | 1078 | 1087 | 10 | APAICHDGKA | 7e-06 | 48 |
| HLA-B*35:01 | 1 | 1079 | 1087 | 9 | PAICHDGKA | 7e-06 | 56 |
| HLA-A*26:01 | 1 | 1081 | 1090 | 10 | ICHDGKAHFP | 7e-06 | 66 |
| HLA-B*15:01 | 1 | 1082 | 1090 | 9 | CHDGKAHFP | 7e-06 | 70 |
| HLA-A*02:03 | 1 | 1083 | 1092 | 10 | HDGKAHFPRE | 7e-06 | 74 |
| HLA-B*44:03 | 1 | 1083 | 1092 | 10 | HDGKAHFPRE | 7e-06 | 57 |
| HLA-A*33:01 | 1 | 1084 | 1093 | 10 | DGKAHFPRG | 7e-06 | 79 |
| HLA-A*23:01 | 1 | 1085 | 1094 | 10 | GKAHFPRG | 7e-06 | 53 |
| HLA-A*26:01 | 1 | 1085 | 1093 | 9 | GKAHFPRG | 7e-06 | 66 |
| HLA-A*02:01 | 1 | 1089 | 1098 | 10 | FPREGVFSVN | 7e-06 | 71 |
| HLA-A*30:01 | 1 | 1090 | 1099 | 10 | PREGVFSVNG | 7e-06 | 92 |
| HLA-A*68:01 | 1 | 1091 | 1100 | 10 | REGVFSVNGT | 7e-06 | 66 |
| HLA-B*35:01 | 1 | 1091 | 1099 | 9 | REGVFSVNG | 7e-06 | 56 |
| HLA-B*53:01 | 1 | 1091 | 1100 | 10 | REGVFSVNGT | 7e-06 | 56 |
| HLA-A*23:01 | 1 | 1092 | 1100 | 9 | EGVFSVNGT | 7e-06 | 53 |
| HLA-A*24:02 | 1 | 1092 | 1100 | 9 | EGVFSVNGT | 7e-06 | 51 |
| HLA-A*26:01 | 1 | 1096 | 1105 | 10 | VSNGTHWFVT | 7e-06 | 66 |
| HLA-A*02:01 | 1 | 1097 | 1106 | 10 | SNGTHWFVTQ | 7e-06 | 71 |
| HLA-B*51:01 | 1 | 1099 | 1108 | 10 | GTHWFVTQRN | 7e-06 | 81 |
| HLA-B*44:02 | 1 | 1102 | 1111 | 10 | WFVTQRNFYE | 7e-06 | 62 |
| HLA-B*51:01 | 1 | 1104 | 1113 | 10 | VTQRNFYEPQ | 7e-06 | 81 |
| HLA-A*03:01 | 1 | 1111 | 1120 | 10 | EPQIITDNT | 7e-06 | 68 |
| HLA-B*15:01 | 1 | 1111 | 1119 | 9 | EPQIITDNT | 7e-06 | 70 |
| HLA-A*23:01 | 1 | 1112 | 1120 | 9 | PQIITDNT | 7e-06 | 53 |
| HLA-A*68:01 | 1 | 1112 | 1120 | 9 | PQIITDNT | 7e-06 | 66 |
| HLA-B*35:01 | 1 | 1114 | 1123 | 10 | IITDNTFVS | 7e-06 | 56 |
| HLA-B*51:01 | 1 | 1116 | 1125 | 10 | TTDNTFVSGN | 7e-06 | 81 |
| HLA-A*26:01 | 1 | 1117 | 1126 | 10 | TDNTFVSGNC | 7e-06 | 66 |

| | | | | | | |
|-------------|---|------|------|----|------------------|----|
| HLA-A*68:02 | 1 | 1117 | 1125 | 9 | TDNTFVSGN 7e-06 | 70 |
| HLA-B*40:01 | 1 | 1117 | 1126 | 10 | TDNTFVSGNC 7e-06 | 48 |
| HLA-A*68:01 | 1 | 1118 | 1127 | 10 | DNTFVSGNCD 7e-06 | 66 |
| HLA-A*02:06 | 1 | 1123 | 1131 | 9 | SGNCDVVGIG 7e-06 | 79 |
| HLA-A*24:02 | 1 | 1124 | 1133 | 10 | GNCDDVVGIG 7e-06 | 51 |
| HLA-B*51:01 | 1 | 1126 | 1134 | 9 | CDVVIGIVN 7e-06 | 81 |
| HLA-B*57:01 | 1 | 1126 | 1134 | 9 | CDVVIGIVN 7e-06 | 87 |
| HLA-A*11:01 | 1 | 1127 | 1136 | 10 | DVVIGIVNNT 7e-06 | 53 |
| HLA-B*07:02 | 1 | 1127 | 1135 | 9 | DVVIGIVNN 7e-06 | 71 |
| HLA-B*44:02 | 1 | 1127 | 1136 | 10 | DVVIGIVNNT 7e-06 | 62 |
| HLA-A*02:03 | 1 | 1130 | 1139 | 10 | IGIVNNTVYD 7e-06 | 74 |
| HLA-A*11:01 | 1 | 1130 | 1139 | 10 | IGIVNNTVYD 7e-06 | 53 |
| HLA-A*26:01 | 1 | 1131 | 1139 | 9 | GIVNNTVYD 7e-06 | 66 |
| HLA-B*07:02 | 1 | 1131 | 1139 | 9 | GIVNNTVYD 7e-06 | 71 |
| HLA-B*07:02 | 1 | 1131 | 1140 | 10 | GIVNNTVYDP 7e-06 | 71 |
| HLA-B*51:01 | 1 | 1131 | 1139 | 9 | GIVNNTVYD 7e-06 | 81 |
| HLA-B*40:01 | 1 | 1132 | 1140 | 9 | IVNNTVYDP 7e-06 | 48 |
| HLA-B*44:03 | 1 | 1132 | 1140 | 9 | IVNNTVYDP 7e-06 | 57 |
| HLA-A*02:06 | 1 | 1133 | 1142 | 10 | VNNTVYDPLQ 7e-06 | 79 |
| HLA-A*03:01 | 1 | 1134 | 1142 | 9 | NNTVYDPLQ 7e-06 | 68 |
| HLA-A*11:01 | 1 | 1134 | 1143 | 10 | NNTVYDPLQP 7e-06 | 53 |
| HLA-B*40:01 | 1 | 1135 | 1144 | 10 | NTVYDPLQPE 7e-06 | 48 |
| HLA-A*68:01 | 1 | 1138 | 1147 | 10 | YDPLQPELDS 7e-06 | 66 |
| HLA-A*26:01 | 1 | 1139 | 1147 | 9 | DPLQPELDS 7e-06 | 66 |
| HLA-B*40:01 | 1 | 1139 | 1147 | 9 | DPLQPELDS 7e-06 | 48 |
| HLA-B*44:02 | 1 | 1141 | 1150 | 10 | LQPELDSFKE 7e-06 | 62 |
| HLA-A*02:03 | 1 | 1142 | 1151 | 10 | QPELDSFKEE 7e-06 | 74 |
| HLA-A*26:01 | 1 | 1142 | 1150 | 9 | QPELDSFKE 7e-06 | 66 |
| HLA-B*40:01 | 1 | 1142 | 1150 | 9 | QPELDSFKE 7e-06 | 48 |
| HLA-A*02:06 | 1 | 1143 | 1151 | 9 | PELDSFKEE 7e-06 | 79 |
| HLA-B*35:01 | 1 | 1143 | 1151 | 9 | PELDSFKEE 7e-06 | 56 |
| HLA-B*15:01 | 1 | 1144 | 1153 | 10 | ELDSFKEELD 7e-06 | 70 |
| HLA-B*35:01 | 1 | 1145 | 1154 | 10 | LDSFKEELDK 7e-06 | 56 |
| HLA-B*44:02 | 1 | 1145 | 1153 | 9 | LDSFKEELD 7e-06 | 62 |
| HLA-A*02:06 | 1 | 1149 | 1158 | 10 | KEELDKYFKN 7e-06 | 79 |
| HLA-B*35:01 | 1 | 1151 | 1160 | 10 | ELDKYFKNHT 7e-06 | 56 |
| HLA-A*02:01 | 1 | 1152 | 1161 | 10 | LDKYFKNHTS 7e-06 | 71 |
| HLA-A*32:01 | 1 | 1152 | 1161 | 10 | LDKYFKNHTS 7e-06 | 57 |
| HLA-A*11:01 | 1 | 1153 | 1161 | 9 | DKYFKNHTS 7e-06 | 53 |
| HLA-A*32:01 | 1 | 1154 | 1163 | 10 | KYFKNHTSPD 7e-06 | 57 |
| HLA-A*01:01 | 1 | 1156 | 1165 | 10 | FKNHTSPDVD 7e-06 | 92 |
| HLA-A*01:01 | 1 | 1157 | 1165 | 9 | KNHTSPDVD 7e-06 | 92 |
| HLA-A*02:01 | 1 | 1158 | 1167 | 10 | NHTSPDVDLG 7e-06 | 71 |
| HLA-A*26:01 | 1 | 1161 | 1170 | 10 | SPDVDLGDIS 7e-06 | 66 |
| HLA-A*68:01 | 1 | 1161 | 1169 | 9 | SPDVDLGDI 7e-06 | 66 |
| HLA-A*01:01 | 1 | 1162 | 1170 | 9 | PDVDLGDIS 7e-06 | 92 |
| HLA-A*30:02 | 1 | 1162 | 1171 | 10 | PDVDLGDISG 7e-06 | 91 |
| HLA-A*11:01 | 1 | 1163 | 1171 | 9 | DVDLGDISG 7e-06 | 53 |
| HLA-B*44:03 | 1 | 1163 | 1171 | 9 | DVDLGDISG 7e-06 | 57 |
| HLA-B*58:01 | 1 | 1164 | 1173 | 10 | VDLGDISGIN 7e-06 | 77 |
| HLA-A*02:01 | 1 | 1165 | 1173 | 9 | DLGDISGIN 7e-06 | 71 |
| HLA-A*33:01 | 1 | 1165 | 1173 | 9 | DLGDISGIN 7e-06 | 79 |
| HLA-B*35:01 | 1 | 1165 | 1173 | 9 | DLGDISGIN 7e-06 | 56 |
| HLA-B*57:01 | 1 | 1165 | 1173 | 9 | DLGDISGIN 7e-06 | 87 |
| HLA-B*40:01 | 1 | 1166 | 1175 | 10 | LGDISGINAS 7e-06 | 48 |
| HLA-A*11:01 | 1 | 1168 | 1177 | 10 | DISGINASVV 7e-06 | 53 |
| HLA-A*23:01 | 1 | 1168 | 1177 | 10 | DISGINASVV 7e-06 | 53 |
| HLA-A*11:01 | 1 | 1169 | 1178 | 10 | ISGINASVVN 7e-06 | 53 |
| HLA-A*02:01 | 1 | 1170 | 1178 | 9 | SGINASVVN 7e-06 | 71 |
| HLA-B*40:01 | 1 | 1170 | 1178 | 9 | SGINASVVN 7e-06 | 48 |
| HLA-A*03:01 | 1 | 1175 | 1184 | 10 | SVVNIQKEID 7e-06 | 68 |
| HLA-A*31:01 | 1 | 1175 | 1184 | 10 | SVVNIQKEID 7e-06 | 74 |
| HLA-B*51:01 | 1 | 1176 | 1184 | 9 | VVNIQKEID 7e-06 | 81 |
| HLA-A*23:01 | 1 | 1179 | 1188 | 10 | IQKEIDRLNE 7e-06 | 53 |
| HLA-B*07:02 | 1 | 1179 | 1187 | 9 | IQKEIDRLN 7e-06 | 71 |
| HLA-A*33:01 | 1 | 1180 | 1188 | 9 | QKEIDRLNE 7e-06 | 79 |

| | | | | | | |
|-------------|---|------|------|----|------------------|----|
| HLA-B*53:01 | 1 | 1184 | 1192 | 9 | DRLNEVAKN 7e-06 | 56 |
| HLA-B*58:01 | 1 | 1184 | 1192 | 9 | DRLNEVAKN 7e-06 | 77 |
| HLA-A*02:06 | 1 | 1186 | 1195 | 10 | LNEVAKNLNE 7e-06 | 79 |
| HLA-B*51:01 | 1 | 1186 | 1195 | 10 | LNEVAKNLNE 7e-06 | 81 |
| HLA-B*58:01 | 1 | 1186 | 1195 | 10 | LNEVAKNLNE 7e-06 | 77 |
| HLA-A*02:01 | 1 | 1187 | 1195 | 9 | NEVAKNLNE 7e-06 | 71 |
| HLA-A*02:03 | 1 | 1187 | 1195 | 9 | NEVAKNLNE 7e-06 | 74 |
| HLA-A*11:01 | 1 | 1187 | 1195 | 9 | NEVAKNLNE 7e-06 | 53 |
| HLA-A*11:01 | 1 | 1187 | 1196 | 10 | NEVAKNLNES 7e-06 | 53 |
| HLA-A*30:01 | 1 | 1190 | 1199 | 10 | AKNLNESLID 7e-06 | 92 |
| HLA-B*08:01 | 1 | 1190 | 1199 | 10 | AKNLNESLID 7e-06 | 88 |
| HLA-A*32:01 | 1 | 1198 | 1207 | 10 | IDLQELGKYE 7e-06 | 57 |
| HLA-A*68:02 | 1 | 1198 | 1207 | 10 | IDLQELGKYE 7e-06 | 70 |
| HLA-B*07:02 | 1 | 1198 | 1207 | 10 | IDLQELGKYE 7e-06 | 71 |
| HLA-A*23:01 | 1 | 1199 | 1208 | 10 | DLQELGKYEQ 7e-06 | 53 |
| HLA-B*40:01 | 1 | 1199 | 1208 | 10 | DLQELGKYEQ 7e-06 | 48 |
| HLA-B*58:01 | 1 | 1199 | 1207 | 9 | DLQELGKYE 7e-06 | 77 |
| HLA-A*32:01 | 1 | 1210 | 1219 | 10 | IKWPWYIWLG 7e-06 | 57 |
| HLA-A*68:02 | 1 | 1210 | 1219 | 10 | IKWPWYIWLG 7e-06 | 70 |
| HLA-A*02:03 | 1 | 1213 | 1222 | 10 | PWYIWLGFIA 7e-06 | 74 |
| HLA-A*02:06 | 1 | 1213 | 1222 | 10 | PWYIWLGFIA 7e-06 | 79 |
| HLA-A*23:01 | 1 | 1215 | 1223 | 9 | YIWLGFIA 7e-06 | 53 |
| HLA-A*68:01 | 1 | 1217 | 1225 | 9 | WLGFIAGLI 7e-06 | 66 |
| HLA-B*35:01 | 1 | 1217 | 1226 | 10 | WLGFIAGLIA 7e-06 | 56 |
| HLA-B*44:03 | 1 | 1218 | 1227 | 10 | LGFIAGLIAI 7e-06 | 57 |
| HLA-B*53:01 | 1 | 1219 | 1228 | 10 | GFIAGLIAIV 7e-06 | 56 |
| HLA-A*03:01 | 1 | 1221 | 1230 | 10 | IAGLIAIVMV 7e-06 | 68 |
| HLA-A*24:02 | 1 | 1221 | 1230 | 10 | IAGLIAIVMV 7e-06 | 51 |
| HLA-A*68:01 | 1 | 1221 | 1230 | 10 | IAGLIAIVMV 7e-06 | 66 |
| HLA-B*07:02 | 1 | 1222 | 1231 | 10 | AGLIAIVMVT 7e-06 | 71 |
| HLA-A*23:01 | 1 | 1224 | 1233 | 10 | LIAIVMVTIM 7e-06 | 53 |
| HLA-B*53:01 | 1 | 1228 | 1237 | 10 | VMVTIMLCCM 7e-06 | 56 |
| HLA-A*32:01 | 1 | 1230 | 1239 | 10 | VTIMLCCMTS 7e-06 | 57 |
| HLA-B*07:02 | 1 | 1231 | 1240 | 10 | TIMLCCMTSC 7e-06 | 71 |
| HLA-A*31:01 | 1 | 1233 | 1242 | 10 | MLCCMTSCCS 7e-06 | 74 |
| HLA-A*02:01 | 1 | 1234 | 1243 | 10 | LCCMTSCCSC 7e-06 | 71 |
| HLA-A*30:02 | 1 | 1234 | 1242 | 9 | LCCMTSCCS 7e-06 | 91 |
| HLA-A*31:01 | 1 | 1235 | 1243 | 9 | CCMTSCCSC 7e-06 | 74 |
| HLA-B*08:01 | 1 | 1237 | 1245 | 9 | MTSCCCLK 7e-06 | 88 |
| HLA-B*08:01 | 1 | 1238 | 1246 | 9 | TSCCCLKG 7e-06 | 88 |
| HLA-A*03:01 | 1 | 1239 | 1247 | 9 | SCCCLKGC 7e-06 | 68 |
| HLA-A*68:02 | 1 | 1239 | 1247 | 9 | SCCCLKGC 7e-06 | 70 |
| HLA-B*44:02 | 1 | 1239 | 1247 | 9 | SCCCLKGC 7e-06 | 62 |
| HLA-A*68:01 | 1 | 1241 | 1249 | 9 | CCLKGCCS 7e-06 | 66 |
| HLA-A*03:01 | 1 | 1242 | 1250 | 9 | SCLKGCCSC 7e-06 | 68 |
| HLA-A*02:01 | 1 | 1243 | 1251 | 9 | CLKGCCSCG 7e-06 | 71 |
| HLA-B*57:01 | 1 | 1244 | 1253 | 10 | LKGCCSCGSC 7e-06 | 87 |
| HLA-B*08:01 | 1 | 1245 | 1253 | 9 | KGCCSCGSC 7e-06 | 88 |
| HLA-B*44:02 | 1 | 1254 | 1262 | 9 | CKFDEDDSE 7e-06 | 62 |
| HLA-B*07:02 | 1 | 1258 | 1267 | 10 | EDDSEPVKLG 7e-06 | 71 |
| HLA-A*23:01 | 1 | 1260 | 1269 | 10 | DSEPVKLGVK 7e-06 | 53 |
| HLA-A*24:02 | 1 | 1260 | 1269 | 10 | DSEPVKLGVK 7e-06 | 51 |
| HLA-A*68:01 | 1 | 1265 | 1273 | 9 | LKGVKLHYT 7e-06 | 66 |
| HLA-B*44:02 | 1 | 1265 | 1273 | 9 | LKGVKLHYT 7e-06 | 62 |
| HLA-B*57:01 | 1 | 1265 | 1273 | 9 | LKGVKLHYT 7e-06 | 87 |
| HLA-B*44:02 | 1 | 2 | 11 | 10 | FVFLVLLPLV 6e-06 | 64 |
| HLA-B*44:03 | 1 | 2 | 11 | 10 | FVFLVLLPLV 6e-06 | 60 |
| HLA-A*11:01 | 1 | 3 | 12 | 10 | VFLVLLPLVS 6e-06 | 56 |
| HLA-A*32:01 | 1 | 3 | 12 | 10 | VFLVLLPLVS 6e-06 | 59 |
| HLA-A*68:01 | 1 | 3 | 12 | 10 | VFLVLLPLVS 6e-06 | 69 |
| HLA-A*24:02 | 1 | 4 | 12 | 9 | FLVLLPLVS 6e-06 | 53 |
| HLA-A*24:02 | 1 | 5 | 13 | 9 | LVLLPLVSS 6e-06 | 53 |
| HLA-B*44:03 | 1 | 7 | 15 | 9 | LLPLVSSQC 6e-06 | 60 |
| HLA-A*02:03 | 1 | 8 | 17 | 10 | LPLVSSQCVN 6e-06 | 76 |
| HLA-A*26:01 | 1 | 9 | 17 | 9 | PLVSSQCVN 6e-06 | 68 |
| HLA-B*57:01 | 1 | 9 | 17 | 9 | PLVSSQCVN 6e-06 | 89 |

| | | | | | | |
|-------------|---|----|-----|----|-------------------|----|
| HLA-A*24:02 | 1 | 11 | 20 | 10 | VSSQCVNLTT 6e-06 | 53 |
| HLA-A*11:01 | 1 | 16 | 25 | 10 | VNLTRTQLP 6e-06 | 56 |
| HLA-A*68:01 | 1 | 16 | 25 | 10 | VNLTRTQLP 6e-06 | 69 |
| HLA-A*11:01 | 1 | 17 | 26 | 10 | NLTTTRTQLPP 6e-06 | 56 |
| HLA-B*15:01 | 1 | 17 | 26 | 10 | NLTTTRTQLPP 6e-06 | 73 |
| HLA-B*44:02 | 1 | 17 | 26 | 10 | NLTTTRTQLPP 6e-06 | 64 |
| HLA-A*23:01 | 1 | 18 | 26 | 9 | LTTTRTQLPP 6e-06 | 56 |
| HLA-A*24:02 | 1 | 18 | 26 | 9 | LTTTRTQLPP 6e-06 | 53 |
| HLA-B*40:01 | 1 | 18 | 26 | 9 | LTTTRTQLPP 6e-06 | 50 |
| HLA-A*31:01 | 1 | 24 | 33 | 10 | LPPAYTNSFT 6e-06 | 76 |
| HLA-A*03:01 | 1 | 25 | 33 | 9 | PPAYTNSFT 6e-06 | 71 |
| HLA-A*31:01 | 1 | 25 | 33 | 9 | PPAYTNSFT 6e-06 | 76 |
| HLA-A*68:01 | 1 | 25 | 33 | 9 | PPAYTNSFT 6e-06 | 69 |
| HLA-A*02:06 | 1 | 26 | 35 | 10 | PAYTNSFTRG 6e-06 | 80 |
| HLA-A*68:02 | 1 | 26 | 35 | 10 | PAYTNSFTRG 6e-06 | 73 |
| HLA-A*68:02 | 1 | 31 | 40 | 10 | SFTRGVVYYPD 6e-06 | 73 |
| HLA-A*02:01 | 1 | 33 | 41 | 9 | TRGVVYYPDK 6e-06 | 73 |
| HLA-A*02:03 | 1 | 33 | 41 | 9 | TRGVVYYPDK 6e-06 | 76 |
| HLA-A*26:01 | 1 | 33 | 41 | 9 | TRGVVYYPDK 6e-06 | 68 |
| HLA-A*68:01 | 1 | 33 | 42 | 10 | TRGVVYYPDKV 6e-06 | 69 |
| HLA-B*15:01 | 1 | 33 | 41 | 9 | TRGVVYYPDK 6e-06 | 73 |
| HLA-B*35:01 | 1 | 39 | 48 | 10 | PDKVFRSSVL 6e-06 | 58 |
| HLA-B*53:01 | 1 | 39 | 47 | 9 | PDKVFRSSV 6e-06 | 59 |
| HLA-B*58:01 | 1 | 39 | 47 | 9 | PDKVFRSSV 6e-06 | 80 |
| HLA-A*24:02 | 1 | 40 | 49 | 10 | DKVFRSSVLH 6e-06 | 53 |
| HLA-B*40:01 | 1 | 42 | 51 | 10 | VFRSSVLHST 6e-06 | 50 |
| HLA-A*02:03 | 1 | 44 | 53 | 10 | RSSVLHSTQD 6e-06 | 76 |
| HLA-A*68:01 | 1 | 44 | 53 | 10 | RSSVLHSTQD 6e-06 | 69 |
| HLA-A*11:01 | 1 | 48 | 57 | 10 | LHSTQDLFLP 6e-06 | 56 |
| HLA-A*33:01 | 1 | 48 | 57 | 10 | LHSTQDLFLP 6e-06 | 81 |
| HLA-B*35:01 | 1 | 51 | 60 | 10 | TQDLFLPFFS 6e-06 | 58 |
| HLA-A*11:01 | 1 | 55 | 63 | 9 | FLPFFSNVT 6e-06 | 56 |
| HLA-A*24:02 | 1 | 60 | 69 | 10 | SNVTWFHAIH 6e-06 | 53 |
| HLA-B*44:02 | 1 | 62 | 71 | 10 | VTWFHAIHVS 6e-06 | 64 |
| HLA-B*44:03 | 1 | 63 | 72 | 10 | WFHAIHVSG 6e-06 | 60 |
| HLA-B*15:01 | 1 | 64 | 73 | 10 | WFHAIHVSGT 6e-06 | 73 |
| HLA-B*57:01 | 1 | 64 | 73 | 10 | WFHAIHVSGT 6e-06 | 89 |
| HLA-A*33:01 | 1 | 65 | 74 | 10 | FHAIHVSGTN 6e-06 | 81 |
| HLA-B*44:02 | 1 | 65 | 74 | 10 | FHAIHVSGTN 6e-06 | 64 |
| HLA-A*02:01 | 1 | 66 | 75 | 10 | HAIHVSGTNG 6e-06 | 73 |
| HLA-B*40:01 | 1 | 67 | 76 | 10 | AIHVSGTNGT 6e-06 | 50 |
| HLA-A*32:01 | 1 | 68 | 76 | 9 | IHVSGTNGT 6e-06 | 59 |
| HLA-A*02:06 | 1 | 71 | 80 | 10 | SGTNGTKRFD 6e-06 | 80 |
| HLA-A*11:01 | 1 | 71 | 80 | 10 | SGTNGTKRFD 6e-06 | 56 |
| HLA-A*33:01 | 1 | 73 | 81 | 9 | TNGTKRFDN 6e-06 | 81 |
| HLA-A*03:01 | 1 | 74 | 83 | 10 | NGTKRFDNPV 6e-06 | 71 |
| HLA-B*53:01 | 1 | 74 | 83 | 10 | NGTKRFDNPV 6e-06 | 59 |
| HLA-B*15:01 | 1 | 81 | 89 | 9 | NPVLPFNDG 6e-06 | 73 |
| HLA-B*58:01 | 1 | 81 | 89 | 9 | NPVLPFNDG 6e-06 | 80 |
| HLA-B*40:01 | 1 | 82 | 91 | 10 | PVLPFNDGVY 6e-06 | 50 |
| HLA-A*02:03 | 1 | 85 | 94 | 10 | PFNDGVYFAS 6e-06 | 76 |
| HLA-B*51:01 | 1 | 85 | 94 | 10 | PFNDGVYFAS 6e-06 | 83 |
| HLA-B*53:01 | 1 | 86 | 95 | 10 | FNDGVYFAST 6e-06 | 59 |
| HLA-B*35:01 | 1 | 87 | 95 | 9 | NDGVYFAST 6e-06 | 58 |
| HLA-B*44:02 | 1 | 87 | 96 | 10 | NDGVYFASTE 6e-06 | 64 |
| HLA-B*57:01 | 1 | 87 | 95 | 9 | NDGVYFAST 6e-06 | 89 |
| HLA-A*11:01 | 1 | 88 | 96 | 9 | DGVYFASTE 6e-06 | 56 |
| HLA-B*44:03 | 1 | 89 | 98 | 10 | GVYFASTEKS 6e-06 | 60 |
| HLA-A*11:01 | 1 | 90 | 99 | 10 | VYFASTEKSN 6e-06 | 56 |
| HLA-A*02:01 | 1 | 91 | 99 | 9 | YFASTEKSN 6e-06 | 73 |
| HLA-B*44:03 | 1 | 91 | 99 | 9 | YFASTEKSN 6e-06 | 60 |
| HLA-A*03:01 | 1 | 92 | 101 | 10 | FASTEKSNII 6e-06 | 71 |
| HLA-A*23:01 | 1 | 94 | 103 | 10 | STEKSNIIRG 6e-06 | 56 |
| HLA-B*35:01 | 1 | 94 | 103 | 10 | STEKSNIIRG 6e-06 | 58 |
| HLA-A*32:01 | 1 | 95 | 103 | 9 | TEKSNIIRG 6e-06 | 59 |
| HLA-A*02:01 | 1 | 96 | 105 | 10 | EKSNIIRGWI 6e-06 | 73 |

| | | | | | | | |
|-------------|---|-----|-----|----|--------------|-------|----|
| HLA-A*03:01 | 1 | 96 | 105 | 10 | EKSNIIRGWI | 6e-06 | 71 |
| HLA-B*15:01 | 1 | 99 | 108 | 10 | NIIRGWIFGT | 6e-06 | 73 |
| HLA-B*44:02 | 1 | 100 | 108 | 9 | IIRGWIFGT | 6e-06 | 64 |
| HLA-A*02:01 | 1 | 101 | 109 | 9 | IRGWIFGTT | 6e-06 | 73 |
| HLA-B*40:01 | 1 | 103 | 111 | 9 | GWIFGTTLD | 6e-06 | 50 |
| HLA-B*51:01 | 1 | 103 | 111 | 9 | GWIFGTTLD | 6e-06 | 83 |
| HLA-B*51:01 | 1 | 103 | 112 | 10 | GWIFGTTLDS | 6e-06 | 83 |
| HLA-B*58:01 | 1 | 103 | 111 | 9 | GWIFGTTLD | 6e-06 | 80 |
| HLA-B*07:02 | 1 | 105 | 114 | 10 | IFGTTLD SKT | 6e-06 | 73 |
| HLA-B*44:03 | 1 | 106 | 114 | 9 | FGTTLD SKT | 6e-06 | 60 |
| HLA-B*44:03 | 1 | 107 | 116 | 10 | GTTLD SKT QS | 6e-06 | 60 |
| HLA-B*15:01 | 1 | 112 | 121 | 10 | SKTQSLLIVN | 6e-06 | 73 |
| HLA-A*26:01 | 1 | 113 | 122 | 10 | KTQSLLIVNN | 6e-06 | 68 |
| HLA-B*51:01 | 1 | 116 | 125 | 10 | LLIVNNATN | 6e-06 | 83 |
| HLA-B*44:02 | 1 | 117 | 126 | 10 | LLIVNNATNV | 6e-06 | 64 |
| HLA-A*02:01 | 1 | 124 | 132 | 9 | TNVVIKVCE | 6e-06 | 73 |
| HLA-B*15:01 | 1 | 124 | 132 | 9 | TNVVIKVCE | 6e-06 | 73 |
| HLA-A*24:02 | 1 | 125 | 134 | 10 | NVVIKVCEFQ | 6e-06 | 53 |
| HLA-A*11:01 | 1 | 127 | 136 | 10 | VIKVCEFQFC | 6e-06 | 56 |
| HLA-A*01:01 | 1 | 128 | 136 | 9 | IKVCEFQFC | 6e-06 | 93 |
| HLA-A*01:01 | 1 | 128 | 137 | 10 | IKVCEFQFCN | 6e-06 | 93 |
| HLA-B*44:03 | 1 | 128 | 136 | 9 | IKVCEFQFC | 6e-06 | 60 |
| HLA-B*08:01 | 1 | 129 | 137 | 9 | KVCEFQFCN | 6e-06 | 90 |
| HLA-A*01:01 | 1 | 130 | 138 | 9 | VCEFQFCND | 6e-06 | 93 |
| HLA-A*02:06 | 1 | 130 | 139 | 10 | VCEFQFCNDP | 6e-06 | 80 |
| HLA-B*57:01 | 1 | 130 | 138 | 9 | VCEFQFCND | 6e-06 | 89 |
| HLA-A*02:01 | 1 | 131 | 139 | 9 | CEFQFCNDP | 6e-06 | 73 |
| HLA-A*33:01 | 1 | 131 | 139 | 9 | CEFQFCNDP | 6e-06 | 81 |
| HLA-A*02:03 | 1 | 132 | 140 | 9 | EFQFCNDPF | 6e-06 | 76 |
| HLA-A*11:01 | 1 | 132 | 141 | 10 | EFQFCNDPFL | 6e-06 | 56 |
| HLA-B*35:01 | 1 | 133 | 142 | 10 | FQFCNDPFLG | 6e-06 | 58 |
| HLA-B*35:01 | 1 | 134 | 142 | 9 | QFCNDPFLG | 6e-06 | 58 |
| HLA-B*44:03 | 1 | 134 | 142 | 9 | QFCNDPFLG | 6e-06 | 60 |
| HLA-A*02:01 | 1 | 137 | 146 | 10 | NDPFLGVYYH | 6e-06 | 73 |
| HLA-A*02:03 | 1 | 139 | 147 | 9 | PFLGVYYHK | 6e-06 | 76 |
| HLA-B*07:02 | 1 | 139 | 147 | 9 | PFLGVYYHK | 6e-06 | 73 |
| HLA-B*15:01 | 1 | 139 | 147 | 9 | PFLGVYYHK | 6e-06 | 73 |
| HLA-A*01:01 | 1 | 140 | 149 | 10 | FLGVYYHKNN | 6e-06 | 93 |
| HLA-A*02:01 | 1 | 140 | 149 | 10 | FLGVYYHKNN | 6e-06 | 73 |
| HLA-A*24:02 | 1 | 141 | 150 | 10 | LGVYYHKNNK | 6e-06 | 53 |
| HLA-B*35:01 | 1 | 141 | 150 | 10 | LGVYYHKNNK | 6e-06 | 58 |
| HLA-A*02:03 | 1 | 145 | 154 | 10 | YHKNNKSWME | 6e-06 | 76 |
| HLA-A*11:01 | 1 | 145 | 154 | 10 | YHKNNKSWME | 6e-06 | 56 |
| HLA-B*40:01 | 1 | 146 | 155 | 10 | HKNNKSWMES | 6e-06 | 50 |
| HLA-B*44:02 | 1 | 147 | 156 | 10 | KNNKSWMESE | 6e-06 | 64 |
| HLA-A*24:02 | 1 | 148 | 156 | 9 | NNKSWMESE | 6e-06 | 53 |
| HLA-A*23:01 | 1 | 153 | 162 | 10 | MESEFRVYSS | 6e-06 | 56 |
| HLA-A*02:03 | 1 | 155 | 164 | 10 | SEFRVYSSAN | 6e-06 | 76 |
| HLA-A*68:01 | 1 | 155 | 164 | 10 | SEFRVYSSAN | 6e-06 | 69 |
| HLA-A*02:03 | 1 | 156 | 164 | 9 | EFRVYSSAN | 6e-06 | 76 |
| HLA-A*26:01 | 1 | 156 | 165 | 10 | EFRVYSSANN | 6e-06 | 68 |
| HLA-A*02:06 | 1 | 157 | 165 | 9 | FRVYSSANN | 6e-06 | 80 |
| HLA-A*68:01 | 1 | 157 | 165 | 9 | FRVYSSANN | 6e-06 | 69 |
| HLA-B*53:01 | 1 | 158 | 167 | 10 | RVYSSANNCT | 6e-06 | 59 |
| HLA-A*02:06 | 1 | 163 | 172 | 10 | ANNCTFEYVS | 6e-06 | 80 |
| HLA-A*33:01 | 1 | 163 | 172 | 10 | ANNCTFEYVS | 6e-06 | 81 |
| HLA-A*02:06 | 1 | 164 | 172 | 9 | NNCTFEYVS | 6e-06 | 80 |
| HLA-A*03:01 | 1 | 164 | 173 | 10 | NNCTFEYVSQ | 6e-06 | 71 |
| HLA-B*53:01 | 1 | 164 | 172 | 9 | NNCTFEYVS | 6e-06 | 59 |
| HLA-A*02:03 | 1 | 165 | 173 | 9 | NCTFEYVSQ | 6e-06 | 76 |
| HLA-A*32:01 | 1 | 169 | 178 | 10 | EYVSQPFLMD | 6e-06 | 59 |
| HLA-B*44:02 | 1 | 170 | 178 | 9 | YVSQPFLMD | 6e-06 | 64 |
| HLA-A*68:01 | 1 | 172 | 181 | 10 | SQPFLMDLEG | 6e-06 | 69 |
| HLA-A*31:01 | 1 | 173 | 181 | 9 | QPFLMDLEG | 6e-06 | 76 |
| HLA-A*32:01 | 1 | 173 | 181 | 9 | QPFLMDLEG | 6e-06 | 59 |
| HLA-A*02:06 | 1 | 174 | 182 | 9 | PFLMDLEGK | 6e-06 | 80 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|-------|----|
| HLA-A*68:02 | 1 | 174 | 182 | 9 | PFLMDLEGK | 6e-06 | 73 |
| HLA-B*08:01 | 1 | 174 | 183 | 10 | PFLMDLEGKQ | 6e-06 | 90 |
| HLA-B*51:01 | 1 | 174 | 183 | 10 | PFLMDLEGKQ | 6e-06 | 83 |
| HLA-B*58:01 | 1 | 174 | 182 | 9 | PFLMDLEGK | 6e-06 | 80 |
| HLA-A*26:01 | 1 | 177 | 185 | 9 | MDLEGKQGN | 6e-06 | 68 |
| HLA-A*03:01 | 1 | 179 | 188 | 10 | LEGKQGNFKN | 6e-06 | 71 |
| HLA-A*11:01 | 1 | 180 | 188 | 9 | EGKQGNFKN | 6e-06 | 56 |
| HLA-A*11:01 | 1 | 180 | 189 | 10 | EGKQGNFKNL | 6e-06 | 56 |
| HLA-A*23:01 | 1 | 182 | 191 | 10 | KQGNFKNLRE | 6e-06 | 56 |
| HLA-B*53:01 | 1 | 182 | 190 | 9 | KQGNFKNLR | 6e-06 | 59 |
| HLA-A*23:01 | 1 | 190 | 199 | 10 | REFVFKNIDG | 6e-06 | 56 |
| HLA-B*58:01 | 1 | 190 | 199 | 10 | REFVFKNIDG | 6e-06 | 80 |
| HLA-B*44:03 | 1 | 191 | 199 | 9 | EFVFKNIDG | 6e-06 | 60 |
| HLA-A*68:01 | 1 | 202 | 211 | 10 | KIYSKHTPIN | 6e-06 | 69 |
| HLA-B*53:01 | 1 | 206 | 215 | 10 | KHTPINLVRD | 6e-06 | 59 |
| HLA-B*07:02 | 1 | 207 | 215 | 9 | HTPINLVRD | 6e-06 | 73 |
| HLA-A*32:01 | 1 | 209 | 217 | 9 | PINLVRDLP | 6e-06 | 59 |
| HLA-B*07:02 | 1 | 209 | 217 | 9 | PINLVRDLP | 6e-06 | 73 |
| HLA-B*53:01 | 1 | 209 | 217 | 9 | PINLVRDLP | 6e-06 | 59 |
| HLA-B*51:01 | 1 | 210 | 219 | 10 | INLVRDLPQG | 6e-06 | 83 |
| HLA-B*40:01 | 1 | 215 | 224 | 10 | DLPQGFSALE | 6e-06 | 50 |
| HLA-A*33:01 | 1 | 216 | 225 | 10 | LPQGFSALEP | 6e-06 | 81 |
| HLA-B*53:01 | 1 | 217 | 225 | 9 | PQGFSALEP | 6e-06 | 59 |
| HLA-B*51:01 | 1 | 219 | 228 | 10 | GFSALEPLVD | 6e-06 | 83 |
| HLA-A*33:01 | 1 | 220 | 228 | 9 | FSALEPLVD | 6e-06 | 81 |
| HLA-A*30:02 | 1 | 223 | 232 | 10 | LEPLVDLPIG | 6e-06 | 92 |
| HLA-A*68:01 | 1 | 224 | 232 | 9 | EPLVDLPIG | 6e-06 | 69 |
| HLA-B*08:01 | 1 | 225 | 234 | 10 | PLVDLPIGIN | 6e-06 | 90 |
| HLA-B*51:01 | 1 | 225 | 234 | 10 | PLVDLPIGIN | 6e-06 | 83 |
| HLA-A*32:01 | 1 | 227 | 236 | 10 | VDLPIGINIT | 6e-06 | 59 |
| HLA-A*11:01 | 1 | 230 | 239 | 10 | PIGINITRFQ | 6e-06 | 56 |
| HLA-A*24:02 | 1 | 238 | 247 | 10 | FQTLALHRS | 6e-06 | 53 |
| HLA-B*07:02 | 1 | 238 | 247 | 10 | FQTLALHRS | 6e-06 | 73 |
| HLA-A*24:02 | 1 | 241 | 250 | 10 | LLALHRSYLT | 6e-06 | 53 |
| HLA-A*23:01 | 1 | 242 | 251 | 10 | LALHRSYLT | 6e-06 | 56 |
| HLA-A*24:02 | 1 | 242 | 251 | 10 | LALHRSYLT | 6e-06 | 53 |
| HLA-B*44:02 | 1 | 242 | 250 | 9 | LALHRSYLT | 6e-06 | 64 |
| HLA-B*44:03 | 1 | 242 | 251 | 10 | LALHRSYLT | 6e-06 | 60 |
| HLA-A*02:03 | 1 | 244 | 252 | 9 | LHRSYLT | 6e-06 | 76 |
| HLA-A*26:01 | 1 | 245 | 253 | 9 | HRSYLT | 6e-06 | 68 |
| HLA-A*33:01 | 1 | 245 | 253 | 9 | HRSYLT | 6e-06 | 81 |
| HLA-A*68:01 | 1 | 245 | 254 | 10 | HRSYLT | 6e-06 | 69 |
| HLA-B*53:01 | 1 | 246 | 254 | 9 | RSYLT | 6e-06 | 59 |
| HLA-A*32:01 | 1 | 248 | 257 | 10 | YLTPGDSSSSG | 6e-06 | 59 |
| HLA-B*44:02 | 1 | 248 | 257 | 10 | YLTPGDSSSSG | 6e-06 | 64 |
| HLA-A*03:01 | 1 | 249 | 257 | 9 | LTPGDSSSSG | 6e-06 | 71 |
| HLA-A*02:06 | 1 | 252 | 261 | 10 | GDSSSGWTAG | 6e-06 | 80 |
| HLA-A*11:01 | 1 | 252 | 261 | 10 | GDSSSGWTAG | 6e-06 | 56 |
| HLA-B*40:01 | 1 | 258 | 267 | 10 | WTAGAAAYV | 6e-06 | 50 |
| HLA-A*02:01 | 1 | 260 | 268 | 9 | AGAAAYV | 6e-06 | 73 |
| HLA-A*68:01 | 1 | 260 | 268 | 9 | AGAAAYV | 6e-06 | 69 |
| HLA-B*44:02 | 1 | 265 | 274 | 10 | YVGYLQPR | 6e-06 | 64 |
| HLA-B*40:01 | 1 | 266 | 274 | 9 | YVGYLQPR | 6e-06 | 50 |
| HLA-A*02:06 | 1 | 272 | 281 | 10 | PRTFLLKYNE | 6e-06 | 80 |
| HLA-B*08:01 | 1 | 272 | 281 | 10 | PRTFLLKYNE | 6e-06 | 90 |
| HLA-A*26:01 | 1 | 273 | 282 | 10 | RTFLLKYNE | 6e-06 | 68 |
| HLA-B*07:02 | 1 | 273 | 282 | 10 | RTFLLKYNE | 6e-06 | 73 |
| HLA-B*44:03 | 1 | 273 | 282 | 10 | RTFLLKYNE | 6e-06 | 60 |
| HLA-B*51:01 | 1 | 273 | 282 | 10 | RTFLLKYNE | 6e-06 | 83 |
| HLA-A*02:06 | 1 | 274 | 282 | 9 | TFLLKYNE | 6e-06 | 80 |
| HLA-A*26:01 | 1 | 274 | 282 | 9 | TFLLKYNE | 6e-06 | 68 |
| HLA-B*07:02 | 1 | 274 | 282 | 9 | TFLLKYNE | 6e-06 | 73 |
| HLA-B*44:02 | 1 | 274 | 282 | 9 | TFLLKYNE | 6e-06 | 64 |
| HLA-B*07:02 | 1 | 275 | 283 | 9 | FLLKYNE | 6e-06 | 73 |
| HLA-B*58:01 | 1 | 275 | 284 | 10 | FLLKYNE | 6e-06 | 80 |
| HLA-B*35:01 | 1 | 276 | 284 | 9 | LLKYNE | 6e-06 | 58 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-A*03:01 | 1 | 277 | 286 | 10 | LKYNGTIT 6e-06 | 71 |
| HLA-B*44:03 | 1 | 277 | 286 | 10 | LKYNGTIT 6e-06 | 60 |
| HLA-B*40:01 | 1 | 278 | 287 | 10 | KYNGTITD 6e-06 | 50 |
| HLA-B*44:03 | 1 | 278 | 287 | 10 | KYNGTITD 6e-06 | 60 |
| HLA-B*53:01 | 1 | 278 | 287 | 10 | KYNGTITD 6e-06 | 59 |
| HLA-A*11:01 | 1 | 279 | 288 | 10 | YNGTITDA 6e-06 | 56 |
| HLA-A*24:02 | 1 | 279 | 287 | 9 | YNGTITD 6e-06 | 53 |
| HLA-B*44:03 | 1 | 279 | 287 | 9 | YNGTITD 6e-06 | 60 |
| HLA-A*33:01 | 1 | 283 | 291 | 9 | GTITDAVDC 6e-06 | 81 |
| HLA-B*44:03 | 1 | 283 | 291 | 9 | GTITDAVDC 6e-06 | 60 |
| HLA-B*44:03 | 1 | 283 | 292 | 10 | GTITDAVDC 6e-06 | 60 |
| HLA-A*24:02 | 1 | 284 | 292 | 9 | TITDAVDC 6e-06 | 53 |
| HLA-A*30:01 | 1 | 286 | 294 | 9 | TDAVDCALD 6e-06 | 93 |
| HLA-A*26:01 | 1 | 288 | 297 | 10 | AVDCALDPLS 6e-06 | 68 |
| HLA-A*02:03 | 1 | 289 | 298 | 10 | VDCALDPLSE 6e-06 | 76 |
| HLA-A*11:01 | 1 | 289 | 298 | 10 | VDCALDPLSE 6e-06 | 56 |
| HLA-A*02:01 | 1 | 290 | 298 | 9 | DCALDPLSE 6e-06 | 73 |
| HLA-A*02:03 | 1 | 290 | 298 | 9 | DCALDPLSE 6e-06 | 76 |
| HLA-B*44:03 | 1 | 290 | 298 | 9 | DCALDPLSE 6e-06 | 60 |
| HLA-A*30:02 | 1 | 293 | 302 | 10 | LDPLSEKCT 6e-06 | 92 |
| HLA-B*58:01 | 1 | 293 | 302 | 10 | LDPLSEKCT 6e-06 | 80 |
| HLA-A*02:01 | 1 | 298 | 307 | 10 | ETKCTLSFT 6e-06 | 73 |
| HLA-A*11:01 | 1 | 298 | 307 | 10 | ETKCTLSFT 6e-06 | 56 |
| HLA-B*44:03 | 1 | 298 | 307 | 10 | ETKCTLSFT 6e-06 | 60 |
| HLA-A*03:01 | 1 | 299 | 307 | 9 | TKCTLSFT 6e-06 | 71 |
| HLA-B*57:01 | 1 | 299 | 307 | 9 | TKCTLSFT 6e-06 | 89 |
| HLA-A*24:02 | 1 | 301 | 309 | 9 | CTLKSFTVE 6e-06 | 53 |
| HLA-B*53:01 | 1 | 303 | 311 | 9 | LKSFTVEKG 6e-06 | 59 |
| HLA-A*24:02 | 1 | 307 | 316 | 10 | TVEKGIYQTS 6e-06 | 53 |
| HLA-A*02:01 | 1 | 309 | 318 | 10 | EKGIYQTSNF 6e-06 | 73 |
| HLA-B*35:01 | 1 | 311 | 320 | 10 | GIYQTSNFRV 6e-06 | 58 |
| HLA-A*32:01 | 1 | 312 | 321 | 10 | IYQTSNFRVQ 6e-06 | 59 |
| HLA-B*40:01 | 1 | 312 | 321 | 10 | IYQTSNFRVQ 6e-06 | 50 |
| HLA-B*53:01 | 1 | 314 | 323 | 10 | QTSNFRVQPT 6e-06 | 59 |
| HLA-A*23:01 | 1 | 315 | 324 | 10 | TSNFRVQPT 6e-06 | 56 |
| HLA-A*02:01 | 1 | 317 | 325 | 9 | NFRVQPTES 6e-06 | 73 |
| HLA-B*58:01 | 1 | 317 | 325 | 9 | NFRVQPTES 6e-06 | 80 |
| HLA-A*03:01 | 1 | 323 | 331 | 9 | TESIVRFPN 6e-06 | 71 |
| HLA-A*24:02 | 1 | 326 | 334 | 9 | IVRFPNITN 6e-06 | 53 |
| HLA-B*44:02 | 1 | 326 | 334 | 9 | IVRFPNITN 6e-06 | 64 |
| HLA-A*11:01 | 1 | 330 | 338 | 9 | PNITNLCPF 6e-06 | 56 |
| HLA-A*02:03 | 1 | 331 | 340 | 10 | NITNLCPFGE 6e-06 | 76 |
| HLA-B*35:01 | 1 | 332 | 340 | 9 | ITNLCPFGE 6e-06 | 58 |
| HLA-A*11:01 | 1 | 336 | 345 | 10 | CPFGEVFNAT 6e-06 | 56 |
| HLA-A*24:02 | 1 | 340 | 349 | 10 | EVFNATRFAS 6e-06 | 53 |
| HLA-B*40:01 | 1 | 345 | 354 | 10 | TRFASVYAWN 6e-06 | 50 |
| HLA-A*23:01 | 1 | 347 | 356 | 10 | FASVYAWNKR 6e-06 | 56 |
| HLA-A*24:02 | 1 | 347 | 356 | 10 | FASVYAWNKR 6e-06 | 53 |
| HLA-A*23:01 | 1 | 351 | 360 | 10 | YAWNKRKRIS 6e-06 | 56 |
| HLA-A*24:02 | 1 | 351 | 359 | 9 | YAWNKRKRIS 6e-06 | 53 |
| HLA-B*58:01 | 1 | 352 | 361 | 10 | AWNKRKRISNC 6e-06 | 80 |
| HLA-A*24:02 | 1 | 353 | 362 | 10 | WNKRKRISNCV 6e-06 | 53 |
| HLA-A*26:01 | 1 | 354 | 363 | 10 | NRKRISNCVA 6e-06 | 68 |
| HLA-B*44:03 | 1 | 354 | 363 | 10 | NRKRISNCVA 6e-06 | 60 |
| HLA-B*15:01 | 1 | 356 | 364 | 9 | KRISNCVAD 6e-06 | 73 |
| HLA-B*44:03 | 1 | 356 | 364 | 9 | KRISNCVAD 6e-06 | 60 |
| HLA-A*26:01 | 1 | 358 | 366 | 9 | ISNCVADYS 6e-06 | 68 |
| HLA-B*08:01 | 1 | 358 | 366 | 9 | ISNCVADYS 6e-06 | 90 |
| HLA-B*44:02 | 1 | 358 | 366 | 9 | ISNCVADYS 6e-06 | 64 |
| HLA-B*44:02 | 1 | 358 | 367 | 10 | ISNCVADYSV 6e-06 | 64 |
| HLA-A*11:01 | 1 | 359 | 368 | 10 | SNCVADYSVL 6e-06 | 56 |
| HLA-B*40:01 | 1 | 362 | 371 | 10 | VADYSVLVNS 6e-06 | 50 |
| HLA-B*44:02 | 1 | 362 | 370 | 9 | VADYSVLVNS 6e-06 | 64 |
| HLA-B*44:03 | 1 | 362 | 370 | 9 | VADYSVLVNS 6e-06 | 60 |
| HLA-B*40:01 | 1 | 366 | 375 | 10 | SVLYNSASF 6e-06 | 50 |
| HLA-B*44:03 | 1 | 367 | 376 | 10 | VLYNSASFST 6e-06 | 60 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-A*02:01 | 1 | 373 | 381 | 9 | SFSTFKCYG 6e-06 | 73 |
| HLA-A*32:01 | 1 | 373 | 381 | 9 | SFSTFKCYG 6e-06 | 59 |
| HLA-B*15:01 | 1 | 373 | 381 | 9 | SFSTFKCYG 6e-06 | 73 |
| HLA-A*02:01 | 1 | 376 | 385 | 10 | TFKCYGVSPT 6e-06 | 73 |
| HLA-A*23:01 | 1 | 380 | 388 | 9 | YGVSP TKLN 6e-06 | 56 |
| HLA-A*31:01 | 1 | 380 | 389 | 10 | YGVSP TKLND 6e-06 | 76 |
| HLA-B*35:01 | 1 | 381 | 389 | 9 | GVSP TKLND 6e-06 | 58 |
| HLA-A*68:01 | 1 | 385 | 394 | 10 | TKLNDLCFTN 6e-06 | 69 |
| HLA-B*08:01 | 1 | 385 | 394 | 10 | TKLNDLCFTN 6e-06 | 90 |
| HLA-B*58:01 | 1 | 385 | 393 | 9 | TKLNDLCFT 6e-06 | 80 |
| HLA-A*68:02 | 1 | 387 | 396 | 10 | LNDLCFTNVY 6e-06 | 73 |
| HLA-A*01:01 | 1 | 390 | 399 | 10 | LCFTNVYADS 6e-06 | 93 |
| HLA-B*44:02 | 1 | 392 | 401 | 10 | FTNVYADSFV 6e-06 | 64 |
| HLA-B*35:01 | 1 | 395 | 404 | 10 | VYADSFVIRG 6e-06 | 58 |
| HLA-A*68:01 | 1 | 396 | 405 | 10 | YADSFVIRGD 6e-06 | 69 |
| HLA-B*40:01 | 1 | 397 | 405 | 9 | ADSFVIRGD 6e-06 | 50 |
| HLA-B*51:01 | 1 | 397 | 406 | 10 | ADSFVIRGDE 6e-06 | 83 |
| HLA-A*02:06 | 1 | 398 | 406 | 9 | DSFVIRGDE 6e-06 | 80 |
| HLA-A*11:01 | 1 | 398 | 406 | 9 | DSFVIRGDE 6e-06 | 56 |
| HLA-B*15:01 | 1 | 398 | 406 | 9 | DSFVIRGDE 6e-06 | 73 |
| HLA-A*68:01 | 1 | 403 | 412 | 10 | RGDEV RQIAP 6e-06 | 69 |
| HLA-A*01:01 | 1 | 404 | 413 | 10 | GDEV RQIAPG 6e-06 | 93 |
| HLA-A*02:01 | 1 | 404 | 412 | 9 | GDEV RQIAP 6e-06 | 73 |
| HLA-A*02:03 | 1 | 404 | 412 | 9 | GDEV RQIAP 6e-06 | 76 |
| HLA-B*08:01 | 1 | 404 | 413 | 10 | GDEV RQIAPG 6e-06 | 90 |
| HLA-A*02:03 | 1 | 405 | 414 | 10 | DEV RQIAPGQ 6e-06 | 76 |
| HLA-A*23:01 | 1 | 406 | 414 | 9 | EV RQIAPGQ 6e-06 | 56 |
| HLA-A*11:01 | 1 | 410 | 419 | 10 | IAPGQTGKIA 6e-06 | 56 |
| HLA-A*11:01 | 1 | 413 | 422 | 10 | GQTGKIADYN 6e-06 | 56 |
| HLA-A*32:01 | 1 | 413 | 422 | 10 | GQTGKIADYN 6e-06 | 59 |
| HLA-B*35:01 | 1 | 416 | 424 | 9 | GKIADYNYK 6e-06 | 58 |
| HLA-B*53:01 | 1 | 416 | 424 | 9 | GKIADYNYK 6e-06 | 59 |
| HLA-A*02:06 | 1 | 419 | 427 | 9 | ADYNYKLPD 6e-06 | 80 |
| HLA-B*57:01 | 1 | 419 | 427 | 9 | ADYNYKLPD 6e-06 | 89 |
| HLA-A*11:01 | 1 | 420 | 429 | 10 | DYNYKLPDDF 6e-06 | 56 |
| HLA-B*51:01 | 1 | 420 | 428 | 9 | DYNYKLPDD 6e-06 | 83 |
| HLA-A*03:01 | 1 | 421 | 430 | 10 | YNYKLPDDFT 6e-06 | 71 |
| HLA-A*11:01 | 1 | 421 | 430 | 10 | YNYKLPDDFT 6e-06 | 56 |
| HLA-B*35:01 | 1 | 421 | 430 | 10 | YNYKLPDDFT 6e-06 | 58 |
| HLA-B*15:01 | 1 | 422 | 430 | 9 | NYKLPDDFT 6e-06 | 73 |
| HLA-B*44:02 | 1 | 422 | 430 | 9 | NYKLPDDFT 6e-06 | 64 |
| HLA-A*31:01 | 1 | 423 | 431 | 9 | YKLPDDFTG 6e-06 | 76 |
| HLA-A*31:01 | 1 | 428 | 437 | 10 | DFTGCVIAWN 6e-06 | 76 |
| HLA-A*68:01 | 1 | 428 | 437 | 10 | DFTGCVIAWN 6e-06 | 69 |
| HLA-A*26:01 | 1 | 429 | 437 | 9 | FTGCVIAWN 6e-06 | 68 |
| HLA-B*15:01 | 1 | 430 | 438 | 9 | TGCVIAWNS 6e-06 | 73 |
| HLA-A*03:01 | 1 | 431 | 440 | 10 | GCVIAWNSNN 6e-06 | 71 |
| HLA-B*53:01 | 1 | 432 | 440 | 9 | CVIAWNSNN 6e-06 | 59 |
| HLA-B*44:02 | 1 | 434 | 442 | 9 | IAWNSNNLD 6e-06 | 64 |
| HLA-A*02:01 | 1 | 435 | 443 | 9 | AWNSNNLDS 6e-06 | 73 |
| HLA-A*03:01 | 1 | 436 | 445 | 10 | WNSNNLDSKV 6e-06 | 71 |
| HLA-A*24:02 | 1 | 436 | 444 | 9 | WNSNNLDSK 6e-06 | 53 |
| HLA-A*24:02 | 1 | 436 | 445 | 10 | WNSNNLDSKV 6e-06 | 53 |
| HLA-A*02:03 | 1 | 437 | 446 | 10 | NSNNLDSKVG 6e-06 | 76 |
| HLA-B*07:02 | 1 | 438 | 446 | 9 | SNNLDSKVG 6e-06 | 73 |
| HLA-B*44:03 | 1 | 438 | 447 | 10 | SNNLDSKVG 6e-06 | 60 |
| HLA-A*02:01 | 1 | 439 | 448 | 10 | NNLDSKVG 6e-06 | 73 |
| HLA-B*07:02 | 1 | 439 | 447 | 9 | NNLDSKVG 6e-06 | 73 |
| HLA-A*26:01 | 1 | 440 | 448 | 9 | NLDSKVG 6e-06 | 68 |
| HLA-A*68:01 | 1 | 440 | 448 | 9 | NLDSKVG 6e-06 | 69 |
| HLA-B*58:01 | 1 | 440 | 448 | 9 | NLDSKVG 6e-06 | 80 |
| HLA-A*11:01 | 1 | 441 | 450 | 10 | LDSKVG 6e-06 | 56 |
| HLA-A*02:03 | 1 | 448 | 457 | 10 | NYNYLYR LFR 6e-06 | 76 |
| HLA-A*23:01 | 1 | 451 | 460 | 10 | YLYR LFRKSN 6e-06 | 56 |
| HLA-A*68:02 | 1 | 456 | 465 | 10 | FRKSNLKPFE 6e-06 | 73 |
| HLA-B*44:03 | 1 | 456 | 465 | 10 | FRKSNLKPFE 6e-06 | 60 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-A*23:01 | 1 | 457 | 465 | 9 | RKSNLKPFE | 6e-06 | 56 |
| HLA-B*35:01 | 1 | 457 | 465 | 9 | RKSNLKPFE | 6e-06 | 58 |
| HLA-B*51:01 | 1 | 457 | 466 | 10 | RKSNLKPFER | 6e-06 | 83 |
| HLA-A*02:01 | 1 | 458 | 467 | 10 | KSNLKPFERD | 6e-06 | 73 |
| HLA-A*24:02 | 1 | 459 | 467 | 9 | SNLKPFERD | 6e-06 | 53 |
| HLA-B*15:01 | 1 | 459 | 467 | 9 | SNLKPFERD | 6e-06 | 73 |
| HLA-A*24:02 | 1 | 460 | 469 | 10 | NLKPFERDIS | 6e-06 | 53 |
| HLA-A*26:01 | 1 | 460 | 469 | 10 | NLKPFERDIS | 6e-06 | 68 |
| HLA-A*01:01 | 1 | 461 | 469 | 9 | LKPFERDIS | 6e-06 | 93 |
| HLA-A*32:01 | 1 | 461 | 470 | 10 | LKPFERDIST | 6e-06 | 59 |
| HLA-B*40:01 | 1 | 461 | 469 | 9 | LKPFERDIS | 6e-06 | 50 |
| HLA-A*02:03 | 1 | 465 | 474 | 10 | ERDISTEIQ | 6e-06 | 76 |
| HLA-B*07:02 | 1 | 468 | 477 | 10 | ISTEIQAGS | 6e-06 | 73 |
| HLA-B*40:01 | 1 | 468 | 476 | 9 | ISTEIQAG | 6e-06 | 50 |
| HLA-B*40:01 | 1 | 469 | 477 | 9 | STEIQAGS | 6e-06 | 50 |
| HLA-A*02:01 | 1 | 470 | 478 | 9 | TEIQAGST | 6e-06 | 73 |
| HLA-A*23:01 | 1 | 470 | 478 | 9 | TEIQAGST | 6e-06 | 56 |
| HLA-A*31:01 | 1 | 470 | 478 | 9 | TEIQAGST | 6e-06 | 76 |
| HLA-A*02:01 | 1 | 472 | 481 | 10 | IYQAGSTPCN | 6e-06 | 73 |
| HLA-A*24:02 | 1 | 473 | 482 | 10 | YQAGSTPCNG | 6e-06 | 53 |
| HLA-A*32:01 | 1 | 473 | 482 | 10 | YQAGSTPCNG | 6e-06 | 59 |
| HLA-B*53:01 | 1 | 473 | 482 | 10 | YQAGSTPCNG | 6e-06 | 59 |
| HLA-A*02:06 | 1 | 474 | 482 | 9 | QAGSTPCNG | 6e-06 | 80 |
| HLA-B*40:01 | 1 | 474 | 483 | 10 | QAGSTPCNGV | 6e-06 | 50 |
| HLA-B*44:03 | 1 | 474 | 482 | 9 | QAGSTPCNG | 6e-06 | 60 |
| HLA-A*68:02 | 1 | 476 | 484 | 9 | GSTPCNGVE | 6e-06 | 73 |
| HLA-B*35:01 | 1 | 476 | 484 | 9 | GSTPCNGVE | 6e-06 | 58 |
| HLA-B*53:01 | 1 | 476 | 484 | 9 | GSTPCNGVE | 6e-06 | 59 |
| HLA-A*32:01 | 1 | 477 | 485 | 9 | STPCNGVEG | 6e-06 | 59 |
| HLA-A*03:01 | 1 | 478 | 487 | 10 | TPCNGVEGFN | 6e-06 | 71 |
| HLA-A*68:02 | 1 | 480 | 488 | 9 | CNGVEGFNC | 6e-06 | 73 |
| HLA-B*07:02 | 1 | 482 | 491 | 10 | GVEGFNCYFP | 6e-06 | 73 |
| HLA-B*07:02 | 1 | 483 | 491 | 9 | VEGFNCYFP | 6e-06 | 73 |
| HLA-B*57:01 | 1 | 483 | 491 | 9 | VEGFNCYFP | 6e-06 | 89 |
| HLA-A*68:02 | 1 | 485 | 494 | 10 | GFNCYFPLQS | 6e-06 | 73 |
| HLA-B*35:01 | 1 | 485 | 493 | 9 | GFNCYFPLQ | 6e-06 | 58 |
| HLA-B*51:01 | 1 | 485 | 494 | 10 | GFNCYFPLQS | 6e-06 | 83 |
| HLA-A*02:01 | 1 | 489 | 498 | 10 | YFPLQSYGFQ | 6e-06 | 73 |
| HLA-A*02:03 | 1 | 489 | 498 | 10 | YFPLQSYGFQ | 6e-06 | 76 |
| HLA-A*24:02 | 1 | 490 | 499 | 10 | FPLQSYGFQP | 6e-06 | 53 |
| HLA-B*53:01 | 1 | 491 | 499 | 9 | PLQSYGFQP | 6e-06 | 59 |
| HLA-B*44:02 | 1 | 492 | 501 | 10 | LQSYGFQPTN | 6e-06 | 64 |
| HLA-B*35:01 | 1 | 493 | 502 | 10 | QSYGFQPTNG | 6e-06 | 58 |
| HLA-A*02:03 | 1 | 494 | 502 | 9 | SYGFQPTNG | 6e-06 | 76 |
| HLA-B*53:01 | 1 | 494 | 502 | 9 | SYGFQPTNG | 6e-06 | 59 |
| HLA-B*15:01 | 1 | 501 | 510 | 10 | NGVGYQPYRV | 6e-06 | 73 |
| HLA-A*23:01 | 1 | 513 | 522 | 10 | LSFELLHAPA | 6e-06 | 56 |
| HLA-A*24:02 | 1 | 513 | 522 | 10 | LSFELLHAPA | 6e-06 | 53 |
| HLA-A*68:01 | 1 | 514 | 523 | 10 | SFELLHAPAT | 6e-06 | 69 |
| HLA-B*53:01 | 1 | 514 | 523 | 10 | SFELLHAPAT | 6e-06 | 59 |
| HLA-B*58:01 | 1 | 514 | 523 | 10 | SFELLHAPAT | 6e-06 | 80 |
| HLA-B*15:01 | 1 | 518 | 527 | 10 | LHAPATVCGP | 6e-06 | 73 |
| HLA-B*40:01 | 1 | 519 | 527 | 9 | HAPATVCGP | 6e-06 | 50 |
| HLA-A*32:01 | 1 | 521 | 529 | 9 | PATVCGPKK | 6e-06 | 59 |
| HLA-B*07:02 | 1 | 521 | 529 | 9 | PATVCGPKK | 6e-06 | 73 |
| HLA-B*44:02 | 1 | 521 | 529 | 9 | PATVCGPKK | 6e-06 | 64 |
| HLA-B*53:01 | 1 | 521 | 529 | 9 | PATVCGPKK | 6e-06 | 59 |
| HLA-B*58:01 | 1 | 521 | 530 | 10 | PATVCGPKKS | 6e-06 | 80 |
| HLA-A*23:01 | 1 | 522 | 531 | 10 | ATVCGPKKST | 6e-06 | 56 |
| HLA-B*35:01 | 1 | 522 | 531 | 10 | ATVCGPKKST | 6e-06 | 58 |
| HLA-A*03:01 | 1 | 524 | 532 | 9 | VCGPKKSTN | 6e-06 | 71 |
| HLA-B*44:02 | 1 | 524 | 532 | 9 | VCGPKKSTN | 6e-06 | 64 |
| HLA-A*02:01 | 1 | 527 | 535 | 9 | PKKSTNLVK | 6e-06 | 73 |
| HLA-B*35:01 | 1 | 527 | 535 | 9 | PKKSTNLVK | 6e-06 | 58 |
| HLA-B*40:01 | 1 | 527 | 535 | 9 | PKKSTNLVK | 6e-06 | 50 |
| HLA-A*11:01 | 1 | 528 | 536 | 9 | KKSTNLVKN | 6e-06 | 56 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-B*58:01 | 1 | 531 | 540 | 10 | TNLVKNKCVN | 6e-06 | 80 |
| HLA-B*35:01 | 1 | 532 | 540 | 9 | NLVKNKCVN | 6e-06 | 58 |
| HLA-B*58:01 | 1 | 534 | 542 | 9 | VKNKCVNFN | 6e-06 | 80 |
| HLA-A*32:01 | 1 | 535 | 544 | 10 | KNKCVNFNFN | 6e-06 | 59 |
| HLA-B*15:01 | 1 | 537 | 545 | 9 | KCVNFNFNNG | 6e-06 | 73 |
| HLA-B*07:02 | 1 | 538 | 547 | 10 | CVNFNFNGLT | 6e-06 | 73 |
| HLA-A*24:02 | 1 | 539 | 547 | 9 | VNFNFNGLT | 6e-06 | 53 |
| HLA-A*68:01 | 1 | 539 | 548 | 10 | VNFNFNGLTG | 6e-06 | 69 |
| HLA-A*11:01 | 1 | 540 | 548 | 9 | NFNFNGLTG | 6e-06 | 56 |
| HLA-B*15:01 | 1 | 540 | 549 | 10 | NFNFNGLTGT | 6e-06 | 73 |
| HLA-A*11:01 | 1 | 543 | 551 | 9 | FNGLTGTGV | 6e-06 | 56 |
| HLA-A*23:01 | 1 | 544 | 553 | 10 | NGLTGTGVLT | 6e-06 | 56 |
| HLA-A*24:02 | 1 | 544 | 553 | 10 | NGLTGTGVLT | 6e-06 | 53 |
| HLA-B*44:02 | 1 | 544 | 553 | 10 | NGLTGTGVLT | 6e-06 | 64 |
| HLA-A*24:02 | 1 | 545 | 554 | 10 | GLTGTGVLTE | 6e-06 | 53 |
| HLA-A*32:01 | 1 | 547 | 555 | 9 | TGTGVLTES | 6e-06 | 59 |
| HLA-A*68:01 | 1 | 547 | 556 | 10 | TGTGVLTESN | 6e-06 | 69 |
| HLA-B*44:02 | 1 | 548 | 557 | 10 | GTGVLTESNK | 6e-06 | 64 |
| HLA-A*24:02 | 1 | 555 | 563 | 9 | SNKKFLPFQ | 6e-06 | 53 |
| HLA-A*32:01 | 1 | 555 | 564 | 10 | SNKKFLPFQQ | 6e-06 | 59 |
| HLA-B*07:02 | 1 | 555 | 564 | 10 | SNKKFLPFQQ | 6e-06 | 73 |
| HLA-A*02:03 | 1 | 556 | 564 | 9 | NKKFLPFQQ | 6e-06 | 76 |
| HLA-A*24:02 | 1 | 556 | 564 | 9 | NKKFLPFQQ | 6e-06 | 53 |
| HLA-B*40:01 | 1 | 558 | 566 | 9 | KFLPFQQFG | 6e-06 | 50 |
| HLA-A*24:02 | 1 | 559 | 568 | 10 | FLPFQQFGRD | 6e-06 | 53 |
| HLA-A*26:01 | 1 | 561 | 569 | 9 | PFQQFGRDI | 6e-06 | 68 |
| HLA-A*31:01 | 1 | 561 | 570 | 10 | PFQQFGRDIA | 6e-06 | 76 |
| HLA-A*33:01 | 1 | 561 | 570 | 10 | PFQQFGRDIA | 6e-06 | 81 |
| HLA-A*02:03 | 1 | 565 | 574 | 10 | FGRDIADTTD | 6e-06 | 76 |
| HLA-B*35:01 | 1 | 565 | 574 | 10 | FGRDIADTTD | 6e-06 | 58 |
| HLA-A*31:01 | 1 | 566 | 575 | 10 | GRDIADTTDA | 6e-06 | 76 |
| HLA-A*33:01 | 1 | 566 | 575 | 10 | GRDIADTTDA | 6e-06 | 81 |
| HLA-B*07:02 | 1 | 566 | 574 | 9 | GRDIADTTD | 6e-06 | 73 |
| HLA-B*35:01 | 1 | 566 | 574 | 9 | GRDIADTTD | 6e-06 | 58 |
| HLA-B*35:01 | 1 | 566 | 575 | 10 | GRDIADTTDA | 6e-06 | 58 |
| HLA-A*23:01 | 1 | 567 | 575 | 9 | RDIADTTDA | 6e-06 | 56 |
| HLA-A*24:02 | 1 | 567 | 575 | 9 | RDIADTTDA | 6e-06 | 53 |
| HLA-B*40:01 | 1 | 568 | 577 | 10 | DIADTTDAVR | 6e-06 | 50 |
| HLA-A*02:01 | 1 | 569 | 578 | 10 | IADTTDAVRD | 6e-06 | 73 |
| HLA-B*08:01 | 1 | 569 | 578 | 10 | IADTTDAVRD | 6e-06 | 90 |
| HLA-A*03:01 | 1 | 570 | 579 | 10 | ADTTDAVRDP | 6e-06 | 71 |
| HLA-A*31:01 | 1 | 571 | 579 | 9 | DTTDAVRDP | 6e-06 | 76 |
| HLA-B*15:01 | 1 | 571 | 580 | 10 | DTTDAVRDPQ | 6e-06 | 73 |
| HLA-A*31:01 | 1 | 573 | 581 | 9 | TDAVRDPQT | 6e-06 | 76 |
| HLA-A*68:01 | 1 | 578 | 586 | 9 | DPQTLEILD | 6e-06 | 69 |
| HLA-A*03:01 | 1 | 579 | 587 | 9 | PQTLEILDI | 6e-06 | 71 |
| HLA-A*33:01 | 1 | 579 | 588 | 10 | PQTLEILDIT | 6e-06 | 81 |
| HLA-A*11:01 | 1 | 581 | 590 | 10 | TLEILDITPC | 6e-06 | 56 |
| HLA-A*32:01 | 1 | 581 | 590 | 10 | TLEILDITPC | 6e-06 | 59 |
| HLA-A*33:01 | 1 | 585 | 594 | 10 | LDITPCSFGG | 6e-06 | 81 |
| HLA-B*15:01 | 1 | 585 | 593 | 9 | LDITPCSFG | 6e-06 | 73 |
| HLA-B*35:01 | 1 | 585 | 593 | 9 | LDITPCSFG | 6e-06 | 58 |
| HLA-B*53:01 | 1 | 585 | 593 | 9 | LDITPCSFG | 6e-06 | 59 |
| HLA-B*15:01 | 1 | 586 | 595 | 10 | DITPCSFGGV | 6e-06 | 73 |
| HLA-B*40:01 | 1 | 587 | 595 | 9 | ITPCSFGGV | 6e-06 | 50 |
| HLA-B*44:02 | 1 | 588 | 596 | 9 | TPCSFGGVS | 6e-06 | 64 |
| HLA-A*03:01 | 1 | 589 | 597 | 9 | PCSFSGGVS | 6e-06 | 71 |
| HLA-A*33:01 | 1 | 589 | 597 | 9 | PCSFSGGVS | 6e-06 | 81 |
| HLA-B*40:01 | 1 | 589 | 598 | 10 | PCSFSGGVS | 6e-06 | 50 |
| HLA-B*35:01 | 1 | 590 | 599 | 10 | CSFSGGVS | 6e-06 | 58 |
| HLA-B*44:02 | 1 | 592 | 600 | 9 | FGGVS | 6e-06 | 64 |
| HLA-A*26:01 | 1 | 593 | 602 | 10 | GGVSVITPGT | 6e-06 | 68 |
| HLA-A*68:01 | 1 | 593 | 601 | 9 | GGVSVITPG | 6e-06 | 69 |
| HLA-A*11:01 | 1 | 594 | 603 | 10 | GVS | 6e-06 | 56 |
| HLA-A*26:01 | 1 | 594 | 603 | 10 | GVS | 6e-06 | 68 |
| HLA-B*44:03 | 1 | 595 | 604 | 10 | VSVITPGTNT | 6e-06 | 60 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-B*44:02 | 1 | 598 | 607 | 10 | ITPGTNTSNQ | 6e-06 | 64 |
| HLA-A*23:01 | 1 | 599 | 607 | 9 | TPGTNTSNQ | 6e-06 | 56 |
| HLA-A*31:01 | 1 | 600 | 609 | 10 | PGTNTSNQVA | 6e-06 | 76 |
| HLA-B*35:01 | 1 | 600 | 608 | 9 | PGTNTSNQV | 6e-06 | 58 |
| HLA-B*40:01 | 1 | 600 | 608 | 9 | PGTNTSNQV | 6e-06 | 50 |
| HLA-A*02:03 | 1 | 605 | 613 | 9 | SNQVAVLYQ | 6e-06 | 76 |
| HLA-A*23:01 | 1 | 605 | 613 | 9 | SNQVAVLYQ | 6e-06 | 56 |
| HLA-B*40:01 | 1 | 605 | 613 | 9 | SNQVAVLYQ | 6e-06 | 50 |
| HLA-B*44:03 | 1 | 605 | 614 | 10 | SNQVAVLYQD | 6e-06 | 60 |
| HLA-B*35:01 | 1 | 606 | 615 | 10 | NQVAVLYQDV | 6e-06 | 58 |
| HLA-A*26:01 | 1 | 607 | 616 | 10 | QVAVLYQDVN | 6e-06 | 68 |
| HLA-A*68:01 | 1 | 607 | 616 | 10 | QVAVLYQDVN | 6e-06 | 69 |
| HLA-B*08:01 | 1 | 607 | 616 | 10 | QVAVLYQDVN | 6e-06 | 90 |
| HLA-A*33:01 | 1 | 612 | 621 | 10 | YQDVNCTEVP | 6e-06 | 81 |
| HLA-A*02:03 | 1 | 613 | 621 | 9 | QDVNCTEVP | 6e-06 | 76 |
| HLA-A*23:01 | 1 | 613 | 622 | 10 | QDVNCTEVPV | 6e-06 | 56 |
| HLA-A*24:02 | 1 | 613 | 621 | 9 | QDVNCTEVP | 6e-06 | 53 |
| HLA-B*53:01 | 1 | 613 | 622 | 10 | QDVNCTEVPV | 6e-06 | 59 |
| HLA-A*11:01 | 1 | 614 | 623 | 10 | DVNCTEVPVA | 6e-06 | 56 |
| HLA-A*23:01 | 1 | 614 | 622 | 9 | DVNCTEVPV | 6e-06 | 56 |
| HLA-A*24:02 | 1 | 618 | 627 | 10 | TEVPVAIHAD | 6e-06 | 53 |
| HLA-A*31:01 | 1 | 618 | 627 | 10 | TEVPVAIHAD | 6e-06 | 76 |
| HLA-A*03:01 | 1 | 619 | 627 | 9 | EVPVAIHAD | 6e-06 | 71 |
| HLA-B*44:03 | 1 | 619 | 628 | 10 | EVPVAIHADQ | 6e-06 | 60 |
| HLA-A*33:01 | 1 | 621 | 630 | 10 | PVAIHADQLT | 6e-06 | 81 |
| HLA-B*53:01 | 1 | 623 | 632 | 10 | AIHADQLTPT | 6e-06 | 59 |
| HLA-A*23:01 | 1 | 629 | 638 | 10 | LTPTWRVYST | 6e-06 | 56 |
| HLA-B*08:01 | 1 | 631 | 640 | 10 | PTWRVYSTGS | 6e-06 | 90 |
| HLA-B*53:01 | 1 | 631 | 639 | 9 | PTWRVYSTG | 6e-06 | 59 |
| HLA-A*02:06 | 1 | 632 | 640 | 9 | TWRVYSTGS | 6e-06 | 80 |
| HLA-A*32:01 | 1 | 632 | 640 | 9 | TWRVYSTGS | 6e-06 | 59 |
| HLA-B*35:01 | 1 | 632 | 640 | 9 | TWRVYSTGS | 6e-06 | 58 |
| HLA-B*40:01 | 1 | 636 | 645 | 10 | YSTGSNVFQT | 6e-06 | 50 |
| HLA-B*44:02 | 1 | 636 | 645 | 10 | YSTGSNVFQT | 6e-06 | 64 |
| HLA-A*11:01 | 1 | 639 | 648 | 10 | GSNVFQTRAG | 6e-06 | 56 |
| HLA-A*32:01 | 1 | 639 | 648 | 10 | GSNVFQTRAG | 6e-06 | 59 |
| HLA-A*11:01 | 1 | 640 | 648 | 9 | SNVFQTRAG | 6e-06 | 56 |
| HLA-A*23:01 | 1 | 640 | 649 | 10 | SNVFQTRAGC | 6e-06 | 56 |
| HLA-B*40:01 | 1 | 640 | 648 | 9 | SNVFQTRAG | 6e-06 | 50 |
| HLA-B*35:01 | 1 | 645 | 654 | 10 | TRAGCLIGAE | 6e-06 | 58 |
| HLA-B*44:02 | 1 | 645 | 654 | 10 | TRAGCLIGAE | 6e-06 | 64 |
| HLA-A*68:02 | 1 | 647 | 655 | 9 | AGCLIGAEH | 6e-06 | 73 |
| HLA-A*03:01 | 1 | 648 | 657 | 10 | GCLIGAEHVN | 6e-06 | 71 |
| HLA-A*26:01 | 1 | 650 | 658 | 9 | LIGAEHVNN | 6e-06 | 68 |
| HLA-B*08:01 | 1 | 650 | 658 | 9 | LIGAEHVNN | 6e-06 | 90 |
| HLA-A*02:01 | 1 | 653 | 661 | 9 | AEHVNNSYE | 6e-06 | 73 |
| HLA-B*53:01 | 1 | 653 | 661 | 9 | AEHVNNSYE | 6e-06 | 59 |
| HLA-A*11:01 | 1 | 654 | 662 | 9 | EHVNNSYEC | 6e-06 | 56 |
| HLA-B*35:01 | 1 | 655 | 663 | 9 | HVNNSYECD | 6e-06 | 58 |
| HLA-B*44:03 | 1 | 655 | 664 | 10 | HVNNSYECDI | 6e-06 | 60 |
| HLA-B*51:01 | 1 | 655 | 663 | 9 | HVNNSYECD | 6e-06 | 83 |
| HLA-B*15:01 | 1 | 656 | 664 | 9 | VNNSYECDI | 6e-06 | 73 |
| HLA-B*51:01 | 1 | 656 | 665 | 10 | VNNSYECDIP | 6e-06 | 83 |
| HLA-B*35:01 | 1 | 658 | 667 | 10 | NSYECDIPIG | 6e-06 | 58 |
| HLA-A*26:01 | 1 | 659 | 667 | 9 | SYECDIPIG | 6e-06 | 68 |
| HLA-A*33:01 | 1 | 659 | 667 | 9 | SYECDIPIG | 6e-06 | 81 |
| HLA-B*07:02 | 1 | 659 | 667 | 9 | SYECDIPIG | 6e-06 | 73 |
| HLA-B*44:02 | 1 | 659 | 667 | 9 | SYECDIPIG | 6e-06 | 64 |
| HLA-A*31:01 | 1 | 660 | 669 | 10 | YECDIPIGAG | 6e-06 | 76 |
| HLA-A*02:03 | 1 | 661 | 669 | 9 | ECDIPIGAG | 6e-06 | 76 |
| HLA-A*03:01 | 1 | 661 | 669 | 9 | ECDIPIGAG | 6e-06 | 71 |
| HLA-A*68:01 | 1 | 661 | 669 | 9 | ECDIPIGAG | 6e-06 | 69 |
| HLA-B*58:01 | 1 | 663 | 671 | 9 | DIPIGAGIC | 6e-06 | 80 |
| HLA-B*08:01 | 1 | 665 | 673 | 9 | PIGAGICAS | 6e-06 | 90 |
| HLA-B*44:03 | 1 | 666 | 675 | 10 | IGAGICASYQ | 6e-06 | 60 |
| HLA-B*35:01 | 1 | 667 | 675 | 9 | GAGICASYQ | 6e-06 | 58 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-A*03:01 | 1 | 668 | 676 | 9 | AGICASYQT | 6e-06 | 71 |
| HLA-B*44:03 | 1 | 668 | 677 | 10 | AGICASYQTQ | 6e-06 | 60 |
| HLA-A*23:01 | 1 | 669 | 677 | 9 | GICASYQTQ | 6e-06 | 56 |
| HLA-A*23:01 | 1 | 670 | 678 | 9 | ICASYQTQT | 6e-06 | 56 |
| HLA-A*24:02 | 1 | 670 | 678 | 9 | ICASYQTQT | 6e-06 | 53 |
| HLA-A*02:03 | 1 | 671 | 679 | 9 | CASYQTQTN | 6e-06 | 76 |
| HLA-A*31:01 | 1 | 671 | 679 | 9 | CASYQTQTN | 6e-06 | 76 |
| HLA-A*33:01 | 1 | 671 | 679 | 9 | CASYQTQTN | 6e-06 | 81 |
| HLA-B*35:01 | 1 | 671 | 680 | 10 | CASYQTQTN | 6e-06 | 58 |
| HLA-A*24:02 | 1 | 675 | 684 | 10 | QTQTNSPRRA | 6e-06 | 53 |
| HLA-A*23:01 | 1 | 678 | 686 | 9 | TNSPRRARS | 6e-06 | 56 |
| HLA-A*24:02 | 1 | 678 | 686 | 9 | TNSPRRARS | 6e-06 | 53 |
| HLA-B*40:01 | 1 | 678 | 686 | 9 | TNSPRRARS | 6e-06 | 50 |
| HLA-A*23:01 | 1 | 679 | 688 | 10 | NSPRRARSVA | 6e-06 | 56 |
| HLA-B*40:01 | 1 | 680 | 689 | 10 | SPRRARVAS | 6e-06 | 50 |
| HLA-A*31:01 | 1 | 681 | 690 | 10 | PRRARSVASQ | 6e-06 | 76 |
| HLA-A*23:01 | 1 | 685 | 694 | 10 | RSVASQSIIA | 6e-06 | 56 |
| HLA-B*35:01 | 1 | 692 | 700 | 9 | IIAYTMSLG | 6e-06 | 58 |
| HLA-A*02:03 | 1 | 694 | 702 | 9 | AYTMSLGAE | 6e-06 | 76 |
| HLA-B*44:02 | 1 | 694 | 702 | 9 | AYTMSLGAE | 6e-06 | 64 |
| HLA-A*23:01 | 1 | 698 | 706 | 9 | SLGAENVA | 6e-06 | 56 |
| HLA-A*24:02 | 1 | 698 | 706 | 9 | SLGAENVA | 6e-06 | 53 |
| HLA-A*31:01 | 1 | 700 | 709 | 10 | GAENSVAYS | 6e-06 | 76 |
| HLA-B*58:01 | 1 | 701 | 710 | 10 | AENSVAYSNN | 6e-06 | 80 |
| HLA-A*68:02 | 1 | 702 | 710 | 9 | ENSVAYSNN | 6e-06 | 73 |
| HLA-B*40:01 | 1 | 703 | 711 | 9 | NSVAYSNN | 6e-06 | 50 |
| HLA-A*23:01 | 1 | 704 | 713 | 10 | SVAYSNN | 6e-06 | 56 |
| HLA-B*40:01 | 1 | 706 | 715 | 10 | AYSNN | 6e-06 | 50 |
| HLA-A*23:01 | 1 | 715 | 724 | 10 | PTNFTISVTT | 6e-06 | 56 |
| HLA-B*53:01 | 1 | 715 | 723 | 9 | PTNFTISVT | 6e-06 | 59 |
| HLA-B*44:03 | 1 | 717 | 725 | 9 | NFTISVTT | 6e-06 | 60 |
| HLA-B*40:01 | 1 | 720 | 729 | 10 | ISVTTEILPV | 6e-06 | 50 |
| HLA-B*44:02 | 1 | 721 | 730 | 10 | SVTTEILPVS | 6e-06 | 64 |
| HLA-A*23:01 | 1 | 723 | 732 | 10 | TTEILPVSMT | 6e-06 | 56 |
| HLA-B*40:01 | 1 | 726 | 734 | 9 | ILPVSMTKT | 6e-06 | 50 |
| HLA-B*44:03 | 1 | 726 | 735 | 10 | ILPVSMTKTS | 6e-06 | 60 |
| HLA-A*68:02 | 1 | 728 | 737 | 10 | PVSMTKTSVD | 6e-06 | 73 |
| HLA-A*23:01 | 1 | 729 | 738 | 10 | VSMTKTSVDC | 6e-06 | 56 |
| HLA-B*53:01 | 1 | 729 | 738 | 10 | VSMTKTSVDC | 6e-06 | 59 |
| HLA-A*32:01 | 1 | 730 | 739 | 10 | SMTKTSVDCT | 6e-06 | 59 |
| HLA-A*23:01 | 1 | 734 | 743 | 10 | TSVDCTMYIC | 6e-06 | 56 |
| HLA-A*26:01 | 1 | 737 | 746 | 10 | DCTMYICGDS | 6e-06 | 68 |
| HLA-A*68:01 | 1 | 737 | 746 | 10 | DCTMYICGDS | 6e-06 | 69 |
| HLA-A*03:01 | 1 | 738 | 746 | 9 | CTMYICGDS | 6e-06 | 71 |
| HLA-A*26:01 | 1 | 738 | 746 | 9 | CTMYICGDS | 6e-06 | 68 |
| HLA-A*31:01 | 1 | 738 | 747 | 10 | CTMYICGDST | 6e-06 | 76 |
| HLA-A*33:01 | 1 | 738 | 746 | 9 | CTMYICGDS | 6e-06 | 81 |
| HLA-B*51:01 | 1 | 738 | 747 | 10 | CTMYICGDST | 6e-06 | 83 |
| HLA-A*24:02 | 1 | 739 | 747 | 9 | TMYICGDST | 6e-06 | 53 |
| HLA-B*44:02 | 1 | 740 | 748 | 9 | MYICGDSTE | 6e-06 | 64 |
| HLA-B*44:03 | 1 | 740 | 748 | 9 | MYICGDSTE | 6e-06 | 60 |
| HLA-A*31:01 | 1 | 741 | 750 | 10 | YICGDSTECS | 6e-06 | 76 |
| HLA-B*35:01 | 1 | 741 | 750 | 10 | YICGDSTECS | 6e-06 | 58 |
| HLA-A*32:01 | 1 | 743 | 752 | 10 | CGDSTECSNL | 6e-06 | 59 |
| HLA-A*23:01 | 1 | 746 | 755 | 10 | STECNLLLQ | 6e-06 | 56 |
| HLA-A*02:03 | 1 | 748 | 757 | 10 | ECSNLLLQYG | 6e-06 | 76 |
| HLA-A*11:01 | 1 | 748 | 757 | 10 | ECSNLLLQYG | 6e-06 | 56 |
| HLA-A*03:01 | 1 | 749 | 758 | 10 | CSNLLLQYGS | 6e-06 | 71 |
| HLA-A*26:01 | 1 | 749 | 757 | 9 | CSNLLLQYG | 6e-06 | 68 |
| HLA-A*24:02 | 1 | 750 | 758 | 9 | SNLLLQYGS | 6e-06 | 53 |
| HLA-B*53:01 | 1 | 750 | 758 | 9 | SNLLLQYGS | 6e-06 | 59 |
| HLA-A*68:01 | 1 | 752 | 760 | 9 | LLLQYGSFCT | 6e-06 | 69 |
| HLA-B*07:02 | 1 | 752 | 761 | 10 | LLLQYGSFCT | 6e-06 | 73 |
| HLA-A*23:01 | 1 | 753 | 762 | 10 | LLQYGSFCTQ | 6e-06 | 56 |
| HLA-B*40:01 | 1 | 753 | 762 | 10 | LLQYGSFCTQ | 6e-06 | 50 |
| HLA-B*53:01 | 1 | 753 | 761 | 9 | LLQYGSFCT | 6e-06 | 59 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-B*51:01 | 1 | 755 | 764 | 10 | QYGSFCTQLN | 6e-06 | 83 |
| HLA-B*08:01 | 1 | 756 | 764 | 9 | YGSFCTQLN | 6e-06 | 90 |
| HLA-B*15:01 | 1 | 756 | 764 | 9 | YGSFCTQLN | 6e-06 | 73 |
| HLA-B*44:02 | 1 | 756 | 765 | 10 | YGSFCTQLNR | 6e-06 | 64 |
| HLA-A*31:01 | 1 | 760 | 769 | 10 | CTQLNRALTG | 6e-06 | 76 |
| HLA-A*68:02 | 1 | 760 | 769 | 10 | CTQLNRALTG | 6e-06 | 73 |
| HLA-B*53:01 | 1 | 760 | 768 | 9 | CTQLNRALT | 6e-06 | 59 |
| HLA-B*40:01 | 1 | 764 | 773 | 10 | NRALTGIAVE | 6e-06 | 50 |
| HLA-A*03:01 | 1 | 768 | 777 | 10 | TGIAVEQDKN | 6e-06 | 71 |
| HLA-A*68:01 | 1 | 769 | 777 | 9 | GIAVEQDKN | 6e-06 | 69 |
| HLA-A*23:01 | 1 | 770 | 778 | 9 | IAVEQDKNT | 6e-06 | 56 |
| HLA-A*32:01 | 1 | 774 | 783 | 10 | QDKNTQEVFA | 6e-06 | 59 |
| HLA-A*11:01 | 1 | 775 | 783 | 9 | DKNTQEVFA | 6e-06 | 56 |
| HLA-B*15:01 | 1 | 775 | 784 | 10 | DKNTQEVFAQ | 6e-06 | 73 |
| HLA-A*24:02 | 1 | 776 | 784 | 9 | KNTQEVFAQ | 6e-06 | 53 |
| HLA-A*02:03 | 1 | 785 | 793 | 9 | VKQIYKTPP | 6e-06 | 76 |
| HLA-B*53:01 | 1 | 785 | 794 | 10 | VKQIYKTPPI | 6e-06 | 59 |
| HLA-B*53:01 | 1 | 790 | 799 | 10 | KTPPIKDFGG | 6e-06 | 59 |
| HLA-A*24:02 | 1 | 791 | 799 | 9 | TPPIKDFGG | 6e-06 | 53 |
| HLA-B*58:01 | 1 | 791 | 799 | 9 | TPPIKDFGG | 6e-06 | 80 |
| HLA-A*11:01 | 1 | 797 | 805 | 9 | FGGFNFSQI | 6e-06 | 56 |
| HLA-B*44:02 | 1 | 797 | 806 | 10 | FGGFNFSQIL | 6e-06 | 64 |
| HLA-B*44:03 | 1 | 797 | 806 | 10 | FGGFNFSQIL | 6e-06 | 60 |
| HLA-B*35:01 | 1 | 798 | 807 | 10 | GGFNFSQILP | 6e-06 | 58 |
| HLA-A*02:03 | 1 | 799 | 808 | 10 | GFNFSQILPD | 6e-06 | 76 |
| HLA-A*02:06 | 1 | 799 | 808 | 10 | GFNFSQILPD | 6e-06 | 80 |
| HLA-B*58:01 | 1 | 799 | 808 | 10 | GFNFSQILPD | 6e-06 | 80 |
| HLA-B*15:01 | 1 | 800 | 808 | 9 | FNFSQILPD | 6e-06 | 73 |
| HLA-B*40:01 | 1 | 800 | 809 | 10 | FNFSQILPDP | 6e-06 | 50 |
| HLA-B*15:01 | 1 | 801 | 809 | 9 | NFSQILPDP | 6e-06 | 73 |
| HLA-A*03:01 | 1 | 807 | 816 | 10 | PDPSKPSKRS | 6e-06 | 71 |
| HLA-A*30:02 | 1 | 807 | 816 | 10 | PDPSKPSKRS | 6e-06 | 92 |
| HLA-B*40:01 | 1 | 807 | 815 | 9 | PDPSKPSKR | 6e-06 | 50 |
| HLA-A*11:01 | 1 | 809 | 818 | 10 | PSKPSKRSFI | 6e-06 | 56 |
| HLA-A*23:01 | 1 | 810 | 819 | 10 | SKPSKRSFIE | 6e-06 | 56 |
| HLA-A*03:01 | 1 | 812 | 821 | 10 | PSKRSFIEDL | 6e-06 | 71 |
| HLA-A*23:01 | 1 | 818 | 827 | 10 | IEDLLFNKVT | 6e-06 | 56 |
| HLA-B*15:01 | 1 | 818 | 827 | 10 | IEDLLFNKVT | 6e-06 | 73 |
| HLA-A*24:02 | 1 | 819 | 827 | 9 | EDLLFNKVT | 6e-06 | 53 |
| HLA-A*31:01 | 1 | 819 | 827 | 9 | EDLLFNKVT | 6e-06 | 76 |
| HLA-B*15:01 | 1 | 819 | 827 | 9 | EDLLFNKVT | 6e-06 | 73 |
| HLA-A*68:01 | 1 | 821 | 830 | 10 | LLFNKVTLAD | 6e-06 | 69 |
| HLA-A*02:03 | 1 | 823 | 832 | 10 | FNKVTLADAG | 6e-06 | 76 |
| HLA-B*44:02 | 1 | 823 | 831 | 9 | FNKVTLADA | 6e-06 | 64 |
| HLA-A*11:01 | 1 | 824 | 833 | 10 | NKVTLADAGF | 6e-06 | 56 |
| HLA-A*30:01 | 1 | 824 | 832 | 9 | NKVTLADAG | 6e-06 | 93 |
| HLA-B*40:01 | 1 | 824 | 832 | 9 | NKVTLADAG | 6e-06 | 50 |
| HLA-A*02:01 | 1 | 829 | 838 | 10 | ADAGFIKQYG | 6e-06 | 73 |
| HLA-A*02:06 | 1 | 830 | 838 | 9 | DAGFIKQYG | 6e-06 | 80 |
| HLA-A*02:03 | 1 | 831 | 839 | 9 | AGFIKQYGD | 6e-06 | 76 |
| HLA-A*68:02 | 1 | 831 | 839 | 9 | AGFIKQYGD | 6e-06 | 73 |
| HLA-B*15:01 | 1 | 831 | 840 | 10 | AGFIKQYGDC | 6e-06 | 73 |
| HLA-B*44:02 | 1 | 831 | 840 | 10 | AGFIKQYGDC | 6e-06 | 64 |
| HLA-A*03:01 | 1 | 832 | 840 | 9 | GFIKQYGDC | 6e-06 | 71 |
| HLA-A*26:01 | 1 | 832 | 840 | 9 | GFIKQYGDC | 6e-06 | 68 |
| HLA-A*26:01 | 1 | 833 | 842 | 10 | FIKQYGDCLG | 6e-06 | 68 |
| HLA-A*02:01 | 1 | 834 | 843 | 10 | IKQYGDCLGD | 6e-06 | 73 |
| HLA-A*02:03 | 1 | 834 | 843 | 10 | IKQYGDCLGD | 6e-06 | 76 |
| HLA-B*08:01 | 1 | 834 | 842 | 9 | IKQYGDCLG | 6e-06 | 90 |
| HLA-A*26:01 | 1 | 835 | 843 | 9 | KQYGDCLGD | 6e-06 | 68 |
| HLA-A*03:01 | 1 | 836 | 844 | 9 | QYGDCLGDI | 6e-06 | 71 |
| HLA-A*11:01 | 1 | 837 | 846 | 10 | YGDCLGDIAA | 6e-06 | 56 |
| HLA-A*24:02 | 1 | 837 | 845 | 9 | YGDCLGDIA | 6e-06 | 53 |
| HLA-A*31:01 | 1 | 837 | 845 | 9 | YGDCLGDIA | 6e-06 | 76 |
| HLA-B*15:01 | 1 | 837 | 845 | 9 | YGDCLGDIA | 6e-06 | 73 |
| HLA-B*44:02 | 1 | 837 | 846 | 10 | YGDCLGDIAA | 6e-06 | 64 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-A*31:01 | 1 | 838 | 846 | 9 | GDCLGDIAA 6e-06 | 76 |
| HLA-B*35:01 | 1 | 838 | 847 | 10 | GDCLGDIAAR 6e-06 | 58 |
| HLA-B*53:01 | 1 | 838 | 847 | 10 | GDCLGDIAAR 6e-06 | 59 |
| HLA-A*23:01 | 1 | 839 | 847 | 9 | DCLGDIAAR 6e-06 | 56 |
| HLA-A*24:02 | 1 | 839 | 847 | 9 | DCLGDIAAR 6e-06 | 53 |
| HLA-B*08:01 | 1 | 839 | 848 | 10 | DCLGDIAARD 6e-06 | 90 |
| HLA-A*68:01 | 1 | 840 | 849 | 10 | CLGDIAARDL 6e-06 | 69 |
| HLA-B*08:01 | 1 | 840 | 848 | 9 | CLGDIAARD 6e-06 | 90 |
| HLA-B*15:01 | 1 | 841 | 850 | 10 | LGDIAARDLI 6e-06 | 73 |
| HLA-B*40:01 | 1 | 843 | 851 | 9 | DIAARDLIC 6e-06 | 50 |
| HLA-B*44:03 | 1 | 843 | 852 | 10 | DIAARDLICA 6e-06 | 60 |
| HLA-A*32:01 | 1 | 847 | 856 | 10 | RDLICAQKFN 6e-06 | 59 |
| HLA-B*51:01 | 1 | 847 | 856 | 10 | RDLICAQKFN 6e-06 | 83 |
| HLA-A*02:03 | 1 | 848 | 856 | 9 | DLICAQKFN 6e-06 | 76 |
| HLA-A*02:06 | 1 | 848 | 856 | 9 | DLICAQKFN 6e-06 | 80 |
| HLA-A*03:01 | 1 | 848 | 856 | 9 | DLICAQKFN 6e-06 | 71 |
| HLA-A*68:01 | 1 | 848 | 857 | 10 | DLICAQKFNG 6e-06 | 69 |
| HLA-A*68:02 | 1 | 849 | 857 | 9 | LICAQKFNG 6e-06 | 73 |
| HLA-B*44:03 | 1 | 849 | 858 | 10 | LICAQKFNG 6e-06 | 60 |
| HLA-A*31:01 | 1 | 850 | 859 | 10 | ICAQKFNGLT 6e-06 | 76 |
| HLA-B*15:01 | 1 | 850 | 859 | 10 | ICAQKFNGLT 6e-06 | 73 |
| HLA-A*31:01 | 1 | 855 | 863 | 9 | FNGLTVLPP 6e-06 | 76 |
| HLA-B*44:03 | 1 | 857 | 866 | 10 | GLTVLPPLLT 6e-06 | 60 |
| HLA-B*35:01 | 1 | 858 | 867 | 10 | LTVPPLLT 6e-06 | 58 |
| HLA-B*44:02 | 1 | 860 | 868 | 9 | VLPPLLTDE 6e-06 | 64 |
| HLA-B*58:01 | 1 | 862 | 871 | 10 | PPLLTDEMIA 6e-06 | 80 |
| HLA-A*30:01 | 1 | 863 | 872 | 10 | PLLTDEMIAQ 6e-06 | 93 |
| HLA-A*31:01 | 1 | 863 | 871 | 9 | PLLTDEMIA 6e-06 | 76 |
| HLA-A*23:01 | 1 | 865 | 874 | 10 | LTDEMIAQYT 6e-06 | 56 |
| HLA-A*02:01 | 1 | 866 | 875 | 10 | TDEMIAQYTS 6e-06 | 73 |
| HLA-A*02:03 | 1 | 872 | 880 | 9 | QYTSALLAG 6e-06 | 76 |
| HLA-A*32:01 | 1 | 872 | 881 | 10 | QYTSALLAGT 6e-06 | 59 |
| HLA-A*23:01 | 1 | 875 | 884 | 10 | SALLAGTITS 6e-06 | 56 |
| HLA-A*24:02 | 1 | 875 | 884 | 10 | SALLAGTITS 6e-06 | 53 |
| HLA-B*44:03 | 1 | 876 | 885 | 10 | ALLAGTITSG 6e-06 | 60 |
| HLA-A*02:01 | 1 | 879 | 887 | 9 | AGTITSGWT 6e-06 | 73 |
| HLA-B*07:02 | 1 | 879 | 887 | 9 | AGTITSGWT 6e-06 | 73 |
| HLA-B*08:01 | 1 | 882 | 891 | 10 | ITSGWTFGAG 6e-06 | 90 |
| HLA-B*35:01 | 1 | 883 | 891 | 9 | TSGWTFGAG 6e-06 | 58 |
| HLA-B*35:01 | 1 | 885 | 893 | 9 | GWTFGAGAA 6e-06 | 58 |
| HLA-A*24:02 | 1 | 888 | 897 | 10 | FGAGAALQIP 6e-06 | 53 |
| HLA-A*31:01 | 1 | 888 | 897 | 10 | FGAGAALQIP 6e-06 | 76 |
| HLA-A*68:01 | 1 | 888 | 897 | 10 | FGAGAALQIP 6e-06 | 69 |
| HLA-A*23:01 | 1 | 892 | 901 | 10 | AALQIPFAMQ 6e-06 | 56 |
| HLA-A*02:01 | 1 | 897 | 905 | 9 | PFAMQMAYR 6e-06 | 73 |
| HLA-B*35:01 | 1 | 897 | 905 | 9 | PFAMQMAYR 6e-06 | 58 |
| HLA-A*02:03 | 1 | 898 | 907 | 10 | FAMQMAYRFN 6e-06 | 76 |
| HLA-B*44:02 | 1 | 898 | 907 | 10 | FAMQMAYRFN 6e-06 | 64 |
| HLA-B*44:03 | 1 | 898 | 907 | 10 | FAMQMAYRFN 6e-06 | 60 |
| HLA-A*01:01 | 1 | 899 | 908 | 10 | AMQMAYRFNG 6e-06 | 93 |
| HLA-A*23:01 | 1 | 899 | 908 | 10 | AMQMAYRFNG 6e-06 | 56 |
| HLA-A*33:01 | 1 | 899 | 908 | 10 | AMQMAYRFNG 6e-06 | 81 |
| HLA-B*44:02 | 1 | 899 | 907 | 9 | AMQMAYRFN 6e-06 | 64 |
| HLA-A*31:01 | 1 | 906 | 914 | 9 | FNGIGVTQN 6e-06 | 76 |
| HLA-B*07:02 | 1 | 909 | 918 | 10 | IGVTQNVLYE 6e-06 | 73 |
| HLA-A*02:03 | 1 | 910 | 919 | 10 | GVTQNVLYEN 6e-06 | 76 |
| HLA-B*08:01 | 1 | 911 | 920 | 10 | VTQNVLYENQ 6e-06 | 90 |
| HLA-B*44:02 | 1 | 911 | 919 | 9 | VTQNVLYEN 6e-06 | 64 |
| HLA-B*53:01 | 1 | 911 | 920 | 10 | VTQNVLYENQ 6e-06 | 59 |
| HLA-A*24:02 | 1 | 913 | 921 | 9 | QNVLYENQK 6e-06 | 53 |
| HLA-B*07:02 | 1 | 916 | 925 | 10 | LYENQKLIAN 6e-06 | 73 |
| HLA-A*03:01 | 1 | 919 | 928 | 10 | NQKLIANQFN 6e-06 | 71 |
| HLA-B*08:01 | 1 | 920 | 928 | 9 | QKLIANQFN 6e-06 | 90 |
| HLA-B*35:01 | 1 | 923 | 932 | 10 | IANQFNSAIG 6e-06 | 58 |
| HLA-A*31:01 | 1 | 924 | 932 | 9 | ANQFNSAIG 6e-06 | 76 |
| HLA-A*68:02 | 1 | 924 | 932 | 9 | ANQFNSAIG 6e-06 | 73 |

| | | | | | | | |
|-------------|---|------|------|----|------------|-------|----|
| HLA-A*02:03 | 1 | 927 | 936 | 10 | FNSAIGKIQD | 6e-06 | 76 |
| HLA-A*02:03 | 1 | 928 | 936 | 9 | NSAIGKIQD | 6e-06 | 76 |
| HLA-A*02:01 | 1 | 931 | 939 | 9 | IGKIQDSL | 6e-06 | 73 |
| HLA-A*68:01 | 1 | 931 | 940 | 10 | IGKIQDSLSS | 6e-06 | 69 |
| HLA-B*40:01 | 1 | 931 | 940 | 10 | IGKIQDSLSS | 6e-06 | 50 |
| HLA-B*44:03 | 1 | 931 | 939 | 9 | IGKIQDSL | 6e-06 | 60 |
| HLA-B*53:01 | 1 | 931 | 939 | 9 | IGKIQDSL | 6e-06 | 59 |
| HLA-B*53:01 | 1 | 931 | 940 | 10 | IGKIQDSLSS | 6e-06 | 59 |
| HLA-B*35:01 | 1 | 932 | 941 | 10 | GKIQDLSST | 6e-06 | 58 |
| HLA-A*02:03 | 1 | 935 | 943 | 9 | QDLSSTAS | 6e-06 | 76 |
| HLA-A*23:01 | 1 | 935 | 944 | 10 | QDLSSTASA | 6e-06 | 56 |
| HLA-A*24:02 | 1 | 935 | 944 | 10 | QDLSSTASA | 6e-06 | 53 |
| HLA-B*35:01 | 1 | 937 | 946 | 10 | SLSSTASALG | 6e-06 | 58 |
| HLA-B*44:03 | 1 | 937 | 946 | 10 | SLSSTASALG | 6e-06 | 60 |
| HLA-B*44:02 | 1 | 938 | 946 | 9 | LSSTASALG | 6e-06 | 64 |
| HLA-B*44:03 | 1 | 938 | 947 | 10 | LSSTASALGK | 6e-06 | 60 |
| HLA-B*44:02 | 1 | 941 | 950 | 10 | TASALGKLQD | 6e-06 | 64 |
| HLA-B*07:02 | 1 | 945 | 954 | 10 | LGKLQDVVNQ | 6e-06 | 73 |
| HLA-B*44:03 | 1 | 945 | 954 | 10 | LGKLQDVVNQ | 6e-06 | 60 |
| HLA-B*53:01 | 1 | 945 | 953 | 9 | LGKLQDVVN | 6e-06 | 59 |
| HLA-A*33:01 | 1 | 946 | 955 | 10 | GKLQDVVNQN | 6e-06 | 81 |
| HLA-A*23:01 | 1 | 948 | 957 | 10 | LQDVVNQNAQ | 6e-06 | 56 |
| HLA-A*68:02 | 1 | 948 | 957 | 10 | LQDVVNQNAQ | 6e-06 | 73 |
| HLA-A*68:02 | 1 | 949 | 957 | 9 | QDVVNQNAQ | 6e-06 | 73 |
| HLA-A*23:01 | 1 | 951 | 960 | 10 | VVNQNAQALN | 6e-06 | 56 |
| HLA-B*40:01 | 1 | 951 | 960 | 10 | VVNQNAQALN | 6e-06 | 50 |
| HLA-B*40:01 | 1 | 952 | 961 | 10 | VNQNAQALNT | 6e-06 | 50 |
| HLA-A*24:02 | 1 | 959 | 967 | 9 | LNTLVKQLS | 6e-06 | 53 |
| HLA-A*26:01 | 1 | 959 | 968 | 10 | LNTLVKQLSS | 6e-06 | 68 |
| HLA-B*07:02 | 1 | 959 | 967 | 9 | LNTLVKQLS | 6e-06 | 73 |
| HLA-B*15:01 | 1 | 959 | 967 | 9 | LNTLVKQLS | 6e-06 | 73 |
| HLA-B*15:01 | 1 | 959 | 968 | 10 | LNTLVKQLSS | 6e-06 | 73 |
| HLA-B*44:02 | 1 | 962 | 971 | 10 | LVKQLSSNFG | 6e-06 | 64 |
| HLA-B*40:01 | 1 | 966 | 974 | 9 | LSSNFGAIS | 6e-06 | 50 |
| HLA-A*23:01 | 1 | 967 | 975 | 9 | SSNFGAISS | 6e-06 | 56 |
| HLA-A*24:02 | 1 | 967 | 975 | 9 | SSNFGAISS | 6e-06 | 53 |
| HLA-A*02:03 | 1 | 969 | 978 | 10 | NFGAISSVLN | 6e-06 | 76 |
| HLA-A*26:01 | 1 | 969 | 978 | 10 | NFGAISSVLN | 6e-06 | 68 |
| HLA-A*03:01 | 1 | 970 | 978 | 9 | FGAISSVLN | 6e-06 | 71 |
| HLA-B*07:02 | 1 | 970 | 978 | 9 | FGAISSVLN | 6e-06 | 73 |
| HLA-A*31:01 | 1 | 973 | 982 | 10 | ISSVLNDILS | 6e-06 | 76 |
| HLA-A*23:01 | 1 | 974 | 982 | 9 | SSVLNDILS | 6e-06 | 56 |
| HLA-A*24:02 | 1 | 974 | 982 | 9 | SSVLNDILS | 6e-06 | 53 |
| HLA-A*68:02 | 1 | 977 | 986 | 10 | LNDILSRLDK | 6e-06 | 73 |
| HLA-B*07:02 | 1 | 977 | 986 | 10 | LNDILSRLDK | 6e-06 | 73 |
| HLA-B*44:03 | 1 | 980 | 989 | 10 | ILSRLDKVEA | 6e-06 | 60 |
| HLA-B*40:01 | 1 | 981 | 990 | 10 | LSRLDKVEAE | 6e-06 | 50 |
| HLA-B*53:01 | 1 | 981 | 990 | 10 | LSRLDKVEAE | 6e-06 | 59 |
| HLA-A*11:01 | 1 | 984 | 992 | 9 | LDKVEAEVQ | 6e-06 | 56 |
| HLA-A*31:01 | 1 | 986 | 994 | 9 | KVEAEVQID | 6e-06 | 76 |
| HLA-B*53:01 | 1 | 986 | 994 | 9 | KVEAEVQID | 6e-06 | 59 |
| HLA-A*32:01 | 1 | 989 | 998 | 10 | AEVQIDRLIT | 6e-06 | 59 |
| HLA-A*32:01 | 1 | 990 | 998 | 9 | EVQIDRLIT | 6e-06 | 59 |
| HLA-B*40:01 | 1 | 990 | 998 | 9 | EVQIDRLIT | 6e-06 | 50 |
| HLA-A*11:01 | 1 | 994 | 1003 | 10 | DRLITGRLQS | 6e-06 | 56 |
| HLA-A*24:02 | 1 | 994 | 1002 | 9 | DRLITGRLQ | 6e-06 | 53 |
| HLA-A*24:02 | 1 | 997 | 1005 | 9 | ITGRLQSLQ | 6e-06 | 53 |
| HLA-A*24:02 | 1 | 1001 | 1010 | 10 | LQSLQTYVTQ | 6e-06 | 53 |
| HLA-A*23:01 | 1 | 1012 | 1020 | 9 | LIRAAEIRA | 6e-06 | 56 |
| HLA-B*44:03 | 1 | 1014 | 1023 | 10 | RAAEIRASAN | 6e-06 | 60 |
| HLA-A*02:06 | 1 | 1015 | 1023 | 9 | AAEIRASAN | 6e-06 | 80 |
| HLA-B*44:03 | 1 | 1018 | 1027 | 10 | IRASANLAAT | 6e-06 | 60 |
| HLA-A*11:01 | 1 | 1023 | 1032 | 10 | NLAATKMSEC | 6e-06 | 56 |
| HLA-A*23:01 | 1 | 1023 | 1032 | 10 | NLAATKMSEC | 6e-06 | 56 |
| HLA-B*44:03 | 1 | 1023 | 1032 | 10 | NLAATKMSEC | 6e-06 | 60 |
| HLA-A*23:01 | 1 | 1024 | 1033 | 10 | LAATKMSECV | 6e-06 | 56 |

| | | | | | | | |
|-------------|---|------|------|----|------------|-------|----|
| HLA-B*44:02 | 1 | 1024 | 1033 | 10 | LAATKMSECV | 6e-06 | 64 |
| HLA-B*07:02 | 1 | 1027 | 1035 | 9 | TKMSECVLG | 6e-06 | 73 |
| HLA-B*51:01 | 1 | 1027 | 1036 | 10 | TKMSECVLGQ | 6e-06 | 83 |
| HLA-A*03:01 | 1 | 1029 | 1037 | 9 | MSECVLGQS | 6e-06 | 71 |
| HLA-B*07:02 | 1 | 1029 | 1037 | 9 | MSECVLGQS | 6e-06 | 73 |
| HLA-A*24:02 | 1 | 1030 | 1039 | 10 | SECVLGQSKR | 6e-06 | 53 |
| HLA-B*07:02 | 1 | 1033 | 1041 | 9 | VLGQSKRVD | 6e-06 | 73 |
| HLA-A*32:01 | 1 | 1034 | 1043 | 10 | LGQSKRVDFC | 6e-06 | 59 |
| HLA-A*31:01 | 1 | 1035 | 1044 | 10 | GQSKRVDFCG | 6e-06 | 76 |
| HLA-B*53:01 | 1 | 1035 | 1043 | 9 | GQSKRVDFC | 6e-06 | 59 |
| HLA-A*02:06 | 1 | 1036 | 1044 | 9 | QSKRVDFCG | 6e-06 | 80 |
| HLA-A*03:01 | 1 | 1036 | 1044 | 9 | QSKRVDFCG | 6e-06 | 71 |
| HLA-A*24:02 | 1 | 1036 | 1045 | 10 | QSKRVDFCGK | 6e-06 | 53 |
| HLA-A*68:02 | 1 | 1037 | 1045 | 9 | SKRVDFCGK | 6e-06 | 73 |
| HLA-B*35:01 | 1 | 1037 | 1045 | 9 | SKRVDFCGK | 6e-06 | 58 |
| HLA-B*40:01 | 1 | 1037 | 1045 | 9 | SKRVDFCGK | 6e-06 | 50 |
| HLA-B*51:01 | 1 | 1037 | 1045 | 9 | SKRVDFCGK | 6e-06 | 83 |
| HLA-B*53:01 | 1 | 1037 | 1045 | 9 | SKRVDFCGK | 6e-06 | 59 |
| HLA-A*32:01 | 1 | 1038 | 1046 | 9 | KRVDFCGKG | 6e-06 | 59 |
| HLA-A*33:01 | 1 | 1038 | 1046 | 9 | KRVDFCGKG | 6e-06 | 81 |
| HLA-B*07:02 | 1 | 1038 | 1046 | 9 | KRVDFCGKG | 6e-06 | 73 |
| HLA-B*51:01 | 1 | 1038 | 1046 | 9 | KRVDFCGKG | 6e-06 | 83 |
| HLA-B*07:02 | 1 | 1042 | 1051 | 10 | FCGKGYHLMS | 6e-06 | 73 |
| HLA-A*02:01 | 1 | 1043 | 1052 | 10 | CGKGYHLMSF | 6e-06 | 73 |
| HLA-B*40:01 | 1 | 1044 | 1053 | 10 | GKGYHLMSFP | 6e-06 | 50 |
| HLA-B*44:02 | 1 | 1044 | 1053 | 10 | GKGYHLMSFP | 6e-06 | 64 |
| HLA-A*26:01 | 1 | 1045 | 1054 | 10 | KGYHLMSFPQ | 6e-06 | 68 |
| HLA-A*68:01 | 1 | 1046 | 1055 | 10 | GYHLMSFPQS | 6e-06 | 69 |
| HLA-B*58:01 | 1 | 1046 | 1055 | 10 | GYHLMSFPQS | 6e-06 | 80 |
| HLA-B*08:01 | 1 | 1057 | 1066 | 10 | PHGVVFLHVT | 6e-06 | 90 |
| HLA-B*15:01 | 1 | 1057 | 1065 | 9 | PHGVVFLHV | 6e-06 | 73 |
| HLA-B*35:01 | 1 | 1061 | 1070 | 10 | VFLHVTVVPA | 6e-06 | 58 |
| HLA-A*24:02 | 1 | 1063 | 1072 | 10 | LHVTVVPAQE | 6e-06 | 53 |
| HLA-B*44:02 | 1 | 1063 | 1072 | 10 | LHVTVVPAQE | 6e-06 | 64 |
| HLA-A*24:02 | 1 | 1068 | 1076 | 9 | VPAQEKNT | 6e-06 | 53 |
| HLA-A*32:01 | 1 | 1068 | 1076 | 9 | VPAQEKNT | 6e-06 | 59 |
| HLA-A*32:01 | 1 | 1069 | 1078 | 10 | PAQEKNTT | 6e-06 | 59 |
| HLA-B*44:02 | 1 | 1069 | 1077 | 9 | PAQEKNTT | 6e-06 | 64 |
| HLA-A*23:01 | 1 | 1071 | 1080 | 10 | QEKNTTAPA | 6e-06 | 56 |
| HLA-A*11:01 | 1 | 1072 | 1080 | 9 | EKNFTTAPA | 6e-06 | 56 |
| HLA-B*44:03 | 1 | 1073 | 1082 | 10 | KNFTTAPAIC | 6e-06 | 60 |
| HLA-B*15:01 | 1 | 1074 | 1082 | 9 | NFTTAPAIC | 6e-06 | 73 |
| HLA-A*32:01 | 1 | 1075 | 1084 | 10 | FTTAPAICH | 6e-06 | 59 |
| HLA-B*53:01 | 1 | 1075 | 1084 | 10 | FTTAPAICH | 6e-06 | 59 |
| HLA-B*44:03 | 1 | 1076 | 1084 | 9 | TTAPAICH | 6e-06 | 60 |
| HLA-A*02:01 | 1 | 1077 | 1085 | 9 | TAPAICH | 6e-06 | 73 |
| HLA-A*26:01 | 1 | 1077 | 1085 | 9 | TAPAICH | 6e-06 | 68 |
| HLA-A*33:01 | 1 | 1077 | 1085 | 9 | TAPAICH | 6e-06 | 81 |
| HLA-A*31:01 | 1 | 1078 | 1087 | 10 | APAICH | 6e-06 | 76 |
| HLA-A*32:01 | 1 | 1081 | 1090 | 10 | ICH | 6e-06 | 59 |
| HLA-A*68:01 | 1 | 1081 | 1090 | 10 | ICH | 6e-06 | 69 |
| HLA-A*02:03 | 1 | 1082 | 1091 | 10 | CH | 6e-06 | 76 |
| HLA-A*68:01 | 1 | 1082 | 1090 | 9 | CH | 6e-06 | 69 |
| HLA-B*15:01 | 1 | 1082 | 1091 | 10 | CH | 6e-06 | 73 |
| HLA-A*68:02 | 1 | 1084 | 1093 | 10 | DG | 6e-06 | 73 |
| HLA-B*07:02 | 1 | 1084 | 1093 | 10 | DG | 6e-06 | 73 |
| HLA-B*58:01 | 1 | 1084 | 1093 | 10 | DG | 6e-06 | 80 |
| HLA-A*24:02 | 1 | 1085 | 1094 | 10 | GKA | 6e-06 | 53 |
| HLA-A*33:01 | 1 | 1085 | 1093 | 9 | GKA | 6e-06 | 81 |
| HLA-B*07:02 | 1 | 1085 | 1093 | 9 | GKA | 6e-06 | 73 |
| HLA-A*11:01 | 1 | 1089 | 1098 | 10 | FP | 6e-06 | 56 |
| HLA-A*32:01 | 1 | 1091 | 1099 | 9 | REG | 6e-06 | 59 |
| HLA-B*53:01 | 1 | 1091 | 1099 | 9 | REG | 6e-06 | 59 |
| HLA-B*44:03 | 1 | 1098 | 1106 | 9 | NG | 6e-06 | 60 |
| HLA-B*44:03 | 1 | 1099 | 1108 | 10 | G | 6e-06 | 60 |
| HLA-A*24:02 | 1 | 1103 | 1112 | 10 | F | 6e-06 | 53 |

| | | | | | | | |
|-------------|---|------|------|----|------------|-------|----|
| HLA-B*44:02 | 1 | 1103 | 1111 | 9 | FVTQRNFYE | 6e-06 | 64 |
| HLA-A*02:01 | 1 | 1104 | 1113 | 10 | VTQRNFYEPQ | 6e-06 | 73 |
| HLA-A*03:01 | 1 | 1110 | 1118 | 9 | YEPQIITTD | 6e-06 | 71 |
| HLA-A*24:02 | 1 | 1110 | 1119 | 10 | YEPQIITTDN | 6e-06 | 53 |
| HLA-A*31:01 | 1 | 1111 | 1120 | 10 | EPQIITTDNT | 6e-06 | 76 |
| HLA-B*40:01 | 1 | 1111 | 1120 | 10 | EPQIITTDNT | 6e-06 | 50 |
| HLA-B*58:01 | 1 | 1111 | 1120 | 10 | EPQIITTDNT | 6e-06 | 80 |
| HLA-B*40:01 | 1 | 1112 | 1120 | 9 | PQIITTDNT | 6e-06 | 50 |
| HLA-B*44:03 | 1 | 1112 | 1120 | 9 | PQIITTDNT | 6e-06 | 60 |
| HLA-B*53:01 | 1 | 1114 | 1123 | 10 | IITTDNTFVS | 6e-06 | 59 |
| HLA-B*35:01 | 1 | 1115 | 1124 | 10 | ITTDNTFVSG | 6e-06 | 58 |
| HLA-B*08:01 | 1 | 1116 | 1125 | 10 | TTDNTFVSGN | 6e-06 | 90 |
| HLA-A*03:01 | 1 | 1117 | 1125 | 9 | TDNTFVSGN | 6e-06 | 71 |
| HLA-A*03:01 | 1 | 1117 | 1126 | 10 | TDNTFVSGNC | 6e-06 | 71 |
| HLA-A*31:01 | 1 | 1117 | 1126 | 10 | TDNTFVSGNC | 6e-06 | 76 |
| HLA-A*32:01 | 1 | 1117 | 1125 | 9 | TDNTFVSGN | 6e-06 | 59 |
| HLA-B*07:02 | 1 | 1117 | 1126 | 10 | TDNTFVSGNC | 6e-06 | 73 |
| HLA-B*07:02 | 1 | 1118 | 1126 | 9 | DNTFVSGNC | 6e-06 | 73 |
| HLA-B*58:01 | 1 | 1118 | 1127 | 10 | DNTFVSGNCD | 6e-06 | 80 |
| HLA-A*02:01 | 1 | 1119 | 1127 | 9 | NTFVSGNCD | 6e-06 | 73 |
| HLA-B*07:02 | 1 | 1119 | 1127 | 9 | NTFVSGNCD | 6e-06 | 73 |
| HLA-A*11:01 | 1 | 1122 | 1130 | 9 | VSGNCDVVI | 6e-06 | 56 |
| HLA-B*07:02 | 1 | 1123 | 1131 | 9 | SGNCDVVI | 6e-06 | 73 |
| HLA-B*58:01 | 1 | 1125 | 1134 | 10 | NCDVVI | 6e-06 | 80 |
| HLA-A*30:01 | 1 | 1126 | 1134 | 9 | CDVVI | 6e-06 | 93 |
| HLA-A*68:01 | 1 | 1126 | 1135 | 10 | CDVVI | 6e-06 | 69 |
| HLA-A*03:01 | 1 | 1131 | 1139 | 9 | GIVNNTVYD | 6e-06 | 71 |
| HLA-A*33:01 | 1 | 1131 | 1140 | 10 | GIVNNTVYDP | 6e-06 | 81 |
| HLA-B*44:03 | 1 | 1132 | 1141 | 10 | IVNNTVYDPL | 6e-06 | 60 |
| HLA-A*68:02 | 1 | 1133 | 1142 | 10 | VNNTVYDPLQ | 6e-06 | 73 |
| HLA-A*11:01 | 1 | 1134 | 1142 | 9 | NNTVYDPLQ | 6e-06 | 56 |
| HLA-A*23:01 | 1 | 1134 | 1143 | 10 | NNTVYDPLQP | 6e-06 | 56 |
| HLA-A*68:02 | 1 | 1134 | 1142 | 9 | NNTVYDPLQ | 6e-06 | 73 |
| HLA-A*30:02 | 1 | 1138 | 1146 | 9 | YDPLQPELD | 6e-06 | 92 |
| HLA-B*44:02 | 1 | 1138 | 1146 | 9 | YDPLQPELD | 6e-06 | 64 |
| HLA-B*44:02 | 1 | 1138 | 1147 | 10 | YDPLQPELDS | 6e-06 | 64 |
| HLA-A*02:01 | 1 | 1139 | 1147 | 9 | DPLQPELDS | 6e-06 | 73 |
| HLA-B*07:02 | 1 | 1140 | 1149 | 10 | PLQPELDSFK | 6e-06 | 73 |
| HLA-A*02:01 | 1 | 1142 | 1151 | 10 | QPELDSFKEE | 6e-06 | 73 |
| HLA-B*08:01 | 1 | 1145 | 1154 | 10 | LDSFKEELD | 6e-06 | 90 |
| HLA-B*44:03 | 1 | 1145 | 1153 | 9 | LDSFKEELD | 6e-06 | 60 |
| HLA-A*32:01 | 1 | 1148 | 1157 | 10 | FKEELDKYFK | 6e-06 | 59 |
| HLA-A*11:01 | 1 | 1149 | 1158 | 10 | KEELDKYFKN | 6e-06 | 56 |
| HLA-B*58:01 | 1 | 1149 | 1158 | 10 | KEELDKYFKN | 6e-06 | 80 |
| HLA-A*02:01 | 1 | 1150 | 1158 | 9 | EELDKYFKN | 6e-06 | 73 |
| HLA-B*53:01 | 1 | 1151 | 1160 | 10 | ELDKYFKNHT | 6e-06 | 59 |
| HLA-B*35:01 | 1 | 1152 | 1161 | 10 | LDKYFKNHTS | 6e-06 | 58 |
| HLA-A*01:01 | 1 | 1154 | 1163 | 10 | KYFKNHTSPD | 6e-06 | 93 |
| HLA-B*53:01 | 1 | 1155 | 1163 | 9 | YFKNHTSPD | 6e-06 | 59 |
| HLA-A*30:01 | 1 | 1156 | 1165 | 10 | FKNHTSPDVD | 6e-06 | 93 |
| HLA-A*30:02 | 1 | 1156 | 1165 | 10 | FKNHTSPDVD | 6e-06 | 92 |
| HLA-A*03:01 | 1 | 1159 | 1168 | 10 | HTSPDVLGD | 6e-06 | 71 |
| HLA-B*40:01 | 1 | 1159 | 1167 | 9 | HTSPDVLG | 6e-06 | 50 |
| HLA-B*35:01 | 1 | 1160 | 1168 | 9 | TSPDVLGD | 6e-06 | 58 |
| HLA-A*02:06 | 1 | 1162 | 1171 | 10 | PDVDLGDISG | 6e-06 | 80 |
| HLA-A*30:01 | 1 | 1162 | 1170 | 9 | PDVDLGDIS | 6e-06 | 93 |
| HLA-A*30:01 | 1 | 1162 | 1171 | 10 | PDVDLGDISG | 6e-06 | 93 |
| HLA-B*51:01 | 1 | 1162 | 1171 | 10 | PDVDLGDISG | 6e-06 | 83 |
| HLA-A*23:01 | 1 | 1163 | 1171 | 9 | DVDLGDISG | 6e-06 | 56 |
| HLA-A*24:02 | 1 | 1163 | 1171 | 9 | DVDLGDISG | 6e-06 | 53 |
| HLA-B*44:02 | 1 | 1164 | 1173 | 10 | VDLGDISGIN | 6e-06 | 64 |
| HLA-A*02:06 | 1 | 1165 | 1173 | 9 | DLGDISGIN | 6e-06 | 80 |
| HLA-A*26:01 | 1 | 1166 | 1174 | 9 | LGDISGINA | 6e-06 | 68 |
| HLA-A*24:02 | 1 | 1167 | 1175 | 9 | GDISGINAS | 6e-06 | 53 |
| HLA-A*24:02 | 1 | 1168 | 1177 | 10 | DISGINASVV | 6e-06 | 53 |
| HLA-A*03:01 | 1 | 1169 | 1178 | 10 | ISGINASVVN | 6e-06 | 71 |

| | | | | | | |
|-------------|---|------|------|----|------------------|----|
| HLA-A*02:03 | 1 | 1170 | 1178 | 9 | SGINASVFN 6e-06 | 76 |
| HLA-A*33:01 | 1 | 1170 | 1178 | 9 | SGINASVFN 6e-06 | 81 |
| HLA-B*15:01 | 1 | 1173 | 1182 | 10 | NASVVNIQKE 6e-06 | 73 |
| HLA-B*44:03 | 1 | 1173 | 1182 | 10 | NASVVNIQKE 6e-06 | 60 |
| HLA-B*44:03 | 1 | 1175 | 1184 | 10 | SVVNIQKEID 6e-06 | 60 |
| HLA-A*31:01 | 1 | 1178 | 1187 | 10 | NIQKEIDRLN 6e-06 | 76 |
| HLA-A*32:01 | 1 | 1178 | 1187 | 10 | NIQKEIDRLN 6e-06 | 59 |
| HLA-B*53:01 | 1 | 1178 | 1187 | 10 | NIQKEIDRLN 6e-06 | 59 |
| HLA-A*68:02 | 1 | 1179 | 1187 | 9 | IQKEIDRLN 6e-06 | 73 |
| HLA-A*24:02 | 1 | 1182 | 1191 | 10 | EIDRLNEVAK 6e-06 | 53 |
| HLA-A*01:01 | 1 | 1184 | 1192 | 9 | DRLNEVAKN 6e-06 | 93 |
| HLA-A*03:01 | 1 | 1186 | 1195 | 10 | LNEVAKNLNE 6e-06 | 71 |
| HLA-A*26:01 | 1 | 1186 | 1195 | 10 | LNEVAKNLNE 6e-06 | 68 |
| HLA-B*08:01 | 1 | 1186 | 1194 | 9 | LNEVAKNLN 6e-06 | 90 |
| HLA-B*15:01 | 1 | 1186 | 1195 | 10 | LNEVAKNLNE 6e-06 | 73 |
| HLA-B*57:01 | 1 | 1186 | 1194 | 9 | LNEVAKNLN 6e-06 | 89 |
| HLA-A*03:01 | 1 | 1187 | 1196 | 10 | NEVAKNLNES 6e-06 | 71 |
| HLA-A*24:02 | 1 | 1187 | 1195 | 9 | NEVAKNLNE 6e-06 | 53 |
| HLA-A*68:01 | 1 | 1190 | 1198 | 9 | AKNLNESLI 6e-06 | 69 |
| HLA-B*44:03 | 1 | 1191 | 1199 | 9 | KNLNESLID 6e-06 | 60 |
| HLA-A*02:01 | 1 | 1193 | 1202 | 10 | LNESLIDLQE 6e-06 | 73 |
| HLA-A*68:02 | 1 | 1193 | 1201 | 9 | LNESLIDLQ 6e-06 | 73 |
| HLA-A*23:01 | 1 | 1195 | 1204 | 10 | ESLIDLQELG 6e-06 | 56 |
| HLA-A*23:01 | 1 | 1199 | 1207 | 9 | DLQELGKYE 6e-06 | 56 |
| HLA-A*24:02 | 1 | 1199 | 1207 | 9 | DLQELGKYE 6e-06 | 53 |
| HLA-A*32:01 | 1 | 1199 | 1207 | 9 | DLQELGKYE 6e-06 | 59 |
| HLA-B*40:01 | 1 | 1199 | 1207 | 9 | DLQELGKYE 6e-06 | 50 |
| HLA-A*24:02 | 1 | 1202 | 1211 | 10 | ELGKYEQYIK 6e-06 | 53 |
| HLA-A*11:01 | 1 | 1204 | 1213 | 10 | GKYEQYIKWP 6e-06 | 56 |
| HLA-B*44:03 | 1 | 1210 | 1219 | 10 | IKWPWYIWLG 6e-06 | 60 |
| HLA-B*44:02 | 1 | 1212 | 1221 | 10 | WPWYIWLGFI 6e-06 | 64 |
| HLA-A*01:01 | 1 | 1213 | 1221 | 9 | PWYIWLGFI 6e-06 | 93 |
| HLA-B*40:01 | 1 | 1214 | 1222 | 9 | WYIWLGFIA 6e-06 | 50 |
| HLA-B*51:01 | 1 | 1214 | 1223 | 10 | WYIWLGFIA 6e-06 | 83 |
| HLA-A*11:01 | 1 | 1216 | 1225 | 10 | IWLGFIAGLI 6e-06 | 56 |
| HLA-A*32:01 | 1 | 1217 | 1226 | 10 | WLGFIAGLIA 6e-06 | 59 |
| HLA-A*68:01 | 1 | 1217 | 1226 | 10 | WLGFIAGLIA 6e-06 | 69 |
| HLA-B*40:01 | 1 | 1217 | 1225 | 9 | WLGFIAGLIA 6e-06 | 50 |
| HLA-B*44:02 | 1 | 1218 | 1226 | 9 | LGFIAGLIA 6e-06 | 64 |
| HLA-B*35:01 | 1 | 1219 | 1228 | 10 | GFIAGLIAIV 6e-06 | 58 |
| HLA-A*11:01 | 1 | 1222 | 1231 | 10 | AGLIAIVMVT 6e-06 | 56 |
| HLA-A*26:01 | 1 | 1222 | 1231 | 10 | AGLIAIVMVT 6e-06 | 68 |
| HLA-B*44:02 | 1 | 1225 | 1234 | 10 | IAIVMVTIML 6e-06 | 64 |
| HLA-A*26:01 | 1 | 1227 | 1236 | 10 | IVMVTIMLCC 6e-06 | 68 |
| HLA-B*44:02 | 1 | 1228 | 1237 | 10 | VMVTIMLCCM 6e-06 | 64 |
| HLA-A*26:01 | 1 | 1229 | 1238 | 10 | MVTIMLCCMT 6e-06 | 68 |
| HLA-B*15:01 | 1 | 1230 | 1239 | 10 | VTIMLCCMTS 6e-06 | 73 |
| HLA-B*51:01 | 1 | 1230 | 1239 | 10 | VTIMLCCMTS 6e-06 | 83 |
| HLA-A*32:01 | 1 | 1231 | 1240 | 10 | TIMLCCMTSC 6e-06 | 59 |
| HLA-A*24:02 | 1 | 1232 | 1240 | 9 | IMLCCMTSC 6e-06 | 53 |
| HLA-B*08:01 | 1 | 1233 | 1242 | 10 | MLCCMTSCCS 6e-06 | 90 |
| HLA-B*08:01 | 1 | 1234 | 1243 | 10 | LCCMTSCCSC 6e-06 | 90 |
| HLA-A*31:01 | 1 | 1235 | 1244 | 10 | CCMTSCCSCS 6e-06 | 76 |
| HLA-A*24:02 | 1 | 1237 | 1245 | 9 | MTSCCSCCLK 6e-06 | 53 |
| HLA-B*44:03 | 1 | 1237 | 1245 | 9 | MTSCCSCCLK 6e-06 | 60 |
| HLA-A*02:03 | 1 | 1238 | 1247 | 10 | TSCCSCCLKG 6e-06 | 76 |
| HLA-A*02:06 | 1 | 1238 | 1246 | 9 | TSCCSCCLKG 6e-06 | 80 |
| HLA-A*11:01 | 1 | 1238 | 1246 | 9 | TSCCSCCLKG 6e-06 | 56 |
| HLA-A*32:01 | 1 | 1238 | 1246 | 9 | TSCCSCCLKG 6e-06 | 59 |
| HLA-A*33:01 | 1 | 1238 | 1247 | 10 | TSCCSCCLKG 6e-06 | 81 |
| HLA-B*15:01 | 1 | 1238 | 1246 | 9 | TSCCSCCLKG 6e-06 | 73 |
| HLA-A*30:01 | 1 | 1240 | 1248 | 9 | CCSCLKGCC 6e-06 | 93 |
| HLA-A*03:01 | 1 | 1241 | 1249 | 9 | CSCLKGCCS 6e-06 | 71 |
| HLA-A*11:01 | 1 | 1241 | 1250 | 10 | CSCLKGCCSC 6e-06 | 56 |
| HLA-A*01:01 | 1 | 1243 | 1251 | 9 | CLKGCCSCG 6e-06 | 93 |
| HLA-A*01:01 | 1 | 1245 | 1253 | 9 | KGCCSCGSC 6e-06 | 93 |

| | | | | | | |
|-------------|---|------|------|----|-------------------|----|
| HLA-A*68:02 | 1 | 1247 | 1256 | 10 | CCSCGSCCKF 6e-06 | 73 |
| HLA-A*30:01 | 1 | 1248 | 1257 | 10 | CSCGSCCKFD 6e-06 | 93 |
| HLA-B*57:01 | 1 | 1252 | 1260 | 9 | SCCKFDEDD 6e-06 | 89 |
| HLA-A*02:01 | 1 | 1253 | 1262 | 10 | CCKFDEDDSE 6e-06 | 73 |
| HLA-A*02:03 | 1 | 1253 | 1262 | 10 | CCKFDEDDSE 6e-06 | 76 |
| HLA-B*51:01 | 1 | 1253 | 1262 | 10 | CCKFDEDDSE 6e-06 | 83 |
| HLA-B*58:01 | 1 | 1253 | 1261 | 9 | CCKFDEDDSE 6e-06 | 80 |
| HLA-A*23:01 | 1 | 1254 | 1263 | 10 | CKFDEDDSEP 6e-06 | 56 |
| HLA-B*15:01 | 1 | 1254 | 1263 | 10 | CKFDEDDSEP 6e-06 | 73 |
| HLA-A*02:01 | 1 | 1259 | 1267 | 9 | DDSEPVKLG 6e-06 | 73 |
| HLA-A*23:01 | 1 | 1262 | 1271 | 10 | EPVLKGVKLG 6e-06 | 56 |
| HLA-B*40:01 | 1 | 1264 | 1273 | 10 | VLKGVKLG 6e-06 | 50 |
| HLA-A*03:01 | 1 | 1265 | 1273 | 9 | LKGVKLG 6e-06 | 71 |
| HLA-B*58:01 | 1 | 1265 | 1273 | 9 | LKGVKLG 6e-06 | 80 |
| HLA-A*11:01 | 1 | 7 | 16 | 10 | LLPLVSSQCV 5e-06 | 59 |
| HLA-A*02:01 | 1 | 8 | 17 | 10 | LPLVSSQCVN 5e-06 | 75 |
| HLA-B*35:01 | 1 | 11 | 20 | 10 | VSSQCVNLTT 5e-06 | 61 |
| HLA-B*35:01 | 1 | 13 | 22 | 10 | SQCVNLTTTRT 5e-06 | 61 |
| HLA-A*26:01 | 1 | 16 | 25 | 10 | VNLTTTRTQLP 5e-06 | 71 |
| HLA-B*53:01 | 1 | 17 | 26 | 10 | NLTTTRTQLPP 5e-06 | 62 |
| HLA-A*11:01 | 1 | 25 | 33 | 9 | PPAYTNSFT 5e-06 | 59 |
| HLA-B*58:01 | 1 | 25 | 33 | 9 | PPAYTNSFT 5e-06 | 82 |
| HLA-B*53:01 | 1 | 27 | 35 | 9 | AYTNSFTRG 5e-06 | 62 |
| HLA-A*23:01 | 1 | 32 | 41 | 10 | FTRGVYYPDK 5e-06 | 59 |
| HLA-B*53:01 | 1 | 32 | 40 | 9 | FTRGVYYPD 5e-06 | 62 |
| HLA-B*53:01 | 1 | 32 | 41 | 10 | FTRGVYYPDK 5e-06 | 62 |
| HLA-A*02:06 | 1 | 39 | 48 | 10 | PDKVFRSSVL 5e-06 | 82 |
| HLA-B*35:01 | 1 | 39 | 47 | 9 | PDKVFRSSV 5e-06 | 61 |
| HLA-A*11:01 | 1 | 40 | 48 | 9 | DKVFRSSVL 5e-06 | 59 |
| HLA-A*68:02 | 1 | 44 | 53 | 10 | RSSLVHSTQD 5e-06 | 75 |
| HLA-B*08:01 | 1 | 44 | 53 | 10 | RSSLVHSTQD 5e-06 | 92 |
| HLA-B*51:01 | 1 | 44 | 53 | 10 | RSSLVHSTQD 5e-06 | 85 |
| HLA-A*02:03 | 1 | 57 | 66 | 10 | PFFSNVTWFH 5e-06 | 78 |
| HLA-B*44:02 | 1 | 57 | 66 | 10 | PFFSNVTWFH 5e-06 | 68 |
| HLA-B*44:03 | 1 | 58 | 67 | 10 | FFSNVTWFHA 5e-06 | 63 |
| HLA-B*35:01 | 1 | 63 | 72 | 10 | TWFHAIHVSG 5e-06 | 61 |
| HLA-A*03:01 | 1 | 64 | 73 | 10 | WFHAIHVSGT 5e-06 | 74 |
| HLA-A*11:01 | 1 | 65 | 73 | 9 | FHAIHVSGT 5e-06 | 59 |
| HLA-B*40:01 | 1 | 66 | 74 | 9 | HAIHVSGTN 5e-06 | 53 |
| HLA-B*35:01 | 1 | 67 | 76 | 10 | AIHVSGTNGT 5e-06 | 61 |
| HLA-A*11:01 | 1 | 68 | 76 | 9 | IHVSGTNGT 5e-06 | 59 |
| HLA-A*03:01 | 1 | 71 | 80 | 10 | SGTNGTKRFD 5e-06 | 74 |
| HLA-A*26:01 | 1 | 71 | 80 | 10 | SGTNGTKRFD 5e-06 | 71 |
| HLA-A*02:01 | 1 | 72 | 80 | 9 | GTNGTKRFD 5e-06 | 75 |
| HLA-A*32:01 | 1 | 72 | 81 | 10 | GTNGTKRFDN 5e-06 | 61 |
| HLA-A*68:01 | 1 | 72 | 81 | 10 | GTNGTKRFDN 5e-06 | 71 |
| HLA-B*07:02 | 1 | 72 | 80 | 9 | GTNGTKRFD 5e-06 | 76 |
| HLA-B*15:01 | 1 | 72 | 81 | 10 | GTNGTKRFDN 5e-06 | 75 |
| HLA-A*02:03 | 1 | 73 | 82 | 10 | TNGTKRFDNP 5e-06 | 78 |
| HLA-A*02:06 | 1 | 73 | 82 | 10 | TNGTKRFDNP 5e-06 | 82 |
| HLA-A*11:01 | 1 | 74 | 83 | 10 | NGTKRFDNPV 5e-06 | 59 |
| HLA-A*68:01 | 1 | 74 | 82 | 9 | NGTKRFDNP 5e-06 | 71 |
| HLA-B*35:01 | 1 | 74 | 83 | 10 | NGTKRFDNPV 5e-06 | 61 |
| HLA-A*24:02 | 1 | 79 | 87 | 9 | FDNPVLPFN 5e-06 | 56 |
| HLA-A*30:01 | 1 | 79 | 88 | 10 | FDNPVLPFND 5e-06 | 94 |
| HLA-A*68:02 | 1 | 79 | 88 | 10 | FDNPVLPFND 5e-06 | 75 |
| HLA-B*08:01 | 1 | 79 | 88 | 10 | FDNPVLPFND 5e-06 | 92 |
| HLA-A*31:01 | 1 | 80 | 88 | 9 | DNPVLPFND 5e-06 | 79 |
| HLA-B*44:03 | 1 | 80 | 88 | 9 | DNPVLPFND 5e-06 | 63 |
| HLA-A*33:01 | 1 | 81 | 89 | 9 | NPVLPFNDG 5e-06 | 83 |
| HLA-A*02:01 | 1 | 85 | 94 | 10 | PFNDGVYFAS 5e-06 | 75 |
| HLA-A*68:01 | 1 | 85 | 94 | 10 | PFNDGVYFAS 5e-06 | 71 |
| HLA-B*07:02 | 1 | 85 | 94 | 10 | PFNDGVYFAS 5e-06 | 76 |
| HLA-A*11:01 | 1 | 86 | 95 | 10 | FNDGVYFAST 5e-06 | 59 |
| HLA-A*23:01 | 1 | 86 | 95 | 10 | FNDGVYFAST 5e-06 | 59 |
| HLA-A*24:02 | 1 | 87 | 95 | 9 | NDGVYFAST 5e-06 | 56 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-A*31:01 | 1 | 87 | 95 | 9 | NDGVYFAST 5e-06 | 79 |
| HLA-A*68:02 | 1 | 87 | 96 | 10 | NDGVYFASTE 5e-06 | 75 |
| HLA-B*53:01 | 1 | 87 | 95 | 9 | NDGVYFAST 5e-06 | 62 |
| HLA-B*58:01 | 1 | 87 | 96 | 10 | NDGVYFASTE 5e-06 | 82 |
| HLA-A*23:01 | 1 | 88 | 96 | 9 | DGVYFASTE 5e-06 | 59 |
| HLA-B*40:01 | 1 | 89 | 98 | 10 | GVYFASTEKS 5e-06 | 53 |
| HLA-A*11:01 | 1 | 92 | 101 | 10 | FASTEKSNI 5e-06 | 59 |
| HLA-B*35:01 | 1 | 97 | 105 | 9 | KSNIIRGWI 5e-06 | 61 |
| HLA-A*24:02 | 1 | 99 | 107 | 9 | NIIRGWIFG 5e-06 | 56 |
| HLA-A*11:01 | 1 | 100 | 109 | 10 | IIRGWIFGTT 5e-06 | 59 |
| HLA-A*23:01 | 1 | 100 | 109 | 10 | IIRGWIFGTT 5e-06 | 59 |
| HLA-B*53:01 | 1 | 100 | 108 | 9 | IIRGWIFGT 5e-06 | 62 |
| HLA-B*15:01 | 1 | 101 | 109 | 9 | IRGWIFGTT 5e-06 | 75 |
| HLA-B*44:02 | 1 | 101 | 109 | 9 | IRGWIFGTT 5e-06 | 68 |
| HLA-B*40:01 | 1 | 102 | 111 | 10 | RGWIFGTTLD 5e-06 | 53 |
| HLA-A*26:01 | 1 | 103 | 111 | 9 | GWIFGTTLD 5e-06 | 71 |
| HLA-B*15:01 | 1 | 103 | 111 | 9 | GWIFGTTLD 5e-06 | 75 |
| HLA-B*44:02 | 1 | 106 | 114 | 9 | FGTTLD SKT 5e-06 | 68 |
| HLA-B*40:01 | 1 | 107 | 115 | 9 | GTTLD SKTQ 5e-06 | 53 |
| HLA-A*02:01 | 1 | 112 | 121 | 10 | SKTQSLLIVN 5e-06 | 75 |
| HLA-B*07:02 | 1 | 112 | 121 | 10 | SKTQSLLIVN 5e-06 | 76 |
| HLA-A*68:02 | 1 | 113 | 122 | 10 | KTQSLLIVNN 5e-06 | 75 |
| HLA-B*44:02 | 1 | 113 | 122 | 10 | KTQSLLIVNN 5e-06 | 68 |
| HLA-A*33:01 | 1 | 116 | 125 | 10 | LLIVNNATN 5e-06 | 83 |
| HLA-A*68:01 | 1 | 116 | 125 | 10 | LLIVNNATN 5e-06 | 71 |
| HLA-A*11:01 | 1 | 117 | 125 | 9 | LLIVNNATN 5e-06 | 59 |
| HLA-A*11:01 | 1 | 117 | 126 | 10 | LLIVNNATNV 5e-06 | 59 |
| HLA-A*23:01 | 1 | 117 | 125 | 9 | LLIVNNATN 5e-06 | 59 |
| HLA-A*11:01 | 1 | 122 | 131 | 10 | NATNVVIVKVC 5e-06 | 59 |
| HLA-B*44:03 | 1 | 122 | 131 | 10 | NATNVVIVKVC 5e-06 | 63 |
| HLA-B*44:03 | 1 | 123 | 132 | 10 | ATNVVIVKVC 5e-06 | 63 |
| HLA-B*40:01 | 1 | 124 | 132 | 9 | TNVVIVKVC 5e-06 | 53 |
| HLA-B*44:02 | 1 | 126 | 134 | 9 | VVIVKVC 5e-06 | 68 |
| HLA-B*44:03 | 1 | 126 | 134 | 9 | VVIVKVC 5e-06 | 63 |
| HLA-A*26:01 | 1 | 127 | 136 | 10 | VIVKVC 5e-06 | 71 |
| HLA-A*26:01 | 1 | 128 | 136 | 9 | IKVCEFC 5e-06 | 71 |
| HLA-A*31:01 | 1 | 128 | 137 | 10 | IKVCEFC 5e-06 | 79 |
| HLA-A*68:02 | 1 | 128 | 136 | 9 | IKVCEFC 5e-06 | 75 |
| HLA-B*40:01 | 1 | 128 | 136 | 9 | IKVCEFC 5e-06 | 53 |
| HLA-B*44:02 | 1 | 128 | 136 | 9 | IKVCEFC 5e-06 | 68 |
| HLA-A*02:01 | 1 | 129 | 138 | 10 | KVCEFCND 5e-06 | 75 |
| HLA-A*30:01 | 1 | 130 | 138 | 9 | VCEFCND 5e-06 | 94 |
| HLA-B*08:01 | 1 | 130 | 139 | 10 | VCEFCNDP 5e-06 | 92 |
| HLA-A*02:03 | 1 | 131 | 139 | 9 | CEFCNDP 5e-06 | 78 |
| HLA-A*26:01 | 1 | 131 | 139 | 9 | CEFCNDP 5e-06 | 71 |
| HLA-A*32:01 | 1 | 131 | 139 | 9 | CEFCNDP 5e-06 | 61 |
| HLA-A*02:03 | 1 | 137 | 146 | 10 | NDPFLGVYYH 5e-06 | 78 |
| HLA-A*03:01 | 1 | 140 | 148 | 9 | FLGVYYHKN 5e-06 | 74 |
| HLA-A*30:02 | 1 | 140 | 149 | 10 | FLGVYYHKN 5e-06 | 93 |
| HLA-B*58:01 | 1 | 140 | 149 | 10 | FLGVYYHKN 5e-06 | 82 |
| HLA-B*44:03 | 1 | 142 | 151 | 10 | GVYYHKNKS 5e-06 | 63 |
| HLA-A*02:06 | 1 | 146 | 155 | 10 | HKNNKSWMES 5e-06 | 82 |
| HLA-A*11:01 | 1 | 146 | 155 | 10 | HKNNKSWMES 5e-06 | 59 |
| HLA-A*02:01 | 1 | 147 | 156 | 10 | KNNKSWMESE 5e-06 | 75 |
| HLA-A*23:01 | 1 | 147 | 155 | 9 | KNNKSWMES 5e-06 | 59 |
| HLA-A*24:02 | 1 | 147 | 155 | 9 | KNNKSWMES 5e-06 | 56 |
| HLA-A*26:01 | 1 | 147 | 156 | 10 | KNNKSWMESE 5e-06 | 71 |
| HLA-B*35:01 | 1 | 147 | 155 | 9 | KNNKSWMES 5e-06 | 61 |
| HLA-B*44:03 | 1 | 147 | 156 | 10 | KNNKSWMESE 5e-06 | 63 |
| HLA-B*53:01 | 1 | 147 | 155 | 9 | KNNKSWMES 5e-06 | 62 |
| HLA-B*40:01 | 1 | 149 | 158 | 10 | NKSWMESEFR 5e-06 | 53 |
| HLA-A*24:02 | 1 | 154 | 163 | 10 | ESEFRVYSSA 5e-06 | 56 |
| HLA-B*35:01 | 1 | 155 | 164 | 10 | SEFRVYSSAN 5e-06 | 61 |
| HLA-A*31:01 | 1 | 156 | 165 | 10 | EFRVYSSANN 5e-06 | 79 |
| HLA-A*68:02 | 1 | 156 | 165 | 10 | EFRVYSSANN 5e-06 | 75 |
| HLA-B*44:02 | 1 | 156 | 164 | 9 | EFRVYSSAN 5e-06 | 68 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-B*51:01 | 1 | 156 | 165 | 10 | EFRVYSSANN 5e-06 | 85 |
| HLA-A*02:03 | 1 | 157 | 165 | 9 | FRVYSSANN 5e-06 | 78 |
| HLA-A*33:01 | 1 | 157 | 165 | 9 | FRVYSSANN 5e-06 | 83 |
| HLA-B*35:01 | 1 | 157 | 165 | 9 | FRVYSSANN 5e-06 | 61 |
| HLA-A*32:01 | 1 | 159 | 167 | 9 | VYSSANNCT 5e-06 | 61 |
| HLA-B*40:01 | 1 | 159 | 167 | 9 | VYSSANNCT 5e-06 | 53 |
| HLA-B*44:03 | 1 | 160 | 169 | 10 | YSSANNCTFE 5e-06 | 63 |
| HLA-B*40:01 | 1 | 161 | 169 | 9 | SSANNCTFE 5e-06 | 53 |
| HLA-B*44:03 | 1 | 161 | 169 | 9 | SSANNCTFE 5e-06 | 63 |
| HLA-A*31:01 | 1 | 163 | 172 | 10 | ANNCTFEYVS 5e-06 | 79 |
| HLA-A*68:01 | 1 | 163 | 172 | 10 | ANNCTFEYVS 5e-06 | 71 |
| HLA-A*11:01 | 1 | 164 | 172 | 9 | NNCTFEYVS 5e-06 | 59 |
| HLA-B*15:01 | 1 | 164 | 173 | 10 | NNCTFEYVSQ 5e-06 | 75 |
| HLA-B*44:02 | 1 | 164 | 172 | 9 | NNCTFEYVS 5e-06 | 68 |
| HLA-A*23:01 | 1 | 165 | 174 | 10 | NCTFEYVSQP 5e-06 | 59 |
| HLA-B*35:01 | 1 | 171 | 180 | 10 | VSQPFLMDLE 5e-06 | 61 |
| HLA-A*33:01 | 1 | 172 | 181 | 10 | SQPFLMDLEG 5e-06 | 83 |
| HLA-A*02:03 | 1 | 173 | 182 | 10 | QPFLMDLEGK 5e-06 | 78 |
| HLA-A*23:01 | 1 | 173 | 181 | 9 | QPFLMDLEG 5e-06 | 59 |
| HLA-A*26:01 | 1 | 174 | 183 | 10 | PFLMDLEGKQ 5e-06 | 71 |
| HLA-A*68:02 | 1 | 176 | 184 | 9 | LMDLEGKQG 5e-06 | 75 |
| HLA-B*44:02 | 1 | 176 | 185 | 10 | LMDLEGKQGN 5e-06 | 68 |
| HLA-B*07:02 | 1 | 177 | 185 | 9 | MDLEGKQGN 5e-06 | 76 |
| HLA-B*53:01 | 1 | 183 | 191 | 9 | QGNFKNLRE 5e-06 | 62 |
| HLA-B*40:01 | 1 | 186 | 195 | 10 | FKNLREFVFK 5e-06 | 53 |
| HLA-B*44:03 | 1 | 187 | 196 | 10 | KNLREFVFKN 5e-06 | 63 |
| HLA-A*11:01 | 1 | 188 | 197 | 10 | NLREFVFKNI 5e-06 | 59 |
| HLA-B*08:01 | 1 | 189 | 198 | 10 | LREFVFKNID 5e-06 | 92 |
| HLA-A*01:01 | 1 | 190 | 199 | 10 | REFVFKNIDG 5e-06 | 95 |
| HLA-A*02:06 | 1 | 191 | 199 | 9 | EFVFKNIDG 5e-06 | 82 |
| HLA-B*35:01 | 1 | 191 | 199 | 9 | EFVFKNIDG 5e-06 | 61 |
| HLA-B*53:01 | 1 | 191 | 199 | 9 | EFVFKNIDG 5e-06 | 62 |
| HLA-B*40:01 | 1 | 193 | 202 | 10 | VFKNIDGYFK 5e-06 | 53 |
| HLA-A*11:01 | 1 | 201 | 209 | 9 | FKIYSKHTP 5e-06 | 59 |
| HLA-B*44:03 | 1 | 203 | 211 | 9 | IYSKHTPIN 5e-06 | 63 |
| HLA-A*02:03 | 1 | 206 | 215 | 10 | KHTPINLVRD 5e-06 | 78 |
| HLA-A*23:01 | 1 | 208 | 217 | 10 | TPINLVRDLP 5e-06 | 59 |
| HLA-A*24:02 | 1 | 208 | 217 | 10 | TPINLVRDLP 5e-06 | 56 |
| HLA-A*33:01 | 1 | 209 | 218 | 10 | PINLVRDLPQ 5e-06 | 83 |
| HLA-B*08:01 | 1 | 209 | 218 | 10 | PINLVRDLPQ 5e-06 | 92 |
| HLA-B*35:01 | 1 | 213 | 221 | 9 | VRDLPQGFS 5e-06 | 61 |
| HLA-A*32:01 | 1 | 215 | 224 | 10 | DLPQGFSALE 5e-06 | 61 |
| HLA-A*23:01 | 1 | 216 | 225 | 10 | LPQGFSALEP 5e-06 | 59 |
| HLA-B*35:01 | 1 | 217 | 225 | 9 | PQGFSALEP 5e-06 | 61 |
| HLA-A*33:01 | 1 | 219 | 228 | 10 | GFSALEPLVD 5e-06 | 83 |
| HLA-A*11:01 | 1 | 220 | 228 | 9 | FSALEPLVD 5e-06 | 59 |
| HLA-A*02:06 | 1 | 223 | 232 | 10 | LEPLVDLPIG 5e-06 | 82 |
| HLA-A*11:01 | 1 | 223 | 231 | 9 | LEPLVDLPI 5e-06 | 59 |
| HLA-A*26:01 | 1 | 225 | 234 | 10 | PLVDLPIGIN 5e-06 | 71 |
| HLA-A*33:01 | 1 | 226 | 234 | 9 | LVDLPIGIN 5e-06 | 83 |
| HLA-A*02:01 | 1 | 230 | 239 | 10 | PIGINITRFQ 5e-06 | 75 |
| HLA-A*02:03 | 1 | 230 | 239 | 10 | PIGINITRFQ 5e-06 | 78 |
| HLA-A*23:01 | 1 | 231 | 240 | 10 | IGINITRFQT 5e-06 | 59 |
| HLA-B*53:01 | 1 | 231 | 240 | 10 | IGINITRFQT 5e-06 | 62 |
| HLA-B*44:02 | 1 | 238 | 247 | 10 | FQTLALHRS 5e-06 | 68 |
| HLA-A*23:01 | 1 | 241 | 250 | 10 | LLALHRSYLT 5e-06 | 59 |
| HLA-A*26:01 | 1 | 241 | 250 | 10 | LLALHRSYLT 5e-06 | 71 |
| HLA-B*44:03 | 1 | 242 | 250 | 9 | LALHRSYLT 5e-06 | 63 |
| HLA-B*44:03 | 1 | 243 | 252 | 10 | ALHRSYLTGP 5e-06 | 63 |
| HLA-A*26:01 | 1 | 244 | 252 | 9 | LHRSYLTGP 5e-06 | 71 |
| HLA-B*57:01 | 1 | 244 | 252 | 9 | LHRSYLTGP 5e-06 | 90 |
| HLA-B*07:02 | 1 | 245 | 253 | 9 | HRSYLTPGD 5e-06 | 76 |
| HLA-B*44:03 | 1 | 245 | 253 | 9 | HRSYLTPGD 5e-06 | 63 |
| HLA-B*51:01 | 1 | 245 | 254 | 10 | HRSYLTPGDS 5e-06 | 85 |
| HLA-B*53:01 | 1 | 245 | 253 | 9 | HRSYLTPGD 5e-06 | 62 |
| HLA-B*44:02 | 1 | 246 | 254 | 9 | RSYLTPGDS 5e-06 | 68 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-B*44:03 | 1 | 246 | 254 | 9 | RSYLTPGDS | 5e-06 | 63 |
| HLA-B*40:01 | 1 | 247 | 256 | 10 | SYLTPGDSSS | 5e-06 | 53 |
| HLA-A*02:01 | 1 | 250 | 259 | 10 | TPGDSSSGWT | 5e-06 | 75 |
| HLA-A*11:01 | 1 | 251 | 260 | 10 | PGDSSSGWTA | 5e-06 | 59 |
| HLA-A*23:01 | 1 | 251 | 260 | 10 | PGDSSSGWTA | 5e-06 | 59 |
| HLA-B*40:01 | 1 | 251 | 260 | 10 | PGDSSSGWTA | 5e-06 | 53 |
| HLA-A*03:01 | 1 | 252 | 261 | 10 | GDSSSGWTAG | 5e-06 | 74 |
| HLA-A*32:01 | 1 | 252 | 261 | 10 | GDSSSGWTAG | 5e-06 | 61 |
| HLA-A*23:01 | 1 | 255 | 264 | 10 | SSGWTAGAAA | 5e-06 | 59 |
| HLA-B*35:01 | 1 | 259 | 268 | 10 | TAGAAAYYVG | 5e-06 | 61 |
| HLA-A*11:01 | 1 | 260 | 268 | 9 | AGAAAYYVG | 5e-06 | 59 |
| HLA-B*35:01 | 1 | 265 | 274 | 10 | YYVGYLQPR | 5e-06 | 61 |
| HLA-B*44:03 | 1 | 265 | 274 | 10 | YYVGYLQPR | 5e-06 | 63 |
| HLA-A*68:02 | 1 | 271 | 280 | 10 | QPRTFLLKYN | 5e-06 | 75 |
| HLA-A*02:01 | 1 | 273 | 282 | 10 | RTFLLKYNEN | 5e-06 | 75 |
| HLA-A*32:01 | 1 | 274 | 282 | 9 | TFLLKYNEN | 5e-06 | 61 |
| HLA-B*53:01 | 1 | 274 | 282 | 9 | TFLLKYNEN | 5e-06 | 62 |
| HLA-B*58:01 | 1 | 274 | 282 | 9 | TFLLKYNEN | 5e-06 | 82 |
| HLA-A*24:02 | 1 | 275 | 283 | 9 | FLLKYNENG | 5e-06 | 56 |
| HLA-A*68:01 | 1 | 275 | 283 | 9 | FLLKYNENG | 5e-06 | 71 |
| HLA-A*68:01 | 1 | 275 | 284 | 10 | FLLKYNENGT | 5e-06 | 71 |
| HLA-A*26:01 | 1 | 276 | 284 | 9 | LLKYNENGT | 5e-06 | 71 |
| HLA-A*68:01 | 1 | 276 | 285 | 10 | LLKYNENGTI | 5e-06 | 71 |
| HLA-A*68:01 | 1 | 277 | 285 | 9 | LKYNENGTI | 5e-06 | 71 |
| HLA-A*02:01 | 1 | 278 | 287 | 10 | KYNENGTITD | 5e-06 | 75 |
| HLA-A*02:03 | 1 | 278 | 287 | 10 | KYNENGTITD | 5e-06 | 78 |
| HLA-A*26:01 | 1 | 278 | 287 | 10 | KYNENGTITD | 5e-06 | 71 |
| HLA-A*68:02 | 1 | 278 | 287 | 10 | KYNENGTITD | 5e-06 | 75 |
| HLA-B*51:01 | 1 | 278 | 287 | 10 | KYNENGTITD | 5e-06 | 85 |
| HLA-A*68:02 | 1 | 279 | 287 | 9 | YNENGTITD | 5e-06 | 75 |
| HLA-A*01:01 | 1 | 281 | 290 | 10 | ENGTITDAVD | 5e-06 | 95 |
| HLA-A*23:01 | 1 | 283 | 291 | 9 | GTITDAVDC | 5e-06 | 59 |
| HLA-A*33:01 | 1 | 285 | 294 | 10 | ITDAVDCALD | 5e-06 | 83 |
| HLA-A*02:06 | 1 | 286 | 295 | 10 | TDAVDCALDP | 5e-06 | 82 |
| HLA-B*53:01 | 1 | 286 | 295 | 10 | TDAVDCALDP | 5e-06 | 62 |
| HLA-B*08:01 | 1 | 288 | 297 | 10 | AVDCALDPLS | 5e-06 | 92 |
| HLA-A*03:01 | 1 | 289 | 297 | 9 | VDCALDPLS | 5e-06 | 74 |
| HLA-A*11:01 | 1 | 289 | 297 | 9 | VDCALDPLS | 5e-06 | 59 |
| HLA-A*26:01 | 1 | 289 | 298 | 10 | VDCALDPLSE | 5e-06 | 71 |
| HLA-A*68:02 | 1 | 289 | 297 | 9 | VDCALDPLS | 5e-06 | 75 |
| HLA-B*15:01 | 1 | 289 | 297 | 9 | VDCALDPLS | 5e-06 | 75 |
| HLA-A*24:02 | 1 | 290 | 299 | 10 | DCALDPLSET | 5e-06 | 56 |
| HLA-A*31:01 | 1 | 290 | 298 | 9 | DCALDPLSE | 5e-06 | 79 |
| HLA-A*02:06 | 1 | 293 | 302 | 10 | LDPLSETKCT | 5e-06 | 82 |
| HLA-A*03:01 | 1 | 293 | 301 | 9 | LDPLSETKC | 5e-06 | 74 |
| HLA-B*44:02 | 1 | 293 | 302 | 10 | LDPLSETKCT | 5e-06 | 68 |
| HLA-A*31:01 | 1 | 294 | 302 | 9 | DPLSETKCT | 5e-06 | 79 |
| HLA-B*44:02 | 1 | 295 | 304 | 10 | PLSETKCTLK | 5e-06 | 68 |
| HLA-B*15:01 | 1 | 296 | 305 | 10 | LSETKCTLKS | 5e-06 | 75 |
| HLA-A*23:01 | 1 | 298 | 307 | 10 | ETKCTLKSFT | 5e-06 | 59 |
| HLA-A*02:03 | 1 | 299 | 307 | 9 | TKCTLKSFT | 5e-06 | 78 |
| HLA-A*02:06 | 1 | 299 | 307 | 9 | TKCTLKSFT | 5e-06 | 82 |
| HLA-A*11:01 | 1 | 299 | 308 | 10 | TKCTLKSFTV | 5e-06 | 59 |
| HLA-B*15:01 | 1 | 299 | 307 | 9 | TKCTLKSFT | 5e-06 | 75 |
| HLA-B*35:01 | 1 | 299 | 308 | 10 | TKCTLKSFTV | 5e-06 | 61 |
| HLA-B*58:01 | 1 | 299 | 307 | 9 | TKCTLKSFT | 5e-06 | 82 |
| HLA-A*23:01 | 1 | 302 | 311 | 10 | TLKSFTVEKG | 5e-06 | 59 |
| HLA-A*24:02 | 1 | 302 | 311 | 10 | TLKSFTVEKG | 5e-06 | 56 |
| HLA-A*11:01 | 1 | 303 | 312 | 10 | LKSFTVEKGI | 5e-06 | 59 |
| HLA-B*40:01 | 1 | 303 | 311 | 9 | LKSFTVEKG | 5e-06 | 53 |
| HLA-A*03:01 | 1 | 308 | 317 | 10 | VEKGIYQTSN | 5e-06 | 74 |
| HLA-A*68:01 | 1 | 308 | 317 | 10 | VEKGIYQTSN | 5e-06 | 71 |
| HLA-B*44:03 | 1 | 312 | 321 | 10 | IYQTSNFRVQ | 5e-06 | 63 |
| HLA-B*35:01 | 1 | 314 | 323 | 10 | QTSNFRVQPT | 5e-06 | 61 |
| HLA-A*24:02 | 1 | 315 | 324 | 10 | TSNFRVQPT | 5e-06 | 56 |
| HLA-B*35:01 | 1 | 316 | 325 | 10 | SNFRVQPTES | 5e-06 | 61 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|-------|----|
| HLA-A*32:01 | 1 | 317 | 325 | 9 | NFRVQPTES | 5e-06 | 61 |
| HLA-B*44:03 | 1 | 317 | 325 | 9 | NFRVQPTES | 5e-06 | 63 |
| HLA-B*44:02 | 1 | 322 | 330 | 9 | PTESIVRFP | 5e-06 | 68 |
| HLA-A*24:02 | 1 | 323 | 331 | 9 | TESIVRFPN | 5e-06 | 56 |
| HLA-A*11:01 | 1 | 324 | 333 | 10 | ESIVRFPNIT | 5e-06 | 59 |
| HLA-A*23:01 | 1 | 324 | 333 | 10 | ESIVRFPNIT | 5e-06 | 59 |
| HLA-A*24:02 | 1 | 324 | 333 | 10 | ESIVRFPNIT | 5e-06 | 56 |
| HLA-B*15:01 | 1 | 324 | 333 | 10 | ESIVRFPNIT | 5e-06 | 75 |
| HLA-B*44:02 | 1 | 325 | 334 | 10 | SIVRFPNITN | 5e-06 | 68 |
| HLA-A*26:01 | 1 | 331 | 339 | 9 | NITNLCPFGE | 5e-06 | 71 |
| HLA-B*44:02 | 1 | 332 | 341 | 10 | ITNLCPFGEV | 5e-06 | 68 |
| HLA-A*68:01 | 1 | 337 | 345 | 9 | PFGEVFNAT | 5e-06 | 71 |
| HLA-B*44:02 | 1 | 337 | 345 | 9 | PFGEVFNAT | 5e-06 | 68 |
| HLA-B*40:01 | 1 | 340 | 349 | 10 | EVFNATRFAS | 5e-06 | 53 |
| HLA-B*15:01 | 1 | 346 | 354 | 9 | RFASVYAWN | 5e-06 | 75 |
| HLA-B*40:01 | 1 | 346 | 355 | 10 | RFASVYAWN | 5e-06 | 53 |
| HLA-B*51:01 | 1 | 346 | 354 | 9 | RFASVYAWN | 5e-06 | 85 |
| HLA-B*44:03 | 1 | 347 | 356 | 10 | FASVYAWN | 5e-06 | 63 |
| HLA-A*68:01 | 1 | 350 | 359 | 10 | VYAWNKRKRIS | 5e-06 | 71 |
| HLA-A*68:02 | 1 | 350 | 359 | 10 | VYAWNKRKRIS | 5e-06 | 75 |
| HLA-A*23:01 | 1 | 351 | 359 | 9 | YAWNKRKRIS | 5e-06 | 59 |
| HLA-A*26:01 | 1 | 351 | 360 | 10 | YAWNKRKRIS | 5e-06 | 71 |
| HLA-A*11:01 | 1 | 352 | 361 | 10 | AWNKRKRISNC | 5e-06 | 59 |
| HLA-A*11:01 | 1 | 353 | 361 | 9 | WNRKRISNC | 5e-06 | 59 |
| HLA-A*68:01 | 1 | 353 | 362 | 10 | WNRKRISNCV | 5e-06 | 71 |
| HLA-B*44:02 | 1 | 353 | 362 | 10 | WNRKRISNCV | 5e-06 | 68 |
| HLA-A*31:01 | 1 | 354 | 363 | 10 | NRKRISNCVA | 5e-06 | 79 |
| HLA-B*40:01 | 1 | 354 | 363 | 10 | NRKRISNCVA | 5e-06 | 53 |
| HLA-A*23:01 | 1 | 355 | 364 | 10 | RKRISNCVAD | 5e-06 | 59 |
| HLA-A*26:01 | 1 | 355 | 363 | 9 | RKRISNCVA | 5e-06 | 71 |
| HLA-B*57:01 | 1 | 355 | 364 | 10 | RKRISNCVAD | 5e-06 | 90 |
| HLA-A*02:03 | 1 | 356 | 364 | 9 | KRISNCVAD | 5e-06 | 78 |
| HLA-A*68:01 | 1 | 356 | 364 | 9 | KRISNCVAD | 5e-06 | 71 |
| HLA-B*44:02 | 1 | 356 | 364 | 9 | KRISNCVAD | 5e-06 | 68 |
| HLA-A*23:01 | 1 | 365 | 373 | 9 | YSVLYNSAS | 5e-06 | 59 |
| HLA-B*40:01 | 1 | 367 | 375 | 9 | VLYNSASFS | 5e-06 | 53 |
| HLA-B*53:01 | 1 | 373 | 381 | 9 | SFSTFKCYG | 5e-06 | 62 |
| HLA-A*24:02 | 1 | 375 | 383 | 9 | STFKCYGVS | 5e-06 | 56 |
| HLA-B*53:01 | 1 | 379 | 388 | 10 | CYGVSPKLN | 5e-06 | 62 |
| HLA-A*03:01 | 1 | 380 | 389 | 10 | YGVSPKLN | 5e-06 | 74 |
| HLA-A*24:02 | 1 | 380 | 388 | 9 | YGVSPKLN | 5e-06 | 56 |
| HLA-A*26:01 | 1 | 380 | 389 | 10 | YGVSPKLN | 5e-06 | 71 |
| HLA-A*32:01 | 1 | 380 | 389 | 10 | YGVSPKLN | 5e-06 | 61 |
| HLA-B*40:01 | 1 | 381 | 389 | 9 | GVSPTKLN | 5e-06 | 53 |
| HLA-B*40:01 | 1 | 382 | 391 | 10 | VSPTKLN | 5e-06 | 53 |
| HLA-A*02:01 | 1 | 384 | 393 | 10 | PTKLN | 5e-06 | 75 |
| HLA-A*33:01 | 1 | 384 | 393 | 10 | PTKLN | 5e-06 | 83 |
| HLA-A*03:01 | 1 | 385 | 394 | 10 | TKLN | 5e-06 | 74 |
| HLA-A*26:01 | 1 | 385 | 393 | 9 | TKLN | 5e-06 | 71 |
| HLA-A*68:01 | 1 | 385 | 393 | 9 | TKLN | 5e-06 | 71 |
| HLA-B*44:03 | 1 | 385 | 393 | 9 | TKLN | 5e-06 | 63 |
| HLA-A*02:01 | 1 | 388 | 396 | 9 | NLCFTNVY | 5e-06 | 75 |
| HLA-A*68:01 | 1 | 389 | 398 | 10 | DLCFTNVYAD | 5e-06 | 71 |
| HLA-A*33:01 | 1 | 390 | 398 | 9 | LCFTNVYAD | 5e-06 | 83 |
| HLA-A*33:01 | 1 | 390 | 399 | 10 | LCFTNVYADS | 5e-06 | 83 |
| HLA-A*02:03 | 1 | 396 | 405 | 10 | YADSFVIRGD | 5e-06 | 78 |
| HLA-B*07:02 | 1 | 396 | 405 | 10 | YADSFVIRGD | 5e-06 | 76 |
| HLA-B*35:01 | 1 | 396 | 405 | 10 | YADSFVIRGD | 5e-06 | 61 |
| HLA-A*26:01 | 1 | 397 | 405 | 9 | ADSFVIRGD | 5e-06 | 71 |
| HLA-A*68:02 | 1 | 397 | 406 | 10 | ADSFVIRGDE | 5e-06 | 75 |
| HLA-A*24:02 | 1 | 403 | 412 | 10 | RGDEV | 5e-06 | 56 |
| HLA-A*03:01 | 1 | 404 | 412 | 9 | GDEV | 5e-06 | 74 |
| HLA-A*03:01 | 1 | 405 | 413 | 9 | DEV | 5e-06 | 74 |
| HLA-A*68:01 | 1 | 405 | 413 | 9 | DEV | 5e-06 | 71 |
| HLA-A*68:02 | 1 | 405 | 413 | 9 | DEV | 5e-06 | 75 |
| HLA-A*02:01 | 1 | 407 | 415 | 9 | VRQIAPGQT | 5e-06 | 75 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-A*02:06 | 1 | 418 | 427 | 10 | IADYNYKLPD | 5e-06 | 82 |
| HLA-B*44:02 | 1 | 419 | 428 | 10 | ADYNYKLPDD | 5e-06 | 68 |
| HLA-A*02:01 | 1 | 420 | 429 | 10 | DYNYKLPDDF | 5e-06 | 75 |
| HLA-B*44:02 | 1 | 421 | 430 | 10 | YNYKLPDDFT | 5e-06 | 68 |
| HLA-B*44:03 | 1 | 421 | 430 | 10 | YNYKLPDDFT | 5e-06 | 63 |
| HLA-A*68:01 | 1 | 422 | 431 | 10 | NYKLPDDFTG | 5e-06 | 71 |
| HLA-B*44:03 | 1 | 422 | 430 | 9 | NYKLPDDFT | 5e-06 | 63 |
| HLA-A*11:01 | 1 | 423 | 432 | 10 | YKLPDDFTGC | 5e-06 | 59 |
| HLA-A*68:01 | 1 | 423 | 431 | 9 | YKLPDDFTG | 5e-06 | 71 |
| HLA-A*31:01 | 1 | 426 | 434 | 9 | PDDFTGCVI | 5e-06 | 79 |
| HLA-A*32:01 | 1 | 428 | 437 | 10 | DFTGCVIAWN | 5e-06 | 61 |
| HLA-B*35:01 | 1 | 428 | 437 | 10 | DFTGCVIAWN | 5e-06 | 61 |
| HLA-B*44:03 | 1 | 428 | 437 | 10 | DFTGCVIAWN | 5e-06 | 63 |
| HLA-A*32:01 | 1 | 429 | 438 | 10 | FTGCVIAWNS | 5e-06 | 61 |
| HLA-A*23:01 | 1 | 430 | 438 | 9 | TGCVIAWNS | 5e-06 | 59 |
| HLA-A*32:01 | 1 | 430 | 438 | 9 | TGCVIAWNS | 5e-06 | 61 |
| HLA-B*44:02 | 1 | 430 | 438 | 9 | TGCVIAWNS | 5e-06 | 68 |
| HLA-A*02:03 | 1 | 431 | 440 | 10 | GCVIAWNSNN | 5e-06 | 78 |
| HLA-A*68:01 | 1 | 431 | 440 | 10 | GCVIAWNSNN | 5e-06 | 71 |
| HLA-B*15:01 | 1 | 431 | 440 | 10 | GCVIAWNSNN | 5e-06 | 75 |
| HLA-A*03:01 | 1 | 433 | 442 | 10 | VIAWNSNNLD | 5e-06 | 74 |
| HLA-A*26:01 | 1 | 433 | 442 | 10 | VIAWNSNNLD | 5e-06 | 71 |
| HLA-A*02:03 | 1 | 434 | 442 | 9 | IAWNSNNLD | 5e-06 | 78 |
| HLA-A*32:01 | 1 | 434 | 443 | 10 | IAWNSNNLDS | 5e-06 | 61 |
| HLA-A*26:01 | 1 | 435 | 443 | 9 | AWNSNNLDS | 5e-06 | 71 |
| HLA-B*44:03 | 1 | 435 | 443 | 9 | AWNSNNLDS | 5e-06 | 63 |
| HLA-B*51:01 | 1 | 435 | 443 | 9 | AWNSNNLDS | 5e-06 | 85 |
| HLA-A*23:01 | 1 | 436 | 444 | 9 | WNSNNLDSK | 5e-06 | 59 |
| HLA-B*40:01 | 1 | 436 | 444 | 9 | WNSNNLDSK | 5e-06 | 53 |
| HLA-A*02:06 | 1 | 437 | 446 | 10 | NSNNLDSKVG | 5e-06 | 82 |
| HLA-B*53:01 | 1 | 438 | 447 | 10 | SNNLDSKVG | 5e-06 | 62 |
| HLA-B*57:01 | 1 | 439 | 448 | 10 | NNLDSKVG | 5e-06 | 90 |
| HLA-A*11:01 | 1 | 440 | 448 | 9 | NLDSKVG | 5e-06 | 59 |
| HLA-B*44:02 | 1 | 442 | 450 | 9 | DSKVG | 5e-06 | 68 |
| HLA-A*02:03 | 1 | 445 | 454 | 10 | VGGNYNYLYR | 5e-06 | 78 |
| HLA-B*53:01 | 1 | 445 | 454 | 10 | VGGNYNYLYR | 5e-06 | 62 |
| HLA-B*40:01 | 1 | 450 | 458 | 9 | NYLYRFRK | 5e-06 | 53 |
| HLA-B*44:02 | 1 | 450 | 459 | 10 | NYLYRFRKS | 5e-06 | 68 |
| HLA-B*44:03 | 1 | 450 | 459 | 10 | NYLYRFRKS | 5e-06 | 63 |
| HLA-B*58:01 | 1 | 450 | 459 | 10 | NYLYRFRKS | 5e-06 | 82 |
| HLA-A*11:01 | 1 | 452 | 461 | 10 | LYRFRKSNL | 5e-06 | 59 |
| HLA-A*02:01 | 1 | 456 | 465 | 10 | FRKSNLKPFE | 5e-06 | 75 |
| HLA-A*32:01 | 1 | 456 | 465 | 10 | FRKSNLKPFE | 5e-06 | 61 |
| HLA-B*53:01 | 1 | 456 | 465 | 10 | FRKSNLKPFE | 5e-06 | 62 |
| HLA-A*02:01 | 1 | 457 | 465 | 9 | RKSNLKPFE | 5e-06 | 75 |
| HLA-A*68:02 | 1 | 457 | 465 | 9 | RKSNLKPFE | 5e-06 | 75 |
| HLA-B*53:01 | 1 | 457 | 466 | 10 | RKSNLKPFE | 5e-06 | 62 |
| HLA-B*44:03 | 1 | 460 | 469 | 10 | NLKPFERDIS | 5e-06 | 63 |
| HLA-B*53:01 | 1 | 460 | 469 | 10 | NLKPFERDIS | 5e-06 | 62 |
| HLA-B*07:02 | 1 | 461 | 469 | 9 | LKPFERDIS | 5e-06 | 76 |
| HLA-B*58:01 | 1 | 463 | 471 | 9 | PFERDISTE | 5e-06 | 82 |
| HLA-B*15:01 | 1 | 467 | 476 | 10 | DISTEIQAG | 5e-06 | 75 |
| HLA-A*32:01 | 1 | 468 | 477 | 10 | ISTEIQAGS | 5e-06 | 61 |
| HLA-B*53:01 | 1 | 469 | 477 | 9 | STEIQAGS | 5e-06 | 62 |
| HLA-B*53:01 | 1 | 469 | 478 | 10 | STEIQAGST | 5e-06 | 62 |
| HLA-A*02:03 | 1 | 472 | 481 | 10 | IYQAGSTPCN | 5e-06 | 78 |
| HLA-A*31:01 | 1 | 473 | 482 | 10 | YQAGSTPCNG | 5e-06 | 79 |
| HLA-A*33:01 | 1 | 473 | 482 | 10 | YQAGSTPCNG | 5e-06 | 83 |
| HLA-A*02:01 | 1 | 476 | 485 | 10 | GSTPCNGVEG | 5e-06 | 75 |
| HLA-A*26:01 | 1 | 476 | 484 | 9 | GSTPCNGVE | 5e-06 | 71 |
| HLA-A*03:01 | 1 | 477 | 485 | 9 | STPCNGVEG | 5e-06 | 74 |
| HLA-A*32:01 | 1 | 478 | 487 | 10 | TPCNGVEGFN | 5e-06 | 61 |
| HLA-A*30:02 | 1 | 479 | 487 | 9 | PCNGVEGFN | 5e-06 | 93 |
| HLA-B*58:01 | 1 | 479 | 487 | 9 | PCNGVEGFN | 5e-06 | 82 |
| HLA-A*02:01 | 1 | 480 | 489 | 10 | CNGVEGFNCY | 5e-06 | 75 |
| HLA-A*33:01 | 1 | 480 | 488 | 9 | CNGVEGFNC | 5e-06 | 83 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-B*53:01 | 1 | 482 | 491 | 10 | GVEGFNCYFP | 5e-06 | 62 |
| HLA-B*15:01 | 1 | 483 | 491 | 9 | VEGFNCYFP | 5e-06 | 75 |
| HLA-B*53:01 | 1 | 483 | 491 | 9 | VEGFNCYFP | 5e-06 | 62 |
| HLA-A*23:01 | 1 | 484 | 493 | 10 | EGFNCYFPLQ | 5e-06 | 59 |
| HLA-B*07:02 | 1 | 484 | 493 | 10 | EGFNCYFPLQ | 5e-06 | 76 |
| HLA-A*02:03 | 1 | 485 | 493 | 9 | GFNCYFPLQ | 5e-06 | 78 |
| HLA-A*26:01 | 1 | 485 | 493 | 9 | GFNCYFPLQ | 5e-06 | 71 |
| HLA-B*07:02 | 1 | 485 | 494 | 10 | GFNCYFPLQS | 5e-06 | 76 |
| HLA-A*24:02 | 1 | 490 | 498 | 9 | FPLQSYGFQ | 5e-06 | 56 |
| HLA-A*03:01 | 1 | 491 | 500 | 10 | PLQSYGFQPT | 5e-06 | 74 |
| HLA-A*11:01 | 1 | 491 | 499 | 9 | PLQSYGFQP | 5e-06 | 59 |
| HLA-A*31:01 | 1 | 491 | 500 | 10 | PLQSYGFQPT | 5e-06 | 79 |
| HLA-A*24:02 | 1 | 492 | 501 | 10 | LQSYGFQPTN | 5e-06 | 56 |
| HLA-B*44:02 | 1 | 495 | 504 | 10 | YGFQPTNGVG | 5e-06 | 68 |
| HLA-A*02:01 | 1 | 496 | 504 | 9 | GFQPTNGVG | 5e-06 | 75 |
| HLA-A*26:01 | 1 | 496 | 504 | 9 | GFQPTNGVG | 5e-06 | 71 |
| HLA-A*68:02 | 1 | 496 | 504 | 9 | GFQPTNGVG | 5e-06 | 75 |
| HLA-B*53:01 | 1 | 496 | 504 | 9 | GFQPTNGVG | 5e-06 | 62 |
| HLA-A*23:01 | 1 | 498 | 506 | 9 | QPTNGVGYQ | 5e-06 | 59 |
| HLA-A*02:01 | 1 | 500 | 508 | 9 | TNGVGYQPY | 5e-06 | 75 |
| HLA-A*02:03 | 1 | 500 | 508 | 9 | TNGVGYQPY | 5e-06 | 78 |
| HLA-A*01:01 | 1 | 507 | 516 | 10 | PYRVVLSFE | 5e-06 | 95 |
| HLA-A*03:01 | 1 | 507 | 516 | 10 | PYRVVLSFE | 5e-06 | 74 |
| HLA-A*68:01 | 1 | 507 | 516 | 10 | PYRVVLSFE | 5e-06 | 71 |
| HLA-B*51:01 | 1 | 507 | 516 | 10 | PYRVVLSFE | 5e-06 | 85 |
| HLA-B*44:03 | 1 | 513 | 522 | 10 | LSFELLHAPA | 5e-06 | 63 |
| HLA-A*24:02 | 1 | 516 | 525 | 10 | ELLHAPATVC | 5e-06 | 56 |
| HLA-A*24:02 | 1 | 517 | 526 | 10 | LLHAPATVCG | 5e-06 | 56 |
| HLA-B*44:02 | 1 | 519 | 527 | 9 | HAPATVCGP | 5e-06 | 68 |
| HLA-A*30:02 | 1 | 521 | 530 | 10 | PATVCGPKKS | 5e-06 | 93 |
| HLA-B*35:01 | 1 | 522 | 530 | 9 | ATVCGPKKS | 5e-06 | 61 |
| HLA-A*31:01 | 1 | 524 | 532 | 9 | VCGPKKSTN | 5e-06 | 79 |
| HLA-B*07:02 | 1 | 524 | 532 | 9 | VCGPKKSTN | 5e-06 | 76 |
| HLA-A*11:01 | 1 | 525 | 534 | 10 | CGPKKSTNLV | 5e-06 | 59 |
| HLA-A*02:06 | 1 | 527 | 535 | 9 | PKKSTNLVK | 5e-06 | 82 |
| HLA-B*40:01 | 1 | 528 | 536 | 9 | KKSTNLVKN | 5e-06 | 53 |
| HLA-B*40:01 | 1 | 528 | 537 | 10 | KKSTNLVKNK | 5e-06 | 53 |
| HLA-B*51:01 | 1 | 528 | 537 | 10 | KKSTNLVKNK | 5e-06 | 85 |
| HLA-B*40:01 | 1 | 529 | 538 | 10 | KSTNLVKNKC | 5e-06 | 53 |
| HLA-A*01:01 | 1 | 531 | 540 | 10 | TNLVKNKCVN | 5e-06 | 95 |
| HLA-A*11:01 | 1 | 531 | 539 | 9 | TNLVKNKCV | 5e-06 | 59 |
| HLA-B*15:01 | 1 | 531 | 540 | 10 | TNLVKNKCVN | 5e-06 | 75 |
| HLA-B*53:01 | 1 | 532 | 540 | 9 | NLVKNKCVN | 5e-06 | 62 |
| HLA-B*53:01 | 1 | 533 | 542 | 10 | LVKNKCVNFN | 5e-06 | 62 |
| HLA-A*01:01 | 1 | 534 | 542 | 9 | VKNKCVNFN | 5e-06 | 95 |
| HLA-A*02:03 | 1 | 534 | 543 | 10 | VKNKCVNFN | 5e-06 | 78 |
| HLA-A*68:01 | 1 | 534 | 542 | 9 | VKNKCVNFN | 5e-06 | 71 |
| HLA-B*44:02 | 1 | 534 | 542 | 9 | VKNKCVNFN | 5e-06 | 68 |
| HLA-B*57:01 | 1 | 534 | 542 | 9 | VKNKCVNFN | 5e-06 | 90 |
| HLA-A*24:02 | 1 | 535 | 544 | 10 | KNKCVNFNFN | 5e-06 | 56 |
| HLA-A*33:01 | 1 | 535 | 544 | 10 | KNKCVNFNFN | 5e-06 | 83 |
| HLA-A*33:01 | 1 | 536 | 544 | 9 | NKCVNFNFN | 5e-06 | 83 |
| HLA-B*08:01 | 1 | 536 | 545 | 10 | NKCVNFNFN | 5e-06 | 92 |
| HLA-B*51:01 | 1 | 536 | 544 | 9 | NKCVNFNFN | 5e-06 | 85 |
| HLA-B*08:01 | 1 | 537 | 545 | 9 | KCVNFNFN | 5e-06 | 92 |
| HLA-B*15:01 | 1 | 538 | 547 | 10 | CVNFNFNGLT | 5e-06 | 75 |
| HLA-A*26:01 | 1 | 539 | 548 | 10 | VNFNFNGLTG | 5e-06 | 71 |
| HLA-B*44:02 | 1 | 539 | 548 | 10 | VNFNFNGLTG | 5e-06 | 68 |
| HLA-B*44:03 | 1 | 539 | 548 | 10 | VNFNFNGLTG | 5e-06 | 63 |
| HLA-A*02:06 | 1 | 542 | 550 | 9 | NFNGLTGTG | 5e-06 | 82 |
| HLA-A*32:01 | 1 | 542 | 550 | 9 | NFNGLTGTG | 5e-06 | 61 |
| HLA-B*44:03 | 1 | 543 | 552 | 10 | FNGLTGTGVL | 5e-06 | 63 |
| HLA-A*11:01 | 1 | 544 | 553 | 10 | NGLTGTGVL | 5e-06 | 59 |
| HLA-B*35:01 | 1 | 544 | 553 | 10 | NGLTGTGVL | 5e-06 | 61 |
| HLA-B*44:03 | 1 | 544 | 553 | 10 | NGLTGTGVL | 5e-06 | 63 |
| HLA-A*23:01 | 1 | 545 | 554 | 10 | GLTGTGVLTE | 5e-06 | 59 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-B*44:03 | 1 | 546 | 554 | 9 | LTGTGVLTE | 5e-06 | 63 |
| HLA-A*02:06 | 1 | 547 | 556 | 10 | TGTGVLTESN | 5e-06 | 82 |
| HLA-A*02:03 | 1 | 548 | 556 | 9 | GTGVLTESN | 5e-06 | 78 |
| HLA-A*26:01 | 1 | 548 | 556 | 9 | GTGVLTESN | 5e-06 | 71 |
| HLA-A*68:02 | 1 | 548 | 556 | 9 | GTGVLTESN | 5e-06 | 75 |
| HLA-B*08:01 | 1 | 548 | 557 | 10 | GTGVLTESNK | 5e-06 | 92 |
| HLA-A*23:01 | 1 | 549 | 557 | 9 | TGVLTESNK | 5e-06 | 59 |
| HLA-A*26:01 | 1 | 552 | 561 | 10 | LTESNKKFLP | 5e-06 | 71 |
| HLA-B*35:01 | 1 | 552 | 561 | 10 | LTESNKKFLP | 5e-06 | 61 |
| HLA-B*53:01 | 1 | 552 | 561 | 10 | LTESNKKFLP | 5e-06 | 62 |
| HLA-A*02:06 | 1 | 556 | 564 | 9 | NKKFLPFQQ | 5e-06 | 82 |
| HLA-A*02:06 | 1 | 560 | 568 | 9 | LPFQQFGRD | 5e-06 | 82 |
| HLA-A*68:01 | 1 | 560 | 568 | 9 | LPFQQFGRD | 5e-06 | 71 |
| HLA-B*15:01 | 1 | 560 | 568 | 9 | LPFQQFGRD | 5e-06 | 75 |
| HLA-A*02:01 | 1 | 561 | 570 | 10 | PFQQFGRDIA | 5e-06 | 75 |
| HLA-A*03:01 | 1 | 561 | 569 | 9 | PFQQFGRDI | 5e-06 | 74 |
| HLA-A*23:01 | 1 | 562 | 571 | 10 | FQQFGRDIAD | 5e-06 | 59 |
| HLA-A*32:01 | 1 | 562 | 571 | 10 | FQQFGRDIAD | 5e-06 | 61 |
| HLA-A*32:01 | 1 | 564 | 573 | 10 | QFGRDIADTT | 5e-06 | 61 |
| HLA-B*35:01 | 1 | 564 | 572 | 9 | QFGRDIADT | 5e-06 | 61 |
| HLA-B*53:01 | 1 | 564 | 572 | 9 | QFGRDIADT | 5e-06 | 62 |
| HLA-A*03:01 | 1 | 566 | 575 | 10 | GRDIADTTDA | 5e-06 | 74 |
| HLA-B*44:03 | 1 | 566 | 574 | 9 | GRDIADTTD | 5e-06 | 63 |
| HLA-B*53:01 | 1 | 566 | 574 | 9 | GRDIADTTD | 5e-06 | 62 |
| HLA-B*53:01 | 1 | 566 | 575 | 10 | GRDIADTTDA | 5e-06 | 62 |
| HLA-B*57:01 | 1 | 566 | 574 | 9 | GRDIADTTD | 5e-06 | 90 |
| HLA-A*23:01 | 1 | 568 | 577 | 10 | DIADTTDAVR | 5e-06 | 59 |
| HLA-B*35:01 | 1 | 569 | 578 | 10 | IADTTDAVRD | 5e-06 | 61 |
| HLA-A*30:01 | 1 | 570 | 578 | 9 | ADTTDAVRD | 5e-06 | 94 |
| HLA-A*31:01 | 1 | 570 | 579 | 10 | ADTTDAVRDP | 5e-06 | 79 |
| HLA-A*32:01 | 1 | 570 | 579 | 10 | ADTTDAVRDP | 5e-06 | 61 |
| HLA-B*51:01 | 1 | 570 | 578 | 9 | ADTTDAVRD | 5e-06 | 85 |
| HLA-B*15:01 | 1 | 571 | 579 | 9 | DTTDAVRDP | 5e-06 | 75 |
| HLA-B*40:01 | 1 | 571 | 579 | 9 | DTTDAVRDP | 5e-06 | 53 |
| HLA-B*44:02 | 1 | 571 | 580 | 10 | DTTDAVRDPQ | 5e-06 | 68 |
| HLA-A*23:01 | 1 | 573 | 581 | 9 | TDAVRDPQT | 5e-06 | 59 |
| HLA-B*15:01 | 1 | 573 | 581 | 9 | TDAVRDPQT | 5e-06 | 75 |
| HLA-A*68:02 | 1 | 577 | 586 | 10 | RDPQTLEILD | 5e-06 | 75 |
| HLA-A*68:02 | 1 | 578 | 586 | 9 | DPQTLEILD | 5e-06 | 75 |
| HLA-B*57:01 | 1 | 578 | 586 | 9 | DPQTLEILD | 5e-06 | 90 |
| HLA-A*31:01 | 1 | 579 | 587 | 9 | PQTLEILDI | 5e-06 | 79 |
| HLA-A*68:01 | 1 | 579 | 588 | 10 | PQTLEILDIT | 5e-06 | 71 |
| HLA-A*11:01 | 1 | 582 | 590 | 9 | LEILDITPC | 5e-06 | 59 |
| HLA-A*24:02 | 1 | 582 | 590 | 9 | LEILDITPC | 5e-06 | 56 |
| HLA-B*44:03 | 1 | 585 | 594 | 10 | LDITPCSFVG | 5e-06 | 63 |
| HLA-B*44:02 | 1 | 586 | 595 | 10 | DITPCSFGGV | 5e-06 | 68 |
| HLA-A*32:01 | 1 | 587 | 596 | 10 | ITPCSFGGVS | 5e-06 | 61 |
| HLA-B*35:01 | 1 | 587 | 595 | 9 | ITPCSFGGV | 5e-06 | 61 |
| HLA-B*44:02 | 1 | 587 | 595 | 9 | ITPCSFGGV | 5e-06 | 68 |
| HLA-A*02:06 | 1 | 588 | 596 | 9 | TPCSFGGVS | 5e-06 | 82 |
| HLA-A*26:01 | 1 | 589 | 597 | 9 | PCSFGGVSV | 5e-06 | 71 |
| HLA-B*44:02 | 1 | 589 | 598 | 10 | PCSFGGVSVI | 5e-06 | 68 |
| HLA-A*11:01 | 1 | 593 | 602 | 10 | GGVSVITPGT | 5e-06 | 59 |
| HLA-A*32:01 | 1 | 593 | 602 | 10 | GGVSVITPGT | 5e-06 | 61 |
| HLA-A*23:01 | 1 | 594 | 602 | 9 | GVSVITPGT | 5e-06 | 59 |
| HLA-A*31:01 | 1 | 594 | 603 | 10 | GVSVITPGTN | 5e-06 | 79 |
| HLA-A*33:01 | 1 | 595 | 603 | 9 | VSVITPGTN | 5e-06 | 83 |
| HLA-A*02:06 | 1 | 599 | 607 | 9 | TPGTNTSNQ | 5e-06 | 82 |
| HLA-A*03:01 | 1 | 600 | 608 | 9 | PGTNTSNQV | 5e-06 | 74 |
| HLA-A*03:01 | 1 | 600 | 609 | 10 | PGTNTSNQVA | 5e-06 | 74 |
| HLA-A*11:01 | 1 | 600 | 609 | 10 | PGTNTSNQVA | 5e-06 | 59 |
| HLA-A*32:01 | 1 | 600 | 608 | 9 | PGTNTSNQV | 5e-06 | 61 |
| HLA-A*68:01 | 1 | 600 | 609 | 10 | PGTNTSNQVA | 5e-06 | 71 |
| HLA-B*15:01 | 1 | 600 | 608 | 9 | PGTNTSNQV | 5e-06 | 75 |
| HLA-B*15:01 | 1 | 600 | 609 | 10 | PGTNTSNQVA | 5e-06 | 75 |
| HLA-B*44:02 | 1 | 600 | 609 | 10 | PGTNTSNQVA | 5e-06 | 68 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-A*24:02 | 1 | 605 | 613 | 9 | SNQVAVLYQ 5e-06 | 56 |
| HLA-A*31:01 | 1 | 605 | 614 | 10 | SNQVAVLYQD 5e-06 | 79 |
| HLA-B*07:02 | 1 | 606 | 614 | 9 | NQVAVLYQD 5e-06 | 76 |
| HLA-A*26:01 | 1 | 608 | 617 | 10 | VAVLYQDVNC 5e-06 | 71 |
| HLA-A*68:01 | 1 | 608 | 616 | 9 | VAVLYQDVN 5e-06 | 71 |
| HLA-B*35:01 | 1 | 609 | 618 | 10 | AVLYQDVNCT 5e-06 | 61 |
| HLA-B*40:01 | 1 | 610 | 619 | 10 | VLYQDVNCTE 5e-06 | 53 |
| HLA-A*03:01 | 1 | 613 | 621 | 9 | QDVNCTEVP 5e-06 | 74 |
| HLA-A*11:01 | 1 | 613 | 621 | 9 | QDVNCTEVP 5e-06 | 59 |
| HLA-A*26:01 | 1 | 613 | 621 | 9 | QDVNCTEVP 5e-06 | 71 |
| HLA-A*33:01 | 1 | 613 | 621 | 9 | QDVNCTEVP 5e-06 | 83 |
| HLA-A*11:01 | 1 | 615 | 624 | 10 | VNCTEVPVAI 5e-06 | 59 |
| HLA-A*24:02 | 1 | 617 | 625 | 9 | CTEVPVAIH 5e-06 | 56 |
| HLA-A*03:01 | 1 | 618 | 627 | 10 | TEVPVAIHAD 5e-06 | 74 |
| HLA-A*11:01 | 1 | 619 | 627 | 9 | EVPVAIHAD 5e-06 | 59 |
| HLA-A*23:01 | 1 | 619 | 628 | 10 | EVPVAIHADQ 5e-06 | 59 |
| HLA-B*44:02 | 1 | 619 | 627 | 9 | EVPVAIHAD 5e-06 | 68 |
| HLA-B*44:03 | 1 | 619 | 627 | 9 | EVPVAIHAD 5e-06 | 63 |
| HLA-A*68:01 | 1 | 621 | 630 | 10 | PVAIHADQLT 5e-06 | 71 |
| HLA-B*40:01 | 1 | 628 | 637 | 10 | QLTPTWRVYS 5e-06 | 53 |
| HLA-A*03:01 | 1 | 630 | 639 | 10 | TPTWRVYSTG 5e-06 | 74 |
| HLA-B*15:01 | 1 | 630 | 639 | 10 | TPTWRVYSTG 5e-06 | 75 |
| HLA-B*44:03 | 1 | 630 | 639 | 10 | TPTWRVYSTG 5e-06 | 63 |
| HLA-A*02:03 | 1 | 631 | 640 | 10 | PTWRVYSTGS 5e-06 | 78 |
| HLA-A*02:06 | 1 | 631 | 640 | 10 | PTWRVYSTGS 5e-06 | 82 |
| HLA-A*03:01 | 1 | 631 | 639 | 9 | PTWRVYSTG 5e-06 | 74 |
| HLA-A*03:01 | 1 | 631 | 640 | 10 | PTWRVYSTGS 5e-06 | 74 |
| HLA-A*26:01 | 1 | 631 | 639 | 9 | PTWRVYSTG 5e-06 | 71 |
| HLA-B*40:01 | 1 | 635 | 644 | 10 | VYSTGSNVFQ 5e-06 | 53 |
| HLA-A*23:01 | 1 | 636 | 644 | 9 | YSTGSNVFQ 5e-06 | 59 |
| HLA-A*24:02 | 1 | 636 | 644 | 9 | YSTGSNVFQ 5e-06 | 56 |
| HLA-A*03:01 | 1 | 639 | 648 | 10 | GSNVFQTRAG 5e-06 | 74 |
| HLA-A*68:02 | 1 | 639 | 648 | 10 | GSNVFQTRAG 5e-06 | 75 |
| HLA-B*07:02 | 1 | 639 | 648 | 10 | GSNVFQTRAG 5e-06 | 76 |
| HLA-B*51:01 | 1 | 639 | 648 | 10 | GSNVFQTRAG 5e-06 | 85 |
| HLA-B*44:03 | 1 | 644 | 652 | 9 | QTRAGCLIG 5e-06 | 63 |
| HLA-B*44:03 | 1 | 645 | 654 | 10 | TRAGCLIGAE 5e-06 | 63 |
| HLA-B*53:01 | 1 | 645 | 654 | 10 | TRAGCLIGAE 5e-06 | 62 |
| HLA-A*26:01 | 1 | 646 | 654 | 9 | RAGCLIGAE 5e-06 | 71 |
| HLA-A*32:01 | 1 | 646 | 654 | 9 | RAGCLIGAE 5e-06 | 61 |
| HLA-A*26:01 | 1 | 647 | 656 | 10 | AGCLIGAEHV 5e-06 | 71 |
| HLA-A*11:01 | 1 | 648 | 656 | 9 | GCLIGAEHV 5e-06 | 59 |
| HLA-A*68:01 | 1 | 648 | 657 | 10 | GCLIGAEHVN 5e-06 | 71 |
| HLA-B*08:01 | 1 | 648 | 657 | 10 | GCLIGAEHVN 5e-06 | 92 |
| HLA-A*11:01 | 1 | 649 | 657 | 9 | CLIGAEHVN 5e-06 | 59 |
| HLA-A*31:01 | 1 | 649 | 658 | 10 | CLIGAEHVNN 5e-06 | 79 |
| HLA-B*53:01 | 1 | 650 | 658 | 9 | LIGAEHVNN 5e-06 | 62 |
| HLA-B*57:01 | 1 | 653 | 661 | 9 | AEHVNNSYE 5e-06 | 90 |
| HLA-A*30:01 | 1 | 654 | 663 | 10 | EHVNNSYECD 5e-06 | 94 |
| HLA-B*53:01 | 1 | 654 | 663 | 10 | EHVNNSYECD 5e-06 | 62 |
| HLA-B*57:01 | 1 | 654 | 663 | 10 | EHVNNSYECD 5e-06 | 90 |
| HLA-A*32:01 | 1 | 655 | 663 | 9 | HVNNSYECD 5e-06 | 61 |
| HLA-B*07:02 | 1 | 655 | 663 | 9 | HVNNSYECD 5e-06 | 76 |
| HLA-A*02:06 | 1 | 656 | 665 | 10 | VNNSYECDIP 5e-06 | 82 |
| HLA-B*58:01 | 1 | 656 | 665 | 10 | VNNSYECDIP 5e-06 | 82 |
| HLA-A*24:02 | 1 | 657 | 666 | 10 | NNSYECDIPI 5e-06 | 56 |
| HLA-B*44:03 | 1 | 657 | 666 | 10 | NNSYECDIPI 5e-06 | 63 |
| HLA-B*53:01 | 1 | 657 | 665 | 9 | NNSYECDIP 5e-06 | 62 |
| HLA-B*58:01 | 1 | 657 | 665 | 9 | NNSYECDIP 5e-06 | 82 |
| HLA-A*33:01 | 1 | 658 | 667 | 10 | NSYECDIPIG 5e-06 | 83 |
| HLA-B*35:01 | 1 | 659 | 667 | 9 | SYECDIPIG 5e-06 | 61 |
| HLA-A*03:01 | 1 | 660 | 669 | 10 | YECDIPIGAG 5e-06 | 74 |
| HLA-A*03:01 | 1 | 663 | 671 | 9 | DIPIGAGIC 5e-06 | 74 |
| HLA-A*23:01 | 1 | 663 | 671 | 9 | DIPIGAGIC 5e-06 | 59 |
| HLA-B*44:02 | 1 | 664 | 673 | 10 | IPIGAGICAS 5e-06 | 68 |
| HLA-A*03:01 | 1 | 665 | 673 | 9 | PIGAGICAS 5e-06 | 74 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|-------|----|
| HLA-B*57:01 | 1 | 665 | 673 | 9 | PIGAGICAS | 5e-06 | 90 |
| HLA-A*31:01 | 1 | 667 | 676 | 10 | GAGICASYQT | 5e-06 | 79 |
| HLA-B*07:02 | 1 | 667 | 676 | 10 | GAGICASYQT | 5e-06 | 76 |
| HLA-B*08:01 | 1 | 667 | 676 | 10 | GAGICASYQT | 5e-06 | 92 |
| HLA-B*53:01 | 1 | 667 | 675 | 9 | GAGICASYQ | 5e-06 | 62 |
| HLA-A*26:01 | 1 | 668 | 676 | 9 | AGICASYQT | 5e-06 | 71 |
| HLA-B*35:01 | 1 | 668 | 677 | 10 | AGICASYQTQ | 5e-06 | 61 |
| HLA-B*53:01 | 1 | 668 | 677 | 10 | AGICASYQTQ | 5e-06 | 62 |
| HLA-A*24:02 | 1 | 669 | 677 | 9 | GICASYQTQ | 5e-06 | 56 |
| HLA-A*68:01 | 1 | 670 | 679 | 10 | ICASYQTQTN | 5e-06 | 71 |
| HLA-B*08:01 | 1 | 670 | 679 | 10 | ICASYQTQTN | 5e-06 | 92 |
| HLA-B*15:01 | 1 | 670 | 679 | 10 | ICASYQTQTN | 5e-06 | 75 |
| HLA-A*02:01 | 1 | 678 | 686 | 9 | TNSPRRARS | 5e-06 | 75 |
| HLA-B*35:01 | 1 | 678 | 686 | 9 | TNSPRRARS | 5e-06 | 61 |
| HLA-B*44:03 | 1 | 679 | 688 | 10 | NSPRRARSVA | 5e-06 | 63 |
| HLA-A*24:02 | 1 | 680 | 689 | 10 | SPRRARSVAS | 5e-06 | 56 |
| HLA-A*32:01 | 1 | 680 | 689 | 10 | SPRRARSVAS | 5e-06 | 61 |
| HLA-A*03:01 | 1 | 681 | 689 | 9 | PRRARSVAS | 5e-06 | 74 |
| HLA-B*07:02 | 1 | 681 | 690 | 10 | PRRARSVASQ | 5e-06 | 76 |
| HLA-A*24:02 | 1 | 685 | 694 | 10 | RSVASQSIIA | 5e-06 | 56 |
| HLA-A*23:01 | 1 | 687 | 696 | 10 | VASQSIIAYT | 5e-06 | 59 |
| HLA-A*02:01 | 1 | 694 | 703 | 10 | AYTMSLGAEN | 5e-06 | 75 |
| HLA-B*51:01 | 1 | 694 | 703 | 10 | AYTMSLGAEN | 5e-06 | 85 |
| HLA-A*24:02 | 1 | 695 | 703 | 9 | YTMSLGAEN | 5e-06 | 56 |
| HLA-B*44:03 | 1 | 695 | 704 | 10 | YTMSLGAENS | 5e-06 | 63 |
| HLA-A*23:01 | 1 | 697 | 706 | 10 | MSLGAENVA | 5e-06 | 59 |
| HLA-A*02:06 | 1 | 700 | 709 | 10 | GAENSVAYS | 5e-06 | 82 |
| HLA-A*26:01 | 1 | 700 | 709 | 10 | GAENSVAYS | 5e-06 | 71 |
| HLA-B*08:01 | 1 | 700 | 709 | 10 | GAENSVAYS | 5e-06 | 92 |
| HLA-B*53:01 | 1 | 700 | 709 | 10 | GAENSVAYS | 5e-06 | 62 |
| HLA-A*02:06 | 1 | 701 | 710 | 10 | AENSVAYSNN | 5e-06 | 82 |
| HLA-B*53:01 | 1 | 701 | 710 | 10 | AENSVAYSNN | 5e-06 | 62 |
| HLA-A*31:01 | 1 | 702 | 710 | 9 | ENSVAYSNN | 5e-06 | 79 |
| HLA-B*44:03 | 1 | 702 | 710 | 9 | ENSVAYSNN | 5e-06 | 63 |
| HLA-A*24:02 | 1 | 704 | 713 | 10 | SVAYSNNNSIA | 5e-06 | 56 |
| HLA-A*11:01 | 1 | 708 | 717 | 10 | SNNSIAIPTN | 5e-06 | 59 |
| HLA-A*26:01 | 1 | 708 | 717 | 10 | SNNSIAIPTN | 5e-06 | 71 |
| HLA-A*68:02 | 1 | 708 | 717 | 10 | SNNSIAIPTN | 5e-06 | 75 |
| HLA-B*40:01 | 1 | 710 | 719 | 10 | NSIAIPTNFT | 5e-06 | 53 |
| HLA-B*44:03 | 1 | 712 | 721 | 10 | IAIPTNFTIS | 5e-06 | 63 |
| HLA-B*40:01 | 1 | 713 | 721 | 9 | AIPTNFTIS | 5e-06 | 53 |
| HLA-A*11:01 | 1 | 715 | 724 | 10 | PTNFTISVTT | 5e-06 | 59 |
| HLA-A*24:02 | 1 | 715 | 724 | 10 | PTNFTISVTT | 5e-06 | 56 |
| HLA-B*07:02 | 1 | 715 | 724 | 10 | PTNFTISVTT | 5e-06 | 76 |
| HLA-B*40:01 | 1 | 721 | 730 | 10 | SVTTEILPVS | 5e-06 | 53 |
| HLA-A*24:02 | 1 | 723 | 732 | 10 | TTEILPVSM | 5e-06 | 56 |
| HLA-B*40:01 | 1 | 725 | 734 | 10 | EILPVSMTK | 5e-06 | 53 |
| HLA-B*44:03 | 1 | 726 | 734 | 9 | ILPVSMTK | 5e-06 | 63 |
| HLA-A*26:01 | 1 | 729 | 737 | 9 | VSMTKTSVD | 5e-06 | 71 |
| HLA-B*44:02 | 1 | 730 | 739 | 10 | SMTKTSVDCT | 5e-06 | 68 |
| HLA-B*44:03 | 1 | 730 | 739 | 10 | SMTKTSVDCT | 5e-06 | 63 |
| HLA-B*51:01 | 1 | 730 | 739 | 10 | SMTKTSVDCT | 5e-06 | 85 |
| HLA-A*23:01 | 1 | 731 | 739 | 9 | MTKTSVDCT | 5e-06 | 59 |
| HLA-A*24:02 | 1 | 731 | 739 | 9 | MTKTSVDCT | 5e-06 | 56 |
| HLA-B*44:03 | 1 | 731 | 739 | 9 | MTKTSVDCT | 5e-06 | 63 |
| HLA-A*24:02 | 1 | 734 | 743 | 10 | TSVDCTMYIC | 5e-06 | 56 |
| HLA-B*35:01 | 1 | 734 | 743 | 10 | TSVDCTMYIC | 5e-06 | 61 |
| HLA-A*11:01 | 1 | 735 | 744 | 10 | SVDCTMYICG | 5e-06 | 59 |
| HLA-A*31:01 | 1 | 735 | 744 | 10 | SVDCTMYICG | 5e-06 | 79 |
| HLA-A*30:02 | 1 | 736 | 744 | 9 | VDCTMYICG | 5e-06 | 93 |
| HLA-B*57:01 | 1 | 736 | 744 | 9 | VDCTMYICG | 5e-06 | 90 |
| HLA-A*31:01 | 1 | 738 | 746 | 9 | CTMYICGDS | 5e-06 | 79 |
| HLA-B*07:02 | 1 | 738 | 747 | 10 | CTMYICGDST | 5e-06 | 76 |
| HLA-B*44:02 | 1 | 739 | 747 | 9 | TMYICGDST | 5e-06 | 68 |
| HLA-B*44:02 | 1 | 739 | 748 | 10 | TMYICGDSTE | 5e-06 | 68 |
| HLA-B*44:03 | 1 | 739 | 747 | 9 | TMYICGDST | 5e-06 | 63 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-B*44:03 | 1 | 739 | 748 | 10 | TMYICGDSTE | 5e-06 | 63 |
| HLA-A*31:01 | 1 | 742 | 750 | 9 | ICGDSTECs | 5e-06 | 79 |
| HLA-B*35:01 | 1 | 742 | 750 | 9 | ICGDSTECs | 5e-06 | 61 |
| HLA-A*03:01 | 1 | 743 | 752 | 10 | CGDSTECsNL | 5e-06 | 74 |
| HLA-A*11:01 | 1 | 743 | 752 | 10 | CGDSTECsNL | 5e-06 | 59 |
| HLA-A*31:01 | 1 | 743 | 752 | 10 | CGDSTECsNL | 5e-06 | 79 |
| HLA-A*02:06 | 1 | 748 | 757 | 10 | ECSNLLLQYG | 5e-06 | 82 |
| HLA-A*32:01 | 1 | 748 | 757 | 10 | ECSNLLLQYG | 5e-06 | 61 |
| HLA-A*02:01 | 1 | 749 | 757 | 9 | CSNLLLQYG | 5e-06 | 75 |
| HLA-B*44:02 | 1 | 749 | 757 | 9 | CSNLLLQYG | 5e-06 | 68 |
| HLA-A*26:01 | 1 | 750 | 758 | 9 | SNLLLQYGS | 5e-06 | 71 |
| HLA-B*07:02 | 1 | 750 | 758 | 9 | SNLLLQYGS | 5e-06 | 76 |
| HLA-B*44:02 | 1 | 752 | 760 | 9 | LLLQYGSFC | 5e-06 | 68 |
| HLA-B*44:03 | 1 | 752 | 760 | 9 | LLLQYGSFC | 5e-06 | 63 |
| HLA-B*44:02 | 1 | 753 | 762 | 10 | LLQYGSFCTQ | 5e-06 | 68 |
| HLA-B*44:03 | 1 | 753 | 762 | 10 | LLQYGSFCTQ | 5e-06 | 63 |
| HLA-A*68:02 | 1 | 755 | 764 | 10 | QYGSFCTQLN | 5e-06 | 75 |
| HLA-B*07:02 | 1 | 755 | 764 | 10 | QYGSFCTQLN | 5e-06 | 76 |
| HLA-B*44:03 | 1 | 755 | 764 | 10 | QYGSFCTQLN | 5e-06 | 63 |
| HLA-A*31:01 | 1 | 756 | 764 | 9 | YGSFCTQLN | 5e-06 | 79 |
| HLA-A*32:01 | 1 | 756 | 764 | 9 | YGSFCTQLN | 5e-06 | 61 |
| HLA-B*35:01 | 1 | 757 | 766 | 10 | GSFCTQLNRA | 5e-06 | 61 |
| HLA-A*11:01 | 1 | 759 | 767 | 9 | FCTQLNRAL | 5e-06 | 59 |
| HLA-A*02:01 | 1 | 760 | 769 | 10 | CTQLNRALTG | 5e-06 | 75 |
| HLA-B*35:01 | 1 | 760 | 768 | 9 | CTQLNRALT | 5e-06 | 61 |
| HLA-B*44:02 | 1 | 760 | 768 | 9 | CTQLNRALT | 5e-06 | 68 |
| HLA-B*44:02 | 1 | 760 | 769 | 10 | CTQLNRALTG | 5e-06 | 68 |
| HLA-B*44:03 | 1 | 760 | 769 | 10 | CTQLNRALTG | 5e-06 | 63 |
| HLA-A*24:02 | 1 | 765 | 773 | 9 | RALTGIAVE | 5e-06 | 56 |
| HLA-A*68:01 | 1 | 766 | 775 | 10 | ALTGIAVEQD | 5e-06 | 71 |
| HLA-A*68:02 | 1 | 766 | 775 | 10 | ALTGIAVEQD | 5e-06 | 75 |
| HLA-A*02:01 | 1 | 767 | 775 | 9 | LTGIAVEQD | 5e-06 | 75 |
| HLA-A*32:01 | 1 | 767 | 775 | 9 | LTGIAVEQD | 5e-06 | 61 |
| HLA-A*33:01 | 1 | 767 | 775 | 9 | LTGIAVEQD | 5e-06 | 83 |
| HLA-B*44:02 | 1 | 767 | 776 | 10 | LTGIAVEQDK | 5e-06 | 68 |
| HLA-A*23:01 | 1 | 768 | 776 | 9 | TGIAVEQDK | 5e-06 | 59 |
| HLA-A*33:01 | 1 | 768 | 777 | 10 | TGIAVEQDKN | 5e-06 | 83 |
| HLA-A*03:01 | 1 | 769 | 778 | 10 | GIAVEQDKNT | 5e-06 | 74 |
| HLA-B*44:03 | 1 | 769 | 778 | 10 | GIAVEQDKNT | 5e-06 | 63 |
| HLA-A*32:01 | 1 | 770 | 779 | 10 | IAVEQDKNTQ | 5e-06 | 61 |
| HLA-B*40:01 | 1 | 770 | 779 | 10 | IAVEQDKNTQ | 5e-06 | 53 |
| HLA-A*31:01 | 1 | 775 | 784 | 10 | DKNTQEVFAQ | 5e-06 | 79 |
| HLA-A*03:01 | 1 | 785 | 793 | 9 | VKQIYKTPP | 5e-06 | 74 |
| HLA-A*31:01 | 1 | 785 | 793 | 9 | VKQIYKTPP | 5e-06 | 79 |
| HLA-A*68:02 | 1 | 785 | 793 | 9 | VKQIYKTPP | 5e-06 | 75 |
| HLA-A*02:01 | 1 | 788 | 796 | 9 | IYKTPPIKD | 5e-06 | 75 |
| HLA-A*03:01 | 1 | 789 | 798 | 10 | YKTPPIKDFG | 5e-06 | 74 |
| HLA-A*32:01 | 1 | 789 | 798 | 10 | YKTPPIKDFG | 5e-06 | 61 |
| HLA-A*02:03 | 1 | 791 | 799 | 9 | TPPIKDFGG | 5e-06 | 78 |
| HLA-A*23:01 | 1 | 791 | 799 | 9 | TPPIKDFGG | 5e-06 | 59 |
| HLA-A*26:01 | 1 | 791 | 799 | 9 | TPPIKDFGG | 5e-06 | 71 |
| HLA-A*68:01 | 1 | 791 | 799 | 9 | TPPIKDFGG | 5e-06 | 71 |
| HLA-B*44:02 | 1 | 791 | 799 | 9 | TPPIKDFGG | 5e-06 | 68 |
| HLA-A*03:01 | 1 | 793 | 801 | 9 | PIKDFGGFN | 5e-06 | 74 |
| HLA-A*31:01 | 1 | 793 | 801 | 9 | PIKDFGGFN | 5e-06 | 79 |
| HLA-A*68:02 | 1 | 793 | 801 | 9 | PIKDFGGFN | 5e-06 | 75 |
| HLA-A*32:01 | 1 | 794 | 803 | 10 | IKDFGGFNFS | 5e-06 | 61 |
| HLA-A*02:03 | 1 | 796 | 804 | 9 | DFGGFNFSQ | 5e-06 | 78 |
| HLA-B*40:01 | 1 | 796 | 805 | 10 | DFGGFNFSQI | 5e-06 | 53 |
| HLA-A*26:01 | 1 | 798 | 807 | 10 | GGFNFSQILP | 5e-06 | 71 |
| HLA-A*33:01 | 1 | 799 | 808 | 10 | GFNFSQILPD | 5e-06 | 83 |
| HLA-A*31:01 | 1 | 800 | 808 | 9 | FNFSQILPD | 5e-06 | 79 |
| HLA-B*07:02 | 1 | 800 | 809 | 10 | FNFSQILPDP | 5e-06 | 76 |
| HLA-A*11:01 | 1 | 801 | 809 | 9 | NFSQILPDP | 5e-06 | 59 |
| HLA-A*32:01 | 1 | 802 | 810 | 9 | FSQILPDPS | 5e-06 | 61 |
| HLA-A*32:01 | 1 | 807 | 815 | 9 | PDPSKPSKR | 5e-06 | 61 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-B*58:01 | 1 | 807 | 815 | 9 | PDPKPSKR | 5e-06 | 82 |
| HLA-A*02:01 | 1 | 808 | 816 | 9 | DPSKPSKRS | 5e-06 | 75 |
| HLA-A*23:01 | 1 | 808 | 816 | 9 | DPSKPSKRS | 5e-06 | 59 |
| HLA-A*02:06 | 1 | 810 | 819 | 10 | SKPSKRSFIE | 5e-06 | 82 |
| HLA-A*24:02 | 1 | 810 | 819 | 10 | SKPSKRSFIE | 5e-06 | 56 |
| HLA-A*32:01 | 1 | 810 | 819 | 10 | SKPSKRSFIE | 5e-06 | 61 |
| HLA-A*02:06 | 1 | 811 | 820 | 10 | KPSKRSFIED | 5e-06 | 82 |
| HLA-A*11:01 | 1 | 811 | 820 | 10 | KPSKRSFIED | 5e-06 | 59 |
| HLA-A*26:01 | 1 | 812 | 821 | 10 | PSKRSFIEDL | 5e-06 | 71 |
| HLA-B*40:01 | 1 | 812 | 821 | 10 | PSKRSFIEDL | 5e-06 | 53 |
| HLA-B*44:02 | 1 | 812 | 821 | 10 | PSKRSFIEDL | 5e-06 | 68 |
| HLA-A*02:03 | 1 | 818 | 827 | 10 | IEDLLFNKVT | 5e-06 | 78 |
| HLA-A*11:01 | 1 | 819 | 827 | 9 | EDLLFNKVT | 5e-06 | 59 |
| HLA-A*26:01 | 1 | 821 | 830 | 10 | LLFNKVTLAD | 5e-06 | 71 |
| HLA-A*11:01 | 1 | 822 | 830 | 9 | LFNKVTLAD | 5e-06 | 59 |
| HLA-A*26:01 | 1 | 822 | 830 | 9 | LFNKVTLAD | 5e-06 | 71 |
| HLA-B*53:01 | 1 | 822 | 831 | 10 | LFNKVTLADA | 5e-06 | 62 |
| HLA-A*11:01 | 1 | 823 | 831 | 9 | FNKVTLADA | 5e-06 | 59 |
| HLA-B*44:03 | 1 | 823 | 831 | 9 | FNKVTLADA | 5e-06 | 63 |
| HLA-B*57:01 | 1 | 823 | 832 | 10 | FNKVTLADAG | 5e-06 | 90 |
| HLA-B*15:01 | 1 | 830 | 838 | 9 | DAGFIKQYG | 5e-06 | 75 |
| HLA-A*68:01 | 1 | 831 | 839 | 9 | AGFIKQYGD | 5e-06 | 71 |
| HLA-B*15:01 | 1 | 831 | 839 | 9 | AGFIKQYGD | 5e-06 | 75 |
| HLA-A*32:01 | 1 | 832 | 840 | 9 | GFIKQYGDC | 5e-06 | 61 |
| HLA-B*44:02 | 1 | 832 | 840 | 9 | GFIKQYGDC | 5e-06 | 68 |
| HLA-B*58:01 | 1 | 832 | 840 | 9 | GFIKQYGDC | 5e-06 | 82 |
| HLA-A*33:01 | 1 | 833 | 842 | 10 | FIKQYGDCLG | 5e-06 | 83 |
| HLA-B*51:01 | 1 | 834 | 842 | 9 | IKQYGDCLG | 5e-06 | 85 |
| HLA-B*51:01 | 1 | 834 | 843 | 10 | IKQYGDCLGD | 5e-06 | 85 |
| HLA-B*08:01 | 1 | 835 | 843 | 9 | KQYGDCLGD | 5e-06 | 92 |
| HLA-B*35:01 | 1 | 835 | 843 | 9 | KQYGDCLGD | 5e-06 | 61 |
| HLA-A*68:01 | 1 | 836 | 845 | 10 | QYGDCLGDIA | 5e-06 | 71 |
| HLA-B*35:01 | 1 | 836 | 845 | 10 | QYGDCLGDIA | 5e-06 | 61 |
| HLA-B*44:03 | 1 | 836 | 845 | 10 | QYGDCLGDIA | 5e-06 | 63 |
| HLA-A*03:01 | 1 | 837 | 846 | 10 | YGDCLGDIAA | 5e-06 | 74 |
| HLA-B*44:02 | 1 | 837 | 845 | 9 | YGDCLGDIA | 5e-06 | 68 |
| HLA-A*24:02 | 1 | 838 | 847 | 10 | GDCLGDIAAR | 5e-06 | 56 |
| HLA-A*33:01 | 1 | 840 | 848 | 9 | CLGDIAARD | 5e-06 | 83 |
| HLA-B*40:01 | 1 | 840 | 849 | 10 | CLGDIAARDL | 5e-06 | 53 |
| HLA-A*03:01 | 1 | 841 | 850 | 10 | LGDIAARDLI | 5e-06 | 74 |
| HLA-A*11:01 | 1 | 841 | 849 | 9 | LGDIAARDL | 5e-06 | 59 |
| HLA-A*11:01 | 1 | 841 | 850 | 10 | LGDIAARDLI | 5e-06 | 59 |
| HLA-A*26:01 | 1 | 841 | 850 | 10 | LGDIAARDLI | 5e-06 | 71 |
| HLA-A*31:01 | 1 | 841 | 850 | 10 | LGDIAARDLI | 5e-06 | 79 |
| HLA-A*32:01 | 1 | 842 | 851 | 10 | GDIAARDLIC | 5e-06 | 61 |
| HLA-A*11:01 | 1 | 843 | 851 | 9 | DIAARDLIC | 5e-06 | 59 |
| HLA-B*44:03 | 1 | 843 | 851 | 9 | DIAARDLIC | 5e-06 | 63 |
| HLA-B*08:01 | 1 | 847 | 856 | 10 | DLICAQKFNG | 5e-06 | 92 |
| HLA-A*02:01 | 1 | 848 | 857 | 10 | DLICAQKFNG | 5e-06 | 75 |
| HLA-A*02:06 | 1 | 848 | 857 | 10 | DLICAQKFNG | 5e-06 | 82 |
| HLA-A*30:02 | 1 | 848 | 857 | 10 | DLICAQKFNG | 5e-06 | 93 |
| HLA-B*53:01 | 1 | 848 | 856 | 9 | DLICAQKFNG | 5e-06 | 62 |
| HLA-B*57:01 | 1 | 848 | 856 | 9 | DLICAQKFNG | 5e-06 | 90 |
| HLA-B*57:01 | 1 | 848 | 857 | 10 | DLICAQKFNG | 5e-06 | 90 |
| HLA-A*11:01 | 1 | 849 | 857 | 9 | LICAQKFNG | 5e-06 | 59 |
| HLA-A*11:01 | 1 | 851 | 859 | 9 | CAQKFNGLT | 5e-06 | 59 |
| HLA-A*32:01 | 1 | 851 | 859 | 9 | CAQKFNGLT | 5e-06 | 61 |
| HLA-B*35:01 | 1 | 854 | 863 | 10 | KFNGLTVLPP | 5e-06 | 61 |
| HLA-B*53:01 | 1 | 854 | 863 | 10 | KFNGLTVLPP | 5e-06 | 62 |
| HLA-A*03:01 | 1 | 855 | 863 | 9 | FNGLTVLPP | 5e-06 | 74 |
| HLA-A*68:01 | 1 | 855 | 863 | 9 | FNGLTVLPP | 5e-06 | 71 |
| HLA-B*53:01 | 1 | 855 | 863 | 9 | FNGLTVLPP | 5e-06 | 62 |
| HLA-B*40:01 | 1 | 860 | 868 | 9 | VLPPLLTDE | 5e-06 | 53 |
| HLA-A*03:01 | 1 | 861 | 870 | 10 | LPPLLTDEMI | 5e-06 | 74 |
| HLA-B*44:03 | 1 | 861 | 870 | 10 | LPPLLTDEMI | 5e-06 | 63 |
| HLA-A*26:01 | 1 | 862 | 870 | 9 | PPLLTDEMI | 5e-06 | 71 |

| | | | | | | | |
|-------------|---|-----|-----|----|-------------|-------|----|
| HLA-B*57:01 | 1 | 862 | 871 | 10 | PPLLTDEMIA | 5e-06 | 90 |
| HLA-A*23:01 | 1 | 863 | 871 | 9 | PLLTDEMIA | 5e-06 | 59 |
| HLA-A*68:01 | 1 | 863 | 871 | 9 | PLLTDEMIA | 5e-06 | 71 |
| HLA-B*08:01 | 1 | 863 | 872 | 10 | PPLLTDEMIAQ | 5e-06 | 92 |
| HLA-B*35:01 | 1 | 863 | 871 | 9 | PLLTDEMIA | 5e-06 | 61 |
| HLA-B*58:01 | 1 | 863 | 872 | 10 | PPLLTDEMIAQ | 5e-06 | 82 |
| HLA-A*23:01 | 1 | 864 | 872 | 9 | LLTDEMIAQ | 5e-06 | 59 |
| HLA-A*03:01 | 1 | 866 | 875 | 10 | TDEMIAQYTS | 5e-06 | 74 |
| HLA-A*11:01 | 1 | 866 | 875 | 10 | TDEMIAQYTS | 5e-06 | 59 |
| HLA-B*35:01 | 1 | 871 | 880 | 10 | AQYTSALLAG | 5e-06 | 61 |
| HLA-A*02:01 | 1 | 872 | 880 | 9 | QYTSALLAG | 5e-06 | 75 |
| HLA-A*24:02 | 1 | 873 | 881 | 9 | YTSALLAGT | 5e-06 | 56 |
| HLA-B*44:03 | 1 | 878 | 887 | 10 | LAGTITSGWT | 5e-06 | 63 |
| HLA-A*23:01 | 1 | 881 | 889 | 9 | TITSGWTFG | 5e-06 | 59 |
| HLA-A*23:01 | 1 | 881 | 890 | 10 | TITSGWTFGA | 5e-06 | 59 |
| HLA-A*24:02 | 1 | 881 | 890 | 10 | TITSGWTFGA | 5e-06 | 56 |
| HLA-B*07:02 | 1 | 882 | 891 | 10 | ITSGWTFGAG | 5e-06 | 76 |
| HLA-A*26:01 | 1 | 883 | 891 | 9 | TSGWTFGAG | 5e-06 | 71 |
| HLA-B*53:01 | 1 | 883 | 891 | 9 | TSGWTFGAG | 5e-06 | 62 |
| HLA-A*26:01 | 1 | 884 | 893 | 10 | SGWTFGAGAA | 5e-06 | 71 |
| HLA-A*33:01 | 1 | 888 | 897 | 10 | FGAGAALQIP | 5e-06 | 83 |
| HLA-A*26:01 | 1 | 889 | 897 | 9 | GAGAALQIP | 5e-06 | 71 |
| HLA-A*24:02 | 1 | 892 | 901 | 10 | AALQIPFAMQ | 5e-06 | 56 |
| HLA-A*02:03 | 1 | 897 | 906 | 10 | PFAMQMAYRF | 5e-06 | 78 |
| HLA-A*02:06 | 1 | 897 | 905 | 9 | PFAMQMAYR | 5e-06 | 82 |
| HLA-B*07:02 | 1 | 897 | 905 | 9 | PFAMQMAYR | 5e-06 | 76 |
| HLA-B*15:01 | 1 | 897 | 905 | 9 | PFAMQMAYR | 5e-06 | 75 |
| HLA-B*40:01 | 1 | 897 | 906 | 10 | PFAMQMAYRF | 5e-06 | 53 |
| HLA-A*24:02 | 1 | 899 | 908 | 10 | AMQMAYRFNG | 5e-06 | 56 |
| HLA-A*68:01 | 1 | 899 | 907 | 9 | AMQMAYRFN | 5e-06 | 71 |
| HLA-A*33:01 | 1 | 901 | 910 | 10 | QMAYRFNGIG | 5e-06 | 83 |
| HLA-B*44:02 | 1 | 901 | 910 | 10 | QMAYRFNGIG | 5e-06 | 68 |
| HLA-A*02:01 | 1 | 902 | 910 | 9 | MAYRFNGIG | 5e-06 | 75 |
| HLA-B*35:01 | 1 | 903 | 912 | 10 | AYRFNGIGVT | 5e-06 | 61 |
| HLA-A*02:06 | 1 | 906 | 914 | 9 | FNGIGVTQN | 5e-06 | 82 |
| HLA-A*26:01 | 1 | 906 | 914 | 9 | FNGIGVTQN | 5e-06 | 71 |
| HLA-A*68:02 | 1 | 906 | 914 | 9 | FNGIGVTQN | 5e-06 | 75 |
| HLA-A*33:01 | 1 | 910 | 919 | 10 | GVTQNVLYEN | 5e-06 | 83 |
| HLA-A*68:02 | 1 | 910 | 919 | 10 | GVTQNVLYEN | 5e-06 | 75 |
| HLA-B*07:02 | 1 | 911 | 919 | 9 | VTQNVLYEN | 5e-06 | 76 |
| HLA-B*44:02 | 1 | 911 | 920 | 10 | VTQNVLYENQ | 5e-06 | 68 |
| HLA-A*03:01 | 1 | 916 | 925 | 10 | LYENQKLIAN | 5e-06 | 74 |
| HLA-A*32:01 | 1 | 916 | 924 | 9 | LYENQKLIA | 5e-06 | 61 |
| HLA-B*40:01 | 1 | 918 | 926 | 9 | ENQKLIANQ | 5e-06 | 53 |
| HLA-A*02:01 | 1 | 919 | 928 | 10 | NQKLIANQFN | 5e-06 | 75 |
| HLA-B*51:01 | 1 | 920 | 928 | 9 | QKLIANQFN | 5e-06 | 85 |
| HLA-A*33:01 | 1 | 923 | 932 | 10 | IANQFNSAIG | 5e-06 | 83 |
| HLA-B*15:01 | 1 | 924 | 932 | 9 | ANQFNSAIG | 5e-06 | 75 |
| HLA-B*35:01 | 1 | 926 | 935 | 10 | QFNSAIGKIQ | 5e-06 | 61 |
| HLA-B*53:01 | 1 | 926 | 935 | 10 | QFNSAIGKIQ | 5e-06 | 62 |
| HLA-A*02:01 | 1 | 927 | 935 | 9 | FNSAIGKIQ | 5e-06 | 75 |
| HLA-A*68:01 | 1 | 927 | 936 | 10 | FNSAIGKIQD | 5e-06 | 71 |
| HLA-A*11:01 | 1 | 928 | 936 | 9 | NSAIGKIQD | 5e-06 | 59 |
| HLA-B*15:01 | 1 | 928 | 936 | 9 | NSAIGKIQD | 5e-06 | 75 |
| HLA-B*44:02 | 1 | 928 | 937 | 10 | NSAIGKIQDS | 5e-06 | 68 |
| HLA-A*11:01 | 1 | 931 | 939 | 9 | IGKIQDSL | 5e-06 | 59 |
| HLA-A*11:01 | 1 | 931 | 940 | 10 | IGKIQDSLSS | 5e-06 | 59 |
| HLA-A*26:01 | 1 | 931 | 940 | 10 | IGKIQDSLSS | 5e-06 | 71 |
| HLA-B*44:02 | 1 | 931 | 940 | 10 | IGKIQDSLSS | 5e-06 | 68 |
| HLA-B*53:01 | 1 | 932 | 941 | 10 | GKIQDSLSS | 5e-06 | 62 |
| HLA-A*31:01 | 1 | 935 | 943 | 9 | QDSLSSSTAS | 5e-06 | 79 |
| HLA-A*11:01 | 1 | 937 | 946 | 10 | SLSSTASALG | 5e-06 | 59 |
| HLA-B*53:01 | 1 | 937 | 946 | 10 | SLSSTASALG | 5e-06 | 62 |
| HLA-B*08:01 | 1 | 938 | 947 | 10 | LSSTASALGK | 5e-06 | 92 |
| HLA-A*23:01 | 1 | 940 | 949 | 10 | STASALGKLQ | 5e-06 | 59 |
| HLA-A*24:02 | 1 | 940 | 949 | 10 | STASALGKLQ | 5e-06 | 56 |

| | | | | | | |
|-------------|---|------|------|----|------------------|----|
| HLA-B*35:01 | 1 | 942 | 950 | 9 | ASALGKLQD 5e-06 | 61 |
| HLA-B*53:01 | 1 | 942 | 950 | 9 | ASALGKLQD 5e-06 | 62 |
| HLA-A*31:01 | 1 | 944 | 953 | 10 | ALGKLQDVVN 5e-06 | 79 |
| HLA-B*07:02 | 1 | 944 | 953 | 10 | ALGKLQDVVN 5e-06 | 76 |
| HLA-A*23:01 | 1 | 946 | 954 | 9 | GKLQDVVNQ 5e-06 | 59 |
| HLA-B*51:01 | 1 | 946 | 954 | 9 | GKLQDVVNQ 5e-06 | 85 |
| HLA-A*24:02 | 1 | 950 | 958 | 9 | DVVNQAQA 5e-06 | 56 |
| HLA-A*11:01 | 1 | 952 | 961 | 10 | VNQAQALNT 5e-06 | 59 |
| HLA-A*32:01 | 1 | 952 | 961 | 10 | VNQAQALNT 5e-06 | 61 |
| HLA-A*23:01 | 1 | 958 | 967 | 10 | ALNTLVKQLS 5e-06 | 59 |
| HLA-A*24:02 | 1 | 958 | 967 | 10 | ALNTLVKQLS 5e-06 | 56 |
| HLA-A*02:01 | 1 | 959 | 967 | 9 | LNTLVKQLS 5e-06 | 75 |
| HLA-A*11:01 | 1 | 960 | 969 | 10 | NTLVKQLSSN 5e-06 | 59 |
| HLA-B*07:02 | 1 | 960 | 969 | 10 | NTLVKQLSSN 5e-06 | 76 |
| HLA-A*26:01 | 1 | 963 | 972 | 10 | VKQLSSNFGA 5e-06 | 71 |
| HLA-A*31:01 | 1 | 963 | 971 | 9 | VKQLSSNFG 5e-06 | 79 |
| HLA-B*07:02 | 1 | 963 | 971 | 9 | VKQLSSNFG 5e-06 | 76 |
| HLA-B*15:01 | 1 | 963 | 971 | 9 | VKQLSSNFG 5e-06 | 75 |
| HLA-B*57:01 | 1 | 963 | 971 | 9 | VKQLSSNFG 5e-06 | 90 |
| HLA-B*58:01 | 1 | 963 | 971 | 9 | VKQLSSNFG 5e-06 | 82 |
| HLA-B*35:01 | 1 | 966 | 975 | 10 | LSSNFGAISS 5e-06 | 61 |
| HLA-B*44:03 | 1 | 966 | 974 | 9 | LSSNFGAIS 5e-06 | 63 |
| HLA-B*53:01 | 1 | 966 | 975 | 10 | LSSNFGAISS 5e-06 | 62 |
| HLA-B*44:02 | 1 | 969 | 978 | 10 | NFGAISSVLN 5e-06 | 68 |
| HLA-A*32:01 | 1 | 970 | 978 | 9 | FGAISSVLN 5e-06 | 61 |
| HLA-B*08:01 | 1 | 970 | 979 | 10 | FGAISSVLND 5e-06 | 92 |
| HLA-B*53:01 | 1 | 973 | 982 | 10 | ISSVLNDILS 5e-06 | 62 |
| HLA-B*40:01 | 1 | 976 | 985 | 10 | VLNDILSRLD 5e-06 | 53 |
| HLA-A*02:01 | 1 | 977 | 986 | 10 | LNDILSRLDK 5e-06 | 75 |
| HLA-B*08:01 | 1 | 977 | 985 | 9 | LNDILSRLD 5e-06 | 92 |
| HLA-A*23:01 | 1 | 978 | 986 | 9 | NDILSRLDK 5e-06 | 59 |
| HLA-A*23:01 | 1 | 980 | 988 | 9 | ILSRLDKVE 5e-06 | 59 |
| HLA-A*23:01 | 1 | 980 | 989 | 10 | ILSRLDKVEA 5e-06 | 59 |
| HLA-A*24:02 | 1 | 980 | 989 | 10 | ILSRLDKVEA 5e-06 | 56 |
| HLA-B*40:01 | 1 | 980 | 988 | 9 | ILSRLDKVE 5e-06 | 53 |
| HLA-A*23:01 | 1 | 981 | 989 | 9 | LSRLDKVEA 5e-06 | 59 |
| HLA-A*23:01 | 1 | 981 | 990 | 10 | LSRLDKVEAE 5e-06 | 59 |
| HLA-A*24:02 | 1 | 981 | 989 | 9 | LSRLDKVEA 5e-06 | 56 |
| HLA-A*24:02 | 1 | 981 | 990 | 10 | LSRLDKVEAE 5e-06 | 56 |
| HLA-B*44:02 | 1 | 981 | 990 | 10 | LSRLDKVEAE 5e-06 | 68 |
| HLA-B*44:03 | 1 | 981 | 990 | 10 | LSRLDKVEAE 5e-06 | 63 |
| HLA-A*02:06 | 1 | 985 | 994 | 10 | DKVEAEVQID 5e-06 | 82 |
| HLA-B*44:02 | 1 | 985 | 994 | 10 | DKVEAEVQID 5e-06 | 68 |
| HLA-B*58:01 | 1 | 985 | 994 | 10 | DKVEAEVQID 5e-06 | 82 |
| HLA-B*08:01 | 1 | 986 | 994 | 9 | KVEAEVQID 5e-06 | 92 |
| HLA-B*51:01 | 1 | 986 | 994 | 9 | KVEAEVQID 5e-06 | 85 |
| HLA-A*02:06 | 1 | 993 | 1002 | 10 | IDRLITGRLQ 5e-06 | 82 |
| HLA-B*44:02 | 1 | 996 | 1005 | 10 | LITGRLQSLQ 5e-06 | 68 |
| HLA-B*35:01 | 1 | 1000 | 1009 | 10 | RLQSLQTYVT 5e-06 | 61 |
| HLA-B*35:01 | 1 | 1008 | 1017 | 10 | VTQQLIRAAE 5e-06 | 61 |
| HLA-B*53:01 | 1 | 1008 | 1017 | 10 | VTQQLIRAAE 5e-06 | 62 |
| HLA-A*23:01 | 1 | 1011 | 1020 | 10 | QLIRAAEIRA 5e-06 | 59 |
| HLA-B*53:01 | 1 | 1012 | 1021 | 10 | LIRAAEIRAS 5e-06 | 62 |
| HLA-A*31:01 | 1 | 1015 | 1023 | 9 | AAEIRASAN 5e-06 | 79 |
| HLA-B*53:01 | 1 | 1015 | 1023 | 9 | AAEIRASAN 5e-06 | 62 |
| HLA-A*23:01 | 1 | 1017 | 1025 | 9 | EIRASANLA 5e-06 | 59 |
| HLA-B*40:01 | 1 | 1018 | 1027 | 10 | IRASANLAAT 5e-06 | 53 |
| HLA-B*53:01 | 1 | 1018 | 1027 | 10 | IRASANLAAT 5e-06 | 62 |
| HLA-A*24:02 | 1 | 1023 | 1032 | 10 | NLAATKMSEC 5e-06 | 56 |
| HLA-B*40:01 | 1 | 1023 | 1032 | 10 | NLAATKMSEC 5e-06 | 53 |
| HLA-A*24:02 | 1 | 1024 | 1033 | 10 | LAATKMSECV 5e-06 | 56 |
| HLA-B*40:01 | 1 | 1024 | 1033 | 10 | LAATKMSECV 5e-06 | 53 |
| HLA-A*26:01 | 1 | 1027 | 1035 | 9 | TKMSECVLG 5e-06 | 71 |
| HLA-A*68:02 | 1 | 1027 | 1036 | 10 | TKMSECVLGQ 5e-06 | 75 |
| HLA-B*44:02 | 1 | 1029 | 1037 | 9 | MSECVLGQS 5e-06 | 68 |
| HLA-A*11:01 | 1 | 1031 | 1040 | 10 | ECVVGQSKRV 5e-06 | 59 |

| | | | | | | |
|-------------|---|------|------|----|------------------|----|
| HLA-A*23:01 | 1 | 1031 | 1040 | 10 | ECVLGQSKRV 5e-06 | 59 |
| HLA-B*40:01 | 1 | 1031 | 1040 | 10 | ECVLGQSKRV 5e-06 | 53 |
| HLA-B*08:01 | 1 | 1032 | 1041 | 10 | CVLGQSKRVD 5e-06 | 92 |
| HLA-A*23:01 | 1 | 1034 | 1043 | 10 | LGQSKRVDFC 5e-06 | 59 |
| HLA-A*03:01 | 1 | 1037 | 1046 | 10 | SKRVDFCGKG 5e-06 | 74 |
| HLA-A*31:01 | 1 | 1037 | 1046 | 10 | SKRVDFCGKG 5e-06 | 79 |
| HLA-B*44:03 | 1 | 1037 | 1046 | 10 | SKRVDFCGKG 5e-06 | 63 |
| HLA-B*57:01 | 1 | 1037 | 1046 | 10 | SKRVDFCGKG 5e-06 | 90 |
| HLA-A*01:01 | 1 | 1038 | 1046 | 9 | KRVDFCGKG 5e-06 | 95 |
| HLA-A*02:03 | 1 | 1038 | 1046 | 9 | KRVDFCGKG 5e-06 | 78 |
| HLA-A*03:01 | 1 | 1038 | 1046 | 9 | KRVDFCGKG 5e-06 | 74 |
| HLA-A*68:02 | 1 | 1038 | 1046 | 9 | KRVDFCGKG 5e-06 | 75 |
| HLA-A*23:01 | 1 | 1039 | 1048 | 10 | RVDFCGKGYH 5e-06 | 59 |
| HLA-A*23:01 | 1 | 1040 | 1048 | 9 | VDFCGKGYH 5e-06 | 59 |
| HLA-A*24:02 | 1 | 1040 | 1048 | 9 | VDFCGKGYH 5e-06 | 56 |
| HLA-A*03:01 | 1 | 1042 | 1051 | 10 | FCGKGYHLMS 5e-06 | 74 |
| HLA-A*26:01 | 1 | 1043 | 1051 | 9 | CGKGYHLMS 5e-06 | 71 |
| HLA-B*35:01 | 1 | 1043 | 1051 | 9 | CGKGYHLMS 5e-06 | 61 |
| HLA-B*53:01 | 1 | 1043 | 1051 | 9 | CGKGYHLMS 5e-06 | 62 |
| HLA-A*33:01 | 1 | 1044 | 1053 | 10 | GKGYHLMSFP 5e-06 | 83 |
| HLA-A*02:01 | 1 | 1045 | 1054 | 10 | KGYHLMSFPQ 5e-06 | 75 |
| HLA-B*07:02 | 1 | 1045 | 1054 | 10 | KGYHLMSFPQ 5e-06 | 76 |
| HLA-A*11:01 | 1 | 1046 | 1055 | 10 | GYHLMSFPQS 5e-06 | 59 |
| HLA-B*40:01 | 1 | 1050 | 1059 | 10 | MSFPQSAPHG 5e-06 | 53 |
| HLA-A*11:01 | 1 | 1053 | 1061 | 9 | PQSAPHGVV 5e-06 | 59 |
| HLA-B*40:01 | 1 | 1060 | 1069 | 10 | VVFLHVTYVP 5e-06 | 53 |
| HLA-B*44:03 | 1 | 1062 | 1070 | 9 | FLHVTVVPA 5e-06 | 63 |
| HLA-A*32:01 | 1 | 1063 | 1071 | 9 | LHVTVVPAQ 5e-06 | 61 |
| HLA-A*32:01 | 1 | 1063 | 1072 | 10 | LHVTVVPAQE 5e-06 | 61 |
| HLA-B*44:03 | 1 | 1069 | 1077 | 9 | PAQEKNF 5e-06 | 63 |
| HLA-A*24:02 | 1 | 1071 | 1080 | 10 | QEKNF 5e-06 | 56 |
| HLA-B*44:02 | 1 | 1073 | 1082 | 10 | KNFTTAPAIC 5e-06 | 68 |
| HLA-B*53:01 | 1 | 1073 | 1082 | 10 | KNFTTAPAIC 5e-06 | 62 |
| HLA-B*35:01 | 1 | 1075 | 1084 | 10 | FTTAPAICH 5e-06 | 61 |
| HLA-B*44:02 | 1 | 1076 | 1085 | 10 | TTAPAICH 5e-06 | 68 |
| HLA-A*23:01 | 1 | 1077 | 1085 | 9 | TAPAICH 5e-06 | 59 |
| HLA-A*24:02 | 1 | 1077 | 1085 | 9 | TAPAICH 5e-06 | 56 |
| HLA-B*15:01 | 1 | 1077 | 1085 | 9 | TAPAICH 5e-06 | 75 |
| HLA-A*02:01 | 1 | 1078 | 1086 | 9 | APAICH 5e-06 | 75 |
| HLA-A*23:01 | 1 | 1078 | 1086 | 9 | APAICH 5e-06 | 59 |
| HLA-A*26:01 | 1 | 1079 | 1087 | 9 | PAICH 5e-06 | 71 |
| HLA-B*44:02 | 1 | 1079 | 1088 | 10 | PAICH 5e-06 | 68 |
| HLA-A*11:01 | 1 | 1081 | 1090 | 10 | ICH 5e-06 | 59 |
| HLA-A*02:01 | 1 | 1083 | 1092 | 10 | HDGKAH 5e-06 | 75 |
| HLA-B*07:02 | 1 | 1083 | 1092 | 10 | HDGKAH 5e-06 | 76 |
| HLA-B*53:01 | 1 | 1084 | 1093 | 10 | DGKAHF 5e-06 | 62 |
| HLA-B*35:01 | 1 | 1085 | 1094 | 10 | GKAHF 5e-06 | 61 |
| HLA-A*23:01 | 1 | 1091 | 1099 | 9 | REGV 5e-06 | 59 |
| HLA-A*11:01 | 1 | 1092 | 1100 | 9 | EGV 5e-06 | 59 |
| HLA-B*40:01 | 1 | 1092 | 1100 | 9 | EGV 5e-06 | 53 |
| HLA-B*53:01 | 1 | 1096 | 1105 | 10 | VSN 5e-06 | 62 |
| HLA-A*02:03 | 1 | 1097 | 1106 | 10 | SNG 5e-06 | 78 |
| HLA-A*26:01 | 1 | 1097 | 1105 | 9 | SNG 5e-06 | 71 |
| HLA-B*35:01 | 1 | 1097 | 1105 | 9 | SNG 5e-06 | 61 |
| HLA-B*08:01 | 1 | 1099 | 1108 | 10 | G 5e-06 | 92 |
| HLA-B*44:02 | 1 | 1099 | 1108 | 10 | G 5e-06 | 68 |
| HLA-B*07:02 | 1 | 1102 | 1111 | 10 | WF 5e-06 | 76 |
| HLA-B*40:01 | 1 | 1103 | 1112 | 10 | F 5e-06 | 53 |
| HLA-B*07:02 | 1 | 1104 | 1113 | 10 | V 5e-06 | 76 |
| HLA-A*02:03 | 1 | 1110 | 1119 | 10 | Y 5e-06 | 78 |
| HLA-A*11:01 | 1 | 1111 | 1120 | 10 | EP 5e-06 | 59 |
| HLA-A*33:01 | 1 | 1111 | 1119 | 9 | EP 5e-06 | 83 |
| HLA-A*68:02 | 1 | 1111 | 1119 | 9 | EP 5e-06 | 75 |
| HLA-B*57:01 | 1 | 1111 | 1119 | 9 | EP 5e-06 | 90 |
| HLA-A*11:01 | 1 | 1112 | 1121 | 10 | P 5e-06 | 59 |
| HLA-A*26:01 | 1 | 1112 | 1120 | 9 | P 5e-06 | 71 |

| | | | | | | | |
|-------------|---|------|------|----|------------|-------|----|
| HLA-B*35:01 | 1 | 1112 | 1120 | 9 | PQIITTDNT | 5e-06 | 61 |
| HLA-B*44:02 | 1 | 1112 | 1120 | 9 | PQIITTDNT | 5e-06 | 68 |
| HLA-B*58:01 | 1 | 1112 | 1120 | 9 | PQIITTDNT | 5e-06 | 82 |
| HLA-A*02:03 | 1 | 1116 | 1125 | 10 | TTDNTFVSGN | 5e-06 | 78 |
| HLA-B*15:01 | 1 | 1116 | 1125 | 10 | TTDNTFVSGN | 5e-06 | 75 |
| HLA-A*02:01 | 1 | 1117 | 1126 | 10 | TDNTFVSGNC | 5e-06 | 75 |
| HLA-A*02:03 | 1 | 1119 | 1127 | 9 | NTFVSGNCD | 5e-06 | 78 |
| HLA-A*31:01 | 1 | 1119 | 1127 | 9 | NTFVSGNCD | 5e-06 | 79 |
| HLA-A*11:01 | 1 | 1121 | 1130 | 10 | FVSGNCDVVI | 5e-06 | 59 |
| HLA-B*51:01 | 1 | 1122 | 1131 | 10 | VSGNCDVVI | 5e-06 | 85 |
| HLA-B*07:02 | 1 | 1124 | 1133 | 10 | GNCDDVIGIV | 5e-06 | 76 |
| HLA-A*02:06 | 1 | 1126 | 1135 | 10 | CDVIGIVNN | 5e-06 | 82 |
| HLA-A*26:01 | 1 | 1126 | 1135 | 10 | CDVIGIVNN | 5e-06 | 71 |
| HLA-A*30:02 | 1 | 1126 | 1134 | 9 | CDVIGIVN | 5e-06 | 93 |
| HLA-B*44:02 | 1 | 1127 | 1135 | 9 | DVIGIVNN | 5e-06 | 68 |
| HLA-B*44:03 | 1 | 1127 | 1135 | 9 | DVIGIVNN | 5e-06 | 63 |
| HLA-A*32:01 | 1 | 1130 | 1139 | 10 | IGIVNNTVYD | 5e-06 | 61 |
| HLA-B*15:01 | 1 | 1133 | 1142 | 10 | VNNTVYDPLQ | 5e-06 | 75 |
| HLA-A*02:06 | 1 | 1134 | 1142 | 9 | NNTVYDPLQ | 5e-06 | 82 |
| HLA-A*26:01 | 1 | 1134 | 1142 | 9 | NNTVYDPLQ | 5e-06 | 71 |
| HLA-A*32:01 | 1 | 1134 | 1143 | 10 | NNTVYDPLQP | 5e-06 | 61 |
| HLA-B*07:02 | 1 | 1134 | 1143 | 10 | NNTVYDPLQP | 5e-06 | 76 |
| HLA-B*35:01 | 1 | 1134 | 1143 | 10 | NNTVYDPLQP | 5e-06 | 61 |
| HLA-A*23:01 | 1 | 1135 | 1144 | 10 | NTVYDPLQPE | 5e-06 | 59 |
| HLA-A*03:01 | 1 | 1138 | 1147 | 10 | YDPLQPELDS | 5e-06 | 74 |
| HLA-B*15:01 | 1 | 1138 | 1147 | 10 | YDPLQPELDS | 5e-06 | 75 |
| HLA-B*44:03 | 1 | 1138 | 1147 | 10 | YDPLQPELDS | 5e-06 | 63 |
| HLA-A*03:01 | 1 | 1139 | 1147 | 9 | DPLQPELDS | 5e-06 | 74 |
| HLA-A*11:01 | 1 | 1139 | 1147 | 9 | DPLQPELDS | 5e-06 | 59 |
| HLA-B*58:01 | 1 | 1139 | 1147 | 9 | DPLQPELDS | 5e-06 | 82 |
| HLA-A*02:06 | 1 | 1142 | 1150 | 9 | QPELDSFKE | 5e-06 | 82 |
| HLA-A*31:01 | 1 | 1142 | 1150 | 9 | QPELDSFKE | 5e-06 | 79 |
| HLA-A*11:01 | 1 | 1143 | 1152 | 10 | PELDSFKEEL | 5e-06 | 59 |
| HLA-B*53:01 | 1 | 1143 | 1151 | 9 | PELDSFKEE | 5e-06 | 62 |
| HLA-A*03:01 | 1 | 1144 | 1153 | 10 | ELDSFKEELD | 5e-06 | 74 |
| HLA-A*68:01 | 1 | 1144 | 1153 | 10 | ELDSFKEELD | 5e-06 | 71 |
| HLA-A*30:01 | 1 | 1145 | 1153 | 9 | LDSFKEELD | 5e-06 | 94 |
| HLA-A*23:01 | 1 | 1146 | 1154 | 9 | DSFKEELDK | 5e-06 | 59 |
| HLA-A*24:02 | 1 | 1146 | 1154 | 9 | DSFKEELDK | 5e-06 | 56 |
| HLA-A*32:01 | 1 | 1150 | 1158 | 9 | EELDKYFKN | 5e-06 | 61 |
| HLA-A*02:03 | 1 | 1154 | 1163 | 10 | KYFKNHTSPD | 5e-06 | 78 |
| HLA-A*02:06 | 1 | 1155 | 1163 | 9 | YFKNHTSPD | 5e-06 | 82 |
| HLA-A*11:01 | 1 | 1155 | 1164 | 10 | YFKNHTSPDV | 5e-06 | 59 |
| HLA-B*51:01 | 1 | 1156 | 1165 | 10 | FKNHTSPDVD | 5e-06 | 85 |
| HLA-B*44:03 | 1 | 1157 | 1165 | 9 | KNHTSPDVD | 5e-06 | 63 |
| HLA-B*51:01 | 1 | 1157 | 1165 | 9 | KNHTSPDVD | 5e-06 | 85 |
| HLA-B*57:01 | 1 | 1157 | 1165 | 9 | KNHTSPDVD | 5e-06 | 90 |
| HLA-A*11:01 | 1 | 1159 | 1168 | 10 | HTSPDVLGD | 5e-06 | 59 |
| HLA-B*08:01 | 1 | 1159 | 1168 | 10 | HTSPDVLGD | 5e-06 | 92 |
| HLA-A*33:01 | 1 | 1160 | 1168 | 9 | TSPDVLGD | 5e-06 | 83 |
| HLA-A*02:01 | 1 | 1161 | 1170 | 10 | SPDVLGDIS | 5e-06 | 75 |
| HLA-A*31:01 | 1 | 1161 | 1170 | 10 | SPDVLGDIS | 5e-06 | 79 |
| HLA-A*26:01 | 1 | 1164 | 1173 | 10 | VDLGDISGIN | 5e-06 | 71 |
| HLA-A*03:01 | 1 | 1165 | 1173 | 9 | DLGDISGIN | 5e-06 | 74 |
| HLA-A*24:02 | 1 | 1165 | 1174 | 10 | DLGDISGINA | 5e-06 | 56 |
| HLA-A*32:01 | 1 | 1165 | 1174 | 10 | DLGDISGINA | 5e-06 | 61 |
| HLA-B*07:02 | 1 | 1165 | 1173 | 9 | DLGDISGIN | 5e-06 | 76 |
| HLA-B*58:01 | 1 | 1165 | 1173 | 9 | DLGDISGIN | 5e-06 | 82 |
| HLA-B*44:02 | 1 | 1166 | 1175 | 10 | LGDISGINAS | 5e-06 | 68 |
| HLA-A*23:01 | 1 | 1167 | 1175 | 9 | GDISGINAS | 5e-06 | 59 |
| HLA-A*02:03 | 1 | 1169 | 1178 | 10 | ISGINASVVN | 5e-06 | 78 |
| HLA-A*32:01 | 1 | 1169 | 1178 | 10 | ISGINASVVN | 5e-06 | 61 |
| HLA-A*68:02 | 1 | 1169 | 1178 | 10 | ISGINASVVN | 5e-06 | 75 |
| HLA-B*08:01 | 1 | 1169 | 1178 | 10 | ISGINASVVN | 5e-06 | 92 |
| HLA-A*26:01 | 1 | 1170 | 1178 | 9 | SGINASVVN | 5e-06 | 71 |
| HLA-A*32:01 | 1 | 1170 | 1178 | 9 | SGINASVVN | 5e-06 | 61 |

| | | | | | | |
|-------------|---|------|------|----|------------------|----|
| HLA-A*24:02 | 1 | 1172 | 1180 | 9 | INASVVDIQ 5e-06 | 56 |
| HLA-A*02:01 | 1 | 1176 | 1184 | 9 | VVNIQKEID 5e-06 | 75 |
| HLA-A*02:03 | 1 | 1176 | 1184 | 9 | VVNIQKEID 5e-06 | 78 |
| HLA-A*32:01 | 1 | 1176 | 1184 | 9 | VVNIQKEID 5e-06 | 61 |
| HLA-A*33:01 | 1 | 1176 | 1184 | 9 | VVNIQKEID 5e-06 | 83 |
| HLA-B*35:01 | 1 | 1176 | 1185 | 10 | VVNIQKEIDR 5e-06 | 61 |
| HLA-B*53:01 | 1 | 1176 | 1184 | 9 | VVNIQKEID 5e-06 | 62 |
| HLA-A*03:01 | 1 | 1178 | 1187 | 10 | NIQKEIDRLN 5e-06 | 74 |
| HLA-A*24:02 | 1 | 1178 | 1187 | 10 | NIQKEIDRLN 5e-06 | 56 |
| HLA-A*24:02 | 1 | 1179 | 1188 | 10 | IQKEIDRLNE 5e-06 | 56 |
| HLA-B*07:02 | 1 | 1180 | 1188 | 9 | QKEIDRLNE 5e-06 | 76 |
| HLA-B*15:01 | 1 | 1180 | 1188 | 9 | QKEIDRLNE 5e-06 | 75 |
| HLA-B*58:01 | 1 | 1180 | 1188 | 9 | QKEIDRLNE 5e-06 | 82 |
| HLA-A*23:01 | 1 | 1182 | 1191 | 10 | EIDRLNEVAK 5e-06 | 59 |
| HLA-B*40:01 | 1 | 1182 | 1191 | 10 | EIDRLNEVAK 5e-06 | 53 |
| HLA-B*51:01 | 1 | 1183 | 1192 | 10 | IDRLNEVAKN 5e-06 | 85 |
| HLA-B*58:01 | 1 | 1183 | 1192 | 10 | IDRLNEVAKN 5e-06 | 82 |
| HLA-A*68:01 | 1 | 1184 | 1192 | 9 | DRLNEVAKN 5e-06 | 71 |
| HLA-B*35:01 | 1 | 1184 | 1192 | 9 | DRLNEVAKN 5e-06 | 61 |
| HLA-B*58:01 | 1 | 1186 | 1194 | 9 | LNEVAKNLN 5e-06 | 82 |
| HLA-B*51:01 | 1 | 1190 | 1199 | 10 | AKNLNESLID 5e-06 | 85 |
| HLA-B*57:01 | 1 | 1190 | 1199 | 10 | AKNLNESLID 5e-06 | 90 |
| HLA-A*24:02 | 1 | 1192 | 1201 | 10 | NLNESLIDLQ 5e-06 | 56 |
| HLA-B*15:01 | 1 | 1193 | 1201 | 9 | LNESLIDLQ 5e-06 | 75 |
| HLA-B*15:01 | 1 | 1193 | 1202 | 10 | LNESLIDLQE 5e-06 | 75 |
| HLA-A*24:02 | 1 | 1195 | 1204 | 10 | ESLIDLQELG 5e-06 | 56 |
| HLA-A*32:01 | 1 | 1195 | 1204 | 10 | ESLIDLQELG 5e-06 | 61 |
| HLA-B*40:01 | 1 | 1198 | 1207 | 10 | IDLQELGKYE 5e-06 | 53 |
| HLA-A*23:01 | 1 | 1202 | 1211 | 10 | ELGKYEYIK 5e-06 | 59 |
| HLA-A*26:01 | 1 | 1205 | 1213 | 9 | KYEYIKWP 5e-06 | 71 |
| HLA-B*15:01 | 1 | 1205 | 1213 | 9 | KYEYIKWP 5e-06 | 75 |
| HLA-B*35:01 | 1 | 1205 | 1213 | 9 | KYEYIKWP 5e-06 | 61 |
| HLA-B*40:01 | 1 | 1205 | 1213 | 9 | KYEYIKWP 5e-06 | 53 |
| HLA-B*53:01 | 1 | 1205 | 1213 | 9 | KYEYIKWP 5e-06 | 62 |
| HLA-B*44:02 | 1 | 1210 | 1219 | 10 | IKWPWYIWL 5e-06 | 68 |
| HLA-B*15:01 | 1 | 1211 | 1219 | 9 | KWPWYIWL 5e-06 | 75 |
| HLA-B*15:01 | 1 | 1213 | 1221 | 9 | PWYIWLGFIA 5e-06 | 75 |
| HLA-B*57:01 | 1 | 1213 | 1222 | 10 | PWYIWLGFIA 5e-06 | 90 |
| HLA-B*57:01 | 1 | 1214 | 1223 | 10 | WYIWLGFIA 5e-06 | 90 |
| HLA-B*35:01 | 1 | 1217 | 1225 | 9 | WLGFIAGLIA 5e-06 | 61 |
| HLA-A*26:01 | 1 | 1218 | 1226 | 9 | LGFIAGLIA 5e-06 | 71 |
| HLA-B*40:01 | 1 | 1222 | 1231 | 10 | AGLIAIVMVT 5e-06 | 53 |
| HLA-B*40:01 | 1 | 1224 | 1233 | 10 | LIAIVMVTIM 5e-06 | 53 |
| HLA-B*44:03 | 1 | 1225 | 1234 | 10 | IAIVMVTIML 5e-06 | 63 |
| HLA-A*68:01 | 1 | 1228 | 1236 | 9 | VMVTIMLCC 5e-06 | 71 |
| HLA-B*35:01 | 1 | 1228 | 1236 | 9 | VMVTIMLCC 5e-06 | 61 |
| HLA-B*44:03 | 1 | 1228 | 1237 | 10 | VMVTIMLCCM 5e-06 | 63 |
| HLA-B*51:01 | 1 | 1229 | 1238 | 10 | MVTIMLCCMT 5e-06 | 85 |
| HLA-B*08:01 | 1 | 1230 | 1239 | 10 | VTIMLCCMTS 5e-06 | 92 |
| HLA-A*26:01 | 1 | 1231 | 1239 | 9 | TIMLCCMTS 5e-06 | 71 |
| HLA-B*15:01 | 1 | 1231 | 1240 | 10 | TIMLCCMTSC 5e-06 | 75 |
| HLA-B*51:01 | 1 | 1231 | 1240 | 10 | TIMLCCMTSC 5e-06 | 85 |
| HLA-A*01:01 | 1 | 1232 | 1241 | 10 | IMLCCMTSCC 5e-06 | 95 |
| HLA-A*32:01 | 1 | 1232 | 1241 | 10 | IMLCCMTSCC 5e-06 | 61 |
| HLA-A*33:01 | 1 | 1232 | 1241 | 10 | IMLCCMTSCC 5e-06 | 83 |
| HLA-A*26:01 | 1 | 1233 | 1241 | 9 | MLCCMTSCC 5e-06 | 71 |
| HLA-A*30:02 | 1 | 1233 | 1242 | 10 | MLCCMTSCC 5e-06 | 93 |
| HLA-B*15:01 | 1 | 1233 | 1242 | 10 | MLCCMTSCC 5e-06 | 75 |
| HLA-B*35:01 | 1 | 1233 | 1241 | 9 | MLCCMTSCC 5e-06 | 61 |
| HLA-A*30:02 | 1 | 1234 | 1243 | 10 | LCCMTSCCSC 5e-06 | 93 |
| HLA-A*32:01 | 1 | 1235 | 1244 | 10 | CCMTSCCSC 5e-06 | 61 |
| HLA-A*68:02 | 1 | 1235 | 1244 | 10 | CCMTSCCSC 5e-06 | 75 |
| HLA-A*02:06 | 1 | 1236 | 1245 | 10 | CMTSCCCLK 5e-06 | 82 |
| HLA-B*08:01 | 1 | 1236 | 1245 | 10 | CMTSCCCLK 5e-06 | 92 |
| HLA-A*02:03 | 1 | 1237 | 1246 | 10 | MTSCCCLKG 5e-06 | 78 |
| HLA-A*02:06 | 1 | 1237 | 1246 | 10 | MTSCCCLKG 5e-06 | 82 |

| | | | | | | |
|-------------|---|------|------|----|-------------------|----|
| HLA-A*03:01 | 1 | 1238 | 1247 | 10 | TSCCSCLKGC 5e-06 | 74 |
| HLA-A*31:01 | 1 | 1238 | 1246 | 9 | TSCCSCLKG 5e-06 | 79 |
| HLA-A*31:01 | 1 | 1238 | 1247 | 10 | TSCCSCLKGC 5e-06 | 79 |
| HLA-B*51:01 | 1 | 1238 | 1247 | 10 | TSCCSCLKGC 5e-06 | 85 |
| HLA-A*32:01 | 1 | 1239 | 1247 | 9 | SCCSCLKGC 5e-06 | 61 |
| HLA-B*57:01 | 1 | 1240 | 1249 | 10 | CCSCLKGCCS 5e-06 | 90 |
| HLA-B*15:01 | 1 | 1242 | 1251 | 10 | SCLKGCCSCG 5e-06 | 75 |
| HLA-B*40:01 | 1 | 1242 | 1250 | 9 | SCLKGCCSC 5e-06 | 53 |
| HLA-B*53:01 | 1 | 1242 | 1250 | 9 | SCLKGCCSC 5e-06 | 62 |
| HLA-A*02:06 | 1 | 1243 | 1252 | 10 | CLKGCCSCGS 5e-06 | 82 |
| HLA-A*31:01 | 1 | 1243 | 1251 | 9 | CLKGCCSCG 5e-06 | 79 |
| HLA-B*08:01 | 1 | 1246 | 1254 | 9 | GCCSCGCC 5e-06 | 92 |
| HLA-B*57:01 | 1 | 1252 | 1261 | 10 | SCCKFDEDDS 5e-06 | 90 |
| HLA-B*58:01 | 1 | 1252 | 1261 | 10 | SCCKFDEDDS 5e-06 | 82 |
| HLA-B*53:01 | 1 | 1253 | 1262 | 10 | CCKFDEDDSE 5e-06 | 62 |
| HLA-B*57:01 | 1 | 1253 | 1261 | 9 | CCKFDEDDS 5e-06 | 90 |
| HLA-A*02:03 | 1 | 1254 | 1262 | 9 | CKFDEDDSE 5e-06 | 78 |
| HLA-A*31:01 | 1 | 1254 | 1263 | 10 | CKFDEDDSEP 5e-06 | 79 |
| HLA-B*07:02 | 1 | 1254 | 1262 | 9 | CKFDEDDSE 5e-06 | 76 |
| HLA-B*35:01 | 1 | 1254 | 1263 | 10 | CKFDEDDSEP 5e-06 | 61 |
| HLA-A*02:01 | 1 | 1258 | 1267 | 10 | EDDSEPVKLG 5e-06 | 75 |
| HLA-A*24:02 | 1 | 1262 | 1271 | 10 | EPVLKGVKHLH 5e-06 | 56 |
| HLA-B*15:01 | 1 | 1265 | 1273 | 9 | LKGVKLHYT 5e-06 | 75 |
| HLA-B*35:01 | 1 | 1265 | 1273 | 9 | LKGVKLHYT 5e-06 | 61 |
| HLA-B*44:02 | 1 | 5 | 14 | 10 | LVLLPLVSSQ 4e-06 | 72 |
| HLA-B*44:03 | 1 | 5 | 14 | 10 | LVLLPLVSSQ 4e-06 | 67 |
| HLA-A*02:06 | 1 | 9 | 17 | 9 | PLVSSQCVN 4e-06 | 84 |
| HLA-B*44:03 | 1 | 9 | 18 | 10 | PLVSSQCVNL 4e-06 | 67 |
| HLA-A*23:01 | 1 | 11 | 20 | 10 | VSSQCVNLTT 4e-06 | 63 |
| HLA-A*11:01 | 1 | 14 | 22 | 9 | QCVNLTRT 4e-06 | 63 |
| HLA-B*40:01 | 1 | 15 | 23 | 9 | CVNLTRTQ 4e-06 | 56 |
| HLA-B*53:01 | 1 | 16 | 25 | 10 | VNLTRTQLP 4e-06 | 66 |
| HLA-A*31:01 | 1 | 17 | 26 | 10 | NLTRTQLPP 4e-06 | 82 |
| HLA-B*44:03 | 1 | 17 | 26 | 10 | NLTRTQLPP 4e-06 | 67 |
| HLA-B*35:01 | 1 | 18 | 27 | 10 | LTRTQLPPA 4e-06 | 64 |
| HLA-B*44:02 | 1 | 18 | 26 | 9 | LTRTQLPP 4e-06 | 72 |
| HLA-B*44:03 | 1 | 18 | 26 | 9 | LTRTQLPP 4e-06 | 67 |
| HLA-A*11:01 | 1 | 24 | 33 | 10 | LPPAYTNSFT 4e-06 | 63 |
| HLA-B*40:01 | 1 | 24 | 33 | 10 | LPPAYTNSFT 4e-06 | 56 |
| HLA-A*02:06 | 1 | 25 | 33 | 9 | PPAYTNSFT 4e-06 | 84 |
| HLA-A*02:01 | 1 | 26 | 35 | 10 | PAYTNSFTRG 4e-06 | 78 |
| HLA-B*15:01 | 1 | 26 | 35 | 10 | PAYTNSFTRG 4e-06 | 78 |
| HLA-A*02:01 | 1 | 27 | 35 | 9 | AYTNSFTRG 4e-06 | 78 |
| HLA-A*01:01 | 1 | 31 | 40 | 10 | SFTRGVYYPD 4e-06 | 96 |
| HLA-A*11:01 | 1 | 32 | 40 | 9 | FTRGVYYPD 4e-06 | 63 |
| HLA-A*24:02 | 1 | 32 | 41 | 10 | FTRGVYYPDK 4e-06 | 60 |
| HLA-A*03:01 | 1 | 33 | 42 | 10 | TRGVYYPDKV 4e-06 | 78 |
| HLA-B*07:02 | 1 | 33 | 41 | 9 | TRGVYYPDK 4e-06 | 79 |
| HLA-B*40:01 | 1 | 33 | 41 | 9 | TRGVYYPDK 4e-06 | 56 |
| HLA-B*51:01 | 1 | 33 | 41 | 9 | TRGVYYPDK 4e-06 | 87 |
| HLA-A*03:01 | 1 | 39 | 48 | 10 | PKVFRSSVL 4e-06 | 78 |
| HLA-A*32:01 | 1 | 39 | 48 | 10 | PKVFRSSVL 4e-06 | 64 |
| HLA-A*68:01 | 1 | 39 | 47 | 9 | PKVFRSSV 4e-06 | 75 |
| HLA-B*53:01 | 1 | 39 | 48 | 10 | PKVFRSSVL 4e-06 | 66 |
| HLA-B*40:01 | 1 | 42 | 50 | 9 | VFRSSVLHS 4e-06 | 56 |
| HLA-B*40:01 | 1 | 45 | 53 | 9 | SSVLHSTQD 4e-06 | 56 |
| HLA-A*26:01 | 1 | 48 | 57 | 10 | LHSTQDLFLP 4e-06 | 74 |
| HLA-A*68:01 | 1 | 48 | 57 | 10 | LHSTQDLFLP 4e-06 | 75 |
| HLA-A*02:03 | 1 | 52 | 60 | 9 | QDLFLPFFS 4e-06 | 81 |
| HLA-B*07:02 | 1 | 52 | 60 | 9 | QDLFLPFFS 4e-06 | 79 |
| HLA-B*15:01 | 1 | 52 | 60 | 9 | QDLFLPFFS 4e-06 | 78 |
| HLA-B*35:01 | 1 | 54 | 63 | 10 | LFLPFFSNVT 4e-06 | 64 |
| HLA-B*07:02 | 1 | 57 | 66 | 10 | PFFSNVTWFH 4e-06 | 79 |
| HLA-A*11:01 | 1 | 63 | 72 | 10 | TWFHAIHVS 4e-06 | 63 |
| HLA-B*53:01 | 1 | 63 | 72 | 10 | TWFHAIHVS 4e-06 | 66 |
| HLA-B*35:01 | 1 | 64 | 73 | 10 | WFHAIHVS 4e-06 | 64 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-B*40:01 | 1 | 64 | 72 | 9 | WFHAIHVSG 4e-06 | 56 |
| HLA-B*44:03 | 1 | 64 | 73 | 10 | WFHAIHVSGT 4e-06 | 67 |
| HLA-A*24:02 | 1 | 65 | 74 | 10 | FHAIHVSGTN 4e-06 | 60 |
| HLA-B*40:01 | 1 | 67 | 75 | 9 | AIHVSGTNG 4e-06 | 56 |
| HLA-B*53:01 | 1 | 67 | 76 | 10 | AIHVSGTNGT 4e-06 | 66 |
| HLA-A*23:01 | 1 | 71 | 80 | 10 | SGTNGTKRFD 4e-06 | 63 |
| HLA-A*24:02 | 1 | 71 | 80 | 10 | SGTNGTKRFD 4e-06 | 60 |
| HLA-A*32:01 | 1 | 71 | 80 | 10 | SGTNGTKRFD 4e-06 | 64 |
| HLA-A*68:02 | 1 | 71 | 80 | 10 | SGTNGTKRFD 4e-06 | 78 |
| HLA-B*44:03 | 1 | 71 | 80 | 10 | SGTNGTKRFD 4e-06 | 67 |
| HLA-A*02:06 | 1 | 72 | 81 | 10 | GTNGTKRFDN 4e-06 | 84 |
| HLA-B*51:01 | 1 | 72 | 80 | 9 | GTNGTKRFD 4e-06 | 87 |
| HLA-A*33:01 | 1 | 73 | 82 | 10 | TNGTKRFDNP 4e-06 | 86 |
| HLA-A*03:01 | 1 | 74 | 82 | 9 | NGTKRFDNP 4e-06 | 78 |
| HLA-B*44:02 | 1 | 74 | 83 | 10 | NGTKRFDNPV 4e-06 | 72 |
| HLA-A*30:02 | 1 | 79 | 88 | 10 | FDNPVLPFND 4e-06 | 95 |
| HLA-A*32:01 | 1 | 79 | 88 | 10 | FDNPVLPFND 4e-06 | 64 |
| HLA-A*01:01 | 1 | 80 | 89 | 10 | DNPVLPFNDG 4e-06 | 96 |
| HLA-A*30:02 | 1 | 80 | 88 | 9 | DNPVLPFND 4e-06 | 95 |
| HLA-B*53:01 | 1 | 80 | 88 | 9 | DNPVLPFND 4e-06 | 66 |
| HLA-A*02:06 | 1 | 81 | 89 | 9 | NPVLPFNDG 4e-06 | 84 |
| HLA-A*03:01 | 1 | 81 | 89 | 9 | NPVLPFNDG 4e-06 | 78 |
| HLA-A*03:01 | 1 | 85 | 94 | 10 | PFNDGVYFAS 4e-06 | 78 |
| HLA-B*40:01 | 1 | 85 | 93 | 9 | PFNDGVYFA 4e-06 | 56 |
| HLA-B*58:01 | 1 | 85 | 94 | 10 | PFNDGVYFAS 4e-06 | 85 |
| HLA-A*24:02 | 1 | 86 | 95 | 10 | FNDGVYFAST 4e-06 | 60 |
| HLA-B*35:01 | 1 | 86 | 95 | 10 | FNDGVYFAST 4e-06 | 64 |
| HLA-A*03:01 | 1 | 87 | 95 | 9 | NDGVYFAST 4e-06 | 78 |
| HLA-A*23:01 | 1 | 87 | 95 | 9 | NDGVYFAST 4e-06 | 63 |
| HLA-A*31:01 | 1 | 87 | 96 | 10 | NDGVYFASTE 4e-06 | 82 |
| HLA-B*40:01 | 1 | 88 | 97 | 10 | DGVYFASTEK 4e-06 | 56 |
| HLA-B*35:01 | 1 | 89 | 98 | 10 | GVYFASTEKS 4e-06 | 64 |
| HLA-B*35:01 | 1 | 90 | 99 | 10 | VYFASTEKSN 4e-06 | 64 |
| HLA-B*44:02 | 1 | 90 | 99 | 10 | VYFASTEKSN 4e-06 | 72 |
| HLA-A*24:02 | 1 | 94 | 103 | 10 | STEKSNIIRG 4e-06 | 60 |
| HLA-B*53:01 | 1 | 94 | 103 | 10 | STEKSNIIRG 4e-06 | 66 |
| HLA-B*53:01 | 1 | 99 | 108 | 10 | NIIRGWIFGT 4e-06 | 66 |
| HLA-A*68:01 | 1 | 101 | 109 | 9 | IRGWIFGTT 4e-06 | 75 |
| HLA-B*44:03 | 1 | 101 | 109 | 9 | IRGWIFGTT 4e-06 | 67 |
| HLA-A*11:01 | 1 | 102 | 111 | 10 | RGWIFGTTLD 4e-06 | 63 |
| HLA-A*68:01 | 1 | 102 | 111 | 10 | RGWIFGTTLD 4e-06 | 75 |
| HLA-B*53:01 | 1 | 102 | 111 | 10 | RGWIFGTTLD 4e-06 | 66 |
| HLA-A*32:01 | 1 | 103 | 111 | 9 | GWIFGTTLD 4e-06 | 64 |
| HLA-A*68:01 | 1 | 103 | 111 | 9 | GWIFGTTLD 4e-06 | 75 |
| HLA-A*68:02 | 1 | 103 | 111 | 9 | GWIFGTTLD 4e-06 | 78 |
| HLA-B*40:01 | 1 | 104 | 113 | 10 | WIFGTTLDSK 4e-06 | 56 |
| HLA-A*23:01 | 1 | 106 | 114 | 9 | FGTTLDSKT 4e-06 | 63 |
| HLA-B*40:01 | 1 | 106 | 114 | 9 | FGTTLDSKT 4e-06 | 56 |
| HLA-B*44:02 | 1 | 106 | 115 | 10 | FGTTLDSKTQ 4e-06 | 72 |
| HLA-B*44:02 | 1 | 112 | 121 | 10 | SKTQSLIVN 4e-06 | 72 |
| HLA-B*35:01 | 1 | 115 | 124 | 10 | QSLIVNNAT 4e-06 | 64 |
| HLA-B*53:01 | 1 | 115 | 124 | 10 | QSLIVNNAT 4e-06 | 66 |
| HLA-B*44:03 | 1 | 118 | 127 | 10 | LIVNNATNVV 4e-06 | 67 |
| HLA-A*23:01 | 1 | 122 | 131 | 10 | NATNVVIVKVC 4e-06 | 63 |
| HLA-A*24:02 | 1 | 122 | 131 | 10 | NATNVVIVKVC 4e-06 | 60 |
| HLA-B*40:01 | 1 | 122 | 131 | 10 | NATNVVIVKVC 4e-06 | 56 |
| HLA-B*44:02 | 1 | 125 | 134 | 10 | NVVIVKVEFQ 4e-06 | 72 |
| HLA-A*24:02 | 1 | 126 | 134 | 9 | VVIVKVEFQ 4e-06 | 60 |
| HLA-B*53:01 | 1 | 127 | 136 | 10 | VIVKVEFQFC 4e-06 | 66 |
| HLA-A*24:02 | 1 | 128 | 136 | 9 | IKVCEQFC 4e-06 | 60 |
| HLA-A*33:01 | 1 | 128 | 137 | 10 | IKVCEQFCN 4e-06 | 86 |
| HLA-A*68:01 | 1 | 128 | 137 | 10 | IKVCEQFCN 4e-06 | 75 |
| HLA-B*07:02 | 1 | 128 | 136 | 9 | IKVCEQFC 4e-06 | 79 |
| HLA-B*15:01 | 1 | 128 | 136 | 9 | IKVCEQFC 4e-06 | 78 |
| HLA-B*53:01 | 1 | 128 | 136 | 9 | IKVCEQFC 4e-06 | 66 |
| HLA-A*03:01 | 1 | 129 | 138 | 10 | KVCEQFCND 4e-06 | 78 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-A*33:01 | 1 | 129 | 138 | 10 | KVCEFQFCND | 4e-06 | 86 |
| HLA-A*68:02 | 1 | 129 | 137 | 9 | KVCEFQFCN | 4e-06 | 78 |
| HLA-B*35:01 | 1 | 129 | 137 | 9 | KVCEFQFCN | 4e-06 | 64 |
| HLA-B*44:02 | 1 | 129 | 137 | 9 | KVCEFQFCN | 4e-06 | 72 |
| HLA-A*02:01 | 1 | 130 | 139 | 10 | VCEFQFCNDP | 4e-06 | 78 |
| HLA-A*30:02 | 1 | 130 | 138 | 9 | VCEFQFCND | 4e-06 | 95 |
| HLA-A*02:01 | 1 | 131 | 140 | 10 | CEFQFCNDPF | 4e-06 | 78 |
| HLA-B*57:01 | 1 | 131 | 139 | 9 | CEFQFCNDP | 4e-06 | 92 |
| HLA-A*11:01 | 1 | 133 | 142 | 10 | FQFCNDPFLG | 4e-06 | 63 |
| HLA-B*15:01 | 1 | 134 | 142 | 9 | QFCNDPFLG | 4e-06 | 78 |
| HLA-A*01:01 | 1 | 139 | 148 | 10 | PFLGVYYHKN | 4e-06 | 96 |
| HLA-B*57:01 | 1 | 139 | 148 | 10 | PFLGVYYHKN | 4e-06 | 92 |
| HLA-A*30:01 | 1 | 140 | 149 | 10 | FLGVYYHKNN | 4e-06 | 95 |
| HLA-A*33:01 | 1 | 140 | 149 | 10 | FLGVYYHKNN | 4e-06 | 86 |
| HLA-B*53:01 | 1 | 140 | 148 | 9 | FLGVYYHKN | 4e-06 | 66 |
| HLA-B*08:01 | 1 | 141 | 149 | 9 | LGVYYHKNN | 4e-06 | 94 |
| HLA-B*44:02 | 1 | 141 | 150 | 10 | LGVYYHKNNK | 4e-06 | 72 |
| HLA-B*53:01 | 1 | 142 | 151 | 10 | GVYYHKNNKS | 4e-06 | 66 |
| HLA-B*40:01 | 1 | 143 | 151 | 9 | VYYHKNNKS | 4e-06 | 56 |
| HLA-B*35:01 | 1 | 146 | 155 | 10 | HKNNKSWMES | 4e-06 | 64 |
| HLA-A*32:01 | 1 | 147 | 156 | 10 | KNNKSWMESE | 4e-06 | 64 |
| HLA-B*40:01 | 1 | 148 | 156 | 9 | NNKSWMESE | 4e-06 | 56 |
| HLA-A*23:01 | 1 | 152 | 161 | 10 | WMESEFRVYS | 4e-06 | 63 |
| HLA-A*24:02 | 1 | 152 | 161 | 10 | WMESEFRVYS | 4e-06 | 60 |
| HLA-B*53:01 | 1 | 155 | 164 | 10 | SEFRVYSSAN | 4e-06 | 66 |
| HLA-A*03:01 | 1 | 156 | 165 | 10 | EFRVYSSANN | 4e-06 | 78 |
| HLA-A*68:02 | 1 | 156 | 164 | 9 | EFRVYSSAN | 4e-06 | 78 |
| HLA-B*57:01 | 1 | 156 | 164 | 9 | EFRVYSSAN | 4e-06 | 92 |
| HLA-A*24:02 | 1 | 157 | 165 | 9 | FRVYSSANN | 4e-06 | 60 |
| HLA-A*31:01 | 1 | 157 | 165 | 9 | FRVYSSANN | 4e-06 | 82 |
| HLA-B*15:01 | 1 | 157 | 165 | 9 | FRVYSSANN | 4e-06 | 78 |
| HLA-B*51:01 | 1 | 157 | 165 | 9 | FRVYSSANN | 4e-06 | 87 |
| HLA-B*57:01 | 1 | 157 | 165 | 9 | FRVYSSANN | 4e-06 | 92 |
| HLA-B*58:01 | 1 | 157 | 165 | 9 | FRVYSSANN | 4e-06 | 85 |
| HLA-B*35:01 | 1 | 158 | 167 | 10 | RVYSSANNCT | 4e-06 | 64 |
| HLA-A*02:03 | 1 | 163 | 172 | 10 | ANNCTFEYVS | 4e-06 | 81 |
| HLA-B*08:01 | 1 | 163 | 172 | 10 | ANNCTFEYVS | 4e-06 | 94 |
| HLA-B*44:02 | 1 | 163 | 172 | 10 | ANNCTFEYVS | 4e-06 | 72 |
| HLA-A*02:01 | 1 | 164 | 173 | 10 | NNCTFEYVSQ | 4e-06 | 78 |
| HLA-A*02:06 | 1 | 164 | 173 | 10 | NNCTFEYVSQ | 4e-06 | 84 |
| HLA-A*26:01 | 1 | 164 | 173 | 10 | NNCTFEYVSQ | 4e-06 | 74 |
| HLA-A*68:02 | 1 | 164 | 173 | 10 | NNCTFEYVSQ | 4e-06 | 78 |
| HLA-B*44:03 | 1 | 165 | 173 | 9 | NCTFEYVSQ | 4e-06 | 67 |
| HLA-B*40:01 | 1 | 170 | 178 | 9 | YVSQPFLMD | 4e-06 | 56 |
| HLA-B*44:03 | 1 | 170 | 178 | 9 | YVSQPFLMD | 4e-06 | 67 |
| HLA-B*44:03 | 1 | 171 | 180 | 10 | VSQPFLMDLE | 4e-06 | 67 |
| HLA-A*03:01 | 1 | 172 | 181 | 10 | SQPFLMDLEG | 4e-06 | 78 |
| HLA-A*26:01 | 1 | 172 | 181 | 10 | SQPFLMDLEG | 4e-06 | 74 |
| HLA-A*02:01 | 1 | 173 | 181 | 9 | QPFLMDLEG | 4e-06 | 78 |
| HLA-B*51:01 | 1 | 174 | 182 | 9 | PFLMDLEGK | 4e-06 | 87 |
| HLA-B*53:01 | 1 | 174 | 183 | 10 | PFLMDLEGKQ | 4e-06 | 66 |
| HLA-A*23:01 | 1 | 175 | 184 | 10 | FLMDLEGKQG | 4e-06 | 63 |
| HLA-A*26:01 | 1 | 176 | 184 | 9 | LMDLEGKQG | 4e-06 | 74 |
| HLA-A*26:01 | 1 | 176 | 185 | 10 | LMDLEGKQGN | 4e-06 | 74 |
| HLA-A*31:01 | 1 | 176 | 185 | 10 | LMDLEGKQGN | 4e-06 | 82 |
| HLA-A*33:01 | 1 | 176 | 184 | 9 | LMDLEGKQG | 4e-06 | 86 |
| HLA-B*40:01 | 1 | 176 | 184 | 9 | LMDLEGKQG | 4e-06 | 56 |
| HLA-B*44:03 | 1 | 176 | 185 | 10 | LMDLEGKQGN | 4e-06 | 67 |
| HLA-B*51:01 | 1 | 176 | 185 | 10 | LMDLEGKQGN | 4e-06 | 87 |
| HLA-B*53:01 | 1 | 176 | 185 | 10 | LMDLEGKQGN | 4e-06 | 66 |
| HLA-A*03:01 | 1 | 177 | 185 | 9 | MDLEGKQGN | 4e-06 | 78 |
| HLA-B*15:01 | 1 | 177 | 185 | 9 | MDLEGKQGN | 4e-06 | 78 |
| HLA-A*31:01 | 1 | 179 | 188 | 10 | LEGKQGNFKN | 4e-06 | 82 |
| HLA-B*51:01 | 1 | 179 | 188 | 10 | LEGKQGNFKN | 4e-06 | 87 |
| HLA-A*03:01 | 1 | 180 | 188 | 9 | EGKQGNFKN | 4e-06 | 78 |
| HLA-B*15:01 | 1 | 180 | 188 | 9 | EGKQGNFKN | 4e-06 | 78 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-B*53:01 | 1 | 181 | 190 | 10 | GKQGNFKNLR 4e-06 | 66 |
| HLA-A*24:02 | 1 | 182 | 191 | 10 | KQGNFKNLRE 4e-06 | 60 |
| HLA-A*23:01 | 1 | 183 | 191 | 9 | QGNFKNLRE 4e-06 | 63 |
| HLA-B*35:01 | 1 | 184 | 193 | 10 | GNFKNLREFV 4e-06 | 64 |
| HLA-A*68:02 | 1 | 187 | 196 | 10 | KNLREFVFKN 4e-06 | 78 |
| HLA-A*11:01 | 1 | 189 | 197 | 9 | LREFVFKNI 4e-06 | 63 |
| HLA-B*57:01 | 1 | 189 | 198 | 10 | LREFVFKNID 4e-06 | 92 |
| HLA-A*03:01 | 1 | 190 | 198 | 9 | REFVFKNID 4e-06 | 78 |
| HLA-A*23:01 | 1 | 190 | 198 | 9 | REFVFKNID 4e-06 | 63 |
| HLA-A*24:02 | 1 | 190 | 199 | 10 | REFVFKNIDG 4e-06 | 60 |
| HLA-A*26:01 | 1 | 190 | 198 | 9 | REFVFKNID 4e-06 | 74 |
| HLA-A*32:01 | 1 | 190 | 198 | 9 | REFVFKNID 4e-06 | 64 |
| HLA-A*33:01 | 1 | 190 | 199 | 10 | REFVFKNIDG 4e-06 | 86 |
| HLA-B*07:02 | 1 | 190 | 198 | 9 | REFVFKNID 4e-06 | 79 |
| HLA-B*07:02 | 1 | 190 | 199 | 10 | REFVFKNIDG 4e-06 | 79 |
| HLA-A*02:01 | 1 | 191 | 199 | 9 | EFVFKNIDG 4e-06 | 78 |
| HLA-B*07:02 | 1 | 191 | 199 | 9 | EFVFKNIDG 4e-06 | 79 |
| HLA-B*57:01 | 1 | 191 | 199 | 9 | EFVFKNIDG 4e-06 | 92 |
| HLA-B*58:01 | 1 | 191 | 199 | 9 | EFVFKNIDG 4e-06 | 85 |
| HLA-B*07:02 | 1 | 197 | 205 | 9 | IDGYFKIYS 4e-06 | 79 |
| HLA-B*35:01 | 1 | 197 | 205 | 9 | IDGYFKIYS 4e-06 | 64 |
| HLA-A*11:01 | 1 | 200 | 208 | 9 | YFKIYSKHT 4e-06 | 63 |
| HLA-A*32:01 | 1 | 201 | 209 | 9 | FKIYSKHTP 4e-06 | 64 |
| HLA-B*44:02 | 1 | 202 | 211 | 10 | KIYSKHTPIN 4e-06 | 72 |
| HLA-A*02:03 | 1 | 203 | 211 | 9 | IYSKHTPIN 4e-06 | 81 |
| HLA-B*15:01 | 1 | 206 | 215 | 10 | KHTPINLVRD 4e-06 | 78 |
| HLA-B*35:01 | 1 | 206 | 215 | 10 | KHTPINLVRD 4e-06 | 64 |
| HLA-A*23:01 | 1 | 209 | 217 | 9 | PINLVRDLP 4e-06 | 63 |
| HLA-A*24:02 | 1 | 209 | 217 | 9 | PINLVRDLP 4e-06 | 60 |
| HLA-A*02:01 | 1 | 210 | 218 | 9 | INLVRDLPQ 4e-06 | 78 |
| HLA-A*03:01 | 1 | 210 | 219 | 10 | INLVRDLPQG 4e-06 | 78 |
| HLA-A*32:01 | 1 | 210 | 219 | 10 | INLVRDLPQG 4e-06 | 64 |
| HLA-A*24:02 | 1 | 216 | 225 | 10 | LPQGFSALEP 4e-06 | 60 |
| HLA-A*32:01 | 1 | 216 | 225 | 10 | LPQGFSALEP 4e-06 | 64 |
| HLA-A*33:01 | 1 | 217 | 225 | 9 | PQGFSALEP 4e-06 | 86 |
| HLA-B*07:02 | 1 | 217 | 225 | 9 | PQGFSALEP 4e-06 | 79 |
| HLA-A*03:01 | 1 | 220 | 228 | 9 | FSALEPLVD 4e-06 | 78 |
| HLA-A*23:01 | 1 | 220 | 228 | 9 | FSALEPLVD 4e-06 | 63 |
| HLA-A*24:02 | 1 | 220 | 228 | 9 | FSALEPLVD 4e-06 | 60 |
| HLA-A*31:01 | 1 | 220 | 228 | 9 | FSALEPLVD 4e-06 | 82 |
| HLA-A*02:01 | 1 | 224 | 232 | 9 | EPLVDLPIG 4e-06 | 78 |
| HLA-A*02:03 | 1 | 224 | 232 | 9 | EPLVDLPIG 4e-06 | 81 |
| HLA-B*58:01 | 1 | 225 | 234 | 10 | PLVDLPIGIN 4e-06 | 85 |
| HLA-B*15:01 | 1 | 230 | 239 | 10 | PIGINITRFQ 4e-06 | 78 |
| HLA-A*24:02 | 1 | 231 | 240 | 10 | IGINITRFQT 4e-06 | 60 |
| HLA-A*24:02 | 1 | 232 | 240 | 9 | GINITRFQT 4e-06 | 60 |
| HLA-B*44:03 | 1 | 238 | 247 | 10 | FQTLALHRS 4e-06 | 67 |
| HLA-B*53:01 | 1 | 238 | 247 | 10 | FQTLALHRS 4e-06 | 66 |
| HLA-A*11:01 | 1 | 241 | 250 | 10 | LLALHRSYLT 4e-06 | 63 |
| HLA-B*53:01 | 1 | 241 | 250 | 10 | LLALHRSYLT 4e-06 | 66 |
| HLA-A*26:01 | 1 | 243 | 252 | 10 | ALHRSYLTPG 4e-06 | 74 |
| HLA-B*51:01 | 1 | 243 | 252 | 10 | ALHRSYLTPG 4e-06 | 87 |
| HLA-A*23:01 | 1 | 244 | 253 | 10 | LHRSYLTPGD 4e-06 | 63 |
| HLA-A*68:02 | 1 | 244 | 252 | 9 | LHRSYLTPG 4e-06 | 78 |
| HLA-B*08:01 | 1 | 244 | 253 | 10 | LHRSYLTPGD 4e-06 | 94 |
| HLA-B*44:02 | 1 | 244 | 252 | 9 | LHRSYLTPG 4e-06 | 72 |
| HLA-A*01:01 | 1 | 245 | 253 | 9 | HRSYLTPGD 4e-06 | 96 |
| HLA-A*11:01 | 1 | 245 | 254 | 10 | HRSYLTPGDS 4e-06 | 63 |
| HLA-A*24:02 | 1 | 245 | 253 | 9 | HRSYLTPGD 4e-06 | 60 |
| HLA-A*68:01 | 1 | 245 | 253 | 9 | HRSYLTPGD 4e-06 | 75 |
| HLA-B*15:01 | 1 | 245 | 253 | 9 | HRSYLTPGD 4e-06 | 78 |
| HLA-B*35:01 | 1 | 245 | 253 | 9 | HRSYLTPGD 4e-06 | 64 |
| HLA-B*44:02 | 1 | 245 | 253 | 9 | HRSYLTPGD 4e-06 | 72 |
| HLA-B*44:03 | 1 | 248 | 257 | 10 | YLTPGDSSSG 4e-06 | 67 |
| HLA-B*44:02 | 1 | 249 | 257 | 9 | LTPGDSSSG 4e-06 | 72 |
| HLA-B*35:01 | 1 | 251 | 260 | 10 | PGDSSSGWTA 4e-06 | 64 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-B*57:01 | 1 | 251 | 259 | 9 | PGDSSSGWT 4e-06 | 92 |
| HLA-A*02:03 | 1 | 252 | 261 | 10 | GDSSSGWTAG 4e-06 | 81 |
| HLA-A*33:01 | 1 | 252 | 261 | 10 | GDSSSGWTAG 4e-06 | 86 |
| HLA-B*07:02 | 1 | 252 | 261 | 10 | GDSSSGWTAG 4e-06 | 79 |
| HLA-A*24:02 | 1 | 255 | 263 | 9 | SSGWTAGAA 4e-06 | 60 |
| HLA-A*24:02 | 1 | 255 | 264 | 10 | SSGWTAGAAA 4e-06 | 60 |
| HLA-A*68:01 | 1 | 259 | 268 | 10 | TAGAAAYYVG 4e-06 | 75 |
| HLA-A*03:01 | 1 | 260 | 268 | 9 | AGAAAYYVG 4e-06 | 78 |
| HLA-B*44:02 | 1 | 260 | 268 | 9 | AGAAAYYVG 4e-06 | 72 |
| HLA-A*32:01 | 1 | 265 | 274 | 10 | YYVGYLQPRT 4e-06 | 64 |
| HLA-A*23:01 | 1 | 271 | 280 | 10 | QPRTFLLKYN 4e-06 | 63 |
| HLA-A*68:02 | 1 | 274 | 282 | 9 | TFLLKYNEN 4e-06 | 78 |
| HLA-A*68:02 | 1 | 274 | 283 | 10 | TFLLKYNENG 4e-06 | 78 |
| HLA-B*15:01 | 1 | 274 | 282 | 9 | TFLLKYNEN 4e-06 | 78 |
| HLA-B*51:01 | 1 | 274 | 283 | 10 | TFLLKYNENG 4e-06 | 87 |
| HLA-A*26:01 | 1 | 275 | 283 | 9 | FLLKYNENG 4e-06 | 74 |
| HLA-B*44:02 | 1 | 276 | 284 | 9 | LLKYNENGT 4e-06 | 72 |
| HLA-B*53:01 | 1 | 276 | 284 | 9 | LLKYNENGT 4e-06 | 66 |
| HLA-A*68:01 | 1 | 277 | 286 | 10 | LKYNENGTIT 4e-06 | 75 |
| HLA-A*11:01 | 1 | 278 | 287 | 10 | KYNENGTITD 4e-06 | 63 |
| HLA-A*68:01 | 1 | 278 | 287 | 10 | KYNENGTITD 4e-06 | 75 |
| HLA-A*02:03 | 1 | 279 | 287 | 9 | YNENGTITD 4e-06 | 81 |
| HLA-B*44:02 | 1 | 279 | 287 | 9 | YNENGTITD 4e-06 | 72 |
| HLA-A*32:01 | 1 | 280 | 288 | 9 | NENGTITDA 4e-06 | 64 |
| HLA-A*01:01 | 1 | 282 | 290 | 9 | NGTITDAVD 4e-06 | 96 |
| HLA-A*11:01 | 1 | 282 | 291 | 10 | NGTITDAVDC 4e-06 | 63 |
| HLA-A*33:01 | 1 | 282 | 291 | 10 | NGTITDAVDC 4e-06 | 86 |
| HLA-B*08:01 | 1 | 282 | 290 | 9 | NGTITDAVD 4e-06 | 94 |
| HLA-B*53:01 | 1 | 282 | 291 | 10 | NGTITDAVDC 4e-06 | 66 |
| HLA-A*24:02 | 1 | 283 | 291 | 9 | GTITDAVDC 4e-06 | 60 |
| HLA-B*53:01 | 1 | 283 | 292 | 10 | GTITDAVDC 4e-06 | 66 |
| HLA-A*68:01 | 1 | 285 | 294 | 10 | ITDAVDCALD 4e-06 | 75 |
| HLA-B*53:01 | 1 | 285 | 294 | 10 | ITDAVDCALD 4e-06 | 66 |
| HLA-B*51:01 | 1 | 286 | 294 | 9 | TDAVDCALD 4e-06 | 87 |
| HLA-A*32:01 | 1 | 287 | 296 | 10 | DAVDCALDPL 4e-06 | 64 |
| HLA-B*44:03 | 1 | 288 | 297 | 10 | AVDCALDPLS 4e-06 | 67 |
| HLA-B*53:01 | 1 | 288 | 297 | 10 | AVDCALDPLS 4e-06 | 66 |
| HLA-A*33:01 | 1 | 289 | 297 | 9 | VDCALDPLS 4e-06 | 86 |
| HLA-A*68:02 | 1 | 289 | 298 | 10 | VDCALDPLSE 4e-06 | 78 |
| HLA-B*08:01 | 1 | 289 | 297 | 9 | VDCALDPLS 4e-06 | 94 |
| HLA-B*35:01 | 1 | 289 | 297 | 9 | VDCALDPLS 4e-06 | 64 |
| HLA-B*35:01 | 1 | 289 | 298 | 10 | VDCALDPLSE 4e-06 | 64 |
| HLA-B*53:01 | 1 | 289 | 297 | 9 | VDCALDPLS 4e-06 | 66 |
| HLA-A*23:01 | 1 | 290 | 299 | 10 | DCALDPLSET 4e-06 | 63 |
| HLA-A*02:01 | 1 | 293 | 302 | 10 | LDPLSETKCT 4e-06 | 78 |
| HLA-A*31:01 | 1 | 293 | 301 | 9 | LDPLSETKC 4e-06 | 82 |
| HLA-B*44:03 | 1 | 293 | 302 | 10 | LDPLSETKCT 4e-06 | 67 |
| HLA-B*44:03 | 1 | 295 | 304 | 10 | PLSETKCTLK 4e-06 | 67 |
| HLA-A*26:01 | 1 | 296 | 305 | 10 | LSETKCTLKS 4e-06 | 74 |
| HLA-B*07:02 | 1 | 296 | 305 | 10 | LSETKCTLKS 4e-06 | 79 |
| HLA-B*40:01 | 1 | 296 | 304 | 9 | LSETKCTLK 4e-06 | 56 |
| HLA-A*32:01 | 1 | 297 | 305 | 9 | SETKCTLKS 4e-06 | 64 |
| HLA-A*24:02 | 1 | 298 | 307 | 10 | ETKCTLKSFT 4e-06 | 60 |
| HLA-A*11:01 | 1 | 299 | 307 | 9 | TKCTLKSFT 4e-06 | 63 |
| HLA-B*40:01 | 1 | 299 | 307 | 9 | TKCTLKSFT 4e-06 | 56 |
| HLA-B*44:02 | 1 | 301 | 309 | 9 | CTLKSFTVE 4e-06 | 72 |
| HLA-B*53:01 | 1 | 302 | 311 | 10 | TLKSFTVEKG 4e-06 | 66 |
| HLA-A*02:06 | 1 | 303 | 311 | 9 | LKSFTVEKG 4e-06 | 84 |
| HLA-A*33:01 | 1 | 303 | 311 | 9 | LKSFTVEKG 4e-06 | 86 |
| HLA-B*35:01 | 1 | 303 | 312 | 10 | LKSFTVEKGI 4e-06 | 64 |
| HLA-A*31:01 | 1 | 308 | 317 | 10 | VEKGIYQTSN 4e-06 | 82 |
| HLA-A*01:01 | 1 | 309 | 317 | 9 | EKGIYQTSN 4e-06 | 96 |
| HLA-B*58:01 | 1 | 309 | 317 | 9 | EKGIYQTSN 4e-06 | 85 |
| HLA-A*30:02 | 1 | 322 | 331 | 10 | PTESIVRFPN 4e-06 | 95 |
| HLA-B*07:02 | 1 | 322 | 330 | 9 | PTESIVRFP 4e-06 | 79 |
| HLA-B*44:03 | 1 | 322 | 330 | 9 | PTESIVRFP 4e-06 | 67 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-A*23:01 | 1 | 323 | 331 | 9 | TESIVRFPN | 4e-06 | 63 |
| HLA-A*32:01 | 1 | 324 | 333 | 10 | ESIVRFPNIT | 4e-06 | 64 |
| HLA-B*35:01 | 1 | 325 | 334 | 10 | SIVRFPNITN | 4e-06 | 64 |
| HLA-B*40:01 | 1 | 326 | 334 | 9 | IVRFPNITN | 4e-06 | 56 |
| HLA-B*44:03 | 1 | 326 | 334 | 9 | IVRFPNITN | 4e-06 | 67 |
| HLA-A*23:01 | 1 | 329 | 337 | 9 | FPNITNLCP | 4e-06 | 63 |
| HLA-A*24:02 | 1 | 329 | 337 | 9 | FPNITNLCP | 4e-06 | 60 |
| HLA-A*32:01 | 1 | 329 | 337 | 9 | FPNITNLCP | 4e-06 | 64 |
| HLA-A*02:01 | 1 | 330 | 338 | 9 | PNITNLCPF | 4e-06 | 78 |
| HLA-A*23:01 | 1 | 330 | 339 | 10 | PNITNLCPFG | 4e-06 | 63 |
| HLA-B*08:01 | 1 | 330 | 339 | 10 | PNITNLCPFG | 4e-06 | 94 |
| HLA-A*31:01 | 1 | 331 | 339 | 9 | NITNLCPFG | 4e-06 | 82 |
| HLA-B*07:02 | 1 | 331 | 339 | 9 | NITNLCPFG | 4e-06 | 79 |
| HLA-A*23:01 | 1 | 332 | 340 | 9 | ITNLCPFGE | 4e-06 | 63 |
| HLA-B*07:02 | 1 | 332 | 340 | 9 | ITNLCPFGE | 4e-06 | 79 |
| HLA-B*40:01 | 1 | 332 | 341 | 10 | ITNLCPFGEV | 4e-06 | 56 |
| HLA-A*11:01 | 1 | 334 | 343 | 10 | NLCPFGEVFN | 4e-06 | 63 |
| HLA-B*40:01 | 1 | 334 | 343 | 10 | NLCPFGEVFN | 4e-06 | 56 |
| HLA-A*68:01 | 1 | 335 | 343 | 9 | LCPFGEVFN | 4e-06 | 75 |
| HLA-B*53:01 | 1 | 335 | 343 | 9 | LCPFGEVFN | 4e-06 | 66 |
| HLA-B*40:01 | 1 | 336 | 345 | 10 | CPFGEVFNAT | 4e-06 | 56 |
| HLA-A*03:01 | 1 | 337 | 345 | 9 | PFGEVFNAT | 4e-06 | 78 |
| HLA-B*07:02 | 1 | 337 | 346 | 10 | PFGEVFNATR | 4e-06 | 79 |
| HLA-B*53:01 | 1 | 337 | 346 | 10 | PFGEVFNATR | 4e-06 | 66 |
| HLA-B*58:01 | 1 | 337 | 345 | 9 | PFGEVFNAT | 4e-06 | 85 |
| HLA-B*40:01 | 1 | 341 | 349 | 9 | VFNATRFAS | 4e-06 | 56 |
| HLA-A*02:06 | 1 | 345 | 354 | 10 | TRFASVYAWN | 4e-06 | 84 |
| HLA-A*02:03 | 1 | 346 | 354 | 9 | RFASVYAWN | 4e-06 | 81 |
| HLA-B*07:02 | 1 | 346 | 354 | 9 | RFASVYAWN | 4e-06 | 79 |
| HLA-B*44:02 | 1 | 346 | 354 | 9 | RFASVYAWN | 4e-06 | 72 |
| HLA-B*44:03 | 1 | 346 | 354 | 9 | RFASVYAWN | 4e-06 | 67 |
| HLA-B*44:02 | 1 | 350 | 359 | 10 | VYAWNRKRIS | 4e-06 | 72 |
| HLA-A*11:01 | 1 | 351 | 360 | 10 | YAWNRKRISN | 4e-06 | 63 |
| HLA-A*03:01 | 1 | 353 | 362 | 10 | WNRKRISNCV | 4e-06 | 78 |
| HLA-A*24:02 | 1 | 354 | 363 | 10 | NRKRISNCVA | 4e-06 | 60 |
| HLA-A*02:01 | 1 | 355 | 363 | 9 | RKRISNCVA | 4e-06 | 78 |
| HLA-A*23:01 | 1 | 355 | 363 | 9 | RKRISNCVA | 4e-06 | 63 |
| HLA-B*15:01 | 1 | 355 | 364 | 10 | RKRISNCVAD | 4e-06 | 78 |
| HLA-B*44:03 | 1 | 355 | 364 | 10 | RKRISNCVAD | 4e-06 | 67 |
| HLA-A*33:01 | 1 | 356 | 364 | 9 | KRISNCVAD | 4e-06 | 86 |
| HLA-B*35:01 | 1 | 356 | 364 | 9 | KRISNCVAD | 4e-06 | 64 |
| HLA-B*51:01 | 1 | 356 | 364 | 9 | KRISNCVAD | 4e-06 | 87 |
| HLA-B*51:01 | 1 | 357 | 366 | 10 | RISNCVADYS | 4e-06 | 87 |
| HLA-B*40:01 | 1 | 358 | 367 | 10 | ISNCVADYSV | 4e-06 | 56 |
| HLA-B*07:02 | 1 | 361 | 370 | 10 | CVADYSVLYN | 4e-06 | 79 |
| HLA-A*23:01 | 1 | 362 | 370 | 9 | VADYSVLYN | 4e-06 | 63 |
| HLA-A*24:02 | 1 | 362 | 370 | 9 | VADYSVLYN | 4e-06 | 60 |
| HLA-A*03:01 | 1 | 364 | 373 | 10 | DYSVLINSAS | 4e-06 | 78 |
| HLA-B*44:02 | 1 | 364 | 373 | 10 | DYSVLINSAS | 4e-06 | 72 |
| HLA-B*53:01 | 1 | 364 | 373 | 10 | DYSVLINSAS | 4e-06 | 66 |
| HLA-A*24:02 | 1 | 365 | 373 | 9 | YSVLINSAS | 4e-06 | 60 |
| HLA-B*40:01 | 1 | 367 | 376 | 10 | VLYNSASFST | 4e-06 | 56 |
| HLA-B*40:01 | 1 | 370 | 379 | 10 | NSASFSTFKC | 4e-06 | 56 |
| HLA-B*35:01 | 1 | 373 | 381 | 9 | SFSTFKCYG | 4e-06 | 64 |
| HLA-B*35:01 | 1 | 373 | 382 | 10 | SFSTFKCYGV | 4e-06 | 64 |
| HLA-B*40:01 | 1 | 373 | 382 | 10 | SFSTFKCYGV | 4e-06 | 56 |
| HLA-A*03:01 | 1 | 374 | 383 | 10 | FSTFKCYGVS | 4e-06 | 78 |
| HLA-B*40:01 | 1 | 374 | 382 | 9 | FSTFKCYGV | 4e-06 | 56 |
| HLA-B*44:02 | 1 | 375 | 383 | 9 | STFKCYGVS | 4e-06 | 72 |
| HLA-A*32:01 | 1 | 376 | 385 | 10 | TFKCYGVSPT | 4e-06 | 64 |
| HLA-B*57:01 | 1 | 376 | 385 | 10 | TFKCYGVSPT | 4e-06 | 92 |
| HLA-A*31:01 | 1 | 377 | 385 | 9 | FKCYGVSPT | 4e-06 | 82 |
| HLA-B*40:01 | 1 | 377 | 385 | 9 | FKCYGVSPT | 4e-06 | 56 |
| HLA-A*03:01 | 1 | 379 | 388 | 10 | CYGVSPTKLN | 4e-06 | 78 |
| HLA-A*26:01 | 1 | 379 | 388 | 10 | CYGVSPTKLN | 4e-06 | 74 |
| HLA-B*44:02 | 1 | 379 | 388 | 10 | CYGVSPTKLN | 4e-06 | 72 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-B*44:02 | 1 | 380 | 389 | 10 | YGVSPTKLND 4e-06 | 72 |
| HLA-A*31:01 | 1 | 384 | 393 | 10 | PTKLNLCFT 4e-06 | 82 |
| HLA-A*03:01 | 1 | 385 | 393 | 9 | TKLNLCFT 4e-06 | 78 |
| HLA-A*26:01 | 1 | 385 | 394 | 10 | TKLNLCFTN 4e-06 | 74 |
| HLA-B*35:01 | 1 | 385 | 393 | 9 | TKLNLCFT 4e-06 | 64 |
| HLA-B*44:02 | 1 | 385 | 393 | 9 | TKLNLCFT 4e-06 | 72 |
| HLA-A*30:01 | 1 | 389 | 398 | 10 | DLCFTNVYAD 4e-06 | 95 |
| HLA-B*15:01 | 1 | 390 | 398 | 9 | LCFTNVYAD 4e-06 | 78 |
| HLA-A*26:01 | 1 | 391 | 399 | 9 | CFTNVYADS 4e-06 | 74 |
| HLA-B*40:01 | 1 | 392 | 401 | 10 | FTNVYADSFV 4e-06 | 56 |
| HLA-B*44:03 | 1 | 392 | 401 | 10 | FTNVYADSFV 4e-06 | 67 |
| HLA-B*08:01 | 1 | 396 | 405 | 10 | YADSFVIRGD 4e-06 | 94 |
| HLA-A*02:03 | 1 | 397 | 406 | 10 | ADSFVIRGDE 4e-06 | 81 |
| HLA-A*68:02 | 1 | 397 | 405 | 9 | ADSFVIRGD 4e-06 | 78 |
| HLA-B*08:01 | 1 | 397 | 406 | 10 | ADSFVIRGDE 4e-06 | 94 |
| HLA-B*44:02 | 1 | 398 | 406 | 9 | DSFVIRGDE 4e-06 | 72 |
| HLA-B*40:01 | 1 | 400 | 409 | 10 | FVIRGDEVRO 4e-06 | 56 |
| HLA-B*40:01 | 1 | 401 | 409 | 9 | VIRGDEVRO 4e-06 | 56 |
| HLA-A*23:01 | 1 | 403 | 412 | 10 | RGDEVROIAP 4e-06 | 63 |
| HLA-A*30:02 | 1 | 404 | 413 | 10 | GDEVROIAPG 4e-06 | 95 |
| HLA-B*15:01 | 1 | 404 | 412 | 9 | GDEVROIAP 4e-06 | 78 |
| HLA-A*11:01 | 1 | 406 | 415 | 10 | EVROIAPGQT 4e-06 | 63 |
| HLA-A*23:01 | 1 | 406 | 415 | 10 | EVROIAPGQT 4e-06 | 63 |
| HLA-A*32:01 | 1 | 406 | 415 | 10 | EVROIAPGQT 4e-06 | 64 |
| HLA-B*40:01 | 1 | 406 | 415 | 10 | EVROIAPGQT 4e-06 | 56 |
| HLA-B*35:01 | 1 | 407 | 415 | 9 | VRROIAPGQT 4e-06 | 64 |
| HLA-B*53:01 | 1 | 407 | 415 | 9 | VRROIAPGQT 4e-06 | 66 |
| HLA-A*03:01 | 1 | 411 | 420 | 10 | APGQTGKIAD 4e-06 | 78 |
| HLA-A*23:01 | 1 | 411 | 419 | 9 | APGQTGKIA 4e-06 | 63 |
| HLA-A*24:02 | 1 | 411 | 419 | 9 | APGQTGKIA 4e-06 | 60 |
| HLA-B*08:01 | 1 | 414 | 422 | 9 | QTGKIADYN 4e-06 | 94 |
| HLA-B*15:01 | 1 | 414 | 422 | 9 | QTGKIADYN 4e-06 | 78 |
| HLA-B*44:02 | 1 | 414 | 422 | 9 | QTGKIADYN 4e-06 | 72 |
| HLA-A*02:01 | 1 | 418 | 427 | 10 | IADYNYKLPD 4e-06 | 78 |
| HLA-B*08:01 | 1 | 418 | 427 | 10 | IADYNYKLPD 4e-06 | 94 |
| HLA-A*03:01 | 1 | 419 | 427 | 9 | ADYNYKLPD 4e-06 | 78 |
| HLA-A*23:01 | 1 | 419 | 428 | 10 | ADYNYKLPPD 4e-06 | 63 |
| HLA-A*24:02 | 1 | 419 | 428 | 10 | ADYNYKLPPD 4e-06 | 60 |
| HLA-B*07:02 | 1 | 419 | 427 | 9 | ADYNYKLPD 4e-06 | 79 |
| HLA-B*35:01 | 1 | 419 | 427 | 9 | ADYNYKLPD 4e-06 | 64 |
| HLA-A*31:01 | 1 | 420 | 428 | 9 | DYNYKLPPD 4e-06 | 82 |
| HLA-A*03:01 | 1 | 422 | 431 | 10 | NYKLPPDFTG 4e-06 | 78 |
| HLA-A*02:03 | 1 | 423 | 431 | 9 | YKLPPDFTG 4e-06 | 81 |
| HLA-A*31:01 | 1 | 425 | 434 | 10 | LPDDFTGCVI 4e-06 | 82 |
| HLA-B*15:01 | 1 | 426 | 434 | 9 | PDDFTGCVI 4e-06 | 78 |
| HLA-A*02:01 | 1 | 429 | 437 | 9 | FTGCVIAWN 4e-06 | 78 |
| HLA-A*02:03 | 1 | 429 | 437 | 9 | FTGCVIAWN 4e-06 | 81 |
| HLA-A*26:01 | 1 | 429 | 438 | 10 | FTGCVIAWNS 4e-06 | 74 |
| HLA-A*33:01 | 1 | 429 | 437 | 9 | FTGCVIAWN 4e-06 | 86 |
| HLA-B*08:01 | 1 | 429 | 438 | 10 | FTGCVIAWNS 4e-06 | 94 |
| HLA-B*51:01 | 1 | 429 | 437 | 9 | FTGCVIAWN 4e-06 | 87 |
| HLA-B*44:03 | 1 | 430 | 438 | 9 | TGCVIAWNS 4e-06 | 67 |
| HLA-A*02:06 | 1 | 431 | 439 | 9 | GCVIAWNSN 4e-06 | 84 |
| HLA-A*31:01 | 1 | 431 | 440 | 10 | GCVIAWNSNN 4e-06 | 82 |
| HLA-B*07:02 | 1 | 431 | 439 | 9 | GCVIAWNSN 4e-06 | 79 |
| HLA-B*07:02 | 1 | 432 | 440 | 9 | CVIAWNSNN 4e-06 | 79 |
| HLA-B*08:01 | 1 | 432 | 440 | 9 | CVIAWNSNN 4e-06 | 94 |
| HLA-B*35:01 | 1 | 432 | 440 | 9 | CVIAWNSNN 4e-06 | 64 |
| HLA-A*23:01 | 1 | 433 | 442 | 10 | VIAWNSNNLD 4e-06 | 63 |
| HLA-A*32:01 | 1 | 435 | 443 | 9 | AWNSNNLDS 4e-06 | 64 |
| HLA-B*35:01 | 1 | 435 | 443 | 9 | AWNSNNLDS 4e-06 | 64 |
| HLA-B*35:01 | 1 | 435 | 444 | 10 | AWNSNNLDSK 4e-06 | 64 |
| HLA-B*53:01 | 1 | 435 | 443 | 9 | AWNSNNLDS 4e-06 | 66 |
| HLA-A*26:01 | 1 | 437 | 446 | 10 | NSNNLDSKVG 4e-06 | 74 |
| HLA-A*68:01 | 1 | 437 | 446 | 10 | NSNNLDSKVG 4e-06 | 75 |
| HLA-B*07:02 | 1 | 437 | 446 | 10 | NSNNLDSKVG 4e-06 | 79 |

| | | | | | | |
|-------------|---|-----|-----|----|-----------------|----|
| HLA-A*02:03 | 1 | 438 | 447 | 10 | SNNLDSKVG 4e-06 | 81 |
| HLA-A*68:01 | 1 | 438 | 447 | 10 | SNNLDSKVG 4e-06 | 75 |
| HLA-B*51:01 | 1 | 438 | 447 | 10 | SNNLDSKVG 4e-06 | 87 |
| HLA-A*02:06 | 1 | 439 | 448 | 10 | NNLDSKVG 4e-06 | 84 |
| HLA-A*03:01 | 1 | 439 | 447 | 9 | NNLDSKVG 4e-06 | 78 |
| HLA-A*33:01 | 1 | 439 | 448 | 10 | NNLDSKVG 4e-06 | 86 |
| HLA-B*51:01 | 1 | 439 | 448 | 10 | NNLDSKVG 4e-06 | 87 |
| HLA-B*58:01 | 1 | 439 | 448 | 10 | NNLDSKVG 4e-06 | 85 |
| HLA-A*24:02 | 1 | 440 | 448 | 9 | NLDSKVG 4e-06 | 60 |
| HLA-B*44:02 | 1 | 440 | 448 | 9 | NLDSKVG 4e-06 | 72 |
| HLA-B*53:01 | 1 | 440 | 448 | 9 | NLDSKVG 4e-06 | 66 |
| HLA-B*57:01 | 1 | 440 | 448 | 9 | NLDSKVG 4e-06 | 92 |
| HLA-A*32:01 | 1 | 441 | 450 | 10 | LDSKVG 4e-06 | 64 |
| HLA-B*53:01 | 1 | 441 | 450 | 10 | LDSKVG 4e-06 | 66 |
| HLA-B*35:01 | 1 | 449 | 458 | 10 | YNYLYR 4e-06 | 64 |
| HLA-B*40:01 | 1 | 449 | 458 | 10 | YNYLYR 4e-06 | 56 |
| HLA-B*07:02 | 1 | 450 | 459 | 10 | NYLYR 4e-06 | 79 |
| HLA-B*35:01 | 1 | 454 | 463 | 10 | RLFRK 4e-06 | 64 |
| HLA-A*24:02 | 1 | 457 | 465 | 9 | RKSNL 4e-06 | 60 |
| HLA-A*02:03 | 1 | 458 | 467 | 10 | KSNL 4e-06 | 81 |
| HLA-B*15:01 | 1 | 458 | 467 | 10 | KSNL 4e-06 | 78 |
| HLA-B*44:02 | 1 | 458 | 467 | 10 | KSNL 4e-06 | 72 |
| HLA-A*11:01 | 1 | 459 | 467 | 9 | SNL 4e-06 | 63 |
| HLA-A*26:01 | 1 | 459 | 467 | 9 | SNL 4e-06 | 74 |
| HLA-A*32:01 | 1 | 459 | 467 | 9 | SNL 4e-06 | 64 |
| HLA-B*35:01 | 1 | 459 | 468 | 10 | SNL 4e-06 | 64 |
| HLA-A*32:01 | 1 | 460 | 469 | 10 | NL 4e-06 | 64 |
| HLA-A*11:01 | 1 | 461 | 470 | 10 | L 4e-06 | 63 |
| HLA-A*23:01 | 1 | 461 | 470 | 10 | L 4e-06 | 63 |
| HLA-A*24:02 | 1 | 461 | 470 | 10 | L 4e-06 | 60 |
| HLA-A*02:06 | 1 | 463 | 471 | 9 | P 4e-06 | 84 |
| HLA-B*35:01 | 1 | 463 | 471 | 9 | P 4e-06 | 64 |
| HLA-B*57:01 | 1 | 463 | 471 | 9 | P 4e-06 | 92 |
| HLA-B*44:02 | 1 | 467 | 476 | 10 | D 4e-06 | 72 |
| HLA-B*53:01 | 1 | 468 | 477 | 10 | I 4e-06 | 66 |
| HLA-B*35:01 | 1 | 469 | 478 | 10 | S 4e-06 | 64 |
| HLA-A*24:02 | 1 | 470 | 478 | 9 | T 4e-06 | 60 |
| HLA-A*68:01 | 1 | 473 | 482 | 10 | Y 4e-06 | 75 |
| HLA-A*02:03 | 1 | 474 | 482 | 9 | Q 4e-06 | 81 |
| HLA-A*31:01 | 1 | 474 | 482 | 9 | Q 4e-06 | 82 |
| HLA-A*32:01 | 1 | 474 | 482 | 9 | Q 4e-06 | 64 |
| HLA-A*26:01 | 1 | 475 | 484 | 10 | A 4e-06 | 74 |
| HLA-A*02:03 | 1 | 476 | 484 | 9 | G 4e-06 | 81 |
| HLA-A*11:01 | 1 | 476 | 485 | 10 | G 4e-06 | 63 |
| HLA-A*32:01 | 1 | 476 | 484 | 9 | G 4e-06 | 64 |
| HLA-A*68:01 | 1 | 476 | 485 | 10 | G 4e-06 | 75 |
| HLA-B*44:02 | 1 | 476 | 485 | 10 | G 4e-06 | 72 |
| HLA-B*40:01 | 1 | 477 | 485 | 9 | S 4e-06 | 56 |
| HLA-B*44:03 | 1 | 477 | 485 | 9 | S 4e-06 | 67 |
| HLA-A*02:06 | 1 | 478 | 487 | 10 | T 4e-06 | 84 |
| HLA-A*33:01 | 1 | 478 | 487 | 10 | T 4e-06 | 86 |
| HLA-A*02:01 | 1 | 480 | 488 | 9 | C 4e-06 | 78 |
| HLA-A*11:01 | 1 | 480 | 488 | 9 | C 4e-06 | 63 |
| HLA-A*23:01 | 1 | 480 | 488 | 9 | C 4e-06 | 63 |
| HLA-A*02:03 | 1 | 483 | 491 | 9 | V 4e-06 | 81 |
| HLA-A*02:01 | 1 | 484 | 493 | 10 | E 4e-06 | 78 |
| HLA-A*24:02 | 1 | 484 | 493 | 10 | E 4e-06 | 60 |
| HLA-A*32:01 | 1 | 485 | 494 | 10 | G 4e-06 | 64 |
| HLA-A*68:02 | 1 | 485 | 493 | 9 | G 4e-06 | 78 |
| HLA-B*44:02 | 1 | 485 | 493 | 9 | G 4e-06 | 72 |
| HLA-A*02:01 | 1 | 490 | 498 | 9 | F 4e-06 | 78 |
| HLA-A*26:01 | 1 | 491 | 499 | 9 | P 4e-06 | 74 |
| HLA-B*57:01 | 1 | 491 | 500 | 10 | P 4e-06 | 92 |
| HLA-B*07:02 | 1 | 492 | 501 | 10 | L 4e-06 | 79 |
| HLA-B*40:01 | 1 | 495 | 504 | 10 | Y 4e-06 | 56 |
| HLA-B*44:03 | 1 | 495 | 504 | 10 | Y 4e-06 | 67 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-A*11:01 | 1 | 496 | 504 | 9 | GFQPTNGVG | 4e-06 | 63 |
| HLA-B*40:01 | 1 | 496 | 504 | 9 | GFQPTNGVG | 4e-06 | 56 |
| HLA-A*26:01 | 1 | 507 | 516 | 10 | PYRVVLSFE | 4e-06 | 74 |
| HLA-B*07:02 | 1 | 507 | 516 | 10 | PYRVVLSFE | 4e-06 | 79 |
| HLA-B*40:01 | 1 | 508 | 516 | 9 | YRVVLSFE | 4e-06 | 56 |
| HLA-A*32:01 | 1 | 514 | 523 | 10 | SFELLHAPAT | 4e-06 | 64 |
| HLA-A*26:01 | 1 | 517 | 526 | 10 | LLHAPATVCG | 4e-06 | 74 |
| HLA-A*68:01 | 1 | 517 | 526 | 10 | LLHAPATVCG | 4e-06 | 75 |
| HLA-A*23:01 | 1 | 520 | 528 | 9 | APATVCGPK | 4e-06 | 63 |
| HLA-A*02:01 | 1 | 521 | 529 | 9 | PATVCGPKK | 4e-06 | 78 |
| HLA-A*24:02 | 1 | 522 | 531 | 10 | ATVCGPKKST | 4e-06 | 60 |
| HLA-B*44:02 | 1 | 523 | 532 | 10 | TVCGPKKSTN | 4e-06 | 72 |
| HLA-A*02:03 | 1 | 524 | 532 | 9 | VCGPKKSTN | 4e-06 | 81 |
| HLA-A*32:01 | 1 | 524 | 532 | 9 | VCGPKKSTN | 4e-06 | 64 |
| HLA-A*33:01 | 1 | 524 | 532 | 9 | VCGPKKSTN | 4e-06 | 86 |
| HLA-A*68:02 | 1 | 527 | 535 | 9 | PKKSTNLVK | 4e-06 | 78 |
| HLA-A*02:06 | 1 | 531 | 540 | 10 | TNLVKNKCVN | 4e-06 | 84 |
| HLA-A*03:01 | 1 | 532 | 540 | 9 | NLVKNKCVN | 4e-06 | 78 |
| HLA-A*31:01 | 1 | 532 | 540 | 9 | NLVKNKCVN | 4e-06 | 82 |
| HLA-B*35:01 | 1 | 533 | 542 | 10 | LVKNKCVNFN | 4e-06 | 64 |
| HLA-A*03:01 | 1 | 534 | 542 | 9 | VKNKCVNFN | 4e-06 | 78 |
| HLA-A*31:01 | 1 | 534 | 542 | 9 | VKNKCVNFN | 4e-06 | 82 |
| HLA-A*33:01 | 1 | 534 | 542 | 9 | VKNKCVNFN | 4e-06 | 86 |
| HLA-B*58:01 | 1 | 536 | 545 | 10 | NKCVNFNFG | 4e-06 | 85 |
| HLA-A*11:01 | 1 | 537 | 545 | 9 | KCVNFNFG | 4e-06 | 63 |
| HLA-B*44:02 | 1 | 537 | 545 | 9 | KCVNFNFG | 4e-06 | 72 |
| HLA-B*44:03 | 1 | 537 | 545 | 9 | KCVNFNFG | 4e-06 | 67 |
| HLA-A*02:01 | 1 | 539 | 548 | 10 | VNFNFNGLTG | 4e-06 | 78 |
| HLA-B*35:01 | 1 | 539 | 547 | 9 | VNFNFNGLT | 4e-06 | 64 |
| HLA-B*53:01 | 1 | 539 | 548 | 10 | VNFNFNGLTG | 4e-06 | 66 |
| HLA-A*03:01 | 1 | 541 | 550 | 10 | FNFNGLTGTG | 4e-06 | 78 |
| HLA-A*32:01 | 1 | 541 | 550 | 10 | FNFNGLTGTG | 4e-06 | 64 |
| HLA-A*11:01 | 1 | 542 | 551 | 10 | NFNGLTGTGV | 4e-06 | 63 |
| HLA-B*40:01 | 1 | 544 | 553 | 10 | NGLTGTGVLT | 4e-06 | 56 |
| HLA-B*40:01 | 1 | 545 | 554 | 10 | GLTGTGVLTE | 4e-06 | 56 |
| HLA-B*44:02 | 1 | 545 | 554 | 10 | GLTGTGVLTE | 4e-06 | 72 |
| HLA-B*40:01 | 1 | 546 | 554 | 9 | LTGTGVLTE | 4e-06 | 56 |
| HLA-B*53:01 | 1 | 546 | 555 | 10 | LTGTGVLTES | 4e-06 | 66 |
| HLA-A*23:01 | 1 | 547 | 555 | 9 | TGTGVLTES | 4e-06 | 63 |
| HLA-A*24:02 | 1 | 547 | 555 | 9 | TGTGVLTES | 4e-06 | 60 |
| HLA-A*68:02 | 1 | 547 | 556 | 10 | TGTGVLTESN | 4e-06 | 78 |
| HLA-B*08:01 | 1 | 547 | 556 | 10 | TGTGVLTESN | 4e-06 | 94 |
| HLA-A*02:01 | 1 | 548 | 556 | 9 | GTGVLTESN | 4e-06 | 78 |
| HLA-A*23:01 | 1 | 548 | 557 | 10 | GTGVLTESNK | 4e-06 | 63 |
| HLA-A*24:02 | 1 | 548 | 557 | 10 | GTGVLTESNK | 4e-06 | 60 |
| HLA-B*35:01 | 1 | 548 | 557 | 10 | GTGVLTESNK | 4e-06 | 64 |
| HLA-B*44:02 | 1 | 548 | 556 | 9 | GTGVLTESN | 4e-06 | 72 |
| HLA-B*44:03 | 1 | 548 | 557 | 10 | GTGVLTESNK | 4e-06 | 67 |
| HLA-B*51:01 | 1 | 548 | 556 | 9 | GTGVLTESN | 4e-06 | 87 |
| HLA-B*53:01 | 1 | 548 | 557 | 10 | GTGVLTESNK | 4e-06 | 66 |
| HLA-A*02:01 | 1 | 555 | 564 | 10 | SNKKFLPFQQ | 4e-06 | 78 |
| HLA-A*32:01 | 1 | 559 | 568 | 10 | FLPFQQFGRD | 4e-06 | 64 |
| HLA-B*15:01 | 1 | 559 | 568 | 10 | FLPFQQFGRD | 4e-06 | 78 |
| HLA-A*03:01 | 1 | 560 | 568 | 9 | LPFQQFGRD | 4e-06 | 78 |
| HLA-A*11:01 | 1 | 560 | 569 | 10 | LPFQQFGRDI | 4e-06 | 63 |
| HLA-A*32:01 | 1 | 560 | 568 | 9 | LPFQQFGRD | 4e-06 | 64 |
| HLA-A*33:01 | 1 | 560 | 568 | 9 | LPFQQFGRD | 4e-06 | 86 |
| HLA-B*44:02 | 1 | 560 | 568 | 9 | LPFQQFGRD | 4e-06 | 72 |
| HLA-A*03:01 | 1 | 561 | 570 | 10 | PFQQFGRDIA | 4e-06 | 78 |
| HLA-A*24:02 | 1 | 563 | 572 | 10 | QQFGRDIADT | 4e-06 | 60 |
| HLA-A*26:01 | 1 | 564 | 572 | 9 | QFGRDIADT | 4e-06 | 74 |
| HLA-B*51:01 | 1 | 564 | 572 | 9 | QFGRDIADT | 4e-06 | 87 |
| HLA-B*58:01 | 1 | 564 | 572 | 9 | QFGRDIADT | 4e-06 | 85 |
| HLA-B*15:01 | 1 | 565 | 574 | 10 | FGRDIADTTD | 4e-06 | 78 |
| HLA-A*02:06 | 1 | 566 | 574 | 9 | GRDIADTTD | 4e-06 | 84 |
| HLA-A*68:01 | 1 | 566 | 575 | 10 | GRDIADTTDA | 4e-06 | 75 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-B*44:02 | 1 | 566 | 574 | 9 | GRDIADTTD 4e-06 | 72 |
| HLA-B*07:02 | 1 | 569 | 578 | 10 | IADTTDAVRD 4e-06 | 79 |
| HLA-B*07:02 | 1 | 570 | 579 | 10 | ADTTDAVRDP 4e-06 | 79 |
| HLA-A*02:01 | 1 | 571 | 580 | 10 | DTTDAVRDPQ 4e-06 | 78 |
| HLA-A*02:03 | 1 | 571 | 580 | 10 | DTTDAVRDPQ 4e-06 | 81 |
| HLA-A*23:01 | 1 | 571 | 579 | 9 | DTTDAVRDP 4e-06 | 63 |
| HLA-A*24:02 | 1 | 571 | 579 | 9 | DTTDAVRDP 4e-06 | 60 |
| HLA-A*23:01 | 1 | 572 | 581 | 10 | TTDAVRDPQT 4e-06 | 63 |
| HLA-A*24:02 | 1 | 572 | 581 | 10 | TTDAVRDPQT 4e-06 | 60 |
| HLA-A*11:01 | 1 | 573 | 581 | 9 | TDAVRDPQT 4e-06 | 63 |
| HLA-A*03:01 | 1 | 577 | 586 | 10 | RDPQLEILD 4e-06 | 78 |
| HLA-A*03:01 | 1 | 578 | 587 | 10 | DPQLEILDI 4e-06 | 78 |
| HLA-A*31:01 | 1 | 578 | 587 | 10 | DPQLEILDI 4e-06 | 82 |
| HLA-A*33:01 | 1 | 578 | 586 | 9 | DPQLEILD 4e-06 | 86 |
| HLA-B*08:01 | 1 | 579 | 588 | 10 | PQLEILDIT 4e-06 | 94 |
| HLA-A*11:01 | 1 | 584 | 593 | 10 | ILDITPCSF 4e-06 | 63 |
| HLA-B*40:01 | 1 | 584 | 593 | 10 | ILDITPCSF 4e-06 | 56 |
| HLA-A*03:01 | 1 | 585 | 593 | 9 | LDITPCSF 4e-06 | 78 |
| HLA-B*07:02 | 1 | 585 | 593 | 9 | LDITPCSF 4e-06 | 79 |
| HLA-B*44:02 | 1 | 585 | 594 | 10 | LDITPCSF 4e-06 | 72 |
| HLA-A*23:01 | 1 | 586 | 595 | 10 | DITPCSF 4e-06 | 63 |
| HLA-A*24:02 | 1 | 586 | 595 | 10 | DITPCSF 4e-06 | 60 |
| HLA-A*32:01 | 1 | 586 | 595 | 10 | DITPCSF 4e-06 | 64 |
| HLA-A*11:01 | 1 | 592 | 600 | 9 | FGVSVITP 4e-06 | 63 |
| HLA-A*03:01 | 1 | 593 | 601 | 9 | GGVSVITP 4e-06 | 78 |
| HLA-B*53:01 | 1 | 593 | 601 | 9 | GGVSVITP 4e-06 | 66 |
| HLA-A*24:02 | 1 | 594 | 602 | 9 | GVSVITPG 4e-06 | 60 |
| HLA-A*02:01 | 1 | 595 | 603 | 9 | VSVITPGT 4e-06 | 78 |
| HLA-A*23:01 | 1 | 598 | 607 | 10 | ITPGTNSQ 4e-06 | 63 |
| HLA-A*24:02 | 1 | 599 | 607 | 9 | TPGTNSQ 4e-06 | 60 |
| HLA-A*33:01 | 1 | 600 | 609 | 10 | PGTNSQVA 4e-06 | 86 |
| HLA-A*68:01 | 1 | 600 | 608 | 9 | PGTNSQV 4e-06 | 75 |
| HLA-B*40:01 | 1 | 604 | 613 | 10 | TSNQVAVLY 4e-06 | 56 |
| HLA-A*33:01 | 1 | 605 | 614 | 10 | SNQVAVLYQ 4e-06 | 86 |
| HLA-A*68:01 | 1 | 605 | 614 | 10 | SNQVAVLYQ 4e-06 | 75 |
| HLA-B*08:01 | 1 | 605 | 614 | 10 | SNQVAVLYQ 4e-06 | 94 |
| HLA-B*44:02 | 1 | 605 | 614 | 10 | SNQVAVLYQ 4e-06 | 72 |
| HLA-A*03:01 | 1 | 606 | 614 | 9 | NQVAVLYQ 4e-06 | 78 |
| HLA-A*32:01 | 1 | 607 | 616 | 10 | QVAVLYQDV 4e-06 | 64 |
| HLA-B*07:02 | 1 | 608 | 616 | 9 | VAVLYQDV 4e-06 | 79 |
| HLA-B*40:01 | 1 | 609 | 618 | 10 | AVLYQDVNCT 4e-06 | 56 |
| HLA-A*03:01 | 1 | 612 | 621 | 10 | YQDVNCTEVP 4e-06 | 78 |
| HLA-A*31:01 | 1 | 612 | 621 | 10 | YQDVNCTEVP 4e-06 | 82 |
| HLA-A*24:02 | 1 | 614 | 622 | 9 | DVNCTEVPV 4e-06 | 60 |
| HLA-A*23:01 | 1 | 617 | 625 | 9 | CTEVPVAIH 4e-06 | 63 |
| HLA-A*23:01 | 1 | 617 | 626 | 10 | CTEVPVAIHA 4e-06 | 63 |
| HLA-A*24:02 | 1 | 619 | 628 | 10 | EVPVAIHADQ 4e-06 | 60 |
| HLA-A*02:06 | 1 | 620 | 628 | 9 | VPVAIHADQ 4e-06 | 84 |
| HLA-B*07:02 | 1 | 621 | 630 | 10 | PVAIHADQLT 4e-06 | 79 |
| HLA-B*53:01 | 1 | 626 | 634 | 9 | ADQLTPTWR 4e-06 | 66 |
| HLA-B*44:02 | 1 | 629 | 637 | 9 | LTPTWRVYS 4e-06 | 72 |
| HLA-B*07:02 | 1 | 631 | 639 | 9 | PTWRVYSTG 4e-06 | 79 |
| HLA-A*03:01 | 1 | 632 | 641 | 10 | TWRVYSTGSN 4e-06 | 78 |
| HLA-A*26:01 | 1 | 632 | 641 | 10 | TWRVYSTGSN 4e-06 | 74 |
| HLA-B*57:01 | 1 | 632 | 641 | 10 | TWRVYSTGSN 4e-06 | 92 |
| HLA-A*26:01 | 1 | 633 | 641 | 9 | WRVYSTGSN 4e-06 | 74 |
| HLA-B*07:02 | 1 | 633 | 641 | 9 | WRVYSTGSN 4e-06 | 79 |
| HLA-B*44:03 | 1 | 636 | 645 | 10 | YSTGSNVFQT 4e-06 | 67 |
| HLA-A*31:01 | 1 | 639 | 648 | 10 | GSNVFQTRAG 4e-06 | 82 |
| HLA-B*44:02 | 1 | 639 | 648 | 10 | GSNVFQTRAG 4e-06 | 72 |
| HLA-A*24:02 | 1 | 640 | 649 | 10 | SNVFQTRAGC 4e-06 | 60 |
| HLA-A*68:01 | 1 | 642 | 651 | 10 | VFQTRAGCLI 4e-06 | 75 |
| HLA-A*23:01 | 1 | 643 | 652 | 10 | FQTRAGCLIG 4e-06 | 63 |
| HLA-A*26:01 | 1 | 643 | 652 | 10 | FQTRAGCLIG 4e-06 | 74 |
| HLA-B*40:01 | 1 | 643 | 652 | 10 | FQTRAGCLIG 4e-06 | 56 |
| HLA-A*23:01 | 1 | 644 | 652 | 9 | QTRAGCLIG 4e-06 | 63 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-B*51:01 | 1 | 645 | 654 | 10 | TRAGCLIGAE 4e-06 | 87 |
| HLA-B*44:02 | 1 | 646 | 654 | 9 | RAGCLIGAE 4e-06 | 72 |
| HLA-B*53:01 | 1 | 646 | 654 | 9 | RAGCLIGAE 4e-06 | 66 |
| HLA-A*31:01 | 1 | 648 | 657 | 10 | GCLIGAEHVN 4e-06 | 82 |
| HLA-A*32:01 | 1 | 648 | 657 | 10 | GCLIGAEHVN 4e-06 | 64 |
| HLA-A*68:01 | 1 | 648 | 656 | 9 | GCLIGAEHV 4e-06 | 75 |
| HLA-B*51:01 | 1 | 648 | 657 | 10 | GCLIGAEHVN 4e-06 | 87 |
| HLA-A*23:01 | 1 | 649 | 657 | 9 | CLIGAEHVN 4e-06 | 63 |
| HLA-A*24:02 | 1 | 649 | 657 | 9 | CLIGAEHVN 4e-06 | 60 |
| HLA-A*33:01 | 1 | 649 | 658 | 10 | CLIGAEHVNN 4e-06 | 86 |
| HLA-A*68:01 | 1 | 649 | 658 | 10 | CLIGAEHVNN 4e-06 | 75 |
| HLA-B*51:01 | 1 | 650 | 658 | 9 | LIGAEHVNN 4e-06 | 87 |
| HLA-A*11:01 | 1 | 653 | 662 | 10 | AHVNNNSYEC 4e-06 | 63 |
| HLA-B*58:01 | 1 | 654 | 663 | 10 | EHVNNNSYECD 4e-06 | 85 |
| HLA-B*40:01 | 1 | 655 | 664 | 10 | HVNNNSYECDI 4e-06 | 56 |
| HLA-B*08:01 | 1 | 656 | 665 | 10 | VNNSYECDIP 4e-06 | 94 |
| HLA-A*02:06 | 1 | 657 | 665 | 9 | NNSYECDIP 4e-06 | 84 |
| HLA-A*03:01 | 1 | 657 | 666 | 10 | NNSYECDIPI 4e-06 | 78 |
| HLA-B*35:01 | 1 | 657 | 665 | 9 | NNSYECDIP 4e-06 | 64 |
| HLA-B*07:02 | 1 | 658 | 667 | 10 | NSYECDIPIG 4e-06 | 79 |
| HLA-B*44:03 | 1 | 659 | 667 | 9 | SYECDIPIG 4e-06 | 67 |
| HLA-B*53:01 | 1 | 659 | 667 | 9 | SYECDIPIG 4e-06 | 66 |
| HLA-A*02:01 | 1 | 661 | 669 | 9 | ECDIPIGAG 4e-06 | 78 |
| HLA-A*31:01 | 1 | 661 | 669 | 9 | ECDIPIGAG 4e-06 | 82 |
| HLA-B*15:01 | 1 | 662 | 671 | 10 | CDIPIGAGIC 4e-06 | 78 |
| HLA-B*53:01 | 1 | 662 | 671 | 10 | CDIPIGAGIC 4e-06 | 66 |
| HLA-A*24:02 | 1 | 663 | 671 | 9 | DIPIGAGIC 4e-06 | 60 |
| HLA-A*24:02 | 1 | 663 | 672 | 10 | DIPIGAGICA 4e-06 | 60 |
| HLA-A*31:01 | 1 | 665 | 673 | 9 | PIGAGICAS 4e-06 | 82 |
| HLA-B*07:02 | 1 | 665 | 673 | 9 | PIGAGICAS 4e-06 | 79 |
| HLA-A*26:01 | 1 | 667 | 675 | 9 | GAGICASYQ 4e-06 | 74 |
| HLA-A*33:01 | 1 | 667 | 676 | 10 | GAGICASYQT 4e-06 | 86 |
| HLA-A*68:02 | 1 | 667 | 675 | 9 | GAGICASYQ 4e-06 | 78 |
| HLA-B*08:01 | 1 | 667 | 675 | 9 | GAGICASYQ 4e-06 | 94 |
| HLA-A*23:01 | 1 | 668 | 676 | 9 | AGICASYQT 4e-06 | 63 |
| HLA-A*24:02 | 1 | 668 | 676 | 9 | AGICASYQT 4e-06 | 60 |
| HLA-A*68:02 | 1 | 668 | 677 | 10 | AGICASYQTQ 4e-06 | 78 |
| HLA-A*02:03 | 1 | 670 | 679 | 10 | ICASYQTQTN 4e-06 | 81 |
| HLA-A*02:06 | 1 | 670 | 679 | 10 | ICASYQTQTN 4e-06 | 84 |
| HLA-B*35:01 | 1 | 670 | 679 | 10 | ICASYQTQTN 4e-06 | 64 |
| HLA-A*03:01 | 1 | 671 | 679 | 9 | CASYQTQTN 4e-06 | 78 |
| HLA-A*11:01 | 1 | 671 | 679 | 9 | CASYQTQTN 4e-06 | 63 |
| HLA-B*44:03 | 1 | 671 | 679 | 9 | CASYQTQTN 4e-06 | 67 |
| HLA-B*35:01 | 1 | 677 | 686 | 10 | QTNSPRRARS 4e-06 | 64 |
| HLA-B*53:01 | 1 | 678 | 686 | 9 | TNSPRRARS 4e-06 | 66 |
| HLA-B*40:01 | 1 | 679 | 688 | 10 | NSPRRARSVA 4e-06 | 56 |
| HLA-A*02:01 | 1 | 680 | 689 | 10 | SPRRARSVAS 4e-06 | 78 |
| HLA-A*23:01 | 1 | 680 | 689 | 10 | SPRRARSVAS 4e-06 | 63 |
| HLA-A*02:03 | 1 | 681 | 689 | 9 | PRRARSVAS 4e-06 | 81 |
| HLA-A*26:01 | 1 | 681 | 690 | 10 | PRRARSVASQ 4e-06 | 74 |
| HLA-A*68:01 | 1 | 681 | 690 | 10 | PRRARSVASQ 4e-06 | 75 |
| HLA-B*51:01 | 1 | 681 | 689 | 9 | PRRARSVAS 4e-06 | 87 |
| HLA-B*58:01 | 1 | 681 | 690 | 10 | PRRARSVASQ 4e-06 | 85 |
| HLA-B*53:01 | 1 | 682 | 691 | 10 | RRARSVASQS 4e-06 | 66 |
| HLA-B*44:02 | 1 | 692 | 701 | 10 | IIAYTMSLGA 4e-06 | 72 |
| HLA-B*44:03 | 1 | 694 | 702 | 9 | AYTMSLGAE 4e-06 | 67 |
| HLA-B*58:01 | 1 | 694 | 702 | 9 | AYTMSLGAE 4e-06 | 85 |
| HLA-A*23:01 | 1 | 695 | 704 | 10 | YTMSLGAENS 4e-06 | 63 |
| HLA-B*40:01 | 1 | 696 | 704 | 9 | TMSLGAENS 4e-06 | 56 |
| HLA-A*24:02 | 1 | 697 | 706 | 10 | MSLGAENSVA 4e-06 | 60 |
| HLA-A*32:01 | 1 | 699 | 708 | 10 | LGAEVSVAYS 4e-06 | 64 |
| HLA-A*11:01 | 1 | 700 | 709 | 10 | GAENSVAYSN 4e-06 | 63 |
| HLA-A*32:01 | 1 | 700 | 709 | 10 | GAENSVAYSN 4e-06 | 64 |
| HLA-A*33:01 | 1 | 700 | 709 | 10 | GAENSVAYSN 4e-06 | 86 |
| HLA-A*02:03 | 1 | 701 | 709 | 9 | AENSVAYSN 4e-06 | 81 |
| HLA-A*03:01 | 1 | 701 | 710 | 10 | AENSVAYSNN 4e-06 | 78 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-A*68:01 | 1 | 701 | 710 | 10 | AENSVAYSNN 4e-06 | 75 |
| HLA-A*02:01 | 1 | 702 | 711 | 10 | ENSVAYSNNS 4e-06 | 78 |
| HLA-A*31:01 | 1 | 702 | 711 | 10 | ENSVAYSNNS 4e-06 | 82 |
| HLA-B*44:03 | 1 | 702 | 711 | 10 | ENSVAYSNNS 4e-06 | 67 |
| HLA-B*53:01 | 1 | 702 | 711 | 10 | ENSVAYSNNS 4e-06 | 66 |
| HLA-B*40:01 | 1 | 707 | 716 | 10 | YSNNSIAIPT 4e-06 | 56 |
| HLA-A*02:03 | 1 | 708 | 717 | 10 | SNNSIAIPTN 4e-06 | 81 |
| HLA-A*02:03 | 1 | 709 | 717 | 9 | NNSIAIPTN 4e-06 | 81 |
| HLA-A*11:01 | 1 | 709 | 717 | 9 | NNSIAIPTN 4e-06 | 63 |
| HLA-A*23:01 | 1 | 709 | 717 | 9 | NNSIAIPTN 4e-06 | 63 |
| HLA-B*15:01 | 1 | 709 | 717 | 9 | NNSIAIPTN 4e-06 | 78 |
| HLA-B*44:03 | 1 | 714 | 723 | 10 | IPNFTISVT 4e-06 | 67 |
| HLA-B*15:01 | 1 | 715 | 724 | 10 | PTNFTISVTT 4e-06 | 78 |
| HLA-B*44:03 | 1 | 719 | 728 | 10 | TISVTTEILP 4e-06 | 67 |
| HLA-B*44:03 | 1 | 720 | 729 | 10 | ISVTTEILPV 4e-06 | 67 |
| HLA-A*11:01 | 1 | 726 | 735 | 10 | ILPVSMTKTS 4e-06 | 63 |
| HLA-A*23:01 | 1 | 727 | 735 | 9 | LPVSMTKTS 4e-06 | 63 |
| HLA-A*23:01 | 1 | 729 | 737 | 9 | VSMTKTSVD 4e-06 | 63 |
| HLA-B*35:01 | 1 | 729 | 738 | 10 | VSMTKTSVDC 4e-06 | 64 |
| HLA-B*44:02 | 1 | 729 | 737 | 9 | VSMTKTSVD 4e-06 | 72 |
| HLA-B*44:02 | 1 | 729 | 738 | 10 | VSMTKTSVDC 4e-06 | 72 |
| HLA-A*68:01 | 1 | 735 | 744 | 10 | SVDCTMYICG 4e-06 | 75 |
| HLA-B*08:01 | 1 | 735 | 744 | 10 | SVDCTMYICG 4e-06 | 94 |
| HLA-B*15:01 | 1 | 735 | 744 | 10 | SVDCTMYICG 4e-06 | 78 |
| HLA-B*08:01 | 1 | 736 | 744 | 9 | VDCTMYICG 4e-06 | 94 |
| HLA-A*30:01 | 1 | 737 | 746 | 10 | DCTMYICGDS 4e-06 | 95 |
| HLA-B*40:01 | 1 | 740 | 748 | 9 | MYICGDSTE 4e-06 | 56 |
| HLA-B*53:01 | 1 | 741 | 750 | 10 | YICGDSTECs 4e-06 | 66 |
| HLA-A*02:03 | 1 | 742 | 750 | 9 | ICGDSTECs 4e-06 | 81 |
| HLA-B*44:02 | 1 | 742 | 750 | 9 | ICGDSTECs 4e-06 | 72 |
| HLA-A*24:02 | 1 | 746 | 755 | 10 | STECsnllLlQ 4e-06 | 60 |
| HLA-A*02:01 | 1 | 748 | 757 | 10 | ECSnllLlQYg 4e-06 | 78 |
| HLA-A*02:01 | 1 | 749 | 758 | 10 | CsnllLlQYGS 4e-06 | 78 |
| HLA-B*51:01 | 1 | 749 | 758 | 10 | CsnllLlQYGS 4e-06 | 87 |
| HLA-B*44:03 | 1 | 751 | 760 | 10 | NllLlQYGSFC 4e-06 | 67 |
| HLA-A*26:01 | 1 | 755 | 764 | 10 | QYGSFCTQLN 4e-06 | 74 |
| HLA-A*68:01 | 1 | 755 | 764 | 10 | QYGSFCTQLN 4e-06 | 75 |
| HLA-A*03:01 | 1 | 759 | 768 | 10 | FCTQLNRALT 4e-06 | 78 |
| HLA-A*11:01 | 1 | 759 | 768 | 10 | FCTQLNRALT 4e-06 | 63 |
| HLA-B*35:01 | 1 | 759 | 768 | 10 | FCTQLNRALT 4e-06 | 64 |
| HLA-A*03:01 | 1 | 760 | 769 | 10 | CTQLNRALTg 4e-06 | 78 |
| HLA-A*33:01 | 1 | 760 | 769 | 10 | CTQLNRALTg 4e-06 | 86 |
| HLA-B*40:01 | 1 | 762 | 771 | 10 | QLNRALTgIA 4e-06 | 56 |
| HLA-A*11:01 | 1 | 763 | 771 | 9 | LNRLALTgIA 4e-06 | 63 |
| HLA-A*11:01 | 1 | 763 | 772 | 10 | LNRLALTgIAV 4e-06 | 63 |
| HLA-A*32:01 | 1 | 763 | 771 | 9 | LNRLALTgIA 4e-06 | 64 |
| HLA-B*53:01 | 1 | 763 | 771 | 9 | LNRLALTgIA 4e-06 | 66 |
| HLA-A*23:01 | 1 | 765 | 774 | 10 | RALTgIAVEQ 4e-06 | 63 |
| HLA-A*24:02 | 1 | 765 | 774 | 10 | RALTgIAVEQ 4e-06 | 60 |
| HLA-A*33:01 | 1 | 766 | 775 | 10 | ALTgIAVEQD 4e-06 | 86 |
| HLA-B*08:01 | 1 | 766 | 775 | 10 | ALTgIAVEQD 4e-06 | 94 |
| HLA-B*44:02 | 1 | 766 | 775 | 10 | ALTgIAVEQD 4e-06 | 72 |
| HLA-A*02:03 | 1 | 767 | 775 | 9 | LTgIAVEQD 4e-06 | 81 |
| HLA-A*31:01 | 1 | 767 | 775 | 9 | LTgIAVEQD 4e-06 | 82 |
| HLA-B*08:01 | 1 | 767 | 776 | 10 | LTgIAVEQDK 4e-06 | 94 |
| HLA-B*44:03 | 1 | 767 | 776 | 10 | LTgIAVEQDK 4e-06 | 67 |
| HLA-B*53:01 | 1 | 767 | 775 | 9 | LTgIAVEQD 4e-06 | 66 |
| HLA-A*02:01 | 1 | 769 | 777 | 9 | GIAVEQDKN 4e-06 | 78 |
| HLA-A*02:03 | 1 | 769 | 777 | 9 | GIAVEQDKN 4e-06 | 81 |
| HLA-A*26:01 | 1 | 769 | 778 | 10 | GIAVEQDKNT 4e-06 | 74 |
| HLA-A*31:01 | 1 | 769 | 778 | 10 | GIAVEQDKNT 4e-06 | 82 |
| HLA-A*33:01 | 1 | 769 | 778 | 10 | GIAVEQDKNT 4e-06 | 86 |
| HLA-B*07:02 | 1 | 769 | 778 | 10 | GIAVEQDKNT 4e-06 | 79 |
| HLA-A*03:01 | 1 | 770 | 778 | 9 | IAVEQDKNT 4e-06 | 78 |
| HLA-A*24:02 | 1 | 770 | 778 | 9 | IAVEQDKNT 4e-06 | 60 |
| HLA-A*24:02 | 1 | 771 | 780 | 10 | AVEQDKNTQE 4e-06 | 60 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-B*53:01 | 1 | 771 | 780 | 10 | AVEQDKNTQE | 4e-06 | 66 |
| HLA-A*32:01 | 1 | 772 | 780 | 9 | VEQDKNTQE | 4e-06 | 64 |
| HLA-B*07:02 | 1 | 775 | 784 | 10 | DKNTQEVFAQ | 4e-06 | 79 |
| HLA-A*02:03 | 1 | 776 | 784 | 9 | KNTQEVFAQ | 4e-06 | 81 |
| HLA-A*24:02 | 1 | 782 | 791 | 10 | FAQVKQIYKT | 4e-06 | 60 |
| HLA-A*23:01 | 1 | 784 | 793 | 10 | QVKQIYKTPP | 4e-06 | 63 |
| HLA-B*35:01 | 1 | 787 | 796 | 10 | QIYKTPPIKD | 4e-06 | 64 |
| HLA-A*11:01 | 1 | 789 | 798 | 10 | YKTPPIKDFG | 4e-06 | 63 |
| HLA-B*44:02 | 1 | 790 | 799 | 10 | KTPPIKDFGG | 4e-06 | 72 |
| HLA-A*02:01 | 1 | 791 | 799 | 9 | TPPIKDFGG | 4e-06 | 78 |
| HLA-A*03:01 | 1 | 791 | 799 | 9 | TPPIKDFGG | 4e-06 | 78 |
| HLA-B*15:01 | 1 | 792 | 801 | 10 | PPIKDFGGFN | 4e-06 | 78 |
| HLA-A*02:03 | 1 | 793 | 801 | 9 | PIKDFGGFN | 4e-06 | 81 |
| HLA-A*68:01 | 1 | 793 | 801 | 9 | PIKDFGGFN | 4e-06 | 75 |
| HLA-B*08:01 | 1 | 793 | 801 | 9 | PIKDFGGFN | 4e-06 | 94 |
| HLA-B*58:01 | 1 | 793 | 801 | 9 | PIKDFGGFN | 4e-06 | 85 |
| HLA-A*02:01 | 1 | 799 | 808 | 10 | GFNFSQILPD | 4e-06 | 78 |
| HLA-B*08:01 | 1 | 799 | 808 | 10 | GFNFSQILPD | 4e-06 | 94 |
| HLA-A*11:01 | 1 | 800 | 809 | 10 | FNFSQILPDP | 4e-06 | 63 |
| HLA-A*23:01 | 1 | 800 | 808 | 9 | FNFSQILPD | 4e-06 | 63 |
| HLA-B*15:01 | 1 | 800 | 809 | 10 | FNFSQILPDP | 4e-06 | 78 |
| HLA-B*40:01 | 1 | 800 | 808 | 9 | FNFSQILPD | 4e-06 | 56 |
| HLA-A*03:01 | 1 | 801 | 810 | 10 | NFSQILPDPS | 4e-06 | 78 |
| HLA-B*35:01 | 1 | 801 | 810 | 10 | NFSQILPDPS | 4e-06 | 64 |
| HLA-A*23:01 | 1 | 802 | 810 | 9 | FSQILPDPS | 4e-06 | 63 |
| HLA-B*40:01 | 1 | 802 | 810 | 9 | FSQILPDPS | 4e-06 | 56 |
| HLA-B*44:02 | 1 | 802 | 810 | 9 | FSQILPDPS | 4e-06 | 72 |
| HLA-A*02:01 | 1 | 807 | 815 | 9 | PDPSKPSKR | 4e-06 | 78 |
| HLA-A*68:01 | 1 | 807 | 816 | 10 | PDPSKPSKRS | 4e-06 | 75 |
| HLA-B*53:01 | 1 | 807 | 815 | 9 | PDPSKPSKR | 4e-06 | 66 |
| HLA-B*57:01 | 1 | 807 | 815 | 9 | PDPSKPSKR | 4e-06 | 92 |
| HLA-B*57:01 | 1 | 807 | 816 | 10 | PDPSKPSKRS | 4e-06 | 92 |
| HLA-A*24:02 | 1 | 808 | 816 | 9 | DPSKPSKRS | 4e-06 | 60 |
| HLA-A*02:03 | 1 | 812 | 820 | 9 | PSKRSFIED | 4e-06 | 81 |
| HLA-A*68:01 | 1 | 812 | 821 | 10 | PSKRSFIEDL | 4e-06 | 75 |
| HLA-B*44:03 | 1 | 812 | 821 | 10 | PSKRSFIEDL | 4e-06 | 67 |
| HLA-B*40:01 | 1 | 816 | 824 | 9 | SFIEDLLFN | 4e-06 | 56 |
| HLA-A*31:01 | 1 | 818 | 827 | 10 | IEDLLFNKVT | 4e-06 | 82 |
| HLA-A*68:02 | 1 | 823 | 832 | 10 | FNKVTLADAG | 4e-06 | 78 |
| HLA-B*15:01 | 1 | 824 | 832 | 9 | NKVTLADAG | 4e-06 | 78 |
| HLA-A*23:01 | 1 | 829 | 838 | 10 | ADAGFIKQYG | 4e-06 | 63 |
| HLA-A*24:02 | 1 | 829 | 838 | 10 | ADAGFIKQYG | 4e-06 | 60 |
| HLA-A*01:01 | 1 | 830 | 839 | 10 | DAGFIKQYGD | 4e-06 | 96 |
| HLA-A*03:01 | 1 | 831 | 839 | 9 | AGFIKQYGD | 4e-06 | 78 |
| HLA-A*11:01 | 1 | 832 | 841 | 10 | GFIKQYGDCL | 4e-06 | 63 |
| HLA-B*35:01 | 1 | 833 | 842 | 10 | FIKQYGDCLG | 4e-06 | 64 |
| HLA-B*53:01 | 1 | 833 | 842 | 10 | FIKQYGDCLG | 4e-06 | 66 |
| HLA-A*33:01 | 1 | 835 | 843 | 9 | KQYGDCLGD | 4e-06 | 86 |
| HLA-B*07:02 | 1 | 835 | 843 | 9 | KQYGDCLGD | 4e-06 | 79 |
| HLA-A*11:01 | 1 | 836 | 845 | 10 | QYGDCLGDIA | 4e-06 | 63 |
| HLA-A*26:01 | 1 | 836 | 845 | 10 | QYGDCLGDIA | 4e-06 | 74 |
| HLA-B*35:01 | 1 | 836 | 844 | 9 | QYGDCLGDI | 4e-06 | 64 |
| HLA-A*11:01 | 1 | 837 | 845 | 9 | YGDCLGDIA | 4e-06 | 63 |
| HLA-A*23:01 | 1 | 837 | 845 | 9 | YGDCLGDIA | 4e-06 | 63 |
| HLA-A*24:02 | 1 | 837 | 846 | 10 | YGDCLGDIAA | 4e-06 | 60 |
| HLA-A*68:01 | 1 | 837 | 845 | 9 | YGDCLGDIA | 4e-06 | 75 |
| HLA-A*02:06 | 1 | 839 | 848 | 10 | DCLGDIAARD | 4e-06 | 84 |
| HLA-A*03:01 | 1 | 839 | 848 | 10 | DCLGDIAARD | 4e-06 | 78 |
| HLA-B*53:01 | 1 | 839 | 848 | 10 | DCLGDIAARD | 4e-06 | 66 |
| HLA-B*58:01 | 1 | 839 | 848 | 10 | DCLGDIAARD | 4e-06 | 85 |
| HLA-A*03:01 | 1 | 840 | 848 | 9 | CLGDIAARD | 4e-06 | 78 |
| HLA-A*31:01 | 1 | 840 | 848 | 9 | CLGDIAARD | 4e-06 | 82 |
| HLA-B*35:01 | 1 | 840 | 849 | 10 | CLGDIAARDL | 4e-06 | 64 |
| HLA-B*44:03 | 1 | 840 | 849 | 10 | CLGDIAARDL | 4e-06 | 67 |
| HLA-B*51:01 | 1 | 840 | 848 | 9 | CLGDIAARD | 4e-06 | 87 |
| HLA-A*68:01 | 1 | 841 | 850 | 10 | LGDIAARDLI | 4e-06 | 75 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-A*23:01 | 1 | 843 | 851 | 9 | DIAARDLIC | 4e-06 | 63 |
| HLA-A*24:02 | 1 | 843 | 851 | 9 | DIAARDLIC | 4e-06 | 60 |
| HLA-A*32:01 | 1 | 843 | 852 | 10 | DIAARDLICA | 4e-06 | 64 |
| HLA-A*02:01 | 1 | 847 | 856 | 10 | RDLICAQKFN | 4e-06 | 78 |
| HLA-B*58:01 | 1 | 848 | 856 | 9 | DLICAQKFN | 4e-06 | 85 |
| HLA-A*24:02 | 1 | 849 | 857 | 9 | LICAQKFNG | 4e-06 | 60 |
| HLA-B*07:02 | 1 | 849 | 857 | 9 | LICAQKFNG | 4e-06 | 79 |
| HLA-B*53:01 | 1 | 849 | 857 | 9 | LICAQKFNG | 4e-06 | 66 |
| HLA-A*03:01 | 1 | 850 | 859 | 10 | ICAQKFNGLT | 4e-06 | 78 |
| HLA-B*44:02 | 1 | 850 | 859 | 10 | ICAQKFNGLT | 4e-06 | 72 |
| HLA-A*11:01 | 1 | 855 | 864 | 10 | FNGLTVLPPL | 4e-06 | 63 |
| HLA-A*24:02 | 1 | 855 | 863 | 9 | FNGLTVLPPL | 4e-06 | 60 |
| HLA-A*26:01 | 1 | 855 | 863 | 9 | FNGLTVLPPL | 4e-06 | 74 |
| HLA-B*53:01 | 1 | 857 | 866 | 10 | GLTVLPPLLT | 4e-06 | 66 |
| HLA-A*23:01 | 1 | 858 | 867 | 10 | LTVLPPLTLD | 4e-06 | 63 |
| HLA-A*11:01 | 1 | 861 | 870 | 10 | LPPLLTDEMI | 4e-06 | 63 |
| HLA-A*24:02 | 1 | 863 | 871 | 9 | PLLTDEMIA | 4e-06 | 60 |
| HLA-B*40:01 | 1 | 863 | 871 | 9 | PLLTDEMIA | 4e-06 | 56 |
| HLA-B*51:01 | 1 | 863 | 872 | 10 | PLLTDEMIAQ | 4e-06 | 87 |
| HLA-B*53:01 | 1 | 863 | 872 | 10 | PLLTDEMIAQ | 4e-06 | 66 |
| HLA-A*31:01 | 1 | 866 | 875 | 10 | TDEMIAQYTS | 4e-06 | 82 |
| HLA-B*15:01 | 1 | 866 | 874 | 9 | TDEMIAQYT | 4e-06 | 78 |
| HLA-B*44:03 | 1 | 872 | 881 | 10 | QYTSALLAGT | 4e-06 | 67 |
| HLA-A*24:02 | 1 | 875 | 883 | 9 | SALLAGTIT | 4e-06 | 60 |
| HLA-A*23:01 | 1 | 876 | 885 | 10 | ALLAGTITSG | 4e-06 | 63 |
| HLA-B*40:01 | 1 | 876 | 885 | 10 | ALLAGTITSG | 4e-06 | 56 |
| HLA-A*33:01 | 1 | 878 | 887 | 10 | LAGTITSGWT | 4e-06 | 86 |
| HLA-A*68:01 | 1 | 878 | 887 | 10 | LAGTITSGWT | 4e-06 | 75 |
| HLA-B*15:01 | 1 | 878 | 887 | 10 | LAGTITSGWT | 4e-06 | 78 |
| HLA-A*24:02 | 1 | 881 | 889 | 9 | TITSGWTFG | 4e-06 | 60 |
| HLA-B*44:02 | 1 | 881 | 889 | 9 | TITSGWTFG | 4e-06 | 72 |
| HLA-B*44:03 | 1 | 881 | 889 | 9 | TITSGWTFG | 4e-06 | 67 |
| HLA-A*03:01 | 1 | 883 | 891 | 9 | TSGWTFGAG | 4e-06 | 78 |
| HLA-A*11:01 | 1 | 885 | 893 | 9 | GWTFGAGAA | 4e-06 | 63 |
| HLA-A*32:01 | 1 | 885 | 893 | 9 | GWTFGAGAA | 4e-06 | 64 |
| HLA-B*44:03 | 1 | 885 | 893 | 9 | GWTFGAGAA | 4e-06 | 67 |
| HLA-A*03:01 | 1 | 888 | 897 | 10 | FGAGAALQIP | 4e-06 | 78 |
| HLA-B*40:01 | 1 | 888 | 897 | 10 | FGAGAALQIP | 4e-06 | 56 |
| HLA-A*11:01 | 1 | 897 | 906 | 10 | PFAMQMAYRF | 4e-06 | 63 |
| HLA-B*44:03 | 1 | 897 | 905 | 9 | PFAMQMAYR | 4e-06 | 67 |
| HLA-A*03:01 | 1 | 898 | 907 | 10 | FAMQMAYRFN | 4e-06 | 78 |
| HLA-A*68:02 | 1 | 899 | 908 | 10 | AMQMAYRFNG | 4e-06 | 78 |
| HLA-B*07:02 | 1 | 899 | 908 | 10 | AMQMAYRFNG | 4e-06 | 79 |
| HLA-B*51:01 | 1 | 899 | 907 | 9 | AMQMAYRFN | 4e-06 | 87 |
| HLA-A*31:01 | 1 | 901 | 910 | 10 | QMAYRFNGIG | 4e-06 | 82 |
| HLA-B*07:02 | 1 | 901 | 910 | 10 | QMAYRFNGIG | 4e-06 | 79 |
| HLA-B*44:02 | 1 | 902 | 910 | 9 | MAYRFNGIG | 4e-06 | 72 |
| HLA-A*68:02 | 1 | 905 | 914 | 10 | RFNGIGVTQN | 4e-06 | 78 |
| HLA-B*35:01 | 1 | 905 | 914 | 10 | RFNGIGVTQN | 4e-06 | 64 |
| HLA-A*02:03 | 1 | 906 | 914 | 9 | FNGIGVTQN | 4e-06 | 81 |
| HLA-A*23:01 | 1 | 909 | 918 | 10 | IGVTQNVLYE | 4e-06 | 63 |
| HLA-B*08:01 | 1 | 910 | 919 | 10 | GVTQNVLYEN | 4e-06 | 94 |
| HLA-B*44:03 | 1 | 911 | 919 | 9 | VTQNVLYEN | 4e-06 | 67 |
| HLA-B*15:01 | 1 | 916 | 925 | 10 | LYENQKLIAN | 4e-06 | 78 |
| HLA-B*58:01 | 1 | 916 | 925 | 10 | LYENQKLIAN | 4e-06 | 85 |
| HLA-A*24:02 | 1 | 918 | 926 | 9 | ENQKLIANQ | 4e-06 | 60 |
| HLA-A*68:02 | 1 | 919 | 928 | 10 | NQKLIANQFN | 4e-06 | 78 |
| HLA-A*01:01 | 1 | 920 | 928 | 9 | QKLIANQFN | 4e-06 | 96 |
| HLA-A*11:01 | 1 | 920 | 929 | 10 | QKLIANQFNS | 4e-06 | 63 |
| HLA-B*07:02 | 1 | 920 | 929 | 10 | QKLIANQFNS | 4e-06 | 79 |
| HLA-B*40:01 | 1 | 920 | 928 | 9 | QKLIANQFN | 4e-06 | 56 |
| HLA-A*32:01 | 1 | 923 | 932 | 10 | IANQFNSAIG | 4e-06 | 64 |
| HLA-A*02:06 | 1 | 924 | 932 | 9 | ANQFNSAIG | 4e-06 | 84 |
| HLA-B*07:02 | 1 | 924 | 932 | 9 | ANQFNSAIG | 4e-06 | 79 |
| HLA-A*02:06 | 1 | 926 | 935 | 10 | QFNSAIGKIQ | 4e-06 | 84 |
| HLA-A*02:01 | 1 | 928 | 936 | 9 | NSAIGKIQD | 4e-06 | 78 |

| | | | | | | |
|-------------|---|------|------|----|------------------|----|
| HLA-A*03:01 | 1 | 928 | 936 | 9 | NSAIGKIQD 4e-06 | 78 |
| HLA-B*44:02 | 1 | 928 | 936 | 9 | NSAIGKIQD 4e-06 | 72 |
| HLA-B*44:03 | 1 | 931 | 940 | 10 | IGKIQDSLSS 4e-06 | 67 |
| HLA-A*02:01 | 1 | 935 | 943 | 9 | QDSLSTAS 4e-06 | 78 |
| HLA-A*24:02 | 1 | 937 | 946 | 10 | SLSSTASALG 4e-06 | 60 |
| HLA-A*24:02 | 1 | 938 | 947 | 10 | LSSTASALGK 4e-06 | 60 |
| HLA-B*40:01 | 1 | 940 | 949 | 10 | STASALGKLQ 4e-06 | 56 |
| HLA-A*03:01 | 1 | 941 | 950 | 10 | TASALGKLQD 4e-06 | 78 |
| HLA-A*26:01 | 1 | 942 | 950 | 9 | ASALGKLQD 4e-06 | 74 |
| HLA-A*68:01 | 1 | 945 | 953 | 9 | LGKLQDVVN 4e-06 | 75 |
| HLA-A*68:02 | 1 | 945 | 954 | 10 | LGKLQDVVNQ 4e-06 | 78 |
| HLA-B*44:02 | 1 | 945 | 954 | 10 | LGKLQDVVNQ 4e-06 | 72 |
| HLA-B*44:03 | 1 | 945 | 953 | 9 | LGKLQDVVN 4e-06 | 67 |
| HLA-A*11:01 | 1 | 946 | 955 | 10 | GKLQDVVNQN 4e-06 | 63 |
| HLA-A*68:02 | 1 | 946 | 955 | 10 | GKLQDVVNQN 4e-06 | 78 |
| HLA-B*51:01 | 1 | 946 | 955 | 10 | GKLQDVVNQN 4e-06 | 87 |
| HLA-A*02:06 | 1 | 949 | 957 | 9 | QDVVNQNAQ 4e-06 | 84 |
| HLA-A*24:02 | 1 | 951 | 960 | 10 | VVNQNAQALN 4e-06 | 60 |
| HLA-B*44:03 | 1 | 951 | 960 | 10 | VVNQNAQALN 4e-06 | 67 |
| HLA-A*11:01 | 1 | 952 | 960 | 9 | VNQNAQALN 4e-06 | 63 |
| HLA-A*26:01 | 1 | 952 | 961 | 10 | VNQNAQALNT 4e-06 | 74 |
| HLA-B*07:02 | 1 | 952 | 961 | 10 | VNQNAQALNT 4e-06 | 79 |
| HLA-B*15:01 | 1 | 952 | 960 | 9 | VNQNAQALN 4e-06 | 78 |
| HLA-A*32:01 | 1 | 960 | 969 | 10 | NTLVKQLSSN 4e-06 | 64 |
| HLA-A*23:01 | 1 | 961 | 969 | 9 | TLVKQLSSN 4e-06 | 63 |
| HLA-A*24:02 | 1 | 961 | 969 | 9 | TLVKQLSSN 4e-06 | 60 |
| HLA-A*11:01 | 1 | 962 | 971 | 10 | LVKQLSSNFG 4e-06 | 63 |
| HLA-A*33:01 | 1 | 963 | 971 | 9 | VKQLSSNFG 4e-06 | 86 |
| HLA-B*35:01 | 1 | 963 | 972 | 10 | VKQLSSNFGA 4e-06 | 64 |
| HLA-B*44:03 | 1 | 965 | 974 | 10 | QLSSNFGAIS 4e-06 | 67 |
| HLA-A*23:01 | 1 | 966 | 974 | 9 | LSSNFGAIS 4e-06 | 63 |
| HLA-A*02:06 | 1 | 969 | 978 | 10 | NFGAISSVLN 4e-06 | 84 |
| HLA-A*03:01 | 1 | 969 | 978 | 10 | NFGAISSVLN 4e-06 | 78 |
| HLA-B*35:01 | 1 | 969 | 978 | 10 | NFGAISSVLN 4e-06 | 64 |
| HLA-B*44:03 | 1 | 969 | 978 | 10 | NFGAISSVLN 4e-06 | 67 |
| HLA-A*11:01 | 1 | 970 | 978 | 9 | FGAISSVLN 4e-06 | 63 |
| HLA-A*26:01 | 1 | 970 | 978 | 9 | FGAISSVLN 4e-06 | 74 |
| HLA-A*68:01 | 1 | 970 | 979 | 10 | FGAISSVLND 4e-06 | 75 |
| HLA-A*33:01 | 1 | 971 | 979 | 9 | GAISSVLND 4e-06 | 86 |
| HLA-B*44:03 | 1 | 971 | 979 | 9 | GAISSVLND 4e-06 | 67 |
| HLA-B*15:01 | 1 | 973 | 982 | 10 | ISSVLNDILS 4e-06 | 78 |
| HLA-B*35:01 | 1 | 976 | 985 | 10 | VLNDILSRD 4e-06 | 64 |
| HLA-A*32:01 | 1 | 977 | 986 | 10 | LNDILSRDK 4e-06 | 64 |
| HLA-A*33:01 | 1 | 977 | 985 | 9 | LNDILSRD 4e-06 | 86 |
| HLA-B*53:01 | 1 | 977 | 985 | 9 | LNDILSRD 4e-06 | 66 |
| HLA-B*58:01 | 1 | 979 | 988 | 10 | DILSRDKVE 4e-06 | 85 |
| HLA-A*24:02 | 1 | 980 | 988 | 9 | ILSRDKVE 4e-06 | 60 |
| HLA-A*68:02 | 1 | 980 | 988 | 9 | ILSRDKVE 4e-06 | 78 |
| HLA-B*07:02 | 1 | 985 | 994 | 10 | DKVEAEVQID 4e-06 | 79 |
| HLA-B*57:01 | 1 | 985 | 994 | 10 | DKVEAEVQID 4e-06 | 92 |
| HLA-A*26:01 | 1 | 986 | 994 | 9 | KVEAEVQID 4e-06 | 74 |
| HLA-A*68:02 | 1 | 986 | 994 | 9 | KVEAEVQID 4e-06 | 78 |
| HLA-B*44:02 | 1 | 986 | 994 | 9 | KVEAEVQID 4e-06 | 72 |
| HLA-A*23:01 | 1 | 989 | 998 | 10 | AEVQIDRLIT 4e-06 | 63 |
| HLA-A*24:02 | 1 | 989 | 998 | 10 | AEVQIDRLIT 4e-06 | 60 |
| HLA-A*23:01 | 1 | 990 | 998 | 9 | EVQIDRLIT 4e-06 | 63 |
| HLA-A*68:02 | 1 | 993 | 1002 | 10 | IDRLITGRLQ 4e-06 | 78 |
| HLA-A*24:02 | 1 | 994 | 1003 | 10 | DRLITGRLQS 4e-06 | 60 |
| HLA-A*68:02 | 1 | 994 | 1002 | 9 | DRLITGRLQ 4e-06 | 78 |
| HLA-B*40:01 | 1 | 994 | 1003 | 10 | DRLITGRLQS 4e-06 | 56 |
| HLA-A*23:01 | 1 | 996 | 1005 | 10 | LITGRLQSLQ 4e-06 | 63 |
| HLA-B*44:02 | 1 | 997 | 1006 | 10 | ITGRLQSLQT 4e-06 | 72 |
| HLA-B*53:01 | 1 | 997 | 1006 | 10 | ITGRLQSLQT 4e-06 | 66 |
| HLA-B*40:01 | 1 | 1002 | 1011 | 10 | QSLQTYVTQQ 4e-06 | 56 |
| HLA-A*23:01 | 1 | 1008 | 1017 | 10 | VTQQLIRAAE 4e-06 | 63 |
| HLA-A*11:01 | 1 | 1012 | 1021 | 10 | LIRAAEIRAS 4e-06 | 63 |

| | | | | | | | |
|-------------|---|------|------|----|------------|-------|----|
| HLA-A*24:02 | 1 | 1012 | 1020 | 9 | LIRAAEIRA | 4e-06 | 60 |
| HLA-B*44:02 | 1 | 1012 | 1021 | 10 | LIRAAEIRAS | 4e-06 | 72 |
| HLA-A*02:03 | 1 | 1015 | 1023 | 9 | AAEIRASAN | 4e-06 | 81 |
| HLA-A*26:01 | 1 | 1015 | 1023 | 9 | AAEIRASAN | 4e-06 | 74 |
| HLA-A*24:02 | 1 | 1017 | 1025 | 9 | EIRASANLA | 4e-06 | 60 |
| HLA-B*40:01 | 1 | 1021 | 1030 | 10 | SANLAATKMS | 4e-06 | 56 |
| HLA-A*32:01 | 1 | 1022 | 1030 | 9 | ANLAATKMS | 4e-06 | 64 |
| HLA-B*35:01 | 1 | 1022 | 1031 | 10 | ANLAATKMSE | 4e-06 | 64 |
| HLA-B*44:03 | 1 | 1024 | 1033 | 10 | LAATKMSECV | 4e-06 | 67 |
| HLA-A*24:02 | 1 | 1027 | 1035 | 9 | TKMSECVLG | 4e-06 | 60 |
| HLA-A*23:01 | 1 | 1031 | 1039 | 9 | ECVLGQSKR | 4e-06 | 63 |
| HLA-A*24:02 | 1 | 1031 | 1039 | 9 | ECVLGQSKR | 4e-06 | 60 |
| HLA-A*24:02 | 1 | 1031 | 1040 | 10 | ECVLGQSKRV | 4e-06 | 60 |
| HLA-B*51:01 | 1 | 1032 | 1041 | 10 | CVLGQSKRVD | 4e-06 | 87 |
| HLA-B*44:02 | 1 | 1033 | 1041 | 9 | VLGQSKRVD | 4e-06 | 72 |
| HLA-A*03:01 | 1 | 1034 | 1043 | 10 | LGQSKRVDFC | 4e-06 | 78 |
| HLA-A*24:02 | 1 | 1034 | 1043 | 10 | LGQSKRVDFC | 4e-06 | 60 |
| HLA-A*26:01 | 1 | 1036 | 1044 | 9 | QSKRVDFCG | 4e-06 | 74 |
| HLA-B*44:02 | 1 | 1036 | 1044 | 9 | QSKRVDFCG | 4e-06 | 72 |
| HLA-B*53:01 | 1 | 1036 | 1045 | 10 | QSKRVDFCGK | 4e-06 | 66 |
| HLA-A*01:01 | 1 | 1037 | 1046 | 10 | SKRVDFCGKG | 4e-06 | 96 |
| HLA-A*23:01 | 1 | 1037 | 1045 | 9 | SKRVDFCGK | 4e-06 | 63 |
| HLA-B*15:01 | 1 | 1037 | 1046 | 10 | SKRVDFCGKG | 4e-06 | 78 |
| HLA-B*58:01 | 1 | 1037 | 1046 | 10 | SKRVDFCGKG | 4e-06 | 85 |
| HLA-B*40:01 | 1 | 1038 | 1046 | 9 | KRVDFCGKG | 4e-06 | 56 |
| HLA-A*24:02 | 1 | 1039 | 1048 | 10 | RVDFCGKGYH | 4e-06 | 60 |
| HLA-A*02:03 | 1 | 1040 | 1048 | 9 | VDFCGKGYH | 4e-06 | 81 |
| HLA-A*23:01 | 1 | 1043 | 1051 | 9 | CGKGYHLMS | 4e-06 | 63 |
| HLA-A*24:02 | 1 | 1043 | 1051 | 9 | CGKGYHLMS | 4e-06 | 60 |
| HLA-A*68:02 | 1 | 1045 | 1054 | 10 | KGYHLMSFPQ | 4e-06 | 78 |
| HLA-A*02:03 | 1 | 1046 | 1054 | 9 | GYHLMSFPQ | 4e-06 | 81 |
| HLA-B*44:02 | 1 | 1046 | 1054 | 9 | GYHLMSFPQ | 4e-06 | 72 |
| HLA-B*44:02 | 1 | 1046 | 1055 | 10 | GYHLMSFPQS | 4e-06 | 72 |
| HLA-A*68:01 | 1 | 1053 | 1061 | 9 | PQSAPHGVV | 4e-06 | 75 |
| HLA-A*01:01 | 1 | 1057 | 1066 | 10 | PHGVVFLHVT | 4e-06 | 96 |
| HLA-A*03:01 | 1 | 1057 | 1065 | 9 | PHGVVFLHV | 4e-06 | 78 |
| HLA-B*44:03 | 1 | 1060 | 1069 | 10 | VVFLHVTYVP | 4e-06 | 67 |
| HLA-B*44:02 | 1 | 1061 | 1070 | 10 | VFLHVTYVPA | 4e-06 | 72 |
| HLA-B*44:03 | 1 | 1061 | 1070 | 10 | VFLHVTYVPA | 4e-06 | 67 |
| HLA-B*53:01 | 1 | 1061 | 1070 | 10 | VFLHVTYVPA | 4e-06 | 66 |
| HLA-A*24:02 | 1 | 1062 | 1071 | 10 | FLHVTYVPAQ | 4e-06 | 60 |
| HLA-B*44:02 | 1 | 1062 | 1071 | 10 | FLHVTYVPAQ | 4e-06 | 72 |
| HLA-B*44:03 | 1 | 1062 | 1071 | 10 | FLHVTYVPAQ | 4e-06 | 67 |
| HLA-A*02:03 | 1 | 1066 | 1074 | 9 | TYVPAQEK | 4e-06 | 81 |
| HLA-A*26:01 | 1 | 1069 | 1077 | 9 | PAQEKNFTT | 4e-06 | 74 |
| HLA-A*32:01 | 1 | 1071 | 1080 | 10 | QEKNFTTAPA | 4e-06 | 64 |
| HLA-A*23:01 | 1 | 1072 | 1080 | 9 | EKNFTTAPA | 4e-06 | 63 |
| HLA-A*32:01 | 1 | 1072 | 1080 | 9 | EKNFTTAPA | 4e-06 | 64 |
| HLA-A*26:01 | 1 | 1073 | 1082 | 10 | KNFTTAPAIC | 4e-06 | 74 |
| HLA-A*11:01 | 1 | 1074 | 1082 | 9 | NFTTAPAIC | 4e-06 | 63 |
| HLA-A*02:03 | 1 | 1078 | 1086 | 9 | APAICHDGK | 4e-06 | 81 |
| HLA-A*02:06 | 1 | 1079 | 1088 | 10 | PAICHDGKAH | 4e-06 | 84 |
| HLA-A*32:01 | 1 | 1079 | 1088 | 10 | PAICHDGKAH | 4e-06 | 64 |
| HLA-B*53:01 | 1 | 1079 | 1087 | 9 | PAICHDGKA | 4e-06 | 66 |
| HLA-B*53:01 | 1 | 1079 | 1088 | 10 | PAICHDGKAH | 4e-06 | 66 |
| HLA-A*11:01 | 1 | 1082 | 1090 | 9 | CHDGKAHFP | 4e-06 | 63 |
| HLA-B*35:01 | 1 | 1084 | 1093 | 10 | DGKAHFPREG | 4e-06 | 64 |
| HLA-A*03:01 | 1 | 1085 | 1093 | 9 | GKAHFPREG | 4e-06 | 78 |
| HLA-A*23:01 | 1 | 1089 | 1098 | 10 | FPREGVFVSN | 4e-06 | 63 |
| HLA-B*40:01 | 1 | 1089 | 1098 | 10 | FPREGVFVSN | 4e-06 | 56 |
| HLA-A*23:01 | 1 | 1090 | 1098 | 9 | PREGVFVSN | 4e-06 | 63 |
| HLA-A*33:01 | 1 | 1090 | 1098 | 9 | PREGVFVSN | 4e-06 | 86 |
| HLA-B*44:03 | 1 | 1090 | 1098 | 9 | PREGVFVSN | 4e-06 | 67 |
| HLA-A*02:03 | 1 | 1091 | 1099 | 9 | REGVFVSN | 4e-06 | 81 |
| HLA-A*11:01 | 1 | 1091 | 1100 | 10 | REGVFVSN | 4e-06 | 63 |
| HLA-A*24:02 | 1 | 1091 | 1099 | 9 | REGVFVSN | 4e-06 | 60 |

| | | | | | | | |
|-------------|---|------|------|----|------------|-------|----|
| HLA-A*26:01 | 1 | 1091 | 1099 | 9 | REGVFSVNG | 4e-06 | 74 |
| HLA-A*26:01 | 1 | 1091 | 1100 | 10 | REGVFSVNGT | 4e-06 | 74 |
| HLA-A*31:01 | 1 | 1091 | 1099 | 9 | REGVFSVNG | 4e-06 | 82 |
| HLA-A*68:02 | 1 | 1091 | 1099 | 9 | REGVFSVNG | 4e-06 | 78 |
| HLA-A*03:01 | 1 | 1092 | 1100 | 9 | EGVFSVNGT | 4e-06 | 78 |
| HLA-B*15:01 | 1 | 1092 | 1100 | 9 | EGVFSVNGT | 4e-06 | 78 |
| HLA-A*23:01 | 1 | 1093 | 1101 | 9 | GVFVSNNGTH | 4e-06 | 63 |
| HLA-A*24:02 | 1 | 1093 | 1101 | 9 | GVFVSNNGTH | 4e-06 | 60 |
| HLA-B*07:02 | 1 | 1097 | 1106 | 10 | SNGTHWFVTQ | 4e-06 | 79 |
| HLA-B*44:02 | 1 | 1097 | 1106 | 10 | SNGTHWFVTQ | 4e-06 | 72 |
| HLA-B*44:03 | 1 | 1097 | 1106 | 10 | SNGTHWFVTQ | 4e-06 | 67 |
| HLA-A*02:01 | 1 | 1100 | 1108 | 9 | THWFVTQRN | 4e-06 | 78 |
| HLA-A*02:03 | 1 | 1100 | 1108 | 9 | THWFVTQRN | 4e-06 | 81 |
| HLA-A*02:03 | 1 | 1102 | 1111 | 10 | WFVTQRNFYE | 4e-06 | 81 |
| HLA-B*44:03 | 1 | 1102 | 1111 | 10 | WFVTQRNFYE | 4e-06 | 67 |
| HLA-B*40:01 | 1 | 1103 | 1111 | 9 | FVTQRNFYE | 4e-06 | 56 |
| HLA-B*44:03 | 1 | 1103 | 1111 | 9 | FVTQRNFYE | 4e-06 | 67 |
| HLA-B*44:03 | 1 | 1104 | 1113 | 10 | VTQRNFYEPQ | 4e-06 | 67 |
| HLA-B*15:01 | 1 | 1109 | 1118 | 10 | FYEPQIITTD | 4e-06 | 78 |
| HLA-A*11:01 | 1 | 1110 | 1118 | 9 | YEPQIITTD | 4e-06 | 63 |
| HLA-A*31:01 | 1 | 1110 | 1119 | 10 | YEPQIITTDN | 4e-06 | 82 |
| HLA-A*03:01 | 1 | 1111 | 1119 | 9 | EPQIITTDN | 4e-06 | 78 |
| HLA-B*58:01 | 1 | 1111 | 1119 | 9 | EPQIITTDN | 4e-06 | 85 |
| HLA-A*03:01 | 1 | 1112 | 1120 | 9 | PQIITTDNT | 4e-06 | 78 |
| HLA-A*24:02 | 1 | 1112 | 1120 | 9 | PQIITTDNT | 4e-06 | 60 |
| HLA-B*07:02 | 1 | 1112 | 1120 | 9 | PQIITTDNT | 4e-06 | 79 |
| HLA-B*44:03 | 1 | 1116 | 1125 | 10 | TTDNTFVSGN | 4e-06 | 67 |
| HLA-A*11:01 | 1 | 1117 | 1125 | 9 | TDNTFVSGN | 4e-06 | 63 |
| HLA-B*15:01 | 1 | 1117 | 1125 | 9 | TDNTFVSGN | 4e-06 | 78 |
| HLA-B*35:01 | 1 | 1117 | 1125 | 9 | TDNTFVSGN | 4e-06 | 64 |
| HLA-B*35:01 | 1 | 1117 | 1126 | 10 | TDNTFVSGNC | 4e-06 | 64 |
| HLA-A*02:01 | 1 | 1118 | 1126 | 9 | DNTFVSGNC | 4e-06 | 78 |
| HLA-A*03:01 | 1 | 1118 | 1126 | 9 | DNTFVSGNC | 4e-06 | 78 |
| HLA-A*23:01 | 1 | 1118 | 1126 | 9 | DNTFVSGNC | 4e-06 | 63 |
| HLA-A*24:02 | 1 | 1118 | 1126 | 9 | DNTFVSGNC | 4e-06 | 60 |
| HLA-B*08:01 | 1 | 1118 | 1127 | 10 | DNTFVSGNCD | 4e-06 | 94 |
| HLA-B*44:02 | 1 | 1119 | 1127 | 9 | NTFVSGNCD | 4e-06 | 72 |
| HLA-B*15:01 | 1 | 1123 | 1131 | 9 | SGNCDVVG | 4e-06 | 78 |
| HLA-B*35:01 | 1 | 1123 | 1131 | 9 | SGNCDVVG | 4e-06 | 64 |
| HLA-B*08:01 | 1 | 1125 | 1134 | 10 | NCDVVGIVN | 4e-06 | 94 |
| HLA-B*53:01 | 1 | 1125 | 1134 | 10 | NCDVVGIVN | 4e-06 | 66 |
| HLA-A*01:01 | 1 | 1126 | 1135 | 10 | CDVVGIVN | 4e-06 | 96 |
| HLA-A*30:02 | 1 | 1126 | 1135 | 10 | CDVVGIVN | 4e-06 | 95 |
| HLA-B*58:01 | 1 | 1126 | 1135 | 10 | CDVVGIVN | 4e-06 | 85 |
| HLA-A*32:01 | 1 | 1127 | 1135 | 9 | DVVIGIVN | 4e-06 | 64 |
| HLA-B*44:03 | 1 | 1127 | 1136 | 10 | DVVIGIVN | 4e-06 | 67 |
| HLA-A*11:01 | 1 | 1131 | 1139 | 9 | GIVNNTVYD | 4e-06 | 63 |
| HLA-A*33:01 | 1 | 1131 | 1139 | 9 | GIVNNTVYD | 4e-06 | 86 |
| HLA-B*15:01 | 1 | 1134 | 1143 | 10 | NNTVYDPLQP | 4e-06 | 78 |
| HLA-A*24:02 | 1 | 1135 | 1144 | 10 | NTVYDPLQPE | 4e-06 | 60 |
| HLA-B*07:02 | 1 | 1138 | 1146 | 9 | YDPLQPELD | 4e-06 | 79 |
| HLA-B*44:03 | 1 | 1138 | 1146 | 9 | YDPLQPELD | 4e-06 | 67 |
| HLA-A*32:01 | 1 | 1141 | 1150 | 10 | LQPELDSFKE | 4e-06 | 64 |
| HLA-A*68:01 | 1 | 1143 | 1151 | 9 | PELDSFKEE | 4e-06 | 75 |
| HLA-B*07:02 | 1 | 1143 | 1151 | 9 | PELDSFKEE | 4e-06 | 79 |
| HLA-B*57:01 | 1 | 1143 | 1151 | 9 | PELDSFKEE | 4e-06 | 92 |
| HLA-B*58:01 | 1 | 1143 | 1151 | 9 | PELDSFKEE | 4e-06 | 85 |
| HLA-A*31:01 | 1 | 1144 | 1153 | 10 | ELDSFKEELD | 4e-06 | 82 |
| HLA-B*58:01 | 1 | 1145 | 1153 | 9 | LDSFKEELD | 4e-06 | 85 |
| HLA-A*02:03 | 1 | 1149 | 1157 | 9 | KEELDKYFK | 4e-06 | 81 |
| HLA-A*23:01 | 1 | 1151 | 1160 | 10 | ELDKYFKNHT | 4e-06 | 63 |
| HLA-A*24:02 | 1 | 1151 | 1160 | 10 | ELDKYFKNHT | 4e-06 | 60 |
| HLA-A*02:01 | 1 | 1152 | 1160 | 9 | LDKYFKNHT | 4e-06 | 78 |
| HLA-A*11:01 | 1 | 1152 | 1160 | 9 | LDKYFKNHT | 4e-06 | 63 |
| HLA-B*53:01 | 1 | 1152 | 1160 | 9 | LDKYFKNHT | 4e-06 | 66 |
| HLA-A*11:01 | 1 | 1153 | 1162 | 10 | DKYFKNHTSP | 4e-06 | 63 |

| | | | | | | | |
|-------------|---|------|------|----|------------|-------|----|
| HLA-A*32:01 | 1 | 1153 | 1162 | 10 | DKYFKNHTSP | 4e-06 | 64 |
| HLA-A*02:06 | 1 | 1154 | 1163 | 10 | KYFKNHTSPD | 4e-06 | 84 |
| HLA-A*68:01 | 1 | 1154 | 1163 | 10 | KYFKNHTSPD | 4e-06 | 75 |
| HLA-B*15:01 | 1 | 1154 | 1163 | 10 | KYFKNHTSPD | 4e-06 | 78 |
| HLA-B*57:01 | 1 | 1155 | 1163 | 9 | YFKNHTSPD | 4e-06 | 92 |
| HLA-A*31:01 | 1 | 1157 | 1165 | 9 | KNHTSPDVD | 4e-06 | 82 |
| HLA-B*44:02 | 1 | 1157 | 1165 | 9 | KNHTSPDVD | 4e-06 | 72 |
| HLA-A*31:01 | 1 | 1158 | 1167 | 10 | NHTSPDVDLG | 4e-06 | 82 |
| HLA-B*15:01 | 1 | 1159 | 1168 | 10 | HTSPDVDLGD | 4e-06 | 78 |
| HLA-A*31:01 | 1 | 1160 | 1168 | 9 | TSPDVDLGD | 4e-06 | 82 |
| HLA-B*15:01 | 1 | 1160 | 1168 | 9 | TSPDVDLGD | 4e-06 | 78 |
| HLA-A*02:03 | 1 | 1161 | 1170 | 10 | SPDVDLGDIS | 4e-06 | 81 |
| HLA-A*31:01 | 1 | 1161 | 1169 | 9 | SPDVDLGDI | 4e-06 | 82 |
| HLA-A*33:01 | 1 | 1161 | 1169 | 9 | SPDVDLGDI | 4e-06 | 86 |
| HLA-B*08:01 | 1 | 1162 | 1171 | 10 | PDVDLGDISG | 4e-06 | 94 |
| HLA-B*57:01 | 1 | 1162 | 1171 | 10 | PDVDLGDISG | 4e-06 | 92 |
| HLA-A*68:02 | 1 | 1164 | 1173 | 10 | VDLGDISGIN | 4e-06 | 78 |
| HLA-B*08:01 | 1 | 1164 | 1173 | 10 | VDLGDISGIN | 4e-06 | 94 |
| HLA-B*44:03 | 1 | 1166 | 1175 | 10 | LGDISGINAS | 4e-06 | 67 |
| HLA-B*53:01 | 1 | 1169 | 1178 | 10 | ISGINASVVN | 4e-06 | 66 |
| HLA-B*35:01 | 1 | 1171 | 1180 | 10 | GINASVVNIQ | 4e-06 | 64 |
| HLA-B*44:02 | 1 | 1171 | 1180 | 10 | GINASVVNIQ | 4e-06 | 72 |
| HLA-B*53:01 | 1 | 1171 | 1180 | 10 | GINASVVNIQ | 4e-06 | 66 |
| HLA-A*32:01 | 1 | 1173 | 1182 | 10 | NASVVNIQKE | 4e-06 | 64 |
| HLA-A*31:01 | 1 | 1176 | 1184 | 9 | VVNIQKEID | 4e-06 | 82 |
| HLA-B*07:02 | 1 | 1176 | 1184 | 9 | VVNIQKEID | 4e-06 | 79 |
| HLA-A*23:01 | 1 | 1178 | 1187 | 10 | NIQKEIDRLN | 4e-06 | 63 |
| HLA-B*53:01 | 1 | 1179 | 1188 | 10 | IQKEIDRLNE | 4e-06 | 66 |
| HLA-A*26:01 | 1 | 1180 | 1188 | 9 | QKEIDRLNE | 4e-06 | 74 |
| HLA-A*31:01 | 1 | 1180 | 1188 | 9 | QKEIDRLNE | 4e-06 | 82 |
| HLA-A*68:01 | 1 | 1180 | 1188 | 9 | QKEIDRLNE | 4e-06 | 75 |
| HLA-B*35:01 | 1 | 1180 | 1188 | 9 | QKEIDRLNE | 4e-06 | 64 |
| HLA-B*57:01 | 1 | 1180 | 1188 | 9 | QKEIDRLNE | 4e-06 | 92 |
| HLA-A*23:01 | 1 | 1183 | 1191 | 9 | IDRLNEVAK | 4e-06 | 63 |
| HLA-B*44:02 | 1 | 1183 | 1192 | 10 | IDRLNEVAKN | 4e-06 | 72 |
| HLA-B*44:03 | 1 | 1183 | 1192 | 10 | IDRLNEVAKN | 4e-06 | 67 |
| HLA-A*23:01 | 1 | 1184 | 1192 | 9 | DRLNEVAKN | 4e-06 | 63 |
| HLA-B*57:01 | 1 | 1184 | 1192 | 9 | DRLNEVAKN | 4e-06 | 92 |
| HLA-B*53:01 | 1 | 1185 | 1194 | 10 | RLNEVAKNLN | 4e-06 | 66 |
| HLA-A*33:01 | 1 | 1186 | 1194 | 9 | LNEVAKNLN | 4e-06 | 86 |
| HLA-B*40:01 | 1 | 1190 | 1199 | 10 | AKNLNESLID | 4e-06 | 56 |
| HLA-B*44:02 | 1 | 1190 | 1199 | 10 | AKNLNESLID | 4e-06 | 72 |
| HLA-B*58:01 | 1 | 1190 | 1199 | 10 | AKNLNESLID | 4e-06 | 85 |
| HLA-A*02:06 | 1 | 1193 | 1201 | 9 | LNESLIDLQ | 4e-06 | 84 |
| HLA-A*11:01 | 1 | 1193 | 1202 | 10 | LNESLIDLQE | 4e-06 | 63 |
| HLA-A*23:01 | 1 | 1193 | 1201 | 9 | LNESLIDLQ | 4e-06 | 63 |
| HLA-A*68:02 | 1 | 1193 | 1202 | 10 | LNESLIDLQE | 4e-06 | 78 |
| HLA-A*02:03 | 1 | 1194 | 1202 | 9 | NESLIDLQE | 4e-06 | 81 |
| HLA-B*40:01 | 1 | 1195 | 1204 | 10 | ESLIDLQELG | 4e-06 | 56 |
| HLA-B*40:01 | 1 | 1197 | 1205 | 9 | LIDLQELGK | 4e-06 | 56 |
| HLA-A*68:02 | 1 | 1200 | 1208 | 9 | LQELGKYEQ | 4e-06 | 78 |
| HLA-A*02:03 | 1 | 1205 | 1214 | 10 | KYEQYIKWPW | 4e-06 | 81 |
| HLA-B*07:02 | 1 | 1211 | 1219 | 9 | KWPWYIWLG | 4e-06 | 79 |
| HLA-B*44:02 | 1 | 1211 | 1219 | 9 | KWPWYIWLG | 4e-06 | 72 |
| HLA-B*44:03 | 1 | 1211 | 1219 | 9 | KWPWYIWLG | 4e-06 | 67 |
| HLA-B*44:03 | 1 | 1212 | 1221 | 10 | WPWYIWLGFI | 4e-06 | 67 |
| HLA-A*02:01 | 1 | 1213 | 1222 | 10 | PWYIWLGFIA | 4e-06 | 78 |
| HLA-A*03:01 | 1 | 1213 | 1222 | 10 | PWYIWLGFIA | 4e-06 | 78 |
| HLA-B*07:02 | 1 | 1213 | 1221 | 9 | PWYIWLGFI | 4e-06 | 79 |
| HLA-B*53:01 | 1 | 1213 | 1221 | 9 | PWYIWLGFI | 4e-06 | 66 |
| HLA-A*68:01 | 1 | 1214 | 1223 | 10 | WYIWLGFIAI | 4e-06 | 75 |
| HLA-B*15:01 | 1 | 1214 | 1223 | 10 | WYIWLGFIAI | 4e-06 | 78 |
| HLA-B*44:02 | 1 | 1215 | 1223 | 9 | YIWLGFIAI | 4e-06 | 72 |
| HLA-B*44:03 | 1 | 1217 | 1225 | 9 | WLGFIAGLI | 4e-06 | 67 |
| HLA-A*11:01 | 1 | 1218 | 1227 | 10 | LGFIAGLIAI | 4e-06 | 63 |
| HLA-A*26:01 | 1 | 1221 | 1230 | 10 | IAGLIAIVMV | 4e-06 | 74 |

| | | | | | | |
|-------------|---|------|------|----|--------------------|----|
| HLA-B*40:01 | 1 | 1221 | 1230 | 10 | IAGLIAIVMV 4e-06 | 56 |
| HLA-A*24:02 | 1 | 1223 | 1231 | 9 | GLIAIVMVT 4e-06 | 60 |
| HLA-A*24:02 | 1 | 1224 | 1233 | 10 | LIAIVMVTIM 4e-06 | 60 |
| HLA-B*44:02 | 1 | 1224 | 1233 | 10 | LIAIVMVTIM 4e-06 | 72 |
| HLA-B*44:03 | 1 | 1224 | 1233 | 10 | LIAIVMVTIM 4e-06 | 67 |
| HLA-A*23:01 | 1 | 1226 | 1235 | 10 | AIVMVTIMLC 4e-06 | 63 |
| HLA-A*23:01 | 1 | 1227 | 1236 | 10 | IVMVTIMLCC 4e-06 | 63 |
| HLA-B*44:03 | 1 | 1227 | 1235 | 9 | IVMVTIMLC 4e-06 | 67 |
| HLA-B*40:01 | 1 | 1228 | 1236 | 9 | VMVTIMLCC 4e-06 | 56 |
| HLA-B*44:02 | 1 | 1228 | 1236 | 9 | VMVTIMLCC 4e-06 | 72 |
| HLA-A*03:01 | 1 | 1229 | 1238 | 10 | MVTIMLCCMT 4e-06 | 78 |
| HLA-B*40:01 | 1 | 1229 | 1237 | 9 | MVTIMLCCM 4e-06 | 56 |
| HLA-A*23:01 | 1 | 1230 | 1238 | 9 | VTIMLCCMT 4e-06 | 63 |
| HLA-A*11:01 | 1 | 1231 | 1240 | 10 | TIMLCCMTSC 4e-06 | 63 |
| HLA-B*53:01 | 1 | 1231 | 1239 | 9 | TIMLCCMTS 4e-06 | 66 |
| HLA-B*57:01 | 1 | 1232 | 1241 | 10 | IMLCCMTSCC 4e-06 | 92 |
| HLA-B*58:01 | 1 | 1232 | 1241 | 10 | IMLCCMTSCC 4e-06 | 85 |
| HLA-A*33:01 | 1 | 1233 | 1242 | 10 | MLCCMTSCCS 4e-06 | 86 |
| HLA-A*01:01 | 1 | 1234 | 1243 | 10 | LCCMTSCCSC 4e-06 | 96 |
| HLA-A*02:06 | 1 | 1234 | 1243 | 10 | LCCMTSCCSC 4e-06 | 84 |
| HLA-A*03:01 | 1 | 1235 | 1244 | 10 | CCMTSCCSCS 4e-06 | 78 |
| HLA-A*33:01 | 1 | 1235 | 1243 | 9 | CCMTSCCSC 4e-06 | 86 |
| HLA-A*33:01 | 1 | 1235 | 1244 | 10 | CCMTSCCSCS 4e-06 | 86 |
| HLA-A*68:01 | 1 | 1235 | 1244 | 10 | CCMTSCCSCS 4e-06 | 75 |
| HLA-B*07:02 | 1 | 1235 | 1243 | 9 | CCMTSCCSC 4e-06 | 79 |
| HLA-B*53:01 | 1 | 1235 | 1244 | 10 | CCMTSCCSCS 4e-06 | 66 |
| HLA-A*68:02 | 1 | 1236 | 1245 | 10 | CMTSCCSCSCL 4e-06 | 78 |
| HLA-B*44:03 | 1 | 1236 | 1244 | 9 | CMTSCCSCSCL 4e-06 | 67 |
| HLA-A*23:01 | 1 | 1237 | 1245 | 9 | MTSCCSCSCLK 4e-06 | 63 |
| HLA-B*08:01 | 1 | 1237 | 1246 | 10 | MTSCCSCSCLKG 4e-06 | 94 |
| HLA-A*26:01 | 1 | 1238 | 1246 | 9 | TSCCSCSCLKG 4e-06 | 74 |
| HLA-A*33:01 | 1 | 1238 | 1246 | 9 | TSCCSCSCLKG 4e-06 | 86 |
| HLA-A*68:01 | 1 | 1238 | 1247 | 10 | TSCCSCSCLKGC 4e-06 | 75 |
| HLA-A*68:02 | 1 | 1238 | 1246 | 9 | TSCCSCSCLKG 4e-06 | 78 |
| HLA-A*01:01 | 1 | 1239 | 1248 | 10 | SCCSCSCLKGCC 4e-06 | 96 |
| HLA-A*30:02 | 1 | 1239 | 1248 | 10 | SCCSCSCLKGCC 4e-06 | 95 |
| HLA-B*08:01 | 1 | 1239 | 1248 | 10 | SCCSCSCLKGCC 4e-06 | 94 |
| HLA-A*30:02 | 1 | 1240 | 1249 | 10 | CCSCLKGCCS 4e-06 | 95 |
| HLA-A*68:02 | 1 | 1240 | 1248 | 9 | CCSCLKGCC 4e-06 | 78 |
| HLA-B*58:01 | 1 | 1240 | 1248 | 9 | CCSCLKGCC 4e-06 | 85 |
| HLA-A*02:03 | 1 | 1241 | 1250 | 10 | CSCLKGCCSC 4e-06 | 81 |
| HLA-A*03:01 | 1 | 1241 | 1250 | 10 | CSCLKGCCSC 4e-06 | 78 |
| HLA-A*32:01 | 1 | 1241 | 1250 | 10 | CSCLKGCCSC 4e-06 | 64 |
| HLA-A*33:01 | 1 | 1241 | 1250 | 10 | CSCLKGCCSC 4e-06 | 86 |
| HLA-A*68:02 | 1 | 1241 | 1249 | 9 | CSCLKGCCS 4e-06 | 78 |
| HLA-A*02:01 | 1 | 1242 | 1251 | 10 | SCLKGCCSCG 4e-06 | 78 |
| HLA-A*11:01 | 1 | 1242 | 1250 | 9 | SCLKGCCSC 4e-06 | 63 |
| HLA-A*01:01 | 1 | 1243 | 1252 | 10 | CLKGCCSCGS 4e-06 | 96 |
| HLA-A*03:01 | 1 | 1243 | 1252 | 10 | CLKGCCSCGS 4e-06 | 78 |
| HLA-B*57:01 | 1 | 1243 | 1251 | 9 | CLKGCCSCG 4e-06 | 92 |
| HLA-A*30:01 | 1 | 1244 | 1253 | 10 | LKGCCSCGSC 4e-06 | 95 |
| HLA-A*01:01 | 1 | 1245 | 1254 | 10 | KGCCSCGSCC 4e-06 | 96 |
| HLA-A*68:02 | 1 | 1245 | 1253 | 9 | KGCCSCGSC 4e-06 | 78 |
| HLA-A*02:03 | 1 | 1247 | 1256 | 10 | CCSCGSCCKF 4e-06 | 81 |
| HLA-B*07:02 | 1 | 1247 | 1256 | 10 | CCSCGSCCKF 4e-06 | 79 |
| HLA-A*33:01 | 1 | 1248 | 1257 | 10 | CSCGSCCKFD 4e-06 | 86 |
| HLA-B*15:01 | 1 | 1248 | 1257 | 10 | CSCGSCCKFD 4e-06 | 78 |
| HLA-B*08:01 | 1 | 1251 | 1259 | 9 | GSCCKFDED 4e-06 | 94 |
| HLA-A*01:01 | 1 | 1253 | 1261 | 9 | CCKFDEDDS 4e-06 | 96 |
| HLA-A*30:02 | 1 | 1253 | 1262 | 10 | CCKFDEDDSE 4e-06 | 95 |
| HLA-B*35:01 | 1 | 1253 | 1262 | 10 | CCKFDEDDSE 4e-06 | 64 |
| HLA-A*33:01 | 1 | 1254 | 1262 | 9 | CKFDEDDSE 4e-06 | 86 |
| HLA-B*57:01 | 1 | 1254 | 1262 | 9 | CKFDEDDSE 4e-06 | 92 |
| HLA-B*58:01 | 1 | 1254 | 1262 | 9 | CKFDEDDSE 4e-06 | 85 |
| HLA-A*24:02 | 1 | 1258 | 1267 | 10 | EDDSEPVLKG 4e-06 | 60 |
| HLA-B*15:01 | 1 | 1258 | 1267 | 10 | EDDSEPVLKG 4e-06 | 78 |

| | | | | | | | |
|-------------|---|------|------|----|------------|-------|----|
| HLA-A*32:01 | 1 | 1259 | 1267 | 9 | DDSEPVKLG | 4e-06 | 64 |
| HLA-A*23:01 | 1 | 1265 | 1273 | 9 | LKGVKLYHT | 4e-06 | 63 |
| HLA-A*24:02 | 1 | 1265 | 1273 | 9 | LKGVKLYHT | 4e-06 | 60 |
| HLA-A*26:01 | 1 | 1265 | 1273 | 9 | LKGVKLYHT | 4e-06 | 74 |
| HLA-B*40:01 | 1 | 1265 | 1273 | 9 | LKGVKLYHT | 4e-06 | 56 |
| HLA-B*44:03 | 1 | 1265 | 1273 | 9 | LKGVKLYHT | 4e-06 | 67 |
| HLA-A*26:01 | 1 | 3 | 12 | 10 | VFLVLLPLVS | 3e-06 | 79 |
| HLA-B*44:02 | 1 | 4 | 12 | 9 | FLVLLPLVS | 3e-06 | 77 |
| HLA-B*44:03 | 1 | 4 | 12 | 9 | FLVLLPLVS | 3e-06 | 72 |
| HLA-A*23:01 | 1 | 5 | 14 | 10 | LVLLPLVSSQ | 3e-06 | 68 |
| HLA-A*03:01 | 1 | 8 | 17 | 10 | LPLVSSQCVN | 3e-06 | 82 |
| HLA-A*02:01 | 1 | 9 | 17 | 9 | PLVSSQCVN | 3e-06 | 82 |
| HLA-A*02:03 | 1 | 9 | 17 | 9 | PLVSSQCVN | 3e-06 | 84 |
| HLA-A*11:01 | 1 | 9 | 18 | 10 | PLVSSQCVNL | 3e-06 | 68 |
| HLA-B*08:01 | 1 | 9 | 17 | 9 | PLVSSQCVN | 3e-06 | 96 |
| HLA-B*35:01 | 1 | 9 | 18 | 10 | PLVSSQCVNL | 3e-06 | 69 |
| HLA-B*51:01 | 1 | 9 | 17 | 9 | PLVSSQCVN | 3e-06 | 90 |
| HLA-B*58:01 | 1 | 9 | 17 | 9 | PLVSSQCVN | 3e-06 | 88 |
| HLA-B*44:02 | 1 | 10 | 19 | 10 | LVSSQCVNLT | 3e-06 | 77 |
| HLA-B*40:01 | 1 | 11 | 20 | 10 | VSSQCVNLTT | 3e-06 | 61 |
| HLA-B*44:03 | 1 | 11 | 20 | 10 | VSSQCVNLTT | 3e-06 | 72 |
| HLA-A*23:01 | 1 | 14 | 22 | 9 | QCVNLTRT | 3e-06 | 68 |
| HLA-A*23:01 | 1 | 15 | 23 | 9 | CVNLTRTQ | 3e-06 | 68 |
| HLA-A*24:02 | 1 | 15 | 23 | 9 | CVNLTRTQ | 3e-06 | 66 |
| HLA-A*24:02 | 1 | 17 | 26 | 10 | NLTRTQLPP | 3e-06 | 66 |
| HLA-B*40:01 | 1 | 18 | 27 | 10 | LTRTQLPPA | 3e-06 | 61 |
| HLA-A*02:03 | 1 | 25 | 33 | 9 | PPAYTNSFT | 3e-06 | 84 |
| HLA-A*26:01 | 1 | 25 | 33 | 9 | PPAYTNSFT | 3e-06 | 79 |
| HLA-A*26:01 | 1 | 26 | 35 | 10 | PAYTNSFTRG | 3e-06 | 79 |
| HLA-A*32:01 | 1 | 26 | 35 | 10 | PAYTNSFTRG | 3e-06 | 69 |
| HLA-B*07:02 | 1 | 26 | 35 | 10 | PAYTNSFTRG | 3e-06 | 83 |
| HLA-B*35:01 | 1 | 26 | 35 | 10 | PAYTNSFTRG | 3e-06 | 69 |
| HLA-A*02:03 | 1 | 31 | 40 | 10 | SFTRGVYYPD | 3e-06 | 84 |
| HLA-A*02:06 | 1 | 31 | 40 | 10 | SFTRGVYYPD | 3e-06 | 87 |
| HLA-A*03:01 | 1 | 31 | 40 | 10 | SFTRGVYYPD | 3e-06 | 82 |
| HLA-A*11:01 | 1 | 31 | 40 | 10 | SFTRGVYYPD | 3e-06 | 68 |
| HLA-B*51:01 | 1 | 31 | 40 | 10 | SFTRGVYYPD | 3e-06 | 90 |
| HLA-A*11:01 | 1 | 33 | 42 | 10 | TRGVYYPDKV | 3e-06 | 68 |
| HLA-B*15:01 | 1 | 33 | 42 | 10 | TRGVYYPDKV | 3e-06 | 82 |
| HLA-A*02:01 | 1 | 39 | 48 | 10 | PDKVFRSSVL | 3e-06 | 82 |
| HLA-A*02:01 | 1 | 44 | 53 | 10 | RSSVLHSTQD | 3e-06 | 82 |
| HLA-A*33:01 | 1 | 44 | 53 | 10 | RSSVLHSTQD | 3e-06 | 90 |
| HLA-B*07:02 | 1 | 44 | 53 | 10 | RSSVLHSTQD | 3e-06 | 83 |
| HLA-A*23:01 | 1 | 45 | 53 | 9 | SSVLHSTQD | 3e-06 | 68 |
| HLA-A*23:01 | 1 | 52 | 61 | 10 | QDLFLPFFSN | 3e-06 | 68 |
| HLA-B*53:01 | 1 | 52 | 61 | 10 | QDLFLPFFSN | 3e-06 | 70 |
| HLA-A*11:01 | 1 | 54 | 63 | 10 | LFLPFFSNVT | 3e-06 | 68 |
| HLA-B*44:02 | 1 | 54 | 63 | 10 | LFLPFFSNVT | 3e-06 | 77 |
| HLA-B*53:01 | 1 | 54 | 63 | 10 | LFLPFFSNVT | 3e-06 | 70 |
| HLA-B*44:02 | 1 | 55 | 63 | 9 | FLPFFSNVT | 3e-06 | 77 |
| HLA-B*44:03 | 1 | 55 | 63 | 9 | FLPFFSNVT | 3e-06 | 72 |
| HLA-B*40:01 | 1 | 58 | 67 | 10 | FFSNVTWFHA | 3e-06 | 61 |
| HLA-B*44:03 | 1 | 62 | 71 | 10 | VTWFHAIHVS | 3e-06 | 72 |
| HLA-A*11:01 | 1 | 64 | 72 | 9 | WFHAIHVSG | 3e-06 | 68 |
| HLA-A*32:01 | 1 | 64 | 73 | 10 | WFHAIHVSGT | 3e-06 | 69 |
| HLA-B*44:02 | 1 | 64 | 73 | 10 | WFHAIHVSGT | 3e-06 | 77 |
| HLA-B*58:01 | 1 | 64 | 73 | 10 | WFHAIHVSGT | 3e-06 | 88 |
| HLA-A*02:01 | 1 | 65 | 74 | 10 | FHAIHVSGTN | 3e-06 | 82 |
| HLA-A*31:01 | 1 | 65 | 74 | 10 | FHAIHVSGTN | 3e-06 | 85 |
| HLA-B*44:03 | 1 | 65 | 74 | 10 | FHAIHVSGTN | 3e-06 | 72 |
| HLA-A*11:01 | 1 | 66 | 75 | 10 | HAIHVSGTNG | 3e-06 | 68 |
| HLA-B*44:03 | 1 | 66 | 75 | 10 | HAIHVSGTNG | 3e-06 | 72 |
| HLA-B*53:01 | 1 | 71 | 80 | 10 | SGTNGTKRFD | 3e-06 | 70 |
| HLA-A*26:01 | 1 | 72 | 80 | 9 | GTNGTKRFD | 3e-06 | 79 |
| HLA-A*26:01 | 1 | 72 | 81 | 10 | GTNGTKRFDN | 3e-06 | 79 |
| HLA-A*33:01 | 1 | 72 | 81 | 10 | GTNGTKRFDN | 3e-06 | 90 |

| | | | | | | |
|-------------|---|-----|-----|----|--------------------|----|
| HLA-B*08:01 | 1 | 72 | 81 | 10 | GTNGTKRFDN 3e-06 | 96 |
| HLA-B*44:03 | 1 | 72 | 80 | 9 | GTNGTKRFD 3e-06 | 72 |
| HLA-A*31:01 | 1 | 73 | 82 | 10 | TNGTKRFDNP 3e-06 | 85 |
| HLA-B*44:02 | 1 | 73 | 82 | 10 | TNGTKRFDNP 3e-06 | 77 |
| HLA-B*40:01 | 1 | 74 | 83 | 10 | NGTKRFDNPV 3e-06 | 61 |
| HLA-A*33:01 | 1 | 79 | 88 | 10 | FDNPVLPFND 3e-06 | 90 |
| HLA-A*68:01 | 1 | 79 | 88 | 10 | FDNPVLPFND 3e-06 | 79 |
| HLA-B*44:02 | 1 | 79 | 88 | 10 | FDNPVLPFND 3e-06 | 77 |
| HLA-B*53:01 | 1 | 79 | 88 | 10 | FDNPVLPFND 3e-06 | 70 |
| HLA-A*30:02 | 1 | 80 | 89 | 10 | DNPVLPFNDG 3e-06 | 96 |
| HLA-A*68:02 | 1 | 80 | 89 | 10 | DNPVLPFNDG 3e-06 | 81 |
| HLA-B*57:01 | 1 | 80 | 88 | 9 | DNPVLPFND 3e-06 | 95 |
| HLA-A*02:03 | 1 | 81 | 89 | 9 | NPVLPFNDG 3e-06 | 84 |
| HLA-A*11:01 | 1 | 81 | 89 | 9 | NPVLPFNDG 3e-06 | 68 |
| HLA-B*40:01 | 1 | 81 | 89 | 9 | NPVLPFNDG 3e-06 | 61 |
| HLA-A*11:01 | 1 | 85 | 94 | 10 | PFNDGVYFAS 3e-06 | 68 |
| HLA-A*26:01 | 1 | 85 | 94 | 10 | PFNDGVYFAS 3e-06 | 79 |
| HLA-B*44:02 | 1 | 86 | 95 | 10 | FNDGVYFAST 3e-06 | 77 |
| HLA-A*02:01 | 1 | 87 | 96 | 10 | NDGVYFASTE 3e-06 | 82 |
| HLA-A*11:01 | 1 | 87 | 95 | 9 | NDGVYFAST 3e-06 | 68 |
| HLA-B*58:01 | 1 | 87 | 95 | 9 | NDGVYFAST 3e-06 | 88 |
| HLA-A*24:02 | 1 | 88 | 96 | 9 | DGVYFASTE 3e-06 | 66 |
| HLA-B*44:03 | 1 | 90 | 99 | 10 | VYFASTEKSN 3e-06 | 72 |
| HLA-A*32:01 | 1 | 91 | 99 | 9 | YFASTEKSN 3e-06 | 69 |
| HLA-A*11:01 | 1 | 96 | 105 | 10 | EKSNIIRGWI 3e-06 | 68 |
| HLA-B*07:02 | 1 | 98 | 107 | 10 | SNIIRGWIFG 3e-06 | 83 |
| HLA-A*23:01 | 1 | 99 | 108 | 10 | NIIRGWIFGT 3e-06 | 68 |
| HLA-B*35:01 | 1 | 99 | 108 | 10 | NIIRGWIFGT 3e-06 | 69 |
| HLA-B*44:02 | 1 | 99 | 107 | 9 | NIIRGWIFG 3e-06 | 77 |
| HLA-B*44:02 | 1 | 99 | 108 | 10 | NIIRGWIFGT 3e-06 | 77 |
| HLA-A*24:02 | 1 | 100 | 109 | 10 | IIRGWIFGTT 3e-06 | 66 |
| HLA-B*40:01 | 1 | 101 | 109 | 9 | IRGWIFGTT 3e-06 | 61 |
| HLA-B*53:01 | 1 | 101 | 109 | 9 | IRGWIFGTT 3e-06 | 70 |
| HLA-A*03:01 | 1 | 103 | 111 | 9 | GWIFGTTLD 3e-06 | 82 |
| HLA-B*07:02 | 1 | 103 | 111 | 9 | GWIFGTTLD 3e-06 | 83 |
| HLA-B*44:02 | 1 | 103 | 111 | 9 | GWIFGTTLD 3e-06 | 77 |
| HLA-B*44:02 | 1 | 103 | 112 | 10 | GWIFGTTLDS 3e-06 | 77 |
| HLA-A*23:01 | 1 | 104 | 112 | 9 | WIFGTTLDS 3e-06 | 68 |
| HLA-B*40:01 | 1 | 104 | 112 | 9 | WIFGTTLDS 3e-06 | 61 |
| HLA-A*26:01 | 1 | 105 | 114 | 10 | IFGTTLDSKT 3e-06 | 79 |
| HLA-B*44:02 | 1 | 105 | 114 | 10 | IFGTTLDSKT 3e-06 | 77 |
| HLA-A*03:01 | 1 | 106 | 114 | 9 | FGTTLDSKT 3e-06 | 82 |
| HLA-A*11:01 | 1 | 106 | 114 | 9 | FGTTLDSKT 3e-06 | 68 |
| HLA-A*26:01 | 1 | 106 | 114 | 9 | FGTTLDSKT 3e-06 | 79 |
| HLA-A*32:01 | 1 | 106 | 115 | 10 | FGTTLDSKTQ 3e-06 | 69 |
| HLA-B*44:03 | 1 | 112 | 121 | 10 | SKTQSLIVN 3e-06 | 72 |
| HLA-B*08:01 | 1 | 113 | 122 | 10 | KTQSLIVNN 3e-06 | 96 |
| HLA-B*40:01 | 1 | 113 | 122 | 10 | KTQSLIVNN 3e-06 | 61 |
| HLA-B*51:01 | 1 | 113 | 122 | 10 | KTQSLIVNN 3e-06 | 90 |
| HLA-B*40:01 | 1 | 115 | 124 | 10 | QSLIVNNAT 3e-06 | 61 |
| HLA-A*68:02 | 1 | 116 | 125 | 10 | SLLIVNNATN 3e-06 | 81 |
| HLA-A*24:02 | 1 | 117 | 125 | 9 | LLIVNNATN 3e-06 | 66 |
| HLA-B*44:03 | 1 | 117 | 126 | 10 | LLIVNNATNV 3e-06 | 72 |
| HLA-B*35:01 | 1 | 123 | 132 | 10 | ATNVVIVK VCE 3e-06 | 69 |
| HLA-A*23:01 | 1 | 124 | 132 | 9 | TNVVIVK VCE 3e-06 | 68 |
| HLA-A*32:01 | 1 | 124 | 132 | 9 | TNVVIVK VCE 3e-06 | 69 |
| HLA-B*44:03 | 1 | 125 | 134 | 10 | NVVIVK VCEFQ 3e-06 | 72 |
| HLA-A*68:01 | 1 | 127 | 136 | 10 | VIVK VCEFQFC 3e-06 | 79 |
| HLA-A*02:06 | 1 | 128 | 137 | 10 | IKVCEFQFCN 3e-06 | 87 |
| HLA-A*03:01 | 1 | 128 | 137 | 10 | IKVCEFQFCN 3e-06 | 82 |
| HLA-B*35:01 | 1 | 128 | 136 | 9 | IKVCEFQFC 3e-06 | 69 |
| HLA-A*02:03 | 1 | 129 | 138 | 10 | KVCEFQFCND 3e-06 | 84 |
| HLA-A*68:01 | 1 | 129 | 138 | 10 | KVCEFQFCND 3e-06 | 79 |
| HLA-B*44:03 | 1 | 129 | 137 | 9 | KVCEFQFCN 3e-06 | 72 |
| HLA-A*02:03 | 1 | 130 | 139 | 10 | VCEFQFCNDP 3e-06 | 84 |
| HLA-B*58:01 | 1 | 130 | 139 | 10 | VCEFQFCNDP 3e-06 | 88 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-A*02:03 | 1 | 131 | 140 | 10 | CEFQFCNDPF 3e-06 | 84 |
| HLA-A*23:01 | 1 | 131 | 139 | 9 | CEFQFCNDP 3e-06 | 68 |
| HLA-A*68:01 | 1 | 131 | 139 | 9 | CEFQFCNDP 3e-06 | 79 |
| HLA-B*58:01 | 1 | 131 | 139 | 9 | CEFQFCNDP 3e-06 | 88 |
| HLA-A*26:01 | 1 | 139 | 148 | 10 | PFLGVYYHKN 3e-06 | 79 |
| HLA-A*26:01 | 1 | 140 | 148 | 9 | FLGVYYHKN 3e-06 | 79 |
| HLA-A*68:02 | 1 | 140 | 148 | 9 | FLGVYYHKN 3e-06 | 81 |
| HLA-B*08:01 | 1 | 140 | 149 | 10 | FLGVYYHKNN 3e-06 | 96 |
| HLA-B*44:02 | 1 | 140 | 148 | 9 | FLGVYYHKN 3e-06 | 77 |
| HLA-B*44:03 | 1 | 140 | 148 | 9 | FLGVYYHKN 3e-06 | 72 |
| HLA-A*33:01 | 1 | 141 | 149 | 9 | LGVYYHKNN 3e-06 | 90 |
| HLA-B*53:01 | 1 | 146 | 155 | 10 | HKNNKSWMES 3e-06 | 70 |
| HLA-A*68:02 | 1 | 147 | 156 | 10 | KNNKSWMESE 3e-06 | 81 |
| HLA-B*07:02 | 1 | 147 | 156 | 10 | KNNKSWMESE 3e-06 | 83 |
| HLA-B*51:01 | 1 | 147 | 156 | 10 | KNNKSWMESE 3e-06 | 90 |
| HLA-A*24:02 | 1 | 153 | 162 | 10 | MESEFRVYSS 3e-06 | 66 |
| HLA-A*11:01 | 1 | 155 | 164 | 10 | SEFRVYSSAN 3e-06 | 68 |
| HLA-A*23:01 | 1 | 155 | 164 | 10 | SEFRVYSSAN 3e-06 | 68 |
| HLA-A*24:02 | 1 | 155 | 164 | 10 | SEFRVYSSAN 3e-06 | 66 |
| HLA-A*01:01 | 1 | 156 | 165 | 10 | EFRVYSSANN 3e-06 | 98 |
| HLA-A*02:03 | 1 | 156 | 165 | 10 | EFRVYSSANN 3e-06 | 84 |
| HLA-A*02:06 | 1 | 156 | 165 | 10 | EFRVYSSANN 3e-06 | 87 |
| HLA-B*44:03 | 1 | 156 | 164 | 9 | EFRVYSSAN 3e-06 | 72 |
| HLA-B*57:01 | 1 | 156 | 165 | 10 | EFRVYSSANN 3e-06 | 95 |
| HLA-A*01:01 | 1 | 157 | 165 | 9 | FRVYSSANN 3e-06 | 98 |
| HLA-A*68:02 | 1 | 157 | 165 | 9 | FRVYSSANN 3e-06 | 81 |
| HLA-B*53:01 | 1 | 157 | 165 | 9 | FRVYSSANN 3e-06 | 70 |
| HLA-A*03:01 | 1 | 163 | 172 | 10 | ANNCTFEYVS 3e-06 | 82 |
| HLA-A*11:01 | 1 | 163 | 172 | 10 | ANNCTFEYVS 3e-06 | 68 |
| HLA-B*44:03 | 1 | 163 | 172 | 10 | ANNCTFEYVS 3e-06 | 72 |
| HLA-B*51:01 | 1 | 163 | 172 | 10 | ANNCTFEYVS 3e-06 | 90 |
| HLA-A*02:01 | 1 | 164 | 172 | 9 | NNCTFEYVS 3e-06 | 82 |
| HLA-A*03:01 | 1 | 164 | 172 | 9 | NNCTFEYVS 3e-06 | 82 |
| HLA-B*07:02 | 1 | 164 | 172 | 9 | NNCTFEYVS 3e-06 | 83 |
| HLA-B*35:01 | 1 | 164 | 173 | 10 | NNCTFEYVSQ 3e-06 | 69 |
| HLA-B*40:01 | 1 | 164 | 172 | 9 | NNCTFEYVS 3e-06 | 61 |
| HLA-B*44:02 | 1 | 164 | 173 | 10 | NNCTFEYVSQ 3e-06 | 77 |
| HLA-B*53:01 | 1 | 164 | 173 | 10 | NNCTFEYVSQ 3e-06 | 70 |
| HLA-A*24:02 | 1 | 165 | 174 | 10 | NCTFEYVSQP 3e-06 | 66 |
| HLA-A*32:01 | 1 | 165 | 173 | 9 | NCTFEYVSQ 3e-06 | 69 |
| HLA-A*11:01 | 1 | 169 | 178 | 10 | EYVSQPFLMD 3e-06 | 68 |
| HLA-B*44:02 | 1 | 171 | 180 | 10 | VSQPFLMDLE 3e-06 | 77 |
| HLA-A*11:01 | 1 | 172 | 181 | 10 | SQPFLMDLEG 3e-06 | 68 |
| HLA-A*24:02 | 1 | 173 | 181 | 9 | QPFLMDLEG 3e-06 | 66 |
| HLA-A*02:03 | 1 | 174 | 182 | 9 | PFLMDLEGK 3e-06 | 84 |
| HLA-A*32:01 | 1 | 174 | 182 | 9 | PFLMDLEGK 3e-06 | 69 |
| HLA-B*44:03 | 1 | 174 | 183 | 10 | PFLMDLEGKQ 3e-06 | 72 |
| HLA-B*53:01 | 1 | 174 | 182 | 9 | PFLMDLEGK 3e-06 | 70 |
| HLA-A*24:02 | 1 | 175 | 184 | 10 | FLMDLEGKQG 3e-06 | 66 |
| HLA-B*40:01 | 1 | 175 | 184 | 10 | FLMDLEGKQG 3e-06 | 61 |
| HLA-A*68:01 | 1 | 176 | 185 | 10 | LMDEGKQGN 3e-06 | 79 |
| HLA-A*02:01 | 1 | 177 | 185 | 9 | MDLEGKQGN 3e-06 | 82 |
| HLA-A*11:01 | 1 | 177 | 185 | 9 | MDLEGKQGN 3e-06 | 68 |
| HLA-A*31:01 | 1 | 177 | 185 | 9 | MDLEGKQGN 3e-06 | 85 |
| HLA-A*11:01 | 1 | 179 | 188 | 10 | LEGKQGNFKN 3e-06 | 68 |
| HLA-A*02:06 | 1 | 180 | 188 | 9 | EGKQGNFKN 3e-06 | 87 |
| HLA-B*51:01 | 1 | 182 | 191 | 10 | KQGNFKNLRE 3e-06 | 90 |
| HLA-A*24:02 | 1 | 183 | 191 | 9 | QGNFKNLRE 3e-06 | 66 |
| HLA-A*26:01 | 1 | 187 | 196 | 10 | KNLREFVFKN 3e-06 | 79 |
| HLA-B*07:02 | 1 | 187 | 196 | 10 | KNLREFVFKN 3e-06 | 83 |
| HLA-B*44:02 | 1 | 187 | 196 | 10 | KNLREFVFKN 3e-06 | 77 |
| HLA-A*02:01 | 1 | 190 | 198 | 9 | REFVFKNID 3e-06 | 82 |
| HLA-A*02:03 | 1 | 190 | 198 | 9 | REFVFKNID 3e-06 | 84 |
| HLA-A*02:06 | 1 | 190 | 199 | 10 | REFVFKNIDG 3e-06 | 87 |
| HLA-A*03:01 | 1 | 190 | 199 | 10 | REFVFKNIDG 3e-06 | 82 |
| HLA-A*32:01 | 1 | 190 | 199 | 10 | REFVFKNIDG 3e-06 | 69 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-B*15:01 | 1 | 197 | 205 | 9 | IDGYFKIYS | 3e-06 | 82 |
| HLA-B*40:01 | 1 | 200 | 208 | 9 | YFKIYSKHT | 3e-06 | 61 |
| HLA-B*44:03 | 1 | 202 | 211 | 10 | KIYSKHTPIN | 3e-06 | 72 |
| HLA-A*02:06 | 1 | 203 | 211 | 9 | IYSKHTPIN | 3e-06 | 87 |
| HLA-A*68:02 | 1 | 203 | 211 | 9 | IYSKHTPIN | 3e-06 | 81 |
| HLA-B*40:01 | 1 | 206 | 215 | 10 | KHTPINLVRD | 3e-06 | 61 |
| HLA-B*44:02 | 1 | 207 | 215 | 9 | HTPINLVRD | 3e-06 | 77 |
| HLA-A*11:01 | 1 | 209 | 217 | 9 | PINLVRDLP | 3e-06 | 68 |
| HLA-A*11:01 | 1 | 209 | 218 | 10 | PINLVRDLPQ | 3e-06 | 68 |
| HLA-A*26:01 | 1 | 209 | 217 | 9 | PINLVRDLP | 3e-06 | 79 |
| HLA-B*58:01 | 1 | 209 | 218 | 10 | PINLVRDLPQ | 3e-06 | 88 |
| HLA-A*31:01 | 1 | 210 | 219 | 10 | INLVRDLPQG | 3e-06 | 85 |
| HLA-A*32:01 | 1 | 210 | 218 | 9 | INLVRDLPQ | 3e-06 | 69 |
| HLA-A*33:01 | 1 | 210 | 219 | 10 | INLVRDLPQG | 3e-06 | 90 |
| HLA-B*53:01 | 1 | 210 | 218 | 9 | INLVRDLPQ | 3e-06 | 70 |
| HLA-B*40:01 | 1 | 211 | 219 | 9 | NLVRDLPQG | 3e-06 | 61 |
| HLA-A*11:01 | 1 | 217 | 225 | 9 | PQGFSALEP | 3e-06 | 68 |
| HLA-A*11:01 | 1 | 217 | 226 | 10 | PQGFSALEPL | 3e-06 | 68 |
| HLA-A*26:01 | 1 | 217 | 225 | 9 | PQGFSALEP | 3e-06 | 79 |
| HLA-A*02:01 | 1 | 223 | 232 | 10 | LEPLVDLPIG | 3e-06 | 82 |
| HLA-A*23:01 | 1 | 223 | 232 | 10 | LEPLVDLPIG | 3e-06 | 68 |
| HLA-A*68:02 | 1 | 223 | 232 | 10 | LEPLVDLPIG | 3e-06 | 81 |
| HLA-A*03:01 | 1 | 224 | 232 | 9 | EPLVDLPIG | 3e-06 | 82 |
| HLA-A*33:01 | 1 | 224 | 232 | 9 | EPLVDLPIG | 3e-06 | 90 |
| HLA-B*44:02 | 1 | 226 | 234 | 9 | LVDLPIGIN | 3e-06 | 77 |
| HLA-A*11:01 | 1 | 228 | 236 | 9 | DLPIGINIT | 3e-06 | 68 |
| HLA-B*58:01 | 1 | 228 | 236 | 9 | DLPIGINIT | 3e-06 | 88 |
| HLA-A*23:01 | 1 | 230 | 239 | 10 | PIGINITRFQ | 3e-06 | 68 |
| HLA-A*32:01 | 1 | 230 | 239 | 10 | PIGINITRFQ | 3e-06 | 69 |
| HLA-B*51:01 | 1 | 230 | 239 | 10 | PIGINITRFQ | 3e-06 | 90 |
| HLA-B*44:02 | 1 | 231 | 240 | 10 | IGINITRFQT | 3e-06 | 77 |
| HLA-B*44:03 | 1 | 231 | 240 | 10 | IGINITRFQT | 3e-06 | 72 |
| HLA-B*35:01 | 1 | 238 | 247 | 10 | FQTLALHRS | 3e-06 | 69 |
| HLA-B*44:02 | 1 | 241 | 250 | 10 | LLALHRSYLT | 3e-06 | 77 |
| HLA-B*40:01 | 1 | 242 | 251 | 10 | LALHRSYLT | 3e-06 | 61 |
| HLA-A*23:01 | 1 | 243 | 252 | 10 | ALHRSYLT | 3e-06 | 68 |
| HLA-A*33:01 | 1 | 243 | 252 | 10 | ALHRSYLT | 3e-06 | 90 |
| HLA-A*68:02 | 1 | 243 | 252 | 10 | ALHRSYLT | 3e-06 | 81 |
| HLA-B*58:01 | 1 | 244 | 252 | 9 | LHRSYLT | 3e-06 | 88 |
| HLA-A*02:01 | 1 | 245 | 254 | 10 | HRSYLT | 3e-06 | 82 |
| HLA-A*02:06 | 1 | 245 | 253 | 9 | HRSYLT | 3e-06 | 87 |
| HLA-B*51:01 | 1 | 245 | 253 | 9 | HRSYLT | 3e-06 | 90 |
| HLA-B*40:01 | 1 | 249 | 257 | 9 | LTPGDSSSG | 3e-06 | 61 |
| HLA-B*44:03 | 1 | 249 | 257 | 9 | LTPGDSSSG | 3e-06 | 72 |
| HLA-A*31:01 | 1 | 250 | 259 | 10 | TPGDSSSGWT | 3e-06 | 85 |
| HLA-B*40:01 | 1 | 250 | 259 | 10 | TPGDSSSGWT | 3e-06 | 61 |
| HLA-A*03:01 | 1 | 251 | 260 | 10 | PGDSSSGWTA | 3e-06 | 82 |
| HLA-B*08:01 | 1 | 251 | 259 | 9 | PGDSSSGWT | 3e-06 | 96 |
| HLA-B*58:01 | 1 | 251 | 259 | 9 | PGDSSSGWT | 3e-06 | 88 |
| HLA-A*31:01 | 1 | 252 | 261 | 10 | GDSSSGWTAG | 3e-06 | 85 |
| HLA-A*68:01 | 1 | 252 | 261 | 10 | GDSSSGWTAG | 3e-06 | 79 |
| HLA-B*35:01 | 1 | 252 | 261 | 10 | GDSSSGWTAG | 3e-06 | 69 |
| HLA-A*02:01 | 1 | 253 | 261 | 9 | DSSSGWTAG | 3e-06 | 82 |
| HLA-A*23:01 | 1 | 253 | 261 | 9 | DSSSGWTAG | 3e-06 | 68 |
| HLA-A*23:01 | 1 | 253 | 262 | 10 | DSSSGWTAG | 3e-06 | 68 |
| HLA-A*24:02 | 1 | 253 | 261 | 9 | DSSSGWTAG | 3e-06 | 66 |
| HLA-A*23:01 | 1 | 255 | 263 | 9 | SSGWTAGAA | 3e-06 | 68 |
| HLA-A*33:01 | 1 | 259 | 268 | 10 | TAGAAAYYVG | 3e-06 | 90 |
| HLA-B*07:02 | 1 | 259 | 268 | 10 | TAGAAAYYVG | 3e-06 | 83 |
| HLA-B*44:03 | 1 | 260 | 268 | 9 | AGAAAYYVG | 3e-06 | 72 |
| HLA-A*68:02 | 1 | 272 | 281 | 10 | PRTFLLKYNE | 3e-06 | 81 |
| HLA-B*57:01 | 1 | 272 | 280 | 9 | PRTFLLKYN | 3e-06 | 95 |
| HLA-A*02:01 | 1 | 274 | 282 | 9 | TFLLKYNE | 3e-06 | 82 |
| HLA-A*02:03 | 1 | 274 | 282 | 9 | TFLLKYNE | 3e-06 | 84 |
| HLA-A*11:01 | 1 | 274 | 282 | 9 | TFLLKYNE | 3e-06 | 68 |
| HLA-A*32:01 | 1 | 274 | 283 | 10 | TFLLKYNE | 3e-06 | 69 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-B*44:03 | 1 | 274 | 282 | 9 | TFLLYNEN 3e-06 | 72 |
| HLA-A*26:01 | 1 | 275 | 284 | 10 | FLLKYNENGT 3e-06 | 79 |
| HLA-B*40:01 | 1 | 275 | 283 | 9 | FLLKYNENG 3e-06 | 61 |
| HLA-A*11:01 | 1 | 276 | 285 | 10 | LLKYNENGTI 3e-06 | 68 |
| HLA-A*23:01 | 1 | 276 | 284 | 9 | LLKYNENGT 3e-06 | 68 |
| HLA-A*11:01 | 1 | 277 | 285 | 9 | LKYNENGTI 3e-06 | 68 |
| HLA-B*35:01 | 1 | 278 | 287 | 10 | KYNENGTITD 3e-06 | 69 |
| HLA-A*02:01 | 1 | 279 | 287 | 9 | YNENGTITD 3e-06 | 82 |
| HLA-A*31:01 | 1 | 279 | 287 | 9 | YNENGTITD 3e-06 | 85 |
| HLA-A*32:01 | 1 | 279 | 288 | 10 | YNENGTITDA 3e-06 | 69 |
| HLA-A*68:01 | 1 | 279 | 287 | 9 | YNENGTITD 3e-06 | 79 |
| HLA-B*07:02 | 1 | 279 | 287 | 9 | YNENGTITD 3e-06 | 83 |
| HLA-B*40:01 | 1 | 279 | 287 | 9 | YNENGTITD 3e-06 | 61 |
| HLA-A*30:01 | 1 | 281 | 290 | 10 | ENGTITDAVD 3e-06 | 97 |
| HLA-B*58:01 | 1 | 281 | 290 | 10 | ENGTITDAVD 3e-06 | 88 |
| HLA-A*03:01 | 1 | 282 | 291 | 10 | NGTITDAVDC 3e-06 | 82 |
| HLA-A*30:02 | 1 | 282 | 290 | 9 | NGTITDAVD 3e-06 | 96 |
| HLA-B*07:02 | 1 | 282 | 291 | 10 | NGTITDAVDC 3e-06 | 83 |
| HLA-B*35:01 | 1 | 282 | 290 | 9 | NGTITDAVD 3e-06 | 69 |
| HLA-B*35:01 | 1 | 282 | 291 | 10 | NGTITDAVDC 3e-06 | 69 |
| HLA-A*31:01 | 1 | 285 | 294 | 10 | ITDAVDCALD 3e-06 | 85 |
| HLA-A*32:01 | 1 | 285 | 294 | 10 | ITDAVDCALD 3e-06 | 69 |
| HLA-B*15:01 | 1 | 285 | 294 | 10 | ITDAVDCALD 3e-06 | 82 |
| HLA-B*35:01 | 1 | 285 | 294 | 10 | ITDAVDCALD 3e-06 | 69 |
| HLA-A*02:01 | 1 | 286 | 295 | 10 | TDAVDCALDP 3e-06 | 82 |
| HLA-A*02:03 | 1 | 286 | 295 | 10 | TDAVDCALDP 3e-06 | 84 |
| HLA-B*08:01 | 1 | 286 | 295 | 10 | TDAVDCALDP 3e-06 | 96 |
| HLA-A*03:01 | 1 | 287 | 295 | 9 | DAVDCALDP 3e-06 | 82 |
| HLA-B*15:01 | 1 | 287 | 295 | 9 | DAVDCALDP 3e-06 | 82 |
| HLA-B*40:01 | 1 | 287 | 295 | 9 | DAVDCALDP 3e-06 | 61 |
| HLA-A*02:01 | 1 | 289 | 297 | 9 | VDCALDPLS 3e-06 | 82 |
| HLA-A*31:01 | 1 | 289 | 297 | 9 | VDCALDPLS 3e-06 | 85 |
| HLA-A*32:01 | 1 | 289 | 298 | 10 | VDCALDPLSE 3e-06 | 69 |
| HLA-B*07:02 | 1 | 289 | 298 | 10 | VDCALDPLSE 3e-06 | 83 |
| HLA-B*53:01 | 1 | 289 | 298 | 10 | VDCALDPLSE 3e-06 | 70 |
| HLA-A*32:01 | 1 | 290 | 298 | 9 | DCALDPLSE 3e-06 | 69 |
| HLA-A*02:03 | 1 | 293 | 302 | 10 | LDPLSETKCT 3e-06 | 84 |
| HLA-A*11:01 | 1 | 293 | 301 | 9 | LDPLSETKC 3e-06 | 68 |
| HLA-A*26:01 | 1 | 293 | 301 | 9 | LDPLSETKC 3e-06 | 79 |
| HLA-A*33:01 | 1 | 293 | 302 | 10 | LDPLSETKCT 3e-06 | 90 |
| HLA-B*53:01 | 1 | 295 | 304 | 10 | PLSETKCTLK 3e-06 | 70 |
| HLA-A*23:01 | 1 | 299 | 307 | 9 | TKCTLKSFT 3e-06 | 68 |
| HLA-B*53:01 | 1 | 299 | 307 | 9 | TKCTLKSFT 3e-06 | 70 |
| HLA-A*24:02 | 1 | 300 | 309 | 10 | KCTLKSFTVE 3e-06 | 66 |
| HLA-B*44:02 | 1 | 300 | 309 | 10 | KCTLKSFTVE 3e-06 | 77 |
| HLA-B*40:01 | 1 | 301 | 310 | 10 | CTLKSFTVEK 3e-06 | 61 |
| HLA-B*44:03 | 1 | 301 | 309 | 9 | CTLKSFTVE 3e-06 | 72 |
| HLA-B*35:01 | 1 | 302 | 311 | 10 | TLKSFTVEKG 3e-06 | 69 |
| HLA-A*26:01 | 1 | 303 | 311 | 9 | LKSFTVEKG 3e-06 | 79 |
| HLA-A*68:01 | 1 | 303 | 311 | 9 | LKSFTVEKG 3e-06 | 79 |
| HLA-B*07:02 | 1 | 303 | 311 | 9 | LKSFTVEKG 3e-06 | 83 |
| HLA-B*35:01 | 1 | 308 | 317 | 10 | VEKGIYQTSN 3e-06 | 69 |
| HLA-B*53:01 | 1 | 308 | 317 | 10 | VEKGIYQTSN 3e-06 | 70 |
| HLA-A*33:01 | 1 | 309 | 317 | 9 | EKGIYQTSN 3e-06 | 90 |
| HLA-B*35:01 | 1 | 309 | 317 | 9 | EKGIYQTSN 3e-06 | 69 |
| HLA-B*40:01 | 1 | 315 | 324 | 10 | TSNFRVQPT 3e-06 | 61 |
| HLA-B*40:01 | 1 | 317 | 325 | 9 | NFRVQPTES 3e-06 | 61 |
| HLA-B*15:01 | 1 | 322 | 330 | 9 | PTESIVRFP 3e-06 | 82 |
| HLA-A*32:01 | 1 | 323 | 331 | 9 | TESIVRFPN 3e-06 | 69 |
| HLA-B*44:03 | 1 | 325 | 334 | 10 | SIVRFPNITN 3e-06 | 72 |
| HLA-A*24:02 | 1 | 330 | 339 | 10 | PNITNLCPFG 3e-06 | 66 |
| HLA-A*30:02 | 1 | 330 | 339 | 10 | PNITNLCPFG 3e-06 | 96 |
| HLA-A*32:01 | 1 | 331 | 339 | 9 | NITNLCPFG 3e-06 | 69 |
| HLA-B*35:01 | 1 | 331 | 339 | 9 | NITNLCPFG 3e-06 | 69 |
| HLA-B*53:01 | 1 | 331 | 340 | 10 | NITNLCPFGE 3e-06 | 70 |
| HLA-A*24:02 | 1 | 332 | 340 | 9 | ITNLCPFGE 3e-06 | 66 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-B*35:01 | 1 | 332 | 341 | 10 | ITNLCPFGEV 3e-06 | 69 |
| HLA-B*44:03 | 1 | 332 | 341 | 10 | ITNLCPFGEV 3e-06 | 72 |
| HLA-A*02:01 | 1 | 335 | 343 | 9 | LCPFGEVFN 3e-06 | 82 |
| HLA-A*33:01 | 1 | 335 | 343 | 9 | LCPFGEVFN 3e-06 | 90 |
| HLA-B*08:01 | 1 | 335 | 343 | 9 | LCPFGEVFN 3e-06 | 96 |
| HLA-A*32:01 | 1 | 336 | 345 | 10 | CPFGEVFNAT 3e-06 | 69 |
| HLA-B*15:01 | 1 | 337 | 346 | 10 | PFGEVFNATR 3e-06 | 82 |
| HLA-B*35:01 | 1 | 337 | 346 | 10 | PFGEVFNATR 3e-06 | 69 |
| HLA-B*44:02 | 1 | 337 | 346 | 10 | PFGEVFNATR 3e-06 | 77 |
| HLA-B*53:01 | 1 | 337 | 345 | 9 | PFGEVFNAT 3e-06 | 70 |
| HLA-A*23:01 | 1 | 343 | 352 | 10 | NATRFASVYA 3e-06 | 68 |
| HLA-A*02:01 | 1 | 346 | 354 | 9 | RFASVYAWN 3e-06 | 82 |
| HLA-A*11:01 | 1 | 350 | 359 | 10 | VYAWNRKRIS 3e-06 | 68 |
| HLA-B*44:02 | 1 | 351 | 360 | 10 | YAWNRKRISN 3e-06 | 77 |
| HLA-A*02:03 | 1 | 352 | 360 | 9 | AWNRKRISN 3e-06 | 84 |
| HLA-B*44:03 | 1 | 352 | 361 | 10 | AWNRKRISNC 3e-06 | 72 |
| HLA-A*32:01 | 1 | 353 | 362 | 10 | WNRKRISNCV 3e-06 | 69 |
| HLA-B*44:03 | 1 | 353 | 362 | 10 | WNRKRISNCV 3e-06 | 72 |
| HLA-A*02:06 | 1 | 354 | 363 | 10 | NRKRISNCVA 3e-06 | 87 |
| HLA-B*58:01 | 1 | 354 | 363 | 10 | NRKRISNCVA 3e-06 | 88 |
| HLA-A*24:02 | 1 | 355 | 363 | 9 | RKRISNCVA 3e-06 | 66 |
| HLA-A*24:02 | 1 | 355 | 364 | 10 | RKRISNCVAD 3e-06 | 66 |
| HLA-A*68:01 | 1 | 355 | 363 | 9 | RKRISNCVA 3e-06 | 79 |
| HLA-A*01:01 | 1 | 356 | 364 | 9 | KRISNCVAD 3e-06 | 98 |
| HLA-A*03:01 | 1 | 356 | 364 | 9 | KRISNCVAD 3e-06 | 82 |
| HLA-A*26:01 | 1 | 356 | 364 | 9 | KRISNCVAD 3e-06 | 79 |
| HLA-B*08:01 | 1 | 357 | 366 | 10 | RISNCVADYS 3e-06 | 96 |
| HLA-B*07:02 | 1 | 358 | 366 | 9 | ISNCVADYS 3e-06 | 83 |
| HLA-B*44:03 | 1 | 358 | 367 | 10 | ISNCVADYSV 3e-06 | 72 |
| HLA-A*11:01 | 1 | 360 | 368 | 9 | NCVADYSVL 3e-06 | 68 |
| HLA-A*23:01 | 1 | 362 | 371 | 10 | VADYSVLYNS 3e-06 | 68 |
| HLA-A*24:02 | 1 | 362 | 371 | 10 | VADYSVLYNS 3e-06 | 66 |
| HLA-B*40:01 | 1 | 362 | 370 | 9 | VADYSVLYN 3e-06 | 61 |
| HLA-A*02:01 | 1 | 364 | 373 | 10 | DYSVLYNSAS 3e-06 | 82 |
| HLA-B*15:01 | 1 | 364 | 373 | 10 | DYSVLYNSAS 3e-06 | 82 |
| HLA-B*07:02 | 1 | 374 | 383 | 10 | FSTFKCYGVS 3e-06 | 83 |
| HLA-B*44:02 | 1 | 374 | 382 | 9 | FSTFKCYGV 3e-06 | 77 |
| HLA-B*40:01 | 1 | 375 | 383 | 9 | STFKCYGVS 3e-06 | 61 |
| HLA-B*44:03 | 1 | 375 | 383 | 9 | STFKCYGVS 3e-06 | 72 |
| HLA-A*11:01 | 1 | 376 | 385 | 10 | TFKCYGVSPT 3e-06 | 68 |
| HLA-A*03:01 | 1 | 377 | 385 | 9 | FKCYGVSPT 3e-06 | 82 |
| HLA-A*23:01 | 1 | 377 | 385 | 9 | FKCYGVSPT 3e-06 | 68 |
| HLA-B*53:01 | 1 | 377 | 385 | 9 | FKCYGVSPT 3e-06 | 70 |
| HLA-B*57:01 | 1 | 377 | 385 | 9 | FKCYGVSPT 3e-06 | 95 |
| HLA-A*68:01 | 1 | 379 | 388 | 10 | CYGVSPKLN 3e-06 | 79 |
| HLA-A*68:02 | 1 | 379 | 388 | 10 | CYGVSPKLN 3e-06 | 81 |
| HLA-B*44:03 | 1 | 379 | 388 | 10 | CYGVSPKLN 3e-06 | 72 |
| HLA-B*40:01 | 1 | 380 | 388 | 9 | YGVSPKLN 3e-06 | 61 |
| HLA-B*44:03 | 1 | 380 | 389 | 10 | YGVSPKLN 3e-06 | 72 |
| HLA-A*23:01 | 1 | 381 | 389 | 9 | GVSPKLN 3e-06 | 68 |
| HLA-A*03:01 | 1 | 384 | 393 | 10 | PTKLNLCFT 3e-06 | 82 |
| HLA-A*26:01 | 1 | 384 | 393 | 10 | PTKLNLCFT 3e-06 | 79 |
| HLA-A*68:01 | 1 | 384 | 393 | 10 | PTKLNLCFT 3e-06 | 79 |
| HLA-B*15:01 | 1 | 384 | 393 | 10 | PTKLNLCFT 3e-06 | 82 |
| HLA-B*51:01 | 1 | 384 | 393 | 10 | PTKLNLCFT 3e-06 | 90 |
| HLA-A*23:01 | 1 | 385 | 393 | 9 | TKLNLCFT 3e-06 | 68 |
| HLA-B*40:01 | 1 | 385 | 393 | 9 | TKLNLCFT 3e-06 | 61 |
| HLA-B*44:02 | 1 | 385 | 394 | 10 | TKLNLCFTN 3e-06 | 77 |
| HLA-B*44:03 | 1 | 385 | 394 | 10 | TKLNLCFTN 3e-06 | 72 |
| HLA-B*51:01 | 1 | 385 | 394 | 10 | TKLNLCFTN 3e-06 | 90 |
| HLA-B*53:01 | 1 | 385 | 393 | 9 | TKLNLCFT 3e-06 | 70 |
| HLA-B*53:01 | 1 | 385 | 394 | 10 | TKLNLCFTN 3e-06 | 70 |
| HLA-A*02:03 | 1 | 387 | 396 | 10 | LNLCFTNVY 3e-06 | 84 |
| HLA-A*02:03 | 1 | 388 | 396 | 9 | NLCFTNVY 3e-06 | 84 |
| HLA-A*23:01 | 1 | 388 | 397 | 10 | NLCFTNVYA 3e-06 | 68 |
| HLA-A*24:02 | 1 | 388 | 397 | 10 | NLCFTNVYA 3e-06 | 66 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-A*31:01 | 1 | 389 | 398 | 10 | DLCFTNVYAD 3e-06 | 85 |
| HLA-B*58:01 | 1 | 389 | 398 | 10 | DLCFTNVYAD 3e-06 | 88 |
| HLA-A*31:01 | 1 | 390 | 399 | 10 | LCFTNVYADS 3e-06 | 85 |
| HLA-B*07:02 | 1 | 390 | 398 | 9 | LCFTNVYAD 3e-06 | 83 |
| HLA-B*35:01 | 1 | 390 | 399 | 10 | LCFTNVYADS 3e-06 | 69 |
| HLA-A*02:06 | 1 | 391 | 399 | 9 | CFTNVYADS 3e-06 | 87 |
| HLA-A*33:01 | 1 | 396 | 405 | 10 | YADSFVIRGD 3e-06 | 90 |
| HLA-B*44:02 | 1 | 396 | 405 | 10 | YADSFVIRGD 3e-06 | 77 |
| HLA-A*02:01 | 1 | 397 | 406 | 10 | ADSFVIRGDE 3e-06 | 82 |
| HLA-A*26:01 | 1 | 397 | 406 | 10 | ADSFVIRGDE 3e-06 | 79 |
| HLA-A*31:01 | 1 | 397 | 405 | 9 | ADSFVIRGD 3e-06 | 85 |
| HLA-A*32:01 | 1 | 397 | 406 | 10 | ADSFVIRGDE 3e-06 | 69 |
| HLA-B*08:01 | 1 | 397 | 405 | 9 | ADSFVIRGD 3e-06 | 96 |
| HLA-B*15:01 | 1 | 397 | 406 | 10 | ADSFVIRGDE 3e-06 | 82 |
| HLA-B*35:01 | 1 | 397 | 405 | 9 | ADSFVIRGD 3e-06 | 69 |
| HLA-B*40:01 | 1 | 397 | 406 | 10 | ADSFVIRGDE 3e-06 | 61 |
| HLA-A*02:03 | 1 | 398 | 406 | 9 | DSFVIRGDE 3e-06 | 84 |
| HLA-B*44:03 | 1 | 398 | 406 | 9 | DSFVIRGDE 3e-06 | 72 |
| HLA-A*26:01 | 1 | 403 | 412 | 10 | RGDEVRQIAP 3e-06 | 79 |
| HLA-A*11:01 | 1 | 404 | 412 | 9 | GDEVRQIAP 3e-06 | 68 |
| HLA-A*31:01 | 1 | 404 | 412 | 9 | GDEVRQIAP 3e-06 | 85 |
| HLA-A*33:01 | 1 | 404 | 412 | 9 | GDEVRQIAP 3e-06 | 90 |
| HLA-A*02:01 | 1 | 405 | 414 | 10 | DEVQRQIAPGQ 3e-06 | 82 |
| HLA-A*02:06 | 1 | 405 | 413 | 9 | DEVQRQIAPG 3e-06 | 87 |
| HLA-A*11:01 | 1 | 405 | 413 | 9 | DEVQRQIAPG 3e-06 | 68 |
| HLA-B*58:01 | 1 | 405 | 413 | 9 | DEVQRQIAPG 3e-06 | 88 |
| HLA-A*11:01 | 1 | 407 | 415 | 9 | VRQIAPGQT 3e-06 | 68 |
| HLA-B*15:01 | 1 | 411 | 420 | 10 | APGQTGKIAD 3e-06 | 82 |
| HLA-B*08:01 | 1 | 412 | 420 | 9 | PGQTGKIAD 3e-06 | 96 |
| HLA-B*51:01 | 1 | 413 | 422 | 10 | GQTGKIADYN 3e-06 | 90 |
| HLA-A*02:03 | 1 | 414 | 422 | 9 | QTGKIADYN 3e-06 | 84 |
| HLA-A*23:01 | 1 | 414 | 422 | 9 | QTGKIADYN 3e-06 | 68 |
| HLA-A*24:02 | 1 | 414 | 422 | 9 | QTGKIADYN 3e-06 | 66 |
| HLA-B*35:01 | 1 | 414 | 422 | 9 | QTGKIADYN 3e-06 | 69 |
| HLA-A*02:06 | 1 | 419 | 428 | 10 | ADYNYKLPPD 3e-06 | 87 |
| HLA-A*31:01 | 1 | 419 | 427 | 9 | ADYNYKLPD 3e-06 | 85 |
| HLA-B*44:03 | 1 | 419 | 428 | 10 | ADYNYKLPPD 3e-06 | 72 |
| HLA-B*35:01 | 1 | 420 | 428 | 9 | DYNYKLPPD 3e-06 | 69 |
| HLA-A*32:01 | 1 | 421 | 430 | 10 | YNYKLPPDFT 3e-06 | 69 |
| HLA-A*02:01 | 1 | 422 | 431 | 10 | NYKLPPDFTG 3e-06 | 82 |
| HLA-A*02:03 | 1 | 422 | 431 | 10 | NYKLPPDFTG 3e-06 | 84 |
| HLA-B*15:01 | 1 | 422 | 431 | 10 | NYKLPPDFTG 3e-06 | 82 |
| HLA-A*03:01 | 1 | 423 | 431 | 9 | YKLPPDFTG 3e-06 | 82 |
| HLA-A*02:06 | 1 | 426 | 435 | 10 | PDDFTGCVIA 3e-06 | 87 |
| HLA-A*11:01 | 1 | 426 | 434 | 9 | PDDFTGCVI 3e-06 | 68 |
| HLA-A*26:01 | 1 | 426 | 434 | 9 | PDDFTGCVI 3e-06 | 79 |
| HLA-A*33:01 | 1 | 426 | 434 | 9 | PDDFTGCVI 3e-06 | 90 |
| HLA-B*40:01 | 1 | 426 | 435 | 10 | PDDFTGCVIA 3e-06 | 61 |
| HLA-A*03:01 | 1 | 428 | 437 | 10 | DFTGCVIAWN 3e-06 | 82 |
| HLA-A*24:02 | 1 | 430 | 438 | 9 | TGCVIAWNS 3e-06 | 66 |
| HLA-B*07:02 | 1 | 430 | 438 | 9 | TGCVIAWNS 3e-06 | 83 |
| HLA-B*08:01 | 1 | 430 | 439 | 10 | TGCVIAWNSN 3e-06 | 96 |
| HLA-B*51:01 | 1 | 430 | 439 | 10 | TGCVIAWNSN 3e-06 | 90 |
| HLA-A*11:01 | 1 | 431 | 440 | 10 | GCVIAWNSNN 3e-06 | 68 |
| HLA-B*15:01 | 1 | 431 | 439 | 9 | GCVIAWNSN 3e-06 | 82 |
| HLA-B*51:01 | 1 | 431 | 439 | 9 | GCVIAWNSN 3e-06 | 90 |
| HLA-B*44:02 | 1 | 433 | 442 | 10 | VIAWNSNNLD 3e-06 | 77 |
| HLA-A*03:01 | 1 | 434 | 442 | 9 | IAWNSNNLD 3e-06 | 82 |
| HLA-A*26:01 | 1 | 434 | 442 | 9 | IAWNSNNLD 3e-06 | 79 |
| HLA-A*26:01 | 1 | 434 | 443 | 10 | IAWNSNNLDS 3e-06 | 79 |
| HLA-B*40:01 | 1 | 434 | 442 | 9 | IAWNSNNLD 3e-06 | 61 |
| HLA-B*44:02 | 1 | 434 | 443 | 10 | IAWNSNNLDS 3e-06 | 77 |
| HLA-B*44:03 | 1 | 434 | 442 | 9 | IAWNSNNLD 3e-06 | 72 |
| HLA-B*40:01 | 1 | 435 | 444 | 10 | AWNSNNLDSK 3e-06 | 61 |
| HLA-A*33:01 | 1 | 437 | 446 | 10 | NSNNLDSKVG 3e-06 | 90 |
| HLA-B*15:01 | 1 | 437 | 446 | 10 | NSNNLDSKVG 3e-06 | 82 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-A*02:03 | 1 | 438 | 446 | 9 | SNNLDSKVG 3e-06 | 84 |
| HLA-A*02:06 | 1 | 438 | 446 | 9 | SNNLDSKVG 3e-06 | 87 |
| HLA-A*02:06 | 1 | 438 | 447 | 10 | SNNLDSKVG 3e-06 | 87 |
| HLA-A*03:01 | 1 | 438 | 446 | 9 | SNNLDSKVG 3e-06 | 82 |
| HLA-A*03:01 | 1 | 438 | 447 | 10 | SNNLDSKVG 3e-06 | 82 |
| HLA-A*26:01 | 1 | 438 | 446 | 9 | SNNLDSKVG 3e-06 | 79 |
| HLA-A*31:01 | 1 | 438 | 446 | 9 | SNNLDSKVG 3e-06 | 85 |
| HLA-A*68:02 | 1 | 438 | 446 | 9 | SNNLDSKVG 3e-06 | 81 |
| HLA-B*40:01 | 1 | 438 | 446 | 9 | SNNLDSKVG 3e-06 | 61 |
| HLA-A*02:03 | 1 | 439 | 447 | 9 | NNLDSKVG 3e-06 | 84 |
| HLA-A*11:01 | 1 | 439 | 447 | 9 | NNLDSKVG 3e-06 | 68 |
| HLA-A*23:01 | 1 | 439 | 447 | 9 | NNLDSKVG 3e-06 | 68 |
| HLA-A*23:01 | 1 | 440 | 448 | 9 | NLDSKVG 3e-06 | 68 |
| HLA-A*32:01 | 1 | 440 | 448 | 9 | NLDSKVG 3e-06 | 69 |
| HLA-B*35:01 | 1 | 440 | 448 | 9 | NLDSKVG 3e-06 | 69 |
| HLA-B*07:02 | 1 | 441 | 450 | 10 | LDSKVG 3e-06 | 83 |
| HLA-A*02:03 | 1 | 442 | 450 | 9 | DSKVG 3e-06 | 84 |
| HLA-B*44:03 | 1 | 442 | 450 | 9 | DSKVG 3e-06 | 72 |
| HLA-B*07:02 | 1 | 445 | 454 | 10 | VGGNYLYR 3e-06 | 83 |
| HLA-B*35:01 | 1 | 445 | 454 | 10 | VGGNYLYR 3e-06 | 69 |
| HLA-B*44:02 | 1 | 445 | 454 | 10 | VGGNYLYR 3e-06 | 77 |
| HLA-B*44:03 | 1 | 445 | 454 | 10 | VGGNYLYR 3e-06 | 72 |
| HLA-B*35:01 | 1 | 446 | 455 | 10 | GGNYLYR 3e-06 | 69 |
| HLA-B*53:01 | 1 | 449 | 458 | 10 | YNYLYRFRK 3e-06 | 70 |
| HLA-A*24:02 | 1 | 451 | 460 | 10 | YLYRFRKSN 3e-06 | 66 |
| HLA-A*26:01 | 1 | 451 | 460 | 10 | YLYRFRKSN 3e-06 | 79 |
| HLA-A*68:01 | 1 | 451 | 460 | 10 | YLYRFRKSN 3e-06 | 79 |
| HLA-A*01:01 | 1 | 452 | 460 | 9 | LYRFRKSN 3e-06 | 98 |
| HLA-B*35:01 | 1 | 452 | 460 | 9 | LYRFRKSN 3e-06 | 69 |
| HLA-B*58:01 | 1 | 452 | 460 | 9 | LYRFRKSN 3e-06 | 88 |
| HLA-B*40:01 | 1 | 456 | 465 | 10 | FRKSNLKPFE 3e-06 | 61 |
| HLA-B*51:01 | 1 | 457 | 465 | 9 | RKSNLKPFE 3e-06 | 90 |
| HLA-B*53:01 | 1 | 457 | 465 | 9 | RKSNLKPFE 3e-06 | 70 |
| HLA-A*26:01 | 1 | 458 | 467 | 10 | KSNLKPFE 3e-06 | 79 |
| HLA-A*68:02 | 1 | 458 | 467 | 10 | KSNLKPFE 3e-06 | 81 |
| HLA-B*07:02 | 1 | 458 | 467 | 10 | KSNLKPFE 3e-06 | 83 |
| HLA-B*51:01 | 1 | 458 | 467 | 10 | KSNLKPFE 3e-06 | 90 |
| HLA-A*02:01 | 1 | 459 | 467 | 9 | SNLKPFE 3e-06 | 82 |
| HLA-B*35:01 | 1 | 459 | 467 | 9 | SNLKPFE 3e-06 | 69 |
| HLA-B*40:01 | 1 | 459 | 467 | 9 | SNLKPFE 3e-06 | 61 |
| HLA-B*35:01 | 1 | 460 | 469 | 10 | NLKPFE 3e-06 | 69 |
| HLA-B*35:01 | 1 | 461 | 469 | 9 | LKPFE 3e-06 | 69 |
| HLA-A*11:01 | 1 | 463 | 472 | 10 | PFERDISTEI 3e-06 | 68 |
| HLA-A*26:01 | 1 | 463 | 471 | 9 | PFERDISTE 3e-06 | 79 |
| HLA-A*68:01 | 1 | 463 | 471 | 9 | PFERDISTE 3e-06 | 79 |
| HLA-A*32:01 | 1 | 465 | 474 | 10 | ERDISTEIQ 3e-06 | 69 |
| HLA-A*03:01 | 1 | 467 | 476 | 10 | DISTEIQAG 3e-06 | 82 |
| HLA-B*44:03 | 1 | 467 | 476 | 10 | DISTEIQAG 3e-06 | 72 |
| HLA-A*11:01 | 1 | 472 | 481 | 10 | IYQAGSTPCN 3e-06 | 68 |
| HLA-A*26:01 | 1 | 472 | 481 | 10 | IYQAGSTPCN 3e-06 | 79 |
| HLA-A*68:01 | 1 | 472 | 481 | 10 | IYQAGSTPCN 3e-06 | 79 |
| HLA-B*44:02 | 1 | 472 | 481 | 10 | IYQAGSTPCN 3e-06 | 77 |
| HLA-B*53:01 | 1 | 472 | 481 | 10 | IYQAGSTPCN 3e-06 | 70 |
| HLA-B*35:01 | 1 | 473 | 482 | 10 | YQAGSTPCNG 3e-06 | 69 |
| HLA-A*02:01 | 1 | 474 | 482 | 9 | QAGSTPCNG 3e-06 | 82 |
| HLA-A*03:01 | 1 | 474 | 482 | 9 | QAGSTPCNG 3e-06 | 82 |
| HLA-B*44:02 | 1 | 475 | 484 | 10 | AGSTPCNGVE 3e-06 | 77 |
| HLA-A*03:01 | 1 | 476 | 485 | 10 | GSTPCNGVEG 3e-06 | 82 |
| HLA-A*26:01 | 1 | 476 | 485 | 10 | GSTPCNGVEG 3e-06 | 79 |
| HLA-A*33:01 | 1 | 476 | 485 | 10 | GSTPCNGVEG 3e-06 | 90 |
| HLA-B*07:02 | 1 | 476 | 485 | 10 | GSTPCNGVEG 3e-06 | 83 |
| HLA-B*40:01 | 1 | 476 | 484 | 9 | GSTPCNGVE 3e-06 | 61 |
| HLA-B*44:02 | 1 | 476 | 484 | 9 | GSTPCNGVE 3e-06 | 77 |
| HLA-A*11:01 | 1 | 478 | 487 | 10 | TPCNGVEGFN 3e-06 | 68 |
| HLA-A*30:01 | 1 | 479 | 487 | 9 | PCNGVEGFN 3e-06 | 97 |
| HLA-A*30:01 | 1 | 479 | 488 | 10 | PCNGVEGFNC 3e-06 | 97 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-B*57:01 | 1 | 479 | 487 | 9 | PCNGVEGFN | 3e-06 | 95 |
| HLA-A*24:02 | 1 | 480 | 488 | 9 | CNGVEGFNC | 3e-06 | 66 |
| HLA-A*31:01 | 1 | 480 | 488 | 9 | CNGVEGFNC | 3e-06 | 85 |
| HLA-A*23:01 | 1 | 482 | 491 | 10 | GVEGFNCYFP | 3e-06 | 68 |
| HLA-A*24:02 | 1 | 482 | 491 | 10 | GVEGFNCYFP | 3e-06 | 66 |
| HLA-B*35:01 | 1 | 482 | 491 | 10 | GVEGFNCYFP | 3e-06 | 69 |
| HLA-A*03:01 | 1 | 483 | 491 | 9 | VEGFNCYFP | 3e-06 | 82 |
| HLA-A*31:01 | 1 | 483 | 491 | 9 | VEGFNCYFP | 3e-06 | 85 |
| HLA-A*68:01 | 1 | 483 | 491 | 9 | VEGFNCYFP | 3e-06 | 79 |
| HLA-A*02:03 | 1 | 484 | 493 | 10 | EGFNCYFPLQ | 3e-06 | 84 |
| HLA-A*32:01 | 1 | 484 | 493 | 10 | EGFNCYFPLQ | 3e-06 | 69 |
| HLA-B*15:01 | 1 | 484 | 493 | 10 | EGFNCYFPLQ | 3e-06 | 82 |
| HLA-B*44:02 | 1 | 484 | 493 | 10 | EGFNCYFPLQ | 3e-06 | 77 |
| HLA-B*44:03 | 1 | 484 | 493 | 10 | EGFNCYFPLQ | 3e-06 | 72 |
| HLA-A*26:01 | 1 | 485 | 494 | 10 | GFNCYFPLQS | 3e-06 | 79 |
| HLA-B*44:02 | 1 | 485 | 494 | 10 | GFNCYFPLQS | 3e-06 | 77 |
| HLA-B*44:03 | 1 | 485 | 493 | 9 | GFNCYFPLQ | 3e-06 | 72 |
| HLA-B*40:01 | 1 | 488 | 496 | 9 | CYFPLQSYG | 3e-06 | 61 |
| HLA-A*23:01 | 1 | 490 | 498 | 9 | FPLQSYGFQ | 3e-06 | 68 |
| HLA-B*07:02 | 1 | 491 | 500 | 10 | PLQSYGFQPT | 3e-06 | 83 |
| HLA-B*15:01 | 1 | 491 | 500 | 10 | PLQSYGFQPT | 3e-06 | 82 |
| HLA-B*35:01 | 1 | 491 | 499 | 9 | PLQSYGFQPT | 3e-06 | 69 |
| HLA-B*51:01 | 1 | 491 | 500 | 10 | PLQSYGFQPT | 3e-06 | 90 |
| HLA-B*35:01 | 1 | 492 | 501 | 10 | LQSYGFQPTN | 3e-06 | 69 |
| HLA-A*02:01 | 1 | 494 | 502 | 9 | SYGFQPTNG | 3e-06 | 82 |
| HLA-A*11:01 | 1 | 495 | 504 | 10 | YGFQPTNGVG | 3e-06 | 68 |
| HLA-A*32:01 | 1 | 496 | 504 | 9 | GFQPTNGVG | 3e-06 | 69 |
| HLA-A*02:06 | 1 | 498 | 506 | 9 | QPTNGVGYQ | 3e-06 | 87 |
| HLA-A*24:02 | 1 | 498 | 506 | 9 | QPTNGVGYQ | 3e-06 | 66 |
| HLA-B*40:01 | 1 | 498 | 506 | 9 | QPTNGVGYQ | 3e-06 | 61 |
| HLA-B*40:01 | 1 | 500 | 509 | 10 | TNGVGYQPYP | 3e-06 | 61 |
| HLA-B*35:01 | 1 | 507 | 516 | 10 | PYRVVLSFE | 3e-06 | 69 |
| HLA-B*53:01 | 1 | 507 | 516 | 10 | PYRVVLSFE | 3e-06 | 70 |
| HLA-A*11:01 | 1 | 516 | 525 | 10 | ELLHAPATVC | 3e-06 | 68 |
| HLA-A*11:01 | 1 | 518 | 527 | 10 | LHAPATVCGP | 3e-06 | 68 |
| HLA-B*40:01 | 1 | 519 | 528 | 10 | HAPATVCGPK | 3e-06 | 61 |
| HLA-A*03:01 | 1 | 521 | 530 | 10 | PATVCGPKKS | 3e-06 | 82 |
| HLA-B*51:01 | 1 | 521 | 530 | 10 | PATVCGPKKS | 3e-06 | 90 |
| HLA-B*53:01 | 1 | 522 | 530 | 9 | ATVCGPKKS | 3e-06 | 70 |
| HLA-B*35:01 | 1 | 523 | 532 | 10 | TVCGPKKSTN | 3e-06 | 69 |
| HLA-B*44:03 | 1 | 524 | 532 | 9 | VCGPKKSTN | 3e-06 | 72 |
| HLA-A*03:01 | 1 | 527 | 536 | 10 | PKKSTNLVKN | 3e-06 | 82 |
| HLA-A*23:01 | 1 | 527 | 535 | 9 | PKKSTNLVK | 3e-06 | 68 |
| HLA-A*32:01 | 1 | 527 | 535 | 9 | PKKSTNLVK | 3e-06 | 69 |
| HLA-A*02:03 | 1 | 528 | 536 | 9 | KKSTNLVKN | 3e-06 | 84 |
| HLA-B*51:01 | 1 | 528 | 536 | 9 | KKSTNLVKN | 3e-06 | 90 |
| HLA-B*53:01 | 1 | 528 | 536 | 9 | KKSTNLVKN | 3e-06 | 70 |
| HLA-B*53:01 | 1 | 528 | 537 | 10 | KKSTNLVKNK | 3e-06 | 70 |
| HLA-A*23:01 | 1 | 532 | 540 | 9 | NLVKNKCVN | 3e-06 | 68 |
| HLA-A*32:01 | 1 | 532 | 540 | 9 | NLVKNKCVN | 3e-06 | 69 |
| HLA-A*68:02 | 1 | 532 | 540 | 9 | NLVKNKCVN | 3e-06 | 81 |
| HLA-A*02:01 | 1 | 533 | 542 | 10 | LVKNKCVNFN | 3e-06 | 82 |
| HLA-A*11:01 | 1 | 533 | 542 | 10 | LVKNKCVNFN | 3e-06 | 68 |
| HLA-B*08:01 | 1 | 534 | 542 | 9 | VKNKCVNFN | 3e-06 | 96 |
| HLA-A*03:01 | 1 | 535 | 544 | 10 | KNKCVNFNFN | 3e-06 | 82 |
| HLA-A*01:01 | 1 | 536 | 544 | 9 | NKCVNFNFN | 3e-06 | 98 |
| HLA-A*30:02 | 1 | 536 | 545 | 10 | NKCVNFNFN | 3e-06 | 96 |
| HLA-A*02:03 | 1 | 537 | 545 | 9 | KCVNFNFN | 3e-06 | 84 |
| HLA-B*35:01 | 1 | 537 | 545 | 9 | KCVNFNFN | 3e-06 | 69 |
| HLA-B*53:01 | 1 | 537 | 545 | 9 | KCVNFNFN | 3e-06 | 70 |
| HLA-A*11:01 | 1 | 539 | 548 | 10 | VNFNFNGLTG | 3e-06 | 68 |
| HLA-B*35:01 | 1 | 539 | 548 | 10 | VNFNFNGLTG | 3e-06 | 69 |
| HLA-B*40:01 | 1 | 539 | 548 | 10 | VNFNFNGLTG | 3e-06 | 61 |
| HLA-B*40:01 | 1 | 540 | 548 | 9 | NFNFNGLTG | 3e-06 | 61 |
| HLA-B*40:01 | 1 | 540 | 549 | 10 | NFNFNGLTGT | 3e-06 | 61 |
| HLA-B*35:01 | 1 | 541 | 550 | 10 | FNFNGLTGTG | 3e-06 | 69 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-B*40:01 | 1 | 541 | 550 | 10 | FNFNGLTGTG 3e-06 | 61 |
| HLA-B*44:02 | 1 | 541 | 550 | 10 | FNFNGLTGTG 3e-06 | 77 |
| HLA-A*02:01 | 1 | 542 | 550 | 9 | NFNGLTGTG 3e-06 | 82 |
| HLA-B*35:01 | 1 | 545 | 554 | 10 | GLTGTGVLTE 3e-06 | 69 |
| HLA-B*44:03 | 1 | 545 | 554 | 10 | GLTGTGVLTE 3e-06 | 72 |
| HLA-B*53:01 | 1 | 545 | 554 | 10 | GLTGTGVLTE 3e-06 | 70 |
| HLA-B*35:01 | 1 | 546 | 555 | 10 | LTGTGVLTES 3e-06 | 69 |
| HLA-A*32:01 | 1 | 547 | 556 | 10 | TGTGVLTESN 3e-06 | 69 |
| HLA-A*33:01 | 1 | 547 | 556 | 10 | TGTGVLTESN 3e-06 | 90 |
| HLA-B*53:01 | 1 | 547 | 556 | 10 | TGTGVLTESN 3e-06 | 70 |
| HLA-B*44:03 | 1 | 548 | 556 | 9 | GTGVLTESN 3e-06 | 72 |
| HLA-B*40:01 | 1 | 549 | 558 | 10 | TGVLTESNKK 3e-06 | 61 |
| HLA-B*40:01 | 1 | 555 | 564 | 10 | SNKKFLPFQQ 3e-06 | 61 |
| HLA-B*40:01 | 1 | 561 | 569 | 9 | PFQQFGRDI 3e-06 | 61 |
| HLA-A*24:02 | 1 | 562 | 571 | 10 | FQQFGRDIAD 3e-06 | 66 |
| HLA-A*26:01 | 1 | 562 | 571 | 10 | FQQFGRDIAD 3e-06 | 79 |
| HLA-A*31:01 | 1 | 562 | 571 | 10 | FQQFGRDIAD 3e-06 | 85 |
| HLA-A*33:01 | 1 | 562 | 571 | 10 | FQQFGRDIAD 3e-06 | 90 |
| HLA-A*68:01 | 1 | 562 | 571 | 10 | FQQFGRDIAD 3e-06 | 79 |
| HLA-B*53:01 | 1 | 562 | 571 | 10 | FQQFGRDIAD 3e-06 | 70 |
| HLA-A*11:01 | 1 | 563 | 571 | 9 | QQFGRDIAD 3e-06 | 68 |
| HLA-A*03:01 | 1 | 564 | 572 | 9 | QFGRDIADT 3e-06 | 82 |
| HLA-A*11:01 | 1 | 564 | 573 | 10 | QFGRDIADTT 3e-06 | 68 |
| HLA-B*40:01 | 1 | 564 | 573 | 10 | QFGRDIADTT 3e-06 | 61 |
| HLA-B*44:03 | 1 | 564 | 572 | 9 | QFGRDIADT 3e-06 | 72 |
| HLA-A*23:01 | 1 | 565 | 574 | 10 | FGRDIADTTD 3e-06 | 68 |
| HLA-A*24:02 | 1 | 565 | 574 | 10 | FGRDIADTTD 3e-06 | 66 |
| HLA-A*33:01 | 1 | 565 | 574 | 10 | FGRDIADTTD 3e-06 | 90 |
| HLA-A*68:02 | 1 | 569 | 578 | 10 | IADTTDAVRD 3e-06 | 81 |
| HLA-B*44:02 | 1 | 569 | 578 | 10 | IADTTDAVRD 3e-06 | 77 |
| HLA-A*30:02 | 1 | 570 | 578 | 9 | ADTTDAVRD 3e-06 | 96 |
| HLA-A*33:01 | 1 | 570 | 579 | 10 | ADTTDAVRDP 3e-06 | 90 |
| HLA-B*53:01 | 1 | 570 | 579 | 10 | ADTTDAVRDP 3e-06 | 70 |
| HLA-B*57:01 | 1 | 570 | 578 | 9 | ADTTDAVRD 3e-06 | 95 |
| HLA-A*32:01 | 1 | 571 | 579 | 9 | DTTDAVRDP 3e-06 | 69 |
| HLA-B*44:03 | 1 | 571 | 580 | 10 | DTTDAVRDPQ 3e-06 | 72 |
| HLA-A*24:02 | 1 | 573 | 581 | 9 | TDAVRDPQT 3e-06 | 66 |
| HLA-A*32:01 | 1 | 573 | 581 | 9 | TDAVRDPQT 3e-06 | 69 |
| HLA-A*02:03 | 1 | 577 | 586 | 10 | RDPQTLEILD 3e-06 | 84 |
| HLA-A*11:01 | 1 | 578 | 587 | 10 | DPQTLEILDI 3e-06 | 68 |
| HLA-B*58:01 | 1 | 578 | 586 | 9 | DPQTLEILD 3e-06 | 88 |
| HLA-A*23:01 | 1 | 581 | 590 | 10 | TLEILDITPC 3e-06 | 68 |
| HLA-A*24:02 | 1 | 581 | 590 | 10 | TLEILDITPC 3e-06 | 66 |
| HLA-A*32:01 | 1 | 582 | 590 | 9 | LEILDITPC 3e-06 | 69 |
| HLA-A*68:01 | 1 | 584 | 593 | 10 | ILDITPCSF 3e-06 | 79 |
| HLA-A*02:01 | 1 | 585 | 594 | 10 | LDITPCSF 3e-06 | 82 |
| HLA-A*02:03 | 1 | 585 | 593 | 9 | LDITPCSF 3e-06 | 84 |
| HLA-A*02:03 | 1 | 585 | 594 | 10 | LDITPCSF 3e-06 | 84 |
| HLA-A*68:02 | 1 | 585 | 594 | 10 | LDITPCSF 3e-06 | 81 |
| HLA-B*08:01 | 1 | 585 | 594 | 10 | LDITPCSF 3e-06 | 96 |
| HLA-B*51:01 | 1 | 585 | 594 | 10 | LDITPCSF 3e-06 | 90 |
| HLA-A*03:01 | 1 | 586 | 594 | 9 | DITPCSF 3e-06 | 82 |
| HLA-A*11:01 | 1 | 586 | 595 | 10 | DITPCSF 3e-06 | 68 |
| HLA-B*07:02 | 1 | 586 | 594 | 9 | DITPCSF 3e-06 | 83 |
| HLA-B*44:03 | 1 | 586 | 595 | 10 | DITPCSF 3e-06 | 72 |
| HLA-B*44:03 | 1 | 587 | 595 | 9 | ITPCSF 3e-06 | 72 |
| HLA-A*02:01 | 1 | 588 | 596 | 9 | TPCSF 3e-06 | 82 |
| HLA-A*02:03 | 1 | 588 | 596 | 9 | TPCSF 3e-06 | 84 |
| HLA-B*35:01 | 1 | 589 | 598 | 10 | PCSF 3e-06 | 69 |
| HLA-B*44:03 | 1 | 589 | 598 | 10 | PCSF 3e-06 | 72 |
| HLA-B*44:02 | 1 | 590 | 599 | 10 | CSF 3e-06 | 77 |
| HLA-A*02:01 | 1 | 592 | 601 | 10 | FGVSVIT 3e-06 | 82 |
| HLA-A*26:01 | 1 | 592 | 600 | 9 | FGVSVIT 3e-06 | 79 |
| HLA-B*15:01 | 1 | 592 | 601 | 10 | FGVSVIT 3e-06 | 82 |
| HLA-A*11:01 | 1 | 593 | 601 | 9 | GGVSVIT 3e-06 | 68 |
| HLA-B*40:01 | 1 | 593 | 601 | 9 | GGVSVIT 3e-06 | 61 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-B*44:02 | 1 | 593 | 601 | 9 | GGVSVITPG 3e-06 | 77 |
| HLA-B*44:02 | 1 | 593 | 602 | 10 | GGVSVITPGT 3e-06 | 77 |
| HLA-B*44:03 | 1 | 593 | 601 | 9 | GGVSVITPG 3e-06 | 72 |
| HLA-B*07:02 | 1 | 594 | 603 | 10 | GVSVITPGTN 3e-06 | 83 |
| HLA-B*08:01 | 1 | 594 | 603 | 10 | GVSVITPGTN 3e-06 | 96 |
| HLA-B*51:01 | 1 | 594 | 603 | 10 | GVSVITPGTN 3e-06 | 90 |
| HLA-B*44:02 | 1 | 595 | 603 | 9 | VSVITPGTN 3e-06 | 77 |
| HLA-A*23:01 | 1 | 597 | 606 | 10 | VITPGTNTSN 3e-06 | 68 |
| HLA-A*24:02 | 1 | 597 | 606 | 10 | VITPGTNTSN 3e-06 | 66 |
| HLA-B*44:02 | 1 | 597 | 606 | 10 | VITPGTNTSN 3e-06 | 77 |
| HLA-B*44:02 | 1 | 598 | 606 | 9 | ITPGTNTSN 3e-06 | 77 |
| HLA-A*02:03 | 1 | 599 | 607 | 9 | TPGTNTSNQ 3e-06 | 84 |
| HLA-A*32:01 | 1 | 599 | 607 | 9 | TPGTNTSNQ 3e-06 | 69 |
| HLA-B*40:01 | 1 | 599 | 607 | 9 | TPGTNTSNQ 3e-06 | 61 |
| HLA-A*26:01 | 1 | 600 | 608 | 9 | PGTNTSNQV 3e-06 | 79 |
| HLA-A*26:01 | 1 | 600 | 609 | 10 | PGTNTSNQVA 3e-06 | 79 |
| HLA-A*32:01 | 1 | 600 | 609 | 10 | PGTNTSNQVA 3e-06 | 69 |
| HLA-A*23:01 | 1 | 604 | 613 | 10 | TSNQVAVLYQ 3e-06 | 68 |
| HLA-A*24:02 | 1 | 604 | 613 | 10 | TSNQVAVLYQ 3e-06 | 66 |
| HLA-A*03:01 | 1 | 605 | 614 | 10 | SNQVAVLYQD 3e-06 | 82 |
| HLA-A*23:01 | 1 | 605 | 614 | 10 | SNQVAVLYQD 3e-06 | 68 |
| HLA-A*32:01 | 1 | 605 | 614 | 10 | SNQVAVLYQD 3e-06 | 69 |
| HLA-A*68:02 | 1 | 605 | 614 | 10 | SNQVAVLYQD 3e-06 | 81 |
| HLA-B*51:01 | 1 | 605 | 614 | 10 | SNQVAVLYQD 3e-06 | 90 |
| HLA-A*11:01 | 1 | 607 | 616 | 10 | QVAVLYQDVN 3e-06 | 68 |
| HLA-B*15:01 | 1 | 607 | 616 | 10 | QVAVLYQDVN 3e-06 | 82 |
| HLA-A*02:01 | 1 | 608 | 616 | 9 | VAVLYQDVN 3e-06 | 82 |
| HLA-A*32:01 | 1 | 608 | 616 | 9 | VAVLYQDVN 3e-06 | 69 |
| HLA-A*68:02 | 1 | 608 | 616 | 9 | VAVLYQDVN 3e-06 | 81 |
| HLA-B*53:01 | 1 | 609 | 618 | 10 | AVLYQDVNCT 3e-06 | 70 |
| HLA-A*68:01 | 1 | 612 | 621 | 10 | YQDVNCTEVP 3e-06 | 79 |
| HLA-A*68:01 | 1 | 613 | 621 | 9 | QDVNCTEVP 3e-06 | 79 |
| HLA-A*24:02 | 1 | 617 | 626 | 10 | CTEVPVAIHA 3e-06 | 66 |
| HLA-A*11:01 | 1 | 618 | 627 | 10 | TEVPVAIHAD 3e-06 | 68 |
| HLA-A*32:01 | 1 | 619 | 628 | 10 | EVPVAIHADQ 3e-06 | 69 |
| HLA-A*32:01 | 1 | 620 | 628 | 9 | VPVAIHADQ 3e-06 | 69 |
| HLA-A*03:01 | 1 | 621 | 630 | 10 | PVAIHADQLT 3e-06 | 82 |
| HLA-A*26:01 | 1 | 621 | 630 | 10 | PVAIHADQLT 3e-06 | 79 |
| HLA-A*31:01 | 1 | 621 | 630 | 10 | PVAIHADQLT 3e-06 | 85 |
| HLA-B*40:01 | 1 | 629 | 637 | 9 | LTPTWRVYS 3e-06 | 61 |
| HLA-A*02:01 | 1 | 630 | 639 | 10 | TPTWRVYSTG 3e-06 | 82 |
| HLA-A*11:01 | 1 | 630 | 639 | 10 | TPTWRVYSTG 3e-06 | 68 |
| HLA-A*23:01 | 1 | 630 | 639 | 10 | TPTWRVYSTG 3e-06 | 68 |
| HLA-A*24:02 | 1 | 630 | 639 | 10 | TPTWRVYSTG 3e-06 | 66 |
| HLA-A*02:01 | 1 | 631 | 640 | 10 | PTWRVYSTGS 3e-06 | 82 |
| HLA-B*44:02 | 1 | 631 | 639 | 9 | PTWRVYSTG 3e-06 | 77 |
| HLA-A*68:01 | 1 | 632 | 641 | 10 | TWRVYSTGSN 3e-06 | 79 |
| HLA-B*07:02 | 1 | 632 | 641 | 10 | TWRVYSTGSN 3e-06 | 83 |
| HLA-B*44:02 | 1 | 632 | 640 | 9 | TWRVYSTGS 3e-06 | 77 |
| HLA-A*01:01 | 1 | 633 | 641 | 9 | WRVYSTGSN 3e-06 | 98 |
| HLA-B*15:01 | 1 | 633 | 641 | 9 | WRVYSTGSN 3e-06 | 82 |
| HLA-B*35:01 | 1 | 633 | 641 | 9 | WRVYSTGSN 3e-06 | 69 |
| HLA-B*57:01 | 1 | 633 | 641 | 9 | WRVYSTGSN 3e-06 | 95 |
| HLA-A*02:01 | 1 | 639 | 648 | 10 | GSNVFQTRAG 3e-06 | 82 |
| HLA-A*33:01 | 1 | 639 | 648 | 10 | GSNVFQTRAG 3e-06 | 90 |
| HLA-A*68:01 | 1 | 639 | 648 | 10 | GSNVFQTRAG 3e-06 | 79 |
| HLA-B*44:03 | 1 | 639 | 648 | 10 | GSNVFQTRAG 3e-06 | 72 |
| HLA-A*24:02 | 1 | 643 | 652 | 10 | FQTRAGCLIG 3e-06 | 66 |
| HLA-A*32:01 | 1 | 643 | 652 | 10 | FQTRAGCLIG 3e-06 | 69 |
| HLA-A*33:01 | 1 | 643 | 652 | 10 | FQTRAGCLIG 3e-06 | 90 |
| HLA-A*24:02 | 1 | 644 | 652 | 9 | QTRAGCLIG 3e-06 | 66 |
| HLA-A*02:01 | 1 | 645 | 654 | 10 | TRAGCLIGAE 3e-06 | 82 |
| HLA-A*11:01 | 1 | 645 | 654 | 10 | TRAGCLIGAE 3e-06 | 68 |
| HLA-A*23:01 | 1 | 645 | 654 | 10 | TRAGCLIGAE 3e-06 | 68 |
| HLA-B*15:01 | 1 | 645 | 654 | 10 | TRAGCLIGAE 3e-06 | 82 |
| HLA-A*24:02 | 1 | 646 | 655 | 10 | RAGCLIGAETH 3e-06 | 66 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-A*68:02 | 1 | 646 | 655 | 10 | RAGCLIGAEH 3e-06 | 81 |
| HLA-B*35:01 | 1 | 647 | 656 | 10 | AGCLIGAEHV 3e-06 | 69 |
| HLA-A*11:01 | 1 | 648 | 657 | 10 | GCLIGAEHVN 3e-06 | 68 |
| HLA-A*33:01 | 1 | 648 | 657 | 10 | GCLIGAEHVN 3e-06 | 90 |
| HLA-B*07:02 | 1 | 648 | 657 | 10 | GCLIGAEHVN 3e-06 | 83 |
| HLA-A*26:01 | 1 | 649 | 658 | 10 | CLIGAEHVNN 3e-06 | 79 |
| HLA-B*08:01 | 1 | 649 | 658 | 10 | CLIGAEHVNN 3e-06 | 96 |
| HLA-B*51:01 | 1 | 649 | 658 | 10 | CLIGAEHVNN 3e-06 | 90 |
| HLA-A*11:01 | 1 | 650 | 658 | 9 | LIGAEHVNN 3e-06 | 68 |
| HLA-A*68:02 | 1 | 650 | 658 | 9 | LIGAEHVNN 3e-06 | 81 |
| HLA-B*07:02 | 1 | 650 | 658 | 9 | LIGAEHVNN 3e-06 | 83 |
| HLA-B*35:01 | 1 | 650 | 658 | 9 | LIGAEHVNN 3e-06 | 69 |
| HLA-B*35:01 | 1 | 650 | 659 | 10 | LIGAEHVNNS 3e-06 | 69 |
| HLA-B*44:02 | 1 | 650 | 659 | 10 | LIGAEHVNNS 3e-06 | 77 |
| HLA-B*44:03 | 1 | 650 | 659 | 10 | LIGAEHVNNS 3e-06 | 72 |
| HLA-B*53:01 | 1 | 650 | 659 | 10 | LIGAEHVNNS 3e-06 | 70 |
| HLA-A*32:01 | 1 | 652 | 661 | 10 | GAEHVNNSYE 3e-06 | 69 |
| HLA-A*32:01 | 1 | 653 | 662 | 10 | AEHVNNSYEC 3e-06 | 69 |
| HLA-A*23:01 | 1 | 654 | 663 | 10 | EHVNNSYECD 3e-06 | 68 |
| HLA-A*30:02 | 1 | 654 | 663 | 10 | EHVNNSYECD 3e-06 | 96 |
| HLA-B*35:01 | 1 | 654 | 663 | 10 | EHVNNSYECD 3e-06 | 69 |
| HLA-A*11:01 | 1 | 655 | 663 | 9 | HVNNSYECD 3e-06 | 68 |
| HLA-A*68:01 | 1 | 656 | 664 | 9 | VNNSYECDI 3e-06 | 79 |
| HLA-B*35:01 | 1 | 656 | 664 | 9 | VNNSYECDI 3e-06 | 69 |
| HLA-A*11:01 | 1 | 657 | 666 | 10 | NNSYECDIPI 3e-06 | 68 |
| HLA-A*23:01 | 1 | 657 | 665 | 9 | NNSYECDIP 3e-06 | 68 |
| HLA-B*40:01 | 1 | 657 | 665 | 9 | NNSYECDIP 3e-06 | 61 |
| HLA-B*57:01 | 1 | 657 | 665 | 9 | NNSYECDIP 3e-06 | 95 |
| HLA-A*03:01 | 1 | 658 | 667 | 10 | NSYECDIPIG 3e-06 | 82 |
| HLA-A*31:01 | 1 | 658 | 667 | 10 | NSYECDIPIG 3e-06 | 85 |
| HLA-A*32:01 | 1 | 658 | 667 | 10 | NSYECDIPIG 3e-06 | 69 |
| HLA-B*44:02 | 1 | 658 | 667 | 10 | NSYECDIPIG 3e-06 | 77 |
| HLA-B*44:03 | 1 | 658 | 667 | 10 | NSYECDIPIG 3e-06 | 72 |
| HLA-A*68:02 | 1 | 659 | 667 | 9 | SYECDIPIG 3e-06 | 81 |
| HLA-A*23:01 | 1 | 660 | 669 | 10 | YECDIPIGAG 3e-06 | 68 |
| HLA-A*11:01 | 1 | 662 | 671 | 10 | CDIPIGAGIC 3e-06 | 68 |
| HLA-B*35:01 | 1 | 662 | 671 | 10 | CDIPIGAGIC 3e-06 | 69 |
| HLA-A*23:01 | 1 | 663 | 672 | 10 | DIPIGAGICA 3e-06 | 68 |
| HLA-A*31:01 | 1 | 663 | 671 | 9 | DIPIGAGIC 3e-06 | 85 |
| HLA-A*32:01 | 1 | 664 | 673 | 10 | IPIGAGICAS 3e-06 | 69 |
| HLA-A*33:01 | 1 | 665 | 673 | 9 | PIGAGICAS 3e-06 | 90 |
| HLA-A*68:01 | 1 | 665 | 673 | 9 | PIGAGICAS 3e-06 | 79 |
| HLA-B*15:01 | 1 | 665 | 673 | 9 | PIGAGICAS 3e-06 | 82 |
| HLA-A*02:01 | 1 | 667 | 675 | 9 | GAGICASYQ 3e-06 | 82 |
| HLA-A*02:03 | 1 | 667 | 675 | 9 | GAGICASYQ 3e-06 | 84 |
| HLA-A*68:01 | 1 | 667 | 676 | 10 | GAGICASYQT 3e-06 | 79 |
| HLA-B*15:01 | 1 | 667 | 676 | 10 | GAGICASYQT 3e-06 | 82 |
| HLA-B*40:01 | 1 | 669 | 677 | 9 | GICASYQTQ 3e-06 | 61 |
| HLA-B*53:01 | 1 | 669 | 678 | 10 | GICASYQTQT 3e-06 | 70 |
| HLA-A*32:01 | 1 | 670 | 679 | 10 | ICASYQTQTN 3e-06 | 69 |
| HLA-B*44:02 | 1 | 670 | 679 | 10 | ICASYQTQTN 3e-06 | 77 |
| HLA-A*02:01 | 1 | 671 | 679 | 9 | CASYQTQTN 3e-06 | 82 |
| HLA-B*44:02 | 1 | 671 | 680 | 10 | CASYQTQTN 3e-06 | 77 |
| HLA-B*40:01 | 1 | 677 | 686 | 10 | QTNSPRRARS 3e-06 | 61 |
| HLA-A*01:01 | 1 | 681 | 689 | 9 | PRRARSVAS 3e-06 | 98 |
| HLA-A*01:01 | 1 | 681 | 690 | 10 | PRRARSVASQ 3e-06 | 98 |
| HLA-A*26:01 | 1 | 681 | 689 | 9 | PRRARSVAS 3e-06 | 79 |
| HLA-A*31:01 | 1 | 681 | 689 | 9 | PRRARSVAS 3e-06 | 85 |
| HLA-A*68:02 | 1 | 681 | 689 | 9 | PRRARSVAS 3e-06 | 81 |
| HLA-B*15:01 | 1 | 681 | 690 | 10 | PRRARSVASQ 3e-06 | 82 |
| HLA-B*57:01 | 1 | 681 | 689 | 9 | PRRARSVAS 3e-06 | 95 |
| HLA-A*24:02 | 1 | 687 | 696 | 10 | VASQSIIAYT 3e-06 | 66 |
| HLA-A*24:02 | 1 | 691 | 700 | 10 | SIIAYTMSLG 3e-06 | 66 |
| HLA-B*44:03 | 1 | 691 | 700 | 10 | SIIAYTMSLG 3e-06 | 72 |
| HLA-A*23:01 | 1 | 692 | 700 | 9 | IIAYTMSLG 3e-06 | 68 |
| HLA-B*40:01 | 1 | 692 | 701 | 10 | IIAYTMSLGA 3e-06 | 61 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-B*44:03 | 1 | 692 | 701 | 10 | IIAYTMSLGA 3e-06 | 72 |
| HLA-B*35:01 | 1 | 694 | 702 | 9 | AYTMSLGAE 3e-06 | 69 |
| HLA-B*35:01 | 1 | 694 | 703 | 10 | AYTMSLGAEN 3e-06 | 69 |
| HLA-B*53:01 | 1 | 694 | 703 | 10 | AYTMSLGAEN 3e-06 | 70 |
| HLA-A*24:02 | 1 | 695 | 704 | 10 | YTMSLGAENS 3e-06 | 66 |
| HLA-A*03:01 | 1 | 700 | 709 | 10 | GAENSVAYSN 3e-06 | 82 |
| HLA-A*32:01 | 1 | 700 | 708 | 9 | GAENSVAYS 3e-06 | 69 |
| HLA-B*07:02 | 1 | 700 | 709 | 10 | GAENSVAYSN 3e-06 | 83 |
| HLA-A*31:01 | 1 | 701 | 710 | 10 | AENSVAYSNN 3e-06 | 85 |
| HLA-A*03:01 | 1 | 702 | 711 | 10 | ENSVAYSNNS 3e-06 | 82 |
| HLA-B*44:02 | 1 | 707 | 716 | 10 | YSNNSIAIPT 3e-06 | 77 |
| HLA-A*02:01 | 1 | 708 | 717 | 10 | SNNSIAIPTN 3e-06 | 82 |
| HLA-A*32:01 | 1 | 708 | 717 | 10 | SNNSIAIPTN 3e-06 | 69 |
| HLA-B*15:01 | 1 | 708 | 717 | 10 | SNNSIAIPTN 3e-06 | 82 |
| HLA-A*02:01 | 1 | 709 | 717 | 9 | NNSIAIPTN 3e-06 | 82 |
| HLA-A*24:02 | 1 | 709 | 717 | 9 | NNSIAIPTN 3e-06 | 66 |
| HLA-A*32:01 | 1 | 709 | 717 | 9 | NNSIAIPTN 3e-06 | 69 |
| HLA-B*07:02 | 1 | 709 | 717 | 9 | NNSIAIPTN 3e-06 | 83 |
| HLA-B*44:03 | 1 | 713 | 721 | 9 | AIPTNFTIS 3e-06 | 72 |
| HLA-A*23:01 | 1 | 714 | 723 | 10 | IPNFTISVT 3e-06 | 68 |
| HLA-A*24:02 | 1 | 715 | 723 | 9 | PTNFTISVT 3e-06 | 66 |
| HLA-B*35:01 | 1 | 715 | 723 | 9 | PTNFTISVT 3e-06 | 69 |
| HLA-B*44:02 | 1 | 715 | 724 | 10 | PTNFTISVTT 3e-06 | 77 |
| HLA-B*53:01 | 1 | 715 | 724 | 10 | PTNFTISVTT 3e-06 | 70 |
| HLA-B*40:01 | 1 | 717 | 725 | 9 | NFTISVTE 3e-06 | 61 |
| HLA-A*23:01 | 1 | 719 | 728 | 10 | TISVTTEILP 3e-06 | 68 |
| HLA-A*24:02 | 1 | 719 | 728 | 10 | TISVTTEILP 3e-06 | 66 |
| HLA-B*40:01 | 1 | 719 | 728 | 10 | TISVTTEILP 3e-06 | 61 |
| HLA-A*23:01 | 1 | 721 | 730 | 10 | SVTTEILPVS 3e-06 | 68 |
| HLA-B*44:03 | 1 | 721 | 730 | 10 | SVTTEILPVS 3e-06 | 72 |
| HLA-B*40:01 | 1 | 726 | 735 | 10 | ILPVSMTKTS 3e-06 | 61 |
| HLA-A*24:02 | 1 | 727 | 735 | 9 | LPVSMTKTS 3e-06 | 66 |
| HLA-A*02:06 | 1 | 728 | 737 | 10 | PVSMTKTSVD 3e-06 | 87 |
| HLA-A*33:01 | 1 | 728 | 737 | 10 | PVSMTKTSVD 3e-06 | 90 |
| HLA-B*51:01 | 1 | 728 | 737 | 10 | PVSMTKTSVD 3e-06 | 90 |
| HLA-A*24:02 | 1 | 729 | 737 | 9 | VSMKTSVD 3e-06 | 66 |
| HLA-B*44:03 | 1 | 729 | 737 | 9 | VSMKTSVD 3e-06 | 72 |
| HLA-B*44:03 | 1 | 729 | 738 | 10 | VSMKTSVDC 3e-06 | 72 |
| HLA-B*40:01 | 1 | 734 | 743 | 10 | TSVDCTMYIC 3e-06 | 61 |
| HLA-B*44:02 | 1 | 734 | 743 | 10 | TSVDCTMYIC 3e-06 | 77 |
| HLA-A*33:01 | 1 | 735 | 744 | 10 | SVDCTMYICG 3e-06 | 90 |
| HLA-B*58:01 | 1 | 736 | 744 | 9 | VDCTMYICG 3e-06 | 88 |
| HLA-B*51:01 | 1 | 737 | 745 | 9 | DCTMYICGD 3e-06 | 90 |
| HLA-B*51:01 | 1 | 737 | 746 | 10 | DCTMYICGDS 3e-06 | 90 |
| HLA-B*57:01 | 1 | 737 | 746 | 10 | DCTMYICGDS 3e-06 | 95 |
| HLA-A*32:01 | 1 | 738 | 746 | 9 | CTMYICGDS 3e-06 | 69 |
| HLA-B*51:01 | 1 | 738 | 746 | 9 | CTMYICGDS 3e-06 | 90 |
| HLA-A*32:01 | 1 | 740 | 748 | 9 | MYICGDSTE 3e-06 | 69 |
| HLA-A*32:01 | 1 | 741 | 750 | 10 | YICGDSTECS 3e-06 | 69 |
| HLA-A*33:01 | 1 | 742 | 750 | 9 | ICGDSTECS 3e-06 | 90 |
| HLA-A*68:01 | 1 | 742 | 750 | 9 | ICGDSTECS 3e-06 | 79 |
| HLA-B*15:01 | 1 | 742 | 750 | 9 | ICGDSTECS 3e-06 | 82 |
| HLA-B*44:03 | 1 | 742 | 750 | 9 | ICGDSTECS 3e-06 | 72 |
| HLA-B*53:01 | 1 | 742 | 750 | 9 | ICGDSTECS 3e-06 | 70 |
| HLA-B*53:01 | 1 | 743 | 751 | 9 | CGDSTECSN 3e-06 | 70 |
| HLA-B*07:02 | 1 | 748 | 757 | 10 | ECSNLLLQYG 3e-06 | 83 |
| HLA-B*07:02 | 1 | 749 | 757 | 9 | CSNLLLQYG 3e-06 | 83 |
| HLA-A*68:01 | 1 | 751 | 760 | 10 | NLLLQYGSFC 3e-06 | 79 |
| HLA-B*35:01 | 1 | 751 | 760 | 10 | NLLLQYGSFC 3e-06 | 69 |
| HLA-A*24:02 | 1 | 753 | 762 | 10 | LLQYGSFCTQ 3e-06 | 66 |
| HLA-A*26:01 | 1 | 753 | 761 | 9 | LLQYGSFCT 3e-06 | 79 |
| HLA-A*03:01 | 1 | 755 | 764 | 10 | QYGSFCTQLN 3e-06 | 82 |
| HLA-A*32:01 | 1 | 755 | 764 | 10 | QYGSFCTQLN 3e-06 | 69 |
| HLA-A*03:01 | 1 | 756 | 764 | 9 | YGSFCTQLN 3e-06 | 82 |
| HLA-A*11:01 | 1 | 756 | 764 | 9 | YGSFCTQLN 3e-06 | 68 |
| HLA-A*24:02 | 1 | 756 | 764 | 9 | YGSFCTQLN 3e-06 | 66 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-B*40:01 | 1 | 756 | 765 | 10 | YGSFCTQLNR 3e-06 | 61 |
| HLA-B*44:02 | 1 | 756 | 764 | 9 | YGSFCTQLN 3e-06 | 77 |
| HLA-A*32:01 | 1 | 759 | 768 | 10 | FCTQLNRALT 3e-06 | 69 |
| HLA-A*11:01 | 1 | 760 | 769 | 10 | CTQLNRALTG 3e-06 | 68 |
| HLA-A*23:01 | 1 | 760 | 769 | 10 | CTQLNRALTG 3e-06 | 68 |
| HLA-A*68:01 | 1 | 760 | 769 | 10 | CTQLNRALTG 3e-06 | 79 |
| HLA-B*35:01 | 1 | 762 | 771 | 10 | QLNRALTGIA 3e-06 | 69 |
| HLA-B*44:02 | 1 | 763 | 771 | 9 | LNLRALTGIA 3e-06 | 77 |
| HLA-B*51:01 | 1 | 766 | 775 | 10 | ALTGIAVEQD 3e-06 | 90 |
| HLA-A*23:01 | 1 | 767 | 776 | 10 | LTGIAVEQDK 3e-06 | 68 |
| HLA-A*24:02 | 1 | 767 | 776 | 10 | LTGIAVEQDK 3e-06 | 66 |
| HLA-B*07:02 | 1 | 767 | 776 | 10 | LTGIAVEQDK 3e-06 | 83 |
| HLA-B*08:01 | 1 | 767 | 775 | 9 | LTGIAVEQD 3e-06 | 96 |
| HLA-B*15:01 | 1 | 767 | 775 | 9 | LTGIAVEQD 3e-06 | 82 |
| HLA-A*02:06 | 1 | 768 | 777 | 10 | TGIAVEQDKN 3e-06 | 87 |
| HLA-B*08:01 | 1 | 768 | 777 | 10 | TGIAVEQDKN 3e-06 | 96 |
| HLA-B*44:03 | 1 | 768 | 777 | 10 | TGIAVEQDKN 3e-06 | 72 |
| HLA-A*03:01 | 1 | 769 | 777 | 9 | GIAVEQDKN 3e-06 | 82 |
| HLA-A*11:01 | 1 | 769 | 777 | 9 | GIAVEQDKN 3e-06 | 68 |
| HLA-A*26:01 | 1 | 769 | 777 | 9 | GIAVEQDKN 3e-06 | 79 |
| HLA-B*08:01 | 1 | 769 | 777 | 9 | GIAVEQDKN 3e-06 | 96 |
| HLA-B*44:02 | 1 | 769 | 777 | 9 | GIAVEQDKN 3e-06 | 77 |
| HLA-B*44:03 | 1 | 769 | 777 | 9 | GIAVEQDKN 3e-06 | 72 |
| HLA-A*32:01 | 1 | 770 | 778 | 9 | IAVEQDKNT 3e-06 | 69 |
| HLA-A*23:01 | 1 | 771 | 780 | 10 | AVEQDKNTQE 3e-06 | 68 |
| HLA-B*40:01 | 1 | 775 | 784 | 10 | DKNTQEVFAQ 3e-06 | 61 |
| HLA-A*24:02 | 1 | 784 | 793 | 10 | QVKQIYKTPP 3e-06 | 66 |
| HLA-A*02:01 | 1 | 785 | 793 | 9 | VKQIYKTPP 3e-06 | 82 |
| HLA-A*02:06 | 1 | 785 | 793 | 9 | VKQIYKTPP 3e-06 | 87 |
| HLA-A*23:01 | 1 | 785 | 793 | 9 | VKQIYKTPP 3e-06 | 68 |
| HLA-A*68:01 | 1 | 785 | 794 | 10 | VKQIYKTPPI 3e-06 | 79 |
| HLA-B*35:01 | 1 | 785 | 793 | 9 | VKQIYKTPP 3e-06 | 69 |
| HLA-B*40:01 | 1 | 788 | 796 | 9 | IYKTPPIKD 3e-06 | 61 |
| HLA-B*35:01 | 1 | 790 | 799 | 10 | KTPPIKDFGG 3e-06 | 69 |
| HLA-B*44:03 | 1 | 790 | 799 | 10 | KTPPIKDFGG 3e-06 | 72 |
| HLA-A*31:01 | 1 | 791 | 799 | 9 | TPPIKDFGG 3e-06 | 85 |
| HLA-B*15:01 | 1 | 791 | 799 | 9 | TPPIKDFGG 3e-06 | 82 |
| HLA-B*40:01 | 1 | 791 | 799 | 9 | TPPIKDFGG 3e-06 | 61 |
| HLA-B*44:03 | 1 | 791 | 799 | 9 | TPPIKDFGG 3e-06 | 72 |
| HLA-A*23:01 | 1 | 792 | 801 | 10 | PPIKDFGGFN 3e-06 | 68 |
| HLA-B*44:02 | 1 | 792 | 801 | 10 | PPIKDFGGFN 3e-06 | 77 |
| HLA-B*44:03 | 1 | 792 | 801 | 10 | PPIKDFGGFN 3e-06 | 72 |
| HLA-B*58:01 | 1 | 792 | 801 | 10 | PPIKDFGGFN 3e-06 | 88 |
| HLA-A*68:02 | 1 | 799 | 808 | 10 | GFNFSQILPD 3e-06 | 81 |
| HLA-B*51:01 | 1 | 799 | 808 | 10 | GFNFSQILPD 3e-06 | 90 |
| HLA-A*03:01 | 1 | 800 | 808 | 9 | FNFSQILPD 3e-06 | 82 |
| HLA-A*11:01 | 1 | 800 | 808 | 9 | FNFSQILPD 3e-06 | 68 |
| HLA-B*07:02 | 1 | 800 | 808 | 9 | FNFSQILPD 3e-06 | 83 |
| HLA-B*35:01 | 1 | 800 | 809 | 10 | FNFSQILPDP 3e-06 | 69 |
| HLA-B*53:01 | 1 | 800 | 809 | 10 | FNFSQILPDP 3e-06 | 70 |
| HLA-A*11:01 | 1 | 801 | 810 | 10 | NFSQILPDPS 3e-06 | 68 |
| HLA-A*26:01 | 1 | 801 | 810 | 10 | NFSQILPDPS 3e-06 | 79 |
| HLA-A*24:02 | 1 | 802 | 810 | 9 | FSQILPDPS 3e-06 | 66 |
| HLA-B*44:03 | 1 | 802 | 810 | 9 | FSQILPDPS 3e-06 | 72 |
| HLA-B*40:01 | 1 | 804 | 813 | 10 | QILPDPSKPS 3e-06 | 61 |
| HLA-B*44:03 | 1 | 807 | 816 | 10 | PDPSKPSKRS 3e-06 | 72 |
| HLA-A*32:01 | 1 | 808 | 816 | 9 | DPSKPSKRS 3e-06 | 69 |
| HLA-B*35:01 | 1 | 809 | 818 | 10 | PSKPSKRSFI 3e-06 | 69 |
| HLA-B*40:01 | 1 | 809 | 818 | 10 | PSKPSKRSFI 3e-06 | 61 |
| HLA-A*68:01 | 1 | 811 | 820 | 10 | KPSKRSFIED 3e-06 | 79 |
| HLA-B*15:01 | 1 | 811 | 820 | 10 | KPSKRSFIED 3e-06 | 82 |
| HLA-A*02:06 | 1 | 812 | 820 | 9 | PSKRSFIED 3e-06 | 87 |
| HLA-A*11:01 | 1 | 812 | 821 | 10 | PSKRSFIEDL 3e-06 | 68 |
| HLA-A*31:01 | 1 | 812 | 820 | 9 | PSKRSFIED 3e-06 | 85 |
| HLA-A*33:01 | 1 | 812 | 820 | 9 | PSKRSFIED 3e-06 | 90 |
| HLA-B*15:01 | 1 | 812 | 820 | 9 | PSKRSFIED 3e-06 | 82 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-B*53:01 | 1 | 812 | 821 | 10 | PSKRSFIEDL 3e-06 | 70 |
| HLA-A*03:01 | 1 | 818 | 827 | 10 | IEDLLFNKVT 3e-06 | 82 |
| HLA-A*68:01 | 1 | 818 | 827 | 10 | IEDLLFNKVT 3e-06 | 79 |
| HLA-B*53:01 | 1 | 821 | 830 | 10 | LLFNKVTLAD 3e-06 | 70 |
| HLA-B*44:02 | 1 | 822 | 830 | 9 | LFNKVTLAD 3e-06 | 77 |
| HLA-B*44:03 | 1 | 822 | 830 | 9 | LFNKVTLAD 3e-06 | 72 |
| HLA-A*01:01 | 1 | 823 | 832 | 10 | FNKVTLADAG 3e-06 | 98 |
| HLA-B*53:01 | 1 | 823 | 831 | 9 | FNKVTLADA 3e-06 | 70 |
| HLA-A*26:01 | 1 | 824 | 832 | 9 | NKVTLADAG 3e-06 | 79 |
| HLA-A*30:02 | 1 | 824 | 832 | 9 | NKVTLADAG 3e-06 | 96 |
| HLA-B*07:02 | 1 | 824 | 832 | 9 | NKVTLADAG 3e-06 | 83 |
| HLA-B*35:01 | 1 | 825 | 834 | 10 | KVTLADAGFI 3e-06 | 69 |
| HLA-A*02:01 | 1 | 830 | 838 | 9 | DAGFIKQYG 3e-06 | 82 |
| HLA-A*11:01 | 1 | 830 | 838 | 9 | DAGFIKQYG 3e-06 | 68 |
| HLA-A*23:01 | 1 | 830 | 838 | 9 | DAGFIKQYG 3e-06 | 68 |
| HLA-A*32:01 | 1 | 830 | 838 | 9 | DAGFIKQYG 3e-06 | 69 |
| HLA-A*33:01 | 1 | 830 | 839 | 10 | DAGFIKQYGD 3e-06 | 90 |
| HLA-B*53:01 | 1 | 830 | 839 | 10 | DAGFIKQYGD 3e-06 | 70 |
| HLA-A*23:01 | 1 | 831 | 839 | 9 | AGFIKQYGD 3e-06 | 68 |
| HLA-A*68:01 | 1 | 831 | 840 | 10 | AGFIKQYDC 3e-06 | 79 |
| HLA-B*40:01 | 1 | 832 | 840 | 9 | GFIKQYDC 3e-06 | 61 |
| HLA-A*03:01 | 1 | 833 | 842 | 10 | FIKQYGDCLG 3e-06 | 82 |
| HLA-A*32:01 | 1 | 833 | 842 | 10 | FIKQYGDCLG 3e-06 | 69 |
| HLA-A*11:01 | 1 | 835 | 843 | 9 | KQYGDCLGD 3e-06 | 68 |
| HLA-A*11:01 | 1 | 836 | 844 | 9 | QYGDCLGDI 3e-06 | 68 |
| HLA-B*15:01 | 1 | 836 | 845 | 10 | QYGDCLGDIA 3e-06 | 82 |
| HLA-B*40:01 | 1 | 836 | 845 | 10 | QYGDCLGDIA 3e-06 | 61 |
| HLA-A*23:01 | 1 | 837 | 846 | 10 | YGDCLGDIAA 3e-06 | 68 |
| HLA-A*26:01 | 1 | 837 | 846 | 10 | YGDCLGDIAA 3e-06 | 79 |
| HLA-B*44:03 | 1 | 837 | 845 | 9 | YGDCLGDIA 3e-06 | 72 |
| HLA-A*02:01 | 1 | 839 | 848 | 10 | DCLGDIAARD 3e-06 | 82 |
| HLA-B*44:03 | 1 | 839 | 848 | 10 | DCLGDIAARD 3e-06 | 72 |
| HLA-A*24:02 | 1 | 840 | 848 | 9 | CLGDIAARD 3e-06 | 66 |
| HLA-A*26:01 | 1 | 840 | 848 | 9 | CLGDIAARD 3e-06 | 79 |
| HLA-B*53:01 | 1 | 840 | 848 | 9 | CLGDIAARD 3e-06 | 70 |
| HLA-A*26:01 | 1 | 842 | 851 | 10 | GDIAARDLIC 3e-06 | 79 |
| HLA-B*44:02 | 1 | 844 | 853 | 10 | IAARDLICAQ 3e-06 | 77 |
| HLA-A*23:01 | 1 | 845 | 853 | 9 | AARDLICAQ 3e-06 | 68 |
| HLA-A*11:01 | 1 | 847 | 856 | 10 | RDLICAQKFN 3e-06 | 68 |
| HLA-A*26:01 | 1 | 847 | 856 | 10 | RDLICAQKFN 3e-06 | 79 |
| HLA-A*02:01 | 1 | 848 | 856 | 9 | DLICAQKFN 3e-06 | 82 |
| HLA-A*31:01 | 1 | 848 | 856 | 9 | DLICAQKFN 3e-06 | 85 |
| HLA-B*15:01 | 1 | 848 | 856 | 9 | DLICAQKFN 3e-06 | 82 |
| HLA-B*35:01 | 1 | 848 | 856 | 9 | DLICAQKFN 3e-06 | 69 |
| HLA-B*58:01 | 1 | 848 | 857 | 10 | DLICAQKFN 3e-06 | 88 |
| HLA-A*32:01 | 1 | 850 | 859 | 10 | ICAQKFNGLT 3e-06 | 69 |
| HLA-A*11:01 | 1 | 855 | 863 | 9 | FNGLTVLPP 3e-06 | 68 |
| HLA-A*32:01 | 1 | 855 | 863 | 9 | FNGLTVLPP 3e-06 | 69 |
| HLA-B*44:02 | 1 | 855 | 863 | 9 | FNGLTVLPP 3e-06 | 77 |
| HLA-B*44:02 | 1 | 855 | 864 | 10 | FNGLTVLPLP 3e-06 | 77 |
| HLA-A*31:01 | 1 | 861 | 870 | 10 | LPPLLTDEMI 3e-06 | 85 |
| HLA-A*03:01 | 1 | 862 | 870 | 9 | PPLLTDEMI 3e-06 | 82 |
| HLA-A*33:01 | 1 | 862 | 870 | 9 | PPLLTDEMI 3e-06 | 90 |
| HLA-A*33:01 | 1 | 862 | 871 | 10 | PPLLTDEMIA 3e-06 | 90 |
| HLA-A*11:01 | 1 | 863 | 872 | 10 | PLLTDEMIAQ 3e-06 | 68 |
| HLA-A*32:01 | 1 | 863 | 872 | 10 | PLLTDEMIAQ 3e-06 | 69 |
| HLA-B*44:03 | 1 | 863 | 871 | 9 | PLLTDEMIA 3e-06 | 72 |
| HLA-A*02:03 | 1 | 866 | 875 | 10 | TDEMIAQYTS 3e-06 | 84 |
| HLA-A*23:01 | 1 | 866 | 875 | 10 | TDEMIAQYTS 3e-06 | 68 |
| HLA-A*24:02 | 1 | 866 | 875 | 10 | TDEMIAQYTS 3e-06 | 66 |
| HLA-A*32:01 | 1 | 867 | 875 | 9 | DEMIAQYTS 3e-06 | 69 |
| HLA-B*15:01 | 1 | 872 | 881 | 10 | QYTSALLAGT 3e-06 | 82 |
| HLA-B*35:01 | 1 | 872 | 881 | 10 | QYTSALLAGT 3e-06 | 69 |
| HLA-B*53:01 | 1 | 872 | 881 | 10 | QYTSALLAGT 3e-06 | 70 |
| HLA-B*40:01 | 1 | 874 | 883 | 10 | TSALLAGTIT 3e-06 | 61 |
| HLA-A*24:02 | 1 | 876 | 885 | 10 | ALLAGTITSG 3e-06 | 66 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-B*35:01 | 1 | 876 | 885 | 10 | ALLAGTITSG 3e-06 | 69 |
| HLA-A*03:01 | 1 | 878 | 887 | 10 | LAGTITSGWT 3e-06 | 82 |
| HLA-B*15:01 | 1 | 879 | 887 | 9 | AGTITSGWT 3e-06 | 82 |
| HLA-B*44:02 | 1 | 879 | 887 | 9 | AGTITSGWT 3e-06 | 77 |
| HLA-B*40:01 | 1 | 881 | 890 | 10 | TITSGWTFGA 3e-06 | 61 |
| HLA-A*02:01 | 1 | 883 | 891 | 9 | TSGWTFGAG 3e-06 | 82 |
| HLA-A*23:01 | 1 | 883 | 892 | 10 | TSGWTFGAGA 3e-06 | 68 |
| HLA-A*31:01 | 1 | 883 | 891 | 9 | TSGWTFGAG 3e-06 | 85 |
| HLA-B*40:01 | 1 | 887 | 895 | 9 | TFGAGAALQ 3e-06 | 61 |
| HLA-A*26:01 | 1 | 888 | 897 | 10 | FGAGAALQIP 3e-06 | 79 |
| HLA-A*32:01 | 1 | 888 | 897 | 10 | FGAGAALQIP 3e-06 | 69 |
| HLA-B*44:02 | 1 | 888 | 897 | 10 | FGAGAALQIP 3e-06 | 77 |
| HLA-A*23:01 | 1 | 889 | 897 | 9 | GAGAALQIP 3e-06 | 68 |
| HLA-A*24:02 | 1 | 889 | 897 | 9 | GAGAALQIP 3e-06 | 66 |
| HLA-A*33:01 | 1 | 889 | 897 | 9 | GAGAALQIP 3e-06 | 90 |
| HLA-A*26:01 | 1 | 899 | 907 | 9 | AMQMAYRFN 3e-06 | 79 |
| HLA-B*40:01 | 1 | 899 | 908 | 10 | AMQMAYRFNG 3e-06 | 61 |
| HLA-B*44:03 | 1 | 899 | 907 | 9 | AMQMAYRFN 3e-06 | 72 |
| HLA-A*03:01 | 1 | 901 | 910 | 10 | QMAYRFNGIG 3e-06 | 82 |
| HLA-A*11:01 | 1 | 902 | 910 | 9 | MAYRFNGIG 3e-06 | 68 |
| HLA-B*40:01 | 1 | 902 | 910 | 9 | MAYRFNGIG 3e-06 | 61 |
| HLA-B*53:01 | 1 | 903 | 912 | 10 | AYRFNGIGVT 3e-06 | 70 |
| HLA-A*03:01 | 1 | 906 | 914 | 9 | FNGIGVTQN 3e-06 | 82 |
| HLA-A*23:01 | 1 | 906 | 914 | 9 | FNGIGVTQN 3e-06 | 68 |
| HLA-A*24:02 | 1 | 906 | 914 | 9 | FNGIGVTQN 3e-06 | 66 |
| HLA-B*35:01 | 1 | 906 | 914 | 9 | FNGIGVTQN 3e-06 | 69 |
| HLA-B*44:02 | 1 | 906 | 914 | 9 | FNGIGVTQN 3e-06 | 77 |
| HLA-B*44:03 | 1 | 906 | 914 | 9 | FNGIGVTQN 3e-06 | 72 |
| HLA-B*53:01 | 1 | 906 | 914 | 9 | FNGIGVTQN 3e-06 | 70 |
| HLA-A*24:02 | 1 | 909 | 918 | 10 | IGVTQNVLYE 3e-06 | 66 |
| HLA-B*44:02 | 1 | 909 | 918 | 10 | IGVTQNVLYE 3e-06 | 77 |
| HLA-B*44:03 | 1 | 909 | 918 | 10 | IGVTQNVLYE 3e-06 | 72 |
| HLA-B*07:02 | 1 | 911 | 920 | 10 | VTQNVLYENQ 3e-06 | 83 |
| HLA-A*26:01 | 1 | 916 | 925 | 10 | LYENQKLIAN 3e-06 | 79 |
| HLA-B*53:01 | 1 | 916 | 925 | 10 | LYENQKLIAN 3e-06 | 70 |
| HLA-A*23:01 | 1 | 917 | 926 | 10 | YENQKLIANQ 3e-06 | 68 |
| HLA-A*11:01 | 1 | 919 | 928 | 10 | NQKLIANQFN 3e-06 | 68 |
| HLA-A*26:01 | 1 | 920 | 928 | 9 | QKLIANQFN 3e-06 | 79 |
| HLA-A*31:01 | 1 | 920 | 928 | 9 | QKLIANQFN 3e-06 | 85 |
| HLA-A*33:01 | 1 | 920 | 928 | 9 | QKLIANQFN 3e-06 | 90 |
| HLA-A*68:01 | 1 | 920 | 928 | 9 | QKLIANQFN 3e-06 | 79 |
| HLA-B*35:01 | 1 | 920 | 928 | 9 | QKLIANQFN 3e-06 | 69 |
| HLA-B*53:01 | 1 | 920 | 928 | 9 | QKLIANQFN 3e-06 | 70 |
| HLA-A*68:01 | 1 | 923 | 932 | 10 | IANQFNSAIG 3e-06 | 79 |
| HLA-B*44:02 | 1 | 923 | 932 | 10 | IANQFNSAIG 3e-06 | 77 |
| HLA-A*03:01 | 1 | 924 | 932 | 9 | ANQFNSAIG 3e-06 | 82 |
| HLA-A*11:01 | 1 | 924 | 932 | 9 | ANQFNSAIG 3e-06 | 68 |
| HLA-A*23:01 | 1 | 924 | 932 | 9 | ANQFNSAIG 3e-06 | 68 |
| HLA-B*40:01 | 1 | 924 | 932 | 9 | ANQFNSAIG 3e-06 | 61 |
| HLA-A*02:01 | 1 | 926 | 935 | 10 | QFNSAIGKIQ 3e-06 | 82 |
| HLA-A*02:01 | 1 | 927 | 936 | 10 | FNSAIGKIQD 3e-06 | 82 |
| HLA-A*23:01 | 1 | 927 | 935 | 9 | FNSAIGKIQ 3e-06 | 68 |
| HLA-A*32:01 | 1 | 927 | 935 | 9 | FNSAIGKIQ 3e-06 | 69 |
| HLA-A*33:01 | 1 | 927 | 936 | 10 | FNSAIGKIQD 3e-06 | 90 |
| HLA-B*44:03 | 1 | 928 | 936 | 9 | NSAIGKIQD 3e-06 | 72 |
| HLA-B*44:03 | 1 | 928 | 937 | 10 | NSAIGKIQDS 3e-06 | 72 |
| HLA-B*53:01 | 1 | 930 | 939 | 10 | AIGKIQDSLSS 3e-06 | 70 |
| HLA-A*32:01 | 1 | 931 | 939 | 9 | IGKIQDSLSS 3e-06 | 69 |
| HLA-A*32:01 | 1 | 931 | 940 | 10 | IGKIQDSLSS 3e-06 | 69 |
| HLA-A*23:01 | 1 | 932 | 940 | 9 | GKIQDSLSS 3e-06 | 68 |
| HLA-A*23:01 | 1 | 932 | 941 | 10 | GKIQDSLSS 3e-06 | 68 |
| HLA-A*23:01 | 1 | 935 | 943 | 9 | QDLSLSTAS 3e-06 | 68 |
| HLA-A*24:02 | 1 | 935 | 943 | 9 | QDLSLSTAS 3e-06 | 66 |
| HLA-A*23:01 | 1 | 937 | 946 | 10 | SLSSTASALG 3e-06 | 68 |
| HLA-A*23:01 | 1 | 938 | 946 | 9 | LSSTASALG 3e-06 | 68 |
| HLA-A*23:01 | 1 | 938 | 947 | 10 | LSSTASALGK 3e-06 | 68 |

| | | | | | | |
|-------------|---|-----|------|----|------------------|----|
| HLA-B*44:03 | 1 | 938 | 946 | 9 | LSSTASALG 3e-06 | 72 |
| HLA-A*02:01 | 1 | 941 | 950 | 10 | TASALGKLQD 3e-06 | 82 |
| HLA-A*02:03 | 1 | 941 | 950 | 10 | TASALGKLQD 3e-06 | 84 |
| HLA-A*23:01 | 1 | 941 | 949 | 9 | TASALGKLQ 3e-06 | 68 |
| HLA-A*24:02 | 1 | 941 | 949 | 9 | TASALGKLQ 3e-06 | 66 |
| HLA-A*26:01 | 1 | 941 | 950 | 10 | TASALGKLQD 3e-06 | 79 |
| HLA-A*33:01 | 1 | 941 | 950 | 10 | TASALGKLQD 3e-06 | 90 |
| HLA-B*35:01 | 1 | 941 | 950 | 10 | TASALGKLQD 3e-06 | 69 |
| HLA-B*40:01 | 1 | 942 | 950 | 9 | ASALGKLQD 3e-06 | 61 |
| HLA-A*26:01 | 1 | 944 | 953 | 10 | ALGKLQDVVN 3e-06 | 79 |
| HLA-A*33:01 | 1 | 944 | 953 | 10 | ALGKLQDVVN 3e-06 | 90 |
| HLA-B*44:02 | 1 | 944 | 953 | 10 | ALGKLQDVVN 3e-06 | 77 |
| HLA-A*02:06 | 1 | 945 | 953 | 9 | LGKLQDVVN 3e-06 | 87 |
| HLA-A*03:01 | 1 | 945 | 953 | 9 | LGKLQDVVN 3e-06 | 82 |
| HLA-A*31:01 | 1 | 945 | 953 | 9 | LGKLQDVVN 3e-06 | 85 |
| HLA-A*32:01 | 1 | 945 | 954 | 10 | LGKLQDVVNQ 3e-06 | 69 |
| HLA-A*33:01 | 1 | 945 | 953 | 9 | LGKLQDVVN 3e-06 | 90 |
| HLA-B*53:01 | 1 | 945 | 954 | 10 | LGKLQDVVNQ 3e-06 | 70 |
| HLA-A*24:02 | 1 | 946 | 954 | 9 | GKLQDVVNQ 3e-06 | 66 |
| HLA-A*68:02 | 1 | 946 | 954 | 9 | GKLQDVVNQ 3e-06 | 81 |
| HLA-B*40:01 | 1 | 946 | 955 | 10 | GKLQDVVNQN 3e-06 | 61 |
| HLA-A*23:01 | 1 | 949 | 958 | 10 | QDVVNQNAQA 3e-06 | 68 |
| HLA-A*02:06 | 1 | 952 | 960 | 9 | VNQAQALN 3e-06 | 87 |
| HLA-A*23:01 | 1 | 952 | 960 | 9 | VNQAQALN 3e-06 | 68 |
| HLA-A*23:01 | 1 | 952 | 961 | 10 | VNQAQALNT 3e-06 | 68 |
| HLA-A*32:01 | 1 | 952 | 960 | 9 | VNQAQALN 3e-06 | 69 |
| HLA-B*35:01 | 1 | 958 | 967 | 10 | ALNTLVKQLS 3e-06 | 69 |
| HLA-B*53:01 | 1 | 958 | 967 | 10 | ALNTLVKQLS 3e-06 | 70 |
| HLA-A*26:01 | 1 | 959 | 967 | 9 | LNTLVKQLS 3e-06 | 79 |
| HLA-B*44:02 | 1 | 960 | 969 | 10 | NTLVKQLSSN 3e-06 | 77 |
| HLA-B*53:01 | 1 | 960 | 969 | 10 | NTLVKQLSSN 3e-06 | 70 |
| HLA-B*40:01 | 1 | 962 | 971 | 10 | LVKQLSSNFG 3e-06 | 61 |
| HLA-B*44:03 | 1 | 962 | 971 | 10 | LVKQLSSNFG 3e-06 | 72 |
| HLA-A*02:03 | 1 | 963 | 971 | 9 | VKQLSSNFG 3e-06 | 84 |
| HLA-A*03:01 | 1 | 963 | 971 | 9 | VKQLSSNFG 3e-06 | 82 |
| HLA-A*23:01 | 1 | 963 | 971 | 9 | VKQLSSNFG 3e-06 | 68 |
| HLA-B*40:01 | 1 | 963 | 971 | 9 | VKQLSSNFG 3e-06 | 61 |
| HLA-A*24:02 | 1 | 966 | 974 | 9 | LSSNFGAIS 3e-06 | 66 |
| HLA-B*44:02 | 1 | 966 | 975 | 10 | LSSNFGAISS 3e-06 | 77 |
| HLA-A*02:01 | 1 | 969 | 978 | 10 | NFGAISSVLN 3e-06 | 82 |
| HLA-B*15:01 | 1 | 969 | 978 | 10 | NFGAISSVLN 3e-06 | 82 |
| HLA-B*53:01 | 1 | 969 | 978 | 10 | NFGAISSVLN 3e-06 | 70 |
| HLA-A*23:01 | 1 | 970 | 978 | 9 | FGAISSVLN 3e-06 | 68 |
| HLA-A*24:02 | 1 | 970 | 978 | 9 | FGAISSVLN 3e-06 | 66 |
| HLA-A*26:01 | 1 | 970 | 979 | 10 | FGAISSVLND 3e-06 | 79 |
| HLA-B*07:02 | 1 | 970 | 979 | 10 | FGAISSVLND 3e-06 | 83 |
| HLA-B*35:01 | 1 | 970 | 979 | 10 | FGAISSVLND 3e-06 | 69 |
| HLA-B*40:01 | 1 | 971 | 979 | 9 | GAISSVLND 3e-06 | 61 |
| HLA-A*24:02 | 1 | 973 | 982 | 10 | ISSVLNDILS 3e-06 | 66 |
| HLA-B*07:02 | 1 | 973 | 982 | 10 | ISSVLNDILS 3e-06 | 83 |
| HLA-A*11:01 | 1 | 976 | 985 | 10 | VLNDILSRLD 3e-06 | 68 |
| HLA-A*24:02 | 1 | 978 | 986 | 9 | NDILSRLDK 3e-06 | 66 |
| HLA-A*11:01 | 1 | 979 | 988 | 10 | DILSRLDKVE 3e-06 | 68 |
| HLA-B*44:02 | 1 | 979 | 988 | 10 | DILSRLDKVE 3e-06 | 77 |
| HLA-A*26:01 | 1 | 980 | 988 | 9 | ILSRLDKVE 3e-06 | 79 |
| HLA-A*02:06 | 1 | 984 | 992 | 9 | LDKVEAEVQ 3e-06 | 87 |
| HLA-A*11:01 | 1 | 984 | 993 | 10 | LDKVEAEVQI 3e-06 | 68 |
| HLA-A*30:02 | 1 | 985 | 994 | 10 | DKVEAEVQID 3e-06 | 96 |
| HLA-B*35:01 | 1 | 985 | 994 | 10 | DKVEAEVQID 3e-06 | 69 |
| HLA-A*11:01 | 1 | 986 | 994 | 9 | KVEAEVQID 3e-06 | 68 |
| HLA-B*07:02 | 1 | 986 | 994 | 9 | KVEAEVQID 3e-06 | 83 |
| HLA-B*44:03 | 1 | 986 | 994 | 9 | KVEAEVQID 3e-06 | 72 |
| HLA-A*24:02 | 1 | 990 | 998 | 9 | EVQIDRLIT 3e-06 | 66 |
| HLA-A*02:01 | 1 | 993 | 1002 | 10 | IDRLITGRLQ 3e-06 | 82 |
| HLA-A*02:03 | 1 | 993 | 1002 | 10 | IDRLITGRLQ 3e-06 | 84 |
| HLA-B*35:01 | 1 | 993 | 1002 | 10 | IDRLITGRLQ 3e-06 | 69 |

| | | | | | | |
|-------------|---|------|------|----|------------------|----|
| HLA-B*53:01 | 1 | 993 | 1002 | 10 | IDRLITGRLQ 3e-06 | 70 |
| HLA-A*02:06 | 1 | 994 | 1002 | 9 | DRLITGRLQ 3e-06 | 87 |
| HLA-A*24:02 | 1 | 996 | 1005 | 10 | LITGRLQSLQ 3e-06 | 66 |
| HLA-B*53:01 | 1 | 1000 | 1009 | 10 | RLQSLQTYVT 3e-06 | 70 |
| HLA-A*24:02 | 1 | 1011 | 1020 | 10 | QLIRAAEIRA 3e-06 | 66 |
| HLA-B*44:03 | 1 | 1012 | 1021 | 10 | LIRAAEIRAS 3e-06 | 72 |
| HLA-A*32:01 | 1 | 1015 | 1023 | 9 | AAEIRASAN 3e-06 | 69 |
| HLA-A*11:01 | 1 | 1018 | 1027 | 10 | IRASANLAAT 3e-06 | 68 |
| HLA-A*23:01 | 1 | 1022 | 1030 | 9 | ANLAATKMS 3e-06 | 68 |
| HLA-A*24:02 | 1 | 1022 | 1031 | 10 | ANLAATKMSE 3e-06 | 66 |
| HLA-B*35:01 | 1 | 1022 | 1030 | 9 | ANLAATKMS 3e-06 | 69 |
| HLA-B*40:01 | 1 | 1022 | 1031 | 10 | ANLAATKMSE 3e-06 | 61 |
| HLA-B*53:01 | 1 | 1022 | 1031 | 10 | ANLAATKMSE 3e-06 | 70 |
| HLA-A*02:01 | 1 | 1027 | 1035 | 9 | TKMSECVLG 3e-06 | 82 |
| HLA-A*31:01 | 1 | 1027 | 1035 | 9 | TKMSECVLG 3e-06 | 85 |
| HLA-A*68:01 | 1 | 1027 | 1035 | 9 | TKMSECVLG 3e-06 | 79 |
| HLA-B*07:02 | 1 | 1027 | 1036 | 10 | TKMSECVLGQ 3e-06 | 83 |
| HLA-B*44:02 | 1 | 1028 | 1037 | 10 | KMSECVLGQS 3e-06 | 77 |
| HLA-B*51:01 | 1 | 1028 | 1037 | 10 | KMSECVLGQS 3e-06 | 90 |
| HLA-B*15:01 | 1 | 1032 | 1041 | 10 | CVLGQSKRVD 3e-06 | 82 |
| HLA-A*03:01 | 1 | 1033 | 1041 | 9 | VLGQSKRVD 3e-06 | 82 |
| HLA-A*31:01 | 1 | 1033 | 1041 | 9 | VLGQSKRVD 3e-06 | 85 |
| HLA-A*33:01 | 1 | 1033 | 1041 | 9 | VLGQSKRVD 3e-06 | 90 |
| HLA-B*51:01 | 1 | 1033 | 1041 | 9 | VLGQSKRVD 3e-06 | 90 |
| HLA-A*11:01 | 1 | 1034 | 1043 | 10 | LGQSKRVDFC 3e-06 | 68 |
| HLA-B*40:01 | 1 | 1034 | 1043 | 10 | LGQSKRVDFC 3e-06 | 61 |
| HLA-B*44:02 | 1 | 1034 | 1043 | 10 | LGQSKRVDFC 3e-06 | 77 |
| HLA-A*02:01 | 1 | 1035 | 1044 | 10 | GQSKRVDFCG 3e-06 | 82 |
| HLA-A*33:01 | 1 | 1035 | 1044 | 10 | GQSKRVDFCG 3e-06 | 90 |
| HLA-B*40:01 | 1 | 1035 | 1044 | 10 | GQSKRVDFCG 3e-06 | 61 |
| HLA-A*02:03 | 1 | 1036 | 1044 | 9 | QSKRVDFCG 3e-06 | 84 |
| HLA-A*23:01 | 1 | 1036 | 1044 | 9 | QSKRVDFCG 3e-06 | 68 |
| HLA-A*24:02 | 1 | 1036 | 1044 | 9 | QSKRVDFCG 3e-06 | 66 |
| HLA-B*44:03 | 1 | 1036 | 1044 | 9 | QSKRVDFCG 3e-06 | 72 |
| HLA-A*23:01 | 1 | 1037 | 1046 | 10 | SKRVDFCGKG 3e-06 | 68 |
| HLA-A*24:02 | 1 | 1037 | 1045 | 9 | SKRVDFCGK 3e-06 | 66 |
| HLA-A*68:01 | 1 | 1042 | 1051 | 10 | FCGKGYHLMS 3e-06 | 79 |
| HLA-B*53:01 | 1 | 1042 | 1051 | 10 | FCGKGYHLMS 3e-06 | 70 |
| HLA-B*44:02 | 1 | 1043 | 1051 | 9 | CGKGYHLMS 3e-06 | 77 |
| HLA-A*68:01 | 1 | 1044 | 1053 | 10 | GKGYHLMSFP 3e-06 | 79 |
| HLA-A*02:01 | 1 | 1046 | 1054 | 9 | GYHLMSFPQ 3e-06 | 82 |
| HLA-A*26:01 | 1 | 1046 | 1055 | 10 | GYHLMSFPQS 3e-06 | 79 |
| HLA-B*15:01 | 1 | 1046 | 1055 | 10 | GYHLMSFPQS 3e-06 | 82 |
| HLA-B*40:01 | 1 | 1046 | 1055 | 10 | GYHLMSFPQS 3e-06 | 61 |
| HLA-B*44:03 | 1 | 1046 | 1054 | 9 | GYHLMSFPQ 3e-06 | 72 |
| HLA-B*44:03 | 1 | 1046 | 1055 | 10 | GYHLMSFPQS 3e-06 | 72 |
| HLA-A*23:01 | 1 | 1057 | 1066 | 10 | PHGVVFLHVT 3e-06 | 68 |
| HLA-A*24:02 | 1 | 1057 | 1066 | 10 | PHGVVFLHVT 3e-06 | 66 |
| HLA-A*68:01 | 1 | 1057 | 1065 | 9 | PHGVVFLHV 3e-06 | 79 |
| HLA-A*68:02 | 1 | 1057 | 1066 | 10 | PHGVVFLHVT 3e-06 | 81 |
| HLA-B*40:01 | 1 | 1062 | 1071 | 10 | FLHVTVVPAQ 3e-06 | 61 |
| HLA-B*40:01 | 1 | 1063 | 1072 | 10 | LHVTVVPAQE 3e-06 | 61 |
| HLA-A*02:01 | 1 | 1066 | 1074 | 9 | TYVPAQEK 3e-06 | 82 |
| HLA-A*11:01 | 1 | 1069 | 1077 | 9 | PAQEKNTT 3e-06 | 68 |
| HLA-A*11:01 | 1 | 1069 | 1078 | 10 | PAQEKNTTA 3e-06 | 68 |
| HLA-A*11:01 | 1 | 1072 | 1081 | 10 | EKNFTTAPAI 3e-06 | 68 |
| HLA-A*24:02 | 1 | 1072 | 1080 | 9 | EKNFTTAPA 3e-06 | 66 |
| HLA-B*35:01 | 1 | 1073 | 1082 | 10 | KNFTTAPAIC 3e-06 | 69 |
| HLA-A*32:01 | 1 | 1074 | 1082 | 9 | NFTTAPAIC 3e-06 | 69 |
| HLA-B*07:02 | 1 | 1075 | 1084 | 10 | FTTAPAICH 3e-06 | 83 |
| HLA-B*35:01 | 1 | 1076 | 1085 | 10 | TTAPAICH 3e-06 | 69 |
| HLA-B*44:03 | 1 | 1076 | 1085 | 10 | TTAPAICH 3e-06 | 72 |
| HLA-A*31:01 | 1 | 1077 | 1085 | 9 | TAPAICH 3e-06 | 85 |
| HLA-B*44:02 | 1 | 1077 | 1085 | 9 | TAPAICH 3e-06 | 77 |
| HLA-A*24:02 | 1 | 1078 | 1086 | 9 | APAICH 3e-06 | 66 |
| HLA-A*02:01 | 1 | 1079 | 1087 | 9 | PAICH 3e-06 | 82 |

| | | | | | | | |
|-------------|---|------|------|----|------------|-------|----|
| HLA-A*11:01 | 1 | 1079 | 1088 | 10 | PAICHDGKAH | 3e-06 | 68 |
| HLA-A*33:01 | 1 | 1079 | 1087 | 9 | PAICHDGKA | 3e-06 | 90 |
| HLA-B*15:01 | 1 | 1079 | 1087 | 9 | PAICHDGKA | 3e-06 | 82 |
| HLA-B*40:01 | 1 | 1079 | 1088 | 10 | PAICHDGKAH | 3e-06 | 61 |
| HLA-B*44:03 | 1 | 1079 | 1087 | 9 | PAICHDGKA | 3e-06 | 72 |
| HLA-B*44:03 | 1 | 1079 | 1088 | 10 | PAICHDGKAH | 3e-06 | 72 |
| HLA-A*68:02 | 1 | 1080 | 1088 | 9 | AICHDGKAH | 3e-06 | 81 |
| HLA-A*32:01 | 1 | 1084 | 1092 | 9 | DGKAHFPRE | 3e-06 | 69 |
| HLA-A*02:03 | 1 | 1085 | 1093 | 9 | GKAHFPREG | 3e-06 | 84 |
| HLA-A*11:01 | 1 | 1085 | 1093 | 9 | GKAHFPREG | 3e-06 | 68 |
| HLA-A*32:01 | 1 | 1085 | 1093 | 9 | GKAHFPREG | 3e-06 | 69 |
| HLA-A*68:02 | 1 | 1085 | 1093 | 9 | GKAHFPREG | 3e-06 | 81 |
| HLA-B*35:01 | 1 | 1085 | 1093 | 9 | GKAHFPREG | 3e-06 | 69 |
| HLA-A*32:01 | 1 | 1089 | 1098 | 10 | FPREGVFVSN | 3e-06 | 69 |
| HLA-A*01:01 | 1 | 1090 | 1099 | 10 | PREGVFVSN | 3e-06 | 98 |
| HLA-A*24:02 | 1 | 1090 | 1098 | 9 | PREGVFVSN | 3e-06 | 66 |
| HLA-A*31:01 | 1 | 1090 | 1098 | 9 | PREGVFVSN | 3e-06 | 85 |
| HLA-B*44:02 | 1 | 1090 | 1098 | 9 | PREGVFVSN | 3e-06 | 77 |
| HLA-B*44:02 | 1 | 1090 | 1099 | 10 | PREGVFVSN | 3e-06 | 77 |
| HLA-B*51:01 | 1 | 1090 | 1098 | 9 | PREGVFVSN | 3e-06 | 90 |
| HLA-B*57:01 | 1 | 1090 | 1098 | 9 | PREGVFVSN | 3e-06 | 95 |
| HLA-B*58:01 | 1 | 1090 | 1098 | 9 | PREGVFVSN | 3e-06 | 88 |
| HLA-A*32:01 | 1 | 1091 | 1100 | 10 | REGVFVSN | 3e-06 | 69 |
| HLA-B*35:01 | 1 | 1091 | 1100 | 10 | REGVFVSN | 3e-06 | 69 |
| HLA-A*32:01 | 1 | 1092 | 1100 | 9 | EGVFVSN | 3e-06 | 69 |
| HLA-B*35:01 | 1 | 1096 | 1105 | 10 | VSN | 3e-06 | 69 |
| HLA-B*44:02 | 1 | 1096 | 1105 | 10 | VSN | 3e-06 | 77 |
| HLA-B*44:03 | 1 | 1096 | 1105 | 10 | VSN | 3e-06 | 72 |
| HLA-A*23:01 | 1 | 1097 | 1106 | 10 | SNG | 3e-06 | 68 |
| HLA-B*53:01 | 1 | 1097 | 1105 | 9 | SNG | 3e-06 | 70 |
| HLA-B*40:01 | 1 | 1098 | 1106 | 9 | NG | 3e-06 | 61 |
| HLA-B*07:02 | 1 | 1099 | 1108 | 10 | G | 3e-06 | 83 |
| HLA-A*23:01 | 1 | 1104 | 1113 | 10 | VT | 3e-06 | 68 |
| HLA-B*40:01 | 1 | 1104 | 1113 | 10 | VT | 3e-06 | 61 |
| HLA-B*44:02 | 1 | 1104 | 1113 | 10 | VT | 3e-06 | 77 |
| HLA-A*02:01 | 1 | 1110 | 1119 | 10 | YEP | 3e-06 | 82 |
| HLA-A*03:01 | 1 | 1110 | 1119 | 10 | YEP | 3e-06 | 82 |
| HLA-A*11:01 | 1 | 1111 | 1119 | 9 | EP | 3e-06 | 68 |
| HLA-A*31:01 | 1 | 1112 | 1120 | 9 | PQ | 3e-06 | 85 |
| HLA-A*23:01 | 1 | 1115 | 1124 | 10 | IT | 3e-06 | 68 |
| HLA-A*24:02 | 1 | 1115 | 1124 | 10 | IT | 3e-06 | 66 |
| HLA-B*44:02 | 1 | 1115 | 1124 | 10 | IT | 3e-06 | 77 |
| HLA-A*32:01 | 1 | 1116 | 1125 | 10 | TT | 3e-06 | 69 |
| HLA-B*07:02 | 1 | 1116 | 1125 | 10 | TT | 3e-06 | 83 |
| HLA-B*53:01 | 1 | 1116 | 1125 | 10 | TT | 3e-06 | 70 |
| HLA-A*02:01 | 1 | 1117 | 1125 | 9 | TD | 3e-06 | 82 |
| HLA-A*02:03 | 1 | 1117 | 1125 | 9 | TD | 3e-06 | 84 |
| HLA-A*31:01 | 1 | 1117 | 1125 | 9 | TD | 3e-06 | 85 |
| HLA-B*07:02 | 1 | 1117 | 1125 | 9 | TD | 3e-06 | 83 |
| HLA-B*53:01 | 1 | 1117 | 1125 | 9 | TD | 3e-06 | 70 |
| HLA-A*30:02 | 1 | 1118 | 1127 | 10 | DN | 3e-06 | 96 |
| HLA-A*03:01 | 1 | 1119 | 1127 | 9 | NT | 3e-06 | 82 |
| HLA-A*11:01 | 1 | 1119 | 1127 | 9 | NT | 3e-06 | 68 |
| HLA-A*32:01 | 1 | 1119 | 1127 | 9 | NT | 3e-06 | 69 |
| HLA-B*44:03 | 1 | 1119 | 1127 | 9 | NT | 3e-06 | 72 |
| HLA-A*02:03 | 1 | 1123 | 1131 | 9 | SG | 3e-06 | 84 |
| HLA-B*44:02 | 1 | 1123 | 1131 | 9 | SG | 3e-06 | 77 |
| HLA-A*30:02 | 1 | 1125 | 1134 | 10 | NC | 3e-06 | 96 |
| HLA-A*03:01 | 1 | 1126 | 1135 | 10 | CD | 3e-06 | 82 |
| HLA-A*26:01 | 1 | 1126 | 1134 | 9 | CD | 3e-06 | 79 |
| HLA-B*08:01 | 1 | 1126 | 1134 | 9 | CD | 3e-06 | 96 |
| HLA-B*58:01 | 1 | 1126 | 1134 | 9 | CD | 3e-06 | 88 |
| HLA-A*32:01 | 1 | 1127 | 1136 | 10 | DV | 3e-06 | 69 |
| HLA-B*07:02 | 1 | 1130 | 1139 | 10 | IG | 3e-06 | 83 |
| HLA-B*40:01 | 1 | 1131 | 1140 | 10 | GIV | 3e-06 | 61 |
| HLA-A*02:01 | 1 | 1133 | 1142 | 10 | VN | 3e-06 | 82 |

| | | | | | | |
|-------------|---|------|------|----|-------------------|----|
| HLA-A*26:01 | 1 | 1133 | 1142 | 10 | VNNTVYDPLQ 3e-06 | 79 |
| HLA-B*44:02 | 1 | 1133 | 1142 | 10 | VNNTVYDPLQ 3e-06 | 77 |
| HLA-B*44:03 | 1 | 1133 | 1142 | 10 | VNNTVYDPLQ 3e-06 | 72 |
| HLA-A*24:02 | 1 | 1134 | 1143 | 10 | NNTVYDPLQP 3e-06 | 66 |
| HLA-B*07:02 | 1 | 1134 | 1142 | 9 | NNTVYDPLQ 3e-06 | 83 |
| HLA-B*15:01 | 1 | 1134 | 1142 | 9 | NNTVYDPLQ 3e-06 | 82 |
| HLA-A*02:03 | 1 | 1138 | 1147 | 10 | YDPLQPELDS 3e-06 | 84 |
| HLA-A*02:06 | 1 | 1138 | 1146 | 9 | YDPLQPELD 3e-06 | 87 |
| HLA-A*11:01 | 1 | 1138 | 1147 | 10 | YDPLQPELDS 3e-06 | 68 |
| HLA-A*23:01 | 1 | 1138 | 1147 | 10 | YDPLQPELDS 3e-06 | 68 |
| HLA-A*24:02 | 1 | 1138 | 1147 | 10 | YDPLQPELDS 3e-06 | 66 |
| HLA-A*26:01 | 1 | 1138 | 1147 | 10 | YDPLQPELDS 3e-06 | 79 |
| HLA-A*31:01 | 1 | 1138 | 1147 | 10 | YDPLQPELDS 3e-06 | 85 |
| HLA-A*33:01 | 1 | 1138 | 1147 | 10 | YDPLQPELDS 3e-06 | 90 |
| HLA-B*53:01 | 1 | 1138 | 1146 | 9 | YDPLQPELD 3e-06 | 70 |
| HLA-A*02:03 | 1 | 1139 | 1147 | 9 | DPLQPELDS 3e-06 | 84 |
| HLA-A*23:01 | 1 | 1139 | 1147 | 9 | DPLQPELDS 3e-06 | 68 |
| HLA-A*31:01 | 1 | 1139 | 1147 | 9 | DPLQPELDS 3e-06 | 85 |
| HLA-A*23:01 | 1 | 1142 | 1150 | 9 | QPELDSFKE 3e-06 | 68 |
| HLA-A*23:01 | 1 | 1142 | 1151 | 10 | QPELDSFKEE 3e-06 | 68 |
| HLA-A*02:01 | 1 | 1143 | 1151 | 9 | PELDSFKEE 3e-06 | 82 |
| HLA-A*03:01 | 1 | 1143 | 1151 | 9 | PELDSFKEE 3e-06 | 82 |
| HLA-A*24:02 | 1 | 1143 | 1151 | 9 | PELDSFKEE 3e-06 | 66 |
| HLA-A*68:02 | 1 | 1143 | 1151 | 9 | PELDSFKEE 3e-06 | 81 |
| HLA-A*32:01 | 1 | 1144 | 1153 | 10 | ELDSFKEELD 3e-06 | 69 |
| HLA-A*24:02 | 1 | 1145 | 1154 | 10 | LDSFKEELDK 3e-06 | 66 |
| HLA-B*07:02 | 1 | 1145 | 1154 | 10 | LDSFKEELDK 3e-06 | 83 |
| HLA-B*57:01 | 1 | 1145 | 1153 | 9 | LDSFKEELD 3e-06 | 95 |
| HLA-A*26:01 | 1 | 1149 | 1158 | 10 | KEELDKYFKN 3e-06 | 79 |
| HLA-B*51:01 | 1 | 1149 | 1158 | 10 | KEELDKYFKN 3e-06 | 90 |
| HLA-A*11:01 | 1 | 1151 | 1160 | 10 | ELDKYFKNHT 3e-06 | 68 |
| HLA-A*32:01 | 1 | 1151 | 1160 | 10 | ELDKYFKNHT 3e-06 | 69 |
| HLA-B*40:01 | 1 | 1151 | 1160 | 10 | ELDKYFKNHT 3e-06 | 61 |
| HLA-A*11:01 | 1 | 1152 | 1161 | 10 | LDKYFKNHTS 3e-06 | 68 |
| HLA-A*23:01 | 1 | 1152 | 1161 | 10 | LDKYFKNHTS 3e-06 | 68 |
| HLA-A*02:01 | 1 | 1154 | 1163 | 10 | KYFKNHTSPD 3e-06 | 82 |
| HLA-A*11:01 | 1 | 1154 | 1163 | 10 | KYFKNHTSPD 3e-06 | 68 |
| HLA-A*26:01 | 1 | 1154 | 1163 | 10 | KYFKNHTSPD 3e-06 | 79 |
| HLA-A*32:01 | 1 | 1155 | 1163 | 9 | YFKNHTSPD 3e-06 | 69 |
| HLA-B*57:01 | 1 | 1156 | 1165 | 10 | FKNHTSPDVD 3e-06 | 95 |
| HLA-A*03:01 | 1 | 1157 | 1165 | 9 | KNHTSPDVD 3e-06 | 82 |
| HLA-B*40:01 | 1 | 1158 | 1167 | 10 | NHTSPDVDLG 3e-06 | 61 |
| HLA-B*35:01 | 1 | 1159 | 1168 | 10 | HTSPDVDLGD 3e-06 | 69 |
| HLA-B*44:02 | 1 | 1159 | 1168 | 10 | HTSPDVDLGD 3e-06 | 77 |
| HLA-B*07:02 | 1 | 1160 | 1168 | 9 | TSPDVDLGD 3e-06 | 83 |
| HLA-A*23:01 | 1 | 1161 | 1170 | 10 | SPDVDLGDIS 3e-06 | 68 |
| HLA-A*02:01 | 1 | 1162 | 1171 | 10 | PDVDLGDISG 3e-06 | 82 |
| HLA-A*30:02 | 1 | 1162 | 1170 | 9 | PDVDLGDIS 3e-06 | 96 |
| HLA-B*35:01 | 1 | 1162 | 1170 | 9 | PDVDLGDIS 3e-06 | 69 |
| HLA-B*40:01 | 1 | 1162 | 1170 | 9 | PDVDLGDIS 3e-06 | 61 |
| HLA-B*44:03 | 1 | 1162 | 1170 | 9 | PDVDLGDIS 3e-06 | 72 |
| HLA-B*57:01 | 1 | 1162 | 1170 | 9 | PDVDLGDIS 3e-06 | 95 |
| HLA-B*58:01 | 1 | 1162 | 1171 | 10 | PDVDLGDISG 3e-06 | 88 |
| HLA-A*32:01 | 1 | 1163 | 1171 | 9 | DVDLGDISG 3e-06 | 69 |
| HLA-B*40:01 | 1 | 1163 | 1171 | 9 | DVDLGDISG 3e-06 | 61 |
| HLA-B*44:02 | 1 | 1165 | 1173 | 9 | DLGDISGIN 3e-06 | 77 |
| HLA-A*32:01 | 1 | 1167 | 1175 | 9 | GDISGINAS 3e-06 | 69 |
| HLA-A*02:01 | 1 | 1169 | 1178 | 10 | ISGINASVNVN 3e-06 | 82 |
| HLA-B*35:01 | 1 | 1169 | 1178 | 10 | ISGINASVNVN 3e-06 | 69 |
| HLA-A*23:01 | 1 | 1170 | 1178 | 9 | SGINASVVN 3e-06 | 68 |
| HLA-B*44:03 | 1 | 1171 | 1180 | 10 | GINASVVNIQ 3e-06 | 72 |
| HLA-A*11:01 | 1 | 1175 | 1184 | 10 | SVVNIQKEID 3e-06 | 68 |
| HLA-B*40:01 | 1 | 1175 | 1184 | 10 | SVVNIQKEID 3e-06 | 61 |
| HLA-A*03:01 | 1 | 1176 | 1184 | 9 | VVNIQKEID 3e-06 | 82 |
| HLA-A*11:01 | 1 | 1176 | 1184 | 9 | VVNIQKEID 3e-06 | 68 |
| HLA-B*51:01 | 1 | 1180 | 1188 | 9 | QKEIDRLNE 3e-06 | 90 |

| | | | | | | |
|-------------|---|------|------|----|------------------|----|
| HLA-A*24:02 | 1 | 1183 | 1191 | 9 | IDRLNEVAK 3e-06 | 66 |
| HLA-B*07:02 | 1 | 1183 | 1192 | 10 | IDRLNEVAKN 3e-06 | 83 |
| HLA-A*31:01 | 1 | 1184 | 1192 | 9 | DRLNEVAKN 3e-06 | 85 |
| HLA-B*15:01 | 1 | 1184 | 1192 | 9 | DRLNEVAKN 3e-06 | 82 |
| HLA-B*35:01 | 1 | 1185 | 1194 | 10 | RLNEVAKNLN 3e-06 | 69 |
| HLA-A*11:01 | 1 | 1186 | 1195 | 10 | LNEVAKNLNE 3e-06 | 68 |
| HLA-A*68:02 | 1 | 1186 | 1195 | 10 | LNEVAKNLNE 3e-06 | 81 |
| HLA-B*44:02 | 1 | 1186 | 1194 | 9 | LNEVAKNLN 3e-06 | 77 |
| HLA-A*23:01 | 1 | 1187 | 1196 | 10 | NEVAKNLNES 3e-06 | 68 |
| HLA-A*32:01 | 1 | 1187 | 1196 | 10 | NEVAKNLNES 3e-06 | 69 |
| HLA-B*44:03 | 1 | 1190 | 1199 | 10 | AKNLNESLID 3e-06 | 72 |
| HLA-A*02:01 | 1 | 1191 | 1199 | 9 | KNLNESLID 3e-06 | 82 |
| HLA-A*02:06 | 1 | 1191 | 1199 | 9 | KNLNESLID 3e-06 | 87 |
| HLA-A*03:01 | 1 | 1191 | 1199 | 9 | KNLNESLID 3e-06 | 82 |
| HLA-A*23:01 | 1 | 1191 | 1199 | 9 | KNLNESLID 3e-06 | 68 |
| HLA-A*31:01 | 1 | 1191 | 1199 | 9 | KNLNESLID 3e-06 | 85 |
| HLA-A*68:02 | 1 | 1191 | 1199 | 9 | KNLNESLID 3e-06 | 81 |
| HLA-B*08:01 | 1 | 1191 | 1199 | 9 | KNLNESLID 3e-06 | 96 |
| HLA-B*44:02 | 1 | 1191 | 1199 | 9 | KNLNESLID 3e-06 | 77 |
| HLA-B*51:01 | 1 | 1191 | 1199 | 9 | KNLNESLID 3e-06 | 90 |
| HLA-A*02:01 | 1 | 1193 | 1201 | 9 | LNESLIDLQ 3e-06 | 82 |
| HLA-A*26:01 | 1 | 1193 | 1202 | 10 | LNESLIDLQE 3e-06 | 79 |
| HLA-B*07:02 | 1 | 1193 | 1201 | 9 | LNESLIDLQ 3e-06 | 83 |
| HLA-B*35:01 | 1 | 1193 | 1202 | 10 | LNESLIDLQE 3e-06 | 69 |
| HLA-A*32:01 | 1 | 1194 | 1202 | 9 | NESLIDLQE 3e-06 | 69 |
| HLA-A*11:01 | 1 | 1195 | 1204 | 10 | ESLIDLQELG 3e-06 | 68 |
| HLA-A*23:01 | 1 | 1198 | 1207 | 10 | IDLQELGKYE 3e-06 | 68 |
| HLA-B*40:01 | 1 | 1203 | 1211 | 9 | LGKYEQYIK 3e-06 | 61 |
| HLA-B*07:02 | 1 | 1204 | 1213 | 10 | GKYEQYIKWP 3e-06 | 83 |
| HLA-A*03:01 | 1 | 1210 | 1219 | 10 | IKWPWYIWLG 3e-06 | 82 |
| HLA-B*53:01 | 1 | 1211 | 1219 | 9 | KWPWYIWLG 3e-06 | 70 |
| HLA-B*15:01 | 1 | 1212 | 1221 | 10 | WPWYIWLGFI 3e-06 | 82 |
| HLA-B*40:01 | 1 | 1212 | 1221 | 10 | WPWYIWLGFI 3e-06 | 61 |
| HLA-A*26:01 | 1 | 1213 | 1222 | 10 | PWYIWLGFIA 3e-06 | 79 |
| HLA-A*24:02 | 1 | 1215 | 1223 | 9 | YIWLGFIAAG 3e-06 | 66 |
| HLA-B*40:01 | 1 | 1215 | 1223 | 9 | YIWLGFIAAG 3e-06 | 61 |
| HLA-B*44:03 | 1 | 1215 | 1223 | 9 | YIWLGFIAAG 3e-06 | 72 |
| HLA-B*40:01 | 1 | 1216 | 1225 | 10 | IWLGFIAGLI 3e-06 | 61 |
| HLA-A*11:01 | 1 | 1217 | 1226 | 10 | WLGFIAGLIA 3e-06 | 68 |
| HLA-A*26:01 | 1 | 1217 | 1226 | 10 | WLGFIAGLIA 3e-06 | 79 |
| HLA-B*53:01 | 1 | 1217 | 1226 | 10 | WLGFIAGLIA 3e-06 | 70 |
| HLA-A*11:01 | 1 | 1221 | 1230 | 10 | IAGLIAIVMV 3e-06 | 68 |
| HLA-B*44:02 | 1 | 1221 | 1230 | 10 | IAGLIAIVMV 3e-06 | 77 |
| HLA-B*44:02 | 1 | 1222 | 1231 | 10 | AGLIAIVMVT 3e-06 | 77 |
| HLA-B*44:03 | 1 | 1222 | 1231 | 10 | AGLIAIVMVT 3e-06 | 72 |
| HLA-B*53:01 | 1 | 1226 | 1235 | 10 | AIVMVTIMLC 3e-06 | 70 |
| HLA-A*24:02 | 1 | 1227 | 1236 | 10 | IVMVTIMLCC 3e-06 | 66 |
| HLA-B*53:01 | 1 | 1227 | 1236 | 10 | IVMVTIMLCC 3e-06 | 70 |
| HLA-A*11:01 | 1 | 1229 | 1238 | 10 | MVTIMLCCMT 3e-06 | 68 |
| HLA-A*26:01 | 1 | 1230 | 1239 | 10 | VTIMLCCMTS 3e-06 | 79 |
| HLA-B*07:02 | 1 | 1230 | 1238 | 9 | VTIMLCCMT 3e-06 | 83 |
| HLA-A*68:01 | 1 | 1231 | 1240 | 10 | TIMLCCMTSC 3e-06 | 79 |
| HLA-A*11:01 | 1 | 1232 | 1240 | 9 | IMLCCMTSC 3e-06 | 68 |
| HLA-B*51:01 | 1 | 1232 | 1241 | 10 | IMLCCMTSCC 3e-06 | 90 |
| HLA-A*23:01 | 1 | 1233 | 1241 | 9 | MLCCMTSCC 3e-06 | 68 |
| HLA-A*24:02 | 1 | 1233 | 1241 | 9 | MLCCMTSCC 3e-06 | 66 |
| HLA-A*68:01 | 1 | 1233 | 1241 | 9 | MLCCMTSCC 3e-06 | 79 |
| HLA-B*57:01 | 1 | 1233 | 1242 | 10 | MLCCMTSCCS 3e-06 | 95 |
| HLA-A*23:01 | 1 | 1235 | 1244 | 10 | CCMTSCCSCL 3e-06 | 68 |
| HLA-B*35:01 | 1 | 1235 | 1244 | 10 | CCMTSCCSCL 3e-06 | 69 |
| HLA-A*24:02 | 1 | 1236 | 1245 | 10 | CMTSCCSCLK 3e-06 | 66 |
| HLA-A*02:01 | 1 | 1237 | 1246 | 10 | MTSCCSCLKG 3e-06 | 82 |
| HLA-A*26:01 | 1 | 1237 | 1246 | 10 | MTSCCSCLKG 3e-06 | 79 |
| HLA-A*32:01 | 1 | 1237 | 1246 | 10 | MTSCCSCLKG 3e-06 | 69 |
| HLA-B*44:03 | 1 | 1239 | 1247 | 9 | SCCSCLKGC 3e-06 | 72 |
| HLA-A*01:01 | 1 | 1240 | 1248 | 9 | CCSCLKGCC 3e-06 | 98 |

| | | | | | | | |
|-------------|---|------|------|----|------------|-------|----|
| HLA-B*08:01 | 1 | 1240 | 1248 | 9 | CCSCLKGCC | 3e-06 | 96 |
| HLA-B*58:01 | 1 | 1240 | 1249 | 10 | CCSCLKGCCS | 3e-06 | 88 |
| HLA-A*02:01 | 1 | 1241 | 1249 | 9 | CSCLKGCCS | 3e-06 | 82 |
| HLA-A*02:03 | 1 | 1241 | 1249 | 9 | CSCLKGCCS | 3e-06 | 84 |
| HLA-B*07:02 | 1 | 1241 | 1249 | 9 | CSCLKGCCS | 3e-06 | 83 |
| HLA-B*07:02 | 1 | 1241 | 1250 | 10 | CSCLKGCCSC | 3e-06 | 83 |
| HLA-B*15:01 | 1 | 1241 | 1250 | 10 | CSCLKGCCSC | 3e-06 | 82 |
| HLA-B*51:01 | 1 | 1241 | 1249 | 9 | CSCLKGCCS | 3e-06 | 90 |
| HLA-A*02:06 | 1 | 1242 | 1251 | 10 | SCLKGCCSCG | 3e-06 | 87 |
| HLA-A*23:01 | 1 | 1242 | 1250 | 9 | SCLKGCCSC | 3e-06 | 68 |
| HLA-A*24:02 | 1 | 1242 | 1250 | 9 | SCLKGCCSC | 3e-06 | 66 |
| HLA-A*68:01 | 1 | 1242 | 1250 | 9 | SCLKGCCSC | 3e-06 | 79 |
| HLA-B*44:02 | 1 | 1242 | 1250 | 9 | SCLKGCCSC | 3e-06 | 77 |
| HLA-B*58:01 | 1 | 1242 | 1251 | 10 | SCLKGCCSCG | 3e-06 | 88 |
| HLA-A*02:06 | 1 | 1243 | 1251 | 9 | CLKGCCSCG | 3e-06 | 87 |
| HLA-A*31:01 | 1 | 1243 | 1252 | 10 | CLKGCCSCGS | 3e-06 | 85 |
| HLA-A*32:01 | 1 | 1243 | 1251 | 9 | CLKGCCSCG | 3e-06 | 69 |
| HLA-B*15:01 | 1 | 1243 | 1252 | 10 | CLKGCCSCGS | 3e-06 | 82 |
| HLA-A*02:03 | 1 | 1245 | 1253 | 9 | KGCCSCGSC | 3e-06 | 84 |
| HLA-A*03:01 | 1 | 1245 | 1253 | 9 | KGCCSCGSC | 3e-06 | 82 |
| HLA-A*03:01 | 1 | 1245 | 1254 | 10 | KGCCSCGSCC | 3e-06 | 82 |
| HLA-A*31:01 | 1 | 1245 | 1254 | 10 | KGCCSCGSCC | 3e-06 | 85 |
| HLA-B*07:02 | 1 | 1245 | 1253 | 9 | KGCCSCGSC | 3e-06 | 83 |
| HLA-B*15:01 | 1 | 1245 | 1253 | 9 | KGCCSCGSC | 3e-06 | 82 |
| HLA-A*02:06 | 1 | 1246 | 1254 | 9 | GCCSCGSCC | 3e-06 | 87 |
| HLA-A*32:01 | 1 | 1246 | 1255 | 10 | GCCSCGSCCK | 3e-06 | 69 |
| HLA-A*33:01 | 1 | 1246 | 1254 | 9 | GCCSCGSCC | 3e-06 | 90 |
| HLA-A*02:01 | 1 | 1247 | 1256 | 10 | CCSCGSCCKF | 3e-06 | 82 |
| HLA-B*44:02 | 1 | 1247 | 1255 | 9 | CCSCGSCCK | 3e-06 | 77 |
| HLA-A*32:01 | 1 | 1248 | 1257 | 10 | CSCGSCCKFD | 3e-06 | 69 |
| HLA-A*30:01 | 1 | 1249 | 1257 | 9 | SCGSCCKFD | 3e-06 | 97 |
| HLA-B*57:01 | 1 | 1249 | 1257 | 9 | SCGSCCKFD | 3e-06 | 95 |
| HLA-A*30:01 | 1 | 1250 | 1258 | 9 | CGSCCKFDE | 3e-06 | 97 |
| HLA-A*30:02 | 1 | 1251 | 1259 | 9 | GSCCKFDED | 3e-06 | 96 |
| HLA-A*01:01 | 1 | 1252 | 1261 | 10 | SCCKFDEDD | 3e-06 | 98 |
| HLA-A*30:01 | 1 | 1253 | 1261 | 9 | CCKFDEDD | 3e-06 | 97 |
| HLA-A*30:01 | 1 | 1253 | 1262 | 10 | CCKFDEDDSE | 3e-06 | 97 |
| HLA-A*68:01 | 1 | 1253 | 1262 | 10 | CCKFDEDDSE | 3e-06 | 79 |
| HLA-A*68:02 | 1 | 1253 | 1262 | 10 | CCKFDEDDSE | 3e-06 | 81 |
| HLA-B*08:01 | 1 | 1253 | 1262 | 10 | CCKFDEDDSE | 3e-06 | 96 |
| HLA-B*15:01 | 1 | 1253 | 1262 | 10 | CCKFDEDDSE | 3e-06 | 82 |
| HLA-A*26:01 | 1 | 1254 | 1263 | 10 | CKFDEDDSEP | 3e-06 | 79 |
| HLA-A*33:01 | 1 | 1254 | 1263 | 10 | CKFDEDDSEP | 3e-06 | 90 |
| HLA-A*68:01 | 1 | 1254 | 1263 | 10 | CKFDEDDSEP | 3e-06 | 79 |
| HLA-A*68:02 | 1 | 1254 | 1262 | 9 | CKFDEDDSE | 3e-06 | 81 |
| HLA-A*02:03 | 1 | 1258 | 1267 | 10 | EDDSEPVKLG | 3e-06 | 84 |
| HLA-B*40:01 | 1 | 1258 | 1267 | 10 | EDDSEPVKLG | 3e-06 | 61 |
| HLA-B*44:02 | 1 | 3 | 12 | 10 | VFLVLLPLVS | 2e-06 | 84 |
| HLA-B*53:01 | 1 | 3 | 12 | 10 | VFLVLLPLVS | 2e-06 | 77 |
| HLA-A*23:01 | 1 | 4 | 13 | 10 | FLVLLPLVSS | 2e-06 | 76 |
| HLA-A*24:02 | 1 | 5 | 14 | 10 | LVLLPLVSSQ | 2e-06 | 74 |
| HLA-A*26:01 | 1 | 8 | 17 | 10 | LPLVSSQCVN | 2e-06 | 85 |
| HLA-A*68:01 | 1 | 8 | 17 | 10 | LPLVSSQCVN | 2e-06 | 85 |
| HLA-A*68:02 | 1 | 8 | 17 | 10 | LPLVSSQCVN | 2e-06 | 86 |
| HLA-B*44:02 | 1 | 8 | 17 | 10 | LPLVSSQCVN | 2e-06 | 84 |
| HLA-A*03:01 | 1 | 9 | 17 | 9 | PLVSSQCVN | 2e-06 | 88 |
| HLA-A*68:01 | 1 | 9 | 17 | 9 | PLVSSQCVN | 2e-06 | 85 |
| HLA-B*07:02 | 1 | 9 | 17 | 9 | PLVSSQCVN | 2e-06 | 88 |
| HLA-A*23:01 | 1 | 10 | 19 | 10 | LVSSQCVNLT | 2e-06 | 76 |
| HLA-A*24:02 | 1 | 10 | 19 | 10 | LVSSQCVNLT | 2e-06 | 74 |
| HLA-B*35:01 | 1 | 10 | 19 | 10 | LVSSQCVNLT | 2e-06 | 75 |
| HLA-A*24:02 | 1 | 14 | 22 | 9 | QCVNLTRT | 2e-06 | 74 |
| HLA-B*40:01 | 1 | 14 | 23 | 10 | QCVNLTRTQ | 2e-06 | 68 |
| HLA-B*35:01 | 1 | 16 | 25 | 10 | VNLTRTQLP | 2e-06 | 75 |
| HLA-A*23:01 | 1 | 17 | 26 | 10 | NLTRTQLPP | 2e-06 | 76 |
| HLA-B*35:01 | 1 | 17 | 26 | 10 | NLTRTQLPP | 2e-06 | 75 |

| | | | | | | |
|-------------|---|----|----|----|-------------------|----|
| HLA-B*40:01 | 1 | 17 | 26 | 10 | NLTTTRTQLPP 2e-06 | 68 |
| HLA-B*44:02 | 1 | 18 | 27 | 10 | LTTTRTQLPPA 2e-06 | 84 |
| HLA-B*53:01 | 1 | 18 | 27 | 10 | LTTTRTQLPPA 2e-06 | 77 |
| HLA-A*02:01 | 1 | 25 | 33 | 9 | PPAYTNSFT 2e-06 | 87 |
| HLA-A*23:01 | 1 | 25 | 33 | 9 | PPAYTNSFT 2e-06 | 76 |
| HLA-A*24:02 | 1 | 25 | 33 | 9 | PPAYTNSFT 2e-06 | 74 |
| HLA-B*40:01 | 1 | 25 | 33 | 9 | PPAYTNSFT 2e-06 | 68 |
| HLA-B*44:02 | 1 | 25 | 33 | 9 | PPAYTNSFT 2e-06 | 84 |
| HLA-B*44:03 | 1 | 25 | 33 | 9 | PPAYTNSFT 2e-06 | 80 |
| HLA-B*53:01 | 1 | 26 | 35 | 10 | PAYTNSFTRG 2e-06 | 77 |
| HLA-A*26:01 | 1 | 31 | 40 | 10 | SFTRGVVYPD 2e-06 | 85 |
| HLA-B*07:02 | 1 | 31 | 40 | 10 | SFTRGVVYPD 2e-06 | 88 |
| HLA-A*23:01 | 1 | 32 | 40 | 9 | FTRGVVYPD 2e-06 | 76 |
| HLA-B*44:02 | 1 | 32 | 41 | 10 | FTRGVVYPDK 2e-06 | 84 |
| HLA-B*44:03 | 1 | 32 | 41 | 10 | FTRGVVYPDK 2e-06 | 80 |
| HLA-B*35:01 | 1 | 33 | 41 | 9 | TRGVVYPDK 2e-06 | 75 |
| HLA-B*35:01 | 1 | 33 | 42 | 10 | TRGVVYPDKV 2e-06 | 75 |
| HLA-B*53:01 | 1 | 33 | 41 | 9 | TRGVVYPDK 2e-06 | 77 |
| HLA-A*11:01 | 1 | 39 | 47 | 9 | PKVFRSSV 2e-06 | 75 |
| HLA-A*31:01 | 1 | 39 | 48 | 10 | PKVFRSSVL 2e-06 | 90 |
| HLA-A*26:01 | 1 | 44 | 53 | 10 | RSSVLHSTQD 2e-06 | 85 |
| HLA-B*44:02 | 1 | 44 | 53 | 10 | RSSVLHSTQD 2e-06 | 84 |
| HLA-B*44:03 | 1 | 44 | 53 | 10 | RSSVLHSTQD 2e-06 | 80 |
| HLA-B*53:01 | 1 | 44 | 53 | 10 | RSSVLHSTQD 2e-06 | 77 |
| HLA-A*24:02 | 1 | 45 | 53 | 9 | SSVLHSTQD 2e-06 | 74 |
| HLA-B*07:02 | 1 | 52 | 61 | 10 | QDLFLPFFSN 2e-06 | 88 |
| HLA-B*40:01 | 1 | 53 | 61 | 9 | DLFLPFFSN 2e-06 | 68 |
| HLA-B*40:01 | 1 | 54 | 63 | 10 | LFLPFFSNVT 2e-06 | 68 |
| HLA-B*44:03 | 1 | 54 | 63 | 10 | LFLPFFSNVT 2e-06 | 80 |
| HLA-B*40:01 | 1 | 57 | 66 | 10 | PFFSNVTWFH 2e-06 | 68 |
| HLA-B*40:01 | 1 | 62 | 71 | 10 | VTWFHAIHVS 2e-06 | 68 |
| HLA-B*53:01 | 1 | 64 | 73 | 10 | WFHAIHVS 2e-06 | 77 |
| HLA-A*03:01 | 1 | 65 | 74 | 10 | FHAIHVS 2e-06 | 88 |
| HLA-A*32:01 | 1 | 65 | 73 | 9 | FHAIHVS 2e-06 | 75 |
| HLA-A*23:01 | 1 | 66 | 75 | 10 | HAIHVS 2e-06 | 76 |
| HLA-A*23:01 | 1 | 67 | 75 | 9 | AIHVS 2e-06 | 76 |
| HLA-A*02:01 | 1 | 71 | 80 | 10 | SGTNGTKRFD 2e-06 | 87 |
| HLA-A*02:03 | 1 | 71 | 80 | 10 | SGTNGTKRFD 2e-06 | 89 |
| HLA-B*44:02 | 1 | 72 | 81 | 10 | GTNGTKRFDN 2e-06 | 84 |
| HLA-A*02:01 | 1 | 73 | 82 | 10 | TNGTKRFDNP 2e-06 | 87 |
| HLA-A*11:01 | 1 | 73 | 81 | 9 | TNGTKRFDN 2e-06 | 75 |
| HLA-A*24:02 | 1 | 73 | 82 | 10 | TNGTKRFDNP 2e-06 | 74 |
| HLA-B*07:02 | 1 | 73 | 82 | 10 | TNGTKRFDNP 2e-06 | 88 |
| HLA-B*57:01 | 1 | 73 | 81 | 9 | TNGTKRFDN 2e-06 | 97 |
| HLA-A*11:01 | 1 | 74 | 82 | 9 | NGTKRFDNP 2e-06 | 75 |
| HLA-A*26:01 | 1 | 74 | 82 | 9 | NGTKRFDNP 2e-06 | 85 |
| HLA-B*15:01 | 1 | 74 | 82 | 9 | NGTKRFDNP 2e-06 | 87 |
| HLA-B*40:01 | 1 | 74 | 82 | 9 | NGTKRFDNP 2e-06 | 68 |
| HLA-B*44:03 | 1 | 74 | 83 | 10 | NGTKRFDNPV 2e-06 | 80 |
| HLA-A*02:01 | 1 | 79 | 88 | 10 | FDNPVLPFND 2e-06 | 87 |
| HLA-A*02:03 | 1 | 79 | 88 | 10 | FDNPVLPFND 2e-06 | 89 |
| HLA-A*03:01 | 1 | 79 | 88 | 10 | FDNPVLPFND 2e-06 | 88 |
| HLA-A*23:01 | 1 | 79 | 88 | 10 | FDNPVLPFND 2e-06 | 76 |
| HLA-A*24:02 | 1 | 79 | 88 | 10 | FDNPVLPFND 2e-06 | 74 |
| HLA-A*31:01 | 1 | 79 | 88 | 10 | FDNPVLPFND 2e-06 | 90 |
| HLA-B*44:03 | 1 | 79 | 88 | 10 | FDNPVLPFND 2e-06 | 80 |
| HLA-A*33:01 | 1 | 80 | 89 | 10 | DNPVLPFNDG 2e-06 | 94 |
| HLA-A*68:01 | 1 | 80 | 88 | 9 | DNPVLPFND 2e-06 | 85 |
| HLA-A*68:02 | 1 | 80 | 88 | 9 | DNPVLPFND 2e-06 | 86 |
| HLA-B*57:01 | 1 | 80 | 89 | 10 | DNPVLPFNDG 2e-06 | 97 |
| HLA-B*58:01 | 1 | 80 | 88 | 9 | DNPVLPFND 2e-06 | 92 |
| HLA-A*31:01 | 1 | 81 | 89 | 9 | NPVLPFNDG 2e-06 | 90 |
| HLA-A*32:01 | 1 | 81 | 89 | 9 | NPVLPFNDG 2e-06 | 75 |
| HLA-A*32:01 | 1 | 85 | 94 | 10 | PFNDGVYFAS 2e-06 | 75 |
| HLA-B*15:01 | 1 | 86 | 95 | 10 | FNDGVYFAST 2e-06 | 87 |
| HLA-B*44:03 | 1 | 86 | 95 | 10 | FNDGVYFAST 2e-06 | 80 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-A*02:03 | 1 | 87 | 96 | 10 | NDGVYFASTE 2e-06 | 89 |
| HLA-A*03:01 | 1 | 87 | 96 | 10 | NDGVYFASTE 2e-06 | 88 |
| HLA-A*11:01 | 1 | 87 | 96 | 10 | NDGVYFASTE 2e-06 | 75 |
| HLA-A*32:01 | 1 | 87 | 95 | 9 | NDGVYFAST 2e-06 | 75 |
| HLA-B*07:02 | 1 | 87 | 96 | 10 | NDGVYFASTE 2e-06 | 88 |
| HLA-B*15:01 | 1 | 87 | 95 | 9 | NDGVYFAST 2e-06 | 87 |
| HLA-B*15:01 | 1 | 87 | 96 | 10 | NDGVYFASTE 2e-06 | 87 |
| HLA-B*35:01 | 1 | 87 | 96 | 10 | NDGVYFASTE 2e-06 | 75 |
| HLA-B*53:01 | 1 | 87 | 96 | 10 | NDGVYFASTE 2e-06 | 77 |
| HLA-A*32:01 | 1 | 88 | 96 | 9 | DGVYFASTE 2e-06 | 75 |
| HLA-A*02:03 | 1 | 90 | 99 | 10 | VYFASTEKSN 2e-06 | 89 |
| HLA-A*02:06 | 1 | 90 | 99 | 10 | VYFASTEKSN 2e-06 | 91 |
| HLA-B*07:02 | 1 | 90 | 99 | 10 | VYFASTEKSN 2e-06 | 88 |
| HLA-B*40:01 | 1 | 91 | 99 | 9 | YFASTEKSN 2e-06 | 68 |
| HLA-B*35:01 | 1 | 98 | 107 | 10 | SNIIRGWIFG 2e-06 | 75 |
| HLA-A*24:02 | 1 | 99 | 108 | 10 | NIIRGWIFGT 2e-06 | 74 |
| HLA-B*44:03 | 1 | 99 | 107 | 9 | NIIRGWIFG 2e-06 | 80 |
| HLA-B*44:03 | 1 | 99 | 108 | 10 | NIIRGWIFGT 2e-06 | 80 |
| HLA-B*40:01 | 1 | 100 | 108 | 9 | IIRGWIFGT 2e-06 | 68 |
| HLA-B*44:03 | 1 | 100 | 108 | 9 | IIRGWIFGT 2e-06 | 80 |
| HLA-A*11:01 | 1 | 101 | 109 | 9 | IRGWIFGTT 2e-06 | 75 |
| HLA-B*35:01 | 1 | 101 | 109 | 9 | IRGWIFGTT 2e-06 | 75 |
| HLA-A*26:01 | 1 | 102 | 111 | 10 | RGWIFGTTLD 2e-06 | 85 |
| HLA-B*44:02 | 1 | 102 | 111 | 10 | RGWIFGTTLD 2e-06 | 84 |
| HLA-B*44:03 | 1 | 102 | 111 | 10 | RGWIFGTTLD 2e-06 | 80 |
| HLA-A*02:01 | 1 | 103 | 111 | 9 | GWIFGTTLD 2e-06 | 87 |
| HLA-B*53:01 | 1 | 103 | 111 | 9 | GWIFGTTLD 2e-06 | 77 |
| HLA-B*44:02 | 1 | 104 | 112 | 9 | WIFGTTLDS 2e-06 | 84 |
| HLA-B*44:03 | 1 | 104 | 112 | 9 | WIFGTTLDS 2e-06 | 80 |
| HLA-B*15:01 | 1 | 105 | 114 | 10 | IFGTTLDSKT 2e-06 | 87 |
| HLA-B*40:01 | 1 | 105 | 113 | 9 | IFGTTLDSK 2e-06 | 68 |
| HLA-B*44:03 | 1 | 105 | 114 | 10 | IFGTTLDSKT 2e-06 | 80 |
| HLA-B*53:01 | 1 | 105 | 114 | 10 | IFGTTLDSKT 2e-06 | 77 |
| HLA-A*32:01 | 1 | 106 | 114 | 9 | FGTTLDSKT 2e-06 | 75 |
| HLA-B*44:03 | 1 | 106 | 115 | 10 | FGTTLDSKTQ 2e-06 | 80 |
| HLA-B*35:01 | 1 | 107 | 116 | 10 | GTTLDSKTQS 2e-06 | 75 |
| HLA-B*53:01 | 1 | 107 | 116 | 10 | GTTLDSKTQS 2e-06 | 77 |
| HLA-B*40:01 | 1 | 112 | 121 | 10 | SKTQSLIIVN 2e-06 | 68 |
| HLA-B*53:01 | 1 | 112 | 121 | 10 | SKTQSLIIVN 2e-06 | 77 |
| HLA-A*23:01 | 1 | 113 | 122 | 10 | KTQSLIIVNN 2e-06 | 76 |
| HLA-A*24:02 | 1 | 113 | 122 | 10 | KTQSLIIVNN 2e-06 | 74 |
| HLA-B*07:02 | 1 | 113 | 122 | 10 | KTQSLIIVNN 2e-06 | 88 |
| HLA-A*11:01 | 1 | 116 | 125 | 10 | SLLIIVNNATN 2e-06 | 75 |
| HLA-B*44:02 | 1 | 116 | 125 | 10 | SLLIIVNNATN 2e-06 | 84 |
| HLA-B*44:02 | 1 | 117 | 125 | 9 | LLIIVNNATN 2e-06 | 84 |
| HLA-B*40:01 | 1 | 123 | 132 | 10 | ATNVVIKVCE 2e-06 | 68 |
| HLA-B*53:01 | 1 | 123 | 132 | 10 | ATNVVIKVCE 2e-06 | 77 |
| HLA-A*24:02 | 1 | 124 | 132 | 9 | TNVVIKVCE 2e-06 | 74 |
| HLA-B*40:01 | 1 | 126 | 134 | 9 | VVIKVCFEQ 2e-06 | 68 |
| HLA-B*44:02 | 1 | 127 | 136 | 10 | VIKVCFEQFC 2e-06 | 84 |
| HLA-B*44:03 | 1 | 127 | 136 | 10 | VIKVCFEQFC 2e-06 | 80 |
| HLA-A*11:01 | 1 | 128 | 137 | 10 | IKVCFEQFCN 2e-06 | 75 |
| HLA-A*11:01 | 1 | 129 | 138 | 10 | KVCFEQFCND 2e-06 | 75 |
| HLA-B*07:02 | 1 | 129 | 137 | 9 | KVCFEQFCN 2e-06 | 88 |
| HLA-B*15:01 | 1 | 129 | 138 | 10 | KVCFEQFCND 2e-06 | 87 |
| HLA-B*40:01 | 1 | 129 | 137 | 9 | KVCFEQFCN 2e-06 | 68 |
| HLA-A*33:01 | 1 | 130 | 139 | 10 | VCFEQFCNDP 2e-06 | 94 |
| HLA-B*07:02 | 1 | 130 | 139 | 10 | VCFEQFCNDP 2e-06 | 88 |
| HLA-B*15:01 | 1 | 130 | 139 | 10 | VCFEQFCNDP 2e-06 | 87 |
| HLA-B*35:01 | 1 | 130 | 139 | 10 | VCFEQFCNDP 2e-06 | 75 |
| HLA-A*03:01 | 1 | 131 | 139 | 9 | CEFQFCNDP 2e-06 | 88 |
| HLA-A*24:02 | 1 | 131 | 139 | 9 | CEFQFCNDP 2e-06 | 74 |
| HLA-B*07:02 | 1 | 134 | 142 | 9 | QFCNDPFLG 2e-06 | 88 |
| HLA-A*31:01 | 1 | 140 | 149 | 10 | FLGVYYHKNN 2e-06 | 90 |
| HLA-A*68:01 | 1 | 140 | 148 | 9 | FLGVYYHKN 2e-06 | 85 |
| HLA-B*35:01 | 1 | 140 | 148 | 9 | FLGVYYHKN 2e-06 | 75 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-A*31:01 | 1 | 141 | 149 | 9 | LGVYYHKNN 2e-06 | 90 |
| HLA-B*15:01 | 1 | 141 | 149 | 9 | LGVYYHKNN 2e-06 | 87 |
| HLA-B*44:03 | 1 | 141 | 150 | 10 | LGVYYHKNNK 2e-06 | 80 |
| HLA-B*40:01 | 1 | 142 | 151 | 10 | GVYYHKNNKS 2e-06 | 68 |
| HLA-A*02:01 | 1 | 146 | 155 | 10 | HKNNKSWMES 2e-06 | 87 |
| HLA-A*23:01 | 1 | 146 | 155 | 10 | HKNNKSWMES 2e-06 | 76 |
| HLA-A*32:01 | 1 | 146 | 155 | 10 | HKNNKSWMES 2e-06 | 75 |
| HLA-A*02:01 | 1 | 155 | 164 | 10 | SEFRVYSSAN 2e-06 | 87 |
| HLA-A*32:01 | 1 | 155 | 164 | 10 | SEFRVYSSAN 2e-06 | 75 |
| HLA-A*02:01 | 1 | 156 | 165 | 10 | EFRVYSSANN 2e-06 | 87 |
| HLA-A*02:06 | 1 | 156 | 164 | 9 | EFRVYSSAN 2e-06 | 91 |
| HLA-A*23:01 | 1 | 156 | 165 | 10 | EFRVYSSANN 2e-06 | 76 |
| HLA-A*24:02 | 1 | 156 | 165 | 10 | EFRVYSSANN 2e-06 | 74 |
| HLA-B*07:02 | 1 | 156 | 165 | 10 | EFRVYSSANN 2e-06 | 88 |
| HLA-B*44:02 | 1 | 156 | 165 | 10 | EFRVYSSANN 2e-06 | 84 |
| HLA-A*03:01 | 1 | 157 | 165 | 9 | FRVYSSANN 2e-06 | 88 |
| HLA-A*11:01 | 1 | 157 | 165 | 9 | FRVYSSANN 2e-06 | 75 |
| HLA-B*44:02 | 1 | 157 | 165 | 9 | FRVYSSANN 2e-06 | 84 |
| HLA-B*44:03 | 1 | 157 | 165 | 9 | FRVYSSANN 2e-06 | 80 |
| HLA-B*40:01 | 1 | 160 | 169 | 10 | YSSANNCTFE 2e-06 | 68 |
| HLA-A*02:01 | 1 | 163 | 172 | 10 | ANNCTFEYVS 2e-06 | 87 |
| HLA-A*02:03 | 1 | 164 | 172 | 9 | NNCTFEYVS 2e-06 | 89 |
| HLA-A*23:01 | 1 | 164 | 172 | 9 | NNCTFEYVS 2e-06 | 76 |
| HLA-A*24:02 | 1 | 164 | 172 | 9 | NNCTFEYVS 2e-06 | 74 |
| HLA-B*07:02 | 1 | 164 | 173 | 10 | NNCTFEYVSQ 2e-06 | 88 |
| HLA-B*15:01 | 1 | 164 | 172 | 9 | NNCTFEYVS 2e-06 | 87 |
| HLA-B*44:03 | 1 | 164 | 173 | 10 | NNCTFEYVSQ 2e-06 | 80 |
| HLA-A*23:01 | 1 | 165 | 173 | 9 | NCTFEYVSQ 2e-06 | 76 |
| HLA-B*40:01 | 1 | 165 | 173 | 9 | NCTFEYVSQ 2e-06 | 68 |
| HLA-B*40:01 | 1 | 171 | 180 | 10 | VSQPFLMDLE 2e-06 | 68 |
| HLA-A*11:01 | 1 | 174 | 183 | 10 | PFLMDLEGKQ 2e-06 | 75 |
| HLA-B*07:02 | 1 | 174 | 182 | 9 | PFLMDLEGK 2e-06 | 88 |
| HLA-B*15:01 | 1 | 174 | 182 | 9 | PFLMDLEGK 2e-06 | 87 |
| HLA-B*35:01 | 1 | 174 | 182 | 9 | PFLMDLEGK 2e-06 | 75 |
| HLA-B*35:01 | 1 | 174 | 183 | 10 | PFLMDLEGKQ 2e-06 | 75 |
| HLA-B*44:02 | 1 | 174 | 182 | 9 | PFLMDLEGK 2e-06 | 84 |
| HLA-B*44:02 | 1 | 174 | 183 | 10 | PFLMDLEGKQ 2e-06 | 84 |
| HLA-B*44:03 | 1 | 174 | 182 | 9 | PFLMDLEGK 2e-06 | 80 |
| HLA-B*58:01 | 1 | 174 | 183 | 10 | PFLMDLEGKQ 2e-06 | 92 |
| HLA-A*11:01 | 1 | 176 | 184 | 9 | LDLEGKQG 2e-06 | 75 |
| HLA-A*68:01 | 1 | 176 | 184 | 9 | LDLEGKQG 2e-06 | 85 |
| HLA-B*07:02 | 1 | 176 | 185 | 10 | LDLEGKQGN 2e-06 | 88 |
| HLA-B*35:01 | 1 | 176 | 185 | 10 | LDLEGKQGN 2e-06 | 75 |
| HLA-A*23:01 | 1 | 177 | 185 | 9 | MDLEGKQGN 2e-06 | 76 |
| HLA-A*32:01 | 1 | 177 | 185 | 9 | MDLEGKQGN 2e-06 | 75 |
| HLA-A*26:01 | 1 | 179 | 188 | 10 | LEGKQGNFKN 2e-06 | 85 |
| HLA-B*07:02 | 1 | 179 | 188 | 10 | LEGKQGNFKN 2e-06 | 88 |
| HLA-B*15:01 | 1 | 179 | 188 | 10 | LEGKQGNFKN 2e-06 | 87 |
| HLA-B*53:01 | 1 | 179 | 188 | 10 | LEGKQGNFKN 2e-06 | 77 |
| HLA-A*23:01 | 1 | 180 | 188 | 9 | EGKQGNFKN 2e-06 | 76 |
| HLA-A*32:01 | 1 | 180 | 188 | 9 | EGKQGNFKN 2e-06 | 75 |
| HLA-B*35:01 | 1 | 181 | 190 | 10 | GKQGNFKNLR 2e-06 | 75 |
| HLA-A*68:02 | 1 | 182 | 191 | 10 | KQGNFKNLRE 2e-06 | 86 |
| HLA-B*07:02 | 1 | 182 | 191 | 10 | KQGNFKNLRE 2e-06 | 88 |
| HLA-B*53:01 | 1 | 182 | 191 | 10 | KQGNFKNLRE 2e-06 | 77 |
| HLA-B*40:01 | 1 | 183 | 191 | 9 | QGNFKNLRE 2e-06 | 68 |
| HLA-A*23:01 | 1 | 187 | 196 | 10 | KNLREFVFKN 2e-06 | 76 |
| HLA-A*24:02 | 1 | 187 | 196 | 10 | KNLREFVFKN 2e-06 | 74 |
| HLA-B*51:01 | 1 | 187 | 196 | 10 | KNLREFVFKN 2e-06 | 94 |
| HLA-B*40:01 | 1 | 188 | 196 | 9 | NLREFVFKN 2e-06 | 68 |
| HLA-A*01:01 | 1 | 189 | 198 | 10 | LREFVFKNID 2e-06 | 99 |
| HLA-A*23:01 | 1 | 189 | 198 | 10 | LREFVFKNID 2e-06 | 76 |
| HLA-A*33:01 | 1 | 189 | 198 | 10 | LREFVFKNID 2e-06 | 94 |
| HLA-B*07:02 | 1 | 189 | 198 | 10 | LREFVFKNID 2e-06 | 88 |
| HLA-B*53:01 | 1 | 189 | 198 | 10 | LREFVFKNID 2e-06 | 77 |
| HLA-A*26:01 | 1 | 190 | 199 | 10 | REFVFKNIDG 2e-06 | 85 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-A*68:01 | 1 | 190 | 198 | 9 | REFVFKNID 2e-06 | 85 |
| HLA-A*68:02 | 1 | 190 | 198 | 9 | REFVFKNID 2e-06 | 86 |
| HLA-B*15:01 | 1 | 190 | 199 | 10 | REFVFKNIDG 2e-06 | 87 |
| HLA-B*35:01 | 1 | 190 | 199 | 10 | REFVFKNIDG 2e-06 | 75 |
| HLA-B*53:01 | 1 | 190 | 199 | 10 | REFVFKNIDG 2e-06 | 77 |
| HLA-A*03:01 | 1 | 191 | 199 | 9 | EFVFKNIDG 2e-06 | 88 |
| HLA-A*23:01 | 1 | 196 | 205 | 10 | NIDGYFKIYS 2e-06 | 76 |
| HLA-A*24:02 | 1 | 196 | 205 | 10 | NIDGYFKIYS 2e-06 | 74 |
| HLA-B*40:01 | 1 | 196 | 205 | 10 | NIDGYFKIYS 2e-06 | 68 |
| HLA-A*32:01 | 1 | 197 | 205 | 9 | IDGYFKIYS 2e-06 | 75 |
| HLA-B*53:01 | 1 | 197 | 205 | 9 | IDGYFKIYS 2e-06 | 77 |
| HLA-B*35:01 | 1 | 199 | 208 | 10 | GYFKIYSKHT 2e-06 | 75 |
| HLA-B*40:01 | 1 | 199 | 208 | 10 | GYFKIYSKHT 2e-06 | 68 |
| HLA-B*53:01 | 1 | 199 | 208 | 10 | GYFKIYSKHT 2e-06 | 77 |
| HLA-B*40:01 | 1 | 202 | 211 | 10 | KIYSKHTPIN 2e-06 | 68 |
| HLA-B*53:01 | 1 | 202 | 211 | 10 | KIYSKHTPIN 2e-06 | 77 |
| HLA-B*40:01 | 1 | 207 | 215 | 9 | HTPINLVRD 2e-06 | 68 |
| HLA-B*44:03 | 1 | 207 | 215 | 9 | HTPINLVRD 2e-06 | 80 |
| HLA-A*02:06 | 1 | 209 | 218 | 10 | PINLVRDLPQ 2e-06 | 91 |
| HLA-A*32:01 | 1 | 209 | 218 | 10 | PINLVRDLPQ 2e-06 | 75 |
| HLA-B*15:01 | 1 | 209 | 218 | 10 | PINLVRDLPQ 2e-06 | 87 |
| HLA-B*35:01 | 1 | 209 | 217 | 9 | PINLVRDLP 2e-06 | 75 |
| HLA-B*44:02 | 1 | 209 | 217 | 9 | PINLVRDLP 2e-06 | 84 |
| HLA-A*26:01 | 1 | 210 | 219 | 10 | INLVRDLPQG 2e-06 | 85 |
| HLA-A*68:02 | 1 | 210 | 219 | 10 | INLVRDLPQG 2e-06 | 86 |
| HLA-B*40:01 | 1 | 210 | 218 | 9 | INLVRDLPQ 2e-06 | 68 |
| HLA-B*44:02 | 1 | 210 | 218 | 9 | INLVRDLPQ 2e-06 | 84 |
| HLA-B*44:03 | 1 | 210 | 218 | 9 | INLVRDLPQ 2e-06 | 80 |
| HLA-A*11:01 | 1 | 211 | 219 | 9 | NLVRDLPQG 2e-06 | 75 |
| HLA-A*32:01 | 1 | 213 | 221 | 9 | VRDLPQGFS 2e-06 | 75 |
| HLA-A*31:01 | 1 | 217 | 225 | 9 | PQGFSALEP 2e-06 | 90 |
| HLA-A*32:01 | 1 | 217 | 225 | 9 | PQGFSALEP 2e-06 | 75 |
| HLA-A*68:01 | 1 | 217 | 225 | 9 | PQGFSALEP 2e-06 | 85 |
| HLA-A*03:01 | 1 | 219 | 228 | 10 | GFSALEPLVD 2e-06 | 88 |
| HLA-A*32:01 | 1 | 219 | 228 | 10 | GFSALEPLVD 2e-06 | 75 |
| HLA-B*07:02 | 1 | 219 | 228 | 10 | GFSALEPLVD 2e-06 | 88 |
| HLA-B*44:02 | 1 | 219 | 228 | 10 | GFSALEPLVD 2e-06 | 84 |
| HLA-B*44:03 | 1 | 219 | 228 | 10 | GFSALEPLVD 2e-06 | 80 |
| HLA-B*40:01 | 1 | 220 | 228 | 9 | FSALEPLVD 2e-06 | 68 |
| HLA-B*44:02 | 1 | 220 | 228 | 9 | FSALEPLVD 2e-06 | 84 |
| HLA-B*44:03 | 1 | 220 | 228 | 9 | FSALEPLVD 2e-06 | 80 |
| HLA-A*02:03 | 1 | 223 | 232 | 10 | LEPLVDLPIG 2e-06 | 89 |
| HLA-A*24:02 | 1 | 223 | 232 | 10 | LEPLVDLPIG 2e-06 | 74 |
| HLA-A*26:01 | 1 | 223 | 232 | 10 | LEPLVDLPIG 2e-06 | 85 |
| HLA-B*15:01 | 1 | 223 | 232 | 10 | LEPLVDLPIG 2e-06 | 87 |
| HLA-A*11:01 | 1 | 224 | 232 | 9 | EPLVDLPIG 2e-06 | 75 |
| HLA-A*32:01 | 1 | 224 | 232 | 9 | EPLVDLPIG 2e-06 | 75 |
| HLA-B*40:01 | 1 | 224 | 232 | 9 | EPLVDLPIG 2e-06 | 68 |
| HLA-A*03:01 | 1 | 225 | 234 | 10 | PLVDLPIGIN 2e-06 | 88 |
| HLA-A*31:01 | 1 | 225 | 234 | 10 | PLVDLPIGIN 2e-06 | 90 |
| HLA-A*32:01 | 1 | 225 | 234 | 10 | PLVDLPIGIN 2e-06 | 75 |
| HLA-A*33:01 | 1 | 225 | 234 | 10 | PLVDLPIGIN 2e-06 | 94 |
| HLA-B*15:01 | 1 | 225 | 234 | 10 | PLVDLPIGIN 2e-06 | 87 |
| HLA-A*32:01 | 1 | 228 | 236 | 9 | DLPIGINIT 2e-06 | 75 |
| HLA-A*24:02 | 1 | 230 | 239 | 10 | PIGINITRFQ 2e-06 | 74 |
| HLA-A*68:02 | 1 | 230 | 239 | 10 | PIGINITRFQ 2e-06 | 86 |
| HLA-A*26:01 | 1 | 231 | 240 | 10 | IGINITRFQT 2e-06 | 85 |
| HLA-B*35:01 | 1 | 231 | 240 | 10 | IGINITRFQT 2e-06 | 75 |
| HLA-B*40:01 | 1 | 234 | 243 | 10 | NITRFQTLA 2e-06 | 68 |
| HLA-B*35:01 | 1 | 241 | 250 | 10 | LLALHRSYLT 2e-06 | 75 |
| HLA-B*44:03 | 1 | 241 | 250 | 10 | LLALHRSYLT 2e-06 | 80 |
| HLA-A*11:01 | 1 | 243 | 252 | 10 | ALHRSYLTGP 2e-06 | 75 |
| HLA-A*24:02 | 1 | 243 | 252 | 10 | ALHRSYLTGP 2e-06 | 74 |
| HLA-A*02:06 | 1 | 244 | 252 | 9 | LHRSYLTGP 2e-06 | 91 |
| HLA-A*11:01 | 1 | 244 | 252 | 9 | LHRSYLTGP 2e-06 | 75 |
| HLA-A*32:01 | 1 | 244 | 252 | 9 | LHRSYLTGP 2e-06 | 75 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-A*68:01 | 1 | 244 | 252 | 9 | LHRSYLTGP 2e-06 | 85 |
| HLA-B*07:02 | 1 | 244 | 253 | 10 | LHRSYLTPGD 2e-06 | 88 |
| HLA-B*40:01 | 1 | 244 | 252 | 9 | LHRSYLTGP 2e-06 | 68 |
| HLA-B*44:03 | 1 | 244 | 252 | 9 | LHRSYLTGP 2e-06 | 80 |
| HLA-B*51:01 | 1 | 244 | 253 | 10 | LHRSYLTPGD 2e-06 | 94 |
| HLA-B*53:01 | 1 | 244 | 252 | 9 | LHRSYLTGP 2e-06 | 77 |
| HLA-B*57:01 | 1 | 244 | 253 | 10 | LHRSYLTPGD 2e-06 | 97 |
| HLA-B*58:01 | 1 | 244 | 253 | 10 | LHRSYLTPGD 2e-06 | 92 |
| HLA-A*03:01 | 1 | 245 | 253 | 9 | HRSYLTPGD 2e-06 | 88 |
| HLA-A*23:01 | 1 | 245 | 254 | 10 | HRSYLTPGDS 2e-06 | 76 |
| HLA-A*24:02 | 1 | 245 | 254 | 10 | HRSYLTPGDS 2e-06 | 74 |
| HLA-A*32:01 | 1 | 245 | 254 | 10 | HRSYLTPGDS 2e-06 | 75 |
| HLA-A*68:02 | 1 | 245 | 253 | 9 | HRSYLTPGD 2e-06 | 86 |
| HLA-B*40:01 | 1 | 245 | 253 | 9 | HRSYLTPGD 2e-06 | 68 |
| HLA-B*44:02 | 1 | 245 | 254 | 10 | HRSYLTPGDS 2e-06 | 84 |
| HLA-B*44:03 | 1 | 245 | 254 | 10 | HRSYLTPGDS 2e-06 | 80 |
| HLA-B*53:01 | 1 | 245 | 254 | 10 | HRSYLTPGDS 2e-06 | 77 |
| HLA-A*23:01 | 1 | 246 | 254 | 9 | RSYLTPGDS 2e-06 | 76 |
| HLA-A*24:02 | 1 | 246 | 254 | 9 | RSYLTPGDS 2e-06 | 74 |
| HLA-A*11:01 | 1 | 248 | 257 | 10 | YLTSGDSSSG 2e-06 | 75 |
| HLA-B*40:01 | 1 | 248 | 257 | 10 | YLTSGDSSSG 2e-06 | 68 |
| HLA-A*24:02 | 1 | 251 | 259 | 9 | PGDSSSGWT 2e-06 | 74 |
| HLA-A*68:02 | 1 | 251 | 259 | 9 | PGDSSSGWT 2e-06 | 86 |
| HLA-B*07:02 | 1 | 251 | 259 | 9 | PGDSSSGWT 2e-06 | 88 |
| HLA-B*15:01 | 1 | 251 | 260 | 10 | PGDSSSGWTA 2e-06 | 87 |
| HLA-B*44:02 | 1 | 251 | 259 | 9 | PGDSSSGWT 2e-06 | 84 |
| HLA-A*02:01 | 1 | 252 | 261 | 10 | GDSSSGWTAG 2e-06 | 87 |
| HLA-A*26:01 | 1 | 252 | 261 | 10 | GDSSSGWTAG 2e-06 | 85 |
| HLA-B*53:01 | 1 | 252 | 261 | 10 | GDSSSGWTAG 2e-06 | 77 |
| HLA-A*24:02 | 1 | 253 | 262 | 10 | DSSSGWTAGA 2e-06 | 74 |
| HLA-A*23:01 | 1 | 254 | 263 | 10 | SSSGWTAGAA 2e-06 | 76 |
| HLA-A*24:02 | 1 | 254 | 263 | 10 | SSSGWTAGAA 2e-06 | 74 |
| HLA-A*23:01 | 1 | 262 | 271 | 10 | AAAYVGYLQ 2e-06 | 76 |
| HLA-B*40:01 | 1 | 262 | 271 | 10 | AAAYVGYLQ 2e-06 | 68 |
| HLA-B*40:01 | 1 | 265 | 274 | 10 | YYVGYLQPR 2e-06 | 68 |
| HLA-A*24:02 | 1 | 271 | 280 | 10 | QPRTFLLKYN 2e-06 | 74 |
| HLA-A*02:01 | 1 | 272 | 281 | 10 | PRTFLLKYNE 2e-06 | 87 |
| HLA-A*02:03 | 1 | 272 | 281 | 10 | PRTFLLKYNE 2e-06 | 89 |
| HLA-A*23:01 | 1 | 272 | 281 | 10 | PRTFLLKYNE 2e-06 | 76 |
| HLA-A*24:02 | 1 | 272 | 281 | 10 | PRTFLLKYNE 2e-06 | 74 |
| HLA-A*26:01 | 1 | 272 | 281 | 10 | PRTFLLKYNE 2e-06 | 85 |
| HLA-A*31:01 | 1 | 272 | 280 | 9 | PRTFLLKYN 2e-06 | 90 |
| HLA-B*51:01 | 1 | 272 | 281 | 10 | PRTFLLKYNE 2e-06 | 94 |
| HLA-B*40:01 | 1 | 273 | 282 | 10 | RTFLLKYNEN 2e-06 | 68 |
| HLA-B*53:01 | 1 | 273 | 282 | 10 | RTFLLKYNEN 2e-06 | 77 |
| HLA-A*03:01 | 1 | 274 | 283 | 10 | TFLLKYNENG 2e-06 | 88 |
| HLA-B*15:01 | 1 | 274 | 283 | 10 | TFLLKYNENG 2e-06 | 87 |
| HLA-B*44:02 | 1 | 274 | 283 | 10 | TFLLKYNENG 2e-06 | 84 |
| HLA-B*44:03 | 1 | 274 | 283 | 10 | TFLLKYNENG 2e-06 | 80 |
| HLA-A*24:02 | 1 | 275 | 284 | 10 | FLLKYNENGT 2e-06 | 74 |
| HLA-B*44:02 | 1 | 275 | 283 | 9 | FLLKYNENG 2e-06 | 84 |
| HLA-B*44:03 | 1 | 275 | 283 | 9 | FLLKYNENG 2e-06 | 80 |
| HLA-B*53:01 | 1 | 275 | 284 | 10 | FLLKYNENGT 2e-06 | 77 |
| HLA-A*24:02 | 1 | 276 | 284 | 9 | LLKYNENGT 2e-06 | 74 |
| HLA-B*40:01 | 1 | 276 | 284 | 9 | LLKYNENGT 2e-06 | 68 |
| HLA-A*11:01 | 1 | 277 | 286 | 10 | LKYNENGTIT 2e-06 | 75 |
| HLA-B*15:01 | 1 | 278 | 287 | 10 | KYNENGTITD 2e-06 | 87 |
| HLA-A*03:01 | 1 | 279 | 287 | 9 | YNENGTITD 2e-06 | 88 |
| HLA-A*11:01 | 1 | 279 | 287 | 9 | YNENGTITD 2e-06 | 75 |
| HLA-A*26:01 | 1 | 279 | 287 | 9 | YNENGTITD 2e-06 | 85 |
| HLA-A*33:01 | 1 | 279 | 287 | 9 | YNENGTITD 2e-06 | 94 |
| HLA-B*15:01 | 1 | 279 | 287 | 9 | YNENGTITD 2e-06 | 87 |
| HLA-A*02:03 | 1 | 281 | 290 | 10 | ENGTITDAVD 2e-06 | 89 |
| HLA-A*30:02 | 1 | 281 | 290 | 10 | ENGTITDAVD 2e-06 | 98 |
| HLA-B*57:01 | 1 | 281 | 290 | 10 | ENGTITDAVD 2e-06 | 97 |
| HLA-A*31:01 | 1 | 282 | 291 | 10 | NGTITDAVDC 2e-06 | 90 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-B*15:01 | 1 | 282 | 291 | 10 | NGTITDAVDC 2e-06 | 87 |
| HLA-A*23:01 | 1 | 283 | 292 | 10 | GTITDAVDCA 2e-06 | 76 |
| HLA-A*24:02 | 1 | 283 | 292 | 10 | GTITDAVDCA 2e-06 | 74 |
| HLA-A*03:01 | 1 | 285 | 294 | 10 | ITDAVDCALD 2e-06 | 88 |
| HLA-A*11:01 | 1 | 285 | 294 | 10 | ITDAVDCALD 2e-06 | 75 |
| HLA-A*24:02 | 1 | 285 | 294 | 10 | ITDAVDCALD 2e-06 | 74 |
| HLA-A*26:01 | 1 | 285 | 294 | 10 | ITDAVDCALD 2e-06 | 85 |
| HLA-B*07:02 | 1 | 286 | 295 | 10 | TDAVDCALDP 2e-06 | 88 |
| HLA-B*15:01 | 1 | 286 | 295 | 10 | TDAVDCALDP 2e-06 | 87 |
| HLA-B*35:01 | 1 | 286 | 295 | 10 | TDAVDCALDP 2e-06 | 75 |
| HLA-B*40:01 | 1 | 286 | 295 | 10 | TDAVDCALDP 2e-06 | 68 |
| HLA-B*44:02 | 1 | 286 | 294 | 9 | TDAVDCALD 2e-06 | 84 |
| HLA-B*44:03 | 1 | 286 | 294 | 9 | TDAVDCALD 2e-06 | 80 |
| HLA-B*57:01 | 1 | 286 | 294 | 9 | TDAVDCALD 2e-06 | 97 |
| HLA-B*58:01 | 1 | 286 | 294 | 9 | TDAVDCALD 2e-06 | 92 |
| HLA-A*11:01 | 1 | 287 | 295 | 9 | DAVDCALDP 2e-06 | 75 |
| HLA-A*31:01 | 1 | 287 | 295 | 9 | DAVDCALDP 2e-06 | 90 |
| HLA-A*23:01 | 1 | 288 | 297 | 10 | AVDCALDPLS 2e-06 | 76 |
| HLA-A*23:01 | 1 | 289 | 297 | 9 | VDCALDPLS 2e-06 | 76 |
| HLA-A*23:01 | 1 | 289 | 298 | 10 | VDCALDPLSE 2e-06 | 76 |
| HLA-A*24:02 | 1 | 289 | 297 | 9 | VDCALDPLS 2e-06 | 74 |
| HLA-A*32:01 | 1 | 289 | 297 | 9 | VDCALDPLS 2e-06 | 75 |
| HLA-B*07:02 | 1 | 289 | 297 | 9 | VDCALDPLS 2e-06 | 88 |
| HLA-B*40:01 | 1 | 289 | 298 | 10 | VDCALDPLSE 2e-06 | 68 |
| HLA-A*23:01 | 1 | 290 | 298 | 9 | DCALDPLSE 2e-06 | 76 |
| HLA-A*24:02 | 1 | 290 | 298 | 9 | DCALDPLSE 2e-06 | 74 |
| HLA-B*40:01 | 1 | 290 | 298 | 9 | DCALDPLSE 2e-06 | 68 |
| HLA-A*03:01 | 1 | 293 | 302 | 10 | LDPLSETKCT 2e-06 | 88 |
| HLA-A*32:01 | 1 | 293 | 301 | 9 | LDPLSETKC 2e-06 | 75 |
| HLA-A*32:01 | 1 | 294 | 302 | 9 | DPLSETKCT 2e-06 | 75 |
| HLA-A*32:01 | 1 | 296 | 305 | 10 | LSETKCTLKS 2e-06 | 75 |
| HLA-B*53:01 | 1 | 296 | 305 | 10 | LSETKCTLKS 2e-06 | 77 |
| HLA-A*02:01 | 1 | 299 | 307 | 9 | TKCTLKSFT 2e-06 | 87 |
| HLA-A*24:02 | 1 | 299 | 307 | 9 | TKCTLKSFT 2e-06 | 74 |
| HLA-B*35:01 | 1 | 299 | 307 | 9 | TKCTLKSFT 2e-06 | 75 |
| HLA-A*23:01 | 1 | 300 | 309 | 10 | KCTLKSFTVE 2e-06 | 76 |
| HLA-B*35:01 | 1 | 300 | 309 | 10 | KCTLKSFTVE 2e-06 | 75 |
| HLA-B*40:01 | 1 | 300 | 309 | 10 | KCTLKSFTVE 2e-06 | 68 |
| HLA-B*53:01 | 1 | 300 | 309 | 10 | KCTLKSFTVE 2e-06 | 77 |
| HLA-B*40:01 | 1 | 301 | 309 | 9 | CTLKSFTVE 2e-06 | 68 |
| HLA-A*03:01 | 1 | 303 | 311 | 9 | LKSFTVEKG 2e-06 | 88 |
| HLA-A*23:01 | 1 | 303 | 311 | 9 | LKSFTVEKG 2e-06 | 76 |
| HLA-A*24:02 | 1 | 303 | 311 | 9 | LKSFTVEKG 2e-06 | 74 |
| HLA-A*31:01 | 1 | 303 | 311 | 9 | LKSFTVEKG 2e-06 | 90 |
| HLA-A*68:02 | 1 | 303 | 311 | 9 | LKSFTVEKG 2e-06 | 86 |
| HLA-A*02:03 | 1 | 308 | 317 | 10 | VEKGIYQTSN 2e-06 | 89 |
| HLA-A*02:06 | 1 | 308 | 317 | 10 | VEKGIYQTSN 2e-06 | 91 |
| HLA-A*11:01 | 1 | 308 | 317 | 10 | VEKGIYQTSN 2e-06 | 75 |
| HLA-A*03:01 | 1 | 309 | 317 | 9 | EKGIYQTSN 2e-06 | 88 |
| HLA-A*26:01 | 1 | 309 | 317 | 9 | EKGIYQTSN 2e-06 | 85 |
| HLA-A*68:01 | 1 | 309 | 317 | 9 | EKGIYQTSN 2e-06 | 85 |
| HLA-B*15:01 | 1 | 309 | 317 | 9 | EKGIYQTSN 2e-06 | 87 |
| HLA-B*40:01 | 1 | 309 | 317 | 9 | EKGIYQTSN 2e-06 | 68 |
| HLA-B*53:01 | 1 | 309 | 317 | 9 | EKGIYQTSN 2e-06 | 77 |
| HLA-B*57:01 | 1 | 309 | 317 | 9 | EKGIYQTSN 2e-06 | 97 |
| HLA-A*23:01 | 1 | 314 | 323 | 10 | QTSNFRVQPT 2e-06 | 76 |
| HLA-B*40:01 | 1 | 314 | 323 | 10 | QTSNFRVQPT 2e-06 | 68 |
| HLA-A*68:01 | 1 | 322 | 331 | 10 | PTESIVRFPN 2e-06 | 85 |
| HLA-B*08:01 | 1 | 322 | 331 | 10 | PTESIVRFPN 2e-06 | 98 |
| HLA-B*40:01 | 1 | 322 | 330 | 9 | PTESIVRFP 2e-06 | 68 |
| HLA-B*44:02 | 1 | 322 | 331 | 10 | PTESIVRFPN 2e-06 | 84 |
| HLA-B*44:03 | 1 | 322 | 331 | 10 | PTESIVRFPN 2e-06 | 80 |
| HLA-A*02:01 | 1 | 323 | 331 | 9 | TESIVRFPN 2e-06 | 87 |
| HLA-A*02:03 | 1 | 323 | 331 | 9 | TESIVRFPN 2e-06 | 89 |
| HLA-B*40:01 | 1 | 324 | 333 | 10 | ESIVRFPNIT 2e-06 | 68 |
| HLA-A*23:01 | 1 | 325 | 334 | 10 | SIVRFPNITN 2e-06 | 76 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-A*01:01 | 1 | 330 | 339 | 10 | PNITNLCPFG 2e-06 | 99 |
| HLA-B*57:01 | 1 | 330 | 339 | 10 | PNITNLCPFG 2e-06 | 97 |
| HLA-A*03:01 | 1 | 331 | 339 | 9 | NITNLCPFG 2e-06 | 88 |
| HLA-A*32:01 | 1 | 331 | 340 | 10 | NITNLCPFG 2e-06 | 75 |
| HLA-B*07:02 | 1 | 331 | 340 | 10 | NITNLCPFG 2e-06 | 88 |
| HLA-B*15:01 | 1 | 331 | 339 | 9 | NITNLCPFG 2e-06 | 87 |
| HLA-B*15:01 | 1 | 331 | 340 | 10 | NITNLCPFG 2e-06 | 87 |
| HLA-B*44:02 | 1 | 332 | 340 | 9 | ITNLCPFG 2e-06 | 84 |
| HLA-B*44:03 | 1 | 332 | 340 | 9 | ITNLCPFG 2e-06 | 80 |
| HLA-A*02:03 | 1 | 335 | 343 | 9 | LCPFGEVFN 2e-06 | 89 |
| HLA-A*31:01 | 1 | 335 | 343 | 9 | LCPFGEVFN 2e-06 | 90 |
| HLA-A*68:02 | 1 | 335 | 343 | 9 | LCPFGEVFN 2e-06 | 86 |
| HLA-A*11:01 | 1 | 337 | 345 | 9 | PFGEVFNAT 2e-06 | 75 |
| HLA-A*32:01 | 1 | 337 | 345 | 9 | PFGEVFNAT 2e-06 | 75 |
| HLA-B*15:01 | 1 | 337 | 345 | 9 | PFGEVFNAT 2e-06 | 87 |
| HLA-B*44:03 | 1 | 337 | 345 | 9 | PFGEVFNAT 2e-06 | 80 |
| HLA-B*44:03 | 1 | 337 | 346 | 10 | PFGEVFNATR 2e-06 | 80 |
| HLA-A*24:02 | 1 | 343 | 352 | 10 | NATRFASVYA 2e-06 | 74 |
| HLA-A*02:01 | 1 | 345 | 354 | 10 | TRFASVYAWN 2e-06 | 87 |
| HLA-A*02:03 | 1 | 345 | 354 | 10 | TRFASVYAWN 2e-06 | 89 |
| HLA-B*35:01 | 1 | 346 | 354 | 9 | RFASVYAWN 2e-06 | 75 |
| HLA-B*53:01 | 1 | 346 | 354 | 9 | RFASVYAWN 2e-06 | 77 |
| HLA-A*02:01 | 1 | 350 | 359 | 10 | VYAWNRKRIS 2e-06 | 87 |
| HLA-A*26:01 | 1 | 350 | 359 | 10 | VYAWNRKRIS 2e-06 | 85 |
| HLA-B*35:01 | 1 | 350 | 359 | 10 | VYAWNRKRIS 2e-06 | 75 |
| HLA-B*44:03 | 1 | 350 | 359 | 10 | VYAWNRKRIS 2e-06 | 80 |
| HLA-B*53:01 | 1 | 350 | 359 | 10 | VYAWNRKRIS 2e-06 | 77 |
| HLA-B*44:03 | 1 | 351 | 360 | 10 | YAWNRKRISN 2e-06 | 80 |
| HLA-A*02:01 | 1 | 352 | 360 | 9 | AWNKRKRISN 2e-06 | 87 |
| HLA-A*02:06 | 1 | 352 | 360 | 9 | AWNKRKRISN 2e-06 | 91 |
| HLA-A*26:01 | 1 | 352 | 360 | 9 | AWNKRKRISN 2e-06 | 85 |
| HLA-A*68:01 | 1 | 352 | 361 | 10 | AWNKRKRISNC 2e-06 | 85 |
| HLA-A*68:02 | 1 | 352 | 360 | 9 | AWNKRKRISN 2e-06 | 86 |
| HLA-B*35:01 | 1 | 352 | 360 | 9 | AWNKRKRISN 2e-06 | 75 |
| HLA-B*40:01 | 1 | 352 | 361 | 10 | AWNKRKRISNC 2e-06 | 68 |
| HLA-B*51:01 | 1 | 352 | 360 | 9 | AWNKRKRISN 2e-06 | 94 |
| HLA-B*35:01 | 1 | 353 | 362 | 10 | WNRKRISNCV 2e-06 | 75 |
| HLA-B*44:03 | 1 | 353 | 361 | 9 | WNRKRISNC 2e-06 | 80 |
| HLA-B*53:01 | 1 | 353 | 361 | 9 | WNRKRISNC 2e-06 | 77 |
| HLA-A*02:01 | 1 | 354 | 363 | 10 | NRKRISNCVA 2e-06 | 87 |
| HLA-A*11:01 | 1 | 354 | 363 | 10 | NRKRISNCVA 2e-06 | 75 |
| HLA-B*53:01 | 1 | 354 | 363 | 10 | NRKRISNCVA 2e-06 | 77 |
| HLA-A*01:01 | 1 | 355 | 364 | 10 | RKRISNCVAD 2e-06 | 99 |
| HLA-A*02:03 | 1 | 355 | 364 | 10 | RKRISNCVAD 2e-06 | 89 |
| HLA-A*02:06 | 1 | 355 | 364 | 10 | RKRISNCVAD 2e-06 | 91 |
| HLA-A*03:01 | 1 | 355 | 364 | 10 | RKRISNCVAD 2e-06 | 88 |
| HLA-B*51:01 | 1 | 355 | 364 | 10 | RKRISNCVAD 2e-06 | 94 |
| HLA-B*53:01 | 1 | 355 | 363 | 9 | RKRISNCVA 2e-06 | 77 |
| HLA-B*58:01 | 1 | 355 | 364 | 10 | RKRISNCVAD 2e-06 | 92 |
| HLA-A*02:01 | 1 | 356 | 364 | 9 | KRISNCVAD 2e-06 | 87 |
| HLA-A*11:01 | 1 | 356 | 364 | 9 | KRISNCVAD 2e-06 | 75 |
| HLA-A*68:02 | 1 | 356 | 364 | 9 | KRISNCVAD 2e-06 | 86 |
| HLA-B*53:01 | 1 | 356 | 364 | 9 | KRISNCVAD 2e-06 | 77 |
| HLA-B*44:02 | 1 | 357 | 366 | 10 | RISNCVADYS 2e-06 | 84 |
| HLA-B*44:03 | 1 | 358 | 366 | 9 | ISNCVADYS 2e-06 | 80 |
| HLA-A*11:01 | 1 | 364 | 373 | 10 | DYSVLVNSAS 2e-06 | 75 |
| HLA-B*44:03 | 1 | 364 | 373 | 10 | DYSVLVNSAS 2e-06 | 80 |
| HLA-A*11:01 | 1 | 374 | 383 | 10 | FSTFKCYGVS 2e-06 | 75 |
| HLA-A*32:01 | 1 | 374 | 383 | 10 | FSTFKCYGVS 2e-06 | 75 |
| HLA-B*44:03 | 1 | 374 | 382 | 9 | FSTFKCYGV 2e-06 | 80 |
| HLA-B*35:01 | 1 | 376 | 385 | 10 | TFKCYGVSPT 2e-06 | 75 |
| HLA-B*44:02 | 1 | 376 | 385 | 10 | TFKCYGVSPT 2e-06 | 84 |
| HLA-B*58:01 | 1 | 376 | 385 | 10 | TFKCYGVSPT 2e-06 | 92 |
| HLA-B*44:02 | 1 | 377 | 385 | 9 | FKCYGVSPT 2e-06 | 84 |
| HLA-B*44:03 | 1 | 377 | 385 | 9 | FKCYGVSPT 2e-06 | 80 |
| HLA-A*02:03 | 1 | 379 | 388 | 10 | CYGVSPKLN 2e-06 | 89 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-A*02:06 | 1 | 379 | 388 | 10 | CYGVSP TKLN 2e-06 | 91 |
| HLA-A*32:01 | 1 | 379 | 388 | 10 | CYGVSP TKLN 2e-06 | 75 |
| HLA-A*11:01 | 1 | 380 | 389 | 10 | YGVSP TKLND 2e-06 | 75 |
| HLA-A*23:01 | 1 | 380 | 389 | 10 | YGVSP TKLND 2e-06 | 76 |
| HLA-B*35:01 | 1 | 380 | 389 | 10 | YGVSP TKLND 2e-06 | 75 |
| HLA-A*24:02 | 1 | 381 | 389 | 9 | GVSPT KLND 2e-06 | 74 |
| HLA-A*23:01 | 1 | 384 | 393 | 10 | PTKLNDLCFT 2e-06 | 76 |
| HLA-A*24:02 | 1 | 384 | 393 | 10 | PTKLNDLCFT 2e-06 | 74 |
| HLA-A*24:02 | 1 | 385 | 393 | 9 | TKLNDLCFT 2e-06 | 74 |
| HLA-A*68:02 | 1 | 385 | 394 | 10 | TKLNDLCFTN 2e-06 | 86 |
| HLA-B*15:01 | 1 | 385 | 393 | 9 | TKLNDLCFT 2e-06 | 87 |
| HLA-B*40:01 | 1 | 386 | 394 | 9 | KLNDLCFTN 2e-06 | 68 |
| HLA-A*30:02 | 1 | 389 | 398 | 10 | DLCFTNVYAD 2e-06 | 98 |
| HLA-B*07:02 | 1 | 389 | 398 | 10 | DLCFTNVYAD 2e-06 | 88 |
| HLA-B*15:01 | 1 | 389 | 398 | 10 | DLCFTNVYAD 2e-06 | 87 |
| HLA-B*35:01 | 1 | 389 | 398 | 10 | DLCFTNVYAD 2e-06 | 75 |
| HLA-B*53:01 | 1 | 389 | 398 | 10 | DLCFTNVYAD 2e-06 | 77 |
| HLA-A*23:01 | 1 | 390 | 399 | 10 | LCFTNVYADS 2e-06 | 76 |
| HLA-A*24:02 | 1 | 390 | 399 | 10 | LCFTNVYADS 2e-06 | 74 |
| HLA-A*31:01 | 1 | 390 | 398 | 9 | LCFTNVYAD 2e-06 | 90 |
| HLA-A*32:01 | 1 | 390 | 398 | 9 | LCFTNVYAD 2e-06 | 75 |
| HLA-A*68:01 | 1 | 390 | 398 | 9 | LCFTNVYAD 2e-06 | 85 |
| HLA-A*68:01 | 1 | 390 | 399 | 10 | LCFTNVYADS 2e-06 | 85 |
| HLA-B*07:02 | 1 | 390 | 399 | 10 | LCFTNVYADS 2e-06 | 88 |
| HLA-B*15:01 | 1 | 390 | 399 | 10 | LCFTNVYADS 2e-06 | 87 |
| HLA-A*02:01 | 1 | 391 | 399 | 9 | CFTNVYADS 2e-06 | 87 |
| HLA-A*03:01 | 1 | 391 | 399 | 9 | CFTNVYADS 2e-06 | 88 |
| HLA-B*07:02 | 1 | 391 | 399 | 9 | CFTNVYADS 2e-06 | 88 |
| HLA-B*35:01 | 1 | 391 | 399 | 9 | CFTNVYADS 2e-06 | 75 |
| HLA-B*51:01 | 1 | 391 | 399 | 9 | CFTNVYADS 2e-06 | 94 |
| HLA-B*57:01 | 1 | 391 | 399 | 9 | CFTNVYADS 2e-06 | 97 |
| HLA-B*40:01 | 1 | 395 | 404 | 10 | VYADSFVIRG 2e-06 | 68 |
| HLA-A*26:01 | 1 | 396 | 405 | 10 | YADSFVIRGD 2e-06 | 85 |
| HLA-A*31:01 | 1 | 396 | 405 | 10 | YADSFVIRGD 2e-06 | 90 |
| HLA-A*02:01 | 1 | 397 | 405 | 9 | ADSFVIRGD 2e-06 | 87 |
| HLA-A*02:03 | 1 | 397 | 405 | 9 | ADSFVIRGD 2e-06 | 89 |
| HLA-A*03:01 | 1 | 397 | 405 | 9 | ADSFVIRGD 2e-06 | 88 |
| HLA-A*11:01 | 1 | 397 | 405 | 9 | ADSFVIRGD 2e-06 | 75 |
| HLA-B*07:02 | 1 | 397 | 405 | 9 | ADSFVIRGD 2e-06 | 88 |
| HLA-B*07:02 | 1 | 397 | 406 | 10 | ADSFVIRGDE 2e-06 | 88 |
| HLA-B*15:01 | 1 | 397 | 405 | 9 | ADSFVIRGD 2e-06 | 87 |
| HLA-B*53:01 | 1 | 397 | 405 | 9 | ADSFVIRGD 2e-06 | 77 |
| HLA-A*02:01 | 1 | 398 | 406 | 9 | DSFVIRGDE 2e-06 | 87 |
| HLA-A*23:01 | 1 | 400 | 409 | 10 | FVIRGDEV RQ 2e-06 | 76 |
| HLA-A*26:01 | 1 | 404 | 413 | 10 | GDEV RQIAPG 2e-06 | 85 |
| HLA-A*30:01 | 1 | 404 | 413 | 10 | GDEV RQIAPG 2e-06 | 98 |
| HLA-A*68:01 | 1 | 404 | 412 | 9 | GDEV RQIAP 2e-06 | 85 |
| HLA-B*51:01 | 1 | 404 | 413 | 10 | GDEV RQIAPG 2e-06 | 94 |
| HLA-A*02:03 | 1 | 405 | 413 | 9 | DEV RQIAPG 2e-06 | 89 |
| HLA-A*24:02 | 1 | 405 | 413 | 9 | DEV RQIAPG 2e-06 | 74 |
| HLA-A*32:01 | 1 | 405 | 414 | 10 | DEV RQIAPGQ 2e-06 | 75 |
| HLA-A*24:02 | 1 | 406 | 414 | 9 | EV RQIAPGQ 2e-06 | 74 |
| HLA-A*24:02 | 1 | 406 | 415 | 10 | EV RQIAPGQT 2e-06 | 74 |
| HLA-A*02:06 | 1 | 411 | 420 | 10 | APGQTGKIAD 2e-06 | 91 |
| HLA-A*11:01 | 1 | 411 | 420 | 10 | APGQTGKIAD 2e-06 | 75 |
| HLA-A*68:02 | 1 | 411 | 420 | 10 | APGQTGKIAD 2e-06 | 86 |
| HLA-A*01:01 | 1 | 412 | 420 | 9 | PGQTGKIAD 2e-06 | 99 |
| HLA-A*30:02 | 1 | 412 | 420 | 9 | PGQTGKIAD 2e-06 | 98 |
| HLA-B*51:01 | 1 | 412 | 420 | 9 | PGQTGKIAD 2e-06 | 94 |
| HLA-B*57:01 | 1 | 412 | 420 | 9 | PGQTGKIAD 2e-06 | 97 |
| HLA-B*58:01 | 1 | 412 | 420 | 9 | PGQTGKIAD 2e-06 | 92 |
| HLA-A*23:01 | 1 | 413 | 422 | 10 | GQTGKIADYN 2e-06 | 76 |
| HLA-A*24:02 | 1 | 413 | 422 | 10 | GQTGKIADYN 2e-06 | 74 |
| HLA-A*68:02 | 1 | 413 | 422 | 10 | GQTGKIADYN 2e-06 | 86 |
| HLA-B*07:02 | 1 | 413 | 422 | 10 | GQTGKIADYN 2e-06 | 88 |
| HLA-B*53:01 | 1 | 413 | 422 | 10 | GQTGKIADYN 2e-06 | 77 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-A*02:01 | 1 | 414 | 422 | 9 | QTGKIADYN 2e-06 | 87 |
| HLA-B*07:02 | 1 | 414 | 422 | 9 | QTGKIADYN 2e-06 | 88 |
| HLA-B*44:03 | 1 | 414 | 422 | 9 | QTGKIADYN 2e-06 | 80 |
| HLA-B*40:01 | 1 | 415 | 424 | 10 | TGKIADYNYK 2e-06 | 68 |
| HLA-A*02:03 | 1 | 418 | 427 | 10 | IADYNYKLPD 2e-06 | 89 |
| HLA-A*32:01 | 1 | 418 | 427 | 10 | IADYNYKLPD 2e-06 | 75 |
| HLA-A*68:02 | 1 | 418 | 427 | 10 | IADYNYKLPD 2e-06 | 86 |
| HLA-B*35:01 | 1 | 418 | 427 | 10 | IADYNYKLPD 2e-06 | 75 |
| HLA-A*02:01 | 1 | 419 | 427 | 9 | ADYNYKLPD 2e-06 | 87 |
| HLA-A*02:03 | 1 | 419 | 427 | 9 | ADYNYKLPD 2e-06 | 89 |
| HLA-A*11:01 | 1 | 419 | 427 | 9 | ADYNYKLPD 2e-06 | 75 |
| HLA-A*26:01 | 1 | 419 | 427 | 9 | ADYNYKLPD 2e-06 | 85 |
| HLA-A*68:02 | 1 | 419 | 427 | 9 | ADYNYKLPD 2e-06 | 86 |
| HLA-B*51:01 | 1 | 419 | 428 | 10 | ADYNYKLPDD 2e-06 | 94 |
| HLA-B*57:01 | 1 | 419 | 428 | 10 | ADYNYKLPDD 2e-06 | 97 |
| HLA-B*58:01 | 1 | 419 | 428 | 10 | ADYNYKLPDD 2e-06 | 92 |
| HLA-A*01:01 | 1 | 420 | 428 | 9 | DYNYKLPDD 2e-06 | 99 |
| HLA-A*68:01 | 1 | 420 | 428 | 9 | DYNYKLPDD 2e-06 | 85 |
| HLA-B*53:01 | 1 | 420 | 428 | 9 | DYNYKLPDD 2e-06 | 77 |
| HLA-A*11:01 | 1 | 422 | 431 | 10 | NYKLPDDFTG 2e-06 | 75 |
| HLA-A*32:01 | 1 | 422 | 431 | 10 | NYKLPDDFTG 2e-06 | 75 |
| HLA-B*40:01 | 1 | 422 | 430 | 9 | NYKLPDDFT 2e-06 | 68 |
| HLA-B*40:01 | 1 | 422 | 431 | 10 | NYKLPDDFTG 2e-06 | 68 |
| HLA-A*02:01 | 1 | 426 | 435 | 10 | PDDFTGCVIA 2e-06 | 87 |
| HLA-A*03:01 | 1 | 426 | 434 | 9 | PDDFTGCVI 2e-06 | 88 |
| HLA-A*24:02 | 1 | 426 | 435 | 10 | PDDFTGCVIA 2e-06 | 74 |
| HLA-A*33:01 | 1 | 426 | 435 | 10 | PDDFTGCVIA 2e-06 | 94 |
| HLA-A*68:02 | 1 | 426 | 435 | 10 | PDDFTGCVIA 2e-06 | 86 |
| HLA-B*07:02 | 1 | 426 | 435 | 10 | PDDFTGCVIA 2e-06 | 88 |
| HLA-B*35:01 | 1 | 426 | 435 | 10 | PDDFTGCVIA 2e-06 | 75 |
| HLA-B*44:02 | 1 | 426 | 435 | 10 | PDDFTGCVIA 2e-06 | 84 |
| HLA-B*44:03 | 1 | 426 | 435 | 10 | PDDFTGCVIA 2e-06 | 80 |
| HLA-A*32:01 | 1 | 427 | 435 | 9 | DDFTGCVIA 2e-06 | 75 |
| HLA-A*02:01 | 1 | 428 | 437 | 10 | DFTGCVIAWN 2e-06 | 87 |
| HLA-A*31:01 | 1 | 429 | 437 | 9 | FTGCVIAWN 2e-06 | 90 |
| HLA-A*32:01 | 1 | 429 | 437 | 9 | FTGCVIAWN 2e-06 | 75 |
| HLA-B*08:01 | 1 | 429 | 437 | 9 | FTGCVIAWN 2e-06 | 98 |
| HLA-B*53:01 | 1 | 429 | 437 | 9 | FTGCVIAWN 2e-06 | 77 |
| HLA-A*26:01 | 1 | 430 | 438 | 9 | TGCVIAWNS 2e-06 | 85 |
| HLA-A*31:01 | 1 | 430 | 439 | 10 | TGCVIAWNSN 2e-06 | 90 |
| HLA-A*02:01 | 1 | 431 | 440 | 10 | GCVIAWNSNN 2e-06 | 87 |
| HLA-A*03:01 | 1 | 431 | 439 | 9 | GCVIAWNSN 2e-06 | 88 |
| HLA-A*26:01 | 1 | 431 | 439 | 9 | GCVIAWNSN 2e-06 | 85 |
| HLA-A*31:01 | 1 | 431 | 439 | 9 | GCVIAWNSN 2e-06 | 90 |
| HLA-A*33:01 | 1 | 431 | 439 | 9 | GCVIAWNSN 2e-06 | 94 |
| HLA-A*33:01 | 1 | 431 | 440 | 10 | GCVIAWNSNN 2e-06 | 94 |
| HLA-A*68:01 | 1 | 431 | 439 | 9 | GCVIAWNSN 2e-06 | 85 |
| HLA-B*08:01 | 1 | 431 | 439 | 9 | GCVIAWNSN 2e-06 | 98 |
| HLA-A*11:01 | 1 | 433 | 442 | 10 | VIAWNSNNLD 2e-06 | 75 |
| HLA-A*24:02 | 1 | 433 | 442 | 10 | VIAWNSNNLD 2e-06 | 74 |
| HLA-B*35:01 | 1 | 433 | 442 | 10 | VIAWNSNNLD 2e-06 | 75 |
| HLA-A*11:01 | 1 | 434 | 442 | 9 | IAWNSNNLD 2e-06 | 75 |
| HLA-A*23:01 | 1 | 434 | 442 | 9 | IAWNSNNLD 2e-06 | 76 |
| HLA-A*24:02 | 1 | 434 | 442 | 9 | IAWNSNNLD 2e-06 | 74 |
| HLA-B*40:01 | 1 | 434 | 443 | 10 | IAWNSNNLDS 2e-06 | 68 |
| HLA-B*44:03 | 1 | 434 | 443 | 10 | IAWNSNNLDS 2e-06 | 80 |
| HLA-A*02:01 | 1 | 437 | 446 | 10 | NSNNLDSKVG 2e-06 | 87 |
| HLA-A*03:01 | 1 | 437 | 446 | 10 | NSNNLDSKVG 2e-06 | 88 |
| HLA-B*35:01 | 1 | 437 | 446 | 10 | NSNNLDSKVG 2e-06 | 75 |
| HLA-B*44:03 | 1 | 437 | 446 | 10 | NSNNLDSKVG 2e-06 | 80 |
| HLA-A*11:01 | 1 | 438 | 446 | 9 | SNNLDSKVG 2e-06 | 75 |
| HLA-A*11:01 | 1 | 438 | 447 | 10 | SNNLDSKVG 2e-06 | 75 |
| HLA-A*23:01 | 1 | 438 | 446 | 9 | SNNLDSKVG 2e-06 | 76 |
| HLA-A*26:01 | 1 | 438 | 447 | 10 | SNNLDSKVG 2e-06 | 85 |
| HLA-A*32:01 | 1 | 438 | 447 | 10 | SNNLDSKVG 2e-06 | 75 |
| HLA-A*33:01 | 1 | 438 | 446 | 9 | SNNLDSKVG 2e-06 | 94 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-A*68:01 | 1 | 438 | 446 | 9 | SNNLDSKVG 2e-06 | 85 |
| HLA-B*07:02 | 1 | 438 | 447 | 10 | SNNLDSKVG 2e-06 | 88 |
| HLA-B*15:01 | 1 | 438 | 447 | 10 | SNNLDSKVG 2e-06 | 87 |
| HLA-B*40:01 | 1 | 438 | 447 | 10 | SNNLDSKVG 2e-06 | 68 |
| HLA-A*02:01 | 1 | 439 | 447 | 9 | NNLDSKVG 2e-06 | 87 |
| HLA-A*03:01 | 1 | 439 | 448 | 10 | NNLDSKVG 2e-06 | 88 |
| HLA-A*24:02 | 1 | 439 | 447 | 9 | NNLDSKVG 2e-06 | 74 |
| HLA-A*31:01 | 1 | 439 | 448 | 10 | NNLDSKVG 2e-06 | 90 |
| HLA-A*32:01 | 1 | 439 | 447 | 9 | NNLDSKVG 2e-06 | 75 |
| HLA-A*68:02 | 1 | 439 | 448 | 10 | NNLDSKVG 2e-06 | 86 |
| HLA-B*15:01 | 1 | 439 | 447 | 9 | NNLDSKVG 2e-06 | 87 |
| HLA-B*44:02 | 1 | 439 | 448 | 10 | NNLDSKVG 2e-06 | 84 |
| HLA-B*44:03 | 1 | 440 | 448 | 9 | NLDSKVG 2e-06 | 80 |
| HLA-A*02:03 | 1 | 441 | 450 | 10 | LDSKVG 2e-06 | 89 |
| HLA-A*02:06 | 1 | 441 | 450 | 10 | LDSKVG 2e-06 | 91 |
| HLA-A*02:06 | 1 | 442 | 450 | 9 | DSKVG 2e-06 | 91 |
| HLA-A*32:01 | 1 | 442 | 450 | 9 | DSKVG 2e-06 | 75 |
| HLA-B*40:01 | 1 | 442 | 450 | 9 | DSKVG 2e-06 | 68 |
| HLA-B*40:01 | 1 | 448 | 457 | 10 | NYNYLRLFR 2e-06 | 68 |
| HLA-A*68:02 | 1 | 451 | 460 | 10 | YLRLFRKSN 2e-06 | 86 |
| HLA-A*26:01 | 1 | 452 | 460 | 9 | YLRLFRKSN 2e-06 | 85 |
| HLA-A*32:01 | 1 | 452 | 460 | 9 | YLRLFRKSN 2e-06 | 75 |
| HLA-A*68:01 | 1 | 452 | 460 | 9 | YLRLFRKSN 2e-06 | 85 |
| HLA-B*44:03 | 1 | 458 | 467 | 10 | KSNLKPFRD 2e-06 | 80 |
| HLA-B*07:02 | 1 | 459 | 467 | 9 | SNLKPFRD 2e-06 | 88 |
| HLA-A*23:01 | 1 | 461 | 469 | 9 | LKPFRDIS 2e-06 | 76 |
| HLA-A*31:01 | 1 | 461 | 469 | 9 | LKPFRDIS 2e-06 | 90 |
| HLA-A*33:01 | 1 | 461 | 469 | 9 | LKPFRDIS 2e-06 | 94 |
| HLA-B*15:01 | 1 | 461 | 469 | 9 | LKPFRDIS 2e-06 | 87 |
| HLA-A*02:01 | 1 | 463 | 471 | 9 | PFERDISTE 2e-06 | 87 |
| HLA-A*02:03 | 1 | 463 | 471 | 9 | PFERDISTE 2e-06 | 89 |
| HLA-B*15:01 | 1 | 463 | 471 | 9 | PFERDISTE 2e-06 | 87 |
| HLA-A*23:01 | 1 | 467 | 476 | 10 | DISTEIQAG 2e-06 | 76 |
| HLA-A*31:01 | 1 | 467 | 476 | 10 | DISTEIQAG 2e-06 | 90 |
| HLA-B*35:01 | 1 | 468 | 477 | 10 | ISTEIQAGS 2e-06 | 75 |
| HLA-B*44:02 | 1 | 468 | 477 | 10 | ISTEIQAGS 2e-06 | 84 |
| HLA-A*32:01 | 1 | 472 | 481 | 10 | IYQAGSTPCN 2e-06 | 75 |
| HLA-A*68:02 | 1 | 472 | 481 | 10 | IYQAGSTPCN 2e-06 | 86 |
| HLA-B*35:01 | 1 | 472 | 481 | 10 | IYQAGSTPCN 2e-06 | 75 |
| HLA-B*40:01 | 1 | 472 | 481 | 10 | IYQAGSTPCN 2e-06 | 68 |
| HLA-B*44:03 | 1 | 472 | 481 | 10 | IYQAGSTPCN 2e-06 | 80 |
| HLA-A*11:01 | 1 | 474 | 482 | 9 | QAGSTPCNG 2e-06 | 75 |
| HLA-A*24:02 | 1 | 474 | 482 | 9 | QAGSTPCNG 2e-06 | 74 |
| HLA-A*32:01 | 1 | 475 | 484 | 10 | AGSTPCNGVE 2e-06 | 75 |
| HLA-B*35:01 | 1 | 475 | 484 | 10 | AGSTPCNGVE 2e-06 | 75 |
| HLA-B*53:01 | 1 | 475 | 484 | 10 | AGSTPCNGVE 2e-06 | 77 |
| HLA-A*31:01 | 1 | 476 | 485 | 10 | GSTPCNGVEG 2e-06 | 90 |
| HLA-B*35:01 | 1 | 476 | 485 | 10 | GSTPCNGVEG 2e-06 | 75 |
| HLA-B*44:03 | 1 | 476 | 484 | 9 | GSTPCNGVE 2e-06 | 80 |
| HLA-B*44:03 | 1 | 476 | 485 | 10 | GSTPCNGVEG 2e-06 | 80 |
| HLA-A*02:01 | 1 | 478 | 487 | 10 | TPCNGVEGFN 2e-06 | 87 |
| HLA-A*31:01 | 1 | 478 | 487 | 10 | TPCNGVEGFN 2e-06 | 90 |
| HLA-B*40:01 | 1 | 478 | 487 | 10 | TPCNGVEGFN 2e-06 | 68 |
| HLA-A*02:01 | 1 | 479 | 488 | 10 | PCNGVEGFNC 2e-06 | 87 |
| HLA-A*02:06 | 1 | 479 | 488 | 10 | PCNGVEGFNC 2e-06 | 91 |
| HLA-A*30:02 | 1 | 479 | 488 | 10 | PCNGVEGFNC 2e-06 | 98 |
| HLA-A*68:02 | 1 | 479 | 488 | 10 | PCNGVEGFNC 2e-06 | 86 |
| HLA-B*08:01 | 1 | 479 | 488 | 10 | PCNGVEGFNC 2e-06 | 98 |
| HLA-B*51:01 | 1 | 479 | 488 | 10 | PCNGVEGFNC 2e-06 | 94 |
| HLA-A*02:03 | 1 | 480 | 488 | 9 | CNGVEGFNC 2e-06 | 89 |
| HLA-A*03:01 | 1 | 480 | 488 | 9 | CNGVEGFNC 2e-06 | 88 |
| HLA-A*68:01 | 1 | 480 | 488 | 9 | CNGVEGFNC 2e-06 | 85 |
| HLA-B*53:01 | 1 | 480 | 488 | 9 | CNGVEGFNC 2e-06 | 77 |
| HLA-A*26:01 | 1 | 483 | 491 | 9 | VEGFNCYFP 2e-06 | 85 |
| HLA-B*15:01 | 1 | 485 | 494 | 10 | GFNCYFPLQS 2e-06 | 87 |
| HLA-B*44:03 | 1 | 485 | 494 | 10 | GFNCYFPLQS 2e-06 | 80 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-B*53:01 | 1 | 485 | 493 | 9 | GFNCYFPLQ | 2e-06 | 77 |
| HLA-B*40:01 | 1 | 487 | 496 | 10 | NCYFPLQSYG | 2e-06 | 68 |
| HLA-B*40:01 | 1 | 489 | 498 | 10 | YFPLQSYGFQ | 2e-06 | 68 |
| HLA-A*02:03 | 1 | 490 | 498 | 9 | FPLQSYGFQ | 2e-06 | 89 |
| HLA-A*32:01 | 1 | 490 | 498 | 9 | FPLQSYGFQ | 2e-06 | 75 |
| HLA-A*23:01 | 1 | 491 | 500 | 10 | PLQSYGFQPT | 2e-06 | 76 |
| HLA-A*26:01 | 1 | 491 | 500 | 10 | PLQSYGFQPT | 2e-06 | 85 |
| HLA-B*40:01 | 1 | 491 | 499 | 9 | PLQSYGFQPT | 2e-06 | 68 |
| HLA-B*40:01 | 1 | 493 | 502 | 10 | QSYGFQPTNG | 2e-06 | 68 |
| HLA-A*68:01 | 1 | 496 | 504 | 9 | GFQPTNGVG | 2e-06 | 85 |
| HLA-A*02:01 | 1 | 498 | 506 | 9 | QPTNGVGYG | 2e-06 | 87 |
| HLA-A*32:01 | 1 | 498 | 506 | 9 | QPTNGVGYG | 2e-06 | 75 |
| HLA-B*58:01 | 1 | 507 | 516 | 10 | PYRVVLSFE | 2e-06 | 92 |
| HLA-A*32:01 | 1 | 508 | 516 | 9 | YRVVLSFE | 2e-06 | 75 |
| HLA-A*11:01 | 1 | 517 | 526 | 10 | LLHAPATVCG | 2e-06 | 75 |
| HLA-B*40:01 | 1 | 517 | 526 | 10 | LLHAPATVCG | 2e-06 | 68 |
| HLA-A*32:01 | 1 | 518 | 527 | 10 | LHAPATVCGP | 2e-06 | 75 |
| HLA-A*24:02 | 1 | 520 | 528 | 9 | APATVCGPK | 2e-06 | 74 |
| HLA-A*02:03 | 1 | 521 | 529 | 9 | PATVCGPKK | 2e-06 | 89 |
| HLA-A*02:03 | 1 | 521 | 530 | 10 | PATVCGPKKS | 2e-06 | 89 |
| HLA-A*02:06 | 1 | 521 | 530 | 10 | PATVCGPKKS | 2e-06 | 91 |
| HLA-A*11:01 | 1 | 521 | 530 | 10 | PATVCGPKKS | 2e-06 | 75 |
| HLA-A*23:01 | 1 | 521 | 529 | 9 | PATVCGPKK | 2e-06 | 76 |
| HLA-A*24:02 | 1 | 521 | 529 | 9 | PATVCGPKK | 2e-06 | 74 |
| HLA-A*31:01 | 1 | 521 | 530 | 10 | PATVCGPKKS | 2e-06 | 90 |
| HLA-A*68:01 | 1 | 521 | 530 | 10 | PATVCGPKKS | 2e-06 | 85 |
| HLA-B*44:03 | 1 | 521 | 529 | 9 | PATVCGPKK | 2e-06 | 80 |
| HLA-A*23:01 | 1 | 522 | 530 | 9 | ATVCGPKKS | 2e-06 | 76 |
| HLA-A*23:01 | 1 | 523 | 532 | 10 | TVCGPKKSTN | 2e-06 | 76 |
| HLA-B*44:03 | 1 | 523 | 532 | 10 | TVCGPKKSTN | 2e-06 | 80 |
| HLA-A*02:01 | 1 | 524 | 532 | 9 | VCGPKKSTN | 2e-06 | 87 |
| HLA-A*11:01 | 1 | 524 | 532 | 9 | VCGPKKSTN | 2e-06 | 75 |
| HLA-A*68:01 | 1 | 524 | 532 | 9 | VCGPKKSTN | 2e-06 | 85 |
| HLA-B*35:01 | 1 | 524 | 532 | 9 | VCGPKKSTN | 2e-06 | 75 |
| HLA-B*53:01 | 1 | 524 | 532 | 9 | VCGPKKSTN | 2e-06 | 77 |
| HLA-A*01:01 | 1 | 527 | 536 | 10 | PKKSTNLVKN | 2e-06 | 99 |
| HLA-A*24:02 | 1 | 527 | 535 | 9 | PKKSTNLVK | 2e-06 | 74 |
| HLA-A*33:01 | 1 | 527 | 536 | 10 | PKKSTNLVKN | 2e-06 | 94 |
| HLA-B*08:01 | 1 | 527 | 536 | 10 | PKKSTNLVKN | 2e-06 | 98 |
| HLA-B*53:01 | 1 | 527 | 535 | 9 | PKKSTNLVK | 2e-06 | 77 |
| HLA-A*02:01 | 1 | 528 | 536 | 9 | KKSTNLVKN | 2e-06 | 87 |
| HLA-A*68:02 | 1 | 528 | 536 | 9 | KKSTNLVKN | 2e-06 | 86 |
| HLA-B*07:02 | 1 | 528 | 536 | 9 | KKSTNLVKN | 2e-06 | 88 |
| HLA-B*35:01 | 1 | 528 | 536 | 9 | KKSTNLVKN | 2e-06 | 75 |
| HLA-B*35:01 | 1 | 528 | 537 | 10 | KKSTNLVKNK | 2e-06 | 75 |
| HLA-B*35:01 | 1 | 529 | 538 | 10 | KSTNLVKNKC | 2e-06 | 75 |
| HLA-A*02:01 | 1 | 531 | 540 | 10 | TNLVKNKCVN | 2e-06 | 87 |
| HLA-A*02:03 | 1 | 531 | 540 | 10 | TNLVKNKCVN | 2e-06 | 89 |
| HLA-A*31:01 | 1 | 531 | 540 | 10 | TNLVKNKCVN | 2e-06 | 90 |
| HLA-A*33:01 | 1 | 531 | 540 | 10 | TNLVKNKCVN | 2e-06 | 94 |
| HLA-B*51:01 | 1 | 531 | 540 | 10 | TNLVKNKCVN | 2e-06 | 94 |
| HLA-A*24:02 | 1 | 532 | 540 | 9 | NLVKNKCVN | 2e-06 | 74 |
| HLA-B*44:02 | 1 | 532 | 540 | 9 | NLVKNKCVN | 2e-06 | 84 |
| HLA-A*68:02 | 1 | 533 | 542 | 10 | LVKNKCVNFN | 2e-06 | 86 |
| HLA-B*44:02 | 1 | 533 | 542 | 10 | LVKNKCVNFN | 2e-06 | 84 |
| HLA-B*15:01 | 1 | 534 | 542 | 9 | VKNKCVNFN | 2e-06 | 87 |
| HLA-B*44:03 | 1 | 534 | 542 | 9 | VKNKCVNFN | 2e-06 | 80 |
| HLA-A*11:01 | 1 | 535 | 544 | 10 | KNKCVNFNFN | 2e-06 | 75 |
| HLA-A*68:01 | 1 | 535 | 544 | 10 | KNKCVNFNFN | 2e-06 | 85 |
| HLA-B*51:01 | 1 | 535 | 544 | 10 | KNKCVNFNFN | 2e-06 | 94 |
| HLA-A*01:01 | 1 | 536 | 545 | 10 | NKCVNFNFN | 2e-06 | 99 |
| HLA-A*26:01 | 1 | 536 | 544 | 9 | NKCVNFNFN | 2e-06 | 85 |
| HLA-A*31:01 | 1 | 536 | 544 | 9 | NKCVNFNFN | 2e-06 | 90 |
| HLA-A*68:01 | 1 | 536 | 544 | 9 | NKCVNFNFN | 2e-06 | 85 |
| HLA-B*35:01 | 1 | 536 | 544 | 9 | NKCVNFNFN | 2e-06 | 75 |
| HLA-B*44:02 | 1 | 536 | 544 | 9 | NKCVNFNFN | 2e-06 | 84 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-B*53:01 | 1 | 536 | 544 | 9 | NKCVNFNFN | 2e-06 | 77 |
| HLA-A*23:01 | 1 | 537 | 545 | 9 | KCVNFNFN | 2e-06 | 76 |
| HLA-A*68:01 | 1 | 537 | 545 | 9 | KCVNFNFN | 2e-06 | 85 |
| HLA-B*07:02 | 1 | 537 | 545 | 9 | KCVNFNFN | 2e-06 | 88 |
| HLA-B*40:01 | 1 | 537 | 545 | 9 | KCVNFNFN | 2e-06 | 68 |
| HLA-B*44:03 | 1 | 541 | 550 | 10 | FNFNGLTGTG | 2e-06 | 80 |
| HLA-A*11:01 | 1 | 542 | 550 | 9 | NFNGLTGTG | 2e-06 | 75 |
| HLA-B*40:01 | 1 | 542 | 550 | 9 | NFNGLTGTG | 2e-06 | 68 |
| HLA-A*11:01 | 1 | 543 | 552 | 10 | FNGLTGTGVL | 2e-06 | 75 |
| HLA-A*32:01 | 1 | 544 | 553 | 10 | NGLTGTGVL | 2e-06 | 75 |
| HLA-A*02:01 | 1 | 547 | 556 | 10 | TGTGVLTESN | 2e-06 | 87 |
| HLA-A*02:03 | 1 | 547 | 556 | 10 | TGTGVLTESN | 2e-06 | 89 |
| HLA-A*03:01 | 1 | 547 | 556 | 10 | TGTGVLTESN | 2e-06 | 88 |
| HLA-A*11:01 | 1 | 547 | 556 | 10 | TGTGVLTESN | 2e-06 | 75 |
| HLA-A*26:01 | 1 | 547 | 556 | 10 | TGTGVLTESN | 2e-06 | 85 |
| HLA-A*31:01 | 1 | 547 | 556 | 10 | TGTGVLTESN | 2e-06 | 90 |
| HLA-B*07:02 | 1 | 547 | 556 | 10 | TGTGVLTESN | 2e-06 | 88 |
| HLA-B*07:02 | 1 | 548 | 556 | 9 | GTGVLTESN | 2e-06 | 88 |
| HLA-B*40:01 | 1 | 548 | 556 | 9 | GTGVLTESN | 2e-06 | 68 |
| HLA-B*40:01 | 1 | 554 | 563 | 10 | ESNKKFLPFQ | 2e-06 | 68 |
| HLA-A*23:01 | 1 | 555 | 564 | 10 | SNKKFLPFQ | 2e-06 | 76 |
| HLA-B*35:01 | 1 | 555 | 564 | 10 | SNKKFLPFQ | 2e-06 | 75 |
| HLA-B*53:01 | 1 | 555 | 564 | 10 | SNKKFLPFQ | 2e-06 | 77 |
| HLA-A*02:01 | 1 | 556 | 564 | 9 | NKKFLPFQ | 2e-06 | 87 |
| HLA-A*02:01 | 1 | 560 | 568 | 9 | LPFQFGRD | 2e-06 | 87 |
| HLA-A*31:01 | 1 | 560 | 568 | 9 | LPFQFGRD | 2e-06 | 90 |
| HLA-A*26:01 | 1 | 561 | 570 | 10 | PFQFGRDIA | 2e-06 | 85 |
| HLA-B*35:01 | 1 | 561 | 570 | 10 | PFQFGRDIA | 2e-06 | 75 |
| HLA-B*40:01 | 1 | 561 | 570 | 10 | PFQFGRDIA | 2e-06 | 68 |
| HLA-B*44:02 | 1 | 561 | 570 | 10 | PFQFGRDIA | 2e-06 | 84 |
| HLA-B*44:03 | 1 | 561 | 570 | 10 | PFQFGRDIA | 2e-06 | 80 |
| HLA-B*58:01 | 1 | 561 | 570 | 10 | PFQFGRDIA | 2e-06 | 92 |
| HLA-B*44:02 | 1 | 562 | 571 | 10 | FQFGRDIAD | 2e-06 | 84 |
| HLA-B*44:03 | 1 | 562 | 571 | 10 | FQFGRDIAD | 2e-06 | 80 |
| HLA-A*68:01 | 1 | 564 | 572 | 9 | QFGRDIADT | 2e-06 | 85 |
| HLA-A*02:01 | 1 | 565 | 574 | 10 | FGRDIADTTD | 2e-06 | 87 |
| HLA-A*03:01 | 1 | 565 | 574 | 10 | FGRDIADTTD | 2e-06 | 88 |
| HLA-B*44:02 | 1 | 565 | 574 | 10 | FGRDIADTTD | 2e-06 | 84 |
| HLA-B*44:03 | 1 | 565 | 574 | 10 | FGRDIADTTD | 2e-06 | 80 |
| HLA-A*02:03 | 1 | 566 | 574 | 9 | GRDIADTTD | 2e-06 | 89 |
| HLA-A*26:01 | 1 | 566 | 574 | 9 | GRDIADTTD | 2e-06 | 85 |
| HLA-A*31:01 | 1 | 566 | 574 | 9 | GRDIADTTD | 2e-06 | 90 |
| HLA-B*15:01 | 1 | 566 | 574 | 9 | GRDIADTTD | 2e-06 | 87 |
| HLA-A*02:03 | 1 | 569 | 578 | 10 | IADTTDAVRD | 2e-06 | 89 |
| HLA-A*26:01 | 1 | 569 | 578 | 10 | IADTTDAVRD | 2e-06 | 85 |
| HLA-B*15:01 | 1 | 569 | 578 | 10 | IADTTDAVRD | 2e-06 | 87 |
| HLA-B*44:03 | 1 | 569 | 578 | 10 | IADTTDAVRD | 2e-06 | 80 |
| HLA-B*35:01 | 1 | 570 | 579 | 10 | ADTTDAVRDP | 2e-06 | 75 |
| HLA-B*40:01 | 1 | 570 | 578 | 9 | ADTTDAVRD | 2e-06 | 68 |
| HLA-A*32:01 | 1 | 571 | 580 | 10 | DTTDAVRDPQ | 2e-06 | 75 |
| HLA-A*23:01 | 1 | 572 | 580 | 9 | TTDAVRDPQ | 2e-06 | 76 |
| HLA-A*24:02 | 1 | 572 | 580 | 9 | TTDAVRDPQ | 2e-06 | 74 |
| HLA-A*31:01 | 1 | 577 | 586 | 10 | RDPQTLEILD | 2e-06 | 90 |
| HLA-A*32:01 | 1 | 577 | 586 | 10 | RDPQTLEILD | 2e-06 | 75 |
| HLA-A*33:01 | 1 | 577 | 586 | 10 | RDPQTLEILD | 2e-06 | 94 |
| HLA-A*68:01 | 1 | 577 | 586 | 10 | RDPQTLEILD | 2e-06 | 85 |
| HLA-B*15:01 | 1 | 577 | 586 | 10 | RDPQTLEILD | 2e-06 | 87 |
| HLA-A*02:06 | 1 | 578 | 586 | 9 | DPQTLEILD | 2e-06 | 91 |
| HLA-A*03:01 | 1 | 578 | 586 | 9 | DPQTLEILD | 2e-06 | 88 |
| HLA-A*26:01 | 1 | 578 | 586 | 9 | DPQTLEILD | 2e-06 | 85 |
| HLA-A*32:01 | 1 | 578 | 586 | 9 | DPQTLEILD | 2e-06 | 75 |
| HLA-B*15:01 | 1 | 578 | 586 | 9 | DPQTLEILD | 2e-06 | 87 |
| HLA-A*03:01 | 1 | 579 | 588 | 10 | PQTLEILDIT | 2e-06 | 88 |
| HLA-A*23:01 | 1 | 579 | 588 | 10 | PQTLEILDIT | 2e-06 | 76 |
| HLA-A*26:01 | 1 | 579 | 588 | 10 | PQTLEILDIT | 2e-06 | 85 |
| HLA-A*31:01 | 1 | 579 | 588 | 10 | PQTLEILDIT | 2e-06 | 90 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-B*15:01 | 1 | 579 | 588 | 10 | PQLEILDIT 2e-06 | 87 |
| HLA-B*53:01 | 1 | 579 | 588 | 10 | PQLEILDIT 2e-06 | 77 |
| HLA-A*23:01 | 1 | 582 | 591 | 10 | LEILDITPCS 2e-06 | 76 |
| HLA-A*02:01 | 1 | 585 | 593 | 9 | LDITPCSF 2e-06 | 87 |
| HLA-A*03:01 | 1 | 585 | 594 | 10 | LDITPCSF 2e-06 | 88 |
| HLA-A*11:01 | 1 | 585 | 593 | 9 | LDITPCSF 2e-06 | 75 |
| HLA-A*23:01 | 1 | 585 | 593 | 9 | LDITPCSF 2e-06 | 76 |
| HLA-A*31:01 | 1 | 585 | 593 | 9 | LDITPCSF 2e-06 | 90 |
| HLA-A*32:01 | 1 | 585 | 593 | 9 | LDITPCSF 2e-06 | 75 |
| HLA-A*68:01 | 1 | 585 | 594 | 10 | LDITPCSF 2e-06 | 85 |
| HLA-B*15:01 | 1 | 585 | 594 | 10 | LDITPCSF 2e-06 | 87 |
| HLA-A*32:01 | 1 | 586 | 594 | 9 | DITPCSF 2e-06 | 75 |
| HLA-B*15:01 | 1 | 586 | 594 | 9 | DITPCSF 2e-06 | 87 |
| HLA-B*44:02 | 1 | 586 | 594 | 9 | DITPCSF 2e-06 | 84 |
| HLA-A*24:02 | 1 | 587 | 596 | 10 | ITPCSF 2e-06 | 74 |
| HLA-A*32:01 | 1 | 588 | 596 | 9 | TPCSF 2e-06 | 75 |
| HLA-A*11:01 | 1 | 589 | 597 | 9 | PCSF 2e-06 | 75 |
| HLA-A*11:01 | 1 | 589 | 598 | 10 | PCSF 2e-06 | 75 |
| HLA-B*40:01 | 1 | 590 | 599 | 10 | CSF 2e-06 | 68 |
| HLA-B*44:03 | 1 | 590 | 599 | 10 | CSF 2e-06 | 80 |
| HLA-A*01:01 | 1 | 592 | 601 | 10 | FGV 2e-06 | 99 |
| HLA-B*07:02 | 1 | 592 | 601 | 10 | FGV 2e-06 | 88 |
| HLA-A*23:01 | 1 | 593 | 601 | 9 | GGV 2e-06 | 76 |
| HLA-A*26:01 | 1 | 593 | 601 | 9 | GGV 2e-06 | 85 |
| HLA-B*40:01 | 1 | 593 | 602 | 10 | GGV 2e-06 | 68 |
| HLA-B*44:03 | 1 | 593 | 602 | 10 | GGV 2e-06 | 80 |
| HLA-A*33:01 | 1 | 594 | 603 | 10 | GVS 2e-06 | 94 |
| HLA-B*44:03 | 1 | 595 | 603 | 9 | VSV 2e-06 | 80 |
| HLA-B*44:03 | 1 | 597 | 606 | 10 | VIT 2e-06 | 80 |
| HLA-B*40:01 | 1 | 598 | 606 | 9 | ITP 2e-06 | 68 |
| HLA-B*44:03 | 1 | 598 | 606 | 9 | ITP 2e-06 | 80 |
| HLA-A*02:01 | 1 | 599 | 607 | 9 | TPG 2e-06 | 87 |
| HLA-A*11:01 | 1 | 600 | 608 | 9 | PGT 2e-06 | 75 |
| HLA-B*35:01 | 1 | 600 | 609 | 10 | PGT 2e-06 | 75 |
| HLA-B*44:03 | 1 | 600 | 609 | 10 | PGT 2e-06 | 80 |
| HLA-B*53:01 | 1 | 600 | 609 | 10 | PGT 2e-06 | 77 |
| HLA-A*11:01 | 1 | 605 | 614 | 10 | SNQ 2e-06 | 75 |
| HLA-A*26:01 | 1 | 605 | 614 | 10 | SNQ 2e-06 | 85 |
| HLA-A*11:01 | 1 | 606 | 614 | 9 | NQV 2e-06 | 75 |
| HLA-A*02:01 | 1 | 607 | 616 | 10 | QVAV 2e-06 | 87 |
| HLA-A*03:01 | 1 | 607 | 616 | 10 | QVAV 2e-06 | 88 |
| HLA-A*31:01 | 1 | 607 | 616 | 10 | QVAV 2e-06 | 90 |
| HLA-A*33:01 | 1 | 607 | 616 | 10 | QVAV 2e-06 | 94 |
| HLA-B*07:02 | 1 | 607 | 616 | 10 | QVAV 2e-06 | 88 |
| HLA-B*44:02 | 1 | 607 | 616 | 10 | QVAV 2e-06 | 84 |
| HLA-B*53:01 | 1 | 607 | 616 | 10 | QVAV 2e-06 | 77 |
| HLA-A*03:01 | 1 | 608 | 616 | 9 | VAV 2e-06 | 88 |
| HLA-A*23:01 | 1 | 608 | 617 | 10 | VAV 2e-06 | 76 |
| HLA-A*24:02 | 1 | 608 | 617 | 10 | VAV 2e-06 | 74 |
| HLA-A*26:01 | 1 | 608 | 616 | 9 | VAV 2e-06 | 85 |
| HLA-A*33:01 | 1 | 608 | 616 | 9 | VAV 2e-06 | 94 |
| HLA-B*44:02 | 1 | 608 | 616 | 9 | VAV 2e-06 | 84 |
| HLA-A*23:01 | 1 | 609 | 618 | 10 | AVLY 2e-06 | 76 |
| HLA-A*24:02 | 1 | 609 | 618 | 10 | AVLY 2e-06 | 74 |
| HLA-A*11:01 | 1 | 612 | 621 | 10 | YQDV 2e-06 | 75 |
| HLA-A*32:01 | 1 | 612 | 621 | 10 | YQDV 2e-06 | 75 |
| HLA-A*31:01 | 1 | 613 | 621 | 9 | QDV 2e-06 | 90 |
| HLA-A*32:01 | 1 | 613 | 621 | 9 | QDV 2e-06 | 75 |
| HLA-A*23:01 | 1 | 614 | 623 | 10 | DVN 2e-06 | 76 |
| HLA-A*24:02 | 1 | 614 | 623 | 10 | DVN 2e-06 | 74 |
| HLA-A*32:01 | 1 | 614 | 623 | 10 | DVN 2e-06 | 75 |
| HLA-A*23:01 | 1 | 616 | 625 | 10 | NCTE 2e-06 | 76 |
| HLA-A*24:02 | 1 | 616 | 625 | 10 | NCTE 2e-06 | 74 |
| HLA-A*32:01 | 1 | 619 | 627 | 9 | EVPA 2e-06 | 75 |
| HLA-A*02:01 | 1 | 620 | 628 | 9 | VPVA 2e-06 | 87 |
| HLA-A*23:01 | 1 | 620 | 628 | 9 | VPVA 2e-06 | 76 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-B*15:01 | 1 | 621 | 630 | 10 | PVAIHADQLT 2e-06 | 87 |
| HLA-B*44:02 | 1 | 629 | 638 | 10 | LTPTWRVYST 2e-06 | 84 |
| HLA-B*44:03 | 1 | 629 | 637 | 9 | LTPTWRVYS 2e-06 | 80 |
| HLA-A*11:01 | 1 | 631 | 640 | 10 | PTWRVYSTGS 2e-06 | 75 |
| HLA-A*23:01 | 1 | 631 | 640 | 10 | PTWRVYSTGS 2e-06 | 76 |
| HLA-A*24:02 | 1 | 631 | 640 | 10 | PTWRVYSTGS 2e-06 | 74 |
| HLA-A*26:01 | 1 | 631 | 640 | 10 | PTWRVYSTGS 2e-06 | 85 |
| HLA-B*15:01 | 1 | 631 | 640 | 10 | PTWRVYSTGS 2e-06 | 87 |
| HLA-B*44:03 | 1 | 631 | 639 | 9 | PTWRVYSTG 2e-06 | 80 |
| HLA-B*51:01 | 1 | 631 | 640 | 10 | PTWRVYSTGS 2e-06 | 94 |
| HLA-A*02:01 | 1 | 632 | 640 | 9 | TWRVYSTGS 2e-06 | 87 |
| HLA-B*15:01 | 1 | 632 | 641 | 10 | TWRVYSTGSN 2e-06 | 87 |
| HLA-B*51:01 | 1 | 632 | 641 | 10 | TWRVYSTGSN 2e-06 | 94 |
| HLA-B*58:01 | 1 | 632 | 640 | 9 | TWRVYSTGS 2e-06 | 92 |
| HLA-B*58:01 | 1 | 633 | 641 | 9 | WRVYSTGSN 2e-06 | 92 |
| HLA-A*26:01 | 1 | 639 | 648 | 10 | GSNVFQTRAG 2e-06 | 85 |
| HLA-A*23:01 | 1 | 640 | 648 | 9 | SNVFQTRAG 2e-06 | 76 |
| HLA-A*24:02 | 1 | 640 | 648 | 9 | SNVFQTRAG 2e-06 | 74 |
| HLA-B*35:01 | 1 | 642 | 651 | 10 | VFQTRAGCLI 2e-06 | 75 |
| HLA-A*03:01 | 1 | 643 | 652 | 10 | FQTRAGCLIG 2e-06 | 88 |
| HLA-A*31:01 | 1 | 643 | 652 | 10 | FQTRAGCLIG 2e-06 | 90 |
| HLA-A*68:01 | 1 | 643 | 652 | 10 | FQTRAGCLIG 2e-06 | 85 |
| HLA-B*35:01 | 1 | 643 | 652 | 10 | FQTRAGCLIG 2e-06 | 75 |
| HLA-B*44:02 | 1 | 643 | 652 | 10 | FQTRAGCLIG 2e-06 | 84 |
| HLA-B*44:03 | 1 | 643 | 652 | 10 | FQTRAGCLIG 2e-06 | 80 |
| HLA-B*53:01 | 1 | 643 | 652 | 10 | FQTRAGCLIG 2e-06 | 77 |
| HLA-A*24:02 | 1 | 645 | 654 | 10 | TRAGCLIGAE 2e-06 | 74 |
| HLA-B*40:01 | 1 | 645 | 654 | 10 | TRAGCLIGAE 2e-06 | 68 |
| HLA-A*23:01 | 1 | 646 | 655 | 10 | RAGCLIGAEH 2e-06 | 76 |
| HLA-A*26:01 | 1 | 648 | 657 | 10 | GCLIGAEHVN 2e-06 | 85 |
| HLA-A*68:02 | 1 | 648 | 657 | 10 | GCLIGAEHVN 2e-06 | 86 |
| HLA-B*44:02 | 1 | 649 | 657 | 9 | CLIGAEHVN 2e-06 | 84 |
| HLA-B*44:03 | 1 | 649 | 657 | 9 | CLIGAEHVN 2e-06 | 80 |
| HLA-B*53:01 | 1 | 649 | 658 | 10 | CLIGAEHVNN 2e-06 | 77 |
| HLA-A*23:01 | 1 | 650 | 659 | 10 | LIGAEHVNNS 2e-06 | 76 |
| HLA-B*44:02 | 1 | 650 | 658 | 9 | LIGAEHVNN 2e-06 | 84 |
| HLA-A*02:01 | 1 | 654 | 663 | 10 | EHVNNSYECD 2e-06 | 87 |
| HLA-A*02:06 | 1 | 654 | 663 | 10 | EHVNNSYECD 2e-06 | 91 |
| HLA-A*24:02 | 1 | 654 | 663 | 10 | EHVNNSYECD 2e-06 | 74 |
| HLA-A*26:01 | 1 | 654 | 663 | 10 | EHVNNSYECD 2e-06 | 85 |
| HLA-A*33:01 | 1 | 654 | 663 | 10 | EHVNNSYECD 2e-06 | 94 |
| HLA-B*44:02 | 1 | 654 | 663 | 10 | EHVNNSYECD 2e-06 | 84 |
| HLA-B*44:03 | 1 | 654 | 663 | 10 | EHVNNSYECD 2e-06 | 80 |
| HLA-A*03:01 | 1 | 655 | 663 | 9 | HVNNSYECD 2e-06 | 88 |
| HLA-A*23:01 | 1 | 655 | 663 | 9 | HVNNSYECD 2e-06 | 76 |
| HLA-B*44:02 | 1 | 655 | 663 | 9 | HVNNSYECD 2e-06 | 84 |
| HLA-A*02:01 | 1 | 656 | 665 | 10 | VNNSYECDIP 2e-06 | 87 |
| HLA-A*11:01 | 1 | 656 | 664 | 9 | VNNSYECDI 2e-06 | 75 |
| HLA-A*24:02 | 1 | 656 | 665 | 10 | VNNSYECDIP 2e-06 | 74 |
| HLA-A*68:02 | 1 | 656 | 665 | 10 | VNNSYECDIP 2e-06 | 86 |
| HLA-B*44:02 | 1 | 656 | 665 | 10 | VNNSYECDIP 2e-06 | 84 |
| HLA-B*44:03 | 1 | 656 | 665 | 10 | VNNSYECDIP 2e-06 | 80 |
| HLA-A*02:03 | 1 | 657 | 665 | 9 | NNSYECDIP 2e-06 | 89 |
| HLA-A*24:02 | 1 | 657 | 665 | 9 | NNSYECDIP 2e-06 | 74 |
| HLA-A*68:01 | 1 | 657 | 665 | 9 | NNSYECDIP 2e-06 | 85 |
| HLA-B*44:02 | 1 | 657 | 665 | 9 | NNSYECDIP 2e-06 | 84 |
| HLA-B*44:03 | 1 | 657 | 665 | 9 | NNSYECDIP 2e-06 | 80 |
| HLA-A*02:01 | 1 | 659 | 667 | 9 | SYECDIPIG 2e-06 | 87 |
| HLA-A*11:01 | 1 | 659 | 667 | 9 | SYECDIPIG 2e-06 | 75 |
| HLA-A*11:01 | 1 | 660 | 669 | 10 | YECDIPIGAG 2e-06 | 75 |
| HLA-A*24:02 | 1 | 660 | 669 | 10 | YECDIPIGAG 2e-06 | 74 |
| HLA-A*32:01 | 1 | 660 | 669 | 10 | YECDIPIGAG 2e-06 | 75 |
| HLA-A*23:01 | 1 | 662 | 671 | 10 | CDIPIGAGIC 2e-06 | 76 |
| HLA-A*32:01 | 1 | 663 | 672 | 10 | DIPIGAGICA 2e-06 | 75 |
| HLA-B*40:01 | 1 | 663 | 671 | 9 | DIPIGAGIC 2e-06 | 68 |
| HLA-B*44:02 | 1 | 663 | 671 | 9 | DIPIGAGIC 2e-06 | 84 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-B*44:03 | 1 | 663 | 671 | 9 | DIPIGAGIC | 2e-06 | 80 |
| HLA-B*51:01 | 1 | 665 | 673 | 9 | PIGAGICAS | 2e-06 | 94 |
| HLA-B*58:01 | 1 | 665 | 673 | 9 | PIGAGICAS | 2e-06 | 92 |
| HLA-A*03:01 | 1 | 667 | 676 | 10 | GAGICASYQT | 2e-06 | 88 |
| HLA-A*11:01 | 1 | 667 | 676 | 10 | GAGICASYQT | 2e-06 | 75 |
| HLA-A*26:01 | 1 | 667 | 676 | 10 | GAGICASYQT | 2e-06 | 85 |
| HLA-A*32:01 | 1 | 667 | 675 | 9 | GAGICASYQ | 2e-06 | 75 |
| HLA-B*35:01 | 1 | 667 | 676 | 10 | GAGICASYQT | 2e-06 | 75 |
| HLA-B*44:02 | 1 | 667 | 675 | 9 | GAGICASYQ | 2e-06 | 84 |
| HLA-B*44:02 | 1 | 667 | 676 | 10 | GAGICASYQT | 2e-06 | 84 |
| HLA-B*44:03 | 1 | 667 | 676 | 10 | GAGICASYQT | 2e-06 | 80 |
| HLA-B*53:01 | 1 | 667 | 676 | 10 | GAGICASYQT | 2e-06 | 77 |
| HLA-A*23:01 | 1 | 668 | 677 | 10 | AGICASYQTQ | 2e-06 | 76 |
| HLA-A*24:02 | 1 | 668 | 677 | 10 | AGICASYQTQ | 2e-06 | 74 |
| HLA-B*35:01 | 1 | 669 | 678 | 10 | GICASYQTQT | 2e-06 | 75 |
| HLA-B*40:01 | 1 | 669 | 678 | 10 | GICASYQTQT | 2e-06 | 68 |
| HLA-A*02:01 | 1 | 670 | 679 | 10 | ICASYQTQTN | 2e-06 | 87 |
| HLA-A*03:01 | 1 | 670 | 679 | 10 | ICASYQTQTN | 2e-06 | 88 |
| HLA-A*31:01 | 1 | 670 | 679 | 10 | ICASYQTQTN | 2e-06 | 90 |
| HLA-A*33:01 | 1 | 670 | 679 | 10 | ICASYQTQTN | 2e-06 | 94 |
| HLA-A*68:02 | 1 | 670 | 679 | 10 | ICASYQTQTN | 2e-06 | 86 |
| HLA-B*07:02 | 1 | 670 | 679 | 10 | ICASYQTQTN | 2e-06 | 88 |
| HLA-A*02:06 | 1 | 681 | 689 | 9 | PRRARSVAS | 2e-06 | 91 |
| HLA-A*11:01 | 1 | 681 | 690 | 10 | PRRARSVASQ | 2e-06 | 75 |
| HLA-A*23:01 | 1 | 681 | 689 | 9 | PRRARSVAS | 2e-06 | 76 |
| HLA-A*24:02 | 1 | 681 | 689 | 9 | PRRARSVAS | 2e-06 | 74 |
| HLA-B*44:02 | 1 | 681 | 689 | 9 | PRRARSVAS | 2e-06 | 84 |
| HLA-B*44:02 | 1 | 681 | 690 | 10 | PRRARSVASQ | 2e-06 | 84 |
| HLA-B*44:03 | 1 | 681 | 690 | 10 | PRRARSVASQ | 2e-06 | 80 |
| HLA-B*51:01 | 1 | 681 | 690 | 10 | PRRARSVASQ | 2e-06 | 94 |
| HLA-A*23:01 | 1 | 692 | 701 | 10 | IIAYTMSLGA | 2e-06 | 76 |
| HLA-A*24:02 | 1 | 692 | 700 | 9 | IIAYTMSLG | 2e-06 | 74 |
| HLA-A*24:02 | 1 | 692 | 701 | 10 | IIAYTMSLGA | 2e-06 | 74 |
| HLA-B*40:01 | 1 | 693 | 702 | 10 | IAYTMSLGAE | 2e-06 | 68 |
| HLA-B*44:02 | 1 | 693 | 702 | 10 | IAYTMSLGAE | 2e-06 | 84 |
| HLA-A*02:01 | 1 | 694 | 702 | 9 | AYTMSLGAE | 2e-06 | 87 |
| HLA-B*53:01 | 1 | 694 | 702 | 9 | AYTMSLGAE | 2e-06 | 77 |
| HLA-A*23:01 | 1 | 699 | 708 | 10 | LGAENSVAYS | 2e-06 | 76 |
| HLA-A*24:02 | 1 | 699 | 708 | 10 | LGAENSVAYS | 2e-06 | 74 |
| HLA-B*40:01 | 1 | 699 | 708 | 10 | LGAENSVAYS | 2e-06 | 68 |
| HLA-A*02:01 | 1 | 700 | 709 | 10 | GAENSVAYSN | 2e-06 | 87 |
| HLA-A*02:03 | 1 | 700 | 709 | 10 | GAENSVAYSN | 2e-06 | 89 |
| HLA-A*68:02 | 1 | 700 | 709 | 10 | GAENSVAYSN | 2e-06 | 86 |
| HLA-B*35:01 | 1 | 700 | 709 | 10 | GAENSVAYSN | 2e-06 | 75 |
| HLA-A*11:01 | 1 | 701 | 710 | 10 | AENSVAYSNN | 2e-06 | 75 |
| HLA-A*32:01 | 1 | 701 | 710 | 10 | AENSVAYSNN | 2e-06 | 75 |
| HLA-B*07:02 | 1 | 701 | 710 | 10 | AENSVAYSNN | 2e-06 | 88 |
| HLA-A*03:01 | 1 | 702 | 710 | 9 | ENSVAYSNN | 2e-06 | 88 |
| HLA-A*11:01 | 1 | 702 | 710 | 9 | ENSVAYSNN | 2e-06 | 75 |
| HLA-A*11:01 | 1 | 702 | 711 | 10 | ENSVAYSNNS | 2e-06 | 75 |
| HLA-A*32:01 | 1 | 702 | 710 | 9 | ENSVAYSNN | 2e-06 | 75 |
| HLA-B*07:02 | 1 | 702 | 711 | 10 | ENSVAYSNNS | 2e-06 | 88 |
| HLA-B*35:01 | 1 | 702 | 710 | 9 | ENSVAYSNN | 2e-06 | 75 |
| HLA-B*35:01 | 1 | 702 | 711 | 10 | ENSVAYSNNS | 2e-06 | 75 |
| HLA-B*53:01 | 1 | 702 | 710 | 9 | ENSVAYSNN | 2e-06 | 77 |
| HLA-A*23:01 | 1 | 703 | 711 | 9 | NSVAYSNNS | 2e-06 | 76 |
| HLA-A*24:02 | 1 | 703 | 711 | 9 | NSVAYSNNS | 2e-06 | 74 |
| HLA-A*23:01 | 1 | 707 | 716 | 10 | YSNNSIAIPT | 2e-06 | 76 |
| HLA-A*24:02 | 1 | 707 | 716 | 10 | YSNNSIAIPT | 2e-06 | 74 |
| HLA-A*23:01 | 1 | 708 | 717 | 10 | SNNSIAIPTN | 2e-06 | 76 |
| HLA-B*07:02 | 1 | 708 | 717 | 10 | SNNSIAIPTN | 2e-06 | 88 |
| HLA-B*53:01 | 1 | 708 | 717 | 10 | SNNSIAIPTN | 2e-06 | 77 |
| HLA-B*40:01 | 1 | 709 | 717 | 9 | NNSIAIPTN | 2e-06 | 68 |
| HLA-A*24:02 | 1 | 714 | 723 | 10 | IPTNFTISVT | 2e-06 | 74 |
| HLA-A*23:01 | 1 | 715 | 723 | 9 | PTNFTISVT | 2e-06 | 76 |
| HLA-B*44:02 | 1 | 715 | 723 | 9 | PTNFTISVT | 2e-06 | 84 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-A*24:02 | 1 | 721 | 730 | 10 | SVTTEILPVS 2e-06 | 74 |
| HLA-A*02:01 | 1 | 728 | 737 | 10 | PVSMTKTSVD 2e-06 | 87 |
| HLA-B*07:02 | 1 | 728 | 737 | 10 | PVSMTKTSVD 2e-06 | 88 |
| HLA-B*40:01 | 1 | 729 | 738 | 10 | VSMTKTSVDC 2e-06 | 68 |
| HLA-A*23:01 | 1 | 730 | 739 | 10 | SMTKTSVDCT 2e-06 | 76 |
| HLA-A*24:02 | 1 | 730 | 739 | 10 | SMTKTSVDCT 2e-06 | 74 |
| HLA-B*35:01 | 1 | 730 | 739 | 10 | SMTKTSVDCT 2e-06 | 75 |
| HLA-B*40:01 | 1 | 730 | 739 | 10 | SMTKTSVDCT 2e-06 | 68 |
| HLA-B*44:03 | 1 | 734 | 743 | 10 | TSVDCTMYIC 2e-06 | 80 |
| HLA-A*03:01 | 1 | 735 | 744 | 10 | SVDCTMYICG 2e-06 | 88 |
| HLA-B*51:01 | 1 | 735 | 744 | 10 | SVDCTMYICG 2e-06 | 94 |
| HLA-A*02:03 | 1 | 736 | 744 | 9 | VDCTMYICG 2e-06 | 89 |
| HLA-A*02:06 | 1 | 736 | 744 | 9 | VDCTMYICG 2e-06 | 91 |
| HLA-A*33:01 | 1 | 736 | 744 | 9 | VDCTMYICG 2e-06 | 94 |
| HLA-B*44:02 | 1 | 736 | 744 | 9 | VDCTMYICG 2e-06 | 84 |
| HLA-B*44:03 | 1 | 736 | 744 | 9 | VDCTMYICG 2e-06 | 80 |
| HLA-B*57:01 | 1 | 736 | 745 | 10 | VDCTMYICGD 2e-06 | 97 |
| HLA-A*02:03 | 1 | 737 | 746 | 10 | DCTMYICGDS 2e-06 | 89 |
| HLA-A*30:02 | 1 | 737 | 746 | 10 | DCTMYICGDS 2e-06 | 98 |
| HLA-A*33:01 | 1 | 737 | 746 | 10 | DCTMYICGDS 2e-06 | 94 |
| HLA-B*08:01 | 1 | 737 | 745 | 9 | DCTMYICGD 2e-06 | 98 |
| HLA-B*07:02 | 1 | 738 | 746 | 9 | CTMYICGDS 2e-06 | 88 |
| HLA-B*08:01 | 1 | 738 | 746 | 9 | CTMYICGDS 2e-06 | 98 |
| HLA-B*15:01 | 1 | 738 | 746 | 9 | CTMYICGDS 2e-06 | 87 |
| HLA-B*53:01 | 1 | 738 | 747 | 10 | CTMYICGDST 2e-06 | 77 |
| HLA-B*40:01 | 1 | 739 | 748 | 10 | TMYICGDSTE 2e-06 | 68 |
| HLA-B*44:02 | 1 | 741 | 750 | 10 | YICGDSTECS 2e-06 | 84 |
| HLA-B*07:02 | 1 | 742 | 750 | 9 | ICGDSTECS 2e-06 | 88 |
| HLA-A*11:01 | 1 | 743 | 751 | 9 | CGDSTECSN 2e-06 | 75 |
| HLA-B*07:02 | 1 | 743 | 751 | 9 | CGDSTECSN 2e-06 | 88 |
| HLA-B*08:01 | 1 | 743 | 751 | 9 | CGDSTECSN 2e-06 | 98 |
| HLA-B*35:01 | 1 | 743 | 751 | 9 | CGDSTECSN 2e-06 | 75 |
| HLA-A*23:01 | 1 | 749 | 757 | 9 | CSNLLLQYG 2e-06 | 76 |
| HLA-A*26:01 | 1 | 749 | 758 | 10 | CSNLLLQYGS 2e-06 | 85 |
| HLA-A*32:01 | 1 | 749 | 758 | 10 | CSNLLLQYGS 2e-06 | 75 |
| HLA-B*08:01 | 1 | 749 | 758 | 10 | CSNLLLQYGS 2e-06 | 98 |
| HLA-B*35:01 | 1 | 749 | 757 | 9 | CSNLLLQYG 2e-06 | 75 |
| HLA-B*44:03 | 1 | 749 | 757 | 9 | CSNLLLQYG 2e-06 | 80 |
| HLA-A*11:01 | 1 | 751 | 760 | 10 | NLLLQYGSFCT 2e-06 | 75 |
| HLA-A*11:01 | 1 | 752 | 761 | 10 | LLLQYGSFCT 2e-06 | 75 |
| HLA-A*23:01 | 1 | 752 | 761 | 10 | LLLQYGSFCT 2e-06 | 76 |
| HLA-A*26:01 | 1 | 752 | 761 | 10 | LLLQYGSFCT 2e-06 | 85 |
| HLA-A*68:01 | 1 | 752 | 761 | 10 | LLLQYGSFCT 2e-06 | 85 |
| HLA-B*44:02 | 1 | 752 | 761 | 10 | LLLQYGSFCT 2e-06 | 84 |
| HLA-B*40:01 | 1 | 753 | 761 | 9 | LLQYGSFCT 2e-06 | 68 |
| HLA-A*02:01 | 1 | 755 | 764 | 10 | QYGSFCTQLN 2e-06 | 87 |
| HLA-A*02:03 | 1 | 755 | 764 | 10 | QYGSFCTQLN 2e-06 | 89 |
| HLA-A*02:06 | 1 | 755 | 764 | 10 | QYGSFCTQLN 2e-06 | 91 |
| HLA-A*11:01 | 1 | 755 | 764 | 10 | QYGSFCTQLN 2e-06 | 75 |
| HLA-B*15:01 | 1 | 755 | 764 | 10 | QYGSFCTQLN 2e-06 | 87 |
| HLA-B*53:01 | 1 | 755 | 764 | 10 | QYGSFCTQLN 2e-06 | 77 |
| HLA-A*02:01 | 1 | 756 | 764 | 9 | YGSFCTQLN 2e-06 | 87 |
| HLA-A*02:03 | 1 | 756 | 764 | 9 | YGSFCTQLN 2e-06 | 89 |
| HLA-A*23:01 | 1 | 756 | 764 | 9 | YGSFCTQLN 2e-06 | 76 |
| HLA-A*26:01 | 1 | 756 | 764 | 9 | YGSFCTQLN 2e-06 | 85 |
| HLA-A*68:02 | 1 | 756 | 764 | 9 | YGSFCTQLN 2e-06 | 86 |
| HLA-A*23:01 | 1 | 759 | 768 | 10 | FCTQLNRALT 2e-06 | 76 |
| HLA-A*24:02 | 1 | 759 | 768 | 10 | FCTQLNRALT 2e-06 | 74 |
| HLA-B*40:01 | 1 | 759 | 768 | 10 | FCTQLNRALT 2e-06 | 68 |
| HLA-B*44:02 | 1 | 759 | 768 | 10 | FCTQLNRALT 2e-06 | 84 |
| HLA-A*24:02 | 1 | 760 | 769 | 10 | CTQLNRALTG 2e-06 | 74 |
| HLA-A*26:01 | 1 | 760 | 769 | 10 | CTQLNRALTG 2e-06 | 85 |
| HLA-B*40:01 | 1 | 760 | 768 | 9 | CTQLNRALT 2e-06 | 68 |
| HLA-B*44:03 | 1 | 760 | 768 | 9 | CTQLNRALT 2e-06 | 80 |
| HLA-A*23:01 | 1 | 762 | 771 | 10 | QLNRALTGIA 2e-06 | 76 |
| HLA-A*24:02 | 1 | 762 | 771 | 10 | QLNRALTGIA 2e-06 | 74 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-B*53:01 | 1 | 762 | 771 | 10 | QLNRALTGIA 2e-06 | 77 |
| HLA-A*23:01 | 1 | 763 | 771 | 9 | LNRALTGIA 2e-06 | 76 |
| HLA-B*44:03 | 1 | 763 | 771 | 9 | LNRALTGIA 2e-06 | 80 |
| HLA-A*32:01 | 1 | 764 | 773 | 10 | NRALTGIAVE 2e-06 | 75 |
| HLA-A*11:01 | 1 | 766 | 775 | 10 | ALTGIAVEQD 2e-06 | 75 |
| HLA-A*26:01 | 1 | 766 | 775 | 10 | ALTGIAVEQD 2e-06 | 85 |
| HLA-B*07:02 | 1 | 766 | 775 | 10 | ALTGIAVEQD 2e-06 | 88 |
| HLA-A*03:01 | 1 | 767 | 775 | 9 | LTGIAVEQD 2e-06 | 88 |
| HLA-A*23:01 | 1 | 767 | 775 | 9 | LTGIAVEQD 2e-06 | 76 |
| HLA-A*26:01 | 1 | 767 | 775 | 9 | LTGIAVEQD 2e-06 | 85 |
| HLA-B*44:02 | 1 | 767 | 775 | 9 | LTGIAVEQD 2e-06 | 84 |
| HLA-A*02:01 | 1 | 768 | 777 | 10 | TGIAVEQDKN 2e-06 | 87 |
| HLA-A*02:03 | 1 | 768 | 777 | 10 | TGIAVEQDKN 2e-06 | 89 |
| HLA-A*26:01 | 1 | 768 | 777 | 10 | TGIAVEQDKN 2e-06 | 85 |
| HLA-A*68:02 | 1 | 768 | 777 | 10 | TGIAVEQDKN 2e-06 | 86 |
| HLA-B*44:02 | 1 | 768 | 777 | 10 | TGIAVEQDKN 2e-06 | 84 |
| HLA-B*53:01 | 1 | 768 | 777 | 10 | TGIAVEQDKN 2e-06 | 77 |
| HLA-A*32:01 | 1 | 769 | 777 | 9 | GIAVEQDKN 2e-06 | 75 |
| HLA-A*68:02 | 1 | 769 | 777 | 9 | GIAVEQDKN 2e-06 | 86 |
| HLA-B*51:01 | 1 | 769 | 777 | 9 | GIAVEQDKN 2e-06 | 94 |
| HLA-B*53:01 | 1 | 769 | 777 | 9 | GIAVEQDKN 2e-06 | 77 |
| HLA-B*53:01 | 1 | 769 | 778 | 10 | GIAVEQDKNT 2e-06 | 77 |
| HLA-A*11:01 | 1 | 770 | 778 | 9 | IAVEQDKNT 2e-06 | 75 |
| HLA-A*23:01 | 1 | 771 | 779 | 9 | AVEQDKNTQ 2e-06 | 76 |
| HLA-A*24:02 | 1 | 771 | 779 | 9 | AVEQDKNTQ 2e-06 | 74 |
| HLA-A*23:01 | 1 | 775 | 784 | 10 | DKNTQEVFAQ 2e-06 | 76 |
| HLA-A*26:01 | 1 | 785 | 793 | 9 | VKQIYKTPP 2e-06 | 85 |
| HLA-A*68:01 | 1 | 785 | 793 | 9 | VKQIYKTPP 2e-06 | 85 |
| HLA-B*53:01 | 1 | 785 | 793 | 9 | VKQIYKTPP 2e-06 | 77 |
| HLA-B*57:01 | 1 | 785 | 793 | 9 | VKQIYKTPP 2e-06 | 97 |
| HLA-B*58:01 | 1 | 785 | 793 | 9 | VKQIYKTPP 2e-06 | 92 |
| HLA-A*32:01 | 1 | 791 | 799 | 9 | TPPIKDFGG 2e-06 | 75 |
| HLA-A*03:01 | 1 | 792 | 801 | 10 | PPIKDFGGFN 2e-06 | 88 |
| HLA-A*24:02 | 1 | 792 | 801 | 10 | PPIKDFGGFN 2e-06 | 74 |
| HLA-A*26:01 | 1 | 792 | 801 | 10 | PPIKDFGGFN 2e-06 | 85 |
| HLA-A*02:06 | 1 | 793 | 801 | 9 | PIKDFGGFN 2e-06 | 91 |
| HLA-B*07:02 | 1 | 793 | 801 | 9 | PIKDFGGFN 2e-06 | 88 |
| HLA-A*11:01 | 1 | 796 | 805 | 10 | DFGGFNFSQI 2e-06 | 75 |
| HLA-A*11:01 | 1 | 799 | 808 | 10 | GFNFSQILPD 2e-06 | 75 |
| HLA-A*32:01 | 1 | 799 | 808 | 10 | GFNFSQILPD 2e-06 | 75 |
| HLA-A*68:01 | 1 | 799 | 808 | 10 | GFNFSQILPD 2e-06 | 85 |
| HLA-A*24:02 | 1 | 800 | 808 | 9 | FNFSQILPD 2e-06 | 74 |
| HLA-A*32:01 | 1 | 800 | 809 | 10 | FNFSQILPDP 2e-06 | 75 |
| HLA-B*44:02 | 1 | 800 | 808 | 9 | FNFSQILPD 2e-06 | 84 |
| HLA-B*44:02 | 1 | 800 | 809 | 10 | FNFSQILPDP 2e-06 | 84 |
| HLA-B*44:03 | 1 | 800 | 808 | 9 | FNFSQILPD 2e-06 | 80 |
| HLA-B*44:03 | 1 | 800 | 809 | 10 | FNFSQILPDP 2e-06 | 80 |
| HLA-A*32:01 | 1 | 801 | 810 | 10 | NFSQILPDPS 2e-06 | 75 |
| HLA-B*44:02 | 1 | 801 | 810 | 10 | NFSQILPDPS 2e-06 | 84 |
| HLA-B*53:01 | 1 | 801 | 810 | 10 | NFSQILPDPS 2e-06 | 77 |
| HLA-A*11:01 | 1 | 807 | 816 | 10 | PDPSKPSKRS 2e-06 | 75 |
| HLA-A*68:02 | 1 | 807 | 816 | 10 | PDPSKPSKRS 2e-06 | 86 |
| HLA-B*58:01 | 1 | 807 | 816 | 10 | PDPSKPSKRS 2e-06 | 92 |
| HLA-A*02:01 | 1 | 810 | 819 | 10 | SKPSKRSFIE 2e-06 | 87 |
| HLA-A*02:01 | 1 | 811 | 820 | 10 | KPSKRSFIED 2e-06 | 87 |
| HLA-A*02:03 | 1 | 811 | 820 | 10 | KPSKRSFIED 2e-06 | 89 |
| HLA-A*23:01 | 1 | 811 | 820 | 10 | KPSKRSFIED 2e-06 | 76 |
| HLA-A*26:01 | 1 | 811 | 820 | 10 | KPSKRSFIED 2e-06 | 85 |
| HLA-A*33:01 | 1 | 811 | 820 | 10 | KPSKRSFIED 2e-06 | 94 |
| HLA-A*03:01 | 1 | 812 | 820 | 9 | PSKRSFIED 2e-06 | 88 |
| HLA-A*23:01 | 1 | 812 | 820 | 9 | PSKRSFIED 2e-06 | 76 |
| HLA-A*32:01 | 1 | 812 | 820 | 9 | PSKRSFIED 2e-06 | 75 |
| HLA-A*11:01 | 1 | 818 | 827 | 10 | IEDLLFNKVT 2e-06 | 75 |
| HLA-A*32:01 | 1 | 819 | 827 | 9 | EDLLFNKVT 2e-06 | 75 |
| HLA-A*11:01 | 1 | 821 | 830 | 10 | LLFNKVTLAD 2e-06 | 75 |
| HLA-B*35:01 | 1 | 821 | 830 | 10 | LLFNKVTLAD 2e-06 | 75 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-B*44:02 | 1 | 821 | 830 | 10 | LLFNKVTLAD 2e-06 | 84 |
| HLA-B*44:03 | 1 | 821 | 830 | 10 | LLFNKVTLAD 2e-06 | 80 |
| HLA-B*40:01 | 1 | 822 | 831 | 10 | LFNKVTLADA 2e-06 | 68 |
| HLA-A*02:06 | 1 | 823 | 832 | 10 | FNKVTLADAG 2e-06 | 91 |
| HLA-A*23:01 | 1 | 823 | 831 | 9 | FNKVTLADA 2e-06 | 76 |
| HLA-A*24:02 | 1 | 823 | 831 | 9 | FNKVTLADA 2e-06 | 74 |
| HLA-A*33:01 | 1 | 823 | 832 | 10 | FNKVTLADAG 2e-06 | 94 |
| HLA-B*15:01 | 1 | 823 | 832 | 10 | FNKVTLADAG 2e-06 | 87 |
| HLA-A*01:01 | 1 | 824 | 832 | 9 | NKVTLADAG 2e-06 | 99 |
| HLA-A*68:02 | 1 | 824 | 832 | 9 | NKVTLADAG 2e-06 | 86 |
| HLA-A*03:01 | 1 | 830 | 838 | 9 | DAGFIKQYG 2e-06 | 88 |
| HLA-A*24:02 | 1 | 830 | 838 | 9 | DAGFIKQYG 2e-06 | 74 |
| HLA-A*26:01 | 1 | 830 | 839 | 10 | DAGFIKQYGD 2e-06 | 85 |
| HLA-A*68:01 | 1 | 830 | 839 | 10 | DAGFIKQYGD 2e-06 | 85 |
| HLA-B*40:01 | 1 | 830 | 838 | 9 | DAGFIKQYG 2e-06 | 68 |
| HLA-B*44:02 | 1 | 830 | 839 | 10 | DAGFIKQYGD 2e-06 | 84 |
| HLA-B*44:03 | 1 | 830 | 839 | 10 | DAGFIKQYGD 2e-06 | 80 |
| HLA-A*11:01 | 1 | 831 | 839 | 9 | AGFIKQYGD 2e-06 | 75 |
| HLA-A*24:02 | 1 | 831 | 839 | 9 | AGFIKQYGD 2e-06 | 74 |
| HLA-A*26:01 | 1 | 831 | 839 | 9 | AGFIKQYGD 2e-06 | 85 |
| HLA-A*26:01 | 1 | 831 | 840 | 10 | AGFIKQYGDC 2e-06 | 85 |
| HLA-B*07:02 | 1 | 831 | 839 | 9 | AGFIKQYGD 2e-06 | 88 |
| HLA-B*40:01 | 1 | 831 | 839 | 9 | AGFIKQYGD 2e-06 | 68 |
| HLA-B*40:01 | 1 | 831 | 840 | 10 | AGFIKQYGDC 2e-06 | 68 |
| HLA-B*53:01 | 1 | 831 | 839 | 9 | AGFIKQYGD 2e-06 | 77 |
| HLA-A*11:01 | 1 | 832 | 840 | 9 | GFIKQYGDC 2e-06 | 75 |
| HLA-B*44:03 | 1 | 832 | 840 | 9 | GFIKQYGDC 2e-06 | 80 |
| HLA-A*23:01 | 1 | 833 | 842 | 10 | FIKQYGDCLG 2e-06 | 76 |
| HLA-A*31:01 | 1 | 833 | 842 | 10 | FIKQYGDCLG 2e-06 | 90 |
| HLA-A*68:01 | 1 | 833 | 842 | 10 | FIKQYGDCLG 2e-06 | 85 |
| HLA-B*44:02 | 1 | 833 | 842 | 10 | FIKQYGDCLG 2e-06 | 84 |
| HLA-A*01:01 | 1 | 834 | 843 | 10 | IKQYGDCLGD 2e-06 | 99 |
| HLA-A*31:01 | 1 | 834 | 842 | 9 | IKQYGDCLG 2e-06 | 90 |
| HLA-B*07:02 | 1 | 834 | 842 | 9 | IKQYGDCLG 2e-06 | 88 |
| HLA-B*15:01 | 1 | 834 | 842 | 9 | IKQYGDCLG 2e-06 | 87 |
| HLA-B*44:03 | 1 | 834 | 842 | 9 | IKQYGDCLG 2e-06 | 80 |
| HLA-B*57:01 | 1 | 834 | 842 | 9 | IKQYGDCLG 2e-06 | 97 |
| HLA-B*58:01 | 1 | 834 | 842 | 9 | IKQYGDCLG 2e-06 | 92 |
| HLA-A*68:01 | 1 | 836 | 844 | 9 | QYGDCLGDI 2e-06 | 85 |
| HLA-B*40:01 | 1 | 836 | 844 | 9 | QYGDCLGDI 2e-06 | 68 |
| HLA-A*03:01 | 1 | 837 | 845 | 9 | YGDCLGDIA 2e-06 | 88 |
| HLA-A*26:01 | 1 | 837 | 845 | 9 | YGDCLGDIA 2e-06 | 85 |
| HLA-A*23:01 | 1 | 838 | 846 | 9 | GDCLGDIAA 2e-06 | 76 |
| HLA-A*30:02 | 1 | 839 | 848 | 10 | DCLGDIAARD 2e-06 | 98 |
| HLA-B*35:01 | 1 | 839 | 848 | 10 | DCLGDIAARD 2e-06 | 75 |
| HLA-B*44:02 | 1 | 839 | 848 | 10 | DCLGDIAARD 2e-06 | 84 |
| HLA-A*11:01 | 1 | 840 | 849 | 10 | CLGDIAARDL 2e-06 | 75 |
| HLA-A*23:01 | 1 | 840 | 848 | 9 | CLGDIAARD 2e-06 | 76 |
| HLA-A*68:01 | 1 | 840 | 848 | 9 | CLGDIAARD 2e-06 | 85 |
| HLA-B*44:02 | 1 | 840 | 848 | 9 | CLGDIAARD 2e-06 | 84 |
| HLA-A*11:01 | 1 | 842 | 851 | 10 | GDIAARDLIC 2e-06 | 75 |
| HLA-A*23:01 | 1 | 842 | 851 | 10 | GDIAARDLIC 2e-06 | 76 |
| HLA-A*68:01 | 1 | 842 | 851 | 10 | GDIAARDLIC 2e-06 | 85 |
| HLA-B*35:01 | 1 | 842 | 851 | 10 | GDIAARDLIC 2e-06 | 75 |
| HLA-B*53:01 | 1 | 842 | 851 | 10 | GDIAARDLIC 2e-06 | 77 |
| HLA-A*23:01 | 1 | 843 | 852 | 10 | DIAARDLICA 2e-06 | 76 |
| HLA-A*24:02 | 1 | 843 | 852 | 10 | DIAARDLICA 2e-06 | 74 |
| HLA-B*40:01 | 1 | 843 | 852 | 10 | DIAARDLICA 2e-06 | 68 |
| HLA-B*40:01 | 1 | 844 | 853 | 10 | IAARDLICAQ 2e-06 | 68 |
| HLA-B*44:03 | 1 | 844 | 853 | 10 | IAARDLICAQ 2e-06 | 80 |
| HLA-A*24:02 | 1 | 845 | 853 | 9 | AARDLICAQ 2e-06 | 74 |
| HLA-A*33:01 | 1 | 847 | 856 | 10 | RDLICAQKFN 2e-06 | 94 |
| HLA-B*40:01 | 1 | 847 | 856 | 10 | RDLICAQKFN 2e-06 | 68 |
| HLA-B*53:01 | 1 | 847 | 856 | 10 | RDLICAQKFN 2e-06 | 77 |
| HLA-A*03:01 | 1 | 848 | 857 | 10 | DLICAQKFN 2e-06 | 88 |
| HLA-A*31:01 | 1 | 848 | 857 | 10 | DLICAQKFN 2e-06 | 90 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-A*32:01 | 1 | 848 | 856 | 9 | DLICAQKFN 2e-06 | 75 |
| HLA-B*07:02 | 1 | 848 | 856 | 9 | DLICAQKFN 2e-06 | 88 |
| HLA-B*44:02 | 1 | 848 | 856 | 9 | DLICAQKFN 2e-06 | 84 |
| HLA-B*44:03 | 1 | 848 | 857 | 10 | DLICAQKFNG 2e-06 | 80 |
| HLA-B*53:01 | 1 | 848 | 857 | 10 | DLICAQKFNG 2e-06 | 77 |
| HLA-A*23:01 | 1 | 849 | 857 | 9 | LICAQKFNG 2e-06 | 76 |
| HLA-B*35:01 | 1 | 849 | 857 | 9 | LICAQKFNG 2e-06 | 75 |
| HLA-A*23:01 | 1 | 850 | 859 | 10 | ICAQKFNGLT 2e-06 | 76 |
| HLA-A*24:02 | 1 | 850 | 859 | 10 | ICAQKFNGLT 2e-06 | 74 |
| HLA-A*26:01 | 1 | 850 | 859 | 10 | ICAQKFNGLT 2e-06 | 85 |
| HLA-A*68:01 | 1 | 850 | 859 | 10 | ICAQKFNGLT 2e-06 | 85 |
| HLA-B*44:03 | 1 | 850 | 859 | 10 | ICAQKFNGLT 2e-06 | 80 |
| HLA-B*53:01 | 1 | 850 | 859 | 10 | ICAQKFNGLT 2e-06 | 77 |
| HLA-A*23:01 | 1 | 851 | 859 | 9 | CAQKFNGLT 2e-06 | 76 |
| HLA-B*44:03 | 1 | 855 | 863 | 9 | FNGLTVLPP 2e-06 | 80 |
| HLA-B*44:03 | 1 | 855 | 864 | 10 | FNGLTVLPP 2e-06 | 80 |
| HLA-B*35:01 | 1 | 857 | 866 | 10 | GLTVLPPLLT 2e-06 | 75 |
| HLA-A*24:02 | 1 | 858 | 867 | 10 | LTVLPPLLTD 2e-06 | 74 |
| HLA-B*44:02 | 1 | 858 | 867 | 10 | LTVLPPLLTD 2e-06 | 84 |
| HLA-B*44:03 | 1 | 858 | 867 | 10 | LTVLPPLLTD 2e-06 | 80 |
| HLA-A*03:01 | 1 | 862 | 871 | 10 | PPLLTDemia 2e-06 | 88 |
| HLA-A*11:01 | 1 | 862 | 870 | 9 | PPLLTDemi 2e-06 | 75 |
| HLA-A*31:01 | 1 | 862 | 870 | 9 | PPLLTDemi 2e-06 | 90 |
| HLA-A*68:01 | 1 | 862 | 870 | 9 | PPLLTDemi 2e-06 | 85 |
| HLA-B*15:01 | 1 | 862 | 871 | 10 | PPLLTDemia 2e-06 | 87 |
| HLA-A*11:01 | 1 | 863 | 871 | 9 | PLLTDemia 2e-06 | 75 |
| HLA-A*26:01 | 1 | 863 | 871 | 9 | PLLTDemia 2e-06 | 85 |
| HLA-A*32:01 | 1 | 863 | 871 | 9 | PLLTDemia 2e-06 | 75 |
| HLA-B*35:01 | 1 | 863 | 872 | 10 | PLLTDemiaQ 2e-06 | 75 |
| HLA-B*44:02 | 1 | 863 | 871 | 9 | PLLTDemia 2e-06 | 84 |
| HLA-B*44:03 | 1 | 863 | 872 | 10 | PLLTDemiaQ 2e-06 | 80 |
| HLA-A*32:01 | 1 | 866 | 875 | 10 | TDEMIAQYTS 2e-06 | 75 |
| HLA-B*40:01 | 1 | 872 | 880 | 9 | QYTSALLAG 2e-06 | 68 |
| HLA-A*23:01 | 1 | 874 | 883 | 10 | TSALLAGTIT 2e-06 | 76 |
| HLA-B*44:03 | 1 | 874 | 883 | 10 | TSALLAGTIT 2e-06 | 80 |
| HLA-A*23:01 | 1 | 878 | 887 | 10 | LAGTITSGWT 2e-06 | 76 |
| HLA-A*24:02 | 1 | 878 | 887 | 10 | LAGTITSGWT 2e-06 | 74 |
| HLA-A*31:01 | 1 | 878 | 887 | 10 | LAGTITSGWT 2e-06 | 90 |
| HLA-A*03:01 | 1 | 879 | 887 | 9 | AGTITSGWT 2e-06 | 88 |
| HLA-A*31:01 | 1 | 879 | 887 | 9 | AGTITSGWT 2e-06 | 90 |
| HLA-A*33:01 | 1 | 879 | 887 | 9 | AGTITSGWT 2e-06 | 94 |
| HLA-A*68:01 | 1 | 879 | 887 | 9 | AGTITSGWT 2e-06 | 85 |
| HLA-B*44:03 | 1 | 879 | 887 | 9 | AGTITSGWT 2e-06 | 80 |
| HLA-B*53:01 | 1 | 879 | 887 | 9 | AGTITSGWT 2e-06 | 77 |
| HLA-B*53:01 | 1 | 882 | 891 | 10 | ITSGWTFGAG 2e-06 | 77 |
| HLA-A*11:01 | 1 | 883 | 891 | 9 | TSGWTFGAG 2e-06 | 75 |
| HLA-A*24:02 | 1 | 883 | 892 | 10 | TSGWTFGAGA 2e-06 | 74 |
| HLA-B*44:02 | 1 | 883 | 891 | 9 | TSGWTFGAG 2e-06 | 84 |
| HLA-B*53:01 | 1 | 885 | 893 | 9 | GWTFGAGAA 2e-06 | 77 |
| HLA-A*11:01 | 1 | 888 | 897 | 10 | FGAGAALQIP 2e-06 | 75 |
| HLA-B*44:03 | 1 | 888 | 897 | 10 | FGAGAALQIP 2e-06 | 80 |
| HLA-A*11:01 | 1 | 898 | 907 | 10 | FAMQMAYRFN 2e-06 | 75 |
| HLA-B*40:01 | 1 | 898 | 907 | 10 | FAMQMAYRFN 2e-06 | 68 |
| HLA-A*68:01 | 1 | 899 | 908 | 10 | AMQMAYRFNG 2e-06 | 85 |
| HLA-B*51:01 | 1 | 899 | 908 | 10 | AMQMAYRFNG 2e-06 | 94 |
| HLA-A*23:01 | 1 | 901 | 910 | 10 | QMAYRFNGIG 2e-06 | 76 |
| HLA-A*24:02 | 1 | 901 | 910 | 10 | QMAYRFNGIG 2e-06 | 74 |
| HLA-A*26:01 | 1 | 901 | 910 | 10 | QMAYRFNGIG 2e-06 | 85 |
| HLA-B*44:03 | 1 | 901 | 910 | 10 | QMAYRFNGIG 2e-06 | 80 |
| HLA-A*23:01 | 1 | 902 | 910 | 9 | MAYRFNGIG 2e-06 | 76 |
| HLA-B*44:03 | 1 | 902 | 910 | 9 | MAYRFNGIG 2e-06 | 80 |
| HLA-B*40:01 | 1 | 905 | 914 | 10 | RFNGIGVTQN 2e-06 | 68 |
| HLA-A*02:01 | 1 | 906 | 914 | 9 | FNGIGVTQN 2e-06 | 87 |
| HLA-A*11:01 | 1 | 906 | 914 | 9 | FNGIGVTQN 2e-06 | 75 |
| HLA-B*07:02 | 1 | 906 | 914 | 9 | FNGIGVTQN 2e-06 | 88 |
| HLA-B*07:02 | 1 | 910 | 919 | 10 | GVTQNVLYEN 2e-06 | 88 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-B*51:01 | 1 | 910 | 919 | 10 | GVTQNVLYEN 2e-06 | 94 |
| HLA-B*53:01 | 1 | 910 | 919 | 10 | GVTQNVLYEN 2e-06 | 77 |
| HLA-A*23:01 | 1 | 911 | 920 | 10 | VTQNVLYENQ 2e-06 | 76 |
| HLA-A*24:02 | 1 | 911 | 920 | 10 | VTQNVLYENQ 2e-06 | 74 |
| HLA-B*40:01 | 1 | 911 | 919 | 9 | VTQNVLYEN 2e-06 | 68 |
| HLA-B*40:01 | 1 | 911 | 920 | 10 | VTQNVLYENQ 2e-06 | 68 |
| HLA-A*02:06 | 1 | 916 | 925 | 10 | LYENQKLIAN 2e-06 | 91 |
| HLA-A*68:01 | 1 | 916 | 925 | 10 | LYENQKLIAN 2e-06 | 85 |
| HLA-B*35:01 | 1 | 916 | 925 | 10 | LYENQKLIAN 2e-06 | 75 |
| HLA-A*24:02 | 1 | 917 | 926 | 10 | YENQKLIANQ 2e-06 | 74 |
| HLA-A*03:01 | 1 | 920 | 928 | 9 | QKLIANQFN 2e-06 | 88 |
| HLA-A*11:01 | 1 | 920 | 928 | 9 | QKLIANQFN 2e-06 | 75 |
| HLA-A*23:01 | 1 | 920 | 929 | 10 | QKLIANQFNS 2e-06 | 76 |
| HLA-B*15:01 | 1 | 920 | 928 | 9 | QKLIANQFN 2e-06 | 87 |
| HLA-B*40:01 | 1 | 920 | 929 | 10 | QKLIANQFNS 2e-06 | 68 |
| HLA-A*03:01 | 1 | 923 | 932 | 10 | IANQFNSAIG 2e-06 | 88 |
| HLA-A*26:01 | 1 | 923 | 932 | 10 | IANQFNSAIG 2e-06 | 85 |
| HLA-A*31:01 | 1 | 923 | 932 | 10 | IANQFNSAIG 2e-06 | 90 |
| HLA-A*24:02 | 1 | 924 | 932 | 9 | ANQFNSAIG 2e-06 | 74 |
| HLA-A*26:01 | 1 | 924 | 932 | 9 | ANQFNSAIG 2e-06 | 85 |
| HLA-A*32:01 | 1 | 924 | 932 | 9 | ANQFNSAIG 2e-06 | 75 |
| HLA-A*33:01 | 1 | 924 | 932 | 9 | ANQFNSAIG 2e-06 | 94 |
| HLA-A*68:01 | 1 | 924 | 932 | 9 | ANQFNSAIG 2e-06 | 85 |
| HLA-B*35:01 | 1 | 924 | 932 | 9 | ANQFNSAIG 2e-06 | 75 |
| HLA-B*40:01 | 1 | 926 | 935 | 10 | QFNSAIGKIQ 2e-06 | 68 |
| HLA-A*24:02 | 1 | 927 | 935 | 9 | FNSAIGKIQ 2e-06 | 74 |
| HLA-A*31:01 | 1 | 927 | 936 | 10 | FNSAIGKIQD 2e-06 | 90 |
| HLA-B*53:01 | 1 | 927 | 936 | 10 | FNSAIGKIQD 2e-06 | 77 |
| HLA-A*24:02 | 1 | 928 | 937 | 10 | NSAIGKIQDS 2e-06 | 74 |
| HLA-A*32:01 | 1 | 928 | 936 | 9 | NSAIGKIQD 2e-06 | 75 |
| HLA-A*32:01 | 1 | 928 | 937 | 10 | NSAIGKIQDS 2e-06 | 75 |
| HLA-A*23:01 | 1 | 930 | 939 | 10 | AIGKIQDLSL 2e-06 | 76 |
| HLA-A*24:02 | 1 | 930 | 939 | 10 | AIGKIQDLSL 2e-06 | 74 |
| HLA-B*40:01 | 1 | 930 | 939 | 10 | AIGKIQDLSL 2e-06 | 68 |
| HLA-A*23:01 | 1 | 931 | 939 | 9 | IGKIQDLSL 2e-06 | 76 |
| HLA-A*23:01 | 1 | 931 | 940 | 10 | IGKIQDLSLSS 2e-06 | 76 |
| HLA-A*24:02 | 1 | 931 | 939 | 9 | IGKIQDLSL 2e-06 | 74 |
| HLA-A*24:02 | 1 | 931 | 940 | 10 | IGKIQDLSLSS 2e-06 | 74 |
| HLA-A*26:01 | 1 | 931 | 939 | 9 | IGKIQDLSL 2e-06 | 85 |
| HLA-A*24:02 | 1 | 932 | 940 | 9 | GKIQDLSLSS 2e-06 | 74 |
| HLA-A*24:02 | 1 | 932 | 941 | 10 | GKIQDLSLSS 2e-06 | 74 |
| HLA-A*24:02 | 1 | 938 | 946 | 9 | LSSTASALG 2e-06 | 74 |
| HLA-B*40:01 | 1 | 938 | 946 | 9 | LSSTASALG 2e-06 | 68 |
| HLA-A*11:01 | 1 | 941 | 950 | 10 | TASALGKLQD 2e-06 | 75 |
| HLA-A*31:01 | 1 | 941 | 950 | 10 | TASALGKLQD 2e-06 | 90 |
| HLA-A*32:01 | 1 | 941 | 950 | 10 | TASALGKLQD 2e-06 | 75 |
| HLA-B*15:01 | 1 | 941 | 950 | 10 | TASALGKLQD 2e-06 | 87 |
| HLA-B*44:03 | 1 | 941 | 950 | 10 | TASALGKLQD 2e-06 | 80 |
| HLA-A*23:01 | 1 | 942 | 950 | 9 | ASALGKLQD 2e-06 | 76 |
| HLA-A*68:01 | 1 | 944 | 953 | 10 | ALGKLQDVVN 2e-06 | 85 |
| HLA-A*68:02 | 1 | 944 | 953 | 10 | ALGKLQDVVN 2e-06 | 86 |
| HLA-B*44:03 | 1 | 944 | 953 | 10 | ALGKLQDVVN 2e-06 | 80 |
| HLA-B*51:01 | 1 | 944 | 953 | 10 | ALGKLQDVVN 2e-06 | 94 |
| HLA-A*11:01 | 1 | 945 | 953 | 9 | LGKLQDVVN 2e-06 | 75 |
| HLA-A*32:01 | 1 | 945 | 953 | 9 | LGKLQDVVN 2e-06 | 75 |
| HLA-B*40:01 | 1 | 945 | 954 | 10 | LGKLQDVVNQ 2e-06 | 68 |
| HLA-B*44:02 | 1 | 945 | 953 | 9 | LGKLQDVVN 2e-06 | 84 |
| HLA-B*07:02 | 1 | 946 | 955 | 10 | GKLQDVVNQN 2e-06 | 88 |
| HLA-B*53:01 | 1 | 946 | 955 | 10 | GKLQDVVNQN 2e-06 | 77 |
| HLA-A*02:01 | 1 | 949 | 957 | 9 | QDVVNQNAQ 2e-06 | 87 |
| HLA-A*02:03 | 1 | 949 | 957 | 9 | QDVVNQNAQ 2e-06 | 89 |
| HLA-A*24:02 | 1 | 949 | 958 | 10 | QDVVNQNAQA 2e-06 | 74 |
| HLA-A*32:01 | 1 | 949 | 957 | 9 | QDVVNQNAQ 2e-06 | 75 |
| HLA-A*02:03 | 1 | 952 | 960 | 9 | VNQNAQALN 2e-06 | 89 |
| HLA-A*24:02 | 1 | 952 | 960 | 9 | VNQNAQALN 2e-06 | 74 |
| HLA-A*24:02 | 1 | 952 | 961 | 10 | VNQNAQALNT 2e-06 | 74 |

| | | | | | | |
|-------------|---|------|------|----|------------------|----|
| HLA-A*26:01 | 1 | 952 | 960 | 9 | VNQNAQALN 2e-06 | 85 |
| HLA-A*68:02 | 1 | 952 | 960 | 9 | VNQNAQALN 2e-06 | 86 |
| HLA-B*53:01 | 1 | 952 | 960 | 9 | VNQNAQALN 2e-06 | 77 |
| HLA-B*53:01 | 1 | 952 | 961 | 10 | VNQNAQALNT 2e-06 | 77 |
| HLA-A*23:01 | 1 | 959 | 968 | 10 | LNTLVKQLSS 2e-06 | 76 |
| HLA-A*32:01 | 1 | 959 | 967 | 9 | LNTLVKQLS 2e-06 | 75 |
| HLA-B*44:02 | 1 | 959 | 968 | 10 | LNTLVKQLSS 2e-06 | 84 |
| HLA-B*44:03 | 1 | 959 | 968 | 10 | LNTLVKQLSS 2e-06 | 80 |
| HLA-B*53:01 | 1 | 959 | 968 | 10 | LNTLVKQLSS 2e-06 | 77 |
| HLA-A*02:06 | 1 | 963 | 971 | 9 | VKQLSSNFG 2e-06 | 91 |
| HLA-A*11:01 | 1 | 963 | 971 | 9 | VKQLSSNFG 2e-06 | 75 |
| HLA-A*24:02 | 1 | 963 | 971 | 9 | VKQLSSNFG 2e-06 | 74 |
| HLA-A*26:01 | 1 | 963 | 971 | 9 | VKQLSSNFG 2e-06 | 85 |
| HLA-B*35:01 | 1 | 963 | 971 | 9 | VKQLSSNFG 2e-06 | 75 |
| HLA-B*53:01 | 1 | 963 | 971 | 9 | VKQLSSNFG 2e-06 | 77 |
| HLA-A*23:01 | 1 | 965 | 974 | 10 | QLSSNFGAIS 2e-06 | 76 |
| HLA-A*24:02 | 1 | 965 | 974 | 10 | QLSSNFGAIS 2e-06 | 74 |
| HLA-B*35:01 | 1 | 965 | 974 | 10 | QLSSNFGAIS 2e-06 | 75 |
| HLA-B*40:01 | 1 | 965 | 974 | 10 | QLSSNFGAIS 2e-06 | 68 |
| HLA-B*53:01 | 1 | 965 | 974 | 10 | QLSSNFGAIS 2e-06 | 77 |
| HLA-B*44:03 | 1 | 966 | 975 | 10 | LSSNFGAISS 2e-06 | 80 |
| HLA-A*32:01 | 1 | 969 | 978 | 10 | NFGAISSVLN 2e-06 | 75 |
| HLA-B*40:01 | 1 | 969 | 978 | 10 | NFGAISSVLN 2e-06 | 68 |
| HLA-A*33:01 | 1 | 970 | 979 | 10 | FGAISSVLND 2e-06 | 94 |
| HLA-B*15:01 | 1 | 970 | 979 | 10 | FGAISSVLND 2e-06 | 87 |
| HLA-B*44:02 | 1 | 970 | 978 | 9 | FGAISSVLN 2e-06 | 84 |
| HLA-B*44:03 | 1 | 970 | 978 | 9 | FGAISSVLN 2e-06 | 80 |
| HLA-A*23:01 | 1 | 971 | 979 | 9 | GAISSVLND 2e-06 | 76 |
| HLA-A*23:01 | 1 | 973 | 982 | 10 | ISSVLNDILS 2e-06 | 76 |
| HLA-A*26:01 | 1 | 973 | 982 | 10 | ISSVLNDILS 2e-06 | 85 |
| HLA-B*35:01 | 1 | 973 | 982 | 10 | ISSVLNDILS 2e-06 | 75 |
| HLA-A*02:06 | 1 | 977 | 985 | 9 | LNDILSRLD 2e-06 | 91 |
| HLA-A*03:01 | 1 | 977 | 985 | 9 | LNDILSRLD 2e-06 | 88 |
| HLA-A*23:01 | 1 | 977 | 985 | 9 | LNDILSRLD 2e-06 | 76 |
| HLA-A*23:01 | 1 | 977 | 986 | 10 | LNDILSRLDK 2e-06 | 76 |
| HLA-A*24:02 | 1 | 977 | 986 | 10 | LNDILSRLDK 2e-06 | 74 |
| HLA-A*31:01 | 1 | 977 | 985 | 9 | LNDILSRLD 2e-06 | 90 |
| HLA-B*35:01 | 1 | 977 | 985 | 9 | LNDILSRLD 2e-06 | 75 |
| HLA-B*35:01 | 1 | 977 | 986 | 10 | LNDILSRLDK 2e-06 | 75 |
| HLA-B*53:01 | 1 | 977 | 986 | 10 | LNDILSRLDK 2e-06 | 77 |
| HLA-A*23:01 | 1 | 979 | 988 | 10 | DILSRLDKVE 2e-06 | 76 |
| HLA-A*24:02 | 1 | 979 | 988 | 10 | DILSRLDKVE 2e-06 | 74 |
| HLA-B*44:03 | 1 | 979 | 988 | 10 | DILSRLDKVE 2e-06 | 80 |
| HLA-A*02:01 | 1 | 984 | 992 | 9 | LDKVEAEVQ 2e-06 | 87 |
| HLA-A*02:03 | 1 | 984 | 992 | 9 | LDKVEAEVQ 2e-06 | 89 |
| HLA-A*68:02 | 1 | 984 | 992 | 9 | LDKVEAEVQ 2e-06 | 86 |
| HLA-A*02:01 | 1 | 985 | 994 | 10 | DKVEAEVQID 2e-06 | 87 |
| HLA-A*02:03 | 1 | 985 | 994 | 10 | DKVEAEVQID 2e-06 | 89 |
| HLA-A*26:01 | 1 | 985 | 994 | 10 | DKVEAEVQID 2e-06 | 85 |
| HLA-A*30:01 | 1 | 985 | 994 | 10 | DKVEAEVQID 2e-06 | 98 |
| HLA-A*33:01 | 1 | 985 | 994 | 10 | DKVEAEVQID 2e-06 | 94 |
| HLA-B*15:01 | 1 | 985 | 994 | 10 | DKVEAEVQID 2e-06 | 87 |
| HLA-B*35:01 | 1 | 986 | 994 | 9 | KVEAEVQID 2e-06 | 75 |
| HLA-B*40:01 | 1 | 986 | 994 | 9 | KVEAEVQID 2e-06 | 68 |
| HLA-A*23:01 | 1 | 993 | 1002 | 10 | IDRLITGRLQ 2e-06 | 76 |
| HLA-A*24:02 | 1 | 993 | 1002 | 10 | IDRLITGRLQ 2e-06 | 74 |
| HLA-A*32:01 | 1 | 993 | 1002 | 10 | IDRLITGRLQ 2e-06 | 75 |
| HLA-A*02:03 | 1 | 994 | 1002 | 9 | DRITGRLQ 2e-06 | 89 |
| HLA-B*44:03 | 1 | 996 | 1005 | 10 | LITGRLQSLQ 2e-06 | 80 |
| HLA-A*23:01 | 1 | 997 | 1006 | 10 | ITGRLQSLQT 2e-06 | 76 |
| HLA-A*24:02 | 1 | 997 | 1006 | 10 | ITGRLQSLQT 2e-06 | 74 |
| HLA-B*35:01 | 1 | 997 | 1006 | 10 | ITGRLQSLQT 2e-06 | 75 |
| HLA-B*40:01 | 1 | 997 | 1005 | 9 | ITGRLQSLQ 2e-06 | 68 |
| HLA-B*44:03 | 1 | 997 | 1006 | 10 | ITGRLQSLQT 2e-06 | 80 |
| HLA-A*23:01 | 1 | 1002 | 1011 | 10 | QSLQTYVTQQ 2e-06 | 76 |
| HLA-A*24:02 | 1 | 1002 | 1011 | 10 | QSLQTYVTQQ 2e-06 | 74 |

| | | | | | | |
|-------------|---|------|------|----|------------------|----|
| HLA-A*24:02 | 1 | 1008 | 1017 | 10 | VTQQLIRAAE 2e-06 | 74 |
| HLA-A*23:01 | 1 | 1012 | 1021 | 10 | LIRAAEIRAS 2e-06 | 76 |
| HLA-A*24:02 | 1 | 1012 | 1021 | 10 | LIRAAEIRAS 2e-06 | 74 |
| HLA-A*02:01 | 1 | 1015 | 1023 | 9 | AAEIRASAN 2e-06 | 87 |
| HLA-A*33:01 | 1 | 1015 | 1023 | 9 | AAEIRASAN 2e-06 | 94 |
| HLA-B*40:01 | 1 | 1015 | 1023 | 9 | AAEIRASAN 2e-06 | 68 |
| HLA-A*23:01 | 1 | 1021 | 1030 | 10 | SANLAATKMS 2e-06 | 76 |
| HLA-A*24:02 | 1 | 1021 | 1030 | 10 | SANLAATKMS 2e-06 | 74 |
| HLA-A*23:01 | 1 | 1022 | 1031 | 10 | ANLAATKMSE 2e-06 | 76 |
| HLA-A*24:02 | 1 | 1022 | 1030 | 9 | ANLAATKMS 2e-06 | 74 |
| HLA-B*53:01 | 1 | 1022 | 1030 | 9 | ANLAATKMS 2e-06 | 77 |
| HLA-A*23:01 | 1 | 1026 | 1035 | 10 | ATKMSECVLG 2e-06 | 76 |
| HLA-A*24:02 | 1 | 1026 | 1035 | 10 | ATKMSECVLG 2e-06 | 74 |
| HLA-B*35:01 | 1 | 1026 | 1035 | 10 | ATKMSECVLG 2e-06 | 75 |
| HLA-B*40:01 | 1 | 1026 | 1035 | 10 | ATKMSECVLG 2e-06 | 68 |
| HLA-B*53:01 | 1 | 1026 | 1035 | 10 | ATKMSECVLG 2e-06 | 77 |
| HLA-A*03:01 | 1 | 1027 | 1035 | 9 | TKMSECVLG 2e-06 | 88 |
| HLA-A*23:01 | 1 | 1027 | 1036 | 10 | TKMSECVLGQ 2e-06 | 76 |
| HLA-A*23:01 | 1 | 1028 | 1037 | 10 | KMSECVLGQS 2e-06 | 76 |
| HLA-A*24:02 | 1 | 1028 | 1037 | 10 | KMSECVLGQS 2e-06 | 74 |
| HLA-B*40:01 | 1 | 1028 | 1037 | 10 | KMSECVLGQS 2e-06 | 68 |
| HLA-B*44:03 | 1 | 1028 | 1037 | 10 | KMSECVLGQS 2e-06 | 80 |
| HLA-A*32:01 | 1 | 1029 | 1037 | 9 | MSECVLGQS 2e-06 | 75 |
| HLA-B*44:03 | 1 | 1029 | 1037 | 9 | MSECVLGQS 2e-06 | 80 |
| HLA-A*32:01 | 1 | 1032 | 1041 | 10 | CVLGQSKRVD 2e-06 | 75 |
| HLA-A*33:01 | 1 | 1032 | 1041 | 10 | CVLGQSKRVD 2e-06 | 94 |
| HLA-B*07:02 | 1 | 1032 | 1041 | 10 | CVLGQSKRVD 2e-06 | 88 |
| HLA-A*68:01 | 1 | 1033 | 1041 | 9 | VLGQSKRVD 2e-06 | 85 |
| HLA-B*44:03 | 1 | 1033 | 1041 | 9 | VLGQSKRVD 2e-06 | 80 |
| HLA-B*44:03 | 1 | 1034 | 1043 | 10 | LGQSKRVDFC 2e-06 | 80 |
| HLA-B*53:01 | 1 | 1034 | 1043 | 10 | LGQSKRVDFC 2e-06 | 77 |
| HLA-A*11:01 | 1 | 1035 | 1044 | 10 | GQSKRVDFCG 2e-06 | 75 |
| HLA-A*23:01 | 1 | 1035 | 1044 | 10 | GQSKRVDFCG 2e-06 | 76 |
| HLA-A*24:02 | 1 | 1035 | 1044 | 10 | GQSKRVDFCG 2e-06 | 74 |
| HLA-A*32:01 | 1 | 1035 | 1044 | 10 | GQSKRVDFCG 2e-06 | 75 |
| HLA-B*51:01 | 1 | 1035 | 1044 | 10 | GQSKRVDFCG 2e-06 | 94 |
| HLA-A*02:01 | 1 | 1036 | 1044 | 9 | QSKRVDFCG 2e-06 | 87 |
| HLA-A*02:03 | 1 | 1037 | 1046 | 10 | SKRVDFCGKG 2e-06 | 89 |
| HLA-A*11:01 | 1 | 1037 | 1046 | 10 | SKRVDFCGKG 2e-06 | 75 |
| HLA-A*68:01 | 1 | 1037 | 1046 | 10 | SKRVDFCGKG 2e-06 | 85 |
| HLA-A*68:02 | 1 | 1037 | 1046 | 10 | SKRVDFCGKG 2e-06 | 86 |
| HLA-B*07:02 | 1 | 1037 | 1046 | 10 | SKRVDFCGKG 2e-06 | 88 |
| HLA-B*51:01 | 1 | 1037 | 1046 | 10 | SKRVDFCGKG 2e-06 | 94 |
| HLA-A*11:01 | 1 | 1038 | 1046 | 9 | KRVDFCGKG 2e-06 | 75 |
| HLA-A*68:01 | 1 | 1038 | 1046 | 9 | KRVDFCGKG 2e-06 | 85 |
| HLA-A*11:01 | 1 | 1042 | 1051 | 10 | FCGKGYHLMS 2e-06 | 75 |
| HLA-A*23:01 | 1 | 1042 | 1051 | 10 | FCGKGYHLMS 2e-06 | 76 |
| HLA-A*24:02 | 1 | 1042 | 1051 | 10 | FCGKGYHLMS 2e-06 | 74 |
| HLA-A*26:01 | 1 | 1042 | 1051 | 10 | FCGKGYHLMS 2e-06 | 85 |
| HLA-A*32:01 | 1 | 1043 | 1051 | 9 | CGKGYHLMS 2e-06 | 75 |
| HLA-B*44:03 | 1 | 1043 | 1051 | 9 | CGKGYHLMS 2e-06 | 80 |
| HLA-A*11:01 | 1 | 1044 | 1053 | 10 | GKGYHLMSFP 2e-06 | 75 |
| HLA-A*23:01 | 1 | 1044 | 1053 | 10 | GKGYHLMSFP 2e-06 | 76 |
| HLA-B*07:02 | 1 | 1044 | 1053 | 10 | GKGYHLMSFP 2e-06 | 88 |
| HLA-B*35:01 | 1 | 1045 | 1054 | 10 | KGYHLMSFPQ 2e-06 | 75 |
| HLA-B*44:03 | 1 | 1045 | 1054 | 10 | KGYHLMSFPQ 2e-06 | 80 |
| HLA-B*53:01 | 1 | 1045 | 1054 | 10 | KGYHLMSFPQ 2e-06 | 77 |
| HLA-A*32:01 | 1 | 1046 | 1055 | 10 | GYHLMSFPQS 2e-06 | 75 |
| HLA-B*35:01 | 1 | 1046 | 1055 | 10 | GYHLMSFPQS 2e-06 | 75 |
| HLA-B*40:01 | 1 | 1046 | 1054 | 9 | GYHLMSFPQ 2e-06 | 68 |
| HLA-B*53:01 | 1 | 1046 | 1055 | 10 | GYHLMSFPQS 2e-06 | 77 |
| HLA-A*02:03 | 1 | 1057 | 1066 | 10 | PHGVVFLHVT 2e-06 | 89 |
| HLA-A*02:06 | 1 | 1057 | 1066 | 10 | PHGVVFLHVT 2e-06 | 91 |
| HLA-A*11:01 | 1 | 1057 | 1065 | 9 | PHGVVFLHV 2e-06 | 75 |
| HLA-A*33:01 | 1 | 1057 | 1066 | 10 | PHGVVFLHVT 2e-06 | 94 |
| HLA-B*58:01 | 1 | 1057 | 1066 | 10 | PHGVVFLHVT 2e-06 | 92 |

| | | | | | | |
|-------------|---|------|------|----|-------------------|----|
| HLA-B*40:01 | 1 | 1061 | 1070 | 10 | VFLHVTVVPA 2e-06 | 68 |
| HLA-B*44:02 | 1 | 1075 | 1084 | 10 | FTTAPAICHD 2e-06 | 84 |
| HLA-B*44:03 | 1 | 1075 | 1084 | 10 | FTTAPAICHD 2e-06 | 80 |
| HLA-A*23:01 | 1 | 1076 | 1085 | 10 | TTAPAICHDG 2e-06 | 76 |
| HLA-A*24:02 | 1 | 1076 | 1085 | 10 | TTAPAICHDG 2e-06 | 74 |
| HLA-B*40:01 | 1 | 1076 | 1084 | 9 | TTAPAICHD 2e-06 | 68 |
| HLA-B*40:01 | 1 | 1077 | 1086 | 10 | TAPAICHDGK 2e-06 | 68 |
| HLA-B*44:03 | 1 | 1077 | 1085 | 9 | TAPAICHDG 2e-06 | 80 |
| HLA-A*32:01 | 1 | 1078 | 1087 | 10 | APAICHDGKA 2e-06 | 75 |
| HLA-A*02:01 | 1 | 1079 | 1088 | 10 | PAICHDGKAH 2e-06 | 87 |
| HLA-A*02:03 | 1 | 1079 | 1088 | 10 | PAICHDGKAH 2e-06 | 89 |
| HLA-A*68:01 | 1 | 1079 | 1087 | 9 | PAICHDGKA 2e-06 | 85 |
| HLA-A*68:02 | 1 | 1079 | 1088 | 10 | PAICHDGKAH 2e-06 | 86 |
| HLA-B*44:02 | 1 | 1079 | 1087 | 9 | PAICHDGKA 2e-06 | 84 |
| HLA-A*32:01 | 1 | 1080 | 1088 | 9 | AICHDGKAH 2e-06 | 76 |
| HLA-A*24:02 | 1 | 1080 | 1088 | 9 | AICHDGKAH 2e-06 | 74 |
| HLA-A*32:01 | 1 | 1082 | 1090 | 9 | CHDGKAHFP 2e-06 | 75 |
| HLA-A*23:01 | 1 | 1083 | 1092 | 10 | HDGKAHFPRE 2e-06 | 76 |
| HLA-A*24:02 | 1 | 1083 | 1092 | 10 | HDGKAHFPRE 2e-06 | 74 |
| HLA-A*32:01 | 1 | 1083 | 1092 | 10 | HDGKAHFPRE 2e-06 | 75 |
| HLA-B*35:01 | 1 | 1083 | 1092 | 10 | HDGKAHFPRE 2e-06 | 75 |
| HLA-B*40:01 | 1 | 1083 | 1092 | 10 | HDGKAHFPRE 2e-06 | 68 |
| HLA-A*23:01 | 1 | 1084 | 1093 | 10 | DGKAHFPPREG 2e-06 | 76 |
| HLA-A*26:01 | 1 | 1084 | 1093 | 10 | DGKAHFPPREG 2e-06 | 85 |
| HLA-A*68:01 | 1 | 1084 | 1093 | 10 | DGKAHFPPREG 2e-06 | 85 |
| HLA-B*15:01 | 1 | 1084 | 1093 | 10 | DGKAHFPPREG 2e-06 | 87 |
| HLA-A*02:06 | 1 | 1085 | 1093 | 9 | GKAHFPPREG 2e-06 | 91 |
| HLA-A*23:01 | 1 | 1085 | 1093 | 9 | GKAHFPPREG 2e-06 | 76 |
| HLA-B*53:01 | 1 | 1085 | 1093 | 9 | GKAHFPPREG 2e-06 | 77 |
| HLA-A*24:02 | 1 | 1089 | 1098 | 10 | FPREGVFVSN 2e-06 | 74 |
| HLA-A*26:01 | 1 | 1090 | 1098 | 9 | PREGVFVSN 2e-06 | 85 |
| HLA-A*68:01 | 1 | 1090 | 1098 | 9 | PREGVFVSN 2e-06 | 85 |
| HLA-B*07:02 | 1 | 1090 | 1098 | 9 | PREGVFVSN 2e-06 | 88 |
| HLA-B*08:01 | 1 | 1090 | 1099 | 10 | PREGVFVSN 2e-06 | 98 |
| HLA-B*35:01 | 1 | 1090 | 1098 | 9 | PREGVFVSN 2e-06 | 75 |
| HLA-B*44:03 | 1 | 1090 | 1099 | 10 | PREGVFVSN 2e-06 | 80 |
| HLA-B*53:01 | 1 | 1090 | 1098 | 9 | PREGVFVSN 2e-06 | 77 |
| HLA-B*57:01 | 1 | 1090 | 1099 | 10 | PREGVFVSN 2e-06 | 97 |
| HLA-A*02:01 | 1 | 1091 | 1099 | 9 | REGVFVSN 2e-06 | 87 |
| HLA-A*11:01 | 1 | 1091 | 1099 | 9 | REGVFVSN 2e-06 | 75 |
| HLA-A*23:01 | 1 | 1091 | 1100 | 10 | REGVFVSN 2e-06 | 76 |
| HLA-A*24:02 | 1 | 1091 | 1100 | 10 | REGVFVSN 2e-06 | 74 |
| HLA-A*23:01 | 1 | 1092 | 1101 | 10 | EGVFVSN 2e-06 | 76 |
| HLA-B*40:01 | 1 | 1096 | 1105 | 10 | VSN 2e-06 | 68 |
| HLA-A*24:02 | 1 | 1097 | 1106 | 10 | SNGTHWFVTQ 2e-06 | 74 |
| HLA-B*35:01 | 1 | 1097 | 1106 | 10 | SNGTHWFVTQ 2e-06 | 75 |
| HLA-B*53:01 | 1 | 1097 | 1106 | 10 | SNGTHWFVTQ 2e-06 | 77 |
| HLA-B*40:01 | 1 | 1098 | 1107 | 10 | NGTHWFVTQR 2e-06 | 68 |
| HLA-B*53:01 | 1 | 1099 | 1108 | 10 | GTHWFVTQRN 2e-06 | 77 |
| HLA-B*44:02 | 1 | 1103 | 1112 | 10 | FVTQRNFYEP 2e-06 | 84 |
| HLA-B*44:03 | 1 | 1103 | 1112 | 10 | FVTQRNFYEP 2e-06 | 80 |
| HLA-A*24:02 | 1 | 1104 | 1113 | 10 | VTQRNFYEPQ 2e-06 | 74 |
| HLA-B*35:01 | 1 | 1104 | 1113 | 10 | VTQRNFYEPQ 2e-06 | 75 |
| HLA-B*53:01 | 1 | 1104 | 1113 | 10 | VTQRNFYEPQ 2e-06 | 77 |
| HLA-A*23:01 | 1 | 1111 | 1120 | 10 | EPQIITDNT 2e-06 | 76 |
| HLA-A*31:01 | 1 | 1111 | 1119 | 9 | EPQIITDNT 2e-06 | 90 |
| HLA-A*11:01 | 1 | 1112 | 1120 | 9 | PQIITDNT 2e-06 | 75 |
| HLA-A*23:01 | 1 | 1114 | 1123 | 10 | IITDNTFVS 2e-06 | 76 |
| HLA-A*24:02 | 1 | 1114 | 1123 | 10 | IITDNTFVS 2e-06 | 74 |
| HLA-B*40:01 | 1 | 1114 | 1123 | 10 | IITDNTFVS 2e-06 | 68 |
| HLA-B*35:01 | 1 | 1116 | 1125 | 10 | TTDNTFVSGN 2e-06 | 75 |
| HLA-A*23:01 | 1 | 1117 | 1125 | 9 | TDNTFVSGN 2e-06 | 76 |
| HLA-A*23:01 | 1 | 1117 | 1126 | 10 | TDNTFVSGN 2e-06 | 76 |
| HLA-B*15:01 | 1 | 1117 | 1126 | 10 | TDNTFVSGN 2e-06 | 87 |
| HLA-B*40:01 | 1 | 1117 | 1125 | 9 | TDNTFVSGN 2e-06 | 68 |
| HLA-B*53:01 | 1 | 1117 | 1126 | 10 | TDNTFVSGN 2e-06 | 77 |

| | | | | | | | |
|-------------|---|------|------|----|-------------|-------|----|
| HLA-A*11:01 | 1 | 1118 | 1126 | 9 | DNTFVSGNC | 2e-06 | 75 |
| HLA-A*33:01 | 1 | 1118 | 1127 | 10 | DNTFVSGNCD | 2e-06 | 94 |
| HLA-B*53:01 | 1 | 1118 | 1127 | 10 | DNTFVSGNCD | 2e-06 | 77 |
| HLA-A*23:01 | 1 | 1119 | 1127 | 9 | NTFVSGNCD | 2e-06 | 76 |
| HLA-A*02:01 | 1 | 1122 | 1131 | 10 | VSGNCDVVIG | 2e-06 | 87 |
| HLA-A*02:03 | 1 | 1122 | 1131 | 10 | VSGNCDVVIG | 2e-06 | 89 |
| HLA-A*02:06 | 1 | 1122 | 1131 | 10 | VSGNCDVVIG | 2e-06 | 91 |
| HLA-B*08:01 | 1 | 1122 | 1131 | 10 | VSGNCDVVIG | 2e-06 | 98 |
| HLA-A*02:01 | 1 | 1123 | 1131 | 9 | SGNCDVVIG | 2e-06 | 87 |
| HLA-A*03:01 | 1 | 1123 | 1131 | 9 | SGNCDVVIG | 2e-06 | 88 |
| HLA-A*33:01 | 1 | 1123 | 1131 | 9 | SGNCDVVIG | 2e-06 | 94 |
| HLA-A*68:02 | 1 | 1123 | 1131 | 9 | SGNCDVVIG | 2e-06 | 86 |
| HLA-B*44:03 | 1 | 1123 | 1131 | 9 | SGNCDVVIG | 2e-06 | 80 |
| HLA-B*53:01 | 1 | 1124 | 1133 | 10 | GNCDDVVIGIV | 2e-06 | 77 |
| HLA-A*02:06 | 1 | 1125 | 1134 | 10 | NCDVVIGIVN | 2e-06 | 91 |
| HLA-B*07:02 | 1 | 1125 | 1134 | 10 | NCDVVIGIVN | 2e-06 | 88 |
| HLA-B*44:02 | 1 | 1125 | 1134 | 10 | NCDVVIGIVN | 2e-06 | 84 |
| HLA-B*44:03 | 1 | 1125 | 1134 | 10 | NCDVVIGIVN | 2e-06 | 80 |
| HLA-A*02:03 | 1 | 1126 | 1135 | 10 | CDVVIGIVNN | 2e-06 | 89 |
| HLA-A*02:06 | 1 | 1126 | 1134 | 9 | CDVVIGIVN | 2e-06 | 91 |
| HLA-A*11:01 | 1 | 1126 | 1135 | 10 | CDVVIGIVNN | 2e-06 | 75 |
| HLA-A*33:01 | 1 | 1126 | 1134 | 9 | CDVVIGIVN | 2e-06 | 94 |
| HLA-A*33:01 | 1 | 1126 | 1135 | 10 | CDVVIGIVNN | 2e-06 | 94 |
| HLA-A*68:01 | 1 | 1126 | 1134 | 9 | CDVVIGIVN | 2e-06 | 85 |
| HLA-A*68:02 | 1 | 1126 | 1135 | 10 | CDVVIGIVNN | 2e-06 | 86 |
| HLA-B*15:01 | 1 | 1126 | 1134 | 9 | CDVVIGIVN | 2e-06 | 87 |
| HLA-B*40:01 | 1 | 1126 | 1134 | 9 | CDVVIGIVN | 2e-06 | 68 |
| HLA-B*51:01 | 1 | 1126 | 1135 | 10 | CDVVIGIVNN | 2e-06 | 94 |
| HLA-B*53:01 | 1 | 1126 | 1134 | 9 | CDVVIGIVN | 2e-06 | 77 |
| HLA-A*23:01 | 1 | 1127 | 1136 | 10 | DVVIGIVNNT | 2e-06 | 76 |
| HLA-B*40:01 | 1 | 1127 | 1136 | 10 | DVVIGIVNNT | 2e-06 | 68 |
| HLA-B*44:02 | 1 | 1130 | 1139 | 10 | IGIVNNTVYD | 2e-06 | 84 |
| HLA-B*44:03 | 1 | 1130 | 1139 | 10 | IGIVNNTVYD | 2e-06 | 80 |
| HLA-B*35:01 | 1 | 1131 | 1139 | 9 | GIVNNTVYD | 2e-06 | 75 |
| HLA-B*40:01 | 1 | 1131 | 1139 | 9 | GIVNNTVYD | 2e-06 | 68 |
| HLA-B*44:02 | 1 | 1131 | 1140 | 10 | GIVNNTVYDP | 2e-06 | 84 |
| HLA-B*53:01 | 1 | 1131 | 1139 | 9 | GIVNNTVYD | 2e-06 | 77 |
| HLA-B*53:01 | 1 | 1131 | 1140 | 10 | GIVNNTVYDP | 2e-06 | 77 |
| HLA-A*02:03 | 1 | 1133 | 1142 | 10 | VNNTVYDPLQ | 2e-06 | 89 |
| HLA-A*23:01 | 1 | 1133 | 1142 | 10 | VNNTVYDPLQ | 2e-06 | 76 |
| HLA-A*32:01 | 1 | 1133 | 1142 | 10 | VNNTVYDPLQ | 2e-06 | 75 |
| HLA-B*35:01 | 1 | 1133 | 1142 | 10 | VNNTVYDPLQ | 2e-06 | 75 |
| HLA-B*53:01 | 1 | 1133 | 1142 | 10 | VNNTVYDPLQ | 2e-06 | 77 |
| HLA-A*02:01 | 1 | 1134 | 1142 | 9 | NNTVYDPLQ | 2e-06 | 87 |
| HLA-A*23:01 | 1 | 1134 | 1142 | 9 | NNTVYDPLQ | 2e-06 | 76 |
| HLA-B*40:01 | 1 | 1134 | 1142 | 9 | NNTVYDPLQ | 2e-06 | 68 |
| HLA-B*40:01 | 1 | 1134 | 1143 | 10 | NNTVYDPLQP | 2e-06 | 68 |
| HLA-A*33:01 | 1 | 1138 | 1146 | 9 | YDPLQPELD | 2e-06 | 94 |
| HLA-A*68:01 | 1 | 1138 | 1146 | 9 | YDPLQPELD | 2e-06 | 85 |
| HLA-A*68:02 | 1 | 1138 | 1146 | 9 | YDPLQPELD | 2e-06 | 86 |
| HLA-B*35:01 | 1 | 1138 | 1146 | 9 | YDPLQPELD | 2e-06 | 75 |
| HLA-B*57:01 | 1 | 1138 | 1146 | 9 | YDPLQPELD | 2e-06 | 97 |
| HLA-A*32:01 | 1 | 1139 | 1147 | 9 | DPLQPELDS | 2e-06 | 75 |
| HLA-A*02:01 | 1 | 1142 | 1150 | 9 | QPELDSFKE | 2e-06 | 87 |
| HLA-A*24:02 | 1 | 1142 | 1150 | 9 | QPELDSFKE | 2e-06 | 74 |
| HLA-A*24:02 | 1 | 1142 | 1151 | 10 | QPELDSFKEE | 2e-06 | 74 |
| HLA-A*32:01 | 1 | 1142 | 1150 | 9 | QPELDSFKE | 2e-06 | 75 |
| HLA-A*32:01 | 1 | 1142 | 1151 | 10 | QPELDSFKEE | 2e-06 | 75 |
| HLA-A*11:01 | 1 | 1143 | 1151 | 9 | PELDSFKEE | 2e-06 | 75 |
| HLA-A*23:01 | 1 | 1143 | 1151 | 9 | PELDSFKEE | 2e-06 | 76 |
| HLA-A*11:01 | 1 | 1144 | 1153 | 10 | ELDSFKEELD | 2e-06 | 75 |
| HLA-A*23:01 | 1 | 1145 | 1154 | 10 | LDSFKEELDK | 2e-06 | 76 |
| HLA-A*30:02 | 1 | 1145 | 1153 | 9 | LDSFKEELD | 2e-06 | 98 |
| HLA-B*08:01 | 1 | 1145 | 1153 | 9 | LDSFKEELD | 2e-06 | 98 |
| HLA-B*40:01 | 1 | 1145 | 1154 | 10 | LDSFKEELDK | 2e-06 | 68 |
| HLA-A*23:01 | 1 | 1149 | 1158 | 10 | KEELDKYFKN | 2e-06 | 76 |

| | | | | | | |
|-------------|---|------|------|----|-------------------|----|
| HLA-A*24:02 | 1 | 1149 | 1158 | 10 | KEELDKYFKN 2e-06 | 74 |
| HLA-A*32:01 | 1 | 1149 | 1158 | 10 | KEELDKYFKN 2e-06 | 75 |
| HLA-A*68:02 | 1 | 1149 | 1158 | 10 | KEELDKYFKN 2e-06 | 86 |
| HLA-B*53:01 | 1 | 1149 | 1158 | 10 | KEELDKYFKN 2e-06 | 77 |
| HLA-A*02:03 | 1 | 1150 | 1158 | 9 | EELDKYFKN 2e-06 | 89 |
| HLA-A*23:01 | 1 | 1152 | 1160 | 9 | LDKYFKNHT 2e-06 | 76 |
| HLA-A*24:02 | 1 | 1152 | 1160 | 9 | LDKYFKNHT 2e-06 | 74 |
| HLA-A*24:02 | 1 | 1152 | 1161 | 10 | LDKYFKNHTS 2e-06 | 74 |
| HLA-A*32:01 | 1 | 1152 | 1160 | 9 | LDKYFKNHT 2e-06 | 75 |
| HLA-B*53:01 | 1 | 1152 | 1161 | 10 | LDKYFKNHTS 2e-06 | 77 |
| HLA-A*32:01 | 1 | 1153 | 1161 | 9 | DKYFKNHTS 2e-06 | 75 |
| HLA-A*68:02 | 1 | 1154 | 1163 | 10 | KYFKNHTSPD 2e-06 | 86 |
| HLA-B*44:02 | 1 | 1154 | 1163 | 10 | KYFKNHTSPD 2e-06 | 84 |
| HLA-B*44:03 | 1 | 1154 | 1163 | 10 | KYFKNHTSPD 2e-06 | 80 |
| HLA-B*53:01 | 1 | 1154 | 1163 | 10 | KYFKNHTSPD 2e-06 | 77 |
| HLA-A*02:01 | 1 | 1155 | 1163 | 9 | YFKNHTSPD 2e-06 | 87 |
| HLA-A*11:01 | 1 | 1155 | 1163 | 9 | YFKNHTSPD 2e-06 | 75 |
| HLA-B*44:02 | 1 | 1155 | 1163 | 9 | YFKNHTSPD 2e-06 | 84 |
| HLA-B*58:01 | 1 | 1155 | 1163 | 9 | YFKNHTSPD 2e-06 | 92 |
| HLA-A*02:03 | 1 | 1156 | 1165 | 10 | FKNHTSPDVD 2e-06 | 89 |
| HLA-A*02:06 | 1 | 1156 | 1165 | 10 | FKNHTSPDVD 2e-06 | 91 |
| HLA-A*11:01 | 1 | 1156 | 1164 | 9 | FKNHTSPDV 2e-06 | 75 |
| HLA-B*07:02 | 1 | 1156 | 1165 | 10 | FKNHTSPDVD 2e-06 | 88 |
| HLA-B*53:01 | 1 | 1156 | 1165 | 10 | FKNHTSPDVD 2e-06 | 77 |
| HLA-B*58:01 | 1 | 1156 | 1165 | 10 | FKNHTSPDVD 2e-06 | 92 |
| HLA-A*68:01 | 1 | 1157 | 1165 | 9 | KNHTSPDVD 2e-06 | 85 |
| HLA-B*07:02 | 1 | 1157 | 1165 | 9 | KNHTSPDVD 2e-06 | 88 |
| HLA-B*08:01 | 1 | 1157 | 1165 | 9 | KNHTSPDVD 2e-06 | 98 |
| HLA-B*35:01 | 1 | 1157 | 1165 | 9 | KNHTSPDVD 2e-06 | 75 |
| HLA-A*03:01 | 1 | 1158 | 1167 | 10 | NHTSPDVLG 2e-06 | 88 |
| HLA-A*11:01 | 1 | 1158 | 1167 | 10 | NHTSPDVLG 2e-06 | 75 |
| HLA-B*15:01 | 1 | 1158 | 1167 | 10 | NHTSPDVLG 2e-06 | 87 |
| HLA-B*07:02 | 1 | 1159 | 1168 | 10 | HTSPDVLGD 2e-06 | 88 |
| HLA-B*44:03 | 1 | 1159 | 1168 | 10 | HTSPDVLGD 2e-06 | 80 |
| HLA-A*03:01 | 1 | 1160 | 1168 | 9 | TSPDVLGD 2e-06 | 88 |
| HLA-A*11:01 | 1 | 1160 | 1168 | 9 | TSPDVLGD 2e-06 | 75 |
| HLA-A*23:01 | 1 | 1160 | 1168 | 9 | TSPDVLGD 2e-06 | 76 |
| HLA-A*24:02 | 1 | 1160 | 1168 | 9 | TSPDVLGD 2e-06 | 74 |
| HLA-B*44:02 | 1 | 1160 | 1168 | 9 | TSPDVLGD 2e-06 | 84 |
| HLA-B*44:03 | 1 | 1160 | 1168 | 9 | TSPDVLGD 2e-06 | 80 |
| HLA-A*24:02 | 1 | 1161 | 1170 | 10 | SPDVLGDIS 2e-06 | 74 |
| HLA-A*33:01 | 1 | 1161 | 1170 | 10 | SPDVLGDIS 2e-06 | 94 |
| HLA-A*02:06 | 1 | 1162 | 1170 | 9 | PDVLDGDIS 2e-06 | 91 |
| HLA-B*08:01 | 1 | 1162 | 1170 | 9 | PDVLDGDIS 2e-06 | 98 |
| HLA-B*44:02 | 1 | 1162 | 1170 | 9 | PDVLDGDIS 2e-06 | 84 |
| HLA-B*53:01 | 1 | 1162 | 1171 | 10 | PDVLDGDISG 2e-06 | 77 |
| HLA-A*03:01 | 1 | 1164 | 1173 | 10 | VDLGDISGIN 2e-06 | 88 |
| HLA-A*32:01 | 1 | 1164 | 1173 | 10 | VDLGDISGIN 2e-06 | 75 |
| HLA-B*40:01 | 1 | 1164 | 1173 | 10 | VDLGDISGIN 2e-06 | 68 |
| HLA-B*53:01 | 1 | 1164 | 1173 | 10 | VDLGDISGIN 2e-06 | 77 |
| HLA-A*23:01 | 1 | 1166 | 1175 | 10 | LGDISGINAS 2e-06 | 76 |
| HLA-A*24:02 | 1 | 1166 | 1175 | 10 | LGDISGINAS 2e-06 | 74 |
| HLA-A*26:01 | 1 | 1169 | 1178 | 10 | ISGINASVNVN 2e-06 | 85 |
| HLA-A*31:01 | 1 | 1169 | 1178 | 10 | ISGINASVNVN 2e-06 | 90 |
| HLA-B*07:02 | 1 | 1169 | 1178 | 10 | ISGINASVNVN 2e-06 | 88 |
| HLA-B*44:02 | 1 | 1169 | 1178 | 10 | ISGINASVNVN 2e-06 | 84 |
| HLA-A*24:02 | 1 | 1170 | 1178 | 9 | SGINASVNVN 2e-06 | 74 |
| HLA-B*40:01 | 1 | 1171 | 1180 | 10 | GINASVNVNIQ 2e-06 | 68 |
| HLA-A*23:01 | 1 | 1173 | 1182 | 10 | NASVNVNIQKE 2e-06 | 76 |
| HLA-A*24:02 | 1 | 1173 | 1182 | 10 | NASVNVNIQKE 2e-06 | 74 |
| HLA-B*35:01 | 1 | 1175 | 1184 | 10 | SVVNIQKEID 2e-06 | 75 |
| HLA-A*26:01 | 1 | 1176 | 1184 | 9 | VVNIQKEID 2e-06 | 85 |
| HLA-B*35:01 | 1 | 1176 | 1184 | 9 | VVNIQKEID 2e-06 | 75 |
| HLA-B*44:02 | 1 | 1176 | 1184 | 9 | VVNIQKEID 2e-06 | 84 |
| HLA-B*35:01 | 1 | 1178 | 1187 | 10 | NIQKEIDRLN 2e-06 | 75 |
| HLA-B*40:01 | 1 | 1178 | 1187 | 10 | NIQKEIDRLN 2e-06 | 68 |

| | | | | | | | |
|-------------|---|------|------|----|--------------|-------|----|
| HLA-A*02:06 | 1 | 1180 | 1188 | 9 | QKEIDRLNE | 2e-06 | 91 |
| HLA-A*11:01 | 1 | 1180 | 1188 | 9 | QKEIDRLNE | 2e-06 | 75 |
| HLA-B*53:01 | 1 | 1180 | 1188 | 9 | QKEIDRLNE | 2e-06 | 77 |
| HLA-A*23:01 | 1 | 1183 | 1192 | 10 | IDRLNEVAKN | 2e-06 | 76 |
| HLA-A*26:01 | 1 | 1183 | 1192 | 10 | IDRLNEVAKN | 2e-06 | 85 |
| HLA-A*02:06 | 1 | 1184 | 1192 | 9 | DRLNEVAKN | 2e-06 | 91 |
| HLA-A*03:01 | 1 | 1184 | 1192 | 9 | DRLNEVAKN | 2e-06 | 88 |
| HLA-A*24:02 | 1 | 1184 | 1192 | 9 | DRLNEVAKN | 2e-06 | 74 |
| HLA-A*68:02 | 1 | 1184 | 1192 | 9 | DRLNEVAKN | 2e-06 | 86 |
| HLA-B*07:02 | 1 | 1184 | 1192 | 9 | DRLNEVAKN | 2e-06 | 88 |
| HLA-B*40:01 | 1 | 1184 | 1192 | 9 | DRLNEVAKN | 2e-06 | 68 |
| HLA-A*02:01 | 1 | 1186 | 1195 | 10 | LNEVAKNLNE | 2e-06 | 87 |
| HLA-A*02:03 | 1 | 1186 | 1195 | 10 | LNEVAKNLNE | 2e-06 | 89 |
| HLA-A*03:01 | 1 | 1186 | 1194 | 9 | LNEVAKNLN | 2e-06 | 88 |
| HLA-A*31:01 | 1 | 1186 | 1194 | 9 | LNEVAKNLN | 2e-06 | 90 |
| HLA-B*07:02 | 1 | 1186 | 1195 | 10 | LNEVAKNLNE | 2e-06 | 88 |
| HLA-B*44:03 | 1 | 1186 | 1194 | 9 | LNEVAKNLN | 2e-06 | 80 |
| HLA-B*53:01 | 1 | 1186 | 1194 | 9 | LNEVAKNLN | 2e-06 | 77 |
| HLA-B*53:01 | 1 | 1186 | 1195 | 10 | LNEVAKNLNE | 2e-06 | 77 |
| HLA-A*24:02 | 1 | 1187 | 1196 | 10 | NEVAKNLNES | 2e-06 | 74 |
| HLA-A*32:01 | 1 | 1187 | 1195 | 9 | NEVAKNLNE | 2e-06 | 75 |
| HLA-A*32:01 | 1 | 1191 | 1199 | 9 | KNLNESLID | 2e-06 | 75 |
| HLA-A*33:01 | 1 | 1191 | 1199 | 9 | KNLNESLID | 2e-06 | 94 |
| HLA-B*40:01 | 1 | 1192 | 1201 | 10 | NLNESLIDLQ | 2e-06 | 68 |
| HLA-A*02:03 | 1 | 1193 | 1202 | 10 | LNESLIDLQE | 2e-06 | 89 |
| HLA-A*23:01 | 1 | 1193 | 1202 | 10 | LNESLIDLQE | 2e-06 | 76 |
| HLA-A*24:02 | 1 | 1193 | 1201 | 9 | LNESLIDLQ | 2e-06 | 74 |
| HLA-A*32:01 | 1 | 1193 | 1201 | 9 | LNESLIDLQ | 2e-06 | 75 |
| HLA-B*07:02 | 1 | 1193 | 1202 | 10 | LNESLIDLQE | 2e-06 | 88 |
| HLA-B*40:01 | 1 | 1193 | 1201 | 9 | LNESLIDLQ | 2e-06 | 68 |
| HLA-A*24:02 | 1 | 1198 | 1207 | 10 | IDLQELGKYE | 2e-06 | 74 |
| HLA-A*32:01 | 1 | 1199 | 1208 | 10 | DLQELGKYEQ | 2e-06 | 75 |
| HLA-A*68:01 | 1 | 1205 | 1213 | 9 | KYEQYIKWP | 2e-06 | 85 |
| HLA-A*02:03 | 1 | 1210 | 1219 | 10 | IKWPWYIWLG | 2e-06 | 89 |
| HLA-A*26:01 | 1 | 1210 | 1219 | 10 | IKWPWYIWLG | 2e-06 | 85 |
| HLA-A*68:01 | 1 | 1210 | 1219 | 10 | IKWPWYIWLG | 2e-06 | 85 |
| HLA-B*53:01 | 1 | 1210 | 1219 | 10 | IKWPWYIWLG | 2e-06 | 77 |
| HLA-B*35:01 | 1 | 1211 | 1219 | 9 | KWPWYIWLG | 2e-06 | 75 |
| HLA-A*11:01 | 1 | 1212 | 1221 | 10 | WPWYIWLGFI | 2e-06 | 75 |
| HLA-A*11:01 | 1 | 1213 | 1221 | 9 | PWYIWLGFI | 2e-06 | 75 |
| HLA-A*68:01 | 1 | 1213 | 1221 | 9 | PWYIWLGFI | 2e-06 | 85 |
| HLA-A*68:01 | 1 | 1213 | 1222 | 10 | PWYIWLGFIA | 2e-06 | 85 |
| HLA-B*07:02 | 1 | 1213 | 1222 | 10 | PWYIWLGFIA | 2e-06 | 88 |
| HLA-B*44:02 | 1 | 1213 | 1221 | 9 | PWYIWLGFI | 2e-06 | 84 |
| HLA-A*32:01 | 1 | 1214 | 1223 | 10 | WYIWLGFIAIAG | 2e-06 | 75 |
| HLA-B*07:02 | 1 | 1214 | 1223 | 10 | WYIWLGFIAIAG | 2e-06 | 88 |
| HLA-B*44:02 | 1 | 1214 | 1223 | 10 | WYIWLGFIAIAG | 2e-06 | 84 |
| HLA-B*58:01 | 1 | 1214 | 1223 | 10 | WYIWLGFIAIAG | 2e-06 | 92 |
| HLA-A*11:01 | 1 | 1217 | 1225 | 9 | WLGFIAGLI | 2e-06 | 75 |
| HLA-A*23:01 | 1 | 1217 | 1226 | 10 | WLGFIAGLIA | 2e-06 | 76 |
| HLA-B*40:01 | 1 | 1217 | 1226 | 10 | WLGFIAGLIA | 2e-06 | 68 |
| HLA-B*44:03 | 1 | 1221 | 1230 | 10 | IAGLIAIVMV | 2e-06 | 80 |
| HLA-A*23:01 | 1 | 1222 | 1231 | 10 | AGLIAIVMVT | 2e-06 | 76 |
| HLA-B*35:01 | 1 | 1223 | 1232 | 10 | GLIAIVMVTI | 2e-06 | 75 |
| HLA-A*24:02 | 1 | 1226 | 1235 | 10 | AIVMVTIMLC | 2e-06 | 74 |
| HLA-B*44:02 | 1 | 1226 | 1235 | 10 | AIVMVTIMLC | 2e-06 | 84 |
| HLA-B*40:01 | 1 | 1228 | 1237 | 10 | VMVTIMLCCM | 2e-06 | 68 |
| HLA-B*44:03 | 1 | 1228 | 1236 | 9 | VMVTIMLCC | 2e-06 | 80 |
| HLA-B*15:01 | 1 | 1229 | 1238 | 10 | MVTIMLCCMT | 2e-06 | 87 |
| HLA-A*24:02 | 1 | 1230 | 1238 | 9 | VTIMLCCMT | 2e-06 | 74 |
| HLA-B*35:01 | 1 | 1230 | 1238 | 9 | VTIMLCCMT | 2e-06 | 75 |
| HLA-B*53:01 | 1 | 1230 | 1238 | 9 | VTIMLCCMT | 2e-06 | 77 |
| HLA-A*23:01 | 1 | 1231 | 1239 | 9 | TIMLCCMTS | 2e-06 | 76 |
| HLA-A*26:01 | 1 | 1231 | 1240 | 10 | TIMLCCMTSC | 2e-06 | 85 |
| HLA-B*44:02 | 1 | 1231 | 1239 | 9 | TIMLCCMTS | 2e-06 | 84 |
| HLA-B*53:01 | 1 | 1231 | 1240 | 10 | TIMLCCMTSC | 2e-06 | 77 |

| | | | | | | | |
|-------------|---|------|------|----|------------|-------|----|
| HLA-B*35:01 | 1 | 1232 | 1240 | 9 | IMLCCMTSC | 2e-06 | 75 |
| HLA-B*40:01 | 1 | 1232 | 1240 | 9 | IMLCCMTSC | 2e-06 | 68 |
| HLA-B*53:01 | 1 | 1232 | 1240 | 9 | IMLCCMTSC | 2e-06 | 77 |
| HLA-A*11:01 | 1 | 1233 | 1241 | 9 | MLCCMTSCC | 2e-06 | 75 |
| HLA-A*68:01 | 1 | 1233 | 1242 | 10 | MLCCMTSCCS | 2e-06 | 85 |
| HLA-A*68:02 | 1 | 1233 | 1242 | 10 | MLCCMTSCCS | 2e-06 | 86 |
| HLA-B*53:01 | 1 | 1233 | 1241 | 9 | MLCCMTSCC | 2e-06 | 77 |
| HLA-B*58:01 | 1 | 1233 | 1242 | 10 | MLCCMTSCCS | 2e-06 | 92 |
| HLA-A*02:03 | 1 | 1234 | 1243 | 10 | LCCMTSCCS | 2e-06 | 89 |
| HLA-A*02:06 | 1 | 1234 | 1242 | 9 | LCCMTSCCS | 2e-06 | 91 |
| HLA-A*31:01 | 1 | 1234 | 1242 | 9 | LCCMTSCCS | 2e-06 | 90 |
| HLA-B*07:02 | 1 | 1234 | 1242 | 9 | LCCMTSCCS | 2e-06 | 88 |
| HLA-B*08:01 | 1 | 1234 | 1242 | 9 | LCCMTSCCS | 2e-06 | 98 |
| HLA-B*51:01 | 1 | 1234 | 1242 | 9 | LCCMTSCCS | 2e-06 | 94 |
| HLA-B*51:01 | 1 | 1234 | 1243 | 10 | LCCMTSCCS | 2e-06 | 94 |
| HLA-B*58:01 | 1 | 1234 | 1242 | 9 | LCCMTSCCS | 2e-06 | 92 |
| HLA-A*03:01 | 1 | 1235 | 1243 | 9 | CCMTSCCSC | 2e-06 | 88 |
| HLA-A*24:02 | 1 | 1235 | 1244 | 10 | CCMTSCCSC | 2e-06 | 74 |
| HLA-A*32:01 | 1 | 1235 | 1243 | 9 | CCMTSCCSC | 2e-06 | 75 |
| HLA-A*68:01 | 1 | 1235 | 1243 | 9 | CCMTSCCSC | 2e-06 | 85 |
| HLA-B*35:01 | 1 | 1235 | 1243 | 9 | CCMTSCCSC | 2e-06 | 75 |
| HLA-A*11:01 | 1 | 1236 | 1244 | 9 | CMTSCCSC | 2e-06 | 75 |
| HLA-A*68:01 | 1 | 1236 | 1244 | 9 | CMTSCCSC | 2e-06 | 85 |
| HLA-B*40:01 | 1 | 1236 | 1244 | 9 | CMTSCCSC | 2e-06 | 68 |
| HLA-B*15:01 | 1 | 1237 | 1246 | 10 | MTSCCCLKG | 2e-06 | 87 |
| HLA-B*51:01 | 1 | 1237 | 1246 | 10 | MTSCCCLKG | 2e-06 | 94 |
| HLA-A*02:01 | 1 | 1238 | 1246 | 9 | TSCCCLKG | 2e-06 | 87 |
| HLA-A*02:03 | 1 | 1238 | 1246 | 9 | TSCCCLKG | 2e-06 | 89 |
| HLA-A*03:01 | 1 | 1238 | 1246 | 9 | TSCCCLKG | 2e-06 | 88 |
| HLA-B*08:01 | 1 | 1238 | 1247 | 10 | TSCCCLKGC | 2e-06 | 98 |
| HLA-B*53:01 | 1 | 1238 | 1246 | 9 | TSCCCLKGC | 2e-06 | 77 |
| HLA-A*02:03 | 1 | 1239 | 1248 | 10 | SCCCLKGCC | 2e-06 | 89 |
| HLA-A*02:06 | 1 | 1239 | 1248 | 10 | SCCCLKGCC | 2e-06 | 91 |
| HLA-A*11:01 | 1 | 1239 | 1247 | 9 | SCCCLKGC | 2e-06 | 75 |
| HLA-A*31:01 | 1 | 1239 | 1248 | 10 | SCCCLKGCC | 2e-06 | 90 |
| HLA-A*33:01 | 1 | 1239 | 1248 | 10 | SCCCLKGCC | 2e-06 | 94 |
| HLA-A*68:01 | 1 | 1239 | 1247 | 9 | SCCCLKGC | 2e-06 | 85 |
| HLA-B*07:02 | 1 | 1239 | 1247 | 9 | SCCCLKGC | 2e-06 | 88 |
| HLA-B*15:01 | 1 | 1239 | 1247 | 9 | SCCCLKGC | 2e-06 | 87 |
| HLA-B*53:01 | 1 | 1239 | 1247 | 9 | SCCCLKGC | 2e-06 | 77 |
| HLA-A*11:01 | 1 | 1240 | 1249 | 10 | CCSCLKGCCS | 2e-06 | 75 |
| HLA-A*30:02 | 1 | 1240 | 1248 | 9 | CCSCLKGC | 2e-06 | 98 |
| HLA-B*08:01 | 1 | 1240 | 1249 | 10 | CCSCLKGCCS | 2e-06 | 98 |
| HLA-B*51:01 | 1 | 1240 | 1248 | 9 | CCSCLKGC | 2e-06 | 94 |
| HLA-A*68:01 | 1 | 1241 | 1250 | 10 | CSCCLKGCCS | 2e-06 | 85 |
| HLA-B*35:01 | 1 | 1241 | 1249 | 9 | CSCCLKGCCS | 2e-06 | 75 |
| HLA-B*51:01 | 1 | 1241 | 1250 | 10 | CSCCLKGCCS | 2e-06 | 94 |
| HLA-A*01:01 | 1 | 1242 | 1251 | 10 | SCLKGCCSCG | 2e-06 | 99 |
| HLA-A*32:01 | 1 | 1242 | 1251 | 10 | SCLKGCCSCG | 2e-06 | 75 |
| HLA-B*44:03 | 1 | 1242 | 1250 | 9 | SCLKGCCSC | 2e-06 | 80 |
| HLA-A*03:01 | 1 | 1243 | 1251 | 9 | CLKGCCSCG | 2e-06 | 88 |
| HLA-A*33:01 | 1 | 1243 | 1251 | 9 | CLKGCCSCG | 2e-06 | 94 |
| HLA-A*33:01 | 1 | 1243 | 1252 | 10 | CLKGCCSCGS | 2e-06 | 94 |
| HLA-B*07:02 | 1 | 1243 | 1251 | 9 | CLKGCCSCG | 2e-06 | 88 |
| HLA-B*58:01 | 1 | 1243 | 1251 | 9 | CLKGCCSCG | 2e-06 | 92 |
| HLA-A*30:02 | 1 | 1244 | 1252 | 9 | LKGCCSCGS | 2e-06 | 98 |
| HLA-A*30:02 | 1 | 1244 | 1253 | 10 | LKGCCSCGSC | 2e-06 | 98 |
| HLA-B*08:01 | 1 | 1244 | 1253 | 10 | LKGCCSCGSC | 2e-06 | 98 |
| HLA-A*11:01 | 1 | 1245 | 1253 | 9 | KGCCSCGSC | 2e-06 | 75 |
| HLA-A*11:01 | 1 | 1245 | 1254 | 10 | KGCCSCGSCC | 2e-06 | 75 |
| HLA-A*33:01 | 1 | 1245 | 1253 | 9 | KGCCSCGSC | 2e-06 | 94 |
| HLA-A*02:01 | 1 | 1246 | 1254 | 9 | GCCSCGSCC | 2e-06 | 87 |
| HLA-A*02:01 | 1 | 1246 | 1255 | 10 | GCCSCGSCC | 2e-06 | 87 |
| HLA-A*02:03 | 1 | 1246 | 1254 | 9 | GCCSCGSCC | 2e-06 | 89 |
| HLA-A*03:01 | 1 | 1246 | 1254 | 9 | GCCSCGSCC | 2e-06 | 88 |
| HLA-A*26:01 | 1 | 1246 | 1255 | 10 | GCCSCGSCC | 2e-06 | 85 |

| | | | | | | | |
|-------------|---|------|------|----|------------|-------|----|
| HLA-A*31:01 | 1 | 1246 | 1254 | 9 | GCCSCGSCC | 2e-06 | 90 |
| HLA-B*15:01 | 1 | 1246 | 1254 | 9 | GCCSCGSCC | 2e-06 | 87 |
| HLA-B*15:01 | 1 | 1246 | 1255 | 10 | GCCSCGSCCK | 2e-06 | 87 |
| HLA-B*40:01 | 1 | 1246 | 1254 | 9 | GCCSCGSCC | 2e-06 | 68 |
| HLA-B*44:02 | 1 | 1246 | 1255 | 10 | GCCSCGSCCK | 2e-06 | 84 |
| HLA-B*51:01 | 1 | 1246 | 1254 | 9 | GCCSCGSCC | 2e-06 | 94 |
| HLA-A*02:06 | 1 | 1247 | 1255 | 9 | CCSCGSCCK | 2e-06 | 91 |
| HLA-A*26:01 | 1 | 1247 | 1255 | 9 | CCSCGSCCK | 2e-06 | 85 |
| HLA-A*32:01 | 1 | 1247 | 1255 | 9 | CCSCGSCCK | 2e-06 | 75 |
| HLA-B*08:01 | 1 | 1247 | 1255 | 9 | CCSCGSCCK | 2e-06 | 98 |
| HLA-B*35:01 | 1 | 1247 | 1255 | 9 | CCSCGSCCK | 2e-06 | 75 |
| HLA-B*51:01 | 1 | 1247 | 1255 | 9 | CCSCGSCCK | 2e-06 | 94 |
| HLA-A*11:01 | 1 | 1248 | 1257 | 10 | CSCGSCCKFD | 2e-06 | 75 |
| HLA-B*08:01 | 1 | 1248 | 1257 | 10 | CSCGSCCKFD | 2e-06 | 98 |
| HLA-A*01:01 | 1 | 1249 | 1258 | 10 | SCGSCCKFDE | 2e-06 | 99 |
| HLA-A*30:01 | 1 | 1249 | 1258 | 10 | SCGSCCKFDE | 2e-06 | 98 |
| HLA-B*57:01 | 1 | 1249 | 1258 | 10 | SCGSCCKFDE | 2e-06 | 97 |
| HLA-B*58:01 | 1 | 1249 | 1257 | 9 | SCGSCCKFD | 2e-06 | 92 |
| HLA-A*68:01 | 1 | 1251 | 1259 | 9 | GSCCKFDED | 2e-06 | 85 |
| HLA-B*15:01 | 1 | 1251 | 1259 | 9 | GSCCKFDED | 2e-06 | 87 |
| HLA-A*30:01 | 1 | 1252 | 1260 | 9 | SCCKFDEDD | 2e-06 | 98 |
| HLA-A*30:01 | 1 | 1252 | 1261 | 10 | SCCKFDEDD | 2e-06 | 98 |
| HLA-A*30:02 | 1 | 1253 | 1261 | 9 | CCKFDEDD | 2e-06 | 98 |
| HLA-A*33:01 | 1 | 1253 | 1262 | 10 | CCKFDEDDSE | 2e-06 | 94 |
| HLA-B*44:02 | 1 | 1253 | 1262 | 10 | CCKFDEDDSE | 2e-06 | 84 |
| HLA-B*44:03 | 1 | 1253 | 1262 | 10 | CCKFDEDDSE | 2e-06 | 80 |
| HLA-A*03:01 | 1 | 1254 | 1262 | 9 | CKFDEDDSE | 2e-06 | 88 |
| HLA-A*03:01 | 1 | 1254 | 1263 | 10 | CKFDEDDSEP | 2e-06 | 88 |
| HLA-A*31:01 | 1 | 1254 | 1262 | 9 | CKFDEDDSE | 2e-06 | 90 |
| HLA-A*11:01 | 1 | 1265 | 1273 | 9 | LKGVKLYHT | 2e-06 | 75 |
| HLA-B*53:01 | 1 | 1265 | 1273 | 9 | LKGVKLYHT | 2e-06 | 77 |
| HLA-B*35:01 | 1 | 3 | 12 | 10 | VFLVLLPLVS | 1e-06 | 87 |
| HLA-B*44:03 | 1 | 3 | 12 | 10 | VFLVLLPLVS | 1e-06 | 91 |
| HLA-A*24:02 | 1 | 4 | 13 | 10 | FLVLLPLVSS | 1e-06 | 88 |
| HLA-B*40:01 | 1 | 4 | 13 | 10 | FLVLLPLVSS | 1e-06 | 81 |
| HLA-B*44:02 | 1 | 4 | 13 | 10 | FLVLLPLVSS | 1e-06 | 94 |
| HLA-B*44:03 | 1 | 4 | 13 | 10 | FLVLLPLVSS | 1e-06 | 91 |
| HLA-B*40:01 | 1 | 5 | 14 | 10 | LVLLPLVSSQ | 1e-06 | 81 |
| HLA-A*11:01 | 1 | 8 | 17 | 10 | LPLVSSQCVN | 1e-06 | 88 |
| HLA-A*31:01 | 1 | 8 | 17 | 10 | LPLVSSQCVN | 1e-06 | 97 |
| HLA-A*32:01 | 1 | 8 | 17 | 10 | LPLVSSQCVN | 1e-06 | 86 |
| HLA-A*33:01 | 1 | 8 | 17 | 10 | LPLVSSQCVN | 1e-06 | 98 |
| HLA-B*44:03 | 1 | 8 | 17 | 10 | LPLVSSQCVN | 1e-06 | 91 |
| HLA-A*24:02 | 1 | 9 | 17 | 9 | PLVSSQCVN | 1e-06 | 88 |
| HLA-A*31:01 | 1 | 9 | 17 | 9 | PLVSSQCVN | 1e-06 | 97 |
| HLA-A*32:01 | 1 | 9 | 17 | 9 | PLVSSQCVN | 1e-06 | 86 |
| HLA-A*33:01 | 1 | 9 | 17 | 9 | PLVSSQCVN | 1e-06 | 98 |
| HLA-A*68:02 | 1 | 9 | 17 | 9 | PLVSSQCVN | 1e-06 | 94 |
| HLA-B*35:01 | 1 | 9 | 17 | 9 | PLVSSQCVN | 1e-06 | 87 |
| HLA-B*44:02 | 1 | 9 | 17 | 9 | PLVSSQCVN | 1e-06 | 94 |
| HLA-B*53:01 | 1 | 9 | 17 | 9 | PLVSSQCVN | 1e-06 | 89 |
| HLA-B*40:01 | 1 | 10 | 19 | 10 | LVSSQCVNLT | 1e-06 | 81 |
| HLA-B*44:03 | 1 | 10 | 19 | 10 | LVSSQCVNLT | 1e-06 | 91 |
| HLA-A*23:01 | 1 | 14 | 23 | 10 | QCVNLTTRTQ | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 14 | 23 | 10 | QCVNLTTRTQ | 1e-06 | 88 |
| HLA-A*23:01 | 1 | 18 | 27 | 10 | LTRTQLPPA | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 18 | 27 | 10 | LTRTQLPPA | 1e-06 | 88 |
| HLA-B*44:03 | 1 | 18 | 27 | 10 | LTRTQLPPA | 1e-06 | 91 |
| HLA-A*32:01 | 1 | 25 | 33 | 9 | PPAYTNSFT | 1e-06 | 86 |
| HLA-B*15:01 | 1 | 25 | 33 | 9 | PPAYTNSFT | 1e-06 | 95 |
| HLA-B*40:01 | 1 | 25 | 34 | 10 | PPAYTNSFTR | 1e-06 | 81 |
| HLA-B*44:02 | 1 | 26 | 35 | 10 | PAYTNSFTRG | 1e-06 | 94 |
| HLA-B*44:03 | 1 | 26 | 35 | 10 | PAYTNSFTRG | 1e-06 | 91 |
| HLA-B*40:01 | 1 | 27 | 35 | 9 | AYTNSFTRG | 1e-06 | 81 |
| HLA-A*02:01 | 1 | 31 | 40 | 10 | SFTRGVVYPD | 1e-06 | 95 |
| HLA-B*15:01 | 1 | 31 | 40 | 10 | SFTRGVVYPD | 1e-06 | 95 |

| | | | | | | |
|-------------|---|----|----|----|------------------|----|
| HLA-B*44:02 | 1 | 31 | 40 | 10 | SFTRGVYYPD 1e-06 | 94 |
| HLA-B*44:03 | 1 | 31 | 40 | 10 | SFTRGVYYPD 1e-06 | 91 |
| HLA-A*24:02 | 1 | 32 | 40 | 9 | FTRGVYYPD 1e-06 | 88 |
| HLA-B*40:01 | 1 | 32 | 41 | 10 | FTRGVYYPDK 1e-06 | 81 |
| HLA-B*44:02 | 1 | 32 | 40 | 9 | FTRGVYYPD 1e-06 | 94 |
| HLA-B*44:03 | 1 | 32 | 40 | 9 | FTRGVYYPD 1e-06 | 91 |
| HLA-A*11:01 | 1 | 39 | 48 | 10 | PDKVFRSSVL 1e-06 | 88 |
| HLA-A*68:01 | 1 | 39 | 48 | 10 | PDKVFRSSVL 1e-06 | 94 |
| HLA-A*23:01 | 1 | 44 | 53 | 10 | RSSVLHSTQD 1e-06 | 90 |
| HLA-A*24:02 | 1 | 44 | 53 | 10 | RSSVLHSTQD 1e-06 | 88 |
| HLA-B*35:01 | 1 | 44 | 53 | 10 | RSSVLHSTQD 1e-06 | 87 |
| HLA-B*40:01 | 1 | 44 | 53 | 10 | RSSVLHSTQD 1e-06 | 81 |
| HLA-B*15:01 | 1 | 48 | 57 | 10 | LHSTQDLFLP 1e-06 | 95 |
| HLA-A*24:02 | 1 | 52 | 61 | 10 | QDLFLPFFSN 1e-06 | 88 |
| HLA-B*35:01 | 1 | 52 | 61 | 10 | QDLFLPFFSN 1e-06 | 87 |
| HLA-B*40:01 | 1 | 52 | 61 | 10 | QDLFLPFFSN 1e-06 | 81 |
| HLA-B*40:01 | 1 | 63 | 72 | 10 | TWFHAIHVSG 1e-06 | 81 |
| HLA-A*11:01 | 1 | 64 | 73 | 10 | WFHAIHVSGT 1e-06 | 88 |
| HLA-B*40:01 | 1 | 64 | 73 | 10 | WFHAIHVSGT 1e-06 | 81 |
| HLA-A*11:01 | 1 | 65 | 74 | 10 | FHAIHVSGTN 1e-06 | 88 |
| HLA-A*32:01 | 1 | 65 | 74 | 10 | FHAIHVSGTN 1e-06 | 86 |
| HLA-B*40:01 | 1 | 65 | 74 | 10 | FHAIHVSGTN 1e-06 | 81 |
| HLA-A*23:01 | 1 | 66 | 74 | 9 | HAIHVSGTN 1e-06 | 90 |
| HLA-A*24:02 | 1 | 66 | 74 | 9 | HAIHVSGTN 1e-06 | 88 |
| HLA-A*24:02 | 1 | 66 | 75 | 10 | HAIHVSGTNG 1e-06 | 88 |
| HLA-B*40:01 | 1 | 66 | 75 | 10 | HAIHVSGTNG 1e-06 | 81 |
| HLA-A*24:02 | 1 | 67 | 75 | 9 | AIHVSGTNG 1e-06 | 88 |
| HLA-B*35:01 | 1 | 71 | 80 | 10 | SGTNGTKRFD 1e-06 | 87 |
| HLA-B*40:01 | 1 | 71 | 80 | 10 | SGTNGTKRFD 1e-06 | 81 |
| HLA-A*02:01 | 1 | 72 | 81 | 10 | GTNGTKRFDN 1e-06 | 95 |
| HLA-A*02:03 | 1 | 72 | 81 | 10 | GTNGTKRFDN 1e-06 | 96 |
| HLA-A*23:01 | 1 | 72 | 80 | 9 | GTNGTKRFD 1e-06 | 90 |
| HLA-A*24:02 | 1 | 72 | 80 | 9 | GTNGTKRFD 1e-06 | 88 |
| HLA-A*68:02 | 1 | 72 | 81 | 10 | GTNGTKRFDN 1e-06 | 94 |
| HLA-B*07:02 | 1 | 72 | 81 | 10 | GTNGTKRFDN 1e-06 | 96 |
| HLA-B*35:01 | 1 | 72 | 80 | 9 | GTNGTKRFD 1e-06 | 87 |
| HLA-B*40:01 | 1 | 72 | 80 | 9 | GTNGTKRFD 1e-06 | 81 |
| HLA-B*44:03 | 1 | 72 | 81 | 10 | GTNGTKRFDN 1e-06 | 91 |
| HLA-B*53:01 | 1 | 72 | 80 | 9 | GTNGTKRFD 1e-06 | 89 |
| HLA-A*03:01 | 1 | 73 | 81 | 9 | TNGTKRFDN 1e-06 | 96 |
| HLA-A*03:01 | 1 | 73 | 82 | 10 | TNGTKRFDNP 1e-06 | 96 |
| HLA-A*11:01 | 1 | 73 | 82 | 10 | TNGTKRFDNP 1e-06 | 88 |
| HLA-A*23:01 | 1 | 73 | 82 | 10 | TNGTKRFDNP 1e-06 | 90 |
| HLA-A*26:01 | 1 | 73 | 82 | 10 | TNGTKRFDNP 1e-06 | 94 |
| HLA-A*31:01 | 1 | 73 | 81 | 9 | TNGTKRFDN 1e-06 | 97 |
| HLA-A*68:01 | 1 | 73 | 81 | 9 | TNGTKRFDN 1e-06 | 94 |
| HLA-A*68:01 | 1 | 73 | 82 | 10 | TNGTKRFDNP 1e-06 | 94 |
| HLA-B*07:02 | 1 | 73 | 81 | 9 | TNGTKRFDN 1e-06 | 96 |
| HLA-B*44:02 | 1 | 73 | 81 | 9 | TNGTKRFDN 1e-06 | 94 |
| HLA-B*44:03 | 1 | 73 | 81 | 9 | TNGTKRFDN 1e-06 | 91 |
| HLA-B*44:03 | 1 | 73 | 82 | 10 | TNGTKRFDNP 1e-06 | 91 |
| HLA-B*53:01 | 1 | 73 | 82 | 10 | TNGTKRFDNP 1e-06 | 89 |
| HLA-B*58:01 | 1 | 73 | 81 | 9 | TNGTKRFDN 1e-06 | 98 |
| HLA-A*32:01 | 1 | 74 | 82 | 9 | NGTKRFDNP 1e-06 | 86 |
| HLA-A*11:01 | 1 | 79 | 88 | 10 | FDNPVLPFND 1e-06 | 88 |
| HLA-A*26:01 | 1 | 79 | 88 | 10 | FDNPVLPFND 1e-06 | 94 |
| HLA-B*07:02 | 1 | 79 | 88 | 10 | FDNPVLPFND 1e-06 | 96 |
| HLA-B*15:01 | 1 | 79 | 88 | 10 | FDNPVLPFND 1e-06 | 95 |
| HLA-B*35:01 | 1 | 79 | 88 | 10 | FDNPVLPFND 1e-06 | 87 |
| HLA-B*40:01 | 1 | 79 | 88 | 10 | FDNPVLPFND 1e-06 | 81 |
| HLA-A*02:01 | 1 | 80 | 88 | 9 | DNPVLPFND 1e-06 | 95 |
| HLA-A*02:01 | 1 | 80 | 89 | 10 | DNPVLPFNDG 1e-06 | 95 |
| HLA-A*02:03 | 1 | 80 | 88 | 9 | DNPVLPFND 1e-06 | 96 |
| HLA-A*02:03 | 1 | 80 | 89 | 10 | DNPVLPFNDG 1e-06 | 96 |
| HLA-A*02:06 | 1 | 80 | 88 | 9 | DNPVLPFND 1e-06 | 97 |
| HLA-A*02:06 | 1 | 80 | 89 | 10 | DNPVLPFNDG 1e-06 | 97 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-A*03:01 | 1 | 80 | 88 | 9 | DNPVLPFND 1e-06 | 96 |
| HLA-A*03:01 | 1 | 80 | 89 | 10 | DNPVLPFNDG 1e-06 | 96 |
| HLA-A*11:01 | 1 | 80 | 88 | 9 | DNPVLPFND 1e-06 | 88 |
| HLA-A*11:01 | 1 | 80 | 89 | 10 | DNPVLPFNDG 1e-06 | 88 |
| HLA-A*23:01 | 1 | 80 | 89 | 10 | DNPVLPFNDG 1e-06 | 90 |
| HLA-A*24:02 | 1 | 80 | 89 | 10 | DNPVLPFNDG 1e-06 | 88 |
| HLA-A*26:01 | 1 | 80 | 89 | 10 | DNPVLPFNDG 1e-06 | 94 |
| HLA-A*31:01 | 1 | 80 | 89 | 10 | DNPVLPFNDG 1e-06 | 97 |
| HLA-A*32:01 | 1 | 80 | 89 | 10 | DNPVLPFNDG 1e-06 | 86 |
| HLA-A*68:01 | 1 | 80 | 89 | 10 | DNPVLPFNDG 1e-06 | 94 |
| HLA-B*15:01 | 1 | 80 | 89 | 10 | DNPVLPFNDG 1e-06 | 95 |
| HLA-B*35:01 | 1 | 80 | 88 | 9 | DNPVLPFND 1e-06 | 87 |
| HLA-B*44:02 | 1 | 80 | 88 | 9 | DNPVLPFND 1e-06 | 94 |
| HLA-B*44:02 | 1 | 80 | 89 | 10 | DNPVLPFNDG 1e-06 | 94 |
| HLA-B*44:03 | 1 | 80 | 89 | 10 | DNPVLPFNDG 1e-06 | 91 |
| HLA-B*58:01 | 1 | 80 | 89 | 10 | DNPVLPFNDG 1e-06 | 98 |
| HLA-A*02:01 | 1 | 81 | 89 | 9 | NPVLPFNDG 1e-06 | 95 |
| HLA-A*23:01 | 1 | 81 | 89 | 9 | NPVLPFNDG 1e-06 | 90 |
| HLA-A*24:02 | 1 | 81 | 89 | 9 | NPVLPFNDG 1e-06 | 88 |
| HLA-B*15:01 | 1 | 85 | 94 | 10 | PFNDGVYFAS 1e-06 | 95 |
| HLA-B*35:01 | 1 | 85 | 94 | 10 | PFNDGVYFAS 1e-06 | 87 |
| HLA-B*44:02 | 1 | 85 | 94 | 10 | PFNDGVYFAS 1e-06 | 94 |
| HLA-B*44:03 | 1 | 85 | 94 | 10 | PFNDGVYFAS 1e-06 | 91 |
| HLA-B*53:01 | 1 | 85 | 94 | 10 | PFNDGVYFAS 1e-06 | 89 |
| HLA-A*32:01 | 1 | 86 | 95 | 10 | FNDGVYFAST 1e-06 | 86 |
| HLA-A*23:01 | 1 | 87 | 96 | 10 | NDGVYFASTE 1e-06 | 90 |
| HLA-A*24:02 | 1 | 87 | 96 | 10 | NDGVYFASTE 1e-06 | 88 |
| HLA-A*32:01 | 1 | 87 | 96 | 10 | NDGVYFASTE 1e-06 | 86 |
| HLA-B*40:01 | 1 | 87 | 96 | 10 | NDGVYFASTE 1e-06 | 81 |
| HLA-A*02:01 | 1 | 90 | 99 | 10 | VYFASTEKSN 1e-06 | 95 |
| HLA-B*40:01 | 1 | 98 | 107 | 10 | SNIIRGWIFG 1e-06 | 81 |
| HLA-B*40:01 | 1 | 99 | 107 | 9 | NIIRGWIFG 1e-06 | 81 |
| HLA-B*35:01 | 1 | 100 | 109 | 10 | IIRGWIFGTT 1e-06 | 87 |
| HLA-B*40:01 | 1 | 100 | 109 | 10 | IIRGWIFGTT 1e-06 | 81 |
| HLA-B*44:02 | 1 | 100 | 109 | 10 | IIRGWIFGTT 1e-06 | 94 |
| HLA-B*44:03 | 1 | 100 | 109 | 10 | IIRGWIFGTT 1e-06 | 91 |
| HLA-B*53:01 | 1 | 100 | 109 | 10 | IIRGWIFGTT 1e-06 | 89 |
| HLA-B*35:01 | 1 | 102 | 111 | 10 | RGWIFGTTLD 1e-06 | 87 |
| HLA-A*11:01 | 1 | 103 | 111 | 9 | GWIFGTTLD 1e-06 | 88 |
| HLA-B*35:01 | 1 | 103 | 111 | 9 | GWIFGTTLD 1e-06 | 87 |
| HLA-B*35:01 | 1 | 103 | 112 | 10 | GWIFGTTLDS 1e-06 | 87 |
| HLA-B*40:01 | 1 | 103 | 112 | 10 | GWIFGTTLDS 1e-06 | 81 |
| HLA-B*44:03 | 1 | 103 | 111 | 9 | GWIFGTTLD 1e-06 | 91 |
| HLA-B*44:03 | 1 | 103 | 112 | 10 | GWIFGTTLDS 1e-06 | 91 |
| HLA-B*53:01 | 1 | 103 | 112 | 10 | GWIFGTTLDS 1e-06 | 89 |
| HLA-A*24:02 | 1 | 104 | 112 | 9 | WIFGTTLDS 1e-06 | 88 |
| HLA-A*32:01 | 1 | 105 | 114 | 10 | IFGTTLDSKT 1e-06 | 86 |
| HLA-B*35:01 | 1 | 105 | 114 | 10 | IFGTTLDSKT 1e-06 | 87 |
| HLA-A*23:01 | 1 | 106 | 115 | 10 | FGTTLDSKTQ 1e-06 | 90 |
| HLA-A*24:02 | 1 | 106 | 115 | 10 | FGTTLDSKTQ 1e-06 | 88 |
| HLA-B*40:01 | 1 | 106 | 115 | 10 | FGTTLDSKTQ 1e-06 | 81 |
| HLA-A*23:01 | 1 | 107 | 115 | 9 | GTTLDSKTQ 1e-06 | 90 |
| HLA-A*23:01 | 1 | 107 | 116 | 10 | GTTLDSKTQS 1e-06 | 90 |
| HLA-A*24:02 | 1 | 107 | 115 | 9 | GTTLDSKTQ 1e-06 | 88 |
| HLA-A*24:02 | 1 | 107 | 116 | 10 | GTTLDSKTQS 1e-06 | 88 |
| HLA-A*23:01 | 1 | 112 | 121 | 10 | SKTQSLLIVN 1e-06 | 90 |
| HLA-A*24:02 | 1 | 112 | 121 | 10 | SKTQSLLIVN 1e-06 | 88 |
| HLA-B*35:01 | 1 | 112 | 121 | 10 | SKTQSLLIVN 1e-06 | 87 |
| HLA-B*53:01 | 1 | 113 | 122 | 10 | KTQSLLIVNN 1e-06 | 89 |
| HLA-A*23:01 | 1 | 115 | 124 | 10 | QSLLIVNNAT 1e-06 | 90 |
| HLA-A*24:02 | 1 | 115 | 124 | 10 | QSLLIVNNAT 1e-06 | 88 |
| HLA-A*23:01 | 1 | 116 | 125 | 10 | SLLIVNNATN 1e-06 | 90 |
| HLA-A*24:02 | 1 | 116 | 125 | 10 | SLLIVNNATN 1e-06 | 88 |
| HLA-B*35:01 | 1 | 116 | 125 | 10 | SLLIVNNATN 1e-06 | 87 |
| HLA-B*44:03 | 1 | 116 | 125 | 10 | SLLIVNNATN 1e-06 | 91 |
| HLA-B*53:01 | 1 | 116 | 125 | 10 | SLLIVNNATN 1e-06 | 89 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|-----|
| HLA-B*40:01 | 1 | 117 | 125 | 9 | LLIVNNATN 1e-06 | 81 |
| HLA-B*44:03 | 1 | 117 | 125 | 9 | LLIVNNATN 1e-06 | 91 |
| HLA-A*23:01 | 1 | 123 | 132 | 10 | ATNVVIKVCE 1e-06 | 90 |
| HLA-A*24:02 | 1 | 123 | 132 | 10 | ATNVVIKVCE 1e-06 | 88 |
| HLA-B*40:01 | 1 | 125 | 134 | 10 | NVVIKVCEFQ 1e-06 | 81 |
| HLA-B*35:01 | 1 | 127 | 136 | 10 | VIKVCEFQFC 1e-06 | 87 |
| HLA-B*40:01 | 1 | 127 | 136 | 10 | VIKVCEFQFC 1e-06 | 81 |
| HLA-A*02:01 | 1 | 128 | 137 | 10 | IKVCEFQFCN 1e-06 | 95 |
| HLA-A*02:03 | 1 | 128 | 137 | 10 | IKVCEFQFCN 1e-06 | 96 |
| HLA-A*03:01 | 1 | 128 | 136 | 9 | IKVCEFQFC 1e-06 | 96 |
| HLA-A*11:01 | 1 | 128 | 136 | 9 | IKVCEFQFC 1e-06 | 88 |
| HLA-A*32:01 | 1 | 128 | 136 | 9 | IKVCEFQFC 1e-06 | 86 |
| HLA-A*32:01 | 1 | 128 | 137 | 10 | IKVCEFQFCN 1e-06 | 86 |
| HLA-A*68:01 | 1 | 128 | 136 | 9 | IKVCEFQFC 1e-06 | 94 |
| HLA-B*08:01 | 1 | 128 | 137 | 10 | IKVCEFQFCN 1e-06 | 100 |
| HLA-B*15:01 | 1 | 128 | 137 | 10 | IKVCEFQFCN 1e-06 | 95 |
| HLA-B*51:01 | 1 | 128 | 137 | 10 | IKVCEFQFCN 1e-06 | 99 |
| HLA-A*23:01 | 1 | 129 | 138 | 10 | KVCEFQFCND 1e-06 | 90 |
| HLA-A*24:02 | 1 | 129 | 138 | 10 | KVCEFQFCND 1e-06 | 88 |
| HLA-A*26:01 | 1 | 129 | 138 | 10 | KVCEFQFCND 1e-06 | 94 |
| HLA-A*68:02 | 1 | 129 | 138 | 10 | KVCEFQFCND 1e-06 | 94 |
| HLA-B*08:01 | 1 | 129 | 138 | 10 | KVCEFQFCND 1e-06 | 100 |
| HLA-B*51:01 | 1 | 129 | 138 | 10 | KVCEFQFCND 1e-06 | 99 |
| HLA-A*02:06 | 1 | 130 | 138 | 9 | VCEFQFCND 1e-06 | 97 |
| HLA-A*03:01 | 1 | 130 | 139 | 10 | VCEFQFCNDP 1e-06 | 96 |
| HLA-A*23:01 | 1 | 130 | 138 | 9 | VCEFQFCND 1e-06 | 90 |
| HLA-A*23:01 | 1 | 130 | 139 | 10 | VCEFQFCNDP 1e-06 | 90 |
| HLA-A*24:02 | 1 | 130 | 138 | 9 | VCEFQFCND 1e-06 | 88 |
| HLA-A*26:01 | 1 | 130 | 139 | 10 | VCEFQFCNDP 1e-06 | 94 |
| HLA-A*31:01 | 1 | 130 | 138 | 9 | VCEFQFCND 1e-06 | 97 |
| HLA-A*31:01 | 1 | 130 | 139 | 10 | VCEFQFCNDP 1e-06 | 97 |
| HLA-A*32:01 | 1 | 130 | 139 | 10 | VCEFQFCNDP 1e-06 | 86 |
| HLA-A*33:01 | 1 | 130 | 138 | 9 | VCEFQFCND 1e-06 | 98 |
| HLA-A*68:01 | 1 | 130 | 139 | 10 | VCEFQFCNDP 1e-06 | 94 |
| HLA-A*68:02 | 1 | 130 | 139 | 10 | VCEFQFCNDP 1e-06 | 94 |
| HLA-B*08:01 | 1 | 130 | 138 | 9 | VCEFQFCND 1e-06 | 100 |
| HLA-B*51:01 | 1 | 130 | 138 | 9 | VCEFQFCND 1e-06 | 99 |
| HLA-B*53:01 | 1 | 130 | 139 | 10 | VCEFQFCNDP 1e-06 | 89 |
| HLA-A*11:01 | 1 | 131 | 139 | 9 | CEFQFCNDP 1e-06 | 88 |
| HLA-A*31:01 | 1 | 131 | 139 | 9 | CEFQFCNDP 1e-06 | 97 |
| HLA-B*40:01 | 1 | 134 | 142 | 9 | QFCNDPFLG 1e-06 | 81 |
| HLA-A*02:06 | 1 | 139 | 148 | 10 | PFLGVYYHKN 1e-06 | 97 |
| HLA-A*32:01 | 1 | 139 | 148 | 10 | PFLGVYYHKN 1e-06 | 86 |
| HLA-B*08:01 | 1 | 139 | 148 | 10 | PFLGVYYHKN 1e-06 | 100 |
| HLA-B*40:01 | 1 | 139 | 147 | 9 | PFLGVYYHK 1e-06 | 81 |
| HLA-B*58:01 | 1 | 139 | 148 | 10 | PFLGVYYHKN 1e-06 | 98 |
| HLA-A*03:01 | 1 | 140 | 149 | 10 | FLGVYYHKNN 1e-06 | 96 |
| HLA-A*11:01 | 1 | 140 | 148 | 9 | FLGVYYHKN 1e-06 | 88 |
| HLA-A*68:01 | 1 | 140 | 149 | 10 | FLGVYYHKNN 1e-06 | 94 |
| HLA-B*07:02 | 1 | 140 | 148 | 9 | FLGVYYHKN 1e-06 | 96 |
| HLA-B*15:01 | 1 | 140 | 149 | 10 | FLGVYYHKNN 1e-06 | 95 |
| HLA-B*51:01 | 1 | 140 | 149 | 10 | FLGVYYHKNN 1e-06 | 99 |
| HLA-A*02:03 | 1 | 141 | 149 | 9 | LGVYYHKNN 1e-06 | 96 |
| HLA-A*02:06 | 1 | 141 | 149 | 9 | LGVYYHKNN 1e-06 | 97 |
| HLA-A*03:01 | 1 | 141 | 149 | 9 | LGVYYHKNN 1e-06 | 96 |
| HLA-A*11:01 | 1 | 141 | 149 | 9 | LGVYYHKNN 1e-06 | 88 |
| HLA-A*32:01 | 1 | 141 | 149 | 9 | LGVYYHKNN 1e-06 | 86 |
| HLA-A*68:01 | 1 | 141 | 149 | 9 | LGVYYHKNN 1e-06 | 94 |
| HLA-B*35:01 | 1 | 141 | 149 | 9 | LGVYYHKNN 1e-06 | 87 |
| HLA-B*40:01 | 1 | 141 | 150 | 10 | LGVYYHKNNK 1e-06 | 81 |
| HLA-B*44:02 | 1 | 141 | 149 | 9 | LGVYYHKNN 1e-06 | 94 |
| HLA-B*44:03 | 1 | 141 | 149 | 9 | LGVYYHKNN 1e-06 | 91 |
| HLA-B*53:01 | 1 | 141 | 149 | 9 | LGVYYHKNN 1e-06 | 89 |
| HLA-B*35:01 | 1 | 142 | 151 | 10 | GVYYHKNNKS 1e-06 | 87 |
| HLA-A*32:01 | 1 | 145 | 154 | 10 | YHKNNKSWME 1e-06 | 86 |
| HLA-A*24:02 | 1 | 146 | 155 | 10 | HKNNKSWMES 1e-06 | 88 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-A*23:01 | 1 | 147 | 156 | 10 | KNNKSWMESE 1e-06 | 90 |
| HLA-A*24:02 | 1 | 147 | 156 | 10 | KNNKSWMESE 1e-06 | 88 |
| HLA-B*35:01 | 1 | 147 | 156 | 10 | KNNKSWMESE 1e-06 | 87 |
| HLA-B*40:01 | 1 | 147 | 156 | 10 | KNNKSWMESE 1e-06 | 81 |
| HLA-B*53:01 | 1 | 147 | 156 | 10 | KNNKSWMESE 1e-06 | 89 |
| HLA-A*02:01 | 1 | 156 | 164 | 9 | EFRVYSSAN 1e-06 | 95 |
| HLA-A*11:01 | 1 | 156 | 164 | 9 | EFRVYSSAN 1e-06 | 88 |
| HLA-A*32:01 | 1 | 156 | 164 | 9 | EFRVYSSAN 1e-06 | 86 |
| HLA-B*15:01 | 1 | 156 | 165 | 10 | EFRVYSSANN 1e-06 | 95 |
| HLA-B*35:01 | 1 | 156 | 165 | 10 | EFRVYSSANN 1e-06 | 87 |
| HLA-B*44:03 | 1 | 156 | 165 | 10 | EFRVYSSANN 1e-06 | 91 |
| HLA-B*53:01 | 1 | 156 | 165 | 10 | EFRVYSSANN 1e-06 | 89 |
| HLA-B*58:01 | 1 | 156 | 164 | 9 | EFRVYSSAN 1e-06 | 98 |
| HLA-B*58:01 | 1 | 156 | 165 | 10 | EFRVYSSANN 1e-06 | 98 |
| HLA-A*02:01 | 1 | 157 | 165 | 9 | FRVYSSANN 1e-06 | 95 |
| HLA-A*32:01 | 1 | 157 | 165 | 9 | FRVYSSANN 1e-06 | 86 |
| HLA-B*40:01 | 1 | 157 | 165 | 9 | FRVYSSANN 1e-06 | 81 |
| HLA-A*23:01 | 1 | 163 | 172 | 10 | ANNCTFEYVS 1e-06 | 90 |
| HLA-A*24:02 | 1 | 163 | 172 | 10 | ANNCTFEYVS 1e-06 | 88 |
| HLA-A*26:01 | 1 | 163 | 172 | 10 | ANNCTFEYVS 1e-06 | 94 |
| HLA-B*07:02 | 1 | 163 | 172 | 10 | ANNCTFEYVS 1e-06 | 96 |
| HLA-B*15:01 | 1 | 163 | 172 | 10 | ANNCTFEYVS 1e-06 | 95 |
| HLA-B*35:01 | 1 | 163 | 172 | 10 | ANNCTFEYVS 1e-06 | 87 |
| HLA-B*40:01 | 1 | 163 | 172 | 10 | ANNCTFEYVS 1e-06 | 81 |
| HLA-A*02:03 | 1 | 164 | 173 | 10 | NNCTFEYVSQ 1e-06 | 96 |
| HLA-A*23:01 | 1 | 164 | 173 | 10 | NNCTFEYVSQ 1e-06 | 90 |
| HLA-A*26:01 | 1 | 164 | 172 | 9 | NNCTFEYVS 1e-06 | 94 |
| HLA-A*32:01 | 1 | 164 | 172 | 9 | NNCTFEYVS 1e-06 | 86 |
| HLA-A*32:01 | 1 | 164 | 173 | 10 | NNCTFEYVSQ 1e-06 | 86 |
| HLA-A*24:02 | 1 | 165 | 173 | 9 | NCTFEYVSQ 1e-06 | 88 |
| HLA-B*40:01 | 1 | 169 | 178 | 10 | EYVSQPFLMD 1e-06 | 81 |
| HLA-A*32:01 | 1 | 174 | 183 | 10 | PFLMDLEGKQ 1e-06 | 86 |
| HLA-A*68:02 | 1 | 174 | 183 | 10 | PFLMDLEGKQ 1e-06 | 94 |
| HLA-B*07:02 | 1 | 174 | 183 | 10 | PFLMDLEGKQ 1e-06 | 96 |
| HLA-A*11:01 | 1 | 175 | 184 | 10 | FLMDLEGKQG 1e-06 | 88 |
| HLA-A*11:01 | 1 | 176 | 185 | 10 | LMDLEGKQGN 1e-06 | 88 |
| HLA-A*23:01 | 1 | 176 | 185 | 10 | LMDLEGKQGN 1e-06 | 90 |
| HLA-A*24:02 | 1 | 176 | 185 | 10 | LMDLEGKQGN 1e-06 | 88 |
| HLA-A*68:02 | 1 | 176 | 185 | 10 | LMDLEGKQGN 1e-06 | 94 |
| HLA-B*40:01 | 1 | 176 | 185 | 10 | LMDLEGKQGN 1e-06 | 81 |
| HLA-A*02:03 | 1 | 177 | 185 | 9 | MDLEGKQGN 1e-06 | 96 |
| HLA-A*24:02 | 1 | 177 | 185 | 9 | MDLEGKQGN 1e-06 | 88 |
| HLA-A*02:03 | 1 | 179 | 188 | 10 | LEGKQGNFKN 1e-06 | 96 |
| HLA-A*02:06 | 1 | 179 | 188 | 10 | LEGKQGNFKN 1e-06 | 97 |
| HLA-A*23:01 | 1 | 179 | 188 | 10 | LEGKQGNFKN 1e-06 | 90 |
| HLA-A*24:02 | 1 | 179 | 188 | 10 | LEGKQGNFKN 1e-06 | 88 |
| HLA-A*32:01 | 1 | 179 | 188 | 10 | LEGKQGNFKN 1e-06 | 86 |
| HLA-A*68:02 | 1 | 179 | 188 | 10 | LEGKQGNFKN 1e-06 | 94 |
| HLA-B*35:01 | 1 | 179 | 188 | 10 | LEGKQGNFKN 1e-06 | 87 |
| HLA-A*02:01 | 1 | 180 | 188 | 9 | EGKQGNFKN 1e-06 | 95 |
| HLA-A*02:03 | 1 | 180 | 188 | 9 | EGKQGNFKN 1e-06 | 96 |
| HLA-A*24:02 | 1 | 180 | 188 | 9 | EGKQGNFKN 1e-06 | 88 |
| HLA-B*40:01 | 1 | 180 | 188 | 9 | EGKQGNFKN 1e-06 | 81 |
| HLA-B*35:01 | 1 | 182 | 191 | 10 | KQGNFKNLRE 1e-06 | 87 |
| HLA-B*40:01 | 1 | 187 | 196 | 10 | KNLREFVFKN 1e-06 | 81 |
| HLA-B*53:01 | 1 | 187 | 196 | 10 | KNLREFVFKN 1e-06 | 89 |
| HLA-A*02:03 | 1 | 189 | 198 | 10 | LREFVFKNID 1e-06 | 96 |
| HLA-A*02:06 | 1 | 189 | 198 | 10 | LREFVFKNID 1e-06 | 97 |
| HLA-A*24:02 | 1 | 189 | 198 | 10 | LREFVFKNID 1e-06 | 88 |
| HLA-A*31:01 | 1 | 189 | 198 | 10 | LREFVFKNID 1e-06 | 97 |
| HLA-A*68:02 | 1 | 189 | 198 | 10 | LREFVFKNID 1e-06 | 94 |
| HLA-B*15:01 | 1 | 189 | 198 | 10 | LREFVFKNID 1e-06 | 95 |
| HLA-B*58:01 | 1 | 189 | 198 | 10 | LREFVFKNID 1e-06 | 98 |
| HLA-A*02:01 | 1 | 190 | 199 | 10 | REFVFKNIDG 1e-06 | 95 |
| HLA-A*02:03 | 1 | 190 | 199 | 10 | REFVFKNIDG 1e-06 | 96 |
| HLA-A*11:01 | 1 | 190 | 198 | 9 | REFVFKNID 1e-06 | 88 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-A*11:01 | 1 | 190 | 199 | 10 | REFVFKNIDG 1e-06 | 88 |
| HLA-A*68:01 | 1 | 190 | 199 | 10 | REFVFKNIDG 1e-06 | 94 |
| HLA-A*68:02 | 1 | 190 | 199 | 10 | REFVFKNIDG 1e-06 | 94 |
| HLA-A*11:01 | 1 | 191 | 199 | 9 | EFVFKNIDG 1e-06 | 88 |
| HLA-A*32:01 | 1 | 191 | 199 | 9 | EFVFKNIDG 1e-06 | 86 |
| HLA-B*15:01 | 1 | 191 | 199 | 9 | EFVFKNIDG 1e-06 | 95 |
| HLA-A*23:01 | 1 | 197 | 205 | 9 | IDGYFKIYS 1e-06 | 90 |
| HLA-A*24:02 | 1 | 197 | 205 | 9 | IDGYFKIYS 1e-06 | 88 |
| HLA-A*26:01 | 1 | 197 | 205 | 9 | IDGYFKIYS 1e-06 | 94 |
| HLA-B*35:01 | 1 | 202 | 211 | 10 | KIYSKHTPIN 1e-06 | 87 |
| HLA-A*02:01 | 1 | 203 | 211 | 9 | IYSKHTPIN 1e-06 | 95 |
| HLA-B*40:01 | 1 | 203 | 211 | 9 | IYSKHTPIN 1e-06 | 81 |
| HLA-A*02:01 | 1 | 209 | 218 | 10 | PINLVRDLPQ 1e-06 | 95 |
| HLA-A*02:03 | 1 | 209 | 218 | 10 | PINLVRDLPQ 1e-06 | 96 |
| HLA-A*26:01 | 1 | 209 | 218 | 10 | PINLVRDLPQ 1e-06 | 94 |
| HLA-A*68:02 | 1 | 209 | 218 | 10 | PINLVRDLPQ 1e-06 | 94 |
| HLA-B*07:02 | 1 | 209 | 218 | 10 | PINLVRDLPQ 1e-06 | 96 |
| HLA-B*44:03 | 1 | 209 | 217 | 9 | PINLVRDLP 1e-06 | 91 |
| HLA-B*51:01 | 1 | 209 | 218 | 10 | PINLVRDLPQ 1e-06 | 99 |
| HLA-B*53:01 | 1 | 209 | 218 | 10 | PINLVRDLPQ 1e-06 | 89 |
| HLA-A*02:03 | 1 | 210 | 218 | 9 | INLVRDLPQ 1e-06 | 96 |
| HLA-A*11:01 | 1 | 210 | 219 | 10 | INLVRDLPQG 1e-06 | 88 |
| HLA-A*23:01 | 1 | 210 | 218 | 9 | INLVRDLPQ 1e-06 | 90 |
| HLA-A*23:01 | 1 | 210 | 219 | 10 | INLVRDLPQG 1e-06 | 90 |
| HLA-A*24:02 | 1 | 210 | 218 | 9 | INLVRDLPQ 1e-06 | 88 |
| HLA-A*24:02 | 1 | 210 | 219 | 10 | INLVRDLPQG 1e-06 | 88 |
| HLA-A*68:01 | 1 | 210 | 219 | 10 | INLVRDLPQG 1e-06 | 94 |
| HLA-A*68:02 | 1 | 210 | 218 | 9 | INLVRDLPQ 1e-06 | 94 |
| HLA-B*07:02 | 1 | 210 | 219 | 10 | INLVRDLPQG 1e-06 | 96 |
| HLA-B*44:02 | 1 | 210 | 219 | 10 | INLVRDLPQG 1e-06 | 94 |
| HLA-B*44:03 | 1 | 210 | 219 | 10 | INLVRDLPQG 1e-06 | 91 |
| HLA-B*53:01 | 1 | 210 | 219 | 10 | INLVRDLPQG 1e-06 | 89 |
| HLA-A*11:01 | 1 | 219 | 228 | 10 | GFSALEPLVD 1e-06 | 88 |
| HLA-A*26:01 | 1 | 219 | 228 | 10 | GFSALEPLVD 1e-06 | 94 |
| HLA-A*68:01 | 1 | 219 | 228 | 10 | GFSALEPLVD 1e-06 | 94 |
| HLA-B*15:01 | 1 | 219 | 228 | 10 | GFSALEPLVD 1e-06 | 95 |
| HLA-B*35:01 | 1 | 219 | 228 | 10 | GFSALEPLVD 1e-06 | 87 |
| HLA-B*53:01 | 1 | 219 | 228 | 10 | GFSALEPLVD 1e-06 | 89 |
| HLA-A*03:01 | 1 | 223 | 232 | 10 | LEPLVDLPIG 1e-06 | 96 |
| HLA-A*31:01 | 1 | 223 | 232 | 10 | LEPLVDLPIG 1e-06 | 97 |
| HLA-A*32:01 | 1 | 223 | 232 | 10 | LEPLVDLPIG 1e-06 | 86 |
| HLA-A*33:01 | 1 | 223 | 232 | 10 | LEPLVDLPIG 1e-06 | 98 |
| HLA-A*23:01 | 1 | 224 | 232 | 9 | EPLVDLPIG 1e-06 | 90 |
| HLA-A*24:02 | 1 | 224 | 232 | 9 | EPLVDLPIG 1e-06 | 88 |
| HLA-A*31:01 | 1 | 224 | 232 | 9 | EPLVDLPIG 1e-06 | 97 |
| HLA-A*11:01 | 1 | 225 | 234 | 10 | PLVDLPIGIN 1e-06 | 88 |
| HLA-A*23:01 | 1 | 225 | 234 | 10 | PLVDLPIGIN 1e-06 | 90 |
| HLA-A*24:02 | 1 | 225 | 234 | 10 | PLVDLPIGIN 1e-06 | 88 |
| HLA-A*68:01 | 1 | 225 | 234 | 10 | PLVDLPIGIN 1e-06 | 94 |
| HLA-B*07:02 | 1 | 225 | 234 | 10 | PLVDLPIGIN 1e-06 | 96 |
| HLA-B*44:02 | 1 | 225 | 234 | 10 | PLVDLPIGIN 1e-06 | 94 |
| HLA-B*44:03 | 1 | 225 | 234 | 10 | PLVDLPIGIN 1e-06 | 91 |
| HLA-B*53:01 | 1 | 225 | 234 | 10 | PLVDLPIGIN 1e-06 | 89 |
| HLA-A*23:01 | 1 | 226 | 234 | 9 | LVDLPIGIN 1e-06 | 90 |
| HLA-A*24:02 | 1 | 226 | 234 | 9 | LVDLPIGIN 1e-06 | 88 |
| HLA-B*40:01 | 1 | 226 | 234 | 9 | LVDLPIGIN 1e-06 | 81 |
| HLA-B*44:03 | 1 | 226 | 234 | 9 | LVDLPIGIN 1e-06 | 91 |
| HLA-B*07:02 | 1 | 230 | 239 | 10 | PIGINITRFQ 1e-06 | 96 |
| HLA-B*44:02 | 1 | 230 | 239 | 10 | PIGINITRFQ 1e-06 | 94 |
| HLA-B*53:01 | 1 | 230 | 239 | 10 | PIGINITRFQ 1e-06 | 89 |
| HLA-B*40:01 | 1 | 231 | 240 | 10 | IGINITRFQT 1e-06 | 81 |
| HLA-B*40:01 | 1 | 241 | 250 | 10 | LLALHRSYLT 1e-06 | 81 |
| HLA-A*68:01 | 1 | 243 | 252 | 10 | ALHRSYLTPG 1e-06 | 94 |
| HLA-B*35:01 | 1 | 243 | 252 | 10 | ALHRSYLTPG 1e-06 | 87 |
| HLA-B*40:01 | 1 | 243 | 252 | 10 | ALHRSYLTPG 1e-06 | 81 |
| HLA-B*53:01 | 1 | 243 | 252 | 10 | ALHRSYLTPG 1e-06 | 89 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|-----|
| HLA-A*01:01 | 1 | 244 | 253 | 10 | LHRSYLTPGD 1e-06 | 100 |
| HLA-A*02:01 | 1 | 244 | 252 | 9 | LHRSYLTPG 1e-06 | 95 |
| HLA-A*02:03 | 1 | 244 | 253 | 10 | LHRSYLTPGD 1e-06 | 96 |
| HLA-A*03:01 | 1 | 244 | 253 | 10 | LHRSYLTPGD 1e-06 | 96 |
| HLA-A*24:02 | 1 | 244 | 253 | 10 | LHRSYLTPGD 1e-06 | 88 |
| HLA-A*26:01 | 1 | 244 | 253 | 10 | LHRSYLTPGD 1e-06 | 94 |
| HLA-A*31:01 | 1 | 244 | 253 | 10 | LHRSYLTPGD 1e-06 | 97 |
| HLA-A*33:01 | 1 | 244 | 253 | 10 | LHRSYLTPGD 1e-06 | 98 |
| HLA-B*44:02 | 1 | 244 | 253 | 10 | LHRSYLTPGD 1e-06 | 94 |
| HLA-A*02:01 | 1 | 245 | 253 | 9 | HRSYLTPGD 1e-06 | 95 |
| HLA-A*02:03 | 1 | 245 | 253 | 9 | HRSYLTPGD 1e-06 | 96 |
| HLA-A*11:01 | 1 | 245 | 253 | 9 | HRSYLTPGD 1e-06 | 88 |
| HLA-A*32:01 | 1 | 245 | 253 | 9 | HRSYLTPGD 1e-06 | 86 |
| HLA-B*35:01 | 1 | 245 | 254 | 10 | HRSYLTPGDS 1e-06 | 87 |
| HLA-B*40:01 | 1 | 245 | 254 | 10 | HRSYLTPGDS 1e-06 | 81 |
| HLA-A*02:01 | 1 | 251 | 259 | 9 | PGDSSSGWT 1e-06 | 95 |
| HLA-A*02:03 | 1 | 251 | 259 | 9 | PGDSSSGWT 1e-06 | 96 |
| HLA-A*02:06 | 1 | 251 | 259 | 9 | PGDSSSGWT 1e-06 | 97 |
| HLA-A*03:01 | 1 | 251 | 259 | 9 | PGDSSSGWT 1e-06 | 96 |
| HLA-A*11:01 | 1 | 251 | 259 | 9 | PGDSSSGWT 1e-06 | 88 |
| HLA-A*23:01 | 1 | 251 | 259 | 9 | PGDSSSGWT 1e-06 | 90 |
| HLA-A*26:01 | 1 | 251 | 260 | 10 | PGDSSSGWTA 1e-06 | 94 |
| HLA-A*31:01 | 1 | 251 | 259 | 9 | PGDSSSGWT 1e-06 | 97 |
| HLA-A*32:01 | 1 | 251 | 260 | 10 | PGDSSSGWTA 1e-06 | 86 |
| HLA-A*68:01 | 1 | 251 | 259 | 9 | PGDSSSGWT 1e-06 | 94 |
| HLA-B*44:03 | 1 | 251 | 259 | 9 | PGDSSSGWT 1e-06 | 91 |
| HLA-B*53:01 | 1 | 251 | 259 | 9 | PGDSSSGWT 1e-06 | 89 |
| HLA-A*23:01 | 1 | 252 | 261 | 10 | GDSSSGWTAG 1e-06 | 90 |
| HLA-A*24:02 | 1 | 252 | 261 | 10 | GDSSSGWTAG 1e-06 | 88 |
| HLA-A*03:01 | 1 | 259 | 268 | 10 | TAGAAAYYVG 1e-06 | 96 |
| HLA-A*11:01 | 1 | 259 | 268 | 10 | TAGAAAYYVG 1e-06 | 88 |
| HLA-A*23:01 | 1 | 259 | 268 | 10 | TAGAAAYYVG 1e-06 | 90 |
| HLA-A*24:02 | 1 | 259 | 268 | 10 | TAGAAAYYVG 1e-06 | 88 |
| HLA-A*26:01 | 1 | 259 | 268 | 10 | TAGAAAYYVG 1e-06 | 94 |
| HLA-A*31:01 | 1 | 259 | 268 | 10 | TAGAAAYYVG 1e-06 | 97 |
| HLA-A*32:01 | 1 | 259 | 268 | 10 | TAGAAAYYVG 1e-06 | 86 |
| HLA-B*15:01 | 1 | 259 | 268 | 10 | TAGAAAYYVG 1e-06 | 95 |
| HLA-B*44:02 | 1 | 259 | 268 | 10 | TAGAAAYYVG 1e-06 | 94 |
| HLA-B*44:03 | 1 | 259 | 268 | 10 | TAGAAAYYVG 1e-06 | 91 |
| HLA-A*26:01 | 1 | 260 | 268 | 9 | AGAAAYYVG 1e-06 | 94 |
| HLA-B*40:01 | 1 | 260 | 268 | 9 | AGAAAYYVG 1e-06 | 81 |
| HLA-A*24:02 | 1 | 262 | 271 | 10 | AAAYYVGYLQ 1e-06 | 88 |
| HLA-A*02:01 | 1 | 271 | 280 | 10 | QPRTFLLKYN 1e-06 | 95 |
| HLA-A*02:03 | 1 | 271 | 280 | 10 | QPRTFLLKYN 1e-06 | 96 |
| HLA-A*02:06 | 1 | 271 | 280 | 10 | QPRTFLLKYN 1e-06 | 97 |
| HLA-B*40:01 | 1 | 271 | 280 | 10 | QPRTFLLKYN 1e-06 | 81 |
| HLA-A*01:01 | 1 | 272 | 280 | 9 | PRTFLLKYN 1e-06 | 100 |
| HLA-A*23:01 | 1 | 272 | 280 | 9 | PRTFLLKYN 1e-06 | 90 |
| HLA-A*26:01 | 1 | 272 | 280 | 9 | PRTFLLKYN 1e-06 | 94 |
| HLA-A*33:01 | 1 | 272 | 280 | 9 | PRTFLLKYN 1e-06 | 98 |
| HLA-B*08:01 | 1 | 272 | 280 | 9 | PRTFLLKYN 1e-06 | 100 |
| HLA-B*15:01 | 1 | 272 | 281 | 10 | PRTFLLKYNE 1e-06 | 95 |
| HLA-B*44:02 | 1 | 272 | 281 | 10 | PRTFLLKYNE 1e-06 | 94 |
| HLA-B*44:03 | 1 | 272 | 281 | 10 | PRTFLLKYNE 1e-06 | 91 |
| HLA-B*51:01 | 1 | 272 | 280 | 9 | PRTFLLKYN 1e-06 | 99 |
| HLA-B*53:01 | 1 | 272 | 281 | 10 | PRTFLLKYNE 1e-06 | 89 |
| HLA-B*58:01 | 1 | 272 | 280 | 9 | PRTFLLKYN 1e-06 | 98 |
| HLA-B*35:01 | 1 | 273 | 282 | 10 | RTFLLKYNEN 1e-06 | 87 |
| HLA-A*26:01 | 1 | 274 | 283 | 10 | TFLLKYNENG 1e-06 | 94 |
| HLA-A*68:01 | 1 | 274 | 283 | 10 | TFLLKYNENG 1e-06 | 94 |
| HLA-B*07:02 | 1 | 274 | 283 | 10 | TFLLKYNENG 1e-06 | 96 |
| HLA-B*40:01 | 1 | 274 | 282 | 9 | TFLLKYNEN 1e-06 | 81 |
| HLA-A*11:01 | 1 | 275 | 283 | 9 | FLLKYNENG 1e-06 | 88 |
| HLA-A*11:01 | 1 | 275 | 284 | 10 | FLLKYNENGT 1e-06 | 88 |
| HLA-A*23:01 | 1 | 275 | 284 | 10 | FLLKYNENGT 1e-06 | 90 |
| HLA-B*35:01 | 1 | 275 | 284 | 10 | FLLKYNENGT 1e-06 | 87 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|-----|
| HLA-B*40:01 | 1 | 275 | 284 | 10 | FLLKYNENGT 1e-06 | 81 |
| HLA-B*44:02 | 1 | 275 | 284 | 10 | FLLKYNENGT 1e-06 | 94 |
| HLA-B*44:03 | 1 | 275 | 284 | 10 | FLLKYNENGT 1e-06 | 91 |
| HLA-A*11:01 | 1 | 276 | 284 | 9 | LLKYNENGT 1e-06 | 88 |
| HLA-A*32:01 | 1 | 277 | 286 | 10 | LKYNENGTIT 1e-06 | 86 |
| HLA-A*32:01 | 1 | 279 | 287 | 9 | YNENGTITD 1e-06 | 86 |
| HLA-A*02:01 | 1 | 281 | 290 | 10 | ENGTITDAVD 1e-06 | 95 |
| HLA-A*02:06 | 1 | 281 | 290 | 10 | ENGTITDAVD 1e-06 | 97 |
| HLA-A*33:01 | 1 | 281 | 290 | 10 | ENGTITDAVD 1e-06 | 98 |
| HLA-B*07:02 | 1 | 281 | 290 | 10 | ENGTITDAVD 1e-06 | 96 |
| HLA-B*44:02 | 1 | 281 | 290 | 10 | ENGTITDAVD 1e-06 | 94 |
| HLA-B*44:03 | 1 | 281 | 290 | 10 | ENGTITDAVD 1e-06 | 91 |
| HLA-B*53:01 | 1 | 281 | 290 | 10 | ENGTITDAVD 1e-06 | 89 |
| HLA-A*02:06 | 1 | 282 | 290 | 9 | NGTITDAVD 1e-06 | 97 |
| HLA-A*23:01 | 1 | 282 | 291 | 10 | NGTITDAVDC 1e-06 | 90 |
| HLA-A*24:02 | 1 | 282 | 291 | 10 | NGTITDAVDC 1e-06 | 88 |
| HLA-A*33:01 | 1 | 282 | 290 | 9 | NGTITDAVD 1e-06 | 98 |
| HLA-A*68:01 | 1 | 282 | 290 | 9 | NGTITDAVD 1e-06 | 94 |
| HLA-A*68:02 | 1 | 282 | 290 | 9 | NGTITDAVD 1e-06 | 94 |
| HLA-B*07:02 | 1 | 282 | 290 | 9 | NGTITDAVD 1e-06 | 96 |
| HLA-B*40:01 | 1 | 282 | 291 | 10 | NGTITDAVDC 1e-06 | 81 |
| HLA-B*44:02 | 1 | 282 | 290 | 9 | NGTITDAVD 1e-06 | 94 |
| HLA-B*44:02 | 1 | 282 | 291 | 10 | NGTITDAVDC 1e-06 | 94 |
| HLA-B*44:03 | 1 | 282 | 290 | 9 | NGTITDAVD 1e-06 | 91 |
| HLA-B*44:03 | 1 | 282 | 291 | 10 | NGTITDAVDC 1e-06 | 91 |
| HLA-A*23:01 | 1 | 285 | 294 | 10 | ITDAVDCALD 1e-06 | 90 |
| HLA-B*40:01 | 1 | 285 | 294 | 10 | ITDAVDCALD 1e-06 | 81 |
| HLA-B*44:02 | 1 | 285 | 294 | 10 | ITDAVDCALD 1e-06 | 94 |
| HLA-B*44:03 | 1 | 285 | 294 | 10 | ITDAVDCALD 1e-06 | 91 |
| HLA-A*02:06 | 1 | 286 | 294 | 9 | TDAVDCALD 1e-06 | 97 |
| HLA-A*03:01 | 1 | 286 | 295 | 10 | TDAVDCALDP 1e-06 | 96 |
| HLA-A*11:01 | 1 | 286 | 295 | 10 | TDAVDCALDP 1e-06 | 88 |
| HLA-A*23:01 | 1 | 286 | 295 | 10 | TDAVDCALDP 1e-06 | 90 |
| HLA-A*24:02 | 1 | 286 | 295 | 10 | TDAVDCALDP 1e-06 | 88 |
| HLA-A*26:01 | 1 | 286 | 295 | 10 | TDAVDCALDP 1e-06 | 94 |
| HLA-A*30:02 | 1 | 286 | 294 | 9 | TDAVDCALD 1e-06 | 100 |
| HLA-A*31:01 | 1 | 286 | 295 | 10 | TDAVDCALDP 1e-06 | 97 |
| HLA-A*33:01 | 1 | 286 | 295 | 10 | TDAVDCALDP 1e-06 | 98 |
| HLA-A*68:01 | 1 | 286 | 294 | 9 | TDAVDCALD 1e-06 | 94 |
| HLA-A*68:01 | 1 | 286 | 295 | 10 | TDAVDCALDP 1e-06 | 94 |
| HLA-A*68:02 | 1 | 286 | 294 | 9 | TDAVDCALD 1e-06 | 94 |
| HLA-B*08:01 | 1 | 286 | 294 | 9 | TDAVDCALD 1e-06 | 100 |
| HLA-B*15:01 | 1 | 286 | 294 | 9 | TDAVDCALD 1e-06 | 95 |
| HLA-B*35:01 | 1 | 286 | 294 | 9 | TDAVDCALD 1e-06 | 87 |
| HLA-B*40:01 | 1 | 286 | 294 | 9 | TDAVDCALD 1e-06 | 81 |
| HLA-B*53:01 | 1 | 286 | 294 | 9 | TDAVDCALD 1e-06 | 89 |
| HLA-A*23:01 | 1 | 287 | 295 | 9 | DAVDCALDP 1e-06 | 90 |
| HLA-A*24:02 | 1 | 287 | 295 | 9 | DAVDCALDP 1e-06 | 88 |
| HLA-A*32:01 | 1 | 287 | 295 | 9 | DAVDCALDP 1e-06 | 86 |
| HLA-A*24:02 | 1 | 288 | 297 | 10 | AVDCALDPLS 1e-06 | 88 |
| HLA-B*35:01 | 1 | 288 | 297 | 10 | AVDCALDPLS 1e-06 | 87 |
| HLA-A*02:03 | 1 | 289 | 297 | 9 | VDCALDPLS 1e-06 | 96 |
| HLA-A*24:02 | 1 | 289 | 298 | 10 | VDCALDPLSE 1e-06 | 88 |
| HLA-A*26:01 | 1 | 289 | 297 | 9 | VDCALDPLS 1e-06 | 94 |
| HLA-A*32:01 | 1 | 290 | 299 | 10 | DCALDPLSET 1e-06 | 86 |
| HLA-A*11:01 | 1 | 293 | 302 | 10 | LDPLSETKCT 1e-06 | 88 |
| HLA-A*23:01 | 1 | 293 | 302 | 10 | LDPLSETKCT 1e-06 | 90 |
| HLA-A*24:02 | 1 | 293 | 302 | 10 | LDPLSETKCT 1e-06 | 88 |
| HLA-A*26:01 | 1 | 293 | 302 | 10 | LDPLSETKCT 1e-06 | 94 |
| HLA-A*31:01 | 1 | 293 | 302 | 10 | LDPLSETKCT 1e-06 | 97 |
| HLA-A*32:01 | 1 | 293 | 302 | 10 | LDPLSETKCT 1e-06 | 86 |
| HLA-A*68:01 | 1 | 293 | 302 | 10 | LDPLSETKCT 1e-06 | 94 |
| HLA-B*15:01 | 1 | 293 | 302 | 10 | LDPLSETKCT 1e-06 | 95 |
| HLA-B*40:01 | 1 | 293 | 302 | 10 | LDPLSETKCT 1e-06 | 81 |
| HLA-B*35:01 | 1 | 295 | 304 | 10 | PLSETKCTLK 1e-06 | 87 |
| HLA-B*40:01 | 1 | 295 | 304 | 10 | PLSETKCTLK 1e-06 | 81 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|----|
| HLA-A*23:01 | 1 | 296 | 305 | 10 | LSETKCTLKS 1e-06 | 90 |
| HLA-A*24:02 | 1 | 296 | 305 | 10 | LSETKCTLKS 1e-06 | 88 |
| HLA-B*35:01 | 1 | 296 | 305 | 10 | LSETKCTLKS 1e-06 | 87 |
| HLA-B*40:01 | 1 | 298 | 307 | 10 | ETKCTLKSFT 1e-06 | 81 |
| HLA-A*32:01 | 1 | 299 | 307 | 9 | TKCTLKSFT 1e-06 | 86 |
| HLA-B*44:03 | 1 | 300 | 309 | 10 | KCTLKSFTVE 1e-06 | 91 |
| HLA-B*40:01 | 1 | 302 | 311 | 10 | TLKSFTVEKG 1e-06 | 81 |
| HLA-A*02:01 | 1 | 303 | 311 | 9 | LKSFTVEKG 1e-06 | 95 |
| HLA-A*11:01 | 1 | 303 | 311 | 9 | LKSFTVEKG 1e-06 | 88 |
| HLA-A*32:01 | 1 | 303 | 311 | 9 | LKSFTVEKG 1e-06 | 86 |
| HLA-A*02:01 | 1 | 308 | 317 | 10 | VEKGIYQTSN 1e-06 | 95 |
| HLA-A*23:01 | 1 | 308 | 317 | 10 | VEKGIYQTSN 1e-06 | 90 |
| HLA-A*24:02 | 1 | 308 | 317 | 10 | VEKGIYQTSN 1e-06 | 88 |
| HLA-A*32:01 | 1 | 308 | 317 | 10 | VEKGIYQTSN 1e-06 | 86 |
| HLA-A*68:02 | 1 | 308 | 317 | 10 | VEKGIYQTSN 1e-06 | 94 |
| HLA-A*11:01 | 1 | 309 | 317 | 9 | EKGIYQTSN 1e-06 | 88 |
| HLA-A*23:01 | 1 | 309 | 317 | 9 | EKGIYQTSN 1e-06 | 90 |
| HLA-A*24:02 | 1 | 309 | 317 | 9 | EKGIYQTSN 1e-06 | 88 |
| HLA-A*31:01 | 1 | 309 | 317 | 9 | EKGIYQTSN 1e-06 | 97 |
| HLA-B*07:02 | 1 | 309 | 317 | 9 | EKGIYQTSN 1e-06 | 96 |
| HLA-A*24:02 | 1 | 314 | 323 | 10 | QTSNFRVQPT 1e-06 | 88 |
| HLA-A*02:03 | 1 | 322 | 331 | 10 | PTESIVRFPN 1e-06 | 96 |
| HLA-A*02:06 | 1 | 322 | 331 | 10 | PTESIVRFPN 1e-06 | 97 |
| HLA-A*03:01 | 1 | 322 | 331 | 10 | PTESIVRFPN 1e-06 | 96 |
| HLA-A*11:01 | 1 | 322 | 331 | 10 | PTESIVRFPN 1e-06 | 88 |
| HLA-A*31:01 | 1 | 322 | 331 | 10 | PTESIVRFPN 1e-06 | 97 |
| HLA-A*32:01 | 1 | 322 | 331 | 10 | PTESIVRFPN 1e-06 | 86 |
| HLA-A*33:01 | 1 | 322 | 331 | 10 | PTESIVRFPN 1e-06 | 98 |
| HLA-A*68:02 | 1 | 322 | 331 | 10 | PTESIVRFPN 1e-06 | 94 |
| HLA-B*51:01 | 1 | 322 | 331 | 10 | PTESIVRFPN 1e-06 | 99 |
| HLA-A*24:02 | 1 | 325 | 334 | 10 | SIVRFPNITN 1e-06 | 88 |
| HLA-B*40:01 | 1 | 325 | 334 | 10 | SIVRFPNITN 1e-06 | 81 |
| HLA-A*02:03 | 1 | 330 | 339 | 10 | PNITNLCDFG 1e-06 | 96 |
| HLA-A*02:06 | 1 | 330 | 339 | 10 | PNITNLCDFG 1e-06 | 97 |
| HLA-A*33:01 | 1 | 330 | 339 | 10 | PNITNLCDFG 1e-06 | 98 |
| HLA-A*68:02 | 1 | 330 | 339 | 10 | PNITNLCDFG 1e-06 | 94 |
| HLA-B*15:01 | 1 | 330 | 339 | 10 | PNITNLCDFG 1e-06 | 95 |
| HLA-B*51:01 | 1 | 330 | 339 | 10 | PNITNLCDFG 1e-06 | 99 |
| HLA-B*58:01 | 1 | 330 | 339 | 10 | PNITNLCDFG 1e-06 | 98 |
| HLA-A*11:01 | 1 | 331 | 339 | 9 | NITNLCDFG 1e-06 | 88 |
| HLA-A*23:01 | 1 | 331 | 339 | 9 | NITNLCDFG 1e-06 | 90 |
| HLA-A*23:01 | 1 | 331 | 340 | 10 | NITNLCDFGE 1e-06 | 90 |
| HLA-A*24:02 | 1 | 331 | 339 | 9 | NITNLCDFG 1e-06 | 88 |
| HLA-B*35:01 | 1 | 331 | 340 | 10 | NITNLCDFGE 1e-06 | 87 |
| HLA-B*44:02 | 1 | 331 | 339 | 9 | NITNLCDFG 1e-06 | 94 |
| HLA-B*44:02 | 1 | 331 | 340 | 10 | NITNLCDFGE 1e-06 | 94 |
| HLA-B*44:03 | 1 | 331 | 339 | 9 | NITNLCDFG 1e-06 | 91 |
| HLA-B*44:03 | 1 | 331 | 340 | 10 | NITNLCDFGE 1e-06 | 91 |
| HLA-B*40:01 | 1 | 332 | 340 | 9 | ITNLCDFGE 1e-06 | 81 |
| HLA-A*03:01 | 1 | 335 | 343 | 9 | LCPFGEVFN 1e-06 | 96 |
| HLA-A*11:01 | 1 | 335 | 343 | 9 | LCPFGEVFN 1e-06 | 88 |
| HLA-A*23:01 | 1 | 335 | 343 | 9 | LCPFGEVFN 1e-06 | 90 |
| HLA-A*24:02 | 1 | 335 | 343 | 9 | LCPFGEVFN 1e-06 | 88 |
| HLA-A*26:01 | 1 | 335 | 343 | 9 | LCPFGEVFN 1e-06 | 94 |
| HLA-A*32:01 | 1 | 335 | 343 | 9 | LCPFGEVFN 1e-06 | 86 |
| HLA-B*07:02 | 1 | 335 | 343 | 9 | LCPFGEVFN 1e-06 | 96 |
| HLA-B*15:01 | 1 | 335 | 343 | 9 | LCPFGEVFN 1e-06 | 95 |
| HLA-B*35:01 | 1 | 335 | 343 | 9 | LCPFGEVFN 1e-06 | 87 |
| HLA-B*40:01 | 1 | 337 | 345 | 9 | PFGEVFNAT 1e-06 | 81 |
| HLA-B*40:01 | 1 | 337 | 346 | 10 | PFGEVFNATR 1e-06 | 81 |
| HLA-B*40:01 | 1 | 347 | 356 | 10 | FASVYAWNKR 1e-06 | 81 |
| HLA-B*40:01 | 1 | 350 | 359 | 10 | VYAWNKRKRIS 1e-06 | 81 |
| HLA-B*40:01 | 1 | 351 | 360 | 10 | YAWNKRKRISN 1e-06 | 81 |
| HLA-B*35:01 | 1 | 352 | 361 | 10 | AWNKRKRISNC 1e-06 | 87 |
| HLA-B*40:01 | 1 | 352 | 360 | 9 | AWNKRKRISN 1e-06 | 81 |
| HLA-B*53:01 | 1 | 352 | 360 | 9 | AWNKRKRISN 1e-06 | 89 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-A*11:01 | 1 | 353 | 362 | 10 | WNRKRISNCV 1e-06 | 88 |
| HLA-B*53:01 | 1 | 353 | 362 | 10 | WNRKRISNCV 1e-06 | 89 |
| HLA-A*32:01 | 1 | 354 | 363 | 10 | NRKRISNCVA 1e-06 | 86 |
| HLA-A*02:01 | 1 | 355 | 364 | 10 | RKRISNCVAD 1e-06 | 95 |
| HLA-A*26:01 | 1 | 355 | 364 | 10 | RKRISNCVAD 1e-06 | 94 |
| HLA-A*31:01 | 1 | 355 | 364 | 10 | RKRISNCVAD 1e-06 | 97 |
| HLA-A*33:01 | 1 | 355 | 364 | 10 | RKRISNCVAD 1e-06 | 98 |
| HLA-A*68:01 | 1 | 355 | 364 | 10 | RKRISNCVAD 1e-06 | 94 |
| HLA-B*35:01 | 1 | 355 | 364 | 10 | RKRISNCVAD 1e-06 | 87 |
| HLA-B*40:01 | 1 | 355 | 364 | 10 | RKRISNCVAD 1e-06 | 81 |
| HLA-B*44:02 | 1 | 355 | 364 | 10 | RKRISNCVAD 1e-06 | 94 |
| HLA-A*32:01 | 1 | 356 | 364 | 9 | KRISNCVAD 1e-06 | 86 |
| HLA-A*23:01 | 1 | 357 | 366 | 10 | RISNCVADYS 1e-06 | 90 |
| HLA-A*24:02 | 1 | 357 | 366 | 10 | RISNCVADYS 1e-06 | 88 |
| HLA-B*35:01 | 1 | 357 | 366 | 10 | RISNCVADYS 1e-06 | 87 |
| HLA-B*44:03 | 1 | 357 | 366 | 10 | RISNCVADYS 1e-06 | 91 |
| HLA-B*53:01 | 1 | 357 | 366 | 10 | RISNCVADYS 1e-06 | 89 |
| HLA-A*23:01 | 1 | 358 | 366 | 9 | ISNCVADYS 1e-06 | 90 |
| HLA-A*24:02 | 1 | 358 | 366 | 9 | ISNCVADYS 1e-06 | 88 |
| HLA-B*40:01 | 1 | 358 | 366 | 9 | ISNCVADYS 1e-06 | 81 |
| HLA-A*23:01 | 1 | 361 | 370 | 10 | CVADYSVLVN 1e-06 | 90 |
| HLA-A*24:02 | 1 | 361 | 370 | 10 | CVADYSVLVN 1e-06 | 88 |
| HLA-B*40:01 | 1 | 361 | 370 | 10 | CVADYSVLVN 1e-06 | 81 |
| HLA-B*40:01 | 1 | 364 | 373 | 10 | DYSVLVNSAS 1e-06 | 81 |
| HLA-B*40:01 | 1 | 373 | 381 | 9 | SFSTFKCYG 1e-06 | 81 |
| HLA-A*24:02 | 1 | 374 | 383 | 10 | FSTFKCYGVS 1e-06 | 88 |
| HLA-B*35:01 | 1 | 374 | 383 | 10 | FSTFKCYGVS 1e-06 | 87 |
| HLA-B*53:01 | 1 | 374 | 383 | 10 | FSTFKCYGVS 1e-06 | 89 |
| HLA-B*40:01 | 1 | 376 | 385 | 10 | TFKCYGVSPT 1e-06 | 81 |
| HLA-B*44:03 | 1 | 376 | 385 | 10 | TFKCYGVSPT 1e-06 | 91 |
| HLA-B*53:01 | 1 | 376 | 385 | 10 | TFKCYGVSPT 1e-06 | 89 |
| HLA-A*11:01 | 1 | 377 | 385 | 9 | FKCYGVSPT 1e-06 | 88 |
| HLA-A*24:02 | 1 | 377 | 385 | 9 | FKCYGVSPT 1e-06 | 88 |
| HLA-A*32:01 | 1 | 377 | 385 | 9 | FKCYGVSPT 1e-06 | 86 |
| HLA-B*58:01 | 1 | 377 | 385 | 9 | FKCYGVSPT 1e-06 | 98 |
| HLA-A*02:01 | 1 | 379 | 388 | 10 | CYGVSPKLN 1e-06 | 95 |
| HLA-A*11:01 | 1 | 379 | 388 | 10 | CYGVSPKLN 1e-06 | 88 |
| HLA-B*15:01 | 1 | 379 | 388 | 10 | CYGVSPKLN 1e-06 | 95 |
| HLA-B*35:01 | 1 | 379 | 388 | 10 | CYGVSPKLN 1e-06 | 87 |
| HLA-A*24:02 | 1 | 380 | 389 | 10 | YGVSPKLN 1e-06 | 88 |
| HLA-B*40:01 | 1 | 380 | 389 | 10 | YGVSPKLN 1e-06 | 81 |
| HLA-A*11:01 | 1 | 384 | 393 | 10 | PTKLNLCFT 1e-06 | 88 |
| HLA-A*32:01 | 1 | 384 | 393 | 10 | PTKLNLCFT 1e-06 | 86 |
| HLA-B*07:02 | 1 | 384 | 393 | 10 | PTKLNLCFT 1e-06 | 96 |
| HLA-B*35:01 | 1 | 384 | 393 | 10 | PTKLNLCFT 1e-06 | 87 |
| HLA-B*44:02 | 1 | 384 | 393 | 10 | PTKLNLCFT 1e-06 | 94 |
| HLA-B*53:01 | 1 | 384 | 393 | 10 | PTKLNLCFT 1e-06 | 89 |
| HLA-A*11:01 | 1 | 385 | 393 | 9 | TKLNLCFT 1e-06 | 88 |
| HLA-A*11:01 | 1 | 385 | 394 | 10 | TKLNLCFTN 1e-06 | 88 |
| HLA-A*23:01 | 1 | 385 | 394 | 10 | TKLNLCFTN 1e-06 | 90 |
| HLA-A*24:02 | 1 | 385 | 394 | 10 | TKLNLCFTN 1e-06 | 88 |
| HLA-A*32:01 | 1 | 385 | 393 | 9 | TKLNLCFT 1e-06 | 86 |
| HLA-B*07:02 | 1 | 385 | 394 | 10 | TKLNLCFTN 1e-06 | 96 |
| HLA-B*35:01 | 1 | 385 | 394 | 10 | TKLNLCFTN 1e-06 | 87 |
| HLA-B*40:01 | 1 | 385 | 394 | 10 | TKLNLCFTN 1e-06 | 81 |
| HLA-A*03:01 | 1 | 389 | 398 | 10 | DLCFTNVYAD 1e-06 | 96 |
| HLA-A*11:01 | 1 | 389 | 398 | 10 | DLCFTNVYAD 1e-06 | 88 |
| HLA-A*23:01 | 1 | 389 | 398 | 10 | DLCFTNVYAD 1e-06 | 90 |
| HLA-A*24:02 | 1 | 389 | 398 | 10 | DLCFTNVYAD 1e-06 | 88 |
| HLA-A*32:01 | 1 | 389 | 398 | 10 | DLCFTNVYAD 1e-06 | 86 |
| HLA-B*44:02 | 1 | 389 | 398 | 10 | DLCFTNVYAD 1e-06 | 94 |
| HLA-B*44:03 | 1 | 389 | 398 | 10 | DLCFTNVYAD 1e-06 | 91 |
| HLA-A*03:01 | 1 | 390 | 398 | 9 | LCFTNVYAD 1e-06 | 96 |
| HLA-A*03:01 | 1 | 390 | 399 | 10 | LCFTNVYADS 1e-06 | 96 |
| HLA-A*23:01 | 1 | 390 | 398 | 9 | LCFTNVYAD 1e-06 | 90 |
| HLA-A*24:02 | 1 | 390 | 398 | 9 | LCFTNVYAD 1e-06 | 88 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|-----|
| HLA-A*26:01 | 1 | 390 | 398 | 9 | LCFTNVYAD | 1e-06 | 94 |
| HLA-A*26:01 | 1 | 390 | 399 | 10 | LCFTNVYADS | 1e-06 | 94 |
| HLA-A*32:01 | 1 | 390 | 399 | 10 | LCFTNVYADS | 1e-06 | 86 |
| HLA-B*40:01 | 1 | 390 | 398 | 9 | LCFTNVYAD | 1e-06 | 81 |
| HLA-B*44:02 | 1 | 390 | 398 | 9 | LCFTNVYAD | 1e-06 | 94 |
| HLA-B*44:02 | 1 | 390 | 399 | 10 | LCFTNVYADS | 1e-06 | 94 |
| HLA-B*44:03 | 1 | 390 | 398 | 9 | LCFTNVYAD | 1e-06 | 91 |
| HLA-B*53:01 | 1 | 390 | 399 | 10 | LCFTNVYADS | 1e-06 | 89 |
| HLA-A*11:01 | 1 | 391 | 399 | 9 | CFTNVYADS | 1e-06 | 88 |
| HLA-A*32:01 | 1 | 391 | 399 | 9 | CFTNVYADS | 1e-06 | 86 |
| HLA-B*15:01 | 1 | 391 | 399 | 9 | CFTNVYADS | 1e-06 | 95 |
| HLA-B*44:02 | 1 | 391 | 399 | 9 | CFTNVYADS | 1e-06 | 94 |
| HLA-B*44:03 | 1 | 391 | 399 | 9 | CFTNVYADS | 1e-06 | 91 |
| HLA-B*53:01 | 1 | 391 | 399 | 9 | CFTNVYADS | 1e-06 | 89 |
| HLA-B*58:01 | 1 | 391 | 399 | 9 | CFTNVYADS | 1e-06 | 98 |
| HLA-A*03:01 | 1 | 396 | 405 | 10 | YADSFVIRGD | 1e-06 | 96 |
| HLA-A*11:01 | 1 | 396 | 405 | 10 | YADSFVIRGD | 1e-06 | 88 |
| HLA-A*23:01 | 1 | 396 | 405 | 10 | YADSFVIRGD | 1e-06 | 90 |
| HLA-A*32:01 | 1 | 396 | 405 | 10 | YADSFVIRGD | 1e-06 | 86 |
| HLA-B*15:01 | 1 | 396 | 405 | 10 | YADSFVIRGD | 1e-06 | 95 |
| HLA-B*44:03 | 1 | 396 | 405 | 10 | YADSFVIRGD | 1e-06 | 91 |
| HLA-A*23:01 | 1 | 397 | 405 | 9 | ADSFVIRGD | 1e-06 | 90 |
| HLA-A*23:01 | 1 | 397 | 406 | 10 | ADSFVIRGDE | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 397 | 405 | 9 | ADSFVIRGD | 1e-06 | 88 |
| HLA-B*35:01 | 1 | 397 | 406 | 10 | ADSFVIRGDE | 1e-06 | 87 |
| HLA-B*53:01 | 1 | 397 | 406 | 10 | ADSFVIRGDE | 1e-06 | 89 |
| HLA-A*23:01 | 1 | 398 | 406 | 9 | DSFVIRGDE | 1e-06 | 90 |
| HLA-A*32:01 | 1 | 398 | 406 | 9 | DSFVIRGDE | 1e-06 | 86 |
| HLA-A*24:02 | 1 | 400 | 409 | 10 | FVIRGDEVRQ | 1e-06 | 88 |
| HLA-A*23:01 | 1 | 401 | 409 | 9 | VIRGDEVRQ | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 401 | 409 | 9 | VIRGDEVRQ | 1e-06 | 88 |
| HLA-A*02:06 | 1 | 404 | 413 | 10 | GDEVRQIAPG | 1e-06 | 97 |
| HLA-A*03:01 | 1 | 404 | 413 | 10 | GDEVRQIAPG | 1e-06 | 96 |
| HLA-A*23:01 | 1 | 404 | 412 | 9 | GDEVRQIAP | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 404 | 412 | 9 | GDEVRQIAP | 1e-06 | 88 |
| HLA-A*26:01 | 1 | 404 | 412 | 9 | GDEVRQIAP | 1e-06 | 94 |
| HLA-A*33:01 | 1 | 404 | 413 | 10 | GDEVRQIAPG | 1e-06 | 98 |
| HLA-B*07:02 | 1 | 404 | 413 | 10 | GDEVRQIAPG | 1e-06 | 96 |
| HLA-B*15:01 | 1 | 404 | 413 | 10 | GDEVRQIAPG | 1e-06 | 95 |
| HLA-B*57:01 | 1 | 404 | 413 | 10 | GDEVRQIAPG | 1e-06 | 100 |
| HLA-B*58:01 | 1 | 404 | 413 | 10 | GDEVRQIAPG | 1e-06 | 98 |
| HLA-A*02:01 | 1 | 405 | 413 | 9 | DEVRQIAPG | 1e-06 | 95 |
| HLA-A*23:01 | 1 | 405 | 413 | 9 | DEVRQIAPG | 1e-06 | 90 |
| HLA-A*23:01 | 1 | 405 | 414 | 10 | DEVRQIAPGQ | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 405 | 414 | 10 | DEVRQIAPGQ | 1e-06 | 88 |
| HLA-A*31:01 | 1 | 405 | 413 | 9 | DEVRQIAPG | 1e-06 | 97 |
| HLA-A*32:01 | 1 | 405 | 413 | 9 | DEVRQIAPG | 1e-06 | 86 |
| HLA-A*02:01 | 1 | 411 | 420 | 10 | APGQTGKIAD | 1e-06 | 95 |
| HLA-A*02:03 | 1 | 411 | 420 | 10 | APGQTGKIAD | 1e-06 | 96 |
| HLA-A*23:01 | 1 | 411 | 420 | 10 | APGQTGKIAD | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 411 | 420 | 10 | APGQTGKIAD | 1e-06 | 88 |
| HLA-A*26:01 | 1 | 411 | 420 | 10 | APGQTGKIAD | 1e-06 | 94 |
| HLA-A*31:01 | 1 | 411 | 420 | 10 | APGQTGKIAD | 1e-06 | 97 |
| HLA-A*32:01 | 1 | 411 | 420 | 10 | APGQTGKIAD | 1e-06 | 86 |
| HLA-A*68:01 | 1 | 411 | 420 | 10 | APGQTGKIAD | 1e-06 | 94 |
| HLA-B*40:01 | 1 | 411 | 420 | 10 | APGQTGKIAD | 1e-06 | 81 |
| HLA-A*02:06 | 1 | 412 | 420 | 9 | PGQTGKIAD | 1e-06 | 97 |
| HLA-A*03:01 | 1 | 412 | 420 | 9 | PGQTGKIAD | 1e-06 | 96 |
| HLA-A*68:02 | 1 | 412 | 421 | 10 | PGQTGKIADY | 1e-06 | 94 |
| HLA-B*07:02 | 1 | 412 | 420 | 9 | PGQTGKIAD | 1e-06 | 96 |
| HLA-B*35:01 | 1 | 412 | 420 | 9 | PGQTGKIAD | 1e-06 | 87 |
| HLA-B*44:02 | 1 | 412 | 420 | 9 | PGQTGKIAD | 1e-06 | 94 |
| HLA-B*44:03 | 1 | 412 | 420 | 9 | PGQTGKIAD | 1e-06 | 91 |
| HLA-A*03:01 | 1 | 418 | 427 | 10 | IADYNYKLPD | 1e-06 | 96 |
| HLA-A*26:01 | 1 | 418 | 427 | 10 | IADYNYKLPD | 1e-06 | 94 |
| HLA-A*31:01 | 1 | 418 | 427 | 10 | IADYNYKLPD | 1e-06 | 97 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|-----|
| HLA-A*33:01 | 1 | 418 | 427 | 10 | IADYNYKLPD 1e-06 | 98 |
| HLA-A*68:01 | 1 | 418 | 427 | 10 | IADYNYKLPD 1e-06 | 94 |
| HLA-B*07:02 | 1 | 418 | 427 | 10 | IADYNYKLPD 1e-06 | 96 |
| HLA-B*15:01 | 1 | 418 | 427 | 10 | IADYNYKLPD 1e-06 | 95 |
| HLA-B*44:02 | 1 | 418 | 427 | 10 | IADYNYKLPD 1e-06 | 94 |
| HLA-B*44:03 | 1 | 418 | 427 | 10 | IADYNYKLPD 1e-06 | 91 |
| HLA-B*53:01 | 1 | 418 | 427 | 10 | IADYNYKLPD 1e-06 | 89 |
| HLA-A*23:01 | 1 | 419 | 427 | 9 | ADYNYKLPD 1e-06 | 90 |
| HLA-A*31:01 | 1 | 419 | 428 | 10 | ADYNYKLPDD 1e-06 | 97 |
| HLA-A*32:01 | 1 | 419 | 428 | 10 | ADYNYKLPDD 1e-06 | 86 |
| HLA-A*33:01 | 1 | 419 | 428 | 10 | ADYNYKLPDD 1e-06 | 98 |
| HLA-A*68:01 | 1 | 419 | 428 | 10 | ADYNYKLPDD 1e-06 | 94 |
| HLA-B*08:01 | 1 | 419 | 428 | 10 | ADYNYKLPDD 1e-06 | 100 |
| HLA-B*40:01 | 1 | 419 | 428 | 10 | ADYNYKLPDD 1e-06 | 81 |
| HLA-B*53:01 | 1 | 419 | 427 | 9 | ADYNYKLPD 1e-06 | 89 |
| HLA-A*02:03 | 1 | 420 | 428 | 9 | DYNYKLPDD 1e-06 | 96 |
| HLA-A*02:06 | 1 | 420 | 428 | 9 | DYNYKLPDD 1e-06 | 97 |
| HLA-A*03:01 | 1 | 420 | 428 | 9 | DYNYKLPDD 1e-06 | 96 |
| HLA-A*26:01 | 1 | 420 | 428 | 9 | DYNYKLPDD 1e-06 | 94 |
| HLA-A*68:02 | 1 | 420 | 428 | 9 | DYNYKLPDD 1e-06 | 94 |
| HLA-B*07:02 | 1 | 420 | 428 | 9 | DYNYKLPDD 1e-06 | 96 |
| HLA-B*44:02 | 1 | 420 | 428 | 9 | DYNYKLPDD 1e-06 | 94 |
| HLA-B*57:01 | 1 | 420 | 428 | 9 | DYNYKLPDD 1e-06 | 100 |
| HLA-A*32:01 | 1 | 422 | 430 | 9 | NYKLPDDFT 1e-06 | 86 |
| HLA-A*11:01 | 1 | 423 | 431 | 9 | YKLPDDFTG 1e-06 | 88 |
| HLA-A*02:03 | 1 | 426 | 434 | 9 | PDDFTGCVI 1e-06 | 96 |
| HLA-A*02:03 | 1 | 426 | 435 | 10 | PDDFTGCVIA 1e-06 | 96 |
| HLA-A*03:01 | 1 | 426 | 435 | 10 | PDDFTGCVIA 1e-06 | 96 |
| HLA-A*11:01 | 1 | 426 | 435 | 10 | PDDFTGCVIA 1e-06 | 88 |
| HLA-A*23:01 | 1 | 426 | 435 | 10 | PDDFTGCVIA 1e-06 | 90 |
| HLA-A*31:01 | 1 | 426 | 435 | 10 | PDDFTGCVIA 1e-06 | 97 |
| HLA-A*68:01 | 1 | 426 | 434 | 9 | PDDFTGCVI 1e-06 | 94 |
| HLA-A*68:01 | 1 | 426 | 435 | 10 | PDDFTGCVIA 1e-06 | 94 |
| HLA-B*15:01 | 1 | 426 | 435 | 10 | PDDFTGCVIA 1e-06 | 95 |
| HLA-B*53:01 | 1 | 426 | 435 | 10 | PDDFTGCVIA 1e-06 | 89 |
| HLA-B*57:01 | 1 | 426 | 435 | 10 | PDDFTGCVIA 1e-06 | 100 |
| HLA-B*58:01 | 1 | 426 | 435 | 10 | PDDFTGCVIA 1e-06 | 98 |
| HLA-A*02:03 | 1 | 428 | 437 | 10 | DFTGCVIAWN 1e-06 | 96 |
| HLA-A*02:06 | 1 | 428 | 437 | 10 | DFTGCVIAWN 1e-06 | 97 |
| HLA-B*07:02 | 1 | 428 | 437 | 10 | DFTGCVIAWN 1e-06 | 96 |
| HLA-B*15:01 | 1 | 428 | 437 | 10 | DFTGCVIAWN 1e-06 | 95 |
| HLA-A*03:01 | 1 | 429 | 437 | 9 | FTGCVIAWN 1e-06 | 96 |
| HLA-A*11:01 | 1 | 429 | 437 | 9 | FTGCVIAWN 1e-06 | 88 |
| HLA-A*23:01 | 1 | 429 | 437 | 9 | FTGCVIAWN 1e-06 | 90 |
| HLA-A*24:02 | 1 | 429 | 437 | 9 | FTGCVIAWN 1e-06 | 88 |
| HLA-B*07:02 | 1 | 429 | 438 | 10 | FTGCVIAWNS 1e-06 | 96 |
| HLA-B*15:01 | 1 | 429 | 437 | 9 | FTGCVIAWN 1e-06 | 95 |
| HLA-B*15:01 | 1 | 429 | 438 | 10 | FTGCVIAWNS 1e-06 | 95 |
| HLA-B*53:01 | 1 | 429 | 438 | 10 | FTGCVIAWNS 1e-06 | 89 |
| HLA-A*02:06 | 1 | 430 | 439 | 10 | TGCVIAWNSN 1e-06 | 97 |
| HLA-A*03:01 | 1 | 430 | 439 | 10 | TGCVIAWNSN 1e-06 | 96 |
| HLA-A*11:01 | 1 | 430 | 439 | 10 | TGCVIAWNSN 1e-06 | 88 |
| HLA-A*32:01 | 1 | 430 | 439 | 10 | TGCVIAWNSN 1e-06 | 86 |
| HLA-A*33:01 | 1 | 430 | 439 | 10 | TGCVIAWNSN 1e-06 | 98 |
| HLA-A*68:01 | 1 | 430 | 439 | 10 | TGCVIAWNSN 1e-06 | 94 |
| HLA-B*15:01 | 1 | 430 | 439 | 10 | TGCVIAWNSN 1e-06 | 95 |
| HLA-B*35:01 | 1 | 430 | 439 | 10 | TGCVIAWNSN 1e-06 | 87 |
| HLA-B*40:01 | 1 | 430 | 438 | 9 | TGCVIAWNS 1e-06 | 81 |
| HLA-B*44:02 | 1 | 430 | 439 | 10 | TGCVIAWNSN 1e-06 | 94 |
| HLA-B*44:03 | 1 | 430 | 439 | 10 | TGCVIAWNSN 1e-06 | 91 |
| HLA-B*53:01 | 1 | 430 | 439 | 10 | TGCVIAWNSN 1e-06 | 89 |
| HLA-A*02:01 | 1 | 431 | 439 | 9 | GCVIAWNSN 1e-06 | 95 |
| HLA-A*02:03 | 1 | 431 | 439 | 9 | GCVIAWNSN 1e-06 | 96 |
| HLA-A*11:01 | 1 | 431 | 439 | 9 | GCVIAWNSN 1e-06 | 88 |
| HLA-A*32:01 | 1 | 431 | 439 | 9 | GCVIAWNSN 1e-06 | 86 |
| HLA-A*68:02 | 1 | 431 | 440 | 10 | GCVIAWNSNN 1e-06 | 94 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|-----|
| HLA-B*07:02 | 1 | 431 | 440 | 10 | GCVIAWNSNN 1e-06 | 96 |
| HLA-B*08:01 | 1 | 431 | 440 | 10 | GCVIAWNSNN 1e-06 | 100 |
| HLA-B*35:01 | 1 | 431 | 439 | 9 | GCVIAWNSN 1e-06 | 87 |
| HLA-B*44:02 | 1 | 431 | 439 | 9 | GCVIAWNSN 1e-06 | 94 |
| HLA-B*44:02 | 1 | 431 | 440 | 10 | GCVIAWNSNN 1e-06 | 94 |
| HLA-B*44:03 | 1 | 431 | 439 | 9 | GCVIAWNSN 1e-06 | 91 |
| HLA-B*51:01 | 1 | 431 | 440 | 10 | GCVIAWNSNN 1e-06 | 99 |
| HLA-B*53:01 | 1 | 431 | 439 | 9 | GCVIAWNSN 1e-06 | 89 |
| HLA-A*23:01 | 1 | 432 | 440 | 9 | CVIAWNSNN 1e-06 | 90 |
| HLA-A*24:02 | 1 | 432 | 440 | 9 | CVIAWNSNN 1e-06 | 88 |
| HLA-B*44:02 | 1 | 432 | 440 | 9 | CVIAWNSNN 1e-06 | 94 |
| HLA-B*44:03 | 1 | 432 | 440 | 9 | CVIAWNSNN 1e-06 | 91 |
| HLA-B*40:01 | 1 | 433 | 442 | 10 | VIAWNSNNLD 1e-06 | 81 |
| HLA-B*44:03 | 1 | 433 | 442 | 10 | VIAWNSNNLD 1e-06 | 91 |
| HLA-B*40:01 | 1 | 435 | 443 | 9 | AWNSNNLDS 1e-06 | 81 |
| HLA-A*11:01 | 1 | 437 | 446 | 10 | NSNNLDSKVG 1e-06 | 88 |
| HLA-A*31:01 | 1 | 437 | 446 | 10 | NSNNLDSKVG 1e-06 | 97 |
| HLA-A*32:01 | 1 | 437 | 446 | 10 | NSNNLDSKVG 1e-06 | 86 |
| HLA-A*02:01 | 1 | 438 | 446 | 9 | SNNLDSKVG 1e-06 | 95 |
| HLA-A*02:01 | 1 | 438 | 447 | 10 | SNNLDSKVG 1e-06 | 95 |
| HLA-A*23:01 | 1 | 438 | 447 | 10 | SNNLDSKVG 1e-06 | 90 |
| HLA-A*24:02 | 1 | 438 | 446 | 9 | SNNLDSKVG 1e-06 | 88 |
| HLA-A*32:01 | 1 | 438 | 446 | 9 | SNNLDSKVG 1e-06 | 86 |
| HLA-B*35:01 | 1 | 438 | 447 | 10 | SNNLDSKVG 1e-06 | 87 |
| HLA-A*11:01 | 1 | 439 | 448 | 10 | NNLDSKVG 1e-06 | 88 |
| HLA-A*23:01 | 1 | 439 | 448 | 10 | NNLDSKVG 1e-06 | 90 |
| HLA-A*26:01 | 1 | 439 | 448 | 10 | NNLDSKVG 1e-06 | 94 |
| HLA-A*32:01 | 1 | 439 | 448 | 10 | NNLDSKVG 1e-06 | 86 |
| HLA-A*68:01 | 1 | 439 | 448 | 10 | NNLDSKVG 1e-06 | 94 |
| HLA-B*07:02 | 1 | 439 | 448 | 10 | NNLDSKVG 1e-06 | 96 |
| HLA-B*15:01 | 1 | 439 | 448 | 10 | NNLDSKVG 1e-06 | 95 |
| HLA-B*44:03 | 1 | 439 | 448 | 10 | NNLDSKVG 1e-06 | 91 |
| HLA-B*53:01 | 1 | 439 | 448 | 10 | NNLDSKVG 1e-06 | 89 |
| HLA-B*40:01 | 1 | 440 | 448 | 9 | NLDSKVG 1e-06 | 81 |
| HLA-A*02:01 | 1 | 441 | 450 | 10 | LDSKVG 1e-06 | 95 |
| HLA-A*23:01 | 1 | 441 | 450 | 10 | LDSKVG 1e-06 | 90 |
| HLA-A*68:02 | 1 | 441 | 450 | 10 | LDSKVG 1e-06 | 94 |
| HLA-B*40:01 | 1 | 441 | 450 | 10 | LDSKVG 1e-06 | 81 |
| HLA-A*02:01 | 1 | 442 | 450 | 9 | DSKVG 1e-06 | 95 |
| HLA-A*23:01 | 1 | 442 | 450 | 9 | DSKVG 1e-06 | 90 |
| HLA-A*24:02 | 1 | 442 | 450 | 9 | DSKVG 1e-06 | 88 |
| HLA-B*35:01 | 1 | 450 | 459 | 10 | NYLYR 1e-06 | 87 |
| HLA-B*40:01 | 1 | 450 | 459 | 10 | NYLYR 1e-06 | 81 |
| HLA-B*53:01 | 1 | 450 | 459 | 10 | NYLYR 1e-06 | 89 |
| HLA-A*11:01 | 1 | 451 | 460 | 10 | YLYR 1e-06 | 88 |
| HLA-B*35:01 | 1 | 451 | 460 | 10 | YLYR 1e-06 | 87 |
| HLA-B*40:01 | 1 | 451 | 460 | 10 | YLYR 1e-06 | 81 |
| HLA-B*44:02 | 1 | 451 | 460 | 10 | YLYR 1e-06 | 94 |
| HLA-B*44:03 | 1 | 451 | 460 | 10 | YLYR 1e-06 | 91 |
| HLA-B*53:01 | 1 | 451 | 460 | 10 | YLYR 1e-06 | 89 |
| HLA-A*02:03 | 1 | 452 | 460 | 9 | LYR 1e-06 | 96 |
| HLA-A*11:01 | 1 | 452 | 460 | 9 | LYR 1e-06 | 88 |
| HLA-A*68:02 | 1 | 452 | 460 | 9 | LYR 1e-06 | 94 |
| HLA-B*44:02 | 1 | 452 | 460 | 9 | LYR 1e-06 | 94 |
| HLA-B*44:03 | 1 | 452 | 460 | 9 | LYR 1e-06 | 91 |
| HLA-B*53:01 | 1 | 452 | 460 | 9 | LYR 1e-06 | 89 |
| HLA-B*35:01 | 1 | 458 | 467 | 10 | KSNL 1e-06 | 87 |
| HLA-B*53:01 | 1 | 458 | 467 | 10 | KSNL 1e-06 | 89 |
| HLA-A*11:01 | 1 | 460 | 469 | 10 | NL 1e-06 | 88 |
| HLA-B*40:01 | 1 | 460 | 469 | 10 | NL 1e-06 | 81 |
| HLA-A*02:01 | 1 | 461 | 469 | 9 | L 1e-06 | 95 |
| HLA-A*02:03 | 1 | 461 | 469 | 9 | L 1e-06 | 96 |
| HLA-A*02:06 | 1 | 461 | 469 | 9 | L 1e-06 | 97 |
| HLA-A*03:01 | 1 | 461 | 469 | 9 | L 1e-06 | 96 |
| HLA-A*24:02 | 1 | 461 | 469 | 9 | L 1e-06 | 88 |
| HLA-A*26:01 | 1 | 461 | 469 | 9 | L 1e-06 | 94 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|-----|
| HLA-A*68:01 | 1 | 461 | 469 | 9 | LKPFERDIS | 1e-06 | 94 |
| HLA-A*68:02 | 1 | 461 | 469 | 9 | LKPFERDIS | 1e-06 | 94 |
| HLA-B*44:02 | 1 | 461 | 469 | 9 | LKPFERDIS | 1e-06 | 94 |
| HLA-B*44:03 | 1 | 461 | 469 | 9 | LKPFERDIS | 1e-06 | 91 |
| HLA-B*53:01 | 1 | 461 | 469 | 9 | LKPFERDIS | 1e-06 | 89 |
| HLA-B*57:01 | 1 | 461 | 469 | 9 | LKPFERDIS | 1e-06 | 100 |
| HLA-B*58:01 | 1 | 461 | 469 | 9 | LKPFERDIS | 1e-06 | 98 |
| HLA-A*11:01 | 1 | 463 | 471 | 9 | PFERDISTE | 1e-06 | 88 |
| HLA-A*68:02 | 1 | 463 | 471 | 9 | PFERDISTE | 1e-06 | 94 |
| HLA-B*44:02 | 1 | 463 | 471 | 9 | PFERDISTE | 1e-06 | 94 |
| HLA-B*44:03 | 1 | 463 | 471 | 9 | PFERDISTE | 1e-06 | 91 |
| HLA-A*11:01 | 1 | 467 | 476 | 10 | DISTEIQAG | 1e-06 | 88 |
| HLA-A*24:02 | 1 | 467 | 476 | 10 | DISTEIQAG | 1e-06 | 88 |
| HLA-A*32:01 | 1 | 467 | 476 | 10 | DISTEIQAG | 1e-06 | 86 |
| HLA-A*23:01 | 1 | 468 | 477 | 10 | ISTEIQAGS | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 468 | 477 | 10 | ISTEIQAGS | 1e-06 | 88 |
| HLA-B*40:01 | 1 | 468 | 477 | 10 | ISTEIQAGS | 1e-06 | 81 |
| HLA-B*44:03 | 1 | 468 | 477 | 10 | ISTEIQAGS | 1e-06 | 91 |
| HLA-A*23:01 | 1 | 469 | 477 | 9 | STEIQAGS | 1e-06 | 90 |
| HLA-A*23:01 | 1 | 469 | 478 | 10 | STEIQAGST | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 469 | 477 | 9 | STEIQAGS | 1e-06 | 88 |
| HLA-A*24:02 | 1 | 469 | 478 | 10 | STEIQAGST | 1e-06 | 88 |
| HLA-A*32:01 | 1 | 470 | 478 | 9 | TEIQAGST | 1e-06 | 86 |
| HLA-A*11:01 | 1 | 473 | 482 | 10 | YQAGSTPCNG | 1e-06 | 88 |
| HLA-A*23:01 | 1 | 474 | 482 | 9 | QAGSTPCNG | 1e-06 | 90 |
| HLA-B*40:01 | 1 | 474 | 482 | 9 | QAGSTPCNG | 1e-06 | 81 |
| HLA-A*23:01 | 1 | 475 | 484 | 10 | AGSTPCNGVE | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 475 | 484 | 10 | AGSTPCNGVE | 1e-06 | 88 |
| HLA-B*40:01 | 1 | 475 | 484 | 10 | AGSTPCNGVE | 1e-06 | 81 |
| HLA-B*44:03 | 1 | 475 | 484 | 10 | AGSTPCNGVE | 1e-06 | 91 |
| HLA-A*23:01 | 1 | 476 | 484 | 9 | GSTPCNGVE | 1e-06 | 90 |
| HLA-A*23:01 | 1 | 476 | 485 | 10 | GSTPCNGVEG | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 476 | 485 | 10 | GSTPCNGVEG | 1e-06 | 88 |
| HLA-A*32:01 | 1 | 476 | 485 | 10 | GSTPCNGVEG | 1e-06 | 86 |
| HLA-B*40:01 | 1 | 476 | 485 | 10 | GSTPCNGVEG | 1e-06 | 81 |
| HLA-B*53:01 | 1 | 476 | 485 | 10 | GSTPCNGVEG | 1e-06 | 89 |
| HLA-A*02:03 | 1 | 478 | 487 | 10 | TPCNGVEGFN | 1e-06 | 96 |
| HLA-A*02:03 | 1 | 479 | 488 | 10 | PCNGVEGFNC | 1e-06 | 96 |
| HLA-A*03:01 | 1 | 479 | 488 | 10 | PCNGVEGFNC | 1e-06 | 96 |
| HLA-A*23:01 | 1 | 479 | 488 | 10 | PCNGVEGFNC | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 479 | 488 | 10 | PCNGVEGFNC | 1e-06 | 88 |
| HLA-A*31:01 | 1 | 479 | 488 | 10 | PCNGVEGFNC | 1e-06 | 97 |
| HLA-A*33:01 | 1 | 479 | 488 | 10 | PCNGVEGFNC | 1e-06 | 98 |
| HLA-A*68:01 | 1 | 479 | 487 | 9 | PCNGVEGFN | 1e-06 | 94 |
| HLA-B*08:01 | 1 | 479 | 487 | 9 | PCNGVEGFN | 1e-06 | 100 |
| HLA-B*44:02 | 1 | 479 | 487 | 9 | PCNGVEGFN | 1e-06 | 94 |
| HLA-B*44:02 | 1 | 479 | 488 | 10 | PCNGVEGFNC | 1e-06 | 94 |
| HLA-B*44:03 | 1 | 479 | 487 | 9 | PCNGVEGFN | 1e-06 | 91 |
| HLA-B*44:03 | 1 | 479 | 488 | 10 | PCNGVEGFNC | 1e-06 | 91 |
| HLA-B*51:01 | 1 | 479 | 487 | 9 | PCNGVEGFN | 1e-06 | 99 |
| HLA-A*26:01 | 1 | 480 | 488 | 9 | CNGVEGFNC | 1e-06 | 94 |
| HLA-A*32:01 | 1 | 480 | 488 | 9 | CNGVEGFNC | 1e-06 | 86 |
| HLA-B*15:01 | 1 | 480 | 488 | 9 | CNGVEGFNC | 1e-06 | 95 |
| HLA-B*40:01 | 1 | 480 | 488 | 9 | CNGVEGFNC | 1e-06 | 81 |
| HLA-B*44:02 | 1 | 480 | 488 | 9 | CNGVEGFNC | 1e-06 | 94 |
| HLA-B*44:03 | 1 | 480 | 488 | 9 | CNGVEGFNC | 1e-06 | 91 |
| HLA-A*11:01 | 1 | 483 | 491 | 9 | VEGFNCYFP | 1e-06 | 88 |
| HLA-A*32:01 | 1 | 483 | 491 | 9 | VEGFNCYFP | 1e-06 | 86 |
| HLA-B*40:01 | 1 | 484 | 493 | 10 | EGFNCYFPLQ | 1e-06 | 81 |
| HLA-B*40:01 | 1 | 485 | 493 | 9 | GFNCYFPLQ | 1e-06 | 81 |
| HLA-B*40:01 | 1 | 485 | 494 | 10 | GFNCYFPLQS | 1e-06 | 81 |
| HLA-A*11:01 | 1 | 491 | 500 | 10 | PLQSYGFQPT | 1e-06 | 88 |
| HLA-A*24:02 | 1 | 491 | 500 | 10 | PLQSYGFQPT | 1e-06 | 88 |
| HLA-A*32:01 | 1 | 491 | 500 | 10 | PLQSYGFQPT | 1e-06 | 86 |
| HLA-A*68:01 | 1 | 491 | 500 | 10 | PLQSYGFQPT | 1e-06 | 94 |
| HLA-B*44:02 | 1 | 491 | 500 | 10 | PLQSYGFQPT | 1e-06 | 94 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|-----|
| HLA-B*44:03 | 1 | 491 | 500 | 10 | PLQSYGFQPT 1e-06 | 91 |
| HLA-B*58:01 | 1 | 491 | 500 | 10 | PLQSYGFQPT 1e-06 | 98 |
| HLA-B*40:01 | 1 | 494 | 502 | 9 | SYGFQPTNG 1e-06 | 81 |
| HLA-A*02:03 | 1 | 498 | 506 | 9 | QPTNGVGYQ 1e-06 | 96 |
| HLA-A*02:01 | 1 | 507 | 516 | 10 | PYRVVLSFE 1e-06 | 95 |
| HLA-A*02:03 | 1 | 507 | 516 | 10 | PYRVVLSFE 1e-06 | 96 |
| HLA-A*02:06 | 1 | 507 | 516 | 10 | PYRVVLSFE 1e-06 | 97 |
| HLA-A*11:01 | 1 | 507 | 516 | 10 | PYRVVLSFE 1e-06 | 88 |
| HLA-A*68:02 | 1 | 507 | 516 | 10 | PYRVVLSFE 1e-06 | 94 |
| HLA-B*44:02 | 1 | 507 | 516 | 10 | PYRVVLSFE 1e-06 | 94 |
| HLA-B*44:03 | 1 | 507 | 516 | 10 | PYRVVLSFE 1e-06 | 91 |
| HLA-A*02:01 | 1 | 521 | 530 | 10 | PATVCGPKKS 1e-06 | 95 |
| HLA-A*26:01 | 1 | 521 | 530 | 10 | PATVCGPKKS 1e-06 | 94 |
| HLA-A*33:01 | 1 | 521 | 530 | 10 | PATVCGPKKS 1e-06 | 98 |
| HLA-A*68:02 | 1 | 521 | 530 | 10 | PATVCGPKKS 1e-06 | 94 |
| HLA-B*08:01 | 1 | 521 | 530 | 10 | PATVCGPKKS 1e-06 | 100 |
| HLA-B*40:01 | 1 | 521 | 529 | 9 | PATVCGPKK 1e-06 | 81 |
| HLA-A*24:02 | 1 | 522 | 530 | 9 | ATVCGPKKS 1e-06 | 88 |
| HLA-A*24:02 | 1 | 523 | 532 | 10 | TVCGPKKSTN 1e-06 | 88 |
| HLA-B*40:01 | 1 | 523 | 532 | 10 | TVCGPKKSTN 1e-06 | 81 |
| HLA-A*23:01 | 1 | 524 | 532 | 9 | VCGPKKSTN 1e-06 | 90 |
| HLA-A*24:02 | 1 | 524 | 532 | 9 | VCGPKKSTN 1e-06 | 88 |
| HLA-A*26:01 | 1 | 524 | 532 | 9 | VCGPKKSTN 1e-06 | 94 |
| HLA-A*68:02 | 1 | 524 | 532 | 9 | VCGPKKSTN 1e-06 | 94 |
| HLA-B*40:01 | 1 | 524 | 532 | 9 | VCGPKKSTN 1e-06 | 81 |
| HLA-A*11:01 | 1 | 527 | 536 | 10 | PKKSTNLVKN 1e-06 | 88 |
| HLA-A*26:01 | 1 | 527 | 536 | 10 | PKKSTNLVKN 1e-06 | 94 |
| HLA-A*31:01 | 1 | 527 | 536 | 10 | PKKSTNLVKN 1e-06 | 97 |
| HLA-A*68:01 | 1 | 527 | 536 | 10 | PKKSTNLVKN 1e-06 | 94 |
| HLA-B*15:01 | 1 | 527 | 536 | 10 | PKKSTNLVKN 1e-06 | 95 |
| HLA-B*44:02 | 1 | 527 | 536 | 10 | PKKSTNLVKN 1e-06 | 94 |
| HLA-B*57:01 | 1 | 527 | 536 | 10 | PKKSTNLVKN 1e-06 | 100 |
| HLA-B*58:01 | 1 | 527 | 536 | 10 | PKKSTNLVKN 1e-06 | 98 |
| HLA-A*23:01 | 1 | 528 | 536 | 9 | KKSTNLVKN 1e-06 | 90 |
| HLA-A*24:02 | 1 | 528 | 536 | 9 | KKSTNLVKN 1e-06 | 88 |
| HLA-A*03:01 | 1 | 531 | 540 | 10 | TNLVKNKCVN 1e-06 | 96 |
| HLA-A*11:01 | 1 | 531 | 540 | 10 | TNLVKNKCVN 1e-06 | 88 |
| HLA-A*24:02 | 1 | 531 | 540 | 10 | TNLVKNKCVN 1e-06 | 88 |
| HLA-A*26:01 | 1 | 531 | 540 | 10 | TNLVKNKCVN 1e-06 | 94 |
| HLA-A*68:01 | 1 | 531 | 540 | 10 | TNLVKNKCVN 1e-06 | 94 |
| HLA-A*68:02 | 1 | 531 | 540 | 10 | TNLVKNKCVN 1e-06 | 94 |
| HLA-B*07:02 | 1 | 531 | 540 | 10 | TNLVKNKCVN 1e-06 | 96 |
| HLA-B*44:02 | 1 | 531 | 540 | 10 | TNLVKNKCVN 1e-06 | 94 |
| HLA-B*44:03 | 1 | 531 | 540 | 10 | TNLVKNKCVN 1e-06 | 91 |
| HLA-B*53:01 | 1 | 531 | 540 | 10 | TNLVKNKCVN 1e-06 | 89 |
| HLA-B*44:03 | 1 | 532 | 540 | 9 | NLVKNKCVN 1e-06 | 91 |
| HLA-B*40:01 | 1 | 533 | 542 | 10 | LVKNKCVNFN 1e-06 | 81 |
| HLA-B*44:03 | 1 | 533 | 542 | 10 | LVKNKCVNFN 1e-06 | 91 |
| HLA-A*02:06 | 1 | 534 | 542 | 9 | VKNKCVNFN 1e-06 | 97 |
| HLA-A*11:01 | 1 | 534 | 542 | 9 | VKNKCVNFN 1e-06 | 88 |
| HLA-A*23:01 | 1 | 534 | 542 | 9 | VKNKCVNFN 1e-06 | 90 |
| HLA-A*24:02 | 1 | 534 | 542 | 9 | VKNKCVNFN 1e-06 | 88 |
| HLA-A*26:01 | 1 | 534 | 542 | 9 | VKNKCVNFN 1e-06 | 94 |
| HLA-B*07:02 | 1 | 534 | 542 | 9 | VKNKCVNFN 1e-06 | 96 |
| HLA-B*35:01 | 1 | 534 | 542 | 9 | VKNKCVNFN 1e-06 | 87 |
| HLA-B*51:01 | 1 | 534 | 542 | 9 | VKNKCVNFN 1e-06 | 99 |
| HLA-B*53:01 | 1 | 534 | 542 | 9 | VKNKCVNFN 1e-06 | 89 |
| HLA-A*02:03 | 1 | 535 | 544 | 10 | KNKCVNFNFN 1e-06 | 96 |
| HLA-A*02:06 | 1 | 535 | 544 | 10 | KNKCVNFNFN 1e-06 | 97 |
| HLA-A*26:01 | 1 | 535 | 544 | 10 | KNKCVNFNFN 1e-06 | 94 |
| HLA-B*07:02 | 1 | 535 | 544 | 10 | KNKCVNFNFN 1e-06 | 96 |
| HLA-B*44:02 | 1 | 535 | 544 | 10 | KNKCVNFNFN 1e-06 | 94 |
| HLA-B*44:03 | 1 | 535 | 544 | 10 | KNKCVNFNFN 1e-06 | 91 |
| HLA-B*53:01 | 1 | 535 | 544 | 10 | KNKCVNFNFN 1e-06 | 89 |
| HLA-A*02:06 | 1 | 536 | 545 | 10 | NKCVNFNFN 1e-06 | 97 |
| HLA-A*03:01 | 1 | 536 | 544 | 9 | NKCVNFNFN 1e-06 | 96 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|-----|
| HLA-A*23:01 | 1 | 536 | 544 | 9 | NKCVNFNFN 1e-06 | 90 |
| HLA-A*23:01 | 1 | 536 | 545 | 10 | NKCVNFNFN 1e-06 | 90 |
| HLA-A*26:01 | 1 | 536 | 545 | 10 | NKCVNFNFN 1e-06 | 94 |
| HLA-A*33:01 | 1 | 536 | 545 | 10 | NKCVNFNFN 1e-06 | 98 |
| HLA-A*68:02 | 1 | 536 | 545 | 10 | NKCVNFNFN 1e-06 | 94 |
| HLA-B*07:02 | 1 | 536 | 544 | 9 | NKCVNFNFN 1e-06 | 96 |
| HLA-B*40:01 | 1 | 536 | 544 | 9 | NKCVNFNFN 1e-06 | 81 |
| HLA-B*44:02 | 1 | 536 | 545 | 10 | NKCVNFNFN 1e-06 | 94 |
| HLA-B*44:03 | 1 | 536 | 544 | 9 | NKCVNFNFN 1e-06 | 91 |
| HLA-B*44:03 | 1 | 536 | 545 | 10 | NKCVNFNFN 1e-06 | 91 |
| HLA-B*51:01 | 1 | 536 | 545 | 10 | NKCVNFNFN 1e-06 | 99 |
| HLA-B*53:01 | 1 | 536 | 545 | 10 | NKCVNFNFN 1e-06 | 89 |
| HLA-B*57:01 | 1 | 536 | 544 | 9 | NKCVNFNFN 1e-06 | 100 |
| HLA-B*58:01 | 1 | 536 | 544 | 9 | NKCVNFNFN 1e-06 | 98 |
| HLA-A*24:02 | 1 | 537 | 545 | 9 | KCVNFNFN 1e-06 | 88 |
| HLA-A*26:01 | 1 | 537 | 545 | 9 | KCVNFNFN 1e-06 | 94 |
| HLA-A*23:01 | 1 | 538 | 547 | 10 | CVNFNFNGLT 1e-06 | 90 |
| HLA-A*24:02 | 1 | 538 | 547 | 10 | CVNFNFNGLT 1e-06 | 88 |
| HLA-B*35:01 | 1 | 538 | 547 | 10 | CVNFNFNGLT 1e-06 | 87 |
| HLA-B*40:01 | 1 | 538 | 547 | 10 | CVNFNFNGLT 1e-06 | 81 |
| HLA-B*44:02 | 1 | 538 | 547 | 10 | CVNFNFNGLT 1e-06 | 94 |
| HLA-B*44:03 | 1 | 538 | 547 | 10 | CVNFNFNGLT 1e-06 | 91 |
| HLA-B*53:01 | 1 | 538 | 547 | 10 | CVNFNFNGLT 1e-06 | 89 |
| HLA-A*11:01 | 1 | 541 | 550 | 10 | FNFNGLTGTG 1e-06 | 88 |
| HLA-A*23:01 | 1 | 546 | 555 | 10 | LTGTGVLTES 1e-06 | 90 |
| HLA-A*24:02 | 1 | 546 | 555 | 10 | LTGTGVLTES 1e-06 | 88 |
| HLA-B*40:01 | 1 | 546 | 555 | 10 | LTGTGVLTES 1e-06 | 81 |
| HLA-B*44:02 | 1 | 546 | 555 | 10 | LTGTGVLTES 1e-06 | 94 |
| HLA-B*44:03 | 1 | 546 | 555 | 10 | LTGTGVLTES 1e-06 | 91 |
| HLA-A*23:01 | 1 | 547 | 556 | 10 | TGTGVLTESN 1e-06 | 90 |
| HLA-B*15:01 | 1 | 547 | 556 | 10 | TGTGVLTESN 1e-06 | 95 |
| HLA-B*35:01 | 1 | 547 | 556 | 10 | TGTGVLTESN 1e-06 | 87 |
| HLA-B*44:02 | 1 | 547 | 556 | 10 | TGTGVLTESN 1e-06 | 94 |
| HLA-B*44:03 | 1 | 547 | 556 | 10 | TGTGVLTESN 1e-06 | 91 |
| HLA-A*23:01 | 1 | 548 | 556 | 9 | GTGVLTESN 1e-06 | 90 |
| HLA-A*24:02 | 1 | 548 | 556 | 9 | GTGVLTESN 1e-06 | 88 |
| HLA-B*35:01 | 1 | 548 | 556 | 9 | GTGVLTESN 1e-06 | 87 |
| HLA-B*40:01 | 1 | 548 | 557 | 10 | GTGVLTESNK 1e-06 | 81 |
| HLA-A*24:02 | 1 | 555 | 564 | 10 | SNKKFLPFQQ 1e-06 | 88 |
| HLA-B*44:02 | 1 | 559 | 568 | 10 | FLPFQQFGRD 1e-06 | 94 |
| HLA-B*44:03 | 1 | 559 | 568 | 10 | FLPFQQFGRD 1e-06 | 91 |
| HLA-A*11:01 | 1 | 560 | 568 | 9 | LPFQQFGRD 1e-06 | 88 |
| HLA-A*23:01 | 1 | 560 | 568 | 9 | LPFQQFGRD 1e-06 | 90 |
| HLA-B*40:01 | 1 | 560 | 568 | 9 | LPFQQFGRD 1e-06 | 81 |
| HLA-A*11:01 | 1 | 561 | 569 | 9 | PFQQFGRDI 1e-06 | 88 |
| HLA-A*11:01 | 1 | 561 | 570 | 10 | PFQQFGRDIA 1e-06 | 88 |
| HLA-A*32:01 | 1 | 561 | 570 | 10 | PFQQFGRDIA 1e-06 | 86 |
| HLA-A*68:01 | 1 | 561 | 569 | 9 | PFQQFGRDI 1e-06 | 94 |
| HLA-A*68:01 | 1 | 561 | 570 | 10 | PFQQFGRDIA 1e-06 | 94 |
| HLA-B*53:01 | 1 | 561 | 570 | 10 | PFQQFGRDIA 1e-06 | 89 |
| HLA-A*03:01 | 1 | 562 | 571 | 10 | FQQFGRDIAD 1e-06 | 96 |
| HLA-A*11:01 | 1 | 562 | 571 | 10 | FQQFGRDIAD 1e-06 | 88 |
| HLA-A*11:01 | 1 | 564 | 572 | 9 | QFGRDIADT 1e-06 | 88 |
| HLA-A*32:01 | 1 | 564 | 572 | 9 | QFGRDIADT 1e-06 | 86 |
| HLA-B*15:01 | 1 | 564 | 572 | 9 | QFGRDIADT 1e-06 | 95 |
| HLA-A*11:01 | 1 | 565 | 574 | 10 | FGRDIADTTD 1e-06 | 88 |
| HLA-A*26:01 | 1 | 565 | 574 | 10 | FGRDIADTTD 1e-06 | 94 |
| HLA-A*31:01 | 1 | 565 | 574 | 10 | FGRDIADTTD 1e-06 | 97 |
| HLA-A*32:01 | 1 | 565 | 574 | 10 | FGRDIADTTD 1e-06 | 86 |
| HLA-A*68:01 | 1 | 565 | 574 | 10 | FGRDIADTTD 1e-06 | 94 |
| HLA-B*40:01 | 1 | 565 | 574 | 10 | FGRDIADTTD 1e-06 | 81 |
| HLA-A*02:01 | 1 | 566 | 574 | 9 | GRDIADTTD 1e-06 | 95 |
| HLA-A*03:01 | 1 | 566 | 574 | 9 | GRDIADTTD 1e-06 | 96 |
| HLA-A*11:01 | 1 | 566 | 574 | 9 | GRDIADTTD 1e-06 | 88 |
| HLA-A*32:01 | 1 | 566 | 575 | 10 | GRDIADTTDA 1e-06 | 86 |
| HLA-A*33:01 | 1 | 566 | 574 | 9 | GRDIADTTD 1e-06 | 98 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|-----|
| HLA-A*68:01 | 1 | 566 | 574 | 9 | GRDIADTTD 1e-06 | 94 |
| HLA-A*68:02 | 1 | 566 | 574 | 9 | GRDIADTTD 1e-06 | 94 |
| HLA-A*32:01 | 1 | 569 | 578 | 10 | IADTTDAVRD 1e-06 | 86 |
| HLA-B*40:01 | 1 | 569 | 578 | 10 | IADTTDAVRD 1e-06 | 81 |
| HLA-A*02:01 | 1 | 570 | 578 | 9 | ADTTDAVRD 1e-06 | 95 |
| HLA-A*02:06 | 1 | 570 | 578 | 9 | ADTTDAVRD 1e-06 | 97 |
| HLA-A*03:01 | 1 | 570 | 578 | 9 | ADTTDAVRD 1e-06 | 96 |
| HLA-A*11:01 | 1 | 570 | 578 | 9 | ADTTDAVRD 1e-06 | 88 |
| HLA-A*23:01 | 1 | 570 | 578 | 9 | ADTTDAVRD 1e-06 | 90 |
| HLA-A*23:01 | 1 | 570 | 579 | 10 | ADTTDAVRDP 1e-06 | 90 |
| HLA-A*24:02 | 1 | 570 | 578 | 9 | ADTTDAVRD 1e-06 | 88 |
| HLA-A*24:02 | 1 | 570 | 579 | 10 | ADTTDAVRDP 1e-06 | 88 |
| HLA-A*68:01 | 1 | 570 | 578 | 9 | ADTTDAVRD 1e-06 | 94 |
| HLA-B*07:02 | 1 | 570 | 578 | 9 | ADTTDAVRD 1e-06 | 96 |
| HLA-B*08:01 | 1 | 570 | 578 | 9 | ADTTDAVRD 1e-06 | 100 |
| HLA-B*15:01 | 1 | 570 | 578 | 9 | ADTTDAVRD 1e-06 | 95 |
| HLA-B*35:01 | 1 | 570 | 578 | 9 | ADTTDAVRD 1e-06 | 87 |
| HLA-B*53:01 | 1 | 570 | 578 | 9 | ADTTDAVRD 1e-06 | 89 |
| HLA-B*40:01 | 1 | 571 | 580 | 10 | DTTDAVRDPQ 1e-06 | 81 |
| HLA-A*11:01 | 1 | 577 | 586 | 10 | RDPQLEILD 1e-06 | 88 |
| HLA-A*02:01 | 1 | 578 | 586 | 9 | DPQLEILD 1e-06 | 95 |
| HLA-A*02:03 | 1 | 578 | 586 | 9 | DPQLEILD 1e-06 | 96 |
| HLA-A*11:01 | 1 | 578 | 586 | 9 | DPQLEILD 1e-06 | 88 |
| HLA-A*23:01 | 1 | 578 | 586 | 9 | DPQLEILD 1e-06 | 90 |
| HLA-A*31:01 | 1 | 578 | 586 | 9 | DPQLEILD 1e-06 | 97 |
| HLA-B*40:01 | 1 | 578 | 586 | 9 | DPQLEILD 1e-06 | 81 |
| HLA-A*11:01 | 1 | 579 | 587 | 9 | PQLEILDI 1e-06 | 88 |
| HLA-A*11:01 | 1 | 579 | 588 | 10 | PQLEILDIT 1e-06 | 88 |
| HLA-A*24:02 | 1 | 579 | 588 | 10 | PQLEILDIT 1e-06 | 88 |
| HLA-A*32:01 | 1 | 579 | 588 | 10 | PQLEILDIT 1e-06 | 86 |
| HLA-A*68:01 | 1 | 579 | 587 | 9 | PQLEILDI 1e-06 | 94 |
| HLA-B*07:02 | 1 | 579 | 588 | 10 | PQLEILDIT 1e-06 | 96 |
| HLA-B*35:01 | 1 | 579 | 588 | 10 | PQLEILDIT 1e-06 | 87 |
| HLA-B*40:01 | 1 | 579 | 588 | 10 | PQLEILDIT 1e-06 | 81 |
| HLA-B*44:02 | 1 | 579 | 588 | 10 | PQLEILDIT 1e-06 | 94 |
| HLA-B*44:03 | 1 | 579 | 588 | 10 | PQLEILDIT 1e-06 | 91 |
| HLA-A*24:02 | 1 | 582 | 591 | 10 | LEILDITPCS 1e-06 | 88 |
| HLA-A*11:01 | 1 | 585 | 594 | 10 | LDITPCSFVG 1e-06 | 88 |
| HLA-A*23:01 | 1 | 585 | 594 | 10 | LDITPCSFVG 1e-06 | 90 |
| HLA-A*24:02 | 1 | 585 | 593 | 9 | LDITPCSFVG 1e-06 | 88 |
| HLA-A*26:01 | 1 | 585 | 594 | 10 | LDITPCSFVG 1e-06 | 94 |
| HLA-A*31:01 | 1 | 585 | 594 | 10 | LDITPCSFVG 1e-06 | 97 |
| HLA-A*32:01 | 1 | 585 | 594 | 10 | LDITPCSFVG 1e-06 | 86 |
| HLA-B*07:02 | 1 | 585 | 594 | 10 | LDITPCSFVG 1e-06 | 96 |
| HLA-B*35:01 | 1 | 585 | 594 | 10 | LDITPCSFVG 1e-06 | 87 |
| HLA-B*40:01 | 1 | 585 | 594 | 10 | LDITPCSFVG 1e-06 | 81 |
| HLA-B*53:01 | 1 | 585 | 594 | 10 | LDITPCSFVG 1e-06 | 89 |
| HLA-A*11:01 | 1 | 586 | 594 | 9 | DITPCSFVG 1e-06 | 88 |
| HLA-A*23:01 | 1 | 586 | 594 | 9 | DITPCSFVG 1e-06 | 90 |
| HLA-A*24:02 | 1 | 586 | 594 | 9 | DITPCSFVG 1e-06 | 88 |
| HLA-B*40:01 | 1 | 586 | 595 | 10 | DITPCSFVGV 1e-06 | 81 |
| HLA-B*44:03 | 1 | 586 | 594 | 9 | DITPCSFVG 1e-06 | 91 |
| HLA-A*23:01 | 1 | 587 | 596 | 10 | ITPCSFGGVS 1e-06 | 90 |
| HLA-B*40:01 | 1 | 587 | 596 | 10 | ITPCSFGGVS 1e-06 | 81 |
| HLA-B*44:02 | 1 | 587 | 596 | 10 | ITPCSFGGVS 1e-06 | 94 |
| HLA-B*44:03 | 1 | 587 | 596 | 10 | ITPCSFGGVS 1e-06 | 91 |
| HLA-A*23:01 | 1 | 588 | 596 | 9 | TPCSFGGVS 1e-06 | 90 |
| HLA-A*24:02 | 1 | 588 | 596 | 9 | TPCSFGGVS 1e-06 | 88 |
| HLA-A*31:01 | 1 | 592 | 601 | 10 | FGGVSVITPG 1e-06 | 97 |
| HLA-A*32:01 | 1 | 592 | 601 | 10 | FGGVSVITPG 1e-06 | 86 |
| HLA-A*33:01 | 1 | 592 | 601 | 10 | FGGVSVITPG 1e-06 | 98 |
| HLA-A*68:01 | 1 | 592 | 601 | 10 | FGGVSVITPG 1e-06 | 94 |
| HLA-B*35:01 | 1 | 592 | 601 | 10 | FGGVSVITPG 1e-06 | 87 |
| HLA-B*53:01 | 1 | 592 | 601 | 10 | FGGVSVITPG 1e-06 | 89 |
| HLA-A*23:01 | 1 | 593 | 602 | 10 | GGVSVITPGT 1e-06 | 90 |
| HLA-A*24:02 | 1 | 593 | 601 | 9 | GGVSVITPG 1e-06 | 88 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-A*24:02 | 1 | 593 | 602 | 10 | GGVSVITPGT 1e-06 | 88 |
| HLA-B*35:01 | 1 | 593 | 602 | 10 | GGVSVITPGT 1e-06 | 87 |
| HLA-B*53:01 | 1 | 593 | 602 | 10 | GGVSVITPGT 1e-06 | 89 |
| HLA-B*35:01 | 1 | 594 | 603 | 10 | GVSVITPGTN 1e-06 | 87 |
| HLA-B*44:02 | 1 | 594 | 603 | 10 | GVSVITPGTN 1e-06 | 94 |
| HLA-B*44:03 | 1 | 594 | 603 | 10 | GVSVITPGTN 1e-06 | 91 |
| HLA-B*53:01 | 1 | 594 | 603 | 10 | GVSVITPGTN 1e-06 | 89 |
| HLA-A*23:01 | 1 | 595 | 603 | 9 | VSVITPGTN 1e-06 | 90 |
| HLA-A*24:02 | 1 | 595 | 603 | 9 | VSVITPGTN 1e-06 | 88 |
| HLA-B*40:01 | 1 | 595 | 603 | 9 | VSVITPGTN 1e-06 | 81 |
| HLA-B*40:01 | 1 | 597 | 606 | 10 | VITPGTNTSN 1e-06 | 81 |
| HLA-B*40:01 | 1 | 598 | 607 | 10 | ITPGTNTSNQ 1e-06 | 81 |
| HLA-A*23:01 | 1 | 600 | 609 | 10 | PGTNTSNQVA 1e-06 | 90 |
| HLA-A*24:02 | 1 | 600 | 609 | 10 | PGTNTSNQVA 1e-06 | 88 |
| HLA-B*40:01 | 1 | 600 | 609 | 10 | PGTNTSNQVA 1e-06 | 81 |
| HLA-A*24:02 | 1 | 605 | 614 | 10 | SNQVAVLYQD 1e-06 | 88 |
| HLA-B*07:02 | 1 | 605 | 614 | 10 | SNQVAVLYQD 1e-06 | 96 |
| HLA-B*40:01 | 1 | 605 | 614 | 10 | SNQVAVLYQD 1e-06 | 81 |
| HLA-B*53:01 | 1 | 605 | 614 | 10 | SNQVAVLYQD 1e-06 | 89 |
| HLA-B*35:01 | 1 | 607 | 616 | 10 | QVAVLYQDVN 1e-06 | 87 |
| HLA-B*44:03 | 1 | 607 | 616 | 10 | QVAVLYQDVN 1e-06 | 91 |
| HLA-A*02:03 | 1 | 608 | 616 | 9 | VAVLYQDVN 1e-06 | 96 |
| HLA-A*11:01 | 1 | 608 | 616 | 9 | VAVLYQDVN 1e-06 | 88 |
| HLA-A*23:01 | 1 | 608 | 616 | 9 | VAVLYQDVN 1e-06 | 90 |
| HLA-A*31:01 | 1 | 608 | 616 | 9 | VAVLYQDVN 1e-06 | 97 |
| HLA-B*40:01 | 1 | 608 | 616 | 9 | VAVLYQDVN 1e-06 | 81 |
| HLA-B*40:01 | 1 | 608 | 617 | 10 | VAVLYQDVNC 1e-06 | 81 |
| HLA-B*44:02 | 1 | 608 | 617 | 10 | VAVLYQDVNC 1e-06 | 94 |
| HLA-B*44:03 | 1 | 608 | 616 | 9 | VAVLYQDVN 1e-06 | 91 |
| HLA-B*44:03 | 1 | 608 | 617 | 10 | VAVLYQDVNC 1e-06 | 91 |
| HLA-A*32:01 | 1 | 618 | 627 | 10 | TEVPVAIHAD 1e-06 | 86 |
| HLA-B*40:01 | 1 | 619 | 627 | 9 | EVPVAIHAD 1e-06 | 81 |
| HLA-B*40:01 | 1 | 619 | 628 | 10 | EVPVAIHADQ 1e-06 | 81 |
| HLA-A*02:03 | 1 | 620 | 628 | 9 | VPVAIHADQ 1e-06 | 96 |
| HLA-A*24:02 | 1 | 620 | 628 | 9 | VPVAIHADQ 1e-06 | 88 |
| HLA-A*11:01 | 1 | 621 | 630 | 10 | PVAIHADQLT 1e-06 | 88 |
| HLA-A*23:01 | 1 | 621 | 630 | 10 | PVAIHADQLT 1e-06 | 90 |
| HLA-A*24:02 | 1 | 621 | 630 | 10 | PVAIHADQLT 1e-06 | 88 |
| HLA-A*32:01 | 1 | 621 | 630 | 10 | PVAIHADQLT 1e-06 | 86 |
| HLA-B*35:01 | 1 | 621 | 630 | 10 | PVAIHADQLT 1e-06 | 87 |
| HLA-B*44:02 | 1 | 621 | 630 | 10 | PVAIHADQLT 1e-06 | 94 |
| HLA-B*44:03 | 1 | 621 | 630 | 10 | PVAIHADQLT 1e-06 | 91 |
| HLA-B*53:01 | 1 | 621 | 630 | 10 | PVAIHADQLT 1e-06 | 89 |
| HLA-B*40:01 | 1 | 629 | 638 | 10 | LTPTWRVYST 1e-06 | 81 |
| HLA-B*44:03 | 1 | 629 | 638 | 10 | LTPTWRVYST 1e-06 | 91 |
| HLA-B*40:01 | 1 | 630 | 639 | 10 | TPTWRVYSTG 1e-06 | 81 |
| HLA-A*11:01 | 1 | 631 | 639 | 9 | PTWRVYSTG 1e-06 | 88 |
| HLA-B*07:02 | 1 | 631 | 640 | 10 | PTWRVYSTGS 1e-06 | 96 |
| HLA-B*35:01 | 1 | 631 | 639 | 9 | PTWRVYSTG 1e-06 | 87 |
| HLA-B*44:02 | 1 | 631 | 640 | 10 | PTWRVYSTGS 1e-06 | 94 |
| HLA-A*02:03 | 1 | 632 | 641 | 10 | TWRVYSTGSN 1e-06 | 96 |
| HLA-A*02:06 | 1 | 632 | 641 | 10 | TWRVYSTGSN 1e-06 | 97 |
| HLA-A*11:01 | 1 | 632 | 641 | 10 | TWRVYSTGSN 1e-06 | 88 |
| HLA-A*68:02 | 1 | 632 | 641 | 10 | TWRVYSTGSN 1e-06 | 94 |
| HLA-B*40:01 | 1 | 632 | 640 | 9 | TWRVYSTGS 1e-06 | 81 |
| HLA-B*44:02 | 1 | 632 | 641 | 10 | TWRVYSTGSN 1e-06 | 94 |
| HLA-B*44:03 | 1 | 632 | 640 | 9 | TWRVYSTGS 1e-06 | 91 |
| HLA-B*44:03 | 1 | 632 | 641 | 10 | TWRVYSTGSN 1e-06 | 91 |
| HLA-B*53:01 | 1 | 632 | 640 | 9 | TWRVYSTGS 1e-06 | 89 |
| HLA-B*53:01 | 1 | 632 | 641 | 10 | TWRVYSTGSN 1e-06 | 89 |
| HLA-B*58:01 | 1 | 632 | 641 | 10 | TWRVYSTGSN 1e-06 | 98 |
| HLA-A*02:06 | 1 | 633 | 641 | 9 | WRVYSTGSN 1e-06 | 97 |
| HLA-A*03:01 | 1 | 633 | 641 | 9 | WRVYSTGSN 1e-06 | 96 |
| HLA-A*11:01 | 1 | 633 | 641 | 9 | WRVYSTGSN 1e-06 | 88 |
| HLA-A*23:01 | 1 | 633 | 641 | 9 | WRVYSTGSN 1e-06 | 90 |
| HLA-A*24:02 | 1 | 633 | 641 | 9 | WRVYSTGSN 1e-06 | 88 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-A*31:01 | 1 | 633 | 641 | 9 | WRVYSTGSN | 1e-06 | 97 |
| HLA-A*32:01 | 1 | 633 | 641 | 9 | WRVYSTGSN | 1e-06 | 86 |
| HLA-A*33:01 | 1 | 633 | 641 | 9 | WRVYSTGSN | 1e-06 | 98 |
| HLA-A*68:01 | 1 | 633 | 641 | 9 | WRVYSTGSN | 1e-06 | 94 |
| HLA-A*68:02 | 1 | 633 | 641 | 9 | WRVYSTGSN | 1e-06 | 94 |
| HLA-B*40:01 | 1 | 633 | 641 | 9 | WRVYSTGSN | 1e-06 | 81 |
| HLA-B*44:02 | 1 | 633 | 641 | 9 | WRVYSTGSN | 1e-06 | 94 |
| HLA-B*44:03 | 1 | 633 | 641 | 9 | WRVYSTGSN | 1e-06 | 91 |
| HLA-B*51:01 | 1 | 633 | 641 | 9 | WRVYSTGSN | 1e-06 | 99 |
| HLA-B*53:01 | 1 | 633 | 641 | 9 | WRVYSTGSN | 1e-06 | 89 |
| HLA-B*40:01 | 1 | 639 | 648 | 10 | GSNVFQTRAG | 1e-06 | 81 |
| HLA-B*53:01 | 1 | 639 | 648 | 10 | GSNVFQTRAG | 1e-06 | 89 |
| HLA-A*02:01 | 1 | 640 | 648 | 9 | SNVFQTRAG | 1e-06 | 95 |
| HLA-A*11:01 | 1 | 643 | 652 | 10 | FQTRAGCLIG | 1e-06 | 88 |
| HLA-B*40:01 | 1 | 644 | 652 | 9 | QTRAGCLIG | 1e-06 | 81 |
| HLA-A*23:01 | 1 | 646 | 654 | 9 | RAGCLIGAE | 1e-06 | 90 |
| HLA-B*40:01 | 1 | 646 | 654 | 9 | RAGCLIGAE | 1e-06 | 81 |
| HLA-B*44:03 | 1 | 646 | 654 | 9 | RAGCLIGAE | 1e-06 | 91 |
| HLA-A*23:01 | 1 | 648 | 657 | 10 | GCLIGAEHVN | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 648 | 657 | 10 | GCLIGAEHVN | 1e-06 | 88 |
| HLA-B*35:01 | 1 | 648 | 657 | 10 | GCLIGAEHVN | 1e-06 | 87 |
| HLA-B*40:01 | 1 | 648 | 657 | 10 | GCLIGAEHVN | 1e-06 | 81 |
| HLA-B*44:02 | 1 | 648 | 657 | 10 | GCLIGAEHVN | 1e-06 | 94 |
| HLA-B*44:03 | 1 | 648 | 657 | 10 | GCLIGAEHVN | 1e-06 | 91 |
| HLA-B*53:01 | 1 | 648 | 657 | 10 | GCLIGAEHVN | 1e-06 | 89 |
| HLA-A*11:01 | 1 | 649 | 658 | 10 | CLIGAEHVNN | 1e-06 | 88 |
| HLA-A*23:01 | 1 | 649 | 658 | 10 | CLIGAEHVNN | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 649 | 658 | 10 | CLIGAEHVNN | 1e-06 | 88 |
| HLA-A*68:02 | 1 | 649 | 658 | 10 | CLIGAEHVNN | 1e-06 | 94 |
| HLA-B*07:02 | 1 | 649 | 658 | 10 | CLIGAEHVNN | 1e-06 | 96 |
| HLA-B*35:01 | 1 | 649 | 658 | 10 | CLIGAEHVNN | 1e-06 | 87 |
| HLA-B*40:01 | 1 | 649 | 657 | 9 | CLIGAEHVN | 1e-06 | 81 |
| HLA-B*44:02 | 1 | 649 | 658 | 10 | CLIGAEHVNN | 1e-06 | 94 |
| HLA-A*23:01 | 1 | 650 | 658 | 9 | LIGAEHVNN | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 650 | 658 | 9 | LIGAEHVNN | 1e-06 | 88 |
| HLA-A*24:02 | 1 | 650 | 659 | 10 | LIGAEHVNNS | 1e-06 | 88 |
| HLA-B*40:01 | 1 | 650 | 659 | 10 | LIGAEHVNNS | 1e-06 | 81 |
| HLA-B*44:03 | 1 | 650 | 658 | 9 | LIGAEHVNN | 1e-06 | 91 |
| HLA-A*23:01 | 1 | 652 | 661 | 10 | GAEHVNNSYE | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 652 | 661 | 10 | GAEHVNNSYE | 1e-06 | 88 |
| HLA-A*32:01 | 1 | 653 | 661 | 9 | AEHVNNSYE | 1e-06 | 86 |
| HLA-A*02:03 | 1 | 654 | 663 | 10 | EHVNNSYECD | 1e-06 | 96 |
| HLA-A*03:01 | 1 | 654 | 663 | 10 | EHVNNSYECD | 1e-06 | 96 |
| HLA-A*31:01 | 1 | 654 | 663 | 10 | EHVNNSYECD | 1e-06 | 97 |
| HLA-A*68:01 | 1 | 654 | 663 | 10 | EHVNNSYECD | 1e-06 | 94 |
| HLA-B*07:02 | 1 | 654 | 663 | 10 | EHVNNSYECD | 1e-06 | 96 |
| HLA-B*15:01 | 1 | 654 | 663 | 10 | EHVNNSYECD | 1e-06 | 95 |
| HLA-B*40:01 | 1 | 654 | 663 | 10 | EHVNNSYECD | 1e-06 | 81 |
| HLA-A*24:02 | 1 | 655 | 663 | 9 | HVNNSYECD | 1e-06 | 88 |
| HLA-B*40:01 | 1 | 655 | 663 | 9 | HVNNSYECD | 1e-06 | 81 |
| HLA-B*44:03 | 1 | 655 | 663 | 9 | HVNNSYECD | 1e-06 | 91 |
| HLA-A*02:03 | 1 | 656 | 665 | 10 | VNNSYECDIP | 1e-06 | 96 |
| HLA-A*03:01 | 1 | 656 | 665 | 10 | VNNSYECDIP | 1e-06 | 96 |
| HLA-A*11:01 | 1 | 656 | 665 | 10 | VNNSYECDIP | 1e-06 | 88 |
| HLA-A*23:01 | 1 | 656 | 665 | 10 | VNNSYECDIP | 1e-06 | 90 |
| HLA-A*31:01 | 1 | 656 | 665 | 10 | VNNSYECDIP | 1e-06 | 97 |
| HLA-B*07:02 | 1 | 656 | 665 | 10 | VNNSYECDIP | 1e-06 | 96 |
| HLA-B*53:01 | 1 | 656 | 665 | 10 | VNNSYECDIP | 1e-06 | 89 |
| HLA-A*02:01 | 1 | 657 | 665 | 9 | NNSYECDIP | 1e-06 | 95 |
| HLA-A*03:01 | 1 | 657 | 665 | 9 | NNSYECDIP | 1e-06 | 96 |
| HLA-A*11:01 | 1 | 657 | 665 | 9 | NNSYECDIP | 1e-06 | 88 |
| HLA-A*26:01 | 1 | 657 | 665 | 9 | NNSYECDIP | 1e-06 | 94 |
| HLA-A*31:01 | 1 | 657 | 665 | 9 | NNSYECDIP | 1e-06 | 97 |
| HLA-A*33:01 | 1 | 657 | 665 | 9 | NNSYECDIP | 1e-06 | 98 |
| HLA-B*07:02 | 1 | 657 | 665 | 9 | NNSYECDIP | 1e-06 | 96 |
| HLA-A*11:01 | 1 | 658 | 667 | 10 | NSYECDIPIG | 1e-06 | 88 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-B*40:01 | 1 | 658 | 667 | 10 | NSYECDIPIG 1e-06 | 81 |
| HLA-A*02:03 | 1 | 659 | 667 | 9 | SYECDIPIG 1e-06 | 96 |
| HLA-A*03:01 | 1 | 659 | 667 | 9 | SYECDIPIG 1e-06 | 96 |
| HLA-A*32:01 | 1 | 659 | 667 | 9 | SYECDIPIG 1e-06 | 86 |
| HLA-A*68:01 | 1 | 659 | 667 | 9 | SYECDIPIG 1e-06 | 94 |
| HLA-B*15:01 | 1 | 659 | 667 | 9 | SYECDIPIG 1e-06 | 95 |
| HLA-B*40:01 | 1 | 659 | 667 | 9 | SYECDIPIG 1e-06 | 81 |
| HLA-A*11:01 | 1 | 661 | 669 | 9 | ECDIPIGAG 1e-06 | 88 |
| HLA-A*23:01 | 1 | 661 | 669 | 9 | ECDIPIGAG 1e-06 | 90 |
| HLA-A*24:02 | 1 | 661 | 669 | 9 | ECDIPIGAG 1e-06 | 88 |
| HLA-A*32:01 | 1 | 661 | 669 | 9 | ECDIPIGAG 1e-06 | 86 |
| HLA-B*40:01 | 1 | 661 | 669 | 9 | ECDIPIGAG 1e-06 | 81 |
| HLA-A*24:02 | 1 | 662 | 671 | 10 | CDIPIGAGIC 1e-06 | 88 |
| HLA-A*32:01 | 1 | 662 | 671 | 10 | CDIPIGAGIC 1e-06 | 86 |
| HLA-A*11:01 | 1 | 663 | 671 | 9 | DIPIGAGIC 1e-06 | 88 |
| HLA-A*32:01 | 1 | 663 | 671 | 9 | DIPIGAGIC 1e-06 | 86 |
| HLA-A*23:01 | 1 | 664 | 673 | 10 | IPIGAGICAS 1e-06 | 90 |
| HLA-A*24:02 | 1 | 664 | 673 | 10 | IPIGAGICAS 1e-06 | 88 |
| HLA-A*11:01 | 1 | 665 | 673 | 9 | PIGAGICAS 1e-06 | 88 |
| HLA-A*23:01 | 1 | 665 | 673 | 9 | PIGAGICAS 1e-06 | 90 |
| HLA-A*26:01 | 1 | 665 | 673 | 9 | PIGAGICAS 1e-06 | 94 |
| HLA-A*32:01 | 1 | 665 | 673 | 9 | PIGAGICAS 1e-06 | 86 |
| HLA-B*35:01 | 1 | 665 | 673 | 9 | PIGAGICAS 1e-06 | 87 |
| HLA-B*40:01 | 1 | 665 | 674 | 10 | PIGAGICASY 1e-06 | 81 |
| HLA-A*23:01 | 1 | 666 | 675 | 10 | IGAGICASYQ 1e-06 | 90 |
| HLA-A*24:02 | 1 | 666 | 675 | 10 | IGAGICASYQ 1e-06 | 88 |
| HLA-A*23:01 | 1 | 667 | 676 | 10 | GAGICASYQT 1e-06 | 90 |
| HLA-A*32:01 | 1 | 667 | 676 | 10 | GAGICASYQT 1e-06 | 86 |
| HLA-B*40:01 | 1 | 667 | 676 | 10 | GAGICASYQT 1e-06 | 81 |
| HLA-B*44:03 | 1 | 667 | 675 | 9 | GAGICASYQ 1e-06 | 91 |
| HLA-B*40:01 | 1 | 668 | 677 | 10 | AGICASYQTQ 1e-06 | 81 |
| HLA-A*23:01 | 1 | 669 | 678 | 10 | GICASYQTQT 1e-06 | 90 |
| HLA-A*24:02 | 1 | 669 | 678 | 10 | GICASYQTQT 1e-06 | 88 |
| HLA-A*11:01 | 1 | 670 | 679 | 10 | ICASYQTQTN 1e-06 | 88 |
| HLA-A*24:02 | 1 | 670 | 679 | 10 | ICASYQTQTN 1e-06 | 88 |
| HLA-A*26:01 | 1 | 670 | 679 | 10 | ICASYQTQTN 1e-06 | 94 |
| HLA-B*44:03 | 1 | 670 | 679 | 10 | ICASYQTQTN 1e-06 | 91 |
| HLA-A*23:01 | 1 | 671 | 679 | 9 | CASYQTQTN 1e-06 | 90 |
| HLA-A*23:01 | 1 | 671 | 680 | 10 | CASYQTQTN 1e-06 | 90 |
| HLA-A*24:02 | 1 | 671 | 679 | 9 | CASYQTQTN 1e-06 | 88 |
| HLA-B*40:01 | 1 | 671 | 679 | 9 | CASYQTQTN 1e-06 | 81 |
| HLA-B*40:01 | 1 | 671 | 680 | 10 | CASYQTQTN 1e-06 | 81 |
| HLA-B*44:03 | 1 | 671 | 680 | 10 | CASYQTQTN 1e-06 | 91 |
| HLA-A*02:01 | 1 | 681 | 689 | 9 | PRRARSVAS 1e-06 | 95 |
| HLA-A*02:03 | 1 | 681 | 690 | 10 | PRRARSVASQ 1e-06 | 96 |
| HLA-A*11:01 | 1 | 681 | 689 | 9 | PRRARSVAS 1e-06 | 88 |
| HLA-A*23:01 | 1 | 681 | 690 | 10 | PRRARSVASQ 1e-06 | 90 |
| HLA-A*24:02 | 1 | 681 | 690 | 10 | PRRARSVASQ 1e-06 | 88 |
| HLA-A*68:01 | 1 | 681 | 689 | 9 | PRRARSVAS 1e-06 | 94 |
| HLA-A*68:02 | 1 | 681 | 690 | 10 | PRRARSVASQ 1e-06 | 94 |
| HLA-B*35:01 | 1 | 681 | 689 | 9 | PRRARSVAS 1e-06 | 87 |
| HLA-B*35:01 | 1 | 681 | 690 | 10 | PRRARSVASQ 1e-06 | 87 |
| HLA-B*40:01 | 1 | 681 | 689 | 9 | PRRARSVAS 1e-06 | 81 |
| HLA-B*44:03 | 1 | 681 | 689 | 9 | PRRARSVAS 1e-06 | 91 |
| HLA-B*53:01 | 1 | 681 | 690 | 10 | PRRARSVASQ 1e-06 | 89 |
| HLA-B*58:01 | 1 | 681 | 689 | 9 | PRRARSVAS 1e-06 | 98 |
| HLA-B*40:01 | 1 | 691 | 700 | 10 | IIAYTMSLG 1e-06 | 81 |
| HLA-B*44:02 | 1 | 692 | 700 | 9 | IIAYTMSLG 1e-06 | 94 |
| HLA-B*44:03 | 1 | 692 | 700 | 9 | IIAYTMSLG 1e-06 | 91 |
| HLA-B*44:03 | 1 | 693 | 702 | 10 | IAYTMSLGAE 1e-06 | 91 |
| HLA-A*32:01 | 1 | 694 | 702 | 9 | AYTMSLGAE 1e-06 | 86 |
| HLA-B*40:01 | 1 | 694 | 702 | 9 | AYTMSLGAE 1e-06 | 81 |
| HLA-B*40:01 | 1 | 694 | 703 | 10 | AYTMSLGAEN 1e-06 | 81 |
| HLA-A*23:01 | 1 | 700 | 708 | 9 | GAENSVAYS 1e-06 | 90 |
| HLA-A*23:01 | 1 | 700 | 709 | 10 | GAENSVAYS 1e-06 | 90 |
| HLA-A*24:02 | 1 | 700 | 708 | 9 | GAENSVAYS 1e-06 | 88 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|-----|
| HLA-A*24:02 | 1 | 700 | 709 | 10 | GAENSVAYSNN 1e-06 | 88 |
| HLA-A*02:01 | 1 | 701 | 710 | 10 | AENSVAYSNN 1e-06 | 95 |
| HLA-A*02:03 | 1 | 701 | 710 | 10 | AENSVAYSNN 1e-06 | 96 |
| HLA-A*23:01 | 1 | 701 | 710 | 10 | AENSVAYSNN 1e-06 | 90 |
| HLA-A*24:02 | 1 | 701 | 710 | 10 | AENSVAYSNN 1e-06 | 88 |
| HLA-A*68:02 | 1 | 701 | 710 | 10 | AENSVAYSNN 1e-06 | 94 |
| HLA-B*35:01 | 1 | 701 | 710 | 10 | AENSVAYSNN 1e-06 | 87 |
| HLA-A*02:03 | 1 | 702 | 710 | 9 | ENSVAYSNN 1e-06 | 96 |
| HLA-A*02:06 | 1 | 702 | 710 | 9 | ENSVAYSNN 1e-06 | 97 |
| HLA-A*23:01 | 1 | 702 | 710 | 9 | ENSVAYSNN 1e-06 | 90 |
| HLA-A*24:02 | 1 | 702 | 710 | 9 | ENSVAYSNN 1e-06 | 88 |
| HLA-A*32:01 | 1 | 702 | 711 | 10 | ENSVAYSNNS 1e-06 | 86 |
| HLA-B*07:02 | 1 | 702 | 710 | 9 | ENSVAYSNN 1e-06 | 96 |
| HLA-B*15:01 | 1 | 702 | 710 | 9 | ENSVAYSNN 1e-06 | 95 |
| HLA-B*15:01 | 1 | 702 | 711 | 10 | ENSVAYSNNS 1e-06 | 95 |
| HLA-B*40:01 | 1 | 702 | 711 | 10 | ENSVAYSNNS 1e-06 | 81 |
| HLA-B*44:03 | 1 | 707 | 716 | 10 | YSNNSIAIPT 1e-06 | 91 |
| HLA-A*24:02 | 1 | 708 | 717 | 10 | SNNSIAIPTN 1e-06 | 88 |
| HLA-B*35:01 | 1 | 708 | 717 | 10 | SNNSIAIPTN 1e-06 | 87 |
| HLA-B*40:01 | 1 | 708 | 717 | 10 | SNNSIAIPTN 1e-06 | 81 |
| HLA-B*35:01 | 1 | 715 | 724 | 10 | PTNFTISVTT 1e-06 | 87 |
| HLA-B*40:01 | 1 | 715 | 723 | 9 | PTNFTISVT 1e-06 | 81 |
| HLA-B*40:01 | 1 | 715 | 724 | 10 | PTNFTISVTT 1e-06 | 81 |
| HLA-B*44:03 | 1 | 715 | 723 | 9 | PTNFTISVT 1e-06 | 91 |
| HLA-B*44:03 | 1 | 715 | 724 | 10 | PTNFTISVTT 1e-06 | 91 |
| HLA-A*03:01 | 1 | 728 | 737 | 10 | PVSMTKTSVD 1e-06 | 96 |
| HLA-A*31:01 | 1 | 728 | 737 | 10 | PVSMTKTSVD 1e-06 | 97 |
| HLA-A*32:01 | 1 | 728 | 737 | 10 | PVSMTKTSVD 1e-06 | 86 |
| HLA-B*15:01 | 1 | 728 | 737 | 10 | PVSMTKTSVD 1e-06 | 95 |
| HLA-B*40:01 | 1 | 729 | 737 | 9 | VSMTKTSVD 1e-06 | 81 |
| HLA-B*53:01 | 1 | 730 | 739 | 10 | SMTKTSVDCT 1e-06 | 89 |
| HLA-A*26:01 | 1 | 735 | 744 | 10 | SVDCTMYICG 1e-06 | 94 |
| HLA-A*32:01 | 1 | 735 | 744 | 10 | SVDCTMYICG 1e-06 | 86 |
| HLA-B*07:02 | 1 | 735 | 744 | 10 | SVDCTMYICG 1e-06 | 96 |
| HLA-B*35:01 | 1 | 735 | 744 | 10 | SVDCTMYICG 1e-06 | 87 |
| HLA-B*44:02 | 1 | 735 | 744 | 10 | SVDCTMYICG 1e-06 | 94 |
| HLA-B*53:01 | 1 | 735 | 744 | 10 | SVDCTMYICG 1e-06 | 89 |
| HLA-A*01:01 | 1 | 736 | 745 | 10 | VDCTMYICGD 1e-06 | 100 |
| HLA-A*02:01 | 1 | 736 | 744 | 9 | VDCTMYICG 1e-06 | 95 |
| HLA-A*11:01 | 1 | 736 | 744 | 9 | VDCTMYICG 1e-06 | 88 |
| HLA-A*23:01 | 1 | 736 | 744 | 9 | VDCTMYICG 1e-06 | 90 |
| HLA-A*24:02 | 1 | 736 | 744 | 9 | VDCTMYICG 1e-06 | 88 |
| HLA-A*26:01 | 1 | 736 | 744 | 9 | VDCTMYICG 1e-06 | 94 |
| HLA-A*30:01 | 1 | 736 | 745 | 10 | VDCTMYICGD 1e-06 | 100 |
| HLA-A*31:01 | 1 | 736 | 744 | 9 | VDCTMYICG 1e-06 | 97 |
| HLA-A*68:01 | 1 | 736 | 744 | 9 | VDCTMYICG 1e-06 | 94 |
| HLA-A*68:02 | 1 | 736 | 744 | 9 | VDCTMYICG 1e-06 | 94 |
| HLA-B*07:02 | 1 | 736 | 744 | 9 | VDCTMYICG 1e-06 | 96 |
| HLA-B*53:01 | 1 | 736 | 744 | 9 | VDCTMYICG 1e-06 | 89 |
| HLA-B*58:01 | 1 | 736 | 745 | 10 | VDCTMYICGD 1e-06 | 98 |
| HLA-A*01:01 | 1 | 737 | 745 | 9 | DCTMYICGD 1e-06 | 100 |
| HLA-A*02:01 | 1 | 737 | 746 | 10 | DCTMYICGDS 1e-06 | 95 |
| HLA-A*02:06 | 1 | 737 | 746 | 10 | DCTMYICGDS 1e-06 | 97 |
| HLA-A*30:01 | 1 | 737 | 745 | 9 | DCTMYICGD 1e-06 | 100 |
| HLA-A*33:01 | 1 | 737 | 745 | 9 | DCTMYICGD 1e-06 | 98 |
| HLA-B*08:01 | 1 | 737 | 746 | 10 | DCTMYICGDS 1e-06 | 100 |
| HLA-B*53:01 | 1 | 737 | 745 | 9 | DCTMYICGD 1e-06 | 89 |
| HLA-B*57:01 | 1 | 737 | 745 | 9 | DCTMYICGD 1e-06 | 100 |
| HLA-B*58:01 | 1 | 737 | 746 | 10 | DCTMYICGDS 1e-06 | 98 |
| HLA-A*23:01 | 1 | 738 | 747 | 10 | CTMYICGDST 1e-06 | 90 |
| HLA-B*35:01 | 1 | 738 | 747 | 10 | CTMYICGDST 1e-06 | 87 |
| HLA-B*44:02 | 1 | 738 | 747 | 10 | CTMYICGDST 1e-06 | 94 |
| HLA-B*44:03 | 1 | 738 | 747 | 10 | CTMYICGDST 1e-06 | 91 |
| HLA-B*53:01 | 1 | 738 | 746 | 9 | CTMYICGDS 1e-06 | 89 |
| HLA-A*23:01 | 1 | 741 | 750 | 10 | YICGDSTEC 1e-06 | 90 |
| HLA-A*24:02 | 1 | 741 | 750 | 10 | YICGDSTEC 1e-06 | 88 |

| | | | | | | |
|-------------|---|-----|-----|----|-------------------|-----|
| HLA-B*40:01 | 1 | 741 | 750 | 10 | YICGDSTECS 1e-06 | 81 |
| HLA-B*44:03 | 1 | 741 | 750 | 10 | YICGDSTECS 1e-06 | 91 |
| HLA-A*02:01 | 1 | 742 | 751 | 10 | ICGDSTECSN 1e-06 | 95 |
| HLA-A*02:06 | 1 | 742 | 751 | 10 | ICGDSTECSN 1e-06 | 97 |
| HLA-A*03:01 | 1 | 742 | 750 | 9 | ICGDSTECS 1e-06 | 96 |
| HLA-A*03:01 | 1 | 742 | 751 | 10 | ICGDSTECSN 1e-06 | 96 |
| HLA-A*11:01 | 1 | 742 | 750 | 9 | ICGDSTECS 1e-06 | 88 |
| HLA-A*11:01 | 1 | 742 | 751 | 10 | ICGDSTECSN 1e-06 | 88 |
| HLA-A*23:01 | 1 | 742 | 750 | 9 | ICGDSTECS 1e-06 | 90 |
| HLA-A*24:02 | 1 | 742 | 750 | 9 | ICGDSTECS 1e-06 | 88 |
| HLA-A*31:01 | 1 | 742 | 751 | 10 | ICGDSTECSN 1e-06 | 97 |
| HLA-A*33:01 | 1 | 742 | 751 | 10 | ICGDSTECSN 1e-06 | 98 |
| HLA-A*68:01 | 1 | 742 | 751 | 10 | ICGDSTECSN 1e-06 | 94 |
| HLA-B*07:02 | 1 | 742 | 751 | 10 | ICGDSTECSN 1e-06 | 96 |
| HLA-B*08:01 | 1 | 742 | 751 | 10 | ICGDSTECSN 1e-06 | 100 |
| HLA-B*15:01 | 1 | 742 | 751 | 10 | ICGDSTECSN 1e-06 | 95 |
| HLA-B*35:01 | 1 | 742 | 751 | 10 | ICGDSTECSN 1e-06 | 87 |
| HLA-B*40:01 | 1 | 742 | 750 | 9 | ICGDSTECS 1e-06 | 81 |
| HLA-B*44:02 | 1 | 742 | 751 | 10 | ICGDSTECSN 1e-06 | 94 |
| HLA-B*51:01 | 1 | 742 | 751 | 10 | ICGDSTECSN 1e-06 | 99 |
| HLA-B*53:01 | 1 | 742 | 751 | 10 | ICGDSTECSN 1e-06 | 89 |
| HLA-A*02:01 | 1 | 743 | 751 | 9 | CGDSTECSN 1e-06 | 95 |
| HLA-A*02:06 | 1 | 743 | 751 | 9 | CGDSTECSN 1e-06 | 97 |
| HLA-A*03:01 | 1 | 743 | 751 | 9 | CGDSTECSN 1e-06 | 96 |
| HLA-A*26:01 | 1 | 743 | 751 | 9 | CGDSTECSN 1e-06 | 94 |
| HLA-A*31:01 | 1 | 743 | 751 | 9 | CGDSTECSN 1e-06 | 97 |
| HLA-A*33:01 | 1 | 743 | 751 | 9 | CGDSTECSN 1e-06 | 98 |
| HLA-A*68:01 | 1 | 743 | 751 | 9 | CGDSTECSN 1e-06 | 94 |
| HLA-B*15:01 | 1 | 743 | 751 | 9 | CGDSTECSN 1e-06 | 95 |
| HLA-B*44:02 | 1 | 743 | 751 | 9 | CGDSTECSN 1e-06 | 94 |
| HLA-B*44:03 | 1 | 743 | 751 | 9 | CGDSTECSN 1e-06 | 91 |
| HLA-A*23:01 | 1 | 748 | 757 | 10 | ECSNLLLQYG 1e-06 | 90 |
| HLA-A*24:02 | 1 | 748 | 757 | 10 | ECSNLLLQYG 1e-06 | 88 |
| HLA-A*24:02 | 1 | 749 | 757 | 9 | CSNLLLQYG 1e-06 | 88 |
| HLA-B*07:02 | 1 | 749 | 758 | 10 | CSNLLLQYGS 1e-06 | 96 |
| HLA-B*15:01 | 1 | 749 | 758 | 10 | CSNLLLQYGS 1e-06 | 95 |
| HLA-B*44:02 | 1 | 749 | 758 | 10 | CSNLLLQYGS 1e-06 | 94 |
| HLA-B*53:01 | 1 | 749 | 758 | 10 | CSNLLLQYGS 1e-06 | 89 |
| HLA-B*40:01 | 1 | 751 | 760 | 10 | NLLLQYGSFCT 1e-06 | 81 |
| HLA-A*24:02 | 1 | 752 | 761 | 10 | LLLQYGSFCT 1e-06 | 88 |
| HLA-B*35:01 | 1 | 752 | 761 | 10 | LLLQYGSFCT 1e-06 | 87 |
| HLA-B*44:03 | 1 | 752 | 761 | 10 | LLLQYGSFCT 1e-06 | 91 |
| HLA-B*53:01 | 1 | 752 | 761 | 10 | LLLQYGSFCT 1e-06 | 89 |
| HLA-B*35:01 | 1 | 755 | 764 | 10 | QYGSFCTQLN 1e-06 | 87 |
| HLA-B*44:03 | 1 | 756 | 764 | 9 | YGSFCTQLN 1e-06 | 91 |
| HLA-B*44:03 | 1 | 759 | 768 | 10 | FCTQLNRALT 1e-06 | 91 |
| HLA-B*35:01 | 1 | 760 | 769 | 10 | CTQLNRALTG 1e-06 | 87 |
| HLA-B*40:01 | 1 | 760 | 769 | 10 | CTQLNRALTG 1e-06 | 81 |
| HLA-B*53:01 | 1 | 760 | 769 | 10 | CTQLNRALTG 1e-06 | 89 |
| HLA-A*24:02 | 1 | 763 | 771 | 9 | LNRLTGIA 1e-06 | 88 |
| HLA-A*23:01 | 1 | 766 | 775 | 10 | ALTGIAVEQD 1e-06 | 90 |
| HLA-A*24:02 | 1 | 766 | 775 | 10 | ALTGIAVEQD 1e-06 | 88 |
| HLA-B*35:01 | 1 | 766 | 775 | 10 | ALTGIAVEQD 1e-06 | 87 |
| HLA-B*40:01 | 1 | 766 | 775 | 10 | ALTGIAVEQD 1e-06 | 81 |
| HLA-B*44:03 | 1 | 766 | 775 | 10 | ALTGIAVEQD 1e-06 | 91 |
| HLA-B*53:01 | 1 | 766 | 775 | 10 | ALTGIAVEQD 1e-06 | 89 |
| HLA-A*11:01 | 1 | 767 | 775 | 9 | LTGIAVEQD 1e-06 | 88 |
| HLA-A*24:02 | 1 | 767 | 775 | 9 | LTGIAVEQD 1e-06 | 88 |
| HLA-B*07:02 | 1 | 767 | 775 | 9 | LTGIAVEQD 1e-06 | 96 |
| HLA-B*35:01 | 1 | 767 | 775 | 9 | LTGIAVEQD 1e-06 | 87 |
| HLA-B*40:01 | 1 | 767 | 776 | 10 | LTGIAVEQDK 1e-06 | 81 |
| HLA-B*44:03 | 1 | 767 | 775 | 9 | LTGIAVEQD 1e-06 | 91 |
| HLA-A*23:01 | 1 | 768 | 777 | 10 | TGIAVEQDKN 1e-06 | 90 |
| HLA-A*32:01 | 1 | 768 | 777 | 10 | TGIAVEQDKN 1e-06 | 86 |
| HLA-B*07:02 | 1 | 768 | 777 | 10 | TGIAVEQDKN 1e-06 | 96 |
| HLA-B*15:01 | 1 | 768 | 777 | 10 | TGIAVEQDKN 1e-06 | 95 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-B*35:01 | 1 | 768 | 777 | 10 | TGIAVEQDKN 1e-06 | 87 |
| HLA-A*11:01 | 1 | 769 | 778 | 10 | GIAVEQDKNT 1e-06 | 88 |
| HLA-A*23:01 | 1 | 769 | 778 | 10 | GIAVEQDKNT 1e-06 | 90 |
| HLA-A*31:01 | 1 | 769 | 777 | 9 | GIAVEQDKN 1e-06 | 97 |
| HLA-A*32:01 | 1 | 769 | 778 | 10 | GIAVEQDKNT 1e-06 | 86 |
| HLA-A*33:01 | 1 | 769 | 777 | 9 | GIAVEQDKN 1e-06 | 98 |
| HLA-B*07:02 | 1 | 769 | 777 | 9 | GIAVEQDKN 1e-06 | 96 |
| HLA-B*35:01 | 1 | 769 | 777 | 9 | GIAVEQDKN 1e-06 | 87 |
| HLA-B*35:01 | 1 | 769 | 778 | 10 | GIAVEQDKNT 1e-06 | 87 |
| HLA-B*40:01 | 1 | 769 | 778 | 10 | GIAVEQDKNT 1e-06 | 81 |
| HLA-A*23:01 | 1 | 770 | 779 | 10 | IAVEQDKNTQ 1e-06 | 90 |
| HLA-A*24:02 | 1 | 770 | 779 | 10 | IAVEQDKNTQ 1e-06 | 88 |
| HLA-A*02:01 | 1 | 775 | 784 | 10 | DKNTQEVFAQ 1e-06 | 95 |
| HLA-A*02:03 | 1 | 775 | 784 | 10 | DKNTQEVFAQ 1e-06 | 96 |
| HLA-A*02:06 | 1 | 775 | 784 | 10 | DKNTQEVFAQ 1e-06 | 97 |
| HLA-A*24:02 | 1 | 775 | 784 | 10 | DKNTQEVFAQ 1e-06 | 88 |
| HLA-A*32:01 | 1 | 775 | 783 | 9 | DKNTQEVFA 1e-06 | 86 |
| HLA-A*32:01 | 1 | 775 | 784 | 10 | DKNTQEVFAQ 1e-06 | 86 |
| HLA-A*68:02 | 1 | 775 | 784 | 10 | DKNTQEVFAQ 1e-06 | 94 |
| HLA-A*11:01 | 1 | 785 | 793 | 9 | VKQIYKTPP 1e-06 | 88 |
| HLA-A*24:02 | 1 | 785 | 793 | 9 | VKQIYKTPP 1e-06 | 88 |
| HLA-A*32:01 | 1 | 785 | 793 | 9 | VKQIYKTPP 1e-06 | 86 |
| HLA-B*40:01 | 1 | 787 | 796 | 10 | QIYKTPPIKD 1e-06 | 81 |
| HLA-B*40:01 | 1 | 790 | 799 | 10 | KTPPIKDFGG 1e-06 | 81 |
| HLA-A*11:01 | 1 | 791 | 799 | 9 | TPPIKDFGG 1e-06 | 88 |
| HLA-A*02:01 | 1 | 792 | 801 | 10 | PPIKDFGGFN 1e-06 | 95 |
| HLA-A*02:03 | 1 | 792 | 801 | 10 | PPIKDFGGFN 1e-06 | 96 |
| HLA-A*02:06 | 1 | 792 | 801 | 10 | PPIKDFGGFN 1e-06 | 97 |
| HLA-A*31:01 | 1 | 792 | 801 | 10 | PPIKDFGGFN 1e-06 | 97 |
| HLA-A*32:01 | 1 | 792 | 801 | 10 | PPIKDFGGFN 1e-06 | 86 |
| HLA-A*33:01 | 1 | 792 | 801 | 10 | PPIKDFGGFN 1e-06 | 98 |
| HLA-A*68:01 | 1 | 792 | 801 | 10 | PPIKDFGGFN 1e-06 | 94 |
| HLA-A*68:02 | 1 | 792 | 801 | 10 | PPIKDFGGFN 1e-06 | 94 |
| HLA-A*02:01 | 1 | 793 | 801 | 9 | PIKDFGGFN 1e-06 | 95 |
| HLA-A*11:01 | 1 | 793 | 801 | 9 | PIKDFGGFN 1e-06 | 88 |
| HLA-A*32:01 | 1 | 793 | 801 | 9 | PIKDFGGFN 1e-06 | 86 |
| HLA-B*44:02 | 1 | 793 | 801 | 9 | PIKDFGGFN 1e-06 | 94 |
| HLA-B*44:03 | 1 | 793 | 801 | 9 | PIKDFGGFN 1e-06 | 91 |
| HLA-B*53:01 | 1 | 793 | 801 | 9 | PIKDFGGFN 1e-06 | 89 |
| HLA-B*40:01 | 1 | 796 | 804 | 9 | DFGGFNFSQ 1e-06 | 81 |
| HLA-A*26:01 | 1 | 799 | 808 | 10 | GFNFSQILPD 1e-06 | 94 |
| HLA-B*07:02 | 1 | 799 | 808 | 10 | GFNFSQILPD 1e-06 | 96 |
| HLA-B*15:01 | 1 | 799 | 808 | 10 | GFNFSQILPD 1e-06 | 95 |
| HLA-B*44:02 | 1 | 799 | 808 | 10 | GFNFSQILPD 1e-06 | 94 |
| HLA-B*44:03 | 1 | 799 | 808 | 10 | GFNFSQILPD 1e-06 | 91 |
| HLA-B*15:01 | 1 | 801 | 810 | 10 | NFSQILPDPS 1e-06 | 95 |
| HLA-B*44:03 | 1 | 801 | 810 | 10 | NFSQILPDPS 1e-06 | 91 |
| HLA-A*02:01 | 1 | 807 | 816 | 10 | PDPSKPSKRS 1e-06 | 95 |
| HLA-A*02:03 | 1 | 807 | 816 | 10 | PDPSKPSKRS 1e-06 | 96 |
| HLA-A*02:06 | 1 | 807 | 816 | 10 | PDPSKPSKRS 1e-06 | 97 |
| HLA-A*23:01 | 1 | 807 | 816 | 10 | PDPSKPSKRS 1e-06 | 90 |
| HLA-A*24:02 | 1 | 807 | 816 | 10 | PDPSKPSKRS 1e-06 | 88 |
| HLA-A*26:01 | 1 | 807 | 816 | 10 | PDPSKPSKRS 1e-06 | 94 |
| HLA-B*15:01 | 1 | 807 | 816 | 10 | PDPSKPSKRS 1e-06 | 95 |
| HLA-B*40:01 | 1 | 807 | 816 | 10 | PDPSKPSKRS 1e-06 | 81 |
| HLA-A*24:02 | 1 | 811 | 820 | 10 | KPSKRSFIED 1e-06 | 88 |
| HLA-B*40:01 | 1 | 811 | 820 | 10 | KPSKRSFIED 1e-06 | 81 |
| HLA-A*02:01 | 1 | 812 | 820 | 9 | PSKRSFIED 1e-06 | 95 |
| HLA-A*11:01 | 1 | 812 | 820 | 9 | PSKRSFIED 1e-06 | 88 |
| HLA-A*24:02 | 1 | 812 | 820 | 9 | PSKRSFIED 1e-06 | 88 |
| HLA-A*26:01 | 1 | 812 | 820 | 9 | PSKRSFIED 1e-06 | 94 |
| HLA-A*68:01 | 1 | 812 | 820 | 9 | PSKRSFIED 1e-06 | 94 |
| HLA-A*68:02 | 1 | 812 | 820 | 9 | PSKRSFIED 1e-06 | 94 |
| HLA-B*07:02 | 1 | 812 | 820 | 9 | PSKRSFIED 1e-06 | 96 |
| HLA-B*35:01 | 1 | 812 | 821 | 10 | PSKRSFIEDL 1e-06 | 87 |
| HLA-B*44:02 | 1 | 812 | 820 | 9 | PSKRSFIED 1e-06 | 94 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|-----|
| HLA-B*53:01 | 1 | 812 | 820 | 9 | PSKRSFIED 1e-06 | 89 |
| HLA-A*32:01 | 1 | 818 | 827 | 10 | IEDLLFNKVT 1e-06 | 86 |
| HLA-B*40:01 | 1 | 821 | 830 | 10 | LLFNKVTLAD 1e-06 | 81 |
| HLA-B*40:01 | 1 | 822 | 830 | 9 | LFNKVTLAD 1e-06 | 81 |
| HLA-A*03:01 | 1 | 823 | 832 | 10 | FNKVTLADAG 1e-06 | 96 |
| HLA-A*26:01 | 1 | 823 | 832 | 10 | FNKVTLADAG 1e-06 | 94 |
| HLA-A*31:01 | 1 | 823 | 832 | 10 | FNKVTLADAG 1e-06 | 97 |
| HLA-A*32:01 | 1 | 823 | 831 | 9 | FNKVTLADA 1e-06 | 86 |
| HLA-A*68:01 | 1 | 823 | 832 | 10 | FNKVTLADAG 1e-06 | 94 |
| HLA-B*07:02 | 1 | 823 | 832 | 10 | FNKVTLADAG 1e-06 | 96 |
| HLA-B*35:01 | 1 | 823 | 832 | 10 | FNKVTLADAG 1e-06 | 87 |
| HLA-B*40:01 | 1 | 823 | 832 | 10 | FNKVTLADAG 1e-06 | 81 |
| HLA-B*44:02 | 1 | 823 | 832 | 10 | FNKVTLADAG 1e-06 | 94 |
| HLA-B*44:03 | 1 | 823 | 832 | 10 | FNKVTLADAG 1e-06 | 91 |
| HLA-B*53:01 | 1 | 823 | 832 | 10 | FNKVTLADAG 1e-06 | 89 |
| HLA-B*58:01 | 1 | 823 | 832 | 10 | FNKVTLADAG 1e-06 | 98 |
| HLA-A*02:06 | 1 | 824 | 832 | 9 | NKVTLADAG 1e-06 | 97 |
| HLA-A*23:01 | 1 | 824 | 832 | 9 | NKVTLADAG 1e-06 | 90 |
| HLA-A*24:02 | 1 | 824 | 832 | 9 | NKVTLADAG 1e-06 | 88 |
| HLA-A*33:01 | 1 | 824 | 832 | 9 | NKVTLADAG 1e-06 | 98 |
| HLA-A*68:01 | 1 | 824 | 832 | 9 | NKVTLADAG 1e-06 | 94 |
| HLA-B*57:01 | 1 | 824 | 832 | 9 | NKVTLADAG 1e-06 | 100 |
| HLA-B*58:01 | 1 | 824 | 832 | 9 | NKVTLADAG 1e-06 | 98 |
| HLA-A*02:03 | 1 | 830 | 839 | 10 | DAGFIKQYGD 1e-06 | 96 |
| HLA-A*02:06 | 1 | 830 | 839 | 10 | DAGFIKQYGD 1e-06 | 97 |
| HLA-A*23:01 | 1 | 830 | 839 | 10 | DAGFIKQYGD 1e-06 | 90 |
| HLA-A*30:02 | 1 | 830 | 839 | 10 | DAGFIKQYGD 1e-06 | 100 |
| HLA-A*31:01 | 1 | 830 | 839 | 10 | DAGFIKQYGD 1e-06 | 97 |
| HLA-B*07:02 | 1 | 830 | 839 | 10 | DAGFIKQYGD 1e-06 | 96 |
| HLA-B*35:01 | 1 | 830 | 839 | 10 | DAGFIKQYGD 1e-06 | 87 |
| HLA-B*35:01 | 1 | 831 | 839 | 9 | AGFIKQYGD 1e-06 | 87 |
| HLA-B*35:01 | 1 | 831 | 840 | 10 | AGFIKQYGDC 1e-06 | 87 |
| HLA-A*68:01 | 1 | 832 | 840 | 9 | GFIKQYGDC 1e-06 | 94 |
| HLA-B*35:01 | 1 | 832 | 840 | 9 | GFIKQYGDC 1e-06 | 87 |
| HLA-B*53:01 | 1 | 832 | 840 | 9 | GFIKQYGDC 1e-06 | 89 |
| HLA-A*24:02 | 1 | 833 | 842 | 10 | FIKQYGDCLG 1e-06 | 88 |
| HLA-B*44:03 | 1 | 833 | 842 | 10 | FIKQYGDCLG 1e-06 | 91 |
| HLA-A*02:06 | 1 | 834 | 842 | 9 | IKQYGDCLG 1e-06 | 97 |
| HLA-A*03:01 | 1 | 834 | 842 | 9 | IKQYGDCLG 1e-06 | 96 |
| HLA-A*23:01 | 1 | 834 | 842 | 9 | IKQYGDCLG 1e-06 | 90 |
| HLA-A*23:01 | 1 | 834 | 843 | 10 | IKQYGDCLGD 1e-06 | 90 |
| HLA-A*24:02 | 1 | 834 | 842 | 9 | IKQYGDCLG 1e-06 | 88 |
| HLA-A*26:01 | 1 | 834 | 842 | 9 | IKQYGDCLG 1e-06 | 94 |
| HLA-A*26:01 | 1 | 834 | 843 | 10 | IKQYGDCLGD 1e-06 | 94 |
| HLA-A*32:01 | 1 | 834 | 843 | 10 | IKQYGDCLGD 1e-06 | 86 |
| HLA-A*33:01 | 1 | 834 | 842 | 9 | IKQYGDCLG 1e-06 | 98 |
| HLA-A*33:01 | 1 | 834 | 843 | 10 | IKQYGDCLGD 1e-06 | 98 |
| HLA-A*68:01 | 1 | 834 | 843 | 10 | IKQYGDCLGD 1e-06 | 94 |
| HLA-A*68:02 | 1 | 834 | 843 | 10 | IKQYGDCLGD 1e-06 | 94 |
| HLA-B*08:01 | 1 | 834 | 843 | 10 | IKQYGDCLGD 1e-06 | 100 |
| HLA-B*35:01 | 1 | 834 | 842 | 9 | IKQYGDCLG 1e-06 | 87 |
| HLA-B*40:01 | 1 | 834 | 842 | 9 | IKQYGDCLG 1e-06 | 81 |
| HLA-B*40:01 | 1 | 834 | 843 | 10 | IKQYGDCLGD 1e-06 | 81 |
| HLA-B*44:02 | 1 | 834 | 842 | 9 | IKQYGDCLG 1e-06 | 94 |
| HLA-B*44:03 | 1 | 834 | 843 | 10 | IKQYGDCLGD 1e-06 | 91 |
| HLA-B*53:01 | 1 | 834 | 842 | 9 | IKQYGDCLG 1e-06 | 89 |
| HLA-B*53:01 | 1 | 834 | 843 | 10 | IKQYGDCLGD 1e-06 | 89 |
| HLA-A*32:01 | 1 | 836 | 845 | 10 | YGDCLGDIA 1e-06 | 86 |
| HLA-A*32:01 | 1 | 837 | 845 | 9 | YGDCLGDIA 1e-06 | 86 |
| HLA-A*32:01 | 1 | 837 | 846 | 10 | YGDCLGDIAA 1e-06 | 86 |
| HLA-A*24:02 | 1 | 838 | 846 | 9 | GDCLGDIAA 1e-06 | 88 |
| HLA-A*32:01 | 1 | 838 | 846 | 9 | GDCLGDIAA 1e-06 | 86 |
| HLA-A*11:01 | 1 | 839 | 848 | 10 | DCLGDIAARD 1e-06 | 88 |
| HLA-B*07:02 | 1 | 839 | 848 | 10 | DCLGDIAARD 1e-06 | 96 |
| HLA-B*15:01 | 1 | 839 | 848 | 10 | DCLGDIAARD 1e-06 | 95 |
| HLA-B*07:02 | 1 | 840 | 848 | 9 | CLGDIAARD 1e-06 | 96 |

| | | | | | | |
|-------------|---|-----|-----|----|------------------|----|
| HLA-B*35:01 | 1 | 840 | 848 | 9 | CLGDIAARD 1e-06 | 87 |
| HLA-B*40:01 | 1 | 840 | 848 | 9 | CLGDIAARD 1e-06 | 81 |
| HLA-B*44:03 | 1 | 840 | 848 | 9 | CLGDIAARD 1e-06 | 91 |
| HLA-A*24:02 | 1 | 842 | 851 | 10 | GDIAARDLIC 1e-06 | 88 |
| HLA-A*68:01 | 1 | 847 | 856 | 10 | RDLICAQKFN 1e-06 | 94 |
| HLA-B*07:02 | 1 | 847 | 856 | 10 | RDLICAQKFN 1e-06 | 96 |
| HLA-B*35:01 | 1 | 847 | 856 | 10 | RDLICAQKFN 1e-06 | 87 |
| HLA-A*11:01 | 1 | 848 | 856 | 9 | DLICAQKFN 1e-06 | 88 |
| HLA-A*23:01 | 1 | 848 | 857 | 10 | DLICAQKFNG 1e-06 | 90 |
| HLA-A*32:01 | 1 | 848 | 857 | 10 | DLICAQKFNG 1e-06 | 86 |
| HLA-B*07:02 | 1 | 848 | 857 | 10 | DLICAQKFNG 1e-06 | 96 |
| HLA-B*15:01 | 1 | 848 | 857 | 10 | DLICAQKFNG 1e-06 | 95 |
| HLA-B*35:01 | 1 | 848 | 857 | 10 | DLICAQKFNG 1e-06 | 87 |
| HLA-B*44:02 | 1 | 848 | 857 | 10 | DLICAQKFNG 1e-06 | 94 |
| HLA-B*44:03 | 1 | 848 | 856 | 9 | DLICAQKFN 1e-06 | 91 |
| HLA-A*26:01 | 1 | 849 | 857 | 9 | LICAQKFNG 1e-06 | 94 |
| HLA-B*44:02 | 1 | 849 | 857 | 9 | LICAQKFNG 1e-06 | 94 |
| HLA-B*44:03 | 1 | 849 | 857 | 9 | LICAQKFNG 1e-06 | 91 |
| HLA-A*11:01 | 1 | 850 | 859 | 10 | ICAQKFNGLT 1e-06 | 88 |
| HLA-B*35:01 | 1 | 850 | 859 | 10 | ICAQKFNGLT 1e-06 | 87 |
| HLA-B*40:01 | 1 | 850 | 859 | 10 | ICAQKFNGLT 1e-06 | 81 |
| HLA-A*24:02 | 1 | 851 | 859 | 9 | CAQKFNGLT 1e-06 | 88 |
| HLA-B*40:01 | 1 | 851 | 859 | 9 | CAQKFNGLT 1e-06 | 81 |
| HLA-B*40:01 | 1 | 858 | 867 | 10 | LTVLPPLTD 1e-06 | 81 |
| HLA-A*11:01 | 1 | 862 | 871 | 10 | PPLLTDEMIA 1e-06 | 88 |
| HLA-A*23:01 | 1 | 862 | 871 | 10 | PPLLTDEMIA 1e-06 | 90 |
| HLA-A*24:02 | 1 | 862 | 871 | 10 | PPLLTDEMIA 1e-06 | 88 |
| HLA-A*31:01 | 1 | 862 | 871 | 10 | PPLLTDEMIA 1e-06 | 97 |
| HLA-A*32:01 | 1 | 862 | 871 | 10 | PPLLTDEMIA 1e-06 | 86 |
| HLA-A*68:01 | 1 | 862 | 871 | 10 | PPLLTDEMIA 1e-06 | 94 |
| HLA-B*40:01 | 1 | 862 | 871 | 10 | PPLLTDEMIA 1e-06 | 81 |
| HLA-B*44:02 | 1 | 862 | 871 | 10 | PPLLTDEMIA 1e-06 | 94 |
| HLA-B*44:03 | 1 | 862 | 871 | 10 | PPLLTDEMIA 1e-06 | 91 |
| HLA-A*23:01 | 1 | 863 | 872 | 10 | PLLTDEMIAQ 1e-06 | 90 |
| HLA-A*24:02 | 1 | 863 | 872 | 10 | PLLTDEMIAQ 1e-06 | 88 |
| HLA-A*68:02 | 1 | 863 | 872 | 10 | PLLTDEMIAQ 1e-06 | 94 |
| HLA-B*07:02 | 1 | 863 | 872 | 10 | PLLTDEMIAQ 1e-06 | 96 |
| HLA-B*44:02 | 1 | 863 | 872 | 10 | PLLTDEMIAQ 1e-06 | 94 |
| HLA-A*32:01 | 1 | 866 | 874 | 9 | TDEMIAQYT 1e-06 | 86 |
| HLA-B*40:01 | 1 | 872 | 881 | 10 | QYTSALLAGT 1e-06 | 81 |
| HLA-A*24:02 | 1 | 874 | 883 | 10 | TSALLAGTIT 1e-06 | 88 |
| HLA-A*11:01 | 1 | 878 | 887 | 10 | LAGTITSGWT 1e-06 | 88 |
| HLA-A*11:01 | 1 | 879 | 887 | 9 | AGTITSGWT 1e-06 | 88 |
| HLA-A*23:01 | 1 | 879 | 887 | 9 | AGTITSGWT 1e-06 | 90 |
| HLA-A*24:02 | 1 | 879 | 887 | 9 | AGTITSGWT 1e-06 | 88 |
| HLA-A*26:01 | 1 | 879 | 887 | 9 | AGTITSGWT 1e-06 | 94 |
| HLA-A*32:01 | 1 | 879 | 887 | 9 | AGTITSGWT 1e-06 | 86 |
| HLA-B*40:01 | 1 | 879 | 887 | 9 | AGTITSGWT 1e-06 | 81 |
| HLA-B*40:01 | 1 | 881 | 889 | 9 | TITSGWTFG 1e-06 | 81 |
| HLA-A*23:01 | 1 | 882 | 891 | 10 | ITSGWTFGAG 1e-06 | 90 |
| HLA-A*24:02 | 1 | 882 | 891 | 10 | ITSGWTFGAG 1e-06 | 88 |
| HLA-B*35:01 | 1 | 882 | 891 | 10 | ITSGWTFGAG 1e-06 | 87 |
| HLA-B*44:02 | 1 | 882 | 891 | 10 | ITSGWTFGAG 1e-06 | 94 |
| HLA-B*44:03 | 1 | 882 | 891 | 10 | ITSGWTFGAG 1e-06 | 91 |
| HLA-A*23:01 | 1 | 883 | 891 | 9 | TSGWTFGAG 1e-06 | 90 |
| HLA-A*24:02 | 1 | 883 | 891 | 9 | TSGWTFGAG 1e-06 | 88 |
| HLA-B*44:03 | 1 | 883 | 891 | 9 | TSGWTFGAG 1e-06 | 91 |
| HLA-B*40:01 | 1 | 897 | 905 | 9 | PFAMQMAYR 1e-06 | 81 |
| HLA-A*26:01 | 1 | 899 | 908 | 10 | AMQMAYRFNG 1e-06 | 94 |
| HLA-A*68:02 | 1 | 899 | 907 | 9 | AMQMAYRFN 1e-06 | 94 |
| HLA-B*35:01 | 1 | 899 | 907 | 9 | AMQMAYRFN 1e-06 | 87 |
| HLA-B*40:01 | 1 | 899 | 907 | 9 | AMQMAYRFN 1e-06 | 81 |
| HLA-B*53:01 | 1 | 899 | 907 | 9 | AMQMAYRFN 1e-06 | 89 |
| HLA-A*11:01 | 1 | 901 | 910 | 10 | QMAYRFNGIG 1e-06 | 88 |
| HLA-A*68:01 | 1 | 901 | 910 | 10 | QMAYRFNGIG 1e-06 | 94 |
| HLA-B*53:01 | 1 | 901 | 910 | 10 | QMAYRFNGIG 1e-06 | 89 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-------|----|
| HLA-A*24:02 | 1 | 902 | 910 | 9 | MAYRFNGIG | 1e-06 | 88 |
| HLA-A*32:01 | 1 | 906 | 914 | 9 | FNGIGVTQN | 1e-06 | 86 |
| HLA-B*40:01 | 1 | 906 | 914 | 9 | FNGIGVTQN | 1e-06 | 81 |
| HLA-B*40:01 | 1 | 909 | 918 | 10 | IGVTQNVLYE | 1e-06 | 81 |
| HLA-A*23:01 | 1 | 910 | 919 | 10 | GVTQNVLYEN | 1e-06 | 90 |
| HLA-B*44:02 | 1 | 910 | 919 | 10 | GVTQNVLYEN | 1e-06 | 94 |
| HLA-B*44:03 | 1 | 910 | 919 | 10 | GVTQNVLYEN | 1e-06 | 91 |
| HLA-A*02:01 | 1 | 916 | 925 | 10 | LYENQKLIAN | 1e-06 | 95 |
| HLA-A*02:03 | 1 | 916 | 925 | 10 | LYENQKLIAN | 1e-06 | 96 |
| HLA-A*11:01 | 1 | 916 | 925 | 10 | LYENQKLIAN | 1e-06 | 88 |
| HLA-A*32:01 | 1 | 916 | 925 | 10 | LYENQKLIAN | 1e-06 | 86 |
| HLA-A*68:02 | 1 | 916 | 925 | 10 | LYENQKLIAN | 1e-06 | 94 |
| HLA-A*02:06 | 1 | 920 | 928 | 9 | QKLIANQFN | 1e-06 | 97 |
| HLA-A*23:01 | 1 | 920 | 928 | 9 | QKLIANQFN | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 920 | 928 | 9 | QKLIANQFN | 1e-06 | 88 |
| HLA-A*24:02 | 1 | 920 | 929 | 10 | QKLIANQFNS | 1e-06 | 88 |
| HLA-A*32:01 | 1 | 920 | 928 | 9 | QKLIANQFN | 1e-06 | 86 |
| HLA-B*07:02 | 1 | 920 | 928 | 9 | QKLIANQFN | 1e-06 | 96 |
| HLA-B*35:01 | 1 | 920 | 929 | 10 | QKLIANQFNS | 1e-06 | 87 |
| HLA-B*53:01 | 1 | 920 | 929 | 10 | QKLIANQFNS | 1e-06 | 89 |
| HLA-A*11:01 | 1 | 923 | 932 | 10 | IANQFNSAIG | 1e-06 | 88 |
| HLA-A*23:01 | 1 | 923 | 932 | 10 | IANQFNSAIG | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 923 | 932 | 10 | IANQFNSAIG | 1e-06 | 88 |
| HLA-B*40:01 | 1 | 923 | 932 | 10 | IANQFNSAIG | 1e-06 | 81 |
| HLA-B*44:03 | 1 | 923 | 932 | 10 | IANQFNSAIG | 1e-06 | 91 |
| HLA-A*02:01 | 1 | 924 | 932 | 9 | ANQFNSAIG | 1e-06 | 95 |
| HLA-B*53:01 | 1 | 924 | 932 | 9 | ANQFNSAIG | 1e-06 | 89 |
| HLA-A*03:01 | 1 | 927 | 936 | 10 | FNSAIGKIQD | 1e-06 | 96 |
| HLA-A*11:01 | 1 | 927 | 936 | 10 | FNSAIGKIQD | 1e-06 | 88 |
| HLA-A*23:01 | 1 | 927 | 936 | 10 | FNSAIGKIQD | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 927 | 936 | 10 | FNSAIGKIQD | 1e-06 | 88 |
| HLA-A*26:01 | 1 | 927 | 936 | 10 | FNSAIGKIQD | 1e-06 | 94 |
| HLA-A*32:01 | 1 | 927 | 936 | 10 | FNSAIGKIQD | 1e-06 | 86 |
| HLA-B*07:02 | 1 | 927 | 936 | 10 | FNSAIGKIQD | 1e-06 | 96 |
| HLA-B*15:01 | 1 | 927 | 936 | 10 | FNSAIGKIQD | 1e-06 | 95 |
| HLA-B*35:01 | 1 | 927 | 936 | 10 | FNSAIGKIQD | 1e-06 | 87 |
| HLA-B*44:02 | 1 | 927 | 936 | 10 | FNSAIGKIQD | 1e-06 | 94 |
| HLA-B*44:03 | 1 | 927 | 936 | 10 | FNSAIGKIQD | 1e-06 | 91 |
| HLA-A*23:01 | 1 | 928 | 936 | 9 | NSAIGKIQD | 1e-06 | 90 |
| HLA-A*23:01 | 1 | 928 | 937 | 10 | NSAIGKIQDS | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 928 | 936 | 9 | NSAIGKIQD | 1e-06 | 88 |
| HLA-B*40:01 | 1 | 928 | 936 | 9 | NSAIGKIQD | 1e-06 | 81 |
| HLA-B*40:01 | 1 | 928 | 937 | 10 | NSAIGKIQDS | 1e-06 | 81 |
| HLA-B*35:01 | 1 | 930 | 939 | 10 | AIGKIQDSLS | 1e-06 | 87 |
| HLA-B*40:01 | 1 | 931 | 939 | 9 | IGKIQDSLS | 1e-06 | 81 |
| HLA-A*32:01 | 1 | 935 | 943 | 9 | QDSLSSTAS | 1e-06 | 86 |
| HLA-B*40:01 | 1 | 938 | 947 | 10 | LSSTASALGK | 1e-06 | 81 |
| HLA-A*23:01 | 1 | 941 | 950 | 10 | TASALGKLQD | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 942 | 950 | 9 | ASALGKLQD | 1e-06 | 88 |
| HLA-A*11:01 | 1 | 944 | 953 | 10 | ALGKLQDVVN | 1e-06 | 88 |
| HLA-A*23:01 | 1 | 944 | 953 | 10 | ALGKLQDVVN | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 944 | 953 | 10 | ALGKLQDVVN | 1e-06 | 88 |
| HLA-B*35:01 | 1 | 944 | 953 | 10 | ALGKLQDVVN | 1e-06 | 87 |
| HLA-B*53:01 | 1 | 944 | 953 | 10 | ALGKLQDVVN | 1e-06 | 89 |
| HLA-A*02:01 | 1 | 945 | 953 | 9 | LGKLQDVVN | 1e-06 | 95 |
| HLA-A*02:03 | 1 | 945 | 953 | 9 | LGKLQDVVN | 1e-06 | 96 |
| HLA-A*23:01 | 1 | 945 | 954 | 10 | LGKLQDVVNQ | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 945 | 954 | 10 | LGKLQDVVNQ | 1e-06 | 88 |
| HLA-A*26:01 | 1 | 945 | 953 | 9 | LGKLQDVVN | 1e-06 | 94 |
| HLA-A*68:02 | 1 | 945 | 953 | 9 | LGKLQDVVN | 1e-06 | 94 |
| HLA-A*23:01 | 1 | 946 | 955 | 10 | GKLQDVVNQN | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 946 | 955 | 10 | GKLQDVVNQN | 1e-06 | 88 |
| HLA-B*35:01 | 1 | 946 | 955 | 10 | GKLQDVVNQN | 1e-06 | 87 |
| HLA-A*23:01 | 1 | 949 | 957 | 9 | QDVVNQNAQ | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 949 | 957 | 9 | QDVVNQNAQ | 1e-06 | 88 |
| HLA-A*02:01 | 1 | 952 | 960 | 9 | VNQNQAALN | 1e-06 | 95 |

| | | | | | | |
|-------------|---|------|------|----|------------------|----|
| HLA-B*07:02 | 1 | 952 | 960 | 9 | VNQNAQALN 1e-06 | 96 |
| HLA-B*35:01 | 1 | 952 | 960 | 9 | VNQNAQALN 1e-06 | 87 |
| HLA-B*35:01 | 1 | 952 | 961 | 10 | VNQNAQALNT 1e-06 | 87 |
| HLA-B*40:01 | 1 | 952 | 960 | 9 | VNQNAQALN 1e-06 | 81 |
| HLA-A*24:02 | 1 | 959 | 968 | 10 | LNTLVKQLSS 1e-06 | 88 |
| HLA-B*35:01 | 1 | 959 | 968 | 10 | LNTLVKQLSS 1e-06 | 87 |
| HLA-B*40:01 | 1 | 959 | 968 | 10 | LNTLVKQLSS 1e-06 | 81 |
| HLA-A*23:01 | 1 | 960 | 969 | 10 | NTLVKQLSSN 1e-06 | 90 |
| HLA-A*24:02 | 1 | 960 | 969 | 10 | NTLVKQLSSN 1e-06 | 88 |
| HLA-B*35:01 | 1 | 960 | 969 | 10 | NTLVKQLSSN 1e-06 | 87 |
| HLA-B*44:03 | 1 | 960 | 969 | 10 | NTLVKQLSSN 1e-06 | 91 |
| HLA-B*40:01 | 1 | 961 | 969 | 9 | TLVKQLSSN 1e-06 | 81 |
| HLA-A*02:01 | 1 | 963 | 971 | 9 | VKQLSSNFG 1e-06 | 95 |
| HLA-A*32:01 | 1 | 963 | 971 | 9 | VKQLSSNFG 1e-06 | 86 |
| HLA-A*68:01 | 1 | 963 | 971 | 9 | VKQLSSNFG 1e-06 | 94 |
| HLA-A*68:02 | 1 | 963 | 971 | 9 | VKQLSSNFG 1e-06 | 94 |
| HLA-A*23:01 | 1 | 966 | 975 | 10 | LSSNFGAISS 1e-06 | 90 |
| HLA-A*24:02 | 1 | 966 | 975 | 10 | LSSNFGAISS 1e-06 | 88 |
| HLA-B*40:01 | 1 | 966 | 975 | 10 | LSSNFGAISS 1e-06 | 81 |
| HLA-A*11:01 | 1 | 969 | 978 | 10 | NFGAISSVLN 1e-06 | 88 |
| HLA-A*03:01 | 1 | 970 | 979 | 10 | FGAISSVLND 1e-06 | 96 |
| HLA-A*31:01 | 1 | 970 | 979 | 10 | FGAISSVLND 1e-06 | 97 |
| HLA-A*32:01 | 1 | 970 | 979 | 10 | FGAISSVLND 1e-06 | 86 |
| HLA-B*40:01 | 1 | 970 | 978 | 9 | FGAISSVLN 1e-06 | 81 |
| HLA-B*44:02 | 1 | 970 | 979 | 10 | FGAISSVLND 1e-06 | 94 |
| HLA-A*24:02 | 1 | 971 | 979 | 9 | GAISSVLND 1e-06 | 88 |
| HLA-B*40:01 | 1 | 973 | 982 | 10 | ISSVLNDILS 1e-06 | 81 |
| HLA-B*44:02 | 1 | 973 | 982 | 10 | ISSVLNDILS 1e-06 | 94 |
| HLA-B*44:03 | 1 | 973 | 982 | 10 | ISSVLNDILS 1e-06 | 91 |
| HLA-A*02:01 | 1 | 977 | 985 | 9 | LNDILSRLD 1e-06 | 95 |
| HLA-A*02:03 | 1 | 977 | 985 | 9 | LNDILSRLD 1e-06 | 96 |
| HLA-A*11:01 | 1 | 977 | 985 | 9 | LNDILSRLD 1e-06 | 88 |
| HLA-A*24:02 | 1 | 977 | 985 | 9 | LNDILSRLD 1e-06 | 88 |
| HLA-A*26:01 | 1 | 977 | 985 | 9 | LNDILSRLD 1e-06 | 94 |
| HLA-A*32:01 | 1 | 977 | 985 | 9 | LNDILSRLD 1e-06 | 86 |
| HLA-A*68:01 | 1 | 977 | 985 | 9 | LNDILSRLD 1e-06 | 94 |
| HLA-A*68:02 | 1 | 977 | 985 | 9 | LNDILSRLD 1e-06 | 94 |
| HLA-B*07:02 | 1 | 977 | 985 | 9 | LNDILSRLD 1e-06 | 96 |
| HLA-B*15:01 | 1 | 977 | 985 | 9 | LNDILSRLD 1e-06 | 95 |
| HLA-B*40:01 | 1 | 977 | 985 | 9 | LNDILSRLD 1e-06 | 81 |
| HLA-B*40:01 | 1 | 977 | 986 | 10 | LNDILSRLDK 1e-06 | 81 |
| HLA-A*32:01 | 1 | 979 | 988 | 10 | DILSRLDKVE 1e-06 | 86 |
| HLA-A*23:01 | 1 | 984 | 992 | 9 | LDKVEAEVQ 1e-06 | 90 |
| HLA-A*32:01 | 1 | 984 | 992 | 9 | LDKVEAEVQ 1e-06 | 86 |
| HLA-A*03:01 | 1 | 985 | 994 | 10 | DKVEAEVQID 1e-06 | 96 |
| HLA-A*23:01 | 1 | 985 | 994 | 10 | DKVEAEVQID 1e-06 | 90 |
| HLA-A*24:02 | 1 | 985 | 994 | 10 | DKVEAEVQID 1e-06 | 88 |
| HLA-A*68:01 | 1 | 985 | 994 | 10 | DKVEAEVQID 1e-06 | 94 |
| HLA-B*40:01 | 1 | 985 | 994 | 10 | DKVEAEVQID 1e-06 | 81 |
| HLA-A*23:01 | 1 | 986 | 994 | 9 | KVEAEVQID 1e-06 | 90 |
| HLA-A*24:02 | 1 | 986 | 994 | 9 | KVEAEVQID 1e-06 | 88 |
| HLA-A*33:01 | 1 | 986 | 994 | 9 | KVEAEVQID 1e-06 | 98 |
| HLA-A*02:01 | 1 | 994 | 1002 | 9 | DRLITGRLQ 1e-06 | 95 |
| HLA-A*32:01 | 1 | 994 | 1002 | 9 | DRLITGRLQ 1e-06 | 86 |
| HLA-B*40:01 | 1 | 996 | 1005 | 10 | LITGRLQSLQ 1e-06 | 81 |
| HLA-B*40:01 | 1 | 997 | 1006 | 10 | ITGRLQSLQT 1e-06 | 81 |
| HLA-B*40:01 | 1 | 1012 | 1021 | 10 | LIRAAEIRAS 1e-06 | 81 |
| HLA-A*23:01 | 1 | 1014 | 1023 | 10 | RAAEIRASAN 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1014 | 1023 | 10 | RAAEIRASAN 1e-06 | 88 |
| HLA-A*68:02 | 1 | 1015 | 1023 | 9 | AAEIRASAN 1e-06 | 94 |
| HLA-A*11:01 | 1 | 1027 | 1035 | 9 | TKMSECVLG 1e-06 | 88 |
| HLA-A*24:02 | 1 | 1027 | 1036 | 10 | TKMSECVLGQ 1e-06 | 88 |
| HLA-A*32:01 | 1 | 1027 | 1035 | 9 | TKMSECVLG 1e-06 | 86 |
| HLA-B*35:01 | 1 | 1028 | 1037 | 10 | KMSECVLGQS 1e-06 | 87 |
| HLA-B*53:01 | 1 | 1028 | 1037 | 10 | KMSECVLGQS 1e-06 | 89 |
| HLA-B*40:01 | 1 | 1029 | 1037 | 9 | MSECVLGQS 1e-06 | 81 |

| | | | | | | |
|-------------|---|------|------|----|------------------|----|
| HLA-A*03:01 | 1 | 1032 | 1041 | 10 | CVLGQSKRVD 1e-06 | 96 |
| HLA-A*26:01 | 1 | 1032 | 1041 | 10 | CVLGQSKRVD 1e-06 | 94 |
| HLA-A*31:01 | 1 | 1032 | 1041 | 10 | CVLGQSKRVD 1e-06 | 97 |
| HLA-A*68:01 | 1 | 1032 | 1041 | 10 | CVLGQSKRVD 1e-06 | 94 |
| HLA-B*44:02 | 1 | 1032 | 1041 | 10 | CVLGQSKRVD 1e-06 | 94 |
| HLA-B*53:01 | 1 | 1032 | 1041 | 10 | CVLGQSKRVD 1e-06 | 89 |
| HLA-A*11:01 | 1 | 1033 | 1041 | 9 | VLGQSKRVD 1e-06 | 88 |
| HLA-A*23:01 | 1 | 1033 | 1041 | 9 | VLGQSKRVD 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1033 | 1041 | 9 | VLGQSKRVD 1e-06 | 88 |
| HLA-A*26:01 | 1 | 1033 | 1041 | 9 | VLGQSKRVD 1e-06 | 94 |
| HLA-A*68:02 | 1 | 1033 | 1041 | 9 | VLGQSKRVD 1e-06 | 94 |
| HLA-B*35:01 | 1 | 1033 | 1041 | 9 | VLGQSKRVD 1e-06 | 87 |
| HLA-B*40:01 | 1 | 1033 | 1041 | 9 | VLGQSKRVD 1e-06 | 81 |
| HLA-B*53:01 | 1 | 1033 | 1041 | 9 | VLGQSKRVD 1e-06 | 89 |
| HLA-A*26:01 | 1 | 1034 | 1043 | 10 | LGQSKRVDFC 1e-06 | 94 |
| HLA-A*68:01 | 1 | 1034 | 1043 | 10 | LGQSKRVDFC 1e-06 | 94 |
| HLA-B*35:01 | 1 | 1034 | 1043 | 10 | LGQSKRVDFC 1e-06 | 87 |
| HLA-A*03:01 | 1 | 1035 | 1044 | 10 | GQSKRVDFCG 1e-06 | 96 |
| HLA-A*26:01 | 1 | 1035 | 1044 | 10 | GQSKRVDFCG 1e-06 | 94 |
| HLA-A*68:01 | 1 | 1035 | 1044 | 10 | GQSKRVDFCG 1e-06 | 94 |
| HLA-A*68:02 | 1 | 1035 | 1044 | 10 | GQSKRVDFCG 1e-06 | 94 |
| HLA-B*07:02 | 1 | 1035 | 1044 | 10 | GQSKRVDFCG 1e-06 | 96 |
| HLA-B*40:01 | 1 | 1036 | 1044 | 9 | QSKRVDFCG 1e-06 | 81 |
| HLA-B*40:01 | 1 | 1036 | 1045 | 10 | QSKRVDFCGK 1e-06 | 81 |
| HLA-A*02:06 | 1 | 1037 | 1046 | 10 | SKRVDFCGKG 1e-06 | 97 |
| HLA-A*24:02 | 1 | 1037 | 1046 | 10 | SKRVDFCGKG 1e-06 | 88 |
| HLA-A*32:01 | 1 | 1037 | 1046 | 10 | SKRVDFCGKG 1e-06 | 86 |
| HLA-A*02:01 | 1 | 1038 | 1046 | 9 | KRVDFCGKG 1e-06 | 95 |
| HLA-B*35:01 | 1 | 1038 | 1046 | 9 | KRVDFCGKG 1e-06 | 87 |
| HLA-B*53:01 | 1 | 1038 | 1046 | 9 | KRVDFCGKG 1e-06 | 89 |
| HLA-A*32:01 | 1 | 1042 | 1051 | 10 | FCGKGYHLMS 1e-06 | 86 |
| HLA-B*35:01 | 1 | 1042 | 1051 | 10 | FCGKGYHLMS 1e-06 | 87 |
| HLA-B*40:01 | 1 | 1042 | 1051 | 10 | FCGKGYHLMS 1e-06 | 81 |
| HLA-B*44:02 | 1 | 1042 | 1051 | 10 | FCGKGYHLMS 1e-06 | 94 |
| HLA-B*44:03 | 1 | 1042 | 1051 | 10 | FCGKGYHLMS 1e-06 | 91 |
| HLA-B*40:01 | 1 | 1043 | 1051 | 9 | CGKGYHLMS 1e-06 | 81 |
| HLA-A*24:02 | 1 | 1044 | 1053 | 10 | GKGYHLMSFP 1e-06 | 88 |
| HLA-B*35:01 | 1 | 1044 | 1053 | 10 | GKGYHLMSFP 1e-06 | 87 |
| HLA-B*53:01 | 1 | 1044 | 1053 | 10 | GKGYHLMSFP 1e-06 | 89 |
| HLA-B*40:01 | 1 | 1045 | 1054 | 10 | KGYHLMSFPQ 1e-06 | 81 |
| HLA-B*44:02 | 1 | 1045 | 1054 | 10 | KGYHLMSFPQ 1e-06 | 94 |
| HLA-A*02:01 | 1 | 1057 | 1066 | 10 | PHGVVFLHVT 1e-06 | 95 |
| HLA-A*03:01 | 1 | 1057 | 1066 | 10 | PHGVVFLHVT 1e-06 | 96 |
| HLA-A*26:01 | 1 | 1057 | 1066 | 10 | PHGVVFLHVT 1e-06 | 94 |
| HLA-A*31:01 | 1 | 1057 | 1066 | 10 | PHGVVFLHVT 1e-06 | 97 |
| HLA-B*07:02 | 1 | 1057 | 1066 | 10 | PHGVVFLHVT 1e-06 | 96 |
| HLA-B*44:02 | 1 | 1057 | 1066 | 10 | PHGVVFLHVT 1e-06 | 94 |
| HLA-B*53:01 | 1 | 1057 | 1066 | 10 | PHGVVFLHVT 1e-06 | 89 |
| HLA-B*40:01 | 1 | 1065 | 1074 | 10 | VTYVPAQEK 1e-06 | 81 |
| HLA-A*23:01 | 1 | 1075 | 1084 | 10 | FTTAPAICH 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1075 | 1084 | 10 | FTTAPAICH 1e-06 | 88 |
| HLA-B*40:01 | 1 | 1075 | 1084 | 10 | FTTAPAICH 1e-06 | 81 |
| HLA-B*40:01 | 1 | 1076 | 1085 | 10 | TTAPAICH 1e-06 | 81 |
| HLA-A*03:01 | 1 | 1077 | 1085 | 9 | TAPAICH 1e-06 | 96 |
| HLA-A*11:01 | 1 | 1077 | 1085 | 9 | TAPAICH 1e-06 | 88 |
| HLA-A*32:01 | 1 | 1077 | 1085 | 9 | TAPAICH 1e-06 | 86 |
| HLA-A*23:01 | 1 | 1078 | 1087 | 10 | APAICH 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1078 | 1087 | 10 | APAICH 1e-06 | 88 |
| HLA-A*03:01 | 1 | 1079 | 1087 | 9 | PAICH 1e-06 | 96 |
| HLA-A*11:01 | 1 | 1079 | 1087 | 9 | PAICH 1e-06 | 88 |
| HLA-A*23:01 | 1 | 1079 | 1087 | 9 | PAICH 1e-06 | 90 |
| HLA-A*31:01 | 1 | 1079 | 1087 | 9 | PAICH 1e-06 | 97 |
| HLA-A*32:01 | 1 | 1079 | 1087 | 9 | PAICH 1e-06 | 86 |
| HLA-B*40:01 | 1 | 1079 | 1087 | 9 | PAICH 1e-06 | 81 |
| HLA-B*53:01 | 1 | 1083 | 1092 | 10 | HDGKAHFP 1e-06 | 89 |
| HLA-A*02:03 | 1 | 1084 | 1093 | 10 | DGKAHFP 1e-06 | 96 |

| | | | | | | |
|-------------|---|------|------|----|-------------------|----|
| HLA-A*02:06 | 1 | 1084 | 1093 | 10 | DGKAHFPREG 1e-06 | 97 |
| HLA-A*03:01 | 1 | 1084 | 1093 | 10 | DGKAHFPREG 1e-06 | 96 |
| HLA-A*11:01 | 1 | 1084 | 1093 | 10 | DGKAHFPREG 1e-06 | 88 |
| HLA-A*24:02 | 1 | 1084 | 1093 | 10 | DGKAHFPREG 1e-06 | 88 |
| HLA-A*31:01 | 1 | 1084 | 1093 | 10 | DGKAHFPREG 1e-06 | 97 |
| HLA-A*32:01 | 1 | 1084 | 1093 | 10 | DGKAHFPREG 1e-06 | 86 |
| HLA-A*02:01 | 1 | 1085 | 1093 | 9 | GKAHFPREG 1e-06 | 95 |
| HLA-A*24:02 | 1 | 1085 | 1093 | 9 | GKAHFPREG 1e-06 | 88 |
| HLA-A*02:03 | 1 | 1090 | 1098 | 9 | PREGVFVSN 1e-06 | 96 |
| HLA-A*02:06 | 1 | 1090 | 1098 | 9 | PREGVFVSN 1e-06 | 97 |
| HLA-A*03:01 | 1 | 1090 | 1098 | 9 | PREGVFVSN 1e-06 | 96 |
| HLA-A*23:01 | 1 | 1090 | 1099 | 10 | PREGVFVSN 1e-06 | 90 |
| HLA-A*31:01 | 1 | 1090 | 1099 | 10 | PREGVFVSN 1e-06 | 97 |
| HLA-A*33:01 | 1 | 1090 | 1099 | 10 | PREGVFVSN 1e-06 | 98 |
| HLA-A*68:02 | 1 | 1090 | 1098 | 9 | PREGVFVSN 1e-06 | 94 |
| HLA-B*15:01 | 1 | 1090 | 1098 | 9 | PREGVFVSN 1e-06 | 95 |
| HLA-B*40:01 | 1 | 1090 | 1098 | 9 | PREGVFVSN 1e-06 | 81 |
| HLA-B*51:01 | 1 | 1090 | 1099 | 10 | PREGVFVSN 1e-06 | 99 |
| HLA-B*58:01 | 1 | 1090 | 1099 | 10 | PREGVFVSN 1e-06 | 98 |
| HLA-A*24:02 | 1 | 1092 | 1101 | 10 | EGVFVSN 1e-06 | 88 |
| HLA-B*40:01 | 1 | 1097 | 1106 | 10 | SNGTHWFVTQ 1e-06 | 81 |
| HLA-B*35:01 | 1 | 1099 | 1108 | 10 | GTHWFVTQRN 1e-06 | 87 |
| HLA-B*40:01 | 1 | 1099 | 1108 | 10 | GTHWFVTQRN 1e-06 | 81 |
| HLA-B*40:01 | 1 | 1102 | 1111 | 10 | WFVTQRNFYE 1e-06 | 81 |
| HLA-A*11:01 | 1 | 1109 | 1118 | 10 | FYEQIITTD 1e-06 | 88 |
| HLA-A*32:01 | 1 | 1109 | 1118 | 10 | FYEQIITTD 1e-06 | 86 |
| HLA-A*11:01 | 1 | 1110 | 1119 | 10 | YEQIITTDN 1e-06 | 88 |
| HLA-A*32:01 | 1 | 1110 | 1119 | 10 | YEQIITTDN 1e-06 | 86 |
| HLA-A*02:01 | 1 | 1111 | 1119 | 9 | EPQIITTDN 1e-06 | 95 |
| HLA-A*02:06 | 1 | 1111 | 1119 | 9 | EPQIITTDN 1e-06 | 97 |
| HLA-A*24:02 | 1 | 1111 | 1120 | 10 | EPQIITTDNT 1e-06 | 88 |
| HLA-A*32:01 | 1 | 1111 | 1119 | 9 | EPQIITTDN 1e-06 | 86 |
| HLA-A*32:01 | 1 | 1111 | 1120 | 10 | EPQIITTDNT 1e-06 | 86 |
| HLA-B*40:01 | 1 | 1111 | 1119 | 9 | EPQIITTDN 1e-06 | 81 |
| HLA-A*32:01 | 1 | 1112 | 1120 | 9 | PQIITTDNT 1e-06 | 86 |
| HLA-B*44:02 | 1 | 1114 | 1123 | 10 | IITTDNTFVS 1e-06 | 94 |
| HLA-B*44:03 | 1 | 1114 | 1123 | 10 | IITTDNTFVS 1e-06 | 91 |
| HLA-B*40:01 | 1 | 1115 | 1124 | 10 | IITTDNTFVSG 1e-06 | 81 |
| HLA-B*44:03 | 1 | 1115 | 1124 | 10 | IITTDNTFVSG 1e-06 | 91 |
| HLA-A*24:02 | 1 | 1116 | 1125 | 10 | TTDNTFVSGN 1e-06 | 88 |
| HLA-A*24:02 | 1 | 1117 | 1125 | 9 | TDNTFVSGN 1e-06 | 88 |
| HLA-A*24:02 | 1 | 1117 | 1126 | 10 | TDNTFVSGNC 1e-06 | 88 |
| HLA-A*32:01 | 1 | 1117 | 1126 | 10 | TDNTFVSGNC 1e-06 | 86 |
| HLA-A*02:01 | 1 | 1118 | 1127 | 10 | DNTFVSGNCD 1e-06 | 95 |
| HLA-A*02:03 | 1 | 1118 | 1127 | 10 | DNTFVSGNCD 1e-06 | 96 |
| HLA-A*02:06 | 1 | 1118 | 1127 | 10 | DNTFVSGNCD 1e-06 | 97 |
| HLA-A*31:01 | 1 | 1118 | 1127 | 10 | DNTFVSGNCD 1e-06 | 97 |
| HLA-A*32:01 | 1 | 1118 | 1126 | 9 | DNTFVSGNC 1e-06 | 86 |
| HLA-B*15:01 | 1 | 1118 | 1126 | 9 | DNTFVSGNC 1e-06 | 95 |
| HLA-B*15:01 | 1 | 1118 | 1127 | 10 | DNTFVSGNCD 1e-06 | 95 |
| HLA-B*35:01 | 1 | 1118 | 1127 | 10 | DNTFVSGNCD 1e-06 | 87 |
| HLA-A*24:02 | 1 | 1119 | 1127 | 9 | NTFVSGNCD 1e-06 | 88 |
| HLA-B*40:01 | 1 | 1119 | 1127 | 9 | NTFVSGNCD 1e-06 | 81 |
| HLA-A*03:01 | 1 | 1122 | 1131 | 10 | VSGNCDVVG 1e-06 | 96 |
| HLA-A*11:01 | 1 | 1122 | 1131 | 10 | VSGNCDVVG 1e-06 | 88 |
| HLA-A*31:01 | 1 | 1122 | 1131 | 10 | VSGNCDVVG 1e-06 | 97 |
| HLA-A*32:01 | 1 | 1122 | 1131 | 10 | VSGNCDVVG 1e-06 | 86 |
| HLA-A*33:01 | 1 | 1122 | 1131 | 10 | VSGNCDVVG 1e-06 | 98 |
| HLA-A*68:01 | 1 | 1122 | 1131 | 10 | VSGNCDVVG 1e-06 | 94 |
| HLA-A*68:02 | 1 | 1122 | 1131 | 10 | VSGNCDVVG 1e-06 | 94 |
| HLA-B*07:02 | 1 | 1122 | 1131 | 10 | VSGNCDVVG 1e-06 | 96 |
| HLA-B*15:01 | 1 | 1122 | 1131 | 10 | VSGNCDVVG 1e-06 | 95 |
| HLA-B*53:01 | 1 | 1122 | 1131 | 10 | VSGNCDVVG 1e-06 | 89 |
| HLA-A*11:01 | 1 | 1123 | 1131 | 9 | SGNCDVVG 1e-06 | 88 |
| HLA-A*23:01 | 1 | 1123 | 1131 | 9 | SGNCDVVG 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1123 | 1131 | 9 | SGNCDVVG 1e-06 | 88 |

| | | | | | | |
|-------------|---|------|------|----|------------------|-----|
| HLA-A*26:01 | 1 | 1123 | 1131 | 9 | SGNCDVIG 1e-06 | 94 |
| HLA-A*31:01 | 1 | 1123 | 1131 | 9 | SGNCDVIG 1e-06 | 97 |
| HLA-A*32:01 | 1 | 1123 | 1131 | 9 | SGNCDVIG 1e-06 | 86 |
| HLA-A*68:01 | 1 | 1123 | 1131 | 9 | SGNCDVIG 1e-06 | 94 |
| HLA-B*40:01 | 1 | 1123 | 1131 | 9 | SGNCDVIG 1e-06 | 81 |
| HLA-B*35:01 | 1 | 1124 | 1133 | 10 | GNCVVIGIV 1e-06 | 87 |
| HLA-A*02:01 | 1 | 1125 | 1134 | 10 | NCDVVIGIVN 1e-06 | 95 |
| HLA-A*02:03 | 1 | 1125 | 1134 | 10 | NCDVVIGIVN 1e-06 | 96 |
| HLA-A*03:01 | 1 | 1125 | 1134 | 10 | NCDVVIGIVN 1e-06 | 96 |
| HLA-A*26:01 | 1 | 1125 | 1134 | 10 | NCDVVIGIVN 1e-06 | 94 |
| HLA-A*31:01 | 1 | 1125 | 1134 | 10 | NCDVVIGIVN 1e-06 | 97 |
| HLA-A*33:01 | 1 | 1125 | 1134 | 10 | NCDVVIGIVN 1e-06 | 98 |
| HLA-A*68:01 | 1 | 1125 | 1134 | 10 | NCDVVIGIVN 1e-06 | 94 |
| HLA-A*68:02 | 1 | 1125 | 1134 | 10 | NCDVVIGIVN 1e-06 | 94 |
| HLA-B*15:01 | 1 | 1125 | 1134 | 10 | NCDVVIGIVN 1e-06 | 95 |
| HLA-B*35:01 | 1 | 1125 | 1134 | 10 | NCDVVIGIVN 1e-06 | 87 |
| HLA-A*02:01 | 1 | 1126 | 1134 | 9 | CDVVIGIVN 1e-06 | 95 |
| HLA-A*02:01 | 1 | 1126 | 1135 | 10 | CDVVIGIVNN 1e-06 | 95 |
| HLA-A*02:03 | 1 | 1126 | 1134 | 9 | CDVVIGIVN 1e-06 | 96 |
| HLA-A*03:01 | 1 | 1126 | 1134 | 9 | CDVVIGIVN 1e-06 | 96 |
| HLA-A*11:01 | 1 | 1126 | 1134 | 9 | CDVVIGIVN 1e-06 | 88 |
| HLA-A*31:01 | 1 | 1126 | 1134 | 9 | CDVVIGIVN 1e-06 | 97 |
| HLA-A*31:01 | 1 | 1126 | 1135 | 10 | CDVVIGIVNN 1e-06 | 97 |
| HLA-A*32:01 | 1 | 1126 | 1135 | 10 | CDVVIGIVNN 1e-06 | 86 |
| HLA-A*68:02 | 1 | 1126 | 1134 | 9 | CDVVIGIVN 1e-06 | 94 |
| HLA-B*07:02 | 1 | 1126 | 1134 | 9 | CDVVIGIVN 1e-06 | 96 |
| HLA-B*08:01 | 1 | 1126 | 1135 | 10 | CDVVIGIVNN 1e-06 | 100 |
| HLA-B*15:01 | 1 | 1126 | 1135 | 10 | CDVVIGIVNN 1e-06 | 95 |
| HLA-B*35:01 | 1 | 1126 | 1134 | 9 | CDVVIGIVN 1e-06 | 87 |
| HLA-B*44:02 | 1 | 1126 | 1135 | 10 | CDVVIGIVNN 1e-06 | 94 |
| HLA-B*44:03 | 1 | 1126 | 1135 | 10 | CDVVIGIVNN 1e-06 | 91 |
| HLA-B*53:01 | 1 | 1126 | 1135 | 10 | CDVVIGIVNN 1e-06 | 89 |
| HLA-A*23:01 | 1 | 1127 | 1135 | 9 | DVVIGIVNN 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1127 | 1135 | 9 | DVVIGIVNN 1e-06 | 88 |
| HLA-A*24:02 | 1 | 1127 | 1136 | 10 | DVVIGIVNNT 1e-06 | 88 |
| HLA-B*40:01 | 1 | 1127 | 1135 | 9 | DVVIGIVNNT 1e-06 | 81 |
| HLA-A*23:01 | 1 | 1130 | 1139 | 10 | IGIVNNTVYD 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1130 | 1139 | 10 | IGIVNNTVYD 1e-06 | 88 |
| HLA-B*40:01 | 1 | 1130 | 1139 | 10 | IGIVNNTVYD 1e-06 | 81 |
| HLA-A*23:01 | 1 | 1131 | 1139 | 9 | GIVNNTVYD 1e-06 | 90 |
| HLA-A*23:01 | 1 | 1131 | 1140 | 10 | GIVNNTVYDP 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1131 | 1139 | 9 | GIVNNTVYD 1e-06 | 88 |
| HLA-A*24:02 | 1 | 1131 | 1140 | 10 | GIVNNTVYDP 1e-06 | 88 |
| HLA-B*35:01 | 1 | 1131 | 1140 | 10 | GIVNNTVYDP 1e-06 | 87 |
| HLA-B*44:02 | 1 | 1131 | 1139 | 9 | GIVNNTVYD 1e-06 | 94 |
| HLA-B*44:03 | 1 | 1131 | 1139 | 9 | GIVNNTVYD 1e-06 | 91 |
| HLA-B*44:03 | 1 | 1131 | 1140 | 10 | GIVNNTVYDP 1e-06 | 91 |
| HLA-A*24:02 | 1 | 1133 | 1142 | 10 | VNNTVYDPLQ 1e-06 | 88 |
| HLA-B*07:02 | 1 | 1133 | 1142 | 10 | VNNTVYDPLQ 1e-06 | 96 |
| HLA-B*40:01 | 1 | 1133 | 1142 | 10 | VNNTVYDPLQ 1e-06 | 81 |
| HLA-A*02:03 | 1 | 1134 | 1142 | 9 | NNTVYDPLQ 1e-06 | 96 |
| HLA-A*24:02 | 1 | 1134 | 1142 | 9 | NNTVYDPLQ 1e-06 | 88 |
| HLA-A*32:01 | 1 | 1134 | 1142 | 9 | NNTVYDPLQ 1e-06 | 86 |
| HLA-A*02:01 | 1 | 1138 | 1146 | 9 | YDPLQPELD 1e-06 | 95 |
| HLA-A*02:03 | 1 | 1138 | 1146 | 9 | YDPLQPELD 1e-06 | 96 |
| HLA-A*03:01 | 1 | 1138 | 1146 | 9 | YDPLQPELD 1e-06 | 96 |
| HLA-A*11:01 | 1 | 1138 | 1146 | 9 | YDPLQPELD 1e-06 | 88 |
| HLA-A*26:01 | 1 | 1138 | 1146 | 9 | YDPLQPELD 1e-06 | 94 |
| HLA-A*31:01 | 1 | 1138 | 1146 | 9 | YDPLQPELD 1e-06 | 97 |
| HLA-A*32:01 | 1 | 1138 | 1146 | 9 | YDPLQPELD 1e-06 | 86 |
| HLA-A*32:01 | 1 | 1138 | 1147 | 10 | YDPLQPELDS 1e-06 | 86 |
| HLA-B*15:01 | 1 | 1138 | 1146 | 9 | YDPLQPELD 1e-06 | 95 |
| HLA-B*58:01 | 1 | 1138 | 1146 | 9 | YDPLQPELD 1e-06 | 98 |
| HLA-B*40:01 | 1 | 1140 | 1149 | 10 | PLQPELDSFK 1e-06 | 81 |
| HLA-A*02:03 | 1 | 1142 | 1150 | 9 | QPELDSFKE 1e-06 | 96 |
| HLA-A*02:01 | 1 | 1145 | 1153 | 9 | LDSFKEELD 1e-06 | 95 |

| | | | | | | | |
|-------------|---|------|------|----|------------|-------|----|
| HLA-A*02:06 | 1 | 1145 | 1153 | 9 | LDSFKEELD | 1e-06 | 97 |
| HLA-A*03:01 | 1 | 1145 | 1153 | 9 | LDSFKEELD | 1e-06 | 96 |
| HLA-A*23:01 | 1 | 1145 | 1153 | 9 | LDSFKEELD | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1145 | 1153 | 9 | LDSFKEELD | 1e-06 | 88 |
| HLA-A*33:01 | 1 | 1145 | 1153 | 9 | LDSFKEELD | 1e-06 | 98 |
| HLA-A*68:01 | 1 | 1145 | 1153 | 9 | LDSFKEELD | 1e-06 | 94 |
| HLA-A*68:02 | 1 | 1145 | 1153 | 9 | LDSFKEELD | 1e-06 | 94 |
| HLA-B*35:01 | 1 | 1145 | 1153 | 9 | LDSFKEELD | 1e-06 | 87 |
| HLA-B*40:01 | 1 | 1145 | 1153 | 9 | LDSFKEELD | 1e-06 | 81 |
| HLA-B*53:01 | 1 | 1145 | 1153 | 9 | LDSFKEELD | 1e-06 | 89 |
| HLA-A*02:01 | 1 | 1149 | 1158 | 10 | KEELDKYFKN | 1e-06 | 95 |
| HLA-A*02:03 | 1 | 1149 | 1158 | 10 | KEELDKYFKN | 1e-06 | 96 |
| HLA-B*07:02 | 1 | 1149 | 1158 | 10 | KEELDKYFKN | 1e-06 | 96 |
| HLA-B*15:01 | 1 | 1149 | 1158 | 10 | KEELDKYFKN | 1e-06 | 95 |
| HLA-B*35:01 | 1 | 1149 | 1158 | 10 | KEELDKYFKN | 1e-06 | 87 |
| HLA-B*35:01 | 1 | 1154 | 1163 | 10 | KYFKNHTSPD | 1e-06 | 87 |
| HLA-B*40:01 | 1 | 1154 | 1163 | 10 | KYFKNHTSPD | 1e-06 | 81 |
| HLA-B*40:01 | 1 | 1155 | 1163 | 9 | YFKNHTSPD | 1e-06 | 81 |
| HLA-B*44:03 | 1 | 1155 | 1163 | 9 | YFKNHTSPD | 1e-06 | 91 |
| HLA-A*02:01 | 1 | 1156 | 1165 | 10 | FKNHTSPDVD | 1e-06 | 95 |
| HLA-A*23:01 | 1 | 1156 | 1165 | 10 | FKNHTSPDVD | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1156 | 1165 | 10 | FKNHTSPDVD | 1e-06 | 88 |
| HLA-A*26:01 | 1 | 1156 | 1165 | 10 | FKNHTSPDVD | 1e-06 | 94 |
| HLA-A*68:02 | 1 | 1156 | 1165 | 10 | FKNHTSPDVD | 1e-06 | 94 |
| HLA-B*15:01 | 1 | 1156 | 1165 | 10 | FKNHTSPDVD | 1e-06 | 95 |
| HLA-B*35:01 | 1 | 1156 | 1165 | 10 | FKNHTSPDVD | 1e-06 | 87 |
| HLA-B*40:01 | 1 | 1156 | 1165 | 10 | FKNHTSPDVD | 1e-06 | 81 |
| HLA-B*44:02 | 1 | 1156 | 1165 | 10 | FKNHTSPDVD | 1e-06 | 94 |
| HLA-B*44:03 | 1 | 1156 | 1165 | 10 | FKNHTSPDVD | 1e-06 | 91 |
| HLA-A*02:01 | 1 | 1157 | 1165 | 9 | KNHTSPDVD | 1e-06 | 95 |
| HLA-A*02:03 | 1 | 1157 | 1165 | 9 | KNHTSPDVD | 1e-06 | 96 |
| HLA-A*02:06 | 1 | 1157 | 1165 | 9 | KNHTSPDVD | 1e-06 | 97 |
| HLA-A*11:01 | 1 | 1157 | 1165 | 9 | KNHTSPDVD | 1e-06 | 88 |
| HLA-A*23:01 | 1 | 1157 | 1165 | 9 | KNHTSPDVD | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1157 | 1165 | 9 | KNHTSPDVD | 1e-06 | 88 |
| HLA-A*26:01 | 1 | 1157 | 1165 | 9 | KNHTSPDVD | 1e-06 | 94 |
| HLA-A*32:01 | 1 | 1157 | 1165 | 9 | KNHTSPDVD | 1e-06 | 86 |
| HLA-A*33:01 | 1 | 1157 | 1165 | 9 | KNHTSPDVD | 1e-06 | 98 |
| HLA-A*68:02 | 1 | 1157 | 1165 | 9 | KNHTSPDVD | 1e-06 | 94 |
| HLA-B*15:01 | 1 | 1157 | 1165 | 9 | KNHTSPDVD | 1e-06 | 95 |
| HLA-B*40:01 | 1 | 1157 | 1165 | 9 | KNHTSPDVD | 1e-06 | 81 |
| HLA-B*53:01 | 1 | 1157 | 1165 | 9 | KNHTSPDVD | 1e-06 | 89 |
| HLA-A*32:01 | 1 | 1158 | 1167 | 10 | NHTSPDVLGD | 1e-06 | 86 |
| HLA-A*23:01 | 1 | 1159 | 1168 | 10 | HTSPDVLGD | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1159 | 1168 | 10 | HTSPDVLGD | 1e-06 | 88 |
| HLA-A*32:01 | 1 | 1160 | 1168 | 9 | TSPDVLGD | 1e-06 | 86 |
| HLA-B*40:01 | 1 | 1160 | 1168 | 9 | TSPDVLGD | 1e-06 | 81 |
| HLA-A*32:01 | 1 | 1161 | 1170 | 10 | SPDVLGDIS | 1e-06 | 86 |
| HLA-A*02:01 | 1 | 1162 | 1170 | 9 | PDVLDGDIS | 1e-06 | 95 |
| HLA-A*02:03 | 1 | 1162 | 1171 | 10 | PDVLDGDISG | 1e-06 | 96 |
| HLA-A*03:01 | 1 | 1162 | 1170 | 9 | PDVLDGDIS | 1e-06 | 96 |
| HLA-A*03:01 | 1 | 1162 | 1171 | 10 | PDVLDGDISG | 1e-06 | 96 |
| HLA-A*11:01 | 1 | 1162 | 1170 | 9 | PDVLDGDIS | 1e-06 | 88 |
| HLA-A*26:01 | 1 | 1162 | 1171 | 10 | PDVLDGDISG | 1e-06 | 94 |
| HLA-A*31:01 | 1 | 1162 | 1171 | 10 | PDVLDGDISG | 1e-06 | 97 |
| HLA-A*33:01 | 1 | 1162 | 1170 | 9 | PDVLDGDIS | 1e-06 | 98 |
| HLA-A*33:01 | 1 | 1162 | 1171 | 10 | PDVLDGDISG | 1e-06 | 98 |
| HLA-A*68:02 | 1 | 1162 | 1171 | 10 | PDVLDGDISG | 1e-06 | 94 |
| HLA-B*07:02 | 1 | 1162 | 1170 | 9 | PDVLDGDIS | 1e-06 | 96 |
| HLA-B*07:02 | 1 | 1162 | 1171 | 10 | PDVLDGDISG | 1e-06 | 96 |
| HLA-B*15:01 | 1 | 1162 | 1170 | 9 | PDVLDGDIS | 1e-06 | 95 |
| HLA-B*15:01 | 1 | 1162 | 1171 | 10 | PDVLDGDISG | 1e-06 | 95 |
| HLA-B*35:01 | 1 | 1162 | 1171 | 10 | PDVLDGDISG | 1e-06 | 87 |
| HLA-B*44:02 | 1 | 1162 | 1171 | 10 | PDVLDGDISG | 1e-06 | 94 |
| HLA-B*44:03 | 1 | 1162 | 1171 | 10 | PDVLDGDISG | 1e-06 | 91 |
| HLA-B*53:01 | 1 | 1162 | 1170 | 9 | PDVLDGDIS | 1e-06 | 89 |

| | | | | | | | |
|-------------|---|------|------|----|------------|-------|----|
| HLA-B*58:01 | 1 | 1162 | 1170 | 9 | PDVDLGDIS | 1e-06 | 98 |
| HLA-A*11:01 | 1 | 1164 | 1173 | 10 | VDLGDISGIN | 1e-06 | 88 |
| HLA-A*23:01 | 1 | 1164 | 1173 | 10 | VDLGDISGIN | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1164 | 1173 | 10 | VDLGDISGIN | 1e-06 | 88 |
| HLA-A*31:01 | 1 | 1164 | 1173 | 10 | VDLGDISGIN | 1e-06 | 97 |
| HLA-A*33:01 | 1 | 1164 | 1173 | 10 | VDLGDISGIN | 1e-06 | 98 |
| HLA-A*68:01 | 1 | 1164 | 1173 | 10 | VDLGDISGIN | 1e-06 | 94 |
| HLA-B*07:02 | 1 | 1164 | 1173 | 10 | VDLGDISGIN | 1e-06 | 96 |
| HLA-B*35:01 | 1 | 1164 | 1173 | 10 | VDLGDISGIN | 1e-06 | 87 |
| HLA-A*11:01 | 1 | 1165 | 1173 | 9 | DLGDISGIN | 1e-06 | 88 |
| HLA-A*23:01 | 1 | 1165 | 1173 | 9 | DLGDISGIN | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1165 | 1173 | 9 | DLGDISGIN | 1e-06 | 88 |
| HLA-A*31:01 | 1 | 1165 | 1173 | 9 | DLGDISGIN | 1e-06 | 97 |
| HLA-A*32:01 | 1 | 1165 | 1173 | 9 | DLGDISGIN | 1e-06 | 86 |
| HLA-A*32:01 | 1 | 1166 | 1175 | 10 | LGDISGINAS | 1e-06 | 86 |
| HLA-A*23:01 | 1 | 1169 | 1178 | 10 | ISGINASVVN | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1169 | 1178 | 10 | ISGINASVVN | 1e-06 | 88 |
| HLA-A*33:01 | 1 | 1169 | 1178 | 10 | ISGINASVVN | 1e-06 | 98 |
| HLA-B*44:03 | 1 | 1169 | 1178 | 10 | ISGINASVVN | 1e-06 | 91 |
| HLA-A*23:01 | 1 | 1171 | 1180 | 10 | GINASVVNIQ | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1171 | 1180 | 10 | GINASVVNIQ | 1e-06 | 88 |
| HLA-B*40:01 | 1 | 1173 | 1182 | 10 | NASVVNIQKE | 1e-06 | 81 |
| HLA-A*23:01 | 1 | 1175 | 1184 | 10 | SVVNIQKEID | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1175 | 1184 | 10 | SVVNIQKEID | 1e-06 | 88 |
| HLA-A*23:01 | 1 | 1176 | 1184 | 9 | VVNIQKEID | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1176 | 1184 | 9 | VVNIQKEID | 1e-06 | 88 |
| HLA-B*40:01 | 1 | 1176 | 1184 | 9 | VVNIQKEID | 1e-06 | 81 |
| HLA-B*40:01 | 1 | 1176 | 1185 | 10 | VVNIQKEIDR | 1e-06 | 81 |
| HLA-B*44:03 | 1 | 1176 | 1184 | 9 | VVNIQKEID | 1e-06 | 91 |
| HLA-A*11:01 | 1 | 1178 | 1187 | 10 | NIQKEIDRLN | 1e-06 | 88 |
| HLA-A*02:01 | 1 | 1180 | 1188 | 9 | QKEIDRLNE | 1e-06 | 95 |
| HLA-A*02:03 | 1 | 1180 | 1188 | 9 | QKEIDRLNE | 1e-06 | 96 |
| HLA-A*23:01 | 1 | 1180 | 1188 | 9 | QKEIDRLNE | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1180 | 1188 | 9 | QKEIDRLNE | 1e-06 | 88 |
| HLA-A*68:02 | 1 | 1180 | 1188 | 9 | QKEIDRLNE | 1e-06 | 94 |
| HLA-A*02:01 | 1 | 1183 | 1192 | 10 | IDRLNEVAKN | 1e-06 | 95 |
| HLA-A*02:03 | 1 | 1183 | 1192 | 10 | IDRLNEVAKN | 1e-06 | 96 |
| HLA-A*02:06 | 1 | 1183 | 1192 | 10 | IDRLNEVAKN | 1e-06 | 97 |
| HLA-A*24:02 | 1 | 1183 | 1192 | 10 | IDRLNEVAKN | 1e-06 | 88 |
| HLA-A*68:02 | 1 | 1183 | 1192 | 10 | IDRLNEVAKN | 1e-06 | 94 |
| HLA-B*35:01 | 1 | 1183 | 1192 | 10 | IDRLNEVAKN | 1e-06 | 87 |
| HLA-B*40:01 | 1 | 1183 | 1192 | 10 | IDRLNEVAKN | 1e-06 | 81 |
| HLA-B*53:01 | 1 | 1183 | 1192 | 10 | IDRLNEVAKN | 1e-06 | 89 |
| HLA-A*02:01 | 1 | 1184 | 1192 | 9 | DRLNEVAKN | 1e-06 | 95 |
| HLA-A*02:03 | 1 | 1184 | 1192 | 9 | DRLNEVAKN | 1e-06 | 96 |
| HLA-A*11:01 | 1 | 1184 | 1192 | 9 | DRLNEVAKN | 1e-06 | 88 |
| HLA-A*32:01 | 1 | 1184 | 1192 | 9 | DRLNEVAKN | 1e-06 | 86 |
| HLA-A*02:06 | 1 | 1186 | 1194 | 9 | LNEVAKNLN | 1e-06 | 97 |
| HLA-A*11:01 | 1 | 1186 | 1194 | 9 | LNEVAKNLN | 1e-06 | 88 |
| HLA-A*23:01 | 1 | 1186 | 1194 | 9 | LNEVAKNLN | 1e-06 | 90 |
| HLA-A*23:01 | 1 | 1186 | 1195 | 10 | LNEVAKNLNE | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1186 | 1195 | 10 | LNEVAKNLNE | 1e-06 | 88 |
| HLA-A*26:01 | 1 | 1186 | 1194 | 9 | LNEVAKNLN | 1e-06 | 94 |
| HLA-A*32:01 | 1 | 1186 | 1195 | 10 | LNEVAKNLNE | 1e-06 | 86 |
| HLA-A*68:01 | 1 | 1186 | 1194 | 9 | LNEVAKNLN | 1e-06 | 94 |
| HLA-A*68:02 | 1 | 1186 | 1194 | 9 | LNEVAKNLN | 1e-06 | 94 |
| HLA-B*07:02 | 1 | 1186 | 1194 | 9 | LNEVAKNLN | 1e-06 | 96 |
| HLA-B*15:01 | 1 | 1186 | 1194 | 9 | LNEVAKNLN | 1e-06 | 95 |
| HLA-B*35:01 | 1 | 1186 | 1194 | 9 | LNEVAKNLN | 1e-06 | 87 |
| HLA-B*35:01 | 1 | 1186 | 1195 | 10 | LNEVAKNLNE | 1e-06 | 87 |
| HLA-A*02:01 | 1 | 1190 | 1199 | 10 | AKNLNESLID | 1e-06 | 95 |
| HLA-A*02:03 | 1 | 1190 | 1199 | 10 | AKNLNESLID | 1e-06 | 96 |
| HLA-A*02:06 | 1 | 1190 | 1199 | 10 | AKNLNESLID | 1e-06 | 97 |
| HLA-A*03:01 | 1 | 1190 | 1199 | 10 | AKNLNESLID | 1e-06 | 96 |
| HLA-A*23:01 | 1 | 1190 | 1199 | 10 | AKNLNESLID | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1190 | 1199 | 10 | AKNLNESLID | 1e-06 | 88 |

| | | | | | | |
|-------------|---|------|------|----|------------------|----|
| HLA-A*26:01 | 1 | 1190 | 1199 | 10 | AKNLNESLID 1e-06 | 94 |
| HLA-A*33:01 | 1 | 1190 | 1199 | 10 | AKNLNESLID 1e-06 | 98 |
| HLA-A*68:02 | 1 | 1190 | 1199 | 10 | AKNLNESLID 1e-06 | 94 |
| HLA-B*07:02 | 1 | 1190 | 1199 | 10 | AKNLNESLID 1e-06 | 96 |
| HLA-B*15:01 | 1 | 1190 | 1199 | 10 | AKNLNESLID 1e-06 | 95 |
| HLA-B*53:01 | 1 | 1190 | 1199 | 10 | AKNLNESLID 1e-06 | 89 |
| HLA-A*02:03 | 1 | 1191 | 1199 | 9 | KNL NESLID 1e-06 | 96 |
| HLA-A*11:01 | 1 | 1191 | 1199 | 9 | KNL NESLID 1e-06 | 88 |
| HLA-A*24:02 | 1 | 1191 | 1199 | 9 | KNL NESLID 1e-06 | 88 |
| HLA-A*26:01 | 1 | 1191 | 1199 | 9 | KNL NESLID 1e-06 | 94 |
| HLA-A*68:01 | 1 | 1191 | 1199 | 9 | KNL NESLID 1e-06 | 94 |
| HLA-B*07:02 | 1 | 1191 | 1199 | 9 | KNL NESLID 1e-06 | 96 |
| HLA-B*15:01 | 1 | 1191 | 1199 | 9 | KNL NESLID 1e-06 | 95 |
| HLA-B*35:01 | 1 | 1191 | 1199 | 9 | KNL NESLID 1e-06 | 87 |
| HLA-B*40:01 | 1 | 1191 | 1199 | 9 | KNL NESLID 1e-06 | 81 |
| HLA-B*53:01 | 1 | 1191 | 1199 | 9 | KNL NESLID 1e-06 | 89 |
| HLA-A*02:03 | 1 | 1193 | 1201 | 9 | LNESLIDLQ 1e-06 | 96 |
| HLA-A*24:02 | 1 | 1193 | 1202 | 10 | LNESLIDLQE 1e-06 | 88 |
| HLA-A*32:01 | 1 | 1193 | 1202 | 10 | LNESLIDLQE 1e-06 | 86 |
| HLA-B*40:01 | 1 | 1202 | 1211 | 10 | ELGKYEQYIK 1e-06 | 81 |
| HLA-A*11:01 | 1 | 1210 | 1219 | 10 | IKWPWYIWLG 1e-06 | 88 |
| HLA-B*07:02 | 1 | 1210 | 1219 | 10 | IKWPWYIWLG 1e-06 | 96 |
| HLA-B*15:01 | 1 | 1210 | 1219 | 10 | IKWPWYIWLG 1e-06 | 95 |
| HLA-B*35:01 | 1 | 1210 | 1219 | 10 | IKWPWYIWLG 1e-06 | 87 |
| HLA-B*40:01 | 1 | 1210 | 1219 | 10 | IKWPWYIWLG 1e-06 | 81 |
| HLA-B*40:01 | 1 | 1211 | 1219 | 9 | KWPWYIWLG 1e-06 | 81 |
| HLA-A*11:01 | 1 | 1213 | 1222 | 10 | PWYIWLGFIA 1e-06 | 88 |
| HLA-A*32:01 | 1 | 1213 | 1222 | 10 | PWYIWLGFIA 1e-06 | 86 |
| HLA-B*15:01 | 1 | 1213 | 1222 | 10 | PWYIWLGFIA 1e-06 | 95 |
| HLA-B*44:02 | 1 | 1213 | 1222 | 10 | PWYIWLGFIA 1e-06 | 94 |
| HLA-B*44:03 | 1 | 1213 | 1221 | 9 | PWYIWLGFI 1e-06 | 91 |
| HLA-B*44:03 | 1 | 1213 | 1222 | 10 | PWYIWLGFIA 1e-06 | 91 |
| HLA-B*58:01 | 1 | 1213 | 1222 | 10 | PWYIWLGFIA 1e-06 | 98 |
| HLA-A*03:01 | 1 | 1214 | 1223 | 10 | WYIWLGFIA 1e-06 | 96 |
| HLA-A*11:01 | 1 | 1214 | 1223 | 10 | WYIWLGFIA 1e-06 | 88 |
| HLA-A*26:01 | 1 | 1214 | 1223 | 10 | WYIWLGFIA 1e-06 | 94 |
| HLA-B*35:01 | 1 | 1214 | 1223 | 10 | WYIWLGFIA 1e-06 | 87 |
| HLA-B*44:03 | 1 | 1214 | 1223 | 10 | WYIWLGFIA 1e-06 | 91 |
| HLA-B*53:01 | 1 | 1214 | 1223 | 10 | WYIWLGFIA 1e-06 | 89 |
| HLA-B*35:01 | 1 | 1216 | 1225 | 10 | IWLGFIA 1e-06 | 87 |
| HLA-A*24:02 | 1 | 1217 | 1226 | 10 | WLGFIAGLIA 1e-06 | 88 |
| HLA-B*44:02 | 1 | 1217 | 1226 | 10 | WLGFIAGLIA 1e-06 | 94 |
| HLA-B*44:03 | 1 | 1217 | 1226 | 10 | WLGFIAGLIA 1e-06 | 91 |
| HLA-A*24:02 | 1 | 1222 | 1231 | 10 | AGLIAIVMVT 1e-06 | 88 |
| HLA-B*35:01 | 1 | 1222 | 1231 | 10 | AGLIAIVMVT 1e-06 | 87 |
| HLA-B*53:01 | 1 | 1222 | 1231 | 10 | AGLIAIVMVT 1e-06 | 89 |
| HLA-B*35:01 | 1 | 1226 | 1235 | 10 | AIVMVTIMLC 1e-06 | 87 |
| HLA-B*40:01 | 1 | 1226 | 1235 | 10 | AIVMVTIMLC 1e-06 | 81 |
| HLA-B*44:03 | 1 | 1226 | 1235 | 10 | AIVMVTIMLC 1e-06 | 91 |
| HLA-B*35:01 | 1 | 1227 | 1236 | 10 | IVMVTIMLCC 1e-06 | 87 |
| HLA-B*44:02 | 1 | 1227 | 1236 | 10 | IVMVTIMLCC 1e-06 | 94 |
| HLA-A*32:01 | 1 | 1229 | 1238 | 10 | MVTIMLCCMT 1e-06 | 86 |
| HLA-B*07:02 | 1 | 1229 | 1238 | 10 | MVTIMLCCMT 1e-06 | 96 |
| HLA-B*35:01 | 1 | 1229 | 1238 | 10 | MVTIMLCCMT 1e-06 | 87 |
| HLA-B*53:01 | 1 | 1229 | 1238 | 10 | MVTIMLCCMT 1e-06 | 89 |
| HLA-A*23:01 | 1 | 1230 | 1239 | 10 | VTIMLCCMTS 1e-06 | 90 |
| HLA-B*07:02 | 1 | 1230 | 1239 | 10 | VTIMLCCMTS 1e-06 | 96 |
| HLA-B*35:01 | 1 | 1230 | 1239 | 10 | VTIMLCCMTS 1e-06 | 87 |
| HLA-B*44:02 | 1 | 1230 | 1238 | 9 | VTIMLCCMT 1e-06 | 94 |
| HLA-B*44:02 | 1 | 1230 | 1239 | 10 | VTIMLCCMTS 1e-06 | 94 |
| HLA-B*44:03 | 1 | 1230 | 1238 | 9 | VTIMLCCMT 1e-06 | 91 |
| HLA-A*23:01 | 1 | 1231 | 1240 | 10 | TIMLCCMTSC 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1231 | 1239 | 9 | TIMLCCMTS 1e-06 | 88 |
| HLA-A*24:02 | 1 | 1231 | 1240 | 10 | TIMLCCMTSC 1e-06 | 88 |
| HLA-B*35:01 | 1 | 1231 | 1240 | 10 | TIMLCCMTSC 1e-06 | 87 |
| HLA-B*44:02 | 1 | 1231 | 1240 | 10 | TIMLCCMTSC 1e-06 | 94 |

| | | | | | | | |
|-------------|---|------|------|----|------------|-------|----|
| HLA-B*44:03 | 1 | 1231 | 1239 | 9 | TIMLCCMTS | 1e-06 | 91 |
| HLA-A*11:01 | 1 | 1232 | 1241 | 10 | IMLCCMTSCC | 1e-06 | 88 |
| HLA-A*23:01 | 1 | 1232 | 1241 | 10 | IMLCCMTSCC | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1232 | 1241 | 10 | IMLCCMTSCC | 1e-06 | 88 |
| HLA-A*26:01 | 1 | 1232 | 1240 | 9 | IMLCCMTSC | 1e-06 | 94 |
| HLA-A*68:01 | 1 | 1232 | 1240 | 9 | IMLCCMTSC | 1e-06 | 94 |
| HLA-A*68:02 | 1 | 1232 | 1241 | 10 | IMLCCMTSCC | 1e-06 | 94 |
| HLA-B*07:02 | 1 | 1232 | 1241 | 10 | IMLCCMTSCC | 1e-06 | 96 |
| HLA-B*44:02 | 1 | 1232 | 1240 | 9 | IMLCCMTSC | 1e-06 | 94 |
| HLA-A*11:01 | 1 | 1233 | 1242 | 10 | MLCCMTSCCS | 1e-06 | 88 |
| HLA-A*26:01 | 1 | 1233 | 1242 | 10 | MLCCMTSCCS | 1e-06 | 94 |
| HLA-A*32:01 | 1 | 1233 | 1242 | 10 | MLCCMTSCCS | 1e-06 | 86 |
| HLA-B*07:02 | 1 | 1233 | 1242 | 10 | MLCCMTSCCS | 1e-06 | 96 |
| HLA-B*40:01 | 1 | 1233 | 1241 | 9 | MLCCMTSCC | 1e-06 | 81 |
| HLA-B*44:02 | 1 | 1233 | 1241 | 9 | MLCCMTSCC | 1e-06 | 94 |
| HLA-B*51:01 | 1 | 1233 | 1242 | 10 | MLCCMTSCCS | 1e-06 | 99 |
| HLA-A*02:01 | 1 | 1234 | 1242 | 9 | LCCMTSCCS | 1e-06 | 95 |
| HLA-A*02:03 | 1 | 1234 | 1242 | 9 | LCCMTSCCS | 1e-06 | 96 |
| HLA-A*03:01 | 1 | 1234 | 1242 | 9 | LCCMTSCCS | 1e-06 | 96 |
| HLA-A*03:01 | 1 | 1234 | 1243 | 10 | LCCMTSCCSC | 1e-06 | 96 |
| HLA-A*11:01 | 1 | 1234 | 1242 | 9 | LCCMTSCCS | 1e-06 | 88 |
| HLA-A*31:01 | 1 | 1234 | 1243 | 10 | LCCMTSCCSC | 1e-06 | 97 |
| HLA-A*33:01 | 1 | 1234 | 1242 | 9 | LCCMTSCCS | 1e-06 | 98 |
| HLA-A*33:01 | 1 | 1234 | 1243 | 10 | LCCMTSCCSC | 1e-06 | 98 |
| HLA-A*68:01 | 1 | 1234 | 1242 | 9 | LCCMTSCCS | 1e-06 | 94 |
| HLA-A*68:02 | 1 | 1234 | 1243 | 10 | LCCMTSCCSC | 1e-06 | 94 |
| HLA-B*07:02 | 1 | 1234 | 1243 | 10 | LCCMTSCCSC | 1e-06 | 96 |
| HLA-B*15:01 | 1 | 1234 | 1242 | 9 | LCCMTSCCS | 1e-06 | 95 |
| HLA-B*15:01 | 1 | 1234 | 1243 | 10 | LCCMTSCCSC | 1e-06 | 95 |
| HLA-B*35:01 | 1 | 1234 | 1242 | 9 | LCCMTSCCS | 1e-06 | 87 |
| HLA-B*53:01 | 1 | 1234 | 1242 | 9 | LCCMTSCCS | 1e-06 | 89 |
| HLA-A*11:01 | 1 | 1235 | 1243 | 9 | CCMTSCCSC | 1e-06 | 88 |
| HLA-A*11:01 | 1 | 1235 | 1244 | 10 | CCMTSCCSC | 1e-06 | 88 |
| HLA-A*23:01 | 1 | 1235 | 1243 | 9 | CCMTSCCSC | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1235 | 1243 | 9 | CCMTSCCSC | 1e-06 | 88 |
| HLA-A*26:01 | 1 | 1235 | 1244 | 10 | CCMTSCCSC | 1e-06 | 94 |
| HLA-B*15:01 | 1 | 1235 | 1243 | 9 | CCMTSCCSC | 1e-06 | 95 |
| HLA-B*40:01 | 1 | 1235 | 1244 | 10 | CCMTSCCSC | 1e-06 | 81 |
| HLA-B*44:02 | 1 | 1235 | 1243 | 9 | CCMTSCCSC | 1e-06 | 94 |
| HLA-B*44:02 | 1 | 1235 | 1244 | 10 | CCMTSCCSC | 1e-06 | 94 |
| HLA-B*44:03 | 1 | 1235 | 1244 | 10 | CCMTSCCSC | 1e-06 | 91 |
| HLA-B*53:01 | 1 | 1235 | 1243 | 9 | CCMTSCCSC | 1e-06 | 89 |
| HLA-A*23:01 | 1 | 1236 | 1245 | 10 | CMTSCCCLK | 1e-06 | 90 |
| HLA-B*07:02 | 1 | 1236 | 1245 | 10 | CMTSCCCLK | 1e-06 | 96 |
| HLA-B*44:02 | 1 | 1236 | 1245 | 10 | CMTSCCCLK | 1e-06 | 94 |
| HLA-B*44:03 | 1 | 1236 | 1245 | 10 | CMTSCCCLK | 1e-06 | 91 |
| HLA-B*51:01 | 1 | 1236 | 1245 | 10 | CMTSCCCLK | 1e-06 | 99 |
| HLA-B*07:02 | 1 | 1237 | 1246 | 10 | MTSCCCLKG | 1e-06 | 96 |
| HLA-B*40:01 | 1 | 1237 | 1245 | 9 | MTSCCCLK | 1e-06 | 81 |
| HLA-B*44:02 | 1 | 1237 | 1246 | 10 | MTSCCCLKG | 1e-06 | 94 |
| HLA-B*53:01 | 1 | 1237 | 1246 | 10 | MTSCCCLKG | 1e-06 | 89 |
| HLA-A*23:01 | 1 | 1238 | 1246 | 9 | TSCCCLKG | 1e-06 | 90 |
| HLA-A*26:01 | 1 | 1238 | 1247 | 10 | TSCCCLKG | 1e-06 | 94 |
| HLA-A*32:01 | 1 | 1238 | 1247 | 10 | TSCCCLKG | 1e-06 | 86 |
| HLA-B*07:02 | 1 | 1238 | 1246 | 9 | TSCCCLKG | 1e-06 | 96 |
| HLA-B*07:02 | 1 | 1238 | 1247 | 10 | TSCCCLKG | 1e-06 | 96 |
| HLA-B*15:01 | 1 | 1238 | 1247 | 10 | TSCCCLKG | 1e-06 | 95 |
| HLA-B*35:01 | 1 | 1238 | 1246 | 9 | TSCCCLKG | 1e-06 | 87 |
| HLA-B*44:02 | 1 | 1238 | 1246 | 9 | TSCCCLKG | 1e-06 | 94 |
| HLA-B*44:02 | 1 | 1238 | 1247 | 10 | TSCCCLKG | 1e-06 | 94 |
| HLA-A*02:01 | 1 | 1239 | 1248 | 10 | SCCCLKGCC | 1e-06 | 95 |
| HLA-A*03:01 | 1 | 1239 | 1248 | 10 | SCCCLKGCC | 1e-06 | 96 |
| HLA-A*23:01 | 1 | 1239 | 1247 | 9 | SCCCLKGC | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1239 | 1247 | 9 | SCCCLKGC | 1e-06 | 88 |
| HLA-A*26:01 | 1 | 1239 | 1247 | 9 | SCCCLKGC | 1e-06 | 94 |
| HLA-A*68:01 | 1 | 1239 | 1248 | 10 | SCCCLKGCC | 1e-06 | 94 |

| | | | | | | |
|-------------|---|------|------|----|------------------|-----|
| HLA-A*68:02 | 1 | 1239 | 1248 | 10 | SCCSCLKGCC 1e-06 | 94 |
| HLA-B*07:02 | 1 | 1239 | 1248 | 10 | SCCSCLKGCC 1e-06 | 96 |
| HLA-B*35:01 | 1 | 1239 | 1247 | 9 | SCCSCLKGC 1e-06 | 87 |
| HLA-B*40:01 | 1 | 1239 | 1247 | 9 | SCCSCLKGC 1e-06 | 81 |
| HLA-B*44:02 | 1 | 1239 | 1248 | 10 | SCCSCLKGCC 1e-06 | 94 |
| HLA-B*51:01 | 1 | 1239 | 1248 | 10 | SCCSCLKGCC 1e-06 | 99 |
| HLA-A*02:01 | 1 | 1240 | 1248 | 9 | CCSCLKGCC 1e-06 | 95 |
| HLA-A*02:03 | 1 | 1240 | 1248 | 9 | CCSCLKGCC 1e-06 | 96 |
| HLA-A*02:06 | 1 | 1240 | 1248 | 9 | CCSCLKGCC 1e-06 | 97 |
| HLA-A*02:06 | 1 | 1240 | 1249 | 10 | CCSCLKGCCS 1e-06 | 97 |
| HLA-A*03:01 | 1 | 1240 | 1249 | 10 | CCSCLKGCCS 1e-06 | 96 |
| HLA-A*31:01 | 1 | 1240 | 1249 | 10 | CCSCLKGCCS 1e-06 | 97 |
| HLA-A*33:01 | 1 | 1240 | 1248 | 9 | CCSCLKGCC 1e-06 | 98 |
| HLA-A*33:01 | 1 | 1240 | 1249 | 10 | CCSCLKGCCS 1e-06 | 98 |
| HLA-A*68:01 | 1 | 1240 | 1248 | 9 | CCSCLKGCC 1e-06 | 94 |
| HLA-A*68:01 | 1 | 1240 | 1249 | 10 | CCSCLKGCCS 1e-06 | 94 |
| HLA-B*07:02 | 1 | 1240 | 1248 | 9 | CCSCLKGCC 1e-06 | 96 |
| HLA-B*15:01 | 1 | 1240 | 1249 | 10 | CCSCLKGCCS 1e-06 | 95 |
| HLA-A*23:01 | 1 | 1241 | 1250 | 10 | CSCLKGCCSC 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1241 | 1250 | 10 | CSCLKGCCSC 1e-06 | 88 |
| HLA-A*26:01 | 1 | 1241 | 1249 | 9 | CSCLKGCCS 1e-06 | 94 |
| HLA-A*26:01 | 1 | 1241 | 1250 | 10 | CSCLKGCCSC 1e-06 | 94 |
| HLA-A*32:01 | 1 | 1241 | 1249 | 9 | CSCLKGCCS 1e-06 | 86 |
| HLA-B*44:02 | 1 | 1241 | 1249 | 9 | CSCLKGCCS 1e-06 | 94 |
| HLA-A*03:01 | 1 | 1242 | 1251 | 10 | SCLKGCCSCG 1e-06 | 96 |
| HLA-A*26:01 | 1 | 1242 | 1250 | 9 | SCLKGCCSC 1e-06 | 94 |
| HLA-A*31:01 | 1 | 1242 | 1251 | 10 | SCLKGCCSCG 1e-06 | 97 |
| HLA-A*33:01 | 1 | 1242 | 1251 | 10 | SCLKGCCSCG 1e-06 | 98 |
| HLA-A*68:02 | 1 | 1242 | 1251 | 10 | SCLKGCCSCG 1e-06 | 94 |
| HLA-B*07:02 | 1 | 1242 | 1251 | 10 | SCLKGCCSCG 1e-06 | 96 |
| HLA-B*44:02 | 1 | 1242 | 1251 | 10 | SCLKGCCSCG 1e-06 | 94 |
| HLA-B*51:01 | 1 | 1242 | 1251 | 10 | SCLKGCCSCG 1e-06 | 99 |
| HLA-A*23:01 | 1 | 1243 | 1251 | 9 | CLKGCCSCG 1e-06 | 90 |
| HLA-A*26:01 | 1 | 1243 | 1251 | 9 | CLKGCCSCG 1e-06 | 94 |
| HLA-A*68:01 | 1 | 1243 | 1251 | 9 | CLKGCCSCG 1e-06 | 94 |
| HLA-A*68:02 | 1 | 1243 | 1251 | 9 | CLKGCCSCG 1e-06 | 94 |
| HLA-A*68:02 | 1 | 1243 | 1252 | 10 | CLKGCCSCGS 1e-06 | 94 |
| HLA-B*07:02 | 1 | 1243 | 1252 | 10 | CLKGCCSCGS 1e-06 | 96 |
| HLA-B*57:01 | 1 | 1243 | 1252 | 10 | CLKGCCSCGS 1e-06 | 100 |
| HLA-B*58:01 | 1 | 1243 | 1252 | 10 | CLKGCCSCGS 1e-06 | 98 |
| HLA-A*01:01 | 1 | 1244 | 1253 | 10 | LKGCCSCGSC 1e-06 | 100 |
| HLA-A*02:01 | 1 | 1244 | 1253 | 10 | LKGCCSCGSC 1e-06 | 95 |
| HLA-A*02:06 | 1 | 1244 | 1253 | 10 | LKGCCSCGSC 1e-06 | 97 |
| HLA-A*68:02 | 1 | 1244 | 1253 | 10 | LKGCCSCGSC 1e-06 | 94 |
| HLA-B*07:02 | 1 | 1244 | 1252 | 9 | LKGCCSCGS 1e-06 | 96 |
| HLA-B*51:01 | 1 | 1244 | 1253 | 10 | LKGCCSCGSC 1e-06 | 99 |
| HLA-B*58:01 | 1 | 1244 | 1253 | 10 | LKGCCSCGSC 1e-06 | 98 |
| HLA-A*02:01 | 1 | 1245 | 1254 | 10 | KGCCSCGSCC 1e-06 | 95 |
| HLA-A*02:03 | 1 | 1245 | 1254 | 10 | KGCCSCGSCC 1e-06 | 96 |
| HLA-A*02:06 | 1 | 1245 | 1254 | 10 | KGCCSCGSCC 1e-06 | 97 |
| HLA-A*23:01 | 1 | 1245 | 1253 | 9 | KGCCSCGSC 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1245 | 1253 | 9 | KGCCSCGSC 1e-06 | 88 |
| HLA-A*32:01 | 1 | 1245 | 1253 | 9 | KGCCSCGSC 1e-06 | 86 |
| HLA-A*32:01 | 1 | 1245 | 1254 | 10 | KGCCSCGSCC 1e-06 | 86 |
| HLA-A*33:01 | 1 | 1245 | 1254 | 10 | KGCCSCGSCC 1e-06 | 98 |
| HLA-A*68:01 | 1 | 1245 | 1253 | 9 | KGCCSCGSC 1e-06 | 94 |
| HLA-A*68:02 | 1 | 1245 | 1254 | 10 | KGCCSCGSCC 1e-06 | 94 |
| HLA-B*07:02 | 1 | 1245 | 1254 | 10 | KGCCSCGSCC 1e-06 | 96 |
| HLA-B*08:01 | 1 | 1245 | 1254 | 10 | KGCCSCGSCC 1e-06 | 100 |
| HLA-B*15:01 | 1 | 1245 | 1254 | 10 | KGCCSCGSCC 1e-06 | 95 |
| HLA-B*44:02 | 1 | 1245 | 1253 | 9 | KGCCSCGSC 1e-06 | 94 |
| HLA-B*51:01 | 1 | 1245 | 1254 | 10 | KGCCSCGSCC 1e-06 | 99 |
| HLA-A*02:03 | 1 | 1246 | 1255 | 10 | GCCSCGSCK 1e-06 | 96 |
| HLA-A*02:06 | 1 | 1246 | 1255 | 10 | GCCSCGSCK 1e-06 | 97 |
| HLA-A*11:01 | 1 | 1246 | 1254 | 9 | GCCSCGSCC 1e-06 | 88 |
| HLA-A*32:01 | 1 | 1246 | 1254 | 9 | GCCSCGSCC 1e-06 | 86 |

| | | | | | | | |
|-------------|---|------|------|----|------------|-------|-----|
| HLA-A*68:01 | 1 | 1246 | 1254 | 9 | GCCSCGSCC | 1e-06 | 94 |
| HLA-A*68:02 | 1 | 1246 | 1254 | 9 | GCCSCGSCC | 1e-06 | 94 |
| HLA-A*68:02 | 1 | 1246 | 1255 | 10 | GCCSCGSCCK | 1e-06 | 94 |
| HLA-B*07:02 | 1 | 1246 | 1254 | 9 | GCCSCGSCC | 1e-06 | 96 |
| HLA-B*07:02 | 1 | 1246 | 1255 | 10 | GCCSCGSCCK | 1e-06 | 96 |
| HLA-B*08:01 | 1 | 1246 | 1255 | 10 | GCCSCGSCCK | 1e-06 | 100 |
| HLA-B*35:01 | 1 | 1246 | 1254 | 9 | GCCSCGSCC | 1e-06 | 87 |
| HLA-B*44:02 | 1 | 1246 | 1254 | 9 | GCCSCGSCC | 1e-06 | 94 |
| HLA-B*44:03 | 1 | 1246 | 1254 | 9 | GCCSCGSCC | 1e-06 | 91 |
| HLA-B*44:03 | 1 | 1246 | 1255 | 10 | GCCSCGSCCK | 1e-06 | 91 |
| HLA-B*51:01 | 1 | 1246 | 1255 | 10 | GCCSCGSCCK | 1e-06 | 99 |
| HLA-B*53:01 | 1 | 1246 | 1254 | 9 | GCCSCGSCC | 1e-06 | 89 |
| HLA-A*02:01 | 1 | 1247 | 1255 | 9 | CCSCGSCCK | 1e-06 | 95 |
| HLA-A*02:03 | 1 | 1247 | 1255 | 9 | CCSCGSCCK | 1e-06 | 96 |
| HLA-A*68:02 | 1 | 1247 | 1255 | 9 | CCSCGSCCK | 1e-06 | 94 |
| HLA-B*07:02 | 1 | 1247 | 1255 | 9 | CCSCGSCCK | 1e-06 | 96 |
| HLA-B*15:01 | 1 | 1247 | 1255 | 9 | CCSCGSCCK | 1e-06 | 95 |
| HLA-B*40:01 | 1 | 1247 | 1256 | 10 | CCSCGSCCKF | 1e-06 | 81 |
| HLA-B*44:03 | 1 | 1247 | 1255 | 9 | CCSCGSCCK | 1e-06 | 91 |
| HLA-A*02:01 | 1 | 1248 | 1257 | 10 | CSCGSCCKFD | 1e-06 | 95 |
| HLA-A*02:06 | 1 | 1248 | 1257 | 10 | CSCGSCCKFD | 1e-06 | 97 |
| HLA-A*03:01 | 1 | 1248 | 1257 | 10 | CSCGSCCKFD | 1e-06 | 96 |
| HLA-A*23:01 | 1 | 1248 | 1257 | 10 | CSCGSCCKFD | 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1248 | 1257 | 10 | CSCGSCCKFD | 1e-06 | 88 |
| HLA-A*26:01 | 1 | 1248 | 1257 | 10 | CSCGSCCKFD | 1e-06 | 94 |
| HLA-A*31:01 | 1 | 1248 | 1257 | 10 | CSCGSCCKFD | 1e-06 | 97 |
| HLA-B*51:01 | 1 | 1248 | 1257 | 10 | CSCGSCCKFD | 1e-06 | 99 |
| HLA-B*53:01 | 1 | 1248 | 1257 | 10 | CSCGSCCKFD | 1e-06 | 89 |
| HLA-A*01:01 | 1 | 1249 | 1257 | 9 | SCGSCCKFD | 1e-06 | 100 |
| HLA-A*30:02 | 1 | 1249 | 1257 | 9 | SCGSCCKFD | 1e-06 | 100 |
| HLA-A*30:02 | 1 | 1249 | 1258 | 10 | SCGSCCKFDE | 1e-06 | 100 |
| HLA-A*31:01 | 1 | 1249 | 1258 | 10 | SCGSCCKFDE | 1e-06 | 97 |
| HLA-A*33:01 | 1 | 1249 | 1258 | 10 | SCGSCCKFDE | 1e-06 | 98 |
| HLA-B*58:01 | 1 | 1249 | 1258 | 10 | SCGSCCKFDE | 1e-06 | 98 |
| HLA-A*01:01 | 1 | 1250 | 1258 | 9 | CGSCCKFDE | 1e-06 | 100 |
| HLA-A*01:01 | 1 | 1250 | 1259 | 10 | CGSCCKFDED | 1e-06 | 100 |
| HLA-A*02:06 | 1 | 1250 | 1258 | 9 | CGSCCKFDE | 1e-06 | 97 |
| HLA-A*30:01 | 1 | 1250 | 1259 | 10 | CGSCCKFDED | 1e-06 | 100 |
| HLA-A*30:02 | 1 | 1250 | 1258 | 9 | CGSCCKFDE | 1e-06 | 100 |
| HLA-A*31:01 | 1 | 1250 | 1258 | 9 | CGSCCKFDE | 1e-06 | 97 |
| HLA-A*33:01 | 1 | 1250 | 1258 | 9 | CGSCCKFDE | 1e-06 | 98 |
| HLA-B*57:01 | 1 | 1250 | 1258 | 9 | CGSCCKFDE | 1e-06 | 100 |
| HLA-B*57:01 | 1 | 1250 | 1259 | 10 | CGSCCKFDED | 1e-06 | 100 |
| HLA-B*58:01 | 1 | 1250 | 1258 | 9 | CGSCCKFDE | 1e-06 | 98 |
| HLA-B*58:01 | 1 | 1250 | 1259 | 10 | CGSCCKFDED | 1e-06 | 98 |
| HLA-A*01:01 | 1 | 1251 | 1260 | 10 | GSCCKFDEDD | 1e-06 | 100 |
| HLA-A*02:01 | 1 | 1251 | 1259 | 9 | GSCCKFDED | 1e-06 | 95 |
| HLA-A*02:06 | 1 | 1251 | 1259 | 9 | GSCCKFDED | 1e-06 | 97 |
| HLA-A*11:01 | 1 | 1251 | 1259 | 9 | GSCCKFDED | 1e-06 | 88 |
| HLA-A*30:01 | 1 | 1251 | 1260 | 10 | GSCCKFDEDD | 1e-06 | 100 |
| HLA-A*33:01 | 1 | 1251 | 1259 | 9 | GSCCKFDED | 1e-06 | 98 |
| HLA-B*51:01 | 1 | 1251 | 1259 | 9 | GSCCKFDED | 1e-06 | 99 |
| HLA-B*53:01 | 1 | 1251 | 1259 | 9 | GSCCKFDED | 1e-06 | 89 |
| HLA-A*01:01 | 1 | 1252 | 1260 | 9 | SCCKFDEDD | 1e-06 | 100 |
| HLA-A*02:01 | 1 | 1252 | 1261 | 10 | SCCKFDEDD | 1e-06 | 95 |
| HLA-A*02:06 | 1 | 1252 | 1261 | 10 | SCCKFDEDD | 1e-06 | 97 |
| HLA-A*30:02 | 1 | 1252 | 1260 | 9 | SCCKFDEDD | 1e-06 | 100 |
| HLA-A*30:02 | 1 | 1252 | 1261 | 10 | SCCKFDEDD | 1e-06 | 100 |
| HLA-A*68:02 | 1 | 1252 | 1261 | 10 | SCCKFDEDD | 1e-06 | 94 |
| HLA-B*08:01 | 1 | 1252 | 1261 | 10 | SCCKFDEDD | 1e-06 | 100 |
| HLA-B*44:02 | 1 | 1252 | 1261 | 10 | SCCKFDEDD | 1e-06 | 94 |
| HLA-A*02:06 | 1 | 1253 | 1261 | 9 | CKFDEDD | 1e-06 | 97 |
| HLA-A*03:01 | 1 | 1253 | 1262 | 10 | CKFDEDDSE | 1e-06 | 96 |
| HLA-A*26:01 | 1 | 1253 | 1262 | 10 | CKFDEDDSE | 1e-06 | 94 |
| HLA-A*31:01 | 1 | 1253 | 1262 | 10 | CKFDEDDSE | 1e-06 | 97 |
| HLA-A*68:02 | 1 | 1253 | 1261 | 9 | CKFDEDD | 1e-06 | 94 |

| | | | | | | |
|-------------|---|------|------|----|-------------------|-----|
| HLA-B*07:02 | 1 | 1253 | 1261 | 9 | CCKFDEDDDS 1e-06 | 96 |
| HLA-B*07:02 | 1 | 1253 | 1262 | 10 | CCKFDEDDSE 1e-06 | 96 |
| HLA-B*08:01 | 1 | 1253 | 1261 | 9 | CCKFDEDDDS 1e-06 | 100 |
| HLA-B*40:01 | 1 | 1253 | 1262 | 10 | CCKFDEDDSE 1e-06 | 81 |
| HLA-B*44:02 | 1 | 1253 | 1261 | 9 | CCKFDEDDDS 1e-06 | 94 |
| HLA-B*51:01 | 1 | 1253 | 1261 | 9 | CCKFDEDDDS 1e-06 | 99 |
| HLA-A*11:01 | 1 | 1254 | 1262 | 9 | CKFDEDDSE 1e-06 | 88 |
| HLA-A*11:01 | 1 | 1254 | 1263 | 10 | CKFDEDDSEP 1e-06 | 88 |
| HLA-A*23:01 | 1 | 1254 | 1262 | 9 | CKFDEDDSE 1e-06 | 90 |
| HLA-A*24:02 | 1 | 1254 | 1262 | 9 | CKFDEDDSE 1e-06 | 88 |
| HLA-A*32:01 | 1 | 1254 | 1262 | 9 | CKFDEDDSE 1e-06 | 86 |
| HLA-A*32:01 | 1 | 1258 | 1267 | 10 | EDDSEPV LKG 1e-06 | 86 |
| HLA-A*32:01 | 1 | 1265 | 1273 | 9 | LKGVKLHYT 1e-06 | 86 |
| HLA-B*40:01 | 1 | 3 | 12 | 10 | VFLVLLPLVS 0.0 | 100 |
| HLA-A*23:01 | 1 | 8 | 17 | 10 | LPLVSSQCVN 0.0 | 100 |
| HLA-A*24:02 | 1 | 8 | 17 | 10 | LPLVSSQCVN 0.0 | 100 |
| HLA-B*40:01 | 1 | 8 | 17 | 10 | LPLVSSQCVN 0.0 | 100 |
| HLA-A*11:01 | 1 | 9 | 17 | 9 | PLVSSQCVN 0.0 | 100 |
| HLA-A*23:01 | 1 | 9 | 17 | 9 | PLVSSQCVN 0.0 | 100 |
| HLA-B*40:01 | 1 | 9 | 17 | 9 | PLVSSQCVN 0.0 | 100 |
| HLA-B*44:03 | 1 | 9 | 17 | 9 | PLVSSQCVN 0.0 | 100 |
| HLA-B*40:01 | 1 | 26 | 35 | 10 | PAYTNSFTRG 0.0 | 100 |
| HLA-B*35:01 | 1 | 31 | 40 | 10 | SFTRGVYYPD 0.0 | 100 |
| HLA-B*40:01 | 1 | 31 | 40 | 10 | SFTRGVYYPD 0.0 | 100 |
| HLA-B*53:01 | 1 | 31 | 40 | 10 | SFTRGVYYPD 0.0 | 100 |
| HLA-B*40:01 | 1 | 32 | 40 | 9 | FTRGVYYPD 0.0 | 100 |
| HLA-A*23:01 | 1 | 72 | 81 | 10 | GTNGTKRFDN 0.0 | 100 |
| HLA-A*24:02 | 1 | 72 | 81 | 10 | GTNGTKRFDN 0.0 | 100 |
| HLA-B*35:01 | 1 | 72 | 81 | 10 | GTNGTKRFDN 0.0 | 100 |
| HLA-B*40:01 | 1 | 72 | 81 | 10 | GTNGTKRFDN 0.0 | 100 |
| HLA-B*51:01 | 1 | 72 | 81 | 10 | GTNGTKRFDN 0.0 | 100 |
| HLA-B*53:01 | 1 | 72 | 81 | 10 | GTNGTKRFDN 0.0 | 100 |
| HLA-A*02:01 | 1 | 73 | 81 | 9 | TNGTKRFDN 0.0 | 100 |
| HLA-A*02:03 | 1 | 73 | 81 | 9 | TNGTKRFDN 0.0 | 100 |
| HLA-A*02:06 | 1 | 73 | 81 | 9 | TNGTKRFDN 0.0 | 100 |
| HLA-A*23:01 | 1 | 73 | 81 | 9 | TNGTKRFDN 0.0 | 100 |
| HLA-A*24:02 | 1 | 73 | 81 | 9 | TNGTKRFDN 0.0 | 100 |
| HLA-A*26:01 | 1 | 73 | 81 | 9 | TNGTKRFDN 0.0 | 100 |
| HLA-A*32:01 | 1 | 73 | 81 | 9 | TNGTKRFDN 0.0 | 100 |
| HLA-A*32:01 | 1 | 73 | 82 | 10 | TNGTKRFDNP 0.0 | 100 |
| HLA-A*68:02 | 1 | 73 | 81 | 9 | TNGTKRFDN 0.0 | 100 |
| HLA-B*15:01 | 1 | 73 | 81 | 9 | TNGTKRFDN 0.0 | 100 |
| HLA-B*15:01 | 1 | 73 | 82 | 10 | TNGTKRFDNP 0.0 | 100 |
| HLA-B*35:01 | 1 | 73 | 81 | 9 | TNGTKRFDN 0.0 | 100 |
| HLA-B*35:01 | 1 | 73 | 82 | 10 | TNGTKRFDNP 0.0 | 100 |
| HLA-B*40:01 | 1 | 73 | 81 | 9 | TNGTKRFDN 0.0 | 100 |
| HLA-B*40:01 | 1 | 73 | 82 | 10 | TNGTKRFDNP 0.0 | 100 |
| HLA-B*51:01 | 1 | 73 | 81 | 9 | TNGTKRFDN 0.0 | 100 |
| HLA-B*53:01 | 1 | 73 | 81 | 9 | TNGTKRFDN 0.0 | 100 |
| HLA-A*26:01 | 1 | 80 | 88 | 9 | DNPVLPFND 0.0 | 100 |
| HLA-A*32:01 | 1 | 80 | 88 | 9 | DNPVLPFND 0.0 | 100 |
| HLA-B*07:02 | 1 | 80 | 88 | 9 | DNPVLPFND 0.0 | 100 |
| HLA-B*15:01 | 1 | 80 | 88 | 9 | DNPVLPFND 0.0 | 100 |
| HLA-B*40:01 | 1 | 80 | 88 | 9 | DNPVLPFND 0.0 | 100 |
| HLA-B*40:01 | 1 | 80 | 89 | 10 | DNPVLPFNDG 0.0 | 100 |
| HLA-B*40:01 | 1 | 85 | 94 | 10 | PFNDGVYFAS 0.0 | 100 |
| HLA-B*40:01 | 1 | 90 | 99 | 10 | VYFASTEKSN 0.0 | 100 |
| HLA-B*40:01 | 1 | 99 | 108 | 10 | NIIRGWIFGT 0.0 | 100 |
| HLA-B*40:01 | 1 | 105 | 114 | 10 | IFGTTLDSKT 0.0 | 100 |
| HLA-B*35:01 | 1 | 113 | 122 | 10 | KTQSL LIVNN 0.0 | 100 |
| HLA-B*40:01 | 1 | 116 | 125 | 10 | SLLIVNNATN 0.0 | 100 |
| HLA-A*23:01 | 1 | 128 | 137 | 10 | IKVCEFQFCN 0.0 | 100 |
| HLA-A*24:02 | 1 | 128 | 137 | 10 | IKVCEFQFCN 0.0 | 100 |
| HLA-A*26:01 | 1 | 128 | 137 | 10 | IKVCEFQFCN 0.0 | 100 |
| HLA-A*68:02 | 1 | 128 | 137 | 10 | IKVCEFQFCN 0.0 | 100 |
| HLA-B*07:02 | 1 | 128 | 137 | 10 | IKVCEFQFCN 0.0 | 100 |

| | | | | | | |
|-------------|---|-----|-----|----|----------------|-----|
| HLA-B*35:01 | 1 | 128 | 137 | 10 | IKVCEFQFCN 0.0 | 100 |
| HLA-B*40:01 | 1 | 128 | 137 | 10 | IKVCEFQFCN 0.0 | 100 |
| HLA-B*44:02 | 1 | 128 | 137 | 10 | IKVCEFQFCN 0.0 | 100 |
| HLA-B*44:03 | 1 | 128 | 137 | 10 | IKVCEFQFCN 0.0 | 100 |
| HLA-B*53:01 | 1 | 128 | 137 | 10 | IKVCEFQFCN 0.0 | 100 |
| HLA-B*07:02 | 1 | 129 | 138 | 10 | KVCEFQFCND 0.0 | 100 |
| HLA-B*35:01 | 1 | 129 | 138 | 10 | KVCEFQFCND 0.0 | 100 |
| HLA-B*40:01 | 1 | 129 | 138 | 10 | KVCEFQFCND 0.0 | 100 |
| HLA-B*44:02 | 1 | 129 | 138 | 10 | KVCEFQFCND 0.0 | 100 |
| HLA-B*44:03 | 1 | 129 | 138 | 10 | KVCEFQFCND 0.0 | 100 |
| HLA-B*53:01 | 1 | 129 | 138 | 10 | KVCEFQFCND 0.0 | 100 |
| HLA-A*02:01 | 1 | 130 | 138 | 9 | VCEFQFCND 0.0 | 100 |
| HLA-A*02:03 | 1 | 130 | 138 | 9 | VCEFQFCND 0.0 | 100 |
| HLA-A*03:01 | 1 | 130 | 138 | 9 | VCEFQFCND 0.0 | 100 |
| HLA-A*11:01 | 1 | 130 | 138 | 9 | VCEFQFCND 0.0 | 100 |
| HLA-A*11:01 | 1 | 130 | 139 | 10 | VCEFQFCNDP 0.0 | 100 |
| HLA-A*24:02 | 1 | 130 | 139 | 10 | VCEFQFCNDP 0.0 | 100 |
| HLA-A*26:01 | 1 | 130 | 138 | 9 | VCEFQFCND 0.0 | 100 |
| HLA-A*32:01 | 1 | 130 | 138 | 9 | VCEFQFCND 0.0 | 100 |
| HLA-A*68:01 | 1 | 130 | 138 | 9 | VCEFQFCND 0.0 | 100 |
| HLA-A*68:02 | 1 | 130 | 138 | 9 | VCEFQFCND 0.0 | 100 |
| HLA-B*07:02 | 1 | 130 | 138 | 9 | VCEFQFCND 0.0 | 100 |
| HLA-B*15:01 | 1 | 130 | 138 | 9 | VCEFQFCND 0.0 | 100 |
| HLA-B*35:01 | 1 | 130 | 138 | 9 | VCEFQFCND 0.0 | 100 |
| HLA-B*40:01 | 1 | 130 | 138 | 9 | VCEFQFCND 0.0 | 100 |
| HLA-B*44:02 | 1 | 130 | 138 | 9 | VCEFQFCND 0.0 | 100 |
| HLA-B*44:03 | 1 | 130 | 138 | 9 | VCEFQFCND 0.0 | 100 |
| HLA-B*53:01 | 1 | 130 | 138 | 9 | VCEFQFCND 0.0 | 100 |
| HLA-A*02:01 | 1 | 139 | 148 | 10 | PFLGVYYHKN 0.0 | 100 |
| HLA-A*02:03 | 1 | 139 | 148 | 10 | PFLGVYYHKN 0.0 | 100 |
| HLA-A*68:02 | 1 | 139 | 148 | 10 | PFLGVYYHKN 0.0 | 100 |
| HLA-B*07:02 | 1 | 139 | 148 | 10 | PFLGVYYHKN 0.0 | 100 |
| HLA-B*15:01 | 1 | 139 | 148 | 10 | PFLGVYYHKN 0.0 | 100 |
| HLA-B*35:01 | 1 | 139 | 148 | 10 | PFLGVYYHKN 0.0 | 100 |
| HLA-B*40:01 | 1 | 139 | 148 | 10 | PFLGVYYHKN 0.0 | 100 |
| HLA-B*44:02 | 1 | 139 | 148 | 10 | PFLGVYYHKN 0.0 | 100 |
| HLA-B*44:03 | 1 | 139 | 148 | 10 | PFLGVYYHKN 0.0 | 100 |
| HLA-B*51:01 | 1 | 139 | 148 | 10 | PFLGVYYHKN 0.0 | 100 |
| HLA-B*53:01 | 1 | 139 | 148 | 10 | PFLGVYYHKN 0.0 | 100 |
| HLA-A*11:01 | 1 | 140 | 149 | 10 | FLGVYYHKNN 0.0 | 100 |
| HLA-A*23:01 | 1 | 140 | 149 | 10 | FLGVYYHKNN 0.0 | 100 |
| HLA-A*24:02 | 1 | 140 | 149 | 10 | FLGVYYHKNN 0.0 | 100 |
| HLA-A*26:01 | 1 | 140 | 149 | 10 | FLGVYYHKNN 0.0 | 100 |
| HLA-A*32:01 | 1 | 140 | 149 | 10 | FLGVYYHKNN 0.0 | 100 |
| HLA-A*68:02 | 1 | 140 | 149 | 10 | FLGVYYHKNN 0.0 | 100 |
| HLA-B*07:02 | 1 | 140 | 149 | 10 | FLGVYYHKNN 0.0 | 100 |
| HLA-B*35:01 | 1 | 140 | 149 | 10 | FLGVYYHKNN 0.0 | 100 |
| HLA-B*40:01 | 1 | 140 | 148 | 9 | FLGVYYHKN 0.0 | 100 |
| HLA-B*40:01 | 1 | 140 | 149 | 10 | FLGVYYHKNN 0.0 | 100 |
| HLA-B*44:02 | 1 | 140 | 149 | 10 | FLGVYYHKNN 0.0 | 100 |
| HLA-B*44:03 | 1 | 140 | 149 | 10 | FLGVYYHKNN 0.0 | 100 |
| HLA-B*53:01 | 1 | 140 | 149 | 10 | FLGVYYHKNN 0.0 | 100 |
| HLA-A*02:01 | 1 | 141 | 149 | 9 | LGVYYHKNN 0.0 | 100 |
| HLA-A*23:01 | 1 | 141 | 149 | 9 | LGVYYHKNN 0.0 | 100 |
| HLA-A*24:02 | 1 | 141 | 149 | 9 | LGVYYHKNN 0.0 | 100 |
| HLA-A*26:01 | 1 | 141 | 149 | 9 | LGVYYHKNN 0.0 | 100 |
| HLA-A*68:02 | 1 | 141 | 149 | 9 | LGVYYHKNN 0.0 | 100 |
| HLA-B*07:02 | 1 | 141 | 149 | 9 | LGVYYHKNN 0.0 | 100 |
| HLA-B*40:01 | 1 | 141 | 149 | 9 | LGVYYHKNN 0.0 | 100 |
| HLA-A*11:01 | 1 | 156 | 165 | 10 | EFRVYSSANN 0.0 | 100 |
| HLA-A*32:01 | 1 | 156 | 165 | 10 | EFRVYSSANN 0.0 | 100 |
| HLA-B*40:01 | 1 | 156 | 164 | 9 | EFRVYSSAN 0.0 | 100 |
| HLA-B*40:01 | 1 | 156 | 165 | 10 | EFRVYSSANN 0.0 | 100 |
| HLA-A*32:01 | 1 | 163 | 172 | 10 | ANNCTFEYVS 0.0 | 100 |
| HLA-B*53:01 | 1 | 163 | 172 | 10 | ANNCTFEYVS 0.0 | 100 |
| HLA-A*24:02 | 1 | 164 | 173 | 10 | NNCTFEYVSQ 0.0 | 100 |

| | | | | | | |
|-------------|---|-----|-----|----|----------------|-----|
| HLA-B*40:01 | 1 | 164 | 173 | 10 | NNCTFEYVSQ 0.0 | 100 |
| HLA-B*40:01 | 1 | 174 | 182 | 9 | PFLMDLEGK 0.0 | 100 |
| HLA-B*40:01 | 1 | 174 | 183 | 10 | PFLMDLEGKQ 0.0 | 100 |
| HLA-A*02:01 | 1 | 179 | 188 | 10 | LEGKQGNFKN 0.0 | 100 |
| HLA-B*35:01 | 1 | 187 | 196 | 10 | KNLREFVFKN 0.0 | 100 |
| HLA-A*02:01 | 1 | 189 | 198 | 10 | LREFVFKNID 0.0 | 100 |
| HLA-A*03:01 | 1 | 189 | 198 | 10 | LREFVFKNID 0.0 | 100 |
| HLA-A*11:01 | 1 | 189 | 198 | 10 | LREFVFKNID 0.0 | 100 |
| HLA-A*26:01 | 1 | 189 | 198 | 10 | LREFVFKNID 0.0 | 100 |
| HLA-A*32:01 | 1 | 189 | 198 | 10 | LREFVFKNID 0.0 | 100 |
| HLA-A*68:01 | 1 | 189 | 198 | 10 | LREFVFKNID 0.0 | 100 |
| HLA-B*35:01 | 1 | 189 | 198 | 10 | LREFVFKNID 0.0 | 100 |
| HLA-B*40:01 | 1 | 191 | 199 | 9 | EFVFKNIDG 0.0 | 100 |
| HLA-A*23:01 | 1 | 209 | 218 | 10 | PINLVRDLPQ 0.0 | 100 |
| HLA-A*24:02 | 1 | 209 | 218 | 10 | PINLVRDLPQ 0.0 | 100 |
| HLA-B*35:01 | 1 | 209 | 218 | 10 | PINLVRDLPQ 0.0 | 100 |
| HLA-B*40:01 | 1 | 209 | 217 | 9 | PINLVRDLP 0.0 | 100 |
| HLA-B*40:01 | 1 | 209 | 218 | 10 | PINLVRDLPQ 0.0 | 100 |
| HLA-B*44:02 | 1 | 209 | 218 | 10 | PINLVRDLPQ 0.0 | 100 |
| HLA-B*44:03 | 1 | 209 | 218 | 10 | PINLVRDLPQ 0.0 | 100 |
| HLA-B*35:01 | 1 | 210 | 219 | 10 | INLVRDLPQG 0.0 | 100 |
| HLA-B*40:01 | 1 | 210 | 219 | 10 | INLVRDLPQG 0.0 | 100 |
| HLA-B*40:01 | 1 | 219 | 228 | 10 | GFSALEPLVD 0.0 | 100 |
| HLA-A*11:01 | 1 | 223 | 232 | 10 | LEPLVDLPIG 0.0 | 100 |
| HLA-A*68:01 | 1 | 223 | 232 | 10 | LEPLVDLPIG 0.0 | 100 |
| HLA-B*35:01 | 1 | 225 | 234 | 10 | PLVDLPIGIN 0.0 | 100 |
| HLA-B*40:01 | 1 | 225 | 234 | 10 | PLVDLPIGIN 0.0 | 100 |
| HLA-B*35:01 | 1 | 230 | 239 | 10 | PIGINITRFQ 0.0 | 100 |
| HLA-B*40:01 | 1 | 230 | 239 | 10 | PIGINITRFQ 0.0 | 100 |
| HLA-B*44:03 | 1 | 230 | 239 | 10 | PIGINITRFQ 0.0 | 100 |
| HLA-A*02:01 | 1 | 244 | 253 | 10 | LHRSYLTPGD 0.0 | 100 |
| HLA-A*02:06 | 1 | 244 | 253 | 10 | LHRSYLTPGD 0.0 | 100 |
| HLA-A*11:01 | 1 | 244 | 253 | 10 | LHRSYLTPGD 0.0 | 100 |
| HLA-A*32:01 | 1 | 244 | 253 | 10 | LHRSYLTPGD 0.0 | 100 |
| HLA-A*68:01 | 1 | 244 | 253 | 10 | LHRSYLTPGD 0.0 | 100 |
| HLA-A*68:02 | 1 | 244 | 253 | 10 | LHRSYLTPGD 0.0 | 100 |
| HLA-B*15:01 | 1 | 244 | 253 | 10 | LHRSYLTPGD 0.0 | 100 |
| HLA-B*35:01 | 1 | 244 | 253 | 10 | LHRSYLTPGD 0.0 | 100 |
| HLA-B*40:01 | 1 | 244 | 253 | 10 | LHRSYLTPGD 0.0 | 100 |
| HLA-B*44:03 | 1 | 244 | 253 | 10 | LHRSYLTPGD 0.0 | 100 |
| HLA-B*53:01 | 1 | 244 | 253 | 10 | LHRSYLTPGD 0.0 | 100 |
| HLA-A*26:01 | 1 | 251 | 259 | 9 | PGDSSSGWT 0.0 | 100 |
| HLA-A*32:01 | 1 | 251 | 259 | 9 | PGDSSSGWT 0.0 | 100 |
| HLA-A*33:01 | 1 | 251 | 259 | 9 | PGDSSSGWT 0.0 | 100 |
| HLA-B*15:01 | 1 | 251 | 259 | 9 | PGDSSSGWT 0.0 | 100 |
| HLA-B*35:01 | 1 | 251 | 259 | 9 | PGDSSSGWT 0.0 | 100 |
| HLA-B*40:01 | 1 | 251 | 259 | 9 | PGDSSSGWT 0.0 | 100 |
| HLA-B*40:01 | 1 | 259 | 268 | 10 | TAGAAAYYVG 0.0 | 100 |
| HLA-A*02:01 | 1 | 272 | 280 | 9 | PRTFLLKYN 0.0 | 100 |
| HLA-A*02:03 | 1 | 272 | 280 | 9 | PRTFLLKYN 0.0 | 100 |
| HLA-A*02:06 | 1 | 272 | 280 | 9 | PRTFLLKYN 0.0 | 100 |
| HLA-A*03:01 | 1 | 272 | 280 | 9 | PRTFLLKYN 0.0 | 100 |
| HLA-A*11:01 | 1 | 272 | 280 | 9 | PRTFLLKYN 0.0 | 100 |
| HLA-A*24:02 | 1 | 272 | 280 | 9 | PRTFLLKYN 0.0 | 100 |
| HLA-A*32:01 | 1 | 272 | 280 | 9 | PRTFLLKYN 0.0 | 100 |
| HLA-A*68:01 | 1 | 272 | 280 | 9 | PRTFLLKYN 0.0 | 100 |
| HLA-A*68:02 | 1 | 272 | 280 | 9 | PRTFLLKYN 0.0 | 100 |
| HLA-B*07:02 | 1 | 272 | 280 | 9 | PRTFLLKYN 0.0 | 100 |
| HLA-B*07:02 | 1 | 272 | 281 | 10 | PRTFLLKYNE 0.0 | 100 |
| HLA-B*15:01 | 1 | 272 | 280 | 9 | PRTFLLKYN 0.0 | 100 |
| HLA-B*35:01 | 1 | 272 | 280 | 9 | PRTFLLKYN 0.0 | 100 |
| HLA-B*35:01 | 1 | 272 | 281 | 10 | PRTFLLKYNE 0.0 | 100 |
| HLA-B*40:01 | 1 | 272 | 280 | 9 | PRTFLLKYN 0.0 | 100 |
| HLA-B*40:01 | 1 | 272 | 281 | 10 | PRTFLLKYNE 0.0 | 100 |
| HLA-B*44:02 | 1 | 272 | 280 | 9 | PRTFLLKYN 0.0 | 100 |
| HLA-B*44:03 | 1 | 272 | 280 | 9 | PRTFLLKYN 0.0 | 100 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-----|-----|
| HLA-B*53:01 | 1 | 272 | 280 | 9 | PRTFLLKYN | 0.0 | 100 |
| HLA-A*11:01 | 1 | 274 | 283 | 10 | TFLLKYNENG | 0.0 | 100 |
| HLA-B*35:01 | 1 | 274 | 283 | 10 | TFLLKYNENG | 0.0 | 100 |
| HLA-B*40:01 | 1 | 274 | 283 | 10 | TFLLKYNENG | 0.0 | 100 |
| HLA-B*53:01 | 1 | 274 | 283 | 10 | TFLLKYNENG | 0.0 | 100 |
| HLA-A*03:01 | 1 | 281 | 290 | 10 | ENGTITDAVD | 0.0 | 100 |
| HLA-A*11:01 | 1 | 281 | 290 | 10 | ENGTITDAVD | 0.0 | 100 |
| HLA-A*23:01 | 1 | 281 | 290 | 10 | ENGTITDAVD | 0.0 | 100 |
| HLA-A*24:02 | 1 | 281 | 290 | 10 | ENGTITDAVD | 0.0 | 100 |
| HLA-A*26:01 | 1 | 281 | 290 | 10 | ENGTITDAVD | 0.0 | 100 |
| HLA-A*31:01 | 1 | 281 | 290 | 10 | ENGTITDAVD | 0.0 | 100 |
| HLA-A*32:01 | 1 | 281 | 290 | 10 | ENGTITDAVD | 0.0 | 100 |
| HLA-A*68:01 | 1 | 281 | 290 | 10 | ENGTITDAVD | 0.0 | 100 |
| HLA-B*15:01 | 1 | 281 | 290 | 10 | ENGTITDAVD | 0.0 | 100 |
| HLA-B*35:01 | 1 | 281 | 290 | 10 | ENGTITDAVD | 0.0 | 100 |
| HLA-B*40:01 | 1 | 281 | 290 | 10 | ENGTITDAVD | 0.0 | 100 |
| HLA-A*02:01 | 1 | 282 | 290 | 9 | NGTITDAVD | 0.0 | 100 |
| HLA-A*02:03 | 1 | 282 | 290 | 9 | NGTITDAVD | 0.0 | 100 |
| HLA-A*03:01 | 1 | 282 | 290 | 9 | NGTITDAVD | 0.0 | 100 |
| HLA-A*11:01 | 1 | 282 | 290 | 9 | NGTITDAVD | 0.0 | 100 |
| HLA-A*23:01 | 1 | 282 | 290 | 9 | NGTITDAVD | 0.0 | 100 |
| HLA-A*24:02 | 1 | 282 | 290 | 9 | NGTITDAVD | 0.0 | 100 |
| HLA-A*26:01 | 1 | 282 | 290 | 9 | NGTITDAVD | 0.0 | 100 |
| HLA-A*31:01 | 1 | 282 | 290 | 9 | NGTITDAVD | 0.0 | 100 |
| HLA-A*32:01 | 1 | 282 | 290 | 9 | NGTITDAVD | 0.0 | 100 |
| HLA-A*32:01 | 1 | 282 | 291 | 10 | NGTITDAVDC | 0.0 | 100 |
| HLA-B*15:01 | 1 | 282 | 290 | 9 | NGTITDAVD | 0.0 | 100 |
| HLA-B*40:01 | 1 | 282 | 290 | 9 | NGTITDAVD | 0.0 | 100 |
| HLA-A*02:01 | 1 | 286 | 294 | 9 | TDAVDCALD | 0.0 | 100 |
| HLA-A*02:03 | 1 | 286 | 294 | 9 | TDAVDCALD | 0.0 | 100 |
| HLA-A*03:01 | 1 | 286 | 294 | 9 | TDAVDCALD | 0.0 | 100 |
| HLA-A*11:01 | 1 | 286 | 294 | 9 | TDAVDCALD | 0.0 | 100 |
| HLA-A*23:01 | 1 | 286 | 294 | 9 | TDAVDCALD | 0.0 | 100 |
| HLA-A*24:02 | 1 | 286 | 294 | 9 | TDAVDCALD | 0.0 | 100 |
| HLA-A*26:01 | 1 | 286 | 294 | 9 | TDAVDCALD | 0.0 | 100 |
| HLA-A*31:01 | 1 | 286 | 294 | 9 | TDAVDCALD | 0.0 | 100 |
| HLA-A*32:01 | 1 | 286 | 294 | 9 | TDAVDCALD | 0.0 | 100 |
| HLA-A*32:01 | 1 | 286 | 295 | 10 | TDAVDCALDP | 0.0 | 100 |
| HLA-A*33:01 | 1 | 286 | 294 | 9 | TDAVDCALD | 0.0 | 100 |
| HLA-B*07:02 | 1 | 286 | 294 | 9 | TDAVDCALD | 0.0 | 100 |
| HLA-A*02:01 | 1 | 309 | 317 | 9 | EKGIYQTSN | 0.0 | 100 |
| HLA-A*02:03 | 1 | 309 | 317 | 9 | EKGIYQTSN | 0.0 | 100 |
| HLA-A*02:06 | 1 | 309 | 317 | 9 | EKGIYQTSN | 0.0 | 100 |
| HLA-A*32:01 | 1 | 309 | 317 | 9 | EKGIYQTSN | 0.0 | 100 |
| HLA-A*68:02 | 1 | 309 | 317 | 9 | EKGIYQTSN | 0.0 | 100 |
| HLA-A*02:01 | 1 | 322 | 331 | 10 | PTESIVRFPN | 0.0 | 100 |
| HLA-A*23:01 | 1 | 322 | 331 | 10 | PTESIVRFPN | 0.0 | 100 |
| HLA-A*24:02 | 1 | 322 | 331 | 10 | PTESIVRFPN | 0.0 | 100 |
| HLA-A*26:01 | 1 | 322 | 331 | 10 | PTESIVRFPN | 0.0 | 100 |
| HLA-B*07:02 | 1 | 322 | 331 | 10 | PTESIVRFPN | 0.0 | 100 |
| HLA-B*15:01 | 1 | 322 | 331 | 10 | PTESIVRFPN | 0.0 | 100 |
| HLA-B*35:01 | 1 | 322 | 331 | 10 | PTESIVRFPN | 0.0 | 100 |
| HLA-B*40:01 | 1 | 322 | 331 | 10 | PTESIVRFPN | 0.0 | 100 |
| HLA-B*53:01 | 1 | 322 | 331 | 10 | PTESIVRFPN | 0.0 | 100 |
| HLA-A*02:01 | 1 | 330 | 339 | 10 | PNITNLCPFG | 0.0 | 100 |
| HLA-A*03:01 | 1 | 330 | 339 | 10 | PNITNLCPFG | 0.0 | 100 |
| HLA-A*11:01 | 1 | 330 | 339 | 10 | PNITNLCPFG | 0.0 | 100 |
| HLA-A*26:01 | 1 | 330 | 339 | 10 | PNITNLCPFG | 0.0 | 100 |
| HLA-A*31:01 | 1 | 330 | 339 | 10 | PNITNLCPFG | 0.0 | 100 |
| HLA-A*32:01 | 1 | 330 | 339 | 10 | PNITNLCPFG | 0.0 | 100 |
| HLA-A*68:01 | 1 | 330 | 339 | 10 | PNITNLCPFG | 0.0 | 100 |
| HLA-B*07:02 | 1 | 330 | 339 | 10 | PNITNLCPFG | 0.0 | 100 |
| HLA-B*35:01 | 1 | 330 | 339 | 10 | PNITNLCPFG | 0.0 | 100 |
| HLA-B*40:01 | 1 | 330 | 339 | 10 | PNITNLCPFG | 0.0 | 100 |
| HLA-B*44:02 | 1 | 330 | 339 | 10 | PNITNLCPFG | 0.0 | 100 |
| HLA-B*44:03 | 1 | 330 | 339 | 10 | PNITNLCPFG | 0.0 | 100 |

| | | | | | | |
|-------------|---|-----|-----|----|-----------------|-----|
| HLA-B*53:01 | 1 | 330 | 339 | 10 | PNITNLCPFGE 0.0 | 100 |
| HLA-A*24:02 | 1 | 331 | 340 | 10 | NITNLCPFGE 0.0 | 100 |
| HLA-B*40:01 | 1 | 331 | 339 | 9 | NITNLCPFGE 0.0 | 100 |
| HLA-B*40:01 | 1 | 331 | 340 | 10 | NITNLCPFGE 0.0 | 100 |
| HLA-B*40:01 | 1 | 335 | 343 | 9 | LCPFGEVFN 0.0 | 100 |
| HLA-B*44:02 | 1 | 335 | 343 | 9 | LCPFGEVFN 0.0 | 100 |
| HLA-B*44:03 | 1 | 335 | 343 | 9 | LCPFGEVFN 0.0 | 100 |
| HLA-B*40:01 | 1 | 346 | 354 | 9 | RFASVYAWN 0.0 | 100 |
| HLA-B*53:01 | 1 | 352 | 361 | 10 | AWNRKRISNC 0.0 | 100 |
| HLA-A*11:01 | 1 | 355 | 364 | 10 | RKRISNCVAD 0.0 | 100 |
| HLA-A*32:01 | 1 | 355 | 364 | 10 | RKRISNCVAD 0.0 | 100 |
| HLA-A*68:02 | 1 | 355 | 364 | 10 | RKRISNCVAD 0.0 | 100 |
| HLA-B*53:01 | 1 | 355 | 364 | 10 | RKRISNCVAD 0.0 | 100 |
| HLA-B*40:01 | 1 | 357 | 366 | 10 | RISNCVADYS 0.0 | 100 |
| HLA-A*32:01 | 1 | 364 | 373 | 10 | DYSVLYNSAS 0.0 | 100 |
| HLA-A*23:01 | 1 | 374 | 383 | 10 | FSTFKCYGVS 0.0 | 100 |
| HLA-B*40:01 | 1 | 374 | 383 | 10 | FSTFKCYGVS 0.0 | 100 |
| HLA-B*44:02 | 1 | 374 | 383 | 10 | FSTFKCYGVS 0.0 | 100 |
| HLA-B*44:03 | 1 | 374 | 383 | 10 | FSTFKCYGVS 0.0 | 100 |
| HLA-B*40:01 | 1 | 379 | 388 | 10 | CYGVSPTKLN 0.0 | 100 |
| HLA-B*40:01 | 1 | 384 | 393 | 10 | PTKLNDLCFT 0.0 | 100 |
| HLA-B*44:03 | 1 | 384 | 393 | 10 | PTKLNDLCFT 0.0 | 100 |
| HLA-B*40:01 | 1 | 389 | 398 | 10 | DLCFTNVYAD 0.0 | 100 |
| HLA-A*11:01 | 1 | 390 | 398 | 9 | LCFTNVYAD 0.0 | 100 |
| HLA-A*11:01 | 1 | 390 | 399 | 10 | LCFTNVYADS 0.0 | 100 |
| HLA-B*40:01 | 1 | 390 | 399 | 10 | LCFTNVYADS 0.0 | 100 |
| HLA-B*44:03 | 1 | 390 | 399 | 10 | LCFTNVYADS 0.0 | 100 |
| HLA-B*40:01 | 1 | 391 | 399 | 9 | CFTNVYADS 0.0 | 100 |
| HLA-A*24:02 | 1 | 396 | 405 | 10 | YADSFVIRGD 0.0 | 100 |
| HLA-B*40:01 | 1 | 396 | 405 | 10 | YADSFVIRGD 0.0 | 100 |
| HLA-A*24:02 | 1 | 397 | 406 | 10 | ADSFVIRGDE 0.0 | 100 |
| HLA-A*24:02 | 1 | 398 | 406 | 9 | DSFVIRGDE 0.0 | 100 |
| HLA-A*02:01 | 1 | 404 | 413 | 10 | GDEVRQIAPG 0.0 | 100 |
| HLA-A*02:03 | 1 | 404 | 413 | 10 | GDEVRQIAPG 0.0 | 100 |
| HLA-A*11:01 | 1 | 404 | 413 | 10 | GDEVRQIAPG 0.0 | 100 |
| HLA-A*23:01 | 1 | 404 | 413 | 10 | GDEVRQIAPG 0.0 | 100 |
| HLA-A*24:02 | 1 | 404 | 413 | 10 | GDEVRQIAPG 0.0 | 100 |
| HLA-A*31:01 | 1 | 404 | 413 | 10 | GDEVRQIAPG 0.0 | 100 |
| HLA-A*32:01 | 1 | 404 | 412 | 9 | GDEVRQIAP 0.0 | 100 |
| HLA-A*32:01 | 1 | 404 | 413 | 10 | GDEVRQIAPG 0.0 | 100 |
| HLA-A*68:01 | 1 | 404 | 413 | 10 | GDEVRQIAPG 0.0 | 100 |
| HLA-A*68:02 | 1 | 404 | 413 | 10 | GDEVRQIAPG 0.0 | 100 |
| HLA-B*35:01 | 1 | 404 | 413 | 10 | GDEVRQIAPG 0.0 | 100 |
| HLA-B*53:01 | 1 | 404 | 413 | 10 | GDEVRQIAPG 0.0 | 100 |
| HLA-A*33:01 | 1 | 411 | 420 | 10 | APGQTGKIAD 0.0 | 100 |
| HLA-A*02:01 | 1 | 412 | 420 | 9 | PGQTGKIAD 0.0 | 100 |
| HLA-A*02:03 | 1 | 412 | 420 | 9 | PGQTGKIAD 0.0 | 100 |
| HLA-A*11:01 | 1 | 412 | 420 | 9 | PGQTGKIAD 0.0 | 100 |
| HLA-A*23:01 | 1 | 412 | 420 | 9 | PGQTGKIAD 0.0 | 100 |
| HLA-A*24:02 | 1 | 412 | 420 | 9 | PGQTGKIAD 0.0 | 100 |
| HLA-A*26:01 | 1 | 412 | 420 | 9 | PGQTGKIAD 0.0 | 100 |
| HLA-A*31:01 | 1 | 412 | 420 | 9 | PGQTGKIAD 0.0 | 100 |
| HLA-A*32:01 | 1 | 412 | 420 | 9 | PGQTGKIAD 0.0 | 100 |
| HLA-A*33:01 | 1 | 412 | 420 | 9 | PGQTGKIAD 0.0 | 100 |
| HLA-A*68:01 | 1 | 412 | 420 | 9 | PGQTGKIAD 0.0 | 100 |
| HLA-A*68:02 | 1 | 412 | 420 | 9 | PGQTGKIAD 0.0 | 100 |
| HLA-B*15:01 | 1 | 412 | 420 | 9 | PGQTGKIAD 0.0 | 100 |
| HLA-B*40:01 | 1 | 412 | 420 | 9 | PGQTGKIAD 0.0 | 100 |
| HLA-B*53:01 | 1 | 412 | 420 | 9 | PGQTGKIAD 0.0 | 100 |
| HLA-B*40:01 | 1 | 414 | 422 | 9 | QTGKIADYN 0.0 | 100 |
| HLA-A*11:01 | 1 | 418 | 427 | 10 | IADYNYKLPD 0.0 | 100 |
| HLA-A*23:01 | 1 | 418 | 427 | 10 | IADYNYKLPD 0.0 | 100 |
| HLA-A*24:02 | 1 | 418 | 427 | 10 | IADYNYKLPD 0.0 | 100 |
| HLA-B*40:01 | 1 | 418 | 427 | 10 | IADYNYKLPD 0.0 | 100 |
| HLA-A*02:01 | 1 | 419 | 428 | 10 | ADYNYKLPPD 0.0 | 100 |
| HLA-A*02:03 | 1 | 419 | 428 | 10 | ADYNYKLPPD 0.0 | 100 |

| | | | | | | |
|-------------|---|-----|-----|----|----------------|-----|
| HLA-A*03:01 | 1 | 419 | 428 | 10 | ADYNYKLPDD 0.0 | 100 |
| HLA-A*11:01 | 1 | 419 | 428 | 10 | ADYNYKLPDD 0.0 | 100 |
| HLA-A*24:02 | 1 | 419 | 427 | 9 | ADYNYKLPD 0.0 | 100 |
| HLA-A*26:01 | 1 | 419 | 428 | 10 | ADYNYKLPDD 0.0 | 100 |
| HLA-A*68:02 | 1 | 419 | 428 | 10 | ADYNYKLPDD 0.0 | 100 |
| HLA-B*07:02 | 1 | 419 | 428 | 10 | ADYNYKLPDD 0.0 | 100 |
| HLA-B*15:01 | 1 | 419 | 428 | 10 | ADYNYKLPDD 0.0 | 100 |
| HLA-B*35:01 | 1 | 419 | 428 | 10 | ADYNYKLPDD 0.0 | 100 |
| HLA-B*53:01 | 1 | 419 | 428 | 10 | ADYNYKLPDD 0.0 | 100 |
| HLA-A*02:01 | 1 | 420 | 428 | 9 | DYNYKLPDD 0.0 | 100 |
| HLA-A*11:01 | 1 | 420 | 428 | 9 | DYNYKLPDD 0.0 | 100 |
| HLA-A*32:01 | 1 | 420 | 428 | 9 | DYNYKLPDD 0.0 | 100 |
| HLA-B*15:01 | 1 | 420 | 428 | 9 | DYNYKLPDD 0.0 | 100 |
| HLA-B*40:01 | 1 | 420 | 428 | 9 | DYNYKLPDD 0.0 | 100 |
| HLA-B*44:03 | 1 | 420 | 428 | 9 | DYNYKLPDD 0.0 | 100 |
| HLA-B*58:01 | 1 | 420 | 428 | 9 | DYNYKLPDD 0.0 | 100 |
| HLA-A*26:01 | 1 | 426 | 435 | 10 | PDDFTGCVIA 0.0 | 100 |
| HLA-A*32:01 | 1 | 426 | 435 | 10 | PDDFTGCVIA 0.0 | 100 |
| HLA-A*11:01 | 1 | 428 | 437 | 10 | DFTGCVIAWN 0.0 | 100 |
| HLA-B*40:01 | 1 | 428 | 437 | 10 | DFTGCVIAWN 0.0 | 100 |
| HLA-A*23:01 | 1 | 429 | 438 | 10 | FTGCVIAWNS 0.0 | 100 |
| HLA-A*24:02 | 1 | 429 | 438 | 10 | FTGCVIAWNS 0.0 | 100 |
| HLA-B*07:02 | 1 | 429 | 437 | 9 | FTGCVIAWN 0.0 | 100 |
| HLA-B*35:01 | 1 | 429 | 437 | 9 | FTGCVIAWN 0.0 | 100 |
| HLA-B*35:01 | 1 | 429 | 438 | 10 | FTGCVIAWNS 0.0 | 100 |
| HLA-B*40:01 | 1 | 429 | 437 | 9 | FTGCVIAWN 0.0 | 100 |
| HLA-B*40:01 | 1 | 429 | 438 | 10 | FTGCVIAWNS 0.0 | 100 |
| HLA-B*44:02 | 1 | 429 | 437 | 9 | FTGCVIAWN 0.0 | 100 |
| HLA-B*44:02 | 1 | 429 | 438 | 10 | FTGCVIAWNS 0.0 | 100 |
| HLA-B*44:03 | 1 | 429 | 437 | 9 | FTGCVIAWN 0.0 | 100 |
| HLA-B*44:03 | 1 | 429 | 438 | 10 | FTGCVIAWNS 0.0 | 100 |
| HLA-A*02:01 | 1 | 430 | 439 | 10 | TGCVIAWNSN 0.0 | 100 |
| HLA-A*02:03 | 1 | 430 | 439 | 10 | TGCVIAWNSN 0.0 | 100 |
| HLA-A*23:01 | 1 | 430 | 439 | 10 | TGCVIAWNSN 0.0 | 100 |
| HLA-A*24:02 | 1 | 430 | 439 | 10 | TGCVIAWNSN 0.0 | 100 |
| HLA-A*26:01 | 1 | 430 | 439 | 10 | TGCVIAWNSN 0.0 | 100 |
| HLA-A*68:02 | 1 | 430 | 439 | 10 | TGCVIAWNSN 0.0 | 100 |
| HLA-B*07:02 | 1 | 430 | 439 | 10 | TGCVIAWNSN 0.0 | 100 |
| HLA-B*40:01 | 1 | 430 | 439 | 10 | TGCVIAWNSN 0.0 | 100 |
| HLA-A*23:01 | 1 | 431 | 439 | 9 | GCVIAWNSN 0.0 | 100 |
| HLA-A*23:01 | 1 | 431 | 440 | 10 | GCVIAWNSNN 0.0 | 100 |
| HLA-A*24:02 | 1 | 431 | 439 | 9 | GCVIAWNSN 0.0 | 100 |
| HLA-A*24:02 | 1 | 431 | 440 | 10 | GCVIAWNSNN 0.0 | 100 |
| HLA-A*68:02 | 1 | 431 | 439 | 9 | GCVIAWNSN 0.0 | 100 |
| HLA-B*35:01 | 1 | 431 | 440 | 10 | GCVIAWNSNN 0.0 | 100 |
| HLA-B*40:01 | 1 | 431 | 439 | 9 | GCVIAWNSN 0.0 | 100 |
| HLA-B*40:01 | 1 | 431 | 440 | 10 | GCVIAWNSNN 0.0 | 100 |
| HLA-B*44:03 | 1 | 431 | 440 | 10 | GCVIAWNSNN 0.0 | 100 |
| HLA-B*53:01 | 1 | 431 | 440 | 10 | GCVIAWNSNN 0.0 | 100 |
| HLA-B*40:01 | 1 | 432 | 440 | 9 | CVIAWNSNN 0.0 | 100 |
| HLA-A*23:01 | 1 | 437 | 446 | 10 | NSNNLDSKVG 0.0 | 100 |
| HLA-A*24:02 | 1 | 437 | 446 | 10 | NSNNLDSKVG 0.0 | 100 |
| HLA-B*40:01 | 1 | 437 | 446 | 10 | NSNNLDSKVG 0.0 | 100 |
| HLA-A*24:02 | 1 | 438 | 447 | 10 | SNNLDSKVG 0.0 | 100 |
| HLA-A*24:02 | 1 | 439 | 448 | 10 | NNLDSKVG 0.0 | 100 |
| HLA-B*35:01 | 1 | 439 | 448 | 10 | NNLDSKVG 0.0 | 100 |
| HLA-B*40:01 | 1 | 439 | 448 | 10 | NNLDSKVG 0.0 | 100 |
| HLA-A*24:02 | 1 | 441 | 450 | 10 | LDSKVG 0.0 | 100 |
| HLA-B*40:01 | 1 | 445 | 454 | 10 | VGGNYLYR 0.0 | 100 |
| HLA-A*02:01 | 1 | 452 | 460 | 9 | LYRFRKSN 0.0 | 100 |
| HLA-A*02:06 | 1 | 452 | 460 | 9 | LYRFRKSN 0.0 | 100 |
| HLA-B*40:01 | 1 | 452 | 460 | 9 | LYRFRKSN 0.0 | 100 |
| HLA-B*40:01 | 1 | 458 | 467 | 10 | KSNLKPFRD 0.0 | 100 |
| HLA-A*11:01 | 1 | 461 | 469 | 9 | LKPFERDIS 0.0 | 100 |
| HLA-A*32:01 | 1 | 461 | 469 | 9 | LKPFERDIS 0.0 | 100 |
| HLA-A*32:01 | 1 | 463 | 471 | 9 | PFERDISTE 0.0 | 100 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-----|-----|
| HLA-B*40:01 | 1 | 463 | 471 | 9 | PFERDISTE | 0.0 | 100 |
| HLA-B*40:01 | 1 | 467 | 476 | 10 | DISTEIQAG | 0.0 | 100 |
| HLA-A*24:02 | 1 | 476 | 484 | 9 | GSTPCNGVE | 0.0 | 100 |
| HLA-A*02:01 | 1 | 479 | 487 | 9 | PCNGVEGFN | 0.0 | 100 |
| HLA-A*02:03 | 1 | 479 | 487 | 9 | PCNGVEGFN | 0.0 | 100 |
| HLA-A*02:06 | 1 | 479 | 487 | 9 | PCNGVEGFN | 0.0 | 100 |
| HLA-A*03:01 | 1 | 479 | 487 | 9 | PCNGVEGFN | 0.0 | 100 |
| HLA-A*11:01 | 1 | 479 | 487 | 9 | PCNGVEGFN | 0.0 | 100 |
| HLA-A*11:01 | 1 | 479 | 488 | 10 | PCNGVEGFNC | 0.0 | 100 |
| HLA-A*23:01 | 1 | 479 | 487 | 9 | PCNGVEGFN | 0.0 | 100 |
| HLA-A*24:02 | 1 | 479 | 487 | 9 | PCNGVEGFN | 0.0 | 100 |
| HLA-A*26:01 | 1 | 479 | 487 | 9 | PCNGVEGFN | 0.0 | 100 |
| HLA-A*26:01 | 1 | 479 | 488 | 10 | PCNGVEGFNC | 0.0 | 100 |
| HLA-A*31:01 | 1 | 479 | 487 | 9 | PCNGVEGFN | 0.0 | 100 |
| HLA-A*32:01 | 1 | 479 | 487 | 9 | PCNGVEGFN | 0.0 | 100 |
| HLA-A*32:01 | 1 | 479 | 488 | 10 | PCNGVEGFNC | 0.0 | 100 |
| HLA-A*33:01 | 1 | 479 | 487 | 9 | PCNGVEGFN | 0.0 | 100 |
| HLA-A*68:01 | 1 | 479 | 488 | 10 | PCNGVEGFNC | 0.0 | 100 |
| HLA-A*68:02 | 1 | 479 | 487 | 9 | PCNGVEGFN | 0.0 | 100 |
| HLA-B*07:02 | 1 | 479 | 487 | 9 | PCNGVEGFN | 0.0 | 100 |
| HLA-B*07:02 | 1 | 479 | 488 | 10 | PCNGVEGFNC | 0.0 | 100 |
| HLA-B*15:01 | 1 | 479 | 487 | 9 | PCNGVEGFN | 0.0 | 100 |
| HLA-B*15:01 | 1 | 479 | 488 | 10 | PCNGVEGFNC | 0.0 | 100 |
| HLA-B*35:01 | 1 | 479 | 487 | 9 | PCNGVEGFN | 0.0 | 100 |
| HLA-B*35:01 | 1 | 479 | 488 | 10 | PCNGVEGFNC | 0.0 | 100 |
| HLA-B*40:01 | 1 | 479 | 487 | 9 | PCNGVEGFN | 0.0 | 100 |
| HLA-B*40:01 | 1 | 479 | 488 | 10 | PCNGVEGFNC | 0.0 | 100 |
| HLA-B*53:01 | 1 | 479 | 487 | 9 | PCNGVEGFN | 0.0 | 100 |
| HLA-B*53:01 | 1 | 479 | 488 | 10 | PCNGVEGFNC | 0.0 | 100 |
| HLA-B*07:02 | 1 | 480 | 488 | 9 | CNGVEGFNC | 0.0 | 100 |
| HLA-B*35:01 | 1 | 480 | 488 | 9 | CNGVEGFNC | 0.0 | 100 |
| HLA-B*35:01 | 1 | 485 | 494 | 10 | GFNCYFPLQS | 0.0 | 100 |
| HLA-B*53:01 | 1 | 485 | 494 | 10 | GFNCYFPLQS | 0.0 | 100 |
| HLA-B*35:01 | 1 | 491 | 500 | 10 | PLQSYGFQPT | 0.0 | 100 |
| HLA-B*40:01 | 1 | 491 | 500 | 10 | PLQSYGFQPT | 0.0 | 100 |
| HLA-B*53:01 | 1 | 491 | 500 | 10 | PLQSYGFQPT | 0.0 | 100 |
| HLA-B*40:01 | 1 | 507 | 516 | 10 | PYRVVLSFE | 0.0 | 100 |
| HLA-A*23:01 | 1 | 521 | 530 | 10 | PATVCGPKKS | 0.0 | 100 |
| HLA-A*24:02 | 1 | 521 | 530 | 10 | PATVCGPKKS | 0.0 | 100 |
| HLA-A*32:01 | 1 | 521 | 530 | 10 | PATVCGPKKS | 0.0 | 100 |
| HLA-B*07:02 | 1 | 521 | 530 | 10 | PATVCGPKKS | 0.0 | 100 |
| HLA-B*15:01 | 1 | 521 | 530 | 10 | PATVCGPKKS | 0.0 | 100 |
| HLA-B*35:01 | 1 | 521 | 530 | 10 | PATVCGPKKS | 0.0 | 100 |
| HLA-B*40:01 | 1 | 521 | 530 | 10 | PATVCGPKKS | 0.0 | 100 |
| HLA-B*44:02 | 1 | 521 | 530 | 10 | PATVCGPKKS | 0.0 | 100 |
| HLA-B*44:03 | 1 | 521 | 530 | 10 | PATVCGPKKS | 0.0 | 100 |
| HLA-B*53:01 | 1 | 521 | 530 | 10 | PATVCGPKKS | 0.0 | 100 |
| HLA-A*02:01 | 1 | 527 | 536 | 10 | PKKSTNLVKN | 0.0 | 100 |
| HLA-A*02:03 | 1 | 527 | 536 | 10 | PKKSTNLVKN | 0.0 | 100 |
| HLA-A*02:06 | 1 | 527 | 536 | 10 | PKKSTNLVKN | 0.0 | 100 |
| HLA-A*23:01 | 1 | 527 | 536 | 10 | PKKSTNLVKN | 0.0 | 100 |
| HLA-A*24:02 | 1 | 527 | 536 | 10 | PKKSTNLVKN | 0.0 | 100 |
| HLA-A*32:01 | 1 | 527 | 536 | 10 | PKKSTNLVKN | 0.0 | 100 |
| HLA-A*68:02 | 1 | 527 | 536 | 10 | PKKSTNLVKN | 0.0 | 100 |
| HLA-B*07:02 | 1 | 527 | 536 | 10 | PKKSTNLVKN | 0.0 | 100 |
| HLA-B*35:01 | 1 | 527 | 536 | 10 | PKKSTNLVKN | 0.0 | 100 |
| HLA-B*40:01 | 1 | 527 | 536 | 10 | PKKSTNLVKN | 0.0 | 100 |
| HLA-B*44:03 | 1 | 527 | 536 | 10 | PKKSTNLVKN | 0.0 | 100 |
| HLA-B*51:01 | 1 | 527 | 536 | 10 | PKKSTNLVKN | 0.0 | 100 |
| HLA-B*53:01 | 1 | 527 | 536 | 10 | PKKSTNLVKN | 0.0 | 100 |
| HLA-A*23:01 | 1 | 531 | 540 | 10 | TNLVKNKCVN | 0.0 | 100 |
| HLA-A*32:01 | 1 | 531 | 540 | 10 | TNLVKNKCVN | 0.0 | 100 |
| HLA-B*35:01 | 1 | 531 | 540 | 10 | TNLVKNKCVN | 0.0 | 100 |
| HLA-B*40:01 | 1 | 531 | 540 | 10 | TNLVKNKCVN | 0.0 | 100 |
| HLA-A*11:01 | 1 | 532 | 540 | 9 | NLVKNKCVN | 0.0 | 100 |
| HLA-B*40:01 | 1 | 532 | 540 | 9 | NLVKNKCVN | 0.0 | 100 |

| | | | | | | | |
|-------------|---|-----|-----|----|------------|-----|-----|
| HLA-A*02:01 | 1 | 534 | 542 | 9 | VKNKCVNFN | 0.0 | 100 |
| HLA-A*02:03 | 1 | 534 | 542 | 9 | VKNKCVNFN | 0.0 | 100 |
| HLA-A*32:01 | 1 | 534 | 542 | 9 | VKNKCVNFN | 0.0 | 100 |
| HLA-A*68:02 | 1 | 534 | 542 | 9 | VKNKCVNFN | 0.0 | 100 |
| HLA-B*40:01 | 1 | 534 | 542 | 9 | VKNKCVNFN | 0.0 | 100 |
| HLA-A*02:01 | 1 | 535 | 544 | 10 | KNKCVNFNFN | 0.0 | 100 |
| HLA-A*68:02 | 1 | 535 | 544 | 10 | KNKCVNFNFN | 0.0 | 100 |
| HLA-B*35:01 | 1 | 535 | 544 | 10 | KNKCVNFNFN | 0.0 | 100 |
| HLA-B*40:01 | 1 | 535 | 544 | 10 | KNKCVNFNFN | 0.0 | 100 |
| HLA-A*02:01 | 1 | 536 | 544 | 9 | NKCVNFNFN | 0.0 | 100 |
| HLA-A*02:01 | 1 | 536 | 545 | 10 | NKCVNFNFNG | 0.0 | 100 |
| HLA-A*02:03 | 1 | 536 | 544 | 9 | NKCVNFNFN | 0.0 | 100 |
| HLA-A*02:03 | 1 | 536 | 545 | 10 | NKCVNFNFNG | 0.0 | 100 |
| HLA-A*02:06 | 1 | 536 | 544 | 9 | NKCVNFNFN | 0.0 | 100 |
| HLA-A*03:01 | 1 | 536 | 545 | 10 | NKCVNFNFNG | 0.0 | 100 |
| HLA-A*11:01 | 1 | 536 | 544 | 9 | NKCVNFNFN | 0.0 | 100 |
| HLA-A*11:01 | 1 | 536 | 545 | 10 | NKCVNFNFNG | 0.0 | 100 |
| HLA-A*24:02 | 1 | 536 | 544 | 9 | NKCVNFNFN | 0.0 | 100 |
| HLA-A*24:02 | 1 | 536 | 545 | 10 | NKCVNFNFNG | 0.0 | 100 |
| HLA-A*31:01 | 1 | 536 | 545 | 10 | NKCVNFNFNG | 0.0 | 100 |
| HLA-A*32:01 | 1 | 536 | 544 | 9 | NKCVNFNFN | 0.0 | 100 |
| HLA-A*32:01 | 1 | 536 | 545 | 10 | NKCVNFNFNG | 0.0 | 100 |
| HLA-A*68:01 | 1 | 536 | 545 | 10 | NKCVNFNFNG | 0.0 | 100 |
| HLA-A*68:02 | 1 | 536 | 544 | 9 | NKCVNFNFN | 0.0 | 100 |
| HLA-B*07:02 | 1 | 536 | 545 | 10 | NKCVNFNFNG | 0.0 | 100 |
| HLA-B*15:01 | 1 | 536 | 544 | 9 | NKCVNFNFN | 0.0 | 100 |
| HLA-B*15:01 | 1 | 536 | 545 | 10 | NKCVNFNFNG | 0.0 | 100 |
| HLA-B*35:01 | 1 | 536 | 545 | 10 | NKCVNFNFNG | 0.0 | 100 |
| HLA-B*40:01 | 1 | 536 | 545 | 10 | NKCVNFNFNG | 0.0 | 100 |
| HLA-A*24:02 | 1 | 547 | 556 | 10 | TGTGVLTESN | 0.0 | 100 |
| HLA-B*40:01 | 1 | 547 | 556 | 10 | TGTGVLTESN | 0.0 | 100 |
| HLA-B*40:01 | 1 | 559 | 568 | 10 | FLPFQQFGRD | 0.0 | 100 |
| HLA-A*24:02 | 1 | 560 | 568 | 9 | LPFQQFGRD | 0.0 | 100 |
| HLA-B*40:01 | 1 | 564 | 572 | 9 | QFGRDIADT | 0.0 | 100 |
| HLA-A*32:01 | 1 | 566 | 574 | 9 | GRDIADTTD | 0.0 | 100 |
| HLA-A*23:01 | 1 | 569 | 578 | 10 | IADTTDAVRD | 0.0 | 100 |
| HLA-A*24:02 | 1 | 569 | 578 | 10 | IADTTDAVRD | 0.0 | 100 |
| HLA-A*02:03 | 1 | 570 | 578 | 9 | ADTTDAVRD | 0.0 | 100 |
| HLA-A*26:01 | 1 | 570 | 578 | 9 | ADTTDAVRD | 0.0 | 100 |
| HLA-A*31:01 | 1 | 570 | 578 | 9 | ADTTDAVRD | 0.0 | 100 |
| HLA-A*32:01 | 1 | 570 | 578 | 9 | ADTTDAVRD | 0.0 | 100 |
| HLA-A*33:01 | 1 | 570 | 578 | 9 | ADTTDAVRD | 0.0 | 100 |
| HLA-A*68:02 | 1 | 570 | 578 | 9 | ADTTDAVRD | 0.0 | 100 |
| HLA-A*23:01 | 1 | 571 | 580 | 10 | DTTDAVRDPQ | 0.0 | 100 |
| HLA-A*24:02 | 1 | 571 | 580 | 10 | DTTDAVRDPQ | 0.0 | 100 |
| HLA-A*24:02 | 1 | 578 | 586 | 9 | DPQTLLEILD | 0.0 | 100 |
| HLA-A*24:02 | 1 | 585 | 594 | 10 | LDITPCSFGG | 0.0 | 100 |
| HLA-B*40:01 | 1 | 586 | 594 | 9 | DITPCSFGG | 0.0 | 100 |
| HLA-A*03:01 | 1 | 592 | 601 | 10 | FGGVSUITPG | 0.0 | 100 |
| HLA-A*11:01 | 1 | 592 | 601 | 10 | FGGVSUITPG | 0.0 | 100 |
| HLA-A*23:01 | 1 | 592 | 601 | 10 | FGGVSUITPG | 0.0 | 100 |
| HLA-A*24:02 | 1 | 592 | 601 | 10 | FGGVSUITPG | 0.0 | 100 |
| HLA-A*26:01 | 1 | 592 | 601 | 10 | FGGVSUITPG | 0.0 | 100 |
| HLA-B*40:01 | 1 | 592 | 601 | 10 | FGGVSUITPG | 0.0 | 100 |
| HLA-B*44:02 | 1 | 592 | 601 | 10 | FGGVSUITPG | 0.0 | 100 |
| HLA-B*44:03 | 1 | 592 | 601 | 10 | FGGVSUITPG | 0.0 | 100 |
| HLA-A*23:01 | 1 | 594 | 603 | 10 | GVSUITPGTN | 0.0 | 100 |
| HLA-A*24:02 | 1 | 594 | 603 | 10 | GVSUITPGTN | 0.0 | 100 |
| HLA-B*40:01 | 1 | 594 | 603 | 10 | GVSUITPGTN | 0.0 | 100 |
| HLA-B*35:01 | 1 | 605 | 614 | 10 | SNQVAVLYQD | 0.0 | 100 |
| HLA-A*23:01 | 1 | 607 | 616 | 10 | QVAVLYQDVN | 0.0 | 100 |
| HLA-A*24:02 | 1 | 607 | 616 | 10 | QVAVLYQDVN | 0.0 | 100 |
| HLA-B*40:01 | 1 | 607 | 616 | 10 | QVAVLYQDVN | 0.0 | 100 |
| HLA-A*24:02 | 1 | 608 | 616 | 9 | VAVLYQDVN | 0.0 | 100 |
| HLA-B*40:01 | 1 | 621 | 630 | 10 | PVAIHADQLT | 0.0 | 100 |
| HLA-B*35:01 | 1 | 631 | 640 | 10 | PTWRVYSTGS | 0.0 | 100 |

| | | | | | | |
|-------------|---|-----|-----|----|----------------|-----|
| HLA-B*40:01 | 1 | 631 | 639 | 9 | PTWRVYSTG 0.0 | 100 |
| HLA-B*40:01 | 1 | 631 | 640 | 10 | PTWRVYSTGS 0.0 | 100 |
| HLA-B*44:03 | 1 | 631 | 640 | 10 | PTWRVYSTGS 0.0 | 100 |
| HLA-B*53:01 | 1 | 631 | 640 | 10 | PTWRVYSTGS 0.0 | 100 |
| HLA-A*02:01 | 1 | 632 | 641 | 10 | TWRVYSTGSN 0.0 | 100 |
| HLA-A*32:01 | 1 | 632 | 641 | 10 | TWRVYSTGSN 0.0 | 100 |
| HLA-B*35:01 | 1 | 632 | 641 | 10 | TWRVYSTGSN 0.0 | 100 |
| HLA-B*40:01 | 1 | 632 | 641 | 10 | TWRVYSTGSN 0.0 | 100 |
| HLA-A*02:01 | 1 | 633 | 641 | 9 | WRVYSTGSN 0.0 | 100 |
| HLA-A*02:03 | 1 | 633 | 641 | 9 | WRVYSTGSN 0.0 | 100 |
| HLA-A*23:01 | 1 | 639 | 648 | 10 | GSNVFQTRAG 0.0 | 100 |
| HLA-A*24:02 | 1 | 639 | 648 | 10 | GSNVFQTRAG 0.0 | 100 |
| HLA-B*35:01 | 1 | 639 | 648 | 10 | GSNVFQTRAG 0.0 | 100 |
| HLA-A*32:01 | 1 | 645 | 654 | 10 | TRAGCLIGAE 0.0 | 100 |
| HLA-A*24:02 | 1 | 646 | 654 | 9 | RAGCLIGAE 0.0 | 100 |
| HLA-B*40:01 | 1 | 649 | 658 | 10 | CLIGAEHVNN 0.0 | 100 |
| HLA-B*44:03 | 1 | 649 | 658 | 10 | CLIGAEHVNN 0.0 | 100 |
| HLA-B*40:01 | 1 | 650 | 658 | 9 | LIGAEHVNN 0.0 | 100 |
| HLA-A*11:01 | 1 | 654 | 663 | 10 | EHVNNSYECD 0.0 | 100 |
| HLA-A*32:01 | 1 | 654 | 663 | 10 | EHVNNSYECD 0.0 | 100 |
| HLA-A*26:01 | 1 | 656 | 665 | 10 | VNNSYECDIP 0.0 | 100 |
| HLA-A*32:01 | 1 | 656 | 665 | 10 | VNNSYECDIP 0.0 | 100 |
| HLA-A*33:01 | 1 | 656 | 665 | 10 | VNNSYECDIP 0.0 | 100 |
| HLA-A*68:01 | 1 | 656 | 665 | 10 | VNNSYECDIP 0.0 | 100 |
| HLA-B*15:01 | 1 | 656 | 665 | 10 | VNNSYECDIP 0.0 | 100 |
| HLA-B*35:01 | 1 | 656 | 665 | 10 | VNNSYECDIP 0.0 | 100 |
| HLA-B*40:01 | 1 | 656 | 665 | 10 | VNNSYECDIP 0.0 | 100 |
| HLA-A*32:01 | 1 | 657 | 665 | 9 | NNSYECDIP 0.0 | 100 |
| HLA-B*15:01 | 1 | 657 | 665 | 9 | NNSYECDIP 0.0 | 100 |
| HLA-A*24:02 | 1 | 665 | 673 | 9 | PIGAGICAS 0.0 | 100 |
| HLA-B*40:01 | 1 | 665 | 673 | 9 | PIGAGICAS 0.0 | 100 |
| HLA-B*44:02 | 1 | 665 | 673 | 9 | PIGAGICAS 0.0 | 100 |
| HLA-B*44:03 | 1 | 665 | 673 | 9 | PIGAGICAS 0.0 | 100 |
| HLA-B*53:01 | 1 | 665 | 673 | 9 | PIGAGICAS 0.0 | 100 |
| HLA-B*40:01 | 1 | 666 | 675 | 10 | IGAGICASYQ 0.0 | 100 |
| HLA-A*23:01 | 1 | 667 | 675 | 9 | GAGICASYQ 0.0 | 100 |
| HLA-A*24:02 | 1 | 667 | 675 | 9 | GAGICASYQ 0.0 | 100 |
| HLA-A*24:02 | 1 | 667 | 676 | 10 | GAGICASYQT 0.0 | 100 |
| HLA-B*40:01 | 1 | 667 | 675 | 9 | GAGICASYQ 0.0 | 100 |
| HLA-A*23:01 | 1 | 670 | 679 | 10 | ICASYQTQTN 0.0 | 100 |
| HLA-B*40:01 | 1 | 670 | 679 | 10 | ICASYQTQTN 0.0 | 100 |
| HLA-A*24:02 | 1 | 671 | 680 | 10 | CASYQTQTN 0.0 | 100 |
| HLA-A*02:01 | 1 | 681 | 690 | 10 | PRRARSVASQ 0.0 | 100 |
| HLA-A*02:06 | 1 | 681 | 690 | 10 | PRRARSVASQ 0.0 | 100 |
| HLA-A*32:01 | 1 | 681 | 689 | 9 | PRRARSVAS 0.0 | 100 |
| HLA-A*32:01 | 1 | 681 | 690 | 10 | PRRARSVASQ 0.0 | 100 |
| HLA-B*40:01 | 1 | 681 | 690 | 10 | PRRARSVASQ 0.0 | 100 |
| HLA-B*53:01 | 1 | 681 | 689 | 9 | PRRARSVAS 0.0 | 100 |
| HLA-B*40:01 | 1 | 692 | 700 | 9 | IIAYTMSLG 0.0 | 100 |
| HLA-A*02:01 | 1 | 702 | 710 | 9 | ENSVAYSNN 0.0 | 100 |
| HLA-A*23:01 | 1 | 702 | 711 | 10 | ENSVAYSNNS 0.0 | 100 |
| HLA-A*24:02 | 1 | 702 | 711 | 10 | ENSVAYSNNS 0.0 | 100 |
| HLA-B*40:01 | 1 | 702 | 710 | 9 | ENSVAYSNN 0.0 | 100 |
| HLA-A*11:01 | 1 | 728 | 737 | 10 | PVSMTKTSVD 0.0 | 100 |
| HLA-A*23:01 | 1 | 728 | 737 | 10 | PVSMTKTSVD 0.0 | 100 |
| HLA-A*24:02 | 1 | 728 | 737 | 10 | PVSMTKTSVD 0.0 | 100 |
| HLA-A*26:01 | 1 | 728 | 737 | 10 | PVSMTKTSVD 0.0 | 100 |
| HLA-A*68:01 | 1 | 728 | 737 | 10 | PVSMTKTSVD 0.0 | 100 |
| HLA-B*35:01 | 1 | 728 | 737 | 10 | PVSMTKTSVD 0.0 | 100 |
| HLA-B*40:01 | 1 | 728 | 737 | 10 | PVSMTKTSVD 0.0 | 100 |
| HLA-B*44:02 | 1 | 728 | 737 | 10 | PVSMTKTSVD 0.0 | 100 |
| HLA-B*44:03 | 1 | 728 | 737 | 10 | PVSMTKTSVD 0.0 | 100 |
| HLA-B*53:01 | 1 | 728 | 737 | 10 | PVSMTKTSVD 0.0 | 100 |
| HLA-A*23:01 | 1 | 735 | 744 | 10 | SVDCTMYICG 0.0 | 100 |
| HLA-A*24:02 | 1 | 735 | 744 | 10 | SVDCTMYICG 0.0 | 100 |
| HLA-B*40:01 | 1 | 735 | 744 | 10 | SVDCTMYICG 0.0 | 100 |

| | | | | | | |
|-------------|---|-----|-----|----|----------------|-----|
| HLA-B*44:03 | 1 | 735 | 744 | 10 | SVICTMYICG 0.0 | 100 |
| HLA-A*02:01 | 1 | 736 | 745 | 10 | VDCTMYICGD 0.0 | 100 |
| HLA-A*02:03 | 1 | 736 | 745 | 10 | VDCTMYICGD 0.0 | 100 |
| HLA-A*02:06 | 1 | 736 | 745 | 10 | VDCTMYICGD 0.0 | 100 |
| HLA-A*03:01 | 1 | 736 | 744 | 9 | VDCTMYICG 0.0 | 100 |
| HLA-A*03:01 | 1 | 736 | 745 | 10 | VDCTMYICGD 0.0 | 100 |
| HLA-A*11:01 | 1 | 736 | 745 | 10 | VDCTMYICGD 0.0 | 100 |
| HLA-A*23:01 | 1 | 736 | 745 | 10 | VDCTMYICGD 0.0 | 100 |
| HLA-A*24:02 | 1 | 736 | 745 | 10 | VDCTMYICGD 0.0 | 100 |
| HLA-A*26:01 | 1 | 736 | 745 | 10 | VDCTMYICGD 0.0 | 100 |
| HLA-A*30:02 | 1 | 736 | 745 | 10 | VDCTMYICGD 0.0 | 100 |
| HLA-A*31:01 | 1 | 736 | 745 | 10 | VDCTMYICGD 0.0 | 100 |
| HLA-A*32:01 | 1 | 736 | 744 | 9 | VDCTMYICG 0.0 | 100 |
| HLA-A*32:01 | 1 | 736 | 745 | 10 | VDCTMYICGD 0.0 | 100 |
| HLA-A*33:01 | 1 | 736 | 745 | 10 | VDCTMYICGD 0.0 | 100 |
| HLA-A*68:01 | 1 | 736 | 745 | 10 | VDCTMYICGD 0.0 | 100 |
| HLA-A*68:02 | 1 | 736 | 745 | 10 | VDCTMYICGD 0.0 | 100 |
| HLA-B*07:02 | 1 | 736 | 745 | 10 | VDCTMYICGD 0.0 | 100 |
| HLA-B*08:01 | 1 | 736 | 745 | 10 | VDCTMYICGD 0.0 | 100 |
| HLA-B*15:01 | 1 | 736 | 744 | 9 | VDCTMYICG 0.0 | 100 |
| HLA-B*15:01 | 1 | 736 | 745 | 10 | VDCTMYICGD 0.0 | 100 |
| HLA-B*35:01 | 1 | 736 | 744 | 9 | VDCTMYICG 0.0 | 100 |
| HLA-B*35:01 | 1 | 736 | 745 | 10 | VDCTMYICGD 0.0 | 100 |
| HLA-B*40:01 | 1 | 736 | 744 | 9 | VDCTMYICG 0.0 | 100 |
| HLA-B*40:01 | 1 | 736 | 745 | 10 | VDCTMYICGD 0.0 | 100 |
| HLA-B*44:02 | 1 | 736 | 745 | 10 | VDCTMYICGD 0.0 | 100 |
| HLA-B*44:03 | 1 | 736 | 745 | 10 | VDCTMYICGD 0.0 | 100 |
| HLA-B*51:01 | 1 | 736 | 745 | 10 | VDCTMYICGD 0.0 | 100 |
| HLA-B*53:01 | 1 | 736 | 745 | 10 | VDCTMYICGD 0.0 | 100 |
| HLA-A*02:01 | 1 | 737 | 745 | 9 | DCTMYICGD 0.0 | 100 |
| HLA-A*02:03 | 1 | 737 | 745 | 9 | DCTMYICGD 0.0 | 100 |
| HLA-A*02:06 | 1 | 737 | 745 | 9 | DCTMYICGD 0.0 | 100 |
| HLA-A*03:01 | 1 | 737 | 745 | 9 | DCTMYICGD 0.0 | 100 |
| HLA-A*03:01 | 1 | 737 | 746 | 10 | DCTMYICGDS 0.0 | 100 |
| HLA-A*11:01 | 1 | 737 | 745 | 9 | DCTMYICGD 0.0 | 100 |
| HLA-A*11:01 | 1 | 737 | 746 | 10 | DCTMYICGDS 0.0 | 100 |
| HLA-A*23:01 | 1 | 737 | 745 | 9 | DCTMYICGD 0.0 | 100 |
| HLA-A*23:01 | 1 | 737 | 746 | 10 | DCTMYICGDS 0.0 | 100 |
| HLA-A*24:02 | 1 | 737 | 745 | 9 | DCTMYICGD 0.0 | 100 |
| HLA-A*24:02 | 1 | 737 | 746 | 10 | DCTMYICGDS 0.0 | 100 |
| HLA-A*26:01 | 1 | 737 | 745 | 9 | DCTMYICGD 0.0 | 100 |
| HLA-A*30:02 | 1 | 737 | 745 | 9 | DCTMYICGD 0.0 | 100 |
| HLA-A*31:01 | 1 | 737 | 745 | 9 | DCTMYICGD 0.0 | 100 |
| HLA-A*31:01 | 1 | 737 | 746 | 10 | DCTMYICGDS 0.0 | 100 |
| HLA-A*32:01 | 1 | 737 | 745 | 9 | DCTMYICGD 0.0 | 100 |
| HLA-A*32:01 | 1 | 737 | 746 | 10 | DCTMYICGDS 0.0 | 100 |
| HLA-A*68:01 | 1 | 737 | 745 | 9 | DCTMYICGD 0.0 | 100 |
| HLA-A*68:02 | 1 | 737 | 745 | 9 | DCTMYICGD 0.0 | 100 |
| HLA-B*07:02 | 1 | 737 | 745 | 9 | DCTMYICGD 0.0 | 100 |
| HLA-B*07:02 | 1 | 737 | 746 | 10 | DCTMYICGDS 0.0 | 100 |
| HLA-B*15:01 | 1 | 737 | 745 | 9 | DCTMYICGD 0.0 | 100 |
| HLA-B*15:01 | 1 | 737 | 746 | 10 | DCTMYICGDS 0.0 | 100 |
| HLA-B*35:01 | 1 | 737 | 745 | 9 | DCTMYICGD 0.0 | 100 |
| HLA-B*35:01 | 1 | 737 | 746 | 10 | DCTMYICGDS 0.0 | 100 |
| HLA-B*40:01 | 1 | 737 | 745 | 9 | DCTMYICGD 0.0 | 100 |
| HLA-B*40:01 | 1 | 737 | 746 | 10 | DCTMYICGDS 0.0 | 100 |
| HLA-B*44:02 | 1 | 737 | 745 | 9 | DCTMYICGD 0.0 | 100 |
| HLA-B*44:02 | 1 | 737 | 746 | 10 | DCTMYICGDS 0.0 | 100 |
| HLA-B*44:03 | 1 | 737 | 745 | 9 | DCTMYICGD 0.0 | 100 |
| HLA-B*44:03 | 1 | 737 | 746 | 10 | DCTMYICGDS 0.0 | 100 |
| HLA-B*53:01 | 1 | 737 | 746 | 10 | DCTMYICGDS 0.0 | 100 |
| HLA-B*58:01 | 1 | 737 | 745 | 9 | DCTMYICGD 0.0 | 100 |
| HLA-A*23:01 | 1 | 738 | 746 | 9 | CTMYICGDS 0.0 | 100 |
| HLA-A*24:02 | 1 | 738 | 746 | 9 | CTMYICGDS 0.0 | 100 |
| HLA-A*24:02 | 1 | 738 | 747 | 10 | CTMYICGDST 0.0 | 100 |
| HLA-B*35:01 | 1 | 738 | 746 | 9 | CTMYICGDS 0.0 | 100 |

| | | | | | | |
|-------------|---|-----|-----|----|----------------|-----|
| HLA-B*40:01 | 1 | 738 | 746 | 9 | CTMYICGDS 0.0 | 100 |
| HLA-B*40:01 | 1 | 738 | 747 | 10 | CTMYICGDST 0.0 | 100 |
| HLA-B*44:02 | 1 | 738 | 746 | 9 | CTMYICGDS 0.0 | 100 |
| HLA-B*44:03 | 1 | 738 | 746 | 9 | CTMYICGDS 0.0 | 100 |
| HLA-A*02:03 | 1 | 742 | 751 | 10 | ICGDSTECNS 0.0 | 100 |
| HLA-A*23:01 | 1 | 742 | 751 | 10 | ICGDSTECNS 0.0 | 100 |
| HLA-A*24:02 | 1 | 742 | 751 | 10 | ICGDSTECNS 0.0 | 100 |
| HLA-A*26:01 | 1 | 742 | 750 | 9 | ICGDSTECNS 0.0 | 100 |
| HLA-A*26:01 | 1 | 742 | 751 | 10 | ICGDSTECNS 0.0 | 100 |
| HLA-A*32:01 | 1 | 742 | 750 | 9 | ICGDSTECNS 0.0 | 100 |
| HLA-A*32:01 | 1 | 742 | 751 | 10 | ICGDSTECNS 0.0 | 100 |
| HLA-A*68:02 | 1 | 742 | 751 | 10 | ICGDSTECNS 0.0 | 100 |
| HLA-B*40:01 | 1 | 742 | 751 | 10 | ICGDSTECNS 0.0 | 100 |
| HLA-B*44:03 | 1 | 742 | 751 | 10 | ICGDSTECNS 0.0 | 100 |
| HLA-A*02:03 | 1 | 743 | 751 | 9 | CGDSTECNS 0.0 | 100 |
| HLA-A*23:01 | 1 | 743 | 751 | 9 | CGDSTECNS 0.0 | 100 |
| HLA-A*24:02 | 1 | 743 | 751 | 9 | CGDSTECNS 0.0 | 100 |
| HLA-A*32:01 | 1 | 743 | 751 | 9 | CGDSTECNS 0.0 | 100 |
| HLA-A*68:02 | 1 | 743 | 751 | 9 | CGDSTECNS 0.0 | 100 |
| HLA-B*40:01 | 1 | 743 | 751 | 9 | CGDSTECNS 0.0 | 100 |
| HLA-B*40:01 | 1 | 748 | 757 | 10 | ECSNLLLQYG 0.0 | 100 |
| HLA-A*23:01 | 1 | 749 | 758 | 10 | CSNLLLQYGS 0.0 | 100 |
| HLA-A*24:02 | 1 | 749 | 758 | 10 | CSNLLLQYGS 0.0 | 100 |
| HLA-B*35:01 | 1 | 749 | 758 | 10 | CSNLLLQYGS 0.0 | 100 |
| HLA-B*40:01 | 1 | 749 | 757 | 9 | CSNLLLQYG 0.0 | 100 |
| HLA-B*40:01 | 1 | 749 | 758 | 10 | CSNLLLQYGS 0.0 | 100 |
| HLA-B*44:03 | 1 | 749 | 758 | 10 | CSNLLLQYGS 0.0 | 100 |
| HLA-B*40:01 | 1 | 752 | 761 | 10 | LLLQYGSFCT 0.0 | 100 |
| HLA-B*40:01 | 1 | 755 | 764 | 10 | QYGSFCTQLN 0.0 | 100 |
| HLA-B*40:01 | 1 | 756 | 764 | 9 | YGSFCTQLN 0.0 | 100 |
| HLA-B*40:01 | 1 | 767 | 775 | 9 | LTGIAVEQD 0.0 | 100 |
| HLA-A*24:02 | 1 | 768 | 777 | 10 | TGIAVEQDKN 0.0 | 100 |
| HLA-B*40:01 | 1 | 768 | 777 | 10 | TGIAVEQDKN 0.0 | 100 |
| HLA-A*23:01 | 1 | 769 | 777 | 9 | GIAVEQDKN 0.0 | 100 |
| HLA-A*24:02 | 1 | 769 | 777 | 9 | GIAVEQDKN 0.0 | 100 |
| HLA-A*24:02 | 1 | 769 | 778 | 10 | GIAVEQDKNT 0.0 | 100 |
| HLA-B*40:01 | 1 | 769 | 777 | 9 | GIAVEQDKN 0.0 | 100 |
| HLA-A*11:01 | 1 | 792 | 801 | 10 | PPIKDFGGFN 0.0 | 100 |
| HLA-B*40:01 | 1 | 792 | 801 | 10 | PPIKDFGGFN 0.0 | 100 |
| HLA-A*23:01 | 1 | 793 | 801 | 9 | PIKDFGGFN 0.0 | 100 |
| HLA-A*24:02 | 1 | 793 | 801 | 9 | PIKDFGGFN 0.0 | 100 |
| HLA-B*35:01 | 1 | 793 | 801 | 9 | PIKDFGGFN 0.0 | 100 |
| HLA-B*40:01 | 1 | 793 | 801 | 9 | PIKDFGGFN 0.0 | 100 |
| HLA-B*35:01 | 1 | 799 | 808 | 10 | GFNFSQILPD 0.0 | 100 |
| HLA-B*40:01 | 1 | 799 | 808 | 10 | GFNFSQILPD 0.0 | 100 |
| HLA-B*53:01 | 1 | 799 | 808 | 10 | GFNFSQILPD 0.0 | 100 |
| HLA-B*40:01 | 1 | 801 | 810 | 10 | NFSQILPDPS 0.0 | 100 |
| HLA-A*32:01 | 1 | 807 | 816 | 10 | PDPSPKSKRS 0.0 | 100 |
| HLA-B*35:01 | 1 | 812 | 820 | 9 | PSKRSFIED 0.0 | 100 |
| HLA-B*40:01 | 1 | 812 | 820 | 9 | PSKRSFIED 0.0 | 100 |
| HLA-B*44:03 | 1 | 812 | 820 | 9 | PSKRSFIED 0.0 | 100 |
| HLA-A*02:01 | 1 | 823 | 832 | 10 | FNKVTLADAG 0.0 | 100 |
| HLA-A*11:01 | 1 | 823 | 832 | 10 | FNKVTLADAG 0.0 | 100 |
| HLA-A*23:01 | 1 | 823 | 832 | 10 | FNKVTLADAG 0.0 | 100 |
| HLA-A*24:02 | 1 | 823 | 832 | 10 | FNKVTLADAG 0.0 | 100 |
| HLA-A*32:01 | 1 | 823 | 832 | 10 | FNKVTLADAG 0.0 | 100 |
| HLA-A*02:01 | 1 | 824 | 832 | 9 | NKVTLADAG 0.0 | 100 |
| HLA-A*02:03 | 1 | 824 | 832 | 9 | NKVTLADAG 0.0 | 100 |
| HLA-A*03:01 | 1 | 824 | 832 | 9 | NKVTLADAG 0.0 | 100 |
| HLA-A*11:01 | 1 | 824 | 832 | 9 | NKVTLADAG 0.0 | 100 |
| HLA-A*31:01 | 1 | 824 | 832 | 9 | NKVTLADAG 0.0 | 100 |
| HLA-A*32:01 | 1 | 824 | 832 | 9 | NKVTLADAG 0.0 | 100 |
| HLA-A*02:01 | 1 | 830 | 839 | 10 | DAGFIKQYGD 0.0 | 100 |
| HLA-A*03:01 | 1 | 830 | 839 | 10 | DAGFIKQYGD 0.0 | 100 |
| HLA-A*11:01 | 1 | 830 | 839 | 10 | DAGFIKQYGD 0.0 | 100 |
| HLA-A*24:02 | 1 | 830 | 839 | 10 | DAGFIKQYGD 0.0 | 100 |

| | | | | | | |
|-------------|---|-----|-----|----|----------------|-----|
| HLA-A*32:01 | 1 | 830 | 839 | 10 | DAGFIKQYGD 0.0 | 100 |
| HLA-B*15:01 | 1 | 830 | 839 | 10 | DAGFIKQYGD 0.0 | 100 |
| HLA-B*40:01 | 1 | 830 | 839 | 10 | DAGFIKQYGD 0.0 | 100 |
| HLA-B*53:01 | 1 | 831 | 840 | 10 | AGFIKQYGDC 0.0 | 100 |
| HLA-A*11:01 | 1 | 833 | 842 | 10 | FIKQYGDCLG 0.0 | 100 |
| HLA-B*40:01 | 1 | 833 | 842 | 10 | FIKQYGDCLG 0.0 | 100 |
| HLA-A*02:01 | 1 | 834 | 842 | 9 | IKQYGDCLG 0.0 | 100 |
| HLA-A*02:03 | 1 | 834 | 842 | 9 | IKQYGDCLG 0.0 | 100 |
| HLA-A*03:01 | 1 | 834 | 843 | 10 | IKQYGDCLGD 0.0 | 100 |
| HLA-A*11:01 | 1 | 834 | 842 | 9 | IKQYGDCLG 0.0 | 100 |
| HLA-A*11:01 | 1 | 834 | 843 | 10 | IKQYGDCLGD 0.0 | 100 |
| HLA-A*24:02 | 1 | 834 | 843 | 10 | IKQYGDCLGD 0.0 | 100 |
| HLA-A*31:01 | 1 | 834 | 843 | 10 | IKQYGDCLGD 0.0 | 100 |
| HLA-A*32:01 | 1 | 834 | 842 | 9 | IKQYGDCLG 0.0 | 100 |
| HLA-A*68:01 | 1 | 834 | 842 | 9 | IKQYGDCLG 0.0 | 100 |
| HLA-A*68:02 | 1 | 834 | 842 | 9 | IKQYGDCLG 0.0 | 100 |
| HLA-B*07:02 | 1 | 834 | 843 | 10 | IKQYGDCLGD 0.0 | 100 |
| HLA-B*35:01 | 1 | 834 | 843 | 10 | IKQYGDCLGD 0.0 | 100 |
| HLA-B*44:02 | 1 | 834 | 843 | 10 | IKQYGDCLGD 0.0 | 100 |
| HLA-A*23:01 | 1 | 839 | 848 | 10 | DCLGDIAARD 0.0 | 100 |
| HLA-A*24:02 | 1 | 839 | 848 | 10 | DCLGDIAARD 0.0 | 100 |
| HLA-A*32:01 | 1 | 839 | 848 | 10 | DCLGDIAARD 0.0 | 100 |
| HLA-B*40:01 | 1 | 839 | 848 | 10 | DCLGDIAARD 0.0 | 100 |
| HLA-A*11:01 | 1 | 840 | 848 | 9 | CLGDIAARD 0.0 | 100 |
| HLA-A*23:01 | 1 | 844 | 853 | 10 | IAARDLICAQ 0.0 | 100 |
| HLA-A*24:02 | 1 | 844 | 853 | 10 | IAARDLICAQ 0.0 | 100 |
| HLA-A*68:02 | 1 | 847 | 856 | 10 | RDLICAQKFN 0.0 | 100 |
| HLA-A*11:01 | 1 | 848 | 857 | 10 | DLICAQKFNG 0.0 | 100 |
| HLA-A*23:01 | 1 | 848 | 856 | 9 | DLICAQKFN 0.0 | 100 |
| HLA-A*24:02 | 1 | 848 | 856 | 9 | DLICAQKFN 0.0 | 100 |
| HLA-A*24:02 | 1 | 848 | 857 | 10 | DLICAQKFNG 0.0 | 100 |
| HLA-B*40:01 | 1 | 848 | 856 | 9 | DLICAQKFN 0.0 | 100 |
| HLA-B*40:01 | 1 | 848 | 857 | 10 | DLICAQKFNG 0.0 | 100 |
| HLA-B*40:01 | 1 | 849 | 857 | 9 | LICAQKFNG 0.0 | 100 |
| HLA-A*26:01 | 1 | 862 | 871 | 10 | PPLLTDEMIA 0.0 | 100 |
| HLA-B*40:01 | 1 | 863 | 872 | 10 | PLLTDEMIAQ 0.0 | 100 |
| HLA-B*40:01 | 1 | 878 | 887 | 10 | LAGTITSGWT 0.0 | 100 |
| HLA-B*35:01 | 1 | 879 | 887 | 9 | AGTITSGWT 0.0 | 100 |
| HLA-B*40:01 | 1 | 882 | 891 | 10 | ITSGWTFGAG 0.0 | 100 |
| HLA-B*40:01 | 1 | 883 | 891 | 9 | TSGWTFGAG 0.0 | 100 |
| HLA-B*35:01 | 1 | 899 | 908 | 10 | AMQMAYRFNG 0.0 | 100 |
| HLA-B*53:01 | 1 | 899 | 908 | 10 | AMQMAYRFNG 0.0 | 100 |
| HLA-B*35:01 | 1 | 901 | 910 | 10 | QMAYRFNGIG 0.0 | 100 |
| HLA-B*40:01 | 1 | 901 | 910 | 10 | QMAYRFNGIG 0.0 | 100 |
| HLA-A*24:02 | 1 | 910 | 919 | 10 | GVTQNVLYEN 0.0 | 100 |
| HLA-B*35:01 | 1 | 910 | 919 | 10 | GVTQNVLYEN 0.0 | 100 |
| HLA-B*40:01 | 1 | 910 | 919 | 10 | GVTQNVLYEN 0.0 | 100 |
| HLA-A*02:01 | 1 | 920 | 928 | 9 | QKLIANQFN 0.0 | 100 |
| HLA-A*02:03 | 1 | 920 | 928 | 9 | QKLIANQFN 0.0 | 100 |
| HLA-A*68:02 | 1 | 920 | 928 | 9 | QKLIANQFN 0.0 | 100 |
| HLA-B*40:01 | 1 | 927 | 936 | 10 | FNSAIGKIQD 0.0 | 100 |
| HLA-A*24:02 | 1 | 941 | 950 | 10 | TASALGKLQD 0.0 | 100 |
| HLA-B*40:01 | 1 | 941 | 950 | 10 | TASALGKLQD 0.0 | 100 |
| HLA-B*40:01 | 1 | 944 | 953 | 10 | ALGKLQDVVN 0.0 | 100 |
| HLA-A*23:01 | 1 | 945 | 953 | 9 | LGKLQDVVN 0.0 | 100 |
| HLA-A*24:02 | 1 | 945 | 953 | 9 | LGKLQDVVN 0.0 | 100 |
| HLA-B*40:01 | 1 | 945 | 953 | 9 | LGKLQDVVN 0.0 | 100 |
| HLA-B*40:01 | 1 | 960 | 969 | 10 | NTLVKQLSSN 0.0 | 100 |
| HLA-A*11:01 | 1 | 970 | 979 | 10 | FGAISSVLND 0.0 | 100 |
| HLA-A*23:01 | 1 | 970 | 979 | 10 | FGAISSVLND 0.0 | 100 |
| HLA-A*24:02 | 1 | 970 | 979 | 10 | FGAISSVLND 0.0 | 100 |
| HLA-B*40:01 | 1 | 970 | 979 | 10 | FGAISSVLND 0.0 | 100 |
| HLA-B*44:03 | 1 | 970 | 979 | 10 | FGAISSVLND 0.0 | 100 |
| HLA-B*40:01 | 1 | 979 | 988 | 10 | DILSRLDKVE 0.0 | 100 |
| HLA-A*24:02 | 1 | 984 | 992 | 9 | LDKVEAEVQ 0.0 | 100 |
| HLA-A*11:01 | 1 | 985 | 994 | 10 | DKVEAEVQID 0.0 | 100 |

| | | | | | | |
|-------------|---|------|------|----|----------------|-----|
| HLA-A*31:01 | 1 | 985 | 994 | 10 | DKVEAEVQID 0.0 | 100 |
| HLA-A*32:01 | 1 | 985 | 994 | 10 | DKVEAEVQID 0.0 | 100 |
| HLA-A*23:01 | 1 | 1015 | 1023 | 9 | AAEIRASAN 0.0 | 100 |
| HLA-A*24:02 | 1 | 1015 | 1023 | 9 | AAEIRASAN 0.0 | 100 |
| HLA-A*23:01 | 1 | 1029 | 1037 | 9 | MSECVLGQS 0.0 | 100 |
| HLA-A*24:02 | 1 | 1029 | 1037 | 9 | MSECVLGQS 0.0 | 100 |
| HLA-A*11:01 | 1 | 1032 | 1041 | 10 | CVLGQSKRVD 0.0 | 100 |
| HLA-A*23:01 | 1 | 1032 | 1041 | 10 | CVLGQSKRVD 0.0 | 100 |
| HLA-A*24:02 | 1 | 1032 | 1041 | 10 | CVLGQSKRVD 0.0 | 100 |
| HLA-B*35:01 | 1 | 1032 | 1041 | 10 | CVLGQSKRVD 0.0 | 100 |
| HLA-B*40:01 | 1 | 1032 | 1041 | 10 | CVLGQSKRVD 0.0 | 100 |
| HLA-B*44:03 | 1 | 1032 | 1041 | 10 | CVLGQSKRVD 0.0 | 100 |
| HLA-B*35:01 | 1 | 1035 | 1044 | 10 | GQSKRVDFCG 0.0 | 100 |
| HLA-B*53:01 | 1 | 1035 | 1044 | 10 | GQSKRVDFCG 0.0 | 100 |
| HLA-A*02:01 | 1 | 1037 | 1046 | 10 | SKRVDFCGKG 0.0 | 100 |
| HLA-B*35:01 | 1 | 1037 | 1046 | 10 | SKRVDFCGKG 0.0 | 100 |
| HLA-B*40:01 | 1 | 1037 | 1046 | 10 | SKRVDFCGKG 0.0 | 100 |
| HLA-B*53:01 | 1 | 1037 | 1046 | 10 | SKRVDFCGKG 0.0 | 100 |
| HLA-A*11:01 | 1 | 1057 | 1066 | 10 | PHGVVFLHVT 0.0 | 100 |
| HLA-A*32:01 | 1 | 1057 | 1066 | 10 | PHGVVFLHVT 0.0 | 100 |
| HLA-A*68:01 | 1 | 1057 | 1066 | 10 | PHGVVFLHVT 0.0 | 100 |
| HLA-B*15:01 | 1 | 1057 | 1066 | 10 | PHGVVFLHVT 0.0 | 100 |
| HLA-B*35:01 | 1 | 1057 | 1066 | 10 | PHGVVFLHVT 0.0 | 100 |
| HLA-B*40:01 | 1 | 1057 | 1066 | 10 | PHGVVFLHVT 0.0 | 100 |
| HLA-B*44:03 | 1 | 1057 | 1066 | 10 | PHGVVFLHVT 0.0 | 100 |
| HLA-B*40:01 | 1 | 1077 | 1085 | 9 | TAPAICHDG 0.0 | 100 |
| HLA-A*23:01 | 1 | 1079 | 1088 | 10 | PAICHDGKAH 0.0 | 100 |
| HLA-A*24:02 | 1 | 1079 | 1087 | 9 | PAICHDGKA 0.0 | 100 |
| HLA-A*24:02 | 1 | 1079 | 1088 | 10 | PAICHDGKAH 0.0 | 100 |
| HLA-A*02:01 | 1 | 1084 | 1093 | 10 | DGKAHFPREG 0.0 | 100 |
| HLA-B*40:01 | 1 | 1084 | 1093 | 10 | DGKAHFPREG 0.0 | 100 |
| HLA-A*02:01 | 1 | 1090 | 1098 | 9 | PREGVFVSN 0.0 | 100 |
| HLA-A*02:01 | 1 | 1090 | 1099 | 10 | PREGVFVSN 0.0 | 100 |
| HLA-A*02:03 | 1 | 1090 | 1099 | 10 | PREGVFVSN 0.0 | 100 |
| HLA-A*02:06 | 1 | 1090 | 1099 | 10 | PREGVFVSN 0.0 | 100 |
| HLA-A*03:01 | 1 | 1090 | 1099 | 10 | PREGVFVSN 0.0 | 100 |
| HLA-A*11:01 | 1 | 1090 | 1098 | 9 | PREGVFVSN 0.0 | 100 |
| HLA-A*11:01 | 1 | 1090 | 1099 | 10 | PREGVFVSN 0.0 | 100 |
| HLA-A*24:02 | 1 | 1090 | 1099 | 10 | PREGVFVSN 0.0 | 100 |
| HLA-A*26:01 | 1 | 1090 | 1099 | 10 | PREGVFVSN 0.0 | 100 |
| HLA-A*32:01 | 1 | 1090 | 1098 | 9 | PREGVFVSN 0.0 | 100 |
| HLA-A*32:01 | 1 | 1090 | 1099 | 10 | PREGVFVSN 0.0 | 100 |
| HLA-A*68:01 | 1 | 1090 | 1099 | 10 | PREGVFVSN 0.0 | 100 |
| HLA-A*68:02 | 1 | 1090 | 1099 | 10 | PREGVFVSN 0.0 | 100 |
| HLA-B*07:02 | 1 | 1090 | 1099 | 10 | PREGVFVSN 0.0 | 100 |
| HLA-B*15:01 | 1 | 1090 | 1099 | 10 | PREGVFVSN 0.0 | 100 |
| HLA-B*35:01 | 1 | 1090 | 1099 | 10 | PREGVFVSN 0.0 | 100 |
| HLA-B*40:01 | 1 | 1090 | 1099 | 10 | PREGVFVSN 0.0 | 100 |
| HLA-B*53:01 | 1 | 1090 | 1099 | 10 | PREGVFVSN 0.0 | 100 |
| HLA-A*02:03 | 1 | 1111 | 1119 | 9 | EPQIITTDN 0.0 | 100 |
| HLA-A*23:01 | 1 | 1111 | 1119 | 9 | EPQIITTDN 0.0 | 100 |
| HLA-A*24:02 | 1 | 1111 | 1119 | 9 | EPQIITTDN 0.0 | 100 |
| HLA-A*23:01 | 1 | 1116 | 1125 | 10 | TTDNTFVSGN 0.0 | 100 |
| HLA-B*40:01 | 1 | 1116 | 1125 | 10 | TTDNTFVSGN 0.0 | 100 |
| HLA-A*03:01 | 1 | 1118 | 1127 | 10 | DNTFVSGNCD 0.0 | 100 |
| HLA-A*11:01 | 1 | 1118 | 1127 | 10 | DNTFVSGNCD 0.0 | 100 |
| HLA-A*23:01 | 1 | 1118 | 1127 | 10 | DNTFVSGNCD 0.0 | 100 |
| HLA-A*24:02 | 1 | 1118 | 1127 | 10 | DNTFVSGNCD 0.0 | 100 |
| HLA-A*32:01 | 1 | 1118 | 1127 | 10 | DNTFVSGNCD 0.0 | 100 |
| HLA-B*07:02 | 1 | 1118 | 1127 | 10 | DNTFVSGNCD 0.0 | 100 |
| HLA-B*40:01 | 1 | 1118 | 1127 | 10 | DNTFVSGNCD 0.0 | 100 |
| HLA-B*44:02 | 1 | 1118 | 1127 | 10 | DNTFVSGNCD 0.0 | 100 |
| HLA-B*44:03 | 1 | 1118 | 1127 | 10 | DNTFVSGNCD 0.0 | 100 |
| HLA-A*23:01 | 1 | 1122 | 1131 | 10 | VSGNCDVVIG 0.0 | 100 |
| HLA-A*24:02 | 1 | 1122 | 1131 | 10 | VSGNCDVVIG 0.0 | 100 |
| HLA-A*26:01 | 1 | 1122 | 1131 | 10 | VSGNCDVVIG 0.0 | 100 |

| | | | | | | |
|-------------|---|------|------|----|-----------------|-----|
| HLA-B*35:01 | 1 | 1122 | 1131 | 10 | VSGNCDVVIG 0.0 | 100 |
| HLA-B*40:01 | 1 | 1122 | 1131 | 10 | VSGNCDVVIG 0.0 | 100 |
| HLA-B*44:02 | 1 | 1122 | 1131 | 10 | VSGNCDVVIG 0.0 | 100 |
| HLA-B*44:03 | 1 | 1122 | 1131 | 10 | VSGNCDVVIG 0.0 | 100 |
| HLA-A*11:01 | 1 | 1125 | 1134 | 10 | NCDVVIGIVN 0.0 | 100 |
| HLA-A*23:01 | 1 | 1125 | 1134 | 10 | NCDVVIGIVN 0.0 | 100 |
| HLA-A*24:02 | 1 | 1125 | 1134 | 10 | NCDVVIGIVN 0.0 | 100 |
| HLA-A*32:01 | 1 | 1125 | 1134 | 10 | NCDVVIGIVN 0.0 | 100 |
| HLA-B*40:01 | 1 | 1125 | 1134 | 10 | NCDVVIGIVN 0.0 | 100 |
| HLA-A*23:01 | 1 | 1126 | 1134 | 9 | CDVVIGIVN 0.0 | 100 |
| HLA-A*23:01 | 1 | 1126 | 1135 | 10 | CDVVIGIVNN 0.0 | 100 |
| HLA-A*24:02 | 1 | 1126 | 1134 | 9 | CDVVIGIVN 0.0 | 100 |
| HLA-A*24:02 | 1 | 1126 | 1135 | 10 | CDVVIGIVNN 0.0 | 100 |
| HLA-A*32:01 | 1 | 1126 | 1134 | 9 | CDVVIGIVN 0.0 | 100 |
| HLA-B*07:02 | 1 | 1126 | 1135 | 10 | CDVVIGIVNN 0.0 | 100 |
| HLA-B*35:01 | 1 | 1126 | 1135 | 10 | CDVVIGIVNN 0.0 | 100 |
| HLA-B*40:01 | 1 | 1126 | 1135 | 10 | CDVVIGIVNN 0.0 | 100 |
| HLA-A*32:01 | 1 | 1143 | 1151 | 9 | PELDSFKEE 0.0 | 100 |
| HLA-A*02:03 | 1 | 1145 | 1153 | 9 | LDSFKEELD 0.0 | 100 |
| HLA-A*11:01 | 1 | 1145 | 1153 | 9 | LDSFKEELD 0.0 | 100 |
| HLA-A*26:01 | 1 | 1145 | 1153 | 9 | LDSFKEELD 0.0 | 100 |
| HLA-A*31:01 | 1 | 1145 | 1153 | 9 | LDSFKEELD 0.0 | 100 |
| HLA-A*32:01 | 1 | 1145 | 1153 | 9 | LDSFKEELD 0.0 | 100 |
| HLA-B*07:02 | 1 | 1145 | 1153 | 9 | LDSFKEELD 0.0 | 100 |
| HLA-B*15:01 | 1 | 1145 | 1153 | 9 | LDSFKEELD 0.0 | 100 |
| HLA-A*03:01 | 1 | 1156 | 1165 | 10 | FKNHTSPDVD 0.0 | 100 |
| HLA-A*11:01 | 1 | 1156 | 1165 | 10 | FKNHTSPDVD 0.0 | 100 |
| HLA-A*31:01 | 1 | 1156 | 1165 | 10 | FKNHTSPDVD 0.0 | 100 |
| HLA-A*32:01 | 1 | 1156 | 1165 | 10 | FKNHTSPDVD 0.0 | 100 |
| HLA-A*33:01 | 1 | 1156 | 1165 | 10 | FKNHTSPDVD 0.0 | 100 |
| HLA-A*68:01 | 1 | 1156 | 1165 | 10 | FKNHTSPDVD 0.0 | 100 |
| HLA-B*40:01 | 1 | 1159 | 1168 | 10 | HTSPVDLGD 0.0 | 100 |
| HLA-A*02:03 | 1 | 1162 | 1170 | 9 | PDVDLGDIS 0.0 | 100 |
| HLA-A*11:01 | 1 | 1162 | 1171 | 10 | PDVDLGDISG 0.0 | 100 |
| HLA-A*23:01 | 1 | 1162 | 1170 | 9 | PDVDLGDIS 0.0 | 100 |
| HLA-A*23:01 | 1 | 1162 | 1171 | 10 | PDVDLGDISG 0.0 | 100 |
| HLA-A*24:02 | 1 | 1162 | 1170 | 9 | PDVDLGDIS 0.0 | 100 |
| HLA-A*24:02 | 1 | 1162 | 1171 | 10 | PDVDLGDISG 0.0 | 100 |
| HLA-A*26:01 | 1 | 1162 | 1170 | 9 | PDVDLGDIS 0.0 | 100 |
| HLA-A*31:01 | 1 | 1162 | 1170 | 9 | PDVDLGDIS 0.0 | 100 |
| HLA-A*32:01 | 1 | 1162 | 1170 | 9 | PDVDLGDIS 0.0 | 100 |
| HLA-A*32:01 | 1 | 1162 | 1171 | 10 | PDVDLGDISG 0.0 | 100 |
| HLA-A*68:01 | 1 | 1162 | 1170 | 9 | PDVDLGDIS 0.0 | 100 |
| HLA-A*68:01 | 1 | 1162 | 1171 | 10 | PDVDLGDISG 0.0 | 100 |
| HLA-A*68:02 | 1 | 1162 | 1170 | 9 | PDVDLGDIS 0.0 | 100 |
| HLA-B*40:01 | 1 | 1162 | 1171 | 10 | PDVDLGDISG 0.0 | 100 |
| HLA-B*40:01 | 1 | 1165 | 1173 | 9 | DLGDISGIN 0.0 | 100 |
| HLA-B*40:01 | 1 | 1169 | 1178 | 10 | ISGINASVNVN 0.0 | 100 |
| HLA-A*32:01 | 1 | 1180 | 1188 | 9 | QKEIDRLNE 0.0 | 100 |
| HLA-A*32:01 | 1 | 1183 | 1192 | 10 | IDRLNEVAKN 0.0 | 100 |
| HLA-A*02:01 | 1 | 1186 | 1194 | 9 | LNEVAKNLN 0.0 | 100 |
| HLA-A*02:03 | 1 | 1186 | 1194 | 9 | LNEVAKNLN 0.0 | 100 |
| HLA-A*24:02 | 1 | 1186 | 1194 | 9 | LNEVAKNLN 0.0 | 100 |
| HLA-A*32:01 | 1 | 1186 | 1194 | 9 | LNEVAKNLN 0.0 | 100 |
| HLA-B*40:01 | 1 | 1186 | 1194 | 9 | LNEVAKNLN 0.0 | 100 |
| HLA-A*11:01 | 1 | 1190 | 1199 | 10 | AKNLNESLID 0.0 | 100 |
| HLA-A*31:01 | 1 | 1190 | 1199 | 10 | AKNLNESLID 0.0 | 100 |
| HLA-A*32:01 | 1 | 1190 | 1199 | 10 | AKNLNESLID 0.0 | 100 |
| HLA-A*68:01 | 1 | 1190 | 1199 | 10 | AKNLNESLID 0.0 | 100 |
| HLA-B*35:01 | 1 | 1190 | 1199 | 10 | AKNLNESLID 0.0 | 100 |
| HLA-B*35:01 | 1 | 1213 | 1221 | 9 | PWYIWLGFIA 0.0 | 100 |
| HLA-B*35:01 | 1 | 1213 | 1222 | 10 | PWYIWLGFIA 0.0 | 100 |
| HLA-B*40:01 | 1 | 1213 | 1221 | 9 | PWYIWLGFIA 0.0 | 100 |
| HLA-B*40:01 | 1 | 1213 | 1222 | 10 | PWYIWLGFIA 0.0 | 100 |
| HLA-B*53:01 | 1 | 1213 | 1222 | 10 | PWYIWLGFIA 0.0 | 100 |
| HLA-B*40:01 | 1 | 1214 | 1223 | 10 | WYIWLGFIA 0.0 | 100 |

| | | | | | | |
|-------------|---|------|------|----|----------------|-----|
| HLA-B*40:01 | 1 | 1227 | 1236 | 10 | IVMVTIMLCC 0.0 | 100 |
| HLA-B*44:03 | 1 | 1227 | 1236 | 10 | IVMVTIMLCC 0.0 | 100 |
| HLA-A*23:01 | 1 | 1229 | 1238 | 10 | MVTIMLCCMT 0.0 | 100 |
| HLA-A*24:02 | 1 | 1229 | 1238 | 10 | MVTIMLCCMT 0.0 | 100 |
| HLA-B*40:01 | 1 | 1229 | 1238 | 10 | MVTIMLCCMT 0.0 | 100 |
| HLA-B*44:02 | 1 | 1229 | 1238 | 10 | MVTIMLCCMT 0.0 | 100 |
| HLA-B*44:03 | 1 | 1229 | 1238 | 10 | MVTIMLCCMT 0.0 | 100 |
| HLA-A*24:02 | 1 | 1230 | 1239 | 10 | VTIMLCCMTS 0.0 | 100 |
| HLA-B*40:01 | 1 | 1230 | 1238 | 9 | VTIMLCCMT 0.0 | 100 |
| HLA-B*40:01 | 1 | 1230 | 1239 | 10 | VTIMLCCMTS 0.0 | 100 |
| HLA-B*44:03 | 1 | 1230 | 1239 | 10 | VTIMLCCMTS 0.0 | 100 |
| HLA-B*53:01 | 1 | 1230 | 1239 | 10 | VTIMLCCMTS 0.0 | 100 |
| HLA-B*40:01 | 1 | 1231 | 1239 | 9 | TIMLCCMTS 0.0 | 100 |
| HLA-B*40:01 | 1 | 1231 | 1240 | 10 | TIMLCCMTSC 0.0 | 100 |
| HLA-B*44:03 | 1 | 1231 | 1240 | 10 | TIMLCCMTSC 0.0 | 100 |
| HLA-A*26:01 | 1 | 1232 | 1241 | 10 | IMLCCMTSCC 0.0 | 100 |
| HLA-A*68:01 | 1 | 1232 | 1241 | 10 | IMLCCMTSCC 0.0 | 100 |
| HLA-B*35:01 | 1 | 1232 | 1241 | 10 | IMLCCMTSCC 0.0 | 100 |
| HLA-B*40:01 | 1 | 1232 | 1241 | 10 | IMLCCMTSCC 0.0 | 100 |
| HLA-B*44:02 | 1 | 1232 | 1241 | 10 | IMLCCMTSCC 0.0 | 100 |
| HLA-B*44:03 | 1 | 1232 | 1240 | 9 | IMLCCMTSC 0.0 | 100 |
| HLA-B*44:03 | 1 | 1232 | 1241 | 10 | IMLCCMTSCC 0.0 | 100 |
| HLA-B*53:01 | 1 | 1232 | 1241 | 10 | IMLCCMTSCC 0.0 | 100 |
| HLA-A*23:01 | 1 | 1233 | 1242 | 10 | MLCCMTSCCS 0.0 | 100 |
| HLA-A*24:02 | 1 | 1233 | 1242 | 10 | MLCCMTSCCS 0.0 | 100 |
| HLA-B*35:01 | 1 | 1233 | 1242 | 10 | MLCCMTSCCS 0.0 | 100 |
| HLA-B*40:01 | 1 | 1233 | 1242 | 10 | MLCCMTSCCS 0.0 | 100 |
| HLA-B*44:02 | 1 | 1233 | 1242 | 10 | MLCCMTSCCS 0.0 | 100 |
| HLA-B*44:03 | 1 | 1233 | 1241 | 9 | MLCCMTSCC 0.0 | 100 |
| HLA-B*44:03 | 1 | 1233 | 1242 | 10 | MLCCMTSCCS 0.0 | 100 |
| HLA-B*53:01 | 1 | 1233 | 1242 | 10 | MLCCMTSCCS 0.0 | 100 |
| HLA-A*11:01 | 1 | 1234 | 1243 | 10 | LCCMTSCCSC 0.0 | 100 |
| HLA-A*23:01 | 1 | 1234 | 1242 | 9 | LCCMTSCCS 0.0 | 100 |
| HLA-A*23:01 | 1 | 1234 | 1243 | 10 | LCCMTSCCSC 0.0 | 100 |
| HLA-A*24:02 | 1 | 1234 | 1242 | 9 | LCCMTSCCS 0.0 | 100 |
| HLA-A*24:02 | 1 | 1234 | 1243 | 10 | LCCMTSCCSC 0.0 | 100 |
| HLA-A*26:01 | 1 | 1234 | 1242 | 9 | LCCMTSCCS 0.0 | 100 |
| HLA-A*26:01 | 1 | 1234 | 1243 | 10 | LCCMTSCCSC 0.0 | 100 |
| HLA-A*32:01 | 1 | 1234 | 1242 | 9 | LCCMTSCCS 0.0 | 100 |
| HLA-A*32:01 | 1 | 1234 | 1243 | 10 | LCCMTSCCSC 0.0 | 100 |
| HLA-A*68:01 | 1 | 1234 | 1243 | 10 | LCCMTSCCSC 0.0 | 100 |
| HLA-A*68:02 | 1 | 1234 | 1242 | 9 | LCCMTSCCS 0.0 | 100 |
| HLA-B*35:01 | 1 | 1234 | 1243 | 10 | LCCMTSCCSC 0.0 | 100 |
| HLA-B*40:01 | 1 | 1234 | 1242 | 9 | LCCMTSCCS 0.0 | 100 |
| HLA-B*40:01 | 1 | 1234 | 1243 | 10 | LCCMTSCCSC 0.0 | 100 |
| HLA-B*44:02 | 1 | 1234 | 1242 | 9 | LCCMTSCCS 0.0 | 100 |
| HLA-B*44:02 | 1 | 1234 | 1243 | 10 | LCCMTSCCSC 0.0 | 100 |
| HLA-B*44:03 | 1 | 1234 | 1242 | 9 | LCCMTSCCS 0.0 | 100 |
| HLA-B*44:03 | 1 | 1234 | 1243 | 10 | LCCMTSCCSC 0.0 | 100 |
| HLA-B*53:01 | 1 | 1234 | 1243 | 10 | LCCMTSCCSC 0.0 | 100 |
| HLA-A*26:01 | 1 | 1235 | 1243 | 9 | CCMTSCCSC 0.0 | 100 |
| HLA-B*40:01 | 1 | 1235 | 1243 | 9 | CCMTSCCSC 0.0 | 100 |
| HLA-B*44:03 | 1 | 1235 | 1243 | 9 | CCMTSCCSC 0.0 | 100 |
| HLA-B*35:01 | 1 | 1236 | 1245 | 10 | CMTSCCCLK 0.0 | 100 |
| HLA-B*40:01 | 1 | 1236 | 1245 | 10 | CMTSCCCLK 0.0 | 100 |
| HLA-B*53:01 | 1 | 1236 | 1245 | 10 | CMTSCCCLK 0.0 | 100 |
| HLA-A*23:01 | 1 | 1237 | 1246 | 10 | MTSCCCLKG 0.0 | 100 |
| HLA-A*24:02 | 1 | 1237 | 1246 | 10 | MTSCCCLKG 0.0 | 100 |
| HLA-B*35:01 | 1 | 1237 | 1246 | 10 | MTSCCCLKG 0.0 | 100 |
| HLA-B*40:01 | 1 | 1237 | 1246 | 10 | MTSCCCLKG 0.0 | 100 |
| HLA-B*44:03 | 1 | 1237 | 1246 | 10 | MTSCCCLKG 0.0 | 100 |
| HLA-A*23:01 | 1 | 1238 | 1247 | 10 | TSCCCLKGC 0.0 | 100 |
| HLA-A*24:02 | 1 | 1238 | 1246 | 9 | TSCCCLKG 0.0 | 100 |
| HLA-A*24:02 | 1 | 1238 | 1247 | 10 | TSCCCLKGC 0.0 | 100 |
| HLA-B*35:01 | 1 | 1238 | 1247 | 10 | TSCCCLKGC 0.0 | 100 |
| HLA-B*40:01 | 1 | 1238 | 1246 | 9 | TSCCCLKG 0.0 | 100 |

| | | | | | | |
|-------------|---|------|------|----|----------------|-----|
| HLA-B*40:01 | 1 | 1238 | 1247 | 10 | TSCCSCLKGC 0.0 | 100 |
| HLA-B*44:03 | 1 | 1238 | 1246 | 9 | TSCCSCLKG 0.0 | 100 |
| HLA-B*44:03 | 1 | 1238 | 1247 | 10 | TSCCSCLKGC 0.0 | 100 |
| HLA-B*53:01 | 1 | 1238 | 1247 | 10 | TSCCSCLKGC 0.0 | 100 |
| HLA-A*11:01 | 1 | 1239 | 1248 | 10 | SCCSCLKGCC 0.0 | 100 |
| HLA-A*23:01 | 1 | 1239 | 1248 | 10 | SCCSCLKGCC 0.0 | 100 |
| HLA-A*24:02 | 1 | 1239 | 1248 | 10 | SCCSCLKGCC 0.0 | 100 |
| HLA-A*26:01 | 1 | 1239 | 1248 | 10 | SCCSCLKGCC 0.0 | 100 |
| HLA-A*32:01 | 1 | 1239 | 1248 | 10 | SCCSCLKGCC 0.0 | 100 |
| HLA-B*15:01 | 1 | 1239 | 1248 | 10 | SCCSCLKGCC 0.0 | 100 |
| HLA-B*35:01 | 1 | 1239 | 1248 | 10 | SCCSCLKGCC 0.0 | 100 |
| HLA-B*40:01 | 1 | 1239 | 1248 | 10 | SCCSCLKGCC 0.0 | 100 |
| HLA-B*44:03 | 1 | 1239 | 1248 | 10 | SCCSCLKGCC 0.0 | 100 |
| HLA-B*53:01 | 1 | 1239 | 1248 | 10 | SCCSCLKGCC 0.0 | 100 |
| HLA-A*02:01 | 1 | 1240 | 1249 | 10 | CCSCLKGCCS 0.0 | 100 |
| HLA-A*02:03 | 1 | 1240 | 1249 | 10 | CCSCLKGCCS 0.0 | 100 |
| HLA-A*03:01 | 1 | 1240 | 1248 | 9 | CCSCLKGCC 0.0 | 100 |
| HLA-A*11:01 | 1 | 1240 | 1248 | 9 | CCSCLKGCC 0.0 | 100 |
| HLA-A*23:01 | 1 | 1240 | 1248 | 9 | CCSCLKGCC 0.0 | 100 |
| HLA-A*23:01 | 1 | 1240 | 1249 | 10 | CCSCLKGCCS 0.0 | 100 |
| HLA-A*24:02 | 1 | 1240 | 1248 | 9 | CCSCLKGCC 0.0 | 100 |
| HLA-A*24:02 | 1 | 1240 | 1249 | 10 | CCSCLKGCCS 0.0 | 100 |
| HLA-A*26:01 | 1 | 1240 | 1248 | 9 | CCSCLKGCC 0.0 | 100 |
| HLA-A*26:01 | 1 | 1240 | 1249 | 10 | CCSCLKGCCS 0.0 | 100 |
| HLA-A*31:01 | 1 | 1240 | 1248 | 9 | CCSCLKGCC 0.0 | 100 |
| HLA-A*32:01 | 1 | 1240 | 1248 | 9 | CCSCLKGCC 0.0 | 100 |
| HLA-A*32:01 | 1 | 1240 | 1249 | 10 | CCSCLKGCCS 0.0 | 100 |
| HLA-A*68:02 | 1 | 1240 | 1249 | 10 | CCSCLKGCCS 0.0 | 100 |
| HLA-B*07:02 | 1 | 1240 | 1249 | 10 | CCSCLKGCCS 0.0 | 100 |
| HLA-B*15:01 | 1 | 1240 | 1248 | 9 | CCSCLKGCC 0.0 | 100 |
| HLA-B*35:01 | 1 | 1240 | 1248 | 9 | CCSCLKGCC 0.0 | 100 |
| HLA-B*35:01 | 1 | 1240 | 1249 | 10 | CCSCLKGCCS 0.0 | 100 |
| HLA-B*40:01 | 1 | 1240 | 1248 | 9 | CCSCLKGCC 0.0 | 100 |
| HLA-B*40:01 | 1 | 1240 | 1249 | 10 | CCSCLKGCCS 0.0 | 100 |
| HLA-B*44:02 | 1 | 1240 | 1248 | 9 | CCSCLKGCC 0.0 | 100 |
| HLA-B*44:02 | 1 | 1240 | 1249 | 10 | CCSCLKGCCS 0.0 | 100 |
| HLA-B*44:03 | 1 | 1240 | 1248 | 9 | CCSCLKGCC 0.0 | 100 |
| HLA-B*44:03 | 1 | 1240 | 1249 | 10 | CCSCLKGCCS 0.0 | 100 |
| HLA-B*51:01 | 1 | 1240 | 1249 | 10 | CCSCLKGCCS 0.0 | 100 |
| HLA-B*53:01 | 1 | 1240 | 1248 | 9 | CCSCLKGCC 0.0 | 100 |
| HLA-B*53:01 | 1 | 1240 | 1249 | 10 | CCSCLKGCCS 0.0 | 100 |
| HLA-A*23:01 | 1 | 1241 | 1249 | 9 | CSCLKGCCS 0.0 | 100 |
| HLA-A*24:02 | 1 | 1241 | 1249 | 9 | CSCLKGCCS 0.0 | 100 |
| HLA-B*35:01 | 1 | 1241 | 1250 | 10 | CSCLKGCCSC 0.0 | 100 |
| HLA-B*40:01 | 1 | 1241 | 1249 | 9 | CSCLKGCCS 0.0 | 100 |
| HLA-B*40:01 | 1 | 1241 | 1250 | 10 | CSCLKGCCSC 0.0 | 100 |
| HLA-B*44:02 | 1 | 1241 | 1250 | 10 | CSCLKGCCSC 0.0 | 100 |
| HLA-B*44:03 | 1 | 1241 | 1249 | 9 | CSCLKGCCS 0.0 | 100 |
| HLA-B*44:03 | 1 | 1241 | 1250 | 10 | CSCLKGCCSC 0.0 | 100 |
| HLA-B*53:01 | 1 | 1241 | 1249 | 9 | CSCLKGCCS 0.0 | 100 |
| HLA-B*53:01 | 1 | 1241 | 1250 | 10 | CSCLKGCCSC 0.0 | 100 |
| HLA-A*11:01 | 1 | 1242 | 1251 | 10 | SCLKGCCSCG 0.0 | 100 |
| HLA-A*23:01 | 1 | 1242 | 1251 | 10 | SCLKGCCSCG 0.0 | 100 |
| HLA-A*24:02 | 1 | 1242 | 1251 | 10 | SCLKGCCSCG 0.0 | 100 |
| HLA-A*26:01 | 1 | 1242 | 1251 | 10 | SCLKGCCSCG 0.0 | 100 |
| HLA-A*68:01 | 1 | 1242 | 1251 | 10 | SCLKGCCSCG 0.0 | 100 |
| HLA-B*35:01 | 1 | 1242 | 1251 | 10 | SCLKGCCSCG 0.0 | 100 |
| HLA-B*40:01 | 1 | 1242 | 1251 | 10 | SCLKGCCSCG 0.0 | 100 |
| HLA-B*44:03 | 1 | 1242 | 1251 | 10 | SCLKGCCSCG 0.0 | 100 |
| HLA-B*53:01 | 1 | 1242 | 1251 | 10 | SCLKGCCSCG 0.0 | 100 |
| HLA-A*11:01 | 1 | 1243 | 1251 | 9 | CLKGCCSCG 0.0 | 100 |
| HLA-A*11:01 | 1 | 1243 | 1252 | 10 | CLKGCCSCGS 0.0 | 100 |
| HLA-A*23:01 | 1 | 1243 | 1252 | 10 | CLKGCCSCGS 0.0 | 100 |
| HLA-A*24:02 | 1 | 1243 | 1251 | 9 | CLKGCCSCG 0.0 | 100 |
| HLA-A*24:02 | 1 | 1243 | 1252 | 10 | CLKGCCSCGS 0.0 | 100 |
| HLA-A*26:01 | 1 | 1243 | 1252 | 10 | CLKGCCSCGS 0.0 | 100 |

| | | | | | | |
|-------------|---|------|------|----|----------------|-----|
| HLA-A*32:01 | 1 | 1243 | 1252 | 10 | CLKGCCSCGS 0.0 | 100 |
| HLA-A*68:01 | 1 | 1243 | 1252 | 10 | CLKGCCSCGS 0.0 | 100 |
| HLA-B*35:01 | 1 | 1243 | 1251 | 9 | CLKGCCSCG 0.0 | 100 |
| HLA-B*35:01 | 1 | 1243 | 1252 | 10 | CLKGCCSCGS 0.0 | 100 |
| HLA-B*40:01 | 1 | 1243 | 1251 | 9 | CLKGCCSCG 0.0 | 100 |
| HLA-B*40:01 | 1 | 1243 | 1252 | 10 | CLKGCCSCGS 0.0 | 100 |
| HLA-B*44:02 | 1 | 1243 | 1251 | 9 | CLKGCCSCG 0.0 | 100 |
| HLA-B*44:02 | 1 | 1243 | 1252 | 10 | CLKGCCSCGS 0.0 | 100 |
| HLA-B*44:03 | 1 | 1243 | 1251 | 9 | CLKGCCSCG 0.0 | 100 |
| HLA-B*44:03 | 1 | 1243 | 1252 | 10 | CLKGCCSCGS 0.0 | 100 |
| HLA-B*51:01 | 1 | 1243 | 1251 | 9 | CLKGCCSCG 0.0 | 100 |
| HLA-B*51:01 | 1 | 1243 | 1252 | 10 | CLKGCCSCGS 0.0 | 100 |
| HLA-B*53:01 | 1 | 1243 | 1251 | 9 | CLKGCCSCG 0.0 | 100 |
| HLA-B*53:01 | 1 | 1243 | 1252 | 10 | CLKGCCSCGS 0.0 | 100 |
| HLA-A*01:01 | 1 | 1244 | 1252 | 9 | LKGCCSCGS 0.0 | 100 |
| HLA-A*02:01 | 1 | 1244 | 1252 | 9 | LKGCCSCGS 0.0 | 100 |
| HLA-A*02:03 | 1 | 1244 | 1252 | 9 | LKGCCSCGS 0.0 | 100 |
| HLA-A*02:03 | 1 | 1244 | 1253 | 10 | LKGCCSCGSC 0.0 | 100 |
| HLA-A*02:06 | 1 | 1244 | 1252 | 9 | LKGCCSCGS 0.0 | 100 |
| HLA-A*03:01 | 1 | 1244 | 1252 | 9 | LKGCCSCGS 0.0 | 100 |
| HLA-A*03:01 | 1 | 1244 | 1253 | 10 | LKGCCSCGSC 0.0 | 100 |
| HLA-A*11:01 | 1 | 1244 | 1252 | 9 | LKGCCSCGS 0.0 | 100 |
| HLA-A*11:01 | 1 | 1244 | 1253 | 10 | LKGCCSCGSC 0.0 | 100 |
| HLA-A*23:01 | 1 | 1244 | 1252 | 9 | LKGCCSCGS 0.0 | 100 |
| HLA-A*23:01 | 1 | 1244 | 1253 | 10 | LKGCCSCGSC 0.0 | 100 |
| HLA-A*24:02 | 1 | 1244 | 1252 | 9 | LKGCCSCGS 0.0 | 100 |
| HLA-A*24:02 | 1 | 1244 | 1253 | 10 | LKGCCSCGSC 0.0 | 100 |
| HLA-A*26:01 | 1 | 1244 | 1252 | 9 | LKGCCSCGS 0.0 | 100 |
| HLA-A*26:01 | 1 | 1244 | 1253 | 10 | LKGCCSCGSC 0.0 | 100 |
| HLA-A*31:01 | 1 | 1244 | 1252 | 9 | LKGCCSCGS 0.0 | 100 |
| HLA-A*31:01 | 1 | 1244 | 1253 | 10 | LKGCCSCGSC 0.0 | 100 |
| HLA-A*32:01 | 1 | 1244 | 1252 | 9 | LKGCCSCGS 0.0 | 100 |
| HLA-A*32:01 | 1 | 1244 | 1253 | 10 | LKGCCSCGSC 0.0 | 100 |
| HLA-A*33:01 | 1 | 1244 | 1252 | 9 | LKGCCSCGS 0.0 | 100 |
| HLA-A*33:01 | 1 | 1244 | 1253 | 10 | LKGCCSCGSC 0.0 | 100 |
| HLA-A*68:01 | 1 | 1244 | 1252 | 9 | LKGCCSCGS 0.0 | 100 |
| HLA-A*68:01 | 1 | 1244 | 1253 | 10 | LKGCCSCGSC 0.0 | 100 |
| HLA-A*68:02 | 1 | 1244 | 1252 | 9 | LKGCCSCGS 0.0 | 100 |
| HLA-B*07:02 | 1 | 1244 | 1253 | 10 | LKGCCSCGSC 0.0 | 100 |
| HLA-B*08:01 | 1 | 1244 | 1252 | 9 | LKGCCSCGS 0.0 | 100 |
| HLA-B*15:01 | 1 | 1244 | 1252 | 9 | LKGCCSCGS 0.0 | 100 |
| HLA-B*15:01 | 1 | 1244 | 1253 | 10 | LKGCCSCGSC 0.0 | 100 |
| HLA-B*35:01 | 1 | 1244 | 1252 | 9 | LKGCCSCGS 0.0 | 100 |
| HLA-B*35:01 | 1 | 1244 | 1253 | 10 | LKGCCSCGSC 0.0 | 100 |
| HLA-B*40:01 | 1 | 1244 | 1252 | 9 | LKGCCSCGS 0.0 | 100 |
| HLA-B*40:01 | 1 | 1244 | 1253 | 10 | LKGCCSCGSC 0.0 | 100 |
| HLA-B*44:02 | 1 | 1244 | 1252 | 9 | LKGCCSCGS 0.0 | 100 |
| HLA-B*44:02 | 1 | 1244 | 1253 | 10 | LKGCCSCGSC 0.0 | 100 |
| HLA-B*44:03 | 1 | 1244 | 1252 | 9 | LKGCCSCGS 0.0 | 100 |
| HLA-B*44:03 | 1 | 1244 | 1253 | 10 | LKGCCSCGSC 0.0 | 100 |
| HLA-B*51:01 | 1 | 1244 | 1252 | 9 | LKGCCSCGS 0.0 | 100 |
| HLA-B*53:01 | 1 | 1244 | 1252 | 9 | LKGCCSCGS 0.0 | 100 |
| HLA-B*53:01 | 1 | 1244 | 1253 | 10 | LKGCCSCGSC 0.0 | 100 |
| HLA-B*57:01 | 1 | 1244 | 1252 | 9 | LKGCCSCGS 0.0 | 100 |
| HLA-B*58:01 | 1 | 1244 | 1252 | 9 | LKGCCSCGS 0.0 | 100 |
| HLA-A*23:01 | 1 | 1245 | 1254 | 10 | KGCCSCGS 0.0 | 100 |
| HLA-A*24:02 | 1 | 1245 | 1254 | 10 | KGCCSCGS 0.0 | 100 |
| HLA-A*26:01 | 1 | 1245 | 1253 | 9 | KGCCSCGS 0.0 | 100 |
| HLA-A*26:01 | 1 | 1245 | 1254 | 10 | KGCCSCGS 0.0 | 100 |
| HLA-A*68:01 | 1 | 1245 | 1254 | 10 | KGCCSCGS 0.0 | 100 |
| HLA-B*35:01 | 1 | 1245 | 1253 | 9 | KGCCSCGS 0.0 | 100 |
| HLA-B*35:01 | 1 | 1245 | 1254 | 10 | KGCCSCGS 0.0 | 100 |
| HLA-B*40:01 | 1 | 1245 | 1253 | 9 | KGCCSCGS 0.0 | 100 |
| HLA-B*40:01 | 1 | 1245 | 1254 | 10 | KGCCSCGS 0.0 | 100 |
| HLA-B*44:02 | 1 | 1245 | 1254 | 10 | KGCCSCGS 0.0 | 100 |
| HLA-B*44:03 | 1 | 1245 | 1253 | 9 | KGCCSCGS 0.0 | 100 |

| | | | | | | |
|-------------|---|------|------|----|----------------|-----|
| HLA-B*44:03 | 1 | 1245 | 1254 | 10 | KGCCSCGSCC 0.0 | 100 |
| HLA-B*53:01 | 1 | 1245 | 1253 | 9 | KGCCSCGSC 0.0 | 100 |
| HLA-B*53:01 | 1 | 1245 | 1254 | 10 | KGCCSCGSCC 0.0 | 100 |
| HLA-A*23:01 | 1 | 1246 | 1254 | 9 | GCCSCGSCC 0.0 | 100 |
| HLA-A*23:01 | 1 | 1246 | 1255 | 10 | GCCSCGSCCK 0.0 | 100 |
| HLA-A*24:02 | 1 | 1246 | 1254 | 9 | GCCSCGSCC 0.0 | 100 |
| HLA-A*24:02 | 1 | 1246 | 1255 | 10 | GCCSCGSCCK 0.0 | 100 |
| HLA-A*26:01 | 1 | 1246 | 1254 | 9 | GCCSCGSCC 0.0 | 100 |
| HLA-B*35:01 | 1 | 1246 | 1255 | 10 | GCCSCGSCCK 0.0 | 100 |
| HLA-B*40:01 | 1 | 1246 | 1255 | 10 | GCCSCGSCCK 0.0 | 100 |
| HLA-B*53:01 | 1 | 1246 | 1255 | 10 | GCCSCGSCCK 0.0 | 100 |
| HLA-A*23:01 | 1 | 1247 | 1255 | 9 | CCSCGSCCK 0.0 | 100 |
| HLA-A*24:02 | 1 | 1247 | 1255 | 9 | CCSCGSCCK 0.0 | 100 |
| HLA-B*40:01 | 1 | 1247 | 1255 | 9 | CCSCGSCCK 0.0 | 100 |
| HLA-B*53:01 | 1 | 1247 | 1255 | 9 | CCSCGSCCK 0.0 | 100 |
| HLA-A*02:03 | 1 | 1248 | 1257 | 10 | CSCGSCCKFD 0.0 | 100 |
| HLA-A*68:01 | 1 | 1248 | 1257 | 10 | CSCGSCCKFD 0.0 | 100 |
| HLA-A*68:02 | 1 | 1248 | 1257 | 10 | CSCGSCCKFD 0.0 | 100 |
| HLA-B*07:02 | 1 | 1248 | 1257 | 10 | CSCGSCCKFD 0.0 | 100 |
| HLA-B*35:01 | 1 | 1248 | 1257 | 10 | CSCGSCCKFD 0.0 | 100 |
| HLA-B*40:01 | 1 | 1248 | 1257 | 10 | CSCGSCCKFD 0.0 | 100 |
| HLA-B*44:02 | 1 | 1248 | 1257 | 10 | CSCGSCCKFD 0.0 | 100 |
| HLA-B*44:03 | 1 | 1248 | 1257 | 10 | CSCGSCCKFD 0.0 | 100 |
| HLA-A*02:01 | 1 | 1249 | 1257 | 9 | SCGSCCKFD 0.0 | 100 |
| HLA-A*02:01 | 1 | 1249 | 1258 | 10 | SCGSCCKFDE 0.0 | 100 |
| HLA-A*02:03 | 1 | 1249 | 1257 | 9 | SCGSCCKFD 0.0 | 100 |
| HLA-A*02:03 | 1 | 1249 | 1258 | 10 | SCGSCCKFDE 0.0 | 100 |
| HLA-A*02:06 | 1 | 1249 | 1257 | 9 | SCGSCCKFD 0.0 | 100 |
| HLA-A*02:06 | 1 | 1249 | 1258 | 10 | SCGSCCKFDE 0.0 | 100 |
| HLA-A*03:01 | 1 | 1249 | 1257 | 9 | SCGSCCKFD 0.0 | 100 |
| HLA-A*03:01 | 1 | 1249 | 1258 | 10 | SCGSCCKFDE 0.0 | 100 |
| HLA-A*11:01 | 1 | 1249 | 1257 | 9 | SCGSCCKFD 0.0 | 100 |
| HLA-A*11:01 | 1 | 1249 | 1258 | 10 | SCGSCCKFDE 0.0 | 100 |
| HLA-A*23:01 | 1 | 1249 | 1257 | 9 | SCGSCCKFD 0.0 | 100 |
| HLA-A*23:01 | 1 | 1249 | 1258 | 10 | SCGSCCKFDE 0.0 | 100 |
| HLA-A*24:02 | 1 | 1249 | 1257 | 9 | SCGSCCKFD 0.0 | 100 |
| HLA-A*24:02 | 1 | 1249 | 1258 | 10 | SCGSCCKFDE 0.0 | 100 |
| HLA-A*26:01 | 1 | 1249 | 1257 | 9 | SCGSCCKFD 0.0 | 100 |
| HLA-A*26:01 | 1 | 1249 | 1258 | 10 | SCGSCCKFDE 0.0 | 100 |
| HLA-A*31:01 | 1 | 1249 | 1257 | 9 | SCGSCCKFD 0.0 | 100 |
| HLA-A*32:01 | 1 | 1249 | 1257 | 9 | SCGSCCKFD 0.0 | 100 |
| HLA-A*32:01 | 1 | 1249 | 1258 | 10 | SCGSCCKFDE 0.0 | 100 |
| HLA-A*33:01 | 1 | 1249 | 1257 | 9 | SCGSCCKFD 0.0 | 100 |
| HLA-A*68:01 | 1 | 1249 | 1257 | 9 | SCGSCCKFD 0.0 | 100 |
| HLA-A*68:01 | 1 | 1249 | 1258 | 10 | SCGSCCKFDE 0.0 | 100 |
| HLA-A*68:02 | 1 | 1249 | 1257 | 9 | SCGSCCKFD 0.0 | 100 |
| HLA-A*68:02 | 1 | 1249 | 1258 | 10 | SCGSCCKFDE 0.0 | 100 |
| HLA-B*07:02 | 1 | 1249 | 1257 | 9 | SCGSCCKFD 0.0 | 100 |
| HLA-B*07:02 | 1 | 1249 | 1258 | 10 | SCGSCCKFDE 0.0 | 100 |
| HLA-B*08:01 | 1 | 1249 | 1257 | 9 | SCGSCCKFD 0.0 | 100 |
| HLA-B*08:01 | 1 | 1249 | 1258 | 10 | SCGSCCKFDE 0.0 | 100 |
| HLA-B*15:01 | 1 | 1249 | 1257 | 9 | SCGSCCKFD 0.0 | 100 |
| HLA-B*15:01 | 1 | 1249 | 1258 | 10 | SCGSCCKFDE 0.0 | 100 |
| HLA-B*35:01 | 1 | 1249 | 1257 | 9 | SCGSCCKFD 0.0 | 100 |
| HLA-B*35:01 | 1 | 1249 | 1258 | 10 | SCGSCCKFDE 0.0 | 100 |
| HLA-B*40:01 | 1 | 1249 | 1257 | 9 | SCGSCCKFD 0.0 | 100 |
| HLA-B*40:01 | 1 | 1249 | 1258 | 10 | SCGSCCKFDE 0.0 | 100 |
| HLA-B*44:02 | 1 | 1249 | 1257 | 9 | SCGSCCKFD 0.0 | 100 |
| HLA-B*44:02 | 1 | 1249 | 1258 | 10 | SCGSCCKFDE 0.0 | 100 |
| HLA-B*44:03 | 1 | 1249 | 1257 | 9 | SCGSCCKFD 0.0 | 100 |
| HLA-B*44:03 | 1 | 1249 | 1258 | 10 | SCGSCCKFDE 0.0 | 100 |
| HLA-B*51:01 | 1 | 1249 | 1257 | 9 | SCGSCCKFD 0.0 | 100 |
| HLA-B*51:01 | 1 | 1249 | 1258 | 10 | SCGSCCKFDE 0.0 | 100 |
| HLA-B*53:01 | 1 | 1249 | 1257 | 9 | SCGSCCKFD 0.0 | 100 |
| HLA-B*53:01 | 1 | 1249 | 1258 | 10 | SCGSCCKFDE 0.0 | 100 |
| HLA-A*02:01 | 1 | 1250 | 1258 | 9 | CGSCCKFDE 0.0 | 100 |

| | | | | | | |
|-------------|---|------|------|----|----------------|-----|
| HLA-A*02:01 | 1 | 1250 | 1259 | 10 | CGSCCKFDED 0.0 | 100 |
| HLA-A*02:03 | 1 | 1250 | 1258 | 9 | CGSCCKFDE 0.0 | 100 |
| HLA-A*02:03 | 1 | 1250 | 1259 | 10 | CGSCCKFDED 0.0 | 100 |
| HLA-A*02:06 | 1 | 1250 | 1259 | 10 | CGSCCKFDED 0.0 | 100 |
| HLA-A*03:01 | 1 | 1250 | 1258 | 9 | CGSCCKFDE 0.0 | 100 |
| HLA-A*03:01 | 1 | 1250 | 1259 | 10 | CGSCCKFDED 0.0 | 100 |
| HLA-A*11:01 | 1 | 1250 | 1258 | 9 | CGSCCKFDE 0.0 | 100 |
| HLA-A*11:01 | 1 | 1250 | 1259 | 10 | CGSCCKFDED 0.0 | 100 |
| HLA-A*23:01 | 1 | 1250 | 1258 | 9 | CGSCCKFDE 0.0 | 100 |
| HLA-A*23:01 | 1 | 1250 | 1259 | 10 | CGSCCKFDED 0.0 | 100 |
| HLA-A*24:02 | 1 | 1250 | 1258 | 9 | CGSCCKFDE 0.0 | 100 |
| HLA-A*24:02 | 1 | 1250 | 1259 | 10 | CGSCCKFDED 0.0 | 100 |
| HLA-A*26:01 | 1 | 1250 | 1258 | 9 | CGSCCKFDE 0.0 | 100 |
| HLA-A*26:01 | 1 | 1250 | 1259 | 10 | CGSCCKFDED 0.0 | 100 |
| HLA-A*30:02 | 1 | 1250 | 1259 | 10 | CGSCCKFDED 0.0 | 100 |
| HLA-A*31:01 | 1 | 1250 | 1259 | 10 | CGSCCKFDED 0.0 | 100 |
| HLA-A*32:01 | 1 | 1250 | 1258 | 9 | CGSCCKFDE 0.0 | 100 |
| HLA-A*32:01 | 1 | 1250 | 1259 | 10 | CGSCCKFDED 0.0 | 100 |
| HLA-A*33:01 | 1 | 1250 | 1259 | 10 | CGSCCKFDED 0.0 | 100 |
| HLA-A*68:01 | 1 | 1250 | 1258 | 9 | CGSCCKFDE 0.0 | 100 |
| HLA-A*68:01 | 1 | 1250 | 1259 | 10 | CGSCCKFDED 0.0 | 100 |
| HLA-A*68:02 | 1 | 1250 | 1258 | 9 | CGSCCKFDE 0.0 | 100 |
| HLA-A*68:02 | 1 | 1250 | 1259 | 10 | CGSCCKFDED 0.0 | 100 |
| HLA-B*07:02 | 1 | 1250 | 1258 | 9 | CGSCCKFDE 0.0 | 100 |
| HLA-B*07:02 | 1 | 1250 | 1259 | 10 | CGSCCKFDED 0.0 | 100 |
| HLA-B*08:01 | 1 | 1250 | 1258 | 9 | CGSCCKFDE 0.0 | 100 |
| HLA-B*08:01 | 1 | 1250 | 1259 | 10 | CGSCCKFDED 0.0 | 100 |
| HLA-B*15:01 | 1 | 1250 | 1258 | 9 | CGSCCKFDE 0.0 | 100 |
| HLA-B*15:01 | 1 | 1250 | 1259 | 10 | CGSCCKFDED 0.0 | 100 |
| HLA-B*35:01 | 1 | 1250 | 1258 | 9 | CGSCCKFDE 0.0 | 100 |
| HLA-B*35:01 | 1 | 1250 | 1259 | 10 | CGSCCKFDED 0.0 | 100 |
| HLA-B*40:01 | 1 | 1250 | 1258 | 9 | CGSCCKFDE 0.0 | 100 |
| HLA-B*40:01 | 1 | 1250 | 1259 | 10 | CGSCCKFDED 0.0 | 100 |
| HLA-B*44:02 | 1 | 1250 | 1258 | 9 | CGSCCKFDE 0.0 | 100 |
| HLA-B*44:02 | 1 | 1250 | 1259 | 10 | CGSCCKFDED 0.0 | 100 |
| HLA-B*44:03 | 1 | 1250 | 1258 | 9 | CGSCCKFDE 0.0 | 100 |
| HLA-B*44:03 | 1 | 1250 | 1259 | 10 | CGSCCKFDED 0.0 | 100 |
| HLA-B*51:01 | 1 | 1250 | 1258 | 9 | CGSCCKFDE 0.0 | 100 |
| HLA-B*51:01 | 1 | 1250 | 1259 | 10 | CGSCCKFDED 0.0 | 100 |
| HLA-B*53:01 | 1 | 1250 | 1258 | 9 | CGSCCKFDE 0.0 | 100 |
| HLA-B*53:01 | 1 | 1250 | 1259 | 10 | CGSCCKFDED 0.0 | 100 |
| HLA-A*02:01 | 1 | 1251 | 1260 | 10 | GSCCKFDEDD 0.0 | 100 |
| HLA-A*02:03 | 1 | 1251 | 1259 | 9 | GSCCKFDED 0.0 | 100 |
| HLA-A*02:03 | 1 | 1251 | 1260 | 10 | GSCCKFDEDD 0.0 | 100 |
| HLA-A*02:06 | 1 | 1251 | 1260 | 10 | GSCCKFDEDD 0.0 | 100 |
| HLA-A*03:01 | 1 | 1251 | 1259 | 9 | GSCCKFDED 0.0 | 100 |
| HLA-A*03:01 | 1 | 1251 | 1260 | 10 | GSCCKFDEDD 0.0 | 100 |
| HLA-A*11:01 | 1 | 1251 | 1260 | 10 | GSCCKFDEDD 0.0 | 100 |
| HLA-A*23:01 | 1 | 1251 | 1259 | 9 | GSCCKFDED 0.0 | 100 |
| HLA-A*23:01 | 1 | 1251 | 1260 | 10 | GSCCKFDEDD 0.0 | 100 |
| HLA-A*24:02 | 1 | 1251 | 1259 | 9 | GSCCKFDED 0.0 | 100 |
| HLA-A*24:02 | 1 | 1251 | 1260 | 10 | GSCCKFDEDD 0.0 | 100 |
| HLA-A*26:01 | 1 | 1251 | 1259 | 9 | GSCCKFDED 0.0 | 100 |
| HLA-A*26:01 | 1 | 1251 | 1260 | 10 | GSCCKFDEDD 0.0 | 100 |
| HLA-A*30:02 | 1 | 1251 | 1260 | 10 | GSCCKFDEDD 0.0 | 100 |
| HLA-A*31:01 | 1 | 1251 | 1259 | 9 | GSCCKFDED 0.0 | 100 |
| HLA-A*31:01 | 1 | 1251 | 1260 | 10 | GSCCKFDEDD 0.0 | 100 |
| HLA-A*32:01 | 1 | 1251 | 1259 | 9 | GSCCKFDED 0.0 | 100 |
| HLA-A*32:01 | 1 | 1251 | 1260 | 10 | GSCCKFDEDD 0.0 | 100 |
| HLA-A*33:01 | 1 | 1251 | 1260 | 10 | GSCCKFDEDD 0.0 | 100 |
| HLA-A*68:01 | 1 | 1251 | 1260 | 10 | GSCCKFDEDD 0.0 | 100 |
| HLA-A*68:02 | 1 | 1251 | 1259 | 9 | GSCCKFDED 0.0 | 100 |
| HLA-A*68:02 | 1 | 1251 | 1260 | 10 | GSCCKFDEDD 0.0 | 100 |
| HLA-B*07:02 | 1 | 1251 | 1259 | 9 | GSCCKFDED 0.0 | 100 |
| HLA-B*07:02 | 1 | 1251 | 1260 | 10 | GSCCKFDEDD 0.0 | 100 |
| HLA-B*08:01 | 1 | 1251 | 1260 | 10 | GSCCKFDEDD 0.0 | 100 |

| | | | | | | |
|-------------|---|------|------|----|----------------|-----|
| HLA-B*15:01 | 1 | 1251 | 1260 | 10 | GSCCKFDEDD 0.0 | 100 |
| HLA-B*35:01 | 1 | 1251 | 1259 | 9 | GSCCKFDED 0.0 | 100 |
| HLA-B*35:01 | 1 | 1251 | 1260 | 10 | GSCCKFDEDD 0.0 | 100 |
| HLA-B*40:01 | 1 | 1251 | 1259 | 9 | GSCCKFDED 0.0 | 100 |
| HLA-B*40:01 | 1 | 1251 | 1260 | 10 | GSCCKFDEDD 0.0 | 100 |
| HLA-B*44:02 | 1 | 1251 | 1259 | 9 | GSCCKFDED 0.0 | 100 |
| HLA-B*44:02 | 1 | 1251 | 1260 | 10 | GSCCKFDEDD 0.0 | 100 |
| HLA-B*44:03 | 1 | 1251 | 1259 | 9 | GSCCKFDED 0.0 | 100 |
| HLA-B*44:03 | 1 | 1251 | 1260 | 10 | GSCCKFDEDD 0.0 | 100 |
| HLA-B*51:01 | 1 | 1251 | 1260 | 10 | GSCCKFDEDD 0.0 | 100 |
| HLA-B*53:01 | 1 | 1251 | 1260 | 10 | GSCCKFDEDD 0.0 | 100 |
| HLA-A*02:01 | 1 | 1252 | 1260 | 9 | SCCKFDEDD 0.0 | 100 |
| HLA-A*02:03 | 1 | 1252 | 1260 | 9 | SCCKFDEDD 0.0 | 100 |
| HLA-A*02:03 | 1 | 1252 | 1261 | 10 | SCCKFDEDD 0.0 | 100 |
| HLA-A*02:06 | 1 | 1252 | 1260 | 9 | SCCKFDEDD 0.0 | 100 |
| HLA-A*03:01 | 1 | 1252 | 1260 | 9 | SCCKFDEDD 0.0 | 100 |
| HLA-A*03:01 | 1 | 1252 | 1261 | 10 | SCCKFDEDD 0.0 | 100 |
| HLA-A*11:01 | 1 | 1252 | 1260 | 9 | SCCKFDEDD 0.0 | 100 |
| HLA-A*11:01 | 1 | 1252 | 1261 | 10 | SCCKFDEDD 0.0 | 100 |
| HLA-A*23:01 | 1 | 1252 | 1260 | 9 | SCCKFDEDD 0.0 | 100 |
| HLA-A*23:01 | 1 | 1252 | 1261 | 10 | SCCKFDEDD 0.0 | 100 |
| HLA-A*24:02 | 1 | 1252 | 1260 | 9 | SCCKFDEDD 0.0 | 100 |
| HLA-A*24:02 | 1 | 1252 | 1261 | 10 | SCCKFDEDD 0.0 | 100 |
| HLA-A*26:01 | 1 | 1252 | 1260 | 9 | SCCKFDEDD 0.0 | 100 |
| HLA-A*26:01 | 1 | 1252 | 1261 | 10 | SCCKFDEDD 0.0 | 100 |
| HLA-A*31:01 | 1 | 1252 | 1260 | 9 | SCCKFDEDD 0.0 | 100 |
| HLA-A*31:01 | 1 | 1252 | 1261 | 10 | SCCKFDEDD 0.0 | 100 |
| HLA-A*32:01 | 1 | 1252 | 1260 | 9 | SCCKFDEDD 0.0 | 100 |
| HLA-A*32:01 | 1 | 1252 | 1261 | 10 | SCCKFDEDD 0.0 | 100 |
| HLA-A*33:01 | 1 | 1252 | 1260 | 9 | SCCKFDEDD 0.0 | 100 |
| HLA-A*33:01 | 1 | 1252 | 1261 | 10 | SCCKFDEDD 0.0 | 100 |
| HLA-A*68:01 | 1 | 1252 | 1260 | 9 | SCCKFDEDD 0.0 | 100 |
| HLA-A*68:01 | 1 | 1252 | 1261 | 10 | SCCKFDEDD 0.0 | 100 |
| HLA-A*68:02 | 1 | 1252 | 1260 | 9 | SCCKFDEDD 0.0 | 100 |
| HLA-B*07:02 | 1 | 1252 | 1260 | 9 | SCCKFDEDD 0.0 | 100 |
| HLA-B*07:02 | 1 | 1252 | 1261 | 10 | SCCKFDEDD 0.0 | 100 |
| HLA-B*08:01 | 1 | 1252 | 1260 | 9 | SCCKFDEDD 0.0 | 100 |
| HLA-B*15:01 | 1 | 1252 | 1260 | 9 | SCCKFDEDD 0.0 | 100 |
| HLA-B*15:01 | 1 | 1252 | 1261 | 10 | SCCKFDEDD 0.0 | 100 |
| HLA-B*35:01 | 1 | 1252 | 1260 | 9 | SCCKFDEDD 0.0 | 100 |
| HLA-B*35:01 | 1 | 1252 | 1261 | 10 | SCCKFDEDD 0.0 | 100 |
| HLA-B*40:01 | 1 | 1252 | 1260 | 9 | SCCKFDEDD 0.0 | 100 |
| HLA-B*40:01 | 1 | 1252 | 1261 | 10 | SCCKFDEDD 0.0 | 100 |
| HLA-B*44:02 | 1 | 1252 | 1260 | 9 | SCCKFDEDD 0.0 | 100 |
| HLA-B*44:03 | 1 | 1252 | 1260 | 9 | SCCKFDEDD 0.0 | 100 |
| HLA-B*44:03 | 1 | 1252 | 1261 | 10 | SCCKFDEDD 0.0 | 100 |
| HLA-B*51:01 | 1 | 1252 | 1260 | 9 | SCCKFDEDD 0.0 | 100 |
| HLA-B*51:01 | 1 | 1252 | 1261 | 10 | SCCKFDEDD 0.0 | 100 |
| HLA-B*53:01 | 1 | 1252 | 1260 | 9 | SCCKFDEDD 0.0 | 100 |
| HLA-B*53:01 | 1 | 1252 | 1261 | 10 | SCCKFDEDD 0.0 | 100 |
| HLA-A*02:01 | 1 | 1253 | 1261 | 9 | CCKFDEDD 0.0 | 100 |
| HLA-A*02:03 | 1 | 1253 | 1261 | 9 | CCKFDEDD 0.0 | 100 |
| HLA-A*03:01 | 1 | 1253 | 1261 | 9 | CCKFDEDD 0.0 | 100 |
| HLA-A*11:01 | 1 | 1253 | 1261 | 9 | CCKFDEDD 0.0 | 100 |
| HLA-A*11:01 | 1 | 1253 | 1262 | 10 | CCKFDEDD 0.0 | 100 |
| HLA-A*23:01 | 1 | 1253 | 1261 | 9 | CCKFDEDD 0.0 | 100 |
| HLA-A*23:01 | 1 | 1253 | 1262 | 10 | CCKFDEDD 0.0 | 100 |
| HLA-A*24:02 | 1 | 1253 | 1261 | 9 | CCKFDEDD 0.0 | 100 |
| HLA-A*24:02 | 1 | 1253 | 1262 | 10 | CCKFDEDD 0.0 | 100 |
| HLA-A*26:01 | 1 | 1253 | 1261 | 9 | CCKFDEDD 0.0 | 100 |
| HLA-A*31:01 | 1 | 1253 | 1261 | 9 | CCKFDEDD 0.0 | 100 |
| HLA-A*32:01 | 1 | 1253 | 1261 | 9 | CCKFDEDD 0.0 | 100 |
| HLA-A*32:01 | 1 | 1253 | 1262 | 10 | CCKFDEDD 0.0 | 100 |
| HLA-A*33:01 | 1 | 1253 | 1261 | 9 | CCKFDEDD 0.0 | 100 |
| HLA-A*68:01 | 1 | 1253 | 1261 | 9 | CCKFDEDD 0.0 | 100 |
| HLA-B*15:01 | 1 | 1253 | 1261 | 9 | CCKFDEDD 0.0 | 100 |

| | | | | | | |
|-------------|---|------|------|----|----------------|-----|
| HLA-B*35:01 | 1 | 1253 | 1261 | 9 | CCKFDEDDS 0.0 | 100 |
| HLA-B*40:01 | 1 | 1253 | 1261 | 9 | CCKFDEDDS 0.0 | 100 |
| HLA-B*44:03 | 1 | 1253 | 1261 | 9 | CCKFDEDDS 0.0 | 100 |
| HLA-B*53:01 | 1 | 1253 | 1261 | 9 | CCKFDEDDS 0.0 | 100 |
| HLA-A*32:01 | 1 | 1254 | 1263 | 10 | CKFDEDDSEP 0.0 | 100 |

</pre>

</body></html>