

<!-- saved from url=(0042)http://tools.iedb.org/mhci/result\_in\_text/ -->  
<html><head><meta http-equiv="Content-Type" content="text/html; charset=UTF-8"></head><body><pre style="font-size:12px;padding-right:10px;">MHC-I Binding Prediction Results

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Method used: netmhspan\_el

allele	seq_num	start	end	length	peptide	score
HLA-A*01:01 0.01	1	862	870	9	LTDEMIAQY	0.997196
HLA-B*35:01 0.01	1	893	901	9	IPFAMQMAY	0.994479
HLA-B*58:01 0.01	1	622	630	9	HADQLPTW	0.990462
HLA-B*35:01 0.01	1	84	92	9	LPFNDGVYF	0.984594
HLA-B*44:03 0.01	1	1198	1206	9	QELGKYEYQ	0.984568
HLA-B*53:01 0.01	1	56	64	9	LPFFSNVTW	0.98139
HLA-B*35:01 0.01	1	684	692	9	VASQSIIAY	0.979222
HLA-A*03:01 0.01	1	451	459	9	RLFRKSNLK	0.978678
HLA-B*40:01 0.01	1	1013	1021	9	AEIRASANL	0.976223
HLA-A*68:02 0.01	1	774	782	9	NTQEVFAQV	0.975719
HLA-A*02:03 0.01	1	973	981	9	VLNDILSRL	0.973205
HLA-A*02:01 0.02	1	266	274	9	YLQPRTFLL	0.971198
HLA-B*57:01 0.04	1	622	630	9	HADQLPTW	0.970982
HLA-B*44:02 0.01	1	1198	1206	9	QELGKYEYQ	0.969971
HLA-B*53:01 0.01	1	622	630	9	HADQLPTW	0.966089
HLA-A*01:01 0.01	1	861	870	10	LLTDEMIAQY	0.961805
HLA-B*44:02 0.01	1	95	104	10	TEKSNIIRGW	0.955443
HLA-B*57:01 0.06	1	341	350	10	ATRFASVYAW	0.954826
HLA-A*24:02 0.01	1	1205	1213	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	784	792	9	QIYKTPPIK	0.947791
HLA-B*35:01 0.02	1	318	326	9	QPTESIVRF	0.947034
HLA-A*68:01 0.04	1	722	730	9	EILPVSMTK	0.945141
HLA-A*11:01 0.01	1	1062	1070	9	VTYVPAQEK	0.944416
HLA-B*15:01 0.01	1	1261	1269	9	VLKGVKLHY	0.943479
HLA-B*51:01 0.01	1	711	719	9	IPTNFTISV	0.942802
HLA-A*23:01 0.01	1	1205	1213	9	QYIKWPWYI	0.942756
HLA-A*68:01	1	391	400	10	NVYADSFVIR	0.939877

0.04							
HLA-A*02:01	1	973	981	9	VLNDILSRL	0.938498	
0.03							
HLA-A*24:02	1	1063	1072	10	TYVPAQEKNF	0.936206	
0.02							
HLA-A*31:01	1	455	463	9	KSNLKPFER	0.935717	
0.01							
HLA-B*58:01	1	812	820	9	RSFIEDLLF	0.933645	
0.04							
HLA-A*03:01	1	1062	1070	9	VTYVPAQEK	0.932408	
0.02							
HLA-B*57:01	1	812	820	9	RSFIEDLLF	0.931244	
0.08							
HLA-B*53:01	1	318	326	9	QPTESIVRF	0.930256	
0.02							
HLA-A*31:01	1	1096	1104	9	GTHWFVTQR	0.927106	
0.01							
HLA-A*03:01	1	299	307	9	TLKSFTVEK	0.926974	
0.02							
HLA-A*24:02	1	632	640	9	VYSTGSNVF	0.925478	
0.02							
HLA-A*68:02	1	715	723	9	FTISVTTEI	0.923585	
0.02							
HLA-B*40:01	1	168	176	9	FEYVSPFL	0.922159	
0.06							
HLA-A*11:01	1	89	97	9	GVYFASTEK	0.920846	
0.01							
HLA-A*31:01	1	346	354	9	SVYAWNRKR	0.919617	
0.02							
HLA-B*07:02	1	677	685	9	SPRRARSVA	0.918799	
0.04							
HLA-A*03:01	1	89	97	9	GVYFASTEK	0.918399	
0.02							
HLA-A*01:01	1	601	609	9	TSNQVAVLY	0.917927	
0.03							
HLA-A*03:01	1	783	792	10	KQIYKTPPIK	0.916015	
0.03							
HLA-A*02:01	1	109	117	9	TLDSKTQSL	0.914998	
0.03							
HLA-A*23:01	1	1063	1072	10	TYVPAQEKNF	0.913776	
0.02							
HLA-B*53:01	1	55	64	10	FLPFFSNVTW	0.912066	
0.02							
HLA-B*57:01	1	875	883	9	LAGTITSGW	0.908875	0.1
HLA-B*58:01	1	875	883	9	LAGTITSGW	0.903533	
0.06							
HLA-A*11:01	1	1017	1025	9	ASANLAATK	0.900268	
0.02							
HLA-B*15:01	1	489	498	10	LQSYGFQPTY	0.899564	
0.02							
HLA-A*03:01	1	142	150	9	GVYYHKNNK	0.897956	
0.03							
HLA-B*44:03	1	986	994	9	AEVQIDRLI	0.89662	
0.04							
HLA-A*68:01	1	634	643	10	STGSNVFQTR	0.89597	
0.07							
HLA-A*26:01	1	777	786	10	EVFAQVKQIY	0.895499	
0.02							
HLA-A*24:02	1	159	168	10	VYSSANNCTF	0.895435	
0.03							
HLA-B*08:01	1	266	274	9	YLQPRTFLL	0.894495	
0.02							
HLA-A*31:01	1	36	44	9	VYYDPKVFR	0.892155	
0.03							
HLA-A*68:01	1	1096	1104	9	GTHWFVTQR	0.890855	
0.08							

HLA-A*24:02 0.03	1	365	374	10	LYNSASFSTF 0.890372
HLA-A*02:03 0.03	1	818	826	9	LLFNKVTLA 0.890132
HLA-A*02:06 0.04	1	266	274	9	YLQPRTFLL 0.889523
HLA-B*57:01 0.13	1	490	498	9	QSYGFQPTY 0.887326
HLA-A*68:02 0.02	1	1165	1173	9	DISGINASV 0.887294
HLA-A*68:01 0.09	1	367	375	9	NSASFSTFK 0.886711
HLA-A*02:03 0.03	1	266	274	9	YLQPRTFLL 0.886651
HLA-B*58:01 0.07	1	621	630	10	IHADQLTPTW 0.886293
HLA-A*24:02 0.03	1	785	794	10	IYKTPPIKDF 0.885207
HLA-A*24:02 0.04	1	445	453	9	NYNLYRLF 0.883164
HLA-A*30:02 0.01	1	490	498	9	QSYGFQPTY 0.881774
HLA-B*51:01 0.02	1	709	717	9	IAIPTNFTI 0.879596
HLA-A*31:01 0.04	1	674	682	9	QTNSPRRAR 0.878824
HLA-A*68:01 0.11	1	1170	1178	9	NASVVNIQK 0.876119
HLA-A*02:01 0.05	1	997	1005	9	RLQSLQTYV 0.87376
HLA-A*26:01 0.03	1	192	200	9	FVFKNIDGY 0.869689
HLA-A*68:02 0.03	1	777	785	9	EVFAQVKQI 0.865844
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	346	354	9	SVYAWNRRK 0.857726
HLA-B*57:01 0.16	1	621	630	10	IHADQLTPTW 0.853487
HLA-B*51:01 0.02	1	1049	1057	9	FPQSAPHGV 0.853165
HLA-A*23:01 0.03	1	785	794	10	IYKTPPIKDF 0.852007
HLA-A*24:02 0.04	1	1134	1142	9	VYDPLQPEL 0.851829
HLA-B*15:01 0.04	1	631	640	10	RVYSTGSNVF 0.851186
HLA-A*02:06 0.06	1	1057	1065	9	VVFLHVITYV 0.850041
HLA-B*40:01 0.09	1	461	469	9	FERDISTEI 0.84839
HLA-B*35:01 0.06	1	340	348	9	NATRFASVY 0.847454
HLA-A*02:03 0.05	1	1045	1053	9	HLMSFPQSA 0.845506
HLA-A*02:03 0.05	1	955	963	9	ALNTLVKQL 0.84284
HLA-A*26:01 0.03	1	255	263	9	WTAGAAAYY 0.842739
HLA-A*24:02 0.04	1	144	152	9	YYHKNNKSW 0.841714
HLA-B*58:01 0.09	1	490	498	9	QSYGFQPTY 0.841488

HLA-A*01:01 0.05	1	825	834	10	LADAGFIKQY 0.840121	
HLA-B*53:01 0.03	1	247	255	9	TPGDSSSGW 0.834377	
HLA-B*40:01 0.09	1	984	993	10	VEAEVQIDRL 0.832715	
HLA-A*68:02 0.04	1	122	130	9	NATNVVIKV 0.832699	
HLA-B*44:02 0.04	1	986	994	9	AEVQIDRLI 0.829103	
HLA-B*44:03 0.07	1	336	344	9	GEVFNATRF 0.828162	
HLA-A*68:01 0.19	1	674	682	9	QTNSPRRAR 0.828157	
HLA-B*35:01 0.07	1	229	238	10	LPIGINITRF 0.828081	
HLA-A*11:01 0.06	1	972	980	9	SVLNDILSR 0.826842	
HLA-B*44:03 0.07	1	294	303	10	SETKCTLKSF 0.825971	
HLA-A*02:01 0.06	1	980	988	9	RLDKVEAEV 0.825045	
HLA-B*08:01 0.03	1	109	117	9	TLDSKTQSL 0.824512	
HLA-B*35:01 0.07	1	490	498	9	QSYGFQPTY 0.824068	
HLA-A*68:02 0.05	1	28	36	9	YTNSFTRGV 0.823738	
HLA-A*23:01 0.04	1	445	453	9	NYNYLYRLF 0.823695	
HLA-A*68:01 0.19	1	1061	1070	10	HVTYVPAQEK 0.821398	
HLA-A*02:06 0.07	1	973	981	9	VLNDILSRL 0.821222	
HLA-A*11:01 0.07	1	784	792	9	QIYKTPPIK 0.818509	
HLA-B*15:01 0.06	1	959	967	9	LVKQLSSNF 0.818281	
HLA-A*11:01 0.07	1	299	307	9	TLKSFTVEK 0.816787	
HLA-B*58:01 0.11	1	1051	1059	9	QSAPHGVVF 0.815153	
HLA-A*01:01 0.06	1	255	263	9	WTAGAAAYY 0.81389	
HLA-A*26:01 0.04	1	358	366	9	CVADYSVLY 0.813057	
HLA-B*57:01	1	877	885	9	GTITSGWTF 0.811974	0.2
HLA-A*31:01 0.06	1	35	44	10	GVYYDPKVF 0.811444	
HLA-B*53:01 0.03	1	229	238	10	LPIGINITRF 0.811192	
HLA-B*57:01	1	811	820	10	KRSFIEDLLF 0.809729	0.2
HLA-B*44:03 0.08	1	744	753	10	TECSNLLLQY 0.808921	
HLA-B*40:01	1	1178	1186	9	KEIDRLNEV 0.808555	0.1
HLA-A*68:01	1	972	980	9	SVLNDILSR 0.808276	0.2
HLA-B*57:01	1	1051	1059	9	QSAPHGVVF 0.805824	0.2
HLA-A*11:01 0.08	1	721	730	10	TEILPVSMTK 0.805288	
HLA-A*68:01	1	774	783	10	NTQEVFAQVK 0.804955	0.2
HLA-A*30:02 0.02	1	1261	1269	9	VLKGVKLHY 0.804058	
HLA-A*24:02 0.06	1	486	494	9	YFPLQSYGF 0.80393	
HLA-A*02:03 0.05	1	1057	1065	9	VVFLHVTVY 0.803816	

HLA-A*02:01 0.08	1	818	826	9	LLFNKVTLA 0.803506	
HLA-B*44:02 0.05	1	294	303	10	SETKCTLKSF 0.803485	
HLA-A*11:01 0.08	1	1096	1104	9	GTHWFVTQR 0.802118	
HLA-A*23:01 0.05	1	365	374	10	LYNSASFSTF 0.801794	
HLA-B*15:01 0.07	1	684	692	9	VASQSIIAY 0.798942	
HLA-A*30:02 0.02	1	601	609	9	TSNQVAVLY 0.798698	
HLA-A*02:01 0.08	1	1045	1053	9	HLMSFPQSA 0.798454	
HLA-A*23:01 0.05	1	632	640	9	VYSTGSNVF 0.798231	
HLA-B*35:01 0.08	1	56	64	9	LPFFSNVTW 0.798144	
HLA-A*02:06 0.08	1	715	723	9	FTISVTTEI 0.796069	
HLA-A*68:01 0.21	1	1095	1104	10	NGTHWFVTQR 0.794017	
HLA-B*15:01 0.07	1	916	924	9	NQKLIANQF 0.793418	
HLA-A*68:01 0.21	1	228	237	10	DLPIGINITR 0.793037	
HLA-A*01:01 0.07	1	1194	1203	10	LIDLQELGKY 0.791918	
HLA-A*68:01 0.21	1	69	78	10	HVSGTNGTKR 0.791522	
HLA-A*23:01 0.05	1	1134	1142	9	VYDPLQPEL 0.790353	
HLA-A*68:01 0.21	1	565	574	10	DIADTTDAVR 0.789394	
HLA-A*02:03 0.06	1	1182	1190	9	RLNEVAKNL 0.788651	
HLA-A*11:01 0.08	1	367	375	9	NSASFSTFK 0.786812	
HLA-A*31:01 0.07	1	555	564	10	KFLPFQFGR 0.786339	
HLA-A*03:01	1	1061	1070	10	HVTYVPAQEK 0.781911	0.1
HLA-B*44:03 0.09	1	1203	1211	9	YEQYIKWPW 0.781402	
HLA-B*15:01 0.08	1	490	498	9	QSYGFQPTY 0.78123	
HLA-A*11:01 0.09	1	722	730	9	EILPVSMTK 0.780217	
HLA-A*02:03 0.06	1	997	1005	9	RLQSLQTYV 0.779805	
HLA-A*33:01 0.03	1	36	44	9	VYYPDKVFR 0.779146	
HLA-B*35:01 0.09	1	696	704	9	LGVENSVAY 0.778011	
HLA-A*30:01 0.02	1	451	459	9	RLFRKSNLK 0.774723	
HLA-A*30:02 0.03	1	369	377	9	ASFSTFKCY 0.77457	
HLA-A*23:01 0.05	1	144	152	9	YYHKNNKSW 0.77397	
HLA-B*53:01 0.04	1	893	901	9	IPFAMQMAY 0.771169	
HLA-B*44:03	1	826	834	9	ADAGFIKQY 0.769592	0.1
HLA-A*30:01 0.02	1	299	307	9	TLKSFTVEK 0.766302	
HLA-B*44:03	1	1013	1021	9	AEIRASANL 0.764604	0.1
HLA-B*15:01	1	891	899	9	LQIPFAMQM 0.763797	

0.09							
HLA-A*02:03	1	1217	1225	9	FIAGLIAIV	0.76346	
0.07							
HLA-A*03:01	1	266	275	10	YLPRTFLLK	0.762757	
0.12							
HLA-A*03:01	1	721	730	10	TEILPVSMTK	0.762384	
0.12							
HLA-A*02:03	1	109	117	9	TLDSKTQSL	0.758786	
0.07							
HLA-B*40:01	1	986	994	9	AEVQIDRLI	0.758249	
0.13							
HLA-A*68:02	1	1133	1142	10	TVYDPLQPEL	0.758137	
0.06							
HLA-B*57:01	1	1090	1099	10	GVFVSNQTHW	0.757943	
0.25							
HLA-A*31:01	1	316	325	10	RVQPTESIVR	0.756377	
0.08							
HLA-A*31:01	1	235	243	9	ITRFQTLHR	0.755405	
0.08							
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	1091	1099	9	VFVSNQTHW	0.754597	
0.07							
HLA-B*44:02	1	1203	1211	9	YEQYIKWPW	0.754025	
0.08							
HLA-B*35:01	1	162	170	9	SANNCTFEY	0.753348	0.1
HLA-A*68:02	1	337	345	9	EVFNATRFA	0.751835	
0.07							
HLA-A*23:01	1	1091	1099	9	VFVSNQTHW	0.750957	
0.06							
HLA-A*24:02	1	78	86	9	RFANPVLPF	0.750413	
0.07							
HLA-B*15:01	1	1051	1059	9	QSAPHGVVF	0.749927	0.1
HLA-B*58:01	1	877	885	9	GTITSGWTF	0.748029	
0.15							
HLA-A*01:01	1	600	609	10	NTSNQVAVLY	0.744843	
0.08							
HLA-A*23:01	1	504	512	9	PYRVVLSF	0.742903	
0.07							
HLA-A*68:01	1	35	44	10	GVYYPDKVFR	0.741864	
0.27							
HLA-A*02:01	1	1057	1065	9	VVFLHVTVY	0.74167	
0.11							
HLA-B*08:01	1	233	241	9	INITRFQTL	0.740901	
0.05							
HLA-B*08:01	1	1259	1267	9	EPVLKGVKL	0.740861	
0.05							
HLA-A*30:02	1	237	245	9	RFQTLHRSY	0.739266	
0.04							
HLA-A*11:01	1	936	944	9	SSTASALGK	0.738311	
0.11							
HLA-B*35:01	1	268	276	9	QPRTFLLKY	0.738211	0.1
HLA-B*51:01	1	122	130	9	NATNVVIKV	0.734906	
0.06							
HLA-A*68:01	1	1002	1011	10	QTYVTQLIR	0.734679	
0.27							
HLA-B*58:01	1	341	350	10	ATRFASVYAW	0.733299	
0.16							
HLA-A*30:01	1	341	349	9	ATRFASVYA	0.731415	
0.04							
HLA-A*02:06	1	109	117	9	TLDSKTQSL	0.730577	0.1
HLA-B*44:02	1	826	834	9	ADAGFIKQY	0.727507	
0.09							
HLA-A*23:01	1	78	86	9	RFANPVLPF	0.726015	

0.07							
HLA-A*68:01	1	672	680	9	QTQTNSPRR	0.724704	
0.28							
HLA-A*31:01	1	182	190	9	KQGNFKNLR	0.724634	
0.11							
HLA-B*15:01	1	625	633	9	QLTPTWRVY	0.724015	
0.12							
HLA-B*15:01	1	494	502	9	FQPTYGVGY	0.722531	
0.12							
HLA-B*44:02	1	336	344	9	GEVFNATRF	0.720722	
0.09							
HLA-A*68:01	1	88	97	10	DGVYFASTEK	0.718688	0.3
HLA-B*15:01	1	683	692	10	SVASQSIIAY	0.718454	
0.12							
HLA-B*58:01	1	811	820	10	KRSFIEDLLF	0.718378	
0.17							
HLA-B*07:02	1	1258	1267	10	SEPVLKGVKL	0.718257	
0.11							
HLA-A*68:01	1	1062	1070	9	VTYVPAQEK	0.718109	0.3
HLA-B*15:01	1	695	704	10	SLGVENSVAAY	0.714072	
0.12							
HLA-A*31:01	1	972	980	9	SVLNDILSR	0.713452	
0.12							
HLA-A*23:01	1	486	494	9	YFPLQSYGF	0.712888	
0.08							
HLA-B*57:01	1	97	106	10	KSNIIRGWIF	0.712739	
0.29							
HLA-A*24:02	1	504	512	9	PYRVVLSF	0.711831	
0.09							
HLA-A*26:01	1	683	692	10	SVASQSIIAY	0.710856	
0.06							
HLA-A*11:01	1	142	150	9	GVYHKNK	0.70786	
0.13							
HLA-A*11:01	1	1061	1070	10	HVTYVPAQEK	0.706779	
0.13							
HLA-A*02:03	1	972	981	10	SVLNDILSRL	0.704355	0.1
HLA-A*11:01	1	547	555	9	GVLTESNKK	0.704285	
0.14							
HLA-B*07:02	1	208	216	9	TPINLVRGL	0.70417	
0.12							
HLA-B*35:01	1	892	901	10	QIPFAMQMAY	0.702727	
0.12							
HLA-B*35:01	1	192	200	9	FVFKNIDGY	0.69975	
0.12							
HLA-A*01:01	1	649	657	9	GAEHVNSY	0.698791	0.1
HLA-B*57:01	1	1200	1209	10	LGKYEYIKW	0.698299	0.3
HLA-A*02:06	1	1217	1225	9	FIAGLIAIV	0.697944	
0.11							
HLA-A*26:01	1	357	366	10	NCVADYSVLY	0.696726	
0.06							
HLA-A*01:01	1	437	446	10	NLDSKVGNGY	0.696259	0.1
HLA-A*33:01	1	391	400	10	NVYADSFVIR	0.695997	
0.07							
HLA-A*68:02	1	1057	1065	9	VVFLHVTVY	0.693503	
0.08							
HLA-A*01:01	1	161	170	10	SSANNCTFEY	0.691415	0.1
HLA-B*40:01	1	1253	1262	10	FDEDDSEPLV	0.691166	
0.16							
HLA-A*68:02	1	565	573	9	DIADTTDAV	0.691027	
0.09							
HLA-B*58:01	1	601	609	9	TSNQVAVLY	0.690801	
0.19							
HLA-A*02:06	1	688	696	9	SIIAYTMSL	0.69038	
0.11							
HLA-B*57:01	1	876	885	10	AGTITSGWTF	0.689438	
0.31							

HLA-B*35:01 0.13	1	895	903	9	FAMQMAYRF	0.68794	
HLA-A*23:01 0.09	1	1098	1106	9	HWFVTQRNF	0.687107	
HLA-A*33:01 0.08	1	346	354	9	SVYAWNRKR	0.686387	
HLA-A*24:02 0.11	1	169	177	9	EYVSQPFLM	0.686017	
HLA-A*31:01 0.14	1	634	643	10	STGSNVFQTR	0.683526	
HLA-B*40:01 0.16	1	336	344	9	GEVFNATRF	0.682004	
HLA-B*07:02 0.13	1	523	531	9	GPKKSTNLV	0.678799	
HLA-A*03:01 0.18	1	1193	1202	10	SLIDLQELGK	0.677463	
HLA-A*02:06 0.12	1	1133	1142	10	TVYDPLQPEL	0.677074	
HLA-B*44:02 0.11	1	1013	1021	9	AEIRASANL	0.676171	
HLA-A*02:03 0.11	1	383	392	10	KLNDLCFTNV	0.67519	
HLA-B*51:01 0.09	1	8	16	9	LPLVSSQCV	0.673254	
HLA-A*31:01 0.15	1	343	352	10	RFASVYAWNR	0.672968	
HLA-B*40:01 0.17	1	1258	1267	10	SEPVLKGVKL	0.670789	
HLA-A*11:01 0.16	1	451	459	9	RLFRKSNLK	0.67072	
HLA-A*03:01 0.19	1	346	354	9	SVYAWNRKR	0.668534	
HLA-B*58:01 0.21	1	709	717	9	IAIPTNFTI	0.668254	
HLA-A*33:01 0.08	1	392	400	9	VYADSFVIR	0.667693	
HLA-B*57:01 0.34	1	49	58	10	HSTQDLFLPF	0.665216	
HLA-A*31:01 0.16	1	392	400	9	VYADSFVIR	0.664791	
HLA-A*01:01	1	28	37	10	YTNSFTRGVY	0.661513	0.1
HLA-A*03:01	1	1017	1025	9	ASANLAATK	0.660646	0.2
HLA-A*03:01	1	375	383	9	KCYGVSPK	0.660274	0.2
HLA-A*68:02	1	414	422	9	NIADYNYKL	0.660086	0.1
HLA-A*33:01 0.08	1	674	682	9	QTNSPRRAR	0.659706	
HLA-A*30:01 0.06	1	375	383	9	KCYGVSPK	0.659228	
HLA-A*68:01 0.36	1	69	77	9	HVSGTNGTK	0.658881	
HLA-A*68:01 0.37	1	397	405	9	FVIRGDEVR	0.658436	
HLA-B*57:01 0.34	1	601	609	9	TSNQVAVLY	0.657685	
HLA-A*02:01 0.16	1	955	963	9	ALNTLVKQL	0.657403	
HLA-A*23:01 0.09	1	485	494	10	CYFPLQSYGF	0.656733	
HLA-A*24:02 0.12	1	1098	1106	9	HWFVTQRNF	0.656466	
HLA-A*68:02	1	604	612	9	QVAVLYQGV	0.655251	0.1
HLA-A*31:01 0.17	1	150	158	9	KSWMSEFR	0.653923	
HLA-B*57:01 0.34	1	301	310	10	KSFTVEKGIY	0.653254	
HLA-A*02:01	1	1182	1190	9	RLNEVAKNL	0.652653	



0.16							
HLA-A*32:01	1	490	498	9	QSYGFQPTY 0.652186		
0.05							
HLA-A*30:01	1	1062	1070	9	VTYVPAQEK 0.651559		
0.06							
HLA-B*51:01	1	1049	1058	10	FPQSAPHGVV 0.65136		
0.09							
HLA-A*68:01	1	229	237	9	LPIGINITR 0.651161		
0.38							
HLA-B*57:01	1	246	255	10	LTPGDSSSGW 0.6494		
0.35							
HLA-A*02:03	1	912	920	9	VLLENQKLI 0.648983		
0.12							
HLA-B*35:01	1	56	65	10	LPFFSNVTWF 0.648367		
0.14							
HLA-B*15:01	1	410	418	9	GQTGNIADY 0.647687		
0.18							
HLA-A*01:01	1	358	366	9	CVADYSVLY 0.64603		
0.11							
HLA-A*23:01	1	1205	1214	10	QYIKWPWYIW 0.645985	0.1	
HLA-A*24:02	1	485	494	10	CYFPLQSYGF 0.645963		
0.13							
HLA-A*23:01	1	169	177	9	EYVSQPFLM 0.644477	0.1	
HLA-A*30:02	1	778	786	9	VFAQVKQIY 0.644353		
0.08							
HLA-A*03:01	1	802	811	10	ILPDPSKPSK 0.643677		
0.21							
HLA-A*02:06	1	997	1005	9	RLQSLQTYV 0.64316		
0.14							
HLA-A*01:01	1	730	738	9	KTSVDCTMY 0.642966		
0.12							
HLA-B*44:02	1	744	753	10	TECSNLLLQY 0.642665		
0.12							
HLA-A*02:01	1	1217	1225	9	FIAGLIAIV 0.641405		
0.17							
HLA-A*30:02	1	684	692	9	VASQSIIAY 0.641131		
0.08							
HLA-B*51:01	1	571	579	9	DAVRDPQTL 0.639281	0.1	
HLA-A*11:01	1	824	832	9	TLADAGFIK 0.639216		
0.18							
HLA-A*33:01	1	262	270	9	YYVGYLQPR 0.638012		
0.09							
HLA-A*24:02	1	143	152	10	VYYHKNNKSW 0.637746		
0.13							
HLA-A*26:01	1	490	498	9	QSYGFQPTY 0.637448		
0.07							
HLA-B*08:01	1	993	1001	9	LITGRLQSL 0.63729		
0.08							
HLA-B*15:01	1	212	220	9	LVRGLPQGF 0.636163		
0.19							
HLA-A*24:02	1	203	212	10	IYSKHTPINL 0.634064		
0.13							
HLA-B*57:01	1	874	883	10	LLAGTITSGW 0.633888		
0.36							
HLA-B*53:01	1	83	92	10	VLPFNDGVYF 0.63303		
0.07							
HLA-A*30:01	1	784	792	9	QIYKTPPIK 0.631297		
0.06							
HLA-B*57:01	1	1206	1214	9	YIKWPWYIW 0.630823		
0.37							
HLA-B*35:01	1	622	630	9	HADQLTPTW 0.630203		
0.15							
HLA-A*31:01	1	261	270	10	AYVGYLQPR 0.627498		
0.21							
HLA-A*68:01	1	299	307	9	TLKSFTVEK 0.623075		
0.43							

HLA-A*30:02 0.09	1	162	170	9	SANNCTFEY	0.62244	
HLA-A*02:01 0.18	1	854	862	9	GLTVLPPLL	0.622173	
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	625	633	9	QLTPTWRVY	0.619267	
HLA-A*02:01 0.18	1	1189	1197	9	NLNESLIDL	0.618877	
HLA-A*02:06 0.15	1	774	782	9	NTQEVFAQV	0.61807	
HLA-B*35:01 0.15	1	601	609	9	TSNQVAVLY	0.6179	
HLA-A*30:02	1	730	738	9	KTSVDCTMY	0.617596	0.1
HLA-A*31:01 0.21	1	307	316	10	KGIYQTSNFR	0.617169	
HLA-A*01:01 0.13	1	196	204	9	NIDGYFKIY	0.616114	
HLA-A*02:06 0.15	1	891	899	9	LQIPFAMQM	0.61392	
HLA-A*24:02 0.14	1	1205	1214	10	QYIKWPWYIW	0.613352	
HLA-B*35:01 0.16	1	83	92	10	VLPFNDGVYF	0.613298	
HLA-B*53:01 0.07	1	317	326	10	VQPTESIVRF	0.612597	
HLA-A*68:01 0.45	1	344	352	9	FASVYAWNR	0.611074	
HLA-A*26:01 0.08	1	295	303	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	858	866	9	LPPLLTDEM	0.608235	
HLA-B*57:01 0.39	1	489	498	10	LQSYGFQPTY	0.608234	
HLA-B*35:01 0.16	1	484	492	9	NCYFPLQSY	0.605847	
HLA-B*35:01 0.16	1	1051	1059	9	QSAPHGVVF	0.605672	
HLA-B*15:01 0.21	1	192	200	9	FVFKNIDGY	0.603024	
HLA-A*68:01 0.47	1	635	643	9	TGSNVFQTR	0.603019	
HLA-A*02:06 0.17	1	1045	1053	9	HLMSFPQSA	0.601563	
HLA-B*15:01 0.21	1	369	377	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	STEKSNIIIR	0.596515	
HLA-A*02:06 0.17	1	133	141	9	FQFCNDPFL	0.596191	
HLA-A*11:01 0.21	1	346	354	9	SVYAWNRKR	0.596094	
HLA-B*58:01 0.25	1	707	715	9	NSIAIPTNF	0.59572	
HLA-A*23:01 0.11	1	143	152	10	VYYHKNNKSW	0.595173	

HLA-A*01:01 0.14	1	490	498	9	QSYGFQPTY 0.594882	
HLA-B*57:01 0.41	1	709	717	9	IAIPTNFTI 0.593982	
HLA-A*11:01 0.21	1	345	353	9	ASVYAWNRK 0.59342	
HLA-B*58:01 0.26	1	1090	1099	10	GVFVSNNGTHW 0.592182	
HLA-B*40:01 0.21	1	1012	1021	10	AAEIRASANL 0.591426	
HLA-A*03:01 0.25	1	450	459	10	YRLFRKSNLK 0.591204	
HLA-A*32:01 0.06	1	631	640	10	RVYSTGSNVF 0.589889	
HLA-A*11:01 0.21	1	526	534	9	KSTNLVKNK 0.588891	
HLA-A*11:01 0.21	1	289	297	9	ALDPLSETK 0.588815	
HLA-A*31:01 0.25	1	308	316	9	GIYQTSNFR 0.587274	
HLA-B*44:03	1	461	470	10	FERDISTEIIY 0.586808	0.2
HLA-B*07:02 0.19	1	38	47	10	YDPKVFRRSSV 0.586215	
HLA-A*68:01	1	308	316	9	GIYQTSNFR 0.586097	0.5
HLA-B*15:01 0.22	1	1056	1064	9	GVVFLHVTY 0.585418	
HLA-B*15:01 0.22	1	849	858	10	AQKFNGLTVL 0.584204	
HLA-A*02:06 0.18	1	414	422	9	NIADYNYKL 0.583913	
HLA-A*03:01 0.26	1	526	534	9	KSTNLVKNK 0.581593	
HLA-B*35:01 0.18	1	326	335	10	FPNITNLCPF 0.581019	
HLA-A*68:02 0.14	1	714	723	10	NFTISVTTEI 0.580993	
HLA-A*02:01 0.21	1	688	696	9	SIIAYTMSL 0.580032	
HLA-A*30:01 0.09	1	783	792	10	KQIYKTPPIK 0.5792	
HLA-A*68:02 0.14	1	1185	1194	10	EVAKNLNESL 0.579163	
HLA-A*31:01 0.26	1	345	354	10	ASVYAWNRKR 0.578807	
HLA-B*57:01 0.43	1	707	715	9	NSIAIPTNF 0.578173	
HLA-A*31:01 0.26	1	451	459	9	RLFRKSNLK 0.576303	
HLA-A*02:03 0.18	1	992	1001	10	RLITGRLQSL 0.576159	
HLA-B*58:01 0.27	1	49	58	10	HSTQDLFLPF 0.575502	
HLA-A*30:02 0.11	1	301	310	10	KSFTVEKGIY 0.574093	
HLA-A*11:01 0.23	1	823	832	10	VTLADAGFIK 0.57408	
HLA-B*40:01 0.22	1	1254	1262	9	DEDDSEPVL 0.57095	
HLA-B*08:01 0.11	1	502	510	9	YQPYRVVVL 0.570928	
HLA-A*01:01 0.15	1	162	170	9	SANNCTFEY 0.570386	
HLA-B*57:01 0.44	1	369	377	9	ASFSTFKCY 0.567253	
HLA-A*11:01 0.23	1	35	44	10	GVYYPDKVFR 0.566756	

HLA-B*51:01 0.15	1	690	698	9	IAYTMSLGV 0.566272	
HLA-A*03:01 0.27	1	1261	1269	9	VLKGVKLHY 0.565504	
HLA-A*30:02 0.12	1	862	870	9	LTDEMIAQY 0.565227	
HLA-A*01:01 0.16	1	862	871	10	LTDEMIAQYT 0.563645	
HLA-A*30:02 0.12	1	30	38	9	NSFTRGVYY 0.563454	
HLA-B*53:01	1	895	903	9	FAMQMAYRF 0.56343	0.1
HLA-A*02:01 0.23	1	421	430	10	KLPDDFTGCV 0.562841	
HLA-A*02:06 0.19	1	980	988	9	RLDKVEAEV 0.562526	
HLA-A*30:02 0.12	1	441	450	10	KVGGNYNYLY 0.561875	
HLA-A*02:06 0.19	1	818	826	9	LLFNKVTLA 0.560973	
HLA-A*30:02 0.12	1	489	498	10	LQSYGFQPTY 0.560711	
HLA-A*02:03 0.19	1	215	223	9	GLPQGFSA 0.560123	
HLA-B*53:01	1	56	65	10	LPFFSNVTWF 0.559641	0.1
HLA-A*02:03	1	688	696	9	SIAYTMSL 0.55817	0.2
HLA-A*02:03	1	421	430	10	KLPDDFTGCV 0.556071	0.2
HLA-B*53:01	1	246	255	10	LTPGDSSSGW 0.555638	0.1
HLA-A*03:01 0.28	1	824	832	9	TLADAGFIK 0.555592	
HLA-A*30:02 0.13	1	683	692	10	SVASQSIIAY 0.555378	
HLA-B*58:01 0.28	1	895	903	9	FAMQMAYRF 0.55535	
HLA-A*11:01 0.25	1	800	808	9	SQILPDPSK 0.555075	
HLA-A*32:01 0.07	1	202	210	9	KIYSKHTPI 0.553766	
HLA-A*68:01 0.55	1	971	980	10	SSVLNDILSR 0.553501	
HLA-B*07:02 0.21	1	1259	1267	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	877	885	9	GTITSGWTF 0.550974	
HLA-A*24:02 0.17	1	265	274	10	GYLQPRTFLL 0.549374	
HLA-A*11:01 0.25	1	308	316	9	GIYQTSNFR 0.547005	
HLA-A*33:01 0.13	1	445	454	10	NYNYLYRLFR 0.545544	
HLA-A*33:01 0.13	1	446	454	9	YNYLYRLFR 0.544741	
HLA-A*30:01	1	631	639	9	RVYSTGSNV 0.543326	0.1
HLA-B*35:01 0.21	1	862	870	9	LTDEMIAQY 0.541109	
HLA-A*03:01 0.29	1	308	316	9	GIYQTSNFR 0.540742	
HLA-A*23:01 0.14	1	57	65	9	PFFSNVTWF 0.540445	
HLA-B*08:01 0.13	1	817	825	9	DLLFNKVTL 0.539186	
HLA-A*24:02 0.18	1	1091	1100	10	VFVSNGTHWF 0.537769	

HLA-A*31:01 0.31	1	673	682	10	TQTNSPRRAR 0.536946	
HLA-A*33:01 0.14	1	228	237	10	DLPIGINITR 0.536875	
HLA-A*31:01 0.31	1	988	997	10	VQIDRLITGR 0.536572	
HLA-A*01:01 0.18	1	411	420	10	QTGNIADYNY 0.535643	
HLA-A*02:01 0.24	1	414	422	9	NIADYNYKL 0.535126	
HLA-A*02:01 0.24	1	383	392	10	KLNDLCFTNV 0.533416	
HLA-A*02:06 0.21	1	421	430	10	KLPDDFTGCV 0.532999	
HLA-B*35:01 0.22	1	358	366	9	CVADYSVLY 0.532646	
HLA-B*35:01 0.22	1	30	38	9	NSFTRGVYY 0.532345	
HLA-B*15:01 0.26	1	686	694	9	SQSIIAYTM 0.532235	
HLA-B*53:01 0.12	1	875	883	9	LAGTITSGW 0.532125	
HLA-B*51:01 0.16	1	920	928	9	IANQFNSAI 0.531818	
HLA-A*03:01	1	722	730	9	EILPVSMTK 0.531629	0.3
HLA-A*11:01 0.27	1	490	498	9	QSYGFQPTY 0.531022	
HLA-B*58:01	1	246	255	10	LTPGDSSSGW 0.530312	0.3
HLA-A*30:02 0.15	1	358	366	9	CVADYSVLY 0.53021	
HLA-A*03:01	1	921	930	10	ANQFNSAIGK 0.530033	0.3
HLA-B*35:01 0.22	1	683	692	10	SVASQSIIAY 0.529484	
HLA-B*15:01 0.26	1	1110	1118	9	QIITTDNTF 0.529365	
HLA-B*53:01 0.12	1	1136	1145	10	DPLQPELDSF 0.526614	
HLA-A*01:01 0.18	1	1036	1044	9	RVDFCGKGY 0.526344	
HLA-B*51:01 0.17	1	24	32	9	LPPAYTNSF 0.52533	
HLA-A*24:02 0.18	1	265	273	9	GYLQPRTFL 0.523018	
HLA-A*30:02 0.16	1	28	37	10	YTNSFTRGVY 0.522409	
HLA-A*03:01 0.31	1	289	297	9	ALDPLSETK 0.52164	
HLA-A*68:01 0.61	1	673	682	10	TQTNSPRRAR 0.521378	
HLA-B*15:01 0.27	1	317	326	10	VQPTESIVRF 0.520314	
HLA-A*24:02 0.18	1	309	317	9	IYQTSNFRV 0.517604	
HLA-A*31:01 0.34	1	635	643	9	TGSNVFQTR 0.517116	
HLA-A*03:01 0.32	1	307	316	10	KGIYQTSNFR 0.516391	
HLA-A*24:02 0.18	1	631	640	10	RVYSTGSNVF 0.516328	
HLA-A*32:01	1	341	350	10	ATRFASVYAW 0.515027	0.1
HLA-A*32:01	1	50	58	9	STQDLFLPF 0.51427	0.1
HLA-A*02:01 0.26	1	512	521	10	FELLHAPATV 0.513156	
HLA-A*32:01	1	1182	1190	9	RLNEVAKNL 0.513013	0.1
HLA-A*68:02 0.18	1	701	709	9	SVAYSNNSI 0.512883	

HLA-A*23:01 0.15	1	265	274	10	GYLQPRTFLL	0.512651	
HLA-A*02:06 0.24	1	718	726	9	SVTTEILPV	0.511187	
HLA-A*30:02 0.16	1	1144	1152	9	SFKEELDKY	0.508894	
HLA-A*11:01 0.29	1	953	961	9	AQALNTLVK	0.508732	
HLA-B*15:01 0.29	1	267	276	10	LQPRTFLLKY	0.508417	
HLA-A*02:06 0.25	1	783	791	9	KQIYKTPPI	0.50734	
HLA-A*23:01 0.16	1	1091	1100	10	VFVSNATHWF	0.506266	
HLA-B*15:01 0.29	1	1197	1206	10	LQELGKYEYQ	0.505374	
HLA-A*11:01 0.29	1	1193	1202	10	SLIDLQELGK	0.503672	
HLA-A*68:02 0.19	1	1217	1225	9	FIAGLIAIV	0.501049	
HLA-A*02:03 0.24	1	631	639	9	RVYSTGSNV	0.500517	
HLA-B*57:01 0.54	1	56	64	9	LPFFSNVTW	0.498723	
HLA-A*68:01 0.65	1	1017	1025	9	ASANLAATK	0.498553	
HLA-A*68:01 0.65	1	89	97	9	GVYFASTEK	0.497011	
HLA-B*07:02 0.25	1	1049	1057	9	FPQSAPHGV	0.496693	
HLA-A*30:01 0.14	1	526	534	9	KSTNLVKNK	0.495913	
HLA-A*02:01 0.26	1	912	920	9	VLLENQKLI	0.495902	
HLA-B*51:01 0.19	1	318	326	9	QPTESIVRF	0.495863	
HLA-A*30:01 0.14	1	202	210	9	KIYSKHTPI	0.495841	
HLA-A*33:01 0.16	1	344	352	9	FASVYAWNR	0.494019	
HLA-B*57:01 0.54	1	895	903	9	FAMQMAYRF	0.49374	
HLA-B*58:01 0.33	1	56	64	9	LPFFSNVTW	0.49366	
HLA-A*31:01 0.37	1	454	463	10	RKSNLKPFR	0.493077	
HLA-A*26:01 0.12	1	30	38	9	NSFTRGVYY	0.492899	
HLA-A*11:01	1	41	49	9	KVFRSSVLH	0.492404	0.3
HLA-A*31:01 0.38	1	299	307	9	TLKSFTVEK	0.491043	
HLA-A*30:02 0.18	1	255	263	9	WTAGAAAYY	0.490828	
HLA-A*68:02	1	62	70	9	VTWFHAIHV	0.489747	0.2
HLA-B*58:01 0.33	1	684	692	9	VASQSIIAY	0.489747	
HLA-B*51:01	1	56	64	9	LPFFSNVTW	0.488507	0.2
HLA-A*23:01 0.17	1	265	273	9	GYLQPRTFL	0.487874	
HLA-A*24:02	1	1208	1217	10	KWPWYIWLGF	0.48691	0.2
HLA-A*03:01 0.36	1	1096	1104	9	GTHWFVTQR	0.486307	
HLA-A*23:01 0.17	1	1208	1217	10	KWPWYIWLGF	0.48608	
HLA-A*68:02 0.21	1	937	945	9	STASALGKL	0.485571	

HLA-A*01:01	1	648	657	10	IGAHEVNNNSY 0.485311	0.2
HLA-A*30:02 0.18	1	354	362	9	RISNCVADY 0.484483	
HLA-A*26:01 0.12	1	580	589	10	EILDITPCSF 0.484378	
HLA-A*68:01 0.67	1	721	730	10	TEILPVSMTK 0.483356	
HLA-A*30:02 0.18	1	663	671	9	IGAGICASY 0.482045	
HLA-A*68:02 0.21	1	600	608	9	NTSNQVAVL 0.481301	
HLA-A*01:01	1	1143	1152	10	DSFKEELDKY 0.481064	0.2
HLA-B*15:01 0.32	1	152	160	9	WMESEFRVY 0.480932	
HLA-A*68:02 0.21	1	492	500	9	YGFQPTYGV 0.480496	
HLA-B*58:01 0.34	1	876	885	10	AGTITSGWTF 0.479615	
HLA-A*32:01 0.11	1	812	820	9	RSFIEDLLF 0.479418	
HLA-B*08:01 0.16	1	1134	1142	9	VYDPLQPEL 0.479112	
HLA-A*03:01 0.37	1	35	44	10	GVYYPDKVFR 0.477862	
HLA-A*68:02 0.21	1	883	891	9	WTFGAGAAL 0.477819	
HLA-A*26:01 0.12	1	600	609	10	NTSNQVAVLY 0.476654	
HLA-B*57:01 0.56	1	264	272	9	VGYLQPRTF 0.476575	
HLA-A*68:01 0.69	1	824	832	9	TLADAGFIK 0.476129	
HLA-A*30:01 0.16	1	41	49	9	KVFRSSVLH 0.474763	
HLA-B*57:01 0.56	1	50	58	9	STQDLFLPF 0.474382	
HLA-B*07:02 0.27	1	318	326	9	QPTESIVRF 0.472976	
HLA-B*07:02 0.27	1	711	719	9	IPTNFTISV 0.472945	
HLA-A*24:02 0.21	1	193	201	9	VFKNIDGYF 0.472749	
HLA-B*58:01 0.34	1	160	168	9	YSSANNCTF 0.472573	
HLA-A*11:01 0.33	1	754	762	9	GSFCTQLNR 0.472002	
HLA-A*30:01 0.16	1	1017	1025	9	ASANLAATK 0.471795	
HLA-A*03:01 0.38	1	1016	1025	10	RASANLAATK 0.471098	
HLA-B*15:01 0.33	1	363	371	9	SVLYNSASF 0.470989	
HLA-A*30:02	1	1036	1044	9	RVDFCGKGY 0.470607	0.2
HLA-B*51:01 0.22	1	111	119	9	DSKTQSLLI 0.470018	
HLA-A*11:01 0.33	1	366	375	10	YNSASFSTFK 0.469471	
HLA-B*58:01 0.35	1	862	870	9	LTDEMIAQY 0.467999	
HLA-A*11:01 0.33	1	1016	1025	10	RASANLAATK 0.466715	
HLA-A*68:01 0.71	1	366	375	10	YNSASFSTFK 0.465002	
HLA-A*68:01 0.71	1	1028	1036	9	ECVLGQSKR 0.464311	
HLA-A*03:01	1	451	460	10	RLFRKSNLKP 0.463635	0.4

HLA-A*30:02	1	161	170	10	SSANNCTFEY 0.463277	0.2
HLA-A*30:01 0.17	1	19	27	9	TTRTQLPPA 0.46289	
HLA-B*35:01 0.25	1	1136	1145	10	DPLQPELDSF 0.462749	
HLA-B*15:01 0.35	1	849	857	9	AQKFNGLTV 0.462676	
HLA-B*35:01 0.25	1	889	897	9	AALQIPFAM 0.462137	
HLA-A*24:02 0.22	1	57	65	9	PFFSNVTWF 0.462093	
HLA-B*07:02 0.28	1	24	32	9	LPPAYTNSF 0.461961	
HLA-A*02:03 0.28	1	934	942	9	SLSSTASAL 0.461783	
HLA-A*30:01 0.17	1	89	97	9	GVYFASTEK 0.460956	
HLA-A*03:01	1	936	944	9	SSTASALGK 0.460777	0.4
HLA-B*15:01 0.35	1	461	470	10	FERDISTEIIY 0.460469	
HLA-A*23:01 0.19	1	193	201	9	VFKNIDGYF 0.460029	
HLA-B*15:01 0.35	1	601	609	9	TSNQVAVLY 0.459562	
HLA-A*11:01 0.35	1	921	930	10	ANQFNSAIGK 0.459415	
HLA-A*24:02 0.22	1	23	32	10	QLPPAYTNSF 0.458879	
HLA-A*31:01 0.43	1	446	454	9	YNYLYRFR 0.456877	
HLA-B*15:01 0.36	1	358	366	9	CVADYSVLY 0.456493	
HLA-A*02:03 0.28	1	1044	1053	10	YHLMSFPQSA 0.456118	
HLA-B*53:01 0.16	1	326	335	10	FPNITNLCPF 0.454515	
HLA-B*35:01 0.27	1	711	719	9	IPTNFTISV 0.453722	
HLA-A*03:01	1	547	555	9	GVLTESNKK 0.452652	0.4
HLA-A*02:03 0.28	1	944	953	10	KLQDVVNQNA 0.452435	
HLA-B*40:01 0.31	1	1191	1200	10	NESLIDLQEL 0.4524	
HLA-A*31:01 0.43	1	13	21	9	SQCVNLTR 0.451954	
HLA-B*07:02 0.29	1	503	512	10	QPYRVVLSF 0.451783	
HLA-A*68:02 0.23	1	904	912	9	NGIGVTQNV 0.44936	
HLA-A*30:02 0.22	1	195	204	10	KNIDGYFKIY 0.445822	
HLA-A*68:01 0.74	1	235	243	9	ITRFQTLHR 0.445217	
HLA-A*02:03 0.29	1	1133	1142	10	TVYDPLQPEL 0.444648	
HLA-B*08:01	1	339	347	9	FNATRFASV 0.44423	0.2
HLA-A*68:02 0.24	1	715	724	10	FTISVTTEIL 0.443734	
HLA-A*26:01 0.14	1	601	609	9	TSNQVAVLY 0.442541	
HLA-B*51:01 0.25	1	38	47	10	YDPKVFRRSSV 0.4399	
HLA-A*02:03 0.29	1	202	210	9	KIYSKHTPI 0.439809	
HLA-A*33:01 0.22	1	235	243	9	ITRFQTLHR 0.43968	



HLA-A*31:01 0.45	1	262	270	9	YYVGYLQPR 0.439463	
HLA-A*33:01 0.22	1	1003	1011	9	TYVTQLLIR 0.439206	
HLA-A*02:01 0.32	1	1044	1053	10	YHLMSFPQSA 0.439192	
HLA-B*15:01	1	493	502	10	GFQPTYGVGY 0.438872	0.4
HLA-B*44:03	1	1178	1186	9	KEIDRLNEV 0.438248	0.3
HLA-B*08:01	1	551	559	9	ESNKKFLPF 0.438191	0.2
HLA-A*68:01 0.76	1	255	263	9	WTAGAAAYY 0.437904	
HLA-B*44:02 0.24	1	461	470	10	FERDISTEIIY 0.437515	
HLA-B*35:01 0.29	1	1049	1057	9	FPQSAPHGV 0.437126	
HLA-A*30:02 0.23	1	192	200	9	FVFKNIDGY 0.435517	
HLA-A*33:01 0.22	1	1095	1104	10	NGTHWFVTQR 0.43473	
HLA-B*15:01	1	890	899	10	ALQIPFAMQM 0.434399	0.4
HLA-B*40:01 0.33	1	815	823	9	IEDLLFNKV 0.433395	
HLA-B*58:01 0.38	1	874	883	10	LLAGTITSGW 0.433085	
HLA-A*02:06 0.34	1	421	429	9	KLPDDFTGC 0.432817	
HLA-A*26:01 0.15	1	1092	1100	9	FVSNNGTHWF 0.431696	
HLA-B*58:01 0.38	1	1091	1099	9	VFVSNNGTHW 0.43061	
HLA-B*15:01	1	877	885	9	GTITSGWTF 0.430581	0.4
HLA-A*30:02 0.24	1	258	266	9	GAAAYVVG 0.428567	
HLA-A*30:02 0.24	1	484	492	9	NCYFPLQSY 0.428278	
HLA-A*23:01	1	203	212	10	IYSKHTPINL 0.427799	0.2
HLA-A*30:02 0.24	1	410	418	9	GQTGNIADY 0.427074	
HLA-B*57:01 0.65	1	1083	1092	10	KAHFPREGVF 0.426537	
HLA-A*01:01 0.25	1	684	692	9	VASQSIIAY 0.42647	
HLA-A*02:06 0.35	1	780	788	9	AQVKQIYKT 0.426345	
HLA-A*03:01 0.44	1	972	980	9	SVLNDILSR 0.424744	
HLA-A*30:02 0.24	1	493	502	10	GFQPTYGVGY 0.424403	
HLA-A*24:02 0.24	1	376	384	9	CYGVSPTKL 0.424143	
HLA-A*68:01 0.79	1	779	787	9	FAQVKQIYK 0.423831	
HLA-B*57:01 0.66	1	1091	1099	9	VFVSNNGTHW 0.423598	
HLA-B*44:02 0.25	1	1178	1186	9	KEIDRLNEV 0.423281	
HLA-A*02:06 0.35	1	62	70	9	VTWFHAIHV 0.422331	
HLA-A*33:01 0.25	1	1096	1104	9	GTHWFVTQR 0.422018	
HLA-A*02:06 0.35	1	631	639	9	RVYSTGSNV 0.420746	
HLA-A*11:01 0.39	1	922	930	9	NQFNSAIGK 0.420485	
HLA-B*44:02 0.25	1	550	559	10	TESNKKFLPF 0.419839	

HLA-A*26:01 0.16	1	862	870	9	LTDEMIAQY 0.419837	
HLA-B*57:01 0.66	1	684	692	9	VASQSIIAY 0.418371	
HLA-A*30:01 0.23	1	842	851	10	AARDLICAQK 0.418143	
HLA-A*02:03 0.32	1	715	723	9	FTISVTTEI 0.41683	
HLA-A*11:01	1	971	980	10	SSVLNDILSR 0.416756	0.4
HLA-A*68:01 0.81	1	814	822	9	FIEDLLFNK 0.416738	
HLA-A*02:03 0.32	1	512	521	10	FELLHAPATV 0.415603	
HLA-A*02:01 0.35	1	972	981	10	SVLNDILSRL 0.415115	
HLA-A*02:06 0.36	1	28	36	9	YTNSFTRGV 0.415092	
HLA-A*11:01	1	455	463	9	KSNLKPFER 0.414632	0.4
HLA-A*02:03 0.32	1	1189	1197	9	NLNESLIDL 0.414566	
HLA-A*68:01 0.81	1	30	38	9	NSFTRGVYY 0.414371	
HLA-A*11:01	1	783	792	10	KQIYKTPPIK 0.414021	0.4
HLA-B*57:01 0.68	1	1002	1010	9	QTYVTQQLI 0.413312	
HLA-A*02:01 0.35	1	944	953	10	KLQDVVNQNA 0.413308	
HLA-A*02:06 0.36	1	1001	1009	9	LQTYVTQQL 0.41247	
HLA-A*30:02 0.26	1	254	263	10	GWTAGAAAYY 0.411498	
HLA-B*57:01 0.69	1	301	309	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	992	1001	10	RLITGRLQSL 0.410041	
HLA-A*01:01 0.26	1	152	160	9	WMESEFRVY 0.410012	
HLA-A*02:01 0.35	1	1133	1142	10	TVYDPLQPEL 0.409155	
HLA-A*01:01 0.26	1	136	145	10	CNDPFLGVVY 0.407233	
HLA-A*68:02 0.27	1	694	702	9	MSLGVENSV 0.407221	
HLA-A*33:01 0.26	1	497	506	10	TYGVGYQPYPY 0.406915	
HLA-B*15:01 0.42	1	479	487	9	GVKGFNCYF 0.406784	
HLA-A*31:01 0.52	1	754	762	9	GSFCTQLNR 0.406627	
HLA-A*24:02 0.26	1	752	760	9	QYGSFCTQL 0.405495	
HLA-B*53:01 0.18	1	621	630	10	IHADQLTPTW 0.405424	
HLA-A*11:01 0.42	1	316	325	10	RVQPTESIVR 0.403998	
HLA-A*68:01 0.84	1	490	498	9	QSYGFQPTY 0.403991	
HLA-A*02:03 0.34	1	980	988	9	RLDKVEAEV 0.403746	
HLA-A*26:01 0.17	1	777	785	9	EVFAQVKQI 0.403279	
HLA-B*35:01	1	571	579	9	DAVRDPQTL 0.403245	

0.32							
HLA-A*02:06	1	972	981	10	SVLNDILSRL 0.401932		
0.37							
HLA-A*68:02	1	964	973	10	SSNFGAISSV 0.40136		
0.27							
HLA-A*33:01	1	198	206	9	DGYFKIYSK 0.401222		
0.27							
HLA-A*32:01	1	1206	1214	9	YIKWPWYIW 0.401025		
0.16							
HLA-A*68:01	1	234	243	10	NITRFQTLHR 0.400838		
0.85							
HLA-A*02:06	1	940	948	9	SALGKLQDV 0.400622		
0.38							
HLA-A*01:01	1	729	738	10	TKTSVDCTMY 0.400359		
0.27							
HLA-A*68:02	1	1125	1134	10	VVIGIVNNTV 0.400091		
0.28							
HLA-B*35:01	1	55	64	10	FLPFFSNVTW 0.399642		
0.32							
HLA-A*02:03	1	509	517	9	VLSFELLHA 0.399		
0.34							
HLA-A*11:01	1	634	643	10	STGSNVFQTR 0.398739		
0.43							
HLA-A*01:01	1	136	144	9	CNDPFLGVY 0.398499		
0.27							
HLA-B*53:01	1	684	692	9	VASQSIIAY 0.398403		
0.19							
HLA-A*02:06	1	623	632	10	ADQLTPTWRV 0.398089		
0.38							
HLA-A*33:01	1	635	643	9	TGSNVFQTR 0.397693		
0.27							
HLA-A*30:02	1	29	38	10	TNSFTRGVVY 0.396487		
0.27							
HLA-A*02:06	1	502	510	9	YQPYRVVVL 0.394518		
0.39							
HLA-B*35:01	1	475	483	9	TPCNGVKGF 0.394505		
0.33							
HLA-A*68:02	1	688	696	9	SIIAYTMSL 0.393935		
0.28							
HLA-A*02:06	1	1004	1012	9	YVTQQLIRA 0.393796		
0.39							
HLA-B*51:01	1	208	216	9	TPINLVRGL 0.393727		
0.31							
HLA-A*02:06	1	849	858	10	AQKFNGLTVL 0.391583	0.4	
HLA-A*26:01	1	28	37	10	YTNSFTRGVY 0.391325		
0.18							
HLA-A*24:02	1	264	273	10	VGYLQPRTFL 0.390779		
0.26							
HLA-B*44:03	1	550	559	10	TESNKKFLPF 0.389745		
0.33							
HLA-A*02:06	1	1178	1186	9	KEIDRLNEV 0.389617	0.4	
HLA-B*57:01	1	862	870	9	LTDEMIAQY 0.387676		
0.71							
HLA-B*15:01	1	83	92	10	VLPFNDGVYF 0.387438		
0.44							
HLA-B*35:01	1	1018	1026	9	SANLAATKM 0.386751		
0.33							
HLA-B*15:01	1	696	704	9	LGVENSVAY 0.386589		
0.44							
HLA-A*03:01	1	953	961	9	AQALNTLVK 0.385754		
0.51							
HLA-A*11:01	1	779	787	9	FAQVKQIYK 0.38485		
0.44							
HLA-B*35:01	1	160	168	9	YSSANNCTF 0.384582		
0.33							
HLA-A*30:02	1	442	450	9	VGGNYNYLY 0.384149		

0.28							
HLA-B*15:01	1	958	967	10	TLVKQLSSNF 0.383968		
0.45							
HLA-B*57:01	1	730	738	9	KTSVDCTMY 0.38378		
0.72							
HLA-A*30:02	1	1056	1064	9	GVVFLHVTY 0.383729		
0.29							
HLA-A*31:01	1	391	400	10	NVYADSFVIR 0.383163		
0.57							
HLA-B*51:01	1	724	733	10	LPVSMTKTSV 0.382919		
0.32							
HLA-B*07:02	1	617	626	10	VPVAIHADQL 0.382634		
0.36							
HLA-A*02:03	1	759	767	9	QLNRALTGI 0.38188		
0.36							
HLA-B*53:01	1	1049	1057	9	FPQSAPHGV 0.380916	0.2	
HLA-B*15:01	1	23	32	10	QLPPAYTNSF 0.380664		
0.45							
HLA-B*35:01	1	745	753	9	ECSNLLLQY 0.378678		
0.34							
HLA-A*03:01	1	69	77	9	HVSGTNGTK 0.378657		
0.53							
HLA-B*58:01	1	301	310	10	KSFTVEKGIY 0.378169		
0.43							
HLA-A*11:01	1	802	811	10	ILPDPSKPSK 0.377972		
0.45							
HLA-A*68:01	1	784	792	9	QIYKTPPIK 0.377952	0.9	
HLA-A*26:01	1	745	753	9	ECSNLLLQY 0.37784		
0.19							
HLA-A*68:02	1	255	264	10	WTAGAAAYYV 0.377231	0.3	
HLA-A*68:02	1	1172	1180	9	SVVNIQKEI 0.376375	0.3	
HLA-B*15:01	1	1001	1009	9	LQTYVTQQL 0.376088		
0.46							
HLA-A*02:01	1	715	723	9	FTISVTTEI 0.375875	0.4	
HLA-B*08:01	1	450	458	9	YRLFRKSNL 0.375792		
0.26							
HLA-B*53:01	1	268	276	9	QPRTFLLKY 0.375619		
0.21							
HLA-A*11:01	1	298	307	10	CTLKSFTVEK 0.374903		
0.46							
HLA-B*51:01	1	777	785	9	EVFAQVKQI 0.374701		
0.34							
HLA-A*68:02	1	1092	1101	10	FVSNNGTHWFV 0.374303	0.3	
HLA-A*30:02	1	368	377	10	SASFSTFKCY 0.373767		
0.31							
HLA-A*68:01	1	777	786	10	EVFAQVKQIY 0.373626		
0.91							
HLA-B*35:01	1	1092	1100	9	FVSNNGTHWF 0.373487		
0.34							
HLA-B*15:01	1	1077	1086	10	AICHDGKAHF 0.372469		
0.47							
HLA-B*07:02	1	1049	1058	10	FPQSAPHGVV 0.372441		
0.37							
HLA-B*44:03	1	776	785	10	QEVFAQVKQI 0.372218		
0.34							
HLA-B*51:01	1	1259	1267	9	EPVLKGVKL 0.372046		
0.34							
HLA-A*02:01	1	215	223	9	GLPQGFSAI 0.371512		
0.41							
HLA-A*68:01	1	192	200	9	FVFKNIDGY 0.370407		
0.91							
HLA-B*35:01	1	1110	1118	9	QIITDNTF 0.369495		
0.35							
HLA-A*02:06	1	221	229	9	SALEPLVDL 0.369483		
0.43							
HLA-A*02:01	1	133	141	9	FQFCNDPFL 0.369084		

0.41							
HLA-A*01:01	1	254	263	10	GWTAGAAAYY 0.366825		
0.29							
HLA-A*68:01	1	671	680	10	YQTQTNSPRR 0.366818		
0.93							
HLA-A*68:02	1	1257	1265	9	DSEPVLKGV 0.365221		
0.32							
HLA-A*33:01	1	229	237	9	LPIGINITR 0.364545		
0.32							
HLA-A*31:01	1	1002	1011	10	QTYVTQQLIR 0.362243		
0.62							
HLA-B*51:01	1	715	723	9	FTISVTTEI 0.361993		
0.37							
HLA-A*02:03	1	866	874	9	MIAQYTSAL 0.360459	0.4	
HLA-A*31:01	1	672	680	9	QTQTNSPRR 0.360326		
0.62							
HLA-A*31:01	1	670	679	10	SYQTQTNSPR 0.359865		
0.62							
HLA-A*30:02	1	41	49	9	KVFRSSVLH 0.359703		
0.33							
HLA-A*03:01	1	316	325	10	RVQPTESIVR 0.359462		
0.54							
HLA-B*40:01	1	168	177	10	FEYVSPFLM 0.359256		
0.42							
HLA-A*68:02	1	1002	1010	9	QTYVTQQLI 0.359238		
0.32							
HLA-A*31:01	1	41	49	9	KVFRSSVLH 0.358944		
0.62							
HLA-B*15:01	1	770	779	10	EQDKNTQEVF 0.358662	0.5	
HLA-A*68:01	1	556	564	9	FLPFQFGR 0.358274		
0.96							
HLA-B*57:01	1	126	135	10	VVIKVCFFQF 0.357497	0.8	
HLA-B*58:01	1	369	377	9	ASFSTFKCY 0.356723		
0.46							
HLA-A*68:02	1	513	521	9	ELLHAPATV 0.356044		
0.33							
HLA-B*57:01	1	160	168	9	YSSANNCTF 0.355521	0.8	
HLA-A*68:01	1	358	366	9	CVADYSVLY 0.355209		
0.96							
HLA-A*30:02	1	151	160	10	SWMESEFRVY 0.354502		
0.33							
HLA-A*68:02	1	1165	1174	10	DISGINASVV 0.353851		
0.33							
HLA-B*57:01	1	55	64	10	FLPFFSNVTW 0.353746	0.8	
HLA-A*68:01	1	601	609	9	TSNQVAVLY 0.352705		
0.97							
HLA-A*30:02	1	649	657	9	GAEHVNSY 0.352551		
0.34							
HLA-A*02:06	1	868	876	9	AQYTSALLA 0.351816		
0.47							
HLA-A*02:06	1	709	717	9	IAIPTNFTI 0.35167		
0.47							
HLA-A*68:01	1	989	997	9	QIDRLITGR 0.351529		
0.97							
HLA-B*15:01	1	50	58	9	STQDLFLPF 0.351445		
0.51							
HLA-A*23:01	1	309	317	9	IYQTSNFRV 0.350817		
0.25							
HLA-A*23:01	1	23	32	10	QLPPAYTNSF 0.350772		
0.25							
HLA-A*32:01	1	78	86	9	RFANPVLPF 0.350741	0.2	
HLA-A*02:01	1	509	517	9	VLSFELLHA 0.350734		
0.45							
HLA-B*58:01	1	730	738	9	KTSVDCTMY 0.34981		
0.47							
HLA-B*58:01	1	489	498	10	LQSYGFQPTY 0.34977		

0.47							
HLA-A*03:01	1	367	375	9	NSASFSTFK	0.348642	
0.56							
HLA-A*02:06	1	215	223	9	GLPQGFSAL	0.348097	
0.47							
HLA-B*15:01	1	30	38	9	NSFTRGVYY	0.347996	
0.52							
HLA-B*35:01	1	649	657	9	GAEHVNNSY	0.347109	
0.37							
HLA-A*26:01	1	707	715	9	NSIAIPTNF	0.346315	
0.21							
HLA-B*35:01	1	208	216	9	TPINLVRGL	0.346286	
0.37							
HLA-A*02:06	1	492	500	9	YGFQPTYGV	0.346201	
0.48							
HLA-A*01:01	1	357	366	10	NCVADYSVLY	0.346028	
0.31							
HLA-A*02:03	1	28	36	9	YTNSFTRGV	0.346	
0.42							
HLA-A*32:01	1	266	274	9	YLQPRTFLL	0.345894	
0.21							
HLA-A*30:01	1	680	688	9	RARSVASQS	0.345166	
0.33							
HLA-A*32:01	1	363	371	9	SVLYNSASF	0.344581	
0.21							
HLA-B*51:01	1	952	960	9	NAQALNTLV	0.344412	0.4
HLA-A*26:01	1	50	58	9	STQDLFLPF	0.344143	
0.21							
HLA-B*35:01	1	363	371	9	SVLYNSASF	0.343642	
0.38							
HLA-A*33:01	1	634	643	10	STGSNVFQTR	0.343407	
0.35							
HLA-A*02:06	1	1189	1197	9	NLNESLIDL	0.343239	
0.48							
HLA-A*68:02	1	866	874	9	MIAQYTSAL	0.342602	
0.34							
HLA-A*30:01	1	235	243	9	ITRFQTLHR	0.342315	
0.33							
HLA-B*57:01	1	212	220	9	LVRGLPQGF	0.342228	
0.83							
HLA-A*32:01	1	1051	1059	9	QSAPHGVVF	0.34191	
0.21							
HLA-A*11:01	1	683	692	10	SVASQSIIAY	0.340989	
0.52							
HLA-B*08:01	1	530	538	9	LVKNKCVNF	0.340377	0.3
HLA-B*35:01	1	707	715	9	NSIAIPTNF	0.339725	
0.38							
HLA-A*30:01	1	800	808	9	SQILPDPSK	0.339684	
0.34							
HLA-A*68:02	1	965	973	9	SNFGAISSV	0.339107	
0.34							
HLA-A*26:01	1	439	448	10	DSKVGGNYY	0.337749	
0.21							
HLA-A*32:01	1	688	696	9	SIIAYTMSL	0.337355	
0.21							
HLA-A*68:01	1	498	506	9	YGVGYQPYP	0.337134	1.1
HLA-A*11:01	1	266	275	10	YLQPRTFLK	0.336981	
0.53							
HLA-A*02:06	1	770	778	9	EQDKNTQEV	0.33688	
0.49							
HLA-B*53:01	1	571	579	9	DAVRDPQTL	0.336628	
0.25							
HLA-A*01:01	1	745	753	9	ECSNLLLQY	0.336613	
0.32							
HLA-A*02:01	1	513	521	9	ELLHAPATV	0.336419	
0.48							

HLA-B*07:02 0.43	1	866	874	9	MIAQYTSAL 0.33632	
HLA-A*68:01	1	396	405	10	SFVIRGDEV R 0.33592	1.1
HLA-B*15:01 0.55	1	530	538	9	LVKNKCVNF 0.335721	
HLA-A*32:01 0.21	1	506	514	9	RVVVLSFEL 0.335124	
HLA-A*02:01 0.48	1	421	429	9	KLPDDFTGC 0.334903	
HLA-A*33:01 0.36	1	447	455	9	NYLYRLFRK 0.334458	
HLA-B*53:01 0.25	1	380	389	10	SPTKLNLDLCF 0.333453	
HLA-A*30:02 0.36	1	1098	1107	10	HWFVTQRNFY 0.333339	
HLA-A*26:01 0.21	1	715	723	9	FTISVTTEI 0.332779	
HLA-A*11:01 0.54	1	546	555	10	TGVLTESNKK 0.332729	
HLA-A*02:06	1	955	963	9	ALNTLVKQL 0.332633	0.5
HLA-B*08:01 0.31	1	866	874	9	MIAQYTSAL 0.33241	
HLA-A*68:01	1	26	34	9	PAYTNSFTR 0.331881	1.1
HLA-B*35:01 0.39	1	255	263	9	WTAGAAAYY 0.331721	
HLA-B*51:01 0.42	1	92	100	9	FASTEKSNI 0.331413	
HLA-B*15:01 0.56	1	861	870	10	LLTDEMIAQY 0.330897	
HLA-A*02:03 0.45	1	1168	1176	9	GINASVVNI 0.330579	
HLA-A*33:01 0.36	1	35	44	10	GVYYPDKVFR 0.330452	
HLA-B*58:01	1	1200	1209	10	LGKYEQYIKW 0.33025	0.5
HLA-B*08:01 0.31	1	688	696	9	SIIAYTMSL 0.330189	
HLA-A*30:01 0.35	1	572	581	10	AVRDPQTLEI 0.330094	
HLA-B*15:01 0.56	1	548	556	9	VLTESNKKF 0.329933	
HLA-B*07:02 0.43	1	84	92	9	LPFNDGVYF 0.329782	
HLA-B*57:01 0.86	1	806	814	9	PSKPSKRSF 0.329605	
HLA-A*30:02 0.37	1	236	245	10	TRFQTLHRSY 0.329438	
HLA-B*51:01 0.43	1	229	238	10	LPIGINITRF 0.329148	
HLA-B*07:02 0.44	1	459	467	9	KPFERDIST 0.328583	
HLA-A*33:01 0.37	1	972	980	9	SVLNDILSR 0.328563	
HLA-B*51:01 0.43	1	893	901	9	IPFAMQMAY 0.328521	
HLA-B*58:01 0.52	1	50	58	9	STQDLFLPF 0.327613	
HLA-A*02:06 0.51	1	1182	1190	9	RLNEVAKNL 0.327598	
HLA-A*68:02 0.38	1	135	143	9	FCNDPFLGV 0.327522	
HLA-A*30:01 0.37	1	1061	1070	10	HVTYVPAQEK 0.326791	
HLA-B*51:01 0.43	1	422	430	9	LPDDFTGCV 0.325956	
HLA-B*35:01 0.39	1	317	326	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	996	1004	9	GRLQSLQTY 0.324253	
HLA-A*30:02 0.38	1	648	657	10	IGAHEVNNSY 0.324128	
HLA-B*53:01 0.26	1	711	719	9	IPTNFTISV 0.324037	
HLA-B*08:01 0.32	1	830	838	9	FIKQYGDCL 0.323762	
HLA-B*57:01 0.87	1	959	967	9	LVKQLSSNF 0.323546	
HLA-A*30:02 0.38	1	600	609	10	NTSNQVAVLY 0.323431	
HLA-A*11:01 0.56	1	774	783	10	NTQEVFAQVK 0.323299	
HLA-A*02:06 0.52	1	383	392	10	KLNDLCFTNV 0.323023	
HLA-B*51:01 0.44	1	557	566	10	LPFQFGRDI 0.322585	
HLA-B*15:01 0.58	1	331	339	9	NLCPFGEVF 0.322517	
HLA-B*58:01 0.52	1	97	106	10	KSNIIRGWIF 0.322465	
HLA-B*44:03 0.38	1	984	993	10	VEAEVQIDRL 0.322031	
HLA-B*35:01	1	138	146	9	DPFLGVYYH 0.321595	0.4
HLA-A*30:01 0.38	1	1016	1025	10	RASANLAATK 0.321031	
HLA-B*07:02 0.44	1	677	686	10	SPRRARSVAS 0.321024	
HLA-A*11:01 0.56	1	813	822	10	SFIEDLLFNK 0.320943	
HLA-A*01:01 0.35	1	29	38	10	TNSFTRGVYY 0.320865	
HLA-B*57:01 0.87	1	204	212	9	YSKHTPINL 0.320589	
HLA-B*07:02 0.45	1	585	594	10	TPCSFGGVSU 0.319415	
HLA-B*51:01 0.44	1	321	329	9	ESIVRFPNI 0.319087	
HLA-B*44:02 0.34	1	776	785	10	QEVFAQVKQI 0.31908	
HLA-B*15:01 0.59	1	502	510	9	YQPYRVVVL 0.318775	
HLA-A*68:01	1	823	832	10	VTLADAGFIK 0.317847	1.1
HLA-A*30:02 0.39	1	440	448	9	SKVGGNYNY 0.31758	
HLA-A*02:03 0.47	1	513	521	9	ELLHAPATV 0.317281	
HLA-A*03:01 0.62	1	823	832	10	VTLADAGFIK 0.317095	
HLA-A*68:02 0.38	1	321	329	9	ESIVRFPNI 0.316674	
HLA-A*02:03 0.47	1	854	862	9	GLTVLPPLL 0.316428	
HLA-A*26:01 0.23	1	551	559	9	ESNKKFLPF 0.315557	
HLA-A*26:01 0.23	1	484	492	9	NCYFPLQSY 0.315549	
HLA-A*02:06 0.54	1	1134	1142	9	VYDPLQPEL 0.314486	
HLA-A*02:06 0.54	1	992	1001	10	RLITGRLQSL 0.313029	



HLA-A*30:02 0.41	1	906	914	9	IGVTQNVLY 0.312847	
HLA-A*68:01	1	1047	1055	9	MSFPQSAPH 0.312819	1.2
HLA-A*68:01	1	622	631	10	HADQLTPTWR 0.312632	1.2
HLA-A*68:02 0.39	1	731	739	9	TSVDCTMYI 0.312368	
HLA-A*26:01 0.24	1	1143	1152	10	DSFKEELDKY 0.312308	
HLA-B*57:01 0.89	1	144	152	9	YYHKNNKSW 0.311801	
HLA-B*51:01 0.44	1	500	508	9	VGYPYRVV 0.311555	
HLA-A*30:02 0.41	1	19	28	10	TTRTQLPPAY 0.311293	
HLA-B*15:01	1	34	43	10	RGVYYPDKVF 0.310843	0.6
HLA-A*23:01 0.29	1	264	273	10	VGYLQPRTFL 0.310776	
HLA-B*35:01 0.41	1	1086	1094	9	FPREGVFVS 0.310374	
HLA-A*03:01 0.63	1	922	930	9	NQFNSAIGK 0.310061	
HLA-A*33:01 0.41	1	836	844	9	DCLGDIAAR 0.309984	
HLA-A*32:01 0.24	1	622	630	9	HADQLTPTW 0.309795	
HLA-A*03:01 0.64	1	104	113	10	WIFGTTLDSK 0.309697	
HLA-A*68:01	1	600	609	10	NTSNQVAVLY 0.309036	1.2
HLA-A*11:01 0.59	1	375	383	9	KCYGVSPK 0.307895	
HLA-A*24:02 0.33	1	266	274	9	YLQPRTFLL 0.30782	
HLA-A*30:01 0.41	1	1011	1019	9	RAAEIRASA 0.307578	
HLA-B*58:01 0.54	1	1002	1010	9	QTYVTQQLI 0.307506	
HLA-A*11:01 0.59	1	814	822	9	FIEDLLFNK 0.306918	
HLA-B*08:01 0.34	1	40	48	9	DKVFRSSVL 0.30644	
HLA-A*26:01 0.24	1	125	133	9	NVVIKVECF 0.305959	
HLA-B*51:01 0.45	1	1057	1065	9	VVFLHVTVV 0.305733	
HLA-A*03:01 0.65	1	298	307	10	CTLKSFTVEK 0.305624	
HLA-A*32:01 0.25	1	1261	1269	9	VLKGVKLHY 0.305119	
HLA-A*33:01 0.42	1	670	679	10	SYQTQNSPR 0.304197	
HLA-B*15:01 0.62	1	258	266	9	GAAAYVGY 0.303395	
HLA-B*58:01 0.55	1	264	272	9	VGYLQPRTF 0.303126	
HLA-B*53:01 0.28	1	707	715	9	NSIAIPTNF 0.302006	
HLA-B*07:02 0.47	1	724	733	10	LPVSMTKTSV 0.302005	
HLA-A*26:01 0.25	1	684	692	9	VASQSIIAY 0.301442	
HLA-B*35:01 0.42	1	1259	1267	9	EPVLKGVKL 0.300872	
HLA-A*68:01	1	142	150	9	GYYHKNK 0.300562	1.2
HLA-A*31:01 0.77	1	443	451	9	GGNYNYLYR 0.299786	
HLA-A*11:01	1	601	609	9	TSNQVAVLY 0.298663	0.6

HLA-A*02:06 0.57	1	1092	1101	10	FVSNQTHWFV 0.298254	
HLA-A*68:01	1	983	992	10	KVEAEVQIDR 0.297639	1.2
HLA-A*03:01 0.66	1	490	498	9	QSYGFQPTY 0.297075	
HLA-A*01:01 0.38	1	369	377	9	ASFSTFKCY 0.29699	
HLA-A*30:01 0.43	1	1261	1269	9	VLKGVKLHY 0.296719	
HLA-B*15:01 0.65	1	255	263	9	WTAGAAAYY 0.296637	
HLA-A*02:06 0.58	1	854	862	9	GLTVLPPLL 0.296351	
HLA-A*11:01	1	1170	1178	9	NASVVNIQK 0.296013	0.6
HLA-B*53:01 0.29	1	709	717	9	IAIPTNFTI 0.295888	
HLA-A*68:01	1	754	762	9	GSFCTQLNR 0.295552	1.2
HLA-B*08:01 0.35	1	238	246	9	FQTLHRSYL 0.294461	
HLA-A*33:01 0.44	1	673	682	10	TQTNSPRRAR 0.294137	
HLA-B*35:01 0.43	1	1127	1135	9	IGIVNNTVY 0.293947	
HLA-A*01:01 0.38	1	19	28	10	TTRTQLPPAY 0.292849	
HLA-A*68:02 0.43	1	718	726	9	SVTTEILPV 0.292756	
HLA-A*33:01 0.44	1	565	574	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	904	912	9	NGIGVTQNV 0.292202	
HLA-A*03:01 0.67	1	800	808	9	SQILPDPSK 0.292136	
HLA-A*31:01	1	971	980	10	SSVLNDILSR 0.291596	0.8
HLA-A*23:01	1	631	640	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	953	961	9	AQALNTLVK 0.28953	
HLA-A*31:01 0.81	1	497	506	10	TYGVGYQPYR 0.289364	
HLA-B*15:01 0.66	1	1050	1059	10	PQSAPHGVVF 0.289148	
HLA-B*15:01 0.67	1	663	671	9	IGAGICASY 0.288348	
HLA-A*24:02 0.35	1	317	326	10	VQPTESIVRF 0.287756	
HLA-A*11:01 0.62	1	288	297	10	CALDPLSETK 0.287543	
HLA-B*57:01 0.96	1	631	640	10	RVYSTGSNVF 0.287147	
HLA-A*68:01	1	1143	1151	9	DSFKEELDK 0.287008	1.2
HLA-A*30:01 0.46	1	674	682	9	QTNSPRRAR 0.286375	
HLA-A*30:01 0.46	1	490	498	9	QSYGFQPTY 0.285843	
HLA-A*30:01 0.46	1	41	50	10	KVFRSSVLHS 0.285798	
HLA-A*68:02	1	108	117	10	TTLDSKTQSL 0.284625	

0.46							
HLA-B*35:01	1	1053	1061	9	APHGVVFLH	0.284317	
0.44							
HLA-A*23:01	1	266	274	9	YLQPRTFLL	0.284271	0.3
HLA-A*30:01	1	455	463	9	KSNLKPFR	0.283834	
0.47							
HLA-B*51:01	1	858	866	9	LPPLLTDEM	0.28356	
0.49							
HLA-B*40:01	1	167	176	10	TFEYVSQPFL	0.282995	
0.48							
HLA-B*53:01	1	475	483	9	TPCNGVKGF	0.282853	
0.31							
HLA-A*31:01	1	1003	1011	9	TYVTQQLIR	0.282789	
0.83							
HLA-B*53:01	1	503	512	10	QPYRVVLSF	0.282475	
0.31							
HLA-A*33:01	1	343	352	10	RFASVYAWN	0.281629	
0.46							
HLA-A*24:02	1	501	510	10	GYQPYRVVVL	0.281479	
0.36							
HLA-B*35:01	1	503	512	10	QPYRVVLSF	0.280366	
0.45							
HLA-B*08:01	1	926	935	10	SAIGKIQDSL	0.280355	
0.38							
HLA-B*44:03	1	461	469	9	FERDISTEI	0.279929	
0.44							
HLA-A*02:03	1	421	429	9	KLPDDFTGC	0.279804	
0.53							
HLA-A*02:06	1	1125	1134	10	VVIGIVNNTV	0.27906	
0.62							
HLA-A*26:01	1	1051	1059	9	QSAPHGVVF	0.278915	
0.27							
HLA-B*51:01	1	895	903	9	FAMQMAYRF	0.278257	
0.51							
HLA-A*33:01	1	138	147	10	DPFLGVYYHK	0.278058	
0.47							
HLA-A*68:02	1	1051	1060	10	QSAPHGVVFL	0.27795	
0.47							
HLA-B*58:01	1	1206	1214	9	YIKWPWYIW	0.27773	
0.58							
HLA-A*24:02	1	703	711	9	AYSNNSIAI	0.277072	
0.37							
HLA-A*11:01	1	267	275	9	LQPRTFLLK	0.276635	
0.64							
HLA-B*44:03	1	1197	1206	10	LQELGKYEY	0.275884	
0.44							
HLA-A*24:02	1	1144	1153	10	SFKEELDKYF	0.27577	
0.37							
HLA-A*24:02	1	347	355	9	VYAWNKRRI	0.275566	
0.37							
HLA-B*15:01	1	812	820	9	RSFIEDLLF	0.275422	
0.69							
HLA-A*30:02	1	267	276	10	LQPRTFLLKY	0.273572	
0.51							
HLA-A*33:01	1	234	243	10	NITRFQTLHR	0.273526	
0.48							
HLA-B*07:02	1	408	416	9	APGQTGNIA	0.273492	
0.52							
HLA-B*15:01	1	484	492	9	NCYFPLQSY	0.273278	0.7
HLA-A*68:02	1	391	399	9	NVYADSFVI	0.272578	
0.48							
HLA-A*68:01	1	446	454	9	YNYLYRLFR	0.272458	1.3
HLA-B*15:01	1	751	760	10	LQYGSFCTQL	0.271912	0.7
HLA-A*23:01	1	752	760	9	QYGSFCTQL	0.271847	
0.32							
HLA-B*51:01	1	492	500	9	YGFQPTYGV	0.27145	

0.52							
HLA-B*08:01	1	1186	1194	9	VAKNLNESL 0.271283	0.4	
HLA-A*02:01	1	109	118	10	TLDSKTQSL 0.270528	0.6	
HLA-A*31:01	1	526	534	9	KSTNLVKNK 0.269413		
0.88							
HLA-A*26:01	1	363	371	9	SVLYNSASF 0.269331		
0.27							
HLA-A*33:01	1	722	730	9	EILPVSMTK 0.269327		
0.49							
HLA-B*15:01	1	624	633	10	DQLTPTWRVY 0.267945		
0.72							
HLA-B*44:03	1	615	623	9	TEVPVAIHA 0.267863		
0.45							
HLA-B*44:03	1	1258	1267	10	SEPVKGVKL 0.267357		
0.45							
HLA-A*02:03	1	993	1001	9	LITGRLQSL 0.267247		
0.58							
HLA-A*23:01	1	317	326	10	VQPTESIVRF 0.267127		
0.33							
HLA-A*33:01	1	261	270	10	AYYVGYLQPR 0.267114	0.5	
HLA-A*02:06	1	122	130	9	NATNVVIKV 0.266729		
0.66							
HLA-A*11:01	1	672	680	9	QTQTNSPRR 0.266054		
0.67							
HLA-B*15:01	1	28	37	10	YTNSFTRGVY 0.265703		
0.73							
HLA-B*07:02	1	1011	1019	9	RAAEIRASA 0.265516		
0.53							
HLA-B*57:01	1	28	37	10	YTNSFTRGVY 0.264686	1.1	
HLA-A*31:01	1	983	992	10	KVEAEVQIDR 0.264587		
0.89							
HLA-A*01:01	1	683	692	10	SVASQSIIAY 0.264392		
0.43							
HLA-A*11:01	1	94	102	9	STEKSNIIR 0.262783		
0.68							
HLA-B*15:01	1	151	160	10	SWMESEFRVY 0.261622		
0.74							
HLA-A*31:01	1	1095	1104	10	NGTHWFVTQR 0.261588	0.9	
HLA-B*53:01	1	1259	1267	9	EPVLKGVKL 0.261209		
0.34							
HLA-A*68:02	1	972	981	10	SVLNDILSRL 0.261055		
0.52							
HLA-B*51:01	1	224	233	10	EPLVDLPIGI 0.260506		
0.55							
HLA-A*02:06	1	686	694	9	SQSIIAYTM 0.260231		
0.68							
HLA-B*15:01	1	778	786	9	VFAQVKQIY 0.259272		
0.74							
HLA-A*02:06	1	866	874	9	MIAQYTSAL 0.258663		
0.68							
HLA-A*01:01	1	368	377	10	SASFSTFKCY 0.258439		
0.44							
HLA-A*68:01	1	357	366	10	NCVADYSVLY 0.258357	1.4	
HLA-B*44:02	1	1202	1211	10	KYEYIKWPW 0.25831	0.4	
HLA-B*51:01	1	622	630	9	HADQLTPTW 0.258269		
0.56							
HLA-B*15:01	1	554	562	9	KKFLPFQF 0.258074		
0.74							
HLA-A*03:01	1	141	150	10	LGVYYHKNNK 0.257763		
0.76							
HLA-B*53:01	1	858	866	9	LPPLLTDEM 0.257301		
0.34							
HLA-A*32:01	1	783	791	9	KQIYKTPPI 0.257299		
0.29							
HLA-A*30:02	1	1197	1206	10	LQELGKYEY 0.257181		
0.56							

HLA-A*32:01 0.29	1	35	43	9	GVYYPDKVF 0.257	
HLA-A*03:01 0.76	1	455	463	9	KSNLKPFER 0.256861	
HLA-B*51:01 0.56	1	1257	1265	9	DSEPVLKGV 0.256636	
HLA-B*57:01	1	551	559	9	ESNKKFLPF 0.255754	1.1
HLA-B*57:01	1	1205	1214	10	QYIKWPWYIW 0.255204	1.1
HLA-B*51:01 0.57	1	1222	1230	9	IAIVMTIM 0.254743	
HLA-B*53:01 0.35	1	805	814	10	DPSKPSKRSF 0.254678	
HLA-A*32:01	1	34	43	10	RGVYYPDKVF 0.254473	0.3
HLA-B*15:01 0.75	1	263	272	10	YVGYLQPRTF 0.254437	
HLA-A*68:01	1	836	844	9	DCLGDIAAR 0.253468	1.4
HLA-A*30:02 0.57	1	496	505	10	PTYGVGYQPY 0.253218	
HLA-A*02:01 0.64	1	108	117	10	TTLDSKTQSL 0.252008	
HLA-B*58:01 0.64	1	50	59	10	STQDLFLPFF 0.251573	
HLA-B*15:01 0.76	1	1127	1135	9	IGIVNNTVY 0.251449	
HLA-A*32:01 0.31	1	1090	1099	10	GVFVSNGTHW 0.251174	
HLA-A*32:01 0.31	1	973	981	9	VLNDILSRL 0.251163	
HLA-A*01:01 0.45	1	622	630	9	HADQLTPTW 0.249722	
HLA-A*24:02	1	167	175	9	TFEYVSQPF 0.249643	0.4
HLA-B*15:01 0.76	1	83	91	9	VLPFNDGVY 0.249396	
HLA-B*15:01 0.76	1	581	589	9	ILDITPCSF 0.249095	
HLA-A*30:02 0.57	1	78	86	9	RFANPVLPF 0.248676	
HLA-B*53:01 0.35	1	208	216	9	TPINLVRGL 0.24851	
HLA-A*03:01 0.79	1	267	275	9	LQPRTFLLK 0.248104	
HLA-B*35:01 0.52	1	38	46	9	YDPKVFRSS 0.247816	
HLA-A*30:02 0.57	1	196	204	9	NIDGYFKIY 0.247208	
HLA-A*02:03 0.64	1	718	726	9	SVTTEILPV 0.246775	
HLA-A*02:03 0.65	1	1000	1009	10	SLQTYVTQQL 0.246534	
HLA-A*68:02 0.54	1	464	472	9	DISTEIQYA 0.246138	
HLA-A*11:01 0.74	1	369	377	9	ASFSTFKCY 0.245745	
HLA-B*58:01 0.65	1	144	152	9	YYHKNNKSW 0.245629	
HLA-A*30:02 0.57	1	253	262	10	SGWTAGAAAY 0.245478	
HLA-A*03:01	1	235	243	9	ITRFQTLHR 0.245474	0.8
HLA-A*30:02 0.57	1	152	160	9	WMESEFRVY 0.245251	
HLA-A*02:03 0.66	1	414	422	9	NIADYNYKL 0.244848	
HLA-B*35:01 0.52	1	247	255	9	TPGDSSSGW 0.244026	
HLA-A*30:02 0.58	1	995	1004	10	TGRLQSLQTY 0.243931	

HLA-B*35:01 0.53	1	1209	1217	9	WPWYIWLGF 0.243619	
HLA-A*30:01 0.58	1	21	29	9	RTQLPPAYT 0.243422	
HLA-A*02:01 0.66	1	934	942	9	SLSSTASAL 0.243351	
HLA-A*68:02 0.55	1	1125	1133	9	VVIGIVNNT 0.242916	
HLA-B*44:03 0.48	1	1203	1212	10	YEQYIKWPWY 0.242872	
HLA-A*02:01 0.66	1	1188	1197	10	KNLNESLIDL 0.242825	
HLA-A*02:06 0.72	1	890	899	10	ALQIPFAMQM 0.242499	
HLA-B*15:01 0.79	1	1092	1100	9	FVSNNGTHWF 0.242365	
HLA-A*30:01 0.59	1	72	80	9	GTNGTKRFA 0.241937	
HLA-A*68:01	1	1257	1266	10	DSEPVLLKGVK 0.241651	1.5
HLA-A*02:03 0.67	1	607	615	9	VLYQGVNCT 0.241383	
HLA-B*44:02 0.43	1	1258	1267	10	SEPVLLKGVKL 0.241206	
HLA-A*68:01	1	121	129	9	NNATNVVIK 0.240736	1.5
HLA-A*68:02 0.56	1	1052	1060	9	SAPHGVVFL 0.240578	
HLA-A*68:02 0.56	1	61	70	10	NVTWFHAIHV 0.240543	
HLA-A*68:01	1	683	692	10	SVASQSIIAY 0.240524	1.5
HLA-B*35:01 0.53	1	825	834	10	LADAGFIKQY 0.240025	
HLA-A*31:01 0.99	1	142	150	9	GVYHKNK 0.239853	
HLA-B*57:01	1	171	179	9	VSQPFLMDL 0.239411	1.2
HLA-A*03:01 0.82	1	842	851	10	AARDLICAQK 0.23921	
HLA-A*31:01	1	498	506	9	YGVGYQPYPYR 0.239199	1.0
HLA-A*02:06 0.73	1	944	953	10	KLQDVVNQNA 0.238062	
HLA-B*58:01 0.68	1	622	631	10	HADQLTPTWR 0.237971	
HLA-A*02:03 0.68	1	774	782	9	NTQEVFAQV 0.237792	
HLA-A*68:01	1	36	44	9	VYYPDKVFR 0.237604	1.5
HLA-A*33:01 0.58	1	894	902	9	PFAMQMAYR 0.237529	
HLA-A*32:01 0.33	1	631	639	9	RVYSTGSNV 0.23705	
HLA-A*02:06 0.74	1	849	857	9	AQKFNGLTV 0.23684	
HLA-A*23:01 0.36	1	1097	1106	10	THWFVTQRNF 0.235909	
HLA-A*02:06 0.74	1	513	521	9	ELLHAPATV 0.235463	
HLA-A*26:01 0.31	1	1056	1064	9	GVVFLHVTY 0.23535	
HLA-B*53:01 0.37	1	490	498	9	QSYGFQPTY 0.235257	
HLA-A*24:02 0.42	1	1133	1142	10	TVYDPLQPEL 0.235013	
HLA-A*33:01 0.59	1	893	902	10	IPFAMQMAYR 0.234993	
HLA-B*44:03 0.49	1	96	104	9	EKSNIIRGW 0.234727	
HLA-A*23:01 0.37	1	1144	1153	10	SFKEELDKYF 0.234713	

HLA-A*30:02	1	695	704	10	SLGVENSVAY 0.234644	0.6
HLA-B*57:01	1	685	694	10	ASQSIIAYTM 0.234487	1.2
HLA-A*24:02 0.43	1	501	509	9	GYQPYRVVV 0.234409	
HLA-B*15:01 0.82	1	78	86	9	RFANPVLPF 0.234318	
HLA-A*02:03 0.69	1	1092	1101	10	FVSNNGTHWFV 0.233857	
HLA-A*30:01 0.62	1	75	83	9	GTKRFANPV 0.233538	
HLA-A*68:01	1	753	762	10	YGSFCTQLNR 0.233375	1.5
HLA-B*44:03	1	985	994	10	EAEVQIDRLI 0.233082	0.5
HLA-A*31:01	1	445	454	10	NYNLYRFLFR 0.233068	1.1
HLA-A*30:02 0.61	1	826	834	9	ADAGFIKQY 0.233064	
HLA-A*31:01	1	94	102	9	STEKSNIIR 0.233044	1.1
HLA-A*01:01 0.49	1	192	200	9	FVFKNIDGY 0.232971	
HLA-B*35:01 0.55	1	663	671	9	IGAGICASY 0.232493	
HLA-A*23:01 0.37	1	77	86	10	KRFANPVLPF 0.232077	
HLA-A*24:02 0.43	1	77	86	10	KRFANPVLPF 0.232004	
HLA-A*02:01	1	1000	1009	10	SLQTYVTQQL 0.231785	0.7
HLA-A*68:02 0.58	1	976	984	9	DILSRLDKV 0.231698	
HLA-A*68:02 0.58	1	947	955	9	DVVNQNAQA 0.231345	
HLA-A*68:01	1	316	325	10	RVQPTESIVR 0.231308	1.5
HLA-B*44:02 0.44	1	461	469	9	FERDISTEI 0.23108	
HLA-A*23:01 0.37	1	1204	1213	10	EQYIKWPWYI 0.230704	
HLA-A*02:06 0.76	1	993	1001	9	LITGRLQSL 0.230647	
HLA-A*02:03	1	918	927	10	KLIANQFNSA 0.230215	0.7
HLA-A*30:02 0.62	1	631	640	10	RVYSTGSNVF 0.229259	
HLA-A*11:01 0.79	1	307	316	10	KGIYQTSNFR 0.228911	
HLA-A*31:01	1	1062	1070	9	VTYVPAQEK 0.228311	1.1
HLA-B*07:02 0.61	1	109	117	9	TLDSKTQSL 0.22804	
HLA-B*40:01 0.59	1	155	163	9	SEFRVYSSA 0.227546	
HLA-B*58:01	1	301	309	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	774	782	9	NTQEVFAQV 0.227439	
HLA-A*11:01	1	674	682	9	QTNSPRRAR 0.227172	0.8
HLA-B*15:01 0.84	1	648	657	10	IGAHEVWNSY 0.227116	
HLA-B*35:01 0.55	1	1056	1064	9	GVVFLHVTY 0.226747	
HLA-A*32:01 0.33	1	212	220	9	LVRGLPQGF 0.226347	
HLA-A*02:03 0.71	1	502	510	9	YQPYRVVVL 0.22627	
HLA-A*68:01	1	298	307	10	CTLKSFTVEK 0.226237	1.5
HLA-A*30:02 0.63	1	825	834	10	LADAGFIKQY 0.226235	
HLA-A*30:02 0.63	1	1098	1106	9	HWFVTQRNF 0.2262	
HLA-A*23:01	1	895	903	9	FAMQMAYRF 0.226168	

0.38							
HLA-A*30:02	1	29	37	9	TNSFTRGVY 0.226165		
0.63							
HLA-B*35:01	1	389	397	9	FTNVYADSF 0.226061		
0.56							
HLA-B*57:01	1	70	79	10	VSGTNGTKRF 0.225729	1.2	
HLA-A*30:02	1	135	144	10	FCNDPFLGVY 0.225621		
0.63							
HLA-A*02:06	1	624	632	9	DQLTPTWRV 0.225428		
0.76							
HLA-B*08:01	1	204	212	9	YSKHTPINL 0.224922		
0.52							
HLA-A*68:01	1	936	944	9	SSTASALGK 0.224904	1.5	
HLA-B*58:01	1	55	64	10	FLPFFSNVTW 0.224581		
0.72							
HLA-A*30:02	1	696	704	9	LGVENSVAY 0.224519		
0.63							
HLA-A*30:01	1	936	944	9	SSTASALGK 0.224407		
0.65							
HLA-A*30:02	1	20	28	9	TRTQLPPAY 0.224364		
0.63							
HLA-A*68:01	1	1133	1141	9	TVYDPLQPE 0.224317	1.5	
HLA-A*03:01	1	345	353	9	ASVYAWNRK 0.224171		
0.86							
HLA-A*11:01	1	508	516	9	VVLSFELLH 0.224126		
0.81							
HLA-B*57:01	1	143	152	10	VYYHKNNKSW 0.224044	1.2	
HLA-A*30:01	1	572	580	9	AVRDPQTL 0.224019		
0.66							
HLA-A*30:02	1	1134	1142	9	VYDPLQPEL 0.223552		
0.63							
HLA-A*01:01	1	720	728	9	TTEILPVSM 0.223455	0.5	
HLA-B*35:01	1	805	814	10	DPSKPSKRSF 0.223158		
0.56							
HLA-A*30:01	1	187	195	9	KNLREFVFK 0.223047		
0.66							
HLA-A*30:02	1	745	753	9	ECSNLLLQY 0.223039		
0.64							
HLA-A*30:02	1	357	366	10	NCVADYSVLY 0.223004		
0.64							
HLA-A*02:06	1	509	517	9	VLSFELLHA 0.222816		
0.77							
HLA-B*08:01	1	992	1001	10	RLITGRLQSL 0.222331		
0.53							
HLA-A*23:01	1	168	177	10	FEYVSQPFLM 0.222045		
0.39							
HLA-A*26:01	1	959	967	9	LVKQLSSNF 0.221571		
0.33							
HLA-A*02:01	1	62	70	9	VTWFHAIHV 0.221377		
0.73							
HLA-B*08:01	1	24	32	9	LPPAYTNSF 0.22115		
0.53							
HLA-A*23:01	1	376	384	9	CYGVSPTKL 0.221059		
0.39							
HLA-A*02:06	1	694	702	9	MSLGVENSV 0.220871		
0.77							
HLA-A*68:01	1	893	902	10	IPFAMQMAYR 0.220739	1.6	
HLA-B*57:01	1	263	272	10	YVGYLQPRTF 0.220323	1.2	
HLA-A*68:01	1	12	21	10	SSQCVNLTTR 0.220122	1.6	
HLA-B*44:03	1	1202	1211	10	KYEQYIKWPW 0.219921		
0.52							
HLA-B*53:01	1	1051	1059	9	QSAPHGVVF 0.219646	0.4	
HLA-A*30:01	1	316	325	10	RVQPTESIVR 0.219084		
0.68							
HLA-A*01:01	1	581	589	9	ILDITPCSF 0.218883	0.5	
HLA-B*07:02	1	1053	1062	10	APHGVVFLHV 0.218375		



0.64							
HLA-A*30:01	1	237	245	9	RFQTLHRSY 0.218146		
0.68							
HLA-A*11:01	1	358	366	9	CVADYSVLY 0.218111		
0.83							
HLA-A*33:01	1	555	564	10	KFLPFQFGR 0.218108		
0.66							
HLA-A*02:03	1	1059	1067	9	FLHVTVVPA 0.218073		
0.75							
HLA-A*26:01	1	254	263	10	GWTAGAAAYY 0.218071		
0.34							
HLA-A*68:01	1	288	297	10	CALDPLSETK 0.217634	1.6	
HLA-A*30:01	1	69	77	9	HVSGTNGTK 0.217572		
0.68							
HLA-A*24:02	1	168	177	10	FEYVSQPFLM 0.21741		
0.45							
HLA-A*68:01	1	191	200	10	EFVFKNIDGY 0.217045	1.6	
HLA-A*02:01	1	718	726	9	SVTTEILPV 0.216735		
0.74							
HLA-A*26:01	1	892	901	10	QIPFAMQMAY 0.216558		
0.34							
HLA-A*31:01	1	447	455	9	NYLYRLFRK 0.216453	1.1	
HLA-A*02:03	1	849	857	9	AQKFNGLTV 0.216247		
0.76							
HLA-B*51:01	1	264	272	9	VGYLQPRTF 0.215711		
0.65							
HLA-B*51:01	1	774	782	9	NTQEVFAQV 0.21545		
0.65							
HLA-A*68:02	1	1093	1101	9	VSNQTHWFV 0.215427		
0.62							
HLA-B*58:01	1	389	397	9	FTNVYADSF 0.215247		
0.74							
HLA-B*15:01	1	264	272	9	VGYLQPRTF 0.214971		
0.88							
HLA-B*15:01	1	19	28	10	TTRTQLPPAY 0.214493		
0.88							
HLA-B*08:01	1	125	133	9	NVVIKVICEF 0.213752		
0.55							
HLA-B*57:01	1	34	43	10	RGVYYPDKVF 0.213728	1.3	
HLA-A*02:01	1	135	143	9	FCNDPFLGV 0.213279		
0.75							
HLA-A*11:01	1	1002	1011	10	QTYVTQLIR 0.212998		
0.85							
HLA-B*15:01	1	1204	1212	9	EQYIKWPWY 0.212731		
0.88							
HLA-A*30:01	1	158	166	9	RVYSSANNC 0.212565		
0.71							
HLA-A*02:01	1	1092	1101	10	FVSNQTHWFV 0.211982		
0.75							
HLA-A*68:01	1	345	354	10	ASVYAWNRRK 0.211798	1.6	
HLA-A*30:01	1	345	353	9	ASVYAWNRRK 0.21166		
0.71							
HLA-A*01:01	1	109	117	9	TLDSKTQSL 0.211014		
0.52							
HLA-A*26:01	1	688	696	9	SIIAYTMSL 0.211013		
0.35							
HLA-B*53:01	1	1092	1100	9	FVSNQTHWF 0.210819		
0.41							
HLA-B*35:01	1	258	266	9	GAAAYVVGY 0.210757		
0.59							
HLA-A*02:01	1	996	1005	10	GRLQSLQTYV 0.210728		
0.76							
HLA-A*30:01	1	1083	1091	9	KAHFPREGV 0.210683		
0.71							
HLA-A*02:06	1	506	514	9	RVVLSFEL 0.210443		
0.83							

HLA-A*26:01 0.36	1	1133	1142	10	TVYDPLQPEL 0.210208	
HLA-A*30:02 0.68	1	1260	1269	10	PVLKGVKLHY 0.209979	
HLA-A*02:06 0.84	1	323	332	10	IVRFPNITNL 0.209813	
HLA-B*57:01	1	825	834	10	LADAGFIKQY 0.209187	1.3
HLA-A*23:01 0.41	1	877	885	9	GTITSGWTF 0.209008	
HLA-A*30:01 0.72	1	1096	1104	9	GTHWFVTQR 0.208918	
HLA-A*02:03 0.78	1	1056	1065	10	GVVFLHVTYV 0.208408	
HLA-A*03:01	1	366	375	10	YNSASFSTFK 0.20814	0.9
HLA-A*24:02 0.47	1	1204	1213	10	EQYIKWPWYI 0.208094	
HLA-A*32:01 0.37	1	992	1001	10	RLITGRLQSL 0.208067	
HLA-B*53:01 0.41	1	601	609	9	TSNQVAVLY 0.207735	
HLA-A*32:01 0.37	1	891	899	9	LQIPFAMQM 0.20736	
HLA-B*58:01 0.76	1	889	897	9	AALQIPFAM 0.207038	
HLA-B*15:01 0.91	1	707	715	9	NSIAIPTNF 0.206745	
HLA-A*03:01	1	508	516	9	VVLSFELLH 0.206719	0.9
HLA-B*57:01	1	622	631	10	HADQLTPTWR 0.206705	1.3
HLA-A*30:02 0.69	1	861	870	10	LLTDEMIAQY 0.206589	
HLA-A*30:01 0.73	1	267	275	9	LQPRTFLLK 0.206441	
HLA-B*15:01 0.92	1	1126	1135	10	VIGIVNNTVY 0.205713	
HLA-B*44:02 0.48	1	984	993	10	VEAEVQIDRL 0.205553	
HLA-A*30:02 0.69	1	905	914	10	GIGVTQNVLY 0.205272	
HLA-A*68:02 0.65	1	933	941	9	DSLSSTASA 0.204883	
HLA-A*26:01 0.37	1	1055	1064	10	HGVVFLHVTY 0.204445	
HLA-A*30:02 0.69	1	199	207	9	GYFKIYSKH 0.204439	
HLA-A*02:06 0.86	1	912	920	9	VLYENQCLI 0.204357	
HLA-A*33:01	1	58	66	9	FFSNVTWFH 0.203952	0.7
HLA-A*02:06 0.86	1	512	521	10	FELLHAPATV 0.203836	
HLA-A*68:02 0.65	1	256	264	9	TAGAAAYYV 0.203706	
HLA-A*02:06 0.86	1	202	210	9	KIYSKHTPI 0.203623	
HLA-A*30:02	1	412	420	9	TGNIADYNY 0.203423	0.7
HLA-A*01:01 0.54	1	439	448	10	DSKVGGNVNY 0.203161	
HLA-A*02:06 0.86	1	814	823	10	FIEDLLFNKV 0.203002	
HLA-B*57:01	1	719	728	10	VTTEILPVSM 0.202918	1.3
HLA-B*57:01	1	1051	1060	10	QSAPHGVVFL 0.202516	1.3
HLA-A*26:01 0.37	1	883	891	9	WTFGAGAAL 0.202454	
HLA-B*51:01 0.69	1	1002	1010	9	QTYVTQQLI 0.202	
HLA-B*57:01	1	389	397	9	FTNVYADSF 0.201961	1.3
HLA-A*02:06	1	609	617	9	YQGVNCTEV 0.201319	

0.87							
HLA-A*30:01	1	779	787	9	FAQVKQIYK	0.2013	
0.76							
HLA-A*32:01	1	1056	1064	9	GVVFLHVTY	0.200689	
0.38							
HLA-A*30:02	1	812	820	9	RSFIEDLLF	0.200354	
0.71							
HLA-A*33:01	1	556	564	9	FLPFQQFGR	0.200014	
0.72							
HLA-B*35:01	1	695	704	10	SLGVENSVAY	0.199475	
0.62							
HLA-A*68:02	1	631	639	9	RVYSTGSNV	0.19938	
0.66							
HLA-B*08:01	1	676	684	9	NSPRRARSV	0.199214	
0.59							
HLA-A*23:01	1	621	630	10	IHADQLTPTW	0.199039	
0.43							
HLA-A*11:01	1	545	554	10	GTGVLTESNK	0.198931	
0.89							
HLA-A*23:01	1	501	510	10	GYQPYRVVVL	0.198821	
0.43							
HLA-A*30:01	1	367	375	9	NSASFSTFK	0.198744	
0.78							
HLA-B*51:01	1	885	893	9	FGAGAALQI	0.198673	0.7
HLA-A*68:01	1	799	808	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	661	669	9	IPIGAGICA	0.197698	
0.62							
HLA-A*24:02	1	1202	1211	10	KYEQYIKWPW	0.197668	0.5
HLA-A*68:01	1	1008	1016	9	QLIRAAEIR	0.197606	1.7
HLA-A*68:02	1	879	887	9	ITSGWTFGA	0.197207	
0.67							
HLA-B*51:01	1	317	326	10	VQPTESIVRF	0.196932	
0.71							
HLA-B*58:01	1	1083	1092	10	KAHFPREGVF	0.196857	
0.79							
HLA-A*33:01	1	672	680	9	QTQTNSPRR	0.196825	
0.73							
HLA-A*23:01	1	894	903	10	PFAMQMAYRF	0.196799	
0.43							
HLA-A*02:01	1	1134	1142	9	VYDPLQPEL	0.196623	0.8
HLA-A*03:01	1	345	354	10	ASVYAWNRKR	0.196612	
0.94							
HLA-B*44:02	1	96	104	9	EKSNIIRGW	0.196463	
0.49							
HLA-B*07:02	1	948	956	9	VVNQNAQAL	0.19621	
0.69							
HLA-A*68:01	1	149	158	10	NKSWMESEFR	0.196163	1.7
HLA-B*15:01	1	862	870	9	LTDEMIAQY	0.196122	
0.96							
HLA-A*02:03	1	783	791	9	KQIYKTPPI	0.195951	
0.82							
HLA-B*07:02	1	207	216	10	HTPINLVRGL	0.19572	
0.69							
HLA-B*35:01	1	866	874	9	MIAQYTSAL	0.195648	
0.63							
HLA-A*02:06	1	1044	1053	10	YHLMSFPQSA	0.195517	0.9
HLA-A*68:02	1	207	216	10	HTPINLVRGL	0.195447	
0.67							
HLA-A*02:06	1	961	969	9	KQLSSNFGA	0.195068	0.9
HLA-A*68:02	1	709	717	9	IAIPTNFTI	0.195022	
0.67							
HLA-B*15:01	1	366	374	9	YNSASFSTF	0.194905	
0.96							

HLA-A*02:03 0.83	1	135	143	9	FCNDPFLGV 0.194572	
HLA-B*35:01 0.63	1	152	160	9	WMESEFRVY 0.19415	
HLA-B*07:02	1	676	685	10	NSPRRARSVA 0.19404	0.7
HLA-A*02:06 0.91	1	710	719	10	AIPTNFTISV 0.194004	
HLA-B*08:01 0.61	1	976	984	9	DILSRLDKV 0.193997	
HLA-B*35:01 0.63	1	196	204	9	NIDGYFKIY 0.19387	
HLA-B*51:01 0.72	1	523	531	9	GPKKSTNLV 0.193726	
HLA-A*31:01	1	989	997	9	QIDRLITGR 0.193633	1.2
HLA-B*15:01 0.97	1	46	55	10	SVLHSTQDLF 0.193555	
HLA-A*30:02 0.73	1	744	753	10	TECSNLLLQY 0.193478	
HLA-B*44:02 0.49	1	1197	1206	10	LQELGKYEQY 0.193472	
HLA-A*02:06 0.91	1	1067	1075	9	AQEKNFTTA 0.193274	
HLA-A*02:03 0.84	1	912	921	10	VLYENQKLIA 0.193144	
HLA-B*40:01 0.66	1	776	785	10	QEVFAQVKQI 0.192899	
HLA-B*57:01	1	889	897	9	AALQIPFAM 0.192898	1.4
HLA-A*68:02 0.68	1	952	960	9	NAQALNTLV 0.192653	
HLA-B*51:01 0.72	1	867	875	9	IAQYTSALL 0.192242	
HLA-A*68:01	1	922	930	9	NQFNSAIGK 0.192236	1.7
HLA-B*40:01 0.66	1	769	778	10	VEQDKNTQEV 0.192215	
HLA-A*03:01 0.96	1	683	692	10	SVASQSIIAY 0.192055	
HLA-A*32:01 0.39	1	47	55	9	VLHSTQDLF 0.191875	
HLA-A*30:02 0.74	1	1127	1135	9	IGIVNNTVY 0.19184	
HLA-A*30:01 0.82	1	346	354	9	SVYAWNRKR 0.191813	
HLA-A*68:02 0.69	1	224	233	10	EPLVDLPIGI 0.191635	
HLA-B*57:01	1	706	715	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	357	366	10	NCVADYSVLY 0.19139	
HLA-B*07:02 0.71	1	805	814	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-B*07:02 0.71	1	1048	1057	10	SFPQSAPHGV 0.190097	
HLA-A*33:01 0.78	1	299	307	9	TLKSFTVEK 0.190074	
HLA-A*31:01	1	344	352	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	502	510	9	YQPYRVVVL 0.189014	
HLA-A*24:02 0.53	1	1097	1106	10	THWFVTQRNF 0.18888	

HLA-A*11:01 0.92	1	935	944	10	LSSTASALGK 0.188487	
HLA-A*02:06 0.93	1	1125	1133	9	VVIGIVNNT 0.188236	
HLA-B*40:01 0.66	1	615	623	9	TEVPVAIHA 0.188235	
HLA-A*30:02 0.75	1	302	310	9	SFTVEKGIY 0.188151	
HLA-A*02:03 0.86	1	996	1005	10	GRLQSLQTYV 0.187932	
HLA-A*30:01 0.84	1	369	377	9	ASFSTFKCY 0.18759	
HLA-B*57:01	1	1261	1269	9	VLKGVKLHY 0.187444	1.4
HLA-B*57:01	1	30	38	9	NSFTRGVYY 0.187242	1.4
HLA-A*33:01 0.79	1	498	506	9	YGVGYQPYR 0.186934	
HLA-A*03:01 0.97	1	754	762	9	GSFCTQLNR 0.186897	
HLA-A*33:01 0.79	1	1002	1011	10	QTYVTQQLIR 0.186861	
HLA-A*11:01 0.93	1	162	170	9	SANNECTFEY 0.186796	
HLA-A*30:01 0.84	1	722	730	9	EILPVSMTK 0.186542	
HLA-A*01:01 0.57	1	1197	1206	10	LQELGKYEQY 0.186536	
HLA-A*32:01 0.42	1	874	883	10	LLAGTITSGW 0.185323	
HLA-B*07:02 0.72	1	56	64	9	LPFFSNVTW 0.185093	
HLA-A*68:02 0.71	1	251	259	9	SSSGWTAGA 0.185088	
HLA-B*58:01 0.82	1	682	690	9	RSVASQSII 0.184963	
HLA-B*44:03	1	1198	1207	10	QELGKYEQYI 0.184741	0.6
HLA-B*07:02 0.72	1	268	276	9	QPRTFLLKY 0.18463	
HLA-B*51:01 0.75	1	38	46	9	YDPKVFRRS 0.184508	
HLA-A*23:01 0.46	1	167	175	9	TFEYVSQPF 0.1845	
HLA-A*02:06 0.96	1	965	973	9	SNFGAISSV 0.184062	
HLA-A*03:01 0.99	1	674	682	9	QTNSPRRAR 0.184046	
HLA-A*31:01	1	375	383	9	KCYGVSPTK 0.183958	1.3
HLA-B*15:01	1	948	956	9	VVNQNAQAL 0.183417	1.1
HLA-A*30:02 0.77	1	497	505	9	TYGVGYQPY 0.18334	
HLA-A*33:01	1	455	463	9	KSNLKPFFER 0.183276	0.8
HLA-B*53:01 0.47	1	1209	1217	9	WPWYIWLGF 0.182966	
HLA-A*26:01	1	212	220	9	LVRGLPQGF 0.18214	0.4
HLA-A*23:01 0.47	1	264	272	9	VGYLQPRTF 0.181837	
HLA-A*31:01	1	778	787	10	VFAQVKQIYK 0.181682	1.3
HLA-A*30:02 0.78	1	411	420	10	QTGNIADYNY 0.181562	
HLA-A*02:06 0.98	1	1172	1180	9	SVVNIQKEI 0.181525	
HLA-B*35:01 0.67	1	893	902	10	IPFAMQMAYR 0.181143	
HLA-A*30:02 0.78	1	483	492	10	FNCYFPLQSY 0.180909	
HLA-B*51:01 0.77	1	694	702	9	MSLGVENSV 0.180603	

HLA-A*68:01	1	1193	1202	10	SLIDLQELGK 0.180509	1.8
HLA-A*31:01	1	813	822	10	SFIEDLLFNK 0.180354	1.3
HLA-A*26:01 0.41	1	937	945	9	STASALGKL 0.180285	
HLA-B*15:01	1	1144	1152	9	SFKEELDKY 0.180121	1.1
HLA-B*15:01	1	1182	1190	9	RLNEVAKNL 0.180033	1.1
HLA-A*01:01 0.59	1	461	470	10	FERDISTEIIY 0.180022	
HLA-A*68:02 0.73	1	624	632	9	DQLTPTWRV 0.179954	
HLA-B*35:01 0.67	1	50	58	9	STQDLFLPF 0.179468	
HLA-A*30:01 0.87	1	849	857	9	AQKFNGLTV 0.179251	
HLA-A*30:01 0.87	1	42	50	9	VFRSSVLHS 0.179247	
HLA-A*11:01 0.96	1	30	38	9	NSFTRGVYY 0.178951	
HLA-A*30:02 0.79	1	777	786	10	EVFAQVKQIY 0.178935	
HLA-B*08:01 0.66	1	109	118	10	TLDSKTQSLI 0.178858	
HLA-B*44:02 0.52	1	1203	1212	10	YEQYIKWPWY 0.178832	
HLA-A*11:01 0.96	1	842	851	10	AARDLICAQK 0.17806	
HLA-A*30:01 0.88	1	900	908	9	AYRFNGIGV 0.177857	
HLA-B*15:01	1	162	170	9	SANCTFEY 0.177855	1.1
HLA-A*32:01 0.43	1	625	633	9	QLTPTWRVY 0.177798	
HLA-B*51:01 0.79	1	624	632	9	DQLTPTWRV 0.17779	
HLA-A*30:02 0.79	1	1047	1055	9	MSFPQSAPH 0.17776	
HLA-A*32:01 0.43	1	959	967	9	LVKQLSSNF 0.177684	
HLA-B*15:01	1	354	362	9	RISNCVADY 0.177421	1.1
HLA-B*44:02 0.53	1	771	779	9	QDKNTQEVF 0.17733	
HLA-B*08:01 0.66	1	186	194	9	FKNLREFVF 0.177303	
HLA-A*26:01 0.42	1	196	204	9	NIDGYFKIY 0.177232	
HLA-A*30:02	1	1099	1107	9	WFVTQRNFY 0.177039	0.8
HLA-B*07:02 0.75	1	326	335	10	FPNITNLCPF 0.17679	
HLA-A*68:02 0.74	1	204	213	10	YSKHTPINLV 0.176583	
HLA-A*02:01 0.91	1	866	874	9	MIAQYTSAL 0.176384	
HLA-A*68:01	1	1169	1178	10	INASVVNIQK 0.176047	1.8
HLA-A*30:01 0.88	1	1057	1065	9	VVFLHVTVY 0.175828	
HLA-A*02:01 0.91	1	979	988	10	SRLDKVEAEV 0.175298	
HLA-A*32:01 0.44	1	342	350	9	TRFASVYAW 0.175242	
HLA-A*30:01 0.89	1	778	787	10	VFAQVKQIYK 0.17505	
HLA-B*40:01	1	1198	1206	9	QELGKYEQY 0.174746	0.7
HLA-B*51:01	1	221	229	9	SALEPLVDL 0.174634	0.8
HLA-B*51:01	1	83	92	10	VLPFNDGVYF 0.173919	0.8
HLA-B*58:01 0.86	1	631	640	10	RVYSTGSNVF 0.173908	
HLA-B*57:01	1	1093	1101	9	VSNGTHWV 0.173618	1.4

HLA-A*02:01 0.91	1	941	949	9	ALGKLDQDVV 0.173341	
HLA-A*68:02 0.75	1	121	130	10	NNATNVVIKVV 0.173319	
HLA-B*57:01	1	368	377	10	SASFSTFKCY 0.173262	1.4
HLA-B*07:02 0.77	1	1134	1142	9	VYDPLQPEL 0.17267	
HLA-A*01:01 0.62	1	496	505	10	PTYGVGYQPY 0.172544	
HLA-B*35:01 0.68	1	1047	1055	9	MSFPQSAPH 0.172413	
HLA-A*32:01 0.44	1	686	694	9	SQSIIAYTM 0.172387	
HLA-A*02:01 0.92	1	783	791	9	KQIYKTPPI 0.171701	
HLA-B*58:01 0.87	1	1092	1100	9	FVSNNGTHWF 0.171624	
HLA-A*32:01 0.44	1	912	920	9	VLLENQKLI 0.171258	
HLA-A*30:02 0.83	1	1051	1059	9	QSAPHGTVF 0.170505	
HLA-A*26:01 0.44	1	258	266	9	GAAAYVVG 0.17041	
HLA-A*30:02 0.83	1	257	266	10	AGAAAYVVG 0.170264	
HLA-A*68:01	1	952	961	10	NAQALNTLVK 0.170247	1.9
HLA-A*02:06	1	604	612	9	QVAVLYQGV 0.17023	1.1
HLA-A*30:01 0.92	1	680	689	10	RARSVASQSI 0.169968	
HLA-B*53:01	1	862	870	9	LTDEMIAQY 0.169613	0.5
HLA-A*32:01 0.44	1	876	885	10	AGTITSGWTF 0.169346	
HLA-A*30:02 0.83	1	437	446	10	NLDSKVGNGY 0.169114	
HLA-B*08:01	1	948	956	9	VVNQNAQAL 0.16908	0.7
HLA-A*26:01 0.44	1	1110	1118	9	QIITDNTF 0.168827	
HLA-B*53:01	1	1091	1099	9	VFVSNNGTHW 0.168595	0.5
HLA-A*23:01 0.51	1	47	55	9	VLHSTQDLF 0.168296	
HLA-A*30:01 0.93	1	1151	1159	9	KYFKNHTSP 0.16826	
HLA-A*23:01 0.51	1	501	509	9	GYQPYRVVV 0.168123	
HLA-B*57:01	1	19	28	10	TTRTQLPPAY 0.168037	1.5
HLA-A*30:02 0.84	1	254	262	9	GWTAGAAAY 0.168007	
HLA-B*15:01	1	301	310	10	KSFTVEKGIY 0.167617	1.1
HLA-B*15:01	1	649	657	9	GAEHVNNSY 0.166925	1.1
HLA-B*35:01	1	380	389	10	SPTKLNDFCF 0.166671	0.7
HLA-B*58:01 0.89	1	715	723	9	FTISVTTEI 0.166326	
HLA-B*44:02 0.54	1	985	994	10	EAEVQIDRLI 0.166126	
HLA-A*23:01 0.51	1	503	512	10	QPYRVVLSF 0.166085	
HLA-A*30:02 0.85	1	136	144	9	CNDPFLGVY 0.166053	
HLA-B*15:01	1	892	901	10	QIPFAMQMAY 0.166019	1.1
HLA-B*07:02 0.79	1	858	866	9	LPPLLTDEM 0.165864	
HLA-A*68:01	1	307	316	10	KGIYQTSNFR 0.165845	1.9
HLA-A*68:01	1	546	555	10	TGVLTESNKK 0.165518	1.9
HLA-A*32:01 0.46	1	955	963	9	ALNTLVKQL 0.165467	
HLA-A*32:01	1	1002	1010	9	QTYVTQQLI 0.1653	

0.46							
HLA-A*02:06	1	1093	1101	9	VSNQTHWFV	0.165292	1.1
HLA-B*44:03	1	155	163	9	SEFRVYSSA	0.165115	
0.64							
HLA-A*32:01	1	263	272	10	YVGYLQPRTF	0.164944	
0.46							
HLA-A*02:06	1	1052	1060	9	SAPHGCVFL	0.164897	1.1
HLA-A*01:01	1	826	834	9	ADAGFIKQY	0.164713	
0.64							
HLA-A*26:01	1	695	704	10	SLGVENSVA	0.164406	
0.45							
HLA-A*02:01	1	631	639	9	RVYSTGSNV	0.164307	
0.97							
HLA-A*68:01	1	303	311	9	FTVEKGIYQ	0.164299	1.9
HLA-A*02:06	1	690	698	9	IAYTMSLGV	0.164291	1.1
HLA-B*08:01	1	1258	1267	10	SEPVKGVKL	0.164286	
0.71							
HLA-A*30:02	1	1035	1044	10	KRVDFCGKY	0.164172	
0.86							
HLA-B*15:01	1	307	315	9	KGIYQTSNF	0.164089	1.1
HLA-A*33:01	1	1028	1036	9	ECVLGQSKR	0.16402	
0.88							
HLA-A*03:01	1	779	787	9	FAQVKQIYK	0.163864	1.1
HLA-B*57:01	1	29	38	10	TNSFTRGVY	0.163644	1.5
HLA-B*44:03	1	168	176	9	FEYVSQPFL	0.163636	
0.64							
HLA-A*30:01	1	922	930	9	NQFNSAIGK	0.163623	
0.96							
HLA-A*01:01	1	744	753	10	TECSNLLLQY	0.163546	
0.64							
HLA-A*23:01	1	1202	1211	10	KYEYIKWPW	0.163374	
0.52							
HLA-A*30:02	1	494	502	9	FQPTYGVGY	0.163329	
0.86							
HLA-B*57:01	1	166	175	10	CTFEYVSQP	0.163322	1.5
HLA-A*02:06	1	51	59	9	TQDLFLPFF	0.163301	1.1
HLA-A*23:01	1	347	355	9	VYAWNRKRI	0.163273	
0.52							
HLA-A*30:01	1	783	791	9	KQIYKTPPI	0.16302	
0.96							
HLA-B*07:02	1	1086	1094	9	FPREGVFVS	0.162985	0.8
HLA-A*11:01	1	983	992	10	KVEAEVQIDR	0.162906	1.1
HLA-A*26:01	1	774	782	9	NTQEVFAQV	0.162889	
0.45							
HLA-A*32:01	1	709	717	9	IAIPTNFTI	0.162816	
0.46							
HLA-A*24:02	1	877	885	9	GTITSGWTF	0.162749	0.6
HLA-A*24:02	1	375	384	10	KCYGVSPKL	0.162651	0.6
HLA-B*58:01	1	1093	1101	9	VSNQTHWFV	0.162543	
0.91							
HLA-A*30:02	1	1198	1206	9	QELGKYEYQ	0.162424	
0.86							
HLA-A*32:01	1	1057	1065	9	VVFLHVTVY	0.162221	
0.46							
HLA-A*02:01	1	202	210	9	KIYSKHTPI	0.161841	
0.97							
HLA-B*35:01	1	478	486	9	NGVKGFNCY	0.161795	
0.73							
HLA-A*24:02	1	895	903	9	FAMQMAYRF	0.161613	0.6
HLA-B*07:02	1	680	689	10	RARSVASQSI	0.161579	
0.81							
HLA-A*31:01	1	206	214	9	KHTPINLVR	0.161477	1.4
HLA-A*26:01	1	1185	1194	10	EVAKNLNESL	0.161403	
0.46							
HLA-B*58:01	1	162	170	9	SANNCTFEY	0.161339	
0.92							



HLA-A*30:02 0.86	1	340	348	9	NATRFASVY 0.16119	
HLA-A*68:02	1	303	312	10	FTVEKGIYQT 0.161128	0.8
HLA-A*02:06	1	581	589	9	ILDITPCSF 0.16101	1.1
HLA-A*31:01	1	36	45	10	VYYDPKVFERS 0.160927	1.4
HLA-A*30:02 0.87	1	50	58	9	STQDLFLPF 0.160754	
HLA-A*02:01 0.98	1	607	615	9	VLYQGVNCT 0.160345	
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	730	738	9	KTSVDCTMY 0.159738	1.2
HLA-A*24:02 0.61	1	621	630	10	IHADQLTPTW 0.159035	
HLA-A*02:06	1	238	246	9	FQTLHRSYL 0.158985	1.1
HLA-B*15:01	1	237	245	9	RFQTLHRSY 0.158836	1.2
HLA-A*24:02 0.62	1	894	903	10	PFAMQMAYRF 0.15877	
HLA-A*68:02 0.81	1	708	717	10	SIAIPTNFTI 0.158742	
HLA-B*51:01 0.88	1	291	300	10	DPLSETKCTL 0.158238	
HLA-A*02:06	1	118	126	9	LIVNNATNV 0.15814	1.1
HLA-A*26:01 0.47	1	340	348	9	NATRFASVY 0.157811	
HLA-B*51:01 0.89	1	422	431	10	LPDDFTGCVI 0.157664	
HLA-A*68:01	1	345	353	9	ASVYAWNPK 0.157625	2.0
HLA-A*02:01 0.99	1	891	899	9	LQIPFAMQM 0.157345	
HLA-B*15:01	1	405	413	9	RQIAPGQTG 0.157275	1.2
HLA-B*08:01 0.75	1	321	329	9	ESIVRFPNI 0.157242	
HLA-A*01:01 0.65	1	384	393	10	LNDLCFTNVY 0.156869	
HLA-A*02:03	1	693	702	10	TMSLGVNSV 0.156577	1.1
HLA-B*15:01	1	777	786	10	EVFAQVKQIY 0.156419	1.2
HLA-B*35:01 0.75	1	229	237	9	LPIGINITR 0.156186	
HLA-B*35:01 0.75	1	777	786	10	EVFAQVKQIY 0.156066	
HLA-A*02:06	1	883	891	9	WTFGAGAAL 0.155965	1.2
HLA-A*68:02 0.82	1	683	691	9	SVASQSIIA 0.155853	
HLA-B*35:01 0.75	1	803	811	9	LPDPSKPSK 0.155691	
HLA-B*57:01	1	46	55	10	SVLHSTQDLF 0.155609	1.5
HLA-B*07:02 0.83	1	803	811	9	LPDPSKPSK 0.155359	
HLA-A*68:01	1	93	102	10	ASTEKSNIIR 0.155341	2.0
HLA-A*02:03	1	1125	1134	10	VVIGIVNNTV 0.155171	1.1
HLA-A*68:01	1	455	463	9	KSNLKPFR 0.154993	2.0
HLA-B*57:01	1	342	350	9	TRFASVYAW 0.15498	1.5
HLA-A*30:02	1	1204	1212	9	EQYIKWPWY 0.15492	0.9
HLA-A*26:01 0.48	1	19	28	10	TTRTQLPPAY 0.154691	
HLA-B*53:01 0.53	1	192	200	9	FVFKNIDGY 0.15465	
HLA-A*02:06	1	919	927	9	LIANQFNSA 0.154605	1.2
HLA-A*68:02 0.82	1	899	908	10	MAYRFNGIGV 0.154485	
HLA-A*01:01 0.67	1	1261	1269	9	VLKGVKLHY 0.154394	
HLA-A*30:01	1	316	324	9	RVQPTESIV 0.153865	1.1

HLA-B*58:01 0.95	1	342	350	9	TRFASVYAW 0.153827	
HLA-B*08:01 0.76	1	916	924	9	NQKLIANQF 0.153602	
HLA-A*26:01 0.48	1	1261	1269	9	VLKGVKLHY 0.153447	
HLA-B*57:01	1	682	690	9	RSVASQSII 0.153385	1.6
HLA-B*51:01 0.91	1	585	594	10	TPCSFGGVSU 0.15307	
HLA-A*30:01	1	802	811	10	ILPDPSKPSK 0.15258	1.1
HLA-A*02:03	1	710	719	10	AIPTNFTISV 0.152536	1.1
HLA-A*33:01 0.93	1	69	78	10	HVSGTNGTKR 0.152515	
HLA-B*57:01	1	150	159	10	KSWMSEFRV 0.152447	1.6
HLA-A*33:01 0.93	1	308	316	9	GIYQTSNFR 0.152359	
HLA-A*30:02 0.91	1	624	633	10	DQLTPTWRVY 0.152283	
HLA-A*02:06	1	751	760	10	LQYGSFCTQL 0.152248	1.2
HLA-A*32:01 0.49	1	997	1005	9	RLQSLQTYV 0.151972	
HLA-A*02:06	1	773	782	10	KNTQEVFAQV 0.151948	1.2
HLA-B*44:02 0.57	1	1198	1207	10	QELGKYEQYI 0.151916	
HLA-A*02:06	1	441	449	9	KVGGNYNYL 0.151237	1.2
HLA-B*58:01 0.97	1	204	212	9	YSKHTPINL 0.150859	
HLA-B*08:01 0.77	1	639	647	9	VFQTRAGCL 0.150601	
HLA-A*68:02 0.84	1	434	442	9	NSNNLDSKV 0.150579	
HLA-A*30:01	1	298	307	10	CTLKSFTVEK 0.150541	1.1
HLA-A*02:03	1	119	127	9	IVNNATNVV 0.150496	1.1
HLA-B*35:01 0.77	1	135	144	10	FCNDPFLGVY 0.150274	
HLA-A*33:01 0.95	1	989	997	9	QIDRLITGR 0.150132	
HLA-A*02:06	1	1168	1176	9	GINASVVNI 0.150026	1.2
HLA-B*08:01 0.78	1	847	855	9	ICAQKFNGL 0.149955	
HLA-A*31:01	1	671	679	9	YQTQTNSPR 0.149794	1.5
HLA-B*53:01 0.55	1	1049	1058	10	FPQSAPHGVV 0.149617	
HLA-B*57:01	1	715	723	9	FTISVTTEI 0.149404	1.6
HLA-B*15:01	1	135	144	10	FCNDPFLGVY 0.149331	1.2
HLA-A*02:03	1	969	977	9	AISSVLNDI 0.149198	1.1
HLA-A*30:01	1	721	730	10	TEILPVSMTK 0.14908	1.1
HLA-A*02:01	1	1141	1149	9	ELDSFKEEL 0.14897	1.1
HLA-B*15:01	1	1055	1064	10	HGVVFLHVTY 0.148881	1.2
HLA-B*15:01	1	992	1001	10	RLITGRLQSL 0.14856	1.2
HLA-A*68:01	1	392	400	9	VYADSFVIR 0.147925	2.0
HLA-A*68:01	1	1074	1083	10	TAPAICHGDK 0.147829	2.0
HLA-A*32:01 0.51	1	707	715	9	NSIAIPTNF 0.147604	
HLA-B*51:01 0.95	1	407	415	9	IAPGQTGNI 0.147408	
HLA-A*01:01 0.69	1	389	397	9	FTNVYADSF 0.147399	
HLA-A*32:01 0.51	1	479	487	9	GVKGFNCYF 0.147349	
HLA-A*30:02 0.94	1	631	639	9	RVYSTGSNV 0.147255	
HLA-A*68:02 0.85	1	870	878	9	YTSALLAGT 0.147206	
HLA-B*58:01 0.99	1	171	179	9	VSQPFLMDL 0.147022	

HLA-B*15:01	1	934	942	9	SLSSTASAL 0.146781	1.3
HLA-B*51:01	1	1053	1062	10	APHGCVFLHV 0.146766	
0.96						
HLA-B*08:01	1	1141	1149	9	ELDSFKEEL 0.146731	
0.79						
HLA-B*07:02	1	710	719	10	AIPTNFTISV 0.146567	
0.87						
HLA-A*26:01	1	866	874	9	MIAQYTSAL 0.146479	
0.51						
HLA-A*30:02	1	1126	1135	10	VIGIVNNTVY 0.14624	
0.95						
HLA-A*30:01	1	266	275	10	YLQPRTFLLK 0.146061	1.1
HLA-B*15:01	1	995	1004	10	TGRLQSLQTY 0.146055	1.3
HLA-A*02:01	1	890	899	10	ALQIPFAMQM 0.146048	1.1
HLA-B*08:01	1	1045	1053	9	HLMSFPQSA 0.145883	0.8
HLA-B*44:03	1	771	779	9	QDKNTQEVF 0.14572	
0.67						
HLA-A*24:02	1	366	374	9	YNSASFSTF 0.145719	
0.66						
HLA-A*01:01	1	151	160	10	SWMESEFRVY 0.145664	0.7
HLA-B*07:02	1	323	332	10	IVRFPNITNL 0.14564	
0.87						
HLA-A*24:02	1	417	426	10	DYNYKLPDDF 0.145626	
0.66						
HLA-A*30:01	1	193	202	10	VFKNIDGYFK 0.145542	1.1
HLA-B*58:01	1	1134	1142	9	VYDPLQPEL 0.145425	
0.99						
HLA-A*68:02	1	947	956	10	DVVNQNAQAL 0.145076	
0.86						
HLA-A*31:01	1	187	195	9	KNLREFVFK 0.144859	1.6
HLA-A*26:01	1	318	326	9	QPTESIVRF 0.144755	
0.51						
HLA-A*26:01	1	877	885	9	GTITSGWTF 0.144614	
0.51						
HLA-A*02:03	1	1004	1012	9	YVTQQLIRA 0.144564	1.1
HLA-B*08:01	1	1007	1015	9	QLLIRAAEI 0.144558	
0.81						
HLA-A*03:01	1	88	97	10	DGVYFASTK 0.144462	1.2
HLA-A*01:01	1	489	498	10	LQSYGFQPTY 0.1441	
0.71						
HLA-B*57:01	1	625	633	9	QLTPTWRVY 0.144035	1.6
HLA-A*32:01	1	554	562	9	KKFLPFQQF 0.144021	
0.53						
HLA-A*02:03	1	898	906	9	QMAYRFNGI 0.143578	1.1
HLA-A*24:02	1	151	159	9	SWMESEFRV 0.143557	
0.67						
HLA-B*51:01	1	708	717	10	SIAIPTNFTI 0.143537	
0.98						
HLA-B*07:02	1	38	46	9	YDPKVFRRS 0.143487	
0.88						
HLA-A*26:01	1	268	276	9	QPRTFLLKY 0.143437	
0.52						
HLA-B*35:01	1	366	374	9	YNSASFSTF 0.143158	
0.81						
HLA-B*53:01	1	84	93	10	LPFNDGVYFA 0.143023	
0.57						
HLA-A*68:01	1	1179	1188	10	EIDRLNEVAK 0.143001	2.1
HLA-A*02:06	1	715	724	10	FTISVTTEIL 0.142881	1.2
HLA-B*44:03	1	1012	1021	10	AAEIRASANL 0.142807	
0.68						
HLA-A*03:01	1	288	297	10	CALDPLSETK 0.142644	1.2
HLA-A*02:03	1	117	126	10	LLIVNNATNV 0.142291	1.1
HLA-B*15:01	1	906	914	9	IGVTQNVLY 0.142148	1.3
HLA-B*53:01	1	340	348	9	NATRFASVY 0.14192	
0.58						
HLA-A*68:02	1	204	212	9	YSKHTPINL 0.141698	

0.88							
HLA-A*02:03	1	109	118	10	TLDSKTQSL	0.141482	1.1
HLA-A*02:06	1	1126	1134	9	VIGIVNNTV	0.141087	1.3
HLA-A*11:01	1	799	808	10	FSQILPDPSK	0.140845	1.2
HLA-B*35:01	1	581	589	9	ILDITPCSF	0.140681	
0.82							
HLA-A*02:06	1	1111	1119	9	IITTDNTFV	0.140494	1.3
HLA-B*15:01	1	1083	1092	10	KAHFPREGVF	0.140429	1.3
HLA-B*51:01	1	391	399	9	NVYADSFVI	0.140251	
0.99							
HLA-A*23:01	1	1133	1142	10	TVYDPLQPEL	0.140073	
0.59							
HLA-B*15:01	1	973	981	9	VLNDILSRL	0.13983	1.3
HLA-B*07:02	1	893	901	9	IPFAMQMAY	0.13949	
0.89							
HLA-B*15:01	1	1260	1269	10	PVLKGVKLHY	0.139279	1.3
HLA-B*51:01	1	976	984	9	DILSRLDKV	0.13925	1.0
HLA-B*15:01	1	915	924	10	ENQKLIANQF	0.139246	1.3
HLA-B*08:01	1	571	579	9	DAVRDPQTL	0.139207	
0.84							
HLA-A*24:02	1	1051	1059	9	QSAPHGVVF	0.139083	
0.68							
HLA-A*02:01	1	265	274	10	GYLQPRTFLL	0.139039	1.1
HLA-A*01:01	1	438	446	9	LDSKVGNGY	0.138863	
0.72							
HLA-A*32:01	1	489	498	10	LQSYGFQPTY	0.138856	
0.55							
HLA-B*35:01	1	23	32	10	QLPPAYTNSF	0.138821	
0.84							
HLA-B*35:01	1	125	133	9	NVVIKVFCE	0.138731	
0.84							
HLA-A*02:03	1	133	141	9	FQFCNDPFL	0.138462	1.2
HLA-A*03:01	1	68	77	10	IHVSGTNGTK	0.13827	1.3
HLA-A*02:03	1	919	927	9	LIANQFNFA	0.138176	1.2
HLA-A*02:03	1	941	949	9	ALGKLQDVV	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	892	901	10	QIPFAMQMAY	0.137889	
0.59							
HLA-A*11:01	1	104	113	10	WIFGTTLDL	0.137766	1.2
HLA-B*57:01	1	159	168	10	VYSSANNCTF	0.137737	1.7
HLA-A*30:02	1	893	901	9	IPFAMQMAY	0.137656	1.1
HLA-B*15:01	1	483	492	10	FNCYFPLQSY	0.137621	1.3
HLA-B*51:01	1	1052	1060	9	SAPHGVVFL	0.137533	1.1
HLA-B*08:01	1	805	814	10	DPSKPSKRSF	0.137324	
0.85							
HLA-A*02:01	1	1168	1176	9	GINASVVNI	0.137188	1.1
HLA-A*02:01	1	814	823	10	FIEDLLFNKV	0.137077	1.1
HLA-B*15:01	1	783	791	9	KQIYKTPPI	0.136999	1.3
HLA-A*68:02	1	865	874	10	EMIAQYTSAL	0.136949	
0.91							
HLA-A*02:03	1	1188	1197	10	KNLNESLIDL	0.136871	1.2
HLA-B*15:01	1	29	38	10	TNSFTRGVVY	0.136711	1.3
HLA-A*23:01	1	812	820	9	RSFIEDLLF	0.136681	0.6
HLA-A*30:02	1	1055	1064	10	HGVVFLHVTY	0.136655	1.1
HLA-A*31:01	1	199	207	9	GYFKIYSKH	0.13652	1.6
HLA-B*07:02	1	475	483	9	TPCNGVKGF	0.136516	
0.91							
HLA-A*68:02	1	339	347	9	FNATRFASV	0.136496	
0.91							
HLA-A*24:02	1	503	512	10	QPYRVVLSF	0.136395	
0.69							
HLA-A*11:01	1	187	195	9	KNLREFVFK	0.136332	1.2
HLA-B*57:01	1	295	303	9	ETKCTLKSF	0.136148	1.7

HLA-A*31:01	1	234	243	10	NITRFQTLHR 0.135672	1.6
HLA-B*35:01 0.85	1	778	786	9	VFAQVKQIY 0.135507	
HLA-A*30:02	1	892	901	10	QIPFAMQMAY 0.135472	1.1
HLA-B*35:01 0.85	1	906	914	9	IGVTQNVLY 0.135391	
HLA-B*15:01	1	160	168	9	YSSANNCTF 0.135228	1.3
HLA-A*32:01 0.57	1	264	272	9	VGYLQPRTF 0.135118	
HLA-A*30:02	1	554	562	9	KKFLPFQQF 0.135071	1.1
HLA-A*68:01	1	722	731	10	EILPVSMTKT 0.134983	2.1
HLA-A*02:06	1	889	897	9	AALQIPFAM 0.13494	1.3
HLA-B*15:01	1	238	246	9	FQTLHRSYL 0.134796	1.3
HLA-A*30:01	1	997	1005	9	RLQSLQTYV 0.134691	1.2
HLA-A*26:01 0.54	1	625	633	9	QLTPTWRVY 0.134514	
HLA-B*08:01 0.87	1	208	216	9	TPINLVRGL 0.134349	
HLA-A*23:01	1	366	374	9	YNSASFSTF 0.134246	0.6
HLA-B*35:01 0.85	1	648	657	10	IGAHEVWNSY 0.134242	
HLA-B*57:01	1	1134	1142	9	VYDPLQPEL 0.134144	1.7
HLA-A*11:01	1	235	243	9	ITRFQTLHR 0.134042	1.2
HLA-B*57:01	1	362	371	10	YSVLYNSASF 0.133983	1.7
HLA-A*03:01	1	813	822	10	SFIEDLLFNK 0.133924	1.3
HLA-A*24:02	1	83	92	10	VLPFNDGVYF 0.133829	0.7
HLA-B*15:01	1	440	448	9	SKVGGNYNY 0.13364	1.3
HLA-B*44:02 0.62	1	615	623	9	TEVPVAIHA 0.133634	
HLA-A*11:01	1	391	400	10	NVYADSFVIR 0.133601	1.2
HLA-B*51:01	1	858	867	10	LPPLLTDEMI 0.13331	1.1
HLA-A*32:01 0.57	1	55	64	10	FLPFFSNVTW 0.133289	
HLA-B*15:01	1	192	201	10	FVFKNIDGYF 0.132961	1.4
HLA-B*08:01 0.89	1	898	906	9	QMAYRFNGI 0.132875	
HLA-B*07:02 0.92	1	934	942	9	SLSSTASAL 0.132635	
HLA-A*68:01	1	337	345	9	EVFNATRFA 0.132634	2.2
HLA-B*08:01 0.89	1	581	589	9	ILDITPCSF 0.132332	
HLA-B*15:01	1	51	59	9	TQDLFLPFF 0.132311	1.4
HLA-B*35:01 0.85	1	625	633	9	QLTPTWRVY 0.132293	
HLA-B*57:01	1	307	315	9	KGIYQTSNF 0.132287	1.7
HLA-A*68:02 0.94	1	1049	1057	9	FPQSAPHGV 0.132262	
HLA-A*23:01 0.61	1	707	715	9	NSIAIPTNF 0.131974	
HLA-A*23:01 0.61	1	554	562	9	KKFLPFQQF 0.131498	
HLA-A*02:01	1	623	632	10	ADQLTPTWRV 0.131466	1.2
HLA-A*68:02 0.95	1	323	332	10	IVRFPNITNL 0.131428	
HLA-A*02:01	1	581	589	9	ILDITPCSF 0.131257	1.2
HLA-A*01:01 0.77	1	743	751	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*30:01	1	214	222	9	RGLPQGFSA 0.130784	1.3
HLA-B*08:01	1	1049	1057	9	FPQSAPHGV 0.130118	0.9
HLA-B*58:01	1	1051	1060	10	QSAPHGVVFL 0.13002	1.1
HLA-B*44:03 0.71	1	1191	1200	10	NESLIDLQEL 0.129961	
HLA-B*51:01	1	613	621	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	340	348	9	NATRFASVY 0.129842	
HLA-B*51:01	1	503	512	10	QPYRVVLSF 0.129819	1.1
HLA-A*23:01 0.62	1	417	426	10	DYNYKLPDDF 0.129585	
HLA-B*08:01	1	955	963	9	ALNTLVKQL 0.129478	0.9
HLA-B*51:01	1	707	715	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	1051	1059	9	QSAPHGVVF 0.129204	
HLA-A*24:02 0.72	1	444	453	10	GNYNYLYRLF 0.129203	
HLA-A*30:02	1	268	276	9	QPRTFLLKY 0.129132	1.1
HLA-A*30:02	1	353	362	10	KRISNCVADY 0.128984	1.1
HLA-A*26:01 0.55	1	1165	1173	9	DISGINASV 0.128976	
HLA-B*08:01	1	38	47	10	YDPKVFSSV 0.128958	0.9
HLA-A*26:01 0.55	1	1064	1072	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	1004	1012	9	YVTQLLIRA 0.128584	
HLA-B*44:03 0.72	1	916	924	9	NQKLIANQF 0.128555	
HLA-A*02:06	1	119	127	9	IVMNATNVV 0.1285	1.4
HLA-A*02:03	1	1178	1186	9	KEIDRLNEV 0.128305	1.2
HLA-A*03:01	1	814	822	9	FIEDLLFNK 0.12818	1.3
HLA-A*01:01 0.79	1	1035	1044	10	KRVDFCGKY 0.127846	
HLA-B*35:01 0.87	1	1049	1058	10	FPQSAPHGVV 0.127726	
HLA-A*24:02 0.72	1	51	59	9	TQDLFLPFF 0.12762	
HLA-A*02:06	1	964	973	10	SSNFGAISSV 0.12749	1.4
HLA-A*26:01 0.56	1	494	502	9	FQPTYGVGY 0.127331	
HLA-A*26:01 0.56	1	337	345	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	971	980	10	SSVLNDILSR 0.127098	1.3
HLA-B*53:01 0.63	1	144	152	9	YYHKNNKSW 0.126997	
HLA-A*30:01	1	447	455	9	NYLYRLFRK 0.126812	1.3
HLA-A*68:01	1	138	147	10	DPFLGVYYHK 0.12672	2.2
HLA-A*03:01	1	1047	1055	9	MSFPQSAPH 0.12661	1.3
HLA-B*58:01	1	307	315	9	KGIYQTSNF 0.126567	1.1
HLA-A*24:02 0.73	1	264	272	9	VGYLQPRTF 0.126536	
HLA-B*08:01 0.92	1	1038	1046	9	DFCGKGYHL 0.126254	
HLA-A*01:01	1	695	704	10	SLGVENSVA 0.12604	0.8
HLA-A*26:01 0.56	1	162	170	9	SANNCTFEY 0.125883	
HLA-A*02:06	1	1118	1126	9	FVSGNCDVV 0.125727	1.4
HLA-B*07:02 0.96	1	380	389	10	SPTKLNLCF 0.125636	
HLA-B*58:01	1	30	38	9	NSFTRGVY 0.125537	1.1
HLA-B*15:01	1	955	963	9	ALNTLVKQL 0.125388	1.4

HLA-B*44:03 0.73	1	424	433	10	DDFTGCVIAW 0.125152	
HLA-B*51:01	1	940	948	9	SALGKLQDV 0.125104	1.1
HLA-A*32:01 0.61	1	369	377	9	ASFSTFKCY 0.12503	
HLA-A*24:02 0.73	1	50	58	9	STQDLFLPF 0.124962	
HLA-A*68:01	1	344	353	10	FASVYAWNRK 0.124948	2.3
HLA-B*44:02 0.64	1	622	630	9	HADQLTPTW 0.124513	
HLA-B*07:02 0.96	1	627	635	9	TPTWRVYST 0.1245	
HLA-A*30:01	1	323	332	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	1185	1193	9	EVAKNLNES 0.12418	
HLA-A*26:01 0.57	1	369	377	9	ASFSTFKCY 0.123998	
HLA-B*07:02 0.97	1	993	1001	9	LITGRLQSL 0.123844	
HLA-A*11:01	1	778	787	10	VFAQVKQIYK 0.123821	1.3
HLA-B*44:02 0.65	1	1012	1021	10	AAEIRASANL 0.123771	
HLA-B*15:01	1	1198	1206	9	QELGKYEYQ 0.123534	1.4
HLA-B*15:01	1	866	874	9	MIAQYTSAL 0.123467	1.4
HLA-A*02:06	1	46	54	9	SVLHSTQDL 0.123447	1.4
HLA-A*03:01	1	525	534	10	KKSTNLVKNK 0.123368	1.4
HLA-A*26:01 0.57	1	826	834	9	ADAGFIKQY 0.123047	
HLA-B*35:01 0.89	1	369	377	9	ASFSTFKCY 0.123045	
HLA-A*68:01	1	32	41	10	FTRGVYYPDK 0.123026	2.3
HLA-A*33:01	1	988	997	10	VQIDRLITGR 0.122963	1.2
HLA-A*68:01	1	40	49	10	DKVFRSSVLH 0.122889	2.3
HLA-B*15:01	1	876	885	10	AGTITSGWTF 0.122626	1.4
HLA-A*11:01	1	989	997	9	QIDRLITGR 0.122556	1.3
HLA-A*30:01	1	921	930	10	ANQFNSAIGK 0.122549	1.4
HLA-A*30:01	1	441	449	9	KVGGNYNYL 0.122521	1.4
HLA-B*15:01	1	184	192	9	GNFKNLREF 0.122205	1.4
HLA-A*30:01	1	631	640	10	RVYSTGSNVF 0.122119	1.4
HLA-B*40:01 0.86	1	1177	1186	10	QKEIDRLNEV 0.122013	
HLA-A*31:01	1	1017	1025	9	ASANLAATK 0.121975	1.8
HLA-A*11:01	1	1047	1055	9	MSFPQSAPH 0.121954	1.3
HLA-A*02:06	1	603	612	10	NQVAVLYQGV 0.121819	1.4
HLA-A*02:01	1	28	36	9	YTNSFTRGV 0.121645	1.2
HLA-A*02:06	1	948	956	9	VVNQNAQAL 0.121617	1.4
HLA-B*57:01	1	474	483	10	STPCNGVKGF 0.121424	1.8
HLA-B*35:01	1	331	339	9	NLCPFGEVF 0.121325	0.9
HLA-B*15:01	1	905	914	10	GIGVTQNVLY 0.121213	1.4
HLA-A*26:01 0.58	1	1144	1152	9	SFKEELDKY 0.121207	
HLA-A*31:01	1	783	792	10	KQIYKTPPIK 0.121172	1.8
HLA-A*23:01 0.68	1	444	453	10	GNYNYLYRLF 0.121136	
HLA-A*68:01	1	813	822	10	SFIEDLLFNK 0.121057	2.3
HLA-A*01:01 0.82	1	50	58	9	STQDLFLPF 0.121002	
HLA-A*30:01	1	1182	1190	9	RLNEVAKNL 0.120991	1.4
HLA-A*02:03	1	849	858	10	AQKFNGLTVL 0.120948	1.3
HLA-A*30:01	1	1047	1055	9	MSFPQSAPH 0.120948	1.4
HLA-A*02:03	1	214	223	10	RGLPQGFSAL 0.120909	1.3
HLA-B*58:01	1	126	135	10	VVIKVECFQF 0.120793	1.2
HLA-B*35:01 0.91	1	883	891	9	WTFGAGAAL 0.120732	
HLA-A*68:02	1	1116	1125	10	NTFVSGNCDV 0.120643	1.1

HLA-A*68:01	1	745	753	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	YDPKVFSSV 0.12054	
HLA-A*02:03	1	940	948	9	SALGKLQDV 0.120524	1.3
HLA-A*30:01	1	992	1000	9	RLITGRLQS 0.120496	1.4
HLA-A*32:01 0.63	1	46	55	10	SVLHSTQDLF 0.120446	
HLA-B*57:01	1	1092	1100	9	FVSNNGTHWF 0.120395	1.8
HLA-A*02:06	1	507	515	9	VVLSFELL 0.120332	1.4
HLA-A*02:01	1	912	921	10	VLYENQKLIA 0.12033	1.3
HLA-A*68:02	1	742	750	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	587	595	9	CSFGGVSVI 0.120079	1.2
HLA-A*02:03	1	108	117	10	TTLDSKTQSL 0.120061	1.3
HLA-A*02:06	1	316	324	9	RVQPTESIV 0.120006	1.4
HLA-B*53:01 0.66	1	617	626	10	VPVAIHADQL 0.119963	
HLA-A*02:06	1	572	581	10	AVRDPQTLEI 0.119885	1.4
HLA-A*02:03	1	868	876	9	AQYTSALLA 0.119806	1.3
HLA-A*26:01 0.58	1	414	422	9	NIADYNYKL 0.119792	
HLA-A*02:06	1	1056	1065	10	GVVFLHVTVV 0.119742	1.4
HLA-A*23:01 0.69	1	703	711	9	AYSNNISIAI 0.119669	
HLA-A*02:03	1	323	332	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	622	630	9	HADQLTPTW 0.11956	
HLA-A*02:01	1	710	719	10	AIPTNFTISV 0.119482	1.3
HLA-B*15:01	1	330	339	10	TNLCPFGEVF 0.119396	1.4
HLA-A*30:02	1	877	885	9	GTITSGWTF 0.119394	1.2
HLA-A*03:01	1	369	377	9	ASFSTFKCY 0.119345	1.4
HLA-B*57:01	1	294	303	10	SETKCTLKSF 0.119341	1.8
HLA-A*11:01	1	1062	1071	10	VTYVPAQEKV 0.119187	1.3
HLA-A*11:01	1	473	481	9	GSTPCNGVK 0.118853	1.3
HLA-A*02:03	1	572	581	10	AVRDPQTLEI 0.11878	1.3
HLA-A*68:01	1	150	158	9	KSWMESEFR 0.118762	2.3
HLA-B*08:01 0.98	1	264	272	9	VGYLQPRTF 0.118543	
HLA-A*68:02	1	119	127	9	IVNNATNVV 0.118534	1.1
HLA-B*57:01	1	1203	1211	9	YEQYIKWPW 0.118184	1.8
HLA-A*23:01	1	1213	1221	9	IWLGFIAGL 0.117938	0.7
HLA-B*35:01 0.93	1	1222	1230	9	IAIVMVTIM 0.117938	
HLA-A*01:01 0.84	1	282	290	9	ITDAVDCAL 0.11792	
HLA-B*51:01	1	1136	1145	10	DPLQPELDSF 0.117747	1.2
HLA-B*35:01 0.93	1	1134	1142	9	VYDPLQPEL 0.117639	
HLA-A*02:03	1	973	982	10	VLNDILSRLD 0.117628	1.3
HLA-B*40:01 0.88	1	686	694	9	SQSIIAYTM 0.117371	
HLA-B*40:01 0.88	1	849	858	10	AQKFNGLTVL 0.117348	
HLA-A*31:01	1	784	792	9	QIYKTPPIK 0.117307	1.8
HLA-B*58:01	1	161	170	10	SSANNCTFEY 0.11728	1.2
HLA-A*03:01	1	1002	1011	10	QTYVTQQLIR 0.116991	1.4
HLA-A*23:01	1	1051	1059	9	QSAPHGVVF 0.116971	0.7
HLA-B*15:01	1	368	377	10	SASFSTFKCY 0.116911	1.5
HLA-B*08:01 0.99	1	748	756	9	NLLLQYGSF 0.116843	
HLA-A*02:06	1	391	399	9	NVYADSFVI 0.116712	1.5
HLA-A*30:02	1	1194	1203	10	LIDLQELGKY 0.116619	1.2



HLA-A*02:01	1	47	56	10	VLHSTQDLFL 0.116616	1.3
HLA-A*33:01	1	193	202	10	VFKNIDGYFK 0.116352	1.2
HLA-B*51:01	1	702	711	10	VAYSNNSIAI 0.116347	1.2
HLA-B*40:01	1	657	665	9	YECDIPIGA 0.116337	
0.89						
HLA-B*57:01	1	506	514	9	RVVLSFEL 0.116301	1.8
HLA-B*15:01	1	1261	1270	10	VLKGVKLHYT 0.116185	1.5
HLA-A*02:03	1	930	938	9	KIQDLSST 0.116046	1.3
HLA-B*35:01	1	948	956	9	VVNQNAQAL 0.115992	
0.95						
HLA-A*02:01	1	225	233	9	PLVDLPIGI 0.115844	1.3
HLA-B*51:01	1	1134	1142	9	VYDPLQPEL 0.115441	1.2
HLA-B*51:01	1	256	264	9	TAGAAAYYV 0.115422	1.2
HLA-B*53:01	1	622	631	10	HADQLTPTWR 0.11496	
0.68						
HLA-B*44:02	1	916	924	9	NQKLIANQF 0.114906	
0.66						
HLA-A*31:01	1	237	245	9	RFQTLHRYSY 0.114476	1.9
HLA-A*68:02	1	395	404	10	DSFVIRGDEV 0.114458	1.1
HLA-B*35:01	1	551	559	9	ESNKKFLPF 0.1144	
0.96						
HLA-A*68:01	1	671	679	9	YQTQTNSPR 0.114266	2.4
HLA-A*68:01	1	516	525	10	HAPATVCGPK 0.114105	2.4
HLA-A*30:02	1	891	899	9	LQIPFAMQM 0.114016	1.2
HLA-A*32:01	1	144	152	9	YYHKNNKSW 0.113763	
0.66						
HLA-A*01:01	1	50	59	10	STQDLFLPFF 0.113715	
0.86						
HLA-A*26:01	1	23	32	10	QLPPAYTNSF 0.113709	
0.61						
HLA-A*31:01	1	1008	1016	9	QLIRAAEIR 0.113641	1.9
HLA-A*68:02	1	865	873	9	EMIAQY TSA 0.113585	1.1
HLA-B*35:01	1	8	16	9	LPLVSSQCV 0.11354	
0.96						
HLA-A*11:01	1	1169	1178	10	INASVVNIQK 0.113471	1.3
HLA-B*57:01	1	203	212	10	IYSKHTPINL 0.113446	1.8
HLA-A*11:01	1	684	692	9	VASQSIIAY 0.113436	1.3
HLA-B*44:02	1	1191	1200	10	NESLIDLQEL 0.113397	
0.67						
HLA-A*30:01	1	35	44	10	GVYYPDKVFR 0.113267	1.4
HLA-A*30:01	1	78	86	9	RFANPVLFP 0.113232	1.4
HLA-A*31:01	1	70	78	9	VSGTNGTKR 0.112912	1.9
HLA-A*02:01	1	770	778	9	EQDKNTQEV 0.112759	1.3
HLA-A*02:06	1	891	900	10	LQIPFAMQMA 0.112717	1.5
HLA-B*53:01	1	389	397	9	FTNVYADSF 0.112688	
0.69						
HLA-A*02:01	1	873	881	9	ALLAGTITS 0.112596	1.3
HLA-A*32:01	1	601	609	9	TSNQVAVLY 0.112595	
0.67						
HLA-A*02:06	1	931	939	9	IQDLSSTA 0.112514	1.5
HLA-A*31:01	1	893	902	10	IPFAMQMAYR 0.112345	1.9
HLA-A*01:01	1	195	204	10	KNIDGYFKIY 0.112135	
0.87						
HLA-A*02:06	1	1092	1100	9	FVSNNGTHWF 0.112105	1.5
HLA-B*07:02	1	688	696	9	SIIAYTMSL 0.112016	1.1
HLA-A*31:01	1	396	405	10	SFVIRGDEV 0.112002	1.9
HLA-A*02:06	1	108	117	10	TTLDSKTQSL 0.111947	1.5
HLA-B*15:01	1	357	366	10	NCVADYSVLY 0.111904	1.5
HLA-B*07:02	1	661	669	9	IPIGAGICA 0.111847	1.1
HLA-B*53:01	1	1110	1118	9	QIITTDNTF 0.111774	0.7
HLA-B*08:01	1	627	635	9	TPTWRVYST 0.111663	1.1
HLA-A*02:03	1	930	939	10	KIQDLSSTA 0.111573	1.4
HLA-B*44:03	1	1177	1186	10	QKEIDRLNEV 0.111421	0.8
HLA-B*57:01	1	600	609	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	508	516	9	VVLSFELLH 0.110882	1.3
HLA-A*30:01	1	30	38	9	NSFTRGVYY 0.110875	1.5
HLA-A*68:01	1	842	851	10	AARDLICAQK 0.110859	2.4
HLA-B*51:01	1	617	626	10	VPVAIHADQL 0.11074	1.2
HLA-B*15:01	1	688	696	9	SIAYTMSL 0.110696	1.5
HLA-A*68:02	1	773	782	10	KNTQEVFAQV 0.110637	1.1
HLA-B*07:02	1	1051	1059	9	QSAPHGVVF 0.110627	1.1
HLA-A*02:06	1	930	938	9	KIQDSLST 0.110339	1.5
HLA-B*08:01	1	818	826	9	LLFNKVTLA 0.110266	1.1
HLA-B*07:02	1	1186	1194	9	VAKNLNESL 0.110254	1.1
HLA-A*68:02	1	389	398	10	FTNVYADSFV 0.110216	1.1
HLA-A*68:01	1	1072	1080	9	FTTAPAICH 0.110207	2.4
HLA-A*32:01	1	441	449	9	KVGGNYNYL 0.110134	
0.68						
HLA-A*33:01	1	396	405	10	SFVIRGDEVR 0.109992	1.3
HLA-B*57:01	1	1056	1064	9	GVVFLHVTY 0.109979	1.9
HLA-A*02:03	1	1164	1173	10	GDISGINASV 0.109972	1.4
HLA-A*68:02	1	571	579	9	DAVRDPQTL 0.109788	1.1
HLA-A*02:03	1	238	246	9	FQTLHRSYL 0.109517	1.4
HLA-B*57:01	1	1078	1086	9	ICHDGKAHF 0.109483	1.9
HLA-A*68:01	1	162	170	9	SANNCTFEY 0.109429	2.4
HLA-A*24:02	1	1064	1072	9	YVPAQEKNF 0.10931	
0.81						
HLA-A*68:02	1	870	879	10	YTSALLAGTI 0.109141	1.1
HLA-A*68:01	1	1234	1242	9	MTSCCCLK 0.109112	2.4
HLA-A*30:02	1	212	220	9	LVRGLPQGF 0.109018	1.3
HLA-B*07:02	1	247	255	9	TPGDSSSGW 0.108966	1.1
HLA-A*03:01	1	935	944	10	LSSTASALGK 0.10892	1.5
HLA-A*68:01	1	262	270	9	YYVGYLQPR 0.108734	2.4
HLA-A*31:01	1	779	787	9	FAQVKQIYK 0.108721	1.9
HLA-B*58:01	1	551	559	9	ESNKKFLPF 0.108697	1.2
HLA-A*11:01	1	1194	1202	9	LIDLQELGK 0.108645	1.4
HLA-B*51:01	1	1218	1226	9	IAGLIAIVM 0.108632	1.3
HLA-A*30:01	1	902	910	9	RFNGIGVTQ 0.10851	1.5
HLA-A*02:01	1	693	702	10	TMSLGVENSV 0.108483	1.3
HLA-A*02:06	1	918	927	10	KLIANQFNFA 0.10843	1.5
HLA-A*68:01	1	684	692	9	VASQSIIAY 0.108278	2.4
HLA-A*68:01	1	862	870	9	LTDEMIAQY 0.108267	2.4
HLA-B*44:03	1	1201	1209	9	GKYEQYIKW 0.107938	
0.81						
HLA-B*51:01	1	1018	1026	9	SANLAATKM 0.107925	1.3
HLA-A*02:01	1	1212	1221	10	YIWLGFIAGL 0.107916	1.3
HLA-A*30:01	1	972	980	9	SVLNDILSR 0.107832	1.5
HLA-A*33:01	1	397	405	9	FVIRGDEVR 0.107654	1.3
HLA-A*02:06	1	857	866	10	VLPLLTDDEM 0.107648	1.5
HLA-B*15:01	1	125	133	9	NVVIKVFCE 0.107595	1.5
HLA-B*53:01	1	788	797	10	TPPIKDFGGF 0.107444	
0.71						
HLA-B*07:02	1	992	1001	10	RLITGRLQSL 0.107394	1.1
HLA-B*44:02	1	155	163	9	SEFRVYSSA 0.107381	0.7
HLA-B*53:01	1	1134	1142	9	VYDPLQPEL 0.107306	
0.71						
HLA-A*02:06	1	969	977	9	AISSVLNDI 0.106959	1.6
HLA-B*51:01	1	1086	1094	9	FPREGVFVS 0.106954	1.3
HLA-B*58:01	1	706	715	10	NNSIAIPTNF 0.106908	1.2
HLA-B*58:01	1	70	79	10	VSGTNGTKRF 0.106818	1.2
HLA-A*30:01	1	19	28	10	TTRTQLPPAY 0.106737	1.5
HLA-A*31:01	1	1261	1269	9	VLKGVKLHY 0.106737	2.0
HLA-B*15:01	1	1047	1055	9	MSFPQSAPH 0.106685	1.5
HLA-B*15:01	1	266	274	9	YLQPRTFLL 0.106655	1.5
HLA-A*23:01	1	622	630	9	HADQLTPTW 0.10665	
0.76						
HLA-A*02:06	1	564	573	10	RDIADTTDAV 0.106538	1.6
HLA-A*02:03	1	962	970	9	QLSSNFGAI 0.106335	1.4
HLA-A*01:01	1	289	297	9	ALDPLSETK 0.106242	0.9

HLA-A*32:01	1	237	245	9	RFQTLHRSY 0.106101	0.7
HLA-A*32:01	1	581	589	9	ILDITPCSF 0.105454	0.7
HLA-B*57:01	1	550	559	10	TESNKKFLPF 0.105402	1.9
HLA-A*26:01	1	624	633	10	DQLTPTWRVY 0.105298	
0.66						
HLA-B*35:01	1	1218	1226	9	IAGLIAIVM 0.10526	1.0
HLA-B*51:01	1	575	584	10	DPQTLEILDI 0.105253	1.3
HLA-B*07:02	1	572	581	10	AVRDPQTLEI 0.104766	1.1
HLA-A*23:01	1	342	350	9	TRFASVYAW 0.104733	
0.77						
HLA-B*35:01	1	412	420	9	TGNIADYNY 0.104725	1.0
HLA-A*26:01	1	29	38	10	TNSFTRGVVY 0.104645	
0.67						
HLA-A*24:02	1	581	589	9	ILDITPCSF 0.104593	
0.83						
HLA-B*57:01	1	96	104	9	EKSNIIRGW 0.104425	1.9
HLA-B*57:01	1	237	245	9	RFQTLHRSY 0.104153	1.9
HLA-A*02:03	1	890	899	10	ALQIPFAMQM 0.104135	1.4
HLA-B*58:01	1	970	978	9	ISSVLNDIL 0.104133	1.3
HLA-B*15:01	1	215	223	9	GLPQGFSAI 0.104124	1.6
HLA-B*51:01	1	661	669	9	IPIGAGICA 0.104029	1.3
HLA-B*57:01	1	479	487	9	GVKGFNCYF 0.103954	1.9
HLA-B*40:01	1	1198	1207	10	QELGKYEQYI 0.103899	
0.95						
HLA-B*40:01	1	512	521	10	FELLHAPATV 0.103886	
0.95						
HLA-B*53:01	1	745	753	9	ECSNLLLQY 0.103766	
0.74						
HLA-A*02:06	1	303	312	10	FTVEKGIYQT 0.103669	1.6
HLA-A*30:01	1	1023	1031	9	ATKMSECVL 0.103618	1.6
HLA-A*68:02	1	1141	1149	9	ELDSFKEEL 0.103601	1.2
HLA-A*68:02	1	1160	1169	10	DVDLGDISGI 0.103594	1.2
HLA-B*53:01	1	8	16	9	LPLVSSQCV 0.103447	
0.74						
HLA-B*57:01	1	1050	1059	10	PQSAPHGVVF 0.103259	1.9
HLA-B*58:01	1	825	834	10	LADAGFIKQY 0.103253	1.3
HLA-A*26:01	1	1204	1212	9	EQYIKWPWY 0.103084	
0.68						
HLA-A*68:02	1	658	667	10	ECDIPIGAGI 0.103039	1.2
HLA-A*26:01	1	565	573	9	DIADTTDAV 0.102804	
0.68						
HLA-A*68:02	1	1192	1200	9	ESLIDLQEL 0.102785	1.2
HLA-A*68:02	1	371	379	9	FSTFKCYGV 0.102784	1.2
HLA-B*51:01	1	965	973	9	SNFGAISSV 0.102718	1.3
HLA-A*02:03	1	308	317	10	GIYQTSNFRV 0.102669	1.5
HLA-A*68:02	1	716	724	9	TISVTTEIL 0.102376	1.2
HLA-A*11:01	1	93	102	10	ASTEKSNIIR 0.102087	1.4
HLA-B*15:01	1	254	263	10	GWTAGAAAYY 0.102087	1.6
HLA-A*32:01	1	889	897	9	AALQIPFAM 0.101981	
0.72						
HLA-B*57:01	1	441	450	10	KVGGNYNYLY 0.101934	1.9
HLA-B*51:01	1	1186	1194	9	VAKNLNESL 0.101933	1.3
HLA-B*51:01	1	1165	1173	9	DISGINASV 0.10192	1.3
HLA-B*35:01	1	709	717	9	IAIPTNFTI 0.101895	1.1
HLA-A*31:01	1	266	275	10	YLQPRTFLLK 0.101531	2.0
HLA-B*08:01	1	98	106	9	SNIIRGWIF 0.101375	1.2
HLA-A*03:01	1	784	793	10	QIYKTPPIKD 0.101338	1.5
HLA-A*68:02	1	613	621	9	NCTEVPVAI 0.101225	1.2
HLA-A*01:01	1	441	450	10	KVGGNYNYLY 0.101219	
0.93						
HLA-A*24:02	1	778	786	9	VFAQVKQIY 0.101137	
0.85						
HLA-A*68:02	1	707	715	9	NSIAIPTNF 0.10106	1.2
HLA-A*02:06	1	904	912	9	NGIGVTQNV 0.101018	1.6
HLA-A*30:01	1	1005	1013	9	VTQQLIRAA 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	VYYHKNNKSW 0.10074	1.3	
HLA-A*30:01	1	824	832	9	TLADAGFIK 0.100467	1.6	
HLA-A*33:01	1	198	207	10	DGYFKIYSKH 0.100392	1.3	
HLA-A*32:01	1	548	556	9	VLTESNKKF 0.100281		
0.73							
HLA-A*02:06	1	879	887	9	ITSGWTFGA 0.100278	1.6	
HLA-A*24:02	1	622	630	9	HADQLTPTW 0.100215		
0.85							
HLA-B*35:01	1	580	589	10	EILDITPCSF 0.100139	1.1	
HLA-A*24:02	1	37	45	9	YYPDKVFRS 0.100113		
0.85							
HLA-B*51:01	1	333	341	9	CPFGEVFNA 0.100066	1.4	
HLA-A*03:01	1	1062	1071	10	VTYVPAQEKN 0.099914	1.5	
HLA-A*68:02	1	593	601	9	SVITPGTNT 0.099838	1.2	
HLA-B*57:01	1	62	70	9	VTWFHAIHV 0.099699	2.0	
HLA-B*57:01	1	1201	1209	9	GKYEQYIKW 0.099622	2.0	
HLA-A*30:02	1	462	470	9	ERDISTEIIY 0.099573	1.4	
HLA-B*58:01	1	159	168	10	VYSSANNCTF 0.09933	1.3	
HLA-A*30:01	1	392	400	9	VYADSFVIR 0.099157	1.6	
HLA-A*02:03	1	1172	1180	9	SVVNIQKEI 0.099047	1.5	
HLA-A*68:02	1	406	415	10	QIAPGQTGNI 0.099044	1.2	
HLA-A*68:01	1	988	997	10	VQIDRLITGR 0.098975	2.6	
HLA-B*35:01	1	1143	1152	10	DSFKEELDKY 0.098962	1.1	
HLA-B*35:01	1	368	377	10	SASFSTFKCY 0.098947	1.1	
HLA-B*44:02	1	424	433	10	DDFTGCVIAW 0.098936		
0.73							
HLA-B*15:01	1	825	834	10	LADAGFIKQY 0.098899	1.6	
HLA-A*02:01	1	1059	1067	9	FLHVTVYVPA 0.098767	1.4	
HLA-A*31:01	1	26	34	9	PAYTNSFTR 0.098631	2.1	
HLA-A*01:01	1	625	633	9	QLTPTWRVY 0.098631		
0.94							
HLA-A*24:02	1	707	715	9	NSIAIPTNF 0.098605		
0.86							
HLA-A*30:02	1	490	499	10	QSYGFQPTYG 0.098576	1.4	
HLA-B*57:01	1	162	170	9	SANNCTFEY 0.098558	2.0	
HLA-A*68:02	1	719	728	10	VTTEILPVSM 0.098539	1.2	
HLA-B*44:02	1	168	176	9	FEYVSQPFL 0.09852		
0.73							
HLA-A*30:02	1	959	967	9	LVKQLSSNF 0.098497	1.4	
HLA-B*35:01	1	422	430	9	LPDDFTGCV 0.098428	1.1	
HLA-B*58:01	1	906	914	9	IGVTQNVLY 0.098365	1.3	
HLA-B*08:01	1	1031	1039	9	LGQSKRVDF 0.098328	1.2	
HLA-A*30:02	1	478	486	9	NGVKGFNCY 0.09826	1.4	
HLA-A*30:01	1	212	220	9	LVRGLPQGF 0.098208	1.7	
HLA-A*02:01	1	993	1001	9	LITGRLQSL 0.098152	1.4	
HLA-A*02:03	1	891	899	9	LQIPFAMQM 0.098131	1.5	
HLA-A*02:03	1	7	16	10	LLPLVSSQCV 0.098111	1.5	
HLA-B*58:01	1	506	514	9	RVVLSFEL 0.097903	1.3	
HLA-A*26:01	1	893	901	9	IPFAMQMAY 0.097881		
0.71							
HLA-A*01:01	1	494	502	9	FQPTYGVGY 0.097794		
0.95							
HLA-A*02:06	1	150	159	10	KSWMESEFRV 0.097651	1.7	
HLA-A*32:01	1	1205	1213	9	QYIKWPWYI 0.097636		
0.75							
HLA-B*51:01	1	84	93	10	LPFNDGVYFA 0.097516	1.4	
HLA-B*35:01	1	339	348	10	FNATRFASVY 0.097473	1.1	
HLA-A*68:01	1	497	506	10	TYGVGYQPYP 0.097473	2.6	
HLA-A*30:02	1	307	315	9	KGIYQTSNF 0.097309	1.4	
HLA-A*03:01	1	358	366	9	CVADYSVLY 0.097239	1.6	
HLA-B*35:01	1	167	175	9	TFEYVSQPF 0.097195	1.1	
HLA-A*03:01	1	983	992	10	KVEAEVQIDR 0.097093	1.6	
HLA-B*08:01	1	1057	1065	9	VVFLHVTYV 0.096943	1.2	
HLA-B*15:01	1	340	348	9	NATRFASVY 0.096835	1.7	
HLA-B*08:01	1	677	685	9	SPRRARSVA 0.096805	1.2	

HLA-A*30:02	1	1143	1152	10	DSFKEELDKY 0.096744	1.4
HLA-A*03:01	1	545	554	10	GTGVLTESNK 0.096598	1.6
HLA-B*57:01	1	1202	1211	10	KYEQYIKWPW 0.096595	2.0
HLA-A*30:01	1	1093	1101	9	VSNGTHWFV 0.096442	1.7
HLA-B*15:01	1	1036	1044	9	RVDFCGKGY 0.096389	1.7
HLA-A*02:06	1	926	935	10	SAIGKIQDSL 0.096355	1.7
HLA-B*53:01	1	291	300	10	DPLSETKCTL 0.096273	
0.79						
HLA-B*53:01	1	1053	1061	9	APHGVVFLH 0.096087	
0.79						
HLA-B*44:02	1	1177	1186	10	QKEIDRLNEV 0.096079	
0.73						
HLA-B*57:01	1	728	737	10	MTKTSVDCTM 0.096073	2.0
HLA-A*01:01	1	160	168	9	YSSANNCTF 0.096027	
0.97						
HLA-A*68:02	1	973	981	9	VLNDILSRL 0.09601	1.3
HLA-B*57:01	1	812	821	10	RSFIEDLLFN 0.095751	2.0
HLA-A*30:01	1	479	487	9	GVKGFNCYF 0.095681	1.7
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	299	308	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	350	358	9	WNRKRISNC 0.095341	1.2
HLA-A*31:01	1	1173	1182	10	VVNIQKEIDR 0.09534	2.1
HLA-B*35:01	1	877	885	9	GTITSGWTF 0.095289	1.1
HLA-B*53:01	1	264	272	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	SQCVNLTR 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	326	335	10	FPNITNLCPF 0.094779	1.4
HLA-A*02:01	1	413	422	10	GNIADYNYKL 0.094732	1.5
HLA-B*15:01	1	893	901	9	IPFAMQMAY 0.094725	1.7
HLA-A*68:02	1	700	709	10	NSVAYSNNSI 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	601	609	9	TSNQVAVLY 0.094238	1.6
HLA-B*51:01	1	889	897	9	AALQIPFAM 0.094203	1.4
HLA-A*30:01	1	525	534	10	KKSTNLVKNK 0.094179	1.7
HLA-A*01:01	1	442	450	9	VGGNYNYLY 0.094173	
0.98						
HLA-A*30:02	1	438	446	9	LDSKVGNGY 0.094139	1.4
HLA-A*02:06	1	499	507	9	GVGYQPYRV 0.094097	1.7
HLA-A*26:01	1	389	397	9	FTNVYADSF 0.094092	
0.73						
HLA-A*02:06	1	937	945	9	STASALGKL 0.094075	1.7
HLA-B*58:01	1	806	814	9	PSKPSKRSF 0.094052	1.3
HLA-A*02:01	1	492	500	9	YGFQPTYGV 0.094049	1.5
HLA-A*32:01	1	441	450	10	KVGGNYNYLY 0.093936	
0.77						
HLA-A*03:01	1	546	555	10	TGVLTESNKK 0.093902	1.6
HLA-A*24:02	1	491	500	10	SYGFQPTYGV 0.093756	
0.89						
HLA-B*53:01	1	23	32	10	QLPPAYTNSF 0.093667	
0.79						
HLA-B*58:01	1	685	694	10	ASQSIIAYTM 0.09363	1.3
HLA-A*02:01	1	759	767	9	QLNRALTGI 0.09359	1.5
HLA-B*15:01	1	211	220	10	NLVRGLPQGF 0.093482	1.7
HLA-A*02:06	1	701	709	9	SVAYSNNSI 0.093432	1.7
HLA-A*11:01	1	1261	1269	9	VLKGVKLHY 0.093302	1.5

HLA-B*08:01	1	453	461	9	FRKSNLKP 0.093246	1.3
HLA-A*30:02	1	461	470	10	FERDISTE 0.093166	1.4
HLA-A*32:01	1	895	903	9	FAMQMAYR 0.093132	
0.78						
HLA-B*44:03	1	1254	1262	9	DEDDSEPV 0.092998	
0.85						
HLA-A*02:03	1	499	507	9	GVGYPYRV 0.092927	1.6
HLA-A*02:03	1	564	573	10	RDIADTTDA 0.092883	1.6
HLA-A*02:06	1	777	785	9	EVFAQVKQ 0.092869	1.7
HLA-A*02:03	1	448	456	9	YLYRFRKS 0.092766	1.6
HLA-B*57:01	1	380	389	10	SPTKLNDF 0.092763	2.0
HLA-B*53:01	1	224	233	10	EPLVDLPI 0.092709	0.8
HLA-B*15:01	1	389	397	9	FTNVYADF 0.092674	1.7
HLA-A*02:06	1	607	615	9	VLYQGVNCT 0.092665	1.7
HLA-A*23:01	1	491	500	10	SYGFQPTY 0.092503	
0.84						
HLA-A*23:01	1	324	332	9	VRFPNITN 0.09246	
0.84						
HLA-A*23:01	1	778	786	9	VFAQVKQI 0.092432	
0.84						
HLA-A*31:01	1	671	680	10	YQTQNSPR 0.092382	2.1
HLA-A*31:01	1	367	375	9	NSASFSTFK 0.092151	2.1
HLA-A*68:02	1	690	698	9	IAYTMSLGV 0.092023	1.3
HLA-B*51:01	1	912	920	9	VLYENQKLI 0.092006	1.4
HLA-A*68:02	1	911	919	9	NVLYENQKL 0.091989	1.3
HLA-A*30:01	1	868	876	9	AQYTSALL 0.091949	1.8
HLA-B*58:01	1	255	263	9	WTAGAAAY 0.091869	1.3
HLA-A*68:02	1	1011	1019	9	RAAEIRASA 0.091842	1.3
HLA-A*11:01	1	450	459	10	YRFRKSNLK 0.091747	1.5
HLA-B*35:01	1	720	728	9	TTEILPVSM 0.091744	1.1
HLA-A*31:01	1	842	851	10	AARDLICAQ 0.091744	2.1
HLA-B*53:01	1	874	883	10	LLAGTITSG 0.091718	
0.81						
HLA-A*31:01	1	139	147	9	PFLGVYYHK 0.091717	2.1
HLA-A*02:01	1	1004	1012	9	YVTQQLIRA 0.091708	1.5
HLA-B*15:01	1	1203	1212	10	YEQYIKWPW 0.09164	1.7
HLA-A*30:02	1	729	738	10	TKTSVDCTM 0.091554	1.4
HLA-A*68:02	1	933	942	10	DSLSSTASAL 0.091553	1.3
HLA-B*57:01	1	708	717	10	SIAIPTNF 0.09154	2.1
HLA-B*57:01	1	1186	1194	9	VAKNLNESL 0.091506	2.1
HLA-A*02:01	1	940	948	9	SALGKLQDV 0.091484	1.5
HLA-B*08:01	1	865	873	9	EMIAQY TSA 0.091382	1.3
HLA-A*11:01	1	1056	1064	9	GVVFLHVTY 0.091173	1.5
HLA-A*02:06	1	708	717	10	SIAIPTNF 0.091131	1.8
HLA-A*68:02	1	655	663	9	NSYECDIPI 0.091115	1.3
HLA-A*01:01	1	484	492	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	1001	1009	9	LQTYVTQQL 0.090928	1.6
HLA-A*30:01	1	323	331	9	IVRFPNITN 0.090898	1.8
HLA-A*33:01	1	774	783	10	NTQEVFAQVK 0.090868	1.4
HLA-B*35:01	1	959	967	9	LVKQLSSNF 0.090831	1.1
HLA-A*02:03	1	1220	1228	9	GLIAIVMVT 0.09083	1.6
HLA-A*68:02	1	507	515	9	VVLSFELL 0.090822	1.3
HLA-A*30:02	1	36	44	9	VYYPDKVFR 0.090794	1.5
HLA-A*03:01	1	625	633	9	QLTPTWRVY 0.090719	1.6
HLA-A*24:02	1	812	820	9	RSFIEDLLF 0.090686	
0.91						
HLA-A*03:01	1	778	787	10	VFAQVKQIY 0.090651	1.6
HLA-A*33:01	1	813	822	10	SFIEDLLFNK 0.090509	1.4
HLA-B*40:01	1	850	858	9	QKFNGLTVL 0.09049	1.1
HLA-B*51:01	1	871	879	9	TSALLAGTI 0.090363	1.4
HLA-B*57:01	1	530	538	9	LVKNKCVNF 0.09029	2.1
HLA-A*02:03	1	201	210	10	FKIYSKHTPI 0.090134	1.6
HLA-A*30:01	1	265	273	9	GYLQPRFTL 0.090064	1.8
HLA-A*68:02	1	1028	1037	10	ECVLGQSKRV 0.089832	1.3

HLA-A*68:02	1	60	68	9	SNVTWFHAI 0.089812	1.3
HLA-B*35:01	1	494	502	9	FQPTYGVGY 0.089718	1.1
HLA-A*30:01	1	813	822	10	SFIEDLLFNK 0.089713	1.8
HLA-A*68:02	1	926	935	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*24:02	1	497	505	9	TYGVGYQPY 0.089526	
0.91						
HLA-A*26:01	1	28	36	9	YTNSFTRGV 0.089513	
0.76						
HLA-A*02:06	1	282	290	9	ITDAVDCAL 0.089403	1.8
HLA-B*57:01	1	255	263	9	WTAGAAAYY 0.089373	2.1
HLA-A*02:06	1	508	517	10	VVLSFELLHA 0.089252	1.8
HLA-B*58:01	1	708	717	10	SIAIPTNFTI 0.089145	1.4
HLA-B*15:01	1	996	1004	9	GRLQSLQTY 0.089142	1.7
HLA-B*58:01	1	212	220	9	LVRGLPQGF 0.089109	1.4
HLA-A*26:01	1	496	505	10	PTYGVGYQPY 0.089069	
0.77						
HLA-A*32:01	1	822	830	9	KVTLADAGF 0.089062	
0.82						
HLA-A*11:01	1	12	21	10	SSQCVNLTTR 0.089049	1.5
HLA-A*02:01	1	1111	1119	9	IITTDNTFV 0.088901	1.5
HLA-A*30:02	1	264	272	9	VGYLQPRTF 0.088785	1.5
HLA-A*23:01	1	83	92	10	VLPFNDGVYF 0.088747	
0.87						
HLA-B*08:01	1	324	332	9	VRFPNITNL 0.088626	1.3
HLA-A*11:01	1	88	97	10	DGVYFASTEK 0.088602	1.5
HLA-B*07:02	1	202	210	9	KIYSKHTPI 0.088574	1.3
HLA-A*02:03	1	609	617	9	YQGVNCTEV 0.088532	1.6
HLA-A*01:01	1	258	266	9	GAAAYYVGY 0.088523	1.1
HLA-A*02:03	1	604	612	9	QVAVLYQGV 0.088455	1.6
HLA-A*03:01	1	631	639	9	RVYSTGSNV 0.088429	1.7
HLA-A*26:01	1	958	967	10	TLVKQLSSNF 0.08837	
0.77						
HLA-A*02:06	1	769	778	10	VEQDKNTQEV 0.088291	1.8
HLA-A*02:06	1	226	235	10	LVDLPIGINI 0.088285	1.8
HLA-A*68:01	1	803	812	10	LPDPSKPSKR 0.088274	2.7
HLA-A*03:01	1	30	38	9	NSFTRGVYY 0.088212	1.7
HLA-B*07:02	1	212	220	9	LVRGLPQGF 0.088189	1.3
HLA-A*02:03	1	865	873	9	EMIAQY TSA 0.088175	1.6
HLA-A*02:01	1	709	717	9	IAIPTNFTI 0.088155	1.5
HLA-A*30:02	1	479	487	9	GVKGFNCYF 0.088099	1.5
HLA-B*40:01	1	294	303	10	SETKCTLKSF 0.088083	1.1
HLA-A*32:01	1	811	820	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	947	956	10	DVVNQNAQAL 0.087753	
0.77						
HLA-A*24:02	1	916	924	9	NQKLIANQF 0.087728	
0.92						
HLA-A*02:01	1	323	332	10	IVRFPNITNL 0.087718	1.5
HLA-A*02:03	1	1126	1134	9	VIGIVNNTV 0.08769	1.6
HLA-A*23:01	1	916	924	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	NSFTRGVYY 0.087351	
0.85						
HLA-A*30:01	1	555	564	10	KFLPFQQFGR 0.087226	1.8
HLA-A*30:01	1	547	555	9	GVLTESNKK 0.08722	1.8
HLA-A*02:01	1	1178	1186	9	KEIDRLNEV 0.087213	1.5
HLA-A*32:01	1	301	309	9	KSFTVEKGI 0.087125	

0.83						
HLA-B*35:01	1	267	276	10	LQPRTFLLKY 0.086989	1.2
HLA-A*68:01	1	802	811	10	ILPDPSKPSK 0.086959	2.7
HLA-A*02:06	1	758	767	10	TQLNRALTGI 0.086895	1.8
HLA-A*31:01	1	490	498	9	QSYGFQPTY 0.086846	2.2
HLA-B*57:01	1	95	104	10	TEKSNIIRGW 0.086793	2.1
HLA-A*02:03	1	1261	1270	10	VLKGVKLHYT 0.086618	1.6
HLA-A*68:02	1	720	728	9	TTEILPVSM 0.086525	1.3
HLA-A*30:02	1	77	86	10	KRFANPVLPF 0.086497	1.5
HLA-A*02:06	1	168	176	9	FEYVSPFL 0.086442	1.8
HLA-A*26:01	1	861	870	10	LLTDEMIAQY 0.086359	
0.78						
HLA-A*02:01	1	499	507	9	GVGYQPYRV 0.086323	1.5
HLA-A*32:01	1	358	366	9	CVADYSVLY 0.086206	
0.84						
HLA-A*23:01	1	581	589	9	ILDITPCSF 0.086157	0.9
HLA-A*30:02	1	1261	1270	10	VLKGVKLHYT 0.086153	1.5
HLA-B*08:01	1	940	948	9	SALGKLQDV 0.086133	1.4
HLA-A*32:01	1	1091	1099	9	VFVSNQTHW 0.086117	
0.84						
HLA-B*15:01	1	109	117	9	TLDSKTQSL 0.085986	1.8
HLA-B*53:01	1	358	366	9	CVADYSVLY 0.085907	
0.86						
HLA-A*30:01	1	1045	1053	9	HMSFPQSA 0.085827	1.8
HLA-A*02:01	1	1126	1134	9	VIGIVNNTV 0.085778	1.5
HLA-B*57:01	1	906	914	9	IGVTQNVLY 0.0857	2.1
HLA-A*30:01	1	62	70	9	VTWFHAIHV 0.085654	1.8
HLA-A*01:01	1	301	310	10	KSFTVEKGIY 0.085632	1.1
HLA-A*02:01	1	609	617	9	YQGVNCTEV 0.085591	1.5
HLA-B*53:01	1	789	797	9	PPIKDFGGF 0.085533	
0.87						
HLA-A*11:01	1	730	738	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	293	301	9	LSETKCTLK 0.085411	1.6
HLA-A*01:01	1	266	274	9	YLQPRTFLL 0.085329	1.1
HLA-A*32:01	1	1168	1176	9	GINASVVNI 0.085324	
0.84						
HLA-A*02:06	1	934	942	9	SLSSTASAL 0.085288	1.9
HLA-B*35:01	1	788	797	10	TPPIKDFGGF 0.085243	1.2
HLA-A*03:01	1	187	195	9	KNLREFVFK 0.085164	1.7
HLA-A*68:02	1	430	438	9	VIAWNSNLI 0.08516	1.4
HLA-B*08:01	1	889	897	9	AALQIPFAM 0.085134	1.4
HLA-B*51:01	1	461	469	9	FERDISTEI 0.085061	1.5
HLA-A*23:01	1	185	194	10	NFKNLREFV 0.085039	
0.91						
HLA-A*02:06	1	1141	1149	9	ELDSFKEEL 0.085012	1.9
HLA-A*33:01	1	345	354	10	ASVYAWNRRK 0.084921	1.5
HLA-B*15:01	1	362	371	10	YSVLYNSASF 0.084899	1.8
HLA-A*02:01	1	849	858	10	AQKFNGTLVL 0.084818	1.5
HLA-B*35:01	1	212	220	9	LVRGLPQGF 0.084809	1.2
HLA-A*32:01	1	1110	1118	9	QIITDNTF 0.084663	
0.85						
HLA-A*68:02	1	1045	1053	9	HMSFPQSA 0.084518	1.4
HLA-B*57:01	1	161	170	10	SSANNCTFEY 0.084504	2.2
HLA-A*23:01	1	54	62	9	LFLPFFSNV 0.084469	
0.91						
HLA-A*68:02	1	170	179	10	YVSQPFLMDL 0.084409	1.4
HLA-B*40:01	1	1178	1187	10	KEIDRLNEVA 0.084381	1.1
HLA-A*11:01	1	1234	1242	9	MTSCCCLK 0.084378	1.6
HLA-A*01:01	1	462	470	9	ERDISTEII 0.08437	1.1
HLA-A*02:06	1	1212	1221	10	YIWLGFIAGL 0.084223	1.9
HLA-A*23:01	1	548	556	9	VLTESNKKF 0.084155	
0.91						
HLA-B*58:01	1	1201	1209	9	GKYEQYIKW 0.084108	1.4
HLA-B*08:01	1	959	967	9	LVKQLSSNF 0.084059	1.4



HLA-B*58:01	1	822	830	9	KVTLADAGF 0.084023	1.4
HLA-A*68:02	1	208	216	9	TPINLVRGL 0.083939	1.4
HLA-A*68:02	1	259	267	9	AAAYYVGYL 0.08391	1.4
HLA-B*57:01	1	891	899	9	LQIPFAMQM 0.08391	2.2
HLA-A*24:02	1	554	562	9	KKFLPFQQF 0.083838	
0.94						
HLA-A*32:01	1	83	92	10	VLPFNDGVYF 0.083809	
0.86						
HLA-A*02:03	1	965	973	9	SNFGAISSV 0.083799	1.7
HLA-A*26:01	1	211	220	10	NLVRGLPQGF 0.083773	
0.81						
HLA-A*68:01	1	484	492	9	NCYFPLQSY 0.083731	2.8
HLA-A*26:01	1	895	903	9	FAMQMAYRF 0.083728	
0.81						
HLA-A*03:01	1	774	783	10	NTQEVFAQVK 0.083723	1.7
HLA-B*58:01	1	150	159	10	KSWMESEFRV 0.083701	1.4
HLA-B*53:01	1	580	589	10	EILDITPCSF 0.083647	
0.88						
HLA-A*24:02	1	502	510	9	YQPYRVVVL 0.083587	
0.94						
HLA-A*30:02	1	686	694	9	SQSIIAYTM 0.083497	1.6
HLA-A*68:02	1	266	274	9	YLQPRTFLL 0.083448	1.4
HLA-A*30:01	1	781	789	9	QVKQIYKTP 0.083432	1.9
HLA-A*30:01	1	308	316	9	GIYQTSNFR 0.083379	1.9
HLA-B*15:01	1	895	903	9	FAMQMAYRF 0.083373	1.8
HLA-A*68:02	1	770	778	9	EQDKNTQEV 0.08327	1.4
HLA-A*30:02	1	581	589	9	ILDITPCSF 0.083247	1.6
HLA-A*02:03	1	1216	1225	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	547	555	9	GVLTESNKK 0.082858	2.8
HLA-A*68:02	1	1118	1126	9	FVSGNCDVV 0.082735	1.4
HLA-A*26:01	1	1047	1055	9	MSFPQSAPH 0.082712	
0.82						
HLA-B*57:01	1	730	739	10	KTSVDCTMYI 0.082694	2.2
HLA-A*02:03	1	777	785	9	EVFAQVKQI 0.082661	1.7
HLA-A*33:01	1	12	21	10	SSQCVNLTR 0.082617	1.5
HLA-A*68:01	1	266	275	10	YLQPRTFLLK 0.082492	2.8
HLA-A*31:01	1	556	564	9	FLPFQQFGR 0.082394	2.3
HLA-B*58:01	1	47	55	9	VLHSTQDLF 0.082358	1.4
HLA-A*11:01	1	775	783	9	TQEVFAQVK 0.082355	1.6
HLA-B*58:01	1	719	728	10	VTTEILPVSM 0.082279	1.4
HLA-A*02:01	1	918	927	10	KLIANQFNSA 0.082256	1.6
HLA-A*33:01	1	334	343	10	PFGEVFNATR 0.082203	1.6
HLA-A*30:01	1	672	680	9	QTQTNSPRR 0.082164	1.9
HLA-A*11:01	1	525	534	10	KKSTNLVKNK 0.082118	1.6
HLA-B*07:02	1	8	16	9	LPLVSSQCV 0.082048	1.3
HLA-B*57:01	1	366	374	9	YNSASFSTF 0.081995	2.2
HLA-A*68:02	1	638	647	10	NVFQTRAGCL 0.081987	1.4
HLA-A*11:01	1	345	354	10	ASVYAWNRKR 0.081972	1.6
HLA-B*53:01	1	889	897	9	AALQIPFAM 0.081907	
0.89						
HLA-A*31:01	1	894	902	9	PFAMQMAYR 0.081878	2.3
HLA-B*15:01	1	868	876	9	AQYTSALLA 0.08184	1.8
HLA-B*44:03	1	1147	1156	10	EELDKYFKNH 0.081679	
0.93						
HLA-A*31:01	1	397	405	9	FVIRGDEVR 0.081671	2.3
HLA-A*32:01	1	1172	1180	9	SVVNIQKEI 0.081541	
0.89						
HLA-A*02:01	1	868	876	9	AQYTSALLA 0.081449	1.6
HLA-A*30:01	1	270	278	9	RTFLLKYNE 0.08123	1.9
HLA-B*40:01	1	574	582	9	RDPQTLEIL 0.081177	1.1
HLA-A*01:01	1	83	91	9	VLPFNDGVY 0.081021	1.1
HLA-A*68:01	1	439	448	10	DSKVGGNYY 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	1	1064	1072	9	YVPAQEKNF 0.080527	
0.94						
HLA-B*15:01	1	441	450	10	KVGGNYNYLY 0.080436	1.9
HLA-B*58:01	1	247	255	9	TPGDSSSGW 0.080364	1.4
HLA-B*15:01	1	1064	1072	9	YVPAQEKNF 0.080325	1.9
HLA-A*68:02	1	535	543	9	CVNFNFNGL 0.08028	1.4
HLA-B*53:01	1	484	492	9	NCYFPLQSY 0.080269	0.9
HLA-B*51:01	1	1048	1057	10	SFPQSAPHG 0.080248	1.6
HLA-A*68:02	1	1124	1133	10	DVVIGIVNNT 0.080238	1.4
HLA-A*24:02	1	548	556	9	VLTESNKKF 0.080213	
0.97						
HLA-A*01:01	1	137	145	9	NDPFLGVYY 0.080147	1.2
HLA-B*57:01	1	861	870	10	LLTDEMIAQY 0.080092	2.2
HLA-A*01:01	1	1195	1203	9	IDLQELGKY 0.080022	1.2
HLA-B*40:01	1	1140	1149	10	PELDSFKEEL 0.079978	1.1
HLA-B*35:01	1	891	899	9	LQIPFAMQM 0.079929	1.2
HLA-A*68:02	1	583	592	10	DITPCSFGGV 0.079778	1.4
HLA-A*30:01	1	451	460	10	RLFRKSNLKP 0.0797	2.0
HLA-A*23:01	1	375	384	10	KCYGVSP TKL 0.079643	
0.95						
HLA-B*57:01	1	548	556	9	VLTESNKKF 0.079553	2.2
HLA-B*40:01	1	770	778	9	EQDKNTQEV 0.079549	1.1
HLA-A*11:01	1	161	170	10	SSANNCTFEY 0.079331	1.6
HLA-A*02:03	1	814	823	10	FIEDLLFNKV 0.079304	1.8
HLA-A*24:02	1	1092	1100	9	FVSNNGTHWF 0.079257	
0.98						
HLA-A*02:06	1	158	166	9	RVYSSANNC 0.079134	2.0
HLA-A*02:03	1	1220	1229	10	GLIAIVMVTI 0.079018	1.8
HLA-B*08:01	1	459	467	9	KPFERDIST 0.078805	1.5
HLA-B*07:02	1	1053	1061	9	APHGVVFLH 0.078786	1.3
HLA-B*58:01	1	694	702	9	MSLGVENS 0.078759	1.5
HLA-A*30:01	1	641	650	10	QTRAGCLIGA 0.078753	2.0
HLA-A*02:03	1	47	56	10	VLHSTQDLFL 0.078595	1.8
HLA-A*26:01	1	825	834	10	LADAGFIKQY 0.078576	
0.85						
HLA-A*02:06	1	1000	1009	10	SLQTYVTQQL 0.078344	2.0
HLA-B*35:01	1	1055	1064	10	HGVVFLHVTY 0.078308	1.2
HLA-B*57:01	1	694	702	9	MSLGVENS 0.078299	2.2
HLA-B*07:02	1	317	326	10	VQPTESIVRF 0.078161	1.3
HLA-A*26:01	1	479	487	9	GVKGFNCYF 0.078121	
0.86						
HLA-B*15:01	1	1078	1086	9	ICHDGKAHF 0.07801	1.9
HLA-A*30:02	1	363	371	9	SVLYNSASF 0.077961	1.6
HLA-A*68:02	1	587	595	9	CSFGGVSVI 0.077939	1.4
HLA-A*32:01	1	56	64	9	LPFFSNVTW 0.077874	
0.92						
HLA-A*30:02	1	1182	1190	9	RLNEVAKNL 0.077871	1.6
HLA-A*32:01	1	715	723	9	FTISVTTEI 0.077806	
0.92						
HLA-B*44:02	1	815	823	9	IEDLLFNKV 0.077801	
0.84						
HLA-A*02:03	1	817	826	10	DLLFNKVTLA 0.077714	1.8
HLA-A*68:01	1	1173	1182	10	VVNIQKEIDR 0.077697	2.9
HLA-A*68:02	1	936	945	10	SSTASALGKL 0.077689	1.5
HLA-A*24:02	1	1137	1145	9	PLQPELDSF 0.077612	
0.99						
HLA-A*26:01	1	622	630	9	HADQLTPTW 0.077516	
0.86						
HLA-A*02:01	1	1001	1009	9	LQTYVTQQL 0.077489	1.6
HLA-B*58:01	1	959	967	9	LVKQLSSNF 0.077378	1.5
HLA-A*68:01	1	526	534	9	KSTNLVKNK 0.07719	2.9
HLA-A*02:03	1	701	709	9	SVAYSNNSI 0.077144	1.8
HLA-A*02:03	1	770	778	9	EQDKNTQEV 0.077128	1.8
HLA-A*31:01	1	298	307	10	CTLKSFTVEK 0.077049	2.4

HLA-B*15:01	1	822	830	9	KVTLADAGF	0.076949	1.9
HLA-A*32:01	1	1092	1100	9	FVSNQTHWF	0.076869	
0.93							
HLA-A*33:01	1	367	375	9	NSASFSTFK	0.076827	1.6
HLA-A*11:01	1	50	58	9	STQDLFLPF	0.076739	1.7
HLA-B*58:01	1	1205	1214	10	QYIKWPWYIW	0.076729	1.5
HLA-A*11:01	1	988	997	10	VQIDRLITGR	0.076681	1.7
HLA-B*07:02	1	83	92	10	VLPFNDGVYF	0.076666	1.4
HLA-B*08:01	1	895	903	9	FAMQMAYRF	0.076618	1.5
HLA-B*58:01	1	96	104	9	EKSNIIRGW	0.076599	1.5
HLA-B*58:01	1	812	821	10	RSFIEDLLFN	0.076581	1.5
HLA-B*08:01	1	523	531	9	GPKKSTNLV	0.076571	1.5
HLA-A*33:01	1	671	679	9	YQTQTNSPR	0.076568	1.6
HLA-A*26:01	1	600	608	9	NTSNQVAVL	0.076523	
0.87							
HLA-B*58:01	1	192	200	9	FVFKNIDGY	0.076511	1.5
HLA-B*35:01	1	489	498	10	LQSYGFQPTY	0.076466	1.3
HLA-B*53:01	1	1206	1214	9	YIKWPWYIW	0.07638	
0.94							
HLA-A*02:01	1	1220	1228	9	GLIAIVMVT	0.076364	1.6
HLA-B*58:01	1	362	371	10	YSVLYNSASF	0.076328	1.5
HLA-B*07:02	1	23	32	10	QLPPAYTNSF	0.07632	1.4
HLA-B*57:01	1	183	192	10	QGNFKNREF	0.076292	2.3
HLA-A*32:01	1	684	692	9	VASQSIIAY	0.076179	
0.94							
HLA-A*02:03	1	689	698	10	IIAYTMSLGV	0.076152	1.8
HLA-A*03:01	1	989	997	9	QIDRLITGR	0.076138	1.8
HLA-A*02:06	1	339	347	9	FNATRFASV	0.076085	2.0
HLA-A*30:01	1	307	316	10	KGITYQTSNFR	0.076077	2.1
HLA-B*57:01	1	247	255	9	TPGDSSSGW	0.076062	2.3
HLA-A*32:01	1	1134	1142	9	VYDPLQPEL	0.076056	
0.94							
HLA-A*68:01	1	335	343	9	FGEVFNATR	0.075937	2.9
HLA-A*30:02	1	51	59	9	TQDLFLPFF	0.075771	1.7
HLA-A*30:02	1	324	332	9	VRFPNITNL	0.075728	1.7
HLA-A*24:02	1	237	245	9	RFQTLHRSY	0.075697	1.0
HLA-B*08:01	1	1189	1197	9	NLNESLIDL	0.075671	1.5
HLA-B*08:01	1	973	981	9	VLNDILSRL	0.075645	1.5
HLA-A*02:03	1	964	973	10	SSNFGAISSV	0.075553	1.8
HLA-A*11:01	1	254	263	10	GWTAGAAAYY	0.075479	1.7
HLA-B*15:01	1	826	834	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	805	814	10	DPSKPSKRSF	0.075268	1.7
HLA-A*02:06	1	930	939	10	KIQDLSLSTA	0.075268	2.1
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	1192	1200	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	325	333	9	RFPNITNLC	0.074831	1.1
HLA-B*51:01	1	985	993	9	EAEVQIDRL	0.074765	1.7
HLA-B*57:01	1	363	371	9	SVLYNSASF	0.074605	2.3
HLA-B*08:01	1	232	241	10	GINITRFQTL	0.074576	1.6
HLA-B*15:01	1	336	344	9	GEVFNATRF	0.074485	2.0
HLA-B*08:01	1	711	719	9	IPTNFTISV	0.074477	1.6
HLA-A*30:01	1	473	481	9	GSTPCNGVK	0.074424	2.1
HLA-B*40:01	1	502	510	9	YQPYRVVVL	0.074392	1.2
HLA-B*15:01	1	161	170	10	SSANNCTFEY	0.074371	2.0
HLA-A*02:06	1	622	630	9	HADQLTPTW	0.074364	2.1
HLA-A*30:01	1	682	690	9	RSVASQSII	0.074348	2.1
HLA-A*68:01	1	403	411	9	EVQRQIAPGQ	0.074231	2.9
HLA-A*30:02	1	50	59	10	STQDLFLPFF	0.074215	1.7
HLA-A*68:02	1	711	719	9	IPTNFTISV	0.074184	1.5
HLA-A*30:01	1	261	270	10	AYYVGYLQPR	0.074061	2.1
HLA-A*32:01	1	307	315	9	KGITYQTSNF	0.074035	

0.96							
HLA-A*01:01	1	51	59	9	TQDLFLPFF 0.074009	1.2	
HLA-B*53:01	1	422	430	9	LPDDFTGCV 0.074003		
0.96							
HLA-B*44:02	1	770	779	10	EQDKNTQEVF 0.073999		
0.86							
HLA-A*32:01	1	109	117	9	TLDSKTQSL 0.073959		
0.96							
HLA-A*30:01	1	206	214	9	KHTPINLVR 0.073932	2.1	
HLA-A*02:06	1	862	870	9	LTDEMIAQY 0.07386	2.1	
HLA-A*24:02	1	144	153	10	YYHKNNKSWM 0.073831	1.1	
HLA-A*30:02	1	439	448	10	DSKVGGNVNY 0.073733	1.7	
HLA-A*02:03	1	265	274	10	GYLQPRTFLL 0.073723	1.8	
HLA-A*68:01	1	141	150	10	LGVYYHKNNK 0.073697	2.9	
HLA-A*32:01	1	126	135	10	VVIKVECFQF 0.073676		
0.96							
HLA-A*02:03	1	457	465	9	NLKPFERDI 0.073662	1.8	
HLA-A*30:02	1	997	1005	9	RLQSLQTYV 0.073649	1.7	
HLA-A*68:02	1	817	825	9	DLLFNKVTL 0.073481	1.5	
HLA-A*26:01	1	865	874	10	EMIAQYTSAL 0.073481		
0.89							
HLA-A*68:01	1	1055	1064	10	HGVVFLHVTY 0.073432	3.0	
HLA-A*02:06	1	911	919	9	NVLYENQKL 0.073308	2.1	
HLA-A*24:02	1	1038	1046	9	DFCGKGYHL 0.073217	1.1	
HLA-A*02:01	1	1125	1134	10	VVIGIVNNTV 0.073183	1.7	
HLA-A*02:06	1	888	896	9	GAALQIPFA 0.073144	2.1	
HLA-A*02:06	1	1011	1019	9	RAAEIRASA 0.073096	2.1	
HLA-A*33:01	1	622	631	10	HADQLTPTWR 0.073061	1.7	
HLA-B*57:01	1	184	192	9	GNFKNLREF 0.073011	2.3	
HLA-B*35:01	1	624	633	10	DQLTPTWRVY 0.07299	1.3	
HLA-B*07:02	1	291	300	10	DPLSETKCTL 0.072963	1.4	
HLA-B*08:01	1	414	422	9	NIADYNYKL 0.072916	1.6	
HLA-A*68:02	1	527	536	10	STNLVKNKCV 0.072892	1.5	
HLA-A*01:01	1	268	276	9	QPRTFLLKY 0.07289	1.2	
HLA-B*57:01	1	411	420	10	QTGNIADYNY 0.072802	2.3	
HLA-A*33:01	1	779	787	9	FAQVKQIYK 0.072667	1.7	
HLA-B*57:01	1	375	384	10	KCYGVSPTKL 0.072638	2.3	
HLA-A*02:01	1	221	229	9	SALEPLVDL 0.072588	1.7	
HLA-B*07:02	1	889	897	9	AALQIPFAM 0.072532	1.4	
HLA-A*30:01	1	673	682	10	TQTNSPRRAR 0.07246	2.1	
HLA-B*40:01	1	1001	1009	9	LQTYVTQQL 0.072356	1.2	
HLA-B*53:01	1	50	58	9	STQDLFLPF 0.072309		
0.99							
HLA-A*01:01	1	1134	1142	9	VYDPLQPEL 0.072288	1.2	
HLA-A*30:02	1	266	274	9	YLQPRTFLL 0.072188	1.7	
HLA-B*35:01	1	333	341	9	CPFGEVFNA 0.072083	1.3	
HLA-A*30:01	1	75	84	10	GTKRFANPVL 0.072039	2.2	
HLA-A*11:01	1	258	266	9	GAAAYVGY 0.072034	1.7	
HLA-B*57:01	1	778	786	9	VFAQVKQIY 0.072025	2.4	
HLA-A*68:02	1	1221	1229	9	LIAIVMVTI 0.072014	1.5	
HLA-B*53:01	1	38	46	9	YDPKVFRSS 0.071906		
0.99							
HLA-A*26:01	1	263	272	10	YVGYLQPRTF 0.071892		
0.91							
HLA-A*30:01	1	301	309	9	KSFTVEKGI 0.071779	2.2	
HLA-A*68:01	1	1016	1025	10	RASANLAATK 0.071699	3.0	
HLA-A*02:01	1	266	275	10	YLQPRTFLLK 0.07169	1.7	
HLA-B*53:01	1	803	811	9	LPDPSKPSK 0.071682		
0.99							
HLA-A*03:01	1	631	640	10	RVYSTGSNVF 0.071674	1.8	
HLA-A*24:02	1	1213	1221	9	IWLGFIAGL 0.071648	1.1	
HLA-B*58:01	1	1110	1118	9	QIITDNTF 0.071618	1.6	
HLA-A*01:01	1	777	786	10	EVFAQVKQIY 0.071604	1.2	
HLA-A*02:06	1	220	229	10	FSALEPLVDL 0.071597	2.1	
HLA-B*53:01	1	812	820	9	RSFIEDLLF 0.071593		
0.99							

HLA-A*31:01	1	89	97	9	GVYFASTEK 0.071535	2.5
HLA-A*02:06	1	961	970	10	KQLSSNFGAI 0.071511	2.1
HLA-B*53:01	1	422	431	10	LPDDFTGCVI 0.071472	
0.99						
HLA-B*44:03	1	815	823	9	IEDLLFNKV 0.071437	1.0
HLA-A*68:02	1	710	719	10	AIPTNFTISV 0.07141	1.5
HLA-A*03:01	1	1194	1202	9	LIDLQELGK 0.071329	1.8
HLA-A*32:01	1	866	874	9	MIAQYTSAL 0.071272	
0.98						
HLA-A*02:06	1	170	179	10	YVSQPFLMDL 0.071261	2.1
HLA-A*68:01	1	778	787	10	VFAQVKQIYK 0.071257	3.0
HLA-A*68:02	1	599	607	9	TNTSNQVAV 0.071173	1.5
HLA-A*68:02	1	1133	1141	9	TVYDPLQPE 0.071172	1.5
HLA-A*68:02	1	871	879	9	TSALLAGTI 0.071098	1.5
HLA-B*58:01	1	1078	1086	9	ICHDGKAHF 0.070984	1.6
HLA-B*08:01	1	318	326	9	QPTESIVRF 0.070937	1.6
HLA-B*57:01	1	496	505	10	PTYGVGYQPY 0.070907	2.4
HLA-B*51:01	1	7	16	10	LLPLVSSQCV 0.070895	1.7
HLA-A*02:06	1	927	935	9	AIGKIQDSL 0.070875	2.1
HLA-B*58:01	1	46	55	10	SVLHSTQDLF 0.070855	1.6
HLA-A*30:02	1	339	348	10	FNATRFASVY 0.070844	1.8
HLA-A*68:02	1	878	887	10	TITSGWTFGA 0.070809	1.6
HLA-A*33:01	1	971	980	10	SSVLNDILSR 0.070802	1.7
HLA-A*68:02	1	154	163	10	ESEFRVYSSA 0.070762	1.6
HLA-B*51:01	1	596	605	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	676	684	9	NSPRRARSV 0.070403	1.8
HLA-B*15:01	1	1090	1099	10	GVFVSNGTHW 0.070388	2.0
HLA-A*33:01	1	1080	1088	9	HDGKAHFPR 0.07036	1.7
HLA-A*32:01	1	948	956	9	VVNQNAQAL 0.070268	
0.99						
HLA-B*08:01	1	522	530	9	CGPKKSTNL 0.070241	1.6
HLA-A*30:02	1	237	246	10	RFQTLHRSYL 0.070219	1.8
HLA-B*51:01	1	742	750	9	DSTECSNLL 0.070177	1.8
HLA-B*15:01	1	253	262	10	SGWTAGAAAY 0.070169	2.0
HLA-B*15:01	1	195	204	10	KNIDGYFKIY 0.070133	2.0
HLA-A*02:01	1	857	866	10	VLPLLLTDEM 0.070091	1.7
HLA-A*26:01	1	483	492	10	FNCYFPLQSY 0.070083	
0.93						
HLA-A*23:01	1	331	339	9	NLCPFGEVF 0.070067	1.1
HLA-A*68:01	1	1056	1064	9	GVVFLHVTY 0.070066	3.0
HLA-A*02:06	1	988	996	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	366	374	9	YNSASFSTF 0.069645	1.6
HLA-A*02:06	1	759	767	9	QLNRALTGI 0.069537	2.2
HLA-A*31:01	1	455	464	10	KSNLKPFFERD 0.069478	2.6
HLA-A*68:02	1	75	83	9	GTKRFANPV 0.069443	1.6
HLA-A*02:03	1	690	698	9	IAYTMSLGV 0.069415	1.9
HLA-A*23:01	1	1038	1046	9	DFCGKGYHL 0.069386	1.1
HLA-A*02:03	1	1118	1126	9	FVSGNCDVV 0.069385	1.9
HLA-A*30:02	1	973	981	9	VLNDILSRL 0.069362	1.8
HLA-A*31:01	1	622	631	10	HADQLTPTWR 0.069322	2.6
HLA-B*08:01	1	457	465	9	NLKPFFERDI 0.06931	1.7
HLA-B*57:01	1	822	830	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-A*68:02	1	603	612	10	NQVAVLYQGV 0.069161	1.6
HLA-B*40:01	1	461	470	10	FERDISTEIIY 0.069085	1.2
HLA-A*31:01	1	1205	1213	9	QYIKWPWYI 0.069034	2.6
HLA-A*23:01	1	1092	1100	9	FVSNGTHWF 0.069002	1.1
HLA-A*33:01	1	316	325	10	RVQPTESIVR 0.068996	1.8
HLA-B*15:01	1	1098	1106	9	HWFVTQRNF 0.068978	2.1

HLA-A*30:01	1	978	986	9	LSRLDKVEA 0.068956	2.2
HLA-B*40:01	1	891	899	9	LQIPFAMQM 0.068942	1.2
HLA-A*01:01	1	601	610	10	TSNQVAVLYQ 0.068861	1.3
HLA-A*68:02	1	109	117	9	TLDSKTQSL 0.06884	1.6
HLA-B*58:01	1	581	589	9	ILDITPCSF 0.068776	1.6
HLA-A*32:01	1	102	110	9	RGWIFGTTL 0.068382	1.1
HLA-A*68:02	1	1092	1100	9	FVSNNGTHWF 0.068358	1.6
HLA-B*53:01	1	318	327	10	QPTESIVRFP 0.068311	1.1
HLA-A*68:01	1	13	21	9	SQCVNLTR 0.068297	3.1
HLA-B*51:01	1	710	719	10	AIPTNFTISV 0.068276	1.8
HLA-B*51:01	1	268	276	9	QPRTFLLKY 0.068267	1.8
HLA-A*01:01	1	906	914	9	IGVTQNVLY 0.068215	1.3
HLA-A*68:02	1	708	716	9	SIIPTNFT 0.068188	1.6
HLA-A*32:01	1	875	883	9	LAGTITSGW 0.068117	1.1
HLA-B*15:01	1	437	446	10	NLDSKVGNY 0.068063	2.1
HLA-A*02:03	1	1111	1119	9	IITTDNTFV 0.067991	1.9
HLA-B*51:01	1	817	825	9	DLLFNKVTL 0.067947	1.8
HLA-A*30:01	1	366	375	10	YNSASFSTFK 0.067895	2.3
HLA-A*30:01	1	1002	1010	9	QTYVTQQLI 0.067802	2.3
HLA-B*53:01	1	425	433	9	DFTGCVIAW 0.067792	1.1
HLA-A*01:01	1	412	420	9	TGNIADYNY 0.067785	1.3
HLA-A*02:06	1	976	984	9	DILSRLDKV 0.067781	2.2
HLA-A*02:06	1	897	906	10	MQMAYRFNGI 0.067771	2.2
HLA-B*08:01	1	622	630	9	HADQLTPTW 0.06773	1.7
HLA-A*68:01	1	935	944	10	LSSTASALGK 0.067705	3.1
HLA-B*58:01	1	548	556	9	VLTESNKKF 0.067677	1.6
HLA-A*33:01	1	30	38	9	NSFTRGVVY 0.067628	1.8
HLA-A*30:01	1	500	508	9	VGYPYRVV 0.06761	2.3
HLA-A*26:01	1	474	483	10	STPCNGVKGF 0.067588	
0.96						
HLA-B*58:01	1	368	377	10	SASFSTFKCY 0.067404	1.6
HLA-B*15:01	1	748	756	9	NLLLQYGSF 0.067401	2.1
HLA-A*30:02	1	622	630	9	HADQLTPTW 0.067371	1.8
HLA-A*03:01	1	634	643	10	STGSNVFQTR 0.067264	1.9
HLA-B*15:01	1	800	808	9	SQILPDPSK 0.067207	2.1
HLA-A*30:02	1	1195	1203	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	627	635	9	TPTWRVYST 0.067088	1.8
HLA-A*23:01	1	709	717	9	IAIPTNFTI 0.066898	1.1
HLA-A*32:01	1	97	106	10	KSNIIRGWIF 0.066886	1.1
HLA-B*51:01	1	490	498	9	QSYGFQPTY 0.06681	1.8
HLA-B*51:01	1	684	692	9	VASQSIIAY 0.066765	1.8
HLA-A*68:01	1	764	773	10	LTGIAVEQDK 0.066756	3.1
HLA-B*15:01	1	551	559	9	ESNKKFLPF 0.066733	2.1
HLA-A*24:02	1	331	339	9	NLCPFGEVF 0.066719	1.1
HLA-B*07:02	1	422	430	9	LPDDFTGCV 0.066679	1.5
HLA-A*01:01	1	624	633	10	DQLTPTWRVY 0.066657	1.3
HLA-A*30:01	1	1200	1208	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	873	881	9	ALLAGTITS 0.066405	2.2
HLA-B*58:01	1	263	272	10	YVGYLQPRTF 0.066331	1.6
HLA-B*58:01	1	1056	1064	9	GVVFLHVTY 0.066309	1.6
HLA-B*57:01	1	1098	1106	9	HWFVTQRNF 0.066303	2.5
HLA-B*35:01	1	221	229	9	SALEPLVDL 0.066247	1.4
HLA-B*57:01	1	554	562	9	KKFLPFQQF 0.066183	2.5
HLA-A*30:01	1	501	509	9	GYQPYRVV 0.066092	2.3
HLA-B*35:01	1	459	467	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	316	324	9	RVQPTESIV 0.066042	1.9
HLA-A*02:03	1	818	827	10	LLFNKVTLAD 0.065868	1.9
HLA-A*11:01	1	862	870	9	LTDEMIAQY 0.065845	1.8
HLA-B*53:01	1	877	885	9	GTITSGWTF 0.06581	1.1
HLA-A*30:01	1	44	52	9	RSSVLHSTQ 0.065808	2.3

HLA-A*32:01	1	530	538	9	LVKNKCVNF 0.065777	1.1
HLA-A*30:01	1	992	1001	10	RLITGRLQSL 0.065768	2.3
HLA-B*40:01	1	277	286	10	NENGTITDAV 0.06576	1.2
HLA-B*57:01	1	1055	1064	10	HGVVFLHVTY 0.065604	2.5
HLA-A*68:01	1	566	574	9	IADTTDAVR 0.06556	3.1
HLA-B*57:01	1	970	978	9	ISSVLNDIL 0.065513	2.5
HLA-A*30:02	1	136	145	10	CNDPFLGVYY 0.065468	1.9
HLA-A*68:02	1	341	349	9	ATRFASVYA 0.065465	1.6
HLA-A*23:01	1	363	371	9	SVLYNSASF 0.065448	1.1
HLA-A*68:01	1	803	811	9	LPDPSKPSK 0.06539	3.1
HLA-A*26:01	1	50	59	10	STQDLFLPFF 0.065307	
0.99						
HLA-A*23:01	1	1090	1099	10	GVFVSNNGTHW 0.065292	1.1
HLA-A*30:01	1	13	21	9	SQCVNLTR 0.065288	2.4
HLA-A*23:01	1	1137	1145	9	PLQPELDSF 0.065225	1.1
HLA-B*35:01	1	632	640	9	VYSTGSNVF 0.065153	1.4
HLA-A*68:02	1	19	27	9	TTRTQLPPA 0.065112	1.6
HLA-B*57:01	1	1110	1118	9	QIITTDNTF 0.065079	2.5
HLA-A*24:02	1	1090	1099	10	GVFVSNNGTHW 0.065076	1.2
HLA-A*11:01	1	413	421	9	GNIADYNYK 0.065067	1.8
HLA-A*68:01	1	707	715	9	NSIAIPTNF 0.065055	3.1
HLA-B*44:03	1	624	633	10	DQLTPTWRVY 0.064977	1.1
HLA-A*31:01	1	205	214	10	SKHTPINLVR 0.064964	2.7
HLA-B*15:01	1	883	891	9	WTFGAGAAL 0.064962	2.1
HLA-B*08:01	1	1133	1142	10	TVYDPLQPEL 0.0649	1.7
HLA-B*58:01	1	625	633	9	QLTPTWRVY 0.06488	1.6
HLA-A*32:01	1	1133	1142	10	TVYDPLQPEL 0.064869	1.1
HLA-A*68:01	1	451	459	9	RLFRKSNLK 0.064773	3.1
HLA-A*30:01	1	199	207	9	GYFKIYSKH 0.06459	2.4
HLA-B*51:01	1	459	467	9	KPFERDIST 0.064584	1.9
HLA-A*01:01	1	1198	1206	9	QELGKYEYQ 0.064452	1.3
HLA-B*51:01	1	1051	1059	9	QSAPHGVVF 0.064375	1.9
HLA-B*57:01	1	1245	1253	9	CSCGSCCKF 0.064371	2.5
HLA-A*30:01	1	669	677	9	ASYQTQTN 0.064349	2.4
HLA-A*68:01	1	289	297	9	ALDPLSETK 0.064114	3.2
HLA-A*33:01	1	149	158	10	NKSWMESEFR 0.064064	1.9
HLA-A*02:01	1	1056	1065	10	GVVFLHVTYV 0.064038	1.8
HLA-B*15:01	1	193	201	9	VFKNIDGYF 0.064004	2.1
HLA-A*32:01	1	1201	1209	9	GKYEYQIKW 0.063928	1.1
HLA-A*02:03	1	948	956	9	VVNQNAQAL 0.063887	2.0
HLA-A*30:01	1	688	696	9	SIAYTMSL 0.063828	2.4
HLA-A*02:06	1	941	949	9	ALGKLQDVV 0.063781	2.3
HLA-B*57:01	1	1192	1200	9	ESLIDLQEL 0.063778	2.5
HLA-A*31:01	1	346	355	10	SVYAWNRKRI 0.063691	2.7
HLA-A*32:01	1	862	870	9	LTDEMIAQY 0.063629	1.1
HLA-A*01:01	1	812	820	9	RSFIEDLLF 0.063491	1.3
HLA-B*07:02	1	631	639	9	RVYSTGSNV 0.063487	1.5
HLA-B*51:01	1	135	143	9	FCNDPFLGV 0.063421	1.9
HLA-A*30:01	1	450	459	10	YRLFRKSNLK 0.063263	2.4
HLA-A*30:01	1	937	945	9	STASALGKL 0.063217	2.4
HLA-B*53:01	1	138	146	9	DPFLGVYYH 0.063197	1.1
HLA-B*35:01	1	812	820	9	RSFIEDLLF 0.063161	1.4
HLA-A*11:01	1	68	77	10	IHVSGTNGTK 0.063061	1.8
HLA-A*02:06	1	877	885	9	GTITSGWTF 0.063021	2.3
HLA-B*08:01	1	858	866	9	LPPLLTDEM 0.062982	1.8
HLA-A*02:03	1	857	866	10	VLPLLTDEM 0.062865	2.0
HLA-B*57:01	1	484	492	9	NCYFPLQSY 0.062821	2.6
HLA-A*68:02	1	10	18	9	LVSSQCVNL 0.062789	1.7
HLA-B*58:01	1	1261	1269	9	VLKGVKLHY 0.062666	1.7
HLA-A*03:01	1	1170	1178	9	NASVVNIQK 0.062584	2.0
HLA-A*26:01	1	489	498	10	LQSYGFQPTY 0.062547	1.1
HLA-B*57:01	1	683	692	10	SVASQSIIAY 0.062534	2.6
HLA-B*15:01	1	887	895	9	AGAALQIPF 0.062467	2.2
HLA-A*31:01	1	1047	1055	9	MSFPQSAPH 0.062277	2.7
HLA-A*32:01	1	192	200	9	FVFKNIDGY 0.062246	1.2
HLA-A*30:01	1	754	762	9	GSFCTQLNR 0.062156	2.5

HLA-B*35:01	1	38	47	10	YDKVFRSSV 0.062155	1.4
HLA-B*57:01	1	1001	1010	10	LQTYVTQQLI 0.062054	2.6
HLA-B*08:01	1	529	538	10	NLVKKNKCVNF 0.062038	1.8
HLA-A*02:01	1	308	317	10	GIYQTSNFRV 0.062031	1.9
HLA-A*01:01	1	1144	1152	9	SFKEELDKY 0.062029	1.3
HLA-A*31:01	1	345	353	9	ASVYAWNRK 0.062005	2.7
HLA-A*02:06	1	54	62	9	LFLPFFSNV 0.061905	2.4
HLA-B*35:01	1	724	732	9	LPVSMTKTS 0.061897	1.4
HLA-B*51:01	1	933	941	9	DSLSSSTASA 0.061856	1.9
HLA-A*02:06	1	1059	1067	9	FLHVTVVPA 0.06185	2.4
HLA-A*31:01	1	1061	1070	10	HVTYVPAQEK 0.061837	2.7
HLA-A*02:01	1	624	632	9	DQLTPTWRV 0.061816	1.9
HLA-A*68:02	1	1083	1091	9	KAHFPREGV 0.061734	1.7
HLA-B*08:01	1	528	536	9	TNLVKNKCV 0.061722	1.8
HLA-A*68:02	1	491	500	10	SYGFQPTYGV 0.061721	1.7
HLA-B*07:02	1	883	891	9	WTFGAGAAL 0.061704	1.6
HLA-B*51:01	1	503	511	9	QPYRVVVL 0.0616	1.9
HLA-B*58:01	1	363	371	9	SVLYNSASF 0.061585	1.7
HLA-A*68:01	1	68	77	10	IHSVGTNGTK 0.06156	3.2
HLA-A*24:02	1	709	717	9	IAIPTNFTI 0.061505	1.2
HLA-B*08:01	1	770	778	9	EQDKNTQEV 0.061424	1.8
HLA-A*02:03	1	430	438	9	VIAWNSNNL 0.061385	2.0
HLA-B*40:01	1	1203	1211	9	YEQYIKWPW 0.061331	1.3
HLA-A*30:02	1	785	794	10	IYKTPPIKDF 0.061293	1.9
HLA-A*24:02	1	1085	1093	9	HFPREGV 0.061279	1.2
HLA-A*02:01	1	289	298	10	ALDPLSETKC 0.061214	1.9
HLA-B*35:01	1	686	694	9	SQSIIAYTM 0.061155	1.4
HLA-B*08:01	1	486	494	9	YFPLQSYGF 0.061107	1.8
HLA-B*15:01	1	461	469	9	FERDISTEI 0.061103	2.2
HLA-B*15:01	1	268	276	9	QPRTFLLKY 0.061098	2.2
HLA-B*44:02	1	1254	1262	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	502	510	9	YQPYRVVVL 0.061014	1.2
HLA-A*24:02	1	1037	1046	10	VDFCGKGYHL 0.060967	1.2
HLA-A*68:01	1	413	421	9	GNIADYNYK 0.060937	3.2
HLA-A*30:01	1	959	967	9	LVKQLSSNF 0.060844	2.5
HLA-A*30:01	1	683	691	9	SVASQSIIA 0.060802	2.5
HLA-A*01:01	1	1092	1100	9	FVSNNGTHW 0.060724	1.4
HLA-B*53:01	1	1090	1099	10	GVFVSNNGTHW 0.060695	1.2
HLA-A*02:06	1	1133	1141	9	TVYDPLQPE 0.06067	2.4
HLA-A*30:02	1	1203	1212	10	YEQYIKWPWY 0.060635	1.9
HLA-B*53:01	1	1018	1026	9	SANLAATKM 0.060629	1.2
HLA-A*02:03	1	122	130	9	NATNVVIVK 0.060551	2.0
HLA-A*33:01	1	778	787	10	VFAQVKQIYK 0.060452	2.0
HLA-B*44:02	1	1201	1209	9	GKYEQYIKW 0.060444	
0.96						
HLA-B*35:01	1	461	470	10	FERDISTEIIY 0.060404	1.4
HLA-A*01:01	1	1141	1149	9	ELDSFKEEL 0.060376	1.4
HLA-B*44:03	1	1204	1212	9	EQYIKWPWY 0.060353	1.2
HLA-B*51:01	1	119	127	9	IVNNATNVV 0.06027	1.9
HLA-A*01:01	1	696	704	9	LGVENSVA 0.060259	1.4
HLA-A*32:01	1	701	709	9	SVAYSNNSI 0.060229	1.2
HLA-A*02:06	1	413	422	10	GNIADYNYKL 0.060147	2.4
HLA-B*35:01	1	326	334	9	FPNITNLCP 0.060134	1.4
HLA-A*30:02	1	707	715	9	NSIAIPTNF 0.060122	2.0
HLA-A*24:02	1	363	371	9	SVLYNSASF 0.060109	1.2
HLA-A*68:01	1	254	263	10	GWTAGAAAYY 0.060041	3.2
HLA-B*15:01	1	196	204	9	NIDGYFKIY 0.060017	2.2
HLA-A*03:01	1	354	362	9	RISNCVADY 0.059989	2.0
HLA-B*51:01	1	702	710	9	VAYSNNSIA 0.059961	1.9
HLA-A*02:03	1	873	881	9	ALLAGTITS 0.059918	2.1
HLA-A*01:01	1	483	492	10	FNCYFPLQSY 0.059794	1.4
HLA-A*02:03	1	708	717	10	SIAIPTNFTI 0.059747	2.1
HLA-B*58:01	1	441	450	10	KVGGNYNYLY 0.059716	1.7



HLA-A*02:06	1	1223	1231	9	AIVMVTIML 0.059715	2.4
HLA-A*02:03	1	406	415	10	QIAPGQTGNI 0.059658	2.1
HLA-A*32:01	1	127	135	9	VIKVFCEQF 0.059619	1.2
HLA-B*44:03	1	554	562	9	KKFLPFQF 0.059615	1.2
HLA-B*57:01	1	192	201	10	FVFKNIDGYF 0.059547	2.6
HLA-A*02:06	1	317	326	10	VQPTESIVRF 0.059506	2.4
HLA-A*30:01	1	1134	1142	9	VYDPLQPEL 0.059485	2.5
HLA-A*01:01	1	905	914	10	GIGVTQNVLY 0.05947	1.4
HLA-B*15:01	1	631	639	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	GVYYPDKVF 0.059364	1.7
HLA-A*68:02	1	693	702	10	TMSLGVENSIV 0.059345	1.7
HLA-A*68:02	1	614	623	10	CTEVPVAIHA 0.059291	1.7
HLA-A*32:01	1	1001	1009	9	LQTYVTQQL 0.059284	1.2
HLA-A*01:01	1	893	901	9	IPFAMQMAY 0.059283	1.4
HLA-A*30:02	1	451	459	9	RLFRKSNLK 0.059282	2.0
HLA-A*02:03	1	441	449	9	KVGGNYNYL 0.05923	2.1
HLA-B*07:02	1	266	274	9	YLQPRTFLL 0.059175	1.6
HLA-B*35:01	1	483	492	10	FNCYFPLQSY 0.05917	1.4
HLA-A*01:01	1	572	581	10	AVRDPQTLEI 0.059037	1.4
HLA-A*31:01	1	317	325	9	VQPTESIVR 0.059025	2.8
HLA-A*30:02	1	441	449	9	KVGGNYNYL 0.059017	2.0
HLA-A*26:01	1	161	170	10	SSANNCTFEY 0.059002	1.1
HLA-B*53:01	1	1203	1211	9	YEQYIKWPW 0.058772	1.2
HLA-B*07:02	1	1018	1026	9	SANLAATKM 0.058724	1.6
HLA-A*33:01	1	1008	1016	9	QLIRAAEIR 0.058693	2.0
HLA-B*53:01	1	581	589	9	ILDITPCSF 0.05868	1.2
HLA-A*24:02	1	702	711	10	VAYSNNISIAI 0.058658	1.2
HLA-A*23:01	1	263	272	10	YVGYLQPRTF 0.058657	1.2
HLA-A*33:01	1	335	343	9	FGEVFNATR 0.058653	2.0
HLA-B*57:01	1	587	595	9	CSFGGVSVI 0.058652	2.7
HLA-B*58:01	1	1203	1211	9	YEQYIKWPW 0.058617	1.7
HLA-A*32:01	1	451	459	9	RLFRKSNLK 0.058595	1.2
HLA-B*35:01	1	264	272	9	VGYLQPRTF 0.058555	1.5
HLA-B*07:02	1	631	640	10	RVYSTGSNVF 0.058475	1.6
HLA-A*23:01	1	1206	1214	9	YIKWPWYIW 0.058475	1.2
HLA-A*26:01	1	530	538	9	LVKNKCVNF 0.058425	1.1
HLA-A*68:01	1	800	808	9	SQILPDPSK 0.058389	3.3
HLA-A*01:01	1	770	779	10	EQDKNTQEVF 0.058335	1.4
HLA-B*57:01	1	532	540	9	KNKCVNFNF 0.058281	2.7
HLA-A*32:01	1	23	32	10	QLPPAYTNSF 0.058266	1.2
HLA-A*23:01	1	1084	1092	9	AHFPREGVF 0.058204	1.2
HLA-B*57:01	1	318	326	9	QPTESIVRF 0.05818	2.7
HLA-A*24:02	1	192	201	10	FVFKNIDGYF 0.058157	1.2
HLA-B*58:01	1	600	609	10	NTSNQVAVLY 0.058034	1.7
HLA-A*31:01	1	753	762	10	YGSFCTQLNR 0.057999	2.9
HLA-A*11:01	1	29	38	10	TNSFTRGVVY 0.05796	1.9
HLA-A*32:01	1	323	332	10	IVRFPNITNL 0.057902	1.2
HLA-B*08:01	1	1182	1190	9	RLNEVAKNL 0.057899	1.9
HLA-A*68:01	1	25	34	10	PPAYTNSFTR 0.057875	3.3
HLA-A*02:01	1	506	514	9	RVVLSFEL 0.057848	1.9
HLA-A*02:03	1	606	615	10	AVLYQGVNCT 0.057836	2.1
HLA-B*35:01	1	291	300	10	DPLSETKCTL 0.057807	1.5
HLA-B*44:02	1	844	852	9	RDLICAQKF 0.057758	
0.99						
HLA-A*24:02	1	632	641	10	VYSTGSNVFQ 0.057711	1.2
HLA-A*02:06	1	832	841	10	KQYGDCLGDI 0.057664	2.5
HLA-A*32:01	1	204	212	9	YSKHTPINL 0.057633	1.2
HLA-A*02:06	1	1188	1197	10	KNLNESLIDL 0.057621	2.5
HLA-B*57:01	1	51	59	9	TQDLFLPFF 0.057588	2.7
HLA-A*32:01	1	1098	1106	9	HWFVTQRNF 0.057572	1.2
HLA-A*30:02	1	316	324	9	RVQPTESIV 0.057521	2.0
HLA-A*26:01	1	715	724	10	FTISVTTEIL 0.05745	1.1
HLA-A*32:01	1	1205	1214	10	QYIKWPWYIW 0.057366	1.2
HLA-A*02:06	1	1221	1229	9	LIAIVMVTI 0.057362	2.5
HLA-A*01:01	1	267	276	10	LQPRTFLLKY 0.057353	1.4

HLA-A*02:06	1	1007	1015	9	QQLIRAAEI 0.057351	2.5
HLA-B*15:01	1	1133	1142	10	TVYDPLQPEL 0.05735	2.3
HLA-B*58:01	1	1050	1059	10	PQSAPHGVVF 0.057272	1.7
HLA-B*15:01	1	685	694	10	ASQSIIAYTM 0.057264	2.3
HLA-B*58:01	1	29	38	10	TNSFTRGVVY 0.057228	1.7
HLA-A*31:01	1	267	275	9	LQPRTFLLK 0.057163	2.9
HLA-A*03:01	1	988	997	10	VQIDRLITGR 0.057123	2.1
HLA-B*58:01	1	258	266	9	GAAAYVVG Y 0.057085	1.7
HLA-B*57:01	1	995	1004	10	TGRLQSLQTY 0.057036	2.7
HLA-A*11:01	1	192	200	9	FVFKNIDGY 0.056904	1.9
HLA-B*08:01	1	503	512	10	QPYRVVLSF 0.0569	1.9
HLA-B*15:01	1	547	556	10	GVLTESNKKF 0.056884	2.3
HLA-B*07:02	1	204	212	9	YSKHTPINL 0.056882	1.6
HLA-A*33:01	1	1205	1213	9	QYIKWPWYI 0.056858	2.0
HLA-B*58:01	1	730	739	10	KTSVDCTMYI 0.056836	1.7
HLA-A*33:01	1	206	214	9	KHTPINLVR 0.056817	2.1
HLA-B*51:01	1	565	573	9	DIADTTDAV 0.056696	2.0
HLA-A*68:02	1	882	891	10	GWTFGAGAAL 0.056632	1.8
HLA-A*30:01	1	1170	1178	9	NASVVNIQK 0.056626	2.6
HLA-B*44:02	1	769	778	10	VEQDKNTQEV 0.056612	1.0
HLA-A*31:01	1	198	206	9	DGYFKIYSK 0.056595	2.9
HLA-A*23:01	1	237	245	9	RFQTLHRSY 0.056577	1.2
HLA-A*02:01	1	1220	1229	10	GLIAIVMVTI 0.056529	2.0
HLA-B*51:01	1	982	990	9	DKVEAEVQI 0.056503	2.0
HLA-A*31:01	1	800	808	9	SQILPDPSK 0.056488	2.9
HLA-A*02:06	1	950	959	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	551	559	9	ESNKKFLPF 0.056321	1.2
HLA-B*44:03	1	776	784	9	QEVFAQVKQ 0.056297	1.2
HLA-A*33:01	1	36	45	10	VYYPDKVFRS 0.056266	2.1
HLA-A*23:01	1	876	885	10	AGTITSGWTF 0.056254	1.2
HLA-A*68:01	1	1199	1208	10	ELGKYEQYIK 0.05624	3.4
HLA-B*58:01	1	587	595	9	CSFGGVSVI 0.056222	1.8
HLA-A*68:01	1	1132	1141	10	NTVYDPLQPE 0.05621	3.4
HLA-B*51:01	1	28	36	9	YTNSFTRGV 0.056171	2.1
HLA-A*30:01	1	1070	1078	9	KNFTTAPAI 0.056159	2.7
HLA-A*33:01	1	150	158	9	KSWMESEFR 0.056122	2.1
HLA-A*02:03	1	1011	1019	9	RAAEIRASA 0.0561	2.2
HLA-A*02:06	1	60	68	9	SNVTWFHAI 0.056069	2.5
HLA-A*30:01	1	289	297	9	ALDPLSETK 0.056024	2.7
HLA-A*30:02	1	184	192	9	GNFKNLREF 0.056012	2.1
HLA-A*23:01	1	3	11	9	VFLVLLPLV 0.055977	1.2
HLA-B*40:01	1	1068	1076	9	QEKNTTAP 0.055958	1.3
HLA-B*53:01	1	715	723	9	FTISVTTEI 0.055925	1.2
HLA-A*68:01	1	1061	1069	9	HVTYVPAEQ 0.055872	3.4
HLA-B*40:01	1	721	729	9	TEILPVSMT 0.055851	1.3
HLA-A*30:02	1	573	581	9	VRDPQTLEI 0.055814	2.1
HLA-B*53:01	1	342	350	9	TRFASVYAW 0.055787	1.2
HLA-A*30:02	1	109	117	9	TLDSKTQSL 0.055771	2.1
HLA-A*26:01	1	1198	1206	9	QELGKYEQY 0.055768	1.1
HLA-A*31:01	1	508	516	9	VVLSFELLH 0.05574	2.9
HLA-B*51:01	1	794	802	9	FGGFNFSQI 0.055683	2.1
HLA-A*30:01	1	823	832	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*02:03	1	492	500	9	YGFQPTYGV 0.055573	2.2
HLA-A*02:06	1	50	58	9	STQDLFLPF 0.05555	2.5
HLA-A*23:01	1	573	581	9	VRDPQTLEI 0.055455	1.2
HLA-A*02:03	1	1221	1229	9	LIAIVMVTI 0.055455	2.2
HLA-B*44:03	1	770	779	10	EQDKNTQEVF 0.055428	1.2
HLA-A*68:02	1	911	920	10	NVLLENQKLI 0.055377	1.8
HLA-A*30:02	1	204	212	9	YSKHTPINL 0.055326	2.1
HLA-B*35:01	1	28	37	10	YTNSFTRGVY 0.055258	1.5
HLA-A*68:01	1	450	459	10	YRLFRKSNLK 0.055226	3.4
HLA-B*53:01	1	363	371	9	SVLYNSASF 0.055224	1.3

HLA-A*68:02	1	638	646	9	NVFQTRAGC	0.055133	1.8
HLA-B*51:01	1	326	334	9	FPNITNLCP	0.055125	2.1
HLA-A*31:01	1	722	730	9	EILPVSMTK	0.055105	2.9
HLA-A*32:01	1	316	324	9	RVQPTESIV	0.0551	1.3
HLA-B*15:01	1	478	486	9	NGVKGFNCY	0.055081	2.3
HLA-A*30:01	1	598	606	9	GTNTSNQVA	0.055064	2.7
HLA-A*02:06	1	683	691	9	SVASQSIIA	0.055059	2.5
HLA-A*30:02	1	916	924	9	NQKLIANQF	0.055049	2.1
HLA-A*68:02	1	940	948	9	SALGKLQDV	0.055012	1.9
HLA-A*68:02	1	903	912	10	FNGIGVTQNV	0.054998	1.9
HLA-A*30:02	1	902	910	9	RFNGIGVTQ	0.054959	2.1
HLA-B*51:01	1	266	274	9	YLQPRTFLL	0.054916	2.1
HLA-A*30:01	1	71	80	10	SGTNGTKRFA	0.05489	2.7
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	395	404	10	DSFVIRGDEV	0.054805	2.1
HLA-B*58:01	1	683	692	10	SVASQSIIAY	0.054714	1.8
HLA-A*02:03	1	1165	1173	9	DISGINASV	0.054675	2.2
HLA-B*57:01	1	490	499	10	QSYGFQPTYG	0.05465	2.8
HLA-A*30:02	1	46	55	10	SVLHSTQDLF	0.054646	2.1
HLA-A*02:03	1	751	760	10	LQYGSFCTQL	0.054599	2.2
HLA-B*44:02	1	770	778	9	EQDKNTQEV	0.054567	1.1
HLA-B*57:01	1	805	814	10	DPSKPSKRSF	0.054565	2.8
HLA-A*31:01	1	1016	1025	10	RASANLAATK	0.054532	2.9
HLA-A*26:01	1	972	981	10	SVLNDILSRL	0.054531	1.2
HLA-B*57:01	1	581	589	9	ILDITPCSF	0.054501	2.8
HLA-A*32:01	1	77	86	10	KRFANPVLFP	0.054486	1.3
HLA-B*44:03	1	1068	1076	9	QEKNFITAP	0.054434	1.2
HLA-A*30:01	1	851	859	9	KFNGLTVLP	0.05441	2.7
HLA-A*30:01	1	237	246	10	RFQTLHRSYL	0.054359	2.7
HLA-A*02:01	1	117	126	10	LLIVNNATNV	0.054282	2.0
HLA-A*68:02	1	720	729	10	TTEILPVSMT	0.054163	1.9
HLA-B*57:01	1	47	55	9	VLHSTQDLF	0.054148	2.8
HLA-A*30:01	1	965	973	9	SNFGAISSV	0.054109	2.7
HLA-A*01:01	1	109	118	10	TLDSKTQSLL	0.054094	1.5
HLA-A*30:02	1	1062	1070	9	VTYVPAQEK	0.05408	2.1
HLA-A*68:01	1	1080	1088	9	HDGKAHFPR	0.054079	3.4
HLA-A*30:01	1	988	997	10	VQIDRLITGR	0.054062	2.7
HLA-B*53:01	1	959	967	9	LVKQLSSNF	0.054061	1.3
HLA-B*08:01	1	966	974	9	NFGAISSVL	0.05399	2.0
HLA-B*44:03	1	769	778	10	VEQDKNTQEV	0.053904	1.2
HLA-A*68:02	1	2	10	9	FVFLVLLPL	0.053887	1.9
HLA-A*02:03	1	911	920	10	NVLYENQKLI	0.05388	2.2
HLA-A*26:01	1	722	730	9	EILPVSMTK	0.053816	1.2
HLA-B*44:03	1	844	852	9	RDLICAQKF	0.053814	1.3
HLA-A*03:01	1	684	692	9	VASQSIIAY	0.053728	2.1
HLA-B*51:01	1	339	347	9	FNATRFASV	0.053626	2.1
HLA-A*01:01	1	354	362	9	RISNCVADY	0.053611	1.5
HLA-B*51:01	1	1172	1180	9	SVVNIQKEI	0.053578	2.1
HLA-A*02:06	1	214	223	10	RGLPQGFSAL	0.053574	2.6
HLA-A*01:01	1	29	37	9	TNSFTRGVY	0.053516	1.5
HLA-B*44:03	1	335	344	10	FGEVFNATRF	0.053509	1.3
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	554	562	9	KKFLPFQOF	0.053252	2.8
HLA-B*08:01	1	291	300	10	DPLSETKCTL	0.053249	2.0
HLA-A*02:03	1	204	212	9	YSKHTPINL	0.053246	2.3
HLA-A*03:01	1	1169	1178	10	INASVVNIQK	0.053178	2.1
HLA-B*51:01	1	985	994	10	EAEVQIDRLI	0.052993	2.1
HLA-A*26:01	1	1057	1065	9	VVFLHVITYV	0.052939	1.2
HLA-B*35:01	1	715	723	9	FTISVTTEI	0.052885	1.6
HLA-B*08:01	1	934	942	9	SLSSTASAL	0.052885	2.0
HLA-B*58:01	1	442	450	9	VGGNYNYLY	0.052878	1.8
HLA-B*15:01	1	1018	1026	9	SANLAATKM	0.052831	2.4
HLA-A*30:01	1	1009	1017	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-B*57:01	1	78	86	9	RFANPVLFP 0.052796	2.8
HLA-A*68:02	1	599	608	10	TNTSNQVAVL 0.052718	1.9
HLA-A*31:01	1	58	66	9	FFSNVTWFH 0.052642	3.0
HLA-A*02:03	1	1134	1142	9	VYDPLQPEL 0.052632	2.3
HLA-A*33:01	1	671	680	10	YQTQTNSPRR 0.052596	2.1
HLA-A*23:01	1	497	505	9	TYGVGYQPY 0.052591	1.3
HLA-B*53:01	1	696	704	9	LGVENSVAY 0.052589	1.3
HLA-A*01:01	1	551	559	9	ESNKKFLPF 0.052576	1.5
HLA-A*31:01	1	1007	1016	10	QQLIRAAEIR 0.052537	3.0
HLA-B*51:01	1	891	899	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	391	400	10	NVYADSFVIR 0.052286	2.2
HLA-B*57:01	1	773	782	10	KNTQEVFAQV 0.052252	2.8
HLA-A*02:06	1	324	332	9	VRFPNITNL 0.052149	2.6
HLA-A*01:01	1	94	102	9	STEKSNIIR 0.052132	1.5
HLA-A*68:02	1	1056	1065	10	GVVFLHVTVYV 0.052108	1.9
HLA-A*30:01	1	679	688	10	RRARSVASQS 0.052068	2.8
HLA-A*68:01	1	61	69	9	NVTWFHAIH 0.052062	3.5
HLA-B*58:01	1	861	870	10	LLTDEMIAQY 0.051993	1.9
HLA-B*08:01	1	1051	1059	9	QSAPHGVVF 0.051989	2.0
HLA-B*15:01	1	806	814	9	PSKPSKRFS 0.051901	2.4
HLA-B*07:02	1	1085	1094	10	HFPREGVFVS 0.051847	1.7
HLA-A*30:01	1	1033	1042	10	QSKRVDFCGK 0.051826	2.8
HLA-A*02:06	1	308	317	10	GIYQTSNFRV 0.0517	2.6
HLA-A*31:01	1	266	274	9	YLQPRTFLL 0.051699	3.0
HLA-B*08:01	1	215	223	9	GLPQGFSAL 0.051692	2.0
HLA-A*30:01	1	324	332	9	VRFPNITNL 0.051678	2.8
HLA-A*33:01	1	754	762	9	GSFCTQLNR 0.051665	2.2
HLA-B*57:01	1	1205	1213	9	QYIKWPWYI 0.051619	2.8
HLA-A*30:01	1	340	349	10	NATRFASVYA 0.051592	2.8
HLA-A*02:01	1	151	159	9	SWMESEFRV 0.051566	2.1
HLA-A*68:02	1	892	900	9	QIPFAMQMA 0.051547	1.9
HLA-A*68:01	1	1003	1011	9	TYVTQQLIR 0.051547	3.5
HLA-A*23:01	1	37	45	9	YYPDKVFRS 0.05154	1.3
HLA-B*40:01	1	512	520	9	FELLHAPAT 0.051521	1.4
HLA-A*02:03	1	976	984	9	DILSRLDKV 0.05149	2.3
HLA-A*68:01	1	777	785	9	EVFAQVKQI 0.05148	3.5
HLA-A*02:06	1	1005	1013	9	VTQQLIRAA 0.051472	2.6
HLA-A*30:02	1	445	453	9	NYNLYRLF 0.051447	2.2
HLA-B*51:01	1	573	581	9	VRDPQTLEI 0.051447	2.2
HLA-B*53:01	1	125	133	9	NVVIKVCEF 0.051417	1.3
HLA-A*33:01	1	182	190	9	KQGNFKNLR 0.051339	2.2
HLA-A*24:02	1	342	350	9	TRFASVYAW 0.051322	1.3
HLA-A*30:02	1	632	640	9	VYSTGSNVF 0.051254	2.2
HLA-A*30:01	1	97	105	9	KSNIIRGWI 0.051246	2.8
HLA-A*02:06	1	731	739	9	TSVDCTMYI 0.051239	2.6
HLA-A*68:02	1	776	785	10	QEVFAQVKQI 0.051191	2.0
HLA-B*58:01	1	318	326	9	QPTESIVRF 0.05118	1.9
HLA-A*68:01	1	1143	1152	10	DSFKEELDKY 0.051149	3.5
HLA-B*35:01	1	688	696	9	SIIAYTMSL 0.051143	1.6
HLA-A*24:02	1	324	332	9	VRFPNITNL 0.051112	1.3
HLA-A*30:01	1	432	441	10	AWNSNNLDSK 0.051089	2.9
HLA-A*02:01	1	118	126	9	LIVNNATNV 0.051044	2.1
HLA-A*01:01	1	614	622	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*02:03	1	758	767	10	TQLNRALTGI 0.050859	2.3
HLA-A*32:01	1	708	717	10	SIAIPTNFTI 0.050858	1.3
HLA-A*68:02	1	162	171	10	SANNCTFEYV 0.050813	2.0
HLA-A*68:02	1	722	731	10	EILPVSMTKT 0.050767	2.0
HLA-B*08:01	1	16	24	9	VNLTRTQQL 0.050702	2.1
HLA-A*02:06	1	593	601	9	SVITPGTNT 0.050675	2.7

HLA-B*51:01	1	513	521	9	ELLHAPATV 0.050578	2.2
HLA-A*30:02	1	783	791	9	KQIYKTPPI 0.050507	2.2
HLA-A*24:02	1	500	509	10	VGYPYRVVV 0.050497	1.3
HLA-A*24:02	1	573	581	9	VRDPQTLEI 0.050468	1.3
HLA-B*15:01	1	889	897	9	AALQIPFAM 0.050454	2.4
HLA-B*51:01	1	1093	1101	9	VSNGTHWFV 0.050421	2.2
HLA-A*32:01	1	916	924	9	NQKLIANQF 0.050334	1.3
HLA-B*57:01	1	258	266	9	GAAAYVGY 0.05032	2.9
HLA-B*57:01	1	663	671	9	IGAGICASY 0.05032	2.9
HLA-B*44:03	1	342	350	9	TRFASVYAW 0.050312	1.3
HLA-A*02:06	1	2	11	10	FVFLVLLPLV 0.050307	2.7
HLA-A*01:01	1	339	348	10	FNATRFASVY 0.050212	1.5
HLA-B*15:01	1	1137	1145	9	PLQPELDSF 0.050178	2.5
HLA-A*30:01	1	506	514	9	RVVLSFEL 0.050139	2.9
HLA-B*51:01	1	859	867	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	573	581	9	VRDPQTLEI 0.050012	2.7
HLA-A*33:01	1	803	812	10	LPDPSKPSKR 0.05001	2.2
HLA-B*35:01	1	600	609	10	NTSNQVAVLY 0.049957	1.6
HLA-B*15:01	1	1194	1203	10	LIDLQELGKY 0.049902	2.5
HLA-B*08:01	1	865	874	10	EMIAQYTSAL 0.049895	2.1
HLA-A*68:02	1	866	875	10	MIAQYTSALL 0.049864	2.0
HLA-A*68:01	1	984	992	9	VEAEVQIDR 0.049858	3.6
HLA-A*68:01	1	369	377	9	ASFSTFKCY 0.049821	3.6
HLA-B*57:01	1	323	332	10	IVRFPNITNL 0.049797	2.9
HLA-B*35:01	1	1144	1152	9	SFKEELDKY 0.049787	1.6
HLA-A*11:01	1	1026	1035	10	MSECVLGQSK 0.049722	2.1
HLA-A*02:03	1	937	945	9	STASALGKL 0.049656	2.3
HLA-A*02:06	1	225	233	9	PLVDLPIGI 0.049629	2.7
HLA-A*02:01	1	441	449	9	KVGGNYNYL 0.049629	2.1
HLA-B*58:01	1	358	366	9	CVADYSVLY 0.04961	1.9
HLA-A*68:01	1	910	918	9	QNVLYENQK 0.049593	3.6
HLA-A*26:01	1	84	92	9	LPFNDGVYF 0.049572	1.2
HLA-A*02:01	1	973	982	10	VLNDILSRLD 0.049525	2.1
HLA-A*02:03	1	723	731	9	ILPVSMTKT 0.049496	2.4
HLA-B*58:01	1	184	192	9	GNFKNLREF 0.049392	1.9
HLA-A*33:01	1	139	147	9	PFLGVYYHK 0.049295	2.2
HLA-B*57:01	1	745	753	9	ECSNLLLQY 0.049295	2.9
HLA-A*02:06	1	945	953	9	LQDVVNQNA 0.049256	2.7
HLA-B*44:03	1	1027	1035	9	SECVLGQSK 0.049231	1.3
HLA-A*11:01	1	472	481	10	AGSTPCNGVK 0.049213	2.1
HLA-B*51:01	1	853	861	9	NGLTVLPL 0.04915	2.3
HLA-B*35:01	1	191	200	10	EFVFKNIDGY 0.04914	1.6
HLA-B*53:01	1	331	339	9	NLCPFGEVF 0.049112	1.4
HLA-B*57:01	1	358	366	9	CVADYSVLY 0.049036	2.9
HLA-B*57:01	1	680	689	10	RARVASQSI 0.049019	2.9
HLA-A*68:01	1	893	901	9	IPFAMQMAY 0.049018	3.6
HLA-A*02:06	1	895	903	9	FAMQMAYRF 0.048969	2.7
HLA-B*57:01	1	1091	1100	10	VFVSNGTHWF 0.048951	2.9
HLA-B*53:01	1	212	220	9	LVRGLPQGF 0.048867	1.4
HLA-A*02:03	1	1212	1221	10	YIWLGFIAGL 0.048797	2.4
HLA-A*31:01	1	442	451	10	VGGNYNYLYR 0.048794	3.1
HLA-A*68:02	1	722	730	9	EILPVSMTK 0.048755	2.0
HLA-A*24:02	1	56	65	10	LPFFSNVTWF 0.048705	1.4
HLA-A*68:02	1	580	588	9	EILDITPCS 0.048685	2.0
HLA-A*30:02	1	1205	1213	9	QYIKWPWYI 0.048651	2.2
HLA-A*01:01	1	1133	1142	10	TVYDPLQPEL 0.048648	1.6
HLA-B*40:01	1	133	141	9	FQFCNDPFL 0.048608	1.4
HLA-B*51:01	1	1133	1142	10	TVYDPLQPEL 0.048578	2.3
HLA-B*35:01	1	1261	1269	9	VLKGVKLHY 0.048569	1.6
HLA-B*58:01	1	778	786	9	VFAQVKQIY 0.048566	1.9
HLA-A*68:01	1	50	58	9	STQDLFLPF 0.04852	3.6
HLA-A*24:02	1	966	974	9	NFGAISSVL 0.048499	1.4
HLA-A*31:01	1	446	455	10	YNYLYRFRK 0.048455	3.2
HLA-B*08:01	1	201	210	10	FKIYSKHTPI 0.048453	2.1

HLA-A*02:03	1	1125	1133	9	VVIGIVNNT	0.048339	2.4
HLA-B*40:01	1	51	59	9	TQDLFLPFF	0.048321	1.4
HLA-A*02:03	1	565	573	9	DIADTTDAV	0.048227	2.4
HLA-A*26:01	1	778	786	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	951	959	9	QNAQALNTL	0.048079	2.0
HLA-A*30:02	1	1011	1019	9	RAAEIRASA	0.048068	2.3
HLA-A*23:01	1	1037	1046	10	VDFCGKGYHL	0.047961	1.3
HLA-A*03:01	1	1090	1098	9	GVFVSNQTH	0.047936	2.3
HLA-B*08:01	1	1185	1194	10	EVAKNLNESL	0.047936	2.1
HLA-A*30:01	1	405	413	9	RQIAPGQTG	0.047858	3.0
HLA-B*15:01	1	236	245	10	TRFQTLHRYS	0.047802	2.5
HLA-A*32:01	1	1083	1092	10	KAHFPREGVF	0.0478	1.4
HLA-A*68:02	1	115	123	9	QSLLVNNA	0.047795	2.0
HLA-B*35:01	1	439	448	10	DSKVGGNYNY	0.04778	1.7
HLA-B*07:02	1	78	86	9	RFANPVLPF	0.047754	1.8
HLA-A*32:01	1	730	738	9	KTSVDCTMY	0.047731	1.4
HLA-A*26:01	1	368	377	10	SASFSTFKCY	0.047674	1.3
HLA-B*51:01	1	522	531	10	CGPKKSTNLV	0.047667	2.3
HLA-A*02:03	1	55	63	9	FLPFFSNVT	0.047652	2.4
HLA-A*02:03	1	339	347	9	FNATRFASV	0.04764	2.4
HLA-A*32:01	1	683	692	10	SVASQSIIAY	0.047619	1.4
HLA-B*15:01	1	1186	1194	9	VAKNLNESL	0.047619	2.5
HLA-A*02:06	1	693	702	10	TMSLGVNSV	0.047615	2.8
HLA-A*68:02	1	1110	1119	10	QIITTDNTFV	0.047586	2.1
HLA-B*58:01	1	891	899	9	LQIPFAMQM	0.047552	1.9
HLA-A*30:02	1	530	538	9	LVKNKCVNF	0.047527	2.3
HLA-A*68:02	1	1134	1142	9	VYDPLQPEL	0.047508	2.1
HLA-A*30:01	1	1034	1042	9	SKRVDFCGK	0.047471	3.0
HLA-A*11:01	1	952	961	10	NAQALNTLVK	0.047353	2.1
HLA-A*30:02	1	937	945	9	STASALGKL	0.047322	2.3
HLA-A*68:01	1	1053	1061	9	APHGVVFLH	0.04732	3.6
HLA-A*30:01	1	1051	1059	9	QSAPHGVVF	0.047239	3.0
HLA-A*68:02	1	1205	1213	9	QYIKWPWYI	0.047225	2.1
HLA-B*35:01	1	617	626	10	VPVAIHADQL	0.047215	1.7
HLA-A*68:02	1	580	589	10	EILDITPCSF	0.047173	2.1
HLA-B*08:01	1	783	791	9	KQIYKTPPI	0.047085	2.2
HLA-A*30:01	1	635	643	9	TGSNVFQTR	0.047011	3.0
HLA-B*15:01	1	214	223	10	RGLPQGFSAL	0.047009	2.6
HLA-A*33:01	1	199	207	9	GYFKIYSKH	0.046939	2.3
HLA-A*68:02	1	250	259	10	DSSSGWTAGA	0.046906	2.1
HLA-A*02:01	1	2	10	9	FVFLVLLPL	0.046892	2.2
HLA-A*33:01	1	1047	1055	9	MSFPQSAPH	0.046875	2.3
HLA-B*07:02	1	422	431	10	LPDDFTGCVI	0.046859	1.8
HLA-A*02:06	1	565	573	9	DIADTTDAV	0.046821	2.8
HLA-A*26:01	1	366	374	9	YNSASFSTF	0.046804	1.3
HLA-A*68:01	1	412	421	10	TGNIADYNYK	0.046772	3.7
HLA-A*02:01	1	150	159	10	KSWMESEFRV	0.046764	2.2
HLA-B*15:01	1	1109	1118	10	PQIITTDNTF	0.046758	2.6
HLA-A*02:01	1	969	977	9	AISSVLNDI	0.046737	2.2
HLA-A*68:01	1	1026	1035	10	MSECVLGQSK	0.046735	3.7
HLA-B*58:01	1	731	739	9	TSVDCTMYI	0.046618	2.0
HLA-A*68:02	1	1014	1022	9	EIRASANLA	0.046593	2.1
HLA-A*02:01	1	1118	1126	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	770	778	9	EQDKNTQEV	0.046416	1.6
HLA-A*11:01	1	255	263	9	WTAGAAAYY	0.046414	2.1
HLA-A*02:06	1	1165	1173	9	DISGINASV	0.046411	2.8
HLA-B*15:01	1	950	959	10	NQNAQALNTL	0.04641	2.6
HLA-A*30:02	1	849	857	9	AQKFNGLTV	0.04639	2.3
HLA-A*11:01	1	635	643	9	TGSNVFQTR	0.046376	2.1
HLA-A*33:01	1	1170	1178	9	NASVVNIQK	0.046346	2.3
HLA-B*51:01	1	770	778	9	EQDKNTQEV	0.046238	2.4
HLA-A*68:02	1	1126	1134	9	VIGIVNNTV	0.046235	2.1

HLA-A*68:01	1	546	554	9	TGVLTESNK 0.046172	3.7
HLA-A*23:01	1	325	333	9	RFPNITNLC 0.046162	1.3
HLA-A*02:03	1	780	788	9	AQVKQIYKT 0.046144	2.5
HLA-B*15:01	1	874	883	10	LLAGTITSGW 0.046137	2.6
HLA-B*08:01	1	573	581	9	VRDPQTLEI 0.046119	2.2
HLA-A*11:01	1	198	206	9	DGYFKIYSK 0.046051	2.1
HLA-B*57:01	1	207	216	10	HTPINLVRGL 0.046039	3.0
HLA-B*57:01	1	97	105	9	KSNIIRGWI 0.046012	3.0
HLA-A*30:02	1	811	820	10	KRSFIEDLLF 0.045949	2.3
HLA-B*15:01	1	600	609	10	NTSNQVAVLY 0.045856	2.6
HLA-A*03:01	1	473	481	9	GSTPCNGVK 0.045849	2.3
HLA-B*51:01	1	502	510	9	YQPYRVVVL 0.045845	2.4
HLA-A*01:01	1	663	671	9	IGAGICASY 0.045796	1.6
HLA-B*08:01	1	38	46	9	YDPKVFRRS 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	930	938	9	KIQDLSLST 0.045719	3.1
HLA-A*68:02	1	1256	1265	10	DDSEPVLKGV 0.045707	2.1
HLA-B*08:01	1	295	303	9	ETKCTLKSF 0.045704	2.2
HLA-A*32:01	1	331	339	9	NLCPFGEVF 0.045633	1.4
HLA-A*30:01	1	343	352	10	RFASVYAWNR 0.045615	3.1
HLA-A*30:02	1	800	808	9	SQILPDPSK 0.045615	2.3
HLA-B*40:01	1	1013	1022	10	AEIRASANLA 0.045589	1.4
HLA-A*24:02	1	233	241	9	INITRFQTL 0.045562	1.4
HLA-B*40:01	1	554	562	9	KKFLPFQOF 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	GVVYPDKVF 0.045544	1.7
HLA-A*11:01	1	1133	1141	9	TVYDPLQPE 0.045543	2.2
HLA-B*15:01	1	1000	1009	10	SLQTYVTQQL 0.045528	2.6
HLA-A*30:01	1	530	538	9	LVKNKCVNF 0.04549	3.1
HLA-A*01:01	1	191	200	10	EFVFKNIDGY 0.04547	1.6
HLA-A*02:01	1	708	717	10	SIAIPTNFTI 0.045431	2.2
HLA-B*57:01	1	102	110	9	RGWIFGTTL 0.045374	3.0
HLA-B*53:01	1	551	559	9	ESNKKFLPF 0.045369	1.4
HLA-B*15:01	1	1067	1075	9	AQEKNFSTA 0.045359	2.6
HLA-A*02:06	1	171	179	9	VSQPFLMDL 0.045297	2.9
HLA-A*02:01	1	572	581	10	AVRDPQTLEI 0.045235	2.2
HLA-B*58:01	1	1186	1194	9	VAKNLNESL 0.04522	2.0
HLA-B*07:02	1	221	229	9	SALEPLVDL 0.045219	1.8
HLA-B*07:02	1	926	935	10	SAIGKIQDSL 0.045211	1.8
HLA-B*08:01	1	461	469	9	FERDISTEI 0.045171	2.2
HLA-B*44:03	1	490	498	9	QSYGFQPTY 0.04515	1.4
HLA-A*23:01	1	425	433	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	TRTQLPPAY 0.045	1.7
HLA-A*26:01	1	891	899	9	LQIPFAMQM 0.044922	1.3
HLA-A*30:01	1	452	460	9	LFRKSNLKP 0.044918	3.1
HLA-B*15:01	1	295	303	9	ETKCTLKSF 0.044901	2.6
HLA-A*01:01	1	255	264	10	WTAGAAAYYV 0.044818	1.7
HLA-B*15:01	1	339	348	10	FNATRFASVY 0.044803	2.6
HLA-B*15:01	1	166	175	10	CTFEYVSQPF 0.044793	2.6
HLA-A*68:02	1	468	476	9	EIYQAGSTP 0.044737	2.1
HLA-A*26:01	1	1172	1180	9	SVVNIQKEI 0.044703	1.3
HLA-B*35:01	1	161	170	10	SSANNCTFEY 0.044678	1.7
HLA-B*44:03	1	462	470	9	ERDISTEII 0.044649	1.4
HLA-A*31:01	1	721	730	10	TEILPVSMTK 0.044626	3.3
HLA-B*57:01	1	21	30	10	RTQLPPAYTN 0.044495	3.1
HLA-A*32:01	1	346	354	9	SVYAWNRKR 0.044475	1.4
HLA-B*44:02	1	1147	1156	10	EELDKYFKNH 0.044456	1.2
HLA-B*35:01	1	861	870	10	LLTDEMIAQY 0.044426	1.7
HLA-A*11:01	1	1017	1026	10	ASANLAATKM 0.04432	2.2
HLA-A*03:01	1	150	158	9	KSWMESEFR 0.044298	2.4
HLA-A*02:06	1	1083	1091	9	KAHFPREGV 0.044211	2.9
HLA-A*26:01	1	1052	1060	9	SAPHGVVFL 0.044181	1.3
HLA-B*15:01	1	50	59	10	STQDLFLPPF 0.044137	2.6
HLA-B*35:01	1	78	86	9	RFANPVLFP 0.044112	1.7

HLA-A*30:01	1	601	609	9	TSNQVAVLY 0.044102	3.2
HLA-A*68:02	1	1014	1023	10	EIRASANLAA 0.04407	2.1
HLA-A*30:02	1	1090	1098	9	GVFVSNATH 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	916	924	9	NQKLIANQF 0.043945	1.4
HLA-A*02:03	1	773	782	10	KNTQEVFAQV 0.043883	2.6
HLA-B*57:01	1	785	794	10	IYKTPPIKDF 0.043862	3.1
HLA-A*24:02	1	1084	1092	9	AHFPREGVF 0.0438	1.4
HLA-B*08:01	1	396	404	9	SFVIRGDEV 0.043783	2.3
HLA-A*68:01	1	340	348	9	NATRFASVY 0.043698	3.8
HLA-A*31:01	1	1174	1182	9	VNIQKEIDR 0.043599	3.3
HLA-A*02:06	1	430	438	9	VIAMNSNNL 0.043597	3.0
HLA-A*02:03	1	954	963	10	QALNTLVKQL 0.043587	2.6
HLA-A*30:01	1	198	206	9	DGYFKIYSK 0.04356	3.2
HLA-B*15:01	1	632	640	9	VYSTGSNVF 0.043543	2.7
HLA-A*30:01	1	1098	1106	9	HWFVTQRNF 0.043517	3.2
HLA-A*30:02	1	868	876	9	AQYTSALLA 0.043513	2.4
HLA-A*32:01	1	389	397	9	FTNVYADSF 0.043499	1.5
HLA-A*24:02	1	425	433	9	DFTGCVIAW 0.043492	1.4
HLA-A*30:02	1	455	463	9	KSNLKPFR 0.043437	2.4
HLA-B*08:01	1	1178	1186	9	KEIDRLNEV 0.043351	2.3
HLA-B*58:01	1	745	753	9	ECSNLLLQY 0.043312	2.1
HLA-B*58:01	1	1127	1135	9	IGIVNNTVY 0.0433	2.1
HLA-A*03:01	1	374	383	10	FKCYGVSPK 0.043299	2.4
HLA-A*23:01	1	452	461	10	LFRKSNLKP 0.043296	1.4
HLA-B*07:02	1	596	605	10	TPGTNTSNQV 0.043271	1.8
HLA-A*11:01	1	89	98	10	GVYFASTEKS 0.043213	2.2
HLA-B*07:02	1	1133	1142	10	TVYDPLQPEL 0.043172	1.9
HLA-A*30:01	1	961	969	9	KQLSSNFGA 0.043154	3.2
HLA-B*53:01	1	366	374	9	YNSASFSTF 0.043129	1.5
HLA-A*68:02	1	278	286	9	ENGTITDAV 0.043113	2.2
HLA-B*57:01	1	648	657	10	IGAHEVNSY 0.043109	3.1
HLA-B*07:02	1	808	816	9	KPSKRSFIE 0.043098	1.9
HLA-B*58:01	1	1047	1055	9	MSFPQSAPH 0.043057	2.1
HLA-B*51:01	1	803	811	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	634	643	10	STGSNVFQTR 0.043028	3.2
HLA-A*30:01	1	205	213	9	SKHTPINLV 0.043027	3.2
HLA-A*03:01	1	672	680	9	QTQTNSPRR 0.043025	2.4
HLA-A*32:01	1	158	166	9	RVYSSANNC 0.043019	1.5
HLA-A*30:02	1	532	540	9	KNKCVNFNF 0.043001	2.4
HLA-B*57:01	1	687	696	10	QSIAYTMSL 0.042983	3.1
HLA-A*30:01	1	1168	1176	9	GINASVVNI 0.042959	3.2
HLA-A*32:01	1	49	58	10	HSTQDLFLPF 0.04292	1.5
HLA-B*57:01	1	268	276	9	QPRTFLLKY 0.04288	3.1
HLA-A*32:01	1	759	767	9	QLNRALTGI 0.042874	1.5
HLA-A*02:01	1	686	694	9	SQSIIAYTM 0.042837	2.3
HLA-B*15:01	1	84	92	9	LPFNDGVYF 0.042809	2.7
HLA-A*02:03	1	1141	1149	9	ELDSFKEEL 0.042808	2.6
HLA-A*01:01	1	892	901	10	QIPFAMQMAY 0.042799	1.7
HLA-B*44:03	1	721	729	9	TEILPVSM 0.042792	1.4
HLA-B*07:02	1	1083	1091	9	KAHFPREGV 0.042762	1.9
HLA-B*40:01	1	335	344	10	FGEVFNATRF 0.042745	1.5
HLA-B*51:01	1	92	101	10	FASTEKSNI 0.042728	2.5
HLA-A*68:01	1	1052	1061	10	SAPHGCVFLH 0.042726	3.8
HLA-B*51:01	1	1209	1217	9	WPWYIWLGF 0.04272	2.5
HLA-A*30:01	1	204	213	10	YSKHTPINLV 0.042717	3.2
HLA-A*26:01	1	916	924	9	NQKLIANQF 0.042693	1.3
HLA-A*02:06	1	288	296	9	CALDPLSET 0.042685	3.0
HLA-A*30:01	1	443	451	9	GGNYNYLYR 0.042642	3.2
HLA-B*57:01	1	547	556	10	GVLTESNKKF 0.042615	3.1
HLA-A*02:01	1	1164	1173	10	GDISGINASV 0.042603	2.3
HLA-A*30:01	1	251	259	9	SSSGWTAGA 0.042557	3.2
HLA-A*32:01	1	391	399	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	622	630	9	HADQLTPTW 0.042453	2.7
HLA-A*68:02	1	634	642	9	STGSNVFQT 0.042424	2.2
HLA-A*23:01	1	1110	1118	9	QIITTDNTF 0.042411	1.4
HLA-A*02:03	1	683	691	9	SVASQSIIA 0.042369	2.6
HLA-A*02:01	1	690	698	9	IAYTMSLGV 0.042352	2.3
HLA-B*57:01	1	720	728	9	TTEILPVSM 0.042346	3.2
HLA-A*11:01	1	443	451	9	GGNYNYLYR 0.042336	2.3
HLA-A*68:02	1	50	58	9	STQDLFLPF 0.04227	2.2
HLA-B*35:01	1	789	797	9	PPIKDFGGF 0.04227	1.8
HLA-B*15:01	1	257	266	10	AGAAAYVGY 0.042208	2.7
HLA-B*51:01	1	731	739	9	TSVDCTMYI 0.042198	2.5
HLA-B*58:01	1	78	86	9	RFANPVLPF 0.042148	2.1
HLA-B*15:01	1	202	210	9	KIYSKHTPI 0.042138	2.7
HLA-A*68:02	1	774	783	10	NTQEVFAQVK 0.042135	2.2
HLA-A*23:01	1	233	241	9	INITRFQTL 0.042132	1.4
HLA-A*26:01	1	926	935	10	SAIGKIQDSL 0.042108	1.4
HLA-A*03:01	1	1056	1064	9	GVVFLHVTY 0.042086	2.4
HLA-A*68:02	1	948	956	9	VVNQNAQAL 0.042084	2.2
HLA-B*58:01	1	62	70	9	VTWFHAIHV 0.042061	2.1
HLA-A*02:03	1	548	557	10	VLTESNKKFL 0.04202	2.6
HLA-B*08:01	1	686	694	9	SQSIIAYTM 0.042013	2.4
HLA-A*32:01	1	160	168	9	YSSANNCTF 0.041969	1.5
HLA-B*15:01	1	1030	1039	10	VLGQSKRVDF 0.041953	2.7
HLA-B*08:01	1	351	359	9	NRKRISNCV 0.041945	2.4
HLA-A*31:01	1	1057	1065	9	VVFLHVITYV 0.041944	3.4
HLA-A*02:06	1	363	371	9	SVLYNSASF 0.041942	3.0
HLA-A*31:01	1	802	811	10	ILPDPSPKPSK 0.041909	3.4
HLA-A*24:02	1	237	246	10	RFQTLHRSYL 0.041884	1.5
HLA-A*68:01	1	443	451	9	GGNYNYLYR 0.041845	3.8
HLA-B*44:02	1	342	350	9	TRFASVYAW 0.041842	1.3
HLA-B*57:01	1	1047	1055	9	MSFPQSAPH 0.041819	3.2
HLA-B*57:01	1	84	92	9	LPFNDGVYF 0.041732	3.2
HLA-B*44:02	1	624	633	10	DQLTPTWRVY 0.041727	1.3
HLA-A*26:01	1	35	43	9	GVYYPDKVF 0.041706	1.4
HLA-B*15:01	1	1084	1092	9	AHFREGVF 0.041695	2.7
HLA-B*51:01	1	1221	1229	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	1093	1101	9	VSNQTHWVY 0.041631	2.4
HLA-B*44:02	1	1068	1076	9	QEKNFITAP 0.041565	1.3
HLA-A*30:01	1	1013	1022	10	AEIRASANLA 0.04155	3.3
HLA-B*08:01	1	1106	1114	9	FYEPQIITT 0.041534	2.4
HLA-B*57:01	1	1063	1072	10	TYVPAQEKNF 0.041495	3.2
HLA-A*68:01	1	178	187	10	DLEGKQGNFK 0.04147	3.9
HLA-B*51:01	1	1217	1225	9	FIAGLIAIV 0.04146	2.6
HLA-A*03:01	1	799	808	10	FSQILPDPSPK 0.041448	2.4
HLA-B*35:01	1	1064	1072	9	YVPAQEKNF 0.041412	1.8
HLA-B*35:01	1	137	146	10	NDPFLGVYYH 0.041393	1.8
HLA-A*02:06	1	1205	1213	9	QYIKWPWYI 0.041383	3.1
HLA-A*02:06	1	979	988	10	SRLDKVEAEV 0.041378	3.1
HLA-A*30:01	1	1205	1213	9	QYIKWPWYI 0.041361	3.3
HLA-A*30:02	1	35	43	9	GVYYPDKVF 0.041358	2.5
HLA-B*07:02	1	1083	1092	10	KAHFREGVF 0.041357	1.9
HLA-A*11:01	1	909	918	10	TQNVLYENQK 0.04135	2.3
HLA-A*02:01	1	694	702	9	MSLGVENSU 0.041333	2.4
HLA-B*58:01	1	1192	1200	9	ESLIDLQEL 0.041331	2.1
HLA-A*02:03	1	273	282	10	LLKYNENGTI 0.04128	2.7
HLA-A*32:01	1	1203	1211	9	YEQYIKWPW 0.041226	1.5
HLA-A*02:01	1	780	788	9	AQVKQIYKT 0.041198	2.4
HLA-A*30:01	1	301	310	10	KSFTVEKGIY 0.041171	3.3
HLA-A*33:01	1	307	316	10	KGIYQTSNFR 0.04117	2.5
HLA-A*03:01	1	730	738	9	KTSVDCTMY 0.041155	2.4
HLA-A*02:03	1	979	988	10	SRLDKVEAEV 0.041148	2.7
HLA-B*44:03	1	168	177	10	FEYVSQPFLM 0.041137	1.4

HLA-A*30:01	1	891	899	9	LQIPFAMQM 0.041054	3.3
HLA-A*24:02	1	923	931	9	QFNSAIGKI 0.041051	1.5
HLA-A*23:01	1	50	59	10	STQDLFLPFF 0.041048	1.4
HLA-A*68:01	1	343	352	10	RFASVYAWN 0.041016	3.9
HLA-A*03:01	1	1036	1044	9	RVDFCGKGY 0.041	2.4
HLA-A*30:01	1	150	158	9	KSWMESEFR 0.040999	3.3
HLA-A*03:01	1	197	206	10	IDGYFKIYSK 0.040897	2.4
HLA-A*32:01	1	1093	1101	9	VSNGTHWFV 0.040829	1.5
HLA-A*68:01	1	374	383	10	FKCYGVSPK 0.04082	3.9
HLA-A*31:01	1	674	683	10	QTNSPRRARS 0.040818	3.4
HLA-A*11:01	1	70	78	9	VSGTNGTKR 0.04081	2.3
HLA-A*33:01	1	445	453	9	NYNYLYRLF 0.040809	2.5
HLA-B*35:01	1	20	28	9	TRTQLPPAY 0.040807	1.8
HLA-A*30:02	1	1036	1045	10	RVDFCGKGYH 0.040781	2.5
HLA-A*30:02	1	601	610	10	TSNQVAVLYQ 0.040708	2.5
HLA-B*51:01	1	655	663	9	NSYECDIPI 0.040692	2.6
HLA-A*11:01	1	673	682	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	756	764	9	FCTQLNRAL 0.040513	2.4
HLA-B*58:01	1	41	49	9	KVFRSSVLH 0.040482	2.1
HLA-B*57:01	1	1171	1180	10	ASVVNIQKEI 0.040448	3.2
HLA-B*07:02	1	1182	1190	9	RLNEVAKNL 0.040434	1.9
HLA-A*30:02	1	341	349	9	ATRFASVYA 0.040404	2.5
HLA-A*26:01	1	461	470	10	FERDISTEY 0.040393	1.4
HLA-A*68:02	1	1168	1176	9	GINASVVNI 0.040383	2.3
HLA-A*30:01	1	685	693	9	ASQSIIAYT 0.040366	3.4
HLA-A*68:01	1	774	782	9	NTQEVFAQV 0.040356	3.9
HLA-A*02:01	1	1052	1060	9	SAPHGVVFL 0.040315	2.4
HLA-A*68:02	1	598	607	10	GTNTSNQVAV 0.040309	2.3
HLA-B*08:01	1	379	387	9	VSPTKLNLD 0.040291	2.4
HLA-A*24:02	1	388	397	10	CFTNVYADSF 0.040283	1.5
HLA-B*58:01	1	648	657	10	IGAHEVNNNSY 0.040263	2.1
HLA-A*02:06	1	940	949	10	SALGKLQDVV 0.040258	3.1
HLA-A*32:01	1	972	981	10	SVLNDILSRL 0.040238	1.5
HLA-A*03:01	1	1036	1045	10	RVDFCGKGYH 0.040221	2.5
HLA-A*30:01	1	288	297	10	CALDPLSETK 0.040138	3.4
HLA-A*68:02	1	630	639	10	WRVYSTGSNV 0.040077	2.3
HLA-B*44:03	1	438	446	9	LDSKVGNGY 0.040071	1.5
HLA-A*30:01	1	682	691	10	RSVASQSIIA 0.040045	3.4
HLA-A*31:01	1	1080	1088	9	HDGKAHFPR 0.040035	3.4
HLA-B*53:01	1	1192	1200	9	ESLIDLQEL 0.040025	1.6
HLA-A*02:01	1	214	223	10	RGLPQGFSAL 0.040006	2.4
HLA-A*02:06	1	912	921	10	VLYENQKLIA 0.039906	3.1
HLA-A*02:06	1	420	429	10	YKLPDDFTGC 0.039875	3.1
HLA-B*57:01	1	958	967	10	TLVKQLSSNF 0.039836	3.3
HLA-A*30:01	1	955	963	9	ALNTLVKQL 0.039835	3.4
HLA-B*44:03	1	1195	1203	9	IDLQELGKY 0.039833	1.5
HLA-A*24:02	1	1110	1118	9	QIITDNTF 0.039804	1.5
HLA-A*68:02	1	281	289	9	TITDAVDCA 0.0398	2.3
HLA-A*30:01	1	195	203	9	KNIDGYFKI 0.039793	3.4
HLA-A*26:01	1	346	354	9	SVYAWNRRK 0.03977	1.4
HLA-A*68:01	1	19	28	10	TTRTQLPPAY 0.039753	4.0
HLA-A*02:03	1	926	935	10	SAIGKIQDSL 0.039704	2.7
HLA-A*68:02	1	304	312	9	TVEKGIYQT 0.039701	2.3
HLA-A*23:01	1	36	44	9	VYYPDKVFR 0.03966	1.4
HLA-A*24:02	1	876	885	10	AGTITSGWTF 0.03966	1.5
HLA-A*01:01	1	778	786	9	VFAQVKQIY 0.039625	1.8
HLA-A*26:01	1	996	1004	9	GRLQSLQTY 0.039618	1.4
HLA-B*58:01	1	84	92	9	LPFNDGVYF 0.039583	2.1
HLA-B*51:01	1	475	483	9	TPCNGVKGF 0.03958	2.6
HLA-A*02:03	1	75	83	9	GTRKFANPV 0.039519	2.7
HLA-A*30:01	1	1133	1141	9	TVYDPLQPE 0.0395	3.4
HLA-B*15:01	1	133	141	9	FQFCNDPFL 0.039486	2.8

HLA-A*30:02	1	889	897	9	AALQIPFAM 0.039476	2.6
HLA-A*32:01	1	682	690	9	RSVASQSII 0.039398	1.6
HLA-A*30:01	1	123	131	9	ATNVVIVKC 0.039373	3.4
HLA-B*35:01	1	1186	1194	9	VAKNLNESL 0.039326	1.8
HLA-A*02:01	1	391	399	9	NVYADSFVI 0.039303	2.5
HLA-A*02:06	1	865	873	9	EMIAQY TSA 0.039299	3.2
HLA-B*58:01	1	663	671	9	IGAGICASY 0.039298	2.1
HLA-B*07:02	1	622	630	9	HADQLTPTW 0.039296	2.0
HLA-A*30:02	1	1093	1101	9	VSNQTHWV 0.039292	2.6
HLA-B*57:01	1	1017	1026	10	ASANLAATKM 0.039255	3.3
HLA-A*33:01	1	1174	1182	9	VNIQKEIDR 0.039253	2.6
HLA-B*08:01	1	8	16	9	LPLVSSQCV 0.039245	2.5
HLA-A*30:02	1	299	307	9	TLKSFTVEK 0.039238	2.6
HLA-B*15:01	1	496	505	10	PTYGVGYQPY 0.039222	2.8
HLA-A*30:01	1	1133	1142	10	TVYDPLQPEL 0.039164	3.4
HLA-B*51:01	1	207	216	10	HTPINLVRGL 0.039151	2.7
HLA-A*32:01	1	317	326	10	VQPTESIVRF 0.03909	1.6
HLA-A*02:06	1	1204	1213	10	EQYIKWPWYI 0.039077	3.2
HLA-B*57:01	1	442	450	9	VGGNYNYLY 0.039005	3.3
HLA-A*68:01	1	368	377	10	SASFSTFKCY 0.038975	4.0
HLA-A*30:01	1	523	532	10	GPKKSTNLVK 0.038975	3.5
HLA-B*51:01	1	631	639	9	RVYSTGSNV 0.038939	2.7
HLA-B*57:01	1	1133	1142	10	TVYDPLQPEL 0.038933	3.3
HLA-A*26:01	1	440	448	9	SKVGGNYNY 0.038884	1.4
HLA-A*02:06	1	996	1005	10	GRLQSLQTYV 0.038865	3.2
HLA-A*68:02	1	337	346	10	EVFNATRFAS 0.038861	2.3
HLA-B*57:01	1	1143	1152	10	DSFKEELDKY 0.038859	3.3
HLA-A*02:03	1	158	166	9	RVYSSANNC 0.038834	2.7
HLA-B*07:02	1	363	371	9	SVLYNSASF 0.038825	2.0
HLA-B*57:01	1	365	374	10	LYNSASFSTF 0.03882	3.3
HLA-B*44:02	1	1204	1212	9	EQYIKWPWY 0.038793	1.3
HLA-A*02:06	1	1175	1183	9	NIQKEIDRL 0.038769	3.2
HLA-B*57:01	1	823	831	9	VTLADAGFI 0.038749	3.3
HLA-A*30:01	1	472	481	10	AGSTPCNGVK 0.038687	3.5
HLA-B*53:01	1	825	834	10	LADAGFIKQY 0.038653	1.6
HLA-B*44:02	1	318	326	9	QPTESIVRF 0.038652	1.3
HLA-B*58:01	1	166	175	10	CTFEYVSQPF 0.038634	2.2
HLA-B*44:03	1	770	778	9	EQDKNTQEV 0.038632	1.5
HLA-B*15:01	1	1091	1099	9	VFVSNQTHW 0.038562	2.8
HLA-A*03:01	1	673	682	10	TQTNSPRRAR 0.038542	2.5
HLA-B*07:02	1	1136	1145	10	DPLQPELDSF 0.038529	2.0
HLA-A*02:01	1	564	573	10	RDIADTTDAV 0.038458	2.5
HLA-B*44:03	1	686	694	9	SQSIIAYTM 0.038442	1.5
HLA-A*30:02	1	1083	1092	10	KAHFPREGVF 0.03842	2.6
HLA-A*02:01	1	927	935	9	AIGKIQDSL 0.038379	2.5
HLA-A*24:02	1	1206	1214	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	454	463	10	RKSNLKPFR 0.038261	2.4
HLA-A*11:01	1	1138	1146	9	LQPELDSFK 0.038255	2.4
HLA-A*30:01	1	341	350	10	ATRFASVYAW 0.03823	3.5
HLA-A*30:01	1	701	709	9	SVAYSNSI 0.038216	3.5
HLA-B*53:01	1	1143	1152	10	DSFKEELDKY 0.038151	1.6
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	514	522	9	LLHAPATVC 0.03806	2.8
HLA-A*33:01	1	138	146	9	DPFLGVVYH 0.038035	2.6
HLA-B*51:01	1	711	720	10	IPTNFTISVT 0.038025	2.7
HLA-A*68:02	1	166	174	9	CTFEYVSQP 0.037983	2.4
HLA-B*08:01	1	816	825	10	EDLLFNKVT 0.037922	2.5
HLA-A*03:01	1	441	450	10	KVGGNYNYLY 0.037896	2.5
HLA-B*51:01	1	1070	1078	9	KNFTTAPAI 0.037872	2.7
HLA-A*33:01	1	88	97	10	DGVYFASTTEK 0.037858	2.6
HLA-B*08:01	1	777	785	9	EVFAQVKQI 0.037831	2.5
HLA-A*03:01	1	202	210	9	KIYSKHTPI 0.037826	2.5
HLA-A*30:01	1	625	633	9	QLTPTWRVY 0.03776	3.5

HLA-B*40:01	1	227	235	9	VDLPIGINI 0.037752	1.6
HLA-A*24:02	1	452	461	10	LFRKSNLKP 0.037714	1.5
HLA-A*32:01	1	890	899	10	ALQIPFAMQ 0.037666	1.6
HLA-B*07:02	1	788	797	10	TPPIKDFGG 0.037648	2.0
HLA-B*44:03	1	51	59	9	TQDLFLPFF 0.037644	1.5
HLA-B*35:01	1	246	255	10	LTPGSSSSGW 0.03763	1.9
HLA-A*26:01	1	410	418	9	GQTGNIADY 0.037621	1.5
HLA-B*40:01	1	770	779	10	EQDKNTQEV 0.037596	1.6
HLA-B*58:01	1	19	28	10	TTRTQLPPAY 0.037589	2.2
HLA-A*26:01	1	1217	1225	9	FIAGLIAIV 0.037589	1.5
HLA-A*30:01	1	102	110	9	RGWIFGTTL 0.037572	3.6
HLA-B*07:02	1	214	223	10	RGLPQGFSAL 0.03757	2.0
HLA-A*02:06	1	81	90	10	NPVLPFNDGV 0.037567	3.2
HLA-B*51:01	1	815	823	9	IEDLLFNKV 0.037558	2.7
HLA-A*02:06	1	494	502	9	FQPTYGVGY 0.03755	3.2
HLA-B*53:01	1	229	237	9	LPIGINITR 0.03746	1.6
HLA-A*30:02	1	342	350	9	TRFASVYAW 0.037437	2.7
HLA-A*02:06	1	289	298	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	1092	1100	9	FVSNGTHWF 0.03739	2.7
HLA-B*35:01	1	916	924	9	NQKLIANQF 0.037381	1.9
HLA-A*30:01	1	1186	1194	9	VAKNLNESL 0.037276	3.6
HLA-A*33:01	1	1079	1088	10	CHDGKAHFPR 0.037263	2.6
HLA-A*02:01	1	961	969	9	KQLSSNFGA 0.037259	2.5
HLA-A*24:02	1	1144	1152	9	SFKEELDKY 0.037258	1.6
HLA-B*44:03	1	996	1004	9	GRLQSLQTY 0.037255	1.5
HLA-A*30:01	1	964	973	10	SSNFGAISSV 0.037163	3.6
HLA-A*68:01	1	545	554	10	GTGVLTESNK 0.037157	4.1
HLA-A*68:02	1	490	498	9	QSYGFQPTY 0.037153	2.4
HLA-B*15:01	1	751	759	9	LQYGSFCTQ 0.037144	2.9
HLA-A*30:01	1	555	563	9	KFLPFQQFG 0.037139	3.6
HLA-A*31:01	1	289	297	9	ALDPLSETK 0.037133	3.5
HLA-A*30:02	1	1133	1142	10	TVYDPLQPEL 0.037104	2.7
HLA-B*44:03	1	369	377	9	ASFSTFKCY 0.037095	1.5
HLA-A*26:01	1	631	640	10	RVYSTGSNVF 0.037079	1.5
HLA-B*51:01	1	340	348	9	NATRFASVY 0.03706	2.8
HLA-A*11:01	1	441	450	10	KVGGNYNYLY 0.037046	2.4
HLA-B*53:01	1	122	130	9	NATNVVIKV 0.037035	1.6
HLA-A*02:06	1	885	893	9	FGAGAALQI 0.03702	3.3
HLA-A*02:01	1	1223	1231	9	AIVMVTIML 0.036999	2.6
HLA-B*58:01	1	649	657	9	GAEHVNNSY 0.03698	2.2
HLA-B*57:01	1	266	274	9	YLQPRTFLL 0.036949	3.4
HLA-B*44:03	1	167	176	10	TFEYVSQPFL 0.036944	1.5
HLA-A*02:06	1	1004	1013	10	YVTQQLIRAA 0.036918	3.3
HLA-A*68:02	1	985	993	9	EAEVQIDRL 0.036904	2.4
HLA-A*11:01	1	764	773	10	LTGIAVEQDK 0.036888	2.4
HLA-A*26:01	1	720	728	9	TTEILPVSM 0.036882	1.5
HLA-A*02:03	1	1067	1075	9	AQEKNFTTA 0.036861	2.8
HLA-B*08:01	1	221	229	9	SALEPLVDL 0.036844	2.6
HLA-B*57:01	1	321	329	9	ESIVRFPNI 0.036822	3.4
HLA-A*30:02	1	1057	1065	9	VVFLHVTVY 0.036783	2.7
HLA-B*08:01	1	513	521	9	ELLHAPATV 0.036753	2.6
HLA-A*68:02	1	742	751	10	DSTECSNLLL 0.036717	2.5
HLA-B*15:01	1	745	753	9	ECSNLLLQY 0.036691	2.9
HLA-A*02:06	1	461	469	9	FERDISTEI 0.036689	3.3
HLA-A*30:02	1	1052	1061	10	SAPHGCVVFLH 0.036683	2.7
HLA-A*68:02	1	1005	1013	9	VTQQLIRAA 0.036677	2.5
HLA-B*51:01	1	23	32	10	QLPPAYTNSF 0.036589	2.8
HLA-A*30:02	1	890	899	10	ALQIPFAMQ 0.036557	2.7
HLA-B*07:02	1	1065	1073	9	VPAQEKFT 0.03655	2.0
HLA-B*07:02	1	581	589	9	ILDITPCSF 0.036537	2.0
HLA-A*02:03	1	2	10	9	FVFLVLLPL 0.036514	2.8
HLA-A*33:01	1	443	451	9	GGNYNYLYR 0.036474	2.7
HLA-B*58:01	1	340	348	9	NATRFASVY 0.036466	2.2
HLA-A*68:01	1	375	383	9	KCYGVSPTK 0.036451	4.1

HLA-A*23:01	1	388	397	10	CFTNVYADSF 0.036408	1.5
HLA-A*01:01	1	1260	1269	10	PVLKGVKLHY 0.036367	1.9
HLA-A*32:01	1	184	192	9	GNFKNLREF 0.036352	1.6
HLA-B*15:01	1	1090	1098	9	GVFVSNGLH 0.036332	2.9
HLA-B*53:01	1	263	272	10	YVGYLQPRTF 0.036329	1.7
HLA-B*58:01	1	1091	1100	10	VFVSNGLHWF 0.036325	2.2
HLA-A*30:02	1	783	792	10	KQIYKTPPIK 0.03631	2.8
HLA-A*33:01	1	266	275	10	YLQPRTFLLK 0.0363	2.7
HLA-A*30:01	1	139	147	9	PFLGVYYHK 0.036295	3.6
HLA-A*02:01	1	316	324	9	RVQPTESIV 0.036291	2.6
HLA-B*08:01	1	265	274	10	GYLQPRTFLL 0.036286	2.6
HLA-A*68:01	1	447	455	9	NYLYRLEFRK 0.036281	4.1
HLA-A*02:03	1	883	891	9	WTFGAGAAL 0.036216	2.9
HLA-A*32:01	1	414	422	9	NIADYNYKL 0.036215	1.6
HLA-A*30:02	1	876	885	10	AGTITSGWTF 0.036198	2.8
HLA-B*58:01	1	823	831	9	VTLADAGFI 0.036171	2.2
HLA-A*68:02	1	584	592	9	ITPCSFGGV 0.036148	2.5
HLA-B*57:01	1	317	326	10	VQPTESIVRF 0.036124	3.4
HLA-A*30:01	1	29	38	10	TNSFTRGVVY 0.036036	3.6
HLA-A*02:03	1	603	612	10	NQVAVLYQGV 0.036005	2.9
HLA-B*15:01	1	1091	1100	10	VFVSNGLHWF 0.035922	2.9
HLA-A*02:06	1	256	264	9	TAGAAAYYV 0.03591	3.4
HLA-A*02:06	1	1051	1060	10	QSAPHGVVFL 0.035907	3.4
HLA-A*03:01	1	142	151	10	GVYYHKNNKS 0.035903	2.6
HLA-A*30:02	1	369	378	10	ASFSTFKCYG 0.035888	2.8
HLA-B*15:01	1	20	28	9	TRTQLPPAY 0.035886	2.9
HLA-A*30:01	1	774	783	10	NTQEVFAQVK 0.035842	3.7
HLA-A*26:01	1	478	487	10	NGVKGFNCYF 0.035834	1.5
HLA-A*26:01	1	1133	1141	9	TVYDPLQPE 0.035786	1.5
HLA-A*30:01	1	261	269	9	AYYVGYLQP 0.035772	3.7
HLA-A*02:01	1	849	857	9	AQKFNGLTV 0.035721	2.6
HLA-B*44:03	1	440	448	9	SKVGGNYNY 0.035712	1.5
HLA-A*30:02	1	674	682	9	QTNSPRRAR 0.035678	2.8
HLA-A*24:02	1	195	203	9	KNIDGYFKI 0.035675	1.6
HLA-A*30:01	1	1172	1180	9	SVVNIQKEI 0.035633	3.7
HLA-B*53:01	1	255	263	9	WTAGAAAYY 0.035627	1.7
HLA-B*44:03	1	721	730	10	TEILPVSMTK 0.035608	1.5
HLA-B*08:01	1	501	510	10	GYQPYRVVVL 0.035598	2.7
HLA-A*24:02	1	263	272	10	YVGYLQPRTF 0.035591	1.6
HLA-A*02:03	1	508	517	10	VVLSFELLHA 0.035547	2.9
HLA-A*33:01	1	169	177	9	EYVSQPFLM 0.035528	2.7
HLA-A*23:01	1	959	967	9	LVKQLSSNF 0.035476	1.5
HLA-A*30:02	1	1045	1053	9	HLMSFPQSA 0.035475	2.8
HLA-B*44:02	1	335	344	10	FGEVFNATRF 0.035473	1.4
HLA-A*30:01	1	527	535	9	STNLVKKNC 0.035466	3.7
HLA-B*53:01	1	985	993	9	EAEVQIDRL 0.035453	1.7
HLA-B*40:01	1	550	559	10	TESNKKFLPF 0.035451	1.6
HLA-A*01:01	1	580	589	10	EILDITPCSF 0.03542	1.9
HLA-A*03:01	1	94	102	9	STEKSNIIR 0.035418	2.6
HLA-B*08:01	1	849	857	9	AQKFNGLTV 0.0354	2.7
HLA-B*57:01	1	1127	1135	9	IGIVNNTVY 0.035395	3.5
HLA-B*15:01	1	988	996	9	VQIDRLITG 0.035394	2.9
HLA-A*68:01	1	517	526	10	APATVCGPKK 0.035393	4.2
HLA-A*31:01	1	78	86	9	RFANPVLPF 0.03539	3.6
HLA-B*40:01	1	849	857	9	AQKFNGLTV 0.035355	1.6
HLA-B*57:01	1	381	389	9	PTKLNDFCF 0.035342	3.5
HLA-B*58:01	1	720	728	9	TTEILPVSM 0.035333	2.3
HLA-B*53:01	1	683	692	10	SVASQSIIAY 0.035308	1.7
HLA-A*02:01	1	548	557	10	VLTESNKKFL 0.035282	2.6
HLA-B*44:02	1	462	470	9	ERDISTEYI 0.035257	1.4
HLA-A*26:01	1	208	216	9	TPINLVRGL 0.035225	1.5
HLA-B*51:01	1	458	467	10	LKPFERDIST 0.035208	2.9
HLA-A*32:01	1	502	510	9	YQPYRVVVL 0.035204	1.7
HLA-A*30:01	1	593	601	9	SVITPGTNT 0.035171	3.7
HLA-A*30:01	1	773	782	10	KNTQEVFAQV 0.035141	3.7
HLA-B*15:01	1	1041	1049	9	GKGYHLMSF 0.035141	2.9

HLA-A*30:02	1	662	671	10	PIGAGICASY 0.035118	2.8
HLA-A*03:01	1	555	564	10	KFLPFQFGR 0.035091	2.6
HLA-A*30:01	1	454	463	10	RKSNLKPFR 0.035086	3.7
HLA-A*32:01	1	46	54	9	SVLHSTQDL 0.035085	1.7
HLA-A*31:01	1	997	1005	9	RLQSLQTYV 0.034955	3.6
HLA-B*51:01	1	434	442	9	NSNNLDSKV 0.034933	2.9
HLA-B*51:01	1	121	130	10	NNATNVVIVK 0.034871	2.9
HLA-B*57:01	1	135	144	10	FCNDPFLGVY 0.034847	3.5
HLA-B*08:01	1	76	84	9	TKRFANPVL 0.03483	2.7
HLA-A*30:01	1	262	270	9	YYVGYLQPR 0.034827	3.7
HLA-A*02:03	1	715	724	10	FTISVTTEIL 0.034825	2.9
HLA-A*68:02	1	855	863	9	LTVLPPLLT 0.034818	2.5
HLA-A*24:02	1	3	11	9	VFLVLLPLV 0.034808	1.6
HLA-B*51:01	1	247	255	9	TPGDSSSGW 0.034787	2.9
HLA-A*02:03	1	927	935	9	AIGKIQDSL 0.034777	2.9
HLA-A*26:01	1	362	371	10	YSVLYNSASF 0.034753	1.5
HLA-B*08:01	1	268	276	9	QPRTFLLKY 0.034746	2.7
HLA-B*51:01	1	724	732	9	LPVSMTKTS 0.034714	2.9
HLA-A*30:01	1	374	383	10	FKCYGVSPTK 0.034698	3.7
HLA-A*68:02	1	622	630	9	HADQLTPTW 0.034672	2.5
HLA-A*11:01	1	671	680	10	YQTQTNSPRR 0.034665	2.5
HLA-A*02:03	1	364	372	9	VLYNSASF 0.034662	2.9
HLA-B*44:03	1	1013	1022	10	AEIRASANLA 0.034661	1.6
HLA-A*02:06	1	640	648	9	FQTRAGCLI 0.034631	3.4
HLA-A*02:06	1	882	891	10	GWTFGAGAAL 0.034629	3.4
HLA-A*30:01	1	375	384	10	KCYGVSPTKL 0.034627	3.7
HLA-A*26:01	1	40	49	10	DKVFRSSVLH 0.034613	1.5
HLA-A*02:03	1	1052	1060	9	SAPHGVVFL 0.034609	2.9
HLA-A*02:01	1	817	825	9	DLLFNKVTL 0.034579	2.6
HLA-B*07:02	1	959	967	9	LVKQLSSNF 0.034493	2.1
HLA-A*68:02	1	506	514	9	RVVLSFEL 0.034486	2.5
HLA-B*15:01	1	580	589	10	EILDITPCSF 0.03446	3.0
HLA-A*30:01	1	670	679	10	SYQTQTNSPR 0.034352	3.8
HLA-B*51:01	1	171	179	9	VSQPFLMDL 0.034322	2.9
HLA-A*68:02	1	919	927	9	LIANQFNSA 0.034317	2.5
HLA-A*02:06	1	723	731	9	ILPVSMTKT 0.034307	3.5
HLA-A*30:02	1	214	222	9	RGLPQGFA 0.034264	2.9
HLA-A*23:01	1	891	899	9	LQIPFAMQM 0.034245	1.6
HLA-B*07:02	1	474	483	10	STPCNGVKGF 0.034201	2.1
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	571	579	9	DAVRDPQTL 0.034044	1.6
HLA-A*68:01	1	161	170	10	SSANNCTFEY 0.034031	4.3
HLA-B*08:01	1	363	371	9	SVLYNSASF 0.034002	2.8
HLA-B*44:02	1	177	186	10	MDLEGKQGNF 0.033996	1.4
HLA-B*58:01	1	237	245	9	RFQTLHRSY 0.033962	2.3
HLA-A*02:01	1	238	246	9	FQTLHRSYL 0.033932	2.7
HLA-B*08:01	1	891	899	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	1056	1064	9	GVVFLHVTY 0.033827	1.9
HLA-B*35:01	1	920	928	9	IANQFNSAI 0.033824	2.0
HLA-A*26:01	1	1018	1026	9	SANLAATKM 0.033817	1.6
HLA-A*31:01	1	30	38	9	NSFTRGVYY 0.033783	3.7
HLA-B*51:01	1	487	496	10	FPLQSYGFQP 0.033781	2.9
HLA-A*30:02	1	778	787	10	VFAQVKQIYK 0.033757	2.9
HLA-A*02:06	1	1164	1173	10	GDISGINASV 0.0337	3.5
HLA-A*02:06	1	1220	1228	9	GLIAIVMVT 0.03369	3.5
HLA-B*15:01	1	126	135	10	VVIKVCFFQF 0.033676	3.0
HLA-B*57:01	1	1222	1230	9	IAIVMVTIM 0.033666	3.5
HLA-B*51:01	1	366	374	9	YNSASFSTF 0.033662	2.9
HLA-A*24:02	1	98	106	9	SNIRGWIF 0.033644	1.6
HLA-A*68:02	1	386	394	9	DLCFTNVYA 0.033641	2.6
HLA-A*02:06	1	1219	1227	9	AGLIAIVMV 0.033629	3.5
HLA-A*02:03	1	830	838	9	FIKQYGDCL 0.033597	3.0

HLA-A*26:01	1	437	446	10	NLDSKVGNGY 0.033584	1.6
HLA-B*51:01	1	933	942	10	DSLSSSTASAL 0.033568	2.9
HLA-B*53:01	1	247	256	10	TPGDSSSGWT 0.033547	1.7
HLA-B*08:01	1	853	861	9	NGLTVLPPPL 0.033533	2.8
HLA-A*30:01	1	68	77	10	IHVSGTNGTK 0.033483	3.8
HLA-A*32:01	1	937	945	9	STASALGKL 0.033476	1.7
HLA-A*33:01	1	1098	1107	10	HWFVTQRNFY 0.033472	2.8
HLA-A*30:01	1	337	345	9	EVFNATRFA 0.033461	3.8
HLA-A*30:01	1	684	692	9	VASQSIIAY 0.033455	3.8
HLA-A*02:06	1	1029	1037	9	CVLGQSKRV 0.033453	3.5
HLA-B*53:01	1	192	201	10	FVFKNIDGYF 0.033438	1.7
HLA-B*15:01	1	1023	1031	9	ATKMSECVL 0.033428	3.0
HLA-A*02:01	1	55	63	9	FLPFFSNVT 0.033423	2.7
HLA-A*02:06	1	548	556	9	VLTESNKKF 0.033419	3.5
HLA-B*15:01	1	850	858	9	QKFNGLTVL 0.033417	3.0
HLA-B*35:01	1	295	303	9	ETKCTLKSF 0.033411	2.0
HLA-A*26:01	1	20	28	9	TRTQLPPAY 0.033401	1.6
HLA-B*35:01	1	1254	1262	9	DEDDSEPVL 0.033385	2.0
HLA-A*26:01	1	339	348	10	FNATRFASVY 0.033372	1.6
HLA-A*30:01	1	818	826	9	LLFNKVTLA 0.033342	3.8
HLA-A*24:02	1	50	59	10	STQDLFLPFF 0.033338	1.6
HLA-B*58:01	1	479	487	9	GVKGFNCYF 0.033325	2.3
HLA-B*35:01	1	1198	1206	9	QELGKYEYQ 0.033284	2.0
HLA-A*30:02	1	955	963	9	ALNTLVKQL 0.033257	2.9
HLA-A*30:02	1	1208	1217	10	KWPWYIWLGF 0.033251	2.9
HLA-A*68:02	1	572	581	10	AVRDPQTLEI 0.033243	2.6
HLA-B*58:01	1	554	562	9	KKFLPFQFQ 0.033231	2.4
HLA-A*02:03	1	874	882	9	LLAGTITSG 0.033137	3.0
HLA-A*26:01	1	649	657	9	GAEHVNNSY 0.033134	1.6
HLA-A*32:01	1	171	179	9	VSQPFLMDL 0.033129	1.7
HLA-A*30:02	1	365	374	10	LYNSASFSTF 0.033115	2.9
HLA-B*15:01	1	786	794	9	YKTPPIKDF 0.033077	3.0
HLA-B*44:02	1	1013	1022	10	AEIRASANLA 0.033076	1.4
HLA-B*44:03	1	657	665	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	554	562	9	KKFLPFQFQ 0.033042	1.4
HLA-B*57:01	1	926	935	10	SAIGKIQDSL 0.033003	3.6
HLA-A*30:01	1	311	319	9	QTSNFRVQP 0.032958	3.9
HLA-B*58:01	1	192	201	10	FVFKNIDGYF 0.032912	2.4
HLA-B*53:01	1	720	728	9	TTEILPVSM 0.03289	1.8
HLA-B*07:02	1	215	223	9	GLPQGFSA 0.032883	2.1
HLA-A*32:01	1	301	310	10	KSFTVEKGIY 0.032874	1.8
HLA-A*68:01	1	508	516	9	VVLSFELLH 0.032845	4.3
HLA-B*15:01	1	49	58	10	HSTQDLFLPF 0.032834	3.0
HLA-A*02:01	1	604	612	9	QVAVLYQGV 0.032801	2.7
HLA-A*30:01	1	197	206	10	IDGYFKIYSK 0.032794	3.9
HLA-B*57:01	1	954	963	10	QALNTLVKQL 0.03273	3.6
HLA-A*26:01	1	49	58	10	HSTQDLFLPF 0.032701	1.6
HLA-A*30:02	1	346	354	9	SVYAWNRKR 0.032688	3.0
HLA-A*01:01	1	573	581	9	VRDPQTLEI 0.032685	2.0
HLA-B*35:01	1	462	470	9	ERDISTEY 0.032674	2.0
HLA-A*02:06	1	870	878	9	YTSALLAGT 0.03264	3.5
HLA-B*07:02	1	102	110	9	RGWIFGTTL 0.032638	2.1
HLA-A*30:01	1	446	455	10	YNYLYRLFRK 0.032634	3.9
HLA-A*68:02	1	226	235	10	LVDLPIGINI 0.03262	2.6
HLA-B*44:03	1	601	609	9	TSNQVAVLY 0.032613	1.6
HLA-B*58:01	1	102	110	9	RGWIFGTTL 0.032591	2.4
HLA-B*53:01	1	1064	1072	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	YSSANNCTF 0.032537	3.0
HLA-A*01:01	1	1072	1080	9	FTTAPAICH 0.032536	2.0
HLA-B*35:01	1	362	371	10	YSVLYNSASF 0.032507	2.0
HLA-A*68:01	1	921	930	10	ANQFNSAIGK 0.032506	4.3
HLA-A*26:01	1	137	145	9	NDPFLGVVY 0.0325	1.6
HLA-A*23:01	1	966	974	9	NFGAISSVL 0.032492	1.6

HLA-B*51:01	1	883	891	9	WTFGAGAAL 0.03247	3.0
HLA-A*26:01	1	696	704	9	LGVENSVAY 0.032462	1.6
HLA-A*30:01	1	842	850	9	AARDLICAQ 0.032452	3.9
HLA-B*15:01	1	857	866	10	VLPPLLTDEM 0.032442	3.0
HLA-B*44:02	1	1091	1099	9	VFVSNQTHW 0.032421	1.4
HLA-A*30:02	1	1097	1106	10	THWFVTQRNF 0.032418	3.0
HLA-B*57:01	1	483	492	10	FNCYFPLQSY 0.032411	3.6
HLA-A*32:01	1	324	332	9	VRFPNITNL 0.032318	1.8
HLA-A*30:01	1	799	808	10	FSQILPDPSK 0.032283	3.9
HLA-B*44:02	1	1027	1035	9	SECVLGQSK 0.032249	1.4
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-B*07:02	1	108	117	10	TTLDSKTQSL 0.032157	2.2
HLA-A*02:01	1	919	927	9	LIANQFNFA 0.032153	2.7
HLA-A*30:01	1	94	102	9	STEKSNIIIR 0.032144	3.9
HLA-A*30:02	1	392	400	9	VYADSFVIR 0.032127	3.0
HLA-A*68:02	1	1199	1207	9	ELGKYEQYI 0.032114	2.7
HLA-B*57:01	1	1260	1269	10	PVLKGVKLHY 0.032112	3.6
HLA-A*33:01	1	205	214	10	SKHTPINLVR 0.032084	2.9
HLA-B*15:01	1	1045	1053	9	HLMSFPQSA 0.032025	3.1
HLA-B*57:01	1	937	945	9	STASALGKL 0.032019	3.6
HLA-B*57:01	1	485	494	10	CYFPLQSYGF 0.03197	3.6
HLA-A*30:02	1	688	696	9	SIAYTMSL 0.031915	3.0
HLA-A*02:03	1	866	875	10	MIAQYTSALL 0.031915	3.1
HLA-A*02:03	1	204	213	10	YSKHTPINLV 0.031908	3.1
HLA-B*15:01	1	953	961	9	AQALNTLVK 0.031902	3.1
HLA-B*35:01	1	627	635	9	TPTWRVYST 0.031883	2.1
HLA-B*53:01	1	207	216	10	HTPINLVRGL 0.031882	1.8
HLA-A*68:02	1	1051	1059	9	QSAPHGVVF 0.031853	2.7
HLA-A*02:03	1	1093	1101	9	VSNGTHWFV 0.03185	3.1
HLA-B*53:01	1	341	350	10	ATRFASVYAW 0.031832	1.8
HLA-A*68:02	1	676	684	9	NSPRRARSV 0.031819	2.7
HLA-A*02:06	1	337	345	9	EVFNATRFA 0.031811	3.6
HLA-A*32:01	1	621	630	10	IHADQLTPTW 0.031802	1.8
HLA-A*68:01	1	258	266	9	GAAAYVYVG 0.031773	4.4
HLA-A*30:02	1	784	792	9	QIYKTPPIK 0.031762	3.0
HLA-A*30:01	1	1104	1113	10	RNFYEPQIIT 0.031757	4.0
HLA-A*02:03	1	891	900	10	LQIPFAMQMA 0.031748	3.1
HLA-A*68:02	1	1259	1267	9	EPVLKGVKL 0.031747	2.7
HLA-B*58:01	1	266	274	9	YLQPRTFLL 0.031736	2.4
HLA-A*68:02	1	713	721	9	TNFTISVTT 0.031717	2.7
HLA-A*26:01	1	462	470	9	ERDISTEYI 0.031687	1.6
HLA-A*01:01	1	877	885	9	GTITSGWTF 0.031684	2.0
HLA-B*35:01	1	631	640	10	RVYSTGSNVF 0.031682	2.1
HLA-B*44:03	1	268	276	9	QPRTFLLKY 0.03168	1.6
HLA-A*30:01	1	307	315	9	KGIYQTSNF 0.031672	4.0
HLA-B*51:01	1	102	110	9	RGWIFGTTL 0.031596	3.1
HLA-A*02:01	1	773	782	10	KNTQEVFAQV 0.031556	2.8
HLA-A*03:01	1	293	301	9	LSETKCTLK 0.031542	2.8
HLA-A*30:01	1	930	939	10	KIQDLSLSTA 0.031511	4.0
HLA-B*51:01	1	324	332	9	VRFPNITNL 0.031468	3.1
HLA-A*23:01	1	126	135	10	VVIKVCEVFQ 0.031427	1.6
HLA-B*57:01	1	195	203	9	KNIDGYFKI 0.031402	3.6
HLA-A*31:01	1	369	377	9	ASFSTFKCY 0.031388	3.8
HLA-B*35:01	1	47	55	9	VLHSTQDLF 0.031381	2.1
HLA-A*68:02	1	499	507	9	GVGYQPYRV 0.03136	2.7
HLA-A*02:06	1	587	595	9	CSFGGVSVI 0.031346	3.6
HLA-A*23:01	1	1144	1152	9	SFKEELDKY 0.031346	1.6
HLA-A*30:02	1	23	32	10	QLPPAYTNSF 0.031339	3.1
HLA-A*30:01	1	636	644	9	GSNVFQTRA 0.031271	4.0
HLA-A*02:06	1	444	452	9	GNYNLYRL 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	446	454	9	YNYLYRLFR 0.031148	4.0
HLA-B*35:01	1	414	422	9	NIADYNYKL 0.031145	2.1
HLA-A*33:01	1	446	455	10	YNYLYRLFRK 0.031144	2.9



HLA-B*51:01	1	1258	1267	10	SEPVLKGVKL 0.031137	3.1
HLA-A*30:01	1	1138	1146	9	LQPELDSFK 0.031133	4.0
HLA-A*30:01	1	552	560	9	SNKKFLPFQ 0.031102	4.0
HLA-B*08:01	1	449	458	10	LYRLFRRKSNL 0.031098	2.9
HLA-B*57:01	1	871	879	9	TSALLAGTI 0.031083	3.7
HLA-A*31:01	1	270	278	9	RTFLLKYNE 0.03108	3.8
HLA-A*02:06	1	1110	1118	9	QIITTDNTF 0.031037	3.7
HLA-A*68:02	1	814	823	10	FIEDLLFNKV 0.031004	2.7
HLA-B*07:02	1	522	531	10	CGPKKSTNLV 0.030986	2.2
HLA-A*23:01	1	46	55	10	SVLHSTQDLF 0.03094	1.6
HLA-A*30:01	1	266	274	9	YLQPRTFLL 0.030891	4.1
HLA-A*02:01	1	508	517	10	VVLSFELLHA 0.030888	2.8
HLA-B*07:02	1	557	566	10	LPFQQFGRDI 0.030883	2.2
HLA-A*30:01	1	812	820	9	RSFIEDLLF 0.030883	4.1
HLA-B*44:02	1	776	784	9	QEVFAQVKQ 0.030876	1.5
HLA-B*08:01	1	145	153	9	YHKNNKSWM 0.030856	2.9
HLA-A*33:01	1	753	762	10	YGSFCTQLNR 0.030849	2.9
HLA-B*08:01	1	600	608	9	NTSNQVAVL 0.030833	2.9
HLA-A*30:01	1	879	887	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	624	632	9	DQLTPTWRV 0.030771	3.0
HLA-A*30:02	1	206	214	9	KHTPINLVR 0.03077	3.1
HLA-B*57:01	1	649	657	9	GAEHVNNSY 0.030754	3.7
HLA-B*58:01	1	474	483	10	STPCNGVKGF 0.030737	2.4
HLA-A*68:02	1	134	143	10	QFCNDPFLGV 0.030705	2.7
HLA-A*68:01	1	555	564	10	KFLPFQQFGR 0.030693	4.4
HLA-B*35:01	1	253	262	10	SGWTAGAAAY 0.030673	2.1
HLA-B*57:01	1	340	348	9	NATRFASVY 0.030661	3.7
HLA-A*02:01	1	1221	1229	9	LIAIVMVTI 0.030623	2.8
HLA-B*57:01	1	731	739	9	TSVDCTMYI 0.030607	3.7
HLA-A*30:01	1	336	345	10	GEVFNATRFA 0.030606	4.1
HLA-A*30:01	1	1056	1064	9	GVVFLHVTY 0.030583	4.1
HLA-A*02:06	1	371	379	9	FSTFKCYGV 0.030574	3.7
HLA-B*44:02	1	247	255	9	TPGDSSSGW 0.030564	1.5
HLA-B*35:01	1	109	117	9	TLDSKTQSL 0.030559	2.1
HLA-A*11:01	1	368	377	10	SASFSTFKCY 0.030558	2.6
HLA-B*58:01	1	484	492	9	NCYFPLQSY 0.030515	2.4
HLA-B*51:01	1	899	908	10	MAYRFNGIGV 0.030509	3.1
HLA-B*57:01	1	744	753	10	TECSNLLLQY 0.030453	3.7
HLA-B*15:01	1	912	920	9	VLYENQKLI 0.030433	3.2
HLA-B*40:01	1	1134	1142	9	VYDPLQPEL 0.030429	1.7
HLA-B*57:01	1	254	263	10	GWTAGAAAYY 0.030389	3.7
HLA-A*31:01	1	824	832	9	TLADAGFIK 0.030386	3.9
HLA-A*26:01	1	303	311	9	FTVEKGIYQ 0.030368	1.7
HLA-A*31:01	1	902	910	9	RFNGIGVTQ 0.030367	3.9
HLA-B*35:01	1	1052	1061	10	SAPHGVVFLH 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	858	867	10	LPPLLTDEMI 0.030306	1.9
HLA-A*03:01	1	36	44	9	VYYPDKVFR 0.030292	2.8
HLA-A*02:06	1	719	728	10	VTTEILPVSM 0.030292	3.7
HLA-A*02:01	1	715	724	10	FTISVTTEIL 0.03028	2.8
HLA-A*02:03	1	623	632	10	ADQLTPTWRV 0.030279	3.2
HLA-A*30:01	1	113	121	9	KTQSLLIVN 0.030275	4.1
HLA-A*68:01	1	445	454	10	NYNLYRFLFR 0.030236	4.5
HLA-A*30:02	1	1017	1025	9	ASANLAATK 0.030231	3.1
HLA-A*30:02	1	375	383	9	KCYGVSPTK 0.030197	3.1
HLA-B*08:01	1	1175	1183	9	NIQKEIDRL 0.030197	3.0
HLA-B*57:01	1	715	724	10	FTISVTTEIL 0.030191	3.7
HLA-A*24:02	1	160	168	9	YSSANNCTF 0.030188	1.7
HLA-B*35:01	1	770	779	10	EQDKNTQEVF 0.030151	2.1
HLA-A*30:01	1	143	151	9	VYYHKNNKS 0.030142	4.1
HLA-A*23:01	1	811	820	10	KRSFIEDLLF 0.030109	1.7
HLA-B*58:01	1	127	135	9	VIKVCEFQF 0.030086	2.5

HLA-B*44:03	1	385	393	9	NDLCFTNVY 0.030078	1.7
HLA-B*35:01	1	122	130	9	NATNVVIVK 0.03007	2.1
HLA-B*08:01	1	1254	1262	9	DEDDSEPV 0.03006	3.0
HLA-A*02:03	1	709	717	9	IAIPTNFTI 0.030059	3.2
HLA-A*03:01	1	162	170	9	SANNCTFEY 0.03001	2.8
HLA-A*68:01	1	367	376	10	NSASFSTFKC 0.030009	4.5
HLA-A*30:01	1	481	489	9	KGFNCYFPL 0.03	4.2
HLA-A*02:03	1	324	332	9	VRFPNITNL 0.029988	3.2
HLA-B*44:02	1	56	64	9	LPFFSNVTW 0.029906	1.5
HLA-A*68:01	1	765	773	9	TGIAVEQDK 0.029894	4.5
HLA-A*02:01	1	879	887	9	ITSGWTFGA 0.029885	2.9
HLA-A*24:02	1	1134	1143	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	SWMSEFRVY 0.02986	1.8
HLA-B*57:01	1	331	339	9	NLCPFGEV 0.029835	3.7
HLA-A*30:02	1	1144	1153	10	SFKEELDKYF 0.029832	3.2
HLA-A*02:06	1	1002	1010	9	QTYVTQQLI 0.029801	3.7
HLA-A*68:02	1	985	994	10	EAEVQIDRLI 0.029798	2.8
HLA-B*44:03	1	1147	1155	9	EELDKYFKN 0.029753	1.7
HLA-B*51:01	1	688	696	9	SIAYTMSL 0.02975	3.1
HLA-A*30:01	1	935	944	10	LSSTASALGK 0.029742	4.2
HLA-A*68:01	1	972	981	10	SVLNDILSRL 0.029729	4.5
HLA-A*11:01	1	1095	1104	10	NGTHWFVTQR 0.029704	2.7
HLA-A*68:02	1	46	54	9	SVLHSTQDL 0.029692	2.8
HLA-A*30:02	1	1063	1072	10	TYVPAQEKNF 0.029663	3.2
HLA-B*44:03	1	177	186	10	MDLEGKQGNF 0.029608	1.7
HLA-A*30:02	1	195	203	9	KNIDGYFKI 0.0296	3.2
HLA-B*58:01	1	1245	1253	9	CSCGSCCKF 0.029597	2.5
HLA-A*02:06	1	204	213	10	YSKHTPINLV 0.029589	3.7
HLA-A*30:01	1	413	421	9	GNIADYNYK 0.029585	4.2
HLA-A*30:01	1	27	36	10	AYTNSFTRGV 0.029548	4.2
HLA-A*68:02	1	340	349	10	NATRFASVYA 0.02954	2.8
HLA-A*30:02	1	1151	1159	9	KYFKNHTSP 0.029537	3.2
HLA-A*02:01	1	119	127	9	IVN NATNVV 0.029528	2.9
HLA-A*02:03	1	54	62	9	LFLPFFSNV 0.029518	3.2
HLA-A*01:01	1	995	1004	10	TGRLQSLQTY 0.02951	2.1
HLA-A*11:01	1	1036	1044	9	RVDFCGKGY 0.029503	2.7
HLA-A*02:01	1	1172	1180	9	SVVNIQKEI 0.029493	2.9
HLA-B*58:01	1	995	1004	10	TGRLQSLQTY 0.02949	2.5
HLA-A*30:02	1	28	36	9	YTNSFTRGV 0.029481	3.2
HLA-A*30:01	1	889	897	9	AALQIPFAM 0.029473	4.2
HLA-B*15:01	1	993	1001	9	LITGRLQSL 0.029467	3.2
HLA-B*08:01	1	893	901	9	IPFAMQMAY 0.029368	3.1
HLA-A*68:01	1	411	420	10	QTGNIADYNY 0.029365	4.5
HLA-A*01:01	1	410	418	9	GQTGNIADY 0.029364	2.1
HLA-A*26:01	1	770	779	10	EQDKNTQEVF 0.029333	1.7
HLA-B*08:01	1	265	273	9	GYLQPRFTL 0.029327	3.1
HLA-B*57:01	1	44	52	9	RSSVLHSTQ 0.029294	3.8
HLA-A*01:01	1	478	486	9	NGVKGFNCY 0.029226	2.1
HLA-A*68:01	1	517	525	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	311	319	9	QTSNFRVQP 0.029194	2.8
HLA-B*35:01	1	440	448	9	SKVGGNYNY 0.029168	2.2
HLA-A*26:01	1	1090	1099	10	GVFVSNGTHW 0.029167	1.7
HLA-A*68:01	1	295	303	9	ETKCTLKSF 0.029152	4.6
HLA-A*02:06	1	716	724	9	TISVTTEIL 0.029138	3.8
HLA-A*68:01	1	1138	1146	9	LQPELDSFK 0.029117	4.6
HLA-A*02:06	1	1110	1119	10	QIITTDNTFV 0.029104	3.8
HLA-A*30:02	1	1084	1092	9	AHFPREGVF 0.029103	3.2
HLA-A*68:02	1	255	263	9	WTAGAAAYY 0.029101	2.8
HLA-B*53:01	1	1186	1194	9	VAKNLNESL 0.029084	1.9
HLA-A*02:06	1	83	92	10	VLPFNDGVYF 0.029069	3.8
HLA-B*51:01	1	111	120	10	DSKTQSLIV 0.029065	3.2
HLA-A*30:02	1	953	961	9	AQALNTLVK 0.029059	3.2
HLA-A*32:01	1	572	581	10	AVRDPQTLEI 0.029051	1.9

HLA-A*26:01	1	947	955	9	DVVNQNAQA 0.029042	1.7
HLA-A*30:02	1	948	956	9	VVNQNAQAL 0.029024	3.2
HLA-A*31:01	1	774	783	10	NTQEVFAQVK 0.029021	4.0
HLA-B*15:01	1	186	194	9	FKNLREFVF 0.028986	3.2
HLA-A*02:03	1	364	373	10	VLYNSASFST 0.028985	3.2
HLA-B*51:01	1	263	272	10	YVGYLQPRTF 0.028951	3.2
HLA-A*26:01	1	876	885	10	AGTITSGWTF 0.02894	1.7
HLA-A*30:02	1	1018	1026	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	294	303	10	SETKCTLKSF 0.02888	3.2
HLA-A*23:01	1	56	64	9	LPFFSNVTW 0.028864	1.7
HLA-A*68:02	1	390	399	10	TNVYADSFVI 0.028857	2.8
HLA-B*58:01	1	686	694	9	SQSIIAYTM 0.028848	2.5
HLA-A*68:02	1	685	693	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	345	354	10	ASVYAWNRKR 0.028728	4.3
HLA-B*44:02	1	490	498	9	QSYGFQPTY 0.028655	1.6
HLA-A*02:03	1	7	15	9	LLPLVSSQC 0.028651	3.3
HLA-A*30:02	1	961	969	9	KQLSSNFGA 0.028651	3.2
HLA-B*15:01	1	191	200	10	EFVFKNIDGY 0.028639	3.2
HLA-A*02:01	1	420	429	10	YKLPDDFTGC 0.028627	2.9
HLA-A*31:01	1	335	343	9	FGEVFNATR 0.028622	4.0
HLA-A*30:02	1	366	374	9	YNSASFSTF 0.02862	3.2
HLA-B*44:03	1	56	64	9	LPFFSNVTW 0.028609	1.7
HLA-A*33:01	1	774	782	9	NTQEVFAQV 0.028608	3.1
HLA-A*33:01	1	984	992	9	VEAEVQIDR 0.028583	3.1
HLA-A*68:01	1	1096	1105	10	GTHWFVTQRN 0.028552	4.6
HLA-A*24:02	1	132	140	9	EFQFCNDPF 0.028551	1.8
HLA-B*07:02	1	238	246	9	FQTLHRSYL 0.028509	2.3
HLA-A*68:01	1	414	422	9	NIADYNYKL 0.028503	4.6
HLA-A*32:01	1	60	68	9	SNVTWFHAI 0.028499	1.9
HLA-B*57:01	1	1023	1031	9	ATKMSECVL 0.028463	3.8
HLA-A*68:02	1	1111	1119	9	IITTDNTFV 0.028453	2.9
HLA-A*30:01	1	1169	1178	10	INASVVNIQK 0.028436	4.3
HLA-B*57:01	1	507	515	9	VVVLSEFELL 0.028428	3.8
HLA-A*31:01	1	50	58	9	STQDLFLPF 0.028419	4.0
HLA-B*58:01	1	254	263	10	GWTAGAAAYY 0.028365	2.5
HLA-A*30:02	1	548	556	9	VLTESNKKF 0.028356	3.3
HLA-A*30:02	1	1005	1013	9	VTQQLIRAA 0.028347	3.3
HLA-A*03:01	1	1137	1146	10	PLQPELDSFK 0.028345	2.9
HLA-B*53:01	1	632	640	9	VYSTGSNVF 0.028325	1.9
HLA-B*51:01	1	866	874	9	MIAQYTSAL 0.028309	3.3
HLA-B*08:01	1	1084	1092	9	AHFPREGVF 0.028307	3.1
HLA-B*57:01	1	233	241	9	INITRFQTL 0.028297	3.8
HLA-A*68:01	1	892	901	10	QIPFAMQMAY 0.028291	4.6
HLA-A*02:06	1	251	259	9	SSSGWTAGA 0.028247	3.9
HLA-A*02:03	1	398	407	10	VIRGDEVRFI 0.028245	3.3
HLA-A*30:01	1	264	272	9	VGYLQPRTF 0.02823	4.3
HLA-A*23:01	1	500	509	10	VGYPYRVVV 0.028218	1.7
HLA-B*58:01	1	108	117	10	TTLDSKTQSL 0.028199	2.6
HLA-B*08:01	1	720	728	9	TTEILPVSM 0.028179	3.1
HLA-A*02:06	1	47	55	9	VLHSTQDLF 0.028177	3.9
HLA-B*35:01	1	875	883	9	LAGTITSGW 0.02817	2.2
HLA-B*07:02	1	1209	1217	9	WPWYIWLGF 0.028144	2.3
HLA-B*08:01	1	1023	1031	9	ATKMSECVL 0.028118	3.1
HLA-B*57:01	1	110	119	10	LDSKTQSLLI 0.028094	3.8
HLA-B*15:01	1	365	374	10	LYNSASFSTF 0.028083	3.3
HLA-B*35:01	1	29	38	10	TNSFTRGVVY 0.028041	2.2
HLA-B*44:03	1	20	28	9	TRTQLPPAY 0.028014	1.8
HLA-A*02:06	1	830	838	9	FIKQYGDCL 0.027974	3.9
HLA-A*02:01	1	226	235	10	LVDLPIGINI 0.027966	3.0
HLA-B*08:01	1	1049	1058	10	FPQSAPHGVV 0.027956	3.2
HLA-A*23:01	1	1085	1093	9	HFPREGVVF 0.02794	1.7

HLA-A*11:01	1	36	44	9	VYYPDKVFR 0.027938	2.8
HLA-A*32:01	1	1221	1229	9	LIAIVMVTI 0.027919	1.9
HLA-B*15:01	1	744	753	10	TECSNLLLQY 0.027911	3.3
HLA-B*58:01	1	44	52	9	RSSVLHSTQ 0.027873	2.6
HLA-B*51:01	1	926	935	10	SAIGKIQDSL 0.027864	3.3
HLA-A*26:01	1	411	420	10	QTGNIADYNY 0.027859	1.8
HLA-A*68:02	1	885	893	9	FGAGAALQI 0.027804	2.9
HLA-A*11:01	1	1142	1151	10	LDSFKEELDK 0.0278	2.8
HLA-A*23:01	1	318	326	9	QPTESIVRF 0.027798	1.7
HLA-A*24:02	1	24	32	9	LPPAYTNSF 0.027736	1.8
HLA-A*30:02	1	485	494	10	CYFPLQSYGF 0.027736	3.3
HLA-B*51:01	1	138	146	9	DPFLGVYYH 0.027734	3.3
HLA-B*35:01	1	237	245	9	RFQTLHRYS 0.027679	2.2
HLA-A*11:01	1	446	454	9	YNYLYRLFR 0.027659	2.8
HLA-A*30:02	1	551	559	9	ESNKKFLPF 0.027639	3.3
HLA-A*02:06	1	102	110	9	RGWIFGTTL 0.027627	3.9
HLA-A*68:02	1	687	696	10	QSIAYTMSL 0.027611	2.9
HLA-B*51:01	1	332	341	10	LCPFGEVFNA 0.027603	3.3
HLA-A*32:01	1	778	786	9	VFAQVKQIY 0.027563	1.9
HLA-A*02:01	1	918	926	9	KLIANQFNS 0.027551	3.0
HLA-B*58:01	1	221	229	9	SALEPLVDL 0.027528	2.6
HLA-B*08:01	1	1205	1213	9	QYIKWPWYI 0.027509	3.2
HLA-A*31:01	1	922	930	9	NQFNNSAIGK 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	NVVIKVCDF 0.027458	3.9
HLA-B*07:02	1	46	54	9	SVLHSTQDL 0.027445	2.3
HLA-B*57:01	1	777	786	10	EVFAQVKQIY 0.027433	3.9
HLA-B*35:01	1	487	495	9	FPLQSYGFQ 0.027417	2.2
HLA-A*32:01	1	993	1001	9	LITGRLQSL 0.027376	2.0
HLA-A*30:02	1	930	938	9	KIQDSLST 0.027332	3.4
HLA-A*02:01	1	930	939	10	KIQDSLSTA 0.027308	3.0
HLA-A*02:03	1	992	1000	9	RLITGRLQS 0.027304	3.4
HLA-B*51:01	1	1254	1262	9	DEDDSEPVL 0.027298	3.3
HLA-A*11:01	1	28	37	10	YTNSFTRGVY 0.027277	2.8
HLA-A*02:01	1	282	290	9	ITDAVDCAL 0.027266	3.0
HLA-A*30:01	1	709	717	9	IAIPTNFTI 0.027261	4.4
HLA-A*30:02	1	405	413	9	RQIAPGQTG 0.027254	3.4
HLA-A*33:01	1	266	274	9	YLQPRTFLL 0.027249	3.1
HLA-A*24:02	1	318	326	9	QPTESIVRF 0.027221	1.9
HLA-A*24:02	1	109	117	9	TLDSKTQSL 0.027217	1.9
HLA-A*26:01	1	706	715	10	NNSIAIPTNF 0.027208	1.8
HLA-A*02:01	1	930	938	9	KIQDSLST 0.0272	3.0
HLA-A*23:01	1	151	160	10	SWMESEFRVY 0.027185	1.8
HLA-A*02:03	1	1045	1054	10	HLMSPQASAP 0.027183	3.4
HLA-B*53:01	1	777	785	9	EVFAQVKQI 0.027169	2.0
HLA-A*11:01	1	546	554	9	TGVLTESNK 0.02716	2.8
HLA-A*30:02	1	1002	1010	9	QTYVTQQLI 0.027152	3.4
HLA-A*02:06	1	259	267	9	AAAYYVGYL 0.02712	4.0
HLA-B*35:01	1	486	494	9	YFPLQSYGF 0.027106	2.2
HLA-B*57:01	1	83	92	10	VLFPNDGVYF 0.027075	3.9
HLA-B*44:03	1	621	630	10	IHADQLTPTW 0.027075	1.8
HLA-B*35:01	1	83	91	9	VLFPNDGVY 0.027049	2.2
HLA-A*26:01	1	160	168	9	YSSANNCTF 0.027043	1.8
HLA-B*57:01	1	549	557	9	LTESNKKFL 0.027019	3.9
HLA-A*02:03	1	391	399	9	NVYADSFVI 0.027005	3.4
HLA-A*31:01	1	631	639	9	RVYSTGSNV 0.027005	4.1
HLA-A*11:01	1	516	525	10	HAPATVCGPK 0.026904	2.8
HLA-A*68:01	1	1089	1098	10	EGVSVNGTH 0.026904	4.7
HLA-B*51:01	1	120	128	9	VNNATNVVI 0.026899	3.3
HLA-B*44:02	1	438	446	9	LDSKVGNGY 0.026891	1.6
HLA-A*30:01	1	151	159	9	SWMESEFRV 0.026838	4.5
HLA-B*58:01	1	1017	1026	10	ASANLAATKM 0.026802	2.6
HLA-A*11:01	1	412	421	10	TGNIADYNYK 0.026777	2.8
HLA-A*68:01	1	496	505	10	PTYGVGYQPY 0.026765	4.7
HLA-B*58:01	1	887	895	9	AGAALQIPF 0.026726	2.6
HLA-B*51:01	1	1083	1091	9	KAHFPREGV 0.026718	3.4

HLA-B*51:01	1	229	237	9	LPIGINITR 0.026714	3.4
HLA-B*58:01	1	1143	1152	10	DSFKEELDKY 0.026714	2.6
HLA-A*68:01	1	670	679	10	SYQTQTNSPR 0.026688	4.7
HLA-A*26:01	1	321	329	9	ESIVRFPNI 0.026687	1.8
HLA-A*02:03	1	420	429	10	YKLPDDFTGC 0.026682	3.4
HLA-A*02:06	1	611	619	9	GVNCTEVPV 0.02668	4.0
HLA-A*01:01	1	743	752	10	STECSNLLLQ 0.026671	2.2
HLA-A*02:06	1	7	15	9	LLPLVSSQC 0.02667	4.0
HLA-B*57:01	1	973	981	9	VLNDILSRL 0.026662	4.0
HLA-A*30:02	1	980	988	9	RLDKVEAEV 0.026635	3.4
HLA-A*11:01	1	354	362	9	RISNCVADY 0.026623	2.8
HLA-A*24:02	1	46	55	10	SVLHSTQDLF 0.026608	1.9
HLA-B*57:01	1	877	886	10	GTITSGWTFG 0.026586	4.0
HLA-A*32:01	1	28	36	9	YTNSFTRGV 0.026583	2.0
HLA-B*53:01	1	267	276	10	LQPRTFLLKY 0.026577	2.0
HLA-B*15:01	1	323	332	10	IVRFPNITNL 0.026577	3.4
HLA-B*08:01	1	314	323	10	NFRVQPTESI 0.026576	3.3
HLA-A*32:01	1	166	175	10	CTFEYVSQPF 0.026567	2.0
HLA-A*02:03	1	802	810	9	ILPDPSPKPS 0.026564	3.4
HLA-A*30:02	1	1053	1061	9	APHGVVFLH 0.026564	3.4
HLA-A*32:01	1	996	1004	9	GRLQSLQTY 0.026551	2.0
HLA-A*68:01	1	302	311	10	SFTVEKGIYQ 0.026549	4.7
HLA-B*53:01	1	1218	1226	9	IAGLIAIVM 0.02654	2.0
HLA-A*02:06	1	47	56	10	VLHSTQDLFL 0.026539	4.0
HLA-A*68:01	1	267	275	9	LQPRTFLLK 0.026539	4.7
HLA-B*35:01	1	169	177	9	EYVSQPFLM 0.026516	2.3
HLA-A*68:02	1	1223	1231	9	AIVMVTIML 0.026509	3.0
HLA-A*32:01	1	1077	1086	10	AICHDGKAHF 0.026501	2.0
HLA-A*02:03	1	1029	1037	9	CVLGQSKRV 0.026497	3.4
HLA-A*02:06	1	378	387	10	GVSPTKLNDL 0.026479	4.0
HLA-A*02:03	1	581	589	9	ILDITPCSF 0.026475	3.4
HLA-A*30:02	1	289	297	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	621	630	10	IHADQLTPTW 0.026398	1.6
HLA-A*33:01	1	61	69	9	NVTWFHAIH 0.026386	3.2
HLA-B*53:01	1	724	733	10	LPVSMTKTSV 0.02637	2.0
HLA-A*31:01	1	1096	1105	10	GTHWFVTQRN 0.026346	4.1
HLA-A*01:01	1	47	55	9	VLHSTQDLF 0.026329	2.2
HLA-A*02:06	1	800	808	9	SQILPDPSK 0.026326	4.0
HLA-A*02:03	1	897	906	10	MQMAYRFNGI 0.02632	3.4
HLA-A*03:01	1	454	463	10	RKSNLKPFER 0.026296	3.0
HLA-B*44:02	1	996	1004	9	GRLQSLQTY 0.026292	1.6
HLA-B*35:01	1	192	201	10	FVFKNIDGYF 0.026286	2.3
HLA-A*68:02	1	368	376	9	SASFSTFKC 0.026282	3.0
HLA-A*30:02	1	151	159	9	SWMESEFRV 0.026251	3.5
HLA-A*23:01	1	1216	1224	9	GFIAGLIAI 0.026247	1.8
HLA-B*53:01	1	1200	1209	10	LGKYEYIKW 0.026196	2.0
HLA-A*30:01	1	293	301	9	LSETKCTLK 0.02619	4.5
HLA-A*68:01	1	883	892	10	WTFGAGAALQ 0.026187	4.7
HLA-B*15:01	1	715	723	9	FTISVTTEI 0.026183	3.4
HLA-A*26:01	1	965	973	9	SNFGAISSV 0.026183	1.9
HLA-A*30:02	1	267	275	9	LQPRTFLLK 0.026154	3.5
HLA-A*26:01	1	1072	1080	9	FTTAPAICH 0.026154	1.9
HLA-A*02:01	1	54	62	9	LFLPFFSNV 0.026152	3.1
HLA-B*51:01	1	551	559	9	ESNKKFLPF 0.026144	3.4
HLA-B*08:01	1	212	220	9	LVRGLPQGF 0.026095	3.3
HLA-B*53:01	1	326	334	9	FPNITNLCP 0.026094	2.0
HLA-B*15:01	1	771	779	9	QDKNTQEVF 0.026094	3.4
HLA-B*08:01	1	1021	1029	9	LAATKMSEC 0.026093	3.3
HLA-A*30:02	1	1077	1086	10	AICHDGKAHF 0.026085	3.5
HLA-A*24:02	1	1048	1057	10	SFPQSAPHGV 0.02608	1.9
HLA-B*58:01	1	375	384	10	KCYGVSPTKL 0.026078	2.6
HLA-A*23:01	1	160	168	9	YSSANNCTF 0.026056	1.8
HLA-A*02:01	1	883	891	9	WTFGAGAAL 0.026042	3.1
HLA-B*53:01	1	777	786	10	EVFAQVKQIY 0.026023	2.0

HLA-B*08:01	1	185	194	10	NFKNLREFVF 0.026022	3.3
HLA-A*26:01	1	478	486	9	NGVKGFNCY 0.026011	1.9
HLA-A*31:01	1	953	961	9	AQALNTLVK 0.02601	4.2
HLA-A*26:01	1	972	980	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	VLPFNDGVYF 0.025974	2.6
HLA-A*68:01	1	193	202	10	VFKNIDGYFK 0.025952	4.8
HLA-A*24:02	1	959	967	9	LVKQLSSNF 0.025923	1.9
HLA-A*68:01	1	1261	1269	9	VLKGVKLHY 0.025916	4.8
HLA-B*15:01	1	254	262	9	GWTAGAAAY 0.025857	3.4
HLA-B*15:01	1	1144	1153	10	SFKEELDKYF 0.025831	3.4
HLA-A*02:06	1	491	500	10	SYGFQPTYGV 0.025823	4.1
HLA-A*01:01	1	288	297	10	CALDPLSETK 0.025815	2.2
HLA-A*01:01	1	566	574	9	IADTTDAVR 0.025813	2.2
HLA-A*11:01	1	600	609	10	NTSNQVAVLY 0.025812	2.9
HLA-B*44:03	1	137	145	9	NDPFLGVYV 0.025786	1.8
HLA-A*26:01	1	255	264	10	WTAGAAAYV 0.025783	1.9
HLA-B*08:01	1	56	64	9	LPFFSNVTW 0.025748	3.3
HLA-A*02:06	1	922	931	10	NQFNSAIGKI 0.025747	4.1
HLA-A*33:01	1	1057	1065	9	VVFLHVTYV 0.025725	3.2
HLA-A*01:01	1	293	301	9	LSETKCTLK 0.025694	2.2
HLA-A*68:02	1	284	293	10	DAVDCALDPL 0.02567	3.0
HLA-B*57:01	1	1172	1180	9	SVVNIQKEI 0.025633	4.0
HLA-B*15:01	1	830	838	9	FIKQYGDCL 0.02561	3.4
HLA-A*02:01	1	769	778	10	VEQDKNTQEV 0.025594	3.1
HLA-A*02:01	1	292	300	9	PLSETKCTL 0.02557	3.1
HLA-A*11:01	1	753	762	10	YGSFCTQLNR 0.02553	2.9
HLA-A*02:01	1	10	18	9	LVSSQCVNL 0.025528	3.1
HLA-B*51:01	1	284	293	10	DAVDCALDPL 0.025525	3.5
HLA-A*02:06	1	1224	1232	9	IVMVTIMLC 0.025521	4.1
HLA-A*30:02	1	822	830	9	KVTLADAGF 0.025506	3.5
HLA-B*57:01	1	686	694	9	SQSIIAYTM 0.025499	4.1
HLA-A*03:01	1	489	498	10	LQSYGFQPTY 0.02549	3.1
HLA-A*30:01	1	20	28	9	TRTQLPPAY 0.025488	4.6
HLA-A*02:06	1	802	810	9	ILPDPSKPS 0.025461	4.1
HLA-B*58:01	1	1063	1072	10	TYVPAQEKNF 0.025449	2.7
HLA-A*02:06	1	405	413	9	RQIAPGQTG 0.025442	4.1
HLA-A*03:01	1	254	263	10	GWTAGAAAY 0.02544	3.1
HLA-B*44:03	1	318	326	9	QPTESIVRF 0.025437	1.8
HLA-A*23:01	1	237	246	10	RFQTLHRSYL 0.025413	1.8
HLA-A*30:01	1	498	506	9	YGVGYQPYR 0.025398	4.7
HLA-B*35:01	1	803	812	10	LPDPSKPSKR 0.025393	2.3
HLA-A*02:06	1	903	912	10	FNGIGVTQNV 0.025389	4.1
HLA-A*02:03	1	10	18	9	LVSSQCVNL 0.025388	3.5
HLA-A*02:03	1	499	508	10	GVGYQPYRVV 0.025371	3.5
HLA-A*02:06	1	815	823	9	IEDLLFNKV 0.025342	4.1
HLA-B*51:01	1	507	515	9	VVLSFELL 0.025341	3.5
HLA-A*03:01	1	803	811	9	LPDPSKPSK 0.025334	3.1
HLA-A*30:01	1	338	346	9	VFNATRFAS 0.025327	4.7
HLA-A*26:01	1	403	411	9	EVROIAPGQ 0.025309	1.9
HLA-B*08:01	1	180	189	10	EGKQGNFKNL 0.025308	3.4
HLA-A*30:02	1	887	895	9	AGAALQIPF 0.025306	3.5
HLA-A*02:06	1	61	70	10	NVTWFHAIHV 0.025303	4.1
HLA-A*30:02	1	265	273	9	GYLQPRFTL 0.025292	3.5
HLA-B*07:02	1	459	468	10	KPFERDISTE 0.025286	2.4
HLA-A*32:01	1	587	595	9	CSFGGVSVI 0.025286	2.1
HLA-A*01:01	1	1255	1263	9	EDDSEPVLK 0.025282	2.3
HLA-B*15:01	1	1046	1055	10	LMSFPQSAPH 0.025256	3.4
HLA-A*30:02	1	572	581	10	AVRDPQTLEI 0.025235	3.5
HLA-A*26:01	1	805	814	10	DPSKPSKRSF 0.025218	1.9
HLA-A*68:02	1	318	326	9	QPTESIVRF 0.025184	3.1
HLA-B*58:01	1	696	704	9	LGVENSVAY 0.025156	2.7
HLA-A*68:01	1	1174	1182	9	VNIQKEIDR 0.025124	4.8
HLA-B*57:01	1	632	640	9	VYSTGSNVF 0.025109	4.1
HLA-A*23:01	1	923	931	9	QFNSAIGKI 0.025098	1.8
HLA-A*68:01	1	937	945	9	STASALGKL 0.025093	4.8

HLA-A*03:01	1	13	21	9	SQCVNLTTR 0.025083	3.1
HLA-B*07:02	1	1065	1074	10	VPAQEKNFST 0.025078	2.4
HLA-A*68:01	1	1033	1042	10	QSKRVDFCGK 0.025068	4.8
HLA-A*30:01	1	54	62	9	LFLPFFSNV 0.025064	4.7
HLA-B*53:01	1	778	786	9	VFAQVKQIY 0.025054	2.0
HLA-A*02:06	1	117	126	10	LLIVNNATNV 0.025049	4.1
HLA-A*31:01	1	334	343	10	PFGEVFNATR 0.02502	4.2
HLA-B*51:01	1	1205	1213	9	QYIKWPWYI 0.025014	3.5
HLA-A*26:01	1	948	956	9	VVNQNAQAL 0.025004	1.9
HLA-A*30:01	1	162	170	9	SANNCTFEY 0.025002	4.7
HLA-A*68:01	1	260	268	9	AAYYVGYLQ 0.024951	4.8
HLA-A*30:02	1	182	190	9	KQGNFKNLR 0.024946	3.6
HLA-A*02:01	1	948	956	9	VVNQNAQAL 0.024928	3.2
HLA-A*32:01	1	883	891	9	WTFGAGAAL 0.024926	2.1
HLA-A*01:01	1	621	630	10	IHADQLTPTW 0.02492	2.3
HLA-A*30:01	1	1193	1202	10	SLIDLQELGK 0.024902	4.7
HLA-A*23:01	1	551	559	9	ESNKKFLPF 0.024897	1.8
HLA-B*57:01	1	221	229	9	SALEPLVDL 0.024865	4.1
HLA-A*30:02	1	1067	1075	9	AQEKNFSTA 0.024855	3.6
HLA-B*44:02	1	721	730	10	TEILPVSMTK 0.024854	1.7
HLA-A*32:01	1	927	935	9	AIGKIQDSL 0.024811	2.1
HLA-B*35:01	1	503	511	9	QPYRVVVLV 0.02478	2.4
HLA-B*35:01	1	995	1004	10	TGRLQSLQTY 0.024746	2.4
HLA-A*02:06	1	214	222	9	RGLPQGFSV 0.024744	4.2
HLA-A*68:02	1	1204	1213	10	EQYIKWPWYI 0.024735	3.1
HLA-A*02:06	1	315	324	10	FRVQPTESIV 0.024667	4.2
HLA-B*35:01	1	1078	1086	9	ICHDGKAHF 0.024638	2.4
HLA-A*68:01	1	317	325	9	VQPTESIVR 0.024627	4.9
HLA-A*02:01	1	364	373	10	VLYNSASFST 0.0246	3.2
HLA-A*01:01	1	803	811	9	LPDPSKPSK 0.024592	2.3
HLA-A*01:01	1	1099	1107	9	WFVTQRNFY 0.024584	2.3
HLA-A*68:01	1	1185	1193	9	EVAKNLNES 0.024563	4.9
HLA-B*15:01	1	168	176	9	FEYVSQPFL 0.02454	3.5
HLA-A*03:01	1	1133	1141	9	TVYDPLQPE 0.024536	3.1
HLA-A*30:02	1	1001	1009	9	LQTYVTQQL 0.024528	3.6
HLA-A*68:01	1	234	242	9	NITRFQTLH 0.024509	4.9
HLA-A*33:01	1	32	41	10	FTRGVYYPDK 0.024501	3.3
HLA-A*32:01	1	430	438	9	VIAWNSNNL 0.02449	2.1
HLA-A*02:03	1	245	253	9	YLTPGDSSS 0.024488	3.6
HLA-A*02:06	1	954	963	10	QALNTLVKQL 0.024482	4.2
HLA-A*68:02	1	818	826	9	LLFNKVTLA 0.024481	3.1
HLA-A*02:06	1	285	293	9	AVDCALDPL 0.024479	4.2
HLA-A*02:01	1	2	11	10	FVFLVLLPLV 0.024478	3.2
HLA-A*11:01	1	489	498	10	LQSYGFQPTY 0.02447	3.0
HLA-A*68:02	1	577	585	9	QTLEILDIT 0.024469	3.1
HLA-B*51:01	1	1022	1030	9	AATKMSECV 0.024468	3.6
HLA-B*58:01	1	49	57	9	HSTQDLFLP 0.024466	2.7
HLA-A*30:02	1	992	1001	10	RLITGRLQSL 0.024453	3.6
HLA-A*23:01	1	686	694	9	SQSIIAYTM 0.024443	1.9
HLA-B*15:01	1	1007	1015	9	QLLIRAAEI 0.024443	3.5
HLA-B*08:01	1	1086	1094	9	FPREGVFVS 0.024415	3.4
HLA-B*08:01	1	198	206	9	DGYFKIYSK 0.024414	3.4
HLA-A*33:01	1	1098	1106	9	HWFVTQRNF 0.024411	3.4
HLA-A*68:01	1	715	723	9	FTISVTTEI 0.024392	4.9
HLA-A*23:01	1	1213	1222	10	IWLGFIAGLI 0.024366	1.9
HLA-B*51:01	1	621	630	10	IHADQLTPTW 0.024326	3.6
HLA-A*30:02	1	144	152	9	YYHKNNKSW 0.024321	3.6
HLA-A*26:01	1	565	574	10	DIADTTDAVR 0.024314	1.9
HLA-A*03:01	1	158	166	9	RVYSSANNC 0.024304	3.2
HLA-A*26:01	1	973	981	9	VLNDILSRL 0.024303	1.9
HLA-A*02:06	1	19	27	9	TRTQLPPA 0.024293	4.2
HLA-B*58:01	1	1018	1026	9	SANLAATKM 0.02428	2.7
HLA-A*01:01	1	367	375	9	NSASFSTFK 0.024278	2.3
HLA-A*68:01	1	138	146	9	DPFLGVYYH 0.024265	4.9
HLA-B*58:01	1	871	879	9	TSALLAGTI 0.024257	2.7
HLA-A*68:02	1	701	710	10	SVAYSNNNSIA 0.02425	3.1

HLA-B*08:01	1	810	818	9	SKRSFIEDL 0.024201	3.5
HLA-A*68:02	1	324	332	9	VRFPNITNL 0.024195	3.1
HLA-A*24:02	1	1052	1060	9	SAPHGVVFL 0.024184	2.0
HLA-A*03:01	1	572	580	9	AVRDPQTL 0.024175	3.2
HLA-B*08:01	1	500	508	9	VGYPYRVV 0.024143	3.5
HLA-A*02:06	1	972	980	9	SVLNDILSR 0.024132	4.2
HLA-A*02:01	1	46	54	9	SVLHSTQDL 0.024128	3.2
HLA-A*30:01	1	1104	1112	9	RNFYEQII 0.024125	4.8
HLA-B*15:01	1	55	64	10	FLPFFSNVTW 0.024118	3.5
HLA-A*68:02	1	281	290	10	TITDAVDCAL 0.02409	3.1
HLA-A*26:01	1	1099	1107	9	WFVTQRNFY 0.024089	1.9
HLA-A*24:02	1	1106	1114	9	FYEQIITT 0.024065	2.0
HLA-A*30:02	1	1072	1080	9	FTTAPAICH 0.024057	3.7
HLA-A*26:01	1	1217	1226	10	FIAGLIAIVM 0.024055	2.0
HLA-B*53:01	1	424	433	10	DDFTGCVIAW 0.024053	2.1
HLA-A*11:01	1	121	129	9	NNATNVVIK 0.02403	3.0
HLA-B*35:01	1	565	573	9	DIADTTDAV 0.024029	2.4
HLA-A*68:02	1	202	210	9	KIYSKHTPI 0.024021	3.1
HLA-A*01:01	1	493	502	10	GFQPTYGVGY 0.024004	2.3
HLA-B*58:01	1	1202	1211	10	KYEYIKWPW 0.023991	2.7
HLA-B*58:01	1	411	420	10	QTGNIADYNY 0.023987	2.7
HLA-A*11:01	1	344	353	10	FASVYAWNRK 0.023972	3.0
HLA-B*44:03	1	825	834	10	LADAGFIKQY 0.023961	1.9
HLA-B*07:02	1	802	811	10	ILPDPSKPSK 0.023946	2.5
HLA-B*08:01	1	54	62	9	LFLPFFSNV 0.023937	3.5
HLA-A*02:06	1	1216	1224	9	GFIAGLIAI 0.023933	4.2
HLA-A*02:06	1	7	16	10	LLPLVSSQCV 0.023921	4.3
HLA-B*07:02	1	1051	1060	10	QSAPHGVVFL 0.023889	2.5
HLA-A*30:02	1	97	106	10	KSNIIIRGWIF 0.023886	3.7
HLA-A*68:02	1	54	62	9	LFLPFFSNV 0.023868	3.2
HLA-B*51:01	1	1158	1166	9	SPDVLGDI 0.023863	3.6
HLA-A*68:02	1	295	303	9	ETKCTLKSF 0.023848	3.2
HLA-A*02:01	1	976	984	9	DILSRLDKV 0.023845	3.2
HLA-A*30:02	1	1178	1186	9	KEIDRLNEV 0.023839	3.7
HLA-B*15:01	1	494	503	10	FQPTYGVGYQ 0.02382	3.5
HLA-A*26:01	1	1136	1145	10	DPLQPELDSF 0.023816	2.0
HLA-A*33:01	1	1062	1070	9	VTYVPAQEK 0.023804	3.4
HLA-B*53:01	1	1086	1094	9	FPREGVFVS 0.023797	2.1
HLA-A*68:01	1	293	301	9	LSETKCTLK 0.023792	4.9
HLA-A*26:01	1	122	130	9	NATNVVIKV 0.023781	2.0
HLA-A*68:02	1	641	650	10	QTRAGCLIGA 0.023779	3.2
HLA-B*44:02	1	168	177	10	FEYVSQPFLM 0.023775	1.7
HLA-B*57:01	1	526	535	10	KSTNLVKKNC 0.023767	4.2
HLA-B*44:03	1	745	753	9	ECSNLLLQY 0.023721	1.9
HLA-B*53:01	1	92	100	9	FASTEKSNI 0.023704	2.1
HLA-A*30:01	1	683	692	10	SVASQSIIAY 0.023691	4.9
HLA-A*30:01	1	508	516	9	VVLSFELLH 0.023651	4.9
HLA-A*02:01	1	222	231	10	ALEPLVDLPI 0.02365	3.2
HLA-B*58:01	1	1133	1142	10	TVYDPLQPEL 0.023648	2.8
HLA-B*40:01	1	238	246	9	FQTLHRSYL 0.023645	1.9
HLA-A*68:01	1	346	355	10	SVYAWNRKRI 0.023644	5.0
HLA-B*53:01	1	369	377	9	ASFSTFKCY 0.023643	2.1
HLA-A*24:02	1	1151	1159	9	KYFKNHTSP 0.023636	2.0
HLA-A*02:06	1	510	519	10	LSFELLHAPA 0.023632	4.3
HLA-B*51:01	1	1021	1029	9	LAATKMSEC 0.023618	3.6
HLA-A*02:03	1	961	970	10	KQLSSNFGAI 0.023596	3.6
HLA-B*08:01	1	1152	1161	10	YFKNHTSPDV 0.023581	3.5
HLA-B*44:03	1	986	995	10	AEVQIDRLIT 0.023574	1.9
HLA-A*68:02	1	1164	1173	10	GDISGINASV 0.023545	3.2
HLA-A*01:01	1	1194	1202	9	LIDLQELGK 0.023541	2.4
HLA-A*23:01	1	307	315	9	KGITYQTSNF 0.023525	1.9
HLA-B*08:01	1	807	815	9	SKPSKRSFI 0.023519	3.5
HLA-B*15:01	1	24	32	9	LPPAYTNSF 0.023472	3.6
HLA-A*31:01	1	392	401	10	VYADSFVIRG 0.023471	4.3
HLA-B*35:01	1	207	216	10	HTPINLVRGL 0.023435	2.4
HLA-A*30:01	1	1102	1110	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	413	422	10	GNIADYNYKL 0.023406	3.6
HLA-B*15:01	1	77	86	10	KRFANPVLFP 0.023396	3.6
HLA-A*32:01	1	255	263	9	WTAGAAAYY 0.023389	2.2
HLA-A*30:01	1	888	896	9	GAALQIPFA 0.023386	4.9
HLA-A*02:03	1	1199	1207	9	ELGKYEQYI 0.023381	3.6
HLA-A*02:01	1	889	897	9	AALQIPFAM 0.023375	3.3
HLA-B*53:01	1	47	55	9	VLHSTQDLF 0.023368	2.1
HLA-A*31:01	1	1134	1142	9	VYDPLQPEL 0.023359	4.3
HLA-B*57:01	1	510	518	9	LSFELLHAP 0.023351	4.2
HLA-A*30:01	1	849	858	10	AQKFNGLTVL 0.023347	4.9
HLA-A*11:01	1	357	366	10	NCVADYSVLY 0.023333	3.0
HLA-A*02:03	1	266	275	10	YLQPRTFLLK 0.023328	3.6
HLA-B*07:02	1	316	324	9	RVQPTESIV 0.023322	2.5
HLA-B*57:01	1	1144	1152	9	SFKEELDKY 0.023321	4.2
HLA-A*02:01	1	507	515	9	VVLSFELL 0.023315	3.3
HLA-B*53:01	1	1222	1230	9	IAIVMVTIM 0.023314	2.1
HLA-A*68:02	1	1186	1194	9	VAKNLNESL 0.023311	3.2
HLA-A*02:01	1	224	233	10	EPLVDLPIGI 0.023303	3.3
HLA-A*02:06	1	289	297	9	ALDPLSETK 0.023301	4.3
HLA-A*68:02	1	358	366	9	CVADYSVLY 0.023296	3.2
HLA-A*68:01	1	1133	1142	10	TVYDPLQPEL 0.023292	5.0
HLA-A*68:02	1	527	535	9	STNLVKNKC 0.023277	3.2
HLA-A*32:01	1	484	492	9	NCYFPLQSY 0.023271	2.2
HLA-A*11:01	1	1179	1188	10	EIDRLNEVAK 0.023249	3.0
HLA-B*58:01	1	93	101	9	ASTEKSNII 0.023241	2.8
HLA-A*30:01	1	12	21	10	SSQCVNLTTR 0.023233	4.9
HLA-A*01:01	1	178	186	9	DLEGKQGNF 0.023233	2.4
HLA-A*30:02	1	384	393	10	LNDLCFTNVY 0.023228	3.7
HLA-B*58:01	1	632	640	9	VYSTGSNVF 0.023222	2.8
HLA-A*01:01	1	622	631	10	HADQLTPTWR 0.023218	2.4
HLA-A*68:02	1	1029	1037	9	CVLGQSKRV 0.023211	3.2
HLA-B*15:01	1	1136	1145	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	1050	1059	10	PQSAPHGVVF 0.023191	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-A*30:01	1	489	498	10	LQSYGFQPTY 0.023176	5.0
HLA-B*53:01	1	1127	1135	9	IGIVNNTVY 0.023164	2.1
HLA-A*02:03	1	630	639	10	WRVYSTGSNV 0.023158	3.7
HLA-A*68:01	1	1092	1100	9	FVSNNGTHWF 0.023157	5.0
HLA-B*57:01	1	1036	1044	9	RVDFCGKGY 0.023147	4.3
HLA-B*08:01	1	803	811	9	LPDPSKPSK 0.023142	3.5
HLA-A*68:02	1	74	83	10	NGTKRFANPV 0.023141	3.2
HLA-B*08:01	1	1001	1009	9	LQTYVTQQL 0.023136	3.5
HLA-A*68:02	1	316	324	9	RVQPTESIV 0.023118	3.2
HLA-A*68:02	1	707	716	10	NSIAIPTNFT 0.023111	3.2
HLA-B*08:01	1	1098	1106	9	HWFVTQRNF 0.023109	3.6
HLA-A*01:01	1	1148	1156	9	ELDKYFKNH 0.023091	2.4
HLA-A*02:06	1	375	384	10	KCYGVSPTKL 0.023086	4.3
HLA-B*08:01	1	1052	1060	9	SAPHGVVFL 0.023086	3.6
HLA-A*03:01	1	892	901	10	QIPFAMQMAY 0.02308	3.2
HLA-A*30:02	1	1046	1055	10	LMSFPQSAPH 0.023076	3.7
HLA-A*32:01	1	777	785	9	EVFAQVKQI 0.023074	2.2
HLA-A*24:02	1	307	315	9	KGIYQTSNF 0.023021	2.0
HLA-A*32:01	1	375	383	9	KCYGVSPTK 0.023014	2.2
HLA-A*32:01	1	1096	1104	9	GTHWFVTQR 0.023014	2.2
HLA-A*02:06	1	5	13	9	LVLLPLVSS 0.023011	4.4
HLA-A*02:01	1	548	556	9	VLTESNKKF 0.023008	3.3
HLA-A*30:01	1	778	786	9	VFAQVKQIY 0.023008	5.0
HLA-A*23:01	1	212	220	9	LVRGLPQGF 0.023	1.9
HLA-A*02:06	1	899	908	10	MAYRFNGIGV 0.022999	4.4
HLA-A*24:02	1	891	899	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	775	783	9	TQEVFAQVK 0.02297	5.0
HLA-A*30:01	1	275	283	9	KYNENGTIT 0.022969	5.0
HLA-A*02:01	1	751	760	10	LQYGSFCTQL 0.022955	3.3
HLA-B*44:02	1	1195	1203	9	IDLQELGKY 0.022953	1.7
HLA-B*51:01	1	964	973	10	SSNFGAISSV 0.022937	3.7
HLA-B*57:01	1	893	901	9	IPFAMQMAY 0.02293	4.3
HLA-A*02:06	1	304	312	9	TVEKGIYQT 0.022916	4.4
HLA-A*30:02	1	644	652	9	AGCLIGAEH 0.022911	3.8
HLA-A*11:01	1	197	206	10	IDGYFKIYSK 0.022897	3.0
HLA-A*30:02	1	730	739	10	KTSVDCTMYI 0.022896	3.8
HLA-A*26:01	1	207	216	10	HTPINLVRGL 0.022887	2.0
HLA-A*32:01	1	445	453	9	NYNLYRLF 0.022884	2.2
HLA-A*24:02	1	1050	1059	10	PQSAPHGVVF 0.022873	2.0
HLA-B*57:01	1	267	276	10	LQPRTFLLKY 0.022855	4.3
HLA-A*02:01	1	1199	1207	9	ELGKYEQYI 0.022851	3.3
HLA-B*44:03	1	131	140	10	CEFQFCNDPF 0.02284	1.9
HLA-A*30:01	1	1083	1092	10	KAHFPPREGVF 0.022827	5.0
HLA-A*02:06	1	510	518	9	LSFELLHAP 0.022825	4.4
HLA-A*26:01	1	236	245	10	TRFQTLHRSY 0.022823	2.0
HLA-B*15:01	1	453	461	9	FRKSNLKPFP 0.022813	3.6
HLA-A*26:01	1	663	671	9	IGAGICASY 0.022811	2.0
HLA-A*68:02	1	934	942	9	SLSSTASAL 0.022793	3.2
HLA-A*02:06	1	1216	1225	10	GFIAGLIAIV 0.022781	4.4
HLA-A*23:01	1	127	135	9	VIKVFCEQF 0.022758	1.9
HLA-A*32:01	1	854	862	9	GLTVLPELL 0.022738	2.2
HLA-A*30:01	1	728	737	10	MTKTSVDCTM 0.022735	5.0
HLA-B*57:01	1	887	895	9	AGAALQIPF 0.022689	4.3
HLA-A*68:01	1	674	683	10	QTNSPRRARS 0.022685	5.0
HLA-A*26:01	1	1089	1098	10	EGVFVSNQTH 0.022679	2.0
HLA-A*30:01	1	995	1004	10	TGRLQSLQTY 0.022656	5.0
HLA-A*30:01	1	964	972	9	SSNFGAISS 0.022636	5.0
HLA-A*26:01	1	108	117	10	TTLDSKTQSL 0.022634	2.0
HLA-A*02:01	1	1206	1215	10	YIKWPWYIWL 0.022627	3.3
HLA-B*57:01	1	93	101	9	ASTEKSNI 0.022608	4.3
HLA-B*07:02	1	1023	1031	9	ATKMSECVL 0.022604	2.6
HLA-A*32:01	1	1202	1211	10	KYEYIKWPW 0.022603	2.2
HLA-A*68:02	1	1178	1186	9	KEIDRLNEV 0.022595	3.3
HLA-A*01:01	1	385	393	9	NDLCFTNVY 0.022586	2.4
HLA-B*44:03	1	550	558	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	369	377	9	ASFSTFKCY 0.022552	1.8
HLA-B*44:02	1	686	694	9	SQSIIAYTM 0.022545	1.8
HLA-A*02:06	1	689	698	10	IIAYTMSLGV 0.022545	4.4
HLA-B*53:01	1	391	399	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	720	728	9	TTEILPVSM 0.022527	3.7
HLA-A*30:02	1	912	920	9	VLYENQKLI 0.022515	3.8
HLA-A*01:01	1	1047	1055	9	MSFPQSAPH 0.022511	2.4
HLA-A*68:02	1	777	786	10	EVFAQVKQIY 0.022493	3.3
HLA-B*07:02	1	502	510	9	YQPYRVVVL 0.022491	2.6
HLA-A*33:01	1	1038	1046	9	DFCGKGYHL 0.022483	3.5
HLA-A*02:03	1	593	601	9	SVITPGTNT 0.02247	3.7
HLA-A*31:01	1	450	459	10	YRLFRKSNLK 0.022457	4.4
HLA-A*02:03	1	292	300	9	PLSETKCTL 0.022441	3.7
HLA-A*30:01	1	1014	1022	9	EIRASANLA 0.022438	5.0
HLA-A*03:01	1	1057	1065	9	VVFLHVTVY 0.022431	3.2
HLA-A*30:01	1	803	811	9	LPDPSKPSK 0.022423	5.0
HLA-A*02:03	1	53	62	10	DLFLPFFSNV 0.02242	3.7
HLA-A*32:01	1	1036	1044	9	RVDFCGKGY 0.022419	2.2
HLA-B*44:02	1	625	633	9	QLTPTWRVY 0.022401	1.8
HLA-A*01:01	1	1093	1101	9	VSNQTHWFV 0.02238	2.4
HLA-B*58:01	1	920	928	9	IANQFNSAI 0.022369	2.8

HLA-A*30:01	1	1051	1060	10	QSAPHGCVFL 0.022363	5.1
HLA-A*02:01	1	430	438	9	VIAWNSNNL 0.022358	3.3
HLA-A*30:01	1	76	84	9	TKRFANPVL 0.022349	5.1
HLA-B*08:01	1	912	920	9	VLYENQKLI 0.022349	3.7
HLA-A*03:01	1	472	481	10	AGSTPCNGVK 0.022344	3.3
HLA-B*08:01	1	911	919	9	NVLYENQKL 0.022327	3.7
HLA-B*07:02	1	571	579	9	DAVRDPQTL 0.022319	2.6
HLA-A*02:06	1	114	123	10	TQSLILVNNNA 0.022304	4.4
HLA-A*03:01	1	192	200	9	FVFKNIDGY 0.022298	3.3
HLA-A*01:01	1	569	577	9	TTDAVRDPQ 0.022295	2.4
HLA-A*68:02	1	593	602	10	SVITPGTNTS 0.022281	3.3
HLA-A*23:01	1	1203	1211	9	YEQYIKWPW 0.02228	2.0
HLA-B*40:01	1	573	581	9	VRDPQTLEI 0.022278	2.0
HLA-A*30:01	1	1042	1050	9	KGYHLMSFP 0.022255	5.1
HLA-B*08:01	1	1136	1145	10	DPLQPELDSF 0.022255	3.7
HLA-A*32:01	1	28	37	10	YTNSFTRGVY 0.022252	2.2
HLA-A*30:01	1	21	30	10	RTQLPPAYTN 0.022249	5.1
HLA-A*32:01	1	1055	1064	10	HGVVFLHVTY 0.022248	2.2
HLA-B*15:01	1	529	538	10	NLVKKNKCVNF 0.022247	3.7
HLA-A*30:01	1	63	71	9	TWFHAIHVS 0.022244	5.1
HLA-A*02:03	1	969	978	10	AISSVLNDIL 0.022242	3.7
HLA-A*30:02	1	643	652	10	RAGCLIGAETH 0.022205	3.9
HLA-B*15:01	1	316	324	9	RVQPTESIV 0.022204	3.7
HLA-B*44:02	1	721	729	9	TEILPVSMT 0.022203	1.8
HLA-A*30:01	1	205	214	10	SKHTPINLVR 0.022196	5.1
HLA-A*31:01	1	265	273	9	GYLQPRFTL 0.022174	4.5
HLA-A*01:01	1	1126	1135	10	VIGIVNNTVY 0.022154	2.4
HLA-B*07:02	1	803	812	10	LPDPSKPSKR 0.022147	2.6
HLA-A*68:02	1	471	480	10	QAGSTPCNGV 0.02212	3.3
HLA-A*68:01	1	1027	1036	10	SECVLGQSKR 0.02212	5.1
HLA-A*11:01	1	517	526	10	APATVCGPKK 0.022104	3.1
HLA-B*51:01	1	484	492	9	NCYFPLQSY 0.022078	3.8
HLA-B*58:01	1	570	579	10	TDAVRDPQTL 0.022065	2.9
HLA-A*02:01	1	7	15	9	LLPLVSSQC 0.022054	3.4
HLA-B*51:01	1	510	518	9	LSFELLHAP 0.022051	3.8
HLA-A*68:01	1	1007	1016	10	QLLIRAAEIR 0.022034	5.1
HLA-A*02:06	1	192	201	10	FVFKNIDGYF 0.022016	4.5
HLA-A*02:06	1	448	456	9	YLYRLFRRKS 0.022008	4.5
HLA-A*30:01	1	909	918	10	TQNVLYENQK 0.021996	5.1
HLA-A*23:01	1	109	117	9	TLDSKTQSL 0.021992	2.0
HLA-A*30:02	1	701	709	9	SVAYSNNIS 0.021991	3.9
HLA-A*23:01	1	418	426	9	YNYKLPDDF 0.021979	2.0
HLA-A*30:02	1	30	39	10	NSFTRGVVYP 0.021951	3.9
HLA-A*32:01	1	346	355	10	SVYAWNRKRI 0.021944	2.2
HLA-B*08:01	1	1018	1026	9	SANLAATKM 0.021935	3.7
HLA-B*57:01	1	193	201	9	VFKNIDGYF 0.021934	4.4
HLA-A*33:01	1	814	822	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	301	309	9	KSFTVEKGI 0.021899	4.5
HLA-A*31:01	1	1033	1042	10	QSKRVDFCGK 0.021872	4.5
HLA-B*53:01	1	474	483	10	STPCNGVKGF 0.02187	2.2
HLA-A*02:01	1	965	973	9	SNFGAISSV 0.021855	3.4
HLA-A*02:06	1	265	274	10	GYLQPRFTLL 0.021834	4.5
HLA-A*30:02	1	1090	1099	10	GVFVSNNGTHW 0.021831	3.9
HLA-A*26:01	1	1053	1061	9	APHGCVVFLH 0.021829	2.1
HLA-A*30:01	1	36	45	10	VYYPDKVFRS 0.021814	5.1
HLA-A*01:01	1	980	988	9	RLDKVEAEV 0.021804	2.5
HLA-A*03:01	1	695	704	10	SLGVENSVAV 0.021803	3.3
HLA-A*30:01	1	703	711	9	AYSNNISIAI 0.021801	5.1
HLA-B*58:01	1	1222	1230	9	IAIVMVTIM 0.021797	2.9
HLA-A*26:01	1	152	160	9	WMESEFRVY 0.021796	2.1
HLA-A*03:01	1	301	310	10	KSFTVEKGIY 0.021796	3.3
HLA-B*08:01	1	638	647	10	NVFQTRAGCL 0.021794	3.7
HLA-B*07:02	1	76	84	9	TKRFANPVL 0.021783	2.6
HLA-A*32:01	1	1045	1053	9	HLMSFPQSA 0.021767	2.2

HLA-A*02:06	1	1051	1059	9	QSAPHGCVF 0.021763	4.5
HLA-A*30:02	1	683	691	9	SVASQSIIA 0.021757	3.9
HLA-A*68:01	1	58	66	9	FFSNVTWFH 0.021739	5.1
HLA-A*68:02	1	817	826	10	DLLFNKVTLA 0.021724	3.4
HLA-B*51:01	1	414	422	9	NIADYNYKL 0.021717	3.8
HLA-A*31:01	1	921	930	10	ANQFNSAIGK 0.021697	4.5
HLA-A*24:02	1	551	559	9	ESNKKFLPF 0.021691	2.1
HLA-A*31:01	1	783	791	9	KQIYKTPPI 0.021685	4.5
HLA-A*02:06	1	600	608	9	NTSNQVAVL 0.021662	4.5
HLA-A*68:01	1	446	455	10	YNYLYRLEFRK 0.021655	5.1
HLA-B*08:01	1	366	374	9	YNSASFSTF 0.021648	3.7
HLA-A*02:06	1	82	90	9	PVLPFNDGV 0.021642	4.5
HLA-A*68:01	1	1051	1059	9	QSAPHGCVF 0.021641	5.1
HLA-A*32:01	1	961	970	10	KQLSSNFGAI 0.021632	2.3
HLA-B*08:01	1	1011	1019	9	RAAEIRASA 0.02163	3.7
HLA-B*08:01	1	266	275	10	YLQPRTFLK 0.021628	3.7
HLA-A*02:06	1	115	123	9	QSLLVNNA 0.021617	4.5
HLA-A*02:06	1	1192	1200	9	ESLIDLQEL 0.021549	4.5
HLA-B*58:01	1	317	326	10	VQPTESIVRF 0.021535	2.9
HLA-A*30:01	1	973	981	9	VLNDILSRL 0.021525	5.2
HLA-A*32:01	1	108	117	10	TTLDSKTQSL 0.021522	2.3
HLA-A*30:01	1	702	710	9	VAYSNNNSIA 0.021516	5.2
HLA-B*44:02	1	144	152	9	YYHKNNKSW 0.021506	1.8
HLA-B*07:02	1	506	514	9	RVVVLSEFL 0.021505	2.6
HLA-A*01:01	1	1127	1135	9	IGIVNNTVY 0.021503	2.5
HLA-A*32:01	1	1047	1055	9	MSFPQSAPH 0.021485	2.3
HLA-B*51:01	1	389	397	9	FTNVYADSF 0.021475	3.9
HLA-A*02:01	1	723	731	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	255	264	10	WTAGAAAYV 0.021462	4.5
HLA-A*30:02	1	934	942	9	SLSSTASAL 0.021455	3.9
HLA-A*01:01	1	237	245	9	RFQTLHRSY 0.021436	2.5
HLA-B*57:01	1	1057	1065	9	VVFLHVTYV 0.021431	4.4
HLA-B*57:01	1	1144	1153	10	SFKEELDKYF 0.021428	4.4
HLA-A*32:01	1	685	694	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	918	927	10	KLIANQFNSEA 0.021345	5.2
HLA-B*35:01	1	474	483	10	STPCNGVKGF 0.021333	2.5
HLA-B*57:01	1	570	579	10	TDAVRDPQTL 0.021329	4.4
HLA-A*26:01	1	993	1001	9	LITGRLQSL 0.021327	2.1
HLA-A*02:06	1	331	339	9	NLCPFGEVF 0.021322	4.5
HLA-B*51:01	1	875	883	9	LAGTITSGW 0.021321	3.9
HLA-A*32:01	1	849	857	9	AQKFNGLTV 0.021317	2.3
HLA-B*57:01	1	300	309	10	LKSFTVEKGI 0.021315	4.4
HLA-A*68:02	1	965	974	10	SNFGAISSVL 0.021301	3.4
HLA-A*33:01	1	1173	1182	10	VVNIQKEIDR 0.0213	3.6
HLA-A*30:01	1	16	24	9	VNLTRTQTL 0.021275	5.2
HLA-A*02:01	1	606	615	10	AVLYQGVNCT 0.021262	3.4
HLA-A*02:03	1	977	986	10	ILSRLDKVEA 0.021238	3.8
HLA-B*40:01	1	467	476	10	TEIYQAGSTP 0.021225	2.0
HLA-A*30:01	1	105	113	9	IFGTTLDSK 0.021217	5.2
HLA-A*68:02	1	993	1001	9	LITGRLQSL 0.021215	3.4
HLA-A*26:01	1	701	709	9	SVAYSNNNSI 0.021214	2.1
HLA-A*02:01	1	448	456	9	YLYRLEFRKS 0.021211	3.4
HLA-B*58:01	1	21	30	10	RTQLPPAYTN 0.021188	2.9
HLA-B*53:01	1	1258	1267	10	SEPVLKGVKL 0.021186	2.2
HLA-A*26:01	1	730	738	9	KTSVDCTMY 0.021182	2.1
HLA-B*08:01	1	1059	1067	9	FLHVTVVPA 0.02117	3.8
HLA-A*31:01	1	1098	1106	9	HWFVTQRNF 0.021164	4.5
HLA-B*58:01	1	135	144	10	FCNDPFLGVY 0.021161	2.9
HLA-A*02:06	1	490	498	9	QSYGFQPTY 0.021158	4.6
HLA-A*02:03	1	1167	1176	10	SGINASVVNI 0.021147	3.8
HLA-A*02:01	1	170	179	10	YVSQPFLMDL 0.021113	3.4
HLA-A*01:01	1	549	557	9	LTESNKKFL 0.021103	2.5

HLA-A*26:01	1	1096	1104	9	GTHWFTQR 0.021083	2.1
HLA-A*31:01	1	525	534	10	KKSTNLVKNK 0.021065	4.5
HLA-A*03:01	1	237	245	9	RFQTLHRSY 0.021056	3.4
HLA-B*58:01	1	295	303	9	ETKCTLKSF 0.02104	2.9
HLA-A*02:06	1	406	415	10	QIAPGQTGNI 0.021023	4.6
HLA-A*02:06	1	1032	1040	9	GQSKRVDFC 0.021015	4.6
HLA-B*35:01	1	857	866	10	VLPLLLTDEM 0.021014	2.6
HLA-B*08:01	1	23	32	10	QLPPAYTNSF 0.02101	3.8
HLA-B*58:01	1	1182	1190	9	RLNEVAKNL 0.020994	2.9
HLA-A*01:01	1	30	39	10	NSFTRGVYYP 0.020977	2.5
HLA-A*02:06	1	717	726	10	ISVTTEILPV 0.020968	4.6
HLA-A*30:02	1	526	534	9	KSTNLVKNK 0.020943	4.0
HLA-B*57:01	1	214	223	10	RGLPQGFSAL 0.020942	4.5
HLA-B*08:01	1	168	176	9	FEYVSQPFL 0.020936	3.8
HLA-A*68:01	1	433	441	9	WNSNNLDSK 0.020933	5.2
HLA-B*51:01	1	259	267	9	AAAYYVGYL 0.020925	3.9
HLA-B*57:01	1	1182	1190	9	RLNEVAKNL 0.020908	4.5
HLA-A*26:01	1	976	984	9	DILSRLDKV 0.020888	2.1
HLA-B*08:01	1	237	246	10	RFQTLHRSYL 0.020879	3.8
HLA-A*30:01	1	108	117	10	TTLDSKTQSL 0.020869	5.3
HLA-A*24:02	1	686	694	9	SQSIIAYTM 0.020862	2.1
HLA-B*40:01	1	1067	1075	9	AQEKNFHTA 0.020841	2.1
HLA-B*07:02	1	701	709	9	SVAYSNSI 0.02083	2.7
HLA-A*30:02	1	802	811	10	ILPDPSPKSK 0.020824	4.0
HLA-A*32:01	1	972	980	9	SVLNDILSR 0.020823	2.3
HLA-A*24:02	1	418	426	9	YNYKLPDDF 0.020821	2.1
HLA-B*58:01	1	937	945	9	STASALGKL 0.020809	2.9
HLA-B*08:01	1	1259	1268	10	EPVLKGVKLV 0.0208	3.8
HLA-A*02:01	1	931	939	9	IQDLSSTA 0.020779	3.5
HLA-A*68:01	1	126	134	9	VVIKVFCEFQ 0.020777	5.2
HLA-B*57:01	1	229	238	10	LPIGINITRF 0.020774	4.5
HLA-B*57:01	1	1077	1086	10	AICHDGKAHF 0.020762	4.5
HLA-A*68:02	1	1179	1187	9	EIDRLNEVA 0.020751	3.4
HLA-A*01:01	1	1113	1121	9	TTDNTFVSG 0.020732	2.5
HLA-A*30:02	1	162	171	10	SANNCTFEYV 0.020727	4.0
HLA-A*02:06	1	75	83	9	GTKRFANPV 0.020721	4.6
HLA-A*32:01	1	849	858	10	AQKFNGLTVL 0.020715	2.3
HLA-A*68:02	1	2	11	10	FVFLVLLPLV 0.020714	3.4
HLA-A*11:01	1	972	981	10	SVLNDILSRL 0.020714	3.1
HLA-B*51:01	1	600	608	9	NTSNQVAVL 0.020713	4.0
HLA-B*53:01	1	920	928	9	IANQFNPAI 0.020691	2.2
HLA-A*02:03	1	19	27	9	TTRTQLPPA 0.020683	3.9
HLA-A*68:01	1	883	891	9	WTFGAGAAL 0.020672	5.2
HLA-A*01:01	1	774	782	9	NTQEVFAQV 0.020669	2.5
HLA-A*33:01	1	185	193	9	NFKNLREFV 0.020666	3.6
HLA-B*44:02	1	550	558	9	TESNKKFLP 0.020666	1.8
HLA-B*58:01	1	867	875	9	IAQYTSALL 0.020662	2.9
HLA-B*57:01	1	870	879	10	YTSALLAGTI 0.020662	4.5
HLA-B*58:01	1	973	981	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	VLFPNDGVYF 0.020637	3.5
HLA-A*02:01	1	1125	1133	9	VVIGIVNNT 0.020633	3.5
HLA-A*32:01	1	507	515	9	VVLSFELL 0.02063	2.3
HLA-A*02:06	1	489	497	9	LQSYGFQPT 0.020621	4.6
HLA-A*02:06	1	730	739	10	KTSVDCTMYI 0.02062	4.6
HLA-B*08:01	1	846	855	10	LICAQKFNGL 0.020607	3.8
HLA-A*26:01	1	266	274	9	YLQPRTFLL 0.020602	2.1
HLA-A*23:01	1	1210	1218	9	PWYIWLGFI 0.020599	2.0
HLA-A*31:01	1	814	822	9	FIEDLLFNK 0.020593	4.6
HLA-A*68:02	1	333	341	9	CPFGEVFNA 0.020591	3.5
HLA-A*23:01	1	632	641	10	VYSTGSNVFQ 0.020574	2.0
HLA-B*58:01	1	1205	1213	9	QYIKWPWYI 0.020538	3.0
HLA-A*11:01	1	32	41	10	FTRGVYYPDK 0.020522	3.2
HLA-A*02:06	1	1049	1057	9	FPQSAPHGV 0.020498	4.6
HLA-B*07:02	1	461	469	9	FERDISTEI 0.020494	2.7
HLA-A*30:02	1	930	939	10	KIQDLSSTA 0.020475	4.0

HLA-A*02:03	1	1005	1013	9	VTQQLIRAA 0.020458	3.9
HLA-A*23:01	1	791	799	9	IKDFGGFNF 0.020452	2.0
HLA-B*35:01	1	263	272	10	YVGYLQPRTF 0.020448	2.6
HLA-A*68:01	1	268	276	9	QPRTFLLKY 0.020441	5.3
HLA-A*68:01	1	937	946	10	STASALGKLQ 0.020437	5.3
HLA-B*08:01	1	985	993	9	EAEVQIDRL 0.020428	3.9
HLA-B*40:01	1	153	161	9	MESEFRVYS 0.020417	2.1
HLA-A*26:01	1	502	510	9	YQPYRVVVL 0.020415	2.1
HLA-A*26:01	1	604	612	9	QVAVLYQGV 0.02041	2.1
HLA-A*02:06	1	685	693	9	ASQSIIAYT 0.020388	4.6
HLA-A*30:02	1	409	418	10	PGQTGNIADY 0.020354	4.1
HLA-B*53:01	1	649	657	9	GAEHVNNSY 0.020352	2.3
HLA-A*32:01	1	354	362	9	RISNCVADY 0.020342	2.3
HLA-A*32:01	1	233	241	9	INITRFQTL 0.020308	2.3
HLA-B*51:01	1	709	718	10	IAIPTNFTIS 0.020294	4.0
HLA-A*32:01	1	934	942	9	SLSSTASAL 0.020287	2.3
HLA-A*32:01	1	366	374	9	YNSASFSTF 0.020279	2.3
HLA-A*30:02	1	625	634	10	QLTPTWRVYS 0.020271	4.1
HLA-B*15:01	1	728	737	10	MTKTSVDCTM 0.020231	3.8
HLA-B*57:01	1	425	433	9	DFTGCVIAW 0.020228	4.5
HLA-B*44:03	1	144	152	9	YYHKNNKSW 0.020212	2.0
HLA-A*02:03	1	548	556	9	VLTESNKKF 0.020211	3.9
HLA-B*58:01	1	893	901	9	IPFAMQMAY 0.02021	3.0
HLA-A*31:01	1	1200	1208	9	LGKYEQYIK 0.020197	4.6
HLA-A*24:02	1	441	449	9	KVGGNYNYL 0.020194	2.1
HLA-A*30:01	1	690	698	9	IAYTMSLGV 0.020174	5.4
HLA-B*08:01	1	78	86	9	RFANPVLFP 0.020169	3.9
HLA-B*07:02	1	109	118	10	TLDSKTQSL 0.020148	2.7
HLA-B*15:01	1	997	1005	9	RLQSLQTYV 0.020146	3.9
HLA-A*30:02	1	317	326	10	VQPTESIVRF 0.020143	4.1
HLA-A*32:01	1	969	977	9	AISSVLNDI 0.020124	2.3
HLA-B*58:01	1	496	505	10	PTYGVGYQPY 0.020121	3.0
HLA-A*32:01	1	246	255	10	LTPGDSSSGW 0.020119	2.3
HLA-A*02:06	1	634	642	9	STGSNVFQT 0.020116	4.6
HLA-A*68:02	1	108	116	9	TTLDSKTQS 0.020108	3.5
HLA-B*44:02	1	1051	1059	9	QSAPHGVVF 0.020104	1.9
HLA-A*30:02	1	119	127	9	IVNNATNVV 0.0201	4.1
HLA-A*32:01	1	195	204	10	KNIDGYFKIY 0.020092	2.3
HLA-A*23:01	1	702	711	10	VAYSNNSIAI 0.020085	2.1
HLA-A*02:03	1	587	595	9	CSFGGVSVI 0.020084	3.9
HLA-A*02:03	1	611	619	9	GVNCTEVPV 0.020084	3.9
HLA-A*30:01	1	77	86	10	KRFANPVLFP 0.020082	5.4
HLA-B*57:01	1	71	79	9	SGTNGTKRF 0.020077	4.5
HLA-A*02:03	1	1083	1091	9	KAHFPREGV 0.020069	3.9
HLA-B*35:01	1	1192	1200	9	ESLIDLQEL 0.020055	2.6
HLA-B*35:01	1	724	733	10	LPVSMTKTSV 0.020051	2.6
HLA-A*32:01	1	980	988	9	RLDKVEAEV 0.020045	2.4
HLA-A*02:03	1	1217	1226	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	1072	1080	9	FTTAPAICH 0.02	2.6
HLA-A*68:01	1	182	190	9	KQGNFKNLR 0.019996	5.3
HLA-A*68:02	1	728	737	10	MTKTSVDCTM 0.019993	3.5
HLA-A*02:03	1	624	632	9	DQLTPTWRV 0.01999	3.9
HLA-A*11:01	1	1033	1042	10	QSKRVDFCGK 0.019951	3.2
HLA-A*26:01	1	674	682	9	QTNSPRRAR 0.019937	2.2
HLA-A*30:02	1	1096	1104	9	GTHWFVTQR 0.019925	4.1
HLA-B*07:02	1	680	688	9	RARSVASQS 0.019901	2.7
HLA-B*35:01	1	216	224	9	LPQGFSALE 0.019899	2.6
HLA-A*24:02	1	486	495	10	YFPLQSYGFQ 0.019898	2.2
HLA-B*44:03	1	153	161	9	MESEFRVYS 0.019897	2.1
HLA-B*53:01	1	414	422	9	NIADYNYKL 0.019865	2.3
HLA-A*26:01	1	1002	1010	9	QTYVTTQLI 0.019854	2.2
HLA-A*30:01	1	686	694	9	SQSIIAYTM 0.019843	5.5
HLA-A*26:01	1	78	86	9	RFANPVLFP 0.019831	2.2
HLA-B*51:01	1	1166	1174	9	ISGINASVV 0.019831	4.1

HLA-B*35:01	1	391	399	9	NVYADSFVI 0.019813	2.6
HLA-A*32:01	1	481	489	9	KGFNCYFPL 0.019811	2.4
HLA-A*02:06	1	23	31	9	QLPPAYTNS 0.019808	4.7
HLA-A*02:03	1	695	703	9	SLGVENSVA 0.019807	4.0
HLA-B*57:01	1	506	515	10	RVVVLSEFELL 0.019806	4.6
HLA-B*08:01	1	501	509	9	GYQPYRVVV 0.019803	3.9
HLA-B*44:02	1	825	834	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*26:01	1	1185	1193	9	EVAKNLNES 0.01974	2.2
HLA-A*30:02	1	49	58	10	HSTQDLFLPF 0.019715	4.1
HLA-B*53:01	1	1078	1086	9	ICHDGKAHF 0.019712	2.3
HLA-B*58:01	1	1172	1180	9	SVVNIQKEI 0.01971	3.0
HLA-A*02:03	1	1223	1231	9	AIVMVTIML 0.019707	4.0
HLA-A*11:01	1	803	811	9	LPDPSKPSK 0.019706	3.2
HLA-A*02:06	1	988	997	10	VQIDRLITGR 0.0197	4.7
HLA-A*02:06	1	1013	1021	9	AEIRASANL 0.019695	4.7
HLA-B*57:01	1	23	32	10	QLPPAYTNSF 0.019684	4.6
HLA-A*03:01	1	1025	1033	9	KMSECVLGQ 0.019677	3.5
HLA-A*68:02	1	315	324	10	FRVQPTESIV 0.019667	3.5
HLA-A*30:01	1	587	595	9	CSFGGVSVI 0.019667	5.5
HLA-A*24:02	1	900	908	9	AYRFNGIGV 0.019655	2.2
HLA-B*08:01	1	1165	1173	9	DISGINASV 0.019655	4.0
HLA-B*57:01	1	330	339	10	TNLCPFGEVF 0.019654	4.6
HLA-A*68:02	1	390	398	9	TNVYADSFV 0.019652	3.5
HLA-A*32:01	1	375	384	10	KCYGVSPTKL 0.019647	2.4
HLA-B*40:01	1	771	779	9	QDKNTQEVF 0.019643	2.1
HLA-A*03:01	1	193	202	10	VFKNIDGYFK 0.019637	3.5
HLA-A*02:01	1	1165	1173	9	DISGINASV 0.019632	3.6
HLA-B*35:01	1	585	594	10	TPCSFGGVSU 0.019621	2.7
HLA-B*15:01	1	233	241	9	INITRFQTL 0.019615	3.9
HLA-A*68:02	1	920	928	9	IANQFNDAI 0.019612	3.5
HLA-B*51:01	1	109	117	9	TLDSKTQSL 0.019599	4.1
HLA-A*31:01	1	1098	1107	10	HWFVTQRNFY 0.019599	4.7
HLA-A*03:01	1	818	826	9	LLFNKVTLA 0.019584	3.5
HLA-B*35:01	1	1126	1135	10	VIGIVNNTVY 0.019577	2.7
HLA-B*44:02	1	440	448	9	SKVGGNYNY 0.01957	1.9
HLA-A*26:01	1	138	146	9	DPFLGVVYH 0.019545	2.2
HLA-A*26:01	1	865	873	9	EMIAQY TSA 0.019529	2.2
HLA-A*02:01	1	689	698	10	IIAYTMSLGV 0.019523	3.6
HLA-A*30:01	1	546	554	9	TGVLTESNK 0.019522	5.5
HLA-A*02:06	1	116	124	9	SLLIVNNAT 0.01951	4.7
HLA-A*01:01	1	1204	1212	9	EQYIKWPWY 0.019501	2.6
HLA-A*68:02	1	111	120	10	DSKTQSLLIV 0.01946	3.6
HLA-A*30:01	1	948	956	9	VVNQNAQAL 0.019452	5.6
HLA-B*51:01	1	218	226	9	QGFSALEPL 0.019444	4.1
HLA-A*32:01	1	958	967	10	TLVKQLSSNF 0.019432	2.4
HLA-B*57:01	1	445	453	9	NYNLYRLF 0.01942	4.6
HLA-B*58:01	1	926	935	10	SAIGKIQDSL 0.01942	3.0
HLA-B*35:01	1	985	993	9	EAEVQIDRL 0.019419	2.7
HLA-B*44:03	1	247	255	9	TPGDSSSGW 0.019417	2.1
HLA-A*68:02	1	495	504	10	QPTYGVGYQP 0.019417	3.6
HLA-B*44:02	1	268	276	9	QPRTFLLKY 0.019413	1.9
HLA-A*68:01	1	261	270	10	AYYVGYLQPR 0.019409	5.4
HLA-B*15:01	1	811	820	10	KRSFIEDLLF 0.019387	3.9
HLA-B*53:01	1	906	914	9	IGVTQNVLY 0.019385	2.3
HLA-A*33:01	1	824	832	9	TLADAGFIK 0.019361	3.8
HLA-B*57:01	1	920	928	9	IANQFNDAI 0.019361	4.6
HLA-B*15:01	1	438	446	9	LDSKVGNGY 0.019348	3.9
HLA-A*02:06	1	779	788	10	FAQVKQIYKT 0.019348	4.8
HLA-B*51:01	1	862	870	9	LTDEMIAQY 0.019336	4.1
HLA-A*26:01	1	391	400	10	NVYADSFVIR 0.019316	2.2
HLA-A*68:02	1	997	1005	9	RLQSLQTYV 0.019314	3.6
HLA-B*08:01	1	850	858	9	QKFNGLTVL 0.019309	4.0
HLA-A*68:02	1	564	573	10	RDIADTTDAV 0.019304	3.6
HLA-B*57:01	1	875	884	10	LAGTITSGWT 0.019304	4.6

HLA-A*31:01	1	1182	1190	9	RLNEVAKNL 0.019298	4.7
HLA-A*33:01	1	454	463	10	RKSNLKPFER 0.019287	3.8
HLA-B*40:01	1	109	117	9	TLDSKTQSL 0.019274	2.1
HLA-A*30:02	1	614	622	9	CTEVPVAIH 0.019266	4.2
HLA-B*51:01	1	940	949	10	SALGKLQDVV 0.019254	4.1
HLA-B*35:01	1	887	895	9	AGAALQIPF 0.019249	2.7
HLA-A*03:01	1	862	870	9	LTDEMIAQY 0.019248	3.5
HLA-B*57:01	1	270	278	9	RTFLLKYNE 0.019239	4.6
HLA-B*40:01	1	890	899	10	ALQIPFAMQM 0.019227	2.1
HLA-A*68:02	1	969	977	9	AISSVLNDI 0.019223	3.6
HLA-B*58:01	1	510	518	9	LSFELLHAP 0.019204	3.1
HLA-B*07:02	1	937	945	9	STASALGKL 0.019204	2.8
HLA-B*44:03	1	1140	1149	10	PELDSFKEEL 0.019196	2.1
HLA-A*31:01	1	984	992	9	VEAEVQIDR 0.019193	4.7
HLA-B*40:01	1	324	332	9	VRFPNITNL 0.01919	2.1
HLA-A*68:01	1	229	238	10	LPIGINITRF 0.019172	5.4
HLA-B*15:01	1	926	935	10	SAIGKIQDSL 0.019149	3.9
HLA-A*68:02	1	889	897	9	AALQIPFAM 0.019148	3.6
HLA-A*68:02	1	510	519	10	LSFELLHAPA 0.019146	3.6
HLA-B*44:02	1	385	393	9	NDLCFTNVY 0.019144	1.9
HLA-A*03:01	1	997	1005	9	RLQSLQTYV 0.019123	3.5
HLA-A*02:06	1	738	746	9	YICGDSTEC 0.019117	4.8
HLA-A*23:01	1	748	756	9	NLLLQYGSF 0.019117	2.1
HLA-A*26:01	1	317	326	10	VQPTESIVRF 0.01911	2.2
HLA-A*02:03	1	2	11	10	FVFLVLLPLV 0.019104	4.0
HLA-A*02:06	1	870	879	10	YTSALLAGTI 0.019094	4.8
HLA-B*57:01	1	964	973	10	SSNFGAISSV 0.019086	4.6
HLA-A*68:01	1	1194	1202	9	LIDLQELGK 0.019082	5.4
HLA-A*30:02	1	171	179	9	VSQPFLMDL 0.019073	4.2
HLA-B*08:01	1	297	305	9	KCTLKSFTY 0.019056	4.1
HLA-A*26:01	1	1206	1214	9	YIKWPWYIW 0.019055	2.2
HLA-A*02:01	1	324	332	9	VRFPNITNL 0.019052	3.6
HLA-B*51:01	1	202	210	9	KIYSKHTPI 0.019029	4.2
HLA-A*30:02	1	1213	1221	9	IWLGFIAGL 0.01902	4.2
HLA-A*02:06	1	1207	1215	9	IKWPWYIWL 0.019014	4.8
HLA-A*02:03	1	879	887	9	ITSGWTFGA 0.018998	4.1
HLA-A*30:02	1	266	275	10	YLQPRTFLLK 0.018981	4.2
HLA-A*30:01	1	412	421	10	TGNIADYNYK 0.018968	5.7
HLA-A*68:02	1	82	90	9	PVLPFNDGV 0.018955	3.6
HLA-A*30:02	1	1110	1118	9	QIITTDNTF 0.018954	4.2
HLA-B*58:01	1	1098	1106	9	HWFVTQRNF 0.018944	3.1
HLA-B*08:01	1	927	935	9	AIGKIQDSL 0.018941	4.1
HLA-B*57:01	1	867	875	9	IAQYTSALL 0.018938	4.7
HLA-B*44:02	1	20	28	9	TRTQLPPAY 0.018936	1.9
HLA-A*68:02	1	441	449	9	KVGGNYNYL 0.018929	3.6
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	258	266	9	GAAAYYVGY 0.018911	2.4
HLA-A*30:01	1	147	155	9	KNNKSWMES 0.018907	5.7
HLA-A*30:01	1	325	333	9	RFPNITNLC 0.018907	5.7
HLA-A*02:06	1	1193	1201	9	SLIDLQELG 0.018904	4.8
HLA-A*68:02	1	867	875	9	IAQYTSALL 0.0189	3.6
HLA-A*02:06	1	867	875	9	IAQYTSALL 0.01888	4.8
HLA-B*57:01	1	916	924	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	263	272	10	YVGYLQPRTF 0.018869	4.1
HLA-B*07:02	1	920	928	9	IANQFNSAI 0.018869	2.8
HLA-A*23:01	1	1201	1209	9	GKYEYIKW 0.018864	2.1
HLA-A*02:06	1	481	489	9	KGFNCYFPL 0.018859	4.8
HLA-B*40:01	1	950	959	10	NQNAQALNTL 0.018843	2.1
HLA-A*33:01	1	392	401	10	VYADSFVIRG 0.018836	3.8
HLA-A*02:06	1	952	960	9	NAQALNTLV 0.018836	4.8
HLA-A*26:01	1	29	37	9	TNSFTRGVY 0.018827	2.2
HLA-A*31:01	1	1193	1202	10	SLIDLQELGK 0.018825	4.8
HLA-B*35:01	1	422	431	10	LPDDFTGCVI 0.018812	2.7



HLA-A*02:01	1	818	827	10	LLFNKVTLAD 0.018805	3.6
HLA-A*03:01	1	1046	1055	10	LMSFPQSAPH 0.018801	3.5
HLA-B*53:01	1	135	144	10	FCNDPFLGVY 0.0188	2.4
HLA-B*53:01	1	266	274	9	YLQPRTFLL 0.0188	2.4
HLA-B*51:01	1	948	956	9	VVNQNAQAL 0.0188	4.2
HLA-A*02:06	1	584	592	9	ITPCSFGGV 0.018799	4.8
HLA-B*07:02	1	1052	1060	9	SAPHGVVFL 0.018791	2.8
HLA-A*68:01	1	173	182	10	QPFLMDLE GK 0.018788	5.4
HLA-A*03:01	1	198	206	9	DGYFKIYSK 0.018788	3.5
HLA-A*33:01	1	490	498	9	QSYGFQPTY 0.018784	3.8
HLA-B*57:01	1	1062	1070	9	VTYVPAQEK 0.018782	4.7
HLA-B*15:01	1	412	420	9	TGNIADYNY 0.018778	4.0
HLA-A*03:01	1	1234	1242	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	VLPFNDGVYF 0.018766	4.3
HLA-A*30:01	1	120	129	10	VNNATNVVIK 0.01876	5.7
HLA-A*30:01	1	1003	1011	9	TYVTQQLIR 0.018758	5.7
HLA-B*58:01	1	220	229	10	FSALEPLVDL 0.018757	3.1
HLA-B*07:02	1	724	732	9	LPVSMTKTS 0.018753	2.8
HLA-A*02:01	1	509	518	10	VLSFELLHAP 0.018743	3.6
HLA-B*58:01	1	98	106	9	SNIIRGWIF 0.018739	3.1
HLA-B*15:01	1	1013	1021	9	AEIRASANL 0.018737	4.0
HLA-B*44:02	1	601	609	9	TSNQVAVLY 0.018735	1.9
HLA-B*35:01	1	1099	1107	9	WFVTQRNFY 0.018711	2.7
HLA-A*26:01	1	1259	1267	9	EPVLKGVKL 0.018705	2.3
HLA-B*58:01	1	490	499	10	QSYGFQPTYG 0.018697	3.1
HLA-A*02:06	1	939	948	10	ASALGKLQDV 0.018692	4.8
HLA-A*02:06	1	315	323	9	FRVQPTESI 0.018687	4.8
HLA-A*26:01	1	728	737	10	MTKTSVDCTM 0.018672	2.3
HLA-A*24:02	1	973	981	9	VLNDILSRL 0.01867	2.2
HLA-B*08:01	1	920	928	9	IANQFNSAI 0.018667	4.1
HLA-A*68:01	1	826	834	9	ADAGFIKQY 0.018658	5.4
HLA-B*57:01	1	503	512	10	QPYRVVLSF 0.018651	4.7
HLA-A*30:02	1	1091	1099	9	VFVSNQTHW 0.018649	4.3
HLA-B*35:01	1	621	630	10	IHADQLTPTW 0.018647	2.7
HLA-A*32:01	1	784	792	9	QIYKTPPIK 0.018644	2.4
HLA-B*51:01	1	677	685	9	SPRRARVA 0.018643	4.2
HLA-A*26:01	1	56	64	9	LPFFSNVTW 0.018633	2.3
HLA-B*51:01	1	689	698	10	IIAYTMSLGV 0.018631	4.2
HLA-B*08:01	1	1199	1207	9	ELGKYEYI 0.018628	4.1
HLA-A*02:06	1	1213	1221	9	IWLGFIAGL 0.018619	4.9
HLA-B*15:01	1	506	514	9	RVVLSFEL 0.018615	4.0
HLA-B*53:01	1	891	899	9	LQIPFAMQM 0.018602	2.4
HLA-A*26:01	1	331	339	9	NLCPFGEVF 0.0186	2.3
HLA-A*02:01	1	116	124	9	SLLI VNNAT 0.018597	3.7
HLA-A*33:01	1	1061	1070	10	HVTYVPAQEK 0.018593	3.8
HLA-B*57:01	1	75	84	10	GTKRFANPVL 0.01859	4.7
HLA-A*30:01	1	265	274	10	GYLQPRTFLL 0.018589	5.8
HLA-B*40:01	1	814	823	10	FIEDLLFNKV 0.018583	2.2
HLA-A*26:01	1	267	276	10	LQPRTFLLKY 0.018579	2.3
HLA-A*30:01	1	309	317	9	IYQTSNFRV 0.018579	5.8
HLA-B*08:01	1	380	389	10	SPTKLNLDLCF 0.018577	4.1
HLA-A*30:02	1	316	325	10	RVQPTESIVR 0.018576	4.3
HLA-A*23:01	1	167	176	10	TFEYVSQPFL 0.018558	2.1
HLA-A*32:01	1	508	516	9	VVLSFELLH 0.018549	2.4
HLA-A*24:02	1	27	36	10	AYTNSFTRGV 0.018547	2.2
HLA-A*02:06	1	1186	1194	9	VAKNLNESL 0.018523	4.9
HLA-A*02:03	1	686	694	9	SQSIIAYTM 0.018509	4.1
HLA-A*31:01	1	366	375	10	YNSASFSTFK 0.018504	4.8
HLA-B*53:01	1	333	341	9	CPFGEVFNA 0.0185	2.4
HLA-A*02:03	1	509	518	10	VLSFELLHAP 0.018496	4.1
HLA-A*31:01	1	823	832	10	VTLADAGFIK 0.018491	4.8
HLA-B*58:01	1	1036	1044	9	RVDFCGKGY 0.018489	3.1
HLA-A*68:01	1	1259	1268	10	EPVLKGVKLH 0.018484	5.5
HLA-B*08:01	1	617	626	10	VPVAIHADQL 0.01848	4.1
HLA-B*08:01	1	632	640	9	VYSTGSNVF 0.018474	4.1

HLA-B*58:01	1	549	557	9	LTESNKKFL	0.018451	3.1
HLA-A*68:01	1	625	633	9	QLTPTWRVY	0.018451	5.5
HLA-A*30:02	1	931	939	9	IQDLSLSSTA	0.018446	4.3
HLA-A*26:01	1	1178	1186	9	KEIDRLNEV	0.018433	2.3
HLA-B*44:03	1	1091	1099	9	VFVSNQTHW	0.01843	2.1
HLA-A*30:01	1	774	782	9	NTQEVFAQV	0.018428	5.8
HLA-A*31:01	1	141	150	10	LGVYYHKNNK	0.018399	4.8
HLA-B*35:01	1	461	469	9	FERDISTEI	0.018389	2.8
HLA-B*58:01	1	507	515	9	VVLSFELL	0.018386	3.1
HLA-A*02:06	1	655	663	9	NSYECDIPI	0.018372	4.9
HLA-B*15:01	1	318	326	9	QPTESIVRF	0.018369	4.0
HLA-A*68:02	1	730	739	10	KTSVDCTMYI	0.018369	3.7
HLA-B*44:03	1	277	286	10	NENGTITDAV	0.018364	2.1
HLA-A*02:06	1	3	11	9	VFLVLLPLV	0.018351	4.9
HLA-A*30:01	1	996	1004	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	1261	1269	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	378	387	10	GVSPTKLNDL	0.018327	5.8
HLA-A*26:01	1	195	204	10	KNIDGYFKIY	0.018315	2.3
HLA-B*51:01	1	973	981	9	VLNDILSRL	0.018312	4.3
HLA-B*15:01	1	490	499	10	QSYGFQPTYG	0.018309	4.0
HLA-A*02:01	1	817	826	10	DLLFNKVTLA	0.018307	3.7
HLA-A*02:01	1	47	55	9	VLHSTQDLF	0.0183	3.7
HLA-A*02:06	1	464	472	9	DISTEIYQA	0.018299	4.9
HLA-B*15:01	1	882	891	10	GWTFGAGAAL	0.018299	4.0
HLA-B*08:01	1	1039	1047	9	FCGKGYHLM	0.018297	4.2
HLA-A*68:02	1	1085	1093	9	HFPREGVFM	0.018297	3.7
HLA-A*11:01	1	1072	1080	9	FTTAPAICH	0.01829	3.3
HLA-B*57:01	1	972	981	10	SVLNDILSRL	0.018288	4.8
HLA-B*07:02	1	1158	1166	9	SPDVDLGDI	0.018272	2.8
HLA-A*02:03	1	315	324	10	FRVQPTESIV	0.018268	4.1
HLA-A*68:02	1	363	371	9	SVLYNSASF	0.018262	3.7
HLA-B*58:01	1	123	131	9	ATNVVIVKC	0.018254	3.1
HLA-A*68:02	1	498	507	10	YGVGYQPYRV	0.018252	3.7
HLA-A*23:01	1	1208	1216	9	KWPWYIWLG	0.018246	2.1
HLA-A*68:01	1	205	214	10	SKHTPINLVR	0.018241	5.5
HLA-A*01:01	1	281	290	10	TITDAVDCAL	0.018238	2.7
HLA-B*51:01	1	93	101	9	ASTEKSNI	0.018234	4.3
HLA-B*53:01	1	1052	1061	10	SAPHGVVFLH	0.018231	2.4
HLA-A*03:01	1	1182	1190	9	RLNEVAKNL	0.018207	3.6
HLA-A*68:02	1	898	906	9	QMAYRFNGI	0.018203	3.7
HLA-B*08:01	1	144	153	10	YYHKNNKSWM	0.0182	4.2
HLA-B*57:01	1	999	1007	9	QSLQTYVTQ	0.018198	4.8
HLA-B*15:01	1	572	581	10	AVRDPQTLEI	0.018191	4.0
HLA-A*03:01	1	292	301	10	PLSEKCTLK	0.018169	3.6
HLA-A*26:01	1	719	728	10	VTTEILPVSM	0.018158	2.3
HLA-B*08:01	1	788	797	10	TPPIKDFGGF	0.018156	4.2
HLA-B*40:01	1	550	558	9	TESNKKFLP	0.018135	2.2
HLA-B*08:01	1	849	858	10	AQKFNGLTVL	0.018132	4.2
HLA-A*31:01	1	69	77	9	HVSGTNGTK	0.01812	4.8
HLA-A*02:03	1	904	912	9	NGIGVTQNV	0.01811	4.2
HLA-A*02:03	1	919	928	10	LIANQFNSAI	0.018099	4.2
HLA-A*02:03	1	620	629	10	AIHADQLTPT	0.018095	4.2
HLA-B*58:01	1	1218	1226	9	IAGLIAIVM	0.018094	3.2
HLA-A*02:01	1	911	920	10	NVLYENQKLI	0.018093	3.7
HLA-A*32:01	1	532	540	9	KNKCVNFNF	0.018092	2.5
HLA-B*35:01	1	497	505	9	TYGVGYQPY	0.01809	2.8
HLA-A*02:06	1	918	926	9	KLIANQFN	0.018073	4.9
HLA-A*03:01	1	375	384	10	KCYGVSPTKL	0.018071	3.6
HLA-A*30:01	1	235	244	10	ITRFQTLHRS	0.018067	5.9
HLA-A*30:02	1	965	973	9	SNFGAISSV	0.018067	4.4
HLA-A*68:02	1	1175	1183	9	NIQKEIDRL	0.018067	3.7
HLA-A*68:02	1	904	913	10	NGIGVTQNVL	0.018065	3.7

HLA-B*44:02	1	745	753	9	ECSNLLLQY 0.01806	2.0
HLA-A*02:06	1	1217	1226	10	FIAGLIAIVM 0.018059	4.9
HLA-A*02:01	1	997	1006	10	RLQSLQTYVT 0.018051	3.7
HLA-A*01:01	1	715	723	9	FTISVTTEI 0.018038	2.7
HLA-A*02:01	1	1205	1213	9	QYIKWPWYI 0.018036	3.7
HLA-B*44:02	1	915	924	10	ENQKLIANQF 0.018033	2.0
HLA-A*33:01	1	777	785	9	EVFAQVKQI 0.01802	3.9
HLA-A*30:02	1	1083	1091	9	KAHFPREGV 0.018019	4.4
HLA-A*01:01	1	802	811	10	ILPDPSKPSK 0.018013	2.7
HLA-A*68:02	1	288	296	9	CALDPLSET 0.018008	3.7
HLA-A*02:06	1	606	614	9	AVLYQGVNC 0.018007	4.9
HLA-A*30:02	1	263	272	10	YVGYLQPRTF 0.018005	4.4
HLA-B*51:01	1	380	389	10	SPTKLNLDLFC 0.018004	4.3
HLA-A*30:02	1	506	514	9	RVVVLFSFEL 0.017994	4.4
HLA-A*68:01	1	397	406	10	FVIRGDEVRRQ 0.017989	5.5
HLA-A*32:01	1	887	895	9	AGAALQIPF 0.017984	2.5
HLA-B*08:01	1	554	562	9	KKFLPFQOF 0.017977	4.2
HLA-A*11:01	1	1074	1083	10	TAPAICHGDK 0.017963	3.4
HLA-A*31:01	1	235	244	10	ITRFQTLHRS 0.017961	4.9
HLA-A*30:01	1	971	980	10	SSVLNDILSR 0.017957	5.9
HLA-A*33:01	1	451	459	9	RLFRKSNLK 0.017956	3.9
HLA-A*32:01	1	299	307	9	TLKSFTVEK 0.017927	2.5
HLA-B*15:01	1	550	559	10	TESNKKFLPF 0.017919	4.0
HLA-A*30:01	1	995	1003	9	TGRLQSLQT 0.017917	5.9
HLA-B*57:01	1	572	581	10	AVRDPQTLEI 0.017916	4.8
HLA-A*26:01	1	204	212	9	YSKHTPINL 0.017914	2.3
HLA-B*40:01	1	320	329	10	TESIVRFPNI 0.017912	2.2
HLA-A*02:01	1	289	297	9	ALDPLSETK 0.01791	3.7
HLA-B*51:01	1	1104	1112	9	RNFYEPQII 0.017909	4.3
HLA-A*02:06	1	1185	1194	10	EVAKNLNESL 0.017895	5.0
HLA-B*08:01	1	315	323	9	FRVQPTESI 0.017894	4.2
HLA-A*23:01	1	973	981	9	VLNDILSRL 0.017888	2.2
HLA-A*02:01	1	777	785	9	EVFAQVKQI 0.01787	3.7
HLA-A*30:01	1	1016	1024	9	RASANLAAT 0.017866	5.9
HLA-B*08:01	1	200	208	9	YFKIYSKHT 0.017865	4.2
HLA-A*30:01	1	877	885	9	GTITSGWTF 0.017864	5.9
HLA-A*01:01	1	28	36	9	YTNSTFRGV 0.017849	2.7
HLA-B*57:01	1	696	704	9	LGVENSVAY 0.017848	4.8
HLA-A*68:01	1	551	559	9	ESNKKFLPF 0.017838	5.5
HLA-B*53:01	1	380	388	9	SPTKLNLDL 0.017835	2.4
HLA-B*08:01	1	1222	1230	9	IAIVMVTIM 0.017835	4.2
HLA-A*02:06	1	817	825	9	DLLFNKVTL 0.017834	5.0
HLA-B*35:01	1	1204	1212	9	EQYIKWPWY 0.017825	2.8
HLA-B*53:01	1	625	633	9	QLTPTWRVY 0.017803	2.4
HLA-B*40:01	1	868	876	9	AQYTSALLA 0.017803	2.2
HLA-A*02:03	1	221	229	9	SALEPLVDL 0.017783	4.2
HLA-A*11:01	1	498	506	9	YGVGYQPYR 0.017768	3.4
HLA-B*07:02	1	430	438	9	VIAWNSNNL 0.017765	2.9
HLA-A*30:02	1	261	270	10	AYYVGYLQPR 0.017759	4.4
HLA-A*30:01	1	26	34	9	PAYTNSFTR 0.017756	5.9
HLA-B*58:01	1	368	376	9	SASFSTFKC 0.017752	3.2
HLA-A*02:01	1	1216	1225	10	GFIAGLIAIV 0.01774	3.7
HLA-A*02:06	1	708	716	9	SIAIPTNFT 0.017739	5.0
HLA-B*53:01	1	866	874	9	MIAQYTSAL 0.017735	2.4
HLA-B*15:01	1	1099	1107	9	WFVTQRNFY 0.017727	4.1
HLA-B*44:03	1	625	633	9	QLTPTWRVY 0.017725	2.2
HLA-A*02:06	1	892	900	9	QIPFAMQMA 0.017711	5.0
HLA-B*53:01	1	867	875	9	IAQYTSALL 0.01771	2.4
HLA-A*30:02	1	504	512	9	PYRVVLSF 0.017707	4.4
HLA-A*68:02	1	1053	1062	10	APHGVVFLHV 0.017696	3.8
HLA-B*44:02	1	277	286	10	NENGTITDAV 0.017647	2.0
HLA-B*40:01	1	1037	1046	10	VDFCGKGYHL 0.017646	2.2
HLA-A*24:02	1	392	400	9	VYADSFVIR 0.017626	2.3
HLA-A*24:02	1	150	159	10	KSWMSEFRV 0.017622	2.3
HLA-B*57:01	1	822	831	10	KVTLADAGFI 0.017609	4.8
HLA-B*08:01	1	323	332	10	IVRFPNITNL 0.017604	4.3

HLA-A*33:01	1	40	49	10	DKVFRSSVLH 0.017596	4.0
HLA-A*02:01	1	1067	1075	9	AQEKNFTTA 0.017594	3.8
HLA-A*31:01	1	566	574	9	IADTTDAVR 0.017586	4.9
HLA-B*53:01	1	1053	1062	10	APHGVVFLHV 0.017564	2.5
HLA-A*30:01	1	1062	1071	10	VTYVPAQEKN 0.017561	6.0
HLA-A*30:02	1	851	859	9	KFNGLTVLP 0.017554	4.4
HLA-A*30:01	1	532	540	9	KNKCVNFNF 0.017552	6.0
HLA-A*02:06	1	707	715	9	NSIAIPTNF 0.017548	5.0
HLA-B*53:01	1	663	671	9	IGAGICASY 0.017538	2.5
HLA-B*58:01	1	1171	1180	10	ASVVNIQKEI 0.017531	3.2
HLA-A*30:01	1	243	252	10	RSYLTPGDSS 0.017511	6.0
HLA-B*40:01	1	783	791	9	KQIYKTPPI 0.017504	2.2
HLA-B*08:01	1	675	684	10	TNSPRRARSV 0.0175	4.3
HLA-A*32:01	1	694	702	9	MSLGVNSV 0.017497	2.5
HLA-A*01:01	1	996	1004	9	GRLQSLQTY 0.017495	2.7
HLA-A*02:06	1	631	640	10	RVYSTGSNVF 0.017488	5.0
HLA-A*31:01	1	151	159	9	SWMESEFRV 0.017487	4.9
HLA-B*57:01	1	1218	1226	9	IAGLIAIVM 0.017484	4.8
HLA-A*02:03	1	378	387	10	GVSPTKLNDL 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	1053	1061	9	APHGVVFLH 0.017475	4.0
HLA-B*44:02	1	1261	1269	9	VLKGVKLHY 0.017473	2.0
HLA-A*30:01	1	185	193	9	NFKNLREFV 0.017436	6.0
HLA-A*30:01	1	785	793	9	IYKTPPIKD 0.017432	6.0
HLA-A*30:01	1	202	211	10	KIYSKHTPIN 0.017424	6.0
HLA-A*23:01	1	1106	1114	9	FYEPQIITT 0.017417	2.2
HLA-B*53:01	1	295	303	9	ETKCTLKSF 0.017415	2.5
HLA-B*08:01	1	350	359	10	WNRKRISNCV 0.017411	4.3
HLA-B*07:02	1	892	901	10	QIPFAMQMAY 0.017409	2.9
HLA-A*03:01	1	507	516	10	VVLSFELLH 0.017394	3.7
HLA-B*08:01	1	1012	1021	10	AAEIRASANL 0.017393	4.3
HLA-B*07:02	1	265	273	9	GYLQPRFTL 0.017384	2.9
HLA-A*30:02	1	684	693	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	GVEYHKNNK 0.017359	4.5
HLA-B*15:01	1	1098	1107	10	HWFVTQRNFY 0.017355	4.1
HLA-B*07:02	1	1086	1095	10	FPREGVFVSN 0.017352	2.9
HLA-B*58:01	1	1055	1064	10	HGVVFLHVTY 0.017348	3.2
HLA-A*24:02	1	1216	1224	9	GFIAGLIAI 0.017336	2.3
HLA-B*58:01	1	380	389	10	SPTKLNDLFC 0.017314	3.2
HLA-B*53:01	1	478	486	9	NGVKGFNCY 0.017307	2.5
HLA-B*07:02	1	421	430	10	KLPDDFTGCV 0.017286	2.9
HLA-B*58:01	1	573	581	9	VRDPQTLEI 0.017264	3.2
HLA-A*26:01	1	228	237	10	DLPIGINITR 0.017232	2.4
HLA-A*02:06	1	800	809	10	SQILPDPSKP 0.01723	5.1
HLA-B*51:01	1	570	579	10	TDAVRDPQTL 0.017229	4.4
HLA-A*02:06	1	1220	1229	10	GLIAIVMVTI 0.017217	5.1
HLA-A*32:01	1	1223	1231	9	AIVMVTIML 0.017217	2.6
HLA-A*02:03	1	461	469	9	FERDISTEI 0.017216	4.3
HLA-A*30:02	1	35	44	10	GVYYPDKVFR 0.017212	4.5
HLA-A*30:01	1	352	360	9	RKRISNCVA 0.017211	6.0
HLA-B*57:01	1	500	508	9	VGYPYRVV 0.017185	4.9
HLA-B*15:01	1	747	756	10	SNLLLQYGSF 0.017178	4.1
HLA-A*68:02	1	84	93	10	LPFNDGVYFA 0.017172	3.8
HLA-A*30:01	1	718	726	9	SVTTEILPV 0.017172	6.1
HLA-A*02:01	1	573	581	9	VRDPQTLEI 0.017161	3.8
HLA-B*08:01	1	46	54	9	SVLHSTDL 0.017155	4.3
HLA-B*15:01	1	353	362	10	KRISNCVADY 0.017121	4.1
HLA-B*57:01	1	1064	1072	9	YVPAQEKNF 0.017117	4.9
HLA-A*68:01	1	622	630	9	HADQLTPTW 0.017111	5.6
HLA-A*68:02	1	1189	1197	9	NLNESLIDL 0.01711	3.8
HLA-A*68:02	1	1010	1019	10	IRAAEIRASA 0.017099	3.8
HLA-A*30:01	1	1144	1152	9	SFKEELDKY 0.017091	6.1
HLA-B*08:01	1	521	530	10	VCGPKKSTNL 0.017088	4.4
HLA-A*26:01	1	744	753	10	TECSNLLLQY 0.017083	2.4

HLA-B*51:01	1	30	38	9	NSFTRGVYY 0.01708	4.4
HLA-A*68:01	1	1165	1173	9	DISGINASV 0.017062	5.6
HLA-B*57:01	1	113	121	9	KTQSLLVN 0.017054	4.9
HLA-B*15:01	1	1206	1214	9	YIKWPYIWI 0.017051	4.1
HLA-A*23:01	1	184	192	9	GNFKNLREF 0.017039	2.2
HLA-A*30:01	1	641	649	9	QTRAGCLIG 0.017027	6.1
HLA-A*30:02	1	669	677	9	ASYQTQTN 0.017026	4.5
HLA-B*51:01	1	1011	1019	9	RAAEIRASA 0.01702	4.4
HLA-A*33:01	1	70	78	9	VSGTNGTKR 0.017018	4.0
HLA-A*02:06	1	1121	1129	9	GNCDDVIGI 0.017014	5.1
HLA-A*32:01	1	125	133	9	NVVIKVFCE 0.01701	2.6
HLA-A*30:02	1	1091	1100	10	VFVSNQTHWF 0.017009	4.5
HLA-A*02:01	1	565	573	9	DIADTTDAV 0.017007	3.8
HLA-A*24:02	1	748	756	9	NLLLQYGSF 0.017001	2.3
HLA-B*57:01	1	170	179	10	YVSQPFMLDL 0.016986	4.9
HLA-A*30:02	1	19	27	9	TTRTQLPPA 0.016978	4.5
HLA-A*26:01	1	257	266	10	AGAAAYYVGY 0.016962	2.4
HLA-B*44:03	1	1051	1059	9	QSAPHGVVF 0.016949	2.2
HLA-A*30:01	1	243	251	9	RSYLTPGDS 0.016947	6.1
HLA-A*02:06	1	21	29	9	RTQLPPAYT 0.016939	5.1
HLA-A*31:01	1	623	631	9	ADQLTPTWR 0.016928	5.0
HLA-A*26:01	1	1077	1086	10	AICHDGKAHF 0.016917	2.4
HLA-A*02:06	1	53	62	10	DLFLPFFSNV 0.016916	5.1
HLA-B*51:01	1	959	967	9	LVKQLSSNF 0.016912	4.5
HLA-A*33:01	1	1134	1142	9	VYDPLQPEL 0.016906	4.0
HLA-A*30:02	1	452	461	10	LFRKSNLKPF 0.016901	4.5
HLA-B*57:01	1	211	220	10	NLVRGLPQGF 0.016897	4.9
HLA-A*32:01	1	898	906	9	QMAYRFNGI 0.016888	2.6
HLA-B*15:01	1	1134	1142	9	VYDPLQPEL 0.016887	4.2
HLA-A*30:01	1	1178	1186	9	KEIDRLNEV 0.016877	6.1
HLA-A*31:01	1	1170	1178	9	NASVVNIQK 0.016874	5.0
HLA-A*30:02	1	598	606	9	GTNTSNQVA 0.016873	4.6
HLA-A*31:01	1	625	633	9	QLTPTWRVY 0.016866	5.0
HLA-B*58:01	1	744	753	10	TECSNLLLQY 0.016864	3.3
HLA-A*30:01	1	363	371	9	SVLYNSASF 0.016862	6.1
HLA-A*32:01	1	1062	1070	9	VTYVPAQEK 0.016848	2.6
HLA-A*02:06	1	35	43	9	GVYYPDKVF 0.016846	5.1
HLA-A*26:01	1	1052	1061	10	SAPHGVVFLH 0.016837	2.4
HLA-A*30:01	1	104	113	10	WIFGTTLD 0.016836	6.1
HLA-A*30:02	1	375	384	10	KCYGVSPTKL 0.016834	4.6
HLA-B*44:02	1	131	140	10	CEFQFCNDPF 0.016829	2.1
HLA-A*01:01	1	257	266	10	AGAAAYYVGY 0.016816	2.8
HLA-B*08:01	1	102	110	9	RGWIFGTTL 0.016811	4.4
HLA-B*35:01	1	677	685	9	SPRRARSVA 0.016803	2.9
HLA-A*32:01	1	444	452	9	GNYNLYRL 0.016759	2.6
HLA-A*68:01	1	1255	1263	9	EDDSEPVLK 0.016751	5.7
HLA-A*30:01	1	952	961	10	NAQALNTLVK 0.016749	6.2
HLA-A*02:06	1	498	507	10	YGVGYQPYRV 0.016728	5.2
HLA-B*58:01	1	728	737	10	MTKTSVDCTM 0.016728	3.3
HLA-B*58:01	1	550	559	10	TESNKKFLPF 0.016719	3.3
HLA-B*51:01	1	581	589	9	ILDITPCSF 0.016694	4.5
HLA-A*31:01	1	182	191	10	KQGNFKNLRE 0.016692	5.0
HLA-A*30:01	1	516	525	10	HAPATVCGPK 0.016692	6.2
HLA-A*30:02	1	137	145	9	NDPFLGVYY 0.016688	4.6
HLA-A*02:03	1	1110	1119	10	QIITDNTFV 0.016686	4.3
HLA-A*02:03	1	832	841	10	KQYGDCLGDI 0.016679	4.3
HLA-A*01:01	1	707	715	9	NSIAIPTNF 0.016676	2.8
HLA-A*31:01	1	1079	1088	10	CHDGKAHFPR 0.016674	5.1
HLA-B*51:01	1	1001	1009	9	LQTYVTQQL 0.016669	4.5
HLA-A*68:02	1	315	323	9	FRVQPTESI 0.016664	3.9
HLA-A*02:03	1	1004	1013	10	YVTQQLIRAA 0.016654	4.4
HLA-B*57:01	1	1018	1026	9	SANLAATKM 0.016654	5.0
HLA-A*02:03	1	337	345	9	EVFNATRFM 0.016641	4.4
HLA-A*02:01	1	168	176	9	FEYVSQPFL 0.016638	3.9
HLA-B*57:01	1	886	895	10	GAGAALQIPF 0.016632	5.0
HLA-B*44:03	1	915	924	10	ENQKLIANQF 0.016626	2.2

HLA-A*26:01	1	1194	1203	10	LIDLQELGKY 0.016617	2.4
HLA-B*51:01	1	295	303	9	ETKCTLKSF 0.016614	4.5
HLA-A*30:02	1	46	54	9	SVLHSTQDL 0.016601	4.6
HLA-B*44:03	1	891	899	9	LQIPFAMQM 0.016601	2.2
HLA-B*44:02	1	657	665	9	YECDIPIGA 0.016592	2.1
HLA-B*51:01	1	789	797	9	PPIKDFGGF 0.016571	4.5
HLA-A*26:01	1	1192	1200	9	ESLIDLQEL 0.016561	2.4
HLA-B*07:02	1	857	866	10	VLPLLLTDEM 0.016555	3.0
HLA-A*33:01	1	778	786	9	VFAQVKQIY 0.01652	4.1
HLA-A*68:02	1	468	477	10	EIYQAGSTPC 0.016519	3.9
HLA-B*15:01	1	442	450	9	VGGNYNYLY 0.016515	4.2
HLA-A*68:01	1	633	641	9	YSTGSNVFQ 0.016514	5.7
HLA-A*68:01	1	825	834	10	LADAGFIKQY 0.016514	5.7
HLA-B*44:03	1	320	329	10	TESIVRFPNI 0.016508	2.2
HLA-B*15:01	1	501	510	10	GYQPYRVVVL 0.016498	4.2
HLA-B*58:01	1	680	689	10	RARSVASQSI 0.016488	3.3
HLA-A*03:01	1	775	783	9	TQEVFAQVK 0.016473	3.8
HLA-B*35:01	1	600	608	9	NTSNQVAVL 0.01647	2.9
HLA-B*15:01	1	1057	1065	9	VVFLHVTTYV 0.016467	4.2
HLA-A*26:01	1	486	494	9	YFPLQSYGF 0.016461	2.4
HLA-A*33:01	1	1027	1036	10	SECVLGQSKR 0.016443	4.1
HLA-A*30:01	1	715	723	9	FTISVTTEI 0.016442	6.2
HLA-B*51:01	1	701	709	9	SVAYSNNSI 0.016434	4.5
HLA-A*24:02	1	1208	1216	9	KWPWYIWLG 0.016416	2.4
HLA-B*53:01	1	803	812	10	LPDPSKPSKR 0.016409	2.6
HLA-A*30:02	1	1201	1209	9	GKYEYIKW 0.016394	4.6
HLA-B*08:01	1	167	175	9	TFEYVSQPF 0.016393	4.5
HLA-A*30:01	1	1036	1045	10	RVDFCGKGYH 0.016389	6.3
HLA-B*57:01	1	690	698	9	IAYTMSLGV 0.016383	5.0
HLA-A*31:01	1	936	944	9	SSTASALGK 0.016375	5.1
HLA-B*51:01	1	686	694	9	SQSIAYTM 0.016373	4.5
HLA-A*03:01	1	255	263	9	WTAGAAAYY 0.016369	3.8
HLA-A*30:01	1	491	500	10	SYGFQPTYGV 0.016369	6.3
HLA-A*32:01	1	547	556	10	GVLTESNKKF 0.016367	2.6
HLA-B*53:01	1	548	556	9	VLTESNKKF 0.016363	2.6
HLA-A*30:02	1	922	930	9	NQFNSAIGK 0.016363	4.6
HLA-B*53:01	1	648	657	10	IGAHEVNNSY 0.016353	2.6
HLA-B*51:01	1	682	690	9	RSVASQSII 0.016349	4.5
HLA-A*26:01	1	905	914	10	GIGVTQNVLY 0.016346	2.4
HLA-B*51:01	1	316	324	9	RVQPTESIV 0.016341	4.5
HLA-B*07:02	1	866	875	10	MIAQYTSALL 0.01634	3.0
HLA-A*68:02	1	660	669	10	DIPIGAGICA 0.016337	3.9
HLA-A*23:01	1	392	400	9	VYADSFVIR 0.016323	2.3
HLA-B*15:01	1	706	715	10	NNSIAIPTNF 0.016307	4.2
HLA-B*57:01	1	526	534	9	KSTNLVKNK 0.016301	5.0
HLA-A*01:01	1	825	833	9	LADAGFIKQ 0.016301	2.9
HLA-A*11:01	1	622	631	10	HADQLTPTWR 0.0163	3.5
HLA-A*33:01	1	121	129	9	NNATNVVVK 0.016298	4.1
HLA-B*51:01	1	1219	1227	9	AGLIAIVMV 0.016293	4.5
HLA-A*02:03	1	940	949	10	SALGKLQDVV 0.016289	4.4
HLA-A*03:01	1	1033	1042	10	QSKRVDFCGK 0.016286	3.8
HLA-B*57:01	1	912	920	9	VLYENQKLI 0.016285	5.0
HLA-B*57:01	1	441	449	9	KVGGNYNYL 0.016279	5.0
HLA-B*53:01	1	1063	1072	10	TYVPAQEKNF 0.016268	2.6
HLA-A*30:01	1	497	506	10	TYGVGYQPYR 0.016259	6.3
HLA-A*23:01	1	912	920	9	VLYENQKLI 0.016248	2.3
HLA-B*15:01	1	439	448	10	DSKVGGNYY 0.016247	4.3
HLA-B*53:01	1	357	366	10	NCVADYSVLY 0.016242	2.6
HLA-A*32:01	1	192	201	10	FVFKNIDGYF 0.016225	2.6
HLA-A*02:01	1	1193	1201	9	SLIDLQELG 0.016217	3.9
HLA-B*35:01	1	867	875	9	IAQYTSALL 0.016203	2.9
HLA-B*08:01	1	752	760	9	QYGSFCTQL 0.016199	4.5
HLA-B*08:01	1	1192	1200	9	ESLIDLQEL 0.016196	4.5
HLA-A*01:01	1	366	374	9	YNSASFSTF 0.016193	2.9
HLA-A*68:01	1	616	625	10	EVPVAIHADQ 0.016193	5.8
HLA-A*24:02	1	857	866	10	VLPLLLTDEM 0.016191	2.4

HLA-B*35:01	1	151	160	10	SWMESEFRVY 0.01619	2.9
HLA-A*30:01	1	299	308	10	TLKSFTVEKG 0.01619	6.3
HLA-A*26:01	1	748	756	9	NLLLQYGSF 0.016182	2.4
HLA-B*07:02	1	927	935	9	AIGKIQDSL 0.016176	3.0
HLA-B*51:01	1	315	323	9	FRVQPTESI 0.016172	4.6
HLA-A*03:01	1	992	1000	9	RLITGRLQS 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	DPFLGVVYHK 0.016161	5.1
HLA-A*68:02	1	1048	1057	10	SFPQSAPHGV 0.016154	4.0
HLA-A*30:02	1	251	259	9	SSSGWTAGA 0.016144	4.7
HLA-B*44:03	1	305	313	9	VEKGIYQTS 0.016142	2.3
HLA-A*02:03	1	500	508	9	VGYPYRVV 0.016141	4.4
HLA-B*15:01	1	1051	1060	10	QSAPHGVVFL 0.016139	4.3
HLA-B*35:01	1	1052	1060	9	SAPHGVVFL 0.016136	2.9
HLA-B*53:01	1	948	956	9	VVNQNAQAL 0.016087	2.6
HLA-B*51:01	1	788	797	10	TPPIKDFGGF 0.01608	4.6
HLA-A*68:02	1	551	559	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	GNFKNREF 0.016075	2.3
HLA-B*44:02	1	320	329	10	TESIVRFPNI 0.016073	2.1
HLA-A*23:01	1	530	538	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	1004	1013	10	YVTQQLIRAA 0.016051	4.0
HLA-B*53:01	1	368	377	10	SASFSTFKCY 0.016045	2.6
HLA-A*02:06	1	920	928	9	IANQFNSAI 0.016033	5.3
HLA-B*53:01	1	51	59	9	TQDLFLPFF 0.016032	2.6
HLA-A*68:01	1	894	902	9	PFAMQMAYR 0.016031	5.8
HLA-A*11:01	1	625	633	9	QLTPTWRVY 0.01603	3.5
HLA-B*35:01	1	137	145	9	NDPFLGVVY 0.016028	3.0
HLA-A*30:01	1	46	54	9	SVLHSTQDL 0.016024	6.3
HLA-B*53:01	1	1261	1269	9	VLKGVKLHY 0.016016	2.6
HLA-A*03:01	1	952	961	10	NAQALNTLVK 0.016014	3.8
HLA-B*44:02	1	1147	1155	9	EELDKYFKN 0.016014	2.1
HLA-A*30:01	1	297	306	10	KCTLKSFTVE 0.016011	6.3
HLA-A*11:01	1	507	516	10	VVLSFELLH 0.016008	3.5
HLA-B*07:02	1	867	875	9	IAQYTSALL 0.016003	3.1
HLA-A*30:02	1	102	110	9	RGWIFGTTL 0.016	4.7
HLA-B*53:01	1	770	779	10	EQDKNTQEVF 0.015999	2.6
HLA-A*30:01	1	214	223	10	RGLPQGFSAL 0.015993	6.3
HLA-A*31:01	1	506	514	9	RVVLSFEL 0.015993	5.1
HLA-B*44:02	1	1084	1092	9	AHFPREGVF 0.015986	2.1
HLA-A*30:02	1	507	516	10	VVLSFELLH 0.015984	4.7
HLA-A*33:01	1	1099	1107	9	WFVTQRNFY 0.015983	4.1
HLA-A*24:02	1	811	820	10	KRSFIEDLLF 0.015975	2.4
HLA-A*26:01	1	1036	1044	9	RVDFCGKGY 0.015975	2.5
HLA-A*68:02	1	1022	1030	9	AATKMSECV 0.015974	4.0
HLA-A*02:01	1	749	757	9	LLLQYGSFC 0.015968	4.0
HLA-A*68:02	1	719	727	9	VTTEILPVS 0.015952	4.0
HLA-A*26:01	1	554	562	9	KKFLPFQOF 0.015945	2.5
HLA-B*44:03	1	410	418	9	GQTGNIADY 0.01594	2.3
HLA-A*26:01	1	111	119	9	DSKTQSLLI 0.015938	2.5
HLA-B*15:01	1	1222	1230	9	IAIVMVTIM 0.015937	4.3
HLA-A*68:01	1	663	671	9	IGAGICASY 0.01592	5.8
HLA-A*02:03	1	759	768	10	QLNRALTGIA 0.015912	4.5
HLA-A*32:01	1	920	928	9	IANQFNSAI 0.0159	2.7
HLA-A*68:01	1	580	589	10	EILDITPCSF 0.015897	5.8
HLA-A*68:02	1	30	38	9	NSFTRGVVY 0.015887	4.0
HLA-A*23:01	1	507	515	9	VVLSFELL 0.015884	2.3
HLA-A*32:01	1	580	589	10	EILDITPCSF 0.015882	2.7
HLA-A*24:02	1	791	799	9	IKDFGGFNF 0.01588	2.4
HLA-B*44:03	1	336	345	10	GEVFNATRFA 0.015863	2.3
HLA-A*30:01	1	108	116	9	TTLDSKTQS 0.01585	6.4
HLA-A*68:02	1	251	260	10	SSSGWTAGAA 0.01585	4.0
HLA-A*68:02	1	502	510	9	YQPYRVVVL 0.015849	4.0
HLA-B*08:01	1	947	956	10	DVVNNAQAL 0.015834	4.6

HLA-B*51:01	1	1126	1134	9	VIGIVNNTV 0.015831	4.6
HLA-A*02:03	1	507	515	9	VVLSFELL 0.015824	4.5
HLA-A*02:03	1	251	259	9	SSSGWTAGA 0.015821	4.5
HLA-B*57:01	1	226	235	10	LVDLPIGINI 0.015817	5.1
HLA-A*30:01	1	441	450	10	KVGGNYNYLY 0.015795	6.4
HLA-A*11:01	1	671	679	9	YQTQTNSPR 0.01578	3.5
HLA-B*08:01	1	361	369	9	DYSVLYNSA 0.015775	4.6
HLA-A*02:01	1	245	253	9	YLTPGDSSS 0.015762	4.0
HLA-A*02:03	1	931	939	9	IQDLSSTA 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	NSFTRGVVY 0.015747	4.6
HLA-B*57:01	1	826	834	9	ADAGFIKQY 0.015745	5.1
HLA-A*30:01	1	674	683	10	QTNSPRRARS 0.015739	6.4
HLA-B*57:01	1	936	945	10	SSTASALGKL 0.015739	5.1
HLA-B*44:03	1	984	992	9	VEAEVQIDR 0.015736	2.3
HLA-A*68:01	1	187	195	9	KNLREFVFK 0.015729	5.8
HLA-A*02:03	1	997	1006	10	RLQSLQTYVT 0.015728	4.5
HLA-A*30:02	1	1061	1070	10	HVTYVPAQEK 0.015725	4.7
HLA-A*02:06	1	218	226	9	QGFSALEPL 0.015722	5.3
HLA-A*26:01	1	126	135	10	VVIKVCFFQF 0.01571	2.5
HLA-B*51:01	1	464	472	9	DISTEIYQA 0.01571	4.6
HLA-A*02:06	1	509	518	10	VLSFELLHAP 0.015688	5.3
HLA-B*35:01	1	173	181	9	QPFLMDLEG 0.015686	3.0
HLA-B*44:02	1	1134	1142	9	VYDPLQPEL 0.015686	2.1
HLA-B*44:03	1	1084	1092	9	AHFPREGVF 0.015678	2.3
HLA-A*30:01	1	346	355	10	SVYAWNRRKRI 0.015669	6.4
HLA-B*07:02	1	830	838	9	FIKQYGDCL 0.015658	3.1
HLA-A*02:06	1	720	728	9	TTEILPVSM 0.015643	5.4
HLA-A*02:03	1	888	896	9	GAALQIPFA 0.015642	4.5
HLA-A*31:01	1	1027	1036	10	SECVLGQSKR 0.015642	5.2
HLA-A*33:01	1	777	786	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	1175	1183	9	NIQKEIDRL 0.015623	4.0
HLA-A*30:01	1	673	681	9	TQTNSPRRA 0.01562	6.5
HLA-A*33:01	1	337	345	9	EVFNATRFA 0.015618	4.2
HLA-B*35:01	1	817	825	9	DLLFNKVTL 0.015616	3.0
HLA-A*68:02	1	585	594	10	TPCSFGGVSU 0.015609	4.0
HLA-B*53:01	1	686	694	9	SQSIIAYTM 0.015607	2.6
HLA-A*30:01	1	492	500	9	YGFQPTYGV 0.015605	6.5
HLA-A*30:02	1	972	980	9	SVLNDILSR 0.015603	4.8
HLA-A*30:01	1	268	276	9	QPRTFLLKY 0.0156	6.5
HLA-A*68:02	1	329	338	10	ITNLCPFGEV 0.015597	4.0
HLA-B*15:01	1	98	106	9	SNIRGWIF 0.01559	4.3
HLA-B*08:01	1	965	973	9	SNFGAISS 0.015581	4.6
HLA-A*30:01	1	70	78	9	VSGTNGTKR 0.015571	6.5
HLA-A*30:02	1	621	630	10	IHADQLTPTW 0.015567	4.8
HLA-A*24:02	1	530	538	9	LVKNKCVNF 0.015564	2.4
HLA-A*30:02	1	235	243	9	ITRFQTLHR 0.015562	4.8
HLA-A*30:01	1	240	248	9	TLHRSYLTP 0.01556	6.5
HLA-A*68:01	1	489	498	10	LQSYGFQPTY 0.015557	5.9
HLA-B*58:01	1	79	87	9	FANPVLPFN 0.015552	3.4
HLA-B*58:01	1	999	1007	9	QSLQTYVTQ 0.015549	3.4
HLA-A*30:01	1	912	920	9	VLYENQKLI 0.015548	6.5
HLA-A*30:02	1	1172	1180	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	1260	1268	9	PVLKGVKHL 0.015518	4.8
HLA-A*30:02	1	806	814	9	PSKPSKRSF 0.0155	4.8
HLA-A*02:06	1	50	59	10	STQDLFLPPF 0.015497	5.4
HLA-A*30:02	1	301	309	9	KSFTVEKGI 0.015488	4.8
HLA-A*32:01	1	265	273	9	GYLQPRTFL 0.015486	2.7
HLA-A*68:01	1	953	961	9	AQALNTLVK 0.01548	5.9
HLA-B*44:02	1	1144	1152	9	SFKEELDKY 0.015477	2.1
HLA-A*02:03	1	456	465	10	SNLKPFERDI 0.015475	4.6
HLA-B*58:01	1	268	276	9	QPRTFLLKY 0.015467	3.4



HLA-A*68:02	1	1089	1097	9	EGVFSVNGT 0.015444	4.1
HLA-A*30:02	1	323	332	10	IVRFPNITNL 0.015429	4.8
HLA-B*08:01	1	951	959	9	QNAQALNTL 0.015426	4.7
HLA-A*30:01	1	1002	1011	10	QTYVTQQLIR 0.015426	6.5
HLA-B*58:01	1	365	374	10	LYNSASFSTF 0.015419	3.4
HLA-B*57:01	1	202	210	9	KIYSKHTPI 0.015418	5.1
HLA-A*02:06	1	463	472	10	RDISTEIQQA 0.015409	5.4
HLA-A*30:01	1	221	229	9	SALEPLVDL 0.015408	6.5
HLA-A*02:06	1	598	607	10	GTNTSNQVAV 0.015388	5.4
HLA-B*15:01	1	931	939	9	IQDLSSTA 0.015382	4.3
HLA-A*31:01	1	1056	1064	9	GVVFLHVTY 0.01538	5.3
HLA-B*57:01	1	504	512	9	PYRVVLSF 0.015376	5.1
HLA-B*53:01	1	49	58	10	HSTQDLFLPF 0.015368	2.6
HLA-A*02:06	1	535	543	9	CVNFNFNGL 0.015362	5.4
HLA-B*53:01	1	742	750	9	DSTECSNLL 0.015361	2.6
HLA-B*15:01	1	167	175	9	TFEYVSQPF 0.015354	4.3
HLA-A*02:01	1	375	384	10	KCYGVSPTKL 0.015333	4.0
HLA-A*30:01	1	940	948	9	SALGKLQDV 0.015333	6.5
HLA-A*02:03	1	1049	1058	10	FPQSAPHGVV 0.015328	4.6
HLA-B*15:01	1	780	788	9	AQVKQIYKT 0.015323	4.4
HLA-A*32:01	1	214	223	10	RGLPQGFSAL 0.015322	2.7
HLA-A*03:01	1	432	441	10	AWNSNNLDSK 0.015309	3.9
HLA-B*07:02	1	789	797	9	PPIKDFGGF 0.015305	3.1
HLA-A*33:01	1	566	574	9	IADTTDAVR 0.015295	4.2
HLA-A*30:01	1	239	247	9	QTLHRSYLT 0.015291	6.5
HLA-B*08:01	1	1000	1009	10	SLQTYVTQQL 0.015289	4.7
HLA-A*32:01	1	119	127	9	IVNNATNVV 0.015288	2.7
HLA-B*08:01	1	613	621	9	NCTEVPVAI 0.015286	4.7
HLA-B*08:01	1	1092	1100	9	FVSNGTHWF 0.015275	4.7
HLA-B*58:01	1	532	540	9	KNKCVNFNF 0.015273	3.5
HLA-A*68:02	1	287	296	10	DCALDPLSET 0.015271	4.1
HLA-B*58:01	1	826	834	9	ADAGFIKQY 0.01527	3.5
HLA-B*40:01	1	839	847	9	GDIAARDLI 0.015255	2.4
HLA-A*30:01	1	999	1007	9	QSLQTYVTQ 0.015255	6.6
HLA-B*08:01	1	1081	1089	9	DGKAHFPE 0.015243	4.7
HLA-A*23:01	1	1151	1159	9	KYFKNHTSP 0.015243	2.4
HLA-B*35:01	1	458	467	10	LKPFERDIST 0.015215	3.0
HLA-A*02:01	1	701	709	9	SVAYSNNSI 0.015214	4.1
HLA-A*30:02	1	780	788	9	AQVKQIYKT 0.015209	4.8
HLA-B*35:01	1	186	194	9	FKNLREFVF 0.015208	3.0
HLA-A*02:06	1	850	858	9	QKFNGLTVL 0.015177	5.5
HLA-A*02:01	1	911	919	9	NVLYENQKL 0.015177	4.1
HLA-B*58:01	1	1001	1010	10	LQTYVTQQLI 0.015175	3.5
HLA-A*24:02	1	608	617	10	LYQGVNCTEV 0.01517	2.4
HLA-A*03:01	1	909	918	10	TQNVLYENQK 0.01517	3.9
HLA-A*68:02	1	1182	1190	9	RLNEVAKNL 0.015154	4.1
HLA-A*30:01	1	890	899	10	ALQIPFAMQM 0.015152	6.6
HLA-A*24:02	1	215	223	9	GLPQGFSAL 0.015148	2.4
HLA-A*30:02	1	774	782	9	NTQEVFAQV 0.015148	4.8
HLA-A*02:03	1	694	702	9	MSLGVENSV 0.015146	4.6
HLA-B*58:01	1	193	201	9	VFKNIDGYF 0.015142	3.5
HLA-B*58:01	1	331	339	9	NLCPFGEVF 0.015128	3.5
HLA-A*30:01	1	1125	1133	9	VVIGIVNNT 0.015119	6.6
HLA-B*58:01	1	71	79	9	SGTNGTKRF 0.015114	3.5
HLA-A*02:06	1	341	349	9	ATRFASVYA 0.015114	5.5
HLA-A*23:01	1	150	159	10	KSWMESEFRV 0.015099	2.4
HLA-B*53:01	1	1056	1064	9	GVVFLHVTY 0.015089	2.7
HLA-A*30:02	1	444	452	9	GNYNLYRL 0.015085	4.9
HLA-A*30:01	1	785	794	10	IYKTPPIKDF 0.015084	6.6
HLA-A*30:02	1	685	693	9	ASQSIIAYT 0.015073	4.9
HLA-A*33:01	1	25	34	10	PPAYTNSFTR 0.015071	4.2
HLA-A*03:01	1	556	564	9	FLPFQQFGR 0.015064	3.9
HLA-B*35:01	1	266	274	9	YLQPRTFLL 0.015058	3.0
HLA-B*51:01	1	795	803	9	GGFNFSQIL 0.015051	4.7
HLA-B*07:02	1	1254	1262	9	DEDDSEPVL 0.01505	3.2
HLA-B*53:01	1	706	715	10	NNSIAIPTNF 0.015049	2.7

HLA-A*30:02	1	1052	1060	9	SAPHGVVFL 0.015046	4.9
HLA-A*02:03	1	1175	1183	9	NIQKEIDRL 0.015046	4.6
HLA-B*35:01	1	1091	1099	9	VFVSNQTHW 0.015041	3.0
HLA-B*53:01	1	46	55	10	SVLHSTQDLF 0.015031	2.7
HLA-A*33:01	1	721	730	10	TEILPVSMTK 0.015031	4.3
HLA-B*08:01	1	1218	1226	9	IAGLIAIVM 0.015027	4.7
HLA-A*24:02	1	204	212	9	YSKHTPINL 0.015022	2.4
HLA-A*11:01	1	631	639	9	RVYSTGSNV 0.015018	3.6
HLA-B*51:01	1	204	213	10	YSKHTPINLV 0.015005	4.7
HLA-A*31:01	1	803	812	10	LPDPSKPSKR 0.014991	5.3
HLA-B*58:01	1	687	696	10	QSIIAYTMSL 0.014986	3.5
HLA-A*02:03	1	259	267	9	AAAYVGYL 0.014982	4.6
HLA-A*30:02	1	1016	1025	10	RASANLAATK 0.01498	4.9
HLA-A*24:02	1	1213	1222	10	IWLGFIAGLI 0.014975	2.4
HLA-A*02:06	1	898	906	9	QMAYRFNGI 0.014966	5.5
HLA-A*68:01	1	122	130	9	NATNVVIVK 0.014958	6.0
HLA-A*31:01	1	778	786	9	VFAQVKQIY 0.014932	5.3
HLA-B*51:01	1	1186	1195	10	VAKNLNESLI 0.01493	4.8
HLA-A*02:03	1	1002	1010	9	QTYVTQQLI 0.01492	4.7
HLA-B*58:01	1	183	192	10	QGNFKNREF 0.014918	3.5
HLA-A*68:01	1	730	738	9	KTSVDCTMY 0.014911	6.0
HLA-A*68:01	1	454	463	10	RKSNLKPFR 0.01491	6.0
HLA-A*30:01	1	1052	1060	9	SAPHGVVFL 0.01491	6.7
HLA-B*35:01	1	442	450	9	VGGNYNYLY 0.014909	3.0
HLA-A*02:03	1	716	724	9	TISVTTEIL 0.014906	4.7
HLA-B*07:02	1	1012	1021	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	986	995	10	AEVQIDRLIT 0.014877	2.2
HLA-A*01:01	1	719	728	10	VTTEILPVSM 0.014875	3.0
HLA-B*35:01	1	1133	1142	10	TVYDPLQPEL 0.014874	3.0
HLA-A*24:02	1	751	760	10	LQYGSFCTQL 0.014868	2.5
HLA-B*44:03	1	467	476	10	TEIYQAGSTP 0.014849	2.3
HLA-B*15:01	1	478	487	10	NGVKGFNCYF 0.014844	4.4
HLA-A*11:01	1	1143	1151	9	DSFKEELDK 0.014843	3.6
HLA-A*30:02	1	593	601	9	SVITPGTNT 0.014838	4.9
HLA-A*30:01	1	322	331	10	SIVRFPNITN 0.014837	6.7
HLA-A*02:01	1	865	873	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	812	820	9	RSFIEDLLF 0.014817	4.8
HLA-B*51:01	1	993	1001	9	LITGRLQSL 0.014813	4.8
HLA-A*30:02	1	849	858	10	AQKFNGLTVL 0.014805	4.9
HLA-A*33:01	1	262	271	10	YYVGYLQPR 0.014804	4.3
HLA-A*30:02	1	21	30	10	RTQLPPAYTN 0.0148	4.9
HLA-B*15:01	1	310	318	9	YQTSNFRVQ 0.014793	4.4
HLA-A*03:01	1	78	86	9	RFANPVLFP 0.014787	3.9
HLA-B*44:03	1	698	706	9	VENSVAYSN 0.014787	2.3
HLA-A*30:01	1	297	305	9	KCTLKSFTV 0.014784	6.7
HLA-A*33:01	1	817	825	9	DLLFNKVTL 0.014776	4.3
HLA-B*15:01	1	684	693	10	VASQSIIAYT 0.014774	4.4
HLA-A*30:02	1	41	50	10	KVFRSSVLHS 0.014768	4.9
HLA-B*58:01	1	785	794	10	IYKTPPIKDF 0.014766	3.5
HLA-A*68:02	1	282	290	9	ITDAVDCAL 0.014765	4.1
HLA-A*68:02	1	951	960	10	QNAQALNTLV 0.014753	4.1
HLA-B*58:01	1	1064	1072	9	YVPAQEKNF 0.014748	3.5
HLA-A*33:01	1	414	422	9	NIADYNYKL 0.014743	4.3
HLA-B*51:01	1	599	607	9	TNTSNQVAV 0.014739	4.8
HLA-A*30:02	1	791	799	9	IKDFGGFNF 0.014738	4.9
HLA-A*30:02	1	453	461	9	FRKSNLKPF 0.014728	4.9
HLA-A*33:01	1	57	66	10	PFFSNVTWFH 0.014721	4.3
HLA-A*30:01	1	77	85	9	KRFANPVL 0.014716	6.7
HLA-A*23:01	1	1134	1143	10	VYDPLQPELD 0.014712	2.4
HLA-A*32:01	1	455	463	9	KSNLKPFER 0.014706	2.8
HLA-B*51:01	1	500	509	10	VGYPYRVVV 0.014692	4.8
HLA-B*35:01	1	756	764	9	FCTQLNRAL 0.014692	3.1
HLA-B*58:01	1	936	945	10	SSTASALGKL 0.014684	3.5

HLA-A*24:02	1	414	422	9	NIADYNYKL 0.014676	2.5
HLA-A*30:01	1	1213	1221	9	IWLGFIAFL 0.014675	6.7
HLA-A*30:01	1	551	559	9	ESNKKFLPF 0.01467	6.7
HLA-B*08:01	1	774	782	9	NTQEVFAQV 0.014665	4.8
HLA-B*51:01	1	680	689	10	RARSVASQSI 0.014657	4.8
HLA-A*02:06	1	916	924	9	NQKLIANQF 0.014651	5.6
HLA-A*31:01	1	150	159	10	KSWMESEFRV 0.014643	5.4
HLA-A*30:02	1	958	967	10	TLVKQLSSNF 0.014641	4.9
HLA-A*24:02	1	127	135	9	VIKVCEFAQ 0.014637	2.5
HLA-A*11:01	1	877	885	9	GTITSGWTF 0.01463	3.6
HLA-B*57:01	1	996	1004	9	GRLQSLQTY 0.014629	5.2
HLA-A*30:01	1	730	738	9	KTSVDCTMY 0.014622	6.7
HLA-A*03:01	1	446	454	9	YNYLYRFLR 0.014621	4.0
HLA-B*57:01	1	955	963	9	ALNTLVKQL 0.014617	5.2
HLA-B*53:01	1	661	669	9	IPIGAGICA 0.014615	2.7
HLA-A*30:01	1	444	452	9	GNYNYLYRL 0.014612	6.7
HLA-A*24:02	1	212	220	9	LVRGLPQGF 0.014607	2.5
HLA-A*68:02	1	510	518	9	LSFELLHAP 0.0146	4.2
HLA-A*01:01	1	236	245	10	TRFQTLHRSY 0.014598	3.1
HLA-A*30:01	1	400	408	9	RGDEVRQIA 0.014578	6.8
HLA-B*51:01	1	195	203	9	KNIDGYFKI 0.014572	4.8
HLA-A*68:02	1	239	247	9	QTLHRSYLT 0.014563	4.2
HLA-A*26:01	1	397	405	9	FVIRGDEVR 0.014562	2.6
HLA-B*58:01	1	715	724	10	FTISVTTEIL 0.014554	3.5
HLA-A*02:06	1	687	696	10	QSIAYTMSL 0.014546	5.6
HLA-A*26:01	1	729	738	10	TKTSVDCTMY 0.01454	2.6
HLA-A*30:02	1	13	21	9	SQCVNLTRR 0.014537	4.9
HLA-A*02:03	1	542	550	9	GLTGTGVL 0.014536	4.7
HLA-A*30:02	1	61	69	9	NVTWFHAIH 0.014511	5.0
HLA-B*57:01	1	1047	1056	10	MSFPQSAPHG 0.014509	5.3
HLA-B*08:01	1	214	223	10	RGLPQGFSAL 0.014508	4.8
HLA-A*02:06	1	166	174	9	CTFEYVSQP 0.014504	5.6
HLA-B*15:01	1	462	470	9	ERDISTEYI 0.014503	4.5
HLA-B*35:01	1	617	625	9	VPVAIHADQ 0.014502	3.1
HLA-A*26:01	1	648	657	10	IGAHEVNNNSY 0.014491	2.6
HLA-A*30:02	1	682	690	9	RSVASQSII 0.01449	5.0
HLA-A*02:01	1	862	870	9	LTDEMIAQY 0.014489	4.1
HLA-A*02:03	1	870	879	10	YTSALLAGTI 0.014487	4.7
HLA-B*51:01	1	1092	1100	9	FVSNNGTHWF 0.014476	4.8
HLA-A*30:01	1	90	98	9	VYFASTEKS 0.014474	6.8
HLA-A*30:02	1	367	375	9	NSASFSTFK 0.014465	5.0
HLA-A*30:01	1	988	996	9	VQIDRLITG 0.014465	6.8
HLA-B*35:01	1	934	942	9	SLSSTASAL 0.014462	3.1
HLA-B*07:02	1	720	728	9	TTEILPVSM 0.014458	3.2
HLA-A*30:01	1	260	268	9	AAYYVGYLQ 0.014455	6.8
HLA-A*68:01	1	778	786	9	VFAQVKQIY 0.014455	6.0
HLA-B*08:01	1	580	589	10	EILDITPCSF 0.014452	4.8
HLA-B*51:01	1	541	549	9	NGLTGTGVL 0.014446	4.8
HLA-A*23:01	1	330	339	10	TNLCPFGEVF 0.014441	2.4
HLA-B*51:01	1	337	345	9	EVFNATRFA 0.014441	4.8
HLA-A*02:06	1	719	727	9	VTTEILPVS 0.014434	5.6
HLA-A*68:02	1	1049	1058	10	FPQSAPHGVV 0.014432	4.2
HLA-A*68:02	1	816	825	10	EDLLFNKVTL 0.014431	4.2
HLA-B*07:02	1	503	511	9	QPYRVVVL 0.014421	3.2
HLA-B*08:01	1	806	814	9	PSKPSKRSF 0.01442	4.8
HLA-B*57:01	1	571	579	9	DAVRDPQTL 0.014414	5.3
HLA-A*30:01	1	573	581	9	VRDPQTLEI 0.014402	6.8
HLA-A*24:02	1	770	779	10	EQDKNTQEVF 0.014399	2.5
HLA-A*02:06	1	969	978	10	AISSVLNDIL 0.014386	5.6
HLA-A*68:02	1	891	899	9	LQIPFAMQM 0.014384	4.2
HLA-A*02:03	1	1204	1213	10	EQYIKWPWYI 0.014381	4.7
HLA-B*57:01	1	631	639	9	RVYSTGSNV 0.014379	5.3
HLA-B*44:03	1	484	492	9	NCYFPLQSY 0.014376	2.4
HLA-B*35:01	1	1098	1106	9	HWFVTQRNF 0.014375	3.1
HLA-B*15:01	1	119	127	9	IVNNATNVV 0.014374	4.5
HLA-B*53:01	1	557	566	10	LPFQQFGRDI 0.014351	2.7

HLA-A*01:01	1	490	499	10	QSYGFQPTYG 0.014334	3.1
HLA-A*26:01	1	83	92	10	VLPFNDGVYF 0.014323	2.6
HLA-A*24:02	1	167	176	10	TFEYVVSQPFL 0.014322	2.5
HLA-A*03:01	1	443	451	9	GGNYNYLYR 0.014321	4.0
HLA-A*02:01	1	802	810	9	ILPDPSKPS 0.014318	4.2
HLA-A*26:01	1	786	794	9	YKTPPIKDF 0.014311	2.6
HLA-B*35:01	1	826	834	9	ADAGFIKQY 0.014298	3.1
HLA-A*30:01	1	916	924	9	NQKLIANQF 0.014296	6.8
HLA-B*53:01	1	613	621	9	NCTEVPVAI 0.01429	2.7
HLA-A*30:02	1	895	903	9	FAMQMAYRF 0.01429	5.0
HLA-B*51:01	1	1178	1186	9	KEIDRLNEV 0.014285	4.9
HLA-B*58:01	1	547	556	10	GVLTESNKKF 0.014272	3.6
HLA-A*68:02	1	20	29	10	TRTQLPPAYT 0.014267	4.2
HLA-B*35:01	1	661	670	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	857	866	10	VLPLLTDDEM 0.014233	2.8
HLA-A*68:02	1	151	159	9	SWMESEFRF 0.014221	4.2
HLA-A*33:01	1	1007	1016	10	QLLIRAAEIR 0.014215	4.4
HLA-B*08:01	1	958	967	10	TLVKQLSSNF 0.014207	4.9
HLA-A*02:01	1	622	630	9	HADQLTPTW 0.014204	4.2
HLA-A*30:01	1	258	266	9	GAAAYYVGY 0.014202	6.9
HLA-B*44:03	1	684	692	9	VASQSIIAY 0.0142	2.4
HLA-B*51:01	1	867	876	10	IAQYTSALLA 0.0142	4.9
HLA-A*02:03	1	341	349	9	ATRFASVYA 0.014191	4.8
HLA-A*33:01	1	508	516	9	VVLSFELLH 0.014178	4.4
HLA-B*08:01	1	193	201	9	VFKNIDGYF 0.014161	4.9
HLA-A*30:02	1	255	264	10	WTAGAAAYYV 0.014157	5.0
HLA-A*02:06	1	253	261	9	SGWTAGAAA 0.014149	5.7
HLA-A*03:01	1	722	731	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	709	717	9	IAIPTNFTI 0.014121	4.9
HLA-A*31:01	1	1213	1221	9	IWLGFIAGL 0.014117	5.5
HLA-A*26:01	1	718	726	9	SVTTEILPV 0.014114	2.6
HLA-A*11:01	1	892	901	10	QIPFAMQMAY 0.014114	3.7
HLA-B*44:03	1	1261	1269	9	VLKGVKLHY 0.014105	2.4
HLA-A*31:01	1	688	696	9	SIAYTMSL 0.014094	5.5
HLA-A*26:01	1	631	639	9	RVYSTGSNV 0.014093	2.6
HLA-A*32:01	1	1064	1072	9	YVPAQEKNF 0.014088	2.9
HLA-A*03:01	1	258	266	9	GAAAYYVGY 0.014081	4.0
HLA-A*32:01	1	680	689	10	RARSVASQSI 0.014076	2.9
HLA-B*07:02	1	573	581	9	VRDPQTLEI 0.01407	3.3
HLA-A*30:02	1	345	353	9	ASVYAWNRK 0.014069	5.1
HLA-A*68:01	1	478	486	9	NGVKGFNCY 0.014068	6.1
HLA-A*30:02	1	555	564	10	KFLPFQFGR 0.014063	5.1
HLA-B*53:01	1	893	902	10	IPFAMQMAYR 0.014062	2.8
HLA-B*51:01	1	916	924	9	NQKLIANQF 0.014062	4.9
HLA-A*02:03	1	47	55	9	VLHSTQDLF 0.014061	4.8
HLA-A*01:01	1	253	262	10	SGWTAGAAAY 0.014061	3.1
HLA-A*02:03	1	4	12	9	FLVLLPLVS 0.014056	4.8
HLA-B*51:01	1	1209	1218	10	WPWYIWLGFI 0.014044	4.9
HLA-A*26:01	1	323	332	10	IVRFPNITNL 0.014042	2.6
HLA-A*26:01	1	69	77	9	HVSGTNGTK 0.014039	2.6
HLA-A*02:01	1	961	970	10	KQLSSNFGAI 0.014033	4.2
HLA-A*30:01	1	60	68	9	SNVTWFHAI 0.014032	6.9
HLA-A*03:01	1	484	492	9	NCYFPLQSY 0.014023	4.0
HLA-A*30:01	1	918	926	9	KLIANQFNS 0.014008	6.9
HLA-B*53:01	1	489	498	10	LQSYGFQPTY 0.013998	2.8
HLA-A*30:02	1	127	135	9	VIKVECFQF 0.013996	5.1
HLA-A*30:01	1	760	768	9	LNRLTGIA 0.013996	6.9
HLA-A*11:01	1	299	308	10	TLKSFTVEKG 0.013985	3.7
HLA-B*51:01	1	1053	1061	9	APHGVVFLH 0.013977	4.9
HLA-A*02:06	1	867	876	10	IAQYTSALLA 0.013975	5.7
HLA-B*40:01	1	951	959	9	QNAQALNTL 0.013974	2.5

HLA-B*53:01	1	1098	1106	9	HWFVTQRNF 0.013971	2.8
HLA-A*02:01	1	716	724	9	TISVTTEIL 0.013969	4.2
HLA-A*30:02	1	192	201	10	FVFKNIDGYF 0.013966	5.1
HLA-A*02:06	1	245	253	9	YLTPGDSSS 0.013965	5.7
HLA-B*40:01	1	579	587	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	506	515	10	RVVLSFELL 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	380	389	10	SPTKLNLDLCF 0.013929	4.6
HLA-B*15:01	1	729	738	10	TKTSVDCTMY 0.013927	4.6
HLA-A*30:01	1	264	273	10	VGYLQPRTF 0.013919	6.9
HLA-B*57:01	1	888	897	10	GAALQIPFAM 0.013919	5.4
HLA-A*31:01	1	631	640	10	RVYSTGNSVF 0.013916	5.5
HLA-B*53:01	1	461	470	10	FERDISTEYI 0.013907	2.8
HLA-A*68:01	1	363	371	9	SVLYNSASF 0.0139	6.1
HLA-B*58:01	1	158	166	9	RVYSSANNC 0.013894	3.6
HLA-B*53:01	1	708	717	10	SIIPTNFTI 0.013878	2.8
HLA-A*03:01	1	446	455	10	YNYLYRLEFRK 0.013873	4.1
HLA-A*30:01	1	806	814	9	PSKPSKRSF 0.01387	7.0
HLA-B*57:01	1	1005	1013	9	VTQQLIRAA 0.013867	5.4
HLA-A*03:01	1	1026	1035	10	MSECVLGQSK 0.013867	4.1
HLA-A*02:03	1	46	54	9	SVLHSTQDL 0.013848	4.8
HLA-A*26:01	1	1095	1104	10	NGTHWFVTQR 0.013836	2.7
HLA-A*23:01	1	770	779	10	EQDKNTQEVF 0.013833	2.5
HLA-B*53:01	1	575	584	10	DPQTLEILDI 0.01383	2.8
HLA-B*15:01	1	1143	1152	10	DSFKEELDKY 0.013829	4.6
HLA-B*51:01	1	323	332	10	IVRFPNITNL 0.013827	5.0
HLA-A*68:02	1	601	609	9	TSNQVAVLY 0.01382	4.3
HLA-B*58:01	1	412	420	9	TGNIADYNY 0.013818	3.6
HLA-A*31:01	1	973	981	9	VLNDILSRL 0.013818	5.5
HLA-B*07:02	1	523	532	10	GPKKSTNLVK 0.013797	3.3
HLA-B*58:01	1	323	332	10	IVRFPNITNL 0.013785	3.6
HLA-B*53:01	1	204	212	9	YSKHTPINL 0.013779	2.8
HLA-B*57:01	1	527	535	9	STNLVKNKC 0.013772	5.4
HLA-A*32:01	1	362	371	10	YSVLYNSASF 0.013765	2.9
HLA-A*30:01	1	881	889	9	SGWTFGAGA 0.013763	7.0
HLA-A*02:01	1	1092	1100	9	FVSNNGTHWF 0.013763	4.3
HLA-A*30:02	1	720	728	9	TTEILPVSM 0.013747	5.1
HLA-A*26:01	1	184	192	9	GNFKNLREF 0.013743	2.7
HLA-A*68:02	1	888	896	9	GAALQIPFA 0.013741	4.3
HLA-A*31:01	1	413	421	9	GNIADYNYK 0.013737	5.5
HLA-A*33:01	1	983	992	10	KVEAEVQIDR 0.013733	4.5
HLA-B*53:01	1	916	924	9	NQKLIANQF 0.013731	2.8
HLA-A*32:01	1	1070	1078	9	KNFTTAPAI 0.013721	2.9
HLA-A*33:01	1	342	350	9	TRFASVYAW 0.013718	4.5
HLA-A*68:02	1	229	237	9	LPIGINITR 0.013713	4.3
HLA-A*31:01	1	479	487	9	GVKGFNCYF 0.013707	5.5
HLA-A*30:02	1	389	397	9	FTNVYADSF 0.013691	5.2
HLA-B*08:01	1	761	769	9	NRALTGIIV 0.01369	5.0
HLA-A*68:02	1	987	996	10	EVQIDRLITG 0.01369	4.3
HLA-A*23:01	1	1048	1057	10	SFPQSAPHGV 0.013689	2.5
HLA-A*02:01	1	4	12	9	FLVLLPLVS 0.013687	4.3
HLA-A*01:01	1	366	375	10	YNSASFSTFK 0.013686	3.2
HLA-A*02:03	1	506	514	9	RVVLSFELL 0.013686	4.9
HLA-B*40:01	1	336	345	10	GEVFNATRFA 0.013679	2.5
HLA-A*02:01	1	977	986	10	ILSRLDKVEA 0.013667	4.3
HLA-B*57:01	1	1052	1061	10	SAPHGVVFLH 0.01366	5.4
HLA-A*30:02	1	721	730	10	TEILPVSMTK 0.013658	5.2
HLA-A*24:02	1	78	87	10	RFANPVLPFN 0.013656	2.6
HLA-A*02:06	1	613	621	9	NCTEVPVAI 0.013655	5.8
HLA-A*68:02	1	912	920	9	VLYENQKLI 0.013646	4.3
HLA-B*35:01	1	380	388	9	SPTKLNLDLC 0.013643	3.2
HLA-B*58:01	1	229	238	10	LPIGINITRF 0.013637	3.6
HLA-B*44:03	1	277	285	9	NENGTITDA 0.013633	2.4

HLA-B*08:01	1	348	356	9	YAWNRRKRIS 0.01362	5.0
HLA-A*01:01	1	1002	1010	9	QTYVVTQQLI 0.013616	3.2
HLA-B*44:02	1	184	192	9	GNFKNLREF 0.013613	2.3
HLA-A*33:01	1	298	307	10	CTLKSFTVEK 0.013607	4.5
HLA-A*30:01	1	1090	1098	9	GVFVSNNGTH 0.013602	7.0
HLA-A*02:06	1	992	1000	9	RLITGRLQS 0.013598	5.8
HLA-A*02:06	1	593	602	10	SVITPGTNTS 0.01359	5.8
HLA-A*02:01	1	175	183	9	FLMDLEGKQ 0.013587	4.3
HLA-A*30:01	1	294	303	10	SETKCTLKSF 0.013585	7.0
HLA-A*68:01	1	337	346	10	EVFNATRFAS 0.013585	6.2
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	1001	1009	9	LQTYVVTQQL 0.013574	4.4
HLA-A*11:01	1	396	405	10	SFVIRGDEVR 0.013567	3.7
HLA-A*31:01	1	151	160	10	SWMESEFRVY 0.013565	5.6
HLA-B*53:01	1	585	594	10	TPCSFGGVSU 0.013564	2.8
HLA-A*68:01	1	600	608	9	NTSNQVAVL 0.013564	6.2
HLA-B*35:01	1	926	935	10	SAIGKIQDSL 0.013564	3.2
HLA-B*51:01	1	911	920	10	NVLYENQKLI 0.013548	5.0
HLA-A*30:01	1	730	739	10	KTSVDCTMYI 0.013544	7.1
HLA-B*58:01	1	425	433	9	DFTGCVIAW 0.013539	3.7
HLA-A*32:01	1	98	106	9	SNIRGWIF 0.013536	2.9
HLA-B*51:01	1	205	213	9	SKHTPINLV 0.013533	5.0
HLA-B*57:01	1	774	782	9	NTQEVFAQV 0.013522	5.4
HLA-B*53:01	1	1133	1142	10	TVYDPLQPEL 0.013511	2.8
HLA-A*02:06	1	853	861	9	NGLTVLPPL 0.013496	5.8
HLA-B*57:01	1	452	461	10	LFRKSNLKPF 0.013492	5.5
HLA-A*30:01	1	843	851	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	VNNATNVVVIK 0.013482	3.7
HLA-B*35:01	1	730	738	9	KTSVDCTMY 0.013481	3.2
HLA-A*24:02	1	389	397	9	FTNVYADSF 0.013475	2.6
HLA-A*26:01	1	915	924	10	ENQKLIANQF 0.013475	2.7
HLA-A*02:03	1	100	108	9	IIRGWIFGT 0.013474	4.9
HLA-A*02:03	1	240	248	9	TLHRSYLTPT 0.013474	4.9
HLA-B*08:01	1	331	339	9	NLCPFGEVF 0.013473	5.0
HLA-A*01:01	1	662	671	10	PIGAGICASY 0.013473	3.2
HLA-B*08:01	1	338	347	10	VFNATRFASV 0.013469	5.0
HLA-A*02:03	1	1008	1017	10	QLIRAAEIRA 0.013462	4.9
HLA-A*68:02	1	1132	1141	10	NTVYDPLQPE 0.013459	4.4
HLA-A*68:02	1	895	903	9	FAMQMAYRF 0.013456	4.4
HLA-A*02:06	1	855	863	9	LTVLPPLLT 0.013446	5.8
HLA-A*01:01	1	895	903	9	FAMQMAYRF 0.013441	3.2
HLA-A*24:02	1	330	339	10	TNLCPFGEVF 0.01344	2.6
HLA-A*68:02	1	1018	1026	9	SANLAATKM 0.013435	4.4
HLA-A*30:01	1	59	67	9	FSNVTWFHA 0.013431	7.1
HLA-A*11:01	1	555	564	10	KFLPFQQFGR 0.013419	3.7
HLA-A*23:01	1	261	269	9	AYYVGYLQP 0.013415	2.5
HLA-A*24:02	1	126	135	10	VVIKVCEQFQ 0.013414	2.6
HLA-A*26:01	1	358	367	10	CVADYSVLYN 0.013411	2.7
HLA-B*51:01	1	368	376	9	SASFSTFKC 0.013398	5.1
HLA-A*68:02	1	1167	1176	10	SGINASVVNI 0.013398	4.4
HLA-A*03:01	1	778	786	9	VFAQVKQIY 0.013395	4.1
HLA-A*02:03	1	955	964	10	ALNTLVKQLS 0.013392	4.9
HLA-A*02:06	1	1206	1215	10	YIKWPWYIWL 0.013392	5.9
HLA-A*68:01	1	483	492	10	FNCYFPLQSY 0.013376	6.2
HLA-A*30:02	1	572	580	9	AVRDPQTLT 0.013369	5.2
HLA-A*30:01	1	524	532	9	PKKSTNLVK 0.013368	7.1
HLA-A*32:01	1	892	901	10	QIPFAMQMAY 0.013355	3.0
HLA-A*30:01	1	391	400	10	NVYADSFVIR 0.01333	7.1
HLA-A*26:01	1	714	723	10	NFTISVTTEI 0.013328	2.7
HLA-B*15:01	1	709	717	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	1181	1190	10	DRLNEVAKNL 0.013316	4.9
HLA-A*30:01	1	671	679	9	YQTQTNspr 0.013314	7.1
HLA-A*26:01	1	911	919	9	NVLYENQKL 0.013306	2.8
HLA-A*02:06	1	266	275	10	YLQPRTFLLK 0.013302	5.9
HLA-B*15:01	1	927	935	9	AIGKIQDSL 0.0133	4.7
HLA-A*02:01	1	603	612	10	NQVAVLYQGV 0.013297	4.3
HLA-A*68:02	1	1121	1129	9	GNCDDVIGI 0.01329	4.4
HLA-B*08:01	1	1030	1039	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-B*44:03	1	236	245	10	TRFQTLHRSY 0.013275	2.5
HLA-A*02:06	1	615	623	9	TEVPVAIHA 0.013272	5.9
HLA-A*30:01	1	499	508	10	GVGYQPYRVV 0.013269	7.1
HLA-A*02:03	1	1182	1191	10	RLNEVAKNLN 0.013268	4.9
HLA-A*02:03	1	1046	1054	9	LMSFPQSAP 0.013267	4.9
HLA-A*33:01	1	295	303	9	ETKCTLKSF 0.013263	4.5
HLA-A*26:01	1	475	483	9	TPCNGVKGF 0.013258	2.8
HLA-B*44:03	1	1178	1187	10	KEIDRLNEVA 0.013255	2.5
HLA-A*03:01	1	28	37	10	YTNSFTRGVY 0.013253	4.2
HLA-B*51:01	1	301	309	9	KSFTVEKGI 0.01325	5.1
HLA-A*02:06	1	559	567	9	FQQFGRDIA 0.013241	5.9
HLA-B*40:01	1	931	939	9	IQDLSLSTA 0.013241	2.5
HLA-B*35:01	1	418	426	9	YNYKLPDDF 0.013237	3.2
HLA-A*24:02	1	56	64	9	LPFFSNVTW 0.013231	2.6
HLA-A*02:06	1	232	241	10	GINITRFQTL 0.013226	5.9
HLA-A*30:01	1	707	715	9	NSIAIPTNF 0.013224	7.2
HLA-B*08:01	1	715	723	9	FTISVTTEI 0.013224	5.1
HLA-B*51:01	1	418	426	9	YNYKLPDDF 0.013223	5.1
HLA-B*08:01	1	904	912	9	NGIGVTQNV 0.013222	5.1
HLA-B*40:01	1	985	994	10	EAEVQIDRLI 0.013222	2.5
HLA-B*53:01	1	186	194	9	FKNLREFVF 0.013221	2.9
HLA-B*57:01	1	580	589	10	EILDITPCSF 0.013216	5.5
HLA-A*33:01	1	784	792	9	QIYKTPPIK 0.013214	4.5
HLA-B*57:01	1	424	433	10	DDFTGCVIAW 0.013213	5.5
HLA-A*30:02	1	318	326	9	QPTESIVRF 0.013212	5.3
HLA-A*26:01	1	1098	1106	9	HWFVTQRNF 0.013206	2.8
HLA-A*31:01	1	1036	1045	10	RVDFCGKGYH 0.013198	5.6
HLA-A*30:02	1	786	794	9	YKTPPIKDF 0.013192	5.3
HLA-B*08:01	1	770	779	10	EQDKNTQEVF 0.013187	5.1
HLA-B*44:03	1	786	794	9	YKTPPIKDF 0.013185	2.5
HLA-A*02:03	1	303	312	10	FTVEKGIYQT 0.013183	5.0
HLA-A*30:01	1	100	108	9	IIRGWIFGT 0.013167	7.2
HLA-A*02:03	1	687	696	10	QSIIAYTMSL 0.013149	5.0
HLA-B*15:01	1	818	826	9	LLFNKVTLA 0.013147	4.7
HLA-A*23:01	1	204	212	9	YSKHTPINL 0.013142	2.5
HLA-B*51:01	1	457	465	9	NLKPFERDI 0.013142	5.1
HLA-B*15:01	1	1201	1209	9	GKYEQYIKW 0.013142	4.7
HLA-B*15:01	1	237	246	10	RFQTLHRSYL 0.013141	4.7
HLA-A*11:01	1	722	731	10	EILPVSMTKT 0.013137	3.8
HLA-A*30:01	1	545	554	10	GTGVLTESNK 0.013133	7.2
HLA-B*51:01	1	125	133	9	NVVIKVFCE 0.013125	5.1
HLA-A*24:02	1	507	515	9	VVLSFELL 0.013106	2.6
HLA-B*58:01	1	805	814	10	DPSKPSKRSF 0.013102	3.7
HLA-B*08:01	1	203	212	10	IYSKHTPINL 0.013091	5.1
HLA-B*57:01	1	264	273	10	VGYLQPRTF 0.013089	5.5
HLA-A*02:06	1	500	508	9	VGYPYRVV 0.013085	6.0
HLA-B*15:01	1	302	310	9	SFTVEKGIY 0.013079	4.7
HLA-B*35:01	1	502	510	9	YQPYRVVVL 0.013073	3.2
HLA-B*40:01	1	1182	1190	9	RLNEVAKNL 0.013069	2.5
HLA-A*32:01	1	751	760	10	LQYGSFCTQL 0.013067	3.0
HLA-A*02:06	1	6	14	9	VLLPLVSSQ 0.013056	6.0
HLA-A*01:01	1	1203	1212	10	YEQYIKWPWY 0.013055	3.3
HLA-A*33:01	1	1261	1269	9	VLKGVKLHY 0.013052	4.5
HLA-B*51:01	1	857	866	10	VLPPLLTDEM 0.013051	5.1
HLA-A*30:02	1	685	694	10	ASQSIIAYTM 0.013048	5.3
HLA-A*30:01	1	1180	1188	9	IDRLNEVAK 0.013029	7.2

HLA-B*57:01	1	115	123	9	QSLIVNNA 0.013025	5.6
HLA-A*01:01	1	266	275	10	YLQPRTFLLK 0.013017	3.3
HLA-A*30:02	1	988	997	10	VQIDRLITGR 0.01301	5.3
HLA-A*02:01	1	53	62	10	DLFLPFFSNV 0.013006	4.4
HLA-B*15:01	1	418	426	9	YNYKLPDDF 0.013003	4.7
HLA-B*08:01	1	264	273	10	VGYLQPRTF 0.012998	5.1
HLA-A*11:01	1	237	245	9	RFQTLHRSY 0.012995	3.8
HLA-A*02:01	1	832	841	10	KQYGDCLGDI 0.012975	4.4
HLA-A*26:01	1	246	255	10	LTPGDSSSGW 0.012969	2.8
HLA-A*11:01	1	556	564	9	FLPFQFGR 0.012968	3.8
HLA-A*30:01	1	762	770	9	RALTGIAVE 0.012968	7.2
HLA-A*68:01	1	1170	1179	10	NASVVNIQKE 0.012966	6.3
HLA-A*30:01	1	670	678	9	SYQTQTNSP 0.01296	7.2
HLA-A*02:03	1	1057	1066	10	VVFLHVTVYP 0.012957	5.0
HLA-A*32:01	1	492	500	9	YGFQPTYGV 0.012947	3.0
HLA-A*01:01	1	803	812	10	LPDPSKPSKR 0.01294	3.3
HLA-B*57:01	1	257	266	10	AGAAAYVGY 0.012932	5.6
HLA-B*57:01	1	77	86	10	KRFANPVLFP 0.01293	5.6
HLA-A*02:03	1	4	13	10	FLVLLPLVSS 0.012926	5.0
HLA-A*68:01	1	473	481	9	GSTPCNGVK 0.012926	6.3
HLA-B*40:01	1	744	753	10	TECSNLLLQY 0.012908	2.6
HLA-A*26:01	1	493	502	10	GFQPTYGVGY 0.012905	2.8
HLA-B*35:01	1	1084	1092	9	AHFPREGVF 0.012904	3.3
HLA-B*57:01	1	375	383	9	KCYGVSPTK 0.012899	5.6
HLA-B*08:01	1	919	927	9	LIANQFNSA 0.012896	5.1
HLA-A*02:01	1	964	973	10	SSNFGAISSV 0.012896	4.4
HLA-B*35:01	1	684	693	10	VASQSIIAYT 0.012894	3.3
HLA-A*68:01	1	783	792	10	KQIYKTPPIK 0.012892	6.3
HLA-A*02:03	1	837	846	10	CLGDIAARDL 0.012865	5.0
HLA-B*15:01	1	1178	1186	9	KEIDRLNEV 0.012862	4.7
HLA-A*32:01	1	506	515	10	RVVLSFELL 0.012861	3.0
HLA-B*35:01	1	51	59	9	TQDLFLPFF 0.012856	3.3
HLA-A*68:02	1	444	452	9	GNVNYLYRL 0.012856	4.5
HLA-A*30:01	1	238	246	9	FQTLHRSYL 0.012853	7.3
HLA-B*58:01	1	113	121	9	KTQSLLIVN 0.012835	3.8
HLA-A*31:01	1	265	274	10	GYLQPRTFLL 0.012818	5.7
HLA-B*44:02	1	843	852	10	ARDLICAQKF 0.012817	2.3
HLA-A*01:01	1	1062	1070	9	VTYVPAQEK 0.012815	3.3
HLA-B*08:01	1	1213	1221	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	326	335	10	FPNITNLCPF 0.012794	5.2
HLA-A*33:01	1	50	58	9	STQDLFLPF 0.01279	4.6
HLA-B*53:01	1	486	494	9	YFPLQSYGF 0.012784	2.9
HLA-A*68:02	1	303	311	9	FTVEKGIYQ 0.012781	4.5
HLA-A*30:02	1	680	688	9	RARSVASQS 0.012778	5.4
HLA-B*15:01	1	785	794	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	577	586	10	QTLEILDITP 0.012715	6.1
HLA-A*68:01	1	909	918	10	TONVLYENQK 0.012714	6.3
HLA-B*51:01	1	954	963	10	QALNTLVKQL 0.012714	5.2
HLA-B*35:01	1	29	37	9	TNSFTRGVY 0.012711	3.3
HLA-B*53:01	1	1158	1166	9	SPDVLGDI 0.012695	2.9
HLA-A*02:03	1	708	716	9	SIAIPTNFT 0.012693	5.1
HLA-B*35:01	1	996	1004	9	GRLQSLQTY 0.012692	3.3
HLA-B*35:01	1	554	562	9	KKFLPFQF 0.012691	3.3
HLA-A*02:06	1	973	982	10	VLNDILSRLD 0.012688	6.1
HLA-A*68:01	1	1057	1065	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	312	320	9	TSNFRVQPT 0.012663	7.3
HLA-A*02:03	1	769	778	10	VEQDKNTQEV 0.012663	5.1



HLA-A*02:03	1	535	543	9	CVNFNFNGL 0.012652	5.1
HLA-A*26:01	1	61	69	9	NVTWFHAIH 0.012642	2.8
HLA-A*33:01	1	317	325	9	VQPTESIVR 0.01264	4.6
HLA-A*24:02	1	884	893	10	TFGAGAALQI 0.01264	2.7
HLA-A*30:02	1	1003	1011	9	TYVTQQLIR 0.012638	5.4
HLA-B*15:01	1	1195	1203	9	IDLQELGKY 0.012634	4.8
HLA-B*44:02	1	277	285	9	NENGTITDA 0.012632	2.4
HLA-A*32:01	1	1083	1091	9	KAHFPREGV 0.012631	3.1
HLA-B*51:01	1	318	327	10	QPTESIVRFP 0.012626	5.2
HLA-A*30:02	1	1148	1156	9	ELDKYFKNH 0.012624	5.4
HLA-B*53:01	1	600	609	10	NTSNQVAVLY 0.012623	2.9
HLA-B*51:01	1	495	504	10	QPTYGVGYQP 0.012622	5.2
HLA-A*33:01	1	623	631	9	ADQLTPTWR 0.012621	4.6
HLA-A*31:01	1	25	34	10	PPAYTNSFTR 0.012609	5.8
HLA-A*01:01	1	569	578	10	TTDAVRDPQT 0.012603	3.4
HLA-B*51:01	1	522	530	9	CGPKKSTNL 0.0126	5.2
HLA-B*57:01	1	1039	1047	9	FCGKGYHLM 0.012595	5.6
HLA-A*31:01	1	601	609	9	TSNQVAVLY 0.012592	5.8
HLA-B*08:01	1	10	18	9	LVSSQCVNL 0.012588	5.2
HLA-A*31:01	1	324	332	9	VRFPNITNL 0.012576	5.8
HLA-A*02:03	1	299	307	9	TLKSFTVEK 0.012573	5.1
HLA-B*51:01	1	1064	1072	9	YVPAQEKNF 0.012565	5.3
HLA-B*44:03	1	1134	1142	9	VYDPLQPEL 0.012564	2.5
HLA-A*30:02	1	1051	1060	10	QSAPHGVVFL 0.01256	5.4
HLA-B*58:01	1	690	698	9	IAYTMSLGV 0.012557	3.8
HLA-A*02:06	1	847	855	9	ICAQKFNGL 0.012556	6.1
HLA-A*33:01	1	624	632	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	1257	1265	9	DSEPVLKGV 0.01254	6.1
HLA-A*02:03	1	1007	1015	9	QLLIRAAEI 0.012538	5.1
HLA-B*57:01	1	729	738	10	TKTSVDCTMY 0.012526	5.7
HLA-A*03:01	1	93	102	10	ASTEKSNIIR 0.01252	4.3
HLA-A*30:02	1	500	508	9	VGYPYRVV 0.012516	5.5
HLA-B*51:01	1	133	141	9	FQFCNDPFL 0.012515	5.3
HLA-A*30:02	1	262	270	9	YYVGYLQPR 0.012502	5.5
HLA-A*30:02	1	1070	1078	9	KNFTTAPAI 0.012501	5.5
HLA-A*02:06	1	27	36	10	AYTNSFTRGV 0.0125	6.1
HLA-A*26:01	1	624	632	9	DQLTPTWRV 0.0125	2.9
HLA-A*02:01	1	904	912	9	NGIGVTQNV 0.012498	4.5
HLA-A*30:01	1	267	276	10	LQPRTFLLKY 0.012492	7.4
HLA-A*02:06	1	711	719	9	IPTNFTISV 0.012492	6.1
HLA-B*53:01	1	35	43	9	GVYYPDKVF 0.012485	3.0
HLA-A*02:03	1	375	384	10	KCYGVSPTKL 0.012481	5.1
HLA-A*30:02	1	672	680	9	QTQTNSPRR 0.012477	5.5
HLA-A*02:06	1	505	514	10	YRVVLSFEL 0.012471	6.1
HLA-A*68:02	1	1118	1127	10	FVSGNCDVVI 0.012463	4.5
HLA-A*30:01	1	232	240	9	GINITRFQT 0.012462	7.4
HLA-B*53:01	1	412	420	9	TGNIADYNY 0.01246	3.0
HLA-A*30:02	1	944	952	9	KLQDVVNQN 0.012457	5.5
HLA-A*30:01	1	314	322	9	NFRVQPTES 0.012449	7.4
HLA-A*23:01	1	486	495	10	YFPLQSYGFQ 0.012447	2.6
HLA-A*68:01	1	688	696	9	SIAYTMSL 0.012447	6.4
HLA-A*30:01	1	899	908	10	MAYRFNGIGV 0.012447	7.4
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	1261	1269	9	VLKGVKLHY 0.01241	2.6
HLA-A*33:01	1	922	930	9	NQFNSAIGK 0.012394	4.7
HLA-A*68:02	1	1096	1104	9	GTHWFVTQR 0.012394	4.5
HLA-A*33:01	1	268	276	9	QPRTFLLKY 0.012393	4.7
HLA-A*24:02	1	230	238	9	PIGINITRF 0.012392	2.7
HLA-B*53:01	1	573	581	9	VRDPQTLEI 0.012383	3.0
HLA-A*68:01	1	139	147	9	PFLGVYYHK 0.012382	6.4
HLA-A*03:01	1	1072	1080	9	FTTAPAICH 0.012375	4.3

HLA-A*26:01	1	1195	1203	9	IDLQELGKY 0.012369	2.9
HLA-A*26:01	1	294	303	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	759	767	9	QLNRALTGI 0.012363	4.6
HLA-A*31:01	1	972	981	10	SVLNDILSRL 0.01236	5.8
HLA-B*44:03	1	862	870	9	LTDEMIAQY 0.012355	2.6
HLA-A*68:02	1	158	166	9	RVYSSANNC 0.012353	4.6
HLA-A*02:01	1	542	550	9	GLTGTGVLV 0.012351	4.5
HLA-B*51:01	1	601	609	9	TSNQVAVLY 0.012351	5.3
HLA-A*32:01	1	926	935	10	SAIGKIQDSL 0.012349	3.1
HLA-B*15:01	1	972	981	10	SVLNDILSRL 0.012349	4.8
HLA-B*51:01	1	892	901	10	QIPFAMQMAY 0.012348	5.3
HLA-A*33:01	1	142	150	9	GVYYHKNNK 0.012346	4.7
HLA-A*32:01	1	474	483	10	STPCNGVKGF 0.012342	3.1
HLA-A*30:01	1	708	716	9	SIAIPTNFT 0.012342	7.5
HLA-B*35:01	1	1141	1149	9	ELDSFKEEL 0.012339	3.3
HLA-A*02:06	1	577	585	9	QTLEILDIT 0.012338	6.2
HLA-A*32:01	1	383	392	10	KLNDLCFTNV 0.012331	3.1
HLA-A*01:01	1	358	367	10	CVADYSVLYN 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*02:01	1	888	896	9	GAALQIPFA 0.012319	4.5
HLA-B*58:01	1	203	212	10	IYSKHTPINL 0.012314	3.8
HLA-B*07:02	1	973	981	9	VLNDILSRL 0.012313	3.5
HLA-A*68:02	1	218	226	9	QGFSALEPL 0.012308	4.6
HLA-A*31:01	1	547	555	9	GVLTESNKK 0.012308	5.8
HLA-A*30:01	1	259	267	9	AAAYYVGYL 0.012304	7.5
HLA-A*02:06	1	866	875	10	MIAQYTSALL 0.012302	6.2
HLA-A*32:01	1	632	640	9	VYSTGSNVF 0.01229	3.1
HLA-B*35:01	1	168	176	9	FEYVSQPFL 0.012288	3.3
HLA-A*23:01	1	900	908	9	AYRFNGIGV 0.012279	2.6
HLA-B*35:01	1	770	778	9	EQDKNTQEV 0.012277	3.3
HLA-A*30:01	1	1098	1107	10	HWFVTQRNFY 0.012271	7.5
HLA-A*26:01	1	259	267	9	AAAYYVGYL 0.012267	2.9
HLA-B*44:03	1	1144	1152	9	SFKEELDKY 0.012262	2.6
HLA-B*44:02	1	237	245	9	RFQTLHRSY 0.012261	2.4
HLA-A*30:01	1	1102	1111	10	TQRNFYEPQI 0.01226	7.5
HLA-B*44:03	1	656	665	10	SYECDIPIGA 0.012259	2.6
HLA-A*68:01	1	196	204	9	NIDGYFKIY 0.012256	6.4
HLA-A*68:01	1	1100	1108	9	FVTQRNFYE 0.012252	6.4
HLA-B*08:01	1	492	500	9	YGFQPTYGV 0.012245	5.3
HLA-A*32:01	1	1204	1212	9	EQYIKWPWY 0.012244	3.1
HLA-B*51:01	1	1215	1224	10	LGFIAGLIAI 0.012244	5.3
HLA-B*57:01	1	158	166	9	RVYSSANNC 0.012233	5.7
HLA-A*30:01	1	504	512	9	PYRVVVLFS 0.012231	7.5
HLA-A*02:03	1	151	159	9	SWMESEFRV 0.012228	5.1
HLA-B*08:01	1	573	582	10	VRDPQTLLEI 0.012224	5.3
HLA-A*26:01	1	503	512	10	QPVRVVVLSF 0.01222	2.9
HLA-A*30:02	1	722	730	9	EILPVSMTK 0.012207	5.5
HLA-A*32:01	1	496	505	10	PTYGVGYQPY 0.012206	3.1
HLA-B*58:01	1	912	920	9	VLYENQKLI 0.012204	3.8
HLA-A*02:01	1	872	881	10	SALLAGTITS 0.012192	4.5
HLA-A*30:01	1	349	357	9	AWNKRKRISN 0.01219	7.5
HLA-A*68:01	1	311	319	9	QTSNFRVQP 0.012189	6.4
HLA-A*31:01	1	1208	1217	10	KWPWYIWLGF 0.012183	5.8
HLA-A*30:02	1	234	242	9	NITRFQTLH 0.012177	5.6
HLA-A*31:01	1	1169	1178	10	INASVVNIQK 0.012175	5.8
HLA-B*53:01	1	461	469	9	FERDISTEI 0.012164	3.0
HLA-B*53:01	1	876	885	10	AGTITSGWTF 0.012162	3.0
HLA-B*57:01	1	56	65	10	LPFFSNVTWF 0.012161	5.7
HLA-A*33:01	1	361	369	9	DYSVLYNAS 0.012151	4.7
HLA-B*15:01	1	514	522	9	LLHAPATVC 0.01215	4.8
HLA-A*32:01	1	318	326	9	QPTESIVRF 0.012147	3.1
HLA-B*08:01	1	990	998	9	IDRLITGRL 0.012147	5.3
HLA-A*02:01	1	195	203	9	KNIDGYFKI 0.012146	4.5

HLA-B*58:01	1	571	579	9	DAVRDPQTL 0.012138	3.8
HLA-A*02:06	1	591	599	9	GVSVITPGT 0.012137	6.2
HLA-A*33:01	1	485	494	10	CYFPLQSYGF 0.012131	4.7
HLA-A*02:06	1	812	820	9	RSFIEDLLF 0.012116	6.2
HLA-A*30:01	1	317	325	9	VQPTESIVR 0.012115	7.6
HLA-A*30:01	1	972	981	10	SVLNDILSRL 0.012114	7.6
HLA-A*11:01	1	374	383	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-A*30:01	1	35	43	9	GVYYPDKVF 0.012085	7.6
HLA-A*01:01	1	393	401	9	YADSFVIRG 0.012078	3.4
HLA-B*51:01	1	1007	1015	9	QLLIRAAEI 0.012078	5.4
HLA-A*30:01	1	814	822	9	FIEDLLFNK 0.012076	7.6
HLA-A*30:01	1	398	407	10	VIRGDEVRI 0.012075	7.6
HLA-A*02:06	1	1070	1078	9	KNFTTAPAI 0.01207	6.2
HLA-B*53:01	1	1047	1055	9	MSFPQSAPH 0.012068	3.0
HLA-B*07:02	1	50	58	9	STQDLFLPF 0.012064	3.5
HLA-A*02:03	1	1193	1201	9	SLIDLQELG 0.012048	5.2
HLA-A*02:03	1	1092	1100	9	FVSNGTHWF 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	452	461	10	LFKSNLKPFP 0.012038	4.8
HLA-A*32:01	1	265	274	10	GYLQPRTFLL 0.012036	3.1
HLA-A*33:01	1	484	492	9	NCYFPLQSY 0.012023	4.7
HLA-A*32:01	1	893	901	9	IPFAMQMAY 0.012022	3.1
HLA-A*11:01	1	344	352	9	FASVYAWNR 0.012021	3.9
HLA-A*02:06	1	207	216	10	HTPINLVRGL 0.012017	6.3
HLA-A*02:01	1	853	862	10	NGLTVLPPLL 0.012007	4.5
HLA-A*68:02	1	927	935	9	AIGKIQDSL 0.011993	4.6
HLA-B*07:02	1	1208	1217	10	KWPWYIWLGF 0.011992	3.5
HLA-B*40:01	1	305	313	9	VEKGIYQTS 0.01199	2.6
HLA-A*30:01	1	694	702	9	MSLGVNSV 0.011988	7.6
HLA-B*15:01	1	474	483	10	STPCNGVKGF 0.011986	4.9
HLA-B*58:01	1	321	329	9	ESIVRFPNI 0.011985	3.9
HLA-B*08:01	1	155	163	9	SEFRVYSSA 0.011978	5.4
HLA-B*53:01	1	1201	1209	9	GKYEYIKW 0.011974	3.0
HLA-A*02:01	1	61	70	10	NVTWFHAIHV 0.011963	4.6
HLA-A*31:01	1	432	441	10	AWNSNNLDSK 0.011961	5.9
HLA-A*32:01	1	1144	1152	9	SFKEELDKY 0.011957	3.2
HLA-A*30:01	1	546	555	10	TGVLTESNKK 0.011954	7.6
HLA-A*26:01	1	124	133	10	TNVVIKVECF 0.011949	2.9
HLA-A*11:01	1	447	455	9	NYLYRLFRK 0.011941	3.9
HLA-A*24:02	1	912	920	9	VLYENQKLI 0.01194	2.7
HLA-A*24:02	1	37	46	10	YYPDKVFRSS 0.011939	2.7
HLA-A*30:01	1	372	380	9	STFKCYGVS 0.011938	7.6
HLA-A*24:02	1	639	647	9	VFQTRAGCL 0.011936	2.7
HLA-B*53:01	1	1254	1262	9	DEDDSEPV 0.01193	3.1
HLA-A*02:06	1	856	865	10	TVLPPLLTDE 0.011927	6.3
HLA-A*03:01	1	1138	1146	9	LQPELDSFK 0.011926	4.4
HLA-A*26:01	1	136	144	9	CNDPFLGVY 0.011923	2.9
HLA-A*02:06	1	472	480	9	AGSTPCNGV 0.011919	6.3
HLA-B*57:01	1	339	348	10	FNATRFASVY 0.011914	5.8
HLA-A*24:02	1	558	566	9	PFQQFGRDI 0.01191	2.7
HLA-A*30:02	1	862	871	10	LTDEMIAQYT 0.01191	5.6
HLA-A*30:01	1	78	87	10	RFANPVLFPN 0.011907	7.6
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	1000	1009	10	SLQTYVTQQL 0.011901	3.2
HLA-A*01:01	1	318	326	9	QPTESIVRF 0.011898	3.5
HLA-A*68:02	1	192	201	10	FVFKNIDGYF 0.011888	4.6
HLA-B*57:01	1	1186	1195	10	VAKNLNESLI 0.011886	5.8
HLA-A*23:01	1	1002	1010	9	QTYVTQQLI 0.011883	2.7
HLA-A*23:01	1	1083	1092	10	KAHFPREGVF 0.011879	2.7
HLA-B*35:01	1	613	621	9	NCTEVPVAI 0.011862	3.4
HLA-B*15:01	1	1077	1085	9	AICHDGKAH 0.011862	4.9

HLA-B*07:02	1	264	272	9	VGYLQPRTF 0.011856	3.5
HLA-A*68:01	1	672	681	10	QTQTNSPRRA 0.011856	6.5
HLA-A*30:02	1	972	981	10	SVLNDILSRL 0.011856	5.6
HLA-A*32:01	1	1052	1060	9	SAPHGVVFL 0.011854	3.2
HLA-A*11:01	1	572	580	9	AVRDPQTL 0.01185	3.9
HLA-B*58:01	1	773	782	10	KNTQEVFAQV 0.011833	3.9
HLA-A*68:02	1	1217	1226	10	FIAGLIAIVM 0.011823	4.7
HLA-A*11:01	1	784	793	10	QIYKTPPIKD 0.011791	3.9
HLA-A*11:01	1	397	405	9	FVIRGDEVR 0.011789	3.9
HLA-A*31:01	1	1028	1036	9	ECVLGQSKR 0.011789	5.9
HLA-B*07:02	1	955	963	9	ALNTLVKQL 0.011781	3.5
HLA-A*03:01	1	105	113	9	IFGTTLDISK 0.011758	4.4
HLA-A*68:01	1	1075	1083	9	APAICHGDK 0.011755	6.5
HLA-A*33:01	1	1072	1080	9	FTTAPAICH 0.01175	4.8
HLA-B*51:01	1	1127	1135	9	IGIVNNTVY 0.011739	5.4
HLA-B*44:03	1	1253	1262	10	FDEDDSEPV 0.011738	2.6
HLA-A*30:01	1	502	510	9	YQPYRVVVL 0.011735	7.7
HLA-A*26:01	1	1091	1100	10	VFVSNQTHWF 0.011735	2.9
HLA-B*15:01	1	805	814	10	DPSKPSKRSF 0.011734	4.9
HLA-B*53:01	1	952	960	9	NAQALNTLV 0.011724	3.1
HLA-B*44:02	1	1140	1149	10	PELDSFKEEL 0.011724	2.5
HLA-A*68:01	1	775	783	9	TQEVFAQVK 0.011718	6.5
HLA-A*30:01	1	679	687	9	RRARSVASQ 0.011717	7.7
HLA-B*35:01	1	2	10	9	FVFLVLLPL 0.01171	3.4
HLA-A*02:03	1	464	472	9	DISTEIIYQA 0.011708	5.2
HLA-B*57:01	1	508	516	9	VVLSFELLH 0.011708	5.9
HLA-A*30:02	1	108	117	10	TTLDSKTQSL 0.011703	5.7
HLA-A*30:02	1	709	717	9	IAIPTNFTI 0.011698	5.7
HLA-B*15:01	1	102	110	9	RGWIFGTTL 0.011693	4.9
HLA-A*31:01	1	293	301	9	LSEKTKTLK 0.011691	5.9
HLA-A*68:02	1	429	438	10	CVIAWNSNNL 0.011689	4.7
HLA-B*07:02	1	1075	1084	10	APAICHGDKA 0.011688	3.6
HLA-B*57:01	1	883	891	9	WTFGAGAAL 0.011687	5.9
HLA-A*30:02	1	72	80	9	GTNGTKRFA 0.011678	5.7
HLA-A*02:01	1	514	522	9	LLHAPATVC 0.011678	4.6
HLA-A*30:02	1	1078	1086	9	ICHDGKAHF 0.011678	5.7
HLA-B*57:01	1	369	378	10	ASFSTFKCYG 0.011674	5.9
HLA-A*30:01	1	701	710	10	SVAYSNNNSIA 0.011673	7.7
HLA-A*23:01	1	441	449	9	KVGGNYNYL 0.01167	2.7
HLA-B*07:02	1	517	525	9	APATVCGPK 0.01167	3.6
HLA-A*02:03	1	865	874	10	EMIAQYTSAL 0.011666	5.3
HLA-A*26:01	1	167	175	9	TFEYVSQPF 0.011664	2.9
HLA-A*32:01	1	1104	1112	9	RNFYEPQII 0.011653	3.2
HLA-B*58:01	1	886	895	10	GAGAALQIPF 0.011652	3.9
HLA-A*30:02	1	474	483	10	STPCNGVKGF 0.01165	5.7
HLA-A*30:01	1	944	953	10	KLQDVVNQNA 0.01165	7.7
HLA-B*57:01	1	412	420	9	TGNIADYNY 0.011645	5.9
HLA-A*32:01	1	783	792	10	KQIYKTPPIK 0.011643	3.2
HLA-B*51:01	1	198	206	9	DGYFKIYSK 0.011639	5.5
HLA-A*33:01	1	1148	1156	9	ELDKYFKNH 0.011633	4.8
HLA-A*23:01	1	715	723	9	FTISVTTEI 0.011628	2.7
HLA-A*31:01	1	105	113	9	IFGTTLDISK 0.011626	5.9
HLA-A*24:02	1	261	269	9	AYYVGYLQP 0.011623	2.7
HLA-B*57:01	1	844	852	9	RDLICAQKF 0.011621	5.9
HLA-A*30:02	1	866	874	9	MIAQYTSAL 0.011618	5.7
HLA-B*51:01	1	904	913	10	NGIGVTQNVL 0.011613	5.5
HLA-B*58:01	1	282	290	9	ITDAVDCAL 0.01161	3.9
HLA-A*02:03	1	776	785	10	QEVFAQVKQI 0.011605	5.3
HLA-A*30:01	1	777	785	9	EVFAQVKQI 0.011588	7.7
HLA-A*26:01	1	1260	1269	10	PVLKGVKLHY 0.011579	3.0
HLA-A*68:02	1	301	309	9	KSFTVEKGI 0.011576	4.7
HLA-A*02:06	1	1106	1114	9	FYEPQIIT 0.011576	6.4
HLA-A*26:01	1	1160	1169	10	DVDLGDISGI 0.011573	3.0
HLA-A*68:01	1	877	885	9	GTITSGWTF 0.011572	6.5
HLA-B*57:01	1	236	245	10	TRFQTLHRSY 0.011555	5.9
HLA-A*32:01	1	663	671	9	IGAGICASY 0.011549	3.2

HLA-A*30:02	1	770	779	10	EQDKNTQEVF 0.011543	5.7
HLA-A*26:01	1	47	55	9	VLHSTQDLF 0.011541	3.0
HLA-A*68:02	1	357	366	10	NCVADYSVLV 0.011539	4.7
HLA-A*02:03	1	892	900	9	QIPFAMQMA 0.011535	5.3
HLA-B*08:01	1	1038	1047	10	DFCGKGYHLM 0.011535	5.5
HLA-A*31:01	1	554	562	9	KKFLPFQOF 0.011534	6.0
HLA-A*31:01	1	992	1001	10	RLITGRLQSL 0.011534	6.0
HLA-A*02:01	1	364	372	9	VLVNSASF 0.011533	4.6
HLA-A*02:03	1	817	825	9	DLLFNKVTL 0.011533	5.3
HLA-B*51:01	1	742	751	10	DSTECNLLL 0.01153	5.5
HLA-A*03:01	1	1260	1269	10	PVLKGVKLHY 0.01153	4.4
HLA-B*53:01	1	1002	1010	9	QTYVTQQLI 0.011528	3.1
HLA-A*02:06	1	926	934	9	SAIGKIQDS 0.011527	6.4
HLA-B*44:02	1	955	963	9	ALNTLVKQL 0.011527	2.5
HLA-A*02:03	1	1216	1224	9	GFIAGLIAI 0.011524	5.3
HLA-A*11:01	1	193	202	10	VFKNIDGYFK 0.011523	3.9
HLA-B*51:01	1	1051	1060	10	QSAPHGVVFL 0.011523	5.5
HLA-A*02:03	1	882	891	10	GWTFGAGAAL 0.01152	5.3
HLA-A*33:01	1	1144	1152	9	SFKEELDKY 0.011519	4.8
HLA-A*02:01	1	1045	1054	10	HLMSEFPQSAP 0.011518	4.6
HLA-A*02:06	1	227	235	9	VDLPIGINI 0.011516	6.4
HLA-A*26:01	1	438	446	9	LDSKVGNGY 0.011516	3.0
HLA-A*02:01	1	272	281	10	FLLKYNENGT 0.011515	4.6
HLA-B*58:01	1	631	639	9	RVYSTGSNV 0.011512	4.0
HLA-B*07:02	1	756	764	9	FCTQLNRAL 0.011507	3.6
HLA-B*44:03	1	294	302	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-A*03:01	1	868	876	9	AQYTSALLA 0.011497	4.4
HLA-A*30:02	1	40	49	10	DKVFRSSVLH 0.011491	5.8
HLA-A*33:01	1	1213	1221	9	IWLGFIAGL 0.011488	4.8
HLA-B*51:01	1	1125	1134	10	VVIGIVNNTV 0.011484	5.5
HLA-A*24:02	1	445	454	10	NYNYLYRLFR 0.011481	2.8
HLA-A*01:01	1	931	939	9	IQDLSSTA 0.011479	3.5
HLA-B*44:03	1	237	245	9	RFQTLHRYS 0.011475	2.6
HLA-B*08:01	1	553	562	10	NKKFLPFQOF 0.011475	5.5
HLA-A*30:02	1	663	672	10	IGAGICASYQ 0.011474	5.8
HLA-A*23:01	1	1052	1060	9	SAPHGVVFL 0.011474	2.7
HLA-A*26:01	1	1091	1099	9	VFVSNQTHW 0.011473	3.0
HLA-A*02:06	1	321	329	9	ESIVRFPNI 0.011464	6.4
HLA-A*68:02	1	336	345	10	GEVFNATRFA 0.011463	4.7
HLA-A*26:01	1	151	160	10	SWMSEFRVY 0.011458	3.0
HLA-A*68:02	1	407	415	9	IAPGQTGNI 0.011456	4.7
HLA-A*31:01	1	1052	1061	10	SAPHGVVFLH 0.011448	6.0
HLA-A*33:01	1	601	609	9	TSNQVAVLY 0.011445	4.8
HLA-B*58:01	1	441	449	9	KVGGNYNYP 0.011441	4.0
HLA-A*30:01	1	669	678	10	ASYQTQTNYP 0.011436	7.8
HLA-A*33:01	1	93	102	10	ASTEKSNIIR 0.011434	4.8
HLA-B*58:01	1	485	494	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	1007	1015	9	QLLIRAAEI 0.011425	3.2
HLA-A*31:01	1	955	963	9	ALNTLVKQL 0.011422	6.0
HLA-A*68:01	1	624	633	10	DQLTPTWRVY 0.011421	6.6
HLA-A*02:01	1	1110	1119	10	QIITDNTFV 0.011417	4.7
HLA-A*23:01	1	1038	1047	10	DFCGKGYHLM 0.011415	2.7
HLA-B*53:01	1	95	104	10	TEKSNIIRGW 0.011411	3.1
HLA-A*26:01	1	1257	1265	9	DSEPVLKGV 0.011408	3.0
HLA-A*68:02	1	1000	1009	10	SLQTYVTQQL 0.011402	4.7
HLA-B*08:01	1	817	826	10	DLLFNKVTLA 0.011401	5.6
HLA-B*15:01	1	553	562	10	NKKFLPFQOF 0.011399	5.0
HLA-A*30:01	1	253	261	9	SGWTAGAAA 0.011395	7.8
HLA-A*11:01	1	631	640	10	RVYSTGSNVF 0.011394	3.9
HLA-A*68:02	1	346	354	9	SVYAWNRKR 0.01139	4.7
HLA-A*24:02	1	1261	1269	9	VLKGVKLHY 0.01139	2.8
HLA-A*26:01	1	548	556	9	VLTESNKKF 0.011383	3.0

HLA-B*15:01	1	1035	1044	10	KRVDFCGKGY 0.011375	5.0
HLA-A*24:02	1	125	133	9	NVVIKVC EF 0.011374	2.8
HLA-A*02:06	1	714	723	10	NFTISVTTEI 0.01137	6.4
HLA-B*58:01	1	214	223	10	RGLPQGFSAL 0.011366	4.0
HLA-B*51:01	1	571	580	10	DAVRDPQTLE 0.011365	5.6
HLA-A*24:02	1	1038	1047	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-A*68:02	1	689	698	10	IIAYTMSLGV 0.011347	4.7
HLA-B*07:02	1	600	608	9	NTSNQVAVL 0.011345	3.6
HLA-A*24:02	1	1210	1218	9	PWYIWLGF I 0.011337	2.8
HLA-B*58:01	1	954	963	10	QALNTLVKQL 0.011328	4.0
HLA-A*30:01	1	593	602	10	SVITPGTNTS 0.011323	7.8
HLA-B*44:02	1	778	786	9	VFAQVKQIY 0.011319	2.5
HLA-A*30:01	1	28	37	10	YTN SFTRGVY 0.011314	7.8
HLA-A*03:01	1	905	914	10	GIGVTQNVLY 0.011314	4.5
HLA-A*30:02	1	486	494	9	YFPLQSYGF 0.01131	5.8
HLA-B*40:01	1	405	413	9	RQIAPGQTG 0.011307	2.7
HLA-B*35:01	1	933	941	9	DSLSSTASA 0.011306	3.5
HLA-B*44:02	1	1067	1076	10	AQEKNF T TAP 0.011304	2.5
HLA-A*01:01	1	649	658	10	GAEHVNNSYE 0.0113	3.6
HLA-A*30:02	1	294	303	10	SETKCTLKS F 0.011295	5.8
HLA-A*01:01	1	204	212	9	YSKHTP I N L 0.011287	3.6
HLA-A*02:06	1	756	764	9	FCTQLNRAL 0.011285	6.5
HLA-A*31:01	1	288	297	10	CALDPLSE TK 0.01128	6.0
HLA-B*53:01	1	859	867	9	PPLL TDEMI 0.011279	3.1
HLA-A*23:01	1	341	350	10	ATRFASVYAW 0.011278	2.7
HLA-A*23:01	1	490	498	9	QSYGFQPTY 0.011255	2.7
HLA-B*08:01	1	430	438	9	VIAWNSN N L 0.011254	5.6
HLA-B*08:01	1	207	216	10	HTP I N LVRGL 0.011252	5.6
HLA-A*30:02	1	1023	1031	9	ATKMSECVL 0.011249	5.8
HLA-A*26:01	1	1134	1142	9	VYDPLQPEL 0.011249	3.0
HLA-A*24:02	1	1203	1211	9	YEQYIKWPW 0.011249	2.8
HLA-A*68:02	1	194	203	10	FKNIDGYFKI 0.011248	4.8
HLA-A*11:01	1	446	455	10	YNYLYR LFRK 0.011241	4.0
HLA-A*68:02	1	674	682	9	QTNSPRRAR 0.011234	4.8
HLA-A*02:06	1	685	694	10	ASQSIIAYTM 0.011232	6.5
HLA-A*02:06	1	1254	1262	9	DEDDSE PVL 0.011222	6.5
HLA-A*68:02	1	1120	1129	10	SGNCDVVIGI 0.01122	4.8
HLA-A*68:02	1	823	831	9	VTLADAGFI 0.011214	4.8
HLA-B*15:01	1	144	152	9	YYHKNNKSW 0.011212	5.0
HLA-A*03:01	1	266	274	9	YLQPR T FLL 0.011212	4.5
HLA-A*68:01	1	197	206	10	IDGYFKIYSK 0.011209	6.6
HLA-B*51:01	1	756	764	9	FCTQLNRAL 0.011209	5.6
HLA-A*30:01	1	354	362	9	RISNCVADY 0.011207	7.8
HLA-A*30:02	1	927	935	9	AIGKIQDSL 0.011205	5.8
HLA-A*02:03	1	1020	1029	10	NLAATKMSEC 0.011194	5.4
HLA-B*53:01	1	152	160	9	WMESEFRVY 0.011193	3.1
HLA-A*68:02	1	955	963	9	ALNTLVKQL 0.011188	4.8
HLA-A*01:01	1	876	885	10	AGTITSGWTF 0.011181	3.6
HLA-A*30:01	1	50	59	10	STQDLFLPFF 0.011176	7.9
HLA-A*32:01	1	774	782	9	NTQEVFAQV 0.011164	3.3
HLA-A*68:02	1	1003	1012	10	TYVTQQLIRA 0.011163	4.8
HLA-A*32:01	1	10	18	9	LVSSQCVNL 0.011161	3.3
HLA-A*01:01	1	381	389	9	PTKLN D LCF 0.011157	3.6
HLA-A*68:01	1	856	865	10	TVLP L L TDE 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	432	441	10	AWNSN N L DSK 0.011143	4.0
HLA-A*02:01	1	331	339	9	NLC PFGEV F 0.011141	4.7
HLA-A*68:02	1	215	223	9	GLPQGFSA L 0.011138	4.8
HLA-A*02:06	1	606	615	10	AVLYQGVNCT 0.011138	6.5
HLA-A*11:01	1	367	376	10	NSASFSTFKC 0.011135	4.0
HLA-A*11:01	1	1052	1061	10	SAPHGVVFLH 0.011134	4.0
HLA-A*68:02	1	743	751	9	STEC S N L L L 0.011128	4.8
HLA-A*30:02	1	944	953	10	KLQDVVNQNA 0.011124	5.9

HLA-A*02:01	1	837	846	10	CLGDIAARDL 0.011123	4.7
HLA-B*51:01	1	696	704	9	LGVENSVAY 0.011115	5.6
HLA-A*68:01	1	120	129	10	VNNATNVVVIK 0.011114	6.6
HLA-A*30:02	1	634	643	10	STGSNVFQTR 0.011098	5.9
HLA-B*35:01	1	408	416	9	APGQTGNIA 0.011097	3.5
HLA-A*33:01	1	793	801	9	DFGGFNFSQ 0.011097	4.9
HLA-A*26:01	1	306	315	10	EKGIYQTSNF 0.011096	3.0
HLA-B*35:01	1	1259	1268	10	EPVLKGVKHL 0.011095	3.5
HLA-A*26:01	1	324	332	9	VRFPNITNL 0.011087	3.0
HLA-A*24:02	1	714	723	10	NFTISVTTEI 0.011087	2.8
HLA-A*02:01	1	854	863	10	GLTVLPLLLT 0.011086	4.7
HLA-A*68:01	1	1062	1071	10	VTYVPAQEKN 0.011084	6.6
HLA-A*02:06	1	881	889	9	SGWTFGAGA 0.011076	6.5
HLA-B*58:01	1	418	426	9	YNYKLPDDF 0.011067	4.0
HLA-A*30:02	1	211	220	10	NLVRGLPQGF 0.011065	5.9
HLA-B*51:01	1	118	126	9	LIVNNATNV 0.011063	5.6
HLA-A*23:01	1	786	794	9	YKTPPIKDF 0.011058	2.8
HLA-A*02:03	1	701	710	10	SVAYSNNSIA 0.011057	5.4
HLA-B*08:01	1	541	549	9	NGLTGTGVL 0.011047	5.7
HLA-A*30:02	1	214	223	10	RGLPQGFSA 0.011041	5.9
HLA-A*02:06	1	780	789	10	AQVKQIYKTP 0.01104	6.5
HLA-A*30:02	1	503	512	10	QPYRVVLSF 0.011038	5.9
HLA-A*03:01	1	413	421	9	GNIADYNYK 0.011036	4.5
HLA-B*57:01	1	1126	1135	10	VIGIVNNTVY 0.01103	6.0
HLA-A*31:01	1	799	808	10	FSQILPDPSP 0.011023	6.1
HLA-B*58:01	1	527	535	9	STNLVKKNC 0.011019	4.1
HLA-B*15:01	1	640	648	9	FQTRAGCLI 0.011012	5.0
HLA-A*30:02	1	492	500	9	YGFQPTYGV 0.011008	5.9
HLA-B*51:01	1	291	299	9	DPLSETKCT 0.011005	5.7
HLA-B*53:01	1	365	374	10	LYNSASFSTF 0.011005	3.1
HLA-B*51:01	1	224	232	9	EPLVDLPIG 0.011004	5.7
HLA-B*35:01	1	911	919	9	NVLYENQKL 0.011003	3.5
HLA-B*08:01	1	1204	1213	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	751	760	10	LQYGSFCTQL 0.010993	2.8
HLA-A*02:03	1	584	592	9	ITPCSFGGV 0.010992	5.4
HLA-A*30:01	1	534	543	10	KCVNFNFNGL 0.01099	7.9
HLA-B*51:01	1	718	726	9	SVTTEILPV 0.010989	5.7
HLA-B*07:02	1	661	670	10	IPIGAGICAS 0.010985	3.7
HLA-A*26:01	1	354	362	9	RISNCVADY 0.01098	3.0
HLA-A*26:01	1	513	521	9	ELLHAPATV 0.010976	3.0
HLA-A*30:01	1	810	818	9	SKRSFIEDL 0.010972	8.0
HLA-A*30:02	1	295	303	9	ETKCTLKSF 0.010969	5.9
HLA-A*30:02	1	715	723	9	FTISVTTEI 0.010957	5.9
HLA-B*57:01	1	1001	1009	9	LQTYVTQQL 0.010955	6.1
HLA-A*32:01	1	142	150	9	GVIYHKNNK 0.010953	3.3
HLA-A*30:02	1	1203	1211	9	YEQYIKWPW 0.010946	5.9
HLA-B*08:01	1	475	483	9	TPCNGVKGF 0.010942	5.7
HLA-A*33:01	1	674	683	10	QTNSPRRARS 0.010941	4.9
HLA-A*02:01	1	830	838	9	FIKQYGDCL 0.010941	4.8
HLA-B*35:01	1	744	753	10	TECSNLLLQY 0.01094	3.6
HLA-B*58:01	1	1062	1070	9	VTYVPAQEK 0.010938	4.1
HLA-B*58:01	1	669	677	9	ASYQTQTNS 0.010933	4.1
HLA-A*03:01	1	973	981	9	VLNDILSRL 0.010933	4.5
HLA-A*02:03	1	573	581	9	VRDPQTLEI 0.010927	5.4
HLA-B*07:02	1	380	388	9	SPTKLNDC 0.010926	3.7
HLA-B*51:01	1	151	159	9	SWMSEFRV 0.010924	5.7
HLA-A*30:01	1	368	377	10	SASFSTFKCY 0.010924	8.0
HLA-B*58:01	1	77	86	10	KRFANPVLFP 0.01092	4.1
HLA-A*26:01	1	229	237	9	LPIGINITR 0.010918	3.0
HLA-B*08:01	1	389	397	9	FTNVYADSF 0.010918	5.7
HLA-A*24:02	1	806	814	9	PSKPSKRSF 0.010916	2.8
HLA-B*08:01	1	707	715	9	NSIAIPTNF 0.010912	5.7
HLA-B*51:01	1	468	476	9	EIYQAGSTP 0.010911	5.7
HLA-A*02:06	1	1022	1030	9	AATKMSECV 0.01091	6.6

HLA-A*32:01	1	773	782	10	KNTQEVFAQV 0.010908	3.3
HLA-A*30:02	1	221	229	9	SALEPLVDL 0.010905	5.9
HLA-A*24:02	1	474	483	10	STPCNGVKGF 0.010903	2.8
HLA-A*68:01	1	464	472	9	DISTEIYQA 0.0109	6.7
HLA-B*58:01	1	877	886	10	GTITSGWTFG 0.0109	4.1
HLA-A*01:01	1	177	186	10	MDLEGKQGNF 0.010897	3.6
HLA-B*51:01	1	379	387	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	926	935	10	SAIGKIQDSL 0.010881	3.2
HLA-B*44:02	1	95	103	9	TEKSNIIRG 0.01088	2.6
HLA-B*57:01	1	601	610	10	TSNQVAVLYQ 0.01088	6.1
HLA-A*26:01	1	1144	1153	10	SFKEELDKYF 0.010864	3.1
HLA-A*30:02	1	89	97	9	GVYFASTEK 0.010859	6.0
HLA-A*02:01	1	962	970	9	QLSSNFGAI 0.010857	4.8
HLA-A*01:01	1	1098	1107	10	HWFVTQRNFY 0.010847	3.6
HLA-A*23:01	1	78	87	10	RFANPVLPFN 0.010846	2.8
HLA-A*11:01	1	341	349	9	ATRFASVYA 0.010831	4.0
HLA-B*40:01	1	650	659	10	AEHVNNSEYEC 0.010828	2.8
HLA-A*02:03	1	846	855	10	LICAQKFNGL 0.010828	5.5
HLA-B*40:01	1	986	995	10	AEVQIDRLIT 0.010814	2.8
HLA-B*15:01	1	324	332	9	VRFPNITNL 0.01081	5.1
HLA-B*44:03	1	624	632	9	DQLTPTWRV 0.010802	2.7
HLA-A*26:01	1	889	897	9	AALQIPFAM 0.010799	3.1
HLA-A*23:01	1	389	397	9	FTNVYADSF 0.010792	2.8
HLA-A*11:01	1	260	268	9	AAYYVGYLQ 0.010791	4.0
HLA-A*03:01	1	1017	1026	10	ASANLAATKM 0.010785	4.6
HLA-A*23:01	1	1098	1107	10	HWFVTQRNFY 0.010777	2.8
HLA-B*51:01	1	380	388	9	SPTKLNDLC 0.010775	5.7
HLA-A*23:01	1	199	207	9	GYFKIYSKH 0.010769	2.8
HLA-B*53:01	1	883	891	9	WTFGAGAAL 0.010769	3.2
HLA-A*03:01	1	195	204	10	KNIDGYFKIY 0.010765	4.6
HLA-A*30:02	1	331	339	9	NLCPFGEVF 0.010761	6.0
HLA-A*68:02	1	38	47	10	YPDKVFRSSV 0.010755	4.9
HLA-B*08:01	1	1150	1158	9	DKYFKNHTS 0.01075	5.8
HLA-B*07:02	1	37	46	10	YYPDKVFRSS 0.01074	3.7
HLA-A*30:01	1	501	510	10	GYQPYRVVVL 0.010732	8.1
HLA-B*08:01	1	50	58	9	STQDLFLPF 0.010729	5.8
HLA-B*07:02	1	282	290	9	ITDAVDCAL 0.010724	3.7
HLA-B*58:01	1	1156	1164	9	HTSPDVDLG 0.010721	4.1
HLA-A*02:06	1	1253	1262	10	FDEDDSEPVL 0.01072	6.6
HLA-A*02:06	1	1177	1186	10	QKEIDRLNEV 0.010719	6.6
HLA-A*02:03	1	950	959	10	NQNAQALNTL 0.010715	5.5
HLA-B*07:02	1	1052	1061	10	SAPHGVVFLH 0.010692	3.7
HLA-A*30:02	1	378	387	10	GVSPTKLNDL 0.01069	6.0
HLA-B*35:01	1	410	418	9	GQTGNIADY 0.010689	3.6
HLA-A*11:01	1	301	310	10	KSFTVEKGIY 0.010687	4.0
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	1084	1092	9	AHFPREGVF 0.010667	2.8
HLA-B*08:01	1	422	430	9	LPDDFTGCV 0.010666	5.8
HLA-A*24:02	1	715	723	9	FTISVTTEI 0.010664	2.8
HLA-A*23:01	1	532	540	9	KNKCVNFNF 0.010657	2.8
HLA-A*02:03	1	1261	1269	9	VLKGVKLHY 0.010656	5.5
HLA-A*32:01	1	378	387	10	GVSPTKLNDL 0.010653	3.4
HLA-A*31:01	1	1093	1101	9	VSNGTHWVF 0.01065	6.2
HLA-B*35:01	1	178	186	9	DLEGKQGNF 0.010645	3.6
HLA-A*30:01	1	765	773	9	TGIAVEQDK 0.010643	8.1
HLA-A*68:02	1	1162	1171	10	DLGDISGINA 0.010641	4.9
HLA-A*30:01	1	3	11	9	VFLVLLPLV 0.010639	8.1
HLA-A*02:01	1	866	875	10	MIAQYTSALL 0.010639	4.8
HLA-B*51:01	1	580	589	10	EILDITPCSF 0.010636	5.8
HLA-A*33:01	1	893	901	9	IPFAMQMAY 0.010635	5.0
HLA-A*03:01	1	346	355	10	SVYAWNRKRI 0.010625	4.6
HLA-A*01:01	1	166	175	10	CTFEYVSQPF 0.010623	3.7
HLA-B*44:03	1	914	922	9	YENQKLIAN 0.010621	2.7



HLA-B*35:01	1	224	233	10	EPLVDLPIGI 0.010614	3.6
HLA-A*30:02	1	992	1000	9	RLITGRLQS 0.010609	6.1
HLA-B*44:02	1	484	492	9	NCYFPLQSY 0.0106	2.6
HLA-B*53:01	1	624	633	10	DQLTPTWRVY 0.010595	3.2
HLA-A*02:01	1	339	347	9	FNATRFASV 0.010585	4.8
HLA-B*51:01	1	363	371	9	SVLYNSASF 0.010579	5.8
HLA-B*08:01	1	915	924	10	ENQKLIANQF 0.010569	5.8
HLA-B*51:01	1	1122	1130	9	NCDVVIGIV 0.010568	5.8
HLA-A*02:01	1	611	619	9	GVNCTEVPV 0.010566	4.9
HLA-B*51:01	1	287	296	10	DCALDPLSET 0.010565	5.8
HLA-A*03:01	1	289	298	10	ALDPLSETKC 0.010565	4.6
HLA-A*30:01	1	1234	1242	9	MTSCCCLK 0.010562	8.1
HLA-B*35:01	1	318	327	10	QPTESIVRFP 0.010552	3.6
HLA-A*68:02	1	169	177	9	EYVSQPFLM 0.01055	4.9
HLA-A*33:01	1	237	245	9	RFQTLHRSY 0.010548	5.0
HLA-A*30:01	1	1067	1075	9	AQEKNFTTA 0.010546	8.1
HLA-A*03:01	1	357	366	10	NCVADYSVLY 0.010544	4.6
HLA-A*01:01	1	84	92	9	LPFNDGVYF 0.010538	3.7
HLA-B*08:01	1	815	823	9	IEDLLFNKI 0.010537	5.8
HLA-A*24:02	1	1002	1010	9	QTYVTQQLI 0.010536	2.9
HLA-A*68:01	1	1099	1107	9	WVFTQRNFY 0.010536	6.8
HLA-A*26:01	1	51	59	9	TQDLFLPFF 0.010534	3.1
HLA-A*26:01	1	391	399	9	NVYADSFVI 0.010532	3.1
HLA-A*26:01	1	874	883	10	LLAGTITSGW 0.010532	3.1
HLA-A*02:03	1	870	878	9	YTSALLAGT 0.010527	5.5
HLA-B*51:01	1	264	273	10	VGYLQPRTF 0.010525	5.8
HLA-A*30:02	1	24	32	9	LPPAYTNSF 0.010514	6.1
HLA-A*32:01	1	690	698	9	IAYTMSLGV 0.010509	3.4
HLA-A*68:01	1	56	64	9	LPFFSNVTW 0.010499	6.8
HLA-B*58:01	1	964	973	10	SSNFGAISSV 0.010498	4.2
HLA-B*08:01	1	866	875	10	MIAQYTSALL 0.010494	5.8
HLA-B*57:01	1	1052	1060	9	SAPHGVVFL 0.010491	6.2
HLA-B*35:01	1	425	433	9	DFTGCVIAW 0.010479	3.7
HLA-B*40:01	1	1051	1059	9	QSAPHGVVF 0.01047	2.8
HLA-B*15:01	1	405	414	10	RQIAPGQTGN 0.010469	5.2
HLA-B*51:01	1	238	246	9	FQTLHRSYL 0.010467	5.8
HLA-A*02:01	1	1008	1017	10	QLIRAAEIRA 0.010461	4.9
HLA-A*02:06	1	222	231	10	ALEPLVDLPI 0.010458	6.7
HLA-B*51:01	1	919	928	10	LIANQFNSAI 0.010458	5.8
HLA-A*30:01	1	520	528	9	TVCGPKKST 0.010457	8.2
HLA-A*31:01	1	54	62	9	LFLPFFSNV 0.010453	6.2
HLA-A*30:02	1	265	274	10	GYLQPRTFLL 0.010451	6.1
HLA-B*51:01	1	51	59	9	TQDLFLPFF 0.01045	5.9
HLA-A*02:03	1	918	926	9	KLIANQFNS 0.010443	5.6
HLA-A*02:06	1	514	522	9	LLHAPATVC 0.010441	6.7
HLA-B*44:03	1	494	502	9	FQPTYGVGY 0.010437	2.8
HLA-A*30:02	1	1017	1026	10	ASANLAATKM 0.010437	6.1
HLA-A*33:01	1	234	242	9	NITRFQTLH 0.010436	5.0
HLA-B*15:01	1	159	168	10	VYSSANNCTF 0.010431	5.2
HLA-B*53:01	1	167	175	9	TFEYVSQPF 0.010425	3.2
HLA-B*08:01	1	376	384	9	CYGVSPTKL 0.010422	5.9
HLA-A*68:01	1	695	704	10	SLGVENSVA 0.010422	6.8
HLA-A*30:01	1	634	642	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	QSLIVNNA 0.010413	5.9
HLA-A*30:02	1	341	350	10	ATRFASVYAW 0.010407	6.1
HLA-B*51:01	1	169	177	9	EYVSQPFLM 0.010406	5.9
HLA-A*68:02	1	1047	1055	9	MSFPQSAPH 0.010403	5.0
HLA-B*58:01	1	1011	1019	9	RAAEIRASA 0.010398	4.2
HLA-B*44:03	1	890	899	10	ALQIPFAMQM 0.01039	2.8
HLA-A*68:02	1	330	338	9	TNLCPFGEV 0.010383	5.0
HLA-A*02:06	1	389	398	10	FTNVYADSFV 0.010376	6.7
HLA-B*44:03	1	154	163	10	ESEFRVYSSA 0.010362	2.8
HLA-A*02:01	1	898	906	9	QMAYRFNGI 0.010361	4.9
HLA-A*30:02	1	680	689	10	RARSVASQSI 0.010359	6.1
HLA-A*30:02	1	703	711	9	AYSNNNSIAI 0.010357	6.1

HLA-A*30:01	1	685	694	10	ASQSIIAYTM 0.010355	8.2
HLA-B*53:01	1	694	702	9	MSLGVNSV 0.010354	3.2
HLA-B*44:03	1	162	170	9	SANNCTFEY 0.010346	2.8
HLA-B*15:01	1	497	505	9	TYGVGYQPY 0.010346	5.2
HLA-A*32:01	1	150	159	10	KSWMESEFRV 0.010344	3.4
HLA-A*02:06	1	795	803	9	GGFNFSQIL 0.01034	6.8
HLA-B*35:01	1	1258	1267	10	SEPVLKGVKL 0.010337	3.7
HLA-A*30:01	1	993	1001	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*30:01	1	759	767	9	QLNRALTGI 0.010311	8.3
HLA-B*35:01	1	786	794	9	YKTPPIKDF 0.010311	3.7
HLA-A*30:01	1	900	909	10	AYRFNGIGVT 0.01031	8.3
HLA-A*02:03	1	1133	1141	9	TVYDPLQPE 0.010307	5.6
HLA-A*33:01	1	37	45	9	YYPDKVFRS 0.010304	5.0
HLA-A*30:01	1	1026	1035	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	598	607	10	GTNTSNQVAV 0.010294	5.6
HLA-A*03:01	1	902	910	9	RFNGIGVTQ 0.010291	4.7
HLA-A*02:06	1	554	562	9	KKFLPFQFQ 0.01029	6.8
HLA-B*08:01	1	724	733	10	LPVSMTKTSV 0.010288	5.9
HLA-A*02:06	1	160	168	9	YSSANNCTF 0.010285	6.8
HLA-A*30:02	1	430	438	9	VIAWNSNNL 0.010283	6.2
HLA-A*11:01	1	289	298	10	ALDPLSETKC 0.010278	4.1
HLA-B*07:02	1	16	24	9	VNLTRTQQL 0.010277	3.8
HLA-B*44:02	1	684	692	9	VASQSIIAY 0.010273	2.6
HLA-B*15:01	1	937	945	9	STASALGKL 0.01027	5.2
HLA-A*02:01	1	1011	1019	9	RAAEIRASA 0.010269	4.9
HLA-B*51:01	1	1045	1053	9	HLMSPQSA 0.010269	5.9
HLA-B*51:01	1	1199	1207	9	ELGKYEYI 0.010258	5.9
HLA-A*32:01	1	965	973	9	SNFGAISSV 0.010257	3.5
HLA-B*53:01	1	1144	1152	9	SFKEELDKY 0.010255	3.3
HLA-B*58:01	1	685	693	9	ASQSIIAYT 0.010239	4.2
HLA-B*53:01	1	1198	1206	9	QELGKYEYF 0.010238	3.3
HLA-B*58:01	1	530	538	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*24:02	1	214	223	10	RGLPQGFSAL 0.010223	2.9
HLA-A*68:01	1	1144	1152	9	SFKEELDKY 0.010219	6.8
HLA-A*68:02	1	1110	1118	9	QIITTDNTF 0.010214	5.0
HLA-A*11:01	1	1137	1146	10	PLQPELDSFK 0.01021	4.1
HLA-B*58:01	1	870	879	10	YTSALLAGTI 0.010207	4.2
HLA-A*24:02	1	783	791	9	KQIYKTPPI 0.010192	2.9
HLA-A*30:01	1	97	106	10	KSNIIRGWIF 0.010191	8.3
HLA-B*15:01	1	587	595	9	CSFGGVSVI 0.01019	5.2
HLA-A*02:01	1	1204	1213	10	EQYIKWPWYI 0.010189	4.9
HLA-A*02:01	1	1217	1226	10	FIAGLIAIVM 0.010189	4.9
HLA-B*57:01	1	1017	1025	9	ASANLAATK 0.010188	6.3
HLA-B*08:01	1	151	159	9	SWMESEFRV 0.01018	6.0
HLA-A*02:06	1	303	311	9	FTVEKGIYQ 0.010173	6.8
HLA-A*03:01	1	1053	1061	9	APHGVVFLH 0.010171	4.7
HLA-B*44:02	1	336	345	10	GEVFNATRF 0.010168	2.6
HLA-A*30:02	1	636	644	9	GSNVFQTRA 0.010166	6.2
HLA-A*30:01	1	1018	1026	9	SANLAATKM 0.010165	8.3
HLA-A*11:01	1	765	773	9	TGIAVEQDK 0.010163	4.1
HLA-B*40:01	1	317	326	10	VQPTESIVRF 0.01016	2.8
HLA-A*30:01	1	1036	1044	9	RVDFCGKY 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	955	963	9	ALNTLVKQL 0.010142	4.7
HLA-A*30:01	1	304	313	10	TVEKGIYQTS 0.010125	8.3
HLA-A*02:01	1	303	312	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	717	725	9	ISVTTEILP 0.010116	4.2
HLA-B*40:01	1	315	323	9	FRVQPTESI 0.010108	2.8
HLA-A*02:03	1	899	908	10	MAYRFNGIGV 0.010108	5.6
HLA-A*03:01	1	1000	1008	9	SLQTYVTQQ 0.010103	4.7
HLA-A*01:01	1	1036	1045	10	RVDFCGKGYH 0.010103	3.8
HLA-A*30:01	1	212	221	10	LVRGLPQGF5 0.010101	8.3
HLA-A*02:03	1	988	996	9	VQIDRLITG 0.010099	5.6
HLA-B*44:03	1	843	852	10	ARDLICAQKF 0.010098	2.8
HLA-B*53:01	1	911	919	9	NVLYENQKL 0.010097	3.3
HLA-A*30:01	1	383	392	10	KLNDLCFTNV 0.010096	8.3
HLA-A*31:01	1	1053	1061	9	APHGVVFLH 0.010094	6.3
HLA-A*32:01	1	368	377	10	SASFSTFKCY 0.010084	3.5
HLA-A*03:01	1	688	696	9	SIAYTMSL 0.010084	4.7
HLA-A*30:02	1	770	778	9	EQDKNTQEV 0.010081	6.3
HLA-A*68:02	1	725	733	9	PVSMTKTSV 0.010075	5.1
HLA-A*68:01	1	580	588	9	EILDITPCS 0.010074	6.9
HLA-A*30:02	1	1104	1112	9	RNFYEPQII 0.010074	6.3
HLA-A*03:01	1	1179	1188	10	EIDRLNEVAK 0.010074	4.7
HLA-A*30:01	1	606	614	9	AVLYQGVNC 0.01007	8.3
HLA-B*44:03	1	778	786	9	VFAQVKQIY 0.010061	2.8
HLA-A*32:01	1	19	28	10	TTRTQLPPAY 0.010056	3.5
HLA-A*68:02	1	1132	1140	9	NTVYDPLQP 0.010054	5.1
HLA-A*03:01	1	893	901	9	IPFAMQMAY 0.010052	4.7
HLA-A*03:01	1	50	58	9	STQDLFLPF 0.010048	4.7
HLA-A*02:06	1	281	290	10	TITDAVDCAL 0.010042	6.9
HLA-B*15:01	1	886	895	10	GAGAALQIPF 0.010038	5.3
HLA-A*02:03	1	233	241	9	INITRFQTL 0.010037	5.7
HLA-A*30:02	1	694	702	9	MSLGVNSV 0.010032	6.3
HLA-B*44:02	1	1178	1187	10	KEIDRLNEVA 0.010032	2.6
HLA-A*26:01	1	1148	1156	9	ELDKYFKNH 0.01003	3.2
HLA-B*35:01	1	385	393	9	NDLCFSTNVY 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	573	582	10	VRDPQTLEIL 0.010018	3.8
HLA-B*35:01	1	282	290	9	ITDAVDCAL 0.010014	3.7
HLA-B*08:01	1	781	789	9	QVKQIYKTP 0.010011	6.0
HLA-A*26:01	1	742	750	9	DSTEC5NLL 0.01001	3.2
HLA-A*68:01	1	194	202	9	FKNIDGYFK 0.010006	6.9
HLA-B*15:01	1	124	133	10	TNVVIKVC5F 0.010002	5.3
HLA-B*51:01	1	888	896	9	GAALQIPFA 0.01	6.0
HLA-A*01:01	1	742	751	10	DSTEC5NLLL 0.009995	3.8
HLA-A*30:02	1	573	582	10	VRDPQTLEIL 0.009993	6.3
HLA-B*57:01	1	465	473	9	ISTEIQAG 0.009986	6.3
HLA-A*30:02	1	42	50	9	VFRSSVLHS 0.009984	6.3
HLA-B*40:01	1	965	973	9	SNFGAISSV 0.009974	2.9
HLA-A*26:01	1	234	242	9	NITRFQTLH 0.009973	3.2
HLA-A*02:06	1	856	864	9	TVLPPLLD 0.009969	6.9
HLA-A*02:01	1	204	212	9	YSKHTPINL 0.009968	5.0
HLA-B*51:01	1	1110	1118	9	QIITDNTF 0.009966	6.0
HLA-B*53:01	1	137	146	10	NDPFLGVYYH 0.00996	3.3
HLA-B*57:01	1	1040	1049	10	CGKGYHLMSF 0.00996	6.3
HLA-B*51:01	1	10	18	9	LVSSQCVNL 0.009956	6.0
HLA-B*58:01	1	1057	1065	9	VVFLHVTYV 0.009955	4.3
HLA-B*35:01	1	802	811	10	ILPDPSKPSK 0.009946	3.7
HLA-B*53:01	1	1141	1149	9	ELDSFKEEL 0.009945	3.3
HLA-A*68:01	1	137	145	9	NDPFLGVYY 0.009942	6.9
HLA-A*24:02	1	449	458	10	LYRLFRKSNL 0.009941	2.9
HLA-B*35:01	1	748	756	9	NLLLQYGSF 0.009941	3.7
HLA-A*30:02	1	635	643	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	GVYFASTEK 0.009927	3.5
HLA-A*68:01	1	1200	1208	9	LGKYEQYIK 0.009922	6.9
HLA-A*11:01	1	905	914	10	GIGVTQNVLY 0.009921	4.2
HLA-B*44:02	1	786	794	9	YKTPPIKDF 0.009919	2.6
HLA-A*02:03	1	116	124	9	SLLIVNNAT 0.00991	5.7
HLA-B*35:01	1	487	496	10	FPLQSYGFQP 0.00991	3.7

HLA-A*02:06	1	1118	1127	10	FVSGNCDVVI 0.0099	6.9
HLA-B*35:01	1	1036	1044	9	RVDFCGKGY 0.009899	3.7
HLA-A*01:01	1	985	993	9	EAEVQIDRL 0.009898	3.8
HLA-B*40:01	1	990	998	9	IDRLITGRL 0.009895	2.9
HLA-A*26:01	1	1063	1072	10	TYVPAQEKNF 0.009893	3.2
HLA-B*53:01	1	126	135	10	VVIKVCDFQF 0.009891	3.3
HLA-A*68:02	1	611	619	9	GVNCTEVPV 0.009887	5.1
HLA-B*53:01	1	173	181	9	QPFLMDLEG 0.009881	3.3
HLA-A*30:01	1	500	509	10	VGYPYRVVV 0.009878	8.4
HLA-B*08:01	1	292	300	9	PLSETKCTL 0.009876	6.0
HLA-A*32:01	1	133	141	9	FQFCNDPFL 0.009875	3.5
HLA-A*02:06	1	782	791	10	VKQIYKTPPI 0.009875	6.9
HLA-A*68:02	1	1157	1166	10	TSPDVDLGD I 0.009874	5.1
HLA-B*40:01	1	1000	1009	10	SLQTYVTQQL 0.009861	2.9
HLA-B*58:01	1	526	535	10	KSTNLVKKNC 0.009852	4.3
HLA-B*53:01	1	1055	1064	10	HGVVFLHVTY 0.009852	3.3
HLA-A*30:02	1	502	510	9	YQPYRVVVL 0.009851	6.3
HLA-A*30:01	1	1101	1109	9	VTQRNFYEP 0.009851	8.4
HLA-A*24:02	1	36	45	10	VYYPDKVFRS 0.009847	2.9
HLA-A*23:01	1	414	422	9	NIADYNYKL 0.009839	2.9
HLA-B*07:02	1	407	416	10	IAPGQTGNIA 0.009837	3.9
HLA-A*68:01	1	866	874	9	MIAQYTSAL 0.009828	6.9
HLA-B*07:02	1	551	559	9	ESNKKFLPF 0.009826	3.9
HLA-A*24:02	1	1001	1009	9	LQTYVTQQL 0.009817	3.0
HLA-A*26:01	1	593	601	9	SVITPGTNT 0.009813	3.3
HLA-A*02:01	1	926	935	10	SAIGKIQDSL 0.009811	5.0
HLA-A*02:06	1	620	629	10	AIHADQLTPT 0.00981	6.9
HLA-A*30:02	1	900	908	9	AYRFNGIGV 0.00981	6.3
HLA-A*30:01	1	244	252	9	SYLTPGDSS 0.009808	8.5
HLA-B*51:01	1	1065	1073	9	VPAQEKNF 0.009806	6.1
HLA-B*51:01	1	79	87	9	FANPVLPFN 0.009801	6.1
HLA-A*02:01	1	1216	1224	9	GFIAGLIAI 0.009798	5.0
HLA-A*31:01	1	195	203	9	KNIDGYFKI 0.009796	6.4
HLA-A*68:02	1	205	213	9	SKHTPINLV 0.009783	5.1
HLA-A*02:03	1	1021	1030	10	LAATKMSECV 0.009782	5.7
HLA-A*02:06	1	155	163	9	SEFRVYSSA 0.00978	7.0
HLA-B*40:01	1	656	665	10	SYECDPIGA 0.009777	2.9
HLA-A*26:01	1	1125	1133	9	VVIGIVNNT 0.009772	3.3
HLA-B*15:01	1	430	438	9	VIAWNSNNL 0.009766	5.3
HLA-B*51:01	1	848	857	10	CAQKFNGLTV 0.009764	6.1
HLA-B*57:01	1	1097	1106	10	THWFVTQRNF 0.009764	6.4
HLA-B*35:01	1	1165	1173	9	DISGINASV 0.009762	3.8
HLA-A*33:01	1	1204	1213	10	EQYIKWPWYI 0.009756	5.2
HLA-A*01:01	1	1257	1265	9	DSEPVLLKGV 0.009753	3.8
HLA-A*32:01	1	365	374	10	LYNSASFSTF 0.009737	3.5
HLA-A*23:01	1	580	589	10	EILDITPCSF 0.009733	3.0
HLA-A*32:01	1	330	339	10	TNLCPFGEVF 0.009725	3.5
HLA-B*44:02	1	305	313	9	VEKGIYQTS 0.009724	2.7
HLA-A*30:02	1	811	819	9	KRSFIEDLL 0.009721	6.4
HLA-B*58:01	1	316	324	9	RVQPTESIV 0.009718	4.3
HLA-B*58:01	1	1144	1153	10	SFKEELDKYF 0.009718	4.3
HLA-A*30:01	1	719	727	9	VTTEILPVS 0.009713	8.5
HLA-A*30:01	1	93	102	10	ASTEKSNIIR 0.009706	8.5
HLA-B*57:01	1	1011	1019	9	RAAEIRASA 0.009699	6.4
HLA-A*01:01	1	1017	1025	9	ASANLAATK 0.009699	3.8
HLA-A*31:01	1	1151	1159	9	KYFKNHTSP 0.009698	6.4
HLA-A*31:01	1	889	897	9	AALQIPFAM 0.009686	6.4
HLA-A*26:01	1	453	461	9	FRKSNLKPF 0.009681	3.3
HLA-A*02:03	1	600	608	9	NTSNQVAVL 0.009681	5.8
HLA-A*30:02	1	477	486	10	CNGVKGFNCY 0.00968	6.4
HLA-A*26:01	1	1049	1057	9	FPQSAPHGV 0.009677	3.3
HLA-A*01:01	1	1055	1064	10	HGVVFLHVTY 0.009674	3.9
HLA-A*02:06	1	638	646	9	NVFOQTRAG 0.009672	7.0
HLA-A*02:06	1	960	969	10	VKQLSSNFGA 0.009671	7.0
HLA-A*02:06	1	1057	1066	10	VVFLHVITYVP 0.009671	7.0
HLA-B*51:01	1	393	401	9	YADSFVIRG 0.009669	6.1

HLA-B*51:01	1	658	667	10	ECDIPIGAGI 0.009667	6.1
HLA-B*58:01	1	1104	1112	9	RNFYEPQII 0.009666	4.4
HLA-A*01:01	1	779	787	9	FAQVKQIYK 0.009662	3.9
HLA-B*57:01	1	600	608	9	NTSNQVAVL 0.00966	6.4
HLA-A*68:02	1	1212	1221	10	YIWLGFIAGL 0.00966	5.2
HLA-A*31:01	1	530	538	9	LVKNKCVNF 0.009659	6.4
HLA-A*02:03	1	175	183	9	FLMDLEGKQ 0.009657	5.8
HLA-A*02:06	1	479	487	9	GVKGFNCYF 0.009657	7.0
HLA-A*30:01	1	672	681	10	QTQTNSPRRA 0.009657	8.5
HLA-B*57:01	1	418	426	9	YNYKLPDDF 0.009654	6.4
HLA-A*31:01	1	441	449	9	KVGGNYNYL 0.009654	6.4
HLA-B*58:01	1	92	100	9	FASTEKSNI 0.009653	4.4
HLA-A*33:01	1	1205	1214	10	QYIKWPWYIW 0.009653	5.2
HLA-A*02:01	1	463	472	10	RDISTEIYQA 0.009645	5.1
HLA-B*15:01	1	1011	1019	9	RAAEIRASA 0.009643	5.4
HLA-A*24:02	1	1201	1209	9	GKYEQYIKW 0.00964	3.0
HLA-B*07:02	1	208	217	10	TPINLVRGLP 0.009637	3.9
HLA-B*51:01	1	911	919	9	NVLYENQKL 0.009633	6.1
HLA-A*68:02	1	702	710	9	VAYSNSNSIA 0.00963	5.2
HLA-A*30:02	1	109	118	10	TLDSKTQSL 0.009624	6.4
HLA-A*32:01	1	236	245	10	TRFQTLHRSY 0.009624	3.6
HLA-A*02:06	1	684	692	9	VASQSIIAY 0.009617	7.0
HLA-A*03:01	1	19	28	10	TTRTQLPPAY 0.009615	4.8
HLA-B*08:01	1	785	794	10	IYKTPPIKDF 0.009615	6.1
HLA-A*68:02	1	1105	1113	9	NFYEPQIIT 0.009611	5.2
HLA-A*30:02	1	98	106	9	SNIIRGWIF 0.00961	6.4
HLA-A*02:06	1	722	730	9	EILPVSMTK 0.00961	7.0
HLA-A*23:01	1	60	68	9	SNVTWFHAI 0.009607	3.0
HLA-B*44:02	1	1090	1099	10	GVFVSNNGTHW 0.009602	2.7
HLA-A*02:06	1	133	142	10	FQFCNDPFLG 0.009598	7.0
HLA-A*30:02	1	708	716	9	SIAIPTNFT 0.009598	6.4
HLA-A*30:02	1	818	826	9	LLFNKVTLA 0.009598	6.4
HLA-A*33:01	1	1133	1141	9	TVYDPLQPE 0.009598	5.2
HLA-A*30:02	1	1125	1133	9	VVIGIVNNT 0.009597	6.4
HLA-B*35:01	1	144	152	9	YYHKNNKSW 0.009596	3.8
HLA-B*51:01	1	1160	1169	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	755	764	10	SFCTQLNRAL 0.009583	3.0
HLA-A*02:01	1	683	691	9	SVASQSIIA 0.009581	5.1
HLA-B*40:01	1	1141	1149	9	ELDSFKEEL 0.009579	2.9
HLA-A*02:06	1	861	870	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	SWMESEFRVY 0.009567	8.6
HLA-B*15:01	1	720	728	9	TTEILPVSM 0.009566	5.4
HLA-A*68:02	1	954	963	10	QALNTLVKQL 0.009562	5.2
HLA-B*57:01	1	122	130	9	NATNVVIVK 0.009561	6.5
HLA-B*44:03	1	30	38	9	NSFTRGVYY 0.009559	2.9
HLA-B*57:01	1	455	463	9	KSNLKPFFER 0.009559	6.5
HLA-A*26:01	1	770	778	9	EQDKNTQEV 0.009553	3.3
HLA-A*30:02	1	405	414	10	RQIAPGQTGN 0.009552	6.4
HLA-B*40:01	1	277	285	9	NENGTITDA 0.009549	2.9
HLA-B*08:01	1	418	426	9	YNYKLPDDF 0.009547	6.1
HLA-B*51:01	1	16	24	9	VNLTRRTQL 0.009545	6.2
HLA-A*02:06	1	489	498	10	LQSYGFQPTY 0.009542	7.0
HLA-A*02:06	1	218	227	10	QGFSALEPLV 0.009537	7.1
HLA-B*58:01	1	1077	1086	10	AICHDGKAHF 0.00953	4.4
HLA-A*30:01	1	676	685	10	NSPRRARSVA 0.009528	8.6
HLA-A*68:02	1	505	514	10	YRVVLSFEL 0.009525	5.2
HLA-B*07:02	1	35	43	9	GVYYPDKVF 0.009524	4.0
HLA-A*30:01	1	630	639	10	WRVYSTGSNV 0.009522	8.6
HLA-B*58:01	1	115	123	9	QSLIVNNA 0.009521	4.4
HLA-A*32:01	1	1091	1100	10	VFVSNNGTHWF 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	ASTEKSNI 0.009517	8.6

HLA-A*68:02	1	1181	1190	10	DRLNEVAKNL 0.009515	5.2
HLA-A*11:01	1	343	352	10	RFASVYAWN R 0.009509	4.2
HLA-B*58:01	1	1052	1060	9	SAPHG VVFL 0.009503	4.4
HLA-B*08:01	1	1144	1153	10	SFKEELDKYF 0.009503	6.2
HLA-B*51:01	1	502	511	10	YQPYRVV VLS 0.009501	6.2
HLA-A*68:02	1	615	623	9	TEVPVAIHA 0.0095	5.2
HLA-B*51:01	1	218	227	10	QGFSALEPLV 0.009498	6.2
HLA-A*02:03	1	1185	1194	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	551	559	9	ESNKKFLPF 0.009487	5.2
HLA-A*68:01	1	895	903	9	FAMQMAYRF 0.009485	7.0
HLA-A*30:01	1	923	931	9	QFNSAIGKI 0.009482	8.6
HLA-A*01:01	1	1257	1266	10	DSEPVLKGVK 0.009474	3.9
HLA-B*53:01	1	1208	1217	10	KWPWYIWLGF 0.009468	3.4
HLA-A*30:02	1	923	931	9	QFNSAIGKI 0.009464	6.5
HLA-A*68:01	1	879	887	9	ITSGWTFGA 0.009461	7.0
HLA-A*01:01	1	1026	1035	10	MSECVLGQSK 0.009459	3.9
HLA-B*51:01	1	877	885	9	GTITSGWTF 0.009458	6.2
HLA-B*57:01	1	59	68	10	GSNVTWFHAI 0.009455	6.5
HLA-A*30:01	1	321	329	9	ESIVRFPNI 0.009452	8.6
HLA-B*44:03	1	1090	1099	10	GVFVSNNGTHW 0.009451	2.9
HLA-A*26:01	1	634	643	10	STGSNVFQTR 0.009448	3.3
HLA-B*57:01	1	1104	1112	9	RNFYEPQII 0.009447	6.5
HLA-A*30:02	1	143	152	10	VYYHKNNKSW 0.009444	6.5
HLA-A*30:02	1	883	891	9	WTFGAGAAL 0.009436	6.5
HLA-B*58:01	1	855	863	9	LTVLPPLL 0.009426	4.4
HLA-A*30:02	1	343	352	10	RFASVYAWN R 0.009425	6.5
HLA-A*02:06	1	657	665	9	YECDIPIGA 0.009418	7.1
HLA-B*51:01	1	1256	1265	10	DDSEPVLKGV 0.009415	6.2
HLA-B*08:01	1	957	965	9	NTLVKQLSS 0.009409	6.2
HLA-A*30:02	1	555	563	9	KFLPFQFG 0.009408	6.5
HLA-A*11:01	1	812	820	9	RSFIEDLLF 0.009405	4.3
HLA-A*30:01	1	295	303	9	ETKCTLKSF 0.0094	8.7
HLA-A*26:01	1	1259	1268	10	EPVLKGVKHL 0.009393	3.3
HLA-A*02:01	1	992	1000	9	RLITGRLQS 0.009392	5.1
HLA-A*26:01	1	441	450	10	KVGGNYNYLY 0.00939	3.3
HLA-A*01:01	1	246	255	10	LTPGDSSSGW 0.009385	3.9
HLA-A*26:01	1	686	694	9	SQSIIAYTM 0.009383	3.3
HLA-B*58:01	1	1039	1047	9	FCGKG YHLM 0.009382	4.4
HLA-B*07:02	1	541	549	9	NGLTGTGVL 0.00938	4.0
HLA-A*68:02	1	185	193	9	NFKNLREFV 0.009379	5.2
HLA-B*35:01	1	716	724	9	TISVTTEIL 0.009378	3.8
HLA-B*58:01	1	233	241	9	INITRFQTL 0.009376	4.4
HLA-B*53:01	1	1205	1214	10	QYIKWPWYIW 0.009373	3.4
HLA-A*01:01	1	613	622	10	NCTEVPVAIH 0.009372	3.9
HLA-A*01:01	1	730	739	10	KTSVDCTMYI 0.009368	3.9
HLA-A*26:01	1	1165	1174	10	DISGINASVV 0.009364	3.3
HLA-B*58:01	1	24	32	9	LPPAYTNSF 0.009363	4.4
HLA-B*53:01	1	487	496	10	FPLQSYGFQP 0.009363	3.4
HLA-A*33:01	1	255	263	9	WTAGAAAYY 0.009362	5.2
HLA-A*30:01	1	1052	1061	10	SAPHG VVFLH 0.009358	8.7
HLA-A*68:02	1	346	355	10	SVYAWN RRI 0.009357	5.2
HLA-B*15:01	1	916	925	10	NQKLIANQFN 0.009357	5.4
HLA-A*11:01	1	670	679	10	SYQTQTNSPR 0.009351	4.3
HLA-A*03:01	1	635	643	9	TGSNVFQTR 0.009348	4.8
HLA-B*15:01	1	770	778	9	EQDKNTQEV 0.009344	5.4
HLA-A*30:02	1	779	787	9	FAQVKQIYK 0.00934	6.6
HLA-B*40:01	1	490	498	9	QSYGFQPTY 0.009338	2.9
HLA-B*44:02	1	162	170	9	SANNCTFEY 0.009337	2.7
HLA-A*68:02	1	946	955	10	QDVVNQNAQA 0.009336	5.3
HLA-B*57:01	1	1083	1091	9	KAHFPREGV 0.009336	6.6
HLA-B*07:02	1	237	246	10	RFQTLHRSYL 0.009334	4.0
HLA-B*08:01	1	51	59	9	TQDLFLPFF 0.009323	6.2
HLA-B*44:02	1	227	235	9	VDLPIGINI 0.009311	2.7
HLA-A*01:01	1	814	822	9	FIEDLLFNK 0.009309	3.9

HLA-A*03:01	1	890	898	9	ALQIPFAMQ 0.009307	4.9
HLA-B*51:01	1	970	978	9	ISSVLNDIL 0.009304	6.3
HLA-B*53:01	1	786	794	9	YKTPPIKDF 0.009299	3.4
HLA-A*03:01	1	161	170	10	SSANNCTFEY 0.009297	4.9
HLA-B*08:01	1	1181	1190	10	DRLNEVAKNL 0.009292	6.2
HLA-B*15:01	1	486	494	9	YFPLQSYGF 0.00929	5.4
HLA-A*31:01	1	836	844	9	DCLGDIAAR 0.009282	6.5
HLA-A*03:01	1	517	526	10	APATVCGPKK 0.00928	4.9
HLA-A*32:01	1	1023	1031	9	ATKMSECVL 0.009278	3.6
HLA-A*30:02	1	309	317	9	IYQTSNFRV 0.009277	6.6
HLA-A*02:06	1	841	849	9	IAARDLICA 0.009277	7.2
HLA-B*08:01	1	716	724	9	TISVTTEIL 0.009276	6.2
HLA-A*03:01	1	234	243	10	NITRFQTLHR 0.009274	4.9
HLA-A*02:06	1	263	271	9	YVGYLQPRT 0.009269	7.2
HLA-A*30:01	1	193	201	9	VFKNIDGYF 0.009268	8.7
HLA-A*11:01	1	695	704	10	SLGVENSVAV 0.009261	4.3
HLA-B*08:01	1	854	862	9	GLTVLPPLL 0.009252	6.3
HLA-A*02:06	1	221	230	10	SALEPLVDLP 0.009247	7.2
HLA-B*51:01	1	246	255	10	LTPGDSSSGW 0.009238	6.3
HLA-A*02:01	1	406	415	10	QIAPGQTGNI 0.009237	5.2
HLA-A*01:01	1	486	494	9	YFPLQSYGF 0.009237	4.0
HLA-A*01:01	1	93	102	10	ASTEKSNIIR 0.009236	4.0
HLA-B*35:01	1	479	487	9	GVKGFNCYF 0.009236	3.8
HLA-A*01:01	1	302	310	9	SFTVEKGIY 0.009233	4.0
HLA-A*30:02	1	751	760	10	LQYGSFCTQL 0.009232	6.6
HLA-A*32:01	1	748	756	9	NLLLQYGSF 0.009228	3.6
HLA-A*30:01	1	1084	1093	10	AHFPREGVAV 0.009225	8.8
HLA-A*68:02	1	372	381	10	STFKCYGVSP 0.009224	5.3
HLA-B*57:01	1	111	119	9	DSKTQSLLI 0.009222	6.6
HLA-B*08:01	1	504	512	9	PYRVVLSF 0.009222	6.3
HLA-A*30:01	1	88	97	10	DGVYFASTEK 0.009215	8.8
HLA-A*30:01	1	784	793	10	QIYKTPPIKD 0.009206	8.8
HLA-A*68:02	1	1170	1178	9	NASVVNIQK 0.009206	5.3
HLA-A*30:02	1	921	930	10	ANQFNSAIGK 0.009199	6.6
HLA-A*68:02	1	171	179	9	VSQPFLMDL 0.009193	5.3
HLA-A*33:01	1	486	494	9	YFPLQSYGF 0.009193	5.3
HLA-A*01:01	1	440	448	9	SKVGGNYNY 0.00919	4.0
HLA-A*31:01	1	565	574	10	DIADTTDAVR 0.00919	6.6
HLA-A*02:03	1	939	948	10	ASALGKLQDV 0.00919	5.9
HLA-A*02:01	1	6	14	9	VLLPLVSSQ 0.009187	5.2
HLA-A*02:06	1	975	984	10	NDILSRLDKV 0.009185	7.2
HLA-B*57:01	1	879	887	9	ITSGWTFGA 0.009181	6.6
HLA-B*58:01	1	709	718	10	IAIPTNFTIS 0.009178	4.5
HLA-B*57:01	1	1156	1164	9	HTSPDVDLG 0.009178	6.6
HLA-A*68:01	1	696	704	9	LGVENSVAV 0.009176	7.1
HLA-A*02:06	1	749	757	9	LLLQYGSFC 0.009176	7.2
HLA-A*30:01	1	142	151	10	GVEYHKNKS 0.009173	8.8
HLA-A*02:06	1	1199	1207	9	ELGKYEYI 0.009166	7.2
HLA-A*02:01	1	891	900	10	LQIPFAMQMA 0.009163	5.2
HLA-B*58:01	1	888	897	10	GAALQIPFAM 0.00916	4.5
HLA-B*57:01	1	747	756	10	SNLLLQYGSF 0.009159	6.6
HLA-B*15:01	1	791	799	9	IKDFGGFNF 0.009155	5.5
HLA-B*44:02	1	410	418	9	GQTGNIADY 0.009149	2.8
HLA-A*26:01	1	468	476	9	EIYQAGSTP 0.009141	3.4
HLA-A*32:01	1	215	223	9	GLPQGFSAL 0.009137	3.7
HLA-B*08:01	1	1134	1143	10	VYDPLQPELD 0.009134	6.3
HLA-A*23:01	1	608	617	10	LYQGVNCTEV 0.009131	3.1
HLA-A*02:06	1	802	811	10	ILPDPSPKSK 0.009131	7.2
HLA-A*11:01	1	1200	1208	9	LGKYEYIK 0.009129	4.3
HLA-A*23:01	1	751	760	10	LQYGSFCTQL 0.009127	3.1
HLA-B*15:01	1	920	928	9	IANQFNSAI 0.009127	5.5
HLA-B*53:01	1	885	893	9	FGAGAALQI 0.009124	3.4
HLA-A*03:01	1	343	352	10	RFASVYAWNR 0.009123	4.9
HLA-A*33:01	1	403	411	9	EVQRIPAGQ 0.009121	5.3
HLA-A*11:01	1	451	460	10	RLFRKSNLKP 0.00912	4.3
HLA-A*24:02	1	90	98	9	VYFASTEKS 0.009118	3.1

HLA-A*23:01	1	35	43	9	GVYYPDKVF 0.009106	3.1
HLA-B*15:01	1	1172	1180	9	SVVNIQKEI 0.009106	5.5
HLA-B*51:01	1	1215	1223	9	LGFIAGLIA 0.009106	6.3
HLA-A*30:02	1	238	246	9	FQTLHRSYL 0.009105	6.7
HLA-A*31:01	1	441	450	10	KVGGNYNYLY 0.009104	6.6
HLA-B*08:01	1	570	579	10	TDAVRDPQTL 0.009103	6.3
HLA-A*30:01	1	313	321	9	SNFRVQPTTE 0.009102	8.8
HLA-B*51:01	1	1069	1078	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	780	789	10	AQVKQIYKTP 0.009091	8.8
HLA-B*08:01	1	786	794	9	YKTPPIKDF 0.009084	6.3
HLA-A*26:01	1	55	64	10	FLPFFSNVTW 0.009082	3.4
HLA-A*68:02	1	308	317	10	GIYQTSNFRV 0.00908	5.3
HLA-A*26:01	1	88	97	10	DGVYFASTEK 0.009074	3.4
HLA-A*68:02	1	109	118	10	TLDSKTQSL 0.009066	5.3
HLA-A*68:01	1	614	622	9	CTEVPVAIH 0.009066	7.2
HLA-A*03:01	1	600	609	10	NTSNQVAVLY 0.009064	4.9
HLA-B*57:01	1	855	863	9	LTVLPLLLT 0.009064	6.6
HLA-B*08:01	1	445	453	9	NVNYLYRLF 0.009062	6.3
HLA-A*02:06	1	548	557	10	VLTESNKKFL 0.009061	7.3
HLA-B*15:01	1	1145	1153	9	FKEELDKYF 0.009061	5.5
HLA-A*30:01	1	977	986	10	ILSRLDKVEA 0.00906	8.8
HLA-A*02:06	1	1021	1029	9	LAATKMSEC 0.00906	7.3
HLA-B*57:01	1	316	324	9	RVQPTESIV 0.009052	6.6
HLA-A*30:01	1	69	78	10	HVSGTNGTKR 0.009048	8.9
HLA-A*11:01	1	392	400	9	VYADSFVIR 0.009038	4.3
HLA-A*26:01	1	58	66	9	FFSNVTWFH 0.009036	3.4
HLA-B*08:01	1	940	949	10	SALGKLQDVV 0.009031	6.3
HLA-A*02:01	1	3	11	9	VFLVLLPLV 0.00903	5.2
HLA-B*35:01	1	694	702	9	MSLGVENS 0.009028	3.9
HLA-B*15:01	1	891	900	10	LQIPFAMQMA 0.009028	5.5
HLA-A*02:03	1	717	726	10	ISVTTEILPV 0.009023	6.0
HLA-A*03:01	1	1134	1142	9	VYDPLQPEL 0.009018	4.9
HLA-A*30:02	1	94	102	9	STEKSNIIR 0.009015	6.7
HLA-A*68:02	1	745	753	9	ECSNLLLQY 0.009011	5.3
HLA-B*51:01	1	288	296	9	CALDPLSET 0.009008	6.4
HLA-B*53:01	1	523	531	9	GPKKSTNLV 0.009008	3.5
HLA-A*68:02	1	391	400	10	NVYADSFVIR 0.009002	5.3
HLA-B*07:02	1	951	959	9	QNAQALNTL 0.009002	4.0
HLA-A*30:01	1	1085	1094	10	HFPREGVFVS 0.009002	8.9
HLA-B*58:01	1	45	54	10	SSVLHSTQDL 0.009001	4.5
HLA-B*44:02	1	862	870	9	LTDEMIAQY 0.009001	2.8
HLA-A*02:03	1	933	942	10	DSLSSTASAL 0.008999	6.0
HLA-B*57:01	1	894	903	10	PFAMQMAYRF 0.008998	6.7
HLA-A*02:01	1	969	978	10	AISSVLNDIL 0.008993	5.2
HLA-A*32:01	1	722	730	9	EILPVSMTK 0.008992	3.7
HLA-A*30:02	1	444	453	10	GNVNYLYRLF 0.008987	6.7
HLA-A*23:01	1	806	814	9	PSKPSKRSF 0.008987	3.1
HLA-A*30:02	1	673	682	10	TQTNSPRRAR 0.008982	6.7
HLA-A*02:01	1	861	870	10	LLTDEMIAQY 0.008977	5.2
HLA-B*51:01	1	1222	1231	10	IAIVMVTIML 0.008975	6.4
HLA-A*26:01	1	69	78	10	HVSGTNGTKR 0.008974	3.4
HLA-A*24:02	1	833	841	9	QYGDCLGDI 0.008974	3.1
HLA-A*68:02	1	577	586	10	QTLEILDITP 0.008969	5.4
HLA-A*02:06	1	962	970	9	QLSSNFGAI 0.008969	7.3
HLA-B*35:01	1	284	293	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	295	303	9	ETKCTLKSF 0.008966	4.0
HLA-A*30:02	1	1186	1194	9	VAKNLNESL 0.008964	6.7
HLA-A*68:02	1	155	163	9	SEFRVYSSA 0.008963	5.4
HLA-A*31:01	1	444	452	9	GNVNYLYRL 0.008955	6.7
HLA-A*32:01	1	211	220	10	NLVRGLPQGF 0.008952	3.7
HLA-A*31:01	1	843	851	9	ARDLICAQK 0.008947	6.7
HLA-B*53:01	1	418	426	9	YNYKLPDF 0.008946	3.5



HLA-A*30:01	1	926	935	10	SAIGKIQDSL 0.008945	8.9
HLA-B*53:01	1	258	266	9	GAAAYVGY 0.008941	3.5
HLA-B*07:02	1	632	640	9	VYSTGSNVF 0.008941	4.1
HLA-B*15:01	1	1168	1176	9	GINASVVNI 0.008939	5.5
HLA-A*02:06	1	364	373	10	VLNSASFST 0.008937	7.3
HLA-B*08:01	1	444	452	9	GNYNLYRL 0.008934	6.4
HLA-B*57:01	1	1062	1071	10	VTYVPAQEK 0.008927	6.7
HLA-B*58:01	1	227	235	9	VDLPIGINI 0.008914	4.5
HLA-A*02:03	1	1009	1017	9	LIRAAEIRA 0.008912	6.0
HLA-B*57:01	1	577	586	10	QTLEILDITP 0.008905	6.7
HLA-A*32:01	1	267	276	10	LQPRTFLLKY 0.008901	3.7
HLA-A*30:02	1	1041	1049	9	GKGYHLMSF 0.008899	6.8
HLA-B*53:01	1	459	467	9	KPFERDIST 0.008897	3.5
HLA-B*07:02	1	711	720	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	671	679	9	YQTQNSPR 0.008882	4.9
HLA-B*44:02	1	777	786	10	EVFAQVKQIY 0.008882	2.8
HLA-A*68:01	1	593	601	9	SVITPGTNT 0.008879	7.2
HLA-A*24:02	1	84	92	9	LPFNDGVYF 0.008871	3.1
HLA-A*26:01	1	1126	1135	10	VIGIVNNTVY 0.008871	3.4
HLA-B*15:01	1	961	970	10	KQLSSNFGAI 0.008869	5.5
HLA-A*01:01	1	331	339	9	NLCPFGEVF 0.008864	4.0
HLA-A*23:01	1	714	723	10	NFTISVTTEI 0.008856	3.1
HLA-A*11:01	1	19	28	10	TTRTQLPPAY 0.008852	4.3
HLA-A*30:01	1	728	736	9	MTKTSVDCT 0.008852	9.0
HLA-B*57:01	1	492	500	9	YGFQPTYGV 0.008847	6.7
HLA-B*35:01	1	1065	1073	9	VPAQEKNT 0.008847	3.9
HLA-A*03:01	1	341	349	9	ATRFASVYA 0.008846	5.0
HLA-B*58:01	1	424	433	10	DDFTGCVIAW 0.008845	4.5
HLA-A*68:02	1	1001	1010	10	LQTYVTQQLI 0.008845	5.4
HLA-A*30:02	1	843	852	10	ARDLICAQKF 0.008842	6.8
HLA-B*15:01	1	56	64	9	LPFFSNVTW 0.008839	5.6
HLA-A*02:03	1	273	281	9	LLKYNENT 0.008839	6.1
HLA-A*02:03	1	336	345	10	GEVFNATRFA 0.008837	6.1
HLA-A*30:02	1	919	927	9	LIANQFNSA 0.008837	6.8
HLA-B*57:01	1	439	448	10	DSKVGGNYNY 0.008834	6.7
HLA-A*02:06	1	630	639	10	WRVYSTGSNV 0.00883	7.4
HLA-B*35:01	1	947	956	10	DVVNQNAQAL 0.008821	3.9
HLA-A*26:01	1	1051	1060	10	QSAPHGVVFL 0.008809	3.5
HLA-B*58:01	1	204	213	10	YSKHTPINLV 0.008807	4.6
HLA-A*30:01	1	449	458	10	LYRLFRKSNL 0.008807	9.0
HLA-B*51:01	1	783	791	9	KQIYKTPPI 0.008807	6.5
HLA-A*30:01	1	5	13	9	LVLLPLVSS 0.008803	9.0
HLA-A*32:01	1	1126	1134	9	VIGIVNNTV 0.008802	3.7
HLA-B*58:01	1	844	852	9	RDLICAQKF 0.008801	4.6
HLA-A*68:02	1	1061	1069	9	HVTYVPAQE 0.008793	5.4
HLA-A*02:03	1	731	739	9	TSVDCTMYI 0.008788	6.1
HLA-A*02:03	1	1214	1222	9	WLGFIAGLI 0.008787	6.1
HLA-B*15:01	1	70	79	10	VSGTNGTKRF 0.008786	5.6
HLA-A*68:02	1	367	376	10	NSASFSTFKC 0.008782	5.4
HLA-B*51:01	1	663	671	9	IGAGICASY 0.008782	6.5
HLA-B*44:03	1	341	350	10	ATRFASVYAW 0.008779	3.0
HLA-A*68:01	1	1204	1212	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	IVNNTATNV 0.008773	4.1
HLA-A*26:01	1	817	825	9	DLLFNKVTL 0.008761	3.5
HLA-A*30:02	1	1168	1176	9	GINASVVNI 0.00876	6.8
HLA-A*02:06	1	92	100	9	FASTEKSNI 0.008759	7.4
HLA-A*26:01	1	995	1004	10	TGRLQSLQTY 0.008756	3.5
HLA-A*68:02	1	413	422	10	GNIADYNYKL 0.008752	5.4
HLA-B*07:02	1	19	27	9	TTRTQLPPA 0.00875	4.1
HLA-A*02:03	1	463	472	10	RDISTEIQYA 0.008748	6.1
HLA-A*02:03	1	961	969	9	KQLSSNFGA 0.008748	6.1
HLA-A*30:01	1	598	607	10	GTNTSNQVAV 0.008747	9.0

HLA-B*51:01	1	659	667	9	CDIPIGAGI 0.008745	6.5
HLA-B*53:01	1	445	453	9	NYNYLYRLF 0.008743	3.5
HLA-A*30:02	1	203	212	10	IYSKHTPINL 0.00874	6.8
HLA-B*40:01	1	800	808	9	SQILPDPSK 0.008734	3.0
HLA-A*23:01	1	215	223	9	GLPQGFSAL 0.008733	3.1
HLA-A*68:02	1	378	387	10	GVSPTKLNDL 0.008732	5.5
HLA-A*68:01	1	572	580	9	AVRDPQTLE 0.008732	7.3
HLA-B*57:01	1	354	362	9	RISNCVADY 0.00873	6.8
HLA-B*58:01	1	1047	1056	10	MSFPQSAPHG 0.008721	4.6
HLA-A*11:01	1	688	696	9	SIIAYTMSL 0.008715	4.4
HLA-A*01:01	1	973	981	9	VLNDILSRL 0.008715	4.1
HLA-A*30:02	1	84	92	9	LPFNDGVYF 0.008713	6.9
HLA-B*08:01	1	677	686	10	SPRRARSVAS 0.00871	6.5
HLA-A*32:01	1	806	814	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	701	709	9	SVAYSNNSI 0.0087	5.6
HLA-B*53:01	1	28	37	10	YTNSFTRGVY 0.008697	3.5
HLA-A*26:01	1	490	499	10	QSYGFQPTYG 0.008697	3.5
HLA-B*07:02	1	267	276	10	LQPRTFLLKY 0.008695	4.1
HLA-A*31:01	1	686	694	9	SQSIIAYTM 0.008695	6.7
HLA-B*53:01	1	716	724	9	TISVTTEIL 0.008693	3.5
HLA-A*32:01	1	20	28	9	TRTQLPPAY 0.008691	3.8
HLA-B*51:01	1	1004	1012	9	YVTQLLIRA 0.008691	6.5
HLA-A*68:02	1	218	227	10	QGFSALEPLV 0.008689	5.5
HLA-A*26:01	1	788	797	10	TPPIKDFGGF 0.008688	3.5
HLA-A*30:02	1	150	159	10	KSWMESEFRV 0.008687	6.9
HLA-A*30:01	1	358	366	9	CVADYSVLY 0.008685	9.0
HLA-A*30:02	1	964	972	9	SSNFGAISS 0.008681	6.9
HLA-B*44:03	1	1067	1076	10	AQEKNFTTAP 0.00868	3.0
HLA-A*26:01	1	662	671	10	PIGAGICASY 0.008675	3.5
HLA-B*53:01	1	631	640	10	RVYSTGSNVF 0.008671	3.5
HLA-A*26:01	1	572	581	10	AVRDPQTLEI 0.00867	3.5
HLA-B*44:03	1	955	963	9	ALNTLVKQL 0.008666	3.0
HLA-B*15:01	1	409	418	10	PGQTGNIADY 0.008665	5.6
HLA-A*01:01	1	359	367	9	VADYSVLYN 0.008664	4.1
HLA-A*01:01	1	937	945	9	STASALGKL 0.008664	4.1
HLA-A*33:01	1	803	811	9	LPDPSKPSK 0.00866	5.4
HLA-B*35:01	1	702	710	9	VAYSNNSIA 0.008658	3.9
HLA-B*44:02	1	984	992	9	VEAEVQIDR 0.008658	2.8
HLA-B*57:01	1	124	133	10	TNVVIKVFCE 0.008655	6.8
HLA-A*02:01	1	954	963	10	QALNTLVKQL 0.008655	5.3
HLA-A*68:02	1	227	235	9	VDLPIGINI 0.008654	5.5
HLA-B*44:02	1	341	350	10	ATRFASVYAW 0.008652	2.8
HLA-B*07:02	1	259	267	9	AAAYYVGYL 0.008649	4.1
HLA-A*30:02	1	751	759	9	LQYGSFCTQ 0.008648	6.9
HLA-A*30:01	1	855	863	9	LTVLPLLT 0.008647	9.1
HLA-A*68:02	1	538	546	9	FNFNGLTGT 0.008643	5.5
HLA-A*33:01	1	492	500	9	YGFQPTYGV 0.008633	5.4
HLA-A*32:01	1	485	494	10	CYFPLQSYGF 0.00863	3.8
HLA-A*30:01	1	236	245	10	TRFQTLHRSY 0.008629	9.1
HLA-B*51:01	1	208	217	10	TPINLVRGLP 0.008623	6.5
HLA-B*15:01	1	229	238	10	LPIGINITRF 0.008623	5.6
HLA-B*35:01	1	548	556	9	VLTESNKKF 0.008623	4.0
HLA-A*03:01	1	764	773	10	LTGIAVEQDK 0.00862	5.0
HLA-A*33:01	1	62	70	9	VTWFHAIHV 0.008618	5.4
HLA-A*33:01	1	491	500	10	SYGFQPTYGV 0.008613	5.4
HLA-A*30:01	1	234	243	10	NITRFQTLHR 0.008612	9.1
HLA-B*08:01	1	548	556	9	VLTESNKKF 0.008609	6.5
HLA-A*02:01	1	980	989	10	RLDKVEAEVQ 0.008607	5.3
HLA-A*31:01	1	891	899	9	LQIPFAMQM 0.008597	6.8
HLA-B*53:01	1	78	86	9	RFANPVLPF 0.008595	3.5
HLA-A*30:02	1	325	333	9	RFPNITNLC 0.008591	6.9
HLA-A*26:01	1	1141	1149	9	ELDSFKEEL 0.008586	3.5
HLA-A*68:01	1	341	349	9	ATRFASVYA 0.008585	7.3
HLA-A*30:01	1	708	717	10	SIAIPTNFTI 0.008581	9.1

HLA-B*57:01	1	151	160	10	SWMESEFRVY 0.008577	6.8
HLA-A*02:03	1	922	931	10	NQFNSAIGKI 0.008574	6.1
HLA-A*30:02	1	481	489	9	KGFNCYFPL 0.008573	6.9
HLA-A*30:02	1	16	24	9	VNLTRTQL 0.008571	6.9
HLA-B*07:02	1	1141	1149	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	441	449	9	KVGGNYNYL 0.008567	5.6
HLA-A*33:01	1	835	844	10	GDCLGDIAAR 0.008567	5.4
HLA-A*30:02	1	547	556	10	GVLTESNKKF 0.008564	6.9
HLA-A*30:01	1	620	628	9	AIHADQLTP 0.008563	9.1
HLA-A*26:01	1	215	223	9	GLPQGFSAL 0.008562	3.5
HLA-A*02:01	1	256	264	9	TAGAAAYYV 0.008561	5.3
HLA-A*02:01	1	273	282	10	LLKYNENGTI 0.008561	5.3
HLA-B*08:01	1	312	320	9	TSNFRVQPT 0.008561	6.5
HLA-B*58:01	1	11	20	10	VSSQCVNLTT 0.00856	4.6
HLA-A*30:01	1	517	525	9	APATVCGPK 0.00856	9.1
HLA-A*02:03	1	451	460	10	RLFRKSNLKP 0.008559	6.1
HLA-B*08:01	1	1041	1049	9	GKGYHLMSF 0.008559	6.5
HLA-B*15:01	1	335	344	10	FGEVFNATRF 0.008558	5.6
HLA-A*32:01	1	785	794	10	IYKTPPIKDF 0.008558	3.8
HLA-A*02:06	1	998	1006	9	LQSLQTYVT 0.008558	7.5
HLA-A*68:01	1	1125	1133	9	VVIGIVNNT 0.00855	7.3
HLA-B*51:01	1	1224	1232	9	IVMVTIMLC 0.008548	6.6
HLA-A*31:01	1	237	246	10	RFQTLHRSYL 0.00854	6.8
HLA-A*31:01	1	1133	1142	10	TVYDPLQPEL 0.00854	6.8
HLA-A*02:06	1	368	376	9	SASFSTFKC 0.008538	7.5
HLA-B*57:01	1	1002	1011	10	QTYVTQQLIR 0.008537	6.8
HLA-B*44:02	1	573	581	9	VRDPQTLEI 0.008535	2.9
HLA-A*33:01	1	41	49	9	KVFRSSVLH 0.008531	5.5
HLA-A*26:01	1	890	899	10	ALQIPFAMQM 0.00853	3.5
HLA-B*40:01	1	624	632	9	DQLTPTWRV 0.008523	3.1
HLA-B*51:01	1	333	342	10	CPFGEVFNAT 0.008522	6.6
HLA-A*02:06	1	410	418	9	GQTGNIADY 0.008522	7.5
HLA-B*58:01	1	381	389	9	PTKLNDLFC 0.008521	4.6
HLA-A*68:02	1	980	988	9	RLDKVEAEV 0.008518	5.5
HLA-B*53:01	1	861	870	10	LLTDEMIAQY 0.008512	3.6
HLA-B*35:01	1	357	365	9	NCVADYSVL 0.008509	4.0
HLA-B*15:01	1	1063	1072	10	TYVPAQEKNF 0.008509	5.7
HLA-A*30:02	1	400	408	9	RGDEVQRQA 0.008507	6.9
HLA-B*51:01	1	714	723	10	NFTISVTTEI 0.008507	6.6
HLA-A*68:02	1	311	320	10	QTSNFRVQPT 0.008504	5.5
HLA-A*30:02	1	775	783	9	TQEVFAQVK 0.008503	6.9
HLA-A*31:01	1	835	844	10	GDCLGDIAAR 0.008499	6.8
HLA-A*30:01	1	1001	1009	9	LQTYVTQQL 0.008499	9.1
HLA-B*40:01	1	76	84	9	TKRFANPVL 0.008498	3.1
HLA-A*33:01	1	1045	1053	9	HLMSEFPQA 0.008498	5.5
HLA-A*68:02	1	686	694	9	SQSIIAYTM 0.008496	5.5
HLA-B*07:02	1	709	717	9	IAIPTNFTI 0.008495	4.2
HLA-A*02:06	1	770	779	10	EQDKNTQEVF 0.008488	7.5
HLA-A*02:06	1	499	508	10	GVGYQPYRVV 0.008486	7.5
HLA-A*30:02	1	879	887	9	ITSGWTFGA 0.00848	7.0
HLA-A*30:01	1	731	739	9	TSVDCTMYI 0.008478	9.2
HLA-A*02:06	1	951	959	9	QNAQALNTL 0.008475	7.5
HLA-A*23:01	1	97	106	10	KSNIIRGWIF 0.008474	3.2
HLA-A*02:03	1	885	893	9	FGAGAALQI 0.008473	6.2
HLA-B*07:02	1	517	526	10	APATVCGPKK 0.008471	4.2
HLA-A*02:06	1	297	305	9	KCTLKSFTV 0.00847	7.5
HLA-B*58:01	1	955	963	9	ALNTLVKQL 0.008469	4.6
HLA-A*68:01	1	251	259	9	SSSGWTAGA 0.008466	7.4
HLA-B*35:01	1	530	538	9	LVKNKCVNF 0.008463	4.0
HLA-A*11:01	1	484	492	9	NCYFPLQSY 0.008462	4.4
HLA-A*02:03	1	854	863	10	GLTVLPPLLT 0.008462	6.2
HLA-A*30:01	1	787	795	9	KTPPIKDFG 0.008452	9.2
HLA-B*07:02	1	414	422	9	NIADYNYKL 0.00845	4.2
HLA-B*35:01	1	365	374	10	LYNSASFSTF 0.008449	4.0

HLA-A*26:01	1	170	179	10	YVSQPFLMDL 0.008444	3.5
HLA-A*68:02	1	421	430	10	KLPDDFTGCV 0.008444	5.5
HLA-B*08:01	1	514	522	9	LLHAPATVC 0.00844	6.6
HLA-A*01:01	1	24	32	9	LPPAYTNSF 0.008439	4.1
HLA-B*15:01	1	507	515	9	VVLSFELL 0.008439	5.7
HLA-A*02:03	1	1219	1228	10	AGLIAIVMVT 0.008434	6.2
HLA-A*24:02	1	184	192	9	GNFKNLREF 0.008431	3.2
HLA-B*57:01	1	777	785	9	EVFAQVKQI 0.008431	6.9
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	857	866	10	VLPLLLTDEM 0.008405	3.2
HLA-A*31:01	1	102	110	9	RGWIFGTTL 0.008404	6.8
HLA-A*02:01	1	695	703	9	SLGVENSVA 0.008395	5.4
HLA-A*68:01	1	569	577	9	TTDAVRDPQ 0.008393	7.4
HLA-A*24:02	1	1083	1092	10	KAHFPREGVF 0.008389	3.2
HLA-A*11:01	1	317	325	9	VQPTESIVR 0.008388	4.4
HLA-B*07:02	1	458	467	10	LKPFERDIST 0.008386	4.2
HLA-A*68:01	1	824	833	10	TLADAGFIKQ 0.008386	7.4
HLA-B*15:01	1	317	325	9	VQPTESIVR 0.008383	5.7
HLA-A*01:01	1	167	175	9	TFEYVSQPF 0.008381	4.2
HLA-A*68:02	1	1105	1114	10	NFYEQIITT 0.00838	5.6
HLA-A*30:01	1	452	461	10	LFRKSNLKP 0.008378	9.2
HLA-B*53:01	1	724	732	9	LPVSMTKTS 0.008374	3.6
HLA-A*23:01	1	1001	1009	9	LQTYVTQQL 0.008373	3.2
HLA-B*08:01	1	696	704	9	LGVENSVA 0.008371	6.6
HLA-A*03:01	1	824	833	10	TLADAGFIKQ 0.008368	5.1
HLA-B*15:01	1	532	540	9	KNKCVNFN 0.008362	5.7
HLA-A*30:01	1	1219	1227	9	AGLIAIVMV 0.008358	9.2
HLA-A*30:01	1	526	535	10	KSTNLVKNKC 0.008355	9.2
HLA-B*51:01	1	1165	1174	10	DISGINASVV 0.008348	6.6
HLA-A*30:01	1	203	211	9	IYSKHTPIN 0.008346	9.3
HLA-A*30:01	1	1216	1224	9	GFIAGLIAI 0.008343	9.3
HLA-A*68:02	1	692	701	10	YTMSLGVENS 0.008338	5.6
HLA-B*57:01	1	992	1001	10	RLITGRLQSL 0.008337	6.9
HLA-A*02:01	1	171	179	9	VSQPFLMDL 0.008336	5.4
HLA-A*02:06	1	364	372	9	VLYNASDFS 0.008336	7.6
HLA-B*57:01	1	1191	1200	10	NESLIDLQEL 0.008336	6.9
HLA-B*08:01	1	464	472	9	DISTEIQQA 0.008334	6.6
HLA-B*15:01	1	71	79	9	SGTNGTKRF 0.008333	5.7
HLA-A*01:01	1	936	944	9	SSTASALGK 0.008333	4.2
HLA-B*08:01	1	565	573	9	DIADTTDAV 0.008328	6.6
HLA-A*11:01	1	195	204	10	KNIDGYFKIY 0.008327	4.4
HLA-B*08:01	1	211	220	10	NLVRGLPQGF 0.008327	6.6
HLA-B*51:01	1	604	612	9	QVAVLYQGV 0.008327	6.6
HLA-A*30:01	1	795	803	9	GGFNFSQIL 0.008323	9.3
HLA-A*11:01	1	1090	1098	9	GVFVSNQTH 0.008323	4.4
HLA-B*51:01	1	1141	1149	9	ELDSFKEEL 0.008323	6.7
HLA-B*51:01	1	24	33	10	LPPAYTNSFT 0.008318	6.7
HLA-B*58:01	1	972	981	10	SVLNDILSRL 0.008316	4.7
HLA-B*57:01	1	144	153	10	YYHKNNKSWM 0.008311	6.9
HLA-A*02:06	1	1018	1026	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	SSQCVNLTTR 0.008297	5.1
HLA-A*02:06	1	580	589	10	EILDITPCSF 0.008297	7.6
HLA-A*02:06	1	390	399	10	TNVYADSFVI 0.008291	7.6
HLA-B*53:01	1	554	562	9	KKFLPFQF 0.008288	3.6
HLA-A*23:01	1	1212	1221	10	YIWLGFIAGL 0.008286	3.2
HLA-A*68:01	1	135	144	10	FCNDPFLGVY 0.008285	7.4
HLA-B*51:01	1	1078	1086	9	ICHDGKAHF 0.008285	6.7
HLA-A*02:06	1	989	998	10	QIDRLITGRL 0.008284	7.6
HLA-A*30:02	1	63	71	9	TWFHAIHVS 0.008283	7.1
HLA-A*30:01	1	365	373	9	LYNSASFST 0.008282	9.3
HLA-B*44:03	1	1254	1263	10	DEDDSEPVLK 0.008282	3.1
HLA-A*31:01	1	481	489	9	KGFNCYFPL 0.008281	6.9
HLA-A*02:03	1	975	984	10	NDILSRLDKV 0.008279	6.2
HLA-A*32:01	1	826	834	9	ADAGFIKQY 0.008272	3.8

HLA-A*02:03	1	607	616	10	VLYQGVNCTE 0.008271	6.2
HLA-A*30:01	1	40	49	10	DKVFRSSVLH 0.008266	9.3
HLA-A*33:01	1	707	715	9	NSIAIPTNF 0.008266	5.5
HLA-B*15:01	1	922	930	9	NQFNSAIGK 0.008265	5.7
HLA-A*68:01	1	125	133	9	NVVIKVECF 0.008263	7.4
HLA-A*02:06	1	4	12	9	FLVLLPLVS 0.008256	7.6
HLA-A*23:01	1	843	852	10	ARDLICAQKF 0.008254	3.2
HLA-A*30:01	1	934	942	9	SLSSTASAL 0.008254	9.3
HLA-B*44:02	1	236	245	10	TRFQTLHRSY 0.008245	2.9
HLA-A*30:02	1	673	681	9	TQTNSPRRA 0.008242	7.1
HLA-A*68:02	1	461	469	9	FERDISTEI 0.008241	5.6
HLA-B*44:02	1	294	302	9	SETKCTLKS 0.00824	2.9
HLA-A*23:01	1	229	238	10	LPIGINITRF 0.008238	3.2
HLA-B*35:01	1	777	785	9	EVFAQVKQI 0.008233	4.0
HLA-A*33:01	1	976	984	9	DILSRLDKV 0.008231	5.5
HLA-B*51:01	1	1185	1194	10	EVAKNLNESL 0.008229	6.7
HLA-B*51:01	1	3	11	9	VFLVLLPLV 0.008226	6.7
HLA-B*57:01	1	948	956	9	VVNQNAQAL 0.008225	7.0
HLA-A*23:01	1	447	455	9	NYLYRLEFRK 0.008224	3.2
HLA-B*08:01	1	342	350	9	TRFASVYAW 0.008222	6.7
HLA-B*51:01	1	1098	1106	9	HWFVTQRNF 0.008217	6.7
HLA-B*51:01	1	951	959	9	QNAQALNTL 0.008216	6.7
HLA-A*30:02	1	308	316	9	GIYQTSNFR 0.008215	7.1
HLA-A*30:01	1	94	103	10	STEKSNIIRG 0.008213	9.4
HLA-B*58:01	1	1144	1152	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	861	870	10	LLTDEMIAQY 0.008198	5.1
HLA-A*30:01	1	751	759	9	LQYGSFCTQ 0.008196	9.4
HLA-A*02:03	1	168	176	9	FEYVSQPFL 0.008195	6.3
HLA-A*02:06	1	673	681	9	TQTNSPRRA 0.008195	7.6
HLA-A*68:01	1	938	946	9	TASALGKLQ 0.008193	7.4
HLA-A*02:01	1	940	949	10	SALGKLQDVV 0.008193	5.5
HLA-A*30:02	1	918	927	10	KLIANQFNFA 0.00819	7.1
HLA-A*32:01	1	152	160	9	WMESEFRVY 0.008185	3.9
HLA-A*68:02	1	862	870	9	LTDEMIAQY 0.008184	5.6
HLA-A*02:01	1	315	324	10	FRVQPTESIV 0.008181	5.5
HLA-A*23:01	1	485	493	9	CYFPLQSYG 0.008179	3.2
HLA-A*33:01	1	303	311	9	FTVEKGIYQ 0.008176	5.5
HLA-A*32:01	1	1204	1213	10	EQYIKWPWYI 0.008175	3.9
HLA-A*30:01	1	229	237	9	LPIGINITR 0.008174	9.4
HLA-B*53:01	1	1083	1092	10	KAHFPREGVF 0.008171	3.6
HLA-B*08:01	1	997	1005	9	RLQSLQTYV 0.008169	6.7
HLA-B*08:01	1	883	891	9	WTFGAGAAL 0.008168	6.7
HLA-A*33:01	1	865	873	9	EMIAQY TSA 0.008165	5.5
HLA-B*08:01	1	585	594	10	TPCSFGGVSU 0.00816	6.7
HLA-B*15:01	1	299	307	9	TLKSFTVEK 0.008154	5.8
HLA-A*02:01	1	1002	1010	9	QTYVTQQLI 0.008154	5.5
HLA-A*23:01	1	133	141	9	FQFCNDPFL 0.008153	3.2
HLA-B*08:01	1	1083	1092	10	KAHFPREGVF 0.008151	6.7
HLA-B*40:01	1	131	140	10	CEFQFCNDPF 0.00815	3.1
HLA-B*08:01	1	233	242	10	INITRFQTLH 0.008147	6.7
HLA-B*51:01	1	872	880	9	SALLAGTIT 0.008147	6.7
HLA-A*30:01	1	939	948	10	ASALGKLQDV 0.008147	9.4
HLA-B*51:01	1	866	875	10	MIAQYTSALL 0.008146	6.7
HLA-B*08:01	1	1085	1093	9	HFPREGVVF 0.008146	6.7
HLA-A*31:01	1	325	333	9	RFPNITNLC 0.008143	6.9
HLA-A*26:01	1	2	10	9	FVFLVLLPL 0.008142	3.6
HLA-A*68:02	1	367	375	9	NSASFSTFK 0.008142	5.6
HLA-B*53:01	1	20	28	9	TRTQLPPAY 0.00814	3.6
HLA-A*30:01	1	372	381	10	STFKCYGVSP 0.008137	9.4
HLA-B*08:01	1	237	245	9	RFQTLHRSY 0.008135	6.7
HLA-A*31:01	1	572	580	9	AVRDPQTL 0.008129	6.9
HLA-B*15:01	1	790	799	10	PIKDFGGFNF 0.008129	5.8
HLA-A*30:01	1	523	531	9	GPKKSTNLV 0.008127	9.4
HLA-A*68:02	1	191	200	10	EFVFKNIDGY 0.008126	5.6

HLA-A*03:01	1	308	317	10	GIYQTSNFRV 0.008124	5.1
HLA-B*15:01	1	625	634	10	QLTPTWRVYS 0.008124	5.8
HLA-A*30:01	1	807	815	9	SKPSKRSFI 0.008123	9.4
HLA-A*30:02	1	150	158	9	KSWMESEFR 0.008122	7.2
HLA-A*01:01	1	774	783	10	NTQEVFAQVK 0.008118	4.2
HLA-B*58:01	1	483	492	10	FNCYFPLQSY 0.008116	4.7
HLA-A*68:02	1	472	480	9	AGSTPCNGV 0.008115	5.6
HLA-B*58:01	1	875	884	10	LAGTITSGWT 0.008114	4.7
HLA-B*40:01	1	266	274	9	YLQPRTFLL 0.008108	3.1
HLA-B*53:01	1	462	470	9	ERDISTEY 0.008102	3.7
HLA-A*30:02	1	60	68	9	SNVTWFHAI 0.008101	7.2
HLA-A*02:01	1	378	387	10	GVSPKLNLDL 0.008099	5.5
HLA-A*02:03	1	873	882	10	ALLAGTITSG 0.008093	6.3
HLA-A*11:01	1	1008	1016	9	QLIRAAEIR 0.008091	4.5
HLA-A*02:06	1	134	143	10	QFCNDPFLGV 0.00809	7.7
HLA-A*23:01	1	449	458	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	729	738	10	TKTSVDCTMY 0.008078	7.5
HLA-A*24:02	1	447	455	9	NYLYRLFRK 0.00807	3.2
HLA-B*57:01	1	1244	1253	10	CCSCGSCCKF 0.008069	7.0
HLA-A*26:01	1	46	54	9	SVLHSTQDL 0.008067	3.6
HLA-A*02:03	1	289	298	10	ALDPLSETKC 0.008065	6.3
HLA-A*68:02	1	728	736	9	MTKTSVDCT 0.008064	5.7
HLA-B*07:02	1	817	825	9	DLLFNKVTL 0.008063	4.3
HLA-B*57:01	1	890	899	10	ALQIPFAMQM 0.008063	7.0
HLA-B*35:01	1	1086	1095	10	FPREGVFVSN 0.008063	4.1
HLA-A*02:06	1	281	289	9	TITDAVDCA 0.008058	7.7
HLA-A*33:01	1	366	375	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	823	831	9	VTLADAGFI 0.008052	7.7
HLA-A*26:01	1	933	942	10	DSLSSTASAL 0.008052	3.7
HLA-A*31:01	1	1011	1019	9	RAAEIRASA 0.008052	7.0
HLA-A*23:01	1	506	514	9	RVVVLSFEL 0.008045	3.3
HLA-B*07:02	1	84	93	10	LPFNDGVYFA 0.008041	4.3
HLA-A*24:02	1	314	323	10	NFRVQPTESI 0.008039	3.3
HLA-B*08:01	1	794	802	9	FGGFNFSQI 0.008039	6.8
HLA-A*02:06	1	1001	1010	10	LQTYVTQQLI 0.008036	7.7
HLA-A*03:01	1	1045	1053	9	HLMSSFQSA 0.008036	5.1
HLA-A*26:01	1	1125	1134	10	VVIGIVNNTV 0.008034	3.7
HLA-A*30:02	1	940	948	9	SALGKLQDV 0.008031	7.2
HLA-A*26:01	1	247	255	9	TPGDSSSGW 0.008029	3.7
HLA-B*07:02	1	1092	1100	9	FVSNNGTHWF 0.008029	4.3
HLA-A*30:01	1	527	536	10	STNLVKNCV 0.008028	9.5
HLA-A*23:01	1	90	98	9	VYFASTEKS 0.008024	3.3
HLA-B*08:01	1	550	559	10	TESNKKFLPF 0.008021	6.8
HLA-B*44:02	1	698	706	9	VENSVAYSN 0.008018	3.0
HLA-B*15:01	1	1017	1026	10	ASANLAATKM 0.008018	5.8
HLA-B*58:01	1	56	65	10	LPFFSNVTWF 0.008017	4.8
HLA-A*30:01	1	994	1003	10	ITGRLQSLQT 0.008017	9.5
HLA-A*26:01	1	237	245	9	RFQTLHRSY 0.008014	3.7
HLA-B*58:01	1	375	383	9	KCYGVSPTK 0.008014	4.8
HLA-B*53:01	1	50	59	10	STQDLFLPFF 0.008013	3.7
HLA-B*07:02	1	341	349	9	ATRFASVYA 0.008007	4.3
HLA-A*24:02	1	639	648	10	VFQTRAGCLI 0.008007	3.3
HLA-A*33:01	1	236	245	10	TRFQTLHRSY 0.008004	5.6
HLA-A*02:01	1	102	110	9	RGWIFGTTL 0.007997	5.5
HLA-B*40:01	1	883	891	9	WTFGAGAAL 0.007992	3.1
HLA-A*23:01	1	1109	1118	10	PQIITTDNTF 0.00799	3.3
HLA-A*03:01	1	268	276	9	QPRTFLLKY 0.007986	5.1
HLA-B*57:01	1	1030	1039	10	VLGQSKRVDF 0.007983	7.1
HLA-B*51:01	1	216	224	9	LPQGFSALE 0.007977	6.8
HLA-A*24:02	1	365	373	9	LYNSASFST 0.007971	3.3
HLA-A*32:01	1	719	728	10	VTTEILPVSM 0.007971	3.9

HLA-A*32:01	1	800	808	9	SQILPDPSK	0.007967	3.9
HLA-B*07:02	1	326	334	9	FPNITNLCP	0.007964	4.3
HLA-A*30:01	1	656	665	10	SYECDIPIGA	0.007963	9.5
HLA-A*01:01	1	811	820	10	KRSFIEDLLF	0.007961	4.3
HLA-A*32:01	1	29	38	10	TNSFTRGVVY	0.00796	3.9
HLA-A*68:01	1	1027	1035	9	SECVLGQSK	0.007959	7.5
HLA-B*58:01	1	885	893	9	FGAGAALQI	0.007953	4.8
HLA-A*23:01	1	27	36	10	AYTNSFTRGV	0.007951	3.3
HLA-A*02:06	1	1064	1072	9	YVPAQEKNF	0.007947	7.8
HLA-B*07:02	1	684	692	9	VASQSIIAY	0.007944	4.3
HLA-A*32:01	1	486	494	9	YFPLQSYGF	0.007938	3.9
HLA-B*51:01	1	823	831	9	VTLADAGFI	0.007937	6.8
HLA-A*02:03	1	1051	1060	10	QSAPHGVVFL	0.007936	6.4
HLA-A*23:01	1	1207	1215	9	IKWPWYIWL	0.007934	3.3
HLA-B*51:01	1	59	68	10	FSNVTWFHAI	0.00793	6.8
HLA-A*02:06	1	358	366	9	CVADYSVLY	0.00793	7.8
HLA-A*31:01	1	683	692	10	SVASQSIIAY	0.00793	7.0
HLA-A*32:01	1	494	502	9	FQPTYGVGY	0.007928	3.9
HLA-B*51:01	1	1005	1013	9	VTQQLIRAA	0.007928	6.8
HLA-A*68:02	1	118	127	10	LIVNNATNVV	0.007926	5.7
HLA-B*51:01	1	865	873	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	1004	1012	9	YVTQQLIRA	0.007917	3.7
HLA-B*35:01	1	1045	1053	9	HLMSFPQSA	0.007914	4.1
HLA-B*44:03	1	366	374	9	YNSASFSTF	0.007909	3.2
HLA-A*01:01	1	1051	1060	10	QSAPHGVVFL	0.007909	4.3
HLA-A*26:01	1	1124	1133	10	DVVIGIVNNT	0.007909	3.7
HLA-B*44:02	1	30	38	9	NSFTRGVVY	0.007905	3.0
HLA-A*02:06	1	905	913	9	GIGVTQNVL	0.007904	7.8
HLA-A*02:01	1	874	882	9	LLAGTITSG	0.007902	5.6
HLA-B*58:01	1	822	831	10	KVTLADAGFI	0.007901	4.8
HLA-A*68:02	1	440	449	10	SKVGGNYNYL	0.007895	5.7
HLA-A*02:01	1	750	758	9	LLQYGSFCT	0.007895	5.6
HLA-B*57:01	1	688	696	9	SIAYTMSL	0.007893	7.1
HLA-A*02:03	1	1186	1194	9	VAKNLNESL	0.007893	6.4
HLA-B*07:02	1	264	273	10	VGYLQPRFVL	0.007891	4.3
HLA-B*51:01	1	309	317	9	IYQTSNFRV	0.007888	6.8
HLA-B*08:01	1	572	581	10	AVRDPQTLEI	0.007888	6.8
HLA-A*30:02	1	113	121	9	KTQSLLIVN	0.007887	7.3
HLA-A*32:01	1	817	825	9	DLLFNKVTL	0.007882	4.0
HLA-B*53:01	1	817	825	9	DLLFNKVTL	0.007882	3.7
HLA-B*44:02	1	467	476	10	TEIYQAGSTP	0.007879	3.0
HLA-A*68:02	1	163	171	9	ANNCTFEYV	0.007877	5.7
HLA-A*30:02	1	728	737	10	MTKTSVDCTM	0.007877	7.3
HLA-A*30:01	1	671	680	10	YQTQTNSPRR	0.007876	9.6
HLA-A*30:01	1	244	253	10	SYLTPGDSSS	0.007875	9.6
HLA-A*11:01	1	936	945	10	SSTASALGKL	0.007874	4.5
HLA-A*31:01	1	341	349	9	ATRFASVYA	0.007873	7.0
HLA-A*03:01	1	392	400	9	VYADSFVIR	0.007873	5.2
HLA-B*44:03	1	744	752	9	TECSNLLLQ	0.007873	3.2
HLA-A*11:01	1	1057	1065	9	VVFLHVTVY	0.007871	4.5
HLA-A*33:01	1	1165	1173	9	DISGINASV	0.007871	5.6
HLA-A*30:02	1	418	426	9	YNYKLPDDF	0.00787	7.3
HLA-A*30:01	1	890	898	9	ALQIPFAMQ	0.007861	9.6
HLA-A*32:01	1	1051	1060	10	QSAPHGVVFL	0.007861	4.0
HLA-A*68:01	1	1071	1080	10	NFTTAPAICH	0.007857	7.5
HLA-A*31:01	1	877	885	9	GTITSGWTF	0.007856	7.0
HLA-B*15:01	1	183	192	10	QGNFKNLREF	0.007855	5.9
HLA-A*30:01	1	873	881	9	ALLAGTITS	0.007855	9.6
HLA-A*30:01	1	851	860	10	KFNGLTVLPP	0.007854	9.6
HLA-A*24:02	1	60	68	9	SNVTWFHAI	0.007853	3.3
HLA-A*68:01	1	318	326	9	QPTESIVRF	0.007852	7.5
HLA-A*02:01	1	1049	1057	9	FPQSAPHGV	0.007851	5.6
HLA-B*35:01	1	888	897	10	GAALQIPFAM	0.007849	4.1
HLA-A*30:02	1	54	62	9	LFLPFFSNV	0.007842	7.3
HLA-A*26:01	1	1098	1107	10	HWFVTQRNFY	0.007833	3.7

HLA-A*11:01	1	234	243	10	NITRFQTLHR 0.007825	4.5
HLA-A*30:02	1	1133	1141	9	TVYDPLQPE 0.007823	7.3
HLA-B*08:01	1	1078	1086	9	ICHDGKAHF 0.007819	6.9
HLA-A*33:01	1	151	159	9	SWMESEFRV 0.007816	5.7
HLA-A*30:01	1	499	507	9	GVGYQPYRV 0.007815	9.6
HLA-A*30:01	1	1015	1023	9	IRASANLAA 0.00781	9.6
HLA-B*53:01	1	487	495	9	FPLQSYGFQ 0.007809	3.7
HLA-A*26:01	1	367	375	9	NSASFSTFK 0.007804	3.7
HLA-B*07:02	1	1185	1194	10	EVAKNLNESL 0.0078	4.3
HLA-A*02:01	1	731	739	9	TSVDCTMYI 0.007797	5.6
HLA-B*58:01	1	330	339	10	TNLCPFGEVF 0.007795	4.8
HLA-B*35:01	1	1085	1094	10	HFPREGVFVS 0.007795	4.1
HLA-B*35:01	1	236	245	10	TRFQTLHRSY 0.007794	4.1
HLA-A*03:01	1	368	377	10	SASFSTFKCY 0.007789	5.2
HLA-A*02:01	1	897	906	10	MQMAYRFNGI 0.007788	5.6
HLA-B*58:01	1	636	644	9	GSNVFQTRA 0.007782	4.8
HLA-A*23:01	1	688	696	9	SIAYTMSL 0.00778	3.3
HLA-B*58:01	1	1023	1031	9	ATKMSECVL 0.007779	4.8
HLA-A*30:02	1	414	422	9	NIADYNYKL 0.007778	7.3
HLA-B*53:01	1	1052	1060	9	SAPHGVVFL 0.007777	3.7
HLA-B*35:01	1	1011	1019	9	RAAEIRASA 0.007775	4.1
HLA-A*30:01	1	957	965	9	NLTVKQLSS 0.007774	9.7
HLA-A*11:01	1	743	752	10	STECNLLLQ 0.007772	4.6
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	1011	1019	9	RAAEIRASA 0.007764	7.6
HLA-A*23:01	1	445	454	10	NYNYLYRLFR 0.007762	3.3
HLA-A*32:01	1	1213	1221	9	IWLGFIAGL 0.007759	4.0
HLA-B*57:01	1	368	376	9	SASFSTFKC 0.00775	7.2
HLA-B*57:01	1	357	366	10	NCVADYSVLY 0.007743	7.2
HLA-A*02:06	1	538	546	9	FNFNGLTGT 0.007739	7.9
HLA-A*02:01	1	937	945	9	STASALGKL 0.007739	5.7
HLA-A*33:01	1	1071	1080	10	NFTTAPAICH 0.007739	5.7
HLA-B*08:01	1	1067	1075	9	AQEKNFTTA 0.007738	6.9
HLA-B*51:01	1	212	220	9	LVRGLPQGF 0.007737	6.9
HLA-B*57:01	1	717	726	10	ISVTTEILPV 0.007736	7.2
HLA-B*08:01	1	93	101	9	ASTEKSNI 0.007734	6.9
HLA-A*30:02	1	261	269	9	AYYVGYLQP 0.007733	7.4
HLA-A*33:01	1	53	62	10	DLFLPFFSNV 0.007732	5.7
HLA-B*44:03	1	1027	1036	10	SECVLGQSKR 0.00773	3.2
HLA-A*32:01	1	167	175	9	TFEYVSQPF 0.007727	4.0
HLA-A*02:06	1	986	994	9	AEVQIDRLI 0.007724	7.9
HLA-A*30:02	1	702	710	9	VAYSNNSIA 0.007716	7.4
HLA-B*08:01	1	462	470	9	ERDISTEII 0.007711	6.9
HLA-B*08:01	1	512	520	9	FELLHAPAT 0.007704	6.9
HLA-A*32:01	1	573	581	9	VRDPQTLEI 0.007704	4.0
HLA-A*30:02	1	594	602	9	VITPGTNTS 0.007704	7.4
HLA-A*30:02	1	1206	1214	9	YIKWPWYIW 0.007704	7.4
HLA-A*02:06	1	822	830	9	KVTLADAGF 0.007701	7.9
HLA-B*35:01	1	1170	1178	9	NASVVNIQK 0.007698	4.2
HLA-B*35:01	1	92	100	9	FASTEKSNI 0.007697	4.2
HLA-A*02:06	1	578	587	10	TLEILDITPC 0.007697	7.9
HLA-A*32:01	1	730	739	10	KTSVDCTMYI 0.007697	4.0
HLA-B*08:01	1	980	988	9	RLDKVEAEV 0.007697	6.9
HLA-A*02:01	1	1213	1221	9	IWLGFIAGL 0.007697	5.7
HLA-B*51:01	1	91	100	10	YFASTEKSNI 0.007696	6.9
HLA-B*08:01	1	1110	1118	9	QIITTDNTF 0.007691	6.9
HLA-A*24:02	1	532	540	9	KNKCVNFNF 0.007689	3.3
HLA-A*02:06	1	919	928	10	LIANQFNSAI 0.007688	7.9
HLA-B*51:01	1	903	912	10	FNGIGVTQNV 0.007684	6.9
HLA-B*58:01	1	1001	1009	9	LQTYVTQQL 0.007684	4.9
HLA-A*68:01	1	623	631	9	ADQLTPTWR 0.007683	7.6
HLA-B*15:01	1	662	671	10	PIGAGICASY 0.007668	5.9
HLA-B*44:03	1	777	786	10	EVFAQVKQIY 0.007668	3.2
HLA-A*02:03	1	92	100	9	FASTEKSNI 0.007663	6.5



HLA-A*26:01	1	638	647	10	NVFQTRAGCL 0.007663	3.8
HLA-A*02:01	1	758	767	10	TQLNRALTGI 0.007661	5.7
HLA-A*23:01	1	323	332	10	IVRFPNITNL 0.007657	3.4
HLA-A*30:01	1	866	874	9	MIAQYTSAL 0.007656	9.8
HLA-A*23:01	1	211	220	10	NLVRGLPQGF 0.007653	3.4
HLA-A*24:02	1	185	193	9	NFKNLREFV 0.007646	3.3
HLA-A*30:01	1	755	763	9	SFCTQLNRA 0.007644	9.8
HLA-A*68:02	1	683	692	10	SVASQSIIAY 0.007637	5.8
HLA-A*30:02	1	501	509	9	GYQPYRVVV 0.007634	7.4
HLA-A*68:02	1	573	581	9	VRDPQTLEI 0.007634	5.8
HLA-A*68:01	1	965	973	9	SNFGAISSV 0.007634	7.6
HLA-A*23:01	1	1078	1086	9	ICHDGKAHF 0.007633	3.4
HLA-A*30:02	1	499	507	9	GVGYQPYRV 0.007628	7.5
HLA-B*44:02	1	1146	1154	9	KEELDKYFK 0.007628	3.0
HLA-B*51:01	1	399	407	9	IRGDEVRI 0.007623	7.0
HLA-A*02:01	1	457	465	9	NLKPFERDI 0.007623	5.7
HLA-A*68:01	1	568	577	10	DTTDAVRDPQ 0.007623	7.6
HLA-A*30:02	1	317	325	9	VQPTESIVR 0.00762	7.5
HLA-B*08:01	1	1253	1262	10	FDEDDSEPLV 0.007618	7.0
HLA-A*02:01	1	219	227	9	GFSALEPLV 0.007617	5.7
HLA-B*07:02	1	324	332	9	VRFPNITNL 0.007617	4.4
HLA-B*51:01	1	615	623	9	TEVPVAIHA 0.007616	7.0
HLA-B*08:01	1	840	848	9	DIAARDLIC 0.007615	7.0
HLA-A*30:01	1	920	928	9	IANQFNSAI 0.007615	9.8
HLA-A*26:01	1	1062	1070	9	VTYVPAQEK 0.007608	3.8
HLA-A*68:01	1	186	195	10	FKNLREFVFK 0.007602	7.6
HLA-A*02:06	1	801	809	9	QILPDPSKP 0.0076	7.9
HLA-B*08:01	1	933	942	10	DSLSSTASAL 0.0076	7.0
HLA-A*02:03	1	1205	1213	9	QYIKWPWYI 0.0076	6.5
HLA-A*02:06	1	329	338	10	ITNLCPFGEV 0.007599	7.9
HLA-A*03:01	1	1008	1016	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	282	290	9	ITDAVDCAL 0.007594	7.3
HLA-A*30:02	1	813	822	10	SFIEDLLFNK 0.007591	7.5
HLA-A*68:02	1	1112	1120	9	ITTDNTFVS 0.007587	5.8
HLA-B*40:01	1	826	834	9	ADAGFIKQY 0.007581	3.2
HLA-B*57:01	1	1031	1039	9	LGQSKRVDF 0.007574	7.3
HLA-A*32:01	1	1186	1194	9	VAKNLNESL 0.007574	4.0
HLA-B*58:01	1	948	956	9	VVNQNAQAL 0.007573	4.9
HLA-A*30:02	1	824	832	9	TLADAGFIK 0.007572	7.5
HLA-A*02:06	1	763	771	9	ALTGIAVEQ 0.007571	8.0
HLA-B*40:01	1	889	897	9	AALQIPFAM 0.00757	3.2
HLA-A*03:01	1	1142	1151	10	LDSFKEELDK 0.00757	5.3
HLA-B*57:01	1	444	453	10	GNYNLYRLF 0.007569	7.3
HLA-B*57:01	1	478	487	10	NGVKGFNCYF 0.007568	7.3
HLA-A*02:06	1	1049	1058	10	FPQSAPHGVV 0.00756	8.0
HLA-B*58:01	1	506	515	10	RVVLSFELL 0.007559	4.9
HLA-A*30:02	1	22	30	9	TQLPPAYTN 0.007553	7.5
HLA-B*53:01	1	503	511	9	QPYRVVVLV 0.00755	3.8
HLA-A*68:02	1	228	237	10	DLPIGINITR 0.007548	5.9
HLA-A*02:01	1	945	953	9	LQDVVNQNA 0.007548	5.7
HLA-A*30:01	1	503	512	10	QPYRVVLSF 0.007544	9.9
HLA-A*31:01	1	752	760	9	QYGSFCTQL 0.007542	7.2
HLA-A*30:02	1	550	559	10	TESNKKFLPF 0.007534	7.5
HLA-A*68:01	1	1185	1194	10	EVAKNLNESL 0.007532	7.6
HLA-A*68:02	1	549	557	9	LTESNKKFL 0.00753	5.9
HLA-A*30:02	1	718	726	9	SVTTEILPV 0.00753	7.5
HLA-A*30:02	1	1104	1113	10	RNFYEPQIIT 0.007529	7.5
HLA-B*08:01	1	1206	1215	10	YIKWPWYIWL 0.007527	7.0
HLA-A*26:01	1	1061	1070	10	HVTYVPAQEK 0.007523	3.8
HLA-B*51:01	1	162	170	9	SANNCTFEY 0.007522	7.0
HLA-A*30:02	1	593	602	10	SVITPGTNTS 0.00752	7.5
HLA-A*02:03	1	920	928	9	IANQFNSAI 0.007516	6.5
HLA-A*30:01	1	348	356	9	YAWNKRKRIS 0.007514	9.9
HLA-A*30:02	1	105	113	9	IFGTTLDSK 0.007512	7.5

HLA-B*51:01	1	841	849	9	IAARDLICA 0.00751	7.0
HLA-A*24:02	1	361	369	9	DYSVLYNSA 0.007507	3.4
HLA-B*08:01	1	47	55	9	VLHSTQDLF 0.007503	7.0
HLA-A*02:03	1	905	913	9	GIGVTQNVL 0.007501	6.5
HLA-A*32:01	1	550	559	10	TESNKKFLPF 0.0075	4.1
HLA-A*23:01	1	58	66	9	FFSNVTWFH 0.007495	3.4
HLA-B*57:01	1	79	87	9	FANPVLPFN 0.007495	7.3
HLA-A*30:01	1	1010	1019	10	IRAAEIRASA 0.007495	9.9
HLA-A*30:02	1	193	202	10	VFKNIDGYFK 0.007494	7.5
HLA-A*23:01	1	884	893	10	TFGAGAALQI 0.007492	3.4
HLA-A*68:02	1	659	667	9	CDIPIGAGI 0.007491	5.9
HLA-A*30:01	1	983	992	10	KVEAEVQIDR 0.007491	9.9
HLA-A*33:01	1	450	459	10	YRLFRKSNLK 0.007482	5.7
HLA-A*02:03	1	1171	1180	10	ASVVNIQKEI 0.007481	6.5
HLA-A*11:01	1	105	113	9	IFGTTLDSK 0.007479	4.6
HLA-A*30:01	1	517	526	10	APATVCGPKK 0.007478	9.9
HLA-A*68:02	1	877	885	9	GTITSGWTF 0.007478	5.9
HLA-A*11:01	1	826	834	9	ADAGFIKQY 0.007476	4.6
HLA-B*51:01	1	267	276	10	LQPRTFLLKY 0.007474	7.0
HLA-A*01:01	1	422	430	9	LPDDFTGCV 0.007472	4.4
HLA-B*07:02	1	441	449	9	KVGGNYNYL 0.007472	4.4
HLA-A*30:02	1	969	977	9	AISSVLNDI 0.007464	7.6
HLA-B*53:01	1	81	90	10	NPVLPFNDGV 0.00746	3.8
HLA-B*53:01	1	282	290	9	ITDAVDCAL 0.00746	3.8
HLA-A*31:01	1	489	498	10	LQSYGFQPTY 0.00746	7.2
HLA-B*35:01	1	952	960	9	NAQALNTLV 0.007459	4.2
HLA-A*68:02	1	840	849	10	DIAARDLICA 0.007458	5.9
HLA-A*30:01	1	902	911	10	RFNGIGVTQN 0.007458	9.9
HLA-A*30:01	1	445	454	10	NYNYLYRLFR 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	445	453	9	NYNYLYRLF 0.007448	4.2
HLA-A*26:01	1	464	472	9	DISTEIQQA 0.00744	3.8
HLA-B*57:01	1	378	387	10	GVSPTKLNDL 0.007437	7.4
HLA-B*15:01	1	108	117	10	TTLDSKTQSL 0.007436	6.0
HLA-A*68:01	1	601	610	10	TSNOQAVLYQ 0.007436	7.7
HLA-A*30:02	1	385	393	9	NDLCFTNVY 0.007434	7.6
HLA-A*30:01	1	351	359	9	NRKRISNCV 0.007433	9.9
HLA-B*58:01	1	492	500	9	YGFQPTYGV 0.007433	5.0
HLA-B*07:02	1	1084	1092	9	AHFPREGVF 0.007433	4.4
HLA-A*68:02	1	125	133	9	NVVIKVFCE 0.007432	5.9
HLA-A*30:02	1	354	363	10	RISNCVADYS 0.007432	7.6
HLA-B*53:01	1	19	28	10	TTRTQLPPAY 0.00743	3.8
HLA-B*57:01	1	235	243	9	ITRFQTLHR 0.007428	7.4
HLA-A*24:02	1	91	100	10	YFASTEKSNI 0.007425	3.4
HLA-B*57:01	1	634	643	10	STGSNVFQTR 0.007424	7.4
HLA-A*02:03	1	134	143	10	QFCNDPFLGV 0.00742	6.6
HLA-A*23:01	1	624	632	9	DQLTPTWRV 0.00742	3.4
HLA-A*32:01	1	289	297	9	ALDPLSETK 0.007419	4.1
HLA-B*58:01	1	508	516	9	VVLSFELLH 0.007413	5.0
HLA-A*31:01	1	909	918	10	TQNVLYENQK 0.007413	7.2
HLA-B*08:01	1	37	45	9	YYPDKVFRS 0.007412	7.1
HLA-B*44:03	1	893	901	9	IPFAMQMAY 0.007412	3.3
HLA-A*32:01	1	1011	1019	9	RAAEIRASA 0.007411	4.1
HLA-A*02:06	1	211	220	10	NLVRGLPQGF 0.007409	8.1
HLA-A*68:02	1	500	508	9	VGYPYRVV 0.007409	5.9
HLA-A*11:01	1	158	166	9	RVYSSANNC 0.007406	4.6
HLA-B*44:03	1	1053	1061	9	APHGVVFLH 0.007405	3.3
HLA-B*08:01	1	897	906	10	MQMAYRFNGI 0.007403	7.1
HLA-B*57:01	1	674	682	9	QTNSPRRAR 0.007395	7.4
HLA-B*57:01	1	1222	1231	10	IAIVMVTIML 0.00739	7.4
HLA-A*31:01	1	493	502	10	GFQPTYGVGY 0.007389	7.2
HLA-A*01:01	1	171	179	9	VSQPFLMDL 0.007384	4.5
HLA-A*01:01	1	672	680	9	QTQTNSPRR 0.007383	4.5
HLA-B*58:01	1	270	278	9	RTFLLKYNE 0.007378	5.0
HLA-B*08:01	1	950	959	10	NQNAQALNTL 0.007376	7.1

HLA-B*15:01	1	671	679	9	YQTQTNSPR 0.007375	6.1
HLA-A*30:01	1	252	260	9	SSGWTAGAA 0.007372	10
HLA-A*32:01	1	270	278	9	RTFLLKYNE 0.00737	4.1
HLA-A*32:01	1	1125	1134	10	VVIGIVNNTV 0.007369	4.1
HLA-A*30:02	1	6	14	9	VLLPLVSSQ 0.007368	7.6
HLA-A*24:02	1	670	678	9	SYQTQTNSP 0.007367	3.4
HLA-A*23:01	1	474	483	10	STPCNGVKGF 0.00736	3.4
HLA-B*07:02	1	1045	1053	9	HLMSFPQSA 0.007356	4.5
HLA-B*58:01	1	1260	1269	10	PVLKGVKLHY 0.007354	5.0
HLA-A*32:01	1	1017	1025	9	ASANLAATK 0.007353	4.1
HLA-A*02:01	1	687	696	10	QSIIAYTMSL 0.007348	5.8
HLA-A*26:01	1	951	959	9	QNAQALNTL 0.007348	3.9
HLA-A*03:01	1	121	129	9	NNATNVVIK 0.007346	5.3
HLA-A*02:03	1	1206	1215	10	YIKWPWYIWL 0.007346	6.6
HLA-A*68:01	1	1110	1118	9	QIITTDNTF 0.007345	7.7
HLA-A*32:01	1	97	105	9	KSNIIRGWI 0.007344	4.1
HLA-B*57:01	1	1206	1215	10	YIKWPWYIWL 0.007344	7.4
HLA-A*01:01	1	1179	1187	9	EIDRLNEVA 0.007341	4.5
HLA-B*44:02	1	656	665	10	SYECDIPIGA 0.007339	3.1
HLA-B*57:01	1	719	727	9	VTTEILPVS 0.007339	7.4
HLA-B*44:02	1	891	899	9	LQIPFAMQM 0.007336	3.1
HLA-A*11:01	1	1051	1059	9	QSAPHGVVF 0.007336	4.7
HLA-A*02:03	1	1213	1221	9	IWLGFIAGL 0.007332	6.6
HLA-A*26:01	1	812	820	9	RSFIEDLLF 0.007327	3.9
HLA-A*02:06	1	817	826	10	DLLFNKVTLA 0.007327	8.1
HLA-A*26:01	1	964	973	10	SSNFGAISSV 0.007327	3.9
HLA-B*44:03	1	826	835	10	ADAGFIKQYG 0.007321	3.3
HLA-A*03:01	1	972	981	10	SVLNDILSRL 0.00732	5.3
HLA-A*01:01	1	434	442	9	NSNNLDSKV 0.007317	4.5
HLA-A*30:02	1	803	811	9	LPDPSKPSK 0.007315	7.6
HLA-A*32:01	1	1198	1206	9	QELGKYEYQ 0.007315	4.1
HLA-A*03:01	1	516	525	10	HAPATVCGPK 0.007309	5.3
HLA-B*08:01	1	609	617	9	YQGVNCTEV 0.007304	7.1
HLA-B*35:01	1	1203	1211	9	YEQYIKWPW 0.007303	4.3
HLA-B*57:01	1	994	1002	9	ITGRLQSLQ 0.0073	7.4
HLA-A*30:01	1	1004	1012	9	YVTQQLIRA 0.007298	11
HLA-A*68:01	1	270	278	9	RTFLLKYNE 0.007297	7.7
HLA-A*02:06	1	99	108	10	NIIRGWIFGT 0.007292	8.1
HLA-B*53:01	1	362	371	10	YSVLYNSASF 0.00729	3.8
HLA-B*58:01	1	774	782	9	NTQEVFAQV 0.007289	5.0
HLA-A*03:01	1	196	204	9	NIDGYFKIY 0.007288	5.3
HLA-A*32:01	1	703	711	9	AYSNNIAI 0.007288	4.1
HLA-B*15:01	1	76	84	9	TKRFANPVL 0.007286	6.1
HLA-B*53:01	1	439	448	10	DSKVGGNVNY 0.007281	3.8
HLA-B*57:01	1	324	332	9	VRFPNITNL 0.00728	7.4
HLA-A*24:02	1	786	794	9	YKTPPIKDF 0.00728	3.4
HLA-A*02:06	1	1008	1017	10	QLIRAAEIRA 0.007279	8.1
HLA-A*01:01	1	335	344	10	FGEVFNATRF 0.007278	4.5
HLA-A*31:01	1	1138	1146	9	LQPELDSFK 0.007273	7.3
HLA-B*35:01	1	742	750	9	DSTECSNLL 0.00727	4.3
HLA-B*51:01	1	1001	1010	10	LQTYVTQQLI 0.007269	7.1
HLA-A*32:01	1	47	56	10	VLHSTQDLFL 0.007265	4.1
HLA-B*08:01	1	1051	1060	10	QSAPHGVVFL 0.007265	7.1
HLA-B*08:01	1	1206	1214	9	YIKWPWYIW 0.007264	7.1
HLA-A*01:01	1	62	70	9	VTWFHAIHV 0.007257	4.5
HLA-A*23:01	1	479	487	9	GVKGFNCYF 0.00725	3.4
HLA-A*23:01	1	915	924	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	VNNATNVVIK 0.00723	5.4
HLA-A*02:06	1	100	108	9	IIRGWIFGT 0.007229	8.1
HLA-B*53:01	1	570	579	10	TDAVRDPQTL 0.007229	3.9
HLA-A*68:02	1	1171	1180	10	ASVUNIQKEI 0.007228	6.0
HLA-B*08:01	1	1204	1212	9	EQYIKWPWY 0.007222	7.2
HLA-A*68:02	1	617	626	10	VPVAIHADQL 0.007217	6.0
HLA-A*32:01	1	687	696	10	QSIIAYTMSL 0.00721	4.1
HLA-B*15:01	1	1217	1226	10	FIAGLIAIVM 0.00721	6.1

HLA-A*30:02	1	233	242	10	INITRFQTLH 0.007209	7.7
HLA-B*57:01	1	1016	1025	10	RASANLAATK 0.007204	7.5
HLA-A*30:01	1	676	684	9	NSPRRARSV 0.007203	11
HLA-B*51:01	1	1047	1055	9	MSFPQSAPH 0.007203	7.2
HLA-A*02:03	1	322	330	9	SIVRFPNIT 0.007202	6.7
HLA-B*51:01	1	1086	1095	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	252	260	9	SSGWTAGAA 0.007189	7.7
HLA-B*58:01	1	580	589	10	EILDITPCSF 0.007187	5.0
HLA-A*30:02	1	1077	1085	9	AICHDGKAH 0.007187	7.7
HLA-A*30:02	1	984	992	9	VEAEVQIDR 0.007184	7.7
HLA-A*30:02	1	1000	1009	10	SLQTYVVTQQL 0.00718	7.7
HLA-A*33:01	1	1038	1047	10	DFCGKGYHLM 0.007179	5.9
HLA-A*02:03	1	331	339	9	NLCPFGEVF 0.007174	6.7
HLA-B*15:01	1	13	21	9	SQCVNLTTR 0.007169	6.2
HLA-B*44:02	1	849	857	9	AQKFNGLTV 0.007165	3.1
HLA-B*08:01	1	684	692	9	VASQSIIAY 0.007162	7.2
HLA-B*08:01	1	867	875	9	IAQYTSALL 0.00716	7.2
HLA-A*68:01	1	1046	1055	10	LMSFPQSAPH 0.007156	7.8
HLA-B*08:01	1	808	816	9	KPSKRSEFIE 0.007154	7.2
HLA-A*30:01	1	195	204	10	KNIDGYFKIY 0.007153	11
HLA-A*33:01	1	346	355	10	SVYAWNRKRI 0.007153	5.9
HLA-B*57:01	1	78	87	10	RFANPVLPFN 0.007151	7.5
HLA-A*02:06	1	968	977	10	GAISSVLNDI 0.00715	8.2
HLA-A*30:02	1	259	267	9	AAAYYVGYL 0.007149	7.7
HLA-B*57:01	1	341	349	9	ATRFASVYA 0.007148	7.5
HLA-A*26:01	1	936	945	10	SSTASALGKL 0.007147	3.9
HLA-A*02:01	1	498	507	10	YGVGYQPYRV 0.007146	5.9
HLA-A*30:01	1	37	45	9	YYPDKVFRS 0.007142	11
HLA-A*02:06	1	1171	1180	10	ASVVNIQKEI 0.00714	8.2
HLA-A*30:01	1	192	200	9	FVFKNIDGY 0.007137	11
HLA-A*30:01	1	251	260	10	SSSGWTAGAA 0.007137	11
HLA-B*35:01	1	332	341	10	LCPFGEVFNA 0.007135	4.3
HLA-A*30:02	1	1050	1059	10	PQSAPHGVVF 0.007132	7.8
HLA-B*57:01	1	1061	1070	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	966	974	9	NFGAISSVL 0.007126	4.5
HLA-A*01:01	1	989	997	9	QIDRLITGR 0.007126	4.5
HLA-A*31:01	1	851	859	9	KFNGLTVLP 0.007123	7.3
HLA-A*01:01	1	1137	1145	9	PLQPELDSF 0.007123	4.5
HLA-A*68:02	1	600	609	10	NTSNQVAVLY 0.007122	6.0
HLA-A*68:01	1	959	967	9	LVKQLSSNF 0.007122	7.8
HLA-B*08:01	1	535	543	9	CVNFNFNGL 0.007118	7.2
HLA-A*32:01	1	442	450	9	VGGNYNYLY 0.007116	4.2
HLA-B*07:02	1	686	694	9	SQSIIAYTM 0.007116	4.5
HLA-B*15:01	1	508	516	9	VVLSFELLH 0.007115	6.2
HLA-A*30:02	1	95	104	10	TEKSNIIRGW 0.007113	7.8
HLA-A*24:02	1	308	317	10	GIYQTSNFRV 0.00711	3.5
HLA-B*58:01	1	503	512	10	QPYRVVLSF 0.00711	5.1
HLA-A*23:01	1	783	791	9	KQIYKTPPI 0.007107	3.5
HLA-A*23:01	1	996	1004	9	GRLQSLQTY 0.007107	3.5
HLA-A*32:01	1	1141	1149	9	ELDSFKEEL 0.007105	4.2
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	934	943	10	SLSSTASALG 0.007097	6.7
HLA-B*51:01	1	216	225	10	LPQGFSALEP 0.007094	7.2
HLA-B*15:01	1	854	862	9	GLTVLPPLL 0.007092	6.2
HLA-A*02:06	1	1077	1086	10	AICHDGKAHF 0.007092	8.2
HLA-A*32:01	1	1208	1217	10	KWPWYIWLGF 0.007091	4.2
HLA-B*58:01	1	916	924	9	NQKLIANQF 0.007079	5.1
HLA-B*08:01	1	314	322	9	NFRVQPTES 0.007078	7.2

HLA-B*07:02	1	572	580	9	AVRDPQTLE 0.007078	4.5
HLA-A*68:02	1	962	970	9	QLSSNFGAI 0.007078	6.1
HLA-A*02:06	1	922	930	9	NQFNSAIGK 0.007068	8.2
HLA-A*01:01	1	1245	1253	9	CSCGSCCKF 0.007068	4.6
HLA-B*07:02	1	1223	1231	9	AIVMVTIML 0.007061	4.6
HLA-A*30:01	1	1022	1031	10	AATKMSECVL 0.00706	11
HLA-A*01:01	1	508	516	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	682	691	10	RSVASQSIIA 0.007057	7.8
HLA-A*68:02	1	1062	1070	9	VTYVPAQEK 0.007057	6.1
HLA-B*57:01	1	136	144	9	CNDPFLGVY 0.007055	7.5
HLA-A*11:01	1	566	574	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	721	730	10	TEILPVSMTK 0.007049	3.3
HLA-B*57:01	1	756	764	9	FCTQLNRAL 0.007047	7.5
HLA-A*32:01	1	1078	1086	9	ICHDGKAHF 0.007041	4.2
HLA-A*30:02	1	1137	1145	9	PLQPELDSF 0.007038	7.8
HLA-A*33:01	1	137	146	10	NDPFLGVYYH 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	NVVIKVICEF 0.007033	7.8
HLA-A*23:01	1	558	566	9	PFQQFGRDI 0.007029	3.5
HLA-A*68:02	1	198	206	9	DGYFKIYSK 0.007028	6.1
HLA-A*02:06	1	346	354	9	SVYAWNRKR 0.007027	8.3
HLA-B*40:01	1	622	630	9	HADQLTPTW 0.007026	3.3
HLA-B*57:01	1	312	321	10	TSNFRVQPT 0.007025	7.5
HLA-A*32:01	1	316	325	10	RVQPTESIVR 0.007025	4.2
HLA-A*01:01	1	135	143	9	FCNDPFLGV 0.007024	4.6
HLA-A*26:01	1	529	538	10	NLVKNKCVNF 0.007023	3.9
HLA-B*57:01	1	939	948	10	ASALGKLQDV 0.007018	7.5
HLA-A*02:06	1	944	952	9	KLQDVVNQN 0.007017	8.3
HLA-B*35:01	1	1145	1153	9	FKEELDKYF 0.007013	4.3
HLA-B*08:01	1	1223	1231	9	AIVMVTIML 0.007013	7.3
HLA-B*57:01	1	993	1001	9	LITGRLQSL 0.007012	7.5
HLA-A*30:01	1	260	269	10	AAYYVGYLQP 0.00701	11
HLA-A*31:01	1	13	22	10	SQCWNLTTRT 0.007006	7.4
HLA-A*11:01	1	1036	1045	10	RVDFCGKGYH 0.007001	4.7
HLA-A*68:01	1	835	844	10	GDCLGDIAAR 0.006999	7.8
HLA-A*30:02	1	122	130	9	NATNVVIKV 0.006996	7.9
HLA-B*40:01	1	1201	1209	9	GKYEQYIKW 0.006996	3.3
HLA-B*07:02	1	233	241	9	INITRFQTL 0.006992	4.6
HLA-A*01:01	1	303	311	9	FTVEKGIYQ 0.00699	4.6
HLA-A*02:06	1	542	550	9	GLTGTGVLT 0.006986	8.3
HLA-A*68:01	1	29	37	9	TNSFTRGVY 0.006983	7.8
HLA-A*30:01	1	1261	1270	10	VLKGVKLHYT 0.006983	11
HLA-A*68:02	1	939	948	10	ASALGKLQDV 0.006979	6.1
HLA-B*35:01	1	133	141	9	FQFCNDPFL 0.006978	4.3
HLA-B*57:01	1	681	690	10	ARSVASQSII 0.006974	7.6
HLA-B*08:01	1	1064	1072	9	YVPAQEKNF 0.006974	7.3
HLA-A*02:03	1	371	379	9	FSTFKCYGV 0.006972	6.8
HLA-A*02:06	1	175	183	9	FLMDLEGKQ 0.00697	8.3
HLA-B*07:02	1	849	857	9	AQKFNGLTV 0.00697	4.6
HLA-A*30:01	1	944	952	9	KLQDVVNQN 0.006969	11
HLA-A*02:06	1	125	133	9	NVVIKVICEF 0.006966	8.3
HLA-A*23:01	1	573	582	10	VRDPQTLEIL 0.006963	3.5
HLA-A*02:01	1	299	307	9	TLKSFTVEK 0.00696	5.9
HLA-B*58:01	1	1017	1025	9	ASANLAATK 0.006956	5.1
HLA-A*31:01	1	485	494	10	CYFPLQSYGF 0.006955	7.4
HLA-A*26:01	1	581	589	9	ILDITPCSF 0.006955	4.0
HLA-A*26:01	1	721	730	10	TEILPVSMTK 0.006953	4.0
HLA-A*02:06	1	872	881	10	SALLAGTITS 0.006953	8.3
HLA-B*57:01	1	297	305	9	KCTLKSFTV 0.006947	7.6
HLA-A*01:01	1	474	483	10	STPCNGVKGF 0.006947	4.6
HLA-A*02:03	1	255	264	10	WTAGAAAYYV 0.006945	6.8
HLA-A*30:02	1	842	851	10	AARDLICAQK 0.006942	7.9

HLA-A*68:02	1	484	492	9	NCYFPLQSY 0.00694	6.1
HLA-A*23:01	1	958	967	10	TLVKQLSSNF 0.006933	3.5
HLA-A*30:02	1	75	83	9	GTKRFANPV 0.006932	7.9
HLA-A*68:01	1	1098	1107	10	HWFVTQRNFY 0.00693	7.8
HLA-A*32:01	1	695	704	10	SLGVENSVAVY 0.006927	4.2
HLA-B*44:02	1	707	715	9	NSIAIPTNF 0.006927	3.2
HLA-A*02:06	1	1102	1111	10	TQRNFYEQI 0.006925	8.3
HLA-B*44:02	1	649	657	9	GAEHVNNSY 0.006923	3.2
HLA-B*57:01	1	11	20	10	VSSQCVLTT 0.006922	7.6
HLA-B*51:01	1	487	495	9	FPLQSYGFQ 0.006922	7.3
HLA-A*30:01	1	887	895	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	SNIIRGWIF 0.006917	3.2
HLA-A*30:02	1	671	679	9	YQTQTNSPR 0.006917	7.9
HLA-B*40:01	1	95	104	10	TEKSNIIIRGW 0.006914	3.3
HLA-B*51:01	1	947	955	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	289	297	9	ALDPLSETK 0.006912	6.8
HLA-B*07:02	1	333	341	9	CPFGEVFNA 0.006912	4.6
HLA-B*35:01	1	228	237	10	DLPIGINITR 0.006906	4.4
HLA-A*30:02	1	936	944	9	SSTASALGK 0.006902	7.9
HLA-A*68:01	1	861	870	10	LLTDEMIAQY 0.0069	7.9
HLA-B*44:03	1	489	498	10	LQSYGFQPTY 0.006897	3.4
HLA-B*51:01	1	937	945	9	STASALGKL 0.006897	7.3
HLA-B*35:01	1	876	885	10	AGTITSGWTF 0.006896	4.4
HLA-A*24:02	1	262	270	9	YYVGYLQPR 0.006894	3.5
HLA-B*57:01	1	311	319	9	QTSNFRVQP 0.006891	7.6
HLA-A*01:01	1	380	389	10	SPTKLNLCF 0.006888	4.6
HLA-B*35:01	1	437	446	10	NLDSKVGNGY 0.006888	4.4
HLA-B*15:01	1	874	882	9	LLAGTITSG 0.006887	6.2
HLA-B*15:01	1	411	420	10	QTGNIADYNY 0.006881	6.3
HLA-A*02:03	1	363	372	10	SVLYNSASFS 0.00688	6.8
HLA-B*58:01	1	777	785	9	EVFAQVKQI 0.006877	5.1
HLA-A*26:01	1	233	241	9	INITRFQTL 0.006874	4.0
HLA-B*51:01	1	1083	1092	10	KAHFPREGVF 0.006874	7.3
HLA-A*23:01	1	37	46	10	YYPDKVFRSS 0.006872	3.5
HLA-A*23:01	1	882	891	10	GWTFGAGAAL 0.006871	3.5
HLA-A*30:01	1	622	631	10	HADQLTPTWR 0.006869	11
HLA-A*02:06	1	292	300	9	PLSETKCTL 0.006868	8.4
HLA-B*40:01	1	984	992	9	VEAEVQIDR 0.006866	3.3
HLA-A*32:01	1	1200	1209	10	LGKYEYIKW 0.006864	4.2
HLA-A*26:01	1	857	866	10	VLPPLLTDEM 0.006862	4.0
HLA-B*58:01	1	445	453	9	NYNLYLRLF 0.00686	5.1
HLA-B*58:01	1	354	362	9	RISNCVADY 0.006853	5.1
HLA-A*68:01	1	479	487	9	GVKGFNCYF 0.006851	7.9
HLA-A*02:06	1	41	49	9	KVFRSSVLH 0.006845	8.4
HLA-A*30:02	1	78	87	10	RFANPVLPFN 0.006844	8.0
HLA-A*30:01	1	369	378	10	ASFSTFKCYG 0.006844	11
HLA-B*57:01	1	270	279	10	RTFLLKYNEN 0.006842	7.6
HLA-A*02:01	1	1004	1013	10	YVTQQLIRAA 0.006842	6.0
HLA-B*08:01	1	19	27	9	TTRTQLPPA 0.006839	7.4
HLA-B*53:01	1	600	608	9	NTSNQVAVL 0.006839	4.0
HLA-B*51:01	1	37	46	10	YYPDKVFRSS 0.006838	7.4
HLA-A*30:01	1	506	515	10	RVVLSFELL 0.006837	11
HLA-A*30:01	1	122	130	9	NATNVVIKV 0.006832	11
HLA-A*68:02	1	1038	1046	9	DFCGKGYHL 0.006832	6.2
HLA-B*51:01	1	1106	1114	9	FYEQIITT 0.006832	7.4
HLA-A*01:01	1	771	779	9	QDKNTQEVF 0.006829	4.6
HLA-A*30:02	1	70	78	9	VSGTNGTKR 0.006827	8.0
HLA-B*58:01	1	601	610	10	TSNQVAVLYQ 0.006825	5.2
HLA-B*08:01	1	687	696	10	QSIIAYTMSL 0.006822	7.4
HLA-B*15:01	1	953	962	10	AQALNTLVKQ 0.006822	6.3
HLA-A*30:02	1	178	186	9	DLEGKQGNF 0.00682	8.0
HLA-B*57:01	1	1198	1206	9	QELGKYEYQ 0.00682	7.6
HLA-A*30:02	1	275	283	9	KYNENGTIT 0.006819	8.0

HLA-A*30:01	1	450	458	9	YRLFRKSNL 0.006819	11
HLA-B*58:01	1	465	473	9	ISTEIQAG 0.006819	5.2
HLA-A*26:01	1	573	581	9	VRDPQTLEI 0.006818	4.0
HLA-B*35:01	1	1001	1009	9	LQTYVTQQL 0.006816	4.4
HLA-A*30:01	1	252	261	10	SSGWTAGAAA 0.006805	11
HLA-A*30:01	1	349	358	10	AWNRKRISNC 0.006804	11
HLA-B*53:01	1	802	811	10	ILPDPSPKPSK 0.006804	4.0
HLA-B*08:01	1	962	970	9	QLSSNFGAI 0.006803	7.4
HLA-A*33:01	1	358	366	9	CVADYSVLY 0.006801	6.0
HLA-A*30:02	1	1056	1065	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	503	512	10	QPYRVVLSF 0.006785	6.3
HLA-B*40:01	1	1067	1076	10	AQEKNFHTAP 0.006781	3.3
HLA-A*02:06	1	953	961	9	AQALNTLVK 0.00678	8.4
HLA-A*30:01	1	201	210	10	FKIYSKHTPI 0.006777	11
HLA-A*30:01	1	484	492	9	NCYFPLQSY 0.006777	11
HLA-A*30:01	1	932	941	10	QDLSSTASA 0.006775	11
HLA-B*51:01	1	1084	1092	9	AHFPREGVF 0.006775	7.4
HLA-B*08:01	1	1004	1012	9	YVTQKLIRA 0.006771	7.4
HLA-A*68:02	1	940	949	10	SALGKLQDVV 0.00677	6.2
HLA-A*30:01	1	313	322	10	SNFRVQPTES 0.006767	11
HLA-A*31:01	1	236	245	10	TRFQTLHRSY 0.006763	7.4
HLA-A*11:01	1	270	278	9	RTFLLKYNE 0.006761	4.8
HLA-B*44:02	1	890	899	10	ALQIPFAMQM 0.006761	3.2
HLA-A*02:01	1	444	452	9	GNYNYLYRL 0.00676	6.0
HLA-A*30:01	1	919	927	9	LIANQFNSA 0.00676	11
HLA-A*24:02	1	573	582	10	VRDPQTLEIL 0.006759	3.5
HLA-A*23:01	1	1209	1217	9	WPWYIWLGF 0.006756	3.6
HLA-A*03:01	1	1261	1270	10	VLKGVKLHYT 0.006756	5.5
HLA-A*32:01	1	861	870	10	LLTDEMIAQY 0.006753	4.3
HLA-B*57:01	1	915	924	10	ENQKLIANQF 0.006753	7.7
HLA-A*68:02	1	694	703	10	MSLGVENVA 0.006752	6.2
HLA-A*30:01	1	705	713	9	SNNSIAIPT 0.006752	11
HLA-A*33:01	1	1204	1212	9	EQYIKWPWY 0.006751	6.0
HLA-B*57:01	1	669	677	9	ASYQTQTN 0.006748	7.7
HLA-B*44:03	1	1139	1148	10	QPELDSFKEE 0.006748	3.4
HLA-A*03:01	1	523	532	10	GPKKSTNLVK 0.006743	5.5
HLA-A*30:02	1	964	973	10	SSNFGAISSV 0.006741	8.0
HLA-A*02:03	1	195	203	9	KNIDGYFKI 0.00674	6.9
HLA-A*68:02	1	1064	1072	9	YVPAQEKNF 0.00674	6.2
HLA-A*02:03	1	220	229	10	FSALEPLVDL 0.006737	6.9
HLA-A*30:01	1	207	216	10	HTPINLVRGL 0.006736	11
HLA-A*68:02	1	1021	1030	10	LAATKMSECV 0.006736	6.2
HLA-A*01:01	1	1193	1202	10	SLIDLQELGK 0.006732	4.7
HLA-A*23:01	1	214	223	10	RGLPQGFSAL 0.006728	3.6
HLA-A*32:01	1	674	682	9	QTNSPRRAR 0.006727	4.3
HLA-A*01:01	1	1179	1188	10	EIDRLNEVAK 0.006725	4.7
HLA-A*30:01	1	781	790	10	QVKQIYKTPP 0.006724	11
HLA-A*30:01	1	800	809	10	SQILPDPSPK 0.006722	11
HLA-A*02:06	1	984	993	10	VEAEVQIDRL 0.006717	8.5
HLA-A*68:01	1	108	116	9	TTLDSKTQS 0.006716	7.9
HLA-B*44:03	1	707	715	9	NSIAIPTNF 0.006716	3.4
HLA-A*30:01	1	519	527	9	ATVCGPKKS 0.006711	11
HLA-A*33:01	1	916	924	9	NQKLIANQF 0.006706	6.0
HLA-B*15:01	1	1040	1049	10	CGKGYHLMSF 0.006705	6.3
HLA-B*44:03	1	573	581	9	VRDPQTLEI 0.006702	3.4
HLA-A*03:01	1	753	762	10	YGSFCTLNR 0.006702	5.5
HLA-B*58:01	1	883	891	9	WTFGAGAAL 0.006697	5.2
HLA-B*44:02	1	1027	1036	10	SECVLGQSKR 0.006696	3.2
HLA-A*02:01	1	613	621	9	NCTEVPVAI 0.006693	6.0
HLA-A*02:06	1	751	759	9	LQYGSFCTQ 0.006689	8.5
HLA-B*15:01	1	992	1000	9	RLITGRLQS 0.006689	6.3
HLA-A*33:01	1	324	332	9	VRFPNITNL 0.006687	6.0
HLA-A*01:01	1	1050	1059	10	PQSAPHGVVF 0.006687	4.7
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	632	640	9	VYSTGSNVF 0.006682	4.1
HLA-A*33:01	1	187	195	9	KNLREFVFK 0.00668	6.0
HLA-A*32:01	1	720	728	9	TTEILPVSM 0.00668	4.3
HLA-B*08:01	1	506	514	9	RVVVLSEFEL 0.006676	7.5
HLA-B*51:01	1	745	753	9	ECSNLLLQY 0.006674	7.4
HLA-A*24:02	1	1098	1107	10	HWFVTQRNFY 0.006674	3.6
HLA-A*26:01	1	341	350	10	ATRFASVYAW 0.006673	4.1
HLA-B*07:02	1	246	255	10	LTPGDSSSGW 0.006667	4.7
HLA-A*02:06	1	701	710	10	SVAYSNNSIA 0.006664	8.5
HLA-B*58:01	1	1083	1091	9	KAHFPREGV 0.006664	5.2
HLA-A*32:01	1	75	83	9	GTKRFANPV 0.006663	4.3
HLA-A*68:01	1	743	752	10	STECNLLLQ 0.006659	8.0
HLA-A*02:06	1	1096	1104	9	GTHWFVQR 0.006659	8.5
HLA-A*30:02	1	243	252	10	RSYLTPGDSS 0.006658	8.1
HLA-B*40:01	1	741	749	9	GDSTECNL 0.006657	3.3
HLA-B*51:01	1	331	339	9	NLCPFGEVF 0.006654	7.5
HLA-A*33:01	1	1179	1188	10	EIDRLNEVAK 0.006654	6.0
HLA-A*02:01	1	81	90	10	NPVLPFNDGV 0.006652	6.1
HLA-A*01:01	1	409	418	10	PGQTGNIADY 0.006649	4.7
HLA-B*53:01	1	1259	1268	10	EPVLKGVKHL 0.006647	4.0
HLA-A*02:06	1	702	710	9	VAYSNNSIA 0.006645	8.5
HLA-B*07:02	1	10	18	9	LVSSQCVNL 0.006643	4.7
HLA-A*33:01	1	442	451	10	VGGNYNYLYR 0.006642	6.0
HLA-A*01:01	1	600	608	9	NTSNQVAVL 0.006642	4.7
HLA-B*44:03	1	650	659	10	AEHVNSYEC 0.006638	3.4
HLA-A*24:02	1	1078	1086	9	ICHDGKAHF 0.006638	3.6
HLA-A*30:02	1	362	371	10	YSVLYNSASF 0.006631	8.1
HLA-A*32:01	1	169	177	9	EYVSQPFLM 0.006629	4.3
HLA-B*44:02	1	1253	1262	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	565	574	10	DIADTTDAVR 0.00661	6.3
HLA-A*02:03	1	631	640	10	RVYSTGSNVF 0.006605	6.9
HLA-A*24:02	1	171	179	9	VSQPFLMDL 0.006603	3.6
HLA-A*32:01	1	503	512	10	QPYRVVLSF 0.0066	4.3
HLA-A*02:01	1	885	893	9	FGAGAALQI 0.006599	6.1
HLA-B*58:01	1	1005	1013	9	VTQQLIRAA 0.006597	5.2
HLA-A*30:02	1	1004	1012	9	YVTQQLIRA 0.006595	8.2
HLA-A*30:01	1	507	515	9	VVLSFELL 0.006591	11
HLA-A*02:06	1	252	261	10	SSGWTAGAAA 0.006589	8.5
HLA-B*53:01	1	995	1004	10	TGRLQSLQTY 0.006589	4.0
HLA-B*35:01	1	523	531	9	GPKKSTNLV 0.006588	4.5
HLA-A*26:01	1	822	830	9	KVTLADAGF 0.006586	4.1
HLA-A*31:01	1	451	460	10	RLFRKSNLKP 0.006585	7.5
HLA-A*01:01	1	414	422	9	NIADYNYKL 0.006584	4.8
HLA-A*30:01	1	445	453	9	NYNLYRLF 0.006576	11
HLA-A*11:01	1	1053	1061	9	APHGVVFLH 0.006575	4.9
HLA-A*68:01	1	720	728	9	TTEILPVSM 0.006573	8.0
HLA-A*03:01	1	26	34	9	PAYTNSFTR 0.00657	5.6
HLA-A*31:01	1	1045	1053	9	HLMSFPQSA 0.00657	7.5
HLA-B*07:02	1	1259	1268	10	EPVLKGVKHL 0.006569	4.7
HLA-A*32:01	1	758	767	10	TQLNRALTGI 0.006567	4.3
HLA-A*30:01	1	127	135	9	VIKVCEFQF 0.006566	11
HLA-A*01:01	1	455	463	9	KSNLKPFER 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	1101	1109	9	VTQRNFYEP 0.006547	7.8
HLA-B*51:01	1	716	724	9	TISVTTEIL 0.006546	7.5
HLA-A*24:02	1	346	355	10	SVYAWNRKRI 0.006544	3.6
HLA-A*32:01	1	226	235	10	LVDLPIGINI 0.006538	4.3
HLA-A*03:01	1	890	899	10	ALQIPFAMQM 0.006538	5.6
HLA-A*24:02	1	186	194	9	FKNLREFVF 0.006535	3.6
HLA-B*07:02	1	1077	1086	10	AICHDGKAHF 0.006534	4.7
HLA-A*23:01	1	493	502	10	GFQPTYGVGY 0.006533	3.6
HLA-A*24:02	1	494	502	9	FQPTYGVGY 0.006533	3.6



HLA-A*68:01	1	507	516	10	VVLSFELLH 0.006533	8.0
HLA-A*02:06	1	1161	1169	9	VDLGDISGI 0.006533	8.6
HLA-A*68:02	1	724	733	10	LPVSMTKTSV 0.006532	6.3
HLA-A*03:01	1	996	1004	9	GRLQSLQTY 0.006532	5.6
HLA-B*15:01	1	1189	1197	9	NLNESLIDL 0.006532	6.4
HLA-B*08:01	1	1217	1225	9	FIAGLIAIV 0.006532	7.6
HLA-A*02:03	1	272	281	10	FLLKYNENGT 0.00653	7.0
HLA-A*26:01	1	535	543	9	CVNFNFNGL 0.00653	4.1
HLA-A*23:01	1	706	715	10	NNSIAIPTNF 0.006529	3.6
HLA-A*30:02	1	307	316	10	KGITYQTSNFR 0.006525	8.2
HLA-B*57:01	1	1098	1107	10	HWFVTQRNFY 0.006524	7.8
HLA-A*02:01	1	23	31	9	QLPPAYTNS 0.00652	6.1
HLA-B*44:02	1	548	556	9	VLTESNKKF 0.006519	3.2
HLA-B*57:01	1	786	794	9	YKTPPIKDF 0.006519	7.8
HLA-A*68:02	1	92	101	10	FASTEKSNI 0.006515	6.3
HLA-B*15:01	1	341	350	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	718	726	9	SVTTEILPV 0.006512	4.3
HLA-B*07:02	1	573	582	10	VRDPQTLEIL 0.00651	4.7
HLA-A*02:01	1	233	241	9	INITRFQTL 0.006509	6.1
HLA-A*68:01	1	947	955	9	DVVNQNAQA 0.006508	8.0
HLA-A*32:01	1	964	973	10	SSNFGAISSV 0.006506	4.3
HLA-B*51:01	1	1065	1074	10	VPAQEKNF 0.006504	7.5
HLA-A*31:01	1	730	738	9	KTSVDCTMY 0.006501	7.6
HLA-B*57:01	1	481	489	9	KGFCYFPL 0.006496	7.9
HLA-A*02:03	1	468	476	9	EIYQAGSTP 0.006495	7.0
HLA-B*53:01	1	237	245	9	RFQTLHRSY 0.006491	4.0
HLA-A*01:01	1	1018	1026	9	SANLAATKM 0.006491	4.8
HLA-B*51:01	1	330	338	9	TNLCPFGEV 0.006489	7.6
HLA-B*08:01	1	900	908	9	AYRFNGIGV 0.006488	7.6
HLA-A*02:06	1	911	920	10	NVLYENQKLI 0.006488	8.6
HLA-A*24:02	1	143	151	9	VYYHKNKNS 0.006487	3.6
HLA-A*02:06	1	336	345	10	GEVFNATRFA 0.006486	8.6
HLA-A*33:01	1	197	206	10	IDGYFKIYSK 0.006484	6.1
HLA-A*11:01	1	889	897	9	AALQIPFAM 0.006484	4.9
HLA-B*44:03	1	1146	1154	9	KEELDKYFK 0.006478	3.5
HLA-A*02:01	1	464	472	9	DISTEIQQA 0.006474	6.1
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	779	787	9	FAQVKQIYK 0.006467	7.6
HLA-A*33:01	1	192	200	9	FVFKNIDGY 0.006464	6.1
HLA-B*07:02	1	989	998	10	QIDRLITGRL 0.006459	4.8
HLA-A*33:01	1	1257	1266	10	DSEPVLLKGVK 0.006459	6.1
HLA-A*30:02	1	484	493	10	NCYFPLQSYG 0.006457	8.3
HLA-B*44:02	1	1068	1077	10	QEKNFTTAPA 0.006457	3.3
HLA-A*23:01	1	362	371	10	YSVLYNSASF 0.006456	3.7
HLA-B*08:01	1	995	1003	9	TGRLQSLQT 0.006456	7.6
HLA-A*02:01	1	1207	1215	9	IKWPWYIWL 0.006452	6.2
HLA-B*07:02	1	891	899	9	LQIPFAMQM 0.006451	4.8
HLA-A*68:02	1	685	694	10	ASQSIIAYTM 0.006442	6.4
HLA-B*40:01	1	877	885	9	GTITSGWTF 0.006439	3.4
HLA-A*02:01	1	1224	1232	9	IVMVTIMLC 0.006439	6.2
HLA-A*24:02	1	843	852	10	ARDLICAQKF 0.006437	3.6
HLA-A*02:06	1	857	865	9	VLPLLTD 0.006436	8.6
HLA-A*23:01	1	102	110	9	RGWIFGTTL 0.006435	3.7
HLA-A*30:02	1	243	251	9	RSYLTPGDS 0.006432	8.3
HLA-A*11:01	1	824	833	10	TLADAGFIKQ 0.006429	4.9
HLA-A*03:01	1	1052	1061	10	SAPHGVVFLH 0.006427	5.6
HLA-B*08:01	1	661	669	9	IPIGAGICA 0.006423	7.6
HLA-A*68:02	1	794	802	9	FGGFNFSQI 0.006423	6.4
HLA-A*26:01	1	342	350	9	TRFASVYAW 0.006422	4.1
HLA-A*32:01	1	1097	1106	10	THWFVTQRNF 0.00642	4.4
HLA-A*02:01	1	1261	1270	10	VLKGVKLYHT 0.00642	6.2
HLA-A*02:03	1	673	681	9	TQTNSPRRA 0.006417	7.0
HLA-B*57:01	1	1137	1145	9	PLQPELDSF 0.006417	7.9

HLA-A*02:01	1	1029	1037	9	CVLGQSKRV	0.006416	6.2
HLA-B*57:01	1	92	100	9	FASTEKSNI	0.006411	7.9
HLA-B*57:01	1	783	791	9	KQIYKTPPI	0.006411	7.9
HLA-B*57:01	1	892	901	10	QIPFAMQMAY	0.006411	7.9
HLA-A*02:06	1	272	280	9	FLLKYNENG	0.006404	8.7
HLA-B*53:01	1	1205	1213	9	QYIKWPWYI	0.006404	4.1
HLA-B*08:01	1	1172	1180	9	SVVNIQKEI	0.006401	7.7
HLA-A*11:01	1	206	214	9	KHTPINLVR	0.0064	4.9
HLA-A*02:03	1	676	684	9	NSPRRARSV	0.006394	7.0
HLA-B*58:01	1	21	29	9	RTQLPPAYT	0.006393	5.3
HLA-A*68:01	1	635	644	10	TGSNVFQTRA	0.006393	8.1
HLA-B*08:01	1	599	607	9	TNTSNQVAV	0.00639	7.7
HLA-A*03:01	1	670	679	10	SYQTQTNSPR	0.006389	5.6
HLA-B*07:02	1	887	895	9	AGAALQIPF	0.006389	4.8
HLA-A*02:01	1	1219	1227	9	AGLIAIVMV	0.006388	6.2
HLA-B*15:01	1	865	874	10	EMIAQYTSAL	0.006385	6.4
HLA-A*02:06	1	157	166	10	FRVYSSANNC	0.006382	8.7
HLA-A*30:02	1	771	779	9	QDKNTQEVF	0.006381	8.3
HLA-A*23:01	1	262	270	9	YYVGYLQPR	0.006379	3.7
HLA-B*15:01	1	1056	1065	10	GVVFLHVITYV	0.006379	6.4
HLA-B*53:01	1	1185	1194	10	EVAKNLNESL	0.006376	4.1
HLA-B*35:01	1	138	147	10	DPFLGVVYHK	0.006375	4.5
HLA-B*08:01	1	1221	1229	9	LIAIVMVTI	0.006375	7.7
HLA-A*30:01	1	1223	1231	9	AIVMVTIML	0.006371	11
HLA-A*02:06	1	743	751	9	STECSNLLL	0.00637	8.7
HLA-A*26:01	1	587	595	9	CSFGGVSVI	0.006364	4.2
HLA-A*30:01	1	1258	1266	9	SEPVLKGVK	0.006363	11
HLA-A*02:03	1	724	733	10	LPVSMTKTSV	0.006358	7.0
HLA-B*58:01	1	267	276	10	LQPRTFLLKY	0.006357	5.3
HLA-A*68:02	1	397	405	9	FVIRGDEVR	0.006356	6.4
HLA-A*30:01	1	882	891	10	GWTFGAGAAL	0.006356	11
HLA-B*57:01	1	167	175	9	TFEYVSQPF	0.006355	8.0
HLA-A*30:02	1	752	760	9	QYGSFCTQL	0.006352	8.3
HLA-A*30:02	1	690	698	9	IAYTMSLGV	0.006351	8.3
HLA-B*51:01	1	986	994	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	YSSANNCTF	0.006348	7.7
HLA-A*30:01	1	440	448	9	SKVGGNYNY	0.006348	11
HLA-A*68:01	1	683	691	9	SVASQSIIA	0.006348	8.1
HLA-B*08:01	1	1044	1053	10	YHLMSFPQSA	0.006347	7.7
HLA-B*57:01	1	1113	1121	9	TTDNTFVSG	0.006347	8.0
HLA-A*24:02	1	958	967	10	TLVKQLSSNF	0.006346	3.7
HLA-A*11:01	1	996	1004	9	GRLQSLQTY	0.006344	4.9
HLA-B*15:01	1	1203	1211	9	YEQYIKWPW	0.006344	6.5
HLA-A*68:02	1	228	236	9	DLPIGINIT	0.006342	6.4
HLA-B*15:01	1	1052	1060	9	SAPHGVVFL	0.006339	6.5
HLA-B*53:01	1	596	605	10	TPGTNTSNQV	0.006338	4.1
HLA-A*03:01	1	70	78	9	VSGTNGTKR	0.006336	5.6
HLA-B*40:01	1	769	777	9	VEQDKNTQE	0.006336	3.4
HLA-A*68:02	1	1059	1067	9	FLHVITYVPA	0.006335	6.4
HLA-B*51:01	1	1118	1126	9	FVSGNCDVV	0.006335	7.7
HLA-B*15:01	1	47	56	10	VLHSTQDLFL	0.006331	6.5
HLA-A*32:01	1	268	276	9	QPRTFLLKY	0.006328	4.4
HLA-B*53:01	1	224	232	9	EPLVDLPIG	0.006327	4.1
HLA-B*15:01	1	607	615	9	VLYQGVNCT	0.006322	6.5
HLA-A*02:03	1	749	757	9	LLLQYGSFC	0.006322	7.1
HLA-A*02:01	1	882	891	10	GWTFGAGAAL	0.006322	6.2
HLA-A*68:01	1	94	103	10	STEKSNIIRG	0.006319	8.1
HLA-B*58:01	1	391	399	9	NVYADSFVI	0.006318	5.4
HLA-A*01:01	1	1143	1151	9	DSFKEELDK	0.006318	4.9
HLA-A*01:01	1	196	205	10	NIDGYFKIYS	0.006308	4.9
HLA-B*15:01	1	716	724	9	TISVTTEIL	0.006308	6.5
HLA-A*30:02	1	850	858	9	QKFNGLTVL	0.006307	8.4
HLA-A*33:01	1	29	38	10	TNSFTRGVYY	0.006306	6.1
HLA-A*30:01	1	677	685	9	SPRRARSVA	0.006304	11
HLA-A*24:02	1	490	498	9	QSYGFQPTY	0.006301	3.7

HLA-A*02:01	1	1007	1015	9	QQLIRAAEI 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	933	941	9	DSLSSTASA 0.006284	11
HLA-B*51:01	1	173	181	9	QPFLLMDLEG 0.006283	7.7
HLA-B*40:01	1	776	784	9	QEVFAQVKQ 0.006283	3.4
HLA-A*02:06	1	921	930	10	ANQFNLSAIGK 0.006283	8.7
HLA-B*07:02	1	378	387	10	GVSPTKLNDL 0.006282	4.8
HLA-A*30:02	1	1064	1072	9	YVPAQEKNF 0.00628	8.4
HLA-B*44:03	1	681	689	9	ARSVASQSI 0.006279	3.5
HLA-B*40:01	1	1133	1142	10	TVYDPLQPEL 0.006279	3.4
HLA-B*08:01	1	676	685	10	NSPRRARSVA 0.006275	7.7
HLA-A*30:02	1	145	153	9	YHKNNKSWM 0.006272	8.4
HLA-B*57:01	1	951	959	9	QNAQALNTL 0.006271	8.0
HLA-A*02:06	1	645	653	9	GCLIGAEHV 0.006268	8.7
HLA-B*15:01	1	800	809	10	SQILPDPSPK 0.006268	6.5
HLA-A*68:02	1	717	726	10	ISVTTEILPV 0.006262	6.4
HLA-B*44:03	1	864	872	9	DEMIAQYTS 0.006259	3.5
HLA-A*30:02	1	926	935	10	SAIGKIQDSL 0.006257	8.4
HLA-B*40:01	1	233	241	9	INITRFQTL 0.006253	3.4
HLA-B*08:01	1	511	519	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	315	324	10	FRVQPTESIV 0.006248	7.7
HLA-B*53:01	1	1145	1153	9	FKEELDKYF 0.006248	4.1
HLA-B*57:01	1	685	693	9	ASQSIIAYT 0.006247	8.0
HLA-A*68:02	1	830	838	9	FIKQYGDCL 0.006247	6.5
HLA-B*44:02	1	914	922	9	YENQKLIAN 0.006247	3.3
HLA-A*33:01	1	1052	1061	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	965	973	9	SNFGAISSV 0.006239	6.5
HLA-A*68:02	1	626	634	9	LTPTWRVYS 0.006235	6.5
HLA-B*35:01	1	37	46	10	YYPDKVFRSS 0.006234	4.6
HLA-A*02:06	1	936	945	10	SSTASALGKL 0.006234	8.8
HLA-B*51:01	1	849	857	9	AQKFNGLTV 0.00623	7.7
HLA-B*58:01	1	1052	1061	10	SAPHGVVFLH 0.00623	5.4
HLA-A*11:01	1	196	204	9	NIDGYFKIY 0.006229	5.0
HLA-B*44:03	1	877	885	9	GTITSGWTF 0.006229	3.6
HLA-A*01:01	1	1253	1262	10	FDEDDSEPLV 0.006229	4.9
HLA-A*30:02	1	198	207	10	DGYFKIYSKH 0.006228	8.4
HLA-B*44:02	1	1254	1263	10	DEDDSEPLVK 0.006228	3.3
HLA-A*23:01	1	494	502	9	FQPTYGVGY 0.006225	3.7
HLA-B*58:01	1	688	696	9	SIIAYTMSL 0.006223	5.4
HLA-B*57:01	1	21	29	9	RTQLPPAYT 0.006221	8.0
HLA-B*51:01	1	850	858	9	QKFNGLTVL 0.00622	7.7
HLA-A*26:01	1	198	206	9	DGYFKIYSK 0.006219	4.2
HLA-A*23:01	1	314	323	10	NFRVQPTESI 0.006219	3.7
HLA-B*15:01	1	1067	1076	10	AQEKNFHTAP 0.006215	6.5
HLA-B*51:01	1	572	581	10	AVRDPQTLEI 0.006214	7.7
HLA-A*26:01	1	1014	1022	9	EIRASANLA 0.006214	4.2
HLA-A*11:01	1	62	70	9	VTWFHAIHV 0.00621	5.0
HLA-B*44:03	1	317	326	10	VQPTESIVRF 0.00621	3.6
HLA-A*02:06	1	322	330	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	445	453	9	NYNLYRLF 0.006203	4.2
HLA-B*35:01	1	830	838	9	FIKQYGDCL 0.006202	4.6
HLA-B*40:01	1	460	469	10	PFERDISTEI 0.006201	3.4
HLA-B*07:02	1	716	724	9	TISVTTEIL 0.006201	4.8
HLA-A*01:01	1	497	505	9	TYGVGYQPY 0.006198	4.9
HLA-B*57:01	1	787	795	9	KTPPIKDFG 0.006198	8.1
HLA-A*30:01	1	396	404	9	SFVIRGDEV 0.006195	11
HLA-A*26:01	1	866	875	10	MIAQYTSALL 0.006195	4.2
HLA-A*31:01	1	1234	1242	9	MTSCCCLK 0.006191	7.8

HLA-A*68:02	1	880	889	10	TSGWTFGAGA 0.00619	6.5
HLA-B*35:01	1	1194	1203	10	LIDLQELGKY 0.00619	4.6
HLA-B*53:01	1	111	119	9	DSKTQSLLI 0.006189	4.1
HLA-A*02:03	1	714	723	10	NFTISVTTEI 0.006188	7.1
HLA-B*08:01	1	184	192	9	GNFKNLREF 0.006187	7.8
HLA-B*44:03	1	649	657	9	GAEHVNNSY 0.006187	3.6
HLA-B*44:02	1	1182	1190	9	RLNEVAKNL 0.006186	3.3
HLA-A*68:02	1	702	711	10	VAYSNNSIAI 0.006185	6.5
HLA-B*57:01	1	510	519	10	LSFELLHAPA 0.006184	8.1
HLA-A*23:01	1	639	647	9	VFQTRAGCL 0.006183	3.7
HLA-A*30:01	1	338	347	10	VFNATRFASV 0.006182	11
HLA-A*26:01	1	1035	1044	10	KRVDFCGKGY 0.00618	4.2
HLA-A*31:01	1	1144	1152	9	SFKEELDKY 0.00618	7.8
HLA-B*08:01	1	138	146	9	DPFLGVYYH 0.006179	7.8
HLA-B*57:01	1	320	329	10	TESIVRFPNI 0.006179	8.1
HLA-A*30:01	1	1048	1057	10	SFPQSAPHGV 0.006179	11
HLA-A*24:02	1	580	589	10	EILDITPCSF 0.006178	3.7
HLA-A*03:01	1	1095	1104	10	NGTHWFVTQR 0.006178	5.7
HLA-B*07:02	1	495	504	10	QPTYGVGYQP 0.006176	4.9
HLA-B*57:01	1	461	470	10	FERDISTEYI 0.006167	8.1
HLA-A*30:01	1	629	637	9	TWRVYSTGS 0.006167	11
HLA-A*30:01	1	720	728	9	TTEILPVSM 0.006167	11
HLA-A*26:01	1	507	515	9	VVLSFELL 0.006165	4.2
HLA-A*30:02	1	670	679	10	SYQTQTNSPR 0.006164	8.5
HLA-A*32:01	1	295	303	9	ETKCTLKSF 0.006162	4.5
HLA-A*01:01	1	353	362	10	KRISNCVADY 0.006162	4.9
HLA-B*15:01	1	609	617	9	YQGVNCTEV 0.006158	6.5
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	403	411	9	EVRQIAPGQ 0.006154	11
HLA-A*30:01	1	510	518	9	LSFELLHAP 0.006154	11
HLA-A*26:01	1	934	942	9	SLSSTASAL 0.006153	4.2
HLA-A*01:01	1	362	371	10	YSVLYNSASF 0.006151	5.0
HLA-A*30:02	1	996	1005	10	GRLQSLQTYV 0.006149	8.5
HLA-B*51:01	1	1029	1037	9	CVLGQSKRV 0.006147	7.8
HLA-B*53:01	1	627	635	9	TPTWRVYST 0.006143	4.1
HLA-A*02:03	1	848	857	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	624	632	9	DQLTPTWRV 0.006139	3.7
HLA-A*26:01	1	933	941	9	DSLSSSTASA 0.006139	4.2
HLA-B*57:01	1	714	723	10	NFTISVTTEI 0.006137	8.1
HLA-A*30:01	1	626	634	9	LTPTWRVYS 0.006135	11
HLA-B*08:01	1	441	449	9	KVGGNYNYL 0.006133	7.9
HLA-A*32:01	1	151	160	10	SWMESEFRVY 0.006129	4.5
HLA-A*02:06	1	310	319	10	YQTSNFRVQP 0.006129	8.8
HLA-A*02:06	1	59	68	10	FSNVTWFHAI 0.006128	8.8
HLA-A*32:01	1	238	246	9	FQTLHRSYL 0.006126	4.5
HLA-A*30:02	1	158	167	10	RVYSSANNCT 0.006125	8.5
HLA-A*11:01	1	1133	1142	10	TVYDPLQPEL 0.006123	5.0
HLA-A*02:01	1	730	739	10	KTSVDCTMYI 0.00612	6.3
HLA-A*11:01	1	1027	1035	9	SECVLGQSK 0.00612	5.0
HLA-B*08:01	1	28	36	9	YTNFSFTRGV 0.006118	7.9
HLA-A*32:01	1	777	786	10	EVFAQVKQIY 0.006115	4.5
HLA-A*11:01	1	800	809	10	SQILPDPSPK 0.006114	5.0
HLA-B*08:01	1	452	461	10	LFRKSNLKPF 0.006112	7.9
HLA-B*51:01	1	108	117	10	TTLDSKTQSL 0.006109	7.8
HLA-A*02:06	1	379	387	9	VSPTKLNLDL 0.006105	8.8
HLA-B*35:01	1	1083	1092	10	KAHFPREGVF 0.006096	4.6
HLA-A*01:01	1	634	642	9	STGSNVFQT 0.006093	5.0
HLA-A*32:01	1	483	492	10	FNCYFPLQSY 0.006092	4.5
HLA-A*03:01	1	324	332	9	VRFPNITNL 0.00609	5.7
HLA-B*08:01	1	507	515	9	VVLSFELL 0.00609	7.9
HLA-A*30:01	1	1204	1212	9	EQYIKWPWY 0.00609	12
HLA-A*30:01	1	1224	1232	9	IVMVTIMLC 0.006085	12
HLA-A*30:01	1	1017	1026	10	ASANLAATKM 0.006084	12

HLA-A*01:01	1	686	694	9	SQSIIAYTM 0.006083	5.0
HLA-B*58:01	1	729	738	10	TKTSVDCTMY 0.006076	5.5
HLA-A*03:01	1	178	187	10	DLEGKQGNFK 0.006075	5.7
HLA-A*68:01	1	523	532	10	GPKKSTNLVK 0.006072	8.2
HLA-A*30:01	1	325	334	10	RFPNITNLCP 0.006071	12
HLA-A*30:01	1	681	689	9	ARSVASQSI 0.006071	12
HLA-A*24:02	1	211	220	10	NLVRGLPQGF 0.006069	3.7
HLA-A*11:01	1	411	420	10	QTGNIADYNY 0.006067	5.0
HLA-A*03:01	1	812	820	9	RSFIEDLLF 0.006066	5.7
HLA-A*30:01	1	883	891	9	WTFGAGAAL 0.006066	12
HLA-B*15:01	1	572	580	9	AVRDPQMLE 0.006065	6.6
HLA-A*02:06	1	1021	1030	10	LAATKMSECV 0.006065	8.9
HLA-A*31:01	1	552	560	9	SNKKFLPFQ 0.006062	7.8
HLA-A*68:02	1	1069	1078	10	EKNFTTAPAI 0.006061	6.6
HLA-A*30:01	1	31	39	9	SFTRGVYYP 0.006059	12
HLA-A*30:02	1	854	862	9	GLTVLPPLL 0.006054	8.6
HLA-A*30:01	1	780	788	9	AQVKQIYKT 0.006052	12
HLA-A*26:01	1	989	997	9	QIDRLITGR 0.006052	4.3
HLA-A*02:01	1	905	913	9	GIGVTQNLV 0.006051	6.3
HLA-A*02:06	1	874	882	9	LLAGTITSG 0.006050	8.9
HLA-B*15:01	1	1133	1141	9	TVYDPLQPE 0.006050	6.6
HLA-B*57:01	1	717	725	9	ISVTTEILP 0.006047	8.1
HLA-A*02:06	1	238	247	10	FQTLHRSYLT 0.006045	8.9
HLA-B*58:01	1	996	1004	9	GRLQSLQTY 0.006042	5.5
HLA-A*30:02	1	719	728	10	VTTEILPVSM 0.006041	8.6
HLA-B*58:01	1	682	691	10	RSVASQSIIA 0.006040	5.5
HLA-A*02:06	1	965	974	10	SNFGAISSVL 0.006040	8.9
HLA-B*53:01	1	811	820	10	KRSFIEDLLF 0.006039	4.2
HLA-A*30:01	1	232	241	10	GINITRFQTL 0.006035	12
HLA-A*33:01	1	321	329	9	ESIVRFPNI 0.006034	6.3
HLA-A*02:03	1	192	200	9	FVFKNIDGY 0.006032	7.2
HLA-A*31:01	1	663	671	9	IGAGICASY 0.006030	7.8
HLA-B*15:01	1	621	630	10	IHADQLTPTW 0.006027	6.6
HLA-B*58:01	1	958	967	10	TLVKQLSSNF 0.006026	5.5
HLA-B*57:01	1	1224	1232	9	IVMVTIMLC 0.006026	8.1
HLA-A*23:01	1	1136	1145	10	DPLQPELDSF 0.006025	3.8
HLA-B*51:01	1	98	106	9	SNIIRGWIF 0.006024	7.9
HLA-B*51:01	1	794	803	10	FGGFNFSQIL 0.006023	7.9
HLA-A*30:02	1	867	876	10	IAQYTSALLA 0.006022	8.6
HLA-A*32:01	1	235	243	9	ITRFQTLHR 0.006021	4.5
HLA-A*02:06	1	45	54	10	SSVLHSTQDL 0.006020	8.9
HLA-B*58:01	1	257	266	10	AGAAAYYVGY 0.006020	5.5
HLA-A*26:01	1	96	104	9	EKSNIIRGW 0.006019	4.3
HLA-A*68:01	1	212	220	9	LVRGLPQGF 0.006019	8.3
HLA-A*02:06	1	1261	1269	9	VLKGVKLHY 0.006019	8.9
HLA-A*02:03	1	968	977	10	GAISSVLNDI 0.006017	7.2
HLA-B*57:01	1	743	751	9	STECSNLLL 0.006016	8.1
HLA-B*40:01	1	948	956	9	VVNQNAQAL 0.006016	3.5
HLA-A*30:01	1	1059	1067	9	FLHVTVVPA 0.006016	12
HLA-B*57:01	1	1046	1055	10	LMSFPQSAPH 0.006015	8.1
HLA-B*15:01	1	980	988	9	RLDKVEAEV 0.006013	6.6
HLA-B*57:01	1	1070	1078	9	KNFTTAPAI 0.006009	8.1
HLA-A*02:03	1	175	184	10	FLMDLEGKQG 0.006008	7.2
HLA-B*51:01	1	408	416	9	APGQTGNIA 0.006008	7.9
HLA-B*15:01	1	168	177	10	FEYVSQPFLM 0.006004	6.6
HLA-A*30:01	1	324	333	10	VRFPNITNLC 0.006004	12
HLA-B*15:01	1	961	969	9	KQLSSNFGA 0.006004	6.6
HLA-A*02:03	1	389	398	10	FTNVYADSFV 0.006001	7.2
HLA-B*07:02	1	617	625	9	VPVAIHADQ 0.006001	4.9
HLA-B*08:01	1	979	988	10	SRLDKVEAEV 0.005998	7.9
HLA-B*58:01	1	259	267	9	AAAYYVGYL 0.005996	5.5
HLA-B*08:01	1	135	143	9	FCNDPFLGV 0.005994	7.9
HLA-B*15:01	1	1223	1231	9	AIVMVTIML 0.005994	6.6
HLA-B*58:01	1	1119	1127	9	VSGNCDVVI 0.005991	5.5
HLA-A*02:03	1	872	881	10	SALLAGTITS 0.005989	7.2
HLA-A*30:01	1	497	505	9	TYGVGYQPY 0.005986	12

HLA-B*53:01	1	530	538	9	LVKNKCVNF 0.005985	4.2
HLA-B*44:03	1	849	857	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	1205	1214	10	QYIKWPWYIW 0.005977	7.9
HLA-A*01:01	1	722	730	9	EILPVSMTK 0.005974	5.0
HLA-B*15:01	1	795	803	9	GGFNFSQIL 0.005972	6.6
HLA-B*15:01	1	56	65	10	LPFFSNVTWF 0.005968	6.6
HLA-A*68:02	1	520	528	9	TVCGPKKST 0.005967	6.6
HLA-A*02:06	1	607	616	10	VLYQGVNCTE 0.005967	8.9
HLA-A*30:02	1	1193	1202	10	SLIDLQELGK 0.005967	8.6
HLA-A*30:02	1	311	319	9	QTSNFRVQP 0.00596	8.7
HLA-A*68:02	1	314	323	10	NFRVQPTESI 0.00596	6.6
HLA-A*01:01	1	790	799	10	PIKDFGGFNF 0.005959	5.1
HLA-B*08:01	1	1091	1099	9	VFVSNGTHW 0.005957	8.0
HLA-A*01:01	1	1039	1047	9	FCGKGYHLM 0.005956	5.1
HLA-B*57:01	1	1092	1101	10	FVSNGTHWFV 0.005956	8.2
HLA-B*44:03	1	800	808	9	SQILPDPSK 0.005953	3.7
HLA-A*02:01	1	763	771	9	ALTGIAVEQ 0.00595	6.4
HLA-A*30:01	1	1040	1048	9	CGKGYHLSM 0.005947	12
HLA-B*08:01	1	171	179	9	VSQPFLMDL 0.005946	8.0
HLA-A*11:01	1	879	887	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	1204	1213	10	EQYIKWPWYI 0.00594	7.9
HLA-B*35:01	1	257	266	10	AGAAAYYVGY 0.005939	4.7
HLA-A*01:01	1	769	778	10	VEQDKNTQEV 0.005939	5.1
HLA-A*30:01	1	1056	1065	10	GVVFLHVTYV 0.005938	12
HLA-B*44:03	1	1258	1266	9	SEPVLKGVK 0.005937	3.7
HLA-A*01:01	1	815	823	9	IEDLLFNKV 0.005934	5.1
HLA-A*30:02	1	1031	1039	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	LDSKTQSLI 0.005928	8.0
HLA-A*24:02	1	706	715	10	NNSIAIPTNF 0.005928	3.8
HLA-B*51:01	1	893	902	10	IPFAMQMAYR 0.005928	8.0
HLA-B*44:02	1	650	659	10	AEHVNSYEC 0.005926	3.4
HLA-B*08:01	1	1209	1217	9	WPWYIWLGF 0.005926	8.0
HLA-B*51:01	1	282	290	9	ITDAVDCAL 0.005923	8.0
HLA-A*30:02	1	867	875	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	847	855	9	ICAQKFNGL 0.005916	7.3
HLA-A*30:01	1	796	804	9	GFNFSQILP 0.005912	12
HLA-A*33:01	1	375	383	9	KCYGVSPTK 0.005911	6.3
HLA-A*02:03	1	911	919	9	NVLYENQKL 0.00591	7.3
HLA-A*30:01	1	110	119	10	LDSKTQSLLI 0.005909	12
HLA-A*68:01	1	339	348	10	FNATRFASVY 0.005909	8.3
HLA-B*44:02	1	826	835	10	ADAGFIKQYG 0.005908	3.4
HLA-A*30:02	1	186	194	9	FKNLREFV 0.005907	8.7
HLA-B*44:03	1	84	92	9	LPFNDGVYF 0.005902	3.7
HLA-A*32:01	1	879	887	9	ITSGWTFGA 0.005901	4.6
HLA-B*15:01	1	1072	1080	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*02:06	1	78	86	9	RFANPVL 0.005899	9.0
HLA-A*68:02	1	684	692	9	VASQSIIAY 0.005898	6.7
HLA-A*30:02	1	773	782	10	KNTQEVFAQV 0.005898	8.7
HLA-A*01:01	1	824	832	9	TLADAGFIK 0.005897	5.1
HLA-A*02:03	1	288	296	9	CALDPLSET 0.005891	7.3
HLA-A*02:03	1	498	507	10	YGVGYQPYRV 0.005889	7.3
HLA-A*32:01	1	600	609	10	NTSNQVAVLY 0.005887	4.6
HLA-A*68:02	1	84	92	9	LPFNDGVYF 0.005883	6.7
HLA-A*32:01	1	600	608	9	NTSNQVAVL 0.005881	4.6
HLA-A*02:03	1	1058	1067	10	VFLHVTYVPA 0.00588	7.3
HLA-B*08:01	1	954	963	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-B*08:01	1	502	511	10	YQPYRVVVL 0.00587	8.0
HLA-A*30:02	1	832	841	10	KQYGDCLGDI 0.00587	8.7
HLA-A*68:01	1	525	534	10	KKSTNLVKNK 0.005869	8.3
HLA-A*02:06	1	1167	1176	10	SGINASVVNI 0.005869	9.0
HLA-A*30:01	1	1105	1113	9	NFYEPQIIT 0.005868	12
HLA-A*33:01	1	122	130	9	NATNVVIKV 0.005867	6.3
HLA-B*51:01	1	512	521	10	FELLHAPATV 0.005867	8.0
HLA-A*68:02	1	634	643	10	STGSNVFQTR 0.005865	6.7
HLA-B*35:01	1	728	737	10	MTKTSVDCTM 0.005864	4.7
HLA-B*08:01	1	1174	1183	10	VNIQKEIDRL 0.005862	8.0
HLA-A*30:02	1	509	517	9	VLSFELLHA 0.00586	8.7
HLA-A*30:02	1	874	883	10	LLAGTITSGW 0.00586	8.7
HLA-A*24:02	1	379	387	9	VSPTKLNDL 0.005859	3.8
HLA-B*35:01	1	573	581	9	VRDPQTLEI 0.005859	4.7
HLA-B*35:01	1	193	201	9	VFKNIDGYF 0.005857	4.7
HLA-A*68:01	1	692	700	9	YTMSLGVEN 0.005855	8.3
HLA-A*23:01	1	315	323	9	FRVQPTESI 0.005852	3.8
HLA-A*68:01	1	1142	1151	10	LDSFKEELDK 0.00585	8.3
HLA-A*03:01	1	1143	1151	9	DSFKEELDK 0.00585	5.8
HLA-A*31:01	1	445	453	9	NYNYLYRLF 0.005849	8.0
HLA-B*15:01	1	381	389	9	PTKLNDLCF 0.005848	6.7
HLA-A*32:01	1	1137	1145	9	PLQPELDSF 0.005847	4.6
HLA-A*68:02	1	950	959	10	NQNAQALNTL 0.005846	6.7
HLA-B*58:01	1	1021	1029	9	LAATKMSEC 0.005845	5.5
HLA-A*02:06	1	1045	1054	10	HLMSFPQSAP 0.005845	9.0
HLA-A*24:02	1	1109	1118	10	PQIITDNTF 0.005845	3.8
HLA-A*01:01	1	251	259	9	SSSGWTAGA 0.005841	5.1
HLA-A*68:01	1	933	941	9	DSLSTASA 0.005841	8.3
HLA-A*30:01	1	1085	1093	9	HFPREGVJV 0.005841	12
HLA-A*02:06	1	22	30	9	TQLPPAYTN 0.005838	9.0
HLA-B*57:01	1	239	247	9	QTLHRSYLT 0.005838	8.3
HLA-A*26:01	1	672	680	9	QTQTNSPRR 0.005838	4.4
HLA-A*01:01	1	997	1005	9	RLQSLQTYV 0.005837	5.1
HLA-A*30:02	1	491	500	10	SYGFQPTYGV 0.00583	8.8
HLA-A*31:01	1	491	500	10	SYGFQPTYGV 0.005829	8.0
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	1197	1206	10	LQELGKYEYQ 0.005828	3.5
HLA-A*03:01	1	671	680	10	YQTQTNSPRR 0.005827	5.8
HLA-A*68:02	1	657	665	9	YECDPIGA 0.005825	6.7
HLA-B*57:01	1	847	855	9	ICAQKFNGL 0.005825	8.3
HLA-A*23:01	1	887	895	9	AGAALQIPF 0.005825	3.8
HLA-A*31:01	1	212	220	9	LVRGLPQGF 0.005824	8.0
HLA-B*57:01	1	486	494	9	YFPLQSYGF 0.005822	8.3
HLA-A*01:01	1	285	293	9	AVDCALDPL 0.005818	5.1
HLA-B*44:02	1	864	873	10	DEMIAQY TSA 0.005818	3.4
HLA-A*03:01	1	546	554	9	TGVLTESNK 0.005811	5.8
HLA-A*30:02	1	364	372	9	VLYNSASFS 0.00581	8.8
HLA-A*30:01	1	519	528	10	ATVCGPKKST 0.00581	12
HLA-A*33:01	1	233	241	9	INITRFQTL 0.005809	6.3
HLA-A*68:02	1	919	928	10	LIANQFNSAI 0.005808	6.7
HLA-A*68:02	1	499	508	10	GVGYPYRVV 0.005807	6.7
HLA-B*07:02	1	218	226	9	QGFSALEPL 0.005804	5.0
HLA-A*24:02	1	1182	1190	9	RLNEVAKNL 0.005802	3.8
HLA-B*57:01	1	355	364	10	ISNCVADYSV 0.005801	8.3
HLA-A*31:01	1	301	310	10	KSFTVEKGIY 0.005797	8.0
HLA-B*51:01	1	554	562	9	KKFLPFQFQ 0.005797	8.0
HLA-B*35:01	1	218	226	9	QGFSALEPL 0.005796	4.7
HLA-B*07:02	1	554	562	9	KKFLPFQFQ 0.005795	5.0
HLA-A*31:01	1	555	563	9	KFLPFQQFG 0.005792	8.0
HLA-A*02:03	1	867	876	10	IAQYTSALLA 0.005792	7.4
HLA-A*68:02	1	291	300	10	DPLSETKCTL 0.005789	6.7
HLA-A*68:01	1	30	39	10	NSFTRGVVYP 0.005787	8.4
HLA-B*08:01	1	196	204	9	NIDGYFKIY 0.005787	8.1

HLA-B*40:01	1	1254	1263	10	DEDDSEPVLK 0.005786	3.5
HLA-B*57:01	1	414	422	9	NIADYNYKL 0.005785	8.3
HLA-B*51:01	1	530	538	9	LVKNKCVNF 0.005785	8.0
HLA-B*58:01	1	577	586	10	QTLEILDITP 0.005785	5.6
HLA-B*44:02	1	877	885	9	GTITSGWTF 0.005784	3.4
HLA-A*30:02	1	1016	1024	9	RASANLAAT 0.005783	8.8
HLA-A*01:01	1	70	79	10	VSGTNGTKRF 0.005777	5.2
HLA-A*30:02	1	600	608	9	NTSNQVAVL 0.005777	8.8
HLA-A*02:01	1	272	280	9	FLLKYNENG 0.005775	6.5
HLA-B*57:01	1	171	180	10	VSQPFLMDLE 0.005774	8.3
HLA-B*58:01	1	719	727	9	VTTEILPVS 0.005774	5.6
HLA-A*32:01	1	151	159	9	SWMESEFRV 0.005771	4.6
HLA-B*08:01	1	247	255	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	440	448	9	SKVGGNYNY 0.005763	8.4
HLA-A*68:02	1	503	511	9	QPYRVVLS 0.005763	6.7
HLA-A*01:01	1	891	899	9	LQIPFAMQM 0.00576	5.2
HLA-B*15:01	1	451	459	9	RLFRKSNLK 0.005759	6.7
HLA-A*33:01	1	1206	1214	9	YIKWPWYIW 0.005759	6.4
HLA-B*58:01	1	777	786	10	EVFAQVKQIY 0.005757	5.6
HLA-A*24:02	1	485	493	9	CYFPLQSYG 0.005756	3.8
HLA-A*02:01	1	1182	1191	10	RLNEVAKNLN 0.005756	6.5
HLA-A*30:01	1	368	376	9	SASFSTFKC 0.005754	12
HLA-A*02:01	1	738	746	9	YICGDSTEC 0.005754	6.5
HLA-A*30:01	1	10	18	9	LVSSQCVNL 0.005752	12
HLA-A*32:01	1	500	508	9	VGYPYRVV 0.005752	4.6
HLA-A*30:01	1	1152	1161	10	YFKNHTSPDV 0.005752	12
HLA-B*44:03	1	205	213	9	SKHTPINLV 0.005748	3.7
HLA-A*30:02	1	844	852	9	RDLICAQKF 0.005748	8.9
HLA-A*68:02	1	49	58	10	HSTQDLFLPF 0.005747	6.7
HLA-A*02:01	1	802	811	10	ILPDPSKPSK 0.005744	6.5
HLA-A*30:02	1	634	642	9	STGSNVFQT 0.005743	8.9
HLA-B*44:03	1	1068	1077	10	QEKNTTAPA 0.005742	3.7
HLA-B*51:01	1	923	931	9	QFNSAIGKI 0.00574	8.1
HLA-A*32:01	1	911	919	9	NVLYENQKL 0.005739	4.6
HLA-B*35:01	1	24	33	10	LPPAYTNSFT 0.005738	4.7
HLA-A*01:01	1	799	808	10	FSQILPDPSK 0.005737	5.2
HLA-B*53:01	1	1001	1009	9	LQTYVTQQL 0.005737	4.3
HLA-A*26:01	1	62	70	9	VTWFHAIHV 0.005733	4.4
HLA-A*02:03	1	903	912	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	1037	1046	10	VDFCGKGYHL 0.005722	8.2
HLA-A*02:06	1	299	307	9	TLKSFTVEK 0.00572	9.1
HLA-A*24:02	1	48	56	9	LHSTQDLFL 0.005719	3.8
HLA-A*02:06	1	13	21	9	SQCVNLTRR 0.005714	9.1
HLA-B*58:01	1	150	158	9	KSWMESEFR 0.00571	5.6
HLA-A*30:01	1	391	399	9	NVYADSFVI 0.00571	12
HLA-A*02:01	1	1261	1269	9	VLKGVKLHY 0.00571	6.5
HLA-A*68:02	1	706	715	10	NNSIAIPTNF 0.005709	6.7
HLA-A*31:01	1	57	66	10	PFFSNVTWFH 0.005705	8.0
HLA-A*24:02	1	469	477	9	IYQAGSTPC 0.005705	3.8
HLA-B*08:01	1	755	764	10	SFCTQLNRAL 0.005705	8.2
HLA-A*02:01	1	1252	1261	10	KFDEDDSEPV 0.005705	6.5
HLA-A*03:01	1	205	214	10	SKHTPINLVR 0.005704	5.9
HLA-B*44:02	1	494	502	9	FQPTYGVGY 0.005702	3.5
HLA-A*30:01	1	897	905	9	MQMAYRFNG 0.005699	12
HLA-A*02:06	1	959	967	9	LVKQLSSNF 0.005699	9.1
HLA-A*31:01	1	774	782	9	NTQEVFAQV 0.005698	8.0
HLA-A*33:01	1	181	190	10	GKQGNFKNLR 0.005695	6.4
HLA-B*51:01	1	491	500	10	SYGFQPTYGV 0.005693	8.1
HLA-A*30:01	1	1000	1008	9	SLQTYVTQQ 0.005692	12
HLA-A*26:01	1	315	323	9	FRVQPTESI 0.005689	4.4
HLA-B*44:02	1	624	632	9	DQLTPTWRV 0.005689	3.5
HLA-B*57:01	1	11	19	9	VSSQCVNLT 0.005687	8.3



HLA-A*02:06	1	888	897	10	GAALQIPFAM 0.005685	9.1
HLA-A*26:01	1	731	739	9	TSVDCTMYI 0.005683	4.4
HLA-A*01:01	1	633	641	9	YSTGSNVFQ 0.005682	5.2
HLA-A*01:01	1	154	162	9	ESEFRVYSS 0.005678	5.2
HLA-B*58:01	1	1198	1206	9	QELGKYEYQ 0.005678	5.6
HLA-A*68:02	1	7	16	10	LLPLVSSQCV 0.005673	6.8
HLA-A*30:01	1	1046	1055	10	LMSFPQSAPH 0.005671	12
HLA-B*44:02	1	769	777	9	VEQDKNTQE 0.005669	3.5
HLA-A*02:06	1	168	177	10	FEYVSQPFLM 0.005668	9.1
HLA-A*02:06	1	212	220	9	LVRGLPQGF 0.005668	9.1
HLA-A*30:01	1	622	630	9	HADQLTPTW 0.005668	12
HLA-B*53:01	1	822	830	9	KVTLADAGF 0.005668	4.3
HLA-A*02:06	1	502	511	10	YQPYRVVVL 0.005667	9.1
HLA-A*31:01	1	77	86	10	KRFANPVLPF 0.005666	8.0
HLA-B*51:01	1	968	977	10	GAISSVLNDI 0.005666	8.1
HLA-A*32:01	1	1084	1092	9	AHFPREGVF 0.005666	4.7
HLA-B*07:02	1	865	874	10	EMIAQYTSAL 0.005665	5.1
HLA-B*40:01	1	184	192	9	GNFKNLREF 0.005662	3.6
HLA-B*51:01	1	838	846	9	LGDI AARDL 0.005661	8.1
HLA-A*24:02	1	506	514	9	RVVLSFEL 0.005660	3.9
HLA-A*68:01	1	906	914	9	IGVTQNVLY 0.005660	8.4
HLA-A*33:01	1	715	723	9	FTISVTTEI 0.005658	6.4
HLA-A*02:06	1	846	855	10	LICAQKFNGL 0.005658	9.2
HLA-A*68:01	1	1052	1060	9	SAPHGVVFL 0.005653	8.4
HLA-A*68:02	1	1082	1091	10	GKAHFPREGV 0.005653	6.8
HLA-B*58:01	1	669	678	10	ASYQTQTNSP 0.005652	5.6
HLA-A*01:01	1	742	750	9	DSTECSNLL 0.005652	5.2
HLA-A*02:06	1	398	407	10	VIRGDEV RQI 0.005649	9.2
HLA-A*30:01	1	1053	1061	9	APHGVVFLH 0.005649	12
HLA-B*57:01	1	908	916	9	VTQNVLYEN 0.005646	8.4
HLA-A*68:02	1	389	397	9	FTNVYADSF 0.005645	6.8
HLA-A*02:01	1	1000	1008	9	SLQTYVTQQ 0.005645	6.5
HLA-B*51:01	1	827	835	9	DAGFIKQYG 0.005641	8.2
HLA-A*30:02	1	905	913	9	GIGVTQNVL 0.005641	8.9
HLA-A*02:03	1	1021	1029	9	LAATKMSEC 0.005641	7.5
HLA-A*02:03	1	958	967	10	TLVKQLSSNF 0.005639	7.5
HLA-A*33:01	1	745	753	9	ECSNLLLQY 0.005638	6.4
HLA-A*30:01	1	926	934	9	SAIGKIQDS 0.005638	12
HLA-B*51:01	1	192	200	9	FVFKNIDGY 0.005636	8.2
HLA-B*15:01	1	905	913	9	GIGVTQNVL 0.005634	6.8
HLA-A*26:01	1	955	963	9	ALNTLVKQL 0.005633	4.4
HLA-B*57:01	1	754	762	9	GSFCTQLNR 0.005628	8.4
HLA-A*02:01	1	717	726	10	ISVTTEILPV 0.005627	6.5
HLA-B*58:01	1	717	726	10	ISVTTEILPV 0.005625	5.6
HLA-A*33:01	1	1133	1142	10	TVYDPLQPEL 0.005621	6.4
HLA-A*03:01	1	1133	1142	10	TVYDPLQPEL 0.005616	5.9
HLA-A*01:01	1	41	49	9	KVFRSSVLH 0.005614	5.2
HLA-A*32:01	1	499	507	9	GVGYQP YRV 0.005614	4.7
HLA-A*68:02	1	72	80	9	GTNGTKRFA 0.005613	6.8
HLA-A*30:01	1	255	263	9	WTAGAAAYY 0.005611	12
HLA-B*57:01	1	1022	1031	10	AATKMSECVL 0.005611	8.4
HLA-A*02:01	1	815	823	9	IEDLLFNKV 0.005606	6.6
HLA-A*02:03	1	640	648	9	FQTRAGCLI 0.005605	7.5
HLA-B*51:01	1	781	789	9	QVKQIYKTP 0.005603	8.2
HLA-B*44:03	1	864	873	10	DEMIAQY TSA 0.005603	3.8
HLA-A*24:02	1	362	371	10	YSVLYNSASF 0.005601	3.9
HLA-A*30:01	1	364	372	9	VLYNSASF S 0.005601	12
HLA-A*03:01	1	763	771	9	ALTGIAVEQ 0.005601	5.9
HLA-A*30:01	1	6	14	9	VLLPLVSSQ 0.005600	12
HLA-A*02:06	1	1261	1270	10	VLKGVKLHYT 0.005600	9.2
HLA-A*33:01	1	600	609	10	NTSNQVAVLY 0.005599	6.5
HLA-A*30:02	1	323	331	9	IVRFPNITN 0.005594	9.0
HLA-B*08:01	1	1148	1156	9	ELDKYFKNH 0.005594	8.2
HLA-A*03:01	1	992	1001	10	RLITGRLQSL 0.005592	5.9
HLA-A*02:03	1	510	519	10	LSFELLHAPA 0.005587	7.5
HLA-B*57:01	1	693	702	10	TMSLGVENSV 0.005587	8.4

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	912	920	9	VLYENQKLI 0.005582	5.9
HLA-A*32:01	1	36	44	9	VYYPDKVFR 0.00558	4.7
HLA-A*33:01	1	185	194	10	NFKNLREFVF 0.005579	6.5
HLA-A*33:01	1	425	433	9	DFTGCVIAW 0.005575	6.5
HLA-B*57:01	1	855	864	10	LTVLPPLTD 0.005575	8.4
HLA-A*32:01	1	1188	1197	10	KNLNESLIDL 0.005572	4.7
HLA-B*35:01	1	307	315	9	KGIYQTSNF 0.005566	4.8
HLA-A*30:02	1	115	123	9	QSLLVNNA 0.005565	9.0
HLA-B*08:01	1	778	786	9	VFAQVKQIY 0.005564	8.3
HLA-A*26:01	1	1137	1145	9	PLQPELDSF 0.005564	4.5
HLA-A*02:06	1	878	887	10	TITSGWTFGA 0.005563	9.2
HLA-A*68:01	1	1172	1180	9	SVVNIQKEI 0.005563	8.5
HLA-A*03:01	1	344	353	10	FASVYAWNKR 0.005562	5.9
HLA-B*57:01	1	59	67	9	FSNVTWFHA 0.005561	8.4
HLA-A*11:01	1	363	371	9	SVLYNSASF 0.005561	5.2
HLA-B*08:01	1	933	941	9	DSLSSTASA 0.005561	8.3
HLA-B*51:01	1	947	956	10	DVVNQNAQAL 0.005561	8.2
HLA-A*30:02	1	988	996	9	VQIDLITG 0.00556	9.0
HLA-A*01:01	1	38	46	9	YDPKVFRRS 0.005559	5.3
HLA-A*33:01	1	148	156	9	NNKSWMESE 0.005559	6.5
HLA-B*07:02	1	214	222	9	RGLPQGFS 0.005559	5.1
HLA-B*15:01	1	866	875	10	MIAQYTSALL 0.005559	6.8
HLA-A*68:01	1	366	374	9	YNSASFSTF 0.005557	8.5
HLA-A*68:01	1	412	420	9	TGNIADYNY 0.005557	8.5
HLA-A*11:01	1	1257	1266	10	DSEPVLKGVK 0.005557	5.2
HLA-A*30:01	1	363	372	10	SVLYNSASF 0.005552	12
HLA-A*30:01	1	604	612	9	QVAVLYQGV 0.005552	12
HLA-A*26:01	1	135	143	9	FCNDPFLGV 0.005551	4.5
HLA-B*51:01	1	1253	1262	10	FDEDDSEPV 0.00555	8.2
HLA-B*44:03	1	1182	1190	9	RLNEVAKNL 0.005548	3.8
HLA-A*01:01	1	162	171	10	SANNCTFEYV 0.005547	5.3
HLA-B*08:01	1	1083	1091	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	NDPFLGVYI 0.005544	6.8
HLA-B*58:01	1	297	305	9	KCTLKSFTV 0.005543	5.7
HLA-A*02:03	1	593	602	10	SVITPGTNTS 0.005541	7.5
HLA-A*30:01	1	169	177	9	EYVSQPFLM 0.005537	12
HLA-B*53:01	1	731	739	9	TSVDCTMYI 0.005537	4.3
HLA-B*53:01	1	492	500	9	YGFQPTYGV 0.005529	4.3
HLA-A*01:01	1	879	887	9	ITSGWTFGA 0.005528	5.3
HLA-A*30:01	1	236	244	9	TRFQTLHRS 0.005527	12
HLA-A*68:02	1	133	141	9	FQFCNDPFL 0.005526	6.9
HLA-A*11:01	1	1255	1263	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	730	739	10	KTSVDCTMYI 0.005523	7.5
HLA-A*23:01	1	755	764	10	SFCTQLNRAL 0.00552	3.9
HLA-A*24:02	1	97	106	10	KSNIIIRGWIF 0.005518	3.9
HLA-A*26:01	1	461	469	9	FERDISTEI 0.005517	4.5
HLA-B*57:01	1	709	718	10	IAIPTNFTIS 0.005517	8.4
HLA-B*53:01	1	483	492	10	FNCYFPLQSY 0.005512	4.3
HLA-A*31:01	1	507	516	10	VVLSFELLH 0.005511	8.1
HLA-B*40:01	1	791	799	9	IKDFGGFNF 0.005511	3.6
HLA-A*24:02	1	178	186	9	DLEGKQGNF 0.00551	3.9
HLA-B*15:01	1	848	857	10	CAQKFNGLTV 0.005508	6.8
HLA-A*30:01	1	167	176	10	TFEYVSQPFL 0.005503	12
HLA-A*30:01	1	549	557	9	LTESNKKFL 0.005501	12
HLA-B*58:01	1	600	608	9	NTSNQVAVL 0.005501	5.7
HLA-A*02:03	1	929	938	10	GKIQDSLST 0.005501	7.6
HLA-A*30:02	1	566	574	9	IADTTDAVR 0.005499	9.1
HLA-B*07:02	1	160	168	9	YSSANNCTF 0.005497	5.1
HLA-B*57:01	1	771	779	9	QDKNTQEVF 0.005497	8.5
HLA-B*40:01	1	1007	1015	9	QQLIRAAEI 0.005496	3.6
HLA-A*30:02	1	240	248	9	TLHRSYLTP 0.005495	9.1

HLA-B*51:01	1	1091	1099	9	VFVSNQTHW 0.005495	8.3
HLA-A*68:02	1	69	77	9	HVSGTNGTK 0.005494	6.9
HLA-B*08:01	1	978	986	9	LSRLDKVEA 0.005491	8.3
HLA-A*24:02	1	227	235	9	VDLPIGINI 0.005488	3.9
HLA-A*01:01	1	324	332	9	VRFPNITNL 0.005487	5.3
HLA-A*30:02	1	912	921	10	VLYENQKLIA 0.005486	9.1
HLA-B*51:01	1	776	785	10	QEVFAQVKQI 0.005484	8.3
HLA-B*40:01	1	570	579	10	TDAVRDPQTL 0.005482	3.6
HLA-A*31:01	1	412	421	10	TGNIADYNYK 0.005481	8.1
HLA-B*35:01	1	333	342	10	CPFGEVFNAT 0.005478	4.8
HLA-A*32:01	1	535	543	9	CVNFNFNGL 0.005478	4.7
HLA-B*53:01	1	695	704	10	SLGVENSVAV 0.005476	4.4
HLA-B*57:01	1	806	815	10	PSKPSKRSFI 0.005473	8.5
HLA-B*35:01	1	622	631	10	HADQLTPTWR 0.00547	4.8
HLA-B*40:01	1	780	788	9	AQVKQIYKT 0.00547	3.6
HLA-A*32:01	1	871	879	9	TSALLAGTI 0.005467	4.7
HLA-A*11:01	1	262	270	9	YYVGYLQPR 0.005466	5.2
HLA-B*51:01	1	706	715	10	NNSIAIPTNF 0.005466	8.3
HLA-B*35:01	1	342	350	9	TRFASVYAW 0.005465	4.8
HLA-A*30:01	1	927	935	9	AIGKIQDSL 0.005465	12
HLA-B*57:01	1	971	980	10	SSVLNDILSR 0.005464	8.5
HLA-B*51:01	1	1259	1268	10	EPVLKGVKLVH 0.005462	8.3
HLA-A*02:06	1	910	919	10	QNVLYENQKL 0.00546	9.3
HLA-A*03:01	1	1233	1242	10	CMTSCCCLK 0.00546	6.0
HLA-A*24:02	1	102	110	9	RGWIFGTTL 0.005458	3.9
HLA-A*24:02	1	688	696	9	SIIAYTMSL 0.005456	3.9
HLA-A*02:06	1	776	785	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	336	344	9	GEVFNATRF 0.005445	4.9
HLA-A*32:01	1	237	246	10	RFQTLHRSYL 0.005433	4.8
HLA-A*68:01	1	870	878	9	YTSALLAGT 0.005433	8.6
HLA-A*30:02	1	432	441	10	AWNSNNLDSK 0.005431	9.2
HLA-A*30:02	1	997	1006	10	RLQSLQTYVT 0.005429	9.2
HLA-A*68:01	1	192	201	10	FVFKNIDGYF 0.005427	8.6
HLA-A*01:01	1	1254	1262	9	DEDDSEPVL 0.005427	5.3
HLA-A*24:02	1	493	502	10	GFQPTYGVGY 0.005426	3.9
HLA-A*33:01	1	842	851	10	AARDLICAQK 0.005426	6.5
HLA-B*07:02	1	24	33	10	LPPAYTNSFT 0.005425	5.2
HLA-A*30:01	1	485	493	9	CYFPLQSYG 0.005424	12
HLA-B*07:02	1	683	691	9	SVASQSIIA 0.005424	5.2
HLA-B*40:01	1	571	579	9	DAVRDPQTL 0.00542	3.6
HLA-B*57:01	1	265	273	9	GYLQPRTFL 0.005418	8.5
HLA-A*02:01	1	950	959	10	NQNAQALNTL 0.005417	6.7
HLA-A*68:01	1	571	580	10	DAVRDPQTLE 0.005413	8.6
HLA-B*40:01	1	965	974	10	SNFGAISSVL 0.005413	3.6
HLA-A*02:06	1	732	740	9	SVDCTMYIC 0.005412	9.3
HLA-A*68:02	1	781	789	9	QVKQIYKTP 0.005412	6.9
HLA-A*31:01	1	532	540	9	KNKCVNFNF 0.005411	8.2
HLA-B*57:01	1	1197	1206	10	LQELGKYEYQ 0.005411	8.5
HLA-A*23:01	1	171	179	9	VSQPFLMDL 0.00541	3.9
HLA-A*03:01	1	267	276	10	LQPRTFLLKY 0.005408	6.0
HLA-B*58:01	1	294	303	10	SETKCTLKSF 0.005408	5.7
HLA-A*30:01	1	1048	1056	9	SFPQSAPHG 0.005408	12
HLA-B*07:02	1	224	233	10	EPLVDLPIGI 0.005407	5.2
HLA-A*30:01	1	344	353	10	FASVYAWNRK 0.005407	12
HLA-A*32:01	1	247	255	9	TPGDSSSGW 0.005404	4.8
HLA-B*51:01	1	528	536	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	548	557	10	VLTESNKKFL 0.005396	8.6
HLA-B*57:01	1	235	244	10	ITRFQTLHRS 0.005392	8.6
HLA-B*35:01	1	1206	1214	9	YIKWPWYIW 0.005392	4.9
HLA-B*51:01	1	805	813	9	DPSKPSKRS 0.00539	8.3
HLA-A*31:01	1	20	28	9	TRTQLPPAY 0.005389	8.2
HLA-A*30:02	1	623	632	10	ADQLTPTWRV 0.005388	9.2

HLA-A*30:01	1	1027	1035	9	SECVLGQSK 0.005386	12
HLA-A*32:01	1	1216	1224	9	GFIAGLIAI 0.005386	4.8
HLA-A*02:06	1	1129	1138	10	IVNNTVYDPL 0.005383	9.3
HLA-B*07:02	1	1078	1086	9	ICHDGKAHF 0.005382	5.2
HLA-A*02:03	1	685	693	9	ASQSIIAYT 0.00538	7.6
HLA-A*30:01	1	754	763	10	GSFCTQLNRA 0.00538	12
HLA-A*02:03	1	1165	1174	10	DISGINASVV 0.00538	7.6
HLA-B*07:02	1	1110	1118	9	QIITTDNTF 0.005379	5.2
HLA-B*35:01	1	132	140	9	EFQFCNDPF 0.005376	4.9
HLA-B*57:01	1	1208	1217	10	KWPWYIWLGF 0.005376	8.6
HLA-A*68:02	1	857	866	10	VLPLLLTDEM 0.005375	7.0
HLA-A*02:06	1	1252	1261	10	KFDEDDSEPV 0.005375	9.3
HLA-A*32:01	1	504	512	9	PYRVVLSF 0.005374	4.8
HLA-B*57:01	1	799	808	10	FSQILPDPSPK 0.005373	8.6
HLA-B*51:01	1	415	423	9	IADYNYKLP 0.005372	8.3
HLA-B*57:01	1	1096	1104	9	GTHWFVTQR 0.005372	8.6
HLA-A*30:01	1	1125	1134	10	VVIGIVNNTV 0.005371	12
HLA-B*51:01	1	425	433	9	DFTGCVIAW 0.005369	8.3
HLA-A*01:01	1	502	510	9	YQPYRVVVL 0.005369	5.4
HLA-A*02:06	1	434	442	9	NSNNLDSKV 0.005368	9.3
HLA-A*33:01	1	439	448	10	DSKVGGNYNY 0.005366	6.6
HLA-A*30:01	1	965	974	10	SNFGAISSVL 0.005365	12
HLA-A*30:02	1	446	454	9	YNYLYRLFR 0.005362	9.2
HLA-B*44:02	1	143	152	10	VYYHKNNKSW 0.005359	3.6
HLA-A*33:01	1	802	811	10	ILPDPSKPSK 0.005358	6.6
HLA-B*53:01	1	178	186	9	DLEGKQGNF 0.005357	4.4
HLA-A*68:01	1	494	502	9	FQPTYGVGY 0.005355	8.6
HLA-B*44:02	1	366	374	9	YNSASFSTF 0.005354	3.6
HLA-A*68:01	1	565	573	9	DIADTTDAV 0.005353	8.6
HLA-A*02:03	1	702	710	9	VAYSNSNSIA 0.005353	7.6
HLA-A*30:01	1	961	970	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	1138	1146	9	LQPELDSFK 0.005351	9.2
HLA-A*01:01	1	631	640	10	RVYSTGSNVF 0.00535	5.4
HLA-B*15:01	1	962	970	9	QLSSNFGAI 0.00535	6.9
HLA-A*02:03	1	6	14	9	VLLPLVSSQ 0.005349	7.6
HLA-B*57:01	1	388	397	10	CFTNVYADSF 0.005347	8.6
HLA-A*03:01	1	412	421	10	TGNIADYNYK 0.005342	6.0
HLA-B*44:03	1	868	876	9	AQYTSALLA 0.005341	3.9
HLA-A*32:01	1	444	453	10	GNYNLYRLF 0.005338	4.8
HLA-B*51:01	1	1055	1063	9	HGVVFLHVT 0.005337	8.4
HLA-B*51:01	1	1085	1093	9	HFPREGVVF 0.005337	8.4
HLA-A*31:01	1	41	50	10	KVFRSSVLHS 0.005335	8.2
HLA-B*51:01	1	632	640	9	VYSTGSNVF 0.005335	8.4
HLA-B*40:01	1	573	582	10	VRDPQTLEIL 0.005334	3.7
HLA-B*44:02	1	777	785	9	EVFAQVKQI 0.005333	3.6
HLA-A*24:02	1	479	487	9	GVKGFNCYF 0.005332	4.0
HLA-B*53:01	1	211	220	10	NLVRGLPQGF 0.005331	4.4
HLA-A*30:01	1	850	858	9	QKFNGLTVL 0.005331	12
HLA-A*30:02	1	547	555	9	GVLTESNKK 0.00533	9.3
HLA-B*08:01	1	119	127	9	IVNNATNVV 0.005329	8.5
HLA-A*11:01	1	1055	1064	10	HGVVFLHVTY 0.005329	5.3
HLA-A*02:06	1	695	704	10	SLGVENSVAV 0.005326	9.4
HLA-B*51:01	1	307	315	9	KGIYQTSNF 0.00532	8.4
HLA-B*51:01	1	700	709	10	NSVAYSNSNSI 0.005319	8.4
HLA-A*02:01	1	1133	1141	9	TVYDPLQPE 0.005319	6.7
HLA-A*01:01	1	267	275	9	LQPRTFLLK 0.005318	5.4
HLA-A*01:01	1	728	737	10	MTKTSVDCTM 0.005318	5.4
HLA-B*15:01	1	988	997	10	VQIDRLITGR 0.005318	6.9
HLA-B*44:03	1	1001	1009	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	702	711	10	VAYSNSNSIAI 0.005314	8.6
HLA-A*31:01	1	959	967	9	LVKQLSSNF 0.005314	8.2
HLA-A*68:01	1	744	753	10	TECSNLLLQY 0.005312	8.6

HLA-A*30:01	1	33	41	9	TRGVYYPDK 0.005311	12
HLA-A*32:01	1	844	852	9	RDLICAQKF 0.005311	4.8
HLA-B*57:01	1	509	518	10	VLSFELLHAP 0.005309	8.6
HLA-B*53:01	1	495	504	10	QPTYGVGYQP 0.005308	4.4
HLA-A*68:01	1	593	602	10	SVITPGTNTS 0.005306	8.6
HLA-B*15:01	1	719	728	10	VTTEILPVSM 0.005306	7.0
HLA-A*68:01	1	105	113	9	IFGTLLDSK 0.005305	8.6
HLA-B*57:01	1	972	980	9	SVLNDILSR 0.005304	8.6
HLA-A*30:01	1	15	23	9	CVNLTRTRQ 0.005303	12
HLA-B*35:01	1	61	69	9	NVTWFHAIH 0.005302	4.9
HLA-A*03:01	1	261	270	10	AYYVGYLQPR 0.005301	6.0
HLA-A*26:01	1	336	344	9	GEVFNATRF 0.0053	4.6
HLA-A*68:01	1	996	1004	9	GRLQSLQTY 0.0053	8.6
HLA-A*26:01	1	906	914	9	IGVTQNVLY 0.005299	4.6
HLA-A*30:02	1	649	658	10	GAEHVNNSYE 0.005298	9.3
HLA-A*02:06	1	211	219	9	NLVRGLPQG 0.005297	9.4
HLA-A*68:02	1	496	504	9	PTYGVGYQP 0.005297	7.0
HLA-B*53:01	1	973	981	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	288	297	10	CALDPLSETK 0.005294	8.6
HLA-A*30:02	1	587	595	9	CSFGGVSVI 0.005294	9.3
HLA-B*35:01	1	1185	1194	10	EVAKNLNESL 0.005291	4.9
HLA-A*24:02	1	882	891	10	GWTFGAGAAL 0.00529	4.0
HLA-A*11:01	1	778	786	9	VFAQVKQIY 0.005289	5.3
HLA-A*30:01	1	270	279	10	RTFLLKYEN 0.005288	12
HLA-B*40:01	1	1027	1035	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	289	297	9	ALDPLSETK 0.005283	6.6
HLA-A*01:01	1	418	426	9	YNYKLPDDF 0.005283	5.4
HLA-A*01:01	1	731	739	9	TSVDCTMYI 0.005282	5.4
HLA-B*07:02	1	585	593	9	TPCSFGGVS 0.005281	5.2
HLA-A*30:01	1	751	760	10	LQYGSFCTQL 0.005281	12
HLA-B*51:01	1	693	702	10	TMSLGVENS 0.005278	8.4
HLA-A*11:01	1	303	311	9	FTVEKGIYQ 0.005275	5.3
HLA-A*68:02	1	114	123	10	TQSLLVNNA 0.005273	7.0
HLA-A*31:01	1	803	811	9	LPDPSKPSK 0.005273	8.3
HLA-B*44:02	1	50	58	9	STQDLFLPF 0.005272	3.6
HLA-B*57:01	1	624	633	10	DQLTPTWRVY 0.005272	8.6
HLA-B*58:01	1	226	235	10	LVDLPIGINI 0.005268	5.8
HLA-A*02:03	1	936	945	10	SSTASALGKL 0.005267	7.7
HLA-A*30:01	1	1103	1111	9	QRNFYEPQI 0.005267	12
HLA-A*01:01	1	823	832	10	VTLADAGFIK 0.005265	5.4
HLA-A*30:01	1	931	939	9	IQDLSLSTA 0.005265	12
HLA-B*08:01	1	357	365	9	NCVADYSVL 0.005263	8.5
HLA-A*30:02	1	951	959	9	QNAQALNTL 0.005263	9.3
HLA-A*26:01	1	418	426	9	YNYKLPDDF 0.005261	4.6
HLA-B*44:03	1	995	1004	10	TGRLQSLQTY 0.005255	3.9
HLA-B*15:01	1	221	229	9	SALEPLVDL 0.00525	7.0
HLA-A*26:01	1	965	974	10	SNFGAISSVL 0.00525	4.6
HLA-A*02:01	1	1219	1228	10	AGLIAIVMVT 0.00525	6.8
HLA-B*57:01	1	905	914	10	GIGVTQNVLY 0.005249	8.7
HLA-A*26:01	1	1197	1206	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	324	332	9	VRFPNITNL 0.005246	5.8
HLA-A*23:01	1	444	452	9	GNYNLYRL 0.005245	4.0
HLA-A*31:01	1	1026	1035	10	MSECVLGQSK 0.005242	8.3
HLA-A*26:01	1	1013	1021	9	AEIRASANL 0.005241	4.6
HLA-A*02:06	1	265	273	9	GYLQPRFTL 0.005239	9.5
HLA-A*68:02	1	684	693	10	VASQSIIAYT 0.005238	7.0
HLA-A*33:01	1	63	71	9	TWFHAIHVS 0.005237	6.6
HLA-A*68:02	1	321	330	10	ESIVRFPNIT 0.005237	7.0
HLA-A*30:01	1	339	347	9	FNATRFASV 0.005236	12
HLA-A*30:02	1	126	135	10	VVIKVCDFQF 0.005235	9.4

HLA-A*68:02	1	392	400	9	VYADSFVIR 0.005234	7.0
HLA-A*31:01	1	709	717	9	IAIPTNFTI 0.005232	8.3
HLA-A*01:01	1	959	967	9	LVKQLSSNF 0.005231	5.4
HLA-B*57:01	1	346	355	10	SVYAWNRRKI 0.005229	8.7
HLA-A*68:01	1	954	962	9	QALNTLVKQ 0.005226	8.7
HLA-A*02:06	1	397	405	9	FVIRGDEVR 0.005225	9.5
HLA-B*53:01	1	587	595	9	CSFGGVSVI 0.005225	4.5
HLA-B*15:01	1	783	792	10	KQIYKTPPIK 0.005222	7.0
HLA-A*02:06	1	814	822	9	FIEDLLFNK 0.005219	9.5
HLA-A*02:03	1	1032	1040	9	GQSKRVDFC 0.005219	7.7
HLA-B*15:01	1	404	413	10	VRQIAPGQTG 0.005218	7.0
HLA-B*51:01	1	430	438	9	VIAWNSNNL 0.005217	8.5
HLA-A*02:03	1	451	459	9	RLFRKSNLK 0.005216	7.7
HLA-A*68:01	1	613	622	10	NCTEVPVAIH 0.005216	8.7
HLA-A*02:01	1	1051	1060	10	QSAPHGVVFL 0.005213	6.8
HLA-B*57:01	1	239	248	10	QTLHRSYLTP 0.005212	8.7
HLA-A*02:01	1	371	379	9	FSTFKCYGV 0.005212	6.8
HLA-B*53:01	1	791	799	9	IKDFGGFNF 0.005212	4.5
HLA-B*08:01	1	522	531	10	CGPKKSTNLV 0.005208	8.6
HLA-A*03:01	1	236	245	10	TRFQTLHRSY 0.005207	6.1
HLA-B*53:01	1	216	224	9	LPQGFSALE 0.005206	4.5
HLA-A*30:02	1	345	354	10	ASVYAWNRRK 0.005206	9.4
HLA-B*53:01	1	485	494	10	CYFPLQSYGF 0.005205	4.5
HLA-A*11:01	1	663	671	9	IGAGICASY 0.005205	5.3
HLA-B*15:01	1	799	808	10	FSQILPDP SK 0.005205	7.0
HLA-A*31:01	1	812	820	9	RSFIEDLLF 0.005205	8.3
HLA-B*40:01	1	945	953	9	LQDVVNQNA 0.005202	3.7
HLA-A*03:01	1	364	372	9	VLYNSASF S 0.0052	6.1
HLA-B*07:02	1	849	858	10	AQKFNGLTVL 0.005199	5.3
HLA-B*44:02	1	437	446	10	NLDSKVG GNY 0.005197	3.6
HLA-A*32:01	1	818	826	9	LLFNKVTLA 0.005197	4.9
HLA-B*07:02	1	1172	1180	9	SVVNIQKEI 0.005197	5.3
HLA-A*68:01	1	389	397	9	FTNVYADSF 0.005196	8.7
HLA-A*30:01	1	591	599	9	GVSVITPGT 0.005196	12
HLA-A*03:01	1	622	631	10	HADQLTPTWR 0.005196	6.1
HLA-A*02:06	1	547	556	10	GVLTESNKKF 0.005195	9.5
HLA-A*30:01	1	493	502	10	GFQPTYGVGY 0.005192	13
HLA-A*33:01	1	580	589	10	EILDITPCSF 0.005192	6.7
HLA-A*32:01	1	95	104	10	TEKSNIIRGW 0.005189	4.9
HLA-B*51:01	1	818	826	9	LLFNKVTLA 0.005189	8.5
HLA-A*11:01	1	229	237	9	LPIGINITR 0.005188	5.3
HLA-A*26:01	1	774	783	10	NTQEVFAQVK 0.005187	4.7
HLA-B*53:01	1	1172	1180	9	SVVNIQKEI 0.005186	4.5
HLA-A*30:01	1	1067	1076	10	AQEKNFTTAP 0.005182	13
HLA-A*01:01	1	916	924	9	NQKLIANQF 0.005181	5.5
HLA-A*31:01	1	358	366	9	CVADYSVLY 0.005179	8.3
HLA-B*51:01	1	713	721	9	TNFTISVTT 0.005179	8.5
HLA-A*02:06	1	375	383	9	KCYGVSP TK 0.005178	9.5
HLA-B*07:02	1	882	891	10	GWTFGAGAAL 0.005178	5.3
HLA-A*02:06	1	93	101	9	ASTEKSNI I 0.005177	9.5
HLA-A*30:01	1	496	504	9	PTYGVGYQP 0.005176	13
HLA-A*68:01	1	649	657	9	GAEHVNNSY 0.005176	8.7
HLA-A*68:02	1	383	392	10	KLNDLCFTNV 0.005175	7.1
HLA-B*58:01	1	1101	1109	9	VTQRNFYEP 0.005172	5.9
HLA-A*33:01	1	204	212	9	YSKHTPINL 0.005171	6.7
HLA-B*57:01	1	260	268	9	AAYYVGYLQ 0.005167	8.7
HLA-B*44:03	1	650	658	9	AEHVNNSYE 0.005167	3.9
HLA-A*68:01	1	975	983	9	NDILSRLDK 0.005167	8.7
HLA-B*07:02	1	167	175	9	TFEYVSQPF 0.005166	5.3
HLA-B*07:02	1	315	323	9	FRVQPTESI 0.005165	5.3
HLA-A*32:01	1	259	267	9	AAAYYVGYL 0.005163	4.9
HLA-A*30:01	1	752	760	9	QYGSFCTQL 0.005162	13
HLA-B*58:01	1	770	779	10	EQDKNTQEVF 0.005162	5.9
HLA-B*51:01	1	715	724	10	FTISVTTEIL 0.00516	8.5
HLA-B*07:02	1	972	981	10	SVLNDILSRL 0.00516	5.3
HLA-A*01:01	1	1113	1122	10	TTDNTFVSGN 0.00516	5.5

HLA-A*32:01	1	906	914	9	IGVTQNVLY	0.005159	4.9
HLA-A*23:01	1	63	71	9	TWFHAIHVS	0.005158	4.0
HLA-B*44:02	1	650	658	9	AEHVNNSEY	0.005157	3.6
HLA-B*57:01	1	968	977	10	GAISSVLNDI	0.005157	8.7
HLA-B*07:02	1	450	458	9	YRLFRKSNL	0.005155	5.3
HLA-A*68:02	1	154	162	9	ESEFRVYSS	0.005152	7.1
HLA-A*33:01	1	552	560	9	SNKKFLPFQ	0.005149	6.7
HLA-A*30:01	1	1058	1066	9	VFLHVTYVP	0.005148	13
HLA-B*53:01	1	688	696	9	SIIAYTMSL	0.005146	4.5
HLA-B*57:01	1	10	18	9	LVSSQCVNL	0.005143	8.7
HLA-A*02:01	1	461	469	9	FERDISTEI	0.005142	6.8
HLA-A*30:02	1	143	151	9	VYYHKNNKS	0.005137	9.5
HLA-A*68:02	1	853	861	9	NGLTVLPPL	0.005135	7.1
HLA-A*68:01	1	701	709	9	SVAYSNNSI	0.005133	8.7
HLA-A*02:03	1	346	355	10	SVYAWNKRRI	0.005132	7.8
HLA-A*30:01	1	449	457	9	LYRLFRKSN	0.005132	13
HLA-A*02:01	1	955	964	10	ALNTLVKQLS	0.005132	6.8
HLA-B*08:01	1	214	222	9	RGLPQGFSA	0.00513	8.6
HLA-B*58:01	1	1016	1025	10	RASANLAATK	0.00513	5.9
HLA-A*02:03	1	472	480	9	AGSTPCNGV	0.005129	7.8
HLA-B*44:02	1	800	808	9	SQILPDPSK	0.005129	3.6
HLA-B*57:01	1	1084	1092	9	AHFPPREGVF	0.005128	8.8
HLA-A*32:01	1	832	841	10	KQYGDCLGDI	0.005124	4.9
HLA-A*31:01	1	1133	1141	9	TVYDPLQPE	0.005124	8.4
HLA-A*33:01	1	1093	1101	9	VSNGTHWV	0.005123	6.7
HLA-B*51:01	1	278	286	9	ENGTITDAV	0.005122	8.6
HLA-A*30:01	1	1055	1064	10	HGVVFLHVTY	0.005121	13
HLA-B*08:01	1	92	101	10	FASTEKSNII	0.005119	8.6
HLA-B*44:03	1	437	446	10	NLDSKVGNGY	0.005118	4.0
HLA-B*08:01	1	1207	1215	9	IKWPWYIWL	0.005118	8.6
HLA-A*23:01	1	889	897	9	AALQIPFAM	0.005116	4.0
HLA-B*57:01	1	391	399	9	NVYADSFVI	0.005115	8.8
HLA-A*31:01	1	684	692	9	VASQSIIAY	0.005114	8.4
HLA-A*33:01	1	267	275	9	LQPRTFLLK	0.005113	6.7
HLA-A*68:01	1	999	1007	9	QSLQTYVTQ	0.005113	8.8
HLA-B*15:01	1	109	118	10	TLDSKTQSL	0.00511	7.1
HLA-B*44:02	1	24	32	9	LPPAYTNSF	0.005106	3.7
HLA-B*51:01	1	557	565	9	LPFQQFGRD	0.005105	8.6
HLA-A*31:01	1	307	315	9	KGIYQTSNF	0.005104	8.4
HLA-B*57:01	1	27	36	10	AYTNSFTRGV	0.005103	8.8
HLA-A*11:01	1	856	865	10	TVLPPLLTDE	0.005102	5.4
HLA-B*58:01	1	1022	1030	9	AATKMSECV	0.005101	5.9
HLA-A*32:01	1	1126	1135	10	VIGIVNNTVY	0.005101	4.9
HLA-B*57:01	1	1204	1212	9	EQYIKWPWY	0.005101	8.8
HLA-A*33:01	1	688	696	9	SIIAYTMSL	0.005099	6.7
HLA-B*53:01	1	996	1004	9	GRLQSLQTY	0.005099	4.5
HLA-A*02:01	1	192	200	9	FVFKNIDGY	0.005094	6.9
HLA-B*40:01	1	1104	1112	9	RNFYEPQII	0.005094	3.7
HLA-B*08:01	1	703	711	9	AYSNNIAI	0.005093	8.7
HLA-A*30:02	1	706	715	10	NNSIAIPTNF	0.005092	9.6
HLA-A*31:01	1	1072	1080	9	FTTAPAICH	0.005092	8.4
HLA-A*30:01	1	1007	1015	9	QLLIRAAEI	0.00509	13
HLA-B*51:01	1	906	914	9	IGVTQNVLY	0.005087	8.6
HLA-B*58:01	1	1062	1071	10	VTYVPAQEK	0.005085	5.9
HLA-B*57:01	1	1119	1127	9	VSGNCDVVI	0.005085	8.8
HLA-B*08:01	1	43	51	9	FRSSVLHST	0.005084	8.7
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*02:03	1	211	220	10	NLVRGLPQGF	0.005082	7.8
HLA-A*30:01	1	370	378	9	SFSTFKCYG	0.005082	13
HLA-B*08:01	1	371	379	9	FSTFKCYGV	0.005082	8.7
HLA-A*68:02	1	122	131	10	NATNVVIKVC	0.005079	7.1
HLA-A*30:01	1	898	906	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-B*51:01	1	786	794	9	YKTPPIKDF	0.005075	8.6

HLA-A*30:02	1	451	460	10	RLFRKSNLKP 0.005071	9.6
HLA-B*57:01	1	527	536	10	STNLVKNKCV 0.005071	8.8
HLA-A*68:02	1	403	412	10	EVRQIAPGQT 0.00507	7.1
HLA-A*33:01	1	178	187	10	DLEGKQGNFK 0.005062	6.7
HLA-A*23:01	1	639	648	10	VFQTRAGCLI 0.005062	4.1
HLA-A*30:01	1	314	323	10	NFRVQPTESI 0.00506	13
HLA-B*15:01	1	680	689	10	RARVASQSI 0.00506	7.1
HLA-A*01:01	1	948	956	9	VVNQNAQAL 0.00506	5.5
HLA-B*40:01	1	1068	1077	10	QEKNFTTAPA 0.005059	3.7
HLA-A*30:02	1	380	389	10	SPTKLNLCF 0.005058	9.6
HLA-A*11:01	1	257	266	10	AGAAAYYVGY 0.005055	5.4
HLA-A*32:01	1	747	756	10	SNLLLQYGSF 0.005055	5.0
HLA-B*44:03	1	769	777	9	VEQDKNTQE 0.005055	4.0
HLA-A*33:01	1	1027	1035	9	SECVLGQSK 0.005055	6.7
HLA-A*23:01	1	1182	1190	9	RLNEVAKNL 0.005053	4.1
HLA-A*30:02	1	1205	1214	10	QYIKWPWYIW 0.005053	9.6
HLA-A*30:01	1	398	406	9	VIRGDEVQR 0.00505	13
HLA-B*15:01	1	1031	1039	9	LGQSKRVDF 0.005049	7.1
HLA-A*02:03	1	256	264	9	TAGAAAYYV 0.005048	7.9
HLA-B*51:01	1	1143	1152	10	DSFKEELDKY 0.005048	8.6
HLA-A*32:01	1	795	803	9	GGFNFSQIL 0.005044	5.0
HLA-A*33:01	1	625	633	9	QLTPTWRVY 0.005038	6.7
HLA-A*32:01	1	1189	1197	9	NLNESLIDL 0.005038	5.0
HLA-A*30:01	1	958	967	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	922	931	10	NQFNSAIGKI 0.005033	8.6
HLA-A*11:01	1	496	505	10	PTYGVGYQPY 0.005032	5.4
HLA-A*30:02	1	205	214	10	SKHTPINLVR 0.005031	9.6
HLA-A*03:01	1	234	242	9	NITRFQTLH 0.005031	6.1
HLA-A*31:01	1	169	177	9	EYVSQPFLM 0.00503	8.4
HLA-B*51:01	1	421	430	10	KLPDDFTGCV 0.005029	8.6
HLA-B*15:01	1	1102	1110	9	TQRNFYEPQ 0.005029	7.1
HLA-A*02:06	1	573	582	10	VRDPQTLEIL 0.005028	9.6
HLA-A*02:06	1	876	885	10	AGTITSGWTF 0.005026	9.6
HLA-A*24:02	1	58	66	9	FFSNVTWFH 0.005023	4.1
HLA-B*44:02	1	893	901	9	IPFAMQMAY 0.005018	3.7
HLA-A*02:03	1	736	744	9	TMYICGDST 0.005016	7.9
HLA-A*68:02	1	972	980	9	SVLNDILSR 0.005016	7.2
HLA-B*08:01	1	299	307	9	TLKSFTVEK 0.005015	8.7
HLA-A*01:01	1	945	953	9	LQDVVNQNA 0.005013	5.6
HLA-B*44:02	1	317	326	10	VQPTESIVRF 0.005012	3.7
HLA-A*30:02	1	260	268	9	AAYYVGYLQ 0.005011	9.7
HLA-B*07:02	1	366	374	9	YNSASFSTF 0.005011	5.4
HLA-A*68:02	1	598	606	9	GTNTSNQVA 0.005011	7.2
HLA-A*02:06	1	272	281	10	FLLKYNENGT 0.005007	9.7
HLA-A*68:01	1	472	481	10	AGSTPCNGVK 0.005007	8.8
HLA-A*68:02	1	633	642	10	YSTGNSVFQT 0.005005	7.2
HLA-A*02:01	1	214	222	9	RGLPQGFSA 0.005004	6.9
HLA-A*30:02	1	527	535	9	STNLVKNKC 0.005004	9.7
HLA-B*07:02	1	15	24	10	CVNLTRTQL 0.005003	5.4
HLA-A*02:03	1	281	290	10	TITDAVDCAL 0.004998	7.9
HLA-B*07:02	1	715	723	9	FTISVTTEI 0.004998	5.4
HLA-A*68:02	1	1117	1126	10	TFVSGNCDVV 0.004998	7.2
HLA-A*33:01	1	862	870	9	LTDEMIAQY 0.004997	6.8
HLA-B*15:01	1	715	724	10	FTISVTTEIL 0.004996	7.1
HLA-B*57:01	1	60	68	9	SNVTWFHAI 0.004995	8.9
HLA-A*68:02	1	654	663	10	NNSYECDIPI 0.004994	7.2
HLA-A*03:01	1	891	899	9	LQIPFAMQM 0.004993	6.2
HLA-A*03:01	1	843	851	9	ARDLICAQK 0.00499	6.2
HLA-B*51:01	1	112	120	9	SKTQSLIV 0.004988	8.6
HLA-A*02:06	1	977	986	10	ILSRLDKVEA 0.004987	9.7
HLA-A*26:01	1	262	270	9	YYVGYLQPR 0.004985	4.8
HLA-A*30:01	1	454	462	9	RKSNLKPFE 0.004984	13
HLA-A*23:01	1	295	303	9	ETKCTLKSF 0.004982	4.1
HLA-A*31:01	1	308	317	10	GIYQTSNFRV 0.004981	8.5



HLA-A*01:01	1	824	833	10	TLADAGFIKQ 0.00498	5.6
HLA-A*30:02	1	450	459	10	YRLFRKSNLK 0.004979	9.7
HLA-A*02:06	1	501	510	10	GYQPYRVVVL 0.004977	9.7
HLA-A*30:01	1	239	248	10	QTLHRSYLTP 0.004975	13
HLA-A*30:02	1	777	785	9	EVFAQVKQI 0.004975	9.7
HLA-B*51:01	1	803	812	10	LPDPSKPSKR 0.004975	8.7
HLA-A*68:02	1	422	430	9	LPDDFTGCV 0.004973	7.2
HLA-A*32:01	1	624	632	9	DQLTPTWRV 0.004973	5.0
HLA-A*30:02	1	993	1001	9	LITGRLQSL 0.004971	9.7
HLA-B*07:02	1	596	604	9	TPGTNTSNQ 0.004969	5.4
HLA-B*53:01	1	871	879	9	TSALLAGTI 0.004969	4.6
HLA-A*32:01	1	159	168	10	VYSSANNCTF 0.004968	5.0
HLA-A*31:01	1	383	392	10	KLNDLCFTNV 0.004968	8.5
HLA-A*30:01	1	508	517	10	VVLSFELLHA 0.004968	13
HLA-A*01:01	1	632	640	9	VYSTGSNVF 0.004967	5.6
HLA-A*02:01	1	297	305	9	KCTLKSFTV 0.004963	7.0
HLA-A*31:01	1	323	332	10	IVRFPNITNL 0.004962	8.5
HLA-A*03:01	1	317	325	9	VQPTESIVR 0.004959	6.2
HLA-A*23:01	1	361	369	9	DYSVLYNVA 0.004959	4.1
HLA-B*58:01	1	339	348	10	FNATRFASVY 0.004958	6.0
HLA-A*30:02	1	799	808	10	FSQILPDPSK 0.004957	9.7
HLA-B*53:01	1	193	201	9	VFKNIDGYF 0.004956	4.6
HLA-B*15:01	1	1002	1010	9	QTYVTQQLI 0.004955	7.2
HLA-A*30:02	1	620	628	9	AIHADQLTP 0.004954	9.7
HLA-A*11:01	1	302	311	10	SFTVEKGIYQ 0.004949	5.4
HLA-B*57:01	1	577	585	9	QTLIELDIT 0.004949	8.9
HLA-A*24:02	1	887	895	9	AGAALQIPF 0.004948	4.1
HLA-A*30:02	1	358	367	10	CVADYSVLVN 0.004945	9.7
HLA-B*58:01	1	762	771	10	RALTGIAVEQ 0.004945	6.0
HLA-B*57:01	1	534	543	10	KCVNFNFNGL 0.004944	8.9
HLA-A*23:01	1	166	175	10	CTFEYVSQPF 0.004942	4.1
HLA-A*68:02	1	252	261	10	SSGWTAGAAA 0.004942	7.2
HLA-B*53:01	1	149	157	9	NKSWMESEF 0.00494	4.6
HLA-B*08:01	1	259	267	9	AAAYYVGYL 0.004935	8.8
HLA-B*07:02	1	850	858	9	QKFNGLTVL 0.004935	5.4
HLA-B*53:01	1	1137	1145	9	PLQPELDSF 0.004933	4.6
HLA-B*57:01	1	1166	1174	9	ISGINASVV 0.004932	8.9
HLA-A*68:01	1	1198	1206	9	QELGKYEYQ 0.004932	8.8
HLA-A*30:02	1	1002	1011	10	QTYVTQQLIR 0.00493	9.8
HLA-B*51:01	1	371	379	9	FSTFKCYGV 0.004927	8.7
HLA-B*44:02	1	805	814	10	DPSKPSKRSF 0.004927	3.7
HLA-A*01:01	1	21	29	9	RTQLPPAYT 0.004926	5.6
HLA-B*35:01	1	254	262	9	GWTAGAAAY 0.004926	5.1
HLA-A*02:01	1	816	825	10	EDLLFNKVTL 0.004925	7.0
HLA-A*02:01	1	867	875	9	IAQYTSALL 0.004925	7.0
HLA-A*30:01	1	1006	1014	9	TQQLIRAAE 0.004924	13
HLA-A*03:01	1	139	147	9	PFLGVYYHK 0.004922	6.2
HLA-B*51:01	1	486	494	9	YFPLQSYGF 0.004922	8.7
HLA-A*30:02	1	759	767	9	QLNRALTGI 0.004921	9.8
HLA-B*53:01	1	770	778	9	EQDKNTQEV 0.00492	4.6
HLA-B*08:01	1	972	981	10	SVLNDILSRL 0.00492	8.8
HLA-B*57:01	1	1072	1080	9	FTTAPAICH 0.004919	8.9
HLA-B*51:01	1	1163	1171	9	LGDISGINA 0.004918	8.7
HLA-A*02:01	1	600	608	9	NTSNQVAVL 0.004915	7.0
HLA-A*11:01	1	868	876	9	AQYTSALLA 0.004912	5.4
HLA-A*30:01	1	663	671	9	IGAGICASY 0.004906	13
HLA-A*68:01	1	708	716	9	SIAIPTNFT 0.004905	8.9
HLA-B*15:01	1	868	877	10	AQYTSALLAG 0.004904	7.2
HLA-B*51:01	1	1062	1070	9	VTYVPAQEK 0.004903	8.7
HLA-A*30:01	1	1043	1051	9	GYHLSFPQ 0.004902	13
HLA-B*08:01	1	1065	1074	10	VPAQEKNFST 0.004902	8.8
HLA-A*01:01	1	363	371	9	SVLYNSASF 0.004901	5.6
HLA-A*68:02	1	675	684	10	TNSPRRARSV 0.004892	7.3
HLA-B*58:01	1	994	1002	9	ITGRLQSLQ 0.004892	6.0
HLA-A*01:01	1	1045	1053	9	HLMSFPQSA 0.004892	5.6
HLA-A*02:01	1	578	587	10	TLEILDITPC 0.004891	7.0

HLA-A*68:01	1	719	728	10	VTTEILPVSM 0.004891	8.9
HLA-A*68:01	1	1002	1010	9	QTYVVTQLI 0.004891	8.9
HLA-A*01:01	1	1110	1118	9	QIITTDNTF 0.004889	5.6
HLA-B*51:01	1	424	433	10	DDFTGCVIAW 0.004888	8.7
HLA-B*35:01	1	853	861	9	NGLTVLPLP 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*26:01	1	301	310	10	KSFTVEKGIY 0.004883	4.8
HLA-A*02:01	1	972	980	9	SVLNDILSR 0.004883	7.0
HLA-A*68:02	1	841	849	9	IAARDLICA 0.004879	7.3
HLA-B*58:01	1	1170	1178	9	NASVVNIQK 0.004878	6.0
HLA-B*35:01	1	1217	1226	10	FIAGLIAIVM 0.004877	5.1
HLA-A*33:01	1	1199	1208	10	ELGKYEQYIK 0.004875	6.8
HLA-A*01:01	1	336	344	9	GEVFNATRF 0.004874	5.6
HLA-B*57:01	1	599	608	10	TNTSNQVAVL 0.004874	9.0
HLA-A*30:01	1	184	192	9	GNFKNLREF 0.004873	13
HLA-A*32:01	1	254	263	10	GWTAGAAAYY 0.00487	5.0
HLA-A*31:01	1	1043	1051	9	GYHLMSFPQ 0.004868	8.6
HLA-B*15:01	1	682	690	9	RSVASQSII 0.004867	7.2
HLA-A*26:01	1	308	316	9	GIYQTSNFR 0.004866	4.9
HLA-A*68:01	1	62	70	9	VTWFHAIHV 0.004864	8.9
HLA-A*26:01	1	1002	1011	10	QTYVVTQLIR 0.004861	4.9
HLA-A*31:01	1	186	195	10	FKNLREFVFK 0.004858	8.6
HLA-B*57:01	1	259	267	9	AAAYYVGYL 0.004858	9.0
HLA-B*15:01	1	759	767	9	QLNRALTGI 0.004858	7.2
HLA-B*07:02	1	847	855	9	ICAQKFNGL 0.004858	5.4
HLA-A*03:01	1	1051	1059	9	QSAPHGVVF 0.004857	6.2
HLA-B*53:01	1	339	348	10	FNATRFASVY 0.004856	4.6
HLA-A*68:02	1	123	131	9	ATNVVIKVC 0.004855	7.3
HLA-A*32:01	1	867	875	9	IAQYTSALL 0.004854	5.1
HLA-A*33:01	1	843	851	9	ARDLICAQK 0.004849	6.8
HLA-A*02:03	1	1025	1034	10	KMSECVLGQS 0.004846	8.0
HLA-A*02:03	1	510	518	9	LSFELLHAP 0.004845	8.0
HLA-B*07:02	1	997	1005	9	RLQSLQTYV 0.004845	5.4
HLA-B*08:01	1	979	987	9	SRLDKVEAE 0.004844	8.9
HLA-B*53:01	1	1091	1100	10	VFVSNGTHWF 0.004843	4.6
HLA-B*58:01	1	1191	1200	10	NESLIDLQEL 0.004843	6.1
HLA-A*02:06	1	611	620	10	GVNCTEVPVA 0.004842	9.8
HLA-B*57:01	1	669	678	10	ASYQTQTNSP 0.004842	9.0
HLA-A*33:01	1	1143	1152	10	DSFKEELDKY 0.004842	6.8
HLA-B*08:01	1	904	913	10	NGIGVTQNVL 0.004841	8.9
HLA-B*15:01	1	867	875	9	IAQYTSALL 0.004836	7.2
HLA-B*08:01	1	75	83	9	GTKRFANPV 0.004834	8.9
HLA-A*02:06	1	594	602	9	VITPGTNTS 0.004834	9.8
HLA-A*31:01	1	262	271	10	YYVGYLQPR 0.004833	8.6
HLA-A*30:01	1	218	226	9	QGFSALEPL 0.004832	13
HLA-A*03:01	1	1200	1208	9	LGKYEQYIK 0.004832	6.2
HLA-A*02:06	1	318	326	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	578	587	10	TLEILDITPC 0.004827	8.0
HLA-A*02:06	1	1003	1012	10	TYVTQQLIRA 0.004826	9.8
HLA-A*26:01	1	547	556	10	GVLTESNKKF 0.004823	4.9
HLA-B*15:01	1	1000	1008	9	SLQTYVTQQ 0.004823	7.2
HLA-B*35:01	1	1039	1047	9	FCGKGYHLM 0.004823	5.1
HLA-A*01:01	1	1053	1061	9	APHGVVFLH 0.004822	5.7
HLA-A*02:06	1	407	415	9	IAPGQTGNI 0.00482	9.8
HLA-B*57:01	1	379	387	9	VSPTKLNDL 0.004819	9.0
HLA-A*33:01	1	624	633	10	DQLTPTWRVY 0.004817	6.9
HLA-B*57:01	1	885	893	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	274	282	9	LKYNGGTI 0.004815	8.8
HLA-B*51:01	1	489	498	10	LQSYGFQPTY 0.004814	8.8
HLA-B*07:02	1	75	84	10	GTKRFANPVL 0.004813	5.5

HLA-A*26:01	1	365	374	10	LYNSASFSTF 0.004813	4.9
HLA-A*31:01	1	28	36	9	YTNSFTRGV 0.004812	8.6
HLA-B*15:01	1	1097	1106	10	THWVFTQRNF 0.004812	7.2
HLA-A*26:01	1	60	68	9	SNVTWFHAI 0.004811	4.9
HLA-A*30:01	1	758	766	9	TQLNRALTG 0.004811	13
HLA-A*68:02	1	93	101	9	ASTEKSNI 0.004808	7.3
HLA-B*08:01	1	862	870	9	LTDEMIAQY 0.004808	8.9
HLA-B*40:01	1	659	667	9	CDIPIGAGI 0.004807	3.8
HLA-B*51:01	1	253	261	9	SGWTAGAAA 0.004806	8.8
HLA-A*30:01	1	490	499	10	QSYGFQPTYG 0.004806	13
HLA-B*57:01	1	791	799	9	IKDFGGFNF 0.004806	9.0
HLA-A*30:01	1	856	865	10	TVLPPLLTDE 0.004806	13
HLA-A*30:01	1	867	876	10	IAQYTSALLA 0.004806	13
HLA-B*35:01	1	438	446	9	LDSKVGNGY 0.004804	5.1
HLA-B*58:01	1	619	628	10	VAIHADQLTP 0.004804	6.1
HLA-A*02:06	1	1016	1024	9	RASANLAAT 0.004804	9.9
HLA-A*30:02	1	961	970	10	KQLSSNFGAI 0.004803	9.9
HLA-A*68:02	1	783	791	9	KQIYKTPPI 0.004798	7.3
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	1001	1009	9	LQTYVTQQL 0.00479	5.5
HLA-A*02:06	1	240	248	9	TLHRSYLTP 0.004788	9.9
HLA-A*32:01	1	1127	1135	9	IGIVNNTVY 0.004788	5.1
HLA-A*33:01	1	339	347	9	FNATRFASV 0.004787	6.9
HLA-B*44:02	1	875	883	9	LAGTITSGW 0.004787	3.8
HLA-A*23:01	1	219	227	9	GFSALEPLV 0.004786	4.2
HLA-A*31:01	1	374	383	10	FKCYGVSPTK 0.004785	8.6
HLA-A*01:01	1	466	474	9	STEIYQAGS 0.004783	5.7
HLA-A*26:01	1	1038	1047	10	DFCGKGYHLM 0.004783	4.9
HLA-B*57:01	1	1195	1203	9	IDLQELGKY 0.00478	9.1
HLA-A*30:02	1	580	589	10	EILDITPCSF 0.004778	10
HLA-A*02:03	1	800	809	10	SQILPDPSKP 0.004776	8.0
HLA-A*30:01	1	89	98	10	GVYFASTEKS 0.004775	13
HLA-B*58:01	1	1070	1078	9	KNFTTAPAI 0.004775	6.1
HLA-A*03:01	1	496	505	10	PTYGVGYQPY 0.004774	6.3
HLA-A*31:01	1	1027	1035	9	SECVLGQSK 0.004774	8.6
HLA-A*32:01	1	513	521	9	ELLHAPATV 0.004773	5.1
HLA-B*58:01	1	572	581	10	AVRDPQTLEI 0.004773	6.1
HLA-A*30:01	1	969	977	9	AISSVLNDI 0.004773	13
HLA-B*35:01	1	771	779	9	QDKNTQEVF 0.00477	5.2
HLA-B*58:01	1	311	319	9	QTSNFRVQP 0.004766	6.1
HLA-A*26:01	1	508	516	9	VVLSFELLH 0.004765	4.9
HLA-A*33:01	1	530	538	9	LVKNKCVNF 0.004765	6.9
HLA-A*33:01	1	818	826	9	LLFNKVTLA 0.004765	6.9
HLA-B*51:01	1	898	906	9	QMAYRFNGI 0.004764	8.9
HLA-B*40:01	1	1204	1212	9	EQYIKWPWY 0.004758	3.8
HLA-A*02:06	1	222	230	9	ALEPLVDLP 0.004757	9.9
HLA-A*11:01	1	843	851	9	ARDLICAQK 0.004757	5.5
HLA-A*32:01	1	411	420	10	QTGNIADYNY 0.004756	5.1
HLA-B*40:01	1	1161	1169	9	VDLGDISGI 0.004756	3.8
HLA-A*68:02	1	312	320	9	TSNFRVQPT 0.004755	7.4
HLA-A*30:02	1	670	678	9	SYQTQTNSP 0.004754	10
HLA-B*44:02	1	768	777	10	AVEQDKNTQE 0.004754	3.8
HLA-B*58:01	1	211	220	10	NLVRGLPQGF 0.00475	6.1
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	357	366	10	NCVADYSVLV 0.004747	6.1
HLA-B*07:02	1	593	601	9	SVITPGTNT 0.004747	5.5
HLA-A*02:06	1	1039	1047	9	FCGKGYHLM 0.004747	9.9
HLA-A*30:02	1	204	213	10	YSKHTPINLV 0.004745	10
HLA-A*30:02	1	376	384	9	CYGVSPTKL 0.004743	10
HLA-A*31:01	1	775	783	9	TQEVFAQVK 0.004743	8.7
HLA-A*30:02	1	941	949	9	ALGKLQDVV 0.004743	10
HLA-B*57:01	1	935	943	9	LSSTASALG 0.004742	9.1
HLA-B*58:01	1	939	948	10	ASALGKLQDV 0.004742	6.1
HLA-A*11:01	1	261	270	10	AYYVGYLQPR 0.004741	5.5

HLA-A*02:06	1	440	449	10	SKVGGNYNYL 0.004741	9.9
HLA-B*40:01	1	844	852	9	RDLICAQKF 0.004737	3.8
HLA-A*03:01	1	447	455	9	NYLYRFRK 0.004736	6.3
HLA-A*33:01	1	497	505	9	TYGVGYQPY 0.004736	6.9
HLA-A*26:01	1	875	883	9	LAGTITSGW 0.004736	4.9
HLA-B*57:01	1	1022	1030	9	AATKMSECV 0.004736	9.1
HLA-B*40:01	1	914	922	9	YENQKLIAN 0.004735	3.8
HLA-A*32:01	1	534	543	10	KCVNFNFNGL 0.004732	5.1
HLA-A*68:01	1	843	851	9	ARDLICAQK 0.004732	9.0
HLA-B*08:01	1	188	197	10	NLREFVFKNI 0.004731	9.0
HLA-A*02:01	1	487	496	10	FPLQSYGFQP 0.004731	7.1
HLA-A*68:01	1	1051	1060	10	QSAPHGVVFL 0.004729	9.0
HLA-A*11:01	1	1233	1242	10	CMTSCCCLK 0.004729	5.5
HLA-A*31:01	1	501	509	9	GYQPYRVVV 0.004728	8.7
HLA-B*15:01	1	10	18	9	LVSSQCVNL 0.004727	7.3
HLA-A*30:02	1	1170	1178	9	NASVVNIQK 0.004727	10
HLA-B*07:02	1	7	16	10	LLPLVSSQCV 0.004725	5.5
HLA-B*58:01	1	110	118	9	LDSKTQSL 0.004725	6.1
HLA-B*53:01	1	1084	1092	9	AHFPREGVF 0.004725	4.7
HLA-A*01:01	1	550	559	10	TESNKKFLPF 0.004724	5.7
HLA-A*68:02	1	523	531	9	GPKKSTNLV 0.004723	7.4
HLA-A*68:02	1	761	769	9	NRALTGIIV 0.004723	7.4
HLA-A*01:01	1	791	799	9	IKDFGGFNF 0.004723	5.7
HLA-A*02:06	1	641	650	10	QTRAGCLIGA 0.004722	9.9
HLA-B*57:01	1	478	486	9	NGVKGFNCY 0.004719	9.1
HLA-A*01:01	1	775	783	9	TQEVFAQVK 0.004716	5.8
HLA-A*68:02	1	1	10	10	MFVFLVLLPL 0.004715	7.4
HLA-A*02:01	1	607	616	10	VLYQGVNCTE 0.004715	7.1
HLA-A*24:02	1	1136	1145	10	DPLQPELDSF 0.004714	4.2
HLA-A*30:01	1	1042	1051	10	KGYHLMSFPQ 0.004713	13
HLA-A*32:01	1	186	194	9	FKNLREFVF 0.004712	5.1
HLA-A*30:01	1	472	480	9	AGSTPCNGV 0.004711	13
HLA-A*01:01	1	814	823	10	FIEDLLFNKV 0.004711	5.8
HLA-A*03:01	1	572	581	10	AVRDPQTLEI 0.004708	6.3
HLA-A*30:01	1	1074	1083	10	TAPAICHGDK 0.004708	13
HLA-A*68:02	1	160	168	9	YSSANNCTF 0.004707	7.4
HLA-A*30:01	1	347	355	9	VYAWNRKRI 0.004706	13
HLA-A*30:01	1	687	696	10	QSIAYTMSL 0.004705	13
HLA-A*31:01	1	354	362	9	RISNCVADY 0.004704	8.7
HLA-A*30:01	1	1143	1151	9	DSFKEELDK 0.004704	13
HLA-A*30:02	1	302	311	10	SFTVEKGIYQ 0.004703	11
HLA-A*30:02	1	564	573	10	RDIADTTDAV 0.004699	11
HLA-A*30:01	1	936	945	10	SSTASALGKL 0.004694	13
HLA-B*51:01	1	369	377	9	ASFSTFKCY 0.004693	9.0
HLA-A*68:02	1	959	967	9	LVKQLSSNF 0.004692	7.4
HLA-B*57:01	1	54	62	9	LFLPFFSNV 0.004691	9.1
HLA-B*57:01	1	770	779	10	EQDKNTQEVF 0.004691	9.1
HLA-A*02:01	1	711	719	9	IPTNFTISV 0.00469	7.1
HLA-A*32:01	1	951	959	9	QNAQALNTL 0.004689	5.1
HLA-A*30:02	1	497	506	10	TYGVGYQPYR 0.004687	11
HLA-A*30:02	1	731	739	9	TSVDCTMYI 0.004686	11
HLA-A*02:01	1	1253	1262	10	FDEDDSEPV 0.004686	7.1
HLA-B*58:01	1	355	364	10	ISNCVADYSV 0.004685	6.2
HLA-A*02:03	1	329	338	10	ITNLCPFGEV 0.004682	8.1
HLA-A*30:02	1	253	261	9	SGWTAGAAA 0.004681	11
HLA-A*24:02	1	915	924	10	ENQKLIANQF 0.004681	4.2
HLA-B*57:01	1	1221	1229	9	LIAIVMVTI 0.004681	9.2
HLA-B*35:01	1	464	472	9	DISTEIYQA 0.00468	5.2
HLA-A*02:06	1	389	397	9	FTNVYADSF 0.004678	10
HLA-A*68:02	1	596	605	10	TPGTNTSNQV 0.004677	7.4
HLA-A*03:01	1	800	809	10	SQILPDPSKP 0.00467	6.3
HLA-A*30:01	1	624	632	9	DQLTPTWRV 0.004669	13
HLA-A*02:06	1	794	802	9	FGGFNFSQI 0.004669	10
HLA-B*08:01	1	1005	1013	9	VTQQLIRAA 0.004664	9.1
HLA-A*68:02	1	357	365	9	NCVADYSVL 0.004662	7.4
HLA-A*23:01	1	833	841	9	QYGDCLGDI 0.004662	4.2

HLA-A*24:02	1	874	883	10	LLAGTITSGW 0.004658	4.2
HLA-A*31:01	1	203	212	10	IYSKHTPINL 0.004656	8.7
HLA-B*58:01	1	681	690	10	ARSVASQSII 0.004656	6.2
HLA-A*33:01	1	1105	1113	9	NFYEPQIIT 0.004656	6.9
HLA-A*02:06	1	263	272	10	YVGYLQPRTF 0.004655	10
HLA-A*68:02	1	847	855	9	ICAQKFNGL 0.004655	7.4
HLA-A*01:01	1	1052	1061	10	SAPHGVVFLH 0.004655	5.8
HLA-A*02:03	1	1013	1022	10	AEIRASANLA 0.004654	8.1
HLA-A*02:06	1	1132	1141	10	NTVYDPLQPE 0.004654	10
HLA-B*51:01	1	1218	1227	10	IAGLIAIVMV 0.004654	9.0
HLA-B*51:01	1	498	507	10	YGVGYQPYRV 0.004653	9.0
HLA-A*30:02	1	139	147	9	PFLGVYYHK 0.004651	11
HLA-A*02:06	1	280	289	10	GTITDAVDCA 0.004651	10
HLA-B*35:01	1	1139	1147	9	QPELDSFKE 0.004651	5.2
HLA-A*30:02	1	1245	1253	9	CSCGSCCKF 0.004648	11
HLA-A*26:01	1	98	106	9	SNIRGWIF 0.004647	5.0
HLA-B*53:01	1	1257	1265	9	DSEPVLKGV 0.004647	4.7
HLA-A*30:02	1	855	863	9	LTVLPLLLT 0.004645	11
HLA-A*30:01	1	904	912	9	NGIGVTQNV 0.004643	13
HLA-A*33:01	1	1259	1268	10	EPVLKGVKLV 0.004643	7.0
HLA-A*31:01	1	264	273	10	VGYLQPRTF 0.004642	8.7
HLA-B*08:01	1	701	709	9	SVAYSNNSI 0.00464	9.1
HLA-A*33:01	1	1017	1025	9	ASANLAATK 0.004634	7.0
HLA-A*30:02	1	473	481	9	GSTPCNGVK 0.004633	11
HLA-A*31:01	1	342	350	9	TRFASVYAW 0.004632	8.7
HLA-A*30:01	1	448	456	9	YLYRLFRAK 0.004632	13
HLA-B*44:02	1	195	204	10	KNIDGYFKIY 0.004629	3.8
HLA-A*11:01	1	1096	1105	10	GTHWFVTQRN 0.004626	5.6
HLA-A*30:01	1	166	174	9	CTFEYVSQP 0.004625	13
HLA-B*08:01	1	923	931	9	QFNSAIGKI 0.004623	9.1
HLA-B*58:01	1	935	943	9	LSSTASALG 0.004623	6.2
HLA-A*31:01	1	1202	1211	10	KYEQYIKWPW 0.004622	8.7
HLA-A*02:06	1	184	192	9	GNFKNLREF 0.00462	10
HLA-A*31:01	1	785	794	10	IYKTPPIKDF 0.00462	8.7
HLA-B*44:03	1	324	332	9	VRFPNITNL 0.004619	4.1
HLA-B*44:03	1	1035	1044	10	KRVDFCGKGY 0.004619	4.1
HLA-A*68:01	1	308	317	10	GIYQTSNFRV 0.004618	9.1
HLA-B*53:01	1	690	698	9	IAYTMSLGV 0.004617	4.8
HLA-A*30:02	1	1046	1054	9	LMSFPQSAP 0.004617	11
HLA-A*01:01	1	685	694	10	ASQSIIAYTM 0.004616	5.8
HLA-A*24:02	1	1093	1101	9	VSNQTHWV 0.004613	4.3
HLA-B*51:01	1	562	570	9	FGRDIADTT 0.004611	9.0
HLA-B*53:01	1	168	177	10	FEYVSQPFLM 0.00461	4.8
HLA-A*31:01	1	707	715	9	NSIAIPTNF 0.00461	8.8
HLA-A*30:01	1	1167	1176	10	SGINASVVNI 0.00461	13
HLA-A*68:01	1	442	451	10	VGGNYNYLYR 0.004609	9.1
HLA-B*08:01	1	771	779	9	QDKNTQEVF 0.004609	9.1
HLA-B*35:01	1	1137	1145	9	PLQPELDSF 0.004609	5.2
HLA-B*57:01	1	253	262	10	SGWTAGAAAY 0.004607	9.2
HLA-B*15:01	1	289	297	9	ALDPLSETK 0.004607	7.4
HLA-B*51:01	1	59	67	9	FSNVTWFHA 0.004605	9.0
HLA-B*57:01	1	344	352	9	FASVYAWNR 0.004602	9.2
HLA-B*07:02	1	990	998	9	IDRLITGRL 0.004601	5.6
HLA-A*01:01	1	289	298	10	ALDPLSETKC 0.004599	5.8
HLA-A*31:01	1	185	193	9	NFKNLREFV 0.004598	8.8
HLA-A*23:01	1	555	563	9	KFLPFQQFG 0.004597	4.3
HLA-B*35:01	1	224	232	9	EPLVDLPIG 0.004595	5.2
HLA-B*08:01	1	795	803	9	GGFNFSQIL 0.004594	9.1
HLA-B*51:01	1	793	802	10	DFGGFNFSQI 0.004593	9.1
HLA-A*26:01	1	497	505	9	TYGVGYQPY 0.004591	5.0
HLA-A*02:03	1	21	29	9	RTQLPPAYT 0.00459	8.2
HLA-A*03:01	1	498	506	9	YGVGYQPYR 0.004588	6.4
HLA-B*44:03	1	777	785	9	EVFAQVKQI 0.004587	4.1
HLA-B*57:01	1	682	691	10	RSVASQSIIA 0.004583	9.2
HLA-B*58:01	1	1084	1092	9	AHFPREGVF 0.004581	6.2
HLA-B*08:01	1	479	487	9	GVKGFNCYF 0.004579	9.2

HLA-A*30:01	1	481	490	10	KGFNCFYFPLQ 0.004578	13
HLA-B*07:02	1	158	166	9	RVYSSANNC 0.004577	5.6
HLA-B*35:01	1	822	830	9	KVTLADAGF 0.004574	5.3
HLA-A*31:01	1	492	500	9	YGFQPTYGV 0.004572	8.8
HLA-A*30:02	1	93	101	9	ASTEKSNI 0.00457	11
HLA-A*68:01	1	715	724	10	FTISVTTEIL 0.004568	9.1
HLA-A*68:02	1	756	764	9	FCTQLNRAL 0.004568	7.5
HLA-A*02:03	1	162	171	10	SANNTFEYV 0.004567	8.2
HLA-B*51:01	1	407	416	10	IAPGQTGNIA 0.004567	9.1
HLA-B*58:01	1	526	534	9	KSTNLVKNK 0.004567	6.2
HLA-B*57:01	1	776	785	10	QEVFAQVKQI 0.004566	9.3
HLA-A*26:01	1	1132	1141	10	NTVYDPLQPE 0.004566	5.0
HLA-A*30:01	1	1260	1269	10	PVLKGVKLHY 0.004565	13
HLA-A*30:02	1	252	261	10	SSGWTAGAAA 0.004564	11
HLA-A*02:01	1	451	460	10	RLFRKSNLKP 0.004564	7.2
HLA-B*07:02	1	770	778	9	EQDKNTQEV 0.004564	5.6
HLA-A*02:06	1	1056	1064	9	GVVFLHVTY 0.004564	11
HLA-A*24:02	1	229	238	10	LPIGINITRF 0.004563	4.3
HLA-A*01:01	1	614	623	10	CTEVPVAIHA 0.004562	5.9
HLA-A*02:03	1	1049	1057	9	FPQSPHGV 0.00456	8.2
HLA-B*07:02	1	400	408	9	RGDEVRIIA 0.004558	5.7
HLA-B*15:01	1	832	841	10	KQYGDCLGDI 0.004558	7.4
HLA-A*02:06	1	852	861	10	FNGLTVLPPL 0.004557	11
HLA-A*26:01	1	56	65	10	LPFFSNVTWF 0.004556	5.0
HLA-B*58:01	1	856	864	9	TVLPPLTD 0.004555	6.2
HLA-A*02:01	1	989	998	10	QIDRLITGRL 0.004555	7.2
HLA-B*58:01	1	169	177	9	EYVSQPFLM 0.004553	6.2
HLA-B*44:02	1	489	498	10	LQSYGFQPTY 0.004551	3.9
HLA-B*44:02	1	1053	1061	9	APHGVVFLH 0.00455	3.9
HLA-A*02:06	1	560	569	10	QQFGRDIADT 0.004547	11
HLA-A*26:01	1	148	157	10	NNKSWMESEF 0.004544	5.0
HLA-A*68:02	1	310	319	10	YQTSNFRVQP 0.004544	7.5
HLA-B*57:01	1	1194	1203	10	LIDLQELGKY 0.004544	9.3
HLA-A*32:01	1	882	891	10	GWTFGAGAAL 0.004543	5.2
HLA-A*02:03	1	321	329	9	ESIVRFPNI 0.004541	8.2
HLA-B*51:01	1	853	862	10	NGLTVLPPL 0.004539	9.1
HLA-A*68:02	1	610	619	10	QGVNCTEVPV 0.004536	7.5
HLA-A*02:01	1	892	900	9	QIPFAMQMA 0.004536	7.2
HLA-A*24:02	1	35	43	9	GVYYPDKVF 0.004535	4.3
HLA-B*51:01	1	284	292	9	DAVDCALDP 0.004534	9.1
HLA-A*26:01	1	264	272	9	VGYLQPRTF 0.004532	5.1
HLA-A*68:01	1	341	350	10	ATRFASVYAW 0.004532	9.1
HLA-B*15:01	1	1062	1070	9	VTYVPAQEK 0.004532	7.4
HLA-B*15:01	1	391	399	9	NVYADSFVI 0.004531	7.4
HLA-A*26:01	1	385	393	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	345	353	9	ASVYAWNRK 0.004525	9.3
HLA-B*57:01	1	940	948	9	SALGKLQDV 0.004524	9.3
HLA-A*02:06	1	1185	1193	9	EVAKNLNES 0.004524	11
HLA-B*35:01	1	495	504	10	QPTYGVGYQP 0.004522	5.3
HLA-A*68:02	1	30	39	10	NSFTRGVYYP 0.004521	7.6
HLA-B*53:01	1	744	753	10	TECSNLLLQY 0.004521	4.8
HLA-A*33:01	1	933	941	9	DSLSSTASA 0.004521	7.0
HLA-B*58:01	1	202	210	9	KIYSKHTPI 0.004519	6.3
HLA-B*57:01	1	684	693	10	VASQSIIAYT 0.004519	9.3
HLA-B*35:01	1	825	833	9	LADAGFIKQ 0.004517	5.3
HLA-A*01:01	1	1049	1057	9	FPQSPHGV 0.004516	5.9
HLA-B*35:01	1	354	362	9	RISNCVADY 0.004514	5.3
HLA-A*23:01	1	1058	1066	9	VFLHVTYVP 0.004514	4.3
HLA-A*23:01	1	178	186	9	DLEGKQGNF 0.004513	4.3
HLA-A*02:03	1	850	858	9	QKFNGLTVL 0.004512	8.3
HLA-A*02:03	1	1000	1008	9	SLQTYVTQQ 0.004512	8.3
HLA-B*15:01	1	95	104	10	TEKSNIIRGW 0.004511	7.5
HLA-A*33:01	1	265	273	9	GYLQPRFTL 0.004511	7.0
HLA-B*07:02	1	501	509	9	GYQPYRVVV 0.004511	5.7

HLA-A*32:01	1	1025	1033	9	KMSECVLGQ 0.004511	5.2
HLA-A*31:01	1	1051	1059	9	QSAPHGVVF 0.00451	8.8
HLA-A*30:02	1	478	487	10	NGVKGFNCYF 0.004509	11
HLA-A*30:02	1	902	911	10	RFNGIGVTQN 0.004509	11
HLA-B*53:01	1	904	912	9	NGIGVTQNV 0.004509	4.8
HLA-A*02:06	1	1105	1114	10	NFYEQIITT 0.004508	11
HLA-B*15:01	1	1138	1146	9	LQPELDSFK 0.004507	7.5
HLA-B*15:01	1	1001	1010	10	LQTYVTQQLI 0.004506	7.5
HLA-A*32:01	1	604	612	9	QVAVLYQGV 0.004505	5.2
HLA-A*01:01	1	1106	1114	9	FYEQIITT 0.004504	5.9
HLA-B*58:01	1	1186	1195	10	VAKNLNESLI 0.004504	6.3
HLA-A*02:01	1	204	213	10	YSKHTPINLV 0.004503	7.2
HLA-B*40:01	1	444	452	9	GNYNLYRL 0.004503	3.9
HLA-A*30:02	1	1103	1111	9	QRNFYEQI 0.004503	11
HLA-A*02:03	1	215	224	10	GLPQGFSALE 0.0045	8.3
HLA-A*68:02	1	322	330	9	SIVRFPNIT 0.0045	7.6
HLA-B*51:01	1	342	350	9	TRFASVYAW 0.0045	9.2
HLA-B*40:01	1	195	203	9	KNIDGYFKI 0.004498	3.9
HLA-A*02:06	1	695	703	9	SLGVENSVA 0.004497	11
HLA-A*32:01	1	623	632	10	ADQLTPTWRV 0.004496	5.3
HLA-B*51:01	1	847	855	9	ICAQKFNGL 0.004495	9.2
HLA-A*23:01	1	48	56	9	LHSTQDLFL 0.004494	4.3
HLA-A*30:01	1	1008	1017	10	QLIRAAEIRA 0.004493	13
HLA-B*51:01	1	361	369	9	DYSVLYN SA 0.004487	9.2
HLA-A*03:01	1	953	962	10	AQALNTLVKQ 0.004487	6.4
HLA-B*57:01	1	1125	1134	10	VVIGIVNNTV 0.004487	9.3
HLA-A*30:01	1	263	272	10	YVGYLQPRTF 0.004484	13
HLA-A*68:02	1	539	548	10	NFNGLTGTGV 0.004484	7.6
HLA-B*08:01	1	803	812	10	LPDPSKPSKR 0.004484	9.3
HLA-B*44:02	1	84	92	9	LPFNDGVYF 0.004481	3.9
HLA-A*31:01	1	44	52	9	RSSVLHSTQ 0.004479	8.8
HLA-A*30:02	1	34	42	9	RGVYYPDKV 0.004478	11
HLA-A*30:02	1	553	562	10	NKKFLPFQF 0.004477	11
HLA-A*32:01	1	791	799	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*15:01	1	230	238	9	PIGINITRF 0.004474	7.5
HLA-A*31:01	1	258	266	9	GAAAYVGY 0.004474	8.8
HLA-B*08:01	1	229	237	9	LPIGINITR 0.004472	9.3
HLA-A*32:01	1	1197	1206	10	LQELGKYEYQ 0.004471	5.3
HLA-A*68:02	1	299	307	9	TLKSFTVEK 0.00447	7.6
HLA-A*32:01	1	825	834	10	LADAGFIKQY 0.00447	5.3
HLA-A*30:02	1	27	36	10	AYTNSFTRGV 0.004467	11
HLA-A*30:02	1	681	689	9	ARSVASQSI 0.004467	11
HLA-A*02:06	1	718	727	10	SVTTEILPVS 0.004465	11
HLA-A*02:06	1	887	896	10	AGAALQIPFA 0.004465	11
HLA-B*40:01	1	1203	1212	10	YEQYIKWPWY 0.004465	3.9
HLA-B*51:01	1	223	231	9	LEPLVDLPI 0.004464	9.2
HLA-A*30:02	1	669	678	10	ASYQTQTNSP 0.004464	11
HLA-A*01:01	1	883	891	9	WTFGAGAAL 0.004463	5.9
HLA-A*32:01	1	1260	1269	10	PVLKGVKLHY 0.004463	5.3
HLA-A*11:01	1	21	29	9	RTQLPPAYT 0.004459	5.6
HLA-A*30:02	1	754	762	9	GSFCTQLNR 0.004458	11
HLA-B*35:01	1	966	974	9	NFGAISSVL 0.004457	5.3
HLA-B*44:03	1	1191	1199	9	NESLIDLQE 0.004457	4.2
HLA-A*30:02	1	454	463	10	RKSNLKPFER 0.004456	11
HLA-A*03:01	1	493	502	10	GFQPTYGVGY 0.004456	6.4
HLA-A*30:02	1	1000	1008	9	SLQTYVTQQ 0.004454	11
HLA-B*44:03	1	548	556	9	VLTESNKKF 0.004453	4.2
HLA-A*23:01	1	874	883	10	LLAGTITSGW 0.004453	4.3
HLA-A*02:01	1	1005	1013	9	VTQQLIRAA 0.004453	7.3
HLA-A*30:02	1	748	756	9	NLLLQYGSF 0.004452	11
HLA-A*68:01	1	19	27	9	TTRTQLPPA 0.004449	9.2
HLA-A*32:01	1	308	316	9	GIYQTSNFR 0.004449	5.3
HLA-A*02:01	1	398	407	10	VIRGDEV RQI 0.004449	7.3
HLA-B*08:01	1	1261	1270	10	VLKGVKLHYT 0.004449	9.3

HLA-A*31:01	1	214	222	9	RGLPQGFSA 0.004448	8.9
HLA-A*30:02	1	440	449	10	SKVGGNYNYL 0.004447	11
HLA-B*51:01	1	357	365	9	NCVADYSVL 0.004446	9.2
HLA-A*02:03	1	1118	1127	10	FVSGNCDVVI 0.004445	8.3
HLA-B*57:01	1	475	483	9	TPCNGVKGF 0.004444	9.4
HLA-B*08:01	1	829	838	10	GFIKQYGDCL 0.004444	9.3
HLA-A*11:01	1	861	870	10	LLTDEMIAQY 0.004444	5.6
HLA-A*31:01	1	198	207	10	DGYFKIYSKH 0.004443	8.9
HLA-A*02:01	1	719	728	10	VTTEILPVSM 0.00444	7.3
HLA-B*53:01	1	494	502	9	FQPTYGVGY 0.004439	4.9
HLA-A*02:06	1	683	692	10	SVASQSIIAY 0.004439	11
HLA-A*23:01	1	747	756	10	SNLLLQYGSF 0.004439	4.3
HLA-A*02:01	1	491	500	10	SYGFQPTYGV 0.004434	7.3
HLA-B*57:01	1	136	145	10	CNDPFLGVYY 0.004432	9.4
HLA-A*30:01	1	254	263	10	GWTAGAAAYY 0.004432	14
HLA-B*40:01	1	1186	1194	9	VAKNLNESL 0.004432	4.0
HLA-B*57:01	1	954	962	9	QALNTLVKQ 0.004431	9.4
HLA-B*51:01	1	779	787	9	FAQVKQIYK 0.004429	9.2
HLA-B*07:02	1	638	647	10	NVFTQTRAGCL 0.004427	5.8
HLA-A*02:06	1	682	691	10	RSVASQSIIA 0.004425	11
HLA-B*15:01	1	802	811	10	ILPDPSKPSK 0.004424	7.5
HLA-B*40:01	1	1164	1173	10	GDISGINASV 0.004424	4.0
HLA-A*02:01	1	593	601	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	NNATNVVIVK 0.004419	11
HLA-B*51:01	1	406	415	10	QIAPGQTGNI 0.004419	9.2
HLA-B*15:01	1	784	792	9	QIYKTPPIK 0.004419	7.5
HLA-B*40:01	1	1050	1059	10	PQSAPHGVVF 0.004419	4.0
HLA-B*58:01	1	702	711	10	VAYSNSIAI 0.004416	6.4
HLA-A*30:01	1	303	311	9	FTVEKGIYQ 0.004415	14
HLA-B*58:01	1	1137	1145	9	PLQPELDSF 0.004413	6.4
HLA-A*31:01	1	818	826	9	LLFNKVTLA 0.004412	8.9
HLA-A*02:03	1	119	128	10	IVNNATNVVI 0.004411	8.3
HLA-B*58:01	1	1166	1174	9	ISGINASV 0.004411	6.4
HLA-A*02:06	1	599	607	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	1137	1145	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	806	814	9	PSKPSKRSF 0.004402	6.0
HLA-A*02:01	1	1083	1091	9	KAHFPREGV 0.004402	7.3
HLA-A*30:01	1	906	914	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	440	448	9	SKVGGNYNY 0.004398	9.4
HLA-A*31:01	1	1206	1214	9	YIKWPWYIW 0.004398	8.9
HLA-B*35:01	1	119	127	9	IVNNATNVV 0.004397	5.4
HLA-B*57:01	1	177	186	10	MDLEGKQGNF 0.004397	9.4
HLA-B*35:01	1	566	574	9	IADTTDAVR 0.004394	5.4
HLA-A*26:01	1	77	86	10	KRFANPVLPF 0.004391	5.1
HLA-B*58:01	1	905	914	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	309	317	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	1083	1091	9	KAHFPREGV 0.004385	8.9
HLA-A*23:01	1	143	151	9	VYYHKNNKS 0.004382	4.4
HLA-B*51:01	1	825	834	10	LADAGFIKQY 0.00438	9.3
HLA-B*51:01	1	870	879	10	YTSALLAGTI 0.00438	9.3
HLA-A*68:02	1	1057	1066	10	VVFLHVITYVP 0.004379	7.7
HLA-B*51:01	1	192	201	10	FVFKNIDGYF 0.004377	9.3
HLA-B*57:01	1	999	1008	10	QSLQTYVTQQ 0.004375	9.4
HLA-A*01:01	1	247	255	9	TPGDSSSGW 0.004371	6.0



HLA-A*26:01	1	850	858	9	QKFNGLTVL 0.004371	5.1
HLA-A*11:01	1	44	52	9	RSSVLHSTQ 0.00437	5.7
HLA-A*30:02	1	1038	1046	9	DFCGKGYHL 0.004367	11
HLA-A*02:03	1	207	216	10	HTPINLVRGL 0.004366	8.4
HLA-A*31:01	1	1090	1098	9	GVFVSNNGTH 0.004366	8.9
HLA-A*30:02	1	875	883	9	LAGTITSGW 0.004365	11
HLA-A*03:01	1	20	28	9	TRTQLPPAY 0.004363	6.5
HLA-A*68:01	1	648	657	10	IGAEHVNNNSY 0.004363	9.2
HLA-A*32:01	1	1063	1072	10	TYVPAQEKNF 0.004362	5.3
HLA-A*68:02	1	1056	1064	9	GVVFLHVTY 0.00436	7.7
HLA-A*02:03	1	693	701	9	TMSLGVENS 0.004356	8.4
HLA-B*40:01	1	955	963	9	ALNTLVKQL 0.004355	4.0
HLA-A*68:02	1	55	63	9	FLPFFSNVT 0.004349	7.7
HLA-A*30:02	1	918	926	9	KLIANQFNS 0.004349	11
HLA-A*24:02	1	747	756	10	SNLLLQYGSF 0.004348	4.4
HLA-A*01:01	1	634	643	10	STGSNVFQTR 0.004347	6.0
HLA-A*30:02	1	198	206	9	DGYFKIYSK 0.004346	11
HLA-B*58:01	1	214	222	9	RGLPQGFS 0.004344	6.4
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	VNLTRRTQL 0.004336	9.5
HLA-A*32:01	1	227	235	9	VDLPIGINI 0.004335	5.4
HLA-A*02:03	1	611	620	10	GVNCTEVPVA 0.004334	8.4
HLA-A*30:01	1	862	870	9	LTDEMIAQY 0.004334	14
HLA-A*01:01	1	1017	1026	10	ASANLAATKM 0.004334	6.0
HLA-B*58:01	1	59	68	10	FSNVTWFHAI 0.004333	6.4
HLA-A*11:01	1	228	237	10	DLPIGINITR 0.004331	5.7
HLA-A*11:01	1	906	914	9	IGVTQNVLY 0.00433	5.7
HLA-B*51:01	1	390	399	10	TNVYADSFVI 0.004329	9.3
HLA-A*30:02	1	12	21	10	SSQCVNLTRR 0.004328	11
HLA-A*32:01	1	706	715	10	NNSIAIPTNF 0.004326	5.4
HLA-A*68:01	1	706	715	10	NNSIAIPTNF 0.004326	9.3
HLA-A*68:02	1	1216	1225	10	GFIAGLIAIV 0.004326	7.7
HLA-A*68:02	1	16	24	9	VNLTRRTQL 0.004325	7.7
HLA-B*57:01	1	57	65	9	PFFSNVTWF 0.004322	9.5
HLA-A*23:01	1	236	245	10	TRFQTLHRSY 0.004318	4.4
HLA-A*33:01	1	965	973	9	SNFGAISSV 0.004318	7.2
HLA-B*57:01	1	742	750	9	DSTECSNLL 0.004315	9.5
HLA-B*51:01	1	1039	1047	9	FCGKGYHLM 0.004315	9.4
HLA-B*57:01	1	75	83	9	GTKRFANPV 0.004314	9.5
HLA-A*32:01	1	721	730	10	TEILPVSMTK 0.004313	5.4
HLA-A*02:06	1	818	827	10	LLFNKVTLAD 0.004312	11
HLA-B*51:01	1	830	838	9	FIKQYGDCL 0.004311	9.4
HLA-A*02:01	1	944	952	9	KLQDVVNQN 0.004311	7.4
HLA-B*08:01	1	549	557	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	295	304	10	ETKCTLKSFT 0.004308	7.7
HLA-A*11:01	1	78	86	9	RFANPVLFP 0.004305	5.7
HLA-A*24:02	1	555	563	9	KFLPFQFG 0.004304	4.4
HLA-A*24:02	1	145	153	9	YHKNNKSWM 0.004303	4.4
HLA-A*30:02	1	336	344	9	GEVFNATRF 0.004302	11
HLA-A*68:01	1	1254	1263	10	DEDDSEPVLK 0.004302	9.3
HLA-A*24:02	1	295	303	9	ETKCTLKSF 0.004301	4.4
HLA-B*08:01	1	890	899	10	ALQIPFAMQM 0.004301	9.5
HLA-A*68:02	1	890	899	10	ALQIPFAMQM 0.004298	7.8
HLA-A*11:01	1	910	918	9	QNVLYENQK 0.004298	5.7
HLA-B*53:01	1	307	315	9	KGIYQTSNF 0.004294	4.9
HLA-B*07:02	1	34	43	10	RGVYYPDKVF 0.004293	5.8
HLA-B*15:01	1	1102	1111	10	TQRNFYEPQI 0.004292	7.6
HLA-A*30:01	1	1206	1214	9	YIKWPWYIW 0.004292	14
HLA-A*02:06	1	638	647	10	NVFQTRAGCL 0.004291	11
HLA-B*44:02	1	744	752	9	TECSNLLLQ 0.004291	4.0
HLA-B*53:01	1	710	719	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	883	892	10	WTFGAGAALQ 0.004284	7.8
HLA-A*68:01	1	255	264	10	WTAGAAAYYV 0.004283	9.3
HLA-A*26:01	1	687	696	10	QSIIAYTMSL 0.004283	5.2
HLA-A*02:03	1	725	733	9	PVSMTKTSV 0.004283	8.5
HLA-A*30:02	1	293	301	9	LSETKCTLK 0.004281	11
HLA-B*15:01	1	573	581	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*32:01	1	207	216	10	HTPINLVRGL 0.004279	5.4
HLA-A*30:01	1	219	227	9	GFSALEPLV 0.004277	14
HLA-B*15:01	1	623	632	10	ADQLTPTWRV 0.004274	7.6
HLA-B*08:01	1	170	179	10	YVSQPFMLMDL 0.004273	9.5
HLA-B*57:01	1	109	117	9	TLDSKTQSL 0.004271	9.6
HLA-B*51:01	1	965	974	10	SNFGAISSVL 0.00427	9.4
HLA-B*58:01	1	634	642	9	STGSNVFQT 0.004269	6.5
HLA-A*02:01	1	240	248	9	TLHRSYLTP 0.004268	7.4
HLA-A*24:02	1	341	350	10	ATRFASVYAW 0.004268	4.4
HLA-B*53:01	1	507	515	9	VVLSFELL 0.004268	4.9
HLA-A*11:01	1	893	901	9	IPFAMQMAY 0.004268	5.7
HLA-B*51:01	1	1021	1030	10	LAATKMSECV 0.004268	9.4
HLA-A*02:01	1	655	663	9	NSYECDIPI 0.004266	7.4
HLA-A*26:01	1	882	891	10	GWTFGAGAAL 0.004264	5.2
HLA-A*30:01	1	675	683	9	TNSPRRARS 0.004263	14
HLA-A*11:01	1	1003	1011	9	TYVTQQLIR 0.004263	5.7
HLA-B*08:01	1	759	767	9	QLNRALTGI 0.00426	9.5
HLA-A*02:03	1	114	123	10	TQSLLVNNA 0.004258	8.5
HLA-A*68:02	1	850	858	9	QKFNGLTVL 0.004258	7.8
HLA-A*02:06	1	862	871	10	LTDEMIAQYT 0.004257	11
HLA-B*58:01	1	1126	1135	10	VIGIVNNTVY 0.004257	6.5
HLA-B*58:01	1	486	494	9	YFPLQSYGF 0.004255	6.5
HLA-A*02:06	1	163	171	9	ANNCTFEYV 0.004254	11
HLA-A*31:01	1	473	481	9	GSTPCNGVK 0.004254	9.0
HLA-A*01:01	1	477	486	10	CNGVKGFNCY 0.004254	6.1
HLA-A*30:02	1	147	155	9	KNNKSWMES 0.004253	11
HLA-A*02:03	1	315	323	9	FRVQPTESI 0.004253	8.5
HLA-A*30:01	1	1029	1037	9	CVLGQSKRV 0.004252	14
HLA-A*33:01	1	56	64	9	LPFFSNVTW 0.00425	7.2
HLA-A*30:02	1	1101	1109	9	VTQRNFYEP 0.00425	11
HLA-A*01:01	1	317	326	10	VQPTESIVRF 0.004249	6.1
HLA-B*44:02	1	681	689	9	ARSVASQSI 0.004246	4.0
HLA-A*30:02	1	69	78	10	HVSGTNGTKR 0.004245	11
HLA-A*68:02	1	910	919	10	QNVLYENQKL 0.004245	7.8
HLA-A*31:01	1	996	1004	9	GRLQSLQTY 0.004242	9.0
HLA-B*57:01	1	72	80	9	GTNGTKRFA 0.00424	9.6
HLA-A*02:06	1	572	580	9	AVRDPQTLE 0.00424	11
HLA-A*02:01	1	285	293	9	AVDCALDPL 0.004239	7.5
HLA-A*01:01	1	834	842	9	YGDCLGDIA 0.004239	6.1
HLA-A*23:01	1	453	461	9	FRKSNLKPF 0.004237	4.4
HLA-A*02:06	1	1120	1129	10	SGNCDVVIGI 0.004237	11
HLA-B*51:01	1	966	974	9	NFGAISSVL 0.004235	9.5
HLA-A*31:01	1	6	14	9	VLLPLVSSQ 0.004234	9.0
HLA-A*23:01	1	185	193	9	NFKNLREFV 0.004232	4.4
HLA-B*40:01	1	1052	1060	9	SAPHGVVFL 0.004232	4.0
HLA-A*30:01	1	989	997	9	QIDRLITGR 0.00423	14
HLA-B*08:01	1	690	698	9	IAYTMSLGV 0.004229	9.6
HLA-A*32:01	1	953	961	9	AQALNTLVK 0.004229	5.4
HLA-B*58:01	1	771	779	9	QDKNTQEVF 0.004228	6.5
HLA-A*68:01	1	1017	1026	10	ASANLAATKM 0.004228	9.4
HLA-A*24:02	1	1212	1221	10	YIWLGFIAGL 0.004226	4.4
HLA-A*31:01	1	1204	1212	9	EQYIKWPWY 0.004223	9.1
HLA-A*30:01	1	509	517	9	VLSFELLHA 0.004221	14
HLA-A*02:06	1	614	623	10	CTEVPVAIHA 0.004221	11
HLA-B*07:02	1	375	384	10	KCYGVSPTKL 0.004219	5.9
HLA-B*35:01	1	958	967	10	TLVKQLSSNF 0.004219	5.4
HLA-A*02:06	1	1178	1187	10	KEIDRLNEVA 0.004219	11
HLA-A*68:02	1	570	579	10	TDAVRDPQTL 0.004218	7.8

HLA-B*58:01	1	633	641	9	YSTGSNVFQ 0.004218	6.5
HLA-B*08:01	1	317	326	10	VQPTESIVRF 0.004217	9.6
HLA-A*02:06	1	824	832	9	TLADAGFIK 0.004215	11
HLA-A*26:01	1	836	844	9	DCLGDIAAR 0.004215	5.3
HLA-A*33:01	1	125	133	9	NVVIKVFCE 0.004214	7.2
HLA-A*31:01	1	341	350	10	ATRFASVYAW 0.004214	9.1
HLA-A*68:02	1	263	271	9	YVGYLQPR 0.004213	7.8
HLA-B*08:01	1	133	141	9	FQFCNDPFL 0.004212	9.6
HLA-B*58:01	1	927	935	9	AIGKIQDSL 0.00421	6.5
HLA-B*35:01	1	1197	1206	10	LQELGKYEQ 0.00421	5.4
HLA-A*32:01	1	446	454	9	YNYLYRFLR 0.004208	5.4
HLA-A*30:01	1	887	896	10	AGAALQIPFA 0.004205	14
HLA-A*31:01	1	19	28	10	TTRTQLPPAY 0.004202	9.1
HLA-B*08:01	1	1212	1221	10	YIWLGFIAGL 0.0042	9.6
HLA-A*02:01	1	922	931	10	NQFNSAIGKI 0.004199	7.5
HLA-B*51:01	1	719	728	10	VTTEILPVSM 0.004198	9.5
HLA-A*30:01	1	910	918	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	1187	1195	9	AKNLNESLI 0.004196	4.0
HLA-B*35:01	1	337	345	9	EVFNATRFA 0.004194	5.4
HLA-A*32:01	1	425	433	9	DFTGCVIAW 0.004194	5.4
HLA-A*30:02	1	270	278	9	RTFLLKYNE 0.004192	11
HLA-B*51:01	1	320	329	10	TESIVRFPNI 0.004187	9.5
HLA-A*30:02	1	447	455	9	NYLYRFLFR 0.004187	11
HLA-A*02:03	1	150	159	10	KSWMESEFRV 0.004186	8.5
HLA-B*57:01	1	572	580	9	AVRDPQMLE 0.004186	9.7
HLA-B*57:01	1	636	644	9	GSNVFQTRA 0.004184	9.7
HLA-A*26:01	1	1170	1178	9	NASVVNIQK 0.004183	5.3
HLA-B*08:01	1	1198	1206	9	QELGKYEQY 0.004182	9.6
HLA-A*02:03	1	878	887	10	TITSGWTFGA 0.004181	8.5
HLA-B*08:01	1	1126	1134	9	VIGIVNNTV 0.004181	9.6
HLA-A*11:01	1	1180	1188	9	IDRLNEVAK 0.004181	5.8
HLA-A*01:01	1	855	863	9	LTVLPPLLT 0.004179	6.2
HLA-A*03:01	1	873	881	9	ALLAGTITS 0.004178	6.6
HLA-A*30:02	1	901	910	10	YRFNGIGVTQ 0.004178	11
HLA-A*03:01	1	151	160	10	SWMESEFRVY 0.004174	6.6
HLA-B*57:01	1	882	891	10	GWTFGAGAAL 0.004174	9.7
HLA-A*31:01	1	912	920	9	VLYENQKLI 0.004173	9.1
HLA-A*02:03	1	390	399	10	TNVYADSFVI 0.004172	8.6
HLA-A*31:01	1	61	69	9	NVTWFHAIH 0.004169	9.1
HLA-A*31:01	1	644	652	9	AGCLIGAHE 0.004167	9.1
HLA-A*26:01	1	1205	1213	9	QYIKWPWYI 0.004167	5.3
HLA-A*68:01	1	266	274	9	YLQPRTFLL 0.004165	9.4
HLA-B*58:01	1	786	794	9	YKTPPIKDF 0.004164	6.6
HLA-A*32:01	1	203	212	10	IYSKHTPINL 0.004162	5.4
HLA-B*15:01	1	600	608	9	NTSNQVAVL 0.004161	7.7
HLA-B*51:01	1	1189	1197	9	NLNESLIDL 0.004161	9.5
HLA-B*57:01	1	573	581	9	VRDPQMLEI 0.00416	9.7
HLA-A*68:01	1	889	897	9	AALQIPFAM 0.004158	9.4
HLA-A*03:01	1	1077	1085	9	AICHDGKAH 0.004158	6.6
HLA-B*57:01	1	742	751	10	DSTECSNLLL 0.004154	9.7
HLA-A*03:01	1	199	207	9	GYFKIYSKH 0.004153	6.6
HLA-B*35:01	1	302	310	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-B*58:01	1	207	216	10	HTPINLVRGL 0.004151	6.6
HLA-A*23:01	1	822	830	9	KVTLADAGF 0.00415	4.5
HLA-A*68:01	1	779	788	10	FAQVKQIYKT 0.004149	9.4
HLA-A*03:01	1	1199	1208	10	ELGKYEQYIK 0.004148	6.6
HLA-B*15:01	1	867	876	10	IAQYTSALLA 0.004147	7.7
HLA-A*30:02	1	507	515	9	VVLSFELL 0.004146	11
HLA-B*35:01	1	1158	1166	9	SPVDLGDII 0.004144	5.5
HLA-B*51:01	1	122	131	10	NATNVVIVKVC 0.004141	9.6
HLA-B*44:02	1	1144	1153	10	SFKEELDKYF 0.004141	4.1
HLA-A*30:02	1	59	67	9	FSNVTWFHA 0.004139	11

HLA-A*01:01	1	304	312	9	TVEKGIYQT 0.004139	6.2
HLA-B*58:01	1	879	887	9	ITSGWTFGA 0.004139	6.6
HLA-A*30:01	1	453	461	9	FRKSNLKPF 0.004137	14
HLA-B*51:01	1	802	811	10	ILPDPSKPSK 0.004137	9.6
HLA-A*30:02	1	90	98	9	VYFASTEKS 0.004136	11
HLA-A*02:01	1	587	595	9	CSFGGVSVI 0.004136	7.5
HLA-A*68:01	1	125	134	10	NVVIKVCEFQ 0.004135	9.4
HLA-B*35:01	1	268	277	10	QPRTFLLKYN 0.004135	5.5
HLA-A*26:01	1	658	667	10	ECDIPIGAGI 0.004134	5.3
HLA-A*24:02	1	238	246	9	FQTLHRSYL 0.004133	4.5
HLA-B*44:03	1	512	521	10	FELLHAPATV 0.004133	4.3
HLA-A*30:01	1	854	862	9	GLTVLPPLL 0.004132	14
HLA-A*03:01	1	440	448	9	SKVGGNYNY 0.00413	6.6
HLA-B*57:01	1	62	71	10	VTWFHAIHVS 0.004129	9.7
HLA-A*30:02	1	264	273	10	VGYLQPRTFL 0.004129	11
HLA-B*35:01	1	127	135	9	VIKVCEFQF 0.004126	5.5
HLA-B*15:01	1	965	974	10	SNFGAISSVL 0.004124	7.7
HLA-A*02:03	1	211	219	9	NLVRGLPQG 0.004123	8.6
HLA-A*30:02	1	604	612	9	QVAVLYQGV 0.004121	11
HLA-A*33:01	1	288	297	10	CALDPLSETK 0.004118	7.3
HLA-B*58:01	1	455	463	9	KSNLKPFER 0.004117	6.6
HLA-A*32:01	1	501	509	9	GYQPYRVVV 0.004116	5.5
HLA-B*58:01	1	997	1005	9	RLQSLQTYV 0.004115	6.6
HLA-A*02:03	1	801	809	9	QILPDPSKP 0.004114	8.6
HLA-A*26:01	1	1189	1197	9	NLNESLIDL 0.004112	5.3
HLA-B*44:02	1	1110	1118	9	QIITTDNTF 0.004111	4.1
HLA-A*02:03	1	212	220	9	LVRGLPQGF 0.00411	8.6
HLA-B*51:01	1	612	621	10	VNCTEVPVAI 0.00411	9.6
HLA-A*26:01	1	1175	1183	9	NIQKEIDRL 0.004109	5.3
HLA-B*35:01	1	706	715	10	NNSIAIPTNF 0.004108	5.5
HLA-B*53:01	1	933	942	10	DSLSSTASAL 0.004107	5.0
HLA-B*44:03	1	512	520	9	FELLHAPAT 0.004106	4.3
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	366	375	10	YNSASFSTFK 0.004102	11
HLA-A*26:01	1	556	564	9	FLPFQQFGR 0.004102	5.4
HLA-B*58:01	1	481	489	9	KGFNCYFPL 0.004101	6.6
HLA-A*26:01	1	987	996	10	EVQIDRLITG 0.004101	5.4
HLA-A*26:01	1	1223	1231	9	AIVMVTIML 0.004101	5.4
HLA-B*15:01	1	267	275	9	LQPRTFLLK 0.0041	7.8
HLA-A*02:06	1	671	679	9	YQTQTNSPR 0.004099	11
HLA-B*57:01	1	969	978	10	AISSVLNDIL 0.004099	9.8
HLA-A*30:02	1	622	631	10	HADQLTPTWR 0.004096	11
HLA-B*35:01	1	1253	1262	10	FDEDDSEPVL 0.004095	5.5
HLA-A*23:01	1	145	153	9	YHKNNKSWM 0.004093	4.5
HLA-A*26:01	1	771	779	9	QDKNTQEVF 0.004093	5.4
HLA-B*53:01	1	357	365	9	NCVADYSVL 0.004091	5.0
HLA-A*32:01	1	988	997	10	VQIDRLITGR 0.004091	5.5
HLA-A*68:02	1	28	37	10	YTNSFTRGVY 0.00409	7.9
HLA-A*68:01	1	236	245	10	TRFQTLHRSY 0.00409	9.5
HLA-A*26:01	1	299	307	9	TLKSFTVEK 0.00409	5.4
HLA-B*57:01	1	997	1005	9	RLQSLQTYV 0.00409	9.8
HLA-A*23:01	1	948	956	9	VVNQNAQAL 0.004087	4.5
HLA-A*01:01	1	1092	1101	10	FVSNGTHWFV 0.004087	6.2
HLA-A*68:02	1	635	643	9	TGSNVFQTR 0.004084	7.9
HLA-A*30:02	1	882	891	10	GWTFGAGAAL 0.004084	11
HLA-A*32:01	1	995	1004	10	TGRLQSLQTY 0.004082	5.5
HLA-A*02:03	1	1010	1019	10	IRAAEIRASA 0.004082	8.6
HLA-A*31:01	1	961	969	9	KQLSSNFGA 0.004081	9.2
HLA-A*68:02	1	304	313	10	TVEKGIYQTS 0.00408	8.0
HLA-B*51:01	1	631	640	10	RVYSTGSNVF 0.00408	9.6
HLA-A*33:01	1	1105	1114	10	NFYEQIITT 0.004079	7.3
HLA-B*58:01	1	500	508	9	VGYPYRVV 0.004078	6.6
HLA-A*26:01	1	339	347	9	FNATRFASV 0.004074	5.4
HLA-B*58:01	1	855	864	10	LTVLPPLD 0.004074	6.6
HLA-A*02:03	1	682	691	10	RSVASQSIIA 0.004072	8.6

HLA-B*44:02	1	1007	1015	9	QQLIRAAEI	0.00407	4.1
HLA-A*24:02	1	396	404	9	SFVIRGDEV	0.004066	4.5
HLA-A*26:01	1	806	814	9	PSKPSKRFS	0.004066	5.4
HLA-B*58:01	1	908	916	9	VTQNVLYEN	0.004065	6.6
HLA-A*11:01	1	138	147	10	DPFLGVVYHK	0.004064	5.9
HLA-A*02:06	1	1062	1070	9	VTYVPAQEK	0.004063	11
HLA-A*02:03	1	93	101	9	ASTEKSNI	0.004058	8.7
HLA-A*30:01	1	913	921	9	LYENQKLI	0.004057	14
HLA-B*51:01	1	640	648	9	FQTRAGLI	0.004056	9.7
HLA-A*02:06	1	727	735	9	SMTKTSVDC	0.004055	11
HLA-A*30:02	1	708	717	10	SIAIPTNFTI	0.004053	11
HLA-A*30:01	1	867	875	9	IAQYTSALL	0.004052	14
HLA-B*15:01	1	232	241	10	GINITRFQTL	0.004051	7.8
HLA-A*68:02	1	594	602	9	VITPGTNTS	0.004049	8.0
HLA-B*51:01	1	155	163	9	SEFRVYSSA	0.004048	9.7
HLA-A*33:01	1	622	630	9	HADQLTPTW	0.004048	7.3
HLA-B*07:02	1	1253	1262	10	FDEDDSEPV	0.004048	6.0
HLA-A*02:06	1	854	863	10	GLTVLPPLT	0.004046	11
HLA-B*57:01	1	762	771	10	RALTGIAVEQ	0.004045	9.8
HLA-B*08:01	1	325	333	9	RFPNITNLC	0.004044	9.8
HLA-A*30:01	1	1257	1266	10	DSEPVKGVK	0.004044	14
HLA-A*30:01	1	45	54	10	SSVLHSTQDL	0.004043	14
HLA-B*58:01	1	619	627	9	VAIHADQLT	0.004043	6.7
HLA-A*11:01	1	523	532	10	GPCKSTNLV	0.004042	5.9
HLA-A*02:01	1	634	642	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*35:01	1	411	420	10	QTGNIADYNY	0.00404	5.5
HLA-B*44:03	1	358	366	9	CVADYSVLY	0.004038	4.4
HLA-B*08:01	1	1053	1062	10	APHGVVFLHV	0.004036	9.8
HLA-A*26:01	1	1090	1098	9	GVFVSNQTH	0.004036	5.4
HLA-A*32:01	1	1030	1039	10	VLGQSKRVDF	0.004035	5.5
HLA-B*57:01	1	726	735	10	VSMTKTSVDC	0.004034	9.8
HLA-B*57:01	1	113	122	10	KTQSLLIVNN	0.004033	9.8
HLA-A*02:03	1	841	849	9	IAARDLICA	0.004032	8.7
HLA-A*01:01	1	1192	1200	9	ESLIDLQEL	0.004032	6.3
HLA-B*57:01	1	940	949	10	SALGKLQDVV	0.004031	9.8
HLA-A*68:01	1	1180	1188	9	IDRLNEVAK	0.004031	9.5
HLA-A*68:02	1	1017	1026	10	ASANLAATKM	0.00403	8.0
HLA-B*07:02	1	905	913	9	GIGVTQNVL	0.004028	6.0
HLA-A*68:02	1	36	44	9	VYYPDKVFR	0.004026	8.0
HLA-A*23:01	1	336	344	9	GEVFNATRF	0.004026	4.5
HLA-B*51:01	1	660	669	10	DIPIGAGICA	0.004024	9.7
HLA-A*68:02	1	280	289	10	GTITDAVDCA	0.004023	8.0
HLA-A*02:06	1	799	808	10	FSQILPDPSP	0.004022	11
HLA-B*58:01	1	256	264	9	TAGAAAYYV	0.004021	6.7
HLA-B*44:02	1	551	559	9	ESNKKFLPF	0.004021	4.1
HLA-A*31:01	1	144	152	9	YYHKNNKSW	0.004019	9.2
HLA-A*02:06	1	422	430	9	LPDDFTGCV	0.004019	11
HLA-A*30:01	1	600	608	9	NTSNQVAVL	0.004018	14
HLA-A*68:02	1	591	599	9	GVSVITPGT	0.004017	8.0
HLA-B*44:02	1	1172	1180	9	SVVNIQKEI	0.004017	4.1
HLA-A*68:02	1	1044	1053	10	YHLMSFPQSA	0.004016	8.0
HLA-A*30:01	1	463	472	10	RDISTEIQYA	0.004014	14
HLA-B*57:01	1	680	688	9	RARSVASQS	0.004014	9.9
HLA-A*11:01	1	891	899	9	LQIPFAMQM	0.004012	5.9
HLA-A*32:01	1	776	785	10	QEVFAQVKQI	0.004009	5.5
HLA-B*58:01	1	701	709	9	SVAYSNNSI	0.004006	6.7
HLA-A*24:02	1	134	143	10	QFCNDPFLGV	0.004005	4.5
HLA-A*02:01	1	481	489	9	KGFNCYFPL	0.004005	7.7
HLA-A*32:01	1	182	190	9	KQGNFKNLR	0.004004	5.5
HLA-A*24:02	1	1003	1011	9	TYVTQQLIR	0.004003	4.5
HLA-B*51:01	1	1170	1178	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	817	825	9	DLLFNKVTL	0.003999	4.6

HLA-A*30:02	1	288	297	10	CALDPLSETK 0.003998	12
HLA-B*07:02	1	895	903	9	FAMQMAYRF 0.003998	6.0
HLA-A*02:06	1	37	45	9	YYPDKVFRS 0.003997	11
HLA-B*35:01	1	596	604	9	TPGTNTSNQ 0.003996	5.6
HLA-A*30:01	1	912	921	10	VLYENQKLIA 0.003996	14
HLA-A*68:02	1	1113	1121	9	TTDNTFVSG 0.003996	8.0
HLA-A*26:01	1	1201	1209	9	GKYEQYIKW 0.003996	5.4
HLA-A*31:01	1	193	201	9	VFKNIDGYF 0.003995	9.3
HLA-B*15:01	1	1053	1061	9	APHGVVFLH 0.003995	7.9
HLA-B*58:01	1	288	297	10	CALDPLSETK 0.003994	6.7
HLA-B*44:03	1	1145	1153	9	FKEELDKYF 0.003994	4.4
HLA-B*51:01	1	1168	1176	9	GINASVVNI 0.003994	9.8
HLA-A*24:02	1	324	333	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	VNLTTRTQL 0.003991	11
HLA-A*01:01	1	168	177	10	FEYVSQPFLM 0.003991	6.3
HLA-A*23:01	1	1099	1107	9	WVVTQRNFY 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	862	870	9	LTDEMIAQY 0.003984	4.1
HLA-B*53:01	1	1048	1057	10	SFPQSAPHGV 0.003984	5.1
HLA-A*30:02	1	795	803	9	GGFNFSQIL 0.003982	12
HLA-A*31:01	1	890	898	9	ALQIPFAMQ 0.003982	9.3
HLA-A*11:01	1	1134	1142	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	707	715	9	NSIAIPTNF 0.003981	6.0
HLA-B*40:01	1	1145	1153	9	FKEELDKYF 0.00398	4.1
HLA-B*53:01	1	57	65	9	PFFSNVTWF 0.003979	5.1
HLA-A*23:01	1	57	66	10	PFFSNVTWFH 0.003978	4.6
HLA-A*30:02	1	452	460	9	LFRKSNLKP 0.003978	12
HLA-A*03:01	1	663	671	9	IGAGICASY 0.003978	6.7
HLA-A*31:01	1	551	559	9	ESNKKFLPF 0.003977	9.3
HLA-A*02:06	1	38	47	10	YPDKVFRSSV 0.003976	11
HLA-A*26:01	1	709	717	9	IAIPTNFTI 0.003976	5.4
HLA-A*68:01	1	604	612	9	QVAVLYQGV 0.003975	9.6
HLA-A*30:02	1	701	710	10	SVAYSNNSIA 0.003975	12
HLA-A*11:01	1	614	622	9	CTEVPVAIH 0.003974	5.9
HLA-B*57:01	1	214	222	9	RGLPQGFSA 0.003973	9.9
HLA-B*08:01	1	365	374	10	LYNSASFSTF 0.003973	9.9
HLA-A*30:01	1	940	949	10	SALGKLQDVV 0.003972	14
HLA-A*68:02	1	568	576	9	DTTDAVRDP 0.003971	8.0
HLA-A*30:02	1	774	783	10	NTQEVFAQVK 0.00397	12
HLA-A*31:01	1	890	899	10	ALQIPFAMQM 0.00397	9.3
HLA-B*53:01	1	970	978	9	ISSVLNDIL 0.00397	5.1
HLA-B*58:01	1	260	268	9	AAYYVGYLQ 0.003969	6.7
HLA-A*30:01	1	213	222	10	VRGLPQGFSA 0.003968	14
HLA-B*57:01	1	927	935	9	AIGKIQDSL 0.003968	9.9
HLA-B*15:01	1	644	652	9	AGCLIGAHEH 0.003967	7.9
HLA-A*03:01	1	323	332	10	IVRFPNITNL 0.003966	6.7
HLA-A*68:02	1	1177	1186	10	QKEIDRLNEV 0.003965	8.0
HLA-B*51:01	1	619	627	9	VAIHADQLT 0.003963	9.8
HLA-B*58:01	1	951	959	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	CVNLTTRTQL 0.00396	14
HLA-A*30:02	1	383	392	10	KLNDLCFTNV 0.00396	12
HLA-A*02:01	1	899	908	10	MAYRFNGIGV 0.00396	7.7
HLA-B*44:02	1	110	118	9	LDSKTQSL 0.003959	4.2
HLA-A*30:01	1	257	266	10	AGAAAYYVGY 0.003959	14
HLA-A*30:02	1	671	680	10	YQTQTNSPRR 0.003959	12
HLA-A*02:06	1	251	260	10	SSSGWTAGAA 0.003956	11
HLA-B*35:01	1	570	579	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	1035	1044	10	KRVDFCGKGY 0.003951	4.2
HLA-B*57:01	1	346	354	9	SVYAWNRKR 0.00395	9.9
HLA-B*08:01	1	604	612	9	QVAVLYQGV 0.00395	10
HLA-B*51:01	1	76	84	9	TKRFANPVL 0.003949	9.8
HLA-B*44:03	1	493	502	10	GFQPTYGVGY 0.003948	4.4
HLA-A*01:01	1	1052	1060	9	SAPHGVVFL 0.003944	6.4
HLA-A*02:06	1	13	22	10	SQCVNLTRRT 0.003943	11
HLA-A*02:01	1	317	326	10	VQPTESIVRF 0.003943	7.7
HLA-B*15:01	1	342	350	9	TRFASVYAW 0.003943	7.9
HLA-B*08:01	1	448	456	9	YLYRLEFRKS 0.003943	10
HLA-A*30:01	1	405	414	10	RQIAPGQTGN 0.003942	14
HLA-A*68:02	1	1061	1070	10	HVTYVPAQEK 0.003942	8.1
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	540	548	9	FNGLTGTGV 0.003938	8.1
HLA-A*02:03	1	867	875	9	IAQYTSALL 0.003938	8.8
HLA-A*03:01	1	1168	1176	9	GINASVVNI 0.003938	6.8
HLA-A*30:01	1	1003	1012	10	TYVTQQLIRA 0.003937	14
HLA-A*30:01	1	1077	1086	10	AICHDGKAHF 0.003937	14
HLA-A*30:02	1	743	751	9	STECSNLLL 0.003936	12
HLA-B*35:01	1	904	912	9	NGIGVTQNV 0.003936	5.6
HLA-A*02:01	1	50	58	9	STQDLFLPF 0.003935	7.7
HLA-B*58:01	1	693	702	10	TMSLGVENSF 0.003935	6.8
HLA-A*30:02	1	716	724	9	TISVTTEIL 0.003933	12
HLA-A*23:01	1	1093	1101	9	VSNQTHWFV 0.003933	4.6
HLA-A*02:06	1	457	465	9	NLKPFERDI 0.00393	11
HLA-B*15:01	1	475	483	9	TPCNGVKGF 0.003929	7.9
HLA-B*07:02	1	703	711	9	AYSNNIAI 0.003928	6.1
HLA-B*07:02	1	263	272	10	YVGYLQPRTF 0.003927	6.1
HLA-B*57:01	1	707	716	10	NSIAIPTNFT 0.003927	10
HLA-A*26:01	1	254	262	9	GWTAGAAAY 0.003926	5.5
HLA-A*30:01	1	419	427	9	NYKLPDDFT 0.003926	14
HLA-A*24:02	1	948	956	9	VVNQNAQAL 0.003926	4.5
HLA-B*51:01	1	138	147	10	DPFLGVYYHK 0.003925	9.8
HLA-A*32:01	1	418	426	9	YNYKLPDDF 0.003924	5.6
HLA-A*02:01	1	5	13	9	LVLLPLVSS 0.003921	7.7
HLA-B*51:01	1	884	893	10	TFGAGAALQI 0.003921	9.8
HLA-A*30:01	1	34	42	9	RGVYYPDKV 0.003919	14
HLA-B*57:01	1	323	331	9	IVRFPNITN 0.003919	10
HLA-B*53:01	1	330	339	10	TNLCPFGEVF 0.003919	5.1
HLA-B*35:01	1	459	468	10	KPFERDISTE 0.003919	5.6
HLA-B*58:01	1	577	585	9	QTLIELDIT 0.003919	6.8
HLA-B*58:01	1	378	387	10	GVSPTKLNDL 0.003918	6.8
HLA-A*03:01	1	1148	1156	9	ELDKYFKNH 0.003918	6.8
HLA-A*68:01	1	166	175	10	CTFEYVSQPF 0.003916	9.6
HLA-A*02:03	1	407	415	9	IAPGQTGNI 0.003916	8.8
HLA-A*26:01	1	224	233	10	EPLVDLPIGI 0.003915	5.5
HLA-A*02:03	1	301	309	9	KSFTVEKGI 0.003913	8.8
HLA-A*32:01	1	490	499	10	QSYGFQPTYG 0.003913	5.6
HLA-A*02:01	1	1167	1176	10	SGINASVVNI 0.003912	7.7
HLA-B*53:01	1	151	160	10	SWMESEFRVY 0.003911	5.1
HLA-B*40:01	1	973	981	9	VLNDILSRL 0.00391	4.1
HLA-A*23:01	1	365	373	9	LYNSASFST 0.003909	4.6
HLA-B*40:01	1	812	820	9	RSFIEDLLF 0.003909	4.1
HLA-A*02:03	1	641	650	10	QTRAGCLIGA 0.003908	8.8
HLA-A*24:02	1	1058	1066	9	VFLHVITYVP 0.003907	4.6
HLA-A*02:03	1	491	500	10	SYGFQPTYGV 0.003906	8.8
HLA-A*24:02	1	1198	1206	9	QELGKYEYQ 0.003906	4.6
HLA-A*30:01	1	430	438	9	VIAWNSNNL 0.003905	14
HLA-B*07:02	1	980	988	9	RLDKVEAEV 0.003905	6.1
HLA-A*33:01	1	1091	1099	9	VFVSNGTHW 0.003905	7.5
HLA-A*30:02	1	26	34	9	PAYTNSFTR 0.003904	12
HLA-B*15:01	1	89	97	9	GYYFASTEK 0.003904	7.9
HLA-A*31:01	1	299	308	10	TLKSFTVEKG 0.003904	9.3
HLA-A*26:01	1	430	438	9	VIAWNSNNL 0.003903	5.5
HLA-A*68:01	1	1090	1098	9	GVFVSNQTH 0.003903	9.6

HLA-A*26:01	1	1084	1092	9	AHFPREGVF 0.003902	5.5
HLA-A*30:02	1	372	380	9	STFKCYGVS 0.0039	12
HLA-A*30:01	1	302	311	10	SFTVEKGIYQ 0.003898	14
HLA-A*68:02	1	718	727	10	SVTTEILPVS 0.003898	8.1
HLA-A*68:02	1	258	267	10	GAAAYYVGYL 0.003897	8.1
HLA-B*15:01	1	369	378	10	ASFSTFKCYG 0.003896	7.9
HLA-B*53:01	1	1170	1178	9	NASVVNIQK 0.003896	5.1
HLA-A*11:01	1	1173	1182	10	VVNIQKEIDR 0.003896	6.0
HLA-B*51:01	1	1153	1161	9	FKNHTSPDV 0.003893	9.9
HLA-B*35:01	1	1195	1203	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	254	263	10	GWTAGAAAYY 0.00389	5.6
HLA-B*57:01	1	676	684	9	NSPRRARSV 0.00389	10
HLA-B*53:01	1	71	79	9	SGTNGTKRF 0.003889	5.1
HLA-B*44:03	1	850	858	9	QKFNGLTVL 0.003889	4.4
HLA-B*40:01	1	996	1004	9	GRLQSLQTY 0.003888	4.1
HLA-B*08:01	1	282	290	9	ITDAVDCAL 0.003887	10
HLA-A*02:03	1	638	647	10	NVVFQTRAGCL 0.003887	8.8
HLA-B*40:01	1	811	819	9	KRSFIEDLL 0.003886	4.1
HLA-A*11:01	1	937	945	9	STASALGKL 0.003886	6.0
HLA-B*58:01	1	694	703	10	MSLGVENSVA 0.003884	6.8
HLA-B*58:01	1	969	978	10	AISSVLNDIL 0.003884	6.8
HLA-A*02:06	1	682	690	9	RSVASQSII 0.003883	11
HLA-A*30:02	1	965	974	10	SNFGAISSVL 0.003883	12
HLA-A*02:03	1	620	628	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*02:06	1	970	978	9	ISSVLNDIL 0.003879	11
HLA-A*68:02	1	119	128	10	IVNNATNVVI 0.003878	8.1
HLA-A*68:01	1	432	441	10	AWNSNNLDSK 0.003874	9.6
HLA-B*51:01	1	725	733	9	PVSMTKTSV 0.003874	9.9
HLA-B*57:01	1	862	871	10	LTDEMIAQYT 0.003873	10
HLA-B*40:01	1	84	92	9	LPFNDGVYF 0.003872	4.2
HLA-B*57:01	1	842	851	10	AARDLICAQK 0.003872	10
HLA-A*02:06	1	824	833	10	TLADAGFIKQ 0.00387	11
HLA-A*33:01	1	369	377	9	ASFSTFKCY 0.003869	7.5
HLA-A*32:01	1	696	704	9	LGVENSVAY 0.003869	5.6
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	1174	1183	10	VNIQKEIDRL 0.003868	11
HLA-B*07:02	1	216	225	10	LPQGFSALEP 0.003867	6.1
HLA-B*51:01	1	955	963	9	ALNTLVKQL 0.003867	9.9
HLA-A*33:01	1	1143	1151	9	DSFKEELDK 0.003867	7.5
HLA-A*01:01	1	369	378	10	ASFSTFKCYG 0.003866	6.5
HLA-A*02:01	1	598	607	10	GTNTSNQVAV 0.003866	7.8
HLA-A*02:06	1	1222	1230	9	IAIVMTIM 0.003865	11
HLA-A*30:02	1	472	480	9	AGSTPCNGV 0.003864	12
HLA-B*35:01	1	791	799	9	IKDFGGFNF 0.003862	5.7
HLA-A*24:02	1	323	332	10	IVRFPNITNL 0.00386	4.6
HLA-A*31:01	1	414	422	9	NIADYNYKL 0.003859	9.4
HLA-A*32:01	1	962	970	9	QLSSNFGAI 0.003859	5.6
HLA-A*11:01	1	433	441	9	WNSNNLDSK 0.003855	6.0
HLA-A*30:01	1	138	147	10	DPFLGVYYHK 0.003854	14
HLA-A*30:02	1	1084	1093	10	AHFPREGVVF 0.003851	12
HLA-B*40:01	1	467	475	9	TEIYQAGST 0.00385	4.2
HLA-B*58:01	1	243	252	10	RSYLTPGDSS 0.003844	6.9
HLA-A*30:02	1	909	918	10	TQNVLYENQK 0.003843	12
HLA-A*30:01	1	1146	1154	9	KEELDKYFK 0.003843	15
HLA-A*01:01	1	1156	1164	9	HTSPDVLG 0.003843	6.5
HLA-B*08:01	1	192	201	10	FVFKNIDGYF 0.003842	11
HLA-A*32:01	1	321	329	9	ESIVRFPNI 0.003841	5.7
HLA-A*30:01	1	762	771	10	RALTGIAEVQ 0.003841	15
HLA-B*44:03	1	1007	1015	9	QQLIRAAEI 0.003841	4.4
HLA-B*58:01	1	367	375	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	QGNFKNLREF 0.003838	5.7
HLA-A*01:01	1	548	556	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	308	317	10	GIYQTSNFRV 0.003837	4.6
HLA-B*40:01	1	16	24	9	VNLTRTQL 0.003835	4.2
HLA-B*07:02	1	125	133	9	NVVIKVFCEP 0.003832	6.1
HLA-A*30:01	1	373	381	9	TFKCYGVSP 0.003832	15
HLA-A*68:02	1	968	977	10	GAISSVLNDI 0.003832	8.2
HLA-B*08:01	1	988	996	9	VQIDRLITG 0.003832	11
HLA-B*35:01	1	993	1001	9	LITGRLQSL 0.003831	5.7
HLA-A*02:06	1	1000	1008	9	SLQTYVTQQ 0.003831	11
HLA-B*15:01	1	775	783	9	TQEVFAQVK 0.003829	8.0
HLA-B*07:02	1	365	374	10	LYNSASFSTF 0.003823	6.1
HLA-A*26:01	1	1028	1037	10	ECVLGQSKRV 0.003823	5.5
HLA-A*02:03	1	1001	1010	10	LQTYVTQQLI 0.003822	8.9
HLA-B*53:01	1	1165	1173	9	DISGINASV 0.003822	5.2
HLA-B*51:01	1	1167	1176	10	SGINASVVNI 0.003821	10
HLA-A*01:01	1	720	729	10	TTEILPVSMT 0.00382	6.5
HLA-B*15:01	1	780	789	10	AQVKQIYKTP 0.003819	8.0
HLA-B*35:01	1	1063	1072	10	TYVPAQEKNF 0.003819	5.7
HLA-A*26:01	1	638	646	9	NVFQTRAGC 0.003818	5.6
HLA-A*30:02	1	890	898	9	ALQIPFAMQ 0.003818	12
HLA-B*15:01	1	959	968	10	LVKQLSSNFG 0.003818	8.0
HLA-A*26:01	1	168	176	9	FEYVSPFL 0.003817	5.6
HLA-A*33:01	1	464	472	9	DISTEIQQA 0.003815	7.5
HLA-A*03:01	1	803	812	10	LPDPSKPSKR 0.003815	6.8
HLA-A*24:02	1	1084	1093	10	AHFPREGVVF 0.003815	4.6
HLA-A*68:02	1	421	429	9	KLPDDFTGC 0.003813	8.2
HLA-A*02:01	1	975	984	10	NDILSRLDKV 0.003812	7.8
HLA-A*32:01	1	297	305	9	KCTLKSFTV 0.003811	5.7
HLA-A*02:01	1	1129	1138	10	IVNNTVYDPL 0.00381	7.8
HLA-B*07:02	1	216	224	9	LPQGFSALE 0.003809	6.2
HLA-A*02:03	1	861	870	10	LLTDEMIAQY 0.003809	8.9
HLA-B*08:01	1	111	120	10	DSKTQSLIV 0.003808	11
HLA-A*30:02	1	166	175	10	CTFEYVSPFL 0.003808	12
HLA-A*68:02	1	969	978	10	AISSVLNDIL 0.003805	8.2
HLA-B*51:01	1	19	27	9	TTRTQLPPA 0.003804	10
HLA-A*30:01	1	638	646	9	NVFQTRAGC 0.003804	15
HLA-A*03:01	1	58	66	9	FFSNVTWFH 0.003798	6.9
HLA-A*30:01	1	491	499	9	SYGFQPTYG 0.003798	15
HLA-B*35:01	1	885	893	9	FGAGAALQI 0.003797	5.7
HLA-A*30:02	1	1007	1015	9	QQLIRAAEI 0.003796	12
HLA-A*33:01	1	752	760	9	QYGSFCTQL 0.003794	7.5
HLA-B*08:01	1	1145	1153	9	FKEELDKYF 0.003793	11
HLA-A*02:06	1	580	588	9	EILDITPCS 0.003792	11
HLA-B*35:01	1	81	89	9	NPVLPFNDG 0.003791	5.7
HLA-A*26:01	1	785	794	10	IYKTPPIKDF 0.003791	5.6
HLA-A*02:01	1	222	230	9	ALEPLVDLP 0.00379	7.8
HLA-A*24:02	1	267	276	10	LQPRTFLLKY 0.00379	4.6
HLA-A*23:01	1	1198	1206	9	QELGKYEQY 0.00379	4.7
HLA-A*24:02	1	63	71	9	TWFHAIHV 0.003789	4.6
HLA-A*01:01	1	953	961	9	AQALNTLVK 0.003789	6.6
HLA-A*02:06	1	333	341	9	CPFGEVFNA 0.003788	11
HLA-B*35:01	1	1065	1074	10	VPAQEKNF 0.003788	5.7
HLA-A*30:01	1	1106	1114	9	FYEPQIITT 0.003786	15
HLA-A*33:01	1	293	301	9	LSETKCTLK 0.003785	7.5
HLA-B*08:01	1	167	176	10	TFEYVSPFL 0.003783	11
HLA-B*44:03	1	1056	1064	9	GVVFLHVTY 0.003783	4.5
HLA-A*30:01	1	876	885	10	AGTITSGWTF 0.003782	15
HLA-A*30:02	1	37	45	9	YYPDKVFRS 0.003781	12
HLA-A*30:02	1	801	809	9	QILPDPSKP 0.003778	12
HLA-B*15:01	1	875	883	9	LAGTITSGW 0.003778	8.0
HLA-A*68:02	1	987	995	9	EVQIDRLIT 0.003778	8.2
HLA-B*40:01	1	961	969	9	KQLSSNFGA 0.003777	4.2

HLA-A*11:01	1	803	812	10	LPDPSKPSKR 0.003776	6.0
HLA-A*68:01	1	195	204	10	KNIDGYFKIY 0.003775	9.7
HLA-B*53:01	1	336	344	9	GEVFNATRF 0.003775	5.2
HLA-B*44:03	1	659	667	9	CDIPIGAGI 0.003775	4.5
HLA-B*58:01	1	992	1001	10	RLITGRLQSL 0.003775	6.9
HLA-B*58:01	1	439	448	10	DSKVGGNVNY 0.003774	6.9
HLA-B*15:01	1	614	622	9	CTEVPVAIH 0.003773	8.1
HLA-B*07:02	1	1022	1031	10	AATKMSECVL 0.003773	6.2
HLA-A*33:01	1	58	67	10	FFSNVTWFHA 0.003771	7.6
HLA-A*03:01	1	826	834	9	ADAGFIKQY 0.003771	6.9
HLA-B*07:02	1	911	919	9	NVLYENQKL 0.003769	6.2
HLA-A*30:02	1	983	992	10	KVEAEVQIDR 0.003767	12
HLA-B*57:01	1	911	919	9	NVLYENQKL 0.003765	11
HLA-B*57:01	1	316	325	10	RVQPTESIVR 0.003764	11
HLA-A*24:02	1	1099	1107	9	WFVTQRNFY 0.003763	4.6
HLA-A*30:01	1	1058	1067	10	VFLHVTVVPA 0.003762	15
HLA-A*30:02	1	978	986	9	LSRLDKVEA 0.003761	12
HLA-B*57:01	1	135	143	9	FCNDPFLGV 0.00376	11
HLA-A*68:01	1	1206	1214	9	YIKWPWYIW 0.00376	9.7
HLA-A*26:01	1	485	494	10	CYFPLQSYGF 0.003757	5.6
HLA-A*33:01	1	1052	1060	9	SAPHGVVFL 0.003757	7.6
HLA-A*30:01	1	155	163	9	SEFRVYSSA 0.003756	15
HLA-B*58:01	1	414	422	9	NIADYNYKL 0.003756	7.0
HLA-A*30:02	1	498	506	9	YGVGYQPYP 0.003756	12
HLA-A*68:01	1	257	266	10	AGAAAYVGY 0.003755	9.7
HLA-A*32:01	1	13	21	9	SQCVNLTTTR 0.003752	5.7
HLA-B*07:02	1	318	327	10	QPTESIVRFP 0.003752	6.2
HLA-B*51:01	1	46	54	9	SVLHSTQDL 0.003749	10
HLA-A*26:01	1	1045	1053	9	HLMSFPQSA 0.003749	5.6
HLA-A*32:01	1	357	366	10	NCVADYSVLV 0.003748	5.7
HLA-A*02:06	1	208	216	9	TPINLVRGL 0.003745	12
HLA-B*57:01	1	495	504	10	QPTYGVGYQP 0.003744	11
HLA-B*15:01	1	378	387	10	GVSPTKLNDL 0.003743	8.1
HLA-A*30:02	1	945	953	9	LQDVVNQNA 0.003743	12
HLA-A*68:01	1	441	450	10	KVGGNYYNLY 0.003742	9.7
HLA-A*68:02	1	979	988	10	SRLDKVEAEV 0.003742	8.3
HLA-A*30:01	1	298	306	9	CTLKSFTVE 0.003741	15
HLA-B*44:03	1	614	623	10	CTEVPVAIHA 0.003741	4.5
HLA-A*01:01	1	671	680	10	YQTQTNSPRR 0.003741	6.6
HLA-A*30:02	1	781	789	9	QVKQIYKTP 0.003741	12
HLA-A*03:01	1	270	278	9	RTFLLKYNE 0.00374	6.9
HLA-B*35:01	1	1133	1141	9	TVYDPLQPE 0.00374	5.7
HLA-B*53:01	1	442	450	9	VGGNYYNLY 0.003738	5.2
HLA-A*11:01	1	1090	1099	10	GVFVSNGTHW 0.003738	6.0
HLA-B*53:01	1	771	779	9	QDKNTQEVF 0.003737	5.2
HLA-A*02:01	1	877	885	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	GVYYPDKVF 0.003733	9.0
HLA-A*33:01	1	167	175	9	TFEYVSQPF 0.003733	7.6
HLA-A*02:06	1	258	267	10	GAAAYVGYL 0.003733	12
HLA-B*58:01	1	312	321	10	TSNFRVQPT 0.003731	7.0
HLA-B*08:01	1	952	960	9	NAQALNTLV 0.003729	11
HLA-A*02:06	1	754	763	10	GSFCTQLNRA 0.003728	12
HLA-A*02:01	1	363	371	9	SVLYNSASF 0.003727	7.9
HLA-A*68:02	1	922	931	10	NQFNSAIGKI 0.003727	8.3
HLA-B*58:01	1	598	606	9	GTNTSNQVA 0.003724	7.0
HLA-A*01:01	1	1136	1145	10	DPLQPELDSF 0.003724	6.6
HLA-A*02:01	1	640	648	9	FQTRAGCLI 0.003723	7.9
HLA-A*30:02	1	936	945	10	SSTASALGKL 0.003722	12
HLA-B*08:01	1	183	192	10	QGNFKNLREF 0.003721	11
HLA-A*30:01	1	954	962	9	QALNTLVKQ 0.003721	15
HLA-A*32:01	1	24	32	9	LPPAYTNSF 0.00372	5.8
HLA-A*02:01	1	870	879	10	YTSALLAGTI 0.00372	7.9
HLA-A*30:02	1	989	997	9	QIDRLITGR 0.00372	12
HLA-B*08:01	1	17	25	9	NLTTRTQLP 0.003719	11
HLA-B*58:01	1	695	704	10	SLGVENSVA 0.003719	7.0

HLA-B*35:01	1	211	220	10	NLVRGLPQGF 0.003718	5.8
HLA-A*02:03	1	1014	1022	9	EIRASANLA 0.003717	9.0
HLA-B*58:01	1	78	87	10	RFANPVLPFN 0.003716	7.0
HLA-A*30:02	1	282	290	9	ITDAVDCAL 0.003716	12
HLA-B*35:01	1	933	942	10	DSLSSTASAL 0.003716	5.8
HLA-A*02:01	1	506	515	10	RVVVLSEFELL 0.003715	7.9
HLA-A*30:01	1	588	596	9	SFGGVSUIT 0.003714	15
HLA-A*11:01	1	745	753	9	ECSNLLLQY 0.003713	6.1
HLA-B*51:01	1	997	1005	9	RLQSLQTYV 0.003713	11
HLA-A*68:02	1	1106	1114	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	1049	1058	10	FPQSAPHGVV 0.00371	8.1
HLA-B*53:01	1	756	764	9	FCTQLNRL 0.003709	5.2
HLA-A*30:01	1	396	405	10	SFVIRGDEVV 0.003708	15
HLA-A*02:06	1	540	548	9	FNGLTGTGV 0.003708	12
HLA-A*01:01	1	989	998	10	QIDRLITGRL 0.003707	6.6
HLA-B*58:01	1	1171	1179	9	ASVUNIQKE 0.003707	7.0
HLA-A*11:01	1	493	502	10	GFQPTYGVGY 0.003704	6.1
HLA-A*02:01	1	1118	1127	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	625	633	9	QLTPTWRVY 0.003703	4.7
HLA-A*30:01	1	510	519	10	LSFELLHAPA 0.003701	15
HLA-A*33:01	1	78	86	9	RFANPVLPF 0.0037	7.6
HLA-B*57:01	1	781	789	9	QVKQIYKTP 0.0037	11
HLA-A*26:01	1	337	346	10	EVFNATRFAS 0.003699	5.7
HLA-A*24:02	1	965	974	10	SNFGAISSVL 0.003699	4.6
HLA-A*30:01	1	1132	1141	10	NTVYDPLQPE 0.003699	15
HLA-A*02:01	1	1032	1040	9	GQSKRVDFC 0.003698	7.9
HLA-A*30:02	1	873	881	9	ALLAGTITS 0.003697	12
HLA-A*02:06	1	239	247	9	QTLHRSYLT 0.003694	12
HLA-A*26:01	1	1041	1049	9	GKGYHLMSF 0.003694	5.7
HLA-A*01:01	1	168	176	9	FEYVSQPFL 0.003693	6.7
HLA-B*08:01	1	1014	1022	9	EIRASANLA 0.003693	11
HLA-B*53:01	1	127	135	9	VIKVECFQF 0.00369	5.2
HLA-A*24:02	1	522	530	9	CGPKKSTNL 0.00369	4.7
HLA-B*08:01	1	838	846	9	LGDI AARDL 0.003689	11
HLA-A*30:02	1	1025	1033	9	KMSECVLQ 0.003687	12
HLA-A*68:02	1	636	644	9	GSNVFQTRA 0.003686	8.3
HLA-A*01:01	1	1145	1153	9	FKEELDKYF 0.003686	6.7
HLA-A*68:01	1	137	146	10	NDPFLGVYYH 0.003685	9.8
HLA-A*68:01	1	208	216	9	TPINLVRGL 0.003685	9.8
HLA-A*23:01	1	854	862	9	GLTVLPLLL 0.003685	4.7
HLA-A*68:02	1	99	108	10	NIIRGWIFGT 0.003684	8.3
HLA-A*30:01	1	696	704	9	LGVENSVAY 0.003684	15
HLA-B*08:01	1	982	990	9	DKVEAEVQI 0.003684	11
HLA-A*11:01	1	497	506	10	TYGVGYQPYR 0.003683	6.1
HLA-B*35:01	1	729	737	9	TKTSVDCTM 0.003682	5.8
HLA-A*02:03	1	559	567	9	FQQFGRDIA 0.003681	9.0
HLA-B*51:01	1	8	17	10	LPLVSSQCVN 0.003678	11
HLA-A*32:01	1	251	259	9	SSSGWTAGA 0.003678	5.8
HLA-B*35:01	1	660	669	10	DIPIGAGICA 0.003678	5.8
HLA-A*68:02	1	512	521	10	FELLHAPATV 0.003674	8.3
HLA-B*57:01	1	856	864	9	TVLPLLLTD 0.003673	11
HLA-B*08:01	1	680	689	10	RARVASQSI 0.003672	11
HLA-A*68:01	1	253	262	10	SGWTAGAAAY 0.00367	9.8
HLA-A*11:01	1	292	301	10	PLSETKCTLK 0.00367	6.1
HLA-A*01:01	1	674	682	9	QTNSPRRAR 0.00367	6.7
HLA-A*32:01	1	745	753	9	ECSNLLLQY 0.003669	5.8
HLA-A*30:02	1	953	962	10	AQALNTLVKQ 0.003669	12
HLA-A*02:03	1	222	230	9	ALEPLVDLP 0.003667	9.1
HLA-A*02:01	1	505	514	10	YRVVLSFEL 0.003667	7.9
HLA-B*44:03	1	812	820	9	RSFIEDLLF 0.003667	4.5
HLA-A*30:01	1	27	35	9	AYTNSFTRG 0.003664	15
HLA-B*57:01	1	372	381	10	STFKCYGVSP 0.003662	11

HLA-B*07:02	1	916	924	9	NOKLIANQF 0.003661	6.3
HLA-A*01:01	1	461	469	9	FERDISTEI 0.00366	6.7
HLA-B*53:01	1	284	293	10	DAVDCALDPL 0.003659	5.3
HLA-A*02:01	1	727	735	9	SMTKTSVDC 0.003659	8.0
HLA-A*02:06	1	1204	1212	9	EQYIKWPWY 0.003658	12
HLA-A*01:01	1	1254	1263	10	DEDDSEPVLK 0.003658	6.7
HLA-A*01:01	1	122	130	9	NATNVVIKV 0.003654	6.7
HLA-A*30:02	1	1030	1039	10	VLGQSKRVDF 0.003654	12
HLA-A*30:02	1	926	934	9	SAIGKIQDS 0.003653	12
HLA-A*68:01	1	891	899	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	639	647	9	VFQTRAGCL 0.003649	15
HLA-A*33:01	1	959	967	9	LVKQLSSNF 0.003649	7.7
HLA-A*68:01	1	15	23	9	CVNLTRTRQ 0.003646	9.8
HLA-B*08:01	1	728	737	10	MTKTSVDCTM 0.003646	11
HLA-A*68:02	1	212	220	9	LVRGLPQGF 0.003644	8.4
HLA-A*02:06	1	702	711	10	VAYSNNSIAI 0.003644	12
HLA-A*30:01	1	937	946	10	STASALGKLQ 0.003644	15
HLA-B*51:01	1	53	61	9	DLFLPFFSN 0.003643	11
HLA-B*44:03	1	143	152	10	VYYHKNNKSW 0.003642	4.5
HLA-A*02:01	1	494	502	9	FQPTYGVGY 0.003642	8.0
HLA-A*32:01	1	282	290	9	ITDAVDCAL 0.003641	5.8
HLA-A*31:01	1	1000	1008	9	SLQTYVTQQ 0.003637	9.6
HLA-A*30:02	1	258	267	10	GAAAYYVGYL 0.003636	12
HLA-A*68:02	1	623	632	10	ADQLTPTWRV 0.003636	8.4
HLA-A*23:01	1	1104	1112	9	RNFYEPQII 0.003636	4.8
HLA-A*33:01	1	895	903	9	FAMQMAYRF 0.003634	7.7
HLA-A*24:02	1	267	275	9	LQPRTFLLK 0.00363	4.7
HLA-A*02:06	1	636	644	9	GSNVFQTRA 0.00363	12
HLA-A*32:01	1	897	906	10	MQMAYRFNGI 0.00363	5.8
HLA-A*26:01	1	992	1001	10	RLITGRLQSL 0.00363	5.7
HLA-A*30:01	1	1127	1135	9	IGIVNNTVY 0.003629	15
HLA-B*08:01	1	718	726	9	SVTTEILPV 0.003628	11
HLA-B*51:01	1	761	769	9	NRALTGIIV 0.003628	11
HLA-A*02:03	1	952	960	9	NAQALNTLV 0.003628	9.1
HLA-A*02:03	1	959	967	9	LVKQLSSNF 0.003624	9.1
HLA-B*35:01	1	58	66	9	FFSNVTWFH 0.003623	5.8
HLA-B*58:01	1	743	751	9	STECNLLL 0.003623	7.1
HLA-A*68:01	1	1018	1026	9	SANLAATKM 0.003623	9.8
HLA-A*03:01	1	777	786	10	EVFAQVKQIY 0.003622	7.0
HLA-B*57:01	1	1026	1035	10	MSECVLGQSK 0.003622	11
HLA-A*03:01	1	581	589	9	ILDITPCSF 0.003621	7.0
HLA-A*02:03	1	171	179	9	VSQPFLMDL 0.00362	9.1
HLA-A*03:01	1	1144	1152	9	SFKEELDKY 0.00362	7.0
HLA-A*30:02	1	177	186	10	MDLEGKQGNF 0.003617	12
HLA-A*31:01	1	635	644	10	TGSNVFQTRA 0.003617	9.6
HLA-B*57:01	1	694	703	10	MSLGVENSVA 0.003617	11
HLA-A*33:01	1	264	272	9	VGYLQPRTF 0.003614	7.7
HLA-A*30:01	1	1023	1032	10	ATKMSECVLG 0.003614	15
HLA-A*02:06	1	1048	1057	10	SFPQSAPHGV 0.003611	12
HLA-A*30:02	1	624	632	9	DQLTPTWRV 0.00361	12
HLA-A*23:01	1	324	333	10	VRFPNITNLC 0.003609	4.8
HLA-A*30:01	1	811	820	10	KRSFIEDLLF 0.003608	15
HLA-A*02:06	1	429	438	10	CVIAWNSNLL 0.003607	12
HLA-B*07:02	1	580	589	10	EILDITPCSF 0.003606	6.3
HLA-A*02:01	1	1193	1202	10	SLIDLQELGK 0.003606	8.0
HLA-A*33:01	1	50	59	10	STQDLFLPFF 0.003605	7.7
HLA-A*02:06	1	1010	1019	10	IRAAEIRASA 0.003605	12
HLA-A*23:01	1	168	176	9	FEYVSQPFL 0.003603	4.8
HLA-B*35:01	1	41	49	9	KVFRSSVLH 0.003602	5.8
HLA-A*23:01	1	267	275	9	LQPRTFLLK 0.003602	4.8
HLA-A*02:06	1	710	718	9	AIPTNFTIS 0.003602	12
HLA-B*44:02	1	995	1004	10	TGRLQSLQTY 0.003602	4.4
HLA-B*15:01	1	817	825	9	DLLFNKVTL 0.003601	8.2

HLA-A*68:02	1	858	866	9	LPPLLTDEM 0.003601	8.4
HLA-B*57:01	1	965	973	9	SNFGAISSV 0.0036	11
HLA-A*02:03	1	81	90	10	NPVLPFNDGV 0.003599	9.1
HLA-B*08:01	1	1105	1113	9	NFYEPQIIT 0.003599	11
HLA-A*30:02	1	135	143	9	FCNDPFLGV 0.003598	12
HLA-A*02:06	1	362	371	10	YSVLYNSASF 0.003598	12
HLA-A*01:01	1	1067	1075	9	AQEKNFTTA 0.003598	6.8
HLA-A*24:02	1	625	633	9	QLTPTWRVY 0.003597	4.7
HLA-A*32:01	1	232	241	10	GINITRFQTL 0.003595	5.8
HLA-B*15:01	1	504	512	9	PYRVVLSF 0.003595	8.2
HLA-A*31:01	1	1104	1113	10	RNFYEPQIIT 0.003595	9.6
HLA-A*30:01	1	1206	1215	10	YIKWPWYIWL 0.003595	15
HLA-B*58:01	1	791	799	9	IKDFGGFNF 0.003594	7.1
HLA-B*15:01	1	998	1007	10	LQSLQTYVTQ 0.003592	8.2
HLA-A*30:02	1	368	376	9	SASFSTFKC 0.003591	12
HLA-A*30:01	1	675	684	10	TNSPRRARSV 0.003589	15
HLA-B*58:01	1	787	795	9	KTPPIKDFG 0.003588	7.1
HLA-B*35:01	1	184	192	9	GNFKNLREF 0.003586	5.8
HLA-A*30:01	1	760	769	10	LNRALTGIIV 0.003586	15
HLA-A*02:01	1	1181	1190	10	DRLNEVAKNL 0.003585	8.0
HLA-B*57:01	1	795	803	9	GGFNFSQIL 0.003584	11
HLA-A*31:01	1	1046	1055	10	LMSFPQSAPH 0.003584	9.6
HLA-A*02:03	1	738	746	9	YICGDSTEC 0.00358	9.1
HLA-B*58:01	1	1222	1231	10	IAIVMTIML 0.00358	7.1
HLA-A*31:01	1	264	272	9	VGYLQPRTF 0.003578	9.6
HLA-A*03:01	1	77	86	10	KRFANPVLFP 0.003577	7.0
HLA-B*58:01	1	221	230	10	SALEPLVDLP 0.003576	7.1
HLA-A*26:01	1	235	243	9	ITRFQTLHR 0.003575	5.8
HLA-A*02:06	1	571	579	9	DAVRDPQTL 0.003574	12
HLA-A*30:01	1	511	519	9	SFELLHAPA 0.003573	15
HLA-A*30:01	1	1011	1020	10	RAAEIRASAN 0.003573	15
HLA-A*68:02	1	110	118	9	LDSKTQSL 0.003572	8.5
HLA-A*30:02	1	244	252	9	SYLTPGDSS 0.003571	12
HLA-A*02:03	1	444	452	9	GNYNLYRL 0.00357	9.2
HLA-B*53:01	1	774	782	9	NTQEVFAQV 0.00357	5.3
HLA-B*57:01	1	978	986	9	LSRLDKVEA 0.003569	11
HLA-A*30:01	1	350	358	9	WNRKRISNC 0.003568	15
HLA-A*30:01	1	1137	1146	10	PLQPELDSFK 0.003568	15
HLA-A*23:01	1	238	246	9	FQTLHRSYL 0.003567	4.8
HLA-A*02:01	1	60	68	9	SNVTWFHAI 0.003566	8.1
HLA-B*53:01	1	458	467	10	LKPFERDIST 0.003566	5.3
HLA-A*32:01	1	526	534	9	KSTNLVKNK 0.003566	5.9
HLA-A*32:01	1	1005	1013	9	VTQLLIRAA 0.003565	5.9
HLA-A*11:01	1	649	657	9	GAEHVNNSY 0.003564	6.2
HLA-A*33:01	1	663	671	9	IGAGICASY 0.003564	7.7
HLA-B*57:01	1	186	194	9	FKNLREFVF 0.003563	11
HLA-A*01:01	1	303	312	10	FTVEKGIYQT 0.003563	6.8
HLA-A*68:01	1	334	343	10	PFGEVFNATR 0.003562	9.9
HLA-A*02:06	1	1215	1224	10	LGFIAGLIAI 0.003561	12
HLA-A*01:01	1	152	161	10	WMESEFRVYS 0.003559	6.8
HLA-B*08:01	1	484	492	9	NCYFPLQSY 0.003559	11
HLA-B*35:01	1	492	500	9	YGFQPTYGV 0.003559	5.9
HLA-A*02:03	1	695	704	10	SLGVENSVA 0.003559	9.2
HLA-B*53:01	1	1204	1212	9	EQYIKWPWY 0.003559	5.3
HLA-A*02:01	1	259	267	9	AAAYYVGYL 0.003558	8.1
HLA-A*30:02	1	888	896	9	GAALQIPFA 0.003557	12
HLA-A*02:03	1	926	934	9	SAIGKIQDS 0.003557	9.2
HLA-B*57:01	1	191	200	10	EFVFKNIDGY 0.003556	11
HLA-A*68:02	1	932	941	10	QDSLSTASA 0.003556	8.5
HLA-A*30:02	1	999	1007	9	QSLQTYVTQ 0.003556	12
HLA-B*08:01	1	1093	1101	9	VSNGTHWFV 0.003556	11
HLA-B*57:01	1	1170	1178	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	1048	1057	10	SFPQSAPHGV 0.003554	11
HLA-A*01:01	1	1170	1178	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	864	872	9	DEMIAQYTS 0.003552	4.4
HLA-A*68:02	1	88	97	10	DGVYFASTEK 0.003551	8.5
HLA-A*68:01	1	301	310	10	KSFTVEKGIY 0.003551	9.9
HLA-A*30:01	1	648	656	9	IGAEHVNNS 0.003549	15
HLA-B*57:01	1	46	54	9	SVLHSTQDL 0.003548	11
HLA-B*08:01	1	240	248	9	TLHRSYLTP 0.003548	11
HLA-A*02:06	1	603	611	9	NQVAVLYQG 0.003548	12
HLA-B*44:02	1	1139	1148	10	QPELDSFKEE 0.003548	4.4
HLA-B*57:01	1	613	621	9	NCTEVPVAI 0.003547	11
HLA-B*57:01	1	12	21	10	SSQCVNLTTR 0.003546	11
HLA-A*32:01	1	35	44	10	GVYYPDKVFR 0.003544	5.9
HLA-A*31:01	1	1091	1099	9	VFVSNQTHW 0.003544	9.7
HLA-A*02:06	1	527	535	9	STNLVKNKC 0.003543	12
HLA-A*31:01	1	862	870	9	LTDEMIAQY 0.003543	9.7
HLA-B*08:01	1	758	767	10	TQLNRALTGI 0.003541	11
HLA-A*24:02	1	951	959	9	QNAQALNTL 0.003541	4.8
HLA-B*51:01	1	214	222	9	RGLPQGFS 0.00354	11
HLA-A*02:06	1	620	628	9	AIHADQLTP 0.003538	12
HLA-B*44:03	1	553	562	10	NKKFLPFQF 0.003537	4.6
HLA-A*02:03	1	501	510	10	GYQPYRVVVL 0.003535	9.2
HLA-A*02:01	1	255	264	10	WTAGAAAYYV 0.003534	8.1
HLA-B*57:01	1	434	442	9	NSNMLDSKV 0.003534	11
HLA-A*68:02	1	815	823	9	IEDLLFNKV 0.003533	8.5
HLA-B*57:01	1	1012	1021	10	AAEIRASANL 0.003533	11
HLA-A*26:01	1	30	39	10	NSFTRGVVYP 0.003531	5.8
HLA-A*24:02	1	169	178	10	EYVSQPFLMD 0.003531	4.8
HLA-B*44:03	1	849	858	10	AQKFNGLTVL 0.003531	4.6
HLA-A*30:02	1	920	928	9	IANQFNSAI 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	548	556	9	VLTESNKKF 0.003528	11
HLA-B*44:02	1	1001	1009	9	LQTYVTQQL 0.003528	4.4
HLA-A*02:06	1	330	339	10	TNLCPFGEVF 0.003526	12
HLA-A*26:01	1	1028	1036	9	ECVLGQSKR 0.003526	5.8
HLA-A*02:06	1	592	601	10	VSVITPGTNT 0.003525	12
HLA-A*31:01	1	1025	1033	9	KMSECVLGQ 0.003525	9.7
HLA-A*26:01	1	34	43	10	RGVYYPDKVF 0.003524	5.8
HLA-A*31:01	1	309	317	9	IYQTSNFRV 0.003523	9.7
HLA-B*57:01	1	695	704	10	SLGVNSVAY 0.003521	11
HLA-A*01:01	1	204	213	10	YSKHTPINLV 0.003519	6.9
HLA-A*32:01	1	786	794	9	YKTPPIKDF 0.003519	5.9
HLA-A*01:01	1	1096	1104	9	GTHWFVTQR 0.003518	6.9
HLA-A*02:01	1	895	903	9	FAMQMAYRF 0.003517	8.1
HLA-B*15:01	1	1176	1184	9	IQKEIDRLN 0.003516	8.3
HLA-A*31:01	1	316	324	9	RVQPTEISV 0.003515	9.7
HLA-B*57:01	1	1136	1145	10	DPLQPELDSF 0.003515	11
HLA-A*30:01	1	1221	1229	9	LIAIVMVTI 0.003515	15
HLA-A*02:03	1	622	630	9	HADQLTPTW 0.003513	9.2
HLA-B*07:02	1	687	696	10	QSIAYTMSL 0.003513	6.4
HLA-B*40:01	1	1070	1078	9	KNFTTAPAI 0.003513	4.3
HLA-A*30:01	1	1150	1159	10	DKYFKNHTSP 0.003513	15
HLA-A*26:01	1	353	362	10	KRISNCVADY 0.003512	5.8
HLA-A*68:02	1	862	871	10	LTDEMIAQYT 0.003512	8.5
HLA-A*02:06	1	688	697	10	SIIAYTMSLG 0.003511	12
HLA-A*30:02	1	805	814	10	DPSKPSKRSF 0.003511	12
HLA-B*51:01	1	609	617	9	YQGVNCTEV 0.00351	11
HLA-A*30:02	1	842	850	9	AARDLICAQ 0.00351	12
HLA-A*01:01	1	1057	1065	9	VVFLHVTVYV 0.003509	6.9
HLA-B*15:01	1	315	323	9	FRVQPTEIS 0.003508	8.3
HLA-B*57:01	1	1021	1029	9	LAATKMSEC 0.003508	11
HLA-B*08:01	1	55	64	10	FLPFFSNVTW 0.003507	11
HLA-B*53:01	1	887	895	9	AGAALQIPF 0.003507	5.4
HLA-A*30:02	1	906	915	10	IGVTQNVLYE 0.003505	12

HLA-B*15:01	1	922	931	10	NQFNSAIGKI 0.003505	8.3
HLA-A*01:01	1	972	980	9	SVLNDILSR 0.003505	6.9
HLA-B*44:02	1	1141	1149	9	ELDSFKEEL 0.003505	4.4
HLA-A*30:01	1	535	543	9	CVNFNFNGL 0.003504	15
HLA-A*33:01	1	141	150	10	LGVYYHKNNK 0.003503	7.8
HLA-B*08:01	1	1177	1186	10	QKEIDRLNEV 0.003503	11
HLA-A*02:01	1	346	354	9	SVYAWNRKR 0.003502	8.1
HLA-A*02:03	1	781	789	9	QVKQIYKTP 0.003502	9.2
HLA-A*02:03	1	802	811	10	ILPDPSKPSK 0.003502	9.2
HLA-A*24:02	1	20	28	9	TRTQLPPAY 0.003501	4.8
HLA-A*02:03	1	534	543	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	IFGTTLDSC 0.003498	7.8
HLA-A*30:01	1	594	602	9	VITPGTNTS 0.003498	15
HLA-B*44:02	1	849	858	10	AQKFNGLTVL 0.003498	4.4
HLA-A*01:01	1	1144	1153	10	SFKEELDKYF 0.003497	6.9
HLA-A*01:01	1	56	64	9	LPFFSNVTW 0.003496	6.9
HLA-A*01:01	1	805	814	10	DPSKPSKRSF 0.003495	6.9
HLA-A*02:01	1	952	960	9	NAQALNTLV 0.003495	8.1
HLA-B*08:01	1	74	82	9	NGTKRFANP 0.003494	11
HLA-A*30:01	1	1025	1033	9	KMSECVLGQ 0.003493	15
HLA-A*32:01	1	453	461	9	FRKSNLKPF 0.003492	5.9
HLA-A*02:03	1	1023	1031	9	ATKMSECVL 0.003492	9.2
HLA-B*44:02	1	1092	1100	9	FVSNGTHWF 0.003492	4.4
HLA-A*30:01	1	643	652	10	RAGCLIGAEH 0.003491	15
HLA-A*30:02	1	1105	1113	9	NFYEPQIIT 0.00349	12
HLA-A*01:01	1	867	875	9	IAQYTSALL 0.003488	6.9
HLA-A*01:01	1	1091	1100	10	VFVSNGTHWF 0.003487	6.9
HLA-A*68:01	1	391	399	9	NVYADSFVI 0.003486	10
HLA-B*51:01	1	751	760	10	LQYGSFCTQL 0.003486	11
HLA-A*01:01	1	875	883	9	LAGTITSGW 0.003484	6.9
HLA-A*68:01	1	490	499	10	QSYGFQPTYG 0.003482	10
HLA-B*57:01	1	1093	1102	10	VSNGTHWFVT 0.003482	11
HLA-B*51:01	1	951	960	10	QNAQALNTLV 0.003481	11
HLA-A*02:01	1	1121	1129	9	GNCDDVIGI 0.003479	8.1
HLA-A*31:01	1	133	141	9	FQFCNDPFL 0.003477	9.7
HLA-B*57:01	1	398	407	10	VIRGDEVQRQI 0.003476	11
HLA-A*26:01	1	683	691	9	SVASQSIIA 0.003476	5.9
HLA-B*58:01	1	795	803	9	GGFNFSQIL 0.003475	7.2
HLA-B*15:01	1	781	789	9	QVKQIYKTP 0.003473	8.3
HLA-B*57:01	1	41	50	10	KVFRSSVLHS 0.003472	11
HLA-B*08:01	1	681	689	9	ARSVASQSI 0.003472	11
HLA-A*33:01	1	883	891	9	WTFGAGAAL 0.003471	7.8
HLA-A*03:01	1	1204	1212	9	EQYIKWPWY 0.00347	7.1
HLA-A*30:01	1	823	831	9	VTLADAGFI 0.003468	15
HLA-B*15:01	1	246	255	10	LTPGDSSSGW 0.003467	8.3
HLA-A*24:02	1	1178	1186	9	KEIDRLNEV 0.003467	4.8
HLA-A*01:01	1	389	398	10	FTNVYADSFV 0.003464	6.9
HLA-A*32:01	1	868	876	9	AQYTSALLA 0.003464	5.9
HLA-B*35:01	1	81	90	10	NPVLPFNDGV 0.003463	5.9
HLA-B*51:01	1	506	514	9	RVVVLSFEL 0.003463	11
HLA-B*07:02	1	1218	1226	9	IAGLIAIVM 0.003457	6.4
HLA-A*68:02	1	661	669	9	IPIGAGICA 0.003456	8.6
HLA-A*02:06	1	534	543	10	KCVNFNFNGL 0.003455	12
HLA-A*30:01	1	856	864	9	TVLPPLD 0.003455	15
HLA-A*30:01	1	1080	1089	10	HDGKAHFPRE 0.003455	15
HLA-A*33:01	1	1169	1178	10	INASVVNIQK 0.003455	7.8
HLA-B*51:01	1	474	483	10	STPCNGVKGF 0.003454	11
HLA-A*02:06	1	598	606	9	GTNTSNQVA 0.003454	12
HLA-B*57:01	1	643	652	10	RAGCLIGAEH 0.003447	11
HLA-B*15:01	1	593	601	9	SVITPGTNT 0.003445	8.3
HLA-A*33:01	1	517	525	9	APATVCGPK 0.003444	7.8
HLA-B*53:01	1	565	573	9	DIADTTDAV 0.003444	5.4
HLA-B*35:01	1	495	503	9	QPTYGVGYQ 0.003443	6.0
HLA-A*02:03	1	782	791	10	VKQIYKTPPI 0.003443	9.3

HLA-A*24:02	1	1104	1112	9	RNFYEPQII 0.003442	4.8
HLA-B*57:01	1	843	852	10	ARDLICAQKF 0.003441	11
HLA-A*03:01	1	856	865	10	TVLPPLLTDE 0.003441	7.1
HLA-A*30:02	1	1207	1215	9	IKWPWYIWL 0.003441	13
HLA-B*35:01	1	98	106	9	SNIRGWIF 0.003438	6.0
HLA-A*26:01	1	406	415	10	QIAPGQTGNI 0.003437	5.9
HLA-A*02:06	1	468	476	9	EIYQAGSTP 0.003437	12
HLA-A*33:01	1	1106	1114	9	FYEPQIITT 0.003437	7.8
HLA-B*58:01	1	218	226	9	QGFSALEPL 0.003436	7.3
HLA-B*35:01	1	1098	1107	10	HWFVTQRNFY 0.003436	6.0
HLA-A*26:01	1	616	625	10	EVPVAIHADQ 0.003435	5.9
HLA-A*30:02	1	911	919	9	NVLYENQKL 0.003435	13
HLA-B*44:02	1	659	667	9	CDIPIGAGI 0.003434	4.5
HLA-A*31:01	1	751	759	9	LQYGSFCTQ 0.003434	9.8
HLA-A*30:02	1	962	970	9	QLSSNFGAI 0.003434	13
HLA-B*08:01	1	1022	1031	10	AATKMSECVL 0.003434	11
HLA-A*30:01	1	353	362	10	KRISNCVADY 0.003432	15
HLA-A*30:02	1	525	534	10	KKSTNLVKNK 0.003432	13
HLA-A*02:03	1	988	997	10	VQIDRLITGR 0.003432	9.3
HLA-A*33:01	1	686	694	9	SQSIIAYTM 0.00343	7.8
HLA-B*08:01	1	347	355	9	VYAWNRKRI 0.003429	11
HLA-A*33:01	1	444	452	9	GNYNLYLRL 0.003429	7.8
HLA-A*02:03	1	947	955	9	DVVNQNAQA 0.003429	9.3
HLA-B*07:02	1	253	261	9	SGWTAGAAA 0.003428	6.5
HLA-B*44:02	1	1063	1072	10	TYVPAQEKNF 0.003427	4.5
HLA-A*68:02	1	1206	1215	10	YIKWPWYIWL 0.003427	8.6
HLA-A*11:01	1	41	50	10	KVFRSSVLHS 0.003426	6.3
HLA-A*30:02	1	315	323	9	FRVQPTESI 0.003426	13
HLA-B*53:01	1	985	994	10	EAEVQIDRLI 0.003426	5.4
HLA-A*02:06	1	996	1004	9	GRLQSLQTY 0.003426	12
HLA-A*30:01	1	29	37	9	TNSFTRGVY 0.003425	15
HLA-A*68:02	1	1084	1093	10	AHFPREGV FV 0.003425	8.6
HLA-B*15:01	1	782	791	10	VKQIYKTPPI 0.003424	8.4
HLA-B*51:01	1	1204	1212	9	EQYIKWPWY 0.003424	11
HLA-A*30:01	1	343	351	9	RFASVYAWN 0.003423	15
HLA-A*03:01	1	669	677	9	ASYQTQ TNS 0.003422	7.1
HLA-A*31:01	1	63	71	9	TWFHAIHVS 0.00342	9.8
HLA-A*02:06	1	826	834	9	ADAGFIKQY 0.00342	12
HLA-B*08:01	1	181	189	9	GKQGNFKNL 0.003419	11
HLA-A*03:01	1	212	220	9	LVRGLPQGF 0.003419	7.2
HLA-A*11:01	1	186	195	10	FKNLREFVFK 0.003418	6.3
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*57:01	1	237	246	10	RFQTLHRSYL 0.003416	11
HLA-B*35:01	1	453	461	9	FRKSNLKPF 0.003416	6.0
HLA-A*02:03	1	613	621	9	NCTEVPVAI 0.003416	9.3
HLA-A*30:02	1	310	318	9	YQTSNFRVQ 0.003415	13
HLA-A*68:02	1	569	578	10	TTDAVRDPQT 0.003415	8.6
HLA-B*44:03	1	720	729	10	TTEILPVSM T 0.003415	4.7
HLA-A*30:02	1	443	451	9	GGNYNYLYR 0.003414	13
HLA-A*23:01	1	504	513	10	PYRVVLSFE 0.003413	4.9
HLA-B*15:01	1	865	873	9	EMIAQY TSA 0.003413	8.4
HLA-B*35:01	1	168	177	10	FEYVSQPFLM 0.003411	6.0
HLA-A*68:02	1	506	515	10	RVVLSFELL 0.003411	8.6
HLA-A*68:02	1	856	864	9	TVLPPLLT D 0.003411	8.6
HLA-A*30:01	1	479	488	10	GVKGFNCYFP 0.00341	15
HLA-A*24:02	1	817	825	9	DLLFNKVTL 0.00341	4.8
HLA-A*68:02	1	923	931	9	QFN SAIGKI 0.003409	8.6
HLA-B*15:01	1	410	419	10	GQTGNIADYN 0.003407	8.4
HLA-B*57:01	1	251	259	9	SSSGW TAGA 0.003406	11
HLA-A*02:01	1	288	296	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*07:02	1	314	323	10	NFRVQPTESI 0.003399	6.5
HLA-A*30:02	1	406	415	10	QIAPGQTGNI 0.003398	13



HLA-B*15:01	1	500	508	9	VGYPYRVV 0.003398	8.4
HLA-B*08:01	1	857	866	10	VLPLLLTDEM 0.003398	11
HLA-A*02:06	1	527	536	10	STNLVKNKCV 0.003397	12
HLA-A*31:01	1	126	134	9	VVIKVEFQ 0.003392	9.8
HLA-B*15:01	1	170	179	10	YVSQPFLMDL 0.003391	8.4
HLA-A*01:01	1	421	430	10	KLPDDFTGCV 0.003391	7.0
HLA-B*15:01	1	842	850	9	AARDLICAQ 0.003391	8.4
HLA-A*26:01	1	971	980	10	SSVLNDILSR 0.00339	5.9
HLA-A*31:01	1	685	693	9	ASQSIIAYT 0.003389	9.8
HLA-B*40:01	1	35	43	9	GVYYPDKVF 0.003388	4.4
HLA-A*30:01	1	1144	1153	10	SFKEELDKYF 0.003387	15
HLA-A*30:02	1	215	223	9	GLPQGFSAL 0.003386	13
HLA-A*30:01	1	1121	1129	9	GNCDVVIGI 0.003386	15
HLA-A*30:02	1	110	118	9	LDSKTQSL 0.003384	13
HLA-B*08:01	1	618	626	9	PVAIHADQL 0.003384	11
HLA-B*07:02	1	110	118	9	LDSKTQSL 0.003383	6.5
HLA-A*30:01	1	112	120	9	SKTQSL 0.003383	15
HLA-A*31:01	1	233	241	9	INITRFQTL 0.003383	9.9
HLA-B*08:01	1	74	83	10	NGTKRFANPV 0.003382	11
HLA-A*68:01	1	299	308	10	TLKSFTVEKG 0.003381	11
HLA-A*68:01	1	259	268	10	AAAYYVGYLQ 0.00338	11
HLA-A*03:01	1	1055	1064	10	HGVVFLHVTV 0.00338	7.2
HLA-B*53:01	1	1065	1074	10	VPAQEKNF 0.003379	5.5
HLA-A*31:01	1	51	59	9	TQDLFLPFF 0.003377	9.9
HLA-B*40:01	1	294	302	9	SETKCTLKS 0.003377	4.4
HLA-B*51:01	1	228	237	10	DLPIGINITR 0.003376	11
HLA-A*33:01	1	239	247	9	QTLHRSYLT 0.003376	7.9
HLA-A*30:01	1	1040	1049	10	CGKGYHLMSF 0.003376	15
HLA-A*02:06	1	722	731	10	EILPVSM 0.003375	12
HLA-A*32:01	1	21	30	10	RTQLPPAYTN 0.003374	6.0
HLA-B*51:01	1	459	468	10	KPFERDISTE 0.003374	11
HLA-B*07:02	1	479	487	9	GVKGFNCYF 0.003374	6.5
HLA-A*02:01	1	211	220	10	NLVRGLPQGF 0.003371	8.2
HLA-B*15:01	1	571	579	9	DAVRDPQTL 0.00337	8.4
HLA-A*03:01	1	1257	1266	10	DSEPV 0.003369	7.2
HLA-A*02:03	1	591	599	9	GVS 0.003368	9.4
HLA-A*03:01	1	1035	1044	10	KRVDFCGKGY 0.003368	7.2
HLA-A*30:01	1	1171	1179	9	ASV 0.003368	15
HLA-B*58:01	1	1072	1080	9	FTTAPAICH 0.003366	7.4
HLA-A*68:01	1	1014	1022	9	EIRASANLA 0.003365	11
HLA-A*23:01	1	1077	1086	10	AICHDGKAHF 0.003365	4.9
HLA-B*51:01	1	358	366	9	CVADYSVLY 0.003364	11
HLA-A*01:01	1	857	866	10	VLPLLLTDEM 0.003362	7.1
HLA-B*08:01	1	3	11	9	VFLVLLPLV 0.003361	11
HLA-A*02:01	1	281	290	10	TITDAVDCAL 0.00336	8.3
HLA-A*02:01	1	903	912	10	FNGIGVTQNV 0.003358	8.3
HLA-B*15:01	1	35	44	10	GVYYPDKVFR 0.003355	8.5
HLA-A*30:02	1	461	469	9	FERDISTE 0.003355	13
HLA-A*24:02	1	1030	1039	10	VLGQSKRVDF 0.003355	4.9
HLA-B*58:01	1	702	710	9	VAYSNNSIA 0.003354	7.4
HLA-A*68:02	1	1021	1029	9	LAATKMSEC 0.003353	8.7
HLA-A*31:01	1	497	505	9	TYGVGYQPY 0.003349	9.9
HLA-A*31:01	1	879	887	9	ITSGWTFGA 0.003349	9.9
HLA-A*02:03	1	1177	1186	10	QKEIDRLNEV 0.003348	9.4
HLA-A*30:01	1	23	31	9	QLPPAYTNS 0.003347	16
HLA-A*02:06	1	1116	1125	10	NTFVSGNCDV 0.003345	12
HLA-A*26:01	1	168	177	10	FEYVSQPFLM 0.003344	6.0
HLA-B*53:01	1	1065	1073	9	VPAQEKNF 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	418	426	9	YNYKLPDDF 0.003342	4.8
HLA-B*44:03	1	405	413	9	RQIAPGQTG 0.003341	4.8
HLA-B*53:01	1	98	106	9	SNIRGWIF 0.003339	5.5
HLA-A*32:01	1	824	832	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	854	862	9	GLTVLPPLL 0.003338	4.9
HLA-B*57:01	1	933	942	10	DSLSSTASAL 0.003338	11
HLA-A*26:01	1	821	830	10	NKVTLADAGF 0.003337	6.0
HLA-A*33:01	1	973	981	9	VLNDILSRL 0.003337	7.9
HLA-A*01:01	1	889	897	9	AALQIPFAM 0.003336	7.1
HLA-A*02:03	1	944	952	9	KLQDVVNQN 0.003336	9.4
HLA-A*24:02	1	822	830	9	KVTLADAGF 0.003335	4.9
HLA-A*02:06	1	487	496	10	FPLQSYGFQP 0.003334	12
HLA-B*58:01	1	756	764	9	FCTQLNRAL 0.003334	7.4
HLA-B*08:01	1	1013	1021	9	AEIRASANL 0.003334	11
HLA-A*68:01	1	1045	1053	9	HLMSFPQSA 0.003334	11
HLA-A*30:01	1	1047	1056	10	MSFPQSAPHG 0.003333	16
HLA-A*30:02	1	448	456	9	YLYRFLRKS 0.003331	13
HLA-B*51:01	1	661	670	10	IPIGAGICAS 0.003331	11
HLA-A*31:01	1	268	276	9	QPRTFLLKY 0.00333	9.9
HLA-A*01:01	1	598	606	9	GTNTSNQVA 0.00333	7.1
HLA-A*02:06	1	1193	1202	10	SLIDLQELGK 0.00333	12
HLA-B*58:01	1	60	68	9	SNVTWFHAI 0.003329	7.4
HLA-B*15:01	1	890	898	9	ALQIPFAMQ 0.003329	8.5
HLA-A*24:02	1	444	452	9	GNYNLYLRL 0.003328	4.9
HLA-A*30:02	1	904	912	9	NGIGVTQNV 0.003328	13
HLA-A*30:01	1	980	988	9	RLDKVEAEV 0.003328	16
HLA-A*32:01	1	341	349	9	ATRFASVYA 0.003327	6.0
HLA-A*68:02	1	366	374	9	YNSASFSTF 0.003326	8.7
HLA-A*24:02	1	236	245	10	TRFQTLHRSY 0.003325	4.9
HLA-A*23:01	1	267	276	10	LQPRTFLLKY 0.003325	5.0
HLA-A*02:06	1	958	967	10	TLVKQLSSNF 0.003325	12
HLA-A*31:01	1	3	11	9	VFLVLLPLV 0.003324	9.9
HLA-A*23:01	1	246	255	10	LTPGDSSSGW 0.003324	5.0
HLA-B*51:01	1	1010	1019	10	IRAAEIRASA 0.003324	11
HLA-A*30:01	1	12	20	9	SSQCVLTT 0.003323	16
HLA-B*15:01	1	683	691	9	SVASQSIIA 0.003323	8.5
HLA-A*02:01	1	708	716	9	SIAIPTNFT 0.003323	8.3
HLA-B*58:01	1	1097	1106	10	THWFVTQRNF 0.003323	7.4
HLA-A*26:01	1	307	315	9	KGIYQTSNF 0.003322	6.0
HLA-A*03:01	1	410	418	9	GQTGNIADY 0.003322	7.2
HLA-A*26:01	1	1092	1101	10	FVSNQTHWFV 0.003321	6.0
HLA-A*11:01	1	1144	1152	9	SFKEELDKY 0.00332	6.3
HLA-B*15:01	1	212	221	10	LVRGLPQGFS 0.003319	8.5
HLA-A*68:02	1	868	876	9	AQYTSALLA 0.003319	8.7
HLA-A*11:01	1	754	763	10	GSFCTQLNRA 0.003318	6.3
HLA-A*23:01	1	992	1001	10	RLITGRLQSL 0.003318	5.0
HLA-B*53:01	1	1086	1095	10	FPREGVFVSN 0.003318	5.5
HLA-A*32:01	1	752	760	9	QYGSFCTQL 0.003317	6.1
HLA-A*02:03	1	1162	1171	10	DLGDISGINA 0.003317	9.4
HLA-A*68:02	1	71	80	10	SGTNGTKRFA 0.003316	8.8
HLA-B*08:01	1	307	315	9	KGIYQTSNF 0.003316	11
HLA-A*26:01	1	784	792	9	QIYKTPPIK 0.003316	6.0
HLA-A*32:01	1	1016	1025	10	RASANLAATK 0.003316	6.1
HLA-A*23:01	1	670	678	9	SYQTQTNSP 0.003315	5.0
HLA-B*15:01	1	702	711	10	VAYSNNSIAI 0.003315	8.5
HLA-A*02:01	1	386	394	9	DLCFTNVYA 0.003313	8.3
HLA-A*30:02	1	410	419	10	GQTGNIADYN 0.003313	13
HLA-A*31:01	1	773	782	10	KNTQEVEFAQV 0.003313	9.9
HLA-A*68:01	1	1079	1088	10	CHDGKAHFPR 0.003313	11
HLA-A*02:06	1	621	630	10	IHADQLTPTW 0.003312	12
HLA-A*30:02	1	803	812	10	LPDPSKPSKR 0.00331	13
HLA-A*01:01	1	970	978	9	ISSVLNDIL 0.00331	7.1
HLA-A*30:01	1	1179	1188	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	892	900	9	QIPFAMQMA 0.003307	6.0
HLA-A*02:06	1	1053	1062	10	APHGVVFLHV 0.003307	12
HLA-A*68:01	1	198	207	10	DGYFKIYSKH 0.003305	11
HLA-B*35:01	1	291	299	9	DPLSETKCT 0.003305	6.1
HLA-A*26:01	1	89	97	9	GVYFASTEK 0.003304	6.0

HLA-B*53:01	1	332	341	10	LCPFGEVFN 0.003304	5.5
HLA-A*68:02	1	355	364	10	ISNCVADYSV 0.003304	8.8
HLA-B*53:01	1	421	430	10	KLPDDFTGCV 0.003304	5.5
HLA-B*40:01	1	494	502	9	FQPTYGVGY 0.003303	4.5
HLA-B*53:01	1	730	738	9	KTSVDCTMY 0.003303	5.5
HLA-B*58:01	1	890	899	10	ALQIPFAMQM 0.003302	7.4
HLA-B*53:01	1	335	344	10	FGEVFNATRF 0.003301	5.5
HLA-A*01:01	1	70	78	9	VSGTNGTKR 0.0033	7.1
HLA-B*58:01	1	968	977	10	GAISSVLNDI 0.0033	7.4
HLA-A*30:01	1	803	812	10	LPDPSKPSKR 0.003295	16
HLA-A*32:01	1	405	413	9	RQIAPGQTG 0.003293	6.1
HLA-A*02:01	1	870	878	9	YTSALLAGT 0.003293	8.3
HLA-A*01:01	1	169	177	9	EYVSQPFLM 0.003291	7.1
HLA-A*68:02	1	396	404	9	SFVIRGDEV 0.003289	8.8
HLA-B*53:01	1	728	737	10	MTKTSVDCTM 0.003289	5.5
HLA-A*30:02	1	337	345	9	EVFNATRFA 0.003288	13
HLA-A*30:01	1	1091	1099	9	VFVSNQTHW 0.003287	16
HLA-A*26:01	1	425	433	9	DFTGCVIAW 0.003286	6.0
HLA-B*40:01	1	786	794	9	YKTPPIKDF 0.003286	4.5
HLA-B*15:01	1	1245	1253	9	CSCGSCCKF 0.003286	8.5
HLA-B*57:01	1	18	26	9	LTRTQLPP 0.003285	11
HLA-B*08:01	1	39	47	9	PDKVFRSSV 0.003285	11
HLA-A*68:02	1	612	621	10	VNCTEVPVAI 0.003285	8.8
HLA-A*30:01	1	120	128	9	VNATNVVI 0.003284	16
HLA-A*30:01	1	143	152	10	VYYHKNNKSW 0.003284	16
HLA-A*02:06	1	451	460	10	RLFRKSNLKP 0.00328	12
HLA-A*02:06	1	1023	1031	9	ATKMSECVL 0.003279	12
HLA-B*58:01	1	1061	1070	10	HVTYVPAQEK 0.003279	7.4
HLA-A*30:01	1	1176	1184	9	IQKEIDRLN 0.003277	16
HLA-A*31:01	1	109	117	9	TLDSKTQSL 0.003275	10
HLA-A*11:01	1	268	276	9	QPRTFLLKY 0.003275	6.4
HLA-A*02:06	1	1009	1017	9	LIRAAEIRA 0.003275	12
HLA-A*32:01	1	1178	1186	9	KEIDRLNEV 0.003275	6.1
HLA-A*26:01	1	1209	1217	9	WPWYIWLGF 0.003275	6.1
HLA-A*68:02	1	238	246	9	FQTLHRSYL 0.003274	8.8
HLA-A*02:03	1	157	166	10	FRVYSSANNC 0.003273	9.5
HLA-B*07:02	1	674	682	9	QTNSPRRAR 0.003273	6.6
HLA-B*51:01	1	806	814	9	PSKPSKRFS 0.003273	11
HLA-A*26:01	1	253	262	10	SGWTAGAAAY 0.003272	6.1
HLA-A*68:01	1	728	737	10	MTKTSVDCTM 0.003272	11
HLA-A*02:01	1	46	55	10	SVLHSTQDLF 0.003271	8.4
HLA-A*26:01	1	862	871	10	LTDEMIAQYT 0.00327	6.1
HLA-A*30:01	1	1072	1080	9	FTTAPAICH 0.00327	16
HLA-A*30:01	1	495	504	10	QPTYGVGYQP 0.003269	16
HLA-B*58:01	1	964	972	9	SSNFGAISS 0.003268	7.5
HLA-B*44:03	1	1143	1152	10	DSFKEELDKY 0.003268	4.8
HLA-A*30:02	1	692	700	9	YTMSLGVEN 0.003267	13
HLA-B*07:02	1	171	179	9	VSQPFLMDL 0.003266	6.6
HLA-B*15:01	1	921	930	10	ANQFNSAIGK 0.003266	8.5
HLA-A*24:02	1	785	793	9	IYKTPPIKD 0.003264	4.9
HLA-A*68:02	1	56	64	9	LPFFSNVTW 0.003263	8.8
HLA-B*51:01	1	478	486	9	NGVKGFNCY 0.003263	11
HLA-B*57:01	1	1035	1044	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	1064	1072	9	YVPAQEKNF 0.003261	6.6
HLA-A*33:01	1	196	204	9	NIDGYFKIY 0.00326	8.0
HLA-A*01:01	1	254	262	9	GWTAGAAAY 0.00326	7.2
HLA-A*11:01	1	1254	1263	10	DEDDSEPVLK 0.003259	6.4
HLA-B*53:01	1	624	632	9	DQLTPTWRV 0.003258	5.5
HLA-A*11:01	1	1146	1154	9	KEELDKYFK 0.003258	6.4
HLA-A*02:01	1	251	259	9	SSSGWTAGA 0.003257	8.4
HLA-A*11:01	1	236	245	10	TRFQTLHRSY 0.003256	6.4
HLA-A*02:03	1	1102	1111	10	TQRNFYEQI 0.003256	9.5
HLA-A*68:01	1	905	914	10	GIGVTQNVLY 0.003255	11
HLA-B*44:02	1	1258	1266	9	SEPVLKGVK 0.003255	4.6

HLA-B*53:01	1	722	730	9	EILPVSMTK 0.003254	5.6
HLA-B*58:01	1	954	962	9	QALNTLVKQ 0.003254	7.5
HLA-A*30:01	1	308	317	10	GIYQTSNFRV 0.003253	16
HLA-A*02:03	1	494	502	9	FQPTYGVGY 0.003253	9.5
HLA-A*11:01	1	685	693	9	ASQSIIAYT 0.003253	6.4
HLA-A*23:01	1	346	355	10	SVYAWNRKRI 0.003252	5.0
HLA-A*02:01	1	824	832	9	TLADAGFIK 0.003252	8.4
HLA-A*02:03	1	874	883	10	LLAGTITSGW 0.003252	9.5
HLA-A*02:03	1	1077	1086	10	AICHDGKAHF 0.003251	9.5
HLA-A*32:01	1	440	448	9	SKVGGNYNY 0.00325	6.1
HLA-A*11:01	1	442	450	9	VGGNYNYLY 0.003249	6.4
HLA-B*51:01	1	396	404	9	SFVIRGDEV 0.003248	11
HLA-A*68:02	1	508	517	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	TRTQLPPA 0.003246	8.0
HLA-B*57:01	1	619	628	10	VAIHADQLTP 0.003246	11
HLA-B*57:01	1	899	908	10	MAYRFNGIGV 0.003246	11
HLA-B*15:01	1	758	767	10	TQLNRALTGI 0.003245	8.6
HLA-B*07:02	1	877	885	9	GTITSGWTF 0.003245	6.7
HLA-A*26:01	1	53	62	10	DLFLPFFSNV 0.003244	6.1
HLA-A*30:02	1	399	407	9	IRGDEVRIQI 0.003244	13
HLA-A*24:02	1	1207	1215	9	IKWPWYIWL 0.003244	5.0
HLA-A*01:01	1	359	368	10	VADYSVLYNS 0.003243	7.2
HLA-A*11:01	1	1045	1053	9	HLMSFPQSA 0.003243	6.4
HLA-A*33:01	1	1056	1064	9	GVVFLHVTY 0.003243	8.0
HLA-A*30:01	1	1126	1134	9	VIGIVNNTV 0.003242	16
HLA-A*31:01	1	120	129	10	VNNATNVVIK 0.003241	10
HLA-A*33:01	1	229	238	10	LPIGINITRF 0.003241	8.0
HLA-A*68:02	1	970	978	9	ISSVLNDIL 0.003241	8.9
HLA-B*08:01	1	1155	1163	9	NHTSPDVDL 0.00324	11
HLA-A*68:02	1	120	128	9	VNNATNVVI 0.003239	8.9
HLA-B*58:01	1	841	849	9	IAARDLICA 0.003239	7.5
HLA-A*30:02	1	1113	1121	9	TTDNTFVSG 0.003238	13
HLA-A*68:02	1	370	379	10	SFSTFKCYGV 0.003237	8.9
HLA-A*30:02	1	966	974	9	NFGAISSVL 0.003237	13
HLA-B*44:03	1	1144	1153	10	SFKEELDKYF 0.003237	4.8
HLA-A*23:01	1	469	477	9	IYQAGSTPC 0.003236	5.0
HLA-A*03:01	1	229	237	9	LPIGINITR 0.003235	7.3
HLA-B*57:01	1	586	595	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	451	459	9	RLFRKSNLK 0.003234	12
HLA-A*68:02	1	1012	1021	10	AAEIRASANL 0.003234	8.9
HLA-B*58:01	1	300	309	10	LKSFTVEKGI 0.003233	7.5
HLA-B*07:02	1	92	100	9	FASTEKSNI 0.003232	6.7
HLA-A*30:01	1	1101	1110	10	VTQRNFYEPQ 0.00323	16
HLA-B*35:01	1	96	104	9	EKSNIIRGW 0.003229	6.2
HLA-B*57:01	1	635	643	9	TGSNVFQTR 0.003228	11
HLA-A*02:06	1	1212	1220	9	YIWLGFIAG 0.003228	12
HLA-A*02:03	1	72	80	9	GTNGTKRFA 0.003227	9.6
HLA-B*57:01	1	265	274	10	GYLQPRTFLL 0.003225	11
HLA-A*33:01	1	952	961	10	NAQALNTLVK 0.003225	8.0
HLA-B*40:01	1	186	194	9	FKNLREFVF 0.003223	4.5
HLA-B*15:01	1	930	939	10	KIQDLSLSTA 0.003222	8.6
HLA-A*68:01	1	865	873	9	EMIAQY TSA 0.003221	11
HLA-B*08:01	1	1127	1135	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	342	350	9	TRFASVYAW 0.00322	16
HLA-A*02:03	1	638	646	9	NVFQTRAGC 0.003218	9.6
HLA-B*44:03	1	110	118	9	LDSKTQSL 0.003215	4.8
HLA-A*30:01	1	187	196	10	KNLREFVFKN 0.003214	16
HLA-B*57:01	1	166	174	9	CTFEYVSQP 0.003213	11
HLA-B*08:01	1	885	893	9	FGAGAALQI 0.003213	11
HLA-A*11:01	1	1046	1055	10	LMSFPQSAPH 0.003213	6.4
HLA-A*30:01	1	469	477	9	IYQAGSTPC 0.003212	16

HLA-B*40:01	1	681	689	9	ARSVASQSI 0.003212	4.5
HLA-A*02:03	1	853	862	10	NGLTVLPPLL 0.00321	9.6
HLA-B*15:01	1	1254	1262	9	DEDDSEPVL 0.00321	8.6
HLA-B*44:03	1	983	992	10	KVEAEVQIDR 0.003207	4.8
HLA-A*03:01	1	554	562	9	KKFLPFQF 0.003206	7.4
HLA-A*68:02	1	433	442	10	WNSNNLDSKV 0.003205	8.9
HLA-B*57:01	1	722	730	9	EILPVSMTK 0.003204	11
HLA-A*68:02	1	982	990	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	731	739	9	TSVDCTMYI 0.003202	6.2
HLA-A*01:01	1	38	47	10	YDPKVFSSV 0.003201	7.3
HLA-B*40:01	1	1107	1115	9	YEPQIITTD 0.003201	4.5
HLA-A*30:02	1	76	84	9	TKRFANPVL 0.0032	13
HLA-A*32:01	1	1207	1215	9	IKWPWYIWL 0.0032	6.2
HLA-A*01:01	1	866	874	9	MIAQYTSAL 0.003199	7.3
HLA-B*51:01	1	178	186	9	DLEGKQGNF 0.003198	11
HLA-B*15:01	1	1046	1054	9	LMSFPQSAP 0.003198	8.6
HLA-B*51:01	1	1203	1211	9	YEQYIKWPW 0.003198	11
HLA-A*02:06	1	861	869	9	LLTDEMIAQ 0.003197	12
HLA-A*02:01	1	1025	1033	9	KMSECVLGQ 0.003197	8.4
HLA-A*33:01	1	357	366	10	NCVADYSVLY 0.003196	8.1
HLA-A*30:02	1	552	560	9	SNKKFLPFQ 0.003196	13
HLA-A*26:01	1	583	592	10	DITPCSFQGV 0.003194	6.1
HLA-B*08:01	1	391	399	9	NVYADSFVI 0.003192	12
HLA-B*53:01	1	218	226	9	QGFSALEPL 0.003191	5.6
HLA-A*02:06	1	1105	1113	9	NFYEPQIIT 0.003191	12
HLA-A*01:01	1	235	243	9	ITRFQTLHR 0.003188	7.3
HLA-B*57:01	1	655	663	9	NSYECDIPI 0.003188	11
HLA-A*30:01	1	776	785	10	QEVFAQVKQI 0.003188	16
HLA-B*57:01	1	1169	1178	10	INASVVNIQK 0.003188	11
HLA-B*51:01	1	483	492	10	FNCYFPLQSY 0.003187	11
HLA-A*01:01	1	994	1002	9	ITGRLQSLQ 0.003187	7.3
HLA-B*35:01	1	330	339	10	TNLCPFGEVF 0.003186	6.2
HLA-A*32:01	1	823	831	9	VTLADAGFI 0.003186	6.2
HLA-B*44:02	1	816	825	10	EDLLFNKVTL 0.003185	4.6
HLA-B*51:01	1	881	889	9	SGWTFGAGA 0.003185	11
HLA-A*02:06	1	1046	1054	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	598	607	10	GTNTSNQVAV 0.003182	11
HLA-B*44:02	1	324	332	9	VRFPNITNL 0.00318	4.6
HLA-A*02:01	1	695	704	10	SLGVENSVAV 0.00318	8.4
HLA-A*30:01	1	893	902	10	IPFAMQMAYR 0.00318	16
HLA-A*30:01	1	1014	1023	10	EIRASANLAA 0.00318	16
HLA-A*24:02	1	1209	1217	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	1141	1149	9	ELDSFKEEL 0.003177	13
HLA-B*08:01	1	110	118	9	LDSKTQSLL 0.003176	12
HLA-A*30:02	1	790	799	10	PIKDFGGFNF 0.003176	13
HLA-A*11:01	1	1080	1088	9	HDGKAHFPR 0.003174	6.4
HLA-B*40:01	1	366	374	9	YNSASFSTF 0.003172	4.5
HLA-B*35:01	1	850	858	9	QKFNGLTVL 0.003172	6.2
HLA-B*44:02	1	1056	1064	9	GVVFLHVTY 0.003172	4.6
HLA-A*02:06	1	1101	1109	9	VTQRNFYEP 0.003172	12
HLA-A*30:01	1	1176	1185	10	IQKEIDRLNE 0.003172	16
HLA-A*02:06	1	1201	1209	9	GKYEYIKW 0.003172	12
HLA-A*32:01	1	390	399	10	TNVYADSFVI 0.00317	6.2
HLA-A*30:01	1	1090	1099	10	GVFVSNQTHW 0.00317	16
HLA-A*02:06	1	264	272	9	VGYLQPRTF 0.003169	12
HLA-A*68:01	1	303	312	10	FTVEKGIYQT 0.003168	11
HLA-A*11:01	1	984	992	9	VEAEVQIDR 0.003168	6.4
HLA-A*30:01	1	1000	1009	10	SLQTYVTQQL 0.003168	16
HLA-B*08:01	1	220	229	10	FSALEPLVDL 0.003167	12
HLA-A*02:01	1	861	869	9	LLTDEMIAQ 0.003167	8.5

HLA-A*30:01	1	347	356	10	VYAWNRRKRIS 0.003166	16
HLA-A*23:01	1	478	487	10	NGVKGFNCYF 0.003166	5.1
HLA-A*03:01	1	260	268	9	AAYYVGYLQ 0.003165	7.4
HLA-A*30:02	1	994	1002	9	ITGRLQSLQ 0.003165	13
HLA-A*02:01	1	510	519	10	LSFELLHAPA 0.003164	8.5
HLA-B*58:01	1	1195	1203	9	IDLQELGKY 0.003164	7.6
HLA-B*07:02	1	1016	1024	9	RASANLAAT 0.003163	6.8
HLA-B*57:01	1	110	118	9	LDSKTQSL 0.003162	11
HLA-B*07:02	1	530	538	9	LVKNKCVNF 0.003162	6.8
HLA-B*08:01	1	548	557	10	VLTESNKKFL 0.003162	12
HLA-B*53:01	1	37	46	10	YYPDKVFRSS 0.003159	5.6
HLA-B*58:01	1	236	245	10	TRFQTLHRSY 0.003158	7.6
HLA-B*58:01	1	1092	1101	10	FVSNQTHWFV 0.003156	7.6
HLA-A*30:01	1	383	391	9	KLNDLCFTN 0.003155	16
HLA-B*51:01	1	1175	1183	9	NIQKEIDRL 0.003155	11
HLA-B*08:01	1	1257	1265	9	DSEPVKGV 0.003155	12
HLA-B*44:03	1	467	475	9	TEIYQAGST 0.003153	4.9
HLA-B*51:01	1	1103	1111	9	QRNFYEPQI 0.003153	11
HLA-A*02:03	1	46	55	10	SVLHSTQDLF 0.003152	9.7
HLA-A*02:01	1	749	758	10	LLLQYGSFCT 0.003152	8.5
HLA-B*35:01	1	198	206	9	DGYFKIYSK 0.003151	6.2
HLA-A*02:06	1	865	874	10	EMIAQYTSAL 0.003151	12
HLA-B*15:01	1	930	938	9	KIQDLSST 0.00315	8.7
HLA-A*01:01	1	1163	1171	9	LGDISGINA 0.003148	7.3
HLA-A*24:02	1	321	329	9	ESIVRFPNI 0.003146	5.0
HLA-B*07:02	1	682	690	9	RSVASQSII 0.003145	6.8
HLA-B*15:01	1	951	959	9	QNAQALNTL 0.003145	8.7
HLA-A*01:01	1	979	988	10	SRLDKVEAEV 0.003144	7.3
HLA-B*15:01	1	148	157	10	NNKSWMESEF 0.003143	8.7
HLA-A*02:06	1	396	404	9	SFVIRGDEV 0.003143	13
HLA-B*35:01	1	1208	1217	10	KWPWYIWLGF 0.003143	6.2
HLA-A*31:01	1	472	481	10	AGSTPCNGVK 0.003142	11
HLA-A*30:02	1	755	763	9	SFCTQLNRA 0.003142	13
HLA-A*26:01	1	136	145	10	CNDPFLGVYY 0.003141	6.2
HLA-A*01:01	1	263	272	10	YVGYLQPRTF 0.003141	7.3
HLA-A*24:02	1	430	438	9	VIAWNSNLL 0.003141	5.0
HLA-B*15:01	1	702	710	9	VAYSNNNSIA 0.00314	8.7
HLA-B*57:01	1	857	866	10	VLPLLLTDEM 0.00314	12
HLA-A*30:02	1	971	980	10	SSVLNDILSR 0.00314	13
HLA-B*35:01	1	1118	1126	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*44:03	1	1067	1075	9	AQEKNFTTA 0.003138	4.9
HLA-A*30:02	1	747	756	10	SNLLLQYGSF 0.003137	13
HLA-A*02:06	1	853	862	10	NGLTVLPLL 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	1182	1190	9	RLNEVAKNL 0.003135	11
HLA-A*03:01	1	35	43	9	GVYYPDKVF 0.003134	7.4
HLA-A*30:01	1	713	721	9	TNFTISVTT 0.003134	16
HLA-A*24:02	1	275	283	9	KYNENGTIT 0.003132	5.0
HLA-A*68:01	1	324	332	9	VRFPNITNL 0.003132	11
HLA-B*44:02	1	632	640	9	VYSTGSNVF 0.003131	4.7
HLA-B*58:01	1	762	770	9	RALTGIAVE 0.003131	7.6
HLA-B*53:01	1	1039	1047	9	FCGKGYHLM 0.003131	5.7
HLA-B*58:01	1	20	28	9	TRTQLPPAY 0.003129	7.6
HLA-A*03:01	1	526	535	10	KSTNLVKKNC 0.003129	7.4
HLA-A*02:01	1	556	564	9	FLPFQQFGR 0.003128	8.5
HLA-A*68:01	1	207	216	10	HTPINLVRGL 0.003124	11
HLA-A*68:02	1	356	364	9	SNCVADYSV 0.003124	9.0
HLA-A*30:02	1	881	889	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	904	912	9	NGIGVTQNV 0.003121	6.2
HLA-A*02:03	1	317	326	10	VQPTESIVRF 0.00312	9.7

HLA-A*11:01	1	440	448	9	SKVGGNYNY	0.00312	6.5
HLA-A*30:02	1	843	851	9	ARDLICAQK	0.003119	13
HLA-B*07:02	1	1013	1021	9	AEIRASANL	0.003119	6.8
HLA-B*44:03	1	340	348	9	NATRFASVY	0.003118	4.9
HLA-A*23:01	1	450	458	9	YRLFRKSNL	0.003118	5.1
HLA-B*08:01	1	451	459	9	RLFRKSNLK	0.003117	12
HLA-B*35:01	1	493	502	10	GFQPTYGVGY	0.003117	6.2
HLA-A*23:01	1	785	793	9	IYKTPPIKD	0.003117	5.1
HLA-B*08:01	1	887	895	9	AGAALQIPF	0.003116	12
HLA-B*07:02	1	45	54	10	SSVLHSTQDL	0.003115	6.8
HLA-A*30:02	1	442	451	10	VGGNYNYLYR	0.003114	13
HLA-B*44:03	1	551	559	9	ESNKKFLPF	0.003114	4.9
HLA-A*01:01	1	636	644	9	GSNVFQTRA	0.003114	7.4
HLA-B*15:01	1	1006	1014	9	TQLLIRAAE	0.003112	8.7
HLA-A*26:01	1	1078	1086	9	ICHDKGAHF	0.003112	6.2
HLA-B*58:01	1	461	470	10	FERDISTEYI	0.003111	7.6
HLA-A*68:02	1	1070	1078	9	KNFTTAPAI	0.003111	9.1
HLA-A*11:01	1	937	946	10	STASALGKLQ	0.003109	6.5
HLA-A*26:01	1	1182	1190	9	RLNEVAKNL	0.003109	6.2
HLA-A*01:01	1	44	52	9	RSSVLHSTQ	0.003107	7.4
HLA-A*26:01	1	441	449	9	KVGGNYNYL	0.003107	6.2
HLA-A*02:06	1	1104	1112	9	RNFYEPQII	0.003107	13
HLA-B*57:01	1	367	376	10	NSASFSTFKC	0.003106	12
HLA-A*26:01	1	380	389	10	SPTKLNLDLFC	0.003106	6.2
HLA-A*30:01	1	928	936	9	IGKIQDLSL	0.003106	16
HLA-A*03:01	1	980	988	9	RLDKVEAEV	0.003105	7.5
HLA-A*30:01	1	322	330	9	SIVRFPNIT	0.003104	16
HLA-A*31:01	1	918	926	9	KLIANQFNS	0.003104	11
HLA-A*02:06	1	724	733	10	LPVSMTKTSV	0.003103	13
HLA-B*58:01	1	1099	1107	9	WFVTQRNFY	0.003103	7.7
HLA-A*02:06	1	162	170	9	SANNCTFEY	0.003102	13
HLA-B*40:01	1	318	326	9	QPTESIVRF	0.003102	4.6
HLA-A*68:01	1	1090	1099	10	GVFVSNGTHW	0.003102	11
HLA-A*31:01	1	900	908	9	AYRFNGIGV	0.0031	11
HLA-A*02:06	1	950	958	9	NQNAQALNT	0.0031	13
HLA-B*40:01	1	249	257	9	GDSSSGWTA	0.003099	4.6
HLA-A*33:01	1	413	421	9	GNIADYNYK	0.003099	8.2
HLA-A*68:02	1	1222	1230	9	IAIVMVTIM	0.003099	9.1
HLA-A*31:01	1	1099	1107	9	WFVTQRNFY	0.003098	11
HLA-A*30:02	1	413	421	9	GNIADYNYK	0.003097	13
HLA-B*07:02	1	549	557	9	LTESNKKFL	0.003097	6.8
HLA-B*51:01	1	748	756	9	NLLLQYGSF	0.003097	11
HLA-A*02:03	1	719	728	10	VTTEILPVSM	0.003094	9.8
HLA-A*68:02	1	757	765	9	CTQLNRALT	0.003094	9.1
HLA-B*53:01	1	108	117	10	TTLDSKTQSL	0.003093	5.7
HLA-A*02:01	1	867	876	10	IAQYTSALLA	0.003093	8.5
HLA-B*07:02	1	285	293	9	AVDCALDPL	0.003092	6.8
HLA-A*24:02	1	770	778	9	EQDKNTQEV	0.003092	5.0
HLA-A*03:01	1	959	967	9	LVKQLSSNF	0.003092	7.5
HLA-A*30:02	1	251	260	10	SSSGWTAGAA	0.003091	13
HLA-B*44:02	1	340	348	9	NATRFASVY	0.00309	4.7
HLA-B*08:01	1	1077	1086	10	AICHDKGAHF	0.00309	12
HLA-A*33:01	1	1193	1202	10	SLIDLQELGK	0.003089	8.2
HLA-A*03:01	1	353	362	10	KRISNCVADY	0.003088	7.5
HLA-A*30:02	1	513	521	9	ELLHAPATV	0.003088	13
HLA-A*68:01	1	151	160	10	SWMESEFRVY	0.003087	11
HLA-B*15:01	1	468	476	9	EIYQAGSTP	0.003087	8.7
HLA-A*24:02	1	491	499	9	SYGFQPTYG	0.003087	5.0
HLA-B*57:01	1	267	275	9	LQPRTFLLK	0.003086	12
HLA-A*68:02	1	501	509	9	GYQPYRVVV	0.003086	9.1
HLA-A*68:02	1	864	873	10	DEMIAQY TSA	0.003086	9.1
HLA-A*68:02	1	309	317	9	IYQTSNFRV	0.003085	9.1
HLA-A*23:01	1	1178	1186	9	KEIDRLNEV	0.003084	5.1
HLA-A*02:03	1	479	487	9	GVKGFNCYF	0.003083	9.8
HLA-B*58:01	1	186	194	9	FKNLREFV	0.003082	7.7
HLA-A*02:06	1	997	1006	10	RLQSLQTYVT	0.003082	13

HLA-B*07:02	1	1000	1009	10	SLQTYVTQQL 0.003082	6.8
HLA-A*31:01	1	194	202	9	FKNIDGYFK 0.003081	11
HLA-A*30:02	1	391	399	9	NVYADSFVI 0.003081	13
HLA-B*51:01	1	624	633	10	DQLTPTWRVY 0.003081	11
HLA-A*32:01	1	716	724	9	TISVTTEIL 0.003081	6.3
HLA-B*44:03	1	805	814	10	DPSKPSKRSF 0.003079	5.0
HLA-A*01:01	1	915	924	10	ENQKLIANQF 0.003078	7.4
HLA-A*30:02	1	915	924	10	ENQKLIANQF 0.003078	13
HLA-B*51:01	1	722	730	9	EILPVSMTK 0.003077	11
HLA-B*57:01	1	335	344	10	FGEVFNATRF 0.003076	12
HLA-A*26:01	1	1145	1153	9	FKEELDKYF 0.003076	6.3
HLA-A*26:01	1	553	562	10	NKKFLPFQF 0.003075	6.3
HLA-A*68:02	1	975	984	10	NDILSRDLKV 0.003074	9.1
HLA-B*15:01	1	888	897	10	GAALQIPFAM 0.003072	8.7
HLA-A*68:02	1	1156	1164	9	HTSPDVDLG 0.003072	9.1
HLA-A*01:01	1	548	557	10	VLTESNKKFL 0.003071	7.4
HLA-A*33:01	1	1003	1012	10	TYVTQQLIRA 0.003071	8.2
HLA-B*58:01	1	367	376	10	NSASFSTFKC 0.00307	7.7
HLA-A*68:02	1	509	517	9	VLSFELLHA 0.00307	9.1
HLA-B*57:01	1	529	538	10	NLVKNKCVNF 0.003069	12
HLA-A*01:01	1	930	939	10	KIQDLSLSTA 0.003069	7.4
HLA-A*33:01	1	1100	1108	9	FVTQRNFYE 0.003068	8.2
HLA-B*51:01	1	1207	1215	9	IKWPWYIWL 0.003068	11
HLA-A*30:01	1	412	420	9	TGNIADYNY 0.003066	16
HLA-B*08:01	1	1103	1111	9	QRNFYEPQI 0.003066	12
HLA-A*03:01	1	138	147	10	DPFLGVYYHK 0.003065	7.5
HLA-A*01:01	1	264	272	9	VGYLQPRTF 0.003065	7.4
HLA-B*07:02	1	522	530	9	CGPKKSTNL 0.003065	6.9
HLA-A*31:01	1	826	834	9	ADAGFIKQY 0.003065	11
HLA-B*58:01	1	239	247	9	QTLHRSYLT 0.003064	7.7
HLA-A*32:01	1	1220	1229	10	GLIAIVMVTI 0.003063	6.3
HLA-A*33:01	1	902	910	9	RFNGIGVTQ 0.003062	8.3
HLA-A*03:01	1	28	36	9	YTNSFTRGV 0.003061	7.5
HLA-A*31:01	1	121	129	9	NNATNVVVIK 0.003061	11
HLA-B*44:03	1	1063	1072	10	TYVPAQEKNF 0.003061	5.0
HLA-B*58:01	1	692	700	9	YTMSLGVEN 0.00306	7.7
HLA-B*53:01	1	785	794	10	IYKTPPIKDF 0.003059	5.7
HLA-A*26:01	1	19	27	9	TTRTQLPPA 0.003058	6.3
HLA-B*51:01	1	167	176	10	TFEYVSQPFL 0.003058	12
HLA-B*08:01	1	989	998	10	QIDRLITGRL 0.003058	12
HLA-A*31:01	1	1180	1188	9	IDRLNEVAK 0.003058	11
HLA-A*33:01	1	684	692	9	VASQSIIAY 0.003057	8.3
HLA-A*30:01	1	951	959	9	QNAQALNTL 0.003057	16
HLA-A*03:01	1	437	446	10	NLDSKVGNGY 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	303	311	9	FTVEKGIYQ 0.00305	6.3
HLA-A*03:01	1	751	759	9	LQYGSFCTQ 0.00305	7.5
HLA-A*11:01	1	479	487	9	GVKGFNCYF 0.003047	6.5
HLA-A*30:02	1	885	893	9	FGAGAALQI 0.003047	13
HLA-A*03:01	1	316	324	9	RVQPTESIV 0.003046	7.5
HLA-A*26:01	1	10	18	9	LVSSQCVNL 0.003045	6.3
HLA-B*57:01	1	762	770	9	RALTGIAVE 0.003043	12
HLA-A*31:01	1	1002	1010	9	QTYVTQQLI 0.003043	11
HLA-A*68:02	1	692	700	9	YTMSLGVEN 0.003041	9.2
HLA-B*15:01	1	1218	1226	9	IAGLIAIVM 0.003041	8.8
HLA-B*15:01	1	240	248	9	TLHRSYLTP 0.00304	8.8
HLA-A*02:03	1	123	131	9	ATNVVIKVC 0.003038	9.8
HLA-A*30:01	1	704	712	9	YSNNSIAIP 0.003038	16
HLA-A*02:03	1	440	449	10	SKVGGNYNYL 0.003037	9.8
HLA-A*68:02	1	966	974	9	NFGAISSVL 0.003037	9.2
HLA-A*02:03	1	965	974	10	SNFGAISSVL 0.003036	9.8
HLA-A*02:03	1	396	404	9	SFVIRGDEV 0.003035	9.8
HLA-A*24:02	1	1048	1056	9	SFPQSAPHG 0.003035	5.1
HLA-A*68:02	1	503	512	10	QPYRVVLSF 0.003034	9.2
HLA-A*02:06	1	811	819	9	KRSFIEDLL 0.003034	13



HLA-A*30:02	1	133	141	9	FQFCNDPFL 0.003033	13
HLA-B*44:02	1	868	876	9	AQYTSALLA 0.003033	4.7
HLA-B*58:01	1	674	682	9	QTNSPRRAR 0.003032	7.7
HLA-B*08:01	1	931	939	9	IQDLSSTA 0.003032	12
HLA-A*01:01	1	93	101	9	ASTEKSNI 0.003031	7.5
HLA-A*23:01	1	553	562	10	NKKFLPFQQF 0.003031	5.2
HLA-A*31:01	1	965	973	9	SNFGAISSV 0.00303	11
HLA-A*31:01	1	935	944	10	LSSTASALGK 0.003028	11
HLA-A*02:01	1	988	996	9	VQIDRLITG 0.003028	8.6
HLA-B*57:01	1	790	799	10	PIKDFGGFNF 0.003027	12
HLA-B*35:01	1	506	514	9	RVVLSFEL 0.003026	6.3
HLA-B*07:02	1	807	816	10	SKPSKRSEIE 0.003026	6.9
HLA-B*07:02	1	978	986	9	LSRLDKVEA 0.003025	6.9
HLA-A*02:01	1	1254	1262	9	DEDDSEPV 0.003024	8.6
HLA-A*02:01	1	337	345	9	EVFNATRFV 0.003023	8.6
HLA-A*32:01	1	450	458	9	YRLFRKSNL 0.003022	6.3
HLA-B*35:01	1	774	782	9	NTQEVFAQV 0.003021	6.3
HLA-B*53:01	1	1097	1106	10	THWFVTQRNF 0.003021	5.7
HLA-A*30:02	1	815	823	9	IEDLLFNKV 0.00302	13
HLA-B*53:01	1	826	834	9	ADAGFIKQY 0.003019	5.7
HLA-B*51:01	1	1161	1169	9	VDLGDISGI 0.003018	12
HLA-A*68:01	1	686	694	9	SQSIIAYTM 0.003017	11
HLA-B*53:01	1	993	1001	9	LITGRLQSL 0.003017	5.7
HLA-A*30:02	1	67	75	9	AIHVSNGTG 0.003016	13
HLA-B*58:01	1	264	273	10	VGYLQPRTF 0.003015	7.8
HLA-A*33:01	1	479	487	9	GVKGFNCYF 0.003015	8.3
HLA-A*02:03	1	527	536	10	STNLVKNKCV 0.003015	9.9
HLA-B*44:02	1	246	255	10	LTPGDSSSGW 0.003014	4.8
HLA-A*23:01	1	399	407	9	IRGDEVQR 0.003014	5.2
HLA-A*01:01	1	684	693	10	VASQSIIAYT 0.003014	7.5
HLA-B*58:01	1	888	896	9	GAALQIPFA 0.003014	7.8
HLA-B*07:02	1	500	508	9	VGYPYRVV 0.003013	6.9
HLA-A*01:01	1	952	960	9	NAQALNTLV 0.003012	7.5
HLA-B*58:01	1	510	519	10	LSFELLHAPA 0.003011	7.8
HLA-B*51:01	1	119	128	10	IVMNATNVVI 0.00301	12
HLA-B*58:01	1	1221	1229	9	LIAIVMVTI 0.00301	7.8
HLA-B*15:01	1	1070	1078	9	KNFTTAPAI 0.003008	8.8
HLA-A*68:02	1	132	141	10	EFQFCNDPFL 0.003007	9.2
HLA-A*30:02	1	239	247	9	QTLHRSYLT 0.003007	13
HLA-A*30:02	1	123	131	9	ATNVVIKVC 0.003006	13
HLA-B*08:01	1	791	799	9	IKDFGGFNF 0.003006	12
HLA-A*30:02	1	1040	1049	10	CGKGYHLMSF 0.003006	13
HLA-A*02:06	1	158	167	10	RVYSSANNCT 0.003005	13
HLA-A*30:01	1	901	910	10	YRFNGIGVTQ 0.003005	16
HLA-B*08:01	1	1040	1049	10	CGKGYHLMSF 0.003005	12
HLA-B*51:01	1	1206	1214	9	YIKWPWYIW 0.003005	12
HLA-A*01:01	1	234	242	9	NITRFQTLH 0.003003	7.5
HLA-A*02:01	1	1057	1066	10	VVFLHVITYVP 0.003003	8.6
HLA-A*30:02	1	5	13	9	LVLLPLVSS 0.003002	13
HLA-A*26:01	1	673	682	10	TQTNSPRRAR 0.003002	6.3
HLA-B*51:01	1	777	786	10	EVFAQVKQIY 0.003	12
HLA-A*23:01	1	790	799	10	PIKDFGGFNF 0.003	5.2
HLA-A*30:02	1	932	941	10	QDLSSTASA 0.003	13
HLA-B*57:01	1	367	375	9	NSASFSTFK 0.002999	12
HLA-A*30:01	1	632	640	9	VYSTGSNVF 0.002999	16
HLA-B*51:01	1	770	779	10	EQDKNTQEVF 0.002999	12
HLA-B*40:01	1	810	818	9	SKRSFIEDL 0.002999	4.6
HLA-A*30:02	1	823	832	10	VTLADAGFIK 0.002999	13
HLA-B*57:01	1	867	876	10	IAQYTSALLA 0.002999	12
HLA-A*30:01	1	677	686	10	SPRRARSVAS 0.002998	16
HLA-A*02:03	1	1105	1114	10	NFYEQIIT 0.002998	9.9
HLA-B*15:01	1	69	77	9	HVSGTNGTK 0.002997	8.8
HLA-B*15:01	1	414	422	9	NIADYNYKL 0.002997	8.8
HLA-A*68:02	1	700	708	9	NSVAYSNN 0.002997	9.3
HLA-B*44:03	1	368	377	10	SASFSTFKCY 0.002996	5.0
HLA-A*26:01	1	580	588	9	EILDITPCS 0.002996	6.3

HLA-B*35:01	1	585	593	9	TPCSFGGVS	0.002996	6.4
HLA-B*44:03	1	875	883	9	LAGTITSGW	0.002996	5.0
HLA-A*02:01	1	1192	1200	9	ESLIDLQEL	0.002996	8.6
HLA-A*24:02	1	315	323	9	FRVQPTESI	0.002994	5.1
HLA-B*07:02	1	702	710	9	VAYSNNSIA	0.002994	6.9
HLA-B*07:02	1	1014	1023	10	EIRASANLAA	0.002994	6.9
HLA-A*68:02	1	12	20	9	SSQCVNLTT	0.002992	9.3
HLA-B*35:01	1	615	623	9	TEVPVAIHA	0.002992	6.4
HLA-A*32:01	1	1209	1217	9	WPWYIWLGF	0.002992	6.4
HLA-A*02:06	1	1253	1261	9	FDEDDSEPV	0.002991	13
HLA-B*44:03	1	78	86	9	RFANPVLFP	0.00299	5.0
HLA-B*44:02	1	493	502	10	GFQPTYGVGY	0.00299	4.8
HLA-B*35:01	1	1091	1100	10	VFVSNGTHWF	0.00299	6.4
HLA-B*08:01	1	1216	1224	9	GFIAGLIAI	0.00299	12
HLA-B*07:02	1	333	342	10	CPFGEVFNAT	0.002989	6.9
HLA-A*24:02	1	1063	1071	9	TYVPAQEKD	0.002989	5.1
HLA-A*02:06	1	556	564	9	FLPFQQFGR	0.002988	13
HLA-B*57:01	1	998	1007	10	LQSLQTYVTQ	0.002987	12
HLA-B*15:01	1	485	494	10	CYFPLQSYGF	0.002986	8.9
HLA-A*02:06	1	508	516	9	VVLSFELLH	0.002986	13
HLA-A*03:01	1	1027	1035	9	SECVLGQSK	0.002985	7.6
HLA-A*02:06	1	360	369	10	ADYSVLYNSA	0.002984	13
HLA-A*33:01	1	1144	1153	10	SFKEELDKYF	0.002984	8.3
HLA-B*51:01	1	619	628	10	VAIHADQLTP	0.002983	12
HLA-B*44:02	1	425	433	9	DFTGCVIAW	0.002981	4.8
HLA-B*57:01	1	779	787	9	FAQVKQIYK	0.002981	12
HLA-A*02:01	1	1140	1149	10	PELDSFKEEL	0.002981	8.7
HLA-B*07:02	1	940	948	9	SALGKLQDV	0.00298	7.0
HLA-B*58:01	1	803	811	9	LPDPSKPSK	0.002979	7.8
HLA-A*24:02	1	815	823	9	IEDLLFNKV	0.002979	5.1
HLA-A*31:01	1	643	652	10	RAGCLIGAEH	0.002978	11
HLA-A*33:01	1	891	899	9	LQIPFAMQM	0.002978	8.4
HLA-B*07:02	1	933	942	10	DSLSSTASAL	0.002978	7.0
HLA-B*57:01	1	119	127	9	IVNNATNVV	0.002977	12
HLA-B*58:01	1	799	808	10	FSQILPDPSK	0.002977	7.8
HLA-A*26:01	1	599	608	10	TNTSNQVAVL	0.002975	6.4
HLA-A*30:01	1	442	450	9	VGGNYNYLY	0.002974	16
HLA-B*44:03	1	982	990	9	DKVEAEVQI	0.002974	5.0
HLA-A*02:03	1	1051	1059	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	295	303	9	ETKCTLKSF	0.002972	7.0
HLA-A*11:01	1	181	190	10	GKQGNFKNLR	0.002971	6.6
HLA-B*57:01	1	444	452	9	GNYNLYLRL	0.002971	12
HLA-A*68:01	1	1004	1012	9	YVTQQLIRA	0.002971	11
HLA-B*58:01	1	1031	1039	9	LGQSKRVDF	0.00297	7.8
HLA-A*68:01	1	624	632	9	DQLTPTWRV	0.002967	11
HLA-B*51:01	1	1208	1217	10	KWPWYIWLGF	0.002967	12
HLA-A*33:01	1	1046	1055	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	842	850	9	AARDLICAQ	0.002965	12
HLA-A*30:01	1	896	904	9	AMQMAYRFN	0.002965	16
HLA-A*32:01	1	922	930	9	NQFNSAIGK	0.002965	6.4
HLA-B*15:01	1	16	24	9	VNLTRTQQL	0.002964	8.9
HLA-B*08:01	1	425	433	9	DFTGCVIAW	0.002964	12
HLA-A*02:03	1	594	602	9	VITPGTNTS	0.002964	10
HLA-B*44:03	1	77	86	10	KRFANPVLFP	0.002963	5.0
HLA-A*30:01	1	566	574	9	IADTTDAVR	0.002963	16
HLA-A*30:02	1	826	835	10	ADAGFIKQYG	0.002963	14
HLA-B*57:01	1	494	502	9	FQPTYGVGY	0.002962	12
HLA-A*68:01	1	551	560	10	ESNKKFLPFQ	0.002962	11
HLA-A*32:01	1	850	858	9	QKFNGLTVL	0.002962	6.4
HLA-A*30:01	1	975	983	9	NDILSRLDK	0.00296	16
HLA-A*68:02	1	5	13	9	LVLLPLVSS	0.002959	9.3
HLA-A*68:01	1	878	887	10	TITSGWTFGA	0.002958	11

HLA-B*58:01	1	936	944	9	SSTASALGK 0.002958	7.9
HLA-A*02:06	1	399	407	9	IRGDEVRQI 0.002957	13
HLA-A*11:01	1	506	514	9	RVVVLSEFEL 0.002957	6.6
HLA-B*58:01	1	136	145	10	CNDPFLGVYY 0.002956	7.9
HLA-B*08:01	1	143	152	10	VYYHKNNKSW 0.002956	12
HLA-B*58:01	1	704	712	9	YSNNSIAIP 0.002956	7.9
HLA-A*32:01	1	294	303	10	SETKCTLKSF 0.002955	6.4
HLA-A*30:01	1	552	561	10	SNKKFLPFQQ 0.002955	16
HLA-B*51:01	1	384	392	9	LNDLCFTNV 0.002954	12
HLA-A*01:01	1	415	423	9	IADYNYKLP 0.002954	7.6
HLA-B*57:01	1	823	832	10	VTLADAGFIK 0.002952	12
HLA-A*02:03	1	1152	1161	10	YFKNHTSPDV 0.002952	10
HLA-A*01:01	1	1064	1072	9	YVPAQEKNF 0.002951	7.6
HLA-A*32:01	1	1203	1212	10	YEQYIKWPWY 0.00295	6.4
HLA-B*08:01	1	1130	1138	9	VNNTVYDPL 0.002949	12
HLA-B*58:01	1	196	204	9	NIDGYFKIY 0.002946	7.9
HLA-B*58:01	1	253	262	10	SGWTAGAAAY 0.002946	7.9
HLA-A*11:01	1	442	451	10	VGGNYNYLYR 0.002946	6.6
HLA-B*57:01	1	701	709	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	758	766	9	TQLNRALTG 0.002945	14
HLA-A*02:06	1	366	374	9	YNSASFSTF 0.002944	13
HLA-A*30:01	1	1151	1160	10	KYFKNHTSPD 0.002944	16
HLA-A*30:01	1	644	652	9	AGCLIGAHE 0.002943	17
HLA-A*01:01	1	1061	1070	10	HVTYVPAQEK 0.002943	7.6
HLA-A*02:01	1	390	399	10	TNVYADSFVI 0.002941	8.7
HLA-A*11:01	1	410	418	9	GQTGNIADY 0.00294	6.6
HLA-A*33:01	1	43	51	9	FRSSVLHST 0.002939	8.4
HLA-A*30:02	1	817	825	9	DLLFNKVTL 0.002939	14
HLA-B*07:02	1	1064	1073	10	YVPAQEKNFT 0.002939	7.0
HLA-A*32:01	1	170	179	10	YVSQPFLMDL 0.002938	6.4
HLA-A*01:01	1	1112	1120	9	ITTDNTFVS 0.002938	7.6
HLA-A*23:01	1	396	404	9	SFVIRGDEV 0.002937	5.2
HLA-B*07:02	1	1189	1197	9	NLNESLIDL 0.002937	7.0
HLA-A*26:01	1	119	127	9	IVNNATNVV 0.002936	6.4
HLA-A*03:01	1	1096	1105	10	GTHWFVTQRN 0.002936	7.6
HLA-B*44:03	1	571	579	9	DAVRDPQTL 0.002935	5.1
HLA-A*23:01	1	481	489	9	KGFNCYFPL 0.002933	5.2
HLA-A*31:01	1	484	492	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-B*40:01	1	77	86	10	KRFANPVLPF 0.002931	4.7
HLA-A*23:01	1	951	959	9	QNAQALNTL 0.002931	5.2
HLA-B*53:01	1	715	724	10	FTISVTTEIL 0.002927	5.8
HLA-A*30:01	1	310	318	9	YQTSNFRVQ 0.002926	17
HLA-A*03:01	1	934	942	9	SLSSTASAL 0.002926	7.6
HLA-B*58:01	1	940	948	9	SALGKLQDV 0.002926	7.9
HLA-A*26:01	1	830	838	9	FIKQYGDCL 0.002925	6.4
HLA-B*44:02	1	1133	1142	10	TVYDPLQPEL 0.002925	4.8
HLA-A*31:01	1	1034	1042	9	SKRVDFCGK 0.002924	11
HLA-A*30:02	1	1126	1134	9	VIGIVNNTV 0.002923	14
HLA-B*58:01	1	160	169	10	YSSANCTFE 0.002922	7.9
HLA-A*68:01	1	478	487	10	NGVKGFNCYF 0.002922	11
HLA-A*02:03	1	1048	1057	10	SFPQSAPHGV 0.002922	10
HLA-B*51:01	1	931	939	9	IQDLSLSTA 0.002921	12
HLA-B*15:01	1	152	161	10	WMESEFRVYS 0.002919	9.0
HLA-B*57:01	1	185	194	10	NFKNLREFVF 0.002918	12
HLA-A*30:02	1	22	31	10	TQLPPAYTNS 0.002917	14
HLA-B*44:03	1	683	692	10	SVASQSIIAY 0.002916	5.1
HLA-B*58:01	1	993	1001	9	LITGRLQSL 0.002916	7.9
HLA-B*08:01	1	905	913	9	GIGVTQNVL 0.002915	12
HLA-A*02:03	1	889	897	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	574	582	9	RDPQTLEIL 0.002909	13

HLA-B*57:01	1	721	730	10	TEILPVSMTK 0.002909	12
HLA-A*03:01	1	1003	1011	9	TYVTQQLIR 0.002909	7.7
HLA-B*51:01	1	214	223	10	RGLPQGFAL 0.002907	12
HLA-B*35:01	1	729	738	10	TKTSVDCTMY 0.002907	6.5
HLA-B*35:01	1	1106	1114	9	FYEPQIITT 0.002907	6.5
HLA-A*26:01	1	95	104	10	TEKSNIIRGW 0.002906	6.4
HLA-A*30:01	1	410	418	9	GQTGNIADY 0.002906	17
HLA-A*02:03	1	228	236	9	DLPIGINIT 0.002905	10
HLA-B*07:02	1	570	579	10	TDAVRDPQTL 0.002905	7.0
HLA-B*35:01	1	715	724	10	FTISVTTEIL 0.002905	6.5
HLA-A*02:03	1	763	771	9	ALTGIAVEQ 0.002905	10
HLA-B*57:01	1	634	642	9	STGSNVFQT 0.002904	12
HLA-B*15:01	1	375	384	10	KCYGVSPTKL 0.002903	9.0
HLA-B*58:01	1	478	486	9	NGVKGFNCY 0.002903	7.9
HLA-B*08:01	1	607	615	9	VLYQGVNCT 0.002903	12
HLA-A*01:01	1	220	229	10	FSALEPLVDL 0.002901	7.7
HLA-A*68:01	1	1137	1146	10	PLQPELDSFK 0.002901	11
HLA-A*11:01	1	825	834	10	LADAGFIKQY 0.0029	6.6
HLA-A*33:01	1	904	912	9	NGIGVTQNV 0.0029	8.5
HLA-A*11:01	1	94	103	10	STEKSNIIRG 0.002899	6.6
HLA-A*26:01	1	302	310	9	SFTVEKGIY 0.002899	6.4
HLA-B*57:01	1	493	502	10	GFQPTYGVGY 0.002899	12
HLA-A*26:01	1	790	799	10	PIKDFGGFNF 0.002899	6.4
HLA-A*30:02	1	1013	1021	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	512	521	10	FELLHAPATV 0.002897	4.8
HLA-B*44:03	1	19	28	10	TTRTQLPPAY 0.002896	5.1
HLA-B*57:01	1	243	252	10	RSYLTPGDSS 0.002896	12
HLA-B*57:01	1	256	264	9	TAGAAAYV 0.002896	12
HLA-B*51:01	1	584	592	9	ITPCSFGGV 0.002896	12
HLA-A*68:02	1	849	857	9	AQKFNGLTV 0.002896	9.4
HLA-B*44:03	1	1098	1106	9	HWFVTQRNF 0.002896	5.1
HLA-B*44:02	1	1191	1199	9	NESLIDLQE 0.002895	4.8
HLA-B*53:01	1	504	512	9	PYRVVVLFS 0.002894	5.8
HLA-B*53:01	1	806	814	9	PSKPSKRSF 0.002894	5.8
HLA-A*23:01	1	875	883	9	LAGTITSGW 0.002894	5.3
HLA-A*02:03	1	538	546	9	FNFNGLTGT 0.002893	11
HLA-B*07:02	1	770	779	10	EQDKNTQEVF 0.002893	7.1
HLA-A*30:02	1	800	809	10	SQILPDPSKP 0.002891	14
HLA-B*51:01	1	1028	1037	10	ECVLGQSKRV 0.002891	12
HLA-A*01:01	1	955	963	9	ALNTLVKQL 0.00289	7.7
HLA-B*07:02	1	853	861	9	NGLTVLPPL 0.002889	7.1
HLA-A*33:01	1	1055	1064	10	HGVVFLHVTY 0.002889	8.5
HLA-A*01:01	1	1090	1099	10	GVFVSNGTHW 0.002889	7.7
HLA-B*58:01	1	135	143	9	FCNDPFLGV 0.002888	7.9
HLA-B*07:02	1	639	647	9	VFQTRAGCL 0.002888	7.1
HLA-A*24:02	1	529	538	10	NLVKNKCVNF 0.002887	5.2
HLA-A*02:03	1	855	863	9	LTVLPPLLT 0.002886	11
HLA-A*30:01	1	1043	1052	10	GYHLMSFPQS 0.002885	17
HLA-A*30:01	1	1004	1013	10	YVTQQLIRAA 0.002884	17
HLA-A*02:01	1	304	312	9	TVEKGIYQT 0.002883	8.8
HLA-A*26:01	1	571	580	10	DAVRDPQTL 0.002883	6.5
HLA-B*58:01	1	726	735	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	741	750	10	GDSTECSNLL 0.002881	4.7
HLA-A*30:01	1	1084	1092	9	AHFPREGVF 0.002881	17
HLA-A*02:03	1	489	497	9	LQSYGFQPT 0.002879	11
HLA-A*24:02	1	1077	1086	10	AICHDGKAHF 0.002878	5.2
HLA-A*32:01	1	1144	1153	10	SFKEELDKYF 0.002878	6.5
HLA-A*68:02	1	180	189	10	EGKQGNFKNL 0.002877	9.4
HLA-A*24:02	1	1141	1149	9	ELDSFKEEL 0.002876	5.2
HLA-A*30:01	1	329	338	10	ITNLCPFGEV 0.002875	17
HLA-A*30:02	1	1202	1211	10	KYEQYIKWPW 0.002875	14
HLA-A*68:02	1	635	644	10	TGSNVFQTRA 0.002873	9.4

HLA-A*23:01	1	1200	1209	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*02:06	1	693	701	9	TMSLGVENS 0.002872	13
HLA-A*02:03	1	794	802	9	FGGFNFSQI 0.002872	11
HLA-A*11:01	1	953	962	10	AQALNTLVKQ 0.002872	6.7
HLA-A*23:01	1	770	778	9	EQDKNTQEV 0.002871	5.3
HLA-A*30:01	1	801	809	9	QILPDPSPK 0.002871	17
HLA-A*30:02	1	434	442	9	NSNNLDSKV 0.002869	14
HLA-A*01:01	1	934	942	9	SLSSTASAL 0.002869	7.7
HLA-A*30:02	1	1029	1037	9	CVLGQSKRV 0.002869	14
HLA-B*07:02	1	501	510	10	GYQPYRVVVL 0.002868	7.1
HLA-A*02:06	1	750	758	9	LLQYGSFCT 0.002868	13
HLA-A*31:01	1	368	377	10	SASFSTFKCY 0.002866	11
HLA-A*30:01	1	623	632	10	ADQLTPTWRV 0.002864	17
HLA-B*58:01	1	655	663	9	NSYECDIPI 0.002864	8.0
HLA-B*51:01	1	362	371	10	YSVLYNSASF 0.002863	12
HLA-A*26:01	1	35	44	10	GVYYPDKVFR 0.002862	6.5
HLA-B*44:02	1	331	339	9	NLCPFGEVF 0.002862	4.9
HLA-B*44:02	1	445	453	9	NVNYLYRLF 0.00286	4.9
HLA-B*44:03	1	445	453	9	NVNYLYRLF 0.00286	5.1
HLA-B*08:01	1	747	756	10	SNLLLQYGSF 0.00286	12
HLA-A*30:01	1	812	821	10	RSFIEDLLFN 0.00286	17
HLA-B*44:02	1	304	313	10	TVEKGIYQTS 0.002858	4.9
HLA-A*33:01	1	483	492	10	FNCYFPLQSY 0.002857	8.5
HLA-B*40:01	1	709	717	9	IAIPTNFTI 0.002857	4.7
HLA-A*02:06	1	1085	1093	9	HFPREGVVF 0.002857	13
HLA-B*58:01	1	444	452	9	GNVNYLYRL 0.002856	8.0
HLA-A*31:01	1	267	276	10	LQPRTFLLKY 0.002855	11
HLA-A*01:01	1	826	835	10	ADAGFIKQYG 0.002855	7.8
HLA-B*51:01	1	1111	1119	9	IITDNTFV 0.002854	12
HLA-A*31:01	1	261	269	9	AYYVGYLQP 0.002853	11
HLA-A*68:01	1	342	350	9	TRFASVYAW 0.002853	11
HLA-B*35:01	1	233	241	9	INITRFQTL 0.002852	6.5
HLA-B*51:01	1	586	595	10	PCSFSGVSVI 0.002852	12
HLA-A*24:02	1	246	255	10	LTPGDSSSGW 0.00285	5.2
HLA-B*07:02	1	1075	1083	9	APAICHDGK 0.002849	7.1
HLA-B*44:02	1	295	303	9	ETKCTLKSF 0.002847	4.9
HLA-B*08:01	1	965	974	10	SNFGAISSVL 0.002847	12
HLA-B*44:03	1	1172	1180	9	SVVNIQKEI 0.002847	5.1
HLA-B*58:01	1	444	453	10	GNVNYLYRLF 0.002846	8.0
HLA-A*02:06	1	933	941	9	DSLSSTASA 0.002845	13
HLA-A*68:02	1	285	293	9	AVDCALDPL 0.002843	9.5
HLA-A*02:06	1	676	684	9	NSPRRARSV 0.002843	13
HLA-A*30:01	1	1	10	10	MFVFLVLLPL 0.002841	17
HLA-B*58:01	1	335	344	10	FGEVFNATRF 0.002841	8.0
HLA-A*68:02	1	881	889	9	SGWTFGAGA 0.002841	9.5
HLA-A*33:01	1	265	274	10	GYLQPRTFLL 0.002839	8.5
HLA-A*68:02	1	984	993	10	VEAEVQIDRL 0.002839	9.5
HLA-B*51:01	1	1119	1127	9	VSGNCDVVI 0.002839	12
HLA-A*68:02	1	1023	1031	9	ATKMSECVL 0.002838	9.5
HLA-A*68:01	1	247	255	9	TPGDSSSGW 0.002837	11
HLA-A*30:01	1	494	502	9	FQPTYGVGY 0.002837	17
HLA-B*15:01	1	918	927	10	KLIANQFNESA 0.002837	9.0
HLA-B*08:01	1	926	934	9	SAIGKIQDS 0.002836	12
HLA-B*07:02	1	947	956	10	DVVNQNAQAL 0.002836	7.1
HLA-B*51:01	1	297	305	9	KCTLKSFTV 0.002833	12
HLA-A*30:02	1	322	330	9	SIVRFPNIT 0.002833	14
HLA-A*02:01	1	1186	1194	9	VAKNLNESL 0.002833	8.9
HLA-A*24:02	1	460	469	10	PFERDISTEI 0.002832	5.2
HLA-A*30:01	1	743	751	9	STECNLLL 0.002832	17
HLA-A*68:02	1	926	934	9	SAIGKIQDS 0.002832	9.5
HLA-B*15:01	1	1148	1156	9	ELDKYFKNH 0.002832	9.0
HLA-A*02:01	1	263	271	9	YVGYLQPRT 0.002831	8.9
HLA-A*23:01	1	1084	1093	10	AHFPREGVVF 0.002831	5.3
HLA-A*01:01	1	97	106	10	KSNIIRGWIF 0.00283	7.8

HLA-B*44:03	1	439	448	10	DSKVGGNINY 0.00283	5.2
HLA-A*33:01	1	879	887	9	ITSGWTFGA 0.00283	8.5
HLA-B*07:02	1	965	973	9	SNFGAISSV 0.00283	7.1
HLA-B*08:01	1	1152	1160	9	YFKNHTSPD 0.00283	12
HLA-A*02:03	1	405	413	9	RQIAPGQTG 0.002829	11
HLA-B*57:01	1	754	763	10	GSFCTQLNRA 0.002829	12
HLA-A*30:02	1	207	216	10	HTPINLVRGL 0.002828	14
HLA-A*68:02	1	1104	1112	9	RMFYEPQII 0.002828	9.5
HLA-A*68:02	1	869	878	10	QYTSALLAGT 0.002827	9.5
HLA-A*02:06	1	79	87	9	FANPVLPFN 0.002826	13
HLA-B*58:01	1	684	693	10	VASQSIIAYT 0.002826	8.0
HLA-A*01:01	1	936	945	10	SSTASALGKL 0.002825	7.8
HLA-A*02:01	1	385	394	10	NDLCFTNVYA 0.002824	8.9
HLA-B*51:01	1	622	631	10	HADQLTPTWR 0.002824	12
HLA-A*30:02	1	529	538	10	NLVKNKCVNF 0.002823	14
HLA-A*68:02	1	618	626	9	PVAIHADQL 0.002823	9.5
HLA-A*02:01	1	878	887	10	TITSGWTFGA 0.002823	8.9
HLA-B*57:01	1	1053	1061	9	APHGVVFLH 0.002823	12
HLA-B*51:01	1	701	710	10	SVAYSNNNSIA 0.002822	12
HLA-B*51:01	1	71	79	9	SGTNGTKRF 0.00282	12
HLA-A*30:01	1	46	55	10	SVLHSTQDLF 0.002819	17
HLA-A*32:01	1	57	65	9	PFFSNVTWF 0.002819	6.5
HLA-B*44:02	1	78	86	9	RFANPVLPF 0.002819	4.9
HLA-B*58:01	1	434	442	9	NSNNLDSKV 0.002819	8.0
HLA-A*68:02	1	672	681	10	QTQTNSPRRA 0.002819	9.5
HLA-A*11:01	1	1204	1212	9	EQYIKWPWY 0.002818	6.7
HLA-A*30:01	1	47	56	10	VLHSTQDLFL 0.002817	17
HLA-B*35:01	1	496	505	10	PTYGVGYQPY 0.002817	6.5
HLA-B*07:02	1	791	799	9	IKDFGGFNF 0.002817	7.1
HLA-A*02:01	1	1198	1207	10	QELGKYEQYI 0.002817	8.9
HLA-B*15:01	1	218	226	9	QGFSALEPL 0.002816	9.1
HLA-B*08:01	1	273	282	10	LLKYNENGTI 0.002816	12
HLA-B*35:01	1	624	632	9	DQLTPTWRV 0.002816	6.6
HLA-A*11:01	1	1000	1008	9	SLQTYVTQQ 0.002816	6.7
HLA-A*32:01	1	1018	1026	9	SANLAATKM 0.002815	6.5
HLA-B*07:02	1	122	130	9	NATNVVIKV 0.002814	7.1
HLA-A*33:01	1	502	510	9	YQPYRVVVL 0.002814	8.5
HLA-B*07:02	1	1031	1039	9	LGQSKRVDF 0.002814	7.1
HLA-A*03:01	1	745	753	9	ECSNLLLQY 0.002813	7.8
HLA-A*30:01	1	710	719	10	AIPTNFTISV 0.002812	17
HLA-A*30:02	1	144	153	10	YYHKNNKSWM 0.002811	14
HLA-B*44:03	1	264	272	9	VGYLQPRTF 0.002811	5.2
HLA-B*58:01	1	783	791	9	KQIYKTPPI 0.002811	8.0
HLA-A*26:01	1	1083	1092	10	KAHFPREGVF 0.002811	6.6
HLA-A*30:02	1	168	176	9	FEYVSQPFL 0.002809	14
HLA-A*24:02	1	992	1001	10	RLITGRLQSL 0.002809	5.3
HLA-A*02:06	1	55	64	10	FLPFFSNVTW 0.002808	13
HLA-A*30:01	1	1208	1216	9	KWPWYIWLG 0.002807	17
HLA-A*30:01	1	459	467	9	KPFERDIST 0.002806	17
HLA-A*23:01	1	965	974	10	SNFGAISSVL 0.002806	5.3
HLA-A*30:02	1	1200	1208	9	LGKYEQYIK 0.002805	14
HLA-B*15:01	1	259	267	9	AAAYVGYL 0.002804	9.1
HLA-A*68:02	1	1219	1227	9	AGLIAIVMV 0.002804	9.5
HLA-B*51:01	1	934	942	9	SLSSTASAL 0.002803	12
HLA-A*30:01	1	335	343	9	FGEVFNATR 0.002801	17
HLA-B*51:01	1	444	452	9	GNYNLYRL 0.002801	12
HLA-A*02:06	1	784	792	9	QIYKTPPIK 0.0028	13
HLA-A*24:02	1	574	582	9	RDPQTLEIL 0.002799	5.3
HLA-A*02:06	1	110	118	9	LDSKTQSL 0.002798	13
HLA-B*08:01	1	490	498	9	QSYGFQPTY 0.002798	12
HLA-A*30:02	1	719	727	9	VTTEILPVS 0.002798	14
HLA-B*44:02	1	951	959	9	QNAQALNTL 0.002798	4.9
HLA-B*15:01	1	1005	1013	9	VTQQLIRAA 0.002798	9.1
HLA-A*68:01	1	692	701	10	YTMSLGVENS 0.002797	11
HLA-A*32:01	1	715	724	10	FTISVTTEIL 0.002797	6.6
HLA-B*57:01	1	787	796	10	KTPPIKDFGG 0.002797	12

HLA-A*02:06	1	791	799	9	IKDFGGFNF 0.002797	13
HLA-A*68:01	1	994	1002	9	ITGRLQSLQ 0.002797	11
HLA-A*30:01	1	162	171	10	SANNCTFEYV 0.002794	17
HLA-A*01:01	1	212	220	9	LVRGLPQGF 0.002794	7.9
HLA-B*15:01	1	292	300	9	PLSETKCTL 0.002794	9.1
HLA-A*68:02	1	516	524	9	HAPATVCGP 0.002793	9.6
HLA-B*07:02	1	893	902	10	IPFAMQMAYR 0.002793	7.2
HLA-B*07:02	1	805	813	9	DPSKPSKRS 0.002792	7.2
HLA-A*31:01	1	214	223	10	RGLPQGFSAL 0.002791	11
HLA-A*24:02	1	793	802	10	DFGGFNFSQI 0.002791	5.3
HLA-A*02:06	1	1047	1055	9	MSFPQSAPH 0.002791	13
HLA-B*51:01	1	1157	1166	10	TSPDVDLGLDI 0.00279	12
HLA-A*02:03	1	192	201	10	FVFKNIDGYF 0.002788	11
HLA-B*35:01	1	683	691	9	SVASQSIIA 0.002788	6.6
HLA-A*02:06	1	1082	1091	10	GKAHFPREGV 0.002787	13
HLA-B*58:01	1	440	448	9	SKVGGNYNY 0.002786	8.1
HLA-A*01:01	1	890	899	10	ALQIPFAMQM 0.002786	7.9
HLA-A*26:01	1	911	920	10	NVLYENQKLI 0.002786	6.6
HLA-A*31:01	1	1125	1133	9	VVIGIVNNT 0.002785	11
HLA-A*01:01	1	125	133	9	NVVIKVECF 0.002784	7.9
HLA-A*68:02	1	457	465	9	NLKPFERDI 0.002784	9.6
HLA-A*02:03	1	711	719	9	IPTNFTISV 0.002784	11
HLA-A*02:06	1	736	744	9	TMVICGDST 0.002784	13
HLA-A*02:01	1	988	997	10	VQIDRLITGR 0.002783	9.0
HLA-B*15:01	1	136	145	10	CNDPFLGVVY 0.002782	9.1
HLA-B*57:01	1	82	91	10	PVLPFNDGVY 0.002781	12
HLA-B*35:01	1	722	730	9	EILPVSMTK 0.002781	6.6
HLA-A*31:01	1	233	242	10	INITRFQTLH 0.00278	11
HLA-A*31:01	1	260	268	9	AAYYVGYLQ 0.00278	11
HLA-B*51:01	1	972	981	10	SVLNDILSRL 0.00278	12
HLA-A*32:01	1	266	275	10	YLPRTFLLK 0.002779	6.6
HLA-B*58:01	1	509	518	10	VLSFELLHAP 0.002779	8.1
HLA-A*30:02	1	330	339	10	TNLCPFGEVF 0.002778	14
HLA-A*30:01	1	1061	1069	9	HVTYVPAQE 0.002778	17
HLA-A*30:02	1	111	119	9	DSKTQSLLI 0.002777	14
HLA-A*02:03	1	434	442	9	NSNNLDSKV 0.002777	11
HLA-B*51:01	1	516	524	9	HAPATVCGP 0.002776	12
HLA-B*44:03	1	1097	1106	10	THWFVTQRNF 0.002775	5.2
HLA-A*26:01	1	1127	1135	9	IGIVNNTVY 0.002774	6.6
HLA-B*57:01	1	1171	1179	9	ASVVNIQKE 0.002774	12
HLA-A*30:02	1	874	882	9	LLAGTITSG 0.002773	14
HLA-A*30:02	1	630	639	10	WRVYSTGSNV 0.002772	14
HLA-A*02:06	1	692	701	10	YTMSLGVENS 0.002772	13
HLA-A*26:01	1	251	259	9	SSSGWTAGA 0.00277	6.6
HLA-B*15:01	1	489	497	9	LQSYGFQPT 0.00277	9.1
HLA-A*33:01	1	901	910	10	YRFNGIGVTQ 0.00277	8.6
HLA-B*44:03	1	192	200	9	FVFKNIDGY 0.002768	5.2
HLA-A*30:01	1	637	646	10	SNVFQTRAGC 0.002768	17
HLA-A*30:01	1	848	857	10	CAQKFNGLTV 0.002768	17
HLA-B*44:02	1	850	858	9	QKFNGLTVL 0.002768	4.9
HLA-A*23:01	1	1003	1011	9	TYVTQQLIR 0.002768	5.4
HLA-A*30:02	1	1169	1178	10	INASVVNIQK 0.002768	14
HLA-A*30:02	1	391	400	10	NVYADSFVIR 0.002767	14
HLA-A*02:01	1	584	592	9	ITPCSFGGV 0.002766	9.0
HLA-A*01:01	1	1178	1186	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	858	867	10	LPPLLTDEMI 0.002765	7.2
HLA-B*08:01	1	224	233	10	EPLVDLPIGI 0.002764	12
HLA-A*30:01	1	311	320	10	QTSNFRVQPT 0.002762	17
HLA-B*44:03	1	55	64	10	FLPFFSNVTW 0.00276	5.2
HLA-A*30:02	1	656	665	10	SYECDIPIGA 0.00276	14
HLA-B*53:01	1	947	956	10	DVVNQNAQAL 0.00276	6.0
HLA-A*30:02	1	1027	1035	9	SECVLGQSK 0.00276	14
HLA-A*68:01	1	181	190	10	GKQGNFKNLR 0.002759	11
HLA-A*30:02	1	531	540	10	VKNKCVNFNF 0.002758	14

HLA-B*51:01	1	984	993	10	VEAEVQIDRL 0.002758	12
HLA-A*26:01	1	1038	1046	9	DFCGKGYHL 0.002758	6.6
HLA-A*26:01	1	468	477	10	EIYQAGSTPC 0.002757	6.6
HLA-B*44:02	1	683	692	10	SVASQSIIAY 0.002757	5.0
HLA-A*26:01	1	127	135	9	VIKVCEFQF 0.002756	6.6
HLA-A*02:06	1	89	97	9	GYYFASTEK 0.002755	13
HLA-B*51:01	1	840	848	9	DIAARDLIC 0.002755	12
HLA-A*02:01	1	1110	1118	9	QIITDNTF 0.002755	9.0
HLA-A*02:03	1	9	18	10	PLVSSQCVNL 0.002754	11
HLA-A*23:01	1	381	389	9	PTKLNDLCF 0.002754	5.4
HLA-B*08:01	1	395	404	10	DSFVIRGDEV 0.002754	12
HLA-A*23:01	1	574	582	9	RDPQTLEIL 0.002754	5.4
HLA-A*01:01	1	874	883	10	LLAGTITSGW 0.002754	7.9
HLA-A*68:01	1	323	332	10	IVRFPNITNL 0.002752	11
HLA-A*02:01	1	847	855	9	ICAQKFNGL 0.002752	9.0
HLA-B*08:01	1	1006	1015	10	TQQLIRAAEI 0.002751	12
HLA-A*30:02	1	218	226	9	QGFSALEPL 0.00275	14
HLA-B*08:01	1	694	702	9	MSLGVENSV 0.00275	12
HLA-A*02:06	1	34	43	10	RGVYYPDKVF 0.002749	13
HLA-A*68:02	1	592	601	10	VSVITPGTNT 0.002749	9.6
HLA-B*08:01	1	758	766	9	TQLNRALTG 0.002749	12
HLA-A*30:01	1	315	323	9	FRVQPTESI 0.002748	17
HLA-A*30:01	1	820	828	9	FNKVTLADA 0.002748	17
HLA-A*02:06	1	1012	1021	10	AAEIRASANL 0.002748	13
HLA-A*30:01	1	1215	1223	9	LGFIAGLIA 0.002748	17
HLA-B*08:01	1	408	416	9	APGQTGNIA 0.002747	12
HLA-B*51:01	1	704	712	9	YSNNSIAIP 0.002747	12
HLA-B*57:01	1	345	354	10	ASVYAWNRKR 0.002746	12
HLA-B*07:02	1	888	897	10	GAAIQIPFAM 0.002745	7.2
HLA-B*44:02	1	1143	1152	10	DSFKEELDKY 0.002745	5.0
HLA-A*32:01	1	21	29	9	RTQLPPAYT 0.002744	6.6
HLA-B*07:02	1	292	300	9	PLSETKCTL 0.002744	7.2
HLA-A*23:01	1	811	819	9	KRSFIEDLL 0.002744	5.4
HLA-B*53:01	1	958	967	10	TLVKQLSSNF 0.002744	6.0
HLA-A*68:02	1	221	230	10	SALEPLVDLP 0.002743	9.6
HLA-A*30:02	1	546	554	9	TGVLTESNK 0.002743	14
HLA-A*30:02	1	679	687	9	RRARVASQ 0.002743	14
HLA-A*31:01	1	1260	1269	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	IVN NATNVV 0.002742	8.0
HLA-B*07:02	1	144	152	9	YYHKNNKSW 0.002742	7.2
HLA-A*30:01	1	320	329	10	TESIVRFPNI 0.002742	17
HLA-A*02:06	1	947	955	9	DVVNQNAQA 0.002741	13
HLA-B*58:01	1	965	973	9	SNFGAISSV 0.002741	8.1
HLA-A*30:01	1	1057	1066	10	VVFLHVTYVP 0.002741	17
HLA-A*02:01	1	265	273	9	GYLQPRFTL 0.00274	9.0
HLA-B*15:01	1	470	478	9	YQAGSTPCN 0.00274	9.2
HLA-A*23:01	1	522	530	9	CGPKKSTNL 0.00274	5.4
HLA-B*40:01	1	177	186	10	MDLEGKQGNF 0.002739	4.8
HLA-A*02:03	1	379	387	9	VSPTKLNDL 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-B*07:02	1	211	220	10	NLVRGLPQGF 0.002737	7.2
HLA-A*30:01	1	457	465	9	NLKPFERDI 0.002737	17
HLA-A*33:01	1	635	644	10	TGSNVFQTRA 0.002737	8.7
HLA-B*44:02	1	358	366	9	CVADYSVLV 0.002736	5.0
HLA-A*30:01	1	822	830	9	KVTLADAGF 0.002735	17
HLA-B*08:01	1	417	426	10	DYNYKLPDDF 0.002734	12
HLA-A*03:01	1	517	525	9	APATVCGPK 0.002734	7.9
HLA-B*35:01	1	690	698	9	IAYTMSLGV 0.002734	6.6
HLA-B*35:01	1	965	973	9	SNFGAISSV 0.002734	6.6
HLA-A*02:03	1	1257	1265	9	DSEPVLKGV 0.002734	11
HLA-B*44:02	1	475	483	9	TPCNGVKGF 0.002733	5.0
HLA-A*24:02	1	889	897	9	AALQIPFAM 0.002733	5.3
HLA-A*31:01	1	254	263	10	GWTAGAAAYY 0.002732	11
HLA-A*68:02	1	652	661	10	HVNNSYECDI 0.002732	9.7



HLA-A*30:01	1	719	728	10	VTTEILPVSM 0.002731	17
HLA-A*32:01	1	1129	1138	10	IVNNTVYDPL 0.002731	6.6
HLA-A*33:01	1	53	61	9	DLFLPFFSN 0.00273	8.7
HLA-A*30:01	1	810	819	10	SKRSFIEDLL 0.002729	17
HLA-B*51:01	1	61	70	10	NVTWFHAIHV 0.002728	12
HLA-B*44:02	1	1078	1086	9	ICHDGKAHF 0.002728	5.0
HLA-B*57:01	1	803	811	9	LPDPSKPSK 0.002727	12
HLA-A*68:01	1	503	511	9	QPYRVVVL 0.002726	11
HLA-B*15:01	1	1044	1053	10	YHLMSFPQSA 0.002726	9.2
HLA-A*68:01	1	1064	1072	9	YVPAQEKNF 0.002726	11
HLA-A*02:01	1	227	235	9	VDLPIGINI 0.002725	9.0
HLA-A*11:01	1	253	262	10	SGWTAGAAAY 0.002725	6.8
HLA-A*31:01	1	622	630	9	HADQLTPTW 0.002725	11
HLA-B*58:01	1	971	980	10	SSVLNDILSR 0.002725	8.2
HLA-A*01:01	1	706	715	10	NNSIAIPTNF 0.002724	8.0
HLA-A*68:02	1	1129	1138	10	IVNNTVYDPL 0.002724	9.7
HLA-A*02:06	1	188	197	10	NLREFVFKNI 0.002722	13
HLA-A*30:02	1	657	665	9	YECDIPIGA 0.002722	14
HLA-A*11:01	1	777	786	10	EVFAQVKQIY 0.002722	6.8
HLA-A*02:01	1	1046	1054	9	LMSFPQSAP 0.002722	9.0
HLA-B*40:01	1	215	223	9	GLPQGFSAL 0.002721	4.8
HLA-A*01:01	1	692	700	9	YTMSLGVEN 0.002721	8.0
HLA-A*30:01	1	554	563	10	KKFLPFQFG 0.00272	17
HLA-B*51:01	1	990	998	9	IDRLITGRL 0.00272	12
HLA-B*51:01	1	1085	1094	10	HFPREGVFS 0.002718	12
HLA-A*32:01	1	1001	1010	10	LQTYVTQLI 0.002717	6.6
HLA-A*11:01	1	205	214	10	SKHTPINLVR 0.002716	6.8
HLA-A*02:03	1	1106	1114	9	FYEPQIITT 0.002715	11
HLA-A*02:01	1	499	508	10	GVGYQPYRVV 0.002714	9.0
HLA-A*30:02	1	246	255	10	LTPGDSSSWG 0.002713	14
HLA-B*15:01	1	265	273	9	GYLQPRTF 0.002713	9.2
HLA-A*02:03	1	750	758	9	LLQYGSFCT 0.002712	11
HLA-A*23:01	1	529	538	10	NLVKKNKCVNF 0.002711	5.4
HLA-A*30:01	1	376	384	9	CYGVSPTKL 0.00271	17
HLA-A*23:01	1	1057	1065	9	VVFLHVTVV 0.00271	5.4
HLA-B*53:01	1	617	625	9	VPVAIHADQ 0.002709	6.0
HLA-A*68:01	1	626	634	9	LTPTWRVYS 0.002708	11
HLA-A*11:01	1	696	704	9	LGVENSVAY 0.002708	6.8
HLA-B*08:01	1	1070	1078	9	KNFTTAPAI 0.002708	12
HLA-B*44:03	1	304	313	10	TVEKGIYQTS 0.002707	5.2
HLA-B*15:01	1	316	325	10	RVQPTESIVR 0.002707	9.2
HLA-A*03:01	1	47	55	9	VLHSTQDLF 0.002705	7.9
HLA-A*30:01	1	694	703	10	MSLGVENVA 0.002705	17
HLA-A*31:01	1	780	788	9	AQVKQIYKT 0.002705	11
HLA-A*32:01	1	649	657	9	GAEHVNSY 0.002704	6.6
HLA-B*53:01	1	719	728	10	VTTEILPVSM 0.002703	6.0
HLA-B*53:01	1	915	924	10	ENQKLIANQF 0.002703	6.0
HLA-A*32:01	1	410	418	9	GQTGNIADY 0.002702	6.6
HLA-B*07:02	1	1047	1055	9	MSFPQSAPH 0.002702	7.3
HLA-A*24:02	1	132	141	10	EFQFCNDPFL 0.002701	5.4
HLA-A*33:01	1	785	794	10	IYKTPPIKDF 0.002701	8.7
HLA-A*02:06	1	816	825	10	EDLLFNKVT 0.002701	13
HLA-A*33:01	1	143	152	10	VYYHKNNKSW 0.0027	8.7
HLA-A*01:01	1	745	754	10	ECSNLLLQYG 0.002699	8.0
HLA-A*23:01	1	955	963	9	ALNTLVKQL 0.002699	5.4
HLA-A*02:01	1	620	629	10	AIHADQLTPT 0.002698	9.1
HLA-A*68:02	1	587	596	10	CSFGGVSUIT 0.002697	9.7
HLA-A*03:01	1	930	938	9	KIQDLSST 0.002697	7.9
HLA-A*02:03	1	636	644	9	GSNVFQTRA 0.002696	11
HLA-A*30:01	1	1008	1016	9	QLIRAAEIR 0.002696	17
HLA-A*30:01	1	1041	1049	9	GKGYHLMSF 0.002696	17
HLA-B*51:01	1	540	548	9	FNGLTGTGV 0.002695	12
HLA-A*24:02	1	71	79	9	SGTNGTKRF 0.002694	5.4
HLA-A*68:01	1	902	910	9	RFNGIGVTQ 0.002694	11
HLA-A*33:01	1	910	918	9	QNVLYENQK 0.002693	8.7
HLA-A*30:02	1	979	988	10	SRLDKVEAEV 0.002692	14

HLA-A*02:01	1	1162	1171	10	DLGDISGINA 0.002692	9.1
HLA-B*40:01	1	564	573	10	RDIADTTDAV 0.002691	4.8
HLA-A*32:01	1	634	643	10	STGSNVFQTR 0.002691	6.7
HLA-A*02:06	1	1218	1226	9	IAGLIAIVM 0.002691	13
HLA-B*40:01	1	934	942	9	SLSSTASAL 0.00269	4.8
HLA-A*30:02	1	194	202	9	FKNIDGYFK 0.002689	14
HLA-A*02:01	1	720	728	9	TTEILPVSM 0.002689	9.1
HLA-B*58:01	1	811	819	9	KRSFIEDLL 0.002689	8.2
HLA-B*51:01	1	919	927	9	LIANQFNSA 0.002688	12
HLA-A*02:06	1	43	51	9	FRSSVLHST 0.002687	13
HLA-A*03:01	1	614	622	9	CTEVPVAIH 0.002686	7.9
HLA-A*02:03	1	688	697	10	SIAYTMSLG 0.002686	11
HLA-A*23:01	1	800	808	9	SQILPDPSK 0.002685	5.4
HLA-A*11:01	1	202	210	9	KIYSKHTPI 0.002684	6.8
HLA-B*58:01	1	731	740	10	TSVDCTMYIC 0.002684	8.2
HLA-A*30:01	1	757	765	9	CTQLNRALT 0.002683	17
HLA-A*02:06	1	84	92	9	LPFNDGVYF 0.002682	13
HLA-B*51:01	1	630	639	10	WRVYSTGSNV 0.002682	12
HLA-A*02:06	1	659	667	9	CDIPIGAGI 0.002682	13
HLA-A*31:01	1	442	450	9	VGGNYNYLY 0.002681	11
HLA-A*30:02	1	812	821	10	RSFIEDLLFN 0.002681	14
HLA-B*51:01	1	816	825	10	EDLLFNKVTL 0.00268	12
HLA-B*51:01	1	170	179	10	YVSQPFLMDL 0.002679	12
HLA-B*07:02	1	965	974	10	SNFGAISSVL 0.002679	7.3
HLA-A*30:01	1	1188	1197	10	KNLNEIDLID 0.002679	17
HLA-A*02:01	1	301	309	9	KSFTVEKGI 0.002678	9.1
HLA-B*35:01	1	324	332	9	VRFPNITNL 0.002677	6.7
HLA-B*58:01	1	18	26	9	LTRTQLPP 0.002676	8.2
HLA-B*44:03	1	780	788	9	AQVKQIYKT 0.002676	5.3
HLA-A*30:02	1	796	804	9	GFNFSQILP 0.002676	14
HLA-A*02:06	1	1006	1015	10	TQQLIRAAEI 0.002676	13
HLA-B*53:01	1	479	487	9	GVKGFNCYF 0.002675	6.0
HLA-B*08:01	1	631	639	9	RVYSTGSNV 0.002671	13
HLA-A*30:02	1	598	607	10	GTNTSNQVAV 0.00267	14
HLA-A*26:01	1	621	630	10	IHADQLTPTW 0.00267	6.8
HLA-A*02:03	1	634	642	9	STGSNVFQT 0.00267	11
HLA-A*02:06	1	1160	1169	10	DVDLGDISGI 0.00267	13
HLA-A*11:01	1	178	187	10	DLEGKQGNFK 0.002669	6.8
HLA-B*07:02	1	237	245	9	RFQTLHRYS 0.002669	7.3
HLA-B*58:01	1	379	387	9	VSPTKLNDL 0.002669	8.3
HLA-A*01:01	1	715	724	10	FTISVTTEIL 0.002669	8.1
HLA-A*30:01	1	953	962	10	AQALNTLVKQ 0.002669	17
HLA-A*32:01	1	491	500	10	SYGFQPTYGV 0.002668	6.7
HLA-B*44:02	1	570	579	10	TDAVRDPQTL 0.002668	5.0
HLA-B*35:01	1	915	924	10	ENQKLIANQF 0.002666	6.7
HLA-A*30:02	1	185	194	10	NFKNLREFVF 0.002665	14
HLA-B*07:02	1	487	495	9	FPLQSYGFQ 0.002665	7.3
HLA-B*58:01	1	10	18	9	LVSSQCVNL 0.002663	8.3
HLA-B*53:01	1	324	332	9	VRFPNITNL 0.002663	6.0
HLA-B*51:01	1	1145	1153	9	FKEELDKYF 0.002663	12
HLA-B*51:01	1	314	323	10	NFRVQPTESI 0.002662	12
HLA-B*35:01	1	1136	1144	9	DPLQPELDS 0.002662	6.7
HLA-A*02:03	1	155	163	9	SEFRVYSSA 0.002661	11
HLA-A*11:01	1	683	691	9	SVASQSIIA 0.00266	6.8
HLA-B*40:01	1	30	38	9	NSFTRGVYY 0.002659	4.9
HLA-A*33:01	1	1081	1089	9	DGKAHFPRE 0.002659	8.7
HLA-B*51:01	1	1121	1129	9	GNCDVVIGI 0.002659	12
HLA-B*58:01	1	151	160	10	SWMESEFRVY 0.002658	8.3
HLA-B*44:03	1	768	777	10	AVEQDKNTQE 0.002658	5.3
HLA-B*08:01	1	1053	1061	9	APHGVVFLH 0.002658	13
HLA-A*23:01	1	500	508	9	VGYPYRVV 0.002657	5.5
HLA-B*58:01	1	714	723	10	NFTISVTTEI 0.002657	8.3
HLA-B*07:02	1	806	814	9	PSKPSKRSE 0.002657	7.4
HLA-A*01:01	1	1077	1086	10	AICHDGKAHF 0.002657	8.1
HLA-A*30:01	1	370	379	10	SFSTFKCYGV 0.002655	17
HLA-A*68:01	1	1148	1156	9	ELDKYFKNH 0.002655	11

HLA-B*58:01	1	136	144	9	CNDPFLGVY	0.002654	8.3
HLA-A*33:01	1	1198	1206	9	QELGKYEYQ	0.002654	8.8
HLA-B*07:02	1	138	146	9	DPFLGVVYH	0.002652	7.4
HLA-A*03:01	1	262	270	9	YYVGYLQPR	0.002652	8.0
HLA-B*08:01	1	378	387	10	GVSPTKLNDL	0.002652	13
HLA-A*68:02	1	203	212	10	IYSKHTPINL	0.002651	9.8
HLA-A*33:01	1	800	808	9	SQILPDPSK	0.002651	8.8
HLA-B*07:02	1	900	908	9	AYRFNGIGV	0.002651	7.4
HLA-B*15:01	1	750	759	10	LLQYGSFCTQ	0.002649	9.3
HLA-A*68:02	1	992	1001	10	RLITGRLQSL	0.002649	9.8
HLA-B*57:01	1	985	994	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	438	446	9	LDSKVGNGY	0.002646	12
HLA-A*32:01	1	802	811	10	ILPDPSKPSK	0.002646	6.7
HLA-A*32:01	1	866	875	10	MIAQYTSALL	0.002646	6.7
HLA-A*02:06	1	459	467	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	255	263	9	WTAGAAAYY	0.002642	11
HLA-B*57:01	1	936	944	9	SSTASALGK	0.002642	12
HLA-B*44:02	1	1067	1075	9	AQEKNFTTA	0.002641	5.0
HLA-A*30:02	1	1175	1183	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	VVIKVECFQF	0.002639	14
HLA-A*03:01	1	479	487	9	GVKGFNCYF	0.002638	8.0
HLA-A*01:01	1	12	21	10	SSQCVNLTTR	0.002637	8.2
HLA-A*02:06	1	72	80	9	GTNGTKRFA	0.002637	14
HLA-B*44:02	1	1098	1106	9	HWFVTQRNF	0.002637	5.1
HLA-A*68:02	1	1130	1138	9	VNNTVYDPL	0.002637	9.8
HLA-A*68:02	1	43	51	9	FRSSVLHST	0.002636	9.8
HLA-B*58:01	1	251	259	9	SSSGWTAGA	0.002636	8.3
HLA-A*32:01	1	406	415	10	QIAPGQTGNI	0.002636	6.7
HLA-A*11:01	1	547	556	10	GVLTESNKKF	0.002635	6.9
HLA-A*32:01	1	1061	1070	10	HVTYVPAQEK	0.002635	6.7
HLA-A*02:03	1	754	763	10	GSFCTQLNRA	0.002634	11
HLA-B*53:01	1	815	823	9	IEDLLFNKV	0.002634	6.1
HLA-A*30:02	1	998	1006	9	LQSLQTYVT	0.002634	14
HLA-A*30:01	1	763	771	9	ALTGIAVEQ	0.002633	17
HLA-A*24:02	1	771	779	9	QDKNTQEVF	0.002632	5.4
HLA-B*58:01	1	972	980	9	SVLNDILSR	0.002632	8.3
HLA-B*57:01	1	1033	1042	10	QSKRVDFCGK	0.002631	12
HLA-B*08:01	1	96	104	9	EKSNIIRGW	0.00263	13
HLA-B*51:01	1	1136	1144	9	DPLQPELDS	0.00263	12
HLA-B*08:01	1	45	54	10	SSVLHSTQDL	0.002629	13
HLA-A*24:02	1	453	461	9	FRKSNLKP	0.002629	5.4
HLA-A*03:01	1	1194	1203	10	LIDLQELGKY	0.002629	8.0
HLA-A*30:02	1	12	20	9	SSQCVNLT	0.002628	14
HLA-B*35:01	1	1053	1062	10	APHGVVFLHV	0.002628	6.8
HLA-A*30:01	1	1186	1195	10	VAKNLNESLI	0.002628	17
HLA-A*01:01	1	685	693	9	ASQSIIAYT	0.002627	8.2
HLA-A*24:02	1	203	211	9	IYSKHTPIN	0.002626	5.4
HLA-A*02:06	1	386	394	9	DLCFTNVYA	0.002626	14
HLA-A*30:02	1	807	815	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	993	1002	10	LITGRLQSLQ	0.002624	13
HLA-A*68:02	1	1224	1232	9	IVMVTIMLC	0.002624	9.8
HLA-B*53:01	1	228	237	10	DLPIGINITR	0.002623	6.1
HLA-A*01:01	1	341	350	10	ATRFASVYAW	0.002623	8.2
HLA-B*40:01	1	440	448	9	SKVGGNYNY	0.002623	4.9
HLA-B*40:01	1	817	825	9	DLLFNKVTL	0.002623	4.9
HLA-B*35:01	1	393	401	9	YADSFVIRG	0.002622	6.8
HLA-A*33:01	1	109	117	9	TLDSKTQSL	0.002621	8.8
HLA-B*08:01	1	459	468	10	KPFERDISTE	0.002619	13
HLA-A*26:01	1	849	858	10	AQKFNGLTVL	0.002619	6.8

HLA-A*02:03	1	916	924	9	NOKLIANQF 0.002619	11
HLA-A*30:01	1	550	559	10	TESNKKFLPF 0.002618	17
HLA-B*57:01	1	612	621	10	VNCTEVPVAI 0.002618	12
HLA-A*02:06	1	783	792	10	KQIYKTPPIK 0.002618	14
HLA-A*31:01	1	1146	1154	9	KEELDKYFK 0.002618	11
HLA-A*02:06	1	694	703	10	MSLGVENSVA 0.002616	14
HLA-B*40:01	1	980	988	9	RLDKVEAEV 0.002616	4.9
HLA-A*02:03	1	1129	1138	10	IVNNTVYDPL 0.002616	11
HLA-A*01:01	1	49	57	9	HSTQDLFLP 0.002615	8.2
HLA-A*01:01	1	1004	1012	9	YVTQQLIRA 0.002615	8.2
HLA-A*03:01	1	363	371	9	SVLYNSASF 0.002614	8.0
HLA-B*08:01	1	458	467	10	LKPFERDIST 0.002613	13
HLA-A*30:01	1	687	695	9	QSIIAYTMS 0.002613	17
HLA-A*30:01	1	891	900	10	LQIPFAMQMA 0.002613	17
HLA-B*40:01	1	440	449	10	SKVGGNYNYL 0.002612	4.9
HLA-A*30:02	1	950	959	10	NQNAQALNTL 0.002612	15
HLA-A*30:01	1	133	141	9	FQFCNDPFL 0.002611	17
HLA-A*26:01	1	912	920	9	VLYENQKLI 0.002611	6.8
HLA-A*32:01	1	770	779	10	EQDKNTQEVF 0.00261	6.7
HLA-B*15:01	1	919	927	9	LIANQFNSA 0.00261	9.4
HLA-A*02:01	1	1105	1114	10	NFYEQIITT 0.00261	9.2
HLA-A*30:01	1	433	441	9	WNSNNLDSK 0.002609	17
HLA-A*30:02	1	607	615	9	VLYQGVNCT 0.002609	15
HLA-A*24:02	1	996	1004	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	936	945	10	SSTASALGKL 0.002608	8.0
HLA-B*07:02	1	1010	1019	10	IRAAEIRASA 0.002608	7.4
HLA-B*44:02	1	23	32	10	QLPPAYTNSF 0.002607	5.1
HLA-A*02:01	1	939	948	10	ASALGKLQDV 0.002606	9.2
HLA-A*33:01	1	1234	1242	9	MTSCCCLK 0.002606	8.8
HLA-A*68:02	1	403	411	9	EVRQIAPGQ 0.002605	9.9
HLA-A*68:02	1	474	483	10	STPCNGVKGF 0.002605	9.9
HLA-A*02:03	1	281	289	9	TITDAVDCA 0.002604	11
HLA-A*68:02	1	340	348	9	NATRFASVY 0.002604	9.9
HLA-A*31:01	1	1055	1064	10	HGVVFLHVTY 0.002603	11
HLA-B*53:01	1	1144	1153	10	SFKEELDKYF 0.002603	6.1
HLA-A*03:01	1	547	556	10	GVLTESNKKF 0.002602	8.0
HLA-B*08:01	1	1144	1152	9	SFKEELDKY 0.002602	13
HLA-A*33:01	1	345	353	9	ASVYAWNRK 0.002601	8.8
HLA-A*32:01	1	307	316	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	265	273	9	GYLQPRFTL 0.002598	9.9
HLA-A*03:01	1	783	791	9	KQIYKTPPI 0.002598	8.0
HLA-B*57:01	1	672	680	9	QTQTNSPRR 0.002597	13
HLA-B*15:01	1	763	771	9	ALTGIAVEQ 0.002597	9.4
HLA-A*32:01	1	857	866	10	VLPLLLTDEM 0.002597	6.8
HLA-A*33:01	1	1097	1106	10	THWFVTQRNF 0.002597	8.8
HLA-A*31:01	1	68	77	10	IHVSGTNGTK 0.002596	11
HLA-B*35:01	1	507	515	9	VVLSFELL 0.002596	6.8
HLA-A*30:02	1	1004	1013	10	YVTQQLIRAA 0.002596	15
HLA-B*51:01	1	445	453	9	NYNLYLRLF 0.002595	12
HLA-B*51:01	1	752	760	9	QYGSFCTQL 0.002594	12
HLA-A*02:03	1	816	825	10	EDLLFNKVTL 0.002593	11
HLA-A*30:01	1	1044	1053	10	YHLMSFPQSA 0.002593	17
HLA-A*11:01	1	669	677	9	ASYQTQNS 0.002592	6.9
HLA-A*30:02	1	898	906	9	QMAYRFNGI 0.002592	15
HLA-A*02:01	1	35	43	9	GVYYPDKVF 0.002591	9.2
HLA-A*31:01	1	572	581	10	AVRDPQTLEI 0.002591	11
HLA-B*51:01	1	703	711	9	AYSNNSIAI 0.002591	12
HLA-A*68:01	1	1258	1266	9	SEPVLKGVK 0.002591	11
HLA-A*31:01	1	501	510	10	GYQPYRVVVL 0.00259	11
HLA-A*68:02	1	62	71	10	VTWFHAIHVS 0.002589	9.9
HLA-A*01:01	1	78	86	9	RFANPVLFP 0.002589	8.2

HLA-A*31:01	1	303	311	9	FTVEKGIYQ 0.002589	11
HLA-B*44:03	1	331	339	9	NLCPFGEVF 0.002589	5.3
HLA-B*35:01	1	508	516	9	VVLSFELLH 0.002588	6.8
HLA-B*51:01	1	549	557	9	LTESNKKFL 0.002587	12
HLA-A*01:01	1	222	230	9	ALEPLVDLP 0.002586	8.3
HLA-A*33:01	1	1092	1100	9	FVSNNGTHWF 0.002586	8.9
HLA-A*23:01	1	815	823	9	IEDLLFNKV 0.002585	5.5
HLA-A*02:03	1	506	515	10	RVVLSFELL 0.002584	11
HLA-B*57:01	1	525	534	10	KKSTNLVKNK 0.002582	13
HLA-A*02:06	1	825	834	10	LADAGFIKQY 0.002582	14
HLA-B*08:01	1	769	778	10	VEQDKNTQEV 0.002581	13
HLA-A*11:01	1	876	885	10	AGTITSGWTF 0.002581	6.9
HLA-A*01:01	1	971	980	10	SSVNDILSR 0.002581	8.3
HLA-B*57:01	1	1099	1107	9	WVFTQRNFY 0.002581	13
HLA-A*31:01	1	1102	1110	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	512	521	10	FELLHAPATV 0.00258	13
HLA-B*35:01	1	315	323	9	FRVQPTESI 0.002578	6.8
HLA-B*57:01	1	692	700	9	YTMSLGVEN 0.002578	13
HLA-B*08:01	1	362	371	10	YSVLYNSASF 0.002576	13
HLA-A*32:01	1	1041	1049	9	GKGYHLMSF 0.002576	6.8
HLA-A*02:01	1	9	18	10	PLVSSQCVNL 0.002575	9.2
HLA-B*53:01	1	138	147	10	DPFLGVVYHK 0.002575	6.1
HLA-A*02:03	1	251	260	10	SSSGWTAGAA 0.002575	11
HLA-B*07:02	1	777	785	9	EVFAQVKQI 0.002575	7.5
HLA-B*58:01	1	1208	1217	10	KWPWYIWLGF 0.002575	8.4
HLA-A*32:01	1	648	657	10	IGAHEVNNNSY 0.002574	6.8
HLA-A*02:01	1	1013	1021	9	AEIRASANL 0.002573	9.3
HLA-A*24:02	1	35	44	10	GVYYPDKVFR 0.002572	5.5
HLA-A*01:01	1	623	631	9	ADQLTPTWR 0.002572	8.3
HLA-A*11:01	1	517	525	9	APATVCGPK 0.002571	6.9
HLA-B*08:01	1	996	1004	9	GRLQSLQTY 0.002571	13
HLA-A*68:02	1	91	100	10	YFASTEKSNI 0.00257	9.9
HLA-B*51:01	1	1063	1072	10	TYVPAQEKNF 0.00257	12
HLA-B*07:02	1	461	470	10	FERDISTEIIY 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-A*31:01	1	167	176	10	TFEYVSQLPFL 0.002564	11
HLA-A*31:01	1	365	374	10	LYNSASFSTF 0.002564	11
HLA-B*35:01	1	805	813	9	DPSKPSKRS 0.002564	6.8
HLA-B*07:02	1	919	927	9	LIANQFNSA 0.002564	7.5
HLA-A*03:01	1	937	945	9	STASALGKL 0.002564	8.1
HLA-B*40:01	1	1011	1019	9	RAAEIRASA 0.002564	5.0
HLA-A*68:02	1	1143	1152	10	DSFKEELDKY 0.002564	9.9
HLA-A*24:02	1	109	118	10	TLDSKTQSL 0.002563	5.5
HLA-B*08:01	1	399	407	9	IRGDEVRQI 0.002563	13
HLA-B*53:01	1	502	510	9	YQPYRVVVL 0.002563	6.2
HLA-B*58:01	1	915	924	10	ENQKLIANQF 0.002563	8.4
HLA-A*01:01	1	935	944	10	LSSTASALGK 0.002563	8.3
HLA-A*30:01	1	1202	1211	10	KYEYIKWPF 0.002563	18
HLA-A*23:01	1	550	559	10	TESNKKFLPF 0.002562	5.6
HLA-A*31:01	1	1036	1044	9	RVDFCGKGY 0.002562	11
HLA-A*30:01	1	211	220	10	NLVRGLPQGF 0.002561	18
HLA-A*02:03	1	727	735	9	SMTKTSVDC 0.002561	11
HLA-A*02:03	1	951	959	9	QNAQALNLT 0.00256	11
HLA-A*01:01	1	1091	1099	9	VFVSNNGTHW 0.00256	8.3
HLA-B*58:01	1	1093	1102	10	VSNNGTHWFT 0.00256	8.4
HLA-A*30:02	1	227	235	9	VDLPIGINI 0.002559	15
HLA-A*01:01	1	479	487	9	GVKGFNCYF 0.002559	8.3
HLA-B*58:01	1	971	979	9	SSVNDILS 0.002559	8.4
HLA-A*30:02	1	298	307	10	CTLKSFTVEK 0.002557	15
HLA-B*58:01	1	598	607	10	GTNTSNQVAV 0.002557	8.4
HLA-A*30:02	1	501	510	10	GYQPYRVVVL 0.002556	15
HLA-A*32:01	1	918	926	9	KLIANQFN 0.002554	6.8
HLA-A*33:01	1	1063	1072	10	TYVPAQEKNF 0.002554	8.9

HLA-B*07:02	1	930	938	9	KIQDLSLST 0.002552	7.5
HLA-A*33:01	1	1147	1156	10	EELDKYFKNH 0.002552	8.9
HLA-A*68:02	1	184	193	10	GNFKNLREFV 0.002551	10
HLA-A*30:01	1	253	262	10	SGWTAGAAAY 0.002551	18
HLA-B*58:01	1	369	378	10	ASFSTFKCYG 0.002551	8.4
HLA-A*01:01	1	184	192	9	GNFKNLREF 0.00255	8.3
HLA-A*01:01	1	709	717	9	IAIPTNFTI 0.00255	8.3
HLA-B*57:01	1	811	819	9	KRSFIEDLL 0.00255	13
HLA-B*51:01	1	814	823	10	FIEDLLFNKV 0.00255	12
HLA-A*24:02	1	844	852	9	RDLICAQKF 0.00255	5.5
HLA-A*24:02	1	1051	1060	10	QSAPHGVVFL 0.00255	5.5
HLA-A*33:01	1	504	512	9	PYRVVLSF 0.002549	8.9
HLA-B*08:01	1	149	157	9	NKSWMESEF 0.002548	13
HLA-A*03:01	1	367	376	10	NSASFSTFKC 0.002548	8.1
HLA-A*30:01	1	1092	1101	10	FVSNGTHWFV 0.002548	18
HLA-B*51:01	1	597	605	9	PGTNTSNQV 0.002547	12
HLA-A*30:01	1	1095	1104	10	NGTHWFVTQR 0.002547	18
HLA-A*68:02	1	656	665	10	SYECDIPIGA 0.002546	10
HLA-A*30:02	1	412	421	10	TGNIADYNYK 0.002545	15
HLA-A*02:01	1	919	928	10	LIANQFNSAI 0.002545	9.3
HLA-B*51:01	1	512	520	9	FELLHAPAT 0.002544	12
HLA-A*31:01	1	624	632	9	DQLTPTWRV 0.002544	11
HLA-A*26:01	1	791	799	9	IKDFGGFNF 0.002544	6.9
HLA-A*30:02	1	1216	1224	9	GFIAGLIAI 0.002544	15
HLA-A*02:01	1	606	614	9	AVLYQGVNC 0.002543	9.3
HLA-A*31:01	1	37	45	9	YYPDKVFRS 0.002542	11
HLA-B*08:01	1	1203	1211	9	YEQYIKWPW 0.002542	13
HLA-A*68:02	1	331	339	9	NLCPFGEVF 0.002541	10
HLA-A*03:01	1	1098	1107	10	HWFVTQRNFY 0.002541	8.1
HLA-A*32:01	1	168	176	9	FEYVSQPFL 0.00254	6.8
HLA-B*58:01	1	1197	1206	10	LQELGKYEYQ 0.00254	8.5
HLA-A*02:06	1	625	633	9	QLTPTWRVY 0.002539	14
HLA-B*44:02	1	1018	1026	9	SANLAATKM 0.002539	5.2
HLA-A*24:02	1	478	487	10	NGVKGFNCYF 0.002537	5.5
HLA-A*03:01	1	918	926	9	KLIANQFNS 0.002537	8.1
HLA-A*32:01	1	83	91	9	VLPFNDGVY 0.002536	6.8
HLA-B*58:01	1	167	175	9	TFEYVSQPF 0.002535	8.5
HLA-B*08:01	1	326	334	9	FPNITNLCP 0.002534	13
HLA-A*30:02	1	952	961	10	NAQALNTLVK 0.002532	15
HLA-B*57:01	1	1109	1118	10	PQIITTDNTF 0.002532	13
HLA-B*51:01	1	501	509	9	GYQPYRVVV 0.00253	12
HLA-A*30:02	1	472	481	10	AGSTPCNGVK 0.002529	15
HLA-A*26:01	1	685	694	10	ASQSIIAYTM 0.002529	6.9
HLA-A*02:03	1	815	823	9	IEDLLFNKV 0.002529	11
HLA-B*15:01	1	559	567	9	FQQFGRDIA 0.002528	9.5
HLA-A*31:01	1	1216	1224	9	GFIAGLIAI 0.002527	11
HLA-A*26:01	1	988	997	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	310	318	9	YQTSNFRVQ 0.002525	14
HLA-B*57:01	1	841	849	9	IAARDLICA 0.002525	13
HLA-B*44:02	1	50	59	10	STQDLFLPFF 0.002524	5.2
HLA-B*08:01	1	1091	1100	10	VFVSNGTHWF 0.002524	13
HLA-B*07:02	1	958	967	10	TLVKQLSSNF 0.002523	7.5
HLA-A*03:01	1	490	499	10	QSYGFQPTYG 0.002522	8.1
HLA-A*02:01	1	573	582	10	VRDPQTLEIL 0.002522	9.3
HLA-A*02:06	1	669	677	9	ASYQTQTN 0.002522	14
HLA-A*30:01	1	979	988	10	SRLDKVEAEV 0.002522	18
HLA-B*58:01	1	1022	1031	10	AATKMSECVL 0.002522	8.5
HLA-A*02:06	1	495	504	10	QPTYGVGYQP 0.002521	14
HLA-A*01:01	1	721	730	10	TEILPVSMTK 0.00252	8.4
HLA-A*68:01	1	1093	1101	9	VSNGTHWFV 0.00252	11
HLA-A*68:02	1	957	965	9	NLTVKQLSS 0.002519	10
HLA-A*30:02	1	1099	1108	10	WFTVQRNFYE 0.002518	15
HLA-A*11:01	1	234	242	9	NITRFQTLH 0.002517	7.0
HLA-A*30:01	1	145	153	9	YHKNNKSWM 0.002516	18

HLA-A*30:01	1	826	834	9	ADAGFIKQY 0.002516	18
HLA-A*33:01	1	270	278	9	RTFLLKYNE 0.002515	9.0
HLA-B*07:02	1	783	791	9	KQIYKTPPI 0.002515	7.5
HLA-B*15:01	1	1217	1225	9	FIAGLIAIV 0.002515	9.5
HLA-B*44:02	1	264	272	9	VGYLQPRTF 0.002514	5.2
HLA-A*30:02	1	1189	1197	9	NLNESLIDL 0.002514	15
HLA-A*26:01	1	550	559	10	TESNKKFLPF 0.002513	6.9
HLA-A*68:02	1	69	78	10	HVSGTNGTKR 0.002511	11
HLA-A*68:02	1	682	690	9	RSVASQSII 0.002511	11
HLA-A*32:01	1	754	762	9	GSFCTQLNR 0.002511	6.9
HLA-B*08:01	1	15	24	10	CVNLTRRTQL 0.00251	13
HLA-A*68:02	1	258	266	9	GAAAYVGY 0.00251	11
HLA-A*01:01	1	694	702	9	MSLGVENS 0.00251	8.4
HLA-A*32:01	1	41	50	10	KVFRSSVLHS 0.002509	6.9
HLA-A*02:01	1	118	127	10	LIVNATNVV 0.002507	9.3
HLA-B*35:01	1	719	728	10	VTTEILPVSM 0.002506	6.9
HLA-A*30:01	1	853	861	9	NGLTVLPPL 0.002506	18
HLA-A*26:01	1	985	993	9	EAEVQIDRL 0.002506	7.0
HLA-A*02:06	1	1218	1227	10	IAGLIAIVMV 0.002506	14
HLA-A*30:02	1	606	614	9	AVLYQGVNC 0.002505	15
HLA-A*68:02	1	884	893	10	TFGAGAALQI 0.002504	11
HLA-B*44:03	1	951	959	9	QNAQALNTL 0.002504	5.4
HLA-A*01:01	1	1182	1190	9	RLNEVAKNL 0.002504	8.4
HLA-B*44:02	1	35	43	9	GVYYPDKVF 0.002503	5.2
HLA-A*03:01	1	383	392	10	KLNDLCFTNV 0.002502	8.1
HLA-A*11:01	1	593	601	9	SVITPGTNT 0.002502	7.0
HLA-B*08:01	1	1055	1063	9	HGVVFLHVT 0.002502	13
HLA-A*23:01	1	192	200	9	FVFKNIDGY 0.002501	5.6
HLA-A*24:02	1	31	39	9	SFTRGVYYP 0.0025	5.6
HLA-A*68:01	1	354	362	9	RISNCVADY 0.0025	12
HLA-B*44:02	1	812	820	9	RSFIEDLLF 0.0025	5.2
HLA-B*35:01	1	397	405	9	FVIRGDEVR 0.002499	6.9
HLA-B*08:01	1	820	828	9	FNKVTLADA 0.002499	13
HLA-A*30:02	1	954	963	10	QALNTLVKQL 0.002499	15
HLA-A*02:06	1	30	38	9	NSFTRGVYY 0.002498	14
HLA-A*30:02	1	304	312	9	TVEKGIYQT 0.002498	15
HLA-A*02:06	1	1017	1026	10	ASANLAATKM 0.002498	14
HLA-A*30:02	1	1188	1197	10	KNLNESLIDL 0.002498	15
HLA-A*30:02	1	3	11	9	VFLVLLPLV 0.002495	15
HLA-A*03:01	1	1180	1188	9	IDRLNEVAK 0.002495	8.1
HLA-A*31:01	1	1148	1156	9	ELDKYFKNH 0.002494	12
HLA-A*68:02	1	262	270	9	YYVGYLQPR 0.002493	11
HLA-B*58:01	1	452	461	10	LFRKSNLKPF 0.002493	8.5
HLA-A*30:01	1	1019	1027	9	ANLAATKMS 0.002493	18
HLA-A*02:03	1	1193	1202	10	SLIDLQELGK 0.002493	11
HLA-A*02:03	1	363	371	9	SVLYNSASF 0.002491	11
HLA-B*58:01	1	495	504	10	QPTYGVGYQP 0.00249	8.5
HLA-B*57:01	1	297	306	10	KCTLKSFTVE 0.002488	13
HLA-A*30:02	1	535	543	9	CVNFNFNGL 0.002487	15
HLA-A*32:01	1	923	931	9	QFNSAIGKI 0.002487	6.9
HLA-B*08:01	1	1063	1072	10	TYVPAQEKNF 0.002487	13
HLA-A*30:01	1	608	616	9	LYQGVNCTE 0.002485	18
HLA-A*26:01	1	36	44	9	VYYPDKVFR 0.002484	7.0
HLA-A*31:01	1	1063	1072	10	TYVPAQEKNF 0.002484	12
HLA-A*31:01	1	301	309	9	KSFTVEKGI 0.002482	12
HLA-A*30:01	1	702	711	10	VAYSNNSIAI 0.002482	18
HLA-A*02:01	1	1070	1078	9	KNFTTAPAI 0.002482	9.4
HLA-A*26:01	1	1222	1230	9	IAIVMVTIM 0.002482	7.0
HLA-B*15:01	1	1017	1025	9	ASANLAATK 0.002481	9.6
HLA-B*44:02	1	363	371	9	SVLYNSASF 0.00248	5.2
HLA-A*23:01	1	849	857	9	AQKFNGLTV 0.002479	5.6
HLA-B*51:01	1	1038	1046	9	DFCGKGYHL 0.002479	13
HLA-A*23:01	1	421	429	9	KLPDDFTGC 0.002478	5.6
HLA-A*24:02	1	34	43	10	RGVYYPDKVF 0.002477	5.6
HLA-A*01:01	1	1189	1197	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	887	895	9	AGAALQIPF 0.002475	13
HLA-A*31:01	1	234	242	9	NITRFQTLH 0.002474	12
HLA-A*24:02	1	254	262	9	GWTAGAAAY 0.002474	5.6
HLA-B*15:01	1	873	881	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	718	726	9	SVTTEILPV 0.002472	7.0
HLA-B*57:01	1	889	898	10	AALQIPFAMQ 0.002472	13
HLA-A*31:01	1	1003	1012	10	TYVTQQLIRA 0.002472	12
HLA-A*02:01	1	451	459	9	RLFRKSNLK 0.002471	9.4
HLA-A*30:01	1	623	631	9	ADQLTPTWR 0.00247	18
HLA-A*33:01	1	186	195	10	FKNLREFVFK 0.002469	9.1
HLA-A*68:01	1	1134	1142	9	VYDPLQPEL 0.002469	12
HLA-B*44:03	1	632	640	9	VYSTGSNVF 0.002468	5.4
HLA-A*68:02	1	446	454	9	YNYLYRLFR 0.002467	11
HLA-A*01:01	1	1002	1011	10	QTYVTQQLIR 0.002466	8.5
HLA-A*32:01	1	971	980	10	SSVLNDILSR 0.002465	6.9
HLA-A*26:01	1	199	207	9	GYFKIYSKH 0.002464	7.0
HLA-A*02:06	1	871	879	9	TSALLAGTI 0.002464	14
HLA-B*07:02	1	1021	1029	9	LAATKMSEC 0.002464	7.6
HLA-A*68:02	1	704	713	10	YSNNSIAIPT 0.002463	11
HLA-A*32:01	1	744	753	10	TECSNLLLQY 0.002463	6.9
HLA-B*08:01	1	853	862	10	NGLTVLPPLL 0.002463	13
HLA-B*15:01	1	1052	1061	10	SAPHGVVFLH 0.002462	9.6
HLA-B*07:02	1	708	717	10	SIAIPTNFTI 0.002461	7.6
HLA-A*30:02	1	120	128	9	VNMATNVVI 0.00246	15
HLA-A*02:03	1	864	873	10	DEMIAQY TSA 0.00246	11
HLA-A*24:02	1	955	963	9	ALNTLVKQL 0.002459	5.6
HLA-A*32:01	1	1167	1176	10	SGINASVVNI 0.002459	6.9
HLA-B*08:01	1	670	678	9	SYQTQTN SP 0.002457	13
HLA-A*24:02	1	937	945	9	STASALGKL 0.002457	5.6
HLA-A*02:06	1	346	355	10	SVYAWNRKRI 0.002456	14
HLA-B*15:01	1	758	766	9	TQLNRALTG 0.002456	9.6
HLA-B*51:01	1	1133	1141	9	TVYDPLQPE 0.002456	13
HLA-A*30:01	1	160	168	9	YSSANNCTF 0.002455	18
HLA-A*01:01	1	330	339	10	TNLCPFGEVF 0.002455	8.5
HLA-A*30:01	1	792	800	9	KDFGGFNFS 0.002455	18
HLA-B*15:01	1	624	632	9	DQLTPTWRV 0.002454	9.6
HLA-B*57:01	1	92	101	10	FASTEKSNI 0.002453	13
HLA-B*44:02	1	553	562	10	NKKFLPFQF 0.002453	5.3
HLA-B*58:01	1	1046	1055	10	LMSFPQSAPH 0.002453	8.6
HLA-B*53:01	1	321	329	9	ESIVRFPNI 0.002452	6.3
HLA-A*24:02	1	500	508	9	VGYPYRVV 0.002451	5.6
HLA-A*30:02	1	534	543	10	KCVNFNFNGL 0.002451	15
HLA-A*26:01	1	849	857	9	AQKFNGLTV 0.002451	7.0
HLA-A*01:01	1	933	941	9	DSLSS TASA 0.00245	8.5
HLA-B*57:01	1	3	11	9	VFLVLLPLV 0.002449	13
HLA-A*02:06	1	255	263	9	WTAGAAAYY 0.002449	14
HLA-A*30:02	1	499	508	10	GVGYQPYRVV 0.002448	15
HLA-B*51:01	1	166	174	9	CTFEYVSQP 0.002447	13
HLA-B*51:01	1	638	646	9	NVFQTRAGC 0.002447	13
HLA-A*33:01	1	374	383	10	FKCYGVSP TK 0.002446	9.1
HLA-A*30:02	1	857	866	10	VLPPLLTDEM 0.002446	15
HLA-B*35:01	1	1064	1073	10	YVPAQEK N FT 0.002446	7.0
HLA-A*26:01	1	843	852	10	ARDLICAQKF 0.002445	7.0
HLA-B*51:01	1	1181	1190	10	DRLNEVAKNL 0.002445	13
HLA-A*68:02	1	167	176	10	TFEYVSPFL 0.002443	11
HLA-B*07:02	1	490	498	9	QSYGFQPTY 0.002443	7.6
HLA-B*57:01	1	910	919	10	QNVLYENQKL 0.002443	13
HLA-A*26:01	1	1017	1026	10	ASANLAATKM 0.002443	7.0
HLA-A*26:01	1	94	102	9	STEKSNIIR 0.002442	7.0
HLA-B*51:01	1	368	377	10	SASFSTFKCY 0.002442	13
HLA-B*07:02	1	379	387	9	VSPTKLNDL 0.002442	7.6
HLA-A*24:02	1	867	875	9	IAQYTSALL 0.002442	5.6
HLA-B*15:01	1	944	952	9	KLQDVVNQN 0.002442	9.7



HLA-B*35:01	1	1048	1057	10	SFPQSAPHGV 0.002442	7.0
HLA-A*01:01	1	1261	1270	10	VLKGVKLHYT 0.002442	8.5
HLA-A*11:01	1	142	151	10	GVEYHKNKNS 0.002441	7.0
HLA-B*53:01	1	440	448	9	SKVGGNYNY 0.00244	6.3
HLA-A*02:03	1	1003	1012	10	TYVTQQLIRA 0.00244	11
HLA-B*58:01	1	1112	1120	9	ITTDNTFVS 0.002439	8.6
HLA-A*31:01	1	1207	1215	9	IKWPWYIWL 0.002439	12
HLA-B*40:01	1	78	86	9	RFANPVLPF 0.002438	5.1
HLA-A*02:01	1	211	219	9	NLVRGLPQG 0.002437	9.4
HLA-B*53:01	1	256	264	9	TAGAAAYV 0.002437	6.3
HLA-B*40:01	1	1018	1026	9	SANLAATKM 0.002437	5.1
HLA-A*68:02	1	1064	1073	10	YVPAQEKNF 0.002437	11
HLA-A*32:01	1	921	930	10	ANQFNSAIGK 0.002436	7.0
HLA-A*68:02	1	1013	1021	9	AEIRASANL 0.002436	11
HLA-B*58:01	1	341	349	9	ATRFASVYA 0.002435	8.6
HLA-B*51:01	1	573	582	10	VRDPQTLEIL 0.002434	13
HLA-B*15:01	1	984	993	10	VEAEVQIDRL 0.002434	9.7
HLA-B*15:01	1	513	521	9	ELLHAPATV 0.002433	9.7
HLA-A*02:03	1	572	580	9	AVRDPQTL 0.002433	11
HLA-B*44:02	1	196	204	9	NIDGYFKIY 0.002432	5.3
HLA-A*31:01	1	546	554	9	TGVLTESNK 0.002432	12
HLA-B*08:01	1	615	623	9	TEVPVAIHA 0.002432	13
HLA-A*01:01	1	1175	1183	9	NIQKEIDRL 0.002431	8.6
HLA-A*30:02	1	149	157	9	NKSWMESEF 0.00243	15
HLA-A*31:01	1	952	961	10	NAQALNTLVK 0.00243	12
HLA-B*57:01	1	230	238	9	PIGINITRF 0.002429	13
HLA-A*32:01	1	702	711	10	VAYSNSIAI 0.002429	7.0
HLA-A*31:01	1	937	945	9	STASALGKL 0.002429	12
HLA-A*68:02	1	338	347	10	VFNATRFASV 0.002428	11
HLA-B*51:01	1	400	408	9	RGDEVQRQA 0.002428	13
HLA-A*30:02	1	814	822	9	FIEDLLFNK 0.002428	15
HLA-A*68:02	1	897	906	10	MQMAYRFNGI 0.002428	11
HLA-B*58:01	1	1168	1176	9	GINASVVNI 0.002428	8.6
HLA-A*30:01	1	761	769	9	NRALTGIAV 0.002427	18
HLA-A*30:02	1	508	517	10	VVLSFELLHA 0.002426	15
HLA-A*30:02	1	769	778	10	VEQDKNTQEV 0.002426	15
HLA-B*51:01	1	888	897	10	GAALQIPFAM 0.002426	13
HLA-A*30:02	1	56	65	10	LPFFSNVTWF 0.002425	15
HLA-A*02:01	1	865	874	10	EMIAQYTSAL 0.002425	9.5
HLA-A*30:02	1	1102	1110	9	TQRNFYEPQ 0.002424	15
HLA-B*44:02	1	571	579	9	DAVRDPQTL 0.002422	5.3
HLA-A*02:06	1	822	831	10	KVTLADAGFI 0.002422	14
HLA-A*02:03	1	1121	1129	9	GNCVVIGI 0.002422	11
HLA-A*31:01	1	623	632	10	ADQLTPTWRV 0.002421	12
HLA-A*23:01	1	460	469	10	PFERDISTEI 0.00242	5.7
HLA-B*07:02	1	487	496	10	FPLQSYGFQP 0.00242	7.7
HLA-A*68:01	1	631	640	10	RVYSTGNSVF 0.00242	12
HLA-B*57:01	1	854	862	9	GLTVLPPLL 0.00242	13
HLA-A*30:02	1	1218	1226	9	IAGLIAIVM 0.00242	15
HLA-B*44:03	1	223	231	9	LEPLVDLPI 0.002419	5.5
HLA-B*07:02	1	307	315	9	KGIYQTSNF 0.002419	7.7
HLA-A*31:01	1	502	510	9	YQPYRVVVL 0.002419	12
HLA-A*68:02	1	751	760	10	LQYGSFCTQL 0.002418	11
HLA-A*33:01	1	1051	1060	10	QSAPHGVVFL 0.002418	9.2
HLA-A*11:01	1	1093	1101	9	VSNGTHWFV 0.002418	7.1
HLA-B*51:01	1	980	988	9	RLDKVEAEV 0.002417	13
HLA-A*68:02	1	912	921	10	VLYENQKLI 0.002416	11
HLA-A*30:01	1	179	187	9	LEGKQGNFK 0.002415	18
HLA-B*15:01	1	375	383	9	KCYGVSPK 0.002415	9.7
HLA-A*68:02	1	1121	1130	10	GNCVVIGIV 0.002415	11
HLA-A*33:01	1	1203	1211	9	YEQYIKWPW 0.002415	9.2
HLA-A*02:06	1	549	557	9	LTESNKKFL 0.002414	14
HLA-A*02:01	1	873	882	10	ALLAGTITSG 0.002414	9.5
HLA-A*03:01	1	762	771	10	RALTGIAVEQ 0.002413	8.2
HLA-B*58:01	1	999	1008	10	QSLQTYVTQQ 0.002413	8.7
HLA-A*23:01	1	1141	1149	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	868	876	9	AQYTSALLA 0.002411	13
HLA-A*68:01	1	915	923	9	ENOKLIANQ 0.002411	12
HLA-A*68:02	1	320	329	10	TESIVRFPNI 0.00241	11
HLA-A*68:01	1	492	500	9	YGFQPTYGV 0.00241	12
HLA-A*26:01	1	898	906	9	QMAYRFNGI 0.00241	7.1
HLA-B*08:01	1	1151	1159	9	KYFKNHTSP 0.00241	13
HLA-A*30:01	1	787	796	10	KTPPIKDFGG 0.002409	18
HLA-A*30:02	1	96	104	9	EKSNIIRGW 0.002407	15
HLA-A*02:06	1	1121	1130	10	GNCDDVIGIV 0.002407	14
HLA-A*30:02	1	1106	1114	9	FYEPQIITT 0.002406	15
HLA-A*68:02	1	1095	1104	10	NGTHWFVTQR 0.002405	11
HLA-A*68:01	1	160	168	9	YSSANNCTF 0.002404	12
HLA-B*44:02	1	973	981	9	VLNDILSRL 0.002404	5.3
HLA-A*30:01	1	1053	1062	10	APHGVVFLHV 0.002404	18
HLA-A*30:01	1	1099	1107	9	WFVTQRNFY 0.002404	18
HLA-A*31:01	1	375	384	10	KCYGVSPTKL 0.002403	12
HLA-A*30:01	1	1093	1102	10	VSNGTHWFVT 0.002403	18
HLA-B*44:02	1	192	200	9	FVFNIDGY 0.002402	5.3
HLA-A*30:01	1	218	227	10	QGFSALEPLV 0.002402	18
HLA-A*30:01	1	1035	1044	10	KRVDFCGKGY 0.002402	18
HLA-B*07:02	1	1014	1022	9	EIRASANLA 0.002401	7.7
HLA-A*02:01	1	736	744	9	TMYICGDST 0.0024	9.5
HLA-B*51:01	1	424	432	9	DDFTGCVIA 0.002399	13
HLA-A*02:06	1	332	341	10	LCPFGEVFNA 0.002397	14
HLA-B*58:01	1	635	643	9	TGSNVFQTR 0.002397	8.7
HLA-A*11:01	1	149	158	10	NKSWMESEFR 0.002396	7.1
HLA-A*26:01	1	722	731	10	EILPVSMTKT 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	520	528	9	TVCGPKKST 0.002394	14
HLA-B*51:01	1	683	691	9	SVASQSIIA 0.002394	13
HLA-B*44:02	1	1077	1086	10	AICHDGKAHF 0.002394	5.3
HLA-B*51:01	1	1125	1133	9	VVIGIVNNT 0.002394	13
HLA-B*57:01	1	303	311	9	FTVEKGIYQ 0.002393	13
HLA-A*30:02	1	374	383	10	FKCYGVSPTK 0.002393	15
HLA-B*53:01	1	208	217	10	TPINLVRGLP 0.002392	6.3
HLA-B*08:01	1	789	797	9	PPIKDFGGF 0.002392	13
HLA-A*32:01	1	1050	1059	10	PQSAPHGVVF 0.002392	7.0
HLA-A*02:01	1	631	640	10	RVYSTGSNVF 0.002391	9.5
HLA-A*02:06	1	1084	1093	10	AHFREGVFN 0.00239	14
HLA-B*51:01	1	1105	1113	9	NFYEPQIIT 0.00239	13
HLA-A*30:01	1	573	582	10	VRDPQTLEIL 0.002389	18
HLA-A*30:01	1	954	963	10	QALNTLVKQL 0.002389	18
HLA-A*33:01	1	1011	1019	9	RAAEIRASA 0.002389	9.2
HLA-A*30:02	1	1223	1231	9	AIVMVTIML 0.002389	15
HLA-A*02:06	1	215	224	10	GLPQGFSALE 0.002388	14
HLA-A*02:03	1	304	312	9	TVEKGIYQT 0.002387	11
HLA-A*33:01	1	450	458	9	YRLFRKSNL 0.002387	9.2
HLA-A*02:01	1	756	764	9	FCTQLNRL 0.002387	9.5
HLA-A*30:02	1	704	712	9	YSNNSIAIP 0.002386	15
HLA-A*32:01	1	225	233	9	PLVDLPIGI 0.002385	7.0
HLA-A*68:02	1	253	261	9	SGWTAGAAA 0.002385	11
HLA-A*68:02	1	439	448	10	DSKVGNYNY 0.002382	11
HLA-A*02:03	1	989	998	10	QIDRLITGRL 0.002382	11
HLA-A*26:01	1	635	643	9	TGSNVFQTR 0.00238	7.1
HLA-A*02:03	1	682	690	9	RSVASQSII 0.00238	11
HLA-B*08:01	1	751	760	10	LQYGSFCTQL 0.00238	13
HLA-B*51:01	1	504	512	9	PYRVVLSF 0.002379	13
HLA-A*30:02	1	1037	1045	9	VDFCGKGYH 0.002379	15
HLA-B*44:03	1	1050	1059	10	PQSAPHGVVF 0.002379	5.5
HLA-A*68:01	1	46	55	10	SVLHSTQDLF 0.002378	12
HLA-A*33:01	1	235	244	10	ITRFQTLHRS 0.002378	9.2
HLA-A*11:01	1	1025	1033	9	KMSECVLGQ 0.002378	7.1
HLA-A*01:01	1	1203	1211	9	YEYIKWPW 0.002378	8.7

HLA-A*02:03	1	429	438	10	CVIAWNSNNL 0.002377	11
HLA-B*08:01	1	200	209	10	YFKIYSKHTP 0.002376	13
HLA-B*57:01	1	1168	1176	9	GINASVVNI 0.002376	13
HLA-A*11:01	1	267	276	10	LQPRTFLLKY 0.002375	7.1
HLA-B*57:01	1	774	783	10	NTQEVFAQVK 0.002375	13
HLA-B*15:01	1	687	696	10	QSIAYTMSL 0.002374	9.8
HLA-A*33:01	1	972	981	10	SVLNDILSRL 0.002374	9.2
HLA-B*51:01	1	1064	1073	10	YVPAQEKNT 0.002374	13
HLA-A*30:01	1	1171	1180	10	ASVVNIQKEI 0.002374	18
HLA-A*11:01	1	61	69	9	NVTWFHAIH 0.002373	7.1
HLA-B*58:01	1	379	388	10	VSPTKLNDLC 0.002372	8.8
HLA-B*51:01	1	390	398	9	TNVYADSFV 0.002371	13
HLA-B*15:01	1	509	517	9	VLSFELLHA 0.002371	9.8
HLA-A*26:01	1	407	415	9	IAPGQTGNI 0.00237	7.1
HLA-A*02:01	1	1137	1145	9	PLQPELDSF 0.00237	9.6
HLA-A*02:03	1	59	67	9	FSNVTWFHA 0.002369	11
HLA-A*68:02	1	616	624	9	EVPVAIHAD 0.002369	11
HLA-A*31:01	1	992	1000	9	RLITGRLQS 0.002369	12
HLA-B*35:01	1	10	18	9	LVSSQCVNL 0.002367	7.1
HLA-B*44:03	1	889	897	9	AALQIPFAM 0.002366	5.5
HLA-B*07:02	1	168	176	9	FEYVSQPFL 0.002365	7.8
HLA-B*53:01	1	393	401	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	1260	1268	9	PVLKGVKHL 0.002363	8.3
HLA-A*68:02	1	35	44	10	GVYYPDKVFR 0.002361	11
HLA-A*32:01	1	451	460	10	RLFRKSNLKP 0.002361	7.1
HLA-A*68:01	1	461	470	10	FERDISTEIIY 0.002361	12
HLA-A*02:03	1	756	764	9	FCTQLNRAL 0.002361	11
HLA-B*51:01	1	344	352	9	FASVYAWNR 0.00236	13
HLA-A*68:02	1	414	423	10	NIADYNYKLP 0.00236	11
HLA-A*32:01	1	961	969	9	KQLSSNFGA 0.002359	7.1
HLA-B*51:01	1	1054	1062	9	PHGVVFLHV 0.002359	13
HLA-A*30:02	1	1071	1080	10	NFTTAPAICH 0.002359	15
HLA-A*02:03	1	202	211	10	KIYSKHTPIN 0.002358	11
HLA-B*51:01	1	472	480	9	AGSTPCNGV 0.002358	13
HLA-A*11:01	1	999	1007	9	QSLQTYVTQ 0.002358	7.1
HLA-A*24:02	1	149	157	9	NKSWMESEF 0.002357	5.7
HLA-A*30:02	1	599	607	9	TNTSNQVAV 0.002357	15
HLA-A*26:01	1	803	812	10	LPDPSPKPSKR 0.002357	7.2
HLA-A*03:01	1	1126	1135	10	VIGIVNNTVY 0.002357	8.3
HLA-A*68:01	1	239	247	9	QTLHRSYLT 0.002356	12
HLA-B*08:01	1	1191	1200	10	NESLIDLQEL 0.002354	13
HLA-B*51:01	1	769	778	10	VEQDKNTQEV 0.002353	13
HLA-A*30:01	1	344	352	9	FASVYAWNR 0.002352	18
HLA-A*02:03	1	945	953	9	LQDVVNQNA 0.002352	11
HLA-B*57:01	1	965	974	10	SNFGAISSVL 0.002351	13
HLA-B*44:02	1	1161	1169	9	VDLGDISGI 0.002351	5.4
HLA-B*53:01	1	1175	1183	9	NIQKEIDRL 0.002351	6.4
HLA-B*53:01	1	1253	1262	10	FDEDDSEPV 0.002351	6.4
HLA-A*02:01	1	510	518	9	LSFELLHAP 0.00235	9.6
HLA-B*35:01	1	596	605	10	TPGTNTSNQV 0.00235	7.1
HLA-B*15:01	1	615	623	9	TEVPVAIHA 0.00235	9.8
HLA-B*44:02	1	418	426	9	YNYKLPDDF 0.002349	5.4
HLA-A*01:01	1	1160	1169	10	DVDLGDISGI 0.002349	8.7
HLA-A*32:01	1	218	226	9	QGFSALEPL 0.002348	7.1
HLA-B*58:01	1	747	756	10	SNLLLQYGSF 0.002348	8.8
HLA-A*23:01	1	890	899	10	ALQIPFAMQM 0.002348	5.8
HLA-B*53:01	1	1139	1147	9	QPELDSFKE 0.002348	6.4
HLA-A*30:02	1	152	161	10	WMESEFRVYS 0.002345	15
HLA-B*58:01	1	372	381	10	STFKCYGVSP 0.002345	8.8
HLA-A*02:01	1	500	508	9	VGYPYRVV 0.002345	9.6
HLA-A*26:01	1	303	312	10	FTVEKGIYQT 0.002344	7.2
HLA-B*57:01	1	1204	1213	10	EQYIKWPWYI 0.002344	13
HLA-A*01:01	1	316	324	9	RVQPTESIV 0.002343	8.7

HLA-A*32:01	1	340	348	9	NATRFASVY 0.002343	7.1
HLA-A*30:01	1	1105	1114	10	NFYEQIITT 0.002342	18
HLA-B*53:01	1	1202	1211	10	KYEYIKWPW 0.002342	6.4
HLA-A*24:02	1	399	407	9	IRGDEVROI 0.00234	5.7
HLA-B*51:01	1	589	597	9	FGGVSVITP 0.00234	13
HLA-A*11:01	1	1075	1083	9	APAICHGDK 0.00234	7.1
HLA-A*30:01	1	360	369	10	ADYSVLYNSA 0.002339	18
HLA-B*57:01	1	856	865	10	TVLPPLLTDE 0.002339	13
HLA-B*44:02	1	29	37	9	TNSFTRGVY 0.002338	5.4
HLA-B*51:01	1	626	635	10	LTPTWRVYST 0.002338	13
HLA-B*44:02	1	658	667	10	ECDIPIGAGI 0.002337	5.4
HLA-B*58:01	1	754	762	9	GSFCTQLNR 0.002337	8.8
HLA-A*02:01	1	1214	1222	9	WLGFIAGLI 0.002337	9.6
HLA-A*30:01	1	869	877	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	SKTQSLIV 0.002335	14
HLA-A*02:01	1	814	822	9	FIEDLLFNK 0.002335	9.6
HLA-B*07:02	1	1178	1186	9	KEIDRLNEV 0.002335	7.8
HLA-B*07:02	1	521	530	10	VCGPKKSTNL 0.002334	7.8
HLA-B*51:01	1	471	480	10	QAGSTPCNGV 0.002333	13
HLA-A*68:01	1	1098	1106	9	HWFVTQRNF 0.002333	12
HLA-B*08:01	1	77	86	10	KRFANPVLFP 0.002332	13
HLA-B*40:01	1	685	694	10	ASQSIIAYTM 0.002331	5.2
HLA-B*35:01	1	865	874	10	EMIAQYTSAL 0.002331	7.1
HLA-A*26:01	1	1061	1069	9	HVTYVPAQE 0.002331	7.2
HLA-B*51:01	1	1081	1089	9	DGKAHPRE 0.002331	13
HLA-A*33:01	1	3	11	9	VFLVLLPLV 0.00233	9.3
HLA-A*02:06	1	273	282	10	LLKYNENGTI 0.00233	14
HLA-A*33:01	1	683	692	10	SVASQSIIAY 0.00233	9.3
HLA-A*23:01	1	771	779	9	QDKNTQEVF 0.00233	5.8
HLA-A*23:01	1	572	581	10	AVRDPQTLEI 0.002329	5.8
HLA-B*51:01	1	1116	1125	10	NTFVSGNCDV 0.002329	13
HLA-B*51:01	1	915	924	10	ENQKLIANQF 0.002328	13
HLA-A*30:02	1	1039	1047	9	FCGKGYHLM 0.002328	15
HLA-A*02:03	1	100	109	10	IIRGWIFGTT 0.002327	12
HLA-A*68:02	1	344	352	9	FASVYAWNR 0.002327	11
HLA-B*51:01	1	348	356	9	YAWNKRKRIS 0.002327	13
HLA-B*44:02	1	1050	1059	10	PQSAPHGVVF 0.002327	5.4
HLA-A*24:02	1	168	176	9	FEYVSQPFL 0.002325	5.7
HLA-A*01:01	1	239	247	9	QTLHRSYLT 0.002325	8.8
HLA-A*01:01	1	294	303	10	SETKCTLKSF 0.002325	8.8
HLA-A*02:03	1	1013	1021	9	AEIRASANL 0.002325	12
HLA-A*03:01	1	1090	1099	10	GVFVSNGTHW 0.002324	8.4
HLA-A*02:01	1	1106	1114	9	FYEQIITT 0.002324	9.6
HLA-A*68:01	1	631	639	9	RVYSTGSNV 0.002323	12
HLA-A*24:02	1	790	799	10	PIKDFGGFNF 0.002323	5.7
HLA-A*23:01	1	1054	1062	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*57:01	1	451	459	9	RLFRKSNLK 0.002322	13
HLA-B*08:01	1	621	630	10	IHADQLTPTW 0.002322	13
HLA-A*02:03	1	1070	1078	9	KNFTTAPAI 0.002322	12
HLA-A*11:01	1	623	631	9	ADQLTPTWR 0.002321	7.2
HLA-A*32:01	1	58	66	9	FFSNVTWFH 0.00232	7.1
HLA-B*35:01	1	541	549	9	NGLTGTGVL 0.00232	7.1
HLA-A*02:06	1	309	317	9	IYQTSNFRV 0.002318	14
HLA-A*02:06	1	325	333	9	RFPNITNLC 0.002318	14
HLA-B*57:01	1	784	792	9	QIYKTPPIK 0.002318	13
HLA-B*44:02	1	405	413	9	RQIAPGQTG 0.002317	5.4
HLA-A*02:03	1	467	476	10	TEIYQAGSTP 0.002317	12
HLA-B*40:01	1	489	498	10	LQSYGFQPTY 0.002317	5.2
HLA-A*02:06	1	1091	1099	9	VFVSNGTHW 0.002317	14
HLA-A*01:01	1	388	397	10	CFTNVYADSF 0.002316	8.8
HLA-B*53:01	1	742	751	10	DSTECSNLLL 0.002316	6.4
HLA-A*31:01	1	849	857	9	AQKFNGLTV 0.002316	12
HLA-A*03:01	1	1074	1083	10	TAPAICHGDK 0.002316	8.4

HLA-A*68:02	1	162	170	9	SANNTCFEY 0.002315	11
HLA-A*01:01	1	335	343	9	FGEVFNATR 0.002315	8.8
HLA-B*57:01	1	379	388	10	VSPTKLNLDLC 0.002315	13
HLA-A*68:01	1	714	723	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	303	311	9	FTVEKGIYQ 0.002313	15
HLA-A*26:01	1	392	400	9	VYADSFVIR 0.002313	7.2
HLA-A*30:02	1	758	767	10	TQLNRALTGI 0.002313	15
HLA-A*02:03	1	824	832	9	TLADAGFIK 0.002313	12
HLA-A*30:02	1	591	599	9	GVSVITPGT 0.002312	15
HLA-B*58:01	1	494	502	9	FQPTYGVGY 0.002311	8.9
HLA-A*26:01	1	716	724	9	TISVTTEIL 0.002311	7.2
HLA-B*44:03	1	425	433	9	DFTGCVIAW 0.00231	5.6
HLA-B*58:01	1	779	787	9	FAQVKQIYK 0.002309	8.9
HLA-B*57:01	1	298	307	10	CTLKSFTVEK 0.002308	13
HLA-A*32:01	1	345	354	10	ASVYAWNRRK 0.002308	7.1
HLA-A*02:01	1	645	653	9	GCLIGAHEV 0.002308	9.7
HLA-A*23:01	1	844	852	9	RDLICAQKF 0.002308	5.8
HLA-A*68:01	1	237	245	9	RFQTLHRSY 0.002307	12
HLA-A*31:01	1	876	885	10	AGTITSGWTF 0.002307	12
HLA-B*15:01	1	945	953	9	LQDVVNQNA 0.002307	9.9
HLA-B*07:02	1	2	10	9	FVFLVLLPL 0.002305	7.8
HLA-A*26:01	1	284	293	10	DAVDCALDPL 0.002305	7.3
HLA-A*26:01	1	614	622	9	CTEVPVAIH 0.002305	7.3
HLA-B*35:01	1	951	959	9	QNAQALNTL 0.002305	7.2
HLA-A*30:02	1	55	64	10	FLPFFSNVTW 0.002304	16
HLA-A*31:01	1	75	83	9	GTKRFANPV 0.002304	12
HLA-A*02:01	1	795	803	9	GGFNFSQIL 0.002304	9.7
HLA-B*53:01	1	1072	1080	9	FTTAPAICH 0.002304	6.5
HLA-A*02:03	1	1219	1227	9	AGLIAIVMV 0.002304	12
HLA-A*68:01	1	6	14	9	VLLPLVSSQ 0.002303	12
HLA-B*40:01	1	459	467	9	KPFERDIST 0.002303	5.2
HLA-B*51:01	1	681	689	9	ARSVASQSI 0.002303	13
HLA-A*30:01	1	1007	1016	10	QLLIRAAEIR 0.002303	18
HLA-B*51:01	1	184	192	9	GNFKNREF 0.002302	13
HLA-B*07:02	1	1222	1230	9	IAIVMVTIM 0.002301	7.8
HLA-B*15:01	1	601	610	10	TSNQVAVLYQ 0.0023	9.9
HLA-A*26:01	1	1001	1009	9	LQTYVTQQL 0.0023	7.3
HLA-A*11:01	1	266	274	9	YLQPRTFLL 0.002299	7.2
HLA-A*02:06	1	501	509	9	GYQPYRVVV 0.002299	14
HLA-B*40:01	1	684	692	9	VASQSIIAY 0.002299	5.2
HLA-B*15:01	1	301	309	9	KSFTVEKGI 0.002298	9.9
HLA-B*15:01	1	877	886	10	GTITSGWTFG 0.002298	9.9
HLA-A*02:01	1	1048	1057	10	SFPQSAPHGV 0.002298	9.7
HLA-A*02:06	1	1112	1120	9	ITTDNTFVS 0.002298	14
HLA-B*51:01	1	398	407	10	VIRGDEVRQI 0.002297	13
HLA-B*15:01	1	769	778	10	VEQDKNTQEV 0.002297	9.9
HLA-B*57:01	1	866	874	9	MIAQYTSAL 0.002297	13
HLA-A*30:02	1	247	255	9	TPGDSSSGW 0.002296	16
HLA-B*51:01	1	719	727	9	VTTEILPVS 0.002296	13
HLA-B*58:01	1	854	862	9	GLTVLPLLL 0.002296	8.9
HLA-B*44:02	1	160	168	9	YSSANCTF 0.002295	5.4
HLA-B*53:01	1	216	225	10	LPQGFSALEP 0.002295	6.5
HLA-A*68:02	1	731	740	10	TSVDCTMYIC 0.002295	11
HLA-A*01:01	1	964	972	9	SSNFGAISS 0.002295	8.9
HLA-B*15:01	1	205	213	9	SKHTPINLV 0.002294	9.9
HLA-A*30:02	1	755	764	10	SFCTQLNRAL 0.002294	16
HLA-B*15:01	1	944	953	10	KLQDVVNQNA 0.002294	9.9
HLA-A*03:01	1	344	352	9	FASVYAWNR 0.002293	8.4
HLA-B*40:01	1	744	752	9	TECSNLLLQ 0.002293	5.2
HLA-B*40:01	1	816	825	10	EDLLFNKVTL 0.002293	5.2
HLA-B*15:01	1	964	973	10	SSNFGAISSV 0.002293	9.9
HLA-A*31:01	1	344	353	10	FASVYAWNRRK 0.002291	12
HLA-A*30:01	1	397	405	9	FVIRGDEVR 0.002291	18
HLA-B*51:01	1	461	470	10	FERDISTEIV 0.002291	13

HLA-A*30:02	1	510	518	9	LSFELLHAP 0.002291	16
HLA-B*51:01	1	648	657	10	IGAHEVNNNSY 0.00229	13
HLA-A*23:01	1	937	945	9	STASALGKL 0.00229	5.8
HLA-B*44:03	1	196	204	9	NIDGYFKIY 0.002287	5.6
HLA-A*02:06	1	237	246	10	RFQTLHRSYL 0.002287	14
HLA-A*01:01	1	565	573	9	DIADTTDAV 0.002287	8.9
HLA-A*11:01	1	974	983	10	LNDILSRLDK 0.002287	7.2
HLA-A*30:01	1	907	915	9	GVTQNVLYE 0.002285	19
HLA-A*30:01	1	119	128	10	IVNNATNVVI 0.002284	19
HLA-A*24:02	1	811	819	9	KRSFIEDLL 0.002284	5.8
HLA-A*31:01	1	1052	1060	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	315	323	9	FRVQPTESI 0.002283	6.5
HLA-A*02:01	1	1225	1233	9	VMVTIMLCC 0.002283	9.7
HLA-A*24:02	1	497	506	10	TYGVGYQPYR 0.002282	5.8
HLA-B*51:01	1	855	863	9	LTVLPPLLT 0.002282	13
HLA-B*44:03	1	1110	1118	9	QIITTDNTF 0.002282	5.6
HLA-A*23:01	1	71	79	9	SGTNGTKRF 0.002281	5.8
HLA-A*02:01	1	693	701	9	TMSLGVENS 0.002281	9.7
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*24:02	1	481	489	9	KGFNCYFPL 0.00228	5.8
HLA-A*68:01	1	876	885	10	AGTITSGWTF 0.00228	12
HLA-A*68:01	1	1146	1154	9	KEELDKYFK 0.00228	12
HLA-A*11:01	1	308	317	10	GIYQTSNFRV 0.002279	7.2
HLA-A*03:01	1	441	449	9	KVGGNYNYL 0.002279	8.4
HLA-B*08:01	1	631	640	10	RVYSTGSNVF 0.002279	13
HLA-B*44:02	1	223	231	9	LEPLVDLPI 0.002278	5.5
HLA-B*44:02	1	467	475	9	TEIYQAGST 0.002278	5.5
HLA-A*02:01	1	535	543	9	CVNFNFNGL 0.002278	9.7
HLA-A*33:01	1	714	722	9	NFTISVTTE 0.002278	9.4
HLA-A*02:03	1	800	808	9	SQILPDPSK 0.002278	12
HLA-B*57:01	1	800	808	9	SQILPDPSK 0.002278	13
HLA-A*02:06	1	868	877	10	AQYTSALLAG 0.002278	14
HLA-A*30:02	1	1165	1173	9	DISGINASV 0.002278	16
HLA-A*30:01	1	64	72	9	WFHAIHVSG 0.002277	19
HLA-B*57:01	1	702	710	9	VAYSNNNSIA 0.002277	13
HLA-A*30:02	1	1027	1036	10	SECVLGQSKR 0.002277	16
HLA-B*53:01	1	748	756	9	NLLLQYGSF 0.002276	6.5
HLA-A*30:02	1	229	237	9	LPIGINITR 0.002275	16
HLA-A*68:02	1	627	635	9	TPTWRVYST 0.002275	11
HLA-A*24:02	1	851	859	9	KFNGLTVLP 0.002275	5.8
HLA-B*44:02	1	983	992	10	KVEAEVQIDR 0.002275	5.5
HLA-A*30:01	1	997	1006	10	RLQSLQTYVT 0.002275	19
HLA-A*01:01	1	1005	1013	9	VTQQLIRAA 0.002275	8.9
HLA-B*58:01	1	978	986	9	LSRLDKVEA 0.002274	9.0
HLA-B*58:01	1	144	153	10	YYHKNNKSWM 0.002273	9.0
HLA-B*44:03	1	295	303	9	ETKCTLKSF 0.002272	5.6
HLA-A*68:01	1	506	514	9	RVVLSFEL 0.002272	12
HLA-A*68:01	1	527	535	9	STNLVKKNC 0.002272	12
HLA-A*33:01	1	51	59	9	TQDLFLPFF 0.002271	9.4
HLA-A*30:01	1	399	407	9	IRGDEVQRQI 0.002271	19
HLA-A*26:01	1	711	719	9	IPTNFTISV 0.002271	7.3
HLA-A*31:01	1	715	723	9	FTISVTTEI 0.002271	12
HLA-A*02:03	1	530	538	9	LVKNKCVNF 0.00227	12
HLA-A*30:02	1	615	623	9	TEVPVAIHA 0.00227	16
HLA-A*30:01	1	811	819	9	KRSFIEDLL 0.00227	19
HLA-A*23:01	1	1048	1056	9	SFPQSAPHG 0.00227	5.9
HLA-B*35:01	1	1135	1144	10	YDPLQPELDS 0.00227	7.2
HLA-A*11:01	1	340	348	9	NATRFASVY 0.002269	7.2
HLA-B*58:01	1	634	643	10	STGSNVFQTR 0.002269	9.0
HLA-A*01:01	1	365	374	10	LYNSASFSTF 0.002268	8.9
HLA-B*57:01	1	1033	1041	9	QSKRVDFCG 0.002268	13
HLA-A*03:01	1	879	887	9	ITSGWTFGA 0.002267	8.5
HLA-A*23:01	1	462	470	9	ERDISTEIIY 0.002266	5.9

HLA-A*30:01	1	893	901	9	IPFAMQMAY 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	253	262	10	SGWTAGAAAY 0.002265	8.5
HLA-A*01:01	1	920	928	9	IANQFNSAI 0.002265	8.9
HLA-A*02:03	1	5	13	9	LVLLPLVSS 0.002264	12
HLA-A*68:02	1	332	341	10	LCPFGEVFNA 0.002264	11
HLA-A*30:01	1	414	422	9	NIADYNYKL 0.002263	19
HLA-A*33:01	1	947	955	9	DVVNQNAQA 0.002263	9.4
HLA-B*08:01	1	625	633	9	QLTPTWRVY 0.002262	14
HLA-B*57:01	1	1112	1121	10	ITTDNTFVSG 0.002262	13
HLA-A*02:01	1	215	224	10	GLPQGFSALE 0.002261	9.8
HLA-A*02:06	1	637	646	10	SNVFAQTRAGC 0.002261	14
HLA-B*44:03	1	153	162	10	MESEFRVYSS 0.00226	5.6
HLA-A*11:01	1	251	259	9	SSSGWTAGA 0.00226	7.2
HLA-A*31:01	1	1168	1176	9	GINASVVNI 0.00226	12
HLA-B*08:01	1	500	509	10	VGYPYRVVV 0.002258	14
HLA-A*30:01	1	725	733	9	PVSMKTCSV 0.002258	19
HLA-B*57:01	1	148	157	10	NNKSWMESEF 0.002257	13
HLA-B*44:02	1	179	187	9	LEGGQGNFK 0.002257	5.5
HLA-A*26:01	1	593	602	10	SVITPGTNTS 0.002257	7.3
HLA-A*30:02	1	851	860	10	KFNGLTVLPP 0.002257	16
HLA-A*68:02	1	1258	1267	10	SEPVLKGVKL 0.002257	11
HLA-B*44:03	1	160	168	9	YSSANNCTF 0.002255	5.7
HLA-B*57:01	1	502	510	9	YQPYRVVVL 0.002255	13
HLA-A*26:01	1	879	887	9	ITSGWTFGA 0.002255	7.3
HLA-A*32:01	1	264	273	10	VGYLQPRTF 0.002254	7.2
HLA-A*01:01	1	299	307	9	TLKSFTVEK 0.002254	9.0
HLA-A*31:01	1	363	371	9	SVLYNSASF 0.002254	12
HLA-A*24:02	1	550	559	10	TESNKKFLPF 0.002254	5.8
HLA-A*02:06	1	35	44	10	GVYYPDKVFR 0.002253	14
HLA-A*30:02	1	134	143	10	QFCNDPFLGV 0.002253	16
HLA-B*07:02	1	810	818	9	SKRSFIEDL 0.002253	7.9
HLA-A*30:01	1	871	879	9	TSALLAGTI 0.002253	19
HLA-B*51:01	1	962	970	9	QLSSNFGAI 0.002253	13
HLA-B*08:01	1	596	605	10	TPGTNTSNQV 0.002252	14
HLA-A*30:01	1	897	906	10	MQMAYRFNGI 0.002252	19
HLA-A*31:01	1	1137	1146	10	PLQPELDSFK 0.002251	12
HLA-A*02:01	1	722	730	9	EILPVSMTK 0.00225	9.8
HLA-B*15:01	1	777	785	9	EVFAQVKQI 0.00225	10
HLA-A*30:02	1	865	873	9	EMIAQY TSA 0.00225	16
HLA-A*11:01	1	490	499	10	QSYGFQPTYG 0.002247	7.2
HLA-B*15:01	1	492	500	9	YGFQPTYGV 0.002247	10
HLA-A*02:03	1	795	803	9	GGFNFSQIL 0.002245	12
HLA-A*68:02	1	89	97	9	GVYFASTEK 0.002244	11
HLA-A*24:02	1	504	513	10	PYRVVLSFE 0.002244	5.8
HLA-A*01:01	1	624	632	9	DQLTPTWRV 0.002244	9.0
HLA-A*26:01	1	694	702	9	MSLGVENSV 0.002244	7.4
HLA-A*33:01	1	889	897	9	AALQIPFAM 0.002244	9.4
HLA-A*02:06	1	1100	1108	9	FVTQRNFYE 0.002244	15
HLA-A*24:02	1	198	206	9	DGYFKIYSK 0.002243	5.8
HLA-B*58:01	1	504	512	9	PYRVVLSF 0.002243	9.0
HLA-A*68:02	1	891	900	10	LQIPFAMQMA 0.002243	11
HLA-B*44:02	1	212	220	9	LVRGLPQGF 0.002242	5.5
HLA-B*08:01	1	1002	1010	9	QTYVTQQLI 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	1042	1050	9	KGYHLM SFP 0.002241	16
HLA-B*57:01	1	129	137	9	KVCEFQFCN 0.00224	13
HLA-A*02:03	1	297	305	9	KCTLKSFTV 0.00224	12
HLA-A*30:01	1	462	470	9	ERDISTE IY 0.00224	19
HLA-A*02:03	1	513	522	10	ELLHAPATVC 0.00224	12
HLA-A*02:06	1	267	275	9	LQPRTFLLK 0.002239	15
HLA-A*30:01	1	518	526	9	PATVCGPKK 0.002239	19
HLA-B*58:01	1	1053	1061	9	APHGVVFLH 0.002239	9.0
HLA-B*57:01	1	208	216	9	TPINLVRGL 0.002237	13

HLA-A*02:01	1	162	171	10	SANNCTFEYV 0.002236	9.8
HLA-B*08:01	1	702	710	9	VAYSNNSIA 0.002236	14
HLA-A*02:06	1	929	938	10	GKIQDLSLST 0.002235	15
HLA-A*33:01	1	28	37	10	YNSFTRGVY 0.002233	9.5
HLA-B*35:01	1	79	87	9	FANPVLFPN 0.002233	7.3
HLA-A*23:01	1	424	433	10	DDFTGCVIAW 0.002233	5.9
HLA-A*68:01	1	638	646	9	NVFQTRAGC 0.002233	12
HLA-A*68:01	1	634	642	9	STGSNVFQT 0.002232	12
HLA-A*30:01	1	755	764	10	SFCTQLNRAL 0.002232	19
HLA-A*30:02	1	1037	1046	10	VDFCGKGYHL 0.002232	16
HLA-A*03:01	1	877	885	9	GTITSGWTF 0.002231	8.5
HLA-B*44:02	1	289	297	9	ALDPLSETK 0.00223	5.5
HLA-B*35:01	1	1189	1197	9	NLNESLIDL 0.002227	7.3
HLA-A*68:02	1	1213	1221	9	IWLGFIAGL 0.002227	11
HLA-A*02:01	1	1105	1113	9	NFYEPQIIT 0.002226	9.8
HLA-B*08:01	1	239	247	9	QTLHRSYLT 0.002225	14
HLA-A*30:01	1	174	182	9	PFLMDLEGK 0.002223	19
HLA-B*51:01	1	365	374	10	LYNSASFSTF 0.002223	13
HLA-A*30:02	1	711	719	9	IPTNFTISV 0.002223	16
HLA-B*51:01	1	969	977	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	755	764	10	SFCTQLNRAL 0.002222	8.0
HLA-A*03:01	1	1173	1182	10	VVNIQKEIDR 0.002222	8.5
HLA-A*68:02	1	989	998	10	QIDRLITGRL 0.002221	11
HLA-A*02:03	1	1022	1030	9	AATKMSECV 0.002221	12
HLA-A*33:01	1	1180	1188	9	IDRLNEVAK 0.002221	9.5
HLA-A*01:01	1	69	77	9	HVSGTNGTK 0.002219	9.1
HLA-A*33:01	1	167	176	10	TFEYVSQPFL 0.002217	9.5
HLA-A*33:01	1	1089	1098	10	EGVFVSNNGH 0.002217	9.5
HLA-B*08:01	1	278	286	9	ENGTITDAV 0.002216	14
HLA-A*30:01	1	366	374	9	YNSASFSTF 0.002216	19
HLA-A*32:01	1	461	469	9	FERDISTEI 0.002216	7.3
HLA-A*30:02	1	823	831	9	VTLADAGFI 0.002216	16
HLA-A*01:01	1	964	973	10	SSNFGAISSV 0.002216	9.1
HLA-A*02:06	1	391	400	10	NVYADSFVIR 0.002214	15
HLA-A*31:01	1	765	773	9	TGIAVEQDK 0.002214	12
HLA-A*68:01	1	763	771	9	ALTGIAVEQ 0.002213	12
HLA-A*02:06	1	1138	1146	9	LQPELDSFK 0.002213	15
HLA-B*08:01	1	168	177	10	FEYVSQPFLM 0.002211	14
HLA-A*30:01	1	571	580	10	DAVRDPQTL 0.002211	19
HLA-A*30:01	1	227	235	9	VDLPIGINI 0.00221	19
HLA-A*30:02	1	768	776	9	AVEQDKNTQ 0.00221	16
HLA-A*11:01	1	779	788	10	FAQVKQIYKT 0.00221	7.3
HLA-A*31:01	1	573	581	9	VRDPQTLEI 0.002209	12
HLA-A*30:01	1	695	704	10	SLGVENSVA 0.002209	19
HLA-A*31:01	1	21	30	10	RTQLPPAYTN 0.002208	12
HLA-A*31:01	1	546	555	10	TGVLTESNKK 0.002208	12
HLA-A*30:02	1	549	557	9	LTESNKKFL 0.002208	16
HLA-B*44:03	1	922	930	9	NQFNSAIGK 0.002208	5.7
HLA-A*68:01	1	948	956	9	VVNQNAQAL 0.002208	12
HLA-A*32:01	1	75	84	10	GTKRFANPVL 0.002207	7.3
HLA-A*30:02	1	969	978	10	AISSVLNDIL 0.002207	16
HLA-B*08:01	1	148	157	10	NNKSWMESEF 0.002206	14
HLA-B*57:01	1	937	946	10	STASALGKLQ 0.002206	14
HLA-A*02:06	1	1067	1076	10	AQEKNFTTAP 0.002206	15
HLA-A*02:01	1	472	480	9	AGSTPCNGV 0.002205	9.9
HLA-B*44:02	1	581	589	9	ILDITPCSF 0.002205	5.6
HLA-A*30:01	1	1082	1091	10	GKAHFPREGV 0.002205	19
HLA-A*30:02	1	450	458	9	YRLFRRKSNL 0.002204	16
HLA-B*57:01	1	704	712	9	YSNNSIAIP 0.002204	14
HLA-B*07:02	1	862	870	9	LTDEMIAQY 0.002204	8.0
HLA-A*33:01	1	212	220	9	LVRGLPQGF 0.002203	9.5
HLA-A*01:01	1	1101	1109	9	VTQRNFYEP 0.002203	9.1
HLA-A*32:01	1	315	323	9	FRVQPTESI 0.002202	7.3
HLA-B*51:01	1	1221	1230	10	LIAIVMVTIM 0.002202	13



HLA-A*03:01	1	23	32	10	QLPPAYTNSF 0.002201	8.6
HLA-A*68:02	1	500	509	10	VGYPYRVVV 0.002201	11
HLA-A*30:02	1	1048	1057	10	SFPQSAPHGV 0.002201	16
HLA-A*01:01	1	631	639	9	RVYSTGSNV 0.0022	9.1
HLA-A*30:02	1	939	948	10	ASALGKLQDV 0.0022	16
HLA-B*08:01	1	64	72	9	WFHAIHVSG 0.002199	14
HLA-B*08:01	1	505	514	10	YRVVLSFEL 0.002199	14
HLA-A*02:03	1	1213	1222	10	IWLGFIAGLI 0.002199	12
HLA-B*58:01	1	12	21	10	SSQCVNLTR 0.002198	9.1
HLA-B*44:02	1	720	729	10	TTEILPVSM 0.002198	5.6
HLA-A*30:01	1	1154	1163	10	KNHTSPDVL 0.002198	19
HLA-A*02:03	1	67	76	10	AIHVSGTNGT 0.002196	12
HLA-B*08:01	1	340	348	9	NATRFASVY 0.002195	14
HLA-B*07:02	1	453	461	9	FRKSNLKP 0.002195	8.1
HLA-A*02:01	1	1189	1198	10	NLNESLIDLQ 0.002195	9.9
HLA-A*68:02	1	637	646	10	SNVFTTRAGC 0.002194	11
HLA-A*02:01	1	824	833	10	TLADAGFIKQ 0.002194	9.9
HLA-A*02:06	1	721	730	10	TEILPVSMTK 0.002192	15
HLA-A*68:01	1	842	850	9	AARDLICAQ 0.002191	12
HLA-A*32:01	1	969	978	10	AISSVNDIL 0.002191	7.3
HLA-B*40:01	1	95	103	9	TEKSNIIRG 0.00219	5.3
HLA-A*33:01	1	513	521	9	ELLHAPATV 0.00219	9.5
HLA-A*02:06	1	258	266	9	GAAAYVGY 0.002189	15
HLA-A*26:01	1	412	420	9	TGNIADYNY 0.002189	7.5
HLA-A*01:01	1	1078	1086	9	ICHDGKAHF 0.002189	9.1
HLA-A*26:01	1	344	352	9	FASVYAWNR 0.002188	7.5
HLA-B*08:01	1	710	719	10	AIPTNFTISV 0.002188	14
HLA-B*57:01	1	933	941	9	DSLSSTASA 0.002188	14
HLA-B*51:01	1	1200	1209	10	LGKYEYIKW 0.002188	13
HLA-A*02:06	1	280	288	9	GTITDAVDC 0.002187	15
HLA-B*51:01	1	375	384	10	KCYGVSPTKL 0.002187	13
HLA-B*58:01	1	462	470	9	ERDISTEYI 0.002187	9.1
HLA-A*30:02	1	847	855	9	ICAQKFNGL 0.002187	16
HLA-A*30:01	1	894	902	9	PFAMQMAYR 0.002187	19
HLA-A*02:06	1	1153	1161	9	FKNHTSPDV 0.002187	15
HLA-B*07:02	1	1165	1173	9	DISGINASV 0.002187	8.1
HLA-B*15:01	1	912	921	10	VLYENQKLIA 0.002186	11
HLA-B*15:01	1	1188	1197	10	KNLNESLIDL 0.002186	11
HLA-B*57:01	1	531	540	10	VKNKCVNFN 0.002184	14
HLA-B*08:01	1	864	873	10	DEMIAQY TSA 0.002184	14
HLA-A*30:02	1	93	102	10	ASTEKSNIIR 0.002183	16
HLA-A*30:02	1	381	389	9	PTKLNDFCF 0.002183	16
HLA-A*02:03	1	723	732	10	ILPVSMTKTS 0.002183	12
HLA-B*51:01	1	1191	1200	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-A*30:02	1	75	84	10	GTRFANPVL 0.002182	16
HLA-B*15:01	1	341	349	9	ATRFASVYA 0.002182	11
HLA-B*57:01	1	13	21	9	SQCVNLTR 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	326	335	10	FPNITNLCPF 0.002181	7.5
HLA-A*26:01	1	776	785	10	QEVFAQVKQI 0.002181	7.5
HLA-B*07:02	1	281	290	10	TITDAVDCAL 0.00218	8.1
HLA-B*53:01	1	1093	1101	9	VSNTHWFV 0.00218	6.6
HLA-B*58:01	1	1224	1232	9	IVMVTIMLC 0.00218	9.1
HLA-A*02:01	1	1229	1237	9	IMLCMTSC 0.00218	9.9
HLA-A*68:02	1	35	43	9	GYYYPDKVF 0.002179	11
HLA-B*51:01	1	376	384	9	CYGVSPTKL 0.002179	13
HLA-B*51:01	1	499	508	10	GVGYPYRVV 0.002179	13
HLA-B*07:02	1	676	684	9	NSPRRARSV 0.002178	8.1
HLA-A*02:03	1	700	709	10	NSVAYSNN SI 0.002178	12
HLA-A*02:03	1	1120	1129	10	SGNCDVVI GI 0.002178	12
HLA-A*26:01	1	205	213	9	SKHTPINLV 0.002177	7.5
HLA-A*68:02	1	846	855	10	LICAQKFNGL 0.002177	11
HLA-A*23:01	1	997	1005	9	RLQSLQTYV 0.002177	6.0

HLA-B*07:02	1	1098	1106	9	HWFVTQRNF 0.002177	8.1
HLA-A*11:01	1	194	202	9	FKNIDGYFK 0.002176	7.3
HLA-A*30:01	1	514	522	9	LLHAPATVC 0.002176	19
HLA-A*30:01	1	819	828	10	LFNKVTLADA 0.002176	19
HLA-A*68:02	1	856	865	10	TVLPPLLTDE 0.002176	11
HLA-B*57:01	1	1185	1194	10	EVAKNLNESL 0.002176	14
HLA-B*58:01	1	1194	1203	10	LIDLQELGKY 0.002175	9.1
HLA-A*33:01	1	1200	1208	9	LGKYEQYIK 0.002175	9.6
HLA-A*03:01	1	944	953	10	KLQDVVNQNA 0.002174	8.6
HLA-A*30:01	1	63	72	10	TWFHAIHVSQ 0.002173	19
HLA-B*08:01	1	381	389	9	PTKLNLCF 0.002173	14
HLA-B*08:01	1	1226	1234	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*68:02	1	75	84	10	GTKRFANPVL 0.002172	11
HLA-A*02:06	1	316	325	10	RVQPTESIVR 0.002172	15
HLA-A*68:01	1	321	329	9	ESIVRFPNI 0.002172	12
HLA-B*08:01	1	373	381	9	TFKCYGVSP 0.002172	14
HLA-A*30:01	1	599	607	9	TNTSNQVAV 0.002172	19
HLA-B*58:01	1	894	903	10	PFAMQMAYRF 0.002172	9.1
HLA-B*44:03	1	475	483	9	TPCNGVKGF 0.002171	5.8
HLA-A*68:01	1	556	565	10	FLPFQQFGRD 0.002171	12
HLA-A*30:02	1	1194	1202	9	LIDLQELGK 0.002171	16
HLA-B*44:03	1	155	164	10	SEFRVYSSAN 0.00217	5.8
HLA-A*68:01	1	535	543	9	CVNFNFNGL 0.00217	12
HLA-A*30:01	1	753	762	10	YGSFCTQLNR 0.00217	19
HLA-A*26:01	1	919	927	9	LIANQFNSA 0.00217	7.5
HLA-A*30:02	1	71	80	10	SGTNGTKRFA 0.002169	16
HLA-A*33:01	1	1061	1069	9	HVTYVPAQE 0.002169	9.6
HLA-B*15:01	1	1104	1112	9	RNFYEPQII 0.002169	11
HLA-A*03:01	1	302	311	10	SFTVEKGIYQ 0.002168	8.6
HLA-A*30:02	1	908	916	9	VTQNVLYEN 0.002168	16
HLA-B*58:01	1	171	180	10	VSQPFLMDLE 0.002167	9.2
HLA-A*68:02	1	721	730	10	TEILPVSMTK 0.002167	11
HLA-B*15:01	1	778	787	10	VFAQVKQIYK 0.002167	11
HLA-A*68:02	1	1222	1231	10	IAIVMVTIML 0.002167	11
HLA-A*30:01	1	361	369	9	DYSVLYNSA 0.002166	19
HLA-B*44:03	1	152	160	9	WMESEFRVY 0.002165	5.8
HLA-B*58:01	1	438	446	9	LDSKVGNGY 0.002165	9.2
HLA-A*02:01	1	920	928	9	IANQFNSAI 0.002165	9.9
HLA-B*58:01	1	1012	1021	10	AAEIRASANL 0.002165	9.2
HLA-A*30:01	1	215	223	9	GLPQGFSA 0.002164	19
HLA-A*26:01	1	1050	1059	10	PQSAPHGVVF 0.002164	7.5
HLA-B*44:02	1	1145	1153	9	FKEELDKYF 0.002164	5.6
HLA-B*58:01	1	16	24	9	VNLTRTQL 0.002162	9.2
HLA-A*02:01	1	490	498	9	QSYGFQPTY 0.002161	10
HLA-A*02:03	1	502	511	10	YQPYRVVLS 0.002161	12
HLA-B*58:01	1	742	750	9	DSTECSNLL 0.002161	9.2
HLA-B*57:01	1	543	551	9	LTGTGVLTE 0.00216	14
HLA-B*57:01	1	731	740	10	TSVDCTMYIC 0.00216	14
HLA-B*35:01	1	1144	1153	10	SFKEELDKYF 0.00216	7.4
HLA-A*30:02	1	321	329	9	ESIVRFPNI 0.002158	16
HLA-A*68:02	1	362	371	10	YSVLYNSASF 0.002158	11
HLA-A*31:01	1	486	494	9	YFPLQSYGF 0.002158	12
HLA-A*03:01	1	680	688	9	RARSVASQS 0.002157	8.6
HLA-B*44:02	1	195	203	9	KNIDGYFKI 0.002156	5.6
HLA-B*08:01	1	339	348	10	FNATRFASVY 0.002156	14
HLA-A*02:03	1	1018	1026	9	SANLAATKM 0.002156	12
HLA-A*30:01	1	1204	1213	10	EQYIKWPWYI 0.002156	19
HLA-A*23:01	1	35	44	10	GVYYPDKVFR 0.002154	6.0
HLA-A*30:01	1	758	767	10	TQLNRALTGI 0.002154	19
HLA-A*30:01	1	865	873	9	EMIAQYTS 0.002154	19
HLA-A*30:02	1	891	900	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	462	470	9	ERDISTEYI 0.002153	5.4

HLA-A*02:01	1	800	808	9	SQILPDP SK 0.002153	10
HLA-B*57:01	1	500	509	10	VGYQPYRVVV 0.002152	14
HLA-A*33:01	1	526	534	9	KSTNLVKNK 0.002152	9.6
HLA-B*07:02	1	728	737	10	MTKTSVDCTM 0.002152	8.2
HLA-A*02:06	1	890	898	9	ALQIPFAMQ 0.002152	15
HLA-B*51:01	1	1092	1101	10	FVSNGTHWFV 0.002152	13
HLA-B*57:01	1	904	912	9	NGIGVTQNV 0.002151	14
HLA-A*33:01	1	1209	1217	9	WPWYIWLGF 0.002151	9.6
HLA-A*11:01	1	893	902	10	IPFAMQMAYR 0.002149	7.3
HLA-A*68:02	1	1101	1109	9	VTQRNFYEP 0.002149	11
HLA-A*30:01	1	633	641	9	YSTGSNVFQ 0.002148	19
HLA-A*33:01	1	1033	1042	10	QSKRVDFCGK 0.002148	9.6
HLA-B*51:01	1	1084	1093	10	AHFPREGVFV 0.002148	13
HLA-A*24:02	1	1145	1153	9	FKEELDKYF 0.002148	5.9
HLA-A*24:02	1	244	252	9	SYLTPGDSS 0.002147	5.9
HLA-A*33:01	1	344	353	10	FASVYAWNRK 0.002147	9.6
HLA-A*11:01	1	1002	1010	9	QTYVTQQLI 0.002147	7.3
HLA-B*57:01	1	260	269	10	AAYYVGYLQP 0.002146	14
HLA-A*02:01	1	591	599	9	GVSVITPGT 0.002146	10
HLA-A*68:02	1	721	729	9	TEILPVSMT 0.002146	11
HLA-A*33:01	1	866	874	9	MIAQYTSAL 0.002146	9.6
HLA-A*02:03	1	203	212	10	IYSKHTPINL 0.002145	12
HLA-B*53:01	1	294	303	10	SETKCTLKSF 0.002145	6.6
HLA-A*32:01	1	970	978	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	1121	1129	9	GNCDEVVIGI 0.002144	16
HLA-A*30:02	1	48	56	9	LHSTQDLFL 0.002143	16
HLA-A*68:02	1	824	832	9	TLADAGFIK 0.002143	11
HLA-A*02:03	1	291	300	10	DPLSEKCTL 0.002142	12
HLA-A*01:01	1	842	851	10	AARDLICAQK 0.002142	9.2
HLA-A*01:01	1	843	852	10	ARDLICAQKF 0.002142	9.2
HLA-A*30:02	1	672	681	10	QTQTNSPRRA 0.002141	16
HLA-A*02:01	1	685	693	9	ASQSIIAYT 0.002141	10
HLA-B*35:01	1	779	787	9	FAQVKQIYK 0.002141	7.4
HLA-A*30:01	1	968	977	10	GAISSVLNDI 0.002141	19
HLA-A*02:06	1	288	297	10	CALDPLSETK 0.00214	15
HLA-B*07:02	1	954	963	10	QALNTLVKQL 0.00214	8.2
HLA-B*57:01	1	809	818	10	PSKRSEFIEDL 0.002138	14
HLA-A*24:02	1	159	167	9	VYSSANNCT 0.002136	6.0
HLA-A*01:01	1	293	302	10	LSEKCTLKS 0.002136	9.2
HLA-A*30:01	1	764	773	10	LTGIAVEQDK 0.002136	19
HLA-A*23:01	1	1030	1039	10	VLGQSKRVDF 0.002136	6.0
HLA-A*32:01	1	1217	1225	9	FIAGLIAIIV 0.002136	7.4
HLA-A*02:03	1	99	108	10	NIIRGWIFGT 0.002135	12
HLA-A*68:01	1	392	401	10	VYADSFVIRG 0.002135	12
HLA-B*58:01	1	543	551	9	LTGTGVLTE 0.002135	9.2
HLA-A*01:01	1	718	726	9	SVTTEILPV 0.002135	9.2
HLA-B*08:01	1	725	733	9	PVSMTKTSV 0.002135	14
HLA-A*32:01	1	812	821	10	RSFIEDLLFN 0.002134	7.4
HLA-A*03:01	1	825	834	10	LADAGFIKQY 0.002133	8.6
HLA-A*02:03	1	1224	1232	9	IVMVTIMLC 0.002133	12
HLA-A*01:01	1	144	152	9	YYHKNNKSW 0.002132	9.3
HLA-A*68:01	1	507	515	9	VVLSFELL 0.002132	12
HLA-A*68:02	1	609	617	9	YQGVNCTEV 0.002132	11
HLA-A*68:02	1	888	897	10	GAAIQIPFAM 0.002132	11
HLA-B*58:01	1	390	399	10	TNVYADSFVI 0.002131	9.2
HLA-A*02:03	1	547	556	10	GVLTESNKKF 0.002131	12
HLA-A*30:01	1	615	623	9	TEVPVAIHA 0.002131	19
HLA-B*07:02	1	683	692	10	SVASQSIIAY 0.002131	8.2
HLA-A*03:01	1	944	952	9	KLQDVVNQN 0.002131	8.7
HLA-A*23:01	1	1063	1071	9	TYVPAQEKNI 0.002131	6.0
HLA-A*01:01	1	321	329	9	ESIVRFPNI 0.00213	9.3
HLA-A*23:01	1	95	104	10	TEKSNIIIRGW 0.002129	6.0
HLA-B*44:02	1	258	266	9	GAAAYYVGY 0.002129	5.6
HLA-A*33:01	1	823	832	10	VTLADAGFIK 0.002129	9.7

HLA-B*44:02	1	889	897	9	AALQIPFAM	0.002129	5.6
HLA-B*15:01	1	729	737	9	TKTSVDCTM	0.002128	11
HLA-A*11:01	1	890	898	9	ALQIPFAMQ	0.002127	7.4
HLA-A*30:01	1	234	242	9	NITRFQTLH	0.002126	19
HLA-B*51:01	1	585	593	9	TPCSFGGVS	0.002126	13
HLA-A*30:02	1	871	879	9	TSALLAGTI	0.002126	16
HLA-A*03:01	1	995	1004	10	TGRLQSLQTY	0.002125	8.7
HLA-A*24:02	1	381	389	9	PTKLNDLCP	0.002124	6.0
HLA-B*40:01	1	800	809	10	SQILPDPSKP	0.002124	5.4
HLA-B*15:01	1	306	315	10	EKGIYQTSNF	0.002123	11
HLA-A*30:02	1	365	373	9	LYNSASFST	0.002122	16
HLA-B*58:01	1	393	401	9	YADSFVIRG	0.002122	9.3
HLA-A*31:01	1	632	640	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	714	723	10	NFTISVTTEI	0.002121	14
HLA-B*44:03	1	1092	1100	9	FVSNNGTHWF	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	484	492	9	NCYFPLQSY	0.002116	15
HLA-A*30:01	1	256	264	9	TAGAAAYYV	0.002115	19
HLA-B*51:01	1	450	458	9	YRLFRKSNL	0.002115	14
HLA-A*02:03	1	780	789	10	AQVKQIYKTP	0.002114	12
HLA-A*68:01	1	995	1004	10	TGRLQSLQTY	0.002114	12
HLA-A*26:01	1	1005	1013	9	VTQQLIRAA	0.002114	7.6
HLA-A*30:01	1	1097	1106	10	THWFVTQRNF	0.002114	19
HLA-B*07:02	1	1203	1211	9	YEQYIKWPW	0.002114	8.2
HLA-A*02:06	1	317	325	9	VQPTESIVR	0.002113	15
HLA-A*02:06	1	848	857	10	CAQKFNGLTV	0.002113	15
HLA-B*07:02	1	513	521	9	ELLHAPATV	0.002112	8.2
HLA-A*30:01	1	989	998	10	QIDRLITGRL	0.002112	19
HLA-B*35:01	1	301	310	10	KSFTVEKGIY	0.002111	7.4
HLA-B*15:01	1	810	818	9	SKRSFIEDL	0.002111	11
HLA-A*30:01	1	1142	1151	10	LDSFKEELDK	0.002111	19
HLA-A*02:01	1	115	123	9	QSLIVNNA	0.00211	11
HLA-A*11:01	1	554	562	9	KKFLPFQFQ	0.00211	7.4
HLA-B*51:01	1	978	986	9	LSRLDKVEA	0.00211	14
HLA-B*53:01	1	184	192	9	GNFKNLREF	0.002109	6.7
HLA-B*57:01	1	604	612	9	QVAVLYQGV	0.002109	14
HLA-B*58:01	1	12	20	9	SSQCVNLT	0.002108	9.3
HLA-A*02:01	1	630	639	10	WRVYSTGSNV	0.002108	11
HLA-B*40:01	1	631	640	10	RVYSTGSNVF	0.002108	5.4
HLA-B*58:01	1	911	919	9	NVLYENQKL	0.002108	9.3
HLA-B*35:01	1	973	981	9	VLNDILSRL	0.002108	7.4
HLA-B*53:01	1	1057	1065	9	VVFLHVTVY	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	507	516	10	VVLSFELLH	0.002107	9.7
HLA-A*68:01	1	685	693	9	ASQSIIAYT	0.002107	12
HLA-A*03:01	1	1002	1010	9	QTYVTQQLI	0.002107	8.7
HLA-B*44:03	1	315	323	9	FRVQPTESI	0.002106	5.8
HLA-A*01:01	1	451	459	9	RLFRKSNLK	0.002106	9.3
HLA-A*30:01	1	648	657	10	IGAHEVNNSY	0.002106	19
HLA-A*23:01	1	793	802	10	DFGGFNFSQI	0.002106	6.0
HLA-B*44:03	1	1200	1209	10	LGKYEQYIKW	0.002106	5.8
HLA-A*30:01	1	1174	1182	9	VNIQKEIDR	0.002105	19
HLA-B*44:02	1	1259	1267	9	EPVLKGVKL	0.002105	5.7
HLA-B*44:03	1	816	825	10	EDLLFNKVTL	0.002104	5.8
HLA-A*68:02	1	1117	1125	9	TFVSGNCDV	0.002104	11
HLA-A*03:01	1	906	914	9	IGVTQNVLY	0.002103	8.7
HLA-B*07:02	1	51	59	9	TQDLFLPFF	0.002102	8.2
HLA-B*57:01	1	783	792	10	KQIYKTPPIK	0.002102	14
HLA-A*26:01	1	195	203	9	KNIDGYFKI	0.002101	7.6
HLA-A*02:06	1	369	377	9	ASFSTFKCY	0.002101	15
HLA-A*30:01	1	892	901	10	QIPFAMQMAY	0.002101	19

HLA-A*30:02	1	15	23	9	CVNLTTRTQ 0.0021	16
HLA-B*53:01	1	102	110	9	RGWIFGTTL 0.0021	6.7
HLA-B*15:01	1	326	335	10	FPNITNLCPF 0.0021	11
HLA-A*68:01	1	892	900	9	QIPFAMQMA 0.0021	12
HLA-A*02:03	1	1105	1113	9	NFYEQIIT 0.0021	12
HLA-A*02:01	1	1039	1047	9	FCGKGYHLM 0.002098	11
HLA-B*58:01	1	345	353	9	ASVYAWNRK 0.002097	9.3
HLA-A*03:01	1	509	517	9	VLSFELLHA 0.002097	8.7
HLA-A*02:06	1	1078	1086	9	ICHDGKAHF 0.002097	15
HLA-B*40:01	1	410	418	9	GQTGNIADY 0.002096	5.4
HLA-A*26:01	1	506	514	9	RVVVSFEL 0.002096	7.6
HLA-A*24:02	1	800	808	9	SQILPDPSK 0.002096	6.0
HLA-B*51:01	1	346	355	10	SVYAWNRKRI 0.002095	14
HLA-A*24:02	1	450	458	9	YRLFRRKSNL 0.002095	6.0
HLA-A*23:01	1	893	901	9	IPFAMQMAY 0.002094	6.1
HLA-A*68:02	1	704	712	9	YSNNSIAIP 0.002093	11
HLA-A*02:01	1	874	883	10	LLAGTITSGW 0.002093	11
HLA-B*07:02	1	325	334	10	RFPNITNLCP 0.002092	8.3
HLA-A*02:01	1	853	861	9	NGLTVLPL 0.002092	11
HLA-A*33:01	1	877	885	9	GTITSGWTF 0.002092	9.7
HLA-B*53:01	1	34	43	10	RGVYYPDKVF 0.002091	6.7
HLA-B*08:01	1	551	560	10	ESNKKFLPFQ 0.002091	14
HLA-B*35:01	1	808	816	9	KPSKRSEFIE 0.002091	7.5
HLA-A*26:01	1	1203	1212	10	YEQYIKWPWY 0.002091	7.6
HLA-A*68:02	1	8	16	9	LPLVSSQCV 0.00209	11
HLA-B*08:01	1	75	84	10	GTKRFANPVL 0.00209	14
HLA-A*30:01	1	442	451	10	VGGNYNYLYR 0.00209	19
HLA-B*35:01	1	173	182	10	QPFMLDLEGK 0.002089	7.5
HLA-B*44:03	1	1018	1026	9	SANLAATKM 0.002089	5.8
HLA-A*30:01	1	485	494	10	CYFPLQSYGF 0.002088	19
HLA-A*30:01	1	635	644	10	TGSNVFQTRA 0.002088	19
HLA-A*32:01	1	811	819	9	KRSFIEDLL 0.002088	7.5
HLA-B*57:01	1	119	128	10	IVNATNVVI 0.002087	14
HLA-A*02:06	1	400	408	9	RGDEVROI 0.002087	15
HLA-A*33:01	1	1132	1141	10	NTVYDPLQPE 0.002087	9.7
HLA-B*44:02	1	1187	1195	9	AKNLNESLI 0.002087	5.7
HLA-A*30:02	1	179	187	9	LEGKQGNFK 0.002085	16
HLA-B*57:01	1	866	875	10	MIAQYTSALL 0.002085	14
HLA-B*15:01	1	998	1006	9	LQSLQTYVT 0.002085	11
HLA-A*03:01	1	135	144	10	FCNDPFLGVY 0.002084	8.7
HLA-A*03:01	1	497	506	10	TYGVGYQPYR 0.002083	8.7
HLA-A*02:06	1	530	538	9	LVKNKCVNF 0.002083	15
HLA-A*31:01	1	685	694	10	ASQSIIAYTM 0.002083	12
HLA-A*01:01	1	800	808	9	SQILPDPSK 0.002083	9.4
HLA-A*02:06	1	873	882	10	ALLAGTITSG 0.002083	15
HLA-A*26:01	1	1124	1132	9	DVVIGIVNN 0.002083	7.6
HLA-B*44:02	1	368	377	10	SASFSTFKCY 0.002082	5.7
HLA-A*11:01	1	622	630	9	HADQLTPTW 0.002082	7.4
HLA-B*40:01	1	815	824	10	IEDLLFNKVT 0.002082	5.5
HLA-A*02:01	1	175	184	10	FLMDLEGKQG 0.002081	11
HLA-B*53:01	1	1099	1107	9	WFVTQRNFY 0.002081	6.7
HLA-A*01:01	1	690	698	9	IAYTMSLGV 0.00208	9.4
HLA-A*02:06	1	880	889	10	TSGWTFGAGA 0.00208	15
HLA-A*68:02	1	361	369	9	DYSVLYNSA 0.002079	11
HLA-A*30:02	1	785	793	9	IYKTPPIKD 0.002079	16
HLA-B*58:01	1	892	901	10	QIPFAMQMAY 0.002079	9.3
HLA-A*01:01	1	988	997	10	VQIDRLITGR 0.002079	9.4
HLA-B*08:01	1	639	648	10	VFQTRAGCLI 0.002078	14
HLA-A*32:01	1	710	719	10	AIPTNFTISV 0.002078	7.5
HLA-A*02:01	1	1185	1194	10	EVAKNLNESL 0.002078	11
HLA-A*02:03	1	386	394	9	DLCFTNVYA 0.002077	12
HLA-B*08:01	1	843	852	10	ARDLICAQKF 0.002077	14
HLA-A*02:03	1	702	711	10	VAYSNSNSIAI 0.002076	12
HLA-A*30:01	1	952	960	9	NAQALNTLV 0.002076	19
HLA-A*02:06	1	1162	1171	10	DLGDISGINA 0.002076	15
HLA-A*11:01	1	601	610	10	TSNQVAVLYQ 0.002075	7.4

HLA-A*33:01	1	233	242	10	INITRFQTLH 0.002074	9.8
HLA-B*53:01	1	478	487	10	NGVKGFNCYF 0.002074	6.7
HLA-A*02:06	1	786	794	9	YKTPPIKDF 0.002074	15
HLA-A*03:01	1	893	902	10	IPFAMQMAYR 0.002074	8.7
HLA-A*31:01	1	1051	1060	10	QSAPHGVVFL 0.002074	12
HLA-A*23:01	1	379	387	9	VSPTKLNLDL 0.002073	6.1
HLA-A*68:02	1	467	476	10	TEIYQAGSTP 0.002073	11
HLA-A*11:01	1	729	738	10	TKTSVDCTMY 0.002072	7.4
HLA-B*35:01	1	931	939	9	IQDLSSTA 0.002072	7.5
HLA-B*35:01	1	126	135	10	VVIKVCFFQF 0.002071	7.5
HLA-A*24:02	1	392	401	10	VYADSFVIRG 0.002071	6.0
HLA-B*57:01	1	407	415	9	IAPGQTGNI 0.002071	14
HLA-A*02:06	1	51	60	10	TQDLFLPFSS 0.00207	15
HLA-A*24:02	1	875	883	9	LAGTITSGW 0.00207	6.0
HLA-B*15:01	1	897	906	10	MQMAYRFNGI 0.00207	11
HLA-B*44:03	1	179	187	9	LEGKQGNFK 0.002068	5.9
HLA-A*32:01	1	380	389	10	SPTKLNLDLFC 0.002068	7.5
HLA-A*32:01	1	501	510	10	GYQPYRVVVL 0.002068	7.5
HLA-A*11:01	1	40	49	10	DKVFRSSVLH 0.002067	7.4
HLA-B*35:01	1	905	914	10	GIGVTQNVLY 0.002067	7.5
HLA-A*30:01	1	118	126	9	LIVNNATNV 0.002066	19
HLA-B*44:03	1	931	939	9	IQDLSSTA 0.002066	5.9
HLA-B*57:01	1	43	52	10	FRSSVLHSTQ 0.002065	14
HLA-A*02:01	1	547	556	10	GVLTESNKKF 0.002065	11
HLA-A*68:02	1	705	713	9	SNNSIAIPT 0.002065	11
HLA-A*31:01	1	16	24	9	VNLTRTQL 0.002064	12
HLA-B*53:01	1	655	663	9	NSYECDIPI 0.002063	6.7
HLA-A*01:01	1	530	538	9	LVKNKCVNF 0.002062	9.4
HLA-B*35:01	1	1051	1060	10	QSAPHGVVFL 0.002062	7.5
HLA-A*02:03	1	500	509	10	VGYPYRVVVV 0.002061	12
HLA-A*30:02	1	588	596	9	SFGGVSUIT 0.002061	17
HLA-B*07:02	1	1036	1044	9	RVDFCGKGY 0.00206	8.3
HLA-A*30:02	1	1062	1071	10	VTYVPAQEKV 0.00206	17
HLA-A*01:01	1	1132	1140	9	NTVYDPLQP 0.00206	9.5
HLA-B*15:01	1	722	730	9	EILPVSMTK 0.002059	11
HLA-A*31:01	1	1144	1153	10	SFKEELDKYF 0.002059	12
HLA-A*24:02	1	1204	1212	9	EQYIKWPWY 0.002059	6.0
HLA-B*35:01	1	40	48	9	DKVFRSSVL 0.002057	7.5
HLA-A*26:01	1	281	290	10	TITDAVDCAL 0.002057	7.7
HLA-B*15:01	1	673	682	10	TQTNSPRRAR 0.002057	11
HLA-A*68:02	1	814	822	9	FIEDLLFNK 0.002057	12
HLA-B*58:01	1	867	876	10	IAQYTSALLA 0.002057	9.4
HLA-B*51:01	1	356	364	9	SNCVADYSV 0.002056	14
HLA-B*35:01	1	490	499	10	QSYGFQPTYG 0.002055	7.5
HLA-B*07:02	1	514	522	9	LLHAPATVC 0.002054	8.3
HLA-A*68:02	1	219	227	9	GFSALEPLV 0.002053	12
HLA-A*33:01	1	554	562	9	KKFLPFQF 0.002053	9.8
HLA-A*02:03	1	784	792	9	QIYKTPPIK 0.002053	12
HLA-A*68:02	1	849	858	10	AQKFNGLTVL 0.002053	12
HLA-A*30:02	1	990	998	9	IDRLITGRL 0.002053	17
HLA-B*58:01	1	75	84	10	GTKRFANPVL 0.002052	9.4
HLA-A*68:02	1	362	370	9	YSVLYNSAS 0.002052	12
HLA-B*58:01	1	746	754	9	CSNLLLQYG 0.002052	9.4
HLA-A*24:02	1	553	562	10	NKKFLPFQF 0.002051	6.1
HLA-A*30:02	1	886	895	10	GAGAALQIPF 0.00205	17
HLA-A*33:01	1	134	143	10	QFCNDPFLGV 0.002048	9.8
HLA-A*30:01	1	770	778	9	EQDKNTQEV 0.002048	19
HLA-A*68:01	1	951	959	9	QNAQALNTL 0.002048	12
HLA-A*02:06	1	1219	1228	10	AGLIAIVMVT 0.002048	15
HLA-A*68:01	1	520	528	9	TVCGPKKST 0.002047	12
HLA-A*03:01	1	303	311	9	FTVEKGIYQ 0.002045	8.8
HLA-A*30:01	1	309	318	10	IYQTSNFRVQ 0.002045	19
HLA-A*26:01	1	1186	1194	9	VAKNLNESL 0.002045	7.7
HLA-A*02:03	1	857	865	9	VLPPLLTD 0.002044	12
HLA-B*58:01	1	592	600	9	VSVITPGTN 0.002043	9.4
HLA-A*02:03	1	680	689	10	RARSVASQSI 0.002043	12

HLA-A*68:01	1	78	86	9	RFANPVLPF 0.002042	12
HLA-B*15:01	1	1225	1234	10	VMVTIMLCCM 0.002042	11
HLA-A*33:01	1	108	117	10	TTLDSKTQSL 0.002041	9.8
HLA-B*07:02	1	838	846	9	LGDIAARDL 0.00204	8.4
HLA-B*15:01	1	1032	1040	9	GQSKRVDFC 0.00204	11
HLA-A*30:01	1	908	916	9	VTQNVLYEN 0.002039	19
HLA-B*51:01	1	189	197	9	LREFVFKNI 0.002038	14
HLA-B*40:01	1	501	510	10	GYQPYRVVVL 0.002036	5.5
HLA-A*26:01	1	568	577	10	DTTDAVRDPQ 0.002036	7.7
HLA-A*30:02	1	933	941	9	DSLSSTASA 0.002036	17
HLA-A*11:01	1	975	983	9	NDILSRLDK 0.002036	7.5
HLA-B*57:01	1	700	709	10	NSVAYSNSI 0.002035	14
HLA-A*33:01	1	722	731	10	EILPVSMTKT 0.002035	9.8
HLA-A*02:01	1	846	855	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	GVYHKNK 0.002034	7.7
HLA-A*32:01	1	624	633	10	DQLTPTWRVY 0.002034	7.6
HLA-B*40:01	1	650	658	9	AEHVNNSYE 0.002034	5.5
HLA-A*30:01	1	632	641	10	VYSTGSNVFQ 0.002033	20
HLA-A*30:02	1	970	978	9	ISSVLNDIL 0.002033	17
HLA-A*30:01	1	1222	1230	9	IAIVMTIM 0.002033	20
HLA-A*02:06	1	887	895	9	AGAALQIPF 0.002031	15
HLA-B*57:01	1	353	362	10	KRISNCVADY 0.00203	14
HLA-A*30:01	1	562	570	9	FRDIADTT 0.00203	20
HLA-B*51:01	1	687	696	10	QSIAYTMSL 0.00203	14
HLA-A*68:01	1	1145	1154	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	501	509	9	GYQPYRVVV 0.002029	12
HLA-B*35:01	1	517	525	9	APATVCGPK 0.002029	7.6
HLA-A*23:01	1	555	564	10	KFLPFQFGR 0.002029	6.1
HLA-A*03:01	1	50	59	10	STQDLFLPFF 0.002028	8.8
HLA-A*30:02	1	954	962	9	QALNTLVKQ 0.002028	17
HLA-A*32:01	1	452	461	10	LFRKSNLKP 0.002026	7.6
HLA-B*44:02	1	572	581	10	AVRDPQTLEI 0.002026	5.8
HLA-B*57:01	1	1257	1265	9	DSEPVKGV 0.002026	14
HLA-A*33:01	1	168	177	10	FEYVSQPFLM 0.002025	9.9
HLA-B*57:01	1	344	353	10	FASVYAWNRK 0.002025	14
HLA-A*30:02	1	457	465	9	NLKPFERDI 0.002025	17
HLA-A*33:01	1	1005	1013	9	VTQQLIRAA 0.002025	9.9
HLA-B*15:01	1	1083	1091	9	KAHFPREGV 0.002025	11
HLA-A*30:01	1	188	197	10	NLREFVFKNI 0.002024	20
HLA-B*51:01	1	717	725	9	ISVTTEILP 0.002024	14
HLA-A*30:01	1	959	968	10	LVKQLSSNFG 0.002024	20
HLA-A*01:01	1	1023	1031	9	ATKMSECVL 0.002024	9.6
HLA-A*23:01	1	1145	1153	9	FKEELDKYF 0.002024	6.1
HLA-B*51:01	1	255	263	9	WTAGAAAYY 0.002023	14
HLA-A*11:01	1	518	526	9	PATVCGPKK 0.002023	7.5
HLA-B*58:01	1	716	724	9	TISVTTEIL 0.002023	9.5
HLA-A*32:01	1	992	1000	9	RLITGRLQS 0.002023	7.6
HLA-A*02:06	1	486	494	9	YFPLQSYGF 0.002022	15
HLA-A*68:02	1	1166	1174	9	ISGINASV 0.002021	12
HLA-A*33:01	1	143	151	9	VYYHKNK 0.00202	9.9
HLA-A*30:01	1	181	189	9	GKQGNFKNL 0.00202	20
HLA-B*51:01	1	330	339	10	TNLCPFGEVF 0.00202	14
HLA-B*53:01	1	934	942	9	SLSSTASAL 0.00202	6.8
HLA-A*01:01	1	972	981	10	SVLNDILSRL 0.00202	9.6
HLA-B*53:01	1	135	143	9	FCNDPFLGV 0.002019	6.8
HLA-A*31:01	1	916	924	9	NQKLIANQF 0.002019	12
HLA-B*51:01	1	1013	1021	9	AEIRASANL 0.002019	14
HLA-B*07:02	1	1057	1065	9	VVFLHVTVY 0.002019	8.4
HLA-A*30:01	1	364	373	10	VLYNSASFST 0.002018	20
HLA-B*44:02	1	512	520	9	FELLHAPAT 0.002018	5.8
HLA-A*02:01	1	881	889	9	SGWTFGAGA 0.002018	11
HLA-A*68:02	1	801	809	9	QILPDPSKP 0.002017	12

HLA-A*30:01	1	171	180	10	VSQPFLMDLE 0.002016	20
HLA-B*44:03	1	600	609	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	314	322	9	NFRVQPTES 0.002015	9.9
HLA-B*51:01	1	340	349	10	NATRFASVYA 0.002015	14
HLA-B*51:01	1	127	135	9	VIKVCEFQF 0.002014	14
HLA-A*68:02	1	854	862	9	GLTVLPELL 0.002014	12
HLA-B*53:01	1	937	945	9	STASALGKL 0.002014	6.8
HLA-A*02:01	1	1025	1034	10	KMSECVLGQS 0.002014	11
HLA-A*32:01	1	229	238	10	LPIGINITRF 0.002013	7.6
HLA-A*02:03	1	722	731	10	EILPVSMTKT 0.002013	12
HLA-B*07:02	1	1192	1200	9	ESLIDLQEL 0.002013	8.4
HLA-B*44:03	1	1259	1267	9	EPVLKGVKL 0.002013	5.9
HLA-B*58:01	1	34	42	9	RGVYYPDKV 0.002012	9.5
HLA-A*02:06	1	951	960	10	QNAQALNTLV 0.002012	15
HLA-B*15:01	1	171	179	9	VSQPFLMDL 0.002011	11
HLA-B*58:01	1	1121	1129	9	GNCDVVIGI 0.002011	9.5
HLA-B*53:01	1	1194	1203	10	LIDLQELGKY 0.00201	6.8
HLA-A*02:06	1	1225	1233	9	VMVTIMLCC 0.00201	15
HLA-B*35:01	1	1226	1234	9	MVTIMLCCM 0.00201	7.6
HLA-B*15:01	1	234	242	9	NITRFQTLH 0.002009	11
HLA-A*68:01	1	235	244	10	ITRFQTLHRS 0.002009	12
HLA-A*30:02	1	1208	1216	9	KWPWYIWLG 0.002009	17
HLA-A*01:01	1	441	449	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	424	433	10	DDFTGCVIAW 0.002007	7.8
HLA-A*33:01	1	826	834	9	ADAGFIKQY 0.002007	9.9
HLA-A*31:01	1	887	895	9	AGAALQIPF 0.002007	12
HLA-B*15:01	1	674	682	9	QTNSPRRAR 0.002006	11
HLA-A*30:01	1	611	619	9	GVNCTEVPV 0.002005	20
HLA-A*24:02	1	805	814	10	DPSKPSKRSF 0.002004	6.1
HLA-B*07:02	1	1133	1141	9	TVYDPLQPE 0.002004	8.4
HLA-A*32:01	1	421	429	9	KLPDDFTGC 0.002003	7.6
HLA-B*40:01	1	926	935	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	IVNNATNVV 0.002002	9.5
HLA-B*51:01	1	135	144	10	FCNDPFLGVY 0.002002	14
HLA-B*07:02	1	507	515	9	VVLSFELL 0.002002	8.4
HLA-A*33:01	1	775	783	9	TQEVFAQVK 0.002002	9.9
HLA-B*07:02	1	486	494	9	YFPLQSYGF 0.002001	8.4
HLA-A*30:01	1	1001	1010	10	LQTYVTQQLI 0.002001	20
HLA-A*02:06	1	1144	1152	9	SFKEELDKY 0.002001	15
HLA-B*44:03	1	169	177	9	EYVSQPFLM 0.002	5.9
HLA-A*30:02	1	494	503	10	FQPTYGVGYQ 0.002	17
HLA-B*15:01	1	954	963	10	QALNTLVKQL 0.001999	11
HLA-B*53:01	1	954	963	10	QALNTLVKQL 0.001999	6.8
HLA-A*02:03	1	34	42	9	RGVYYPDKV 0.001998	12
HLA-A*30:01	1	305	313	9	VEKGIYQTS 0.001998	20
HLA-A*11:01	1	1194	1203	10	LIDLQELGKY 0.001998	7.5
HLA-A*68:02	1	277	286	10	NENGTITDAV 0.001997	12
HLA-B*51:01	1	743	751	9	STECNLLL 0.001997	14
HLA-A*02:03	1	1160	1169	10	DVDLGDISGI 0.001997	12
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-A*31:01	1	239	247	9	QTLHRSYLT 0.001994	12
HLA-B*57:01	1	266	275	10	YLQPRTFLLK 0.001994	14
HLA-B*07:02	1	715	724	10	FTISVTTEIL 0.001994	8.5
HLA-B*57:01	1	932	941	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-B*57:01	1	496	504	9	PTYGVGYQP 0.001992	14
HLA-A*30:02	1	221	230	10	SALEPLVDLP 0.001991	17
HLA-A*02:06	1	946	955	10	QDVVNQNAQA 0.001991	15



HLA-B*44:03	1	1000	1009	10	SLQTYVTTQL 0.001991	5.9
HLA-A*02:01	1	1022	1030	9	AATKMSECV 0.001991	11
HLA-B*53:01	1	1189	1197	9	NLNESLIDL 0.00199	6.9
HLA-A*30:01	1	159	168	10	VYSSANNCTF 0.001989	20
HLA-B*40:01	1	418	426	9	YNYKLPDDF 0.001989	5.6
HLA-B*08:01	1	557	566	10	LPFQQFGRDI 0.001989	14
HLA-A*68:02	1	572	580	9	AVRDPQTLE 0.001988	12
HLA-B*40:01	1	614	623	10	CTEVPVAIHA 0.001988	5.6
HLA-A*02:06	1	1148	1156	9	ELDKYFKNH 0.001988	15
HLA-A*26:01	1	573	582	10	VRDPQTLEIL 0.001987	7.8
HLA-B*51:01	1	673	681	9	TQTNSPRRA 0.001987	14
HLA-B*44:03	1	1133	1142	10	TVYDPLQPEL 0.001987	5.9
HLA-A*30:02	1	197	206	10	IDGYFKIYSK 0.001986	17
HLA-A*30:01	1	461	469	9	FERDISTEI 0.001986	20
HLA-A*68:01	1	936	945	10	SSTASALGKL 0.001986	12
HLA-A*30:01	1	950	958	9	NQNAQALNT 0.001986	20
HLA-B*53:01	1	177	186	10	MDLEGKQGNF 0.001985	6.9
HLA-B*51:01	1	306	315	10	EKGIYQTSNF 0.001985	14
HLA-B*15:01	1	1039	1047	9	FCGKGYHLM 0.001985	11
HLA-B*15:01	1	28	36	9	YTNSTFRGV 0.001983	11
HLA-A*03:01	1	83	92	10	VLFPNDGVYF 0.001983	8.9
HLA-B*44:02	1	982	990	9	DKVEAEVQI 0.001983	5.9
HLA-A*02:06	1	713	721	9	TNFTISVTT 0.001982	15
HLA-A*02:01	1	855	863	9	LTVLPPLL 0.001982	11
HLA-A*68:02	1	94	102	9	STEKSNIIR 0.001981	12
HLA-A*02:01	1	192	201	10	FVFKNIDGYF 0.001981	11
HLA-B*51:01	1	840	849	10	DIAARDLICA 0.001981	14
HLA-A*02:03	1	871	879	9	TSALLAGTI 0.001981	12
HLA-A*30:01	1	199	208	10	GYFKIYSKHT 0.00198	20
HLA-A*02:03	1	237	246	10	RFQTLHRSYL 0.00198	12
HLA-A*68:02	1	626	635	10	LTPTWRVYST 0.00198	12
HLA-B*08:01	1	204	213	10	YSKHTPINLV 0.001979	14
HLA-A*02:06	1	500	509	10	VGYPYRVVV 0.001979	15
HLA-A*31:01	1	1097	1106	10	THWFVTQRNF 0.001979	13
HLA-A*30:02	1	338	346	9	VFNATRFAS 0.001978	17
HLA-B*44:02	1	439	448	10	DSKVGGNYNY 0.001978	5.9
HLA-B*40:01	1	715	723	9	FTISVTTEI 0.001978	5.6
HLA-B*07:02	1	1005	1013	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	LDSKTQSLL 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	330	339	10	TNLCPFGEVF 0.001977	7.8
HLA-A*30:02	1	406	414	9	QIAPGQTGN 0.001977	17
HLA-A*02:06	1	566	574	9	IADTTDAVR 0.001977	15
HLA-B*40:01	1	640	648	9	FQTRAGCLI 0.001977	5.6
HLA-A*26:01	1	940	948	9	SALGKLQDV 0.001977	7.8
HLA-A*68:01	1	1124	1133	10	DVVIGIVNNT 0.001977	12
HLA-A*33:01	1	23	32	10	QLPPAYTNSF 0.001976	9.9
HLA-B*53:01	1	701	709	9	SVAYSNSI 0.001976	6.9
HLA-A*01:01	1	704	712	9	YSNNSIAIP 0.001976	9.7
HLA-B*40:01	1	915	924	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	366	375	10	YNSASFSTFK 0.001975	14
HLA-A*26:01	1	444	452	9	GNYNLYRL 0.001974	7.8
HLA-A*26:01	1	442	450	9	VGGNYNYLY 0.001973	7.8
HLA-A*01:01	1	748	756	9	NLLLQYGSF 0.001973	9.7
HLA-B*53:01	1	547	556	10	GVLTESNKKF 0.001972	6.9
HLA-A*26:01	1	742	751	10	DSTECSNLLL 0.001972	7.8
HLA-A*01:01	1	818	826	9	LLFNKVTLA 0.001971	9.7
HLA-A*68:02	1	937	946	10	STASALGKLQ 0.001971	12
HLA-B*35:01	1	220	229	10	FSALEPLVDL 0.00197	7.7
HLA-B*08:01	1	450	459	10	YRLFRRKSNLK 0.00197	14
HLA-A*24:02	1	421	429	9	KLPDDFTGC 0.001969	6.2
HLA-B*07:02	1	527	535	9	STNLVKNKC 0.001969	8.5

HLA-A*01:01	1	565	574	10	DIADTTDAVR 0.001969	9.7
HLA-A*30:01	1	726	735	10	VSMTKTSVDC 0.001969	20
HLA-A*30:02	1	787	795	9	KTPPIKDFG 0.001969	17
HLA-A*23:01	1	497	506	10	TYGVGYQPYR 0.001968	6.2
HLA-A*30:01	1	1070	1079	10	KNFTTAPAIC 0.001968	20
HLA-A*32:01	1	1133	1141	9	TVYDPLQPE 0.001968	7.7
HLA-B*58:01	1	1045	1053	9	HLMSFPQSA 0.001967	9.6
HLA-A*02:06	1	1191	1200	10	NESLIDLQEL 0.001967	15
HLA-A*02:03	1	1198	1207	10	QELGKYEQYI 0.001967	12
HLA-B*07:02	1	28	36	9	YTNSFTRGV 0.001966	8.5
HLA-B*51:01	1	46	55	10	SVLHSTQDLF 0.001966	14
HLA-B*57:01	1	553	562	10	NKKFLPFQF 0.001966	14
HLA-B*58:01	1	800	808	9	SQILPDPSK 0.001966	9.6
HLA-B*53:01	1	951	959	9	QNAQALNTL 0.001966	6.9
HLA-A*02:03	1	45	54	10	SSVLHSTQDL 0.001965	12
HLA-A*68:02	1	263	272	10	YVGYLQPRTF 0.001965	12
HLA-A*02:01	1	776	785	10	QEVFAQVKQI 0.001965	11
HLA-B*35:01	1	865	873	9	EMIAQY TSA 0.001965	7.7
HLA-B*44:02	1	1097	1106	10	THWVFTQRNF 0.001965	5.9
HLA-B*51:01	1	617	625	9	VPVAIHADQ 0.001964	14
HLA-B*40:01	1	982	990	9	DKVEAEVQI 0.001964	5.6
HLA-B*44:03	1	258	266	9	GAAAYVVG Y 0.001963	6.0
HLA-B*35:01	1	1050	1059	10	PQSAPHGVVF 0.001963	7.7
HLA-A*68:01	1	908	917	10	VTQNVLYENQ 0.001962	12
HLA-A*68:02	1	1226	1234	9	MVTIMLCCM 0.001962	12
HLA-A*26:01	1	238	246	9	FQTLHRSYL 0.001961	7.9
HLA-A*32:01	1	915	924	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	824	832	9	TLADAGFIK 0.001959	7.9
HLA-B*44:02	1	1200	1209	10	LGKYEQYIKW 0.001959	5.9
HLA-B*51:01	1	1213	1221	9	IWLGFIAGL 0.001959	14
HLA-B*51:01	1	50	59	10	STQDLFLPFF 0.001958	14
HLA-B*58:01	1	72	80	9	GTNGTKRFA 0.001958	9.6
HLA-B*35:01	1	430	438	9	VIAWNSNNL 0.001958	7.7
HLA-B*07:02	1	621	630	10	IHADQLTPTW 0.001958	8.6
HLA-A*30:02	1	446	455	10	YNYLYRLFRK 0.001957	17
HLA-B*58:01	1	478	487	10	NGVKGFNCYF 0.001957	9.6
HLA-B*15:01	1	708	717	10	SIAIPTNFTI 0.001957	11
HLA-B*53:01	1	853	861	9	NGLTVLPPL 0.001957	6.9
HLA-A*30:01	1	892	900	9	QIPFAMQMA 0.001957	20
HLA-A*31:01	1	906	914	9	IGVTQNVLY 0.001957	13
HLA-A*31:01	1	143	151	9	VYYHKNNKS 0.001955	13
HLA-A*02:03	1	338	347	10	VFNATRFASV 0.001955	12
HLA-A*02:06	1	617	626	10	VPVAIHADQL 0.001955	15
HLA-B*07:02	1	702	711	10	VAYSNSIAI 0.001955	8.6
HLA-A*31:01	1	910	918	9	QNVLYENQK 0.001955	13
HLA-A*32:01	1	965	974	10	SNFGAISSVL 0.001955	7.7
HLA-A*24:02	1	193	202	10	VFKNIDGYFK 0.001953	6.2
HLA-B*08:01	1	352	360	9	RKRISNCVA 0.001953	14
HLA-A*30:02	1	203	211	9	IYSKHTPIN 0.001952	17
HLA-A*30:01	1	607	615	9	VLYQGVNCT 0.001952	20
HLA-B*57:01	1	746	754	9	CSNLLLQYG 0.001952	14
HLA-A*01:01	1	868	876	9	AQYTSALLA 0.001952	9.8
HLA-B*08:01	1	81	90	10	NPVLPFNDGV 0.001951	15
HLA-A*30:02	1	347	355	9	VYAWNRKRI 0.001951	17
HLA-B*57:01	1	371	379	9	FSTFKCYGV 0.001949	14
HLA-A*26:01	1	1017	1025	9	ASANLAATK 0.001949	7.9
HLA-A*03:01	1	158	167	10	RVYSSANNCT 0.001948	9.0
HLA-A*33:01	1	503	512	10	QPYRVVLSF 0.001948	10
HLA-A*30:01	1	847	855	9	ICAQKFNGL 0.001948	20
HLA-A*30:02	1	986	994	9	AEVQIDRLI 0.001948	17
HLA-B*44:02	1	208	216	9	TPINLVRGL 0.001946	5.9
HLA-A*02:01	1	389	398	10	FTNVYADSFV 0.001946	11

HLA-B*15:01	1	477	486	10	CNGVKGFNCY 0.001946	11
HLA-A*11:01	1	126	134	9	VVIKVCFFQ 0.001945	7.6
HLA-A*30:01	1	406	415	10	QIAPGQTGNI 0.001945	20
HLA-A*68:02	1	1073	1081	9	TTAPAICHD 0.001945	12
HLA-B*08:01	1	333	341	9	CPFGEVFNA 0.001944	15
HLA-A*01:01	1	984	993	10	VEAEVQIDRL 0.001943	9.8
HLA-A*30:02	1	170	179	10	YVSQPFLMDL 0.001942	17
HLA-A*03:01	1	683	691	9	SVASQSIIA 0.001942	9.0
HLA-A*02:03	1	282	290	9	ITDAVDCAL 0.001941	12
HLA-A*30:01	1	777	786	10	EVFAQVKQIY 0.001941	20
HLA-B*44:02	1	806	814	9	PSKPSKRSF 0.001941	5.9
HLA-A*33:01	1	1141	1149	9	ELDSFKEEL 0.001941	10
HLA-B*53:01	1	233	241	9	INITRFQTL 0.00194	6.9
HLA-B*58:01	1	754	763	10	GSFCTQLNRA 0.00194	9.7
HLA-A*68:01	1	1260	1269	10	PVLKGVKLHY 0.00194	12
HLA-B*40:01	1	843	852	10	ARDLICAQKF 0.001939	5.6
HLA-A*01:01	1	1138	1146	9	LQPELDSFK 0.001939	9.8
HLA-A*02:01	1	315	323	9	FRVQPTESI 0.001938	11
HLA-A*01:01	1	571	579	9	DAVRDPQTL 0.001938	9.8
HLA-A*01:01	1	379	387	9	VSPTKLNDL 0.001937	9.8
HLA-B*07:02	1	1017	1026	10	ASANLAATKM 0.001937	8.6
HLA-A*24:02	1	1054	1062	9	PHGVVFLHV 0.001937	6.2
HLA-B*57:01	1	1073	1081	9	TTAPAICHD 0.001937	14
HLA-A*02:06	1	1229	1237	9	IMLCCMTSC 0.001937	15
HLA-B*15:01	1	1175	1183	9	NIQKEIDRL 0.001936	11
HLA-A*11:01	1	1199	1208	10	ELGKYEYIK 0.001936	7.6
HLA-B*08:01	1	227	235	9	VDLPIGINI 0.001935	15
HLA-A*30:02	1	546	555	10	TGVLTESNKK 0.001934	17
HLA-B*57:01	1	614	623	10	CTEVPVAIHA 0.001933	14
HLA-A*02:03	1	487	496	10	FPLQSYGFQP 0.001932	12
HLA-A*68:02	1	795	803	9	GGFNFSQIL 0.001932	12
HLA-A*32:01	1	847	855	9	ICAQKFNGL 0.001932	7.7
HLA-B*51:01	1	225	233	9	PLVDLPIGI 0.001931	14
HLA-B*57:01	1	289	297	9	ALDPLSETK 0.00193	14
HLA-B*44:03	1	460	469	10	PFERDISTEI 0.001929	6.0
HLA-A*26:01	1	870	878	9	YTSALLAGT 0.001929	7.9
HLA-B*44:02	1	47	55	9	VLHSTQDLF 0.001928	5.9
HLA-B*44:02	1	953	961	9	AQALNTLVK 0.001928	5.9
HLA-A*30:02	1	1146	1154	9	KEELDKYFK 0.001928	17
HLA-B*44:03	1	1187	1195	9	AKNLNESLI 0.001928	6.0
HLA-A*02:06	1	474	483	10	STPCNGVKGF 0.001927	15
HLA-A*68:01	1	694	702	9	MSLGVENSV 0.001927	12
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	625	633	9	QLTPTWRVY 0.001925	12
HLA-B*58:01	1	1096	1104	9	GTHWFVTQR 0.001925	9.7
HLA-A*02:06	1	1025	1033	9	KMSECVLGO 0.001924	15
HLA-A*02:03	1	1104	1112	9	RNFYEPQII 0.001924	12
HLA-B*57:01	1	1145	1153	9	FKEELDKYF 0.001924	14
HLA-A*68:02	1	479	487	9	GVKGFNCYF 0.001922	12
HLA-A*32:01	1	877	886	10	GTITSGWTFG 0.001922	7.8
HLA-A*68:02	1	1017	1025	9	ASANLAATK 0.001922	12
HLA-A*31:01	1	1042	1051	10	KGYHLMSFPQ 0.001922	13
HLA-A*01:01	1	89	97	9	GVYFASTEK 0.001921	9.9
HLA-A*01:01	1	849	857	9	AQKFNGLTV 0.001921	9.9
HLA-B*08:01	1	877	885	9	GTITSGWTF 0.001921	15
HLA-B*08:01	1	236	245	10	TRFQTLHRSY 0.00192	15
HLA-B*07:02	1	723	732	10	ILPVSMTKTS 0.00192	8.6
HLA-B*15:01	1	303	311	9	FTVEKGIYQ 0.001919	11
HLA-A*02:06	1	601	609	9	TSNQVAVLY 0.001919	15
HLA-A*23:01	1	813	822	10	SFIEDLLFNK 0.001919	6.3
HLA-A*02:03	1	263	271	9	YVGYLQPRT 0.001918	12
HLA-B*51:01	1	676	685	10	NSPRRARSVA 0.001918	14
HLA-B*58:01	1	803	812	10	LPDPSKPSKR 0.001918	9.7
HLA-B*51:01	1	1217	1226	10	FIAGLIAIVM 0.001918	14

HLA-A*33:01	1	1138	1146	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	503	511	9	QPYRVVVL	0.001915	15
HLA-B*44:03	1	775	784	10	TQEVFAQVKQ	0.001915	6.0
HLA-B*07:02	1	890	899	10	ALQIPFAMQM	0.001915	8.7
HLA-B*57:01	1	994	1003	10	ITGRLQSLQT	0.001915	14
HLA-B*57:01	1	1178	1186	9	KEIDRLNEV	0.001915	14
HLA-B*51:01	1	514	522	9	LLHAPATVC	0.001914	14
HLA-B*57:01	1	393	401	9	YADSFVIRG	0.001913	14
HLA-A*31:01	1	517	525	9	APATVCGPK	0.001913	13
HLA-A*30:02	1	112	120	9	SKTQSLIV	0.001912	17
HLA-A*01:01	1	683	691	9	SVASQSIIA	0.001912	9.9
HLA-B*08:01	1	574	582	9	RDPQTLEIL	0.001911	15
HLA-A*68:01	1	731	739	9	TSVDCTMYI	0.001911	13
HLA-A*02:03	1	862	870	9	LTDEMIAQY	0.001911	12
HLA-A*30:01	1	885	893	9	FGAGAALQI	0.001911	20
HLA-A*02:06	1	1179	1187	9	EIDRLNEVA	0.001911	16
HLA-A*23:01	1	132	141	10	EFQFCNDPFL	0.00191	6.3
HLA-A*68:02	1	571	580	10	DAVRDPQTL	0.00191	12
HLA-B*58:01	1	825	833	9	LADAGFIKQ	0.00191	9.7
HLA-A*26:01	1	708	717	10	SIAIPTNFTI	0.001909	8.0
HLA-B*51:01	1	75	83	9	GTKRFANPV	0.001908	14
HLA-B*44:02	1	803	811	9	LPDPSKPSK	0.001908	6.0
HLA-A*30:02	1	312	320	9	TSNFRVQPT	0.001907	17
HLA-A*33:01	1	365	374	10	LYNSASFSTF	0.001907	11
HLA-A*23:01	1	489	498	10	LQSYGFQPTY	0.001907	6.3
HLA-A*02:01	1	714	723	10	NFTISVTTEI	0.001907	11
HLA-B*57:01	1	743	752	10	STECSNLLLQ	0.001907	14
HLA-A*68:01	1	926	935	10	SAIGKIQDSL	0.001907	13
HLA-A*33:01	1	104	113	10	WIFGTTLDK	0.001906	11
HLA-B*53:01	1	323	332	10	IVRFPNITNL	0.001906	7.0
HLA-A*30:02	1	935	943	9	LSSTASALG	0.001906	17
HLA-B*40:01	1	992	1001	10	RLITGRLQSL	0.001906	5.7
HLA-B*51:01	1	215	223	9	GLPQGFSAL	0.001905	14
HLA-B*51:01	1	1052	1061	10	SAPHGVVFLH	0.001905	14
HLA-A*02:03	1	22	31	10	TQLPPAYTNS	0.001904	12
HLA-A*30:01	1	379	387	9	VSPTKLNLDL	0.001904	20
HLA-A*30:02	1	470	478	9	YQAGSTPCN	0.001903	17
HLA-A*02:03	1	50	58	9	STQDLFLPF	0.001902	12
HLA-A*31:01	1	545	554	10	GTGVLTESNK	0.001902	13
HLA-A*68:01	1	825	833	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	346	355	10	SVYAWNRKRI	0.001901	17
HLA-A*30:02	1	937	946	10	STASALGKLQ	0.001901	17
HLA-A*30:01	1	113	122	10	KTQSLIVN	0.0019	20
HLA-B*53:01	1	379	388	10	VSPTKLNLDL	0.0019	7.0
HLA-B*57:01	1	870	878	9	YTSALLAGT	0.0019	14
HLA-A*68:01	1	1169	1177	9	INASVVNIQ	0.0019	13
HLA-B*07:02	1	962	970	9	QLSSNFGAI	0.001898	8.7
HLA-A*02:01	1	800	809	10	SQILPDPSKP	0.001897	11
HLA-B*57:01	1	1112	1120	9	ITDNTFVS	0.001897	15
HLA-A*24:02	1	555	564	10	KFLPFQFGR	0.001896	6.3
HLA-B*40:01	1	572	581	10	AVRDPQTLEI	0.001896	5.7
HLA-A*11:01	1	483	492	10	FNCYFPLQSY	0.001895	7.7
HLA-B*35:01	1	655	663	9	NSYECDIPI	0.001895	7.8
HLA-A*30:01	1	30	39	10	NSFTRGVYYP	0.001894	20
HLA-B*40:01	1	506	514	9	RVVLSFEL	0.001894	5.7
HLA-B*51:01	1	683	692	10	SVASQSIIAY	0.001894	14
HLA-A*26:01	1	789	797	9	PPIKDFGGF	0.001894	8.0
HLA-B*08:01	1	1137	1145	9	PLQPELDSF	0.001894	15
HLA-B*44:03	1	1184	1192	9	NEVAKNLNE	0.001894	6.1
HLA-B*08:01	1	101	110	10	IRGWIFGTTL	0.001893	15
HLA-A*26:01	1	800	808	9	SQILPDPSK	0.001893	8.0
HLA-A*01:01	1	871	879	9	TSALLAGTI	0.001893	10

HLA-B*57:01	1	628	636	9	PTWRVYSTG 0.001892	15
HLA-A*68:02	1	703	711	9	AYSNNIAI 0.001892	12
HLA-A*30:01	1	1045	1054	10	HLMSFPQSAP 0.001892	20
HLA-B*15:01	1	445	453	9	NYNLYRLF 0.001891	11
HLA-B*51:01	1	723	732	10	ILPVSMTKTS 0.001891	14
HLA-A*23:01	1	851	859	9	KFNGLTVLP 0.001891	6.3
HLA-A*32:01	1	1245	1253	9	CSCGSCCKF 0.001891	7.8
HLA-B*08:01	1	71	79	9	SGTNGTKRF 0.00189	15
HLA-A*30:01	1	233	242	10	INITRFQTLH 0.00189	20
HLA-B*53:01	1	333	342	10	CPFGEVFNAT 0.00189	7.0
HLA-A*24:02	1	336	344	9	GEVFNATRF 0.00189	6.3
HLA-A*30:01	1	553	562	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	QGNFKNREF 0.001889	10
HLA-A*11:01	1	902	910	9	RFNGIGVTQ 0.001889	7.7
HLA-A*02:06	1	907	915	9	GVTQNVLYE 0.001889	16
HLA-A*30:02	1	1026	1035	10	MSECVLGQSK 0.001889	17
HLA-A*30:01	1	1112	1120	9	ITTDNTFVS 0.001889	20
HLA-A*30:01	1	1120	1129	10	SGNCDVVIGI 0.001889	20
HLA-B*07:02	1	1261	1269	9	VLKGVKLHY 0.001889	8.7
HLA-A*01:01	1	238	246	9	FQTLHRSYL 0.001888	10
HLA-B*07:02	1	376	384	9	CYGVSPTKL 0.001888	8.7
HLA-A*30:01	1	421	429	9	KLPDDFTGC 0.001888	20
HLA-B*08:01	1	638	646	9	NVFQTRAGC 0.001888	15
HLA-A*68:01	1	1124	1132	9	DVIGIVNN 0.001888	13
HLA-B*53:01	1	888	897	10	GAALQIPFAM 0.001887	7.0
HLA-B*57:01	1	1207	1215	9	IKWPWYIWL 0.001887	15
HLA-A*68:02	1	1216	1224	9	GFIAGLIAI 0.001887	12
HLA-A*02:01	1	75	83	9	GTKRFANPV 0.001886	11
HLA-A*01:01	1	672	681	10	QTQTNSPRRA 0.001886	10
HLA-A*30:01	1	878	887	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	422	430	9	LPDDFTGCV 0.001884	11
HLA-B*07:02	1	822	830	9	KVTLADAGF 0.001884	8.7
HLA-B*08:01	1	91	100	10	YFASTEKSNI 0.001883	15
HLA-A*68:01	1	1126	1135	10	VIGIVNNTVY 0.001883	13
HLA-A*02:03	1	1	10	10	MFVFLVLLPL 0.001882	12
HLA-A*33:01	1	208	216	9	TPINLVRGL 0.001882	11
HLA-B*53:01	1	236	245	10	TRFQTLHRSY 0.001882	7.0
HLA-B*58:01	1	1244	1253	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	422	431	10	LPDDFTGCVI 0.001881	10
HLA-B*51:01	1	494	502	9	FQPTYGVGY 0.001881	14
HLA-A*01:01	1	912	920	9	VLYENQKLI 0.001881	10
HLA-A*02:01	1	958	967	10	TLVKQLSSNF 0.001881	11
HLA-A*02:06	1	1090	1099	10	GVFVSNGTHW 0.001881	16
HLA-B*53:01	1	508	516	9	VVLSFELLH 0.00188	7.0
HLA-A*11:01	1	890	899	10	ALQIPFAMQM 0.00188	7.7
HLA-B*40:01	1	720	729	10	TTEILPVSM 0.001879	5.7
HLA-A*30:02	1	230	238	9	PIGINITRF 0.001878	17
HLA-A*01:01	1	509	517	9	VLSFELLHA 0.001878	10
HLA-A*01:01	1	701	709	9	SVAYSNNSI 0.001878	10
HLA-A*30:01	1	703	712	10	AYSNNIAIP 0.001878	20
HLA-A*30:01	1	994	1002	9	ITGRLQSLQ 0.001878	20
HLA-A*31:01	1	995	1004	10	TGRLQSLQTY 0.001878	13
HLA-A*31:01	1	1074	1083	10	TAPAICHGK 0.001878	13
HLA-B*44:03	1	1205	1214	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	253	262	10	SGWTAGAAAY 0.001875	7.8
HLA-A*30:02	1	810	818	9	SKRSFIEDL 0.001875	17
HLA-A*30:02	1	825	833	9	LADAGFIKQ 0.001875	17

HLA-B*51:01	1	1090	1099	10	GVFVSNNGTHW 0.001875	14
HLA-B*44:03	1	1141	1149	9	ELDSFKEEL 0.001875	6.1
HLA-A*30:02	1	1204	1213	10	EQYIKWPWYI 0.001875	17
HLA-A*31:01	1	171	179	9	VSQPFLMDL 0.001874	13
HLA-A*02:06	1	311	319	9	QTSNFRVQP 0.001874	16
HLA-A*31:01	1	516	525	10	HAPATVCGPK 0.001874	13
HLA-B*40:01	1	720	728	9	TTEILPVSM 0.001874	5.7
HLA-A*02:01	1	375	383	9	KCYGVSPTK 0.001873	11
HLA-B*15:01	1	673	681	9	TQTNSPRRA 0.001873	11
HLA-A*30:01	1	711	719	9	IPTNFTISV 0.001873	20
HLA-B*58:01	1	124	133	10	TNVVIKVICEF 0.001872	9.8
HLA-A*30:01	1	228	237	10	DLPIGINITR 0.001872	20
HLA-A*30:01	1	976	984	9	DILSRLDKV 0.001872	20
HLA-A*11:01	1	1035	1044	10	KRVDFCGKGY 0.001872	7.7
HLA-A*03:01	1	83	91	9	VLPFNDGVY 0.00187	9.1
HLA-B*53:01	1	506	514	9	RVVLSFEL 0.00187	7.0
HLA-A*31:01	1	1070	1078	9	KNFTTAPAI 0.00187	13
HLA-A*32:01	1	230	238	9	PIGINITRF 0.001869	7.9
HLA-A*23:01	1	275	283	9	KYNENGTIT 0.001869	6.4
HLA-B*58:01	1	289	297	9	ALDPLSETK 0.001869	9.8
HLA-A*33:01	1	331	339	9	NLCPFGEVF 0.001869	11
HLA-A*03:01	1	396	405	10	SFVIRGDEVV 0.001869	9.1
HLA-A*68:01	1	468	476	9	EIYQAGSTP 0.001869	13
HLA-A*23:01	1	1	10	10	MFVFLVLLPL 0.001868	6.4
HLA-A*30:02	1	1009	1017	9	LIRAAEIRA 0.001868	17
HLA-A*02:03	1	346	354	9	SVYAWNRRK 0.001866	12
HLA-B*07:02	1	492	500	9	YGFQPTYGV 0.001866	8.8
HLA-B*44:02	1	780	788	9	AQVKQIYKT 0.001866	6.0
HLA-A*01:01	1	958	967	10	TLVKQLSSNF 0.001866	10
HLA-A*30:02	1	1047	1056	10	MSFPQSAPHG 0.001866	17
HLA-A*68:02	1	1122	1130	9	NCDVVIGIV 0.001866	12
HLA-A*30:02	1	1222	1230	9	IAIVMVTIM 0.001866	17
HLA-B*08:01	1	201	209	9	FKIYSKHTP 0.001865	15
HLA-A*33:01	1	604	612	9	QVAVLYQGV 0.001865	11
HLA-A*02:01	1	620	628	9	AIHADQLTP 0.001865	11
HLA-A*33:01	1	516	525	10	HAPATVCGPK 0.001864	11
HLA-A*02:03	1	647	656	10	LIGAEHVNNS 0.001864	12
HLA-A*26:01	1	484	493	10	NCYFPLQSYG 0.001863	8.1
HLA-A*68:01	1	495	504	10	QPTYGVGYQP 0.001863	13
HLA-A*30:01	1	365	374	10	LYNSASFSTF 0.001862	20
HLA-A*30:02	1	613	622	10	NCTEVPVAIH 0.001862	17
HLA-A*02:03	1	1110	1118	9	QIITTDNTF 0.001862	12
HLA-A*23:01	1	261	270	10	AYYVGYLQPR 0.001861	6.4
HLA-A*32:01	1	728	737	10	MTKTSVDCTM 0.001861	7.9
HLA-B*15:01	1	911	919	9	NVLYENQKL 0.001861	11
HLA-B*44:03	1	914	923	10	YENQKLIANQ 0.001861	6.1
HLA-B*57:01	1	108	116	9	TTLDSKTQS 0.00186	15
HLA-B*58:01	1	388	397	10	CFTNVYADSF 0.00186	9.9
HLA-A*02:06	1	1258	1267	10	SEPVLKGVKL 0.00186	16
HLA-A*30:01	1	74	83	10	NGTKRFANPV 0.001859	20
HLA-B*57:01	1	1125	1133	9	VVIGIVNNT 0.001859	15
HLA-A*02:01	1	114	123	10	TQSLIVNNA 0.001858	11
HLA-B*51:01	1	258	266	9	GAAAYVGY 0.001858	14
HLA-A*02:06	1	77	86	10	KRFANPVLPF 0.001857	16
HLA-A*68:01	1	530	538	9	LVKNKCVNF 0.001857	13
HLA-A*02:01	1	611	620	10	GVNCTEVPVA 0.001857	11
HLA-A*68:02	1	1016	1024	9	RASANLAAT 0.001857	12
HLA-B*15:01	1	203	212	10	IYSKHTPINL 0.001856	11
HLA-B*58:01	1	303	311	9	FTVEKGIYQ 0.001856	9.9
HLA-B*58:01	1	592	601	10	VSVITPGTNT 0.001855	9.9
HLA-B*51:01	1	865	874	10	EMIAQYTSAL 0.001855	14
HLA-B*44:02	1	914	923	10	YENQKLIANQ 0.001855	6.0
HLA-A*68:01	1	267	276	10	LQPRTFLLKY 0.001854	13
HLA-A*01:01	1	339	347	9	FNATRFASV 0.001854	11
HLA-B*57:01	1	376	384	9	CYGVSPTKL 0.001854	15
HLA-B*44:03	1	658	667	10	ECDIPIGAGI 0.001854	6.1

HLA-A*01:01	1	870	878	9	YTSALLAGT 0.001854	11
HLA-B*15:01	1	1253	1262	10	FDDEDDSEPV 0.001854	11
HLA-A*30:02	1	1257	1265	9	DSEPVKLG 0.001854	18
HLA-B*15:01	1	75	84	10	GTKRFANPVL 0.001852	11
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*68:02	1	887	896	10	AGAALQIPFA 0.00185	12
HLA-A*32:01	1	905	914	10	GIGVTQNVLY 0.00185	7.9
HLA-B*08:01	1	40	49	10	DKVFRSSVLH 0.001849	15
HLA-A*30:01	1	351	360	10	NRKRISNCVA 0.001849	20
HLA-A*30:01	1	642	650	9	TRAGCLIGA 0.001849	20
HLA-A*11:01	1	707	715	9	NSIAIPTNF 0.001849	7.8
HLA-A*32:01	1	606	614	9	AVLYQGVNC 0.001848	7.9
HLA-A*33:01	1	6	14	9	VLLPLVSSQ 0.001847	11
HLA-A*11:01	1	324	332	9	VRFPNITNL 0.001847	7.8
HLA-A*31:01	1	1090	1099	10	GVFVSNGTHW 0.001847	13
HLA-A*30:01	1	1094	1102	9	SNGTHWFVT 0.001847	20
HLA-B*53:01	1	522	531	10	CGPKKSTNLV 0.001846	7.1
HLA-B*15:01	1	902	910	9	RFNGIGVTQ 0.001846	11
HLA-A*01:01	1	985	994	10	EAEVQIDRLI 0.001846	11
HLA-B*58:01	1	58	66	9	FFSNVTWFH 0.001845	9.9
HLA-A*30:02	1	304	313	10	TVEKGIYQTS 0.001845	18
HLA-A*02:03	1	615	623	9	TEVPVAIHA 0.001845	13
HLA-A*02:06	1	633	642	10	YSTGSNVFQT 0.001845	16
HLA-B*57:01	1	716	724	9	TISVTTEIL 0.001845	15
HLA-B*58:01	1	940	949	10	SALGKLQDVV 0.001845	9.9
HLA-A*30:02	1	976	984	9	DILSRLDKV 0.001845	18
HLA-A*23:01	1	993	1001	9	LITGRLQSL 0.001845	6.4
HLA-B*08:01	1	1100	1108	9	FVTQRNFYE 0.001845	15
HLA-B*44:02	1	222	231	10	ALEPLVDLPI 0.001844	6.0
HLA-A*23:01	1	321	329	9	ESIVRFPNI 0.001844	6.4
HLA-B*44:02	1	1136	1145	10	DPLQPELDSF 0.001844	6.0
HLA-A*30:01	1	1201	1209	9	GKYEQYIKW 0.001844	20
HLA-A*68:01	1	166	174	9	CTFEYVSQP 0.001843	13
HLA-A*30:02	1	235	244	10	ITRFQTLHRS 0.001843	18
HLA-A*30:02	1	1125	1134	10	VVIGIVNNTV 0.001843	18
HLA-A*31:01	1	97	106	10	KSNIIRGWIF 0.001842	13
HLA-B*44:03	1	267	276	10	LQPRTFLLKY 0.001842	6.2
HLA-A*01:01	1	345	353	9	ASVYAWNRRK 0.001842	11
HLA-A*02:01	1	27	36	10	AYTNSFTRGV 0.001841	11
HLA-A*26:01	1	277	286	10	NENGTITDAV 0.001841	8.1
HLA-A*33:01	1	318	326	9	QPTESIVRF 0.001841	11
HLA-A*24:02	1	391	400	10	NVYADSFVIR 0.001841	6.3
HLA-A*30:01	1	592	601	10	VSVITPGTNT 0.001841	20
HLA-A*68:01	1	1000	1008	9	SLQTYVTQQ 0.001841	13
HLA-B*07:02	1	1206	1214	9	YIKWPWYIW 0.001841	8.8
HLA-B*57:01	1	12	20	9	SSQCVNLT 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*35:01	1	238	246	9	FQTLHRSYL 0.00184	7.9
HLA-B*57:01	1	718	727	10	SVTTEILPVS 0.00184	15
HLA-A*30:01	1	996	1005	10	GRLQSLQTYV 0.00184	20
HLA-A*02:03	1	1116	1125	10	NTFVSGNCDV 0.00184	13
HLA-A*26:01	1	615	623	9	TEVPVAIHA 0.001839	8.1
HLA-A*32:01	1	1193	1202	10	SLIDLQELGK 0.001839	7.9
HLA-B*08:01	1	238	247	10	FQTLHRSYLT 0.001838	15
HLA-A*68:01	1	358	367	10	CVADYSVLYN 0.001838	13
HLA-B*40:01	1	363	371	9	SVLYNSASF 0.001838	5.8
HLA-A*01:01	1	944	953	10	KLQDVVNQNA 0.001838	11
HLA-A*23:01	1	1103	1111	9	QRNFYEPQI 0.001838	6.4
HLA-A*11:01	1	1126	1135	10	VIGIVNNTVY 0.001838	7.8
HLA-A*30:02	1	421	429	9	KLPDDFTGC 0.001837	18
HLA-A*30:02	1	116	124	9	SLIVNNTAT 0.001836	18
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	254	262	9	GWTAGAAAY 0.001835	20

HLA-A*02:01	1	341	349	9	ATRFASVYA 0.001835	11
HLA-B*15:01	1	1036	1045	10	RVDFCGKGYH 0.001835	11
HLA-A*26:01	1	1097	1106	10	THWVFTQRNF 0.001835	8.1
HLA-B*51:01	1	1130	1138	9	VNNTVYDPL 0.001835	14
HLA-A*02:06	1	372	381	10	STFKCYGVSP 0.001834	16
HLA-B*58:01	1	604	612	9	QVAVLYQGV 0.001834	9.9
HLA-B*51:01	1	621	629	9	IHADQLTPT 0.001834	14
HLA-B*35:01	1	701	709	9	SVAYSNNSI 0.001834	7.9
HLA-B*51:01	1	876	885	10	AGTITSGWTF 0.001834	14
HLA-A*02:01	1	363	372	10	SVLYNSASF 0.001833	11
HLA-B*57:01	1	711	719	9	IPTNFTISV 0.001833	15
HLA-A*02:06	1	384	392	9	LNDLCFTNV 0.001832	16
HLA-A*30:01	1	1202	1210	9	KYEQYIKWP 0.001832	20
HLA-B*44:03	1	109	117	9	TLDSKTQSL 0.001831	6.2
HLA-B*44:02	1	460	469	10	PFERDISTEI 0.001831	6.1
HLA-A*32:01	1	918	927	10	KLIANQFN 0.001831	7.9
HLA-A*32:01	1	1053	1061	9	APHGVVFLH 0.001831	7.9
HLA-A*32:01	1	1192	1200	9	ESLIDLQEL 0.001831	7.9
HLA-B*58:01	1	265	273	9	GYLQPRFL 0.00183	9.9
HLA-B*15:01	1	358	367	10	CVADYSVLYN 0.00183	11
HLA-B*08:01	1	159	168	10	VYSSANNCTF 0.001829	15
HLA-A*30:02	1	485	493	9	CYFPLQSYG 0.001829	18
HLA-B*40:01	1	922	931	10	NQFNSAIGKI 0.001829	5.8
HLA-B*40:01	1	276	285	10	YNENGTITDA 0.001828	5.8
HLA-A*02:03	1	556	564	9	FLPFQQFGR 0.001828	13
HLA-B*44:02	1	839	847	9	GDIAARDLI 0.001828	6.1
HLA-B*15:01	1	843	852	10	ARDLICAQKF 0.001828	11
HLA-A*01:01	1	1001	1009	9	LQTYVTQQL 0.001828	11
HLA-A*02:03	1	78	86	9	RFANPVL 0.001827	13
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	QGNFKNREF 0.001827	6.4
HLA-B*58:01	1	862	871	10	LTDEMIAQYT 0.001827	9.9
HLA-A*02:03	1	1016	1024	9	RASANLAAT 0.001827	13
HLA-A*30:02	1	1044	1053	10	YHLMSFPQSA 0.001827	18
HLA-B*44:03	1	615	624	10	TEVPVAIHAD 0.001825	6.2
HLA-A*68:02	1	619	627	9	VAIHADQLT 0.001824	12
HLA-B*53:01	1	306	315	10	EKGIYQTSNF 0.001823	7.1
HLA-B*44:03	1	357	366	10	NCVADYSVLY 0.001823	6.2
HLA-B*51:01	1	1014	1022	9	EIRASANLA 0.001823	14
HLA-A*02:03	1	163	171	9	ANNCTFEYV 0.001822	13
HLA-A*24:02	1	902	910	9	RFNGIGVTQ 0.001822	6.4
HLA-A*30:02	1	952	960	9	NAQALNTLV 0.001822	18
HLA-B*08:01	1	469	477	9	IYQAGSTPC 0.001821	15
HLA-A*30:02	1	763	771	9	ALTGIAVEQ 0.001821	18
HLA-B*44:02	1	1103	1111	9	QRNFYEPQI 0.001821	6.1
HLA-B*08:01	1	115	123	9	QSLLVNNA 0.00182	15
HLA-A*68:02	1	351	359	9	NRKRISNCV 0.00182	12
HLA-A*68:02	1	459	467	9	KPFERDIST 0.00182	12
HLA-A*26:01	1	1014	1023	10	EIRASANLAA 0.00182	8.2
HLA-B*58:01	1	548	557	10	VLTESNKKFL 0.001819	10
HLA-B*57:01	1	633	641	9	YSTGSNVFQ 0.001819	15
HLA-A*30:02	1	761	769	9	NRALTGI 0.001819	18
HLA-B*15:01	1	986	994	9	AEVQIDRLI 0.001819	11
HLA-A*26:01	1	803	811	9	LPDPSKPSK 0.001818	8.2
HLA-A*02:06	1	837	846	10	CLGDIAARDL 0.001818	16
HLA-A*02:01	1	857	865	9	VLPLLLTDE 0.001818	11
HLA-A*33:01	1	1096	1105	10	GTHWVFTQRN 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	950	959	10	NONAALNTL 0.001817	6.1
HLA-A*32:01	1	655	663	9	NSYECDIPI 0.001816	7.9
HLA-A*30:01	1	1009	1018	10	LIRAAEIRAS 0.001816	20
HLA-A*03:01	1	1146	1154	9	KEELDKYFK 0.001816	9.2
HLA-A*33:01	1	412	421	10	TGNIADYNYK 0.001815	11
HLA-A*24:02	1	461	469	9	FERDISTEI 0.001815	6.4



HLA-A*30:02	1	514	522	9	LLHAPATVC 0.001815	18
HLA-A*02:06	1	570	579	10	TDAVRDPQTL 0.001815	16
HLA-B*35:01	1	335	344	10	FGEVFNATRF 0.001814	7.9
HLA-A*30:02	1	463	472	10	RDISTEIYQA 0.001814	18
HLA-B*15:01	1	1141	1149	9	ELDSFKEEL 0.001814	11
HLA-B*44:02	1	1205	1214	10	QYIKWPWYIW 0.001814	6.1
HLA-B*15:01	1	247	255	9	TPGDSSSGW 0.001813	11
HLA-A*68:01	1	901	910	10	YRFNGIGVTQ 0.001813	13
HLA-B*58:01	1	998	1007	10	LQSLQTYVTQ 0.001813	10
HLA-A*30:01	1	692	700	9	YTMSLGVEN 0.001812	20
HLA-B*58:01	1	856	865	10	TVLPPLLTDE 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	840	848	9	DIAARDLIC 0.001811	12
HLA-B*44:03	1	953	961	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	265	274	10	GYLQPRTFLL 0.00181	8.9
HLA-B*08:01	1	719	728	10	VTTEILPVSM 0.001809	15
HLA-A*31:01	1	317	326	10	VQPTESIVRF 0.001807	13
HLA-A*33:01	1	366	374	9	YNSASFSTF 0.001807	11
HLA-B*51:01	1	496	504	9	PTYGVGYQP 0.001807	14
HLA-A*31:01	1	868	876	9	AQYTSALLA 0.001807	13
HLA-A*31:01	1	999	1007	9	QSLQTYVTQ 0.001807	13
HLA-A*01:01	1	1046	1055	10	LMSFPPQSAPH 0.001806	11
HLA-B*44:03	1	29	38	10	TNSFTRGVYY 0.001805	6.2
HLA-A*02:03	1	1185	1193	9	EVAKNLNES 0.001805	13
HLA-A*30:01	1	611	620	10	GVNCTEVPVA 0.001804	21
HLA-B*40:01	1	707	715	9	NSIAIPTNF 0.001803	5.8
HLA-A*68:01	1	1036	1044	9	RVDFCGKGY 0.001803	13
HLA-B*35:01	1	1158	1167	10	SPDVDLGDIS 0.001803	7.9
HLA-A*02:06	1	1165	1174	10	DISGINASVV 0.001803	16
HLA-A*02:03	1	265	273	9	GYLQPRTFLL 0.001802	13
HLA-B*08:01	1	780	788	9	AQVKQIYKT 0.001802	15
HLA-A*01:01	1	71	79	9	SGTNGTKRF 0.001801	11
HLA-A*32:01	1	499	508	10	GVGYQPYRVV 0.001801	8.0
HLA-B*15:01	1	1110	1119	10	QIITTDNTFV 0.001801	11
HLA-B*58:01	1	1204	1212	9	EQYIKWPWY 0.001801	10
HLA-B*08:01	1	422	431	10	LPDDFTGCVI 0.0018	15
HLA-A*68:01	1	438	446	9	LDSKVGNGY 0.0018	13
HLA-B*07:02	1	719	728	10	VTTEILPVSM 0.0018	8.9
HLA-A*23:01	1	1041	1049	9	GKGYHLMSF 0.0018	6.5
HLA-A*01:01	1	1084	1092	9	AHFPREGVF 0.0018	11
HLA-A*68:02	1	211	220	10	NLVRGLPQGF 0.001797	12
HLA-B*35:01	1	510	518	9	LSFELLHAP 0.001797	7.9
HLA-B*44:02	1	695	704	10	SLGVENSVAV 0.001797	6.1
HLA-B*51:01	1	926	934	9	SAIGKIQDS 0.001797	15
HLA-B*15:01	1	680	688	9	RARSVASQS 0.001796	11
HLA-A*26:01	1	1177	1186	10	QKEIDRLNEV 0.001796	8.2
HLA-B*44:02	1	574	582	9	RDPQTLEIL 0.001795	6.1
HLA-A*24:02	1	670	679	10	SYQTQTNSPR 0.001795	6.4
HLA-A*30:01	1	1044	1052	9	YHLMSFPQS 0.001795	21
HLA-A*03:01	1	506	514	9	RVVLSFEL 0.001794	9.3
HLA-B*15:01	1	690	698	9	IAYTMSLGV 0.001794	11
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-A*02:06	1	405	414	10	RQIAPGQTGN 0.001793	16
HLA-B*35:01	1	711	720	10	IPNFTISVT 0.001793	7.9
HLA-A*01:01	1	976	984	9	DILSRLDKV 0.001793	11
HLA-B*08:01	1	1032	1040	9	GQSKRVDFC 0.001793	15
HLA-A*23:01	1	1204	1212	9	EQYIKWPWY 0.001793	6.5
HLA-B*53:01	1	497	505	9	TYGVGYQPY 0.001792	7.2
HLA-A*03:01	1	573	581	9	VRDPQTLFI 0.001792	9.3
HLA-A*01:01	1	1234	1242	9	MTSCCSCLK 0.001792	11
HLA-B*58:01	1	624	633	10	DQLTPTWRVY 0.001791	11
HLA-A*23:01	1	708	717	10	SIAIPTNFTI 0.001791	6.5

HLA-A*02:01	1	1077	1086	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	272	280	9	FLLKYNENG 0.001789	13
HLA-A*01:01	1	445	453	9	NYNYLYRLF 0.001789	11
HLA-A*30:01	1	79	87	9	FANPVLFPN 0.001788	21
HLA-A*01:01	1	570	579	10	TDAVRDPQTL 0.001788	11
HLA-B*58:01	1	707	716	10	NSIAIPTNFT 0.001788	11
HLA-A*30:02	1	1014	1022	9	EIRASANLA 0.001788	18
HLA-B*44:03	1	511	520	10	SFELLHAPAT 0.001787	6.3
HLA-A*30:02	1	687	696	10	QSIIAYTMSL 0.001787	18
HLA-B*07:02	1	694	702	9	MSLGVENSV 0.001787	8.9
HLA-B*58:01	1	1169	1178	10	INASVVNIQK 0.001787	11
HLA-B*44:03	1	570	579	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*02:03	1	606	614	9	AVLYQGVNC 0.001785	13
HLA-A*11:01	1	527	535	9	STNLVKKNC 0.001784	7.9
HLA-B*44:03	1	572	581	10	AVRDPQTEI 0.001784	6.3
HLA-A*02:03	1	1059	1068	10	FLHVTVVPAQ 0.001784	13
HLA-A*68:02	1	188	197	10	NLREFVFKNI 0.001783	12
HLA-B*58:01	1	823	832	10	VTLADAGFIK 0.001783	11
HLA-B*35:01	1	886	895	10	GAGAALQIPF 0.001783	8.0
HLA-A*01:01	1	311	319	9	QTSNFRVQP 0.001781	11
HLA-A*68:02	1	369	377	9	ASFSTFKCY 0.001781	12
HLA-A*68:02	1	1028	1036	9	ECVLGQSKR 0.001781	12
HLA-A*03:01	1	566	574	9	IADTTDAVR 0.00178	9.3
HLA-A*31:01	1	854	862	9	GLTVLPPLL 0.00178	13
HLA-B*44:03	1	35	43	9	GVYYPDKVF 0.001779	6.3
HLA-A*31:01	1	134	143	10	QFCNDPFLGV 0.001779	13
HLA-A*01:01	1	951	959	9	QNAQALNTL 0.001779	11
HLA-A*68:02	1	1067	1075	9	AQEKNFTTA 0.001779	12
HLA-B*08:01	1	1084	1093	10	AHFPREGVVF 0.001779	15
HLA-A*02:03	1	263	272	10	YVGYLQPRTF 0.001778	13
HLA-A*30:02	1	506	515	10	RVVVLSFELL 0.001778	18
HLA-A*31:01	1	849	858	10	AQKFNGLTVL 0.001778	13
HLA-B*44:02	1	614	623	10	CTEVPVAIHA 0.001776	6.1
HLA-A*30:01	1	1260	1268	9	PVLKGVKLN 0.001776	21
HLA-B*08:01	1	118	126	9	LIVNNATNV 0.001775	15
HLA-B*51:01	1	1171	1180	10	ASVVNIQKEI 0.001775	15
HLA-A*68:01	1	35	43	9	GVYYPDKVF 0.001774	13
HLA-A*02:01	1	759	768	10	QLNRALTGIA 0.001774	11
HLA-B*57:01	1	120	128	9	VNNATNVVI 0.001773	15
HLA-A*24:02	1	424	433	10	DDFTGCVIAW 0.001773	6.4
HLA-A*26:01	1	204	213	10	YSKHTPINLV 0.001772	8.3
HLA-A*02:01	1	770	779	10	EQDKNTQEVF 0.001772	11
HLA-A*02:06	1	971	980	10	SSVLNDILSR 0.001772	16
HLA-B*07:02	1	681	689	9	ARSVASQSI 0.001771	9.0
HLA-B*53:01	1	966	974	9	NFGAISSVL 0.00177	7.2
HLA-A*30:02	1	1134	1143	10	VYDPLQPELD 0.00177	18
HLA-A*02:01	1	719	727	9	VTTEILPVS 0.001769	11
HLA-A*02:06	1	953	962	10	AQALNTLVKQ 0.001769	16
HLA-A*24:02	1	1039	1047	9	FCGKGYHLM 0.001769	6.5
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	254	262	9	GWTAGAAAY 0.001768	6.5
HLA-B*44:03	1	574	582	9	RDPQTLEIL 0.001768	6.3
HLA-A*68:01	1	718	726	9	SVTTEILPV 0.001768	13
HLA-A*30:01	1	822	831	10	KVTLADAGFI 0.001768	21
HLA-A*02:06	1	217	226	10	PQGFSALEPL 0.001767	16
HLA-B*08:01	1	398	407	10	VIRGDEVQR 0.001767	15
HLA-A*30:02	1	1145	1153	9	FKEELDKYF 0.001767	18
HLA-A*02:03	1	399	407	9	IRGDEVQR 0.001766	13
HLA-A*23:01	1	867	875	9	IAQYTSALL 0.001766	6.5
HLA-B*08:01	1	1104	1112	9	RNFYEPQII 0.001766	15

HLA-A*11:01	1	199	207	9	GYFKIYSKH 0.001765	7.9
HLA-A*31:01	1	517	526	10	APATVCGPKK 0.001765	13
HLA-B*15:01	1	620	628	9	AIHADQLTP 0.001765	12
HLA-B*08:01	1	914	922	9	YENOKLIAN 0.001765	15
HLA-B*53:01	1	1209	1218	10	WPWYIWLGF 0.001765	7.2
HLA-B*44:02	1	77	86	10	KRFANPVLFP 0.001764	6.2
HLA-A*02:01	1	489	498	10	LQSYGFQPTY 0.001764	11
HLA-B*57:01	1	406	415	10	QIAPGQTGNI 0.001763	15
HLA-A*02:06	1	1166	1174	9	ISGINASVV 0.001763	16
HLA-B*53:01	1	79	87	9	FANPVLFPN 0.001762	7.2
HLA-A*24:02	1	407	415	9	IAPGQTGNI 0.001762	6.5
HLA-A*31:01	1	856	865	10	TVLPPLLTDE 0.001761	13
HLA-B*08:01	1	1168	1176	9	GINASVVNI 0.001761	15
HLA-A*68:01	1	410	418	9	GQTGNIADY 0.00176	13
HLA-B*57:01	1	410	418	9	GQTGNIADY 0.00176	15
HLA-A*68:01	1	638	647	10	NVFQTRAGCL 0.00176	13
HLA-A*02:03	1	694	703	10	MSLGVENSVA 0.00176	13
HLA-B*51:01	1	1198	1206	9	QELGKYEYQ 0.00176	15
HLA-A*02:06	1	169	177	9	EYVSQPFLM 0.001759	16
HLA-B*15:01	1	308	316	9	GIYQTSNFR 0.001758	12
HLA-A*33:01	1	340	348	9	NATRFASVY 0.001758	11
HLA-A*03:01	1	530	538	9	LVKNKCVNF 0.001758	9.3
HLA-A*30:02	1	762	770	9	RALTGIAVE 0.001758	18
HLA-B*35:01	1	866	875	10	MIAQYTSALL 0.001758	8.0
HLA-A*68:01	1	1233	1242	10	CMTSCCCLK 0.001758	13
HLA-A*68:02	1	1253	1261	9	FDEDDSEPV 0.001758	12
HLA-B*44:02	1	399	407	9	IRGDEVRIQ 0.001757	6.2
HLA-B*35:01	1	1057	1065	9	VVFLHVTVV 0.001757	8.0
HLA-B*08:01	1	192	200	9	FVFKNIDGY 0.001756	15
HLA-A*30:01	1	878	886	9	TITSGWTFG 0.001756	21
HLA-A*02:01	1	1020	1029	10	NLAATKMSEC 0.001756	11
HLA-B*51:01	1	509	518	10	VLSFELLHAP 0.001755	15
HLA-A*31:01	1	42	50	9	VFRSSVLHS 0.001754	13
HLA-A*30:02	1	379	387	9	VSPTKLNDL 0.001754	18
HLA-A*26:01	1	622	631	10	HADQLTPTWR 0.001754	8.3
HLA-A*26:01	1	333	341	9	CPFGEVFNA 0.001753	8.3
HLA-A*33:01	1	805	814	10	DPSKPSKRSF 0.001753	11
HLA-B*58:01	1	854	863	10	GLTVLPPLLT 0.001753	11
HLA-A*01:01	1	1206	1214	9	YIKWPWYIW 0.001753	11
HLA-A*68:02	1	214	223	10	RGLPQGFSAL 0.001752	12
HLA-A*32:01	1	940	948	9	SALGKLQDV 0.001752	8.1
HLA-B*44:03	1	1109	1118	10	PQIITTDNTF 0.001752	6.3
HLA-B*40:01	1	132	141	10	EFQFCNDPFL 0.001751	5.9
HLA-A*01:01	1	598	607	10	GTNTSNQVAV 0.001751	11
HLA-A*68:01	1	5	14	10	LVLLPLVSSQ 0.00175	13
HLA-A*23:01	1	247	255	9	TPGDSSSGW 0.00175	6.5
HLA-A*30:01	1	434	442	9	NSNNLDSKV 0.00175	21
HLA-A*33:01	1	511	519	9	SFELLHAPA 0.00175	11
HLA-B*58:01	1	613	621	9	NCTEVPVAI 0.00175	11
HLA-A*30:02	1	1252	1260	9	KFDEDDSEP 0.00175	18
HLA-B*15:01	1	721	730	10	TEILPVSMTK 0.001749	12
HLA-B*51:01	1	767	775	9	IAVEQDKNT 0.001749	15
HLA-A*24:02	1	869	877	9	QYTSALLAG 0.001749	6.5
HLA-B*08:01	1	1014	1023	10	EIRASANLAA 0.001749	15
HLA-A*02:06	1	680	689	10	RARSVASQSI 0.001747	16
HLA-A*30:02	1	1200	1209	10	LGKYEYIKW 0.001747	18
HLA-A*26:01	1	984	992	9	VEAEVQIDR 0.001746	8.3
HLA-B*57:01	1	212	221	10	LVRGLPQGF 0.001745	15
HLA-B*57:01	1	491	500	10	SYGFQPTYGV 0.001745	15
HLA-A*03:01	1	593	601	9	SVITPGTNT 0.001745	9.4
HLA-A*31:01	1	253	262	10	SGWTAGAAAY 0.001744	13
HLA-A*30:01	1	312	321	10	TSNFRVQPT 0.001744	21
HLA-A*01:01	1	346	354	9	SVYAWNRKR 0.001744	11
HLA-B*53:01	1	83	91	9	VLPFNDGVY 0.001743	7.3
HLA-A*32:01	1	413	422	10	GNIADYNYKL 0.001743	8.1
HLA-A*30:02	1	1136	1145	10	DPLQPELDSF 0.001743	18

HLA-B*08:01	1	683	691	9	SVASQSIIA 0.001742	15
HLA-A*33:01	1	1026	1035	10	MSECVLGQSK 0.001742	11
HLA-B*51:01	1	1201	1209	9	GKYEQYIKW 0.001742	15
HLA-A*02:06	1	15	24	10	CVNLTRTRTQL 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*57:01	1	497	505	9	TYGVGYQPY 0.001741	15
HLA-B*08:01	1	675	683	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	QGNFKNLREF 0.00174	8.3
HLA-A*32:01	1	257	266	10	AGAAAYYVGY 0.00174	8.1
HLA-B*58:01	1	741	750	10	GDSTECSNLL 0.00174	11
HLA-B*53:01	1	1051	1060	10	QSAPHGVVFL 0.00174	7.3
HLA-B*44:03	1	839	847	9	GDIAARDLI 0.001739	6.3
HLA-B*58:01	1	1002	1011	10	QTYVTQQLIR 0.001739	11
HLA-A*01:01	1	1122	1130	9	NCDVVIGIV 0.001739	11
HLA-B*35:01	1	1175	1183	9	NIQKEIDRL 0.001739	8.0
HLA-B*57:01	1	1209	1217	9	WPWYIWLGF 0.001739	15
HLA-A*26:01	1	396	405	10	SFVIRGDEVV 0.001738	8.3
HLA-B*51:01	1	807	815	9	SKPSKRSFI 0.001738	15
HLA-A*26:01	1	1212	1221	10	YIWLGFIAGL 0.001738	8.3
HLA-A*02:06	1	897	905	9	MQMAYRFNG 0.001737	16
HLA-A*24:02	1	572	581	10	AVRDPQTLEI 0.001736	6.5
HLA-B*51:01	1	759	767	9	QLNRALTGI 0.001736	15
HLA-B*51:01	1	5	13	9	LVLPLVSS 0.001734	15
HLA-A*30:01	1	979	987	9	SRLDKVEAE 0.001734	21
HLA-A*02:03	1	75	84	10	GTKRFANPVL 0.001733	13
HLA-B*51:01	1	265	273	9	GYLQPRTFL 0.001733	15
HLA-B*51:01	1	649	657	9	GAEHVNNSY 0.001732	15
HLA-B*40:01	1	854	862	9	GLTVLPELL 0.001732	5.9
HLA-A*03:01	1	744	753	10	TECSNLLLQY 0.001731	9.4
HLA-B*51:01	1	1110	1119	10	QIITDNTFV 0.001731	15
HLA-A*02:06	1	36	44	9	VYYPDKVFR 0.00173	16
HLA-B*51:01	1	625	633	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*23:01	1	491	499	9	SYGFQPTYG 0.001728	6.6
HLA-A*02:03	1	648	656	9	IGAHEVNNS 0.001728	13
HLA-A*33:01	1	501	509	9	GYQPYRVVV 0.001727	11
HLA-A*68:02	1	793	802	10	DFGGFNFSQI 0.001727	12
HLA-B*51:01	1	188	197	10	NLREFVFKNI 0.001725	15
HLA-A*23:01	1	392	401	10	VYADSFVIRG 0.001725	6.6
HLA-B*07:02	1	398	407	10	VIRGDEVVQI 0.001725	9.1
HLA-A*32:01	1	905	913	9	GIGVTQNVL 0.001725	8.2
HLA-A*02:06	1	1227	1235	9	VTIMLCCMT 0.001725	16
HLA-A*11:01	1	335	343	9	FGEVFNATR 0.001724	8.0
HLA-A*30:02	1	639	647	9	VFQTRAGCL 0.001724	18
HLA-A*11:01	1	744	753	10	TECSNLLLQY 0.001724	8.0
HLA-B*35:01	1	1203	1212	10	YEQYIKWPWY 0.001724	8.1
HLA-A*30:01	1	1075	1083	9	APAICHDGK 0.001723	21
HLA-A*03:01	1	15	23	9	CVNLTRTRTQ 0.001722	9.4
HLA-B*15:01	1	510	518	9	LSFELLHAP 0.001722	12
HLA-A*02:06	1	228	236	9	DLPIGINIT 0.001721	16
HLA-A*11:01	1	648	657	10	IGAHEVNNSY 0.001721	8.0
HLA-A*30:02	1	888	897	10	GAALQIPFAM 0.001721	18
HLA-B*51:01	1	1101	1109	9	VTQRNFYEP 0.001721	15
HLA-A*30:02	1	745	754	10	ECSNLLLQYG 0.00172	18
HLA-A*68:01	1	1257	1265	9	DSEPVLKGV 0.00172	13
HLA-B*08:01	1	913	921	9	LYENQKLIA 0.001719	15
HLA-A*32:01	1	267	275	9	LQPRTFLLK 0.001718	8.2
HLA-A*30:01	1	367	376	10	NSASFSTFKC 0.001718	21
HLA-B*58:01	1	722	730	9	EILPVSMTK 0.001718	11
HLA-A*68:02	1	958	967	10	TLVKQLSSNF 0.001718	12
HLA-A*68:02	1	38	46	9	YDPKVFRSS 0.001717	12
HLA-A*02:03	1	599	607	9	TNTSNQVAV 0.001717	13
HLA-B*58:01	1	270	279	10	RTFLLKYNEN 0.001716	11

HLA-A*23:01	1	492	500	9	YGFQPTYGV	0.001716	6.6
HLA-A*33:01	1	997	1005	9	RLQSLQTYV	0.001716	11
HLA-A*68:02	1	170	178	9	YVSQPFLMD	0.001715	12
HLA-A*23:01	1	631	639	9	RVYSTGSNV	0.001715	6.6
HLA-A*02:06	1	725	733	9	PVSMTKTSV	0.001715	16
HLA-A*33:01	1	1074	1083	10	TAPAICHGDK	0.001715	11
HLA-A*01:01	1	226	234	9	LVDLPIGIN	0.001714	11
HLA-A*02:06	1	610	619	10	QGVNCTEVPV	0.001714	16
HLA-A*30:02	1	984	993	10	VEAEVQIDRL	0.001714	18
HLA-A*33:01	1	1259	1267	9	EPVLKGVKL	0.001714	11
HLA-B*07:02	1	155	163	9	SEFRVYSSA	0.001712	9.1
HLA-A*02:06	1	1104	1113	10	RNFYEQIIT	0.001712	16
HLA-A*01:01	1	527	535	9	STNLVKKNC	0.001711	11
HLA-A*68:01	1	804	812	9	PDPSKPSKR	0.001711	13
HLA-A*68:02	1	317	326	10	VQPTESIVRF	0.00171	13
HLA-B*57:01	1	390	399	10	TNVYADSFVI	0.00171	15
HLA-B*15:01	1	643	652	10	RAGCLIGAEH	0.00171	12
HLA-A*30:02	1	710	719	10	AIPTNFTISV	0.00171	18
HLA-B*35:01	1	1097	1106	10	THWVFTQRNF	0.00171	8.1
HLA-B*58:01	1	191	200	10	EFVFKNIDGY	0.001709	11
HLA-B*58:01	1	643	652	10	RAGCLIGAEH	0.001709	11
HLA-A*24:02	1	777	786	10	EVFAQVKQIY	0.001709	6.6
HLA-B*08:01	1	1020	1028	9	NLAATKMSE	0.001709	15
HLA-B*08:01	1	713	721	9	TNFTISVTT	0.001708	15
HLA-A*02:03	1	184	193	10	GNFKNLREFV	0.001707	13
HLA-B*15:01	1	457	465	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	341	349	9	ATRFASVYA	0.001706	11
HLA-A*68:01	1	518	526	9	PATVCGPKK	0.001706	13
HLA-B*07:02	1	548	556	9	VLTESNKKF	0.001705	9.1
HLA-B*40:01	1	729	737	9	TKTSVDCTM	0.001705	5.9
HLA-A*02:06	1	758	766	9	TQLNRALTG	0.001705	16
HLA-A*33:01	1	915	923	9	ENQKLIANQ	0.001705	11
HLA-A*02:01	1	1001	1010	10	LQTYVTQQLI	0.001705	12
HLA-A*33:01	1	386	394	9	DLCFTNVYA	0.001704	11
HLA-A*32:01	1	822	831	10	KVTLADAGFI	0.001704	8.2
HLA-A*30:02	1	1259	1267	9	EPVLKGVKL	0.001704	18
HLA-B*08:01	1	722	730	9	EILPVSMTK	0.001703	15
HLA-B*57:01	1	29	37	9	TNSFTRGVY	0.001702	15
HLA-A*68:01	1	552	560	9	SNKKFLPFQ	0.001702	13
HLA-B*57:01	1	938	946	9	TASALGKLQ	0.001702	15
HLA-A*23:01	1	1105	1114	10	NFYEQIITT	0.001702	6.6
HLA-B*07:02	1	649	657	9	GAEHVNSY	0.001701	9.1
HLA-A*02:01	1	688	697	10	SIAYTMSLG	0.001701	12
HLA-A*01:01	1	732	740	9	SVDCTMYIC	0.001701	11
HLA-A*30:01	1	317	326	10	VQPTESIVRF	0.0017	21
HLA-A*30:02	1	383	391	9	KLNDLCFTN	0.0017	18
HLA-A*11:01	1	715	723	9	FTISVTTEI	0.0017	8.0
HLA-A*68:01	1	812	820	9	RSFIEDLLF	0.0017	13
HLA-A*26:01	1	316	324	9	RVQPTESIV	0.001699	8.4
HLA-B*07:02	1	449	458	10	LYRLFRRKSNL	0.001699	9.1
HLA-A*30:02	1	868	877	10	AQYTSALLAG	0.001699	18
HLA-B*40:01	1	1002	1010	9	QTYVTQQLI	0.001699	5.9
HLA-A*32:01	1	1171	1180	10	ASVUNIQKEI	0.001699	8.2
HLA-A*23:01	1	16	24	9	VNLTRTQQL	0.001698	6.6
HLA-A*33:01	1	21	29	9	RTQLPPAYT	0.001698	11
HLA-A*02:06	1	522	530	9	CGPKKSTNL	0.001698	16
HLA-B*51:01	1	950	959	10	NQNAQALNTL	0.001698	15
HLA-B*51:01	1	1023	1031	9	ATKMSECVL	0.001698	15
HLA-A*33:01	1	1212	1221	10	YIWLGFIAGL	0.001698	11
HLA-A*02:03	1	385	394	10	NDLCTNVYA	0.001697	13
HLA-B*35:01	1	1077	1086	10	AICHGKAHF	0.001697	8.1
HLA-A*30:02	1	1111	1119	9	IITTDNTFV	0.001697	18
HLA-A*02:01	1	78	86	9	RFANPVLFP	0.001696	12

HLA-A*30:01	1	507	516	10	VVLSFELLH 0.001696	21
HLA-A*68:02	1	738	746	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	FHAIHVSGT 0.001693	15
HLA-B*44:02	1	502	510	9	YQPYRVVVL 0.001693	6.3
HLA-A*68:01	1	709	717	9	IAIPTNFTI 0.001693	13
HLA-A*31:01	1	842	850	9	AARDLICAQ 0.001693	13
HLA-A*68:02	1	1193	1201	9	SLIDLQELG 0.001693	13
HLA-A*30:02	1	1217	1225	9	FIAGLIAIV 0.001693	18
HLA-B*40:01	1	153	162	10	MESEFRVYSS 0.001692	5.9
HLA-B*08:01	1	494	502	9	FQPTYGVGY 0.001692	15
HLA-B*44:02	1	631	640	10	RVYSTGSNVF 0.001692	6.3
HLA-A*03:01	1	910	918	9	QNVLYENQK 0.001692	9.5
HLA-A*11:01	1	995	1004	10	TGRLQSLQTY 0.001692	8.0
HLA-A*30:02	1	1067	1076	10	AQEKNFTTAP 0.001692	18
HLA-A*02:01	1	1148	1156	9	ELDKYFKNH 0.001692	12
HLA-A*01:01	1	1162	1171	10	DLGDISGINA 0.001692	11
HLA-A*02:03	1	1214	1223	10	WLGFIAGLIA 0.001692	13
HLA-A*68:02	1	232	241	10	GINITRFQTL 0.001691	13
HLA-A*33:01	1	363	371	9	SVLYNSASF 0.001691	11
HLA-A*31:01	1	523	532	10	GPKKSTNLVK 0.001691	13
HLA-A*26:01	1	676	684	9	NSPRRARSV 0.001691	8.4
HLA-B*07:02	1	761	769	9	NRALTGIAV 0.001691	9.1
HLA-B*57:01	1	1126	1134	9	VIGIVNNTV 0.001691	15
HLA-A*68:01	1	1127	1135	9	IGIVNNTVY 0.001691	13
HLA-B*44:02	1	414	422	9	NIADYNYKL 0.00169	6.3
HLA-A*68:02	1	876	885	10	AGTITSGWTF 0.00169	13
HLA-B*44:03	1	1078	1086	9	ICHDGKAHF 0.00169	6.4
HLA-B*57:01	1	1132	1140	9	NTVYDPLQP 0.00169	15
HLA-A*32:01	1	56	65	10	LPFFSNVTWF 0.001689	8.3
HLA-B*57:01	1	499	508	10	GVGYQPYPVV 0.001689	15
HLA-A*02:03	1	560	569	10	QQFGRDIADT 0.001689	13
HLA-A*32:01	1	16	24	9	VNLTRTQQL 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	266	274	9	YLQPRTFLL 0.001688	6.3
HLA-A*30:02	1	629	637	9	TWRVYSTGS 0.001688	18
HLA-B*57:01	1	741	750	10	GDSTECSNLL 0.001688	15
HLA-A*68:02	1	622	631	10	HADQLTPTWR 0.001687	13
HLA-A*68:02	1	669	677	9	ASYQTQTNL 0.001687	13
HLA-A*23:01	1	430	438	9	VIAWNSNNL 0.001686	6.6
HLA-A*02:06	1	443	452	10	GGNYNYLYRL 0.001686	16
HLA-B*40:01	1	511	520	10	SFELLHAPAT 0.001686	5.9
HLA-B*51:01	1	29	38	10	TNSFTRGVVY 0.001685	15
HLA-A*11:01	1	72	80	9	GTNGTKRFA 0.001685	8.0
HLA-A*11:01	1	346	355	10	SVYAWNRKRI 0.001685	8.0
HLA-B*35:01	1	696	705	10	LGVENSVAVS 0.001685	8.1
HLA-A*02:06	1	781	789	9	QVKQIYKTP 0.001685	16
HLA-B*58:01	1	889	898	10	AALQIPFAMQ 0.001685	11
HLA-A*30:01	1	718	727	10	SVTTEILPVS 0.001684	21
HLA-B*53:01	1	132	140	9	EFQFCNDPF 0.001683	7.4
HLA-A*68:01	1	313	321	9	SNFRVQPT 0.001683	13
HLA-A*30:02	1	363	372	10	SVLYNSASF 0.001683	18
HLA-B*35:01	1	970	978	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	335	344	10	FGEVFNATRF 0.001682	15
HLA-B*53:01	1	496	505	10	PTYGVGYQPY 0.001682	7.4
HLA-B*07:02	1	904	913	10	NGIGVTQNVL 0.001681	9.2
HLA-B*44:03	1	1161	1169	9	VDLGDISGI 0.001681	6.4
HLA-B*15:01	1	824	832	9	TLADAGFIK 0.00168	12
HLA-A*68:01	1	497	505	9	TYGVGYQPY 0.001679	13
HLA-B*57:01	1	507	516	10	VVLSFELLH 0.001679	15
HLA-A*32:01	1	743	751	9	STECNLLL 0.001679	8.3
HLA-A*31:01	1	804	812	9	PDPSKPSKR 0.001679	13
HLA-A*68:01	1	973	981	9	VLNDILSRL 0.001679	13

HLA-A*33:01	1	137	145	9	NDPFLGVYY 0.001678	11
HLA-B*57:01	1	329	338	10	ITNLCPFGEV 0.001678	15
HLA-A*30:01	1	440	449	10	SKVGGNYYNL 0.001678	21
HLA-A*26:01	1	601	610	10	TSNQVAVLYQ 0.001678	8.5
HLA-B*44:03	1	791	799	9	IKDFGGFNF 0.001678	6.4
HLA-A*02:03	1	82	90	9	PVLPFNDGV 0.001677	13
HLA-A*30:02	1	398	406	9	VIRGDEVQR 0.001677	18
HLA-A*68:02	1	1072	1080	9	FTTAPAICH 0.001677	13
HLA-B*07:02	1	268	277	10	QPRTFLLKYN 0.001676	9.2
HLA-B*58:01	1	41	50	10	KVFRSSVLHS 0.001675	11
HLA-A*30:01	1	463	471	9	RDISTEIQ 0.001675	21
HLA-A*30:01	1	710	718	9	AIPTNFTIS 0.001675	21
HLA-A*30:02	1	1058	1066	9	VFLHVTYVP 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-B*58:01	1	410	418	9	GQTGNIADY 0.001674	11
HLA-A*31:01	1	483	492	10	FNCYFPLQSY 0.001674	13
HLA-A*01:01	1	768	776	9	AVEQDKNTQ 0.001674	11
HLA-A*33:01	1	799	808	10	FSQILPDPSPK 0.001674	11
HLA-A*30:02	1	1176	1184	9	IQKEIDRLN 0.001674	18
HLA-A*30:01	1	496	505	10	PTYGVGYQPY 0.001673	21
HLA-A*30:02	1	554	563	10	KKFLPFQQFG 0.001673	18
HLA-B*57:01	1	908	917	10	VTQNVLYENQ 0.001673	15
HLA-A*03:01	1	72	80	9	GTNGTKRFA 0.001672	9.5
HLA-B*08:01	1	112	120	9	SKTQSLIV 0.001672	16
HLA-A*30:01	1	1081	1089	9	DGKAHFPRE 0.001672	21
HLA-A*30:01	1	1194	1202	9	LIDLQELGK 0.001672	21
HLA-A*31:01	1	593	601	9	SVITPGTNT 0.001671	13
HLA-B*08:01	1	810	819	10	SKRSFIEDLL 0.001671	16
HLA-A*23:01	1	849	858	10	AQKFNGLTVL 0.001671	6.7
HLA-A*02:06	1	1222	1231	10	IAIVMTIML 0.001671	16
HLA-B*08:01	1	55	63	9	FLPFFSNVT 0.00167	16
HLA-B*51:01	1	250	258	9	DSSSGWTAG 0.00167	15
HLA-B*35:01	1	557	566	10	LPFQQFGRDI 0.00167	8.2
HLA-A*23:01	1	571	579	9	DAVRDPQTL 0.00167	6.7
HLA-B*08:01	1	937	945	9	STASALGKL 0.00167	16
HLA-B*53:01	1	1011	1019	9	RAAEIRASA 0.00167	7.4
HLA-A*30:01	1	1078	1086	9	ICHDGKAHF 0.00167	21
HLA-B*58:01	1	344	352	9	FASVYAWNR 0.001669	11
HLA-A*68:02	1	780	788	9	AQVKQIYKT 0.001669	13
HLA-A*30:01	1	802	810	9	ILPDPSPKPS 0.001669	21
HLA-B*58:01	1	939	947	9	ASALGKLQD 0.001669	11
HLA-B*51:01	1	1044	1053	10	YHLMSFPQSA 0.001669	15
HLA-B*08:01	1	320	329	10	TESIVRFPNI 0.001668	16
HLA-B*07:02	1	718	726	9	SVTTEILPV 0.001668	9.2
HLA-A*02:01	1	801	809	9	QILPDPSPK 0.001668	12
HLA-B*08:01	1	1065	1073	9	VPAQEKFT 0.001668	16
HLA-B*57:01	1	430	438	9	VIAWNSNNL 0.001667	15
HLA-B*53:01	1	459	468	10	KPFERDISTE 0.001667	7.4
HLA-A*30:02	1	648	656	9	IGAEHVNNS 0.001667	18
HLA-A*68:02	1	214	222	9	RGLPQGFSA 0.001666	13
HLA-A*30:02	1	1109	1118	10	PQIITDNTF 0.001666	18
HLA-B*58:01	1	1136	1145	10	DPLQPELDSF 0.001666	11
HLA-A*68:02	1	252	260	9	SSGWTAGAA 0.001665	13
HLA-A*02:03	1	824	833	10	TLADAGFIKQ 0.001665	13
HLA-B*44:03	1	83	92	10	VLPFNDGVYF 0.001664	6.5
HLA-B*57:01	1	752	760	9	QYGSFCTQL 0.001664	15
HLA-A*30:01	1	1100	1108	9	FVTQRNFY 0.001664	21
HLA-A*02:06	1	264	273	10	VGYLQPRFTL 0.001663	16
HLA-A*02:01	1	309	317	9	IYQTSNFRV 0.001663	12
HLA-B*44:03	1	212	220	9	LVRGLPQGF 0.001662	6.5
HLA-A*30:01	1	455	464	10	KSNLKPFERD 0.001662	21
HLA-A*33:01	1	713	721	9	TNFTISVTT 0.001662	11
HLA-B*57:01	1	751	760	10	LQYGSFCTQL 0.001662	15
HLA-A*02:03	1	1085	1093	9	HFPREGVVF 0.001662	13
HLA-A*26:01	1	1257	1266	10	DSEPVKGVK 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	566	574	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	673	682	10	TQTNSPRRAR 0.00166	15
HLA-A*26:01	1	858	866	9	LPPLLTDEM 0.00166	8.5
HLA-B*58:01	1	952	960	9	NAQALNTLV 0.00166	11
HLA-A*32:01	1	309	317	9	IYQTSNFRV 0.001658	8.3
HLA-A*30:01	1	483	492	10	FNCYFPLQSY 0.001658	21
HLA-A*26:01	1	111	120	10	DSKTQSLLI 0.001657	8.5
HLA-B*51:01	1	593	601	9	SVITPGTNT 0.001657	15
HLA-A*68:02	1	642	650	9	TRAGCLIGA 0.001657	13
HLA-A*30:02	1	1259	1268	10	EPVLKGVKHL 0.001657	19
HLA-B*35:01	1	367	375	9	NSASFSTFK 0.001656	8.2
HLA-A*30:02	1	397	405	9	FVIRGDEVR 0.001656	19
HLA-A*68:01	1	485	494	10	CYFPLQSYGF 0.001656	13
HLA-A*33:01	1	996	1004	9	GRLQSLQTY 0.001656	11
HLA-A*31:01	1	1201	1209	9	GKYEQYIKW 0.001656	13
HLA-A*26:01	1	171	179	9	VSQPFLMDL 0.001655	8.5
HLA-A*30:02	1	308	317	10	GIYQTSNFRV 0.001655	19
HLA-B*57:01	1	788	797	10	TPPIKDFGGF 0.001655	15
HLA-B*15:01	1	972	980	9	SVLNDILSR 0.001655	12
HLA-A*01:01	1	35	43	9	GVYYPDKVF 0.001654	11
HLA-B*57:01	1	303	312	10	FTVEKGIYQT 0.001654	15
HLA-A*30:01	1	392	401	10	VYADSFVIRG 0.001654	21
HLA-A*33:01	1	493	502	10	GFQPTYGVGY 0.001654	11
HLA-A*68:02	1	607	615	9	VLYQGVNCT 0.001654	13
HLA-A*24:02	1	993	1001	9	LITGRLQSL 0.001654	6.6
HLA-B*07:02	1	77	86	10	KRFANPVLPF 0.001653	9.2
HLA-A*30:02	1	263	271	9	YVGYLQPR 0.001653	19
HLA-B*44:02	1	511	520	10	SFELLHAPAT 0.001653	6.4
HLA-A*30:02	1	1154	1163	10	KNHTSPDVLD 0.001653	19
HLA-B*07:02	1	220	229	10	FSALEPLVDL 0.001652	9.2
HLA-A*26:01	1	451	459	9	RLFRKSNLK 0.001652	8.6
HLA-A*02:03	1	527	535	9	STNLVKKNC 0.001652	13
HLA-B*57:01	1	759	767	9	QLNRALTGI 0.001652	15
HLA-A*30:01	1	1166	1174	9	ISGINASVV 0.001652	21
HLA-A*01:01	1	813	822	10	SFIEDLLFNK 0.001651	11
HLA-A*03:01	1	930	939	10	KIQDLSLSTA 0.001651	9.6
HLA-A*30:02	1	1185	1193	9	EVAKNLNES 0.001651	19
HLA-B*15:01	1	593	602	10	SVITPGTNTS 0.00165	12
HLA-A*03:01	1	194	202	9	FKNIDGYFK 0.001649	9.6
HLA-A*30:02	1	288	296	9	CALDPLSET 0.001649	19
HLA-A*11:01	1	494	502	9	FQPTYGVGY 0.001649	8.1
HLA-B*08:01	1	509	517	9	VLSFELLHA 0.001649	16
HLA-A*02:01	1	1174	1183	10	VNIQKEIDRL 0.001649	12
HLA-A*02:06	1	684	693	10	VASQSIIAYT 0.001648	16
HLA-A*30:02	1	1045	1054	10	HLMSFPQSAP 0.001648	19
HLA-B*15:01	1	57	65	9	PFFSNVTWF 0.001647	12
HLA-A*03:01	1	257	266	10	AGAAAYYVGY 0.001647	9.6
HLA-B*15:01	1	1258	1267	10	SEPVKGVK 0.001647	12
HLA-A*30:02	1	762	771	10	RALTGIAVEQ 0.001646	19
HLA-A*02:01	1	784	792	9	QIYKTPPIK 0.001646	12
HLA-A*01:01	1	137	146	10	NDPFLGVYYH 0.001645	11
HLA-A*01:01	1	298	307	10	CTLKSFTVEK 0.001645	11
HLA-A*26:01	1	429	438	10	CVIAWNSN 0.001645	8.6
HLA-A*24:02	1	207	216	10	HTPINLVRGL 0.001644	6.6
HLA-A*68:01	1	462	470	9	ERDISTEY 0.001644	13
HLA-A*30:02	1	495	504	10	QPTYGVGYQP 0.001644	19
HLA-A*68:02	1	509	518	10	VLSFELLHAP 0.001644	13
HLA-A*31:01	1	777	786	10	EVFAQVKQIY 0.001644	13
HLA-A*33:01	1	804	812	9	PDPSPSKR 0.001644	11
HLA-A*01:01	1	844	852	9	RDLICAQKF 0.001644	11
HLA-A*68:02	1	867	876	10	IAQYTSALLA 0.001644	13
HLA-A*30:01	1	1021	1029	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	489	497	9	LQSYGFQPT 0.001643	21
HLA-B*35:01	1	1178	1186	9	KEIDRLNEV 0.001643	8.2
HLA-A*30:01	1	49	57	9	HSTQDLFLP 0.001642	21
HLA-B*44:02	1	1148	1156	9	ELDKYFKNH 0.001642	6.4
HLA-A*02:06	1	1223	1232	10	AIVMVTIMLC 0.001642	16
HLA-A*11:01	1	565	574	10	DIADTTDAVR 0.001641	8.1
HLA-B*57:01	1	1167	1176	10	SGINASVVNI 0.001641	16
HLA-B*57:01	1	2	10	9	FVFLVLLPL 0.00164	16
HLA-B*40:01	1	450	458	9	YRLFRKSNL 0.00164	6.0
HLA-A*32:01	1	497	505	9	TYGVGYQPY 0.00164	8.4
HLA-A*23:01	1	1007	1015	9	QLLIRAAEI 0.00164	6.7
HLA-B*08:01	1	97	106	10	KSNIIIRGWIF 0.001639	16
HLA-A*30:02	1	148	157	10	NNKSWMESEF 0.001639	19
HLA-B*57:01	1	1000	1009	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	709	717	9	IAIPTNFTI 0.001637	6.5
HLA-A*30:01	1	759	768	10	QLNRALTGIA 0.001637	21
HLA-B*15:01	1	909	917	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-B*08:01	1	802	811	10	ILPDPSKPSK 0.001636	16
HLA-A*26:01	1	1029	1037	9	CVLGQSKRV 0.001636	8.6
HLA-A*32:01	1	201	210	10	FKIYSKHTPI 0.001635	8.4
HLA-A*01:01	1	341	349	9	ATRFASVYA 0.001635	11
HLA-A*02:03	1	823	831	9	VTLADAGFI 0.001635	13
HLA-A*33:01	1	892	901	10	QIPFAMQMAY 0.001635	11
HLA-B*57:01	1	641	649	9	QTRAGCLIG 0.001634	16
HLA-A*01:01	1	1000	1009	10	SLQTYVTQQL 0.001634	11
HLA-A*68:01	1	175	183	9	FLMDLEGKQ 0.001633	13
HLA-A*26:01	1	381	389	9	PTKLNLDLCF 0.001633	8.6
HLA-A*02:01	1	513	522	10	ELLHAPATVC 0.001632	12
HLA-A*30:02	1	592	601	10	VSVITPGTNT 0.001632	19
HLA-B*15:01	1	669	677	9	ASYQTQTN 0.001632	12
HLA-B*15:01	1	898	906	9	QMAYRFNGI 0.001632	12
HLA-A*02:06	1	166	175	10	CTFEYVSQPF 0.001631	17
HLA-A*02:06	1	355	364	10	ISNCVADYSV 0.001631	17
HLA-A*68:02	1	513	522	10	ELLHAPATVC 0.001631	13
HLA-B*51:01	1	771	779	9	QDKNTQEVF 0.001631	15
HLA-A*31:01	1	338	346	9	VFNATRFAS 0.00163	13
HLA-A*30:02	1	163	171	9	ANNCTFEYV 0.001629	19
HLA-A*02:06	1	330	338	9	TNLCPFGEV 0.001629	17
HLA-B*08:01	1	715	724	10	FTISVTTEIL 0.001629	16
HLA-B*07:02	1	771	779	9	QDKNTQEVF 0.001629	9.3
HLA-A*32:01	1	45	54	10	SSVLHSTQDL 0.001628	8.4
HLA-A*26:01	1	523	531	9	GPKKSTNLV 0.001628	8.6
HLA-B*51:01	1	523	532	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-A*33:01	1	600	608	9	NTSNQVAVL 0.001627	11
HLA-B*57:01	1	619	627	9	VAIHADQLT 0.001627	16
HLA-B*44:03	1	806	814	9	PSKPSKRSF 0.001627	6.6
HLA-B*58:01	1	475	483	9	TPCNGVKGF 0.001626	11
HLA-A*02:06	1	794	803	10	FGGFNFSQIL 0.001626	17
HLA-A*68:01	1	904	912	9	NGIGVTQNV 0.001626	13
HLA-A*02:03	1	972	980	9	SVLNDILSR 0.001626	13
HLA-A*24:02	1	247	255	9	TPGDSSSGW 0.001625	6.7
HLA-A*33:01	1	478	486	9	NGVKGFNCY 0.001625	11
HLA-A*30:02	1	609	617	9	YQGVNCTEV 0.001625	19
HLA-A*02:03	1	710	718	9	AIPTNFTIS 0.001625	13
HLA-A*68:01	1	916	924	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	ATNVVIVKVC	0.001624	8.4
HLA-A*02:01	1	330	339	10	TNLCPFGEVF	0.001624	12
HLA-A*01:01	1	843	851	9	ARDLICAQK	0.001624	11
HLA-B*15:01	1	1009	1017	9	LIRAAEIRA	0.001624	12
HLA-A*30:02	1	1112	1120	9	ITTDNTFVS	0.001624	19
HLA-B*57:01	1	598	606	9	GTNTSNQVA	0.001623	16
HLA-B*08:01	1	657	665	9	YECDIPIGA	0.001623	16
HLA-A*02:01	1	841	849	9	IAARDLICA	0.001623	12
HLA-A*11:01	1	29	37	9	TNSFTRGVY	0.001622	8.1
HLA-A*02:01	1	316	325	10	RVQPTESIVR	0.001622	12
HLA-B*15:01	1	535	543	9	CVNFNFNGL	0.001622	12
HLA-B*15:01	1	346	354	9	SVYAWNRKR	0.001621	12
HLA-A*30:02	1	802	810	9	ILPDPSKPS	0.001621	19
HLA-A*30:02	1	1192	1200	9	ESLIDLQEL	0.001621	19
HLA-A*03:01	1	46	55	10	SVLHSTQDLF	0.00162	9.6
HLA-B*40:01	1	77	85	9	KRFANPVLV	0.00162	6.1
HLA-A*68:01	1	136	145	10	CNDPFLGVVY	0.00162	13
HLA-A*30:02	1	199	208	10	GYFKIYSKHT	0.00162	19
HLA-A*30:02	1	623	631	9	ADQLTPTWR	0.00162	19
HLA-A*30:02	1	935	944	10	LSSTASALGK	0.00162	19
HLA-A*26:01	1	962	970	9	QLSSNFGAI	0.00162	8.6
HLA-B*08:01	1	123	131	9	ATNVVIVKVC	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	346	354	9	SVYAWNRKR	0.001619	11
HLA-B*35:01	1	468	476	9	EIYQAGSTP	0.001619	8.3
HLA-B*57:01	1	94	102	9	STEKSNIIR	0.001617	16
HLA-A*30:02	1	475	483	9	TPCNGVKGF	0.001617	19
HLA-A*68:01	1	713	721	9	TNFTISVTT	0.001617	13
HLA-A*68:02	1	964	972	9	SSNFGAISS	0.001617	13
HLA-B*57:01	1	1011	1020	10	RAAEIRASAN	0.001617	16
HLA-A*02:03	1	592	601	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	264	273	10	VGYLQPRTF	0.001615	13
HLA-B*40:01	1	1049	1057	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	TNSFTRGVVY	0.001614	6.4
HLA-A*30:01	1	125	133	9	NVVIKVICEF	0.001614	22
HLA-A*30:01	1	126	134	9	VVIKVICEFQ	0.001614	22
HLA-B*51:01	1	2	11	10	FVFLVLLPLV	0.001613	15
HLA-A*02:06	1	308	316	9	GIYQTSNFR	0.001613	17
HLA-A*33:01	1	462	470	9	ERDISTEIIY	0.001613	11
HLA-B*40:01	1	657	666	10	YECDIPIGAG	0.001613	6.1
HLA-B*51:01	1	657	665	9	YECDIPIGA	0.001613	15
HLA-B*07:02	1	950	959	10	NQNAQALNTL	0.001613	9.4
HLA-A*26:01	1	137	146	10	NDPFLGVVYH	0.001612	8.7
HLA-B*44:03	1	1077	1086	10	AICHDGKAHF	0.001612	6.6
HLA-A*02:01	1	253	261	9	SGWTAGAAA	0.001611	12
HLA-A*30:01	1	637	645	9	SNVFQTRAG	0.001611	22
HLA-A*11:01	1	907	915	9	GVTQNVLYE	0.001611	8.1
HLA-B*40:01	1	208	216	9	TPINLVRLG	0.00161	6.1
HLA-A*01:01	1	384	392	9	LNDLCFTNV	0.00161	11
HLA-B*51:01	1	78	86	9	RFANPVLVP	0.001609	15
HLA-A*30:01	1	146	154	9	HKNNKSWME	0.001609	22
HLA-A*02:03	1	258	267	10	GAAAYYVGYL	0.001609	13
HLA-B*15:01	1	694	702	9	MSLGVENSV	0.001609	12
HLA-A*30:02	1	1085	1093	9	HFPREGVVFV	0.001609	19
HLA-A*31:01	1	295	303	9	ETKCTLKSF	0.001608	13
HLA-A*31:01	1	23	32	10	QLPPAYTNSF	0.001607	13
HLA-A*01:01	1	400	408	9	RGDEVQRQIA	0.001607	11
HLA-B*07:02	1	484	492	9	NCYFPLQSY	0.001607	9.4
HLA-A*24:02	1	829	838	10	GFIKQYGDCL	0.001607	6.7
HLA-A*02:01	1	922	930	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	259	267	9	AAAYYVGYL 0.001606	13
HLA-A*32:01	1	376	384	9	CYGVSPTKL 0.001605	8.5
HLA-B*51:01	1	838	847	10	LGDIAARDLI 0.001605	15
HLA-A*30:02	1	856	864	9	TVLPPLLD 0.001605	19
HLA-A*68:02	1	930	939	10	KIQDLSLSTA 0.001605	13
HLA-B*57:01	1	935	944	10	LSSTASALGK 0.001605	16
HLA-A*33:01	1	975	983	9	NDILSRLDK 0.001605	11
HLA-A*26:01	1	138	147	10	DPFLGVVYHK 0.001604	8.7
HLA-A*30:01	1	825	834	10	LADAGFIKQY 0.001604	22
HLA-A*30:02	1	870	878	9	YTSALLAGT 0.001604	19
HLA-A*68:02	1	893	901	9	IPFAMQMAY 0.001604	13
HLA-A*30:02	1	1061	1069	9	HVTYVPAQE 0.001604	19
HLA-A*01:01	1	1147	1156	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	581	590	10	ILDITPCSF 0.001602	11
HLA-B*51:01	1	1055	1064	10	HGVVFLHVTY 0.001602	15
HLA-B*15:01	1	363	372	10	SVLYNSASF 0.001601	12
HLA-A*02:06	1	455	463	9	KSNLKPFR 0.001601	17
HLA-A*30:01	1	1208	1217	10	KWPWYIWLGF 0.001601	22
HLA-A*30:02	1	468	476	9	EIQAGSTP 0.0016	19
HLA-A*33:01	1	1051	1059	9	QSAPHGVVF 0.0016	11
HLA-B*08:01	1	1201	1209	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	600	609	10	NTSNQVAVLY 0.001599	14
HLA-A*31:01	1	614	622	9	CTEVPVAIH 0.001599	14
HLA-B*08:01	1	1020	1029	10	NLAATKMSEC 0.001599	16
HLA-B*35:01	1	858	867	10	LPPLLDTEMI 0.001598	8.3
HLA-A*30:02	1	100	108	9	IIRGWIFGT 0.001597	19
HLA-B*40:01	1	649	657	9	GAEHVNNSY 0.001597	6.1
HLA-A*11:01	1	1007	1016	10	QLLIRAAEIR 0.001597	8.2
HLA-B*44:02	1	255	263	9	WTAGAAAYY 0.001596	6.5
HLA-A*03:01	1	494	502	9	FQPTYGVGY 0.001596	9.7
HLA-B*07:02	1	495	503	9	QPTYGVGYQ 0.001596	9.4
HLA-B*07:02	1	1009	1017	9	LIRAAEIRA 0.001596	9.4
HLA-B*57:01	1	94	103	10	STEKSNIRG 0.001595	16
HLA-B*44:03	1	208	216	9	TPINLVRGL 0.001595	6.6
HLA-A*23:01	1	461	469	9	FERDISTEI 0.001595	6.8
HLA-B*15:01	1	941	949	9	ALGKLQDVV 0.001595	12
HLA-A*02:01	1	50	59	10	STQDLFLPF 0.001594	12
HLA-B*08:01	1	772	780	9	DKNTQEVFA 0.001594	16
HLA-A*68:02	1	1002	1011	10	QTYVTQLIR 0.001594	13
HLA-A*68:02	1	1254	1262	9	DEDDSEPV 0.001594	13
HLA-A*33:01	1	132	141	10	EFQFCNDPFL 0.001593	11
HLA-A*02:01	1	1021	1029	9	LAATKMSEC 0.001593	12
HLA-B*40:01	1	1041	1049	9	GKGYHLMSF 0.001593	6.1
HLA-A*02:06	1	1072	1080	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	386	394	9	DLCFTNVYA 0.001592	13
HLA-B*07:02	1	613	621	9	NCTEVPVAI 0.001592	9.4
HLA-A*30:01	1	1069	1077	9	EKNFTTAPA 0.001592	22
HLA-A*01:01	1	1157	1166	10	TSPDVLGDI 0.001592	12
HLA-B*51:01	1	1177	1186	10	QKEIDRLNEV 0.001591	15
HLA-B*51:01	1	1261	1269	9	VLKGVKLHY 0.001591	15
HLA-A*02:03	1	540	548	9	FNGLTGTGV 0.00159	13
HLA-B*40:01	1	599	607	9	TNTSNQVAV 0.00159	6.1
HLA-A*30:01	1	978	987	10	LSRLDKVEAE 0.00159	22
HLA-A*33:01	1	264	273	10	VGYLQPRTF 0.001589	11
HLA-A*03:01	1	866	874	9	MIAQYTSAL 0.001589	9.7
HLA-A*68:01	1	1092	1101	10	FVSNGTHWFV 0.001589	13
HLA-A*30:02	1	244	253	10	SYLTPGDSSS 0.001588	19
HLA-B*35:01	1	384	393	10	LNDLCFTNVY 0.001588	8.3
HLA-A*33:01	1	1002	1010	9	QTYVTQLI 0.001588	11
HLA-A*32:01	1	1052	1061	10	SAPHGVVFLH 0.001587	8.5

HLA-A*01:01	1	1185	1194	10	EVAKNLNESL 0.001587	12
HLA-A*31:01	1	35	43	9	GVYYPDKVF 0.001586	14
HLA-A*68:02	1	854	863	10	GLTVLPPLLT 0.001586	13
HLA-A*02:03	1	77	85	9	KRFANPVLV 0.001585	13
HLA-A*02:03	1	598	606	9	GTNTSNQVA 0.001585	13
HLA-A*01:01	1	1165	1173	9	DISGINASV 0.001585	12
HLA-A*31:01	1	604	612	9	QVAVLYQGV 0.001584	14
HLA-B*51:01	1	717	726	10	ISVTTEILPV 0.001584	15
HLA-B*15:01	1	1193	1201	9	SLIDLQELG 0.001584	12
HLA-A*02:06	1	324	333	10	VRFPNITNLC 0.001583	17
HLA-B*40:01	1	1191	1199	9	NESLIDLQE 0.001583	6.1
HLA-A*68:01	1	1259	1267	9	EPVLKGVKL 0.001583	13
HLA-A*23:01	1	96	104	9	EKSNIIRGW 0.001582	6.8
HLA-A*02:06	1	696	704	9	LGVENSVAV 0.001582	17
HLA-B*08:01	1	1105	1114	10	NFYEPQIIT 0.001582	16
HLA-A*30:02	1	1193	1201	9	SLIDLQELG 0.001582	19
HLA-A*30:01	1	1199	1208	10	ELGKYEQYIK 0.001582	22
HLA-A*24:02	1	656	665	10	SYECDIPIGA 0.001581	6.7
HLA-A*11:01	1	774	782	9	NTQEVFAQV 0.001581	8.2
HLA-A*02:03	1	299	308	10	TLKSFTVEKG 0.00158	13
HLA-A*33:01	1	580	588	9	EILDITPCS 0.00158	11
HLA-A*68:01	1	964	973	10	SSNFGAISSV 0.00158	13
HLA-A*33:01	1	100	108	9	IIRGWIFGT 0.001579	11
HLA-A*32:01	1	493	502	10	GFQPTYGVGY 0.001579	8.5
HLA-B*57:01	1	508	517	10	VVLSFELLHA 0.001579	16
HLA-B*40:01	1	631	639	9	RVYSTGSNV 0.001579	6.1
HLA-B*57:01	1	1121	1129	9	GNCVVIGI 0.001579	16
HLA-A*30:01	1	1129	1137	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	571	579	9	DAVRDPQTL 0.001578	13
HLA-A*02:01	1	850	858	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-A*30:02	1	398	407	10	VIRGDEVQR 0.001576	19
HLA-A*26:01	1	671	679	9	YQTQTNSPR 0.001576	8.7
HLA-B*44:03	1	502	510	9	YQPYRVVVL 0.001575	6.6
HLA-B*40:01	1	914	923	10	YENQKLIANQ 0.001575	6.1
HLA-B*51:01	1	995	1004	10	TGRLQSLQTY 0.001575	15
HLA-B*15:01	1	58	66	9	FFSNVTWFH 0.001574	12
HLA-A*30:02	1	372	381	10	STFKCYGVSP 0.001574	19
HLA-A*02:06	1	1103	1111	9	QRNFYEPQI 0.001574	17
HLA-A*01:01	1	94	103	10	STEKSNIIIRG 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*26:01	1	492	500	9	YGFQPTYGV 0.001573	8.8
HLA-A*33:01	1	966	974	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	273	282	10	LLKYNENGTI 0.001571	12
HLA-A*03:01	1	397	405	9	FVIRGDEV 0.001571	9.7
HLA-B*08:01	1	478	486	9	NGVKGFNCY 0.001571	16
HLA-B*58:01	1	742	751	10	DSTECSNLL 0.001571	11
HLA-A*30:01	1	806	815	10	PSKPSKRSFI 0.001571	22
HLA-A*02:06	1	811	820	10	KRSFIEDLLF 0.001571	17
HLA-B*53:01	1	226	235	10	LVDLPIGINI 0.00157	7.6
HLA-B*35:01	1	478	487	10	NGVKGFNCYF 0.00157	8.4
HLA-A*11:01	1	572	581	10	AVRDPQTLEI 0.00157	8.2
HLA-B*51:01	1	638	647	10	NVFQTRAGCL 0.00157	15
HLA-B*44:03	1	673	681	9	TQTNSPRRA 0.00157	6.7
HLA-B*57:01	1	952	960	9	NAQALNTLV 0.00157	16
HLA-B*51:01	1	7	15	9	LLPLVSSQC 0.001569	15
HLA-B*35:01	1	215	223	9	GLPQGFSAL 0.001569	8.4
HLA-A*30:02	1	520	528	9	TVCGPKKST 0.001569	19
HLA-A*01:01	1	554	562	9	KKFLPFQFQ 0.001569	12
HLA-A*68:02	1	562	570	9	FGRDIADTT 0.001569	13

HLA-A*02:06	1	1117	1126	10	TFVSGNCDVV 0.001569	17
HLA-A*30:02	1	226	235	10	LVDLPIGINI 0.001568	19
HLA-A*03:01	1	765	773	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	TLDSKTQSLI 0.001567	16
HLA-A*23:01	1	203	211	9	IYSKHTPIN 0.001567	6.9
HLA-A*02:06	1	213	222	10	VRGLPQGFSA 0.001567	17
HLA-A*31:01	1	496	505	10	PTYGVGYQPY 0.001567	14
HLA-A*68:02	1	802	810	9	ILPDPSKPS 0.001567	13
HLA-A*01:01	1	957	965	9	NTLVKQLSS 0.001567	12
HLA-B*58:01	1	407	415	9	IAPGQTGNI 0.001566	11
HLA-A*30:01	1	513	521	9	ELLHAPATV 0.001566	22
HLA-A*24:02	1	774	782	9	NTQEVFAQV 0.001566	6.7
HLA-A*02:01	1	934	943	10	SLSSTASALG 0.001566	12
HLA-A*26:01	1	57	65	9	PFFSNVTWF 0.001565	8.8
HLA-A*31:01	1	440	448	9	SKVGGNYNY 0.001565	14
HLA-B*57:01	1	462	470	9	ERDISTEY 0.001565	16
HLA-A*33:01	1	503	511	9	QPYRVVLS 0.001565	11
HLA-A*68:02	1	511	519	9	SFELLHAPA 0.001564	13
HLA-A*01:01	1	658	667	10	ECDIPIGAGI 0.001564	12
HLA-A*02:03	1	111	119	9	DSKTQSLI 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	255	263	9	WTAGAAAY 0.001563	6.7
HLA-A*31:01	1	500	508	9	VGYPYRVV 0.001563	14
HLA-B*51:01	1	651	659	9	EHVNNSYEC 0.001563	15
HLA-A*24:02	1	1186	1194	9	VAKNLNESL 0.001563	6.7
HLA-A*68:01	1	292	301	10	PLSETKCTLK 0.001562	13
HLA-A*33:01	1	302	311	10	SFTVEKGIYQ 0.001562	11
HLA-A*24:02	1	309	318	10	IYQTSNFRVQ 0.001562	6.7
HLA-A*01:01	1	599	607	9	TNTSNQVAV 0.001562	12
HLA-B*51:01	1	1031	1039	9	LGQSKRVDF 0.001562	15
HLA-B*15:01	1	1096	1104	9	GTHWFVTQR 0.001562	12
HLA-A*01:01	1	549	558	10	LTESNKKFLP 0.001561	12
HLA-B*07:02	1	842	850	9	AARDLICAQ 0.001561	9.5
HLA-A*30:02	1	58	67	10	FFSNVTWFHA 0.00156	19
HLA-B*51:01	1	854	862	9	GLTVLPLL 0.00156	15
HLA-A*23:01	1	902	910	9	RFNGIGVTQ 0.00156	6.9
HLA-B*51:01	1	1179	1187	9	EIDRLNEVA 0.00156	15
HLA-A*33:01	1	338	346	9	VFNATRFAS 0.001559	11
HLA-B*08:01	1	1068	1076	9	QEKNTTAP 0.001559	16
HLA-B*15:01	1	607	616	10	VLYQGVNCTE 0.001558	12
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	399	407	9	IRGDEVRI 0.001557	12
HLA-A*02:06	1	618	626	9	PVAIHADQL 0.001557	17
HLA-A*03:01	1	961	969	9	KQLSSNFGA 0.001557	9.8
HLA-B*57:01	1	1223	1231	9	AIVMVTIML 0.001557	16
HLA-A*68:01	1	340	349	10	NATRFASVYA 0.001556	13
HLA-A*30:01	1	602	610	9	SNQVAVLYQ 0.001556	22
HLA-A*33:01	1	720	728	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	304	312	9	TVEKGIYQT 0.001555	22
HLA-B*51:01	1	510	519	10	LSFELLHAPA 0.001555	15
HLA-A*03:01	1	1075	1083	9	APAICHDGK 0.001555	9.8
HLA-B*58:01	1	54	62	9	LFLPFFSNV 0.001554	11
HLA-B*15:01	1	479	488	10	GVKGFNCYFP 0.001554	12
HLA-A*30:02	1	527	536	10	STNLVKNKCV 0.001554	19
HLA-B*57:01	1	1157	1166	10	TSPDVLGDI 0.001554	16
HLA-B*58:01	1	267	275	9	LQPRTFLLK 0.001553	11
HLA-A*31:01	1	72	80	9	GTNGTKRFA 0.001552	14
HLA-A*31:01	1	98	106	9	SNIIRGWIF 0.001552	14
HLA-B*53:01	1	144	153	10	YYHKNNKSWM 0.001552	7.7
HLA-A*68:02	1	207	215	9	HTPINLVRG 0.001552	13

HLA-A*01:01	1	473	481	9	GSTPCNGVK 0.001552	12
HLA-A*02:03	1	666	675	10	GICASYQTQT 0.001552	13
HLA-A*23:01	1	805	814	10	DPSKPSKRSF 0.001552	6.9
HLA-B*57:01	1	168	176	9	FEYVSPFL 0.001551	16
HLA-A*32:01	1	873	881	9	ALLAGTITS 0.001551	8.6
HLA-B*07:02	1	885	893	9	FGAGAALQI 0.001551	9.6
HLA-B*07:02	1	1134	1143	10	VYDPLQPELD 0.001551	9.6
HLA-A*68:02	1	556	564	9	FLPFQQFGR 0.00155	13
HLA-B*35:01	1	1090	1099	10	GVFVSNQTHW 0.001549	8.4
HLA-A*30:02	1	421	430	10	KLPDDFTGCV 0.001548	19
HLA-A*26:01	1	572	580	9	AVRDPQTLE 0.001548	8.8
HLA-A*68:01	1	919	927	9	LIANQFNSA 0.001548	13
HLA-A*31:01	1	930	938	9	KIQDLSLST 0.001548	14
HLA-A*02:03	1	1082	1091	10	GKAHFPREGV 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	1226	1234	9	MVTIMLCCM 0.001547	8.8
HLA-A*02:01	1	41	49	9	KVFRSSVLH 0.001546	12
HLA-B*53:01	1	408	416	9	APGQTGNIA 0.001545	7.7
HLA-B*57:01	1	888	896	9	GAALQIPFA 0.001545	16
HLA-B*44:02	1	1036	1044	9	RVDFCGKGY 0.001545	6.5
HLA-B*57:01	1	1120	1129	10	SGNCDVVIGI 0.001545	16
HLA-A*26:01	1	149	157	9	NKSWMESEF 0.001543	8.8
HLA-B*08:01	1	478	487	10	NGVKGFNCYF 0.001543	16
HLA-A*68:01	1	1205	1213	9	QYIKWPWYI 0.001543	13
HLA-A*01:01	1	229	238	10	LPIGINITRF 0.001541	12
HLA-A*31:01	1	504	512	9	PYRVVLSF 0.001541	14
HLA-B*53:01	1	1050	1059	10	PQSAPHGVVF 0.001541	7.7
HLA-A*30:01	1	1092	1100	9	FVSNQTHWF 0.001541	22
HLA-B*51:01	1	1102	1111	10	TQRNFYEPQI 0.001541	16
HLA-A*01:01	1	556	564	9	FLPFQQFGR 0.00154	12
HLA-B*35:01	1	710	719	10	AIPTNFTISV 0.00154	8.4
HLA-A*30:01	1	714	723	10	NFTISVTTEI 0.00154	22
HLA-A*30:01	1	1198	1206	9	QELGKYEYQ 0.00154	22
HLA-A*01:01	1	688	696	9	SIAYTMSL 0.001539	12
HLA-A*26:01	1	1118	1126	9	FVSGNCDVV 0.001539	8.8
HLA-A*23:01	1	244	252	9	SYLTPGDSS 0.001538	6.9
HLA-A*31:01	1	1005	1013	9	VTQQLIRAA 0.001538	14
HLA-A*23:01	1	1039	1047	9	FCGKGYHLM 0.001538	6.9
HLA-A*02:06	1	470	478	9	YQAGSTPCN 0.001537	17
HLA-A*30:01	1	880	889	10	TSGWTFGAGA 0.001537	22
HLA-B*35:01	1	1004	1012	9	YVTQQLIRA 0.001537	8.5
HLA-B*08:01	1	1219	1227	9	AGLIAIVMV 0.001537	16
HLA-A*31:01	1	47	55	9	VLHSTQDLF 0.001536	14
HLA-B*51:01	1	612	620	9	VNCTEVPVA 0.001536	16
HLA-A*30:02	1	715	724	10	FTISVTTEIL 0.001536	19
HLA-A*02:01	1	812	820	9	RSFIEDLLF 0.001536	12
HLA-B*08:01	1	1047	1055	9	MSFPQSAPH 0.001536	16
HLA-A*32:01	1	1098	1107	10	HWFVTQRNFY 0.001535	8.6
HLA-B*58:01	1	1113	1121	9	TTDNTFVSG 0.001534	11
HLA-A*30:02	1	780	789	10	AQVKQIYKTP 0.001533	19
HLA-B*44:03	1	965	973	9	SNFGAISSV 0.001533	6.7
HLA-A*32:01	1	1103	1111	9	QRNFYEPQI 0.001533	8.7
HLA-A*01:01	1	1205	1213	9	QYIKWPWYI 0.001532	12
HLA-B*07:02	1	468	476	9	EIYQAGSTP 0.001531	9.6
HLA-A*02:03	1	669	677	9	ASYQTQTNQ 0.001531	14
HLA-B*57:01	1	802	811	10	ILPDPSKPSK 0.001531	16
HLA-A*33:01	1	478	487	10	NGVKGFNCYF 0.001529	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	748	756	9	NLLLQYGSF 0.001528	16
HLA-A*30:01	1	872	880	9	SALLAGTIT 0.001528	22
HLA-A*33:01	1	1185	1194	10	EVAKNLNESL 0.001527	12
HLA-B*51:01	1	277	286	10	NENGTITDAV 0.001526	16
HLA-B*53:01	1	437	446	10	NLDSKVGNGY 0.001526	7.7
HLA-A*68:01	1	784	793	10	QIYKTPPIKD 0.001526	13

HLA-A*26:01	1	814	822	9	FIEDLLFNK 0.001526	8.9
HLA-B*15:01	1	60	68	9	SNVTWFHAI 0.001525	12
HLA-B*51:01	1	273	282	10	LLKYNENGTI 0.001525	16
HLA-A*02:06	1	336	344	9	GEVFNATRF 0.001525	17
HLA-A*32:01	1	412	420	9	TGNIADYNY 0.001525	8.7
HLA-A*30:02	1	491	499	9	SYGFQPTYG 0.001525	19
HLA-B*53:01	1	702	711	10	VAYSNNSIAI 0.001525	7.7
HLA-A*31:01	1	703	711	9	AYSNNSIAI 0.001525	14
HLA-B*15:01	1	1125	1134	10	VVIGIVNNTV 0.001525	12
HLA-B*51:01	1	49	58	10	HSTQDLFLPF 0.001524	16
HLA-B*35:01	1	124	133	10	TNVVIKVICEF 0.001524	8.5
HLA-B*07:02	1	226	235	10	LVDLPIGINI 0.001524	9.6
HLA-B*07:02	1	362	371	10	YSVLYNSASF 0.001524	9.6
HLA-B*51:01	1	856	864	9	TVLPPLTD 0.001524	16
HLA-A*02:01	1	968	977	10	GAISSVLNDI 0.001524	12
HLA-A*30:02	1	989	998	10	QIDRLITGRL 0.001524	19
HLA-A*02:03	1	1014	1023	10	EIRASANLAA 0.001524	14
HLA-B*15:01	1	844	852	9	RDLICAQKF 0.001523	12
HLA-A*32:01	1	930	938	9	KIQDLSLST 0.001523	8.7
HLA-B*57:01	1	1213	1221	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	1028	1037	10	ECVLGQSKRV 0.001522	14
HLA-B*08:01	1	47	56	10	VLHSTQDLFL 0.001521	16
HLA-B*08:01	1	527	535	9	STNLVKKNC 0.001521	16
HLA-B*40:01	1	601	609	9	TSNQVAVLY 0.001521	6.2
HLA-B*40:01	1	1259	1267	9	EPVLKGVKL 0.001521	6.2
HLA-A*32:01	1	507	516	10	VVLSFELLH 0.00152	8.7
HLA-B*15:01	1	681	689	9	ARSVASQSI 0.00152	12
HLA-B*58:01	1	866	874	9	MIAQYTSAL 0.00152	11
HLA-B*08:01	1	888	897	10	GAALQIPFAM 0.00152	16
HLA-B*51:01	1	412	420	9	TGNIADYNY 0.001519	16
HLA-B*57:01	1	964	972	9	SSNFGAISS 0.001519	16
HLA-A*32:01	1	1038	1046	9	DFCGKGYHL 0.001519	8.7
HLA-A*02:01	1	1056	1064	9	GVVFLHVTY 0.001519	12
HLA-A*30:02	1	1079	1087	9	CHDGKAHFP 0.001519	19
HLA-B*08:01	1	116	124	9	SLLIVNNAT 0.001518	16
HLA-B*57:01	1	895	904	10	FAMQMAYRFN 0.001518	16
HLA-B*57:01	1	980	988	9	RLDKVEAEV 0.001518	16
HLA-B*44:02	1	1037	1046	10	VDFCGKGYHL 0.001518	6.6
HLA-B*51:01	1	1118	1127	10	FVSGNCDVVI 0.001518	16
HLA-B*40:01	1	1147	1156	10	EELDKYFKNH 0.001518	6.2
HLA-A*31:01	1	1194	1202	9	LIDLQELGK 0.001518	14
HLA-A*30:02	1	222	230	9	ALEPLVDLP 0.001517	19
HLA-A*24:02	1	997	1005	9	RLQSLQTYV 0.001517	6.8
HLA-A*30:01	1	1063	1071	9	TYVPAQEKV 0.001517	22
HLA-A*24:02	1	261	270	10	AYYVGYLQPR 0.001516	6.8
HLA-A*30:02	1	325	334	10	RFPNITNLCV 0.001516	19
HLA-A*68:02	1	803	811	9	LPDPSKPSK 0.001516	13
HLA-A*23:01	1	109	118	10	TLDSKTQSL 0.001515	7.0
HLA-B*57:01	1	347	355	9	VYAWNRKRI 0.001515	16
HLA-A*01:01	1	939	948	10	ASALGKLQDV 0.001515	12
HLA-A*23:01	1	1051	1060	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	849	857	9	AQKFNGLTV 0.001514	9.9
HLA-B*44:03	1	697	706	10	GVENSVAYSN 0.001513	6.8
HLA-A*02:06	1	599	608	10	TNTSNQVAVL 0.001512	17
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	324	333	10	VRFNITNLC 0.001511	19
HLA-A*68:01	1	331	339	9	NLCPFGEVF 0.001511	14
HLA-A*30:01	1	938	946	9	TASALGKLQ 0.001511	22
HLA-A*33:01	1	817	826	10	DLLFNKVTLA 0.00151	12
HLA-A*68:02	1	848	857	10	CAQKFNGLTV 0.00151	13

HLA-B*08:01	1	947	955	9	DVVNQNAQA	0.00151	16
HLA-B*58:01	1	220	228	9	FSALEPLVD	0.001509	11
HLA-B*35:01	1	587	595	9	CSFGGVSVI	0.001509	8.5
HLA-A*32:01	1	1029	1037	9	CVLGQSKRV	0.001509	8.7
HLA-A*02:06	1	779	787	9	FAQVKQIYK	0.001508	17
HLA-B*08:01	1	911	920	10	NVLYENQKLI	0.001508	16
HLA-A*01:01	1	1112	1121	10	ITTDNTFVSG	0.001508	12
HLA-A*02:06	1	104	112	9	WIFGTTLDS	0.001507	17
HLA-A*02:06	1	904	913	10	NGIGVTQNVL	0.001507	17
HLA-A*30:01	1	1046	1054	9	LMSFPQSAP	0.001507	22
HLA-A*31:01	1	1204	1213	10	EQYIKWPWYI	0.001507	14
HLA-A*01:01	1	12	20	9	SSQCVNLTT	0.001506	12
HLA-B*58:01	1	36	44	9	VYYPDKVFR	0.001506	11
HLA-B*53:01	1	170	179	10	YVSQPFLMDL	0.001506	7.8
HLA-A*33:01	1	202	210	9	KIYSKHTPI	0.001506	12
HLA-A*30:02	1	633	641	9	YSTGSNVFQ	0.001506	19
HLA-B*51:01	1	817	826	10	DLLFNKVTLA	0.001506	16
HLA-A*01:01	1	965	973	9	SNFGAISSV	0.001506	12
HLA-A*02:03	1	1104	1113	10	RNFYEPQIIT	0.001506	14
HLA-A*01:01	1	1166	1174	9	ISGINASVV	0.001506	12
HLA-A*32:01	1	1206	1215	10	YIKWPWYIWL	0.001506	8.7
HLA-A*30:02	1	289	298	10	ALDPLSETKC	0.001505	19
HLA-A*01:01	1	838	846	9	LGDIAARDL	0.001505	12
HLA-B*51:01	1	981	990	10	LDKVEAEVQI	0.001505	16
HLA-A*33:01	1	1095	1103	9	NGTHWFVTQ	0.001505	12
HLA-A*24:02	1	170	179	10	YVSQPFLMDL	0.001504	6.9
HLA-A*68:02	1	379	387	9	VSPTKLNDL	0.001504	13
HLA-A*32:01	1	922	931	10	NQFNSAIGKI	0.001504	8.7
HLA-A*30:02	1	957	965	9	NTLVKQLSS	0.001504	19
HLA-A*30:01	1	1032	1040	9	GQSKRVDFC	0.001504	22
HLA-A*30:02	1	1252	1261	10	KFDEDDSEPV	0.001504	19
HLA-B*08:01	1	198	207	10	DGYFKIYSKH	0.001503	16
HLA-A*02:06	1	393	401	9	YADSFVIRG	0.001503	17
HLA-B*57:01	1	592	600	9	VSVITPGTN	0.001503	16
HLA-A*68:02	1	1192	1201	10	ESLIDLQELG	0.001503	13
HLA-A*30:02	1	11	19	9	VSSQCENLT	0.001502	19
HLA-B*44:02	1	83	92	10	VLPFNDGVYF	0.001502	6.6
HLA-A*30:01	1	432	440	9	AWNSNNLDS	0.001502	22
HLA-B*07:02	1	816	825	10	EDLLFNKVTL	0.001502	9.7
HLA-A*30:01	1	1063	1072	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-B*08:01	1	452	460	9	LFRKSNLKP	0.001501	16
HLA-A*30:02	1	1180	1188	9	IDRLNEVAK	0.001501	19
HLA-A*30:02	1	765	773	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	PFFSNVTWF	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	592	601	10	VSVITPGTNT	0.001499	16
HLA-A*30:02	1	694	703	10	MSLGVENSVA	0.001499	19
HLA-A*11:01	1	763	771	9	ALTGIAVEQ	0.001499	8.4
HLA-B*40:01	1	1084	1093	10	AHFPREGVFN	0.001499	6.3
HLA-A*68:02	1	466	475	10	STEIYQAGST	0.001498	13
HLA-A*24:02	1	708	717	10	SIAIPTNFTI	0.001498	6.9
HLA-A*02:03	1	1229	1237	9	IMLCCMTSK	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	336	345	10	GEVFNATRFA	0.001497	20
HLA-A*02:06	1	1055	1063	9	HGVVFLHVT	0.001497	17
HLA-A*31:01	1	1198	1206	9	QELGKYEYQ	0.001497	14
HLA-A*01:01	1	92	100	9	FASTEKSNI	0.001496	12
HLA-B*15:01	1	385	393	9	NDLCFTNVI	0.001496	12
HLA-B*57:01	1	566	574	9	IADTTDAVR	0.001496	16
HLA-A*33:01	1	737	745	9	MYICGDSTE	0.001496	12



HLA-B*44:03	1	895	903	9	FAMQMAYRF 0.001495	6.8
HLA-B*07:02	1	1106	1114	9	FYEPQIITT 0.001495	9.7
HLA-A*02:06	1	267	276	10	LQPRTFLLKY 0.001494	17
HLA-B*58:01	1	451	459	9	RLFRKSNLK 0.001494	11
HLA-A*02:06	1	720	729	10	TTEILPVSM 0.001494	17
HLA-A*26:01	1	802	811	10	ILPDPSKPSK 0.001494	8.9
HLA-A*30:02	1	1001	1010	10	LQTYVTQQLI 0.001494	20
HLA-B*07:02	1	774	782	9	NTQEVFAQV 0.001493	9.7
HLA-A*68:02	1	779	788	10	FAQVKQIYKT 0.001493	13
HLA-A*01:01	1	786	794	9	YKTPPIKDF 0.001493	12
HLA-B*58:01	1	980	988	9	RLDKVEAEV 0.001493	11
HLA-A*33:01	1	993	1001	9	LITGRLQSL 0.001493	12
HLA-A*30:01	1	1193	1201	9	SLIDLQELG 0.001493	22
HLA-B*08:01	1	455	463	9	KSNLKPFER 0.001492	16
HLA-A*68:02	1	492	501	10	YGFQPTYGVG 0.001492	13
HLA-A*30:01	1	522	530	9	CGPKKSTNL 0.001492	22
HLA-B*58:01	1	963	971	9	LSSNFGAIS 0.001492	11
HLA-A*31:01	1	1000	1009	10	SLQTYVTQQL 0.001492	14
HLA-A*26:01	1	1011	1019	9	RAAEIRASA 0.001492	9.0
HLA-B*40:01	1	47	55	9	VLHSTQDLF 0.001491	6.3
HLA-A*30:01	1	207	215	9	HTPINLVRG 0.001491	22
HLA-A*02:01	1	329	338	10	ITNLCPFGEV 0.001491	12
HLA-B*53:01	1	572	581	10	AVRDPQTLEI 0.001491	7.8
HLA-B*40:01	1	1110	1118	9	QIITTDNTF 0.001491	6.3
HLA-B*35:01	1	288	296	9	CALDPLSET 0.00149	8.5
HLA-A*30:02	1	489	497	9	LQSYGFQPT 0.00149	20
HLA-A*02:01	1	743	751	9	STECSNLLL 0.00149	12
HLA-B*15:01	1	265	274	10	GYLQPRTFLL 0.001489	12
HLA-A*03:01	1	411	420	10	QTGNIADYNY 0.001489	9.9
HLA-A*26:01	1	751	760	10	LQYGSFCTQL 0.001489	9.0
HLA-A*31:01	1	1260	1268	9	PVLKGVKLH 0.001489	14
HLA-B*58:01	1	534	543	10	KCVNFNFNGL 0.001488	11
HLA-B*58:01	1	882	891	10	GWTFGAGAAL 0.001488	11
HLA-A*01:01	1	1083	1092	10	KAHFPREGVF 0.001488	12
HLA-A*30:02	1	1095	1104	10	NGTHWFVTQR 0.001488	20
HLA-B*58:01	1	1125	1134	10	VVIGIVNNTV 0.001488	11
HLA-B*35:01	1	1217	1225	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	342	350	9	TRFASVYAW 0.001487	6.3
HLA-A*68:02	1	900	908	9	AYRFNGIGV 0.001487	13
HLA-A*01:01	1	111	120	10	DSKTQSLIV 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	626	634	9	LTPTWRVYS 0.001486	20
HLA-A*02:01	1	856	864	9	TVLPPLTLD 0.001486	12
HLA-A*26:01	1	922	930	9	NQFNSAIGK 0.001486	9.0
HLA-B*35:01	1	947	955	9	DVFNQNAQA 0.001486	8.6
HLA-B*44:02	1	959	967	9	LVKQLSSNF 0.001486	6.7
HLA-A*01:01	1	984	992	9	VEAEVQIDR 0.001486	12
HLA-A*30:01	1	292	301	10	PLSETKCTLK 0.001485	22
HLA-B*58:01	1	680	688	9	RARVASQS 0.001485	11
HLA-B*58:01	1	904	912	9	NGIGVTQNV 0.001485	11
HLA-A*31:01	1	1048	1057	10	SFPQSAPHGV 0.001485	14
HLA-A*23:01	1	777	786	10	EVFAQVKQIY 0.001484	7.0
HLA-B*57:01	1	231	239	9	IGINITRFQ 0.001483	16
HLA-A*03:01	1	318	326	9	QPTESIVRF 0.001483	9.9
HLA-A*30:01	1	543	551	9	LTGTGVLTE 0.001483	22
HLA-A*68:02	1	752	760	9	QYGSFCTQL 0.001483	13
HLA-A*02:03	1	214	222	9	RGLPQGFSA 0.001482	14
HLA-A*30:01	1	439	448	10	DSKVGGNYNY 0.001482	22
HLA-A*68:02	1	990	998	9	IDRLITGRL 0.001482	13
HLA-A*30:02	1	1079	1088	10	CHDGKAHFPR 0.001482	20
HLA-A*30:01	1	221	230	10	SALEPLVDLP 0.001481	22
HLA-A*30:01	1	561	570	10	QFGRDIADTT 0.001481	22
HLA-A*68:01	1	719	727	9	VTTEILPVS 0.001481	14

HLA-A*30:02	1	729	737	9	TKTSVDCTM	0.001481	20
HLA-A*32:01	1	771	779	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	1111	1119	9	IITTDNTFV	0.00148	12
HLA-B*40:01	1	1258	1266	9	SEPVLKGVK	0.00148	6.3
HLA-A*24:02	1	849	857	9	AQKFNGLTV	0.001479	6.9
HLA-A*02:01	1	933	942	10	DSLSSTASAL	0.001479	12
HLA-B*08:01	1	941	949	9	ALGKLQDVV	0.001479	16
HLA-B*35:01	1	1172	1180	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	862	870	9	LTDEMIQY	0.001478	7.0
HLA-B*53:01	1	1135	1144	10	YDPLQPELDS	0.001478	7.9
HLA-A*68:01	1	21	29	9	RTQLPPAYT	0.001477	14
HLA-A*01:01	1	773	782	10	KNTQEVFAQV	0.001477	12
HLA-A*24:02	1	813	822	10	SFIEDLLFNK	0.001477	6.9
HLA-B*57:01	1	1219	1227	9	AGLIAIVMV	0.001477	16
HLA-A*31:01	1	126	135	10	VVIKVCDFQF	0.001476	14
HLA-A*33:01	1	632	640	9	VYSTGSNVF	0.001476	12
HLA-A*02:03	1	933	941	9	DSLSSTASA	0.001476	14
HLA-A*68:01	1	999	1008	10	QSLQTYVTQQ	0.001476	14
HLA-A*02:03	1	1039	1047	9	FCGKGYHLM	0.001476	14
HLA-B*57:01	1	1203	1212	10	YEQYIKWPWY	0.001476	16
HLA-A*68:01	1	1217	1225	9	FIAGLIAIV	0.001476	14
HLA-B*53:01	1	183	192	10	QGNFKNLREF	0.001475	7.9
HLA-A*02:06	1	468	477	10	EIYQAGSTPC	0.001475	17
HLA-B*58:01	1	866	875	10	MIAQYTSALL	0.001475	11
HLA-A*30:01	1	911	919	9	NVLYENQKL	0.001475	23
HLA-B*51:01	1	1223	1231	9	AIVMVTIML	0.001475	16
HLA-A*30:02	1	361	369	9	DYSVLYNSA	0.001474	20
HLA-B*15:01	1	19	27	9	TTRTQLPPA	0.001473	12
HLA-A*33:01	1	126	134	9	VVIKVCDFQ	0.001473	12
HLA-A*31:01	1	378	387	10	GVSPTKLNDL	0.001473	14
HLA-B*15:01	1	75	83	9	GTKRFANPV	0.001472	12
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	571	580	10	DAVRDPQTLE	0.001472	12
HLA-B*58:01	1	802	811	10	ILPDPSKPSK	0.001472	11
HLA-B*51:01	1	527	535	9	STNLVKNKC	0.001471	16
HLA-A*30:02	1	696	705	10	LGVENSVAYS	0.001471	20
HLA-A*68:02	1	756	765	10	FCTQLNRALT	0.001471	13
HLA-A*30:01	1	922	931	10	NQFNSAIGKI	0.001471	23
HLA-A*03:01	1	1011	1019	9	RAAEIRASA	0.001471	9.9
HLA-A*30:02	1	1033	1042	10	QSKRVDFCGK	0.001471	20
HLA-A*30:01	1	1113	1121	9	TTDNTFVSG	0.001471	23
HLA-B*57:01	1	1134	1143	10	VYDPLQPELD	0.001471	16
HLA-B*58:01	1	280	288	9	GTITDAVDC	0.00147	11
HLA-B*57:01	1	858	866	9	LPPLLTDEM	0.00147	16
HLA-A*68:01	1	875	883	9	LAGTITSGW	0.00147	14
HLA-A*02:03	1	1053	1062	10	APHGVVFLHV	0.00147	14
HLA-A*01:01	1	259	267	9	AAAYYVGYL	0.001469	12
HLA-A*68:02	1	265	274	10	GYLQPRTFLL	0.001469	13
HLA-A*68:02	1	7	15	9	LLPLVSSQC	0.001468	13
HLA-A*02:03	1	309	317	9	IYQTSNFRV	0.001468	14
HLA-B*51:01	1	791	799	9	IKDFGGFNF	0.001468	16
HLA-B*58:01	1	932	941	10	QDSLSSTASA	0.001468	11
HLA-A*02:01	1	1165	1174	10	DISGINASVV	0.001468	12
HLA-A*01:01	1	222	231	10	ALEPLVDLPI	0.001467	12
HLA-A*68:02	1	375	384	10	KCYGVSPTKL	0.001466	13
HLA-B*57:01	1	461	469	9	FERDISTEI	0.001466	16
HLA-A*23:01	1	1172	1180	9	SVVNIQKEI	0.001466	7.1
HLA-A*02:01	1	638	647	10	NVFQTRAGCL	0.001465	12
HLA-B*58:01	1	700	709	10	NSVAYSNNSI	0.001465	11
HLA-A*02:01	1	701	710	10	SVAYSNNNSIA	0.001465	12

HLA-A*30:01	1	717	725	9	ISVTTEILP 0.001465	23
HLA-A*33:01	1	368	377	10	SASFSTFKCY 0.001464	12
HLA-A*01:01	1	623	632	10	ADQLTPTWRV 0.001464	12
HLA-A*02:01	1	38	47	10	YDPKVFRRSSV 0.001463	12
HLA-A*31:01	1	1035	1044	10	KRVDFCGKGY 0.001463	14
HLA-A*31:01	1	1077	1086	10	AICHDGKAHF 0.001463	14
HLA-B*44:03	1	1103	1111	9	QRNFYEPQI 0.001463	6.9
HLA-B*57:01	1	1142	1151	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	323	332	10	IVRFPNITNL 0.001462	12
HLA-A*02:03	1	505	514	10	YRVVLSFEL 0.001462	14
HLA-B*08:01	1	811	819	9	KRSFIEDLL 0.001462	17
HLA-A*24:02	1	475	483	9	TPCNGVKGF 0.001461	6.9
HLA-A*30:01	1	529	538	10	NLVKNKCVNF 0.001461	23
HLA-A*02:03	1	887	896	10	AGAALQIPFA 0.001461	14
HLA-A*02:06	1	1198	1206	9	QELGKYEYQ 0.001461	17
HLA-B*15:01	1	169	177	9	EYVSQPFLM 0.00146	12
HLA-B*44:03	1	695	704	10	SLGVENSVAV 0.00146	6.9
HLA-B*53:01	1	119	127	9	IVNNATNVV 0.001459	7.9
HLA-A*03:01	1	483	492	10	FNCYFPLQSY 0.001459	10
HLA-A*32:01	1	529	538	10	NLVKNKCVNF 0.001459	8.9
HLA-A*02:03	1	779	788	10	FAQVKQIYKT 0.001459	14
HLA-A*03:01	1	1007	1016	10	QLLIRAAEIR 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*30:02	1	343	351	9	RFASVYAWN 0.001457	20
HLA-A*01:01	1	108	116	9	TTLDSKTQS 0.001456	12
HLA-A*23:01	1	262	271	10	YYVGYLQPRT 0.001456	7.1
HLA-A*30:02	1	297	305	9	KCTLKSFTV 0.001456	20
HLA-A*11:01	1	191	200	10	EFVFKNIDGY 0.001455	8.4
HLA-B*15:01	1	255	264	10	WTAGAAAYYV 0.001455	12
HLA-A*30:01	1	600	609	10	NTSNQVAVLY 0.001455	23
HLA-A*32:01	1	936	945	10	SSTASALGKL 0.001455	8.9
HLA-B*44:03	1	973	981	9	VLNDILSRL 0.001455	6.9
HLA-A*11:01	1	997	1005	9	RLQSLQTYV 0.001455	8.4
HLA-B*57:01	1	1073	1082	10	TTAPAICHDG 0.001455	16
HLA-A*02:06	1	697	705	9	GVENSVAYS 0.001454	17
HLA-B*58:01	1	1141	1149	9	ELDSFKEEL 0.001454	11
HLA-A*68:02	1	769	778	10	VEQDKNTQEV 0.001453	13
HLA-A*32:01	1	954	963	10	QALNTLVKQL 0.001453	8.9
HLA-A*23:01	1	1105	1113	9	NFYEPQIIT 0.001453	7.1
HLA-B*07:02	1	1175	1183	9	NIQKEIDRL 0.001453	9.8
HLA-B*07:02	1	162	170	9	SANNCTFEY 0.001452	9.8
HLA-A*02:06	1	440	448	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-A*02:01	1	207	216	10	HTPINLVRGL 0.001451	12
HLA-B*57:01	1	207	215	9	HTPINLVRG 0.001451	16
HLA-B*07:02	1	339	347	9	FNATRFASV 0.001451	9.8
HLA-B*44:03	1	363	371	9	SVLYNSASF 0.001451	6.9
HLA-A*30:01	1	782	791	10	VKQIYKTPPI 0.001451	23
HLA-A*68:01	1	136	144	9	CNDPFLGVY 0.00145	14
HLA-B*57:01	1	326	335	10	FPNITNLCPF 0.00145	16
HLA-A*68:02	1	398	407	10	VIRGDEVROI 0.00145	13
HLA-A*23:01	1	407	415	9	IAPGQTGNI 0.00145	7.1
HLA-A*30:01	1	881	890	10	SGWTFGAGAA 0.00145	23
HLA-B*53:01	1	1064	1073	10	YVPAQEKNF 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	245	254	10	YLTPGDSSSG 0.001449	14
HLA-A*68:02	1	300	309	10	LKSFTVEKGI 0.001449	13
HLA-A*68:02	1	1191	1200	10	NESLIDLQEL 0.001449	13
HLA-A*31:01	1	1208	1216	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	676	684	9	NSPRRARSV 0.001448	20
HLA-B*07:02	1	931	939	9	IQDLSLSTA 0.001448	9.8
HLA-A*02:06	1	1157	1166	10	TSPDVDLGGI 0.001448	17
HLA-A*01:01	1	1256	1265	10	DDSEPVKGV 0.001448	12
HLA-B*57:01	1	465	474	10	ISTEIQAGS 0.001447	16
HLA-A*32:01	1	572	580	9	AVRDPQTL 0.001447	8.9
HLA-A*02:06	1	669	678	10	ASYQTQNSP 0.001447	17
HLA-A*02:01	1	890	898	9	ALQIPFAMQ 0.001447	12
HLA-A*30:02	1	995	1003	9	TGRLQSLQT 0.001447	20
HLA-A*30:01	1	1031	1039	9	LGQSKRVDF 0.001447	23
HLA-B*40:01	1	1088	1097	10	REGVFSNGT 0.001447	6.4
HLA-A*02:03	1	1132	1141	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	294	303	10	SETKCTLKSF 0.001446	8.6
HLA-A*01:01	1	316	325	10	RVQPTESIVR 0.001446	12
HLA-B*53:01	1	571	580	10	DAVRDPQTL 0.001446	7.9
HLA-B*51:01	1	574	582	9	RDPQTL 0.001446	16
HLA-B*51:01	1	784	792	9	QIYKTPPIK 0.001446	16
HLA-A*68:02	1	918	927	10	KLIANQFNSA 0.001446	13
HLA-A*01:01	1	933	942	10	DSLSTASAL 0.001446	12
HLA-B*07:02	1	696	704	9	LGVENSVAY 0.001445	9.8
HLA-A*23:01	1	317	325	9	VQPTESIVR 0.001444	7.1
HLA-B*58:01	1	1257	1265	9	DSEPVKGV 0.001444	12
HLA-A*30:01	1	147	156	10	KNNKSWMESE 0.001443	23
HLA-B*15:01	1	398	407	10	VIRGDEVRF 0.001443	12
HLA-B*51:01	1	568	576	9	DTTDAVRDP 0.001443	16
HLA-A*33:01	1	685	693	9	ASQSIIAYT 0.001443	12
HLA-B*44:02	1	948	956	9	VVNQAQAL 0.001443	6.8
HLA-A*30:02	1	232	240	9	GINITRFQT 0.001442	20
HLA-B*51:01	1	478	487	10	NGVKGFCYF 0.001442	16
HLA-B*53:01	1	866	875	10	MIAQYTSALL 0.001442	7.9
HLA-A*30:02	1	79	87	9	FANPVLPFN 0.001441	20
HLA-B*51:01	1	339	348	10	FNATRFASVY 0.001441	16
HLA-B*44:02	1	357	366	10	NCVADYSVLY 0.001441	6.8
HLA-A*03:01	1	922	931	10	NQFNIAIGKI 0.001441	10
HLA-B*51:01	1	1097	1106	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	260	269	10	AAYVGYLQP 0.00144	12
HLA-A*30:01	1	482	490	9	GFNCYFPLQ 0.00144	23
HLA-A*30:02	1	500	509	10	VGYQPYRVVV 0.00144	20
HLA-A*02:06	1	612	621	10	VNCTEVPVAI 0.00144	17
HLA-A*02:06	1	1036	1044	9	RVDFCGKGY 0.00144	17
HLA-A*02:01	1	281	289	9	TITDAVDCA 0.001439	12
HLA-A*02:01	1	358	366	9	CVADYSVLY 0.001439	12
HLA-B*57:01	1	778	787	10	VFAQVKQIYK 0.001439	16
HLA-B*07:02	1	871	879	9	TSALLAGTI 0.001439	9.9
HLA-A*68:02	1	930	938	9	KIQDLSLST 0.001439	13
HLA-B*57:01	1	1133	1141	9	TVYDPLQPE 0.001439	16
HLA-B*35:01	1	260	268	9	AAYVGYLQ 0.001438	8.6
HLA-A*26:01	1	883	892	10	WTFGAGAAALQ 0.001438	9.1
HLA-A*01:01	1	990	998	9	IDRLITGRL 0.001438	12
HLA-A*31:01	1	1001	1009	9	LQTYVTQQL 0.001438	14
HLA-A*32:01	1	1035	1044	10	KRVDFCGKGY 0.001438	8.9
HLA-B*53:01	1	28	36	9	YTNSFTRGV 0.001437	7.9
HLA-B*57:01	1	687	695	9	QSIAYTMS 0.001437	16
HLA-A*32:01	1	1222	1230	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*26:01	1	234	243	10	NITRFQTLHR 0.001436	9.1
HLA-A*68:01	1	437	446	10	NLDSKVGNGY 0.001436	14
HLA-A*02:06	1	644	653	10	AGCLIGAEHV 0.001436	17
HLA-A*30:02	1	1129	1137	9	IVNNTVYDP 0.001436	20
HLA-B*58:01	1	1132	1140	9	NTVYDPLQP 0.001436	12
HLA-A*32:01	1	1212	1221	10	YIWLGFIAGL 0.001436	8.9

HLA-A*32:01	1	308	317	10	GIYQTSNFRV 0.001435	8.9
HLA-B*57:01	1	617	626	10	VPVAIHADQL 0.001435	16
HLA-A*03:01	1	649	657	9	GAEHVNNSY 0.001435	11
HLA-A*03:01	1	674	683	10	QTNSPRRARS 0.001435	11
HLA-A*01:01	1	784	792	9	QIYKTPPIK 0.001435	12
HLA-A*02:01	1	823	831	9	VTLADAGFI 0.001435	12
HLA-B*57:01	1	343	352	10	RFASVYAWNRR 0.001434	16
HLA-A*30:01	1	655	663	9	NSYECDIPI 0.001434	23
HLA-A*68:01	1	728	736	9	MTKTSVDCT 0.001434	14
HLA-A*11:01	1	1027	1036	10	SECVLGQSKR 0.001434	8.5
HLA-A*02:06	1	356	364	9	SNCVADYSV 0.001433	17
HLA-A*01:01	1	494	503	10	FQPTYGVGYQ 0.001433	12
HLA-B*35:01	1	553	562	10	NKKFLPFQQF 0.001433	8.7
HLA-B*08:01	1	901	909	9	YRFNGIGVT 0.001433	17
HLA-B*08:01	1	1006	1014	9	TQQLIRAAE 0.001433	17
HLA-B*53:01	1	2	10	9	FVFLVLLPL 0.001432	8.0
HLA-B*57:01	1	454	463	10	RKSNLKPFR 0.001432	16
HLA-A*02:06	1	635	643	9	TGSNVFQTR 0.001432	17
HLA-A*02:03	1	655	663	9	NSYECDIPI 0.001432	14
HLA-B*44:02	1	814	823	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	SNIRGWIF 0.00143	6.4
HLA-A*02:03	1	310	319	10	YQTSNFRVQP 0.00143	14
HLA-A*23:01	1	391	399	9	NVYADSFVI 0.00143	7.1
HLA-B*15:01	1	444	453	10	GNYNLYRLF 0.00143	12
HLA-A*02:01	1	685	694	10	ASQSIIAYTM 0.00143	12
HLA-B*08:01	1	777	786	10	EVFAQVKQIY 0.00143	17
HLA-A*68:01	1	298	306	9	CTLKSFTVE 0.001429	14
HLA-A*02:06	1	498	506	9	YGVGYQPYP 0.001429	17
HLA-A*02:01	1	577	586	10	QTLEILDITP 0.001429	12
HLA-B*40:01	1	624	633	10	DQLTPTWRVY 0.001429	6.4
HLA-A*32:01	1	1090	1098	9	GVFVSNNGTH 0.001429	9.0
HLA-A*68:02	1	1206	1214	9	YIKWPWYIW 0.001429	13
HLA-B*15:01	1	1260	1268	9	PVLKGVKLH 0.001429	12
HLA-B*35:01	1	57	65	9	PFFSNVTWF 0.001428	8.7
HLA-B*58:01	1	366	375	10	YNSASFSTFK 0.001428	12
HLA-A*32:01	1	870	879	10	YTSALLAGTI 0.001428	9.0
HLA-A*02:06	1	467	476	10	TEIYQAGSTP 0.001427	17
HLA-A*68:01	1	595	604	10	ITPGTNTSNQ 0.001427	14
HLA-A*30:02	1	963	971	9	LSSNFGAIS 0.001427	20
HLA-A*03:01	1	648	657	10	IGAHEVNNSY 0.001426	11
HLA-A*31:01	1	811	820	10	KRSFIEDLLF 0.001426	14
HLA-A*30:02	1	877	886	10	GTITSGWTFG 0.001426	20
HLA-B*58:01	1	1026	1035	10	MSECVLGQSK 0.001426	12
HLA-B*08:01	1	6	14	9	VLLPLVSSQ 0.001425	17
HLA-B*53:01	1	368	376	9	SASFSTFKC 0.001425	8.0
HLA-B*35:01	1	407	416	10	IAPGQTGNIA 0.001425	8.7
HLA-A*24:02	1	571	579	9	DAVRDPQTL 0.001425	7.0
HLA-A*32:01	1	607	615	9	VLYQGVNCT 0.001425	9.0
HLA-A*02:06	1	681	689	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	VDPPIGINI 0.001424	12
HLA-B*58:01	1	431	439	9	IAWNSNLD 0.001424	12
HLA-A*68:01	1	493	502	10	GFQPTYGVGY 0.001424	14
HLA-A*30:01	1	841	849	9	IAARDLICA 0.001424	23
HLA-A*02:06	1	38	46	9	YDPKVFRSS 0.001423	17
HLA-B*07:02	1	247	256	10	TPGDSSSGWT 0.001423	9.9
HLA-B*51:01	1	468	477	10	EIYQAGSTPC 0.001423	16
HLA-A*24:02	1	1031	1039	9	LGQSKRVDF 0.001423	7.0
HLA-A*24:02	1	1200	1209	10	LGKYEQYIKW 0.001423	7.0
HLA-A*68:01	1	1014	1023	10	EIRASANLAA 0.001422	14
HLA-B*57:01	1	123	132	10	ATNVVIVKCE 0.001421	16
HLA-B*07:02	1	462	470	9	ERDISTEY 0.001421	9.9
HLA-B*44:02	1	94	103	10	STEKSNIIIRG 0.00142	6.8
HLA-B*44:02	1	238	246	9	FQTLHRSYL 0.00142	6.8
HLA-A*30:02	1	364	373	10	VLYNSASFST 0.00142	20

HLA-A*02:06	1	742	750	9	DSTECSNLL 0.00142	17
HLA-A*02:01	1	501	509	9	GYQPYRVVV 0.001419	12
HLA-A*31:01	1	503	512	10	QPYRVVLSF 0.001419	14
HLA-B*07:02	1	1091	1099	9	VFVSNGTHW 0.001419	9.9
HLA-A*23:01	1	85	93	9	PFNDGVYFA 0.001418	7.2
HLA-A*01:01	1	462	471	10	ERDISTEIQ 0.001418	12
HLA-B*53:01	1	550	559	10	TESNKKFLPF 0.001418	8.0
HLA-B*57:01	1	635	644	10	TGSNVFQTRA 0.001418	17
HLA-A*02:03	1	719	727	9	VTTEILPVS 0.001418	14
HLA-A*30:01	1	909	917	9	TQNVLYENQ 0.001418	23
HLA-A*01:01	1	265	274	10	GYLQPRFTLL 0.001417	12
HLA-A*68:02	1	1186	1195	10	VAKNLNESLI 0.001417	14
HLA-A*01:01	1	1199	1207	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	787	796	10	KTPPIKDFGG 0.001416	12
HLA-A*68:02	1	944	953	10	KLQDVVNQNA 0.001416	14
HLA-A*68:01	1	10	18	9	LVSSQCVNL 0.001415	14
HLA-A*32:01	1	345	353	9	ASVYAWNRK 0.001415	9.0
HLA-B*07:02	1	407	415	9	IAPGQTGNI 0.001415	9.9
HLA-B*08:01	1	695	704	10	SLGVENSVA 0.001415	17
HLA-A*30:01	1	813	821	9	SFIEDLLFN 0.001415	23
HLA-B*08:01	1	1186	1195	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	KSWMESEFRV 0.001414	16
HLA-B*07:02	1	227	235	9	VDLPIGINI 0.001414	9.9
HLA-B*35:01	1	289	297	9	ALDPLSETK 0.001414	8.7
HLA-B*53:01	1	912	920	9	VLYENQKLI 0.001414	8.0
HLA-B*08:01	1	1158	1166	9	SPDVDLGGI 0.001414	17
HLA-B*40:01	1	237	246	10	RFQTLHRSYL 0.001413	6.5
HLA-B*58:01	1	784	792	9	QIYKTPPIK 0.001413	12
HLA-A*02:01	1	1171	1180	10	ASVVNIQKEI 0.001413	12
HLA-B*44:02	1	623	632	10	ADQLTPTWRV 0.001412	6.8
HLA-A*02:01	1	625	633	9	QLTPTWRVY 0.001412	12
HLA-B*44:02	1	125	133	9	NVVIKVCVF 0.001411	6.8
HLA-B*08:01	1	693	702	10	TMSLGVENS 0.001411	17
HLA-A*68:01	1	947	956	10	DVVNQNAQAL 0.001411	14
HLA-B*44:03	1	414	422	9	NIADYNYKL 0.00141	7.0
HLA-B*53:01	1	566	574	9	IADTTDAVR 0.00141	8.0
HLA-B*08:01	1	745	753	9	ECSNLLLQY 0.00141	17
HLA-A*32:01	1	950	959	10	NQNAQALNTL 0.00141	9.0
HLA-B*58:01	1	235	244	10	ITRFQTLHRS 0.001409	12
HLA-B*58:01	1	1073	1081	9	TTAPAICH 0.001409	12
HLA-B*53:01	1	1182	1190	9	RLNEVAKNL 0.001409	8.0
HLA-B*40:01	1	20	28	9	TRTQLPPAY 0.001408	6.5
HLA-A*68:02	1	79	87	9	FANPVLPFN 0.001407	14
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-A*68:01	1	211	220	10	NLVRGLPQGF 0.001407	14
HLA-B*44:03	1	246	255	10	LTPGDSSSGW 0.001407	7.0
HLA-A*30:02	1	425	433	9	DFTGCVIAW 0.001407	20
HLA-B*44:03	1	1088	1096	9	REGVFVSN 0.001407	7.0
HLA-A*23:01	1	53	62	10	DLFLPFFSNV 0.001406	7.2
HLA-B*44:03	1	892	901	10	QIPFAMQMAY 0.001406	7.0
HLA-A*68:02	1	996	1005	10	GRLQSLQTYV 0.001406	14
HLA-A*23:01	1	829	838	10	GFIKQYGDCL 0.001405	7.2
HLA-B*07:02	1	332	341	10	LCPFGEVFN 0.001404	10
HLA-B*07:02	1	627	636	10	TPTWRVYSTG 0.001404	10
HLA-A*33:01	1	1196	1204	9	DLQELGKYE 0.001404	12
HLA-B*58:01	1	496	504	9	PTYGVGYQP 0.001403	12
HLA-B*08:01	1	599	608	10	TNTSNQVAVL 0.001403	17
HLA-B*57:01	1	753	762	10	YGSFCTQLNR 0.001403	17
HLA-B*08:01	1	1099	1107	9	WFTVQRNFY 0.001403	17
HLA-A*33:01	1	309	317	9	IYQTSNFRV 0.001402	12
HLA-B*51:01	1	109	118	10	TLDSKTQSL 0.001401	16

HLA-A*30:01	1	649	657	9	GAEHVNNSY 0.001401	23
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	532	540	9	KNKCVNFnF 0.001399	17
HLA-B*40:01	1	40	48	9	DKVFRSSVL 0.001398	6.5
HLA-B*08:01	1	858	867	10	LPPLLTDEMI 0.001398	17
HLA-A*24:02	1	1007	1015	9	QQLIRAAEI 0.001398	7.0
HLA-A*01:01	1	1063	1072	10	TYVPAQEKNF 0.001398	12
HLA-A*30:02	1	1089	1098	10	EGVFSVNGTH 0.001398	20
HLA-A*68:02	1	1103	1111	9	QRNFYEPQI 0.001398	14
HLA-A*33:01	1	1185	1193	9	EVAKNLNES 0.001398	12
HLA-B*15:01	1	1216	1224	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	259	267	9	AAAYVVGYL 0.001397	8.1
HLA-B*40:01	1	414	422	9	NIADYNYKL 0.001397	6.5
HLA-B*08:01	1	461	470	10	FERDISTEYI 0.001397	17
HLA-A*24:02	1	608	616	9	LYQGVNCTE 0.001397	7.0
HLA-A*02:01	1	615	623	9	TEVPVAIHA 0.001397	13
HLA-A*02:01	1	860	868	9	PLLTDEMIA 0.001397	13
HLA-B*08:01	1	1097	1106	10	THWFVTQRNF 0.001397	17
HLA-A*30:01	1	1197	1206	10	LQELGKYEYQ 0.001397	23
HLA-B*08:01	1	306	315	10	EKGIYQTSNF 0.001396	17
HLA-A*01:01	1	754	762	9	GSFCTQLNR 0.001396	12
HLA-A*31:01	1	892	901	10	QIPFAMQMAY 0.001396	14
HLA-A*32:01	1	1125	1133	9	VVIGIVNNT 0.001396	9.0
HLA-A*23:01	1	475	483	9	TPCNGVKGF 0.001395	7.2
HLA-B*15:01	1	560	569	10	QQFGRDIADT 0.001395	13
HLA-A*02:03	1	468	477	10	EIYQAGSTPC 0.001394	14
HLA-A*33:01	1	616	625	10	EVPVAIHADQ 0.001394	12
HLA-A*01:01	1	834	843	10	YGDCLGDIAA 0.001394	12
HLA-A*24:02	1	1057	1065	9	VVFLHVTVV 0.001394	7.0
HLA-B*51:01	1	1089	1097	9	EGVFSVNGT 0.001394	16
HLA-A*01:01	1	1253	1261	9	FDEDDSEPV 0.001394	12
HLA-A*68:01	1	503	512	10	QPYRVVLSF 0.001393	14
HLA-A*02:03	1	923	931	9	QFNSAIGKI 0.001393	14
HLA-A*31:01	1	1172	1180	9	SVVNIQKEI 0.001393	14
HLA-B*51:01	1	586	594	9	PCSFVVSV 0.001392	16
HLA-A*23:01	1	777	785	9	EVFAQVKQI 0.001392	7.2
HLA-B*51:01	1	892	900	9	QIPFAMQMA 0.001392	16
HLA-B*35:01	1	1179	1187	9	EIDRLNEVA 0.001392	8.8
HLA-A*02:03	1	121	130	10	NNATNVVIKV 0.001391	14
HLA-A*30:01	1	288	296	9	CALDPLSET 0.001391	23
HLA-A*24:02	1	325	334	10	RFPNITNLCP 0.001391	7.0
HLA-A*23:01	1	380	389	10	SPTKLNDLFC 0.001391	7.2
HLA-B*15:01	1	383	392	10	KLNDLCFTNV 0.001391	13
HLA-B*08:01	1	742	750	9	DSTECSNLL 0.001391	17
HLA-B*08:01	1	1150	1159	10	DKYFKNHTSP 0.001391	17
HLA-B*40:01	1	1155	1163	9	NHTSPDVDL 0.001391	6.5
HLA-B*35:01	1	177	186	10	MDLEGKQGNF 0.00139	8.8
HLA-A*02:03	1	102	110	9	RGWIFGTTL 0.001389	14
HLA-A*33:01	1	303	312	10	FTVEKGIYQT 0.001389	12
HLA-A*33:01	1	532	540	9	KNKCVNFnF 0.001389	12
HLA-A*33:01	1	709	717	9	IAIPTNFTI 0.001389	12
HLA-B*07:02	1	795	803	9	GGFNFSQIL 0.001389	10
HLA-A*30:01	1	817	825	9	DLLFNKVTL 0.001389	23
HLA-A*30:01	1	1192	1200	9	ESLIDLQEL 0.001389	23
HLA-A*02:06	1	1228	1236	9	TIMLCCMTS 0.001389	18
HLA-B*51:01	1	159	168	10	VYSSANNCTF 0.001388	16
HLA-A*24:02	1	911	919	9	NVLYENQKL 0.001388	7.0
HLA-A*33:01	1	1014	1022	9	EIRASANLA 0.001388	12
HLA-B*58:01	1	1125	1133	9	VVIGIVNNT 0.001388	12

HLA-A*31:01	1	88	97	10	DGVYFASTK 0.001387	14
HLA-B*44:03	1	696	704	9	LGVNSVAY 0.001387	7.0
HLA-A*26:01	1	40	48	9	DKVFRSSVL 0.001386	9.3
HLA-B*53:01	1	238	246	9	FQTLHRSYL 0.001386	8.1
HLA-A*68:01	1	1028	1037	10	ECVLGQSKRV 0.001386	14
HLA-B*08:01	1	1198	1207	10	QELGKYEQYI 0.001386	17
HLA-A*68:02	1	519	528	10	ATVCGPKKST 0.001385	14
HLA-A*02:01	1	580	589	10	EILDITPCSF 0.001385	13
HLA-A*11:01	1	672	681	10	QTQTNSPRRA 0.001385	8.6
HLA-A*30:01	1	868	877	10	AQYTSALLAG 0.001385	23
HLA-B*53:01	1	1013	1021	9	AEIRASANL 0.001385	8.1
HLA-B*53:01	1	1136	1144	9	DPLQPELDS 0.001385	8.1
HLA-A*02:06	1	1256	1265	10	DDSEPVLKGV 0.001385	18
HLA-A*03:01	1	47	56	10	VLHSTQDLFL 0.001384	11
HLA-A*31:01	1	656	665	10	SYECDIPIGA 0.001384	14
HLA-A*68:02	1	1227	1235	9	VTIMLCCMT 0.001384	14
HLA-A*31:01	1	1261	1270	10	VLKGVKLHYT 0.001384	14
HLA-B*44:02	1	233	241	9	INITRFQTL 0.001383	6.9
HLA-A*02:06	1	513	522	10	ELLHAPATVC 0.001383	18
HLA-A*30:01	1	716	724	9	TISVTEIL 0.001383	23
HLA-B*58:01	1	847	855	9	ICAQKFNGL 0.001383	12
HLA-A*02:06	1	1140	1149	10	PELDSFKEEL 0.001383	18
HLA-A*03:01	1	307	315	9	KGITYQTSNF 0.001382	11
HLA-B*53:01	1	417	426	10	DYNYKLPDDF 0.001382	8.1
HLA-B*35:01	1	424	433	10	DDFTGCVIAW 0.001382	8.8
HLA-B*15:01	1	548	557	10	VLTESNKKFL 0.001382	13
HLA-A*02:06	1	874	883	10	LLAGTITSGW 0.001382	18
HLA-B*15:01	1	1061	1070	10	HVTYVPAQEK 0.001382	13
HLA-A*68:01	1	1192	1200	9	ESLIDLQEL 0.001382	14
HLA-A*01:01	1	1252	1261	10	KFDEDDSEPV 0.001382	12
HLA-B*15:01	1	175	183	9	FLMDLEGKQ 0.001381	13
HLA-A*01:01	1	282	291	10	ITDAVDCALD 0.001381	12
HLA-A*30:01	1	808	817	10	KPSKRSFIED 0.001381	23
HLA-B*44:02	1	874	883	10	LLAGTITSGW 0.001381	6.9
HLA-A*24:02	1	1103	1111	9	QRNFYEPQI 0.001381	7.1
HLA-A*30:02	1	1182	1191	10	RLNEVAKNLN 0.001381	20
HLA-A*02:06	1	84	93	10	LPFNDGVYFA 0.00138	18
HLA-A*02:06	1	471	480	10	QAGSTPCNGV 0.00138	18
HLA-B*08:01	1	539	548	10	NFNGLTGTGV 0.00138	17
HLA-B*44:02	1	673	681	9	TQTNSPRRA 0.00138	6.9
HLA-B*07:02	1	748	756	9	NLLLQYGSF 0.00138	10
HLA-B*44:03	1	814	823	10	FIEDLLFNKV 0.00138	7.0
HLA-B*44:02	1	895	903	9	FAMQMAYRF 0.00138	6.9
HLA-A*30:02	1	792	800	9	KDFGGFNFS 0.001379	20
HLA-A*33:01	1	1196	1205	10	DLQELGKYEQ 0.001379	12
HLA-A*23:01	1	391	400	10	NVYADSFVIR 0.001378	7.3
HLA-A*30:02	1	1093	1102	10	VSNQTHWFVT 0.001378	20
HLA-A*30:01	1	1207	1215	9	IKWPYIWL 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	601	609	9	TSNQVAVLY 0.001376	17
HLA-A*02:01	1	684	692	9	VASQSIIAY 0.001376	13
HLA-A*24:02	1	862	870	9	LTDEMIAQY 0.001376	7.1
HLA-A*30:01	1	1005	1014	10	VTQQLIRAAE 0.001376	23
HLA-A*24:02	1	462	470	9	ERDISTEIV 0.001375	7.1
HLA-A*30:01	1	1165	1173	9	DISGINASV 0.001375	23
HLA-A*02:06	1	49	58	10	HSTQDLFLPF 0.001374	18
HLA-A*30:02	1	268	277	10	QPRTFLLKYN 0.001374	20
HLA-A*26:01	1	811	820	10	KRSFIEDLLF 0.001374	9.3
HLA-A*02:01	1	1009	1017	9	LIRAAEIRA 0.001374	13
HLA-B*57:01	1	48	57	10	LHSTQDLFLP 0.001373	17
HLA-A*30:02	1	641	650	10	QTRAGCLIGA 0.001373	20
HLA-B*44:03	1	800	809	10	SQILPDPSKP 0.001373	7.0
HLA-A*30:01	1	832	841	10	KQYGDCLGDI 0.001373	23
HLA-B*58:01	1	239	248	10	QTLHRSYLTLP 0.001372	12



HLA-A*01:01	1	1118	1126	9	FVSGNCDVV	0.001372	13
HLA-A*01:01	1	256	264	9	TAGAAAYV	0.001371	13
HLA-A*30:01	1	999	1008	10	QSLQTYVTQQ	0.001371	23
HLA-A*02:03	1	218	226	9	QGFSALEPL	0.00137	14
HLA-B*53:01	1	381	389	9	PTKLNDFCF	0.00137	8.1
HLA-A*33:01	1	115	123	9	QSLIVNNA	0.001369	12
HLA-A*02:01	1	396	404	9	SFVIRGDEV	0.001369	13
HLA-A*30:02	1	445	454	10	NYNYLYRFR	0.001369	20
HLA-B*07:02	1	807	815	9	SKPSKRSFI	0.001369	11
HLA-B*08:01	1	134	143	10	QFCNDPFLGV	0.001368	17
HLA-A*30:01	1	564	573	10	RDIADTTDAV	0.001368	23
HLA-A*30:02	1	632	641	10	VYSTGSNVFQ	0.001368	20
HLA-B*53:01	1	972	981	10	SVLNDILSRL	0.001368	8.1
HLA-B*51:01	1	1120	1129	10	SGNCDVVI	0.001368	16
HLA-B*40:01	1	548	556	9	VLTESNKKF	0.001367	6.6
HLA-A*02:06	1	832	840	9	KQYGDCLGD	0.001367	18
HLA-A*68:01	1	911	919	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*30:01	1	478	487	10	NGVKGFNCYF	0.001366	23
HLA-A*02:06	1	649	657	9	GAEHVNNSY	0.001366	18
HLA-B*57:01	1	983	992	10	KVEAEVQIDR	0.001366	17
HLA-B*58:01	1	43	52	10	FRSSVLHSTQ	0.001365	12
HLA-A*30:02	1	884	892	9	TFGAGAALQ	0.001365	20
HLA-A*30:01	1	889	898	10	AALQIPFAMQ	0.001365	23
HLA-B*53:01	1	430	438	9	VIAWNSNNL	0.001364	8.1
HLA-A*33:01	1	553	561	9	NKKFLPFQQ	0.001364	12
HLA-B*57:01	1	1156	1165	10	HTSPDVLGD	0.001364	17
HLA-B*53:01	1	1195	1203	9	IDLQELGKY	0.001364	8.1
HLA-A*33:01	1	1257	1265	9	DSEPVKGV	0.001364	12
HLA-A*01:01	1	430	438	9	VIAWNSNNL	0.001363	13
HLA-A*68:02	1	779	787	9	FAQVKQIYK	0.001363	14
HLA-A*68:02	1	1055	1064	10	HGVVFLHVTY	0.001363	14
HLA-A*02:03	1	1233	1241	9	CMTSCCSSL	0.001363	14
HLA-A*01:01	1	635	643	9	TGSNVFQTR	0.001362	13
HLA-A*68:02	1	1037	1046	10	VDFCGKGYHL	0.001362	14
HLA-A*33:01	1	1207	1215	9	IKWPWYIWL	0.001362	12
HLA-A*68:02	1	1086	1094	9	FPREGVFVS	0.001361	14
HLA-A*26:01	1	1254	1262	9	DEDDSEPVL	0.001361	9.4
HLA-B*40:01	1	265	273	9	GYLQPRFTL	0.00136	6.6
HLA-B*53:01	1	904	913	10	NGIGVTQNL	0.00136	8.1
HLA-B*58:01	1	938	946	9	TASALGKLQ	0.00136	12
HLA-B*53:01	1	385	393	9	NDLCFTNVY	0.001359	8.1
HLA-B*44:02	1	600	609	10	NTSNQVAVLY	0.001359	6.9
HLA-A*30:01	1	697	705	9	GVENSVAYS	0.001359	23
HLA-A*68:01	1	793	801	9	DFGGFNFSQ	0.001359	14
HLA-B*08:01	1	1217	1226	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*26:01	1	783	791	9	KQIYKTPPI	0.001358	9.4
HLA-B*44:03	1	399	407	9	IRGDEVRQI	0.001357	7.1
HLA-A*33:01	1	556	565	10	FLPFQFGRD	0.001357	12
HLA-A*26:01	1	630	639	10	WRVYSTGSNV	0.001357	9.4
HLA-B*07:02	1	690	698	9	IAYTMSLGV	0.001357	11
HLA-A*23:01	1	1056	1064	9	GVVFLHVTY	0.001357	7.3
HLA-B*08:01	1	497	505	9	TYGVGYQPY	0.001356	17
HLA-A*30:02	1	728	736	9	MTKTSVDCT	0.001356	20
HLA-A*02:03	1	877	885	9	GTITSGWTF	0.001356	14
HLA-A*30:01	1	947	955	9	DVVNQNAQA	0.001356	23
HLA-A*30:02	1	998	1007	10	LQSLQTYVTQ	0.001356	20
HLA-A*02:01	1	92	100	9	FASTEKSI	0.001355	13
HLA-A*26:01	1	289	297	9	ALDPLSETK	0.001355	9.4
HLA-A*30:01	1	470	478	9	YQAGSTPCN	0.001355	23
HLA-A*32:01	1	711	719	9	IPTNFTISV	0.001355	9.2
HLA-A*02:03	1	722	730	9	EILPVSMTK	0.001355	14

HLA-A*03:01	1	1093	1101	9	VSNQTHWFV	0.001355	11
HLA-A*68:02	1	534	543	10	KCVNFNFNGL	0.001354	14
HLA-A*01:01	1	599	608	10	TNTSNQVAVL	0.001354	13
HLA-A*02:06	1	1017	1025	9	ASANLAATK	0.001354	18
HLA-A*02:06	1	1203	1211	9	YEQYIKWPW	0.001354	18
HLA-A*68:02	1	56	65	10	LPFFSNVTWF	0.001353	14
HLA-B*51:01	1	185	193	9	NFKNLREFV	0.001353	16
HLA-B*40:01	1	698	706	9	VENSVAYSN	0.001353	6.6
HLA-A*03:01	1	340	348	9	NATRFASVY	0.001352	11
HLA-A*68:02	1	384	392	9	LNDLCFTNV	0.001352	14
HLA-A*02:01	1	856	865	10	TVLPPLLTD	0.001352	13
HLA-B*15:01	1	1197	1205	9	LQELGKYEQ	0.001352	13
HLA-A*02:01	1	45	54	10	SSVLHSTQDL	0.001351	13
HLA-A*32:01	1	214	222	9	RGLPQGFSA	0.001351	9.2
HLA-B*40:01	1	264	272	9	VGYLQPRTF	0.001351	6.6
HLA-A*30:02	1	516	525	10	HAPATVCGPK	0.001351	21
HLA-B*58:01	1	555	563	9	KFLPFQQFG	0.00135	12
HLA-B*51:01	1	728	737	10	MTKTSVDCTM	0.00135	16
HLA-A*30:02	1	789	797	9	PPIKDFGGF	0.00135	21
HLA-A*02:01	1	1049	1058	10	FPQSAPHGVV	0.00135	13
HLA-A*30:02	1	1130	1138	9	VNNTVYDPL	0.00135	21
HLA-A*32:01	1	1218	1226	9	IAGLIAIVM	0.00135	9.2
HLA-A*30:01	1	72	81	10	GTNGTKRFAN	0.001349	23
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-B*08:01	1	407	415	9	IAPGQTGNI	0.001349	17
HLA-A*01:01	1	655	663	9	NSYECDIPI	0.001349	13
HLA-A*24:02	1	885	893	9	FGAGAALQI	0.001349	7.1
HLA-A*02:03	1	1192	1200	9	ESLIDLQEL	0.001349	14
HLA-A*68:02	1	1261	1269	9	VLKGVKLHY	0.001349	14
HLA-A*31:01	1	507	515	9	VVLSFELL	0.001348	14
HLA-A*30:01	1	577	585	9	QTLEILDIT	0.001348	23
HLA-A*23:01	1	774	782	9	NTQEVFAQV	0.001348	7.3
HLA-B*44:02	1	800	809	10	SQILPDPSPK	0.001348	7.0
HLA-B*53:01	1	46	54	9	SVLHSTQDL	0.001347	8.2
HLA-B*51:01	1	635	643	9	TGSNVFQTR	0.001347	16
HLA-A*02:06	1	704	712	9	YSNNSIAIP	0.001347	18
HLA-B*07:02	1	846	855	10	LICAQKFNGL	0.001347	11
HLA-A*30:01	1	1182	1191	10	RLNEVAKNLN	0.001347	23
HLA-A*02:06	1	75	84	10	GTRKFANPVL	0.001346	18
HLA-B*35:01	1	259	267	9	AAAYYVGYL	0.001346	8.9
HLA-A*02:06	1	450	458	9	YRLFRRKSNL	0.001346	18
HLA-B*51:01	1	535	543	9	CVNFNFNGL	0.001346	16
HLA-A*11:01	1	634	642	9	STGSNVFQT	0.001346	8.7
HLA-A*30:01	1	638	647	10	NVFQTRAGCL	0.001346	23
HLA-B*35:01	1	842	850	9	AARDLICAQ	0.001346	8.9
HLA-A*30:01	1	84	93	10	LPFNDGVYFA	0.001345	23
HLA-A*02:03	1	358	366	9	CVADYSVLY	0.001345	14
HLA-B*07:02	1	815	823	9	IEDLLFNKV	0.001345	11
HLA-B*08:01	1	882	891	10	GWTFGAGAAL	0.001345	17
HLA-B*44:02	1	136	144	9	CNDPFLGVY	0.001344	7.0
HLA-B*57:01	1	1200	1208	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	507	516	10	VVLSFELLH	0.001343	13
HLA-B*07:02	1	625	633	9	QLTPTWRVY	0.001343	11
HLA-B*08:01	1	998	1006	9	LQSLQTYVT	0.001343	17
HLA-A*01:01	1	1098	1106	9	HWFVTQRNF	0.001343	13
HLA-A*68:01	1	72	80	9	GTNGTKRFA	0.001342	14
HLA-A*30:01	1	136	144	9	CNDPFLGVY	0.001342	23
HLA-A*11:01	1	311	319	9	QTSNFRVQP	0.001342	8.7
HLA-B*07:02	1	786	794	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	1141	1149	9	ELDSFKEEL	0.001341	17

HLA-A*30:01	1	974	983	10	LNDILSRDLK 0.00134	24
HLA-A*32:01	1	1072	1080	9	FTTAPAICH 0.00134	9.2
HLA-A*26:01	1	1105	1113	9	NFYEQIIT 0.00134	9.4
HLA-A*68:02	1	138	147	10	DPFLGVYYHK 0.001339	14
HLA-A*68:02	1	800	808	9	SQILPDPSK 0.001339	14
HLA-A*01:01	1	1016	1025	10	RASANLAATK 0.001339	13
HLA-B*44:02	1	265	273	9	GYLQPRFTL 0.001338	7.0
HLA-B*58:01	1	406	415	10	QIAPGQTGNI 0.001338	12
HLA-B*35:01	1	677	686	10	SPRRARSVAS 0.001338	8.9
HLA-A*30:02	1	695	703	9	SLGVNSVA 0.001338	21
HLA-A*32:01	1	1002	1011	10	QTYVTQQLIR 0.001338	9.2
HLA-B*08:01	1	1021	1030	10	LAATKMSECV 0.001338	17
HLA-B*15:01	1	1025	1033	9	KMSECVLQG 0.001338	13
HLA-B*40:01	1	1172	1180	9	SVVNIQKEI 0.001338	6.6
HLA-B*44:02	1	1184	1192	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	AIHVSGTNGT 0.001337	18
HLA-A*01:01	1	148	157	10	NNKSWMESEF 0.001337	13
HLA-B*08:01	1	975	984	10	NDILSRDLKV 0.001337	17
HLA-A*30:01	1	213	221	9	VRGLPQGS 0.001336	24
HLA-B*44:03	1	289	297	9	ALDPLSETK 0.001336	7.1
HLA-B*08:01	1	304	312	9	TVEKGIYQT 0.001336	17
HLA-A*33:01	1	485	493	9	CYFPLQSYG 0.001336	12
HLA-B*58:01	1	676	684	9	NSPRRARSV 0.001336	12
HLA-A*30:01	1	681	690	10	ARSVASQSII 0.001336	24
HLA-A*02:06	1	1006	1014	9	TQQLIRAAE 0.001336	18
HLA-B*15:01	1	1068	1076	9	QEKNFHTAP 0.001336	13
HLA-B*07:02	1	391	399	9	NVYADSFVI 0.001335	11
HLA-A*30:02	1	608	616	9	LYQGVNCTE 0.001335	21
HLA-B*08:01	1	812	820	9	RSFIEDLLF 0.001335	17
HLA-B*44:02	1	1091	1100	10	VFVSNGTHWF 0.001335	7.0
HLA-B*58:01	1	1178	1186	9	KEIDRLNEV 0.001335	12
HLA-B*57:01	1	71	80	10	SGTNGTKRFA 0.001334	17
HLA-A*31:01	1	78	87	10	RFANPVLPFN 0.001334	14
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*44:02	1	497	505	9	TYGVGYQPY 0.001334	7.0
HLA-B*15:01	1	842	851	10	AARDLICAQK 0.001334	13
HLA-B*15:01	1	531	540	10	VKNKCVNFNF 0.001333	13
HLA-A*23:01	1	1186	1194	9	VAKNLNESL 0.001333	7.4
HLA-A*33:01	1	111	119	9	DSKTQSLLI 0.001332	12
HLA-B*44:02	1	791	799	9	IKDFGGFNF 0.001332	7.0
HLA-B*51:01	1	800	808	9	SQILPDPSK 0.001332	17
HLA-A*26:01	1	1093	1101	9	VSNGTHWV 0.001332	9.5
HLA-A*02:03	1	1153	1161	9	FKNHTSPDV 0.001332	14
HLA-A*02:06	1	1163	1171	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	VLPFNDGVYF 0.001331	14
HLA-A*26:01	1	316	325	10	RVQPTESIVR 0.001331	9.5
HLA-B*08:01	1	474	483	10	STPCNGVKGF 0.00133	17
HLA-A*30:01	1	808	816	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	245	253	9	YLTPGDSSS 0.001329	13
HLA-B*57:01	1	455	464	10	KSNLKPFERD 0.001329	17
HLA-A*32:01	1	553	562	10	NKKFLPFQF 0.001329	9.2
HLA-A*30:01	1	786	794	9	YKTPPIKDF 0.001329	24
HLA-A*33:01	1	195	204	10	KNIDGYFKIY 0.001328	12
HLA-B*51:01	1	439	448	10	DSKVGGNYNY 0.001328	17
HLA-A*30:01	1	474	483	10	STPCNGVKGF 0.001328	24
HLA-A*68:02	1	519	527	9	ATVCGPKKS 0.001328	14
HLA-B*44:03	1	631	640	10	RVYSTGSNVF 0.001328	7.1
HLA-B*07:02	1	904	912	9	NGIGVTQNV 0.001328	11
HLA-B*15:01	1	1022	1031	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	442	450	9	VGGNYNYLY 0.001327	11
HLA-A*23:01	1	624	633	10	DQLTPTWRVY 0.001327	7.4
HLA-A*68:02	1	754	763	10	GSFCTQLNRA 0.001327	14
HLA-B*51:01	1	758	767	10	TQLNRALGTGI 0.001327	17
HLA-A*68:01	1	1005	1013	9	VTQQLIRAA 0.001327	14
HLA-A*30:01	1	378	386	9	GVSPTKLNLD 0.001326	24
HLA-A*31:01	1	506	515	10	RVVVLSEFELL 0.001326	14
HLA-A*11:01	1	569	577	9	TTDAVRDPQ 0.001326	8.7
HLA-A*02:01	1	960	969	10	VKQLSSNFGA 0.001326	13
HLA-A*01:01	1	1012	1021	10	AAEIRASANL 0.001326	13
HLA-A*31:01	1	174	182	9	PFLMDLEGK 0.001325	14
HLA-A*68:02	1	450	458	9	YRLFRRKSNL 0.001325	14
HLA-A*30:01	1	522	531	10	CGPKKSTNLV 0.001325	24
HLA-A*31:01	1	944	953	10	KLQDVVNQNA 0.001325	14
HLA-A*31:01	1	1178	1186	9	KEIDRLNEV 0.001325	14
HLA-A*32:01	1	120	128	9	VNNATNVVI 0.001324	9.2
HLA-B*07:02	1	137	146	10	NDPFLGVYYH 0.001324	11
HLA-A*24:02	1	289	297	9	ALDPLSETK 0.001324	7.2
HLA-A*01:01	1	475	483	9	TPCNGVKGF 0.001324	13
HLA-A*02:03	1	861	869	9	LLTDEMIAQ 0.001324	14
HLA-A*03:01	1	1034	1042	9	SKRVDFCGK 0.001324	11
HLA-B*08:01	1	1166	1174	9	ISGINASVV 0.001324	17
HLA-A*02:06	1	1134	1143	10	VYDPLQPELD 0.001323	18
HLA-B*51:01	1	1135	1144	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	HKNKNSWME 0.001322	17
HLA-B*15:01	1	448	456	9	YLYRLFRRKS 0.001322	13
HLA-A*33:01	1	936	944	9	SSTASALGK 0.001322	12
HLA-B*57:01	1	114	123	10	TQSLLIVNNA 0.001321	17
HLA-A*68:01	1	395	403	9	DSFVIRGDE 0.001321	14
HLA-A*30:02	1	893	902	10	IPFAMQMAYR 0.001321	21
HLA-A*30:01	1	990	998	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	309	317	9	IYQTSNFRV 0.00132	12
HLA-A*68:02	1	372	380	9	STFKCYGVS 0.00132	14
HLA-A*02:01	1	542	551	10	GLTGTGVLTE 0.00132	13
HLA-A*02:03	1	720	728	9	TTEILPVSM 0.00132	14
HLA-B*58:01	1	48	56	9	LHSTQDLFL 0.001319	12
HLA-A*68:02	1	254	263	10	GWTAGAAAYY 0.001319	14
HLA-B*35:01	1	368	376	9	SASFSTFKC 0.001319	9.0
HLA-A*30:01	1	581	589	9	ILDITPCSF 0.001319	24
HLA-B*08:01	1	1196	1204	9	DLQELGKYE 0.001319	17
HLA-A*30:02	1	292	300	9	PLSETKCTL 0.001318	21
HLA-A*02:06	1	493	502	10	GFQPTYGVGY 0.001318	18
HLA-A*01:01	1	716	724	9	TISVTTEIL 0.001318	13
HLA-B*44:02	1	785	794	10	IYKTPPIKDF 0.001318	7.1
HLA-A*30:01	1	962	970	9	QLSSNFGAI 0.001318	24
HLA-B*51:01	1	1155	1163	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-B*44:03	1	320	328	9	TESIVRFPN 0.001317	7.2
HLA-B*44:03	1	503	512	10	QPYRVVLSF 0.001317	7.2
HLA-A*68:01	1	1038	1046	9	DFCGKGYHL 0.001317	14
HLA-A*32:01	1	15	24	10	CVNLTRRTQL 0.001316	9.3
HLA-A*02:06	1	167	176	10	TFEYVSQPFL 0.001316	18
HLA-B*57:01	1	302	310	9	SFTVEKGIY 0.001316	17
HLA-B*08:01	1	708	717	10	SIAIPTNFTI 0.001316	17
HLA-A*26:01	1	779	787	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	NNATNVVIKV 0.001315	17
HLA-A*01:01	1	251	260	10	SSSGWTAGAA 0.001315	13
HLA-B*57:01	1	259	268	10	AAAYYVGYLQ 0.001315	17
HLA-A*03:01	1	1255	1263	9	EDDSEPVLK 0.001315	11
HLA-B*58:01	1	119	128	10	IVNNATNVVI 0.001314	12
HLA-A*30:01	1	302	310	9	SFTVEKGIY 0.001314	24

HLA-B*44:02	1	965	973	9	SNFGAISSV	0.001314	7.1
HLA-B*44:02	1	191	200	10	EFVFKNIDGY	0.001313	7.1
HLA-B*58:01	1	297	306	10	KCTLKSFTVE	0.001313	12
HLA-A*11:01	1	994	1002	9	ITGRLQSLQ	0.001313	8.7
HLA-B*35:01	1	1013	1021	9	AEIRASANL	0.001312	9.0
HLA-A*02:06	1	1145	1153	9	FKEELDKYF	0.001312	18
HLA-A*26:01	1	434	442	9	NSNNLDSKV	0.001311	9.5
HLA-A*24:02	1	492	500	9	YGFQPTYGV	0.001311	7.2
HLA-B*15:01	1	696	705	10	LGVENSVAYS	0.001311	13
HLA-A*01:01	1	587	595	9	CSFGGVSVI	0.00131	13
HLA-A*68:02	1	931	939	9	IQDLSSTA	0.00131	14
HLA-B*44:03	1	950	959	10	NQNAQALNTL	0.00131	7.2
HLA-B*53:01	1	77	86	10	KRFANPVLFP	0.001309	8.3
HLA-B*08:01	1	143	151	9	VYYHKNNKS	0.001309	17
HLA-A*31:01	1	494	502	9	FQPTYGVGY	0.001309	14
HLA-A*11:01	1	551	559	9	ESNKKFLPF	0.001309	8.7
HLA-A*02:06	1	619	627	9	VAIHADQLT	0.001309	18
HLA-A*31:01	1	1083	1092	10	KAHFPREGVF	0.001309	14
HLA-A*26:01	1	1203	1211	9	YEQYIKWPW	0.001309	9.5
HLA-B*57:01	1	151	159	9	SWMESEFRV	0.001308	17
HLA-A*02:06	1	307	315	9	KGIYQTSNF	0.001308	18
HLA-A*30:02	1	753	762	10	YGSFCTQLNR	0.001308	21
HLA-B*53:01	1	805	813	9	DPSKPSKRS	0.001308	8.3
HLA-A*30:02	1	813	821	9	SFIEDLLFN	0.001308	21
HLA-A*03:01	1	912	921	10	VLYENQKLIA	0.001308	11
HLA-A*30:02	1	950	958	9	NQNAQALNT	0.001308	21
HLA-B*58:01	1	970	979	10	ISSVLNDILS	0.001308	12
HLA-A*23:01	1	1031	1039	9	LGQSKRVDF	0.001308	7.4
HLA-A*30:02	1	196	205	10	NIDGYFKIYS	0.001307	21
HLA-B*08:01	1	400	408	9	RGDEVQRQA	0.001307	17
HLA-A*23:01	1	547	556	10	GVLTESNKKF	0.001307	7.4
HLA-B*07:02	1	565	573	9	DIADTTDAV	0.001307	11
HLA-A*24:02	1	600	608	9	NTSNQVAVL	0.001307	7.2
HLA-A*30:02	1	640	648	9	FQTRAGCLI	0.001307	21
HLA-B*15:01	1	756	764	9	FCTQLNRAL	0.001307	13
HLA-A*30:01	1	1080	1088	9	HDGKAHFRP	0.001307	24
HLA-A*02:01	1	123	131	9	ATNVVIKVC	0.001306	13
HLA-A*02:06	1	152	160	9	WMESEFRVY	0.001306	18
HLA-B*08:01	1	316	324	9	RVQPTESIV	0.001306	17
HLA-A*30:01	1	612	620	9	VNCTEVPVA	0.001306	24
HLA-A*01:01	1	885	893	9	FGAGAAIQI	0.001306	13
HLA-A*03:01	1	965	973	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	253	262	10	SGWTAGAAAY	0.001305	8.3
HLA-B*35:01	1	256	264	9	TAGAAAYYV	0.001305	9.0
HLA-A*02:01	1	336	345	10	GEVFNATRFA	0.001305	13
HLA-B*44:02	1	696	704	9	LGVENSVAY	0.001305	7.1
HLA-B*40:01	1	893	901	9	IPFAMQMAY	0.001305	6.7
HLA-B*44:03	1	183	192	10	QGNFKNLREF	0.001304	7.2
HLA-A*03:01	1	264	272	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	777	785	9	EVFAQVKQI	0.001303	6.7
HLA-A*31:01	1	792	801	10	KDFGGFNFSQ	0.001303	14
HLA-A*30:02	1	980	989	10	RLDKVEAEVQ	0.001303	21
HLA-B*57:01	1	988	997	10	VQIDRLITGR	0.001303	17
HLA-A*01:01	1	1186	1194	9	VAKNLNLSL	0.001303	13
HLA-B*15:01	1	506	515	10	RVVLSFELL	0.001302	13
HLA-A*26:01	1	1071	1080	10	NFTTAPAICH	0.001302	9.6
HLA-B*58:01	1	30	39	10	NSFTRGVYYP	0.001301	12
HLA-B*58:01	1	493	502	10	GFQPTYGVGY	0.001301	12
HLA-B*07:02	1	638	646	9	NVFQTRAGC	0.001301	11
HLA-A*31:01	1	751	760	10	LQYGSFCTQL	0.001301	14
HLA-A*32:01	1	930	939	10	KIQDLSSTA	0.001301	9.3

HLA-A*30:01	1	966	974	9	NFGAISSVL 0.001301	24
HLA-A*02:03	1	978	986	9	LSRLDKVEA 0.001301	14
HLA-B*07:02	1	178	186	9	DLEGKQGNF 0.0013	11
HLA-B*51:01	1	675	684	10	TNSPRRARSV 0.0013	17
HLA-A*02:01	1	1085	1093	9	HFPREGVVFV 0.0013	13
HLA-A*01:01	1	1258	1267	10	SEPVLKGVKL 0.0013	13
HLA-A*33:01	1	325	333	9	RFPNITNLC 0.001299	12
HLA-A*02:01	1	440	449	10	SKVGGNYNYL 0.001299	13
HLA-A*31:01	1	895	903	9	FAMQMAYRF 0.001299	14
HLA-A*01:01	1	744	752	9	TECSNLLLQ 0.001298	13
HLA-B*44:02	1	503	512	10	QPYRVVLSF 0.001297	7.1
HLA-A*68:02	1	631	640	10	RVYSTGSNVF 0.001297	14
HLA-A*30:01	1	1152	1160	9	YFKNHTSPD 0.001297	24
HLA-A*30:01	1	206	215	10	KHTPINLVRG 0.001296	24
HLA-B*08:01	1	277	286	10	NENGTITDAV 0.001296	17
HLA-B*57:01	1	521	530	10	VCGPKKSTNL 0.001296	17
HLA-B*44:02	1	1002	1010	9	QTYVTQQLI 0.001296	7.1
HLA-A*30:01	1	538	546	9	FNFNGLTGT 0.001295	24
HLA-A*02:03	1	637	646	10	SNVFQTRAGC 0.001295	14
HLA-B*07:02	1	952	960	9	NAQALNTLV 0.001295	11
HLA-A*02:01	1	638	646	9	NVVFQTRAGC 0.001294	13
HLA-A*68:01	1	701	710	10	SVAYSNNNSIA 0.001294	14
HLA-A*31:01	1	1077	1085	9	AICHDGKAH 0.001294	15
HLA-A*30:02	1	1127	1136	10	IGIVNNTVYD 0.001294	21
HLA-B*15:01	1	1176	1185	10	IQKEIDRLNE 0.001294	13
HLA-B*57:01	1	298	306	9	CTLKSFTVE 0.001293	17
HLA-B*08:01	1	349	358	10	AWNKRKRISNC 0.001293	17
HLA-A*26:01	1	818	826	9	LLFNKVTLA 0.001293	9.6
HLA-A*32:01	1	454	463	10	RKSNLKPFER 0.001292	9.3
HLA-A*32:01	1	790	799	10	PIKDFGGFNF 0.001292	9.3
HLA-A*02:06	1	980	989	10	RLDKVEAEVQ 0.001292	18
HLA-A*30:02	1	161	169	9	SSANNCTFE 0.001291	21
HLA-B*35:01	1	502	511	10	YQPYRVVLS 0.001291	9.1
HLA-A*30:01	1	548	556	9	VLTESNKKF 0.001291	24
HLA-B*35:01	1	874	883	10	LLAGTITSGW 0.001291	9.1
HLA-A*26:01	1	1258	1267	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	VLFPNDGVYF 0.00129	14
HLA-A*31:01	1	405	413	9	RQIAPGQTG 0.00129	15
HLA-A*02:06	1	512	520	9	FELLHAPAT 0.00129	18
HLA-A*03:01	1	19	27	9	TTRTQLPPA 0.001289	11
HLA-B*53:01	1	301	310	10	KSFTVEKGIY 0.001289	8.3
HLA-B*53:01	1	495	503	9	QPTYGVGYQ 0.001289	8.3
HLA-B*08:01	1	562	570	9	FGRDIADTT 0.001289	17
HLA-A*02:01	1	578	586	9	TLEILDITP 0.001289	13
HLA-B*40:01	1	930	939	10	KIQDLSLSSTA 0.001289	6.7
HLA-A*68:01	1	83	91	9	VLFPNDGVY 0.001288	14
HLA-A*31:01	1	251	259	9	SSSGWTAGA 0.001288	15
HLA-A*68:02	1	606	615	10	AVLYQGVNCT 0.001288	14
HLA-A*01:01	1	952	961	10	NAQALNTLVK 0.001288	13
HLA-A*02:03	1	1025	1033	9	KMSECVLGQ 0.001288	15
HLA-A*02:06	1	21	30	10	RTQLPPAYTN 0.001287	18
HLA-B*58:01	1	430	438	9	VIAWNSNNL 0.001287	12
HLA-A*68:02	1	463	472	10	RDISTEIQQA 0.001287	14
HLA-B*51:01	1	874	883	10	LLAGTITSGW 0.001287	17
HLA-B*57:01	1	923	931	9	QFNSAIGKI 0.001287	17
HLA-B*44:02	1	931	939	9	IQDLSLSSTA 0.001287	7.1
HLA-B*15:01	1	1185	1194	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-B*15:01	1	969	977	9	AISSVLNDI 0.001286	13
HLA-B*57:01	1	969	977	9	AISSVLNDI 0.001286	17
HLA-B*57:01	1	1023	1032	10	ATKMSECVLG 0.001286	17
HLA-A*30:01	1	468	476	9	EIQYQAGSTP 0.001285	24
HLA-A*03:01	1	565	574	10	DIADTTDAVR 0.001285	11
HLA-A*02:06	1	578	586	9	TLEILDITP 0.001285	18

HLA-B*51:01	1	1216	1224	9	GFIAGLIAI 0.001285	17
HLA-A*68:02	1	238	247	10	FQTLHRSYLT 0.001284	14
HLA-A*02:03	1	450	459	10	YRLFRKSNLK 0.001284	15
HLA-B*58:01	1	668	676	9	CASYQTQTN 0.001284	12
HLA-B*44:03	1	775	783	9	TQEVFAQVK 0.001284	7.2
HLA-B*53:01	1	830	838	9	FIKQYGDCL 0.001284	8.4
HLA-A*01:01	1	926	935	10	SAIGKIQDSL 0.001284	13
HLA-B*51:01	1	1066	1074	9	PAQEKNFST 0.001284	17
HLA-A*68:01	1	1095	1103	9	NGTHWFVTQ 0.001284	14
HLA-A*26:01	1	1193	1202	10	SLIDLQELGK 0.001284	9.6
HLA-A*02:03	1	285	293	9	AVDCALDPL 0.001283	15
HLA-B*53:01	1	438	446	9	LDSKVGNGY 0.001283	8.4
HLA-A*30:02	1	511	519	9	SFELLHAPA 0.001283	21
HLA-A*31:01	1	138	146	9	DPFLGVYYH 0.001282	15
HLA-B*58:01	1	405	413	9	RQIAPGQTG 0.001282	12
HLA-A*30:02	1	407	415	9	IAPGQTGNI 0.001282	21
HLA-A*33:01	1	1125	1133	9	VVIGIVNNT 0.001282	12
HLA-A*02:06	1	1259	1267	9	EPVLKGVKL 0.001282	18
HLA-A*01:01	1	13	21	9	SQCVNLTRR 0.001281	13
HLA-A*24:02	1	110	118	9	LDSKTQSL 0.001281	7.3
HLA-B*57:01	1	306	315	10	EKGIYQTSNF 0.001281	17
HLA-A*01:01	1	344	352	9	FASVYAWNR 0.001281	13
HLA-A*31:01	1	764	773	10	LTGIAVEQDK 0.001281	15
HLA-A*02:06	1	1084	1092	9	AHFPREGVF 0.001281	18
HLA-A*23:01	1	83	91	9	VLPFNDGVY 0.00128	7.5
HLA-A*30:02	1	234	243	10	NITRFQTLHR 0.00128	21
HLA-A*03:01	1	918	927	10	KLIANQFNFA 0.00128	11
HLA-A*33:01	1	957	965	9	NTLVKQLSS 0.00128	12
HLA-A*30:01	1	963	971	9	LSSNFGAIS 0.00128	24
HLA-A*68:01	1	965	974	10	SNFGAISSVL 0.00128	14
HLA-A*68:02	1	682	691	10	RSVASQSIIA 0.001279	14
HLA-A*33:01	1	1001	1009	9	LQTYVTQQL 0.001279	12
HLA-A*30:01	1	208	216	9	TPINLVRGL 0.001278	24
HLA-B*58:01	1	230	238	9	PIGINITRF 0.001278	12
HLA-B*51:01	1	645	653	9	GCLIGAEHV 0.001278	17
HLA-A*23:01	1	70	79	10	VSGTNGTKRF 0.001277	7.5
HLA-A*03:01	1	173	182	10	QPFLMDLEGK 0.001277	11
HLA-A*33:01	1	200	208	9	YFKIYSKHT 0.001277	12
HLA-A*02:01	1	291	300	10	DPLSETKCTL 0.001277	13
HLA-A*68:02	1	308	316	9	GIYQTSNFR 0.001277	14
HLA-A*02:01	1	333	341	9	CPFGEVFNA 0.001277	13
HLA-B*58:01	1	633	642	10	YSTGNSVFQT 0.001277	12
HLA-B*08:01	1	635	643	9	TGNSNVFQTR 0.001277	18
HLA-A*30:01	1	870	878	9	YTSALLAGT 0.001277	24
HLA-B*58:01	1	1030	1039	10	VLGQSKRVDF 0.001277	12
HLA-B*53:01	1	1038	1046	9	DFCGKGYHL 0.001277	8.4
HLA-B*15:01	1	598	606	9	GTNTSNQVA 0.001276	13
HLA-A*01:01	1	625	634	10	QLTPTWRVYS 0.001276	13
HLA-A*31:01	1	672	681	10	QTQTNSPRRA 0.001276	15
HLA-A*30:01	1	715	724	10	FTISVTTEIL 0.001276	24
HLA-A*03:01	1	1077	1086	10	AICHDGKAHF 0.001276	11
HLA-B*58:01	1	113	122	10	KTQSLLVNNA 0.001275	12
HLA-A*68:01	1	167	175	9	TFEYVSQPF 0.001275	14
HLA-A*24:02	1	961	970	10	KQLSSNFGAI 0.001275	7.3
HLA-A*30:01	1	1129	1138	10	IVNNTVYDPL 0.001275	24
HLA-A*31:01	1	1197	1206	10	LQELGKYEQY 0.001275	15
HLA-A*03:01	1	1223	1231	9	AIVMVTIML 0.001275	11
HLA-A*30:02	1	866	875	10	MIAQYTSALL 0.001274	21
HLA-A*03:01	1	233	242	10	INITRFQTLH 0.001273	11
HLA-A*30:01	1	271	279	9	TFLLKYNNEN 0.001273	24
HLA-A*23:01	1	656	665	10	SYECDIPIGA 0.001273	7.5
HLA-A*33:01	1	714	723	10	NFTISVTTEI 0.001273	12
HLA-B*44:03	1	1148	1156	9	ELDKYFKNH 0.001273	7.2
HLA-A*02:01	1	22	31	10	TQLPPAYTNS 0.001272	13
HLA-B*07:02	1	812	820	9	RSFIEDLLF 0.001272	11
HLA-B*51:01	1	844	852	9	RDLICAQKF 0.001272	17

HLA-A*01:01	1	980	989	10	RLDKVEAEVQ 0.001272	13
HLA-B*44:02	1	1088	1096	9	REGVFSVSNQ 0.001272	7.2
HLA-A*30:02	1	306	315	10	EKGIYQTSNF 0.001271	21
HLA-A*11:01	1	375	384	10	KCYGVSPTKL 0.001271	8.8
HLA-A*30:01	1	503	511	9	QPYRVVVLS 0.001271	24
HLA-B*15:01	1	564	573	10	RDIADTTDAV 0.001271	13
HLA-B*57:01	1	803	812	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	447	456	10	NYLYRLEFRKS 0.00127	24
HLA-A*02:06	1	947	956	10	DVVNQNAQAL 0.00127	18
HLA-B*07:02	1	1002	1010	9	QTYVTQQLI 0.00127	11
HLA-A*02:06	1	1037	1046	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	288	297	10	CALDPLSETK 0.001269	17
HLA-B*58:01	1	320	329	10	TESIVRFPNI 0.001269	12
HLA-B*08:01	1	375	384	10	KCYGVSPTKL 0.001269	18
HLA-A*68:02	1	522	531	10	CGPKKSTNLV 0.001269	14
HLA-A*30:01	1	1103	1112	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	NNATNVVIK 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	344	352	9	FASVYAWNR 0.001268	21
HLA-B*07:02	1	406	415	10	QIAPGQTGNI 0.001268	11
HLA-B*58:01	1	502	510	9	YQPYRVVVL 0.001268	12
HLA-B*35:01	1	937	945	9	STASALGKL 0.001268	9.1
HLA-B*57:01	1	957	965	9	NLTVKQLSS 0.001268	17
HLA-A*32:01	1	367	375	9	NSASFSTFK 0.001267	9.4
HLA-A*02:03	1	890	898	9	ALQIPFAMQ 0.001267	15
HLA-A*31:01	1	918	927	10	KLIANQFNSA 0.001267	15
HLA-A*30:01	1	1010	1018	9	IRAAEIRAS 0.001267	24
HLA-A*02:06	1	186	194	9	FKNLREFVF 0.001266	18
HLA-A*02:03	1	252	261	10	SSGWTAGAAA 0.001266	15
HLA-B*57:01	1	499	507	9	GVGYQPYRV 0.001266	17
HLA-A*02:01	1	1257	1265	9	DSEPVKKGV 0.001266	13
HLA-A*31:01	1	257	266	10	AGAAAYVGY 0.001265	15
HLA-B*07:02	1	405	413	9	RQIAPGQTG 0.001265	11
HLA-A*30:02	1	479	488	10	GVKGFNCYFP 0.001265	21
HLA-B*44:02	1	775	783	9	TQEVFAQVK 0.001265	7.2
HLA-B*51:01	1	945	953	9	LQDVVNQNA 0.001265	17
HLA-A*68:02	1	984	992	9	VEAEVQIDR 0.001265	14
HLA-A*30:02	1	1105	1114	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	ATNVVIKVC 0.001264	13
HLA-A*30:02	1	305	313	9	VEKGIYQTS 0.001264	21
HLA-B*15:01	1	364	372	9	VLYNSASFS 0.001264	13
HLA-A*01:01	1	464	472	9	DISTEIIYQA 0.001264	13
HLA-A*33:01	1	489	498	10	LQSYGFQPTY 0.001264	12
HLA-A*03:01	1	743	752	10	STECSNLLLQ 0.001264	11
HLA-A*31:01	1	1062	1071	10	VTYVPAQEK 0.001264	15
HLA-B*51:01	1	441	449	9	KVGGNYNYL 0.001263	17
HLA-B*51:01	1	583	592	10	DITPCSFQGV 0.001263	17
HLA-A*30:01	1	950	959	10	NQNAQALNLT 0.001263	24
HLA-B*51:01	1	1012	1021	10	AAEIRASANL 0.001262	17
HLA-A*02:03	1	1096	1104	9	GTHWFVTQR 0.001262	15
HLA-A*30:02	1	101	110	10	IRGWIFGTTL 0.001261	21
HLA-A*26:01	1	671	680	10	YQTQTNSPRR 0.001261	9.7
HLA-A*23:01	1	681	689	9	ARSVASQSI 0.001261	7.5
HLA-A*30:02	1	872	880	9	SALLAGTIT 0.001261	21
HLA-A*32:01	1	177	186	10	MDLEGKQGNF 0.00126	9.4
HLA-A*68:01	1	711	719	9	IPTNFTISV 0.00126	14
HLA-B*51:01	1	260	269	10	AAYYVGYLQP 0.001259	17
HLA-A*01:01	1	302	311	10	SFTVEKGIYQ 0.001259	13
HLA-A*68:01	1	333	341	9	CPFGEVFNA 0.001259	14



HLA-A*26:01	1	986	994	9	AEVQIDRLI 0.001259	9.7
HLA-A*02:03	1	1166	1174	9	ISGINASVV 0.001259	15
HLA-A*01:01	1	77	86	10	KRFANPVLPF 0.001258	13
HLA-A*31:01	1	90	98	9	VYFASTEKS 0.001258	15
HLA-A*24:02	1	177	186	10	MDLEGKQGNF 0.001258	7.3
HLA-B*44:03	1	190	198	9	REFVFKNID 0.001258	7.3
HLA-A*02:03	1	1067	1076	10	AQEKNFHTAP 0.001258	15
HLA-B*53:01	1	1126	1135	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	VVIKVCFFQF 0.001257	24
HLA-B*51:01	1	137	145	9	NDPFLGVYY 0.001257	17
HLA-A*02:01	1	321	329	9	ESIVRFPNI 0.001257	13
HLA-B*08:01	1	995	1004	10	TGRLQSLQTY 0.001257	18
HLA-A*68:02	1	47	56	10	VLHSTQDLFL 0.001256	14
HLA-B*15:01	1	421	430	10	KLPDDFTGCV 0.001256	13
HLA-A*30:02	1	1013	1022	10	AEIRASANLA 0.001256	21
HLA-A*01:01	1	211	220	10	NLVRGLPQGF 0.001255	13
HLA-A*30:02	1	396	404	9	SFVIRGDEV 0.001255	21
HLA-A*30:01	1	114	123	10	TQSLLIVNNA 0.001254	24
HLA-B*35:01	1	234	242	9	NITRFQTLH 0.001254	9.2
HLA-B*57:01	1	587	596	10	CSFGGVSVIT 0.001254	18
HLA-A*02:03	1	707	715	9	NSIAIPTNF 0.001254	15
HLA-A*68:01	1	976	984	9	DILSRLDKV 0.001254	14
HLA-A*31:01	1	1179	1188	10	EIDRLNEVAK 0.001254	15
HLA-B*51:01	1	183	192	10	QGNFKNLREF 0.001253	17
HLA-B*51:01	1	300	309	10	LKSFTVEKGI 0.001253	17
HLA-A*33:01	1	447	456	10	NYLYRLFRRS 0.001253	13
HLA-A*30:01	1	626	635	10	LTPTWRVYST 0.001253	24
HLA-A*68:01	1	474	483	10	STPCNGVKGK 0.001252	14
HLA-B*08:01	1	559	567	9	FQQFGRDIA 0.001252	18
HLA-A*30:01	1	1033	1041	9	QSKRVDFCG 0.001252	24
HLA-B*53:01	1	513	521	9	ELLHAPATV 0.001251	8.5
HLA-B*35:01	1	571	580	10	DAVRDPQTLE 0.001251	9.2
HLA-B*40:01	1	937	945	9	STASALGKL 0.001251	6.8
HLA-A*68:02	1	297	305	9	KCTLKSFTV 0.00125	14
HLA-B*58:01	1	566	574	9	IADTTDAVR 0.00125	12
HLA-B*58:01	1	872	881	10	SALLAGTITS 0.00125	12
HLA-A*30:02	1	77	85	9	KRFANPVLV 0.001249	21
HLA-B*58:01	1	359	367	9	VADYSVLYN 0.001249	12
HLA-B*07:02	1	396	404	9	SFVIRGDEV 0.001249	11
HLA-A*32:01	1	478	487	10	NGVKGFNCFY 0.001249	9.5
HLA-B*15:01	1	703	711	9	AYSNNSIAI 0.001249	13
HLA-A*30:01	1	727	736	10	SMTKTSVDCT 0.001249	24
HLA-A*02:06	1	883	892	10	WTFGAGAALQ 0.001249	18
HLA-B*57:01	1	1192	1201	10	ESLIDLQELG 0.001249	18
HLA-A*11:01	1	353	362	10	KRISNCVADY 0.001248	8.9
HLA-B*15:01	1	1006	1015	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	254	262	9	GWTAGAAAY 0.001247	15
HLA-B*51:01	1	379	388	10	VSPTKLNDLC 0.001247	17
HLA-A*32:01	1	902	910	9	RFNGIGVTQ 0.001247	9.5
HLA-B*35:01	1	954	962	9	QALNTLVKQ 0.001247	9.2
HLA-A*30:01	1	1038	1046	9	DFCGKGYHL 0.001247	24
HLA-A*31:01	1	1061	1069	9	HVTYVPAQE 0.001247	15
HLA-A*30:01	1	1169	1177	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-A*30:02	1	208	216	9	TPINLVRGL 0.001246	21
HLA-B*35:01	1	795	803	9	GGFNFSQIL 0.001246	9.2
HLA-A*30:02	1	878	886	9	TITSGWTFG 0.001246	21
HLA-A*30:02	1	894	902	9	PFAMQMAYR 0.001246	21
HLA-A*30:02	1	938	946	9	TASALGKLQ 0.001246	21

HLA-A*11:01	1	135	144	10	FCNDPFLGVY 0.001245	8.9
HLA-A*32:01	1	673	682	10	TQTNSPRRAR 0.001245	9.5
HLA-A*30:01	1	1156	1164	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	527	536	10	STNLVKNKCV 0.001244	13
HLA-A*02:01	1	1104	1113	10	RNFYEQIIT 0.001244	13
HLA-A*24:02	1	681	689	9	ARSVASQSI 0.001243	7.4
HLA-A*31:01	1	866	874	9	MIAQYTSAL 0.001243	15
HLA-A*68:01	1	1047	1056	10	MSFPQSAPHG 0.001243	14
HLA-A*02:03	1	1174	1183	10	VNIQKEIDRL 0.001243	15
HLA-A*68:01	1	304	312	9	TVEKGIYQT 0.001242	14
HLA-B*40:01	1	325	333	9	RFPNITNLC 0.001242	6.9
HLA-B*57:01	1	633	642	10	YSTGSNVFQT 0.001242	18
HLA-A*32:01	1	843	852	10	ARDLICAQKF 0.001242	9.5
HLA-A*68:02	1	875	883	9	LAGTITSGW 0.001242	14
HLA-B*57:01	1	911	920	10	NVLYENQKLI 0.001242	18
HLA-A*68:02	1	916	924	9	NQKLIANQF 0.001242	14
HLA-A*26:01	1	927	935	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-B*07:02	1	626	635	10	LTPTWRVYST 0.001241	11
HLA-B*08:01	1	800	808	9	SQILPDPSK 0.001241	18
HLA-A*30:02	1	900	909	10	AYRFGIGVT 0.001241	21
HLA-B*51:01	1	1150	1158	9	DKYFKNHTS 0.00124	17
HLA-A*02:01	1	208	216	9	TPINLVRGL 0.001239	13
HLA-A*68:02	1	475	483	9	TPCNGVKGF 0.001239	14
HLA-A*03:01	1	113	121	9	KTQSLLIVN 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	343	352	10	RFASVYAWNR 0.001238	9.5
HLA-B*44:02	1	478	486	9	NGVKGFNCY 0.001238	7.3
HLA-B*58:01	1	843	852	10	ARDLICAQKF 0.001238	12
HLA-B*51:01	1	849	858	10	AQKFNGLTVL 0.001238	17
HLA-A*30:02	1	940	949	10	SALGKLQDVV 0.001238	21
HLA-A*03:01	1	984	992	9	VEAEVQIDR 0.001238	11
HLA-A*30:02	1	1155	1163	9	NHTSPDVDL 0.001238	21
HLA-B*08:01	1	7	16	10	LLPLVSSQCV 0.001237	18
HLA-B*07:02	1	323	331	9	IVRFPNITN 0.001237	11
HLA-A*01:01	1	492	500	9	YGFQPTYGV 0.001237	13
HLA-B*08:01	1	1004	1013	10	YVTQQLIRAA 0.001237	18
HLA-A*31:01	1	1223	1231	9	AIVMVTIML 0.001237	15
HLA-A*31:01	1	680	688	9	RARSVASQS 0.001236	15
HLA-A*01:01	1	878	887	10	TITSGWTFGA 0.001236	13
HLA-A*30:01	1	1027	1036	10	SECVLGQSKR 0.001236	24
HLA-A*68:02	1	168	177	10	FEYVSQPFLM 0.001235	14
HLA-B*44:03	1	330	339	10	TNLCPFGEVF 0.001235	7.3
HLA-A*32:01	1	640	648	9	FQTRAGCLI 0.001235	9.5
HLA-A*01:01	1	911	919	9	NVLYENQKL 0.001235	13
HLA-A*30:01	1	984	992	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	329	338	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	NVVIKVECF 0.001233	15
HLA-A*30:02	1	213	222	10	VRGLPQGFSa 0.001233	21
HLA-A*33:01	1	672	681	10	QTQTNSPRRA 0.001233	13
HLA-A*02:06	1	686	695	10	SQSIIAYTMS 0.001233	18
HLA-A*02:01	1	780	789	10	AQVKQIYKTP 0.001233	13
HLA-B*35:01	1	800	808	9	SQILPDPSK 0.001233	9.2
HLA-B*40:01	1	1078	1086	9	ICHDGKAHF 0.001233	6.9
HLA-A*02:03	1	1215	1224	10	LGFIAGLIAI 0.001233	15
HLA-B*07:02	1	357	365	9	NCVADYSVL 0.001232	11
HLA-A*30:01	1	547	556	10	GVLTESNKKF 0.001232	24
HLA-A*02:06	1	634	643	10	STGSNVFQTR 0.001232	18
HLA-B*44:02	1	922	930	9	NQFNSAIGK 0.001232	7.3

HLA-B*40:01	1	1103	1111	9	QRNFYEPQI	0.001232	6.9
HLA-A*30:01	1	407	415	9	IAPGQTGNI	0.001231	24
HLA-A*68:02	1	941	949	9	ALGKLDVV	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	336	344	9	GEVFNATRF	0.00123	18
HLA-A*30:02	1	396	405	10	SFVIRGDEVR	0.00123	22
HLA-A*26:01	1	504	512	9	PYRVVLSF	0.00123	9.9
HLA-A*68:02	1	672	680	9	QTQTNSPRR	0.00123	14
HLA-A*03:01	1	854	862	9	GLTVLPPLL	0.00123	11
HLA-A*11:01	1	973	981	9	VLNDILSRL	0.00123	8.9
HLA-B*57:01	1	307	316	10	KGITYQTSNFR	0.001229	18
HLA-B*08:01	1	330	339	10	TNLCPFGEVF	0.001229	18
HLA-A*30:01	1	373	382	10	TFKCYGVSPT	0.001229	24
HLA-A*01:01	1	927	935	9	AIGKIQDSL	0.001229	13
HLA-A*02:03	1	38	47	10	YDPKVFSSV	0.001228	15
HLA-B*51:01	1	442	450	9	VGGNYNYLY	0.001228	17
HLA-A*11:01	1	636	644	9	GSNVFQTRA	0.001228	8.9
HLA-A*01:01	1	799	807	9	FSQILPDPS	0.001228	13
HLA-A*30:02	1	884	893	10	TFGAGAALQI	0.001228	22
HLA-B*15:01	1	1050	1058	9	PQSAPHGVV	0.001228	13
HLA-B*15:01	1	398	406	9	VIRGDEVRQ	0.001227	13
HLA-B*44:02	1	906	914	9	IGVTQNVLY	0.001227	7.3
HLA-A*30:02	1	1048	1056	9	SFPQSAPHG	0.001227	22
HLA-B*58:01	1	70	78	9	VSGTNGTKR	0.001226	12
HLA-A*32:01	1	383	391	9	KLNDLCFTN	0.001226	9.6
HLA-B*44:02	1	674	682	9	QTNSPRRAR	0.001226	7.3
HLA-A*30:02	1	841	849	9	IAARDLICA	0.001226	22
HLA-A*26:01	1	1053	1062	10	APHGVVFLHV	0.001226	9.9
HLA-A*30:01	1	61	70	10	NVTWFHAIHV	0.001225	24
HLA-A*24:02	1	266	275	10	YLPRTFLK	0.001225	7.4
HLA-A*68:02	1	673	682	10	TQTNSPRRAR	0.001225	14
HLA-A*31:01	1	777	785	9	EVFAQVKQI	0.001225	15
HLA-B*57:01	1	970	979	10	ISSVLNDILS	0.001225	18
HLA-A*30:01	1	1217	1225	9	FIAGLIAIV	0.001225	24
HLA-B*57:01	1	133	141	9	FQFCNDPFL	0.001224	18
HLA-A*30:02	1	212	221	10	LVRGLPQGS	0.001224	22
HLA-B*40:01	1	600	608	9	NTSNQVAVL	0.001224	6.9
HLA-A*26:01	1	997	1005	9	RLQSLQTYV	0.001224	9.9
HLA-A*30:01	1	310	319	10	YQTSNFRVQP	0.001223	24
HLA-A*11:01	1	455	464	10	KSNLKPFFERD	0.001223	8.9
HLA-B*58:01	1	672	680	9	QTQTNSPRR	0.001223	12
HLA-A*32:01	1	683	691	9	SVASQSIIA	0.001223	9.6
HLA-A*24:02	1	849	858	10	AQKFNGLTVL	0.001223	7.4
HLA-B*15:01	1	1226	1234	9	MVTIMLCCM	0.001223	13
HLA-B*58:01	1	29	37	9	TNSFTRGVY	0.001222	12
HLA-B*07:02	1	289	297	9	ALDPLSETK	0.001222	11
HLA-A*32:01	1	292	300	9	PLSETKCTL	0.001222	9.6
HLA-A*33:01	1	341	350	10	ATRFASVYAW	0.001222	13
HLA-A*01:01	1	454	463	10	RKSNLKPFER	0.001222	13
HLA-B*08:01	1	729	737	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	292	301	10	PLSETKCTLK	0.001221	13
HLA-B*57:01	1	413	422	10	GNIADYNYKL	0.001221	18
HLA-A*30:01	1	1055	1063	9	HGVVFLHVT	0.001221	24
HLA-A*01:01	1	134	143	10	QFCNDPFLGV	0.00122	13
HLA-A*30:02	1	256	264	9	TAGAAAYV	0.00122	22
HLA-B*57:01	1	555	563	9	KFLPFQFG	0.00122	18
HLA-A*31:01	1	184	192	9	GNFKNLREF	0.001219	15
HLA-B*51:01	1	240	248	9	TLHRSYLTP	0.001219	17
HLA-A*02:01	1	383	391	9	KLNDLCFTN	0.001219	13
HLA-B*08:01	1	899	908	10	MAYRFNGIGV	0.001219	18
HLA-A*01:01	1	937	946	10	STASALGKLQ	0.001219	13
HLA-A*30:01	1	1012	1021	10	AAEIRASANL	0.001219	24
HLA-A*32:01	1	1175	1183	9	NIQKEIDRL	0.001219	9.6

HLA-A*31:01	1	1257	1266	10	DSEPVLKGVK 0.001219	15
HLA-A*24:02	1	62	70	9	VTWFHAIHV 0.001218	7.4
HLA-B*51:01	1	685	694	10	ASQSIIAYTM 0.001218	17
HLA-A*02:06	1	703	711	9	AYSNNIAI 0.001218	19
HLA-B*57:01	1	848	857	10	CAQKFNGLTV 0.001218	18
HLA-A*32:01	1	944	953	10	KLQDVVNQNA 0.001218	9.6
HLA-A*32:01	1	72	80	9	GTNGTKRFA 0.001217	9.6
HLA-B*53:01	1	173	182	10	QPFLMDLEGK 0.001217	8.6
HLA-A*24:02	1	302	310	9	SFTVEKGIY 0.001217	7.4
HLA-A*01:01	1	635	644	10	TGSNVFQTRA 0.001217	13
HLA-B*40:01	1	912	920	9	VLLENQKLI 0.001217	6.9
HLA-B*58:01	1	133	141	9	FQFCNDPFL 0.001216	12
HLA-A*30:02	1	138	146	9	DPFLGVYYH 0.001216	22
HLA-A*23:01	1	343	352	10	RFASVYAWNR 0.001216	7.6
HLA-A*30:02	1	417	426	10	DYNYKLPDDF 0.001216	22
HLA-A*33:01	1	608	616	9	LYQGVNCTE 0.001216	13
HLA-B*07:02	1	729	737	9	TKTSVDCTM 0.001216	11
HLA-A*33:01	1	1146	1154	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	GTTLDSKTQ 0.001215	18
HLA-B*53:01	1	407	415	9	IAPGQTGNI 0.001215	8.6
HLA-A*24:02	1	419	427	9	NYKLPDDFT 0.001215	7.4
HLA-B*44:03	1	623	632	10	ADQLTPTWRV 0.001215	7.4
HLA-B*57:01	1	755	764	10	SFCTQLNRAL 0.001215	18
HLA-A*30:01	1	769	778	10	VEQDKNTQEV 0.001215	24
HLA-A*31:01	1	940	948	9	SALGKLQDV 0.001215	15
HLA-A*24:02	1	1105	1114	10	NFYEQIITT 0.001215	7.4
HLA-B*44:03	1	186	194	9	FKNLREFVF 0.001214	7.4
HLA-A*26:01	1	747	756	10	SNLLLQYGSF 0.001214	9.9
HLA-B*58:01	1	336	344	9	GEVFNATRF 0.001213	12
HLA-B*08:01	1	341	349	9	ATRFASVYA 0.001213	18
HLA-A*24:02	1	866	874	9	MIAQYTSAL 0.001213	7.5
HLA-A*68:02	1	986	994	9	AEVQIDRLI 0.001213	14
HLA-A*30:02	1	1137	1146	10	PLQPELDSFK 0.001213	22
HLA-B*15:01	1	1221	1230	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-A*23:01	1	972	981	10	SVLNDILSRL 0.001212	7.6
HLA-A*31:01	1	1058	1066	9	VFLHVTVYP 0.001212	15
HLA-B*07:02	1	1168	1176	9	GINASVVNI 0.001212	11
HLA-B*15:01	1	119	128	10	IVMNATNVVI 0.001211	13
HLA-B*51:01	1	154	163	10	ESEFRVYSSA 0.001211	17
HLA-B*08:01	1	440	449	10	SKVGGNYNYL 0.001211	18
HLA-A*02:03	1	958	966	9	TLVKQLSSN 0.001211	15
HLA-A*01:01	1	1011	1019	9	RAAEIRASA 0.001211	13
HLA-A*02:03	1	1050	1058	9	PQSAPHGTV 0.001211	15
HLA-A*02:01	1	1051	1059	9	QSAPHGTVV 0.001211	13
HLA-A*68:01	1	1089	1097	9	EGVFVSNGT 0.001211	14
HLA-A*01:01	1	19	27	9	TTRTQLPPA 0.00121	13
HLA-A*02:01	1	593	602	10	SVITPGTNTS 0.00121	13
HLA-A*02:06	1	709	718	10	IAIPTNFTIS 0.00121	19
HLA-A*02:06	1	825	833	9	LADAGFIKQ 0.00121	19
HLA-B*58:01	1	968	976	9	GAISSVLND 0.00121	12
HLA-A*30:02	1	1080	1088	9	HDGKAHFPR 0.00121	22
HLA-B*58:01	1	168	177	10	FEYVSQPFLM 0.001209	12
HLA-A*68:02	1	799	808	10	FSQILPDPSPK 0.001209	14
HLA-A*03:01	1	974	983	10	LNDILSRLDK 0.001209	11
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	441	450	10	KVGGNYNYLY 0.001208	9.3
HLA-A*68:02	1	784	792	9	QIYKTPPIK 0.001208	14
HLA-A*03:01	1	849	858	10	AQKFNGLTVL 0.001208	11
HLA-A*30:02	1	1038	1047	10	DFCGKGYHLM 0.001208	22
HLA-B*57:01	1	1188	1197	10	KNLNEIDL 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-A*11:01	1	414	422	9	NIADYNYKL 0.001207	9.0
HLA-B*44:02	1	623	631	9	ADQLTPTWR 0.001207	7.3
HLA-A*02:01	1	682	691	10	RSVASQSIIA 0.001207	13
HLA-B*44:02	1	697	706	10	GVENSVAYSN 0.001207	7.3
HLA-A*26:01	1	710	719	10	AIPTNFTISV 0.001207	9.9
HLA-B*08:01	1	794	803	10	FGGFNFSQIL 0.001207	18
HLA-B*53:01	1	844	852	9	RDLICAQKF 0.001207	8.6
HLA-B*51:01	1	890	899	10	ALQIPFAMQM 0.001207	17
HLA-A*02:01	1	1102	1111	10	TQRNFYEPQI 0.001207	13
HLA-A*30:01	1	1173	1182	10	VVNIQKEIDR 0.001207	25
HLA-A*68:01	1	1223	1231	9	AIVMVTIML 0.001207	14
HLA-B*44:03	1	131	139	9	CEFQFCNDP 0.001206	7.4
HLA-B*57:01	1	309	317	9	IYQTSNFRV 0.001206	18
HLA-B*07:02	1	331	339	9	NLCPFGEV 0.001206	11
HLA-A*02:03	1	360	369	10	ADYSVLYNSA 0.001206	15
HLA-B*15:01	1	220	229	10	FSALEPLVDL 0.001205	13
HLA-A*68:02	1	235	244	10	ITRFQTLHRS 0.001205	15
HLA-A*33:01	1	337	346	10	EVFNATRFAS 0.001205	13
HLA-A*03:01	1	1132	1141	10	NTVYDPLQPE 0.001205	11
HLA-A*02:01	1	489	497	9	LQSYGFQPT 0.001204	13
HLA-B*08:01	1	1153	1161	9	FKNHTSPDV 0.001204	18
HLA-A*03:01	1	378	387	10	GVSPTKLNDL 0.001203	11
HLA-A*33:01	1	432	441	10	AWNSNNLDSK 0.001203	13
HLA-A*02:03	1	692	701	10	YTMSLGVENS 0.001203	15
HLA-A*01:01	1	711	719	9	IPNFTISV 0.001203	14
HLA-B*51:01	1	954	962	9	QALNTLVKQ 0.001203	17
HLA-A*68:02	1	29	38	10	TNSFTRGVVY 0.001202	15
HLA-B*44:02	1	249	257	9	GDSSSGWTA 0.001202	7.4
HLA-B*40:01	1	581	589	9	ILDITPCSF 0.001202	6.9
HLA-A*68:02	1	1161	1169	9	VDLGDISGI 0.001202	15
HLA-B*53:01	1	1191	1200	10	NESLIDLQEL 0.001202	8.6
HLA-A*30:01	1	123	132	10	ATNVVIVKCE 0.001201	25
HLA-B*57:01	1	238	246	9	FQTLHRSYL 0.001201	18
HLA-A*01:01	1	547	556	10	GVLTESNKKF 0.001201	14
HLA-A*23:01	1	608	616	9	LYQGVNCTE 0.001201	7.7
HLA-B*53:01	1	821	830	10	NKVTLADAGF 0.001201	8.6
HLA-A*32:01	1	885	893	9	FGAGAALQI 0.001201	9.7
HLA-A*31:01	1	218	226	9	QGFSALEPL 0.0012	15
HLA-A*01:01	1	510	518	9	LSFELLHAP 0.0012	14
HLA-A*02:03	1	618	626	9	PVAIHADQL 0.0012	15
HLA-B*58:01	1	721	730	10	TEILPVSMTK 0.0012	13
HLA-B*58:01	1	1112	1121	10	ITTDNTFVSG 0.0012	13
HLA-A*32:01	1	527	535	9	STNLVKNKC 0.001199	9.7
HLA-B*51:01	1	618	626	9	PVAIHADQL 0.001199	17
HLA-B*44:03	1	876	885	10	AGTITSGWTF 0.001199	7.4
HLA-A*02:06	1	1020	1029	10	NLAATKMSEC 0.001199	19
HLA-B*58:01	1	1156	1165	10	HTSPDVDLGD 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	357	366	10	NCVADYSVLV 0.001198	19
HLA-B*15:01	1	718	726	9	SVTTEILPV 0.001198	13
HLA-A*30:02	1	878	887	10	TITSGWTFGA 0.001198	22
HLA-B*08:01	1	1085	1094	10	HFPREGVFSV 0.001198	18
HLA-B*07:02	1	1198	1206	9	QELGKYEY 0.001198	11
HLA-A*30:01	1	509	518	10	VLSFELLHAP 0.001197	25
HLA-A*68:02	1	712	721	10	PTNFTISVTT 0.001197	15
HLA-A*11:01	1	1132	1141	10	NTVYDPLQPE 0.001197	9.0
HLA-A*33:01	1	37	46	10	YYPDKVFRSS 0.001196	13
HLA-A*30:02	1	559	567	9	FQQFGRDIA 0.001196	22
HLA-A*26:01	1	613	622	10	NCTEVPVAIH 0.001196	10
HLA-A*01:01	1	858	866	9	LPPLLTDEM 0.001196	14
HLA-B*53:01	1	986	994	9	AEVQIDRLI 0.001196	8.6
HLA-A*30:02	1	1254	1262	9	DEDDSEPV 0.001196	22
HLA-A*24:02	1	262	271	10	YYVGYLQPR 0.001195	7.5

HLA-B*08:01	1	294	303	10	SETKCTLKSF 0.001195	18
HLA-B*15:01	1	384	393	10	LNDLCFTNVY 0.001195	13
HLA-A*68:02	1	606	614	9	AVLYQGVNC 0.001195	15
HLA-A*33:01	1	1049	1057	9	FPQSAPHGV 0.001195	13
HLA-B*57:01	1	126	134	9	VVIKVCEFQ 0.001194	18
HLA-A*26:01	1	154	163	10	ESEFRVYSSA 0.001194	10
HLA-A*30:01	1	720	729	10	TTEILPVSMT 0.001194	25
HLA-B*51:01	1	825	833	9	LADAGFIKQ 0.001194	17
HLA-B*58:01	1	857	866	10	VLPLLTDDEM 0.001194	13
HLA-A*31:01	1	173	182	10	QPFLMDLEGK 0.001193	15
HLA-A*31:01	1	302	311	10	SFTVEKGIYQ 0.001193	15
HLA-A*32:01	1	392	400	9	VYADSFVIR 0.001193	9.7
HLA-B*58:01	1	774	783	10	NTQEVFAQVK 0.001193	13
HLA-B*53:01	1	984	993	10	VEAEVQIDRL 0.001193	8.6
HLA-A*11:01	1	1168	1176	9	GINASVVNI 0.001193	9.0
HLA-A*68:01	1	1195	1203	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	NVVIKVCEF 0.001192	15
HLA-A*02:06	1	344	352	9	FASVYAWNR 0.001192	19
HLA-B*53:01	1	596	604	9	TPGTNTSNQ 0.001192	8.6
HLA-B*57:01	1	720	729	10	TTEILPVSMT 0.001192	18
HLA-B*57:01	1	789	797	9	PPIKDFGGF 0.001192	18
HLA-B*40:01	1	961	970	10	KQLSSNFGAI 0.001192	7.0
HLA-B*57:01	1	989	998	10	QIDRLITGRL 0.001192	18
HLA-A*01:01	1	1071	1080	10	NFTTAPAICH 0.001192	14
HLA-A*30:01	1	58	67	10	FFSNVTWFHA 0.001191	25
HLA-B*51:01	1	540	549	10	FNGLTGTGVL 0.001191	17
HLA-A*23:01	1	587	595	9	CSFGGVSVI 0.001191	7.7
HLA-B*53:01	1	702	710	9	VAYSNNNSIA 0.001191	8.6
HLA-B*44:02	1	876	885	10	AGTITSGWTF 0.001191	7.4
HLA-A*68:02	1	1039	1047	9	FCGKGYHLM 0.001191	15
HLA-B*08:01	1	1118	1126	9	FVSGNCDVV 0.001191	18
HLA-A*01:01	1	1137	1146	10	PLQPELDSFK 0.001191	14
HLA-A*26:01	1	1204	1213	10	EQYIKWPWYI 0.001191	10
HLA-B*44:02	1	1206	1214	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	EFQFCNDPFL 0.00119	17
HLA-B*44:03	1	136	144	9	CNDPFLGVY 0.00119	7.4
HLA-A*01:01	1	250	259	10	DSSSGWTAGA 0.00119	14
HLA-B*44:02	1	547	556	10	GVLTESNKKF 0.00119	7.4
HLA-A*02:06	1	801	810	10	QILPDPSKPS 0.00119	19
HLA-A*01:01	1	999	1007	9	QSLQTYVTQ 0.00119	14
HLA-B*58:01	1	1185	1194	10	EVAKNLNESL 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	250	258	9	DSSSGWTAG 0.001189	15
HLA-A*33:01	1	442	450	9	VGGNYNYLY 0.001189	13
HLA-B*58:01	1	726	734	9	VSMTKTSDV 0.001189	13
HLA-B*53:01	1	982	990	9	DKVEAEVQI 0.001189	8.6
HLA-B*57:01	1	986	994	9	AEVQIDRLI 0.001189	18
HLA-A*32:01	1	989	997	9	QIDRLITGR 0.001189	9.7
HLA-A*31:01	1	1206	1215	10	YIKWPWYIWL 0.001189	15
HLA-A*23:01	1	338	347	10	VFNATRFASV 0.001188	7.7
HLA-A*68:02	1	363	372	10	SVLYNSASFS 0.001188	15
HLA-B*57:01	1	689	698	10	IIAYTMSLGV 0.001188	18
HLA-B*51:01	1	899	907	9	MAYRFNGIG 0.001188	17
HLA-B*08:01	1	1050	1059	10	PQSAPHGVVF 0.001188	18
HLA-A*03:01	1	1254	1263	10	DEDDSEPVLK 0.001188	11
HLA-A*03:01	1	29	37	9	TNSFTRGVY 0.001187	11
HLA-A*30:02	1	340	349	10	NATRFASVYA 0.001187	22
HLA-B*08:01	1	468	476	9	EIYQAGSTP 0.001187	18
HLA-A*02:03	1	583	592	10	DITPCSFGGV 0.001187	15
HLA-B*58:01	1	632	641	10	VYSTGSNVFQ 0.001187	13
HLA-A*02:06	1	762	770	9	RALTGIAVE 0.001187	19
HLA-B*08:01	1	1071	1079	9	NFTTAPAIC 0.001187	18
HLA-B*07:02	1	341	350	10	ATRFASVYAW 0.001186	11

HLA-A*01:01	1	478	487	10	NGVKGFNCYF 0.001186	14
HLA-B*57:01	1	951	960	10	QNAQALNTLV 0.001186	18
HLA-B*44:02	1	183	192	10	QGNFKNLREF 0.001185	7.4
HLA-B*08:01	1	945	953	9	LQDVVNQNA 0.001185	18
HLA-A*30:02	1	1171	1180	10	ASVVNIQKEI 0.001185	22
HLA-B*57:01	1	1218	1227	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*68:01	1	498	507	10	YGVGYQPYRV 0.001184	15
HLA-A*33:01	1	565	573	9	DIADTTDAV 0.001184	13
HLA-A*30:01	1	1189	1197	9	NLNESLIDL 0.001184	25
HLA-A*68:02	1	55	64	10	FLPFFSNVTW 0.001183	15
HLA-B*44:03	1	266	274	9	YLQPRTFLL 0.001183	7.4
HLA-A*30:02	1	523	531	9	GPKKSTNLV 0.001183	22
HLA-B*58:01	1	527	536	10	STNLVKNKCV 0.001183	13
HLA-A*30:01	1	614	622	9	CTEVPVAIH 0.001183	25
HLA-A*68:01	1	641	650	10	QTRAGCLIGA 0.001183	15
HLA-A*03:01	1	690	698	9	IAYTMSLGV 0.001183	11
HLA-A*02:03	1	1062	1070	9	VTYVPAQEK 0.001183	15
HLA-B*35:01	1	1155	1163	9	NHTSPDVDL 0.001183	9.4
HLA-A*68:02	1	1218	1226	9	IAGLIAIVM 0.001183	15
HLA-A*30:02	1	291	300	10	DPLSETKCTL 0.001182	22
HLA-B*07:02	1	504	512	9	PYRVVLSF 0.001182	11
HLA-B*58:01	1	767	776	10	IAVEQDKNTQ 0.001182	13
HLA-B*57:01	1	849	858	10	AQKFNGLTVL 0.001182	18
HLA-A*02:06	1	170	178	9	YVSQPFLMD 0.001181	19
HLA-A*33:01	1	253	262	10	SGWTAGAAAY 0.001181	13
HLA-B*58:01	1	415	423	9	IADYNYKLP 0.001181	13
HLA-A*68:01	1	571	579	9	DAVRDPQTL 0.001181	15
HLA-B*08:01	1	1009	1017	9	LIRAAEIRA 0.001181	18
HLA-A*02:01	1	1212	1220	9	YIWLGFIAI 0.001181	13
HLA-A*01:01	1	221	229	9	SALEPLVDL 0.001181	14
HLA-A*30:02	1	260	269	10	AAYYVGYLQP 0.001181	22
HLA-A*02:03	1	749	758	10	LLLQYGSFCT 0.001181	15
HLA-B*35:01	1	815	823	9	IEDLLFNKV 0.001181	9.4
HLA-A*26:01	1	937	946	10	STASALGKLQ 0.001181	11
HLA-B*44:03	1	1037	1046	10	VDFCGKGYHL 0.001181	7.5
HLA-A*11:01	1	1260	1269	10	PVLKGVKLHY 0.001181	9.1
HLA-B*35:01	1	77	86	10	KRFANPVLFP 0.001179	9.4
HLA-A*02:06	1	92	101	10	FASTEKSNII 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	548	557	10	VLTESNKKFL 0.001179	15
HLA-A*68:01	1	716	724	9	TISVTTEIL 0.001179	15
HLA-B*58:01	1	751	760	10	LQYGSFCTQL 0.001179	13
HLA-B*58:01	1	965	974	10	SNFGAISSVL 0.001179	13
HLA-B*08:01	1	228	236	9	DLPIGINIT 0.001178	18
HLA-B*58:01	1	461	469	9	FERDISTEI 0.001178	13
HLA-A*68:01	1	742	750	9	DSTECSNLL 0.001178	15
HLA-A*31:01	1	898	906	9	QMAYRFNGI 0.001178	15
HLA-B*57:01	1	961	970	10	KQLSSNFGAI 0.001178	18
HLA-A*02:06	1	1061	1069	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-A*23:01	1	207	216	10	HTPINLVRGL 0.001177	7.7
HLA-B*08:01	1	499	507	9	GVGYQPYRV 0.001177	18
HLA-B*07:02	1	854	862	9	GLTVLPPLL 0.001177	11
HLA-A*32:01	1	1031	1039	9	LGQSKRVDF 0.001177	9.7
HLA-A*26:01	1	1143	1151	9	DSFKEELDK 0.001177	11
HLA-B*57:01	1	69	77	9	HVSGTNGTK 0.001176	18
HLA-A*24:02	1	1105	1113	9	NFYEQIIT 0.001176	7.6
HLA-A*26:01	1	1106	1114	9	FYEQIITT 0.001176	11
HLA-A*30:01	1	1205	1214	10	QYIKWPWYIW 0.001176	25
HLA-A*30:02	1	181	190	10	GKQGNFKNLR 0.001175	22
HLA-A*01:01	1	307	315	9	KGIYQTSNF 0.001175	14
HLA-A*24:02	1	338	347	10	VFNATRFASV 0.001175	7.6

HLA-A*30:01	1	689	698	10	IIAYTMSLGV 0.001175	25
HLA-B*35:01	1	940	948	9	SALGKLQDV 0.001175	9.4
HLA-A*26:01	1	1109	1118	10	PQIITDNTF 0.001175	11
HLA-B*35:01	1	1148	1156	9	ELDKYFKNH 0.001175	9.4
HLA-A*03:01	1	551	559	9	ESNKKFLPF 0.001174	11
HLA-B*44:03	1	581	589	9	ILDITPCSF 0.001174	7.5
HLA-B*57:01	1	764	773	10	LTGIAVEQDK 0.001174	18
HLA-B*08:01	1	848	857	10	CAQKFNGLTV 0.001174	18
HLA-B*44:03	1	1026	1035	10	MSECVLGQSK 0.001174	7.5
HLA-A*31:01	1	1091	1100	10	VFVSNGTHWF 0.001174	15
HLA-B*07:02	1	75	83	9	GTKRFANPV 0.001173	11
HLA-A*33:01	1	694	702	9	MSLGVENSV 0.001173	13
HLA-B*58:01	1	776	785	10	QEVFAQVKQI 0.001173	13
HLA-A*02:06	1	932	941	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	327	335	9	PNITNLCPF 0.001172	7.7
HLA-B*08:01	1	337	345	9	EVFNATRFA 0.001172	18
HLA-B*44:02	1	811	820	10	KRSFIEDLLF 0.001172	7.4
HLA-B*44:02	1	990	998	9	IDRLITGRL 0.001172	7.4
HLA-A*31:01	1	57	65	9	PFFSNVTWF 0.001171	15
HLA-B*58:01	1	1035	1044	10	KRVDFCGKGY 0.001171	13
HLA-A*68:02	1	1220	1229	10	GLIAIVMVTI 0.001171	15
HLA-A*01:01	1	615	623	9	TEVPVAIHA 0.00117	14
HLA-B*15:01	1	282	290	9	ITDAVDCAL 0.001169	14
HLA-A*24:02	1	292	300	9	PLSETKCTL 0.001169	7.6
HLA-A*03:01	1	455	464	10	KSNLKPFERD 0.001169	11
HLA-B*57:01	1	672	681	10	QTQTNSPRRA 0.001169	18
HLA-B*08:01	1	1165	1174	10	DISGINASVV 0.001169	18
HLA-B*15:01	1	144	153	10	YYHKNNKSWM 0.001168	14
HLA-B*08:01	1	291	299	9	DPLSETKCT 0.001168	18
HLA-A*68:02	1	723	731	9	ILPVSMTKT 0.001168	15
HLA-B*44:03	1	729	738	10	TKTSVDCTMY 0.001168	7.5
HLA-B*08:01	1	793	802	10	DFGGFNFSQI 0.001168	18
HLA-A*02:03	1	801	810	10	QILPDPSPKPS 0.001168	15
HLA-B*15:01	1	858	866	9	LPPLLTDEM 0.001168	14
HLA-A*31:01	1	861	870	10	LLTDEMIAQY 0.001168	15
HLA-B*57:01	1	1090	1098	9	GVFVSNGTH 0.001168	18
HLA-B*57:01	1	112	121	10	SKTQSLLIIVN 0.001167	18
HLA-A*01:01	1	466	475	10	STEIYQAGST 0.001167	14
HLA-B*35:01	1	702	711	10	VAYSNNISIAI 0.001167	9.4
HLA-A*68:02	1	325	333	9	RFPNITNLC 0.001166	15
HLA-A*02:03	1	950	958	9	NQNAQALNT 0.001166	15
HLA-A*33:01	1	1036	1045	10	RVDFCGKGYH 0.001166	13
HLA-A*24:02	1	1175	1183	9	NIQKEIDRL 0.001166	7.6
HLA-B*15:01	1	195	203	9	KNIDGYFKI 0.001165	14
HLA-A*30:01	1	791	799	9	IKDFGGFNF 0.001165	25
HLA-A*02:03	1	822	831	10	KVTLADAGFI 0.001165	15
HLA-B*53:01	1	894	903	10	PFAMQMAYRF 0.001165	8.7
HLA-A*02:03	1	58	67	10	FFSNVTWFHA 0.001164	15
HLA-B*57:01	1	627	636	10	TPTWRVYSTG 0.001164	18
HLA-A*32:01	1	714	723	10	NFTISVTTEI 0.001164	9.8
HLA-A*30:02	1	819	828	10	LFNKVTLADA 0.001164	22
HLA-A*30:02	1	1007	1016	10	QLLIRAAEIR 0.001164	22
HLA-B*57:01	1	111	120	10	DSKTQSLLIV 0.001163	18
HLA-A*01:01	1	167	176	10	TFEYVSQPFL 0.001163	14
HLA-A*33:01	1	207	216	10	HTPINLVRGL 0.001163	13
HLA-A*30:02	1	822	831	10	KVTLADAGFI 0.001163	22
HLA-B*58:01	1	899	908	10	MAYRFNGIGV 0.001163	13
HLA-A*02:01	1	984	993	10	VEAEVQIDRL 0.001163	14
HLA-B*08:01	1	1102	1111	10	TQRNFYEPQI 0.001163	18
HLA-A*01:01	1	618	626	9	PVAIHADQL 0.001162	14
HLA-A*33:01	1	937	945	9	STASALGKL 0.001162	13
HLA-B*57:01	1	985	993	9	EAEVQIDRL 0.001162	18
HLA-A*23:01	1	995	1004	10	TGRLQSLQTY 0.001162	7.7



HLA-A*02:01	1	1053	1062	10	APHGVVFLHV 0.001162	14
HLA-B*35:01	1	1257	1265	9	DSEPVLKGV 0.001162	9.5
HLA-A*02:01	1	119	128	10	IVN NATNVVI 0.001161	14
HLA-A*68:02	1	342	350	9	TRFASVYAW 0.001161	15
HLA-A*02:06	1	721	729	9	TEILPVSM T 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	254	262	9	GWTAGAAAY 0.00116	13
HLA-A*02:06	1	262	270	9	YYVGYLQPR 0.00116	19
HLA-A*26:01	1	288	297	10	CALDPLSETK 0.00116	11
HLA-A*31:01	1	708	717	10	SIAIPTNF TI 0.00116	15
HLA-A*02:06	1	902	910	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*02:03	1	657	665	9	YECDIPIGA 0.001159	15
HLA-A*32:01	1	681	689	9	ARSVASQSI 0.001159	9.8
HLA-B*15:01	1	969	978	10	AISSVLNDIL 0.001159	14
HLA-A*02:01	1	368	376	9	SASFSTFKC 0.001158	14
HLA-B*07:02	1	564	573	10	RDIADTTDAV 0.001158	11
HLA-B*08:01	1	678	686	9	PRRARSVAS 0.001158	18
HLA-B*58:01	1	806	815	10	PSKPSKRSFI 0.001158	13
HLA-A*02:06	1	860	868	9	PLLTDEMIA 0.001158	19
HLA-A*02:03	1	1006	1015	10	TQLIRAAEI 0.001158	15
HLA-B*08:01	1	1022	1030	9	AATKMSECV 0.001158	18
HLA-B*15:01	1	1059	1067	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-A*02:06	1	232	240	9	GINITRFQT 0.001157	19
HLA-A*30:02	1	705	713	9	SNNSIAIPT 0.001157	22
HLA-A*30:01	1	743	752	10	STEC SNLLLQ 0.001157	25
HLA-A*31:01	1	744	753	10	TECSNLLLQY 0.001157	15
HLA-B*35:01	1	1031	1039	9	LGQSKRVDF 0.001157	9.5
HLA-B*51:01	1	1103	1112	10	QRNFYEPQII 0.001157	18
HLA-B*53:01	1	1109	1118	10	PQIITDNTF 0.001157	8.8
HLA-B*44:02	1	181	189	9	GKQGNFKNL 0.001156	7.5
HLA-A*30:02	1	1008	1016	9	QLIRAAEIR 0.001156	22
HLA-B*57:01	1	1259	1267	9	EPVLKGVKL 0.001156	18
HLA-B*07:02	1	167	176	10	TFEYVSQPFL 0.001155	11
HLA-A*68:02	1	1218	1227	10	IAGLIAIVMV 0.001155	15
HLA-B*40:01	1	112	120	9	SKTQSL LIV 0.001154	7.1
HLA-A*11:01	1	441	449	9	KVGGNYNYL 0.001154	9.1
HLA-A*02:06	1	700	709	10	NSVAYSNNSI 0.001154	19
HLA-A*33:01	1	781	789	9	QVKQIYKTP 0.001154	13
HLA-B*58:01	1	872	880	9	SALLAGTIT 0.001154	13
HLA-A*01:01	1	72	80	9	GTNGTKRFA 0.001153	14
HLA-B*53:01	1	434	442	9	NSNNLDSKV 0.001153	8.8
HLA-A*02:01	1	559	567	9	FQQFGRDIA 0.001153	14
HLA-A*68:02	1	1090	1099	10	GVFVSN GTHW 0.001153	15
HLA-A*01:01	1	1148	1157	10	ELDKYFKNHT 0.001153	14
HLA-A*02:03	1	112	120	9	SKTQSL LIV 0.001152	15
HLA-A*03:01	1	214	222	9	RGLPQG FSA 0.001152	11
HLA-A*02:03	1	625	634	10	QLTPTWRVYS 0.001152	15
HLA-B*15:01	1	980	989	10	RLDKVEAEVQ 0.001152	14
HLA-B*53:01	1	1221	1229	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	402	411	10	DEV RQIAPGQ 0.001151	15
HLA-A*32:01	1	944	952	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	756	764	9	FCTQLNRAL 0.00115	22
HLA-A*24:02	1	802	811	10	ILPDPSKPSK 0.00115	7.6

HLA-A*31:01	1	1038	1046	9	DFCGKGYHL	0.00115	15
HLA-A*30:02	1	43	51	9	FRSSVLHST	0.001149	22
HLA-A*02:01	1	58	67	10	FFSNVTWFHA	0.001149	14
HLA-B*08:01	1	485	494	10	CYFPLQSYGF	0.001149	18
HLA-B*58:01	1	687	695	9	QSIIAYTMS	0.001149	13
HLA-B*58:01	1	711	719	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*32:01	1	336	344	9	GEVFNATRF	0.001148	9.9
HLA-B*08:01	1	481	489	9	KGFNCYFPL	0.001148	18
HLA-A*30:01	1	665	674	10	AGICASYQTQ	0.001148	25
HLA-A*30:01	1	1068	1077	10	QEKNFHTTAPA	0.001148	25
HLA-A*68:02	1	1136	1145	10	DPLQPELDSF	0.001148	15
HLA-B*57:01	1	1226	1234	9	MVTIMLCCM	0.001148	18
HLA-B*08:01	1	4	12	9	FLVLLPLVS	0.001147	19
HLA-A*02:01	1	212	220	9	LVRGLPQGF	0.001147	14
HLA-A*30:01	1	350	359	10	WNRKRISNCV	0.001147	25
HLA-B*15:01	1	467	476	10	TEIYQAGSTP	0.001147	14
HLA-A*02:06	1	542	551	10	GLTGTGVLTE	0.001147	19
HLA-A*30:02	1	679	688	10	RRARSVASQS	0.001147	22
HLA-A*68:02	1	1155	1163	9	NHTSPDVDL	0.001147	15
HLA-B*08:01	1	977	986	10	ILSRLDKVEA	0.001146	19
HLA-B*57:01	1	1029	1037	9	CVLQSKRV	0.001146	18
HLA-A*32:01	1	1	10	10	MFVFLVLLPL	0.001145	9.9
HLA-A*33:01	1	251	259	9	SSSGWTAGA	0.001145	13
HLA-B*44:02	1	380	389	10	SPTKLNLCF	0.001145	7.5
HLA-A*02:03	1	599	608	10	TNTSNQVAVL	0.001145	15
HLA-A*30:02	1	760	768	9	LNRALTGIA	0.001145	22
HLA-A*30:01	1	1013	1021	9	AEIRASANL	0.001145	25
HLA-B*58:01	1	1126	1134	9	VIGIVNNTV	0.001145	13
HLA-B*15:01	1	1129	1138	10	IVNNTVYDPL	0.001145	14
HLA-B*07:02	1	1155	1163	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-B*08:01	1	296	305	10	TKCTLKSFTV	0.001144	19
HLA-A*30:02	1	613	621	9	NCTEVPVAI	0.001144	22
HLA-A*01:01	1	787	795	9	KTPPIKDFG	0.001144	14
HLA-B*58:01	1	45	53	9	SSVLHSTQD	0.001143	13
HLA-A*30:02	1	467	476	10	TEIYQAGSTP	0.001143	22
HLA-A*03:01	1	623	631	9	ADQLTPTWR	0.001143	11
HLA-A*01:01	1	676	684	9	NSPRRARSV	0.001143	14
HLA-A*03:01	1	696	704	9	LGVENSVAI	0.001143	11
HLA-A*31:01	1	881	889	9	SGWTFGAGA	0.001143	15
HLA-B*35:01	1	904	913	10	NGIGVTQNVL	0.001143	9.5
HLA-A*26:01	1	1213	1221	9	IWLGFIAGL	0.001143	11
HLA-B*08:01	1	1262	1270	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*03:01	1	235	244	10	ITRFQTLHRS	0.001142	11
HLA-B*15:01	1	406	415	10	QIAPGQTGNI	0.001142	14
HLA-A*11:01	1	1127	1135	9	IGIVNNTVY	0.001142	9.2
HLA-B*44:03	1	497	505	9	TYGVGYQPY	0.001141	7.6
HLA-A*30:02	1	697	705	9	GVENSVAYS	0.001141	22
HLA-A*30:02	1	858	866	9	LPPLLTDEM	0.001141	22
HLA-A*03:01	1	1098	1106	9	HWFVTQRNF	0.001141	11
HLA-B*44:03	1	1155	1163	9	NHTSPDVDL	0.001141	7.6
HLA-B*57:01	1	1174	1183	10	VNIQKEIDRL	0.001141	18
HLA-A*33:01	1	61	70	10	NVTWFHAIHV	0.00114	13
HLA-A*31:01	1	302	310	9	SFTVEKGIY	0.00114	15
HLA-A*02:06	1	397	406	10	FVIRGDEVQR	0.00114	19
HLA-A*68:02	1	758	767	10	TQLNRALTGI	0.00114	15
HLA-B*57:01	1	794	803	10	FGGFNFSQIL	0.00114	18
HLA-B*58:01	1	801	809	9	QILPDPSKP	0.00114	13
HLA-B*07:02	1	135	143	9	FCNDPFLGV	0.001139	12
HLA-A*30:02	1	897	905	9	MQMAYRFNG	0.001139	22

HLA-A*30:02	1	933	942	10	DSLSSTASAL 0.001139	22
HLA-A*26:01	1	1181	1190	10	DRLNEVAKNL 0.001139	11
HLA-A*02:01	1	121	130	10	NNATNVVIVK 0.001138	14
HLA-A*30:01	1	599	608	10	TNTSNQVAVL 0.001138	25
HLA-B*51:01	1	785	794	10	IYKTPPIKDF 0.001138	18
HLA-A*30:02	1	31	39	9	SFTRGVVYYP 0.001137	22
HLA-B*40:01	1	688	696	9	SIAYTMSL 0.001137	7.1
HLA-B*44:02	1	709	717	9	IAIPTNFTI 0.001137	7.6
HLA-A*02:01	1	926	934	9	SAIGKIQDS 0.001137	14
HLA-A*30:01	1	76	85	10	TKRFANPVLP 0.001136	25
HLA-A*33:01	1	203	212	10	IYSKHTPINL 0.001136	13
HLA-A*01:01	1	220	228	9	FSALEPLVD 0.001136	14
HLA-A*31:01	1	421	429	9	KLPDDFTGC 0.001136	15
HLA-B*57:01	1	456	465	10	SNLKPFERDI 0.001136	18
HLA-A*31:01	1	527	535	9	STNLVKNK 0.001136	15
HLA-A*30:02	1	1034	1042	9	SKRVDFCGK 0.001136	22
HLA-A*33:01	1	1048	1057	10	SFPQSAPHGV 0.001136	13
HLA-A*02:03	1	1064	1072	9	YVPAQEKNF 0.001136	15
HLA-A*23:01	1	1070	1078	9	KNFTTAPAI 0.001136	7.8
HLA-A*32:01	1	1224	1232	9	IVMVTIMLC 0.001136	9.9
HLA-A*02:03	1	221	230	10	SALEPLVDLP 0.001135	15
HLA-A*02:06	1	342	350	9	TRFASVYAW 0.001135	19
HLA-B*57:01	1	573	582	10	VRDPQTLEIL 0.001135	18
HLA-A*26:01	1	613	621	9	NCTEVPVAI 0.001135	11
HLA-A*30:01	1	625	634	10	QLTPTWRVYS 0.001135	25
HLA-B*51:01	1	721	729	9	TEILPVSM 0.001135	18
HLA-B*40:01	1	331	339	9	NLCPFGEVF 0.001134	7.1
HLA-A*23:01	1	484	493	10	NCYFPLQSYG 0.001134	7.8
HLA-A*31:01	1	745	753	9	ECSNLLLQY 0.001134	15
HLA-A*31:01	1	980	988	9	RLDKVEAEV 0.001134	15
HLA-A*02:01	1	1096	1104	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-B*51:01	1	347	355	9	VYAWNRKRI 0.001133	18
HLA-A*02:01	1	407	415	9	IAPGQTGNI 0.001133	14
HLA-A*33:01	1	683	691	9	SVASQSIIA 0.001133	13
HLA-A*30:01	1	805	814	10	DPSKPSKRSF 0.001133	25
HLA-A*02:01	1	910	919	10	QNVLYENQKL 0.001133	14
HLA-A*02:03	1	264	273	10	VGYLQPRFTL 0.001132	15
HLA-A*68:02	1	853	862	10	NGLTVLPPLL 0.001132	15
HLA-A*30:01	1	854	863	10	GLTVLPPLL 0.001132	25
HLA-A*68:02	1	922	930	9	NQFNSAIGK 0.001132	15
HLA-B*58:01	1	44	53	10	RSSVLHSTQD 0.001131	13
HLA-A*02:01	1	538	546	9	FNFNGLTGT 0.001131	14
HLA-A*30:01	1	624	633	10	DQLTPTWRVY 0.001131	25
HLA-B*57:01	1	691	700	10	AYTMSLGVEN 0.001131	18
HLA-B*08:01	1	868	876	9	AQYTSALLA 0.001131	19
HLA-A*26:01	1	893	902	10	IPFAMQMAYR 0.001131	11
HLA-B*44:03	1	94	103	10	STEKSNIIRG 0.00113	7.6
HLA-A*30:02	1	239	248	10	QTLHRSYLTP 0.00113	22
HLA-A*32:01	1	325	333	9	RFPNITNLC 0.00113	9.9
HLA-A*30:02	1	754	763	10	GSFCTQLNRA 0.00113	22
HLA-A*03:01	1	759	767	9	QLNRALTGI 0.00113	12
HLA-A*31:01	1	893	901	9	IPFAMQMAY 0.001129	15
HLA-A*03:01	1	21	30	10	RTQLPPAYTN 0.001128	12
HLA-B*40:01	1	523	531	9	GPKKSTNLV 0.001128	7.1
HLA-B*44:02	1	1257	1265	9	DSEPVLLKV 0.001128	7.6
HLA-A*33:01	1	56	65	10	LPFFSNVTWF 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	429	438	10	CVIAWNSNNL 0.001127	10
HLA-B*07:02	1	535	543	9	CVNFFNGL 0.001127	12
HLA-A*30:02	1	810	819	10	SKRSFIEDLL 0.001127	22
HLA-B*57:01	1	883	892	10	WTFGAGAALQ 0.001127	18
HLA-A*02:01	1	405	413	9	RQIAPGQTG 0.001126	14
HLA-B*57:01	1	522	530	9	CGPKKSTNL 0.001126	18

HLA-B*07:02	1	1070	1078	9	KNFTTAPAI	0.001126	12
HLA-A*68:02	1	1143	1151	9	DSFKEELDK	0.001126	15
HLA-A*68:01	1	1189	1198	10	NLNESLIDLQ	0.001126	15
HLA-A*02:06	1	1197	1206	10	LQELGKYEYQ	0.001126	19
HLA-B*51:01	1	660	668	9	DIPIGAGIC	0.001125	18
HLA-A*23:01	1	885	893	9	FGAGAALQI	0.001125	7.8
HLA-A*26:01	1	969	977	9	AISSVLNDI	0.001125	11
HLA-A*26:01	1	1168	1176	9	GINASVVNI	0.001125	11
HLA-B*44:03	1	229	238	10	LPIGINITRF	0.001124	7.6
HLA-B*07:02	1	452	461	10	LFRKSNLKPF	0.001124	12
HLA-A*02:01	1	657	665	9	YECDIPIGA	0.001124	14
HLA-A*01:01	1	823	831	9	VTLADAGFI	0.001124	14
HLA-A*01:01	1	830	838	9	FIKQYGDCL	0.001124	14
HLA-B*57:01	1	884	893	10	TFGAGAALQI	0.001124	18
HLA-B*51:01	1	900	908	9	AYRFNGIGV	0.001124	18
HLA-B*57:01	1	252	261	10	SSGWTAGAAA	0.001123	18
HLA-A*30:02	1	693	702	10	TMSLGVNSV	0.001123	22
HLA-A*30:02	1	1219	1227	9	AGLIAIVMV	0.001123	22
HLA-A*24:02	1	46	54	9	SVLHSTQDL	0.001122	7.7
HLA-B*51:01	1	778	786	9	VFAQVKQIY	0.001122	18
HLA-B*35:01	1	811	820	10	KRSFIEDLLF	0.001122	9.6
HLA-A*30:02	1	1022	1031	10	AATKMSECVL	0.001122	22
HLA-A*33:01	1	10	18	9	LVSSQCVNL	0.001121	13
HLA-A*30:02	1	309	318	10	IYQTSNFRVQ	0.001121	22
HLA-A*32:01	1	450	459	10	YRLFRRKSNLK	0.001121	10
HLA-A*30:02	1	556	564	9	FLPFQFQGR	0.001121	22
HLA-A*68:01	1	818	826	9	LLFNKVTLA	0.001121	15
HLA-B*44:02	1	315	323	9	FRVQPTESI	0.00112	7.6
HLA-A*31:01	1	331	339	9	NLCPFGEVF	0.00112	15
HLA-A*02:03	1	520	528	9	TVCGPKKST	0.00112	15
HLA-A*01:01	1	522	530	9	CGPKKSTNL	0.00112	14
HLA-B*58:01	1	969	977	9	AISSVLNDI	0.00112	13
HLA-A*30:02	1	1003	1012	10	TYVTQQLIRA	0.00112	22
HLA-A*02:01	1	501	510	10	GYQPYRVVVL	0.001119	14
HLA-B*57:01	1	1096	1105	10	GTHWFVTQRN	0.001119	18
HLA-B*08:01	1	1224	1232	9	IVMVTIMLC	0.001119	19
HLA-B*40:01	1	41	49	9	KVFRSSVLH	0.001118	7.2
HLA-A*68:02	1	498	506	9	YGVGYQPYP	0.001118	15
HLA-A*30:02	1	641	649	9	QTRAGCLIG	0.001118	22
HLA-B*58:01	1	759	767	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	NFKNLREFV	0.001117	15
HLA-B*58:01	1	599	608	10	TNTSNQVAVL	0.001117	13
HLA-B*51:01	1	627	636	10	TPTWRVYSTG	0.001117	18
HLA-B*07:02	1	1007	1015	9	QLLIRAAEI	0.001117	12
HLA-B*08:01	1	1066	1074	9	PAQEKNFIT	0.001117	19
HLA-B*08:01	1	1086	1095	10	FPREGVFVSN	0.001117	19
HLA-A*11:01	1	1258	1266	9	SEPVLKGVK	0.001117	9.2
HLA-A*33:01	1	68	77	10	IHVSGTNGTK	0.001116	13
HLA-A*30:01	1	614	623	10	CTEVPVAIHA	0.001116	25
HLA-A*30:02	1	1074	1083	10	TAPAICHGDK	0.001116	23
HLA-B*53:01	1	1178	1186	9	KEIDRLNEV	0.001116	8.9
HLA-A*01:01	1	48	56	9	LHSTQDLFL	0.001115	14
HLA-A*26:01	1	507	516	10	VVLSFELLH	0.001115	11
HLA-A*30:01	1	607	616	10	VLYQGVNCTE	0.001115	25
HLA-A*01:01	1	940	948	9	SALGKLQDV	0.001115	14
HLA-B*58:01	1	1204	1213	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	265	274	10	GYLQPRTFLL	0.001114	13
HLA-B*35:01	1	517	526	10	APATVCGPKK	0.001114	9.6
HLA-B*08:01	1	540	549	10	FNGLTGTGVL	0.001114	19
HLA-B*51:01	1	723	731	9	ILPVSMTKT	0.001114	18
HLA-B*44:02	1	783	791	9	KQIYKTPPI	0.001114	7.6

HLA-A*31:01	1	1037	1046	10	VDFCGKGYHL 0.001114	15
HLA-A*30:02	1	1092	1101	10	FVSNNGTHWFV 0.001114	23
HLA-B*51:01	1	1108	1117	10	EPQIITDNT 0.001114	18
HLA-B*35:01	1	1201	1209	9	GKYEQYIKW 0.001114	9.6
HLA-B*57:01	1	38	47	10	YDPKVFRRSSV 0.001113	18
HLA-B*40:01	1	149	157	9	NKSWMESEF 0.001113	7.2
HLA-A*30:01	1	421	430	10	KLPDDFTGCV 0.001113	25
HLA-B*53:01	1	502	511	10	YQPYRVVVL 0.001113	8.9
HLA-A*30:02	1	687	695	9	QSIIAYTMS 0.001113	23
HLA-A*68:01	1	958	967	10	TLVKQLSSNF 0.001113	15
HLA-A*24:02	1	380	389	10	SPTKLNLDLFC 0.001112	7.7
HLA-A*31:01	1	889	898	10	AALQIPFAMQ 0.001112	15
HLA-B*07:02	1	940	949	10	SALGKLQDVV 0.001112	12
HLA-A*30:01	1	90	99	10	VYFASTEKSN 0.001111	25
HLA-A*30:02	1	360	369	10	ADYSVLYNSA 0.001111	23
HLA-A*30:02	1	896	904	9	AMQMAYRFN 0.001111	23
HLA-A*31:01	1	926	935	10	SAIGKIQDSL 0.001111	15
HLA-A*23:01	1	46	54	9	SVLHSTQDL 0.001111	7.9
HLA-A*30:01	1	456	465	10	SNLKPFERDI 0.001111	25
HLA-A*02:06	1	692	700	9	YTMSLGVEN 0.001111	19
HLA-B*08:01	1	1000	1008	9	SLQTYVTQQ 0.001111	19
HLA-A*31:01	1	1186	1194	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-B*44:03	1	402	411	10	DEV RQIAPGQ 0.001109	7.7
HLA-A*02:01	1	434	442	9	NSNNLDSKV 0.001109	14
HLA-A*30:02	1	620	629	10	AIHADQLTPT 0.001109	23
HLA-A*11:01	1	686	694	9	SQSIIAYTM 0.001109	9.3
HLA-A*26:01	1	745	754	10	ECSNLLLQYG 0.001109	11
HLA-B*07:02	1	785	794	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-B*44:03	1	238	246	9	FQTLHRSYL 0.001108	7.7
HLA-A*02:03	1	573	582	10	VRDPQTLEIL 0.001108	15
HLA-A*11:01	1	708	716	9	SIAIPTNFT 0.001108	9.3
HLA-A*32:01	1	782	791	10	VKQIYKTPPI 0.001108	11
HLA-A*01:01	1	950	959	10	NQNAQALNTL 0.001108	14
HLA-A*30:01	1	1145	1154	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	556	564	9	FLPFQQFGR 0.001107	25
HLA-B*44:02	1	863	872	10	TDEMIAQYTS 0.001107	7.7
HLA-A*68:01	1	907	915	9	GVTQNVLYE 0.001107	15
HLA-B*08:01	1	912	921	10	VLYENQKLI 0.001107	19
HLA-B*51:01	1	1056	1064	9	GVVFLHVTY 0.001107	18
HLA-A*02:03	1	490	498	9	QSYGFQPTY 0.001106	15
HLA-A*30:02	1	703	712	10	AYSNN SIAIP 0.001106	23
HLA-A*26:01	1	887	895	9	AGAALQIPF 0.001106	11
HLA-B*35:01	1	919	927	9	LIANQFNSA 0.001106	9.6
HLA-A*33:01	1	955	963	9	ALNTLVKQL 0.001106	13
HLA-B*58:01	1	1223	1231	9	AIVMVTIML 0.001106	13
HLA-B*44:02	1	267	276	10	LQPRTFLLKY 0.001105	7.7
HLA-B*44:02	1	330	339	10	TNLCPFGEVF 0.001105	7.7
HLA-B*51:01	1	801	809	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*31:01	1	452	461	10	LFRKSNLKP 0.001104	15
HLA-A*02:01	1	486	494	9	YFPLQSYGF 0.001104	14
HLA-A*30:02	1	523	532	10	GPKKSTNLVK 0.001104	23
HLA-A*30:02	1	909	917	9	TQNVLYENQ 0.001104	23
HLA-B*57:01	1	919	928	10	LIANQFN SAI 0.001104	19
HLA-B*07:02	1	992	1000	9	RLITGRLQS 0.001104	12
HLA-B*58:01	1	1040	1049	10	CGKGYHLMSF 0.001104	13
HLA-B*44:03	1	1136	1145	10	DPLQPELDSF 0.001104	7.7
HLA-A*33:01	1	254	263	10	GWTAGAAAYY 0.001103	13
HLA-B*35:01	1	306	315	10	EKG IYQTSNF 0.001103	9.6

HLA-A*02:06	1	551	559	9	ESNKKFLPF 0.001103	19
HLA-B*58:01	1	868	876	9	AQYTSALLA 0.001103	13
HLA-B*08:01	1	1045	1054	10	HLMSFPQSAP 0.001103	19
HLA-A*68:01	1	1260	1268	9	PVLKGVKLNH 0.001103	15
HLA-A*02:06	1	383	391	9	KLNDLCFTN 0.001102	19
HLA-A*11:01	1	412	420	9	TGNIADYNY 0.001102	9.3
HLA-A*30:02	1	465	473	9	ISTEIQAG 0.001102	23
HLA-A*30:01	1	544	552	9	TGTGVLTES 0.001102	25
HLA-B*58:01	1	573	582	10	VRDPQTLEIL 0.001102	13
HLA-B*08:01	1	695	703	9	SLGVENSVA 0.001102	19
HLA-B*44:03	1	863	872	10	TDEMIAQYTS 0.001102	7.7
HLA-A*68:02	1	1009	1017	9	LIRAAEIRA 0.001102	15
HLA-A*02:03	1	1252	1261	10	KFDEDDSEPV 0.001102	15
HLA-A*31:01	1	168	177	10	FEYVSQPFLM 0.001101	15
HLA-A*02:01	1	263	272	10	YVGYLQPRTF 0.001101	14
HLA-B*44:02	1	474	483	10	STPCNGVKGF 0.001101	7.7
HLA-B*40:01	1	623	632	10	ADQLTPTWRV 0.001101	7.2
HLA-B*15:01	1	671	680	10	YQTQTNSPRR 0.001101	14
HLA-A*68:01	1	754	763	10	GSFCTQLNRA 0.001101	15
HLA-A*01:01	1	777	785	9	EVFAQVKQI 0.001101	14
HLA-A*24:02	1	778	787	10	VFAQVKQIYK 0.001101	7.8
HLA-A*23:01	1	309	318	10	IYQTSNFRVQ 0.0011	7.9
HLA-A*30:02	1	723	731	9	ILPVSMTKT 0.0011	23
HLA-A*30:02	1	922	931	10	NQFNSAIGKI 0.0011	23
HLA-A*01:01	1	1134	1143	10	VYDPLQPELD 0.0011	14
HLA-B*51:01	1	1253	1261	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*08:01	1	289	297	9	ALDPLSETK 0.001099	19
HLA-A*23:01	1	778	787	10	VFAQVKQIYK 0.001099	7.9
HLA-B*08:01	1	1029	1037	9	CVLQSKRV 0.001099	19
HLA-A*32:01	1	1056	1065	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*68:01	1	263	272	10	YVGYLQPRTF 0.001098	15
HLA-A*01:01	1	513	521	9	ELLHAPATV 0.001098	14
HLA-B*58:01	1	985	993	9	EAEVQIDRL 0.001098	13
HLA-A*68:02	1	528	536	9	TNLVKNKCV 0.001097	15
HLA-B*57:01	1	551	560	10	ESNKKFLPFQ 0.001097	19
HLA-A*26:01	1	655	663	9	NSYECDIPI 0.001097	11
HLA-A*24:02	1	685	694	10	ASQSIIAYTM 0.001097	7.8
HLA-B*08:01	1	864	872	9	DEMIAQYTS 0.001097	19
HLA-B*57:01	1	1057	1066	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	586	595	10	PCSFQGVSVI 0.001096	13
HLA-A*31:01	1	795	803	9	GGFNFSQIL 0.001096	15
HLA-B*15:01	1	1193	1202	10	SLIDLQELGK 0.001096	14
HLA-A*02:06	1	12	20	9	SSQCVNLT 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	443	452	10	GGNYNYLRL 0.001095	15
HLA-A*11:01	1	445	454	10	NYNYLYRLFR 0.001095	9.3
HLA-A*30:01	1	872	881	10	SALLAGTITS 0.001095	26
HLA-A*02:06	1	985	993	9	EAEVQIDRL 0.001095	19
HLA-B*51:01	1	123	131	9	ATNVVIKVC 0.001094	18
HLA-B*57:01	1	251	260	10	SSSGWTAGAA 0.001094	19
HLA-A*02:01	1	459	467	9	KPFERDIST 0.001094	14
HLA-B*07:02	1	574	582	9	RDPQTLEIL 0.001094	12
HLA-A*30:02	1	744	752	9	TECSNLLLQ 0.001094	23
HLA-B*58:01	1	748	756	9	NLLLQYGSF 0.001094	13
HLA-A*68:01	1	1049	1057	9	FPQSAPHGV 0.001094	15
HLA-B*08:01	1	814	823	10	FIEDLLFNKV 0.001093	19
HLA-A*02:03	1	900	908	9	AYRFNGIGV 0.001093	16
HLA-A*31:01	1	1106	1114	9	FYEPQIITT 0.001093	15
HLA-A*30:01	1	1215	1224	10	LGFIAGLIAI 0.001093	26

HLA-A*68:01	1	168	176	9	FEYVSQPFL 0.001092	15
HLA-A*02:03	1	554	562	9	KKFLPFQF 0.001092	16
HLA-A*02:06	1	759	768	10	QLNRALTGIA 0.001092	19
HLA-B*57:01	1	1151	1159	9	KYFKNHTSP 0.001092	19
HLA-B*15:01	1	1200	1209	10	LGKYEQYIKW 0.001092	14
HLA-A*68:01	1	933	942	10	DSLSSTASAL 0.001091	15
HLA-A*02:01	1	1058	1067	10	VFLHVTVVPA 0.001091	14
HLA-A*30:02	1	338	347	10	VFNATRFASV 0.00109	23
HLA-A*02:06	1	671	680	10	YQTQTNSPRR 0.00109	19
HLA-B*44:02	1	774	782	9	NTQEVFAQV 0.00109	7.7
HLA-A*33:01	1	1000	1008	9	SLQTYVTQQ 0.00109	13
HLA-A*02:06	1	260	269	10	AAYYVGYLQP 0.001089	19
HLA-B*58:01	1	316	325	10	RVQPTESIVR 0.001089	13
HLA-B*15:01	1	397	405	9	FVIRGDEV 0.001089	14
HLA-B*57:01	1	614	622	9	CTEVPVAIH 0.001089	19
HLA-A*31:01	1	626	634	9	LTPTWRVYS 0.001089	15
HLA-A*03:01	1	708	716	9	SIAIPTNFT 0.001089	12
HLA-A*30:01	1	746	754	9	CSNLLLQYG 0.001089	26
HLA-A*02:06	1	987	996	10	EVQIDRLITG 0.001089	19
HLA-A*33:01	1	1085	1093	9	HFPREGV 0.001089	13
HLA-B*07:02	1	1205	1213	9	QYIKWPWYI 0.001089	12
HLA-B*51:01	1	66	74	9	HAIHVSGTN 0.001088	18
HLA-B*07:02	1	506	515	10	RVVLSFELL 0.001088	12
HLA-A*01:01	1	669	677	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	255	264	10	WTAGAAAYV 0.001087	19
HLA-A*02:01	1	782	791	10	VKQIYKTPPI 0.001087	14
HLA-A*68:01	1	1171	1179	9	ASVVNIQKE 0.001087	15
HLA-A*33:01	1	370	379	10	SFSTFKCYGV 0.001086	13
HLA-B*57:01	1	978	987	10	LSRLDKVEAE 0.001086	19
HLA-A*33:01	1	173	182	10	QPFLMDLEGK 0.001085	13
HLA-B*07:02	1	469	477	9	IYQAGSTPC 0.001085	12
HLA-B*07:02	1	685	694	10	ASQSIIAYTM 0.001085	12
HLA-A*68:01	1	751	759	9	LQYGSFCTQ 0.001085	15
HLA-B*07:02	1	1056	1064	9	GVVFLHVTY 0.001085	12
HLA-A*02:06	1	1100	1109	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	863	871	9	TDEMIAQYT 0.001084	14
HLA-A*32:01	1	1013	1021	9	AEIRASANL 0.001084	11
HLA-A*30:01	1	478	486	9	NGVKGFNCY 0.001083	26
HLA-A*11:01	1	606	614	9	AVLYQGVNC 0.001083	9.4
HLA-A*02:06	1	608	617	10	LYQGVNCTEV 0.001083	19
HLA-B*53:01	1	711	720	10	IPTNFTISVT 0.001083	9.0
HLA-A*30:02	1	856	865	10	TVLPPLLTDE 0.001083	23
HLA-B*07:02	1	930	939	10	KIQDLSSTA 0.001083	12
HLA-B*15:01	1	507	516	10	VVLSFELLH 0.001082	14
HLA-B*53:01	1	573	582	10	VRDPQTLEIL 0.001082	9.0
HLA-B*57:01	1	641	650	10	QTRAGCLIGA 0.001082	19
HLA-A*02:03	1	669	678	10	ASYQTQTN 0.001082	16
HLA-A*23:01	1	789	797	9	PPIKDFGGF 0.001082	8.0
HLA-B*57:01	1	899	907	9	MAYRFNGIG 0.001082	19
HLA-B*15:01	1	900	908	9	AYRFNGIGV 0.001082	14
HLA-A*01:01	1	1037	1046	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	508	516	9	VVLSFELLH 0.001081	14
HLA-A*32:01	1	555	564	10	KFLPFQFGR 0.001081	11
HLA-B*51:01	1	694	703	10	MSLGVENVA 0.001081	18
HLA-B*35:01	1	1021	1029	9	LAATKMSEC 0.001081	9.7
HLA-A*30:02	1	1185	1194	10	EVAKNLNESL 0.001081	23
HLA-A*26:01	1	109	118	10	TLDSKTQSL 0.00108	11
HLA-A*30:01	1	559	567	9	FQQFGRDIA 0.00108	26
HLA-A*68:02	1	573	582	10	VRDPQTLEIL 0.00108	15

HLA-B*40:01	1	609	617	9	YQGVNCTEV 0.00108	7.3
HLA-A*68:02	1	825	834	10	LADAGFIKQY 0.00108	15
HLA-A*30:01	1	1049	1057	9	FPQSAPHGV 0.00108	26
HLA-A*01:01	1	317	325	9	VQPTESIVR 0.001079	14
HLA-B*07:02	1	615	623	9	TEVPVAIHA 0.001079	12
HLA-A*24:02	1	752	761	10	QYGSFCTQLN 0.001079	7.8
HLA-B*44:03	1	811	820	10	KRSFIEDLLF 0.001078	7.8
HLA-B*08:01	1	918	927	10	KLIANQFNFA 0.001078	19
HLA-A*02:03	1	1020	1028	9	NLAATKMSE 0.001078	16
HLA-A*02:01	1	1160	1169	10	DVDLGDISGI 0.001078	14
HLA-A*30:02	1	89	98	10	GVYFASTEKS 0.001077	23
HLA-A*33:01	1	391	399	9	NVYADSFVI 0.001077	13
HLA-A*32:01	1	399	407	9	IRGDEVRQI 0.001077	11
HLA-A*68:01	1	445	453	9	NYNYLYRLF 0.001077	15
HLA-A*30:01	1	467	476	10	TEIYQAGSTP 0.001077	26
HLA-A*24:02	1	788	797	10	TPPIKDFGGF 0.001077	7.8
HLA-A*02:03	1	851	859	9	KFNGLTVLP 0.001077	16
HLA-B*35:01	1	171	179	9	VSQPFLMDL 0.001076	9.7
HLA-A*68:01	1	855	863	9	LTVLPPLLT 0.001076	15
HLA-A*30:01	1	877	886	10	GTITSGWTFG 0.001076	26
HLA-A*02:06	1	881	890	10	SGWTFGAGAA 0.001076	19
HLA-B*53:01	1	886	895	10	GAGAALQIPF 0.001076	9.0
HLA-A*01:01	1	951	960	10	QNAQALNTLV 0.001076	14
HLA-A*02:06	1	89	98	10	GVYFASTEKS 0.001075	19
HLA-A*02:03	1	471	480	10	QAGSTPCNGV 0.001075	16
HLA-B*07:02	1	511	519	9	SFELLHAPA 0.001075	12
HLA-A*31:01	1	695	704	10	SLGVENSVAV 0.001075	16
HLA-A*68:02	1	1055	1063	9	HGVVFLHVT 0.001075	15
HLA-B*07:02	1	338	347	10	VFNATRFASV 0.001074	12
HLA-A*32:01	1	398	407	10	VIRGDEVRQI 0.001074	11
HLA-A*26:01	1	403	412	10	EVROIAPGQT 0.001074	11
HLA-A*11:01	1	444	452	9	GNYNLYRL 0.001074	9.4
HLA-B*51:01	1	670	678	9	SYQTQTNSP 0.001074	18
HLA-A*31:01	1	754	763	10	GSFCTQLNRA 0.001074	16
HLA-B*40:01	1	795	803	9	GGFNFSQIL 0.001074	7.3
HLA-A*02:01	1	1084	1093	10	AHFPREGVVF 0.001074	14
HLA-A*23:01	1	221	229	9	SALEPLVDL 0.001073	8.0
HLA-B*15:01	1	235	243	9	ITRFQTLHR 0.001073	14
HLA-A*68:02	1	583	591	9	DITPCSF 0.001073	15
HLA-B*08:01	1	782	791	10	VKQIYKTPPI 0.001073	19
HLA-A*01:01	1	207	216	10	HTPINLVRL 0.001072	14
HLA-A*01:01	1	395	404	10	DSFVIRGDEV 0.001072	14
HLA-A*30:01	1	404	412	9	VRQIAPGQT 0.001072	26
HLA-A*30:01	1	444	453	10	GNYNLYRLF 0.001072	26
HLA-A*31:01	1	648	657	10	IGAHEVNNYS 0.001072	16
HLA-A*11:01	1	1198	1206	9	QELGKYEY 0.001072	9.4
HLA-B*08:01	1	24	33	10	LPPAYTNSFT 0.001071	19
HLA-A*31:01	1	311	319	9	QTSNFRVQP 0.001071	16
HLA-A*68:01	1	882	891	10	GWTFGAGAAL 0.001071	15
HLA-A*30:01	1	884	892	9	TFGAGAALQ 0.001071	26
HLA-B*08:01	1	1140	1149	10	PELDSFKEEL 0.001071	19
HLA-A*11:01	1	83	91	9	VLPFNDGVY 0.00107	9.4
HLA-A*30:01	1	196	204	9	NIDGYFKIY 0.00107	26
HLA-A*03:01	1	341	350	10	ATRFASVYAW 0.00107	12
HLA-A*11:01	1	341	350	10	ATRFASVYAW 0.00107	9.4
HLA-A*30:01	1	493	501	9	GFQPTYGVG 0.00107	26
HLA-B*44:02	1	580	589	10	EILDITPCSF 0.00107	7.8
HLA-A*01:01	1	626	634	9	LTPTWRVYS 0.00107	14
HLA-A*33:01	1	711	719	9	IPTNFTISV 0.00107	13
HLA-B*15:01	1	861	869	9	LLTDEMIAQ 0.00107	14
HLA-A*30:01	1	1203	1211	9	YEQYIKWPW 0.00107	26
HLA-B*58:01	1	218	227	10	QGFSALEPLV 0.001069	13
HLA-B*07:02	1	500	509	10	VGYPYRVVV 0.001069	12
HLA-B*35:01	1	550	559	10	TESNKKFLPF 0.001069	9.8
HLA-A*30:01	1	606	615	10	AVLYQGVNCT 0.001069	26
HLA-A*32:01	1	770	778	9	EQDKNTQEV 0.001069	11



HLA-A*01:01	1	822	830	9	KVTLADAGF 0.001069	14
HLA-B*58:01	1	1120	1129	10	SGNCDVVIGI 0.001069	13
HLA-A*02:06	1	1181	1190	10	DRLNEVAKNL 0.001069	19
HLA-B*51:01	1	134	143	10	QFCNDPFLGV 0.001068	18
HLA-A*30:02	1	339	347	9	FNATRFASV 0.001068	23
HLA-A*30:01	1	601	610	10	TSNQVAVLYQ 0.001068	26
HLA-B*35:01	1	938	946	9	TASALGKLQ 0.001068	9.8
HLA-A*01:01	1	983	992	10	KVEAEVQIDR 0.001068	14
HLA-B*44:03	1	1002	1010	9	QTYVTQQLI 0.001068	7.8
HLA-A*02:03	1	41	49	9	KVFRSSVLH 0.001067	16
HLA-B*44:03	1	353	362	10	KRISNCVADY 0.001067	7.8
HLA-A*02:06	1	523	531	9	GPKKSTNLV 0.001067	20
HLA-A*30:02	1	577	585	9	QTLEILDIT 0.001067	23
HLA-A*30:01	1	652	661	10	HVNNSYECDI 0.001067	26
HLA-B*53:01	1	661	670	10	IPIGAGICAS 0.001067	9.1
HLA-A*30:02	1	689	697	9	IIAYTMSLG 0.001067	23
HLA-A*03:01	1	715	723	9	FTISVTTEI 0.001067	12
HLA-A*68:01	1	66	74	9	HAIHVSBTN 0.001066	15
HLA-A*30:01	1	588	597	10	SFGGVSIVTP 0.001066	26
HLA-A*30:02	1	727	735	9	SMTKTSVDC 0.001066	23
HLA-A*24:02	1	1000	1009	10	SLQTYVTQQL 0.001066	7.9
HLA-A*26:01	1	218	226	9	QGFSALEPL 0.001065	11
HLA-A*68:01	1	281	289	9	TITDAVDCA 0.001065	15
HLA-A*32:01	1	391	400	10	NVYADSFVIR 0.001065	11
HLA-A*02:03	1	718	727	10	SVTTEILPVS 0.001065	16
HLA-B*57:01	1	854	863	10	GLTVLPPLL 0.001065	19
HLA-A*30:02	1	330	338	9	TNLCPFGEV 0.001064	23
HLA-B*58:01	1	491	500	10	SYGFQPTYGV 0.001064	13
HLA-B*53:01	1	955	963	9	ALNTLVKQL 0.001064	9.1
HLA-A*24:02	1	1003	1012	10	TYVTQQLIRA 0.001064	7.9
HLA-B*35:01	1	513	521	9	ELLHAPATV 0.001063	9.8
HLA-A*01:01	1	778	787	10	VFAQVKQIYK 0.001063	14
HLA-A*68:02	1	978	986	9	LSRLDKVEA 0.001063	15
HLA-B*15:01	1	15	24	10	CVNLTTRTQL 0.001062	14
HLA-A*02:06	1	18	27	10	LTRTQLPPA 0.001062	20
HLA-B*44:03	1	486	494	9	YFPLQSYGF 0.001062	7.8
HLA-B*08:01	1	760	769	10	LNRLTGIIV 0.001062	19
HLA-A*30:02	1	1025	1034	10	KMSECVLGQS 0.001062	23
HLA-A*02:03	1	1117	1126	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	342	351	10	TRFASVYAWN 0.001061	19
HLA-A*11:01	1	922	931	10	NQFNIAIGKI 0.001061	9.4
HLA-A*02:06	1	1129	1137	9	IVNNTVYDP 0.001061	20
HLA-A*11:01	1	1223	1231	9	AIVMVTIML 0.001061	9.4
HLA-A*33:01	1	529	538	10	NLVKKNKCVNF 0.00106	13
HLA-B*40:01	1	578	587	10	TLEILDITPC 0.00106	7.3
HLA-B*57:01	1	605	614	10	VAVLYQGVNC 0.00106	19
HLA-A*01:01	1	613	621	9	NCTEVPVAI 0.00106	15
HLA-B*58:01	1	683	691	9	SVASQSIIA 0.00106	13
HLA-A*31:01	1	694	702	9	MSLGVENSV 0.00106	16
HLA-A*02:01	1	916	924	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	520	528	9	TVCGPKKST 0.001059	12
HLA-A*68:01	1	974	983	10	LNDILSRLDK 0.001059	15
HLA-B*44:03	1	178	186	9	DLEGKQGNF 0.001058	7.8
HLA-B*08:01	1	368	376	9	SASFSTFKC 0.001058	19
HLA-B*08:01	1	984	993	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	QPFLMDLEGK 0.001057	18
HLA-B*40:01	1	369	377	9	ASFSTFKCY 0.001057	7.3
HLA-A*02:06	1	663	671	9	IGAGICASY 0.001057	20
HLA-B*44:02	1	706	715	10	NNSIAIPTNF 0.001057	7.8
HLA-B*35:01	1	751	759	9	LQYGSFCTQ 0.001057	9.8

HLA-A*31:01	1	806	814	9	PSKPSKRSF	0.001057	16
HLA-A*23:01	1	869	877	9	QYTSALLAG	0.001057	8.0
HLA-A*32:01	1	1099	1107	9	WFVTQRNFY	0.001057	11
HLA-B*58:01	1	1103	1111	9	QRNFYEPQI	0.001057	13
HLA-A*02:03	1	18	27	10	LTTRTQLPPA	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*30:01	1	608	617	10	LYQGVNCTEV	0.001056	26
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	529	538	10	NLVKKNKCVNF	0.001055	16
HLA-B*08:01	1	706	715	10	NNSIAIPTNF	0.001055	19
HLA-A*30:01	1	980	989	10	RLDKVEAEVQ	0.001055	26
HLA-B*51:01	1	1059	1067	9	FLHVTVVPA	0.001055	18
HLA-A*68:01	1	5	13	9	LVLLPLVSS	0.001054	15
HLA-B*57:01	1	142	150	9	GVYHKNK	0.001054	19
HLA-A*01:01	1	285	294	10	AVDCALDPLS	0.001054	15
HLA-B*57:01	1	313	321	9	SNFRVQPTTE	0.001054	19
HLA-A*26:01	1	574	582	9	RDPQTLLEIL	0.001054	11
HLA-A*26:01	1	817	826	10	DLLFNKVTLA	0.001054	11
HLA-A*30:02	1	881	890	10	SGWTFGAGAA	0.001054	23
HLA-A*30:02	1	1032	1040	9	GQSKRVDFC	0.001054	23
HLA-A*26:01	1	1085	1093	9	HFPREGVFV	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-B*44:03	1	478	486	9	NGVKGFNCY	0.001053	7.8
HLA-A*32:01	1	510	518	9	LSFELLHAP	0.001053	11
HLA-B*57:01	1	519	528	10	ATVCGPKKST	0.001053	19
HLA-B*35:01	1	565	574	10	DIADTTDAVR	0.001053	9.8
HLA-B*44:02	1	1064	1072	9	YVPAQEKNF	0.001053	7.8
HLA-A*23:01	1	1206	1215	10	YIKWPWYIWL	0.001053	8.1
HLA-A*30:02	1	124	133	10	TNVVIKVFCE	0.001052	23
HLA-B*51:01	1	355	364	10	ISNCVADYSV	0.001052	18
HLA-A*02:06	1	374	383	10	FKCYGVSPTK	0.001052	20
HLA-A*23:01	1	451	459	9	RLFRKSNLK	0.001052	8.1
HLA-A*68:01	1	926	934	9	SAIGKIQDS	0.001052	15
HLA-A*01:01	1	1027	1035	9	SECVLGQSK	0.001052	15
HLA-A*23:01	1	1215	1224	10	LGFIAGLIAI	0.001052	8.1
HLA-B*44:02	1	96	105	10	EKSNIIRGWI	0.001051	7.8
HLA-A*02:06	1	978	986	9	LSRLDKVEA	0.001051	20
HLA-A*30:02	1	1187	1195	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	493	501	9	GFQPTYGVG	0.00105	23
HLA-A*30:02	1	539	547	9	NFNGLTGTG	0.00105	23
HLA-B*08:01	1	626	635	10	LTPTWRVYST	0.00105	19
HLA-A*02:06	1	648	656	9	IGAHEVNNS	0.00105	20
HLA-B*08:01	1	673	681	9	TQTNSPRRA	0.00105	19
HLA-B*57:01	1	718	726	9	SVTTEILPV	0.00105	19
HLA-A*03:01	1	750	759	10	LLQYGSFCTQ	0.00105	12
HLA-B*58:01	1	957	965	9	NLTKVQLSS	0.00105	13
HLA-A*02:06	1	989	997	9	QIDRLITGR	0.00105	20
HLA-A*26:01	1	1205	1214	10	QYIKWPWYIW	0.00105	11
HLA-A*26:01	1	155	163	9	SEFRVYSSA	0.001049	11
HLA-B*08:01	1	651	659	9	EHVNNSYEC	0.001049	19
HLA-B*35:01	1	1005	1013	9	VTQQLIRAA	0.001049	9.8
HLA-B*51:01	1	1050	1059	10	PQSAPHGVVF	0.001049	18
HLA-A*24:02	1	1192	1200	9	ESLIDLQEL	0.001049	7.9
HLA-A*03:01	1	1224	1232	9	IVMVTIMLC	0.001049	12
HLA-A*23:01	1	294	303	10	SETKCTLKSF	0.001048	8.1
HLA-A*01:01	1	741	750	10	GDSTECSNLL	0.001047	15
HLA-B*51:01	1	799	808	10	FSQILPDPK	0.001047	18
HLA-B*15:01	1	909	918	10	TQNVLYENQK	0.001047	14
HLA-B*07:02	1	936	945	10	SSTASALGKL	0.001047	12
HLA-B*35:01	1	982	990	9	DKVEAEVQI	0.001047	9.8

HLA-A*30:02	1	1068	1076	9	QEKNFITAP 0.001047	23
HLA-B*58:01	1	1098	1107	10	HWFVTQRNFY 0.001047	13
HLA-A*02:06	1	1182	1191	10	RLNEVAKNLN 0.001047	20
HLA-A*01:01	1	1198	1207	10	QELGKYEQYI 0.001047	15
HLA-A*03:01	1	179	187	9	LEGKQGNFK 0.001046	12
HLA-B*08:01	1	277	285	9	NENGTITDA 0.001046	19
HLA-A*68:02	1	289	297	9	ALDPLSETK 0.001046	15
HLA-B*07:02	1	340	348	9	NATRFASVY 0.001046	12
HLA-B*58:01	1	356	364	9	SNCVADYSV 0.001046	13
HLA-A*30:01	1	884	893	10	TFGAGAALQI 0.001046	26
HLA-A*24:02	1	890	899	10	ALQIPFAMQM 0.001046	7.9
HLA-A*26:01	1	950	959	10	NQNAQALNLT 0.001046	11
HLA-A*02:03	1	1084	1093	10	AHFPREGVAV 0.001046	16
HLA-B*35:01	1	1139	1148	10	QPELDSFKEE 0.001046	9.9
HLA-A*11:01	1	1143	1152	10	DSFKEELDKY 0.001046	9.5
HLA-B*44:03	1	1194	1203	10	LIDLQELGKY 0.001046	7.8
HLA-A*33:01	1	1092	1101	10	FVSNNGTHWF 0.001045	13
HLA-B*35:01	1	1147	1156	10	EELDKYFKNH 0.001045	9.9
HLA-A*30:01	1	330	338	9	TNLCPFGEV 0.001044	26
HLA-A*01:01	1	371	379	9	FSTFKCYGV 0.001044	15
HLA-B*07:02	1	969	978	10	AISSVLNDIL 0.001044	12
HLA-B*58:01	1	1145	1153	9	FKEELDKYF 0.001044	13
HLA-A*02:06	1	1171	1179	9	ASVUNIQKE 0.001044	20
HLA-B*40:01	1	48	56	9	LHSTQDLFL 0.001043	7.4
HLA-A*11:01	1	150	159	10	KSWMSEFRV 0.001043	9.5
HLA-A*03:01	1	202	211	10	KIYSKHTPIN 0.001043	12
HLA-B*58:01	1	235	243	9	ITRFQTLHR 0.001043	13
HLA-A*68:01	1	339	347	9	FNATRFASV 0.001043	15
HLA-A*30:01	1	403	412	10	EVROIAPGQT 0.001043	26
HLA-B*53:01	1	453	461	9	FRKSNLKPFP 0.001043	9.2
HLA-A*33:01	1	494	502	9	FQPTYGVGY 0.001043	14
HLA-A*02:01	1	732	740	9	SVDCTMYIC 0.001043	14
HLA-A*33:01	1	1211	1219	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	294	303	10	SETKCTLKSF 0.001042	14
HLA-A*32:01	1	424	433	10	DDFTGCVIAW 0.001042	11
HLA-A*03:01	1	518	526	9	PATVCGPKK 0.001042	12
HLA-B*51:01	1	810	818	9	SKRSFIEDL 0.001042	18
HLA-A*30:01	1	1091	1100	10	VFVSNNGTHWF 0.001042	26
HLA-B*15:01	1	1126	1134	9	VIGIVNNTV 0.001042	14
HLA-A*30:02	1	1178	1187	10	KEIDRLNEVA 0.001042	23
HLA-B*57:01	1	122	131	10	NATNVVIKVC 0.001041	19
HLA-B*07:02	1	751	760	10	LQYGSFCTQL 0.001041	12
HLA-A*02:06	1	774	783	10	NTQEVFAQVK 0.001041	20
HLA-A*02:06	1	1091	1100	10	VFVSNNGTHWF 0.001041	20
HLA-A*68:02	1	1124	1132	9	DVIGIVNN 0.001041	15
HLA-A*30:02	1	1198	1207	10	QELGKYEQYI 0.001041	23
HLA-A*23:01	1	27	35	9	AYTNSFTRG 0.001040	8.1
HLA-A*33:01	1	638	647	10	NVFQTRAGCL 0.001040	14
HLA-B*57:01	1	853	862	10	NGLTVLPPLL 0.001040	19
HLA-B*44:03	1	1041	1049	9	GKGYHLMSF 0.001040	7.9
HLA-A*68:01	1	1194	1203	10	LIDLQELGKY 0.001040	15
HLA-B*07:02	1	101	110	10	IRGWIFGTTL 0.001039	12
HLA-A*01:01	1	115	123	9	QSLIVNNA 0.001039	15
HLA-A*11:01	1	179	187	9	LEGKQGNFK 0.001039	9.5
HLA-A*68:02	1	360	369	10	ADYSVLYNSA 0.001039	15
HLA-B*57:01	1	431	439	9	IAWNSNLD 0.001039	19
HLA-A*32:01	1	457	465	9	NLKPFRDI 0.001039	11
HLA-A*02:06	1	642	650	9	TRAGCLIGA 0.001039	20
HLA-B*44:02	1	159	168	10	VYSSANNCTF 0.001038	7.9
HLA-B*15:01	1	323	331	9	IVRFPNITN 0.001038	14
HLA-B*57:01	1	501	510	10	GYQPYRVVVL 0.001038	19
HLA-A*02:03	1	542	551	10	GLTGTGVLTE 0.001038	16
HLA-A*24:02	1	640	648	9	FQTRAGCLI 0.001038	8.0
HLA-A*68:01	1	1091	1099	9	VFVSNNGTHW 0.001038	15

HLA-A*01:01	1	1191	1200	10	NESLIDLQEL 0.001038	15
HLA-A*68:01	1	909	917	9	TQNVLYENQ 0.001037	15
HLA-A*30:02	1	1102	1111	10	TQRNFYEPQI 0.001037	23
HLA-A*03:01	1	1172	1180	9	SVVNIQKEI 0.001037	12
HLA-A*24:02	1	1172	1180	9	SVVNIQKEI 0.001037	8.0
HLA-A*33:01	1	1202	1211	10	KYEQYIKWPW 0.001037	14
HLA-A*68:01	1	385	393	9	NDLCFTNVY 0.001036	15
HLA-A*02:01	1	456	465	10	SNLKPFERDI 0.001036	14
HLA-A*02:06	1	872	880	9	SALLAGTIT 0.001036	20
HLA-B*57:01	1	872	881	10	SALLAGTITS 0.001036	19
HLA-A*23:01	1	1003	1012	10	TYVTQQLIRA 0.001036	8.1
HLA-A*31:01	1	1092	1100	9	FVSNNGTHWF 0.001036	16
HLA-B*51:01	1	1144	1152	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	QGNFKNREF 0.001035	26
HLA-B*08:01	1	491	500	10	SYGFQPTYGV 0.001035	19
HLA-A*33:01	1	615	623	9	TEVPVAIHA 0.001035	14
HLA-A*30:01	1	709	718	10	IAIPTNFTIS 0.001035	26
HLA-A*30:01	1	1187	1195	9	AKNLNESLI 0.001035	26
HLA-A*23:01	1	1192	1200	9	ESLIDLQEL 0.001035	8.1
HLA-A*02:01	1	379	387	9	VSPTKLNDL 0.001034	14
HLA-B*51:01	1	386	394	9	DLCFTNVYA 0.001034	18
HLA-A*33:01	1	634	642	9	STGSNVFQT 0.001034	14
HLA-A*02:06	1	656	665	10	SYECDIPIGA 0.001034	20
HLA-A*32:01	1	910	919	10	QNVLYENQKL 0.001034	11
HLA-A*30:01	1	945	953	9	LQDVVNQNA 0.001034	26
HLA-A*02:03	1	1137	1145	9	PLQPELDSF 0.001034	16
HLA-B*58:01	1	231	239	9	IGINITRFQ 0.001033	13
HLA-B*07:02	1	701	710	10	SVAYSNNSIA 0.001033	12
HLA-A*30:01	1	717	726	10	ISVTTEILPV 0.001033	26
HLA-B*51:01	1	722	731	10	EILPVSMTKT 0.001033	18
HLA-A*30:02	1	958	966	9	TLVKQLSSN 0.001033	23
HLA-A*68:01	1	1125	1134	10	VVIGIVNNTV 0.001033	15
HLA-B*58:01	1	1167	1176	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	720	729	10	TTEILPVSMT 0.001032	11
HLA-A*26:01	1	952	960	9	NAQALNTLV 0.001032	11
HLA-A*02:01	1	970	978	9	ISSVLNDIL 0.001032	14
HLA-A*23:01	1	1013	1021	9	AEIRASANL 0.001032	8.1
HLA-A*02:06	1	1028	1037	10	ECVLGQSKRV 0.001032	20
HLA-B*58:01	1	1219	1227	9	AGLIAIVMV 0.001032	13
HLA-A*68:01	1	152	160	9	WMESEFRVY 0.001031	15
HLA-B*07:02	1	389	397	9	FTNVYADSF 0.001031	12
HLA-A*68:02	1	126	135	10	VVIKVCEFFQ 0.00103	15
HLA-B*15:01	1	364	373	10	VLYNSASFST 0.00103	14
HLA-A*02:03	1	489	498	10	LQSYGFQPTY 0.00103	16
HLA-A*02:01	1	702	710	9	VAYSNNSIA 0.00103	14
HLA-A*30:01	1	722	731	10	EILPVSMTKT 0.00103	26
HLA-A*02:06	1	1052	1061	10	SAPHGVVFLH 0.00103	20
HLA-B*51:01	1	1091	1100	10	VFVSNNGTHWF 0.00103	18
HLA-A*30:01	1	1220	1228	9	GLIAIVMVT 0.00103	26
HLA-A*30:01	1	111	120	10	DSKTQSLIV 0.001029	26
HLA-A*30:02	1	114	122	9	TQSLIVNN 0.001029	23
HLA-B*15:01	1	327	335	9	PNITNLCPF 0.001029	14
HLA-B*35:01	1	494	503	10	FQPTYGVGYQ 0.001029	9.9
HLA-A*33:01	1	644	652	9	AGCLIGAEH 0.001029	14
HLA-A*02:01	1	43	51	9	FRSSVLHST 0.001028	14
HLA-A*02:03	1	308	316	9	GIYQTSNFR 0.001028	16
HLA-A*31:01	1	499	507	9	GVGYQPYRV 0.001028	16
HLA-B*35:01	1	512	520	9	FELLHAPAT 0.001028	9.9
HLA-B*08:01	1	530	539	10	LVKNKCVNFN 0.001028	19
HLA-A*30:01	1	539	547	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	245	253	9	YLTPGDSSS 0.001027	15
HLA-A*68:01	1	430	438	9	VIAWNSNLL 0.001027	15
HLA-A*02:06	1	749	758	10	LLLQYGSFCT 0.001027	20
HLA-A*32:01	1	856	864	9	TVLPPLLD 0.001027	11
HLA-A*30:02	1	1006	1014	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	277	286	10	NENGTITDAV 0.001026	20
HLA-B*57:01	1	399	407	9	IRGDEVRQI 0.001026	19
HLA-A*24:02	1	547	556	10	GVLTESNKKF 0.001026	8.0
HLA-A*23:01	1	640	648	9	FQTRAGCLI 0.001026	8.1
HLA-A*30:02	1	892	900	9	QIPFAMQMA 0.001026	23
HLA-B*58:01	1	963	972	10	LSSNFGAISS 0.001026	13
HLA-B*35:01	1	40	49	10	DKVFRSSVLH 0.001025	9.9
HLA-B*58:01	1	208	216	9	TPINLVRGL 0.001025	13
HLA-B*15:01	1	451	460	10	RLFRKSNLKP 0.001025	14
HLA-A*02:03	1	881	889	9	SGWTFGAGA 0.001025	16
HLA-A*02:06	1	1014	1022	9	EIRASANLA 0.001025	20
HLA-B*58:01	1	1016	1024	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	303	311	9	FTVEKGIYQ 0.001024	14
HLA-B*08:01	1	523	532	10	GPKKSTNLVK 0.001024	19
HLA-A*30:02	1	913	921	9	LYENQKLI 0.001024	23
HLA-A*03:01	1	937	946	10	STASALGKLQ 0.001024	12
HLA-A*02:03	1	946	955	10	QDVVNQNAQA 0.001024	16
HLA-A*30:02	1	1044	1052	9	YHLMSFPQS 0.001024	23
HLA-B*35:01	1	253	261	9	SGWTAGAAA 0.001023	10
HLA-B*15:01	1	501	509	9	GYQPYRVVV 0.001023	14
HLA-A*03:01	1	682	691	10	RSVASQSIIA 0.001023	12
HLA-A*02:03	1	683	692	10	SVASQSIIAY 0.001023	16
HLA-A*24:02	1	980	988	9	RLDKVEAEV 0.001023	8.0
HLA-A*23:01	1	325	334	10	RFPNITNLCP 0.001022	8.2
HLA-A*30:01	1	337	346	10	EVFNATRFAS 0.001022	26
HLA-B*07:02	1	800	808	9	SQILPDPSK 0.001022	12
HLA-A*03:01	1	948	956	9	VVNQNAQAL 0.001022	12
HLA-A*26:01	1	990	998	9	IDRLITGRL 0.001022	11
HLA-A*02:01	1	1003	1012	10	TYVTQQLIRA 0.001022	14
HLA-A*68:02	1	90	98	9	VYFASTKS 0.001021	15
HLA-A*01:01	1	215	223	9	GLPQGFSAL 0.001021	15
HLA-B*08:01	1	434	442	9	NSNNLDSKV 0.001021	19
HLA-B*08:01	1	527	536	10	STNLVKNKCV 0.001021	19
HLA-B*53:01	1	703	711	9	AYSNNIAI 0.001021	9.2
HLA-A*32:01	1	919	928	10	LIANQFNSAI 0.001021	11
HLA-A*02:06	1	955	964	10	ALNTLVKQLS 0.001021	20
HLA-A*02:06	1	982	990	9	DKVEAEVQI 0.001021	20
HLA-A*01:01	1	1142	1151	10	LDSFKEELDK 0.001021	15
HLA-B*57:01	1	280	288	9	GTITDAVDC 0.00102	19
HLA-A*02:03	1	325	333	9	RFPNITNLC 0.00102	16
HLA-A*68:01	1	587	595	9	CSFGGVSVI 0.00102	15
HLA-A*02:03	1	840	849	10	DIAARDLICA 0.00102	16
HLA-A*23:01	1	980	988	9	RLDKVEAEV 0.00102	8.2
HLA-A*30:01	1	1037	1046	10	VDFCGKGYHL 0.00102	26
HLA-A*32:01	1	941	949	9	ALGKLQDVV 0.001019	11
HLA-A*03:01	1	1102	1110	9	TQRNFYEPQ 0.001019	12
HLA-B*57:01	1	1221	1230	10	LIAIVMVTIM 0.001019	19
HLA-B*08:01	1	59	68	10	FSNVTWFHAI 0.001018	19
HLA-A*31:01	1	207	216	10	HTPINLVRGL 0.001018	16
HLA-B*57:01	1	825	833	9	LADAGFIKQ 0.001018	19
HLA-B*53:01	1	875	884	10	LAGTITSGWT 0.001018	9.3
HLA-A*02:01	1	996	1004	9	GRLQSLQTY 0.001018	14
HLA-A*30:02	1	1010	1019	10	IRAAEIRASA 0.001018	24
HLA-B*44:03	1	1255	1263	9	EDDSEPVLK 0.001018	7.9
HLA-A*30:02	1	66	74	9	HAIHVSQTN 0.001017	24
HLA-A*30:02	1	119	128	10	IVNNATNVVI 0.001017	24

HLA-A*33:01	1	656	665	10	SYECDIPIGA 0.001017	14
HLA-A*33:01	1	715	724	10	FTISVTTEIL 0.001017	14
HLA-A*32:01	1	856	865	10	TVLPPLLTDE 0.001017	11
HLA-A*31:01	1	883	891	9	WTFGAGAAL 0.001017	16
HLA-B*53:01	1	933	941	9	DSLSSTASA 0.001017	9.3
HLA-B*58:01	1	986	994	9	AEVQIDRLI 0.001017	14
HLA-B*57:01	1	1004	1012	9	YVTQQLIRA 0.001017	19
HLA-B*57:01	1	1261	1270	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*02:01	1	577	585	9	QTLEILDIT 0.001016	14
HLA-A*02:03	1	685	694	10	ASQSIIAYTM 0.001016	16
HLA-B*08:01	1	992	1000	9	RLITGRLQS 0.001016	19
HLA-A*01:01	1	1140	1149	10	PELDSFKEEL 0.001016	15
HLA-A*68:01	1	1186	1194	9	VAKNLNESL 0.001016	15
HLA-B*40:01	1	120	128	9	VNNATNVVI 0.001015	7.5
HLA-B*35:01	1	247	256	10	TPGDSSSGWT 0.001015	10
HLA-A*31:01	1	337	345	9	EVFNATRFA 0.001015	16
HLA-B*53:01	1	685	694	10	ASQSIIAYTM 0.001015	9.3
HLA-B*51:01	1	834	842	9	YGDCLGDIA 0.001015	18
HLA-A*02:03	1	120	128	9	VNNATNVVI 0.001014	16
HLA-A*03:01	1	251	259	9	SSSGWTAGA 0.001014	12
HLA-A*31:01	1	923	931	9	QFNSAIGKI 0.001014	16
HLA-A*32:01	1	1017	1026	10	ASANLAATKM 0.001014	11
HLA-B*51:01	1	1050	1058	9	PQSAPHGVV 0.001014	18
HLA-A*30:01	1	1185	1194	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*31:01	1	238	246	9	FQTLHRSYL 0.001013	16
HLA-A*30:01	1	390	399	10	TNVYADSFVI 0.001013	26
HLA-B*35:01	1	580	588	9	EILDITPCS 0.001013	10
HLA-A*30:01	1	666	674	9	GICASYQTQ 0.001013	26
HLA-A*31:01	1	682	690	9	RSVASQSII 0.001013	16
HLA-A*01:01	1	692	701	10	YTMSLGVENS 0.001013	15
HLA-A*23:01	1	866	874	9	MIAQYTSAL 0.001013	8.2
HLA-A*30:01	1	969	978	10	AISSVLNDIL 0.001013	26
HLA-B*08:01	1	1	10	10	MFVFLVLLPL 0.001012	20
HLA-A*02:06	1	63	71	9	TWFHAIHVS 0.001012	20
HLA-A*03:01	1	448	456	9	YLYRLFRRKS 0.001012	12
HLA-B*40:01	1	553	562	10	NKKFLPFQF 0.001012	7.5
HLA-A*30:02	1	574	582	9	RDPQTLEIL 0.001012	24
HLA-B*57:01	1	728	736	9	MTKTSVDCT 0.001012	19
HLA-B*58:01	1	783	792	10	KQIYKTPPIK 0.001012	14
HLA-B*15:01	1	802	810	9	ILPDPSKPS 0.001012	14
HLA-A*30:02	1	873	882	10	ALLAGTITSG 0.001012	24
HLA-B*44:03	1	906	914	9	IGVTQNVLY 0.001012	7.9
HLA-A*24:02	1	934	942	9	SLSSTASAL 0.001012	8.0
HLA-A*02:03	1	947	956	10	DVVNQNAQAL 0.001012	16
HLA-B*58:01	1	984	993	10	VEAEVQIDRL 0.001012	14
HLA-B*08:01	1	724	732	9	LPVSMTKTS 0.001011	20
HLA-A*02:06	1	958	966	9	TLVKQLSSN 0.001011	20
HLA-B*35:01	1	1108	1116	9	EPQIITTDN 0.001011	10
HLA-B*51:01	1	1256	1264	9	DDSEPVKLG 0.001011	19
HLA-B*35:01	1	66	74	9	HAIHVSGTN 0.001011	10
HLA-B*44:02	1	486	494	9	YFPLQSYGF 0.001011	7.9
HLA-B*07:02	1	781	789	9	QVKQIYKTP 0.001011	12
HLA-A*02:01	1	953	961	9	AQALNTLVK 0.001011	14
HLA-B*57:01	1	1005	1014	10	VTQQLIRAAE 0.001011	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	580	588	9	EILDITPCS 0.001009	19
HLA-A*30:02	1	638	646	9	NVFQTRAGC 0.001009	24
HLA-A*02:01	1	1064	1072	9	YVPAQEKNF 0.001009	14
HLA-B*44:02	1	1099	1107	9	WVFTQRNFY 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	434	442	9	NSNNLDSKV 0.001008	10
HLA-B*08:01	1	437	446	10	NLDSKVGNY 0.001008	20
HLA-A*23:01	1	601	609	9	TSNQVAVLY 0.001008	8.2
HLA-A*02:03	1	980	989	10	RLDKVEAEVQ 0.001008	16
HLA-B*07:02	1	1206	1215	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	380	389	10	SPTKLNLDLCF 0.001007	26
HLA-A*26:01	1	440	449	10	SKVGGNYNYL 0.001007	11
HLA-A*33:01	1	486	495	10	YFPLQSYGFQ 0.001007	14
HLA-A*30:01	1	580	588	9	EILDITPCS 0.001007	26
HLA-A*68:01	1	47	55	9	VLHSTQDLF 0.001006	15
HLA-A*24:02	1	343	352	10	RFASVYAWN 0.001006	8.1
HLA-B*08:01	1	540	548	9	FNGLTGTGV 0.001006	20
HLA-B*57:01	1	549	558	10	LTESNKKFLP 0.001006	19
HLA-A*33:01	1	638	646	9	NVFQTRAGC 0.001006	14
HLA-A*26:01	1	871	879	9	TSALLAGTI 0.001006	11
HLA-A*30:01	1	883	892	10	WTFGAGAALQ 0.001006	26
HLA-A*02:01	1	921	930	10	ANQFNSAIGK 0.001006	14
HLA-B*57:01	1	154	163	10	ESEFRVYSSA 0.001005	19
HLA-B*08:01	1	510	518	9	LSFELLHAP 0.001005	20
HLA-A*30:01	1	691	699	9	AYTMSLGVE 0.001005	26
HLA-A*31:01	1	718	726	9	SVTTEILPV 0.001005	16
HLA-B*57:01	1	1042	1050	9	KGYHLMSFP 0.001005	19
HLA-A*68:02	1	1052	1061	10	SAPHGVVFLH 0.001005	16
HLA-A*30:02	1	413	422	10	GNIADYNYKL 0.001004	24
HLA-A*31:01	1	552	561	10	SNKKFLPFQQ 0.001004	16
HLA-A*30:02	1	577	586	10	QTLEILDITP 0.001004	24
HLA-B*44:03	1	783	791	9	KQIYKTPPI 0.001004	8.0
HLA-A*24:02	1	927	935	9	AIGKIQDSL 0.001004	8.1
HLA-A*30:01	1	1022	1030	9	AATKMSECV 0.001004	26
HLA-B*44:03	1	1140	1148	9	PELDSFKEE 0.001004	8.0
HLA-B*40:01	1	1189	1197	9	NLNESLIDL 0.001004	7.5
HLA-A*02:01	1	318	326	9	QPTESIVRF 0.001003	14
HLA-B*15:01	1	484	493	10	NCYFPLQSYG 0.001003	14
HLA-B*07:02	1	808	817	10	KPSKRSFIED 0.001003	12
HLA-A*11:01	1	955	963	9	ALNTLVKQL 0.001003	9.6
HLA-A*02:06	1	957	965	9	NLVLKQLSS 0.001003	20
HLA-B*35:01	1	1062	1070	9	VTYVPAQEK 0.001003	10
HLA-A*31:01	1	1127	1135	9	IGIVNNTVY 0.001003	16
HLA-B*57:01	1	1215	1224	10	LGFIAGLIAI 0.001003	19
HLA-A*30:01	1	1216	1225	10	GFIAGLIAIV 0.001003	27
HLA-A*02:01	1	37	45	9	YYPDKVFRS 0.001002	14
HLA-A*30:01	1	315	324	10	FRVQPTESIV 0.001002	27
HLA-A*02:01	1	502	511	10	YQPYRVVVL 0.001002	14
HLA-A*23:01	1	670	679	10	SYQTQTNspr 0.001002	8.2
HLA-B*57:01	1	904	913	10	NGIGVTQNV 0.001002	19
HLA-B*15:01	1	1125	1133	9	VVIGIVNNT 0.001002	14
HLA-A*26:01	1	494	503	10	FQPTYGVGYQ 0.001001	11
HLA-A*30:01	1	577	586	10	QTLEILDITP 0.001001	27
HLA-A*32:01	1	988	996	9	VQIDRLITG 0.001001	11
HLA-B*40:01	1	1092	1100	9	FVSNGTHWF 0.001001	7.5
HLA-A*32:01	1	1136	1145	10	DPLQPELDSF 0.001001	11
HLA-B*58:01	1	1193	1201	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	NATNVVIVK 0.001	8.0
HLA-B*51:01	1	193	201	9	VFKNIDGYF 0.001	19
HLA-B*57:01	1	453	461	9	FRKSNLKP 0.001	19
HLA-A*26:01	1	1046	1055	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	270	278	9	RTFLLKYNE 0.000999	20
HLA-A*26:01	1	295	304	10	ETKCTLSFT 0.000999	11
HLA-A*23:01	1	950	959	10	NQNAQALNTL 0.000999	8.2

HLA-B*57:01	1	984	993	10	VEAEVQIDRL 0.000999	19
HLA-B*44:03	1	1107	1115	9	YEPQIITTD 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	485	494	10	CYFPLQSYGF 0.000998	10
HLA-A*68:02	1	760	769	10	LNRLTGIADV 0.000998	16
HLA-A*23:01	1	292	300	9	PLSETKCTL 0.000997	8.2
HLA-B*58:01	1	743	752	10	STECSNLLLQ 0.000997	14
HLA-B*08:01	1	902	910	9	RFNGIGVTQ 0.000997	20
HLA-B*40:01	1	137	145	9	NDPFLGVYY 0.000996	7.5
HLA-A*33:01	1	247	255	9	TPGDSSSGW 0.000996	14
HLA-A*26:01	1	450	458	9	YRLFRKSNL 0.000996	11
HLA-B*58:01	1	718	726	9	SVTTEILPV 0.000996	14
HLA-A*31:01	1	825	834	10	LADAGFIKQY 0.000996	16
HLA-B*15:01	1	847	855	9	ICAQKFNGL 0.000996	14
HLA-A*31:01	1	934	942	9	SLSSTASAL 0.000996	16
HLA-A*31:01	1	948	956	9	VVNQNAQAL 0.000996	16
HLA-B*40:01	1	953	961	9	AQALNTLVK 0.000996	7.5
HLA-A*11:01	1	1182	1190	9	RLNEVAKNL 0.000996	9.6
HLA-A*02:06	1	1215	1223	9	LGFIAGLIA 0.000996	20
HLA-A*01:01	1	543	551	9	LTGTGVLTE 0.000995	15
HLA-B*07:02	1	593	602	10	SVITPGTNTS 0.000995	12
HLA-A*30:01	1	61	69	9	NVTWFHAIH 0.000994	27
HLA-A*26:01	1	446	454	9	YNYLYRFR 0.000994	11
HLA-A*33:01	1	507	515	9	VVLSFELL 0.000994	14
HLA-B*51:01	1	654	663	10	NNSYECDIPI 0.000994	19
HLA-A*30:02	1	792	801	10	KDFGGFNFSQ 0.000994	24
HLA-A*30:01	1	905	913	9	GIGVTQNVL 0.000994	27
HLA-B*15:01	1	1027	1035	9	SECVLGQSK 0.000994	15
HLA-A*24:02	1	364	373	10	VLYNSASFST 0.000993	8.1
HLA-A*31:01	1	498	507	10	YGVGYQPYRV 0.000993	16
HLA-A*30:01	1	684	693	10	VASQSIIAYT 0.000993	27
HLA-A*03:01	1	811	820	10	KRSFIEDLLF 0.000993	12
HLA-A*31:01	1	46	54	9	SVLHSTQDL 0.000992	16
HLA-A*26:01	1	366	375	10	YNSASFSTFK 0.000992	11
HLA-A*01:01	1	854	862	9	GLTVLPLLL 0.000992	15
HLA-B*51:01	1	1108	1116	9	EPQIITTDN 0.000992	19
HLA-B*57:01	1	299	307	9	TLKSFTVEK 0.000991	19
HLA-A*03:01	1	301	309	9	KSFTVEKGI 0.000991	12
HLA-A*02:03	1	614	623	10	CTEVPVAIHA 0.000991	16
HLA-B*51:01	1	690	699	10	IAYTMSLGEV 0.000991	19
HLA-A*02:06	1	803	811	9	LPDPSKPSK 0.000991	20
HLA-A*02:03	1	810	818	9	SKRSFIEDL 0.000991	16
HLA-A*23:01	1	1000	1009	10	SLQTYVTQQL 0.000991	8.3
HLA-A*01:01	1	1013	1021	9	AEIRASANL 0.000991	15
HLA-A*01:01	1	1031	1039	9	LGQSKRVDF 0.000991	15
HLA-A*68:02	1	1255	1263	9	EDDSEPVLK 0.000991	16
HLA-B*35:01	1	1260	1269	10	PVLKGVKLHY 0.000991	11
HLA-A*02:03	1	311	319	9	QTSNFRVQP 0.00099	16
HLA-B*57:01	1	337	345	9	EVFNATRFA 0.00099	19
HLA-A*24:02	1	442	450	9	VGGNYNYLY 0.00099	8.1
HLA-B*08:01	1	624	633	10	DQLTPTWRVY 0.00099	20
HLA-B*07:02	1	708	716	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	KSNIIIRGWI 0.000989	16
HLA-B*51:01	1	312	320	9	TSNFRVQPT 0.000989	19
HLA-A*11:01	1	526	535	10	KSTNLVKNKC 0.000989	9.6
HLA-A*03:01	1	624	633	10	DQLTPTWRVY 0.000989	12
HLA-B*58:01	1	635	644	10	TGSNVFQTRA 0.000989	14
HLA-B*35:01	1	657	665	9	YECDIPIGA 0.000989	11
HLA-A*68:02	1	735	744	10	CTMYICGDST 0.000989	16
HLA-B*58:01	1	1042	1050	9	KGYHLMSPY 0.000989	14
HLA-A*68:02	1	1100	1108	9	FVTQRNFYE 0.000989	16
HLA-B*07:02	1	1118	1126	9	FVSGNCDVV 0.000989	12
HLA-A*02:01	1	1120	1129	10	SGNCDVVIGI 0.000989	14
HLA-B*53:01	1	1197	1206	10	LQELGKYEYQ 0.000989	9.4



HLA-A*68:02	1	63	71	9	TWFHAIHVS 0.000988	16
HLA-A*33:01	1	314	323	10	NFRVQPTESI 0.000988	14
HLA-B*51:01	1	1037	1046	10	VDFCGKGYHL 0.000988	19
HLA-B*08:01	1	226	235	10	LVDLPIGINI 0.000987	20
HLA-A*32:01	1	347	355	9	VYAWNRKRI 0.000987	11
HLA-A*30:02	1	542	550	9	GLTGTGVL 0.000987	24
HLA-B*57:01	1	780	789	10	AQVKQIYKTP 0.000987	20
HLA-B*57:01	1	315	323	9	FRVQPTESI 0.000986	20
HLA-A*26:01	1	532	540	9	KNKCVNFNF 0.000986	11
HLA-B*53:01	1	549	557	9	LTESNKKFL 0.000986	9.4
HLA-A*32:01	1	886	895	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	291	299	9	DPLSETKCT 0.000985	9.4
HLA-B*57:01	1	318	327	10	QPTESIVRFP 0.000985	20
HLA-B*35:01	1	504	512	9	PYRVVLSF 0.000985	11
HLA-A*02:01	1	594	602	9	VITPGTNTS 0.000985	14
HLA-A*03:01	1	889	897	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	RSSVLHSTQ 0.000984	11
HLA-A*31:01	1	292	301	10	PLSETKCTLK 0.000984	16
HLA-A*03:01	1	442	451	10	VGGNYNYLYR 0.000984	12
HLA-A*33:01	1	581	589	9	ILDITPCSF 0.000984	14
HLA-B*57:01	1	846	855	10	LICAQKFNGL 0.000984	20
HLA-A*03:01	1	999	1007	9	QSLQTYVTQ 0.000984	12
HLA-B*53:01	1	124	133	10	TNVVIKVFCE 0.000983	9.4
HLA-A*30:02	1	548	557	10	VLTESNKKFL 0.000983	24
HLA-B*44:03	1	573	582	10	VRDPQTLEIL 0.000983	8.1
HLA-A*33:01	1	744	753	10	TECSNLLLQY 0.000983	14
HLA-A*30:02	1	776	785	10	QEVFAQVKQI 0.000983	24
HLA-A*68:02	1	96	105	10	EKSNIIRGWI 0.000982	16
HLA-A*30:02	1	315	324	10	FRVQPTESIV 0.000982	24
HLA-A*26:01	1	335	344	10	FGEVFNATRF 0.000982	11
HLA-B*53:01	1	475	484	10	TPCNGVKGFN 0.000982	9.4
HLA-B*40:01	1	621	630	10	IHADQLTPTW 0.000982	7.6
HLA-A*01:01	1	657	665	9	YECDIPIGA 0.000982	15
HLA-B*44:02	1	934	942	9	SLSSTASAL 0.000982	8.0
HLA-B*51:01	1	36	44	9	VYYPDKVFR 0.000981	19
HLA-A*30:01	1	443	452	10	GGNYNYLYRL 0.000981	27
HLA-B*07:02	1	481	489	9	KGFNCYFPL 0.000981	12
HLA-B*15:01	1	573	582	10	VRDPQTLEIL 0.000981	15
HLA-B*07:02	1	594	602	9	VITPGTNTS 0.000981	12
HLA-A*68:02	1	836	844	9	DCLGDIAAR 0.000981	16
HLA-B*58:01	1	952	961	10	NAQALNTLVK 0.000981	14
HLA-B*44:03	1	1084	1093	10	AHFREGVVFV 0.000981	8.1
HLA-A*02:06	1	363	372	10	SVLYNSASFS 0.00098	20
HLA-A*02:06	1	728	737	10	MTKTSVDCTM 0.00098	20
HLA-B*51:01	1	1187	1195	9	AKNLNESLI 0.00098	19
HLA-A*68:02	1	541	549	9	NGLTGTGVL 0.000979	16
HLA-A*30:02	1	608	617	10	LYQGVNCTEV 0.000979	24
HLA-B*44:03	1	959	967	9	LVKQLSSNF 0.000979	8.1
HLA-A*68:02	1	1104	1113	10	RNFYEQIIT 0.000979	16
HLA-A*23:01	1	266	275	10	YLQPRTFLLK 0.000978	8.3
HLA-B*53:01	1	411	420	10	QTGNIADYNY 0.000978	9.4
HLA-A*31:01	1	535	543	9	CVNFNFNGL 0.000978	16
HLA-A*68:02	1	167	175	9	TFEYVSQPF 0.000976	16
HLA-B*51:01	1	538	546	9	FNFNGLTGT 0.000976	19
HLA-B*51:01	1	936	945	10	SSTASALGKL 0.000976	19
HLA-B*40:01	1	988	996	9	VQIDRLITG 0.000976	7.6
HLA-B*51:01	1	1164	1173	10	GDISGINASV 0.000976	19
HLA-A*26:01	1	1206	1215	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	335	343	9	FGEVFNATR 0.000975	24
HLA-A*30:01	1	692	701	10	YTMSLGVENS 0.000975	27

HLA-A*33:01	1	55	64	10	FLPFFSNVTW 0.000974	14
HLA-A*02:01	1	397	405	9	FVIRGDEVR 0.000974	15
HLA-A*02:03	1	422	430	9	LPDDFTGCV 0.000974	16
HLA-A*30:01	1	874	882	9	LLAGTITSG 0.000974	27
HLA-A*01:01	1	1080	1088	9	HDGKAHFPR 0.000974	15
HLA-A*68:02	1	1257	1266	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	419	428	10	NYKLPDDFTG 0.000973	8.3
HLA-B*51:01	1	559	567	9	FQQFGRDIA 0.000973	19
HLA-A*30:01	1	691	700	10	AYTMSLGVEN 0.000973	27
HLA-A*11:01	1	992	1000	9	RLITGRLQS 0.000973	9.6
HLA-B*15:01	1	1221	1229	9	LIAIVMVTI 0.000973	15
HLA-A*02:06	1	392	400	9	VYADSFVIR 0.000972	20
HLA-B*07:02	1	408	417	10	APGQTGNIAD 0.000972	12
HLA-A*01:01	1	499	507	9	GVGYQPYRV 0.000972	15
HLA-B*44:02	1	688	696	9	SIAYTMSL 0.000972	8.1
HLA-A*02:03	1	755	763	9	SFCTQLNRA 0.000972	16
HLA-A*31:01	1	961	970	10	QQLSSNFGAI 0.000972	16
HLA-B*40:01	1	1051	1060	10	QSAPHGVVFL 0.000972	7.6
HLA-B*07:02	1	1217	1225	9	FIAGLIAIV 0.000972	12
HLA-A*30:01	1	146	155	10	HKNNKSWMES 0.000971	27
HLA-B*57:01	1	383	392	10	KLNDLCFTNV 0.000971	20
HLA-B*58:01	1	473	481	9	GSTPCNGVK 0.000971	14
HLA-A*02:01	1	676	684	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	PFFSNVTFW 0.00097	19
HLA-B*51:01	1	145	153	9	YHKNNKSWM 0.00097	19
HLA-A*24:02	1	275	284	10	KYNENGTITD 0.00097	8.2
HLA-A*23:01	1	531	540	10	VKNKCVNFN 0.00097	8.3
HLA-B*51:01	1	599	608	10	TNTSNQVAVL 0.00097	19
HLA-A*33:01	1	302	310	9	SFTVEKGIY 0.000969	14
HLA-A*30:02	1	517	526	10	APATVCGPKK 0.000969	24
HLA-B*57:01	1	625	634	10	QLTPTWRVYS 0.000969	20
HLA-A*02:03	1	689	697	9	IIAYTMSLG 0.000969	16
HLA-B*51:01	1	1017	1026	10	ASANLAATKM 0.000969	19
HLA-A*33:01	1	412	420	9	TGNIADYNY 0.000968	14
HLA-A*30:01	1	620	629	10	AIHADQLTPT 0.000968	27
HLA-B*44:02	1	648	657	10	IGAHEVNNSY 0.000968	8.1
HLA-B*15:01	1	1012	1021	10	AAEIRASANL 0.000968	15
HLA-B*44:02	1	1192	1200	9	ESLIDLQEL 0.000968	8.1
HLA-A*02:03	1	16	24	9	VNLTRTQL 0.000967	16
HLA-A*02:01	1	322	330	9	SIVRFPNIT 0.000967	15
HLA-B*44:03	1	774	782	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*33:01	1	496	505	10	PTYGVGYQPY 0.000966	14
HLA-A*01:01	1	609	617	9	YQGVNCTEV 0.000966	15
HLA-A*30:01	1	850	859	10	QKFNGLTVLP 0.000966	27
HLA-A*26:01	1	1048	1057	10	SFPQSAPHGV 0.000966	11
HLA-A*31:01	1	1219	1227	9	AGLIAIVMV 0.000966	16
HLA-A*31:01	1	185	194	10	NFKNLREFVF 0.000965	16
HLA-A*30:01	1	621	629	9	IHADQLTPT 0.000965	27
HLA-A*02:01	1	811	819	9	KRSFIEDLL 0.000965	15
HLA-A*01:01	1	993	1001	9	LITGRLQSL 0.000965	15
HLA-B*44:02	1	1049	1057	9	FPQSAPHGV 0.000965	8.1
HLA-B*08:01	1	1179	1187	9	EIDRLNEVA 0.000965	20
HLA-B*51:01	1	1198	1207	10	QELGKYEQYI 0.000965	19
HLA-A*68:02	1	10	19	10	LVSSQCVNLT 0.000964	16
HLA-A*33:01	1	211	220	10	NLVRGLPQGF 0.000964	14
HLA-B*51:01	1	577	586	10	QTLEILDITP 0.000964	19
HLA-A*02:01	1	929	938	10	GKIQDSLST 0.000964	15
HLA-A*33:01	1	995	1004	10	TGRLQSLQTY 0.000964	14
HLA-B*51:01	1	126	135	10	VVIKVCDFQF 0.000963	19
HLA-A*02:01	1	479	487	9	GVKGFNCYF 0.000963	15
HLA-A*68:01	1	707	716	10	NSIAIPTNFT 0.000963	16

HLA-A*26:01	1	743	751	9	STECNLLL 0.000963	11
HLA-B*57:01	1	853	861	9	NGLTVLPPL 0.000963	20
HLA-A*11:01	1	964	972	9	SSNFGAISS 0.000963	9.7
HLA-A*31:01	1	964	973	10	SSNFGAISSV 0.000963	16
HLA-A*01:01	1	974	983	10	LNDILSRDK 0.000963	15
HLA-B*58:01	1	1004	1012	9	YVTQQLIRA 0.000963	14
HLA-A*24:02	1	1041	1049	9	GKGYHLMSF 0.000963	8.2
HLA-A*11:01	1	1092	1100	9	FVSNNGTHWF 0.000963	9.7
HLA-A*26:01	1	1110	1119	10	QIITTDNTFV 0.000963	11
HLA-A*68:01	1	1112	1120	9	ITTDNTFVS 0.000963	16
HLA-A*23:01	1	1258	1267	10	SEPVKKGVKL 0.000963	8.3
HLA-A*33:01	1	267	276	10	LQPRTFLLKY 0.000962	14
HLA-B*07:02	1	316	325	10	RVQPTESIVR 0.000962	12
HLA-A*30:02	1	565	573	9	DIADTTDAV 0.000962	24
HLA-B*35:01	1	708	717	10	SIAIPTNFTI 0.000962	11
HLA-A*33:01	1	748	756	9	NLLLQYGSF 0.000962	14
HLA-A*02:03	1	856	864	9	TVLPPLLD 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	273	282	10	LLKYNENGTI 0.000961	11
HLA-A*30:02	1	344	353	10	FASVYAWNRK 0.000961	24
HLA-A*30:01	1	553	561	9	NKKFLPFQQ 0.000961	27
HLA-B*40:01	1	613	621	9	NCTEVPVAI 0.000961	7.6
HLA-B*51:01	1	744	753	10	TECSNLLLQY 0.000961	19
HLA-A*31:01	1	1056	1065	10	GVVFLHVTYV 0.000961	16
HLA-A*03:01	1	1178	1186	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*68:01	1	368	376	9	SASFSTFKC 0.00096	16
HLA-A*03:01	1	643	652	10	RAGCLIGAETH 0.00096	12
HLA-A*30:01	1	1110	1118	9	QIITTDNTF 0.00096	27
HLA-B*44:03	1	1205	1213	9	QYIKWPWYI 0.00096	8.1
HLA-B*08:01	1	36	44	9	VYYPDKVFR 0.000959	20
HLA-A*31:01	1	309	318	10	IYQTSNFRVQ 0.000959	16
HLA-B*08:01	1	888	896	9	GAALQIPFA 0.000959	20
HLA-A*33:01	1	894	903	10	PFAMQMAYRF 0.000959	14
HLA-A*24:02	1	898	906	9	QMAYRFNGI 0.000959	8.2
HLA-A*11:01	1	959	967	9	LVKQLSSNF 0.000959	9.7
HLA-B*08:01	1	1044	1052	9	YHLMSFPQS 0.000959	20
HLA-A*32:01	1	379	387	9	VSPTKLNDL 0.000958	11
HLA-B*53:01	1	814	822	9	FIEDLLFNK 0.000958	9.5
HLA-B*58:01	1	910	919	10	QNVLYENQKL 0.000958	14
HLA-B*57:01	1	944	952	9	KLQDVVNQN 0.000958	20
HLA-A*33:01	1	951	959	9	QNAQALNTL 0.000958	14
HLA-A*68:02	1	989	997	9	QIDRLITGR 0.000958	16
HLA-B*58:01	1	1000	1009	10	SLQTYVTQQL 0.000958	14
HLA-A*30:01	1	1132	1140	9	NTVYDPLQP 0.000958	27
HLA-A*23:01	1	1175	1183	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	318	326	9	QPTESIVRF 0.000957	27
HLA-A*01:01	1	604	612	9	QVAVLYQGV 0.000957	15
HLA-B*08:01	1	871	879	9	TSALLAGTI 0.000957	20
HLA-B*57:01	1	1045	1053	9	HLMSFPQSA 0.000957	20
HLA-A*31:01	1	1125	1134	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	729	737	9	TKTSVDCTM 0.000956	19
HLA-A*02:06	1	775	783	9	TQEVFAQVK 0.000956	20
HLA-A*30:02	1	824	833	10	TLADAGFIKQ 0.000956	24

HLA-A*02:01	1	852	861	10	FNGLTVLPPL 0.000956	15
HLA-B*57:01	1	1143	1151	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	669	677	9	ASYQTQTNLS 0.000955	16
HLA-A*68:01	1	964	972	9	SSNFGAISS 0.000955	16
HLA-B*44:02	1	1000	1009	10	SLQTYVTQQL 0.000955	8.1
HLA-B*44:03	1	1091	1100	10	VFVSNQTHWF 0.000955	8.2
HLA-B*53:01	1	1098	1107	10	HWFVTQRNFY 0.000955	9.5
HLA-A*30:01	1	1116	1125	10	NTFVSGNCDV 0.000955	27
HLA-A*33:01	1	1208	1217	10	KWPWYIWLGF 0.000955	14
HLA-A*23:01	1	1211	1219	9	WYIWLGFIA 0.000955	8.4
HLA-A*02:06	1	77	85	9	KRFANPVLP 0.000954	20
HLA-B*53:01	1	268	277	10	QPRTFLLKYN 0.000954	9.5
HLA-B*44:02	1	912	920	9	VLYENQKLI 0.000954	8.1
HLA-A*31:01	1	993	1001	9	LITGRLQSL 0.000954	16
HLA-A*02:06	1	1014	1023	10	EIRASANLAA 0.000954	20
HLA-B*57:01	1	1037	1046	10	VDFCGKGYHL 0.000954	20
HLA-A*23:01	1	1040	1049	10	CGKGYHLMFS 0.000954	8.4
HLA-B*44:02	1	193	201	9	VFKNIDGYF 0.000953	8.1
HLA-A*02:01	1	332	341	10	LCPFGEVFNA 0.000953	15
HLA-A*01:01	1	342	350	9	TRFASVYAW 0.000953	15
HLA-A*01:01	1	529	538	10	NLVKNKCVNF 0.000953	15
HLA-A*30:02	1	725	733	9	PVSMKTTSV 0.000953	24
HLA-A*26:01	1	781	789	9	QVKQIYKTP 0.000953	12
HLA-A*03:01	1	855	863	9	LTVLPPLLT 0.000953	12
HLA-A*30:01	1	888	897	10	GAALQIPFAM 0.000953	27
HLA-A*33:01	1	1037	1046	10	VDFCGKGYHL 0.000953	14
HLA-A*33:01	1	572	580	9	AVRDPQTLT 0.000952	14
HLA-A*02:01	1	724	733	10	LPVSMKTTSV 0.000952	15
HLA-A*24:02	1	777	785	9	EVFAQVKQI 0.000952	8.3
HLA-A*30:01	1	960	969	10	VKQLSSNFGA 0.000952	27
HLA-B*58:01	1	1157	1166	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	KTQSLLIIVN 0.000951	9.7
HLA-A*02:03	1	617	626	10	VPVAIHADQL 0.000951	16
HLA-A*33:01	1	626	634	9	LTPTWRVYS 0.000951	14
HLA-A*30:02	1	635	644	10	TGSNVFQTRA 0.000951	24
HLA-B*07:02	1	752	760	9	QYGSFCTQL 0.000951	12
HLA-A*30:01	1	830	838	9	FIKQYGDCL 0.000951	27
HLA-A*02:06	1	851	859	9	KFNGLTVLP 0.000951	20
HLA-B*57:01	1	1004	1013	10	YVTQQLIRAA 0.000951	20
HLA-B*51:01	1	1067	1075	9	AQEKNFTTA 0.000951	19
HLA-A*26:01	1	1179	1188	10	EIDRLNEVAK 0.000951	12
HLA-B*15:01	1	1206	1215	10	YIKWPWYIWL 0.000951	15
HLA-A*68:02	1	161	170	10	SSANNCTFEY 0.00095	16
HLA-A*01:01	1	564	573	10	RDIADTTDAV 0.00095	15
HLA-A*30:02	1	880	889	10	TSGWTFGAGA 0.00095	24
HLA-A*30:01	1	951	960	10	QNAQALNTLV 0.00095	27
HLA-B*57:01	1	971	979	9	SSVLNDILS 0.00095	20
HLA-A*31:01	1	482	490	9	GFNCYFPLQ 0.000949	16
HLA-A*68:01	1	486	494	9	YFPLQSYGF 0.000949	16
HLA-B*07:02	1	743	751	9	STECSNLLL 0.000949	12
HLA-B*57:01	1	953	961	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	VIKVCEQFQ 0.000948	15
HLA-A*33:01	1	161	170	10	SSANNCTFEY 0.000948	14
HLA-B*51:01	1	357	366	10	NCVADYSVLV 0.000948	19
HLA-A*30:02	1	388	397	10	CFTNVYADSF 0.000948	24
HLA-B*15:01	1	1045	1054	10	HLMSPQASAP 0.000948	15
HLA-A*11:01	1	1052	1060	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-B*44:03	1	803	811	9	LPDPSKPSK 0.000947	8.2
HLA-A*26:01	1	984	993	10	VEAEVQIDRL 0.000947	12
HLA-A*02:03	1	375	383	9	KCYGVSPTK 0.000946	16
HLA-A*26:01	1	444	453	10	GNYNLYRLF 0.000946	12
HLA-B*57:01	1	953	962	10	AQALNTLVKQ 0.000946	20
HLA-A*02:03	1	54	63	10	LFLPFFSNVT 0.000945	16
HLA-B*51:01	1	74	83	10	NGTKRFANPV 0.000945	19
HLA-A*11:01	1	221	229	9	SALEPLVDL 0.000945	9.8
HLA-B*58:01	1	238	246	9	FQTLHRSYL 0.000945	14
HLA-B*57:01	1	977	986	10	ILSRLDKVEA 0.000945	20
HLA-B*44:03	1	990	998	9	IDRLITGRL 0.000945	8.2
HLA-B*44:03	1	1036	1044	9	RVDFCGKGY 0.000945	8.2
HLA-B*44:03	1	1064	1072	9	YVPAQEKNF 0.000945	8.2
HLA-A*68:02	1	1252	1261	10	KFDEDDSEPV 0.000945	16
HLA-B*51:01	1	43	51	9	FRSSVLHST 0.000944	19
HLA-B*58:01	1	329	338	10	ITNLCPFGEV 0.000944	14
HLA-B*58:01	1	620	628	9	AIHADQLTP 0.000944	14
HLA-A*26:01	1	826	835	10	ADAGFIKQYG 0.000944	12
HLA-A*32:01	1	1057	1066	10	VVFLHVITYVP 0.000944	11
HLA-B*51:01	1	1066	1075	10	PAQEKNFHTA 0.000944	19
HLA-B*07:02	1	1158	1167	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	805	814	10	DPSKPSKRSF 0.000943	11
HLA-A*30:02	1	1050	1058	9	PQSAPHGVV 0.000943	24
HLA-A*33:01	1	365	373	9	LYNSASFST 0.000942	14
HLA-A*02:03	1	539	548	10	NFNGLTGTGV 0.000942	16
HLA-A*26:01	1	700	709	10	NSVAYSNSI 0.000942	12
HLA-A*30:01	1	792	801	10	KDFGGFNFSQ 0.000942	27
HLA-A*01:01	1	1000	1008	9	SLQTYVTQQ 0.000942	16
HLA-B*57:01	1	167	176	10	TFEYVSQFPL 0.000941	20
HLA-A*31:01	1	263	272	10	YVGYLQPRTF 0.000941	16
HLA-A*32:01	1	475	483	9	TPCNGVKGF 0.000941	11
HLA-A*11:01	1	573	581	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	305	313	9	VEKGIYQTS 0.00094	15
HLA-A*23:01	1	335	344	10	FGEVFNATRF 0.00094	8.4
HLA-B*57:01	1	374	383	10	FKCYGVSPTK 0.00094	20
HLA-A*31:01	1	632	641	10	VYSTGSNVFQ 0.00094	16
HLA-A*03:01	1	679	687	9	RRARSVASQ 0.00094	12
HLA-A*30:01	1	971	979	9	SSVLNDILS 0.00094	27
HLA-A*30:02	1	1258	1266	9	SEPVLKGVK 0.00094	25
HLA-A*26:01	1	75	83	9	GTKRFANPV 0.000939	12
HLA-A*02:06	1	83	91	9	VLFPNDGVY 0.000939	20
HLA-B*57:01	1	405	413	9	RQIAPGQTG 0.000939	20
HLA-A*30:02	1	519	527	9	ATVCGPKKS 0.000939	25
HLA-B*40:01	1	768	777	10	AVEQDKNTQE 0.000939	7.7
HLA-A*03:01	1	508	517	10	VVLSFELLHA 0.000938	12
HLA-B*44:02	1	730	738	9	KTSVDCTMY 0.000938	8.2
HLA-A*30:01	1	779	788	10	FAQVKQIYKT 0.000938	27
HLA-A*30:01	1	899	907	9	MAYRFNGIG 0.000938	27
HLA-A*31:01	1	905	914	10	GIGVTQNVLY 0.000938	16
HLA-A*23:01	1	1254	1262	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	465	473	9	ISTEIQAG 0.000937	19
HLA-A*31:01	1	513	521	9	ELLHAPATV 0.000937	16
HLA-A*30:02	1	899	908	10	MAYRFNGIGV 0.000937	25
HLA-A*23:01	1	961	970	10	KQLSSNFGAI 0.000937	8.4
HLA-B*51:01	1	995	1003	9	TGRLQSLQT 0.000937	19
HLA-B*15:01	1	1004	1012	9	YVTQQLIRA 0.000937	15
HLA-B*51:01	1	1132	1140	9	NTVYDPLQP 0.000937	19
HLA-A*26:01	1	220	229	10	FSALEPLVDL 0.000936	12
HLA-B*15:01	1	266	275	10	YLQPRTFLLK 0.000936	15
HLA-A*01:01	1	424	433	10	DDFTGCVIAW 0.000936	16

HLA-B*53:01	1	808	816	9	KPSKRSFIE	0.000936	9.6
HLA-B*53:01	1	825	833	9	LADAGFIKQ	0.000936	9.6
HLA-A*68:01	1	890	898	9	ALQIPFAMQ	0.000936	16
HLA-B*57:01	1	15	23	9	CVNLTTRTQ	0.000935	20
HLA-B*58:01	1	26	34	9	PAYTNSFTR	0.000935	14
HLA-A*31:01	1	485	493	9	CYFPLQSYG	0.000935	16
HLA-A*02:01	1	707	715	9	NSIAIPTNF	0.000935	15
HLA-B*08:01	1	842	850	9	AARDLICAQ	0.000935	20
HLA-B*07:02	1	899	908	10	MAYRFNGIGV	0.000935	13
HLA-A*33:01	1	921	930	10	ANQFNSAIGK	0.000935	14
HLA-B*08:01	1	1010	1019	10	IRAAEIRASA	0.000935	20
HLA-A*11:01	1	46	54	9	SVLHSTQDL	0.000934	9.8
HLA-B*51:01	1	260	268	9	AAYVYGYLQ	0.000934	19
HLA-B*57:01	1	288	296	9	CALDPLSET	0.000934	20
HLA-A*02:03	1	523	531	9	GPKKSTNLV	0.000934	16
HLA-A*68:01	1	657	665	9	YECDIPIGA	0.000934	16
HLA-B*07:02	1	725	733	9	PVSMTKTSV	0.000934	13
HLA-A*01:01	1	1044	1053	10	YHLMSFPQSA	0.000934	16
HLA-B*53:01	1	1118	1126	9	FVSGNCDVV	0.000934	9.6
HLA-A*30:01	1	1178	1187	10	KEIDRLNEVA	0.000934	27
HLA-A*33:01	1	153	161	9	MESEFRVYS	0.000933	14
HLA-A*31:01	1	411	420	10	QTGNIADYNY	0.000933	16
HLA-B*08:01	1	1015	1023	9	IRASANLAA	0.000933	20
HLA-A*02:06	1	49	57	9	HSTQDLFLP	0.000932	20
HLA-B*57:01	1	384	393	10	LNDLCFTNVY	0.000932	20
HLA-A*02:06	1	496	504	9	PTYGVGYQP	0.000932	20
HLA-A*68:01	1	817	825	9	DLLFNKVTL	0.000932	16
HLA-A*68:01	1	1102	1110	9	TORNFYEPQ	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	TNVVIKVCFF	0.000931	11
HLA-A*01:01	1	523	531	9	GPKKSTNLV	0.000931	16
HLA-B*44:03	1	874	883	10	LLAGTITSGW	0.000931	8.3
HLA-B*53:01	1	1036	1044	9	RVDFCGKGY	0.000931	9.7
HLA-A*68:02	1	1174	1183	10	VNIQKEIDRL	0.000931	16
HLA-B*08:01	1	210	218	9	INLVRGLPQ	0.00093	20
HLA-B*44:03	1	249	257	9	GDSSSGWTA	0.00093	8.3
HLA-B*44:03	1	579	587	9	LEILDITPC	0.00093	8.3
HLA-A*02:01	1	721	730	10	TEILPVSMTK	0.00093	15
HLA-A*24:02	1	950	959	10	NQNAQALNTL	0.00093	8.3
HLA-A*02:03	1	953	961	9	AQALNTLVK	0.00093	16
HLA-A*02:06	1	1025	1034	10	KMSECVLGQS	0.00093	20
HLA-A*33:01	1	339	348	10	FNATRFASVY	0.000929	14
HLA-B*15:01	1	421	429	9	KLPDDFTGC	0.000929	15
HLA-A*30:02	1	496	504	9	PTYGVGYQP	0.000929	25
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	417	426	10	DYNYKLPDDF	0.000928	20
HLA-B*15:01	1	686	695	10	SQSIIAYTMS	0.000928	15
HLA-B*58:01	1	935	944	10	LSSTASALGK	0.000928	14
HLA-A*30:01	1	1130	1138	9	VNNTVYDPL	0.000928	27
HLA-A*31:01	1	450	458	9	YRLFRKSNL	0.000927	16
HLA-B*51:01	1	485	494	10	CYFPLQSYGF	0.000927	19
HLA-A*30:02	1	510	519	10	LSFELLHAPA	0.000927	25
HLA-B*08:01	1	685	694	10	ASQSIIAYTM	0.000927	20
HLA-A*02:01	1	1116	1125	10	NTFVSGNCDV	0.000927	15
HLA-A*68:01	1	14	23	10	QCVNLTTRTQ	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	292	300	9	PLSETKCTL	0.000926	16

HLA-A*31:01	1	366	374	9	YNSASFSTF 0.000926	16
HLA-B*44:02	1	892	901	10	QIPFAMQMAY 0.000926	8.2
HLA-A*68:02	1	971	980	10	SSVLNDILSR 0.000926	16
HLA-A*31:01	1	199	208	10	GYFKIYSKHT 0.000925	16
HLA-B*58:01	1	243	251	9	RSYLTPGDS 0.000925	14
HLA-A*68:01	1	442	450	9	VGGNYNYLY 0.000925	16
HLA-B*51:01	1	623	632	10	ADQLTPTWRV 0.000925	19
HLA-A*68:02	1	633	641	9	YSTGSNVFQ 0.000925	16
HLA-A*30:02	1	674	683	10	QTNSPRRARS 0.000925	25
HLA-B*08:01	1	892	901	10	QIPFAMQMAY 0.000925	20
HLA-A*33:01	1	952	960	9	NAQALNTLV 0.000925	14
HLA-A*30:02	1	159	167	9	VYSSANNCT 0.000924	25
HLA-A*11:01	1	214	222	9	RGLPQGFS 0.000924	9.8
HLA-B*53:01	1	779	787	9	FAQVKQIYK 0.000924	9.7
HLA-B*53:01	1	1045	1053	9	HLMSFPQSA 0.000924	9.7
HLA-A*02:03	1	264	272	9	VGYLQPRTF 0.000923	17
HLA-A*30:01	1	275	284	10	KYNENGTITD 0.000923	27
HLA-A*02:03	1	330	339	10	TNLCPFGEVF 0.000923	17
HLA-A*01:01	1	945	954	10	LQDVVNQNAQ 0.000923	16
HLA-A*33:01	1	1194	1202	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	264	273	10	VGYLQPRTF 0.000922	15
HLA-A*24:02	1	489	498	10	LQSYGFQPTY 0.000922	8.4
HLA-B*08:01	1	575	584	10	DPQTLILDID 0.000922	20
HLA-B*44:03	1	743	752	10	STECSNLLLQ 0.000922	8.3
HLA-B*40:01	1	882	891	10	GWTFGAGAAL 0.000922	7.8
HLA-A*26:01	1	920	928	9	IANQFNLSAI 0.000922	12
HLA-B*07:02	1	985	993	9	EAEVQIDRL 0.000922	13
HLA-B*57:01	1	1175	1183	9	NIQKEIDRL 0.000922	20
HLA-A*30:02	1	618	626	9	PVAIHADQL 0.000921	25
HLA-A*30:02	1	757	765	9	CTQLNRALT 0.000921	25
HLA-A*11:01	1	954	962	9	QALNTLVKQ 0.000921	9.8
HLA-B*44:03	1	1127	1135	9	IGIVNNTVY 0.000921	8.3
HLA-A*30:02	1	1171	1179	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	346	355	10	SVYAWNRKRI 0.00092	15
HLA-A*30:02	1	356	364	9	SNCVADYSV 0.00092	25
HLA-A*30:02	1	750	759	10	LLQYGSFCTQ 0.00092	25
HLA-A*30:01	1	801	810	10	QILPDPSPKPS 0.00092	27
HLA-A*33:01	1	861	870	10	LLTDEMIAQY 0.00092	14
HLA-A*31:01	1	1199	1208	10	ELGKYEYIYK 0.00092	16
HLA-A*11:01	1	136	145	10	CNDPFLGVVY 0.000919	9.8
HLA-B*40:01	1	391	399	9	NVYADSFVI 0.000919	7.8
HLA-B*44:03	1	663	671	9	IGAGICASY 0.000919	8.3
HLA-B*53:01	1	743	751	9	STECSNLLL 0.000919	9.7
HLA-B*58:01	1	937	946	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*51:01	1	481	489	9	KGFNCYFPL 0.000918	19
HLA-B*08:01	1	579	587	9	LEILDITPC 0.000918	20
HLA-B*40:01	1	673	681	9	TQTNSPRRA 0.000918	7.8
HLA-A*01:01	1	682	690	9	RSVASQSII 0.000918	16
HLA-A*03:01	1	842	850	9	AARDLICAQ 0.000918	12
HLA-A*30:02	1	853	861	9	NGLTVLPL 0.000918	25
HLA-A*02:01	1	888	897	10	GAALQIPFAM 0.000918	15
HLA-A*02:01	1	1059	1068	10	FLHVTVVPAQ 0.000918	15
HLA-A*30:01	1	1073	1081	9	TTAPAICH 0.000918	27
HLA-A*03:01	1	1203	1212	10	YEQYIKWPWY 0.000918	12
HLA-B*07:02	1	30	38	9	NSFTRGVVY 0.000917	13
HLA-B*53:01	1	120	128	9	VNNATNVVI 0.000917	9.7
HLA-A*26:01	1	282	290	9	ITDAVDCAL 0.000917	12
HLA-A*02:06	1	304	313	10	TVEKGIYQTS 0.000917	21

HLA-B*08:01	1	702	711	10	VAYSNNSIAI 0.000917	20
HLA-B*53:01	1	965	973	9	SNFGAISSV 0.000917	9.7
HLA-B*44:02	1	1137	1145	9	PLQPELDSF 0.000917	8.3
HLA-B*51:01	1	1151	1159	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	320	328	9	TESIVRFPN 0.000916	8.3
HLA-B*51:01	1	773	782	10	KNTQEVFAQV 0.000916	19
HLA-A*30:01	1	875	883	9	LAGTITSGW 0.000916	27
HLA-A*02:01	1	1018	1026	9	SANLAATKM 0.000916	15
HLA-A*01:01	1	1079	1088	10	CHDGKAHFPR 0.000916	16
HLA-B*44:02	1	1256	1265	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	262	270	9	YYVGYLQPR 0.000915	11
HLA-B*57:01	1	547	555	9	GVLTESNKK 0.000915	20
HLA-A*33:01	1	551	560	10	ESNKKFLPFQ 0.000915	14
HLA-A*02:06	1	632	640	9	VYSTGSNVF 0.000915	21
HLA-A*01:01	1	673	682	10	TQTNSPRRAR 0.000915	16
HLA-A*01:01	1	817	825	9	DLLFNKVTL 0.000915	16
HLA-B*15:01	1	824	833	10	TLADAGFIKQ 0.000915	15
HLA-B*35:01	1	60	68	9	SNVTWFHAI 0.000914	11
HLA-A*02:01	1	325	333	9	RFPNITNLC 0.000914	15
HLA-A*30:02	1	569	577	9	TTDAVRDPQ 0.000914	25
HLA-A*03:01	1	601	610	10	TSNQVAVLYQ 0.000914	12
HLA-A*31:01	1	624	633	10	DQLTPTWRVY 0.000914	17
HLA-A*32:01	1	1143	1152	10	DSFKEELDKY 0.000914	11
HLA-B*58:01	1	1166	1175	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	621	630	10	IHADQLTPTW 0.000913	14
HLA-B*51:01	1	927	935	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	TLDSKTQSLL 0.000912	9.7
HLA-A*01:01	1	367	376	10	NSASFSTFKC 0.000912	16
HLA-A*32:01	1	564	573	10	RDIADTTDAV 0.000912	11
HLA-B*53:01	1	575	583	9	DPQTLEILD 0.000912	9.7
HLA-A*24:02	1	601	609	9	TSNQVAVLY 0.000912	8.4
HLA-A*23:01	1	720	728	9	TTEILPVSM 0.000912	8.5
HLA-A*23:01	1	731	739	9	TSVDCTMYI 0.000912	8.5
HLA-A*30:02	1	742	750	9	DSTECSNLL 0.000912	25
HLA-B*07:02	1	759	767	9	QLNRALTGI 0.000912	13
HLA-B*35:01	1	785	794	10	IYKTPPIKDF 0.000912	11
HLA-B*15:01	1	812	821	10	RSFIEDLLFN 0.000912	15
HLA-A*02:01	1	986	994	9	AEVQIDRLI 0.000912	15
HLA-A*33:01	1	1110	1118	9	QIITTDNTF 0.000912	14
HLA-B*40:01	1	1121	1129	9	GNCVVIGI 0.000912	7.8
HLA-B*53:01	1	1217	1225	9	FIAGLIAIV 0.000912	9.7
HLA-B*44:03	1	60	68	9	SNVTWFHAI 0.000911	8.3
HLA-A*68:02	1	240	248	9	TLHRSYLTP 0.000911	16
HLA-B*35:01	1	321	329	9	ESIVRFPNI 0.000911	11
HLA-A*68:02	1	486	494	9	YFPLQSYGF 0.000911	16
HLA-A*31:01	1	755	764	10	SFCTQLNRAL 0.000911	17
HLA-B*07:02	1	923	931	9	QFNSAIGKI 0.000911	13
HLA-A*33:01	1	376	384	9	CYGVSPTKL 0.000911	14
HLA-A*30:01	1	505	513	9	YRVVLSFE 0.000911	28
HLA-A*02:06	1	792	800	9	KDFGGFNFS 0.000911	21
HLA-A*02:06	1	26	34	9	PAYTNSFTR 0.000909	21
HLA-A*11:01	1	77	86	10	KRFANPVLFP 0.000909	9.9
HLA-B*57:01	1	258	267	10	GAAAYVGYL 0.000909	20
HLA-A*31:01	1	376	384	9	CYGVSPTKL 0.000909	17
HLA-B*57:01	1	606	614	9	AVLYQGVNC 0.000909	20
HLA-B*51:01	1	707	716	10	NSIAIPTNFT 0.000909	19
HLA-A*30:02	1	1059	1067	9	FLHVTVVPA 0.000909	25
HLA-A*30:01	1	1153	1161	9	FKNHTSPDV 0.000909	28



HLA-B*15:01	1	308	317	10	GIYQTSNFRV 0.000908	15
HLA-B*57:01	1	359	368	10	VADYSVLVNS 0.000908	20
HLA-B*07:02	1	494	502	9	FQPTYGVGY 0.000908	13
HLA-A*02:06	1	579	587	9	LEILDITPC 0.000908	21
HLA-A*30:02	1	611	620	10	GVNCTEVPVA 0.000908	25
HLA-A*02:01	1	683	692	10	SVASQSIIAY 0.000908	15
HLA-B*57:01	1	880	889	10	TSGWTFGAGA 0.000908	20
HLA-A*30:01	1	241	249	9	LHRSYLTGP 0.000907	28
HLA-A*23:01	1	302	310	9	SFTVEKGIY 0.000907	8.5
HLA-A*68:02	1	313	321	9	SNFRVQPT 0.000907	16
HLA-A*30:01	1	663	672	10	IGAGICASYQ 0.000907	28
HLA-A*26:01	1	1056	1065	10	GVVFLHVTVY 0.000907	12
HLA-B*44:03	1	1206	1214	9	YIKWPWYIW 0.000907	8.3
HLA-A*30:01	1	1223	1232	10	AIVMVTIMLC 0.000907	28
HLA-B*08:01	1	19	28	10	TTRTQLPPAY 0.000906	21
HLA-A*02:01	1	288	297	10	CALDPLSETK 0.000906	15
HLA-B*07:02	1	679	688	10	RRARSVASQS 0.000906	13
HLA-A*01:01	1	747	756	10	SNLLLQYGSF 0.000906	16
HLA-B*58:01	1	781	789	9	QVKQIYKTP 0.000906	14
HLA-B*57:01	1	1016	1024	9	RASANLAAT 0.000906	20
HLA-A*30:02	1	1166	1174	9	ISGINASVV 0.000906	25
HLA-A*30:01	1	1185	1193	9	EVAKNLNES 0.000906	28
HLA-B*58:01	1	1209	1217	9	WPWYIWLGF 0.000906	14
HLA-B*51:01	1	21	29	9	RTQLPPAYT 0.000905	19
HLA-A*30:02	1	299	308	10	TLKSFTVEKG 0.000905	25
HLA-A*23:01	1	506	515	10	RVVLSFELL 0.000905	8.6
HLA-A*31:01	1	701	709	9	SVAYSNNSI 0.000905	17
HLA-A*26:01	1	752	760	9	QYGSFCTQL 0.000905	12
HLA-B*35:01	1	824	832	9	TLADAGFIK 0.000905	11
HLA-B*58:01	1	961	970	10	KQLSSNFGAI 0.000905	14
HLA-B*57:01	1	1010	1019	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-A*32:01	1	239	247	9	QTLHRSYLT 0.000904	11
HLA-B*51:01	1	250	259	10	DSSSGWTAGA 0.000904	19
HLA-A*24:02	1	419	428	10	NYKLPDDFTG 0.000904	8.4
HLA-A*30:02	1	545	554	10	GTGVLTESNK 0.000904	25
HLA-A*31:01	1	762	771	10	RALTGIAVEQ 0.000904	17
HLA-B*57:01	1	801	809	9	QILPDPSKP 0.000904	20
HLA-B*58:01	1	1111	1119	9	IITTDNTFV 0.000904	14
HLA-B*08:01	1	50	59	10	STQDLFLPFF 0.000903	21
HLA-A*02:03	1	208	216	9	TPINLVRGL 0.000903	17
HLA-B*57:01	1	477	486	10	CNGVKGFNCY 0.000903	20
HLA-A*01:01	1	535	543	9	CVNFNFNGL 0.000903	16
HLA-A*24:02	1	970	978	9	ISSVLNDIL 0.000903	8.4
HLA-B*53:01	1	1108	1116	9	EPQIITTDN 0.000903	9.8
HLA-A*31:01	1	206	215	10	KHTPINLVRG 0.000902	17
HLA-B*15:01	1	214	222	9	RGLPQGFS 0.000902	15
HLA-A*24:02	1	268	276	9	QPRTFLLKY 0.000902	8.4
HLA-B*57:01	1	437	446	10	NLDSKVGNGY 0.000902	20
HLA-B*58:01	1	645	653	9	GCLIGAEHV 0.000902	14
HLA-A*26:01	1	708	716	9	SIAIPTNFT 0.000902	12
HLA-B*40:01	1	761	769	9	NRALTGIAV 0.000902	7.8
HLA-A*30:02	1	977	986	10	ILSRDKVEA 0.000902	25
HLA-B*58:01	1	985	994	10	EAEVQIDRLI 0.000902	14
HLA-A*30:02	1	13	22	10	SQCVNLTRT 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	303	311	9	FTVEKGIYQ 0.000901	17
HLA-B*51:01	1	351	359	9	NRKRISNCV 0.000901	19
HLA-A*23:01	1	358	366	9	CVADYSVLY 0.000901	8.6
HLA-A*03:01	1	718	726	9	SVTTEILPV 0.000901	13
HLA-A*02:01	1	167	176	10	TFEYVSQPFL 0.0009	15
HLA-A*33:01	1	313	321	9	SNFRVQPT 0.0009	14
HLA-B*53:01	1	464	472	9	DISTEIYQA 0.0009	9.8
HLA-A*02:01	1	534	543	10	KCVNFNFNGL 0.0009	15

HLA-A*30:02	1	889	898	10	AALQIPFAMQ 0.0009	25
HLA-A*02:01	1	1222	1231	10	IAIVMTIML 0.0009	15
HLA-A*68:02	1	288	297	10	CALDPLSETK 0.000899	16
HLA-B*51:01	1	336	344	9	GEVFNATRF 0.000899	19
HLA-A*03:01	1	622	630	9	HADQLTPTW 0.000899	13
HLA-B*44:03	1	657	666	10	YECDIPIGAG 0.000899	8.4
HLA-A*68:02	1	794	803	10	FGGFNFSQIL 0.000899	16
HLA-B*08:01	1	916	925	10	NQKLIANQFN 0.000899	21
HLA-B*44:02	1	56	65	10	LPFFSNVTWF 0.000898	8.4
HLA-B*08:01	1	305	313	9	VEKGIYQTS 0.000898	21
HLA-A*26:01	1	341	349	9	ATRFASVYA 0.000898	12
HLA-A*02:01	1	410	418	9	GQTGNIADY 0.000898	15
HLA-B*51:01	1	521	530	10	VCGPKKSTNL 0.000898	19
HLA-A*31:01	1	874	883	10	LLAGTITSGW 0.000898	17
HLA-A*02:01	1	887	896	10	AGAALQIPFA 0.000898	15
HLA-A*30:02	1	887	896	10	AGAALQIPFA 0.000898	25
HLA-B*51:01	1	957	965	9	NTLVKQLSS 0.000898	19
HLA-A*02:03	1	13	22	10	SQCVNLTTTRT 0.000897	17
HLA-A*33:01	1	188	196	9	NLREFVFKN 0.000897	14
HLA-A*30:01	1	329	337	9	ITNLCPFGE 0.000897	28
HLA-B*35:01	1	547	556	10	GVLTESNKKF 0.000897	11
HLA-A*01:01	1	574	582	9	RDPQTLEIL 0.000897	16
HLA-A*03:01	1	907	915	9	GVTQNVLYE 0.000897	13
HLA-A*32:01	1	989	998	10	QIDRLITGRL 0.000897	11
HLA-B*35:01	1	1002	1010	9	QTYVVTQQLI 0.000897	11
HLA-A*11:01	1	1148	1156	9	ELDKYFKNH 0.000897	9.9
HLA-A*02:03	1	36	44	9	VYYPDKVFR 0.000896	17
HLA-A*26:01	1	346	355	10	SVYAWNRKRI 0.000896	12
HLA-A*02:06	1	357	365	9	NCVADYSVL 0.000896	21
HLA-A*31:01	1	365	373	9	LYNSASFST 0.000896	17
HLA-A*01:01	1	397	405	9	FVIRGDEVF 0.000896	16
HLA-B*58:01	1	497	505	9	TYGVGYQPY 0.000896	14
HLA-A*26:01	1	498	506	9	YGVGYQPYP 0.000896	12
HLA-A*01:01	1	547	555	9	GVLTESNKK 0.000896	16
HLA-A*30:01	1	661	669	9	IPIGAGICA 0.000896	28
HLA-A*23:01	1	743	751	9	STECSNLLL 0.000896	8.6
HLA-B*58:01	1	953	961	9	AQALNTLVK 0.000896	14
HLA-B*15:01	1	966	974	9	NFGAISSVL 0.000896	15
HLA-A*02:01	1	110	118	9	LDSKTQSLL 0.000895	15
HLA-A*31:01	1	113	121	9	KTQSLLIVN 0.000895	17
HLA-A*33:01	1	461	470	10	FERDISTEYI 0.000895	14
HLA-B*07:02	1	502	511	10	YQPYRVVVL 0.000895	13
HLA-A*32:01	1	635	643	9	TGSNVFQTR 0.000895	11
HLA-B*08:01	1	910	919	10	QNVLYENQKL 0.000895	21
HLA-A*03:01	1	1127	1135	9	IGIVNNTVY 0.000895	13
HLA-A*68:01	1	168	177	10	FEYVSQPFLM 0.000894	16
HLA-A*33:01	1	238	246	9	FQTLHRSYL 0.000894	14
HLA-A*31:01	1	581	589	9	ILDITPCSF 0.000894	17
HLA-A*02:06	1	654	663	10	NNSYECDIPI 0.000894	21
HLA-A*01:01	1	1172	1180	9	SVVNIQKEI 0.000894	16
HLA-A*33:01	1	1255	1263	9	EDDSEPVLK 0.000894	14
HLA-B*44:02	1	1255	1263	9	EDDSEPVLK 0.000894	8.4
HLA-A*31:01	1	123	131	9	ATNVVIVKC 0.000893	17
HLA-B*15:01	1	135	143	9	FCNDPFLGV 0.000893	15
HLA-A*30:01	1	404	413	10	VRQIAPGQTG 0.000893	28
HLA-B*44:03	1	547	556	10	GVLTESNKKF 0.000893	8.4
HLA-B*35:01	1	674	682	9	QTNSPRRAR 0.000893	11
HLA-A*30:01	1	1203	1212	10	YEQYIKWPWY 0.000893	28
HLA-B*53:01	1	1203	1212	10	YEQYIKWPWY 0.000893	9.8
HLA-A*03:01	1	414	422	9	NIADYNYKL 0.000892	13
HLA-A*33:01	1	870	878	9	YTSALLAGT 0.000892	14
HLA-B*44:02	1	923	931	9	QFNSAIGKI 0.000892	8.4
HLA-B*15:01	1	1008	1016	9	QLIRAAEIR 0.000892	15
HLA-A*30:02	1	1156	1164	9	HTSPDVDLG 0.000892	25
HLA-A*01:01	1	92	101	10	FASTEKSNI 0.000891	16
HLA-A*68:01	1	233	241	9	INITRFQTL 0.000891	16

HLA-A*02:01	1	252	261	10	SSGWTAGAAA 0.000891	15
HLA-A*33:01	1	440	448	9	SKVGGNYNY 0.000891	14
HLA-A*01:01	1	759	767	9	QLNRALTGI 0.000891	16
HLA-A*33:01	1	842	850	9	AARDLICAQ 0.000891	14
HLA-A*02:01	1	1062	1070	9	VTYVPAQEK 0.000891	15
HLA-B*15:01	1	207	216	10	HTPINLVRGL 0.00089	15
HLA-A*01:01	1	417	426	10	DYNYKLPDDF 0.00089	16
HLA-A*02:01	1	450	459	10	YRLFRRKSNLK 0.00089	15
HLA-A*30:01	1	536	544	9	VNFNFNGLT 0.00089	28
HLA-B*58:01	1	587	596	10	CSFGGVSVIT 0.00089	14
HLA-B*51:01	1	864	872	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-B*58:01	1	499	507	9	GVGYQPYRV 0.000889	14
HLA-A*68:01	1	513	521	9	ELLHAPATV 0.000889	16
HLA-A*30:02	1	541	549	9	NGLTGTGVL 0.000889	25
HLA-B*51:01	1	550	559	10	TESNKKFLPF 0.000889	19
HLA-B*58:01	1	842	851	10	AARDLICAQK 0.000889	14
HLA-A*33:01	1	900	908	9	AYRFNGIGV 0.000889	14
HLA-B*58:01	1	1011	1020	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	243	251	9	RSYLTGDS 0.000888	20
HLA-B*58:01	1	534	542	9	KCVNFNFNG 0.000888	14
HLA-B*53:01	1	618	626	9	PVAIHADQL 0.000888	9.8
HLA-A*01:01	1	702	710	9	VAYSNNSIA 0.000888	16
HLA-A*02:01	1	702	711	10	VAYSNNSIAI 0.000888	15
HLA-A*31:01	1	759	767	9	QLNRALTGI 0.000888	17
HLA-B*51:01	1	826	834	9	ADAGFIKQY 0.000888	19
HLA-A*33:01	1	915	924	10	ENQKLIANQF 0.000888	14
HLA-A*30:02	1	1011	1020	10	RAAEIRASAN 0.000888	25
HLA-A*32:01	1	1102	1111	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*30:02	1	314	323	10	NFRVQPTESI 0.000887	25
HLA-A*68:01	1	720	729	10	TTEILPVSMT 0.000887	16
HLA-A*02:01	1	783	792	10	KQIYKTPPIK 0.000887	15
HLA-A*02:06	1	1132	1140	9	NTVYDPLQP 0.000887	21
HLA-A*11:01	1	1178	1186	9	KEIDRLNEV 0.000887	10
HLA-A*33:01	1	1182	1190	9	RLNEVAKNL 0.000887	14
HLA-A*26:01	1	1260	1268	9	PVLKGVKLH 0.000887	12
HLA-B*15:01	1	131	140	10	CEFQFCNDPF 0.000886	15
HLA-A*02:03	1	372	381	10	STFKCYGVSP 0.000886	17
HLA-A*02:01	1	621	630	10	IHADQLTPTW 0.000886	15
HLA-A*02:06	1	635	644	10	TGSNVFQTRA 0.000886	21
HLA-B*15:01	1	663	672	10	IGAGICASYQ 0.000886	15
HLA-B*57:01	1	1021	1030	10	LAATKMSECV 0.000886	20
HLA-A*30:01	1	1111	1119	9	IITTDNTFV 0.000886	28
HLA-A*11:01	1	1172	1180	9	SVVNIQKEI 0.000886	10
HLA-B*40:01	1	214	223	10	RGLPQGFSA 0.000885	7.9
HLA-B*58:01	1	545	553	9	GTGVLTESN 0.000885	14
HLA-A*33:01	1	573	581	9	VRDPQTLEI 0.000885	14
HLA-B*15:01	1	978	986	9	LSRLDKVEA 0.000885	15
HLA-A*02:06	1	1022	1031	10	AATKMSECVL 0.000885	21
HLA-B*58:01	1	94	102	9	STEKSNIIR 0.000884	14
HLA-A*30:02	1	313	321	9	SNFRVQPT 0.000884	25
HLA-A*03:01	1	666	674	9	GICASYQTQ 0.000884	13
HLA-A*30:02	1	872	881	10	SALLAGTITS 0.000884	25
HLA-B*35:01	1	1038	1046	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	LMDELEGKQ 0.000883	16
HLA-B*51:01	1	308	317	10	GIYQTSNFRV 0.000883	20
HLA-A*02:06	1	519	528	10	ATVCGPKKST 0.000883	21
HLA-B*08:01	1	658	667	10	ECDIPIGAGI 0.000883	21

HLA-A*30:01	1	745	753	9	ECSNLLLQY 0.000883	28
HLA-A*30:01	1	795	804	10	GGFNFSQILP 0.000883	28
HLA-A*68:01	1	614	623	10	CTEVPVAIHA 0.000882	16
HLA-A*30:01	1	768	776	9	AVEQDKNTQ 0.000882	28
HLA-A*30:02	1	910	919	10	QNVLYENQKL 0.000882	25
HLA-B*08:01	1	970	978	9	ISSVLNDIL 0.000882	21
HLA-B*35:01	1	1109	1118	10	PQIITTDNTF 0.000882	11
HLA-B*35:01	1	1185	1193	9	EVAKNLNES 0.000882	11
HLA-B*44:03	1	1256	1265	10	DDSEPVLKGV 0.000882	8.4
HLA-A*30:01	1	74	82	9	NGTKRFANP 0.000881	28
HLA-B*40:01	1	108	117	10	TTLDSKTQSL 0.000881	7.9
HLA-A*30:01	1	354	363	10	RISNCVADYS 0.000881	28
HLA-A*02:06	1	562	570	9	FGRDIADTT 0.000881	21
HLA-A*02:01	1	694	703	10	MSLGVENSVA 0.000881	15
HLA-B*44:02	1	775	784	10	TQEVFAQVKQ 0.000881	8.4
HLA-A*68:02	1	945	953	9	LQDVVNQNA 0.000881	16
HLA-A*68:01	1	952	960	9	NAQALNTLV 0.000881	16
HLA-B*51:01	1	958	967	10	TLVKQLSSNF 0.000881	20
HLA-A*02:03	1	1144	1152	9	SFKEELDKY 0.000881	17
HLA-A*31:01	1	1212	1221	10	YIWLGFIAGL 0.000881	17
HLA-B*40:01	1	212	220	9	LVRGLPQGF 0.00088	7.9
HLA-B*44:02	1	229	238	10	LPIGINITRF 0.00088	8.4
HLA-A*01:01	1	249	257	9	GDSSSGWTA 0.00088	16
HLA-A*24:02	1	391	399	9	NVYADSFVI 0.00088	8.5
HLA-A*01:01	1	714	723	10	NFTISVTTEI 0.00088	16
HLA-A*68:01	1	762	771	10	RALTGIAVEQ 0.00088	16
HLA-A*01:01	1	867	876	10	IAQYTSALLA 0.00088	16
HLA-A*01:01	1	922	930	9	NQFNSAIGK 0.00088	16
HLA-B*51:01	1	1022	1031	10	AATKMSECVL 0.00088	20
HLA-B*57:01	1	310	319	10	YQTSNFRVQP 0.000879	21
HLA-B*35:01	1	341	350	10	ATRFASVYAW 0.000879	11
HLA-A*01:01	1	391	399	9	NVYADSFVI 0.000879	16
HLA-B*35:01	1	575	584	10	DPQTLLEIDI 0.000879	11
HLA-B*53:01	1	729	737	9	TKTSVDCTM 0.000879	9.9
HLA-B*57:01	1	878	887	10	TITSGWTFGA 0.000879	21
HLA-B*51:01	1	882	891	10	GWTFGAGAAL 0.000879	20
HLA-A*68:01	1	84	93	10	LPFNDGVYFA 0.000878	16
HLA-A*01:01	1	233	242	10	INITRFQTLH 0.000878	16
HLA-B*07:02	1	251	259	9	SSSGWTAGA 0.000878	13
HLA-A*02:06	1	933	942	10	DSLSSTASAL 0.000878	21
HLA-A*26:01	1	982	990	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	VVIKVCEFQ 0.000877	25
HLA-B*53:01	1	553	562	10	NKKFLPFQFQ 0.000877	9.9
HLA-B*44:02	1	615	624	10	TEVPVAIHAD 0.000877	8.5
HLA-A*32:01	1	676	684	9	NSPRRARSV 0.000877	12
HLA-A*68:02	1	1073	1082	10	TTAPAICHDG 0.000877	16
HLA-A*33:01	1	1178	1186	9	KEIDRLNEV 0.000877	15
HLA-B*07:02	1	1217	1226	10	FIAGLIAIVM 0.000877	13
HLA-B*44:03	1	402	410	9	DEVQRQIAPG 0.000876	8.5
HLA-A*68:02	1	456	465	10	SNLKPFERDI 0.000876	17
HLA-A*68:01	1	495	503	9	QPTYGVGYQ 0.000876	16
HLA-A*33:01	1	506	514	9	RVVLSFEL 0.000876	15
HLA-A*23:01	1	685	694	10	ASQSIIAYTM 0.000876	8.7
HLA-A*30:02	1	717	725	9	ISVTTEILP 0.000876	25
HLA-A*33:01	1	755	763	9	SFCTQLNRA 0.000876	15
HLA-B*35:01	1	955	963	9	ALNTLVKQL 0.000876	11
HLA-A*68:02	1	1131	1140	10	NNTVYDPLQP 0.000876	17
HLA-B*58:01	1	313	321	9	SNFRVQPTTE 0.000875	15
HLA-A*02:06	1	579	588	10	LEILDITPCS 0.000875	21
HLA-A*30:01	1	905	914	10	GIGVTQNVLY 0.000875	28
HLA-A*30:01	1	915	924	10	ENQKLIANQF 0.000875	28
HLA-B*15:01	1	1204	1213	10	EQYIKWPWYI 0.000875	15
HLA-A*30:01	1	693	702	10	TMSLGVENSVA 0.000874	28
HLA-A*68:02	1	1078	1086	9	ICHDGKAHF 0.000874	17

HLA-B*35:01	1	323	332	10	IVRFPNITNL 0.000873	11
HLA-A*68:02	1	366	375	10	YNSASFSTFK 0.000873	17
HLA-A*32:01	1	421	430	10	KLPDDFTGCV 0.000873	12
HLA-B*40:01	1	559	567	9	FQQFGRDIA 0.000873	8.0
HLA-A*26:01	1	568	576	9	DTTDAVRDP 0.000873	12
HLA-A*02:03	1	610	619	10	QGVNCTEVPV 0.000873	17
HLA-A*23:01	1	802	811	10	ILPDPSKPSK 0.000873	8.7
HLA-A*68:02	1	826	834	9	ADAGFIKQY 0.000873	17
HLA-A*30:01	1	956	965	10	LNTLVKQLSS 0.000873	28
HLA-A*02:06	1	1198	1207	10	QELGKYEYI 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*23:01	1	208	216	9	TPINLVRGL 0.000872	8.7
HLA-A*02:01	1	779	788	10	FAQVKQIYKT 0.000872	15
HLA-A*30:02	1	784	793	10	QIYKTPPIKD 0.000872	25
HLA-B*51:01	1	897	906	10	MQMAYRFNGI 0.000872	20
HLA-A*68:01	1	317	326	10	VQPTESIVRF 0.000871	16
HLA-B*53:01	1	510	518	9	LSFELLHAP 0.000871	9.9
HLA-B*35:01	1	841	849	9	IAARDLICA 0.000871	11
HLA-A*23:01	1	911	919	9	NVLYENQKL 0.000871	8.7
HLA-A*68:01	1	170	179	10	YVSQPFLMDL 0.00087	16
HLA-B*07:02	1	252	260	9	SSGWTAGAA 0.00087	13
HLA-A*26:01	1	291	300	10	DPLSETKCTL 0.00087	12
HLA-A*01:01	1	326	335	10	FPNITNLCPF 0.00087	16
HLA-A*26:01	1	516	525	10	HAPATVCQPK 0.00087	12
HLA-B*08:01	1	852	861	10	FNGLTVLPPL 0.00087	21
HLA-B*44:02	1	926	935	10	SAIGKIQDSL 0.00087	8.5
HLA-A*02:06	1	1058	1067	10	VFLHVTVVPA 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	557	565	9	LPFQQFGRD 0.000869	9.9
HLA-A*30:02	1	1221	1229	9	LIAIVMVTI 0.000869	25
HLA-A*01:01	1	1252	1260	9	KFDEDDSEP 0.000869	16
HLA-A*26:01	1	1261	1270	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-A*01:01	1	659	667	9	CDIPIGAGI 0.000868	16
HLA-A*01:01	1	947	956	10	DVVNQNAQAL 0.000868	16
HLA-B*15:01	1	947	956	10	DVVNQNAQAL 0.000868	15
HLA-B*15:01	1	950	958	9	NQNAQALNT 0.000868	15
HLA-A*68:02	1	988	997	10	VQIDRLITGR 0.000868	17
HLA-A*30:01	1	1018	1027	10	SANLAATKMS 0.000868	28
HLA-A*31:01	1	1105	1114	10	NFYEQIITT 0.000868	17
HLA-B*44:03	1	1204	1213	10	EQYIKWPWYI 0.000868	8.5
HLA-B*51:01	1	74	82	9	NGTKRFANP 0.000867	20
HLA-A*68:01	1	79	87	9	FANPVLPFN 0.000867	16
HLA-B*40:01	1	122	130	9	NATNVVIKV 0.000867	8.0
HLA-A*30:02	1	236	244	9	TRFQTLHRS 0.000867	25
HLA-A*03:01	1	265	274	10	GYLQPRTFLL 0.000867	13
HLA-B*51:01	1	311	319	9	QTSNFRVQP 0.000867	20
HLA-B*53:01	1	541	549	9	NGLTGTGVL 0.000867	9.9
HLA-A*02:01	1	580	588	9	EILDITPCS 0.000867	15
HLA-A*68:02	1	608	617	10	LYQGVNCTEV 0.000867	17
HLA-A*02:03	1	703	711	9	AYSNNSIAI 0.000867	17
HLA-B*57:01	1	716	725	10	TISVTTEILP 0.000867	21
HLA-B*57:01	1	767	776	10	IAVEQDKNTQ 0.000867	21
HLA-B*15:01	1	774	782	9	NTQEVFAQV 0.000867	15
HLA-A*33:01	1	1084	1093	10	AHFPREGV FV 0.000867	15
HLA-A*30:02	1	1181	1190	10	DRLNEVAKNL 0.000867	25
HLA-A*30:01	1	1257	1265	9	DSEPVLKGV 0.000867	28
HLA-A*32:01	1	118	126	9	LIVNNATNV 0.000866	12
HLA-A*33:01	1	419	427	9	NYKLPDDFT 0.000866	15
HLA-A*02:06	1	626	634	9	LTPTWRVYS 0.000866	21
HLA-A*11:01	1	1005	1013	9	VTQQLIRAA 0.000866	10

HLA-B*58:01	1	1142	1151	10	LDSFKEELDK 0.000866	15
HLA-A*68:01	1	1203	1211	9	YEQYIKWPW 0.000866	16
HLA-A*33:01	1	5	13	9	LVLLPLVSS 0.000865	15
HLA-A*32:01	1	260	268	9	AAYYVGYLQ 0.000865	12
HLA-A*30:02	1	571	579	9	DAVRDPQTL 0.000865	25
HLA-B*15:01	1	594	602	9	VITPGTNTS 0.000865	15
HLA-A*30:01	1	657	665	9	YECDIPIGA 0.000865	28
HLA-A*68:02	1	674	683	10	QTNSPRRARS 0.000865	17
HLA-A*01:01	1	971	979	9	SSVLNDILS 0.000865	16
HLA-A*31:01	1	1258	1266	9	SEPVLKGVK 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	371	379	9	FSTFKCYGV 0.000864	28
HLA-B*44:03	1	453	461	9	FRKSNLKPF 0.000864	8.5
HLA-B*15:01	1	502	511	10	YQPYRVVLS 0.000864	15
HLA-A*68:02	1	530	538	9	LVKNKCVNF 0.000864	17
HLA-B*53:01	1	615	623	9	TEVPVAIHA 0.000864	9.9
HLA-B*08:01	1	779	788	10	FAQVKQIYKT 0.000864	21
HLA-B*58:01	1	849	858	10	AQKFNGLTVL 0.000864	15
HLA-A*02:06	1	1214	1222	9	WLGFIAGLI 0.000864	21
HLA-A*30:01	1	210	218	9	INLVRGLPQ 0.000863	28
HLA-A*03:01	1	254	262	9	GWTAGAAAY 0.000863	13
HLA-B*58:01	1	288	296	9	CALDPLSET 0.000863	15
HLA-B*53:01	1	635	643	9	TGSNVFQTR 0.000863	10
HLA-B*07:02	1	902	910	9	RFNGIGVTQ 0.000863	13
HLA-B*44:03	1	912	920	9	VLYENQKLI 0.000863	8.5
HLA-A*02:01	1	951	959	9	QNAQALNTL 0.000863	15
HLA-A*68:01	1	957	965	9	NTLVKQLSS 0.000863	16
HLA-A*01:01	1	1038	1047	10	DFCGKGYHLM 0.000863	16
HLA-A*26:01	1	110	118	9	LDSKTQSLL 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	290	299	10	LDPLSETKCT 0.000862	20
HLA-A*30:02	1	611	619	9	GVNCTEVPV 0.000862	26
HLA-A*26:01	1	759	767	9	QLNRALTGI 0.000862	12
HLA-B*58:01	1	842	850	9	AARDLICAQ 0.000862	15
HLA-A*02:03	1	951	960	10	QNAQALNTLV 0.000862	17
HLA-A*31:01	1	534	543	10	KCVNFNFNGL 0.000861	17
HLA-A*02:03	1	783	792	10	KQIYKTPPIK 0.000861	17
HLA-B*08:01	1	841	849	9	IAARDLICA 0.000861	21
HLA-A*31:01	1	901	910	10	YRFNGIGVTQ 0.000861	17
HLA-A*33:01	1	7	15	9	LLPLVSSQC 0.00086	15
HLA-A*30:01	1	118	127	10	LIVNNATNVV 0.00086	28
HLA-A*01:01	1	577	585	9	QTLEILDIT 0.00086	16
HLA-B*07:02	1	599	608	10	TNTSNQVAVL 0.00086	13
HLA-B*44:02	1	703	711	9	AYSNNSIAI 0.00086	8.5
HLA-B*44:02	1	937	945	9	STASALGKL 0.00086	8.5
HLA-B*57:01	1	963	971	9	LSSNFGAIS 0.00086	21
HLA-A*02:03	1	998	1006	9	LQSLQTYVT 0.00086	17
HLA-A*02:01	1	308	316	9	GIYQTSNFR 0.000859	15
HLA-A*01:01	1	323	332	10	IVRFPNITNL 0.000859	16
HLA-A*68:01	1	434	442	9	NSNNLDSKV 0.000859	16
HLA-A*33:01	1	517	526	10	APATVCGPKK 0.000859	15
HLA-B*07:02	1	995	1004	10	TGRLQSLQTY 0.000859	13
HLA-A*03:01	1	1056	1065	10	GVVFLHVTVY 0.000859	13
HLA-B*44:02	1	1127	1135	9	IGIVNNTVY 0.000859	8.5
HLA-B*08:01	1	230	238	9	PIGINITRF 0.000858	21
HLA-A*68:02	1	318	327	10	QPTESIVRFP 0.000858	17
HLA-A*01:01	1	450	459	10	YRLFRKSNLK 0.000858	16
HLA-A*68:01	1	538	546	9	FNFNGLTGT 0.000858	16
HLA-B*15:01	1	789	797	9	PPIKDFGGF 0.000858	15
HLA-A*01:01	1	804	812	9	PDPSKPSKR 0.000858	16
HLA-B*53:01	1	843	852	10	ARDLICAQKF 0.000858	10
HLA-B*57:01	1	545	553	9	GTGVLTESN 0.000857	21
HLA-A*26:01	1	799	808	10	FSQILPDPSK 0.000857	12
HLA-A*01:01	1	919	927	9	LIANQFNSA 0.000857	16

HLA-A*33:01	1	1102	1110	9	TORNFYEPQ 0.000857	15
HLA-A*03:01	1	1168	1177	10	GINASVVNIQ 0.000857	13
HLA-A*31:01	1	1203	1212	10	YEYIKWPWY 0.000857	17
HLA-A*02:03	1	165	174	10	NCTFEYVSQP 0.000856	17
HLA-A*68:01	1	246	255	10	LTPGSSSGW 0.000856	16
HLA-A*01:01	1	308	316	9	GIYQTSNFR 0.000856	16
HLA-B*58:01	1	342	351	10	TRFASVYAWN 0.000856	15
HLA-A*02:06	1	360	368	9	ADYSVLYNS 0.000856	21
HLA-A*02:06	1	390	398	9	TNVYADSFV 0.000856	21
HLA-A*68:01	1	543	551	9	LTGTGVLTE 0.000856	16
HLA-A*30:01	1	595	604	10	ITPGTNTSNQ 0.000856	28
HLA-A*68:01	1	1020	1028	9	NLAATKMSE 0.000856	16
HLA-A*68:02	1	1047	1056	10	MSFPQSAPHG 0.000856	17
HLA-B*53:01	1	1077	1086	10	AICHDGKAHF 0.000856	10
HLA-A*02:06	1	1124	1133	10	DVIVIGIVNNT 0.000856	21
HLA-A*68:02	1	1214	1222	9	WLGFIAGLI 0.000856	17
HLA-A*02:01	1	227	236	10	VDLPIGINIT 0.000855	15
HLA-B*51:01	1	325	333	9	RFPNITNLC 0.000855	20
HLA-A*68:01	1	336	345	10	GEVFNATRFA 0.000855	16
HLA-B*57:01	1	618	626	9	PVAIHADQL 0.000855	21
HLA-A*33:01	1	706	715	10	NNSIAIPTNF 0.000855	15
HLA-A*01:01	1	887	895	9	AGAALQIPF 0.000855	16
HLA-A*02:03	1	966	974	9	NFGAISSVL 0.000855	17
HLA-B*35:01	1	1046	1055	10	LMSFPQSAPH 0.000855	11
HLA-B*35:01	1	1075	1083	9	APAICHDGK 0.000855	11
HLA-A*03:01	1	1205	1213	9	QYIKWPWYI 0.000855	13
HLA-A*30:01	1	225	233	9	PLVDLPIGI 0.000854	28
HLA-A*32:01	1	353	362	10	KRISNCVADY 0.000854	12
HLA-A*30:02	1	522	530	9	CGPKKSTNL 0.000854	26
HLA-A*30:02	1	801	810	10	QILPDPSPKPS 0.000854	26
HLA-A*24:02	1	832	841	10	KQYGDCLGDI 0.000854	8.6
HLA-B*57:01	1	879	888	10	ITSGWTFGAG 0.000854	21
HLA-B*58:01	1	911	920	10	NVLYENQKLI 0.000854	15
HLA-B*35:01	1	999	1007	9	QSLQTYVTQ 0.000854	11
HLA-B*07:02	1	1067	1075	9	AQEKNFTTA 0.000854	13
HLA-B*44:03	1	1070	1078	9	KNFTTAPAI 0.000854	8.6
HLA-B*35:01	1	344	352	9	FASVYAWNR 0.000853	11
HLA-A*33:01	1	417	426	10	DYNYKLPDDF 0.000853	15
HLA-B*57:01	1	463	472	10	RDISTEIQQA 0.000853	21
HLA-A*30:02	1	606	615	10	AVLYQGVNCT 0.000853	26
HLA-A*30:01	1	726	734	9	VSMTKTSVD 0.000853	28
HLA-A*30:01	1	747	755	9	SNLLLQYGS 0.000853	28
HLA-A*31:01	1	59	67	9	FSNVTWFHA 0.000852	17
HLA-A*01:01	1	446	454	9	YNYLYRFLR 0.000852	16
HLA-A*33:01	1	657	665	9	YECDIPIGA 0.000852	15
HLA-B*44:03	1	730	738	9	KTSVDCTMY 0.000852	8.6
HLA-A*68:01	1	805	814	10	DPSKPSKRSF 0.000852	16
HLA-B*07:02	1	964	973	10	SSNFGAISSV 0.000852	13
HLA-B*07:02	1	970	978	9	ISSVLNDIL 0.000852	13
HLA-A*68:02	1	1045	1054	10	HLMSPQSAP 0.000852	17
HLA-A*26:01	1	1147	1156	10	EELDKYFKNH 0.000852	12
HLA-B*08:01	1	253	261	9	SGWTAGAAA 0.000851	21
HLA-B*58:01	1	614	623	10	CTEVPVAIHA 0.000851	15
HLA-B*08:01	1	749	757	9	LLLQYGSFC 0.000851	21
HLA-A*23:01	1	913	921	9	LYENQKLI 0.000851	8.8
HLA-A*11:01	1	930	938	9	KIQDSLST 0.000851	11
HLA-A*02:01	1	959	967	9	LVKQLSSNF 0.000851	15
HLA-B*53:01	1	1245	1253	9	CSCGSCCKF 0.000851	10
HLA-A*01:01	1	593	601	9	SVITPGTNT 0.00085	17
HLA-A*02:01	1	722	731	10	EILPVSMTKT 0.00085	15
HLA-A*68:02	1	805	814	10	DPSKPSKRSF 0.00085	17
HLA-B*57:01	1	841	850	10	IAARDLICAQ 0.00085	21
HLA-B*51:01	1	852	861	10	FNGLTVLPP 0.00085	20
HLA-B*35:01	1	890	899	10	ALQIPFAMQM 0.00085	11
HLA-A*68:01	1	989	998	10	QIDRLITGRL 0.00085	16
HLA-A*26:01	1	1000	1009	10	SLQTYVTQQL 0.00085	12

HLA-A*33:01	1	77	86	10	KRFANPVLPF 0.000849	15
HLA-A*01:01	1	757	765	9	CTQLNRALT 0.000849	17
HLA-B*35:01	1	806	814	9	PSKPSKRSF 0.000849	11
HLA-A*30:02	1	1206	1215	10	YIKWPWYIWL 0.000849	26
HLA-A*33:01	1	90	98	9	VYFASTEKS 0.000848	15
HLA-A*01:01	1	198	206	9	DGYFKIYSK 0.000848	17
HLA-A*30:01	1	498	507	10	YGVGYQPYRV 0.000848	28
HLA-A*11:01	1	818	826	9	LLFNKVTLA 0.000848	11
HLA-B*15:01	1	1089	1098	10	EGVFVSNNGTH 0.000848	15
HLA-B*44:02	1	1107	1115	9	YEPQIITTD 0.000848	8.6
HLA-A*68:02	1	37	46	10	YYPDKVFRSS 0.000847	17
HLA-A*32:01	1	311	319	9	QTSNFRVQP 0.000847	12
HLA-B*51:01	1	341	349	9	ATRFASVYA 0.000847	20
HLA-A*24:02	1	496	505	10	PTYGVGYQPY 0.000847	8.6
HLA-A*01:01	1	507	515	9	VVLSFELL 0.000847	17
HLA-A*30:01	1	665	673	9	AGICASYQT 0.000847	28
HLA-A*68:02	1	699	708	10	ENSVAYSNNS 0.000847	17
HLA-A*30:01	1	941	949	9	ALGKLQDVV 0.000847	28
HLA-A*02:01	1	1218	1226	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	595	603	9	ITPGTNTSN 0.000846	26
HLA-A*02:06	1	667	675	9	ICASYQTQT 0.000846	21
HLA-B*07:02	1	872	880	9	SALLAGTIT 0.000846	13
HLA-A*30:01	1	901	909	9	YRFNGIGVT 0.000846	28
HLA-A*26:01	1	980	988	9	RLDKVEAEV 0.000846	12
HLA-A*02:01	1	1134	1143	10	VYDPLQPELD 0.000846	15
HLA-A*03:01	1	1143	1152	10	DSFKEELDKY 0.000846	13
HLA-A*01:01	1	18	26	9	LTRTQLPP 0.000845	17
HLA-A*02:06	1	312	320	9	TSNFRVQPT 0.000845	21
HLA-A*01:01	1	392	400	9	VYADSFVIR 0.000845	17
HLA-A*32:01	1	904	912	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	260	268	9	AAYYVGYLQ 0.000844	15
HLA-A*68:02	1	407	416	10	IAPGQTGNIA 0.000844	17
HLA-B*51:01	1	498	506	9	YGVGYQPYR 0.000844	20
HLA-A*33:01	1	614	622	9	CTEVPVAIH 0.000844	15
HLA-B*35:01	1	713	721	9	TNFTISVTT 0.000844	11
HLA-B*35:01	1	723	732	10	ILPVSMTKTS 0.000844	11
HLA-A*24:02	1	913	921	9	LYENQKLIA 0.000844	8.7
HLA-A*31:01	1	954	962	9	QALNTLVKQ 0.000844	17
HLA-A*01:01	1	1049	1058	10	FPQSAPHGVV 0.000844	17
HLA-A*33:01	1	1091	1100	10	VFVSNNGTHWF 0.000844	15
HLA-B*07:02	1	1212	1221	10	YIWLGFIAGL 0.000844	13
HLA-B*15:01	1	110	118	9	LDSKTQSLL 0.000843	16
HLA-A*33:01	1	953	961	9	AQALNTLVK 0.000843	15
HLA-A*11:01	1	1011	1019	9	RAAEIRASA 0.000843	11
HLA-B*53:01	1	1022	1030	9	AATKMSECV 0.000843	10
HLA-A*30:01	1	1025	1034	10	KMSECVLGQS 0.000843	28
HLA-A*30:01	1	92	100	9	FASTEKSNI 0.000842	28
HLA-A*33:01	1	348	356	9	YAWNRRKRIS 0.000842	15
HLA-A*24:02	1	631	639	9	RVYSTGSNV 0.000842	8.7
HLA-A*68:02	1	647	656	10	LIGAEHVNNS 0.000842	17
HLA-A*26:01	1	657	665	9	YECDIPIGA 0.000842	12
HLA-B*15:01	1	952	961	10	NAQALNTLVK 0.000842	16
HLA-A*68:02	1	33	42	10	TRGVVYYPDKV 0.000841	17
HLA-A*33:01	1	631	639	9	RVYSTGSNV 0.000841	15
HLA-A*30:01	1	639	648	10	VFQTRAGCLI 0.000841	29
HLA-A*02:03	1	748	756	9	NLLLQYGSF 0.000841	17
HLA-B*08:01	1	806	815	10	PSKPSKRSFI 0.000841	21
HLA-B*15:01	1	990	998	9	IDRLITGRL 0.000841	16
HLA-A*68:02	1	169	178	10	EYVSQPFLMD 0.00084	17
HLA-A*02:03	1	280	289	10	GTITDAVDCA 0.00084	17
HLA-A*33:01	1	701	709	9	SVAYSNNSI 0.00084	15
HLA-A*02:01	1	748	756	9	NLLLQYGSF 0.00084	15



HLA-B*58:01	1	953	962	10	AQALNTLVKQ 0.00084	15
HLA-A*02:01	1	965	974	10	SNFGAISSVL 0.00084	15
HLA-A*30:02	1	1015	1023	9	IRASANLAA 0.00084	26
HLA-B*44:03	1	1104	1112	9	RNFYEPQII 0.00084	8.6
HLA-A*01:01	1	1116	1125	10	NTFVSGNCDV 0.00084	17
HLA-B*40:01	1	1204	1213	10	EQYIKWPWYI 0.00084	8.1
HLA-B*35:01	1	26	34	9	PAYTNSFTR 0.000839	11
HLA-A*26:01	1	265	273	9	GYLQPRFTL 0.000839	12
HLA-B*58:01	1	353	362	10	KRISNCVADY 0.000839	15
HLA-A*01:01	1	433	442	10	WNSNNLDSKV 0.000839	17
HLA-B*07:02	1	599	607	9	TNTSNQVAV 0.000839	13
HLA-A*30:01	1	621	630	10	IHADQLTPTW 0.000839	29
HLA-B*58:01	1	849	857	9	AQKFNGLTV 0.000839	15
HLA-A*23:01	1	986	994	9	AEVQIDRLI 0.000839	8.8
HLA-A*03:01	1	1104	1113	10	RNFYEPQIIT 0.000839	13
HLA-A*68:01	1	1141	1149	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	CNDPFLGVYY 0.000838	8.6
HLA-B*57:01	1	194	203	10	FKNIDGYFKI 0.000838	21
HLA-A*01:01	1	309	317	9	IYQTSNFRV 0.000838	17
HLA-A*68:02	1	802	811	10	ILPDPSKPSK 0.000838	17
HLA-B*57:01	1	34	42	9	RGVYYPDKV 0.000837	21
HLA-A*68:01	1	398	406	9	VIRGDEVQR 0.000837	16
HLA-A*01:01	1	406	415	10	QIAPGQTGNI 0.000837	17
HLA-B*44:03	1	483	492	10	FNCYFPLQSY 0.000837	8.6
HLA-A*02:01	1	612	621	10	VNCTEVPVAI 0.000837	15
HLA-B*51:01	1	695	704	10	SLGVENSVAY 0.000837	20
HLA-A*02:01	1	1161	1169	9	VDLGDISGI 0.000837	15
HLA-B*35:01	1	76	84	9	TKRFANPVL 0.000836	11
HLA-A*02:03	1	244	253	10	SYLTPGDSSS 0.000836	17
HLA-B*53:01	1	260	268	9	AAYYVGYLQ 0.000836	11
HLA-A*02:03	1	330	338	9	TNLCPFGEV 0.000836	17
HLA-A*03:01	1	363	372	10	SVLYNSASFS 0.000836	13
HLA-B*57:01	1	535	543	9	CVNFNFNGL 0.000836	21
HLA-A*33:01	1	856	865	10	TVLPPLLTDE 0.000836	15
HLA-A*26:01	1	923	931	9	QFNSAIGKI 0.000836	12
HLA-A*30:02	1	63	72	10	TWFHAIHVSG 0.000835	26
HLA-A*31:01	1	135	144	10	FCNDPFLGVY 0.000835	17
HLA-B*40:01	1	323	332	10	IVRFPNITNL 0.000835	8.1
HLA-B*51:01	1	417	426	10	DYNYKLPDDF 0.000835	20
HLA-A*31:01	1	481	490	10	KGFNCYFPLQ 0.000835	17
HLA-A*30:02	1	584	592	9	ITPCSFGGV 0.000835	26
HLA-B*51:01	1	636	644	9	GSNVFQTRA 0.000835	20
HLA-B*44:03	1	703	711	9	AYSNNSIAI 0.000835	8.7
HLA-A*02:06	1	748	756	9	NLLLQYGSF 0.000835	21
HLA-A*68:01	1	814	823	10	FIEDLLFNKV 0.000835	16
HLA-A*32:01	1	823	832	10	VTLADAGFIK 0.000835	12
HLA-A*02:01	1	1020	1028	9	NLAATKMSE 0.000835	15
HLA-A*11:01	1	1051	1060	10	QSAPHGVVFL 0.000835	11
HLA-A*33:01	1	1099	1108	10	WFVTQRNFYE 0.000835	15
HLA-A*68:02	1	1100	1109	10	FVTQRNFYEP 0.000835	17
HLA-A*30:01	1	464	472	9	DISTEIQYA 0.000834	29
HLA-A*02:06	1	761	769	9	NRALTGIIV 0.000834	21
HLA-A*33:01	1	865	874	10	EMIAQYTSAL 0.000834	15
HLA-B*57:01	1	40	49	10	DKVFRSSVLH 0.000833	21
HLA-B*58:01	1	298	306	9	CTLKSFTVE 0.000833	15
HLA-A*68:02	1	333	342	10	CPFGEVFNAT 0.000833	17
HLA-B*57:01	1	726	734	9	VSMTKTSVD 0.000833	21
HLA-A*23:01	1	737	746	10	MYICGDSTEC 0.000833	8.9
HLA-B*44:03	1	945	953	9	LQDVVNQNA 0.000833	8.7
HLA-B*15:01	1	1192	1200	9	ESLIDLQEL 0.000833	16
HLA-A*02:03	1	253	261	9	SGWTAGAAA 0.000832	17
HLA-A*02:06	1	326	335	10	FPNITNLCPF 0.000832	21
HLA-A*31:01	1	412	420	9	TGNIADYNY 0.000832	17
HLA-A*02:03	1	522	530	9	CGPKKSTNL 0.000832	17
HLA-B*07:02	1	663	671	9	IGAGICASY 0.000832	13

HLA-B*44:02	1	861	870	10	LLTDEMIAQY 0.000832	8.7
HLA-A*26:01	1	1023	1031	9	ATKMSECVL 0.000832	12
HLA-B*58:01	1	1033	1041	9	QSKRVDFCG 0.000832	15
HLA-B*08:01	1	1056	1064	9	GVVFLHVTY 0.000832	21
HLA-A*26:01	1	1221	1229	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	245	253	9	YLTPGDSSS 0.000831	11
HLA-B*57:01	1	415	423	9	IADYNYKLP 0.000831	21
HLA-A*31:01	1	690	698	9	IAYTMSLGV 0.000831	17
HLA-A*68:01	1	713	722	10	TNFTISVTE 0.000831	16
HLA-B*40:01	1	895	903	9	FAMQMAYRF 0.000831	8.1
HLA-B*40:01	1	927	935	9	AIGKIQDSL 0.000831	8.1
HLA-A*24:02	1	1070	1078	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-B*40:01	1	453	461	9	FRKSNLKPF 0.00083	8.1
HLA-A*26:01	1	690	698	9	IAYTMSLGV 0.00083	12
HLA-B*07:02	1	1191	1200	10	NESLIDLQEL 0.00083	13
HLA-A*11:01	1	316	324	9	RVQPTESIV 0.000829	11
HLA-A*26:01	1	345	354	10	ASVYAWNRKR 0.000829	12
HLA-A*32:01	1	598	607	10	GTNTSNQVAV 0.000829	12
HLA-A*68:01	1	865	874	10	EMIAQYTSAL 0.000829	16
HLA-B*58:01	1	923	931	9	QFNSAIGKI 0.000829	15
HLA-A*26:01	1	1008	1016	9	QLIRAAEIR 0.000829	12
HLA-A*68:01	1	1165	1174	10	DISGINASVV 0.000829	16
HLA-A*30:01	1	453	462	10	FRKSNLKPF 0.000828	29
HLA-B*07:02	1	566	574	9	IADTTDAVR 0.000828	13
HLA-A*02:06	1	741	750	10	GDSTECSNLL 0.000828	21
HLA-A*01:01	1	785	794	10	IYKTPPIKDF 0.000828	17
HLA-B*53:01	1	940	948	9	SALGKLQDV 0.000828	11
HLA-A*32:01	1	1121	1129	9	GNCDDVIGI 0.000828	12
HLA-A*24:02	1	1258	1267	10	SEPVLKGVKL 0.000828	8.7
HLA-B*58:01	1	6	15	10	VLLPLVSSQC 0.000827	15
HLA-A*32:01	1	78	87	10	RFANPVLPFN 0.000827	12
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	297	305	9	KCTLKSFTV 0.000827	17
HLA-A*33:01	1	441	450	10	KVGGNYNYLY 0.000827	15
HLA-A*31:01	1	447	456	10	NYLYRFLFRKS 0.000827	17
HLA-B*57:01	1	473	481	9	GSTPCNGVK 0.000827	21
HLA-A*30:01	1	549	558	10	LTESNKKFLP 0.000827	29
HLA-A*02:01	1	571	579	9	DAVRDPQTL 0.000827	15
HLA-A*30:01	1	809	818	10	PSKRSFIEDL 0.000827	29
HLA-B*15:01	1	873	882	10	ALLAGTITSG 0.000827	16
HLA-B*15:01	1	1220	1228	9	GLIAIVMVT 0.000827	16
HLA-A*31:01	1	94	103	10	STESNIIRG 0.000826	17
HLA-A*02:06	1	284	293	10	DAVDCALDPL 0.000826	21
HLA-B*58:01	1	345	354	10	ASVYAWNRKR 0.000826	15
HLA-A*30:01	1	357	366	10	NCVADYSVLV 0.000826	29
HLA-A*03:01	1	548	556	9	VLTESNKKF 0.000826	13
HLA-A*30:01	1	551	560	10	ESNKKFLPFQ 0.000826	29
HLA-A*33:01	1	613	622	10	NCTEVPVAIH 0.000826	15
HLA-B*57:01	1	668	676	9	CASYQTQTN 0.000826	21
HLA-B*44:02	1	741	749	9	GDSTECSNL 0.000826	8.7
HLA-B*40:01	1	981	990	10	LDKVEAEVQI 0.000826	8.1
HLA-A*30:01	1	1181	1190	10	DRLNEVAKNL 0.000826	29
HLA-A*32:01	1	208	216	9	TPINLVRGL 0.000825	12
HLA-A*03:01	1	263	272	10	YVGYLQPRTF 0.000825	13
HLA-A*30:02	1	270	279	10	RTFLLKYNEN 0.000825	26
HLA-A*24:02	1	294	303	10	SETKCTLKSF 0.000825	8.7
HLA-A*68:01	1	302	310	9	SFTVEKGIY 0.000825	16
HLA-A*24:02	1	326	335	10	FPNITNLCPF 0.000825	8.7
HLA-B*57:01	1	422	431	10	LPDDFTGCVI 0.000825	21
HLA-A*31:01	1	430	438	9	VIAWNSNNL 0.000825	17

HLA-B*15:01	1	565	573	9	DIADTTDAV	0.000825	16
HLA-B*07:02	1	722	730	9	EILPVSMTK	0.000825	13
HLA-A*30:01	1	1068	1076	9	QEKNFITAP	0.000825	29
HLA-A*31:01	1	215	223	9	GLPQGFSAI	0.000824	17
HLA-A*01:01	1	319	327	9	PTESIVRFP	0.000824	17
HLA-B*57:01	1	498	506	9	YGVGYQPYR	0.000824	21
HLA-B*44:02	1	573	582	10	VRDPQTLEIL	0.000824	8.7
HLA-A*02:06	1	674	682	9	QTNSPRRAR	0.000824	21
HLA-A*24:02	1	731	739	9	TSVDCTMYI	0.000824	8.7
HLA-A*03:01	1	889	898	10	AALQIPFAMQ	0.000824	13
HLA-A*30:02	1	1049	1057	9	FPQSAPHGV	0.000824	26
HLA-A*02:03	1	1207	1215	9	IKWPWYIWL	0.000824	17
HLA-A*24:02	1	335	344	10	FGEVFNATRF	0.000823	8.7
HLA-A*30:01	1	461	470	10	FERDISTEIIY	0.000823	29
HLA-A*02:01	1	671	679	9	YQTQTNSPR	0.000823	15
HLA-A*11:01	1	701	709	9	SVAYSNNSI	0.000823	11
HLA-A*26:01	1	815	823	9	IEDLLFNKV	0.000823	12
HLA-A*30:01	1	824	833	10	TLADAGFIKQ	0.000823	29
HLA-B*08:01	1	1187	1195	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	SLLIVNNAT	0.000822	29
HLA-A*02:03	1	312	320	9	TSNFRVQPT	0.000822	17
HLA-B*08:01	1	351	360	10	NRKRISNCVA	0.000822	21
HLA-A*68:02	1	393	401	9	YADSFVIRG	0.000822	17
HLA-A*01:01	1	568	577	10	DTTDAVRDPQ	0.000822	17
HLA-A*02:01	1	725	733	9	PVSMTKTSV	0.000822	15
HLA-A*02:03	1	1189	1198	10	NLNESLIDLQ	0.000822	17
HLA-B*15:01	1	1212	1221	10	YIWLGFIAGL	0.000822	16
HLA-A*01:01	1	1217	1225	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	821	830	10	NKVTLADAGF	0.000821	16
HLA-A*32:01	1	1037	1046	10	VDFCGKGYHL	0.000821	12
HLA-A*11:01	1	1174	1182	9	VNIQKEIDR	0.000821	11
HLA-A*11:01	1	15	23	9	CVNLTRTQ	0.00082	11
HLA-A*30:01	1	340	348	9	NATRFASVY	0.00082	29
HLA-B*08:01	1	346	355	10	SVYAWNRRKRI	0.00082	21
HLA-B*51:01	1	219	227	9	GFSALEPLV	0.000819	20
HLA-A*31:01	1	297	306	10	KCTLKSFTVE	0.000819	17
HLA-B*44:02	1	743	752	10	STECNLLLQ	0.000819	8.7
HLA-B*57:01	1	963	972	10	LSSNFGAISS	0.000819	21
HLA-A*02:06	1	1013	1022	10	AEIRASANLA	0.000819	21
HLA-B*58:01	1	1090	1098	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	788	797	10	TPPIKDFGGF	0.000818	9.0
HLA-B*51:01	1	811	820	10	KRSFIEDLLF	0.000818	20
HLA-A*01:01	1	841	849	9	IAARDLICA	0.000818	17
HLA-B*40:01	1	1207	1215	9	IKWPWYIWL	0.000818	8.2
HLA-A*30:01	1	67	76	10	AIHVSGTNGT	0.000817	29
HLA-B*44:03	1	136	145	10	CNDPFLGVVY	0.000817	8.7
HLA-A*23:01	1	268	276	9	QPRTFLLKY	0.000817	9.0
HLA-A*23:01	1	289	297	9	ALDPLSETK	0.000817	9.0
HLA-A*02:01	1	540	548	9	FNGLTGTGV	0.000817	16
HLA-B*58:01	1	572	580	9	AVRDPQTL	0.000817	15
HLA-B*08:01	1	819	828	10	LFNKVTLADA	0.000817	21
HLA-B*15:01	1	996	1005	10	GRLQSLQTYV	0.000817	16
HLA-B*35:01	1	1089	1098	10	EGVFSVSNQTH	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-A*33:01	1	501	510	10	GYQPYRVVVL	0.000816	15
HLA-A*03:01	1	524	532	9	PKKSTNLVK	0.000816	13
HLA-A*23:01	1	684	692	9	VASQSIIAY	0.000816	9.0
HLA-A*03:01	1	777	785	9	EVFAQVKQI	0.000816	13
HLA-A*33:01	1	783	792	10	KQIYKTPPIK	0.000816	15

HLA-A*30:01	1	928	937	10	IGKIQDSLSS 0.000816	29
HLA-A*23:01	1	984	993	10	VEAEVQIDRL 0.000816	9.0
HLA-A*68:02	1	1069	1077	9	EKNFTTAPA 0.000816	17
HLA-A*31:01	1	167	175	9	TFEYVSQPF 0.000815	17
HLA-A*01:01	1	292	300	9	PLSETKCTL 0.000815	17
HLA-B*51:01	1	385	393	9	NDLCFTNVY 0.000815	20
HLA-A*30:01	1	895	903	9	FAMQMAYRF 0.000815	29
HLA-A*30:02	1	1063	1071	9	TYVPAQEKV 0.000815	26
HLA-A*68:02	1	341	350	10	ATRFASVYAW 0.000814	17
HLA-A*32:01	1	407	415	9	IAPGQTGNI 0.000814	12
HLA-A*68:01	1	554	562	9	KKFLPFQF 0.000814	16
HLA-A*30:01	1	724	733	10	LPVSMTKTSV 0.000814	29
HLA-A*30:02	1	931	940	10	IQDSLSTAS 0.000814	26
HLA-B*08:01	1	972	980	9	SVLNDILSR 0.000814	21
HLA-A*32:01	1	1199	1207	9	ELGKYEQYI 0.000814	12
HLA-A*33:01	1	32	40	9	FTRGVYYPD 0.000813	15
HLA-B*35:01	1	183	192	10	QGNFKNLREF 0.000813	11
HLA-A*01:01	1	438	447	10	LDSKVGNGYN 0.000813	17
HLA-B*58:01	1	899	907	9	MAYRFNGIG 0.000813	15
HLA-B*15:01	1	940	948	9	SALGKLDV 0.000813	16
HLA-A*26:01	1	1074	1083	10	TAPAICHDGK 0.000813	12
HLA-A*31:01	1	1075	1083	9	APAICHDGK 0.000813	17
HLA-A*11:01	1	1098	1107	10	HWFVTQRNFY 0.000813	11
HLA-B*08:01	1	1133	1141	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	TQSLLVNNA 0.000812	26
HLA-B*58:01	1	323	331	9	IVRFPNITN 0.000812	15
HLA-A*31:01	1	719	728	10	VTTEILPVSM 0.000812	17
HLA-B*44:02	1	810	818	9	SKRSFIEDL 0.000812	8.8
HLA-B*58:01	1	934	943	10	SLSSTASALG 0.000812	15
HLA-A*68:01	1	444	452	9	GNYNLYRL 0.000811	16
HLA-A*68:02	1	478	487	10	NGVKGFNCYF 0.000811	17
HLA-A*01:01	1	485	494	10	CYFPLQSYGF 0.000811	17
HLA-A*01:01	1	503	512	10	QPVRVVVLSF 0.000811	17
HLA-A*02:06	1	589	597	9	FGGVSVITP 0.000811	22
HLA-A*01:01	1	708	716	9	SIAIPTNFT 0.000811	17
HLA-B*40:01	1	810	819	10	SKRSFIEDLL 0.000811	8.2
HLA-A*30:02	1	904	913	10	NGIGVTQNVL 0.000811	26
HLA-B*44:02	1	161	170	10	SSANNCTFEY 0.000811	8.8
HLA-B*57:01	1	311	320	10	QTSNFRVQPT 0.000811	21
HLA-A*24:02	1	358	366	9	CVADYSVLY 0.000811	8.8
HLA-B*51:01	1	553	562	10	NKKFLPFQF 0.000811	20
HLA-A*32:01	1	1185	1194	10	EVAKNLNESL 0.000811	12
HLA-A*30:02	1	27	35	9	AYTNSFTRG 0.000809	26
HLA-A*02:01	1	554	562	9	KKFLPFQF 0.000809	16
HLA-A*11:01	1	674	683	10	QTNSPRRARS 0.000809	11
HLA-A*32:01	1	830	838	9	FIKQYGDCL 0.000809	12
HLA-B*08:01	1	840	849	10	DIAARDLICA 0.000809	21
HLA-A*02:03	1	962	971	10	QLSSNFGAIS 0.000809	17
HLA-B*57:01	1	993	1002	10	LITGRLQSLQ 0.000809	21
HLA-A*03:01	1	1213	1221	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	433	441	9	WNSNNLDSK 0.000808	15
HLA-A*01:01	1	584	592	9	ITPCSFGGV 0.000808	17
HLA-B*35:01	1	731	739	9	TSVDCTMYI 0.000808	11
HLA-A*03:01	1	779	788	10	FAQVKQIYKT 0.000808	13
HLA-B*57:01	1	818	826	9	LLFNKVTLA 0.000808	21
HLA-A*02:01	1	862	871	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	VVIKVECFQ 0.000807	22
HLA-A*33:01	1	836	845	10	DCLGDIAARD 0.000807	15
HLA-B*08:01	1	964	973	10	SSNFGAISSV 0.000807	22
HLA-A*30:01	1	1079	1088	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	293	301	9	LSETKCTLK 0.000806	21
HLA-A*68:02	1	544	552	9	TGTGVLTES 0.000806	17
HLA-A*03:01	1	607	616	10	VLYQGVNCTE 0.000806	13
HLA-B*53:01	1	795	803	9	GGFNFSQIL 0.000806	11
HLA-A*01:01	1	962	970	9	QLSSNFGAI 0.000806	17
HLA-A*02:06	1	1061	1070	10	HVTYVPAQEK 0.000806	22
HLA-A*33:01	1	1124	1133	10	DVVIGIVNNT 0.000806	15
HLA-B*53:01	1	1155	1163	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-A*01:01	1	368	376	9	SASFSTFKC 0.000805	17
HLA-A*02:03	1	392	400	9	VYADSFVIR 0.000805	17
HLA-A*30:02	1	519	528	10	ATVCGPKKST 0.000805	26
HLA-B*53:01	1	850	858	9	QKFNGLTVL 0.000805	11
HLA-A*03:01	1	980	989	10	RLDKVEAEVQ 0.000805	13
HLA-A*26:01	1	985	994	10	EAEVQIDRLI 0.000805	12
HLA-B*40:01	1	1146	1154	9	KEELDKYFK 0.000805	8.2
HLA-B*15:01	1	1213	1221	9	IWLGFIALG 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	316	324	9	RVQPTESIV 0.000804	11
HLA-B*51:01	1	999	1007	9	QSLQTYVTQ 0.000804	20
HLA-A*32:01	1	1046	1055	10	LMSFPQSAPH 0.000804	12
HLA-A*31:01	1	1121	1129	9	GNCDVVIGI 0.000804	17
HLA-A*30:02	1	349	357	9	AWNKRKRISN 0.000803	26
HLA-A*26:01	1	395	404	10	DSFVIRGDEV 0.000803	12
HLA-B*08:01	1	421	430	10	KLPDDFTGCV 0.000803	22
HLA-A*02:03	1	450	458	9	YRLFRRKSNL 0.000803	18
HLA-A*68:02	1	496	505	10	PTYGVGYQPY 0.000803	17
HLA-A*30:02	1	848	857	10	CAQKFNGLTV 0.000803	26
HLA-A*01:01	1	1133	1141	9	TVYDPLQPE 0.000803	17
HLA-A*02:06	1	114	122	9	TQSLLVN 0.000802	22
HLA-A*68:02	1	481	489	9	KGFNCYFPL 0.000802	17
HLA-A*30:01	1	548	557	10	VLTESNKKFL 0.000802	29
HLA-B*08:01	1	640	648	9	FQTRAGCLI 0.000802	22
HLA-A*30:02	1	659	667	9	CDIPIGAGI 0.000802	26
HLA-A*02:01	1	748	757	10	NLLLQYGSFC 0.000802	16
HLA-B*44:02	1	780	789	10	AQVKQIYKTP 0.000802	8.8
HLA-B*15:01	1	788	797	10	TPPIKDFGGF 0.000802	16
HLA-B*07:02	1	1091	1100	10	VFVSNGTHWF 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	304	312	9	TVEKGIYQT 0.000801	13
HLA-A*03:01	1	323	331	9	IVRFPNITN 0.000801	13
HLA-A*31:01	1	569	577	9	TTDAVRDPQ 0.000801	17
HLA-A*03:01	1	607	615	9	VLYQGVNCT 0.000801	13
HLA-A*68:01	1	615	623	9	TEVPVAIHA 0.000801	16
HLA-A*01:01	1	671	679	9	YQTQTNSPR 0.000801	17
HLA-A*30:01	1	707	716	10	NSIAIPTNFT 0.000801	29
HLA-B*35:01	1	718	726	9	SVTTEILPV 0.000801	11
HLA-A*11:01	1	720	728	9	TTEILPVSM 0.000801	11
HLA-A*33:01	1	1034	1042	9	SKRVDFCGK 0.000801	15
HLA-B*07:02	1	1068	1076	9	QEKNFITAP 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	303	312	10	FTVEKGIYQT 0.0008	15
HLA-B*07:02	1	550	559	10	TESNKKFLPF 0.0008	13
HLA-A*23:01	1	623	632	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	246	255	10	LTPGDSSSGW 0.000799	17
HLA-B*53:01	1	337	345	9	EVFNATRFA 0.000799	11

HLA-B*35:01	1	529	538	10	NLVKNCVNF 0.000799	11
HLA-A*32:01	1	669	677	9	ASYQTQTN 0.000799	12
HLA-A*26:01	1	684	693	10	VASQSIIAYT 0.000799	13
HLA-B*51:01	1	987	995	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-B*44:02	1	211	220	10	NLVRGLPQGF 0.000798	8.9
HLA-A*02:06	1	229	237	9	LPIGINITR 0.000798	22
HLA-A*02:06	1	404	413	10	VRQIAPGQTG 0.000798	22
HLA-A*01:01	1	421	429	9	KLPDDFTGC 0.000798	17
HLA-B*58:01	1	961	969	9	KQLSSNFGA 0.000798	15
HLA-B*07:02	1	1015	1023	9	IRASANLAA 0.000798	13
HLA-B*15:01	1	1259	1267	9	EPVLKGVKL 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	318	326	9	QPTESIVRF 0.000797	11
HLA-A*31:01	1	329	337	9	ITNLCPFGE 0.000797	17
HLA-A*68:02	1	887	895	9	AGAALIPF 0.000797	17
HLA-A*26:01	1	996	1005	10	GRLQSLQTYV 0.000797	13
HLA-A*02:06	1	320	329	10	TESIVRFPNI 0.000796	22
HLA-A*30:02	1	370	378	9	SFSTFKCYG 0.000796	27
HLA-A*31:01	1	444	453	10	GNYNLYRLF 0.000796	17
HLA-A*30:02	1	597	605	9	PGTNTSNQV 0.000796	27
HLA-A*11:01	1	633	641	9	YSTGSNVFQ 0.000796	11
HLA-A*30:02	1	691	700	10	AYTMSLGVEN 0.000796	27
HLA-B*08:01	1	825	834	10	LADAGFIKQY 0.000796	22
HLA-B*35:01	1	861	869	9	LLTDEMIAQ 0.000796	11
HLA-A*01:01	1	1026	1034	9	MSECVLGQS 0.000796	17
HLA-B*51:01	1	1203	1212	10	YEQYIKWPWY 0.000796	20
HLA-A*31:01	1	338	347	10	VFNATRFASV 0.000795	17
HLA-A*30:02	1	463	471	9	RDISTEIQ 0.000795	27
HLA-A*01:01	1	578	586	9	TLEILDITP 0.000795	17
HLA-B*57:01	1	662	671	10	PIGAGICASY 0.000795	21
HLA-B*15:01	1	727	735	9	SMTKTSVDC 0.000795	16
HLA-B*40:01	1	743	751	9	STECNLLL 0.000795	8.3
HLA-B*44:03	1	861	870	10	LLTDEMIAQY 0.000795	8.9
HLA-A*01:01	1	930	938	9	KIQDSLST 0.000795	17
HLA-B*40:01	1	1053	1061	9	APHGVVFLH 0.000795	8.3
HLA-B*57:01	1	121	130	10	NNATNVVIVK 0.000794	21
HLA-B*51:01	1	211	220	10	NLVRGLPQGF 0.000794	20
HLA-A*32:01	1	222	231	10	ALEPLVDLPI 0.000794	12
HLA-B*08:01	1	303	311	9	FTVEKGIYQ 0.000794	22
HLA-A*02:06	1	810	818	9	SKRSFIEDL 0.000794	22
HLA-A*23:01	1	898	906	9	QMAYRFNGI 0.000794	9.0
HLA-B*08:01	1	919	928	10	LIANQFNIAI 0.000794	22
HLA-B*08:01	1	1208	1217	10	KWPWYIWLGF 0.000794	22
HLA-B*07:02	1	1039	1047	9	FCGKGYHLM 0.000793	13
HLA-B*58:01	1	315	323	9	FRVQPTESI 0.000792	15
HLA-B*57:01	1	392	400	9	VYADSFVIR 0.000792	21
HLA-B*07:02	1	969	977	9	AISSVLNDI 0.000792	13
HLA-A*26:01	1	1003	1011	9	TYVTQLIR 0.000792	13
HLA-A*30:01	1	1095	1103	9	NGTHWFVTQ 0.000792	29
HLA-B*08:01	1	380	388	9	SPTKLNLDLC 0.000791	22
HLA-B*53:01	1	410	418	9	GQTGNIADY 0.000791	11
HLA-B*08:01	1	453	462	10	FRKSNLKPFE 0.000791	22
HLA-B*08:01	1	571	580	10	DAVRDPQTL 0.000791	22
HLA-A*30:02	1	638	647	10	NVFQTRAGCL 0.000791	27
HLA-B*07:02	1	675	684	10	TNSPRRARSV 0.000791	13
HLA-B*40:01	1	803	811	9	LPDPSKPSK 0.000791	8.3
HLA-B*15:01	1	846	855	10	LICAQKFNGL 0.000791	16
HLA-A*33:01	1	1043	1051	9	GYHLMSPFQ 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	288	296	9	CALDPLSET 0.00079	11
HLA-B*35:01	1	353	362	10	KRISNCVADY 0.00079	11
HLA-B*57:01	1	655	664	10	NSYECDIPIG 0.00079	21
HLA-B*58:01	1	838	846	9	LGDIAARDL 0.00079	15
HLA-B*35:01	1	862	871	10	LTDEMIAQYT 0.00079	11
HLA-A*30:01	1	571	579	9	DAVRDPQTL 0.000789	29
HLA-A*02:06	1	587	596	10	CSFGGVSVIT 0.000789	22
HLA-B*57:01	1	674	683	10	QTNSPRRARS 0.000789	21
HLA-A*30:02	1	910	918	9	QNVLYENQK 0.000789	27
HLA-A*23:01	1	934	942	9	SLSSTASAL 0.000789	9.1
HLA-A*02:06	1	1122	1130	9	NCDVVIGIV 0.000789	22
HLA-A*03:01	1	1125	1133	9	VVIGIVNNT 0.000789	13
HLA-A*30:02	1	1167	1176	10	SGINASVVNI 0.000789	27
HLA-A*30:02	1	166	174	9	CTFEYVSQP 0.000788	27
HLA-A*68:01	1	262	271	10	YYVGYLQPR 0.000788	17
HLA-A*24:02	1	624	633	10	DQLTPTWRVY 0.000788	8.9
HLA-B*58:01	1	716	725	10	TISVTTEILP 0.000788	15
HLA-B*44:03	1	742	750	9	DSTECSNLL 0.000788	8.9
HLA-A*02:01	1	794	802	9	FGGFNFSQI 0.000788	16
HLA-A*03:01	1	994	1002	9	ITGRLQSLQ 0.000788	13
HLA-A*26:01	1	1067	1075	9	AQEKNFSTA 0.000788	13
HLA-B*44:03	1	199	207	9	GYFKIYSKH 0.000787	8.9
HLA-A*30:01	1	418	427	10	YNYKLPDDFT 0.000787	29
HLA-B*51:01	1	648	656	9	IGAEHVNSN 0.000787	20
HLA-B*15:01	1	779	787	9	FAQVKQIYK 0.000787	16
HLA-A*68:01	1	781	789	9	QVKQIYKTP 0.000787	17
HLA-A*30:02	1	820	828	9	FNKVTLADA 0.000787	27
HLA-A*26:01	1	930	938	9	KIQDLSLST 0.000787	13
HLA-B*57:01	1	1036	1045	10	RVDFCGKGYH 0.000787	22
HLA-A*31:01	1	1203	1211	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	NKSWMESEF 0.000786	13
HLA-A*01:01	1	315	323	9	FRVQPTESI 0.000786	17
HLA-A*11:01	1	337	345	9	EVFNATRFA 0.000786	11
HLA-B*15:01	1	499	508	10	GVGYQPYRVV 0.000786	16
HLA-A*30:02	1	592	600	9	VSVITPGTN 0.000786	27
HLA-A*30:02	1	595	604	10	ITPGTNTSNQ 0.000786	27
HLA-A*30:02	1	602	610	9	SNQVAVLYQ 0.000786	27
HLA-A*01:01	1	912	921	10	VLYENQKLIA 0.000786	17
HLA-B*44:03	1	922	931	10	NQFNSAIGKI 0.000786	8.9
HLA-A*02:06	1	966	974	9	NFGAISSVL 0.000786	22
HLA-A*30:01	1	998	1007	10	LQSLQTYVTQ 0.000786	29
HLA-A*68:01	1	126	135	10	VVIKVCEFPQ 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	259	268	10	AAAYYVGYLQ 0.000785	29
HLA-A*02:03	1	304	313	10	TVEKGIYQTS 0.000785	18
HLA-B*40:01	1	507	515	9	VVLSFELL 0.000785	8.3
HLA-B*07:02	1	660	669	10	DIPIGAGICA 0.000785	13
HLA-B*44:03	1	810	818	9	SKRSFIEDL 0.000785	8.9
HLA-A*02:03	1	884	893	10	TFGAGAALQI 0.000785	18
HLA-A*03:01	1	993	1001	9	LITGRLQSL 0.000785	13
HLA-A*01:01	1	1085	1093	9	HFPREGVFL 0.000785	17
HLA-B*53:01	1	500	508	9	VGYPYRVV 0.000784	11
HLA-A*33:01	1	535	543	9	CVNFNFNGL 0.000784	15
HLA-A*23:01	1	758	767	10	TQLNRALTGI 0.000784	9.1
HLA-A*02:06	1	778	786	9	VFAQVKQIY 0.000784	22
HLA-A*32:01	1	780	788	9	AQVKQIYKT 0.000784	12
HLA-A*01:01	1	908	916	9	VTQNVLYEN 0.000784	17
HLA-B*44:02	1	1026	1035	10	MSECVLGQSK 0.000784	8.9
HLA-B*08:01	1	1092	1101	10	FVSNGTHWFV 0.000784	22
HLA-B*53:01	1	1199	1207	9	ELGKYEQYI 0.000784	11
HLA-B*53:01	1	1260	1269	10	PVLKGVKLYH 0.000784	11
HLA-B*51:01	1	12	20	9	SSQCVNLTT 0.000783	21
HLA-A*68:02	1	18	27	10	LTRTQLPPA 0.000783	17
HLA-A*30:01	1	53	62	10	DLFLPFFSNV 0.000783	29

HLA-A*02:03	1	142	150	9	GVYYHKNNK 0.000783	18
HLA-A*68:02	1	235	243	9	ITRFQTLHR 0.000783	17
HLA-A*02:01	1	264	272	9	VGYLQPRTF 0.000783	16
HLA-B*44:02	1	353	362	10	KRISNCVADY 0.000783	8.9
HLA-A*31:01	1	357	366	10	NCVADYSVLV 0.000783	17
HLA-A*03:01	1	644	652	9	AGCLIGAEH 0.000783	13
HLA-B*07:02	1	859	867	9	PPLLTDEMI 0.000783	13
HLA-A*68:02	1	1184	1193	10	NEVAKNLNES 0.000783	17
HLA-B*15:01	1	1259	1268	10	EPVLKGVKLV 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	337	345	9	EVFNATRFA 0.000782	17
HLA-B*44:03	1	375	383	9	KCYGVSPTK 0.000782	8.9
HLA-B*40:01	1	983	992	10	KVEAEVQIDR 0.000782	8.3
HLA-A*11:01	1	1205	1213	9	QYIKWPWYI 0.000782	11
HLA-B*53:01	1	172	181	10	SQPFLMDLEG 0.000781	11
HLA-A*26:01	1	379	387	9	VSPTKLNDL 0.000781	13
HLA-A*02:03	1	391	400	10	NVYADSFVIR 0.000781	18
HLA-A*23:01	1	419	427	9	NYKLPDDFT 0.000781	9.1
HLA-B*58:01	1	455	464	10	KSNLKPFFER 0.000781	15
HLA-A*02:06	1	823	832	10	VTLADAGFIK 0.000781	22
HLA-B*51:01	1	839	847	9	GDIAARDLI 0.000781	21
HLA-B*15:01	1	885	893	9	FGAGAALQI 0.000781	16
HLA-B*51:01	1	1006	1015	10	TQLLIRAAEI 0.000781	21
HLA-B*08:01	1	1122	1130	9	NCDVVIGIV 0.000781	22
HLA-A*31:01	1	31	39	9	SFTRGVYYP 0.00078	18
HLA-B*51:01	1	253	262	10	SGWTAGAAAY 0.00078	21
HLA-A*02:03	1	562	570	9	FGRDIADTT 0.00078	18
HLA-B*40:01	1	632	640	9	VYSTGSNVF 0.00078	8.3
HLA-B*08:01	1	727	735	9	SMTKTSVDC 0.00078	22
HLA-A*02:06	1	246	255	10	LTPGDSSSGW 0.000779	22
HLA-A*30:01	1	360	368	9	ADYSVLYNS 0.000779	29
HLA-A*31:01	1	370	379	10	SFSTFKCYGV 0.000779	18
HLA-A*68:02	1	399	407	9	IRGDEVRI 0.000779	17
HLA-A*30:01	1	618	626	9	PVAIHADQL 0.000779	29
HLA-A*11:01	1	644	652	9	AGCLIGAEH 0.000779	11
HLA-A*02:06	1	707	716	10	NSIAIPTNFT 0.000779	22
HLA-A*26:01	1	1049	1058	10	FPQSAPHGVV 0.000779	13
HLA-A*30:02	1	18	26	9	LTRTQLPP 0.000778	27
HLA-B*44:03	1	56	65	10	LPFFSNVTWF 0.000778	8.9
HLA-A*01:01	1	75	83	9	GTKRFANPV 0.000778	17
HLA-A*68:02	1	260	268	9	AAYYVGYLQ 0.000778	17
HLA-B*08:01	1	356	364	9	SNCVADYSV 0.000778	22
HLA-A*30:02	1	433	441	9	WNSNNLDSK 0.000778	27
HLA-B*53:01	1	1217	1226	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	255	264	10	WTAGAAAYYV 0.000777	15
HLA-B*44:02	1	365	374	10	LYNSASFSTF 0.000777	9.0
HLA-B*08:01	1	386	394	9	DLCFTNVYA 0.000777	22
HLA-A*30:01	1	706	715	10	NNSIAIPTNF 0.000777	29
HLA-A*23:01	1	715	724	10	FTISVTTEIL 0.000777	9.1
HLA-B*57:01	1	830	838	9	FIKQYGDCL 0.000777	22
HLA-B*58:01	1	1188	1197	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	313	321	9	SNFRVQPT 0.000776	18
HLA-A*31:01	1	715	724	10	FTISVTTEIL 0.000776	18
HLA-A*02:06	1	762	771	10	RALTGIAVEQ 0.000776	22
HLA-A*23:01	1	853	861	9	NGLTVLPPL 0.000776	9.1
HLA-A*02:03	1	1225	1233	9	VMVTIMLCC 0.000776	18
HLA-A*01:01	1	228	237	10	DLPIGINITR 0.000775	17
HLA-B*44:03	1	685	694	10	ASQSIIAYTM 0.000775	9.0
HLA-A*30:01	1	732	740	9	SVDCTMYIC 0.000775	29
HLA-A*11:01	1	855	863	9	LTVLPPLT 0.000775	11



HLA-A*30:01	1	879	888	10	ITSGWTFGAG 0.000775	29
HLA-B*51:01	1	1105	1114	10	NFYEQIIT 0.000775	21
HLA-A*30:01	1	1	9	9	MFVFLVLLP 0.000774	29
HLA-A*02:03	1	104	112	9	WIFGTLLDS 0.000774	18
HLA-B*08:01	1	273	281	9	LLKYNENGT 0.000774	22
HLA-B*57:01	1	302	311	10	SFTVEKGIYQ 0.000774	22
HLA-B*08:01	1	447	455	9	NYLYRFLFRK 0.000774	22
HLA-A*01:01	1	731	740	10	TSVDCTMYIC 0.000774	17
HLA-B*58:01	1	770	778	9	EQDKNTQEV 0.000774	15
HLA-B*15:01	1	897	905	9	MQMAYRFNG 0.000774	16
HLA-B*51:01	1	1038	1047	10	DFCGKGYHLM 0.000774	21
HLA-B*58:01	1	1073	1082	10	TTAPAICHDG 0.000774	15
HLA-B*15:01	1	1187	1195	9	AKNLNESLI 0.000774	16
HLA-A*03:01	1	337	345	9	EVFNATRFA 0.000773	13
HLA-A*01:01	1	551	560	10	ESNKKFLPFQ 0.000773	17
HLA-B*08:01	1	826	834	9	ADAGFIKQY 0.000773	22
HLA-A*03:01	1	964	973	10	SSNFGAISSV 0.000773	13
HLA-B*44:02	1	1083	1092	10	KAHFPREGVF 0.000773	9.0
HLA-A*02:03	1	1186	1195	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	308	316	9	GIYQTSNFR 0.000772	22
HLA-B*08:01	1	688	697	10	SIAYTMSLG 0.000772	22
HLA-A*02:03	1	704	712	9	YSNNSIAIP 0.000772	18
HLA-B*58:01	1	853	862	10	NGLTVLPPLL 0.000772	15
HLA-A*30:01	1	866	875	10	MIAQYTSALL 0.000772	30
HLA-A*23:01	1	965	973	9	SNFGAISSV 0.000772	9.2
HLA-A*32:01	1	1170	1178	9	NASVNIQK 0.000772	12
HLA-B*35:01	1	1191	1200	10	NESLIDLQEL 0.000772	12
HLA-B*51:01	1	1257	1266	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	SNIRGWIF 0.000771	22
HLA-A*02:03	1	577	586	10	QTLIELDITP 0.000771	18
HLA-B*35:01	1	692	700	9	YTMSLGVEN 0.000771	12
HLA-A*03:01	1	822	830	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	815	823	9	IEDLLFNKV 0.00077	15
HLA-A*02:06	1	858	866	9	LPPLLTDEM 0.00077	22
HLA-A*02:03	1	1151	1159	9	KYFKNHTSP 0.00077	18
HLA-B*07:02	1	1151	1159	9	KYFKNHTSP 0.00077	14
HLA-A*11:01	1	123	131	9	ATNVVIKVC 0.000769	11
HLA-B*08:01	1	271	279	9	TFLLKYNEN 0.000769	22
HLA-A*68:01	1	312	321	10	TSNFRVQPT 0.000769	17
HLA-A*30:01	1	334	343	10	PFGEVFNATR 0.000769	30
HLA-A*11:01	1	666	674	9	GICASYQTQ 0.000769	11
HLA-A*33:01	1	719	728	10	VTTEILPVSM 0.000769	15
HLA-A*11:01	1	751	759	9	LQYGSFCTQ 0.000769	11
HLA-A*02:01	1	822	831	10	KVTLADAGFI 0.000769	16
HLA-B*57:01	1	868	876	9	AQYTSALLA 0.000769	22
HLA-A*02:03	1	922	930	9	NQFNSAIGK 0.000769	18
HLA-B*35:01	1	381	389	9	PTKLNLCF 0.000768	12
HLA-A*68:01	1	510	518	9	LSFELLHAP 0.000768	17
HLA-A*24:02	1	794	802	9	FGGFNFSQI 0.000768	9.0
HLA-A*02:03	1	984	993	10	VEAEVQIDRL 0.000768	18
HLA-A*03:01	1	1005	1013	9	VTQLLIRAA 0.000768	13
HLA-A*68:02	1	1077	1086	10	AICHDGKAHF 0.000768	17
HLA-B*53:01	1	1160	1169	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	685	693	9	ASQSIIAYT 0.000767	13
HLA-B*08:01	1	781	790	10	QVKQIYKTPP 0.000767	22
HLA-A*30:02	1	1012	1021	10	AAEIRASANL 0.000767	27
HLA-B*08:01	1	219	227	9	GFSALEPLV 0.000766	22
HLA-B*07:02	1	778	786	9	VFAQVKQIY 0.000766	14

HLA-B*58:01	1	870	878	9	YTSALLAGT 0.000766	15
HLA-B*44:03	1	923	931	9	QFNSAIGKI 0.000766	9.0
HLA-B*07:02	1	933	941	9	DSLSSSTASA 0.000766	14
HLA-B*57:01	1	939	947	9	ASALGKLDQ 0.000766	22
HLA-A*01:01	1	975	984	10	NDILSRDLKV 0.000766	17
HLA-A*68:02	1	1008	1017	10	QLIRAAEIRA 0.000766	17
HLA-B*40:01	1	1045	1053	9	HLMSFPQSA 0.000766	8.4
HLA-A*30:02	1	1213	1222	10	IWLGFIAGLI 0.000766	27
HLA-A*01:01	1	1260	1268	9	PVLKGVKLV 0.000766	17
HLA-A*68:01	1	41	50	10	KVFRSSVLHS 0.000765	17
HLA-B*40:01	1	274	282	9	LKYNENGTI 0.000765	8.4
HLA-A*01:01	1	304	313	10	TVEKGIYQTS 0.000765	17
HLA-A*31:01	1	339	347	9	FNATRFASV 0.000765	18
HLA-B*51:01	1	499	507	9	GVGYQPYRV 0.000765	21
HLA-A*02:06	1	585	594	10	TPCSFGGVSU 0.000765	22
HLA-A*68:02	1	820	828	9	FNKVTLADA 0.000765	17
HLA-B*57:01	1	922	930	9	NQFNSAIGK 0.000765	22
HLA-A*68:01	1	1034	1042	9	SKRVDFCGK 0.000765	17
HLA-B*44:02	1	1098	1107	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	301	310	10	KSFTVEKGIY 0.000764	9.0
HLA-B*08:01	1	726	735	10	VSMTKTSVDC 0.000764	22
HLA-B*40:01	1	864	872	9	DEMIAQYTS 0.000764	8.4
HLA-A*30:01	1	991	1000	10	DRLITGRLQS 0.000764	30
HLA-B*07:02	1	1004	1012	9	YVTQQLIRA 0.000764	14
HLA-A*02:03	1	133	142	10	FQFCNDPFLG 0.000763	18
HLA-B*40:01	1	282	290	9	ITDAVDCAL 0.000763	8.4
HLA-A*02:01	1	560	569	10	QQFGRDIADT 0.000763	16
HLA-A*01:01	1	697	705	9	GVENSVAYS 0.000763	17
HLA-A*24:02	1	701	709	9	SVAYSNNSI 0.000763	9.0
HLA-A*11:01	1	887	895	9	AGAALQIPF 0.000763	11
HLA-B*57:01	1	956	965	10	LNTLVKQLSS 0.000763	22
HLA-B*35:01	1	972	981	10	SVLNDILSRL 0.000763	12
HLA-A*02:03	1	996	1004	9	GRLQSLQTY 0.000763	18
HLA-A*02:06	1	418	426	9	YNYKLPDDF 0.000762	22
HLA-A*11:01	1	492	500	9	YGFQPTYGV 0.000762	11
HLA-A*68:02	1	543	552	10	LTGTGVLTES 0.000762	17
HLA-A*30:02	1	743	752	10	STECSNLLLQ 0.000762	27
HLA-B*07:02	1	1063	1072	10	TYVPAQEKNF 0.000762	14
HLA-B*44:02	1	263	272	10	YVGYLQPRTF 0.000761	9.1
HLA-B*58:01	1	344	353	10	FASVYAWNRK 0.000761	16
HLA-A*30:01	1	465	473	9	ISTEIQAG 0.000761	30
HLA-B*58:01	1	531	540	10	VKNKCVNFNF 0.000761	16
HLA-B*58:01	1	701	710	10	SVAYSNNSIA 0.000761	16
HLA-A*26:01	1	729	737	9	TKTSVDCTM 0.000761	13
HLA-A*68:02	1	810	818	9	SKRSFIEDL 0.000761	17
HLA-B*35:01	1	872	880	9	SALLAGTIT 0.000761	12
HLA-B*15:01	1	958	966	9	TLVKQLSSN 0.000761	16
HLA-B*40:01	1	972	981	10	SVLNDILSRL 0.000761	8.4
HLA-A*03:01	1	1051	1060	10	QSAPHGVVFL 0.000761	13
HLA-B*44:02	1	1070	1078	9	KNFTTAPAI 0.000761	9.1
HLA-A*31:01	1	1100	1108	9	FVTQRNFYE 0.000761	18
HLA-B*08:01	1	29	38	10	TNSFTRGVYY 0.00076	22
HLA-B*58:01	1	93	102	10	ASTEKSNIIR 0.00076	16
HLA-A*02:03	1	239	248	10	QTLHRSYLTP 0.00076	18
HLA-A*68:02	1	620	629	10	AIHADQLTPT 0.00076	17
HLA-A*30:02	1	702	711	10	VAYSNNSIAI 0.00076	27
HLA-A*01:01	1	1001	1010	10	LQTYVTQQLI 0.00076	18
HLA-A*31:01	1	1145	1154	10	FKEELDKYFK 0.00076	18
HLA-A*31:01	1	47	56	10	VLHSTQDLFL 0.000759	18
HLA-A*02:03	1	368	376	9	SASFSTFK 0.000759	18
HLA-B*07:02	1	516	525	10	HAPATVCGPK 0.000759	14
HLA-A*31:01	1	958	967	10	TLVKQLSSNF 0.000759	18
HLA-A*68:01	1	1073	1081	9	TTAPAICHD 0.000759	17
HLA-A*31:01	1	343	351	9	RFASVYAWN 0.000758	18

HLA-B*57:01	1	397	405	9	FVIRGDEVR 0.000758	22
HLA-B*58:01	1	413	422	10	GNIADYNYKL 0.000758	16
HLA-A*32:01	1	936	944	9	SSTASALGK 0.000758	12
HLA-B*51:01	1	938	946	9	TASALGKLQ 0.000758	21
HLA-B*35:01	1	1090	1098	9	GVFVSNQTH 0.000758	12
HLA-A*01:01	1	1160	1168	9	DVDLGDISG 0.000758	18
HLA-B*07:02	1	1213	1221	9	IWLGFIAGL 0.000758	14
HLA-B*44:02	1	204	212	9	YSKHTPINL 0.000757	9.1
HLA-B*58:01	1	529	538	10	NLVKNKCVNF 0.000757	16
HLA-B*15:01	1	695	703	9	SLGVNSVA 0.000757	16
HLA-B*08:01	1	861	870	10	LLTDEMIAQY 0.000757	22
HLA-B*58:01	1	1174	1183	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	ATNVVIVKC 0.000756	13
HLA-A*02:01	1	155	163	9	SEFRVYSSA 0.000756	16
HLA-A*01:01	1	526	534	9	KSTNLVKNK 0.000756	18
HLA-A*23:01	1	752	761	10	QYGSFCTQLN 0.000756	9.3
HLA-B*53:01	1	927	935	9	AIGKIQDSL 0.000756	11
HLA-A*31:01	1	191	200	10	EFVFKNIDGY 0.000755	18
HLA-B*07:02	1	348	356	9	YAWNRRKRIS 0.000755	14
HLA-B*40:01	1	360	369	10	ADYSVLYNSA 0.000755	8.4
HLA-A*02:03	1	645	653	9	GCLIGAEHV 0.000755	18
HLA-A*33:01	1	890	898	9	ALQIPFAMQ 0.000755	16
HLA-A*01:01	1	1022	1030	9	AATKMSECV 0.000755	18
HLA-A*31:01	1	1085	1093	9	HFPREGVIV 0.000755	18
HLA-B*44:02	1	1205	1213	9	QYIKWPWYI 0.000755	9.1
HLA-B*35:01	1	287	296	10	DCALDPLSET 0.000754	12
HLA-A*30:02	1	526	535	10	KSTNLVKNKC 0.000754	27
HLA-A*68:01	1	685	694	10	ASQSIIAYTM 0.000754	17
HLA-A*11:01	1	730	739	10	KTSVDCTMYI 0.000754	11
HLA-A*03:01	1	1198	1206	9	QELGKYEY 0.000754	13
HLA-A*02:06	1	1224	1233	10	IVMVTIMLCC 0.000754	22
HLA-A*33:01	1	1254	1263	10	DEDDSEPVLK 0.000754	16
HLA-B*40:01	1	201	209	9	FKIYSKHTP 0.000753	8.5
HLA-A*30:01	1	537	545	9	NFNFNGLTG 0.000753	30
HLA-A*02:06	1	624	633	10	DQLTPTWRVY 0.000753	22
HLA-A*26:01	1	659	667	9	CDIPIGAGI 0.000753	13
HLA-B*57:01	1	832	841	10	KQYGDCLGDI 0.000753	22
HLA-A*68:01	1	1091	1100	10	VFVSNQTHWF 0.000753	17
HLA-A*30:02	1	1143	1151	9	DSFKEELDK 0.000753	27
HLA-A*32:01	1	1161	1169	9	VDLGDISGI 0.000753	12
HLA-B*08:01	1	267	276	10	LQPRTFLLKY 0.000752	22
HLA-B*51:01	1	338	347	10	VFNATRFASV 0.000752	21
HLA-B*35:01	1	361	369	9	DYSVLYNSA 0.000752	12
HLA-A*68:02	1	502	511	10	YQPYRVVLS 0.000752	18
HLA-A*33:01	1	731	739	9	TSVDCTMYI 0.000752	16
HLA-B*58:01	1	858	866	9	LPPLLTDEM 0.000752	16
HLA-B*58:01	1	1013	1021	9	AEIRASANL 0.000752	16
HLA-B*44:03	1	1049	1057	9	FPQSAPHGV 0.000752	9.1
HLA-A*01:01	1	1197	1205	9	LQELGKYEY 0.000752	18
HLA-A*68:02	1	306	315	10	EKGIYQTSNF 0.000751	18
HLA-A*02:03	1	495	504	10	QPTYGVGYQP 0.000751	18
HLA-A*30:02	1	599	608	10	TNTSNQVAVL 0.000751	27
HLA-A*30:01	1	1218	1226	9	IAGLIAIVM 0.000751	30
HLA-A*30:01	1	96	104	9	EKSNIIRGW 0.00075	30
HLA-A*02:06	1	260	268	9	AAYYVGYLQ 0.00075	22
HLA-A*26:01	1	378	387	10	GVSPTKLNDL 0.00075	13
HLA-A*02:06	1	494	503	10	FQPTYGVGYQ 0.00075	22
HLA-A*02:06	1	529	538	10	NLVKNKCVNF 0.00075	22
HLA-B*15:01	1	570	579	10	TDAVRDPQTL 0.00075	16
HLA-A*68:02	1	680	689	10	RARSVASQSI 0.00075	18
HLA-A*01:01	1	693	702	10	TMSLGVNSV 0.00075	18
HLA-A*68:02	1	716	725	10	TISVTTEILP 0.00075	18
HLA-A*33:01	1	911	919	9	NVLYENQKL 0.00075	16
HLA-B*07:02	1	919	928	10	LIANQFNSAI 0.00075	14
HLA-B*51:01	1	975	984	10	NDILSRLDKV 0.00075	21

HLA-B*44:02	1	1194	1203	10	LIDLQELGKY 0.00075	9.1
HLA-A*02:06	1	249	257	9	GDSSSGWTA 0.000749	22
HLA-A*01:01	1	312	320	9	TSNFRVQPT 0.000749	18
HLA-A*68:02	1	536	544	9	VNFNFNGLT 0.000749	18
HLA-A*11:01	1	685	694	10	ASQSIIAYTM 0.000749	11
HLA-B*53:01	1	714	723	10	NFTISVTTEI 0.000749	11
HLA-A*33:01	1	1145	1154	10	FKEELDKYFK 0.000749	16
HLA-B*51:01	1	1206	1215	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	VIKVECFQFC 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	297	306	10	KCTLKSFTVE 0.000748	13
HLA-B*53:01	1	344	352	9	FASVYAWNR 0.000748	11
HLA-A*30:02	1	404	413	10	VRQIAPGQTG 0.000748	27
HLA-A*30:02	1	469	477	9	IYQAGSTPC 0.000748	27
HLA-B*57:01	1	555	564	10	KFLPFQFGR 0.000748	22
HLA-A*26:01	1	660	669	10	DIPIGAGICA 0.000748	13
HLA-A*32:01	1	983	992	10	KVEAEVQIDR 0.000748	12
HLA-A*30:02	1	1174	1182	9	VNIQKEIDR 0.000748	27
HLA-A*68:02	1	78	86	9	RFANPVLFP 0.000747	18
HLA-B*35:01	1	202	210	9	KIYSKHTPI 0.000747	12
HLA-A*02:06	1	385	394	10	NDLCFTNVYA 0.000747	22
HLA-A*30:02	1	693	701	9	TMSLGVENS 0.000747	27
HLA-A*24:02	1	807	815	9	SKPSKRSFI 0.000747	9.1
HLA-A*02:01	1	822	830	9	KVTLADAGF 0.000747	16
HLA-A*32:01	1	1092	1101	10	FVSNGTHWFV 0.000747	12
HLA-A*30:01	1	1126	1135	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	YTNSTFRGVY 0.000746	9.1
HLA-B*44:03	1	48	56	9	LHSTQDLFL 0.000746	9.1
HLA-B*51:01	1	213	222	10	VRGLPQGFSa 0.000746	21
HLA-A*68:02	1	268	276	9	QPRTFLLKY 0.000746	18
HLA-B*57:01	1	443	452	10	GGNYNYLYRL 0.000746	22
HLA-B*15:01	1	444	452	9	GNVNYLYRL 0.000746	16
HLA-A*01:01	1	708	717	10	SIAIPTNFTI 0.000746	18
HLA-A*03:01	1	730	739	10	KTSVDCTMYI 0.000746	13
HLA-B*15:01	1	933	942	10	DSLSSTASAL 0.000746	16
HLA-A*01:01	1	935	943	9	LSSTASALG 0.000746	18
HLA-A*01:01	1	21	30	10	RTQLPPAYTN 0.000745	18
HLA-A*68:01	1	121	130	10	NNATNVVIKV 0.000745	17
HLA-A*30:01	1	303	312	10	FTVEKGIYQT 0.000745	30
HLA-A*03:01	1	405	413	9	RQIAPGQTG 0.000745	13
HLA-A*31:01	1	474	483	10	STPCNGVKGF 0.000745	18
HLA-B*57:01	1	703	712	10	AYSNNSIAIP 0.000745	22
HLA-B*51:01	1	920	929	10	IANQFNSAIG 0.000745	21
HLA-A*11:01	1	965	973	9	SNFGAISSV 0.000745	11
HLA-B*35:01	1	1060	1068	9	LHVTVVPAQ 0.000745	12
HLA-B*44:02	1	1084	1093	10	AHFPREGVfV 0.000745	9.1
HLA-B*58:01	1	1133	1141	9	TVYDPLQPE 0.000745	16
HLA-B*40:01	1	1202	1211	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	265	273	9	GYLQPRTFL 0.000744	13
HLA-B*51:01	1	329	338	10	ITNLCPFGEV 0.000744	21
HLA-B*57:01	1	357	365	9	NCVADYSVL 0.000744	22
HLA-A*01:01	1	453	461	9	FRKSNLKPf 0.000744	18
HLA-B*58:01	1	884	893	10	TFGAGAALQI 0.000744	16
HLA-B*08:01	1	1069	1077	9	EKNFTTAPA 0.000744	22
HLA-B*44:03	1	1192	1200	9	ESLIDLQEL 0.000744	9.1
HLA-B*44:03	1	306	315	10	EKGIYQTSNF 0.000743	9.1
HLA-B*08:01	1	318	327	10	QPTESIVRFP 0.000743	22
HLA-B*58:01	1	473	482	10	GSTPCNGVKG 0.000743	16
HLA-A*01:01	1	633	642	10	YSTGSNVFQT 0.000743	18
HLA-A*02:01	1	1213	1222	10	IWLGFIAGLI 0.000743	16

HLA-A*02:03	1	13	21	9	SQCVNLTTR 0.000742	18
HLA-A*33:01	1	72	80	9	GTNGTKRFA 0.000742	16
HLA-A*68:02	1	86	94	9	FNDGVYFAS 0.000742	18
HLA-B*51:01	1	389	398	10	FTNVYADSFV 0.000742	21
HLA-A*01:01	1	498	506	9	YGVGYQPYR 0.000742	18
HLA-B*51:01	1	600	609	10	NTSNQVAVLY 0.000742	21
HLA-A*68:02	1	669	678	10	ASYQTQTNSP 0.000742	18
HLA-A*30:01	1	678	686	9	PRRARSVAS 0.000742	30
HLA-A*31:01	1	696	704	9	LGVENSVAY 0.000742	18
HLA-A*31:01	1	730	739	10	KTSVDCTMYI 0.000742	18
HLA-A*31:01	1	811	819	9	KRSFIEDLL 0.000742	18
HLA-A*30:01	1	841	850	10	IAARDLICAQ 0.000742	30
HLA-A*02:01	1	971	980	10	SSVLNDILSR 0.000742	16
HLA-A*01:01	1	986	994	9	AEVQIDRLI 0.000742	18
HLA-A*68:01	1	1209	1217	9	WPWYIWLGF 0.000742	17
HLA-B*07:02	1	1216	1224	9	GFIAGLIAI 0.000742	14
HLA-A*01:01	1	1259	1267	9	EPVLKGVKL 0.000742	18
HLA-A*31:01	1	170	179	10	YVSQPFLMDL 0.000741	18
HLA-B*08:01	1	208	217	10	TPINLVRGLP 0.000741	22
HLA-B*51:01	1	392	400	9	VYADSFVIR 0.000741	21
HLA-B*08:01	1	552	560	9	SNKKFLPFQ 0.000741	22
HLA-A*01:01	1	719	727	9	VTTEILPVS 0.000741	18
HLA-B*08:01	1	755	763	9	SFCTQLNRA 0.000741	22
HLA-B*08:01	1	805	813	9	DPSKPSKRS 0.000741	22
HLA-B*58:01	1	848	857	10	CAQKFNGLTV 0.000741	16
HLA-A*32:01	1	851	859	9	KFNGLTVLP 0.000741	12
HLA-A*32:01	1	853	861	9	NGLTVLPPL 0.000741	12
HLA-A*02:06	1	1206	1214	9	YIKWPWYIW 0.000741	22
HLA-B*07:02	1	180	189	10	EGKQGNFKNL 0.00074	14
HLA-A*26:01	1	314	323	10	NFRVQPTESI 0.00074	13
HLA-A*26:01	1	570	579	10	TDAVRDPQTL 0.00074	13
HLA-B*58:01	1	612	621	10	VNCTEVPVAI 0.00074	16
HLA-B*08:01	1	648	657	10	IGAHEVNSY 0.00074	22
HLA-A*24:02	1	719	728	10	VTTEILPVSM 0.00074	9.2
HLA-A*33:01	1	742	750	9	DSTECSNLL 0.00074	16
HLA-A*32:01	1	781	789	9	QVKQIYKTP 0.00074	12
HLA-A*11:01	1	825	833	9	LADAGFIKQ 0.00074	11
HLA-B*53:01	1	1158	1167	10	SPDVDLGDIS 0.00074	11
HLA-A*30:02	1	1169	1177	9	INASVVNIQ 0.00074	27
HLA-A*02:06	1	97	105	9	KSNIIRGWI 0.000739	22
HLA-A*32:01	1	298	307	10	CTLKSFTVEK 0.000739	12
HLA-B*08:01	1	513	522	10	ELLHAPATVC 0.000739	22
HLA-B*51:01	1	772	780	9	DKNTQEVFA 0.000739	21
HLA-B*15:01	1	803	811	9	LPDPSKPSK 0.000739	16
HLA-A*26:01	1	1004	1013	10	YVTQQLIRAA 0.000739	13
HLA-A*02:06	1	1113	1121	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	KVCEFFQCN 0.000738	27
HLA-B*40:01	1	316	324	9	RVQPTESIV 0.000738	8.5
HLA-A*01:01	1	510	519	10	LSFELLHAPA 0.000738	18
HLA-B*44:03	1	715	723	9	FTISVTTEI 0.000738	9.2
HLA-A*32:01	1	900	908	9	AYRFNGIGV 0.000738	12
HLA-A*30:01	1	1064	1072	9	YVPAQEKNF 0.000738	30
HLA-A*33:01	1	1151	1159	9	KYFKNHTSP 0.000738	16
HLA-B*44:02	1	1186	1194	9	VAKNLNESL 0.000738	9.2
HLA-A*03:01	1	1197	1206	10	LQELGKYEQY 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	255	264	10	WTAGAAAYYV 0.000737	21
HLA-B*57:01	1	322	331	10	SIVRFPNITN 0.000737	22
HLA-A*01:01	1	355	363	9	ISNCVADYS 0.000737	18
HLA-A*33:01	1	448	456	9	YLYRLEFRKS 0.000737	16
HLA-A*33:01	1	523	532	10	GPKKSTNLVK 0.000737	16
HLA-B*57:01	1	632	641	10	VYSTGSNVFQ 0.000737	22
HLA-B*08:01	1	674	682	9	QTNSPRRAR 0.000737	22
HLA-B*44:03	1	706	715	10	NNSIAIPTNF 0.000737	9.2

HLA-A*02:06	1	723	732	10	ILPVSMTKTS 0.000737	22
HLA-B*15:01	1	762	771	10	RALTGIAVEQ 0.000737	16
HLA-A*01:01	1	865	873	9	EMIAQY TSA 0.000737	18
HLA-A*33:01	1	884	892	9	TFGAGAALQ 0.000737	16
HLA-A*02:06	1	900	908	9	AYRFNGIGV 0.000737	22
HLA-A*31:01	1	908	917	10	VTQNVLYENQ 0.000737	18
HLA-B*35:01	1	954	963	10	QALNTLVKQL 0.000737	12
HLA-A*02:06	1	1050	1059	10	PQSAPHGVVF 0.000737	22
HLA-A*03:01	1	1099	1107	9	WVVTQRNFY 0.000737	14
HLA-B*44:03	1	1186	1194	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	364	372	9	VLYNSASF S 0.000736	12
HLA-B*57:01	1	683	691	9	SVASQSIIA 0.000736	22
HLA-A*23:01	1	926	935	10	SAIGKIQDSL 0.000736	9.4
HLA-A*32:01	1	1151	1159	9	KYFKNHTSP 0.000736	12
HLA-A*30:01	1	1177	1186	10	QKEIDRLNEV 0.000736	30
HLA-A*68:01	1	153	161	9	MESEFRVYS 0.000735	17
HLA-A*33:01	1	453	461	9	FRKSNL KPF 0.000735	16
HLA-A*30:02	1	462	471	10	ERDISTEIQ 0.000735	27
HLA-A*02:01	1	468	476	9	EIYQAGSTP 0.000735	16
HLA-B*08:01	1	572	580	9	AVRDPQ TLE 0.000735	22
HLA-B*57:01	1	644	652	9	AGCLIGAEH 0.000735	22
HLA-A*03:01	1	874	883	10	LLAGTITSGW 0.000735	14
HLA-B*40:01	1	876	885	10	AGTITSGWTF 0.000735	8.5
HLA-B*40:01	1	911	919	9	NVLYENQKL 0.000735	8.5
HLA-A*30:02	1	971	979	9	SSVLNDILS 0.000735	27
HLA-B*58:01	1	69	77	9	HVSGTNGTK 0.000734	16
HLA-A*31:01	1	115	123	9	QSL LIVNNA 0.000734	18
HLA-B*58:01	1	199	207	9	GYFKIYSKH 0.000734	16
HLA-A*02:01	1	484	492	9	NCYFPLQSY 0.000734	16
HLA-A*03:01	1	497	505	9	TYGVGYQPY 0.000734	14
HLA-B*58:01	1	672	681	10	QTQTNSPRRA 0.000734	16
HLA-B*44:03	1	785	794	10	IYKTPPIKDF 0.000734	9.2
HLA-A*24:02	1	893	901	9	IPFAMQ MAY 0.000734	9.2
HLA-A*31:01	1	953	962	10	AQALNTLVKQ 0.000734	18
HLA-B*53:01	1	976	984	9	DILSRLDKV 0.000734	11
HLA-B*51:01	1	1009	1017	9	LIRAAEIRA 0.000734	21
HLA-A*02:06	1	1083	1092	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	348	356	9	YAWNRRKRIS 0.000733	22
HLA-A*30:01	1	355	363	9	ISNCVADYS 0.000733	30
HLA-B*15:01	1	383	391	9	KLNDLCFTN 0.000733	16
HLA-B*57:01	1	389	398	10	FTNVYADSFV 0.000733	22
HLA-A*68:02	1	425	433	9	DFTGCVIAW 0.000733	18
HLA-B*44:02	1	523	531	9	GPKKSTNLV 0.000733	9.2
HLA-A*32:01	1	547	555	9	GVLTESNKK 0.000733	12
HLA-A*30:02	1	883	892	10	WTFGAGAALQ 0.000733	27
HLA-A*31:01	1	1023	1031	9	ATKMSECVL 0.000733	18
HLA-A*23:01	1	1106	1115	10	FYEPQIITTD 0.000733	9.4
HLA-A*23:01	1	260	269	10	AAYYVGYLQP 0.000732	9.4
HLA-A*68:01	1	304	313	10	TVEKGIYQTS 0.000732	17
HLA-B*40:01	1	551	559	9	ESNKKFLPF 0.000732	8.5
HLA-A*03:01	1	552	560	9	SNKKFLPFQ 0.000732	14
HLA-B*35:01	1	19	27	9	TTRTQLPPA 0.000731	12
HLA-A*02:06	1	291	300	10	DPLSETKCTL 0.000731	22
HLA-A*26:01	1	413	422	10	GNIADYNYKL 0.000731	13
HLA-A*23:01	1	442	450	9	VGGNYNYLY 0.000731	9.4
HLA-A*26:01	1	824	833	10	TLADAGFIKQ 0.000731	13
HLA-A*68:02	1	1074	1083	10	TAPAICHGDK 0.000731	18
HLA-B*40:01	1	1083	1092	10	KAHFPREGVF 0.000731	8.6
HLA-A*02:01	1	258	267	10	GAAAYYVGYL 0.00073	16
HLA-A*30:01	1	429	438	10	CVIAWNSNNL 0.00073	30

HLA-A*30:01	1	528	536	9	TNLVKNKCV	0.00073	30
HLA-A*01:01	1	577	586	10	QTLEILDITP	0.00073	18
HLA-B*58:01	1	606	614	9	AVLYQGVNC	0.00073	16
HLA-A*30:01	1	695	703	9	SLGVNSVA	0.00073	30
HLA-A*03:01	1	1080	1088	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-B*57:01	1	372	380	9	STFKCYGVS	0.000729	22
HLA-B*08:01	1	406	415	10	QIAPGQTGNI	0.000729	22
HLA-A*02:06	1	543	551	9	LTGTGVLTE	0.000729	22
HLA-B*35:01	1	573	582	10	VRDPQTLEIL	0.000729	12
HLA-A*03:01	1	707	715	9	NSIAIPTNF	0.000729	14
HLA-A*68:01	1	890	899	10	ALQIPFAMQM	0.000729	17
HLA-A*03:01	1	975	983	9	NDILSRLDK	0.000729	14
HLA-B*40:01	1	1056	1064	9	GVVFLHVTY	0.000729	8.6
HLA-A*26:01	1	1245	1253	9	CSCGSCCKF	0.000729	13
HLA-B*58:01	1	161	169	9	SSANNCTFE	0.000728	16
HLA-A*68:02	1	245	253	9	YLTPGDSSS	0.000728	18
HLA-A*33:01	1	340	349	10	NATRFASVYA	0.000728	16
HLA-B*08:01	1	608	617	10	LYQGVNCTEV	0.000728	22
HLA-B*51:01	1	996	1004	9	GRLQSLQTY	0.000728	21
HLA-A*33:01	1	1037	1045	9	VDFCGKGYH	0.000728	16
HLA-B*51:01	1	1047	1056	10	MSFPQSAPHG	0.000728	21
HLA-A*01:01	1	1169	1178	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	302	310	9	SFTVEKGIY	0.000727	14
HLA-A*32:01	1	317	325	9	VQPTESIVR	0.000727	12
HLA-B*57:01	1	329	337	9	ITNLCPFGE	0.000727	22
HLA-A*68:02	1	645	653	9	GCLIGAEHV	0.000727	18
HLA-B*08:01	1	714	722	9	NFTISVTTE	0.000727	22
HLA-A*33:01	1	853	861	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*07:02	1	347	355	9	VYAWNKRRI	0.000726	14
HLA-B*53:01	1	529	538	10	NLVKNKCVNF	0.000726	11
HLA-A*68:02	1	811	819	9	KRSFIEDLL	0.000726	18
HLA-B*57:01	1	989	997	9	QIDRLITGR	0.000726	22
HLA-A*68:02	1	1007	1015	9	QLLIRAAEI	0.000726	18
HLA-A*11:01	1	1018	1026	9	SANLAATKM	0.000726	11
HLA-A*31:01	1	1084	1092	9	AHFPREGVF	0.000726	18
HLA-B*35:01	1	59	67	9	FSNVTWFHA	0.000725	12
HLA-B*58:01	1	71	80	10	SGTNGTKRFA	0.000725	16
HLA-B*44:02	1	186	194	9	FKNLREFVF	0.000725	9.2
HLA-B*08:01	1	256	264	9	TAGAAAYYV	0.000725	23
HLA-A*30:02	1	621	629	9	IHADQLTPT	0.000725	28
HLA-B*57:01	1	671	680	10	YQTQTNSPRR	0.000725	22
HLA-A*31:01	1	882	891	10	GWTFGAGAAL	0.000725	18
HLA-B*15:01	1	919	928	10	LIANQFNSAI	0.000725	16
HLA-A*02:03	1	1017	1026	10	ASANLAATKM	0.000725	18
HLA-B*40:01	1	1027	1036	10	SECVLGQSKR	0.000725	8.6
HLA-B*51:01	1	65	73	9	FHAIHVSQT	0.000724	21
HLA-B*51:01	1	492	501	10	YGFQPTYGVT	0.000724	21
HLA-B*57:01	1	849	857	9	AQKFNGLTV	0.000724	22
HLA-A*33:01	1	909	918	10	TQNVLYENQK	0.000724	16
HLA-A*68:02	1	1063	1072	10	TYVPAQEKNF	0.000724	18
HLA-A*01:01	1	252	261	10	SSGWTAGAAA	0.000723	18
HLA-B*57:01	1	520	528	9	TVCGPKKST	0.000723	22
HLA-A*30:01	1	750	759	10	LLQYGSFCTQ	0.000723	30
HLA-B*35:01	1	821	830	10	NKVTLADAGF	0.000723	12
HLA-B*57:01	1	1132	1141	10	NTVYDPLQPE	0.000723	22
HLA-A*30:02	1	1151	1160	10	KYFKNHTSPD	0.000723	28
HLA-A*30:02	1	1164	1173	10	GDISGINASV	0.000723	28
HLA-B*35:01	1	1245	1253	9	CSCGSCCKF	0.000723	12
HLA-B*58:01	1	75	83	9	GTKRFANPV	0.000722	16
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	289	298	10	ALDPLSETKC 0.000722	30
HLA-B*57:01	1	391	400	10	NVYADSFVIR 0.000722	22
HLA-A*26:01	1	477	486	10	CNGVKGFNCY 0.000722	13
HLA-B*07:02	1	657	665	9	YECDIPIGA 0.000722	14
HLA-B*40:01	1	756	764	9	FCTQLNRAL 0.000722	8.6
HLA-A*01:01	1	776	785	10	QEVFAQVKQI 0.000722	18
HLA-B*35:01	1	894	903	10	PFAMQMAYRF 0.000722	12
HLA-A*31:01	1	965	974	10	SNFGAISSVL 0.000722	18
HLA-A*33:01	1	1004	1012	9	YVTQQLIRA 0.000722	16
HLA-A*23:01	1	1018	1026	9	SANLAATKM 0.000722	9.5
HLA-A*30:01	1	1019	1028	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	245	253	9	YLTPGDSSS 0.000721	28
HLA-B*07:02	1	375	383	9	KCYGVSPK 0.000721	14
HLA-A*01:01	1	496	504	9	PTYGVGYQP 0.000721	18
HLA-B*07:02	1	618	626	9	PVAIHADQL 0.000721	14
HLA-A*02:03	1	1012	1021	10	AAEIRASANL 0.000721	18
HLA-A*02:06	1	1042	1050	9	KGYHLMSFP 0.000721	23
HLA-A*01:01	1	1048	1057	10	SFPQSAPHGV 0.000721	18
HLA-B*44:03	1	1098	1107	10	HWFVTQRNFY 0.000721	9.2
HLA-A*23:01	1	30	38	9	NSFTRGVYY 0.00072	9.5
HLA-A*68:01	1	43	52	10	FRSSVLHSTQ 0.00072	17
HLA-A*31:01	1	53	62	10	DLFLPFFSNV 0.00072	18
HLA-B*57:01	1	312	320	9	TSNFRVQPT 0.00072	22
HLA-B*57:01	1	658	667	10	ECDIPIGAGI 0.00072	22
HLA-A*23:01	1	1197	1206	10	LQELGKYEYQ 0.00072	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	368	376	9	SASFSTFKC 0.000719	14
HLA-A*33:01	1	527	535	9	STNLVKKNC 0.000719	16
HLA-B*53:01	1	895	904	10	FAMQMAYRFN 0.000719	11
HLA-A*02:01	1	936	945	10	SSTASALGKL 0.000719	16
HLA-B*57:01	1	1041	1049	9	GKGYHLMSF 0.000719	22
HLA-A*32:01	1	1194	1203	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	265	273	9	GYLQPRTFL 0.000718	12
HLA-B*07:02	1	291	299	9	DPLSETKCT 0.000718	14
HLA-A*68:01	1	475	483	9	TPCNGVKGF 0.000718	17
HLA-A*02:03	1	585	594	10	TPCSFGGVSV 0.000718	18
HLA-A*68:02	1	1091	1100	10	VFVSNGTHWF 0.000718	18
HLA-A*30:02	1	1147	1156	10	EELDKYFKNH 0.000718	28
HLA-A*01:01	1	1190	1198	9	LNESLIDLQ 0.000718	18
HLA-B*57:01	1	1223	1232	10	AIVMVTIMLC 0.000718	22
HLA-B*08:01	1	42	51	10	VFRSSVLHST 0.000717	23
HLA-A*33:01	1	261	269	9	AYYVGYLQP 0.000717	16
HLA-A*68:01	1	468	477	10	EIYQAGSTPC 0.000717	17
HLA-B*51:01	1	616	624	9	EVPVAIHAD 0.000717	21
HLA-A*01:01	1	640	648	9	FQTRAGCLI 0.000717	18
HLA-B*51:01	1	894	903	10	PFAMQMAYRF 0.000717	21
HLA-B*44:02	1	985	993	9	EAEVQIDRL 0.000717	9.3
HLA-A*30:01	1	1086	1094	9	FPREGVFVS 0.000717	30
HLA-A*33:01	1	1217	1225	9	FIAGLIAIV 0.000717	16
HLA-B*07:02	1	1221	1229	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*32:01	1	240	248	9	TLHRSYLTP 0.000716	13
HLA-A*26:01	1	266	275	10	YLQPRTFLK 0.000716	13
HLA-A*30:01	1	377	385	9	YGVSPTKLN 0.000716	30
HLA-A*30:01	1	474	482	9	STPCNGVKG 0.000716	30
HLA-B*08:01	1	520	528	9	TVCGPKKST 0.000716	23



HLA-A*01:01	1	764	773	10	LTGIAVEQDK 0.000716	18
HLA-A*11:01	1	961	969	9	KQLSSNFGA 0.000716	11
HLA-A*30:01	1	970	978	9	ISSVLNDIL 0.000716	30
HLA-A*33:01	1	1016	1025	10	RASANLAATK 0.000716	16
HLA-A*03:01	1	1201	1209	9	GKYEQYIKW 0.000716	14
HLA-B*58:01	1	1207	1215	9	IKWPWYIWL 0.000716	16
HLA-A*02:03	1	142	151	10	GVYYHKNNKS 0.000715	18
HLA-A*11:01	1	323	332	10	IVRFPNITNL 0.000715	11
HLA-A*02:01	1	599	607	9	TNTSNQVAV 0.000715	16
HLA-B*44:02	1	613	621	9	NCTEVPVAI 0.000715	9.3
HLA-A*68:02	1	687	695	9	QSIIAYTMS 0.000715	18
HLA-B*08:01	1	986	994	9	AEVQIDRLI 0.000715	23
HLA-A*30:02	1	1163	1171	9	LGDISGINA 0.000715	28
HLA-A*03:01	1	1188	1197	10	KNLNESLIDL 0.000715	14
HLA-A*02:03	1	1254	1262	9	DEDDSEPVL 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	259	268	10	AAAYYVGYLQ 0.000714	11
HLA-B*51:01	1	359	367	9	VADYSVLYN 0.000714	21
HLA-A*02:06	1	839	847	9	GDIARDLI 0.000714	23
HLA-A*26:01	1	855	863	9	LTVLPPLLT 0.000714	13
HLA-B*44:02	1	966	974	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	260	269	10	AAAYYVGYLQP 0.000713	18
HLA-A*01:01	1	344	353	10	FASVYAWNPK 0.000713	18
HLA-A*03:01	1	433	441	9	WNSNNLDSK 0.000713	14
HLA-A*33:01	1	455	464	10	KSNLKPFFERD 0.000713	16
HLA-A*23:01	1	600	608	9	NTSNQVAVL 0.000713	9.5
HLA-B*44:02	1	685	694	10	ASQSIIAYTM 0.000713	9.3
HLA-B*57:01	1	692	701	10	YTMSLGVENS 0.000713	22
HLA-A*30:01	1	704	713	10	YSNNSIAIPT 0.000713	30
HLA-A*11:01	1	731	739	9	TSVDCTMYI 0.000713	11
HLA-B*40:01	1	1216	1224	9	GFIAGLIAI 0.000713	8.6
HLA-A*30:01	1	1220	1229	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	266	275	10	YLPRTFLK 0.000712	16
HLA-B*44:03	1	580	589	10	EILDITPCSF 0.000712	9.3
HLA-A*11:01	1	593	602	10	SVITPGTNTS 0.000712	11
HLA-A*02:06	1	842	851	10	AARDLICAQK 0.000712	23
HLA-B*57:01	1	887	896	10	AGAALQIPFA 0.000712	22
HLA-B*57:01	1	959	968	10	LVKQLSSNFG 0.000712	22
HLA-B*57:01	1	1101	1110	10	VTQRNFYEPQ 0.000712	22
HLA-B*51:01	1	1162	1171	10	DLGDISGINA 0.000712	21
HLA-A*30:01	1	1213	1222	10	IWLGFIAGLI 0.000712	30
HLA-A*31:01	1	1259	1268	10	EPVLKGVKHLH 0.000712	18
HLA-A*02:03	1	549	557	9	LTESNKKFL 0.000711	18
HLA-A*68:01	1	577	585	9	QTLEILDIT 0.000711	17
HLA-B*51:01	1	1004	1013	10	YVTQQLIRAA 0.000711	21
HLA-A*30:02	1	1110	1119	10	QIITTDNTFV 0.000711	28
HLA-A*02:06	1	1144	1153	10	SFKEELDKYF 0.000711	23
HLA-B*58:01	1	1192	1201	10	ESLIDLQELG 0.000711	16
HLA-A*33:01	1	29	37	9	TNSFTRGVY 0.000711	16
HLA-A*31:01	1	179	187	9	LEGKQGNFK 0.000711	18
HLA-A*33:01	1	258	266	9	GAAAYYVGY 0.000711	16
HLA-B*08:01	1	424	432	9	DDFTGCVIA 0.000711	23
HLA-A*31:01	1	608	616	9	LYQGVNCTE 0.000711	18
HLA-A*26:01	1	692	700	9	YTMSLGVEN 0.000711	13
HLA-B*58:01	1	944	952	9	KLQDVVNQN 0.000711	16
HLA-A*68:01	1	1178	1186	9	KEIDRLNEV 0.000711	17
HLA-A*31:01	1	1224	1232	9	IVMVTIMLC 0.000711	18
HLA-A*33:01	1	1261	1270	10	VLKGVKHLHYT 0.000711	16
HLA-A*30:02	1	67	76	10	AIHVSQGTNGT 0.000709	28
HLA-B*35:01	1	185	194	10	NFKNLREFVF 0.000709	12

HLA-A*68:02	1	464	473	10	DISTEIYQAG 0.000709	18
HLA-B*58:01	1	508	517	10	VVLSFELLHA 0.000709	16
HLA-B*58:01	1	871	880	10	TSALLAGTIT 0.000709	16
HLA-A*68:01	1	889	898	10	AALQIPFAMQ 0.000709	17
HLA-B*44:03	1	948	956	9	VVNQNAQAL 0.000709	9.3
HLA-A*68:01	1	1063	1072	10	TYVPAQEKNF 0.000709	17
HLA-A*30:01	1	148	156	9	NNKSWMESE 0.000708	31
HLA-B*57:01	1	324	333	10	VRFPNITNLC 0.000708	23
HLA-A*02:03	1	397	405	9	FVIRGDEVR 0.000708	18
HLA-A*32:01	1	509	517	9	VLSFELLHA 0.000708	13
HLA-B*15:01	1	547	555	9	GVLTESNKK 0.000708	17
HLA-A*30:02	1	692	701	10	YTMSLGVENS 0.000708	28
HLA-A*68:02	1	812	820	9	RSFIEDLLF 0.000708	18
HLA-A*02:06	1	840	849	10	DIAARDLICA 0.000708	23
HLA-B*51:01	1	861	870	10	LLTDEMIAQY 0.000708	21
HLA-A*03:01	1	954	962	9	QALNTLVKQ 0.000708	14
HLA-A*26:01	1	966	974	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	298	306	9	CTLKSFTVE 0.000707	23
HLA-B*15:01	1	310	319	10	YQTSNFRVQP 0.000707	17
HLA-B*08:01	1	315	324	10	FRVQPTESIV 0.000707	23
HLA-A*26:01	1	564	573	10	RDIADTTDAV 0.000707	13
HLA-B*58:01	1	614	622	9	CTEVPVAIH 0.000707	16
HLA-B*51:01	1	681	690	10	ARSVASQSII 0.000707	21
HLA-B*15:01	1	1014	1022	9	EIRASANLA 0.000707	17
HLA-B*40:01	1	1088	1096	9	REGVFVSNQ 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-B*08:01	1	310	318	9	YQTSNFRVQ 0.000706	23
HLA-A*02:03	1	829	838	10	GFIKQYGDCL 0.000706	18
HLA-A*02:03	1	1178	1187	10	KEIDRLNEVA 0.000706	18
HLA-A*24:02	1	1245	1253	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-B*35:01	1	208	217	10	TPINLVRGLP 0.000705	12
HLA-A*30:02	1	314	322	9	NFRVQPTES 0.000705	28
HLA-A*03:01	1	500	508	9	VGYPYRVV 0.000705	14
HLA-A*30:01	1	525	533	9	KKSTNLVKN 0.000705	31
HLA-B*07:02	1	587	595	9	CSFGGVSVI 0.000705	14
HLA-A*02:03	1	684	692	9	VASQSIIAY 0.000705	18
HLA-A*01:01	1	710	719	10	AIPTNFTISV 0.000705	18
HLA-A*02:06	1	745	753	9	ECSNLLLQY 0.000705	23
HLA-A*24:02	1	789	797	9	PPIKDFGGF 0.000705	9.3
HLA-B*07:02	1	995	1003	9	TGRLQSLQT 0.000705	14
HLA-B*07:02	1	996	1004	9	GRLQSLQTY 0.000705	14
HLA-B*57:01	1	1111	1119	9	IITTDNTFV 0.000705	23
HLA-A*30:02	1	1224	1232	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	310	319	10	YQTSNFRVQP 0.000704	16
HLA-A*31:01	1	353	362	10	KRISNCVADY 0.000704	18
HLA-A*23:01	1	446	455	10	YNYLYRFRK 0.000704	9.6
HLA-A*33:01	1	498	507	10	YGVGYQYRV 0.000704	16
HLA-A*30:02	1	537	545	9	NFNFNLTG 0.000704	28
HLA-B*15:01	1	669	678	10	ASYQTQTNSP 0.000704	17
HLA-A*32:01	1	672	680	9	QTQTNSPRR 0.000704	13
HLA-A*03:01	1	682	690	9	RSVASQSII 0.000704	14
HLA-A*30:01	1	712	720	9	PTNFTISV 0.000704	31
HLA-A*24:02	1	715	724	10	FTISVTTEIL 0.000704	9.3
HLA-A*01:01	1	756	764	9	FCTQLNRAL 0.000704	18
HLA-B*07:02	1	811	819	9	KRSFIEDLL 0.000704	14

HLA-B*57:01	1	921	930	10	ANQFNSAIGK 0.000704	23
HLA-B*51:01	1	1056	1065	10	GVVFLHVTYV 0.000704	21
HLA-A*24:02	1	1252	1261	10	KFDEDDSEPV 0.000704	9.3
HLA-B*57:01	1	18	27	10	LTRRTQLPPA 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	619	628	10	VAIHADQLTP 0.000703	31
HLA-A*11:01	1	624	633	10	DQLTPTWRVY 0.000703	11
HLA-A*11:01	1	762	771	10	RALTGIAVEQ 0.000703	11
HLA-A*33:01	1	999	1007	9	QSLQTYVTQ 0.000703	16
HLA-A*03:01	1	1027	1036	10	SECVLGQSKR 0.000703	14
HLA-A*24:02	1	1040	1049	10	CGKGYHLMFS 0.000703	9.3
HLA-B*57:01	1	1129	1138	10	IVNNTVYDPL 0.000703	23
HLA-B*51:01	1	1134	1143	10	VYDPLQPELD 0.000703	21
HLA-A*30:01	1	1212	1221	10	YIWLGFIAGL 0.000703	31
HLA-A*02:06	1	142	150	9	GVEYHKNK 0.000702	23
HLA-A*03:01	1	215	223	9	GLPQGFSAL 0.000702	14
HLA-A*02:06	1	261	269	9	AYYVGYLQP 0.000702	23
HLA-A*02:01	1	400	408	9	RGDEVRQIA 0.000702	17
HLA-A*01:01	1	484	493	10	NCYFPLQSYG 0.000702	18
HLA-B*15:01	1	693	702	10	TMSLGVENS 0.000702	17
HLA-A*33:01	1	793	802	10	DFGGFNFSQI 0.000702	16
HLA-B*58:01	1	851	859	9	KFNGLTVLP 0.000702	16
HLA-A*26:01	1	870	879	10	YTSALLAGTI 0.000702	13
HLA-B*57:01	1	934	942	9	SLSSTASAL 0.000702	23
HLA-A*02:01	1	1021	1030	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	DPFLGVYHYK 0.000701	9.6
HLA-A*02:01	1	262	270	9	YYVGYLQPR 0.000701	17
HLA-B*07:02	1	299	307	9	TLKSFTVEK 0.000701	14
HLA-B*57:01	1	422	430	9	LPDDFTGCV 0.000701	23
HLA-A*68:02	1	693	701	9	TMSLGVENS 0.000701	18
HLA-B*53:01	1	794	802	9	FGGFNFSQI 0.000701	11
HLA-A*31:01	1	944	952	9	KLQDVVNQN 0.000701	18
HLA-B*07:02	1	1011	1020	10	RAAEIRASAN 0.000701	14
HLA-A*30:02	1	1057	1066	10	VVFLHVTYVP 0.000701	28
HLA-A*24:02	1	1254	1262	9	DEDDSEPV 0.000701	9.3
HLA-A*31:01	1	23	31	9	QLPPAYTNS 0.0007	18
HLA-B*51:01	1	265	274	10	GYLQPRFTLL 0.0007	21
HLA-B*15:01	1	281	290	10	TITDAVDCAL 0.0007	17
HLA-B*44:03	1	360	368	9	ADYSVLYNS 0.0007	9.3
HLA-A*01:01	1	391	400	10	NVYADSFVIR 0.0007	18
HLA-B*15:01	1	638	647	10	NVFQTRAGCL 0.0007	17
HLA-B*08:01	1	743	751	9	STECSNLLL 0.0007	23
HLA-A*68:01	1	861	869	9	LLTDEMIAQ 0.0007	17
HLA-A*32:01	1	865	874	10	EMIAQYTSAL 0.0007	13
HLA-B*57:01	1	930	939	10	KIQDSLSTA 0.0007	23
HLA-A*26:01	1	979	988	10	SRLDKVEAEV 0.0007	13
HLA-B*51:01	1	1000	1009	10	SLQTYVTQQL 0.0007	21
HLA-A*30:02	1	1117	1125	9	TFVSGNCDV 0.0007	28
HLA-A*30:01	1	1141	1149	9	ELDSFKEEL 0.0007	31
HLA-A*31:01	1	211	220	10	NLVRGLPQGF 0.000699	18
HLA-A*26:01	1	317	325	9	VQPTESIVR 0.000699	13
HLA-A*30:01	1	400	409	10	RGDEVRQIAP 0.000699	31
HLA-A*26:01	1	409	418	10	PGQTGNIADY 0.000699	13
HLA-A*31:01	1	449	458	10	LYRLEFRKSNL 0.000699	18
HLA-B*57:01	1	934	943	10	SLSSTASALG 0.000699	23
HLA-A*31:01	1	1071	1080	10	NFTTAPAICH 0.000699	18
HLA-A*03:01	1	1092	1100	9	FVSNGTHWF 0.000699	14
HLA-B*15:01	1	78	87	10	RFANPVLPFN 0.000698	17
HLA-A*68:01	1	135	143	9	FCNDPFLGV 0.000698	17
HLA-B*58:01	1	258	267	10	GAAAYYVGYL 0.000698	16
HLA-A*30:02	1	373	381	9	TFKCYGVSP 0.000698	28
HLA-A*31:01	1	410	418	9	GQTGNIADY 0.000698	18
HLA-A*31:01	1	490	499	10	QSYGFQPTYG 0.000698	18

HLA-A*11:01	1	581	589	9	ILDITPCSF 0.000698	11
HLA-B*57:01	1	679	688	10	RRARSVASQS 0.000698	23
HLA-B*58:01	1	934	942	9	SLSSTASAL 0.000698	16
HLA-B*35:01	1	950	959	10	NQNAQALNTL 0.000698	12
HLA-A*11:01	1	1077	1085	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	VIKVCEFQF 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	415	423	9	IADYNYKLP 0.000697	23
HLA-A*02:01	1	429	438	10	CVIAWNSNNL 0.000697	17
HLA-A*68:02	1	490	499	10	QSYGFQPTYG 0.000697	18
HLA-A*24:02	1	737	746	10	MYICGDSTEC 0.000697	9.4
HLA-A*33:01	1	824	833	10	TLADAGFIKQ 0.000697	16
HLA-B*08:01	1	830	839	10	FIKQYGDCLG 0.000697	23
HLA-A*03:01	1	901	910	10	YRFNGIGVTQ 0.000697	14
HLA-A*33:01	1	1044	1053	10	YHLMSFPQSA 0.000697	16
HLA-A*01:01	1	1074	1083	10	TAPAICHGDK 0.000697	18
HLA-A*30:01	1	1117	1125	9	TFVSGNCDV 0.000697	31
HLA-A*01:01	1	166	174	9	CTFEYVSQP 0.000696	18
HLA-A*02:06	1	367	375	9	NSASFSTFK 0.000696	23
HLA-A*32:01	1	461	470	10	FERDISTEY 0.000696	13
HLA-B*07:02	1	604	612	9	QVAVLYQGV 0.000696	14
HLA-A*30:01	1	605	614	10	VAVLYQGVNC 0.000696	31
HLA-B*58:01	1	691	700	10	AYTMSLGVEN 0.000696	16
HLA-A*02:06	1	813	822	10	SFIEDLLFNK 0.000696	23
HLA-A*02:01	1	823	832	10	VTLADAGFIK 0.000696	17
HLA-A*23:01	1	927	935	9	AIGKIQDSL 0.000696	9.6
HLA-A*02:01	1	966	974	9	NFGAISSVL 0.000696	17
HLA-A*02:01	1	1078	1086	9	ICHGDKAHF 0.000696	17
HLA-A*30:01	1	1163	1171	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	CNDPFLGVY 0.000695	11
HLA-A*31:01	1	139	148	10	PFLGVYYHKN 0.000695	18
HLA-A*03:01	1	445	454	10	NYNYLYRFR 0.000695	14
HLA-B*57:01	1	473	482	10	GSTPCNGVKG 0.000695	23
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-A*02:03	1	184	192	9	GNFKNLREF 0.000694	18
HLA-B*51:01	1	508	516	9	VVLSFELLH 0.000694	21
HLA-B*08:01	1	663	671	9	IGAGICASY 0.000694	23
HLA-A*32:01	1	888	897	10	GAALQIPFAM 0.000694	13
HLA-B*58:01	1	933	942	10	DSLSSTASAL 0.000694	16
HLA-A*02:01	1	998	1006	9	LQSLQTYVT 0.000694	17
HLA-B*07:02	1	1045	1054	10	HLSFPQSAP 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	252	261	10	SSGWTAGAAA 0.000693	16
HLA-B*35:01	1	281	290	10	TITDAVDCAL 0.000693	12
HLA-A*26:01	1	302	311	10	SFTVEKGIYQ 0.000693	13
HLA-A*01:01	1	340	349	10	NATRFASVYA 0.000693	18
HLA-A*02:06	1	665	673	9	AGICASYQT 0.000693	23
HLA-A*68:02	1	681	689	9	ARSVASQSI 0.000693	18
HLA-A*02:03	1	713	721	9	TNFTISVTT 0.000693	18
HLA-A*30:02	1	736	744	9	TMYICGDST 0.000693	28
HLA-B*58:01	1	887	896	10	AGAALQIPFA 0.000693	16
HLA-A*02:03	1	895	903	9	FAMQMAYRF 0.000693	18
HLA-B*58:01	1	13	21	9	SQCVNLTR 0.000692	16
HLA-A*02:06	1	48	56	9	LHSTQDLFL 0.000692	23
HLA-A*68:02	1	142	150	9	GVYYHKNNK 0.000692	18
HLA-A*23:01	1	225	233	9	PLVDLPIGI 0.000692	9.6
HLA-A*30:01	1	484	493	10	NCYFPLQSYG 0.000692	31
HLA-B*15:01	1	815	823	9	IEDLLFNKV 0.000692	17
HLA-A*31:01	1	822	830	9	KVTLADAGF 0.000692	18
HLA-A*02:01	1	851	859	9	KFNGLTVLP 0.000692	17

HLA-B*07:02	1	865	873	9	EMIAQY TSA 0.000692	14
HLA-A*03:01	1	1061	1069	9	HVTYVPAQE 0.000692	14
HLA-A*31:01	1	108	116	9	TTLDSKTQS 0.000691	18
HLA-A*02:06	1	235	244	10	ITRFQTLHRS 0.000691	23
HLA-A*33:01	1	411	420	10	QTGNIADYNY 0.000691	16
HLA-A*03:01	1	462	470	9	ERDISTEY 0.000691	14
HLA-A*30:01	1	595	603	9	ITPGTNTSN 0.000691	31
HLA-B*57:01	1	1013	1021	9	AEIRASANL 0.000691	23
HLA-B*57:01	1	1260	1268	9	PVLKGVKHL 0.000691	23
HLA-B*58:01	1	376	384	9	CYGVSPTKL 0.00069	16
HLA-A*01:01	1	412	421	10	TGNIADYNYK 0.00069	19
HLA-A*01:01	1	452	461	10	LFKSNLKPF 0.00069	19
HLA-B*51:01	1	479	487	9	GVKGFNCYF 0.00069	22
HLA-B*40:01	1	492	500	9	YGFQPTYGV 0.00069	8.7
HLA-A*24:02	1	521	530	10	VCGPKKSTNL 0.00069	9.4
HLA-A*32:01	1	531	540	10	VKNKCVNFN 0.00069	13
HLA-B*15:01	1	560	568	9	QQFGRDIAD 0.00069	17
HLA-B*35:01	1	613	622	10	NCTEVPVAIH 0.00069	12
HLA-A*24:02	1	972	981	10	SVLNDILSRL 0.00069	9.4
HLA-A*33:01	1	1260	1268	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	376	384	9	CYGVSPTKL 0.000689	11
HLA-A*68:02	1	483	492	10	FNCYFPLQSY 0.000689	18
HLA-A*02:03	1	541	550	10	NGLTGTGVL 0.000689	19
HLA-A*31:01	1	634	642	9	STGSNVFQT 0.000689	18
HLA-B*15:01	1	636	644	9	GSNVFQTRA 0.000689	17
HLA-A*68:01	1	662	671	10	PIGAGICASY 0.000689	17
HLA-A*32:01	1	816	825	10	EDLLFNKVTL 0.000689	13
HLA-A*32:01	1	842	851	10	AARDLICAQK 0.000689	13
HLA-A*30:02	1	854	863	10	GLTVLPPLLT 0.000689	28
HLA-A*03:01	1	1052	1060	9	SAPHGVVFL 0.000689	14
HLA-B*08:01	1	1056	1065	10	GVVFLHVTYV 0.000689	23
HLA-A*30:01	1	1110	1119	10	QIITDNTFV 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*07:02	1	321	329	9	ESIVRFPNI 0.000688	14
HLA-B*07:02	1	346	355	10	SVYAWNRKRI 0.000688	14
HLA-A*68:02	1	385	394	10	NDLCFTNVYA 0.000688	18
HLA-A*32:01	1	448	456	9	YLYRFRKS 0.000688	13
HLA-A*30:02	1	677	685	9	SPRRARSVA 0.000688	28
HLA-A*31:01	1	851	860	10	KFNGLTVLPP 0.000688	18
HLA-B*08:01	1	1046	1054	9	LMSFPQSAP 0.000688	23
HLA-A*31:01	1	1058	1067	10	VFLHVTVVPA 0.000688	18
HLA-A*68:02	1	99	107	9	NIIRGWIFG 0.000687	18
HLA-B*58:01	1	225	233	9	PLVDLP IGI 0.000687	16
HLA-B*57:01	1	543	552	10	LTGTGVLTES 0.000687	23
HLA-A*30:01	1	935	943	9	LSSTASALG 0.000687	31
HLA-B*57:01	1	961	969	9	KQLSSNFGA 0.000687	23
HLA-A*30:02	1	1120	1129	10	SGNCDVVIGI 0.000687	28
HLA-A*02:01	1	1218	1227	10	IAGLIAIVMV 0.000687	17
HLA-A*03:01	1	109	118	10	TLDSKTQSL 0.000686	14
HLA-A*26:01	1	268	277	10	QPRTFLLKYN 0.000686	13
HLA-B*08:01	1	281	290	10	TITDAVDCAL 0.000686	23
HLA-A*30:02	1	464	472	9	DISTEYQA 0.000686	28
HLA-A*31:01	1	548	556	9	VLTESNKKF 0.000686	18
HLA-B*51:01	1	1095	1103	9	NGTHWFVTQ 0.000686	22
HLA-A*68:01	1	1132	1140	9	NTVYDPLQP 0.000686	17
HLA-A*30:02	1	1197	1205	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*02:06	1	237	245	9	RFQTLHRSY 0.000685	23
HLA-A*11:01	1	368	376	9	SASFSTFKC 0.000685	11
HLA-A*68:02	1	420	429	10	YKLPDDFTGC 0.000685	18
HLA-A*30:02	1	607	616	10	VLYQGVNCTE 0.000685	28
HLA-B*40:01	1	615	624	10	TEVPVAIHAD 0.000685	8.8
HLA-A*26:01	1	761	769	9	NRALTGIAV 0.000685	13
HLA-A*01:01	1	1021	1029	9	LAATKMSEC 0.000685	19
HLA-A*01:01	1	1209	1217	9	WPWYIWLGF 0.000685	19
HLA-A*02:06	1	28	37	10	YTNFSFTRGVY 0.000684	23
HLA-B*58:01	1	126	134	9	VVIKVCFFQ 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	663	671	9	IGAGICASY 0.000684	9.5
HLA-A*02:06	1	704	713	10	YSNNSIAIPT 0.000684	23
HLA-A*68:02	1	709	718	10	IAIPTNFTIS 0.000684	18
HLA-B*40:01	1	959	967	9	LVKQLSSNF 0.000684	8.8
HLA-A*30:01	1	1150	1158	9	DKYFKNHTS 0.000684	31
HLA-A*03:01	1	126	134	9	VVIKVCFFQ 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	325	333	9	RFPNITNLC 0.000683	14
HLA-A*30:02	1	349	358	10	AWNKRKISNC 0.000683	28
HLA-A*02:03	1	410	418	9	GQTGNIADY 0.000683	19
HLA-A*02:01	1	549	557	9	LTESNKKFL 0.000683	17
HLA-A*30:01	1	609	617	9	YQGVNCTEV 0.000683	31
HLA-A*02:01	1	625	634	10	QLTPTWRVYS 0.000683	17
HLA-B*44:02	1	729	738	10	TKTSVDCTMY 0.000683	9.5
HLA-A*68:02	1	786	794	9	YKTPPIKDF 0.000683	18
HLA-A*68:01	1	1083	1092	10	KAHFPREGVF 0.000683	17
HLA-A*24:02	1	1106	1115	10	FYEPQIITTD 0.000683	9.5
HLA-A*02:06	1	1136	1145	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	402	410	9	DEVROIAPG 0.000682	9.5
HLA-A*31:01	1	710	719	10	AIPTNFTISV 0.000682	18
HLA-A*31:01	1	784	793	10	QIYKTPPIKD 0.000682	18
HLA-A*68:01	1	800	809	10	SQILPDPSKP 0.000682	17
HLA-A*02:01	1	1023	1031	9	ATKMSECVL 0.000682	17
HLA-A*30:02	1	1215	1223	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	593	601	9	SVITPGTNT 0.000681	16
HLA-A*68:02	1	660	668	9	DIPIGAGIC 0.000681	18
HLA-A*32:01	1	814	822	9	FIEDLLFNK 0.000681	13
HLA-B*07:02	1	876	885	10	AGTITSGWTF 0.000681	14
HLA-B*08:01	1	950	958	9	NQNAQALNT 0.000681	23
HLA-B*07:02	1	1006	1014	9	TQQLIRAAE 0.000681	14
HLA-A*32:01	1	1008	1016	9	QLIRAAEIR 0.000681	13
HLA-B*08:01	1	1016	1024	9	RASANLAAT 0.000681	23
HLA-A*33:01	1	1059	1067	9	FLHVTVVPA 0.000681	16
HLA-A*30:01	1	66	75	10	HATHVSGTNG 0.00068	31
HLA-A*68:02	1	88	96	9	DGVYFASTE 0.00068	18
HLA-A*32:01	1	261	270	10	AYYVGYLQPR 0.00068	13
HLA-B*58:01	1	298	307	10	CTLKSFTVEK 0.00068	16
HLA-A*33:01	1	304	312	9	TVEKGIYQT 0.00068	16
HLA-A*26:01	1	751	759	9	LQYGSFCTQ 0.00068	13
HLA-A*01:01	1	811	819	9	KRSFIEDLL 0.00068	19
HLA-B*57:01	1	814	822	9	FIEDLLFNK 0.00068	23
HLA-A*02:03	1	856	865	10	TVLPPLLTDE 0.00068	19
HLA-B*57:01	1	988	996	9	VQIDRLITG 0.00068	23
HLA-B*51:01	1	153	161	9	MESEFRVYS 0.000679	22
HLA-A*31:01	1	275	283	9	KYNENGTIT 0.000679	18
HLA-A*68:01	1	329	337	9	ITNLCPFGE 0.000679	17
HLA-B*51:01	1	608	617	10	LYQGVNCTEV 0.000679	22

HLA-B*57:01	1	794	802	9	FGGFNFSQI	0.000679	23
HLA-A*03:01	1	851	859	9	KFNGLTVLP	0.000679	14
HLA-B*51:01	1	1042	1050	9	KGYHLMSP	0.000679	22
HLA-B*15:01	1	1178	1187	10	KEIDRLNEVA	0.000679	17
HLA-B*35:01	1	1182	1190	9	RLNEVAKNL	0.000679	12
HLA-A*02:06	1	56	64	9	LPFFSNVTW	0.000678	23
HLA-B*08:01	1	262	270	9	YYVGYLQPR	0.000678	23
HLA-A*30:01	1	292	300	9	PLSEKCTL	0.000678	31
HLA-A*31:01	1	318	326	9	QPTESIVRF	0.000678	18
HLA-A*02:06	1	362	370	9	YSVLYNSAS	0.000678	23
HLA-A*03:01	1	383	391	9	KLNDLCFTN	0.000678	14
HLA-B*44:02	1	453	461	9	FRKSNLKPF	0.000678	9.5
HLA-A*26:01	1	517	525	9	APATVCGPK	0.000678	13
HLA-A*24:02	1	812	821	10	RSFIEDLLFN	0.000678	9.5
HLA-B*07:02	1	1050	1059	10	PQSAPHGVVF	0.000678	14
HLA-A*02:03	1	1124	1133	10	DVVIGIVNNT	0.000678	19
HLA-A*02:06	1	1130	1138	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	VNNATNVVVK	0.000677	16
HLA-B*58:01	1	259	268	10	AAAYYVGYLQ	0.000677	16
HLA-A*11:01	1	307	315	9	KGIYQTSNF	0.000677	11
HLA-A*02:03	1	728	737	10	MTKTSVDCMT	0.000677	19
HLA-B*44:02	1	843	851	9	ARDLICAQK	0.000677	9.5
HLA-A*11:01	1	964	973	10	SSNFGAISSV	0.000677	11
HLA-B*08:01	1	987	996	10	EVQIDRLITG	0.000677	23
HLA-A*11:01	1	47	55	9	VLHSTQDLF	0.000676	11
HLA-B*57:01	1	234	242	9	NITRFQTLH	0.000676	23
HLA-B*07:02	1	297	305	9	KCTLKSFTV	0.000676	14
HLA-B*44:02	1	360	368	9	ADYSVLYNS	0.000676	9.5
HLA-A*68:02	1	375	383	9	KCYGVSPTK	0.000676	18
HLA-A*02:06	1	625	634	10	QLTPTWRVYS	0.000676	23
HLA-B*15:01	1	701	710	10	SVAYSNNNSIA	0.000676	17
HLA-B*15:01	1	710	719	10	AIPTNFTISV	0.000676	17
HLA-A*02:06	1	755	763	9	SFCTQLNRA	0.000676	23
HLA-B*51:01	1	808	816	9	KPSKRFSIE	0.000676	22
HLA-A*30:02	1	1153	1161	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	VVIKVCEQFQ	0.000675	19
HLA-B*58:01	1	326	335	10	FPNITNLCPF	0.000675	16
HLA-B*57:01	1	446	454	9	YNYLYRFR	0.000675	23
HLA-B*57:01	1	498	507	10	YGVGYQPYRV	0.000675	23
HLA-A*68:01	1	602	610	9	SNQVAVLYQ	0.000675	17
HLA-B*57:01	1	770	778	9	EQDKNTQEV	0.000675	23
HLA-A*03:01	1	774	782	9	NTQEVFAQV	0.000675	14
HLA-A*03:01	1	781	789	9	QVKQIYKTP	0.000675	14
HLA-A*33:01	1	806	814	9	PSKPSKRSP	0.000675	16
HLA-B*15:01	1	114	122	9	TQSLLIVNN	0.000674	17
HLA-B*53:01	1	185	194	10	NFKNLREFVF	0.000674	11
HLA-B*40:01	1	413	422	10	GNIADYNYKL	0.000674	8.8
HLA-B*15:01	1	657	665	9	YECDIPIGA	0.000674	17
HLA-A*01:01	1	1077	1085	9	AICHDGKAH	0.000674	19
HLA-A*30:02	1	1142	1151	10	LDSFKEELDK	0.000674	28
HLA-A*24:02	1	1143	1152	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-B*57:01	1	206	215	10	KHTPINLVRG	0.000673	23
HLA-A*01:01	1	386	394	9	DLCFTNVYA	0.000673	19
HLA-A*01:01	1	433	441	9	WNSNNLDSK	0.000673	19
HLA-A*31:01	1	683	691	9	SVASQSIIA	0.000673	18
HLA-A*30:02	1	775	784	10	TQEVFAQVKQ	0.000673	28
HLA-A*33:01	1	780	788	9	AQVKQIYKT	0.000673	16
HLA-B*08:01	1	876	885	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	315	324	10	FRVQPTESIV 0.000672	14
HLA-A*02:06	1	737	746	10	MYICGDSTEC 0.000672	23
HLA-A*02:03	1	751	759	9	LQYGSFCTQ 0.000672	19
HLA-A*01:01	1	870	879	10	YTSALLAGTI 0.000672	19
HLA-A*01:01	1	913	921	9	LYENQKLIA 0.000672	19
HLA-A*30:02	1	1129	1138	10	IVNNTVYDPL 0.000672	28
HLA-A*23:01	1	1189	1197	9	NLNESLIDL 0.000672	9.7
HLA-A*03:01	1	243	252	10	RSYLTPGDSS 0.000671	14
HLA-A*01:01	1	355	364	10	ISNCVADYSV 0.000671	19
HLA-A*02:01	1	541	550	10	NGLTGTGVLT 0.000671	17
HLA-A*02:01	1	673	681	9	TQTNSPRA 0.000671	17
HLA-A*03:01	1	686	694	9	SQSIIAYTM 0.000671	14
HLA-A*30:02	1	714	723	10	NFTISVTTEI 0.000671	29
HLA-A*24:02	1	720	728	9	TTEILPVSM 0.000671	9.5
HLA-A*31:01	1	919	927	9	LIANQFNFA 0.000671	16
HLA-B*57:01	1	990	998	9	IDRLITGRL 0.000671	23
HLA-A*68:02	1	1179	1188	10	EIDRLNEVAK 0.000671	18
HLA-A*68:01	1	644	652	9	AGCLIGAHEH 0.00067	17
HLA-B*44:02	1	715	723	9	FTISVTTEI 0.00067	9.6
HLA-B*51:01	1	879	887	9	ITSGWTFGA 0.00067	22
HLA-A*26:01	1	983	992	10	KVEAEVQIDR 0.00067	14
HLA-A*30:01	1	1164	1173	10	GDISGINASV 0.00067	31
HLA-A*30:02	1	1176	1185	10	IQKEIDRLNE 0.00067	29
HLA-A*32:01	1	5	13	9	LVLLPLVSS 0.000669	13
HLA-A*30:01	1	258	267	10	GAAYYYVGYL 0.000669	31
HLA-A*02:01	1	391	400	10	NVYADSFVIR 0.000669	17
HLA-B*58:01	1	593	602	10	SVITPGTNTS 0.000669	16
HLA-B*40:01	1	625	633	9	QLTPTWRVY 0.000669	8.9
HLA-B*51:01	1	677	686	10	SPRRARSVAS 0.000669	22
HLA-A*31:01	1	720	728	9	TTEILPVSM 0.000669	18
HLA-B*40:01	1	832	841	10	KQYGDCLGDI 0.000669	8.9
HLA-B*57:01	1	851	859	9	KFNGLTVLP 0.000669	23
HLA-A*30:01	1	939	947	9	ASALGKLQD 0.000669	31
HLA-B*40:01	1	1098	1106	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-B*58:01	1	237	246	10	RFQTLHRSYL 0.000668	16
HLA-A*02:03	1	521	530	10	VCGPKKSTNL 0.000668	19
HLA-A*32:01	1	779	787	9	FAQVKQIYK 0.000668	13
HLA-A*26:01	1	867	875	9	IAQYTSALL 0.000668	14
HLA-B*07:02	1	1004	1013	10	YVTQQLIRAA 0.000668	14
HLA-A*26:01	1	1039	1047	9	FCGKGYHLM 0.000668	14
HLA-A*30:01	1	1050	1058	9	PQSAPHGVV 0.000668	31
HLA-A*02:01	1	1179	1187	9	EIDRLNEVA 0.000668	17
HLA-A*31:01	1	1233	1242	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	GYYYHKNNKS 0.000667	18
HLA-A*03:01	1	214	223	10	RGLPQGFSAL 0.000667	14
HLA-A*01:01	1	252	260	9	SSGWTAGAA 0.000667	19
HLA-A*02:01	1	636	644	9	GSNVFQTRA 0.000667	17
HLA-A*01:01	1	669	678	10	ASYQTQTNSP 0.000667	19
HLA-A*31:01	1	763	771	9	ALTGIAVEQ 0.000667	18
HLA-A*68:02	1	803	812	10	LPDPSKPSKR 0.000667	18
HLA-A*01:01	1	849	858	10	AQKFNGTLVL 0.000667	19
HLA-B*57:01	1	1056	1065	10	GVVFLHVTVV 0.000667	23
HLA-B*57:01	1	1071	1080	10	NFTTAPAICH 0.000667	23
HLA-A*30:02	1	1132	1140	9	NTVYDPLQP 0.000667	29
HLA-A*01:01	1	1146	1154	9	KEELDKYFK 0.000667	19
HLA-B*15:01	1	6	15	10	VLLPLVSSQC 0.000666	17
HLA-A*33:01	1	299	308	10	TLKSFTVEKG 0.000666	16
HLA-A*02:03	1	459	467	9	KPFERDIST 0.000666	19
HLA-A*32:01	1	505	514	10	YRVVLSFEL 0.000666	13
HLA-A*02:06	1	560	568	9	QQFGRDIAD 0.000666	23
HLA-A*68:02	1	616	625	10	EVPVAIHADQ 0.000666	18
HLA-A*30:02	1	681	690	10	ARSVASQSII 0.000666	29
HLA-A*68:02	1	770	779	10	EQDKNTQEVF 0.000666	18



HLA-A*26:01	1	773	782	10	KNTQEVFAQV 0.000666	14
HLA-A*11:01	1	814	823	10	FIEDLLFNKV 0.000666	11
HLA-A*30:02	1	951	960	10	QNAQALNTLV 0.000666	29
HLA-A*26:01	1	1027	1036	10	SECVLGQSKR 0.000666	14
HLA-A*30:02	1	1043	1051	9	GYHLMSFPQ 0.000666	29
HLA-A*23:01	1	1155	1163	9	NHTSPDVDL 0.000666	9.7
HLA-B*57:01	1	1193	1202	10	SLIDLQELGK 0.000666	23
HLA-A*02:01	1	1253	1261	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-B*15:01	1	274	282	9	LKYNENGTI 0.000665	17
HLA-A*30:02	1	443	452	10	GGNYNYLYRL 0.000665	29
HLA-A*30:01	1	459	468	10	KPFERDISTE 0.000665	31
HLA-B*51:01	1	565	574	10	DIADTTDAVR 0.000665	22
HLA-A*01:01	1	801	809	9	QILPDPSKP 0.000665	19
HLA-A*30:02	1	1255	1263	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	254	263	10	GWTAGAAAYY 0.000664	9.6
HLA-B*08:01	1	460	469	10	PFERDISTEI 0.000664	23
HLA-A*30:01	1	817	826	10	DLLFNKVTLA 0.000664	31
HLA-A*30:01	1	963	972	10	LSSNFGAISS 0.000664	31
HLA-A*31:01	1	1037	1045	9	VDFCGKGYH 0.000664	19
HLA-A*68:01	1	1038	1047	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	278	286	9	ENGTITDAV 0.000663	23
HLA-A*02:06	1	287	296	10	DCALDPLSET 0.000663	23
HLA-A*33:01	1	389	397	9	FTNVYDSF 0.000663	16
HLA-B*07:02	1	670	678	9	SYQTQTNSP 0.000663	15
HLA-A*02:01	1	692	701	10	YTMSLGVENS 0.000663	17
HLA-A*30:02	1	907	915	9	GVTQNVLYE 0.000663	29
HLA-A*01:01	1	965	974	10	SNFGAISSVL 0.000663	19
HLA-A*30:01	1	991	999	9	DRLITGRLQ 0.000663	31
HLA-B*15:01	1	1016	1025	10	RASANLAATK 0.000663	17
HLA-B*07:02	1	1038	1046	9	DFCGKGYHL 0.000663	15
HLA-A*11:01	1	152	160	9	WMESEFRVY 0.000662	11
HLA-A*30:02	1	310	319	10	YQTSNFRVQP 0.000662	29
HLA-A*30:02	1	359	367	9	VADYSVLYN 0.000662	29
HLA-A*32:01	1	512	521	10	FELLHAPATV 0.000662	13
HLA-A*31:01	1	810	818	9	SKRSFIEDL 0.000662	19
HLA-B*53:01	1	854	862	9	GLTVLPLLL 0.000662	12
HLA-A*68:01	1	1036	1045	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	273	281	9	LLKYNENGT 0.000661	17
HLA-B*15:01	1	440	449	10	SKVGGNYNYL 0.000661	17
HLA-B*44:03	1	440	449	10	SKVGGNYNYL 0.000661	9.6
HLA-A*30:02	1	550	558	9	TESNKKFLP 0.000661	29
HLA-A*02:06	1	619	628	10	VAIHADQLTP 0.000661	23
HLA-B*15:01	1	682	691	10	RSVASQSIIA 0.000661	17
HLA-A*24:02	1	684	692	9	VASQSIIAY 0.000661	9.6
HLA-B*40:01	1	696	704	9	LGVENSVAY 0.000661	8.9
HLA-B*51:01	1	939	948	10	ASALGKLQDV 0.000661	22
HLA-A*11:01	1	1125	1133	9	VVIGIVNNT 0.000661	11
HLA-B*08:01	1	148	156	9	NNKSWMSE 0.00066	23
HLA-A*31:01	1	391	399	9	NVYADSFVI 0.00066	19
HLA-A*33:01	1	546	554	9	TGVLTESNK 0.00066	16
HLA-B*53:01	1	631	639	9	RVYSTGSNV 0.00066	12
HLA-B*07:02	1	682	691	10	RSVASQSIIA 0.00066	15
HLA-A*30:01	1	686	695	10	SQSIIAYTMS 0.00066	31
HLA-A*02:03	1	720	729	10	TTEILPVSMT 0.00066	19
HLA-A*01:01	1	890	898	9	ALQIPFAMQ 0.00066	19
HLA-A*02:06	1	893	901	9	IPFAMQMAY 0.00066	23

HLA-A*68:02	1	1003	1011	9	TYVTQQLIR 0.00066	18
HLA-A*02:01	1	1177	1186	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	467	476	10	TEIYQAGSTP 0.000659	22
HLA-A*02:03	1	580	589	10	EILDITPCSF 0.000659	19
HLA-A*30:01	1	584	592	9	ITPCSFGGV 0.000659	31
HLA-A*32:01	1	630	639	10	WRVYSTGSNV 0.000659	13
HLA-B*57:01	1	668	677	10	CASYQTQTN 0.000659	23
HLA-A*02:06	1	752	760	9	QYGSFCTQL 0.000659	23
HLA-A*30:01	1	911	920	10	NVLYENQKLI 0.000659	31
HLA-B*53:01	1	950	959	10	NQNAQALNTL 0.000659	12
HLA-A*30:01	1	1020	1028	9	NLAATKMSE 0.000659	31
HLA-A*01:01	1	1030	1039	10	VLGQSKRVDF 0.000659	19
HLA-B*44:02	1	1109	1118	10	PQIITTDNTF 0.000659	9.6
HLA-B*08:01	1	1117	1125	9	TFVSGNCDV 0.000659	23
HLA-A*30:02	1	1118	1126	9	FVSGNCDVV 0.000659	29
HLA-A*30:01	1	102	111	10	RGWIFGTTLD 0.000658	32
HLA-B*57:01	1	170	178	9	YVSQPFLMD 0.000658	23
HLA-A*68:01	1	233	242	10	INITRFQTLH 0.000658	18
HLA-A*68:01	1	250	259	10	DSSSGWTAGA 0.000658	18
HLA-B*07:02	1	336	344	9	GEVFNATRF 0.000658	15
HLA-B*08:01	1	369	377	9	ASFSTFKCY 0.000658	23
HLA-A*31:01	1	448	456	9	YLYRLFRRS 0.000658	19
HLA-B*44:02	1	479	487	9	GVKGFNCYF 0.000658	9.7
HLA-A*24:02	1	587	595	9	CSFGGVSVI 0.000658	9.6
HLA-A*02:03	1	642	650	9	TRAGCLIGA 0.000658	19
HLA-A*02:01	1	723	732	10	ILPVSMTKTS 0.000658	17
HLA-A*33:01	1	958	967	10	TLVKQLSSNF 0.000658	16
HLA-A*32:01	1	1219	1227	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-B*53:01	1	281	290	10	TITDAVDCAL 0.000657	12
HLA-A*02:01	1	317	325	9	VQPTESIVR 0.000657	17
HLA-B*08:01	1	344	352	9	FASVYAWNR 0.000657	23
HLA-A*30:02	1	562	570	9	FGRDIADTT 0.000657	29
HLA-B*44:03	1	623	631	9	ADQLTPTWR 0.000657	9.6
HLA-A*02:06	1	647	656	10	LIGAEHVNNS 0.000657	23
HLA-B*58:01	1	789	797	9	PPIKDFGGF 0.000657	17
HLA-A*30:02	1	911	920	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	252	260	9	SSGWTAGAA 0.000656	23
HLA-B*15:01	1	481	489	9	KGFNCYFPL 0.000656	17
HLA-A*30:02	1	539	548	10	NFNGLTGTGV 0.000656	29
HLA-B*53:01	1	565	574	10	DIADTTDAVR 0.000656	12
HLA-A*30:02	1	603	611	9	NQVAVLYQG 0.000656	29
HLA-A*30:02	1	655	663	9	NSYECDIPI 0.000656	29
HLA-A*68:01	1	690	698	9	IAYTMSLGV 0.000656	18
HLA-A*31:01	1	708	716	9	SIAIPTNFT 0.000656	19
HLA-B*40:01	1	867	875	9	IAQYTSALL 0.000656	8.9
HLA-A*30:02	1	897	906	10	MQMAYRFNGI 0.000656	29
HLA-A*32:01	1	1044	1053	10	YHLMSFPQSA 0.000656	13
HLA-A*01:01	1	179	187	9	LEGKQGNFK 0.000655	19
HLA-A*30:02	1	502	511	10	YQPYRVVVL 0.000655	29
HLA-A*31:01	1	508	517	10	VVLSFELLHA 0.000655	19
HLA-A*68:01	1	572	581	10	AVRDPQTLEI 0.000655	18
HLA-A*30:01	1	587	596	10	CSFGGVSVIT 0.000655	32
HLA-A*31:01	1	636	644	9	GSNVFQTRA 0.000655	19
HLA-B*08:01	1	728	736	9	MTKTSVDCT 0.000655	24
HLA-B*08:01	1	875	883	9	LAGTITSGW 0.000655	24
HLA-B*53:01	1	1085	1094	10	HFPREGVFSV 0.000655	12
HLA-A*32:01	1	1109	1118	10	PQIITTDNTF 0.000655	13
HLA-B*08:01	1	1205	1214	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*68:02	1	625	634	10	QLTPTWRVYS 0.000654	19
HLA-A*02:01	1	710	718	9	AIPTNFTIS 0.000654	17
HLA-A*33:01	1	892	900	9	QIPFAMQMA 0.000654	16
HLA-B*08:01	1	987	995	9	EVQIDRLIT 0.000654	24
HLA-A*26:01	1	1083	1091	9	KAHFPREGV 0.000654	14
HLA-B*44:03	1	1099	1107	9	WFVTQRNFY 0.000654	9.6
HLA-B*53:01	1	1108	1117	10	EPQIITTDNT 0.000654	12
HLA-B*07:02	1	1186	1195	10	VAKNLNESLI 0.000654	15
HLA-A*02:01	1	1214	1223	10	WLGFIAGLIA 0.000654	17
HLA-A*03:01	1	1258	1266	9	SEPVLKGVK 0.000654	14
HLA-A*30:01	1	5	14	10	LVLLPLVSSQ 0.000653	32
HLA-B*08:01	1	680	688	9	RARSVASQS 0.000653	24
HLA-A*24:02	1	716	724	9	TISVTTEIL 0.000653	9.6
HLA-B*15:01	1	731	739	9	TSVDCTMYI 0.000653	17
HLA-A*26:01	1	816	825	10	EDLLFNKVTL 0.000653	14
HLA-A*24:02	1	858	866	9	LPPLLDEM 0.000653	9.6
HLA-A*32:01	1	1036	1045	10	RVDFCGKGYH 0.000653	13
HLA-B*15:01	1	1151	1159	9	KYFKNHTSP 0.000653	17
HLA-A*32:01	1	1195	1203	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	VSSQCVLTT 0.000652	29
HLA-A*02:03	1	240	249	10	TLHRSYLTPG 0.000652	19
HLA-A*68:01	1	363	372	10	SVLYNSASFS 0.000652	18
HLA-B*35:01	1	484	493	10	NCYFPLQSYG 0.000652	12
HLA-B*51:01	1	527	536	10	STNLVKNKCV 0.000652	22
HLA-B*51:01	1	603	612	10	NQVAVLYQGV 0.000652	22
HLA-A*02:03	1	770	779	10	EQDKNTQEVF 0.000652	19
HLA-B*40:01	1	847	855	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	347	355	9	VYAWNRRKRI 0.000651	19
HLA-A*30:01	1	348	357	10	YAWNRRKRISN 0.000651	32
HLA-A*03:01	1	792	801	10	KDFGGFNFSQ 0.000651	14
HLA-A*26:01	1	856	865	10	TVLPLLDE 0.000651	14
HLA-A*31:01	1	1101	1109	9	VTQRNFYEP 0.000651	19
HLA-B*57:01	1	1103	1112	10	QRNFYEPQII 0.000651	23
HLA-B*08:01	1	154	163	10	ESEFRVYSSA 0.00065	24
HLA-A*30:02	1	334	343	10	PFGEVFNATR 0.00065	29
HLA-A*68:02	1	424	432	9	DDFTGCVIA 0.00065	19
HLA-A*26:01	1	505	514	10	YRVVLSFEL 0.00065	14
HLA-A*32:01	1	514	522	9	LLHAPATVC 0.00065	13
HLA-B*44:03	1	523	531	9	GPKKSTNLV 0.00065	9.6
HLA-B*40:01	1	703	711	9	AYSNNIAI 0.00065	9.0
HLA-A*30:02	1	710	718	9	AIPTNFTIS 0.00065	29
HLA-A*31:01	1	800	809	10	SQILPDPSKP 0.00065	19
HLA-B*44:03	1	937	945	9	STASALGKL 0.00065	9.6
HLA-A*31:01	1	1104	1112	9	RNFYEPQII 0.00065	19
HLA-B*40:01	1	1134	1143	10	VYDPLQPELD 0.00065	9.0
HLA-A*24:02	1	1155	1163	9	NHTSPDVDL 0.00065	9.6
HLA-A*68:02	1	1253	1262	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	314	323	10	NFRVQPTESI 0.000649	19
HLA-A*68:01	1	491	500	10	SYGFQPTYGV 0.000649	18
HLA-A*33:01	1	676	684	9	NSPRRARSV 0.000649	17
HLA-B*58:01	1	1134	1143	10	VYDPLQPELD 0.000649	17
HLA-B*08:01	1	1222	1231	10	IAIVMVTIML 0.000649	24
HLA-A*02:01	1	1233	1241	9	CMTSCCSC 0.000649	17
HLA-B*08:01	1	1239	1247	9	SCLKGCCSC 0.000649	24
HLA-A*11:01	1	33	41	9	TRGVYYPDK 0.000648	11
HLA-A*30:02	1	335	344	10	FGEVFNATRF 0.000648	29
HLA-A*01:01	1	345	354	10	ASVYAWNRRKR 0.000648	19
HLA-A*30:01	1	408	416	9	APGQTGNIA 0.000648	32
HLA-A*02:06	1	990	998	9	IDRLITGRL 0.000648	23

HLA-A*02:06	1	1068	1076	9	QEKNFTTAP	0.000648	23
HLA-A*11:01	1	1102	1110	9	TQRNFYEPQ	0.000648	11
HLA-B*40:01	1	1184	1192	9	NEVAKNLNE	0.000648	9.0
HLA-A*01:01	1	1195	1204	10	IDLQELGKYE	0.000648	19
HLA-B*15:01	1	374	383	10	FKCYGVSPTK	0.000647	17
HLA-A*02:03	1	514	523	10	LLHAPATVCG	0.000647	19
HLA-B*51:01	1	539	548	10	NFNGLTGTGV	0.000647	22
HLA-A*30:02	1	713	721	9	TNFTISVTT	0.000647	29
HLA-A*30:01	1	857	865	9	VLPPLLTDE	0.000647	32
HLA-A*68:02	1	871	880	10	TSALLAGTIT	0.000647	19
HLA-A*30:01	1	1028	1036	9	ECVLGQSKR	0.000647	32
HLA-A*31:01	1	1110	1118	9	QIITTDNTF	0.000647	19
HLA-A*02:01	1	1215	1224	10	LGFIAGLIAI	0.000647	17
HLA-A*24:02	1	105	113	9	IFGTTLDSK	0.000646	9.7
HLA-A*33:01	1	371	379	9	FSTFKCYGV	0.000646	17
HLA-A*33:01	1	402	411	10	DEVQRQIAPGQ	0.000646	17
HLA-A*11:01	1	439	448	10	DSKVGGNVNY	0.000646	11
HLA-B*15:01	1	666	674	9	GICASYQTQ	0.000646	17
HLA-B*35:01	1	927	935	9	AIGKIQDSL	0.000646	12
HLA-B*44:02	1	1041	1049	9	GKGYHLMSF	0.000646	9.7
HLA-B*58:01	1	1175	1183	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	254	262	9	GWTAGAAAY	0.000645	23
HLA-B*51:01	1	341	350	10	ATRFASVYAW	0.000645	22
HLA-A*23:01	1	369	377	9	ASFSTFKCY	0.000645	9.9
HLA-B*08:01	1	776	785	10	QEVFAQVKQI	0.000645	24
HLA-A*02:06	1	884	893	10	TFGAGAALQI	0.000645	24
HLA-A*01:01	1	904	912	9	NGIGVTQNV	0.000645	19
HLA-A*02:06	1	954	962	9	QALNTLVKQ	0.000645	24
HLA-A*31:01	1	1095	1103	9	NGTHWFVTQ	0.000645	19
HLA-A*03:01	1	1151	1159	9	KYFKNHTSP	0.000645	14
HLA-B*40:01	1	1192	1200	9	ESLIDLQEL	0.000645	9.0
HLA-A*24:02	1	53	62	10	DLFLPFFSNV	0.000644	9.7
HLA-A*30:02	1	298	306	9	CTLKSFTVE	0.000644	29
HLA-A*11:01	1	342	350	9	TRFASVYAW	0.000644	11
HLA-A*01:01	1	512	521	10	FELLHAPATV	0.000644	19
HLA-B*58:01	1	535	543	9	CVNFNFNGL	0.000644	17
HLA-B*57:01	1	545	554	10	GTGVLTESNK	0.000644	23
HLA-B*57:01	1	636	645	10	GSNVFQTRAG	0.000644	23
HLA-B*51:01	1	885	894	10	FGAGAALQIP	0.000644	22
HLA-A*02:03	1	910	919	10	QNVLYENQKL	0.000644	19
HLA-A*33:01	1	1125	1134	10	VVIGIVNNTV	0.000644	17
HLA-A*02:03	1	1148	1156	9	ELDKYFKNH	0.000644	19
HLA-B*08:01	1	1160	1169	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	280	289	10	GTITDAVDCA	0.000643	23
HLA-A*31:01	1	325	334	10	RFPNITNLCP	0.000643	19
HLA-B*15:01	1	331	340	10	NLCPFGEVFN	0.000643	17
HLA-A*30:02	1	351	359	9	NRKRISNCV	0.000643	29
HLA-A*01:01	1	783	791	9	KQIYKTPPI	0.000643	19
HLA-A*24:02	1	986	994	9	AEVQIDRLI	0.000643	9.7
HLA-A*30:02	1	994	1003	10	ITGRLQSLQT	0.000643	29
HLA-A*68:01	1	1001	1009	9	LQTYVTQQL	0.000643	18
HLA-B*57:01	1	1095	1104	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-A*30:01	1	406	414	9	QIAPGQTGN	0.000642	32
HLA-A*02:03	1	608	617	10	LYQGVNCTEV	0.000642	19
HLA-B*44:03	1	613	621	9	NCTEVPVAI	0.000642	9.7
HLA-A*32:01	1	931	939	9	IQDLSLSSTA	0.000642	13
HLA-B*15:01	1	977	986	10	ILSRLDKVEA	0.000642	17
HLA-A*03:01	1	1047	1056	10	MSFPQSAPHG	0.000642	14
HLA-A*68:02	1	11	20	10	VSSQCVNLTT	0.000641	19

HLA-A*01:01	1	79	87	9	FANPVLPFN	0.000641	19
HLA-B*15:01	1	253	261	9	SGWTAGAAA	0.000641	17
HLA-B*15:01	1	260	268	9	AAYYVGYLQ	0.000641	17
HLA-B*53:01	1	301	309	9	KSFTVEKGI	0.000641	12
HLA-A*26:01	1	315	324	10	FRVQPTESIV	0.000641	14
HLA-A*30:02	1	352	360	9	RKRISNCVA	0.000641	29
HLA-A*30:02	1	432	440	9	AWNSNNLDS	0.000641	29
HLA-A*02:01	1	572	580	9	AVRDPQMLE	0.000641	17
HLA-B*15:01	1	574	582	9	RDPQMLEIL	0.000641	17
HLA-A*03:01	1	701	709	9	SVAYSNNSI	0.000641	14
HLA-A*33:01	1	751	759	9	LQYGSFCTQ	0.000641	17
HLA-B*40:01	1	780	789	10	AQVKQIYKTP	0.000641	9.0
HLA-A*30:01	1	846	855	10	LICAQKFNGL	0.000641	32
HLA-A*26:01	1	888	897	10	GAALQIPFAM	0.000641	14
HLA-B*07:02	1	1129	1138	10	IVNNTVYDPL	0.000641	15
HLA-A*30:02	1	1212	1221	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	250	259	10	DSSSGWTAGA	0.00064	14
HLA-B*15:01	1	379	387	9	VSPTKLNDL	0.00064	17
HLA-B*53:01	1	468	476	9	EIYQAGSTP	0.00064	12
HLA-A*30:01	1	592	600	9	VSVITPGTN	0.00064	32
HLA-A*03:01	1	754	763	10	GSFCTQLNRA	0.00064	14
HLA-A*32:01	1	999	1007	9	QSLQTYVTQ	0.00064	13
HLA-A*30:01	1	1252	1261	10	KFDEDDSEPV	0.00064	32
HLA-B*07:02	1	185	193	9	NFKNLREFV	0.000639	15
HLA-A*30:02	1	327	335	9	PNITNLCPF	0.000639	29
HLA-B*57:01	1	336	345	10	GEVFNATRFA	0.000639	24
HLA-B*57:01	1	623	632	10	ADQLTPTWRV	0.000639	24
HLA-A*30:02	1	666	674	9	GICASYQTQ	0.000639	29
HLA-A*03:01	1	751	760	10	LQYGSFCTQL	0.000639	14
HLA-A*02:06	1	906	914	9	IGVTQNVLY	0.000639	24
HLA-B*44:02	1	911	919	9	NVLYENQKL	0.000639	9.8
HLA-A*24:02	1	1130	1138	9	VNNTVYDPL	0.000639	9.7
HLA-A*02:03	1	238	247	10	FQTLHRSYLT	0.000638	19
HLA-A*03:01	1	311	319	9	QTSNFRVQP	0.000638	14
HLA-A*68:02	1	455	463	9	KSNLKPFER	0.000638	19
HLA-A*02:06	1	999	1007	9	QSLQTYVTQ	0.000638	24
HLA-A*02:06	1	1117	1125	9	TFVSGNCDV	0.000638	24
HLA-B*40:01	1	1253	1261	9	FDEDDSEPV	0.000638	9.0
HLA-A*26:01	1	402	411	10	DEVQRQIAPGQ	0.000637	14
HLA-B*08:01	1	451	460	10	RLFRKSNLKP	0.000637	24
HLA-A*01:01	1	700	709	10	NSVAYSNNSI	0.000637	19
HLA-B*53:01	1	776	785	10	QEVFAQVKQI	0.000637	12
HLA-A*23:01	1	847	855	9	ICAQKFNGL	0.000637	9.9
HLA-B*57:01	1	1053	1062	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	367	375	9	NSASFSTFK	0.000636	22
HLA-B*35:01	1	392	400	9	VYADSFVIR	0.000636	12
HLA-B*40:01	1	463	472	10	RDISTEIQQA	0.000636	9.0
HLA-A*11:01	1	497	505	9	TYGVGYQPY	0.000636	12
HLA-A*30:02	1	612	620	9	VNCTEVPVA	0.000636	29
HLA-A*30:02	1	960	969	10	VKQLSSNFGA	0.000636	29
HLA-B*51:01	1	988	996	9	VQIDRLITG	0.000636	22
HLA-A*30:01	1	1006	1015	10	TQQLIRAAEI	0.000636	32
HLA-A*02:03	1	71	80	10	SGTNGTKRFA	0.000635	19
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	267	275	9	LQPRTFLLK	0.000635	17
HLA-A*31:01	1	403	411	9	EVQRQIAPGQ	0.000635	19
HLA-B*57:01	1	433	442	10	WNSNNLDSKV	0.000635	24
HLA-B*08:01	1	440	448	9	SKVGGNYNY	0.000635	24
HLA-A*01:01	1	911	920	10	NVLYENQKLI	0.000635	19
HLA-A*68:01	1	1196	1204	9	DLQELGKYE	0.000635	18

HLA-B*08:01	1	5	13	9	LVLPLVSS 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*30:02	1	322	331	10	SIVRFPNITN 0.000634	29
HLA-A*02:06	1	507	516	10	VVLSFELLH 0.000634	24
HLA-A*30:02	1	544	552	9	TGTGVLTES 0.000634	29
HLA-A*68:02	1	586	595	10	PCSFGGVSVI 0.000634	19
HLA-A*30:02	1	588	597	10	SFGGVSVITP 0.000634	29
HLA-A*11:01	1	598	606	9	GTNTSNQVA 0.000634	12
HLA-A*02:01	1	799	808	10	FSQILPDPSK 0.000634	17
HLA-A*02:01	1	801	810	10	QILPDPSKPS 0.000634	17
HLA-A*11:01	1	849	857	9	AQKFNGLTV 0.000634	12
HLA-A*31:01	1	1084	1093	10	AHFPREGV FV 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	368	377	10	SASFSTFKCY 0.000633	19
HLA-A*01:01	1	656	665	10	SYECDIPIGA 0.000633	19
HLA-A*02:06	1	658	667	10	ECDIPIGAGI 0.000633	24
HLA-A*02:01	1	762	771	10	RALTGIAVEQ 0.000633	17
HLA-A*01:01	1	866	875	10	MIAQYTSALL 0.000633	19
HLA-A*02:01	1	1010	1019	10	IRAAEIRASA 0.000633	17
HLA-B*07:02	1	1126	1134	9	VIGIVNNTV 0.000633	15
HLA-A*02:06	1	1151	1159	9	KYFKNHTSP 0.000633	24
HLA-A*33:01	1	1172	1180	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	312	320	9	TSNFRVQPT 0.000632	18
HLA-B*53:01	1	729	738	10	TKTSVDCTMY 0.000632	12
HLA-A*68:01	1	922	931	10	NQFNSAIGKI 0.000632	18
HLA-B*44:03	1	934	942	9	SLSSTASAL 0.000632	9.8
HLA-A*68:02	1	1065	1073	9	VPAQEKNTF 0.000632	19
HLA-A*01:01	1	1109	1118	10	PQIITDNTF 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	CNDPFLGVY 0.000631	32
HLA-A*23:01	1	194	203	10	FKNIDGYFKI 0.000631	9.9
HLA-B*35:01	1	281	289	9	TITDAVDCA 0.000631	13
HLA-A*30:01	1	359	368	10	VADYSVLYNS 0.000631	32
HLA-B*08:01	1	446	454	9	YNYLYRLFR 0.000631	24
HLA-A*30:01	1	603	611	9	NQVAVLYQG 0.000631	32
HLA-B*40:01	1	694	702	9	MSLGVENS 0.000631	9.1
HLA-A*68:01	1	702	710	9	VAYSNNSIA 0.000631	18
HLA-A*03:01	1	876	885	10	AGTITSGWTF 0.000631	14
HLA-B*40:01	1	966	974	9	NFGAISSVL 0.000631	9.1
HLA-B*35:01	1	1017	1026	10	ASANLAATKM 0.000631	13
HLA-B*58:01	1	151	159	9	SWMESEFRV 0.00063	17
HLA-A*30:02	1	297	306	10	KCTLKSFTVE 0.00063	29
HLA-A*02:01	1	614	623	10	CTEVPVAIHA 0.00063	17
HLA-A*24:02	1	743	751	9	STECSNLLL 0.00063	9.8
HLA-A*31:01	1	792	800	9	KDFGGFNFS 0.00063	19
HLA-A*33:01	1	825	834	10	LADAGFIKQY 0.00063	17
HLA-A*24:02	1	1049	1057	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	FKNLREFV 0.000629	15
HLA-A*32:01	1	680	688	9	RARVASQS 0.000629	13
HLA-A*03:01	1	708	717	10	SIAIPTNFTI 0.000629	14
HLA-B*53:01	1	865	874	10	EMIAQYTSAL 0.000629	12
HLA-A*33:01	1	1201	1209	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	362	371	10	YSVLYNSASF 0.000628	18
HLA-B*51:01	1	864	873	10	DEMIAQYTSA 0.000628	22
HLA-B*57:01	1	902	910	9	RFNGIGVTQ 0.000628	24
HLA-A*03:01	1	958	967	10	TLVKQLSSNF 0.000628	14
HLA-B*15:01	1	982	990	9	DKVEAEVQI 0.000628	17
HLA-A*68:01	1	1156	1164	9	HTSPDVDLG 0.000628	18
HLA-A*02:06	1	1189	1198	10	NLNESLIDLQ 0.000628	24
HLA-A*03:01	1	136	144	9	CNDPFLGVY 0.000627	14
HLA-B*51:01	1	460	469	10	PFERDISTEI 0.000627	22
HLA-B*15:01	1	512	521	10	FELLHAPATV 0.000627	17
HLA-A*02:03	1	868	877	10	AQYTSALLAG 0.000627	19
HLA-B*07:02	1	886	895	10	GAGAALQIPF 0.000627	15
HLA-A*33:01	1	887	895	9	AGAALQIPF 0.000627	17
HLA-B*40:01	1	1006	1014	9	TQQLIRAAE 0.000627	9.1
HLA-B*44:02	1	1140	1148	9	PELDSFKEE 0.000627	9.8
HLA-A*02:01	1	1222	1230	9	IAIVMVTIM 0.000627	17
HLA-A*02:06	1	1226	1234	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	298	306	9	CTLKSFTVE 0.000626	12
HLA-A*02:01	1	324	333	10	VRFPNITNLC 0.000626	17
HLA-A*01:01	1	407	415	9	IAPGQTGNI 0.000626	20
HLA-B*08:01	1	413	422	10	GNIADYNYKL 0.000626	24
HLA-A*02:03	1	932	941	10	QDLSSTASA 0.000626	19
HLA-B*58:01	1	1025	1033	9	KMSECVLGQ 0.000626	17
HLA-A*68:01	1	1086	1094	9	FPREGVFVS 0.000626	18
HLA-A*30:02	1	1199	1207	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	444	452	9	GNYNYLYRL 0.000625	14
HLA-B*44:03	1	444	452	9	GNYNYLYRL 0.000625	9.8
HLA-A*33:01	1	510	519	10	LSFELLHAPA 0.000625	17
HLA-A*02:03	1	519	528	10	ATVCGPKKST 0.000625	19
HLA-B*58:01	1	681	689	9	ARSVASQSI 0.000625	17
HLA-A*01:01	1	682	691	10	RSVASQSIIA 0.000625	20
HLA-B*58:01	1	703	712	10	AYSNNIAIP 0.000625	17
HLA-A*68:02	1	741	750	10	GDSTECSNLL 0.000625	19
HLA-A*30:02	1	782	791	10	VKQIYKTPPI 0.000625	29
HLA-B*58:01	1	886	894	9	GAGAALQIP 0.000625	17
HLA-A*68:02	1	915	924	10	ENQKLIANQF 0.000625	19
HLA-B*57:01	1	926	934	9	SAIGKIQDS 0.000625	24
HLA-A*01:01	1	62	71	10	VTWFHAIHVS 0.000624	20
HLA-A*11:01	1	212	220	9	LVRGLPQGF 0.000624	12
HLA-B*07:02	1	228	237	10	DLPIGINITR 0.000624	15
HLA-B*57:01	1	281	290	10	TITDAVDCAL 0.000624	24
HLA-B*08:01	1	365	373	9	LYNSASFST 0.000624	24
HLA-B*44:03	1	412	420	9	TGNIADYNY 0.000624	9.8
HLA-A*01:01	1	545	554	10	GTGVLTESNK 0.000624	20
HLA-A*01:01	1	597	606	10	PGTNTSNQVA 0.000624	20
HLA-A*30:01	1	711	720	10	IPNTFTISVT 0.000624	32
HLA-B*07:02	1	769	778	10	VEQDKNTQEV 0.000624	15
HLA-A*30:02	1	788	797	10	TPPIKDFGGF 0.000624	29
HLA-A*01:01	1	996	1005	10	GRLQSLQTYV 0.000624	20
HLA-B*08:01	1	1058	1066	9	VFLHVITYVP 0.000624	24
HLA-B*57:01	1	1166	1175	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	GNFNKREF 0.000623	18
HLA-A*01:01	1	234	243	10	NITRFQTLHR 0.000623	20
HLA-A*03:01	1	461	470	10	FERDISTEY 0.000623	14
HLA-A*02:03	1	888	897	10	GAALQIPFAM 0.000623	19
HLA-B*15:01	1	970	978	9	ISSVLNDIL 0.000623	17
HLA-A*02:06	1	1065	1074	10	VPAQEKNF 0.000623	24
HLA-B*35:01	1	1205	1213	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-A*26:01	1	214	223	10	RGLPQGFSAL 0.000622	14
HLA-B*08:01	1	384	392	9	LNDLCFTNV 0.000622	24
HLA-B*58:01	1	507	516	10	VVLSFELLH 0.000622	17
HLA-A*32:01	1	682	691	10	RSVASQSIIA 0.000622	13
HLA-A*30:02	1	686	695	10	SQSIIAYTMS 0.000622	29
HLA-B*58:01	1	800	809	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-A*02:01	1	238	247	10	FQTLHRSYLT 0.000621	17
HLA-B*44:02	1	306	315	10	EKGIYQTSNF 0.000621	9.9
HLA-B*07:02	1	352	360	9	RKRISNCVA 0.000621	15
HLA-A*01:01	1	444	452	9	GNYNYLYRL 0.000621	20
HLA-A*02:06	1	622	631	10	HADQLTPTWR 0.000621	24
HLA-A*68:02	1	822	831	10	KVTLADAGFI 0.000621	19
HLA-A*03:01	1	919	927	9	LIANQFNESA 0.000621	14
HLA-B*44:02	1	1011	1019	9	RAAEIRASA 0.000621	9.9
HLA-A*30:02	1	1174	1183	10	VNIQKEIDRL 0.000621	30
HLA-A*23:01	1	1245	1253	9	CSCGSCCKF 0.000621	10
HLA-A*68:01	1	61	70	10	NVTWFHAIHV 0.00062	18
HLA-A*68:01	1	71	80	10	SGTNGTKRFA 0.00062	18
HLA-A*02:06	1	239	248	10	QTLHRSYLT 0.00062	24
HLA-A*68:01	1	256	264	9	TAGAAAYYV 0.00062	18
HLA-A*68:02	1	537	546	10	NFNFNGLTGT 0.00062	19
HLA-A*68:02	1	624	633	10	DQLTPTWRVY 0.00062	19
HLA-A*33:01	1	881	889	9	SGWTFGAGA 0.00062	17
HLA-A*33:01	1	898	906	9	QMAYRFNGI 0.00062	17
HLA-A*11:01	1	948	956	9	VVNQNAQAL 0.00062	12
HLA-A*33:01	1	1090	1098	9	GVFVSNGLH 0.00062	17
HLA-A*30:01	1	1255	1263	9	EDDSEPVLK 0.00062	32
HLA-A*02:03	1	1258	1267	10	SEPVLKGVKL 0.00062	19
HLA-A*01:01	1	124	133	10	TNVVIKVICEF 0.000619	20
HLA-A*30:02	1	170	178	9	YVSQPFLMD 0.000619	30
HLA-A*02:06	1	196	205	10	NIDGYFKIYS 0.000619	24
HLA-A*31:01	1	439	448	10	DSKVGGNYNY 0.000619	19
HLA-B*15:01	1	450	458	9	YRLFRKSNL 0.000619	17
HLA-A*33:01	1	547	555	9	GVLTESNKK 0.000619	17
HLA-B*58:01	1	549	558	10	LTESNKKFLP 0.000619	17
HLA-B*08:01	1	593	601	9	SVITPGTNT 0.000619	24
HLA-A*02:03	1	680	688	9	RARSVASQS 0.000619	19
HLA-B*51:01	1	684	693	10	VASQSIIAYT 0.000619	22
HLA-A*68:01	1	924	932	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	NSFTRGVY 0.000618	9.8
HLA-B*08:01	1	63	71	9	TWFHAIHVS 0.000618	24
HLA-A*33:01	1	237	246	10	RFQTLHRSYL 0.000618	17
HLA-B*58:01	1	281	290	10	TITDAVDCAL 0.000618	17
HLA-B*51:01	1	292	300	9	PLSETKCTL 0.000618	22
HLA-B*07:02	1	575	584	10	DPQTLEILDI 0.000618	15
HLA-B*57:01	1	1129	1137	9	IVNNTVYDP 0.000618	24
HLA-A*32:01	1	1193	1201	9	SLIDLQELG 0.000618	13
HLA-A*32:01	1	115	123	9	QSLIVNNA 0.000617	13
HLA-A*30:02	1	118	127	10	LIVNNTVYDP 0.000617	30
HLA-A*32:01	1	527	536	10	STNLVKNKCV 0.000617	13
HLA-B*58:01	1	841	850	10	IAARDLICAQ 0.000617	17
HLA-B*08:01	1	1125	1134	10	VVIGIVNNTV 0.000617	24
HLA-A*01:01	1	1164	1173	10	GDISGINASV 0.000617	20
HLA-A*01:01	1	1259	1268	10	EPVLKGVKLV 0.000617	20
HLA-A*68:01	1	56	65	10	LPFFSNVTWF 0.000616	18
HLA-B*58:01	1	399	407	9	IRGDEVRQI 0.000616	17
HLA-A*30:02	1	459	468	10	KPFERDISTE 0.000616	30
HLA-A*02:06	1	483	492	10	FNCYFPLQSY 0.000616	24
HLA-B*57:01	1	505	514	10	YRVVLSFEL 0.000616	24



HLA-A*33:01	1	546	555	10	TGVLTESNKK 0.000616	17
HLA-A*02:03	1	580	588	9	EILDITPCS 0.000616	19
HLA-A*32:01	1	593	601	9	SVITPGTNT 0.000616	13
HLA-B*44:03	1	648	657	10	IGAHEVNNYSY 0.000616	9.8
HLA-A*68:02	1	671	679	9	YQTQTNSPR 0.000616	19
HLA-A*30:02	1	985	993	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	SNIIRGWIF 0.000615	18
HLA-B*51:01	1	399	408	10	IRGDEVRQIA 0.000615	22
HLA-B*57:01	1	400	408	9	RGDEVRQIA 0.000615	24
HLA-B*08:01	1	769	777	9	VEQDKNTQE 0.000615	24
HLA-B*58:01	1	790	799	10	PIKDFGGFNF 0.000615	17
HLA-A*02:03	1	826	834	9	ADAGFIKQY 0.000615	19
HLA-B*40:01	1	864	873	10	DEMQAQTSA 0.000615	9.2
HLA-B*57:01	1	871	880	10	TSALLAGTIT 0.000615	24
HLA-B*15:01	1	1182	1191	10	RLNEVAKNLN 0.000615	18
HLA-A*68:01	1	59	67	9	FSNVTWFHA 0.000614	18
HLA-A*02:03	1	74	83	10	NGTKRFANPV 0.000614	19
HLA-B*35:01	1	299	307	9	TLKSFTVEK 0.000614	13
HLA-A*32:01	1	571	579	9	DAVRDPQTL 0.000614	13
HLA-B*53:01	1	599	607	9	TNTSNQVAV 0.000614	12
HLA-A*01:01	1	670	678	9	SYQTQTNSP 0.000614	20
HLA-A*68:02	1	737	746	10	MYICGDSTEC 0.000614	19
HLA-B*44:02	1	742	750	9	DSTECSNLL 0.000614	9.9
HLA-B*53:01	1	1148	1156	9	ELDKYFKNH 0.000614	12
HLA-A*30:02	1	1186	1195	10	VAKNLNESLI 0.000614	30
HLA-B*44:02	1	138	146	9	DPFLGVVYH 0.000613	9.9
HLA-B*53:01	1	302	310	9	SFTVEKGIY 0.000613	12
HLA-A*31:01	1	511	519	9	SFELLHAPA 0.000613	19
HLA-A*68:02	1	522	530	9	CGPKKSTNL 0.000613	19
HLA-A*33:01	1	602	610	9	SNQVAVLYQ 0.000613	17
HLA-A*26:01	1	634	642	9	STGSNVFQT 0.000613	14
HLA-B*44:02	1	803	812	10	LPDPSKPSKR 0.000613	9.9
HLA-A*01:01	1	932	941	10	QDLSSTASA 0.000613	20
HLA-A*01:01	1	941	949	9	ALGKLQDVV 0.000613	20
HLA-B*58:01	1	951	960	10	QNAQALNTLV 0.000613	17
HLA-A*02:06	1	1064	1073	10	YVPAQEKFT 0.000613	24
HLA-A*68:02	1	1215	1224	10	LGFIAGLIAI 0.000613	19
HLA-B*08:01	1	156	164	9	EFRVYSSAN 0.000612	24
HLA-A*30:01	1	281	289	9	TITDAVDCA 0.000612	32
HLA-A*30:02	1	292	301	10	PLSETKCTLK 0.000612	30
HLA-A*23:01	1	326	335	10	FPNITNLCPF 0.000612	11
HLA-A*33:01	1	329	337	9	ITNLCPFGE 0.000612	17
HLA-A*03:01	1	501	509	9	GYQPYRVVV 0.000612	14
HLA-B*44:03	1	780	789	10	AQVKQIYKTP 0.000612	9.9
HLA-A*11:01	1	811	820	10	KRSFIEDLLF 0.000612	12
HLA-B*07:02	1	875	883	9	LAGTITSGW 0.000612	15
HLA-A*24:02	1	1013	1021	9	AEIRASANL 0.000612	9.9
HLA-A*33:01	1	1192	1200	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	285	293	9	AVDCALDPL 0.000611	30
HLA-A*01:01	1	315	324	10	FRVQPTESIV 0.000611	20
HLA-B*51:01	1	680	688	9	RARSVASQS 0.000611	23
HLA-A*26:01	1	754	762	9	GSFCTQLNR 0.000611	14
HLA-A*02:03	1	982	990	9	DKVEAEVQI 0.000611	19
HLA-A*23:01	1	1043	1051	9	GYHLMSFPQ 0.000611	11
HLA-A*30:01	1	1167	1175	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	260	268	9	AAYYVGYLQ 0.00061	20
HLA-A*30:01	1	644	653	10	AGCLIGAHEV 0.00061	32
HLA-B*08:01	1	721	729	9	TEILPVSM 0.00061	24
HLA-B*58:01	1	883	892	10	WTFGAGAALQ 0.00061	17
HLA-A*68:01	1	884	892	9	TFGAGAALQ 0.00061	18
HLA-A*68:02	1	905	913	9	GIGVTQNVL 0.00061	19

HLA-B*08:01	1	996	1005	10	GRLQSLQTYV 0.00061	24
HLA-A*02:06	1	1213	1222	10	IWLGFIAGLI 0.00061	24
HLA-A*01:01	1	16	24	9	VNLTRTQL 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	GTFLDSKTQ 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-B*53:01	1	367	375	9	NSASFSTFK 0.000609	12
HLA-B*58:01	1	374	383	10	FKCYGVSPTK 0.000609	17
HLA-A*68:01	1	455	464	10	KSNLKPFFERD 0.000609	18
HLA-A*30:02	1	543	551	9	LTGTGVLTE 0.000609	30
HLA-A*68:02	1	858	867	10	LPPLLTDEMI 0.000609	19
HLA-A*02:06	1	931	940	10	IQDSLSTAS 0.000609	24
HLA-A*31:01	1	1006	1014	9	TQQLIRAAE 0.000609	19
HLA-A*68:02	1	1020	1029	10	NLAATKMSEC 0.000609	19
HLA-B*51:01	1	1150	1159	10	DKYFKNHTSP 0.000609	23
HLA-B*44:02	1	1155	1163	9	NHTSPDVDL 0.000609	10
HLA-A*26:01	1	1208	1217	10	KWPWYIWLGF 0.000609	14
HLA-A*30:02	1	1214	1222	9	WLGFIAGLI 0.000609	30
HLA-B*40:01	1	1261	1269	9	VLKGVKLHY 0.000609	9.2
HLA-A*23:01	1	124	133	10	TNVVIKVICEF 0.000608	11
HLA-A*02:01	1	152	160	9	WMESEFRVY 0.000608	17
HLA-A*26:01	1	175	183	9	FLMDLEKQ 0.000608	14
HLA-A*23:01	1	218	226	9	QGFSALEPL 0.000608	11
HLA-B*51:01	1	277	285	9	NENGTITDA 0.000608	23
HLA-A*32:01	1	364	373	10	VLYNSASFST 0.000608	13
HLA-B*58:01	1	400	408	9	RGDEVRIIA 0.000608	17
HLA-A*33:01	1	441	449	9	KVGGNYNYL 0.000608	17
HLA-B*58:01	1	465	474	10	ISTEIQAGS 0.000608	17
HLA-B*57:01	1	552	560	9	SNKKFLPFQ 0.000608	24
HLA-B*58:01	1	718	727	10	SVTTEILPVS 0.000608	17
HLA-A*11:01	1	783	791	9	KQIYKTPPI 0.000608	12
HLA-B*57:01	1	838	846	9	LGDIARDL 0.000608	24
HLA-B*57:01	1	1103	1111	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	264	273	10	VGYLQPRTFL 0.000607	17
HLA-B*44:03	1	265	273	9	GYLQPRTFL 0.000607	9.9
HLA-A*30:01	1	439	447	9	DSKVGGNYN 0.000607	33
HLA-B*08:01	1	468	477	10	EIYQAGSTPC 0.000607	24
HLA-B*15:01	1	630	639	10	WRVYSTGSNV 0.000607	18
HLA-A*02:01	1	718	727	10	SVTTEILPVS 0.000607	17
HLA-B*57:01	1	903	912	10	FNGIGVTQNV 0.000607	24
HLA-A*68:01	1	987	996	10	EVQIDRLITG 0.000607	18
HLA-A*31:01	1	1143	1151	9	DSFKEELDK 0.000607	19
HLA-B*57:01	1	1161	1169	9	VDLGDISGI 0.000607	24
HLA-B*40:01	1	1164	1172	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-B*57:01	1	457	465	9	NLKPFFERDI 0.000606	24
HLA-B*07:02	1	475	484	10	TPCNGVKGFN 0.000606	15
HLA-A*31:01	1	606	614	9	AVLYQGVNC 0.000606	19
HLA-A*68:02	1	732	740	9	SVDCTMYIC 0.000606	19
HLA-A*01:01	1	1073	1081	9	TTAPAICHD 0.000606	20
HLA-B*44:03	1	1083	1092	10	KAHFPPREGVF 0.000606	9.9
HLA-B*53:01	1	1157	1166	10	TSPVDLGLDI 0.000606	12
HLA-A*68:02	1	36	45	10	VYYPDKVFRS 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	251	260	10	SSSGWTAGAA 0.000605	17
HLA-A*02:03	1	511	519	9	SFELLHAPA 0.000605	19
HLA-A*01:01	1	594	602	9	VITPGTNTS 0.000605	20
HLA-A*11:01	1	626	634	9	LTPTWRVYS 0.000605	12

HLA-B*08:01	1	655	663	9	NSYECDIPI 0.000605	24
HLA-B*58:01	1	692	701	10	YTMSLGVENS 0.000605	17
HLA-B*44:02	1	698	707	10	VENSVAYSNN 0.000605	10
HLA-A*26:01	1	1077	1085	9	AICHDGKAH 0.000605	14
HLA-A*01:01	1	1090	1098	9	GVFVSNQTH 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	362	370	9	YSVLYNSAS 0.000604	13
HLA-B*44:02	1	412	420	9	TGNIADYNY 0.000604	10
HLA-B*08:01	1	419	427	9	NYKLPDDFT 0.000604	24
HLA-B*08:01	1	487	496	10	FPLQSYGFQP 0.000604	24
HLA-B*15:01	1	554	563	10	KKFLPFQQFG 0.000604	18
HLA-B*57:01	1	593	602	10	SVITPGTNTS 0.000604	24
HLA-A*01:01	1	725	733	9	PVSMTKTSV 0.000604	20
HLA-A*31:01	1	755	763	9	SFCTQLNRA 0.000604	19
HLA-A*30:01	1	773	781	9	KNTQEVFAQ 0.000604	33
HLA-A*68:02	1	801	810	10	QILPDPSPKPS 0.000604	19
HLA-A*30:02	1	832	840	9	KQYGDCLGD 0.000604	30
HLA-A*01:01	1	838	847	10	LGDIAARDLI 0.000604	20
HLA-A*23:01	1	922	931	10	NQFNSAIGKI 0.000604	11
HLA-B*07:02	1	1152	1161	10	YFKNHTSPDV 0.000604	15
HLA-A*68:02	1	1209	1218	10	WPWYIWLGF 0.000604	19
HLA-A*30:02	1	1253	1262	10	FDEDDSEPV 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-B*40:01	1	218	226	9	QGFSALEPL 0.000603	9.3
HLA-B*58:01	1	346	355	10	SVYAWNRRKI 0.000603	17
HLA-A*02:01	1	384	392	9	LNDLCFTNV 0.000603	18
HLA-B*51:01	1	395	403	9	DSFVIRGDE 0.000603	23
HLA-A*02:06	1	414	423	10	NIADYNYKLP 0.000603	24
HLA-A*02:06	1	456	465	10	SNLKPFERDI 0.000603	24
HLA-A*30:02	1	456	465	10	SNLKPFERDI 0.000603	30
HLA-B*51:01	1	494	503	10	FQPTYGVGYQ 0.000603	23
HLA-A*68:02	1	516	525	10	HAPATVCGPK 0.000603	19
HLA-A*30:02	1	698	706	9	VENSVAYSN 0.000603	30
HLA-A*01:01	1	888	896	9	GAALQIPFA 0.000603	20
HLA-B*51:01	1	895	904	10	FAMQMAYRFN 0.000603	23
HLA-A*32:01	1	966	974	9	NFGAISSVL 0.000603	13
HLA-A*02:03	1	986	994	9	AEVQIDRLI 0.000603	19
HLA-B*35:01	1	1160	1168	9	DVDLGDISG 0.000603	13
HLA-A*02:01	1	34	43	10	RGVYYPDKVF 0.000602	18
HLA-A*24:02	1	260	269	10	AAYYVGYLQP 0.000602	10
HLA-A*01:01	1	306	315	10	EKGIYQTSNF 0.000602	20
HLA-B*57:01	1	378	386	9	GVSPTKLN 0.000602	24
HLA-A*30:02	1	392	401	10	VYADSFVIRG 0.000602	30
HLA-A*24:02	1	446	455	10	YNYLYRFRK 0.000602	10
HLA-A*24:02	1	926	935	10	SAIGKIQDSL 0.000602	10
HLA-B*35:01	1	1014	1022	9	EIRASANLA 0.000602	13
HLA-B*51:01	1	1115	1123	9	DNTFVSGNC 0.000602	23
HLA-B*57:01	1	198	206	9	DGYFKIYSK 0.000601	24
HLA-A*30:01	1	356	364	9	SNCVADYSV 0.000601	33
HLA-B*58:01	1	378	386	9	GVSPTKLN 0.000601	17
HLA-A*03:01	1	398	406	9	VIRGDEV 0.000601	15
HLA-A*68:02	1	489	498	10	LQSYGFQPTY 0.000601	19
HLA-A*68:02	1	494	502	9	FQPTYGVGY 0.000601	19
HLA-A*30:01	1	923	932	10	QFNSAIGKIQ 0.000601	33
HLA-A*02:06	1	1050	1058	9	PQSAPHGV 0.000601	24
HLA-B*07:02	1	1062	1070	9	VTYVPAQEK 0.000601	15
HLA-A*01:01	1	1083	1091	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	362	370	9	YSVLYNSAS 0.0006	33
HLA-B*40:01	1	375	384	10	KCYGVSPTKL 0.0006	9.3

HLA-B*15:01	1	455	463	9	KSNLKPFR	0.0006	18
HLA-A*11:01	1	543	551	9	LTGTGVLTE	0.0006	12
HLA-A*02:06	1	717	725	9	ISVTTEILP	0.0006	24
HLA-A*30:01	1	1252	1260	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	TFEYV SQPFL	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	329	338	10	ITNLCPFGEV	0.000599	20
HLA-B*07:02	1	584	593	10	ITPCSF GGVS	0.000599	15
HLA-A*01:01	1	728	736	9	MTKTSVDCT	0.000599	20
HLA-B*15:01	1	736	744	9	TM YICGDST	0.000599	18
HLA-A*32:01	1	912	921	10	VLYENQK LIA	0.000599	13
HLA-A*33:01	1	1006	1014	9	TQQLIRAAE	0.000599	17
HLA-A*02:03	1	1019	1028	10	ANLAATKMSE	0.000599	19
HLA-A*02:06	1	1020	1028	9	NLAATKMSE	0.000599	24
HLA-B*44:02	1	1051	1060	10	QSAPHGVVFL	0.000599	10
HLA-A*68:02	1	1148	1157	10	ELDKYFKNHT	0.000599	19
HLA-A*26:01	1	1216	1224	9	GFIAGLIAI	0.000599	14
HLA-A*68:02	1	137	145	9	NDPFLGVVY	0.000598	19
HLA-B*08:01	1	151	160	10	SWMESEFRVY	0.000598	24
HLA-A*01:01	1	185	194	10	NFKNLREFV F	0.000598	20
HLA-A*24:02	1	244	253	10	SYLTPGDSSS	0.000598	10
HLA-A*30:01	1	263	271	9	YVG YLQPR T	0.000598	33
HLA-A*01:01	1	472	481	10	AGSTPCNGVK	0.000598	20
HLA-B*53:01	1	677	685	9	SPRRARSVA	0.000598	12
HLA-A*68:02	1	681	690	10	ARSVASQSII	0.000598	19
HLA-A*24:02	1	904	912	9	NGIGVTQNV	0.000598	10
HLA-A*30:02	1	1132	1141	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	TQSL L I V N N A	0.000597	18
HLA-A*33:01	1	133	141	9	FQFCNDPFL	0.000597	17
HLA-A*26:01	1	345	353	9	ASVYAWNRK	0.000597	14
HLA-B*57:01	1	501	509	9	GYQPYRVVV	0.000597	24
HLA-B*58:01	1	574	582	9	RDPQ TLEIL	0.000597	17
HLA-A*26:01	1	926	934	9	SAIGKIQDS	0.000597	14
HLA-A*26:01	1	953	961	9	AQALNTLVK	0.000597	14
HLA-B*44:02	1	1045	1053	9	HLMSFPQSA	0.000597	11
HLA-B*51:01	1	1072	1080	9	FTTAPAICH	0.000597	23
HLA-A*33:01	1	1224	1232	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	306	315	10	EKGIYQTSNF	0.000596	11
HLA-B*07:02	1	534	543	10	KCVNFNFNGL	0.000596	15
HLA-B*08:01	1	906	914	9	IGVTQNVLY	0.000596	24
HLA-A*31:01	1	989	998	10	QIDRLITGRL	0.000596	19
HLA-A*30:02	1	1258	1267	10	SEPV L KGVKL	0.000596	30
HLA-A*03:01	1	1259	1268	10	EPV L KGVKLH	0.000596	15
HLA-A*02:03	1	28	37	10	YTNSFTRGVY	0.000595	20
HLA-A*26:01	1	260	268	9	AAYYVGYLQ	0.000595	14
HLA-B*08:01	1	324	333	10	VRFPNITNLC	0.000595	24
HLA-A*30:01	1	399	408	10	IRGDEV RQIA	0.000595	33
HLA-B*51:01	1	575	583	9	DPQ TLEILD	0.000595	23
HLA-A*02:01	1	592	601	10	VSVITPGTNT	0.000595	18
HLA-A*24:02	1	609	617	9	YQGVNCTEV	0.000595	10
HLA-A*02:03	1	681	689	9	ARSVASQSI	0.000595	20
HLA-A*24:02	1	682	690	9	RSVASQSII	0.000595	10
HLA-A*02:03	1	684	693	10	VASQSIIAYT	0.000595	20
HLA-B*40:01	1	758	767	10	TQLNRALTGI	0.000595	9.3
HLA-A*30:02	1	908	917	10	VTQNVLYENQ	0.000595	30
HLA-B*58:01	1	918	926	9	KLIANQFNS	0.000595	17
HLA-A*31:01	1	951	959	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	DSKTQSL L I V	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	431	440	10	IAWNSNLDLDS 0.000594	24
HLA-A*24:02	1	484	493	10	NCYFPLQSYG 0.000594	10
HLA-A*33:01	1	538	546	9	FNFNGLTGT 0.000594	17
HLA-B*53:01	1	604	612	9	QVAVLYQGV 0.000594	12
HLA-A*02:03	1	820	828	9	FNKVTLADA 0.000594	20
HLA-B*15:01	1	1118	1126	9	FVSGNCDVV 0.000594	18
HLA-B*15:01	1	1127	1136	10	IGIVNNTVYD 0.000594	18
HLA-A*30:01	1	220	229	10	FSALEPLVDL 0.000593	33
HLA-B*15:01	1	277	285	9	NENGTITDA 0.000593	18
HLA-A*02:01	1	455	463	9	KSNLKPFR 0.000593	18
HLA-B*57:01	1	675	684	10	TNSPRRARSV 0.000593	24
HLA-A*30:02	1	709	718	10	IAIPTNFTIS 0.000593	30
HLA-A*32:01	1	899	908	10	MAYRFNGIGV 0.000593	14
HLA-B*58:01	1	1206	1215	10	YIKWPWYIWL 0.000593	17
HLA-A*01:01	1	149	157	9	NKSWMESEF 0.000592	20
HLA-A*03:01	1	403	411	9	EVROIAPGQ 0.000592	15
HLA-A*30:02	1	449	458	10	LYRLFRRKSNL 0.000592	30
HLA-B*51:01	1	872	881	10	SALLAGTITS 0.000592	23
HLA-A*32:01	1	897	905	9	MQMAYRFNG 0.000592	14
HLA-A*68:02	1	1022	1031	10	AATKMSECVL 0.000592	19
HLA-B*07:02	1	1139	1148	10	QPELDSFKEE 0.000592	15
HLA-A*26:01	1	1164	1173	10	GDISGINASV 0.000592	14
HLA-B*40:01	1	1195	1203	9	IDLQELGKY 0.000592	9.3
HLA-A*23:01	1	1207	1216	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-B*44:02	1	579	587	9	LEILDITPC 0.000591	11
HLA-A*33:01	1	675	683	9	TNSPRRARS 0.000591	17
HLA-B*51:01	1	834	843	10	YGDCLGDIAA 0.000591	23
HLA-B*07:02	1	1127	1135	9	IGIVNNTVY 0.000591	15
HLA-B*40:01	1	1139	1148	10	QPELDSFKEE 0.000591	9.3
HLA-A*01:01	1	1156	1165	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	KSNIRGWI 0.00059	23
HLA-B*57:01	1	161	169	9	SSANNCTFE 0.00059	24
HLA-A*23:01	1	364	373	10	VLYNSASFST 0.00059	11
HLA-A*30:01	1	534	542	9	KCVNFNFG 0.00059	33
HLA-A*68:01	1	908	916	9	VTQNVLYEN 0.00059	18
HLA-A*30:02	1	999	1008	10	QSLQTYVTQQ 0.00059	30
HLA-A*30:02	1	619	628	10	VAIHADQLTP 0.000589	30
HLA-A*68:02	1	649	657	9	GAEHVNNSY 0.000589	19
HLA-A*30:02	1	923	932	10	QFNSAIGKIQ 0.000589	30
HLA-A*02:01	1	933	941	9	DSLSSTASA 0.000589	18
HLA-A*01:01	1	954	963	10	QALNTLVKQL 0.000589	20
HLA-A*01:01	1	1218	1226	9	IAGLIAIVM 0.000589	20
HLA-A*30:01	1	1245	1253	9	CSCGSCCKF 0.000589	33
HLA-A*32:01	1	202	211	10	KIYSKHTPIN 0.000588	14
HLA-A*33:01	1	263	272	10	YVGYLQPRTF 0.000588	17
HLA-A*30:01	1	466	474	9	STEIYQAGS 0.000588	33
HLA-B*58:01	1	498	506	9	YGVGYQPYR 0.000588	17
HLA-A*32:01	1	549	557	9	LTESNKKFL 0.000588	14
HLA-A*30:01	1	569	577	9	TTDAVRDPQ 0.000588	33
HLA-A*02:06	1	742	751	10	DSTECSNLLL 0.000588	24
HLA-A*24:02	1	796	804	9	GFNFSQLIP 0.000588	11
HLA-B*08:01	1	930	938	9	KIQDLSST 0.000588	25
HLA-B*58:01	1	994	1003	10	ITGRLQSLQT 0.000588	17
HLA-A*32:01	1	1000	1008	9	SLQTYVTQQ 0.000588	14
HLA-A*02:03	1	1078	1086	9	IChDgKAHF 0.000588	20
HLA-A*30:01	1	1143	1152	10	DSFKEELDKY 0.000588	33
HLA-A*01:01	1	1177	1186	10	QKEIDRLNEV 0.000588	20
HLA-B*08:01	1	1252	1261	10	KFDEDDSEPV 0.000588	25
HLA-A*68:02	1	302	311	10	SFTVEKGIYQ 0.000587	19
HLA-A*02:06	1	338	347	10	VFNATRFASV 0.000587	24

HLA-A*68:01	1	625	634	10	QLTPTWRVYS 0.000587	18
HLA-B*53:01	1	660	669	10	DIPIGAGICA 0.000587	12
HLA-B*15:01	1	752	760	9	QYGSFCTQL 0.000587	18
HLA-B*51:01	1	788	796	9	TPPIKDFGG 0.000587	23
HLA-B*51:01	1	952	961	10	NAQALNTLVK 0.000587	23
HLA-A*30:01	1	955	964	10	ALNTLVKQLS 0.000587	33
HLA-A*01:01	1	969	977	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	IVN NATNVV 0.000586	15
HLA-A*33:01	1	214	222	9	RGLPQGFSA 0.000586	17
HLA-B*35:01	1	348	356	9	YAWNKRKRIS 0.000586	13
HLA-A*03:01	1	358	367	10	CVADYSVLVN 0.000586	15
HLA-A*01:01	1	413	422	10	GNIADYNYKL 0.000586	20
HLA-A*30:02	1	466	474	9	STEIYQAGS 0.000586	30
HLA-A*33:01	1	553	562	10	NKKFLPFQF 0.000586	17
HLA-B*44:02	1	922	931	10	NQFN SAIGKI 0.000586	11
HLA-B*44:02	1	958	967	10	TLVKQLSSNF 0.000586	11
HLA-A*31:01	1	996	1005	10	GRLQSLQTYV 0.000586	19
HLA-B*35:01	1	1010	1019	10	IRAAEIRASA 0.000586	13
HLA-B*44:03	1	1011	1019	9	RAAEIRASA 0.000586	10
HLA-B*08:01	1	1125	1133	9	VVIGIVNNT 0.000586	25
HLA-B*57:01	1	1217	1225	9	FIAGLIAIV 0.000586	24
HLA-A*30:01	1	172	180	9	SQPFLMDLE 0.000585	33
HLA-B*57:01	1	292	300	9	PLSETKCTL 0.000585	24
HLA-B*57:01	1	295	304	10	ETKCTLKSFT 0.000585	24
HLA-A*31:01	1	321	329	9	ESIVRFPNI 0.000585	19
HLA-B*08:01	1	336	344	9	GEVFNATRF 0.000585	25
HLA-A*31:01	1	368	376	9	SASFSTFKC 0.000585	19
HLA-A*24:02	1	369	377	9	ASFSTFKCY 0.000585	11
HLA-A*03:01	1	499	507	9	GVGYPYRV 0.000585	15
HLA-A*02:06	1	672	681	10	QTQTNSPRRA 0.000585	24
HLA-A*23:01	1	807	815	9	SKPSKRSFI 0.000585	11
HLA-A*32:01	1	940	949	10	SALGKLQDVV 0.000585	14
HLA-B*15:01	1	999	1007	9	QSLQTYVTQ 0.000585	18
HLA-A*68:02	1	1046	1054	9	LMSFPQSAP 0.000585	19
HLA-B*15:01	1	1047	1056	10	MSFPQSAPHG 0.000585	18
HLA-B*53:01	1	1186	1195	10	VAKNLNESLI 0.000585	12
HLA-A*31:01	1	56	64	9	LPFFSNVTW 0.000584	19
HLA-A*23:01	1	77	85	9	KRFANPVLP 0.000584	11
HLA-A*33:01	1	84	93	10	LPFNDGVYFA 0.000584	17
HLA-B*44:03	1	112	120	9	SKTQSLLLIV 0.000584	10
HLA-A*68:02	1	247	255	9	TPGDSSSGW 0.000584	19
HLA-A*30:02	1	281	290	10	TITDAVDCAL 0.000584	30
HLA-B*08:01	1	285	293	9	AVDCALDPL 0.000584	25
HLA-A*26:01	1	287	296	10	DCALDPLSET 0.000584	14
HLA-A*68:01	1	295	304	10	ETKCTLKSFT 0.000584	18
HLA-B*51:01	1	501	510	10	GYQPYRVVVL 0.000584	23
HLA-A*30:01	1	516	524	9	HAPATVCGP 0.000584	33
HLA-A*24:02	1	588	596	9	SFGGVSUIT 0.000584	11
HLA-A*02:01	1	682	690	9	RSVASQSII 0.000584	18
HLA-A*01:01	1	1145	1154	10	FKEELDKYFK 0.000584	20
HLA-A*33:01	1	195	203	9	KNIDGYFKI 0.000583	17
HLA-A*32:01	1	323	331	9	IVRFPNITN 0.000583	14
HLA-B*57:01	1	359	367	9	VADYSVLVN 0.000583	24
HLA-B*44:02	1	360	369	10	ADYSVLVNSA 0.000583	11
HLA-A*11:01	1	437	446	10	NLDSKVGNY 0.000583	12
HLA-A*02:06	1	583	592	10	DITPCSFGGV 0.000583	24
HLA-A*68:02	1	792	800	9	KDFGGFNFS 0.000583	19
HLA-B*07:02	1	801	809	9	QILPDPSKP 0.000583	15
HLA-A*02:03	1	814	822	9	FIEDLLFNK 0.000583	20
HLA-A*02:03	1	1061	1070	10	HVTYVPAQEK 0.000583	20
HLA-A*33:01	1	1064	1072	9	YVPAQEKNF 0.000583	17
HLA-B*08:01	1	1098	1107	10	HWFVTQRNFY 0.000583	25
HLA-A*02:06	1	1176	1185	10	IQKEIDRLNE 0.000583	24

HLA-A*30:01	1	1210	1218	9	PWYIWLGF	0.000583	33
HLA-A*68:02	1	110	119	10	LDSKTQSL	0.000582	19
HLA-A*33:01	1	307	315	9	KGIYQTSN	0.000582	17
HLA-A*02:06	1	314	323	10	NFRVQPTES	0.000582	24
HLA-B*08:01	1	370	379	10	SFSTFKCYG	0.000582	25
HLA-A*02:06	1	544	552	9	TGTGVLTES	0.000582	24
HLA-A*30:02	1	637	646	10	SNVFQTRAG	0.000582	30
HLA-A*32:01	1	671	679	9	YQTQTNSPR	0.000582	14
HLA-A*23:01	1	795	803	9	GGFNFSQIL	0.000582	11
HLA-A*01:01	1	847	855	9	ICAKKFNGL	0.000582	20
HLA-B*07:02	1	898	906	9	QMAYRFNGI	0.000582	15
HLA-A*30:01	1	956	964	9	LNTLVKQLS	0.000582	33
HLA-B*44:03	1	988	996	9	VQIDRLITG	0.000582	11
HLA-A*33:01	1	1203	1212	10	YEQYIKWPW	0.000582	17
HLA-A*02:01	1	15	24	10	CVNLTTRTQ	0.000581	18
HLA-A*02:01	1	77	86	10	KRFANPVLPF	0.000581	18
HLA-B*07:02	1	92	101	10	FASTEKSNI	0.000581	15
HLA-A*32:01	1	158	167	10	RVYSSANNCT	0.000581	14
HLA-B*58:01	1	299	307	9	TLKSFTVEK	0.000581	18
HLA-B*07:02	1	342	350	9	TRFASVYAW	0.000581	15
HLA-B*58:01	1	371	379	9	FSTFKCYGV	0.000581	18
HLA-A*30:02	1	379	388	10	VSPTKLNDC	0.000581	30
HLA-A*68:01	1	441	449	9	KVGGNYNYL	0.000581	18
HLA-B*08:01	1	570	578	9	TDAVRDPQT	0.000581	25
HLA-A*03:01	1	593	602	10	SVITPGTNTS	0.000581	15
HLA-B*40:01	1	850	859	10	QKFNGLTVL	0.000581	9.4
HLA-B*40:01	1	922	930	9	NQFNSAIGK	0.000581	9.4
HLA-A*30:01	1	998	1006	9	LQSLQTYVT	0.000581	33
HLA-A*30:02	1	1058	1067	10	VFLHVTYVPA	0.000581	30
HLA-A*02:03	1	1161	1169	9	VDLGDISGI	0.000581	20
HLA-A*33:01	1	24	32	9	LPPAYTNSF	0.000581	17
HLA-A*01:01	1	175	183	9	FLMDLEGKQ	0.000581	20
HLA-A*33:01	1	204	213	10	YSKHTPINLV	0.000581	17
HLA-B*35:01	1	214	222	9	RGLPQGFS	0.000581	13
HLA-A*01:01	1	703	711	9	AYSNNSIAI	0.000581	20
HLA-B*44:02	1	748	756	9	NLLLQYGSF	0.000581	11
HLA-A*30:01	1	768	777	10	AVEQDKNTQE	0.000581	33
HLA-B*07:02	1	818	826	9	LLFNKVTLA	0.000581	15
HLA-B*58:01	1	895	904	10	FAMQMAYRF	0.000581	18
HLA-A*01:01	1	969	978	10	AISSVLNDIL	0.000581	20
HLA-A*30:02	1	1179	1188	10	EIDRLNEVAK	0.000581	30
HLA-A*02:01	1	1228	1236	9	TIMLCCMTS	0.000581	18
HLA-A*33:01	1	1260	1269	10	PVLKGVKLHY	0.000581	17
HLA-A*32:01	1	1261	1270	10	VLKGVKLHYT	0.000581	14
HLA-A*30:01	1	6	15	10	VLLPLVSSQC	0.000579	33
HLA-A*30:01	1	16	25	10	VNLTTRTQLP	0.000579	33
HLA-A*30:01	1	38	47	10	YDPKVFSSV	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*30:02	1	206	215	10	KHTPINLVRG	0.000579	30
HLA-A*26:01	1	278	286	9	ENGTITDAV	0.000579	14
HLA-A*31:01	1	397	406	10	FVIRGDEVRQ	0.000579	19
HLA-B*57:01	1	624	632	9	DQLTPTWRV	0.000579	25
HLA-A*03:01	1	630	639	10	WRVYSTGSNV	0.000579	15
HLA-B*51:01	1	653	661	9	VNNSYECDI	0.000579	23
HLA-A*26:01	1	780	788	9	AQVKQIYKT	0.000579	14
HLA-A*23:01	1	904	912	9	NGIGVTQNV	0.000579	11
HLA-A*01:01	1	963	971	9	LSSNFGAIS	0.000579	20
HLA-B*57:01	1	1224	1233	10	IVMVTIMLCC	0.000579	25
HLA-B*40:01	1	93	101	9	ASTEKSNI	0.000578	9.4
HLA-B*35:01	1	407	415	9	IAPGQTGNI	0.000578	13
HLA-B*44:02	1	622	631	10	HADQLTPTWR	0.000578	11
HLA-B*51:01	1	886	895	10	GAGAALQIPF	0.000578	23
HLA-A*33:01	1	933	942	10	DSLSSTASAL	0.000578	17
HLA-A*68:02	1	971	979	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	275	283	9	KYNENGTIT 0.000577	25
HLA-A*02:06	1	370	379	10	SFSTFKCYGV 0.000577	24
HLA-A*26:01	1	491	500	10	SYGFQPTYGV 0.000577	15
HLA-B*07:02	1	548	557	10	VLTESNKKFL 0.000577	15
HLA-A*68:02	1	574	582	9	RDPQTLEIL 0.000577	20
HLA-A*24:02	1	703	712	10	AYSNNSIAIP 0.000577	11
HLA-A*01:01	1	753	762	10	YGSFCTQLNR 0.000577	20
HLA-B*07:02	1	986	994	9	AEVQIDRLI 0.000577	15
HLA-B*44:03	1	996	1005	10	GRLQSLQTYV 0.000577	11
HLA-A*02:06	1	1090	1098	9	GVFVSNNGTH 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	339	348	10	FNATRFASVY 0.000576	33
HLA-A*30:01	1	411	420	10	QTGNIADYNY 0.000576	33
HLA-A*02:06	1	492	501	10	YGFQPTYGVG 0.000576	24
HLA-A*02:03	1	632	640	9	VYSTGSNVF 0.000576	20
HLA-B*51:01	1	669	678	10	ASYQTQTNVP 0.000576	23
HLA-B*58:01	1	689	698	10	IIAYTMSLGV 0.000576	18
HLA-A*68:01	1	700	708	9	NSVAYSNNS 0.000576	18
HLA-A*23:01	1	701	709	9	SVAYSNNSI 0.000576	11
HLA-A*01:01	1	707	716	10	NSIAIPTNFT 0.000576	20
HLA-A*33:01	1	728	737	10	MTKTSVDCTM 0.000576	17
HLA-B*51:01	1	816	824	9	EDLLFNKVT 0.000576	23
HLA-A*68:01	1	899	908	10	MAYRFNGIGV 0.000576	18
HLA-A*30:02	1	959	968	10	LVKQLSSNFG 0.000576	30
HLA-B*07:02	1	1085	1093	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	294	303	10	SETKCTLKSF 0.000575	19
HLA-A*33:01	1	373	381	9	TFKCYGVSP 0.000575	17
HLA-A*11:01	1	602	610	9	SNQVAVLYQ 0.000575	12
HLA-A*24:02	1	676	684	9	NSPRRARSV 0.000575	11
HLA-A*02:03	1	707	716	10	NSIAIPTNFT 0.000575	20
HLA-B*35:01	1	742	751	10	DSTECSNLLL 0.000575	13
HLA-A*30:02	1	760	769	10	LNRAALTGIIV 0.000575	31
HLA-A*68:01	1	856	864	9	TVLPPLD 0.000575	18
HLA-A*30:02	1	880	888	9	TSGWTFGAG 0.000575	31
HLA-A*31:01	1	902	911	10	RFNGIGVTQN 0.000575	19
HLA-B*07:02	1	910	919	10	QNVLYENQKL 0.000575	15
HLA-A*02:01	1	1016	1024	9	RASANLAAT 0.000575	18
HLA-B*35:01	1	1108	1117	10	EPQIITDNT 0.000575	13
HLA-A*30:02	1	1220	1228	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	629	637	9	TWRVYSTGS 0.000574	17
HLA-A*02:03	1	656	665	10	SYECDIPIGA 0.000574	20
HLA-A*33:01	1	783	791	9	KQIYKTPPI 0.000574	17
HLA-B*07:02	1	784	792	9	QIYKTPPIK 0.000574	15
HLA-A*02:01	1	1006	1015	10	TQQLIRAAEI 0.000574	18
HLA-A*68:01	1	1083	1091	9	KAHFPREGV 0.000574	18
HLA-A*68:01	1	1201	1209	9	GKYEQYIKW 0.000574	18
HLA-A*30:02	1	274	282	9	LKYNENGTI 0.000573	31
HLA-A*02:01	1	450	458	9	YRLFRRKSNL 0.000573	18
HLA-A*01:01	1	595	604	10	ITPGTNTSNQ 0.000573	21
HLA-B*53:01	1	627	636	10	TPTWRVYSTG 0.000573	12
HLA-B*58:01	1	644	652	9	AGCLIGAHE 0.000573	18
HLA-B*58:01	1	815	823	9	IEDLLFNKV 0.000573	18
HLA-A*24:02	1	847	855	9	ICAQKFNGL 0.000573	11
HLA-A*03:01	1	894	902	9	PFAMQMAYR 0.000573	15
HLA-B*15:01	1	931	940	10	IQDLSSTAS 0.000573	18
HLA-A*02:01	1	1141	1150	10	ELDSFKEELD 0.000573	18
HLA-B*58:01	1	1161	1169	9	VDLGDISGI 0.000573	18



HLA-A*01:01	1	138	146	9	DPFLGVYYH 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	700	709	10	NSVAYSNNNSI 0.000572	33
HLA-A*68:02	1	874	883	10	LLAGTITSGW 0.000572	20
HLA-A*26:01	1	1100	1108	9	FVTQRNFYE 0.000572	15
HLA-A*30:01	1	1200	1209	10	LGKYEQYIKW 0.000572	33
HLA-A*30:01	1	1224	1233	10	IVMVTIMLCC 0.000572	33
HLA-A*02:01	1	228	236	9	DLPIGINIT 0.000571	18
HLA-A*30:01	1	295	304	10	ETKCTLKSFT 0.000571	33
HLA-A*32:01	1	438	446	9	LDSKVGNGY 0.000571	14
HLA-B*44:02	1	483	492	10	FNCYFPLQSY 0.000571	11
HLA-A*02:01	1	500	509	10	VGYPYRVVV 0.000571	18
HLA-B*40:01	1	579	588	10	LEILDITPCS 0.000571	9.5
HLA-B*51:01	1	607	615	9	VLYQGVNCT 0.000571	23
HLA-B*53:01	1	680	689	10	RARSVASQSI 0.000571	12
HLA-A*32:01	1	693	702	10	TMSLGVNSV 0.000571	14
HLA-A*01:01	1	768	777	10	AVEQDKNTQE 0.000571	21
HLA-B*15:01	1	776	785	10	QEVFAQVKQI 0.000571	18
HLA-A*68:01	1	836	845	10	DCLGDIAARD 0.000571	18
HLA-A*30:02	1	838	846	9	LGDIARDL 0.000571	31
HLA-A*11:01	1	934	942	9	SLSSTASAL 0.000571	12
HLA-B*58:01	1	1021	1030	10	LAATKMSECV 0.000571	18
HLA-A*32:01	1	1059	1067	9	FLHVTVVPA 0.000571	14
HLA-B*44:02	1	229	237	9	LPIGINITR 0.00057	11
HLA-B*57:01	1	319	327	9	PTESIVRFP 0.00057	25
HLA-B*58:01	1	605	614	10	VAVLYQGVNC 0.00057	18
HLA-A*03:01	1	606	614	9	AVLYQGVNC 0.00057	15
HLA-B*58:01	1	641	649	9	QTRAGCLIG 0.00057	18
HLA-A*31:01	1	937	946	10	STASALGKLQ 0.00057	20
HLA-B*07:02	1	972	980	9	SVLNDILSR 0.00057	16
HLA-A*01:01	1	1027	1036	10	SECVLGQSKR 0.00057	21
HLA-A*31:01	1	1105	1113	9	NFYEQIIT 0.00057	20
HLA-A*30:02	1	1244	1253	10	CCSCGSCCKF 0.00057	31
HLA-A*68:02	1	9	18	10	PLVSSQCVNL 0.000569	20
HLA-A*33:01	1	305	313	9	VEKGIYQTS 0.000569	17
HLA-A*02:06	1	395	404	10	DSFVIRGDEV 0.000569	25
HLA-A*33:01	1	459	467	9	KPFERDIST 0.000569	17
HLA-A*02:03	1	481	489	9	KGFNCYFPL 0.000569	20
HLA-A*68:02	1	621	630	10	IHADQLTPTW 0.000569	20
HLA-B*44:03	1	674	682	9	QTNSPRRAR 0.000569	11
HLA-A*33:01	1	730	738	9	KTSVDCTMY 0.000569	17
HLA-B*58:01	1	908	917	10	VTQNVLYENQ 0.000569	18
HLA-A*23:01	1	1130	1138	9	VNNTVYDPL 0.000569	11
HLA-A*01:01	1	1204	1213	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	249	257	9	GDSSSGWTA 0.000568	31
HLA-B*40:01	1	289	297	9	ALDPLSETK 0.000568	9.5
HLA-A*24:02	1	451	459	9	RLFRKSNLK 0.000568	11
HLA-A*02:01	1	1178	1187	10	KEIDRLNEVA 0.000568	18
HLA-A*01:01	1	239	248	10	QTLHRSYLTP 0.000567	21
HLA-A*24:02	1	317	325	9	VQPTESIVR 0.000567	11
HLA-A*32:01	1	381	389	9	PTKLNLCF 0.000567	14
HLA-A*02:03	1	414	423	10	NIADYNYKLP 0.000567	20
HLA-A*02:01	1	529	538	10	NLVKKNKCVNF 0.000567	18
HLA-A*30:01	1	539	548	10	NFNGLTGTGV 0.000567	33
HLA-B*57:01	1	574	582	9	RDPQTEIL 0.000567	25
HLA-B*44:03	1	811	819	9	KRSFIEDLL 0.000567	11
HLA-A*26:01	1	823	832	10	VTLADAGFIK 0.000567	15
HLA-A*23:01	1	883	891	9	WTFGAGAAL 0.000567	11
HLA-A*30:02	1	928	936	9	IGKIQDLSL 0.000567	31
HLA-A*31:01	1	1103	1111	9	QRNFYEPQI 0.000567	20
HLA-B*07:02	1	1145	1153	9	FKEELDKYF 0.000567	16
HLA-A*01:01	1	1222	1230	9	IAIVMVTIM 0.000567	21

HLA-A*02:03	1	188	196	9	NLREFVFKN 0.000566	20
HLA-A*02:06	1	236	245	10	TRFQTLHRSY 0.000566	25
HLA-A*01:01	1	378	387	10	GVSPTKLNDL 0.000566	21
HLA-A*30:01	1	413	422	10	GNIADYNYKL 0.000566	33
HLA-B*08:01	1	498	507	10	YGVGYQPYRV 0.000566	25
HLA-A*02:06	1	519	527	9	ATVCGPKKS 0.000566	25
HLA-A*01:01	1	546	555	10	TGVLTESNKK 0.000566	21
HLA-A*68:02	1	673	681	9	TQTNSPRRA 0.000566	20
HLA-B*08:01	1	742	751	10	DSTECSNLLL 0.000566	25
HLA-A*31:01	1	1092	1101	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	STEKSNIIIR 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-B*08:01	1	236	244	9	TRFQTLHRS 0.000565	25
HLA-A*02:03	1	340	349	10	NATRFASVYA 0.000565	20
HLA-B*40:01	1	399	407	9	IRGDEVRQI 0.000565	9.5
HLA-A*02:06	1	450	459	10	YRLFRRKSNLK 0.000565	25
HLA-B*53:01	1	517	526	10	APATVCGPKK 0.000565	12
HLA-A*26:01	1	549	557	9	LTESNKKFL 0.000565	15
HLA-A*02:03	1	612	621	10	VNCTEVPVAI 0.000565	20
HLA-B*58:01	1	919	928	10	LIANQFNSAI 0.000565	18
HLA-B*57:01	1	1065	1074	10	VPAQEKNFST 0.000565	25
HLA-A*02:01	1	1144	1152	9	SFKEELDKY 0.000565	18
HLA-A*01:01	1	1201	1209	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-B*08:01	1	537	545	9	NFNFNGLTG 0.000564	25
HLA-B*57:01	1	593	601	9	SVITPGTNT 0.000564	25
HLA-A*68:01	1	594	602	9	VITPGTNTS 0.000564	18
HLA-B*58:01	1	617	626	10	VPVAIHADQL 0.000564	18
HLA-A*68:02	1	712	720	9	PTNFTISVT 0.000564	20
HLA-A*02:06	1	730	738	9	KTSVDCTMY 0.000564	25
HLA-B*58:01	1	1193	1202	10	SLIDLQELGK 0.000564	18
HLA-B*57:01	1	1258	1267	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	312	320	9	TSNFRVQPT 0.000563	18
HLA-B*58:01	1	384	393	10	LNDLCFTNVY 0.000563	18
HLA-A*02:01	1	392	400	9	VYADSFVIR 0.000563	18
HLA-A*30:01	1	613	621	9	NCTEVPVAI 0.000563	33
HLA-A*30:01	1	1100	1109	10	FVTQRNFYEP 0.000563	33
HLA-A*30:02	1	1254	1263	10	DEDDSEPVLK 0.000563	31
HLA-B*57:01	1	66	75	10	HAIHVSGTNG 0.000562	25
HLA-B*44:03	1	365	374	10	LYNSASFSTF 0.000562	11
HLA-B*58:01	1	397	405	9	FVIRGDEVR 0.000562	18
HLA-B*07:02	1	622	631	10	HADQLTPTWR 0.000562	16
HLA-B*53:01	1	682	690	9	RSVASQSII 0.000562	12
HLA-A*23:01	1	850	858	9	QKFNGLTVL 0.000562	11
HLA-A*26:01	1	868	876	9	AQYTSALLA 0.000562	15
HLA-A*68:01	1	993	1002	10	LITGRLQSLQ 0.000562	18
HLA-B*58:01	1	1065	1074	10	VPAQEKNFST 0.000562	18
HLA-A*33:01	1	1075	1083	9	APAICHGDK 0.000562	18
HLA-A*02:01	1	1223	1232	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	259	268	10	AAAYYVGYLQ 0.000561	31
HLA-A*32:01	1	573	582	10	VRDPQTLEIL 0.000561	14
HLA-B*08:01	1	587	595	9	CSFGGVSVI 0.000561	25
HLA-B*44:03	1	751	760	10	LQYGSFCTQL 0.000561	11
HLA-B*44:02	1	752	760	9	QYGSFCTQL 0.000561	11

HLA-A*24:02	1	995	1004	10	TGRLQSLQTY 0.000561	11
HLA-A*02:06	1	1038	1046	9	DFCGKGYHL 0.000561	25
HLA-B*15:01	1	1092	1101	10	FVSNNGTHWV 0.000561	18
HLA-B*51:01	1	1195	1203	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	256	264	9	TAGAAAYV 0.00056	15
HLA-B*51:01	1	462	470	9	ERDISTEY 0.00056	23
HLA-B*07:02	1	598	606	9	GTNTSNQVA 0.00056	16
HLA-B*57:01	1	645	653	9	GCLIGAHEV 0.00056	25
HLA-A*01:01	1	673	681	9	TQTNSPRRA 0.00056	21
HLA-A*26:01	1	707	716	10	NSIAIPTNFT 0.00056	15
HLA-A*01:01	1	717	725	9	ISVTTEILP 0.00056	21
HLA-A*02:03	1	761	769	9	NRALTGIIV 0.00056	20
HLA-A*01:01	1	882	891	10	GWTFGAGAAL 0.00056	21
HLA-B*44:03	1	921	930	10	ANQFNSAIGK 0.00056	11
HLA-B*51:01	1	989	998	10	QIDRLITGRL 0.00056	23
HLA-A*02:03	1	1009	1018	10	LIRAAEIRAS 0.00056	20
HLA-A*31:01	1	1042	1050	9	KGYHLSFSP 0.00056	20
HLA-B*51:01	1	1044	1052	9	YHLSFSPQS 0.00056	23
HLA-A*68:02	1	1103	1112	10	QRNFYEPQII 0.00056	20
HLA-A*24:02	1	1197	1206	10	LQELGKYEY 0.00056	11
HLA-B*53:01	1	82	91	10	PVLPFNDGVY 0.000559	12
HLA-B*53:01	1	490	499	10	QSYGFQPTYG 0.000559	12
HLA-A*30:01	1	668	677	10	CASYQTQTN 0.000559	34
HLA-A*02:06	1	983	992	10	KVEAEVQIDR 0.000559	25
HLA-B*15:01	1	997	1006	10	RLQSLQTYVT 0.000559	18
HLA-A*02:03	1	1047	1055	9	MSFPQSAPH 0.000559	20
HLA-A*30:01	1	1096	1105	10	GTHWFVTQRN 0.000559	34
HLA-B*51:01	1	1205	1214	10	QYIKWPWYIW 0.000559	23
HLA-A*02:03	1	1228	1236	9	TIMLCCMTS 0.000559	20
HLA-B*15:01	1	12	21	10	SSQCVNLTR 0.000558	18
HLA-A*30:01	1	240	249	10	TLHRSYLTPG 0.000558	34
HLA-A*26:01	1	375	383	9	KCYGVSPTK 0.000558	15
HLA-A*33:01	1	424	433	10	DDFTGCVIAW 0.000558	18
HLA-A*01:01	1	607	615	9	VLYQGVNCT 0.000558	21
HLA-A*30:01	1	612	621	10	VNCTEVPVAI 0.000558	34
HLA-A*01:01	1	677	685	9	SPRRARSVA 0.000558	21
HLA-A*68:02	1	710	718	9	AIPTNFTIS 0.000558	20
HLA-B*15:01	1	829	838	10	GFIKQYGDCL 0.000558	18
HLA-A*03:01	1	882	891	10	GWTFGAGAAL 0.000558	15
HLA-B*58:01	1	1033	1042	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-A*30:02	1	422	430	9	LPDDFTGCV 0.000557	31
HLA-A*30:02	1	509	518	10	VLSFELLHAP 0.000557	31
HLA-A*02:06	1	706	715	10	NNSIAIPTNF 0.000557	25
HLA-A*68:01	1	817	826	10	DLLFNKVTLA 0.000557	18
HLA-A*02:06	1	172	180	9	SQPFLMDLE 0.000556	25
HLA-B*35:01	1	375	383	9	KCYGVSPTK 0.000556	13
HLA-A*68:02	1	445	453	9	NYNLYRLF 0.000556	20
HLA-B*40:01	1	484	492	9	NCYFPLQSY 0.000556	9.6
HLA-A*02:01	1	488	496	9	PLQSYGFQP 0.000556	18
HLA-A*02:01	1	585	594	10	TPCSFGGVS 0.000556	18
HLA-B*51:01	1	644	653	10	AGCLIGAHEV 0.000556	23
HLA-A*26:01	1	701	710	10	SVAYSNNSIA 0.000556	15
HLA-B*44:03	1	843	851	9	ARDLICAQK 0.000556	11
HLA-A*68:02	1	861	870	10	LLTDEMIAQY 0.000556	20
HLA-A*01:01	1	931	940	10	IQDLSLSTAS 0.000556	21
HLA-A*03:01	1	969	977	9	AISSVLNDI 0.000556	15

HLA-B*40:01	1	1023	1031	9	ATKMSECVL 0.000556	9.6
HLA-A*32:01	1	1165	1173	9	DISGINASV 0.000556	14
HLA-B*51:01	1	294	303	10	SETKCTLKSF 0.000555	23
HLA-B*08:01	1	303	312	10	FTVEKGIYQT 0.000555	25
HLA-B*57:01	1	340	349	10	NATRFASVYA 0.000555	25
HLA-B*53:01	1	658	667	10	ECDIPIGAGI 0.000555	12
HLA-A*33:01	1	696	704	9	LGVENSVAY 0.000555	18
HLA-B*57:01	1	701	710	10	SVAYSNSNSIA 0.000555	25
HLA-B*58:01	1	850	858	9	QKFNGLTVL 0.000555	18
HLA-B*51:01	1	913	921	9	LYENQKLI A 0.000555	23
HLA-A*30:02	1	955	964	10	ALNTLVKQLS 0.000555	31
HLA-B*07:02	1	1046	1054	9	LMSFPQSAP 0.000555	16
HLA-B*57:01	1	1193	1201	9	SLIDLQELG 0.000555	25
HLA-A*24:02	1	63	72	10	TWFHAIHVSG 0.000554	11
HLA-A*24:02	1	208	216	9	TPINLVRGL 0.000554	11
HLA-B*08:01	1	246	255	10	LTPGDSSSGW 0.000554	25
HLA-A*68:01	1	264	272	9	VGYLQPRTF 0.000554	19
HLA-A*02:01	1	280	289	10	GTITDAVDCA 0.000554	18
HLA-B*35:01	1	452	461	10	LFRKSNLKP F 0.000554	13
HLA-B*58:01	1	463	472	10	RDISTEIQQA 0.000554	18
HLA-B*53:01	1	535	543	9	CVNFNFNGL 0.000554	12
HLA-A*26:01	1	811	819	9	KRSFIEDLL 0.000554	15
HLA-B*57:01	1	850	858	9	QKFNGLTVL 0.000554	25
HLA-A*30:02	1	1021	1029	9	LAATKMSEC 0.000554	31
HLA-B*35:01	1	30	39	10	NSFTRGVYYP 0.000553	13
HLA-A*30:01	1	537	546	10	NFNFNGLTGT 0.000553	34
HLA-A*02:06	1	569	578	10	TTDAVRDPQT 0.000553	25
HLA-B*40:01	1	658	667	10	ECDIPIGAGI 0.000553	9.6
HLA-A*01:01	1	702	711	10	VAYSNSNSIAI 0.000553	21
HLA-B*40:01	1	866	874	9	MIAQYTSAL 0.000553	9.6
HLA-B*44:02	1	972	981	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	372	381	10	STFKCYGVSP 0.000552	14
HLA-A*30:02	1	393	401	9	YADSFVIRG 0.000552	31
HLA-A*02:06	1	855	864	10	LTVLPLLTD 0.000552	25
HLA-B*44:02	1	979	988	10	SRLDKVEAEV 0.000552	11
HLA-B*08:01	1	988	997	10	VQIDRLITGR 0.000552	25
HLA-A*23:01	1	1104	1113	10	RNFYEQIIT 0.000552	11
HLA-B*51:01	1	1160	1168	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	253	262	10	SGWTAGAAAY 0.000551	11
HLA-A*30:02	1	400	409	10	RGDEV RQIAP 0.000551	31
HLA-B*51:01	1	456	465	10	SNLKPFERDI 0.000551	23
HLA-B*15:01	1	534	543	10	KCVNFNFNGL 0.000551	18
HLA-A*26:01	1	566	574	9	IADTTDAVR 0.000551	15
HLA-A*26:01	1	584	592	9	ITPCSFGGV 0.000551	15
HLA-A*68:02	1	588	596	9	SFGGVSVIT 0.000551	20
HLA-A*01:01	1	595	603	9	ITPGTNTSN 0.000551	21
HLA-B*57:01	1	595	603	9	ITPGTNTSN 0.000551	25
HLA-B*07:02	1	601	609	9	TSNQVAVLY 0.000551	16
HLA-A*31:01	1	602	610	9	SNQVAVLYQ 0.000551	20
HLA-B*15:01	1	606	614	9	AVLYQGVNC 0.000551	18
HLA-A*68:01	1	866	875	10	MIAQYTSALL 0.000551	19
HLA-A*03:01	1	1000	1009	10	SLQTYVTQQL 0.000551	15
HLA-B*57:01	1	1007	1015	9	QLLIRAAEI 0.000551	25
HLA-A*02:06	1	1098	1106	9	HWFVTQRNF 0.000551	25
HLA-A*23:01	1	1259	1267	9	EPVLKGVKL 0.000551	11
HLA-A*02:01	1	72	80	9	GTNGTKRFA 0.00055	18
HLA-A*31:01	1	77	85	9	KRFANPVLP 0.00055	20
HLA-B*44:03	1	302	310	9	SFTVEKGIY 0.00055	11
HLA-B*44:03	1	305	314	10	VEKGIYQTSN 0.00055	11
HLA-B*07:02	1	369	377	9	ASFSTFKCY 0.00055	16
HLA-A*23:01	1	496	505	10	PTYGVGYQPY 0.00055	11
HLA-A*33:01	1	539	548	10	NFNGLTGTGV 0.00055	18

HLA-A*02:03	1	577	585	9	QTLEILDIT 0.00055	20
HLA-A*30:01	1	643	651	9	RAGCLIGAE 0.00055	34
HLA-B*07:02	1	695	704	10	SLGVENSVAIY 0.00055	16
HLA-A*32:01	1	755	764	10	SFCTQLNRAL 0.00055	14
HLA-B*15:01	1	918	926	9	KLIANQFNS 0.00055	18
HLA-B*07:02	1	1104	1112	9	RNFYEPQII 0.00055	16
HLA-A*03:01	1	1174	1182	9	VNIQKEIDR 0.00055	15
HLA-A*02:03	1	34	43	10	RGVYYPDKVF 0.000549	20
HLA-A*23:01	1	134	142	9	QFCNDPFLG 0.000549	11
HLA-A*01:01	1	214	223	10	RGLPQGFSAL 0.000549	21
HLA-A*23:01	1	254	263	10	GWTAGAAAYY 0.000549	11
HLA-B*07:02	1	351	359	9	NRKRISNCV 0.000549	16
HLA-B*51:01	1	362	370	9	YSVLYNSAS 0.000549	23
HLA-B*44:03	1	380	389	10	SPTKLNLDLCF 0.000549	11
HLA-B*08:01	1	456	465	10	SNLKPFERDI 0.000549	25
HLA-A*02:01	1	581	590	10	ILDITPCSFQ 0.000549	18
HLA-A*02:01	1	641	650	10	QTRAGCLIGA 0.000549	18
HLA-B*08:01	1	969	977	9	AISSVLNDI 0.000549	25
HLA-A*68:01	1	1008	1017	10	QLIRAAEIRA 0.000549	19
HLA-B*51:01	1	1057	1066	10	VVFLHVTYVP 0.000549	23
HLA-A*30:01	1	1148	1156	9	ELDKYFKNH 0.000549	34
HLA-A*33:01	1	1206	1215	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	303	311	9	FTVEKGIYQ 0.000548	24
HLA-B*57:01	1	308	317	10	GIYQTSNFRV 0.000548	25
HLA-A*02:06	1	626	635	10	LTPTWRVYST 0.000548	25
HLA-A*03:01	1	773	782	10	KNTQEVFAQV 0.000548	15
HLA-A*26:01	1	844	852	9	RDLICAQKF 0.000548	15
HLA-B*44:03	1	985	993	9	EAEVQIDRL 0.000548	11
HLA-A*24:02	1	1202	1210	9	KYEYIKWP 0.000548	11
HLA-A*26:01	1	134	143	10	QFCNDPFLGV 0.000547	15
HLA-B*51:01	1	438	446	9	LDSKVGGNY 0.000547	24
HLA-A*30:01	1	448	457	10	YLYRLEFRKSN 0.000547	34
HLA-A*30:01	1	530	539	10	LVKNKCVNFN 0.000547	34
HLA-A*02:01	1	574	582	9	RDPQMLEIL 0.000547	18
HLA-A*23:01	1	609	617	9	YQGVNCTEV 0.000547	11
HLA-B*51:01	1	635	644	10	TGSNVFQTRA 0.000547	24
HLA-A*33:01	1	770	778	9	EQDKNTQEV 0.000547	18
HLA-A*31:01	1	781	789	9	QVKQIYKTP 0.000547	20
HLA-A*03:01	1	850	858	9	QKFNGLTVL 0.000547	15
HLA-A*30:01	1	908	917	10	VTQNVLYENQ 0.000547	34
HLA-A*31:01	1	909	917	9	TQNVLYENQ 0.000547	20
HLA-A*01:01	1	992	1001	10	RLITGRLQSL 0.000547	21
HLA-B*40:01	1	1006	1015	10	TQQLIRAAEI 0.000547	9.7
HLA-A*24:02	1	1018	1026	9	SANLAATKM 0.000547	11
HLA-A*02:01	1	1153	1161	9	FKNHTSPDV 0.000547	18
HLA-A*33:01	1	1258	1266	9	SEPVKGVK 0.000547	18
HLA-A*01:01	1	7	15	9	LLPLVSSQC 0.000546	21
HLA-A*11:01	1	30	39	10	NSFTRGVYYP 0.000546	12
HLA-A*33:01	1	126	135	10	VVIKVCDFQF 0.000546	18
HLA-A*02:06	1	243	252	10	RSYLTPGDSS 0.000546	25
HLA-A*30:02	1	438	447	10	LDSKVGGNYN 0.000546	31
HLA-A*03:01	1	439	448	10	DSKVGGNYNY 0.000546	15
HLA-A*31:01	1	526	535	10	KSTNLVKNKC 0.000546	20
HLA-A*02:06	1	609	618	10	YQGVNCTEVP 0.000546	25
HLA-A*02:03	1	659	667	9	CDIPIGAGI 0.000546	20
HLA-A*68:02	1	688	697	10	SIAYTMSLG 0.000546	20
HLA-A*33:01	1	695	704	10	SLGVENSVAIY 0.000546	18
HLA-A*68:01	1	822	830	9	KVTLADAGF 0.000546	19
HLA-A*33:01	1	906	914	9	IGVTQNVLY 0.000546	18
HLA-A*01:01	1	1097	1106	10	THWFVTQRNF 0.000546	21
HLA-B*51:01	1	1117	1125	9	TFVSGNCDV 0.000546	24
HLA-A*26:01	1	1199	1207	9	ELGKYEYI 0.000546	15
HLA-A*02:06	1	5	14	10	LVLLPLVSSQ 0.000545	25
HLA-A*02:06	1	30	39	10	NSFTRGVYYP 0.000545	25

HLA-B*07:02	1	47	56	10	VLHSTQDLFL 0.000545	16
HLA-A*30:02	1	378	386	9	GVSPTKLND 0.000545	31
HLA-B*44:02	1	389	397	9	FTNVYADSF 0.000545	11
HLA-A*26:01	1	527	535	9	STNLVKKNC 0.000545	15
HLA-A*02:01	1	598	606	9	GTNTSNQVA 0.000545	18
HLA-A*32:01	1	638	647	10	NVFQTRAGCL 0.000545	14
HLA-B*51:01	1	881	890	10	SGWTFGAGAA 0.000545	24
HLA-A*32:01	1	911	920	10	NVLYENQKLI 0.000545	14
HLA-A*03:01	1	1004	1012	9	YVTQQLIRA 0.000545	15
HLA-A*02:01	1	1036	1044	9	RVDFCGKGY 0.000545	18
HLA-A*02:03	1	1222	1231	10	IAIVMVTIML 0.000545	20
HLA-A*11:01	1	1224	1232	9	IVMVTIMLC 0.000545	12
HLA-B*44:03	1	1257	1265	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	577	585	9	QTLEILDIT 0.000544	15
HLA-A*33:01	1	593	601	9	SVITPGTNT 0.000544	18
HLA-A*68:02	1	651	659	9	EHVNNSYEC 0.000544	20
HLA-A*02:06	1	660	669	10	DIPIGAGICA 0.000544	25
HLA-B*40:01	1	774	782	9	NTQEVFAQV 0.000544	9.7
HLA-B*57:01	1	816	825	10	EDLLFNKVTL 0.000544	25
HLA-B*35:01	1	871	879	9	TSALLAGTI 0.000544	13
HLA-A*11:01	1	1197	1206	10	LQELGKYEYQ 0.000544	12
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	527	535	9	STNLVKKNC 0.000543	18
HLA-A*01:01	1	696	705	10	LGVENSVAYS 0.000543	21
HLA-A*31:01	1	731	739	9	TSVDCTMYI 0.000543	20
HLA-A*30:02	1	1020	1028	9	NLAATKMSE 0.000543	31
HLA-B*51:01	1	1075	1084	10	APAICHGDKA 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*31:01	1	259	267	9	AAAYVGYL 0.000542	20
HLA-B*08:01	1	335	344	10	FGEVFNATRF 0.000542	25
HLA-B*58:01	1	347	355	9	VYAWNRKRI 0.000542	18
HLA-A*68:02	1	448	456	9	YLYRLFRRS 0.000542	20
HLA-A*32:01	1	462	470	9	ERDISTEYI 0.000542	14
HLA-A*68:01	1	548	556	9	VLTESNKKF 0.000542	19
HLA-B*51:01	1	577	585	9	QTLEILDIT 0.000542	24
HLA-B*08:01	1	780	789	10	AQVKQIYKTP 0.000542	25
HLA-B*51:01	1	905	913	9	GIGVTQNVL 0.000542	24
HLA-A*02:06	1	981	990	10	LDKVEAEVQI 0.000542	25
HLA-B*08:01	1	1068	1077	10	QEKNFTTAPA 0.000542	25
HLA-B*58:01	1	1109	1118	10	PQIITTDNTF 0.000542	18
HLA-B*44:03	1	263	272	10	YVGYLQPRTF 0.000541	11
HLA-B*44:02	1	301	310	10	KSFTVEKGIY 0.000541	11
HLA-B*44:02	1	302	310	9	SFTVEKGIY 0.000541	11
HLA-A*33:01	1	311	319	9	QTSNFRVQP 0.000541	18
HLA-A*33:01	1	315	323	9	FRVQPTESI 0.000541	18
HLA-B*57:01	1	348	357	10	YAWNRKRISN 0.000541	25
HLA-A*33:01	1	418	426	9	YNYKLPDDF 0.000541	18
HLA-A*68:02	1	554	562	9	KKFLPFQFQ 0.000541	20
HLA-A*11:01	1	643	652	10	RAGCLIGAEH 0.000541	12
HLA-A*30:01	1	689	697	9	IIAYTMSLG 0.000541	34
HLA-B*51:01	1	992	1001	10	RLITGRLQSL 0.000541	24
HLA-B*08:01	1	1170	1178	9	NASVVNIQK 0.000541	25
HLA-A*68:01	1	1197	1206	10	LQELGKYEYQ 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	245	253	9	YLTPGDSSS 0.00054	25
HLA-A*31:01	1	478	486	9	NGVKGFNCY 0.00054	20
HLA-A*30:02	1	707	716	10	NSIAIPTNFT 0.00054	31
HLA-B*15:01	1	801	809	9	QILPDPSKP 0.00054	18
HLA-A*31:01	1	975	983	9	NDILSRLDK 0.00054	20
HLA-B*35:01	1	1023	1031	9	ATKMSECVL 0.00054	13

HLA-B*35:01	1	1160	1169	10	DVDLGDISGI 0.00054	13
HLA-A*30:01	1	1262	1270	9	LKGVKLHYT 0.00054	34
HLA-A*30:02	1	18	27	10	LTTTRTQLPPA 0.000539	31
HLA-A*11:01	1	137	145	9	NDPFLGVYY 0.000539	12
HLA-B*15:01	1	158	167	10	RVYSSANNCT 0.000539	18
HLA-A*26:01	1	267	275	9	LQPRTFLLK 0.000539	15
HLA-A*24:02	1	327	335	9	PNITNLCPF 0.000539	11
HLA-A*32:01	1	440	449	10	SKVGGNYNYL 0.000539	14
HLA-A*68:02	1	466	474	9	STEIYQAGS 0.000539	20
HLA-B*44:03	1	474	483	10	STPCNGVKGF 0.000539	11
HLA-B*57:01	1	780	788	9	AQVKQIYKT 0.000539	25
HLA-B*08:01	1	788	796	9	TPPIKDFGG 0.000539	25
HLA-B*07:02	1	888	896	9	GAALQIPFA 0.000539	16
HLA-A*02:03	1	904	913	10	NGIGVTQNVL 0.000539	20
HLA-A*32:01	1	919	927	9	LIANQFNFA 0.000539	14
HLA-A*68:02	1	961	969	9	KQLSSNFGA 0.000539	20
HLA-A*68:02	1	1038	1047	10	DFCGKGYHLM 0.000539	20
HLA-A*32:01	1	1101	1109	9	VTQRNFYEP 0.000539	14
HLA-B*57:01	1	1106	1114	9	FYEPQIITT 0.000539	25
HLA-A*68:02	1	1163	1171	9	LGDISGINA 0.000539	20
HLA-B*44:02	1	1164	1173	10	GDISGINASV 0.000539	11
HLA-A*02:01	1	1259	1267	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	507	515	9	VVLSFELL 0.000538	12
HLA-A*30:02	1	517	525	9	APATVCGPK 0.000538	31
HLA-A*03:01	1	720	728	9	TTEILPVSM 0.000538	15
HLA-B*07:02	1	721	729	9	TEILPVSM 0.000538	16
HLA-B*08:01	1	760	768	9	LNRAITGIA 0.000538	25
HLA-A*30:01	1	825	833	9	LADAGFIKQ 0.000538	34
HLA-A*68:01	1	841	850	10	IAARDLICAQ 0.000538	19
HLA-A*26:01	1	1157	1166	10	TSPDVDLGD 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	295	304	10	ETKCTLKSFT 0.000537	18
HLA-B*51:01	1	972	980	9	SVLNDILSR 0.000537	24
HLA-A*32:01	1	986	994	9	AEVQIDRLI 0.000537	14
HLA-B*58:01	1	1037	1046	10	VDFCGKGYHL 0.000537	18
HLA-B*40:01	1	1147	1155	9	EELDKYFKN 0.000537	9.7
HLA-B*07:02	1	235	243	9	ITRFQTLHR 0.000536	16
HLA-B*07:02	1	277	286	10	NENGTITDAV 0.000536	16
HLA-A*30:02	1	362	370	9	YSVLYNSAS 0.000536	31
HLA-A*30:01	1	395	404	10	DSFVIRGDEV 0.000536	34
HLA-A*30:02	1	584	593	10	ITPCSFVGGV 0.000536	31
HLA-B*58:01	1	623	632	10	ADQLTPTWRV 0.000536	18
HLA-A*30:01	1	731	740	10	TSVDCTMYIC 0.000536	34
HLA-B*58:01	1	930	939	10	KIQDLSSTA 0.000536	18
HLA-A*30:02	1	947	956	10	DVVNQNAQAL 0.000536	31
HLA-A*30:01	1	1050	1059	10	PQSAPHGVVF 0.000536	34
HLA-B*40:01	1	1090	1099	10	GVFVSNGTHW 0.000536	9.7
HLA-B*44:03	1	1184	1193	10	NEVAKNLNES 0.000536	11
HLA-A*68:02	1	1209	1217	9	WPWYIWLGF 0.000536	20
HLA-B*44:02	1	1256	1264	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	421	430	10	KLPDDFTGCV 0.000535	15
HLA-B*58:01	1	431	440	10	IAWNSNNLDS 0.000535	18
HLA-A*26:01	1	452	461	10	LFKSNLKPFF 0.000535	15
HLA-A*33:01	1	537	546	10	NFNFNGLTGT 0.000535	18
HLA-A*23:01	1	570	579	10	TDAVRDPQTL 0.000535	11
HLA-B*35:01	1	609	617	9	YQGVNCTEV 0.000535	13
HLA-A*31:01	1	680	689	10	RARVASQSI 0.000535	20
HLA-A*02:03	1	727	736	10	SMTKTSVDCT 0.000535	20

HLA-A*02:06	1	1066	1075	10	PAQEKNFSTA 0.000535	25
HLA-B*08:01	1	1212	1220	9	YIWLGFIAQ 0.000535	26
HLA-A*26:01	1	1256	1265	10	DDSEPVKGV 0.000535	15
HLA-A*31:01	1	155	163	9	SEFRVYSSA 0.000534	20
HLA-A*33:01	1	317	326	10	VQPTESIVRF 0.000534	18
HLA-A*68:01	1	496	504	9	PTYGVGYQP 0.000534	19
HLA-A*23:01	1	716	724	9	TISVTTEIL 0.000534	11
HLA-A*30:02	1	773	781	9	KNTQEVFAQ 0.000534	31
HLA-A*02:06	1	838	846	9	LGDIAARDL 0.000534	25
HLA-A*02:01	1	884	893	10	TFGAGAALQI 0.000534	18
HLA-B*51:01	1	891	900	10	LQIPFAMQMA 0.000534	24
HLA-A*30:02	1	894	903	10	PFAMQMAYRF 0.000534	31
HLA-A*32:01	1	968	977	10	GAISSVLNDI 0.000534	14
HLA-A*30:01	1	1097	1105	9	THWFVTQRN 0.000534	34
HLA-A*01:01	1	1126	1134	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	276	285	10	YNENGTITDA 0.000533	21
HLA-A*01:01	1	281	289	9	TITDAVDCA 0.000533	21
HLA-A*02:01	1	360	369	10	ADYSVLYNSA 0.000533	18
HLA-A*33:01	1	430	438	9	VIAWNSNNL 0.000533	18
HLA-B*51:01	1	490	499	10	QSYGFQPTYG 0.000533	24
HLA-A*11:01	1	508	517	10	VVLSFELLHA 0.000533	12
HLA-A*02:06	1	516	524	9	HAPATVCGP 0.000533	25
HLA-A*02:06	1	646	654	9	CLIGAEHVN 0.000533	25
HLA-A*31:01	1	679	687	9	RRARSVASQ 0.000533	20
HLA-B*40:01	1	920	928	9	IANQFNSAI 0.000533	9.8
HLA-A*33:01	1	923	931	9	QFNSAIGKI 0.000533	18
HLA-B*57:01	1	952	961	10	NAQALNTLVK 0.000533	25
HLA-A*01:01	1	994	1003	10	ITGRLQSLQT 0.000533	21
HLA-A*33:01	1	1121	1129	9	GNCDVVIGI 0.000533	18
HLA-B*57:01	1	1217	1226	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	SQCVNLTTTR 0.000532	19
HLA-A*02:01	1	84	92	9	LPFNDGVYF 0.000532	18
HLA-B*51:01	1	685	693	9	ASQSIIAYT 0.000532	24
HLA-A*68:02	1	788	797	10	TPPIKDFGGF 0.000532	20
HLA-A*23:01	1	832	841	10	KQYGDCLGDI 0.000532	11
HLA-A*68:01	1	955	963	9	ALNTLVKQL 0.000532	19
HLA-A*03:01	1	1083	1091	9	KAHFPREGV 0.000532	15
HLA-B*57:01	1	1104	1113	10	RNFYEPQIIT 0.000532	25
HLA-B*53:01	1	1139	1148	10	QPELDSFKEE 0.000532	13
HLA-A*31:01	1	109	118	10	TLDSKTQSL 0.000531	20
HLA-B*57:01	1	247	256	10	TPGDSSSGWT 0.000531	25
HLA-A*01:01	1	375	384	10	KCYGVSPTKL 0.000531	21
HLA-B*53:01	1	397	405	9	FVIRGDEV 0.000531	13
HLA-B*15:01	1	649	658	10	GAEHVNNSYE 0.000531	19
HLA-B*35:01	1	976	984	9	DILSRLDKV 0.000531	13
HLA-A*03:01	1	1083	1092	10	KAHFPREGVF 0.000531	15
HLA-A*33:01	1	1084	1092	9	AHFPREGVF 0.000531	18
HLA-A*01:01	1	301	309	9	KSFTVEKGI 0.00053	21
HLA-A*30:02	1	303	312	10	FTVEKGIYQT 0.00053	32
HLA-B*35:01	1	316	324	9	RVQPTESIV 0.00053	13
HLA-B*40:01	1	360	368	9	ADYSVLYNS 0.00053	9.8
HLA-A*01:01	1	411	419	9	QTGNIADYN 0.00053	21
HLA-A*30:01	1	482	491	10	GFNCYFPLQS 0.00053	34
HLA-B*08:01	1	553	561	9	NKKFLPFQQ 0.00053	26
HLA-A*68:02	1	581	589	9	ILDITPCSF 0.00053	20
HLA-A*31:01	1	629	637	9	TWRVYSTGS 0.00053	20
HLA-A*30:02	1	821	830	10	NKVTLADAGF 0.00053	32
HLA-B*44:03	1	911	919	9	NVLYENQKL 0.00053	11
HLA-B*57:01	1	1055	1063	9	HGVVFLHVT 0.00053	25
HLA-B*53:01	1	1106	1114	9	FYEPQIITT 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	337	345	9	EVFNATRFA 0.000529	19
HLA-A*30:01	1	460	469	10	PFERDISTEI 0.000529	34
HLA-A*23:01	1	508	516	9	VVLSFELLH 0.000529	11
HLA-B*57:01	1	584	592	9	ITPCSFGGV 0.000529	25
HLA-A*02:06	1	736	745	10	TMYICGDSTE 0.000529	25
HLA-A*31:01	1	762	770	9	RALTGIAVE 0.000529	20
HLA-A*01:01	1	800	809	10	SQILPDPSKP 0.000529	22
HLA-A*01:01	1	816	825	10	EDLLFNKVTL 0.000529	22
HLA-A*31:01	1	853	861	9	NGLTVLPPL 0.000529	20
HLA-A*24:02	1	920	928	9	IANQFNSAI 0.000529	11
HLA-A*02:01	1	989	997	9	QIDRLITGR 0.000529	18
HLA-A*68:01	1	993	1001	9	LITGRLQSL 0.000529	19
HLA-A*02:01	1	1008	1016	9	QLIRAAEIR 0.000529	18
HLA-A*33:01	1	1083	1091	9	KAHFPREGV 0.000529	18
HLA-A*02:03	1	1103	1111	9	QRNFYEPQI 0.000529	20
HLA-A*02:01	1	1166	1174	9	ISGINASVV 0.000529	18
HLA-A*01:01	1	1168	1176	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	LVSSQCIVN 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	235	244	10	ITRFQTLHRS 0.000528	22
HLA-A*01:01	1	506	514	9	RVVVSFEL 0.000528	22
HLA-A*03:01	1	527	535	9	STNLVKKNC 0.000528	15
HLA-B*08:01	1	550	558	9	TESNKKFLP 0.000528	26
HLA-A*02:01	1	610	619	10	QGVNCTEVPV 0.000528	18
HLA-B*08:01	1	622	631	10	HADQLTPTWR 0.000528	26
HLA-A*33:01	1	632	641	10	VYSTGSNVFQ 0.000528	18
HLA-A*02:06	1	633	641	9	YSTGSNVFQ 0.000528	25
HLA-B*58:01	1	752	760	9	QYGSFCTQL 0.000528	18
HLA-A*24:02	1	758	767	10	TQLNRALTGI 0.000528	11
HLA-A*01:01	1	892	900	9	QIPFAMQMA 0.000528	22
HLA-A*01:01	1	906	915	10	IGVTQNVLYE 0.000528	22
HLA-B*07:02	1	912	920	9	VLYENQKLI 0.000528	16
HLA-A*31:01	1	915	923	9	ENQKLIANQ 0.000528	20
HLA-B*58:01	1	926	934	9	SAIGKIQDS 0.000528	18
HLA-A*01:01	1	1141	1150	10	ELDSFKEELD 0.000528	22
HLA-B*08:01	1	1141	1150	10	ELDSFKEELD 0.000528	26
HLA-B*08:01	1	1200	1209	10	LGKYEYIKW 0.000528	26
HLA-B*58:01	1	115	124	10	QSLLIIVNAT 0.000527	18
HLA-B*51:01	1	247	256	10	TPGDSSSGWT 0.000527	24
HLA-A*01:01	1	362	370	9	YSVLYNSAS 0.000527	22
HLA-A*30:02	1	390	399	10	TNVYADSFVI 0.000527	32
HLA-A*31:01	1	437	446	10	NLDSKVGNGY 0.000527	20
HLA-A*02:01	1	1091	1099	9	VFVSNQTHW 0.000527	18
HLA-A*02:01	1	1103	1111	9	QRNFYEPQI 0.000527	18
HLA-B*53:01	1	1133	1141	9	TVYDPLQPE 0.000527	13
HLA-A*01:01	1	1181	1190	10	DRLNEVAKNL 0.000527	22
HLA-A*24:02	1	1189	1197	9	NLNESLIDL 0.000527	11
HLA-B*07:02	1	91	100	10	YFASTEKSNI 0.000526	16
HLA-B*44:02	1	254	262	9	GWTAGAAAY 0.000526	11
HLA-B*51:01	1	321	330	10	ESIVRFPNIT 0.000526	24
HLA-A*23:01	1	440	448	9	SKVGGNYNY 0.000526	11
HLA-B*07:02	1	485	494	10	CYFPLQSYGF 0.000526	16
HLA-A*24:02	1	508	516	9	VVLSFELLH 0.000526	11
HLA-B*58:01	1	522	530	9	CGPKKSTNL 0.000526	18
HLA-B*44:03	1	698	707	10	VENSVAYSNN 0.000526	11
HLA-A*01:01	1	701	710	10	SVAYSNNNSIA 0.000526	22
HLA-A*02:03	1	799	808	10	FSQILPDPSK 0.000526	21
HLA-B*58:01	1	904	913	10	NGIGVTQNVL 0.000526	18
HLA-A*24:02	1	965	973	9	SNFGAISSV 0.000526	11
HLA-B*35:01	1	978	986	9	LSRLDKVEA 0.000526	13
HLA-A*30:02	1	1006	1015	10	TQQLIRAAEI 0.000526	32
HLA-A*30:02	1	1073	1081	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	254	262	9	GWTAGAAAY 0.000525	11
HLA-A*02:03	1	370	379	10	SFSTFKCYGV 0.000525	21
HLA-A*23:01	1	370	379	10	SFSTFKCYGV 0.000525	11
HLA-B*35:01	1	844	852	9	RDLICAQKF 0.000525	13
HLA-A*24:02	1	922	931	10	NQFNSAIGKI 0.000525	11
HLA-A*01:01	1	938	946	9	TASALGKLQ 0.000525	22
HLA-A*02:03	1	970	978	9	ISSVLNDIL 0.000525	21
HLA-A*32:01	1	984	993	10	VEAEVQIDRL 0.000525	14
HLA-A*01:01	1	1104	1112	9	RNFYEPQII 0.000525	22
HLA-A*02:01	1	1122	1130	9	NCDVVIGIV 0.000525	18
HLA-A*03:01	1	1189	1197	9	NLNESLIDL 0.000525	15
HLA-A*26:01	1	1255	1263	9	EDDSEPVLK 0.000525	15
HLA-A*30:01	1	31	40	10	SFTRGVVYPD 0.000524	34
HLA-B*07:02	1	204	213	10	YSKHTPINLV 0.000524	16
HLA-A*68:02	1	289	298	10	ALDPLSETKC 0.000524	20
HLA-A*68:01	1	311	320	10	QTSNFRVQPT 0.000524	19
HLA-A*23:01	1	682	690	9	RSVASQSII 0.000524	11
HLA-A*01:01	1	687	696	10	QSIAYTMSL 0.000524	22
HLA-A*30:02	1	759	768	10	QLNRALTGIA 0.000524	32
HLA-B*51:01	1	1046	1054	9	LMSFPQSAP 0.000524	24
HLA-A*68:01	1	1203	1212	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	KSNIIIRGWI 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	280	289	10	GTITDAVDCA 0.000523	22
HLA-B*08:01	1	424	433	10	DDFTGCVIAW 0.000523	26
HLA-B*07:02	1	641	650	10	QTRAGCLIGA 0.000523	16
HLA-A*31:01	1	976	984	9	DILSRLDKV 0.000523	20
HLA-B*35:01	1	1221	1230	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	250	258	9	DSSSGWTAG 0.000522	34
HLA-A*68:02	1	270	278	9	RTFLLKYNE 0.000522	20
HLA-B*08:01	1	284	293	10	DAVDCALDPL 0.000522	26
HLA-B*08:01	1	322	330	9	SIVRFPNIT 0.000522	26
HLA-B*44:02	1	530	538	9	LVKNKCVNF 0.000522	11
HLA-A*01:01	1	572	580	9	AVRDPQTL 0.000522	22
HLA-A*26:01	1	681	689	9	ARSVASQSI 0.000522	15
HLA-B*57:01	1	704	713	10	YSNNSIAIPT 0.000522	26
HLA-A*68:01	1	984	993	10	VEAEVQIDRL 0.000522	19
HLA-B*08:01	1	1121	1129	9	GNCDDVIGI 0.000522	26
HLA-A*02:01	1	1157	1166	10	TSPDVLGDI 0.000522	19
HLA-A*30:01	1	170	178	9	YVSQPFLMD 0.000521	34
HLA-A*01:01	1	356	364	9	SNCVADYSV 0.000521	22
HLA-B*15:01	1	357	365	9	NCVADYSVL 0.000521	19
HLA-A*03:01	1	514	522	9	LLHAPATVC 0.000521	15
HLA-A*68:01	1	632	641	10	VYSTGSNVFQ 0.000521	19
HLA-A*26:01	1	633	641	9	YSTGSNVFQ 0.000521	15
HLA-B*35:01	1	662	671	10	PIGAGICASY 0.000521	13
HLA-A*33:01	1	765	773	9	TGIAVEQDK 0.000521	18
HLA-A*02:01	1	778	786	9	VFAQVKQIY 0.000521	19
HLA-A*30:02	1	870	879	10	YTSALLAGTI 0.000521	32
HLA-B*08:01	1	901	910	10	YRFNGIGVTQ 0.000521	26
HLA-B*57:01	1	918	926	9	KLIANQFNS 0.000521	26
HLA-B*53:01	1	1017	1026	10	ASANLAATKM 0.000521	13
HLA-A*68:01	1	1222	1230	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-B*07:02	1	294	303	10	SETKCTLSKF 0.00052	16
HLA-A*31:01	1	298	306	9	CTLKSFTVE 0.00052	20
HLA-A*30:02	1	399	408	10	IRGDEVQRQA 0.00052	32
HLA-B*07:02	1	540	549	10	FNGLTGTGVL 0.00052	16

HLA-A*11:01	1	552	560	9	SNKKFLPFQ 0.00052	12
HLA-B*35:01	1	601	610	10	TSNQVAVLYQ 0.00052	13
HLA-A*33:01	1	627	635	9	TPTWRVYST 0.00052	18
HLA-B*35:01	1	816	825	10	EDLLFNKVTL 0.00052	13
HLA-A*30:02	1	929	938	10	GKIQDSLSST 0.00052	32
HLA-B*57:01	1	931	939	9	IQDSLSSTA 0.00052	26
HLA-B*15:01	1	989	997	9	QIDRLITGR 0.00052	19
HLA-A*02:03	1	1168	1177	10	GINASVVNIQ 0.00052	21
HLA-A*30:02	1	1173	1182	10	VVNIQKEIDR 0.00052	32
HLA-A*02:03	1	42	50	9	VFRSSVLHS 0.000519	21
HLA-B*51:01	1	77	86	10	KRFANPVLPF 0.000519	24
HLA-A*11:01	1	115	123	9	QSLLVNNA 0.000519	12
HLA-A*30:01	1	152	160	9	WMESEFRVY 0.000519	35
HLA-B*57:01	1	213	222	10	VRGLPQGFSV 0.000519	26
HLA-B*08:01	1	228	237	10	DLPIGINITR 0.000519	26
HLA-A*02:03	1	260	269	10	AAYYVGYLQP 0.000519	21
HLA-A*23:01	1	275	284	10	KYNENGTITD 0.000519	11
HLA-B*51:01	1	495	503	9	QPTYGVGYQ 0.000519	24
HLA-A*26:01	1	599	607	9	TNTSNQVAV 0.000519	15
HLA-B*44:02	1	600	608	9	NTSNQVAVL 0.000519	11
HLA-A*02:06	1	728	736	9	MTKTSVDCT 0.000519	25
HLA-A*31:01	1	888	897	10	GAALQIPFAM 0.000519	20
HLA-A*11:01	1	889	898	10	AALQIPFAMQ 0.000519	12
HLA-A*31:01	1	974	983	10	LNDILSRDLK 0.000519	20
HLA-A*02:06	1	1008	1016	9	QLIRAAEIR 0.000519	25
HLA-B*40:01	1	1050	1058	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	QSLLVNNA 0.000518	25
HLA-A*31:01	1	226	235	10	LVDLPIGINI 0.000518	20
HLA-A*32:01	1	339	347	9	FNATRFASV 0.000518	14
HLA-A*01:01	1	413	421	9	GNIADYNYK 0.000518	22
HLA-B*15:01	1	429	438	10	CVIAWNSNNL 0.000518	19
HLA-B*51:01	1	564	573	10	RDIADTTDAV 0.000518	24
HLA-A*11:01	1	709	717	9	IAIPTNFTI 0.000518	12
HLA-B*40:01	1	775	783	9	TQEVFAQVK 0.000518	9.9
HLA-A*30:01	1	798	806	9	NFSQILPDP 0.000518	35
HLA-A*11:01	1	842	850	9	AARDLICAQ 0.000518	12
HLA-A*26:01	1	910	919	10	QNVLYENQKL 0.000518	15
HLA-B*08:01	1	922	931	10	NQFNSAIGKI 0.000518	26
HLA-A*30:02	1	963	972	10	LSSNFGAISS 0.000518	32
HLA-B*08:01	1	1069	1078	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	299	307	9	TLKSFTVEK 0.000517	24
HLA-A*31:01	1	433	441	9	WNSNNLDSK 0.000517	20
HLA-A*02:01	1	566	574	9	IADTTDAVR 0.000517	19
HLA-B*51:01	1	814	822	9	FIEDLLFNK 0.000517	24
HLA-A*31:01	1	817	825	9	DLLFNKVTL 0.000517	20
HLA-A*31:01	1	865	873	9	EMIAQY TSA 0.000517	20
HLA-A*68:02	1	1193	1202	10	SLIDLQELGK 0.000517	20
HLA-A*68:01	1	254	262	9	GWTAGAAAY 0.000516	19
HLA-A*68:02	1	280	288	9	GTITDAVDC 0.000516	20
HLA-A*24:02	1	461	470	10	FERDISTEY 0.000516	11
HLA-B*51:01	1	469	477	9	IYQAGSTPC 0.000516	24
HLA-A*33:01	1	484	493	10	NCYFPLQSYG 0.000516	18
HLA-B*07:02	1	659	667	9	CDIPIGAGI 0.000516	16
HLA-A*11:01	1	999	1008	10	QSLQTYVTQQ 0.000516	12
HLA-A*23:01	1	1223	1231	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	308	317	10	GIYQTSNFRV 0.000515	18
HLA-B*51:01	1	327	335	9	PNITNLCPF 0.000515	24
HLA-B*07:02	1	346	354	9	SVYAWNRKR 0.000515	16
HLA-A*02:06	1	441	450	10	KVGGNYNYLY 0.000515	26

HLA-A*23:01	1	461	470	10	FERDISTEIIY 0.000515	11
HLA-A*32:01	1	555	563	9	KFLPFQQFG 0.000515	14
HLA-A*02:06	1	590	599	10	GGVSVITPGT 0.000515	26
HLA-A*68:01	1	632	640	9	VYSTGSNVF 0.000515	19
HLA-B*35:01	1	685	694	10	ASQSIIAYTM 0.000515	13
HLA-B*58:01	1	728	736	9	MTKTSVDCT 0.000515	19
HLA-A*30:02	1	1177	1186	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	GNFKNREF 0.000514	20
HLA-B*08:01	1	225	233	9	PLVDLPIGI 0.000514	26
HLA-A*02:03	1	316	325	10	RVQPTESIVR 0.000514	21
HLA-A*31:01	1	400	408	9	RGDEVRIIA 0.000514	20
HLA-B*44:03	1	517	526	10	APATVCGPKK 0.000514	11
HLA-B*35:01	1	535	543	9	CVNFNFNGL 0.000514	13
HLA-A*33:01	1	636	644	9	GSNVFQTRA 0.000514	15
HLA-B*44:02	1	657	666	10	YECDIPIGAG 0.000514	11
HLA-B*53:01	1	657	665	9	YECDIPIGA 0.000514	13
HLA-B*08:01	1	679	687	9	RRARSVASQ 0.000514	26
HLA-A*30:01	1	700	708	9	NSVAYSNNIS 0.000514	35
HLA-B*35:01	1	703	711	9	AYSNNISAI 0.000514	13
HLA-A*68:01	1	708	717	10	SIAIPTNFII 0.000514	19
HLA-B*44:03	1	741	749	9	GDSTECSNL 0.000514	11
HLA-A*30:02	1	846	855	10	LICAQKFNGL 0.000514	32
HLA-A*02:01	1	923	931	9	QFNSAIGKI 0.000514	19
HLA-A*01:01	1	999	1008	10	QSLQTYVTQQ 0.000514	22
HLA-B*35:01	1	1041	1049	9	GKGYHLMSF 0.000514	13
HLA-A*68:02	1	1065	1074	10	VPAQEKNFIT 0.000514	20
HLA-A*68:02	1	1091	1099	9	VFVSNQTHW 0.000514	20
HLA-A*02:01	1	1104	1112	9	RNFYEPQII 0.000514	19
HLA-B*07:02	1	1105	1113	9	NFYEPQIIT 0.000514	16
HLA-B*15:01	1	1171	1180	10	ASVVNIQKEI 0.000514	19
HLA-A*02:03	1	1259	1267	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	QSLLIIVNNA 0.000513	14
HLA-B*44:02	1	151	159	9	SWMESEFRV 0.000513	11
HLA-B*35:01	1	417	426	10	DYNYKLPDDF 0.000513	14
HLA-A*01:01	1	763	771	9	ALTGIAVEQ 0.000513	22
HLA-A*02:01	1	779	787	9	FAQVKQIYK 0.000513	19
HLA-B*58:01	1	780	788	9	AQVKQIYKT 0.000513	19
HLA-A*31:01	1	930	939	10	KIQDSLSSA 0.000513	20
HLA-B*57:01	1	1257	1266	10	DSEPVLKGVK 0.000513	26
HLA-B*35:01	1	340	349	10	NATRFASVYA 0.000512	14
HLA-A*26:01	1	520	528	9	TVCGPKKST 0.000512	15
HLA-B*51:01	1	556	565	10	FLPFQFGRD 0.000512	24
HLA-A*03:01	1	620	628	9	AIHADQLTP 0.000512	15
HLA-A*02:03	1	672	681	10	QTQTNPRRA 0.000512	21
HLA-A*30:02	1	722	731	10	EILPVSMTKT 0.000512	32
HLA-B*44:03	1	761	769	9	NRALTGIAV 0.000512	11
HLA-B*44:02	1	817	825	9	DLLFNKVTL 0.000512	11
HLA-A*33:01	1	882	891	10	GWTFGAGAAL 0.000512	18
HLA-B*58:01	1	1023	1032	10	ATKMSECVLG 0.000512	19
HLA-A*01:01	1	1062	1071	10	VTYVPAQEK 0.000512	22
HLA-B*08:01	1	1197	1206	10	LQELGKYEYQ 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	251	259	9	SSSGWTAGA 0.000511	24
HLA-A*68:01	1	288	296	9	CALDPLSET 0.000511	19
HLA-B*58:01	1	525	534	10	KKSTNLVKNK 0.000511	19
HLA-B*08:01	1	683	692	10	SVASQSIIAY 0.000511	26
HLA-A*30:02	1	781	790	10	QVKQIYKTPP 0.000511	32
HLA-B*51:01	1	961	970	10	KQLSSNFGAI 0.000511	24
HLA-A*02:03	1	1061	1069	9	HVTYVPAQE 0.000511	21
HLA-A*02:01	1	1117	1126	10	TFVSGNCDVV 0.000511	19
HLA-A*30:01	1	1226	1234	9	MVTIMLCCM 0.000511	35
HLA-A*03:01	1	10	18	9	LVSSQCVNLT 0.000511	16

HLA-B*07:02	1	54	62	9	LFLPFFSNV 0.00051	16
HLA-A*30:01	1	121	130	10	NNATNVVIVK 0.00051	35
HLA-A*31:01	1	205	213	9	SKHTPINLV 0.00051	20
HLA-A*03:01	1	221	229	9	SALEPLVDL 0.00051	16
HLA-A*30:02	1	360	368	9	ADYSVLYNS 0.00051	32
HLA-A*33:01	1	390	398	9	TNVYADSFV 0.00051	18
HLA-B*44:03	1	392	400	9	VYADSFVIR 0.00051	11
HLA-A*33:01	1	482	490	9	GFNCYFPLQ 0.00051	18
HLA-A*02:03	1	635	644	10	TGSNVFQTRA 0.00051	21
HLA-A*30:01	1	737	745	9	MYICGDSTE 0.00051	35
HLA-A*01:01	1	908	917	10	VTQNVLYENQ 0.00051	22
HLA-A*26:01	1	954	963	10	QALNTLVKQL 0.00051	15
HLA-A*02:06	1	964	972	9	SSNFGAISS 0.00051	26
HLA-B*53:01	1	1031	1039	9	LGQSKRVDF 0.00051	13
HLA-B*58:01	1	1104	1113	10	RNFYEPQIIT 0.00051	19
HLA-B*58:01	1	1143	1151	9	DSFKEELDK 0.00051	19
HLA-A*24:02	1	1211	1219	9	WYIWLGFIA 0.00051	11
HLA-A*68:02	1	40	49	10	DKVFRSSVLH 0.000509	20
HLA-A*68:01	1	75	83	9	GTKRFANPV 0.000509	19
HLA-A*02:01	1	125	133	9	NVVIKVECF 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*02:03	1	235	244	10	ITRFQTLHRS 0.000509	21
HLA-A*02:01	1	389	397	9	FTNVYADSF 0.000509	19
HLA-B*58:01	1	708	716	9	SIAIPTNFT 0.000509	19
HLA-A*30:02	1	830	838	9	FIKQYGDCL 0.000509	32
HLA-A*26:01	1	842	850	9	AARDLICAQ 0.000509	15
HLA-A*31:01	1	904	912	9	NGIGVTQNV 0.000509	20
HLA-B*40:01	1	929	937	9	GKIQDSLSS 0.000509	9.9
HLA-B*35:01	1	1038	1047	10	DFCGKGYHLM 0.000509	14
HLA-A*24:02	1	1056	1064	9	GVVFLHVTY 0.000509	11
HLA-B*15:01	1	1093	1101	9	VSNGTHWFV 0.000509	19
HLA-B*51:01	1	1137	1145	9	PLQPELDSF 0.000509	24
HLA-A*31:01	1	1143	1152	10	DSFKEELDKY 0.000509	20
HLA-A*30:02	1	1152	1161	10	YFKNHTSPDV 0.000509	32
HLA-A*30:02	1	1217	1226	10	FIAGLIAIVM 0.000509	32
HLA-A*01:01	1	6	14	9	VLLPLVSSQ 0.000508	22
HLA-A*02:06	1	235	243	9	ITRFQTLHR 0.000508	26
HLA-A*03:01	1	240	248	9	TLHRSYLTP 0.000508	16
HLA-B*57:01	1	451	460	10	RLFRKSNLKP 0.000508	26
HLA-A*31:01	1	529	538	10	NLVKKNKCVNF 0.000508	20
HLA-A*02:06	1	588	596	9	SFGGVSUIT 0.000508	26
HLA-A*31:01	1	593	602	10	SVITPGTNTS 0.000508	20
HLA-B*07:02	1	762	770	9	RALTGIAVE 0.000508	16
HLA-A*02:06	1	984	992	9	VEAEVQIDR 0.000508	26
HLA-B*57:01	1	1216	1224	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	GTTLDSTQSQ 0.000507	32
HLA-A*32:01	1	167	176	10	TFEYVSQPFL 0.000507	14
HLA-A*01:01	1	197	206	10	IDGYFKIYSK 0.000507	22
HLA-A*24:02	1	570	579	10	TDAVRDPQTL 0.000507	11
HLA-A*23:01	1	651	659	9	EHVNNSYEC 0.000507	11
HLA-A*68:02	1	755	763	9	SFCTQLNRA 0.000507	20
HLA-A*68:01	1	768	776	9	AVEQDKNTQ 0.000507	19
HLA-A*30:02	1	816	825	10	EDLLFNKVTL 0.000507	32
HLA-A*24:02	1	826	834	9	ADAGFIKQY 0.000507	11
HLA-B*08:01	1	874	883	10	LLAGTITSGW 0.000507	26
HLA-B*53:01	1	954	962	9	QALNTLVKQ 0.000507	13
HLA-A*02:06	1	1059	1068	10	FLHVTYVPAQ 0.000507	26
HLA-A*02:03	1	1090	1099	10	GVFVSNGTHW 0.000507	21
HLA-B*51:01	1	1143	1151	9	DSFKEELDK 0.000507	24
HLA-A*33:01	1	1197	1206	10	LQELGKYEYQ 0.000507	18
HLA-A*31:01	1	1255	1263	9	EDDSEPVLK 0.000507	20
HLA-A*32:01	1	229	237	9	LPIGINITR 0.000506	14
HLA-A*23:01	1	244	253	10	SYLTPGDSSS 0.000506	11
HLA-A*02:01	1	255	263	9	WTAGAAAYY 0.000506	19

HLA-A*33:01	1	298	306	9	CTLKSFTVE 0.000506	18
HLA-B*57:01	1	356	364	9	SNCVADYSV 0.000506	26
HLA-A*02:06	1	453	461	9	FRKSNLKPF 0.000506	26
HLA-A*26:01	1	455	463	9	KSNLKPFER 0.000506	15
HLA-A*03:01	1	468	476	9	EIYQAGSTP 0.000506	16
HLA-A*68:02	1	557	566	10	LPFQQFGRDI 0.000506	21
HLA-A*02:01	1	617	626	10	VPVAIHADQL 0.000506	19
HLA-A*02:03	1	660	669	10	DIPIGAGICA 0.000506	21
HLA-A*68:02	1	676	685	10	NSPRRARSVA 0.000506	21
HLA-B*35:01	1	761	769	9	NRALTGIAV 0.000506	14
HLA-B*58:01	1	764	772	9	LTGIAVEQD 0.000506	19
HLA-B*57:01	1	891	900	10	LQIPFAMQMA 0.000506	26
HLA-B*15:01	1	936	945	10	SSTASALGKL 0.000506	19
HLA-B*44:02	1	954	963	10	QALNTLVKQL 0.000506	11
HLA-A*33:01	1	964	973	10	SSNFGAISSV 0.000506	18
HLA-A*02:03	1	991	1000	10	DRLITGRLQS 0.000506	21
HLA-B*35:01	1	1022	1030	9	AATKMSECV 0.000506	14
HLA-A*33:01	1	1035	1044	10	KRVDFCGKGY 0.000506	18
HLA-B*08:01	1	1094	1102	9	SNGTHWFVT 0.000506	26
HLA-A*01:01	1	1158	1166	9	SPDVDLGD I 0.000506	22
HLA-B*51:01	1	1212	1221	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	NATNVVIVK 0.000505	11
HLA-A*31:01	1	184	193	10	GNFKNLREFV 0.000505	20
HLA-A*02:06	1	244	253	10	SYLTPGDSSS 0.000505	26
HLA-A*02:06	1	340	349	10	NATRFASVYA 0.000505	26
HLA-A*03:01	1	430	438	9	VIAWNSNNL 0.000505	16
HLA-B*08:01	1	621	629	9	IHADQLTPT 0.000505	26
HLA-A*02:01	1	703	711	9	AYSNNSIAI 0.000505	19
HLA-A*68:01	1	771	779	9	QDKNTQEVF 0.000505	19
HLA-B*08:01	1	1028	1037	10	ECVLGQSKRV 0.000505	26
HLA-B*44:03	1	1256	1264	9	DDSEPVKLG 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	IVNATNVV 0.000504	19
HLA-A*33:01	1	148	157	10	NNKSWMESEF 0.000504	18
HLA-A*24:02	1	316	324	9	RVQPTESIV 0.000504	11
HLA-B*53:01	1	407	416	10	IAPGQTGNIA 0.000504	13
HLA-A*30:02	1	524	532	9	PKKSTNLVK 0.000504	32
HLA-A*02:06	1	540	549	10	FNGLTGTGVL 0.000504	26
HLA-A*02:06	1	541	550	10	NGLTGTGVL T 0.000504	26
HLA-B*08:01	1	547	556	10	GVLTESNKKF 0.000504	26
HLA-A*33:01	1	571	579	9	DAVRDPQTL 0.000504	18
HLA-B*40:01	1	683	691	9	SVASQSIIA 0.000504	10
HLA-A*03:01	1	729	738	10	TKTSVDCTMY 0.000504	16
HLA-B*58:01	1	767	775	9	IAVEQDKNT 0.000504	19
HLA-A*02:01	1	848	857	10	CAQKFNGLTV 0.000504	19
HLA-A*68:02	1	892	901	10	QIPFAMQMAY 0.000504	21
HLA-A*02:01	1	1090	1099	10	GVFVSNGTHW 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-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	278	286	9	ENGTITDAV 0.000503	22
HLA-A*24:02	1	299	307	9	TLKSFTVEK 0.000503	11
HLA-B*44:02	1	402	411	10	DEVVRIAPGQ 0.000503	11
HLA-B*57:01	1	472	481	10	AGSTPCNGVK 0.000503	26
HLA-A*31:01	1	554	563	10	KKFLPFQFG 0.000503	20
HLA-B*57:01	1	703	711	9	AYSNNSIAI 0.000503	26
HLA-A*01:01	1	839	847	9	GDIAARDLI 0.000503	22
HLA-A*33:01	1	1086	1094	9	FPREGVFDL 0.000503	18
HLA-B*44:02	1	1189	1197	9	NLNESLIDL 0.000503	11
HLA-A*23:01	1	1222	1230	9	IAIVMTIM 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	307	316	10	KGIYQTSNFR 0.000502	19
HLA-B*15:01	1	315	324	10	FRVQPTESIV 0.000502	19
HLA-B*51:01	1	439	447	9	DSKVGGNYN 0.000502	24
HLA-A*01:01	1	508	517	10	VVLSFELLHA 0.000502	22
HLA-A*31:01	1	670	678	9	SYQTQTNSP 0.000502	20
HLA-B*15:01	1	762	770	9	RALTGIAVE 0.000502	19
HLA-A*30:01	1	946	955	10	QDVVNQNAQA 0.000502	35
HLA-A*03:01	1	1084	1092	9	AHFPREGVF 0.000502	16
HLA-B*15:01	1	1181	1190	10	DRLNEVAKNL 0.000502	19
HLA-B*44:03	1	16	24	9	VNLTRTQL 0.000501	11
HLA-A*02:03	1	252	260	9	SSGWTAGAA 0.000501	21
HLA-A*02:03	1	457	466	10	NLKPFERDIS 0.000501	21
HLA-A*02:01	1	467	476	10	TEIYQAGSTP 0.000501	19
HLA-B*35:01	1	523	532	10	GPKKSTNLVK 0.000501	14
HLA-A*01:01	1	532	540	9	KNKCVNFnF 0.000501	22
HLA-B*44:02	1	701	709	9	SVAYSNNSI 0.000501	11
HLA-A*30:01	1	744	753	10	TECSNLLLQY 0.000501	35
HLA-B*53:01	1	938	946	9	TASALGKLQ 0.000501	13
HLA-A*30:02	1	1055	1063	9	HGVVFLHVT 0.000501	32
HLA-A*01:01	1	1244	1253	10	CCSCGSCCKF 0.000501	22
HLA-A*03:01	1	63	71	9	TWFHAIHVS 0.0005	16
HLA-A*30:02	1	138	147	10	DPFLGVVYHK 0.0005	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	298	307	10	CTLKSFTVEK 0.0005	15
HLA-B*58:01	1	302	310	9	SFTVEKGIY 0.0005	19
HLA-A*11:01	1	369	378	10	ASFSTFKCYG 0.0005	13
HLA-B*40:01	1	486	494	9	YFPLQSYGF 0.0005	10
HLA-B*07:02	1	553	562	10	NKKFLPFQF 0.0005	16
HLA-A*68:02	1	620	628	9	AIHADQLTP 0.0005	21
HLA-A*30:01	1	771	779	9	QDKNTQEVF 0.0005	35
HLA-A*30:01	1	799	807	9	FSQILPDPS 0.0005	35
HLA-A*01:01	1	1041	1049	9	GKGYHLMSF 0.0005	22
HLA-B*07:02	1	1090	1098	9	GVFVSNHGT 0.0005	16
HLA-A*01:01	1	1155	1164	10	NHTSPDVDLG 0.0005	22
HLA-B*51:01	1	1245	1253	9	CSCGSCCKF 0.0005	24
HLA-B*51:01	1	15	24	10	CVNLTRTQL 0.000499	24
HLA-A*30:02	1	173	182	10	QPFLMDLEGG 0.000499	32
HLA-A*02:01	1	239	247	9	QTLHRSYLT 0.000499	19
HLA-A*02:01	1	244	253	10	SYLTPGDSSS 0.000499	19
HLA-B*58:01	1	292	300	9	PLSETKCTL 0.000499	19
HLA-A*23:01	1	484	492	9	NCYFPLQSY 0.000499	12
HLA-A*32:01	1	548	557	10	VLTESNKKFL 0.000499	14
HLA-B*35:01	1	738	746	9	YICGDSTEC 0.000499	14
HLA-B*35:01	1	849	857	9	AQKFNLTV 0.000499	14
HLA-B*35:01	1	859	867	9	PPLLTDEMI 0.000499	14
HLA-A*26:01	1	989	998	10	QIDRLITGRL 0.000499	15
HLA-A*01:01	1	1004	1013	10	YVTQQLIRAA 0.000499	22
HLA-B*51:01	1	1112	1120	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	YTNFSTRGV 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*01:01	1	214	222	9	RGLPQGFSA 0.000498	22
HLA-A*68:01	1	599	608	10	TNTSNQVAVL 0.000498	19
HLA-B*35:01	1	599	607	9	TNTSNQVAV 0.000498	14
HLA-A*31:01	1	600	608	9	NTSNQVAVL 0.000498	20
HLA-A*02:03	1	658	667	10	ECDIPIGAGI 0.000498	21
HLA-A*03:01	1	709	717	9	IAIPTNFTI 0.000498	16
HLA-B*53:01	1	923	931	9	QFNSAIGKI 0.000498	13
HLA-B*44:03	1	926	935	10	SAIGKIQDSL 0.000498	11

HLA-B*07:02	1	984	993	10	VEAEVQIDRL 0.000498	16
HLA-A*26:01	1	1080	1088	9	HDGKAHFPR 0.000498	15
HLA-B*51:01	1	1192	1201	10	ESLIDLQELG 0.000498	24
HLA-A*02:03	1	1253	1262	10	FDEDDSEPVL 0.000498	21
HLA-A*31:01	1	70	79	10	VSGTNGTKRF 0.000497	20
HLA-B*07:02	1	337	345	9	EVFNATRFA 0.000497	16
HLA-A*01:01	1	375	383	9	KCYGVSPTK 0.000497	22
HLA-A*01:01	1	440	449	10	SKVGGNYNYL 0.000497	22
HLA-B*58:01	1	451	460	10	RLFRKSNLKP 0.000497	19
HLA-A*02:06	1	661	669	9	IPIGAGICA 0.000497	26
HLA-A*68:01	1	776	784	9	QEVFAQVKQ 0.000497	19
HLA-B*58:01	1	853	861	9	NGLTVLPPL 0.000497	19
HLA-A*31:01	1	927	935	9	AIGKIQDSL 0.000497	20
HLA-A*26:01	1	1040	1049	10	CGKGYHLMSF 0.000497	16
HLA-B*58:01	1	1041	1049	9	GKGYHLMSF 0.000497	19
HLA-A*03:01	1	1105	1113	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	244	252	9	SYLTPGDSS 0.000496	20
HLA-A*02:03	1	261	269	9	AYYVGYLQP 0.000496	21
HLA-B*44:02	1	301	309	9	KSFTVEKGI 0.000496	11
HLA-A*02:06	1	354	362	9	RISNCVADY 0.000496	26
HLA-B*57:01	1	356	365	10	SNCVADYSVL 0.000496	26
HLA-A*68:01	1	372	381	10	STFKCYGVSP 0.000496	19
HLA-A*30:02	1	561	570	10	QFGRDIADTT 0.000496	32
HLA-B*08:01	1	649	657	9	GAEHVNNYS 0.000496	26
HLA-A*23:01	1	826	834	9	ADAGFIKQY 0.000496	12
HLA-A*30:01	1	882	890	9	GWTFGAGAA 0.000496	35
HLA-B*08:01	1	884	893	10	TFGAGAALQI 0.000496	26
HLA-A*02:06	1	886	895	10	GAGAALQIPF 0.000496	26
HLA-A*68:02	1	893	902	10	IPFAMQMAYR 0.000496	21
HLA-A*31:01	1	1126	1135	10	VIGIVNNTVY 0.000496	20
HLA-B*07:02	1	1135	1144	10	YDPLQPELDS 0.000496	16
HLA-B*58:01	1	1221	1230	10	LIAIVMVTIM 0.000496	19
HLA-B*35:01	1	16	24	9	VNLTRTQL 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	277	285	9	NENGTITDA 0.000495	14
HLA-A*30:02	1	614	623	10	CTEVPVAIHA 0.000495	32
HLA-B*35:01	1	631	639	9	RVYSTGSNV 0.000495	14
HLA-A*30:02	1	721	729	9	TEILPVSM 0.000495	32
HLA-A*30:01	1	927	936	10	AIGKIQDSLS 0.000495	35
HLA-A*01:01	1	940	949	10	SALGKLQDVV 0.000495	22
HLA-A*30:02	1	1022	1030	9	AATKMSECV 0.000495	32
HLA-A*01:01	1	1132	1141	10	NTVYDPLQPE 0.000495	22
HLA-A*26:01	1	38	47	10	YDPKVFRSSV 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	258	267	10	GAAAYVGYL 0.000494	24
HLA-A*31:01	1	323	331	9	IVRFPNITN 0.000494	21
HLA-A*24:02	1	339	347	9	FNATRFASV 0.000494	11
HLA-A*33:01	1	690	698	9	IAYTMSLGV 0.000494	19
HLA-B*51:01	1	760	769	10	LNRLTGI 0.000494	24
HLA-B*40:01	1	887	895	9	AGAALQIPF 0.000494	10
HLA-A*33:01	1	926	935	10	SAIGKIQDSL 0.000494	19
HLA-B*51:01	1	979	988	10	SRLDKVEAEV 0.000494	24
HLA-A*33:01	1	1058	1066	9	VFLHVTVVP 0.000494	19
HLA-A*30:01	1	1175	1183	9	NIQKEIDRL 0.000494	35
HLA-A*26:01	1	144	153	10	YYHKNNKSWM 0.000493	16



HLA-B*15:01	1	413	422	10	GNIADYNYKL 0.000493	19
HLA-A*02:03	1	484	492	9	NCYFPLQSY 0.000493	21
HLA-B*40:01	1	493	502	10	GFQPTYGVGY 0.000493	11
HLA-A*30:02	1	570	579	10	TDAVRDPQTL 0.000493	32
HLA-B*15:01	1	638	646	9	NVFQTRAGC 0.000493	19
HLA-B*07:02	1	673	682	10	TQTNSPRRAR 0.000493	16
HLA-A*02:03	1	736	745	10	TMYICGDSTE 0.000493	21
HLA-A*30:01	1	794	802	9	FGGFNFSQI 0.000493	35
HLA-A*32:01	1	813	822	10	SFIEDLLFNK 0.000493	15
HLA-B*15:01	1	871	879	9	TSALLAGTI 0.000493	19
HLA-A*26:01	1	899	908	10	MAYRFNGIGV 0.000493	16
HLA-B*58:01	1	902	910	9	RFNGIGVTQ 0.000493	19
HLA-B*07:02	1	1022	1030	9	AATKMSECV 0.000493	16
HLA-A*30:02	1	1167	1175	9	SGINASVVN 0.000493	32
HLA-B*44:02	1	1260	1269	10	PVLKGVKLHY 0.000493	11
HLA-B*57:01	1	72	81	10	GTNGTKRFAN 0.000492	26
HLA-A*11:01	1	75	83	9	GTKRFANPV 0.000492	13
HLA-A*02:06	1	94	102	9	STEKSNIIIR 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	243	252	10	RSYLTPGDSS 0.000492	19
HLA-A*31:01	1	253	261	9	SGWTAGAAA 0.000492	21
HLA-A*30:01	1	257	265	9	AGAAAYYVG 0.000492	35
HLA-A*02:03	1	447	456	10	NYLYRLFRRS 0.000492	21
HLA-A*68:01	1	510	519	10	LSFELLHAPA 0.000492	19
HLA-A*30:02	1	667	675	9	ICASYQTQT 0.000492	32
HLA-B*57:01	1	918	927	10	KLIANQFNFA 0.000492	26
HLA-A*03:01	1	927	935	9	AIGKIQDSL 0.000492	16
HLA-A*33:01	1	965	974	10	SNFGAISSVL 0.000492	19
HLA-A*03:01	1	1006	1014	9	TQQLIRAAE 0.000492	16
HLA-A*11:01	1	1034	1042	9	SKRVDFCGK 0.000492	13
HLA-A*23:01	1	1044	1053	10	YHLMSFPQSA 0.000492	12
HLA-B*07:02	1	1044	1053	10	YHLMSFPQSA 0.000492	16
HLA-B*51:01	1	1058	1066	9	VFLHVTVYP 0.000492	24
HLA-A*30:01	1	1073	1082	10	TTAPAICHDG 0.000492	35
HLA-A*30:02	1	1082	1091	10	GKAHFPREGV 0.000492	32
HLA-B*44:03	1	1088	1097	10	REGVFSVNGT 0.000492	11
HLA-B*44:03	1	1137	1145	9	PLQPELDSF 0.000492	11
HLA-A*33:01	1	1165	1174	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*30:02	1	207	215	9	HTPINLVRG 0.000491	33
HLA-A*23:01	1	316	324	9	RVQPTESIV 0.000491	12
HLA-B*08:01	1	348	357	10	YAWNKRKRISN 0.000491	26
HLA-A*24:02	1	506	515	10	RVVLSFELL 0.000491	11
HLA-A*01:01	1	740	749	10	CGDSTECSNL 0.000491	22
HLA-A*02:03	1	785	794	10	IYKTPPIKDF 0.000491	21
HLA-A*68:01	1	1196	1205	10	DLQELGKYEQ 0.000491	19
HLA-A*30:02	1	1257	1266	10	DSEPVLKGVK 0.000491	33
HLA-A*02:01	1	59	68	10	FSNVTWFHAI 0.00049	19
HLA-B*57:01	1	77	85	9	KRFANPVLP 0.00049	26
HLA-B*15:01	1	118	127	10	LIVNNATNVV 0.00049	19
HLA-B*51:01	1	266	275	10	YLQPRTFLLK 0.00049	24
HLA-A*02:06	1	372	380	9	STFKCYGVS 0.00049	26
HLA-A*02:01	1	659	667	9	CDIPIGAGI 0.00049	19
HLA-B*08:01	1	731	739	9	TSVDCTMYI 0.00049	26
HLA-A*68:01	1	757	765	9	CTQLNRALT 0.00049	19
HLA-A*02:01	1	803	811	9	LPDPSKPSK 0.00049	19
HLA-A*32:01	1	1045	1054	10	HLMSFPQSAP 0.00049	15
HLA-B*57:01	1	1049	1057	9	FPQSAPHGV 0.00049	26
HLA-A*03:01	1	1091	1099	9	VFVSNGTHW 0.00049	16
HLA-A*01:01	1	1200	1209	10	LGKYEQYIKW 0.00049	23
HLA-A*02:03	1	1222	1230	9	IAIVMVTIM 0.00049	21
HLA-A*68:02	1	31	39	9	SFTRGVVYYP 0.000489	21
HLA-A*24:02	1	42	50	9	VFRSSVLHS 0.000489	11

HLA-B*07:02	1	119	128	10	IVNNATNVVI 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*30:02	1	313	322	10	SNFRVQPTES 0.000489	33
HLA-B*58:01	1	377	385	9	YGVSP TKLN 0.000489	19
HLA-A*68:02	1	566	574	9	IADTTDAVR 0.000489	21
HLA-A*02:06	1	648	657	10	IGAEHVNSY 0.000489	26
HLA-A*68:01	1	687	695	9	QSIIAYTMS 0.000489	19
HLA-B*58:01	1	794	803	10	FGGFNFSQIL 0.000489	19
HLA-A*68:02	1	799	807	9	FSQILPDPS 0.000489	21
HLA-B*40:01	1	997	1005	9	RLQSLQTYV 0.000489	11
HLA-B*44:02	1	1017	1025	9	ASANLAATK 0.000489	11
HLA-B*07:02	1	1209	1218	10	WPWYIWLGF I 0.000489	17
HLA-A*26:01	1	1221	1230	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	310	319	10	YQTSNFRVQP 0.000488	19
HLA-B*44:03	1	360	369	10	ADYSVLYNSA 0.000488	11
HLA-A*30:02	1	377	385	9	YGVSP TKLN 0.000488	33
HLA-A*02:06	1	407	416	10	IAPGQTGNIA 0.000488	26
HLA-B*53:01	1	493	502	10	GFQPTYGVGY 0.000488	13
HLA-A*30:02	1	689	698	10	IIAYTMSLGV 0.000488	33
HLA-A*23:01	1	719	728	10	VTTEILPVSM 0.000488	12
HLA-B*40:01	1	778	786	9	VFAQVKQIY 0.000488	11
HLA-A*30:01	1	869	878	10	QYTSALLAGT 0.000488	35
HLA-B*57:01	1	930	938	9	KIQDLSLST 0.000488	26
HLA-B*08:01	1	1143	1152	10	DSFKEELDKY 0.000488	27
HLA-A*23:01	1	1253	1262	10	FDEDDSEPLV 0.000488	12
HLA-A*68:02	1	1261	1270	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*68:02	1	239	248	10	QTLHRSYLTP 0.000487	21
HLA-A*30:01	1	280	289	10	GTITDAVDCA 0.000487	35
HLA-B*58:01	1	417	426	10	DYNYKLPDDF 0.000487	19
HLA-A*32:01	1	500	509	10	VGYPYRVVV 0.000487	15
HLA-B*57:01	1	513	521	9	ELLHAPATV 0.000487	26
HLA-A*30:02	1	720	729	10	TTEILPVSM 0.000487	33
HLA-B*08:01	1	723	731	9	ILPVSMTKT 0.000487	27
HLA-A*11:01	1	768	776	9	AVEQDKNTQ 0.000487	13
HLA-B*44:02	1	945	953	9	LQDVVNQNA 0.000487	11
HLA-A*30:02	1	1161	1169	9	VDLGDISGI 0.000487	33
HLA-A*02:03	1	1256	1265	10	DDSEPVKGV 0.000487	21
HLA-A*33:01	1	5	14	10	LVLLPLVSSQ 0.000486	19
HLA-A*02:03	1	50	59	10	STQDLFLPFF 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-B*15:01	1	208	216	9	TPINLVRGL 0.000486	19
HLA-A*31:01	1	340	348	9	NATRFASVY 0.000486	21
HLA-A*24:02	1	370	379	10	SFSTFKCYGV 0.000486	11
HLA-A*24:02	1	531	540	10	VKNKCVNFN 0.000486	11
HLA-A*26:01	1	603	612	10	NQVAVLYQGV 0.000486	16
HLA-B*57:01	1	626	634	9	LTPTWRVYS 0.000486	26
HLA-A*03:01	1	662	671	10	PIGAGICASY 0.000486	16
HLA-A*31:01	1	824	833	10	TLADAGFIKQ 0.000486	21
HLA-A*23:01	1	858	866	9	LPPLLTDEM 0.000486	12

HLA-B*15:01	1	923	931	9	QFNSAIGKI	0.000486	19
HLA-A*30:02	1	943	951	9	GKLQDVVNQ	0.000486	33
HLA-B*58:01	1	1010	1019	10	IRAAEIRASA	0.000486	19
HLA-B*58:01	1	1029	1037	9	CVLGQSKRV	0.000486	19
HLA-B*15:01	1	1061	1069	9	HVTYVPAQE	0.000486	19
HLA-A*24:02	1	28	36	9	YTNSFTRGV	0.000485	11
HLA-A*30:01	1	438	447	10	LDSKVGGNYN	0.000485	35
HLA-A*02:06	1	564	572	9	RDIADTTDA	0.000485	26
HLA-A*01:01	1	674	683	10	QTNSPRRARS	0.000485	23
HLA-B*57:01	1	872	880	9	SALLAGTIT	0.000485	26
HLA-A*31:01	1	979	987	9	SRLDKVEAE	0.000485	21
HLA-A*01:01	1	1038	1046	9	DFCGKGYHL	0.000485	23
HLA-A*01:01	1	1185	1193	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	TRTQLPPAYT	0.000484	26
HLA-B*58:01	1	20	29	10	TRTQLPPAYT	0.000484	19
HLA-A*03:01	1	75	83	9	GTKRFANPV	0.000484	16
HLA-A*33:01	1	79	87	9	FANPVLPFN	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-B*58:01	1	207	215	9	HTPINLVRG	0.000484	19
HLA-A*32:01	1	219	227	9	GFSALEPLV	0.000484	15
HLA-A*26:01	1	233	242	10	INITRFQTLH	0.000484	16
HLA-B*15:01	1	258	267	10	GAAAYYVGYL	0.000484	19
HLA-B*44:03	1	276	285	10	YNENGTITDA	0.000484	11
HLA-A*30:01	1	280	288	9	GTITDAVDC	0.000484	35
HLA-A*26:01	1	288	296	9	CALDPLSET	0.000484	16
HLA-A*68:01	1	336	344	9	GEVFNATRF	0.000484	19
HLA-A*30:02	1	407	416	10	IAPGQTGNIA	0.000484	33
HLA-A*02:01	1	414	423	10	NIADYNYKLP	0.000484	19
HLA-A*30:01	1	419	428	10	NYKLPDDFTG	0.000484	35
HLA-B*44:03	1	442	450	9	VGGNYNYLY	0.000484	11
HLA-A*30:01	1	486	494	9	YFPLQSYGF	0.000484	35
HLA-A*02:03	1	748	757	10	NLLLQYGSFC	0.000484	21
HLA-A*24:02	1	813	821	9	SFIEDLLFN	0.000484	11
HLA-A*30:01	1	916	925	10	NQKLIANQFN	0.000484	35
HLA-B*58:01	1	931	939	9	IQDLSLSTA	0.000484	19
HLA-A*24:02	1	984	993	10	VEAEVQIDRL	0.000484	11
HLA-B*51:01	1	1016	1024	9	RASANLAAT	0.000484	25
HLA-B*44:02	1	1104	1112	9	RNFYEPQII	0.000484	11
HLA-A*26:01	1	1132	1140	9	NTVYDPLQP	0.000484	16
HLA-A*68:01	1	1168	1177	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-A*68:01	1	251	260	10	SSSGWTAGAA	0.000483	19
HLA-B*58:01	1	302	311	10	SFTVEKGIYQ	0.000483	19
HLA-A*24:02	1	334	342	9	PFGEVFNAT	0.000483	11
HLA-A*03:01	1	336	345	10	GEVFNATRFA	0.000483	16
HLA-A*01:01	1	443	451	9	GGNYNYLYR	0.000483	23
HLA-B*57:01	1	595	604	10	ITPGTNTSNQ	0.000483	26
HLA-B*40:01	1	701	709	9	SVAYSNNSI	0.000483	11
HLA-A*32:01	1	751	759	9	LQYGSFCTQ	0.000483	15
HLA-B*57:01	1	795	804	10	GGFNFSQILP	0.000483	26
HLA-B*57:01	1	815	823	9	IEDLLFNKV	0.000483	26
HLA-A*02:06	1	843	852	10	ARDLICAQKF	0.000483	26
HLA-A*30:01	1	861	870	10	LLTDEMIAQY	0.000483	36
HLA-A*33:01	1	883	892	10	WTFGAGAALQ	0.000483	19
HLA-A*30:02	1	1103	1112	10	QRNFYEPQII	0.000483	33
HLA-A*26:01	1	1105	1114	10	NFYEPQIITT	0.000483	16
HLA-B*57:01	1	1138	1146	9	LQPELDSFK	0.000483	26
HLA-A*68:02	1	374	383	10	FKCYGVSPTK	0.000482	21
HLA-B*58:01	1	383	392	10	KLNDLCFTNV	0.000482	19
HLA-A*33:01	1	449	458	10	LYRLFRKSNL	0.000482	19

HLA-A*30:01	1	480	489	10	VKGFNCYFPL 0.000482	36
HLA-B*08:01	1	560	569	10	QQFGRDIADT 0.000482	27
HLA-B*44:02	1	720	728	9	TTEILPVSM 0.000482	12
HLA-B*44:03	1	752	760	9	QYGSFCTQL 0.000482	11
HLA-A*02:01	1	754	763	10	GSFCTQLNRA 0.000482	19
HLA-A*26:01	1	810	818	9	SKRSFIEDL 0.000482	16
HLA-A*32:01	1	846	855	10	LICAQKFNGL 0.000482	15
HLA-B*57:01	1	957	966	10	NTLVKQLSSN 0.000482	26
HLA-A*02:03	1	987	996	10	EVQIDRLITG 0.000482	21
HLA-B*58:01	1	1007	1015	9	QQLIRAAEI 0.000482	19
HLA-A*30:02	1	1028	1036	9	ECVLGQSKR 0.000482	33
HLA-A*23:01	1	1049	1057	9	FPQSAPHGV 0.000482	12
HLA-A*11:01	1	13	22	10	SQCVNLTRT 0.000481	13
HLA-A*68:02	1	222	230	9	ALEPLVDLP 0.000481	21
HLA-B*44:03	1	301	309	9	KSFTVEKGI 0.000481	11
HLA-A*02:03	1	407	416	10	IAPGQTGNIA 0.000481	21
HLA-A*23:01	1	505	514	10	YRVVLSFEL 0.000481	12
HLA-A*31:01	1	550	559	10	TESNKKFLPF 0.000481	21
HLA-A*03:01	1	710	719	10	AIPTNFTISV 0.000481	16
HLA-A*33:01	1	718	726	9	SVTTEILPV 0.000481	19
HLA-B*07:02	1	742	750	9	DSTECSNLL 0.000481	17
HLA-B*51:01	1	859	868	10	PPLLTDEMLA 0.000481	25
HLA-B*58:01	1	925	933	9	NSAIGKIQD 0.000481	19
HLA-A*33:01	1	934	942	9	SLSSTASAL 0.000481	19
HLA-A*01:01	1	978	986	9	LSRLDKVEA 0.000481	23
HLA-A*03:01	1	1089	1098	10	EGVFVSNLGH 0.000481	16
HLA-A*02:06	1	1221	1230	10	LIAIVMVTIM 0.000481	26
HLA-B*58:01	1	251	260	10	SSSGWTAGAA 0.000481	19
HLA-A*26:01	1	369	378	10	ASFSTFKCYG 0.000481	16
HLA-B*51:01	1	431	439	9	IAWNSNLD 0.000481	25
HLA-A*31:01	1	649	657	9	GAEHVNSY 0.000481	21
HLA-B*44:03	1	688	696	9	SIAYTMSL 0.000481	11
HLA-A*30:01	1	770	779	10	EQDKNTQEVF 0.000481	36
HLA-B*57:01	1	817	825	9	DLLFNKVTL 0.000481	26
HLA-B*58:01	1	818	826	9	LLFNKVTLA 0.000481	19
HLA-A*32:01	1	1166	1174	9	ISGINASVV 0.000481	15
HLA-B*08:01	1	1178	1187	10	KEIDRLNEVA 0.000481	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	288	297	10	CALDPLSETK 0.000479	15
HLA-A*02:03	1	366	374	9	YNSASFSTF 0.000479	21
HLA-A*26:01	1	388	397	10	CFTNVYADSF 0.000479	16
HLA-A*24:02	1	421	430	10	KLPDDFTGCV 0.000479	11
HLA-B*58:01	1	437	446	10	NLDSKVGNGY 0.000479	19
HLA-A*31:01	1	500	509	10	VGYPYRVVV 0.000479	21
HLA-A*68:02	1	548	556	9	VLTESNKKF 0.000479	21
HLA-A*33:01	1	568	577	10	DTTDAVRDPQ 0.000479	19
HLA-A*33:01	1	685	694	10	ASQSIIAYTM 0.000479	19
HLA-A*23:01	1	906	914	9	IGVTQNVLY 0.000479	12
HLA-A*11:01	1	918	926	9	KLIANQFNS 0.000479	13
HLA-B*57:01	1	968	976	9	GAISSVLND 0.000479	27
HLA-B*53:01	1	1104	1112	9	RNFYEPQII 0.000479	13
HLA-A*68:01	1	1105	1113	9	NFYEPQIIT 0.000479	19
HLA-B*57:01	1	1116	1125	10	NTFVSGNCDV 0.000479	27
HLA-A*33:01	1	38	46	9	YDPKVFSS 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-B*58:01	1	359	368	10	VADYSVLVNS 0.000478	19
HLA-B*07:02	1	403	411	9	EVRQIAPGQ 0.000478	17
HLA-B*53:01	1	441	450	10	KVGGNYNYLY 0.000478	13
HLA-A*02:01	1	443	452	10	GGNYNYLYRL 0.000478	19
HLA-A*01:01	1	517	526	10	APATVCGPKK 0.000478	23
HLA-B*57:01	1	517	526	10	APATVCGPKK 0.000478	27
HLA-A*30:02	1	585	594	10	TPCSFGGVS 0.000478	33
HLA-A*32:01	1	620	628	9	AIHADQLTP 0.000478	15

HLA-A*02:06	1	666	675	10	GICASYQTQT 0.000478	26
HLA-B*57:01	1	764	772	9	LTGIAVEQD 0.000478	27
HLA-B*40:01	1	811	820	10	KRSFIEDLLF 0.000478	11
HLA-B*35:01	1	888	896	9	GAALQIPFA 0.000478	14
HLA-A*68:01	1	953	962	10	AQALNTLVKQ 0.000478	19
HLA-A*23:01	1	970	978	9	ISSVLNDIL 0.000478	12
HLA-B*53:01	1	1092	1101	10	FVSNNGTHWFV 0.000478	13
HLA-B*51:01	1	1126	1135	10	VIGIVNNTVY 0.000478	25
HLA-A*30:01	1	1222	1231	10	IAIVMVTIML 0.000478	36
HLA-A*01:01	1	1258	1266	9	SEPVLKGVK 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-B*57:01	1	79	88	10	FANPVLFPND 0.000477	27
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	314	323	10	NFRVQPTESI 0.000477	11
HLA-A*01:01	1	318	327	10	QPTESIVRFP 0.000477	23
HLA-A*68:01	1	494	503	10	FQPTYGVGYQ 0.000477	19
HLA-A*03:01	1	555	563	9	KFLPFQFG 0.000477	16
HLA-A*31:01	1	580	589	10	EILDITPCSF 0.000477	21
HLA-A*02:03	1	587	596	10	CSFGGVSVIT 0.000477	21
HLA-A*30:02	1	718	727	10	SVTTEILPVS 0.000477	33
HLA-B*35:01	1	743	751	9	STECNLLL 0.000477	14
HLA-B*53:01	1	827	835	9	DAGFIKQYG 0.000477	13
HLA-B*08:01	1	859	867	9	PPLLTDEMI 0.000477	27
HLA-A*31:01	1	894	903	10	PFAMQMAYRF 0.000477	21
HLA-B*15:01	1	1165	1173	9	DISGINASV 0.000477	19
HLA-B*57:01	1	1170	1179	10	NASVVNIQKE 0.000477	27
HLA-A*33:01	1	1186	1194	9	VAKNLNESL 0.000477	19
HLA-A*01:01	1	310	318	9	YQTSNFRVQ 0.000476	23
HLA-A*68:02	1	625	633	9	QLTPTWRVY 0.000476	21
HLA-A*02:03	1	671	679	9	YQTQTNSPR 0.000476	21
HLA-A*02:03	1	743	751	9	STECNLLL 0.000476	21
HLA-B*51:01	1	779	788	10	FAQVKQIYKT 0.000476	25
HLA-B*58:01	1	988	997	10	VQIDRLITGR 0.000476	19
HLA-A*30:01	1	1021	1030	10	LAATKMSECV 0.000476	36
HLA-A*23:01	1	1199	1207	9	ELGKYEQYI 0.000476	12
HLA-B*44:02	1	1216	1224	9	GFIAGLIAI 0.000476	12
HLA-B*15:01	1	1220	1229	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	253	262	10	SGWTAGAAAY 0.000475	12
HLA-A*68:01	1	621	630	10	IHADQLTPTW 0.000475	19
HLA-B*08:01	1	807	816	10	SKPSKRSFIE 0.000475	27
HLA-A*30:02	1	850	859	10	QKFNGLTVLP 0.000475	33
HLA-A*23:01	1	861	870	10	LLTDEMIAQY 0.000475	12
HLA-B*15:01	1	911	920	10	NVLYENQKLI 0.000475	19
HLA-A*33:01	1	1020	1028	9	NLAATKMSE 0.000475	19
HLA-B*15:01	1	1029	1037	9	CVLGQSKRV 0.000475	19
HLA-A*31:01	1	1067	1075	9	AQEKNFTTA 0.000475	21
HLA-A*30:02	1	1070	1079	10	KNFTTAPAIC 0.000475	33
HLA-B*44:03	1	1181	1190	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*57:01	1	233	242	10	INITRFQTLH 0.000474	27
HLA-B*07:02	1	251	260	10	SSSGWTAGAA 0.000474	17
HLA-B*44:03	1	253	262	10	SGWTAGAAAY 0.000474	11
HLA-B*07:02	1	275	283	9	KYNENGTIT 0.000474	17
HLA-B*57:01	1	304	312	9	TVEKGIYQT 0.000474	27
HLA-A*23:01	1	353	362	10	KRISNCVADY 0.000474	12

HLA-A*02:06	1	367	376	10	NSASFSTFKC 0.000474	26
HLA-B*44:02	1	384	393	10	LNDLCFTNVY 0.000474	12
HLA-A*26:01	1	399	407	9	IRGDEVRQI 0.000474	16
HLA-B*07:02	1	445	453	9	NYNYLYRLF 0.000474	17
HLA-B*58:01	1	454	463	10	RKSNLKPFER 0.000474	19
HLA-A*30:02	1	459	467	9	KPFERDIST 0.000474	33
HLA-B*07:02	1	478	487	10	NGVKGFNCYF 0.000474	17
HLA-B*40:01	1	599	608	10	TNTSNQVAVL 0.000474	11
HLA-B*51:01	1	639	647	9	VFQTRAGCL 0.000474	25
HLA-B*15:01	1	670	679	10	SYQTQTNSPR 0.000474	19
HLA-A*30:02	1	691	699	9	AYTMSLGVE 0.000474	33
HLA-A*33:01	1	708	716	9	SIAIPTNFT 0.000474	19
HLA-B*07:02	1	825	834	10	LADAGFIKQY 0.000474	17
HLA-B*51:01	1	912	921	10	VLYENQKLIA 0.000474	25
HLA-A*30:02	1	947	955	9	DVFNQNAQA 0.000474	33
HLA-A*31:01	1	988	996	9	VQIDRLITG 0.000474	21
HLA-A*02:03	1	1084	1092	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	311	320	10	QTSNFRVQPT 0.000473	33
HLA-A*24:02	1	376	385	10	CYGVSPTKLN 0.000473	11
HLA-B*44:02	1	440	449	10	SKVGGNYNYL 0.000473	12
HLA-B*44:03	1	479	487	9	GVKGFNCYF 0.000473	11
HLA-B*08:01	1	487	495	9	FPLQSYGFQ 0.000473	27
HLA-A*30:01	1	532	541	10	KNKCVNFNFN 0.000473	36
HLA-A*68:02	1	535	544	10	CVNFNFLT 0.000473	21
HLA-B*07:02	1	624	632	9	DQLTPTWRV 0.000473	17
HLA-B*58:01	1	624	632	9	DQLTPTWRV 0.000473	19
HLA-A*32:01	1	634	642	9	STGSNVFQT 0.000473	15
HLA-B*07:02	1	648	657	10	IGAEHVNNSY 0.000473	17
HLA-A*30:02	1	764	773	10	LTGIAVEQDK 0.000473	33
HLA-B*15:01	1	775	784	10	TQEVFAQVKQ 0.000473	19
HLA-B*44:03	1	817	825	9	DLLFNKVTL 0.000473	11
HLA-A*03:01	1	861	869	9	LLTDEMIAQ 0.000473	16
HLA-A*30:02	1	869	877	9	QYTSALLAG 0.000473	33
HLA-A*68:02	1	872	880	9	SALLAGTIT 0.000473	21
HLA-B*15:01	1	945	954	10	LQDVVNQNAQ 0.000473	19
HLA-B*51:01	1	1071	1079	9	NFTTAPAIC 0.000473	25
HLA-B*58:01	1	79	88	10	FANPVLPFND 0.000472	19
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-B*44:03	1	211	220	10	NLVRGLPQGF 0.000472	11
HLA-A*01:01	1	243	252	10	RSYLTPGDSS 0.000472	23
HLA-A*30:02	1	246	254	9	LTPGDSSSG 0.000472	33
HLA-A*32:01	1	339	348	10	FNATRFASVY 0.000472	15
HLA-A*30:02	1	370	379	10	SFSTFKCYGV 0.000472	33
HLA-B*08:01	1	405	413	9	RQIAPGQTG 0.000472	27
HLA-A*33:01	1	539	547	9	NFNGLTGTG 0.000472	19
HLA-B*57:01	1	613	622	10	NCTEVPVAIH 0.000472	27
HLA-A*24:02	1	651	659	9	EHVNNSYEC 0.000472	11
HLA-A*30:01	1	688	697	10	SIAYTMSLG 0.000472	36
HLA-B*58:01	1	704	713	10	YSNNSIAIPT 0.000472	19
HLA-A*03:01	1	762	770	9	RALTGIAVE 0.000472	16
HLA-A*26:01	1	813	822	10	SFIEDLLFNK 0.000472	16
HLA-B*07:02	1	829	838	10	GFIKQYGDCL 0.000472	17
HLA-B*35:01	1	838	846	9	LGDI AARDL 0.000472	14
HLA-A*68:01	1	858	866	9	LPPLLTDEM 0.000472	20
HLA-A*02:06	1	923	931	9	QFNSAIGKI 0.000472	26
HLA-B*58:01	1	938	947	10	TASALGKLQD 0.000472	19
HLA-B*44:02	1	972	980	9	SVLNDILSR 0.000472	12
HLA-A*68:01	1	985	993	9	EAEVQIDRL 0.000472	20
HLA-A*01:01	1	1095	1104	10	NGTHWFVTQR 0.000472	23
HLA-A*68:02	1	17	25	9	NLTTTRTQLP 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*02:03	1	77	86	10	KRFANPVLPF 0.000471	21

HLA-A*01:01	1	205	213	9	SKHTPINLV	0.000471	23
HLA-A*24:02	1	301	309	9	KSFTVEKGI	0.000471	11
HLA-B*51:01	1	322	330	9	SIVRFPNIT	0.000471	25
HLA-B*51:01	1	381	389	9	PTKLNDLCF	0.000471	25
HLA-B*44:03	1	411	420	10	QTGNIADYNY	0.000471	11
HLA-A*33:01	1	437	446	10	NLDSKVGNGY	0.000471	19
HLA-A*68:01	1	487	495	9	FPLQSYGFQ	0.000471	20
HLA-B*35:01	1	557	565	9	LPFQQFGRD	0.000471	14
HLA-B*57:01	1	690	699	10	IAYTMSLGVE	0.000471	27
HLA-A*01:01	1	741	749	9	GDSTECSNL	0.000471	23
HLA-B*58:01	1	778	787	10	VFAQVKQIYK	0.000471	19
HLA-A*68:02	1	807	815	9	SKPSKRSFI	0.000471	21
HLA-A*30:01	1	903	912	10	FNGIGVTQNV	0.000471	36
HLA-A*23:01	1	920	928	9	IANQFNSAI	0.000471	12
HLA-A*32:01	1	1006	1015	10	TQQLIRAAEI	0.000471	15
HLA-B*07:02	1	1013	1022	10	AEIRASANLA	0.000471	17
HLA-A*02:03	1	1022	1031	10	AATKMSECVL	0.000471	21
HLA-B*07:02	1	1084	1093	10	AHFPREGVFV	0.000471	17
HLA-B*40:01	1	1144	1153	10	SFKEELDKYF	0.000471	11
HLA-A*02:01	1	1258	1267	10	SEPVLLKGVKL	0.000471	19
HLA-A*03:01	1	51	59	9	TQDLFLPFF	0.00047	16
HLA-A*32:01	1	110	118	9	LDSKTQSL	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	282	290	9	ITDAVDCAL	0.00047	20
HLA-B*44:02	1	311	319	9	QTSNFRVQP	0.00047	12
HLA-B*08:01	1	340	349	10	NATRFASVYA	0.00047	27
HLA-A*03:01	1	856	864	9	TVLPPLTD	0.00047	16
HLA-A*11:01	1	908	917	10	VTQNVLYENQ	0.00047	13
HLA-A*30:01	1	1088	1097	10	REGVFSVNGT	0.00047	36
HLA-B*08:01	1	1101	1109	9	VTQRNFYEP	0.00047	27
HLA-A*02:06	1	1138	1147	10	LQPELDSFKE	0.00047	26
HLA-A*01:01	1	1171	1179	9	ASVVNIQKE	0.00047	23
HLA-A*33:01	1	1181	1190	10	DRLNEVAKNL	0.00047	19
HLA-B*58:01	1	1226	1234	9	MVTIMLCCM	0.00047	19
HLA-A*33:01	1	75	83	9	GTKRFANPV	0.000469	19
HLA-A*30:02	1	94	103	10	STEKSNIRG	0.000469	33
HLA-A*30:01	1	110	118	9	LDSKTQSL	0.000469	36
HLA-A*24:02	1	120	128	9	VNNATNVVI	0.000469	11
HLA-A*30:02	1	226	234	9	LVDLPIGIN	0.000469	33
HLA-B*58:01	1	306	315	10	EKGYYQTSNF	0.000469	19
HLA-A*68:01	1	323	331	9	IVRFPNITN	0.000469	20
HLA-B*15:01	1	468	477	10	EIYQAGSTPC	0.000469	19
HLA-B*57:01	1	620	628	9	AIHADQLTP	0.000469	27
HLA-A*23:01	1	663	671	9	IGAGICASY	0.000469	12
HLA-B*15:01	1	708	716	9	SIAIPTNFT	0.000469	19
HLA-A*02:06	1	750	759	10	LLQYGSFACTQ	0.000469	26
HLA-A*01:01	1	883	892	10	WTFGAGAALQ	0.000469	23
HLA-A*01:01	1	910	919	10	QNVLYENQKL	0.000469	23
HLA-A*26:01	1	1086	1094	9	FPREGVFVS	0.000469	16
HLA-B*08:01	1	1185	1193	9	EVAKNLNES	0.000469	27
HLA-B*15:01	1	116	124	9	SLIVNNAT	0.000468	19
HLA-B*51:01	1	509	517	9	VLSFELLHA	0.000468	25
HLA-A*30:01	1	580	589	10	EILDITPCSF	0.000468	36
HLA-A*68:02	1	781	790	10	QVKQIYKTPP	0.000468	21
HLA-A*01:01	1	788	797	10	TPPIKDFGGF	0.000468	23
HLA-A*68:01	1	1013	1021	9	AEIRASANL	0.000468	20
HLA-A*01:01	1	1056	1065	10	GVVFLHVTYV	0.000468	23
HLA-A*02:03	1	1056	1064	9	GVVFLHVTY	0.000468	21
HLA-A*02:06	1	117	125	9	LLIVNNATN	0.000467	26
HLA-A*02:03	1	357	365	9	NCVADYSVL	0.000467	21
HLA-A*02:03	1	389	397	9	FTNVYADSF	0.000467	21
HLA-B*58:01	1	411	419	9	QTGNIADYN	0.000467	19
HLA-A*03:01	1	499	508	10	GVGYQPYRVV	0.000467	16
HLA-A*01:01	1	521	530	10	VCGPKKSTNL	0.000467	23
HLA-B*58:01	1	543	552	10	LTGTGVLTES	0.000467	19

HLA-B*35:01	1	594	602	9	VITPGTNTS 0.000467	14
HLA-A*32:01	1	613	621	9	NCTEVPVAI 0.000467	15
HLA-A*33:01	1	812	820	9	RSFIEDLLF 0.000467	19
HLA-A*02:06	1	864	873	10	DEMIAQY TSA 0.000467	26
HLA-A*03:01	1	1045	1054	10	HLMSFPQSAP 0.000467	16
HLA-A*23:01	1	1117	1125	9	TFVSGNCDV 0.000467	12
HLA-A*31:01	1	1217	1225	9	FIAGLIAIV 0.000467	21
HLA-A*30:01	1	1221	1230	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	IHVSGTNGT 0.000466	33
HLA-B*58:01	1	77	85	9	KRFANPVLP 0.000466	19
HLA-A*01:01	1	88	97	10	DGVYFASTK 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	239	247	9	QTLHRSYLT 0.000466	25
HLA-B*51:01	1	261	269	9	AYYVGYLQP 0.000466	25
HLA-A*33:01	1	312	320	9	TSNFRVQPT 0.000466	19
HLA-A*02:03	1	317	325	9	VQPTESIVR 0.000466	22
HLA-A*30:01	1	319	327	9	PTESIVRFP 0.000466	36
HLA-A*33:01	1	338	347	10	VFNATRFASV 0.000466	19
HLA-A*01:01	1	414	423	10	NIADYNYKLP 0.000466	23
HLA-A*68:01	1	425	433	9	DFTGCVIAW 0.000466	20
HLA-A*32:01	1	622	631	10	HADQLTPTWR 0.000466	15
HLA-B*08:01	1	648	656	9	IGAEHVNNS 0.000466	27
HLA-B*58:01	1	788	797	10	TPPIKDFGGF 0.000466	19
HLA-B*07:02	1	918	927	10	KLIANQFN SA 0.000466	17
HLA-B*08:01	1	1066	1075	10	PAQEKNF TTA 0.000466	27
HLA-B*35:01	1	1067	1075	9	AQEKNF TTA 0.000466	14
HLA-A*68:01	1	1072	1081	10	FTTAPAICH D 0.000466	20
HLA-B*07:02	1	89	97	9	GVYFASTK 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	310	318	9	YQTSNFRVQ 0.000465	14
HLA-A*11:01	1	313	321	9	SNFRVQPT E 0.000465	13
HLA-A*68:01	1	378	387	10	GVSP TKLNDL 0.000465	20
HLA-B*15:01	1	388	397	10	CFTNVYAD SF 0.000465	19
HLA-B*58:01	1	398	407	10	VIRGDEV RQI 0.000465	19
HLA-B*08:01	1	439	448	10	DSKVGGNY NY 0.000465	27
HLA-B*44:02	1	444	452	9	GNYNLYRL 0.000465	12
HLA-A*01:01	1	463	471	9	RDISTEIQ 0.000465	23
HLA-B*53:01	1	517	525	9	APATVCGPK 0.000465	13
HLA-A*24:02	1	535	543	9	CVNFN FNGL 0.000465	11
HLA-B*57:01	1	554	563	10	KKFLPFQ QFG 0.000465	27
HLA-B*51:01	1	576	584	9	PQ TLEILDI 0.000465	25
HLA-B*53:01	1	687	696	10	QSIIAYTMS L 0.000465	13
HLA-A*23:01	1	711	719	9	IPTNFTISV 0.000465	12
HLA-B*57:01	1	813	822	10	SFIEDLL FNK 0.000465	27
HLA-A*68:02	1	851	859	9	KFNGLTVLP 0.000465	21
HLA-A*23:01	1	868	876	9	AQYTSALLA 0.000465	12
HLA-A*11:01	1	883	892	10	WTFGAGAAL Q 0.000465	13
HLA-A*33:01	1	940	948	9	SALGKLQDV 0.000465	19
HLA-A*32:01	1	964	972	9	SSNFGAISS 0.000465	15
HLA-B*57:01	1	1061	1069	9	HVTYVPAQE 0.000465	27
HLA-A*33:01	1	1150	1159	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	354	362	9	RISNCVADY 0.000464	17
HLA-B*57:01	1	383	391	9	KLNDLCFTN 0.000464	27
HLA-A*01:01	1	437	445	9	NLDSKVGGN 0.000464	23
HLA-A*11:01	1	478	486	9	NGVKGFNCY 0.000464	13
HLA-A*32:01	1	478	486	9	NGVKGFNCY 0.000464	15
HLA-B*15:01	1	604	612	9	QVAVLYQGV 0.000464	20
HLA-A*02:01	1	742	750	9	DSTEC SNLL 0.000464	19
HLA-B*44:02	1	811	819	9	KRSFIEDLL 0.000464	12
HLA-A*33:01	1	850	858	9	QKFNGLTVL 0.000464	19



HLA-A*02:03	1	853	861	9	NGLTVLPPL 0.000464	22
HLA-B*53:01	1	911	920	10	NVLYENQKLI 0.000464	13
HLA-B*57:01	1	912	921	10	VLYENQKLI 0.000464	27
HLA-B*35:01	1	972	980	9	SVLNDILSR 0.000464	14
HLA-B*40:01	1	989	998	10	QIDRLITGRL 0.000464	11
HLA-B*58:01	1	1061	1069	9	HVTYVPAQE 0.000464	19
HLA-A*24:02	1	1207	1216	10	IKWPWYIWL 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-A*30:01	1	262	271	10	YYVGYLQPR 0.000463	36
HLA-A*33:01	1	452	461	10	LFRKSNLKPF 0.000463	19
HLA-A*31:01	1	469	477	9	IYQAGSTPC 0.000463	21
HLA-A*02:01	1	527	536	10	STNLVKNKCV 0.000463	19
HLA-A*02:03	1	551	559	9	ESNKKFLPF 0.000463	22
HLA-A*02:01	1	637	646	10	SNVFQTRAG 0.000463	19
HLA-A*30:02	1	700	709	10	NSVAYSNSI 0.000463	33
HLA-A*26:01	1	936	944	9	SSTASALGK 0.000463	16
HLA-B*40:01	1	979	988	10	SRLDKVEAEV 0.000463	11
HLA-B*40:01	1	985	993	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*57:01	1	215	223	9	GLPQGFSAL 0.000462	27
HLA-B*51:01	1	236	245	10	TRFQTLHRSY 0.000462	25
HLA-B*40:01	1	304	313	10	TVEKGIYQTS 0.000462	11
HLA-A*01:01	1	372	381	10	STFKCYGVSP 0.000462	23
HLA-B*51:01	1	374	383	10	FKCYGVSPTK 0.000462	25
HLA-A*01:01	1	444	453	10	GNYNLYRLF 0.000462	23
HLA-B*08:01	1	511	520	10	SFELLHAPAT 0.000462	27
HLA-A*02:06	1	521	530	10	VCGPKKSTNL 0.000462	27
HLA-A*02:06	1	547	555	9	GVLTESNKK 0.000462	27
HLA-B*58:01	1	553	562	10	NKKFLPFQF 0.000462	19
HLA-A*01:01	1	717	726	10	ISVTTEILPV 0.000462	23
HLA-B*58:01	1	933	941	9	DSLSSTASA 0.000462	19
HLA-A*24:02	1	1043	1051	9	GYHLMSFPQ 0.000462	11
HLA-A*02:06	1	1086	1094	9	FPREGVFVS 0.000462	27
HLA-B*08:01	1	1095	1103	9	NGTHWFVTQ 0.000462	27
HLA-A*68:01	1	1118	1126	9	FVSGNCDVV 0.000462	20
HLA-A*02:01	1	1132	1141	10	NTVYDPLQE 0.000462	19
HLA-B*40:01	1	1154	1163	10	KNHTSPDVL 0.000462	11
HLA-A*30:01	1	17	25	9	NLTTRTQLP 0.000461	36
HLA-B*51:01	1	263	271	9	YVGYLQPR 0.000461	25
HLA-A*01:01	1	308	317	10	GIYQTSNFRV 0.000461	23
HLA-A*30:01	1	333	341	9	CPFGEVFNA 0.000461	36
HLA-A*01:01	1	495	504	10	QPTYGVGYQP 0.000461	23
HLA-A*03:01	1	543	551	9	LTGTGVLTE 0.000461	16
HLA-A*26:01	1	547	555	9	GVLTESNKK 0.000461	16
HLA-A*01:01	1	553	562	10	NKKFLPFQF 0.000461	23
HLA-A*32:01	1	556	564	9	FLPFQFGR 0.000461	15
HLA-B*15:01	1	606	615	10	AVLYQGVNCT 0.000461	20
HLA-A*02:06	1	681	690	10	ARSVASQSII 0.000461	27
HLA-A*01:01	1	848	857	10	CAQKFNGLTV 0.000461	23
HLA-B*51:01	1	941	949	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	QSLIIVNAT 0.00046	21
HLA-A*02:06	1	302	311	10	SFTVEKGIYQ 0.00046	27
HLA-A*31:01	1	383	391	9	KLNDLCFTN 0.00046	21
HLA-A*30:01	1	531	540	10	VKNKCVNFN 0.00046	36
HLA-A*33:01	1	569	577	9	TTDAVRDPQ 0.00046	19
HLA-A*30:01	1	667	675	9	ICASYQTQT 0.00046	36
HLA-A*68:02	1	717	725	9	ISVTTEILP 0.00046	21
HLA-A*26:01	1	842	851	10	AARDLICAQK 0.00046	16
HLA-A*68:01	1	874	883	10	LLAGTITSGW 0.00046	20
HLA-A*01:01	1	880	889	10	TSGWTFGAGA 0.00046	23

HLA-A*33:01	1	979	987	9	SRLDKVEAE	0.00046	19
HLA-B*57:01	1	992	1000	9	RLITGRLQS	0.00046	27
HLA-A*33:01	1	1000	1009	10	SLQTYVVTQL	0.00046	19
HLA-A*02:03	1	1066	1075	10	PAQEKNFTTA	0.00046	22
HLA-A*68:02	1	1152	1161	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	VVIKVICEFQ	0.000459	16
HLA-A*03:01	1	136	145	10	CNDPFLGVVY	0.000459	16
HLA-A*32:01	1	220	229	10	FSALEPLVDL	0.000459	15
HLA-A*68:02	1	316	325	10	RVQPTESIVR	0.000459	21
HLA-B*53:01	1	452	461	10	LFRKSNLKP	0.000459	13
HLA-B*58:01	1	500	509	10	VGYPYRVVV	0.000459	19
HLA-A*30:01	1	628	636	9	PTWRVYSTG	0.000459	36
HLA-B*07:02	1	658	667	10	ECDIPIGAGI	0.000459	17
HLA-B*40:01	1	1077	1086	10	AICHDGKAHF	0.000459	11
HLA-B*07:02	1	1130	1138	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	250	258	9	DSSSGWTAG	0.000458	27
HLA-B*53:01	1	303	311	9	FTVEKGIYQ	0.000458	13
HLA-A*01:01	1	364	372	9	VLYNSASFS	0.000458	23
HLA-A*11:01	1	378	387	10	GVSPTKLNDL	0.000458	13
HLA-B*51:01	1	433	442	10	WNSNNLDSKV	0.000458	25
HLA-A*01:01	1	463	472	10	RDISTEIQQA	0.000458	23
HLA-A*30:01	1	483	491	9	FNCYFPLQS	0.000458	36
HLA-A*03:01	1	669	678	10	ASYQTQTNSP	0.000458	16
HLA-A*33:01	1	948	956	9	VVNQNAQAL	0.000458	19
HLA-B*58:01	1	983	992	10	KVEAEVQIDR	0.000458	19
HLA-A*23:01	1	1150	1159	10	DKYFKNHTSP	0.000458	12
HLA-A*01:01	1	1171	1180	10	ASVVNIQKEI	0.000458	23
HLA-B*35:01	1	1223	1231	9	AIVMVTIML	0.000458	14
HLA-B*44:03	1	1260	1269	10	PVLKGVKLHY	0.000458	12
HLA-A*02:01	1	152	161	10	WMESEFRVYS	0.000457	20
HLA-B*40:01	1	265	274	10	GYLQPRTFLL	0.000457	11
HLA-B*07:02	1	311	319	9	QTSNFRVQP	0.000457	17
HLA-B*51:01	1	324	333	10	VRFPNITNLC	0.000457	25
HLA-A*31:01	1	509	517	9	VLSFELLHA	0.000457	21
HLA-A*01:01	1	580	588	9	EILDITPCS	0.000457	23
HLA-B*57:01	1	745	754	10	ECSNLLLQYG	0.000457	27
HLA-B*57:01	1	765	773	9	TGIAVEQDK	0.000457	27
HLA-B*44:02	1	996	1005	10	GRLQSLQTYV	0.000457	12
HLA-B*51:01	1	1113	1121	9	TTDNTFVSG	0.000457	25
HLA-B*44:02	1	1204	1213	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	IVNNATNVV	0.000456	12
HLA-B*44:02	1	190	198	9	REFVFKNID	0.000456	12
HLA-A*02:06	1	348	356	9	YAWNKRKRIS	0.000456	27
HLA-A*03:01	1	421	429	9	KLPDDFTGC	0.000456	16
HLA-A*31:01	1	421	430	10	KLPDDFTGCV	0.000456	21
HLA-A*01:01	1	425	433	9	DFTGCVIAW	0.000456	23
HLA-A*68:02	1	465	473	9	ISTEIQAG	0.000456	21
HLA-A*02:01	1	522	530	9	CGPKKSTNL	0.000456	20
HLA-A*02:06	1	754	762	9	GSFCTQLNR	0.000456	27
HLA-A*02:01	1	825	834	10	LADAGFIKQY	0.000456	20
HLA-B*07:02	1	826	834	9	ADAGFIKQY	0.000456	17
HLA-B*44:02	1	975	983	9	NDILSRLDK	0.000456	12
HLA-A*02:06	1	1041	1049	9	GKGYHLMSF	0.000456	27
HLA-A*02:06	1	1111	1120	10	IITDNTFVS	0.000456	27
HLA-B*08:01	1	1188	1197	10	KNLNESLIDL	0.000456	27
HLA-B*58:01	1	1203	1212	10	YEQYIKWPWY	0.000456	19
HLA-A*02:01	1	48	56	9	LHSTQDLFL	0.000455	20
HLA-B*40:01	1	237	245	9	RFQTLHRSY	0.000455	11
HLA-B*08:01	1	330	338	9	TNLCPFGEV	0.000455	27
HLA-A*68:01	1	666	674	9	GICASYQTQ	0.000455	20
HLA-A*02:06	1	767	775	9	IAVEQDKNT	0.000455	27

HLA-A*68:01	1	781	790	10	QVKQIYKTPP 0.000455	20
HLA-A*68:02	1	823	832	10	VTLADAGFIK 0.000455	21
HLA-A*31:01	1	850	858	9	QKFNGLTVL 0.000455	21
HLA-A*23:01	1	877	886	10	GTITSGWTFG 0.000455	12
HLA-B*35:01	1	895	904	10	FAMQMAYRFN 0.000455	14
HLA-A*30:02	1	934	943	10	SLSSTASALG 0.000455	34
HLA-B*53:01	1	972	980	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*03:01	1	205	213	9	SKHTPINLV 0.000454	16
HLA-B*07:02	1	252	261	10	SSGWTAGAAA 0.000454	17
HLA-B*44:02	1	254	263	10	GWTAGAAAYY 0.000454	12
HLA-A*26:01	1	261	270	10	AYYVGYLQPR 0.000454	16
HLA-A*01:01	1	265	273	9	GYLQPRTF 0.000454	23
HLA-A*26:01	1	311	319	9	QTSNFRVQP 0.000454	16
HLA-A*02:01	1	374	383	10	FKCYGVSPTK 0.000454	20
HLA-B*57:01	1	429	438	10	CVIAWNSNLL 0.000454	27
HLA-A*01:01	1	450	458	9	YRLFRRKSNL 0.000454	23
HLA-A*02:03	1	496	504	9	PTYGVGYQP 0.000454	22
HLA-B*35:01	1	562	570	9	FGRDIADTT 0.000454	14
HLA-A*68:01	1	714	722	9	NFTISVTTE 0.000454	20
HLA-A*68:01	1	850	858	9	QKFNGLTVL 0.000454	20
HLA-A*02:03	1	921	930	10	ANQFNLSAIGK 0.000454	22
HLA-B*51:01	1	1068	1076	9	QEKNFATTAP 0.000454	25
HLA-A*68:02	1	1129	1137	9	IVNNTVYDP 0.000454	21
HLA-A*68:01	1	1179	1187	9	EIDRLNEVA 0.000454	20
HLA-A*01:01	1	1189	1198	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*51:01	1	237	245	9	RFQTLHRSY 0.000453	25
HLA-B*53:01	1	309	317	9	IYQTSNFRV 0.000453	13
HLA-A*03:01	1	335	343	9	FGEVFNATR 0.000453	16
HLA-A*03:01	1	364	373	10	VLYNSASFST 0.000453	16
HLA-B*44:03	1	389	397	9	FTNVYADSF 0.000453	12
HLA-B*58:01	1	433	442	10	WNSNNLDSKV 0.000453	20
HLA-A*68:02	1	575	584	10	DPQTLIIDI 0.000453	21
HLA-B*08:01	1	660	669	10	DIPIGAGICA 0.000453	27
HLA-A*31:01	1	773	781	9	KNTQEVFAQ 0.000453	21
HLA-A*24:02	1	883	891	9	WTFGAGAAL 0.000453	12
HLA-B*07:02	1	947	955	9	DVVNQNAQA 0.000453	17
HLA-B*08:01	1	948	957	10	VVNQNAQALN 0.000453	27
HLA-A*31:01	1	966	974	9	NFGAISSVL 0.000453	21
HLA-A*68:01	1	1116	1125	10	NTFVSGNCDV 0.000453	20
HLA-A*31:01	1	15	23	9	CVNLTTTRTQ 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	264	272	9	VGYLQPRTF 0.000452	13
HLA-B*58:01	1	293	301	9	LSETKCTLK 0.000452	20
HLA-B*44:02	1	346	354	9	SVYAWNRKR 0.000452	12
HLA-B*51:01	1	346	354	9	SVYAWNRKR 0.000452	25
HLA-A*01:01	1	408	416	9	APGQTGNIA 0.000452	24
HLA-A*26:01	1	503	511	9	QPVRVVVLS 0.000452	16
HLA-A*68:02	1	663	671	9	IGAGICASY 0.000452	22
HLA-B*44:02	1	673	682	10	TQTNSPRRAR 0.000452	12
HLA-B*57:01	1	710	719	10	AIPTNFTISV 0.000452	27
HLA-A*33:01	1	776	785	10	QEVFAQVKQI 0.000452	19
HLA-A*30:02	1	799	807	9	FSQILPDPS 0.000452	34
HLA-A*03:01	1	814	823	10	FIEDLLFNKV 0.000452	16
HLA-A*68:02	1	999	1007	9	QSLQTYVTQ 0.000452	22
HLA-B*44:02	1	1047	1055	9	MSFPQSAPH 0.000452	12
HLA-A*02:06	1	12	21	10	SSQCVNLTT 0.000451	27
HLA-B*58:01	1	58	67	10	FFSNVTWFHA 0.000451	20
HLA-B*58:01	1	94	103	10	STEKSNIIRG 0.000451	20
HLA-A*01:01	1	113	121	9	KTQSLLIIVN 0.000451	24

HLA-A*30:01	1	114	122	9	TQSLIVNN	0.000451	36
HLA-A*33:01	1	227	235	9	VDLPIGINI	0.000451	19
HLA-B*15:01	1	251	259	9	SSSGWTAGA	0.000451	20
HLA-A*01:01	1	263	271	9	YVGYLQPR	0.000451	24
HLA-A*02:03	1	355	364	10	ISNCVADYSV	0.000451	22
HLA-A*26:01	1	389	398	10	FTNVYADSFV	0.000451	16
HLA-A*11:01	1	391	399	9	NVYADSFVI	0.000451	13
HLA-B*08:01	1	392	400	9	VYADSFVIR	0.000451	27
HLA-A*03:01	1	507	515	9	VVLSFELL	0.000451	16
HLA-B*15:01	1	523	531	9	GPKKSTNLV	0.000451	20
HLA-A*02:03	1	570	579	10	TDAVRDPQTL	0.000451	22
HLA-B*08:01	1	581	590	10	ILDITPCFSG	0.000451	27
HLA-B*07:02	1	606	614	9	AVLYQGVNC	0.000451	17
HLA-A*32:01	1	865	873	9	EMIAQY TSA	0.000451	15
HLA-A*01:01	1	888	897	10	GAALQIPFAM	0.000451	24
HLA-B*53:01	1	1004	1012	9	YVTQLLIRA	0.000451	13
HLA-B*44:03	1	1045	1053	9	HLMSFPQSA	0.000451	12
HLA-B*53:01	1	1222	1231	10	IATVMVTIML	0.000451	13
HLA-B*40:01	1	34	43	10	RGVYYPDKVF	0.00045	11
HLA-B*15:01	1	233	242	10	INITRFQTLH	0.00045	20
HLA-A*32:01	1	234	242	9	NITRFQTLH	0.00045	15
HLA-B*58:01	1	280	289	10	GTITDAVDCA	0.00045	20
HLA-B*44:02	1	375	383	9	KCYGVSP TK	0.00045	12
HLA-B*57:01	1	659	667	9	CDIPIGAGI	0.00045	27
HLA-A*02:06	1	680	688	9	RARSVASQS	0.00045	27
HLA-A*03:01	1	1023	1031	9	ATKMSECVL	0.00045	16
HLA-A*02:03	1	1042	1050	9	KGYHLMSFP	0.00045	22
HLA-B*44:02	1	1052	1060	9	SAPHGVVFL	0.00045	12
HLA-B*15:01	1	1084	1093	10	AHFPREGV FV	0.00045	20
HLA-A*02:06	1	1127	1135	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-B*08:01	1	235	243	9	ITRFQTLHR	0.000449	27
HLA-B*07:02	1	288	296	9	CALDPLSET	0.000449	17
HLA-A*26:01	1	384	393	10	LNDLCFTNVY	0.000449	16
HLA-B*07:02	1	557	565	9	LPFQFGRD	0.000449	17
HLA-A*30:02	1	590	598	9	GGVSVITPG	0.000449	34
HLA-A*32:01	1	636	644	9	GSNVFQTRA	0.000449	15
HLA-A*01:01	1	705	713	9	SNNSIAIPT	0.000449	24
HLA-B*15:01	1	723	731	9	ILPVSMTKT	0.000449	20
HLA-B*44:03	1	748	756	9	NLLLQYGSF	0.000449	12
HLA-A*02:03	1	880	889	10	TSGWTFGAGA	0.000449	22
HLA-B*08:01	1	939	948	10	ASALGKLQDV	0.000449	27
HLA-A*68:02	1	1115	1123	9	DNTFVSGNC	0.000449	22
HLA-A*30:02	1	1209	1217	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	VVIKVCFQF	0.000448	27
HLA-A*26:01	1	227	235	9	VDLPIGINI	0.000448	16
HLA-B*07:02	1	258	266	9	GAAAYYVGY	0.000448	17
HLA-B*51:01	1	304	312	9	TVEKGIYQT	0.000448	25
HLA-B*15:01	1	391	400	10	NVYADSFVIR	0.000448	20
HLA-A*32:01	1	577	586	10	QTLEILDITP	0.000448	15
HLA-A*02:06	1	755	764	10	SFCTQLNRAL	0.000448	27
HLA-A*32:01	1	815	823	9	IEDLLFNKV	0.000448	15
HLA-B*57:01	1	1009	1017	9	LIRAAEIRA	0.000448	27
HLA-A*30:02	1	1040	1048	9	CGKGYHLMS	0.000448	34
HLA-A*11:01	1	1171	1179	9	ASVWNIQKE	0.000448	13
HLA-A*02:06	1	1186	1195	10	VAKNLNESLI	0.000448	27
HLA-A*68:01	1	1205	1214	10	QYIKWPWYIW	0.000448	20
HLA-A*02:01	1	126	135	10	VVIKVCFQF	0.000447	20
HLA-A*02:03	1	177	186	10	MDLEGKQGNF	0.000447	22
HLA-B*51:01	1	296	305	10	TKCTLKSFTV	0.000447	25

HLA-A*11:01	1	297	306	10	KCTLKSFTVE 0.000447	13
HLA-B*08:01	1	341	350	10	ATRFASVYAW 0.000447	27
HLA-B*51:01	1	365	373	9	LYNSASFST 0.000447	25
HLA-A*30:01	1	690	699	10	IAYTMSLGV 0.000447	37
HLA-A*11:01	1	743	751	9	STECNLLL 0.000447	13
HLA-A*30:01	1	833	842	10	QYGDCLGDIA 0.000447	37
HLA-A*32:01	1	1040	1049	10	CGKGYHLMFS 0.000447	15
HLA-B*44:02	1	1052	1061	10	SAPHGVVFLH 0.000447	12
HLA-B*35:01	1	1061	1069	9	HVTYVPAQE 0.000447	14
HLA-B*57:01	1	1072	1081	10	FTTAPAICHD 0.000447	27
HLA-A*11:01	1	1101	1109	9	VTQRNFYEP 0.000447	13
HLA-A*33:01	1	1137	1146	10	PLQPELDSFK 0.000447	19
HLA-A*11:01	1	1170	1179	10	NASVVNIQKE 0.000447	13
HLA-A*02:06	1	1252	1260	9	KFDEDDSEP 0.000447	27
HLA-B*51:01	1	4	12	9	FLVLLPLVS 0.000446	25
HLA-A*01:01	1	237	246	10	RFQTLHRSYL 0.000446	24
HLA-A*30:02	1	449	457	9	LYRLFRRSN 0.000446	34
HLA-A*01:01	1	498	507	10	YGVGYQPYRV 0.000446	24
HLA-A*30:01	1	627	635	9	TPTWRVYST 0.000446	37
HLA-A*02:01	1	813	822	10	SFIEDLLFNK 0.000446	20
HLA-A*26:01	1	840	848	9	DIAARDLIC 0.000446	16
HLA-B*35:01	1	843	852	10	ARDLICAQKF 0.000446	14
HLA-A*68:01	1	868	876	9	AQYTSALLA 0.000446	20
HLA-B*08:01	1	1017	1026	10	ASANLAATKM 0.000446	27
HLA-A*03:01	1	1019	1028	10	ANLAATKMSE 0.000446	16
HLA-B*40:01	1	1097	1106	10	THWFVTQRNF 0.000446	11
HLA-B*40:01	1	1102	1111	10	TQRNFYEPQI 0.000446	11
HLA-A*24:02	1	1152	1161	10	YFKNHTSPDV 0.000446	12
HLA-A*30:02	1	1216	1225	10	GFIAGLIAIV 0.000446	34
HLA-A*30:01	1	98	107	10	SNIRGWIFG 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	348	356	9	YAWNRRKRIS 0.000445	34
HLA-A*30:02	1	359	368	10	VADYSVLVNS 0.000445	34
HLA-A*30:02	1	415	423	9	IADYNYKLP 0.000445	34
HLA-A*02:06	1	470	479	10	YQAGSTPCNG 0.000445	27
HLA-A*30:01	1	569	578	10	TTDAVRDPQT 0.000445	37
HLA-B*53:01	1	585	593	9	TPCSFGGVS 0.000445	13
HLA-A*30:02	1	594	603	10	VITPGTNTSN 0.000445	34
HLA-B*08:01	1	596	604	9	TPGTNTSNQ 0.000445	27
HLA-A*02:01	1	601	609	9	TSNQVAVLY 0.000445	20
HLA-A*33:01	1	648	657	10	IGAHEVNNNSY 0.000445	19
HLA-B*57:01	1	686	695	10	SQSIIAYTMS 0.000445	27
HLA-A*26:01	1	719	727	9	VTTEILPVS 0.000445	16
HLA-B*35:01	1	752	760	9	QYGSFCTQL 0.000445	14
HLA-A*23:01	1	769	778	10	VEQDKNTQEV 0.000445	12
HLA-B*51:01	1	832	841	10	KQYGDCLGDI 0.000445	25
HLA-A*01:01	1	909	918	10	TQNVLYENQK 0.000445	24
HLA-B*07:02	1	976	984	9	DILSRLDKV 0.000445	17
HLA-B*58:01	1	989	998	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	383	391	9	KLNDLCFTN 0.000444	20
HLA-A*01:01	1	410	419	10	GQTGNIADYN 0.000444	24
HLA-A*01:01	1	468	476	9	EIYQAGSTP 0.000444	24
HLA-A*02:03	1	667	675	9	ICASYQTQT 0.000444	22
HLA-B*58:01	1	667	675	9	ICASYQTQT 0.000444	20
HLA-A*02:03	1	794	803	10	FGGFNFSQIL 0.000444	22
HLA-B*44:02	1	921	930	10	ANQFNSAIGK 0.000444	12
HLA-A*30:01	1	949	957	9	VNQAQALN 0.000444	37
HLA-A*31:01	1	1132	1141	10	NTVYDPLQPE 0.000444	21
HLA-A*26:01	1	1138	1146	9	LQPELDSFK 0.000444	16
HLA-B*58:01	1	1151	1159	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	STEKSNIIIR 0.000443	20

HLA-A*24:02	1	218	226	9	QGFSALEPL 0.000443	12
HLA-A*33:01	1	253	261	9	SGWTAGAAA 0.000443	20
HLA-A*30:02	1	281	289	9	TITDAVDCA 0.000443	34
HLA-B*51:01	1	281	290	10	TITDAVDCAL 0.000443	25
HLA-A*02:06	1	341	350	10	ATRFASVYAW 0.000443	27
HLA-B*53:01	1	354	362	9	RISNCVADY 0.000443	13
HLA-A*32:01	1	363	372	10	SVLYNSASF 0.000443	15
HLA-B*44:03	1	384	393	10	LNDLCFTNVY 0.000443	12
HLA-B*51:01	1	448	456	9	YLYRLFRRK 0.000443	25
HLA-B*57:01	1	519	527	9	ATVCGPKKS 0.000443	27
HLA-A*30:01	1	565	574	10	DIADTTDAVR 0.000443	37
HLA-A*02:06	1	588	597	10	SFGGVSVITP 0.000443	27
HLA-A*02:03	1	760	769	10	LNRLTGI 0.000443	22
HLA-A*02:01	1	791	799	9	IKDFGGFNF 0.000443	20
HLA-B*44:02	1	887	895	9	AGAALQIPF 0.000443	12
HLA-B*07:02	1	953	961	9	AQALNTLVK 0.000443	17
HLA-A*23:01	1	1127	1135	9	IGIVNNTVY 0.000443	12
HLA-A*11:01	1	1145	1154	10	FKEELDKYFK 0.000443	13
HLA-A*02:06	1	1194	1203	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	FGTTLDLSD 0.000442	20
HLA-A*33:01	1	124	132	9	TNVVIKVCE 0.000442	20
HLA-B*58:01	1	148	157	10	NNKSWMESE 0.000442	20
HLA-A*33:01	1	182	191	10	KQGNFKNLRE 0.000442	20
HLA-A*02:01	1	393	401	9	YADSFVIRG 0.000442	20
HLA-A*30:02	1	470	479	10	YQAGSTPCNG 0.000442	34
HLA-B*44:03	1	485	494	10	CYFPLQSYGF 0.000442	12
HLA-A*02:06	1	511	519	9	SFELLHAPA 0.000442	27
HLA-B*15:01	1	549	557	9	LTESNKKFL 0.000442	20
HLA-A*32:01	1	611	619	9	GVNCTEVPV 0.000442	15
HLA-A*26:01	1	846	855	10	LICAQKFNG 0.000442	16
HLA-A*26:01	1	864	873	10	DEMIAQYTS 0.000442	16
HLA-A*01:01	1	898	906	9	QMAYRFNGI 0.000442	24
HLA-B*08:01	1	953	961	9	AQALNTLVK 0.000442	28
HLA-A*03:01	1	964	972	9	SSNFGAISS 0.000442	16
HLA-A*30:02	1	1042	1051	10	KGYHLMSFP 0.000442	34
HLA-A*02:03	1	1046	1055	10	LMSFPQSAPH 0.000442	22
HLA-B*35:01	1	1093	1101	9	VSNGTHWFV 0.000442	14
HLA-A*30:02	1	1150	1159	10	DKYFKNHTSP 0.000442	34
HLA-B*58:01	1	1200	1208	9	LGKYEQYIK 0.000442	20
HLA-B*15:01	1	68	77	10	IHVSGTNGTK 0.000441	20
HLA-A*01:01	1	71	80	10	SGTNGTKRFA 0.000441	24
HLA-A*31:01	1	144	153	10	YYHKNNKSW 0.000441	21
HLA-B*40:01	1	263	272	10	YVGYLQPRTF 0.000441	11
HLA-A*02:03	1	324	333	10	VRFPNITNLC 0.000441	22
HLA-A*01:01	1	383	392	10	KLNDLCFTNV 0.000441	24
HLA-A*68:01	1	406	415	10	QIAPGQTGNI 0.000441	20
HLA-A*31:01	1	413	422	10	GNIADYNYKL 0.000441	21
HLA-A*33:01	1	499	507	9	GVGYQPYRV 0.000441	20
HLA-A*68:02	1	559	567	9	FQQFGRDIA 0.000441	22
HLA-A*68:01	1	598	606	9	GTNTSNQVA 0.000441	20
HLA-A*30:01	1	693	701	9	TMSLGVENS 0.000441	37
HLA-A*68:02	1	729	737	9	TKTSVDCTM 0.000441	22
HLA-B*57:01	1	758	767	10	TQLNRALTGI 0.000441	27
HLA-B*35:01	1	986	994	9	AEVQIDRLI 0.000441	14
HLA-B*53:01	1	1061	1070	10	HVTYVPAQEK 0.000441	13
HLA-A*32:01	1	1077	1085	9	AICHDGKAH 0.000441	15
HLA-A*11:01	1	83	92	10	VLPFNDGVYF 0.00044	13
HLA-A*02:06	1	104	113	10	WIFGTTLDL 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*08:01	1	213	222	10	VRGLPQGFS 0.00044	28
HLA-B*15:01	1	217	226	10	PQGFSALEPL 0.00044	20
HLA-A*33:01	1	434	442	9	NSNNLDSKV 0.00044	20
HLA-B*44:02	1	466	475	10	STEIYQAGST 0.00044	12

HLA-A*23:01	1	521	530	10	VCGPKKSTNL 0.00044	12
HLA-B*08:01	1	606	614	9	AVLYQGVNC 0.00044	28
HLA-A*31:01	1	607	615	9	VLYQGVNCT 0.00044	21
HLA-A*33:01	1	633	641	9	YSTGSNVFQ 0.00044	20
HLA-A*68:02	1	644	653	10	AGCLIGAEHV 0.00044	22
HLA-B*58:01	1	668	677	10	CASYQTQTN 0.00044	20
HLA-B*51:01	1	782	791	10	VKQIYKTPPI 0.00044	25
HLA-B*08:01	1	809	818	10	PSKRSFIEDL 0.00044	28
HLA-A*30:02	1	819	827	9	LFNKVTLAD 0.00044	34
HLA-B*57:01	1	838	847	10	LGDIAARDLI 0.00044	27
HLA-A*33:01	1	849	857	9	AQKFNGLTV 0.00044	20
HLA-A*30:01	1	873	882	10	ALLAGTITSG 0.00044	37
HLA-A*01:01	1	1028	1036	9	ECVLGQSKR 0.00044	24
HLA-A*30:02	1	1085	1094	10	HFPREGVFS 0.00044	34
HLA-A*02:06	1	10	19	10	LVSSQCVNLT 0.000439	27
HLA-B*44:02	1	16	24	9	VNLTTRTQL 0.000439	12
HLA-B*07:02	1	215	224	10	GLPQGFSALE 0.000439	17
HLA-A*01:01	1	288	296	9	CALDPLSET 0.000439	24
HLA-A*32:01	1	342	351	10	TRFASVYAWN 0.000439	15
HLA-B*08:01	1	385	393	9	NDLCFTNVY 0.000439	28
HLA-A*30:01	1	415	423	9	IADYNYKLP 0.000439	37
HLA-A*02:01	1	471	480	10	QAGSTPCNGV 0.000439	20
HLA-A*23:01	1	535	543	9	CVNFFNGL 0.000439	12
HLA-A*30:02	1	603	612	10	NQVAVLYQGV 0.000439	34
HLA-B*44:02	1	631	639	9	RVYSTGSNV 0.000439	12
HLA-B*58:01	1	703	711	9	AYSNNSIAI 0.000439	20
HLA-B*51:01	1	730	739	10	KTSVDCTMYI 0.000439	25
HLA-A*30:01	1	857	866	10	VLPLLTDDEM 0.000439	37
HLA-A*31:01	1	1188	1197	10	KNLNESLIDL 0.000439	21
HLA-B*57:01	1	1253	1262	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	QSLLVNAT 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-A*33:01	1	206	215	10	KHTPINLVRG 0.000438	20
HLA-B*07:02	1	206	214	9	KHTPINLVR 0.000438	17
HLA-A*11:01	1	239	247	9	QTLHRSYLT 0.000438	13
HLA-A*30:01	1	355	364	10	ISNCVADYSV 0.000438	37
HLA-A*31:01	1	364	373	10	VLYNSASFST 0.000438	21
HLA-A*26:01	1	450	459	10	YRLFRKSNLK 0.000438	16
HLA-A*01:01	1	516	525	10	HAPATVCGPK 0.000438	24
HLA-A*01:01	1	620	628	9	AIHADQLTP 0.000438	24
HLA-A*30:02	1	665	673	9	AGICASYQT 0.000438	34
HLA-B*51:01	1	721	730	10	TEILPVSMTK 0.000438	25
HLA-B*08:01	1	748	757	10	NLLLQYGSFC 0.000438	28
HLA-A*30:02	1	768	777	10	AVEQDKNTQE 0.000438	34
HLA-A*30:01	1	815	823	9	IEDLLFNKV 0.000438	37
HLA-B*51:01	1	932	941	10	QDLSSTASA 0.000438	25
HLA-A*31:01	1	969	977	9	AISSVLNDI 0.000438	21
HLA-B*07:02	1	1157	1166	10	TSPDVLGDI 0.000438	17
HLA-A*31:01	1	147	155	9	KNNKSWMES 0.000437	21
HLA-A*03:01	1	342	350	9	TRFASVYAW 0.000437	16
HLA-B*15:01	1	522	530	9	CGPKKSTNL 0.000437	20
HLA-A*30:02	1	617	626	10	VPVAIHADQL 0.000437	34
HLA-B*07:02	1	635	643	9	TGSNVFQTR 0.000437	17
HLA-A*02:03	1	675	684	10	TNSPRRARSV 0.000437	22
HLA-A*02:06	1	731	740	10	TSVDCTMYIC 0.000437	27
HLA-A*23:01	1	813	821	9	SFIEDLLFN 0.000437	12
HLA-B*53:01	1	838	846	9	LGDIAARDL 0.000437	14
HLA-B*44:02	1	866	874	9	MIAQYTSAL 0.000437	12
HLA-A*02:01	1	950	958	9	NQNAQALNT 0.000437	20
HLA-A*02:06	1	1155	1163	9	NHTSPDVDL 0.000437	27
HLA-B*08:01	1	1163	1171	9	LGDISGINA 0.000437	28
HLA-B*51:01	1	1174	1183	10	VNIQKEIDRL 0.000437	26
HLA-B*53:01	1	16	24	9	VNLTTRTQL 0.000436	14

HLA-B*44:03	1	93	101	9	ASTEKSNI 0.000436	12
HLA-B*57:01	1	107	116	10	GTTLDSKTQS 0.000436	28
HLA-B*35:01	1	405	413	9	RQIAPGQTG 0.000436	14
HLA-A*33:01	1	552	561	10	SNKKFLPFQ 0.000436	20
HLA-B*51:01	1	579	587	9	LEILDITPC 0.000436	26
HLA-A*30:02	1	639	648	10	VFQTRAGCLI 0.000436	34
HLA-A*01:01	1	704	713	10	YSNNSIAIPT 0.000436	24
HLA-A*26:01	1	721	729	9	TEILPVSM 0.000436	16
HLA-B*57:01	1	725	733	9	PVSMTKTSV 0.000436	28
HLA-A*68:01	1	776	785	10	QEVFAQVKQI 0.000436	20
HLA-A*01:01	1	861	869	9	LLTDEMIAQ 0.000436	24
HLA-A*01:01	1	921	930	10	ANQFN SAIGK 0.000436	24
HLA-A*31:01	1	954	963	10	QALNTLVKQL 0.000436	21
HLA-A*02:01	1	985	993	9	EAEVQIDRL 0.000436	20
HLA-A*68:02	1	991	1000	10	DRLITGRLQS 0.000436	22
HLA-A*11:01	1	1061	1069	9	HVTYVPAQE 0.000436	13
HLA-A*01:01	1	1174	1183	10	VNIQKEIDRL 0.000436	24
HLA-A*01:01	1	1193	1201	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	268	277	10	QPRTFLLKYN 0.000435	26
HLA-A*30:02	1	521	530	10	VCGPKKSTNL 0.000435	34
HLA-A*02:06	1	612	620	9	VNCTEVPVA 0.000435	27
HLA-B*15:01	1	635	643	9	TGSNVFQTR 0.000435	20
HLA-A*68:02	1	640	648	9	FQTRAGCLI 0.000435	22
HLA-A*02:06	1	705	713	9	SNNSIAIPT 0.000435	27
HLA-A*68:02	1	822	830	9	KVTLADAGF 0.000435	22
HLA-A*11:01	1	835	844	10	GDCLGDIAAR 0.000435	13
HLA-A*68:01	1	862	871	10	LTDEMIAQYT 0.000435	20
HLA-B*51:01	1	871	880	10	TSALLAGTIT 0.000435	26
HLA-A*01:01	1	950	958	9	NQNAQALNT 0.000435	24
HLA-B*44:03	1	961	969	9	KQLSSNFGA 0.000435	12
HLA-A*30:02	1	968	977	10	GAISSVLNDI 0.000435	34
HLA-B*51:01	1	1158	1167	10	SPDVDLGDIS 0.000435	26
HLA-A*68:02	1	1172	1181	10	SVVNIQKEID 0.000435	22
HLA-A*68:02	1	1198	1207	10	QELGKYEYI 0.000435	22
HLA-A*32:01	1	337	345	9	EVFNATRFA 0.000434	15
HLA-B*44:03	1	346	354	9	SVYAWNRKR 0.000434	12
HLA-B*57:01	1	591	599	9	GVSVITPGT 0.000434	28
HLA-A*31:01	1	601	610	10	TSNQVAVLYQ 0.000434	22
HLA-A*01:01	1	754	763	10	GSFCTQLNRA 0.000434	24
HLA-A*02:06	1	760	769	10	LNRA LTGIAV 0.000434	27
HLA-A*01:01	1	850	858	9	QKFNGLTVL 0.000434	24
HLA-A*02:03	1	860	868	9	PLLTDEMIA 0.000434	22
HLA-A*11:01	1	895	903	9	FAMQMAYRF 0.000434	13
HLA-B*35:01	1	945	953	9	LQDVVNQNA 0.000434	14
HLA-A*01:01	1	966	974	9	NFGAISSVL 0.000434	24
HLA-A*02:03	1	1132	1140	9	NTVYDPLQP 0.000434	22
HLA-B*15:01	1	1147	1156	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	290	298	9	LDPLSETKC 0.000433	26
HLA-A*68:02	1	364	372	9	VLYNSASFS 0.000433	22
HLA-A*30:01	1	471	480	10	QAGSTPCNGV 0.000433	37
HLA-A*30:02	1	482	490	9	GFNCYFPLQ 0.000433	34
HLA-B*08:01	1	538	546	9	FNFNGLTGT 0.000433	28
HLA-A*23:01	1	554	563	10	KKFLPFQFG 0.000433	12
HLA-B*57:01	1	567	576	10	ADTTDAVRDP 0.000433	28
HLA-B*57:01	1	594	602	9	VITPGTNTS 0.000433	28
HLA-B*40:01	1	716	724	9	TISVTTEIL 0.000433	11
HLA-A*68:01	1	775	784	10	TQEVFAQVKQ 0.000433	20
HLA-A*23:01	1	794	802	9	FGGFNFSQI 0.000433	12
HLA-A*03:01	1	835	844	10	GDCLGDIAAR 0.000433	16
HLA-B*07:02	1	868	876	9	AQYTSALLA 0.000433	18
HLA-A*33:01	1	890	899	10	ALQIPFAMQM 0.000433	20



HLA-B*44:03	1	1017	1025	9	ASANLAATK 0.000433	12
HLA-A*01:01	1	1084	1093	10	AHFPREGV FV 0.000433	24
HLA-A*01:01	1	1121	1129	9	GNCDVVIGI 0.000433	24
HLA-A*30:02	1	1145	1154	10	FKEELDKYFK 0.000433	34
HLA-A*31:01	1	1147	1156	10	EELDKYFKNH 0.000433	22
HLA-A*24:02	1	1150	1159	10	DKYFKNHTSP 0.000433	12
HLA-A*23:01	1	1252	1261	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	353	362	10	KRISNCVADY 0.000432	20
HLA-A*32:01	1	368	376	9	SASFSTFKC 0.000432	15
HLA-B*15:01	1	407	415	9	IAPGQTGNI 0.000432	20
HLA-A*33:01	1	473	481	9	GSTPCNGVK 0.000432	20
HLA-B*44:02	1	485	494	10	CYFPLQSYGF 0.000432	12
HLA-B*58:01	1	519	527	9	ATVCGPKKS 0.000432	20
HLA-A*30:02	1	538	546	9	FNFNGLTGT 0.000432	34
HLA-B*58:01	1	618	626	9	PVAIHADQL 0.000432	20
HLA-A*23:01	1	755	763	9	SFCTQLNRA 0.000432	12
HLA-B*15:01	1	862	871	10	LTDEMIAQYT 0.000432	20
HLA-A*33:01	1	954	962	9	QALNTLVKQ 0.000432	20
HLA-A*68:01	1	1037	1045	9	VDFCGKGYH 0.000432	20
HLA-B*35:01	1	1105	1113	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	304	312	9	TVEKGIYQT 0.000431	20
HLA-A*68:02	1	396	405	10	SFVIRGDEV R 0.000431	22
HLA-B*57:01	1	411	419	9	QTGNIADYN 0.000431	28
HLA-A*30:01	1	469	478	10	IYQAGSTPCN 0.000431	37
HLA-A*68:02	1	517	525	9	APATVCGPK 0.000431	22
HLA-A*30:02	1	565	574	10	DIADTTDAVR 0.000431	34
HLA-A*02:03	1	578	586	9	TLEILDITP 0.000431	22
HLA-A*01:01	1	602	610	9	SNQVAVLYQ 0.000431	24
HLA-B*53:01	1	816	825	10	EDLLFNKVT L 0.000431	14
HLA-A*03:01	1	883	891	9	WTFGAGAAL 0.000431	17
HLA-A*01:01	1	923	931	9	QFNSAIGKI 0.000431	24
HLA-A*01:01	1	1014	1022	9	EIRASANLA 0.000431	24
HLA-B*35:01	1	1044	1052	9	YHLMSFPQS 0.000431	14
HLA-B*07:02	1	1108	1117	10	EPQIITDNT 0.000431	18
HLA-A*31:01	1	1165	1173	9	DISGINASV 0.000431	22
HLA-A*26:01	1	1198	1207	10	QELGKYEYI 0.000431	16
HLA-A*68:02	1	249	257	9	GDSSSGWTA 0.00043	22
HLA-A*30:02	1	250	258	9	DSSSGWTAG 0.00043	34
HLA-B*08:01	1	274	282	9	LKYNENGTI 0.00043	28
HLA-A*33:01	1	309	318	10	IYQTSNFRVQ 0.00043	20
HLA-A*26:01	1	397	406	10	FVIRGDEV RQ 0.00043	16
HLA-B*44:02	1	517	526	10	APATVCGPKK 0.00043	12
HLA-A*02:06	1	605	614	10	VAVLYQGVNC 0.00043	27
HLA-A*24:02	1	710	719	10	AIPTNFTISV 0.00043	12
HLA-A*02:01	1	751	759	9	LQYGSFCTQ 0.00043	20
HLA-A*02:01	1	781	789	9	QVKQIYKTP 0.00043	20
HLA-A*33:01	1	947	956	10	DVVNQNAQAL 0.00043	20
HLA-A*03:01	1	997	1006	10	RLQSLQTYVT 0.00043	17
HLA-B*08:01	1	1031	1040	10	LGQSKRVDFC 0.00043	28
HLA-A*02:01	1	1061	1070	10	HVTYVPAQEK 0.00043	20
HLA-B*35:01	1	1215	1223	9	LGFIAGLIA 0.00043	14
HLA-A*33:01	1	1216	1224	9	GFIAGLIAI 0.00043	20
HLA-A*68:02	1	116	124	9	SLLI VNNAT 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	335	343	9	FGEVFNATR 0.000429	26
HLA-A*11:01	1	438	446	9	LDSKVG GNY 0.000429	13
HLA-B*35:01	1	486	495	10	YFPLQSYGFQ 0.000429	14
HLA-A*31:01	1	669	677	9	ASYQTQ TNS 0.000429	22
HLA-B*44:03	1	807	815	9	SKPSKRSFI 0.000429	12

HLA-B*53:01	1	823	831	9	VTLADAGFI 0.000429	14
HLA-A*11:01	1	873	881	9	ALLAGTITS 0.000429	13
HLA-A*33:01	1	899	908	10	MAYRFNGIGV 0.000429	20
HLA-A*30:01	1	919	928	10	LIANQFNSAI 0.000429	37
HLA-A*30:01	1	1077	1085	9	AICHDGKAH 0.000429	37
HLA-B*08:01	1	1103	1112	10	QRNFYEPQII 0.000429	28
HLA-B*08:01	1	1129	1138	10	IVNNTVYDPL 0.000429	28
HLA-A*68:01	1	1136	1145	10	DPLQPELDSF 0.000429	20
HLA-B*44:02	1	1184	1193	10	NEVAKNLNES 0.000429	12
HLA-A*68:01	1	1226	1234	9	MVTIMLCCM 0.000429	20
HLA-A*68:01	1	1234	1243	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	TLDSKTQSLL 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	390	399	10	TNVYADSFVI 0.000428	20
HLA-B*51:01	1	391	400	10	NVYADSFVIR 0.000428	26
HLA-B*58:01	1	405	414	10	RQIAPGQTGN 0.000428	20
HLA-A*02:06	1	437	446	10	NLDSKVGNGY 0.000428	27
HLA-B*57:01	1	484	493	10	NCYFPLQSYG 0.000428	28
HLA-A*23:01	1	513	521	9	ELLHAPATV 0.000428	12
HLA-B*08:01	1	534	543	10	KCVNFNFNGL 0.000428	28
HLA-A*68:01	1	660	669	10	DIPIGAGICA 0.000428	20
HLA-B*53:01	1	709	718	10	IAIPTNFTIS 0.000428	14
HLA-B*40:01	1	711	719	9	IPTNFTISV 0.000428	11
HLA-B*58:01	1	794	802	9	FGGFNFSQI 0.000428	20
HLA-A*24:02	1	899	908	10	MAYRFNGIGV 0.000428	12
HLA-A*30:01	1	933	942	10	DSLSSTASAL 0.000428	37
HLA-B*15:01	1	1198	1207	10	QELGKYEYI 0.000428	20
HLA-A*23:01	1	1203	1212	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	247	255	9	TPGDSSSGW 0.000427	17
HLA-A*30:02	1	262	271	10	YYVGYLQPR 0.000427	34
HLA-B*53:01	1	288	297	10	CALDPLSETK 0.000427	14
HLA-B*58:01	1	308	316	9	GIYQTSNFR 0.000427	20
HLA-A*68:02	1	356	365	10	SNCVADYSVL 0.000427	22
HLA-A*02:03	1	400	408	9	RGDEVQRQA 0.000427	22
HLA-A*03:01	1	406	415	10	QIAPGQTGNI 0.000427	17
HLA-B*44:02	1	417	426	10	DYNYKLPDDF 0.000427	12
HLA-A*32:01	1	574	582	9	RDPQTLFIL 0.000427	15
HLA-A*02:01	1	599	608	10	TNTSNQVAVL 0.000427	20
HLA-B*08:01	1	612	620	9	VNCTEVPVA 0.000427	28
HLA-B*08:01	1	612	621	10	VNCTEVPVAI 0.000427	28
HLA-A*30:01	1	714	722	9	NFTISVTTE 0.000427	37
HLA-B*15:01	1	768	776	9	AVEQDKNTQ 0.000427	20
HLA-A*68:02	1	800	809	10	SQILPDPSKP 0.000427	22
HLA-A*33:01	1	807	815	9	SKPSKRSFI 0.000427	20
HLA-B*07:02	1	982	990	9	DKVEAEVQI 0.000427	18
HLA-A*33:01	1	1058	1067	10	VFLHVTVVPA 0.000427	20
HLA-A*30:01	1	1138	1147	10	LQPELDSFKE 0.000427	37
HLA-A*11:01	1	1168	1177	10	GINASVNIQ 0.000427	13
HLA-A*23:01	1	1202	1210	9	KYEYIKWP 0.000427	12
HLA-A*11:01	1	27	36	10	AYTNSFTRGV 0.000426	13
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	250	259	10	DSSSGWTAGA 0.000426	37
HLA-A*30:02	1	390	398	9	TNVYADSFV 0.000426	34

HLA-B*15:01	1	392	400	9	VYADSFVIR	0.000426	20
HLA-A*68:01	1	418	426	9	YNYKLPDDF	0.000426	20
HLA-A*24:02	1	440	448	9	SKVGGNINY	0.000426	12
HLA-B*35:01	1	500	508	9	VGYPYRVV	0.000426	14
HLA-B*15:01	1	509	518	10	VLSFELLHAP	0.000426	20
HLA-A*02:03	1	697	705	9	GVENSVAYS	0.000426	22
HLA-B*44:02	1	761	769	9	NRALTGIAV	0.000426	12
HLA-B*58:01	1	795	804	10	GGFNFSQILP	0.000426	20
HLA-A*01:01	1	865	874	10	EMIAQYTSAL	0.000426	24
HLA-A*33:01	1	876	885	10	AGTITSGWTF	0.000426	20
HLA-A*24:02	1	953	961	9	AQALNTLVK	0.000426	12
HLA-A*26:01	1	1027	1035	9	SECVLGQSK	0.000426	17
HLA-A*01:01	1	1033	1042	10	QSKRVDFCGK	0.000426	24
HLA-B*53:01	1	1134	1143	10	VYDPLQPELD	0.000426	14
HLA-B*35:01	1	1143	1151	9	DSFKELDK	0.000426	14
HLA-A*32:01	1	1181	1190	10	DRLNEVAKNL	0.000426	15
HLA-A*01:01	1	1186	1195	10	VAKNLNESLI	0.000426	24
HLA-A*24:02	1	1215	1224	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	254	262	9	GWTAGAAAY	0.000425	15
HLA-B*53:01	1	257	266	10	AGAAAYVGY	0.000425	14
HLA-A*23:01	1	301	309	9	KSFTVEKGI	0.000425	12
HLA-B*08:01	1	313	321	9	SNFRVQPT	0.000425	28
HLA-A*30:01	1	381	389	9	PTKLNLCF	0.000425	37
HLA-A*26:01	1	417	426	10	DYNYKLPDDF	0.000425	17
HLA-B*57:01	1	440	449	10	SKVGGNINYL	0.000425	28
HLA-A*30:02	1	471	480	10	QAGSTPCNGV	0.000425	34
HLA-A*01:01	1	474	482	9	STPCNGVKG	0.000425	24
HLA-A*31:01	1	711	719	9	IPTNFTISV	0.000425	22
HLA-B*08:01	1	903	912	10	FNGIGVTQNV	0.000425	28
HLA-A*11:01	1	927	935	9	AIGKIQDSL	0.000425	13
HLA-B*44:02	1	952	960	9	NAQALNTLV	0.000425	12
HLA-B*44:03	1	979	988	10	SRLDKVEAEV	0.000425	12
HLA-B*35:01	1	985	994	10	EAEVQIDRLI	0.000425	14
HLA-A*30:01	1	987	996	10	EVQIDRLITG	0.000425	37
HLA-B*08:01	1	1079	1087	9	CHDGKAHFP	0.000425	28
HLA-A*26:01	1	1116	1125	10	NTFVSGNCDV	0.000425	17
HLA-A*02:01	1	1138	1146	9	LQPELDSFK	0.000425	20
HLA-B*51:01	1	1148	1156	9	ELDKYFKNH	0.000425	26
HLA-B*53:01	1	1156	1164	9	HTSPDVDLG	0.000425	14
HLA-A*31:01	1	1176	1185	10	IQKEIDRLNE	0.000425	22
HLA-A*33:01	1	1	9	9	MFVFLVLLP	0.000424	20
HLA-B*57:01	1	141	150	10	LGVYYHKNNK	0.000424	28
HLA-B*07:02	1	284	293	10	DAVDCALDPL	0.000424	18
HLA-A*30:02	1	294	302	9	SETKCTLKS	0.000424	35
HLA-B*44:02	1	305	314	10	VEKGIYQTSN	0.000424	12
HLA-B*58:01	1	310	319	10	YQTSNFRVQP	0.000424	20
HLA-B*08:01	1	311	319	9	QTSNFRVQP	0.000424	28
HLA-B*51:01	1	317	325	9	VQPTESIVR	0.000424	26
HLA-B*57:01	1	569	578	10	TTDAVRDPQT	0.000424	28
HLA-A*68:02	1	648	656	9	IGAHEVNNS	0.000424	22
HLA-A*68:02	1	711	720	10	IPTNFTISVT	0.000424	22
HLA-A*31:01	1	728	737	10	MTKTSVDCTM	0.000424	22
HLA-A*03:01	1	731	739	9	TSVDCTMYI	0.000424	17
HLA-A*02:01	1	736	745	10	TMYICGDSTE	0.000424	20
HLA-B*58:01	1	753	762	10	YGSFCTQLNR	0.000424	20
HLA-A*30:02	1	945	954	10	LQDVVNQNAQ	0.000424	35
HLA-A*02:01	1	1038	1046	9	DFCGKGYHL	0.000424	20
HLA-A*03:01	1	1070	1078	9	KNFTTAPAI	0.000424	17
HLA-A*11:01	1	1099	1107	9	WFTVQRNFY	0.000424	13
HLA-A*24:02	1	1117	1125	9	TFVSGNCDV	0.000424	12
HLA-B*07:02	1	1139	1147	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*01:01	1	208	216	9	TPINLVRGL 0.000423	24
HLA-A*30:01	1	282	290	9	ITDAVDCAL 0.000423	37
HLA-B*58:01	1	337	345	9	EVFNATRFA 0.000423	20
HLA-A*02:01	1	354	362	9	RISNCVADY 0.000423	20
HLA-A*30:02	1	403	411	9	EVRQIAPGQ 0.000423	35
HLA-A*30:02	1	419	427	9	NYKLPDDFT 0.000423	35
HLA-B*57:01	1	459	467	9	KPFERDIST 0.000423	28
HLA-B*44:02	1	788	797	10	TPPIKDFGGF 0.000423	12
HLA-B*40:01	1	792	800	9	KDFGGFNFS 0.000423	11
HLA-A*30:02	1	793	801	9	DFGGFNFSQ 0.000423	35
HLA-A*23:01	1	871	879	9	TSALLAGTI 0.000423	12
HLA-A*23:01	1	897	906	10	MQMAYRFNGI 0.000423	12
HLA-B*58:01	1	922	930	9	NQFNSAIGK 0.000423	20
HLA-A*01:01	1	947	955	9	DVVNQNAQA 0.000423	24
HLA-A*26:01	1	1012	1021	10	AAEIRASANL 0.000423	17
HLA-A*01:01	1	1089	1098	10	EGVFSVNGTH 0.000423	24
HLA-A*03:01	1	1189	1198	10	NLNESLIDLQ 0.000423	17
HLA-A*31:01	1	1193	1201	9	SLIDLQELG 0.000423	22
HLA-A*30:01	1	1211	1219	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	KNLREFVFNK 0.000422	22
HLA-B*57:01	1	471	480	10	QAGSTPCNGV 0.000422	28
HLA-A*32:01	1	496	504	9	PTYGVGYQP 0.000422	15
HLA-A*30:02	1	498	507	10	YGVGYQPYRV 0.000422	35
HLA-B*07:02	1	499	508	10	GVGYQPYRVV 0.000422	18
HLA-B*57:01	1	523	531	9	GPKKSTNLV 0.000422	28
HLA-B*57:01	1	711	720	10	IPTNFTISVT 0.000422	28
HLA-A*33:01	1	810	818	9	SKRSFIEDL 0.000422	20
HLA-A*33:01	1	816	825	10	EDLLFNKVTL 0.000422	20
HLA-A*32:01	1	884	893	10	TFGAGAALQI 0.000422	15
HLA-A*02:01	1	947	955	9	DVVNQNAQA 0.000422	20
HLA-B*58:01	1	1049	1057	9	FPQSAPHGV 0.000422	20
HLA-B*08:01	1	1067	1076	10	AQEKNFHTAP 0.000422	28
HLA-A*11:01	1	1098	1106	9	HWFVTQRNF 0.000422	13
HLA-B*07:02	1	1137	1145	9	PLQPELDSF 0.000422	18
HLA-A*02:01	1	1225	1234	10	VMVTIMLCMM 0.000422	20
HLA-A*26:01	1	1253	1262	10	FDEDDSEPV 0.000422	17
HLA-B*07:02	1	98	106	9	SNIIRGWIF 0.000421	18
HLA-A*11:01	1	122	130	9	NATNVVIKV 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	285	294	10	AVDCALDPLS 0.000421	27
HLA-B*40:01	1	400	408	9	RGDEVQRQA 0.000421	11
HLA-A*30:01	1	407	416	10	IAPGQTGNIA 0.000421	37
HLA-A*30:02	1	429	438	10	CVIAWNSNNL 0.000421	35
HLA-A*30:01	1	541	549	9	NGLTGTGVL 0.000421	37
HLA-A*33:01	1	555	563	9	KFLPFQQFG 0.000421	20
HLA-B*53:01	1	659	667	9	CDIPIGAGI 0.000421	14
HLA-B*51:01	1	692	700	9	YTMSLGVEN 0.000421	26
HLA-A*30:01	1	721	729	9	TEILPVSM 0.000421	37
HLA-B*40:01	1	807	815	9	SKPSKRSFI 0.000421	11
HLA-A*30:02	1	946	955	10	QDVVNQNAQA 0.000421	35
HLA-A*68:02	1	1102	1111	10	TQRNFYEPQI 0.000421	22
HLA-B*51:01	1	1124	1133	10	DVVGIVNNT 0.000421	26
HLA-A*02:03	1	1218	1227	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*26:01	1	304	313	10	TVEKGIYQTS 0.00042	17
HLA-A*01:01	1	325	333	9	RFPNITNLC 0.00042	24
HLA-A*33:01	1	347	355	9	VYAWNRKRI 0.00042	20
HLA-B*08:01	1	358	366	9	CVADYSVLY 0.00042	28
HLA-A*68:01	1	453	461	9	FRKSNLKP 0.00042	20

HLA-A*30:02	1	536	544	9	VNFNFNGLT 0.00042	35
HLA-A*33:01	1	603	612	10	NQVAVLYQGV 0.00042	20
HLA-A*01:01	1	812	821	10	RSFIEDLLFN 0.00042	24
HLA-A*30:01	1	1060	1068	9	LHVTYVPAQ 0.00042	37
HLA-A*68:01	1	1077	1086	10	AICHDGKAHF 0.00042	20
HLA-A*11:01	1	1201	1209	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	SFTRGVVYYP 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-B*15:01	1	288	297	10	CALDPLSETK 0.000419	20
HLA-B*07:02	1	312	320	9	TSNFRVQPT 0.000419	18
HLA-A*11:01	1	329	337	9	ITNLCPFGE 0.000419	13
HLA-A*30:02	1	350	358	9	WNRKRISNC 0.000419	35
HLA-B*35:01	1	358	367	10	CVADYSVLYN 0.000419	15
HLA-A*30:02	1	482	491	10	GFNCYFPLQS 0.000419	35
HLA-B*51:01	1	486	495	10	YFPLQSYGFQ 0.000419	26
HLA-B*40:01	1	513	521	9	ELLHAPATV 0.000419	11
HLA-A*26:01	1	617	626	10	VPVAIHADQL 0.000419	17
HLA-A*02:01	1	633	642	10	YSTGSNVFQT 0.000419	20
HLA-B*57:01	1	950	959	10	NQNAQALNTL 0.000419	28
HLA-A*26:01	1	952	961	10	NAQALNTLVK 0.000419	17
HLA-A*03:01	1	1018	1026	9	SANLAATKM 0.000419	17
HLA-B*57:01	1	1220	1229	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*02:01	1	237	246	10	RFQTLHRSYL 0.000418	20
HLA-A*03:01	1	317	326	10	VQPTESIVRF 0.000418	17
HLA-A*33:01	1	351	359	9	NRKRISNCV 0.000418	20
HLA-A*03:01	1	369	378	10	ASFSTFKCYG 0.000418	17
HLA-A*26:01	1	422	430	9	LPDDFTGCV 0.000418	17
HLA-B*44:02	1	457	465	9	NLKPFERDI 0.000418	12
HLA-B*15:01	1	470	479	10	YQAGSTPCNG 0.000418	20
HLA-B*08:01	1	493	502	10	GFQPTYGVGY 0.000418	28
HLA-A*33:01	1	631	640	10	RVYSTGSNVF 0.000418	20
HLA-B*57:01	1	713	721	9	TNFTISVTT 0.000418	28
HLA-B*44:02	1	802	811	10	ILPDPSKPSK 0.000418	12
HLA-B*08:01	1	816	824	9	EDLLFNKVT 0.000418	28
HLA-B*53:01	1	890	899	10	ALQIPFAMQM 0.000418	14
HLA-A*68:01	1	946	955	10	QDVVNQNAQA 0.000418	20
HLA-B*57:01	1	1018	1027	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	VNNATNVVIK 0.000417	28
HLA-A*02:03	1	167	176	10	TFEYVSQPFL 0.000417	22
HLA-B*58:01	1	213	222	10	VRGLPQGFSa 0.000417	20
HLA-A*33:01	1	396	404	9	SFVIRGDEV 0.000417	20
HLA-B*44:02	1	434	442	9	NSNNLDSKV 0.000417	12
HLA-B*57:01	1	459	468	10	KPFERDISTE 0.000417	28
HLA-A*32:01	1	498	506	9	YGVGYQPYP 0.000417	16
HLA-B*53:01	1	580	588	9	EILDITPCS 0.000417	14
HLA-A*68:01	1	744	752	9	TECSNLLLQ 0.000417	20
HLA-A*32:01	1	749	757	9	LLLQYGSFC 0.000417	16
HLA-A*33:01	1	912	920	9	VLYENQKLI 0.000417	20
HLA-A*30:01	1	1039	1047	9	FCGKGYHLM 0.000417	37
HLA-A*02:06	1	1119	1127	9	VSGNCDVVI 0.000417	28
HLA-B*07:02	1	1125	1134	10	VVIGIVNNTV 0.000417	18
HLA-A*31:01	1	1142	1151	10	LDSFKEELDK 0.000417	22
HLA-A*31:01	1	75	84	10	GTKRFANPVL 0.000416	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*44:02	1	265	274	10	GYLQPRFTLL 0.000416	12

HLA-B*15:01	1	505	514	10	YRVVLSFEL 0.000416	20
HLA-A*30:01	1	619	627	9	VAIHADQLT 0.000416	37
HLA-A*33:01	1	655	663	9	NSYECDIPI 0.000416	20
HLA-A*32:01	1	778	787	10	VFAQVKQIYK 0.000416	16
HLA-A*02:01	1	1072	1080	9	FTTAPAICH 0.000416	20
HLA-A*01:01	1	1078	1087	10	ICHDGKAHFP 0.000416	25
HLA-A*68:02	1	1207	1215	9	IKWPWYIWL 0.000416	22
HLA-A*68:01	1	1217	1226	10	FIAGLIAIVM 0.000416	20
HLA-B*07:02	1	5	13	9	LVLLPLVSS 0.000415	18
HLA-A*26:01	1	207	215	9	HTPINLVRG 0.000415	17
HLA-A*11:01	1	259	267	9	AAAYYVGYL 0.000415	13
HLA-B*08:01	1	302	310	9	SFTVEKGIY 0.000415	28
HLA-B*15:01	1	498	506	9	YGVGYQPYR 0.000415	20
HLA-B*57:01	1	640	648	9	FQTRAGCLI 0.000415	28
HLA-A*02:03	1	681	690	10	ARSVASQSII 0.000415	22
HLA-A*24:02	1	755	763	9	SFCTQLNRA 0.000415	12
HLA-B*08:01	1	784	792	9	QIYKTPPIK 0.000415	28
HLA-A*33:01	1	875	883	9	LAGTITSGW 0.000415	20
HLA-B*07:02	1	926	934	9	SAIGKIQDS 0.000415	18
HLA-A*26:01	1	940	949	10	SALGKLQDVV 0.000415	17
HLA-B*40:01	1	944	953	10	KLQDVVNQNA 0.000415	11
HLA-A*02:03	1	993	1002	10	LITGRLQSLQ 0.000415	22
HLA-A*03:01	1	1041	1049	9	GKGYHLMSF 0.000415	17
HLA-A*02:01	1	1100	1108	9	FVTQRNFYE 0.000415	20
HLA-A*31:01	1	1141	1149	9	ELDSFKEEL 0.000415	22
HLA-A*30:01	1	73	81	9	TNGTKRFAN 0.000414	38
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*32:01	1	212	221	10	LVRGLPQGFS 0.000414	16
HLA-A*30:01	1	238	247	10	FQTLHRSYLT 0.000414	38
HLA-A*30:01	1	379	388	10	VSPTKLNDLC 0.000414	38
HLA-B*07:02	1	451	459	9	RLFRKSNLK 0.000414	18
HLA-B*40:01	1	560	568	9	QQFGRDIAD 0.000414	11
HLA-B*58:01	1	640	648	9	FQTRAGCLI 0.000414	20
HLA-A*01:01	1	681	689	9	ARSVASQSI 0.000414	25
HLA-A*03:01	1	719	728	10	VTTEILPVSM 0.000414	17
HLA-A*30:01	1	794	803	10	FGGFNFSQIL 0.000414	38
HLA-A*33:01	1	811	819	9	KRSFIEDLL 0.000414	20
HLA-B*08:01	1	897	905	9	MQMAYRFNG 0.000414	28
HLA-B*15:01	1	987	996	10	EVQIDRLITG 0.000414	20
HLA-A*30:02	1	1053	1062	10	APHGVVFLHV 0.000414	35
HLA-B*08:01	1	1054	1062	9	PHGVVFLHV 0.000414	28
HLA-A*30:02	1	1195	1204	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	TNVVIKVICEF 0.000413	12
HLA-A*02:06	1	337	346	10	EVFNATRFAS 0.000413	28
HLA-A*30:01	1	389	397	9	FTNVYADSF 0.000413	38
HLA-B*08:01	1	415	423	9	IADYNYKLP 0.000413	28
HLA-B*07:02	1	457	465	9	NLKPFERDI 0.000413	18
HLA-A*68:02	1	586	594	9	PCSFGGVSV 0.000413	22
HLA-B*57:01	1	638	646	9	NVFQTRAGC 0.000413	28
HLA-B*53:01	1	684	693	10	VASQSIIAYT 0.000413	14
HLA-B*15:01	1	738	746	9	YICGDSTEC 0.000413	20
HLA-A*02:01	1	794	803	10	FGGFNFSQIL 0.000413	20
HLA-A*02:01	1	864	873	10	DEMIAQY TSA 0.000413	20
HLA-A*01:01	1	893	902	10	IPFAMQMAYR 0.000413	25
HLA-B*57:01	1	966	974	9	NFGAISSVL 0.000413	28
HLA-A*31:01	1	1018	1026	9	SANLAATKM 0.000413	22
HLA-A*33:01	1	1103	1111	9	QRNFYEPQI 0.000413	20
HLA-A*30:02	1	1191	1200	10	NESLIDLQEL 0.000413	35
HLA-B*58:01	1	1254	1262	9	DEDDSEPVL 0.000413	20
HLA-A*24:02	1	1259	1267	9	EPVLKGVKL 0.000413	12
HLA-B*53:01	1	121	130	10	NNATNVVIVK 0.000412	14
HLA-B*40:01	1	259	267	9	AAAYYVGYL 0.000412	11
HLA-A*68:01	1	459	467	9	KPFERDIST 0.000412	20

HLA-A*68:01	1	608	616	9	LYQGVNCTE 0.000412	20
HLA-B*07:02	1	620	628	9	AIHADQLTP 0.000412	18
HLA-B*57:01	1	626	635	10	LTPTWRVYST 0.000412	28
HLA-A*30:02	1	742	751	10	DSTECSNLLL 0.000412	35
HLA-B*44:02	1	815	824	10	IEDLLFNKVT 0.000412	12
HLA-B*35:01	1	926	934	9	SAIGKIQDS 0.000412	15
HLA-A*01:01	1	1131	1140	10	NNTVYDPLQP 0.000412	25
HLA-A*26:01	1	1191	1200	10	NESLIDLQEL 0.000412	17
HLA-A*26:01	1	1196	1204	9	DLQELGKYE 0.000412	17
HLA-B*08:01	1	1196	1205	10	DLQELGKYEQ 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	SKTQSLIV 0.000411	22
HLA-B*58:01	1	142	150	9	GVEYHKNNK 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*51:01	1	252	261	10	SSGWTAGAAA 0.000411	26
HLA-B*44:02	1	276	285	10	YNENGTITDA 0.000411	12
HLA-A*30:01	1	386	394	9	DLCFTNVYA 0.000411	38
HLA-B*57:01	1	398	406	9	VIRGDEVRO 0.000411	28
HLA-B*08:01	1	483	492	10	FNCYFPLQSY 0.000411	28
HLA-A*30:02	1	619	627	9	VAIHADQLT 0.000411	35
HLA-A*31:01	1	621	630	10	IHADQLTPTW 0.000411	22
HLA-A*30:01	1	729	737	9	TKTSVDCTM 0.000411	38
HLA-A*01:01	1	775	784	10	TQEVFAQVKQ 0.000411	25
HLA-B*08:01	1	818	827	10	LLFNKVTLAD 0.000411	28
HLA-A*33:01	1	864	873	10	DEMIAQY TSA 0.000411	20
HLA-A*23:01	1	899	908	10	MAYRFNGIGV 0.000411	12
HLA-A*68:02	1	1196	1204	9	DLQELGKYE 0.000411	22
HLA-B*15:01	1	1207	1215	9	IKWPWYIWL 0.000411	20
HLA-A*33:01	1	1221	1229	9	LIAIVMTI 0.000411	20
HLA-B*44:02	1	57	65	9	PFFSNVTFW 0.000411	12
HLA-A*02:06	1	71	80	10	SGTNGTKRFA 0.000411	28
HLA-B*58:01	1	111	120	10	DSKTQSLIV 0.000411	20
HLA-B*15:01	1	245	254	10	YLTPGDSSSG 0.000411	21
HLA-B*44:03	1	254	263	10	GWTAGAAAYY 0.000411	12
HLA-B*07:02	1	255	263	9	WTAGAAAYY 0.000411	18
HLA-B*51:01	1	267	275	9	LQPRTFLLK 0.000411	26
HLA-B*07:02	1	274	282	9	LKYNENGTI 0.000411	18
HLA-B*07:02	1	440	449	10	SKVGGNYNYL 0.000411	18
HLA-B*57:01	1	523	532	10	GPKKSTNLVK 0.000411	28
HLA-A*30:01	1	590	598	9	GGVSVITPG 0.000411	38
HLA-B*35:01	1	638	647	10	NVFQTRAGCL 0.000411	15
HLA-A*31:01	1	743	751	9	STEC SNLLL 0.000411	22
HLA-B*08:01	1	802	810	9	ILPDPSKPS 0.000411	28
HLA-A*31:01	1	847	855	9	ICAQKFNGL 0.000411	22
HLA-A*24:02	1	871	879	9	TSALLAGTI 0.000411	12
HLA-B*44:03	1	887	895	9	AGAALQIPF 0.000411	12
HLA-A*30:01	1	1030	1039	10	VLGQSKRVDF 0.000411	38
HLA-A*30:01	1	1039	1048	10	FCGKGYHLMS 0.000411	38
HLA-A*02:03	1	1091	1099	9	VFVSNQTHW 0.000411	23
HLA-A*02:03	1	1179	1187	9	EIDRLNEVA 0.000411	23
HLA-B*58:01	1	1215	1224	10	LGFIAGLIAI 0.000411	20
HLA-B*53:01	1	1223	1231	9	AIVMVTIML 0.000411	14
HLA-B*57:01	1	1254	1262	9	DEDDSEPVL 0.000411	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-B*07:02	1	350	358	9	WNRKRISNC 0.000409	18
HLA-A*33:01	1	360	368	9	ADYSVLVNS 0.000409	20
HLA-B*35:01	1	572	581	10	AVRDPQTLEI 0.000409	15
HLA-B*53:01	1	692	700	9	YTMSLGVEN 0.000409	14
HLA-B*51:01	1	726	734	9	VSMTKTSVD 0.000409	26
HLA-B*35:01	1	799	808	10	FSQILPDPSK 0.000409	15
HLA-A*02:01	1	904	913	10	NGIGVTQNVL 0.000409	20
HLA-A*23:01	1	1062	1070	9	VTYVPAQEK 0.000409	12
HLA-B*51:01	1	1117	1126	10	TFVSGNCDVV 0.000409	26

HLA-B*08:01	1	1256	1265	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	WIFGTTLDSK 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	271	279	9	TFLLKYNEN 0.000408	35
HLA-A*02:03	1	383	391	9	KLNDLCFTN 0.000408	23
HLA-A*03:01	1	459	467	9	KPFERDIST 0.000408	17
HLA-A*30:02	1	503	511	9	QPYRVVVL 0.000408	35
HLA-A*24:02	1	711	719	9	IPTNFTISV 0.000408	12
HLA-B*15:01	1	721	729	9	TEILPVSM 0.000408	21
HLA-A*33:01	1	755	764	10	SFCTQLNRAL 0.000408	20
HLA-A*23:01	1	812	821	10	RSFIEDLLFN 0.000408	12
HLA-B*08:01	1	844	852	9	RDLICAQKF 0.000408	28
HLA-B*07:02	1	1136	1144	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	289	298	10	ALDPLSETKC 0.000407	28
HLA-A*02:01	1	355	364	10	ISNCVADYSV 0.000407	20
HLA-B*58:01	1	463	471	9	RDISTEIQ 0.000407	20
HLA-B*53:01	1	574	582	9	RDPQTLLEIL 0.000407	14
HLA-A*30:01	1	723	731	9	ILPVSMTKT 0.000407	38
HLA-B*08:01	1	790	799	10	PIKDFGGFNF 0.000407	28
HLA-B*35:01	1	984	993	10	VEAEVQIDRL 0.000407	15
HLA-A*11:01	1	1004	1012	9	YVTQLLIRA 0.000407	13
HLA-A*68:01	1	1023	1031	9	ATKMSECVL 0.000407	20
HLA-B*07:02	1	1030	1039	10	VLGQSKRVDF 0.000407	18
HLA-A*01:01	1	1079	1087	9	CHDGKAHFP 0.000407	25
HLA-B*51:01	1	124	133	10	TNVVIKVCEF 0.000406	26
HLA-A*30:02	1	326	335	10	FPNITNLCPF 0.000406	35
HLA-B*44:03	1	466	475	10	STEIYQAGST 0.000406	12
HLA-A*32:01	1	495	504	10	QPTYGVGYQP 0.000406	16
HLA-A*30:01	1	565	573	9	DIADTTDAV 0.000406	38
HLA-B*40:01	1	671	679	9	YQTQTNspr 0.000406	11
HLA-A*68:01	1	705	713	9	SNNSIAIPT 0.000406	20
HLA-A*31:01	1	706	715	10	NNSIAIPTNF 0.000406	22
HLA-B*44:02	1	747	756	10	SNLLLQYGSF 0.000406	12
HLA-A*68:02	1	813	822	10	SFIEDLLFNK 0.000406	22
HLA-A*68:01	1	815	823	9	IEDLLFNKV 0.000406	20
HLA-B*44:03	1	816	824	9	EDLLFNKVT 0.000406	12
HLA-A*30:01	1	828	836	9	AGFIKQYGD 0.000406	38
HLA-A*01:01	1	1093	1102	10	VSNGTHWFVT 0.000406	25
HLA-A*01:01	1	1105	1114	10	NFYEQIITT 0.000406	25
HLA-A*02:06	1	1170	1178	9	NASVVNIQK 0.000406	28
HLA-B*15:01	1	1170	1178	9	NASVVNIQK 0.000406	21
HLA-B*15:01	1	1191	1200	10	NESLIDLQEL 0.000406	21
HLA-A*23:01	1	43	51	9	FRSSVLHST 0.000405	12
HLA-A*03:01	1	77	85	9	KRFANPVL 0.000405	17
HLA-A*02:01	1	101	110	10	IRGWIFGTTL 0.000405	20
HLA-A*31:01	1	119	127	9	IVNATNVV 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-A*68:02	1	335	343	9	FGEVFNATR 0.000405	22
HLA-B*15:01	1	655	663	9	NSYECDIPI 0.000405	21
HLA-B*08:01	1	705	713	9	SNNSIAIPT 0.000405	29
HLA-B*44:03	1	792	801	10	KDFGGFNFSQ 0.000405	12
HLA-A*30:01	1	874	883	10	LLAGTITSGW 0.000405	38
HLA-A*33:01	1	878	887	10	TITSGWTFGA 0.000405	20
HLA-A*02:06	1	889	898	10	AALQIPFAMQ 0.000405	28
HLA-B*57:01	1	1025	1033	9	KMSECVLGQ 0.000405	28
HLA-A*03:01	1	1028	1036	9	ECVLGQSKR 0.000405	17
HLA-B*44:02	1	1088	1097	10	REGVFSVNGT 0.000405	12



HLA-A*26:01	1	15	24	10	CVNLTTRTQL 0.000404	17
HLA-B*07:02	1	44	52	9	RSSVLHSTQ 0.000404	18
HLA-A*31:01	1	56	65	10	LPFFSNVTFW 0.000404	22
HLA-A*11:01	1	162	171	10	SANNCTFEYV 0.000404	13
HLA-B*57:01	1	184	193	10	GNFKNLREFV 0.000404	28
HLA-B*07:02	1	253	262	10	SGWTAGAAAY 0.000404	18
HLA-A*33:01	1	256	264	9	TAGAAAYYV 0.000404	20
HLA-B*57:01	1	448	456	9	YLYRLFRRKS 0.000404	28
HLA-A*01:01	1	465	474	10	ISTEIQAGS 0.000404	25
HLA-A*03:01	1	573	582	10	VRDPQTLEIL 0.000404	17
HLA-B*51:01	1	596	604	9	TPGTNTSNQ 0.000404	26
HLA-A*01:01	1	641	650	10	QTRAGCLIGA 0.000404	25
HLA-A*02:06	1	672	680	9	QTQTNSPRR 0.000404	28
HLA-B*08:01	1	708	716	9	SIAIPTNFT 0.000404	29
HLA-A*31:01	1	743	752	10	STECNLLQ 0.000404	22
HLA-A*30:01	1	835	844	10	GDCLGDIAAR 0.000404	38
HLA-B*15:01	1	856	865	10	TVLPPLLTDE 0.000404	21
HLA-A*26:01	1	901	910	10	YRFNGIGVTQ 0.000404	17
HLA-A*26:01	1	946	955	10	QDVVNQNAQA 0.000404	17
HLA-B*44:03	1	1052	1060	9	SAPHGVVFL 0.000404	12
HLA-B*08:01	1	1060	1068	9	LHVTVVPAQ 0.000404	29
HLA-A*30:02	1	1078	1087	10	ICHDGKAHFP 0.000404	35
HLA-B*08:01	1	1154	1163	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*30:01	1	273	282	10	LLKYNENGTI 0.000403	38
HLA-B*40:01	1	310	319	10	YQTSNFRVQP 0.000403	11
HLA-A*02:03	1	356	365	10	SNCVADYSVL 0.000403	23
HLA-B*40:01	1	466	475	10	STEIQAGST 0.000403	11
HLA-A*24:02	1	618	626	9	PVAIHADQL 0.000403	12
HLA-A*23:01	1	694	702	9	MSLGVENS 0.000403	12
HLA-A*30:02	1	741	750	10	GDSTECNLL 0.000403	35
HLA-A*30:02	1	804	812	9	PDPSKPSKR 0.000403	35
HLA-A*30:01	1	836	844	9	DCLGDIAAR 0.000403	38
HLA-A*32:01	1	894	903	10	PFAMQMAYRF 0.000403	16
HLA-B*53:01	1	910	919	10	QNVLYENQKL 0.000403	14
HLA-A*30:02	1	974	983	10	LNDILSRDLK 0.000403	35
HLA-A*33:01	1	979	988	10	SRLDKVEAEV 0.000403	20
HLA-A*02:06	1	1187	1195	9	AKNLNESLI 0.000403	28
HLA-B*57:01	1	1199	1207	9	ELGKYEYI 0.000403	28
HLA-A*30:02	1	211	219	9	NLVRGLPQG 0.000402	35
HLA-A*01:01	1	277	286	10	NENGTITDAV 0.000402	25
HLA-B*07:02	1	309	317	9	IYQTSNFRV 0.000402	18
HLA-A*23:01	1	339	347	9	FNATRFASV 0.000402	12
HLA-A*02:06	1	356	365	10	SNCVADYSVL 0.000402	28
HLA-A*32:01	1	366	375	10	YNSASFSTFK 0.000402	16
HLA-A*01:01	1	390	398	9	TNVYADSFV 0.000402	25
HLA-A*02:06	1	488	496	9	PLQSYGFQP 0.000402	28
HLA-A*01:01	1	585	594	10	TPCSFGGVS 0.000402	25
HLA-B*40:01	1	587	595	9	CSFSGGVS 0.000402	11
HLA-B*08:01	1	617	625	9	VPVAIHADQ 0.000402	29
HLA-B*44:03	1	622	631	10	HADQLTPTWR 0.000402	12
HLA-A*24:02	1	623	632	10	ADQLTPTWRV 0.000402	12
HLA-A*02:01	1	644	653	10	AGCLIGAEHV 0.000402	21
HLA-A*02:06	1	738	747	10	YICGDSTEC 0.000402	28
HLA-B*51:01	1	889	898	10	AALQIPFAMQ 0.000402	26
HLA-A*23:01	1	1001	1010	10	LQTYVTQQLI 0.000402	12
HLA-A*31:01	1	1064	1072	9	YVPAQEKNF 0.000402	22
HLA-B*40:01	1	1109	1118	10	PQIITDNTF 0.000402	11
HLA-B*58:01	1	1111	1120	10	IITDNTFVS 0.000402	21
HLA-A*02:03	1	1148	1157	10	ELDKYFKNHT 0.000402	23
HLA-A*68:02	1	1220	1228	9	GLIAIVMVT 0.000402	22
HLA-B*57:01	1	32	40	9	FTRGVYYPD 0.000401	29
HLA-B*51:01	1	236	244	9	TRFQTLHRS 0.000401	26
HLA-A*30:01	1	300	309	10	LKSFTVEKGI 0.000401	38
HLA-A*26:01	1	386	394	9	DLCFTNVYA 0.000401	17

HLA-B*51:01	1	414	423	10	NIADYNYKLP 0.000401	26
HLA-A*31:01	1	462	470	9	ERDISTEIIY 0.000401	22
HLA-A*01:01	1	500	508	9	VGYPYRVV 0.000401	25
HLA-A*30:01	1	589	597	9	FGGVSVITP 0.000401	38
HLA-A*30:01	1	713	722	10	TNFTISVTTE 0.000401	38
HLA-A*11:01	1	773	782	10	KNTQEVFAQV 0.000401	14
HLA-B*57:01	1	781	790	10	QVKQIYKTPP 0.000401	29
HLA-A*11:01	1	866	874	9	MIAQYTSAL 0.000401	14
HLA-B*35:01	1	868	876	9	AQYTSALLA 0.000401	15
HLA-A*30:01	1	886	894	9	GAGAALQIP 0.000401	38
HLA-B*07:02	1	1059	1067	9	FLHVTVVPA 0.000401	18
HLA-A*03:01	1	1079	1088	10	CHDGKAHFPR 0.000401	17
HLA-A*23:01	1	1103	1112	10	QRNFYEPQII 0.000401	12
HLA-A*33:01	1	1127	1135	9	IGIVNNTVY 0.000401	20
HLA-A*23:01	1	1152	1161	10	YFKNHTSPDV 0.000401	12
HLA-A*02:06	1	76	84	9	TKRFANPVL 0.0004	28
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	255	263	9	WTAGAAAYY 0.0004	23
HLA-B*57:01	1	339	347	9	FNATRFASV 0.0004	29
HLA-A*01:01	1	376	384	9	CYGVSPTKL 0.0004	25
HLA-A*03:01	1	491	500	10	SYGFQPTYGV 0.0004	17
HLA-A*30:01	1	502	511	10	YQPYRVVLS 0.0004	38
HLA-B*15:01	1	901	910	10	YRFNGIGVTQ 0.0004	21
HLA-B*44:02	1	980	988	9	RLDKVEAEV 0.0004	12
HLA-B*53:01	1	980	988	9	RLDKVEAEV 0.0004	14
HLA-A*30:02	1	1014	1023	10	EIRASANLAA 0.0004	35
HLA-A*33:01	1	1028	1037	10	ECVLGQSKRV 0.0004	20
HLA-A*03:01	1	1042	1051	10	KGYHLMSFPQ 0.0004	17
HLA-B*35:01	1	1044	1053	10	YHLMSFPQSA 0.0004	15
HLA-A*11:01	1	1083	1091	9	KAHFPREGV 0.0004	14
HLA-A*30:02	1	1179	1187	9	EIDRLNEVA 0.0004	35
HLA-A*30:02	1	1202	1210	9	KYEQYIKWP 0.0004	35
HLA-A*30:01	1	1227	1236	10	VTIMLCCMTS 0.0004	38
HLA-B*08:01	1	1233	1241	9	CMTSCCSCS 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*58:01	1	240	248	9	TLHRSYLTP 0.000399	21
HLA-B*57:01	1	509	517	9	VLSFELLHA 0.000399	29
HLA-A*02:03	1	522	531	10	CGPKKSTNLV 0.000399	23
HLA-A*02:01	1	530	538	9	LVKNKCVNF 0.000399	21
HLA-A*23:01	1	617	626	10	VPVAIHADQL 0.000399	12
HLA-A*68:01	1	643	652	10	RAGCLIGAETH 0.000399	21
HLA-B*51:01	1	747	756	10	SNLLLQYGSF 0.000399	26
HLA-A*68:02	1	810	819	10	SKRSFIEDLL 0.000399	23
HLA-B*53:01	1	847	855	9	ICAQKFNGL 0.000399	14
HLA-A*01:01	1	854	863	10	GLTVLPPLLT 0.000399	25
HLA-A*30:01	1	855	864	10	LTVLPPLLTD 0.000399	38
HLA-A*02:03	1	990	998	9	IDRLITGRL 0.000399	23
HLA-A*30:02	1	1049	1058	10	FPQSAPHGVV 0.000399	35
HLA-B*58:01	1	1055	1063	9	HGVVFLHVT 0.000399	21
HLA-B*08:01	1	1102	1110	9	TQRNFYEPQ 0.000399	29
HLA-B*15:01	1	1205	1213	9	QYIKWPWYI 0.000399	21
HLA-B*07:02	1	62	70	9	VTWFHAIHV 0.000398	18
HLA-A*68:02	1	324	333	10	VRFPNITNLC 0.000398	23
HLA-A*68:01	1	413	422	10	GNIADYNYKL 0.000398	21
HLA-A*01:01	1	442	451	10	VGGNYNYLYR 0.000398	25
HLA-A*31:01	1	556	565	10	FLPFQQFGRD 0.000398	22
HLA-B*57:01	1	571	580	10	DAVRDPQTLE 0.000398	29
HLA-B*58:01	1	659	667	9	CDIPIGAGI 0.000398	21
HLA-A*30:02	1	704	713	10	YSNNSIAIPT 0.000398	35
HLA-A*30:02	1	712	720	9	PTNFTISVT 0.000398	35
HLA-B*15:01	1	736	745	10	TMYICGDSTE 0.000398	21

HLA-A*68:02	1	755	764	10	SFCTQLNRAL 0.000398	23
HLA-B*15:01	1	843	851	9	ARDLICAQK 0.000398	21
HLA-A*30:02	1	865	874	10	EMIAQYTSAL 0.000398	35
HLA-A*30:01	1	990	999	10	IDRLITGRLQ 0.000398	38
HLA-A*32:01	1	1039	1047	9	FCGKGYHLM 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-B*15:01	1	215	224	10	GLPQGFSALE 0.000397	21
HLA-A*30:01	1	296	305	10	TKCTLKSFTV 0.000397	38
HLA-A*03:01	1	313	321	9	SNFRVQPT 0.000397	17
HLA-A*02:03	1	318	326	9	QPTESIVRF 0.000397	23
HLA-A*02:01	1	437	446	10	NLDSKVGNGY 0.000397	21
HLA-A*23:01	1	761	769	9	NRALTGI 0.000397	13
HLA-A*03:01	1	1020	1028	9	NLAATKMSE 0.000397	17
HLA-A*01:01	1	1066	1075	10	PAQEKNF 0.000397	25
HLA-B*53:01	1	1179	1187	9	EIDRLNEVA 0.000397	14
HLA-A*68:02	1	1205	1214	10	QYIKWPWYIW 0.000397	23
HLA-A*24:02	1	1206	1215	10	YIKWPWYIWL 0.000397	12
HLA-A*68:01	1	58	67	10	FFSNVTWFHA 0.000396	21
HLA-B*44:02	1	70	79	10	VSGTNGTKRF 0.000396	13
HLA-B*51:01	1	88	97	10	DGVYFAST 0.000396	26
HLA-A*01:01	1	107	115	9	GTTLD 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-A*02:06	1	307	316	10	KGIYQTSNFR 0.000396	28
HLA-A*30:01	1	521	530	10	VCGPKKSTNL 0.000396	38
HLA-A*02:06	1	757	765	9	CTQLNRALT 0.000396	28
HLA-A*02:03	1	811	819	9	KRSFIEDLL 0.000396	23
HLA-A*33:01	1	867	875	9	IAQYTSALL 0.000396	20
HLA-A*68:01	1	867	875	9	IAQYTSALL 0.000396	21
HLA-A*68:01	1	911	920	10	NVLYENQKLI 0.000396	21
HLA-A*68:02	1	988	996	9	VQIDRLITG 0.000396	23
HLA-B*44:02	1	1048	1057	10	SFPQSAPHGV 0.000396	13
HLA-A*11:01	1	1110	1118	9	QIITTDNTF 0.000396	14
HLA-B*51:01	1	301	310	10	KSFTVEKGIY 0.000395	26
HLA-B*58:01	1	324	333	10	VRFPNITNLC 0.000395	21
HLA-B*15:01	1	523	532	10	GPKKSTNLVK 0.000395	21
HLA-B*44:03	1	532	540	9	KNKCVN 0.000395	12
HLA-A*02:06	1	576	584	9	PQ 0.000395	28
HLA-B*44:03	1	578	587	10	TLEILDITPC 0.000395	12
HLA-B*51:01	1	594	602	9	VITPGTNTS 0.000395	26
HLA-B*53:01	1	723	732	10	ILPVSMTKTS 0.000395	14
HLA-A*33:01	1	791	799	9	IKDFGGFNF 0.000395	20
HLA-B*57:01	1	869	878	10	QYTSALLAGT 0.000395	29
HLA-A*30:01	1	870	879	10	YTSALLAGTI 0.000395	38
HLA-A*26:01	1	922	931	10	NQFNSAIGKI 0.000395	17
HLA-A*02:03	1	960	969	10	VKQLSSNFGA 0.000395	23
HLA-A*02:06	1	971	979	9	SSVLNDILS 0.000395	28
HLA-B*44:02	1	1185	1194	10	EVAKNLNESL 0.000395	13
HLA-A*31:01	1	1189	1197	9	NLNESLIDL 0.000395	22
HLA-A*24:02	1	1199	1207	9	ELGKYEYI 0.000395	12
HLA-A*03:01	1	23	31	9	QLPPAYTNS 0.000394	17
HLA-A*02:03	1	30	38	9	NSFTRGVY 0.000394	23
HLA-A*68:01	1	77	86	10	KRFANPVL 0.000394	21
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-B*58:01	1	234	242	9	NITRFQTLH 0.000394	21
HLA-A*02:03	1	262	270	9	YYVGYLQPR 0.000394	23
HLA-B*35:01	1	287	295	9	DCALDPLSE 0.000394	15
HLA-B*08:01	1	338	346	9	VFNATRFAS 0.000394	29
HLA-A*68:01	1	372	380	9	STFKCYGVS 0.000394	21
HLA-A*03:01	1	391	399	9	NVYADSFVI 0.000394	17

HLA-A*30:02	1	540	548	9	FNGLTGTGV 0.000394	36
HLA-A*24:02	1	549	557	9	LTESNKKFL 0.000394	12
HLA-A*02:06	1	602	611	10	SNQVAVLYQG 0.000394	28
HLA-B*40:01	1	683	692	10	SVASQSIIAY 0.000394	12
HLA-A*30:02	1	949	958	10	VNQNAQALNT 0.000394	36
HLA-B*44:03	1	975	983	9	NDILSRLDK 0.000394	12
HLA-A*68:02	1	1204	1212	9	EQYIKWPWY 0.000394	23
HLA-B*51:01	1	1226	1234	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*58:01	1	232	241	10	GINITRFQTL 0.000393	21
HLA-A*01:01	1	250	258	9	DSSSGWTAG 0.000393	25
HLA-B*15:01	1	252	261	10	SSGWTAGAAA 0.000393	21
HLA-B*53:01	1	287	296	10	DCALDPLSET 0.000393	14
HLA-B*08:01	1	566	574	9	IADTTDAVR 0.000393	29
HLA-A*68:01	1	573	581	9	VRDPQTLEI 0.000393	21
HLA-B*58:01	1	599	607	9	TNTSNQVAV 0.000393	21
HLA-B*15:01	1	730	739	10	KTSVDCTMYI 0.000393	21
HLA-B*51:01	1	762	770	9	RALTGIAVE 0.000393	26
HLA-A*23:01	1	796	804	9	GFNFSQILP 0.000393	13
HLA-A*31:01	1	919	927	9	LIANQFNSA 0.000393	22
HLA-B*58:01	1	944	953	10	KLQDVVNQNA 0.000393	21
HLA-B*35:01	1	964	972	9	SSNFGAISS 0.000393	15
HLA-A*01:01	1	975	983	9	NDILSRLDK 0.000393	25
HLA-A*68:01	1	987	995	9	EVQIDRLIT 0.000393	21
HLA-A*24:02	1	1138	1146	9	LQPELDSFK 0.000393	12
HLA-A*68:02	1	208	217	10	TPINLVRGLP 0.000392	23
HLA-A*31:01	1	232	240	9	GINITRFQT 0.000392	22
HLA-B*07:02	1	301	309	9	KSFTVEKGI 0.000392	18
HLA-B*58:01	1	355	363	9	ISNCVADYS 0.000392	21
HLA-A*01:01	1	399	408	10	IRGDEVQRQA 0.000392	25
HLA-B*15:01	1	526	534	9	KSTNLVKNK 0.000392	21
HLA-A*30:02	1	596	605	10	TPGTNTSNQV 0.000392	36
HLA-B*40:01	1	598	606	9	GTNTSNQVA 0.000392	12
HLA-A*02:06	1	639	648	10	VFQTRAGCLI 0.000392	28
HLA-B*58:01	1	655	664	10	NSYECDIPIG 0.000392	21
HLA-B*15:01	1	710	718	9	AIPTNFTIS 0.000392	21
HLA-B*57:01	1	824	832	9	TLADAGFIK 0.000392	29
HLA-A*03:01	1	857	866	10	VLPLLLTDEM 0.000392	17
HLA-B*08:01	1	914	923	10	YENQKLIANQ 0.000392	29
HLA-B*44:03	1	958	967	10	TLVKQLSSNF 0.000392	12
HLA-B*58:01	1	966	974	9	NFGAISSVL 0.000392	21
HLA-A*03:01	1	999	1008	10	QSLQTYVTQQ 0.000392	17
HLA-B*40:01	1	1057	1065	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	250	259	10	DSSSGWTAGA 0.000391	36
HLA-A*01:01	1	379	388	10	VSPTKLNLC 0.000391	25
HLA-B*57:01	1	421	429	9	KLPDDFTGC 0.000391	29
HLA-B*40:01	1	441	449	9	KVGGNYNYL 0.000391	12
HLA-A*30:01	1	511	520	10	SFELLHAPAT 0.000391	38
HLA-A*03:01	1	580	589	10	EILDITPCSF 0.000391	17
HLA-B*08:01	1	580	588	9	EILDITPCS 0.000391	29
HLA-A*11:01	1	690	698	9	IAYTMSLGV 0.000391	14
HLA-A*02:03	1	750	759	10	LLQYGSFCTQ 0.000391	23
HLA-A*30:01	1	771	780	10	QDKNTQEVFA 0.000391	38
HLA-B*35:01	1	784	792	9	QIYKTPPIK 0.000391	15
HLA-A*33:01	1	808	816	9	KPSKRSEFIE 0.000391	21
HLA-A*23:01	1	823	831	9	VTLADAGFI 0.000391	13
HLA-A*33:01	1	843	852	10	ARDLICAQKF 0.000391	21
HLA-B*35:01	1	864	872	9	DEMIAQYTS 0.000391	15
HLA-A*30:01	1	986	994	9	AEVQIDRLI 0.000391	38
HLA-B*44:03	1	988	997	10	VQIDRLITGR 0.000391	12
HLA-B*58:01	1	988	996	9	VQIDRLITG 0.000391	21
HLA-A*03:01	1	989	998	10	QIDRLITGRL 0.000391	17

HLA-B*58:01	1	1057	1066	10	VVFLHVTVYP 0.000391	21
HLA-A*68:02	1	1093	1102	10	VSNGTHWFVT 0.000391	23
HLA-B*08:01	1	13	21	9	SQCVNLTR 0.00039	29
HLA-A*01:01	1	218	227	10	QGFSALEPLV 0.00039	26
HLA-B*53:01	1	498	506	9	YGVGYQPYR 0.00039	14
HLA-A*31:01	1	573	582	10	VRDPQTLEIL 0.00039	22
HLA-A*02:01	1	583	592	10	DITPCSFGGV 0.00039	21
HLA-A*68:02	1	671	680	10	YQTQTNsprr 0.00039	23
HLA-A*31:01	1	722	731	10	EILPVSMTKT 0.00039	22
HLA-A*68:02	1	754	762	9	GSFCTQLNR 0.00039	23
HLA-B*44:02	1	807	815	9	SKPSKRSFI 0.00039	13
HLA-A*32:01	1	855	863	9	LTVLPPLL 0.00039	16
HLA-A*26:01	1	903	912	10	FNGIGVTQNV 0.00039	17
HLA-A*32:01	1	996	1005	10	GRLQSLQTYV 0.00039	16
HLA-B*57:01	1	1008	1016	9	QLIRAAEIR 0.00039	29
HLA-A*23:01	1	1044	1052	9	YHLMSFPQS 0.00039	13
HLA-B*57:01	1	1130	1138	9	VNNTVYDPL 0.00039	29
HLA-B*08:01	1	1221	1230	10	LIAIVMVTIM 0.00039	29
HLA-B*08:01	1	1253	1261	9	FDEDDSEPV 0.00039	29
HLA-A*02:03	1	10	19	10	LVSSQCVNLT 0.000389	23
HLA-A*03:01	1	78	87	10	RFANPVLPFN 0.000389	17
HLA-A*30:02	1	100	109	10	IIRGWIFGTT 0.000389	36
HLA-B*53:01	1	167	176	10	TFEYVSQPFL 0.000389	14
HLA-B*44:02	1	205	214	10	SKHTPINLVR 0.000389	13
HLA-B*08:01	1	261	269	9	AYYVGYLQP 0.000389	29
HLA-A*11:01	1	301	309	9	KSFTVEKGI 0.000389	14
HLA-A*30:02	1	481	490	10	KGFNCYFPLQ 0.000389	36
HLA-B*53:01	1	486	495	10	YFPLQSYGFQ 0.000389	14
HLA-A*30:02	1	552	561	10	SNKKFLPFQQ 0.000389	36
HLA-B*57:01	1	638	647	10	NVFQTRAGCL 0.000389	29
HLA-A*30:01	1	640	648	9	FQTRAGCLI 0.000389	38
HLA-A*30:02	1	644	653	10	AGCLIGAHEV 0.000389	36
HLA-A*02:03	1	755	764	10	SFCTQLNRAL 0.000389	23
HLA-A*31:01	1	779	788	10	FAQVKQIYKT 0.000389	22
HLA-A*26:01	1	814	823	10	FIEDLLFNKV 0.000389	17
HLA-A*33:01	1	868	876	9	AQYTSALLA 0.000389	21
HLA-A*30:01	1	896	905	10	AMQMAYRFNG 0.000389	38
HLA-B*57:01	1	938	947	10	TASALGKLQD 0.000389	29
HLA-A*68:01	1	1005	1014	10	VTQQLIRAAE 0.000389	21
HLA-A*23:01	1	1221	1229	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	262	271	10	YYVGYLQPR 0.000388	28
HLA-A*23:01	1	343	351	9	RFASVYAWN 0.000388	13
HLA-A*11:01	1	363	372	10	SVLYNSASFS 0.000388	14
HLA-A*02:06	1	475	483	9	TPCNGVKGF 0.000388	28
HLA-B*51:01	1	517	526	10	APATVCGPKK 0.000388	27
HLA-B*35:01	1	619	627	9	VAIHADQLT 0.000388	15
HLA-A*01:01	1	632	641	10	VYSTGSNVFO 0.000388	26
HLA-B*58:01	1	667	676	10	ICASYQTQTN 0.000388	21
HLA-A*02:03	1	674	682	9	QTNSPRRAR 0.000388	23
HLA-A*33:01	1	705	713	9	SNNSIAIPT 0.000388	21
HLA-A*30:02	1	711	720	10	IPTNFTISVT 0.000388	36
HLA-B*51:01	1	822	830	9	KVTLADAGF 0.000388	27
HLA-B*07:02	1	841	849	9	IAARDLICA 0.000388	18
HLA-A*30:01	1	843	852	10	ARDLICAQKF 0.000388	38
HLA-A*68:02	1	873	881	9	ALLAGTITS 0.000388	23
HLA-B*57:01	1	945	953	9	LQDVVNQNA 0.000388	29
HLA-B*51:01	1	971	979	9	SSVLNDILS 0.000388	27
HLA-B*58:01	1	977	986	10	ILSRLDKVEA 0.000388	21
HLA-B*44:02	1	988	996	9	VQIDRLITG 0.000388	13
HLA-A*11:01	1	1028	1036	9	ECVLGQSKR 0.000388	14
HLA-A*30:01	1	1134	1143	10	VYDPLQPELD 0.000388	38

HLA-A*30:01	1	1174	1183	10	VNIQKEIDRL 0.000388	38
HLA-A*11:01	1	174	182	9	PFLMDLEGK 0.000387	14
HLA-A*01:01	1	240	248	9	TLHRSYLTP 0.000387	26
HLA-A*03:01	1	261	269	9	AYYVGYLQP 0.000387	17
HLA-A*31:01	1	315	323	9	FRVQPTESI 0.000387	22
HLA-B*57:01	1	325	333	9	RFPNITNLC 0.000387	29
HLA-A*24:02	1	343	351	9	RFASVYAWN 0.000387	12
HLA-B*58:01	1	343	352	10	RFASVYAWN 0.000387	21
HLA-B*57:01	1	395	404	10	DSFVIRGDEV 0.000387	29
HLA-A*02:06	1	581	590	10	ILDITPCSF 0.000387	28
HLA-A*68:02	1	695	704	10	SLGVENSVA 0.000387	23
HLA-B*15:01	1	761	769	9	NRALTGIAV 0.000387	21
HLA-A*30:01	1	791	800	10	IKDFGGFNFS 0.000387	38
HLA-A*26:01	1	807	815	9	SKPSKRSFI 0.000387	17
HLA-B*08:01	1	811	820	10	KRSFIEDLLF 0.000387	29
HLA-A*31:01	1	857	866	10	VLPLLTD 0.000387	22
HLA-B*35:01	1	912	920	9	VLYENQKLI 0.000387	15
HLA-A*33:01	1	1018	1026	9	SANLAATKM 0.000387	21
HLA-B*51:01	1	1048	1056	9	SFPQSAPHG 0.000387	27
HLA-A*30:02	1	1119	1127	9	VSGNCDVVI 0.000387	36
HLA-B*15:01	1	1209	1217	9	WPWYIWLGF 0.000387	21
HLA-B*08:01	1	98	107	10	SNIRGWIFG 0.000386	29
HLA-B*44:02	1	247	256	10	TPGDSSSGWT 0.000386	13
HLA-A*26:01	1	307	316	10	KGIYQTSNFR 0.000386	17
HLA-B*44:02	1	307	315	9	KGIYQTSNF 0.000386	13
HLA-A*02:03	1	332	341	10	LCPFGEVFNA 0.000386	23
HLA-A*31:01	1	364	372	9	VLYNSASFS 0.000386	22
HLA-A*01:01	1	396	404	9	SFVIRGDEV 0.000386	26
HLA-A*31:01	1	510	518	9	LSFELLHAP 0.000386	22
HLA-B*35:01	1	593	601	9	SVITPGTNT 0.000386	15
HLA-B*35:01	1	614	622	9	CTEVPVAIH 0.000386	15
HLA-B*57:01	1	767	775	9	IAVEQDKNT 0.000386	29
HLA-A*02:01	1	826	834	9	ADAGFIKQY 0.000386	21
HLA-A*30:01	1	960	968	9	VKQLSSNFG 0.000386	38
HLA-A*01:01	1	987	995	9	EVQIDRLIT 0.000386	26
HLA-A*02:01	1	1019	1028	10	ANLAATKMSE 0.000386	21
HLA-B*40:01	1	1032	1040	9	GQSKRVDFC 0.000386	12
HLA-A*03:01	1	1110	1118	9	QIITTDNTF 0.000386	17
HLA-A*02:01	1	1163	1171	9	LGDISGINA 0.000386	21
HLA-B*51:01	1	1170	1179	10	NASVVNIQKE 0.000386	27
HLA-A*02:03	1	1184	1193	10	NEVAKNLNES 0.000386	23
HLA-B*40:01	1	1185	1194	10	EVAKNLNESL 0.000386	12
HLA-A*01:01	1	1208	1217	10	KWPWYIWLGF 0.000386	26
HLA-B*58:01	1	1217	1225	9	FIAGLIAIV 0.000386	21
HLA-A*11:01	1	1243	1252	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	314	323	10	NFRVQPTESI 0.000385	29
HLA-A*03:01	1	325	333	9	RFPNITNLC 0.000385	17
HLA-A*33:01	1	388	397	10	CFTNVYADSF 0.000385	21
HLA-B*57:01	1	534	542	9	KCVNFNFN 0.000385	29
HLA-A*01:01	1	694	703	10	MSLGVENSVA 0.000385	26
HLA-A*02:03	1	781	790	10	QVKQIYKTPP 0.000385	23
HLA-A*31:01	1	796	804	9	GFNFSQILP 0.000385	22
HLA-A*31:01	1	856	864	9	TVLPLLTD 0.000385	22
HLA-A*03:01	1	867	876	10	IAQYTSALLA 0.000385	17
HLA-A*26:01	1	1103	1111	9	QRNFYEPQI 0.000385	17
HLA-B*57:01	1	1259	1268	10	EPVLKGVK 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-B*40:01	1	75	84	10	GTKRFANPVL 0.000384	12
HLA-A*02:01	1	83	91	9	VLPFNDGVY 0.000384	21

HLA-A*23:01	1	120	128	9	VNNATNVVI 0.000384	13
HLA-B*58:01	1	145	153	9	YHKNNKSWM 0.000384	21
HLA-B*40:01	1	236	245	10	TRFQTLHRSY 0.000384	12
HLA-A*02:06	1	254	263	10	GWTAGAAAYY 0.000384	28
HLA-A*01:01	1	291	300	10	DPLSETKCTL 0.000384	26
HLA-A*33:01	1	316	324	9	RVQPTESIV 0.000384	21
HLA-A*01:01	1	329	337	9	ITNLCPFGE 0.000384	26
HLA-B*40:01	1	339	347	9	FNATRFASV 0.000384	12
HLA-A*31:01	1	478	487	10	NGVKGFNCYF 0.000384	22
HLA-B*58:01	1	569	577	9	TTDAVRDPQ 0.000384	21
HLA-A*01:01	1	617	626	10	VPVAIHADQL 0.000384	26
HLA-A*31:01	1	638	646	9	NVFQTRAGC 0.000384	22
HLA-A*68:02	1	677	685	9	SPRRARSA 0.000384	23
HLA-B*08:01	1	711	720	10	IPTNFTISVT 0.000384	29
HLA-B*58:01	1	720	729	10	TTEILPVSM 0.000384	21
HLA-B*40:01	1	891	900	10	LQIPFAMQMA 0.000384	12
HLA-B*57:01	1	907	916	10	GVTQNVLYEN 0.000384	29
HLA-B*51:01	1	922	930	9	NQFNSAIGK 0.000384	27
HLA-A*68:01	1	930	938	9	KIQDSLST 0.000384	21
HLA-A*02:06	1	934	943	10	SLSTASALG 0.000384	28
HLA-B*57:01	1	944	953	10	KLQDVVNQNA 0.000384	29
HLA-A*02:01	1	1121	1130	10	GNCDDVIGIV 0.000384	21
HLA-A*33:01	1	1189	1197	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	245	254	10	YLTPGDSSSG 0.000383	21
HLA-B*35:01	1	262	270	9	YYVGYLQPR 0.000383	15
HLA-B*53:01	1	314	323	10	NFRVQPTESI 0.000383	14
HLA-B*07:02	1	491	500	10	SYGFQPTYGV 0.000383	18
HLA-B*08:01	1	506	515	10	RVVLSFELL 0.000383	29
HLA-A*30:01	1	585	594	10	TPCSFGGVSV 0.000383	39
HLA-A*68:01	1	599	607	9	TNTSNQVAV 0.000383	21
HLA-A*30:02	1	661	669	9	IPIGAGICA 0.000383	36
HLA-A*32:01	1	685	693	9	ASQSIIAYT 0.000383	16
HLA-B*07:02	1	700	709	10	NSVAYSNNSI 0.000383	18
HLA-B*53:01	1	718	726	9	SVTTEILPV 0.000383	14
HLA-B*44:02	1	722	730	9	EILPVSMTK 0.000383	13
HLA-A*30:02	1	787	796	10	KTPPIKDFGG 0.000383	36
HLA-A*31:01	1	911	919	9	NVLYENQKL 0.000383	22
HLA-A*30:02	1	927	936	10	AIGKIQDLSL 0.000383	36
HLA-A*33:01	1	935	944	10	LSSTASALGK 0.000383	21
HLA-B*51:01	1	1015	1023	9	IRASANLAA 0.000383	27
HLA-A*31:01	1	1017	1026	10	ASANLAATKM 0.000383	22
HLA-B*08:01	1	1090	1099	10	GVFVSNQTHW 0.000383	29
HLA-A*26:01	1	112	120	9	SKTQSLIIV 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	298	306	9	CTLKSFTVE 0.000382	17
HLA-A*02:06	1	300	309	10	LKSFTVEKGI 0.000382	28
HLA-A*02:03	1	437	446	10	NLDSKVGGNY 0.000382	23
HLA-B*07:02	1	486	495	10	YFPLQSYGFQ 0.000382	18
HLA-B*58:01	1	594	602	9	VITPGTNTS 0.000382	21
HLA-A*33:01	1	703	711	9	AYSNNIAI 0.000382	21
HLA-A*26:01	1	778	787	10	VFAQVKQIYK 0.000382	17
HLA-A*68:01	1	792	800	9	KDFGGFNFS 0.000382	21
HLA-A*68:01	1	978	986	9	LSRLDKVEA 0.000382	21
HLA-A*30:02	1	1005	1014	10	VTQQLIRAAE 0.000382	36
HLA-B*07:02	1	1097	1106	10	THWFVTQRNF 0.000382	18
HLA-A*02:03	1	1136	1145	10	DPLQPELDSF 0.000382	23
HLA-A*01:01	1	1178	1187	10	KEIDRLNEVA 0.000382	26
HLA-B*44:02	1	1259	1268	10	EPVLKGVKLN 0.000382	13
HLA-A*11:01	1	1260	1268	9	PVLKGVKLN 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	250	259	10	DSSSGWTAGA 0.000381	29
HLA-A*32:01	1	256	264	9	TAGAAAYYV 0.000381	16
HLA-A*31:01	1	304	312	9	TVEKGIYQT 0.000381	23
HLA-A*31:01	1	324	333	10	VRFPNITNLC 0.000381	23
HLA-A*03:01	1	372	381	10	STFKCYGVSP 0.000381	17
HLA-B*58:01	1	389	398	10	FTNVYADSFV 0.000381	21
HLA-A*02:03	1	395	404	10	DSFVIRGDEV 0.000381	23
HLA-A*68:02	1	501	510	10	GYQPYRVVVL 0.000381	23
HLA-B*35:01	1	505	514	10	YRVVLSFEL 0.000381	15
HLA-B*58:01	1	505	514	10	YRVVLSFEL 0.000381	21
HLA-A*02:06	1	541	549	9	NGLTGTGVL 0.000381	29
HLA-A*01:01	1	767	776	10	IAVEQDKNTQ 0.000381	26
HLA-A*01:01	1	780	788	9	AQVKQIYKT 0.000381	26
HLA-B*35:01	1	849	858	10	AQKFNGLTVL 0.000381	15
HLA-A*30:02	1	1226	1234	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	336	345	10	GEVFNATRFA 0.00038	21
HLA-B*53:01	1	390	399	10	TNVYADSFVI 0.00038	14
HLA-B*58:01	1	392	400	9	VYADSFVIR 0.00038	21
HLA-A*68:02	1	422	431	10	LPDDFTGCVI 0.00038	23
HLA-A*30:01	1	645	653	9	GCLIGAEHV 0.00038	39
HLA-B*57:01	1	751	759	9	LQYGSFCTQ 0.00038	29
HLA-A*24:02	1	769	778	10	VEQDKNTQEV 0.00038	12
HLA-A*01:01	1	807	815	9	SKPSKRSFI 0.00038	26
HLA-A*30:01	1	942	951	10	LGKLQDVVNQ 0.00038	39
HLA-A*23:01	1	976	984	9	DILSRLDKV 0.00038	13
HLA-B*15:01	1	989	998	10	QIDRLITGRL 0.00038	21
HLA-A*26:01	1	1156	1164	9	HTSPDVLG 0.00038	17
HLA-A*68:02	1	1178	1187	10	KEIDRLNEVA 0.00038	23
HLA-A*02:06	1	1214	1223	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	250	258	9	DSSSGWTAG 0.000379	15
HLA-A*23:01	1	334	343	10	PFGEVFNATR 0.000379	13
HLA-A*68:01	1	406	414	9	QIAPGQTGN 0.000379	21
HLA-B*51:01	1	485	493	9	CYFPLQSYG 0.000379	27
HLA-B*53:01	1	494	503	10	FQPTYGVGYQ 0.000379	14
HLA-A*02:01	1	495	504	10	QPTYGVGYQP 0.000379	21
HLA-A*24:02	1	537	545	9	NFNFNGLTG 0.000379	12
HLA-B*44:03	1	631	639	9	RVYSTGSNV 0.000379	12
HLA-B*57:01	1	667	675	9	ICASYQTQT 0.000379	29
HLA-B*57:01	1	667	676	10	ICASYQTQTN 0.000379	29
HLA-A*01:01	1	723	731	9	ILPVSMTKT 0.000379	26
HLA-A*24:02	1	803	811	9	LPDPSKPSK 0.000379	12
HLA-B*51:01	1	887	896	10	AGAALQIPFA 0.000379	27
HLA-A*30:01	1	1026	1034	9	MSECVLGQS 0.000379	39
HLA-B*57:01	1	1038	1046	9	DFCGKGYHL 0.000379	29
HLA-A*02:03	1	1064	1073	10	YVPAQEKNT 0.000379	23
HLA-B*07:02	1	1093	1101	9	VSNGTHWFV 0.000379	18
HLA-A*30:01	1	1121	1130	10	GNCDVVIGIV 0.000379	39
HLA-B*08:01	1	1202	1211	10	KYEYIKWPW 0.000379	29
HLA-B*57:01	1	1256	1265	10	DDSEPVLKGV 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	IVNNATNVV 0.000378	13
HLA-A*26:01	1	121	130	10	NNATNVVIVK 0.000378	17
HLA-B*07:02	1	245	253	9	YLTPGDSSS 0.000378	18
HLA-B*40:01	1	258	266	9	GAAAYYVGY 0.000378	12
HLA-B*53:01	1	264	273	10	VGYLQPRTF 0.000378	14
HLA-B*15:01	1	339	347	9	FNATRFASV 0.000378	21



HLA-A*23:01	1	346	354	9	SVYAWNRKR 0.000378	13
HLA-B*15:01	1	527	535	9	STNLVKKNC 0.000378	21
HLA-B*57:01	1	546	555	10	TGVLTESNKK 0.000378	29
HLA-A*02:01	1	579	588	10	LEILDITPCS 0.000378	21
HLA-A*03:01	1	587	595	9	CSFGGVSVI 0.000378	17
HLA-A*68:02	1	604	613	10	QVAVLYQGVN 0.000378	23
HLA-A*30:01	1	617	626	10	VPVAIHADQL 0.000378	39
HLA-A*02:03	1	633	642	10	YSTGSNVFQT 0.000378	23
HLA-A*68:02	1	689	697	9	IIAYTMSLG 0.000378	23
HLA-B*07:02	1	721	730	10	TEILPVSMTK 0.000378	18
HLA-A*32:01	1	939	948	10	ASALGKLQDV 0.000378	16
HLA-B*15:01	1	1013	1022	10	AEIRASANLA 0.000378	21
HLA-B*15:01	1	1021	1029	9	LAATKMSEC 0.000378	21
HLA-A*30:02	1	1100	1108	9	FVTQRNFYE 0.000378	36
HLA-A*02:01	1	1112	1120	9	ITTDNTFVS 0.000378	21
HLA-A*01:01	1	1161	1169	9	VDLGDISGI 0.000378	26
HLA-A*30:01	1	1227	1235	9	VTIMLCCMT 0.000378	39
HLA-B*40:01	1	125	133	9	NVVIKVECF 0.000377	12
HLA-A*01:01	1	132	141	10	EFQFCNDPFL 0.000377	26
HLA-A*68:01	1	307	315	9	KGIYQTSNF 0.000377	21
HLA-B*08:01	1	335	343	9	FGEVFNATR 0.000377	29
HLA-B*57:01	1	385	393	9	NDLCFTNVY 0.000377	29
HLA-A*02:03	1	390	398	9	TNVYADSFV 0.000377	23
HLA-A*68:01	1	463	471	9	RDISTEIQ 0.000377	21
HLA-B*07:02	1	468	477	10	EIYQAGSTPC 0.000377	19
HLA-A*33:01	1	483	491	9	FNCYFPLQS 0.000377	21
HLA-A*24:02	1	484	492	9	NCYFPLQSY 0.000377	12
HLA-A*01:01	1	543	552	10	LTGTGVLTES 0.000377	26
HLA-A*30:01	1	590	599	10	GGVSVITPGT 0.000377	39
HLA-A*26:01	1	616	624	9	EVPVAIHAD 0.000377	17
HLA-A*68:01	1	636	644	9	GSNVFQTRA 0.000377	21
HLA-B*57:01	1	652	661	10	HVNNSYECDI 0.000377	29
HLA-B*44:03	1	676	684	9	NSPRRARSV 0.000377	13
HLA-A*26:01	1	702	710	9	VAYSNNSIA 0.000377	17
HLA-B*08:01	1	762	770	9	RALTGIAVE 0.000377	29
HLA-B*44:02	1	781	789	9	QVKQIYKTP 0.000377	13
HLA-B*57:01	1	808	817	10	KPSKRSFIED 0.000377	29
HLA-A*30:01	1	809	817	9	PSKRSFIED 0.000377	39
HLA-B*57:01	1	898	906	9	QMAYRFNGI 0.000377	29
HLA-A*02:01	1	1017	1026	10	ASANLAATKM 0.000377	21
HLA-A*23:01	1	1035	1044	10	KRVDFCGKGY 0.000377	13
HLA-B*15:01	1	1059	1068	10	FLHVTVVPAQ 0.000377	21
HLA-A*30:02	1	1094	1102	9	SNGTHWFVT 0.000377	36
HLA-B*07:02	1	1164	1173	10	GDISGINASV 0.000377	19
HLA-A*26:01	1	1171	1180	10	ASVWNIQKEI 0.000377	17
HLA-A*32:01	1	1186	1195	10	VAKNLNESLI 0.000377	16
HLA-B*58:01	1	1253	1262	10	FDEDDSEPV 0.000377	21
HLA-A*03:01	1	135	143	9	FCNDPFLGV 0.000376	17
HLA-A*02:06	1	313	321	9	SNFRVQPT 0.000376	29
HLA-B*35:01	1	379	388	10	VSPTKLNDLC 0.000376	15
HLA-A*68:01	1	519	528	10	ATVCGPKKST 0.000376	21
HLA-B*07:02	1	547	556	10	GVLTESNKKF 0.000376	19
HLA-A*33:01	1	599	607	9	TNTSNQVAV 0.000376	21
HLA-A*30:02	1	665	674	10	AGICASYQTQ 0.000376	36
HLA-A*02:01	1	669	677	9	ASYQTQTN 0.000376	21
HLA-B*53:01	1	752	760	9	QYGSFCTQL 0.000376	14
HLA-B*51:01	1	800	809	10	SQILPDPSKP 0.000376	27
HLA-A*31:01	1	844	852	9	RDLICAQKF 0.000376	23
HLA-B*53:01	1	856	864	9	TVLPPLLD 0.000376	14
HLA-B*57:01	1	881	889	9	SGWTFGAGA 0.000376	29
HLA-B*57:01	1	905	913	9	GIGVTQNVL 0.000376	29
HLA-B*08:01	1	1055	1064	10	HGVVFLHVTV 0.000376	29
HLA-B*44:02	1	1062	1070	9	VTYVPAQEK 0.000376	13
HLA-A*11:01	1	1071	1080	10	NFTTAPAICH 0.000376	14
HLA-B*44:02	1	1083	1091	9	KAHFPREGV 0.000376	13
HLA-B*57:01	1	1113	1122	10	TTDNTFVSGN 0.000376	29

HLA-B*58:01	1	15	24	10	CVNLTTRTQL 0.000375	21
HLA-A*33:01	1	20	29	10	TRTQLPPAYT 0.000375	21
HLA-B*08:01	1	31	39	9	SFTRGVVYYP 0.000375	29
HLA-A*01:01	1	153	161	9	MESEFRVYS 0.000375	26
HLA-A*31:01	1	322	330	9	SIVRFPNIT 0.000375	23
HLA-A*02:06	1	461	470	10	FERDISTEIY 0.000375	29
HLA-A*33:01	1	474	483	10	STPCNGVKGF 0.000375	21
HLA-A*02:06	1	479	488	10	GVKGFNCYFP 0.000375	29
HLA-B*15:01	1	622	631	10	HADQLTPTWR 0.000375	21
HLA-B*51:01	1	669	677	9	ASYQTQTNS 0.000375	27
HLA-B*08:01	1	726	734	9	VSMTKTSVD 0.000375	29
HLA-A*02:03	1	779	787	9	FAQVKQIYK 0.000375	23
HLA-A*02:01	1	893	901	9	IPFAMQMAY 0.000375	21
HLA-B*57:01	1	897	906	10	MQMAYRFNGI 0.000375	29
HLA-A*68:01	1	927	935	9	AIGKIQDSL 0.000375	21
HLA-A*01:01	1	1029	1037	9	CVLGQSKRV 0.000375	26
HLA-B*08:01	1	1220	1228	9	GLIAIVMVT 0.000375	29
HLA-B*44:02	1	182	190	9	KQGNFKNLR 0.000374	13
HLA-B*53:01	1	265	273	9	GYLQPRFTL 0.000374	14
HLA-A*30:02	1	273	282	10	LLKYNENGTI 0.000374	36
HLA-A*68:02	1	365	373	9	LYNSASFST 0.000374	23
HLA-A*23:01	1	421	430	10	KLPDDFTGCV 0.000374	13
HLA-A*02:01	1	468	477	10	EIYQAGSTPC 0.000374	21
HLA-A*01:01	1	471	480	10	QAGSTPCNGV 0.000374	26
HLA-A*02:06	1	543	552	10	LTGTGVLTES 0.000374	29
HLA-A*30:01	1	629	638	10	TWRVYSTGSN 0.000374	39
HLA-A*01:01	1	712	720	9	PTNFTISVT 0.000374	26
HLA-B*57:01	1	779	788	10	FAQVKQIYKT 0.000374	29
HLA-A*30:02	1	879	888	10	ITSGWTFGAG 0.000374	36
HLA-B*44:03	1	972	980	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*68:02	1	236	244	9	TRFQTLHRS 0.000373	23
HLA-A*30:01	1	273	281	9	LLKYNENGT 0.000373	39
HLA-A*01:01	1	284	293	10	DAVDCALDPL 0.000373	26
HLA-B*15:01	1	417	426	10	DYNYKLPDDF 0.000373	21
HLA-A*31:01	1	463	472	10	RDISTEIIYA 0.000373	23
HLA-B*07:02	1	467	476	10	TEIYQAGSTP 0.000373	19
HLA-A*30:02	1	505	514	10	YRVVLSFEL 0.000373	36
HLA-B*44:02	1	532	540	9	KNKCVNFNF 0.000373	13
HLA-B*44:03	1	579	588	10	LEILDITPCS 0.000373	13
HLA-B*51:01	1	605	614	10	VAVLYQGVNC 0.000373	27
HLA-B*58:01	1	641	650	10	QTRAGCLIGA 0.000373	21
HLA-A*24:02	1	669	678	10	ASYQTQTNSP 0.000373	12
HLA-A*26:01	1	685	693	9	ASQSIIAYT 0.000373	18
HLA-A*30:02	1	738	746	9	YICGDSTEC 0.000373	36
HLA-A*01:01	1	877	886	10	GTITSGWTFG 0.000373	26
HLA-B*53:01	1	931	939	9	IQDLSLSTA 0.000373	14
HLA-A*23:01	1	1140	1149	10	PELDSFKEEL 0.000373	13
HLA-A*31:01	1	1171	1179	9	ASVVNIQKE 0.000373	23
HLA-A*26:01	1	16	24	9	VNLTTRTQL 0.000372	18
HLA-A*32:01	1	61	70	10	NVTWFHAIHV 0.000372	16
HLA-A*02:06	1	152	161	10	WMESEFRVYS 0.000372	29
HLA-A*68:02	1	339	348	10	FNATRFASVY 0.000372	23
HLA-A*03:01	1	372	380	9	STFKCYGVS 0.000372	17
HLA-B*08:01	1	403	411	9	EVRQIAPGQ 0.000372	29
HLA-B*35:01	1	441	449	9	KVGGNYNYL 0.000372	15
HLA-A*30:01	1	504	513	10	PYRVVLSFE 0.000372	39
HLA-B*15:01	1	603	612	10	NQVAVLYQGV 0.000372	21
HLA-B*07:02	1	671	679	9	YQTQTNSPR 0.000372	19
HLA-B*15:01	1	704	712	9	YSNNSIAIP 0.000372	21
HLA-B*58:01	1	713	721	9	TNFTISVTT 0.000372	21
HLA-B*44:03	1	729	737	9	TKTSVDCTM 0.000372	13
HLA-A*68:01	1	780	788	9	AQVKQIYKT 0.000372	21
HLA-B*40:01	1	858	866	9	LPPLLTDEM 0.000372	12

HLA-A*11:01	1	883	891	9	WTFGAGAAL 0.000372	14
HLA-A*68:01	1	915	924	10	ENQKLIANQF 0.000372	21
HLA-A*30:02	1	1075	1083	9	APAICHDGK 0.000372	36
HLA-A*24:02	1	1085	1094	10	HFPREGVFVS 0.000372	12
HLA-A*33:01	1	1085	1094	10	HFPREGVFVS 0.000372	21
HLA-B*58:01	1	1118	1127	10	FVSGNCDVVI 0.000372	21
HLA-A*02:01	1	1185	1193	9	EVAKNLNES 0.000372	21
HLA-A*02:03	1	1212	1220	9	YIWLGFIAI 0.000372	23
HLA-B*58:01	1	362	370	9	YSVLYNSAS 0.000371	21
HLA-B*44:02	1	411	420	10	QTGNIADYNY 0.000371	13
HLA-A*23:01	1	452	460	9	LFKSNLKP 0.000371	13
HLA-B*51:01	1	453	461	9	FRKSNLKP 0.000371	27
HLA-B*58:01	1	547	555	9	GVLTESNKK 0.000371	21
HLA-A*26:01	1	598	607	10	GTNTSNQVAV 0.000371	18
HLA-B*08:01	1	670	679	10	SYQTQTNSPR 0.000371	29
HLA-A*11:01	1	780	788	9	AQVKQIYKT 0.000371	14
HLA-B*58:01	1	967	975	9	FGAISSVLN 0.000371	21
HLA-A*68:02	1	981	990	10	LDKVEAEVQI 0.000371	23
HLA-A*02:03	1	1117	1125	9	TFVSGNCDV 0.000371	23
HLA-A*11:01	1	102	110	9	RGWIFGTTL 0.000371	14
HLA-B*35:01	1	153	161	9	MESEFRVYS 0.000371	15
HLA-B*57:01	1	240	248	9	TLHRSYLTP 0.000371	29
HLA-B*15:01	1	345	353	9	ASVYAWNRK 0.000371	21
HLA-A*11:01	1	358	367	10	CVADYSVLYN 0.000371	14
HLA-B*51:01	1	375	383	9	KCYGVSPTK 0.000371	27
HLA-B*53:01	1	388	397	10	CFTNVYADSF 0.000371	14
HLA-A*03:01	1	478	486	9	NGVKGFNCY 0.000371	18
HLA-A*01:01	1	593	602	10	SVITPGTNTS 0.000371	26
HLA-A*30:01	1	633	642	10	YSTGSNVFQT 0.000371	39
HLA-B*35:01	1	633	641	9	YSTGSNVFQ 0.000371	15
HLA-A*02:06	1	673	682	10	TQTNSPRRAR 0.000371	29
HLA-B*15:01	1	679	687	9	RRARSVASQ 0.000371	21
HLA-B*57:01	1	757	766	10	CTQLNRALTG 0.000371	29
HLA-A*02:03	1	762	771	10	RALTGIAVEQ 0.000371	23
HLA-B*53:01	1	811	819	9	KRSFIEDLL 0.000371	14
HLA-A*33:01	1	874	883	10	LLAGTITSGW 0.000371	21
HLA-B*35:01	1	882	891	10	GWTFGAGAAL 0.000371	15
HLA-B*58:01	1	921	930	10	ANQFNSAIGK 0.000371	21
HLA-A*02:01	1	947	956	10	DVVNQNAQAL 0.000371	21
HLA-B*08:01	1	999	1007	9	QSLQTYVTQ 0.000371	30
HLA-A*02:03	1	1030	1039	10	VLGQSKRVDF 0.000371	23
HLA-A*30:01	1	1038	1047	10	DFCGKGYHLM 0.000371	39
HLA-B*44:02	1	1038	1046	9	DFCGKGYHL 0.000371	13
HLA-A*02:01	1	1191	1200	10	NESLIDLQEL 0.000371	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-B*08:01	1	356	365	10	SNCVADYSVL 0.000369	30
HLA-A*31:01	1	587	595	9	CSFGGVSVI 0.000369	23
HLA-A*24:02	1	742	750	9	DSTECSNLL 0.000369	13
HLA-B*57:01	1	893	902	10	IPFAMQMAYR 0.000369	29
HLA-A*02:06	1	1073	1081	9	TTAPAICHD 0.000369	29
HLA-B*35:01	1	1138	1147	10	LQPELDSFKE 0.000369	15
HLA-A*02:03	1	1157	1166	10	TSPDVDLGD I 0.000369	23
HLA-A*23:01	1	1181	1190	10	DRLNEVAKNL 0.000369	13
HLA-B*58:01	1	1199	1207	9	ELGKYEQYI 0.000369	21
HLA-A*31:01	1	1213	1222	10	IWLGFIAGLI 0.000369	23
HLA-A*02:03	1	24	32	9	LPPAYTNSF 0.000368	23
HLA-A*68:02	1	196	204	9	NIDGYFKIY 0.000368	23
HLA-A*02:03	1	267	275	9	LQPRTFLLK 0.000368	23
HLA-A*03:01	1	331	339	9	NLCPFGEVF 0.000368	18
HLA-A*24:02	1	334	343	10	PFGEVFNATR 0.000368	13
HLA-A*02:06	1	340	348	9	NATRFASVY 0.000368	29
HLA-B*08:01	1	393	401	9	YADSFVIRG 0.000368	30
HLA-A*68:02	1	474	482	9	STPCNGVKG 0.000368	23
HLA-B*58:01	1	509	517	9	VLSFELLHA 0.000368	21
HLA-A*24:02	1	663	671	9	IGAGICASY 0.000368	13

HLA-A*33:01	1	707	716	10	NSIAIPTNFT 0.000368	21
HLA-A*26:01	1	724	733	10	LPVSMTKTSV 0.000368	18
HLA-B*08:01	1	741	749	9	GDSTECSNL 0.000368	30
HLA-B*40:01	1	822	830	9	KVTLADAGF 0.000368	12
HLA-A*02:01	1	951	960	10	QNAQALNTLV 0.000368	21
HLA-A*23:01	1	979	988	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*44:03	1	77	85	9	KRFANPVLV 0.000367	13
HLA-B*35:01	1	403	411	9	EVRQIAPGQ 0.000367	15
HLA-B*15:01	1	459	467	9	KPFERDIST 0.000367	21
HLA-B*08:01	1	486	495	10	YFPLQSYGFQ 0.000367	30
HLA-A*68:01	1	502	510	9	YQPYRVVVL 0.000367	21
HLA-B*35:01	1	671	679	9	YQTQTNPSR 0.000367	15
HLA-B*57:01	1	712	721	10	PTNFTISVTT 0.000367	30
HLA-B*44:03	1	722	730	9	EILPVSMTK 0.000367	13
HLA-B*35:01	1	762	770	9	RALTGIAVE 0.000367	15
HLA-A*30:02	1	1008	1017	10	QLIRAAEIRA 0.000367	36
HLA-A*01:01	1	1025	1033	9	KMSECVLGQ 0.000367	26
HLA-B*08:01	1	1048	1056	9	SFPQSAPHG 0.000367	30
HLA-A*03:01	1	1220	1228	9	GLIAIVMVT 0.000367	18
HLA-A*30:02	1	14	22	9	QCVNLTTRT 0.000366	37
HLA-B*15:01	1	54	62	9	LFLPFFSNV 0.000366	21
HLA-A*01:01	1	361	369	9	DYSVLYNVA 0.000366	26
HLA-B*35:01	1	409	418	10	PGQTGNIADY 0.000366	15
HLA-B*15:01	1	450	459	10	YRLFRRKSNLK 0.000366	21
HLA-A*01:01	1	457	465	9	NLKPFERDI 0.000366	26
HLA-A*30:02	1	466	475	10	STEIYQAGST 0.000366	37
HLA-A*26:01	1	499	508	10	GVGYQPYRVV 0.000366	18
HLA-B*57:01	1	591	600	10	GVSVITPGTN 0.000366	30
HLA-B*35:01	1	635	643	9	TGSNVFQTR 0.000366	15
HLA-B*57:01	1	637	646	10	SNVVFQTRAGC 0.000366	30
HLA-B*07:02	1	643	652	10	RAGCLIGAETH 0.000366	19
HLA-A*01:01	1	680	689	10	RARVASQSI 0.000366	26
HLA-B*57:01	1	681	689	9	ARVASQSI 0.000366	30
HLA-A*01:01	1	794	802	9	FGGFNFSQI 0.000366	26
HLA-A*30:02	1	814	823	10	FIEDLLFNKV 0.000366	37
HLA-A*68:02	1	1015	1023	9	IRASANLAA 0.000366	23
HLA-A*68:01	1	1056	1065	10	GVVFLHVTVY 0.000366	21
HLA-B*53:01	1	1125	1134	10	VVIGIVNNTV 0.000366	14
HLA-B*57:01	1	1189	1197	9	NLNESLIDL 0.000366	30
HLA-A*68:01	1	38	46	9	YDPKVFRRS 0.000365	21
HLA-A*33:01	1	40	48	9	DKVFRSSVL 0.000365	21
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	322	331	10	SIVRFPNITN 0.000365	19
HLA-B*58:01	1	329	337	9	ITNLCPFGE 0.000365	22
HLA-B*07:02	1	340	349	10	NATRFASVYA 0.000365	19
HLA-B*15:01	1	367	375	9	NSASFSTFK 0.000365	21
HLA-A*68:01	1	484	493	10	NCYFPLQSYG 0.000365	21
HLA-B*08:01	1	589	597	9	FGGVSVITP 0.000365	30
HLA-A*03:01	1	602	610	9	SNQVAVLYQ 0.000365	18
HLA-B*53:01	1	609	617	9	YQGVNCTEV 0.000365	14
HLA-A*03:01	1	623	632	10	ADQLTPTWRV 0.000365	18
HLA-B*58:01	1	765	773	9	TGIAVEQDK 0.000365	22
HLA-A*01:01	1	817	826	10	DLLFNKVTLA 0.000365	26
HLA-A*24:02	1	830	838	9	FIKQYGDCL 0.000365	13
HLA-A*01:01	1	1037	1045	9	VDFCGKGYH 0.000365	26
HLA-B*44:03	1	1037	1045	9	VDFCGKGYH 0.000365	13
HLA-A*68:02	1	1160	1168	9	DVDLGDISG 0.000365	23
HLA-B*44:02	1	1181	1190	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	VIKVCEFQF 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	289	298	10	ALDPLSETKC 0.000364	23
HLA-A*33:01	1	330	339	10	TNLCPFGEVF 0.000364	21
HLA-A*30:01	1	356	365	10	SNCVADYSVL 0.000364	39
HLA-B*53:01	1	396	404	9	SFVIRGDEV 0.000364	15
HLA-A*68:02	1	497	506	10	TYGVGYQPYR 0.000364	23
HLA-B*58:01	1	498	507	10	YGVGYQPYRV 0.000364	22
HLA-A*02:03	1	574	582	9	RDPQTLEIL 0.000364	24
HLA-B*35:01	1	721	730	10	TEILPVSMTK 0.000364	15
HLA-A*02:06	1	875	883	9	LAGTITSGW 0.000364	29
HLA-A*30:02	1	919	928	10	LIANQFNSAI 0.000364	37
HLA-A*03:01	1	1044	1053	10	YHLMSFPQSA 0.000364	18
HLA-A*23:01	1	1117	1126	10	TFVSGNCDVV 0.000364	13
HLA-B*07:02	1	1185	1193	9	EVAKNLNES 0.000364	19
HLA-A*02:03	1	1201	1209	9	GKYEYIKW 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*02:03	1	239	247	9	QTLHRSYLT 0.000363	24
HLA-B*07:02	1	244	252	9	SYLTPGDSS 0.000363	19
HLA-B*08:01	1	258	266	9	GAAAYVVG 0.000363	30
HLA-A*31:01	1	260	269	10	AAYVVGYLQP 0.000363	23
HLA-A*30:01	1	274	282	9	LKYNENGTI 0.000363	39
HLA-A*31:01	1	310	318	9	YQTSNFRVQ 0.000363	23
HLA-A*68:01	1	395	404	10	DSFVIRGDEV 0.000363	21
HLA-A*31:01	1	406	415	10	QIAPGQTGNI 0.000363	23
HLA-A*03:01	1	412	420	9	TGNIADYNY 0.000363	18
HLA-A*68:02	1	478	486	9	NGVKGFNCY 0.000363	23
HLA-A*03:01	1	503	512	10	QPYRVVLSF 0.000363	18
HLA-B*35:01	1	514	522	9	LLHAPATVC 0.000363	15
HLA-B*57:01	1	520	529	10	TVCGPKKSTN 0.000363	30
HLA-A*01:01	1	540	548	9	FNGLTGTGV 0.000363	27
HLA-A*23:01	1	588	596	9	SFGGVSVIT 0.000363	13
HLA-B*07:02	1	714	723	10	NFTISVTTEI 0.000363	19
HLA-A*02:01	1	750	759	10	LLQYGSFCTQ 0.000363	21
HLA-A*11:01	1	849	858	10	AQKFNGLTVL 0.000363	14
HLA-A*30:01	1	852	861	10	FNGLTVLPL 0.000363	39
HLA-A*02:06	1	949	958	10	VNQNAQALNT 0.000363	29
HLA-B*15:01	1	955	964	10	ALNTLVKQLS 0.000363	22
HLA-B*08:01	1	961	970	10	KQLSSNFGAI 0.000363	30
HLA-B*07:02	1	964	972	9	SSNFGAISS 0.000363	19
HLA-A*68:01	1	1003	1012	10	TYVTQQLIRA 0.000363	21
HLA-A*30:01	1	1233	1242	10	CMTSCCCLK 0.000363	39
HLA-A*30:01	1	1259	1267	9	EPVLKGVKL 0.000363	39
HLA-B*58:01	1	15	23	9	CVNLTRTRQ 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	277	285	9	NENGTITDA 0.000362	19
HLA-A*68:01	1	289	298	10	ALDPLSETKC 0.000362	21
HLA-B*15:01	1	299	308	10	TLKSFTVEKG 0.000362	22
HLA-A*30:01	1	334	342	9	PFGEVFNAT 0.000362	39
HLA-A*68:01	1	403	412	10	EVQRQIAPGQT 0.000362	21
HLA-A*33:01	1	510	518	9	LSFELLHAP 0.000362	21
HLA-A*33:01	1	520	528	9	TVCGPKKST 0.000362	21
HLA-A*26:01	1	618	626	9	PVAIHADQL 0.000362	18
HLA-A*31:01	1	801	809	9	QILPDPSKP 0.000362	23
HLA-B*07:02	1	802	810	9	ILPDPSKPS 0.000362	19
HLA-A*01:01	1	837	846	10	CLGDIAARDL 0.000362	27
HLA-A*33:01	1	851	859	9	KFNGLTVLP 0.000362	21
HLA-A*30:02	1	857	865	9	VLPLLTD 0.000362	37
HLA-B*53:01	1	965	974	10	SNFGAISSVL 0.000362	15
HLA-A*02:06	1	1016	1025	10	RASANLAATK 0.000362	29
HLA-A*01:01	1	1110	1119	10	QIITTDNTFV 0.000362	27
HLA-B*57:01	1	1155	1164	10	NHTSPDVDLG 0.000362	30
HLA-A*11:01	1	1234	1243	10	MTSCCCLKG 0.000362	14

HLA-A*30:01	1	1254	1263	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	264	273	10	VGYLQPRTF 0.000361	27
HLA-A*01:01	1	310	319	10	YQTSNFRVQP 0.000361	27
HLA-B*08:01	1	443	452	10	GGNYNYLYRL 0.000361	30
HLA-A*03:01	1	492	500	9	YGFQPTYGV 0.000361	18
HLA-A*26:01	1	517	526	10	APATVCGPKK 0.000361	18
HLA-A*30:02	1	571	580	10	DAVRDPQTL 0.000361	37
HLA-A*33:01	1	572	581	10	AVRDPQTLEI 0.000361	21
HLA-B*35:01	1	687	696	10	QSIIAYTMSL 0.000361	15
HLA-A*33:01	1	692	700	9	YTMSLGVEN 0.000361	21
HLA-A*68:01	1	934	942	9	SLSSTASAL 0.000361	21
HLA-A*68:02	1	954	962	9	QALNTLVKQ 0.000361	23
HLA-A*30:01	1	975	984	10	NDILSRDLKV 0.000361	39
HLA-A*68:02	1	1144	1152	9	SFKEELDKY 0.000361	23
HLA-A*02:03	1	1221	1230	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*32:01	1	397	405	9	FVIRGDEV 0.00036	16
HLA-B*58:01	1	501	509	9	GYQPYRVVV 0.00036	22
HLA-B*51:01	1	513	522	10	ELLHAPATVC 0.00036	27
HLA-B*58:01	1	658	667	10	ECDIPIGAGI 0.00036	22
HLA-A*03:01	1	701	710	10	SVAYSNNNSIA 0.00036	18
HLA-A*02:06	1	716	725	10	TISVTTEILP 0.00036	29
HLA-B*58:01	1	764	773	10	LTGIAVEQDK 0.00036	22
HLA-B*08:01	1	825	833	9	LADAGFIKQ 0.00036	30
HLA-B*08:01	1	881	889	9	SGWTFGAGA 0.00036	30
HLA-A*30:01	1	1015	1024	10	IRASANLAAT 0.00036	39
HLA-B*44:03	1	1051	1060	10	QSAPHGVVFL 0.00036	13
HLA-B*53:01	1	1138	1147	10	LQPELDSFKE 0.00036	15
HLA-B*07:02	1	1144	1153	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-B*44:02	1	237	246	10	RFQTLHRSYL 0.000359	13
HLA-A*30:02	1	275	284	10	KYNENGTITD 0.000359	37
HLA-B*40:01	1	479	487	9	GVKGFNCYF 0.000359	12
HLA-A*24:02	1	513	521	9	ELLHAPATV 0.000359	13
HLA-B*58:01	1	521	530	10	VCGPKKSTNL 0.000359	22
HLA-A*11:01	1	530	538	9	LVKNKCVNF 0.000359	14
HLA-B*57:01	1	546	554	9	TGVLTESNK 0.000359	30
HLA-A*30:02	1	580	588	9	EILDITPCS 0.000359	37
HLA-B*58:01	1	595	603	9	ITPGTNTSN 0.000359	22
HLA-A*26:01	1	703	711	9	AYSNNNSIAI 0.000359	18
HLA-A*02:03	1	721	730	10	TEILPVSMTK 0.000359	24
HLA-A*03:01	1	780	788	9	AQVKQIYKT 0.000359	18
HLA-B*58:01	1	832	841	10	KQYGDCLGDI 0.000359	22
HLA-B*07:02	1	842	851	10	AARDLICAQK 0.000359	19
HLA-A*31:01	1	873	881	9	ALLAGTITS 0.000359	23
HLA-B*08:01	1	874	882	9	LLAGTITSG 0.000359	30
HLA-A*01:01	1	981	990	10	LDKVEAEVQI 0.000359	27
HLA-B*07:02	1	1037	1046	10	VDFCGKGYHL 0.000359	19
HLA-A*30:01	1	1094	1103	10	SNGTHWFVTQ 0.000359	39
HLA-B*44:02	1	1168	1176	9	GINASVVNI 0.000359	13
HLA-A*02:03	1	104	113	10	WIFGTTLD 0.000358	24
HLA-B*08:01	1	232	240	9	GINITRFQT 0.000358	30
HLA-A*02:03	1	243	252	10	RSYLTPGDSS 0.000358	24
HLA-B*08:01	1	249	257	9	GDSSSGWTA 0.000358	30
HLA-A*30:02	1	257	265	9	AGAAAYYVG 0.000358	37
HLA-A*02:06	1	359	368	10	VADYSVLYNS 0.000358	29
HLA-A*30:02	1	404	412	9	VRQIAPGQT 0.000358	37
HLA-A*02:03	1	479	488	10	GVKGFNCYFP 0.000358	24
HLA-B*08:01	1	498	506	9	YGVGYQPYR 0.000358	30
HLA-A*30:02	1	587	596	10	CSFGGVSVIT 0.000358	37
HLA-B*40:01	1	593	601	9	SVITPGTNT 0.000358	12

HLA-A*11:01	1	708	717	10	SIAIPTNFTI 0.000358	14
HLA-B*58:01	1	824	832	9	TLADAGFIK 0.000358	22
HLA-B*40:01	1	933	941	9	DSLSSSTASA 0.000358	12
HLA-A*68:02	1	936	944	9	SSTASALGK 0.000358	23
HLA-B*07:02	1	948	957	10	VVNQNAQALN 0.000358	19
HLA-A*33:01	1	992	1001	10	RLITGRLQSL 0.000358	21
HLA-B*07:02	1	1072	1080	9	FTTAPAICH 0.000358	19
HLA-A*02:03	1	1138	1146	9	LQPELDSFK 0.000358	24
HLA-B*08:01	1	1180	1188	9	IDRLNEVAK 0.000358	30
HLA-A*01:01	1	1192	1201	10	ESLIDLQELG 0.000358	27
HLA-A*02:01	1	5	14	10	LVLLPLVSSQ 0.000357	21
HLA-B*57:01	1	102	111	10	RGWIFGTTL 0.000357	30
HLA-A*02:01	1	120	128	9	VNATNVVI 0.000357	21
HLA-B*08:01	1	327	335	9	PNITNLCPF 0.000357	30
HLA-A*24:02	1	360	369	10	ADYSVLYNSA 0.000357	13
HLA-B*35:01	1	391	400	10	NVYADSFVIR 0.000357	15
HLA-A*33:01	1	397	406	10	FVIRGDEVRO 0.000357	21
HLA-B*44:03	1	444	453	10	GNYNYLYRLF 0.000357	13
HLA-B*58:01	1	453	461	9	FRKSNLKP 0.000357	22
HLA-A*26:01	1	457	465	9	NLKPFDI 0.000357	18
HLA-B*07:02	1	562	570	9	FGRDIADTT 0.000357	19
HLA-A*11:01	1	692	700	9	YTMSLGVEN 0.000357	14
HLA-A*30:01	1	727	735	9	SMTKTSVDC 0.000357	40
HLA-B*44:03	1	747	756	10	SNLLQYGSF 0.000357	13
HLA-A*24:02	1	798	806	9	NFSQILPDP 0.000357	13
HLA-A*02:01	1	880	889	10	TSGWTFGAGA 0.000357	21
HLA-A*68:02	1	963	971	9	LSSNFGAIS 0.000357	24
HLA-A*32:01	1	976	984	9	DILSRLDKV 0.000357	16
HLA-A*68:02	1	1006	1015	10	TQQLIRAAEI 0.000357	24
HLA-B*58:01	1	1036	1045	10	RVDFCGKGYH 0.000357	22
HLA-A*24:02	1	1062	1070	9	VTYVPAQEK 0.000357	13
HLA-A*68:02	1	1085	1094	10	HFPREGVFSV 0.000357	24
HLA-A*02:01	1	1117	1125	9	TFVSGNCDV 0.000357	21
HLA-A*02:03	1	1253	1261	9	FDEDDSEPV 0.000357	24
HLA-A*26:01	1	1254	1263	10	DEDDSEPV 0.000357	18
HLA-A*02:01	1	79	87	9	FANPVLPFN 0.000356	21
HLA-A*68:02	1	89	98	10	GYYFASTEKS 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	289	298	10	ALDPLSETKC 0.000356	22
HLA-A*68:02	1	330	339	10	TNLCPFGEVF 0.000356	24
HLA-A*02:06	1	446	454	9	YNYLYRLFR 0.000356	29
HLA-A*11:01	1	495	504	10	QPTYGVGYQP 0.000356	14
HLA-A*03:01	1	513	521	9	ELLHAPATV 0.000356	18
HLA-B*51:01	1	639	648	10	VFQTRAGCLI 0.000356	27
HLA-B*44:03	1	720	728	9	TTEILPVSM 0.000356	13
HLA-A*33:01	1	786	794	9	YKTPPIKDF 0.000356	21
HLA-B*44:02	1	961	969	9	KQLSSNFGA 0.000356	13
HLA-B*40:01	1	970	978	9	ISSVLNDIL 0.000356	12
HLA-A*02:06	1	1063	1072	10	TYVPAQEKFN 0.000356	29
HLA-A*03:01	1	1071	1080	10	NFTTAPAICH 0.000356	18
HLA-A*02:03	1	1100	1109	10	FVTQRNFYEP 0.000356	24
HLA-B*51:01	1	1107	1115	9	YEPQIITTD 0.000356	27
HLA-A*24:02	1	1117	1126	10	TFVSGNCDVV 0.000356	13
HLA-A*32:01	1	1148	1156	9	ELDKYFKNH 0.000356	17
HLA-B*58:01	1	1170	1179	10	NASVVNIQKE 0.000356	22
HLA-B*35:01	1	1200	1209	10	LGKYEYIKW 0.000356	15
HLA-A*30:01	1	1229	1237	9	IMLCCMTSC 0.000356	40
HLA-A*30:01	1	1258	1267	10	SEPV 0.000356	40
HLA-B*51:01	1	1	10	10	MFVFLVLLPL 0.000355	27
HLA-B*15:01	1	291	300	10	DPLSETKCTL 0.000355	22
HLA-B*51:01	1	303	312	10	FTVEKGIYQT 0.000355	27
HLA-A*23:01	1	413	422	10	GNIADYNYKL 0.000355	13
HLA-B*08:01	1	558	566	9	PFQQFGRDI 0.000355	30
HLA-A*31:01	1	598	607	10	GTNTSNQVAV 0.000355	23

HLA-B*08:01	1	623	632	10	ADQLTPTWRV 0.000355	30
HLA-A*11:01	1	777	785	9	EVFAQVKQI 0.000355	14
HLA-B*44:03	1	815	824	10	IEDLLFNKVT 0.000355	13
HLA-B*58:01	1	901	910	10	YRFNGIGVTQ 0.000355	22
HLA-B*58:01	1	924	933	10	FNSAIGKIQD 0.000355	22
HLA-A*02:03	1	957	965	9	NTLVKQLSS 0.000355	24
HLA-B*44:03	1	1052	1061	10	SAPHGVVFLH 0.000355	13
HLA-A*30:02	1	1095	1103	9	NGTHWFVTQ 0.000355	37
HLA-A*02:01	1	1145	1153	9	FKEELDKYF 0.000355	22
HLA-B*58:01	1	66	75	10	HAIHVSNGTH 0.000354	22
HLA-B*57:01	1	68	77	10	IHVSGTNGTK 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-B*53:01	1	234	242	9	NITRFQTLH 0.000354	15
HLA-A*30:01	1	249	257	9	GDSSSGWTA 0.000354	40
HLA-B*44:02	1	314	323	10	NFRVQPTESI 0.000354	13
HLA-A*26:01	1	363	372	10	SVLYNSASF 0.000354	18
HLA-A*32:01	1	439	448	10	DSKVGGNVNY 0.000354	17
HLA-A*02:03	1	455	463	9	KSNLKPFR 0.000354	24
HLA-A*30:01	1	520	529	10	TVCGPKKSTN 0.000354	40
HLA-A*30:01	1	543	552	10	LTGTGVLTES 0.000354	40
HLA-B*08:01	1	634	642	9	STGSNVFQT 0.000354	30
HLA-A*68:01	1	680	688	9	RARSVASQS 0.000354	21
HLA-A*30:02	1	726	735	10	VSMTKTSVDC 0.000354	37
HLA-A*33:01	1	744	752	9	TECSNLLLQ 0.000354	21
HLA-B*53:01	1	784	792	9	QIYKTPPIK 0.000354	15
HLA-A*30:02	1	794	802	9	FGGFNFSQI 0.000354	37
HLA-B*51:01	1	843	852	10	ARDLICAQKF 0.000354	28
HLA-B*51:01	1	910	919	10	QNVLYENQKL 0.000354	28
HLA-A*02:01	1	958	966	9	TLVKQLSSN 0.000354	22
HLA-A*30:01	1	1069	1078	10	EKNFTTAPAI 0.000354	40
HLA-B*53:01	1	1070	1078	9	KNFTTAPAI 0.000354	15
HLA-B*40:01	1	1130	1138	9	VNNTVYDPL 0.000354	12
HLA-A*33:01	1	1152	1161	10	YFKNHTSPDV 0.000354	21
HLA-B*15:01	1	1174	1183	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*02:01	1	213	222	10	VRGLPQGFS 0.000353	22
HLA-A*02:06	1	231	240	10	IGINITRFQT 0.000353	29
HLA-A*33:01	1	236	244	9	TRFQTLHRS 0.000353	21
HLA-A*68:01	1	459	468	10	KPFERDISTE 0.000353	21
HLA-A*02:03	1	486	494	9	YFPLQSYGF 0.000353	24
HLA-B*07:02	1	505	514	10	YRVVLSFEL 0.000353	19
HLA-A*30:01	1	597	606	10	PGTNTSNQVA 0.000353	40
HLA-B*15:01	1	599	608	10	TNTSNQVAVL 0.000353	22
HLA-A*24:02	1	635	643	9	TGSNVFQTR 0.000353	13
HLA-A*32:01	1	638	646	9	NVFQTRAGC 0.000353	17
HLA-B*51:01	1	774	783	10	NTQEVFAQVK 0.000353	28
HLA-A*68:02	1	839	847	9	GDIAARDLI 0.000353	24
HLA-B*40:01	1	905	913	9	GIGVTQNVL 0.000353	12
HLA-A*24:02	1	976	984	9	DILSRLDKV 0.000353	13
HLA-B*53:01	1	1012	1021	10	AAEIRASANL 0.000353	15
HLA-B*53:01	1	1021	1029	9	LAATKMSEC 0.000353	15
HLA-A*32:01	1	1022	1031	10	AATKMSECVL 0.000353	17
HLA-B*57:01	1	1122	1130	9	NCDVVIGIV 0.000353	30
HLA-B*51:01	1	1139	1148	10	QPELDSFKEE 0.000353	28
HLA-A*11:01	1	1259	1268	10	EPVLKGVKLH 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*68:02	1	279	288	10	NGTITDAVDC 0.000352	24
HLA-B*53:01	1	395	404	10	DSFVIRGDEV 0.000352	15
HLA-A*24:02	1	455	463	9	KSNLKPFR 0.000352	13



HLA-A*68:02	1	467	475	9	TEIYQAGST 0.000352	24
HLA-B*57:01	1	481	490	10	KGFNCYFPLQ 0.000352	30
HLA-B*08:01	1	556	564	9	FLPFQQFGR 0.000352	30
HLA-A*03:01	1	624	632	9	DQLTPTWRV 0.000352	18
HLA-A*02:01	1	666	675	10	GICASYQTQT 0.000352	22
HLA-A*11:01	1	680	688	9	RARSVASQS 0.000352	14
HLA-A*68:02	1	767	775	9	IAVEQDKNT 0.000352	24
HLA-B*07:02	1	810	819	10	SKRSFIEDLL 0.000352	19
HLA-A*30:01	1	846	854	9	LICAQKFNG 0.000352	40
HLA-A*26:01	1	877	886	10	GTITSGWTFG 0.000352	18
HLA-A*01:01	1	1119	1127	9	VSGNCDVVI 0.000352	27
HLA-B*51:01	1	1152	1161	10	YFKNHTSPDV 0.000352	28
HLA-A*68:01	1	1213	1221	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-B*08:01	1	254	262	9	GWTAGAAAY 0.000351	30
HLA-A*03:01	1	260	269	10	AAYYVGYLQP 0.000351	18
HLA-B*07:02	1	290	299	10	LDPLSETKCT 0.000351	19
HLA-B*58:01	1	318	327	10	QPTESIVRFP 0.000351	22
HLA-B*57:01	1	355	363	9	ISNCVADYS 0.000351	30
HLA-A*33:01	1	608	617	10	LYQGVNCTEV 0.000351	22
HLA-A*30:01	1	749	757	9	LLLQYGSFC 0.000351	40
HLA-B*58:01	1	907	915	9	GVTQNVLYE 0.000351	22
HLA-A*02:06	1	1046	1055	10	LMSFPQSAPH 0.000351	29
HLA-A*03:01	1	1091	1100	10	VFVSNGTHWF 0.000351	18
HLA-A*01:01	1	1103	1111	9	QRNFYEQI 0.000351	27
HLA-A*68:01	1	1105	1114	10	NFYEQIITT 0.000351	21
HLA-A*02:03	1	1121	1130	10	GNCDDVIGIV 0.000351	24
HLA-A*01:01	1	1163	1172	10	LGDISGINAS 0.000351	27
HLA-A*32:01	1	1182	1191	10	RLNEVAKNLN 0.000351	17
HLA-A*30:02	1	121	130	10	NNATNVVIVK 0.000351	37
HLA-A*26:01	1	154	162	9	ESEFRVYSS 0.000351	18
HLA-B*57:01	1	178	186	9	DLEGKQGNF 0.000351	30
HLA-B*08:01	1	202	211	10	KIYSKHTPIN 0.000351	30
HLA-A*33:01	1	291	300	10	DPLSETKCTL 0.000351	22
HLA-A*01:01	1	399	407	9	IRGDEVRI 0.000351	27
HLA-A*03:01	1	463	472	10	RDISTEIQYA 0.000351	18
HLA-B*08:01	1	603	612	10	NQVAVLYQGV 0.000351	30
HLA-A*02:03	1	621	630	10	IHADQLTPTW 0.000351	24
HLA-A*68:01	1	661	669	9	IPIGAGICA 0.000351	21
HLA-A*02:01	1	700	709	10	NSVAYSNNSI 0.000351	22
HLA-B*57:01	1	724	733	10	LPVSMTKTSV 0.000351	30
HLA-A*68:02	1	827	835	9	DAGFIKQYG 0.000351	24
HLA-A*30:02	1	839	847	9	GDIAARDLI 0.000351	37
HLA-A*01:01	1	884	893	10	TFGAGAALQI 0.000351	27
HLA-A*26:01	1	886	895	10	GAGAALQIPF 0.000351	18
HLA-A*31:01	1	931	939	9	IQDLSSTA 0.000351	23
HLA-B*51:01	1	1020	1029	10	NLAATKMSEC 0.000351	28
HLA-A*30:01	1	1082	1090	9	GKAHFPREG 0.000351	40
HLA-B*58:01	1	1106	1114	9	FYEQIITT 0.000351	22
HLA-B*35:01	1	1112	1120	9	ITTDNTFVS 0.000351	16
HLA-A*02:03	1	1215	1223	9	LGFIAGLIA 0.000351	24
HLA-A*03:01	1	193	201	9	VFKNIDGYF 0.000349	18
HLA-A*30:01	1	296	304	9	TKCTLKSFT 0.000349	40
HLA-A*30:01	1	318	327	10	QPTESIVRFP 0.000349	40
HLA-B*15:01	1	354	363	10	RISNCVADYS 0.000349	22
HLA-A*11:01	1	364	372	9	VLNSASFSS 0.000349	14
HLA-A*33:01	1	383	392	10	KLNDLCFTNV 0.000349	22
HLA-A*31:01	1	452	460	9	LFRKSNLKP 0.000349	23
HLA-A*01:01	1	483	491	9	FNCYFPLQS 0.000349	27
HLA-A*30:02	1	520	529	10	TVCGPKKSTN 0.000349	37
HLA-B*51:01	1	548	557	10	VLTESNKKFL 0.000349	28
HLA-A*02:03	1	586	595	10	PCSGGVSIVI 0.000349	24
HLA-A*02:01	1	588	596	9	SFGGVSIVT 0.000349	22
HLA-A*01:01	1	596	605	10	TPGTNTSNQV 0.000349	27
HLA-B*35:01	1	616	625	10	EVPVAIHADQ 0.000349	16

HLA-B*58:01	1	673	682	10	TQTNSPRRAR 0.000349	22
HLA-A*03:01	1	680	689	10	RARSVASQSI 0.000349	18
HLA-A*01:01	1	687	695	9	QSIAYTMS 0.000349	27
HLA-A*31:01	1	897	905	9	MQMAYRFNG 0.000349	23
HLA-A*24:02	1	906	914	9	IGVTQNVLY 0.000349	13
HLA-B*58:01	1	989	997	9	QIDRLITGR 0.000349	22
HLA-B*57:01	1	1118	1127	10	FVSGNCDVVI 0.000349	30
HLA-A*01:01	1	1165	1174	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-B*40:01	1	214	222	9	RGLPQGFSA 0.000348	12
HLA-A*68:02	1	418	426	9	YNYKLPDDF 0.000348	24
HLA-A*68:02	1	514	522	9	LLHAPATVC 0.000348	24
HLA-A*26:01	1	682	690	9	RSVASQSII 0.000348	18
HLA-A*01:01	1	700	708	9	NSVAYSNNS 0.000348	27
HLA-B*53:01	1	707	716	10	NSIAIPTNFT 0.000348	15
HLA-A*33:01	1	713	722	10	TNFTISVTTE 0.000348	22
HLA-A*30:01	1	756	764	9	FCTQLNRAL 0.000348	40
HLA-A*32:01	1	774	783	10	NTQEVFAQVK 0.000348	17
HLA-A*01:01	1	783	792	10	KQIYKTPPIK 0.000348	27
HLA-B*57:01	1	800	809	10	SQILPDPSKP 0.000348	30
HLA-B*57:01	1	821	830	10	NKVTLADAGF 0.000348	30
HLA-A*23:01	1	843	851	9	ARDLICAQK 0.000348	13
HLA-A*26:01	1	954	962	9	QALNTLVKQ 0.000348	18
HLA-B*44:02	1	988	997	10	VQIDRLITGR 0.000348	13
HLA-B*57:01	1	1111	1120	10	IITTDNTFVS 0.000348	30
HLA-A*30:01	1	1112	1121	10	ITTDNTFVSG 0.000348	40
HLA-A*33:01	1	1117	1125	9	TFVSGNCDV 0.000348	22
HLA-B*44:02	1	112	120	9	SKTQSLIV 0.000347	13
HLA-A*03:01	1	122	130	9	NATNVVIVK 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	288	297	10	CALDPLSETK 0.000347	24
HLA-A*33:01	1	304	313	10	TVEKGIYQTS 0.000347	22
HLA-A*32:01	1	388	397	10	CFTNVYADSF 0.000347	17
HLA-B*58:01	1	519	528	10	ATVCGPKKST 0.000347	22
HLA-A*11:01	1	535	543	9	CVNFNFNGL 0.000347	14
HLA-A*11:01	1	598	607	10	GTNTSNQVAV 0.000347	14
HLA-A*30:02	1	700	708	9	NSVAYSNNS 0.000347	37
HLA-A*31:01	1	713	721	9	TNFTISVTT 0.000347	23
HLA-B*44:02	1	816	824	9	EDLLFNKVT 0.000347	13
HLA-A*31:01	1	855	863	9	LTVLPPLLT 0.000347	23
HLA-B*44:02	1	940	948	9	SALGKLQDV 0.000347	13
HLA-B*44:02	1	992	1001	10	RLITGRLQSL 0.000347	13
HLA-A*02:01	1	1037	1046	10	VDFCGKGYHL 0.000347	22
HLA-B*07:02	1	1144	1152	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	296	305	10	TKCTLKSFTV 0.000346	24
HLA-A*30:02	1	312	321	10	TSNFRVQPT 0.000346	37
HLA-A*31:01	1	330	339	10	TNLCPFGEVF 0.000346	23
HLA-B*58:01	1	443	451	9	GGNYNYLYR 0.000346	22
HLA-A*02:01	1	520	528	9	TVCGPKKST 0.000346	22
HLA-A*02:01	1	634	643	10	STGSNVFQTR 0.000346	22
HLA-A*01:01	1	675	684	10	TNSPRRARSV 0.000346	27
HLA-A*31:01	1	687	696	10	QSIAYTMSL 0.000346	23
HLA-A*32:01	1	702	710	9	VAYSNSIA 0.000346	17
HLA-A*02:01	1	752	760	9	QYGSFTQL 0.000346	22
HLA-A*32:01	1	756	764	9	FCTQLNRAL 0.000346	17
HLA-A*03:01	1	887	895	9	AGAALQIPF 0.000346	18
HLA-A*30:01	1	929	937	9	GKIQDSLSS 0.000346	40
HLA-B*44:03	1	954	963	10	QALNTLVKQL 0.000346	13
HLA-A*02:06	1	1058	1066	9	VFLHVTVVP 0.000346	29
HLA-B*53:01	1	1085	1093	9	HFPREGVVF 0.000346	15
HLA-A*02:06	1	1109	1118	10	PQIITTDNTF 0.000346	29

HLA-A*03:01	1	1125	1134	10	VVIGIVNNTV 0.000346	18
HLA-A*11:01	1	1203	1212	10	YEQYIKWPWY 0.000346	14
HLA-B*08:01	1	1215	1223	9	LGFIAGLIA 0.000346	30
HLA-B*51:01	1	33	42	10	TRGVYYPDKV 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	NLREFVFKN 0.000345	37
HLA-A*30:02	1	200	209	10	YFKIYSKHTP 0.000345	37
HLA-A*03:01	1	237	246	10	RFQTLHRSYL 0.000345	18
HLA-A*02:06	1	295	303	9	ETKCTLKSF 0.000345	29
HLA-B*57:01	1	392	401	10	VYADSFVIRG 0.000345	30
HLA-A*68:02	1	400	408	9	RGDEVQRQA 0.000345	24
HLA-A*01:01	1	407	416	10	IAPGQTGNIA 0.000345	27
HLA-B*44:03	1	417	426	10	DYNYKLPDDF 0.000345	13
HLA-B*51:01	1	520	528	9	TVCGPKKST 0.000345	28
HLA-A*02:01	1	618	626	9	PVAIHADQL 0.000345	22
HLA-B*40:01	1	682	690	9	RSVASQSII 0.000345	12
HLA-A*68:01	1	687	696	10	QSIIAYTMSL 0.000345	22
HLA-A*24:02	1	694	702	9	MSLGVENSV 0.000345	13
HLA-A*01:01	1	761	769	9	NRALTGIAV 0.000345	27
HLA-A*23:01	1	830	838	9	FIKQYGDCL 0.000345	13
HLA-A*68:01	1	887	895	9	AGAALQIPF 0.000345	22
HLA-B*15:01	1	934	943	10	SLSSTASALG 0.000345	22
HLA-B*44:03	1	972	981	10	SVLNDILSRL 0.000345	13
HLA-B*53:01	1	999	1007	9	QSLQTYVTQ 0.000345	15
HLA-A*01:01	1	1100	1108	9	FVTQRNFYE 0.000345	27
HLA-A*68:01	1	54	62	9	LFLPFFSNV 0.000344	22
HLA-A*68:02	1	77	86	10	KRFANPVLPF 0.000344	24
HLA-A*33:01	1	110	118	9	LDSKTQSLL 0.000344	22
HLA-B*08:01	1	166	175	10	CTFEYVSQPF 0.000344	30
HLA-A*30:01	1	247	255	9	TPGDSSSGW 0.000344	40
HLA-A*03:01	1	259	268	10	AAAYYVGYLQ 0.000344	18
HLA-A*23:01	1	410	418	9	GQTGNIADY 0.000344	13
HLA-B*08:01	1	495	504	10	QPTYGVGYQP 0.000344	30
HLA-B*51:01	1	505	514	10	YRVVLSFEL 0.000344	28
HLA-A*23:01	1	607	616	10	VLYQGVNCTE 0.000344	13
HLA-A*32:01	1	708	716	9	SIAIPTNFT 0.000344	17
HLA-B*51:01	1	730	738	9	KTSVDCTMY 0.000344	28
HLA-A*33:01	1	854	862	9	GLTVLPPLL 0.000344	22
HLA-B*40:01	1	952	960	9	NAQALNTLV 0.000344	12
HLA-B*44:03	1	980	988	9	RLDKVEAEV 0.000344	13
HLA-B*57:01	1	1003	1011	9	TYVTQQLIR 0.000344	30
HLA-B*07:02	1	1021	1030	10	LAATKMSECV 0.000344	19
HLA-A*31:01	1	1059	1067	9	FLHVTVVPA 0.000344	23
HLA-A*02:06	1	1128	1137	10	GIVNNTVYDP 0.000344	30
HLA-A*32:01	1	1130	1138	9	VNNTVYDPL 0.000344	17
HLA-B*08:01	1	1215	1224	10	LGFIAGLIAI 0.000344	30
HLA-A*03:01	1	1217	1225	9	FIAGLIAIIV 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	236	244	9	TRFQTLHRS 0.000343	30
HLA-A*02:06	1	245	254	10	YLTPGDSSSG 0.000343	30
HLA-A*33:01	1	255	264	10	WTAGAAAYYV 0.000343	22
HLA-A*68:01	1	294	303	10	SETKCTLKSF 0.000343	22
HLA-A*23:01	1	405	413	9	RQIAPGQTG 0.000343	13
HLA-A*68:02	1	451	459	9	RLFRKSNLK 0.000343	24
HLA-A*11:01	1	474	483	10	STPCNGVKGF 0.000343	14
HLA-A*02:06	1	600	609	10	NTSNQVAVLY 0.000343	30
HLA-A*32:01	1	659	667	9	CDIPIGAGI 0.000343	17

HLA-A*30:02	1	737	746	10	MYICGDSTEC 0.000343	37
HLA-A*02:03	1	752	760	9	QYGSFCTQL 0.000343	24
HLA-A*02:03	1	819	828	10	LFNKVTLADA 0.000343	24
HLA-B*58:01	1	930	938	9	KIQDSLST 0.000343	22
HLA-A*23:01	1	988	996	9	VQIDRLITG 0.000343	13
HLA-A*68:02	1	1058	1067	10	VFLHVTVYVPA 0.000343	24
HLA-B*08:01	1	1117	1126	10	TFVSGNCDVV 0.000343	30
HLA-B*53:01	1	1204	1213	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	TNVVIKVCEF 0.000342	24
HLA-B*51:01	1	136	145	10	CNDPFLGVVY 0.000342	28
HLA-B*58:01	1	254	262	9	GWTAGAAAY 0.000342	22
HLA-A*30:01	1	268	277	10	QPRTFLLKYN 0.000342	40
HLA-B*40:01	1	310	318	9	YQTSNFRVQ 0.000342	12
HLA-B*57:01	1	317	325	9	VQPTESIVR 0.000342	30
HLA-A*26:01	1	340	349	10	NATRFASVYA 0.000342	18
HLA-A*30:01	1	418	426	9	YNYKLPDDF 0.000342	40
HLA-A*02:06	1	490	499	10	QSYGFQPTYG 0.000342	30
HLA-A*01:01	1	491	500	10	SYGFQPTYGV 0.000342	27
HLA-A*02:06	1	555	563	9	KFLPFQFG 0.000342	30
HLA-A*02:01	1	608	617	10	LYQGVNCTEV 0.000342	22
HLA-A*31:01	1	615	623	9	TEVPVAIHA 0.000342	23
HLA-A*33:01	1	623	632	10	ADQLTPTWRV 0.000342	22
HLA-A*31:01	1	633	641	9	YSTGSNVFQ 0.000342	23
HLA-A*02:01	1	658	667	10	ECDIPIGAGI 0.000342	22
HLA-B*44:02	1	676	684	9	NSPRRARSV 0.000342	13
HLA-A*02:01	1	681	689	9	ARSVASQSI 0.000342	22
HLA-A*68:01	1	684	693	10	VASQSIIAYT 0.000342	22
HLA-A*02:01	1	697	705	9	GVENSVAYS 0.000342	22
HLA-B*08:01	1	700	709	10	NSVAYSNNSI 0.000342	30
HLA-A*33:01	1	708	717	10	SIIPTNFTI 0.000342	22
HLA-A*02:03	1	774	783	10	NTQEVFAQVK 0.000342	24
HLA-B*58:01	1	891	900	10	LQIPFAMQMA 0.000342	22
HLA-A*31:01	1	936	945	10	SSTASALGKL 0.000342	23
HLA-B*15:01	1	964	972	9	SSNFGAISS 0.000342	22
HLA-A*30:01	1	1049	1058	10	FPQSAPHGVV 0.000342	40
HLA-A*02:06	1	1053	1061	9	APHGVVFLH 0.000342	30
HLA-B*51:01	1	1077	1086	10	AICHDGKAHF 0.000342	28
HLA-A*68:02	1	1226	1235	10	MVTIMLCCMT 0.000342	24
HLA-B*40:01	1	13	21	9	SQCVNLTR 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	304	312	9	TVEKGIYQT 0.000341	19
HLA-A*24:02	1	306	315	10	EKGIYQTSNF 0.000341	13
HLA-A*24:02	1	452	460	9	LFRKSNLKP 0.000341	13
HLA-A*32:01	1	459	467	9	KPFERDIST 0.000341	17
HLA-A*11:01	1	461	470	10	FERDISTEYI 0.000341	14
HLA-A*02:06	1	526	534	9	KSTNLVKNK 0.000341	30
HLA-A*02:03	1	588	596	9	SFGGVSUIT 0.000341	24
HLA-A*01:01	1	654	663	10	NNSYECDIPI 0.000341	27
HLA-B*51:01	1	668	676	9	CASYQTQTN 0.000341	28
HLA-B*15:01	1	810	819	10	SKRSFIEDLL 0.000341	22
HLA-B*44:02	1	822	830	9	KVTLADAGF 0.000341	13
HLA-A*30:01	1	832	840	9	KQYGDCLGD 0.000341	40
HLA-A*23:01	1	922	930	9	NQFNSAIGK 0.000341	13
HLA-B*51:01	1	1079	1087	9	CHDGKAHFP 0.000341	28
HLA-A*02:03	1	1098	1106	9	HWFVTQRNF 0.000341	24
HLA-B*44:03	1	1146	1155	10	KEELDKYFKN 0.000341	13
HLA-B*08:01	1	1149	1157	9	LDKYFKNHT 0.000341	30
HLA-B*44:03	1	1209	1217	9	WPWYIWLGF 0.000341	13
HLA-B*58:01	1	1259	1267	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	317	325	9	VQPTESIVR 0.00034	13
HLA-B*08:01	1	321	330	10	ESIVRFPNIT 0.00034	30
HLA-B*58:01	1	413	421	9	GNIADYNYK 0.00034	22
HLA-A*30:01	1	471	479	9	QAGSTPCNG 0.00034	40
HLA-A*31:01	1	486	495	10	YFPLQSYGFQ 0.00034	23
HLA-A*02:01	1	511	519	9	SFELLHAPA 0.00034	22
HLA-B*35:01	1	549	557	9	LTESNKKFL 0.00034	16
HLA-B*57:01	1	599	607	9	TNTSNQVAV 0.00034	30
HLA-B*51:01	1	687	695	9	QSIAYTMS 0.00034	28
HLA-A*24:02	1	737	745	9	MYICGDSTE 0.00034	13
HLA-A*30:02	1	795	804	10	GGFNFSQILP 0.00034	38
HLA-B*53:01	1	801	809	9	QILPDPSPK 0.00034	15
HLA-B*58:01	1	814	822	9	FIEDLLFNK 0.00034	22
HLA-B*08:01	1	894	903	10	PFAMQMAYRF 0.00034	30
HLA-A*30:01	1	929	938	10	GKIQDSLSST 0.00034	40
HLA-A*30:02	1	939	947	9	ASALGKLQD 0.00034	38
HLA-A*01:01	1	970	979	10	ISSVLNDILS 0.00034	28
HLA-A*33:01	1	1071	1079	9	NFTTAPAI 0.00034	22
HLA-B*07:02	1	1090	1099	10	GVFVSNQTHW 0.00034	19
HLA-A*26:01	1	1200	1209	10	LGKYEQYIKW 0.00034	18
HLA-A*30:01	1	1212	1220	9	YIWLGFIA 0.00034	40
HLA-B*08:01	1	30	39	10	NSFTRGVYYP 0.000339	30
HLA-A*32:01	1	77	85	9	KRFANPVLP 0.000339	17
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	307	315	9	KGITYQTSNF 0.000339	13
HLA-B*15:01	1	456	465	10	SNLKPFERDI 0.000339	22
HLA-A*68:01	1	461	469	9	FERDISTEI 0.000339	22
HLA-B*57:01	1	479	488	10	GVKGFNCYFP 0.000339	31
HLA-A*33:01	1	548	556	9	VLTESNKKF 0.000339	22
HLA-B*44:03	1	549	558	10	LTESNKKFLP 0.000339	13
HLA-A*68:01	1	768	777	10	AVEQDKNTQE 0.000339	22
HLA-B*15:01	1	888	896	9	GAALQIPFA 0.000339	22
HLA-B*15:01	1	973	982	10	VLNDILSRLD 0.000339	22
HLA-A*30:02	1	977	985	9	ILSRLDKVE 0.000339	38
HLA-A*30:02	1	986	995	10	AEVQIDRLIT 0.000339	38
HLA-A*33:01	1	990	998	9	IDRLITGRL 0.000339	22
HLA-B*44:03	1	1047	1055	9	MSFPQSAPH 0.000339	13
HLA-B*51:01	1	1061	1070	10	HVTYVPAQEK 0.000339	28
HLA-B*57:01	1	1082	1091	10	GKAHFPREGV 0.000339	31
HLA-A*03:01	1	1104	1112	9	RNFYEPQII 0.000339	18
HLA-B*57:01	1	1131	1140	10	NNTVYDPLQP 0.000339	31
HLA-B*44:02	1	1170	1178	9	NASVVNIQK 0.000339	13
HLA-B*57:01	1	1198	1207	10	QELGKYEQYI 0.000339	31
HLA-A*30:02	1	38	46	9	YDPKVFRSS 0.000338	38
HLA-B*57:01	1	289	298	10	ALDPLSETKC 0.000338	31
HLA-B*51:01	1	305	313	9	VEKGIYQTS 0.000338	28
HLA-A*01:01	1	432	441	10	AWNSNNLDSK 0.000338	28
HLA-A*33:01	1	500	508	9	VGYPYRVV 0.000338	22
HLA-B*07:02	1	529	538	10	NLVKNKCVNF 0.000338	19
HLA-A*68:01	1	591	599	9	GVSVITPGT 0.000338	22
HLA-B*44:03	1	701	709	9	SVAYSNNSI 0.000338	13
HLA-A*68:02	1	881	890	10	SGWTFGAGAA 0.000338	24
HLA-A*03:01	1	883	892	10	WTFGAGAAALQ 0.000338	18
HLA-A*01:01	1	886	895	10	GAGAALQIPF 0.000338	28
HLA-A*01:01	1	905	913	9	GIGVTQNVL 0.000338	28
HLA-A*68:02	1	973	982	10	VLNDILSRLD 0.000338	24
HLA-A*30:01	1	1066	1074	9	PAQEKNF 0.000338	40
HLA-B*08:01	1	77	85	9	KRFANPVLP 0.000337	31
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	277	286	10	NENGTITDAV 0.000337	24
HLA-B*40:01	1	357	365	9	NCVADYSVL 0.000337	12
HLA-A*30:01	1	362	371	10	YSVLYNSASF 0.000337	40
HLA-A*33:01	1	362	371	10	YSVLYNSASF 0.000337	22
HLA-B*51:01	1	373	381	9	TFKCYGVSP 0.000337	28
HLA-A*03:01	1	495	504	10	QPTYGVGYQP 0.000337	18
HLA-B*51:01	1	497	505	9	TYGVGYQPY 0.000337	28
HLA-A*02:01	1	498	506	9	YGVGYQPYP 0.000337	22
HLA-A*26:01	1	510	518	9	LSFELLHAP 0.000337	18
HLA-B*35:01	1	522	531	10	CGPKKSTNLV 0.000337	16
HLA-A*30:02	1	569	578	10	TTDAVRDPQT 0.000337	38
HLA-B*15:01	1	611	619	9	GVNCTEVPV 0.000337	22
HLA-A*02:03	1	652	661	10	HVNNSYECDI 0.000337	24
HLA-A*31:01	1	666	674	9	GICASYQTQ 0.000337	23
HLA-A*11:01	1	669	678	10	ASYQTQTNSP 0.000337	14
HLA-A*30:02	1	688	697	10	SIIAYTMSLG 0.000337	38
HLA-B*40:01	1	713	721	9	TNFTISVTT 0.000337	12
HLA-A*33:01	1	761	769	9	NRALTGIAV 0.000337	22
HLA-A*02:06	1	807	815	9	SKPSKRSFI 0.000337	30
HLA-A*68:02	1	872	881	10	SALLAGTITS 0.000337	24
HLA-A*30:01	1	904	913	10	NGIGVTQNVL 0.000337	40
HLA-B*58:01	1	978	987	10	LSRLDKVEAE 0.000337	22
HLA-A*31:01	1	994	1002	9	ITGRLQSLQ 0.000337	23
HLA-B*35:01	1	1016	1024	9	RASANLAAT 0.000337	16
HLA-A*02:01	1	1101	1109	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	339	348	10	FNATRFASVY 0.000336	14
HLA-A*31:01	1	339	348	10	FNATRFASVY 0.000336	23
HLA-A*32:01	1	344	352	9	FASVYAWNR 0.000336	17
HLA-A*32:01	1	667	675	9	ICASYQTQT 0.000336	17
HLA-A*68:02	1	696	704	9	LGVENSVAY 0.000336	24
HLA-A*03:01	1	711	719	9	IPTNFTISV 0.000336	18
HLA-B*58:01	1	813	822	10	SFIEDLLFNK 0.000336	22
HLA-B*15:01	1	816	825	10	EDLLFNKVTL 0.000336	22
HLA-B*58:01	1	912	921	10	VLYENQKLIA 0.000336	22
HLA-A*01:01	1	953	962	10	AQALNTLVKQ 0.000336	28
HLA-A*02:06	1	998	1007	10	LQSLQTYVTQ 0.000336	30
HLA-A*26:01	1	1036	1045	10	RVDFCGKGYH 0.000336	18
HLA-B*58:01	1	1189	1197	9	NLNESLIDL 0.000336	22
HLA-B*57:01	1	1234	1242	9	MTSCCSCLK 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*01:01	1	207	215	9	HTPINLVRG 0.000335	28
HLA-B*53:01	1	214	223	10	RGLPQGFSAL 0.000335	15
HLA-A*33:01	1	350	358	9	WNRKRISNC 0.000335	22
HLA-A*30:02	1	355	363	9	ISNCVADYS 0.000335	38
HLA-A*02:01	1	366	374	9	YNSASFSTF 0.000335	22
HLA-A*68:02	1	380	388	9	SPTKLNDLC 0.000335	24
HLA-B*15:01	1	562	570	9	FGRDIADTT 0.000335	22
HLA-B*35:01	1	676	685	10	NSPRRARSVA 0.000335	16
HLA-A*23:01	1	722	730	9	EILPVSMTK 0.000335	13
HLA-B*08:01	1	738	746	9	YICGDSTEC 0.000335	31
HLA-A*33:01	1	751	760	10	LQYGSFCTQL 0.000335	22
HLA-A*02:01	1	871	879	9	TSALLAGTI 0.000335	22
HLA-A*02:01	1	876	885	10	AGTITSGWTF 0.000335	22
HLA-B*07:02	1	915	924	10	ENQKLIANQF 0.000335	19
HLA-A*26:01	1	975	983	9	NDILSRLDK 0.000335	18
HLA-A*01:01	1	1070	1078	9	KNFTTAPAI 0.000335	28
HLA-A*26:01	1	1118	1127	10	FVSGNCDVVI 0.000335	18
HLA-A*24:02	1	1126	1134	9	VIGIVNNTV 0.000335	13
HLA-B*53:01	1	1194	1202	9	LIDLQELGK 0.000335	15
HLA-A*31:01	1	1221	1229	9	LIAIVMTI 0.000335	24
HLA-A*02:03	1	154	163	10	ESEFRVYSSA 0.000334	24
HLA-B*51:01	1	281	289	9	TITDAVDCA 0.000334	28

HLA-B*15:01	1	307	316	10	KGIYQTSNFR 0.000334	22
HLA-A*68:02	1	373	381	9	TFKCYGVSP 0.000334	24
HLA-B*35:01	1	400	408	9	RGDEVQRQA 0.000334	16
HLA-B*57:01	1	421	430	10	KLPDDFTGCV 0.000334	31
HLA-A*30:01	1	436	444	9	NNLDSKVG 0.000334	41
HLA-A*68:02	1	443	452	10	GGNYNYLYRL 0.000334	24
HLA-A*23:01	1	548	557	10	VLTESNKKFL 0.000334	13
HLA-A*68:02	1	611	620	10	GVNCTEVPVA 0.000334	24
HLA-A*02:06	1	621	629	9	IHADQLTPT 0.000334	30
HLA-A*11:01	1	682	691	10	RSVASQSIIA 0.000334	14
HLA-A*01:01	1	713	721	9	TNFTISVTT 0.000334	28
HLA-A*02:06	1	748	757	10	NLLLQYGSFC 0.000334	30
HLA-A*01:01	1	751	760	10	LQYGSFCTQL 0.000334	28
HLA-B*51:01	1	760	768	9	LNRLTGIA 0.000334	28
HLA-A*30:01	1	772	780	9	DKNTEVFVA 0.000334	41
HLA-B*15:01	1	856	864	9	TVLPPLD 0.000334	22
HLA-B*40:01	1	998	1006	9	LQSLQTYVT 0.000334	12
HLA-A*02:06	1	1184	1193	10	NEVAKNLNES 0.000334	30
HLA-B*44:02	1	1209	1217	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	PLVDLPIGI 0.000333	18
HLA-B*58:01	1	252	260	9	SSGWTAGAA 0.000333	22
HLA-B*51:01	1	325	334	10	RFPNITNLCP 0.000333	28
HLA-A*30:02	1	329	337	9	ITNLCPFGE 0.000333	38
HLA-A*68:01	1	330	339	10	TNLCPFGEVF 0.000333	22
HLA-B*51:01	1	367	376	10	NSASFSTFKC 0.000333	28
HLA-A*01:01	1	501	509	9	GYQPYRVVV 0.000333	28
HLA-A*02:01	1	523	531	9	GPKKSTNLV 0.000333	22
HLA-B*51:01	1	584	593	10	ITPCSFGGVS 0.000333	28
HLA-A*02:01	1	713	721	9	TNFTISVTT 0.000333	22
HLA-B*53:01	1	713	721	9	TNFTISVTT 0.000333	15
HLA-B*08:01	1	798	806	9	NFSQILPDP 0.000333	31
HLA-A*30:01	1	807	816	10	SKPSKRSEFIE 0.000333	41
HLA-A*26:01	1	847	855	9	ICAQKFNGL 0.000333	18
HLA-A*32:01	1	952	960	9	NAQALNTLV 0.000333	17
HLA-B*15:01	1	1038	1046	9	DFCGKGYHL 0.000333	22
HLA-B*53:01	1	1038	1047	10	DFCGKGYHLM 0.000333	15
HLA-B*08:01	1	1050	1058	9	PQSAPHGVV 0.000333	31
HLA-B*35:01	1	1163	1171	9	LGDISGINA 0.000333	16
HLA-A*68:02	1	1198	1206	9	QELGKYEYQ 0.000333	24
HLA-B*51:01	1	17	25	9	NLTTRTQLP 0.000332	28
HLA-A*68:02	1	66	74	9	HAIHVSGTN 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	244	252	9	SYLTPGDSS 0.000332	31
HLA-A*11:01	1	265	273	9	GYLQPRTF 0.000332	14
HLA-A*30:01	1	390	398	9	TNVYADSFV 0.000332	41
HLA-A*68:01	1	549	557	9	LTESNKKFL 0.000332	22
HLA-A*68:02	1	569	577	9	TTDAVRDPQ 0.000332	24
HLA-A*24:02	1	588	597	10	SFGGVSIVTP 0.000332	13
HLA-A*30:02	1	642	650	9	TRAGCLIGA 0.000332	38
HLA-A*68:02	1	667	675	9	ICASYQTQT 0.000332	24
HLA-A*03:01	1	670	678	9	SYQTQTNST 0.000332	18
HLA-A*68:01	1	773	781	9	KNTQEVFAQ 0.000332	22
HLA-A*23:01	1	916	925	10	NQKLIANQFN 0.000332	13
HLA-A*30:01	1	987	995	9	EVQIDRLIT 0.000332	41

HLA-A*30:01	1	1071	1080	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*03:01	1	264	273	10	VGYLQPRFTL 0.000331	18
HLA-B*51:01	1	285	293	9	AVDCALDPL 0.000331	28
HLA-A*33:01	1	333	341	9	CPFGEVFNA 0.000331	22
HLA-B*08:01	1	360	369	10	ADYSVLYNSA 0.000331	31
HLA-A*02:01	1	369	377	9	ASFSTFKCY 0.000331	22
HLA-A*02:01	1	370	379	10	SFSTFKCYGV 0.000331	22
HLA-A*03:01	1	405	414	10	RQIAPGQTGN 0.000331	18
HLA-A*68:01	1	424	433	10	DDFTGCVIAW 0.000331	22
HLA-A*33:01	1	444	453	10	GNYNLYRLF 0.000331	22
HLA-A*31:01	1	499	508	10	GVGYQPYRVV 0.000331	24
HLA-B*15:01	1	500	509	10	VGYPYRVVV 0.000331	22
HLA-A*01:01	1	523	532	10	GPKKSTNLVK 0.000331	28
HLA-A*33:01	1	523	531	9	GPKKSTNLV 0.000331	22
HLA-A*23:01	1	576	584	9	PQTLEILDI 0.000331	13
HLA-A*32:01	1	618	626	9	PVAIHADQL 0.000331	17
HLA-B*51:01	1	620	628	9	AIHADQLTP 0.000331	28
HLA-A*30:01	1	636	645	10	GSNVFQTRAG 0.000331	41
HLA-A*30:02	1	767	776	10	IAVEQDKNTQ 0.000331	38
HLA-B*51:01	1	836	844	9	DCLGDIAAR 0.000331	28
HLA-A*68:02	1	842	851	10	AARDLICAQK 0.000331	24
HLA-A*68:02	1	950	958	9	NQNAQALNT 0.000331	24
HLA-B*15:01	1	977	985	9	ILSRLDKVE 0.000331	22
HLA-A*02:06	1	995	1004	10	TGRLQSLQTY 0.000331	30
HLA-A*68:02	1	1058	1066	9	VFLHVTVYP 0.000331	24
HLA-A*33:01	1	1090	1099	10	GVFVSNNGTHW 0.000331	22
HLA-A*02:06	1	1093	1102	10	VSNNGTHWFT 0.000331	30
HLA-A*01:01	1	1111	1120	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*07:02	1	80	89	10	ANPVLPFNDG 0.00033	20
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*02:01	1	261	269	9	AYYVGYLQP 0.00033	22
HLA-A*23:01	1	299	307	9	TLKSFTVEK 0.00033	13
HLA-A*03:01	1	310	318	9	YQTSNFRVQ 0.00033	18
HLA-A*30:01	1	321	330	10	ESIVRFPNIT 0.00033	41
HLA-A*68:02	1	426	435	10	FTGCVIAWNS 0.00033	24
HLA-B*35:01	1	475	484	10	TPCNGVKGFN 0.00033	16
HLA-A*33:01	1	524	532	9	PKKSTNLVK 0.00033	22
HLA-A*03:01	1	613	622	10	NCTEVPVAIH 0.00033	18
HLA-A*01:01	1	644	652	9	AGCLIGAEH 0.00033	28
HLA-A*33:01	1	677	685	9	SPRRARSVA 0.00033	22
HLA-B*44:03	1	708	717	10	SIAIPTNFTI 0.00033	13
HLA-A*30:02	1	829	838	10	GFIKQYGDCL 0.00033	38
HLA-B*58:01	1	880	889	10	TSGWTFGAGA 0.00033	23
HLA-A*30:02	1	903	912	10	FNGIGVTQNV 0.00033	38
HLA-B*08:01	1	1064	1073	10	YVPAQEKNT 0.00033	31
HLA-A*23:01	1	1102	1111	10	TQRNFYEPQI 0.00033	13
HLA-A*23:01	1	1138	1146	9	LQPELDSFK 0.00033	13
HLA-A*68:01	1	1160	1169	10	DVDLGDISGI 0.00033	22
HLA-B*44:03	1	1164	1173	10	GDISGINASV 0.00033	13
HLA-A*01:01	1	1199	1208	10	ELGKYEQYIK 0.00033	28
HLA-A*02:01	1	77	85	9	KRFANPVLV 0.000329	22
HLA-A*68:01	1	90	98	9	VYFASTEKS 0.000329	22
HLA-A*23:01	1	93	101	9	ASTEKSNII 0.000329	13
HLA-B*44:02	1	180	189	10	EGKQGNFKNL 0.000329	14
HLA-A*30:01	1	211	219	9	NLVRGLPQG 0.000329	41
HLA-A*03:01	1	243	251	9	RSYLTGDS 0.000329	18
HLA-A*30:01	1	285	293	9	AVDCALDPL 0.000329	41
HLA-A*31:01	1	312	320	9	TSNFRVQPT 0.000329	24
HLA-A*68:02	1	347	355	9	VYAWNRKRI 0.000329	24



HLA-A*11:01	1	372	381	10	STFKCYGVSP 0.000329	14
HLA-B*07:02	1	434	442	9	NSNNLDSKV 0.000329	20
HLA-A*02:03	1	443	452	10	GGNYNYLYRL 0.000329	24
HLA-B*57:01	1	450	458	9	YRLFRRKSNL 0.000329	31
HLA-A*33:01	1	508	517	10	VVLSFELLHA 0.000329	22
HLA-A*01:01	1	518	526	9	PATVCGPKK 0.000329	28
HLA-A*31:01	1	547	556	10	GVLTESNKKF 0.000329	24
HLA-A*02:01	1	656	665	10	SYECDIPIGA 0.000329	22
HLA-B*15:01	1	672	680	9	QTQTNSPRR 0.000329	22
HLA-B*15:01	1	754	762	9	GSFCTQLNR 0.000329	22
HLA-B*44:02	1	758	767	10	TQLNRALTGI 0.000329	14
HLA-A*30:01	1	853	862	10	NGLTVLPPLL 0.000329	41
HLA-B*15:01	1	1004	1013	10	YVTQQLIRAA 0.000329	22
HLA-A*30:02	1	1234	1242	9	MTSCCCLK 0.000329	38
HLA-A*32:01	1	92	100	9	FASTEKSNL 0.000328	17
HLA-A*68:02	1	138	146	9	DPFLGVVYH 0.000328	24
HLA-A*33:01	1	257	266	10	AGAAAYVGY 0.000328	22
HLA-A*02:01	1	357	366	10	NCVADYSVLY 0.000328	22
HLA-A*02:01	1	362	371	10	YSVLYNSASF 0.000328	22
HLA-B*51:01	1	378	387	10	GVSPTKLNDL 0.000328	28
HLA-A*02:03	1	474	483	10	STPCNGVKGF 0.000328	24
HLA-A*33:01	1	500	509	10	VGYPYRVVV 0.000328	22
HLA-A*02:06	1	596	605	10	TPGTNTSNQV 0.000328	30
HLA-A*32:01	1	599	608	10	TNTSNQVAVL 0.000328	17
HLA-A*31:01	1	607	616	10	VLYQGVNCTE 0.000328	24
HLA-A*11:01	1	719	728	10	VTTEILPVSM 0.000328	14
HLA-A*01:01	1	752	760	9	QYGSFCTQL 0.000328	28
HLA-A*30:01	1	886	895	10	GAGAALQIPF 0.000328	41
HLA-A*31:01	1	897	906	10	MQMAYRFNGI 0.000328	24
HLA-B*58:01	1	945	953	9	LQDVVNQNA 0.000328	23
HLA-B*40:01	1	964	973	10	SSNFGAISSV 0.000328	12
HLA-A*02:01	1	1012	1021	10	AAEIRASANL 0.000328	22
HLA-B*53:01	1	1062	1070	9	VTYVPAQEK 0.000328	15
HLA-B*57:01	1	1165	1173	9	DISGINASV 0.000328	31
HLA-A*33:01	1	1223	1231	9	AIVMVTIML 0.000328	22
HLA-A*33:01	1	15	23	9	CVNLTRTQ 0.000327	22
HLA-A*02:06	1	103	112	10	GWIFGTTLDS 0.000327	30
HLA-A*26:01	1	125	134	10	NVVIKVCEFQ 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	209	217	9	PINLVRGLP 0.000327	41
HLA-A*30:01	1	242	251	10	HRSYLTPGDS 0.000327	41
HLA-A*24:02	1	418	427	10	YNYKLPDDFT 0.000327	13
HLA-A*01:01	1	423	431	9	PDDFTGCVI 0.000327	28
HLA-A*26:01	1	462	471	10	ERDISTEIQ 0.000327	18
HLA-B*58:01	1	471	480	10	QAGSTPCNGV 0.000327	23
HLA-B*51:01	1	558	566	9	PFQQFGRDI 0.000327	28
HLA-B*44:02	1	599	607	9	TNTSNQVAV 0.000327	14
HLA-B*08:01	1	822	830	9	KVTLADAGF 0.000327	31
HLA-A*24:02	1	853	861	9	NGLTVLPPLL 0.000327	13
HLA-B*58:01	1	879	888	10	ITSGWTFGAG 0.000327	23
HLA-A*02:06	1	909	918	10	TQNVLYENQK 0.000327	30
HLA-B*57:01	1	948	957	10	VVNQNAQALN 0.000327	31
HLA-B*08:01	1	989	997	9	QIDRLITGR 0.000327	31
HLA-B*51:01	1	1099	1107	9	WFVTQRNFY 0.000327	28
HLA-A*01:01	1	1180	1188	9	IDRLNEVAK 0.000327	28
HLA-B*07:02	1	1181	1190	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-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	246	254	9	LTPGDSSSG 0.000326	41
HLA-A*33:01	1	301	310	10	KSFTVEKGIY 0.000326	22
HLA-B*15:01	1	372	381	10	STFKCYGVSP 0.000326	22
HLA-A*26:01	1	406	414	9	QIAPGQTGN 0.000326	18

HLA-A*32:01	1	443	452	10	GGNYNYLYRL 0.000326	17
HLA-B*44:03	1	450	458	9	YRLFRKSNL 0.000326	13
HLA-A*02:06	1	462	470	9	ERDISTEYI 0.000326	30
HLA-A*68:02	1	540	549	10	FNGLTGTGVL 0.000326	24
HLA-A*23:01	1	557	566	10	LPFQQFGRDI 0.000326	13
HLA-B*44:03	1	600	608	9	NTSNQVAVL 0.000326	13
HLA-B*51:01	1	634	642	9	STGSNVFQT 0.000326	28
HLA-B*58:01	1	636	645	10	GSNVFQTRAG 0.000326	23
HLA-A*24:02	1	722	730	9	EILPVSMTK 0.000326	13
HLA-A*30:01	1	748	756	9	NLLLQYGSF 0.000326	41
HLA-A*68:01	1	767	776	10	IAVEQDKNTQ 0.000326	22
HLA-A*31:01	1	793	801	9	DFGGFNFSQ 0.000326	24
HLA-B*53:01	1	800	808	9	SQILPDPSK 0.000326	15
HLA-A*68:02	1	821	830	10	NKVTLADAGF 0.000326	24
HLA-B*15:01	1	893	902	10	IPFAMQMAYR 0.000326	22
HLA-A*26:01	1	919	928	10	LIANQFNSAI 0.000326	18
HLA-A*24:02	1	1001	1010	10	LQTYVTQQLI 0.000326	13
HLA-A*68:02	1	1008	1016	9	QLIRAAEIR 0.000326	24
HLA-A*32:01	1	1067	1075	9	AQEKNFTTA 0.000326	17
HLA-A*33:01	1	1136	1145	10	DPLQPELDSF 0.000326	22
HLA-A*68:02	1	1153	1161	9	FKNHTSPDV 0.000326	24
HLA-B*58:01	1	1155	1164	10	NHTSPDVDLG 0.000326	23
HLA-B*15:01	1	1166	1174	9	ISGINASVV 0.000326	22
HLA-B*51:01	1	1185	1193	9	EVAKNLNES 0.000326	28
HLA-A*32:01	1	1208	1216	9	KWPWYIWL 0.000326	17
HLA-B*08:01	1	1260	1269	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	NVVIKVFCE 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	265	274	10	GYLQPRFTL 0.000325	19
HLA-B*15:01	1	298	307	10	CTLKSFTVE 0.000325	22
HLA-A*30:01	1	542	550	9	GLTGTGVL 0.000325	41
HLA-A*30:02	1	581	590	10	ILDITPCSF 0.000325	38
HLA-A*30:01	1	603	612	10	NQVAVLYQGV 0.000325	41
HLA-B*15:01	1	603	611	9	NQVAVLYQG 0.000325	22
HLA-A*02:03	1	619	628	10	VAIHADQLTP 0.000325	25
HLA-B*07:02	1	621	629	9	IHADQLTPT 0.000325	20
HLA-A*01:01	1	681	690	10	ARSVASQSII 0.000325	28
HLA-A*26:01	1	730	739	10	KTSVDCTMYI 0.000325	19
HLA-A*26:01	1	756	764	9	FCTQLNRL 0.000325	19
HLA-A*02:06	1	777	786	10	EVFAQVKQIY 0.000325	30
HLA-A*03:01	1	801	809	9	QILPDPSKP 0.000325	18
HLA-B*15:01	1	857	865	9	VLPLLLTDE 0.000325	22
HLA-B*53:01	1	940	949	10	SALGKLQDVV 0.000325	15
HLA-A*01:01	1	973	982	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*68:02	1	266	275	10	YLQPRFTLLK 0.000324	24
HLA-B*44:02	1	321	329	9	ESIVRFPNI 0.000324	14
HLA-A*68:02	1	364	373	10	VLVNSASFST 0.000324	24
HLA-A*23:01	1	378	387	10	GVSPTKLNDL 0.000324	13
HLA-B*58:01	1	459	467	9	KPFERDIST 0.000324	23
HLA-A*30:02	1	543	552	10	LTGTGVLTES 0.000324	38
HLA-A*68:01	1	547	556	10	GVLTESNKKF 0.000324	22
HLA-A*68:01	1	581	589	9	ILDITPCSF 0.000324	22
HLA-A*31:01	1	748	756	9	NLLLQYGSF 0.000324	24
HLA-B*58:01	1	755	764	10	SFCTQLNRL 0.000324	23
HLA-A*24:02	1	877	886	10	GTITSGWTFG 0.000324	13
HLA-A*02:06	1	901	910	10	YRFNGIGVTQ 0.000324	30
HLA-B*44:03	1	965	974	10	SNFGAISSVL 0.000324	13
HLA-A*02:03	1	1140	1149	10	PELDSFKEEL 0.000324	25

HLA-B*53:01	1	1143	1151	9	DSFKEELDK 0.000324	15
HLA-A*02:06	1	1148	1157	10	ELDKYFKNHT 0.000324	30
HLA-A*02:01	1	1194	1203	10	LIDLQELGKY 0.000324	22
HLA-A*33:01	1	1213	1222	10	IWLGFIAGLI 0.000324	22
HLA-A*31:01	1	1216	1225	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-B*44:02	1	76	84	9	TKRFANPVL 0.000323	14
HLA-A*30:01	1	84	92	9	LPFNDGVYF 0.000323	41
HLA-A*01:01	1	307	316	10	KGITYQTSNFR 0.000323	28
HLA-B*35:01	1	317	325	9	VQPTESIVR 0.000323	16
HLA-A*32:01	1	371	379	9	FSTFKCYGV 0.000323	17
HLA-B*57:01	1	541	549	9	NGLTGTGVL 0.000323	31
HLA-A*01:01	1	559	567	9	FQQFGRDIA 0.000323	28
HLA-B*51:01	1	806	815	10	PSKPSKRSFI 0.000323	28
HLA-B*15:01	1	823	832	10	VTLADAGFIK 0.000323	23
HLA-A*02:06	1	842	850	9	AARDLICAQ 0.000323	30
HLA-A*02:03	1	852	861	10	FNGLTVLPLL 0.000323	25
HLA-B*15:01	1	910	919	10	QNVLYENQKL 0.000323	23
HLA-A*01:01	1	944	952	9	KLQDVVNQN 0.000323	28
HLA-B*07:02	1	961	970	10	KQLSSNFGAI 0.000323	20
HLA-B*07:02	1	979	988	10	SRLDKVEAEV 0.000323	20
HLA-A*26:01	1	999	1007	9	QSLQTYVTQ 0.000323	19
HLA-A*68:02	1	1013	1022	10	AEIRASANLA 0.000323	24
HLA-A*33:01	1	1036	1044	9	RVDFCGKGY 0.000323	22
HLA-A*24:02	1	1067	1075	9	AQEKNFTTA 0.000323	13
HLA-A*24:02	1	1071	1079	9	NFTTAPAIC 0.000323	13
HLA-A*24:02	1	1127	1135	9	IGIVNNTVY 0.000323	13
HLA-A*23:01	1	1143	1152	10	DSFKEELDKY 0.000323	13
HLA-B*58:01	1	1169	1177	9	INASVVNIQ 0.000323	23
HLA-A*02:01	1	1201	1209	9	GKYEQYIKW 0.000323	22
HLA-B*51:01	1	75	84	10	GTKRFANPVL 0.000322	28
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-B*15:01	1	314	323	10	NFRVQPTESI 0.000322	23
HLA-B*44:03	1	413	422	10	GNIADYNYKL 0.000322	13
HLA-A*31:01	1	518	526	9	PATVCGPKK 0.000322	24
HLA-A*24:02	1	539	548	10	NFNGLTGTGV 0.000322	13
HLA-A*01:01	1	544	552	9	TGTGVLTES 0.000322	28
HLA-A*02:01	1	588	597	10	SFGGVSVITP 0.000322	22
HLA-B*57:01	1	606	615	10	AVLYQGVNCT 0.000322	31
HLA-A*03:01	1	634	642	9	STGSNVFQT 0.000322	18
HLA-B*08:01	1	656	665	10	SYECDIPIGA 0.000322	31
HLA-B*51:01	1	700	708	9	NSVAYSNNS 0.000322	28
HLA-B*57:01	1	708	716	9	SIIPTNFT 0.000322	31
HLA-A*02:03	1	728	736	9	MTKTSVDCT 0.000322	25
HLA-B*53:01	1	747	756	10	SNLLLQYGSF 0.000322	15
HLA-B*57:01	1	775	783	9	TQEVFAQVK 0.000322	31
HLA-B*07:02	1	779	787	9	FAQVKQIYK 0.000322	20
HLA-B*35:01	1	814	822	9	FIEDLLFNK 0.000322	16
HLA-A*11:01	1	822	830	9	KVTLADAGF 0.000322	14
HLA-A*24:02	1	850	858	9	QKFNGLTVL 0.000322	13
HLA-A*30:02	1	853	862	10	NGLTVLPLL 0.000322	38
HLA-B*08:01	1	944	953	10	KLQDVVNQNA 0.000322	31
HLA-B*15:01	1	1016	1024	9	RASANLAAT 0.000322	23
HLA-B*15:01	1	1020	1028	9	NLAATKMSE 0.000322	23
HLA-A*68:01	1	1025	1033	9	KMSECVLGQ 0.000322	22
HLA-B*40:01	1	1049	1058	10	FPQSAPHGVV 0.000322	12
HLA-A*01:01	1	1053	1062	10	APHGVVFLHV 0.000322	28
HLA-A*23:01	1	1058	1067	10	VFLHVTVVPA 0.000322	14
HLA-B*07:02	1	1103	1111	9	QRNFYEPQI 0.000322	20

HLA-B*51:01	1	1144	1153	10	SFKEELDKYF 0.000322	28
HLA-A*32:01	1	1145	1153	9	FKEELDKYF 0.000322	17
HLA-A*02:06	1	1164	1172	9	GDISGINAS 0.000322	30
HLA-A*24:02	1	1170	1178	9	NASVVNIQK 0.000322	13
HLA-A*24:02	1	1253	1262	10	FDEDDSEPVL 0.000322	13
HLA-B*53:01	1	15	23	9	CVNLTRRTQ 0.000321	15
HLA-B*44:03	1	34	43	10	RGVYYPDKVF 0.000321	13
HLA-B*08:01	1	64	73	10	WFHAIHVSGT 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	313	321	9	SNFRVQPTTE 0.000321	29
HLA-A*31:01	1	349	358	10	AWNRRKRISNC 0.000321	24
HLA-B*51:01	1	440	449	10	SKVGGNYNYL 0.000321	29
HLA-A*31:01	1	453	461	9	FRKSNLKPFF 0.000321	24
HLA-B*15:01	1	473	481	9	GSTPCNGVK 0.000321	23
HLA-A*24:02	1	548	557	10	VLTESNKKFL 0.000321	13
HLA-A*30:02	1	732	740	9	SVDCTMYIC 0.000321	38
HLA-A*30:01	1	736	744	9	TMYICGDST 0.000321	41
HLA-B*44:02	1	771	780	10	QDKNTQEVFA 0.000321	14
HLA-A*11:01	1	878	887	10	TITSGWTFGA 0.000321	14
HLA-A*30:01	1	921	929	9	ANQFNSAIG 0.000321	41
HLA-A*02:06	1	979	987	9	SRLDKVEAE 0.000321	30
HLA-B*53:01	1	1000	1009	10	SLQTYVTQQL 0.000321	15
HLA-A*23:01	1	1002	1011	10	QTYVTQQLIR 0.000321	14
HLA-B*08:01	1	1052	1061	10	SAPHGVVFLH 0.000321	31
HLA-A*02:03	1	1129	1137	9	IVNNTVYDP 0.000321	25
HLA-A*33:01	1	1226	1234	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	348	356	9	YAWNRRKRIS 0.00032	23
HLA-A*68:01	1	659	667	9	CDIPIGAGI 0.00032	22
HLA-A*32:01	1	763	771	9	ALTGIAVEQ 0.00032	17
HLA-A*30:02	1	871	880	10	TSALLAGTIT 0.00032	38
HLA-B*57:01	1	886	894	9	GAGAALQIP 0.00032	31
HLA-A*31:01	1	888	896	9	GAALQIPFA 0.00032	24
HLA-B*57:01	1	941	949	9	ALGKLQDVV 0.00032	31
HLA-B*58:01	1	984	992	9	VEAEVQIDR 0.00032	23
HLA-A*30:02	1	1023	1032	10	ATKMSECVLG 0.00032	38
HLA-A*31:01	1	1044	1053	10	YHLMSFPQSA 0.00032	24
HLA-B*44:03	1	1121	1129	9	GNCDDVIGI 0.00032	13
HLA-B*35:01	1	1212	1220	9	YIWLGFIAI 0.00032	16
HLA-A*30:02	1	1221	1230	10	LIAIVMVTIM 0.00032	38
HLA-A*68:02	1	1221	1230	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	276	285	10	YNENGTITDA 0.000319	25
HLA-A*32:01	1	306	315	10	EKGIYQTSNF 0.000319	17
HLA-A*68:01	1	310	318	9	YQTSNFRVQ 0.000319	22
HLA-B*40:01	1	330	339	10	TNLCPFGEVF 0.000319	12
HLA-A*30:02	1	337	346	10	EVFNATRFAS 0.000319	38
HLA-A*68:01	1	369	378	10	ASFSTFKCYG 0.000319	22
HLA-B*40:01	1	438	446	9	LDSKVGGNY 0.000319	12
HLA-B*40:01	1	500	508	9	VGYPYRVV 0.000319	12
HLA-A*01:01	1	612	620	9	VNCTEVPVA 0.000319	28
HLA-A*03:01	1	626	634	9	LTPTWRVYS 0.000319	19
HLA-A*02:03	1	644	653	10	AGCLIGAHEV 0.000319	25
HLA-A*32:01	1	689	698	10	IIAYTMSLGV 0.000319	17
HLA-B*35:01	1	704	712	9	YSNNSIAIP 0.000319	16
HLA-B*51:01	1	708	716	9	SIAIPTNFT 0.000319	29
HLA-A*33:01	1	773	782	10	KNTQEVFAQV 0.000319	22
HLA-B*08:01	1	782	790	9	VKQIYKTPP 0.000319	31
HLA-A*02:06	1	810	819	10	SKRSFIEDLL 0.000319	30

HLA-B*07:02	1	843	852	10	ARDLICAQKF 0.000319	20
HLA-A*68:02	1	852	861	10	FNGLTVLPPL 0.000319	25
HLA-B*08:01	1	930	939	10	KIQDLSLSSTA 0.000319	31
HLA-B*08:01	1	985	994	10	EAEVQIDRLI 0.000319	31
HLA-A*31:01	1	1048	1056	9	SFPQSAPHG 0.000319	24
HLA-B*08:01	1	1057	1066	10	VVFLHVTYVP 0.000319	31
HLA-A*24:02	1	1062	1071	10	VTYVPAQEKN 0.000319	13
HLA-A*30:02	1	1097	1105	9	THWFVTQRN 0.000319	38
HLA-A*23:01	1	1210	1219	10	PWYIWLGFIA 0.000319	14
HLA-A*02:03	1	17	26	10	NLTTTRTQLPP 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-A*03:01	1	239	247	9	QTLHRSYLT 0.000318	19
HLA-B*51:01	1	249	257	9	GDSSSGWTA 0.000318	29
HLA-A*02:06	1	273	281	9	LLKYNENGT 0.000318	30
HLA-B*15:01	1	288	296	9	CALDPLSET 0.000318	23
HLA-B*15:01	1	309	318	10	IYQTSNFRVQ 0.000318	23
HLA-B*51:01	1	344	353	10	FASVYAWNRK 0.000318	29
HLA-B*07:02	1	379	388	10	VSPTKLNLDLC 0.000318	20
HLA-A*26:01	1	499	507	9	GVGYPYRV 0.000318	19
HLA-B*57:01	1	522	531	10	CGPKKSTNLV 0.000318	31
HLA-A*03:01	1	604	612	9	QVAVLYQGV 0.000318	19
HLA-A*11:01	1	614	623	10	CTEVPVAIHA 0.000318	15
HLA-A*26:01	1	670	679	10	SYQTQTNSPR 0.000318	19
HLA-A*30:02	1	675	683	9	TNSPRRARS 0.000318	38
HLA-A*01:01	1	771	780	10	QDKNTQEVFA 0.000318	28
HLA-B*15:01	1	832	840	9	KQYGDCLGD 0.000318	23
HLA-A*24:02	1	843	851	9	ARDLICAQK 0.000318	13
HLA-A*01:01	1	894	903	10	PFAMQMAYRF 0.000318	28
HLA-A*01:01	1	910	918	9	QNVLYENQK 0.000318	28
HLA-A*30:01	1	910	919	10	QNVLYENQKL 0.000318	41
HLA-B*08:01	1	936	945	10	SSTASALGKL 0.000318	31
HLA-A*24:02	1	1002	1011	10	QTYVTQQLIR 0.000318	13
HLA-B*15:01	1	1049	1057	9	FPQSAPHGV 0.000318	23
HLA-A*01:01	1	1101	1110	10	VTQRNFYEPQ 0.000318	28
HLA-B*44:02	1	77	85	9	KRFANPVLP 0.000317	14
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	246	254	9	LTPGDSSSG 0.000317	28
HLA-A*03:01	1	421	430	10	KLPDDFTGCV 0.000317	19
HLA-A*30:01	1	466	475	10	STEIYQAGST 0.000317	41
HLA-A*26:01	1	585	594	10	TPCSFGGVSV 0.000317	19
HLA-A*23:01	1	695	704	10	SLGVENSVAI 0.000317	14
HLA-B*40:01	1	708	717	10	SIAIPTNFTI 0.000317	13
HLA-A*23:01	1	737	745	9	MYICGDSTE 0.000317	14
HLA-A*02:06	1	741	749	9	GDSTECSNL 0.000317	30
HLA-A*32:01	1	789	797	9	PPIKDFGGF 0.000317	17
HLA-A*30:01	1	819	827	9	LFNKVTLAD 0.000317	41
HLA-B*40:01	1	996	1005	10	GRLQSLQTYV 0.000317	13
HLA-B*51:01	1	998	1006	9	LQSLQTYVT 0.000317	29
HLA-B*15:01	1	1037	1046	10	VDFCGKGYHL 0.000317	23
HLA-A*11:01	1	1091	1099	9	VFVSNQTHW 0.000317	15
HLA-B*58:01	1	1129	1137	9	IVNNTVYDP 0.000317	23
HLA-A*30:02	1	1199	1208	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*31:01	1	236	244	9	TRFQTLHRS 0.000316	24

HLA-A*02:03	1	320	329	10	TESIVRFPNI 0.000316	25
HLA-B*58:01	1	372	380	9	STFKCYGVS 0.000316	23
HLA-A*33:01	1	385	393	9	NDLCFTNVY 0.000316	22
HLA-A*02:06	1	396	405	10	SFVIRGDEVV 0.000316	30
HLA-B*53:01	1	441	449	9	KVGGNYNYL 0.000316	15
HLA-B*15:01	1	514	523	10	LLHAPATVCG 0.000316	23
HLA-A*30:01	1	574	582	9	RDPQTLEIL 0.000316	41
HLA-A*03:01	1	600	608	9	NTSNQVAVL 0.000316	19
HLA-B*40:01	1	715	724	10	FTISVTTEIL 0.000316	13
HLA-B*58:01	1	775	783	9	TQEVFAQVK 0.000316	23
HLA-A*02:06	1	820	828	9	FNKVTLADA 0.000316	30
HLA-A*24:02	1	861	870	10	LLTDEMIAQY 0.000316	13
HLA-B*08:01	1	959	968	10	LVKQLSSNFG 0.000316	31
HLA-A*68:01	1	966	974	9	NFGAISSVL 0.000316	22
HLA-B*58:01	1	990	998	9	IDRLITGRL 0.000316	23
HLA-B*44:03	1	1062	1070	9	VTYVPAQEK 0.000316	13
HLA-B*08:01	1	1072	1080	9	FTTAPAICH 0.000316	31
HLA-A*30:01	1	1118	1126	9	FVSGNCDVV 0.000316	41
HLA-A*02:06	1	1154	1163	10	KNHTSPDVDL 0.000316	30
HLA-B*51:01	1	1214	1223	10	WLGFIAGLIA 0.000316	29
HLA-B*07:02	1	97	106	10	KSNIIIRGWIF 0.000315	20
HLA-B*07:02	1	266	275	10	YLQPRTFLLK 0.000315	20
HLA-A*30:01	1	331	339	9	NLCPFGEVF 0.000315	41
HLA-A*31:01	1	396	404	9	SFVIRGDEV 0.000315	24
HLA-B*44:02	1	413	422	10	GNIADYNYKL 0.000315	14
HLA-B*40:01	1	445	453	9	NYNYLYRLF 0.000315	13
HLA-B*07:02	1	489	498	10	LQSYGFQPTY 0.000315	20
HLA-A*68:01	1	552	561	10	SNKKFLPFQQ 0.000315	22
HLA-B*08:01	1	627	636	10	TPTWRVYSTG 0.000315	31
HLA-B*15:01	1	634	643	10	STGSNVFQTR 0.000315	23
HLA-B*53:01	1	640	648	9	FQTRAGCLI 0.000315	15
HLA-A*30:01	1	659	667	9	CDIPIGAGI 0.000315	41
HLA-A*68:01	1	762	770	9	RALTGIAVE 0.000315	22
HLA-B*15:01	1	773	782	10	KNTQEVFAQV 0.000315	23
HLA-A*30:01	1	782	790	9	VKQIYKTPP 0.000315	41
HLA-B*07:02	1	788	796	9	TPPIKDFGG 0.000315	20
HLA-A*68:01	1	801	810	10	QILPDPSKPS 0.000315	22
HLA-A*02:06	1	813	821	9	SFIEDLLFN 0.000315	30
HLA-A*02:03	1	883	892	10	WTFGAGAALQ 0.000315	25
HLA-A*30:01	1	913	922	10	LYENQKLIAN 0.000315	41
HLA-B*44:03	1	950	958	9	NQNAQALNT 0.000315	13
HLA-A*02:06	1	952	961	10	NAQALNTLVK 0.000315	30
HLA-B*35:01	1	952	961	10	NAQALNTLVK 0.000315	16
HLA-A*03:01	1	1046	1054	9	LMSFPQSAP 0.000315	19
HLA-A*68:01	1	1053	1062	10	APHGVVFLHV 0.000315	22
HLA-A*68:01	1	1060	1069	10	LHVTVVPAQE 0.000315	22
HLA-A*01:01	1	1075	1083	9	APAICHDGK 0.000315	29
HLA-A*02:01	1	1136	1145	10	DPLQPELDSF 0.000315	22
HLA-B*40:01	1	1144	1152	9	SFKEELDKY 0.000315	13
HLA-B*08:01	1	1254	1263	10	DEDDSEPVLK 0.000315	31
HLA-B*51:01	1	11	19	9	VSSQCVNLT 0.000314	29
HLA-B*07:02	1	72	80	9	GTNGTKRFA 0.000314	20
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-B*51:01	1	207	215	9	HTPINLVRG 0.000314	29
HLA-A*24:02	1	226	235	10	LVDLPIGINI 0.000314	13
HLA-B*57:01	1	238	247	10	FQTLHRSYLT 0.000314	31
HLA-B*35:01	1	285	293	9	AVDCALDPL 0.000314	16
HLA-B*40:01	1	389	397	9	FTNVYADSF 0.000314	13
HLA-B*08:01	1	510	519	10	LSFELLHAPA 0.000314	31
HLA-A*03:01	1	594	602	9	VITPGTNTS 0.000314	19
HLA-A*32:01	1	669	678	10	ASYQTQTNSP 0.000314	17
HLA-B*40:01	1	695	704	10	SLGVENSVAV 0.000314	13
HLA-A*02:06	1	768	777	10	AVEQDKNTQE 0.000314	30

HLA-B*57:01	1	920	929	10	IANQFNSAIG 0.000314	31
HLA-B*51:01	1	930	939	10	KIQDLSSTA 0.000314	29
HLA-A*01:01	1	1064	1073	10	YVPAQEKNT 0.000314	29
HLA-B*51:01	1	1089	1098	10	EGVSVSNGTH 0.000314	29
HLA-A*02:03	1	1112	1120	9	ITDNTFVS 0.000314	25
HLA-A*01:01	1	1130	1138	9	VNNTVYDPL 0.000314	29
HLA-A*02:01	1	1252	1260	9	KFEDEDDSEP 0.000314	22
HLA-A*30:02	1	59	68	10	FSNVTWFHAI 0.000313	39
HLA-B*15:01	1	72	80	9	GTNGTKRFA 0.000313	23
HLA-A*30:01	1	83	91	9	VLPFNDGVY 0.000313	41
HLA-A*26:01	1	115	123	9	QSLIVNNA 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-A*68:01	1	306	315	10	EKGIYQTSNF 0.000313	22
HLA-A*02:01	1	311	319	9	QTSNFRVQP 0.000313	22
HLA-A*02:06	1	433	442	10	WNSNNLDSKV 0.000313	30
HLA-B*44:02	1	444	453	10	GNYNLYRLF 0.000313	14
HLA-A*30:02	1	471	479	9	QAGSTPCNG 0.000313	39
HLA-A*01:01	1	504	512	9	PYRVVLSF 0.000313	29
HLA-B*40:01	1	549	558	10	LTESNKKFLP 0.000313	13
HLA-B*35:01	1	569	577	9	TTDAVRDPQ 0.000313	16
HLA-B*57:01	1	585	594	10	TPCSFGGVSV 0.000313	31
HLA-B*15:01	1	617	626	10	VPVAIHADQL 0.000313	23
HLA-B*57:01	1	654	663	10	NNSYECDIPI 0.000313	31
HLA-B*15:01	1	692	700	9	YTMSLGVEN 0.000313	23
HLA-B*15:01	1	744	752	9	TECSNLLLQ 0.000313	23
HLA-A*32:01	1	810	818	9	SKRSFIEDL 0.000313	17
HLA-B*57:01	1	810	819	10	SKRSFIEDLL 0.000313	31
HLA-B*15:01	1	811	819	9	KRSFIEDLL 0.000313	23
HLA-B*08:01	1	827	835	9	DAGFIKQYG 0.000313	32
HLA-A*11:01	1	930	939	10	KIQDLSSTA 0.000313	15
HLA-B*08:01	1	951	960	10	QNAQALNTLV 0.000313	32
HLA-A*31:01	1	997	1006	10	RLQSLQTYVT 0.000313	24
HLA-A*31:01	1	1004	1012	9	YVTQQLIRA 0.000313	24
HLA-A*03:01	1	1009	1017	9	LIRAAEIRA 0.000313	19
HLA-B*40:01	1	1106	1114	9	FYEPQIIT 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-A*68:02	1	243	252	10	RSYLTPGDSS 0.000312	25
HLA-B*51:01	1	377	385	9	YGVSPTKLN 0.000312	29
HLA-B*15:01	1	397	406	10	FVIRGDEVRO 0.000312	23
HLA-A*68:02	1	411	420	10	QTGNIADYNY 0.000312	25
HLA-A*24:02	1	576	584	9	PQMLEILDI 0.000312	13
HLA-A*01:01	1	663	672	10	IGAGICASYQ 0.000312	29
HLA-A*33:01	1	719	727	9	VTTEILPVS 0.000312	23
HLA-B*07:02	1	760	769	10	LNRLTGIIV 0.000312	20
HLA-B*15:01	1	776	784	9	QEVFAQVKQ 0.000312	23
HLA-A*68:02	1	787	795	9	KTPPIKDFG 0.000312	25
HLA-A*23:01	1	900	909	10	AYRFNGIGVT 0.000312	14
HLA-B*58:01	1	1103	1112	10	QRNFYEPQII 0.000312	23
HLA-A*24:02	1	1174	1183	10	VNIQKEIDRL 0.000312	13
HLA-A*23:01	1	1198	1207	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	253	262	10	SGWTAGAAAY 0.000311	14
HLA-A*33:01	1	271	279	9	TFLLKYEN 0.000311	23
HLA-B*53:01	1	278	286	9	ENGTITDAV 0.000311	15
HLA-B*35:01	1	284	292	9	DAVDCALDP 0.000311	16
HLA-A*26:01	1	390	399	10	TNVYADSFVI 0.000311	19
HLA-B*15:01	1	403	411	9	EVROIAPGQ 0.000311	23
HLA-B*44:02	1	422	430	9	LPDDFTGCV 0.000311	14
HLA-B*44:02	1	513	521	9	ELLHAPATV 0.000311	14
HLA-B*08:01	1	629	637	9	TWRVYSTGS 0.000311	32

HLA-A*32:01	1	692	700	9	YTMSLGVEN 0.000311	17
HLA-A*01:01	1	848	856	9	CAQKFNGLT 0.000311	29
HLA-A*30:02	1	882	890	9	GWTFGAGAA 0.000311	39
HLA-B*08:01	1	976	985	10	DILSRLDKVE 0.000311	32
HLA-A*68:02	1	983	992	10	KVEAEVQIDR 0.000311	25
HLA-B*58:01	1	1004	1013	10	YVTQQLIRAA 0.000311	23
HLA-A*02:01	1	1129	1137	9	IVNNTVYDP 0.000311	23
HLA-A*02:06	1	1172	1181	10	SVVNIQKEID 0.000311	31
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*03:01	1	211	220	10	NLVRGLPQGF 0.00031	19
HLA-B*08:01	1	215	224	10	GLPQGFSALE 0.00031	32
HLA-A*68:02	1	323	331	9	IVRFPNITN 0.00031	25
HLA-A*32:01	1	324	333	10	VRFPNITNLC 0.00031	17
HLA-A*26:01	1	357	365	9	NCVADYSVL 0.00031	19
HLA-B*58:01	1	357	365	9	NCVADYSVL 0.00031	23
HLA-B*15:01	1	598	607	10	GTNTSNQVAV 0.00031	23
HLA-A*31:01	1	639	647	9	VFQTRAGCL 0.00031	24
HLA-A*02:01	1	671	680	10	YQTQTNSPRR 0.00031	23
HLA-A*68:01	1	792	801	10	KDFGGFNFSQ 0.00031	22
HLA-A*33:01	1	853	862	10	NGLTVLPLL 0.00031	23
HLA-B*58:01	1	881	889	9	SGWTFGAGA 0.00031	23
HLA-A*30:01	1	915	923	9	ENQKLIANQ 0.00031	42
HLA-A*68:01	1	950	959	10	NQNAQALNTL 0.00031	22
HLA-A*68:02	1	952	961	10	NAQALNTLVK 0.00031	25
HLA-B*08:01	1	969	978	10	AISSVLNDIL 0.00031	32
HLA-A*02:06	1	1102	1110	9	TORNFYEPQ 0.00031	31
HLA-B*08:01	1	1164	1173	10	GDISGINASV 0.00031	32
HLA-A*68:01	1	1182	1190	9	RLNEVAKNL 0.00031	22
HLA-A*01:01	1	15	24	10	CVNLTRTQQL 0.000309	29
HLA-B*44:02	1	34	43	10	RGVYYPKVVF 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-B*57:01	1	234	243	10	NITRFQTLHR 0.000309	32
HLA-A*30:01	1	255	264	10	WTAGAAAYV 0.000309	42
HLA-B*40:01	1	301	309	9	KSFTVEKGI 0.000309	13
HLA-A*30:01	1	424	432	9	DDFTGCVIA 0.000309	42
HLA-B*44:02	1	442	450	9	VGGNYNYLY 0.000309	14
HLA-A*31:01	1	495	504	10	QPTYGVGYQP 0.000309	24
HLA-B*57:01	1	663	672	10	IGAGICASYQ 0.000309	32
HLA-A*31:01	1	682	691	10	RSVASQSIIA 0.000309	24
HLA-A*11:01	1	773	781	9	KNTQEVFAQ 0.000309	15
HLA-B*07:02	1	777	786	10	EVFAQVKQIY 0.000309	20
HLA-A*26:01	1	783	792	10	KQIYKTPPIK 0.000309	19
HLA-B*08:01	1	801	809	9	QILPDPSKP 0.000309	32
HLA-B*51:01	1	802	810	9	ILPDPSKPS 0.000309	29
HLA-A*01:01	1	821	830	10	NKVTLADAGF 0.000309	29
HLA-B*44:02	1	920	928	9	IANQFNSAI 0.000309	14
HLA-B*51:01	1	1002	1011	10	QTYVVTQQLIR 0.000309	29
HLA-B*07:02	1	1006	1015	10	TQQLIRAAEI 0.000309	20
HLA-A*01:01	1	1007	1015	9	QQLIRAAEI 0.000309	29
HLA-A*03:01	1	1013	1022	10	AEIRASANLA 0.000309	19
HLA-A*68:02	1	1072	1081	10	FTTAPAICHD 0.000309	25
HLA-A*02:01	1	1082	1091	10	GKAHFPREGV 0.000309	23
HLA-A*23:01	1	1126	1134	9	VIGIVNNTV 0.000309	14
HLA-A*32:01	1	1174	1183	10	VNIQKEIDRL 0.000309	17
HLA-A*02:01	1	1194	1202	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	ATNVVIKVC 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*07:02	1	212	221	10	LVRGLPQGF5 0.000308	20
HLA-B*35:01	1	255	264	10	WTAGAAAYV 0.000308	16
HLA-A*23:01	1	271	279	9	TFLLKYNNEN 0.000308	14
HLA-A*68:02	1	277	285	9	NENGTITDA 0.000308	25
HLA-B*57:01	1	412	421	10	TGNIADYNYK 0.000308	32
HLA-A*68:02	1	697	705	9	GVNSVAVS 0.000308	25
HLA-A*02:03	1	704	713	10	YSNNSIAIPT 0.000308	25
HLA-B*08:01	1	778	787	10	VFAQVKQIYK 0.000308	32
HLA-A*68:01	1	857	866	10	VLPLLLTDEM 0.000308	22
HLA-A*68:02	1	925	934	10	NSAIGKIQDS 0.000308	25
HLA-B*07:02	1	957	965	9	NTLVKQLSS 0.000308	20
HLA-B*58:01	1	1018	1027	10	SANLAATKMS 0.000308	23
HLA-B*35:01	1	1110	1119	10	QIITTDNTFV 0.000308	16
HLA-A*30:01	1	1161	1169	9	VDLGDISGI 0.000308	42
HLA-A*68:01	1	1204	1213	10	EQYIKWPWYI 0.000308	22
HLA-B*44:03	1	1216	1224	9	GFIAGLIAI 0.000308	14
HLA-B*15:01	1	55	63	9	FLPFFSNVT 0.000307	23
HLA-B*44:03	1	76	84	9	TKRFANPVL 0.000307	14
HLA-B*57:01	1	118	126	9	LIVNNATNV 0.000307	32
HLA-A*30:01	1	165	174	10	NCTFEYV5QP 0.000307	42
HLA-A*26:01	1	239	247	9	QTLHRSYLT 0.000307	19
HLA-B*57:01	1	253	261	9	SGWTAGAAA 0.000307	32
HLA-B*44:03	1	310	318	9	YQTSNFRVQ 0.000307	14
HLA-B*35:01	1	339	347	9	FNATRFASV 0.000307	16
HLA-A*02:01	1	357	365	9	NCVADYSVL 0.000307	23
HLA-A*31:01	1	370	378	9	SFSTFKCYG 0.000307	24
HLA-B*08:01	1	383	392	10	KLNDLCFTNV 0.000307	32
HLA-A*30:02	1	454	462	9	RKSNLKPFE 0.000307	39
HLA-A*24:02	1	554	563	10	KKFLPFQQFG 0.000307	13
HLA-A*02:01	1	570	579	10	TDAVRDPQTL 0.000307	23
HLA-B*07:02	1	598	607	10	GTNTSNQVAV 0.000307	20
HLA-B*35:01	1	638	646	9	NVFQTRAGC 0.000307	16
HLA-A*33:01	1	639	647	9	VFQTRAGCL 0.000307	23
HLA-A*26:01	1	642	650	9	TRAGCLIGA 0.000307	19
HLA-A*23:01	1	756	764	9	FCTQLNRAL 0.000307	14
HLA-A*26:01	1	769	778	10	VEQDKNTQEV 0.000307	19
HLA-A*26:01	1	854	862	9	GLTVLPLLL 0.000307	19
HLA-B*44:02	1	904	912	9	NGIGVTQNV 0.000307	14
HLA-A*02:03	1	1008	1016	9	QLIRAAEIR 0.000307	25
HLA-B*51:01	1	1014	1023	10	EIRASANLAA 0.000307	29
HLA-B*44:03	1	1165	1173	9	DISGINASV 0.000307	14
HLA-A*68:01	1	1221	1229	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-B*44:02	1	376	384	9	CYGV5PTKL 0.000306	14
HLA-B*57:01	1	438	447	10	LDSKVGGNYN 0.000306	32
HLA-A*01:01	1	514	522	9	LLHAPATVC 0.000306	29
HLA-B*15:01	1	542	550	9	GLTGTGVLT 0.000306	23
HLA-B*58:01	1	555	564	10	KFLPFQQFGR 0.000306	23
HLA-A*01:01	1	648	656	9	IGAETHVNS 0.000306	29
HLA-B*15:01	1	689	697	9	IIAYTMSLG 0.000306	23
HLA-A*02:06	1	787	795	9	KTPPIKDFG 0.000306	31
HLA-A*02:06	1	834	843	10	YGDCLGDIAA 0.000306	31
HLA-A*02:01	1	840	849	10	DIAARDLICA 0.000306	23
HLA-B*08:01	1	873	881	9	ALLAGTITS 0.000306	32
HLA-B*58:01	1	905	913	9	GIGVTQNVL 0.000306	23
HLA-A*11:01	1	908	916	9	VTQNVLYEN 0.000306	15
HLA-A*32:01	1	990	998	9	IDRLITGRL 0.000306	18
HLA-A*01:01	1	1028	1037	10	ECVLGQSKRV 0.000306	29
HLA-B*53:01	1	1118	1127	10	FVSGNCDVVI 0.000306	15
HLA-A*31:01	1	1169	1177	9	INASVVNIQ 0.000306	24
HLA-B*15:01	1	1177	1186	10	QKEIDRLNEV 0.000306	23
HLA-A*01:01	1	1217	1226	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	VLPFNDGVY 0.000305	20
HLA-B*58:01	1	106	115	10	FGTTLDSTQ 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	254	262	9	GWTAGAAAY 0.000305	15
HLA-A*01:01	1	258	267	10	GAAAYVGYL 0.000305	29
HLA-A*30:02	1	280	289	10	GTITDAVDCA 0.000305	39
HLA-B*35:01	1	288	297	10	CALDPLSETK 0.000305	16
HLA-B*51:01	1	372	381	10	STFKCYGVSP 0.000305	29
HLA-A*68:01	1	527	536	10	STNLVKNKCV 0.000305	22
HLA-B*51:01	1	598	606	9	GTNTSNQVA 0.000305	29
HLA-A*68:01	1	655	663	9	NSYECDIPI 0.000305	22
HLA-A*68:01	1	663	672	10	IGAGICASYQ 0.000305	22
HLA-B*57:01	1	671	679	9	YQTQTNSPR 0.000305	32
HLA-A*68:01	1	742	751	10	DSTECNLLL 0.000305	22
HLA-A*32:01	1	794	802	9	FGGFNFSQI 0.000305	18
HLA-A*68:01	1	801	809	9	QILPDPSKP 0.000305	22
HLA-A*02:03	1	842	851	10	AARDLICAQK 0.000305	25
HLA-A*26:01	1	878	887	10	TITSGWTFGA 0.000305	19
HLA-A*02:01	1	917	926	10	QKLIANQFNS 0.000305	23
HLA-B*58:01	1	950	959	10	NQNAQALNTL 0.000305	23
HLA-B*08:01	1	955	964	10	ALNTLVKQLS 0.000305	32
HLA-B*51:01	1	987	996	10	EVQIDRLITG 0.000305	29
HLA-A*26:01	1	988	996	9	VQIDRLITG 0.000305	19
HLA-A*30:02	1	1019	1028	10	ANLAATKMSE 0.000305	39
HLA-A*30:02	1	1043	1052	10	GYHLMSFPQS 0.000305	39
HLA-A*02:01	1	1061	1069	9	HVTYVPAQE 0.000305	23
HLA-B*57:01	1	1070	1079	10	KNFTTAPAIC 0.000305	32
HLA-A*33:01	1	1169	1177	9	INASVVNIQ 0.000305	23
HLA-A*24:02	1	1191	1200	10	NESLIDLQEL 0.000305	13
HLA-B*51:01	1	1196	1204	9	DLQELGKYE 0.000305	29
HLA-A*31:01	1	1254	1263	10	DEDDSEPVLK 0.000305	24
HLA-A*01:01	1	75	84	10	GTKRFANPVL 0.000304	29
HLA-A*02:01	1	91	100	10	YFASTEKSNI 0.000304	23
HLA-B*57:01	1	118	127	10	LIVNNATNVV 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	335	343	9	FGEVFNATR 0.000304	31
HLA-B*58:01	1	380	388	9	SPTKLNDLC 0.000304	23
HLA-B*35:01	1	396	404	9	SFVIRGDEV 0.000304	16
HLA-B*15:01	1	424	433	10	DDFTGCVIAW 0.000304	23
HLA-B*51:01	1	475	484	10	TPCNGVKGFN 0.000304	29
HLA-A*31:01	1	510	519	10	LSFELLHAPA 0.000304	24
HLA-A*30:02	1	512	521	10	FELLHAPATV 0.000304	39
HLA-A*03:01	1	520	528	9	TVCGPKKST 0.000304	19
HLA-A*02:03	1	626	634	9	LTPTWRVYS 0.000304	25
HLA-A*01:01	1	726	735	10	VSMTKTSVDC 0.000304	29
HLA-A*30:02	1	741	749	9	GDSTECSNL 0.000304	39
HLA-B*35:01	1	767	776	10	IAVEQDKNTQ 0.000304	16
HLA-B*44:03	1	803	812	10	LPDPSKPSKR 0.000304	14
HLA-A*30:02	1	948	957	10	VVNQNAQALN 0.000304	39
HLA-B*58:01	1	992	1000	9	RLITGRLQS 0.000304	23
HLA-A*30:01	1	1078	1087	10	ICHDGKAHFP 0.000304	42
HLA-A*32:01	1	1103	1112	10	QRNFYEPQII 0.000304	18
HLA-B*15:01	1	1103	1111	9	QRNFYEPQI 0.000304	23
HLA-B*15:01	1	1167	1176	10	SGINASVVNI 0.000304	23
HLA-A*02:01	1	1256	1265	10	DDSEPVLKGV 0.000304	23
HLA-B*44:02	1	13	21	9	SQCVNLTR 0.000303	14
HLA-A*30:02	1	95	103	9	TEKSNIIIRG 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*68:01	1	207	215	9	HTPINLVRG 0.000303	22
HLA-A*68:02	1	213	222	10	VRGLPQGFSA 0.000303	25
HLA-A*01:01	1	298	306	9	CTLKSFTVE 0.000303	29
HLA-A*02:01	1	338	347	10	VFNATRFASV 0.000303	23
HLA-B*08:01	1	346	354	9	SVYAWNRRKR 0.000303	32
HLA-B*57:01	1	363	372	10	SVLYNSASF5 0.000303	32
HLA-A*01:01	1	472	480	9	AGSTPCNGV 0.000303	29
HLA-B*51:01	1	480	489	10	VKGFNCFPL 0.000303	29
HLA-A*30:01	1	662	671	10	PIGAGICASY 0.000303	42
HLA-A*68:01	1	791	799	9	IKDFGGFNF 0.000303	22
HLA-A*01:01	1	856	864	9	TVLPPLD 0.000303	29
HLA-A*33:01	1	866	875	10	MIAQYTSALL 0.000303	23
HLA-B*07:02	1	934	943	10	SLSSTASALG 0.000303	20
HLA-B*51:01	1	950	958	9	NQNAQALNT 0.000303	29
HLA-B*15:01	1	1007	1016	10	QQLIRAAEIR 0.000303	23
HLA-B*51:01	1	1082	1091	10	GKAHFPREGV 0.000303	29
HLA-A*30:02	1	1088	1097	10	REGVFSVNGT 0.000303	39
HLA-B*58:01	1	1096	1105	10	GTHWFVTQRN 0.000303	23
HLA-A*68:02	1	1098	1106	9	HWFVTQRNF 0.000303	25
HLA-A*02:03	1	1144	1153	10	SFKEELDKYF 0.000303	25
HLA-A*68:02	1	1150	1158	9	DKYFKNHTS 0.000303	25
HLA-B*51:01	1	1169	1178	10	INASVVNIQK 0.000303	29
HLA-B*44:03	1	1189	1197	9	NLNESLIDL 0.000303	14
HLA-A*02:03	1	1225	1234	10	VMVTIMLCCM 0.000303	25
HLA-A*30:01	1	44	53	10	RSSVLHSTQD 0.000302	42
HLA-A*02:01	1	75	84	10	GTKRFANPVL 0.000302	23
HLA-B*08:01	1	76	85	10	TKRFANPVLP 0.000302	32
HLA-B*57:01	1	76	84	9	TKRFANPVL 0.000302	32
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*35:01	1	214	223	10	RGLPQGFSA 0.000302	16
HLA-B*58:01	1	456	465	10	SNLKPFERDI 0.000302	23
HLA-A*03:01	1	542	551	10	GLTGTGVLTE 0.000302	19
HLA-A*23:01	1	556	564	9	FLPFQQFGR 0.000302	14
HLA-A*32:01	1	617	626	10	VPVAIHADQL 0.000302	18
HLA-B*53:01	1	683	691	9	SVASQSIIA 0.000302	16
HLA-A*11:01	1	719	727	9	VTTEILPVS 0.000302	15
HLA-A*31:01	1	791	799	9	IKDFGGFNF 0.000302	24
HLA-B*44:03	1	909	917	9	TQNVLYENQ 0.000302	14
HLA-A*01:01	1	954	962	9	QALNTLVKQ 0.000302	29
HLA-B*15:01	1	984	992	9	VEAEVQIDR 0.000302	23
HLA-A*33:01	1	989	998	10	QIDRLITGRL 0.000302	23
HLA-A*68:01	1	1004	1013	10	YVTQQLIRAA 0.000302	22
HLA-A*31:01	1	1008	1017	10	QLIRAAEIRA 0.000302	24
HLA-A*02:03	1	1015	1023	9	IRASANLAA 0.000302	25
HLA-A*01:01	1	1022	1031	10	AATKMSECVL 0.000302	29
HLA-B*15:01	1	1118	1127	10	FVSGNCDVVI 0.000302	23
HLA-A*68:02	1	1211	1219	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	244	253	10	SYLTPGDSSS 0.000301	24
HLA-A*03:01	1	339	348	10	FNATRFASVY 0.000301	19
HLA-B*44:02	1	339	348	10	FNATRFASVY 0.000301	14
HLA-B*07:02	1	403	412	10	EVQRQIAPGQT 0.000301	20
HLA-B*44:02	1	441	450	10	KVGGNYNYLY 0.000301	14
HLA-A*33:01	1	461	469	9	FERDISTEI 0.000301	23
HLA-A*11:01	1	500	508	9	VGYQPYRVV 0.000301	15
HLA-A*68:01	1	656	665	10	SYECDIPIGA 0.000301	22
HLA-A*23:01	1	798	806	9	NFSQILPDP 0.000301	14
HLA-A*02:03	1	807	815	9	SKPSKRSFI 0.000301	25
HLA-A*24:02	1	823	831	9	VTLADAGFI 0.000301	14

HLA-A*30:02	1	841	850	10	IAARDLICAQ 0.000301	39
HLA-A*31:01	1	866	875	10	MIAQYTSALL 0.000301	24
HLA-B*53:01	1	899	908	10	MAYRFNGIGV 0.000301	16
HLA-A*11:01	1	919	927	9	LIANQFNFA 0.000301	15
HLA-A*30:02	1	962	971	10	QLSSNFGAIS 0.000301	39
HLA-B*44:03	1	966	974	9	NFGAISSVL 0.000301	14
HLA-A*03:01	1	1001	1009	9	LQTYVTQQL 0.000301	19
HLA-B*58:01	1	1218	1227	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-B*08:01	1	71	80	10	SGTNGTKRFA 0.0003	32
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	278	286	9	ENGTITDAV 0.0003	42
HLA-B*57:01	1	304	313	10	TVEKGIYQTS 0.0003	32
HLA-A*33:01	1	367	376	10	NSASFSTFKC 0.0003	23
HLA-A*23:01	1	418	427	10	YNYKLPDDFT 0.0003	14
HLA-A*01:01	1	511	519	9	SFELLHAPA 0.0003	29
HLA-A*30:01	1	515	523	9	LHAPATVCG 0.0003	42
HLA-B*40:01	1	547	556	10	GVLTESNKKF 0.0003	13
HLA-B*40:01	1	617	626	10	VPVAIHADQL 0.0003	13
HLA-A*26:01	1	641	650	10	QTRAGCLIGA 0.0003	19
HLA-A*01:01	1	643	652	10	RAGCLIGAEH 0.0003	29
HLA-B*58:01	1	652	661	10	HVNNSYECDI 0.0003	23
HLA-A*32:01	1	670	679	10	SYQTQTNSPR 0.0003	18
HLA-A*32:01	1	681	690	10	ARSVASQSII 0.0003	18
HLA-A*11:01	1	703	711	9	AYSNNSIAI 0.0003	15
HLA-A*01:01	1	710	718	9	AIPTNFTIS 0.0003	29
HLA-A*24:02	1	714	722	9	NFTISVTTE 0.0003	14
HLA-A*24:02	1	730	739	10	KTSVDCTMYI 0.0003	14
HLA-A*11:01	1	856	864	9	TVLPPLLD 0.0003	15
HLA-A*31:01	1	999	1008	10	QSLQTYVTQQ 0.0003	24
HLA-A*02:03	1	1055	1063	9	HGVVFLHVT 0.0003	25
HLA-B*44:03	1	1096	1104	9	GTHWFVTQR 0.0003	14
HLA-A*02:01	1	1100	1109	10	FVTQRNFYEP 0.0003	23
HLA-B*58:01	1	1138	1146	9	LQPELDSFK 0.0003	23
HLA-B*08:01	1	1148	1157	10	ELDKYFKNHT 0.0003	32
HLA-A*03:01	1	1167	1176	10	SGINASVVNI 0.0003	19
HLA-B*44:03	1	1170	1178	9	NASVVNIQK 0.0003	14
HLA-A*01:01	1	1223	1231	9	AIVMVTIML 0.0003	29
HLA-B*40:01	1	1223	1231	9	AIVMVTIML 0.0003	13
HLA-A*02:01	1	13	22	10	SQCWNLTTRT 0.000299	23
HLA-B*07:02	1	57	65	9	PFFSNVTWF 0.000299	20
HLA-A*24:02	1	77	85	9	KRFANPVLV 0.000299	14
HLA-A*68:01	1	124	133	10	TNVVIKVCFF 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	261	269	9	AYYVGYLQP 0.000299	32
HLA-B*51:01	1	289	297	9	ALDPLSETK 0.000299	29
HLA-B*07:02	1	440	448	9	SKVGGNYNY 0.000299	20
HLA-A*02:03	1	512	520	9	FELLHAPAT 0.000299	25
HLA-A*23:01	1	618	626	9	PVAIHADQL 0.000299	14
HLA-B*44:02	1	681	690	10	ARSVASQSII 0.000299	14
HLA-A*33:01	1	692	701	10	YTMSLGVENS 0.000299	23
HLA-A*11:01	1	792	801	10	KDFGGFNFSQ 0.000299	15
HLA-B*51:01	1	795	804	10	GGFNFSQILP 0.000299	29
HLA-A*26:01	1	938	946	9	TASALGKLQ 0.000299	19
HLA-B*40:01	1	988	997	10	VQIDRLITGR 0.000299	13
HLA-A*02:01	1	1014	1022	9	EIRASANLA 0.000299	23
HLA-A*23:01	1	1045	1053	9	HLMSFPQSA 0.000299	14
HLA-B*35:01	1	1059	1067	9	FLHVTVVPA 0.000299	16
HLA-B*44:03	1	1259	1268	10	EPVLKGVKHL 0.000299	14
HLA-A*02:06	1	57	65	9	PFFSNVTWF 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	WIFGTTLDISK 0.000298	23
HLA-B*08:01	1	234	242	9	NITRFQTLH 0.000298	32
HLA-B*57:01	1	246	254	9	LTPGDSSSG 0.000298	32
HLA-B*40:01	1	268	276	9	QPRTFLLKY 0.000298	13
HLA-A*26:01	1	327	335	9	PNITNLCPF 0.000298	19
HLA-A*31:01	1	464	472	9	DISTEIYQA 0.000298	24
HLA-A*11:01	1	499	507	9	GVGYQPYRV 0.000298	15
HLA-B*15:01	1	566	574	9	IADTTDAVR 0.000298	23
HLA-A*03:01	1	615	623	9	TEVPVAIHA 0.000298	19
HLA-A*68:02	1	619	628	10	VAIHADQLTP 0.000298	25
HLA-B*08:01	1	630	639	10	WRVYSTGSNV 0.000298	32
HLA-A*30:02	1	861	869	9	LLTDEMIAQ 0.000298	39
HLA-A*02:01	1	887	895	9	AGAALQIPF 0.000298	23
HLA-A*01:01	1	1014	1023	10	EIRASANLAA 0.000298	29
HLA-A*31:01	1	1041	1049	9	GKGYHLMSF 0.000298	24
HLA-B*08:01	1	1147	1156	10	EELDKYFKNH 0.000298	32
HLA-A*26:01	1	1161	1169	9	VDLGDISGI 0.000298	19
HLA-B*07:02	1	1207	1215	9	IKWPWYIWL 0.000298	20
HLA-A*24:02	1	1222	1230	9	IAIVMTIM 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*01:01	1	357	365	9	NCVADYSVL 0.000297	29
HLA-B*57:01	1	358	367	10	CVADYSVLYN 0.000297	32
HLA-A*30:02	1	367	376	10	NSASFSTFKC 0.000297	40
HLA-A*02:01	1	372	381	10	STFKCYGVSP 0.000297	23
HLA-B*08:01	1	499	508	10	GVGYQPYRVV 0.000297	32
HLA-B*57:01	1	503	511	9	QPYRVVVLS 0.000297	32
HLA-A*30:02	1	518	526	9	PATVCGPKK 0.000297	40
HLA-A*24:02	1	556	564	9	FLPFQFGR 0.000297	14
HLA-A*03:01	1	689	698	10	IIAYTMSLGV 0.000297	19
HLA-A*01:01	1	729	737	9	TKTSVDCTM 0.000297	29
HLA-A*24:02	1	761	769	9	NRALTGIAV 0.000297	14
HLA-B*51:01	1	842	850	9	AARDLICAQ 0.000297	29
HLA-B*51:01	1	848	856	9	CAQKFNGLT 0.000297	29
HLA-A*31:01	1	907	915	9	GVTQNVLYE 0.000297	25
HLA-B*44:02	1	947	956	10	DVVNQNAQAL 0.000297	14
HLA-A*30:02	1	1112	1121	10	ITTDNTFVSG 0.000297	40
HLA-A*02:03	1	1206	1214	9	YIKWPWYIW 0.000297	25
HLA-B*44:03	1	13	21	9	SQCVNLTRR 0.000296	14
HLA-A*68:01	1	81	90	10	NPVLPFNDGV 0.000296	23
HLA-A*68:02	1	126	134	9	VVIKVCEFQ 0.000296	25
HLA-A*68:01	1	127	135	9	VIKVCEFQF 0.000296	23
HLA-B*53:01	1	289	297	9	ALDPLSETK 0.000296	16
HLA-A*30:01	1	294	302	9	SETKCTLKS 0.000296	42
HLA-B*35:01	1	346	354	9	SVYAWNRRK 0.000296	17
HLA-A*03:01	1	481	489	9	KGFNCYFPL 0.000296	19
HLA-A*02:06	1	522	531	10	CGPKKSTNLV 0.000296	31
HLA-A*31:01	1	524	532	9	PKKSTNLVK 0.000296	25
HLA-B*51:01	1	529	538	10	NLVKKNKCVNF 0.000296	29
HLA-B*58:01	1	546	554	9	TGVLTESNK 0.000296	24
HLA-A*30:02	1	578	586	9	TLEILDITP 0.000296	40
HLA-A*68:01	1	617	625	9	VPVAIHADQ 0.000296	23
HLA-A*02:03	1	621	629	9	IHADQLTPT 0.000296	25
HLA-A*01:01	1	695	703	9	SLGVENSVA 0.000296	29
HLA-B*15:01	1	743	751	9	STECSNLLL 0.000296	23
HLA-B*44:03	1	771	780	10	QDKNTQEVFA 0.000296	14
HLA-A*02:03	1	862	871	10	LTDEMIAQYT 0.000296	25
HLA-A*68:02	1	878	886	9	TITSGWTFG 0.000296	25

HLA-B*51:01	1	964	972	9	SSNFGAISS 0.000296	29
HLA-B*35:01	1	965	974	10	SNFGAISSVL 0.000296	17
HLA-B*35:01	1	980	988	9	RLDKVEAEV 0.000296	17
HLA-A*26:01	1	1021	1029	9	LAATKMSEC 0.000296	19
HLA-A*68:01	1	1147	1156	10	EELDKYFKNH 0.000296	23
HLA-B*57:01	1	1212	1221	10	YIWLGFIAGL 0.000296	32
HLA-B*44:02	1	38	47	10	YPDKVFRSSV 0.000295	14
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*02:03	1	210	219	10	INLVRGLPQG 0.000295	25
HLA-A*03:01	1	232	240	9	GINITRFQT 0.000295	19
HLA-A*31:01	1	349	357	9	AWNKRKISN 0.000295	25
HLA-A*01:01	1	360	369	10	ADYSVLYNSA 0.000295	30
HLA-A*30:02	1	525	533	9	KKSTNLVKN 0.000295	40
HLA-B*07:02	1	630	639	10	WRVYSTGSNV 0.000295	21
HLA-B*58:01	1	671	680	10	YQTQTNSPRR 0.000295	24
HLA-A*31:01	1	737	745	9	MYICGDSTE 0.000295	25
HLA-A*01:01	1	786	795	10	YKTPPIKDFG 0.000295	30
HLA-A*24:02	1	795	803	9	GGFNFSQIL 0.000295	14
HLA-B*58:01	1	824	833	10	TLADAGFIKQ 0.000295	24
HLA-A*26:01	1	904	913	10	NGIGVTQNVL 0.000295	19
HLA-B*57:01	1	925	933	9	NSAIGKIQD 0.000295	32
HLA-A*02:01	1	957	965	9	NTLVKQLSS 0.000295	23
HLA-A*01:01	1	1003	1011	9	TYVTQQLIR 0.000295	30
HLA-A*02:06	1	1069	1078	10	EKNFTTAPAI 0.000295	31
HLA-A*01:01	1	1105	1113	9	NFYEPQIIT 0.000295	30
HLA-A*03:01	1	1182	1191	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	NLTTTRTQLP 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	356	364	9	SNCVADYSV 0.000294	23
HLA-A*68:02	1	360	368	9	ADYSVLYNS 0.000294	25
HLA-A*68:01	1	364	372	9	VLYNSASFS 0.000294	23
HLA-B*40:01	1	385	393	9	NDLCFTNVY 0.000294	13
HLA-B*07:02	1	397	405	9	FVIRGDEVR 0.000294	21
HLA-B*51:01	1	397	405	9	FVIRGDEVR 0.000294	29
HLA-B*57:01	1	405	414	10	RQIAPGQTGN 0.000294	32
HLA-A*23:01	1	440	449	10	SKVGGNYNYL 0.000294	14
HLA-B*08:01	1	489	497	9	LQSYGFQPT 0.000294	32
HLA-A*26:01	1	546	555	10	TGVLTESNKK 0.000294	19
HLA-A*30:01	1	560	569	10	QQFGRDIADT 0.000294	42
HLA-A*03:01	1	598	606	9	GTNTSNQVA 0.000294	19
HLA-A*31:01	1	641	650	10	QTRAGCLIGA 0.000294	25
HLA-B*57:01	1	644	653	10	AGCLIGAEHV 0.000294	32
HLA-B*15:01	1	693	701	9	TMSLGVENS 0.000294	23
HLA-A*33:01	1	728	736	9	MTKTSVDCT 0.000294	23
HLA-B*57:01	1	729	737	9	TKTSVDCTM 0.000294	32
HLA-B*15:01	1	807	815	9	SKPSKRSFI 0.000294	23
HLA-B*40:01	1	888	897	10	GAALQIPFAM 0.000294	13
HLA-B*07:02	1	890	898	9	ALQIPFAMQ 0.000294	21
HLA-A*02:01	1	907	915	9	GVTQNVLYE 0.000294	23
HLA-A*11:01	1	912	920	9	VLYENQKLI 0.000294	15
HLA-B*15:01	1	914	922	9	YENQKLIAN 0.000294	23
HLA-B*58:01	1	941	949	9	ALGKLQDVV 0.000294	24
HLA-A*24:02	1	972	980	9	SVLNDILSR 0.000294	14
HLA-A*68:02	1	1053	1061	9	APHGVVFLH 0.000294	25
HLA-A*32:01	1	1095	1104	10	NGTHWFVTQR 0.000294	18
HLA-B*40:01	1	38	46	9	YPDKVFRSS 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*15:01	1	346	355	10	SVYAWNRKRI 0.000293	23
HLA-A*68:01	1	362	370	9	YSVLYNSAS 0.000293	23

HLA-A*30:02	1	386	394	9	DLCFTNVYA 0.000293	40
HLA-B*44:02	1	463	472	10	RDISTEIQQA 0.000293	14
HLA-A*32:01	1	508	517	10	VVLSFELLHA 0.000293	18
HLA-A*23:01	1	613	621	9	NCTEVPVAI 0.000293	14
HLA-A*02:06	1	729	737	9	TKTSVDCTM 0.000293	31
HLA-B*44:02	1	743	751	9	STECSNLLL 0.000293	14
HLA-A*31:01	1	770	778	9	EQDKNTQEV 0.000293	25
HLA-A*68:02	1	798	806	9	NFSQILPDP 0.000293	25
HLA-B*44:03	1	810	819	10	SKRSFIEDLL 0.000293	14
HLA-B*53:01	1	853	862	10	NGLTVLPPLL 0.000293	16
HLA-B*44:03	1	883	891	9	WTFGAGAAL 0.000293	14
HLA-A*01:01	1	904	913	10	NGIGVTQNVL 0.000293	30
HLA-A*30:01	1	958	966	9	TLVKQLSSN 0.000293	42
HLA-B*08:01	1	966	975	10	NFGAISSVLN 0.000293	32
HLA-A*03:01	1	996	1005	10	GRLQSLQTYV 0.000293	19
HLA-A*26:01	1	1037	1046	10	VDFCGKGYHL 0.000293	19
HLA-B*58:01	1	1129	1138	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	DPFLGVVYHK 0.000292	21
HLA-B*40:01	1	205	214	10	SKHTPINLVR 0.000292	13
HLA-B*08:01	1	317	325	9	VQPTESIVR 0.000292	32
HLA-B*40:01	1	317	325	9	VQPTESIVR 0.000292	13
HLA-A*30:02	1	403	412	10	EVROIAPGQT 0.000292	40
HLA-B*51:01	1	403	411	9	EVROIAPGQ 0.000292	29
HLA-A*02:01	1	415	423	9	IADYNYKLP 0.000292	23
HLA-A*26:01	1	625	634	10	QLTPTWRVYS 0.000292	19
HLA-A*03:01	1	633	641	9	YSTGSNVFQ 0.000292	19
HLA-A*30:02	1	645	653	9	GCLIGAEHV 0.000292	40
HLA-A*33:01	1	659	667	9	CDIPIGAGI 0.000292	23
HLA-A*30:01	1	712	721	10	PTNFTISVTT 0.000292	42
HLA-B*57:01	1	732	740	9	SVDCTMYIC 0.000292	32
HLA-A*30:02	1	737	745	9	MYICGDSTE 0.000292	40
HLA-B*57:01	1	768	776	9	AVEQDKNTQ 0.000292	32
HLA-A*02:03	1	810	819	10	SKRSFIEDLL 0.000292	26
HLA-A*68:01	1	871	879	9	TSALLAGTI 0.000292	23
HLA-B*51:01	1	880	889	10	TSGWTFGAGA 0.000292	29
HLA-A*33:01	1	909	917	9	TQNVLYENQ 0.000292	23
HLA-A*68:01	1	1035	1044	10	KRVDFCGKGY 0.000292	23
HLA-A*30:02	1	1060	1068	9	LHVTVVPAQ 0.000292	40
HLA-A*30:01	1	1066	1075	10	PAQEKNFITA 0.000292	42
HLA-B*57:01	1	1074	1083	10	TAPAICHGDK 0.000292	32
HLA-A*68:02	1	1108	1117	10	EPQIITTDNT 0.000292	25
HLA-A*02:06	1	1194	1202	9	LIDLQELGK 0.000292	31
HLA-B*44:02	1	1201	1210	10	GKYEQYIKWP 0.000292	14
HLA-B*08:01	1	1252	1260	9	KFDEDDSEP 0.000292	32
HLA-A*01:01	1	1255	1264	10	EDDSEPVKLG 0.000292	30
HLA-A*32:01	1	1259	1267	9	EPVLKGVKL 0.000292	18
HLA-B*58:01	1	96	105	10	EKSNIIRGWI 0.000291	24
HLA-A*02:03	1	115	124	10	QSLLIIVNNAT 0.000291	26
HLA-B*57:01	1	173	182	10	QPFLMDLEGK 0.000291	32
HLA-B*08:01	1	251	259	9	SSSGWTAGA 0.000291	32
HLA-B*53:01	1	254	262	9	GWTAGAAAY 0.000291	16
HLA-A*02:03	1	258	266	9	GAAAYYVGY 0.000291	26
HLA-A*03:01	1	259	267	9	AAAYYVGYL 0.000291	19
HLA-B*35:01	1	421	430	10	KLPDDFTGCV 0.000291	17
HLA-B*51:01	1	440	448	9	SKVGGNYNY 0.000291	29
HLA-B*08:01	1	467	475	9	TEIQAGST 0.000291	32
HLA-A*33:01	1	588	596	9	SFGGVSUIT 0.000291	23
HLA-A*26:01	1	627	635	9	TPTWRVYST 0.000291	19
HLA-B*35:01	1	651	659	9	EHVNNSYEC 0.000291	17
HLA-A*02:01	1	680	689	10	RARVASQSI 0.000291	23
HLA-B*53:01	1	681	689	9	ARVASQSI 0.000291	16
HLA-A*30:01	1	729	738	10	TKTSVDCTMY 0.000291	43
HLA-A*68:02	1	753	762	10	YGSFCTQLNR 0.000291	25
HLA-A*26:01	1	763	771	9	ALTGIAVEQ 0.000291	19
HLA-B*58:01	1	799	807	9	FSQILPDPS 0.000291	24

HLA-A*33:01	1	857	866	10	VLPPLLTDEM 0.000291	23
HLA-A*68:01	1	888	897	10	GAALQIPFAM 0.000291	23
HLA-B*44:02	1	997	1005	9	RLQSLQTYV 0.000291	14
HLA-A*32:01	1	1016	1024	9	RASANLAAT 0.000291	18
HLA-A*01:01	1	1125	1134	10	VVIGIVNNTV 0.000291	30
HLA-A*23:01	1	1174	1183	10	VNIQKEIDRL 0.000291	14
HLA-A*01:01	1	1196	1205	10	DLQELGKYEQ 0.000291	30
HLA-B*15:01	1	1233	1241	9	CMTSCCSCFL 0.000291	23
HLA-B*51:01	1	25	34	10	PPAYTNSFTR 0.00029	30
HLA-A*33:01	1	121	130	10	NNATNVVIKV 0.00029	23
HLA-A*30:01	1	180	188	9	EGKQGNFKN 0.00029	43
HLA-A*11:01	1	184	192	9	GNFKNLREF 0.00029	15
HLA-A*02:01	1	206	214	9	KHTPINLVR 0.00029	23
HLA-A*33:01	1	244	252	9	SYLTPGDSS 0.00029	23
HLA-B*57:01	1	252	260	9	SSGWTAGAA 0.00029	32
HLA-B*08:01	1	373	382	10	TFKCYGVSPT 0.00029	33
HLA-A*02:03	1	403	412	10	EVRQIAPGQT 0.00029	26
HLA-B*51:01	1	423	431	9	PDDFTGCVI 0.00029	30
HLA-B*08:01	1	467	476	10	TEIYQAGSTP 0.00029	33
HLA-B*57:01	1	471	479	9	QAGSTPCNG 0.00029	32
HLA-A*02:06	1	690	699	10	IAYTMSLGVE 0.00029	31
HLA-A*23:01	1	742	750	9	DSTECSNLL 0.00029	14
HLA-A*23:01	1	803	811	9	LPDPSKPSK 0.00029	14
HLA-A*23:01	1	853	862	10	NGLTVLPLLL 0.00029	14
HLA-A*30:01	1	871	880	10	TSALLAGTIT 0.00029	43
HLA-A*33:01	1	961	969	9	KQLSSNFGA 0.00029	23
HLA-A*01:01	1	1003	1012	10	TYVTQQLIRA 0.00029	30
HLA-A*02:01	1	1013	1022	10	AEIRASANLA 0.00029	23
HLA-A*68:02	1	1084	1092	9	AHFPREGVF 0.00029	25
HLA-B*53:01	1	1161	1169	9	VDLGDISGI 0.00029	16
HLA-B*44:02	1	1165	1173	9	DISGINASV 0.00029	14
HLA-A*68:01	1	1168	1176	9	GINASVVNI 0.00029	23
HLA-A*01:01	1	1187	1195	9	AKNLNESLI 0.00029	30
HLA-B*58:01	1	1216	1224	9	GFIAGLIAI 0.00029	24
HLA-A*32:01	1	1217	1226	10	FIAGLIAIVM 0.00029	18
HLA-A*02:06	1	1227	1236	10	VTIMLCMCTS 0.00029	31
HLA-A*03:01	1	57	66	10	PFFSNVTWFH 0.000289	19
HLA-A*33:01	1	210	218	9	INLVRGLPQ 0.000289	23
HLA-B*58:01	1	247	256	10	TPGDSSSGWT 0.000289	24
HLA-B*44:03	1	311	319	9	QTSNFRVQP 0.000289	14
HLA-A*02:03	1	350	358	9	WNRKRISNC 0.000289	26
HLA-B*15:01	1	366	375	10	YNSASFSTFK 0.000289	24
HLA-A*33:01	1	372	380	9	STFKCYGVS 0.000289	23
HLA-A*32:01	1	437	446	10	NLDSKVGGNY 0.000289	18
HLA-B*44:02	1	501	509	9	GYQPYRVVV 0.000289	14
HLA-B*51:01	1	508	517	10	VVLSFELLHA 0.000289	30
HLA-A*31:01	1	520	528	9	TVCGPKKST 0.000289	25
HLA-A*30:02	1	633	642	10	YSTGSNVFQT 0.000289	40
HLA-A*11:01	1	682	690	9	RSVASQSII 0.000289	15
HLA-B*44:02	1	711	719	9	IPTNFTISV 0.000289	14
HLA-B*44:02	1	810	819	10	SKRSFIEDLL 0.000289	14
HLA-A*30:01	1	848	856	9	CAQKFNGLT 0.000289	43
HLA-B*44:03	1	952	960	9	NAQALNTLV 0.000289	14
HLA-A*33:01	1	974	983	10	LNDILSRLDK 0.000289	23
HLA-A*31:01	1	1016	1024	9	RASANLAAT 0.000289	25
HLA-A*32:01	1	1048	1057	10	SFPQSAPHGV 0.000289	18
HLA-B*57:01	1	1102	1111	10	TQRNFYEPQI 0.000289	32
HLA-B*58:01	1	1122	1130	9	NCDVVIGIV 0.000289	24
HLA-B*58:01	1	1131	1140	10	NNTVYDPLQP 0.000289	24
HLA-B*44:02	1	1199	1207	9	ELGKYEQYI 0.000289	14
HLA-B*15:01	1	1208	1217	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	IHSVGTNGT 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	271	280	10	TFLLKYNENG 0.000288	43
HLA-A*26:01	1	277	285	9	NENGTITDA 0.000288	19
HLA-A*01:01	1	312	321	10	TSNFRVQPT 0.000288	30
HLA-A*23:01	1	334	342	9	PFGEVFNAT 0.000288	14
HLA-A*01:01	1	396	405	10	SFVIRGDEV 0.000288	30
HLA-A*24:02	1	405	413	9	RQIAPGQTG 0.000288	14
HLA-B*58:01	1	430	439	10	VIAWSNNLD 0.000288	24
HLA-A*23:01	1	539	548	10	NFNGLTGTGV 0.000288	14
HLA-A*01:01	1	566	575	10	IADTTDAVRD 0.000288	30
HLA-A*02:01	1	619	628	10	VAIHADQLTP 0.000288	23
HLA-A*68:02	1	695	703	9	SLGVENSVA 0.000288	25
HLA-B*57:01	1	697	706	10	GVENSVAYS 0.000288	33
HLA-A*68:01	1	743	751	9	STECSNLLL 0.000288	23
HLA-B*57:01	1	757	765	9	CTQLNRALT 0.000288	33
HLA-B*51:01	1	820	828	9	FNKVTLADA 0.000288	30
HLA-A*26:01	1	885	893	9	FGAGAALQI 0.000288	19
HLA-B*57:01	1	909	918	10	TQNVLYENQ 0.000288	33
HLA-A*02:06	1	937	946	10	STASALGKLQ 0.000288	31
HLA-A*02:01	1	1014	1023	10	EIRASANLAA 0.000288	23
HLA-A*30:02	1	1018	1027	10	SANLAATKMS 0.000288	40
HLA-A*26:01	1	1037	1045	9	VDFCGKGYH 0.000288	19
HLA-B*40:01	1	1047	1055	9	MSFPQSAPH 0.000288	13
HLA-B*07:02	1	1055	1064	10	HGVVFLHVTY 0.000288	21
HLA-A*30:01	1	1117	1126	10	TFVSGNCDVV 0.000288	43
HLA-B*51:01	1	1124	1132	9	DVIVIGIVNN 0.000288	30
HLA-A*30:02	1	1168	1177	10	GINASVVNIQ 0.000288	40
HLA-B*53:01	1	1215	1223	9	LGFIAGLIA 0.000288	16
HLA-A*30:01	1	38	46	9	YDPKVFRSS 0.000287	43
HLA-A*32:01	1	59	67	9	FSNVTWFAH 0.000287	18
HLA-A*30:01	1	73	82	10	TNGTKRFANP 0.000287	43
HLA-A*02:06	1	74	83	10	NGTKRFANPV 0.000287	31
HLA-B*44:02	1	92	100	9	FASTEKSNI 0.000287	14
HLA-B*15:01	1	115	123	9	QSLLLIVNNA 0.000287	24
HLA-A*23:01	1	205	213	9	SKHTPINLV 0.000287	14
HLA-A*68:01	1	315	323	9	FRVQPTESI 0.000287	23
HLA-B*15:01	1	322	330	9	SIVRFPNIT 0.000287	24
HLA-A*68:02	1	345	353	9	ASVYAWNRK 0.000287	25
HLA-A*68:02	1	345	354	10	ASVYAWNRKR 0.000287	25
HLA-B*51:01	1	364	372	9	VLYNSASFS 0.000287	30
HLA-A*30:01	1	435	444	10	SNNLDSKVG 0.000287	43
HLA-A*23:01	1	441	450	10	KVGGNYNYLY 0.000287	14
HLA-A*01:01	1	459	467	9	KPFERDIST 0.000287	30
HLA-B*40:01	1	501	509	9	GYQPYRVVV 0.000287	13
HLA-B*58:01	1	513	521	9	ELLHAPATV 0.000287	24
HLA-B*58:01	1	517	526	10	APATVCGPK 0.000287	24
HLA-A*11:01	1	595	604	10	ITPGTNTSNQ 0.000287	15
HLA-A*03:01	1	641	650	10	QTRAGCLIGA 0.000287	19
HLA-A*33:01	1	642	650	9	TRAGCLIGA 0.000287	23
HLA-A*33:01	1	643	652	10	RAGCLIGAEH 0.000287	23
HLA-A*68:01	1	700	709	10	NSVAYSNNSI 0.000287	23
HLA-A*02:03	1	747	756	10	SNLLLQYGSF 0.000287	26
HLA-A*33:01	1	747	755	9	SNLLLQYGS 0.000287	23
HLA-A*68:02	1	771	779	9	QDKNTQEVF 0.000287	25
HLA-B*57:01	1	786	795	10	YKTPPIKDFG 0.000287	33
HLA-A*68:01	1	788	797	10	TPPIKDFGGF 0.000287	23
HLA-B*58:01	1	817	825	9	DLLFNKVTL 0.000287	24
HLA-B*44:03	1	821	830	10	NKVTLADAGF 0.000287	14
HLA-A*26:01	1	930	939	10	KIQDSLSTTA 0.000287	19
HLA-B*07:02	1	1050	1058	9	PQSAPHGVV 0.000287	21
HLA-A*11:01	1	1079	1088	10	CHDGKAHFPR 0.000287	15
HLA-B*07:02	1	1148	1156	9	ELDKYFKNH 0.000287	21
HLA-A*32:01	1	1164	1173	10	GDISGINASV 0.000287	18
HLA-B*53:01	1	1207	1215	9	IKWPWYIWL 0.000287	16
HLA-A*31:01	1	20	29	10	TRTQLPPAY 0.000286	25
HLA-B*15:01	1	126	134	9	VVIKVCSEQ 0.000286	24

HLA-B*44:03	1	190	199	10	REFVFKNIDG 0.000286	14
HLA-B*44:02	1	215	223	9	GLPQGFSAL 0.000286	14
HLA-A*24:02	1	271	279	9	TFLKYNEN 0.000286	14
HLA-B*44:02	1	316	324	9	RVQPTESIV 0.000286	14
HLA-B*44:03	1	342	351	10	TRFASVYAWN 0.000286	14
HLA-A*68:02	1	406	414	9	QIAPGQTGN 0.000286	26
HLA-B*08:01	1	489	498	10	LQSYGFQPTY 0.000286	33
HLA-A*03:01	1	535	543	9	CVNFNFNGL 0.000286	19
HLA-B*58:01	1	545	554	10	GTGVLTESNK 0.000286	24
HLA-A*30:01	1	564	572	9	RDIADTTDA 0.000286	43
HLA-A*02:03	1	588	597	10	SFGGVSVITP 0.000286	26
HLA-A*30:01	1	596	605	10	TPGTNTSNQV 0.000286	43
HLA-A*68:01	1	613	621	9	NCTEVPVAI 0.000286	23
HLA-B*07:02	1	674	683	10	QTNSPRRARS 0.000286	21
HLA-A*02:03	1	742	750	9	DSTECSNLL 0.000286	26
HLA-A*02:03	1	777	786	10	EVFAQVKQIY 0.000286	26
HLA-B*57:01	1	824	833	10	TLADAGFIKQ 0.000286	33
HLA-B*51:01	1	846	855	10	LICAQKFNGL 0.000286	30
HLA-B*15:01	1	879	887	9	ITSGWTFGA 0.000286	24
HLA-B*58:01	1	918	927	10	KLIANQFNFA 0.000286	24
HLA-B*57:01	1	919	927	9	LIANQFNFA 0.000286	33
HLA-A*30:01	1	949	958	10	VNQAQALNT 0.000286	43
HLA-A*26:01	1	1007	1015	9	QQLIRAAEI 0.000286	20
HLA-B*07:02	1	1017	1025	9	ASANLAATK 0.000286	21
HLA-A*02:06	1	1044	1052	9	YHLMSEFPQS 0.000286	31
HLA-A*02:06	1	1066	1074	9	PAQEKNFST 0.000286	31
HLA-B*07:02	1	1082	1091	10	GKAHFPREGV 0.000286	21
HLA-B*51:01	1	1098	1107	10	HWFVTQRNFY 0.000286	30
HLA-A*30:02	1	1101	1110	10	VTQRNFYEPQ 0.000286	40
HLA-A*31:01	1	1126	1134	9	VIGIVNNTV 0.000286	25
HLA-A*30:01	1	1149	1158	10	LDKYFKNHTS 0.000286	43
HLA-A*33:01	1	1150	1158	9	DKYFKNHTS 0.000286	23
HLA-A*02:03	1	1223	1232	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	YDPKVFRRSS 0.000285	20
HLA-A*68:01	1	123	132	10	ATNVVIVKCE 0.000285	23
HLA-A*11:01	1	247	255	9	TPGDSSSGW 0.000285	15
HLA-B*40:01	1	285	293	9	AVDCALDPL 0.000285	13
HLA-A*02:03	1	362	371	10	YSVLYNSASF 0.000285	26
HLA-B*35:01	1	374	383	10	FKCYGVSPTK 0.000285	17
HLA-A*26:01	1	398	407	10	VIRGDEVROI 0.000285	20
HLA-A*33:01	1	468	476	9	EIYQAGSTP 0.000285	23
HLA-B*44:03	1	530	538	9	LVKNKCVNF 0.000285	14
HLA-B*40:01	1	549	557	9	LTESNKKFL 0.000285	13
HLA-A*02:01	1	649	657	9	GAEHVNSYS 0.000285	23
HLA-A*23:01	1	687	696	10	QSIAYTMSL 0.000285	14
HLA-A*23:01	1	703	712	10	AYSNNSIAIP 0.000285	14
HLA-A*26:01	1	743	752	10	STECNLLLQ 0.000285	20
HLA-A*30:01	1	790	799	10	PIKDFGGFNF 0.000285	43
HLA-A*30:02	1	833	841	9	QYGDCLGDI 0.000285	40
HLA-A*30:02	1	848	856	9	CAQKFNGLT 0.000285	40
HLA-A*01:01	1	922	931	10	NQFNFAIGKI 0.000285	30
HLA-B*44:03	1	1006	1014	9	TQQLIRAAE 0.000285	14
HLA-A*02:01	1	1017	1025	9	ASANLAATK 0.000285	23
HLA-B*07:02	1	1096	1104	9	GTHWFVTQR 0.000285	21
HLA-B*08:01	1	1118	1127	10	FVSGNCDVVI 0.000285	33
HLA-B*53:01	1	1168	1176	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	252	260	9	SSGWTAGAA 0.000284	30
HLA-B*53:01	1	254	263	10	GWTAGAAAYY 0.000284	16
HLA-A*31:01	1	389	397	9	FTNVYADSF 0.000284	25
HLA-A*30:01	1	393	401	9	YADSFVIRG 0.000284	43
HLA-B*08:01	1	412	420	9	TGNIADYNY 0.000284	33
HLA-B*08:01	1	429	438	10	CVIAWNSNNL 0.000284	33
HLA-A*30:01	1	515	524	10	LHAPATVCGP 0.000284	43
HLA-A*33:01	1	621	629	9	IHADQLTPT 0.000284	23
HLA-A*68:01	1	627	635	9	TPTWRVYST 0.000284	23
HLA-A*30:02	1	664	672	9	GAGICASYQ 0.000284	40
HLA-B*44:03	1	711	719	9	IPTNFTISV 0.000284	14
HLA-A*31:01	1	723	731	9	ILPVSMTKT 0.000284	25
HLA-B*57:01	1	740	749	10	CGDSTECNSL 0.000284	33
HLA-A*33:01	1	764	773	10	LTGIAVEQDK 0.000284	23
HLA-B*08:01	1	785	793	9	IYKTPPIKD 0.000284	33
HLA-A*01:01	1	810	819	10	SKRSFIEDLL 0.000284	30
HLA-A*03:01	1	836	844	9	DCLGDIAAR 0.000284	19
HLA-B*07:02	1	861	870	10	LLTDEMIAQY 0.000284	21
HLA-B*08:01	1	892	900	9	QIPFAMQMA 0.000284	33
HLA-B*53:01	1	905	914	10	GIGVTQNVLY 0.000284	16
HLA-A*68:01	1	1010	1019	10	IRAAEIRASA 0.000284	23
HLA-B*35:01	1	1035	1044	10	KRVDFCGKGY 0.000284	17
HLA-A*32:01	1	1046	1054	9	LMSFPQSAP 0.000284	18
HLA-B*51:01	1	1074	1083	10	TAPAICHDGK 0.000284	30
HLA-B*53:01	1	1089	1098	10	EGVFVSNNGH 0.000284	16
HLA-B*44:02	1	1146	1155	10	KEELDKYFKN 0.000284	14
HLA-B*44:03	1	1201	1210	10	GKYEQYIKWP 0.000284	14
HLA-A*03:01	1	13	22	10	SQCWNLTTRT 0.000283	19
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	ATNVVIKVC 0.000283	21
HLA-A*03:01	1	134	143	10	QFCNDPFLGV 0.000283	19
HLA-B*15:01	1	150	158	9	KSWMSEFR 0.000283	24
HLA-B*08:01	1	178	187	10	DLEGKQGNFK 0.000283	33
HLA-B*07:02	1	236	245	10	TRFQTLHRSY 0.000283	21
HLA-A*30:02	1	276	285	10	YNENGTITDA 0.000283	40
HLA-B*07:02	1	330	339	10	TNLCPFGEVF 0.000283	21
HLA-A*30:02	1	455	464	10	KSNLKPFERD 0.000283	40
HLA-A*23:01	1	457	465	9	NLKPFERDI 0.000283	14
HLA-A*31:01	1	461	470	10	FERDISTEYI 0.000283	25
HLA-A*33:01	1	525	534	10	KKSTNLVKNK 0.000283	24
HLA-B*15:01	1	618	626	9	PVAIHADQL 0.000283	24
HLA-A*31:01	1	657	665	9	YECDIPIGA 0.000283	25
HLA-A*32:01	1	700	709	10	NSVAYSNNSI 0.000283	18
HLA-B*35:01	1	747	756	10	SNLLLQYGSF 0.000283	17
HLA-A*03:01	1	825	833	9	LADAGFIKQ 0.000283	19
HLA-A*30:01	1	844	853	10	RDLICAQKFN 0.000283	43
HLA-B*08:01	1	851	859	9	KFNGLTVLP 0.000283	33
HLA-A*01:01	1	871	880	10	TSALLAGTIT 0.000283	30
HLA-B*15:01	1	948	957	10	VVNQNAQALN 0.000283	24
HLA-B*53:01	1	1023	1031	9	ATKMSECVL 0.000283	16
HLA-A*23:01	1	1062	1071	10	VTYVPAQEKD 0.000283	14
HLA-B*15:01	1	1104	1113	10	RNFYEPQIIT 0.000283	24
HLA-A*23:01	1	1119	1127	9	VSGNCDVVI 0.000283	14
HLA-B*15:01	1	1132	1141	10	NTVYDPLQPE 0.000283	24
HLA-B*58:01	1	1132	1141	10	NTVYDPLQPE 0.000283	24
HLA-A*02:03	1	1172	1181	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	ASTEKSNII 0.000282	16
HLA-B*58:01	1	118	126	9	LIVNNATNV 0.000282	24
HLA-A*26:01	1	123	131	9	ATNVVIKVC 0.000282	20
HLA-B*58:01	1	311	320	10	QTSNFRVQPT 0.000282	24

HLA-A*02:03	1	354	362	9	RISNCVADY 0.000282	26
HLA-B*08:01	1	421	429	9	KLPDDFTGC 0.000282	33
HLA-A*02:03	1	448	457	10	YLYRFLFRKSN 0.000282	26
HLA-B*58:01	1	477	486	10	CNGVKGFNCY 0.000282	24
HLA-B*51:01	1	496	505	10	PTYGVGYQPY 0.000282	30
HLA-A*11:01	1	509	517	9	VLSFELLHA 0.000282	15
HLA-B*58:01	1	514	522	9	LLHAPATVC 0.000282	24
HLA-B*08:01	1	588	596	9	SFGGVSVIT 0.000282	33
HLA-B*35:01	1	627	636	10	TPTWRVYSTG 0.000282	17
HLA-B*58:01	1	628	636	9	PTWRVYSTG 0.000282	24
HLA-A*33:01	1	670	678	9	SYQTQTNSP 0.000282	24
HLA-A*02:01	1	674	682	9	QTNSPRRAR 0.000282	23
HLA-A*03:01	1	677	685	9	SPRRARVA 0.000282	19
HLA-A*03:01	1	872	881	10	SALLAGTITS 0.000282	19
HLA-A*68:02	1	977	986	10	ILSRLDKVEA 0.000282	26
HLA-A*23:01	1	1067	1075	9	AQEKNFTTA 0.000282	14
HLA-B*51:01	1	1074	1082	9	TAPAICHDG 0.000282	30
HLA-A*02:03	1	1090	1098	9	GVFVSNATH 0.000282	26
HLA-B*44:02	1	1096	1104	9	GTHWFVTQR 0.000282	15
HLA-A*24:02	1	1104	1113	10	RNFYEQIIT 0.000282	14
HLA-B*57:01	1	1169	1177	9	INASVVNIQ 0.000282	33
HLA-A*30:01	1	1170	1179	10	NASVVNIQKE 0.000282	43
HLA-B*07:02	1	1177	1186	10	QKEIDRLNEV 0.000282	21
HLA-B*40:01	1	38	47	10	YPDKVFRSSV 0.000281	13
HLA-B*07:02	1	77	85	9	KRFANPVL 0.000281	21
HLA-B*35:01	1	88	96	9	DGVYFASTE 0.000281	17
HLA-A*11:01	1	126	135	10	VVIKVCFQF 0.000281	15
HLA-A*30:01	1	132	141	10	EFQFCNDPFL 0.000281	43
HLA-A*11:01	1	166	175	10	CTFEYVSQPF 0.000281	15
HLA-A*31:01	1	200	208	9	YFKIYSKHT 0.000281	25
HLA-A*01:01	1	248	257	10	PGDSSSGWTA 0.000281	30
HLA-B*51:01	1	413	422	10	GNIADYNYKL 0.000281	30
HLA-B*07:02	1	424	433	10	DDFTGCVIAW 0.000281	21
HLA-B*44:03	1	434	442	9	NSNNLDSKV 0.000281	14
HLA-B*58:01	1	446	454	9	YNYLYRFLFR 0.000281	24
HLA-A*30:02	1	515	523	9	LHAPATVCG 0.000281	40
HLA-B*53:01	1	651	659	9	EHVNNSYEC 0.000281	16
HLA-A*30:02	1	717	726	10	ISVTTEILPV 0.000281	40
HLA-B*53:01	1	721	730	10	TEILPVSMTK 0.000281	16
HLA-A*26:01	1	728	736	9	MTKTSVDCT 0.000281	20
HLA-B*51:01	1	780	788	9	AQVKQIYKT 0.000281	30
HLA-B*07:02	1	781	790	10	QVKQIYKTPP 0.000281	21
HLA-A*01:01	1	857	865	9	VLPLLLTDE 0.000281	30
HLA-A*31:01	1	899	908	10	MAYRFNGIGV 0.000281	25
HLA-A*01:01	1	907	915	9	GVTQNVLYE 0.000281	30
HLA-A*02:01	1	1047	1055	9	MSFPQSAPH 0.000281	23
HLA-B*44:03	1	1103	1112	10	QRNFYEQI 0.000281	14
HLA-B*35:01	1	1125	1133	9	VVIGIVNNT 0.000281	17
HLA-A*30:01	1	1168	1177	10	GINASVVNIQ 0.000281	43
HLA-B*51:01	1	1197	1206	10	LQELGKYEYQ 0.000281	30
HLA-A*02:03	1	1230	1238	9	MLCCMTSCC 0.000281	26
HLA-A*68:01	1	1245	1253	9	CSCGSCCKF 0.000281	23
HLA-B*35:01	1	1254	1263	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-A*11:01	1	233	242	10	INITRFQTLH 0.00028	15
HLA-B*58:01	1	308	317	10	GIYQTSNFRV 0.00028	24
HLA-A*33:01	1	472	481	10	AGSTPCNGVK 0.00028	24
HLA-A*03:01	1	502	510	9	YQPYRVVVL 0.00028	19
HLA-A*03:01	1	506	515	10	RVVLSFELL 0.00028	19
HLA-B*44:03	1	508	516	9	VVLSFELLH 0.00028	14
HLA-A*30:01	1	536	545	10	VNFNFNGLTG 0.00028	43
HLA-A*02:03	1	709	718	10	IAIPTNFTIS 0.00028	26

HLA-A*68:02	1	736	744	9	TMYICGDST 0.00028	26
HLA-B*44:02	1	741	750	10	GDSTECSNLL 0.00028	15
HLA-A*02:01	1	774	783	10	NTQEVFAQVK 0.00028	23
HLA-A*02:03	1	823	832	10	VTLADAGFIK 0.00028	26
HLA-A*02:03	1	901	909	9	YRFNGIGVT 0.00028	26
HLA-B*15:01	1	904	912	9	NGIGVTQNV 0.00028	24
HLA-A*03:01	1	931	939	9	IQDLSSTA 0.00028	19
HLA-B*15:01	1	936	944	9	SSTASALGK 0.00028	24
HLA-B*53:01	1	962	970	9	QLSSNFGAI 0.00028	16
HLA-A*30:02	1	973	982	10	VLNDILSRLD 0.00028	40
HLA-A*68:01	1	998	1007	10	LQSLQTYVTQ 0.00028	23
HLA-A*01:01	1	1155	1163	9	NHTSPDVDL 0.00028	30
HLA-B*57:01	1	1201	1210	10	GKYEQYIKWP 0.00028	33
HLA-B*35:01	1	1213	1221	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	VIKVFCEFC 0.000279	32
HLA-A*31:01	1	137	146	10	NDPFLGVVYH 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	267	276	10	LQPRTFLLKY 0.000279	23
HLA-A*26:01	1	281	289	9	TITDAVDCA 0.000279	20
HLA-B*44:03	1	323	332	10	IVRFPNITNL 0.000279	14
HLA-A*68:01	1	360	368	9	ADYSVLVNS 0.000279	23
HLA-A*01:01	1	372	380	9	STFKCYGVS 0.000279	30
HLA-B*57:01	1	430	439	10	VIAWNSNLD 0.000279	33
HLA-A*30:02	1	469	478	10	IYQAGSTPCN 0.000279	40
HLA-A*33:01	1	505	514	10	YRVVLSFEL 0.000279	24
HLA-B*15:01	1	520	528	9	TVCGPKKST 0.000279	24
HLA-A*02:03	1	590	599	10	GGVSVITPGT 0.000279	26
HLA-B*51:01	1	598	607	10	GTNTSNQVAV 0.000279	30
HLA-A*24:02	1	607	616	10	VLYQGVNCTE 0.000279	14
HLA-B*15:01	1	646	654	9	CLIGAEHVN 0.000279	24
HLA-A*02:01	1	684	693	10	VASQSIIAYT 0.000279	23
HLA-A*32:01	1	688	697	10	SIIAYTMSLG 0.000279	18
HLA-B*44:02	1	854	862	9	GLTVLPELL 0.000279	15
HLA-A*30:02	1	901	909	9	YRFNGIGVT 0.000279	40
HLA-B*15:01	1	906	915	10	IGVTQNVLYE 0.000279	24
HLA-A*01:01	1	1046	1054	9	LMSFPQSAP 0.000279	30
HLA-A*30:01	1	1149	1157	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*31:01	1	71	80	10	SGTNGTKRFA 0.000278	25
HLA-A*03:01	1	126	135	10	VVIKVCEFC 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	367	376	10	NSASFSTFKC 0.000278	25
HLA-A*30:02	1	424	433	10	DDFTGCVIAW 0.000278	41
HLA-A*11:01	1	430	438	9	VIAWNSNNL 0.000278	15
HLA-A*26:01	1	495	504	10	QPTYGVGYQP 0.000278	20
HLA-A*01:01	1	509	518	10	VLSFELLHAP 0.000278	31
HLA-B*08:01	1	560	568	9	QQFGRDIAD 0.000278	33
HLA-A*03:01	1	569	577	9	TTDAVRDPQ 0.000278	19
HLA-A*02:01	1	654	663	10	NNSYECDIPI 0.000278	23
HLA-A*30:02	1	675	684	10	TNSPRRARSV 0.000278	41
HLA-A*02:06	1	799	807	9	FSQILPDPS 0.000278	32
HLA-B*44:03	1	822	830	9	KVTLADAGF 0.000278	14
HLA-A*68:02	1	824	833	10	TLADAGFIKQ 0.000278	26
HLA-A*30:01	1	829	838	10	GFIKQYGDCL 0.000278	43
HLA-A*68:02	1	874	882	9	LLAGTITSG 0.000278	26
HLA-B*57:01	1	880	888	9	TSGWTFGAG 0.000278	33
HLA-A*23:01	1	904	913	10	NGIGVTQNVL 0.000278	14
HLA-A*11:01	1	909	917	9	TQNVLYENQ 0.000278	15

HLA-B*35:01	1	1015	1023	9	IRASANLAA 0.000278	17
HLA-B*57:01	1	1058	1066	9	VFLHVTYVP 0.000278	33
HLA-B*07:02	1	1061	1070	10	HVTYVPAQEK 0.000278	21
HLA-B*53:01	1	1075	1083	9	APAICHDGK 0.000278	16
HLA-A*30:02	1	1096	1105	10	GTHWFVTQRN 0.000278	41
HLA-A*11:01	1	1100	1108	9	FVTQRNFYE 0.000278	15
HLA-A*33:01	1	1126	1134	9	VIGIVNNTV 0.000278	24
HLA-A*31:01	1	1167	1176	10	SGINASVVNI 0.000278	25
HLA-A*02:03	1	5	14	10	LVLLPLVSSQ 0.000277	26
HLA-A*23:01	1	218	227	10	QGFSALEPLV 0.000277	14
HLA-A*33:01	1	250	259	10	DSSSGWTAGA 0.000277	24
HLA-A*30:02	1	273	281	9	LLKYNENGT 0.000277	41
HLA-A*26:01	1	374	383	10	FKCYGVSPTK 0.000277	20
HLA-A*30:01	1	389	398	10	FTNVYADSFV 0.000277	43
HLA-B*44:02	1	451	459	9	RLFRKSNLK 0.000277	15
HLA-A*33:01	1	457	465	9	NLKPFERDI 0.000277	24
HLA-B*08:01	1	537	546	10	NFNFNGLTGT 0.000277	33
HLA-A*01:01	1	722	731	10	EILPVSMTKT 0.000277	31
HLA-A*02:06	1	784	793	10	QIYKTPPIKD 0.000277	32
HLA-B*08:01	1	797	805	9	FNFSQILPD 0.000277	33
HLA-A*02:03	1	858	866	9	LPPLLTDEM 0.000277	26
HLA-B*57:01	1	901	910	10	YRFNGIGVTQ 0.000277	33
HLA-A*23:01	1	931	939	9	IQDLSSTA 0.000277	14
HLA-B*53:01	1	952	961	10	NAQALNTLVK 0.000277	16
HLA-A*30:01	1	986	995	10	AEVQIDRLIT 0.000277	43
HLA-B*57:01	1	1007	1016	10	QLLIRAAEIR 0.000277	33
HLA-A*30:01	1	1031	1040	10	LGQSKRVDFC 0.000277	43
HLA-A*03:01	1	1084	1093	10	AHFPREGVVF 0.000277	19
HLA-A*01:01	1	1086	1094	9	FPREGVFVS 0.000277	31
HLA-B*53:01	1	1122	1130	9	NCDVVIGIV 0.000277	16
HLA-B*53:01	1	1181	1190	10	DRLNEVAKNL 0.000277	16
HLA-A*68:01	1	1224	1232	9	IVMVTIMLC 0.000277	23
HLA-B*51:01	1	61	69	9	NVTWFHAIH 0.000276	30
HLA-B*44:03	1	124	133	10	TNVVIKVCFF 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	320	329	10	TESIVRFPNI 0.000276	14
HLA-B*08:01	1	388	397	10	CFTNVYADSF 0.000276	33
HLA-B*07:02	1	418	426	9	YNYKLPDDF 0.000276	21
HLA-B*44:03	1	459	467	9	KPFERDIST 0.000276	14
HLA-A*01:01	1	519	527	9	ATVCGPKKS 0.000276	31
HLA-A*32:01	1	522	530	9	CGPKKSTNL 0.000276	18
HLA-A*33:01	1	616	624	9	EVPVAIHAD 0.000276	24
HLA-B*58:01	1	690	699	10	IAYTMSLGVE 0.000276	24
HLA-A*01:01	1	795	803	9	GGFNFSQIL 0.000276	31
HLA-A*03:01	1	802	810	9	ILPDPSKPS 0.000276	19
HLA-A*30:02	1	987	995	9	EVQIDRLIT 0.000276	41
HLA-A*01:01	1	993	1002	10	LITGRLQSLQ 0.000276	31
HLA-B*40:01	1	1015	1023	9	IRASANLAA 0.000276	13
HLA-A*26:01	1	1179	1187	9	EIDRLNEVA 0.000276	20
HLA-B*15:01	1	1186	1195	10	VAKNLNESLI 0.000276	24
HLA-A*02:03	1	1187	1195	9	AKNLNESLI 0.000276	26
HLA-B*51:01	1	1214	1222	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	269	278	10	PRTFLLKYNE 0.000275	33
HLA-A*01:01	1	385	394	10	NDLCFTNVYA 0.000275	31
HLA-A*30:02	1	408	416	9	APGQTGNIA 0.000275	41
HLA-B*51:01	1	484	493	10	NCYFPLQSYG 0.000275	30
HLA-B*58:01	1	569	578	10	TTDAVRDPQT 0.000275	24
HLA-B*57:01	1	746	755	10	CSNLLLQYGS 0.000275	33
HLA-B*08:01	1	750	758	9	LLQYGSFCT 0.000275	33
HLA-B*51:01	1	761	770	10	NRALTGIAVE 0.000275	30
HLA-B*35:01	1	818	826	9	LLFNKVTLA 0.000275	17

HLA-A*23:01	1	894	902	9	PFAMQMAYR 0.000275	14
HLA-A*02:01	1	946	955	10	QDVVNQNAQA 0.000275	24
HLA-B*57:01	1	976	984	9	DILSRLDKV 0.000275	33
HLA-A*02:03	1	989	997	9	QIDRLITGR 0.000275	26
HLA-A*02:01	1	1030	1039	10	VLGQSKRVDF 0.000275	24
HLA-B*51:01	1	1129	1137	9	IVNNTVYDP 0.000275	30
HLA-B*51:01	1	1129	1138	10	IVNNTVYDPL 0.000275	30
HLA-B*07:02	1	1204	1212	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*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	261	269	9	AYYVGYLQP 0.000274	26
HLA-A*02:03	1	278	286	9	ENGTITDAV 0.000274	26
HLA-A*68:01	1	316	324	9	RVQPTESIV 0.000274	23
HLA-A*30:02	1	516	524	9	HAPATVCGP 0.000274	41
HLA-A*33:01	1	545	554	10	GTGVLTESNK 0.000274	24
HLA-B*40:01	1	564	572	9	RDIADTTDA 0.000274	13
HLA-B*51:01	1	611	619	9	GVNCTEVPV 0.000274	30
HLA-B*58:01	1	679	688	10	RRARSVASQS 0.000274	24
HLA-B*44:03	1	758	767	10	TQLNRALTGI 0.000274	14
HLA-A*30:02	1	835	844	10	GDCLGDIAAR 0.000274	41
HLA-A*68:01	1	888	896	9	GAALQIPFA 0.000274	23
HLA-B*57:01	1	907	915	9	GVTQNVLYE 0.000274	33
HLA-A*01:01	1	926	934	9	SAIGKIQDS 0.000274	31
HLA-A*33:01	1	1078	1086	9	ICHDGKAHF 0.000274	24
HLA-A*26:01	1	1084	1093	10	AHFPREGVFN 0.000274	20
HLA-A*32:01	1	1110	1119	10	QIITDNTFV 0.000274	18
HLA-B*07:02	1	1125	1133	9	VVIGIVNNT 0.000274	21
HLA-A*24:02	1	1140	1149	10	PELDSFKEEL 0.000274	14
HLA-B*35:01	1	1165	1174	10	DISGINASVV 0.000274	17
HLA-B*08:01	1	1167	1176	10	SGINASVVNI 0.000274	33
HLA-B*57:01	1	1182	1191	10	RLNEVAKNLN 0.000274	33
HLA-A*30:01	1	1234	1243	10	MTSCCSCCLKG 0.000274	43
HLA-A*68:02	1	12	21	10	SSQCVNLTTR 0.000273	26
HLA-B*08:01	1	16	25	10	VNLTTRTQLP 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-A*68:02	1	264	272	9	VGYLQPRTF 0.000273	26
HLA-B*58:01	1	319	327	9	PTESIVRFP 0.000273	24
HLA-A*03:01	1	334	343	10	PFGEVFNATR 0.000273	20
HLA-B*44:03	1	339	348	10	FNATRFASVY 0.000273	14
HLA-B*08:01	1	403	412	10	EVQRQIAPGQT 0.000273	33
HLA-B*44:02	1	408	416	9	APGQTGNIA 0.000273	15
HLA-A*24:02	1	440	449	10	SKVGGNYNYL 0.000273	14
HLA-B*44:03	1	503	511	9	QPYRVVVL 0.000273	14
HLA-B*44:02	1	527	535	9	STNLVKKNC 0.000273	15
HLA-A*03:01	1	685	694	10	ASQSIIAYTM 0.000273	20
HLA-A*31:01	1	750	759	10	LLQYGSFCTQ 0.000273	25
HLA-B*15:01	1	755	764	10	SFCTQLNRAL 0.000273	24
HLA-A*33:01	1	840	849	10	DIAARDLICA 0.000273	24
HLA-B*08:01	1	872	880	9	SALLAGTIT 0.000273	33
HLA-A*31:01	1	875	883	9	LAGTITSGW 0.000273	25
HLA-A*24:02	1	897	906	10	MQMAYRFNGI 0.000273	14
HLA-A*68:01	1	1101	1110	10	VTQRNFYEPQ 0.000273	23
HLA-B*57:01	1	1110	1119	10	QIITDNTFV 0.000273	33
HLA-B*51:01	1	1140	1149	10	PELDSFKEEL 0.000273	30
HLA-A*68:01	1	1144	1153	10	SFKEELDKYF 0.000273	23
HLA-B*57:01	1	1235	1244	10	TSCCSCCLKGC 0.000273	33
HLA-A*03:01	1	1243	1252	10	GCCSCGSCCK 0.000273	20
HLA-B*51:01	1	1254	1263	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	LFPNDGGVYFA 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-A*31:01	1	303	312	10	FTVEKGIYQT 0.000272	25
HLA-B*44:03	1	314	323	10	NFRVQPTESI 0.000272	14
HLA-A*01:01	1	320	329	10	TESIVRFPNI 0.000272	31
HLA-B*51:01	1	337	346	10	EVFNATRFAS 0.000272	30
HLA-B*53:01	1	342	351	10	TRFASVYAWN 0.000272	16
HLA-A*30:02	1	356	365	10	SNCVADYSVL 0.000272	41
HLA-A*01:01	1	380	388	9	SPTKLNLC 0.000272	31
HLA-A*68:02	1	408	416	9	APGQTGNIA 0.000272	26
HLA-B*08:01	1	410	418	9	GQTGNIADY 0.000272	33
HLA-A*24:02	1	413	422	10	GNIADYNYKL 0.000272	14
HLA-A*30:02	1	429	437	9	CVIAWNSNN 0.000272	41
HLA-A*30:01	1	486	495	10	YFPLQSYGFQ 0.000272	44
HLA-A*33:01	1	527	536	10	STNLVKNKCV 0.000272	24
HLA-B*57:01	1	557	566	10	LPFQQFGRDI 0.000272	33
HLA-B*07:02	1	559	567	9	FQQFGRDIA 0.000272	21
HLA-B*35:01	1	575	583	9	DPQTLFIELD 0.000272	17
HLA-A*11:01	1	665	674	10	AGICASYQTQ 0.000272	15
HLA-A*23:01	1	696	704	9	LGVENSVAY 0.000272	14
HLA-A*68:01	1	770	779	10	EQDKNTQEVF 0.000272	23
HLA-B*53:01	1	794	803	10	FGGFNFSQIL 0.000272	16
HLA-B*35:01	1	901	910	10	YRFNGIGVTQ 0.000272	17
HLA-A*68:01	1	1006	1014	9	TQQLIRAAE 0.000272	23
HLA-A*02:06	1	1019	1028	10	ANLAATKMSE 0.000272	32
HLA-A*68:02	1	1140	1149	10	PELDSFKEEL 0.000272	26
HLA-B*15:01	1	1199	1207	9	ELGKYEYI 0.000272	24
HLA-A*26:01	1	1218	1226	9	IAGLIAIVM 0.000272	20
HLA-A*02:06	1	1228	1237	10	TIMLCCMTSC 0.000272	32
HLA-B*07:02	1	1252	1261	10	KFDEDDSEPV 0.000272	21
HLA-B*58:01	1	1256	1265	10	DDSEPVKGV 0.000272	24
HLA-B*58:01	1	8	16	9	LPLVSSQCV 0.000271	24
HLA-B*35:01	1	15	23	9	CVNLTRRTQ 0.000271	17
HLA-A*02:06	1	29	38	10	TNSFTRGVY 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*30:01	1	95	103	9	TEKSNIIRG 0.000271	44
HLA-B*51:01	1	96	105	10	EKSNIIRGWI 0.000271	30
HLA-A*32:01	1	239	248	10	QTLHRSYLTP 0.000271	18
HLA-B*57:01	1	261	270	10	AYYVGYLQPR 0.000271	33
HLA-A*30:02	1	274	283	10	LKYNENGTIT 0.000271	41
HLA-A*01:01	1	311	320	10	QTSNFRVQPT 0.000271	31
HLA-A*30:02	1	431	440	10	IAWNSNLLDS 0.000271	41
HLA-B*44:02	1	450	458	9	YRLFRRKSNL 0.000271	15
HLA-A*68:01	1	451	460	10	RLFRKSNLKP 0.000271	23
HLA-B*51:01	1	517	525	9	APATVCGPK 0.000271	30
HLA-A*68:02	1	541	550	10	NGLTGTGVL 0.000271	26
HLA-B*08:01	1	685	693	9	ASQSIIAYT 0.000271	33
HLA-A*01:01	1	776	784	9	QEVFAQVKQ 0.000271	31
HLA-A*30:02	1	776	784	9	QEVFAQVKQ 0.000271	41
HLA-A*68:01	1	786	794	9	YKTPPIKDF 0.000271	23
HLA-A*23:01	1	816	825	10	EDLLFNKVT 0.000271	14
HLA-A*30:02	1	817	826	10	DLLFNKVTLA 0.000271	41
HLA-A*02:03	1	822	830	9	KVTLADAGF 0.000271	26
HLA-B*58:01	1	838	847	10	LGDIAARDLI 0.000271	24
HLA-A*26:01	1	915	923	9	ENQKLIANQ 0.000271	20
HLA-A*02:03	1	917	926	10	QKLIANQFNS 0.000271	26
HLA-B*53:01	1	919	928	10	LIANQFNLSAI 0.000271	16
HLA-B*44:03	1	940	948	9	SALGKLQDV 0.000271	14
HLA-A*30:01	1	943	951	9	GKLQDVVNQ 0.000271	44
HLA-A*30:02	1	1026	1034	9	MSECVLGQS 0.000271	41



HLA-B*07:02	1	1046	1055	10	LMSFPQSAPH 0.000271	21
HLA-A*31:01	1	1089	1098	10	EGVFSVNGTH 0.000271	25
HLA-B*53:01	1	1110	1119	10	QIITTDNTFV 0.000271	16
HLA-B*58:01	1	31	39	9	SFTRGVYYP 0.00027	25
HLA-A*23:01	1	41	49	9	KVFRSSVLH 0.00027	14
HLA-A*68:02	1	77	85	9	KRFANPVL 0.00027	26
HLA-A*03:01	1	94	103	10	STEKSNIRG 0.00027	20
HLA-A*11:01	1	187	196	10	KNLREFVFKN 0.00027	15
HLA-A*02:03	1	212	221	10	LVRGLPQGF 0.00027	26
HLA-B*51:01	1	287	295	9	DCALDPLSE 0.00027	30
HLA-B*15:01	1	289	298	10	ALDPLSETK 0.00027	24
HLA-A*33:01	1	324	333	10	VRFPNITNLC 0.00027	24
HLA-A*01:01	1	360	368	9	ADYSVLYNS 0.00027	31
HLA-B*58:01	1	391	400	10	NVYADSFVIR 0.00027	25
HLA-B*15:01	1	425	433	9	DFTGCVIAW 0.00027	24
HLA-B*44:03	1	463	472	10	RDISTEIQYA 0.00027	14
HLA-B*51:01	1	511	519	9	SFELLHAPA 0.00027	30
HLA-A*33:01	1	573	582	10	VRDPQTLEIL 0.00027	24
HLA-B*35:01	1	598	606	9	GTNTSNQVA 0.00027	17
HLA-A*02:03	1	690	699	10	IAYTMSLQVE 0.00027	26
HLA-B*35:01	1	714	723	10	NFTISVTTEI 0.00027	17
HLA-B*08:01	1	736	744	9	TMYICGDST 0.00027	33
HLA-B*07:02	1	768	776	9	AVEQDKNTQ 0.00027	21
HLA-A*31:01	1	786	794	9	YKTPPIKDF 0.00027	25
HLA-A*33:01	1	792	801	10	KDFGGFNFSQ 0.00027	24
HLA-A*02:01	1	881	890	10	SGWTFGAGAA 0.00027	24
HLA-B*07:02	1	881	889	9	SGWTFGAGA 0.00027	21
HLA-A*01:01	1	891	900	10	LQIPFAMQMA 0.00027	31
HLA-B*35:01	1	902	910	9	RFNGIGVTQ 0.00027	17
HLA-A*31:01	1	912	921	10	VLYENQKLI 0.00027	25
HLA-A*30:01	1	934	943	10	SLSSTASALG 0.00027	44
HLA-B*15:01	1	1008	1017	10	QLIRAAEIRA 0.00027	24
HLA-B*35:01	1	1014	1023	10	EIRASANLAA 0.00027	17
HLA-B*44:03	1	1048	1057	10	SFPQSAPHGV 0.00027	14
HLA-A*68:02	1	1169	1178	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	292	300	9	PLSETKCTL 0.000269	16
HLA-A*02:01	1	314	323	10	NFRVQPTESI 0.000269	24
HLA-B*07:02	1	322	330	9	SIVRFPNIT 0.000269	21
HLA-A*68:02	1	359	368	10	VADYSVLYNS 0.000269	26
HLA-A*02:01	1	512	520	9	FELLHAPAT 0.000269	24
HLA-A*11:01	1	550	559	10	TESNKKFLPF 0.000269	15
HLA-B*57:01	1	569	577	9	TTDAVRDPQ 0.000269	33
HLA-A*68:01	1	577	586	10	QTLEILDITP 0.000269	23
HLA-A*02:03	1	581	590	10	ILDITPCSFG 0.000269	26
HLA-A*68:02	1	621	629	9	IHADQLTPT 0.000269	26
HLA-B*35:01	1	721	729	9	TEILPVSM 0.000269	17
HLA-A*03:01	1	898	906	9	QMAYRFNGI 0.000269	20
HLA-A*01:01	1	903	912	10	FNGIGVTQNV 0.000269	31
HLA-A*02:06	1	905	914	10	GIGVTQNVLY 0.000269	32
HLA-A*02:03	1	977	985	9	ILSRLDKVE 0.000269	26
HLA-A*33:01	1	991	999	9	DRLITGRLQ 0.000269	24
HLA-B*08:01	1	991	1000	10	DRLITGRLQS 0.000269	33
HLA-A*03:01	1	1042	1050	9	KGYHLMSP 0.000269	20
HLA-A*30:01	1	1079	1087	9	CHDGKAHFP 0.000269	44
HLA-A*30:01	1	1198	1207	10	QELGKYEQYI 0.000269	44
HLA-B*53:01	1	1226	1234	9	MVTIMLCCM 0.000269	16
HLA-B*58:01	1	1258	1267	10	SEPVKKGVKL 0.000269	25
HLA-B*58:01	1	180	189	10	EGKQGNFKNL 0.000268	25
HLA-A*68:02	1	298	307	10	CTLKSFTVEK 0.000268	26
HLA-A*30:02	1	371	379	9	FSTFKCYGV 0.000268	41
HLA-B*58:01	1	406	414	9	QIAPGQTGN 0.000268	25

HLA-B*07:02	1	438	446	9	LDSKVGNY 0.000268	21
HLA-B*51:01	1	464	473	10	DISTEIQAG 0.000268	30
HLA-A*01:01	1	517	525	9	APATVCGPK 0.000268	31
HLA-B*57:01	1	542	551	10	GLTGTGVLTE 0.000268	33
HLA-B*51:01	1	544	552	9	TGTGVLTES 0.000268	30
HLA-B*44:02	1	572	580	9	AVRDPQTL 0.000268	15
HLA-A*32:01	1	598	606	9	GTNTSNQVA 0.000268	18
HLA-A*03:01	1	621	630	10	IHADQLTPTW 0.000268	20
HLA-B*07:02	1	738	746	9	YICGDSTEC 0.000268	21
HLA-A*01:01	1	802	810	9	ILPDPSPKS 0.000268	31
HLA-B*57:01	1	828	837	10	AGFIKQYGDC 0.000268	33
HLA-A*11:01	1	894	902	9	PFAMQMAYR 0.000268	15
HLA-A*02:06	1	909	917	9	TQNVLYENQ 0.000268	32
HLA-B*57:01	1	924	933	10	FNSAIGKIQD 0.000268	33
HLA-A*68:02	1	938	946	9	TASALGKLQ 0.000268	26
HLA-A*32:01	1	979	988	10	SRLDKVEAEV 0.000268	18
HLA-B*57:01	1	996	1005	10	GRLQSLQTYV 0.000268	33
HLA-B*07:02	1	1020	1028	9	NLAATKMSE 0.000268	21
HLA-A*24:02	1	1044	1052	9	YHLMSFPQS 0.000268	14
HLA-B*44:03	1	1069	1078	10	EKNFTTAPAI 0.000268	14
HLA-A*01:01	1	1099	1108	10	WVFTQRNFYE 0.000268	31
HLA-B*08:01	1	1113	1121	9	TTDNTFVSG 0.000268	33
HLA-A*03:01	1	1208	1217	10	KWPWYIWLGF 0.000268	20
HLA-A*01:01	1	118	127	10	LIVNATNVV 0.000267	31
HLA-A*30:02	1	147	156	10	KNKSWMESE 0.000267	41
HLA-A*31:01	1	148	157	10	NNKSWMESEF 0.000267	25
HLA-A*02:01	1	229	237	9	LPIGINITR 0.000267	24
HLA-A*26:01	1	390	398	9	TNVYADSFV 0.000267	20
HLA-A*68:01	1	429	438	10	CVIAWNSNLL 0.000267	23
HLA-A*68:02	1	465	474	10	ISTEIQAGS 0.000267	26
HLA-B*40:01	1	510	518	9	LSFELLHAP 0.000267	13
HLA-A*31:01	1	527	536	10	STNLVKKNCV 0.000267	25
HLA-B*53:01	1	532	540	9	KNKCVNFN 0.000267	16
HLA-B*51:01	1	550	558	9	TESNKKFLP 0.000267	30
HLA-A*01:01	1	555	564	10	KFLPFQFGR 0.000267	31
HLA-B*51:01	1	610	619	10	QGVNCTEVPV 0.000267	30
HLA-B*15:01	1	632	641	10	VYSTGSNVFQ 0.000267	24
HLA-A*30:02	1	726	734	9	VSMTKTSVD 0.000267	41
HLA-A*02:01	1	727	736	10	SMTKTSVDCT 0.000267	24
HLA-A*01:01	1	765	773	9	TGIAVEQDK 0.000267	31
HLA-B*08:01	1	981	990	10	LDKVEAEVQI 0.000267	34
HLA-A*26:01	1	987	995	9	EVQIDRLIT 0.000267	20
HLA-A*30:02	1	993	1002	10	LITGRLQSLQ 0.000267	41
HLA-B*53:01	1	1041	1049	9	GKGYHLMSF 0.000267	16
HLA-A*02:01	1	1052	1061	10	SAPHGVVFLH 0.000267	24
HLA-A*30:01	1	1071	1079	9	NFTTAPAIC 0.000267	44
HLA-B*53:01	1	1126	1134	9	VIGIVNNTV 0.000267	16
HLA-B*57:01	1	1181	1190	10	DRLNEVAKNL 0.000267	33
HLA-B*08:01	1	1216	1225	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*30:02	1	280	288	9	GTITDAVDC 0.000266	41
HLA-A*32:01	1	314	323	10	NFRVQPTESI 0.000266	18
HLA-B*44:02	1	337	345	9	EVFNATRFA 0.000266	15
HLA-B*58:01	1	501	510	10	GYPYRVVVL 0.000266	25
HLA-A*30:02	1	540	549	10	FNGLTGTGVL 0.000266	41
HLA-B*44:02	1	549	558	10	LTESNKKFLP 0.000266	15
HLA-B*44:02	1	579	588	10	LEILDITPCS 0.000266	15
HLA-B*15:01	1	592	601	10	VSVITPGTNT 0.000266	24
HLA-A*33:01	1	716	724	9	TISVTTEIL 0.000266	24
HLA-B*51:01	1	811	819	9	KRSFIEDLL 0.000266	30
HLA-A*11:01	1	836	844	9	DCLGDIAAR 0.000266	15
HLA-A*68:01	1	849	858	10	AQKFNGTLVL 0.000266	23

HLA-A*32:01	1	997	1006	10	RLQSLQTYVT 0.000266	18
HLA-A*02:06	1	1002	1011	10	QTYVTQQLIR 0.000266	32
HLA-A*02:06	1	1015	1023	9	IRASANLAA 0.000266	32
HLA-A*31:01	1	1078	1086	9	ICHDGKAHF 0.000266	25
HLA-B*15:01	1	1106	1114	9	FYEPQIITT 0.000266	24
HLA-A*68:02	1	1111	1120	10	IITTDNTFVS 0.000266	26
HLA-B*15:01	1	1164	1173	10	GDISGINASV 0.000266	24
HLA-A*33:01	1	1168	1176	9	GINASVVNI 0.000266	24
HLA-B*15:01	1	1222	1231	10	IAIVMVTIML 0.000266	24
HLA-A*24:02	1	1223	1231	9	AIVMVTIML 0.000266	14
HLA-A*32:01	1	1258	1267	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	IVNATNVVI 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	250	259	10	DSSSGWTAGA 0.000265	17
HLA-A*30:01	1	277	285	9	NENGTITDA 0.000265	44
HLA-A*11:01	1	302	310	9	SFTVEKGIY 0.000265	15
HLA-A*26:01	1	343	352	10	RFASVYAWN 0.000265	20
HLA-A*30:02	1	355	364	10	ISNCVADYSV 0.000265	41
HLA-A*11:01	1	421	429	9	KLPDDFTGC 0.000265	15
HLA-A*02:03	1	516	524	9	HAPATVCGP 0.000265	26
HLA-A*24:02	1	584	592	9	ITPCSFGGV 0.000265	14
HLA-A*32:01	1	607	616	10	VLYQGVNCTE 0.000265	18
HLA-B*08:01	1	682	690	9	RSVASQSII 0.000265	34
HLA-A*31:01	1	719	727	9	VTTEILPVS 0.000265	25
HLA-A*01:01	1	750	758	9	LLQYGSFCT 0.000265	31
HLA-A*03:01	1	785	794	10	IYKTPPIKDF 0.000265	20
HLA-A*31:01	1	787	795	9	KTPPIKDFG 0.000265	25
HLA-A*68:01	1	802	810	9	ILPDPSKPS 0.000265	23
HLA-A*02:03	1	840	848	9	DIAARDLIC 0.000265	26
HLA-A*03:01	1	865	873	9	EMIAQY TSA 0.000265	20
HLA-A*31:01	1	957	965	9	NTLVKQLSS 0.000265	25
HLA-B*57:01	1	1027	1035	9	SECVLGQSK 0.000265	34
HLA-B*51:01	1	1090	1098	9	GVFVSNQTH 0.000265	30
HLA-A*31:01	1	1129	1138	10	IVNNTVYDPL 0.000265	25
HLA-A*30:02	1	1160	1169	10	DVDLGDISGI 0.000265	41
HLA-A*30:01	1	1219	1228	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*57:01	1	155	163	9	SEFRVYSSA 0.000264	34
HLA-A*30:02	1	210	218	9	INLVRGLPQ 0.000264	41
HLA-B*58:01	1	233	242	10	INITRFQTLH 0.000264	25
HLA-A*68:01	1	252	261	10	SSGWTAGAAA 0.000264	23
HLA-B*40:01	1	255	263	9	WTAGAAAYY 0.000264	13
HLA-A*31:01	1	336	345	10	GEVFNATRFA 0.000264	26
HLA-A*33:01	1	361	370	10	DYSVLVNSAS 0.000264	24
HLA-A*32:01	1	385	393	9	NDLCFTNVY 0.000264	18
HLA-B*07:02	1	444	452	9	GNYNYLYRL 0.000264	21
HLA-A*31:01	1	463	471	9	RDISTEIQ 0.000264	26
HLA-B*44:03	1	496	505	10	PTYGVGYQPY 0.000264	15
HLA-B*44:03	1	513	521	9	ELLHAPATV 0.000264	15
HLA-B*44:02	1	604	612	9	QVAVLYQGV 0.000264	15
HLA-A*11:01	1	620	628	9	AIHADQLTP 0.000264	16
HLA-B*35:01	1	644	652	9	AGCLIGA EH 0.000264	17
HLA-A*24:02	1	680	689	10	RARSVASQSI 0.000264	14
HLA-B*08:01	1	701	710	10	SVAYSNNNSIA 0.000264	34
HLA-B*07:02	1	776	785	10	QEVFAQVKQI 0.000264	21
HLA-B*35:01	1	836	844	9	DCLGDIAAR 0.000264	17
HLA-A*31:01	1	867	875	9	IAQYTSALL 0.000264	26
HLA-A*31:01	1	908	916	9	VTQNVLYEN 0.000264	26
HLA-A*31:01	1	964	972	9	SSNFGAISS 0.000264	26

HLA-A*68:01	1	978	987	10	LSRLDKVEAE 0.000264	23
HLA-B*07:02	1	989	997	9	QIDRLITGR 0.000264	21
HLA-A*68:02	1	1112	1121	10	ITDNTFVSG 0.000264	26
HLA-A*30:02	1	1116	1125	10	NTFVSGNCDV 0.000264	41
HLA-B*44:02	1	1121	1129	9	GNCDDVIGI 0.000264	15
HLA-A*01:01	1	1188	1197	10	KNLNEIDL 0.000264	31
HLA-B*53:01	1	1213	1221	9	IWLGFIAGL 0.000264	16
HLA-A*32:01	1	1260	1268	9	PVLKGVKLH 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	LMGLEKQGN 0.000263	31
HLA-A*02:03	1	200	209	10	YFKIYSKHTP 0.000263	26
HLA-A*02:06	1	250	259	10	DSSSGWTAGA 0.000263	32
HLA-B*15:01	1	396	404	9	SFVIRGDEV 0.000263	24
HLA-B*44:03	1	451	459	9	RLFRKSNLK 0.000263	15
HLA-A*02:03	1	601	609	9	TSNQVAVLY 0.000263	26
HLA-A*01:01	1	652	661	10	HVNNSYECDI 0.000263	31
HLA-A*24:02	1	691	700	10	AYTMSLGVEN 0.000263	14
HLA-A*68:01	1	770	778	9	EQDKNTQEV 0.000263	23
HLA-A*01:01	1	840	848	9	DIAARDLIC 0.000263	31
HLA-A*02:01	1	858	866	9	LPPLLTDEM 0.000263	24
HLA-A*31:01	1	884	892	9	TFGAGAALQ 0.000263	26
HLA-A*30:02	1	1019	1027	9	ANLAATKMS 0.000263	41
HLA-A*02:03	1	1037	1046	10	VDFCGKGYHL 0.000263	26
HLA-A*26:01	1	1121	1129	9	GNCDDVIGI 0.000263	20
HLA-A*23:01	1	1161	1169	9	VDLGDISGI 0.000263	15
HLA-B*58:01	1	1167	1175	9	SGINASVVN 0.000263	25
HLA-A*33:01	1	1194	1203	10	LIDLQELGKY 0.000263	24
HLA-A*02:06	1	1225	1234	10	VMVTIMLCCM 0.000263	32
HLA-A*02:01	1	1230	1238	9	MLCCMTSCC 0.000263	24
HLA-A*31:01	1	1245	1253	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*15:01	1	95	103	9	TEKSNIIRG 0.000262	24
HLA-A*01:01	1	184	193	10	GNFKNLREFV 0.000262	31
HLA-B*51:01	1	235	243	9	ITRFQTLHR 0.000262	31
HLA-A*11:01	1	243	252	10	RSYLTPGDSS 0.000262	16
HLA-B*07:02	1	256	264	9	TAGAAAYYV 0.000262	22
HLA-A*30:01	1	269	278	10	PRTFLLKYNE 0.000262	44
HLA-A*30:02	1	277	285	9	NENGTITDA 0.000262	41
HLA-A*24:02	1	282	290	9	ITDAVDCAL 0.000262	14
HLA-A*24:02	1	297	305	9	KCTLKSFTV 0.000262	14
HLA-A*11:01	1	310	318	9	YQTSNFRVQ 0.000262	16
HLA-A*02:01	1	344	352	9	FASVYAWNR 0.000262	24
HLA-B*57:01	1	362	370	9	YSVLYNSAS 0.000262	34
HLA-A*68:01	1	365	374	10	LYNSASFSTF 0.000262	23
HLA-A*01:01	1	374	383	10	FKCYGVSPK 0.000262	31
HLA-A*32:01	1	374	383	10	FKCYGVSPK 0.000262	19
HLA-B*08:01	1	397	405	9	FVIRGDEV 0.000262	34
HLA-A*30:01	1	431	440	10	IAWNSNLD 0.000262	44
HLA-B*07:02	1	483	492	10	FNCYFPLQSY 0.000262	22
HLA-B*07:02	1	512	521	10	FELLHAPATV 0.000262	22
HLA-B*57:01	1	514	522	9	LLHAPATVC 0.000262	34
HLA-A*01:01	1	546	554	9	TGVLTESNK 0.000262	31
HLA-A*30:02	1	564	572	9	RDIADTTDA 0.000262	41
HLA-B*57:01	1	615	623	9	TEVPVAIHA 0.000262	34
HLA-B*58:01	1	627	636	10	TPTWRVYSTG 0.000262	25
HLA-B*40:01	1	680	689	10	RARVASQSI 0.000262	14
HLA-B*44:03	1	681	690	10	ARSVASQSI 0.000262	15
HLA-A*68:01	1	718	727	10	SVTTEILPVS 0.000262	23
HLA-A*30:01	1	876	884	9	AGTITSGWT 0.000262	44
HLA-A*02:03	1	953	962	10	AQALNTLVKQ 0.000262	27

HLA-A*23:01	1	988	997	10	VQIDRLITGR 0.000262	15
HLA-A*33:01	1	1014	1023	10	EIRASANLAA 0.000262	24
HLA-B*58:01	1	1038	1046	9	DFCGKGYHL 0.000262	25
HLA-A*30:02	1	1076	1085	10	PAICHDGKAH 0.000262	41
HLA-A*68:01	1	1077	1085	9	AICHDGKAH 0.000262	23
HLA-A*31:01	1	1101	1110	10	VTQRNFYEPQ 0.000262	26
HLA-A*01:01	1	1107	1115	9	YEQIITTD 0.000262	31
HLA-B*44:02	1	1175	1183	9	NIQKEIDRL 0.000262	15
HLA-B*08:01	1	1225	1233	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	NDPFLGVYY 0.000261	26
HLA-A*30:01	1	160	169	10	YSSANCTFE 0.000261	44
HLA-A*01:01	1	180	189	10	EGKQGNFKNL 0.000261	32
HLA-B*57:01	1	273	282	10	LLKYNENGTI 0.000261	34
HLA-A*26:01	1	285	293	9	AVDCALDPL 0.000261	20
HLA-A*26:01	1	318	327	10	QPTESIVRFP 0.000261	20
HLA-B*44:03	1	318	327	10	QPTESIVRFP 0.000261	15
HLA-A*02:03	1	361	369	9	DYSVLYNSA 0.000261	27
HLA-B*57:01	1	380	388	9	SPTKLNLDLC 0.000261	34
HLA-B*58:01	1	385	393	9	NDLCFTNVY 0.000261	25
HLA-A*23:01	1	446	454	9	YNYLYRFR 0.000261	15
HLA-B*57:01	1	492	501	10	YGFQPTYGVG 0.000261	34
HLA-A*02:06	1	503	511	9	QPYRVVVL 0.000261	32
HLA-A*68:01	1	508	517	10	VVLSFELLHA 0.000261	23
HLA-B*44:03	1	526	534	9	KSTNLVKNK 0.000261	15
HLA-A*02:06	1	559	568	10	FQQFGRDIAD 0.000261	32
HLA-A*11:01	1	580	589	10	EILDITPCSF 0.000261	16
HLA-A*02:03	1	626	635	10	LTPTWRVYST 0.000261	27
HLA-B*15:01	1	640	649	10	FQTRAGCLIG 0.000261	24
HLA-A*02:01	1	742	751	10	DSTECSNLLL 0.000261	24
HLA-A*32:01	1	874	882	9	LLAGTITSG 0.000261	19
HLA-B*15:01	1	883	892	10	WTFGAGAALQ 0.000261	24
HLA-B*15:01	1	899	908	10	MAYRFNGIGV 0.000261	24
HLA-A*03:01	1	923	931	9	QFNSAIGKI 0.000261	20
HLA-B*15:01	1	940	949	10	SALGKLQDVV 0.000261	24
HLA-B*44:03	1	987	996	10	EVQIDRLITG 0.000261	15
HLA-A*02:01	1	1028	1037	10	ECVLGQSKRV 0.000261	24
HLA-A*30:01	1	1041	1050	10	GKGYHLMSFP 0.000261	44
HLA-A*01:01	1	1118	1127	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	268	277	10	QPRTFLLKYN 0.00026	32
HLA-B*15:01	1	273	281	9	LLKYNENGT 0.00026	25
HLA-A*02:01	1	356	364	9	SNCVADYSV 0.00026	24
HLA-A*02:03	1	374	383	10	FKCYGVSPTK 0.00026	27
HLA-A*24:02	1	378	387	10	GVSPTKLNLD 0.00026	14
HLA-A*30:02	1	384	392	9	LNDLCFTNV 0.00026	41
HLA-B*58:01	1	395	404	10	DSFVIRGDEV 0.00026	25
HLA-A*02:03	1	493	502	10	GFQPTYGVGY 0.00026	27
HLA-A*03:01	1	550	559	10	TESNKKFLPF 0.00026	20
HLA-A*68:02	1	568	577	10	DTTDAVRDPQ 0.00026	26
HLA-B*58:01	1	591	599	9	GVSVITPGT 0.00026	25
HLA-A*11:01	1	600	608	9	NTSNQVAVL 0.00026	16
HLA-A*02:03	1	648	657	10	IGAHEVNNSY 0.00026	27

HLA-B*15:01	1	676	684	9	NSPRRARSV 0.00026	25
HLA-A*02:06	1	696	705	10	LGVENSVAYS 0.00026	33
HLA-A*11:01	1	768	777	10	AVEQDKNTQE 0.00026	16
HLA-A*68:01	1	857	865	9	VLPLLLTDE 0.00026	24
HLA-B*35:01	1	922	930	9	NQFNSAIGK 0.00026	17
HLA-B*44:02	1	927	935	9	AIGKIQDSL 0.00026	15
HLA-A*02:03	1	943	952	10	GKLQDVVNQN 0.00026	27
HLA-A*23:01	1	961	969	9	KQLSSNFGA 0.00026	15
HLA-B*57:01	1	984	992	9	VEAEVQIDR 0.00026	34
HLA-B*44:02	1	1053	1062	10	APHGVVFLHV 0.00026	15
HLA-B*58:01	1	1100	1109	10	FVTQRNFYEP 0.00026	25
HLA-B*08:01	1	1109	1118	10	PQIITTDNTF 0.00026	34
HLA-A*68:02	1	1116	1124	9	NTFVSGNCD 0.00026	26
HLA-A*02:01	1	1144	1153	10	SFKEELDKYF 0.00026	24
HLA-B*44:03	1	1168	1176	9	GINASVVNI 0.00026	15
HLA-A*23:01	1	1191	1200	10	NESLIDLQEL 0.00026	15
HLA-A*32:01	1	1254	1262	9	DEDDSEPVL 0.00026	19
HLA-A*33:01	1	76	84	9	TKRFANPVL 0.000259	24
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-A*68:02	1	273	282	10	LLKYNENGTI 0.000259	26
HLA-B*53:01	1	315	324	10	FRVQPTESIV 0.000259	16
HLA-A*02:06	1	323	331	9	IVRFPNITN 0.000259	33
HLA-B*44:02	1	347	355	9	VYAWNRKRI 0.000259	15
HLA-B*51:01	1	366	375	10	YNSASFSTFK 0.000259	31
HLA-A*02:03	1	369	377	9	ASFSTFKCY 0.000259	27
HLA-B*08:01	1	372	381	10	STFKCYGVSP 0.000259	34
HLA-A*24:02	1	457	465	9	NLKPFERDI 0.000259	14
HLA-B*53:01	1	619	628	10	VAIHADQLTP 0.000259	16
HLA-A*02:01	1	642	650	9	TRAGCLIGA 0.000259	24
HLA-B*51:01	1	741	749	9	GDSTECSNL 0.000259	31
HLA-B*15:01	1	749	757	9	LLLQYGSFC 0.000259	25
HLA-A*02:03	1	786	794	9	YKTPPIKDF 0.000259	27
HLA-A*24:02	1	853	862	10	NGLTVLPLL 0.000259	14
HLA-A*03:01	1	857	865	9	VLPLLLTDE 0.000259	20
HLA-A*23:01	1	866	875	10	MIAQYTSALL 0.000259	15
HLA-A*01:01	1	899	908	10	MAYRFNGIGV 0.000259	32
HLA-A*02:06	1	908	916	9	VTQNVLYEN 0.000259	33
HLA-A*68:01	1	1016	1024	9	RASANLAAT 0.000259	24
HLA-B*58:01	1	1027	1035	9	SECVLGQSK 0.000259	25
HLA-A*31:01	1	1029	1037	9	CVLGQSKRV 0.000259	26
HLA-B*07:02	1	1029	1037	9	CVLGQSKRV 0.000259	22
HLA-B*07:02	1	1069	1077	9	EKNFTTAPA 0.000259	22
HLA-B*51:01	1	1139	1147	9	QPELDSFKE 0.000259	31
HLA-B*07:02	1	1154	1163	10	KNHTSPDVLD 0.000259	22
HLA-A*31:01	1	1185	1194	10	EVAKNLNESL 0.000259	26
HLA-A*02:03	1	1218	1226	9	IAGLIAIVM 0.000259	27
HLA-A*02:01	1	1224	1233	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*11:01	1	304	312	9	TVEKGIIYQT 0.000258	16
HLA-A*30:02	1	397	406	10	FVIRGDEVQR 0.000258	42
HLA-A*03:01	1	438	446	9	LDSKVGNGY 0.000258	20
HLA-B*08:01	1	442	450	9	VGGNYNYLY 0.000258	34
HLA-A*30:01	1	457	466	10	NLKPFERDIS 0.000258	44
HLA-B*58:01	1	472	481	10	AGSTPCNGVK 0.000258	25
HLA-A*02:03	1	488	496	9	PLQSYGFQP 0.000258	27
HLA-B*15:01	1	499	507	9	GVGYPYRV 0.000258	25
HLA-A*24:02	1	505	514	10	YRVVLSFEL 0.000258	14
HLA-B*15:01	1	530	539	10	LVKNKCVNFN 0.000258	25
HLA-A*30:02	1	534	542	9	KCVNFNFG 0.000258	42
HLA-A*33:01	1	577	585	9	QTLIELDIT 0.000258	24
HLA-B*58:01	1	595	604	10	ITPGTNTSNQ 0.000258	25
HLA-A*23:01	1	635	643	9	TGSNVFQTR 0.000258	15

HLA-B*08:01	1	636	644	9	GSNVFQTRA	0.000258	34
HLA-A*26:01	1	776	784	9	QEVFAQVKQ	0.000258	20
HLA-A*26:01	1	840	849	10	DIAARDLICA	0.000258	20
HLA-A*33:01	1	855	863	9	LTVLPPLL	0.000258	24
HLA-B*40:01	1	885	893	9	FGAGAALQI	0.000258	14
HLA-B*44:03	1	904	912	9	NGIGVTQNV	0.000258	15
HLA-A*30:02	1	916	925	10	NQKLIANQFN	0.000258	42
HLA-A*24:02	1	931	939	9	IQDSLSTA	0.000258	14
HLA-A*11:01	1	944	952	9	KLQDVVNQN	0.000258	16
HLA-A*26:01	1	1000	1008	9	SLQTYVTQQ	0.000258	20
HLA-B*40:01	1	1001	1010	10	LQTYVTQQLI	0.000258	14
HLA-A*01:01	1	1061	1069	9	HVTYVPAQE	0.000258	32
HLA-B*51:01	1	1069	1077	9	EKNFTTAPA	0.000258	31
HLA-B*15:01	1	1180	1188	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	SQCVNLTR	0.000257	26
HLA-B*40:01	1	28	36	9	YTNSFTRGV	0.000257	14
HLA-B*44:02	1	123	131	9	ATNVVIVKC	0.000257	15
HLA-A*01:01	1	131	140	10	CEFQFCNDPF	0.000257	32
HLA-A*30:01	1	190	199	10	REFVFNIDG	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-A*30:01	1	249	258	10	GDSSSGWTAG	0.000257	44
HLA-B*57:01	1	262	270	9	YYVGYLQPR	0.000257	34
HLA-A*23:01	1	316	325	10	RVQPTESIVR	0.000257	15
HLA-A*01:01	1	398	407	10	VIRGDEVRI	0.000257	32
HLA-B*07:02	1	429	438	10	CVIAWNSNNL	0.000257	22
HLA-A*01:01	1	467	476	10	TEIYQAGSTP	0.000257	32
HLA-B*35:01	1	516	525	10	HAPATVCGPK	0.000257	17
HLA-A*30:02	1	560	569	10	QQFGRDIADT	0.000257	42
HLA-B*44:02	1	578	587	10	TLEILDITPC	0.000257	15
HLA-B*44:03	1	781	789	9	QVKQIYKTP	0.000257	15
HLA-A*02:01	1	811	820	10	KRSFIEDLLF	0.000257	24
HLA-A*30:01	1	828	837	10	AGFIKQYGDC	0.000257	44
HLA-A*01:01	1	851	859	9	KFNGLTVLP	0.000257	32
HLA-A*30:02	1	929	937	9	GKIQDSLSS	0.000257	42
HLA-A*02:06	1	943	952	10	GKLQDVVNQN	0.000257	33
HLA-A*02:06	1	1007	1016	10	QLLIRAAEIR	0.000257	33
HLA-A*31:01	1	1007	1015	9	QLLIRAAEI	0.000257	26
HLA-A*01:01	1	1012	1020	9	AAEIRASAN	0.000257	32
HLA-A*23:01	1	1057	1066	10	VVFLHVTYVP	0.000257	15
HLA-A*33:01	1	1077	1085	9	AICHDGKAH	0.000257	25
HLA-A*33:01	1	1222	1230	9	IAIVMVTIM	0.000257	25
HLA-B*51:01	1	77	85	9	KRFANPVL	0.000256	31
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*02:01	1	260	269	10	AAYYVGYLQP	0.000256	24
HLA-A*02:01	1	280	288	9	GTITDAVDC	0.000256	24
HLA-A*33:01	1	354	362	9	RISNCVADY	0.000256	25
HLA-B*07:02	1	358	366	9	CVADYSVLY	0.000256	22
HLA-B*57:01	1	377	385	9	YGVSPTKLN	0.000256	34
HLA-A*30:01	1	384	392	9	LNDLCFTNV	0.000256	44
HLA-B*08:01	1	457	466	10	NLKPFERDIS	0.000256	34
HLA-A*30:02	1	486	495	10	YFPLQSYGFQ	0.000256	42
HLA-A*30:01	1	570	579	10	TDAVRDPQTL	0.000256	44
HLA-B*07:02	1	637	646	10	SNVVFQTRAGC	0.000256	22
HLA-A*31:01	1	638	647	10	NVVFQTRAGCL	0.000256	26
HLA-B*08:01	1	659	667	9	CDIPIGAGI	0.000256	34
HLA-A*02:01	1	667	675	9	ICASYQTQT	0.000256	24
HLA-A*32:01	1	713	721	9	TNFTISVTT	0.000256	19
HLA-A*01:01	1	716	725	10	TISVTEILP	0.000256	32
HLA-A*30:02	1	724	733	10	LPVSMTKTSV	0.000256	42
HLA-B*44:02	1	759	767	9	QLNRALTGI	0.000256	15
HLA-B*40:01	1	863	872	10	TDEMIAQYTS	0.000256	14

HLA-B*40:01	1	921	930	10	ANQFNSAIGK 0.000256	14
HLA-A*01:01	1	963	972	10	LSSNFGAISS 0.000256	32
HLA-B*53:01	1	1061	1069	9	HVTYVPAQE 0.000256	17
HLA-B*51:01	1	1109	1118	10	PQIITDNTF 0.000256	31
HLA-B*35:01	1	1118	1127	10	FVSGNCDVVI 0.000256	17
HLA-B*53:01	1	1132	1140	9	NTVYDPLQP 0.000256	17
HLA-A*23:01	1	1218	1226	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	360	368	9	ADYSVLYNS 0.000255	16
HLA-A*68:01	1	375	384	10	KCYGVSPTKL 0.000255	24
HLA-A*68:01	1	384	393	10	LNDLCFTNVY 0.000255	24
HLA-B*53:01	1	399	407	9	IRGDEVRQI 0.000255	17
HLA-B*57:01	1	406	414	9	QIAPGQTGN 0.000255	34
HLA-B*35:01	1	415	423	9	IADYNYKLP 0.000255	17
HLA-A*68:02	1	487	496	10	FPLQSYGFQP 0.000255	27
HLA-B*15:01	1	579	587	9	LEILDITPC 0.000255	25
HLA-A*31:01	1	608	617	10	LYQGVNCTEV 0.000255	26
HLA-A*33:01	1	641	650	10	QTRAGCLIGA 0.000255	25
HLA-A*30:02	1	658	667	10	ECDIPIGAGI 0.000255	42
HLA-A*01:01	1	724	733	10	LPVSMTKTSV 0.000255	32
HLA-A*03:01	1	768	776	9	AVEQDKNTQ 0.000255	20
HLA-B*58:01	1	768	776	9	AVEQDKNTQ 0.000255	25
HLA-A*68:02	1	778	786	9	VFAQVKQIY 0.000255	27
HLA-B*35:01	1	783	791	9	KQIYKTPPI 0.000255	17
HLA-B*51:01	1	798	806	9	NFSQILPDP 0.000255	31
HLA-A*31:01	1	805	814	10	DPSKPSKRSF 0.000255	26
HLA-B*35:01	1	847	855	9	ICAQKFNGL 0.000255	17
HLA-A*03:01	1	884	892	9	TFGAGAALQ 0.000255	20
HLA-A*11:01	1	969	977	9	AISSVLNDI 0.000255	16
HLA-B*58:01	1	993	1002	10	LITGRLQSLQ 0.000255	25
HLA-A*30:02	1	1028	1037	10	ECVLGQSKRV 0.000255	42
HLA-A*02:03	1	1083	1092	10	KAHFPREGVF 0.000255	27
HLA-A*23:01	1	1085	1094	10	HFPREGVFSV 0.000255	15
HLA-B*35:01	1	1092	1101	10	FVSNGTHWFV 0.000255	17
HLA-A*03:01	1	1216	1224	9	GFIAGLIAI 0.000255	20
HLA-A*31:01	1	76	84	9	TKRFANPVL 0.000254	26
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-A*11:01	1	231	239	9	IGINITRFQ 0.000254	16
HLA-A*30:02	1	320	329	10	TESIVRFPNI 0.000254	42
HLA-B*08:01	1	349	357	9	AWNRKRISN 0.000254	34
HLA-B*51:01	1	356	365	10	SNCVADYSVL 0.000254	31
HLA-A*03:01	1	366	374	9	YNSASFSTF 0.000254	20
HLA-A*33:01	1	368	376	9	SASFSTFKC 0.000254	25
HLA-B*57:01	1	442	451	10	VGGNYNYLYR 0.000254	34
HLA-A*33:01	1	481	489	9	KGFNCYFPL 0.000254	25
HLA-A*33:01	1	603	611	9	NQVAVLYQG 0.000254	25
HLA-B*35:01	1	604	612	9	QVAVLYQGV 0.000254	17
HLA-A*33:01	1	662	671	10	PIGAGICASY 0.000254	25
HLA-A*26:01	1	680	689	10	RARVASQSI 0.000254	20
HLA-A*33:01	1	721	729	9	TEILPVSMT 0.000254	25
HLA-A*33:01	1	763	771	9	ALTGIAVEQ 0.000254	25
HLA-A*11:01	1	781	789	9	QVKQIYKTP 0.000254	16
HLA-B*15:01	1	786	795	10	YKTPPIKDFG 0.000254	25
HLA-B*58:01	1	809	818	10	PSKRSFIEDL 0.000254	25



HLA-A*68:02	1	855	864	10	LTVLPPLLD 0.000254	27
HLA-A*02:06	1	869	878	10	QYTSALLAGT 0.000254	33
HLA-A*11:01	1	888	896	9	GAALQIPFA 0.000254	16
HLA-A*02:03	1	985	993	9	EAEVQIDRL 0.000254	27
HLA-B*07:02	1	1016	1025	10	RASANLAATK 0.000254	22
HLA-A*11:01	1	1023	1031	9	ATKMSECVL 0.000254	16
HLA-B*44:03	1	1038	1046	9	DFCGKGYHL 0.000254	15
HLA-A*68:02	1	1066	1074	9	PAQEKNFST 0.000254	27
HLA-A*30:02	1	1225	1233	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	FHAIHVSQT 0.000253	27
HLA-B*51:01	1	66	75	10	HAIHVSGTNG 0.000253	31
HLA-B*08:01	1	72	80	9	GTNGTKRFA 0.000253	34
HLA-A*02:01	1	89	98	10	GVYFASTEKS 0.000253	24
HLA-A*30:01	1	122	131	10	NATNVVIVKVC 0.000253	45
HLA-A*23:01	1	200	208	9	YFKIYSKHT 0.000253	15
HLA-B*08:01	1	211	219	9	NLVRGLPQG 0.000253	34
HLA-A*02:03	1	333	341	9	CPFGEVFNA 0.000253	27
HLA-A*30:01	1	438	446	9	LDSKVGNGY 0.000253	45
HLA-A*30:01	1	586	595	10	PCSFGGVSVI 0.000253	45
HLA-A*26:01	1	594	602	9	VITPGTNTS 0.000253	20
HLA-A*11:01	1	632	640	9	VYSTGSNVF 0.000253	16
HLA-A*02:03	1	634	643	10	STGSNVFQTR 0.000253	27
HLA-A*01:01	1	667	675	9	ICASYQTQT 0.000253	32
HLA-B*07:02	1	669	678	10	ASYQTQTNST 0.000253	22
HLA-A*11:01	1	697	705	9	GVENSVAYS 0.000253	16
HLA-B*15:01	1	707	716	10	NSIAIPTNFT 0.000253	25
HLA-A*30:01	1	747	756	10	SNLLLQYGSF 0.000253	45
HLA-B*35:01	1	751	760	10	LQYGSFCTQL 0.000253	17
HLA-A*23:01	1	759	767	9	QLNRALTGI 0.000253	15
HLA-A*31:01	1	829	838	10	GFIKQYGDCL 0.000253	26
HLA-B*51:01	1	886	894	9	GAGAALQIP 0.000253	31
HLA-B*08:01	1	973	982	10	VLNDILSRLD 0.000253	34
HLA-A*02:06	1	977	985	9	ILSRLDKVE 0.000253	33
HLA-A*03:01	1	1025	1034	10	KMSECVLGQS 0.000253	20
HLA-A*02:06	1	1027	1035	9	SECVLGQSK 0.000253	33
HLA-B*40:01	1	1083	1091	9	KAHFPREGV 0.000253	14
HLA-B*53:01	1	1111	1119	9	IITTDNTFV 0.000253	17
HLA-B*44:02	1	1145	1154	10	FKEELDKYFK 0.000253	15
HLA-B*08:01	1	1174	1182	9	VNIQKEIDR 0.000253	34
HLA-A*68:01	1	1175	1183	9	NIQKEIDRL 0.000253	24
HLA-A*26:01	1	1178	1187	10	KEIDRLNEVA 0.000253	20
HLA-B*35:01	1	1212	1221	10	YIWLGFIAGL 0.000253	17
HLA-A*23:01	1	1216	1225	10	GFIAGLIAIV 0.000253	15
HLA-B*35:01	1	1253	1261	9	FDEDDSEPV 0.000253	17
HLA-B*07:02	1	1	10	10	MFVFLVLLPL 0.000252	22
HLA-B*07:02	1	6	14	9	VLLPLVSSQ 0.000252	22
HLA-A*01:01	1	232	241	10	GINITRFQTL 0.000252	32
HLA-A*02:01	1	239	248	10	QTLHRSYLTP 0.000252	24
HLA-B*53:01	1	375	383	9	KCYGVSPTK 0.000252	17
HLA-B*57:01	1	450	459	10	YRLFRKSNLK 0.000252	34
HLA-A*32:01	1	463	472	10	RDISTEIVQA 0.000252	19
HLA-A*03:01	1	475	483	9	TPCNGVKGF 0.000252	20
HLA-B*53:01	1	505	514	10	YRVVLSFEL 0.000252	17
HLA-A*02:01	1	547	555	9	GVLTESNKK 0.000252	24
HLA-A*30:01	1	550	558	9	TESNKKFLP 0.000252	45
HLA-B*08:01	1	594	602	9	VITPGTNTS 0.000252	34
HLA-B*08:01	1	600	609	10	NTSNQVAVLY 0.000252	34
HLA-B*15:01	1	611	620	10	GVNCTEVPVA 0.000252	25
HLA-A*11:01	1	615	623	9	TEVPVAIHA 0.000252	16
HLA-A*33:01	1	702	710	9	VAYSNNSIA 0.000252	25
HLA-B*07:02	1	741	749	9	GDSTECSNL 0.000252	22
HLA-A*68:02	1	744	753	10	TECSNLLLQY 0.000252	27
HLA-B*51:01	1	852	860	9	FNGLTVLPP 0.000252	31
HLA-B*58:01	1	898	906	9	QMAYRFNGI 0.000252	25
HLA-B*57:01	1	906	915	10	IGVTQNVLYE 0.000252	34

HLA-B*58:01	1	948	957	10	VVNQNAQALN 0.000252	25
HLA-A*30:01	1	970	979	10	ISSVLNDILS 0.000252	45
HLA-B*08:01	1	1036	1044	9	RVDFCGKGY 0.000252	34
HLA-B*44:03	1	1053	1062	10	APHGVVFLHV 0.000252	15
HLA-A*02:01	1	1067	1076	10	AQEKNFHTAP 0.000252	24
HLA-A*11:01	1	1084	1092	9	AHFPREGVF 0.000252	16
HLA-B*35:01	1	1096	1104	9	GTHWFVTQR 0.000252	18
HLA-B*08:01	1	1147	1155	9	EELDKYFKN 0.000252	34
HLA-A*30:01	1	1156	1165	10	HTSPDVDLGD 0.000252	45
HLA-B*40:01	1	1168	1176	9	GINASVVNI 0.000252	14
HLA-B*40:01	1	1175	1183	9	NIQKEIDRL 0.000252	14
HLA-A*02:06	1	1195	1204	10	IDLQELGKYE 0.000252	33
HLA-B*58:01	1	1213	1221	9	IWLGFIAGL 0.000252	25
HLA-B*08:01	1	1255	1263	9	EDDSEPVLK 0.000252	34
HLA-A*30:02	1	38	47	10	YDPKVFRRSSV 0.000251	42
HLA-B*35:01	1	54	62	9	LFLPFFSNV 0.000251	18
HLA-B*08:01	1	301	309	9	KSFTVEKGI 0.000251	34
HLA-A*26:01	1	308	317	10	GIYQTSNFRV 0.000251	21
HLA-A*24:02	1	338	346	9	VFNATRFAS 0.000251	14
HLA-A*33:01	1	395	404	10	DSFVIRGDEV 0.000251	25
HLA-B*44:02	1	441	449	9	KVGGNYNYL 0.000251	15
HLA-A*23:01	1	447	456	10	NYLYRLFRKS 0.000251	15
HLA-B*08:01	1	472	480	9	AGSTPCNGV 0.000251	34
HLA-A*02:06	1	480	489	10	VKGFNCYFPL 0.000251	33
HLA-B*51:01	1	483	491	9	FNCYFPLQS 0.000251	31
HLA-A*68:01	1	486	495	10	YFPLQSYGFQ 0.000251	24
HLA-A*32:01	1	525	534	10	KKSTNLVKNK 0.000251	19
HLA-A*26:01	1	526	534	9	KSTNLVKNK 0.000251	21
HLA-A*01:01	1	621	629	9	IHADQLTPT 0.000251	32
HLA-A*03:01	1	625	634	10	QLTPTWRVYS 0.000251	20
HLA-A*03:01	1	632	640	9	VYSTGSNVF 0.000251	20
HLA-B*53:01	1	700	709	10	NSVAYSNNSI 0.000251	17
HLA-A*26:01	1	702	711	10	VAYSNNISIAI 0.000251	21
HLA-A*03:01	1	703	711	9	AYSNNISIAI 0.000251	20
HLA-B*51:01	1	736	744	9	TMYICGDST 0.000251	31
HLA-A*32:01	1	807	815	9	SKPSKRSFI 0.000251	19
HLA-A*30:02	1	869	878	10	QYTSALLAGT 0.000251	42
HLA-A*30:02	1	979	987	9	SRLDKVEAE 0.000251	42
HLA-B*53:01	1	1022	1031	10	AATKMSECVL 0.000251	17
HLA-A*02:01	1	1058	1066	9	VFLHVITYVP 0.000251	24
HLA-A*01:01	1	1224	1232	9	IVMVTIMLC 0.000251	32
HLA-A*03:01	1	38	46	9	YDPKVFRRS 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	208	217	10	TPINLVRGLP 0.000251	42
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	262	270	9	YYVGYLQPR 0.000251	25
HLA-A*68:01	1	265	273	9	GYLQPRTFL 0.000251	24
HLA-B*51:01	1	360	369	10	ADYSVLYNSA 0.000251	31
HLA-A*02:03	1	433	442	10	WNSNNLDSKV 0.000251	27
HLA-A*01:01	1	497	506	10	TYGVGYQPYP 0.000251	32
HLA-A*03:01	1	503	511	9	QPYRVVVL 0.000251	20
HLA-B*15:01	1	512	520	9	FELLHAPAT 0.000251	25
HLA-A*33:01	1	607	616	10	VLYQGVNCTE 0.000251	25
HLA-A*68:01	1	616	624	9	EVVVAIHAD 0.000251	24
HLA-B*08:01	1	641	650	10	QTRAGCLIGA 0.000251	34
HLA-A*68:02	1	675	683	9	TNSPRRARS 0.000251	27
HLA-A*24:02	1	695	704	10	SLGVENSVA 0.000251	14
HLA-A*26:01	1	823	831	9	VTLADAGFI 0.000251	21
HLA-B*15:01	1	851	859	9	KFNGLTVLP 0.000251	25
HLA-A*03:01	1	854	863	10	GLTVLPPLL 0.000251	20
HLA-A*01:01	1	873	881	9	ALLAGTITS 0.000251	32
HLA-A*30:01	1	942	950	9	LGKLDVVN 0.000251	45

HLA-B*07:02	1	987	995	9	EVQIDRLIT 0.00025	22
HLA-B*08:01	1	1013	1022	10	AEIRASANLA 0.00025	34
HLA-A*02:03	1	1017	1025	9	ASANLAATK 0.00025	27
HLA-A*30:01	1	1065	1074	10	VPAQEKNFST 0.00025	45
HLA-B*58:01	1	1101	1110	10	VTQRNFYEPQ 0.00025	25
HLA-B*44:02	1	1103	1112	10	QRNFYEPQII 0.00025	15
HLA-A*68:01	1	1113	1121	9	TTDNTFVSG 0.00025	24
HLA-A*32:01	1	1169	1178	10	INASVVNIQK 0.00025	19
HLA-B*07:02	1	1170	1178	9	NASVVNIQK 0.00025	22
HLA-A*30:01	1	1225	1233	9	VMVTIMLCC 0.00025	45
HLA-A*01:01	1	1226	1234	9	MVTIMLCCM 0.00025	32
HLA-A*30:01	1	1228	1236	9	TIMLCCMTS 0.00025	45
HLA-B*44:02	1	36	44	9	VYYPDKVFR 0.000249	15
HLA-A*33:01	1	63	72	10	TWFHAIHVSG 0.000249	25
HLA-A*30:01	1	65	73	9	FHAIHVSGT 0.000249	45
HLA-A*02:06	1	111	120	10	DSKTQSLIV 0.000249	33
HLA-B*08:01	1	239	248	10	QTLHRSYLTP 0.000249	34
HLA-B*40:01	1	267	276	10	LQPRTFLLKY 0.000249	14
HLA-A*02:06	1	277	285	9	NENGTITDA 0.000249	33
HLA-B*35:01	1	277	286	10	NENGTITDAV 0.000249	18
HLA-A*32:01	1	320	329	10	TESIVRFPNI 0.000249	19
HLA-B*57:01	1	321	330	10	ESIVRFPNIT 0.000249	34
HLA-B*57:01	1	377	386	10	YGVSPTKLND 0.000249	34
HLA-A*02:03	1	453	461	9	FRKSNLKP 0.000249	27
HLA-B*58:01	1	551	560	10	ESNKKFLPFQ 0.000249	25
HLA-B*51:01	1	587	596	10	CSFGVSVIT 0.000249	31
HLA-A*01:01	1	592	601	10	VSVITPGTNT 0.000249	32
HLA-A*32:01	1	593	602	10	SVITPGTNTS 0.000249	19
HLA-A*26:01	1	679	687	9	RRARSVASQ 0.000249	21
HLA-A*02:01	1	737	746	10	MYICGDSTEC 0.000249	24
HLA-B*51:01	1	738	746	9	YICGDSTEC 0.000249	31
HLA-B*51:01	1	741	750	10	GDSTECSNLL 0.000249	31
HLA-A*30:01	1	742	750	9	DSTECSNLL 0.000249	45
HLA-A*31:01	1	747	756	10	SNLLLQYGSF 0.000249	26
HLA-A*02:01	1	755	763	9	SFCTQLNRA 0.000249	24
HLA-A*02:06	1	771	779	9	QDKNTQEVF 0.000249	33
HLA-A*02:01	1	786	794	9	YKTPPIKDF 0.000249	24
HLA-A*02:01	1	796	804	9	GFNFSQLP 0.000249	24
HLA-B*57:01	1	826	835	10	ADAGFIKQYG 0.000249	34
HLA-A*11:01	1	882	891	10	GWTFGAGAAL 0.000249	16
HLA-A*23:01	1	953	961	9	AQALNTLVK 0.000249	15
HLA-B*07:02	1	977	986	10	ILSRDKVEA 0.000249	22
HLA-B*08:01	1	978	987	10	LSRDKVEAE 0.000249	34
HLA-A*11:01	1	989	998	10	QIDRLITGRL 0.000249	16
HLA-A*01:01	1	992	1000	9	RLITGRLQS 0.000249	32
HLA-A*32:01	1	1004	1012	9	YVTQQLIRA 0.000249	19
HLA-B*58:01	1	1084	1093	10	AHFPREGV 0.000249	25
HLA-B*57:01	1	1100	1109	10	FVTQRNFYEP 0.000249	34
HLA-A*32:01	1	1111	1119	9	IITDNTFV 0.000249	19
HLA-A*33:01	1	1124	1132	9	DVIGIVN 0.000249	25
HLA-A*30:02	1	1152	1160	9	YFKNHTSPD 0.000249	42
HLA-B*57:01	1	1172	1181	10	SVVNIQKEID 0.000249	34
HLA-B*53:01	1	1256	1265	10	DDSEPVKGV 0.000249	17
HLA-B*58:01	1	18	27	10	LTTRTQLPPA 0.000248	25
HLA-A*31:01	1	27	35	9	AYTNSFTRG 0.000248	26
HLA-B*53:01	1	47	56	10	VLHSTQDLFL 0.000248	17
HLA-A*03:01	1	55	64	10	FLPFFSNVTW 0.000248	20
HLA-A*02:06	1	71	79	9	SGTNGTKRF 0.000248	33
HLA-B*35:01	1	89	97	9	GYYFASTEK 0.000248	18
HLA-A*26:01	1	131	140	10	CEFQFCNDPF 0.000248	21
HLA-B*15:01	1	172	180	9	SQPFLMDLE 0.000248	25
HLA-A*23:01	1	182	190	9	KQGNFKNLR 0.000248	15
HLA-A*02:03	1	200	208	9	YFKIYSKHT 0.000248	27
HLA-A*02:03	1	213	222	10	VRGLPQGFS 0.000248	27
HLA-A*30:02	1	231	240	10	IGINITRFQT 0.000248	42
HLA-B*40:01	1	292	300	9	PLSETKCTL 0.000248	14

HLA-B*57:01	1	396	405	10	SFVIRGDEV 0.000248	34
HLA-B*40:01	1	424	433	10	DDFTGCVIAW 0.000248	14
HLA-A*11:01	1	506	515	10	RVVVLSEFELL 0.000248	16
HLA-A*31:01	1	577	585	9	QTLIELDIT 0.000248	26
HLA-A*02:01	1	589	597	9	FGGVSVITP 0.000248	25
HLA-A*31:01	1	630	639	10	WRVYSTGSNV 0.000248	26
HLA-B*58:01	1	700	708	9	NSVAYSNNS 0.000248	25
HLA-B*15:01	1	711	719	9	IPTNFTISV 0.000248	25
HLA-A*02:01	1	741	750	10	GDSTECNLL 0.000248	25
HLA-A*11:01	1	762	770	9	RALTGIAVE 0.000248	16
HLA-A*31:01	1	776	785	10	QEVFAQVKQI 0.000248	26
HLA-B*44:03	1	788	797	10	TPPIKDFGGF 0.000248	15
HLA-A*01:01	1	796	804	9	GFNFSQILP 0.000248	32
HLA-A*30:02	1	798	806	9	NFSQILPDP 0.000248	42
HLA-B*07:02	1	873	881	9	ALLAGTITS 0.000248	22
HLA-B*44:02	1	905	914	10	GIGVTQNVLY 0.000248	15
HLA-B*07:02	1	939	948	10	ASALGKLQDV 0.000248	22
HLA-A*30:01	1	948	957	10	VVNQNAQALN 0.000248	45
HLA-A*30:02	1	975	983	9	NDILSRDLK 0.000248	42
HLA-A*03:01	1	1067	1075	9	AQEKNFTTA 0.000248	20
HLA-B*08:01	1	1075	1084	10	APAICHGDKA 0.000248	35
HLA-B*57:01	1	1119	1128	10	VSGNCDVVIG 0.000248	34
HLA-A*03:01	1	1141	1149	9	ELDSFKEEL 0.000248	20
HLA-B*57:01	1	1163	1171	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	KSNIIRGWIF 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	QPFLMDLEGG 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	281	290	10	TITDAVDCAL 0.000247	24
HLA-B*57:01	1	291	300	10	DPLSETKCTL 0.000247	34
HLA-A*33:01	1	292	301	10	PLSETKCTLK 0.000247	25
HLA-B*57:01	1	315	324	10	FRVQPTESIV 0.000247	34
HLA-A*30:02	1	389	398	10	FTNVYADSFV 0.000247	42
HLA-A*02:06	1	528	536	9	TNLVKNKCV 0.000247	33
HLA-A*01:01	1	571	580	10	DAVRDPQTL 0.000247	32
HLA-B*58:01	1	605	613	9	VAVLYQGVN 0.000247	25
HLA-A*02:01	1	663	671	9	IGAGICASY 0.000247	25
HLA-B*07:02	1	706	715	10	NNSIAIPTNF 0.000247	22
HLA-A*03:01	1	719	727	9	VTTEILPVS 0.000247	20
HLA-A*68:01	1	730	739	10	KTSVDCTMYI 0.000247	24
HLA-A*01:01	1	738	746	9	YICGDSTEC 0.000247	32
HLA-B*51:01	1	740	749	10	CGDSTECNLL 0.000247	31
HLA-A*30:02	1	779	788	10	FAQVKQIYKT 0.000247	42
HLA-A*68:01	1	811	819	9	KRSFIEDLL 0.000247	24
HLA-A*68:01	1	811	820	10	KRSFIEDLLF 0.000247	24
HLA-A*33:01	1	830	838	9	FIKQYGDCL 0.000247	25
HLA-A*31:01	1	857	865	9	VLPPLLTDE 0.000247	26
HLA-B*07:02	1	874	883	10	LLAGTITSGW 0.000247	22
HLA-B*58:01	1	878	887	10	TITSGWTFGA 0.000247	25
HLA-A*31:01	1	915	924	10	ENQKLIANQF 0.000247	26
HLA-A*30:01	1	925	934	10	NSAIGKIQDS 0.000247	45
HLA-B*35:01	1	1027	1035	9	SECVLGQSK 0.000247	18
HLA-A*33:01	1	1060	1068	9	LHVTVVPAQ 0.000247	25
HLA-A*23:01	1	1151	1160	10	KYFKNHTSPD 0.000247	15
HLA-B*08:01	1	1179	1188	10	EIDRLNEVAK 0.000247	35
HLA-A*01:01	1	1214	1222	9	WLGFIAGLI 0.000247	32
HLA-A*68:02	1	1259	1268	10	EPVLKGVKHL 0.000247	27
HLA-A*31:01	1	63	72	10	TWFHAIHVS 0.000246	26
HLA-B*08:01	1	97	105	9	KSNIIRGWI 0.000246	35
HLA-A*26:01	1	162	171	10	SANNCTFEYV 0.000246	21
HLA-B*44:03	1	236	244	9	TRFQTLHRS 0.000246	15
HLA-B*44:03	1	261	269	9	AYYVGYLQP 0.000246	15

HLA-A*01:01	1	294	302	9	SETKCTLKS 0.000246	32
HLA-A*01:01	1	295	304	10	ETKCTLKSFT 0.000246	32
HLA-B*44:02	1	299	307	9	TLKSFTVEK 0.000246	15
HLA-A*24:02	1	320	329	10	TESIVRFPNI 0.000246	15
HLA-B*15:01	1	372	380	9	STFKCYGVS 0.000246	25
HLA-A*26:01	1	375	384	10	KCYGVSPTKL 0.000246	21
HLA-B*08:01	1	444	453	10	GNYNLYRLF 0.000246	35
HLA-A*33:01	1	462	471	10	ERDISTEIQ 0.000246	25
HLA-A*01:01	1	612	621	10	VNCTEVPVAI 0.000246	32
HLA-A*30:02	1	668	677	10	CASYQTQTN 0.000246	42
HLA-B*58:01	1	686	695	10	SQSIIAYTMS 0.000246	26
HLA-A*23:01	1	730	739	10	KTSVDCTMYI 0.000246	15
HLA-A*30:02	1	836	844	9	DCLGDIAAR 0.000246	42
HLA-A*24:02	1	894	902	9	PFAMQMAYR 0.000246	15
HLA-B*08:01	1	900	909	10	AYRFNGIGVT 0.000246	35
HLA-A*33:01	1	904	913	10	NGIGVTQNV 0.000246	25
HLA-A*01:01	1	1008	1016	9	QLIRAAEIR 0.000246	32
HLA-A*24:02	1	1035	1044	10	KRVDFCGKY 0.000246	15
HLA-B*58:01	1	1053	1062	10	APHGVVFLHV 0.000246	26
HLA-A*02:03	1	1101	1109	9	VTQRNFYEP 0.000246	27
HLA-A*30:01	1	1119	1127	9	VSGNCDVVI 0.000246	45
HLA-A*26:01	1	1192	1201	10	ESLIDLQELG 0.000246	21
HLA-A*30:01	1	1218	1227	10	IAGLIAIVMV 0.000246	45
HLA-A*02:06	1	1230	1238	9	MLCCMTSCC 0.000246	33
HLA-B*44:03	1	43	51	9	FRSSVLHST 0.000245	15
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	311	320	10	QTSNFRVQPT 0.000245	33
HLA-A*31:01	1	360	368	9	ADYSVLYNS 0.000245	26
HLA-A*31:01	1	360	369	10	ADYSVLYNSA 0.000245	26
HLA-B*53:01	1	391	400	10	NVYADSFVIR 0.000245	17
HLA-B*40:01	1	430	438	9	VIAWNSNNL 0.000245	14
HLA-A*32:01	1	447	455	9	NYLYRLFRK 0.000245	19
HLA-A*68:02	1	485	494	10	CYFPLQSYGF 0.000245	27
HLA-A*33:01	1	509	517	9	VLSFELLHA 0.000245	25
HLA-A*26:01	1	538	546	9	FNFNGLTGT 0.000245	21
HLA-A*24:02	1	617	626	10	VPVAIHADQL 0.000245	15
HLA-A*02:06	1	652	661	10	HVNNSYECDI 0.000245	33
HLA-A*23:01	1	676	684	9	NSPRRARSV 0.000245	15
HLA-B*57:01	1	769	778	10	VEQDKNTQEV 0.000245	35
HLA-A*32:01	1	787	795	9	KTPPIKDFG 0.000245	19
HLA-A*68:02	1	832	841	10	KQYGDCLGDI 0.000245	27
HLA-B*53:01	1	849	857	9	AQKFNGLTV 0.000245	17
HLA-A*24:02	1	868	876	9	AQYTSALLA 0.000245	15
HLA-B*15:01	1	971	980	10	SSVLNDILSR 0.000245	25
HLA-B*08:01	1	1003	1012	10	TYVTQQLIRA 0.000245	35
HLA-B*58:01	1	1058	1066	9	VFLHVITYVP 0.000245	26
HLA-A*23:01	1	1071	1079	9	NFTTAPAIC 0.000245	15
HLA-A*11:01	1	1077	1086	10	AICHDGKAHF 0.000245	16
HLA-A*31:01	1	1094	1103	10	SNGTHWFVTQ 0.000245	26
HLA-A*24:02	1	1151	1160	10	KYFKNHTSPD 0.000245	15
HLA-A*01:01	1	1202	1211	10	KYEQYIKWPW 0.000245	33
HLA-B*51:01	1	1213	1222	10	IWLGFIAGLI 0.000245	31
HLA-A*24:02	1	1221	1229	9	LIAIVMVTI 0.000245	15
HLA-A*02:03	1	1228	1237	10	TIMLCCMTSC 0.000245	27
HLA-B*57:01	1	43	51	9	FRSSVLHST 0.000244	35
HLA-B*08:01	1	73	81	9	TNGTKRFAN 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-A*33:01	1	215	223	9	GLPQGFSAL 0.000244	25
HLA-B*57:01	1	222	231	10	ALEPLVDLPI 0.000244	35
HLA-A*02:01	1	258	266	9	GAAAYVVG 0.000244	25
HLA-B*15:01	1	268	277	10	QPRFTLLKYN 0.000244	25

HLA-A*02:06	1	276	285	10	YNENGTITDA 0.000244	33
HLA-B*08:01	1	304	313	10	TVEKGIYQTS 0.000244	35
HLA-A*01:01	1	346	355	10	SVYAWNRKRI 0.000244	33
HLA-A*24:02	1	410	418	9	GQTGNIADY 0.000244	15
HLA-A*03:01	1	474	483	10	STPCNGVKGF 0.000244	20
HLA-A*33:01	1	475	483	9	TPCNGVKGF 0.000244	25
HLA-A*11:01	1	481	489	9	KGFNCYFPL 0.000244	16
HLA-B*57:01	1	516	525	10	HAPATVCGPK 0.000244	35
HLA-A*68:01	1	553	561	9	NKKFLPFQQ 0.000244	24
HLA-B*57:01	1	596	605	10	TPGTNTSNQV 0.000244	35
HLA-A*31:01	1	625	634	10	QLTPTWRVYS 0.000244	26
HLA-A*32:01	1	643	652	10	RAGCLIGAEH 0.000244	19
HLA-B*07:02	1	688	697	10	SIAYTMSLG 0.000244	22
HLA-A*68:01	1	710	719	10	AIPTNFTISV 0.000244	24
HLA-A*26:01	1	795	803	9	GGFNFSQIL 0.000244	21
HLA-B*07:02	1	824	832	9	TLADAGFIK 0.000244	22
HLA-A*30:02	1	899	907	9	MAYRFNGIG 0.000244	42
HLA-A*24:02	1	916	925	10	NQKLIANQFN 0.000244	15
HLA-B*44:02	1	950	958	9	NQNAQALNT 0.000244	15
HLA-A*26:01	1	1016	1025	10	RASANLAATK 0.000244	21
HLA-A*24:02	1	1045	1053	9	HLMSFPQSA 0.000244	15
HLA-B*15:01	1	1068	1077	10	QEKNFTTAPA 0.000244	25
HLA-A*03:01	1	1206	1214	9	YIKWPWYIW 0.000244	20
HLA-B*15:01	1	1215	1223	9	LGFIAGLIA 0.000244	25
HLA-A*31:01	1	1222	1230	9	IAIVMVTIM 0.000244	26
HLA-B*57:01	1	1227	1236	10	VTIMLCCMTS 0.000244	35
HLA-A*33:01	1	64	73	10	WFHAIHVSGT 0.000243	25
HLA-A*02:03	1	76	84	9	TKRFANPVL 0.000243	27
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	243	252	10	RSYLTPGDSS 0.000243	15
HLA-A*02:06	1	253	262	10	SGWTAGAAAY 0.000243	33
HLA-A*32:01	1	285	293	9	AVDCALDPL 0.000243	19
HLA-A*02:06	1	400	409	10	RGDEVRQIAP 0.000243	33
HLA-B*08:01	1	407	416	10	IAPGQTGNIA 0.000243	35
HLA-A*11:01	1	491	500	10	SYGFQPTYGV 0.000243	16
HLA-B*07:02	1	624	633	10	DQLTPTWRVY 0.000243	22
HLA-B*15:01	1	685	693	9	ASQSIIAYT 0.000243	25
HLA-A*02:01	1	730	738	9	KTSVDCTMY 0.000243	25
HLA-A*02:01	1	755	764	10	SFCTQLNRAL 0.000243	25
HLA-B*44:03	1	783	792	10	KQIYKTPPIK 0.000243	15
HLA-A*02:06	1	796	804	9	GFNFSQILP 0.000243	33
HLA-B*35:01	1	953	961	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	SFTRGVVYYP 0.000242	33
HLA-B*15:01	1	198	206	9	DGYFKIYSK 0.000242	25
HLA-A*68:01	1	263	271	9	YVGYLQPRT 0.000242	24
HLA-A*02:03	1	298	307	10	CTLKSFTVEK 0.000242	27
HLA-B*51:01	1	310	318	9	YQTSNFRVQ 0.000242	31
HLA-B*57:01	1	327	335	9	PNITNLCPF 0.000242	35
HLA-A*02:06	1	399	408	10	IRGDEVRQIA 0.000242	33
HLA-B*08:01	1	399	408	10	IRGDEVRQIA 0.000242	35
HLA-A*68:02	1	458	467	10	LKPFERDIST 0.000242	27
HLA-A*11:01	1	463	471	9	RDISTEIQ 0.000242	16
HLA-B*57:01	1	564	573	10	RDIADTTDAV 0.000242	35
HLA-A*30:01	1	584	593	10	ITPCSFGGVS 0.000242	45
HLA-A*31:01	1	588	596	9	SFGGVSVIT 0.000242	26
HLA-B*44:02	1	635	643	9	TGSNVFQTR 0.000242	16
HLA-A*02:01	1	745	753	9	ECSNLLLQY 0.000242	25
HLA-B*58:01	1	763	771	9	ALTGIAVEQ 0.000242	26
HLA-A*32:01	1	848	857	10	CAQKFNGLTV 0.000242	19
HLA-B*51:01	1	870	878	9	YTSALLAGT 0.000242	31

HLA-A*02:01	1	900	908	9	AYRFNGIGV 0.000242	25
HLA-B*44:02	1	909	917	9	TQNVLYENQ 0.000242	16
HLA-B*57:01	1	1027	1036	10	SECVLGQSKR 0.000242	35
HLA-A*02:06	1	1030	1039	10	VLGQSKRVDF 0.000242	33
HLA-A*01:01	1	1047	1056	10	MSFPQSAPHG 0.000242	33
HLA-A*11:01	1	1151	1159	9	KYFKNHTSP 0.000242	16
HLA-A*01:01	1	1157	1165	9	TSPDVDLGD 0.000242	33
HLA-B*07:02	1	1167	1176	10	SGINASVVNI 0.000242	22
HLA-A*31:01	1	1194	1203	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	274	282	9	LKYNENGTI 0.000241	17
HLA-A*68:01	1	287	296	10	DCALDPLSET 0.000241	24
HLA-B*40:01	1	358	366	9	CVADYSVLY 0.000241	14
HLA-A*23:01	1	360	369	10	ADYSVLYNSA 0.000241	15
HLA-A*31:01	1	361	369	9	DYSVLYNSA 0.000241	26
HLA-A*01:01	1	418	427	10	YNYKLPDDFT 0.000241	33
HLA-B*44:02	1	501	510	10	GYQPYRVVVL 0.000241	16
HLA-B*44:02	1	526	534	9	KSTNLVKNK 0.000241	16
HLA-A*30:02	1	602	611	10	SNQVAVLYQG 0.000241	43
HLA-B*07:02	1	669	677	9	ASYQTQTN 0.000241	22
HLA-A*24:02	1	687	696	10	QSIIAYTMSL 0.000241	15
HLA-B*35:01	1	701	710	10	SVAYSNNISIA 0.000241	18
HLA-A*02:06	1	803	812	10	LPDPSKPSKR 0.000241	33
HLA-B*35:01	1	834	842	9	YGDCLGDIA 0.000241	18
HLA-A*02:03	1	881	890	10	SGWTFGAGAA 0.000241	27
HLA-B*44:02	1	1006	1015	10	TQQLIRAAEI 0.000241	16
HLA-B*40:01	1	1064	1072	9	YVPAQEKNF 0.000241	14
HLA-A*33:01	1	1189	1198	10	NLNESLIDLQ 0.000241	25
HLA-A*32:01	1	1226	1234	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	GYYHKNK 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	243	252	10	RSYLTPGDSS 0.00024	26
HLA-A*02:06	1	301	310	10	KSFTVEKGIY 0.00024	33
HLA-A*32:01	1	336	345	10	GEVFNATRFA 0.00024	19
HLA-A*24:02	1	346	354	9	SVYAWNRKR 0.00024	15
HLA-B*35:01	1	365	373	9	LYNSASFST 0.00024	18
HLA-A*23:01	1	455	463	9	KSNLKPFER 0.00024	15
HLA-A*24:02	1	499	507	9	GVGYPYRV 0.00024	15
HLA-B*40:01	1	505	514	10	YRVVLSFEL 0.00024	14
HLA-A*68:02	1	529	538	10	NLVKNKCVNF 0.00024	27
HLA-A*03:01	1	534	543	10	KCVNFNFNGL 0.00024	21
HLA-A*30:01	1	540	548	9	FNGLTGTGV 0.00024	45
HLA-A*23:01	1	622	631	10	HADQLTPTWR 0.00024	15
HLA-B*15:01	1	659	667	9	CDIPIGAGI 0.00024	25
HLA-A*01:01	1	670	679	10	SYQTQTNSPR 0.00024	33
HLA-A*03:01	1	672	681	10	QTQTNSPRRA 0.00024	21
HLA-B*44:03	1	673	682	10	TQTNSPRRAR 0.00024	15
HLA-A*23:01	1	710	719	10	AIPTNFTISV 0.00024	15
HLA-A*01:01	1	721	729	9	TEILPVSM 0.00024	33
HLA-A*33:01	1	729	738	10	TKTSVDCTMY 0.00024	25
HLA-A*30:01	1	737	746	10	MYICGDSTEC 0.00024	45
HLA-A*02:06	1	795	804	10	GGFNFSQILP 0.00024	33
HLA-B*44:03	1	795	803	9	GGFNFSQIL 0.00024	15
HLA-B*53:01	1	855	863	9	LTVLPPLT 0.00024	17
HLA-A*24:02	1	869	878	10	QYTSALLAGT 0.00024	15
HLA-A*26:01	1	901	909	9	YRFNGIGVT 0.00024	21
HLA-A*33:01	1	908	917	10	VTQNVLYENQ 0.00024	25
HLA-A*02:01	1	953	962	10	AQALNTLVKQ 0.00024	25
HLA-A*68:02	1	961	970	10	KQLSSNFGAI 0.00024	27
HLA-B*44:03	1	961	970	10	KQLSSNFGAI 0.00024	15

HLA-B*51:01	1	969	978	10	AISSVLNDIL 0.00024	31
HLA-A*02:01	1	983	992	10	KVEAEVQIDR 0.00024	25
HLA-B*57:01	1	1048	1057	10	SFPQSAPHGV 0.00024	35
HLA-B*44:02	1	1069	1078	10	EKNFTTAPAI 0.00024	16
HLA-B*44:03	1	1164	1172	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	YDPKVFRRSSV 0.000239	15
HLA-A*30:01	1	64	73	10	WFHAIHVSQT 0.000239	45
HLA-A*11:01	1	82	91	10	PVLPFNDGVY 0.000239	16
HLA-B*08:01	1	118	127	10	LIVNNATNVV 0.000239	35
HLA-A*31:01	1	202	211	10	KIYSKHTPIN 0.000239	26
HLA-B*15:01	1	211	219	9	NLVRGLPQG 0.000239	25
HLA-A*33:01	1	224	233	10	EPLVDLPIGI 0.000239	25
HLA-A*32:01	1	251	260	10	SSSGWTAGAA 0.000239	19
HLA-B*58:01	1	253	261	9	SGWTAGAAA 0.000239	26
HLA-A*68:01	1	284	293	10	DAVDCALDPL 0.000239	24
HLA-A*11:01	1	285	293	9	AVDCALDPL 0.000239	16
HLA-B*40:01	1	307	315	9	KGIYQTSNF 0.000239	14
HLA-B*15:01	1	396	405	10	SFVIRGDEVR 0.000239	25
HLA-B*58:01	1	459	468	10	KPFERDISTE 0.000239	26
HLA-A*01:01	1	460	469	10	PFERDISTEI 0.000239	33
HLA-A*68:01	1	462	471	10	ERDISTEIQ 0.000239	24
HLA-A*33:01	1	487	495	9	FPLQSYGFQ 0.000239	25
HLA-A*26:01	1	551	560	10	ESNKKFLPFQ 0.000239	21
HLA-A*31:01	1	551	560	10	ESNKKFLPFQ 0.000239	26
HLA-A*68:02	1	589	597	9	FGGVSVITP 0.000239	27
HLA-A*31:01	1	637	646	10	SNVFQTRAGC 0.000239	26
HLA-A*30:01	1	640	649	10	FQTRAGCLIG 0.000239	45
HLA-A*68:01	1	642	650	9	TRAGCLIGA 0.000239	24
HLA-B*07:02	1	655	663	9	NSYECDIPI 0.000239	22
HLA-A*30:01	1	664	672	9	GAGICASYQ 0.000239	45
HLA-A*32:01	1	729	738	10	TKTSVDCTMY 0.000239	19
HLA-A*33:01	1	795	803	9	GGFNFSQIL 0.000239	25
HLA-B*35:01	1	807	816	10	SKPSKRSFIE 0.000239	18
HLA-A*02:01	1	906	914	9	IGVTQNVLY 0.000239	25
HLA-A*26:01	1	958	966	9	TLVKQLSSN 0.000239	21
HLA-B*44:02	1	1017	1026	10	ASANLAATKM 0.000239	16
HLA-A*03:01	1	1037	1045	9	VDFCGKGYH 0.000239	21
HLA-A*26:01	1	1073	1081	9	TTAPAICHD 0.000239	21
HLA-A*68:02	1	1080	1088	9	HDGKAHFPR 0.000239	27
HLA-B*53:01	1	1153	1161	9	FKNHTSPDV 0.000239	17
HLA-B*57:01	1	1154	1163	10	KNHTSPDVDL 0.000239	35
HLA-B*15:01	1	1205	1214	10	QYIKWPWYIW 0.000239	25
HLA-B*35:01	1	1209	1218	10	WPWYIWLGFI 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	QGNFKNREF 0.000238	26
HLA-A*30:01	1	246	255	10	LTPGDSSSGW 0.000238	46
HLA-A*33:01	1	440	449	10	SKVGGNYNYL 0.000238	25
HLA-B*35:01	1	498	506	9	YGVGYQPYP 0.000238	18
HLA-A*30:01	1	512	521	10	FELLHAPATV 0.000238	46
HLA-A*23:01	1	537	545	9	NFNFNGLTG 0.000238	15
HLA-B*58:01	1	554	563	10	KKFLPFQFQG 0.000238	26
HLA-A*01:01	1	592	600	9	VSVITPGTN 0.000238	33
HLA-B*53:01	1	633	641	9	YSTGSNVFQ 0.000238	17
HLA-B*15:01	1	639	647	9	VFQTRAGCL 0.000238	25
HLA-B*15:01	1	677	685	9	SPRRARSVA 0.000238	25
HLA-A*68:02	1	837	846	10	CLGDIAARDL 0.000238	27
HLA-B*07:02	1	892	900	9	QIPFAMQMA 0.000238	22
HLA-B*58:01	1	903	912	10	FNGIGVTQNV 0.000238	26
HLA-B*40:01	1	954	963	10	QALNTLVKQL 0.000238	14
HLA-A*30:01	1	967	975	9	FGAISSVLN 0.000238	46
HLA-A*02:03	1	971	980	10	SSVLNDILSR 0.000238	27



HLA-A*24:02	1	979	988	10	SRLDKVEAEV 0.000238	15
HLA-A*24:02	1	990	998	9	IDRLITGRL 0.000238	15
HLA-B*58:01	1	1005	1014	10	VTQQLIRAAE 0.000238	26
HLA-A*30:01	1	1124	1133	10	DVVIGIVNNT 0.000238	46
HLA-B*15:01	1	1171	1179	9	ASVVNIQKE 0.000238	25
HLA-A*68:01	1	1184	1193	10	NEVAKNLNES 0.000238	24
HLA-A*26:01	1	1224	1232	9	IVMVTIMLC 0.000238	21
HLA-A*33:01	1	33	41	9	TRGVVYPPDK 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*58:01	1	325	333	9	RFPNITNLC 0.000237	26
HLA-A*33:01	1	353	362	10	KRISNCVADY 0.000237	25
HLA-A*03:01	1	400	408	9	RGDEVQRQA 0.000237	21
HLA-B*07:02	1	464	472	9	DISTEIYQA 0.000237	22
HLA-A*26:01	1	501	510	10	GYQPYRVVVL 0.000237	21
HLA-B*51:01	1	556	564	9	FLPFQQFGR 0.000237	32
HLA-B*08:01	1	660	668	9	DIPIGAGIC 0.000237	35
HLA-B*08:01	1	681	690	10	ARSVASQSII 0.000237	35
HLA-A*31:01	1	714	723	10	NFTISVTTEI 0.000237	27
HLA-A*02:03	1	737	746	10	MYICGDSTEC 0.000237	27
HLA-B*15:01	1	759	768	10	QLNRALTGIA 0.000237	25
HLA-B*58:01	1	769	778	10	VEQDKNTQEV 0.000237	26
HLA-A*32:01	1	799	808	10	FSQILPDPSK 0.000237	19
HLA-B*08:01	1	800	809	10	SQILPDPSKP 0.000237	35
HLA-A*01:01	1	806	815	10	PSKPSKRSFI 0.000237	33
HLA-B*57:01	1	843	851	9	ARDLICAQK 0.000237	35
HLA-A*23:01	1	886	895	10	GAGAALQIPF 0.000237	15
HLA-B*44:02	1	898	906	9	QMAYRFNGI 0.000237	16
HLA-A*33:01	1	922	931	10	NQFNSAIGKI 0.000237	25
HLA-B*53:01	1	945	953	9	LQDVVNQNA 0.000237	17
HLA-B*57:01	1	947	956	10	DVVNQNQAAL 0.000237	35
HLA-B*57:01	1	962	971	10	QLSSNFGAIS 0.000237	35
HLA-A*33:01	1	1009	1017	9	LIRAAEIRA 0.000237	25
HLA-A*68:02	1	1016	1025	10	RASANLAATK 0.000237	27
HLA-A*02:03	1	1038	1046	9	DFCGKGYHL 0.000237	27
HLA-A*30:01	1	1089	1098	10	EGVFVSNPTH 0.000237	46
HLA-B*53:01	1	1125	1133	9	VVIGIVNNT 0.000237	17
HLA-A*31:01	1	1211	1219	9	WYIWLGFIA 0.000237	27
HLA-A*23:01	1	1224	1232	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	IHSVGTNGTK 0.000236	21
HLA-A*32:01	1	76	84	9	TKRFANPVL 0.000236	19
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-B*51:01	1	310	319	10	YQTSNFRVQP 0.000236	32
HLA-A*32:01	1	456	465	10	SNLKPFERDI 0.000236	19
HLA-B*57:01	1	472	480	9	AGSTPCNGV 0.000236	35
HLA-B*15:01	1	541	549	9	NGLTGTGVL 0.000236	25
HLA-A*26:01	1	592	601	10	VSVITPGTNT 0.000236	21
HLA-B*07:02	1	595	604	10	ITPGTNTSNQ 0.000236	22
HLA-A*68:02	1	597	605	9	PGTNTSNQV 0.000236	27
HLA-A*31:01	1	598	606	9	GTNTSNQVA 0.000236	27
HLA-B*51:01	1	606	614	9	AVLYQGVNC 0.000236	32
HLA-A*11:01	1	613	622	10	NCTEVPVAIH 0.000236	16
HLA-A*01:01	1	619	627	9	VAIHADQLT 0.000236	33
HLA-A*30:02	1	646	654	9	CLIGAEHVN 0.000236	43
HLA-A*26:01	1	669	677	9	ASYQTQTN 0.000236	21

HLA-A*68:01	1	677	685	9	SPRRARSVA	0.000236	24
HLA-A*11:01	1	691	700	10	AYTMSLGVEN	0.000236	16
HLA-A*11:01	1	694	702	9	MSLGVENSV	0.000236	16
HLA-A*02:03	1	721	729	9	TEILPVSMT	0.000236	28
HLA-A*32:01	1	758	766	9	TQLNRALTG	0.000236	19
HLA-B*44:03	1	758	766	9	TQLNRALTG	0.000236	15
HLA-A*24:02	1	838	846	9	LGDI AARDL	0.000236	15
HLA-A*02:01	1	842	851	10	AARDLICAQK	0.000236	25
HLA-B*07:02	1	844	852	9	RDLICAQKF	0.000236	22
HLA-A*03:01	1	916	924	9	NOKLIANQF	0.000236	21
HLA-B*40:01	1	940	948	9	SALGKQLQDV	0.000236	14
HLA-A*33:01	1	944	953	10	KLQDVVNQNA	0.000236	25
HLA-A*68:01	1	954	963	10	QALNTLVKQL	0.000236	24
HLA-A*03:01	1	957	965	9	NLTKVQLSS	0.000236	21
HLA-B*58:01	1	1116	1125	10	NTFVSGNCDV	0.000236	26
HLA-B*57:01	1	1158	1166	9	SPDVDLGDI	0.000236	35
HLA-B*58:01	1	1163	1171	9	LGDISGINA	0.000236	26
HLA-B*44:02	1	1164	1172	9	GDISGINAS	0.000236	16
HLA-B*35:01	1	1196	1204	9	DLQELGKYE	0.000236	18
HLA-A*30:01	1	1197	1205	9	LQELGKYEQ	0.000236	46
HLA-A*32:01	1	1220	1228	9	GLIAIVMVT	0.000236	19
HLA-B*07:02	1	1253	1261	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	VNLTRTQL	0.000235	24
HLA-B*35:01	1	88	97	10	DGVYFASTEK	0.000235	18
HLA-B*15:01	1	113	121	9	KTQSLLVN	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*68:01	1	214	222	9	RGLPQGFS	0.000235	24
HLA-A*01:01	1	243	251	9	RSYLTGFS	0.000235	33
HLA-A*26:01	1	309	317	9	IYQTSNFRV	0.000235	21
HLA-A*68:02	1	343	352	10	RFASVYAWNR	0.000235	27
HLA-B*51:01	1	350	358	9	WNRKRISNC	0.000235	32
HLA-B*53:01	1	390	398	9	TNVYADSFV	0.000235	17
HLA-B*08:01	1	414	423	10	NIADYNYKLP	0.000235	35
HLA-A*11:01	1	462	470	9	ERDISTEY	0.000235	16
HLA-A*30:01	1	505	514	10	YRVVLSFEL	0.000235	46
HLA-B*53:01	1	507	516	10	VVLSFELLH	0.000235	17
HLA-B*58:01	1	542	551	10	GLTGTGVLTE	0.000235	26
HLA-A*33:01	1	601	610	10	TSNQVAVLYQ	0.000235	25
HLA-A*26:01	1	674	683	10	QTNSPRRARS	0.000235	21
HLA-A*30:02	1	690	699	10	IAYTMSLGV	0.000235	43
HLA-A*68:01	1	751	760	10	LQYGSFCTQL	0.000235	24
HLA-A*01:01	1	756	765	10	FCTQLNRALT	0.000235	33
HLA-A*23:01	1	810	819	10	SKRSFIEDLL	0.000235	15
HLA-A*31:01	1	843	852	10	ARDLICAQKF	0.000235	27
HLA-A*02:06	1	885	894	10	FGAGAALQIP	0.000235	34
HLA-A*01:01	1	902	910	9	RFNGIGVTQ	0.000235	33
HLA-A*02:01	1	978	986	9	LSRLDKVEA	0.000235	25
HLA-A*33:01	1	982	990	9	DKVEAEVQI	0.000235	25
HLA-A*02:06	1	1005	1014	10	VTQQLIRAAE	0.000235	34
HLA-A*30:01	1	1054	1062	9	PHGVVFLHV	0.000235	46
HLA-B*44:03	1	1055	1064	10	HGVVFLHVTY	0.000235	15
HLA-A*68:01	1	1097	1106	10	THWFVTQRNF	0.000235	24
HLA-B*51:01	1	1171	1179	9	ASVVNIQKE	0.000235	32
HLA-B*58:01	1	1217	1226	10	FIAGLIAIVM	0.000235	26
HLA-B*40:01	1	71	79	9	SGTNGTKRF	0.000234	14
HLA-A*30:02	1	72	81	10	GTNGTKRFAN	0.000234	43
HLA-B*58:01	1	82	90	9	PVLPFNDGV	0.000234	26
HLA-A*02:06	1	149	157	9	NKSWMESEF	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	259	267	9	AAAYVGYL	0.000234	26
HLA-A*01:01	1	326	334	9	FPNITNLCP	0.000234	33
HLA-B*44:03	1	337	345	9	EVFNATRFA	0.000234	15
HLA-A*68:02	1	344	353	10	FASVYAWNRK	0.000234	27

HLA-B*58:01	1	390	398	9	TNVYADSFV	0.000234	26
HLA-A*26:01	1	413	421	9	GNIADYNYK	0.000234	21
HLA-B*51:01	1	429	438	10	CVIAWNSNNL	0.000234	32
HLA-B*08:01	1	598	606	9	GTNTSNQVA	0.000234	35
HLA-A*30:02	1	612	621	10	VNCTEVPVAI	0.000234	43
HLA-A*30:01	1	656	664	9	SYECDIPIG	0.000234	46
HLA-A*23:01	1	691	700	10	AYTMSLGVEN	0.000234	15
HLA-B*44:02	1	708	717	10	SIIPTNFTI	0.000234	16
HLA-B*51:01	1	732	740	9	SVDCTMYIC	0.000234	32
HLA-A*02:03	1	796	804	9	GFNFSQILP	0.000234	28
HLA-A*68:01	1	821	830	10	NKVTLADAGF	0.000234	24
HLA-B*15:01	1	825	833	9	LADAGFIKQ	0.000234	25
HLA-A*26:01	1	856	864	9	TVLPPLD	0.000234	21
HLA-B*15:01	1	881	889	9	SGWTFGAGA	0.000234	25
HLA-B*08:01	1	893	902	10	IPFAMQMAYR	0.000234	35
HLA-A*02:01	1	897	905	9	MQMAYRFNG	0.000234	25
HLA-B*15:01	1	933	941	9	DSLSSTASA	0.000234	25
HLA-A*24:02	1	962	970	9	QLSSNFGAI	0.000234	15
HLA-A*02:03	1	995	1003	9	TGRLQSLQT	0.000234	28
HLA-A*32:01	1	1012	1021	10	AAEIRASANL	0.000234	19
HLA-B*35:01	1	1216	1224	9	GFIAGLIAI	0.000234	18
HLA-A*03:01	1	1221	1229	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-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	257	266	10	AGAAAYYVGY	0.000233	15
HLA-A*33:01	1	278	286	9	ENGTITDAV	0.000233	26
HLA-A*02:01	1	284	293	10	DAVDCALDPL	0.000233	25
HLA-B*08:01	1	288	296	9	CALDPLSET	0.000233	35
HLA-B*35:01	1	304	312	9	TVEKGIYQT	0.000233	18
HLA-B*35:01	1	309	317	9	IYQTSNFRV	0.000233	18
HLA-A*32:01	1	335	344	10	FGEVFNATRF	0.000233	19
HLA-B*08:01	1	362	370	9	YSVLYNSAS	0.000233	35
HLA-B*58:01	1	429	438	10	CVIAWNSNNL	0.000233	26
HLA-B*53:01	1	512	521	10	FELLHAPATV	0.000233	17
HLA-B*44:02	1	565	573	9	DIADTTDAV	0.000233	16
HLA-B*57:01	1	630	639	10	WRVYSTGSNV	0.000233	35
HLA-A*33:01	1	658	667	10	ECDIPIGAGI	0.000233	26
HLA-A*02:01	1	669	678	10	ASYQTQTNSP	0.000233	25
HLA-A*02:06	1	670	679	10	SYQTQTNSPR	0.000233	34
HLA-B*57:01	1	679	687	9	RRARSVASQ	0.000233	35
HLA-A*32:01	1	701	710	10	SVAYSNNSIA	0.000233	19
HLA-B*58:01	1	729	737	9	TKTSVDCTM	0.000233	26
HLA-B*07:02	1	731	739	9	TSVDCTMYI	0.000233	23
HLA-A*02:03	1	735	744	10	CTMYICGDST	0.000233	28
HLA-B*53:01	1	769	778	10	VEQDKNTQEV	0.000233	17
HLA-A*32:01	1	784	793	10	QIYKTPPIKD	0.000233	19
HLA-A*02:01	1	905	914	10	GIGVTQNVLY	0.000233	25
HLA-A*30:02	1	924	932	9	FNSAIGKIQ	0.000233	43
HLA-A*24:02	1	961	969	9	KQLSSNFGA	0.000233	15
HLA-A*02:03	1	1011	1020	10	RAAEIRASAN	0.000233	28
HLA-A*01:01	1	1045	1054	10	HLMSFPQSAP	0.000233	33
HLA-A*01:01	1	1059	1067	9	FLHVTVVPA	0.000233	33
HLA-A*68:02	1	1066	1075	10	PAQEKNFSTA	0.000233	28
HLA-A*33:01	1	1077	1086	10	AICHGKKAHF	0.000233	26
HLA-A*68:02	1	1089	1098	10	EGVFSNGTH	0.000233	28
HLA-A*02:03	1	1091	1100	10	VFVSNGTHWF	0.000233	28
HLA-B*08:01	1	1111	1119	9	IITTDNTFV	0.000233	35
HLA-A*02:06	1	1141	1150	10	ELDSFKEELD	0.000233	34
HLA-A*03:01	1	1170	1179	10	NASVVNIQKE	0.000233	21
HLA-A*68:01	1	1244	1252	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*02:06	1	210	219	10	INLVRGLPQG 0.000232	34
HLA-A*26:01	1	212	221	10	LVRGLPQGFS 0.000232	21
HLA-B*51:01	1	233	242	10	INITRFQTLH 0.000232	32
HLA-A*01:01	1	259	268	10	AAAYYVGYLQ 0.000232	33
HLA-B*51:01	1	276	285	10	YNENGTITDA 0.000232	32
HLA-B*44:02	1	354	362	9	RISNCVADY 0.000232	16
HLA-A*02:03	1	372	380	9	STFKCYGVS 0.000232	28
HLA-A*02:01	1	441	450	10	KVGGNYNYLY 0.000232	25
HLA-B*58:01	1	443	452	10	GGNYNYLYRL 0.000232	26
HLA-B*51:01	1	452	460	9	LFRKSNLKP 0.000232	32
HLA-B*07:02	1	478	486	9	NGVKGFNCY 0.000232	23
HLA-B*51:01	1	506	515	10	RVVLSFELL 0.000232	32
HLA-A*01:01	1	570	578	9	TDAVRDPQT 0.000232	33
HLA-A*03:01	1	702	710	9	VAYSNNSIA 0.000232	21
HLA-A*68:02	1	713	722	10	TNFTISVTTE 0.000232	28
HLA-A*68:02	1	724	732	9	LPVSMTKTS 0.000232	28
HLA-A*01:01	1	758	767	10	TQLNRALTGI 0.000232	33
HLA-B*35:01	1	767	775	9	IAVEQDKNT 0.000232	18
HLA-B*15:01	1	774	783	10	NTQEVFAQVK 0.000232	26
HLA-B*15:01	1	803	812	10	LPDPSKPSKR 0.000232	26
HLA-B*40:01	1	821	830	10	NKVTLADAGF 0.000232	14
HLA-A*01:01	1	919	928	10	LIANQFNSAI 0.000232	33
HLA-A*30:01	1	931	940	10	IQDLSSTAS 0.000232	46
HLA-B*40:01	1	1063	1072	10	TYVPAQEKNF 0.000232	14
HLA-A*02:03	1	1068	1076	9	QEKNFHTAP 0.000232	28
HLA-B*53:01	1	1083	1091	9	KAHFPREGV 0.000232	17
HLA-B*07:02	1	1092	1101	10	FVSNNGTHWFV 0.000232	23
HLA-B*57:01	1	1100	1108	9	FVTQRNFYE 0.000232	35
HLA-A*02:01	1	1197	1206	10	LQELGKYEYQ 0.000232	25
HLA-B*58:01	1	43	51	9	FRSSVLHST 0.000231	26
HLA-A*31:01	1	84	93	10	LPFNDGVYFA 0.000231	27
HLA-A*26:01	1	97	106	10	KSNIIIRGWIF 0.000231	21
HLA-B*58:01	1	224	233	10	EPLVDLPIGI 0.000231	26
HLA-B*40:01	1	253	261	9	SGWTAGAAA 0.000231	14
HLA-B*08:01	1	263	271	9	YVGYLQPRT 0.000231	35
HLA-B*15:01	1	270	278	9	RTFLLKYNE 0.000231	26
HLA-B*57:01	1	285	293	9	AVDCALDPL 0.000231	35
HLA-A*02:01	1	299	308	10	TLKSFTVEKG 0.000231	25
HLA-B*07:02	1	303	311	9	FTVEKGIYQ 0.000231	23
HLA-A*02:03	1	376	384	9	CYGVSPTKL 0.000231	28
HLA-B*44:03	1	462	471	10	ERDISTEIQ 0.000231	15
HLA-A*02:06	1	539	548	10	NFNGLTGTGV 0.000231	34
HLA-A*23:01	1	549	557	9	LTESNKKFL 0.000231	15
HLA-B*40:01	1	560	569	10	QQFGRDIADT 0.000231	14
HLA-A*11:01	1	587	595	9	CSFGGVSVI 0.000231	16
HLA-B*44:02	1	593	601	9	SVITPGTNT 0.000231	16
HLA-A*02:01	1	646	654	9	CLIGAEHVN 0.000231	25
HLA-A*03:01	1	697	705	9	GVENSVAYS 0.000231	21
HLA-B*58:01	1	725	733	9	PVSMTKTSV 0.000231	26
HLA-A*32:01	1	762	770	9	RALTGIHAVE 0.000231	19
HLA-B*44:02	1	783	792	10	KQIYKTPPIK 0.000231	16
HLA-A*02:01	1	838	846	9	LGDIARDL 0.000231	25
HLA-A*31:01	1	846	855	10	LICAQKFNGL 0.000231	27
HLA-A*31:01	1	870	878	9	YTSALLAGT 0.000231	27
HLA-B*57:01	1	962	970	9	QLSSNFGAI 0.000231	35
HLA-B*51:01	1	984	992	9	VEAEVQIDR 0.000231	32
HLA-B*40:01	1	993	1001	9	LITGRLQSL 0.000231	14
HLA-B*57:01	1	1003	1012	10	TYVTQLLIRA 0.000231	35
HLA-B*07:02	1	1027	1035	9	SECVLGQSK 0.000231	23
HLA-B*08:01	1	1062	1070	9	VTYVPAQEK 0.000231	35
HLA-A*02:01	1	1151	1159	9	KYFKNHTSP 0.000231	25

HLA-A*26:01	1	1199	1208	10	ELGKYEQYIK 0.000231	21
HLA-B*08:01	1	1203	1212	10	YEQYIKWPWY 0.000231	35
HLA-B*44:02	1	1208	1217	10	KWPWYIWLGF 0.000231	16
HLA-B*57:01	1	1215	1223	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	SKTQSLIV 0.00023	23
HLA-B*44:03	1	171	179	9	VSQPFLMDL 0.00023	15
HLA-A*02:03	1	235	243	9	ITRFQTLHR 0.00023	28
HLA-B*58:01	1	246	254	9	LTPGDSSSG 0.00023	26
HLA-A*33:01	1	288	296	9	CALDPLSET 0.00023	26
HLA-B*57:01	1	443	451	9	GGNYNYLYR 0.00023	35
HLA-A*30:02	1	460	469	10	PFERDISTEI 0.00023	43
HLA-A*30:02	1	474	482	9	STPCNGVKG 0.00023	43
HLA-A*33:01	1	607	615	9	VLYQGVNCT 0.00023	26
HLA-A*24:02	1	613	621	9	NCTEVPVAI 0.00023	15
HLA-A*33:01	1	687	696	10	QSIIAYTMSL 0.00023	26
HLA-A*31:01	1	716	724	9	TISVTTEIL 0.00023	27
HLA-B*44:02	1	729	737	9	TKTSVDCTM 0.00023	16
HLA-B*44:03	1	741	750	10	GDSTECSNLL 0.00023	15
HLA-A*01:01	1	755	763	9	SFCTQLNRA 0.00023	34
HLA-A*02:06	1	775	784	10	TQEVFAQVKQ 0.00023	34
HLA-A*32:01	1	890	898	9	ALQIPFAMQ 0.00023	19
HLA-A*02:03	1	897	905	9	MQMAYRFNG 0.00023	28
HLA-A*02:03	1	898	907	10	QMAYRFNGIG 0.00023	28
HLA-A*02:03	1	937	946	10	STASALGKLQ 0.00023	28
HLA-B*53:01	1	947	955	9	DVNVNQAQA 0.00023	17
HLA-A*23:01	1	962	970	9	QLSSNFGAI 0.00023	15
HLA-A*33:01	1	978	986	9	LSRLDKVEA 0.00023	26
HLA-A*31:01	1	979	988	10	SRLDKVEAEV 0.00023	27
HLA-A*02:01	1	1091	1100	10	VFVSNGTHWF 0.00023	25
HLA-A*11:01	1	1101	1110	10	VTQRNFYEPQ 0.00023	16
HLA-A*02:03	1	1128	1137	10	GIVNNTVYDP 0.00023	28
HLA-A*02:01	1	1132	1140	9	NTVYDPLQP 0.00023	25
HLA-A*01:01	1	1153	1161	9	FKNHTSPDV 0.00023	34
HLA-B*53:01	1	1177	1186	10	QKEIDRLNEV 0.00023	17
HLA-B*58:01	1	1215	1223	9	LGFIAGLIA 0.00023	26
HLA-A*02:01	1	1221	1230	10	LIAIVMVTIM 0.00023	25
HLA-A*02:06	1	1239	1247	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*11:01	1	227	235	9	VDLPIGINI 0.000229	16
HLA-B*08:01	1	267	275	9	LQPRTFLLK 0.000229	36
HLA-A*30:02	1	278	286	9	ENGTITDAV 0.000229	43
HLA-B*15:01	1	285	293	9	AVDCALDPL 0.000229	26
HLA-A*01:01	1	297	305	9	KCTLKSFTV 0.000229	34
HLA-B*44:03	1	321	329	9	ESIVRFPNI 0.000229	15
HLA-A*24:02	1	349	358	10	AWNKRKISNC 0.000229	15
HLA-B*15:01	1	351	359	9	NRKRISNCV 0.000229	26
HLA-A*02:01	1	397	406	10	FVIRGDEVRQ 0.000229	25
HLA-A*31:01	1	399	407	9	IRGDEVRQI 0.000229	27
HLA-B*15:01	1	399	407	9	IRGDEVRQI 0.000229	26
HLA-A*33:01	1	410	418	9	GQTGNIADY 0.000229	26
HLA-B*44:02	1	504	512	9	PYRVVLSF 0.000229	16
HLA-B*15:01	1	510	519	10	LSFELLHAPA 0.000229	26
HLA-B*51:01	1	593	602	10	SVITPGTNTS 0.000229	32
HLA-A*30:02	1	652	661	10	HVNNSYECDI 0.000229	43
HLA-A*01:01	1	675	683	9	TNSPRRARS 0.000229	34
HLA-B*53:01	1	704	712	9	YSNNSIAIP 0.000229	17
HLA-A*30:01	1	705	714	10	SNNSIAIPTN 0.000229	46
HLA-A*33:01	1	736	745	10	TMYICGDSTE 0.000229	26
HLA-B*51:01	1	749	757	9	LLLQYGSFC 0.000229	32
HLA-A*31:01	1	785	793	9	IYKTPPIKD 0.000229	27
HLA-B*08:01	1	843	851	9	ARDLICAQK 0.000229	36

HLA-A*01:01	1	853	862	10	NGLTVLPPLL 0.000229	34
HLA-A*23:01	1	911	920	10	NVLYENQKLI 0.000229	15
HLA-B*07:02	1	945	953	9	LQDVVNQNA 0.000229	23
HLA-B*15:01	1	1037	1045	9	VDFCGKGYH 0.000229	26
HLA-A*33:01	1	1055	1063	9	HGVVFLHVT 0.000229	26
HLA-B*58:01	1	1070	1079	10	KNFTTAPAIC 0.000229	26
HLA-B*57:01	1	1085	1093	9	HFPREGVFE 0.000229	36
HLA-A*02:03	1	1100	1108	9	FVTQRNFYE 0.000229	28
HLA-A*01:01	1	1120	1129	10	SGNCDVVIGI 0.000229	34
HLA-B*57:01	1	1173	1182	10	VVNIQKEIDR 0.000229	36
HLA-B*35:01	1	1197	1205	9	LQELGKYEQ 0.000229	18
HLA-B*58:01	1	1261	1270	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	LEGKQGNFK 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-B*44:03	1	265	274	10	GYLQPRTFLL 0.000228	15
HLA-B*15:01	1	277	286	10	NENGTITDAV 0.000228	26
HLA-B*40:01	1	315	324	10	FRVQPTESIV 0.000228	14
HLA-B*44:02	1	375	384	10	KCYGVSPTKL 0.000228	16
HLA-B*53:01	1	406	415	10	QIAPQGTGNI 0.000228	17
HLA-A*30:02	1	411	419	9	QTGNIADYN 0.000228	43
HLA-B*58:01	1	516	525	10	HAPATVCGPK 0.000228	26
HLA-A*33:01	1	549	557	9	LTESNKKFL 0.000228	26
HLA-B*44:03	1	789	797	9	PPIKDFGGF 0.000228	15
HLA-B*57:01	1	808	816	9	KPSKRFSIE 0.000228	36
HLA-A*02:03	1	812	820	9	RSFIEDLLF 0.000228	28
HLA-A*30:01	1	816	825	10	EDLLFNKRTL 0.000228	46
HLA-B*57:01	1	852	861	10	FNGLTVLPPL 0.000228	36
HLA-A*30:01	1	880	888	9	TSGWTFGAG 0.000228	46
HLA-A*26:01	1	890	898	9	ALQIPFAMQ 0.000228	21
HLA-A*26:01	1	891	900	10	LQIPFAMQMA 0.000228	21
HLA-B*35:01	1	899	908	10	MAYRFNGIGV 0.000228	18
HLA-A*01:01	1	914	923	10	YENQKLIANQ 0.000228	34
HLA-B*57:01	1	1042	1051	10	KGYHLMSFPQ 0.000228	36
HLA-A*31:01	1	1045	1054	10	HLMSPQSAP 0.000228	27
HLA-B*44:02	1	1055	1064	10	HGVVFLHVTY 0.000228	16
HLA-A*02:01	1	1065	1074	10	VPAQEKNFST 0.000228	25
HLA-B*57:01	1	1118	1126	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*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*68:02	1	234	243	10	NITRFQTLHR 0.000227	28
HLA-A*26:01	1	236	244	9	TRFQTLHRS 0.000227	21
HLA-B*15:01	1	275	283	9	KYNENGTIT 0.000227	26
HLA-A*30:01	1	277	286	10	NENGTITDAV 0.000227	46
HLA-A*02:03	1	295	303	9	ETKCTLKSF 0.000227	28
HLA-A*33:01	1	306	315	10	EKGIYQTSNF 0.000227	26
HLA-A*26:01	1	336	345	10	GEVFNATRFA 0.000227	21
HLA-B*51:01	1	359	368	10	VADYSVLYNS 0.000227	32
HLA-A*26:01	1	368	376	9	SASFSTFKC 0.000227	21
HLA-A*68:01	1	389	398	10	FTNVYADSFV 0.000227	25

HLA-B*44:02	1	391	399	9	NVYADSFVI	0.000227	16
HLA-A*68:01	1	429	437	9	CVIAWNSNN	0.000227	25
HLA-B*44:02	1	455	463	9	KSNLKPFER	0.000227	16
HLA-B*57:01	1	485	493	9	CYFPLQSYG	0.000227	36
HLA-A*02:01	1	493	502	10	GFQPTYGVGY	0.000227	25
HLA-A*31:01	1	494	503	10	FQPTYGVGYQ	0.000227	27
HLA-A*30:02	1	530	539	10	LVKNKCVNFN	0.000227	44
HLA-A*03:01	1	598	607	10	GTNTSNQVAV	0.000227	21
HLA-B*15:01	1	620	629	10	AIHADQLTPT	0.000227	26
HLA-A*30:02	1	637	645	9	SNVFQTRAG	0.000227	44
HLA-B*07:02	1	672	680	9	QTQTNSPRR	0.000227	23
HLA-B*08:01	1	751	759	9	LQYGSFCTQ	0.000227	36
HLA-B*58:01	1	757	765	9	CTQLNRALT	0.000227	26
HLA-A*32:01	1	775	783	9	TQEVFAQVK	0.000227	20
HLA-A*02:03	1	778	786	9	VFAQVKQIY	0.000227	28
HLA-B*08:01	1	821	830	10	NKVTLADAGF	0.000227	36
HLA-B*58:01	1	826	835	10	ADAGFIKQYG	0.000227	26
HLA-B*15:01	1	904	913	10	NGIGVTQNVL	0.000227	26
HLA-A*31:01	1	978	986	9	LSRLDKVEA	0.000227	27
HLA-B*57:01	1	981	990	10	LDKVEAEVQI	0.000227	36
HLA-A*23:01	1	982	990	9	DKVEAEVQI	0.000227	15
HLA-A*31:01	1	1030	1039	10	VLGQSKRVDF	0.000227	27
HLA-A*01:01	1	1073	1082	10	TTAPAICHDG	0.000227	34
HLA-A*68:01	1	1084	1092	9	AHFPREGVF	0.000227	25
HLA-A*32:01	1	1119	1127	9	VSGNCDVVI	0.000227	20
HLA-B*15:01	1	1130	1138	9	VNNTVYDPL	0.000227	26
HLA-A*68:02	1	1151	1159	9	KYFKNHTSP	0.000227	28
HLA-A*30:02	1	1160	1168	9	DVDLGDISG	0.000227	44
HLA-A*23:01	1	1168	1176	9	GINASVVNI	0.000227	15
HLA-A*68:02	1	1188	1197	10	KNLNESLIDL	0.000227	28
HLA-A*02:01	1	1204	1212	9	EQYIKWPWY	0.000227	25
HLA-B*35:01	1	1207	1215	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*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	261	269	9	AYYVGYLQP	0.000226	20
HLA-B*58:01	1	261	269	9	AYYVGYLQP	0.000226	26
HLA-B*57:01	1	263	271	9	YVGYLQPRT	0.000226	36
HLA-A*23:01	1	297	305	9	KCTLKSFTV	0.000226	15
HLA-A*02:01	1	307	316	10	KGIYQTSNFR	0.000226	25
HLA-B*44:03	1	441	450	10	KVGGNYNYLY	0.000226	15
HLA-A*33:01	1	452	460	9	LFRKSNLKP	0.000226	26
HLA-B*51:01	1	532	540	9	KNKCVNFN	0.000226	32
HLA-A*68:01	1	550	559	10	TESNKKFLPF	0.000226	25
HLA-B*58:01	1	589	597	9	FGVSVITP	0.000226	26
HLA-B*08:01	1	722	731	10	EILPVSMTKT	0.000226	36
HLA-A*32:01	1	725	733	9	PVSMTKTSV	0.000226	20
HLA-B*58:01	1	751	759	9	LQYGSFCTQ	0.000226	26
HLA-B*51:01	1	758	766	9	TQLNRALTG	0.000226	32
HLA-A*33:01	1	779	788	10	FAQVKQIYKT	0.000226	26
HLA-A*68:01	1	806	814	9	PSKPSKRFS	0.000226	25
HLA-A*02:01	1	883	892	10	WTFGAGAALQ	0.000226	25
HLA-A*30:02	1	886	894	9	GAGAALQIP	0.000226	44
HLA-A*02:06	1	915	924	10	ENQKLIANQF	0.000226	34
HLA-A*33:01	1	1013	1021	9	AEIRASANL	0.000226	26
HLA-A*02:03	1	1047	1056	10	MSFPQSAPHG	0.000226	28
HLA-B*44:02	1	1057	1065	9	VVFLHVTVY	0.000226	16
HLA-A*30:02	1	1073	1082	10	TTAPAICHDG	0.000226	44
HLA-B*15:01	1	1121	1129	9	GNCDVVIGI	0.000226	26
HLA-A*02:03	1	1195	1204	10	IDLQELGKYE	0.000226	28
HLA-B*40:01	1	1197	1205	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	274	282	9	LKYNENGTI 0.000225	28
HLA-B*58:01	1	356	365	10	SNCVADYSVL 0.000225	27
HLA-A*23:01	1	373	381	9	TFKCYGVSP 0.000225	16
HLA-A*02:01	1	395	404	10	DSFVIRGDEV 0.000225	25
HLA-B*07:02	1	399	407	9	IRGDEVRQI 0.000225	23
HLA-A*02:06	1	403	411	9	EVQRQIAPGQ 0.000225	34
HLA-A*33:01	1	413	422	10	GNIADYNYKL 0.000225	26
HLA-B*35:01	1	469	477	9	IYQAGSTPC 0.000225	18
HLA-B*51:01	1	626	634	9	LTPTWRVYS 0.000225	32
HLA-A*03:01	1	743	751	9	STECSNLLL 0.000225	21
HLA-A*33:01	1	747	756	10	SNLLLQYGSF 0.000225	26
HLA-B*44:02	1	751	760	10	LQYGSFCTQL 0.000225	16
HLA-B*58:01	1	758	767	10	TQLNRALGTGI 0.000225	27
HLA-A*03:01	1	768	777	10	AVEQDKNTQE 0.000225	21
HLA-B*15:01	1	814	822	9	FIEDLLFNK 0.000225	26
HLA-A*33:01	1	856	864	9	TVLPPLTLD 0.000225	26
HLA-B*08:01	1	857	865	9	VLPLLLTDE 0.000225	36
HLA-B*57:01	1	865	874	10	EMIAQYTSAL 0.000225	36
HLA-A*02:06	1	877	886	10	GTITSGWTFG 0.000225	34
HLA-B*44:02	1	930	939	10	KIQDLSLSTA 0.000225	16
HLA-B*44:02	1	965	974	10	SNFGAISSVL 0.000225	16
HLA-A*02:01	1	977	985	9	ILSRLDKVE 0.000225	25
HLA-A*02:06	1	995	1003	9	TGRLQSLQT 0.000225	34
HLA-B*51:01	1	996	1005	10	GRLQSLQTYV 0.000225	32
HLA-A*03:01	1	1103	1111	9	QRNFYEPQI 0.000225	21
HLA-A*02:01	1	1148	1157	10	ELDKYFKNHT 0.000225	25
HLA-A*01:01	1	1154	1163	10	KNHTSPDVLD 0.000225	34
HLA-B*07:02	1	1161	1169	9	VDLGDISGI 0.000225	23
HLA-A*68:02	1	1215	1223	9	LGFIAGLIA 0.000225	28
HLA-B*51:01	1	114	123	10	TQSLLIVNNA 0.000224	32
HLA-A*68:01	1	124	132	9	TNVVIKVCE 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-B*07:02	1	249	257	9	GDSSSGWTA 0.000224	23
HLA-B*57:01	1	249	258	10	GDSSSGWTAG 0.000224	36
HLA-B*57:01	1	332	341	10	LCPFGEVFNA 0.000224	36
HLA-A*11:01	1	389	397	9	FTNVYADSF 0.000224	16
HLA-A*30:02	1	418	427	10	YNYKLPDDFT 0.000224	44
HLA-A*31:01	1	425	433	9	DFTGCVIAW 0.000224	27
HLA-B*08:01	1	449	457	9	LYRLEFRKSN 0.000224	36
HLA-B*57:01	1	497	506	10	TYGVGYQPYP 0.000224	36
HLA-A*26:01	1	500	508	9	VGYPYRVV 0.000224	21
HLA-B*44:02	1	529	538	10	NLVKKNKCVNF 0.000224	16
HLA-A*01:01	1	541	549	9	NGLTGTGVL 0.000224	34
HLA-B*57:01	1	594	603	10	VITPGTNTSN 0.000224	36
HLA-A*31:01	1	613	622	10	NCTEVPVAIH 0.000224	27
HLA-A*01:01	1	619	628	10	VAIHADQLTP 0.000224	34
HLA-A*33:01	1	625	634	10	QLTPTWRVYS 0.000224	26
HLA-A*68:02	1	648	657	10	IGAHEVNNNSY 0.000224	28
HLA-B*40:01	1	702	710	9	VAYSNSNSIA 0.000224	14
HLA-A*30:02	1	723	732	10	ILPVSMTKTS 0.000224	44
HLA-B*53:01	1	790	799	10	PIKDFGGFNF 0.000224	17
HLA-B*44:03	1	802	811	10	ILPDPSKPSK 0.000224	16
HLA-B*07:02	1	825	833	9	LADAGFIKQ 0.000224	23
HLA-B*08:01	1	839	847	9	GDIAARDLI 0.000224	36
HLA-B*40:01	1	888	896	9	GAALQIPFA 0.000224	14
HLA-B*53:01	1	1010	1019	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	PDKVFRSSV 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*02:03	1	236	244	9	TRFQTLHRS 0.000223	28



HLA-A*68:02	1	246	254	9	LTPGDSSSG 0.000223	28
HLA-A*23:01	1	256	264	9	TAGAAAYV 0.000223	16
HLA-A*31:01	1	259	268	10	AAAYVGYLQ 0.000223	27
HLA-A*02:03	1	267	276	10	LQPRTFLLKY 0.000223	28
HLA-A*33:01	1	301	309	9	KSFTVEKGI 0.000223	26
HLA-A*03:01	1	304	312	9	TVEKGIYQT 0.000223	21
HLA-B*53:01	1	346	354	9	SVYAWNRKR 0.000223	17
HLA-B*51:01	1	350	359	10	WNRKRISNCV 0.000223	32
HLA-B*07:02	1	356	365	10	SNCVADYSVL 0.000223	23
HLA-B*57:01	1	404	413	10	VRQIAPGQTG 0.000223	36
HLA-B*58:01	1	440	449	10	SKVGGNYNYL 0.000223	27
HLA-A*03:01	1	459	468	10	KPFERDISTE 0.000223	21
HLA-A*26:01	1	459	467	9	KPFERDIST 0.000223	22
HLA-B*44:02	1	463	471	9	RDISTEIQ 0.000223	16
HLA-A*03:01	1	481	490	10	KGFNCYFPLQ 0.000223	21
HLA-A*26:01	1	527	536	10	STNLVKNKCV 0.000223	22
HLA-A*02:01	1	539	548	10	NFNGLTGTGV 0.000223	25
HLA-A*68:02	1	603	611	9	NQVAVLYQG 0.000223	28
HLA-B*44:03	1	603	611	9	NQVAVLYQG 0.000223	16
HLA-B*58:01	1	615	623	9	TEVPVAIHA 0.000223	27
HLA-A*23:01	1	659	667	9	CDIPIGAGI 0.000223	16
HLA-B*35:01	1	681	689	9	ARSVASQSI 0.000223	18
HLA-A*24:02	1	723	731	9	ILPVSMTKT 0.000223	15
HLA-A*68:02	1	730	738	9	KTSVDCTMY 0.000223	28
HLA-A*24:02	1	759	767	9	QLNRALTGI 0.000223	15
HLA-B*15:01	1	768	777	10	AVEQDKNTQE 0.000223	26
HLA-A*23:01	1	780	788	9	AQVKQIYKT 0.000223	16
HLA-A*03:01	1	902	911	10	RFNGIGVTQN 0.000223	21
HLA-A*11:01	1	926	935	10	SAIGKIQDSL 0.000223	16
HLA-B*07:02	1	932	941	10	QDLSSTASA 0.000223	23
HLA-A*33:01	1	1005	1014	10	VTQQLIRAAE 0.000223	26
HLA-A*01:01	1	1010	1019	10	IRAAEIRASA 0.000223	34
HLA-A*01:01	1	1021	1030	10	LAATKMSECV 0.000223	34
HLA-B*15:01	1	1025	1034	10	KMSECVLQGS 0.000223	26
HLA-A*02:01	1	1055	1063	9	HGVVFLHVT 0.000223	25
HLA-A*68:02	1	1083	1092	10	KAHFPREGVF 0.000223	28
HLA-A*01:01	1	1103	1112	10	QRNFYEPQII 0.000223	34
HLA-A*03:01	1	1105	1114	10	NFYEPQIITT 0.000223	21
HLA-A*01:01	1	1125	1133	9	VVIGIVNNT 0.000223	34
HLA-B*40:01	1	1205	1213	9	QYIKWPWYI 0.000223	15
HLA-A*24:02	1	1252	1260	9	KFDEDDSEP 0.000223	15
HLA-A*23:01	1	1260	1269	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	SFTRGVYYP 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*30:01	1	208	217	10	TPINLVRGLP 0.000222	47
HLA-A*33:01	1	214	223	10	RGLPQGFSA 0.000222	26
HLA-A*26:01	1	301	309	9	KSFTVEKGI 0.000222	22
HLA-B*08:01	1	313	322	10	SNFRVQPTES 0.000222	36
HLA-A*31:01	1	314	323	10	NFRVQPTESI 0.000222	27
HLA-B*58:01	1	322	330	9	SIVRFPNIT 0.000222	27
HLA-B*08:01	1	333	342	10	CPFGEVFNAT 0.000222	36
HLA-A*02:03	1	357	366	10	NCVADYSVLY 0.000222	28
HLA-A*02:06	1	379	388	10	VSPTKLNLC 0.000222	34
HLA-B*15:01	1	400	408	9	RGDEVQRQA 0.000222	26
HLA-A*26:01	1	410	419	10	GQTGNIADYN 0.000222	22
HLA-A*01:01	1	439	447	9	DSKVGNYN 0.000222	34
HLA-B*35:01	1	467	476	10	TEIYQAGSTP 0.000222	18
HLA-A*30:01	1	473	482	10	GSTPCNGVKG 0.000222	47
HLA-A*24:02	1	498	506	9	YGVGYQPYR 0.000222	15
HLA-A*32:01	1	526	535	10	KSTNLVKNKC 0.000222	20

HLA-A*68:01	1	568	576	9	DTTDAVRDP 0.000222	25
HLA-A*68:02	1	588	597	10	SFGGVSVITP 0.000222	28
HLA-B*53:01	1	619	627	9	VAIHADQLT 0.000222	17
HLA-A*01:01	1	638	647	10	NVFQTRAGCL 0.000222	34
HLA-A*02:03	1	671	680	10	YQTQTNsprR 0.000222	28
HLA-A*31:01	1	705	713	9	SNNSIAIPT 0.000222	27
HLA-A*30:02	1	806	815	10	PSKPSKRSFI 0.000222	44
HLA-A*01:01	1	808	816	9	KPSKRSFIE 0.000222	34
HLA-A*33:01	1	847	855	9	ICAQKFNGL 0.000222	26
HLA-A*33:01	1	849	858	10	AQKFNGLTVL 0.000222	26
HLA-B*08:01	1	850	859	10	QKFNGLTVLP 0.000222	36
HLA-B*51:01	1	856	865	10	TVLPPLLTDE 0.000222	32
HLA-B*08:01	1	891	900	10	LQIPFAMQMA 0.000222	36
HLA-B*58:01	1	893	902	10	IPFAMQMAYR 0.000222	27
HLA-A*31:01	1	922	931	10	NQFNSAIGKI 0.000222	27
HLA-A*33:01	1	980	988	9	RLDKVEAEV 0.000222	26
HLA-B*57:01	1	995	1003	9	TGRLQSLQT 0.000222	36
HLA-A*31:01	1	1005	1014	10	VTQQLIRAAE 0.000222	27
HLA-A*31:01	1	1057	1066	10	VVFLHVTVYP 0.000222	27
HLA-A*11:01	1	1064	1072	9	YVPAQEKNF 0.000222	16
HLA-A*68:02	1	1141	1150	10	ELDSFKEELD 0.000222	28
HLA-A*03:01	1	1195	1203	9	IDLQELGKY 0.000222	21
HLA-A*02:01	1	1215	1223	9	LGFIAGLIA 0.000222	25
HLA-B*51:01	1	1252	1261	10	KFDEDDSEPV 0.000222	32
HLA-B*15:01	1	1258	1266	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	WIFGTTLDISK 0.000221	36
HLA-B*08:01	1	270	278	9	RTFLLKYNE 0.000221	36
HLA-A*02:06	1	274	282	9	LKYNGTI 0.000221	34
HLA-A*23:01	1	282	290	9	ITDAVDCAL 0.000221	16
HLA-B*57:01	1	322	330	9	SIVRFPNIT 0.000221	36
HLA-B*51:01	1	323	331	9	IVRFPNITN 0.000221	32
HLA-A*02:06	1	345	354	10	ASVYAWNRKR 0.000221	34
HLA-B*35:01	1	359	367	9	VADYSVLYN 0.000221	18
HLA-A*02:03	1	430	439	10	VIAWNSNLD 0.000221	28
HLA-B*51:01	1	431	440	10	IAWNSNLD 0.000221	32
HLA-B*15:01	1	434	442	9	NSNLDISKV 0.000221	26
HLA-A*30:02	1	492	501	10	YGFQPTYGVG 0.000221	44
HLA-A*33:01	1	550	559	10	TESNKKFLPF 0.000221	26
HLA-B*53:01	1	599	608	10	TNTSNQVAVL 0.000221	17
HLA-A*33:01	1	613	621	9	NCTEVPVAI 0.000221	26
HLA-A*01:01	1	691	700	10	AYTMSLGVEN 0.000221	34
HLA-A*03:01	1	694	702	9	MSLGVENS 0.000221	21
HLA-A*01:01	1	703	712	10	AYSNNSIAIP 0.000221	34
HLA-A*02:01	1	716	725	10	TISVTTEILP 0.000221	25
HLA-B*35:01	1	769	778	10	VEQDKNTQEV 0.000221	18
HLA-A*30:02	1	808	816	9	KPSKRSFIE 0.000221	44
HLA-A*02:06	1	829	838	10	GFIKQYGDCL 0.000221	34
HLA-A*02:03	1	876	885	10	AGTITSGWTF 0.000221	28
HLA-B*44:02	1	916	925	10	NQKLIANQFN 0.000221	16
HLA-A*11:01	1	940	948	9	SALGKLQDV 0.000221	16
HLA-A*02:01	1	941	950	10	ALGKLQDVVN 0.000221	25
HLA-A*31:01	1	969	978	10	AISSVLNDIL 0.000221	27
HLA-A*23:01	1	990	998	9	IDRLITGRL 0.000221	16
HLA-A*24:02	1	1044	1053	10	YHLSMFPQSA 0.000221	15
HLA-B*57:01	1	1045	1054	10	HLSMFPQSAP 0.000221	36
HLA-B*08:01	1	1082	1091	10	GKAHFPREGV 0.000221	36
HLA-A*02:01	1	1084	1092	9	AHFPREGVF 0.000221	25
HLA-A*26:01	1	1104	1112	9	RNFYEPQII 0.000221	22
HLA-A*68:02	1	1119	1127	9	VSGNCDVVI 0.000221	28
HLA-A*02:06	1	1156	1164	9	HTSPDVDLG 0.000221	34
HLA-B*57:01	1	1176	1184	9	IQKEIDRLN 0.000221	36
HLA-A*30:01	1	1217	1226	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*11:01	1	71	80	10	SGTNGTKRFA 0.00022	16
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*35:01	1	251	259	9	SSSGWTAGA 0.00022	18
HLA-A*26:01	1	258	267	10	GAAAYVGYL 0.00022	22
HLA-B*08:01	1	281	289	9	TITDAVDCA 0.00022	36
HLA-B*57:01	1	403	411	9	EVQRQIAPGQ 0.00022	36
HLA-A*02:03	1	540	549	10	FNGLTGTGVL 0.00022	28
HLA-A*02:03	1	596	605	10	TPGTNTSNQV 0.00022	28
HLA-B*51:01	1	614	623	10	CTEVPVAIHA 0.00022	32
HLA-A*31:01	1	663	672	10	IGAGICASYQ 0.00022	27
HLA-B*08:01	1	671	679	9	YQTQTNspr 0.00022	36
HLA-B*57:01	1	700	708	9	NSVAYSNNs 0.00022	36
HLA-A*32:01	1	762	771	10	RALTGIAVEQ 0.00022	20
HLA-A*68:02	1	848	856	9	CAQKFNGLT 0.00022	28
HLA-B*35:01	1	856	864	9	TVLPPLTLD 0.00022	18
HLA-A*03:01	1	866	875	10	MIAQYTSALL 0.00022	21
HLA-B*58:01	1	920	929	10	IANQFNsAIG 0.00022	27
HLA-A*33:01	1	924	932	9	FNSAIGKIQ 0.00022	26
HLA-B*15:01	1	1042	1050	9	KGYHLMsFP 0.00022	26
HLA-A*68:02	1	1075	1084	10	APAICHDGKA 0.00022	28
HLA-A*26:01	1	1196	1205	10	DLQELGKYEQ 0.00022	22
HLA-A*31:01	1	1220	1229	10	GLIAIVMVTI 0.00022	27
HLA-B*58:01	1	1234	1242	9	MTSCCsCLK 0.00022	27
HLA-A*02:01	1	1260	1269	10	PVLKGVKLHY 0.00022	26
HLA-A*26:01	1	32	41	10	FTRGVYPPDK 0.000219	22
HLA-A*31:01	1	71	79	9	SGTNGTKRF 0.000219	27
HLA-A*68:02	1	74	82	9	NGTKRFANP 0.000219	28
HLA-A*24:02	1	97	105	9	KSNIIRGWI 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	LLIVNNAT 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-A*03:01	1	208	216	9	TPINLVRGL 0.000219	21
HLA-A*68:01	1	236	244	9	TRFQTLHRS 0.000219	25
HLA-A*11:01	1	246	255	10	LTPGDsSSGW 0.000219	17
HLA-A*31:01	1	256	264	9	TAGAAAYYV 0.000219	27
HLA-B*08:01	1	295	304	10	ETKCTLKSFT 0.000219	36
HLA-B*07:02	1	338	346	9	VFNATRFAS 0.000219	23
HLA-A*31:01	1	472	480	9	AGSTPCNGV 0.000219	27
HLA-A*68:02	1	479	488	10	GVKGFNCYFP 0.000219	28
HLA-A*32:01	1	510	519	10	LSFELLHAPA 0.000219	20
HLA-A*68:02	1	517	526	10	APATVCGPKK 0.000219	28
HLA-A*02:01	1	521	530	10	VCGPKKSTNL 0.000219	26
HLA-A*03:01	1	523	531	9	GPKKSTNLV 0.000219	21
HLA-B*58:01	1	546	555	10	TGVLTESNKK 0.000219	27
HLA-B*40:01	1	580	589	10	EILDITPCSF 0.000219	15
HLA-A*30:01	1	596	604	9	TPGTNTSNQ 0.000219	47
HLA-B*51:01	1	605	613	9	VAVLYQGVN 0.000219	33
HLA-A*31:01	1	606	615	10	AVLYQGVNCT 0.000219	27
HLA-A*26:01	1	637	646	10	SNVFQTRAGC 0.000219	22
HLA-A*26:01	1	692	701	10	YTMslGVENS 0.000219	22
HLA-B*08:01	1	704	712	9	YSNNSIAIP 0.000219	36
HLA-B*51:01	1	714	722	9	NFTISVTTE 0.000219	33
HLA-A*01:01	1	746	754	9	CSNLLLQYG 0.000219	34
HLA-B*40:01	1	777	786	10	EVFAQVKQIY 0.000219	15
HLA-B*58:01	1	780	789	10	AQVKQIYKTP 0.000219	27
HLA-B*15:01	1	938	946	9	TASALGKLQ 0.000219	26
HLA-A*68:01	1	940	948	9	SALGKLQDV 0.000219	25
HLA-A*23:01	1	954	963	10	QALNTLVKQL 0.000219	16

HLA-B*15:01	1	960	969	10	VKQLSSNFGA 0.000219	26
HLA-B*57:01	1	979	988	10	SRLDKVEAEV 0.000219	36
HLA-A*02:01	1	982	990	9	DKVEAEVQI 0.000219	26
HLA-B*44:03	1	992	1001	10	RLITGRLQSL 0.000219	16
HLA-B*40:01	1	1005	1013	9	VTQQLIRAA 0.000219	15
HLA-B*08:01	1	1007	1016	10	QLLIRAAEIR 0.000219	36
HLA-B*08:01	1	1058	1067	10	VFLHVTVYVPA 0.000219	36
HLA-A*02:06	1	1128	1136	9	GIVNNTVYD 0.000219	34
HLA-B*15:01	1	1153	1161	9	FKNHTSPDV 0.000219	26
HLA-A*24:02	1	1161	1169	9	VDLGDISGI 0.000219	15
HLA-A*11:01	1	1195	1203	9	IDLQELGKY 0.000219	17
HLA-A*33:01	1	1208	1216	9	KWPWYIWLG 0.000219	26
HLA-A*30:02	1	1211	1219	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	273	282	10	LLKYNENGTI 0.000218	34
HLA-A*02:03	1	280	288	9	GTITDAVDC 0.000218	28
HLA-B*44:02	1	318	327	10	QPTESIVRFP 0.000218	16
HLA-B*51:01	1	383	392	10	KLNDLCFTNV 0.000218	33
HLA-A*68:02	1	397	406	10	FVIRGDEVRO 0.000218	28
HLA-A*30:01	1	402	411	10	DEVQRQIAPGQ 0.000218	47
HLA-A*68:01	1	407	415	9	IAPGQTGNI 0.000218	25
HLA-A*31:01	1	440	449	10	SKVGGNYNYL 0.000218	27
HLA-B*44:03	1	463	471	9	RDISTEIQ 0.000218	16
HLA-B*57:01	1	468	476	9	EIQAGSTP 0.000218	36
HLA-A*26:01	1	523	532	10	GPKKSTNLVK 0.000218	22
HLA-B*53:01	1	540	548	9	FNGLTGTGV 0.000218	18
HLA-A*02:01	1	555	564	10	KFLPFQQFGR 0.000218	26
HLA-A*01:01	1	611	619	9	GVNCTEVPV 0.000218	34
HLA-B*53:01	1	717	725	9	ISVTTEILP 0.000218	18
HLA-A*02:03	1	825	834	10	LADAGFIKQY 0.000218	28
HLA-A*01:01	1	856	865	10	TVLPPLLTDE 0.000218	34
HLA-A*01:01	1	918	927	10	KLIANQFNFA 0.000218	34
HLA-A*33:01	1	930	938	9	KIQDSLST 0.000218	26
HLA-A*30:01	1	962	971	10	QLSSNFGAIS 0.000218	47
HLA-B*44:02	1	975	984	10	NDILSRDLKV 0.000218	16
HLA-B*44:03	1	975	984	10	NDILSRDLKV 0.000218	16
HLA-A*23:01	1	1006	1015	10	TQQLIRAAEI 0.000218	16
HLA-A*02:01	1	1022	1031	10	AATKMSECVL 0.000218	26
HLA-B*40:01	1	1091	1099	9	VFVSNGTHW 0.000218	15
HLA-B*40:01	1	1103	1112	10	QRNFYEPQII 0.000218	15
HLA-B*07:02	1	1165	1174	10	DISGINASVV 0.000218	23
HLA-A*68:01	1	1189	1197	9	NLNESLIDL 0.000218	25
HLA-A*02:01	1	1195	1204	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-B*08:01	1	73	82	10	TNGTKRFANP 0.000217	36
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	DGVYFASTEK 0.000217	18
HLA-A*02:01	1	112	120	9	SKTQSLIV 0.000217	26
HLA-B*35:01	1	120	128	9	VNNATNVVI 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	295	303	9	ETKCTLKSF 0.000217	15
HLA-A*01:01	1	330	338	9	TNLCPFGEV 0.000217	34
HLA-A*01:01	1	354	363	10	RISNCVADYS 0.000217	34
HLA-B*58:01	1	422	431	10	LPDDFTGCVI 0.000217	27
HLA-B*40:01	1	423	431	9	PDDFTGCVI 0.000217	15
HLA-A*03:01	1	467	476	10	TEIQAGSTP 0.000217	21
HLA-A*01:01	1	550	558	9	TESNKKFLP 0.000217	34
HLA-A*02:01	1	624	633	10	DQLTPTWRVY 0.000217	26

HLA-A*11:01	1	641	650	10	QTRAGCLIGA 0.000217	17
HLA-B*44:02	1	670	678	9	SYQTQTNSP 0.000217	16
HLA-A*02:01	1	709	718	10	IAIPTNFTIS 0.000217	26
HLA-A*03:01	1	776	785	10	QEVFAQVKQI 0.000217	21
HLA-A*24:02	1	816	825	10	EDLLFNKVTL 0.000217	15
HLA-A*31:01	1	825	833	9	LADAGFIKQ 0.000217	27
HLA-A*01:01	1	835	843	9	GDCLGDIAA 0.000217	34
HLA-B*07:02	1	839	847	9	GDIAARDLI 0.000217	23
HLA-A*24:02	1	866	875	10	MIAQYTSALL 0.000217	15
HLA-B*15:01	1	894	903	10	PFAMQMAYRF 0.000217	26
HLA-B*07:02	1	913	921	9	LYENQKLIA 0.000217	23
HLA-B*08:01	1	922	930	9	NQFNSAIGK 0.000217	36
HLA-A*33:01	1	923	932	10	QFNSAIGKIQ 0.000217	26
HLA-B*35:01	1	962	970	9	QLSSNFGAI 0.000217	19
HLA-A*23:01	1	969	977	9	AISSVLNDI 0.000217	16
HLA-B*40:01	1	979	987	9	SRLDKVEAE 0.000217	15
HLA-B*57:01	1	1049	1058	10	FPQSAPHGVV 0.000217	36
HLA-B*08:01	1	1061	1069	9	HVTYVPAQE 0.000217	36
HLA-B*35:01	1	1061	1070	10	HVTYVPAQEK 0.000217	19
HLA-B*44:02	1	1079	1087	9	CHDGAHFP 0.000217	16
HLA-A*30:02	1	1117	1126	10	TFVSGNCDVV 0.000217	44
HLA-A*33:01	1	1200	1209	10	LGKYEQYIKW 0.000217	26
HLA-A*26:01	1	72	80	9	GTNGTKRFA 0.000216	22
HLA-A*26:01	1	79	87	9	FANPVLPFN 0.000216	22
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*11:01	1	235	244	10	ITRFQTLHRS 0.000216	17
HLA-A*68:02	1	294	303	10	SETKCTLKSF 0.000216	28
HLA-B*40:01	1	341	350	10	ATRFASVYAW 0.000216	15
HLA-A*68:02	1	419	427	9	NYKLPDDFT 0.000216	28
HLA-B*44:03	1	457	465	9	NLKPFERDI 0.000216	16
HLA-A*02:06	1	485	494	10	CYFPLQSYGF 0.000216	35
HLA-B*15:01	1	491	500	10	SYGFQPTYGV 0.000216	26
HLA-A*02:01	1	496	504	9	PTYGVGYQP 0.000216	26
HLA-A*68:01	1	499	507	9	GVGYQPYRV 0.000216	25
HLA-A*02:03	1	565	574	10	DIADTTDAVR 0.000216	28
HLA-B*40:01	1	565	573	9	DIADTTDAV 0.000216	15
HLA-A*03:01	1	595	604	10	ITPGTNTSNQ 0.000216	21
HLA-B*44:03	1	635	643	9	TGSNVFQTR 0.000216	16
HLA-B*15:01	1	639	648	10	VFQTRAGCLI 0.000216	26
HLA-A*01:01	1	668	676	9	CASYQTQTN 0.000216	35
HLA-A*02:03	1	705	713	9	SNNSIAIPT 0.000216	28
HLA-A*30:01	1	716	725	10	TISVTTEILP 0.000216	47
HLA-A*02:06	1	744	753	10	TECSNLLLQY 0.000216	35
HLA-B*58:01	1	873	881	9	ALLAGTITS 0.000216	27
HLA-A*02:06	1	892	901	10	QIPFAMQMAY 0.000216	35
HLA-A*23:01	1	901	910	10	YRFNGIGVTQ 0.000216	16
HLA-B*51:01	1	1003	1012	10	TYVTQQLIRA 0.000216	33
HLA-A*26:01	1	1044	1053	10	YHLMSFPQSA 0.000216	22
HLA-A*33:01	1	1126	1135	10	VIGIVNNTVY 0.000216	26
HLA-B*51:01	1	1132	1141	10	NTVYDPLQPE 0.000216	33
HLA-A*33:01	1	1149	1157	9	LDKYFKNHT 0.000216	26
HLA-A*33:01	1	1199	1207	9	ELGKYEQYI 0.000216	26
HLA-B*15:01	1	1212	1220	9	YIWLGFIAAG 0.000216	26
HLA-A*68:02	1	1213	1222	10	IWLGFIAGLI 0.000216	28
HLA-A*30:02	1	1229	1237	9	IMLCCMTSC 0.000216	44
HLA-A*31:01	1	1243	1252	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	RGWIFGTTLD 0.000215	33

HLA-B*57:01	1	114	122	9	TQSLIVNN 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-B*08:01	1	250	258	9	DSSSGWTAG 0.000215	37
HLA-A*30:01	1	281	290	10	TITDAVDCAL 0.000215	47
HLA-B*08:01	1	290	298	9	LDPLSETKC 0.000215	37
HLA-B*15:01	1	304	313	10	TVEKGIYQTS 0.000215	26
HLA-A*31:01	1	369	378	10	ASFSTFKCYG 0.000215	27
HLA-B*58:01	1	377	386	10	YGVSPTKLND 0.000215	27
HLA-B*35:01	1	379	387	9	VSPTKLNDL 0.000215	19
HLA-B*44:02	1	385	394	10	NDLCFTNVYA 0.000215	16
HLA-A*30:01	1	397	406	10	FVIRGDEVQR 0.000215	47
HLA-A*02:03	1	405	414	10	RQIAPGQTGN 0.000215	28
HLA-B*07:02	1	452	460	9	LFRKSNLKP 0.000215	23
HLA-A*01:01	1	456	465	10	SNLKPFERDI 0.000215	35
HLA-A*01:01	1	486	495	10	YFPLQSYGFQ 0.000215	35
HLA-A*31:01	1	577	586	10	QTLEILDITP 0.000215	27
HLA-B*58:01	1	594	603	10	VITPGTNTSN 0.000215	27
HLA-B*44:03	1	599	607	9	TNTSNQVAV 0.000215	16
HLA-B*53:01	1	638	646	9	NVQTRAGC 0.000215	18
HLA-A*02:01	1	696	704	9	LGVENSVA 0.000215	26
HLA-A*68:02	1	727	736	10	SMTKTSVDCT 0.000215	28
HLA-B*51:01	1	727	735	9	SMTKTSVDC 0.000215	33
HLA-A*68:02	1	751	759	9	LQYGSFCTQ 0.000215	28
HLA-A*33:01	1	785	793	9	IYKTPPIKD 0.000215	26
HLA-A*03:01	1	808	816	9	KPSKRSFIE 0.000215	21
HLA-A*33:01	1	891	900	10	LQIPFAMQMA 0.000215	26
HLA-A*24:02	1	900	909	10	AYRFNGIGVT 0.000215	15
HLA-A*68:01	1	906	915	10	IGVTQNVLYE 0.000215	25
HLA-B*51:01	1	930	938	9	KIQDLSST 0.000215	33
HLA-A*24:02	1	969	977	9	AISSVLNDI 0.000215	15
HLA-A*31:01	1	980	989	10	RLDKVEAEVQ 0.000215	27
HLA-B*15:01	1	1002	1011	10	QTYVVTQQLIR 0.000215	26
HLA-A*68:02	1	1042	1050	9	KGYHLMSFP 0.000215	28
HLA-B*58:01	1	1046	1054	9	LMSFPQSAP 0.000215	27
HLA-A*24:02	1	1103	1112	10	QRNFYEPQII 0.000215	15
HLA-A*01:01	1	1117	1126	10	TFVSGNCDVV 0.000215	35
HLA-A*01:01	1	1127	1136	10	IGIVNNTVYD 0.000215	35
HLA-B*15:01	1	1152	1161	10	YFKNHTSPDV 0.000215	26
HLA-B*07:02	1	1179	1187	9	EIDRLNEVA 0.000215	23
HLA-B*15:01	1	1202	1211	10	KYEQYIKWPW 0.000215	26
HLA-A*30:01	1	1259	1268	10	EPVLKGVKLV 0.000215	47
HLA-A*68:01	1	57	65	9	PFFSNVTWF 0.000214	25
HLA-A*03:01	1	71	80	10	SGTNGTKRFA 0.000214	21
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	LIVNATNV 0.000214	25
HLA-A*68:02	1	237	246	10	RFQTLHRSYL 0.000214	28
HLA-A*02:06	1	294	303	10	SETKCTLKSF 0.000214	35
HLA-B*35:01	1	335	343	9	FGEVFNATR 0.000214	19
HLA-A*30:02	1	373	382	10	TFKCYGVSP 0.000214	44
HLA-A*68:01	1	390	398	9	TNVYADSFV 0.000214	25
HLA-A*02:06	1	406	414	9	QIAPGQTGN 0.000214	35
HLA-A*30:01	1	462	471	10	ERDISTEIQ 0.000214	47
HLA-A*26:01	1	495	503	9	QPTYGVGYQ 0.000214	22
HLA-A*01:01	1	501	510	10	GYQPYRVVVL 0.000214	35
HLA-A*02:06	1	503	512	10	QPYRVVLSF 0.000214	35
HLA-B*53:01	1	638	647	10	NVQTRAGCL 0.000214	18
HLA-A*68:01	1	658	667	10	ECDIPIGAGI 0.000214	25
HLA-A*02:03	1	716	725	10	TISVTTEILP 0.000214	29
HLA-A*33:01	1	810	819	10	SKRSFIEDLL 0.000214	27
HLA-B*58:01	1	830	838	9	FIKQYGDCL 0.000214	27
HLA-B*40:01	1	853	861	9	NGLTVLPPL 0.000214	15
HLA-B*44:03	1	930	939	10	KIQDLSSTA 0.000214	16
HLA-A*01:01	1	939	947	9	ASALGKLQD 0.000214	35
HLA-A*02:03	1	964	972	9	SSNFGAISS 0.000214	29

HLA-B*07:02	1	1041	1049	9	GKGYHLMSF 0.000214	23
HLA-A*11:01	1	1056	1065	10	GVVFLHVTYV 0.000214	17
HLA-A*30:02	1	1065	1074	10	VPAQEKNFST 0.000214	44
HLA-A*68:01	1	1085	1093	9	HFPREGVVFV 0.000214	25
HLA-A*23:01	1	1101	1109	9	VTQRNFYEP 0.000214	16
HLA-A*33:01	1	1145	1153	9	FKEELDKYF 0.000214	27
HLA-B*07:02	1	1171	1180	10	ASVVNIQKEI 0.000214	23
HLA-A*24:02	1	1198	1207	10	QELGKYEQYI 0.000214	15
HLA-A*01:01	1	1200	1208	9	LGKYEQYIK 0.000214	35
HLA-B*15:01	1	70	78	9	VSGTNGTKR 0.000213	26
HLA-A*03:01	1	97	106	10	KSNIRGWIF 0.000213	21
HLA-A*30:02	1	102	111	10	RGWIFGTTL 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-B*58:01	1	249	258	10	GDSSSGWTAG 0.000213	27
HLA-A*68:02	1	312	321	10	TSNFRVQPT 0.000213	28
HLA-B*07:02	1	350	359	10	WNRKRISNCV 0.000213	23
HLA-A*31:01	1	372	380	9	STFKCYGVS 0.000213	27
HLA-A*68:01	1	440	449	10	SKVGGNYNYL 0.000213	25
HLA-B*57:01	1	447	455	9	NYLYRFRK 0.000213	36
HLA-B*07:02	1	460	469	10	PFERDISTEI 0.000213	23
HLA-A*30:01	1	470	479	10	YQAGSTPCNG 0.000213	47
HLA-A*68:01	1	477	486	10	CNGVKGFNCY 0.000213	25
HLA-A*01:01	1	512	520	9	FELLHAPAT 0.000213	35
HLA-A*01:01	1	528	536	9	TNLVKNKCV 0.000213	35
HLA-A*68:02	1	560	569	10	QQFGRDIADT 0.000213	28
HLA-B*44:03	1	593	601	9	SVITPGTNT 0.000213	16
HLA-B*53:01	1	601	610	10	TSNQVAVLYQ 0.000213	18
HLA-B*35:01	1	649	658	10	GAEHVNNSYE 0.000213	19
HLA-A*01:01	1	661	669	9	IPIGAGICA 0.000213	35
HLA-B*57:01	1	673	681	9	TQTNSPRRA 0.000213	36
HLA-B*07:02	1	679	687	9	RRARSVASQ 0.000213	23
HLA-B*15:01	1	681	690	10	ARSVASQSII 0.000213	26
HLA-B*53:01	1	862	871	10	LTDEMIAQYT 0.000213	18
HLA-A*30:02	1	949	957	9	VNQNAQALN 0.000213	44
HLA-A*02:06	1	993	1002	10	LITGRLQSLQ 0.000213	35
HLA-A*02:06	1	1031	1040	10	LGQSKRVDFC 0.000213	35
HLA-A*30:01	1	1037	1045	9	VDFCGKGYH 0.000213	47
HLA-B*51:01	1	1046	1055	10	LMSFPQSAPH 0.000213	33
HLA-A*23:01	1	1096	1104	9	GTHWFVTQR 0.000213	16
HLA-A*02:06	1	1103	1112	10	QRNFYEPQII 0.000213	35
HLA-A*02:03	1	1176	1185	10	IQKEIDRLNE 0.000213	29
HLA-A*30:01	1	1239	1247	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	TTRTQLPPAY 0.000212	35
HLA-A*68:02	1	20	28	9	TRTQLPPAY 0.000212	28
HLA-B*08:01	1	79	87	9	FANPVLPFN 0.000212	37
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*30:02	1	238	247	10	FQTLHRSYLT 0.000212	45
HLA-A*31:01	1	240	248	9	TLHRSYLT 0.000212	28
HLA-A*01:01	1	245	254	10	YLTPGDSSSG 0.000212	35
HLA-A*26:01	1	251	260	10	SSSGWTAGAA 0.000212	22
HLA-A*01:01	1	277	285	9	NENGTITDA 0.000212	35
HLA-A*24:02	1	373	381	9	TFKCYGVSP 0.000212	15
HLA-B*53:01	1	375	384	10	KCYGVSPTKL 0.000212	18
HLA-B*58:01	1	438	447	10	LDSKVGNYN 0.000212	27
HLA-A*11:01	1	443	452	10	GGNYNYLYRL 0.000212	17
HLA-A*01:01	1	446	455	10	YNYLYRFRK 0.000212	35
HLA-A*31:01	1	491	499	9	SYGFQPTYG 0.000212	28

HLA-B*51:01	1	516	525	10	HAPATVCGPK 0.000212	33
HLA-A*02:03	1	589	597	9	FGGVSVITP 0.000212	29
HLA-A*02:01	1	647	656	10	LIGAEHVNNS 0.000212	26
HLA-A*30:02	1	647	655	9	LIGAEHVNN 0.000212	45
HLA-A*30:01	1	650	658	9	AEHVNNSYE 0.000212	47
HLA-A*31:01	1	681	689	9	ARSVASQSI 0.000212	28
HLA-A*68:02	1	778	787	10	VFAQVKQIYK 0.000212	28
HLA-B*15:01	1	794	803	10	FGGFNFSQIL 0.000212	26
HLA-A*33:01	1	811	820	10	KRSFIEDLLF 0.000212	27
HLA-B*40:01	1	865	874	10	EMIAQYTSAL 0.000212	15
HLA-B*57:01	1	874	882	9	LLAGTITSG 0.000212	37
HLA-A*68:01	1	880	889	10	TSGWTFGAGA 0.000212	25
HLA-B*07:02	1	884	893	10	TFGAGAALQI 0.000212	24
HLA-A*30:01	1	906	915	10	IGVTQNVLYE 0.000212	47
HLA-B*57:01	1	925	934	10	NSAIGKIQDS 0.000212	37
HLA-A*33:01	1	938	946	9	TASALGKLQ 0.000212	27
HLA-A*03:01	1	962	970	9	QLSSNFGAI 0.000212	21
HLA-A*31:01	1	1001	1010	10	LQTYVTQQLI 0.000212	28
HLA-B*57:01	1	1038	1047	10	DFCGKGYHLM 0.000212	37
HLA-B*44:02	1	1102	1111	10	TORNFYEPQI 0.000212	16
HLA-B*44:03	1	1185	1194	10	EVAKNLNESL 0.000212	16
HLA-B*07:02	1	1188	1197	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*08:01	1	241	249	9	LHRSYLTPG 0.000211	37
HLA-A*33:01	1	282	290	9	ITDAVDCAL 0.000211	27
HLA-B*07:02	1	314	322	9	NFRVQPTES 0.000211	24
HLA-A*33:01	1	370	378	9	SFSTFKCYG 0.000211	27
HLA-A*31:01	1	372	381	10	STFKCYGVSP 0.000211	28
HLA-A*32:01	1	400	408	9	RGDEVRQIA 0.000211	20
HLA-B*15:01	1	463	472	10	RDISTEIQQA 0.000211	26
HLA-A*26:01	1	704	712	9	YSNNSIAIP 0.000211	22
HLA-A*30:02	1	714	722	9	NFTISVTTE 0.000211	45
HLA-B*53:01	1	761	769	9	NRALTGIAV 0.000211	18
HLA-A*68:02	1	782	791	10	VKQIYKTPPI 0.000211	28
HLA-A*30:01	1	793	801	9	DFGGFNFSQ 0.000211	47
HLA-A*11:01	1	795	803	9	GGFNFSQIL 0.000211	17
HLA-A*02:06	1	901	909	9	YRFNGIGVT 0.000211	35
HLA-A*02:03	1	902	910	9	RFNGIGVTQ 0.000211	29
HLA-B*15:01	1	907	915	9	GVTQNVLYE 0.000211	26
HLA-A*31:01	1	920	928	9	IANQFNSAI 0.000211	28
HLA-A*30:01	1	968	976	9	GAISSVLND 0.000211	47
HLA-A*11:01	1	1001	1009	9	LQTYVTQQL 0.000211	17
HLA-A*26:01	1	1026	1035	10	MSECVLGQSK 0.000211	22
HLA-B*35:01	1	1046	1054	9	LMSFPQSAP 0.000211	19
HLA-B*57:01	1	1084	1093	10	AHFPREGVFV 0.000211	37
HLA-B*57:01	1	1089	1098	10	EGVFVSNPTH 0.000211	37
HLA-A*01:01	1	1100	1109	10	FVTQRNFYEP 0.000211	35
HLA-A*01:01	1	1152	1161	10	YFKNHTSPDV 0.000211	35
HLA-B*35:01	1	1153	1161	9	FKNHTSPDV 0.000211	19
HLA-B*58:01	1	1198	1207	10	QELGKYEQYI 0.000211	27
HLA-A*03:01	1	144	152	9	YYHKNNKSW 0.000211	22
HLA-A*26:01	1	250	258	9	DSSSGWTAG 0.000211	22
HLA-A*68:02	1	262	271	10	YYVGYLQPR 0.000211	29
HLA-A*30:01	1	276	285	10	YNENGTITDA 0.000211	47
HLA-A*30:02	1	284	293	10	DAVDCALDPL 0.000211	45
HLA-B*40:01	1	340	348	9	NATRFASVY 0.000211	15
HLA-A*01:01	1	356	365	10	SNCVADYSVL 0.000211	35
HLA-A*02:01	1	360	368	9	ADYSVLYNS 0.000211	26



HLA-A*01:01	1	390	399	10	TNVYADSFVI 0.00021	35
HLA-A*02:06	1	398	406	9	VIRGDEVQR 0.00021	35
HLA-A*01:01	1	488	496	9	PLQSYGFQP 0.00021	35
HLA-B*57:01	1	712	720	9	PTNFTISVT 0.00021	37
HLA-B*15:01	1	725	733	9	PVSMKTTSV 0.00021	26
HLA-A*26:01	1	801	809	9	QILPDPSKP 0.00021	22
HLA-B*53:01	1	865	873	9	EMIAQY TSA 0.00021	18
HLA-B*08:01	1	879	887	9	ITSGWTFGA 0.00021	37
HLA-A*11:01	1	881	889	9	SGWTFGAGA 0.00021	17
HLA-A*01:01	1	887	896	10	AGAALQIPFA 0.00021	35
HLA-A*31:01	1	891	900	10	LQIPFAMQMA 0.00021	28
HLA-B*15:01	1	914	923	10	YENQKLIANQ 0.00021	26
HLA-A*26:01	1	959	968	10	LVKQLSSNFG 0.00021	22
HLA-B*08:01	1	1003	1011	9	TYVTQLLIR 0.00021	37
HLA-A*32:01	1	1026	1035	10	MSECVLGQSK 0.00021	20
HLA-B*53:01	1	1029	1037	9	CVLGQSKRV 0.00021	18
HLA-A*31:01	1	1038	1047	10	DFCGKGYHLM 0.00021	28
HLA-B*58:01	1	1056	1065	10	GVVFLHVTYV 0.00021	27
HLA-B*51:01	1	1060	1068	9	LHVTVVPAQ 0.00021	33
HLA-B*35:01	1	1068	1076	9	QEKNF T TAP 0.00021	19
HLA-B*51:01	1	1076	1084	9	PAICH DGKA 0.00021	33
HLA-B*57:01	1	1121	1130	10	GNC DVVIGIV 0.00021	37
HLA-B*40:01	1	1127	1135	9	IGIVNNTVY 0.00021	15
HLA-A*24:02	1	1168	1176	9	GINASVVNI 0.00021	15
HLA-A*02:06	1	1233	1241	9	CMTSCC SCL 0.00021	35
HLA-A*02:06	1	1260	1269	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*01:01	1	238	247	10	FQTLHRSYLT 0.000209	35
HLA-A*24:02	1	255	263	9	WTAGAAAYY 0.000209	15
HLA-B*57:01	1	256	265	10	TAGAAAYYVG 0.000209	37
HLA-A*68:02	1	274	282	9	LKYNENGTI 0.000209	29
HLA-A*01:01	1	333	341	9	CPFGEVFNA 0.000209	35
HLA-B*58:01	1	333	341	9	CPFGEVFNA 0.000209	27
HLA-B*15:01	1	368	376	9	SASFSTFKC 0.000209	27
HLA-A*31:01	1	371	379	9	FSTFKCYGV 0.000209	28
HLA-A*68:02	1	440	448	9	SKVGGNYNY 0.000209	29
HLA-B*07:02	1	497	505	9	TYGVGYQPY 0.000209	24
HLA-A*30:02	1	514	523	10	LLHAPATVCG 0.000209	45
HLA-A*68:02	1	521	530	10	VCGPKKSTNL 0.000209	29
HLA-A*68:01	1	526	535	10	KSTNLVKNKC 0.000209	25
HLA-A*30:01	1	542	551	10	GLTGTGVLTE 0.000209	48
HLA-B*07:02	1	586	594	9	PCSF GGVS V 0.000209	24
HLA-B*07:02	1	588	596	9	SFGGVS VIT 0.000209	24
HLA-B*07:02	1	611	619	9	GVNCTEVPV 0.000209	24
HLA-B*15:01	1	613	622	10	NCTEVPVAIH 0.000209	27
HLA-B*08:01	1	721	730	10	TEILPVSMTK 0.000209	37
HLA-B*57:01	1	784	793	10	QIYKTPPIKD 0.000209	37
HLA-B*07:02	1	794	803	10	FGGFNF SQIL 0.000209	24
HLA-A*01:01	1	901	910	10	YRFNGIGVTQ 0.000209	35
HLA-A*32:01	1	901	909	9	YRFNGIGVT 0.000209	20
HLA-A*02:01	1	902	910	9	RFNGIGVTQ 0.000209	26
HLA-A*26:01	1	969	978	10	AISSVLNDIL 0.000209	22
HLA-B*15:01	1	1010	1019	10	IRAAEIRASA 0.000209	27
HLA-A*01:01	1	1016	1024	9	RASANLAAT 0.000209	35
HLA-B*15:01	1	1022	1030	9	AATKMSECV 0.000209	27
HLA-B*51:01	1	1061	1069	9	HVTYVPAQE 0.000209	33
HLA-A*30:02	1	1094	1103	10	SNGTHWFVTQ 0.000209	45
HLA-B*53:01	1	1117	1125	9	TFVSGNCDV 0.000209	18
HLA-A*24:02	1	1157	1166	10	TSPD VDLGDI 0.000209	15
HLA-A*30:02	1	1220	1229	10	GLIAIVMVTI 0.000209	45
HLA-B*57:01	1	1227	1235	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*33:01	1	74	83	10	NGTKRFANPV 0.000208	27
HLA-A*30:02	1	81	90	10	NPVLPFNDGV 0.000208	45
HLA-B*44:03	1	83	91	9	VLPFNDGVY 0.000208	16
HLA-B*15:01	1	101	110	10	IRGWIFGTTL 0.000208	27
HLA-A*01:01	1	112	120	9	SKTQSLIV 0.000208	35
HLA-B*44:02	1	124	133	10	TNVVIKVFCE 0.000208	17
HLA-A*30:02	1	146	155	10	HKNKSWMES 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	280	289	10	GTITDAVDCA 0.000208	25
HLA-B*07:02	1	289	298	10	ALDPLSETKC 0.000208	24
HLA-A*01:01	1	321	330	10	ESIVRFPNIT 0.000208	35
HLA-B*07:02	1	365	373	9	LYNSASFST 0.000208	24
HLA-B*57:01	1	434	443	10	NSNNLDSKVG 0.000208	37
HLA-A*24:02	1	468	477	10	EIYQAGSTPC 0.000208	16
HLA-A*02:06	1	469	477	9	IYQAGSTPC 0.000208	35
HLA-A*30:01	1	514	523	10	LLHAPATVCG 0.000208	48
HLA-A*68:01	1	564	573	10	RDIADTTDAV 0.000208	25
HLA-A*01:01	1	627	635	9	TPTWRVYST 0.000208	35
HLA-B*51:01	1	716	725	10	TISVTTEILP 0.000208	33
HLA-B*53:01	1	722	731	10	EILPVSMTKT 0.000208	18
HLA-B*35:01	1	778	787	10	VFAQVKQIYK 0.000208	19
HLA-B*58:01	1	907	916	10	GVTQNVLYEN 0.000208	27
HLA-A*02:01	1	932	941	10	QDLSSTASA 0.000208	26
HLA-B*08:01	1	932	941	10	QDLSSTASA 0.000208	37
HLA-A*02:06	1	948	957	10	VVNQNAQALN 0.000208	35
HLA-A*24:02	1	988	996	9	VQIDRLITG 0.000208	16
HLA-B*44:02	1	1006	1014	9	TQQLIRAAE 0.000208	17
HLA-B*35:01	1	1017	1025	9	ASANLAATK 0.000208	19
HLA-A*32:01	1	1102	1110	9	TORNFYEPQ 0.000208	20
HLA-A*03:01	1	1145	1154	10	FKEELDKYFK 0.000208	22
HLA-A*33:01	1	1155	1163	9	NHTSPDVDL 0.000208	27
HLA-B*07:02	1	1160	1169	10	DVDLGDISGI 0.000208	24
HLA-B*08:01	1	1162	1171	10	DLGDISGINA 0.000208	37
HLA-B*44:03	1	1208	1217	10	KWPWYIWLGF 0.000208	16
HLA-A*03:01	1	1225	1233	9	VMVTIMLCC 0.000208	22
HLA-B*58:01	1	1260	1268	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	NVVIKVFCE 0.000207	28
HLA-B*08:01	1	150	159	10	KSWMESEFRV 0.000207	37
HLA-A*31:01	1	168	176	9	FEYVSQPFL 0.000207	28
HLA-B*08:01	1	332	341	10	LCPFGEVFN 0.000207	37
HLA-A*02:01	1	342	350	9	TRFASVYAW 0.000207	26
HLA-A*02:03	1	362	370	9	YSVLYNSAS 0.000207	29
HLA-B*40:01	1	379	387	9	VSPTKLNDL 0.000207	15
HLA-A*01:01	1	405	413	9	RQIAPGQTG 0.000207	35
HLA-A*26:01	1	433	441	9	WNSNNLDSK 0.000207	22
HLA-B*58:01	1	492	501	10	YGFQPTYGVG 0.000207	27
HLA-A*68:01	1	502	511	10	YQPYRVVLS 0.000207	25
HLA-A*68:02	1	542	550	9	GLTGTGVLT 0.000207	29
HLA-A*02:06	1	555	564	10	KFLPFQQFGR 0.000207	35
HLA-B*44:03	1	572	580	9	AVRDPQTLE 0.000207	16
HLA-B*15:01	1	688	697	10	SIAYTMSLG 0.000207	27
HLA-A*23:01	1	714	722	9	NFTISVTTE 0.000207	16

HLA-B*08:01	1	773	782	10	KNTQEVFAQV 0.000207	37
HLA-A*30:02	1	829	837	9	GFIKQYGDC 0.000207	45
HLA-A*30:01	1	917	926	10	QKLIANQFNS 0.000207	48
HLA-A*33:01	1	937	946	10	STASALGKLQ 0.000207	27
HLA-A*32:01	1	945	953	9	LQDVVNQNA 0.000207	20
HLA-B*51:01	1	963	971	9	LSSNFGAIS 0.000207	33
HLA-A*68:02	1	1020	1028	9	NLAATKMSE 0.000207	29
HLA-A*33:01	1	1056	1065	10	GVVFLHVTVYV 0.000207	27
HLA-A*01:01	1	1065	1074	10	VPAQEKNFIT 0.000207	35
HLA-B*58:01	1	1072	1081	10	FTTAPAICHHD 0.000207	27
HLA-A*33:01	1	1080	1089	10	HDGKAHFPRE 0.000207	27
HLA-B*57:01	1	1095	1103	9	NGTHWFVTQ 0.000207	37
HLA-B*08:01	1	1136	1144	9	DPLQPELDS 0.000207	37
HLA-B*07:02	1	1166	1174	9	ISGINASVV 0.000207	24
HLA-B*58:01	1	1182	1191	10	RLNEVAKNLN 0.000207	27
HLA-A*68:01	1	1212	1221	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*33:01	1	92	100	9	FASTEKSNP 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-B*15:01	1	238	247	10	FQTLHRSYLT 0.000206	27
HLA-A*30:02	1	242	251	10	HRSYLTGPGDS 0.000206	45
HLA-B*08:01	1	272	280	9	FLLKYNENG 0.000206	37
HLA-B*57:01	1	293	302	10	LSETKCTLKS 0.000206	37
HLA-B*53:01	1	299	307	9	TLKSFTVEK 0.000206	18
HLA-B*08:01	1	323	331	9	IVRFPNITN 0.000206	37
HLA-B*58:01	1	358	367	10	CVADYSVLYN 0.000206	27
HLA-B*40:01	1	397	405	9	FVIRGDEVR 0.000206	15
HLA-A*24:02	1	441	450	10	KVGGNYNYLY 0.000206	16
HLA-A*30:02	1	480	489	10	VKGFNCYFPL 0.000206	45
HLA-B*44:02	1	506	514	9	RVVLSFEL 0.000206	17
HLA-A*32:01	1	671	680	10	YQTQTNSPRR 0.000206	20
HLA-B*07:02	1	760	768	9	LNRAITGIA 0.000206	24
HLA-A*68:02	1	786	795	10	YKTPPIKDFG 0.000206	29
HLA-A*11:01	1	851	859	9	KFNGLTVLP 0.000206	17
HLA-B*08:01	1	855	863	9	LTVLPPLLT 0.000206	37
HLA-A*30:01	1	924	932	9	FNSAIGKIQ 0.000206	48
HLA-A*26:01	1	951	960	10	QNAQALNTLV 0.000206	22
HLA-B*53:01	1	969	977	9	AISSVLNDI 0.000206	18
HLA-A*03:01	1	1053	1062	10	APHGVVFLHV 0.000206	22
HLA-B*57:01	1	1078	1087	10	ICHGKAHF 0.000206	37
HLA-A*32:01	1	1084	1093	10	AHFPRGVFV 0.000206	20
HLA-B*15:01	1	1111	1119	9	IITDNTFV 0.000206	27
HLA-B*57:01	1	1164	1173	10	GDISGINASV 0.000206	37
HLA-B*15:01	1	1168	1177	10	GINASVVNIQ 0.000206	27
HLA-A*68:01	1	1200	1209	10	LGKYEYIKW 0.000206	25
HLA-A*24:02	1	1203	1212	10	YEYIKWPWY 0.000206	16
HLA-B*44:03	1	1207	1215	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	SFTRGVVYP 0.000205	26
HLA-A*01:01	1	39	47	9	PDVFRSSV 0.000205	35
HLA-A*31:01	1	210	218	9	INLVRGLPQ 0.000205	28
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	293	302	10	LSETKCTLKS 0.000205	28
HLA-A*33:01	1	310	318	9	YQTSNFRVQ 0.000205	27
HLA-A*24:02	1	316	325	10	RVQPTESIVR 0.000205	16
HLA-A*01:01	1	363	372	10	SVLYNSASF 0.000205	35
HLA-B*07:02	1	381	389	9	PTKLNDFCF 0.000205	24
HLA-B*44:03	1	408	416	9	APGQTGNIA 0.000205	16
HLA-A*31:01	1	418	426	9	YNYKLPDDF 0.000205	28
HLA-A*26:01	1	421	429	9	KLPDDFTGC 0.000205	22
HLA-B*51:01	1	450	459	10	YRLFRKSNLK 0.000205	33

HLA-B*40:01	1	541	549	9	NGLTGTGVL 0.000205	15
HLA-A*32:01	1	570	579	10	TDAVRDPQTL 0.000205	20
HLA-B*51:01	1	682	691	10	RSVASQSIIA 0.000205	33
HLA-B*35:01	1	745	754	10	ECSNLLLLQYG 0.000205	19
HLA-A*68:02	1	780	789	10	AQVKQIYKTP 0.000205	29
HLA-B*51:01	1	821	830	10	NKVTLADAGF 0.000205	33
HLA-A*02:01	1	825	833	9	LADAGFIKQ 0.000205	26
HLA-A*02:01	1	868	877	10	AQYTSALLAG 0.000205	26
HLA-A*01:01	1	872	880	9	SALLAGTIT 0.000205	35
HLA-A*01:01	1	889	898	10	AALQIPFAMQ 0.000205	35
HLA-B*07:02	1	900	909	10	AYRFNGIGVT 0.000205	24
HLA-A*32:01	1	933	942	10	DSLSSTASAL 0.000205	20
HLA-A*32:01	1	1003	1011	9	TYVTQQLIR 0.000205	20
HLA-B*08:01	1	1046	1055	10	LMSFPQSAPH 0.000205	37
HLA-A*03:01	1	1097	1106	10	THWFVTQRNF 0.000205	22
HLA-A*32:01	1	1104	1113	10	RNFYEQIIT 0.000205	20
HLA-A*30:02	1	1157	1166	10	TSPDVDLGGDI 0.000205	45
HLA-B*53:01	1	1165	1174	10	DISGINASVV 0.000205	18
HLA-A*30:01	1	1179	1187	9	EIDRLNEVA 0.000205	48
HLA-A*11:01	1	1206	1214	9	YIKWPWYIW 0.000205	17
HLA-A*02:01	1	1227	1235	9	VTIMLCCMT 0.000205	26
HLA-B*40:01	1	1256	1265	10	DDSEPVLKGV 0.000205	15
HLA-A*01:01	1	4	12	9	FLVLLPLVS 0.000204	36
HLA-A*11:01	1	123	132	10	ATNVVIVKCE 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-B*44:03	1	247	256	10	TPGDSSSGWT 0.000204	16
HLA-A*31:01	1	373	381	9	TFKCYGVSP 0.000204	28
HLA-A*03:01	1	406	414	9	QIAPGQTGN 0.000204	22
HLA-B*51:01	1	446	454	9	YNYLYRFR 0.000204	33
HLA-B*57:01	1	464	472	9	DISTEIYQA 0.000204	37
HLA-A*01:01	1	465	473	9	ISTEIYQAG 0.000204	36
HLA-A*26:01	1	501	509	9	GYQPYRVVV 0.000204	22
HLA-A*01:01	1	522	531	10	CGPKKSTNLV 0.000204	36
HLA-B*53:01	1	523	532	10	GPKKSTNLVK 0.000204	18
HLA-A*68:01	1	544	552	9	TGTGVLTES 0.000204	25
HLA-B*15:01	1	613	621	9	NCTEVPVAI 0.000204	27
HLA-A*33:01	1	649	657	9	GAEHVNNSY 0.000204	27
HLA-A*02:06	1	670	678	9	SYQTQTNSP 0.000204	35
HLA-B*07:02	1	693	702	10	TMSLGVENS 0.000204	24
HLA-B*44:02	1	714	723	10	NFTISVTTEI 0.000204	17
HLA-B*35:01	1	719	727	9	VTEILPVS 0.000204	19
HLA-A*30:02	1	749	757	9	LLLQYGSFC 0.000204	45
HLA-B*08:01	1	775	783	9	TQEVFAQVK 0.000204	37
HLA-B*53:01	1	783	791	9	KQIYKTPPI 0.000204	18
HLA-A*30:01	1	827	835	9	DAGFIKQYG 0.000204	48
HLA-B*57:01	1	873	881	9	ALLAGTITS 0.000204	37
HLA-B*15:01	1	889	898	10	AALQIPFAMQ 0.000204	27
HLA-B*08:01	1	890	898	9	ALQIPFAMQ 0.000204	37
HLA-A*31:01	1	892	900	9	QIPFAMQMA 0.000204	28
HLA-A*11:01	1	938	946	9	TASALGKLQ 0.000204	17
HLA-A*03:01	1	961	970	10	KQLSSNFGAI 0.000204	22
HLA-B*15:01	1	1014	1023	10	EIRASANLAA 0.000204	27
HLA-A*02:06	1	1035	1044	10	KRVDFCGKGY 0.000204	35
HLA-B*51:01	1	1045	1054	10	HLMSFPQSAP 0.000204	33
HLA-B*08:01	1	1161	1169	9	VDLGDISGI 0.000204	37
HLA-A*26:01	1	1194	1202	9	LIDLQELGK 0.000204	22
HLA-A*02:01	1	16	25	10	VNLTRRTQLP 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-B*51:01	1	79	88	10	FANPVLPFND 0.000203	33
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	259	267	9	AAAYYVGYL 0.000203	16
HLA-A*68:01	1	301	309	9	KSFTVEKGI 0.000203	25
HLA-A*02:06	1	335	344	10	FGEVFNATRF 0.000203	35
HLA-B*07:02	1	368	377	10	SASFSTFKCY 0.000203	24
HLA-A*68:02	1	376	384	9	CYGVSPTKL 0.000203	29
HLA-B*15:01	1	406	414	9	QIAPGQTGN 0.000203	27
HLA-A*02:03	1	452	460	9	LFRKSNLKP 0.000203	29
HLA-A*02:03	1	461	470	10	FERDISTEY 0.000203	29
HLA-A*11:01	1	464	472	9	DISTEYQA 0.000203	17
HLA-A*30:02	1	468	477	10	EIYQAGSTPC 0.000203	45
HLA-A*68:02	1	489	497	9	LQSYGFQPT 0.000203	29
HLA-B*51:01	1	547	556	10	GVLTESNKKF 0.000203	33
HLA-B*57:01	1	562	570	9	FGRDIADTT 0.000203	37
HLA-B*44:02	1	564	573	10	RDIADTTDAV 0.000203	17
HLA-A*30:01	1	610	619	10	QGVNCTEVPV 0.000203	48
HLA-A*30:02	1	643	651	9	RAGCLIGAE 0.000203	45
HLA-B*51:01	1	655	664	10	NSYECDPIG 0.000203	33
HLA-B*35:01	1	658	667	10	ECDIPIGAGI 0.000203	19
HLA-A*30:02	1	746	754	9	CSNLLLQYG 0.000203	45
HLA-B*51:01	1	751	759	9	LQYGSFCTQ 0.000203	33
HLA-B*15:01	1	892	900	9	QIPFAMQMA 0.000203	27
HLA-A*26:01	1	902	910	9	RFNGIGVTQ 0.000203	22
HLA-A*26:01	1	910	918	9	QNVLYENQK 0.000203	22
HLA-A*30:02	1	914	922	9	YENQKLIAN 0.000203	45
HLA-A*11:01	1	916	924	9	NQKLIANQF 0.000203	17
HLA-A*03:01	1	955	964	10	ALNTLVKQLS 0.000203	22
HLA-B*53:01	1	997	1005	9	RLQSLQTYV 0.000203	18
HLA-B*15:01	1	1005	1014	10	VTQQLIRAAE 0.000203	27
HLA-A*68:02	1	1027	1035	9	SECVLGQSK 0.000203	29
HLA-B*08:01	1	1040	1048	9	CGKGYHLMS 0.000203	37
HLA-A*33:01	1	1063	1071	9	TYVPAQEK 0.000203	27
HLA-A*32:01	1	1085	1093	9	HFPREGVVF 0.000203	20
HLA-B*08:01	1	1100	1109	10	FVTQRNFYEP 0.000203	37
HLA-B*44:03	1	1102	1111	10	TQRNFYEQI 0.000203	16
HLA-A*02:01	1	1119	1127	9	VSGNCDVVI 0.000203	26
HLA-A*11:01	1	1141	1149	9	ELDSFKEEL 0.000203	17
HLA-B*58:01	1	1154	1163	10	KNHTSPDVLD 0.000203	28
HLA-B*44:03	1	1175	1183	9	NIQKEIDRL 0.000203	16
HLA-A*24:02	1	1181	1190	10	DRLNEVAKNL 0.000203	16
HLA-A*01:01	1	1215	1223	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*02:06	1	234	242	9	NITRFQTLH 0.000202	35
HLA-A*02:03	1	300	309	10	LKSFTVEKGI 0.000202	29
HLA-B*07:02	1	360	369	10	ADYSVLYNSA 0.000202	24
HLA-A*68:02	1	380	389	10	SPTKLNDLCF 0.000202	29
HLA-B*51:01	1	405	413	9	RQIAPGQTG 0.000202	34
HLA-A*01:01	1	406	414	9	QIAPGQTGN 0.000202	36
HLA-A*68:02	1	462	470	9	ERDISTEY 0.000202	29
HLA-B*51:01	1	467	475	9	TEIYQAGST 0.000202	34
HLA-A*30:01	1	475	483	9	TPCNGVKGF 0.000202	48
HLA-A*02:06	1	478	487	10	NGVKGFNCYF 0.000202	35
HLA-B*15:01	1	513	522	10	ELLHAPATVC 0.000202	27
HLA-A*01:01	1	539	548	10	NFNGLTGTGV 0.000202	36
HLA-A*68:01	1	595	603	9	ITPGTNTSN 0.000202	25
HLA-A*32:01	1	606	615	10	AVLYQGVNCT 0.000202	20
HLA-B*08:01	1	608	616	9	LYQGVNCTE 0.000202	37
HLA-B*08:01	1	620	628	9	AIHADQLTP 0.000202	37
HLA-A*11:01	1	632	641	10	VYSTGSNVFQ 0.000202	17
HLA-A*02:03	1	639	648	10	VFQTRAGCLI 0.000202	29
HLA-B*58:01	1	675	684	10	TNSPRRARSV 0.000202	28

HLA-A*33:01	1	710	719	10	AIPTNFTISV 0.000202	27
HLA-A*26:01	1	753	762	10	YGSFCTQLNR 0.000202	22
HLA-A*32:01	1	769	778	10	VEQDKNTQEV 0.000202	20
HLA-A*31:01	1	807	815	9	SKPSKRSFI 0.000202	28
HLA-B*53:01	1	842	850	9	AARDLICAQ 0.000202	18
HLA-A*30:01	1	865	874	10	EMIAQYTSAL 0.000202	48
HLA-B*57:01	1	922	931	10	NQFNSAIGKI 0.000202	37
HLA-B*15:01	1	926	934	9	SAIGKIQDS 0.000202	27
HLA-A*01:01	1	962	971	10	QLSSNFGAIS 0.000202	36
HLA-A*01:01	1	1040	1049	10	CGKGYHLMSF 0.000202	36
HLA-A*33:01	1	1104	1113	10	RNFYEPQIIT 0.000202	27
HLA-A*30:02	1	1113	1122	10	TTDNTFVSGN 0.000202	45
HLA-B*44:03	1	1145	1154	10	FKEELDKYFK 0.000202	16
HLA-A*68:02	1	1164	1172	9	GDISGINAS 0.000202	29
HLA-A*23:01	1	1185	1194	10	EVAKNLNESL 0.000202	16
HLA-A*30:02	1	1215	1224	10	LGFIAGLIAI 0.000202	45
HLA-A*32:01	1	1222	1231	10	IAIVMVTIML 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	262	270	9	YYVGYLQPR 0.000201	36
HLA-A*68:02	1	326	335	10	FPNITNLCPF 0.000201	29
HLA-A*02:06	1	361	369	9	DYSVLYNSA 0.000201	35
HLA-B*44:02	1	462	471	10	ERDISTEIQY 0.000201	17
HLA-B*58:01	1	472	480	9	AGSTPCNGV 0.000201	28
HLA-A*03:01	1	510	518	9	LSFELLHAP 0.000201	22
HLA-A*30:01	1	594	603	10	VITPGTNTSN 0.000201	48
HLA-B*08:01	1	598	607	10	GTNTSNQVAV 0.000201	37
HLA-B*15:01	1	599	607	9	TNTSNQVAV 0.000201	27
HLA-B*58:01	1	602	610	9	SNQVAVLYQ 0.000201	28
HLA-A*02:01	1	622	631	10	HADQLTPTWR 0.000201	26
HLA-A*03:01	1	632	641	10	VYSTGSNVFQ 0.000201	22
HLA-B*44:03	1	651	659	9	EHVNNSYEC 0.000201	16
HLA-B*15:01	1	661	669	9	IPIGAGICA 0.000201	27
HLA-A*30:02	1	736	745	10	TMYICGDSTE 0.000201	45
HLA-A*01:01	1	787	796	10	KTPPIKDFGG 0.000201	36
HLA-A*02:06	1	844	852	9	RDLICAQKF 0.000201	35
HLA-B*53:01	1	870	879	10	YTSALLAGTI 0.000201	18
HLA-B*40:01	1	904	912	9	NGIGVTQNV 0.000201	15
HLA-B*08:01	1	934	943	10	SLSSTASALG 0.000201	37
HLA-A*01:01	1	946	955	10	QDVVNQNAQA 0.000201	36
HLA-A*33:01	1	950	959	10	NQNAQALNTL 0.000201	27
HLA-A*30:02	1	975	984	10	NDILSRLDKV 0.000201	45
HLA-B*44:03	1	997	1005	9	RLQSLQTYV 0.000201	16
HLA-B*58:01	1	1032	1040	9	GQSKRVDFC 0.000201	28
HLA-A*02:03	1	1036	1044	9	RVDFCGKGY 0.000201	29
HLA-B*57:01	1	1063	1071	9	TYVPAQEKV 0.000201	37
HLA-A*31:01	1	1130	1138	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*01:01	1	76	84	9	TKRFANPVL 0.0002	36
HLA-A*30:02	1	115	124	10	QSLLIIVNNAT 0.0002	45
HLA-A*11:01	1	127	135	9	VIKVCEFQF 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*33:01	1	238	247	10	FQTLHRSYLT 0.0002	27
HLA-A*30:01	1	274	283	10	LKYNENGTIT 0.0002	48
HLA-B*44:03	1	316	324	9	RVQPTESIV 0.0002	16
HLA-B*44:02	1	323	332	10	IVRFPNITNL 0.0002	17
HLA-A*02:06	1	376	384	9	CYGVSPTKL 0.0002	35

HLA-B*44:02	1	392	400	9	VYADSFVIR 0.0002	17
HLA-A*68:02	1	450	459	10	YRLFRRKSNLK 0.0002	29
HLA-A*03:01	1	485	494	10	CYFPLQSYGF 0.0002	22
HLA-A*03:01	1	580	588	9	EILDITPCS 0.0002	22
HLA-B*15:01	1	581	590	10	ILDITPCSF 0.0002	27
HLA-A*02:03	1	586	594	9	PCSFGGVSV 0.0002	29
HLA-B*08:01	1	635	644	10	TGSNVFQTRA 0.0002	38
HLA-B*07:02	1	640	648	9	FQTRAGCLI 0.0002	24
HLA-A*26:01	1	656	665	10	SYECDPIGA 0.0002	22
HLA-B*35:01	1	676	684	9	NSPRRARSV 0.0002	19
HLA-A*68:01	1	679	687	9	RRARSVASQ 0.0002	26
HLA-B*40:01	1	722	730	9	EILPVSMTK 0.0002	15
HLA-A*23:01	1	730	738	9	KTSVDCTMY 0.0002	16
HLA-A*68:01	1	737	745	9	MYICGDSTE 0.0002	26
HLA-B*07:02	1	747	756	10	SNLLLQYGSF 0.0002	24
HLA-A*68:02	1	748	756	9	NLLLQYGSF 0.0002	29
HLA-A*30:01	1	775	784	10	TQEVFAQVKQ 0.0002	48
HLA-B*35:01	1	775	783	9	TQEVFAQVK 0.0002	19
HLA-B*08:01	1	824	832	9	TLADAGFIK 0.0002	38
HLA-B*51:01	1	863	871	9	TDEMIAQYT 0.0002	34
HLA-A*01:01	1	874	882	9	LLAGTITSG 0.0002	36
HLA-A*24:02	1	912	921	10	VLYENQKLIA 0.0002	16
HLA-A*26:01	1	921	930	10	ANQFNSAIGK 0.0002	22
HLA-B*58:01	1	956	965	10	LNTLVKQLSS 0.0002	28
HLA-B*40:01	1	975	984	10	NDILSRDKV 0.0002	15
HLA-A*68:01	1	979	987	9	SRLDKVEAE 0.0002	26
HLA-A*26:01	1	1003	1012	10	TYVTQQLIRA 0.0002	22
HLA-A*30:01	1	1065	1073	9	VPAQEKNT 0.0002	48
HLA-A*31:01	1	1137	1145	9	PLQPELDSF 0.0002	28
HLA-B*40:01	1	1193	1201	9	SLIDLQELG 0.0002	15
HLA-A*11:01	1	1244	1252	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	IVN NATN VVI 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-B*58:01	1	206	215	10	KHTPINLVRG 0.000199	28
HLA-A*68:02	1	236	245	10	TRFQTLHRSY 0.000199	29
HLA-B*51:01	1	245	253	9	YLTPGDSSS 0.000199	34
HLA-A*02:01	1	246	255	10	LTPGDSSSGW 0.000199	27
HLA-A*11:01	1	263	272	10	YVGYLQPRTF 0.000199	17
HLA-A*02:03	1	307	316	10	KGIYQTSNFR 0.000199	29
HLA-A*68:02	1	319	327	9	PTESIVRFP 0.000199	29
HLA-A*26:01	1	322	330	9	SIVRFPNIT 0.000199	22
HLA-A*11:01	1	323	331	9	IVRFPNITN 0.000199	17
HLA-B*15:01	1	325	333	9	RFPNITNLC 0.000199	27
HLA-A*24:02	1	353	362	10	KRISNCVADY 0.000199	16
HLA-B*44:02	1	459	467	9	KPFERDIST 0.000199	17
HLA-B*58:01	1	499	508	10	GVGYQPYRVV 0.000199	28
HLA-A*68:02	1	632	640	9	VYSTGSNVF 0.000199	29
HLA-A*30:01	1	757	766	10	CTQLNRALTG 0.000199	48
HLA-A*11:01	1	792	800	9	KDFGGFNFS 0.000199	17
HLA-B*35:01	1	827	835	9	DAGFIKQYG 0.000199	19
HLA-B*58:01	1	828	837	10	AGFIKQYGDC 0.000199	28
HLA-B*44:03	1	854	862	9	GLTVLPPLL 0.000199	16
HLA-B*44:03	1	916	925	10	NQKLIANQFN 0.000199	16
HLA-A*24:02	1	922	930	9	NQFNSAIGK 0.000199	16
HLA-A*02:06	1	936	944	9	SSTASALGK 0.000199	35
HLA-A*23:01	1	940	948	9	SALGKLQDV 0.000199	16
HLA-A*31:01	1	952	960	9	NAQALNTLV 0.000199	28
HLA-A*68:01	1	1009	1017	9	LIRAAEIRA 0.000199	26
HLA-A*01:01	1	1013	1022	10	AEIRASANLA 0.000199	36
HLA-A*30:02	1	1068	1077	10	QEKNF TTAPA 0.000199	46
HLA-A*02:06	1	1152	1161	10	YFKNHTSPDV 0.000199	35
HLA-A*30:02	1	1158	1166	9	SPDVLDGDI 0.000199	46

HLA-B*44:02	1	1171	1180	10	ASVVNIQKEI 0.000199	17
HLA-A*68:02	1	1212	1220	9	YIWLGFIAI 0.000199	29
HLA-B*57:01	1	1225	1233	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	IHVSGTNGTK 0.000198	21
HLA-A*30:01	1	117	126	10	LLIVNNATNV 0.000198	48
HLA-B*58:01	1	120	129	10	VNMATNVVVIK 0.000198	28
HLA-B*58:01	1	163	171	9	ANNCTFEYV 0.000198	28
HLA-B*53:01	1	277	286	10	NENGTITDAV 0.000198	18
HLA-B*35:01	1	278	286	9	ENGTITDAV 0.000198	19
HLA-B*40:01	1	291	300	10	DPLSETKCTL 0.000198	15
HLA-B*57:01	1	333	341	9	CPFGEVFNA 0.000198	37
HLA-A*26:01	1	344	353	10	FASVYAWNRK 0.000198	23
HLA-B*53:01	1	361	369	9	DYSVLYNSA 0.000198	18
HLA-B*44:03	1	391	399	9	NVYADSFVI 0.000198	16
HLA-A*01:01	1	400	409	10	RGDEVQRQIAP 0.000198	36
HLA-A*33:01	1	403	412	10	EVRQIAPGQT 0.000198	27
HLA-B*53:01	1	403	411	9	EVRQIAPGQ 0.000198	18
HLA-B*44:03	1	506	514	9	RVVLSFEL 0.000198	16
HLA-B*58:01	1	567	576	10	ADTTDAVRDP 0.000198	28
HLA-B*53:01	1	616	625	10	EVPVAIHADQ 0.000198	18
HLA-A*01:01	1	639	647	9	VFQTRAGCL 0.000198	36
HLA-A*01:01	1	693	701	9	TMSLGVENS 0.000198	36
HLA-B*57:01	1	705	714	10	SNNSIAIPTN 0.000198	37
HLA-A*68:01	1	745	754	10	ECSNLLLQYG 0.000198	26
HLA-B*58:01	1	746	755	10	CSNLLLQYGS 0.000198	28
HLA-B*58:01	1	753	761	9	YGSFCTQLN 0.000198	28
HLA-A*02:01	1	761	769	9	NRALTGIAV 0.000198	27
HLA-A*03:01	1	795	803	9	GGFNFSQIL 0.000198	22
HLA-A*26:01	1	835	844	10	GDCLGDIAAR 0.000198	23
HLA-B*35:01	1	881	889	9	SGWTFGAGA 0.000198	19
HLA-A*03:01	1	891	900	10	LQIPFAMQMA 0.000198	22
HLA-B*08:01	1	898	907	10	QMAYRFNGIG 0.000198	38
HLA-B*57:01	1	900	908	9	AYRFNGIGV 0.000198	37
HLA-A*33:01	1	920	928	9	IANQFNSAI 0.000198	27
HLA-B*58:01	1	925	934	10	NSAIGKIQDS 0.000198	28
HLA-A*11:01	1	944	953	10	KLQDVVNQNA 0.000198	17
HLA-B*44:02	1	969	977	9	AISSVLNDI 0.000198	17
HLA-B*53:01	1	1007	1015	9	QQLIRAAEI 0.000198	18
HLA-B*15:01	1	1019	1028	10	ANLAATKMSE 0.000198	27
HLA-B*15:01	1	1038	1047	10	DFCGKGYHLM 0.000198	27
HLA-A*02:03	1	1052	1061	10	SAPHGVVFLH 0.000198	29
HLA-A*33:01	1	1070	1078	9	KNFTTAPAI 0.000198	27
HLA-A*68:02	1	1071	1079	9	NFTTAPAIC 0.000198	29
HLA-B*35:01	1	1083	1091	9	KAHFPREGV 0.000198	19
HLA-A*24:02	1	1102	1111	10	TQRNFYEPQI 0.000198	16
HLA-A*02:03	1	1163	1171	9	LGDISGINA 0.000198	29
HLA-B*51:01	1	1178	1187	10	KEIDRLNEVA 0.000198	34
HLA-B*40:01	1	1222	1230	9	IAIVMTIM 0.000198	15
HLA-B*07:02	1	1224	1232	9	IVMTIMLC 0.000198	24
HLA-A*02:01	1	1228	1237	10	TIMLCCMTSC 0.000198	27
HLA-A*01:01	1	1251	1260	10	CKFEDDSEP 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	VIKVCEFQFC 0.000197	29
HLA-B*53:01	1	226	234	9	LVDLPIGIN 0.000197	18
HLA-A*30:02	1	277	286	10	NENGTITDAV 0.000197	46
HLA-B*08:01	1	293	301	9	LSETKCTLK 0.000197	38
HLA-A*30:02	1	300	309	10	LKSFTVEKGI 0.000197	46



HLA-B*08:01	1	302	311	10	SFTVEKGIYQ 0.000197	38
HLA-A*68:02	1	313	322	10	SNFRVQPTES 0.000197	29
HLA-A*32:01	1	329	338	10	ITNLCPFGEV 0.000197	21
HLA-A*30:01	1	330	339	10	TNLCPFGEVF 0.000197	48
HLA-A*33:01	1	336	345	10	GEVFNATRFA 0.000197	27
HLA-B*15:01	1	352	360	9	RKRISNCVA 0.000197	27
HLA-A*33:01	1	373	382	10	TFKCYGVSPT 0.000197	27
HLA-B*44:03	1	375	384	10	KCYGVSPTKL 0.000197	16
HLA-A*02:03	1	384	392	9	LNDLCFTNV 0.000197	29
HLA-A*26:01	1	396	404	9	SFVIRGDEV 0.000197	23
HLA-B*35:01	1	424	432	9	DDFTGCVIA 0.000197	19
HLA-A*02:03	1	446	454	9	YNYLYRLEFR 0.000197	29
HLA-A*30:01	1	468	477	10	EIYQAGSTPC 0.000197	48
HLA-A*33:01	1	490	499	10	QSYGFQPTYG 0.000197	27
HLA-A*30:01	1	567	576	10	ADTTDAVRDP 0.000197	48
HLA-A*26:01	1	623	632	10	ADQLTPTWRV 0.000197	23
HLA-A*02:01	1	635	643	9	TGSNVFQTR 0.000197	27
HLA-B*58:01	1	654	663	10	NNSYECDIPI 0.000197	28
HLA-B*08:01	1	673	682	10	TQTNSPRRAR 0.000197	38
HLA-A*30:01	1	678	687	10	PRRARSVASQ 0.000197	48
HLA-B*40:01	1	743	752	10	STECNLLLLQ 0.000197	15
HLA-A*03:01	1	815	823	9	IEDLLFNKV 0.000197	22
HLA-A*02:06	1	840	848	9	DIAARDLIC 0.000197	36
HLA-A*32:01	1	867	876	10	IAQYTSALLA 0.000197	21
HLA-A*03:01	1	900	908	9	AYRFNGIGV 0.000197	22
HLA-A*68:01	1	914	923	10	YENQKLIANQ 0.000197	26
HLA-B*51:01	1	976	985	10	DILSRLDKVE 0.000197	34
HLA-B*57:01	1	1013	1022	10	AEIRASANLA 0.000197	38
HLA-A*32:01	1	1047	1056	10	MSFPQSAPHG 0.000197	21
HLA-B*53:01	1	1105	1113	9	NFYEQIIT 0.000197	18
HLA-A*32:01	1	1214	1222	9	WLGFIAGLI 0.000197	21
HLA-B*07:02	1	1226	1234	9	MVTIMLCCM 0.000197	24
HLA-A*32:01	1	89	98	10	GYYFASTEKS 0.000196	21
HLA-A*30:01	1	115	124	10	QSLLVNAT 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-B*07:02	1	254	262	9	GWTAGAAAY 0.000196	24
HLA-B*44:02	1	257	266	10	AGAAAYVGY 0.000196	17
HLA-B*08:01	1	276	285	10	YNENGTITDA 0.000196	38
HLA-B*53:01	1	284	292	9	DAVDCALDP 0.000196	18
HLA-A*33:01	1	393	401	9	YADSFVIRG 0.000196	27
HLA-A*26:01	1	448	456	9	YLYRLEFRKS 0.000196	23
HLA-B*40:01	1	463	471	9	RDISTEIQ 0.000196	15
HLA-B*44:02	1	500	508	9	VGYPYRVV 0.000196	17
HLA-B*58:01	1	552	560	9	SNKKFLPFQ 0.000196	28
HLA-A*31:01	1	553	562	10	NKKFLPFQF 0.000196	28
HLA-A*23:01	1	588	597	10	SFGGVSIVTP 0.000196	16
HLA-A*68:01	1	596	604	9	TPGTNTSNQ 0.000196	26
HLA-B*07:02	1	634	643	10	STGSNVFQTR 0.000196	24
HLA-A*02:01	1	648	656	9	IGAHEVNNS 0.000196	27
HLA-A*31:01	1	679	688	10	RRARSVASQS 0.000196	28
HLA-B*58:01	1	710	719	10	AIPTNFTISV 0.000196	28
HLA-A*68:01	1	721	729	9	TEILPVSM 0.000196	26
HLA-A*02:01	1	728	737	10	MTKTSVDCTM 0.000196	27
HLA-A*33:01	1	742	751	10	DSTECNLLLL 0.000196	27
HLA-B*40:01	1	752	760	9	QYGSFCTQL 0.000196	15
HLA-B*15:01	1	781	790	10	QVKQIYKTPP 0.000196	27
HLA-B*40:01	1	805	814	10	DPSKPSKRSF 0.000196	15
HLA-B*51:01	1	822	831	10	KVTLADAGFI 0.000196	34
HLA-A*01:01	1	846	855	10	LICAQKFNGL 0.000196	36
HLA-B*44:02	1	865	873	9	EMIAQY TSA 0.000196	17
HLA-B*40:01	1	897	906	10	MQMAYRFNGI 0.000196	15
HLA-B*40:01	1	923	931	9	QFN SAIGKI 0.000196	15
HLA-A*30:02	1	956	965	10	LNTLVKQLSS 0.000196	46
HLA-A*11:01	1	980	989	10	RLDKVEAEVQ 0.000196	17
HLA-A*30:02	1	991	1000	10	DRLITGRLQS 0.000196	46

HLA-B*08:01	1	1010	1018	9	IRAAEIRAS	0.000196	38
HLA-B*40:01	1	1037	1045	9	VDFCGKGYH	0.000196	15
HLA-B*57:01	1	1077	1085	9	AICHDGKAH	0.000196	38
HLA-A*68:01	1	1106	1114	9	FYEPQIITT	0.000196	26
HLA-A*68:01	1	1110	1119	10	QIITTDNTFV	0.000196	26
HLA-A*68:01	1	1218	1226	9	IAGLIAIVM	0.000196	26
HLA-A*68:01	1	45	54	10	SSVLHSTQDL	0.000195	26
HLA-B*58:01	1	72	81	10	GTNGTKRFAN	0.000195	28
HLA-A*02:06	1	124	133	10	TNVVIKVECF	0.000195	36
HLA-B*08:01	1	157	166	10	FRVYSSANNC	0.000195	38
HLA-B*40:01	1	207	216	10	HTPINLVRGL	0.000195	15
HLA-B*53:01	1	215	223	9	GLPQGFSAL	0.000195	18
HLA-A*01:01	1	270	278	9	RTFLLKYNE	0.000195	36
HLA-A*26:01	1	312	320	9	TSNFRVQPT	0.000195	23
HLA-B*51:01	1	336	345	10	GEVFNATRFA	0.000195	34
HLA-A*23:01	1	342	351	10	TRFASVYAWN	0.000195	16
HLA-A*02:03	1	356	364	9	SNCVADYSV	0.000195	29
HLA-A*11:01	1	383	392	10	KLNDLCFTNV	0.000195	17
HLA-A*01:01	1	393	402	10	YADSFVIRGD	0.000195	36
HLA-A*11:01	1	403	411	9	EVQRIPAGQ	0.000195	17
HLA-B*40:01	1	421	429	9	KLPDDFTGC	0.000195	15
HLA-A*33:01	1	443	452	10	GGNYNYLYRL	0.000195	28
HLA-B*07:02	1	494	503	10	FQPTYGVGYQ	0.000195	24
HLA-A*32:01	1	509	518	10	VLSFELLHAP	0.000195	21
HLA-B*53:01	1	531	540	10	VKNKCVNFNF	0.000195	18
HLA-A*30:02	1	545	553	9	GTGVLTESN	0.000195	46
HLA-A*33:01	1	636	644	9	GSNVFQTRA	0.000195	28
HLA-A*02:01	1	661	669	9	IPIGAGICA	0.000195	27
HLA-B*44:02	1	685	693	9	ASQSIIAYT	0.000195	17
HLA-A*33:01	1	770	779	10	EQDKNTQEVF	0.000195	28
HLA-A*68:01	1	773	782	10	KNTQEVFAQV	0.000195	26
HLA-A*01:01	1	779	788	10	FAQVKQIYKT	0.000195	36
HLA-A*32:01	1	801	809	9	QILPDPSKP	0.000195	21
HLA-A*03:01	1	843	852	10	ARDLICAQKF	0.000195	22
HLA-A*31:01	1	923	932	10	QFNSAIGKIQ	0.000195	28
HLA-B*44:02	1	989	998	10	QIDRLITGRL	0.000195	17
HLA-B*44:03	1	1006	1015	10	TQLLIRAAEI	0.000195	16
HLA-B*07:02	1	1020	1029	10	NLAATKMSEC	0.000195	24
HLA-B*51:01	1	1041	1049	9	GKGYHLMSF	0.000195	34
HLA-A*02:01	1	1046	1055	10	LMSFPQSAPH	0.000195	27
HLA-A*32:01	1	1049	1057	9	FPQSAPHGV	0.000195	21
HLA-B*51:01	1	1096	1104	9	GTHWFVTQR	0.000195	34
HLA-A*23:01	1	1121	1129	9	GNCVVIGI	0.000195	16
HLA-A*30:02	1	1122	1130	9	NCDVVIGIV	0.000195	46
HLA-A*02:06	1	1137	1146	10	PLQPELDSFK	0.000195	36
HLA-A*01:01	1	1158	1167	10	SPDVDLGDIS	0.000195	36
HLA-A*26:01	1	1169	1178	10	INASVVNIQK	0.000195	23
HLA-A*33:01	1	1175	1183	9	NIQKEIDRL	0.000195	28
HLA-B*15:01	1	1189	1198	10	NLNESLIDLQ	0.000195	27
HLA-A*30:01	1	1199	1207	9	ELGKYEYI	0.000195	49
HLA-B*51:01	1	1212	1220	9	YIWLGFIAG	0.000195	34
HLA-B*07:02	1	1257	1265	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	PDKVFRSSV	0.000194	17
HLA-A*30:02	1	55	63	9	FLPFFSNVT	0.000194	46
HLA-B*40:01	1	76	85	10	TKRFANPVL	0.000194	15
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	FCNDPFLGV	0.000194	16
HLA-A*03:01	1	137	145	9	NDPFLGVYY	0.000194	22
HLA-B*40:01	1	196	204	9	NIDGYFKIY	0.000194	15
HLA-A*32:01	1	228	237	10	DLPIGINITR	0.000194	21
HLA-A*02:06	1	244	252	9	SYLTPGDSS	0.000194	36
HLA-B*07:02	1	244	253	10	SYLTPGDSSS	0.000194	24
HLA-A*02:06	1	299	308	10	TLKSFTVEKG	0.000194	36

HLA-B*44:03	1	299	307	9	TLKSFTVEK 0.000194	17
HLA-A*32:01	1	303	311	9	FTVEKGIYQ 0.000194	21
HLA-A*31:01	1	312	321	10	TSNFRVQPT 0.000194	28
HLA-B*58:01	1	336	345	10	GEVFNATRF 0.000194	28
HLA-A*30:02	1	347	356	10	VYAWNKRKR 0.000194	46
HLA-B*44:03	1	354	362	9	RISNCVADY 0.000194	17
HLA-A*68:02	1	379	388	10	VSPTKLNLC 0.000194	29
HLA-B*58:01	1	407	416	10	IAPGQTGN 0.000194	28
HLA-B*40:01	1	422	430	9	LPDDFTGCV 0.000194	15
HLA-A*02:06	1	442	450	9	VGGNYNLY 0.000194	36
HLA-A*30:01	1	477	486	10	CNGVKGFNC 0.000194	49
HLA-B*57:01	1	540	549	10	FNGLTGTGV 0.000194	38
HLA-B*35:01	1	559	567	9	FQQFGRDIA 0.000194	19
HLA-A*02:01	1	587	596	10	CSFGGVSVI 0.000194	27
HLA-B*57:01	1	589	597	9	FGGVSVITP 0.000194	38
HLA-A*30:02	1	590	599	10	GGVSVITPG 0.000194	46
HLA-B*57:01	1	602	610	9	SNQVAVLYQ 0.000194	38
HLA-A*03:01	1	606	615	10	AVLYQGVCN 0.000194	22
HLA-A*01:01	1	608	617	10	LYQGVNCTE 0.000194	36
HLA-B*44:03	1	636	644	9	GSNVFQTRA 0.000194	17
HLA-A*33:01	1	660	669	10	DIPIGAGICA 0.000194	28
HLA-A*30:02	1	676	685	10	NSPRRARSVA 0.000194	46
HLA-A*03:01	1	679	688	10	RRARSVASQS 0.000194	22
HLA-A*03:01	1	687	696	10	QSIIAYTMSL 0.000194	22
HLA-A*02:03	1	711	720	10	IPTNFTISVT 0.000194	29
HLA-B*51:01	1	755	764	10	SFCTQLNRAL 0.000194	34
HLA-B*08:01	1	761	770	10	NRALTGIAVE 0.000194	38
HLA-B*57:01	1	763	771	9	ALTGIAVEQ 0.000194	38
HLA-B*15:01	1	823	831	9	VTLADAGFI 0.000194	27
HLA-A*30:01	1	839	847	9	GDIAARDLI 0.000194	49
HLA-B*07:02	1	853	862	10	NGLTVLPPLL 0.000194	24
HLA-B*40:01	1	901	909	9	YRFNGIGVT 0.000194	15
HLA-A*33:01	1	936	945	10	SSTASALGKL 0.000194	28
HLA-B*15:01	1	954	962	9	QALNTLVKQ 0.000194	27
HLA-A*01:01	1	982	990	9	DKVEAEVQI 0.000194	36
HLA-B*35:01	1	992	1001	10	RLITGRLQSL 0.000194	19
HLA-A*31:01	1	998	1007	10	LQSLQTYVTQ 0.000194	28
HLA-B*44:02	1	1005	1013	9	VTQQLIRAA 0.000194	17
HLA-B*40:01	1	1174	1183	10	VNIQKEIDRL 0.000194	15
HLA-B*07:02	1	1256	1265	10	DDSEPVKGV 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*33:01	1	71	80	10	SGTNGTKRFA 0.000193	28
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-B*08:01	1	308	317	10	GIYQTSNFRV 0.000193	38
HLA-B*57:01	1	310	318	9	YQTSNFRVQ 0.000193	38
HLA-B*35:01	1	388	397	10	CFTNVYADSF 0.000193	19
HLA-B*44:02	1	406	415	10	QIAPGQTGNI 0.000193	17
HLA-B*57:01	1	427	435	9	TGCVIAWNS 0.000193	38
HLA-A*30:01	1	429	437	9	CVIAWNSNN 0.000193	49
HLA-A*68:01	1	529	538	10	NLVKNKCVNF 0.000193	26
HLA-A*02:06	1	537	546	10	NFNFNGLTGT 0.000193	36
HLA-A*26:01	1	569	577	9	TTDAVRDPQ 0.000193	23
HLA-B*58:01	1	644	653	10	AGCLIGAHEV 0.000193	28
HLA-A*23:01	1	680	689	10	RARSVASQSI 0.000193	16
HLA-B*44:03	1	714	723	10	NFTISVTTEI 0.000193	17
HLA-A*03:01	1	715	724	10	FTISVTTEIL 0.000193	22
HLA-B*51:01	1	728	736	9	MTKTSVDCT 0.000193	34
HLA-A*68:02	1	741	749	9	GDSTECSNL 0.000193	29
HLA-A*33:01	1	743	752	10	STECSNLLLQ 0.000193	28
HLA-A*02:01	1	754	762	9	GSFCTQLNR 0.000193	27
HLA-A*01:01	1	759	768	10	QLNRALTGIA 0.000193	36

HLA-A*68:01	1	932	941	10	QDSLSTASA 0.000193	26
HLA-B*57:01	1	942	951	10	LGKLDVVNQ 0.000193	38
HLA-A*02:01	1	943	952	10	GKLDVVNQ 0.000193	27
HLA-A*11:01	1	957	965	9	NTLVKQLSS 0.000193	17
HLA-A*33:01	1	1008	1017	10	QLIRAAEIRA 0.000193	28
HLA-B*51:01	1	1040	1049	10	CGKGYHLMSF 0.000193	34
HLA-B*08:01	1	1225	1234	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-A*02:06	1	207	215	9	HTPINLVRG 0.000192	36
HLA-A*32:01	1	243	252	10	RSYLTGPDSS 0.000192	21
HLA-A*02:03	1	287	296	10	DCALDPLSET 0.000192	30
HLA-A*33:01	1	323	331	9	IVRFPNITN 0.000192	28
HLA-A*02:03	1	337	346	10	EVFNATRFAS 0.000192	30
HLA-B*53:01	1	359	367	9	VADYSVLYN 0.000192	18
HLA-A*31:01	1	429	438	10	CVIAWNSNNL 0.000192	29
HLA-A*23:01	1	478	486	9	NGVKGFCY 0.000192	16
HLA-B*15:01	1	508	517	10	VVLSFELLHA 0.000192	27
HLA-A*30:02	1	542	551	10	GLTGTGVLTE 0.000192	46
HLA-B*57:01	1	597	605	9	PGTNTSNQV 0.000192	38
HLA-A*68:01	1	598	607	10	GTNTSNQVAV 0.000192	26
HLA-A*02:03	1	603	611	9	NQVAVLYQG 0.000192	30
HLA-B*44:02	1	609	617	9	YQGVNCTEV 0.000192	17
HLA-B*57:01	1	612	620	9	VNCTEVPVA 0.000192	38
HLA-A*02:03	1	649	657	9	GAEHVNNSY 0.000192	30
HLA-B*57:01	1	661	669	9	IPIGAGICA 0.000192	38
HLA-A*02:01	1	707	716	10	NSIAIPTNFT 0.000192	27
HLA-B*44:02	1	718	726	9	SVTTEILPV 0.000192	17
HLA-A*31:01	1	758	767	10	TQLNRALTGI 0.000192	29
HLA-A*23:01	1	787	795	9	KTPPIKDFG 0.000192	16
HLA-A*11:01	1	801	809	9	QILPDPSKP 0.000192	17
HLA-B*35:01	1	801	809	9	QILPDPSKP 0.000192	19
HLA-A*68:01	1	912	920	9	VLYENQKLI 0.000192	26
HLA-A*33:01	1	1007	1015	9	QQLIRAAEI 0.000192	28
HLA-A*03:01	1	1029	1037	9	CVLGQSKRV 0.000192	22
HLA-A*03:01	1	1049	1057	9	FPQSAPHGV 0.000192	22
HLA-B*15:01	1	1078	1087	10	ICHDGKAHP 0.000192	27
HLA-B*58:01	1	1085	1093	9	HFPREGV 0.000192	28
HLA-B*07:02	1	1104	1113	10	RNFYEQIIT 0.000192	24
HLA-B*07:02	1	1163	1171	9	LGDISGINA 0.000192	24
HLA-A*01:01	1	1173	1182	10	VVNIQKEIDR 0.000192	37
HLA-A*24:02	1	1185	1194	10	EVAKNLNESL 0.000192	16
HLA-A*30:02	1	1189	1198	10	NLNESLIDLQ 0.000192	46
HLA-A*02:06	1	1197	1205	9	LQELGKYEQ 0.000192	36
HLA-A*30:02	1	1227	1235	9	VTIMLCCMT 0.000192	46
HLA-A*23:01	1	1252	1260	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*68:02	1	76	84	9	TKRFANPVL 0.000191	29
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-B*44:03	1	237	246	10	RFQTLHRSYL 0.000191	17
HLA-A*31:01	1	246	255	10	LTPGDSSSGW 0.000191	29
HLA-A*02:03	1	250	259	10	DSSSGWTAGA 0.000191	30
HLA-A*24:02	1	256	264	9	TAGAAAYYV 0.000191	16
HLA-A*32:01	1	260	269	10	AAYYVGYLQP 0.000191	21
HLA-A*01:01	1	275	283	9	KYNENGTIT 0.000191	37
HLA-B*15:01	1	340	349	10	NATRFASVYA 0.000191	27
HLA-A*68:02	1	361	370	10	DYSVLVNSAS 0.000191	29
HLA-A*11:01	1	366	374	9	YNSASFSTF 0.000191	17

HLA-A*33:01	1	378	387	10	GVSPTKLNLDL 0.000191	28
HLA-A*02:03	1	397	406	10	FVIRGDEVRRQ 0.000191	30
HLA-B*58:01	1	412	421	10	TGNIADYNYK 0.000191	28
HLA-B*58:01	1	450	458	9	YRLFRKSNL 0.000191	28
HLA-A*02:03	1	460	469	10	PFERDISTEI 0.000191	30
HLA-B*53:01	1	484	493	10	NCYFPLQSYG 0.000191	18
HLA-A*02:03	1	492	501	10	YGFQPTYGVG 0.000191	30
HLA-B*44:03	1	501	509	9	GYQPYRVVV 0.000191	17
HLA-A*01:01	1	562	570	9	FGRIADTT 0.000191	37
HLA-A*03:01	1	571	580	10	DAVRDPQTL 0.000191	22
HLA-B*08:01	1	578	587	10	TLEILDITPC 0.000191	38
HLA-B*08:01	1	586	594	9	PCSFGGVSV 0.000191	38
HLA-B*35:01	1	593	602	10	SVITPGTNTS 0.000191	19
HLA-B*53:01	1	614	622	9	CTEVPVAIH 0.000191	18
HLA-A*24:02	1	622	631	10	HADQLTPTWR 0.000191	16
HLA-A*02:03	1	663	671	9	IGAGICASY 0.000191	30
HLA-A*68:02	1	670	678	9	SYQTQTNSP 0.000191	29
HLA-A*30:02	1	727	736	10	SMTKTSVDCT 0.000191	46
HLA-B*08:01	1	737	746	10	MYICGDSTEC 0.000191	38
HLA-A*01:01	1	755	764	10	SFCTQLNRAL 0.000191	37
HLA-B*58:01	1	792	801	10	KDFGGFNFSQ 0.000191	28
HLA-A*30:01	1	804	812	9	PDPSKPSKR 0.000191	49
HLA-B*40:01	1	818	826	9	LLFNKVTLA 0.000191	15
HLA-B*40:01	1	871	879	9	TSALLAGTI 0.000191	15
HLA-B*44:02	1	897	906	10	MQMAYRFNGI 0.000191	17
HLA-A*30:02	1	914	923	10	YENQKLIANQ 0.000191	46
HLA-A*26:01	1	918	927	10	KLIANQFNFA 0.000191	23
HLA-A*26:01	1	931	939	9	IQDSLSSSTA 0.000191	23
HLA-A*68:02	1	953	961	9	AQALNTLVK 0.000191	29
HLA-B*08:01	1	991	999	9	DRLITGRLQ 0.000191	38
HLA-B*53:01	1	1001	1010	10	LQTYVTQQLI 0.000191	18
HLA-B*51:01	1	1018	1027	10	SANLAATKMS 0.000191	34
HLA-A*01:01	1	1066	1074	9	PAQEKNFST 0.000191	37
HLA-B*44:03	1	1083	1091	9	KAHFPREGV 0.000191	17
HLA-B*15:01	1	1085	1093	9	HFPREGVVF 0.000191	27
HLA-B*08:01	1	1104	1113	10	RNFYEQIIT 0.000191	38
HLA-A*11:01	1	1112	1120	9	ITTDNTFVS 0.000191	17
HLA-B*07:02	1	1118	1127	10	FVSGNCDVVI 0.000191	24
HLA-B*51:01	1	1138	1146	9	LQPELDSFK 0.000191	34
HLA-B*53:01	1	1160	1168	9	DVDLGDISG 0.000191	18
HLA-B*57:01	1	1194	1202	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	EFVFNIDG 0.000191	38
HLA-B*53:01	1	194	203	10	FKNIDGYFKI 0.000191	18
HLA-A*23:01	1	243	252	10	RSYLTPGDSS 0.000191	17
HLA-A*30:01	1	245	253	9	YLTPGDSSS 0.000191	49
HLA-A*23:01	1	259	267	9	AAAYVGYL 0.000191	17
HLA-B*40:01	1	313	321	9	SNFRVQPT 0.000191	15
HLA-A*11:01	1	317	326	10	VQPTESIVRF 0.000191	17
HLA-A*68:01	1	322	330	9	SIVRFPNIT 0.000191	26
HLA-A*23:01	1	366	375	10	YNSASFSTFK 0.000191	17
HLA-B*58:01	1	392	401	10	VYADSFVIRG 0.000191	28
HLA-B*40:01	1	401	409	9	GDEVRIAP 0.000191	15
HLA-B*35:01	1	468	477	10	EIQAGSTPC 0.000191	19
HLA-A*01:01	1	531	540	10	VKNKCVNFN 0.000191	37
HLA-A*01:01	1	542	550	9	GLTGTGVL 0.000191	37
HLA-A*68:01	1	585	594	10	TPCSFGGVSV 0.000191	26
HLA-A*30:01	1	597	605	9	PGTNTSNQV 0.000191	49
HLA-B*35:01	1	626	635	10	LTPTWRVYST 0.000191	19
HLA-A*03:01	1	638	646	9	NVFQTRAGC 0.000191	22
HLA-A*30:02	1	666	675	10	GICASYQTQT 0.000191	46

HLA-B*15:01	1	714	723	10	NFTISVTTEI 0.00019	27
HLA-A*02:01	1	720	729	10	TTEILPVSMT 0.00019	27
HLA-B*51:01	1	737	746	10	MYICGDSTEC 0.00019	34
HLA-A*26:01	1	738	746	9	YICGDSTEC 0.00019	23
HLA-B*44:03	1	772	780	9	DKNTQEVFA 0.00019	17
HLA-B*58:01	1	773	781	9	KNTQEVFAQ 0.00019	28
HLA-B*44:02	1	774	783	10	NTQEVFAQVK 0.00019	17
HLA-B*40:01	1	775	784	10	TQEVFAQVKQ 0.00019	15
HLA-A*33:01	1	792	800	9	KDFGGFNFS 0.00019	28
HLA-B*35:01	1	811	819	9	KRSFIEDLL 0.00019	19
HLA-B*44:02	1	821	830	10	NKVTLADAGF 0.00019	17
HLA-A*68:02	1	850	859	10	QKFNGLTVLP 0.00019	30
HLA-B*51:01	1	883	892	10	WTFGAGAALQ 0.00019	34
HLA-B*44:03	1	920	928	9	IANQFNSAI 0.00019	17
HLA-A*03:01	1	954	963	10	QALNTLVKQL 0.00019	22
HLA-A*02:01	1	962	971	10	QLSSNFGAIS 0.00019	27
HLA-B*57:01	1	973	982	10	VLNDILSRLD 0.00019	38
HLA-B*15:01	1	983	992	10	KVEAEVQIDR 0.00019	27
HLA-B*53:01	1	990	998	9	IDRLITGRL 0.00019	18
HLA-A*01:01	1	1020	1028	9	NLAATKMSE 0.00019	37
HLA-A*32:01	1	1120	1129	10	SGNCDVVIGI 0.00019	21
HLA-A*68:02	1	1138	1146	9	LQPELDSFK 0.00019	30
HLA-A*03:01	1	1147	1156	10	EELDKYFKNH 0.00019	22
HLA-A*23:01	1	1154	1163	10	KNHTSPDVDL 0.00019	17
HLA-A*32:01	1	1213	1222	10	IWLGFIAGLI 0.00019	21
HLA-B*35:01	1	1221	1229	9	LIAIVMVTI 0.00019	19
HLA-A*24:02	1	1224	1232	9	IVMVTIMLC 0.00019	16
HLA-A*30:01	1	1254	1262	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	GTTLDSTQ 0.000189	37
HLA-A*11:01	1	125	133	9	NVVIKVECF 0.000189	17
HLA-A*68:02	1	211	219	9	NLVRGLPQG 0.000189	30
HLA-A*02:06	1	230	238	9	PIGINITRF 0.000189	36
HLA-B*35:01	1	290	299	10	LDPLSETKCT 0.000189	19
HLA-B*57:01	1	313	322	10	SNFRVQPTES 0.000189	38
HLA-B*35:01	1	327	335	9	PNITNLCPF 0.000189	19
HLA-B*57:01	1	335	343	9	FGEVFNATR 0.000189	38
HLA-A*23:01	1	338	346	9	VFNATRFAS 0.000189	17
HLA-B*57:01	1	397	406	10	FVIRGDEVQR 0.000189	38
HLA-B*53:01	1	413	422	10	GNIADYNYKL 0.000189	18
HLA-A*26:01	1	519	528	10	ATVCGPKKST 0.000189	23
HLA-A*30:01	1	545	553	9	GTGVLTESN 0.000189	49
HLA-B*08:01	1	578	586	9	TLEILDITP 0.000189	38
HLA-A*33:01	1	583	592	10	DITPCSFGGV 0.000189	28
HLA-B*58:01	1	606	615	10	AVLYQGVNCT 0.000189	29
HLA-B*35:01	1	620	628	9	AIHADQLTP 0.000189	19
HLA-B*51:01	1	633	641	9	YSTGSNVFQ 0.000189	34
HLA-B*57:01	1	639	648	10	VFQTRAGCLI 0.000189	38
HLA-B*57:01	1	649	658	10	GAEHVNNSYE 0.000189	38
HLA-A*03:01	1	665	674	10	AGICASYQTQ 0.000189	22
HLA-B*51:01	1	731	740	10	TSVDCTMYIC 0.000189	34
HLA-B*40:01	1	835	843	9	GDCLGDIAA 0.000189	15
HLA-A*01:01	1	842	850	9	AARDLICAQ 0.000189	37
HLA-B*07:02	1	881	890	10	SGWTFGAGAA 0.000189	25
HLA-A*01:01	1	909	917	9	TQNVLYENQ 0.000189	37
HLA-A*03:01	1	965	974	10	SNFGAISSVL 0.000189	22
HLA-B*15:01	1	995	1003	9	TGRLQSLQT 0.000189	28
HLA-A*33:01	1	996	1005	10	GRLQSLQTYV 0.000189	28
HLA-B*40:01	1	1036	1044	9	RVDFCGKGY 0.000189	15
HLA-A*02:06	1	1232	1240	9	CCMTSCCSC 0.000189	36
HLA-A*30:02	1	33	42	10	TRGVVYPPDKV 0.000188	46
HLA-A*01:01	1	172	180	9	SQPFLMDLE 0.000188	37
HLA-A*02:06	1	187	195	9	KNLREFVFK 0.000188	36
HLA-B*44:02	1	259	267	9	AAAYYVGYL 0.000188	17
HLA-B*40:01	1	262	270	9	YYVGYLQPR 0.000188	16

HLA-B*35:01	1	376	384	9	CYGVSPTKL	0.000188	20
HLA-A*01:01	1	392	401	10	VYADSFVIRG	0.000188	37
HLA-A*31:01	1	398	406	9	VIRGDEVRR	0.000188	29
HLA-B*57:01	1	407	416	10	IAPGQTGNIA	0.000188	38
HLA-B*07:02	1	472	480	9	AGSTPCNGV	0.000188	25
HLA-A*02:06	1	535	544	10	CVNFNFNGLT	0.000188	36
HLA-B*51:01	1	537	545	9	NFNFNGLTG	0.000188	34
HLA-A*01:01	1	540	549	10	FNGLTGTGVL	0.000188	37
HLA-B*15:01	1	552	560	9	SNKKFLPFQ	0.000188	28
HLA-A*68:01	1	592	601	10	VSVITPGTNT	0.000188	26
HLA-A*33:01	1	593	602	10	SVITPGTNTS	0.000188	28
HLA-A*02:06	1	666	674	9	GICASYQTQ	0.000188	36
HLA-B*40:01	1	842	850	9	AARDLICAQ	0.000188	16
HLA-B*07:02	1	851	859	9	KFNGLTVLP	0.000188	25
HLA-B*40:01	1	906	914	9	IGVTQNVLY	0.000188	16
HLA-B*44:02	1	1037	1045	9	VDFCGKGYH	0.000188	17
HLA-A*23:01	1	1043	1052	10	GYHLMSFPQS	0.000188	17
HLA-A*32:01	1	1138	1146	9	LQPELDSFK	0.000188	21
HLA-B*40:01	1	1188	1197	10	KNLNESLIDL	0.000188	16
HLA-A*33:01	1	1219	1227	9	AGLIAIVMV	0.000188	28
HLA-B*35:01	1	1222	1231	10	IAIVMVTIML	0.000188	20
HLA-A*30:01	1	1244	1252	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*31:01	1	101	110	10	IRGWIFGTTL	0.000187	29
HLA-A*24:02	1	103	111	9	GWIFGTTLD	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-A*02:01	1	235	243	9	ITRFQTLHR	0.000187	27
HLA-B*44:02	1	291	300	10	DPLSETKCTL	0.000187	17
HLA-A*02:01	1	330	338	9	TNLCPFGEV	0.000187	27
HLA-B*58:01	1	354	363	10	RISNCVADYS	0.000187	29
HLA-A*30:01	1	359	367	9	VADYSVLYN	0.000187	49
HLA-B*35:01	1	450	458	9	YRLFRKSNL	0.000187	20
HLA-A*02:06	1	459	468	10	KPFERDISTE	0.000187	36
HLA-B*07:02	1	463	472	10	RDISTEIQQA	0.000187	25
HLA-B*08:01	1	463	472	10	RDISTEIQQA	0.000187	38
HLA-A*33:01	1	468	477	10	EIYQAGSTPC	0.000187	28
HLA-A*02:01	1	474	483	10	STPCNGVKGF	0.000187	27
HLA-B*40:01	1	503	512	10	QPYRVVLSF	0.000187	16
HLA-B*35:01	1	512	521	10	FELLHAPATV	0.000187	20
HLA-A*26:01	1	516	524	9	HAPATVCGP	0.000187	23
HLA-A*11:01	1	532	540	9	KNKCVNFNF	0.000187	17
HLA-B*08:01	1	546	554	9	TGVLTESNK	0.000187	38
HLA-B*35:01	1	574	582	9	RDPQTLLEIL	0.000187	20
HLA-A*31:01	1	592	601	10	VSVITPGTNT	0.000187	29
HLA-B*57:01	1	607	615	9	VLYQGVNCT	0.000187	38
HLA-A*02:03	1	676	685	10	NSPRRARSVA	0.000187	30
HLA-B*08:01	1	686	695	10	SQSIIAYTMS	0.000187	38
HLA-A*30:01	1	769	777	9	VEQDKNTQE	0.000187	49
HLA-B*58:01	1	776	784	9	QEVFAQVKQ	0.000187	29
HLA-B*53:01	1	788	796	9	TPPIKDFGG	0.000187	19
HLA-B*15:01	1	855	863	9	LTVLPPLLT	0.000187	28
HLA-A*30:01	1	861	869	9	LLTDEMIAQ	0.000187	49
HLA-A*32:01	1	907	915	9	GVTQNVLYE	0.000187	21
HLA-A*03:01	1	909	917	9	TQNVLYENQ	0.000187	23
HLA-B*07:02	1	961	969	9	KQLSSNFGA	0.000187	25
HLA-B*44:02	1	961	970	10	KQLSSNFGAI	0.000187	17
HLA-B*51:01	1	961	969	9	KQLSSNFGA	0.000187	34
HLA-A*01:01	1	977	986	10	ILSRLDKVEA	0.000187	37
HLA-B*51:01	1	989	997	9	QIDRLITGR	0.000187	34
HLA-A*01:01	1	997	1006	10	RLQSLQTYVT	0.000187	37
HLA-B*58:01	1	1008	1016	9	QLIRAAEIR	0.000187	29

HLA-B*51:01	1	1036	1044	9	RVDFCGKGY 0.000187	34
HLA-A*01:01	1	1065	1073	9	VPAQEKNT 0.000187	37
HLA-B*44:02	1	1107	1116	10	YEQIITTDN 0.000187	17
HLA-A*30:02	1	1111	1120	10	IITTDNTFVS 0.000187	46
HLA-A*31:01	1	1120	1129	10	SGNCDVVIGI 0.000187	29
HLA-A*02:01	1	1206	1214	9	YIKWPWYIW 0.000187	27
HLA-A*31:01	1	1217	1226	10	FIAGLIAIVM 0.000187	29
HLA-B*15:01	1	1244	1253	10	CCSCGSCCKF 0.000187	28
HLA-B*40:01	1	56	65	10	LPFFSNVTWF 0.000186	16
HLA-A*33:01	1	75	84	10	GTKRFANPVL 0.000186	28
HLA-B*15:01	1	77	85	9	KRFANPVL 0.000186	28
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-A*02:03	1	208	217	10	TPINLVRGLP 0.000186	30
HLA-B*15:01	1	243	251	9	RSYLTPGDS 0.000186	28
HLA-B*07:02	1	273	282	10	LLKYNENGTI 0.000186	25
HLA-A*02:03	1	310	318	9	YQTSNFRVQ 0.000186	30
HLA-B*58:01	1	322	331	10	SIVRFPNITN 0.000186	29
HLA-A*02:03	1	348	356	9	YAWNKRKIS 0.000186	30
HLA-A*02:03	1	351	359	9	NRKRISNCV 0.000186	30
HLA-B*08:01	1	357	366	10	NCVADYSVLY 0.000186	39
HLA-A*68:02	1	395	403	9	DSFVIRGDE 0.000186	30
HLA-A*33:01	1	463	471	9	RDISTEIQ 0.000186	28
HLA-A*03:01	1	464	472	9	DISTEIQQA 0.000186	23
HLA-A*30:01	1	465	474	10	ISTEIQAGS 0.000186	49
HLA-A*02:03	1	470	479	10	YQAGSTPCNG 0.000186	30
HLA-A*01:01	1	520	528	9	TVCGPKKST 0.000186	37
HLA-A*31:01	1	595	604	10	ITPGTNTSNQ 0.000186	29
HLA-A*02:01	1	635	644	10	TGSNVFQTRA 0.000186	27
HLA-A*02:03	1	635	643	9	TGSNVFQTR 0.000186	30
HLA-A*01:01	1	680	688	9	RARSVASQS 0.000186	37
HLA-A*24:02	1	780	788	9	AQVKQIYKT 0.000186	16
HLA-B*51:01	1	787	795	9	KTPPIKDFG 0.000186	34
HLA-A*30:02	1	791	800	10	IKDFGGFNFS 0.000186	47
HLA-A*30:01	1	798	807	10	NFSQILPDPS 0.000186	49
HLA-A*03:01	1	832	841	10	KQYGDCLGDI 0.000186	23
HLA-B*07:02	1	872	881	10	SALLAGTITS 0.000186	25
HLA-B*08:01	1	929	937	9	GKIQDSLSS 0.000186	39
HLA-B*58:01	1	962	970	9	QLSSNFGAI 0.000186	29
HLA-A*02:06	1	1009	1018	10	LIRAAEIRAS 0.000186	36
HLA-B*53:01	1	1030	1039	10	VLGQSKRVDF 0.000186	19
HLA-B*58:01	1	1110	1119	10	QIITTDNTFV 0.000186	29
HLA-B*57:01	1	1116	1124	9	NTFVSGNCD 0.000186	38
HLA-B*58:01	1	1118	1126	9	FVSGNCDVV 0.000186	29
HLA-A*26:01	1	1126	1134	9	VIGIVNNTV 0.000186	23
HLA-A*33:01	1	1130	1138	9	VNNTVYDPL 0.000186	28
HLA-B*57:01	1	1168	1177	10	GINASVVNIQ 0.000186	38
HLA-B*15:01	1	1200	1208	9	LGKYEQYIK 0.000186	28
HLA-A*68:01	1	1258	1267	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-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-B*15:01	1	223	231	9	LEPLVDLPI 0.000185	28
HLA-A*68:02	1	257	266	10	AGAAAYYVGY 0.000185	30
HLA-A*32:01	1	270	279	10	RTFLLKYNEN 0.000185	21
HLA-A*03:01	1	309	317	9	IYQTSNFRV 0.000185	23
HLA-B*58:01	1	317	325	9	VQPTESIVR 0.000185	29



HLA-B*15:01	1	321	329	9	ESIVRFPNI 0.000185	28
HLA-B*51:01	1	403	412	10	EVRQIAPGQT 0.000185	34
HLA-A*02:06	1	412	420	9	TGNIADYNY 0.000185	36
HLA-A*68:02	1	415	423	9	IADYNYKLP 0.000185	30
HLA-A*32:01	1	434	442	9	NSNNLDSKV 0.000185	21
HLA-B*08:01	1	480	489	10	VKGFNCYFPL 0.000185	39
HLA-A*02:06	1	526	535	10	KSTNLVKNKC 0.000185	36
HLA-A*02:03	1	537	546	10	NFNFNGLTGT 0.000185	30
HLA-A*30:02	1	553	561	9	NKKFLPFQQ 0.000185	47
HLA-B*08:01	1	564	573	10	RDIADTTDAV 0.000185	39
HLA-B*08:01	1	637	646	10	SNVFTQTRAGC 0.000185	39
HLA-A*32:01	1	662	671	10	PIGAGICASY 0.000185	21
HLA-B*58:01	1	674	683	10	QTNSPRRARS 0.000185	29
HLA-A*03:01	1	684	693	10	VASQSIIAYT 0.000185	23
HLA-A*02:03	1	686	695	10	SQSIIAYTMS 0.000185	30
HLA-A*68:01	1	693	702	10	TMSLGVENSV 0.000185	26
HLA-A*68:02	1	729	738	10	TKTSVDCTMY 0.000185	30
HLA-A*23:01	1	744	753	10	TECSNLLLQY 0.000185	17
HLA-B*58:01	1	745	754	10	ECSNLLLQYG 0.000185	29
HLA-A*02:06	1	747	756	10	SNLLLQYGSF 0.000185	36
HLA-A*02:01	1	763	772	10	ALTGIAVEQD 0.000185	27
HLA-B*51:01	1	767	776	10	IAVEQDKNTQ 0.000185	34
HLA-A*31:01	1	771	779	9	QDKNTQEVF 0.000185	29
HLA-A*23:01	1	784	792	9	QIYKTPPIK 0.000185	17
HLA-B*57:01	1	810	818	9	SKRSFIEDL 0.000185	38
HLA-A*03:01	1	812	821	10	RSFIEDLLFN 0.000185	23
HLA-B*58:01	1	821	830	10	NKVTLADAGF 0.000185	29
HLA-A*30:01	1	833	841	9	QYGDCLGDI 0.000185	49
HLA-B*07:02	1	848	857	10	CAQKFNGLTV 0.000185	25
HLA-B*53:01	1	849	858	10	AQKFNGLTVL 0.000185	19
HLA-B*08:01	1	852	860	9	FNGLTVLPP 0.000185	39
HLA-B*44:03	1	866	874	9	MIAQYTSAL 0.000185	17
HLA-A*30:02	1	876	884	9	AGTITSGWT 0.000185	47
HLA-B*35:01	1	905	913	9	GIGVTQNVL 0.000185	20
HLA-A*03:01	1	908	917	10	VTQNVLYENQ 0.000185	23
HLA-B*53:01	1	992	1001	10	RLITGRLQSL 0.000185	19
HLA-A*31:01	1	1031	1039	9	LGQSKRVDF 0.000185	29
HLA-A*02:01	1	1050	1058	9	PQSAPHGVV 0.000185	27
HLA-B*53:01	1	1067	1075	9	AQEKNFTTA 0.000185	19
HLA-B*44:02	1	1143	1151	9	DSFKEELDK 0.000185	17
HLA-B*53:01	1	1185	1193	9	EVAKNLNES 0.000185	19
HLA-A*32:01	1	1215	1224	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	YDPKVFRRS 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	GWIFGTTLD 0.000184	17
HLA-A*01:01	1	104	112	9	WIFGTTLDS 0.000184	37
HLA-B*53:01	1	115	123	9	QSLIVNNA 0.000184	19
HLA-B*40:01	1	264	273	10	VGYLQPRTF 0.000184	16
HLA-A*30:01	1	293	302	10	LSETKCTLKS 0.000184	49
HLA-A*31:01	1	405	414	10	RQIAPGQTGN 0.000184	29
HLA-B*57:01	1	409	418	10	PGQTGNIADY 0.000184	39
HLA-B*58:01	1	464	472	9	DISTEIQQA 0.000184	29
HLA-B*57:01	1	474	482	9	STPCNGVKG 0.000184	39
HLA-A*01:01	1	505	514	10	YRVVLSFEL 0.000184	37
HLA-B*15:01	1	542	551	10	GLTGTGVLTE 0.000184	28
HLA-B*35:01	1	572	580	9	AVRDPQTE 0.000184	20
HLA-B*07:02	1	608	617	10	LYQGVNCTEV 0.000184	25
HLA-A*32:01	1	637	646	10	SNVFTQTRAGC 0.000184	21
HLA-B*57:01	1	666	674	9	GICASYQTQ 0.000184	39
HLA-B*58:01	1	666	674	9	GICASYQTQ 0.000184	29

HLA-A*30:02	1	716	725	10	TISVTTEILP 0.000184	47
HLA-A*68:01	1	750	759	10	LLQYGSFCTQ 0.000184	26
HLA-A*31:01	1	832	841	10	KQYGDCLGDI 0.000184	29
HLA-A*32:01	1	873	882	10	ALLAGTITSG 0.000184	21
HLA-A*02:03	1	887	895	9	AGAALQIPF 0.000184	30
HLA-B*53:01	1	1037	1046	10	VDFCGKGYHL 0.000184	19
HLA-A*33:01	1	1083	1092	10	KAHFPREGVF 0.000184	28
HLA-A*24:02	1	1096	1104	9	GTHWFVTQR 0.000184	16
HLA-A*02:06	1	1126	1135	10	VIGIVNNTVY 0.000184	36
HLA-B*40:01	1	1181	1190	10	DRLNEVAKNL 0.000184	16
HLA-A*33:01	1	1195	1203	9	IDLQELGKY 0.000184	28
HLA-B*57:01	1	1213	1222	10	IWLGFIAGLI 0.000184	39
HLA-A*30:02	1	1225	1234	10	VMVTIMLCCM 0.000184	47
HLA-A*31:01	1	1257	1265	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	AIHVSQGTNGT 0.000183	30
HLA-A*02:03	1	79	87	9	FANPVLPFN 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*15:01	1	261	269	9	AYYVGYLQP 0.000183	28
HLA-B*51:01	1	262	270	9	YYVGYLQPR 0.000183	35
HLA-A*32:01	1	322	330	9	SIVRFPNIT 0.000183	21
HLA-B*40:01	1	356	364	9	SNCVADYSV 0.000183	16
HLA-B*44:02	1	398	407	10	VIRGDEVQRQI 0.000183	18
HLA-B*57:01	1	446	455	10	YNYLYRLFRK 0.000183	39
HLA-A*33:01	1	459	468	10	KPFERDISTE 0.000183	28
HLA-A*02:01	1	514	523	10	LLHAPATVCG 0.000183	27
HLA-A*26:01	1	522	531	10	CGPKKSTNLV 0.000183	23
HLA-B*58:01	1	523	531	9	GPKKSTNLV 0.000183	29
HLA-A*68:01	1	524	532	9	PKKSTNLVK 0.000183	26
HLA-A*23:01	1	534	543	10	KCVNFNFNGL 0.000183	17
HLA-A*26:01	1	539	548	10	NFNGLTGTGV 0.000183	23
HLA-A*31:01	1	621	629	9	IHADQLTPT 0.000183	29
HLA-A*32:01	1	625	634	10	QLTPTWRVYS 0.000183	21
HLA-B*08:01	1	667	675	9	ICASYQTQT 0.000183	39
HLA-B*07:02	1	695	703	9	SLGVENSVA 0.000183	25
HLA-B*08:01	1	759	768	10	QLNRALTGIA 0.000183	39
HLA-B*15:01	1	769	777	9	VEQDKNTQE 0.000183	28
HLA-A*23:01	1	783	792	10	KQIYKTPPIK 0.000183	17
HLA-A*30:02	1	786	795	10	YKTPPIKDFG 0.000183	47
HLA-A*23:01	1	865	874	10	EMIAQYTSAL 0.000183	17
HLA-B*40:01	1	901	910	10	YRFNGIGVTQ 0.000183	16
HLA-A*24:02	1	904	913	10	NGIGVTQNVL 0.000183	16
HLA-B*51:01	1	914	922	9	YENQKLIAN 0.000183	35
HLA-A*68:01	1	918	927	10	KLIANQFNFA 0.000183	26
HLA-B*35:01	1	940	949	10	SALGKLQDVV 0.000183	20
HLA-B*44:02	1	962	970	9	QLSSNFGAI 0.000183	18
HLA-A*24:02	1	988	997	10	VQIDRLITGR 0.000183	16
HLA-A*30:02	1	1066	1075	10	PAQEKNFSTA 0.000183	47
HLA-B*08:01	1	1074	1082	9	TAPAICHDG 0.000183	39
HLA-A*02:06	1	1097	1106	10	THWFVTQRNF 0.000183	36
HLA-A*01:01	1	1129	1138	10	IVNNTVYDPL 0.000183	37
HLA-B*15:01	1	1169	1178	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*26:01	1	76	84	9	TKRFANPVL 0.000182	23
HLA-A*24:02	1	89	98	10	GVYFASTEKS 0.000182	16
HLA-B*44:02	1	94	102	9	STEKSNIIIR 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*02:01	1	236	245	10	TRFQTLHRSY 0.000182	27
HLA-B*07:02	1	240	248	9	TLHRSYLT 0.000182	25
HLA-A*11:01	1	321	329	9	ESIVRFPNI 0.000182	18
HLA-A*01:01	1	351	359	9	NRKRISNCV 0.000182	37
HLA-B*15:01	1	356	365	10	SNCVADYSVL 0.000182	28
HLA-B*57:01	1	370	379	10	SFSTFKCYGV 0.000182	39
HLA-B*15:01	1	376	384	9	CYGVSPTKL 0.000182	28
HLA-A*02:03	1	470	478	9	YQAGSTPCN 0.000182	30
HLA-B*57:01	1	516	524	9	HAPATVCGP 0.000182	39
HLA-A*32:01	1	521	530	10	VCGPKKSTNL 0.000182	21
HLA-B*07:02	1	539	548	10	NFNGLTGTGV 0.000182	25
HLA-A*02:03	1	544	552	9	TGTGVLTES 0.000182	30
HLA-A*02:01	1	569	578	10	TTDAVRDPQT 0.000182	27
HLA-B*58:01	1	613	622	10	NCTEVPVAIH 0.000182	29
HLA-A*26:01	1	649	658	10	GAEHVNNSYE 0.000182	23
HLA-A*02:01	1	660	669	10	DIPIGAGICA 0.000182	27
HLA-B*35:01	1	672	680	9	QTQTNSPRR 0.000182	20
HLA-A*33:01	1	701	710	10	SVAYSNNNSIA 0.000182	28
HLA-B*51:01	1	706	714	9	NNSIAIPTN 0.000182	35
HLA-B*44:02	1	801	809	9	QILPDPSKP 0.000182	18
HLA-A*02:03	1	842	850	9	AARDLICAQ 0.000182	30
HLA-A*03:01	1	951	959	9	QNAQALNTL 0.000182	23
HLA-B*08:01	1	952	961	10	NAQALNTLVK 0.000182	39
HLA-A*26:01	1	957	965	9	NTLVKQLSS 0.000182	23
HLA-A*33:01	1	987	996	10	EVQIDRLITG 0.000182	28
HLA-A*23:01	1	996	1005	10	GRLQSLQTYV 0.000182	17
HLA-B*40:01	1	1004	1012	9	YVTQQLIRA 0.000182	16
HLA-B*53:01	1	1005	1013	9	VTQQLIRAA 0.000182	19
HLA-A*11:01	1	1067	1075	9	AQEKNFTTA 0.000182	18
HLA-B*53:01	1	1103	1111	9	QRNFYEPQI 0.000182	19
HLA-A*02:01	1	1152	1161	10	YFKNHTSPDV 0.000182	27
HLA-A*24:02	1	1154	1163	10	KNHTSPDVDL 0.000182	16
HLA-A*23:01	1	1170	1178	9	NASVVNIQK 0.000182	17
HLA-A*31:01	1	1220	1228	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	GVYFASTEKS 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	KSWMESEFR 0.000181	23
HLA-A*30:02	1	154	162	9	ESEFRVYSS 0.000181	47
HLA-B*08:01	1	212	221	10	LVRGLPQGF 0.000181	39
HLA-B*44:02	1	313	321	9	SNFRVQPT 0.000181	18
HLA-A*23:01	1	347	356	10	VYAWNRKRIS 0.000181	17
HLA-B*15:01	1	347	355	9	VYAWNRKRI 0.000181	28
HLA-A*03:01	1	354	363	10	RISNCVADYS 0.000181	23
HLA-A*33:01	1	360	369	10	ADYSVLYNSA 0.000181	28
HLA-B*40:01	1	368	376	9	SASFSTFKC 0.000181	16
HLA-B*35:01	1	397	406	10	FVIRGDEVQR 0.000181	20
HLA-A*30:01	1	411	419	9	QTGNIADYN 0.000181	50
HLA-B*57:01	1	413	421	9	GNIADYNYK 0.000181	39
HLA-A*33:01	1	495	504	10	QPTYGVGYQP 0.000181	28
HLA-A*26:01	1	497	506	10	TYGVGYQPYR 0.000181	23
HLA-B*08:01	1	508	516	9	VVLSFELLH 0.000181	39
HLA-A*24:02	1	557	566	10	LPFQQFGRDI 0.000181	16
HLA-B*08:01	1	561	570	10	QFGRDIADTT 0.000181	39
HLA-A*32:01	1	594	602	9	VITPGTNTS 0.000181	21
HLA-A*31:01	1	620	628	9	AIHADQLTP 0.000181	29
HLA-A*01:01	1	639	648	10	VFQTRAGCLI 0.000181	38
HLA-A*68:01	1	694	703	10	MSLGVENSA 0.000181	26
HLA-A*11:01	1	710	719	10	AIPTNFTISV 0.000181	18

HLA-A*26:01	1	744	752	9	TECSNLLLQ 0.000181	23
HLA-B*53:01	1	751	760	10	LQYGSFCTQL 0.000181	19
HLA-B*44:03	1	756	764	9	FCTQLNRAL 0.000181	17
HLA-B*51:01	1	799	807	9	FSQILPDPS 0.000181	35
HLA-A*32:01	1	803	811	9	LPDPSKPSK 0.000181	21
HLA-A*01:01	1	840	849	10	DIAARDLICA 0.000181	38
HLA-B*44:02	1	847	855	9	ICAQKFNGL 0.000181	18
HLA-B*35:01	1	864	873	10	DEMIAQYTS 0.000181	20
HLA-A*31:01	1	900	909	10	AYRFNGIGVT 0.000181	29
HLA-B*58:01	1	906	915	10	IGVTQNVLYE 0.000181	29
HLA-B*44:02	1	911	920	10	NVLYENQKLI 0.000181	18
HLA-B*15:01	1	929	937	9	GKIQDSLSS 0.000181	28
HLA-B*15:01	1	952	960	9	NAQALNTLV 0.000181	28
HLA-A*02:03	1	994	1003	10	ITGRLQSLQT 0.000181	30
HLA-A*68:01	1	997	1005	9	RLQSLQTYV 0.000181	26
HLA-A*02:06	1	1011	1020	10	RAAEIRASAN 0.000181	37
HLA-A*03:01	1	1014	1022	9	EIRASANLA 0.000181	23
HLA-B*57:01	1	1026	1034	9	MSECVLGQS 0.000181	39
HLA-A*31:01	1	1047	1056	10	MSFPQSAPHG 0.000181	29
HLA-B*57:01	1	1085	1094	10	HFPREGVFVS 0.000181	39
HLA-A*68:01	1	1094	1103	10	SNGTHWFVTQ 0.000181	26
HLA-B*51:01	1	1104	1113	10	RNFYEQIIT 0.000181	35
HLA-A*68:01	1	1121	1129	9	GNCDDVIGI 0.000181	26
HLA-A*03:01	1	1144	1153	10	SFKEELDKYF 0.000181	23
HLA-A*30:01	1	1155	1163	9	NHTSPDVDL 0.000181	50
HLA-A*30:01	1	1163	1172	10	LGDISGINAS 0.000181	50
HLA-B*40:01	1	1165	1173	9	DISGINASV 0.000181	16
HLA-B*40:01	1	1184	1193	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	TRGVVYDPKV 0.000181	37
HLA-A*02:03	1	38	46	9	YDPKVFRSS 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-B*08:01	1	90	98	9	VYFASTSKS 0.000181	39
HLA-A*68:01	1	113	121	9	KTQSLLIVN 0.000181	26
HLA-B*57:01	1	129	138	10	KVCEFFQCND 0.000181	39
HLA-A*02:01	1	166	175	10	CTFEYVSQPF 0.000181	28
HLA-A*03:01	1	167	176	10	TFEYVSQPFL 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*51:01	1	234	242	9	NITRFQTLH 0.000181	35
HLA-A*02:01	1	304	313	10	TVEKGIYQTS 0.000181	28
HLA-A*68:01	1	332	341	10	LCPFGEVFNA 0.000181	26
HLA-B*15:01	1	460	469	10	PFERDISTEI 0.000181	28
HLA-B*44:02	1	503	511	9	QPYRVVVL 0.000181	18
HLA-B*44:02	1	549	557	9	LTESNKKFL 0.000181	18
HLA-A*30:01	1	558	566	9	PFQQFGRDI 0.000181	50
HLA-B*51:01	1	656	665	10	SYECDIPIGA 0.000181	35
HLA-A*31:01	1	662	671	10	PIGAGICASY 0.000181	29
HLA-B*51:01	1	674	682	9	QTNSPRRAR 0.000181	35
HLA-A*24:02	1	730	738	9	KTSVDCTMY 0.000181	16
HLA-A*02:03	1	732	740	9	SVDCTMYIC 0.000181	30
HLA-B*44:02	1	758	766	9	TQLNRALTG 0.000181	18
HLA-B*53:01	1	762	770	9	RALTGIAVE 0.000181	19
HLA-A*01:01	1	769	777	9	VEQDKNTQE 0.000181	38
HLA-B*57:01	1	773	781	9	KNTQEVFAQ 0.000181	39
HLA-B*35:01	1	776	784	9	QEVFAQVKQ 0.000181	20
HLA-B*51:01	1	776	784	9	QEVFAQVKQ 0.000181	35
HLA-A*30:01	1	829	837	9	GFIKQYGD 0.000181	50
HLA-A*24:02	1	833	842	10	QYGDCLGDIA 0.000181	16
HLA-A*68:01	1	840	849	10	DIAARDLICA 0.000181	26
HLA-B*57:01	1	848	856	9	CAQKFNGLT 0.000181	39
HLA-A*02:03	1	872	880	9	SALLAGTIT 0.000181	30
HLA-A*03:01	1	888	896	9	GAALQIPFA 0.000181	23
HLA-B*44:03	1	927	935	9	AIGKIQDSL 0.000181	17
HLA-A*23:01	1	972	980	9	SVLNDILSR 0.000181	17

HLA-A*02:03	1	979	987	9	SRLDKVEAE 0.00018	30
HLA-A*30:02	1	983	991	9	KVEAEVQID 0.00018	47
HLA-B*07:02	1	993	1002	10	LITGRLQSLQ 0.00018	25
HLA-A*01:01	1	1072	1081	10	FTTAPAICHD 0.00018	38
HLA-B*35:01	1	1075	1084	10	APAICHDGKA 0.00018	20
HLA-B*07:02	1	1105	1114	10	NFYEQIITT 0.00018	25
HLA-B*58:01	1	1121	1130	10	GNCDVVIGIV 0.00018	29
HLA-A*02:03	1	1122	1130	9	NCDVVIGIV 0.00018	30
HLA-B*44:02	1	1207	1215	9	IKWPWYIWL 0.00018	18
HLA-B*35:01	1	1257	1266	10	DSEPVKGVK 0.00018	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	296	305	10	TKCTLKSFTV 0.000179	37
HLA-B*15:01	1	302	311	10	SFTVEKGIYQ 0.000179	28
HLA-A*01:01	1	336	345	10	GEVFNATRFA 0.000179	38
HLA-B*44:03	1	405	414	10	RQIAPGQTGN 0.000179	17
HLA-A*02:06	1	422	431	10	LPDDFTGCVI 0.000179	37
HLA-A*02:03	1	508	516	9	VVLSFELLH 0.000179	30
HLA-A*68:02	1	512	520	9	FELLHAPAT 0.000179	30
HLA-A*33:01	1	522	530	9	CGPKKSTNL 0.000179	29
HLA-A*02:03	1	556	565	10	FLPFQFGRD 0.000179	30
HLA-A*01:01	1	586	594	9	PCSFQGVSV 0.000179	38
HLA-A*02:06	1	586	595	10	PCSFQGVSVI 0.000179	37
HLA-A*26:01	1	598	606	9	GTNTSNQVA 0.000179	23
HLA-A*02:03	1	609	618	10	YQGVNCTEVP 0.000179	30
HLA-B*44:03	1	609	617	9	YQGVNCTEV 0.000179	17
HLA-A*11:01	1	624	632	9	DQLTPTWRV 0.000179	18
HLA-A*02:01	1	626	634	9	LTPTWRVYS 0.000179	28
HLA-A*02:01	1	632	640	9	VYSTGSNVF 0.000179	28
HLA-A*30:01	1	653	661	9	VNNSYECDI 0.000179	50
HLA-B*58:01	1	662	671	10	PIGAGICASY 0.000179	29
HLA-A*01:01	1	689	698	10	IIAYTMSLGV 0.000179	38
HLA-B*40:01	1	718	726	9	SVTTEILPV 0.000179	16
HLA-A*31:01	1	729	738	10	TKTSVDCTMY 0.000179	29
HLA-A*01:01	1	753	761	9	YGSFCTQLN 0.000179	38
HLA-A*02:06	1	756	765	10	FCTQLNRALT 0.000179	37
HLA-A*68:02	1	763	771	9	ALTGIAVEQ 0.000179	30
HLA-B*51:01	1	790	799	10	PIKDFGGFNF 0.000179	35
HLA-B*35:01	1	872	881	10	SALLAGTITS 0.000179	20
HLA-A*02:06	1	882	890	9	GWTFGAGAA 0.000179	37
HLA-B*40:01	1	904	913	10	NGIGVTQNVL 0.000179	16
HLA-A*33:01	1	914	923	10	YENQKLIANQ 0.000179	29
HLA-A*68:01	1	920	928	9	IANQFNSAI 0.000179	26
HLA-B*53:01	1	964	973	10	SSNFGAISSV 0.000179	19
HLA-A*01:01	1	967	975	9	FGAISSVLN 0.000179	38
HLA-B*57:01	1	1008	1017	10	QLIRAAEIRA 0.000179	39
HLA-B*58:01	1	1063	1071	9	TYVPAQEKN 0.000179	29
HLA-B*57:01	1	1064	1073	10	YVPAQEKNFT 0.000179	39
HLA-B*08:01	1	1116	1125	10	NTFVSGNCDV 0.000179	39
HLA-A*01:01	1	1196	1204	9	DLQELGKYE 0.000179	38
HLA-A*68:02	1	1228	1236	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*03:01	1	207	216	10	HTPINLVRGL 0.000178	23
HLA-A*02:01	1	210	219	10	INLVRGLPQG 0.000178	28
HLA-A*31:01	1	213	222	10	VRGLPQGFSA 0.000178	29
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	241	249	9	LHRSYLTPG 0.000178	47
HLA-A*02:03	1	243	251	9	RSYLTPGDS 0.000178	30
HLA-A*68:01	1	243	252	10	RSYLTPGDSS 0.000178	26
HLA-A*02:03	1	262	271	10	YYVGYLQPR 0.000178	30
HLA-A*30:01	1	353	361	9	KRISNCVAD 0.000178	50
HLA-A*68:01	1	371	379	9	FSTFKCYGV 0.000178	26
HLA-B*57:01	1	390	398	9	TNVYADSFV 0.000178	39
HLA-A*30:01	1	494	503	10	FQPTYGVGYQ 0.000178	50
HLA-A*33:01	1	505	513	9	YRVVLSFE 0.000178	29
HLA-B*44:02	1	507	515	9	VVLSFELL 0.000178	18
HLA-A*31:01	1	514	522	9	LLHAPATVC 0.000178	29
HLA-A*03:01	1	591	599	9	GVSVITPGT 0.000178	23
HLA-B*58:01	1	626	634	9	LTPTWRVYS 0.000178	29
HLA-B*15:01	1	637	646	10	SNVFQTRAGC 0.000178	28
HLA-A*68:02	1	680	688	9	RARSVASQS 0.000178	30
HLA-A*26:01	1	693	702	10	TMSLGVNSV 0.000178	23
HLA-A*30:01	1	706	714	9	NNSIAIPTN 0.000178	50
HLA-A*32:01	1	719	727	9	VTTEILPVS 0.000178	21
HLA-A*33:01	1	743	751	9	STECSNLLL 0.000178	29
HLA-A*02:03	1	757	765	9	CTQLNRALT 0.000178	30
HLA-A*30:01	1	767	776	10	IAVEQDKNTQ 0.000178	50
HLA-A*33:01	1	813	821	9	SFIEDLLFN 0.000178	29
HLA-A*01:01	1	855	864	10	LTVLPPLTLD 0.000178	38
HLA-A*30:02	1	855	864	10	LTVLPPLTLD 0.000178	47
HLA-A*33:01	1	857	865	9	VLPPLTDE 0.000178	29
HLA-B*44:02	1	883	891	9	WTFGAGAAL 0.000178	18
HLA-A*02:03	1	907	915	9	GVTQNVLYE 0.000178	30
HLA-A*02:03	1	927	936	10	AIGKIQDLSL 0.000178	30
HLA-A*11:01	1	992	1001	10	RLITGRLQSL 0.000178	18
HLA-B*15:01	1	1015	1023	9	IRASANLAA 0.000178	28
HLA-B*15:01	1	1057	1066	10	VVFLHVITYP 0.000178	28
HLA-A*03:01	1	1064	1072	9	YVPAQEKNF 0.000178	23
HLA-A*02:01	1	1137	1146	10	PLQPELDSFK 0.000178	28
HLA-A*26:01	1	1155	1163	9	NHTSPDVDL 0.000178	23
HLA-A*68:02	1	1201	1209	9	GKYEQYIKW 0.000178	30
HLA-A*02:06	1	1203	1212	10	YEQYIKWPWY 0.000178	37
HLA-B*53:01	1	1206	1215	10	YIKWPWYIWL 0.000178	19
HLA-B*08:01	1	1232	1241	10	CCMTSCCSCL 0.000178	39
HLA-B*35:01	1	1256	1265	10	DDSEPVLKGV 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	250	258	9	DSSSGWTAG 0.000177	29
HLA-B*07:02	1	258	267	10	GAAAYVGYL 0.000177	25
HLA-B*44:02	1	261	269	9	AYYVGYLQP 0.000177	18
HLA-A*32:01	1	302	310	9	SFTVEKGIY 0.000177	22
HLA-B*44:02	1	342	351	10	TRFASVYAWN 0.000177	18
HLA-A*02:06	1	351	359	9	NRKRISNCF 0.000177	37
HLA-B*07:02	1	363	372	10	SVLYNSASF 0.000177	25
HLA-B*58:01	1	363	372	10	SVLYNSASF 0.000177	29
HLA-A*26:01	1	376	384	9	CYGVSPTKL 0.000177	24
HLA-B*44:03	1	376	384	9	CYGVSPTKL 0.000177	17

HLA-A*30:01	1	437	446	10	NLDSKVGNGY 0.000177	50
HLA-A*68:02	1	460	469	10	PFERDISTEI 0.000177	30
HLA-A*30:01	1	488	496	9	PLQSYGFQP 0.000177	50
HLA-A*68:01	1	583	592	10	DITPCSFQGV 0.000177	26
HLA-B*58:01	1	591	600	10	GVSVITPGTN 0.000177	29
HLA-B*08:01	1	644	652	9	AGCLIGAHEH 0.000177	39
HLA-A*24:02	1	696	704	9	LGVENSVAY 0.000177	17
HLA-B*51:01	1	726	735	10	VSMTKTSVDC 0.000177	35
HLA-B*51:01	1	754	763	10	GSFCTQLNRA 0.000177	35
HLA-A*30:01	1	767	775	9	IAVEQDKNT 0.000177	50
HLA-B*44:02	1	792	801	10	KDFGGFNFSQ 0.000177	18
HLA-A*68:02	1	825	833	9	LADAGFIKQ 0.000177	30
HLA-B*08:01	1	847	856	10	ICAQKFNGLT 0.000177	39
HLA-B*07:02	1	897	906	10	MQMAYRFNGI 0.000177	25
HLA-A*31:01	1	933	941	9	DSLSSTASA 0.000177	29
HLA-B*07:02	1	944	953	10	KLQDVVNQNA 0.000177	25
HLA-A*01:01	1	961	969	9	KQLSSNFGA 0.000177	38
HLA-B*57:01	1	1028	1036	9	ECVLGQSKR 0.000177	39
HLA-B*57:01	1	1031	1040	10	LGQSKRVDFC 0.000177	39
HLA-A*24:02	1	1052	1061	10	SAPHGVVFLH 0.000177	17
HLA-B*44:03	1	1107	1116	10	YEPQIITTDN 0.000177	17
HLA-A*02:01	1	1128	1137	10	GIVNNTVYDP 0.000177	28
HLA-A*30:01	1	1195	1203	9	IDLQELGKY 0.000177	50
HLA-A*68:02	1	1203	1211	9	YEQYIKWPW 0.000177	30
HLA-A*32:01	1	1221	1230	10	LIAIVMVTIM 0.000177	22
HLA-A*33:01	1	1233	1242	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	VYYPDKVFRS 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	WIFGTTLDLSD 0.000176	35
HLA-B*57:01	1	105	113	9	IFGTTLDLSD 0.000176	39
HLA-A*33:01	1	114	123	10	TQSLIVNNA 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	NFKNLREFVF 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-A*02:01	1	235	244	10	ITRFQTLHRS 0.000176	28
HLA-A*68:02	1	261	270	10	AYYVGYLQPR 0.000176	30
HLA-A*11:01	1	265	274	10	GYLQPRTFLL 0.000176	18
HLA-A*11:01	1	280	288	9	GTITDAVDC 0.000176	18
HLA-A*02:03	1	373	381	9	TFKCYGVSP 0.000176	30
HLA-A*02:06	1	378	386	9	GVSPTKLND 0.000176	37
HLA-A*33:01	1	395	403	9	DSFVIRGDE 0.000176	29
HLA-A*26:01	1	405	413	9	RQIAPGQTG 0.000176	24
HLA-A*26:01	1	466	475	10	STEIYQAGST 0.000176	24
HLA-B*35:01	1	477	486	10	CNGVKGFNCY 0.000176	20
HLA-A*03:01	1	486	494	9	YFPLQSYGF 0.000176	23
HLA-B*58:01	1	585	594	10	TPCSFGGVS 0.000176	29
HLA-A*02:01	1	704	712	9	YSNNSIAP 0.000176	28
HLA-A*33:01	1	720	729	10	TTEILPVSM 0.000176	29
HLA-B*44:03	1	743	751	9	STECNLLL 0.000176	17
HLA-B*44:02	1	755	764	10	SFCTQLNRAL 0.000176	18
HLA-A*02:06	1	768	776	9	AVEQDKNTQ 0.000176	37
HLA-B*40:01	1	799	808	10	FSQILPDPK 0.000176	16
HLA-B*35:01	1	854	862	9	GLTVLPPLL 0.000176	20
HLA-A*68:02	1	918	926	9	KLIANQFNS 0.000176	30
HLA-A*03:01	1	926	935	10	SAIGKIQDSL 0.000176	23

HLA-A*01:01	1	934	943	10	SLSSTASALG 0.000176	38
HLA-B*53:01	1	968	977	10	GAISSVLNDI 0.000176	19
HLA-B*15:01	1	979	988	10	SRLDKVEAEV 0.000176	28
HLA-B*51:01	1	982	991	10	DKVEAEVQID 0.000176	35
HLA-A*33:01	1	984	993	10	VEAEVQIDRL 0.000176	29
HLA-B*40:01	1	995	1004	10	TGRLQSLQTY 0.000176	16
HLA-B*35:01	1	1004	1013	10	YVTQQLIRAA 0.000176	20
HLA-B*07:02	1	1009	1018	10	LIRAAEIRAS 0.000176	25
HLA-B*35:01	1	1022	1031	10	AATKMSECVL 0.000176	20
HLA-A*68:02	1	1026	1034	9	MSECVLGQS 0.000176	30
HLA-A*26:01	1	1068	1076	9	QEKNFHTAP 0.000176	24
HLA-B*44:02	1	1133	1141	9	TVYDPLQPE 0.000176	18
HLA-A*31:01	1	1192	1200	9	ESLIDLQEL 0.000176	29
HLA-A*02:01	1	1203	1211	9	YEQYIKWPW 0.000176	28
HLA-B*57:01	1	1208	1216	9	KWPWYIWLG 0.000176	39
HLA-A*68:01	1	1256	1265	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	KSWMSEFR 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	NLREFVFNK 0.000175	22
HLA-A*03:01	1	232	241	10	GINITRFQTL 0.000175	23
HLA-B*08:01	1	258	267	10	GAAAYVGYL 0.000175	39
HLA-A*32:01	1	304	312	9	TVEKGIYQT 0.000175	22
HLA-B*07:02	1	308	316	9	GIYQTSNFR 0.000175	25
HLA-B*15:01	1	311	319	9	QTSNFRVQP 0.000175	28
HLA-B*07:02	1	451	460	10	RLFRKSNLKP 0.000175	25
HLA-A*30:02	1	549	558	10	LTESNKKFLP 0.000175	48
HLA-A*02:01	1	555	563	9	KFLPFQFG 0.000175	28
HLA-A*30:01	1	613	622	10	NCTEVPVAIH 0.000175	50
HLA-A*02:06	1	711	720	10	IPTNFTISVT 0.000175	37
HLA-A*33:01	1	750	759	10	LLQYGSFCTQ 0.000175	29
HLA-B*57:01	1	776	784	9	QEVFAQVKQ 0.000175	39
HLA-A*01:01	1	781	789	9	QVKQIYKTP 0.000175	38
HLA-A*30:02	1	794	803	10	FGGFNFSQIL 0.000175	48
HLA-A*03:01	1	811	819	9	KRSFIEDLL 0.000175	23
HLA-B*07:02	1	814	823	10	FIEDLLFNKV 0.000175	25
HLA-B*58:01	1	816	825	10	EDLLFNKVTL 0.000175	29
HLA-A*02:06	1	843	851	9	ARDLICAQK 0.000175	37
HLA-A*23:01	1	869	878	10	QYTSALLAGT 0.000175	17
HLA-B*15:01	1	872	881	10	SALLAGTITS 0.000175	28
HLA-B*53:01	1	877	886	10	GTITSGWTFG 0.000175	19
HLA-B*07:02	1	883	892	10	WTFGAGAALQ 0.000175	25
HLA-A*26:01	1	894	903	10	PFAMQMAYRF 0.000175	24
HLA-B*44:02	1	915	923	9	ENQKLIANQ 0.000175	18
HLA-A*33:01	1	918	927	10	KLIANQFNFA 0.000175	29
HLA-A*33:01	1	1044	1052	9	YHLMSFPQS 0.000175	29
HLA-A*24:02	1	1101	1109	9	VTQRNFYEP 0.000175	17
HLA-A*24:02	1	1119	1127	9	VSGNCDVVI 0.000175	17
HLA-A*01:01	1	1129	1137	9	IVNNTVYDP 0.000175	38
HLA-A*01:01	1	1167	1176	10	SGINASVUNI 0.000175	38
HLA-A*26:01	1	1173	1182	10	VVNIQKEIDR 0.000175	24
HLA-B*08:01	1	1182	1191	10	RLNEVAKNLN 0.000175	39
HLA-B*53:01	1	1193	1201	9	SLIDLQELG 0.000175	19
HLA-A*23:01	1	1195	1203	9	IDLQELGKY 0.000175	17
HLA-A*33:01	1	1218	1226	9	IAGLIAIVM 0.000175	29
HLA-A*02:06	1	1226	1235	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	VIKVFCEQFC 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	249	257	9	GDSSSGWTA 0.000174	39
HLA-B*44:02	1	310	318	9	YQTSNFRVQ 0.000174	18
HLA-A*01:01	1	322	330	9	SIVRFPNIT 0.000174	38
HLA-B*58:01	1	340	349	10	NATRFASVYA 0.000174	29
HLA-A*02:01	1	348	356	9	YAWNKRKRIS 0.000174	28
HLA-A*32:01	1	369	378	10	ASFSTFKCYG 0.000174	22
HLA-B*35:01	1	395	404	10	DSFVIRGDEV 0.000174	20
HLA-B*40:01	1	405	414	10	RQIAPGQTGN 0.000174	16
HLA-B*58:01	1	564	573	10	RDIADTTDAV 0.000174	29
HLA-A*02:03	1	612	620	9	VNCTEVPVA 0.000174	30
HLA-B*44:02	1	677	685	9	SPRRARSVA 0.000174	18
HLA-A*33:01	1	798	806	9	NFSQILPDP 0.000174	29
HLA-B*57:01	1	799	807	9	FSQILPDPS 0.000174	39
HLA-A*30:01	1	805	813	9	DPSKPSKRS 0.000174	50
HLA-A*02:06	1	836	844	9	DCLGDIAAR 0.000174	37
HLA-B*51:01	1	841	850	10	IAARDLICAQ 0.000174	35
HLA-B*44:03	1	850	859	10	QKFNGLTVLP 0.000174	17
HLA-A*11:01	1	926	934	9	SAIGKIQDS 0.000174	18
HLA-B*44:02	1	981	990	10	LDKVEAEVQI 0.000174	18
HLA-A*23:01	1	1015	1023	9	IRASANLAA 0.000174	17
HLA-B*44:02	1	1044	1053	10	YHLSFQPQA 0.000174	18
HLA-B*58:01	1	1045	1054	10	HLMSFPQSAP 0.000174	29
HLA-A*11:01	1	1047	1056	10	MSFPQSAPHG 0.000174	18
HLA-A*26:01	1	1069	1078	10	EKNFTTAPAI 0.000174	24
HLA-B*51:01	1	1078	1087	10	ICHDGKAHFP 0.000174	35
HLA-A*23:01	1	1079	1088	10	CHDGKAHFP 0.000174	17
HLA-B*35:01	1	1107	1116	10	YEPQIITTDN 0.000174	20
HLA-B*40:01	1	1153	1161	9	FKNHTSPDV 0.000174	16
HLA-A*31:01	1	1200	1209	10	LGKYEQYIKW 0.000174	30
HLA-A*24:02	1	1210	1219	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	VYYDPKVFVS 0.000173	31
HLA-B*44:02	1	38	46	9	YDPKVFVRS 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*23:01	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	HKNKNSWME 0.000173	29
HLA-B*40:01	1	229	237	9	LPIGINITR 0.000173	16
HLA-A*03:01	1	324	333	10	VRFPNITNLC 0.000173	23
HLA-B*40:01	1	346	354	9	SVYAWNKRKR 0.000173	16
HLA-B*40:01	1	378	387	10	GVSPTKLNDL 0.000173	16
HLA-B*51:01	1	400	409	10	RGDEVQRQIAP 0.000173	35
HLA-B*57:01	1	400	409	10	RGDEVQRQIAP 0.000173	39
HLA-A*68:02	1	418	427	10	YNYKLPDDFT 0.000173	30
HLA-A*24:02	1	437	446	10	NLDSKVGQNY 0.000173	17
HLA-A*11:01	1	463	472	10	RDISTEIQQA 0.000173	18
HLA-A*30:02	1	532	541	10	KNKCVNFNFN 0.000173	48
HLA-B*15:01	1	571	580	10	DAVRDPQTLE 0.000173	28
HLA-B*08:01	1	626	634	9	LTPTWRVYS 0.000173	40
HLA-B*35:01	1	632	641	10	VYSTGSNVFQ 0.000173	20
HLA-B*44:02	1	651	659	9	EHVNNSYEC 0.000173	18
HLA-B*40:01	1	681	690	10	ARSVASQSII 0.000173	16
HLA-B*08:01	1	710	718	9	AIPTNFTIS 0.000173	40
HLA-B*58:01	1	727	735	9	SMTKTSVDC 0.000173	30
HLA-B*35:01	1	776	785	10	QEVFAQVKQI 0.000173	20
HLA-A*23:01	1	818	826	9	LLFNKVTLA 0.000173	17
HLA-B*57:01	1	858	867	10	LPPLLTDEMI 0.000173	39
HLA-A*01:01	1	872	881	10	SALLAGTITS 0.000173	38

HLA-B*57:01	1	892	900	9	QIPFAMQMA	0.000173	39
HLA-A*33:01	1	905	914	10	GIGVTQNVLY	0.000173	29
HLA-A*68:02	1	907	915	9	GVTQNVLYE	0.000173	30
HLA-A*30:01	1	925	933	9	NSAIGKIQD	0.000173	50
HLA-A*11:01	1	931	939	9	IQDLSSTA	0.000173	18
HLA-A*33:01	1	931	939	9	IQDLSSTA	0.000173	29
HLA-A*02:06	1	985	994	10	EAEVQIDRLI	0.000173	37
HLA-B*44:02	1	987	996	10	EVQIDRLITG	0.000173	18
HLA-B*15:01	1	994	1002	9	ITGRLQSLQ	0.000173	28
HLA-A*30:02	1	1012	1020	9	AAEIRASAN	0.000173	48
HLA-A*03:01	1	1015	1023	9	IRASANLAA	0.000173	23
HLA-B*57:01	1	1028	1037	10	ECVLGQSKRV	0.000173	39
HLA-A*68:01	1	1037	1046	10	VDFCGKGYHL	0.000173	27
HLA-B*40:01	1	1053	1062	10	APHGVVFLHV	0.000173	16
HLA-A*68:02	1	1068	1077	10	QEKNFTTAPA	0.000173	30
HLA-B*35:01	1	1077	1085	9	AICHDGKAH	0.000173	20
HLA-A*24:02	1	1079	1088	10	CHDGKAHFPR	0.000173	17
HLA-A*68:01	1	1081	1089	9	DGKAHFPRE	0.000173	27
HLA-A*03:01	1	1106	1114	9	FYEPQIITT	0.000173	23
HLA-B*08:01	1	1108	1117	10	EPQIITDNT	0.000173	40
HLA-A*30:01	1	1164	1172	9	GDISGINAS	0.000173	50
HLA-A*68:02	1	1223	1232	10	AIVMVTIMLC	0.000173	30
HLA-A*68:02	1	1254	1263	10	DEDDSEPVLK	0.000173	30
HLA-B*58:01	1	1257	1266	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	TQSLIVNN	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	SQPFLMDLE	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-A*31:01	1	208	216	9	TPINLVRGL	0.000172	30
HLA-B*44:03	1	226	235	10	LVDLPIGINI	0.000172	17
HLA-B*07:02	1	243	252	10	RSYLTPGDSS	0.000172	26
HLA-B*08:01	1	250	259	10	DSSSGWTAGA	0.000172	40
HLA-A*30:01	1	285	294	10	AVDCALDPLS	0.000172	50
HLA-A*33:01	1	311	320	10	QTSNFRVQPT	0.000172	29
HLA-A*33:01	1	330	338	9	TNLCPFGEV	0.000172	29
HLA-A*33:01	1	335	344	10	FGEVFNATRF	0.000172	29
HLA-A*30:02	1	357	365	9	NCVADYSVL	0.000172	48
HLA-A*33:01	1	364	373	10	VLYNSASFST	0.000172	29
HLA-A*30:01	1	425	433	9	DFTGCVIAW	0.000172	50
HLA-A*31:01	1	459	467	9	KPFERDIST	0.000172	30
HLA-A*02:03	1	483	492	10	FNCYFPLQSY	0.000172	31
HLA-B*15:01	1	495	504	10	QPTYGVGYQP	0.000172	28
HLA-A*30:02	1	560	568	9	QQFGRDIAD	0.000172	48
HLA-A*32:01	1	565	573	9	DIADTTDAV	0.000172	22
HLA-A*30:02	1	576	584	9	PQTLEILDI	0.000172	48
HLA-A*68:02	1	578	586	9	TLEILDITP	0.000172	31
HLA-B*57:01	1	605	613	9	VAVLYQGVN	0.000172	40
HLA-A*68:01	1	607	616	10	VLYQGVNCTE	0.000172	27
HLA-B*15:01	1	633	641	9	YSTGNSVFQ	0.000172	28
HLA-B*07:02	1	673	681	9	TQTNSPRRA	0.000172	26
HLA-B*57:01	1	676	685	10	NSPRRARSVA	0.000172	40
HLA-B*51:01	1	705	713	9	SNNSIAIPT	0.000172	35
HLA-B*57:01	1	722	731	10	EILPVSMTKT	0.000172	40
HLA-B*07:02	1	727	735	9	SMTKTSVDC	0.000172	26
HLA-B*07:02	1	745	753	9	ECSNLLLQY	0.000172	26
HLA-B*07:02	1	794	802	9	FGGFNFSQI	0.000172	26
HLA-B*58:01	1	801	810	10	QILPDPSPKS	0.000172	30

HLA-B*51:01	1	837	846	10	CLGDIAARDL 0.000172	35
HLA-B*53:01	1	848	857	10	CAQKFNGLTV 0.000172	19
HLA-A*33:01	1	885	893	9	FGAGAALQI 0.000172	29
HLA-A*33:01	1	903	912	10	FNGIGVTQNV 0.000172	29
HLA-A*30:02	1	928	937	10	IGKIQDSLSS 0.000172	48
HLA-A*03:01	1	969	978	10	AISSVLNDIL 0.000172	23
HLA-A*68:01	1	971	979	9	SSVLNDILS 0.000172	27
HLA-B*44:02	1	976	984	9	DILSRLDKV 0.000172	18
HLA-B*58:01	1	1003	1012	10	TYVTQQLIRA 0.000172	30
HLA-A*02:06	1	1047	1056	10	MSFPQSAPHG 0.000172	37
HLA-A*30:01	1	1075	1084	10	APAICHDGKA 0.000172	50
HLA-A*68:01	1	1078	1086	9	ICHDGKAHF 0.000172	27
HLA-B*44:02	1	1117	1125	9	TFVSGNCDV 0.000172	18
HLA-A*02:03	1	1130	1138	9	VNNTVYDPL 0.000172	31
HLA-A*02:06	1	1192	1201	10	ESLIDLQELG 0.000172	37
HLA-B*07:02	1	1201	1209	9	GKYEQYIKW 0.000172	26
HLA-A*01:01	1	1221	1229	9	LIAIVMVTI 0.000172	38
HLA-B*15:01	1	1224	1232	9	IVMVTIMLC 0.000172	28
HLA-A*01:01	1	106	115	10	FGTTLDLSDTKQ 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*30:02	1	213	221	9	VRGLPQGFS 0.000171	48
HLA-B*08:01	1	253	262	10	SGWTAGAAAY 0.000171	40
HLA-A*32:01	1	274	282	9	LKYNENGTI 0.000171	22
HLA-A*11:01	1	280	289	10	GTITDAVDCA 0.000171	18
HLA-B*08:01	1	325	334	10	RFPNITNLCP 0.000171	40
HLA-A*03:01	1	329	337	9	ITNLCPFGE 0.000171	23
HLA-B*08:01	1	353	362	10	KRISNCVADY 0.000171	40
HLA-B*08:01	1	363	372	10	SVLYNSASF 0.000171	40
HLA-B*58:01	1	420	428	9	YKLPDDFTG 0.000171	30
HLA-A*30:01	1	435	443	9	SNNLDSKVG 0.000171	51
HLA-A*03:01	1	452	461	10	LFRKSNLKPF 0.000171	23
HLA-A*02:06	1	465	473	9	ISTEIQAG 0.000171	37
HLA-A*33:01	1	491	499	9	SYGFQPTYG 0.000171	29
HLA-A*33:01	1	502	511	10	YQPYRVVVL 0.000171	29
HLA-A*68:01	1	509	517	9	VLSFELLHA 0.000171	27
HLA-B*57:01	1	512	521	10	FELLHAPATV 0.000171	40
HLA-A*02:03	1	519	527	9	ATVCGPKKS 0.000171	31
HLA-B*51:01	1	536	544	9	VNFNFNGLT 0.000171	35
HLA-A*11:01	1	542	551	10	GLTGTGVLTE 0.000171	18
HLA-A*31:01	1	580	588	9	EILDITPCS 0.000171	30
HLA-A*30:01	1	591	600	10	GVSVITPGTN 0.000171	51
HLA-A*31:01	1	591	599	9	GVSVITPGT 0.000171	30
HLA-B*51:01	1	634	643	10	STGSNVFQTR 0.000171	35
HLA-A*24:02	1	659	667	9	CDIPIGAGI 0.000171	17
HLA-B*35:01	1	680	688	9	RARSVASQS 0.000171	20
HLA-B*44:02	1	680	689	10	RARSVASQSI 0.000171	18
HLA-B*44:03	1	690	698	9	IAYTMSLVG 0.000171	17
HLA-B*40:01	1	745	753	9	ECSNLLLQY 0.000171	16
HLA-A*30:02	1	750	758	9	LLQYGSFCT 0.000171	48
HLA-A*02:06	1	763	772	10	ALTGIAVEQD 0.000171	37
HLA-A*11:01	1	770	778	9	EQDKNTQEV 0.000171	18
HLA-B*53:01	1	807	816	10	SKPSKRSFIE 0.000171	19
HLA-A*24:02	1	810	819	10	SKRSFIEDLL 0.000171	17
HLA-A*30:01	1	838	847	10	LGDIAARDLI 0.000171	51
HLA-A*02:03	1	851	860	10	KFNGLTVLPP 0.000171	31
HLA-B*57:01	1	881	890	10	SGWTFGAGAA 0.000171	40
HLA-B*44:02	1	910	919	10	QNVLYENQKL 0.000171	18
HLA-A*02:06	1	945	954	10	LQDVVNQNAQ 0.000171	37
HLA-B*40:01	1	947	956	10	DVVNQNQAAL 0.000171	16
HLA-A*02:03	1	948	957	10	VVNQNAQALN 0.000171	31
HLA-A*33:01	1	954	963	10	QALNTLVKQL 0.000171	29
HLA-A*11:01	1	980	988	9	RLDKVEAEV 0.000171	18
HLA-B*08:01	1	997	1006	10	RLQSLQTYVT 0.000171	40
HLA-B*07:02	1	1008	1017	10	QLIRAAEIRA 0.000171	26
HLA-A*30:02	1	1010	1018	9	IRAAEIRAS 0.000171	48

HLA-A*02:06	1	1036	1045	10	RVDFCGKGYH 0.000171	37
HLA-A*02:01	1	1053	1061	9	APHGVVFLH 0.000171	28
HLA-B*44:03	1	1057	1065	9	VVFLHVTVV 0.000171	17
HLA-B*08:01	1	1081	1090	10	DGKAHFPPREG 0.000171	40
HLA-B*58:01	1	1082	1091	10	GKAHFPPREGV 0.000171	30
HLA-A*01:01	1	1094	1102	9	SNGTHWFVT 0.000171	39
HLA-A*01:01	1	1121	1130	10	GNCDVVIGIV 0.000171	39
HLA-B*08:01	1	1139	1147	9	QPELDSFKE 0.000171	40
HLA-B*35:01	1	1156	1164	9	HTSPDVDLG 0.000171	20
HLA-A*03:01	1	1165	1173	9	DISGINASV 0.000171	23
HLA-B*35:01	1	1179	1188	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	CVNLTRTQ 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-B*58:01	1	89	98	10	GVYFASTEKS 0.00017	30
HLA-B*08:01	1	124	132	9	TNVVIKVC 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	244	253	10	SYLTPGDSSS 0.00017	29
HLA-A*31:01	1	252	261	10	SSGWTAGAAA 0.00017	30
HLA-A*11:01	1	293	302	10	LSETKCTLKS 0.00017	18
HLA-B*44:03	1	333	341	9	CPFGEVFNA 0.00017	17
HLA-A*68:01	1	390	399	10	TNVYADSFVI 0.00017	27
HLA-B*53:01	1	392	400	9	VYADSFVIR 0.00017	19
HLA-A*01:01	1	397	406	10	FVIRGDEVRO 0.00017	39
HLA-A*23:01	1	406	415	10	QIAPGQTGNI 0.00017	17
HLA-A*30:01	1	427	435	9	TGCVIAWNS 0.00017	51
HLA-B*40:01	1	444	453	10	GNYNLYRLF 0.00017	16
HLA-A*24:02	1	447	456	10	NYLYRLFRRKS 0.00017	17
HLA-A*01:01	1	448	456	9	YLYRLFRRKS 0.00017	39
HLA-B*07:02	1	455	463	9	KSNLKPFR 0.00017	26
HLA-B*58:01	1	457	465	9	NLKPFRDI 0.00017	30
HLA-B*57:01	1	480	489	10	VKGFNCYFPL 0.00017	40
HLA-A*02:06	1	514	523	10	LLHAPATVCG 0.00017	37
HLA-B*58:01	1	541	549	9	NGLTGTGVL 0.00017	30
HLA-A*26:01	1	609	617	9	YQGVNCTEV 0.00017	24
HLA-B*07:02	1	620	629	10	AIHADQLTPT 0.00017	26
HLA-A*24:02	1	656	664	9	SYECDIPIG 0.00017	17
HLA-B*57:01	1	665	674	10	AGICASYQTQ 0.00017	40
HLA-A*32:01	1	666	674	9	GICASYQTQ 0.00017	22
HLA-A*02:06	1	675	684	10	TNSPRRARSV 0.00017	37
HLA-A*01:01	1	718	727	10	SVTTEILPVS 0.00017	39
HLA-A*32:01	1	727	735	9	SMTKTSVDC 0.00017	22
HLA-A*23:01	1	745	753	9	ECSNLLLQY 0.00017	17
HLA-A*03:01	1	786	794	9	YKTPPIKDF 0.00017	23
HLA-A*01:01	1	792	800	9	KDFGGFNFS 0.00017	39
HLA-B*57:01	1	792	801	10	KDFGGFNFSQ 0.00017	40
HLA-A*03:01	1	806	814	9	PSKPSKRSF 0.00017	23
HLA-B*51:01	1	807	816	10	SKPSKRSFIE 0.00017	35
HLA-B*51:01	1	810	819	10	SKRSFIEDLL 0.00017	35
HLA-B*44:02	1	885	893	9	FGAGAALQI 0.00017	18
HLA-A*24:02	1	886	895	10	GAGAALQIPF 0.00017	17
HLA-B*07:02	1	906	914	9	IGVTQNVLY 0.00017	26
HLA-A*03:01	1	938	946	9	TASALGKLQ 0.00017	23
HLA-A*33:01	1	994	1002	9	ITGRLQSLQ 0.00017	29
HLA-A*68:01	1	1000	1009	10	SLQTYVTQQL 0.00017	27
HLA-B*35:01	1	1000	1009	10	SLQTYVTQQL 0.00017	20
HLA-A*68:02	1	1027	1036	10	SECVLGQSKR 0.00017	31
HLA-B*15:01	1	1086	1094	9	FPREGVFVS 0.00017	29
HLA-A*30:01	1	1089	1097	9	EGVFVSNGT 0.00017	51

HLA-A*02:06	1	1095	1104	10	NGTHWFVTQR 0.00017	37
HLA-A*30:01	1	1111	1120	10	IITTDNTFVS 0.00017	51
HLA-A*30:01	1	1145	1153	9	FKEELDKYF 0.00017	51
HLA-B*53:01	1	1179	1188	10	EIDRLNEVAK 0.00017	19
HLA-B*44:02	1	1255	1264	10	EDDSEPVLKG 0.00017	18
HLA-A*32:01	1	15	23	9	CVNLTRRTQ 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	IHSVGTNGT 0.000169	35
HLA-A*68:02	1	70	78	9	VSGTNGTKR 0.000169	31
HLA-A*11:01	1	77	85	9	KRFANPVLP 0.000169	18
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-B*51:01	1	215	224	10	GLPQGFSALE 0.000169	35
HLA-A*02:01	1	270	278	9	RTFLLKYNE 0.000169	28
HLA-B*08:01	1	390	398	9	TNVYADSFV 0.000169	40
HLA-A*01:01	1	403	412	10	EVROIAPGQT 0.000169	39
HLA-B*08:01	1	404	412	9	VRQIAPGQT 0.000169	40
HLA-A*33:01	1	438	446	9	LDSKVGNGY 0.000169	29
HLA-A*01:01	1	447	455	9	NYLYRLFRK 0.000169	39
HLA-B*40:01	1	459	468	10	KPFERDISTE 0.000169	16
HLA-A*03:01	1	463	471	9	RDISTEIQY 0.000169	23
HLA-A*68:02	1	485	493	9	CYFPLQSYG 0.000169	31
HLA-B*53:01	1	491	500	10	SYGFQPTYGV 0.000169	19
HLA-A*02:03	1	547	555	9	GVLTESNKK 0.000169	31
HLA-A*26:01	1	555	564	10	KFLPFQQFGR 0.000169	24
HLA-B*08:01	1	555	563	9	KFLPFQQFG 0.000169	40
HLA-B*15:01	1	591	599	9	GVSVITPGT 0.000169	29
HLA-A*03:01	1	656	665	10	SYECDIPIGA 0.000169	23
HLA-B*51:01	1	667	675	9	ICASYQTQT 0.000169	35
HLA-B*57:01	1	670	679	10	SYQTQTNSPR 0.000169	40
HLA-A*33:01	1	675	684	10	TNSPRRARSV 0.000169	29
HLA-B*40:01	1	742	750	9	DSTECSNLL 0.000169	16
HLA-B*08:01	1	757	765	9	CTQLNRALT 0.000169	40
HLA-A*03:01	1	770	778	9	EQDKNTQEV 0.000169	23
HLA-A*30:01	1	790	798	9	PIKDFGGFN 0.000169	51
HLA-A*23:01	1	793	801	9	DFGGFNFSQ 0.000169	17
HLA-A*01:01	1	810	818	9	SKRSFIEDL 0.000169	39
HLA-B*53:01	1	872	880	9	SALLAGTIT 0.000169	19
HLA-A*02:01	1	889	898	10	AALQIPFAMQ 0.000169	28
HLA-B*40:01	1	962	970	9	QLSSNFGAI 0.000169	16
HLA-A*32:01	1	994	1002	9	ITGRLQSLQ 0.000169	22
HLA-A*11:01	1	1013	1021	9	AEIRASANL 0.000169	18
HLA-A*03:01	1	1048	1057	10	SFPQSAPHGV 0.000169	23
HLA-B*44:03	1	1079	1087	9	CHDGKAHFP 0.000169	17
HLA-B*51:01	1	1100	1108	9	FVTQRNFYE 0.000169	35
HLA-B*58:01	1	1130	1138	9	VNNTVYDPL 0.000169	30
HLA-A*30:01	1	1147	1156	10	EELDKYFKNH 0.000169	51
HLA-B*57:01	1	1148	1156	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	QSLIVNNA 0.000168	26
HLA-B*51:01	1	116	124	9	SLLIVNNAT 0.000168	36
HLA-A*33:01	1	124	133	10	TNVVIKVECF 0.000168	29
HLA-A*68:02	1	127	135	9	VIKVECFQF 0.000168	31
HLA-A*68:02	1	188	196	9	NLREFVFKN 0.000168	31
HLA-B*08:01	1	255	263	9	WTAGAAAYY 0.000168	40
HLA-A*01:01	1	276	284	9	YNENGTITD 0.000168	39
HLA-B*58:01	1	304	313	10	TVEKGIYQTS 0.000168	30
HLA-A*02:01	1	307	315	9	KGIYQTSNF 0.000168	28
HLA-A*26:01	1	321	330	10	ESIVRFPNIT 0.000168	24
HLA-B*44:02	1	346	355	10	SVYAWNRKRI 0.000168	18

HLA-A*33:01	1	380	389	10	SPTKLNLDLCF 0.000168	29
HLA-B*07:02	1	421	429	9	KLPDDFTGC 0.000168	26
HLA-A*02:06	1	483	491	9	FNCYFPLQS 0.000168	37
HLA-A*02:01	1	492	501	10	YGFQPTYGVG 0.000168	28
HLA-B*44:03	1	504	512	9	PYRVVLSF 0.000168	17
HLA-B*07:02	1	527	536	10	STNLVKNKCV 0.000168	26
HLA-B*07:02	1	571	580	10	DAVRDPQTLE 0.000168	26
HLA-A*33:01	1	587	595	9	CSFGGVSVI 0.000168	29
HLA-B*08:01	1	588	597	10	SFGGVSIVITP 0.000168	40
HLA-B*58:01	1	607	615	9	VLYQGVNCT 0.000168	30
HLA-A*23:01	1	669	678	10	ASYQTQTNSP 0.000168	17
HLA-B*44:02	1	671	679	9	YQTQTNSPR 0.000168	18
HLA-A*02:06	1	687	695	9	QSIIAYTMS 0.000168	37
HLA-A*31:01	1	714	722	9	NFTISVTTE 0.000168	30
HLA-B*53:01	1	721	729	9	TEILPVSMT 0.000168	19
HLA-A*30:01	1	723	732	10	ILPVSMTKTS 0.000168	51
HLA-B*35:01	1	744	752	9	TECSNLLLQ 0.000168	20
HLA-B*08:01	1	771	780	10	QDKNTQEVFA 0.000168	40
HLA-B*44:02	1	789	797	9	PPIKDFGGF 0.000168	18
HLA-B*57:01	1	796	804	9	GFNFSQLP 0.000168	40
HLA-B*15:01	1	826	835	10	ADAGFIKQYG 0.000168	29
HLA-B*40:01	1	851	859	9	KFNGLTVLP 0.000168	16
HLA-B*07:02	1	911	920	10	NVLYENQKLI 0.000168	26
HLA-B*44:03	1	915	923	9	ENQKLIANQ 0.000168	17
HLA-A*01:01	1	925	934	10	NSAIGKIQDS 0.000168	39
HLA-B*08:01	1	1001	1010	10	LQTYVTQLI 0.000168	40
HLA-B*08:01	1	1110	1119	10	QIITTDNTFV 0.000168	40
HLA-A*01:01	1	1205	1214	10	QYIKWPWYIW 0.000168	39
HLA-A*32:01	1	1234	1242	9	MTSCCCLK 0.000168	22
HLA-A*33:01	1	1256	1265	10	DDSEPVKGV 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	NLTTTRTQLPP 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*44:02	1	207	216	10	HTPINLVRGL 0.000167	18
HLA-A*23:01	1	214	222	9	RGLPQGFSA 0.000167	17
HLA-B*40:01	1	220	229	10	FSALEPLVDL 0.000167	16
HLA-A*23:01	1	255	263	9	WTAGAAAYY 0.000167	17
HLA-A*11:01	1	309	317	9	IYQTSNFRV 0.000167	18
HLA-B*15:01	1	309	317	9	IYQTSNFRV 0.000167	29
HLA-A*26:01	1	310	318	9	YQTSNFRVQ 0.000167	24
HLA-A*31:01	1	311	320	10	QTSNFRVQPT 0.000167	30
HLA-A*30:02	1	319	327	9	PTESIVRFP 0.000167	48
HLA-A*03:01	1	322	331	10	SIVRFPNITN 0.000167	24
HLA-A*24:02	1	347	356	10	VYAWNRKRIS 0.000167	17
HLA-A*02:06	1	368	377	10	SASFSTFKCY 0.000167	38
HLA-A*68:01	1	380	389	10	SPTKLNLDLCF 0.000167	27
HLA-B*07:02	1	412	420	9	TGNIADYNY 0.000167	26
HLA-B*58:01	1	450	459	10	YRLFRRKSNLK 0.000167	30
HLA-B*51:01	1	452	461	10	LFRKSNLKPF 0.000167	36
HLA-B*40:01	1	468	476	9	EIYQAGSTP 0.000167	16
HLA-A*01:01	1	542	551	10	GLTGTGVLTE 0.000167	39
HLA-A*01:01	1	568	576	9	DTTDAVRDP 0.000167	39
HLA-A*01:01	1	584	593	10	ITPCSFGGVS 0.000167	39
HLA-B*07:02	1	656	665	10	SYECDIPIGA 0.000167	26
HLA-B*58:01	1	665	674	10	AGICASYQTQ 0.000167	30
HLA-B*35:01	1	670	678	9	SYQTQTNSP 0.000167	20
HLA-A*26:01	1	688	697	10	SIIAYTMSLG 0.000167	24
HLA-B*40:01	1	690	698	9	IAYTMSLGV 0.000167	16
HLA-B*35:01	1	694	703	10	MSLGVNSVA 0.000167	20
HLA-B*53:01	1	741	749	9	GDSTECNSL 0.000167	19
HLA-A*30:02	1	747	755	9	SNLLLQYGS 0.000167	48
HLA-B*57:01	1	758	766	9	TQLNRALTG 0.000167	40

HLA-A*31:01	1	813	821	9	SFIEDLLFN	0.000167	30
HLA-A*31:01	1	815	823	9	IEDLLFNKV	0.000167	30
HLA-B*35:01	1	841	850	10	IAARDLICAQ	0.000167	20
HLA-B*07:02	1	874	882	9	LLAGTITSG	0.000167	26
HLA-B*51:01	1	915	923	9	ENQKLIANQ	0.000167	36
HLA-A*31:01	1	939	948	10	ASALGKLQDV	0.000167	30
HLA-A*02:01	1	1042	1050	9	KGYHLMSEFP	0.000167	28
HLA-B*40:01	1	1044	1053	10	YHLMSEFPQSA	0.000167	16
HLA-B*58:01	1	1071	1080	10	NFTTAPAICH	0.000167	30
HLA-A*33:01	1	1094	1103	10	SNGTHWFVTQ	0.000167	29
HLA-B*40:01	1	1133	1141	9	TVYDPLQPE	0.000167	16
HLA-A*02:03	1	1154	1163	10	KNHTSPDVLD	0.000167	31
HLA-B*15:01	1	1179	1188	10	EIDRLNEVAK	0.000167	29
HLA-A*33:01	1	1217	1226	10	FIAGLIAIVM	0.000167	29
HLA-A*02:03	1	1227	1235	9	VTIMLCCMT	0.000167	31
HLA-B*57:01	1	1234	1243	10	MTSCCSCLKG	0.000167	40
HLA-B*58:01	1	1235	1243	9	TSCCSCLKG	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-B*44:03	1	94	102	9	STEKSNIIR	0.000166	18
HLA-A*02:01	1	111	120	10	DSKTQSLLIV	0.000166	28
HLA-A*03:01	1	115	123	9	QSLLVNNA	0.000166	24
HLA-A*11:01	1	144	152	9	YYHKNNKSW	0.000166	18
HLA-B*51:01	1	150	158	9	KSWMSEFR	0.000166	36
HLA-A*02:03	1	162	170	9	SANNCTFEY	0.000166	31
HLA-A*68:01	1	167	176	10	TFEYVSQPFL	0.000166	27
HLA-A*03:01	1	168	176	9	FEYVSQPFL	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-B*35:01	1	313	321	9	SNFRVQPTE	0.000166	20
HLA-B*15:01	1	345	354	10	ASVYAWNRRK	0.000166	29
HLA-B*57:01	1	426	435	10	FTGCVIAWNS	0.000166	40
HLA-B*57:01	1	466	474	9	STEIYQAGS	0.000166	40
HLA-A*01:01	1	503	511	9	QPYRVVLS	0.000166	39
HLA-A*32:01	1	523	531	9	GPKKSTNLV	0.000166	22
HLA-A*68:01	1	523	531	9	GPKKSTNLV	0.000166	27
HLA-A*26:01	1	552	560	9	SNKKFLPFQ	0.000166	24
HLA-B*35:01	1	579	587	9	LEILDITPC	0.000166	20
HLA-B*58:01	1	620	629	10	AIHADQLTPT	0.000166	30
HLA-B*08:01	1	632	641	10	VYSTGSNVFQ	0.000166	40
HLA-B*08:01	1	654	663	10	NNSYECDIPI	0.000166	40
HLA-B*15:01	1	679	688	10	RRARSVASQS	0.000166	29
HLA-B*07:02	1	744	753	10	TECSNLLLQY	0.000166	26
HLA-B*51:01	1	780	789	10	AQVKQIYKTP	0.000166	36
HLA-A*02:03	1	813	822	10	SFIEDLLFNK	0.000166	31
HLA-A*24:02	1	824	832	9	TLADAGFIK	0.000166	17
HLA-A*03:01	1	874	882	9	LLAGTITSG	0.000166	24
HLA-A*33:01	1	889	898	10	AALQIPFAMQ	0.000166	29
HLA-B*07:02	1	941	949	9	ALGKLQDVV	0.000166	26
HLA-B*40:01	1	950	958	9	NQNAQALNT	0.000166	16
HLA-B*51:01	1	967	975	9	FGAISSVLN	0.000166	36
HLA-A*30:02	1	982	990	9	DKVEAEVQI	0.000166	48
HLA-B*53:01	1	989	997	9	QIDRLITGR	0.000166	19
HLA-B*58:01	1	1003	1011	9	TYVTQQLIR	0.000166	30
HLA-A*33:01	1	1004	1013	10	YVTQQLIRAA	0.000166	29
HLA-A*30:01	1	1035	1043	9	KRVDFCGKG	0.000166	51
HLA-B*08:01	1	1059	1068	10	FLHVTVVPAQ	0.000166	40
HLA-A*02:01	1	1086	1094	9	FPREGVFSV	0.000166	28
HLA-A*32:01	1	1118	1126	9	FVSGNCDVV	0.000166	22
HLA-A*30:02	1	1121	1130	10	GNCDEVVIGIV	0.000166	48
HLA-B*40:01	1	1136	1145	10	DPLQPELDSF	0.000166	16

HLA-B*08:01	1	1160	1168	9	DVDLGDISG	0.000166	40
HLA-B*07:02	1	1178	1187	10	KEIDRLNEVA	0.000166	26
HLA-A*68:01	1	1193	1201	9	SLIDLQELG	0.000166	27
HLA-A*01:01	1	1212	1221	10	YIWLGFIAGL	0.000166	39
HLA-B*57:01	1	1238	1247	10	CSCCLKGCCSC	0.000166	40
HLA-B*57:01	1	7	15	9	LLPLVSSQC	0.000165	40
HLA-A*31:01	1	79	87	9	FANPVLPFN	0.000165	30
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*53:01	1	214	222	9	RGLPQGFSA	0.000165	19
HLA-B*58:01	1	281	289	9	TITDAVDCA	0.000165	30
HLA-A*03:01	1	295	303	9	ETKCTLKSF	0.000165	24
HLA-B*58:01	1	315	324	10	FRVQPTESIV	0.000165	30
HLA-A*31:01	1	335	344	10	FGEVFNATRF	0.000165	30
HLA-B*07:02	1	335	344	10	FGEVFNATRF	0.000165	26
HLA-A*03:01	1	338	346	9	VFNATRFAS	0.000165	24
HLA-A*23:01	1	376	385	10	CYGVSPTKLN	0.000165	17
HLA-B*08:01	1	396	405	10	SFVIRGDEV	0.000165	40
HLA-A*11:01	1	405	413	9	RQIAPGQTG	0.000165	18
HLA-B*51:01	1	421	429	9	KLPDDFTGC	0.000165	36
HLA-A*33:01	1	424	432	9	DDFTGCVIA	0.000165	30
HLA-B*40:01	1	424	432	9	DDFTGCVIA	0.000165	16
HLA-B*51:01	1	437	446	10	NLDSKVGNY	0.000165	36
HLA-B*51:01	1	489	497	9	LQSYGFQPT	0.000165	36
HLA-B*44:02	1	496	505	10	PTYGVGYQPY	0.000165	18
HLA-A*23:01	1	499	507	9	GVGYQPYRV	0.000165	17
HLA-A*02:01	1	507	516	10	VVLSFELLH	0.000165	28
HLA-A*11:01	1	510	518	9	LSFELLHAP	0.000165	18
HLA-A*11:01	1	519	527	9	ATVCGPKKS	0.000165	18
HLA-B*40:01	1	530	538	9	LVKNKCVNF	0.000165	16
HLA-A*68:01	1	532	540	9	KNKCVNFNF	0.000165	27
HLA-B*07:02	1	532	540	9	KNKCVNFNF	0.000165	26
HLA-A*30:01	1	540	549	10	FNGLTGTGVL	0.000165	51
HLA-B*08:01	1	583	592	10	DITPCSFGGV	0.000165	40
HLA-A*30:02	1	591	600	10	GVSVITPGTN	0.000165	48
HLA-B*51:01	1	591	599	9	GVSVITPGT	0.000165	36
HLA-A*68:02	1	605	614	10	VAVLYQGVNC	0.000165	31
HLA-A*26:01	1	614	623	10	CTEVPVAIHA	0.000165	24
HLA-B*44:02	1	672	680	9	QTQTNSPRR	0.000165	18
HLA-A*68:01	1	682	691	10	RSVASQSIIA	0.000165	27
HLA-A*31:01	1	768	777	10	AVEQDKNTQE	0.000165	30
HLA-A*68:01	1	787	795	9	KTPPIKDFG	0.000165	27
HLA-B*44:02	1	792	800	9	KDFGGFNFS	0.000165	18
HLA-B*08:01	1	819	827	9	LFNKVTLAD	0.000165	40
HLA-B*44:03	1	865	873	9	EMIAQY TSA	0.000165	18
HLA-A*02:03	1	875	883	9	LAGTITSGW	0.000165	31
HLA-A*33:01	1	897	905	9	MQMAYRFNG	0.000165	30
HLA-B*44:03	1	898	906	9	QMAYRFNGI	0.000165	18
HLA-A*01:01	1	914	922	9	YENQKLIAN	0.000165	39
HLA-A*01:01	1	932	940	9	QDLSSTAS	0.000165	39
HLA-B*15:01	1	939	948	10	ASALGKLQDV	0.000165	29
HLA-B*15:01	1	968	977	10	GAISSVLNDI	0.000165	29
HLA-B*57:01	1	987	996	10	EVQIDRLITG	0.000165	40
HLA-B*44:02	1	993	1001	9	LITGRLQSL	0.000165	18
HLA-A*68:02	1	1011	1020	10	RAAEIRASAN	0.000165	31
HLA-B*51:01	1	1027	1036	10	SECVLGQSKR	0.000165	36
HLA-A*68:01	1	1029	1037	9	CVLGQSKRV	0.000165	27
HLA-A*30:02	1	1064	1073	10	YVPAQEKNT	0.000165	48
HLA-B*08:01	1	1195	1203	9	IDLQELGKY	0.000165	40
HLA-A*30:01	1	1243	1252	10	GCCSCGSCCK	0.000165	51
HLA-B*08:01	1	1258	1266	9	SEPVLKGVK	0.000165	40
HLA-A*02:03	1	1260	1269	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	VNLTRRTQL	0.000164	24



HLA-B*08:01	1	36	45	10	VYYPDKVFRS 0.000164	40
HLA-B*40:01	1	94	102	9	STEKSNIIR 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*30:02	1	318	327	10	QPTESIVRFP 0.000164	48
HLA-A*68:01	1	321	330	10	ESIVRFPNIT 0.000164	27
HLA-B*53:01	1	347	355	9	VYAWNRKRI 0.000164	19
HLA-A*02:06	1	365	374	10	LYNSASFSTF 0.000164	38
HLA-A*03:01	1	365	374	10	LYNSASFSTF 0.000164	24
HLA-B*08:01	1	375	383	9	KCYGVSPTK 0.000164	40
HLA-A*33:01	1	422	430	9	LPDDFTGCV 0.000164	30
HLA-A*24:02	1	432	441	10	AWNSNNLDSK 0.000164	17
HLA-B*51:01	1	443	452	10	GGNYNYLYRL 0.000164	36
HLA-A*32:01	1	468	476	9	EIYQAGSTP 0.000164	22
HLA-A*68:02	1	523	532	10	GPKKSTNLVK 0.000164	31
HLA-B*44:03	1	529	538	10	NLVKKNKCVN 0.000164	18
HLA-A*68:01	1	566	575	10	IADTTDAVRD 0.000164	27
HLA-A*26:01	1	606	614	9	AVLYQGVNC 0.000164	24
HLA-A*01:01	1	626	635	10	LTPTWRVYST 0.000164	39
HLA-A*02:06	1	689	697	9	IIAYTMSLG 0.000164	38
HLA-B*35:01	1	763	771	9	ALTGIAVEQ 0.000164	20
HLA-B*44:03	1	801	809	9	QILPDPSKP 0.000164	18
HLA-A*33:01	1	825	833	9	LADAGFIKQ 0.000164	30
HLA-B*07:02	1	889	898	10	AALQIPFAMQ 0.000164	26
HLA-B*44:03	1	905	914	10	GIGVTQNVLY 0.000164	18
HLA-A*30:01	1	947	956	10	DVVNQNAQAL 0.000164	51
HLA-A*30:02	1	967	975	9	FGAISSVLN 0.000164	48
HLA-A*01:01	1	968	977	10	GAISSVLNDI 0.000164	39
HLA-A*02:06	1	968	976	9	GAISSVLND 0.000164	38
HLA-B*44:03	1	981	990	10	LDKVEAEVQI 0.000164	18
HLA-B*58:01	1	981	990	10	LDKVEAEVQI 0.000164	30
HLA-B*08:01	1	1008	1017	10	QLIRAAEIRA 0.000164	40
HLA-A*33:01	1	1041	1049	9	GKGYHLMSF 0.000164	30
HLA-A*32:01	1	1042	1050	9	KGYHLMSFP 0.000164	22
HLA-A*68:02	1	1050	1058	9	PQSAPHGVV 0.000164	31
HLA-B*58:01	1	1067	1075	9	AQEKNFTTA 0.000164	30
HLA-B*07:02	1	1071	1079	9	NFTTAPAIC 0.000164	26
HLA-A*11:01	1	1083	1092	10	KAHFPREGVF 0.000164	18
HLA-A*30:01	1	1088	1096	9	REGVFVSNQ 0.000164	51
HLA-A*11:01	1	1091	1100	10	VFVSNQTHWF 0.000164	18
HLA-B*15:01	1	1105	1113	9	NFYEQIIT 0.000164	29
HLA-A*26:01	1	1111	1119	9	IITTDNTFV 0.000164	24
HLA-A*02:01	1	1113	1121	9	TTDNTFVSG 0.000164	29
HLA-A*03:01	1	1171	1179	9	ASVVNIQKE 0.000164	24
HLA-A*33:01	1	1254	1262	9	DEDDSEPV 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	SNIIRGWIFG 0.000163	49
HLA-A*33:01	1	116	124	9	SLLVNNAT 0.000163	30
HLA-A*01:01	1	173	182	10	QPFLMDLEGK 0.000163	40
HLA-A*32:01	1	205	213	9	SKHTPINLV 0.000163	22
HLA-B*44:03	1	207	216	10	HTPINLVRL 0.000163	18
HLA-A*31:01	1	251	260	10	SSSGWTAGAA 0.000163	30
HLA-B*44:03	1	251	259	9	SSSGWTAGA 0.000163	18
HLA-A*30:02	1	285	294	10	AVDCALDPLS 0.000163	49
HLA-A*02:06	1	305	313	9	VEKGIYQTS 0.000163	38
HLA-B*07:02	1	339	348	10	FNATRFASVY 0.000163	26
HLA-A*02:03	1	341	350	10	ATRFASVYAW 0.000163	31
HLA-A*30:02	1	342	351	10	TRFASVYAWN 0.000163	49
HLA-B*07:02	1	437	446	10	NLDSKVGNY 0.000163	26
HLA-A*31:01	1	438	446	9	LDSKVGNY 0.000163	30
HLA-A*30:02	1	483	491	9	FNCYFPLQS 0.000163	49

HLA-A*23:01	1	498	506	9	YGVGYQPYP	0.000163	18
HLA-A*30:02	1	522	531	10	CGPKKSTNLV	0.000163	49
HLA-B*40:01	1	532	540	9	KNKCVNFNF	0.000163	16
HLA-A*02:01	1	596	605	10	TPGTNTSNQV	0.000163	29
HLA-A*32:01	1	609	617	9	YQGVNCTEV	0.000163	22
HLA-A*11:01	1	611	619	9	GVNCTEVPV	0.000163	18
HLA-B*58:01	1	638	646	9	NVFQTRAGC	0.000163	30
HLA-B*57:01	1	648	656	9	IGAEHVNNS	0.000163	40
HLA-A*32:01	1	652	661	10	HVNNSYECDI	0.000163	22
HLA-B*40:01	1	661	669	9	IPIGAGICA	0.000163	16
HLA-B*07:02	1	705	713	9	SNNSIAIPT	0.000163	26
HLA-A*03:01	1	728	737	10	MTKTSVDCTM	0.000163	24
HLA-B*58:01	1	732	740	9	SVDCTMYIC	0.000163	30
HLA-B*57:01	1	737	746	10	MYICGDSTEC	0.000163	40
HLA-A*02:03	1	738	747	10	YICGDSTEC	0.000163	31
HLA-A*30:01	1	761	770	10	NRALTGIAVE	0.000163	51
HLA-B*58:01	1	874	882	9	LLAGTITSG	0.000163	30
HLA-A*26:01	1	900	908	9	AYRFNGIGV	0.000163	24
HLA-B*51:01	1	901	909	9	YRFNGIGVT	0.000163	36
HLA-A*01:01	1	981	989	9	LDKVEAEVQ	0.000163	40
HLA-A*02:01	1	984	992	9	VEAEVQIDR	0.000163	29
HLA-B*58:01	1	996	1005	10	GRLQSLQTYV	0.000163	30
HLA-A*01:01	1	998	1006	9	LQSLQTYVT	0.000163	40
HLA-A*31:01	1	1043	1052	10	GYHLMSFPQS	0.000163	30
HLA-A*33:01	1	1067	1075	9	AQEKNFSTA	0.000163	30
HLA-B*07:02	1	1067	1076	10	AQEKNFSTAP	0.000163	26
HLA-A*11:01	1	1070	1078	9	KNFTTAPAI	0.000163	18
HLA-A*68:02	1	1097	1106	10	THWFVTQRNF	0.000163	31
HLA-A*32:01	1	1180	1188	9	IDRLNEVAK	0.000163	22
HLA-A*23:01	1	1209	1218	10	WPWYIWLGFI	0.000163	18
HLA-A*68:02	1	1234	1242	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	YDPKVFSS	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*26:01	1	75	84	10	GTKRFANPVL	0.000162	24
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*30:02	1	249	258	10	GDSSSGWTAG	0.000162	49
HLA-B*57:01	1	257	265	9	AGAAAYYVG	0.000162	40
HLA-B*58:01	1	310	318	9	YQTSNFRVQ	0.000162	30
HLA-A*11:01	1	312	321	10	TSNFRVQPT	0.000162	18
HLA-B*15:01	1	313	321	9	SNFRVQPT	0.000162	29
HLA-A*01:01	1	314	323	10	NFRVQPTESI	0.000162	40
HLA-B*40:01	1	337	345	9	EVFNATRFA	0.000162	16
HLA-A*68:02	1	348	356	9	YAWNKRKRIS	0.000162	31
HLA-A*01:01	1	364	373	10	VLVNSASFST	0.000162	40
HLA-B*44:02	1	378	387	10	GVSPKLNLDL	0.000162	18
HLA-B*07:02	1	413	422	10	GNIADYNYKL	0.000162	26
HLA-A*02:01	1	446	454	9	YNYLYRFLR	0.000162	29
HLA-B*58:01	1	452	460	9	LFRKSNLKP	0.000162	30
HLA-A*26:01	1	512	521	10	FELLHAPATV	0.000162	24
HLA-A*30:02	1	528	536	9	TNLVKNKCV	0.000162	49
HLA-B*15:01	1	540	549	10	FNGLTGTGVL	0.000162	29
HLA-A*32:01	1	546	555	10	TGVLTESNKK	0.000162	22
HLA-A*23:01	1	584	592	9	ITPCSFGGV	0.000162	18
HLA-B*58:01	1	649	658	10	GAEHVNNSYE	0.000162	30
HLA-B*15:01	1	672	681	10	QTQTNSPRRA	0.000162	29
HLA-B*07:02	1	694	703	10	MSLGVENSVA	0.000162	26
HLA-A*02:06	1	712	721	10	PTNFTISVTT	0.000162	38
HLA-B*57:01	1	713	722	10	TNFTISVTTE	0.000162	40

HLA-A*24:02	1	756	764	9	FCTQLNRAL 0.000162	17
HLA-B*08:01	1	783	792	10	KQIYKTPPIK 0.000162	41
HLA-B*40:01	1	806	814	9	PSKPSKRSF 0.000162	16
HLA-A*02:06	1	850	859	10	QKFNGLTVLP 0.000162	38
HLA-A*26:01	1	861	869	9	LLTDEMIAQ 0.000162	24
HLA-A*31:01	1	869	878	10	QYTSALLAGT 0.000162	30
HLA-A*33:01	1	884	893	10	TFGAGAALQI 0.000162	30
HLA-A*32:01	1	891	900	10	LQIPFAMQMA 0.000162	22
HLA-B*35:01	1	901	909	9	YRFNGIGVT 0.000162	20
HLA-A*23:01	1	912	921	10	VLYENQKLIA 0.000162	18
HLA-A*02:06	1	927	936	10	AIGKIQDSLS 0.000162	38
HLA-A*30:01	1	993	1002	10	LITGRLQSLQ 0.000162	51
HLA-A*03:01	1	1057	1066	10	VVFLHVTVYP 0.000162	24
HLA-A*01:01	1	1067	1076	10	AQEKNFHTAP 0.000162	40
HLA-A*01:01	1	1068	1076	9	QEKNFHTAP 0.000162	40
HLA-B*07:02	1	1068	1077	10	QEKNFHTAPA 0.000162	26
HLA-A*32:01	1	1105	1113	9	NFYEQIIT 0.000162	22
HLA-B*08:01	1	1120	1129	10	SGNCDVVIGI 0.000162	41
HLA-A*02:01	1	1127	1135	9	IGIVNNTVY 0.000162	29
HLA-A*30:01	1	1128	1137	10	GIVNNTVYDP 0.000162	51
HLA-B*35:01	1	1132	1140	9	NTVYDPLQP 0.000162	20
HLA-A*33:01	1	1162	1171	10	DLGDISGINA 0.000162	30
HLA-A*24:02	1	1260	1269	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	IHSVGTNGTK 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*30:02	1	245	254	10	YLTPGDSSSG 0.000161	49
HLA-A*33:01	1	263	271	9	YVGYLQPRT 0.000161	30
HLA-A*11:01	1	282	290	9	ITDAVDCAL 0.000161	18
HLA-A*32:01	1	312	320	9	TSNFRVQPT 0.000161	22
HLA-A*31:01	1	347	356	10	VYAWNRKRIS 0.000161	30
HLA-A*02:01	1	422	431	10	LPDDFTGCVI 0.000161	29
HLA-A*30:02	1	433	442	10	WNSNNLDSKV 0.000161	49
HLA-B*57:01	1	452	460	9	LFRKSNLKP 0.000161	40
HLA-B*51:01	1	463	472	10	RDISTEIQYA 0.000161	36
HLA-B*07:02	1	510	518	9	LSFELLHAP 0.000161	26
HLA-A*33:01	1	528	536	9	TNLVKNKCV 0.000161	30
HLA-A*01:01	1	534	543	10	KCVNFNFNGL 0.000161	40
HLA-A*02:01	1	564	572	9	RDIADTTDA 0.000161	29
HLA-B*53:01	1	589	597	9	FGGVSVITP 0.000161	20
HLA-A*32:01	1	601	610	10	TSNQVAVLYQ 0.000161	22
HLA-A*26:01	1	607	615	9	VLYQGVNCT 0.000161	24
HLA-A*26:01	1	620	629	10	AIHADQLTPT 0.000161	24
HLA-B*58:01	1	663	672	10	IGAGICASYQ 0.000161	30
HLA-A*23:01	1	690	698	9	IAYTMSLGV 0.000161	18
HLA-A*31:01	1	702	711	10	VAYSNNSIAI 0.000161	30
HLA-A*32:01	1	717	726	10	ISVTTEILPV 0.000161	22
HLA-A*30:01	1	736	745	10	TMYICGDSTE 0.000161	52
HLA-A*32:01	1	742	750	9	DSTECSNLL 0.000161	22
HLA-A*03:01	1	749	757	9	LLLQYGSFC 0.000161	24
HLA-A*33:01	1	754	763	10	GSFCTQLNRA 0.000161	30
HLA-B*44:02	1	795	803	9	GGFNFSQIL 0.000161	19
HLA-B*15:01	1	801	810	10	QILPDPSPKPS 0.000161	29
HLA-A*33:01	1	820	828	9	FNKVTLADA 0.000161	30
HLA-A*02:01	1	843	851	9	ARDLICAQK 0.000161	29
HLA-A*26:01	1	916	925	10	NQKLIANQFN 0.000161	24
HLA-A*02:06	1	962	971	10	QLSSNFGAIS 0.000161	38
HLA-B*40:01	1	1038	1046	9	DFCGKGYHL 0.000161	16
HLA-A*33:01	1	1039	1047	9	FCGKGYHLM 0.000161	30
HLA-A*68:01	1	1048	1057	10	SFPQSAPHGV 0.000161	27
HLA-B*07:02	1	1061	1069	9	HVTYVPAQE 0.000161	26
HLA-A*30:02	1	1071	1079	9	NFTTAPAIC 0.000161	49

HLA-B*08:01	1	1078	1087	10	ICHDGKAHFP 0.000161	41
HLA-B*40:01	1	1107	1116	10	YEPQIITTDN 0.000161	16
HLA-A*30:01	1	1157	1166	10	TSPDVDLGD I 0.000161	52
HLA-A*26:01	1	1171	1179	9	ASVVNIQKE 0.000161	24
HLA-B*07:02	1	1199	1207	9	ELGKYEQYI 0.000161	26
HLA-A*24:02	1	1216	1225	10	GFIAGLIAIV 0.000161	17
HLA-B*58:01	1	1223	1232	10	AIVMVTIMLC 0.000161	30
HLA-A*01:01	1	1233	1242	10	CMTSCCCLKG 0.000161	40
HLA-B*57:01	1	1235	1243	9	TSCCCLKG 0.000161	40
HLA-A*32:01	1	43	51	9	FRSSVLHST 0.00016	22
HLA-B*15:01	1	48	56	9	LHSTQDLFL 0.00016	29
HLA-B*07:02	1	67	75	9	AIHVSGTNG 0.00016	26
HLA-B*58:01	1	76	84	9	TKRFANPVL 0.00016	31
HLA-A*26:01	1	99	108	10	NIIRGWIFGT 0.00016	24
HLA-A*02:06	1	161	169	9	SSANNCTFE 0.00016	38
HLA-A*68:01	1	163	171	9	ANNCTFEYV 0.00016	27
HLA-B*51:01	1	181	189	9	GKQGNFKNL 0.00016	36
HLA-A*01:01	1	183	191	9	QGNFKNLRE 0.00016	40
HLA-A*01:01	1	186	195	10	FKNLREFVFK 0.00016	40
HLA-A*32:01	1	189	197	9	LREFVFKNI 0.00016	22
HLA-A*68:02	1	193	201	9	VFKNIDGYF 0.00016	31
HLA-A*23:01	1	220	229	10	FSALEPLVDL 0.00016	18
HLA-A*30:01	1	224	233	10	EPLVDLPIGI 0.00016	52
HLA-A*33:01	1	246	255	10	LTPGDSSSGW 0.00016	30
HLA-A*02:03	1	275	283	9	KYNENGTIT 0.00016	31
HLA-A*30:01	1	306	315	10	EKGIYQTSNF 0.00016	52
HLA-B*40:01	1	311	319	9	QTSNFRVQP 0.00016	17
HLA-B*53:01	1	335	343	9	FGEVFNATR 0.00016	20
HLA-A*02:06	1	366	375	10	YNSASFSTFK 0.00016	38
HLA-A*03:01	1	398	407	10	VIRGDEV RQI 0.00016	24
HLA-A*32:01	1	417	426	10	DYNYKLPDDF 0.00016	22
HLA-B*08:01	1	439	447	9	DSKVGGNYN 0.00016	41
HLA-B*44:03	1	501	510	10	GYQPYRVVVL 0.00016	18
HLA-A*02:03	1	535	544	10	CVNFNFNGLT 0.00016	31
HLA-A*32:01	1	554	563	10	KKFLPFQQFG 0.00016	22
HLA-B*08:01	1	554	563	10	KKFLPFQQFG 0.00016	41
HLA-A*11:01	1	594	602	9	VITPGTNTS 0.00016	18
HLA-B*07:02	1	607	615	9	VLYQGVNCT 0.00016	26
HLA-B*40:01	1	620	628	9	AIHADQLTP 0.00016	17
HLA-B*58:01	1	648	656	9	IGAEHVNNS 0.00016	31
HLA-A*68:01	1	676	684	9	NSPRRARSV 0.00016	27
HLA-B*44:03	1	694	702	9	MSLGVENSV 0.00016	18
HLA-B*15:01	1	719	727	9	VTTEILPVS 0.00016	29
HLA-B*58:01	1	744	752	9	TECSNLLLQ 0.00016	31
HLA-B*53:01	1	776	784	9	QEVFAQVKQ 0.00016	20
HLA-A*02:06	1	781	790	10	QVKQIYKTPP 0.00016	38
HLA-B*35:01	1	781	789	9	QVKQIYKTP 0.00016	21
HLA-A*01:01	1	822	831	10	KVTLADAGFI 0.00016	40
HLA-B*35:01	1	840	848	9	DIAARDLIC 0.00016	21
HLA-A*68:01	1	881	889	9	SGWTFGAGA 0.00016	27
HLA-A*02:06	1	906	915	10	IGVTQNVLYE 0.00016	38
HLA-B*44:03	1	911	920	10	NVLYENQKLI 0.00016	18
HLA-B*15:01	1	941	950	10	ALGKLQDVVN 0.00016	29
HLA-B*15:01	1	976	984	9	DILSRLDKV 0.00016	29
HLA-B*53:01	1	989	998	10	QIDRLITGRL 0.00016	20
HLA-A*33:01	1	1021	1029	9	LAATKMSEC 0.00016	30
HLA-A*32:01	1	1022	1030	9	AATKMSECV 0.00016	22
HLA-A*30:02	1	1033	1041	9	QSKRVDFCG 0.00016	49
HLA-B*53:01	1	1035	1044	10	KRVDFCGKGY 0.00016	20
HLA-A*68:02	1	1054	1062	9	PHGVVFLHV 0.00016	31
HLA-A*24:02	1	1092	1101	10	FVSNGTHWFV 0.00016	17
HLA-B*58:01	1	1095	1104	10	NGTHWFVTQR 0.00016	31
HLA-B*58:01	1	1119	1128	10	VSGNCDVVIG 0.00016	31
HLA-A*24:02	1	1193	1202	10	SLIDLQELGK 0.00016	17
HLA-B*58:01	1	1220	1229	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-A*26:01	1	74	83	10	NGTKRFANPV 0.000159	25
HLA-B*08:01	1	78	87	10	RFANPVLPFN 0.000159	41
HLA-B*44:03	1	97	106	10	KSNIRGWIF 0.000159	18
HLA-A*30:01	1	105	114	10	IFGTTLDSTK 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*31:01	1	304	313	10	TVEKGIYQTS 0.000159	30
HLA-A*26:01	1	351	359	9	NRKRISNCV 0.000159	25
HLA-B*44:02	1	362	371	10	YSVLYNSASF 0.000159	19
HLA-B*51:01	1	384	393	10	LNDLCFTNVY 0.000159	36
HLA-B*44:02	1	464	472	9	DISTEIIYQA 0.000159	19
HLA-A*26:01	1	467	476	10	TEIIYQAGSTP 0.000159	25
HLA-A*30:01	1	512	520	9	FELLHAPAT 0.000159	52
HLA-B*08:01	1	521	529	9	VCGPKKSTN 0.000159	41
HLA-A*68:02	1	526	534	9	KSTNLVKNK 0.000159	31
HLA-B*51:01	1	541	550	10	NGLTGTGVLV 0.000159	36
HLA-B*44:02	1	564	572	9	RDIADTTDA 0.000159	19
HLA-A*33:01	1	594	602	9	VITPGTNTS 0.000159	30
HLA-A*68:02	1	601	610	10	TSNQVAVLVYQ 0.000159	31
HLA-B*58:01	1	611	620	10	GVNCTEVPVA 0.000159	31
HLA-B*35:01	1	634	643	10	STGSNVFQTR 0.000159	21
HLA-A*26:01	1	700	708	9	NSVAYSNNS 0.000159	25
HLA-B*07:02	1	713	721	9	TNFTISVTT 0.000159	26
HLA-A*02:06	1	726	735	10	VSMTKTSVDC 0.000159	38
HLA-A*02:03	1	730	738	9	KTSVDCTMY 0.000159	32
HLA-A*11:01	1	744	752	9	TECSNLLLQ 0.000159	18
HLA-A*02:01	1	758	766	9	TQLNRALTG 0.000159	29
HLA-A*33:01	1	759	767	9	QLNRALTGI 0.000159	30
HLA-A*33:01	1	772	780	9	DKNTQEVFA 0.000159	30
HLA-A*23:01	1	776	785	10	QEVFAQVKQI 0.000159	18
HLA-A*30:01	1	786	795	10	YKTPPIKDFG 0.000159	52
HLA-A*30:02	1	790	798	9	PIKDFGGFN 0.000159	49
HLA-A*01:01	1	792	801	10	KDFGGFNFSQ 0.000159	40
HLA-B*08:01	1	828	837	10	AGFIKQYGDC 0.000159	41
HLA-A*24:02	1	901	910	10	YRFNGIGVTQ 0.000159	17
HLA-B*07:02	1	975	984	10	NDILSRLDKV 0.000159	26
HLA-A*02:01	1	995	1004	10	TGRLQSLQTY 0.000159	29
HLA-A*31:01	1	1053	1062	10	APHGVVFLHV 0.000159	30
HLA-A*24:02	1	1058	1067	10	VFLHVTVVPA 0.000159	17
HLA-B*53:01	1	1063	1071	9	TYVPAQEKV 0.000159	20
HLA-B*40:01	1	1082	1091	10	GKAHFPREGV 0.000159	17
HLA-B*40:01	1	1090	1098	9	GVFVSNQTH 0.000159	17
HLA-B*40:01	1	1096	1104	9	GTHWFVTQR 0.000159	17
HLA-A*68:01	1	1138	1147	10	LQPELDSFKE 0.000159	27
HLA-B*35:01	1	1150	1158	9	DKYFKNHTS 0.000159	21
HLA-A*03:01	1	1169	1177	9	INASVVNIQ 0.000159	24
HLA-A*03:01	1	1176	1185	10	IQKEIDRLNE 0.000159	24
HLA-A*23:01	1	1188	1197	10	KNLNEIDLID 0.000159	18
HLA-A*02:03	1	1191	1200	10	NESLIDLQEL 0.000159	32
HLA-A*30:01	1	1192	1201	10	ESLIDLQELG 0.000159	52
HLA-B*08:01	1	1209	1218	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*01:01	1	105	113	9	IFGTTLDSTK 0.000158	40
HLA-B*40:01	1	136	144	9	CNDPFLGVT 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	253	261	9	SGWTAGAAA	0.000158	40
HLA-A*24:02	1	285	293	9	AVDCALDPL	0.000158	17
HLA-A*32:01	1	297	306	10	KCTLKSFTVE	0.000158	22
HLA-B*08:01	1	299	308	10	TLKSFTVEKG	0.000158	41
HLA-A*68:02	1	307	315	9	KGIYQTSNF	0.000158	31
HLA-B*51:01	1	308	316	9	GIYQTSNFR	0.000158	36
HLA-B*44:03	1	313	321	9	SNFRVQPT	0.000158	18
HLA-A*03:01	1	315	323	9	FRVQPTESI	0.000158	24
HLA-A*68:01	1	326	335	10	FPNITNLCPF	0.000158	27
HLA-B*08:01	1	331	340	10	NLCPFGEVFN	0.000158	41
HLA-A*23:01	1	351	359	9	NRKRISNCV	0.000158	18
HLA-A*01:01	1	370	379	10	SFSTFKCYGV	0.000158	40
HLA-A*11:01	1	398	406	9	VIRGDEVQR	0.000158	18
HLA-A*23:01	1	398	407	10	VIRGDEVQRI	0.000158	18
HLA-A*30:02	1	420	429	10	YKLPDDFTGC	0.000158	49
HLA-A*68:02	1	424	433	10	DDFTGCVIAW	0.000158	31
HLA-B*58:01	1	471	479	9	QAGSTPCNG	0.000158	31
HLA-A*26:01	1	510	519	10	LSFELLHAPA	0.000158	25
HLA-B*58:01	1	520	528	9	TVCGPKKST	0.000158	31
HLA-A*01:01	1	525	534	10	KKSTNLVKNK	0.000158	40
HLA-A*31:01	1	537	546	10	NFNFNGLTGT	0.000158	31
HLA-A*33:01	1	537	545	9	NFNFNGLTG	0.000158	30
HLA-A*03:01	1	542	550	9	GLTGTGVL	0.000158	24
HLA-B*35:01	1	544	552	9	TGTGVLTES	0.000158	21
HLA-A*02:01	1	551	559	9	ESNKKFLPF	0.000158	29
HLA-A*68:02	1	561	570	10	QFGRDIADTT	0.000158	31
HLA-A*68:01	1	617	626	10	VPVAIHADQL	0.000158	27
HLA-A*30:02	1	627	635	9	TPTWRVYST	0.000158	49
HLA-A*03:01	1	681	689	9	ARSVASQSI	0.000158	24
HLA-A*23:01	1	782	791	10	VKQIYKTPPI	0.000158	18
HLA-B*35:01	1	788	796	9	TPPIKDFGG	0.000158	21
HLA-A*02:06	1	790	799	10	PIKDFGGFNF	0.000158	38
HLA-B*57:01	1	814	823	10	FIEDLLFNKV	0.000158	41
HLA-A*23:01	1	833	842	10	QYGDCLGDIA	0.000158	18
HLA-B*35:01	1	883	892	10	WTFGAGAALQ	0.000158	21
HLA-B*58:01	1	897	906	10	MQMAYRFNGI	0.000158	31
HLA-B*40:01	1	910	919	10	QNVLYENQKL	0.000158	17
HLA-A*68:02	1	915	923	9	ENQKLIANQ	0.000158	31
HLA-B*40:01	1	972	980	9	SVLNDILSR	0.000158	17
HLA-B*44:03	1	1005	1013	9	VTQQLIRAA	0.000158	18
HLA-B*51:01	1	1017	1025	9	ASANLAATK	0.000158	36
HLA-A*31:01	1	1040	1049	10	CGKGYHLMSF	0.000158	31
HLA-A*32:01	1	1053	1062	10	APHGVVFLHV	0.000158	22
HLA-B*58:01	1	1078	1087	10	ICHDGKAHFP	0.000158	31
HLA-A*02:01	1	1090	1098	9	GVFVSNQTH	0.000158	29
HLA-A*31:01	1	1099	1108	10	WFVTQRNFYE	0.000158	31
HLA-A*33:01	1	1120	1129	10	SGNCDVVIGI	0.000158	30
HLA-B*40:01	1	1138	1146	9	LQPELDSFK	0.000158	17
HLA-B*40:01	1	1151	1159	9	KYFKNHTSP	0.000158	17
HLA-A*02:06	1	1195	1203	9	IDLQELGKY	0.000158	38
HLA-A*11:01	1	1245	1253	9	CSCGSCCKF	0.000158	18
HLA-B*44:03	1	1257	1266	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	TNSFTRGVVY	0.000157	17
HLA-B*44:03	1	47	56	10	VLHSTQDLFL	0.000157	18
HLA-B*15:01	1	66	74	9	HAIHVSQTN	0.000157	29
HLA-A*23:01	1	68	77	10	IHSVGTNGTK	0.000157	18
HLA-B*40:01	1	94	103	10	STEKSNIIIRG	0.000157	17
HLA-B*44:03	1	115	123	9	QSLIIVNNA	0.000157	18
HLA-A*30:01	1	124	133	10	TNVVIKVCFF	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	267	275	9	LQPRTFLLK	0.000157	18
HLA-B*15:01	1	298	306	9	CTLKSFTVE	0.000157	29
HLA-B*53:01	1	327	335	9	PNITNLCPF	0.000157	20

HLA-A*02:06	1	345	353	9	ASVYAWNRK 0.000157	38
HLA-A*26:01	1	361	369	9	DYSVLYNSA 0.000157	25
HLA-A*26:01	1	372	381	10	STFKCYGVSP 0.000157	25
HLA-B*44:02	1	396	404	9	SFVIRGDEV 0.000157	19
HLA-B*44:03	1	400	408	9	RGDEVQRQA 0.000157	18
HLA-A*02:03	1	404	413	10	VRQIAPGQTG 0.000157	32
HLA-B*15:01	1	452	460	9	LFRKSNLKP 0.000157	29
HLA-A*68:02	1	469	477	9	IYQAGSTPC 0.000157	31
HLA-A*02:01	1	483	492	10	FNCYFPLQSY 0.000157	29
HLA-A*02:06	1	565	574	10	DIADTTDAVR 0.000157	38
HLA-B*40:01	1	572	580	9	AVRDPQTLE 0.000157	17
HLA-B*57:01	1	611	620	10	GVNCTEVPVA 0.000157	41
HLA-A*01:01	1	630	639	10	WRVYSTGSNV 0.000157	40
HLA-B*44:02	1	636	644	9	GSNVFQTRA 0.000157	19
HLA-A*03:01	1	647	656	10	LIGAHEVNNS 0.000157	52
HLA-A*01:01	1	676	685	10	NSPRRARSVA 0.000157	40
HLA-B*07:02	1	681	690	10	ARSVASQSII 0.000157	26
HLA-A*26:01	1	723	731	9	ILPVSMTKT 0.000157	25
HLA-A*02:03	1	758	766	9	TQLNRALTG 0.000157	32
HLA-A*02:01	1	775	783	9	TQEVFAQVK 0.000157	29
HLA-B*08:01	1	799	808	10	FSQILPDPSK 0.000157	41
HLA-A*26:01	1	825	833	9	LADAGFIKQ 0.000157	25
HLA-A*30:01	1	844	852	9	RDLICAQKF 0.000157	52
HLA-B*58:01	1	846	855	10	LICAQKFNGL 0.000157	31
HLA-B*51:01	1	862	871	10	LTDEMIAQYT 0.000157	36
HLA-B*53:01	1	884	893	10	TFGAGAALQI 0.000157	20
HLA-A*02:03	1	889	898	10	AALQIPFAMQ 0.000157	32
HLA-B*58:01	1	909	918	10	TQNVLYENQK 0.000157	31
HLA-B*58:01	1	922	931	10	NQFNSAIGKI 0.000157	31
HLA-B*58:01	1	942	951	10	LGKLDVVNQ 0.000157	31
HLA-A*33:01	1	992	1000	9	RLITGRLOS 0.000157	30
HLA-A*03:01	1	1008	1017	10	QLIRAAEIRA 0.000157	24
HLA-A*01:01	1	1023	1032	10	ATKMSECVLG 0.000157	40
HLA-A*31:01	1	1050	1059	10	PQSAPHGVVF 0.000157	31
HLA-B*35:01	1	1070	1078	9	KNFTTAPAI 0.000157	21
HLA-B*07:02	1	1077	1085	9	AICHDGKAH 0.000157	26
HLA-A*32:01	1	1118	1127	10	FVSGNCDVVI 0.000157	22
HLA-A*30:01	1	1130	1139	10	VNNTVYDPLQ 0.000157	52
HLA-A*33:01	1	1132	1140	9	NTVYDPLQP 0.000157	30
HLA-B*58:01	1	1165	1173	9	DISGINASV 0.000157	31
HLA-A*26:01	1	1167	1176	10	SGINASVVNI 0.000157	25
HLA-A*31:01	1	1210	1218	9	PWYIWLGFI 0.000157	31
HLA-A*02:01	1	17	26	10	NLTTRTQLPP 0.000156	29
HLA-B*07:02	1	35	44	10	GVYYPDKVFR 0.000156	26
HLA-A*26:01	1	71	80	10	SGTNGTKRFA 0.000156	25
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*02:01	1	234	242	9	NITRFQTLH 0.000156	29
HLA-A*02:01	1	237	245	9	RFQTLHRYS 0.000156	29
HLA-A*02:03	1	246	255	10	LTPGDSSSGW 0.000156	32
HLA-A*02:06	1	247	255	9	TPGDSSSGW 0.000156	38
HLA-B*58:01	1	256	265	10	TAGAAAYYVG 0.000156	31
HLA-B*51:01	1	257	266	10	AGAAAYYVGY 0.000156	36
HLA-A*01:01	1	260	269	10	AAYYVGYLQP 0.000156	40
HLA-B*07:02	1	278	286	9	ENGTITDAV 0.000156	26
HLA-A*31:01	1	314	322	9	NFRVQPTES 0.000156	31
HLA-A*68:02	1	326	334	9	FPNITNLCP 0.000156	32
HLA-A*03:01	1	368	376	9	SASFSTFKC 0.000156	24
HLA-B*08:01	1	368	377	10	SASFSTFKCY 0.000156	41
HLA-B*53:01	1	384	393	10	LNDLCFTNVY 0.000156	20
HLA-B*58:01	1	400	409	10	RGDEVQRQIAP 0.000156	31
HLA-A*31:01	1	434	442	9	NSNNLDSKV 0.000156	31
HLA-B*44:03	1	495	504	10	QPTYGVGYQP 0.000156	18
HLA-A*32:01	1	520	528	9	TVCGPKKST 0.000156	23
HLA-A*30:01	1	560	568	9	QQFGRDIAD 0.000156	52

HLA-A*68:01	1	620	629	10	AIHADQLTPT 0.000156	28
HLA-A*68:01	1	623	632	10	ADQLTPTWRV 0.000156	28
HLA-A*02:03	1	670	678	9	SYQTQTNSP 0.000156	32
HLA-B*58:01	1	670	678	9	SYQTQTNSP 0.000156	31
HLA-A*24:02	1	674	682	9	QTNSPRRAR 0.000156	17
HLA-A*26:01	1	689	698	10	IIAYTMSLGV 0.000156	25
HLA-B*57:01	1	689	697	9	IIAYTMSLG 0.000156	41
HLA-A*68:01	1	710	718	9	AIPTNFTIS 0.000156	28
HLA-A*01:01	1	749	757	9	LLLQYGSFC 0.000156	40
HLA-A*33:01	1	846	855	10	LICAQKFNGL 0.000156	30
HLA-A*30:01	1	858	866	9	LPPLLTDEM 0.000156	52
HLA-B*44:03	1	885	893	9	FGAGAALQI 0.000156	18
HLA-B*08:01	1	886	895	10	GAGAALQIPF 0.000156	41
HLA-A*30:01	1	914	922	9	YENQKLIAN 0.000156	52
HLA-A*30:02	1	915	923	9	ENQKLIANQ 0.000156	49
HLA-A*02:06	1	917	926	10	QKLIANQFNS 0.000156	38
HLA-A*24:02	1	940	948	9	SALGKLQDV 0.000156	17
HLA-B*58:01	1	1009	1017	9	LIRAAEIRA 0.000156	31
HLA-A*03:01	1	1013	1021	9	AEIRASANL 0.000156	24
HLA-A*30:02	1	1021	1030	10	LAATKMSECV 0.000156	49
HLA-B*35:01	1	1028	1036	9	ECVLGQSKR 0.000156	21
HLA-A*23:01	1	1053	1062	10	APHGVVFLHV 0.000156	18
HLA-A*33:01	1	1062	1071	10	VTYVPAQEK 0.000156	30
HLA-B*57:01	1	1066	1074	9	PAQEKNF 0.000156	41
HLA-B*58:01	1	1074	1083	10	TAPAICHGDK 0.000156	31
HLA-A*24:02	1	1121	1129	9	GNCDDVIGI 0.000156	17
HLA-A*30:02	1	1128	1137	10	GIVNNTVYDP 0.000156	49
HLA-A*33:01	1	1179	1187	9	EIDRLNEVA 0.000156	30
HLA-A*31:01	1	1252	1260	9	KFDEDDSEP 0.000156	31
HLA-A*11:01	1	1261	1270	10	VLKGVKLHYT 0.000156	19
HLA-B*44:02	1	43	51	9	FRSSVLHST 0.000155	19
HLA-B*51:01	1	72	80	9	GTNGTKRFA 0.000155	37
HLA-A*30:02	1	76	85	10	TKRFANPVLP 0.000155	49
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-A*01:01	1	215	224	10	GLPQGFSALE 0.000155	40
HLA-B*44:03	1	215	223	9	GLPQGFSAL 0.000155	18
HLA-A*26:01	1	246	254	9	LTPGDSSSG 0.000155	25
HLA-A*23:01	1	258	266	9	GAAAYYVGY 0.000155	18
HLA-B*57:01	1	268	277	10	QPRTFLLKYN 0.000155	41
HLA-A*02:03	1	276	285	10	YNENGTITDA 0.000155	32
HLA-B*35:01	1	314	323	10	NFRVQPTESI 0.000155	21
HLA-A*68:02	1	317	325	9	VQPTESIVR 0.000155	32
HLA-A*01:01	1	327	335	9	PNITNLCPF 0.000155	40
HLA-B*58:01	1	339	347	9	FNATRFASV 0.000155	31
HLA-B*57:01	1	354	363	10	RISNCVADYS 0.000155	41
HLA-B*08:01	1	367	375	9	NSASFSTFK 0.000155	41
HLA-A*02:01	1	390	398	9	TNVYADSFV 0.000155	29
HLA-A*03:01	1	457	465	9	NLKPFERDI 0.000155	24
HLA-A*02:01	1	461	470	10	FERDISTEY 0.000155	29
HLA-A*02:01	1	519	528	10	ATVCGPKKST 0.000155	29
HLA-B*07:02	1	609	617	9	YQGVNCTEV 0.000155	27
HLA-B*08:01	1	641	649	9	QTRAGCLIG 0.000155	41
HLA-B*44:02	1	672	681	10	QTQTNSPRRA 0.000155	19
HLA-B*44:02	1	683	691	9	SVASQSIIA 0.000155	19
HLA-A*02:03	1	726	735	10	VSMTKTSVDC 0.000155	32
HLA-A*30:01	1	756	765	10	FCTQLNRALT 0.000155	52
HLA-B*44:02	1	756	764	9	FCTQLNRAL 0.000155	19
HLA-A*30:02	1	769	777	9	VEQDKNTQE 0.000155	49
HLA-A*01:01	1	835	844	10	GDCLGDIAAR 0.000155	40
HLA-A*11:01	1	854	863	10	GLTVLPPLLT 0.000155	19
HLA-B*40:01	1	867	876	10	IAQYTSALLA 0.000155	17
HLA-A*03:01	1	878	887	10	TITSGWTFGA 0.000155	24



HLA-B*35:01	1	889	898	10	AALQIPFAMQ 0.000155	21
HLA-A*02:03	1	1006	1014	9	TQQLIRAAE 0.000155	32
HLA-B*57:01	1	1046	1054	9	LMSFPQSAP 0.000155	41
HLA-B*57:01	1	1069	1078	10	EKNFTTAPAI 0.000155	41
HLA-B*08:01	1	1079	1088	10	CHDGKAHFPR 0.000155	41
HLA-A*31:01	1	1085	1094	10	HFPREGVFSV 0.000155	31
HLA-B*35:01	1	1085	1093	9	HFPREGVFSV 0.000155	21
HLA-A*23:01	1	1092	1101	10	FVSNNGTHWV 0.000155	18
HLA-B*07:02	1	1108	1116	9	EPQIITTDN 0.000155	27
HLA-B*58:01	1	1116	1124	9	NTFVSGNCD 0.000155	31
HLA-B*35:01	1	1122	1130	9	NCDVVIGIV 0.000155	21
HLA-A*24:02	1	1188	1197	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	SFTRGVYYP 0.000154	41
HLA-A*68:01	1	49	57	9	HSTQDLFLP 0.000154	28
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*15:01	1	246	254	9	LTPGDSSSG 0.000154	30
HLA-A*31:01	1	282	290	9	ITDAVDCAL 0.000154	31
HLA-B*40:01	1	341	349	9	ATRFASVYA 0.000154	17
HLA-B*07:02	1	400	409	10	RGDEVQRQIAP 0.000154	27
HLA-A*68:02	1	451	460	10	RLFRKSNLKP 0.000154	32
HLA-B*44:02	1	478	487	10	NGVKGFNCYF 0.000154	19
HLA-A*01:01	1	506	515	10	RVVVLSEFEL 0.000154	41
HLA-B*40:01	1	514	522	9	LLHAPATVC 0.000154	17
HLA-A*32:01	1	569	577	9	TTDAVRDPQ 0.000154	23
HLA-A*02:06	1	586	594	9	PCSFGGVSV 0.000154	39
HLA-A*33:01	1	614	623	10	CTEVPVAIHA 0.000154	30
HLA-A*30:01	1	616	624	9	EVPVAIHAD 0.000154	52
HLA-A*02:01	1	619	627	9	VAIHADQLT 0.000154	29
HLA-A*30:01	1	627	636	10	TPTWRVYSTG 0.000154	52
HLA-B*08:01	1	637	645	9	SNVFOTRAG 0.000154	41
HLA-A*26:01	1	660	668	9	DIPIGAGIC 0.000154	25
HLA-B*08:01	1	661	670	10	IPIGAGICAS 0.000154	41
HLA-A*30:01	1	696	705	10	LGVENSVAYS 0.000154	52
HLA-B*35:01	1	799	807	9	FSQILPDPS 0.000154	21
HLA-A*68:01	1	810	818	9	SKRSFIEDL 0.000154	28
HLA-B*51:01	1	851	859	9	KFNGLTVLP 0.000154	37
HLA-B*08:01	1	889	898	10	AALQIPFAMQ 0.000154	41
HLA-B*58:01	1	962	971	10	QLSSNFGAIS 0.000154	31
HLA-A*01:01	1	995	1003	9	TGRLQSLQT 0.000154	41
HLA-A*33:01	1	1023	1031	9	ATKMSECVL 0.000154	30
HLA-B*44:02	1	1030	1039	10	VLGQSKRVDF 0.000154	19
HLA-B*57:01	1	1044	1053	10	YHLMSFPQSA 0.000154	41
HLA-B*07:02	1	1048	1056	9	SFPQSAPHG 0.000154	27
HLA-A*68:01	1	1057	1066	10	VVFLHVTYVP 0.000154	28
HLA-A*30:01	1	1060	1069	10	LHVTYVPAQE 0.000154	52
HLA-A*01:01	1	1095	1103	9	NGTHWFVTQ 0.000154	41
HLA-A*02:06	1	1112	1121	10	ITTDNTFVSG 0.000154	39
HLA-A*23:01	1	1125	1134	10	VVIGIVNNTV 0.000154	18
HLA-B*35:01	1	1134	1143	10	VYDPLQPELD 0.000154	21
HLA-A*68:02	1	1150	1159	10	DKYFKNHTSP 0.000154	32
HLA-B*57:01	1	1160	1169	10	DVDLGDISGI 0.000154	41
HLA-A*68:02	1	1224	1233	10	IVMVTIMLCC 0.000154	32
HLA-A*31:01	1	1226	1234	9	MVTIMLCCM 0.000154	31
HLA-A*68:02	1	1227	1236	10	VTIMLCCMST 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-A*68:01	1	77	85	9	KRFANPVLP 0.000153	28
HLA-B*57:01	1	88	97	10	DGVYFASTAK 0.000153	41
HLA-A*68:02	1	95	104	10	TEKSNIIRGW 0.000153	32
HLA-A*30:01	1	103	111	9	GWIFGTTLD 0.000153	52

HLA-A*03:01	1	147	155	9	KNNKSWMES	0.000153	24
HLA-B*40:01	1	211	220	10	NLVRGLPQGF	0.000153	17
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*26:01	1	264	273	10	VGYLQPRTF	0.000153	25
HLA-A*31:01	1	288	296	9	CALDPLSET	0.000153	31
HLA-A*03:01	1	330	339	10	TNLCPFGEV	0.000153	24
HLA-A*01:01	1	347	355	9	VYAWNKRRI	0.000153	41
HLA-A*03:01	1	365	373	9	LYNSASFST	0.000153	24
HLA-A*11:01	1	372	380	9	STFKCYGVS	0.000153	19
HLA-A*01:01	1	403	411	9	EVQRQIAPG	0.000153	41
HLA-A*02:06	1	426	435	10	FTGCVIAWNS	0.000153	39
HLA-A*68:01	1	463	472	10	RDISTEIQQA	0.000153	28
HLA-B*44:02	1	468	476	9	EIYQAGSTP	0.000153	19
HLA-A*31:01	1	475	483	9	TPCNGVKGF	0.000153	31
HLA-A*02:03	1	490	499	10	QSYGFQPTY	0.000153	32
HLA-B*51:01	1	493	502	10	GFQPTYGVGY	0.000153	37
HLA-B*58:01	1	516	524	9	HAPATVCGP	0.000153	31
HLA-A*02:03	1	528	536	9	TNLVKNKCV	0.000153	32
HLA-A*11:01	1	548	556	9	VLTESNKKF	0.000153	19
HLA-B*51:01	1	570	578	9	TDAVRDPQT	0.000153	37
HLA-B*51:01	1	572	580	9	AVRDPQTLE	0.000153	37
HLA-B*35:01	1	577	585	9	QTLIELDIT	0.000153	21
HLA-A*68:02	1	590	599	10	GGVSVITPG	0.000153	32
HLA-A*32:01	1	591	599	9	GVSVITPGT	0.000153	23
HLA-A*24:02	1	604	612	9	QVAVLYQGV	0.000153	17
HLA-B*44:03	1	604	612	9	QVAVLYQGV	0.000153	18
HLA-A*01:01	1	606	614	9	AVLYQGVNC	0.000153	41
HLA-A*03:01	1	620	629	10	AIHADQLTPT	0.000153	24
HLA-A*30:01	1	649	658	10	GAEHVNNSYE	0.000153	52
HLA-A*33:01	1	651	659	9	EHVNNSYEC	0.000153	31
HLA-A*26:01	1	758	767	10	TQLNRALTGI	0.000153	25
HLA-A*02:03	1	798	806	9	NFSQILPDP	0.000153	32
HLA-A*30:01	1	814	823	10	FIEDLLFNKV	0.000153	52
HLA-B*51:01	1	855	864	10	LTVLPPLTD	0.000153	37
HLA-B*40:01	1	865	873	9	EMIAQY TSA	0.000153	17
HLA-A*23:01	1	884	892	9	TFGAGAALQ	0.000153	18
HLA-A*68:02	1	886	895	10	GAGAALQIPF	0.000153	32
HLA-A*33:01	1	888	896	9	GAALQIPFA	0.000153	31
HLA-B*08:01	1	895	904	10	FAMQMAYRFN	0.000153	41
HLA-B*58:01	1	909	917	9	TQNVLYENQ	0.000153	31
HLA-B*44:03	1	910	919	10	QNVLYENQKL	0.000153	18
HLA-A*33:01	1	911	920	10	NVLYENQKLI	0.000153	31
HLA-B*57:01	1	1000	1008	9	SLQTYVTQQ	0.000153	41
HLA-A*31:01	1	1010	1019	10	IRAAEIRASA	0.000153	31
HLA-B*15:01	1	1026	1035	10	MSECVLGQSK	0.000153	30
HLA-A*31:01	1	1046	1054	9	LMSFPQSAP	0.000153	31
HLA-B*58:01	1	1048	1057	10	SFPQSAPHGV	0.000153	31
HLA-B*58:01	1	1066	1074	9	PAQEKNTFT	0.000153	31
HLA-A*26:01	1	1113	1121	9	TTDNTFVSG	0.000153	25
HLA-B*58:01	1	1113	1122	10	TTDNTFVSGN	0.000153	31
HLA-B*58:01	1	1176	1184	9	IQKEIDRLN	0.000153	31
HLA-A*33:01	1	1177	1186	10	QKEIDRLNEV	0.000153	31
HLA-A*31:01	1	1182	1191	10	RLNEVAKNLN	0.000153	31
HLA-B*08:01	1	1189	1198	10	NLNESLIDLQ	0.000153	41
HLA-B*44:02	1	1193	1201	9	SLIDLQELG	0.000153	19
HLA-B*40:01	1	1218	1226	9	IAGLIAIVM	0.000153	17
HLA-B*51:01	1	1220	1229	10	GLIAIVMVTI	0.000153	37
HLA-B*53:01	1	15	24	10	CVNLTRRTQL	0.000152	20
HLA-B*51:01	1	104	112	9	WIFGTTLDS	0.000152	37
HLA-A*01:01	1	126	134	9	VVIKVCEFQ	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-A*30:02	1	209	217	9	PINLVRGLP	0.000152	50

HLA-A*03:01	1	219	227	9	GFSALEPLV	0.000152	24
HLA-A*01:01	1	280	288	9	GTITDAVDC	0.000152	41
HLA-A*01:01	1	305	313	9	VEKGIYQTS	0.000152	41
HLA-A*30:01	1	328	336	9	NITNLCPFV	0.000152	52
HLA-A*01:01	1	331	340	10	NLCPFGEVFN	0.000152	41
HLA-A*02:03	1	360	368	9	ADYSVLYNS	0.000152	32
HLA-A*26:01	1	383	392	10	KLNDLCFTNV	0.000152	25
HLA-B*07:02	1	398	406	9	VIRGDEVQR	0.000152	27
HLA-A*11:01	1	400	408	9	RGDEVQRQA	0.000152	19
HLA-B*40:01	1	457	465	9	NLKPFRDI	0.000152	17
HLA-A*30:01	1	492	501	10	YGFQPTYGVG	0.000152	52
HLA-A*26:01	1	506	515	10	RVVLSFELL	0.000152	25
HLA-B*07:02	1	519	528	10	ATVCGPKKST	0.000152	27
HLA-A*02:01	1	522	531	10	CGPKKSTNLV	0.000152	29
HLA-A*01:01	1	538	546	9	FNFNGLTGT	0.000152	41
HLA-A*31:01	1	548	557	10	VLTESNKKFL	0.000152	31
HLA-B*40:01	1	554	563	10	KKFLPFQQFG	0.000152	17
HLA-B*08:01	1	555	564	10	KFLPFQQFGR	0.000152	41
HLA-A*68:01	1	570	579	10	TDAVRDPQTL	0.000152	28
HLA-A*31:01	1	599	607	9	TNTSNQVAV	0.000152	31
HLA-A*23:01	1	604	612	9	QVAVLYQGV	0.000152	18
HLA-A*11:01	1	623	632	10	ADQLTPTWRV	0.000152	19
HLA-B*15:01	1	648	656	9	IGAHEVNNS	0.000152	30
HLA-A*31:01	1	655	663	9	NSYECDIPI	0.000152	31
HLA-B*08:01	1	672	681	10	QTQTNSPRRA	0.000152	41
HLA-A*02:03	1	673	682	10	TQTNSPRRAR	0.000152	32
HLA-A*33:01	1	684	693	10	VASQSIIAYT	0.000152	31
HLA-A*23:01	1	723	731	9	ILPVSMTKT	0.000152	18
HLA-B*53:01	1	738	746	9	YICGDSTEC	0.000152	20
HLA-A*32:01	1	761	769	9	NRALTGIIV	0.000152	23
HLA-B*08:01	1	768	777	10	AVEQDKNTQE	0.000152	41
HLA-A*02:06	1	785	794	10	IYKTPPIKDF	0.000152	39
HLA-A*03:01	1	792	800	9	KDFGGFNFS	0.000152	24
HLA-A*02:06	1	797	806	10	FNFSQILPDP	0.000152	39
HLA-B*08:01	1	836	844	9	DCLGDIAAR	0.000152	41
HLA-A*23:01	1	892	901	10	QIPFAMQMAY	0.000152	18
HLA-B*58:01	1	897	905	9	MQMAYRFNG	0.000152	31
HLA-B*44:02	1	909	918	10	TQNVLYENQK	0.000152	19
HLA-B*58:01	1	919	927	9	LIANQFNNSA	0.000152	31
HLA-B*15:01	1	929	938	10	GKIQDLSLST	0.000152	30
HLA-A*03:01	1	933	941	9	DSLSTASA	0.000152	24
HLA-B*40:01	1	941	949	9	ALGKLQDVV	0.000152	17
HLA-B*35:01	1	989	997	9	QIDRLITGR	0.000152	21
HLA-A*26:01	1	1010	1019	10	IRAAEIRASA	0.000152	25
HLA-B*07:02	1	1036	1045	10	RVDFCGKGYH	0.000152	27
HLA-A*24:02	1	1043	1052	10	GYHLMSFPQS	0.000152	17
HLA-A*30:02	1	1054	1062	9	PHGVVFLHV	0.000152	50
HLA-B*51:01	1	1075	1083	9	APAICHGDK	0.000152	37
HLA-A*02:03	1	1077	1085	9	AICHGDKAH	0.000152	32
HLA-A*02:01	1	1098	1106	9	HWFVTQRNF	0.000152	29
HLA-A*01:01	1	1135	1144	10	YDPLQPELDS	0.000152	41
HLA-A*31:01	1	1174	1183	10	VNIQKEIDRL	0.000152	31
HLA-A*30:01	1	1191	1200	10	NESLIDLQEL	0.000152	52
HLA-B*58:01	1	1201	1210	10	GKYEQYIKWP	0.000152	31
HLA-B*35:01	1	1205	1214	10	QYIKWPWYIW	0.000152	21
HLA-A*03:01	1	1206	1215	10	YIKWPWYIWL	0.000152	24
HLA-B*44:02	1	1257	1266	10	DSEPVLLKGVK	0.000152	19
HLA-A*02:06	1	1260	1268	9	PVLKGVKHL	0.000152	39
HLA-A*03:01	1	76	84	9	TKRFANPVL	0.000151	24
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	247	256	10	TPGDSSSGWT	0.000151	42
HLA-B*58:01	1	273	282	10	LLKYNENGTI	0.000151	31
HLA-A*01:01	1	313	321	9	SNFRVQPT	0.000151	41
HLA-A*02:01	1	340	349	10	NATRFASVYA	0.000151	29
HLA-B*53:01	1	379	387	9	VSPTKLNLDL	0.000151	20

HLA-B*57:01	1	384	392	9	LNDLCFTNV 0.000151	41
HLA-B*51:01	1	449	458	10	LYRLFRKSNL 0.000151	37
HLA-B*40:01	1	451	459	9	RLFRKSNLK 0.000151	17
HLA-A*68:01	1	479	488	10	GVKGFNCYFP 0.000151	28
HLA-A*24:02	1	490	499	10	QSYGFQPTYG 0.000151	18
HLA-A*68:01	1	519	527	9	ATVCGPKKS 0.000151	28
HLA-A*02:01	1	562	570	9	FRDIADTT 0.000151	29
HLA-A*03:01	1	564	573	10	RDIADTTDAV 0.000151	24
HLA-A*01:01	1	583	592	10	DITPCSFGGV 0.000151	41
HLA-A*32:01	1	603	612	10	NQVAVLYQGV 0.000151	23
HLA-B*15:01	1	629	637	9	TWRVYSTGS 0.000151	30
HLA-A*26:01	1	640	648	9	FQTRAGCLI 0.000151	25
HLA-A*02:01	1	648	657	10	IGAEHVNNYSY 0.000151	29
HLA-A*01:01	1	658	666	9	ECDIPIGAG 0.000151	41
HLA-B*40:01	1	673	682	10	TQTNSPRRAR 0.000151	17
HLA-A*31:01	1	676	684	9	NSPRRARSV 0.000151	31
HLA-B*07:02	1	704	712	9	YSNNSIAIP 0.000151	27
HLA-A*01:01	1	726	734	9	VSMTKTSVD 0.000151	41
HLA-B*40:01	1	730	738	9	KTSVDCTMY 0.000151	17
HLA-A*02:03	1	742	751	10	DSTECSNLLL 0.000151	32
HLA-A*30:01	1	744	752	9	TECSNLLLQ 0.000151	52
HLA-B*40:01	1	755	764	10	SFCTQLNRAL 0.000151	17
HLA-B*07:02	1	758	767	10	TQLNRALTGI 0.000151	27
HLA-B*53:01	1	767	775	9	IAVEQDKNT 0.000151	20
HLA-B*58:01	1	779	788	10	FAQVKQIYKT 0.000151	31
HLA-A*68:01	1	785	794	10	IYKTPPIKDF 0.000151	28
HLA-A*02:01	1	839	847	9	GDIAARDLI 0.000151	29
HLA-A*26:01	1	843	851	9	ARDLICAQK 0.000151	25
HLA-B*44:03	1	910	918	9	QNVLYENQK 0.000151	18
HLA-B*08:01	1	915	923	9	ENQKLIANQ 0.000151	42
HLA-A*02:03	1	931	940	10	IQDSLSTAS 0.000151	32
HLA-B*53:01	1	936	945	10	SSTASALGKL 0.000151	20
HLA-A*26:01	1	964	972	9	SSNFGAISS 0.000151	25
HLA-A*02:06	1	978	987	10	LSRLDKVEAE 0.000151	39
HLA-A*02:03	1	981	990	10	LDKVEAEVQI 0.000151	32
HLA-A*31:01	1	1013	1021	9	AEIRASANL 0.000151	31
HLA-A*33:01	1	1025	1033	9	KMSECVLGQ 0.000151	31
HLA-A*33:01	1	1053	1062	10	APHGVVFLHV 0.000151	31
HLA-A*68:01	1	1085	1094	10	HFPREGVFVS 0.000151	28
HLA-B*40:01	1	1093	1101	9	VSNGTHWFV 0.000151	17
HLA-B*15:01	1	1101	1110	10	VTQRNFYEPQ 0.000151	30
HLA-B*53:01	1	1107	1116	10	YEPQIITTDN 0.000151	20
HLA-A*02:01	1	1111	1120	10	IITTDNTFVS 0.000151	29
HLA-B*53:01	1	1117	1126	10	TFVSGNCDVV 0.000151	20
HLA-B*08:01	1	1139	1148	10	QPELDSFKEE 0.000151	42
HLA-A*01:01	1	1169	1177	9	INASVVNIQ 0.000151	41
HLA-A*32:01	1	1173	1182	10	VVNIQKEIDR 0.000151	23
HLA-A*31:01	1	1175	1183	9	NIQKEIDRL 0.000151	31
HLA-A*02:06	1	1179	1188	10	EIDRLNEVAK 0.000151	39
HLA-A*26:01	1	1184	1193	10	NEVAKNLNES 0.000151	25
HLA-A*26:01	1	1193	1201	9	SLIDLQELG 0.000151	25
HLA-B*51:01	1	1194	1203	10	LIDLQELGKY 0.000151	37
HLA-A*02:06	1	1205	1214	10	QYIKWPWYIW 0.000151	39
HLA-B*08:01	1	1211	1219	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-B*35:01	1	215	224	10	GLPQGFSALE 0.000151	21
HLA-A*26:01	1	245	253	9	YLTPGDSSS 0.000151	25
HLA-B*44:02	1	282	290	9	ITDAVDCAL 0.000151	19
HLA-A*32:01	1	356	364	9	SNCVADYSV 0.000151	23

HLA-A*68:01	1	356	364	9	SNCVADYSV 0.00015	28
HLA-A*32:01	1	360	369	10	ADYSVLYNSA 0.00015	23
HLA-A*68:01	1	361	369	9	DYSVLYNSA 0.00015	28
HLA-A*02:06	1	365	373	9	LYNSASFST 0.00015	39
HLA-A*02:03	1	367	376	10	NSASFSTFKC 0.00015	32
HLA-A*33:01	1	463	472	10	RDISTEIYQA 0.00015	31
HLA-B*15:01	1	464	472	9	DISTEIYQA 0.00015	30
HLA-A*02:06	1	466	474	9	STEIYQAGS 0.00015	39
HLA-A*11:01	1	481	490	10	KGFNCYFPLQ 0.00015	19
HLA-A*11:01	1	502	510	9	YQPYRVVVL 0.00015	19
HLA-B*53:01	1	527	535	9	STNLVKKNC 0.00015	20
HLA-B*44:03	1	531	540	10	VKNKCVNFN 0.00015	18
HLA-B*15:01	1	543	551	9	LTGTGVLTE 0.00015	30
HLA-A*31:01	1	549	557	9	LTESNKKFL 0.00015	31
HLA-A*03:01	1	556	565	10	FLPFQQFGRD 0.00015	24
HLA-A*68:01	1	573	582	10	VRDPQTLEIL 0.00015	28
HLA-B*51:01	1	578	586	9	TLEILDITP 0.00015	37
HLA-A*30:01	1	586	594	9	PCSFGGVSV 0.00015	53
HLA-A*31:01	1	594	602	9	VITPGTNTS 0.00015	31
HLA-B*51:01	1	610	618	9	QGVNCTEVP 0.00015	37
HLA-B*07:02	1	623	632	10	ADQLTPTWRV 0.00015	27
HLA-A*11:01	1	701	710	10	SVAYSNNNSIA 0.00015	19
HLA-B*53:01	1	701	710	10	SVAYSNNNSIA 0.00015	20
HLA-B*58:01	1	810	819	10	SKRSFIEDLL 0.00015	31
HLA-A*31:01	1	812	821	10	RSFIEDLLFN 0.00015	31
HLA-A*30:01	1	834	843	10	YGDCLGDIAA 0.00015	53
HLA-B*08:01	1	837	846	10	CLGDIAARDL 0.00015	42
HLA-A*68:01	1	898	906	9	QMAYRFNGI 0.00015	28
HLA-A*11:01	1	918	927	10	KLIANQFNFA 0.00015	19
HLA-A*03:01	1	940	948	9	SALGKLQDV 0.00015	24
HLA-A*30:02	1	943	952	10	GKLQDVVNQN 0.00015	50
HLA-A*23:01	1	952	960	9	NAQALNTLV 0.00015	18
HLA-A*03:01	1	998	1007	10	LQSLQTYVTQ 0.00015	24
HLA-A*26:01	1	1007	1016	10	QLLIRAAEIR 0.00015	25
HLA-B*57:01	1	1015	1023	9	IRASANLAA 0.00015	41
HLA-B*40:01	1	1022	1031	10	AATKMSECVL 0.00015	17
HLA-A*02:03	1	1086	1094	9	FPREGVFSV 0.00015	32
HLA-B*35:01	1	1113	1121	9	TTDNTFVSG 0.00015	21
HLA-B*51:01	1	1116	1124	9	NTFVSGNCD 0.00015	37
HLA-B*35:01	1	1126	1134	9	VIGIVNNTV 0.00015	21
HLA-A*68:02	1	1144	1153	10	SFKEELDKYF 0.00015	32
HLA-B*53:01	1	1163	1171	9	LGDISGINA 0.00015	20
HLA-B*15:01	1	1219	1227	9	AGLIAIVMV 0.00015	30
HLA-B*53:01	1	1256	1264	9	DDSEPVLKG 0.00015	20
HLA-B*51:01	1	58	67	10	FFSNVTWFHA 0.000149	37
HLA-A*68:02	1	66	75	10	HAIHVSGTNG 0.000149	32
HLA-A*03:01	1	107	115	9	GTTLDSTQ 0.000149	25
HLA-A*02:03	1	126	135	10	VVIKVFQF 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	LMDEGKQG 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-A*68:01	1	238	246	9	FQTLHRSYL 0.000149	28
HLA-A*31:01	1	239	248	10	QTLHRSYLTP 0.000149	31
HLA-B*35:01	1	264	273	10	VGYLQPRFTL 0.000149	21
HLA-B*51:01	1	275	283	9	KYNENGTIT 0.000149	37
HLA-A*33:01	1	284	293	10	DAVDCALDPL 0.000149	31
HLA-B*07:02	1	324	333	10	VRFPNITNLC 0.000149	27
HLA-A*26:01	1	325	333	9	RFPNITNLC 0.000149	25
HLA-B*57:01	1	350	358	9	WNRKRISNC 0.000149	42
HLA-A*33:01	1	399	407	9	IRGDEVRI 0.000149	31
HLA-B*08:01	1	454	463	10	RKSNLKPFR 0.000149	42
HLA-A*23:01	1	456	465	10	SNLKPFRDI 0.000149	18
HLA-B*57:01	1	464	473	10	DISTEIYQAG 0.000149	42
HLA-B*57:01	1	467	476	10	TEIYQAGSTP 0.000149	42

HLA-A*01:01	1	513	522	10	ELLHAPATVC 0.000149	41
HLA-B*57:01	1	530	539	10	LVKNKCVNFN 0.000149	42
HLA-B*08:01	1	531	540	10	VKNKCVNFN 0.000149	42
HLA-B*35:01	1	537	545	9	NFNFNGLTG 0.000149	21
HLA-A*01:01	1	552	560	9	SNKKFLPFQ 0.000149	41
HLA-A*30:01	1	568	576	9	DTTDAVRDP 0.000149	53
HLA-B*08:01	1	576	584	9	PQTLIELDI 0.000149	42
HLA-A*31:01	1	611	619	9	GVNCTEVPV 0.000149	31
HLA-B*57:01	1	611	619	9	GVNCTEVPV 0.000149	42
HLA-B*08:01	1	642	650	9	TRAGCLIGA 0.000149	42
HLA-B*35:01	1	659	667	9	CDIPIGAGI 0.000149	21
HLA-B*35:01	1	709	718	10	IAIPTNFTIS 0.000149	21
HLA-A*26:01	1	713	721	9	TNFTISVTT 0.000149	25
HLA-A*03:01	1	716	724	9	TISVTTEIL 0.000149	25
HLA-A*02:06	1	735	744	10	CTMYICGDST 0.000149	39
HLA-B*40:01	1	785	794	10	IYKTPPIKDF 0.000149	17
HLA-A*32:01	1	787	796	10	KTPPIKDFGG 0.000149	23
HLA-A*32:01	1	788	797	10	TPPIKDFGGF 0.000149	23
HLA-A*11:01	1	862	871	10	LTDEMIAQYT 0.000149	19
HLA-B*35:01	1	899	907	9	MAYRFNGIG 0.000149	21
HLA-B*57:01	1	910	918	9	QNVLYENQK 0.000149	42
HLA-A*11:01	1	911	919	9	NVLYENQKL 0.000149	19
HLA-A*02:06	1	963	971	9	LSSNFGAIS 0.000149	39
HLA-A*02:06	1	994	1003	10	ITGRLQSLQT 0.000149	39
HLA-A*11:01	1	1006	1014	9	TQQLIRAAE 0.000149	19
HLA-A*02:06	1	1015	1024	10	IRASANLAAT 0.000149	39
HLA-A*26:01	1	1021	1030	10	LAATKMSECV 0.000149	25
HLA-B*44:02	1	1022	1030	9	AATKMSECV 0.000149	19
HLA-A*11:01	1	1092	1101	10	FVSNGTHWFV 0.000149	19
HLA-B*53:01	1	1096	1104	9	GTHWFVTQR 0.000149	20
HLA-A*31:01	1	1111	1119	9	IITDNTFV 0.000149	31
HLA-A*23:01	1	1157	1166	10	TSPDVDLGDII 0.000149	18
HLA-A*68:02	1	1171	1179	9	ASVVNIQKE 0.000149	32
HLA-B*44:02	1	1193	1202	10	SLIDLQELGK 0.000149	19
HLA-A*24:02	1	1218	1226	9	IAGLIAIVM 0.000149	18
HLA-B*07:02	1	1221	1230	10	LIAIVMVTIM 0.000149	27
HLA-B*07:02	1	1258	1266	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	FCNDPFLGVY 0.000148	18
HLA-B*15:01	1	142	151	10	GVYYHKNNKS 0.000148	30
HLA-A*30:02	1	153	162	10	MESEFRVYSS 0.000148	50
HLA-B*35:01	1	235	243	9	ITRFQTLHR 0.000148	21
HLA-A*02:01	1	252	260	9	SSGWTAGAA 0.000148	30
HLA-B*53:01	1	277	285	9	NENGTITDA 0.000148	20
HLA-B*08:01	1	310	319	10	YQTSNFRVQP 0.000148	42
HLA-A*32:01	1	405	414	10	RQIAPGQTGN 0.000148	23
HLA-B*08:01	1	517	526	10	APATVCGPKK 0.000148	42
HLA-A*01:01	1	519	528	10	ATVCGPKKST 0.000148	41
HLA-A*31:01	1	522	530	9	CGPKKSTNL 0.000148	31
HLA-A*11:01	1	604	612	9	QVAVLYQGV 0.000148	19
HLA-B*51:01	1	613	622	10	NCTEVPVAIH 0.000148	37
HLA-B*51:01	1	671	679	9	YQTQTNspr 0.000148	37
HLA-A*23:01	1	674	682	9	QTNspr 0.000148	18
HLA-B*08:01	1	707	716	10	NSIAIPTNFT 0.000148	42
HLA-A*30:02	1	731	740	10	TSVDCTMYIC 0.000148	50
HLA-B*58:01	1	784	793	10	QIYKTPPIKD 0.000148	31
HLA-A*24:02	1	787	795	9	KTPPIKDFG 0.000148	18
HLA-B*44:02	1	805	813	9	DPSKPSKRS 0.000148	19
HLA-A*02:01	1	810	818	9	SKRSFIEDL 0.000148	30
HLA-A*01:01	1	833	842	10	QYGDCLGDIA 0.000148	41

HLA-B*44:03	1	868	877	10	AQYTSALLAG 0.000148	18
HLA-A*03:01	1	905	913	9	GIGVTQNVL 0.000148	25
HLA-A*30:02	1	978	987	10	LSRLDKVEAE 0.000148	50
HLA-A*26:01	1	1020	1028	9	NLAATKMSE 0.000148	25
HLA-A*33:01	1	1031	1039	9	LGQSKRVDF 0.000148	31
HLA-A*26:01	1	1045	1054	10	HLMSPQOSAP 0.000148	25
HLA-B*44:03	1	1069	1077	9	EKNFTTAPA 0.000148	18
HLA-A*33:01	1	1094	1102	9	SNGTHWFVT 0.000148	31
HLA-A*68:01	1	1130	1138	9	VNNTVYDPL 0.000148	28
HLA-B*07:02	1	1153	1161	9	FKNHTSPDV 0.000148	27
HLA-B*44:02	1	1160	1169	10	DVDLGDISGI 0.000148	19
HLA-B*51:01	1	1169	1177	9	INASVVNIQ 0.000148	37
HLA-B*57:01	1	1177	1186	10	QKEIDRLNEV 0.000148	42
HLA-A*02:01	1	1198	1206	9	QELGKYEY 0.000148	30
HLA-A*01:01	1	1206	1215	10	YIKWPWYIWL 0.000148	41
HLA-A*23:01	1	1211	1220	10	WYIWLGFIAI 0.000148	18
HLA-A*03:01	1	1212	1221	10	YIWLGFIAGL 0.000148	25
HLA-A*68:01	1	1227	1235	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	PFFSNVTFW 0.000147	25
HLA-B*07:02	1	67	76	10	AIHVSNGTNG 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	SLIIVNNACT 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*02:03	1	236	245	10	TRFQTLHRSY 0.000147	32
HLA-A*02:01	1	249	257	9	GDSSSGWTA 0.000147	30
HLA-B*07:02	1	288	297	10	CALDPLSETK 0.000147	27
HLA-A*33:01	1	313	322	10	SNFRVQPTES 0.000147	31
HLA-A*30:01	1	332	341	10	LCPFGEVFNA 0.000147	53
HLA-A*68:01	1	335	344	10	FGEVFNATRF 0.000147	28
HLA-B*44:03	1	351	359	9	NRKRISNCV 0.000147	18
HLA-B*07:02	1	362	370	9	YSVLYNSAS 0.000147	27
HLA-A*33:01	1	364	372	9	VLYNSASFV 0.000147	31
HLA-A*26:01	1	371	379	9	FSTFKCYGV 0.000147	25
HLA-A*30:01	1	382	390	9	TKLNDLCFT 0.000147	53
HLA-A*23:01	1	390	399	10	TNVYADSFVI 0.000147	18
HLA-B*53:01	1	405	413	9	RQIAPGQTG 0.000147	20
HLA-A*03:01	1	452	460	9	LFRKSNLKP 0.000147	25
HLA-A*68:02	1	461	470	10	FERDISTEY 0.000147	32
HLA-A*01:01	1	470	478	9	YQAGSTPCN 0.000147	41
HLA-A*31:01	1	477	486	10	CNGVKGFNCY 0.000147	31
HLA-A*02:01	1	479	488	10	GVKGFNCYFP 0.000147	30
HLA-A*03:01	1	519	528	10	ATVCGPKKST 0.000147	25
HLA-A*30:02	1	536	545	10	VNFNFNGLTG 0.000147	50
HLA-B*51:01	1	592	601	10	VSVITPGTNT 0.000147	37
HLA-B*07:02	1	614	622	9	CTEVPVAIH 0.000147	27
HLA-B*51:01	1	652	661	10	HVNNSYECDI 0.000147	37
HLA-A*01:01	1	653	661	9	VNNSYECDI 0.000147	41
HLA-A*26:01	1	687	695	9	QSIIAYTMS 0.000147	25
HLA-A*68:01	1	704	712	9	YSNNSIAIP 0.000147	28
HLA-B*40:01	1	719	728	10	VTTEILPVSM 0.000147	17
HLA-A*01:01	1	735	744	10	CTMYICGDST 0.000147	41
HLA-A*30:01	1	738	746	9	YICGDSTEC 0.000147	53
HLA-A*68:01	1	752	760	9	QYGSFCTQL 0.000147	28
HLA-B*40:01	1	781	789	9	QVKQIYKTP 0.000147	17
HLA-A*33:01	1	790	799	10	PIKDFGFFNF 0.000147	31
HLA-B*07:02	1	800	809	10	SQILPDPSKP 0.000147	27
HLA-B*53:01	1	812	821	10	RSFIEDLLFN 0.000147	20
HLA-A*23:01	1	824	832	9	TLADAGFIK 0.000147	18
HLA-A*24:02	1	851	860	10	KFNGLTVLPP 0.000147	18
HLA-A*32:01	1	855	864	10	LTVLPPLTD 0.000147	23
HLA-B*44:02	1	865	874	10	EMIAQYTSAL 0.000147	19
HLA-B*58:01	1	869	878	10	QYTSALLAGT 0.000147	32
HLA-A*31:01	1	884	893	10	TFGAGAALQI 0.000147	31

HLA-A*31:01	1	926	934	9	SAIGKIQDS 0.000147	31
HLA-A*68:01	1	930	939	10	KIQDLSSTA 0.000147	28
HLA-A*26:01	1	939	948	10	ASALGKLQDV 0.000147	25
HLA-B*40:01	1	953	962	10	AQALNTLVKQ 0.000147	17
HLA-B*57:01	1	967	975	9	FGAISSVLN 0.000147	42
HLA-A*30:02	1	968	976	9	GAISSVLND 0.000147	50
HLA-B*15:01	1	981	990	10	LDKVEAEVQI 0.000147	30
HLA-A*30:01	1	982	990	9	DKVEAEVQI 0.000147	53
HLA-B*35:01	1	1007	1015	9	QLLIRAAEI 0.000147	21
HLA-A*33:01	1	1010	1019	10	IRAAEIRASA 0.000147	31
HLA-A*68:02	1	1015	1024	10	IRASANLAAT 0.000147	32
HLA-B*40:01	1	1039	1047	9	FCGKGYHLM 0.000147	17
HLA-B*58:01	1	1044	1053	10	YHLMSFPQSA 0.000147	32
HLA-A*68:01	1	1080	1089	10	HDGKAHFPRE 0.000147	28
HLA-A*02:06	1	1095	1103	9	NGTHWFVTQ 0.000147	39
HLA-B*51:01	1	1154	1163	10	KNHTSPDVDL 0.000147	37
HLA-A*30:01	1	1162	1171	10	DLGDISGINA 0.000147	53
HLA-B*07:02	1	1174	1183	10	VNIQKEIDRL 0.000147	27
HLA-B*08:01	1	1176	1184	9	IQKEIDRLN 0.000147	42
HLA-A*30:02	1	1222	1231	10	IAIVMVTIML 0.000147	50
HLA-B*57:01	1	1225	1234	10	VMVTIMLCCM 0.000147	42
HLA-A*30:02	1	1238	1246	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-B*44:02	1	72	80	9	GTNGTKRFA 0.000146	19
HLA-A*68:02	1	106	114	9	FGTTLDSTK 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	242	250	9	HRSYLTPGD 0.000146	53
HLA-A*03:01	1	244	252	9	SYLTPGDSS 0.000146	25
HLA-A*68:01	1	253	261	9	SGWTAGAAA 0.000146	28
HLA-B*08:01	1	268	277	10	QPRTFLLKYN 0.000146	42
HLA-A*11:01	1	325	333	9	RFPNITNLC 0.000146	19
HLA-A*02:03	1	342	350	9	TRFASVYAW 0.000146	32
HLA-A*02:03	1	354	363	10	RISNCVADYS 0.000146	32
HLA-A*33:01	1	375	384	10	KCYGVSPTKL 0.000146	31
HLA-A*31:01	1	400	409	10	RGDEVQIAP 0.000146	31
HLA-A*02:03	1	406	414	9	QIAPGQTGN 0.000146	32
HLA-A*24:02	1	406	415	10	QIAPGQTGNI 0.000146	18
HLA-A*30:02	1	420	428	9	YKLPDDFTG 0.000146	50
HLA-B*40:01	1	420	428	9	YKLPDDFTG 0.000146	17
HLA-B*58:01	1	422	430	9	LPDDFTGCV 0.000146	32
HLA-A*02:03	1	441	450	10	KVGGNYNYLY 0.000146	32
HLA-A*68:02	1	447	455	9	NYLYRLFRK 0.000146	32
HLA-B*51:01	1	451	459	9	RLFRKSNLK 0.000146	37
HLA-A*02:06	1	460	469	10	PFERDISTEI 0.000146	39
HLA-B*08:01	1	465	473	9	ISTEIQAG 0.000146	42
HLA-A*01:01	1	487	496	10	FPLQSYGFQP 0.000146	41
HLA-B*07:02	1	499	507	9	GVGYQPYRV 0.000146	27
HLA-A*68:01	1	505	513	9	YRVVLSFE 0.000146	28
HLA-A*68:02	1	547	556	10	GVLTESNKKF 0.000146	32
HLA-B*40:01	1	603	612	10	NQVAVLYQGV 0.000146	17
HLA-A*30:01	1	610	618	9	QGVNCTEVP 0.000146	53
HLA-B*44:02	1	640	648	9	FQTRAGCLI 0.000146	19
HLA-A*32:01	1	641	650	10	QTRAGCLIGA 0.000146	23
HLA-A*33:01	1	679	687	9	RRARSVASQ 0.000146	31
HLA-A*01:01	1	686	695	10	SQSIIAYTMS 0.000146	41
HLA-B*53:01	1	693	702	10	TMSLGVNSV 0.000146	20
HLA-A*11:01	1	702	710	9	VAYSNNISIA 0.000146	19
HLA-A*30:01	1	724	732	9	LPVSMTKTS 0.000146	53
HLA-A*24:02	1	784	792	9	QIYKTPPIK 0.000146	18



HLA-A*02:01	1	792	800	9	KDFGGFNFS	0.000146	30
HLA-A*03:01	1	801	810	10	QILPDPSPKPS	0.000146	25
HLA-B*53:01	1	824	832	9	TLADAGFIK	0.000146	20
HLA-B*53:01	1	841	849	9	IAARDLICA	0.000146	20
HLA-A*02:01	1	872	880	9	SALLAGTIT	0.000146	30
HLA-A*02:01	1	875	883	9	LAGTITSGW	0.000146	30
HLA-A*26:01	1	884	893	10	TFGAGAALQI	0.000146	25
HLA-A*02:06	1	886	894	9	GAGAALQIP	0.000146	39
HLA-A*24:02	1	892	901	10	QIPFAMQMAY	0.000146	18
HLA-B*57:01	1	897	905	9	MQMAYRFNG	0.000146	42
HLA-A*32:01	1	909	918	10	TQNVLYENQK	0.000146	23
HLA-B*58:01	1	910	918	9	QNVLYENQK	0.000146	32
HLA-A*01:01	1	915	923	9	ENQKLIANQ	0.000146	41
HLA-A*30:02	1	956	964	9	LNTLVKQLS	0.000146	50
HLA-A*30:01	1	983	991	9	KVEAEVQID	0.000146	53
HLA-A*31:01	1	1009	1017	9	LIRAAEIRA	0.000146	31
HLA-B*08:01	1	1011	1020	10	RAAEIRASAN	0.000146	42
HLA-A*02:01	1	1083	1092	10	KAHFPREGVF	0.000146	30
HLA-A*32:01	1	1096	1105	10	GTHWFVTQRN	0.000146	23
HLA-B*58:01	1	1100	1108	9	FVTQRNFYE	0.000146	32
HLA-A*68:01	1	1101	1109	9	VTQRNFYEP	0.000146	28
HLA-A*31:01	1	1102	1111	10	TQRNFYEPQI	0.000146	31
HLA-B*08:01	1	1126	1135	10	VIGIVNNTVY	0.000146	42
HLA-B*07:02	1	1140	1149	10	PELDSFKEEL	0.000146	27
HLA-A*31:01	1	1152	1161	10	YFKNHTSPDV	0.000146	31
HLA-B*58:01	1	1179	1187	9	EIDRLNEVA	0.000146	32
HLA-B*53:01	1	1221	1230	10	LIAIVMVTIM	0.000146	20
HLA-A*01:01	1	1256	1264	9	DDSEPVKLG	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-A*03:01	1	75	84	10	GTKRFANPVL	0.000145	25
HLA-B*07:02	1	124	133	10	TNVVIKVICEF	0.000145	27
HLA-A*68:01	1	186	194	9	FKNLREFVF	0.000145	28
HLA-A*24:02	1	274	283	10	LKYNENGTIT	0.000145	18
HLA-B*40:01	1	289	298	10	ALDPLSETKC	0.000145	17
HLA-A*68:02	1	307	316	10	KGIIYQTSNFR	0.000145	32
HLA-B*44:02	1	309	317	9	IYQTSNFRV	0.000145	19
HLA-A*31:01	1	340	349	10	NATRFASVYA	0.000145	31
HLA-B*08:01	1	370	378	9	SFSTFKCYG	0.000145	42
HLA-A*68:01	1	439	447	9	DSKVGGNYN	0.000145	28
HLA-B*08:01	1	516	524	9	HAPATVCGP	0.000145	42
HLA-A*31:01	1	519	528	10	ATVCGPKKST	0.000145	31
HLA-A*01:01	1	545	553	9	GTGVLTESN	0.000145	42
HLA-B*15:01	1	556	564	9	FLPFQQFGR	0.000145	30
HLA-A*01:01	1	586	595	10	PCSFGGVSVI	0.000145	42
HLA-B*53:01	1	593	601	9	SVITPGTNT	0.000145	20
HLA-A*01:01	1	620	629	10	AIHADQLTPT	0.000145	42
HLA-A*30:01	1	628	637	10	PTWRVYSTGS	0.000145	53
HLA-A*03:01	1	657	665	9	YECDIPIGA	0.000145	25
HLA-A*68:01	1	697	705	9	GVENSVAYS	0.000145	28
HLA-B*58:01	1	711	720	10	IPTNFTISVT	0.000145	32
HLA-B*35:01	1	714	722	9	NFTISVTTE	0.000145	21
HLA-B*15:01	1	728	736	9	MTKTSVDCT	0.000145	30
HLA-A*03:01	1	773	781	9	KNTQEVFAQ	0.000145	25
HLA-A*03:01	1	775	784	10	TQEVFAQVKQ	0.000145	25
HLA-B*40:01	1	783	792	10	KQIYKTPPIK	0.000145	17
HLA-B*44:03	1	792	800	9	KDFGGFNFS	0.000145	19
HLA-A*32:01	1	794	803	10	FGGFNFSQIL	0.000145	23
HLA-A*68:02	1	857	865	9	VLPPLLTDE	0.000145	32
HLA-A*30:01	1	864	873	10	DEMIAQY TSA	0.000145	53
HLA-A*31:01	1	883	892	10	WTFGAGAALQ	0.000145	31
HLA-B*07:02	1	901	909	9	YRFNGIGVT	0.000145	27
HLA-B*15:01	1	937	946	10	STASALGKLQ	0.000145	30
HLA-A*23:01	1	945	953	9	LQDVVNQNA	0.000145	18
HLA-A*26:01	1	975	984	10	NDILSRLDKV	0.000145	25
HLA-B*58:01	1	982	990	9	DKVEAEVQI	0.000145	32

HLA-A*24:02	1	1006	1015	10	TQLLIRAAEI 0.000145	18
HLA-A*68:01	1	1021	1029	9	LAATKMSEC 0.000145	28
HLA-A*24:02	1	1023	1031	9	ATKMSECVL 0.000145	18
HLA-B*57:01	1	1032	1041	10	GQSKRVDFCG 0.000145	42
HLA-A*23:01	1	1047	1056	10	MSFPQSAPHG 0.000145	18
HLA-A*02:03	1	1050	1059	10	PQSAPHGVVF 0.000145	32
HLA-B*58:01	1	1079	1088	10	CHDGKAHFPR 0.000145	32
HLA-B*44:02	1	1090	1098	9	GVFVSNNGTH 0.000145	19
HLA-A*68:02	1	1094	1102	9	SNGTHWFVT 0.000145	32
HLA-A*33:01	1	1152	1160	9	YFKNHTSPD 0.000145	31
HLA-B*51:01	1	1156	1164	9	HTSPDVDLG 0.000145	37
HLA-B*15:01	1	1185	1193	9	EVAKNLNES 0.000145	30
HLA-B*08:01	1	1213	1222	10	IWLGFIAGLI 0.000145	42
HLA-B*53:01	1	1216	1224	9	GFIAGLIAI 0.000145	20
HLA-B*58:01	1	1234	1243	10	MTSCCCLKG 0.000145	32
HLA-B*07:02	1	1254	1263	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	SSQCVNLTT 0.000144	27
HLA-A*68:02	1	13	22	10	SQCVNLTTTRT 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-A*30:01	1	92	101	10	FASTEKSNII 0.000144	53
HLA-B*07:02	1	126	135	10	VVIKVCFFQF 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*24:02	1	214	222	9	RGLPQGFSA 0.000144	18
HLA-A*02:03	1	249	257	9	GDSSSGWTA 0.000144	33
HLA-A*11:01	1	251	260	10	SSSGWTAGAA 0.000144	19
HLA-B*15:01	1	252	260	9	SSGWTAGAA 0.000144	30
HLA-A*02:06	1	268	276	9	QPRTFLLKY 0.000144	39
HLA-B*57:01	1	284	293	10	DAVDCALDPL 0.000144	42
HLA-A*02:06	1	298	307	10	CTLKSFTVEK 0.000144	39
HLA-B*35:01	1	305	313	9	VEKGIYQTS 0.000144	21
HLA-B*07:02	1	367	375	9	NSASFSTFK 0.000144	27
HLA-B*44:02	1	400	408	9	RGDEVRIA 0.000144	19
HLA-B*53:01	1	415	423	9	IADYNYKLP 0.000144	20
HLA-B*51:01	1	419	427	9	NYKLPDDFT 0.000144	38
HLA-A*01:01	1	431	440	10	IAWNSNNLDS 0.000144	42
HLA-A*23:01	1	432	441	10	AWNSNNLDSK 0.000144	18
HLA-B*51:01	1	455	463	9	KSNLKPFR 0.000144	38
HLA-B*51:01	1	474	482	9	STPCNGVKG 0.000144	38
HLA-A*68:01	1	483	491	9	FNCYFPLQS 0.000144	28
HLA-B*35:01	1	501	509	9	GYQPYRVVV 0.000144	21
HLA-B*08:01	1	509	518	10	VLSFELLHAP 0.000144	42
HLA-A*26:01	1	522	530	9	CGPKKSTNL 0.000144	25
HLA-A*01:01	1	526	535	10	KSTNLVKNK 0.000144	42
HLA-B*51:01	1	595	603	9	ITPGTNTSN 0.000144	38
HLA-A*68:01	1	606	614	9	AVLYQGVNC 0.000144	28
HLA-A*23:01	1	642	650	9	TRAGCLIGA 0.000144	18
HLA-B*08:01	1	645	653	9	GCLIGAEHV 0.000144	42
HLA-A*02:03	1	654	663	10	NNSYECDIPI 0.000144	33
HLA-B*44:03	1	672	680	9	QTQTNSPRR 0.000144	19
HLA-A*33:01	1	687	695	9	QSIAYTMS 0.000144	31
HLA-A*26:01	1	732	740	9	SVDCTMYIC 0.000144	25
HLA-B*15:01	1	745	754	10	ECSNLLLQYG 0.000144	30
HLA-B*40:01	1	748	756	9	NLLLQYGSF 0.000144	17
HLA-A*02:01	1	762	770	9	RALTGIAVE 0.000144	30
HLA-A*03:01	1	805	814	10	DPSKPSKRSF 0.000144	25
HLA-A*68:02	1	805	813	9	DPSKPSKRS 0.000144	32
HLA-B*07:02	1	855	863	9	LTVLPPLLT 0.000144	27
HLA-B*07:02	1	856	864	9	TVLPPLTLD 0.000144	27
HLA-A*01:01	1	955	964	10	ALNTLVKQLS 0.000144	42
HLA-A*68:01	1	985	994	10	EAEVQIDRLI 0.000144	28
HLA-A*01:01	1	998	1007	10	LQSLQTYVTQ 0.000144	42

HLA-A*32:01	1	1007	1016	10	QQLIRAAEIR 0.000144	23
HLA-A*26:01	1	1016	1024	9	RASANLAAT 0.000144	25
HLA-A*23:01	1	1023	1031	9	ATKMSECVL 0.000144	18
HLA-B*40:01	1	1035	1044	10	KRVDFCGKGY 0.000144	17
HLA-B*08:01	1	1096	1104	9	GTHWFVTQR 0.000144	42
HLA-A*02:03	1	1111	1120	10	IITTDNTFVS 0.000144	33
HLA-A*02:01	1	1126	1135	10	VIGIVNNTVY 0.000144	30
HLA-A*68:02	1	1154	1163	10	KNHTSPDVDL 0.000144	32
HLA-B*07:02	1	1215	1223	9	LGFIAGLIA 0.000144	27
HLA-B*08:01	1	1220	1229	10	GLIAIVMVTI 0.000144	42
HLA-B*07:02	1	1222	1231	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*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-A*02:06	1	257	266	10	AGAAAYYVGY 0.000143	39
HLA-A*02:03	1	311	320	10	QTSNFRVQPT 0.000143	33
HLA-B*58:01	1	313	322	10	SNFRVQPTES 0.000143	32
HLA-A*01:01	1	324	333	10	VRFPNITNLC 0.000143	42
HLA-B*53:01	1	353	362	10	KRISNCVADY 0.000143	20
HLA-B*57:01	1	364	373	10	VLYSASFST 0.000143	42
HLA-B*53:01	1	424	432	9	DDFTGCVIA 0.000143	20
HLA-A*30:01	1	431	439	9	IAWNSNLD 0.000143	53
HLA-A*23:01	1	443	452	10	GGNYNYLYRL 0.000143	18
HLA-A*03:01	1	453	461	9	FRKSNLKP 0.000143	25
HLA-A*30:02	1	465	474	10	ISTEIQAGS 0.000143	51
HLA-A*24:02	1	478	486	9	NGVKGFNCY 0.000143	18
HLA-A*03:01	1	496	504	9	PTYGVGYQP 0.000143	25
HLA-A*02:03	1	498	506	9	YGVGYQPYR 0.000143	33
HLA-B*44:03	1	500	508	9	VGYQPYRVV 0.000143	19
HLA-B*35:01	1	520	528	9	TVCGPKKST 0.000143	21
HLA-A*02:03	1	543	551	9	LTGTGVLTE 0.000143	33
HLA-B*57:01	1	544	552	9	TGTGVLTES 0.000143	42
HLA-A*30:02	1	568	576	9	DTTDAVRDP 0.000143	51
HLA-B*53:01	1	613	622	10	NCTEVPVAIH 0.000143	20
HLA-A*68:02	1	665	673	9	AGICASYQT 0.000143	33
HLA-A*31:01	1	669	678	10	ASYQTQTNSP 0.000143	32
HLA-B*57:01	1	727	736	10	SMTKTSVDCT 0.000143	42
HLA-A*03:01	1	791	799	9	IKDFGGFNF 0.000143	25
HLA-B*53:01	1	799	808	10	FSQILPDPSK 0.000143	20
HLA-B*15:01	1	817	826	10	DLLFNKVTLA 0.000143	30
HLA-B*57:01	1	829	838	10	GFIKQYGDC 0.000143	42
HLA-A*02:06	1	838	847	10	LGDI AARDLI 0.000143	39
HLA-B*57:01	1	847	856	10	ICAQKFNGLT 0.000143	42
HLA-A*68:01	1	851	859	9	KFNGLTVLP 0.000143	28
HLA-B*07:02	1	879	887	9	ITSGWTFGA 0.000143	27
HLA-A*31:01	1	903	912	10	FNGIGVTQNV 0.000143	32
HLA-B*53:01	1	922	930	9	NQFNSAIGK 0.000143	20
HLA-A*01:01	1	948	957	10	VVNQAQALN 0.000143	42
HLA-B*53:01	1	1027	1035	9	SECVLGQSK 0.000143	20
HLA-A*11:01	1	1042	1051	10	KGYHLSFPQ 0.000143	19
HLA-A*33:01	1	1101	1109	9	VTQRNFYEP 0.000143	31
HLA-A*02:06	1	1107	1115	9	YEPQIITTD 0.000143	39
HLA-A*68:01	1	1116	1124	9	NTFVSGNCD 0.000143	28
HLA-B*15:01	1	1138	1147	10	LQPELDSFKE 0.000143	30
HLA-A*02:03	1	1141	1150	10	ELDSFKEELD 0.000143	33
HLA-B*35:01	1	1151	1159	9	KYFKNHTSP 0.000143	21
HLA-B*44:03	1	1160	1169	10	DVDLGDISGI 0.000143	19
HLA-A*02:06	1	1163	1172	10	LGDISGINAS 0.000143	39

HLA-B*07:02	1	1194	1202	9	LIDLQELGK	0.000143	27
HLA-A*31:01	1	1195	1203	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	IHVSGTNGTK	0.000142	32
HLA-B*15:01	1	79	87	9	FANPVLPFN	0.000142	30
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	HKNNKSWMES	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*30:01	1	210	219	10	INLVRGLPQG	0.000142	53
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-B*44:03	1	234	242	9	NITRFQTLH	0.000142	19
HLA-A*01:01	1	290	298	9	LDPLSETKC	0.000142	42
HLA-A*03:01	1	294	303	10	SETKCTLKSF	0.000142	25
HLA-B*44:02	1	317	325	9	VQPTESIVR	0.000142	20
HLA-A*26:01	1	320	329	10	TESIVRFPNI	0.000142	26
HLA-A*03:01	1	333	341	9	CPFGEVFNA	0.000142	25
HLA-B*15:01	1	362	370	9	YSVLYNSAS	0.000142	30
HLA-A*02:01	1	367	375	9	NSASFSTFK	0.000142	30
HLA-A*26:01	1	372	380	9	STFKCYGVS	0.000142	26
HLA-B*08:01	1	379	388	10	VSPTKLN DLC	0.000142	42
HLA-A*03:01	1	413	422	10	GNIADYNYKL	0.000142	25
HLA-A*31:01	1	457	465	9	NLKPFERDI	0.000142	32
HLA-A*68:01	1	466	474	9	STEIYQAGS	0.000142	28
HLA-B*07:02	1	493	502	10	GFQPTYGVGY	0.000142	28
HLA-B*44:02	1	508	516	9	VVLSFELLH	0.000142	20
HLA-B*53:01	1	514	522	9	LLHAPATVC	0.000142	20
HLA-A*30:02	1	535	544	10	CVNFNFGLT	0.000142	51
HLA-A*68:02	1	543	551	9	LTGTGVLTE	0.000142	33
HLA-B*44:03	1	554	563	10	KKFLPFQQFG	0.000142	19
HLA-B*44:03	1	566	574	9	IADTTDAVR	0.000142	19
HLA-A*11:01	1	577	586	10	QTLEILDITP	0.000142	19
HLA-A*01:01	1	597	605	9	PGTNTSNQV	0.000142	42
HLA-A*02:01	1	612	620	9	VNCTEVPVA	0.000142	30
HLA-A*01:01	1	666	674	9	GICASYQTQ	0.000142	42
HLA-B*35:01	1	668	676	9	CASYQTQTN	0.000142	22
HLA-B*53:01	1	671	679	9	YQTQTNSPR	0.000142	20
HLA-A*02:01	1	692	700	9	YTMSLGVEN	0.000142	30
HLA-A*31:01	1	710	718	9	AIPTNFTIS	0.000142	32
HLA-A*11:01	1	711	719	9	IPTNFTISV	0.000142	19
HLA-A*03:01	1	736	745	10	TMYICGDSTE	0.000142	25
HLA-A*30:01	1	752	761	10	QYGSFCTQLN	0.000142	53
HLA-B*57:01	1	753	761	9	YGSFCTQLN	0.000142	42
HLA-A*02:03	1	756	765	10	FCTQLNRALT	0.000142	33
HLA-A*01:01	1	762	771	10	RALTGIAVEQ	0.000142	42
HLA-A*24:02	1	793	801	9	DFGGFNFSQ	0.000142	18
HLA-B*35:01	1	824	833	10	TLADAGFIKQ	0.000142	22
HLA-B*44:03	1	832	841	10	KQYGDCLGDI	0.000142	19
HLA-A*02:06	1	835	844	10	GDCLGDIAAR	0.000142	40
HLA-A*31:01	1	877	886	10	GDITSGWTFG	0.000142	32
HLA-A*03:01	1	881	889	9	SGWTFGAGA	0.000142	25
HLA-B*53:01	1	922	931	10	NQFNSAIGKI	0.000142	20
HLA-B*08:01	1	954	962	9	QALNTLVKQ	0.000142	42
HLA-A*33:01	1	976	985	10	DILSRLDKVE	0.000142	31
HLA-A*68:02	1	979	987	9	SRLDKVEAE	0.000142	33
HLA-A*68:01	1	986	994	9	AEVQIDRLI	0.000142	28
HLA-A*30:02	1	990	999	10	IDRLITGRLQ	0.000142	51
HLA-B*07:02	1	996	1005	10	GRLQSLQTYV	0.000142	28

HLA-B*44:02	1	1029	1037	9	CVLGQSKRV	0.000142	20
HLA-B*35:01	1	1047	1056	10	MSFPQSAPHG	0.000142	22
HLA-A*68:02	1	1048	1056	9	SFPQSAPHG	0.000142	33
HLA-A*32:01	1	1061	1069	9	HVTYVPAQE	0.000142	23
HLA-B*35:01	1	1095	1103	9	NGTHWFVTQ	0.000142	22
HLA-B*53:01	1	1100	1108	9	FVTQRNFYE	0.000142	20
HLA-A*02:03	1	1103	1112	10	QRNFYEPQII	0.000142	33
HLA-B*08:01	1	1193	1201	9	SLIDLQELG	0.000142	42
HLA-B*44:03	1	1193	1201	9	SLIDLQELG	0.000142	19
HLA-B*08:01	1	1197	1205	9	LQELGKYEQ	0.000142	42
HLA-A*33:01	1	1212	1220	9	YIWLGFIAG	0.000142	31
HLA-A*30:01	1	1228	1237	10	TIMLCCMTSC	0.000142	53
HLA-B*57:01	1	1239	1247	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	GYYFASTEK	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	SLIIVNNATN	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-B*58:01	1	212	221	10	LVRGLPQGFS	0.000141	32
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	270	279	10	RTFLLKYNEN	0.000141	32
HLA-B*58:01	1	314	323	10	NFRVQPTESI	0.000141	32
HLA-A*11:01	1	336	345	10	GEVFNATRFA	0.000141	19
HLA-B*35:01	1	337	346	10	EVFNATRFAS	0.000141	22
HLA-A*02:06	1	354	363	10	RISNCVADYS	0.000141	40
HLA-B*51:01	1	360	368	9	ADYSVLYNS	0.000141	38
HLA-A*31:01	1	362	371	10	YSVLYNSASF	0.000141	32
HLA-B*40:01	1	375	383	9	KCYGVSPTK	0.000141	17
HLA-A*01:01	1	383	391	9	KLNDLCFTN	0.000141	42
HLA-A*03:01	1	392	401	10	VYADSFVIRG	0.000141	25
HLA-B*40:01	1	434	442	9	NSNNLDSKV	0.000141	17
HLA-B*53:01	1	457	465	9	NLKPFERDI	0.000141	21
HLA-A*68:02	1	484	493	10	NCYFPLQSYG	0.000141	33
HLA-A*01:01	1	552	561	10	SNKKFLPFQQ	0.000141	42
HLA-B*53:01	1	576	584	9	PQTLEILDI	0.000141	21
HLA-A*26:01	1	577	586	10	QTLEILDITP	0.000141	26
HLA-A*02:06	1	627	635	9	TPTWRVYST	0.000141	40
HLA-B*15:01	1	641	649	9	QTRAGCLIG	0.000141	31
HLA-A*01:01	1	645	653	9	GCLIGAHEV	0.000141	42
HLA-B*57:01	1	656	665	10	SYECDIPIGA	0.000141	42
HLA-A*23:01	1	683	692	10	SVASQSIIAY	0.000141	19
HLA-B*08:01	1	720	729	10	TTEILPVSMT	0.000141	43
HLA-A*02:03	1	741	750	10	GDSTECSNLL	0.000141	33
HLA-A*02:06	1	766	775	10	GIAVEQDKNT	0.000141	40
HLA-A*30:02	1	771	780	10	QDKNTQEVFA	0.000141	51
HLA-B*51:01	1	775	783	9	TQEVFAQVK	0.000141	38
HLA-B*07:02	1	783	792	10	KQIYKTPPIK	0.000141	28
HLA-B*44:02	1	784	792	9	QIYKTPPIK	0.000141	20
HLA-A*01:01	1	809	818	10	PSKRSFIEDL	0.000141	42
HLA-A*30:02	1	833	842	10	QYGDCGLDIA	0.000141	51

HLA-B*57:01	1	839	847	9	GDIAARDLI	0.000141	42
HLA-B*07:02	1	840	848	9	DIAARDLIC	0.000141	28
HLA-A*68:01	1	870	879	10	YTSALLAGTI	0.000141	28
HLA-B*44:02	1	871	879	9	TSALLAGTI	0.000141	20
HLA-A*33:01	1	880	889	10	TSGWTFGAGA	0.000141	32
HLA-A*02:03	1	892	901	10	QIPFAMQMAY	0.000141	33
HLA-A*68:02	1	901	909	9	YRFNGIGVT	0.000141	33
HLA-A*03:01	1	923	932	10	QFNSAIGKIQ	0.000141	25
HLA-B*44:02	1	944	953	10	KLQDVVNQNA	0.000141	20
HLA-A*68:01	1	969	977	9	AISSVLNDI	0.000141	28
HLA-B*51:01	1	1013	1022	10	AEIRASANLA	0.000141	38
HLA-B*40:01	1	1017	1026	10	ASANLAATKM	0.000141	17
HLA-B*44:03	1	1017	1026	10	ASANLAATKM	0.000141	19
HLA-A*68:02	1	1044	1052	9	YHLMSEFPQS	0.000141	33
HLA-B*51:01	1	1107	1116	10	YEPQIITTDN	0.000141	38
HLA-A*11:01	1	1125	1134	10	VVIGIVNNTV	0.000141	19
HLA-A*24:02	1	1137	1146	10	PLQPELDSFK	0.000141	18
HLA-B*44:03	1	1143	1151	9	DSFKEELDK	0.000141	19
HLA-A*02:01	1	1155	1163	9	NHTSPDVDL	0.000141	30
HLA-B*15:01	1	1194	1202	9	LIDLQELGK	0.000141	31
HLA-A*02:06	1	1211	1219	9	WYIWLGFIA	0.000141	40
HLA-A*30:01	1	1225	1234	10	VMVTIMLCCM	0.000141	53
HLA-A*68:01	1	1254	1262	9	DEDDSEPVL	0.000141	28
HLA-B*15:01	1	34	42	9	RGVYYPDKV	0.000141	31
HLA-A*24:02	1	64	72	9	WFHAIHVSG	0.000141	18
HLA-A*32:01	1	71	80	10	SGTNGTKRFA	0.000141	23
HLA-A*31:01	1	124	133	10	TNVVIKVCFF	0.000141	32
HLA-A*68:02	1	149	158	10	NKSWMESEFR	0.000141	33
HLA-A*26:01	1	152	161	10	WMESEFRVYS	0.000141	26
HLA-B*44:03	1	163	171	9	ANNCTFEYV	0.000141	19
HLA-B*08:01	1	207	215	9	HTPINLVRG	0.000141	43
HLA-A*02:01	1	310	318	9	YQTSNFRVQ	0.000141	30
HLA-A*02:03	1	345	354	10	ASVYAWNRKR	0.000141	33
HLA-A*68:02	1	350	359	10	WNRKRISNCV	0.000141	33
HLA-B*44:02	1	351	359	9	NRKRISNCV	0.000141	20
HLA-B*44:02	1	367	375	9	NSASFSTFK	0.000141	20
HLA-A*33:01	1	384	392	9	LNDLCFTNV	0.000141	32
HLA-A*02:01	1	440	448	9	SKVGGNYNY	0.000141	30
HLA-A*68:02	1	445	454	10	NYNYLYRLFR	0.000141	33
HLA-B*44:02	1	452	461	10	LFRKSNLKPF	0.000141	20
HLA-A*30:01	1	458	467	10	LKPFERDIST	0.000141	54
HLA-A*02:06	1	466	475	10	STEIYQAGST	0.000141	40
HLA-A*02:06	1	478	486	9	NGVKGFNCY	0.000141	40
HLA-A*23:01	1	483	492	10	FNCYFPLQSY	0.000141	19
HLA-B*58:01	1	503	511	9	QPYRVVVL	0.000141	32
HLA-A*30:02	1	537	546	10	NFNFNGLTGT	0.000141	51
HLA-A*68:01	1	542	551	10	GLTGTGVLTE	0.000141	28
HLA-B*53:01	1	579	587	9	LEILDITPC	0.000141	21
HLA-A*30:02	1	653	661	9	VNNSYECDI	0.000141	51
HLA-B*58:01	1	671	679	9	YQTQTNSPR	0.000141	32
HLA-B*35:01	1	680	689	10	RARSVASQSI	0.000141	22
HLA-A*24:02	1	690	698	9	IAYTMSLGV	0.000141	18
HLA-B*44:02	1	716	724	9	TISVTTEIL	0.000141	20
HLA-B*40:01	1	758	766	9	TQLNRALTG	0.000141	17
HLA-A*23:01	1	773	782	10	KNTQEVFAQV	0.000141	19
HLA-B*35:01	1	793	801	9	DFGGFNFSQ	0.000141	22
HLA-A*03:01	1	796	804	9	GFNFSQILP	0.000141	25
HLA-A*30:01	1	797	806	10	FNFSQILPDP	0.000141	54
HLA-A*01:01	1	836	844	9	DCLGDIAAR	0.000141	42
HLA-B*58:01	1	839	847	9	GDIAARDLI	0.000141	32
HLA-B*08:01	1	961	969	9	KQLSSNFGA	0.000141	43
HLA-A*32:01	1	1027	1035	9	SECVLGQSK	0.000141	23
HLA-B*35:01	1	1055	1063	9	HGVVFLHVT	0.000141	22
HLA-B*40:01	1	1062	1070	9	VTYVPAQEK	0.000141	17
HLA-B*40:01	1	1069	1077	9	EKNFTTAPA	0.000141	17
HLA-B*51:01	1	1073	1081	9	TTAPAICHD	0.000141	38

HLA-B*57:01	1	1105	1114	10	NFYEQIITT 0.00014	42
HLA-A*03:01	1	1137	1145	9	PLQPELDSF 0.00014	25
HLA-A*30:01	1	1137	1145	9	PLQPELDSF 0.00014	54
HLA-A*01:01	1	1149	1157	9	LDKYFKNHT 0.00014	42
HLA-A*30:02	1	1156	1165	10	HTSPDVDLGD 0.00014	51
HLA-B*08:01	1	1171	1180	10	ASVVNIQKEI 0.00014	43
HLA-B*53:01	1	1193	1202	10	SLIDLQELGK 0.00014	21
HLA-A*02:06	1	1196	1204	9	DLQELGKYE 0.00014	40
HLA-B*44:03	1	1199	1207	9	ELGKYEQYI 0.00014	19
HLA-A*02:06	1	15	23	9	CVNLTRTRQ 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	GWIFGTTLD 0.000139	51
HLA-A*68:01	1	114	123	10	TQSLLVNNA 0.000139	29
HLA-A*03:01	1	118	126	9	LIVNNATNV 0.000139	25
HLA-B*57:01	1	138	146	9	DPFLGVVYH 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	LPQGFSAL 0.000139	33
HLA-A*01:01	1	227	236	10	VDLPIGINIT 0.000139	42
HLA-A*03:01	1	239	248	10	QTLHRSYLT 0.000139	25
HLA-A*33:01	1	244	253	10	SYLTPGDSSS 0.000139	32
HLA-A*11:01	1	253	261	9	SGWTAGAAA 0.000139	19
HLA-A*02:06	1	339	348	10	FNATRFASVY 0.000139	40
HLA-B*53:01	1	358	367	10	CVADYSVLYN 0.000139	21
HLA-A*03:01	1	360	368	9	ADYSVLYNS 0.000139	25
HLA-B*08:01	1	366	375	10	YNSASFSTFK 0.000139	43
HLA-B*44:02	1	381	389	9	PTKLNDFCF 0.000139	20
HLA-A*11:01	1	385	393	9	NDLCFTNVY 0.000139	19
HLA-A*68:02	1	405	413	9	RQIAPGQTG 0.000139	33
HLA-B*08:01	1	418	427	10	YNYKLPDDFT 0.000139	43
HLA-B*40:01	1	506	515	10	RVVVSFELL 0.000139	17
HLA-B*35:01	1	516	524	9	HAPATVCGP 0.000139	22
HLA-A*11:01	1	524	532	9	PKKSTNLVK 0.000139	19
HLA-B*15:01	1	540	548	9	FNGLTGTGV 0.000139	31
HLA-A*30:01	1	561	569	9	QFGRDIADT 0.000139	54
HLA-A*68:01	1	584	592	9	ITPCSFGGV 0.000139	29
HLA-A*33:01	1	585	594	10	TPCSFGGVSV 0.000139	32
HLA-A*01:01	1	603	612	10	NQVAVLYQGV 0.000139	42
HLA-A*02:03	1	619	627	9	VAIHADQLT 0.000139	33
HLA-A*30:02	1	697	706	10	GVENSVAYSN 0.000139	51
HLA-A*02:03	1	706	715	10	NNSIAIPTNF 0.000139	33
HLA-B*58:01	1	737	746	10	MYICGDSTEC 0.000139	32
HLA-A*30:01	1	746	755	10	CSNLLLQYGS 0.000139	54
HLA-A*33:01	1	756	764	9	FCTQLNRAL 0.000139	32
HLA-B*07:02	1	773	782	10	KNTQEVFAQV 0.000139	28
HLA-A*26:01	1	813	821	9	SFIEDLLFN 0.000139	26
HLA-A*02:06	1	834	842	9	YGDCLGDIA 0.000139	40
HLA-A*02:06	1	852	860	9	FNGLTVLPP 0.000139	40
HLA-A*01:01	1	864	873	10	DEMIAQY TSA 0.000139	42
HLA-A*33:01	1	908	916	9	VTQNVLYEN 0.000139	32
HLA-A*32:01	1	957	965	9	NLTVKQLSS 0.000139	23
HLA-B*44:02	1	1000	1008	9	SLQTYVTQQ 0.000139	20
HLA-A*01:01	1	1015	1023	9	IRASANLAA 0.000139	42
HLA-A*01:01	1	1020	1029	10	NLAATKMSEC 0.000139	42
HLA-A*32:01	1	1062	1071	10	VTYVPAQEK 0.000139	23
HLA-A*26:01	1	1070	1078	9	KNFTTAPAI 0.000139	26
HLA-A*33:01	1	1097	1105	9	THWFVTQRN 0.000139	32
HLA-A*02:01	1	1124	1133	10	DVVIGIVNNT 0.000139	30
HLA-A*02:03	1	1126	1135	10	VIGIVNNTVY 0.000139	33
HLA-B*57:01	1	1157	1165	9	TSPDVDLGD 0.000139	43
HLA-B*07:02	1	1198	1207	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-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	DSKTQSLIV 0.000138	28
HLA-B*40:01	1	115	123	9	QSLIVNNA 0.000138	18
HLA-A*33:01	1	120	128	9	VNATNVVI 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*07:02	1	213	222	10	VRGLPQGFSA 0.000138	28
HLA-A*01:01	1	247	256	10	TPGDSSSGWT 0.000138	43
HLA-B*44:02	1	267	275	9	LQPRTFLLK 0.000138	20
HLA-A*23:01	1	274	283	10	LKYNGTIT 0.000138	19
HLA-B*35:01	1	311	319	9	QTSNFRVQP 0.000138	22
HLA-B*58:01	1	332	341	10	LCPFGEVFN 0.000138	32
HLA-B*57:01	1	360	369	10	ADYSVLYNSA 0.000138	43
HLA-A*26:01	1	362	370	9	YSVLYNSAS 0.000138	26
HLA-A*03:01	1	389	397	9	FTNVYADSF 0.000138	25
HLA-A*33:01	1	406	415	10	QIAPGQTGNI 0.000138	32
HLA-B*44:03	1	441	449	9	KVGGNYNYL 0.000138	19
HLA-A*32:01	1	443	451	9	GGNYNYLYR 0.000138	23
HLA-A*02:06	1	445	453	9	NYNYLYRLF 0.000138	40
HLA-A*26:01	1	445	454	10	NYNYLYRFR 0.000138	26
HLA-B*51:01	1	515	523	9	LHAPATVCG 0.000138	38
HLA-B*15:01	1	521	530	10	VCGPKKSTNL 0.000138	31
HLA-A*01:01	1	536	544	9	VNFNFLT 0.000138	43
HLA-A*24:02	1	541	549	9	NGLTGTGVL 0.000138	18
HLA-A*68:02	1	550	559	10	TESNKKFLPF 0.000138	33
HLA-A*30:02	1	551	560	10	ESNKKFLPFQ 0.000138	51
HLA-A*02:06	1	553	562	10	NKKFLPFQF 0.000138	40
HLA-B*57:01	1	556	564	9	FLPFQFGR 0.000138	43
HLA-B*44:02	1	585	594	10	TPCSFGGVS 0.000138	20
HLA-A*24:02	1	648	657	10	IGAHEVNSY 0.000138	18
HLA-B*44:03	1	683	691	9	SVASQSIIA 0.000138	19
HLA-A*32:01	1	689	697	9	IIAYTMSLG 0.000138	23
HLA-B*44:02	1	694	702	9	MSLGVNSV 0.000138	20
HLA-A*02:01	1	726	735	10	VSMTKTSVDC 0.000138	30
HLA-A*01:01	1	727	735	9	SMTKTSVDC 0.000138	43
HLA-A*02:06	1	727	736	10	SMTKTSVDCT 0.000138	40
HLA-B*08:01	1	744	753	10	TECSNLLLQY 0.000138	43
HLA-B*57:01	1	750	759	10	LLQYGSFCTQ 0.000138	43
HLA-A*02:01	1	829	838	10	GFIKQYGDCL 0.000138	30
HLA-A*68:01	1	878	886	9	TITSGWTFG 0.000138	29
HLA-B*51:01	1	936	944	9	SSTASALGK 0.000138	38
HLA-B*44:03	1	953	962	10	AQALNTLVKQ 0.000138	19
HLA-A*24:02	1	954	963	10	QALNTLVKQL 0.000138	18
HLA-A*11:01	1	958	967	10	TLVKQLSSNF 0.000138	19
HLA-A*01:01	1	1005	1014	10	VTQQLIRAAE 0.000138	43
HLA-B*40:01	1	1017	1025	9	ASANLAATK 0.000138	18
HLA-B*40:01	1	1022	1030	9	AATKMSECV 0.000138	18
HLA-A*23:01	1	1053	1061	9	APHGVVFLH 0.000138	19
HLA-A*02:03	1	1065	1074	10	VPAQEKNF 0.000138	33
HLA-A*30:02	1	1066	1074	9	PAQEKNF 0.000138	51
HLA-A*02:06	1	1075	1084	10	APAICHDGKA 0.000138	40
HLA-A*03:01	1	1092	1101	10	FVSNGTHWFV 0.000138	25
HLA-A*31:01	1	1138	1147	10	LQPELDSFKE 0.000138	32
HLA-B*57:01	1	1140	1149	10	PELDSFKEEL 0.000138	43
HLA-A*33:01	1	1148	1157	10	ELDKYFKNHT 0.000138	32
HLA-A*33:01	1	1216	1225	10	GFIAGLIAIV 0.000138	32
HLA-A*68:01	1	1243	1252	10	GCCSCGSCCK 0.000138	29
HLA-A*02:01	1	12	21	10	SSQCVNLTR 0.000137	30
HLA-A*03:01	1	15	24	10	CVNLTRTQL 0.000137	25
HLA-A*32:01	1	18	26	9	LTRTQLPP 0.000137	24
HLA-A*68:01	1	104	112	9	WIFGTTLDS 0.000137	29
HLA-B*44:02	1	110	119	10	LDSKTQSLI 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*51:01	1	237	246	10	RFQTLHRSYL	0.000137	38
HLA-B*53:01	1	262	270	9	YYVGYLQPR	0.000137	21
HLA-A*68:02	1	284	292	9	DAVDCALDP	0.000137	33
HLA-B*57:01	1	296	305	10	TKCTLKSFTV	0.000137	43
HLA-B*51:01	1	302	310	9	SFTVEKGIY	0.000137	38
HLA-B*07:02	1	306	315	10	EKGIYQTSNF	0.000137	28
HLA-A*02:03	1	323	331	9	IVRFPNITN	0.000137	33
HLA-A*24:02	1	351	359	9	NRKRISNCV	0.000137	18
HLA-A*02:01	1	367	376	10	NSASFSTFKC	0.000137	30
HLA-B*51:01	1	388	397	10	CFTNVYADSF	0.000137	38
HLA-A*32:01	1	449	458	10	LYRLFRKSNL	0.000137	24
HLA-B*57:01	1	463	471	9	RDISTEIQ	0.000137	43
HLA-B*08:01	1	491	499	9	SYGFQPTYG	0.000137	43
HLA-A*23:01	1	511	519	9	SFELLHAPA	0.000137	19
HLA-A*30:01	1	521	529	9	VCGPKKSTN	0.000137	54
HLA-A*02:03	1	543	552	10	LTGTGVLTES	0.000137	33
HLA-A*02:01	1	600	609	10	NTSNQVAVLY	0.000137	30
HLA-A*03:01	1	637	646	10	SNVFQTRAGC	0.000137	25
HLA-B*51:01	1	665	673	9	AGICASYQT	0.000137	38
HLA-A*30:02	1	767	775	9	IAVEQDKNT	0.000137	51
HLA-B*53:01	1	781	789	9	QVKQIYKTP	0.000137	21
HLA-A*26:01	1	800	809	10	SQILPDPSKP	0.000137	26
HLA-A*03:01	1	817	825	9	DLLFNKVTL	0.000137	25
HLA-B*40:01	1	830	838	9	FIKQYGDCL	0.000137	18
HLA-A*33:01	1	861	869	9	LLTDEMIAQ	0.000137	32
HLA-A*03:01	1	875	883	9	LAGTITSGW	0.000137	25
HLA-A*32:01	1	878	887	10	TITSGWTFGA	0.000137	24
HLA-A*68:02	1	908	916	9	VTQNVLYEN	0.000137	33
HLA-A*02:01	1	987	996	10	EVQIDRLITG	0.000137	30
HLA-A*33:01	1	991	1000	10	DRLITGRLQS	0.000137	32
HLA-B*57:01	1	997	1006	10	RLQSLQTYVT	0.000137	43
HLA-B*35:01	1	1000	1008	9	SLQTYVTQQ	0.000137	22
HLA-B*35:01	1	1020	1028	9	NLAATKMSE	0.000137	22
HLA-A*68:01	1	1044	1053	10	YHLMSEFPQSA	0.000137	29
HLA-A*24:02	1	1047	1056	10	MSFPQSAPHG	0.000137	18
HLA-A*02:06	1	1055	1064	10	HGVVFLHVTY	0.000137	40
HLA-A*30:02	1	1082	1090	9	GKAHFREG	0.000137	51
HLA-A*26:01	1	1164	1172	9	GDISGINAS	0.000137	26
HLA-A*02:06	1	1168	1177	10	GINASVVNIQ	0.000137	40
HLA-A*33:01	1	1170	1179	10	NASVVNIQKE	0.000137	32
HLA-B*35:01	1	1177	1186	10	QKEIDRLNEV	0.000137	22
HLA-B*44:03	1	1193	1202	10	SLIDLQELGK	0.000137	19
HLA-A*33:01	1	1258	1267	10	SEPVLKGVKL	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*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-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*02:03	1	237	245	9	RFQTLHRSY	0.000136	33
HLA-A*11:01	1	252	261	10	SSGWTAGAAA	0.000136	19
HLA-A*32:01	1	258	267	10	GAAAYVGYL	0.000136	24
HLA-A*02:01	1	262	271	10	YYVGYLQPR	0.000136	30
HLA-A*02:01	1	277	286	10	NENGTITDAV	0.000136	30
HLA-A*30:02	1	333	341	9	CPFGEVFN	0.000136	51
HLA-A*68:01	1	333	342	10	CPFGEVFNAT	0.000136	29
HLA-B*15:01	1	377	385	9	YGVSPTKLN	0.000136	31

HLA-A*31:01	1	388	397	10	CFTNVYADSF 0.000136	32
HLA-A*33:01	1	398	406	9	VIRGDEVQRQ 0.000136	32
HLA-A*33:01	1	400	408	9	RGDEVQRQIA 0.000136	32
HLA-A*02:06	1	444	453	10	GNYNYLYRLF 0.000136	40
HLA-B*44:03	1	455	463	9	KSNLKPFFER 0.000136	19
HLA-B*57:01	1	460	469	10	PFERDISTEI 0.000136	43
HLA-A*02:03	1	466	475	10	STEIYQAGST 0.000136	33
HLA-B*57:01	1	466	475	10	STEIYQAGST 0.000136	43
HLA-A*11:01	1	468	476	9	EIYQAGSTP 0.000136	19
HLA-B*44:02	1	548	557	10	VLTESNKKFL 0.000136	20
HLA-B*58:01	1	584	592	9	ITPCSFGGV 0.000136	32
HLA-A*02:01	1	603	611	9	NQVAVLYQG 0.000136	30
HLA-B*44:02	1	682	690	9	RSVASQSII 0.000136	20
HLA-A*11:01	1	684	693	10	VASQSIIAYT 0.000136	19
HLA-A*31:01	1	692	700	9	YTMSLGVEN 0.000136	32
HLA-B*53:01	1	694	703	10	MSLGVENVA 0.000136	21
HLA-A*33:01	1	757	765	9	CTQLNRALT 0.000136	32
HLA-B*58:01	1	758	766	9	TQLNRALTG 0.000136	32
HLA-A*68:01	1	761	770	10	NRALTGIAVE 0.000136	29
HLA-A*24:02	1	773	782	10	KNTQEVFAQV 0.000136	18
HLA-A*02:01	1	784	793	10	QIYKTPPIKD 0.000136	30
HLA-A*31:01	1	802	810	9	ILPDPSKPS 0.000136	32
HLA-A*32:01	1	853	862	10	NGLTVLPLL 0.000136	24
HLA-A*68:01	1	910	919	10	QNVLYENQKL 0.000136	29
HLA-A*24:02	1	911	920	10	NVLYENQKLI 0.000136	18
HLA-A*33:01	1	926	934	9	SAIGKIQDS 0.000136	32
HLA-A*11:01	1	933	941	9	DSLSSTASA 0.000136	19
HLA-B*44:02	1	933	941	9	DSLSSTASA 0.000136	20
HLA-B*44:03	1	933	941	9	DSLSSTASA 0.000136	19
HLA-B*08:01	1	944	952	9	KLQDVVNQN 0.000136	43
HLA-B*51:01	1	946	955	10	QDVVNQNAQA 0.000136	38
HLA-A*01:01	1	956	965	10	LNTLVKQLSS 0.000136	43
HLA-B*07:02	1	984	992	9	VEAEVQIDR 0.000136	28
HLA-B*58:01	1	1000	1008	9	SLQTYVTQQ 0.000136	32
HLA-A*68:02	1	1006	1014	9	TQQLIRAAE 0.000136	33
HLA-B*44:03	1	1015	1023	9	IRASANLAA 0.000136	19
HLA-A*03:01	1	1024	1033	10	TKMSECVLGQ 0.000136	25
HLA-B*08:01	1	1033	1041	9	QSKRVDFCG 0.000136	43
HLA-A*02:06	1	1048	1056	9	SFPQSAPHG 0.000136	40
HLA-A*68:02	1	1050	1059	10	PQSAPHGVVF 0.000136	33
HLA-A*30:02	1	1065	1073	9	VPAQEKNFT 0.000136	51
HLA-A*32:01	1	1080	1088	9	HDGKAHFPR 0.000136	24
HLA-B*57:01	1	1086	1095	10	FPREGVFVSN 0.000136	43
HLA-B*51:01	1	1095	1104	10	NGTHWFVTQR 0.000136	38
HLA-A*31:01	1	1113	1121	9	TTDNTFVSG 0.000136	32
HLA-A*02:06	1	1143	1152	10	DSFKEELDKY 0.000136	40
HLA-A*33:01	1	1160	1169	10	DVDLGDISGI 0.000136	32
HLA-B*58:01	1	1180	1188	9	IDRLNEVAK 0.000136	32
HLA-A*26:01	1	1189	1198	10	NLNESLIDLQ 0.000136	26
HLA-B*53:01	1	1224	1232	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	QGNFKNREF 0.000135	18
HLA-B*58:01	1	215	223	9	GLPQGFSAL 0.000135	33
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	244	253	10	SYLTPGDSSS 0.000135	43
HLA-B*58:01	1	257	265	9	AGAAAYYVG 0.000135	33
HLA-B*08:01	1	287	295	9	DCALDPLSE 0.000135	43
HLA-A*02:03	1	296	305	10	TKCTLKSFTV 0.000135	33
HLA-A*11:01	1	336	344	9	GEVFNATRF 0.000135	19

HLA-A*68:01	1	338	346	9	VFNATRFAS 0.000135	29
HLA-A*01:01	1	343	352	10	RFASVYAWN R 0.000135	43
HLA-A*30:02	1	348	357	10	YAWNKRKRIS N 0.000135	52
HLA-B*07:02	1	361	369	9	DYSVLYNSA 0.000135	28
HLA-B*44:03	1	362	371	10	YSVLYNSASF 0.000135	19
HLA-A*23:01	1	375	383	9	KCYGVSP TK 0.000135	19
HLA-B*08:01	1	443	451	9	GGNYNYLYR 0.000135	43
HLA-A*01:01	1	445	454	10	NYNYLYRLFR 0.000135	43
HLA-B*53:01	1	460	469	10	PFERDISTEI 0.000135	21
HLA-B*35:01	1	467	475	9	TEIYQAGST 0.000135	22
HLA-A*31:01	1	484	493	10	NCYFPLQSYG 0.000135	32
HLA-A*01:01	1	499	508	10	GVGYQPVRV V 0.000135	43
HLA-A*11:01	1	503	511	9	QPVRVVVLS 0.000135	19
HLA-B*08:01	1	517	525	9	APATVCGPK 0.000135	43
HLA-A*23:01	1	599	607	9	TNTSNQVAV 0.000135	19
HLA-B*57:01	1	627	635	9	TPTWRVYST 0.000135	43
HLA-A*03:01	1	673	681	9	TQTNSPRRA 0.000135	26
HLA-A*31:01	1	770	779	10	EQDKNTQEV F 0.000135	32
HLA-A*31:01	1	780	789	10	AQVKQIYKTP 0.000135	32
HLA-A*02:03	1	784	793	10	QIYKTPPIKD 0.000135	33
HLA-A*24:02	1	818	826	9	LLFNKVTLA 0.000135	18
HLA-A*30:02	1	847	856	10	ICAQKFNGLT 0.000135	52
HLA-A*02:01	1	859	868	10	PPLLTDEMIA 0.000135	31
HLA-A*33:01	1	869	878	10	QYTSALLAGT 0.000135	32
HLA-A*68:01	1	904	913	10	NGIGVTQNV L 0.000135	29
HLA-A*32:01	1	908	916	9	VTQNVLYEN 0.000135	24
HLA-B*51:01	1	968	976	9	GAISSVLND 0.000135	38
HLA-B*08:01	1	977	985	9	ILSRLDKVE 0.000135	43
HLA-A*30:02	1	987	996	10	EVQIDRLITG 0.000135	52
HLA-B*35:01	1	988	996	9	VQIDRLITG 0.000135	22
HLA-A*03:01	1	993	1002	10	LITGRLQSLQ 0.000135	26
HLA-A*30:02	1	1009	1018	10	LIRAAEIRAS 0.000135	52
HLA-A*31:01	1	1020	1028	9	NLAATKMSE 0.000135	32
HLA-A*26:01	1	1057	1066	10	VVFLHVTYVP 0.000135	26
HLA-A*03:01	1	1063	1072	10	TYVPAQEKNF 0.000135	26
HLA-B*57:01	1	1066	1075	10	PAQEKNF TTA 0.000135	43
HLA-A*02:06	1	1077	1085	9	AICHDGKAH 0.000135	40
HLA-B*58:01	1	1095	1103	9	NGTHWFVTQ 0.000135	33
HLA-A*11:01	1	1113	1121	9	TTDNTFVSG 0.000135	19
HLA-B*07:02	1	1113	1121	9	TTDNTFVSG 0.000135	28
HLA-A*31:01	1	1168	1177	10	GINASVVNIQ 0.000135	32
HLA-A*01:01	1	1174	1182	9	VNIQKEIDR 0.000135	43
HLA-B*57:01	1	1180	1188	9	IDRLNEVAK 0.000135	43
HLA-B*08:01	1	1214	1222	9	WLGFIAGLI 0.000135	43
HLA-B*58:01	1	1259	1268	10	EPVLKGVK L H 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-B*40:01	1	261	269	9	AYYVGYLQP 0.000134	18
HLA-B*58:01	1	261	270	10	AYYVGYLQPR 0.000134	33
HLA-A*02:06	1	290	298	9	LDPLSETKC 0.000134	40
HLA-A*02:03	1	292	301	10	PLSETKCTLK 0.000134	33
HLA-B*51:01	1	316	325	10	RVQPTESIVR 0.000134	38
HLA-A*02:06	1	358	367	10	CVADYSVLYN 0.000134	40
HLA-A*01:01	1	365	373	9	LYNSASFST 0.000134	43
HLA-A*31:01	1	380	389	10	SPTKLN DL CF 0.000134	32
HLA-B*08:01	1	391	400	10	NVYADSFVIR 0.000134	43
HLA-A*24:02	1	396	405	10	SFVIRGDEVR 0.000134	18
HLA-B*58:01	1	397	406	10	FVIRGDEVRQ 0.000134	33

HLA-A*31:01	1	398	407	10	VIRGDEVQRQI 0.000134	32
HLA-B*40:01	1	408	416	9	APGQTGNIA 0.000134	18
HLA-A*02:06	1	424	432	9	DDFTGCVIA 0.000134	40
HLA-A*23:01	1	450	459	10	YRLFRKSNLK 0.000134	19
HLA-A*24:02	1	456	465	10	SNLKPFERDI 0.000134	18
HLA-A*32:01	1	473	481	9	GSTPCNGVK 0.000134	24
HLA-A*68:02	1	507	516	10	VVLSFELLH 0.000134	33
HLA-B*58:01	1	520	529	10	TVCGPKKSTN 0.000134	33
HLA-A*68:02	1	532	540	9	KNKCVNFNF 0.000134	33
HLA-A*30:02	1	541	550	10	NGLTGTGVL 0.000134	52
HLA-B*40:01	1	566	574	9	IADTTDAVR 0.000134	18
HLA-B*51:01	1	637	645	9	SNVFQTRAG 0.000134	38
HLA-B*15:01	1	641	650	10	QTRAGCLIGA 0.000134	31
HLA-A*33:01	1	680	688	9	RARVASQS 0.000134	32
HLA-B*08:01	1	693	701	9	TMSLGVENS 0.000134	43
HLA-B*58:01	1	738	746	9	YICGDSTEC 0.000134	33
HLA-A*30:01	1	741	750	10	GDSTECSNLL 0.000134	54
HLA-B*15:01	1	754	763	10	GSFCTQLNRA 0.000134	31
HLA-A*02:03	1	766	775	10	GIAVEQDKNT 0.000134	33
HLA-A*11:01	1	775	784	10	TQEVFAQVKQ 0.000134	19
HLA-A*11:01	1	812	821	10	RSFIEDLLFN 0.000134	19
HLA-B*51:01	1	824	832	9	TLADAGFIK 0.000134	38
HLA-A*02:01	1	901	910	10	YRFNGIGVTQ 0.000134	31
HLA-B*57:01	1	980	989	10	RLDKVEAEVQ 0.000134	43
HLA-A*02:03	1	1015	1024	10	IRASANLAAT 0.000134	33
HLA-A*32:01	1	1033	1042	10	QSKRVDFCGK 0.000134	24
HLA-A*03:01	1	1043	1051	9	GYHLMSFPQ 0.000134	26
HLA-B*40:01	1	1048	1057	10	SFPQSAPHGV 0.000134	18
HLA-A*33:01	1	1069	1077	9	EKNFTTAPA 0.000134	32
HLA-A*03:01	1	1100	1108	9	FVTQRNFYE 0.000134	26
HLA-A*30:02	1	1118	1127	10	FVSGNCDVVI 0.000134	52
HLA-B*07:02	1	1122	1130	9	NCDVVIGIV 0.000134	28
HLA-A*02:01	1	1130	1138	9	VNNTVYDPL 0.000134	31
HLA-B*35:01	1	1130	1138	9	VNNTVYDPL 0.000134	22
HLA-B*44:03	1	1133	1141	9	TVYDPLQPE 0.000134	19
HLA-B*35:01	1	1166	1174	9	ISGINASVV 0.000134	22
HLA-B*51:01	1	1188	1197	10	KNLNESLIDL 0.000134	38
HLA-A*03:01	1	1204	1213	10	EQYIKWPWYI 0.000134	26
HLA-B*51:01	1	1211	1219	9	WYIWLGFIA 0.000134	38
HLA-B*08:01	1	1256	1264	9	DDSEPVKKG 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*40:01	1	111	119	9	DSKTQSLLI 0.000133	18
HLA-A*02:06	1	176	184	9	LMLEGKQG 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-A*02:06	1	243	251	9	RSYLTPGDS 0.000133	40
HLA-A*68:02	1	244	252	9	SYLTPGDSS 0.000133	33
HLA-B*35:01	1	249	257	9	GDSSSGWTA 0.000133	22
HLA-B*44:03	1	259	267	9	AAAYVGYL 0.000133	19
HLA-B*15:01	1	260	269	10	AAAYVGYLQP 0.000133	31
HLA-B*44:03	1	316	325	10	RVQPTESIVR 0.000133	19
HLA-A*30:01	1	336	344	9	GEVFNATRF 0.000133	54
HLA-B*53:01	1	339	347	9	FNATRFASV 0.000133	21
HLA-B*08:01	1	400	409	10	RGDEVQRQIAP 0.000133	43
HLA-B*58:01	1	421	429	9	KLPDDFTGC 0.000133	33
HLA-A*03:01	1	450	458	9	YRLFRKSNL 0.000133	26
HLA-B*44:02	1	495	504	10	QPTYGVGYQP 0.000133	20
HLA-A*33:01	1	513	522	10	ELLHAPATVC 0.000133	32
HLA-A*30:01	1	538	547	10	FNFNGLTGTG 0.000133	54

HLA-A*02:03	1	579	588	10	LEILDITPCS 0.000133	33
HLA-A*01:01	1	596	604	9	TPGTNTSNQ 0.000133	43
HLA-A*30:02	1	629	638	10	TWRVYSTGSN 0.000133	52
HLA-B*44:02	1	634	643	10	STGSNVFQTR 0.000133	20
HLA-B*44:03	1	671	679	9	YQTQTNSPR 0.000133	19
HLA-B*51:01	1	672	680	9	QTQTNSPRR 0.000133	39
HLA-A*02:06	1	700	708	9	NSVAYSNNS 0.000133	40
HLA-B*58:01	1	705	713	9	SNNSIAIPT 0.000133	33
HLA-B*51:01	1	720	729	10	TTEILPVSMT 0.000133	39
HLA-A*24:02	1	745	753	9	ECSNLLLQY 0.000133	18
HLA-A*03:01	1	748	756	9	NLLLQYGSF 0.000133	26
HLA-A*02:01	1	777	786	10	EVFAQVKQIY 0.000133	31
HLA-B*08:01	1	814	822	9	FIEDLLFNK 0.000133	43
HLA-A*01:01	1	815	824	10	IEDLLFNKVT 0.000133	43
HLA-A*02:06	1	821	830	10	NKVTLADAGF 0.000133	40
HLA-A*33:01	1	840	848	9	DIAARDLIC 0.000133	32
HLA-B*53:01	1	856	865	10	TVLPPLTDE 0.000133	21
HLA-A*02:03	1	869	878	10	QYTSALLAGT 0.000133	33
HLA-B*44:03	1	897	906	10	MQMAYRFNGI 0.000133	19
HLA-A*68:02	1	976	985	10	DILSRDKVE 0.000133	33
HLA-A*24:02	1	982	990	9	DKVEAEVQI 0.000133	18
HLA-B*07:02	1	985	994	10	EAEVQIDRLI 0.000133	28
HLA-A*11:01	1	993	1001	9	LITGRLQSL 0.000133	19
HLA-A*02:01	1	1006	1014	9	TQQLIRAAE 0.000133	31
HLA-B*51:01	1	1020	1028	9	NLAATKMSE 0.000133	39
HLA-B*57:01	1	1020	1029	10	NLAATKMSEC 0.000133	43
HLA-B*57:01	1	1032	1040	9	GQSKRVDFC 0.000133	43
HLA-A*02:01	1	1064	1073	10	YVPAQEKNT 0.000133	31
HLA-A*30:02	1	1069	1077	9	EKNFTTAPA 0.000133	52
HLA-B*53:01	1	1069	1078	10	EKNFTTAPAI 0.000133	21
HLA-B*40:01	1	1086	1094	9	FPREGVFVS 0.000133	18
HLA-B*07:02	1	1102	1111	10	TQRNFYEPQI 0.000133	28
HLA-A*68:01	1	1145	1153	9	FKEELDKYF 0.000133	29
HLA-B*58:01	1	1148	1156	9	ELDKYFKNH 0.000133	33
HLA-A*30:02	1	1164	1172	9	GDISGINAS 0.000133	52
HLA-A*11:01	1	1169	1177	9	INASVVNIQ 0.000133	19
HLA-A*68:02	1	1170	1179	10	NASVVNIQKE 0.000133	33
HLA-A*33:01	1	1197	1205	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	KHTPINLVRG 0.000132	29
HLA-B*08:01	1	221	230	10	SALEPLVDLP 0.000132	43
HLA-A*33:01	1	252	261	10	SSGWTAGAAA 0.000132	32
HLA-B*51:01	1	274	283	10	LKYNENGTIT 0.000132	39
HLA-A*32:01	1	299	308	10	TLKSFTVEKG 0.000132	24
HLA-B*53:01	1	304	312	9	TVEKGIYQT 0.000132	21
HLA-B*08:01	1	360	368	9	ADYSVLYNS 0.000132	43
HLA-A*33:01	1	384	393	10	LNDLCFTNVY 0.000132	32
HLA-B*58:01	1	427	435	9	TGCVIAWNS 0.000132	33
HLA-A*02:06	1	431	440	10	IAWNSNNLDS 0.000132	40
HLA-A*32:01	1	467	476	10	TEIYQAGSTP 0.000132	24
HLA-A*32:01	1	472	480	9	AGSTPCNGV 0.000132	24
HLA-A*11:01	1	473	482	10	GSTPCNGVKG 0.000132	20
HLA-A*30:02	1	511	520	10	SFELLHAPAT 0.000132	52
HLA-B*58:01	1	523	532	10	GPKKSTNLVK 0.000132	33
HLA-B*44:02	1	531	540	10	VKNKCVNFnF 0.000132	20
HLA-A*02:01	1	543	551	9	LTGTGVLTE 0.000132	31
HLA-B*57:01	1	568	576	9	DTTDAVRDP 0.000132	43

HLA-B*57:01	1	576	585	10	PQTLIILDIT 0.000132	43
HLA-A*02:06	1	590	598	9	GGVSVITPG 0.000132	40
HLA-B*07:02	1	592	601	10	VSVITPGTNT 0.000132	28
HLA-A*26:01	1	595	604	10	ITPGTNTSNQ 0.000132	26
HLA-A*68:01	1	633	642	10	YSTGSNVFQT 0.000132	29
HLA-A*02:06	1	664	673	10	GAGICASYQT 0.000132	40
HLA-B*40:01	1	674	682	9	QTNSPRRAR 0.000132	18
HLA-A*11:01	1	679	687	9	RRARSVASQ 0.000132	20
HLA-B*15:01	1	689	698	10	IIAYTMSLGV 0.000132	31
HLA-B*15:01	1	694	703	10	MSLGVENSVA 0.000132	31
HLA-B*44:03	1	705	713	9	SNNSIAIPT 0.000132	19
HLA-B*57:01	1	738	746	9	YICGDSTEC 0.000132	43
HLA-A*02:01	1	747	756	10	SNLLLQYGSF 0.000132	31
HLA-B*51:01	1	755	763	9	SFCTQLNRA 0.000132	39
HLA-A*02:03	1	763	772	10	ALTGIAVEQD 0.000132	34
HLA-A*68:02	1	771	780	10	QDKNTQEVFA 0.000132	33
HLA-A*02:03	1	787	795	9	KTPPIKDFG 0.000132	34
HLA-A*02:03	1	791	799	9	IKDFGGFNF 0.000132	34
HLA-B*53:01	1	793	801	9	DFGGFNFSQ 0.000132	21
HLA-B*07:02	1	801	810	10	QILPDPSKPS 0.000132	28
HLA-B*57:01	1	801	810	10	QILPDPSKPS 0.000132	43
HLA-B*57:01	1	878	886	9	TITSGWTFG 0.000132	43
HLA-B*07:02	1	922	930	9	NQFNSAIGK 0.000132	28
HLA-B*44:02	1	953	962	10	AQALNTLVKQ 0.000132	20
HLA-B*57:01	1	955	964	10	ALNTLVKQLS 0.000132	43
HLA-A*26:01	1	968	977	10	GAISSVLNDI 0.000132	26
HLA-A*02:03	1	983	992	10	KVEAEVQIDR 0.000132	34
HLA-A*02:01	1	990	998	9	IDRLITGRL 0.000132	31
HLA-B*35:01	1	990	998	9	IDRLITGRL 0.000132	22
HLA-A*68:02	1	996	1004	9	GRLQSLQTY 0.000132	33
HLA-A*30:02	1	1024	1033	10	TKMSECVLGQ 0.000132	52
HLA-A*31:01	1	1049	1057	9	FPQSAPHGV 0.000132	32
HLA-B*35:01	1	1132	1141	10	NTVYDPLQPE 0.000132	22
HLA-A*02:01	1	1168	1177	10	GINASVVNIQ 0.000132	31
HLA-B*44:03	1	1176	1184	9	IQKEIDRLN 0.000132	19
HLA-B*51:01	1	1193	1201	9	SLIDLQELG 0.000132	39
HLA-B*08:01	1	1200	1208	9	LGKYEYIK 0.000132	43
HLA-A*32:01	1	1216	1225	10	GFIAGLIAIV 0.000132	24
HLA-B*15:01	1	1225	1233	9	VMVTIMLCC 0.000132	31
HLA-A*03:01	1	1244	1252	9	CCSCGSCCK 0.000132	26
HLA-A*30:01	1	1256	1264	9	DDSEPVLKG 0.000132	55
HLA-A*30:02	1	2	11	10	FVFLVLLPLV 0.000131	52
HLA-A*02:06	1	16	25	10	VNLTRTQLP 0.000131	41
HLA-A*02:01	1	18	27	10	LTRTQLPPA 0.000131	31
HLA-B*15:01	1	107	115	9	GTTLDSKTQ 0.000131	31
HLA-A*31:01	1	110	118	9	LDSKTQSLL 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-A*32:01	1	213	222	10	VRGLPQGFS 0.000131	24
HLA-A*68:01	1	215	223	9	GLPQGFSAL 0.000131	29
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*44:03	1	278	286	9	ENGTITDAV 0.000131	19
HLA-A*23:01	1	291	300	10	DPLSETKCTL 0.000131	19
HLA-A*24:02	1	291	300	10	DPLSETKCTL 0.000131	18
HLA-A*68:01	1	313	322	10	SNFRVQPTES 0.000131	29
HLA-B*40:01	1	321	329	9	ESIVRFPNI 0.000131	18
HLA-A*68:02	1	334	343	10	PFGEVFNATR 0.000131	33
HLA-B*57:01	1	338	347	10	VFNATRFASV 0.000131	43
HLA-B*35:01	1	363	372	10	SVLYNSASF 0.000131	22
HLA-B*44:03	1	422	430	9	LPDDFTGCV 0.000131	19
HLA-B*57:01	1	449	458	10	LYRFRKSNL 0.000131	43
HLA-A*30:01	1	456	464	9	SNLKPFRD 0.000131	55
HLA-A*02:06	1	465	474	10	ISTEIQAGS 0.000131	41

HLA-B*15:01	1	465	473	9	ISTEIQAG	0.000131	31
HLA-B*44:03	1	468	476	9	EIQAGSTP	0.000131	19
HLA-B*57:01	1	470	478	9	YQAGSTPCN	0.000131	43
HLA-B*40:01	1	527	535	9	STNLVKKNC	0.000131	18
HLA-A*32:01	1	543	551	9	LTGTGVLTE	0.000131	24
HLA-B*57:01	1	544	553	10	TGTGVLTESN	0.000131	43
HLA-A*31:01	1	553	561	9	NKKFLPFQ	0.000131	33
HLA-B*58:01	1	566	575	10	IADTTDAVRD	0.000131	33
HLA-B*35:01	1	621	629	9	IHADQLTPT	0.000131	22
HLA-A*24:02	1	638	647	10	NVFQTRAGCL	0.000131	18
HLA-B*40:01	1	655	663	9	NSYECDIPI	0.000131	18
HLA-A*31:01	1	665	674	10	AGICASYQTQ	0.000131	33
HLA-A*31:01	1	684	693	10	VASQSIIAYT	0.000131	33
HLA-A*33:01	1	693	702	10	TMSLGVNSV	0.000131	33
HLA-B*15:01	1	724	733	10	LPVSMTKTSV	0.000131	31
HLA-B*08:01	1	737	745	9	MYICGDSTE	0.000131	44
HLA-A*68:02	1	759	768	10	QLNRALTGIA	0.000131	33
HLA-A*26:01	1	775	783	9	TQEVFAQVK	0.000131	26
HLA-A*26:01	1	793	801	9	DFGGFNFSQ	0.000131	26
HLA-A*68:01	1	795	803	9	GGFNFSQIL	0.000131	29
HLA-A*02:06	1	812	821	10	RSFIEDLLFN	0.000131	41
HLA-B*40:01	1	825	834	10	LADAGFIKQY	0.000131	18
HLA-A*24:02	1	829	837	9	GFIKQYGDC	0.000131	18
HLA-A*32:01	1	872	881	10	SALLAGTITS	0.000131	24
HLA-A*68:01	1	885	893	9	FGAGAALQI	0.000131	29
HLA-B*57:01	1	890	898	9	ALQIPFAMQ	0.000131	43
HLA-A*11:01	1	901	910	10	YRFNGIGVTQ	0.000131	20
HLA-B*57:01	1	909	917	9	TQNVLYENQ	0.000131	43
HLA-B*40:01	1	933	942	10	DSLSSTASAL	0.000131	18
HLA-A*31:01	1	945	953	9	LQDVVNQNA	0.000131	33
HLA-A*02:01	1	954	962	9	QALNTLVKQ	0.000131	31
HLA-A*03:01	1	979	988	10	SRLDKVEAEV	0.000131	26
HLA-A*30:01	1	1020	1029	10	NLAATKMSEC	0.000131	55
HLA-B*51:01	1	1027	1035	9	SECVLGQSK	0.000131	39
HLA-B*58:01	1	1027	1036	10	SECVLGQSKR	0.000131	33
HLA-B*51:01	1	1028	1036	9	ECVLGQSKR	0.000131	39
HLA-B*07:02	1	1040	1049	10	CGKGYHLMFS	0.000131	28
HLA-A*24:02	1	1057	1066	10	VVFLHVITYVP	0.000131	18
HLA-B*40:01	1	1069	1078	10	EKNFTTAPAI	0.000131	18
HLA-B*58:01	1	1077	1085	9	AICHDGKAH	0.000131	33
HLA-A*68:02	1	1158	1166	9	SPDVDLGDI	0.000131	33
HLA-B*58:01	1	1185	1193	9	EVAKNLNES	0.000131	33
HLA-A*01:01	1	1213	1221	9	IWLGFIAGL	0.000131	44
HLA-A*03:01	1	1220	1229	10	GLIAIVMVTI	0.000131	26
HLA-A*03:01	1	1223	1232	10	AIVMVTIMLC	0.000131	26
HLA-A*11:01	1	1254	1262	9	DEDDSEPV	0.000131	20
HLA-A*02:01	1	1	9	9	MFVFLVLLP	0.000131	31
HLA-A*33:01	1	12	20	9	SSQCVNLTT	0.000131	33
HLA-B*35:01	1	65	73	9	FHAIHVSGT	0.000131	22
HLA-B*15:01	1	67	76	10	AIHVSGTNGT	0.000131	31
HLA-B*35:01	1	86	94	9	FNDGVYFAS	0.000131	22
HLA-A*02:03	1	90	98	9	VYFASTEKS	0.000131	34
HLA-B*58:01	1	102	111	10	RGWIFGTTL	0.000131	33
HLA-A*03:01	1	111	119	9	DSKTQSLLI	0.000131	26
HLA-A*32:01	1	118	127	10	LIVNNATNVV	0.000131	24
HLA-A*33:01	1	118	126	9	LIVNNATNV	0.000131	33
HLA-A*24:02	1	136	144	9	CNDPFLGVY	0.000131	19
HLA-A*68:02	1	143	151	9	VYYHKNNKS	0.000131	34
HLA-A*02:01	1	161	170	10	SSANNCTFEY	0.000131	31
HLA-A*33:01	1	213	222	10	VRGLPQGFSA	0.000131	33
HLA-A*11:01	1	218	226	9	QGFSALEPL	0.000131	20
HLA-A*68:01	1	221	230	10	SALEPLVDLP	0.000131	29
HLA-B*58:01	1	250	259	10	DSSSGWTAGA	0.000131	33
HLA-B*08:01	1	272	281	10	FLLKYNENGT	0.000131	44
HLA-A*31:01	1	305	313	9	VEKGIYQTS	0.000131	33
HLA-A*02:03	1	307	315	9	KGIYQTSNF	0.000131	34

HLA-A*33:01	1	312	321	10	TSNFRVQPT 0.00013	33
HLA-A*02:03	1	325	334	10	RFPNITNLCP 0.00013	34
HLA-B*53:01	1	378	387	10	GVSPTKLNDL 0.00013	21
HLA-A*32:01	1	396	405	10	SFVIRGDEV 0.00013	24
HLA-A*01:01	1	451	460	10	RLFRKSNLKP 0.00013	44
HLA-B*58:01	1	468	476	9	EIYQAGSTP 0.00013	33
HLA-B*40:01	1	475	483	9	TPCNGVKGF 0.00013	18
HLA-B*53:01	1	481	489	9	KGFNCYFPL 0.00013	21
HLA-A*24:02	1	493	501	9	GFQPTYGVG 0.00013	19
HLA-B*40:01	1	502	511	10	YQPYRVVLS 0.00013	18
HLA-B*53:01	1	512	520	9	FELLHAPAT 0.00013	21
HLA-A*33:01	1	536	544	9	VNFNFNGLT 0.00013	33
HLA-B*08:01	1	539	547	9	NFNGLTGTG 0.00013	44
HLA-A*30:02	1	586	595	10	PCSFGGVSVI 0.00013	52
HLA-A*31:01	1	588	597	10	SFGGVSVIP 0.00013	33
HLA-B*53:01	1	612	621	10	VNCTEVPVAI 0.00013	21
HLA-A*02:03	1	624	633	10	DQLTPTWRVY 0.00013	34
HLA-B*08:01	1	669	678	10	ASYQTQTNSP 0.00013	44
HLA-A*23:01	1	691	699	9	AYTMSLGVE 0.00013	19
HLA-B*08:01	1	694	703	10	MSLGVENSVA 0.00013	44
HLA-B*58:01	1	712	721	10	PTNFTISVTT 0.00013	33
HLA-A*02:01	1	717	725	9	ISVTTEILP 0.00013	31
HLA-B*57:01	1	727	735	9	SMTKTSVDC 0.00013	44
HLA-A*02:01	1	738	747	10	YICGDSTEC 0.00013	31
HLA-B*35:01	1	762	771	10	RALTGIAVEQ 0.00013	22
HLA-B*44:03	1	784	792	9	QIYKTPPIK 0.00013	19
HLA-A*01:01	1	791	800	10	IKDFGGFNFS 0.00013	44
HLA-A*30:02	1	793	802	10	DFGGFNFSQI 0.00013	52
HLA-B*35:01	1	794	803	10	FGGFNFSQIL 0.00013	22
HLA-A*02:06	1	798	806	9	NFSQILPDP 0.00013	41
HLA-B*53:01	1	814	823	10	FIEDLLFNKV 0.00013	21
HLA-B*57:01	1	851	860	10	KFNGLTVLPP 0.00013	44
HLA-A*30:01	1	852	860	9	FNGLTVLPP 0.00013	55
HLA-A*24:02	1	884	892	9	TFGAGAALQ 0.00013	19
HLA-B*08:01	1	899	907	9	MAYRFNGIG 0.00013	44
HLA-B*44:02	1	946	955	10	QDVVNQNAQA 0.00013	20
HLA-A*32:01	1	973	982	10	VLNDILSRDL 0.00013	24
HLA-A*68:01	1	990	998	9	IDRLITGRL 0.00013	29
HLA-B*08:01	1	1034	1042	9	SKRVDFCGK 0.00013	44
HLA-A*23:01	1	1050	1058	9	PQSAPHGVV 0.00013	19
HLA-A*24:02	1	1053	1062	10	APHGVVFLHV 0.00013	19
HLA-A*01:01	1	1057	1066	10	VVFLHVTYVP 0.00013	44
HLA-A*23:01	1	1060	1068	9	LHVTYVPAQ 0.00013	19
HLA-B*58:01	1	1080	1088	9	HDGKAHFPR 0.00013	33
HLA-B*35:01	1	1100	1108	9	FVTQRNFYE 0.00013	22
HLA-A*33:01	1	1104	1112	9	RNFYEPQII 0.00013	33
HLA-B*08:01	1	1115	1123	9	DNTFVSGNC 0.00013	44
HLA-B*08:01	1	1132	1140	9	NTVYDPLQP 0.00013	44
HLA-B*51:01	1	1172	1181	10	SVVNIQKEID 0.00013	39
HLA-A*31:01	1	1185	1193	9	EVAKNLNES 0.00013	33
HLA-B*57:01	1	1185	1193	9	EVAKNLNES 0.00013	44
HLA-A*26:01	1	1202	1211	10	KYEYIKWPW 0.00013	27
HLA-A*30:02	1	1212	1220	9	YIWLGFIA 0.00013	52
HLA-A*68:02	1	54	63	10	LFLPFFSNVT 0.000129	34
HLA-A*30:02	1	74	83	10	NGTKRFANPV 0.000129	52
HLA-B*35:01	1	93	101	9	ASTEKSNII 0.000129	22
HLA-A*02:06	1	97	106	10	KSNIIRGWIF 0.000129	41
HLA-A*02:01	1	126	134	9	VVIKVFCE 0.000129	31
HLA-A*02:06	1	129	137	9	KVCEVFQFC 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*03:01	1	215	224	10	GLPQGFSALE 0.000129	26
HLA-A*24:02	1	222	231	10	ALEPLVDLPI 0.000129	19
HLA-A*31:01	1	247	255	9	TPGDSSSGW 0.000129	33
HLA-A*68:01	1	278	286	9	ENGTITDAV 0.000129	29



HLA-B*15:01	1	281	289	9	TITDAVDCA 0.000129	31
HLA-B*58:01	1	321	330	10	ESIVRFPNIT 0.000129	33
HLA-A*68:02	1	325	334	10	RFPNITNLCP 0.000129	34
HLA-B*08:01	1	334	342	9	PFGEVFNAT 0.000129	44
HLA-B*57:01	1	360	368	9	ADYSVLYNS 0.000129	44
HLA-A*24:02	1	366	375	10	YNSASFSTFK 0.000129	19
HLA-B*07:02	1	399	408	10	IRGDEVQRQA 0.000129	29
HLA-A*24:02	1	412	420	9	TGNIADYNY 0.000129	19
HLA-B*15:01	1	446	454	9	YNYLYRFR 0.000129	31
HLA-B*08:01	1	448	457	10	YLYRFRKSN 0.000129	44
HLA-A*31:01	1	456	465	10	SNLKPFERDI 0.000129	33
HLA-A*68:02	1	459	468	10	KPFERDISTE 0.000129	34
HLA-B*58:01	1	470	478	9	YQAGSTPCN 0.000129	33
HLA-A*11:01	1	475	483	9	TPCNGVKGF 0.000129	20
HLA-B*58:01	1	484	493	10	NCYFPLQSYG 0.000129	33
HLA-A*24:02	1	511	519	9	SFELLHAPA 0.000129	19
HLA-A*30:02	1	558	566	9	PFQQFGRDI 0.000129	52
HLA-A*11:01	1	580	588	9	EILDITPCS 0.000129	20
HLA-A*32:01	1	614	622	9	CTEVPVAIH 0.000129	24
HLA-A*23:01	1	638	647	10	NVVFQTRAGCL 0.000129	19
HLA-A*02:03	1	646	654	9	CLIGAEHVN 0.000129	34
HLA-A*30:02	1	668	676	9	CASYQTQTN 0.000129	52
HLA-B*53:01	1	674	682	9	QTNSPRRAR 0.000129	21
HLA-B*53:01	1	677	686	10	SPRRARSVAS 0.000129	21
HLA-A*03:01	1	692	700	9	YTMSLGVEN 0.000129	26
HLA-A*33:01	1	736	744	9	TMYICGDST 0.000129	33
HLA-A*02:03	1	767	775	9	IAVEQDKNT 0.000129	34
HLA-B*07:02	1	790	799	10	PIKDFGGFNF 0.000129	29
HLA-B*44:02	1	790	799	10	PIKDFGGFNF 0.000129	20
HLA-A*26:01	1	801	810	10	QILPDPSKPS 0.000129	27
HLA-A*68:01	1	826	835	10	ADAGFIKQYG 0.000129	29
HLA-A*30:02	1	846	854	9	LICAQKFNG 0.000129	52
HLA-A*24:02	1	865	874	10	EMIAQYTSAL 0.000129	19
HLA-A*33:01	1	869	877	9	QYTSALLAG 0.000129	33
HLA-B*44:03	1	884	893	10	TFGAGAALQI 0.000129	19
HLA-A*26:01	1	894	902	9	PFAMQMAYR 0.000129	27
HLA-A*03:01	1	908	916	9	VTQNVLYEN 0.000129	26
HLA-A*02:01	1	931	940	10	IQDLSLSTAS 0.000129	31
HLA-B*07:02	1	938	946	9	TASALGKLQ 0.000129	29
HLA-A*31:01	1	940	949	10	SALGKLQDVV 0.000129	33
HLA-B*44:03	1	954	962	9	QALNTLVKQ 0.000129	19
HLA-B*40:01	1	958	967	10	TLVKQLSSNF 0.000129	18
HLA-B*53:01	1	981	990	10	LDKVEAEVQI 0.000129	21
HLA-A*02:03	1	995	1004	10	TGRLQSLQTY 0.000129	34
HLA-B*07:02	1	1005	1014	10	VTQQLIRAAE 0.000129	29
HLA-A*24:02	1	1049	1058	10	FPQSAPHGVV 0.000129	19
HLA-A*01:01	1	1050	1058	9	PQSAPHGVV 0.000129	44
HLA-A*33:01	1	1059	1068	10	FLHVTVVPAQ 0.000129	33
HLA-B*35:01	1	1069	1077	9	EKNFTTAPA 0.000129	22
HLA-B*44:03	1	1105	1113	9	NFYEQIIT 0.000129	19
HLA-A*68:01	1	1111	1119	9	IITTDNTFV 0.000129	29
HLA-A*33:01	1	1116	1125	10	NTFVSGNCDV 0.000129	33
HLA-B*35:01	1	1125	1134	10	VVIGIVNNTV 0.000129	22
HLA-B*08:01	1	1143	1151	9	DSFKEELDK 0.000129	44
HLA-B*51:01	1	1147	1156	10	EELDKYFKNH 0.000129	39
HLA-B*57:01	1	1165	1174	10	DISGINASVV 0.000129	44
HLA-B*08:01	1	1171	1179	9	ASVUNIQKE 0.000129	44
HLA-B*15:01	1	1215	1224	10	LGFIAGLIAI 0.000129	31
HLA-B*51:01	1	1216	1225	10	GFIAGLIAIV 0.000129	39
HLA-A*02:03	1	1226	1234	9	MVTIMLCCM 0.000129	34
HLA-A*02:06	1	1254	1263	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	VYYPKVFRS 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	GVYFASTK 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*01:01	1	213	222	10	VRGLPQGFSFA 0.000128	44
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	312	321	10	TSNFRVQPT 0.000128	41
HLA-A*03:01	1	322	330	9	SIVRFPNIT 0.000128	26
HLA-A*02:06	1	327	335	9	PNITNLCPF 0.000128	41
HLA-A*32:01	1	338	347	10	VFNATRFASV 0.000128	24
HLA-A*68:02	1	371	380	10	FSTFKCYGVS 0.000128	34
HLA-B*07:02	1	390	399	10	TNVYADSFVI 0.000128	29
HLA-B*58:01	1	398	406	9	VIRGDEVQR 0.000128	33
HLA-A*02:01	1	399	408	10	IRGDEVQRQIA 0.000128	31
HLA-A*01:01	1	452	460	9	LFRKSNLKP 0.000128	44
HLA-A*24:02	1	469	478	10	IYQAGSTPCN 0.000128	19
HLA-B*07:02	1	498	506	9	YGVGYQPYR 0.000128	29
HLA-B*35:01	1	510	519	10	LSFELLHAPA 0.000128	22
HLA-A*02:03	1	541	549	9	NGLTGTGVL 0.000128	34
HLA-A*32:01	1	545	554	10	GTGVLTESNK 0.000128	24
HLA-B*53:01	1	568	576	9	DTTDAVRDP 0.000128	21
HLA-A*01:01	1	594	603	10	VITPGTNTSN 0.000128	44
HLA-A*23:01	1	599	608	10	TNTSNQVAVL 0.000128	19
HLA-B*08:01	1	603	611	9	NQVAVLYQG 0.000128	44
HLA-B*44:02	1	617	626	10	VPVAIHADQL 0.000128	20
HLA-A*24:02	1	629	637	9	TWRVYSTGS 0.000128	19
HLA-A*68:01	1	637	646	10	SNVFQTRAGC 0.000128	29
HLA-A*32:01	1	644	652	9	AGCLIGAHEH 0.000128	24
HLA-B*44:02	1	649	658	10	GAEHVNNSYE 0.000128	20
HLA-A*30:02	1	652	660	9	HVNNSYECD 0.000128	52
HLA-B*58:01	1	713	722	10	TNFTISVTTE 0.000128	33
HLA-A*26:01	1	741	749	9	GDSTECNL 0.000128	27
HLA-A*01:01	1	750	759	10	LLQYGSFCTQ 0.000128	44
HLA-A*02:06	1	767	776	10	IAVEQDKNTQ 0.000128	41
HLA-A*31:01	1	790	799	10	PIKDFGGFNF 0.000128	33
HLA-B*58:01	1	796	804	9	GFNFSQILP 0.000128	33
HLA-A*03:01	1	813	821	9	SFIEDLLFN 0.000128	26
HLA-B*51:01	1	819	828	10	LFNKVTLADA 0.000128	39
HLA-B*44:02	1	824	832	9	TLADAGFIK 0.000128	20
HLA-A*02:01	1	843	852	10	ARDLICAQKF 0.000128	31
HLA-A*02:01	1	855	864	10	LTVLPPLD 0.000128	31
HLA-B*44:03	1	865	874	10	EMIAQYTSAL 0.000128	19
HLA-B*58:01	1	892	900	9	QIPFAMQMA 0.000128	33
HLA-A*33:01	1	950	958	9	NQNAQALNT 0.000128	33
HLA-A*33:01	1	951	960	10	QNAQALNTLV 0.000128	33
HLA-A*30:02	1	970	979	10	ISSVLNDILS 0.000128	52
HLA-B*44:03	1	979	987	9	SRLDKVEAE 0.000128	19
HLA-A*02:01	1	981	990	10	LDKVEAEVQI 0.000128	31
HLA-B*08:01	1	984	992	9	VEAEVQIDR 0.000128	44
HLA-A*02:06	1	991	1000	10	DRLITGRLQS 0.000128	41
HLA-A*68:01	1	992	1001	10	RLITGRLQSL 0.000128	29
HLA-A*33:01	1	1047	1056	10	MSFPQSAPHG 0.000128	33
HLA-A*01:01	1	1054	1062	9	PHGVVFLHV 0.000128	44
HLA-A*68:01	1	1059	1067	9	FLHVTVVPA 0.000128	29
HLA-A*32:01	1	1100	1108	9	FVTQRNFYE 0.000128	24
HLA-A*03:01	1	1126	1134	9	VIGIVNNTV 0.000128	26
HLA-A*31:01	1	1134	1143	10	VYDPLQPELD 0.000128	33
HLA-A*33:01	1	1176	1185	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	SFTRGVYYP 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*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	259	268	10	AAAYVGYLQ	0.000127	34
HLA-A*68:01	1	265	274	10	GYLQPRTFLL	0.000127	29
HLA-B*58:01	1	285	293	9	AVDCALDPL	0.000127	33
HLA-A*33:01	1	289	298	10	ALDPLSETKC	0.000127	33
HLA-A*26:01	1	324	333	10	VRFPNITNLC	0.000127	27
HLA-A*02:06	1	325	334	10	RFPNITNLCP	0.000127	41
HLA-A*32:01	1	355	364	10	ISNCVADYSV	0.000127	24
HLA-B*44:03	1	367	375	9	NSASFSTFK	0.000127	20
HLA-B*57:01	1	393	402	10	YADSFVIRGD	0.000127	44
HLA-B*08:01	1	401	409	9	GDEVQRQIAP	0.000127	44
HLA-B*44:02	1	405	414	10	RQIAPGQTGN	0.000127	20
HLA-A*02:01	1	407	416	10	IAPGQTGNIA	0.000127	31
HLA-B*07:02	1	419	427	9	NYKLPDDFT	0.000127	29
HLA-A*24:02	1	446	454	9	YNYLYRFR	0.000127	19
HLA-B*53:01	1	465	473	9	ISTEIYQAG	0.000127	21
HLA-A*68:01	1	506	515	10	RVVLSFELL	0.000127	29
HLA-B*07:02	1	512	520	9	FELLHAPAT	0.000127	29
HLA-B*44:03	1	523	532	10	GPKKSTNLVK	0.000127	20
HLA-A*11:01	1	527	536	10	STNLVKNKCV	0.000127	20
HLA-A*03:01	1	532	540	9	KNKCVNFNF	0.000127	26
HLA-B*58:01	1	562	570	9	FGRDIADTT	0.000127	33
HLA-B*44:03	1	564	573	10	RDIADTTDAV	0.000127	20
HLA-A*01:01	1	578	587	10	TLEILDITPC	0.000127	44
HLA-A*32:01	1	586	595	10	PCSFGGVSVI	0.000127	24
HLA-A*01:01	1	616	625	10	EVPVAIHADQ	0.000127	44
HLA-A*26:01	1	623	631	9	ADQLTPTWR	0.000127	27
HLA-A*32:01	1	639	647	9	VFQTRAGCL	0.000127	24
HLA-B*35:01	1	643	652	10	RAGCLIGAETH	0.000127	22
HLA-B*58:01	1	652	660	9	HVNNSYECD	0.000127	33
HLA-B*53:01	1	676	684	9	NSPRRARSV	0.000127	21
HLA-B*44:03	1	680	689	10	RARSVASQSI	0.000127	20
HLA-A*11:01	1	692	701	10	YTMSLGVENS	0.000127	20
HLA-B*58:01	1	705	714	10	SNNSIAIPTN	0.000127	33
HLA-A*23:01	1	721	730	10	TEILPVSMTK	0.000127	19
HLA-B*07:02	1	726	735	10	VSMTKTSVDC	0.000127	29
HLA-B*40:01	1	731	739	9	TSVDCTMYI	0.000127	18
HLA-B*57:01	1	768	777	10	AVEQDKNTQE	0.000127	44
HLA-A*24:02	1	779	787	9	FAQVKQIYK	0.000127	19
HLA-B*58:01	1	792	800	9	KDFGGFNFS	0.000127	33
HLA-B*35:01	1	794	802	9	FGGFNFSQI	0.000127	22
HLA-B*51:01	1	815	824	10	IEDLLFNKVT	0.000127	39
HLA-A*01:01	1	878	886	9	TITSGWTFG	0.000127	44
HLA-B*53:01	1	888	896	9	GAALQIPFA	0.000127	21
HLA-A*02:01	1	892	901	10	QIPFAMQMAY	0.000127	31
HLA-A*02:03	1	905	914	10	GIGVTQNVLY	0.000127	34
HLA-A*26:01	1	907	915	9	GVTQNVLYE	0.000127	27
HLA-B*35:01	1	923	931	9	QFNSAIGKI	0.000127	22
HLA-A*24:02	1	936	945	10	SSTASALGKL	0.000127	19
HLA-A*01:01	1	987	996	10	EVQIDRLITG	0.000127	44
HLA-B*15:01	1	999	1008	10	QSLQTYVTQQ	0.000127	32
HLA-A*02:03	1	1002	1011	10	QTYVTQQLIR	0.000127	34
HLA-B*44:02	1	1031	1039	9	LGQSKRVDF	0.000127	20
HLA-B*44:03	1	1044	1053	10	YHLSFPQSA	0.000127	20
HLA-B*58:01	1	1050	1058	9	PQSAPHGVV	0.000127	33
HLA-A*26:01	1	1064	1073	10	YVPAQEKNT	0.000127	27
HLA-B*57:01	1	1067	1075	9	AQEKNTFTA	0.000127	44
HLA-A*01:01	1	1069	1078	10	EKNFTTAPAI	0.000127	44
HLA-B*53:01	1	1089	1097	9	EGVFSVNGT	0.000127	21
HLA-A*68:02	1	1095	1103	9	NGTHWFVTQ	0.000127	34
HLA-A*02:06	1	1109	1117	9	PQIITTDNT	0.000127	41
HLA-A*26:01	1	1112	1120	9	ITTDNTFVS	0.000127	27

HLA-A*32:01	1	1129	1137	9	IVNNTVYDP 0.000127	24
HLA-A*33:01	1	1142	1151	10	LDSFKEELDK 0.000127	33
HLA-A*01:01	1	1151	1159	9	KYFKNHTSP 0.000127	44
HLA-A*32:01	1	1154	1163	10	KNHTSPDVDL 0.000127	24
HLA-A*26:01	1	1162	1171	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-B*51:01	1	239	248	10	QTLHRSYLT 0.000126	39
HLA-A*32:01	1	281	290	10	TITDAVDCAL 0.000126	24
HLA-B*44:02	1	285	293	9	AVDCALDPL 0.000126	21
HLA-B*40:01	1	299	307	9	TLKSFTVEK 0.000126	18
HLA-B*57:01	1	305	313	9	VEKGIYQTS 0.000126	44
HLA-A*32:01	1	322	331	10	SIVRFPNITN 0.000126	24
HLA-A*01:01	1	338	347	10	VFNATRFASV 0.000126	44
HLA-A*01:01	1	348	356	9	YAWNRKRIS 0.000126	44
HLA-A*23:01	1	349	358	10	AWNRKRISNC 0.000126	19
HLA-A*26:01	1	350	358	9	WNRKRISNC 0.000126	27
HLA-A*02:03	1	367	375	9	NSASFSTFK 0.000126	34
HLA-B*07:02	1	385	393	9	NDLCFTNVY 0.000126	29
HLA-A*24:02	1	398	407	10	VIRGDEV RQI 0.000126	19
HLA-A*01:01	1	420	429	10	YKLPDDFTGC 0.000126	44
HLA-A*01:01	1	429	438	10	CVIAWNSNNL 0.000126	44
HLA-A*01:01	1	434	443	10	NSNNLDSKVG 0.000126	44
HLA-A*31:01	1	459	468	10	KPFERDISTE 0.000126	33
HLA-B*58:01	1	481	490	10	KGFNCYFPLQ 0.000126	33
HLA-A*68:02	1	483	491	9	FNCYFPLQS 0.000126	34
HLA-A*26:01	1	509	517	9	VLSFELLHA 0.000126	27
HLA-A*02:06	1	532	540	9	KNKCVNFNF 0.000126	41
HLA-A*68:02	1	549	558	10	LTESNKKFLP 0.000126	34
HLA-B*53:01	1	594	602	9	VITPGTNTS 0.000126	21
HLA-B*08:01	1	607	616	10	VLYQGVNCTE 0.000126	44
HLA-A*68:02	1	612	620	9	VNCTEVPVA 0.000126	34
HLA-B*15:01	1	619	628	10	VAIHADQLTP 0.000126	32
HLA-A*02:01	1	626	635	10	LTPTWRVYST 0.000126	31
HLA-A*32:01	1	639	648	10	VFQTRAGCLI 0.000126	24
HLA-B*57:01	1	643	651	9	RAGCLIGAE 0.000126	44
HLA-A*68:02	1	655	664	10	NSYECDIPIG 0.000126	34
HLA-A*26:01	1	661	669	9	IPIGAGICA 0.000126	27
HLA-B*51:01	1	672	681	10	QTQTNSPRRA 0.000126	39
HLA-A*02:01	1	731	740	10	TSVDCTMYIC 0.000126	31
HLA-B*07:02	1	736	744	9	TMYICGDST 0.000126	29
HLA-B*15:01	1	742	750	9	DSTECSNLL 0.000126	32
HLA-A*68:01	1	748	756	9	NLLLQYGSF 0.000126	29
HLA-A*32:01	1	780	789	10	AQVKQIYKTP 0.000126	24
HLA-A*23:01	1	799	808	10	FSQILPDPSK 0.000126	19
HLA-A*23:01	1	810	818	9	SKRSFIEDL 0.000126	19
HLA-A*11:01	1	813	821	9	SFIEDLLFN 0.000126	20
HLA-B*08:01	1	834	843	10	YGDCLGDIAA 0.000126	44
HLA-B*08:01	1	842	851	10	AARDLICAQK 0.000126	44
HLA-A*26:01	1	857	865	9	VLPPLLTDE 0.000126	27
HLA-B*57:01	1	857	865	9	VLPPLLTDE 0.000126	44
HLA-A*03:01	1	862	871	10	LTDEMIAQYT 0.000126	26
HLA-A*01:01	1	900	908	9	AYRFNGIGV 0.000126	44

HLA-B*53:01	1	905	913	9	GIGVTQNVL	0.000126	21
HLA-B*51:01	1	935	943	9	LSSTASALG	0.000126	39
HLA-A*01:01	1	946	954	9	QDVVNQNAQ	0.000126	44
HLA-A*01:01	1	958	966	9	TLVKQLSSN	0.000126	44
HLA-A*68:01	1	970	978	9	ISSVLNDIL	0.000126	29
HLA-A*01:01	1	978	987	10	LSRLDKVEAE	0.000126	44
HLA-A*68:02	1	994	1003	10	ITGRLQSLQT	0.000126	34
HLA-A*02:06	1	999	1008	10	QSLQTYVTQQ	0.000126	41
HLA-B*58:01	1	1026	1034	9	MSECVLGQS	0.000126	33
HLA-B*44:02	1	1038	1047	10	DFCGKGYHLM	0.000126	21
HLA-A*03:01	1	1059	1067	9	FLHVTVVPA	0.000126	26
HLA-A*68:02	1	1134	1143	10	VYDPLQPELD	0.000126	34
HLA-A*26:01	1	1152	1161	10	YFKNHTSPDV	0.000126	27
HLA-B*58:01	1	1173	1181	9	VMNIQKEID	0.000126	33
HLA-B*58:01	1	1225	1233	9	VMVTIMLCC	0.000126	33
HLA-A*33:01	1	1245	1253	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-B*44:02	1	74	82	9	NGTKRFANP	0.000125	21
HLA-A*32:01	1	88	97	10	DGVYFASTEK	0.000125	24
HLA-A*11:01	1	93	101	9	ASTEKSNII	0.000125	20
HLA-A*02:01	1	94	102	9	STEKSNIIIR	0.000125	31
HLA-A*26:01	1	119	128	10	IVN NATN VVI	0.000125	27
HLA-B*44:03	1	123	131	9	ATNVVIVKC	0.000125	20
HLA-B*44:02	1	126	135	10	VVIKVCEFFQ	0.000125	21
HLA-B*44:03	1	126	135	10	VVIKVCEFFQ	0.000125	20
HLA-A*24:02	1	172	180	9	SQPFLMDLE	0.000125	19
HLA-A*68:01	1	188	196	9	NLREFVFKN	0.000125	29
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-B*08:01	1	252	261	10	SSGWTAGAAA	0.000125	44
HLA-B*07:02	1	305	313	9	VEKGIYQTS	0.000125	29
HLA-B*53:01	1	311	319	9	QTSNFRVQP	0.000125	22
HLA-A*02:06	1	318	327	10	QPTESIVRFP	0.000125	41
HLA-A*02:03	1	326	335	10	FPNITNLCPF	0.000125	34
HLA-B*35:01	1	341	349	9	ATRFASVYA	0.000125	22
HLA-A*31:01	1	348	356	9	YAWNRKRIS	0.000125	33
HLA-B*58:01	1	348	357	10	YAWNRKRISN	0.000125	34
HLA-A*31:01	1	417	426	10	DYNYKLPDDF	0.000125	33
HLA-B*53:01	1	450	458	9	YRLFRRKSNL	0.000125	22
HLA-A*02:01	1	470	478	9	YQAGSTPCN	0.000125	31
HLA-B*44:03	1	492	500	9	YGFQPTYGV	0.000125	20
HLA-A*02:03	1	494	503	10	FQPTYGVGYQ	0.000125	34
HLA-A*33:01	1	518	526	9	PATVCGPKK	0.000125	33
HLA-B*51:01	1	546	554	9	TGVLTESNK	0.000125	39
HLA-B*08:01	1	557	565	9	LPFQQFGRD	0.000125	44
HLA-B*51:01	1	614	622	9	CTEVPVAIH	0.000125	39
HLA-A*68:01	1	630	639	10	WRVYSTGSNV	0.000125	29
HLA-B*57:01	1	639	647	9	VFQTRAGCL	0.000125	44
HLA-B*07:02	1	644	652	9	AGCLIGAEH	0.000125	29
HLA-B*44:03	1	682	690	9	RSVASQSII	0.000125	20
HLA-B*51:01	1	698	706	9	VENSVAYSN	0.000125	39
HLA-A*33:01	1	700	709	10	NSVAYSNSI	0.000125	33
HLA-A*01:01	1	712	721	10	PTNFTISVTT	0.000125	44
HLA-A*24:02	1	744	753	10	TECSNLLLQY	0.000125	19
HLA-A*01:01	1	751	759	9	LQYGSFCTQ	0.000125	44
HLA-A*11:01	1	796	804	9	GFNFSQILP	0.000125	20
HLA-B*08:01	1	796	804	9	GFNFSQILP	0.000125	44
HLA-A*02:03	1	797	806	10	FNFSQILPDP	0.000125	34
HLA-A*01:01	1	801	810	10	QILPDPSPKPS	0.000125	44
HLA-A*03:01	1	817	826	10	DLLFNKVTLA	0.000125	26
HLA-A*68:01	1	841	849	9	IAARDLICA	0.000125	29
HLA-B*51:01	1	850	859	10	QKFNGLTVLP	0.000125	39
HLA-A*26:01	1	853	861	9	NGLTVLPPL	0.000125	27

HLA-A*11:01	1	875	883	9	LAGTITSGW 0.000125	20
HLA-B*53:01	1	879	887	9	ITSGWTFGA 0.000125	22
HLA-A*31:01	1	885	893	9	FGAGAALQI 0.000125	33
HLA-A*30:02	1	896	905	10	AMQMAYRFNG 0.000125	53
HLA-B*44:03	1	909	918	10	TQNVLYENQK 0.000125	20
HLA-A*33:01	1	912	921	10	VLYENQKLIA 0.000125	33
HLA-A*33:01	1	927	935	9	AIGKIQDSL 0.000125	33
HLA-B*07:02	1	950	958	9	NQNAQALNT 0.000125	29
HLA-A*11:01	1	998	1007	10	LQSLQTYVTQ 0.000125	20
HLA-A*02:06	1	1003	1011	9	TYVTQQLIR 0.000125	41
HLA-B*35:01	1	1012	1021	10	AAEIRASANL 0.000125	22
HLA-B*57:01	1	1075	1083	9	APAICHDGK 0.000125	44
HLA-B*40:01	1	1085	1093	9	HFPREGVFN 0.000125	18
HLA-A*26:01	1	1089	1097	9	EGVFVSNGT 0.000125	27
HLA-B*58:01	1	1102	1111	10	TQRNFYEQPI 0.000125	34
HLA-B*08:01	1	1149	1158	10	LDKYFKNHTS 0.000125	44
HLA-A*30:01	1	1173	1181	9	VVNIQKEID 0.000125	55
HLA-B*57:01	1	1202	1210	9	KYEYIKWP 0.000125	44
HLA-A*02:01	1	1229	1238	10	IMLCCMTSCC 0.000125	31
HLA-B*51:01	1	1252	1260	9	KFDEDDSEP 0.000125	39
HLA-B*57:01	1	1252	1261	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-B*07:02	1	78	87	10	RFANPVLPFN 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	NLREFVFNK 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-B*51:01	1	244	252	9	SYLTPGDSS 0.000124	39
HLA-A*03:01	1	253	261	9	SGWTAGAAA 0.000124	26
HLA-A*02:01	1	268	276	9	QPRTFLLKY 0.000124	32
HLA-B*15:01	1	297	305	9	KCTLKSFV 0.000124	32
HLA-B*40:01	1	324	333	10	VRFPNITNLC 0.000124	18
HLA-A*01:01	1	337	346	10	EVFNATRFAS 0.000124	45
HLA-A*30:01	1	358	367	10	CVADYSVLVN 0.000124	56
HLA-A*30:01	1	374	382	9	FKCYGVSPT 0.000124	56
HLA-B*53:01	1	440	449	10	SKVGGNYNYL 0.000124	22
HLA-B*58:01	1	466	474	9	STEIQAGS 0.000124	34
HLA-A*03:01	1	468	477	10	EIYQAGSTPC 0.000124	26
HLA-B*44:03	1	490	499	10	QSYGFQPTYG 0.000124	20
HLA-A*26:01	1	496	504	9	PTYGVGYQP 0.000124	27
HLA-A*31:01	1	512	521	10	FELLHAPATV 0.000124	33
HLA-B*51:01	1	515	524	10	LHAPATVCGP 0.000124	39
HLA-B*57:01	1	521	529	9	VCGPKKSTN 0.000124	44
HLA-A*31:01	1	543	551	9	LTGTGVLTE 0.000124	33
HLA-B*51:01	1	543	551	9	LTGTGVLTE 0.000124	39
HLA-B*44:02	1	547	555	9	GVLTESNKK 0.000124	21
HLA-A*68:01	1	553	562	10	NKKFLPFQQF 0.000124	30
HLA-B*53:01	1	562	570	9	FGRDIADTT 0.000124	22
HLA-B*51:01	1	603	611	9	NQVAVLYQG 0.000124	39
HLA-B*15:01	1	608	617	10	LYQGVNCTEV 0.000124	32
HLA-A*30:02	1	628	636	9	PTWRVYSTG 0.000124	53
HLA-B*15:01	1	634	642	9	STGNSVFQT 0.000124	32
HLA-A*31:01	1	639	648	10	VFQTRAGCLI 0.000124	33
HLA-B*58:01	1	642	650	9	TRAGCLIGA 0.000124	34
HLA-A*68:02	1	670	679	10	SYQTQTNSPR 0.000124	34
HLA-B*15:01	1	670	678	9	SYQTQTNSP 0.000124	32
HLA-A*02:01	1	673	682	10	TQTNSPRRAR 0.000124	32
HLA-B*57:01	1	688	697	10	SIAYTMSLG 0.000124	44
HLA-A*24:02	1	691	699	9	AYTMSLGE 0.000124	19
HLA-B*08:01	1	713	722	10	TNFTISVTTE 0.000124	44
HLA-B*15:01	1	723	732	10	ILPVSMTKTS 0.000124	32

HLA-B*08:01	1	756	765	10	FCTQLNRALT 0.000124	44
HLA-B*58:01	1	757	766	10	CTQLNRALTG 0.000124	34
HLA-B*15:01	1	760	769	10	LNRLTGIADV 0.000124	32
HLA-A*26:01	1	768	776	9	AVEQDKNTQ 0.000124	27
HLA-B*35:01	1	774	783	10	NTQEVFAQVK 0.000124	23
HLA-A*33:01	1	776	784	9	QEVFAQVKQ 0.000124	33
HLA-A*33:01	1	802	810	9	ILPDPSPKPS 0.000124	33
HLA-B*08:01	1	815	824	10	IEDLLFNKVT 0.000124	44
HLA-A*23:01	1	851	860	10	KFNGLTVLPP 0.000124	20
HLA-B*08:01	1	856	865	10	TVLPPLLTDE 0.000124	44
HLA-B*53:01	1	883	892	10	WTFGAGAALQ 0.000124	22
HLA-A*30:02	1	907	916	10	GVTQNVLYEN 0.000124	53
HLA-B*35:01	1	914	922	9	YENQKLIAN 0.000124	23
HLA-A*33:01	1	945	953	9	LQDVVNQNA 0.000124	33
HLA-B*44:02	1	954	962	9	QALNTLVKQ 0.000124	21
HLA-B*51:01	1	973	982	10	VLNDILSRLD 0.000124	39
HLA-B*44:03	1	976	984	9	DILSRLDKV 0.000124	20
HLA-B*58:01	1	980	989	10	RLDKVEAEVQ 0.000124	34
HLA-A*30:02	1	991	999	9	DRLITGRLQ 0.000124	53
HLA-A*26:01	1	992	1000	9	RLITGRLQS 0.000124	27
HLA-B*35:01	1	998	1006	9	LQSLQTYVT 0.000124	23
HLA-A*30:01	1	1028	1037	10	ECVLGQSKRV 0.000124	56
HLA-B*58:01	1	1075	1083	9	APAICHDGK 0.000124	34
HLA-B*07:02	1	1080	1088	9	HDGKAHFPR 0.000124	29
HLA-B*51:01	1	1121	1130	10	GNCVVIGIV 0.000124	39
HLA-A*24:02	1	1125	1134	10	VVIGIVNNTV 0.000124	19
HLA-A*02:03	1	1134	1143	10	VYDPLQPELD 0.000124	34
HLA-B*40:01	1	1140	1148	9	PELDSFKEE 0.000124	18
HLA-B*35:01	1	1161	1169	9	VDLGDISGI 0.000124	23
HLA-A*31:01	1	1181	1190	10	DRLNEVAKNL 0.000124	33
HLA-A*02:01	1	1186	1195	10	VAKNLNESLI 0.000124	32
HLA-B*35:01	1	1202	1211	10	KYEQYIKWPW 0.000124	23
HLA-B*15:01	1	1216	1225	10	GFIAGLIAIV 0.000124	32
HLA-B*53:01	1	1253	1261	9	FDEDDSEPV 0.000124	22
HLA-A*68:01	1	1261	1270	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*23:01	1	76	84	9	TKRFANPVL 0.000123	20
HLA-A*33:01	1	97	106	10	KSNIIRGWIF 0.000123	33
HLA-A*31:01	1	112	120	9	SKTQSLIIV 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-A*03:01	1	252	261	10	SSGWTAGAAA 0.000123	26
HLA-B*44:02	1	278	286	9	ENGTITDAV 0.000123	21
HLA-A*24:02	1	340	348	9	NATRFASVY 0.000123	19
HLA-A*02:01	1	341	350	10	ATRFASVYAW 0.000123	32
HLA-A*02:01	1	345	354	10	ASVYAWNRRK 0.000123	32
HLA-A*68:02	1	355	363	9	ISNCVADYS 0.000123	34
HLA-A*01:01	1	377	385	9	YGVSPTKLN 0.000123	45
HLA-A*30:01	1	395	403	9	DSFVIRGDE 0.000123	56
HLA-B*08:01	1	420	429	10	YKLPDDFTGC 0.000123	45
HLA-B*44:03	1	424	432	9	DDFTGCVIA 0.000123	20
HLA-A*26:01	1	429	437	9	CVIAWNSNN 0.000123	27
HLA-A*30:01	1	433	442	10	WNSNNLDSKV 0.000123	56
HLA-A*68:02	1	436	444	9	NNLDSKVG 0.000123	34
HLA-A*68:01	1	448	456	9	YLYRLFRKS 0.000123	30
HLA-A*01:01	1	467	475	9	TEIYQAGST 0.000123	45

HLA-B*58:01	1	474	482	9	STPCNGVKG	0.000123	34
HLA-A*33:01	1	496	504	9	PTYGVGYQP	0.000123	33
HLA-B*35:01	1	515	523	9	LHAPATVCG	0.000123	23
HLA-B*40:01	1	522	530	9	CGPKKSTNL	0.000123	18
HLA-A*01:01	1	541	550	10	NGLTGTGVL	0.000123	45
HLA-A*02:01	1	590	599	10	GGVSVITPGT	0.000123	32
HLA-B*35:01	1	595	604	10	ITPGTNTSNQ	0.000123	23
HLA-A*32:01	1	599	607	9	TNTSNQVAV	0.000123	24
HLA-A*31:01	1	620	629	10	AIHADQLTPT	0.000123	33
HLA-A*30:02	1	647	656	10	LIGAEHVNS	0.000123	53
HLA-A*33:01	1	680	689	10	RARSVASQSI	0.000123	33
HLA-A*31:01	1	691	699	9	AYTMSLGVE	0.000123	33
HLA-A*31:01	1	693	702	10	TMSLGVENS	0.000123	33
HLA-B*53:01	1	719	727	9	VTTEILPVS	0.000123	22
HLA-A*30:01	1	732	741	10	SVDCTMYICG	0.000123	56
HLA-B*08:01	1	732	740	9	SVDCTMYIC	0.000123	45
HLA-A*33:01	1	737	746	10	MYICGDSTEC	0.000123	33
HLA-A*03:01	1	744	752	9	TECSNLLLQ	0.000123	26
HLA-B*40:01	1	759	767	9	QLNRALTGI	0.000123	18
HLA-A*01:01	1	773	781	9	KNTQEVFAQ	0.000123	45
HLA-A*30:01	1	776	784	9	QEVFAQVKQ	0.000123	56
HLA-A*33:01	1	788	797	10	TPPIKDFGGF	0.000123	33
HLA-A*26:01	1	793	802	10	DFGGFNFSQI	0.000123	27
HLA-A*68:01	1	891	900	10	LQIPFAMQMA	0.000123	30
HLA-A*01:01	1	924	932	9	FNSAIGKIQ	0.000123	45
HLA-B*44:02	1	946	954	9	QDVVNQNAQ	0.000123	21
HLA-B*57:01	1	946	955	10	QDVVNQNAQA	0.000123	44
HLA-B*57:01	1	956	964	9	LNTLVKQLS	0.000123	44
HLA-A*23:01	1	964	973	10	SSNFGAISSV	0.000123	20
HLA-A*23:01	1	985	993	9	EAEVQIDRL	0.000123	20
HLA-A*33:01	1	988	996	9	VQIDRLITG	0.000123	33
HLA-A*01:01	1	1008	1017	10	QLIRAAEIRA	0.000123	45
HLA-A*03:01	1	1030	1039	10	VLGQSKRVDF	0.000123	26
HLA-A*11:01	1	1041	1049	9	GKGYHLMSF	0.000123	20
HLA-B*58:01	1	1049	1058	10	FPQSAPHGVV	0.000123	34
HLA-A*02:03	1	1066	1074	9	PAQEKNFIT	0.000123	34
HLA-A*30:02	1	1069	1078	10	EKNFTTAPAI	0.000123	53
HLA-B*07:02	1	1117	1125	9	TFVSGNCDV	0.000123	29
HLA-B*08:01	1	1132	1141	10	NTVYDPLQPE	0.000123	45
HLA-B*07:02	1	1150	1158	9	DKYFKNHTS	0.000123	29
HLA-B*58:01	1	1158	1166	9	SPDVLGDI	0.000123	34
HLA-B*08:01	1	1176	1185	10	IQKEIDRLNE	0.000123	45
HLA-A*30:01	1	1196	1204	9	DLQELGKYE	0.000123	56
HLA-A*26:01	1	1216	1225	10	GFIAGLIAIV	0.000123	27
HLA-A*02:03	1	1224	1233	10	IVMVTIMLCC	0.000123	34
HLA-B*08:01	1	1229	1237	9	IMLCCMTSC	0.000123	45
HLA-A*32:01	1	1253	1262	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	VYYPDKVFR	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	HATHVSGTN	0.000122	45
HLA-A*02:03	1	68	77	10	IHSVGTNGTK	0.000122	34
HLA-A*02:06	1	79	88	10	FANPVLPFND	0.000122	41
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	NDFPLGVYYH	0.000122	45
HLA-B*07:02	1	143	151	9	VYYHKNKS	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-A*11:01	1	207	216	10	HTPINLVRGL	0.000122	20
HLA-A*11:01	1	214	223	10	RGLPQGFSAL	0.000122	20
HLA-B*08:01	1	252	260	9	SSGWTAGAA	0.000122	45



HLA-B*51:01	1	254	262	9	GWTAGAAAY	0.000122	40
HLA-B*58:01	1	263	271	9	YVGYLQPR	0.000122	34
HLA-B*44:03	1	274	282	9	LKYNENGT	0.000122	20
HLA-A*11:01	1	295	303	9	ETKCTLKSF	0.000122	20
HLA-B*51:01	1	319	327	9	PTESIVRFP	0.000122	40
HLA-A*68:02	1	336	344	9	GEVFNATRF	0.000122	34
HLA-B*40:01	1	353	362	10	KRISNCVADY	0.000122	18
HLA-B*40:01	1	362	371	10	YSVLYNSASF	0.000122	18
HLA-A*30:01	1	381	390	10	PTKLNLCFT	0.000122	56
HLA-B*51:01	1	401	409	9	GDEVROIAP	0.000122	40
HLA-B*07:02	1	450	459	10	YRLFRRKSNLK	0.000122	29
HLA-B*15:01	1	459	468	10	KPFERDISTE	0.000122	32
HLA-B*44:02	1	499	507	9	GVGYQPYRV	0.000122	21
HLA-A*24:02	1	502	511	10	YQPYRVVVL	0.000122	19
HLA-A*68:02	1	564	572	9	RDIADTTDA	0.000122	34
HLA-A*30:02	1	589	597	9	FGGVSVITP	0.000122	53
HLA-A*02:03	1	639	647	9	VFQTRAGCL	0.000122	34
HLA-A*23:01	1	655	663	9	NSYECDIPI	0.000122	20
HLA-A*02:03	1	661	669	9	IPIGAGICA	0.000122	34
HLA-A*33:01	1	666	674	9	GICASYQTQ	0.000122	34
HLA-A*02:01	1	672	681	10	QTQTNPRRA	0.000122	32
HLA-B*15:01	1	713	721	9	TNFTISVTT	0.000122	32
HLA-A*26:01	1	718	727	10	SVTTEILPVS	0.000122	27
HLA-A*02:01	1	760	769	10	LNRLTGIIV	0.000122	32
HLA-A*68:02	1	784	793	10	QIYKTPPIKD	0.000122	34
HLA-A*68:01	1	808	816	9	KPSKRSEIE	0.000122	30
HLA-A*68:01	1	813	821	9	SFIEDLLFN	0.000122	30
HLA-A*31:01	1	814	823	10	FIEDLLFNKV	0.000122	33
HLA-B*08:01	1	856	864	9	TVLPPLTDD	0.000122	45
HLA-B*40:01	1	857	866	10	VLPLLTDEM	0.000122	18
HLA-B*15:01	1	872	880	9	SALLAGTIT	0.000122	32
HLA-A*30:01	1	885	894	10	FGAGAALQIP	0.000122	56
HLA-A*02:03	1	900	909	10	AYRFNGIGVT	0.000122	34
HLA-B*35:01	1	919	928	10	LIANQFNSAI	0.000122	23
HLA-B*08:01	1	942	950	9	LGKLDVNV	0.000122	45
HLA-B*15:01	1	949	958	10	VNQNAQALNT	0.000122	32
HLA-B*07:02	1	981	990	10	LDKVEAEVQI	0.000122	29
HLA-B*35:01	1	984	992	9	VEAEVQIDR	0.000122	23
HLA-B*57:01	1	1014	1023	10	EIRASANLAA	0.000122	45
HLA-B*58:01	1	1020	1029	10	NLAATKMSEC	0.000122	34
HLA-B*07:02	1	1038	1047	10	DFCGKGYHLM	0.000122	29
HLA-A*68:01	1	1049	1058	10	FPQSAPHGVV	0.000122	30
HLA-A*30:02	1	1081	1089	9	DGKAHFPRE	0.000122	53
HLA-B*07:02	1	1099	1107	9	WFVTQRNFY	0.000122	29
HLA-B*15:01	1	1129	1137	9	IVNNTVYDP	0.000122	32
HLA-B*35:01	1	1138	1146	9	LQPELDSFK	0.000122	23
HLA-A*24:02	1	1166	1174	9	ISGINASVV	0.000122	19
HLA-B*53:01	1	1166	1174	9	ISGINASVV	0.000122	22
HLA-A*31:01	1	1171	1180	10	ASVUNIQKEI	0.000122	33
HLA-B*57:01	1	1173	1181	9	VVNIQKEID	0.000122	45
HLA-B*08:01	1	1184	1192	9	NEVAKNLNE	0.000122	45
HLA-A*11:01	1	1189	1198	10	NLNESLIDLQ	0.000122	20
HLA-A*32:01	1	1198	1207	10	QELGKYEQYI	0.000122	24
HLA-A*03:01	1	1207	1215	9	IKWPWYIWL	0.000122	27
HLA-A*03:01	1	1234	1243	10	MTSCCCLKG	0.000122	27
HLA-B*58:01	1	1235	1244	10	TSCCCLKGC	0.000122	34
HLA-A*30:01	1	1242	1250	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	FASTEKSNI	0.000121	53
HLA-B*51:01	1	126	134	9	VVIKVECFQ	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*32:01	1	234	243	10	NITRFQTLHR 0.000121	25
HLA-A*26:01	1	237	246	10	RFQTLHRSYL 0.000121	27
HLA-A*26:01	1	259	268	10	AAAYVGYLQ 0.000121	27
HLA-B*08:01	1	274	283	10	LKYNENGTIT 0.000121	45
HLA-A*02:01	1	278	286	9	ENGTITDAV 0.000121	32
HLA-B*57:01	1	282	291	10	ITDAVDCALD 0.000121	45
HLA-A*01:01	1	313	322	10	SNFRVQPTES 0.000121	45
HLA-A*23:01	1	315	324	10	FRVQPTESIV 0.000121	20
HLA-B*07:02	1	391	400	10	NVYADSFVIR 0.000121	29
HLA-A*68:02	1	392	401	10	VYADSFVIRG 0.000121	34
HLA-A*26:01	1	534	543	10	KCVNFNFNGL 0.000121	27
HLA-A*02:01	1	544	552	9	TGTGVLTES 0.000121	32
HLA-A*26:01	1	545	554	10	GTGVLTESNK 0.000121	27
HLA-B*57:01	1	564	572	9	RDIADTTDA 0.000121	45
HLA-B*44:02	1	570	578	9	TDAVRDPQT 0.000121	21
HLA-B*44:02	1	598	606	9	GTNTSNQVA 0.000121	21
HLA-A*31:01	1	599	608	10	TNTSNQVAVL 0.000121	33
HLA-B*57:01	1	603	612	10	NQVAVLYQGV 0.000121	45
HLA-A*26:01	1	606	615	10	AVLYQGVNCT 0.000121	27
HLA-B*58:01	1	625	634	10	QLTPTWRVYS 0.000121	34
HLA-A*26:01	1	626	634	9	LTPTWRVYS 0.000121	27
HLA-B*57:01	1	640	649	10	FQTRAGCLIG 0.000121	45
HLA-B*15:01	1	650	658	9	AEHVNNSYE 0.000121	32
HLA-A*30:01	1	651	659	9	EHVNNSYEC 0.000121	56
HLA-B*58:01	1	657	665	9	YECDIPIGA 0.000121	34
HLA-A*33:01	1	723	731	9	ILPVSMTKT 0.000121	34
HLA-B*08:01	1	740	749	10	CGDSTECNSL 0.000121	45
HLA-A*26:01	1	792	801	10	KDFGGFNFSQ 0.000121	27
HLA-B*08:01	1	793	801	9	DFGGFNFSQ 0.000121	45
HLA-B*44:03	1	799	808	10	FSQILPDPSPK 0.000121	20
HLA-A*26:01	1	810	819	10	SKRSFIEDLL 0.000121	27
HLA-A*33:01	1	814	823	10	FIEDLLFNKV 0.000121	34
HLA-A*03:01	1	844	852	9	RDLICAQKF 0.000121	27
HLA-B*15:01	1	864	873	10	DEMIAQY TSA 0.000121	32
HLA-B*15:01	1	932	941	10	QDLSSTASA 0.000121	32
HLA-A*02:03	1	941	950	10	ALGKLQDVVN 0.000121	34
HLA-A*31:01	1	962	970	9	QLSSNFGAI 0.000121	33
HLA-B*08:01	1	964	972	9	SSNFGAISS 0.000121	45
HLA-A*26:01	1	979	987	9	SRLDKVEAE 0.000121	27
HLA-A*02:01	1	1002	1011	10	QTYVTQLIR 0.000121	32
HLA-B*08:01	1	1008	1016	9	QLIRAAEIR 0.000121	45
HLA-B*15:01	1	1034	1042	9	SKRVDFCGK 0.000121	32
HLA-A*02:06	1	1070	1079	10	KNFTTAPAIC 0.000121	42
HLA-A*30:02	1	1075	1084	10	APAICHDGKA 0.000121	53
HLA-B*08:01	1	1107	1115	9	YEPQIITTD 0.000121	45
HLA-B*44:02	1	1114	1122	9	TDNTFVSGN 0.000121	21
HLA-A*33:01	1	1164	1173	10	GDISGINASV 0.000121	34
HLA-B*35:01	1	1178	1187	10	KEIDRLNEVA 0.000121	23
HLA-B*58:01	1	1181	1190	10	DRLNEVAKNL 0.000121	34
HLA-A*24:02	1	1195	1203	9	IDLQELGKY 0.000121	19
HLA-B*53:01	1	1198	1207	10	QELGKYEQYI 0.000121	22
HLA-A*02:03	1	1204	1212	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	YDPKVFSSV 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-B*53:01	1	76	84	9	TKRFANPVL 0.000121	22
HLA-A*02:01	1	110	119	10	LDSKTQSLLI 0.000121	32
HLA-B*58:01	1	112	120	9	SKTQSLLIV 0.000121	34

HLA-A*30:02	1	127	136	10	VIKVFCEQFC 0.00012	53
HLA-A*30:02	1	148	156	9	NNKSWMESE 0.00012	53
HLA-A*68:02	1	149	157	9	NKSWMESEF 0.00012	34
HLA-A*11:01	1	172	180	9	SQPFLMDLE 0.00012	20
HLA-A*30:01	1	175	183	9	FLMDLEGKQ 0.00012	56
HLA-B*40:01	1	180	189	10	EGKQGNFKNL 0.00012	18
HLA-A*01:01	1	216	224	9	LPQGFSALE 0.00012	45
HLA-B*44:03	1	228	237	10	DLPIGINITR 0.00012	20
HLA-B*40:01	1	247	255	9	TPGDSSSGW 0.00012	18
HLA-B*58:01	1	249	257	9	GDSSSGWTA 0.00012	34
HLA-A*02:03	1	254	263	10	GWTAGAAAYY 0.00012	35
HLA-B*53:01	1	290	299	10	LDPLSETKCT 0.00012	22
HLA-A*24:02	1	301	310	10	KSFTVEKGIY 0.00012	19
HLA-A*03:01	1	321	329	9	ESIVRFPNI 0.00012	27
HLA-A*26:01	1	323	331	9	IVRFPNITN 0.00012	27
HLA-B*44:02	1	326	335	10	FPNITNLCPF 0.00012	21
HLA-A*11:01	1	365	374	10	LYNSASFSTF 0.00012	20
HLA-B*35:01	1	386	394	9	DLCFTNVYA 0.00012	23
HLA-A*33:01	1	389	398	10	FTNVYADSFV 0.00012	34
HLA-A*03:01	1	397	406	10	FVIRGDEVRQ 0.00012	27
HLA-B*44:03	1	398	407	10	VIRGDEVRQI 0.00012	20
HLA-B*35:01	1	399	407	9	IRGDEVRQI 0.00012	23
HLA-A*26:01	1	443	451	9	GGNYNYLYR 0.00012	27
HLA-A*33:01	1	471	480	10	QAGSTPCNGV 0.00012	34
HLA-B*08:01	1	477	485	9	CNGVKGFNC 0.00012	45
HLA-A*30:02	1	515	524	10	LHAPATVCGP 0.00012	53
HLA-B*35:01	1	527	535	9	STNLVKNKC 0.00012	23
HLA-B*08:01	1	529	537	9	NLVKNKCVN 0.00012	45
HLA-A*02:01	1	540	549	10	FNGLTGTGVL 0.00012	32
HLA-B*15:01	1	546	555	10	TGVLTESNKK 0.00012	32
HLA-A*01:01	1	564	572	9	RDIADTTDA 0.00012	45
HLA-B*07:02	1	591	599	9	GVSVITPGT 0.00012	29
HLA-A*33:01	1	598	606	9	GTNTSNQVA 0.00012	34
HLA-A*32:01	1	612	621	10	VNCTEVPVAI 0.00012	25
HLA-B*51:01	1	616	625	10	EVPVAIHADQ 0.00012	40
HLA-B*44:02	1	632	641	10	VYSTGSNVFQ 0.00012	21
HLA-B*44:03	1	649	658	10	GAEHVNNSYE 0.00012	20
HLA-B*08:01	1	653	661	9	VNNSYECDI 0.00012	45
HLA-B*44:03	1	671	680	10	YQTQTNSPRR 0.00012	20
HLA-A*03:01	1	752	760	9	QYGSFCTQL 0.00012	27
HLA-A*26:01	1	755	764	10	SFCTQLNRAL 0.00012	27
HLA-B*07:02	1	757	765	9	CTQLNRALT 0.00012	29
HLA-A*30:01	1	793	802	10	DFGGFNFSQI 0.00012	56
HLA-A*68:02	1	806	814	9	PSKPSKRFSF 0.00012	34
HLA-A*03:01	1	810	818	9	SKRSFIEDL 0.00012	27
HLA-A*31:01	1	823	831	9	VTLADAGFI 0.00012	34
HLA-A*23:01	1	829	837	9	GFIKQYGDC 0.00012	20
HLA-B*35:01	1	840	849	10	DIAARDLICA 0.00012	23
HLA-B*40:01	1	868	877	10	AQYTSALLAG 0.00012	18
HLA-B*44:02	1	884	893	10	TFGAGAALQI 0.00012	21
HLA-B*44:02	1	910	918	9	QNVLYENQK 0.00012	21
HLA-A*03:01	1	911	919	9	NVLYENQKL 0.00012	27
HLA-A*02:03	1	915	924	10	ENOKLIANQF 0.00012	35
HLA-A*26:01	1	944	953	10	KLQDVVNQNA 0.00012	27
HLA-A*03:01	1	958	966	9	TLVKQLSSN 0.00012	27
HLA-B*57:01	1	974	983	10	LNDILSRLDK 0.00012	45
HLA-A*30:01	1	984	993	10	VEAEVQIDRL 0.00012	56
HLA-A*03:01	1	988	996	9	VQIDRLITG 0.00012	27
HLA-B*58:01	1	995	1003	9	TGRLQSLQT 0.00012	34
HLA-A*32:01	1	1004	1013	10	YVTQQLIRAA 0.00012	25
HLA-B*57:01	1	1025	1034	10	KMSECVLGQS 0.00012	45
HLA-A*26:01	1	1030	1039	10	VLGQSKRVDF 0.00012	27
HLA-B*53:01	1	1044	1053	10	YHLMSEFPQSA 0.00012	22
HLA-A*01:01	1	1048	1056	9	SFPQSAPHG 0.00012	45
HLA-A*23:01	1	1055	1064	10	HGVVFLHVTY 0.00012	20
HLA-A*02:06	1	1085	1094	10	HFPREGVFSV 0.00012	42

HLA-A*01:01	1	1102	1111	10	TORNFYEPQI 0.00012	45
HLA-B*40:01	1	1105	1113	9	NFYEPQIIT 0.00012	18
HLA-A*30:01	1	1116	1124	9	NTFVSGNCD 0.00012	56
HLA-B*07:02	1	1132	1141	10	NTVYDPLQPE 0.00012	29
HLA-B*44:03	1	1171	1180	10	ASVVNIQKEI 0.00012	20
HLA-A*11:01	1	1216	1224	9	GFIAGLIAI 0.00012	20
HLA-B*57:01	1	1216	1225	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	TQSLLIVNN 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	EKGQGNFKN 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*32:01	1	235	244	10	ITRFQTLHRS 0.000119	25
HLA-B*15:01	1	239	248	10	QTLHRSYLTTP 0.000119	32
HLA-A*02:06	1	261	270	10	AYYVGYLQPR 0.000119	42
HLA-B*57:01	1	281	289	9	TITDAVDCA 0.000119	45
HLA-B*08:01	1	287	296	10	DCALDPLSET 0.000119	45
HLA-B*40:01	1	304	312	9	TVEKGIYQT 0.000119	19
HLA-A*68:02	1	305	313	9	VEKGIYQTS 0.000119	35
HLA-A*32:01	1	372	380	9	STFKCYGVS 0.000119	25
HLA-A*30:01	1	380	388	9	SPTKLNDLC 0.000119	56
HLA-A*02:03	1	399	408	10	IRGDEVQRQIA 0.000119	35
HLA-B*58:01	1	421	430	10	KLPDDFTGCV 0.000119	34
HLA-B*53:01	1	429	438	10	CVIAWNSNNL 0.000119	22
HLA-A*30:02	1	431	439	9	IAWNSNNLD 0.000119	54
HLA-A*68:01	1	447	456	10	NYLYRFLFRKS 0.000119	30
HLA-A*30:01	1	495	503	9	QPTYGVGYQ 0.000119	56
HLA-A*26:01	1	505	513	9	YRVVLSFE 0.000119	27
HLA-A*68:01	1	505	514	10	YRVVLSFEL 0.000119	30
HLA-A*26:01	1	513	522	10	ELLHAPATVC 0.000119	27
HLA-B*08:01	1	515	523	9	LHAPATVCG 0.000119	45
HLA-A*02:06	1	534	542	9	KCVNFNFG 0.000119	42
HLA-B*15:01	1	538	546	9	FNFNGLTGT 0.000119	32
HLA-B*07:02	1	550	558	9	TESNKKFLP 0.000119	30
HLA-B*57:01	1	552	561	10	SNKKFLPFQQ 0.000119	45
HLA-A*68:02	1	553	562	10	NKKFLPFQQF 0.000119	35
HLA-B*57:01	1	565	573	9	DIADTTDAV 0.000119	45
HLA-A*68:02	1	567	576	10	ADTTDAVRDP 0.000119	35
HLA-B*57:01	1	584	593	10	ITPCSFQGV 0.000119	45
HLA-A*30:02	1	597	606	10	PGTNTSNQVA 0.000119	54
HLA-B*58:01	1	597	605	9	PGTNTSNQV 0.000119	34
HLA-A*02:01	1	605	614	10	VAVLYQGVNC 0.000119	32
HLA-A*30:02	1	605	614	10	VAVLYQGVNC 0.000119	54
HLA-B*08:01	1	606	615	10	AVLYQGVNCT 0.000119	45
HLA-A*23:01	1	656	664	9	SYECDIPIG 0.000119	20
HLA-A*33:01	1	661	669	9	IPIGAGICA 0.000119	34
HLA-A*68:01	1	665	674	10	AGICASYQTQ 0.000119	30
HLA-B*58:01	1	688	697	10	SIIAYTMSLG 0.000119	34
HLA-B*08:01	1	689	698	10	IIAYTMSLGV 0.000119	45
HLA-A*11:01	1	728	737	10	MTKTSVDCTM 0.000119	20
HLA-A*02:03	1	762	770	9	RALTGIAVE 0.000119	35
HLA-B*08:01	1	867	876	10	IAQYTSALLA 0.000119	45
HLA-B*53:01	1	882	891	10	GWTFGAGAAL 0.000119	22
HLA-A*01:01	1	928	936	9	IGKIQDLSL 0.000119	45
HLA-A*31:01	1	950	959	10	NQNAQALNTL 0.000119	34
HLA-A*68:01	1	951	960	10	QNAQALNTLV 0.000119	30
HLA-A*02:03	1	985	994	10	EAEVQIDRLI 0.000119	35
HLA-A*33:01	1	985	993	9	EAEVQIDRL 0.000119	34
HLA-B*07:02	1	988	997	10	VQIDRLITGR 0.000119	30

HLA-A*03:01	1	1014	1023	10	EIRASANLAA 0.000119	27
HLA-A*26:01	1	1015	1023	9	IRASANLAA 0.000119	27
HLA-A*33:01	1	1017	1026	10	ASANLAATKM 0.000119	34
HLA-A*01:01	1	1018	1027	10	SANLAATKMS 0.000119	45
HLA-B*40:01	1	1026	1035	10	MSECVLGQSK 0.000119	19
HLA-A*02:03	1	1053	1061	9	APHGVVFLH 0.000119	35
HLA-A*26:01	1	1059	1067	9	FLHVTVVPA 0.000119	27
HLA-A*02:06	1	1069	1077	9	EKNFTTAPA 0.000119	42
HLA-B*51:01	1	1081	1090	10	DGKAHFPPREG 0.000119	40
HLA-A*11:01	1	1089	1098	10	EGVFVSNPTH 0.000119	20
HLA-A*30:02	1	1100	1109	10	FVTQRNFYEP 0.000119	54
HLA-A*03:01	1	1101	1110	10	VTQRNFYEPQ 0.000119	27
HLA-B*53:01	1	1105	1114	10	NFYEQIITT 0.000119	22
HLA-A*30:01	1	1109	1117	9	PQIITTDNT 0.000119	56
HLA-B*07:02	1	1110	1119	10	QIITTDNTFV 0.000119	30
HLA-B*53:01	1	1113	1121	9	TTDNTFVSG 0.000119	22
HLA-A*26:01	1	1117	1125	9	TFVSGNCDV 0.000119	27
HLA-A*30:02	1	1140	1149	10	PELDSFKEEL 0.000119	54
HLA-A*33:01	1	1147	1155	9	EELDKYFKN 0.000119	34
HLA-A*26:01	1	1153	1161	9	FKNHTSPDV 0.000119	27
HLA-A*11:01	1	1185	1193	9	EVAKNLNES 0.000119	20
HLA-B*58:01	1	1187	1195	9	AKNLNESLI 0.000119	34
HLA-A*02:03	1	1197	1206	10	LQELGKYEY 0.000119	35
HLA-A*03:01	1	1205	1214	10	QYIKWPWYIW 0.000119	27
HLA-A*01:01	1	1207	1215	9	IKWPWYIWL 0.000119	45
HLA-B*44:03	1	1255	1264	10	EDDSEPVLKG 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-B*40:01	1	138	146	9	DPFLGVVYH 0.000118	19
HLA-A*02:03	1	186	194	9	FKNLREFV 0.000118	35
HLA-B*44:02	1	203	212	10	IYSKHTPINL 0.000118	21
HLA-B*44:02	1	236	244	9	TRFQTLHRS 0.000118	21
HLA-B*08:01	1	244	253	10	SYLTPGDSSS 0.000118	45
HLA-A*02:01	1	254	263	10	GWTAGAAAYY 0.000118	32
HLA-A*68:02	1	256	265	10	TAGAAAYYVG 0.000118	35
HLA-B*57:01	1	274	282	9	LKYNENGTI 0.000118	45
HLA-A*02:01	1	312	320	9	TSNFRVQPT 0.000118	32
HLA-A*02:03	1	339	348	10	FNATRFASVY 0.000118	35
HLA-B*08:01	1	347	356	10	VYAWNRRKRIS 0.000118	45
HLA-A*68:01	1	365	373	9	LYNSASFST 0.000118	30
HLA-A*24:02	1	375	383	9	KCYGVSPTK 0.000118	19
HLA-B*53:01	1	397	406	10	FVIRGDEVQR 0.000118	22
HLA-B*44:02	1	401	409	9	GDEVQRQIAP 0.000118	21
HLA-B*08:01	1	402	410	9	DEVQRQIAPG 0.000118	45
HLA-A*11:01	1	413	422	10	GNIADYNYKL 0.000118	20
HLA-B*57:01	1	432	441	10	AWNSNNLDSK 0.000118	45
HLA-A*33:01	1	512	521	10	FELLHAPATV 0.000118	34
HLA-B*15:01	1	519	528	10	ATVCGPKKST 0.000118	32
HLA-A*68:02	1	526	535	10	KSTNLVKKNC 0.000118	35
HLA-A*30:01	1	531	539	9	VKNKCVNFN 0.000118	56
HLA-A*30:02	1	538	547	10	FNFNGLTGTG 0.000118	54
HLA-A*68:02	1	547	555	9	GVLTESNKK 0.000118	35
HLA-B*15:01	1	551	560	10	ESNKKFLPFQ 0.000118	32
HLA-B*44:02	1	566	574	9	IADTTDAVR 0.000118	21
HLA-A*33:01	1	577	586	10	QTLIELDITP 0.000118	34
HLA-A*01:01	1	607	616	10	VLYQGVNCTE 0.000118	45
HLA-A*68:02	1	628	636	9	PTWRVYSTG 0.000118	35
HLA-B*51:01	1	633	642	10	YSTGSNVFQT 0.000118	40
HLA-B*44:03	1	640	648	9	FQTRAGCLI 0.000118	20
HLA-A*02:06	1	645	654	10	GCLIGAHEVN 0.000118	42
HLA-A*11:01	1	656	665	10	SYECDIPIGA 0.000118	20
HLA-B*58:01	1	689	697	9	IIAYTMSLG 0.000118	34
HLA-A*31:01	1	701	710	10	SVAYSNNSIA 0.000118	34
HLA-A*31:01	1	702	710	9	VAYSNNSIA 0.000118	34
HLA-A*32:01	1	704	712	9	YSNNSIAIP 0.000118	25

HLA-B*07:02	1	737	746	10	MYICGDSTEC 0.000118	30
HLA-B*08:01	1	763	771	9	ALTGIAVEQ 0.000118	45
HLA-A*26:01	1	802	810	9	ILPDPSKPS 0.000118	28
HLA-B*57:01	1	813	821	9	SFIEDLLFN 0.000118	45
HLA-A*30:01	1	818	827	10	LLFNKVTLAD 0.000118	56
HLA-A*02:03	1	830	839	10	FIKQYGDCLG 0.000118	35
HLA-A*01:01	1	853	861	9	NGLTVLPPL 0.000118	45
HLA-A*30:01	1	862	871	10	LTDEMIAQYT 0.000118	56
HLA-A*31:01	1	865	874	10	EMIAQYTSAL 0.000118	34
HLA-A*02:06	1	871	880	10	TSALLAGTIT 0.000118	42
HLA-A*32:01	1	881	889	9	SGWTFGAGA 0.000118	25
HLA-B*07:02	1	922	931	10	NQFNSAIGKI 0.000118	30
HLA-B*44:03	1	946	954	9	QDVVNQNAQ 0.000118	20
HLA-B*15:01	1	947	955	9	DVVVNQNAQA 0.000118	32
HLA-A*68:01	1	961	969	9	KQLSSNFGA 0.000118	30
HLA-A*68:01	1	980	988	9	RLDKVEAEV 0.000118	30
HLA-A*31:01	1	984	993	10	VEAEVQIDRL 0.000118	34
HLA-A*30:01	1	985	993	9	EAEVQIDRL 0.000118	56
HLA-B*53:01	1	987	995	9	EVQIDRLIT 0.000118	22
HLA-A*32:01	1	1058	1066	9	VFLHVTVYP 0.000118	25
HLA-B*44:03	1	1063	1071	9	TYVPAQEKV 0.000118	20
HLA-A*02:03	1	1072	1080	9	FTTAPAICH 0.000118	35
HLA-A*24:02	1	1083	1091	9	KAHFPREGV 0.000118	19
HLA-A*68:01	1	1104	1112	9	RNFYEPQII 0.000118	30
HLA-A*31:01	1	1110	1119	10	QIITTDNTFV 0.000118	34
HLA-A*26:01	1	1122	1130	9	NCDVVIGIV 0.000118	28
HLA-A*30:02	1	1165	1174	10	DISGINASVV 0.000118	54
HLA-A*30:01	1	1166	1175	10	ISGINASVVN 0.000118	56
HLA-B*57:01	1	1179	1187	9	EIDRLNEVA 0.000118	45
HLA-A*68:02	1	1187	1195	9	AKNLNESLI 0.000118	35
HLA-A*31:01	1	1189	1198	10	NLNESLIDLQ 0.000118	34
HLA-B*07:02	1	1197	1206	10	LQELGKYEQY 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	LMDELEGKQG 0.000117	35
HLA-B*35:01	1	205	213	9	SKHTPINLV 0.000117	23
HLA-A*23:01	1	213	222	10	VRGLPQGFSFA 0.000117	20
HLA-B*53:01	1	215	224	10	GLPQGFSALE 0.000117	22
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*03:01	1	238	246	9	FQTLHRSYL 0.000117	27
HLA-A*02:01	1	261	270	10	AYYVGYLQPR 0.000117	32
HLA-A*26:01	1	263	271	9	YVGYLQPR 0.000117	28
HLA-B*58:01	1	291	300	10	DPLSETKCTL 0.000117	34
HLA-A*02:06	1	333	342	10	CPFGEVFNAT 0.000117	42
HLA-A*02:01	1	336	344	9	GEVFNATRF 0.000117	32
HLA-B*51:01	1	361	370	10	DYSVLVNSAS 0.000117	40
HLA-A*31:01	1	363	372	10	SVLVNSASF 0.000117	34
HLA-A*30:01	1	371	380	10	FSTFKCYGVS 0.000117	56
HLA-A*30:01	1	394	403	10	ADSFVIRGDE 0.000117	56
HLA-A*33:01	1	469	477	9	IYQAGSTPC 0.000117	34
HLA-A*11:01	1	501	509	9	GYQPYRVVV 0.000117	20
HLA-A*68:02	1	515	524	10	LHAPATVCGP 0.000117	35
HLA-A*23:01	1	541	549	9	NGLTGTGVL 0.000117	20
HLA-B*44:03	1	565	573	9	DIADTTDAV 0.000117	20
HLA-A*03:01	1	592	601	10	VSVITPGTNT 0.000117	27

HLA-B*51:01	1	595	604	10	ITPGTNTSNQ 0.000117	40
HLA-B*57:01	1	597	606	10	PGTNTSNQVA 0.000117	45
HLA-B*44:02	1	620	628	9	AIHADQLTP 0.000117	21
HLA-A*33:01	1	626	635	10	LTPTWRVYST 0.000117	34
HLA-A*68:01	1	626	635	10	LTPTWRVYST 0.000117	30
HLA-B*07:02	1	641	649	9	QTRAGCLIG 0.000117	30
HLA-A*26:01	1	651	659	9	EHVNNSYEC 0.000117	28
HLA-B*57:01	1	652	660	9	HVNNSYECD 0.000117	45
HLA-A*30:01	1	655	664	10	NSYECDPIG 0.000117	56
HLA-B*44:03	1	672	681	10	QTQTNSPRRA 0.000117	20
HLA-A*68:01	1	675	683	9	TNSPRRARS 0.000117	30
HLA-B*35:01	1	682	690	9	RSVASQSII 0.000117	23
HLA-B*07:02	1	685	693	9	ASQSIIAYT 0.000117	30
HLA-A*23:01	1	707	716	10	NSIAIPTNFT 0.000117	20
HLA-A*01:01	1	732	741	10	SVDCTMYICG 0.000117	46
HLA-B*07:02	1	759	768	10	QLNRALTGIA 0.000117	30
HLA-A*33:01	1	796	804	9	GFNFSQILP 0.000117	34
HLA-A*68:02	1	797	806	10	FNFSQILPDP 0.000117	35
HLA-A*68:01	1	799	807	9	FSQILPDP 0.000117	30
HLA-B*07:02	1	799	808	10	FSQILPDPSP 0.000117	30
HLA-B*07:02	1	806	815	10	PSKPSKRFSI 0.000117	30
HLA-B*58:01	1	808	817	10	KPSKRFSIED 0.000117	34
HLA-A*68:01	1	816	825	10	EDLLFNKVTL 0.000117	30
HLA-A*33:01	1	819	828	10	LFNKVTLADA 0.000117	34
HLA-A*32:01	1	904	913	10	NGIGVTQNVL 0.000117	25
HLA-A*30:01	1	914	923	10	YENQKLIANQ 0.000117	56
HLA-A*30:02	1	925	934	10	NSAIGKIQDS 0.000117	54
HLA-A*33:01	1	930	939	10	KIQDSLSTAS 0.000117	34
HLA-B*44:02	1	932	941	10	QDSLSTAS 0.000117	21
HLA-A*11:01	1	951	959	9	QNAQALNTL 0.000117	20
HLA-A*33:01	1	964	972	9	SSNFGAISS 0.000117	34
HLA-A*68:02	1	998	1006	9	LQSLQTYVT 0.000117	35
HLA-A*01:01	1	1044	1052	9	YHLMSFPQS 0.000117	46
HLA-A*31:01	1	1068	1076	9	QEKNFATT 0.000117	34
HLA-B*08:01	1	1090	1098	9	GVFVSNGT 0.000117	45
HLA-A*33:01	1	1101	1110	10	VTQRNFYEPQ 0.000117	34
HLA-B*35:01	1	1104	1112	9	RNFYEPQII 0.000117	23
HLA-B*44:02	1	1151	1159	9	KYFKNHTSP 0.000117	21
HLA-A*02:01	1	1154	1163	10	KNHTSPDVDL 0.000117	32
HLA-B*57:01	1	1176	1185	10	IQKEIDRLNE 0.000117	45
HLA-A*01:01	1	1182	1191	10	RLNEVAKNLN 0.000117	46
HLA-B*58:01	1	1225	1234	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*57:01	1	74	83	10	NGTKRFANPV 0.000116	45
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*02:06	1	212	221	10	LVRGLPQGFS 0.000116	42
HLA-B*07:02	1	261	269	9	AYYVGYLQP 0.000116	30
HLA-B*15:01	1	304	312	9	TVEKGIYQT 0.000116	33
HLA-A*02:06	1	359	367	9	VADYSVLYN 0.000116	42
HLA-B*44:02	1	388	397	10	CFTNVYADSF 0.000116	21
HLA-B*40:01	1	402	410	9	DEVQRQIAPG 0.000116	19
HLA-A*33:01	1	511	520	10	SFELLHAPAT 0.000116	34
HLA-B*58:01	1	544	552	9	TGTGVLTES 0.000116	35
HLA-A*02:06	1	546	555	10	TGVLTESNKK 0.000116	42
HLA-A*30:01	1	579	588	10	LEILDITPCS 0.000116	57
HLA-B*44:03	1	634	643	10	STGSNVFQTR 0.000116	20

HLA-A*23:01	1	648	657	10	IGAHEVNSY 0.000116	20
HLA-B*08:01	1	650	659	10	AEHVNSYEC 0.000116	45
HLA-A*02:01	1	672	680	9	QTQTNSPRR 0.000116	32
HLA-A*01:01	1	709	718	10	IAIPTNFTIS 0.000116	46
HLA-A*68:01	1	709	718	10	IAIPTNFTIS 0.000116	30
HLA-A*11:01	1	716	724	9	TISVTTEIL 0.000116	20
HLA-B*58:01	1	724	733	10	LPVSMTKTSV 0.000116	35
HLA-B*07:02	1	742	751	10	DSTECNLLL 0.000116	30
HLA-B*15:01	1	743	752	10	STECNLLLQ 0.000116	33
HLA-A*02:03	1	792	800	9	KDFGGFNFS 0.000116	35
HLA-B*40:01	1	802	811	10	ILPDPSKPSK 0.000116	19
HLA-B*15:01	1	841	849	9	IAARDLICA 0.000116	33
HLA-A*32:01	1	842	850	9	AARDLICAQ 0.000116	25
HLA-A*68:01	1	849	857	9	AQKFNGLTV 0.000116	30
HLA-A*11:01	1	850	858	9	QKFNGLTVL 0.000116	20
HLA-B*07:02	1	856	865	10	TVLPPLLTDE 0.000116	30
HLA-B*07:02	1	870	879	10	YTSALLAGTI 0.000116	30
HLA-A*33:01	1	913	921	9	LYENQKLIA 0.000116	34
HLA-A*03:01	1	920	928	9	IANQFNSAI 0.000116	27
HLA-B*53:01	1	926	934	9	SAIGKIQDS 0.000116	22
HLA-B*08:01	1	958	966	9	TLVKQLSSN 0.000116	45
HLA-A*02:03	1	976	985	10	DILSRLDKVE 0.000116	35
HLA-A*32:01	1	978	986	9	LSRLDKVEA 0.000116	25
HLA-B*44:02	1	979	987	9	SRLDKVEAE 0.000116	21
HLA-B*51:01	1	988	997	10	VQIDRLITGR 0.000116	40
HLA-B*51:01	1	991	1000	10	DRLITGRLQS 0.000116	40
HLA-A*31:01	1	1004	1013	10	YVTQQLIRAA 0.000116	34
HLA-A*30:02	1	1015	1024	10	IRASANLAAT 0.000116	54
HLA-A*02:06	1	1027	1036	10	SECVLGQSKR 0.000116	42
HLA-A*24:02	1	1050	1058	9	PQSAPHGVV 0.000116	19
HLA-A*23:01	1	1052	1061	10	SAPHGVVFLH 0.000116	20
HLA-B*35:01	1	1089	1097	9	EGVFVSNGT 0.000116	23
HLA-A*33:01	1	1112	1120	9	ITTDNTFVS 0.000116	34
HLA-A*30:01	1	1118	1127	10	FVSGNCDVVI 0.000116	57
HLA-A*11:01	1	1121	1129	9	GNCDVVIGI 0.000116	20
HLA-A*32:01	1	1132	1141	10	NTVYDPLQPE 0.000116	25
HLA-A*33:01	1	1137	1145	9	PLQPELDSF 0.000116	34
HLA-B*58:01	1	1147	1156	10	EELDKYFKNH 0.000116	35
HLA-B*44:03	1	1151	1159	9	KYFKNHTSP 0.000116	20
HLA-A*30:01	1	1154	1162	9	KNHTSPDVD 0.000116	57
HLA-B*15:01	1	1154	1163	10	KNHTSPDVDL 0.000116	33
HLA-A*01:01	1	1191	1199	9	NESLIDLQE 0.000116	46
HLA-A*02:03	1	1192	1201	10	ESLIDLQELG 0.000116	35
HLA-A*02:03	1	1196	1204	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	YDPDKVFRSSV 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-A*68:02	1	76	85	10	TKRFANPVLP 0.000115	35
HLA-B*44:02	1	115	123	9	QSLIVNNA 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-A*32:01	1	223	231	9	LEPLVDLPI 0.000115	25
HLA-A*68:02	1	234	242	9	NITRFQTLH 0.000115	35
HLA-A*02:01	1	287	296	10	DCALDPLSET 0.000115	32
HLA-B*08:01	1	298	306	9	CTLKSFTVE 0.000115	46
HLA-A*32:01	1	326	335	10	FPNITNLCPF 0.000115	25
HLA-A*30:02	1	350	359	10	WNRKRISNCV 0.000115	54
HLA-A*02:03	1	379	388	10	VSPTKLNLC 0.000115	35
HLA-A*30:02	1	382	390	9	TKLNLCFT 0.000115	54



HLA-B*35:01	1	390	399	10	TNVYADSFVI 0.000115	23
HLA-B*40:01	1	396	404	9	SFVIRGDEV 0.000115	19
HLA-B*08:01	1	419	428	10	NYKLPDDFTG 0.000115	46
HLA-A*30:02	1	427	435	9	TGCVIAWNS 0.000115	54
HLA-A*33:01	1	439	447	9	DSKVGGNYN 0.000115	34
HLA-A*02:06	1	447	456	10	NYLYRLEFRKS 0.000115	42
HLA-A*02:01	1	469	477	9	IYQAGSTPC 0.000115	32
HLA-A*33:01	1	494	503	10	FQPTYGVGYQ 0.000115	34
HLA-A*01:01	1	500	509	10	VGYPYRVVV 0.000115	46
HLA-B*57:01	1	502	511	10	YQPYRVVLS 0.000115	45
HLA-A*02:06	1	550	558	9	TESNKKFLP 0.000115	42
HLA-A*02:03	1	579	587	9	LEILDITPC 0.000115	35
HLA-A*30:02	1	586	594	9	PCSFGGVSV 0.000115	54
HLA-A*26:01	1	596	605	10	TPGTNTSNQV 0.000115	28
HLA-A*23:01	1	612	621	10	VNCTEVPVAI 0.000115	20
HLA-B*08:01	1	613	622	10	NCTEVPVAIH 0.000115	46
HLA-A*23:01	1	615	623	9	TEVPVAIHA 0.000115	20
HLA-B*35:01	1	618	626	9	PVAIHADQL 0.000115	23
HLA-A*01:01	1	641	649	9	QTRAGCLIG 0.000115	46
HLA-A*03:01	1	642	650	9	TRAGCLIGA 0.000115	27
HLA-B*58:01	1	673	681	9	TQTNSPRRA 0.000115	35
HLA-B*57:01	1	696	705	10	LGVENSVAYS 0.000115	45
HLA-B*44:02	1	705	713	9	SNNSIAIPT 0.000115	21
HLA-B*44:03	1	713	721	9	TNFTISVTT 0.000115	20
HLA-A*23:01	1	779	787	9	FAQVKQIYK 0.000115	20
HLA-A*02:01	1	819	828	10	LFNKVTLADA 0.000115	32
HLA-A*02:03	1	850	859	10	QKFNGLTVLP 0.000115	35
HLA-B*35:01	1	855	863	9	LTVLPPLLT 0.000115	23
HLA-A*02:06	1	858	867	10	LPPLLTDEMI 0.000115	42
HLA-A*33:01	1	858	866	9	LPPLLTDEM 0.000115	34
HLA-A*02:06	1	859	868	10	PPLLTDEMIA 0.000115	42
HLA-A*31:01	1	878	887	10	TITSGWTFGA 0.000115	34
HLA-A*33:01	1	881	890	10	SGWTFGAGAA 0.000115	34
HLA-A*26:01	1	924	932	9	FNSAIGKIQ 0.000115	28
HLA-A*68:01	1	925	934	10	NSAIGKIQDS 0.000115	30
HLA-A*02:01	1	927	936	10	AIGKIQDSLS 0.000115	32
HLA-A*02:06	1	929	937	9	GKIQDSLS 0.000115	42
HLA-A*23:01	1	936	945	10	SSTASALGKL 0.000115	20
HLA-A*32:01	1	952	961	10	NAQALNTLVK 0.000115	25
HLA-A*03:01	1	966	974	9	NFGAISSVL 0.000115	27
HLA-A*01:01	1	983	991	9	KVEAEVQID 0.000115	46
HLA-A*02:03	1	987	995	9	EVQIDRLIT 0.000115	35
HLA-A*68:02	1	992	1000	9	RLITGRLQS 0.000115	35
HLA-A*33:01	1	999	1008	10	QSLQTYVTQQ 0.000115	34
HLA-B*51:01	1	1026	1035	10	MSECVLGQSK 0.000115	40
HLA-B*07:02	1	1044	1052	9	YHLMSFPQS 0.000115	30
HLA-A*02:03	1	1068	1077	10	QEKNFTTAPA 0.000115	35
HLA-B*35:01	1	1071	1080	10	NFTTAPAICH 0.000115	23
HLA-B*44:02	1	1093	1101	9	VSNGTHWFV 0.000115	21
HLA-B*44:02	1	1105	1113	9	NFYEPQIIT 0.000115	21
HLA-B*07:02	1	1126	1135	10	VIGIVNNTVY 0.000115	30
HLA-A*23:01	1	1165	1173	9	DISGINASV 0.000115	20
HLA-B*07:02	1	1203	1212	10	YEQYIKWPWY 0.000115	30
HLA-B*51:01	1	1258	1266	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	SFTRGVYYP 0.000114	27
HLA-A*68:01	1	42	50	9	VFRSSVLHS 0.000114	30
HLA-A*02:06	1	67	75	9	AIHVSGTNG 0.000114	42
HLA-B*51:01	1	87	95	9	NDGVYFAST 0.000114	41
HLA-A*02:06	1	88	97	10	DGVYFASTEK 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*35:01	1	228	236	9	DLPIGINIT 0.000114	23
HLA-A*32:01	1	233	242	10	INITRFQTLH 0.000114	25
HLA-A*68:01	1	245	253	9	YLTPGDSSS 0.000114	30
HLA-B*53:01	1	245	253	9	YLTPGDSSS 0.000114	22
HLA-B*07:02	1	263	271	9	YVGYLQPRT 0.000114	30
HLA-B*40:01	1	267	275	9	LQPRTFLLK 0.000114	19
HLA-A*02:06	1	275	283	9	KYNENGTIT 0.000114	42
HLA-A*02:06	1	282	291	10	ITDAVDCALD 0.000114	42
HLA-A*02:06	1	293	301	9	LSETKCTLK 0.000114	42
HLA-B*35:01	1	315	324	10	FRVQPTESIV 0.000114	23
HLA-B*08:01	1	316	325	10	RVQPTESIVR 0.000114	46
HLA-B*40:01	1	320	328	9	TESIVRFPN 0.000114	19
HLA-A*68:01	1	325	333	9	RFPNITNLC 0.000114	30
HLA-B*07:02	1	335	343	9	FGEVFNATR 0.000114	30
HLA-A*68:01	1	348	356	9	YAWNKRKRIS 0.000114	30
HLA-A*31:01	1	386	394	9	DLCFTNVYA 0.000114	34
HLA-A*02:03	1	393	401	9	YADSFVIRG 0.000114	35
HLA-B*57:01	1	394	403	10	ADSFVIRGDE 0.000114	46
HLA-A*33:01	1	429	438	10	CVIAWNSNNL 0.000114	34
HLA-A*01:01	1	443	452	10	GGNYNYLYRL 0.000114	46
HLA-B*58:01	1	446	455	10	YNYLYRLFRK 0.000114	35
HLA-A*68:02	1	453	461	9	FRKSNLKPFL 0.000114	35
HLA-B*08:01	1	485	493	9	CYFPLQSYG 0.000114	46
HLA-A*02:06	1	496	505	10	PTYGVGYQPY 0.000114	42
HLA-B*40:01	1	548	557	10	VLTESNKKFL 0.000114	19
HLA-A*02:03	1	571	580	10	DAVRDPQTLE 0.000114	35
HLA-B*57:01	1	590	599	10	GGVSVITPGT 0.000114	46
HLA-B*35:01	1	619	628	10	VAIHADQLTP 0.000114	23
HLA-B*08:01	1	620	629	10	AIHADQLTPT 0.000114	46
HLA-A*26:01	1	639	647	9	VFQTRAGLC 0.000114	28
HLA-A*03:01	1	661	669	9	IPIGAGICA 0.000114	27
HLA-B*58:01	1	664	672	9	GAGICASYQ 0.000114	35
HLA-A*30:01	1	666	675	10	GICASYQTQT 0.000114	57
HLA-B*44:03	1	670	678	9	SYQTQTNSP 0.000114	20
HLA-B*08:01	1	674	683	10	QTNSPRRARS 0.000114	46
HLA-B*15:01	1	709	718	10	IAIPTNFTIS 0.000114	33
HLA-A*31:01	1	713	722	10	TNFTISVTTE 0.000114	34
HLA-B*44:02	1	731	739	9	TSVDCTMYI 0.000114	21
HLA-B*08:01	1	767	775	9	IAVEQDKNT 0.000114	46
HLA-A*68:02	1	796	804	9	GFNFSQLIP 0.000114	35
HLA-A*03:01	1	804	812	9	PDPSKPSKR 0.000114	27
HLA-A*31:01	1	830	838	9	FIKQYGDCL 0.000114	34
HLA-A*26:01	1	832	841	10	KQYGDCLGDI 0.000114	28
HLA-B*58:01	1	843	851	9	ARDLICAQK 0.000114	35
HLA-B*57:01	1	846	854	9	LICAQKFNG 0.000114	46
HLA-A*31:01	1	861	869	9	LLTDEMIAQ 0.000114	34
HLA-B*51:01	1	874	882	9	LLAGTITSG 0.000114	41
HLA-A*01:01	1	881	889	9	SGWTFGAGA 0.000114	46
HLA-B*58:01	1	885	894	10	FGAGAALQIP 0.000114	35
HLA-A*33:01	1	901	909	9	YRFNGIGVT 0.000114	34
HLA-A*31:01	1	906	915	10	IGVTQNVLYE 0.000114	34
HLA-A*02:03	1	925	934	10	NSAIGKIQDS 0.000114	35
HLA-A*30:02	1	960	968	9	VKQLSSNFG 0.000114	54
HLA-B*35:01	1	981	990	10	LDKVEAEVQI 0.000114	23
HLA-B*08:01	1	1012	1020	9	AAEIRASAN 0.000114	46
HLA-B*44:02	1	1069	1077	9	EKNFTTAPA 0.000114	21
HLA-B*35:01	1	1074	1083	10	TAPAICHGDK 0.000114	23
HLA-B*44:03	1	1080	1088	9	HDGKAHFPR 0.000114	20
HLA-A*26:01	1	1081	1089	9	DGKAHFPRE 0.000114	28
HLA-A*30:02	1	1088	1096	9	REGVFSVNG 0.000114	54
HLA-A*01:01	1	1106	1115	10	FYEPQIITTD 0.000114	46

HLA-A*01:01	1	1114	1123	10	TDNTFVSGNC 0.000114	46
HLA-B*15:01	1	1137	1146	10	PLQPELDSFK 0.000114	33
HLA-A*30:02	1	1138	1147	10	LQPELDSFKE 0.000114	54
HLA-A*03:01	1	1164	1173	10	GDISGINASV 0.000114	27
HLA-A*26:01	1	1174	1183	10	VNIQKEIDRL 0.000114	28
HLA-B*51:01	1	1225	1233	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*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	LGVYYHKNK 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*02:01	1	236	244	9	TRFQTLHRS 0.000113	33
HLA-A*68:02	1	245	254	10	YLTPGDSSSG 0.000113	35
HLA-B*51:01	1	246	254	9	LTPGDSSSG 0.000113	41
HLA-A*32:01	1	289	298	10	ALDPLSETKC 0.000113	25
HLA-B*15:01	1	293	301	9	LSETKCTLK 0.000113	33
HLA-B*51:01	1	304	313	10	TVEKGIYQTS 0.000113	41
HLA-A*02:01	1	356	365	10	SNCVADYSVL 0.000113	33
HLA-A*68:01	1	360	369	10	ADYSVLYNSA 0.000113	30
HLA-A*23:01	1	396	405	10	SFVIRGDEV 0.000113	20
HLA-B*58:01	1	396	405	10	SFVIRGDEV 0.000113	35
HLA-B*08:01	1	438	446	9	LDSKVGNGY 0.000113	46
HLA-B*51:01	1	444	453	10	GNYNLYRLF 0.000113	41
HLA-A*31:01	1	454	462	9	RKSNLKPFE 0.000113	34
HLA-B*58:01	1	497	506	10	TYGVGYQPYR 0.000113	35
HLA-B*40:01	1	503	511	9	QPYRVVLS 0.000113	19
HLA-B*44:02	1	523	532	10	GPKKSTNLVK 0.000113	22
HLA-B*15:01	1	546	554	9	TGVLTESNK 0.000113	33
HLA-B*08:01	1	564	572	9	RDIADTTDA 0.000113	46
HLA-B*44:03	1	564	572	9	RDIADTTDA 0.000113	20
HLA-A*32:01	1	577	585	9	QTLEILDIT 0.000113	25
HLA-A*11:01	1	591	599	9	GVSVITPGT 0.000113	21
HLA-A*02:06	1	595	603	9	ITPGTNTSN 0.000113	42
HLA-B*35:01	1	599	608	10	TNTSNQVAVL 0.000113	23
HLA-A*30:01	1	602	611	10	SNQVAVLYQG 0.000113	57
HLA-B*07:02	1	684	693	10	VASQSIIAYT 0.000113	30
HLA-A*31:01	1	742	750	9	DSTECSNLL 0.000113	34
HLA-B*35:01	1	790	799	10	PIKDFGGFNF 0.000113	23
HLA-A*03:01	1	793	801	9	DFGGFNFSQ 0.000113	27
HLA-A*30:01	1	847	856	10	ICAQKFNGLT 0.000113	57
HLA-A*31:01	1	850	859	10	QKFNGLTVLP 0.000113	34
HLA-B*57:01	1	865	873	9	EMIAQY TSA 0.000113	46
HLA-B*15:01	1	870	879	10	YTSALLAGTI 0.000113	33
HLA-A*31:01	1	887	896	10	AGAALQIPFA 0.000113	34
HLA-B*44:03	1	947	956	10	DVVNQNAQAL 0.000113	20
HLA-A*68:02	1	963	972	10	LSSNFGAISS 0.000113	35
HLA-B*44:03	1	969	977	9	AISSVLNDI 0.000113	20
HLA-B*51:01	1	971	980	10	SSVLNDILSR 0.000113	41
HLA-A*30:01	1	973	982	10	VLNDILSRLD 0.000113	57
HLA-A*32:01	1	984	992	9	VEAEVQIDR 0.000113	25
HLA-A*02:06	1	987	995	9	EVQIDRLIT 0.000113	42
HLA-A*02:01	1	993	1002	10	LITGRLQSLQ 0.000113	33
HLA-B*57:01	1	1014	1022	9	EIRASANLA 0.000113	46

HLA-B*44:02	1	1039	1047	9	FCGKGYHLM 0.000113	22
HLA-B*51:01	1	1040	1048	9	CGKGYHLMS 0.000113	41
HLA-B*53:01	1	1046	1055	10	LMSFPQSAPH 0.000113	22
HLA-A*33:01	1	1048	1056	9	SFPQSAPHG 0.000113	35
HLA-B*15:01	1	1048	1057	10	SFPQSAPHGV 0.000113	33
HLA-B*53:01	1	1075	1084	10	APAICHDGKA 0.000113	22
HLA-B*15:01	1	1076	1085	10	PAICHHDGKAH 0.000113	33
HLA-B*53:01	1	1084	1093	10	AHFPREGV FV 0.000113	22
HLA-B*57:01	1	1086	1094	9	FPREGV FVS 0.000113	46
HLA-A*68:01	1	1099	1108	10	WFVTQRNFYE 0.000113	30
HLA-A*01:01	1	1116	1124	9	NTFVSGNCD 0.000113	46
HLA-A*03:01	1	1136	1145	10	DPLQPELDSF 0.000113	27
HLA-B*07:02	1	1147	1156	10	EELDKYFKNH 0.000113	30
HLA-B*15:01	1	1155	1163	9	NHTSPDVDL 0.000113	33
HLA-B*57:01	1	1167	1175	9	SGINASV V N 0.000113	46
HLA-B*07:02	1	1180	1188	9	IDRLNEVAK 0.000113	30
HLA-B*07:02	1	1194	1203	10	LIDLQELGKY 0.000113	30
HLA-A*26:01	1	1207	1215	9	IKWPWYIWL 0.000113	28
HLA-A*31:01	1	1218	1226	9	IAGLIAIVM 0.000113	34
HLA-A*03:01	1	1254	1262	9	DEDDSEPV L 0.000113	27
HLA-A*26:01	1	1258	1266	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*68:01	1	74	83	10	NGTKRFANPV 0.000112	31
HLA-A*01:01	1	77	85	9	KRFANPVLP 0.000112	47
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-B*57:01	1	208	217	10	TPINLV RGLP 0.000112	46
HLA-A*03:01	1	246	255	10	LTPGDSSSGW 0.000112	27
HLA-A*32:01	1	252	261	10	SSGWTAGAAA 0.000112	25
HLA-A*02:03	1	277	285	9	NENGTITDA 0.000112	35
HLA-A*23:01	1	285	293	9	AVDCALDPL 0.000112	20
HLA-A*11:01	1	312	320	9	TSNFRVQPT 0.000112	21
HLA-A*02:06	1	329	337	9	ITNLCPFGE 0.000112	43
HLA-A*02:06	1	331	340	10	NLCPFGEVFN 0.000112	43
HLA-A*02:03	1	336	344	9	GEVFNATRF 0.000112	35
HLA-B*07:02	1	337	346	10	EVFNATRFAS 0.000112	30
HLA-B*44:02	1	339	347	9	FNATRFASV 0.000112	22
HLA-A*02:03	1	344	352	9	FASVYAWNR 0.000112	35
HLA-B*07:02	1	353	362	10	KRISNCVADY 0.000112	30
HLA-A*26:01	1	364	372	9	VLYNSASF S 0.000112	28
HLA-A*68:01	1	414	423	10	NIADYNYKLP 0.000112	31
HLA-B*44:02	1	459	468	10	KPFERDISTE 0.000112	22
HLA-A*33:01	1	471	479	9	QAGSTPCNG 0.000112	35
HLA-A*11:01	1	503	512	10	QPYRVV VLSF 0.000112	21
HLA-A*31:01	1	538	546	9	FNFNGLTGT 0.000112	34
HLA-A*68:02	1	546	554	9	TGVLTESNK 0.000112	35
HLA-A*02:06	1	550	559	10	TESNKKFLPF 0.000112	43
HLA-B*35:01	1	556	564	9	FLPFQFGR 0.000112	23
HLA-A*30:02	1	561	569	9	QFGRDIADT 0.000112	55
HLA-A*68:02	1	578	587	10	TLEILDITPC 0.000112	35
HLA-A*02:06	1	601	610	10	TSNQVAVLYQ 0.000112	43
HLA-A*68:01	1	603	612	10	NQVAVLYQGV 0.000112	31
HLA-A*01:01	1	606	615	10	AVLYQGVNCT 0.000112	47
HLA-B*44:02	1	671	680	10	YQTQNSPRR 0.000112	22
HLA-A*32:01	1	686	695	10	SQSIIAYTMS 0.000112	25
HLA-A*02:01	1	704	713	10	YSNNSIAIPT 0.000112	33
HLA-A*23:01	1	718	726	9	SVTTEILPV 0.000112	20
HLA-A*01:01	1	760	769	10	LN RALTGI AV 0.000112	47
HLA-A*33:01	1	771	779	9	QDKNTQEVF 0.000112	35
HLA-A*02:01	1	778	787	10	VFAQVKQIYK 0.000112	33
HLA-B*08:01	1	799	807	9	FSQILPDPS 0.000112	46

HLA-B*53:01	1	836	844	9	DCLGDIAAR	0.000112	22
HLA-B*15:01	1	853	861	9	NGLTVLPPL	0.000112	33
HLA-A*01:01	1	860	868	9	PLLTDEMIA	0.000112	47
HLA-A*68:01	1	873	881	9	ALLAGTITS	0.000112	31
HLA-A*30:02	1	913	922	10	LYENQKLIAN	0.000112	55
HLA-A*01:01	1	918	926	9	KLIANQFNS	0.000112	47
HLA-B*51:01	1	924	932	9	FNSAIGKIQ	0.000112	41
HLA-A*30:02	1	985	994	10	EAEVQIDRLI	0.000112	55
HLA-B*44:03	1	989	998	10	QIDRLITGRL	0.000112	21
HLA-A*01:01	1	1006	1015	10	TQQLIRAAEI	0.000112	47
HLA-A*31:01	1	1014	1022	9	EIRASANLA	0.000112	34
HLA-B*07:02	1	1028	1036	9	ECVLGQSKR	0.000112	30
HLA-B*15:01	1	1062	1071	10	VTYVPAQEK	0.000112	33
HLA-B*58:01	1	1066	1075	10	PAQEKNFSTA	0.000112	35
HLA-A*01:01	1	1076	1084	9	PAICHGDKA	0.000112	47
HLA-B*08:01	1	1080	1089	10	HDGKAHFPRE	0.000112	46
HLA-A*33:01	1	1089	1097	9	EGVFVSNGT	0.000112	35
HLA-B*08:01	1	1089	1097	9	EGVFVSNGT	0.000112	46
HLA-A*01:01	1	1104	1113	10	RNFYEPQIIT	0.000112	47
HLA-B*08:01	1	1106	1115	10	FYEPQIITTD	0.000112	46
HLA-B*40:01	1	1137	1145	9	PLQPELDSF	0.000112	19
HLA-A*30:01	1	1148	1157	10	ELDKYFKNHT	0.000112	57
HLA-B*40:01	1	1148	1156	9	ELDKYFKNH	0.000112	19
HLA-B*08:01	1	1194	1203	10	LIDLQELGKY	0.000112	46
HLA-B*35:01	1	1198	1207	10	QELGKYEQYI	0.000112	23
HLA-A*31:01	1	1202	1210	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	IKVCEFQFCN	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-A*03:01	1	206	215	10	KHTPINLVRG	0.000111	27
HLA-B*44:02	1	234	242	9	NITRFQTLH	0.000111	22
HLA-A*03:01	1	236	244	9	TRFQTLHRS	0.000111	27
HLA-B*51:01	1	270	278	9	RTFLLKYNE	0.000111	41
HLA-B*57:01	1	279	288	10	NGTITDAVDC	0.000111	46
HLA-A*01:01	1	287	296	10	DCALDPLSET	0.000111	47
HLA-B*35:01	1	292	300	9	PLSETKCTL	0.000111	23
HLA-A*30:02	1	293	302	10	LSETKCTLKS	0.000111	55
HLA-A*02:03	1	294	303	10	SETKCTLKSF	0.000111	35
HLA-B*07:02	1	304	313	10	TVEKGIYQTS	0.000111	30
HLA-B*07:02	1	307	316	10	KGIYQTSNFR	0.000111	30
HLA-B*07:02	1	308	317	10	GIYQTSNFRV	0.000111	30
HLA-B*51:01	1	312	321	10	TSNFRVQPT	0.000111	41
HLA-B*44:02	1	315	324	10	FRVQPTESIV	0.000111	22
HLA-B*44:02	1	316	325	10	RVQPTESIVR	0.000111	22
HLA-A*68:01	1	324	333	10	VRFPNITNLC	0.000111	31
HLA-B*44:03	1	326	335	10	FPNITNLCPF	0.000111	21
HLA-B*08:01	1	337	346	10	EVFNATRFAS	0.000111	46
HLA-A*33:01	1	343	351	9	RFASVYAWN	0.000111	35
HLA-A*02:03	1	347	355	9	VYAWNRKRI	0.000111	35
HLA-A*31:01	1	356	364	9	SNCVADYSV	0.000111	34
HLA-A*02:01	1	396	405	10	SFVIRGDEV	0.000111	33
HLA-B*58:01	1	434	443	10	NSNNLDSKVG	0.000111	35
HLA-B*53:01	1	444	452	9	GNYNLYRL	0.000111	23
HLA-B*58:01	1	448	456	9	YLYRLF	0.000111	35

HLA-A*33:01	1	477	486	10	CNGVKGFNCY 0.000111	35
HLA-A*01:01	1	502	511	10	YQPYRVVLS 0.000111	47
HLA-B*44:03	1	527	535	9	STNLVKKNC 0.000111	21
HLA-A*33:01	1	544	552	9	TGTGVLTES 0.000111	35
HLA-A*68:02	1	551	560	10	ESNKKFLPFQ 0.000111	35
HLA-B*07:02	1	565	574	10	DIADTTDAVR 0.000111	30
HLA-A*33:01	1	569	578	10	TTDAVRDPQT 0.000111	35
HLA-A*30:01	1	570	578	9	TDAVRDPQT 0.000111	57
HLA-A*02:01	1	609	618	10	YQGVNCTEVP 0.000111	33
HLA-B*58:01	1	612	620	9	VNCTEVPVA 0.000111	35
HLA-A*02:06	1	614	622	9	CTEVPVAIH 0.000111	43
HLA-A*11:01	1	635	644	10	TGSNVFQTRA 0.000111	21
HLA-A*26:01	1	636	644	9	GSNVFQTRA 0.000111	28
HLA-A*33:01	1	663	672	10	IGAGICASYQ 0.000111	35
HLA-A*01:01	1	668	677	10	CASYQTQTN 0.000111	47
HLA-A*26:01	1	677	685	9	SPRRARVA 0.000111	28
HLA-A*26:01	1	750	759	10	LLQYGSFCTQ 0.000111	28
HLA-B*44:02	1	772	780	9	DKNTQEVFA 0.000111	22
HLA-A*02:06	1	778	787	10	VFAQVKQIYK 0.000111	43
HLA-A*24:02	1	782	791	10	VKQIYKTPPI 0.000111	20
HLA-A*01:01	1	793	802	10	DFGGFNFSQI 0.000111	47
HLA-A*30:02	1	805	813	9	DPSKPSKRS 0.000111	55
HLA-A*33:01	1	821	830	10	NKVTLADAGF 0.000111	35
HLA-A*23:01	1	858	867	10	LPPLLTDEMI 0.000111	20
HLA-B*44:02	1	858	866	9	LPPLLTDEM 0.000111	22
HLA-A*32:01	1	870	878	9	YTSALLAGT 0.000111	25
HLA-A*30:01	1	907	916	10	GVTQNVLYEN 0.000111	57
HLA-B*44:02	1	938	946	9	TASALGKLQ 0.000111	22
HLA-A*03:01	1	939	948	10	ASALGKLQDV 0.000111	27
HLA-A*24:02	1	952	960	9	NAQALNTLV 0.000111	20
HLA-B*51:01	1	956	964	9	LNTLVKQLS 0.000111	41
HLA-B*58:01	1	967	976	10	FGAISSVLND 0.000111	35
HLA-A*02:01	1	979	987	9	SRLDKVEAE 0.000111	33
HLA-B*07:02	1	979	987	9	SRLDKVEAE 0.000111	30
HLA-A*02:01	1	991	1000	10	DRLITGRLQS 0.000111	33
HLA-B*44:03	1	993	1001	9	LITGRLQSL 0.000111	21
HLA-A*24:02	1	996	1005	10	GRLQSLQTYV 0.000111	20
HLA-A*02:03	1	1016	1025	10	RASANLAATK 0.000111	35
HLA-B*44:02	1	1023	1031	9	ATKMSECVL 0.000111	22
HLA-B*44:03	1	1031	1039	9	LGQSKRVDF 0.000111	21
HLA-A*03:01	1	1038	1046	9	DFCGKGYHL 0.000111	27
HLA-B*44:03	1	1039	1047	9	FCGKGYHLM 0.000111	21
HLA-A*30:02	1	1041	1050	10	GKGYHLMSFP 0.000111	55
HLA-A*31:01	1	1063	1071	9	TYVPAQEK 0.000111	34
HLA-B*40:01	1	1091	1100	10	VFVSNQTHWF 0.000111	19
HLA-A*32:01	1	1106	1114	9	FYEPQIITT 0.000111	25
HLA-A*01:01	1	1117	1125	9	TFVSGNCDV 0.000111	47
HLA-B*44:02	1	1126	1135	10	VIGIVNNTVY 0.000111	22
HLA-A*01:01	1	1139	1147	9	QPELDSFKE 0.000111	47
HLA-A*68:02	1	1155	1164	10	NHTSPDVDLG 0.000111	35
HLA-A*03:01	1	1181	1190	10	DRLNEVAKNL 0.000111	27
HLA-B*07:02	1	1187	1195	9	AKNLNESLI 0.000111	30
HLA-A*31:01	1	1225	1233	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	YDPKVFSS 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	NDPFLGVYY 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	244	252	9	SYLTPGDSS 0.000111	31
HLA-B*44:02	1	292	300	9	PLSETKCTL 0.000111	22

HLA-A*01:01	1	309	318	10	IYQTSNFRVQ 0.00011	47
HLA-A*33:01	1	321	330	10	ESIVRFPNIT 0.00011	35
HLA-A*01:01	1	325	334	10	RFPNITNLCP 0.00011	47
HLA-A*30:02	1	439	447	9	DSKVGGNYN 0.00011	55
HLA-A*02:06	1	458	467	10	LKPFERDIST 0.00011	43
HLA-A*31:01	1	479	488	10	GVKGFNCYFP 0.00011	34
HLA-A*26:01	1	514	522	9	LLHAPATVC 0.00011	28
HLA-A*33:01	1	543	551	9	LTGTGVLTE 0.00011	35
HLA-B*44:03	1	549	557	9	LTESNKKFL 0.00011	21
HLA-A*68:02	1	550	558	9	TESNKKFLP 0.00011	35
HLA-A*02:06	1	569	577	9	TTDAVRDPQ 0.00011	43
HLA-B*15:01	1	578	586	9	TLEILDITP 0.00011	33
HLA-B*44:02	1	596	605	10	TPGTNTSNQV 0.00011	22
HLA-A*33:01	1	612	620	9	VNCTEVPVA 0.00011	35
HLA-B*40:01	1	649	658	10	GAEHVNNSYE 0.00011	19
HLA-A*01:01	1	660	669	10	DIPIGAGICA 0.00011	47
HLA-A*02:01	1	665	673	9	AGICASYQT 0.00011	33
HLA-A*33:01	1	669	677	9	ASYQTQTN 0.00011	35
HLA-A*24:02	1	721	730	10	TEILPVSMTK 0.00011	20
HLA-A*01:01	1	727	736	10	SMTKTSVDCT 0.00011	47
HLA-B*51:01	1	729	738	10	TKTSVDCTMY 0.00011	41
HLA-B*08:01	1	741	750	10	GDSTECSNLL 0.00011	46
HLA-B*57:01	1	747	755	9	SNLLLQYGS 0.00011	46
HLA-B*44:03	1	759	767	9	QLNRALTGI 0.00011	21
HLA-A*24:02	1	776	785	10	QEVFAQVKQI 0.00011	20
HLA-B*15:01	1	784	793	10	QIYKTPPIKD 0.00011	33
HLA-A*68:01	1	789	797	9	PPIKDFGGF 0.00011	31
HLA-A*26:01	1	804	812	9	PDPSKPSKR 0.00011	28
HLA-B*44:03	1	805	813	9	DPSKPSKRS 0.00011	21
HLA-A*31:01	1	817	826	10	DLLFNKVTLA 0.00011	34
HLA-A*11:01	1	861	869	9	LLTDEMIAQ 0.00011	21
HLA-B*08:01	1	861	869	9	LLTDEMIAQ 0.00011	46
HLA-A*33:01	1	862	871	10	LTDEMIAQYT 0.00011	35
HLA-B*53:01	1	864	872	9	DEMIAQYTS 0.00011	23
HLA-B*53:01	1	868	876	9	AQYTSALLA 0.00011	23
HLA-B*35:01	1	879	887	9	ITSGWTFGA 0.00011	23
HLA-A*03:01	1	892	900	9	QIPFAMQMA 0.00011	28
HLA-A*23:01	1	895	904	10	FAMQMAYRFN 0.00011	20
HLA-A*68:02	1	902	910	9	RFNGIGVTQ 0.00011	35
HLA-B*35:01	1	913	921	9	LYENQKLIA 0.00011	23
HLA-A*68:01	1	923	932	10	QFNSAIGKIQ 0.00011	31
HLA-B*40:01	1	969	978	10	AISSVLNDIL 0.00011	19
HLA-A*24:02	1	985	993	9	EAEVQIDRL 0.00011	20
HLA-A*33:01	1	987	995	9	EVQIDRLIT 0.00011	35
HLA-A*02:06	1	1031	1039	9	LGQSKRVDF 0.00011	43
HLA-B*53:01	1	1047	1056	10	MSFPQSAPHG 0.00011	23
HLA-A*03:01	1	1050	1059	10	PQSAPHGVVF 0.00011	28
HLA-B*44:02	1	1063	1071	9	TYVPAQEK 0.00011	22
HLA-A*24:02	1	1064	1073	10	YVPAQEKNT 0.00011	20
HLA-B*57:01	1	1067	1076	10	AQEKNTTAP 0.00011	46
HLA-A*68:02	1	1068	1076	9	QEKNTTAP 0.00011	35
HLA-A*23:01	1	1079	1087	9	CHDGKAHFP 0.00011	20
HLA-A*68:02	1	1079	1088	10	CHDGKAHFPR 0.00011	35
HLA-B*07:02	1	1111	1119	9	IITTDNTFV 0.00011	30
HLA-A*26:01	1	1129	1138	10	IVNNTVYDPL 0.00011	28
HLA-A*30:02	1	1163	1172	10	LGDISGINAS 0.00011	55
HLA-B*58:01	1	1164	1173	10	GDISGINASV 0.00011	35
HLA-A*30:02	1	1172	1181	10	SVVNIQKEID 0.00011	55
HLA-A*68:01	1	1191	1200	10	NESLIDLQEL 0.00011	31
HLA-A*30:02	1	1223	1232	10	AIVMVTIMLC 0.00011	55
HLA-B*08:01	1	1228	1236	9	TIMLCCMTS 0.00011	46
HLA-A*02:03	1	1229	1238	10	IMLCCMTSCC 0.00011	35
HLA-A*26:01	1	1234	1242	9	MTSCCSCLK 0.00011	28
HLA-A*30:01	1	1256	1265	10	DDSEPVKGV 0.00011	57
HLA-A*03:01	1	1259	1267	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-B*07:02	1	76	85	10	TKRFANPVLV 0.000109	31
HLA-A*23:01	1	110	119	10	LDSKTQSLLI 0.000109	21
HLA-B*53:01	1	112	120	9	SKTQSLLI 0.000109	23
HLA-B*40:01	1	114	123	10	TQSLLI 0.000109	19
HLA-A*30:02	1	117	125	9	LLIVNNATN 0.000109	55
HLA-B*08:01	1	127	136	10	VIKVECFQFC 0.000109	46
HLA-B*44:02	1	132	141	10	EFQFCNDPFL 0.000109	22
HLA-B*57:01	1	142	151	10	GVYYHKNNKS 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*11:01	1	210	218	9	INLVRGLPQ 0.000109	21
HLA-A*33:01	1	232	240	9	GINITRFQT 0.000109	35
HLA-B*35:01	1	267	275	9	LQPRTFLLK 0.000109	24
HLA-A*26:01	1	280	289	10	GTITDAVDCA 0.000109	28
HLA-A*02:01	1	292	301	10	PLSETKCTLK 0.000109	33
HLA-A*68:01	1	309	317	9	IYQTSNFRV 0.000109	31
HLA-B*51:01	1	314	322	9	NFRVQPTES 0.000109	41
HLA-A*02:06	1	322	331	10	SIVRFPNITN 0.000109	43
HLA-B*57:01	1	337	346	10	EVFNATRFAS 0.000109	46
HLA-A*24:02	1	370	378	9	SFSTFKCYG 0.000109	20
HLA-A*32:01	1	396	404	9	SFVIRGDEV 0.000109	25
HLA-B*57:01	1	399	408	10	IRGDEVQRQA 0.000109	46
HLA-A*23:01	1	432	440	9	AWNSNNLDS 0.000109	21
HLA-A*26:01	1	447	455	9	NYLYRLFRK 0.000109	28
HLA-B*35:01	1	465	473	9	ISTEIQAG 0.000109	24
HLA-A*26:01	1	487	495	9	FPLQSYGFQ 0.000109	28
HLA-B*44:02	1	492	500	9	YGFQPTYGV 0.000109	22
HLA-A*68:01	1	516	524	9	HAPATVCGP 0.000109	31
HLA-B*58:01	1	521	529	9	VCGPKKSTN 0.000109	35
HLA-A*26:01	1	531	540	10	VKNKCVNFN 0.000109	28
HLA-A*31:01	1	531	540	10	VKNKCVNFN 0.000109	35
HLA-A*01:01	1	537	545	9	NFNFNGLTG 0.000109	47
HLA-A*68:02	1	546	555	10	TGVLTESNKK 0.000109	36
HLA-A*30:01	1	557	566	10	LPFQQFGRDI 0.000109	57
HLA-B*58:01	1	571	580	10	DAVRDPQTL 0.000109	35
HLA-A*68:01	1	606	615	10	AVLYQGVNCT 0.000109	31
HLA-B*57:01	1	607	616	10	VLYQGVNCTE 0.000109	46
HLA-B*53:01	1	620	628	9	AIHADQLTP 0.000109	23
HLA-A*30:02	1	626	635	10	LTPTWRVYST 0.000109	55
HLA-A*01:01	1	638	646	9	NVFQTRAGC 0.000109	47
HLA-B*57:01	1	642	650	9	TRAGCLIGA 0.000109	46
HLA-A*31:01	1	687	695	9	QSIIAYTMS 0.000109	35
HLA-A*68:01	1	704	713	10	YSNNSIAIPT 0.000109	31
HLA-A*32:01	1	732	740	9	SVDCTMYIC 0.000109	25
HLA-A*01:01	1	738	747	10	YICGDSTEC 0.000109	47
HLA-A*01:01	1	764	772	9	LTGIAVEQD 0.000109	47
HLA-A*03:01	1	771	779	9	QDKNTQEVF 0.000109	28
HLA-A*01:01	1	789	797	9	PPIKDFGGF 0.000109	47
HLA-A*30:02	1	797	806	10	FNFSQILPDP 0.000109	55
HLA-B*15:01	1	818	827	10	LLFNKVTLD 0.000109	33
HLA-A*33:01	1	822	830	9	KVTLADAGF 0.000109	35
HLA-A*24:02	1	857	865	9	VLPLLTD 0.000109	20
HLA-B*08:01	1	862	871	10	LTDEMIAQYT 0.000109	46
HLA-A*68:01	1	869	878	10	QYTSALLAGT 0.000109	31
HLA-B*08:01	1	870	878	9	YTSALLAGT 0.000109	46
HLA-B*08:01	1	870	879	10	YTSALLAGTI 0.000109	46
HLA-B*07:02	1	901	910	10	YRFNGIGVTQ 0.000109	31
HLA-A*26:01	1	905	913	9	GIGVTQNVL 0.000109	28
HLA-B*44:03	1	929	937	9	GKIQDSLSS 0.000109	21
HLA-A*31:01	1	951	960	10	QNAQALNTLV 0.000109	35



HLA-B*44:02	1	951	960	10	QNAQALNTLV 0.000109	22
HLA-A*26:01	1	957	966	10	NTLVKQLSSN 0.000109	28
HLA-B*08:01	1	971	980	10	SSVLNDILSR 0.000109	46
HLA-B*57:01	1	1015	1024	10	IRASANLAAT 0.000109	46
HLA-A*11:01	1	1037	1045	9	VDFCGKGYH 0.000109	21
HLA-B*35:01	1	1079	1087	9	CHDGKAHFP 0.000109	24
HLA-A*33:01	1	1110	1119	10	QIITTDNTFV 0.000109	35
HLA-A*02:06	1	1169	1178	10	INASVVNIQK 0.000109	43
HLA-A*01:01	1	1190	1199	10	LNESLIDLQE 0.000109	47
HLA-B*53:01	1	1191	1199	9	NESLIDLQE 0.000109	23
HLA-A*02:03	1	1194	1203	10	LIDLQELGKY 0.000109	36
HLA-A*30:01	1	1214	1223	10	WLGFIAGLIA 0.000109	57
HLA-B*08:01	1	1230	1238	9	MLCCMTSCC 0.000109	46
HLA-A*26:01	1	1252	1261	10	KFDEDDSEPV 0.000109	28
HLA-B*57:01	1	1252	1260	9	KFDEDDSEP 0.000109	46
HLA-A*30:02	1	1256	1265	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	NLTTRTQLPP 0.000108	36
HLA-A*02:03	1	18	26	9	LTRTQLPP 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*33:01	1	77	85	9	KRFANPVLP 0.000108	35
HLA-A*26:01	1	104	112	9	WIFGTTLDS 0.000108	28
HLA-A*11:01	1	107	116	10	GTTLDSTQS 0.000108	21
HLA-A*01:01	1	112	121	10	SKTQSLIVN 0.000108	47
HLA-A*31:01	1	113	122	10	KTQSLIVNN 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	NFKNLREFV 0.000108	31
HLA-A*31:01	1	188	196	9	NLREFVFKN 0.000108	35
HLA-B*40:01	1	199	207	9	GYFKIYSKH 0.000108	19
HLA-A*30:02	1	215	224	10	GLPQGFSALE 0.000108	55
HLA-B*08:01	1	231	239	9	IGINITRFQ 0.000108	47
HLA-A*11:01	1	239	248	10	QTLHRSYLT 0.000108	21
HLA-A*11:01	1	249	257	9	GDSSSGWTA 0.000108	21
HLA-A*30:02	1	296	305	10	TKCTLKSFTV 0.000108	55
HLA-A*68:01	1	297	306	10	KCTLKSFTVE 0.000108	31
HLA-A*23:01	1	301	310	10	KSFTVEKGIY 0.000108	21
HLA-A*23:01	1	308	316	9	GIYQTSNFR 0.000108	21
HLA-B*44:03	1	309	317	9	IYQTSNFRV 0.000108	21
HLA-A*24:02	1	342	351	10	TRFASVYAWN 0.000108	20
HLA-A*11:01	1	397	406	10	FVIRGDEVQR 0.000108	21
HLA-A*03:01	1	399	407	9	IRGDEVQR 0.000108	28
HLA-A*30:02	1	419	428	10	NYKLPDDFTG 0.000108	55
HLA-B*40:01	1	470	478	9	YQAGSTPCN 0.000108	19
HLA-B*08:01	1	483	491	9	FNCYFPLQS 0.000108	47
HLA-A*23:01	1	493	501	9	GFQPTYGVG 0.000108	21
HLA-A*02:01	1	494	503	10	FQPTYGVGYQ 0.000108	33
HLA-A*31:01	1	509	518	10	VLSFELLHAP 0.000108	35
HLA-B*08:01	1	544	552	9	TGTGVLTES 0.000108	47
HLA-A*26:01	1	546	554	9	TGVLTESNK 0.000108	28
HLA-A*11:01	1	552	561	10	SNKKFLPFQQ 0.000108	21
HLA-A*01:01	1	587	596	10	CSFGGVSVIT 0.000108	47
HLA-B*08:01	1	593	602	10	SVITPGTNTS 0.000108	47
HLA-B*40:01	1	598	607	10	GTNTSNQVAV 0.000108	19
HLA-A*30:02	1	605	613	9	VAVLYQGVN 0.000108	55
HLA-B*58:01	1	607	616	10	VLYQGVNCTE 0.000108	35
HLA-A*26:01	1	611	619	9	GVNCTEVPV 0.000108	28
HLA-A*33:01	1	611	619	9	GVNCTEVPV 0.000108	35
HLA-A*68:01	1	669	678	10	ASYQTQTNVP 0.000108	31
HLA-B*51:01	1	692	701	10	YTMSLGVENS 0.000108	41
HLA-A*24:02	1	707	716	10	NSIAIPTNFT 0.000108	20
HLA-A*68:01	1	724	732	9	LPVSMTKTS 0.000108	31

HLA-A*33:01	1	725	733	9	PVSMKTTSV 0.000108	35
HLA-A*11:01	1	751	760	10	LQYGSFCTQL 0.000108	21
HLA-A*68:02	1	772	780	9	DKNTQEVFA 0.000108	36
HLA-A*33:01	1	798	807	10	NFSQILPDPS 0.000108	35
HLA-A*24:02	1	806	815	10	PSKPSKRSFI 0.000108	20
HLA-A*30:01	1	826	835	10	ADAGFIKQYG 0.000108	58
HLA-B*15:01	1	841	850	10	IAARDLICAQ 0.000108	33
HLA-A*30:01	1	864	872	9	DEMIAQYTS 0.000108	58
HLA-B*57:01	1	868	877	10	AQYTSALLAG 0.000108	46
HLA-B*58:01	1	868	877	10	AQYTSALLAG 0.000108	35
HLA-B*58:01	1	878	886	9	TITSGWTFG 0.000108	35
HLA-B*08:01	1	881	890	10	SGWTFGAGAA 0.000108	47
HLA-A*68:02	1	899	907	9	MAYRFNGIG 0.000108	36
HLA-A*68:02	1	906	914	9	IGVTQNVLY 0.000108	36
HLA-B*08:01	1	909	917	9	TONVLYENQ 0.000108	47
HLA-A*26:01	1	914	923	10	YENQKLIANQ 0.000108	28
HLA-B*07:02	1	914	922	9	YENQKLIAN 0.000108	31
HLA-B*08:01	1	928	936	9	IGKIQDLSL 0.000108	47
HLA-A*02:06	1	943	951	9	GKLDQDVVNQ 0.000108	43
HLA-A*02:01	1	964	972	9	SSNFGAISS 0.000108	33
HLA-B*35:01	1	1058	1066	9	VFLHVITYVP 0.000108	24
HLA-A*30:01	1	1064	1073	10	YVPAQEKNT 0.000108	58
HLA-A*02:01	1	1066	1075	10	PAQEKNTTA 0.000108	33
HLA-B*44:03	1	1093	1101	9	VSNGTHWV 0.000108	21
HLA-B*53:01	1	1112	1120	9	ITTDNTFVS 0.000108	23
HLA-A*33:01	1	1117	1126	10	TFVSGNCDVV 0.000108	35
HLA-B*51:01	1	1141	1150	10	ELDSFKEELD 0.000108	41
HLA-B*51:01	1	1163	1172	10	LGDISGINAS 0.000108	41
HLA-A*02:06	1	1173	1182	10	VVNIQKEIDR 0.000108	43
HLA-A*30:01	1	1180	1189	10	IDRLNEVAKN 0.000108	58
HLA-A*30:01	1	1194	1203	10	LIDLQELGKY 0.000108	58
HLA-A*68:01	1	1206	1215	10	YIKWPWYIWL 0.000108	31
HLA-B*07:02	1	1219	1227	9	AGLIAIVMV 0.000108	31
HLA-A*33:01	1	1220	1228	9	GLIAIVMVT 0.000108	35
HLA-A*30:02	1	1262	1270	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	AIHVSQTNG 0.000107	36
HLA-A*01:01	1	89	98	10	GVYFASTEKS 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-A*03:01	1	212	221	10	LVRGLPQGF 0.000107	28
HLA-A*11:01	1	236	244	9	TRFQTLHRS 0.000107	21
HLA-A*33:01	1	251	260	10	SSSGWTAGAA 0.000107	35
HLA-A*11:01	1	261	269	9	AYYVGYLQP 0.000107	21
HLA-B*53:01	1	265	274	10	GYLQPRTFLL 0.000107	23
HLA-A*02:01	1	285	294	10	AVDCALDPLS 0.000107	33
HLA-A*02:01	1	298	307	10	CTLKSFTVEK 0.000107	33
HLA-B*35:01	1	303	312	10	FTVEKGIYQT 0.000107	24
HLA-A*26:01	1	305	313	9	VEKGIYQTS 0.000107	29
HLA-B*35:01	1	316	325	10	RVQPTESIVR 0.000107	24
HLA-B*58:01	1	327	335	9	PNITNLCPF 0.000107	36
HLA-A*26:01	1	335	343	9	FGEVFNATR 0.000107	29
HLA-A*33:01	1	336	344	9	GEVFNATRF 0.000107	35
HLA-A*30:01	1	342	351	10	TRFASVYAWN 0.000107	58
HLA-B*07:02	1	372	381	10	STFKCYGVSP 0.000107	31
HLA-A*01:01	1	398	406	9	VIRGDEVRO 0.000107	47
HLA-A*02:06	1	457	466	10	NLKPFERDIS 0.000107	43
HLA-A*11:01	1	459	467	9	KPFERDIST 0.000107	21

HLA-B*15:01	1	472	481	10	AGSTPCNGVK 0.000107	34
HLA-A*11:01	1	486	494	9	YFPLQSYGF 0.000107	21
HLA-A*01:01	1	487	495	9	FPLQSYGFQ 0.000107	47
HLA-A*30:02	1	488	496	9	PLQSYGFQP 0.000107	55
HLA-A*01:01	1	489	497	9	LQSYGFQPT 0.000107	47
HLA-B*40:01	1	489	497	9	LQSYGFQPT 0.000107	19
HLA-B*07:02	1	508	516	9	VVLSFELLH 0.000107	31
HLA-A*31:01	1	539	548	10	NFNGLTGTGV 0.000107	35
HLA-A*02:06	1	546	554	9	TGVLTESNK 0.000107	43
HLA-A*30:01	1	563	572	10	GRDIADTTDA 0.000107	58
HLA-A*24:02	1	599	607	9	TNTSNQVAV 0.000107	20
HLA-A*33:01	1	599	608	10	TNTSNQVAVL 0.000107	35
HLA-B*44:02	1	603	611	9	NQVAVLYQG 0.000107	22
HLA-A*23:01	1	629	637	9	TWRVYSTGS 0.000107	21
HLA-A*68:02	1	639	647	9	VFQTRAGCL 0.000107	36
HLA-A*02:06	1	644	652	9	AGCLIGAEH 0.000107	43
HLA-A*23:01	1	650	659	10	AEHVNSYEC 0.000107	21
HLA-B*08:01	1	650	658	9	AEHVNSYE 0.000107	47
HLA-A*02:01	1	652	661	10	HVNSYECDI 0.000107	33
HLA-A*68:02	1	666	675	10	GICASYQTQT 0.000107	36
HLA-B*53:01	1	668	676	9	CASYQTQTN 0.000107	23
HLA-B*58:01	1	679	687	9	RRARSVASQ 0.000107	36
HLA-A*32:01	1	694	703	10	MSLGVENSVA 0.000107	26
HLA-B*35:01	1	722	731	10	EILPVSMTKT 0.000107	24
HLA-B*53:01	1	725	733	9	PVSMKTTSV 0.000107	23
HLA-A*68:02	1	738	747	10	YICGDSTEC 0.000107	36
HLA-A*02:06	1	740	749	10	CGDSTECNL 0.000107	43
HLA-A*02:06	1	753	762	10	YGSFCTQLNR 0.000107	43
HLA-A*31:01	1	768	776	9	AVEQDKNTQ 0.000107	35
HLA-A*33:01	1	769	777	9	VEQDKNTQE 0.000107	35
HLA-B*58:01	1	786	795	10	YKTPPIKDFG 0.000107	36
HLA-A*01:01	1	798	806	9	NFSQILPDP 0.000107	47
HLA-B*07:02	1	804	812	9	PDPSKPSKR 0.000107	31
HLA-B*58:01	1	808	816	9	KPSKRSFIE 0.000107	36
HLA-A*01:01	1	829	838	10	GFIKQYGDCL 0.000107	47
HLA-B*07:02	1	843	851	9	ARDLICAQK 0.000107	31
HLA-B*40:01	1	843	851	9	ARDLICAQK 0.000107	19
HLA-A*33:01	1	844	852	9	RDLICAQKF 0.000107	35
HLA-A*02:06	1	851	860	10	KFNGLTVLPP 0.000107	43
HLA-B*44:02	1	867	875	9	IAQYTSALL 0.000107	22
HLA-A*03:01	1	895	903	9	FAMQMAYRF 0.000107	28
HLA-B*40:01	1	900	908	9	AYRFNGIGV 0.000107	19
HLA-A*24:02	1	902	911	10	RFNGIGVTQN 0.000107	20
HLA-A*30:02	1	942	951	10	LGKLQDVVNQ 0.000107	55
HLA-A*24:02	1	945	953	9	LQDVVNQNA 0.000107	20
HLA-B*53:01	1	951	960	10	QNAQALNTLV 0.000107	23
HLA-B*35:01	1	964	973	10	SSNFGAISSV 0.000107	24
HLA-A*68:01	1	992	1000	9	RLITGRLQS 0.000107	31
HLA-B*51:01	1	992	1000	9	RLITGRLQS 0.000107	41
HLA-A*01:01	1	1007	1016	10	QLLIRAAEIR 0.000107	47
HLA-B*58:01	1	1015	1023	9	IRASANLAA 0.000107	36
HLA-B*44:02	1	1049	1058	10	FPQSAPHGVV 0.000107	22
HLA-A*30:02	1	1089	1097	9	EGVFVSNGT 0.000107	55
HLA-B*40:01	1	1104	1113	10	RNFYEQIIT 0.000107	19
HLA-A*32:01	1	1105	1114	10	NFYEQIIT 0.000107	26
HLA-B*51:01	1	1149	1157	9	LDKYFKNHT 0.000107	41
HLA-B*35:01	1	1157	1166	10	TSPDVLGDI 0.000107	24
HLA-A*30:02	1	1166	1175	10	ISGINASVVN 0.000107	55
HLA-A*33:01	1	1167	1176	10	SGINASVUNI 0.000107	35
HLA-A*26:01	1	1169	1177	9	INASVVNIQ 0.000107	29
HLA-A*01:01	1	1170	1179	10	NASVVNIQKE 0.000107	47
HLA-B*57:01	1	1178	1187	10	KEIDRLNEVA 0.000107	47
HLA-A*03:01	1	1199	1207	9	ELGKYEQYI 0.000107	28
HLA-A*68:01	1	1221	1230	10	LIAIVMVTIM 0.000107	31
HLA-A*30:01	1	1233	1241	9	CMTSCCSCL 0.000107	58
HLA-B*08:01	1	1245	1253	9	CSCGSCCKF 0.000107	47

HLA-A*32:01	1	1257	1265	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	FSNVTFWHA 0.000106	28
HLA-B*35:01	1	63	71	9	TWFHAIHVS 0.000106	24
HLA-A*30:02	1	74	82	9	NGTKRFANP 0.000106	55
HLA-A*30:01	1	88	96	9	DGVYFASTE 0.000106	58
HLA-A*03:01	1	93	101	9	ASTEKSNI 0.000106	28
HLA-A*31:01	1	119	128	10	IVNATNVVI 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-B*44:03	1	214	222	9	RGLPQGFS 0.000106	21
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*30:02	1	240	249	10	TLHRSYLTPG 0.000106	55
HLA-B*57:01	1	242	251	10	HRSYLTPGDS 0.000106	47
HLA-B*15:01	1	251	260	10	SSSGWTAGAA 0.000106	34
HLA-B*44:02	1	251	259	9	SSSGWTAGA 0.000106	22
HLA-A*24:02	1	258	266	9	GAAAYVGY 0.000106	20
HLA-A*68:02	1	267	275	9	LQPRTFLLK 0.000106	36
HLA-B*44:02	1	289	298	10	ALDPLSETKC 0.000106	22
HLA-B*51:01	1	289	298	10	ALDPLSETKC 0.000106	42
HLA-A*30:02	1	295	304	10	ETKCTLSFT 0.000106	55
HLA-A*01:01	1	296	305	10	TKCTLSFTV 0.000106	48
HLA-B*40:01	1	306	315	10	EKGIYQTSNF 0.000106	19
HLA-B*44:03	1	339	347	9	FNATRFASV 0.000106	21
HLA-A*03:01	1	340	349	10	NATRFASVYA 0.000106	28
HLA-B*15:01	1	348	356	9	YAWNKRKRIS 0.000106	34
HLA-A*68:02	1	365	374	10	LYNSASFSTF 0.000106	36
HLA-A*02:01	1	376	384	9	CYGVSPTKL 0.000106	33
HLA-B*07:02	1	392	400	9	VYADSFVIR 0.000106	31
HLA-A*23:01	1	412	420	9	TGNIADYNY 0.000106	21
HLA-A*02:06	1	447	455	9	NYLYRFRK 0.000106	43
HLA-A*26:01	1	459	468	10	KPFERDISTE 0.000106	29
HLA-A*26:01	1	464	473	10	DISTEIQAG 0.000106	29
HLA-B*07:02	1	467	475	9	TEIQAGST 0.000106	31
HLA-B*08:01	1	475	484	10	TPCNGVKGFN 0.000106	47
HLA-A*32:01	1	497	506	10	TYGVGYQPYP 0.000106	26
HLA-A*31:01	1	505	514	10	YRVVLSFEL 0.000106	35
HLA-A*23:01	1	512	521	10	FELLHAPATV 0.000106	21
HLA-A*33:01	1	512	520	9	FELLHAPAT 0.000106	35
HLA-B*57:01	1	528	536	9	TNLVKNKCV 0.000106	47
HLA-A*02:03	1	555	564	10	KFLPFQFGR 0.000106	36
HLA-A*68:02	1	570	578	9	TDAVRDPQT 0.000106	36
HLA-A*24:02	1	581	590	10	ILDITPCSF 0.000106	20
HLA-A*68:02	1	595	603	9	ITPGTNTSN 0.000106	36
HLA-A*68:02	1	613	622	10	NCTEVPVAIH 0.000106	36
HLA-A*68:01	1	619	627	9	VAIHADQLT 0.000106	31
HLA-B*57:01	1	620	629	10	AIHADQLTPT 0.000106	47
HLA-A*02:01	1	621	629	9	IHADQLTPT 0.000106	33
HLA-A*11:01	1	621	630	10	IHADQLTPTW 0.000106	21
HLA-B*08:01	1	625	634	10	QLTPTWRVYS 0.000106	47
HLA-A*24:02	1	634	642	9	STGSNVFQT 0.000106	20
HLA-B*58:01	1	646	654	9	CLIGAHEVN 0.000106	36
HLA-B*44:03	1	677	685	9	SPRRARSVA 0.000106	21
HLA-A*30:02	1	705	714	10	SNNSIAIPTN 0.000106	55
HLA-A*31:01	1	707	716	10	NSIAIPTNFT 0.000106	35
HLA-A*30:02	1	713	722	10	TNFTISVTTE 0.000106	55
HLA-A*11:01	1	715	724	10	FTISVTTEIL 0.000106	21
HLA-B*40:01	1	751	759	9	LQYGSFCTQ 0.000106	19
HLA-A*33:01	1	773	781	9	KNTQEVFAQ 0.000106	35
HLA-A*32:01	1	810	819	10	SKRSFIEDLL 0.000106	26
HLA-B*07:02	1	814	822	9	FIEDLLFNK 0.000106	31
HLA-A*02:01	1	834	843	10	YGDCLGDIAA 0.000106	33

HLA-A*30:02	1	837	846	10	CLGDIAARDL 0.000106	55
HLA-A*68:02	1	838	847	10	LGDIAARDLI 0.000106	36
HLA-B*07:02	1	840	849	10	DIAARDLICA 0.000106	31
HLA-A*03:01	1	851	860	10	KFNGLTVLPP 0.000106	28
HLA-B*07:02	1	864	873	10	DEMIAQY TSA 0.000106	31
HLA-A*68:01	1	886	895	10	GAGAALQIPF 0.000106	31
HLA-A*32:01	1	889	898	10	AALQIPFAMQ 0.000106	26
HLA-B*15:01	1	899	907	9	MAYRFNGIG 0.000106	34
HLA-A*68:02	1	901	910	10	YRFNGIGVTQ 0.000106	36
HLA-B*15:01	1	901	909	9	YRFNGIGVT 0.000106	34
HLA-A*11:01	1	906	915	10	IGVTQNVLYE 0.000106	21
HLA-A*33:01	1	918	926	9	KLIANQFNS 0.000106	35
HLA-A*01:01	1	925	933	9	NSAIGKIQD 0.000106	48
HLA-B*08:01	1	925	934	10	NSAIGKIQDS 0.000106	47
HLA-A*31:01	1	938	946	9	TASALGKLQ 0.000106	35
HLA-B*51:01	1	944	953	10	KLQDVVNQNA 0.000106	42
HLA-A*33:01	1	953	962	10	AQALNTLVKQ 0.000106	35
HLA-A*01:01	1	956	964	9	LNTLVKQLS 0.000106	48
HLA-A*30:02	1	981	990	10	LDKVEAEVQI 0.000106	55
HLA-A*23:01	1	989	998	10	QIDRLITGRL 0.000106	21
HLA-A*11:01	1	996	1005	10	GRLQSLQTYV 0.000106	21
HLA-A*02:01	1	999	1008	10	QSLQTYVTQQ 0.000106	33
HLA-B*58:01	1	1008	1017	10	QLIRAAEIRA 0.000106	36
HLA-A*32:01	1	1009	1017	9	LIRAAEIRA 0.000106	26
HLA-A*30:01	1	1012	1020	9	AAEIRASAN 0.000106	58
HLA-A*02:01	1	1015	1023	9	IRASANLAA 0.000106	33
HLA-B*08:01	1	1035	1044	10	KRVDFCGKGY 0.000106	47
HLA-A*26:01	1	1095	1103	9	NGTHWFVTQ 0.000106	29
HLA-B*51:01	1	1100	1109	10	FVTQRNFYEP 0.000106	42
HLA-B*07:02	1	1103	1112	10	QRNFYEPQII 0.000106	31
HLA-A*33:01	1	1113	1121	9	TTDNTFVSG 0.000106	35
HLA-A*01:01	1	1138	1147	10	LQPELDSFKE 0.000106	48
HLA-B*57:01	1	1147	1156	10	EELDKYFKNH 0.000106	47
HLA-A*26:01	1	1151	1159	9	KYFKNHTSP 0.000106	29
HLA-B*44:02	1	1176	1184	9	IQKEIDRLN 0.000106	22
HLA-B*08:01	1	1191	1199	9	NESLIDLQE 0.000106	47
HLA-A*30:02	1	1219	1228	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*03:01	1	213	222	10	VRGLPQGFS 0.000105	28
HLA-A*02:03	1	244	252	9	SYLTPGDSS 0.000105	36
HLA-B*53:01	1	251	259	9	SSSGWTAGA 0.000105	23
HLA-A*11:01	1	264	273	10	VGYLQPRFTL 0.000105	21
HLA-B*44:02	1	264	273	10	VGYLQPRFTL 0.000105	22
HLA-B*58:01	1	279	288	10	NGTITDAVDC 0.000105	36
HLA-A*02:06	1	297	306	10	KCTLKSFTVE 0.000105	43
HLA-B*57:01	1	299	308	10	TLKSFTVEKG 0.000105	47
HLA-A*02:03	1	305	313	9	VEKGIYQTS 0.000105	36
HLA-B*07:02	1	310	318	9	YQTSNFRVQ 0.000105	31
HLA-B*57:01	1	325	334	10	RFPNITNLCP 0.000105	47
HLA-A*23:01	1	331	340	10	NLCPFGEVFN 0.000105	21
HLA-B*07:02	1	351	360	10	NRKRISNCVA 0.000105	31
HLA-B*51:01	1	352	360	9	RKRISNCVA 0.000105	42
HLA-B*57:01	1	365	373	9	LYNSASFST 0.000105	47
HLA-B*40:01	1	380	389	10	SPTKLNLDLCF 0.000105	19

HLA-B*57:01	1	396	404	9	SFVIRGDEV 0.000105	47
HLA-A*11:01	1	406	415	10	QIAPGQTGNI 0.000105	21
HLA-A*32:01	1	446	455	10	YNYLYRFRK 0.000105	26
HLA-A*30:02	1	457	466	10	NLKPFERDIS 0.000105	56
HLA-B*44:03	1	459	468	10	KPFERDISTE 0.000105	21
HLA-B*08:01	1	471	480	10	QAGSTPCNGV 0.000105	47
HLA-A*33:01	1	472	480	9	AGSTPCNGV 0.000105	35
HLA-A*23:01	1	502	511	10	YQPYRVVVL 0.000105	21
HLA-B*40:01	1	574	583	10	RDPQTLEILD 0.000105	19
HLA-A*02:06	1	640	649	10	FQTRAGCLIG 0.000105	43
HLA-B*40:01	1	651	659	9	EHVNNSYEC 0.000105	19
HLA-A*26:01	1	755	763	9	SFCTQLNRA 0.000105	29
HLA-A*03:01	1	758	767	10	TQLNRALTGI 0.000105	28
HLA-B*07:02	1	775	783	9	TQEVFAQVK 0.000105	31
HLA-B*15:01	1	779	788	10	FAQVKQIYKT 0.000105	34
HLA-A*30:01	1	797	805	9	FNFSQILPD 0.000105	58
HLA-B*58:01	1	810	818	9	SKRSFIEDL 0.000105	36
HLA-A*24:02	1	819	827	9	LFNKVTLAD 0.000105	20
HLA-A*02:01	1	832	840	9	KQYGDCLGD 0.000105	33
HLA-A*02:06	1	839	848	10	GDIAARDLIC 0.000105	43
HLA-B*51:01	1	842	851	10	AARDLICAQK 0.000105	42
HLA-B*07:02	1	867	876	10	IAQYTSALLA 0.000105	31
HLA-A*11:01	1	870	878	9	YTSALLAGT 0.000105	21
HLA-A*11:01	1	884	892	9	TFGAGAALQ 0.000105	21
HLA-A*33:01	1	897	906	10	MQMAYRFNGI 0.000105	35
HLA-A*26:01	1	912	921	10	VLYENQKLIA 0.000105	29
HLA-A*32:01	1	935	944	10	LSSTASALGK 0.000105	26
HLA-A*68:01	1	946	954	9	QDVVNQNAQ 0.000105	31
HLA-B*40:01	1	947	955	9	DVVVNQNAQA 0.000105	19
HLA-B*07:02	1	951	960	10	QNAQALNTLV 0.000105	31
HLA-B*07:02	1	952	961	10	NAQALNTLVK 0.000105	31
HLA-A*30:01	1	977	985	9	ILSRLDKVE 0.000105	58
HLA-B*58:01	1	979	988	10	SRLDKVEAEV 0.000105	36
HLA-B*51:01	1	1030	1039	10	VLGQSKRVDF 0.000105	42
HLA-A*31:01	1	1055	1063	9	HGVVFLHVT 0.000105	35
HLA-B*15:01	1	1055	1063	9	HGVVFLHVT 0.000105	34
HLA-B*08:01	1	1075	1083	9	APAICHDGK 0.000105	47
HLA-B*44:02	1	1134	1143	10	VYDPLQPELD 0.000105	22
HLA-B*40:01	1	1170	1178	9	NASVVNIQK 0.000105	19
HLA-A*32:01	1	1191	1200	10	NESLIDLQEL 0.000105	26
HLA-B*44:02	1	1213	1221	9	IWLGFIAGL 0.000105	22
HLA-B*58:01	1	1227	1236	10	VTIMLCCMTS 0.000105	36
HLA-A*30:02	1	1228	1236	9	TIMLCCMTS 0.000105	56
HLA-B*35:01	1	1258	1266	9	SEPVKLGVK 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	AIHVSQTNG 0.000104	47
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*40:01	1	256	264	9	TAGAAAYYV 0.000104	19
HLA-B*08:01	1	261	270	10	AYYVGYLQPR 0.000104	47
HLA-A*03:01	1	297	305	9	KCTLKSFTV 0.000104	28
HLA-A*02:01	1	300	309	10	LKSFTVEKGI 0.000104	34
HLA-B*07:02	1	320	329	10	TESIVRFPNI 0.000104	31
HLA-A*11:01	1	331	339	9	NLCPFGEVF 0.000104	21
HLA-B*57:01	1	347	356	10	VYAWNRKRIS 0.000104	47
HLA-B*44:02	1	357	365	9	NCVADYSVL 0.000104	22
HLA-B*58:01	1	364	372	9	VLYNSASFS 0.000104	36
HLA-A*03:01	1	386	394	9	DLCFTNVYA 0.000104	28
HLA-A*02:01	1	405	414	10	RQIAPGQTGN 0.000104	34

HLA-A*26:01	1	414	423	10	NIADYNYKLP 0.000104	29
HLA-B*40:01	1	439	448	10	DSKVGGNINY 0.000104	19
HLA-A*23:01	1	480	489	10	VKGFNCYFPL 0.000104	21
HLA-A*30:01	1	487	495	9	FPLQSYGFQ 0.000104	58
HLA-B*07:02	1	489	497	9	LQSYGFQPT 0.000104	31
HLA-B*07:02	1	513	522	10	ELLHAPATVC 0.000104	31
HLA-A*24:02	1	523	531	9	GPKKSTNLV 0.000104	20
HLA-A*30:01	1	576	584	9	PQTLEILDI 0.000104	58
HLA-A*30:01	1	585	593	9	TPCSFGGVS 0.000104	58
HLA-A*02:06	1	608	616	9	LYQGVNCTE 0.000104	43
HLA-B*44:03	1	617	626	10	VPVAIHADQL 0.000104	21
HLA-A*30:02	1	650	659	10	AEHVNSYEC 0.000104	56
HLA-A*30:01	1	668	676	9	CASYQTQTN 0.000104	58
HLA-B*08:01	1	672	680	9	QTQTNSPRR 0.000104	47
HLA-A*26:01	1	673	681	9	TQTNSPRRA 0.000104	29
HLA-A*31:01	1	689	698	10	IIAYTMSLGV 0.000104	35
HLA-B*07:02	1	692	700	9	YTMSLGVEN 0.000104	31
HLA-B*57:01	1	744	752	9	TECSNLLLQ 0.000104	47
HLA-A*68:01	1	756	764	9	FCTQLNRAL 0.000104	31
HLA-B*15:01	1	760	768	9	LNRALTGIA 0.000104	34
HLA-B*53:01	1	774	783	10	NTQEVFAQVK 0.000104	23
HLA-A*68:02	1	785	794	10	IYKTPPIKDF 0.000104	36
HLA-A*02:06	1	787	796	10	KTPPIKDFGG 0.000104	43
HLA-A*31:01	1	816	825	10	EDLLFNKVTL 0.000104	35
HLA-A*02:06	1	819	828	10	LFNKVTLADA 0.000104	43
HLA-A*30:02	1	844	853	10	RDLICAQKFN 0.000104	56
HLA-A*24:02	1	858	867	10	LPPLLTDEMI 0.000104	20
HLA-B*57:01	1	859	867	9	PPLLTDEMI 0.000104	47
HLA-A*31:01	1	896	904	9	AMQMAYRFN 0.000104	35
HLA-B*57:01	1	898	907	10	QMAYRFNGIG 0.000104	47
HLA-A*24:02	1	905	913	9	GIGVTQNVL 0.000104	20
HLA-A*01:01	1	916	925	10	NQKLIANQFN 0.000104	48
HLA-A*68:01	1	931	939	9	IQDLSLSTA 0.000104	31
HLA-A*24:02	1	941	949	9	ALGKLQDVV 0.000104	20
HLA-B*53:01	1	1002	1011	10	QTYVTQQLIR 0.000104	23
HLA-A*32:01	1	1015	1023	9	IRASANLAA 0.000104	26
HLA-A*33:01	1	1029	1037	9	CVLQSKRV 0.000104	36
HLA-B*57:01	1	1080	1088	9	HDGKAHFPR 0.000104	47
HLA-A*68:02	1	1081	1089	9	DGKAHFPRE 0.000104	36
HLA-B*53:01	1	1090	1098	9	GVFVSNPTH 0.000104	23
HLA-B*07:02	1	1109	1118	10	PQIITTDNTF 0.000104	31
HLA-B*57:01	1	1127	1136	10	IGIVNNTVYD 0.000104	47
HLA-A*30:01	1	1131	1140	10	NNTVYDPLQP 0.000104	58
HLA-A*30:01	1	1184	1193	10	NEVAKNLNES 0.000104	58
HLA-A*30:02	1	1184	1193	10	NEVAKNLNES 0.000104	56
HLA-A*03:01	1	1186	1194	9	VAKNLNESL 0.000104	28
HLA-B*35:01	1	1196	1205	10	DLQELGKYEQ 0.000104	24
HLA-A*11:01	1	1207	1215	9	IKWPWYIWL 0.000104	21
HLA-A*24:02	1	1257	1265	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-A*01:01	1	74	83	10	NGTKRFANPV 0.000103	48
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*30:01	1	215	224	10	GLPQGFSALE 0.000103	58
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-A*11:01	1	240	248	9	TLHRSYLTP 0.000103	21
HLA-B*07:02	1	260	268	9	AAYYVGYLQ 0.000103	31

HLA-A*02:01	1	301	310	10	KSFTVEKGIY 0.000103	34
HLA-B*07:02	1	301	310	10	KSFTVEKGIY 0.000103	31
HLA-A*33:01	1	325	334	10	RFPNITNLCP 0.000103	36
HLA-A*02:01	1	343	352	10	RFASVYAWNR 0.000103	34
HLA-B*44:03	1	347	355	9	VYAWNRKRI 0.000103	21
HLA-B*07:02	1	373	381	9	TFKCYGVSP 0.000103	31
HLA-B*44:03	1	396	404	9	SFVIRGDEV 0.000103	21
HLA-B*44:03	1	413	421	9	GNIADYNYK 0.000103	21
HLA-A*02:06	1	418	427	10	YNYKLPDDFT 0.000103	44
HLA-B*51:01	1	420	429	10	YKLPDDFTGC 0.000103	42
HLA-B*07:02	1	439	448	10	DSKVGGNVNY 0.000103	31
HLA-A*02:06	1	454	463	10	RKSNLKPFER 0.000103	44
HLA-A*23:01	1	469	478	10	IYQAGSTPCN 0.000103	21
HLA-A*30:01	1	480	488	9	VKGFNCYFP 0.000103	58
HLA-B*08:01	1	505	513	9	YRVVLSFE 0.000103	47
HLA-A*02:06	1	571	580	10	DAVRDPQTL 0.000103	44
HLA-A*03:01	1	577	586	10	QTLEILDITP 0.000103	28
HLA-B*53:01	1	577	586	10	QTLEILDITP 0.000103	23
HLA-B*08:01	1	591	599	9	GVSVITPGT 0.000103	47
HLA-A*30:02	1	596	604	9	TPGTNTSNQ 0.000103	56
HLA-A*24:02	1	599	608	10	TNTSNQVAVL 0.000103	20
HLA-A*03:01	1	635	644	10	TGSNVFQTRA 0.000103	28
HLA-B*58:01	1	637	646	10	SNVVFQTRAGC 0.000103	36
HLA-A*30:02	1	651	659	9	EHVNNSYEC 0.000103	56
HLA-A*26:01	1	680	688	9	RARSVASQS 0.000103	29
HLA-B*08:01	1	727	736	10	SMTKTSVDCT 0.000103	47
HLA-A*31:01	1	728	736	9	MTKTSVDCT 0.000103	35
HLA-B*07:02	1	730	738	9	KTSVDCTMY 0.000103	31
HLA-A*30:01	1	750	758	9	LLQYGSFCT 0.000103	58
HLA-A*11:01	1	752	760	9	QYGSFCTQL 0.000103	21
HLA-A*02:03	1	760	768	9	LNRLTGIA 0.000103	36
HLA-B*07:02	1	763	771	9	ALTGIAVEQ 0.000103	31
HLA-A*68:01	1	769	777	9	VEQDKNTQE 0.000103	31
HLA-A*03:01	1	770	779	10	EQDKNTQEVF 0.000103	28
HLA-B*58:01	1	813	821	9	SFIEDLLFN 0.000103	36
HLA-A*68:01	1	867	876	10	IAQYTSALLA 0.000103	31
HLA-A*23:01	1	870	879	10	YTSALLAGTI 0.000103	21
HLA-B*57:01	1	873	882	10	ALLAGTITSG 0.000103	47
HLA-A*01:01	1	879	888	10	ITSGWTFGAG 0.000103	48
HLA-B*40:01	1	902	910	9	RFNGIGVTQ 0.000103	20
HLA-B*08:01	1	907	915	9	GVTQNVLYE 0.000103	47
HLA-B*44:03	1	944	953	10	KLQDVVNQNA 0.000103	21
HLA-A*01:01	1	959	968	10	LVKQLSSNFG 0.000103	48
HLA-A*01:01	1	961	970	10	KQLSSNFGAI 0.000103	48
HLA-B*07:02	1	968	977	10	GAISSVLNDI 0.000103	31
HLA-A*03:01	1	978	986	9	LSRLDKVEA 0.000103	28
HLA-B*15:01	1	978	987	10	LSRLDKVEA 0.000103	34
HLA-A*01:01	1	986	995	10	AEVQIDRLIT 0.000103	48
HLA-A*24:02	1	1015	1023	9	IRASANLAA 0.000103	20
HLA-A*02:03	1	1048	1056	9	SFPQSAPHG 0.000103	36
HLA-A*02:01	1	1066	1074	9	PAQEKNFTT 0.000103	34
HLA-A*03:01	1	1078	1086	9	ICHDGKAHF 0.000103	28
HLA-A*68:01	1	1118	1127	10	FVSGNCDVVI 0.000103	31
HLA-A*31:01	1	1130	1139	10	VNNTVYDPLQ 0.000103	35
HLA-A*02:06	1	1131	1140	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	IFGTTLD SKT 0.000102	35
HLA-A*01:01	1	106	114	9	FGTTLD SKT 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	IKVCEFAQFC 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-A*33:01	1	207	215	9	HTPINLVRG 0.000102	36
HLA-B*44:02	1	221	230	10	SALEPLVDLP 0.000102	23
HLA-A*02:06	1	259	268	10	AAAYVGYLQ 0.000102	44
HLA-A*31:01	1	271	279	9	TFLLKYNEN 0.000102	35
HLA-A*26:01	1	274	282	9	LKYNENGTI 0.000102	29
HLA-A*03:01	1	282	290	9	ITDAVDCAL 0.000102	28
HLA-B*44:03	1	291	300	10	DPLSETKCTL 0.000102	21
HLA-A*68:01	1	314	323	10	NFRVQPTESI 0.000102	31
HLA-A*03:01	1	318	327	10	QPTESIVRFP 0.000102	28
HLA-B*15:01	1	322	331	10	SIVRFPNITN 0.000102	34
HLA-A*31:01	1	379	387	9	VSPTKLNDL 0.000102	35
HLA-A*02:06	1	380	388	9	SPTKLNDLC 0.000102	44
HLA-A*33:01	1	418	427	10	YNYKLPDDFT 0.000102	36
HLA-A*01:01	1	419	427	9	NYKLPDDFT 0.000102	48
HLA-B*08:01	1	445	454	10	NYNYLYRFR 0.000102	48
HLA-A*32:01	1	469	477	9	IYQAGSTPC 0.000102	26
HLA-B*58:01	1	485	493	9	CYFPLQSYG 0.000102	36
HLA-A*31:01	1	503	511	9	QPYRVVLS 0.000102	35
HLA-A*33:01	1	506	515	10	RVVLSFELL 0.000102	36
HLA-B*57:01	1	536	545	10	VNFMFNGLTG 0.000102	47
HLA-A*11:01	1	551	560	10	ESNKKFLPFQ 0.000102	21
HLA-A*26:01	1	554	563	10	KKFLPFQFG 0.000102	29
HLA-B*58:01	1	609	617	9	YQGVNCTEV 0.000102	36
HLA-A*33:01	1	617	626	10	VPVAIHADQL 0.000102	36
HLA-A*30:01	1	642	651	10	TRAGCLIGAE 0.000102	58
HLA-B*51:01	1	650	659	10	AEHVNNSYEC 0.000102	42
HLA-A*68:01	1	691	700	10	AYTMSLGVEN 0.000102	31
HLA-A*30:02	1	712	721	10	PTNFTISVTT 0.000102	56
HLA-A*01:01	1	736	744	9	TMYICGDST 0.000102	48
HLA-B*57:01	1	749	757	9	LLLQYGSFC 0.000102	47
HLA-B*44:02	1	754	762	9	GSFCTQLNR 0.000102	23
HLA-B*44:03	1	755	764	10	SFCTQLNRAL 0.000102	21
HLA-A*68:02	1	789	797	9	PPIKDFGGF 0.000102	36
HLA-B*15:01	1	794	802	9	FGGFNFSQI 0.000102	34
HLA-B*51:01	1	812	821	10	RSFIEDLLFN 0.000102	42
HLA-A*32:01	1	821	830	10	NKVTLADAGF 0.000102	26
HLA-B*08:01	1	824	833	10	TLADAGFIKQ 0.000102	48
HLA-B*44:03	1	824	832	9	TLADAGFIK 0.000102	21
HLA-B*51:01	1	833	841	9	QYGDCLGDI 0.000102	42
HLA-A*23:01	1	839	847	9	GDIAARDLI 0.000102	21
HLA-B*58:01	1	848	856	9	CAQKFNGLT 0.000102	36
HLA-B*40:01	1	853	862	10	NGLTVLPPL 0.000102	20
HLA-A*26:01	1	897	906	10	MQMAYRFNGI 0.000102	29
HLA-A*30:01	1	981	990	10	LDKVEAEVQI 0.000102	58
HLA-B*35:01	1	997	1005	9	RLQSLQTYV 0.000102	24
HLA-B*44:02	1	1075	1083	9	APAICHGDK 0.000102	23
HLA-A*01:01	1	1076	1085	10	PAICHGDKAH 0.000102	48
HLA-A*31:01	1	1093	1102	10	VSNGTHWFVT 0.000102	35
HLA-A*30:01	1	1099	1108	10	WFVTQRNFYE 0.000102	58
HLA-B*44:02	1	1106	1114	9	FYEPQIITT 0.000102	23
HLA-A*26:01	1	1107	1115	9	YEPQIITTD 0.000102	29
HLA-B*53:01	1	1170	1179	10	NASVVNIQKE 0.000102	23
HLA-A*02:03	1	1171	1179	9	ASVVNIQKE 0.000102	36
HLA-A*33:01	1	1174	1183	10	VNIQKEIDRL 0.000102	36
HLA-B*07:02	1	1179	1188	10	EIDRLNEVAK 0.000102	31
HLA-A*68:01	1	1190	1198	9	LNESLIDLQ 0.000102	31
HLA-A*02:03	1	1198	1206	9	QELGKYEQY 0.000102	36
HLA-B*07:02	1	1233	1241	9	CMTSCCSCSL 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	WFHAIHVSG	0.000101	36
HLA-B*58:01	1	90	98	9	VYFASTEKS	0.000101	36
HLA-A*31:01	1	127	136	10	VIKVFQFC	0.000101	36
HLA-B*58:01	1	153	161	9	MESEFRVYS	0.000101	36
HLA-B*07:02	1	159	167	9	VYSSANNCT	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*07:02	1	234	242	9	NITRFQTLH	0.000101	32
HLA-A*68:02	1	237	245	9	RFQTLHRSY	0.000101	36
HLA-B*07:02	1	239	247	9	QTLHRSYLT	0.000101	32
HLA-B*08:01	1	245	254	10	YLTPGDSSSG	0.000101	48
HLA-A*02:06	1	246	254	9	LTPGDSSSG	0.000101	44
HLA-A*68:01	1	250	258	9	DSSSGWTAG	0.000101	31
HLA-B*35:01	1	265	274	10	GYLQPRTFLL	0.000101	24
HLA-B*15:01	1	272	280	9	FLLKYNENG	0.000101	34
HLA-A*01:01	1	274	283	10	LKYNENGTIT	0.000101	48
HLA-B*07:02	1	276	285	10	YNENGTITDA	0.000101	32
HLA-B*15:01	1	276	285	10	YNENGTITDA	0.000101	34
HLA-A*02:01	1	296	305	10	TKCTLKSFTV	0.000101	34
HLA-B*40:01	1	303	311	9	FTVEKGIYQ	0.000101	20
HLA-A*24:02	1	308	316	9	GIYQTSNFR	0.000101	20
HLA-A*01:01	1	314	322	9	NFRVQPTES	0.000101	48
HLA-B*40:01	1	316	325	10	RVQPTESIVR	0.000101	20
HLA-A*33:01	1	322	330	9	SIVRFPNIT	0.000101	36
HLA-A*31:01	1	329	338	10	ITNLCPFGEV	0.000101	36
HLA-A*23:01	1	370	378	9	SFSTFKCYG	0.000101	21
HLA-B*08:01	1	374	383	10	FKCYGVSPTK	0.000101	48
HLA-A*11:01	1	418	426	9	YNYKLPDDF	0.000101	21
HLA-A*01:01	1	491	499	9	SYGFQPTYG	0.000101	48
HLA-B*53:01	1	501	509	9	GYQPYRVVV	0.000101	23
HLA-A*02:03	1	507	516	10	VVLSFELLH	0.000101	36
HLA-A*68:02	1	508	516	9	VVLSFELLH	0.000101	36
HLA-A*30:01	1	541	550	10	NGLTGTGVL	0.000101	59
HLA-A*68:02	1	552	560	9	SNKKFLPFQ	0.000101	36
HLA-B*15:01	1	580	588	9	EILDITPCS	0.000101	34
HLA-B*57:01	1	588	597	10	SFGGVSVITP	0.000101	47
HLA-B*57:01	1	608	617	10	LYQGVNCTEV	0.000101	47
HLA-A*32:01	1	627	636	10	TPTWRVYSTG	0.000101	26
HLA-B*53:01	1	662	671	10	PIGAGICASY	0.000101	23
HLA-B*07:02	1	670	679	10	SYQTQTNSPR	0.000101	32
HLA-A*32:01	1	679	688	10	RRARSVASQS	0.000101	26
HLA-B*58:01	1	696	705	10	LGVENSVAYS	0.000101	36
HLA-A*26:01	1	725	733	9	PVSMTKTSV	0.000101	29
HLA-B*57:01	1	756	765	10	FCTQLNRALT	0.000101	47
HLA-B*51:01	1	781	790	10	QVKQIYKTPP	0.000101	42
HLA-B*15:01	1	792	800	9	KDFGGFNFS	0.000101	34
HLA-A*11:01	1	804	812	9	PDPSKPSKR	0.000101	21
HLA-B*08:01	1	808	817	10	KPSKRSFIED	0.000101	48
HLA-A*32:01	1	839	847	9	GDIAARDLI	0.000101	26
HLA-B*08:01	1	863	871	9	TDEMIAQYT	0.000101	48
HLA-A*02:03	1	901	910	10	YRFNGIGVTQ	0.000101	36
HLA-A*26:01	1	909	917	9	TQNVLYENQ	0.000101	29
HLA-A*03:01	1	911	920	10	NVLYENQKLI	0.000101	29
HLA-A*30:02	1	921	929	9	ANQFNSAIG	0.000101	56
HLA-A*01:01	1	927	936	10	AIGKIQDLSL	0.000101	48
HLA-B*58:01	1	983	991	9	KVEAEVQID	0.000101	36
HLA-B*44:03	1	991	999	9	DRLITGRLQ	0.000101	21
HLA-B*51:01	1	1000	1008	9	SLQTYVTQQ	0.000101	42
HLA-A*26:01	1	1001	1010	10	LQTYVTQQLI	0.000101	29
HLA-A*01:01	1	1009	1017	9	LIRAAEIRA	0.000101	48

HLA-A*02:03	1	1031	1040	10	LGQSKRVDFC 0.000101	36
HLA-A*26:01	1	1031	1039	9	LGQSKRVDF 0.000101	29
HLA-B*08:01	1	1039	1048	10	FCGKGYHLMS 0.000101	48
HLA-A*02:03	1	1058	1066	9	VFLHVITYVP 0.000101	36
HLA-A*68:01	1	1064	1073	10	YVPAQEKNT 0.000101	31
HLA-B*57:01	1	1094	1103	10	SNGTHWFVTQ 0.000101	47
HLA-A*32:01	1	1113	1121	9	TTDNTFVSG 0.000101	26
HLA-B*08:01	1	1124	1133	10	DVVIGIVNNT 0.000101	48
HLA-A*30:01	1	1139	1148	10	QPELDSFKEE 0.000101	59
HLA-A*68:02	1	1156	1165	10	HTSPDVDLGD 0.000101	36
HLA-B*15:01	1	1161	1169	9	VDLGDISGI 0.000101	34
HLA-A*03:01	1	1196	1204	9	DLQELGKYE 0.000101	29
HLA-B*51:01	1	1202	1211	10	KYEQYIKWPW 0.000101	42
HLA-A*32:01	1	1212	1220	9	YIWLGFIAG 0.000101	26
HLA-A*31:01	1	1252	1261	10	KFDEDDSEPV 0.000101	36
HLA-A*01:01	1	5	14	10	LVLLPLVSSQ 0.0001	49
HLA-A*01:01	1	14	23	10	QCVNLTRTQ 0.0001	49
HLA-A*68:01	1	15	24	10	CVNLTRTQL 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	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	LDSKTQSL 0.0001	29
HLA-A*01:01	1	116	124	9	SLLVNNT 0.0001	49
HLA-B*58:01	1	118	127	10	LIVNNATNVV 0.0001	36
HLA-A*31:01	1	120	128	9	VNNATNVVI 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	254	262	9	GWTAGAAAY 0.0001	20
HLA-B*57:01	1	287	296	10	DCALDPLSET 0.0001	48
HLA-A*01:01	1	299	308	10	TLKSFTVEKG 0.0001	49
HLA-B*15:01	1	312	320	9	TSNFRVQPT 0.0001	34
HLA-A*68:01	1	328	337	10	NITNLCPFGE 0.0001	32
HLA-A*31:01	1	336	344	9	GEVFNATRF 0.0001	36
HLA-A*11:01	1	360	369	10	ADYSVLYNSA 0.0001	22
HLA-B*44:03	1	380	388	9	SPTKLNDLC 0.0001	22
HLA-B*07:02	1	383	392	10	KLNDLCFTNV 0.0001	32
HLA-B*35:01	1	408	417	10	APGQTGNIAD 0.0001	24
HLA-B*53:01	1	425	434	10	DFTGCVIAWN 0.0001	23
HLA-A*03:01	1	444	453	10	GNYNYLYRLF 0.0001	29
HLA-B*40:01	1	446	454	9	YNYLYRLFR 0.0001	20
HLA-A*02:01	1	462	470	9	ERDISTEIIY 0.0001	34
HLA-A*02:03	1	478	487	10	NGVKGFNCYF 0.0001	37
HLA-A*31:01	1	496	504	9	PTYGVGYQP 0.0001	36
HLA-A*03:01	1	500	509	10	VGYQPYRVVV 0.0001	29
HLA-A*26:01	1	508	517	10	VVLSFELLHA 0.0001	29
HLA-B*08:01	1	519	528	10	ATVCGPKKST 0.0001	48
HLA-A*02:03	1	526	534	9	KSTNLVKNK 0.0001	37
HLA-A*30:01	1	558	567	10	PFQQFGRDIA 0.0001	59
HLA-A*30:02	1	567	576	10	ADTTDAVRDP 0.0001	56
HLA-B*07:02	1	569	577	9	TTDAVRDPQ 0.0001	32
HLA-A*11:01	1	577	585	9	QTLEILDIT 0.0001	22
HLA-B*57:01	1	586	594	9	PCSFGGVSV 0.0001	48
HLA-B*08:01	1	602	610	9	SNQVAVLYQ 0.0001	48
HLA-A*03:01	1	614	623	10	CTEVPVAIHA 0.0001	29
HLA-A*68:02	1	614	622	9	CTEVPVAIH 0.0001	36
HLA-A*26:01	1	643	652	10	RAGCLIGAEH 0.0001	29
HLA-A*02:01	1	686	695	10	SQSIIAYTMS 0.0001	34

HLA-A*11:01	1	759	767	9	QLNRALTGI	0.0001	22
HLA-A*68:02	1	762	770	9	RALTGIAVE	0.0001	36
HLA-B*44:02	1	768	776	9	AVEQDKNTQ	0.0001	23
HLA-B*58:01	1	768	777	10	AVEQDKNTQE	0.0001	36
HLA-B*44:02	1	796	804	9	GFNFSQILP	0.0001	23
HLA-B*07:02	1	817	826	10	DLLFNKVTLA	0.0001	32
HLA-B*15:01	1	822	831	10	KVTLADAGFI	0.0001	34
HLA-A*02:03	1	837	845	9	CLGDIAARD	0.0001	37
HLA-B*15:01	1	837	846	10	CLGDIAARDL	0.0001	34
HLA-A*02:03	1	843	851	9	ARDLICAQK	0.0001	37
HLA-A*68:01	1	843	852	10	ARDLICAQKF	0.0001	32
HLA-B*58:01	1	865	874	10	EMIAQYTSAL	0.0001	36
HLA-B*08:01	1	887	896	10	AGAALQIPFA	0.0001	48
HLA-B*53:01	1	919	927	9	LIANQFNSA	0.0001	23
HLA-B*51:01	1	925	934	10	NSAIGKIQDS	0.0001	42
HLA-A*32:01	1	954	962	9	QALNTLVKQ	0.0001	26
HLA-A*68:02	1	995	1003	9	TGRLQSLQT	0.0001	36
HLA-B*44:02	1	1004	1012	9	YVTQQLIRA	0.0001	23
HLA-A*03:01	1	1005	1014	10	VTQQLIRAAE	0.0001	29
HLA-B*53:01	1	1017	1025	9	ASANLAATK	0.0001	23
HLA-B*08:01	1	1071	1080	10	NFTTAPAICH	0.0001	48
HLA-A*01:01	1	1082	1091	10	GKAHFPREGV	0.0001	49
HLA-A*02:03	1	1085	1094	10	HFPREGVFVS	0.0001	37
HLA-A*30:01	1	1106	1115	10	FYEPQIITTD	0.0001	59
HLA-B*40:01	1	1125	1134	10	VVIGIVNNTV	0.0001	20
HLA-A*68:01	1	1151	1159	9	KYFKNHTSP	0.0001	32
HLA-A*02:01	1	1176	1185	10	IQKEIDRLNE	0.0001	34
HLA-A*33:01	1	1178	1187	10	KEIDRLNEVA	0.0001	36
HLA-A*23:01	1	1233	1241	9	CMTSCCSCL	0.0001	21
HLA-A*30:02	1	1233	1241	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*07:02	1	71	80	10	SGTNGTKRFA	9.9e-05	32
HLA-A*26:01	1	78	87	10	RFANPVLPFN	9.9e-05	29
HLA-B*08:01	1	94	102	9	STEKSNIR	9.9e-05	48
HLA-A*68:01	1	107	116	10	GTTLDSKTQS	9.9e-05	32
HLA-B*44:03	1	114	122	9	TQSLLIVNN	9.9e-05	22
HLA-A*02:01	1	116	125	10	SLLIVNNATN	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-A*01:01	1	236	244	9	TRFQTLHRS	9.9e-05	49
HLA-A*68:01	1	239	248	10	QTLHRSYLTP	9.9e-05	32
HLA-B*53:01	1	253	261	9	SGWTAGAAA	9.9e-05	23
HLA-B*44:02	1	256	264	9	TAGAAAYYV	9.9e-05	23
HLA-B*07:02	1	293	301	9	LSETKCTLK	9.9e-05	32
HLA-A*03:01	1	309	318	10	IYQTSNFRVQ	9.9e-05	29
HLA-A*02:03	1	321	330	10	ESIVRFPNIT	9.9e-05	37
HLA-B*51:01	1	363	372	10	SVLYNSASF	9.9e-05	42
HLA-B*08:01	1	364	373	10	VLYNSASFST	9.9e-05	48
HLA-B*44:03	1	378	387	10	GVSPTKLNDL	9.9e-05	22
HLA-A*11:01	1	380	389	10	SPTKLNDLCF	9.9e-05	22
HLA-A*02:06	1	382	390	9	TKLNDLCFT	9.9e-05	44
HLA-A*30:01	1	384	393	10	LNDLCFTNVY	9.9e-05	59
HLA-A*26:01	1	393	401	9	YADSFVIRG	9.9e-05	29
HLA-A*02:03	1	396	405	10	SFVIRGDEV	9.9e-05	37
HLA-B*15:01	1	408	416	9	APGQTGNIA	9.9e-05	34
HLA-B*57:01	1	420	428	9	YKLPDDFTG	9.9e-05	48
HLA-A*68:01	1	443	452	10	GGNYNYLYRL	9.9e-05	32
HLA-A*68:01	1	465	473	9	ISTEIQAG	9.9e-05	32

HLA-B*58:01	1	467	476	10	TEIYQAGSTP	9.9e-05	37
HLA-A*68:01	1	500	508	9	VGYPYRVV	9.9e-05	32
HLA-A*24:02	1	512	521	10	FELLHAPATV	9.9e-05	21
HLA-A*30:01	1	535	544	10	CVNFNFNGLT	9.9e-05	59
HLA-A*02:01	1	541	549	9	NGLTGTGVL	9.9e-05	34
HLA-A*03:01	1	552	561	10	SNKKFLPFQQ	9.9e-05	29
HLA-A*02:06	1	575	584	10	DPQTLEILDI	9.9e-05	44
HLA-B*53:01	1	577	585	9	QTLEILDIT	9.9e-05	23
HLA-B*57:01	1	581	590	10	ILDITPCSFG	9.9e-05	48
HLA-B*58:01	1	597	606	10	PGTNTSNQVA	9.9e-05	37
HLA-B*40:01	1	618	626	9	PVAIHADQL	9.9e-05	20
HLA-B*08:01	1	634	643	10	STGSNVFQTR	9.9e-05	48
HLA-A*02:03	1	640	649	10	FQTRAGCLIG	9.9e-05	37
HLA-A*68:02	1	661	670	10	IPIGAGICAS	9.9e-05	37
HLA-B*44:02	1	669	678	10	ASYQTQTNSP	9.9e-05	23
HLA-B*57:01	1	670	678	9	SYQTQTNSP	9.9e-05	48
HLA-B*44:03	1	685	693	9	ASQSIIAYT	9.9e-05	22
HLA-B*15:01	1	687	695	9	QSIIAYTMS	9.9e-05	34
HLA-A*30:01	1	698	706	9	VENSVAYSN	9.9e-05	59
HLA-B*53:01	1	708	716	9	SIAIPTNFT	9.9e-05	23
HLA-B*08:01	1	719	727	9	VTTEILPVS	9.9e-05	48
HLA-A*03:01	1	723	731	9	ILPVSMTKT	9.9e-05	29
HLA-A*01:01	1	740	748	9	CGDSTECSN	9.9e-05	49
HLA-B*07:02	1	762	771	10	RALTGIAVEQ	9.9e-05	32
HLA-B*44:02	1	779	787	9	FAQVKQIYK	9.9e-05	23
HLA-B*53:01	1	818	826	9	LLFNKVTLA	9.9e-05	23
HLA-B*44:02	1	830	838	9	FIKQYGDCL	9.9e-05	23
HLA-B*57:01	1	836	844	9	DCLGDIAAR	9.9e-05	48
HLA-B*35:01	1	842	851	10	AARDLICAQK	9.9e-05	24
HLA-A*02:06	1	848	856	9	CAQKFNGLT	9.9e-05	44
HLA-B*57:01	1	850	859	10	QKFNGLTVLP	9.9e-05	48
HLA-A*11:01	1	867	876	10	IAQYTSALLA	9.9e-05	22
HLA-A*31:01	1	880	889	10	TSGWTFGAGA	9.9e-05	36
HLA-A*33:01	1	888	897	10	GAALQIPFAM	9.9e-05	36
HLA-A*11:01	1	900	908	9	AYRFNGIGV	9.9e-05	22
HLA-A*32:01	1	906	915	10	IGVTQNVLYE	9.9e-05	26
HLA-B*44:02	1	932	940	9	QDLSSTAS	9.9e-05	23
HLA-A*32:01	1	933	941	9	DSLSSTASA	9.9e-05	26
HLA-A*26:01	1	944	952	9	KLQDVVNQN	9.9e-05	29
HLA-A*30:01	1	957	966	10	NLTVKQLSSN	9.9e-05	59
HLA-A*11:01	1	965	974	10	SNFGAISSVL	9.9e-05	22
HLA-A*68:02	1	997	1006	10	RLQSLQTYVT	9.9e-05	37
HLA-B*44:03	1	1004	1012	9	YVTQQLIRA	9.9e-05	22
HLA-A*02:06	1	1023	1032	10	ATKMSECVLG	9.9e-05	44
HLA-A*30:02	1	1035	1043	9	KRVDFCGKG	9.9e-05	57
HLA-B*08:01	1	1043	1051	9	GYHLMSFPQ	9.9e-05	48
HLA-B*44:02	1	1080	1088	9	HDGKAHFPR	9.9e-05	23
HLA-A*01:01	1	1085	1094	10	HFPREGVFS	9.9e-05	49
HLA-A*02:06	1	1089	1097	9	EGVFSNGT	9.9e-05	44
HLA-B*57:01	1	1137	1146	10	PLQPELDSFK	9.9e-05	48
HLA-B*57:01	1	1146	1154	9	KEELDKYFK	9.9e-05	48
HLA-A*02:06	1	1158	1166	9	SPDVLGDI	9.9e-05	44
HLA-A*11:01	1	1167	1176	10	SGINASVNI	9.9e-05	22
HLA-A*02:01	1	1170	1178	9	NASVVNIQK	9.9e-05	34
HLA-B*35:01	1	1181	1190	10	DRLNEVAKNL	9.9e-05	24
HLA-A*30:01	1	1189	1198	10	NLNESLIDLQ	9.9e-05	59
HLA-A*68:01	1	1197	1205	9	LQELGKYEQ	9.9e-05	32
HLA-B*57:01	1	1245	1254	10	CSCGCKEFD	9.9e-05	48
HLA-B*35:01	1	1255	1263	9	EDDSEPVLK	9.9e-05	24
HLA-A*03:01	1	18	26	9	LTRTQLPP	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	HAIHVSQTN	9.8e-05	32

HLA-B*57:01	1	67	75	9	AIHVSQTNG	9.8e-05	48
HLA-B*07:02	1	68	77	10	IHVSGTNGTK	9.8e-05	32
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	STEKSNIIRG	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*11:01	1	215	223	9	GLPQGFSA	9.8e-05	22
HLA-A*31:01	1	224	233	10	EPLVDLPIGI	9.8e-05	36
HLA-B*08:01	1	234	243	10	NITRFQTLHR	9.8e-05	48
HLA-A*32:01	1	255	264	10	WTAGAAAYYV	9.8e-05	26
HLA-B*07:02	1	260	269	10	AAAYVGYLQP	9.8e-05	32
HLA-A*30:01	1	287	296	10	DCALDPLSET	9.8e-05	59
HLA-A*24:02	1	302	311	10	SFTVEKGIYQ	9.8e-05	21
HLA-A*32:01	1	312	321	10	TSNFRVQPT	9.8e-05	26
HLA-B*44:03	1	327	335	9	PNITNLCPF	9.8e-05	22
HLA-B*08:01	1	374	382	9	FKCYGVSPT	9.8e-05	48
HLA-A*33:01	1	379	387	9	VSPTKLNDL	9.8e-05	36
HLA-A*02:06	1	380	389	10	SPTKLNDLCF	9.8e-05	44
HLA-A*68:01	1	396	404	9	SFVIRGDEV	9.8e-05	32
HLA-B*40:01	1	399	408	10	IRGDEVQRQA	9.8e-05	20
HLA-B*51:01	1	410	418	9	GQTGNIADY	9.8e-05	43
HLA-B*51:01	1	418	427	10	YNYKLPDDFT	9.8e-05	43
HLA-B*57:01	1	420	429	10	YKLPDDFTGC	9.8e-05	48
HLA-A*33:01	1	421	429	9	KLPDDFTGC	9.8e-05	36
HLA-A*01:01	1	424	432	9	DDFTGCVIA	9.8e-05	49
HLA-B*51:01	1	427	435	9	TGCVIAWNS	9.8e-05	43
HLA-A*03:01	1	445	453	9	NYNYLYRLF	9.8e-05	29
HLA-A*02:01	1	447	456	10	NYLYRLFRRK	9.8e-05	34
HLA-A*30:02	1	447	456	10	NYLYRLFRRK	9.8e-05	57
HLA-B*53:01	1	496	504	9	PTYGVGYQP	9.8e-05	24
HLA-B*44:03	1	507	515	9	VVLSFELL	9.8e-05	22
HLA-A*02:06	1	536	544	9	VNFNFNGLT	9.8e-05	44
HLA-A*02:01	1	560	568	9	QQFGRDIAD	9.8e-05	34
HLA-A*02:01	1	586	594	9	PCSFGGVSV	9.8e-05	34
HLA-A*31:01	1	626	635	10	LTPTWRVYST	9.8e-05	36
HLA-A*31:01	1	648	656	9	IGAHEVNNS	9.8e-05	36
HLA-B*08:01	1	652	661	10	HVNNSYECDI	9.8e-05	48
HLA-B*40:01	1	669	677	9	ASYQTQTN	9.8e-05	20
HLA-B*35:01	1	673	682	10	TQTNSPRRAR	9.8e-05	25
HLA-A*68:02	1	690	699	10	IAYTMSLGVE	9.8e-05	37
HLA-A*31:01	1	692	701	10	YTMSLGVENS	9.8e-05	36
HLA-B*58:01	1	712	720	9	PTNFTISVT	9.8e-05	37
HLA-B*44:03	1	718	726	9	SVTTEILPV	9.8e-05	22
HLA-A*11:01	1	732	740	9	SVDCTMYIC	9.8e-05	22
HLA-B*07:02	1	740	749	10	CGDSTECNSL	9.8e-05	32
HLA-A*24:02	1	742	751	10	DSTECNSLLL	9.8e-05	21
HLA-B*58:01	1	765	774	10	TGIAVEQDKN	9.8e-05	37
HLA-B*40:01	1	782	791	10	VKQIYKTPPI	9.8e-05	20
HLA-B*51:01	1	783	792	10	KQIYKTPPIK	9.8e-05	43
HLA-A*68:01	1	786	795	10	YKTPPIKDFG	9.8e-05	32
HLA-B*51:01	1	797	805	9	FNFSQILPD	9.8e-05	43
HLA-B*57:01	1	828	836	9	AGFIKQYGD	9.8e-05	48
HLA-B*44:02	1	842	851	10	AARDLICAQK	9.8e-05	23
HLA-A*68:02	1	843	852	10	ARDLICAQKF	9.8e-05	37
HLA-B*44:03	1	858	866	9	LPPLLTDEM	9.8e-05	22
HLA-B*44:02	1	929	937	9	GKIQDSLSS	9.8e-05	23
HLA-B*40:01	1	940	949	10	SALGKLQDVV	9.8e-05	20
HLA-B*15:01	1	943	951	9	GKLQDVVNQ	9.8e-05	35

HLA-A*01:01	1	949	958	10	VNQNAQALNT	9.8e-05	49
HLA-A*02:03	1	949	958	10	VNQNAQALNT	9.8e-05	37
HLA-A*33:01	1	956	964	9	LNTLVKQLS	9.8e-05	36
HLA-B*57:01	1	958	966	9	TLVKQLSSN	9.8e-05	48
HLA-A*68:01	1	963	971	9	LSSNFGAIS	9.8e-05	32
HLA-B*15:01	1	985	993	9	EAEVQIDRL	9.8e-05	35
HLA-B*44:03	1	1000	1008	9	SLQTYVTQQ	9.8e-05	22
HLA-A*30:02	1	1030	1038	9	VLGQSKRVD	9.8e-05	57
HLA-A*30:01	1	1034	1043	10	SKRVDFCGKG	9.8e-05	59
HLA-A*33:01	1	1040	1049	10	CGKGYHLMSF	9.8e-05	36
HLA-B*44:02	1	1061	1070	10	HVTYVPAQEK	9.8e-05	23
HLA-A*33:01	1	1068	1076	9	QEKNFITAP	9.8e-05	36
HLA-A*30:01	1	1074	1082	9	TAPAICHDG	9.8e-05	59
HLA-A*11:01	1	1104	1112	9	RNFYEPQII	9.8e-05	22
HLA-A*33:01	1	1106	1115	10	FYEPQIITTD	9.8e-05	36
HLA-A*30:01	1	1107	1115	9	YEPQIITTD	9.8e-05	59
HLA-A*30:02	1	1109	1117	9	PQIITTDNT	9.8e-05	57
HLA-A*02:03	1	1145	1153	9	FKEELDKYF	9.8e-05	37
HLA-A*01:01	1	1150	1159	10	DKYFKNHTSP	9.8e-05	49
HLA-A*26:01	1	1162	1170	9	DLGDISGIN	9.8e-05	30
HLA-B*58:01	1	1168	1177	10	GINASVVNIQ	9.8e-05	37
HLA-B*44:02	1	1174	1183	10	VNIQKEIDRL	9.8e-05	23
HLA-B*53:01	1	1196	1205	10	DLQELGKYEQ	9.8e-05	24
HLA-A*31:01	1	1199	1207	9	ELGKYEQYI	9.8e-05	36
HLA-B*57:01	1	1199	1208	10	ELGKYEQYIK	9.8e-05	48
HLA-A*02:03	1	1232	1241	10	CCMTSCCSSL	9.8e-05	37
HLA-A*30:01	1	1238	1246	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	WFHAIHVS	9.7e-05	37
HLA-B*44:03	1	76	85	10	TKRFANPVLP	9.7e-05	22
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	PFLMDLEGK	9.7e-05	21
HLA-A*01:01	1	189	197	9	LREFVFKNI	9.7e-05	49
HLA-A*68:01	1	214	223	10	RGLPQGFSAL	9.7e-05	32
HLA-A*68:01	1	223	231	9	LEPLVDLPI	9.7e-05	32
HLA-A*23:01	1	236	244	9	TRFQTLHRS	9.7e-05	21
HLA-A*03:01	1	251	260	10	SSSGWTAGAA	9.7e-05	29
HLA-B*40:01	1	251	259	9	SSSGWTAGA	9.7e-05	20
HLA-A*68:01	1	252	260	9	SSSGWTAGAA	9.7e-05	32
HLA-B*15:01	1	263	271	9	YVGYLQPR	9.7e-05	35
HLA-A*30:01	1	272	280	9	FLLKYNENG	9.7e-05	59
HLA-A*32:01	1	291	300	10	DPLSETKCTL	9.7e-05	26
HLA-A*03:01	1	293	302	10	LSETKCTLKS	9.7e-05	29
HLA-B*40:01	1	297	305	9	KCTLKSFTV	9.7e-05	20
HLA-B*07:02	1	303	312	10	FTVEKGIYQT	9.7e-05	32
HLA-B*07:02	1	336	345	10	GEVFNATRFA	9.7e-05	32
HLA-B*40:01	1	368	377	10	SASFSTFKCY	9.7e-05	20
HLA-B*53:01	1	400	408	9	RGDEVQRQA	9.7e-05	24
HLA-B*57:01	1	429	437	9	CVIAWNSNN	9.7e-05	48
HLA-A*33:01	1	451	460	10	RLFRKSNLKP	9.7e-05	36
HLA-B*57:01	1	538	546	9	FNFNGLTGT	9.7e-05	48
HLA-B*40:01	1	540	549	10	FNGLTGTGVL	9.7e-05	20
HLA-A*03:01	1	549	557	9	LTESNKKFL	9.7e-05	29
HLA-A*01:01	1	591	599	9	GVSVITPGT	9.7e-05	49
HLA-B*51:01	1	601	610	10	TSNQVAVLYQ	9.7e-05	43
HLA-B*40:01	1	604	612	9	QVAVLYQGV	9.7e-05	20
HLA-A*30:01	1	660	669	10	DIPIGAGICA	9.7e-05	59
HLA-A*11:01	1	662	671	10	PIGAGICASY	9.7e-05	22
HLA-B*40:01	1	671	680	10	YQTQTNSPRR	9.7e-05	20

HLA-A*26:01	1	696	705	10	LGVENSVAYS	9.7e-05	30
HLA-A*01:01	1	698	706	9	VENSVAYSN	9.7e-05	49
HLA-B*40:01	1	706	715	10	NNSIAIPTNF	9.7e-05	20
HLA-B*35:01	1	708	716	9	SIAIPTNFT	9.7e-05	25
HLA-A*11:01	1	713	721	9	TNFTISVTT	9.7e-05	22
HLA-A*68:01	1	729	737	9	TKTSVDCTM	9.7e-05	32
HLA-B*08:01	1	730	738	9	KTSVDCTMY	9.7e-05	48
HLA-B*44:03	1	754	762	9	GSFCTQLNR	9.7e-05	22
HLA-B*57:01	1	755	763	9	SFCTQLNRA	9.7e-05	48
HLA-A*24:02	1	783	792	10	KQIYKTPPIK	9.7e-05	21
HLA-A*24:02	1	803	812	10	LPDPSKPSKR	9.7e-05	21
HLA-B*35:01	1	810	818	9	SKRSFIEDL	9.7e-05	25
HLA-A*26:01	1	839	847	9	GDIAARDLI	9.7e-05	30
HLA-A*02:03	1	843	852	10	ARDLICAQKF	9.7e-05	37
HLA-A*01:01	1	850	859	10	QKFNGLTVLP	9.7e-05	49
HLA-B*35:01	1	856	865	10	TVLPPLLTDE	9.7e-05	25
HLA-A*33:01	1	873	881	9	ALLAGTITS	9.7e-05	36
HLA-A*68:01	1	923	931	9	QFNSAIGKI	9.7e-05	32
HLA-B*58:01	1	928	937	10	IGKIQDSLSS	9.7e-05	37
HLA-A*11:01	1	939	948	10	ASALGKLQDV	9.7e-05	22
HLA-A*26:01	1	946	954	9	QDVVNQNAQ	9.7e-05	30
HLA-B*44:03	1	947	955	9	DVVVNQNAQA	9.7e-05	22
HLA-B*44:03	1	962	970	9	QLSSNFGAI	9.7e-05	22
HLA-B*35:01	1	971	980	10	SSVLNDILSR	9.7e-05	25
HLA-A*01:01	1	974	982	9	LNDILSRDL	9.7e-05	49
HLA-B*44:02	1	989	997	9	QIDRLITGR	9.7e-05	23
HLA-B*58:01	1	998	1006	9	LQSLQTYVT	9.7e-05	37
HLA-A*68:01	1	1012	1021	10	AAEIRASANL	9.7e-05	32
HLA-A*03:01	1	1016	1024	9	RASANLAAT	9.7e-05	29
HLA-B*07:02	1	1018	1027	10	SANLAATKMS	9.7e-05	32
HLA-A*68:01	1	1024	1033	10	TKMSECVLGQ	9.7e-05	32
HLA-B*08:01	1	1027	1035	9	SECVLGQSK	9.7e-05	48
HLA-A*68:02	1	1071	1080	10	NFTTAPAICH	9.7e-05	37
HLA-A*26:01	1	1075	1083	9	APAICHDGK	9.7e-05	30
HLA-B*53:01	1	1103	1112	10	QRNFYEPQII	9.7e-05	24
HLA-B*07:02	1	1120	1129	10	SGNCDVVIGI	9.7e-05	32
HLA-A*30:01	1	1124	1132	9	DVIVIGIVNN	9.7e-05	59
HLA-B*53:01	1	1129	1138	10	IVNNTVYDPL	9.7e-05	24
HLA-B*51:01	1	1147	1155	9	EELDKYFKN	9.7e-05	43
HLA-A*01:01	1	1164	1172	9	GDISGINAS	9.7e-05	49
HLA-A*31:01	1	1164	1173	10	GDISGINASV	9.7e-05	36
HLA-A*31:01	1	1197	1205	9	LQELGKYEQ	9.7e-05	36
HLA-A*31:01	1	1244	1252	9	CCSCGSCCK	9.7e-05	36
HLA-B*58:01	1	1252	1260	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	FHAIHVSGT	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	NVVIKVCEFQ	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-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	244	252	9	SYLTPGDSS	9.6e-05	49
HLA-A*33:01	1	250	258	9	DSSSGWTAG	9.6e-05	37
HLA-A*11:01	1	255	264	10	WTAGAAAYYV	9.6e-05	22
HLA-A*02:03	1	261	270	10	AYYVGYLQPR	9.6e-05	37
HLA-B*57:01	1	275	283	9	KYNENGTIT	9.6e-05	48
HLA-B*40:01	1	278	286	9	ENGTITDAV	9.6e-05	20
HLA-A*02:03	1	284	293	10	DAVDCALDPL	9.6e-05	37
HLA-B*07:02	1	302	310	9	SFTVEKGIY	9.6e-05	32
HLA-A*68:01	1	322	331	10	SIVRFPNITN	9.6e-05	32
HLA-B*44:03	1	324	333	10	VRFPNITNLC	9.6e-05	22



HLA-B*53:01	1	374	383	10	FKCYGVSPTK	9.6e-05	24
HLA-A*30:02	1	380	388	9	SPTKLNLDLC	9.6e-05	57
HLA-B*40:01	1	390	398	9	TNVYADSFV	9.6e-05	20
HLA-A*11:01	1	392	401	10	VYADSFVIRG	9.6e-05	22
HLA-A*68:02	1	399	408	10	IRGDEVRQIA	9.6e-05	37
HLA-A*68:01	1	422	430	9	LPDDFTGCV	9.6e-05	32
HLA-B*53:01	1	431	439	9	IAWNSNLD	9.6e-05	24
HLA-A*02:01	1	442	450	9	VGGNYNYLY	9.6e-05	34
HLA-B*44:03	1	464	472	9	DISTEIQQA	9.6e-05	22
HLA-A*32:01	1	479	488	10	GVKGFNCYFP	9.6e-05	27
HLA-A*32:01	1	498	507	10	YGVGYQPYRV	9.6e-05	27
HLA-A*02:01	1	503	511	9	QPYRVVVL	9.6e-05	34
HLA-A*30:02	1	513	522	10	ELLHAPATVC	9.6e-05	57
HLA-B*35:01	1	522	530	9	CGPKKSTNL	9.6e-05	25
HLA-B*53:01	1	522	530	9	CGPKKSTNL	9.6e-05	24
HLA-A*02:03	1	560	568	9	QQFGRDIAD	9.6e-05	37
HLA-A*33:01	1	562	570	9	FGRDIADTT	9.6e-05	37
HLA-A*68:01	1	569	578	10	TTDAVRDPQT	9.6e-05	32
HLA-A*68:01	1	587	596	10	CSFGGVSVIT	9.6e-05	32
HLA-A*30:01	1	661	670	10	IPIGAGICAS	9.6e-05	59
HLA-A*31:01	1	675	684	10	TNSPRRARSV	9.6e-05	36
HLA-A*02:06	1	729	738	10	TKTSVDCTMY	9.6e-05	44
HLA-B*35:01	1	737	745	9	MYICGDSTE	9.6e-05	25
HLA-B*53:01	1	759	767	9	QLNRALTGI	9.6e-05	24
HLA-B*35:01	1	768	776	9	AVEQDKNTQ	9.6e-05	25
HLA-B*44:03	1	774	783	10	NTQEVFAQVK	9.6e-05	22
HLA-B*58:01	1	775	784	10	TQEVFAQVKQ	9.6e-05	37
HLA-A*02:01	1	795	804	10	GGFNFSQILP	9.6e-05	34
HLA-A*68:01	1	805	813	9	DPSKPSKRS	9.6e-05	32
HLA-A*31:01	1	810	819	10	SKRSFIEDLL	9.6e-05	36
HLA-B*51:01	1	813	822	10	SFIEDLLFNK	9.6e-05	43
HLA-A*11:01	1	815	823	9	IEDLLFNKV	9.6e-05	22
HLA-A*01:01	1	820	828	9	FNKVTLADA	9.6e-05	49
HLA-B*07:02	1	834	842	9	YGDCLGDIA	9.6e-05	32
HLA-A*30:02	1	838	847	10	LGDIAARDLI	9.6e-05	57
HLA-B*53:01	1	840	848	9	DIAARDLIC	9.6e-05	24
HLA-A*01:01	1	841	850	10	IAARDLICAQ	9.6e-05	49
HLA-A*02:03	1	871	880	10	TSALLAGTIT	9.6e-05	37
HLA-A*68:02	1	877	886	10	GTITSGWTFG	9.6e-05	37
HLA-A*01:01	1	884	892	9	TFGAGAALQ	9.6e-05	49
HLA-A*26:01	1	888	896	9	GAALQIPFA	9.6e-05	30
HLA-B*53:01	1	902	910	9	RFNGIGVTQ	9.6e-05	24
HLA-A*68:02	1	910	918	9	QNVLYENQK	9.6e-05	37
HLA-B*07:02	1	954	962	9	QALNTLVKQ	9.6e-05	32
HLA-B*58:01	1	959	968	10	LVKQLSSNFG	9.6e-05	37
HLA-B*08:01	1	994	1003	10	ITGRLQSLQT	9.6e-05	49
HLA-B*58:01	1	997	1006	10	RLQSLQTYVT	9.6e-05	37
HLA-A*33:01	1	998	1007	10	LQSLQTYVTQ	9.6e-05	37
HLA-A*33:01	1	1042	1051	10	KGYHLMSFPQ	9.6e-05	37
HLA-B*44:02	1	1065	1073	9	VPAQEKNFT	9.6e-05	23
HLA-B*58:01	1	1068	1076	9	QEKNFTTAP	9.6e-05	37
HLA-B*15:01	1	1103	1112	10	QRNFYEPQII	9.6e-05	35
HLA-A*02:03	1	1170	1178	9	NASVVNIQK	9.6e-05	37
HLA-B*15:01	1	1173	1182	10	VVNIQKEIDR	9.6e-05	35
HLA-B*58:01	1	1177	1186	10	QKEIDRLNEV	9.6e-05	37
HLA-A*11:01	1	1203	1211	9	YEQYIKWPW	9.6e-05	22
HLA-A*02:06	1	1209	1217	9	WPWYIWLGF	9.6e-05	44
HLA-A*33:01	1	1215	1223	9	LGFIAGLIA	9.6e-05	37
HLA-A*23:01	1	1217	1225	9	FIAGLIAIV	9.6e-05	22
HLA-B*08:01	1	1218	1227	10	IAGLIAIVMV	9.6e-05	49
HLA-A*02:01	1	1226	1234	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-B*44:02	1	91	100	10	YFASTEKSNI	9.5e-05	23
HLA-A*33:01	1	114	122	9	TQSLILVNN	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-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*57:01	1	236	244	9	TRFQTLHRS	9.5e-05	48
HLA-B*51:01	1	248	257	10	PGDSSSGWTA	9.5e-05	43
HLA-B*07:02	1	250	259	10	DSSSGWTAGA	9.5e-05	32
HLA-A*32:01	1	253	261	9	SGWTAGAAA	9.5e-05	27
HLA-A*01:01	1	261	270	10	AYYVGYLQPR	9.5e-05	50
HLA-A*02:03	1	270	278	9	RTFLLKYNE	9.5e-05	37
HLA-B*53:01	1	285	293	9	AVDCALDPL	9.5e-05	24
HLA-A*68:02	1	298	306	9	CTLKSFTVE	9.5e-05	37
HLA-A*33:01	1	328	337	10	NITNLCPFGE	9.5e-05	37
HLA-A*30:02	1	332	341	10	LCPFGEVFNA	9.5e-05	57
HLA-A*30:01	1	361	370	10	DYSVLYNAS	9.5e-05	60
HLA-A*02:03	1	365	373	9	LYNSASFST	9.5e-05	37
HLA-B*07:02	1	395	404	10	DSFVIRGDEV	9.5e-05	32
HLA-A*33:01	1	419	428	10	NYKLPDDFTG	9.5e-05	37
HLA-B*51:01	1	420	428	9	YKLPDDFTG	9.5e-05	43
HLA-A*23:01	1	434	442	9	NSNNLDSKV	9.5e-05	22
HLA-B*53:01	1	444	453	10	GNYNLYRLF	9.5e-05	24
HLA-A*02:03	1	458	467	10	LKPFERDIST	9.5e-05	37
HLA-A*30:02	1	473	482	10	GSTPCNGVKG	9.5e-05	57
HLA-A*33:01	1	489	497	9	LQSYGFQPT	9.5e-05	37
HLA-B*40:01	1	491	500	10	SYGFQPTYGV	9.5e-05	20
HLA-B*51:01	1	497	506	10	TYGVGYQPYR	9.5e-05	43
HLA-B*35:01	1	507	516	10	VVLSFELLH	9.5e-05	25
HLA-A*68:01	1	520	529	10	TVCGPKKSTN	9.5e-05	32
HLA-B*15:01	1	525	534	10	KKSTNLVKNK	9.5e-05	35
HLA-B*15:01	1	559	568	10	FQQFGRDIAD	9.5e-05	35
HLA-B*07:02	1	564	572	9	RDIADTTDA	9.5e-05	32
HLA-A*30:01	1	568	577	10	DTTDAVRDPQ	9.5e-05	60
HLA-B*08:01	1	568	576	9	DTTDAVRDP	9.5e-05	49
HLA-A*30:01	1	578	586	9	TLEILDITP	9.5e-05	60
HLA-B*07:02	1	581	590	10	ILDITPCSFG	9.5e-05	32
HLA-A*33:01	1	598	607	10	GTNTSNQVAV	9.5e-05	37
HLA-B*44:03	1	598	606	9	GTNTSNQVA	9.5e-05	22
HLA-A*24:02	1	612	621	10	VNCTEVPVAI	9.5e-05	21
HLA-A*02:06	1	691	700	10	AYTMSLGVEN	9.5e-05	45
HLA-A*02:06	1	703	712	10	AYSNNSIAIP	9.5e-05	45
HLA-B*57:01	1	735	744	10	CTMYICGDST	9.5e-05	48
HLA-A*01:01	1	767	775	9	IAVEQDKNT	9.5e-05	50
HLA-B*15:01	1	767	776	10	IAVEQDKNTQ	9.5e-05	35
HLA-B*53:01	1	778	787	10	VFAQVKQIYK	9.5e-05	24
HLA-A*31:01	1	801	810	10	QILPDPSKPS	9.5e-05	36
HLA-A*24:02	1	802	810	9	ILPDPSKPS	9.5e-05	21
HLA-B*57:01	1	827	835	9	DAGFIKQYG	9.5e-05	48
HLA-A*68:02	1	842	850	9	AARDLICAQ	9.5e-05	37
HLA-B*44:03	1	847	855	9	ICAQKFNGL	9.5e-05	22
HLA-A*31:01	1	852	861	10	FNGLTVLPPL	9.5e-05	36
HLA-A*31:01	1	862	871	10	LTDEMIAQYT	9.5e-05	36
HLA-B*44:02	1	868	877	10	AQYTSALLAG	9.5e-05	23

HLA-A*03:01	1	870	878	9	YTSALLAGT	9.5e-05	29
HLA-A*02:06	1	879	888	10	ITSGWTFGAG	9.5e-05	45
HLA-A*03:01	1	885	893	9	FGAGAAALQI	9.5e-05	29
HLA-B*35:01	1	892	900	9	QIPFAMQMA	9.5e-05	25
HLA-A*32:01	1	932	941	10	QDLSSTASA	9.5e-05	27
HLA-A*31:01	1	955	964	10	ALNTLVKQLS	9.5e-05	36
HLA-B*07:02	1	959	968	10	LVKQLSSNFG	9.5e-05	32
HLA-B*44:02	1	1007	1016	10	QLLIRAAEIR	9.5e-05	23
HLA-B*53:01	1	1008	1016	9	QLIRAAEIR	9.5e-05	24
HLA-A*01:01	1	1011	1020	10	RAAEIRASAN	9.5e-05	50
HLA-B*44:02	1	1028	1036	9	ECVLGQSKR	9.5e-05	23
HLA-A*02:01	1	1044	1052	9	YHLMSFPQS	9.5e-05	34
HLA-A*02:01	1	1050	1059	10	PQSAPHGVVF	9.5e-05	34
HLA-A*30:01	1	1059	1068	10	FLHVTVVPAQ	9.5e-05	60
HLA-A*68:01	1	1070	1078	9	KNFTTAPAI	9.5e-05	32
HLA-A*68:01	1	1086	1095	10	FPREGVFVSN	9.5e-05	32
HLA-B*15:01	1	1101	1109	9	VTQRNFYEP	9.5e-05	35
HLA-B*40:01	1	1125	1133	9	VVIGIVNNT	9.5e-05	20
HLA-B*53:01	1	1140	1149	10	PELDSFKEEL	9.5e-05	24
HLA-B*44:03	1	1153	1161	9	FKNHTSPDV	9.5e-05	22
HLA-A*30:02	1	1175	1184	10	NIQKEIDRLN	9.5e-05	57
HLA-A*03:01	1	1193	1201	9	SLIDLQELG	9.5e-05	29
HLA-A*11:01	1	1213	1221	9	IWLGFIAGL	9.5e-05	22
HLA-A*23:01	1	1222	1231	10	IAIVMVTIML	9.5e-05	22
HLA-B*08:01	1	12	20	9	SSQCVNLTT	9.4e-05	49
HLA-B*51:01	1	14	22	9	QCVNLTTTR	9.4e-05	43
HLA-A*02:03	1	31	39	9	SFTRGVVYP	9.4e-05	37
HLA-A*31:01	1	32	40	9	FTRGVYYPD	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	SNVTFHAIH	9.4e-05	37
HLA-B*35:01	1	64	72	9	WFHAIHVS	9.4e-05	25
HLA-A*03:01	1	70	79	10	VSGTNGTKRF	9.4e-05	29
HLA-A*24:02	1	76	84	9	TKRFANPVL	9.4e-05	21
HLA-B*58:01	1	81	90	10	NPVLPFNDGV	9.4e-05	37
HLA-A*31:01	1	103	112	10	GWIFGTTLDS	9.4e-05	36
HLA-A*01:01	1	114	122	9	TQSLLVNN	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	CNDPFLGVYV	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*11:01	1	208	216	9	TPINLVRGL	9.4e-05	22
HLA-A*02:03	1	225	234	10	PLVDLPIGIN	9.4e-05	37
HLA-B*58:01	1	282	291	10	ITDAVDCALD	9.4e-05	37
HLA-A*33:01	1	287	296	10	DCALDPLSET	9.4e-05	37
HLA-B*15:01	1	324	333	10	VRFPNITNLC	9.4e-05	35
HLA-A*24:02	1	331	340	10	NLCPFGEVFN	9.4e-05	21
HLA-A*68:02	1	334	342	9	PFGEVFNAT	9.4e-05	37
HLA-B*07:02	1	357	366	10	NCVADYSVLY	9.4e-05	32
HLA-B*51:01	1	364	373	10	VLYNSASFST	9.4e-05	43
HLA-B*51:01	1	411	420	10	QTGNIADYNY	9.4e-05	43
HLA-A*24:02	1	432	440	9	AWNSNNLDS	9.4e-05	21
HLA-A*01:01	1	459	468	10	KPFERDISTE	9.4e-05	50
HLA-B*44:02	1	490	499	10	QSYGFQPTYG	9.4e-05	23
HLA-A*26:01	1	502	511	10	YQPYRVVVL	9.4e-05	30
HLA-B*40:01	1	508	516	9	VVLSFELLH	9.4e-05	20
HLA-A*03:01	1	509	518	10	VLSFELLHAP	9.4e-05	29

HLA-A*02:01	1	516	524	9	HAPATVCGP	9.4e-05	35
HLA-A*11:01	1	520	528	9	TVCGPKKST	9.4e-05	22
HLA-A*24:02	1	522	531	10	CGPKKSTNLV	9.4e-05	21
HLA-A*02:01	1	526	534	9	KSTNLVKNK	9.4e-05	35
HLA-B*44:02	1	528	536	9	TNLVKNKCV	9.4e-05	23
HLA-A*11:01	1	534	543	10	KCVNFNFNGL	9.4e-05	22
HLA-A*03:01	1	551	560	10	ESNKKFLPFQ	9.4e-05	29
HLA-A*32:01	1	566	574	9	IADTTDAVR	9.4e-05	27
HLA-A*23:01	1	581	590	10	ILDITPCSFQ	9.4e-05	22
HLA-A*01:01	1	589	597	9	FGGVSVITP	9.4e-05	50
HLA-B*57:01	1	602	611	10	SNQVAVLYQG	9.4e-05	49
HLA-A*30:01	1	605	613	9	VAVLYQGVN	9.4e-05	60
HLA-A*31:01	1	614	623	10	CTEVPVAIHA	9.4e-05	36
HLA-B*07:02	1	636	644	9	GSNVFTQTRA	9.4e-05	32
HLA-B*08:01	1	644	653	10	AGCLIGAHEV	9.4e-05	49
HLA-A*30:02	1	656	664	9	SYECDIPIG	9.4e-05	57
HLA-B*51:01	1	658	666	9	ECDIPIGAG	9.4e-05	43
HLA-B*57:01	1	665	673	9	AGICASYQT	9.4e-05	49
HLA-A*02:03	1	677	685	9	SPRRARSVA	9.4e-05	37
HLA-A*68:02	1	686	695	10	SQSIIAYTMS	9.4e-05	37
HLA-B*08:01	1	692	700	9	YTMSLGVEN	9.4e-05	49
HLA-B*51:01	1	696	705	10	LGVENSVAYS	9.4e-05	43
HLA-A*32:01	1	722	731	10	EILPVSMTKT	9.4e-05	27
HLA-A*32:01	1	753	762	10	YGSFCTQLNR	9.4e-05	27
HLA-B*51:01	1	754	762	9	GSFCTQLNR	9.4e-05	43
HLA-A*01:01	1	794	803	10	FGGFNFSQIL	9.4e-05	50
HLA-A*02:01	1	803	812	10	LPDPSKPSKR	9.4e-05	35
HLA-A*31:01	1	819	828	10	LFNKVTLADA	9.4e-05	36
HLA-A*31:01	1	841	850	10	IAARDLICAQ	9.4e-05	36
HLA-B*35:01	1	867	876	10	IAQYTSALLA	9.4e-05	25
HLA-B*57:01	1	885	894	10	FGAGAALQIP	9.4e-05	49
HLA-B*58:01	1	890	898	9	ALQIPFAMQ	9.4e-05	37
HLA-A*30:01	1	903	911	9	FNGIGVTQN	9.4e-05	60
HLA-B*15:01	1	943	952	10	GKLQDVVNQN	9.4e-05	35
HLA-B*58:01	1	957	966	10	NTLVKQLSSN	9.4e-05	37
HLA-A*31:01	1	978	987	10	LSRLDKVEAE	9.4e-05	36
HLA-B*08:01	1	981	989	9	LDKVEAEVQ	9.4e-05	49
HLA-B*57:01	1	982	990	9	DKVEAEVQI	9.4e-05	49
HLA-A*02:06	1	986	995	10	AEVQIDRLIT	9.4e-05	45
HLA-A*01:01	1	988	996	9	VQIDRLITG	9.4e-05	50
HLA-A*02:01	1	999	1007	9	QSLQTYVTQ	9.4e-05	35
HLA-B*57:01	1	1012	1020	9	AAEIRASAN	9.4e-05	49
HLA-B*15:01	1	1027	1036	10	SECVLGQSKR	9.4e-05	35
HLA-B*53:01	1	1040	1049	10	CGKGYHLMSF	9.4e-05	24
HLA-A*33:01	1	1057	1066	10	VVFLHVITYVP	9.4e-05	37
HLA-A*01:01	1	1058	1066	9	VFLHVITYVP	9.4e-05	50
HLA-A*33:01	1	1073	1081	9	TTAPAICHD	9.4e-05	37
HLA-A*01:01	1	1075	1084	10	APAICHDGKA	9.4e-05	50
HLA-A*30:02	1	1086	1094	9	FPREGVFVS	9.4e-05	57
HLA-B*51:01	1	1097	1105	9	THWFVTQRN	9.4e-05	43
HLA-A*68:02	1	1099	1107	9	WFVTQRNFY	9.4e-05	37
HLA-B*57:01	1	1105	1113	9	NFYEQIIT	9.4e-05	49
HLA-A*68:02	1	1137	1145	9	PLQPELDSF	9.4e-05	37
HLA-B*40:01	1	1143	1152	10	DSFKEELDKY	9.4e-05	20
HLA-A*68:02	1	1145	1153	9	FKEELDKYF	9.4e-05	37
HLA-B*58:01	1	1146	1154	9	KEELDKYFK	9.4e-05	37
HLA-A*32:01	1	1156	1164	9	HTSPDVDLG	9.4e-05	27
HLA-B*44:02	1	1179	1188	10	EIDRLNEVAK	9.4e-05	23
HLA-A*23:01	1	1187	1195	9	AKNLNESLI	9.4e-05	22
HLA-A*31:01	1	1223	1232	10	AIVMVTIMLC	9.4e-05	36
HLA-A*31:01	1	1225	1234	10	VMVTIMLCCM	9.4e-05	36
HLA-A*31:01	1	59	68	10	FSNVTWFHAI	9.3e-05	36
HLA-B*51:01	1	76	85	10	TKRFANPVLV	9.3e-05	43
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	VNNATNVVIK	9.3e-05	35
HLA-A*02:03	1	126	134	9	VVIKVEFQ	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*01:01	1	212	221	10	LVRGLPQGFS	9.3e-05	50
HLA-B*58:01	1	238	247	10	FQTLHRSYLT	9.3e-05	37
HLA-A*02:01	1	243	252	10	RSYLTPGDSS	9.3e-05	35
HLA-A*03:01	1	245	253	9	YLTPGDSSS	9.3e-05	29
HLA-A*03:01	1	268	277	10	QPRTFLLKYN	9.3e-05	29
HLA-B*15:01	1	303	312	10	FTVEKGIYQT	9.3e-05	35
HLA-A*33:01	1	326	335	10	FPNITNLCPF	9.3e-05	37
HLA-A*11:01	1	333	341	9	CPFGEVFNA	9.3e-05	22
HLA-B*53:01	1	340	349	10	NATRFASVYA	9.3e-05	24
HLA-A*30:02	1	428	437	10	GCVIAWNSNN	9.3e-05	57
HLA-A*02:06	1	473	481	9	GSTPCNGVK	9.3e-05	45
HLA-B*40:01	1	474	483	10	STPCNGVKGF	9.3e-05	20
HLA-A*30:02	1	505	513	9	YRVVLSFE	9.3e-05	57
HLA-B*08:01	1	508	517	10	VVLSFELLHA	9.3e-05	49
HLA-B*58:01	1	522	531	10	CGPKKSTNLV	9.3e-05	37
HLA-B*51:01	1	534	543	10	KCVNFNFNGL	9.3e-05	43
HLA-A*01:01	1	535	544	10	CVNFNFNGLT	9.3e-05	50
HLA-B*53:01	1	538	546	9	FNFNGLTGT	9.3e-05	24
HLA-A*68:01	1	543	552	10	LTGTGVLTES	9.3e-05	32
HLA-B*07:02	1	547	555	9	GVLTESNKK	9.3e-05	32
HLA-A*31:01	1	569	578	10	TTDAVRDPQT	9.3e-05	36
HLA-A*68:02	1	584	593	10	ITPCSFGGVS	9.3e-05	37
HLA-B*58:01	1	588	597	10	SFGGVSVITP	9.3e-05	37
HLA-A*26:01	1	608	617	10	LYQGVNCTEV	9.3e-05	30
HLA-A*68:02	1	615	624	10	TEVPVAIHAD	9.3e-05	37
HLA-A*68:01	1	620	628	9	AIHADQLTP	9.3e-05	32
HLA-B*44:02	1	639	647	9	VFQTRAGCL	9.3e-05	24
HLA-B*58:01	1	656	665	10	SYECDIPIGA	9.3e-05	37
HLA-B*58:01	1	661	669	9	IPIGAGICA	9.3e-05	37
HLA-B*08:01	1	669	677	9	ASYQTQTN	9.3e-05	49
HLA-B*08:01	1	671	680	10	YQTQTNsprr	9.3e-05	49
HLA-A*32:01	1	672	681	10	QTQTNsprr	9.3e-05	27
HLA-B*40:01	1	677	685	9	SPRRARSVA	9.3e-05	20
HLA-B*07:02	1	710	718	9	AIPTNFTIS	9.3e-05	32
HLA-A*32:01	1	724	733	10	LPVSMKTsv	9.3e-05	27
HLA-B*53:01	1	745	754	10	ECSNLLLQYG	9.3e-05	24
HLA-A*32:01	1	750	759	10	LLQYGSFCTQ	9.3e-05	27
HLA-A*68:01	1	755	763	9	SFCTQLNRA	9.3e-05	32
HLA-A*31:01	1	761	769	9	NRALTGIIV	9.3e-05	36
HLA-B*08:01	1	774	783	10	NTQEVFAQVK	9.3e-05	49
HLA-A*02:01	1	807	815	9	SKPSKRSFI	9.3e-05	35
HLA-A*31:01	1	854	863	10	GLTVLPPLLT	9.3e-05	36
HLA-A*02:03	1	855	864	10	LTVLPPLLTD	9.3e-05	37
HLA-A*03:01	1	867	875	9	IAQYTSALL	9.3e-05	29
HLA-A*23:01	1	888	897	10	GAALQIPFAM	9.3e-05	22
HLA-B*53:01	1	903	912	10	FNGIGVTQNV	9.3e-05	24
HLA-A*68:02	1	929	938	10	GKIQDSLST	9.3e-05	37
HLA-A*68:01	1	944	952	9	KLQDVVNQN	9.3e-05	32
HLA-B*35:01	1	987	995	9	EVQIDRLIT	9.3e-05	25
HLA-A*24:02	1	989	998	10	QIDRLITGRL	9.3e-05	21
HLA-B*07:02	1	999	1007	9	QSLQTYVTQ	9.3e-05	32
HLA-A*32:01	1	1013	1022	10	AEIRASANLA	9.3e-05	27
HLA-B*07:02	1	1027	1036	10	SECVLGQSKR	9.3e-05	32
HLA-A*23:01	1	1042	1051	10	KGYHLMSFPQ	9.3e-05	22

HLA-A*24:02	1	1079	1087	9	CHDGKAHFP	9.3e-05	21
HLA-A*31:01	1	1080	1089	10	HDGKAHFPRE	9.3e-05	36
HLA-A*31:01	1	1094	1102	9	SNGTHWFVT	9.3e-05	36
HLA-B*44:03	1	1126	1135	10	VIGIVNNTVY	9.3e-05	22
HLA-A*33:01	1	1129	1138	10	IVNNTVYDPL	9.3e-05	37
HLA-A*30:02	1	1131	1140	10	NNTVYDPLQP	9.3e-05	57
HLA-B*44:03	1	1154	1163	10	KNHTSPDVDL	9.3e-05	22
HLA-A*30:02	1	1162	1171	10	DLGDISGINA	9.3e-05	57
HLA-A*68:01	1	1164	1173	10	GDISGINASV	9.3e-05	32
HLA-B*44:02	1	1180	1188	9	IDRLNEVAK	9.3e-05	24
HLA-A*30:02	1	1201	1210	10	GKYEQYIKWP	9.3e-05	57
HLA-A*68:01	1	1208	1217	10	KWPWYIWLGF	9.3e-05	32
HLA-A*31:01	1	1215	1224	10	LGFIAGLIAI	9.3e-05	36
HLA-A*24:02	1	1219	1227	9	AGLIAIVMV	9.3e-05	21
HLA-A*11:01	1	1223	1232	10	AIVMVTIMLC	9.3e-05	22
HLA-A*02:06	1	1229	1238	10	IMLCCMTSCC	9.3e-05	45
HLA-A*01:01	1	1235	1243	9	TSCCSCCLKG	9.3e-05	50
HLA-A*02:06	1	1245	1253	9	CSCGSCCKF	9.3e-05	45
HLA-B*44:02	1	1252	1261	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	AIHVSGTNG	9.2e-05	30
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	ATNVVIVKVE	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-A*31:01	1	215	224	10	GLPQGFSALE	9.2e-05	37
HLA-B*53:01	1	232	241	10	GINITRFQTL	9.2e-05	24
HLA-A*02:03	1	234	242	9	NITRFQTLH	9.2e-05	38
HLA-A*03:01	1	244	253	10	SYLTPGDSSS	9.2e-05	30
HLA-B*53:01	1	250	258	9	DSSSGWTAG	9.2e-05	24
HLA-B*53:01	1	266	275	10	YLQPRTFLLK	9.2e-05	24
HLA-A*01:01	1	287	295	9	DCALDPLSE	9.2e-05	50
HLA-B*44:02	1	288	297	10	CALDPLSETK	9.2e-05	24
HLA-B*35:01	1	325	334	10	RFPNITNLCP	9.2e-05	25
HLA-A*11:01	1	334	343	10	PFGEVFNATR	9.2e-05	22
HLA-B*08:01	1	336	345	10	GEVFNATRFA	9.2e-05	49
HLA-A*24:02	1	349	357	9	AWNKRKRISN	9.2e-05	21
HLA-A*24:02	1	368	376	9	SASFSTFKC	9.2e-05	21
HLA-A*33:01	1	381	389	9	PTKLNDLCF	9.2e-05	37
HLA-A*02:06	1	408	416	9	APGQTGNIA	9.2e-05	45
HLA-A*26:01	1	412	421	10	TGNIADYNYK	9.2e-05	30
HLA-B*07:02	1	417	426	10	DYNYKLPDDF	9.2e-05	33
HLA-A*30:01	1	420	429	10	YKLPDDFTGC	9.2e-05	60
HLA-A*26:01	1	424	432	9	DDFTGCVIA	9.2e-05	30
HLA-A*30:02	1	448	457	10	YLYRLFRRKSN	9.2e-05	58
HLA-A*68:01	1	450	458	9	YRLFRRKSNL	9.2e-05	32
HLA-B*51:01	1	470	478	9	YQAGSTPCN	9.2e-05	43
HLA-A*68:01	1	485	493	9	CYFPLQSYG	9.2e-05	32
HLA-B*53:01	1	515	523	9	LHAPATVCG	9.2e-05	24
HLA-A*11:01	1	519	528	10	ATVCGPKKST	9.2e-05	22
HLA-A*26:01	1	541	549	9	NGLTGTGVL	9.2e-05	30
HLA-B*51:01	1	555	563	9	KFLPFQQFG	9.2e-05	43
HLA-A*31:01	1	564	573	10	RDIADTTDAV	9.2e-05	37
HLA-B*53:01	1	593	602	10	SVITPGTNTS	9.2e-05	24
HLA-A*02:06	1	595	604	10	ITPGTNTSNQ	9.2e-05	45
HLA-A*26:01	1	607	616	10	VLYQGVNCTE	9.2e-05	30
HLA-B*07:02	1	623	631	9	ADQLTPTWR	9.2e-05	33
HLA-B*51:01	1	662	671	10	PIGAGICASY	9.2e-05	43
HLA-A*01:01	1	665	674	10	AGICASYQTQ	9.2e-05	50

HLA-A*23:01	1	671	680	10	YQTQTNSPRR	9.2e-05	22
HLA-A*02:03	1	679	688	10	RRARSVASQS	9.2e-05	38
HLA-A*33:01	1	694	703	10	MSLGVENSVA	9.2e-05	37
HLA-B*15:01	1	697	705	9	GVENSVAYS	9.2e-05	35
HLA-A*03:01	1	710	718	9	AIPTNFTIS	9.2e-05	30
HLA-A*26:01	1	710	718	9	AIPTNFTIS	9.2e-05	30
HLA-A*68:01	1	761	769	9	NRALTGIAV	9.2e-05	32
HLA-A*03:01	1	780	789	10	AQVKQIYKTP	9.2e-05	30
HLA-A*32:01	1	792	801	10	KDFGGFNFSQ	9.2e-05	27
HLA-B*51:01	1	797	806	10	FNFSQILPDP	9.2e-05	43
HLA-B*40:01	1	803	812	10	LPDPSKPSKR	9.2e-05	20
HLA-A*68:02	1	806	815	10	PSKPSKRSFI	9.2e-05	37
HLA-B*44:03	1	808	816	9	KPSKRSFIE	9.2e-05	22
HLA-A*11:01	1	823	831	9	VTLADAGFI	9.2e-05	22
HLA-A*01:01	1	827	835	9	DAGFIKQYG	9.2e-05	50
HLA-B*57:01	1	835	844	10	GDCLGDIAAR	9.2e-05	49
HLA-B*40:01	1	838	846	9	LGDIAARDL	9.2e-05	20
HLA-A*33:01	1	841	850	10	IAARDLICAQ	9.2e-05	37
HLA-B*58:01	1	850	859	10	QKFNGLTVLP	9.2e-05	38
HLA-B*44:03	1	871	879	9	TSALLAGTI	9.2e-05	22
HLA-B*58:01	1	880	888	9	TSGWTFGAG	9.2e-05	38
HLA-A*32:01	1	888	896	9	GAALQIPFA	9.2e-05	27
HLA-B*44:02	1	890	898	9	ALQIPFAMQ	9.2e-05	24
HLA-B*44:03	1	897	905	9	MQMAYRFNG	9.2e-05	22
HLA-B*51:01	1	908	916	9	VTQNVLYEN	9.2e-05	43
HLA-B*08:01	1	910	918	9	QNVLYENQK	9.2e-05	49
HLA-B*44:02	1	941	949	9	ALGKLQDVV	9.2e-05	24
HLA-B*57:01	1	975	984	10	NDILSRLDKV	9.2e-05	49
HLA-B*51:01	1	977	986	10	ILSRLDKVEA	9.2e-05	43
HLA-A*31:01	1	986	994	9	AEVQIDRLI	9.2e-05	37
HLA-B*08:01	1	1005	1014	10	VTQQLIRAAE	9.2e-05	49
HLA-A*02:01	1	1007	1016	10	QQLIRAAEIR	9.2e-05	35
HLA-A*26:01	1	1013	1022	10	AEIRASANLA	9.2e-05	30
HLA-A*02:03	1	1024	1033	10	TKMSECVLQG	9.2e-05	38
HLA-B*44:03	1	1028	1036	9	ECVLGQSKR	9.2e-05	22
HLA-A*33:01	1	1086	1095	10	FPREGVVFVN	9.2e-05	37
HLA-B*58:01	1	1089	1098	10	EGVVFVSNQTH	9.2e-05	38
HLA-A*68:01	1	1126	1134	9	VIGIVNNTV	9.2e-05	32
HLA-B*35:01	1	1127	1136	10	IGIVNNTVYD	9.2e-05	25
HLA-B*53:01	1	1130	1138	9	VNNTVYDPL	9.2e-05	24
HLA-A*31:01	1	1151	1160	10	KYFKNHTSPD	9.2e-05	37
HLA-B*51:01	1	1167	1175	9	SGINASVVN	9.2e-05	43
HLA-B*15:01	1	1169	1177	9	INASVVNIQ	9.2e-05	35
HLA-A*23:01	1	1177	1186	10	QKEIDRLNEV	9.2e-05	22
HLA-B*58:01	1	1178	1187	10	KEIDRLNEVA	9.2e-05	38
HLA-A*24:02	1	1187	1195	9	AKNLNESLI	9.2e-05	21
HLA-A*33:01	1	1191	1200	10	NESLIDLQEL	9.2e-05	37
HLA-A*33:01	1	1193	1201	9	SLIDLQELG	9.2e-05	37
HLA-A*02:06	1	1209	1218	10	WPWYIWLGFI	9.2e-05	45
HLA-B*40:01	1	1252	1261	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*02:01	1	71	80	10	SGTNGTKRFA	9.1e-05	35
HLA-A*33:01	1	78	87	10	RFANPVLPFN	9.1e-05	37
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	ATNVVIVKVC	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-A*32:01	1	236	244	9	TRFQTLHRS	9.1e-05	27

HLA-B*58:01	1	275	283	9	KYNENGTIT	9.1e-05	38
HLA-A*33:01	1	277	285	9	NENGTITDA	9.1e-05	37
HLA-A*26:01	1	293	301	9	LSETKCTLK	9.1e-05	30
HLA-A*33:01	1	297	305	9	KCTLKSFTV	9.1e-05	37
HLA-B*15:01	1	318	327	10	QPTESIVRFP	9.1e-05	35
HLA-B*44:03	1	345	353	9	ASVYAWNRK	9.1e-05	22
HLA-A*26:01	1	356	365	10	SNCVADYSVL	9.1e-05	30
HLA-A*68:02	1	358	367	10	CVADYSVLYN	9.1e-05	38
HLA-B*58:01	1	393	402	10	YADSFVIRGD	9.1e-05	38
HLA-B*44:03	1	404	413	10	VRQIAPGQTG	9.1e-05	22
HLA-B*35:01	1	431	439	9	IAWNSNLD	9.1e-05	25
HLA-B*57:01	1	433	441	9	WNSNLDLSDK	9.1e-05	49
HLA-A*23:01	1	437	446	10	NLDSKVGNGY	9.1e-05	22
HLA-B*15:01	1	449	458	10	LYRLFRKSNL	9.1e-05	35
HLA-B*44:03	1	478	487	10	NGVKGFNCYF	9.1e-05	22
HLA-B*35:01	1	481	489	9	KGFNCYFPL	9.1e-05	25
HLA-A*68:01	1	489	497	9	LQSYGFQPT	9.1e-05	32
HLA-B*07:02	1	510	519	10	LSFELLHAPA	9.1e-05	33
HLA-A*24:02	1	534	543	10	KCVNFNFNGL	9.1e-05	21
HLA-A*11:01	1	555	563	9	KFLPFQQFG	9.1e-05	22
HLA-A*32:01	1	584	592	9	ITPCSFGGV	9.1e-05	27
HLA-B*44:03	1	603	612	10	NQVAVLYQGV	9.1e-05	22
HLA-A*02:01	1	639	648	10	VFQTRAGCLI	9.1e-05	35
HLA-A*23:01	1	681	690	10	ARSVASQSII	9.1e-05	22
HLA-A*24:02	1	683	692	10	SVASQSIIAY	9.1e-05	21
HLA-A*01:01	1	699	708	10	ENSVAYSNNNS	9.1e-05	51
HLA-B*35:01	1	700	708	9	NSVAYSNNNS	9.1e-05	25
HLA-A*31:01	1	703	712	10	AYSNNSIAIP	9.1e-05	37
HLA-A*11:01	1	705	713	9	SNNSIAIPT	9.1e-05	22
HLA-B*51:01	1	710	718	9	AIPTNFTIS	9.1e-05	44
HLA-B*44:03	1	731	739	9	TSVDCTMYI	9.1e-05	22
HLA-A*33:01	1	749	757	9	LLLQYGSFC	9.1e-05	37
HLA-A*03:01	1	755	763	9	SFCTQLNRA	9.1e-05	30
HLA-A*31:01	1	758	766	9	TQLNRALTG	9.1e-05	37
HLA-A*33:01	1	800	809	10	SQILPDPSKP	9.1e-05	37
HLA-A*02:03	1	803	811	9	LPDPSKPSK	9.1e-05	38
HLA-A*31:01	1	808	816	9	KPSKRSEFIE	9.1e-05	37
HLA-A*68:02	1	813	821	9	SFIEDLLFN	9.1e-05	38
HLA-A*68:02	1	819	828	10	LFNKVTLADA	9.1e-05	38
HLA-B*35:01	1	826	835	10	ADAGFIKQYG	9.1e-05	25
HLA-A*68:02	1	834	843	10	YGDCLGDIAA	9.1e-05	38
HLA-A*23:01	1	838	846	9	LGDIAARDL	9.1e-05	22
HLA-A*24:02	1	870	879	10	YTSALLAGTI	9.1e-05	21
HLA-A*68:01	1	877	886	10	GTITSGWTFG	9.1e-05	32
HLA-B*44:02	1	882	891	10	GWTFGAGAAL	9.1e-05	24
HLA-A*11:01	1	892	900	9	QIPFAMQMA	9.1e-05	22
HLA-A*23:01	1	901	909	9	YRFNGIGVT	9.1e-05	22
HLA-B*53:01	1	901	910	10	YRFNGIGVTQ	9.1e-05	24
HLA-A*68:02	1	935	943	9	LSSTASALG	9.1e-05	38
HLA-B*44:02	1	936	944	9	SSTASALGK	9.1e-05	24
HLA-B*58:01	1	947	956	10	DVVNQNAQAL	9.1e-05	38
HLA-A*68:01	1	969	978	10	AISSVLNDIL	9.1e-05	32
HLA-A*33:01	1	970	978	9	ISSVLNDIL	9.1e-05	37
HLA-B*58:01	1	973	982	10	VLNDILSRLD	9.1e-05	38
HLA-A*03:01	1	976	984	9	DILSRLDKV	9.1e-05	30
HLA-A*33:01	1	978	987	10	LSRLDKVEAE	9.1e-05	37
HLA-A*33:01	1	995	1003	9	TGRLQSLQT	9.1e-05	37
HLA-A*11:01	1	1005	1014	10	VTQQLIRAAE	9.1e-05	22
HLA-A*31:01	1	1013	1022	10	AEIRASANLA	9.1e-05	37
HLA-A*02:01	1	1016	1025	10	RASANLAATK	9.1e-05	35
HLA-B*08:01	1	1018	1027	10	SANLAATKMS	9.1e-05	49
HLA-A*68:02	1	1032	1040	9	GQSKRVDFC	9.1e-05	38
HLA-B*58:01	1	1038	1047	10	DFCGKGYHLM	9.1e-05	38
HLA-B*08:01	1	1047	1056	10	MSFPQSAPHG	9.1e-05	49
HLA-A*03:01	1	1067	1076	10	AQEKNFTTAP	9.1e-05	30
HLA-B*53:01	1	1095	1103	9	NGTHWFVTQ	9.1e-05	24



HLA-A*02:03	1	1137	1146	10	PLQPELDSFK	9.1e-05	38
HLA-A*68:02	1	1169	1177	9	INASVVNIQ	9.1e-05	38
HLA-A*31:01	1	1196	1205	10	DLQELGKYEQ	9.1e-05	37
HLA-B*07:02	1	1204	1213	10	EQYIKWPWYI	9.1e-05	33
HLA-A*68:01	1	1207	1215	9	IKWPWYIWL	9.1e-05	32
HLA-A*01:01	1	1219	1227	9	AGLIAIVMV	9.1e-05	51
HLA-A*30:02	1	1239	1247	9	SCLKGCCSC	9.1e-05	58
HLA-B*51:01	1	1239	1247	9	SCLKGCCSC	9.1e-05	44
HLA-A*30:02	1	1242	1250	9	KGCCSCGSC	9.1e-05	58
HLA-B*53:01	1	1252	1261	10	KFDEDDSEPV	9.1e-05	24
HLA-B*51:01	1	1262	1270	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	TQSLLVNNA	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	QPFMLDLEK	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*03:01	1	210	218	9	INLVRGLPQ	9e-05	30
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	249	257	9	GDSSSGWTA	9e-05	36
HLA-B*51:01	1	251	260	10	SSSGWTAGAA	9e-05	44
HLA-A*02:06	1	254	262	9	GWTAGAAAY	9e-05	45
HLA-A*68:01	1	260	269	10	AAYYVGYLQP	9e-05	33
HLA-B*44:03	1	260	268	9	AAYYVGYLQ	9e-05	22
HLA-A*33:01	1	281	290	10	TITDAVDCAL	9e-05	38
HLA-A*11:01	1	288	296	9	CALDPLSET	9e-05	22
HLA-A*68:01	1	291	300	10	DPLSETKCTL	9e-05	33
HLA-B*53:01	1	308	316	9	GIYQTSNFR	9e-05	24
HLA-A*31:01	1	313	322	10	SNFRVQPTES	9e-05	37
HLA-B*15:01	1	335	343	9	FGEVFNATR	9e-05	36
HLA-B*53:01	1	348	356	9	YAWNRKRIS	9e-05	24
HLA-B*40:01	1	365	374	10	LYNSASFSTF	9e-05	21
HLA-A*24:02	1	379	388	10	VSPTKLNDLC	9e-05	21
HLA-B*40:01	1	404	413	10	VRQIAPGQTG	9e-05	21
HLA-A*33:01	1	405	413	9	RQIAPGQTG	9e-05	38
HLA-B*58:01	1	409	418	10	PGQTGNIADY	9e-05	38
HLA-A*68:02	1	413	421	9	GNIADYNYK	9e-05	38
HLA-B*40:01	1	422	431	10	LPDDFTGCVI	9e-05	21
HLA-B*44:02	1	430	438	9	VIAWNSNNL	9e-05	24
HLA-A*33:01	1	453	462	10	FRKSNLKPFE	9e-05	38
HLA-A*26:01	1	454	463	10	RKSNLKPFER	9e-05	30
HLA-B*08:01	1	462	471	10	ERDISTEIQ	9e-05	50
HLA-B*35:01	1	470	478	9	YQAGSTPCN	9e-05	25
HLA-B*15:01	1	472	480	9	AGSTPCNGV	9e-05	36
HLA-B*58:01	1	565	573	9	DIADTTDAV	9e-05	38
HLA-B*53:01	1	572	580	9	AVRDPQTL	9e-05	24
HLA-A*02:01	1	579	587	9	LEILDITPC	9e-05	35
HLA-A*30:01	1	581	590	10	ILDITPCSFG	9e-05	60
HLA-B*08:01	1	597	605	9	PGTNTSNQV	9e-05	50
HLA-A*03:01	1	608	616	9	LYQGVNCTE	9e-05	30
HLA-B*07:02	1	612	621	10	VNCTEVPVAI	9e-05	33

HLA-A*30:02	1	636	645	10	GSNVFQTRAG	9e-05	58
HLA-B*51:01	1	637	646	10	SNVFQTRAGC	9e-05	44
HLA-B*07:02	1	642	650	9	TRAGCLIGA	9e-05	33
HLA-A*30:01	1	652	660	9	HVNNSYECD	9e-05	60
HLA-A*11:01	1	687	696	10	QSIIAYTMSL	9e-05	22
HLA-A*02:03	1	700	708	9	NSVAYSNNS	9e-05	38
HLA-A*02:03	1	717	725	9	ISVTTEILP	9e-05	38
HLA-A*23:01	1	728	737	10	MTKTSVDCTM	9e-05	22
HLA-A*30:02	1	753	761	9	YGSFCTQLN	9e-05	58
HLA-A*30:02	1	756	765	10	FCTQLNRALT	9e-05	58
HLA-A*68:01	1	759	767	9	QLNRALTGI	9e-05	33
HLA-B*44:02	1	763	771	9	ALTGIAVEQ	9e-05	24
HLA-A*02:06	1	765	773	9	TGIAVEQDK	9e-05	45
HLA-B*35:01	1	769	777	9	VEQDKNTQE	9e-05	25
HLA-A*30:02	1	809	818	10	PSKRSFIEDL	9e-05	58
HLA-B*51:01	1	809	818	10	PSKRSFIEDL	9e-05	44
HLA-A*68:02	1	811	820	10	KRSFIEDLLF	9e-05	38
HLA-B*51:01	1	824	833	10	TLADAGFIKQ	9e-05	44
HLA-A*68:01	1	830	838	9	FIKQYGDCL	9e-05	33
HLA-A*24:02	1	850	859	10	QKFNGLTVLP	9e-05	21
HLA-A*01:01	1	886	894	9	GAGAALQIP	9e-05	51
HLA-B*44:02	1	900	908	9	AYRFNGIGV	9e-05	24
HLA-A*23:01	1	902	911	10	RFNGIGVTQN	9e-05	22
HLA-A*23:01	1	910	919	10	QNVLYENQKL	9e-05	22
HLA-B*07:02	1	912	921	10	VLYENQKLIA	9e-05	33
HLA-A*02:06	1	938	946	9	TASALGKLQ	9e-05	45
HLA-B*35:01	1	957	965	9	NTLVKQLSS	9e-05	25
HLA-A*32:01	1	959	968	10	LVKQLSSNFG	9e-05	27
HLA-A*32:01	1	1006	1014	9	TQQLIRAAE	9e-05	27
HLA-B*35:01	1	1016	1025	10	RASANLAATK	9e-05	25
HLA-A*31:01	1	1019	1027	9	ANLAATKMS	9e-05	37
HLA-B*57:01	1	1019	1027	9	ANLAATKMS	9e-05	49
HLA-B*44:02	1	1028	1037	10	ECVLGQSKRV	9e-05	24
HLA-B*35:01	1	1040	1049	10	CGKGYHLMSF	9e-05	25
HLA-A*68:01	1	1050	1059	10	PQSAPHGVVF	9e-05	33
HLA-B*57:01	1	1060	1069	10	LHVTYVPAQE	9e-05	49
HLA-B*40:01	1	1072	1080	9	FTTAPAICH	9e-05	21
HLA-A*68:02	1	1074	1082	9	TAPAICHDG	9e-05	38
HLA-A*03:01	1	1121	1129	9	GNCDDVIGI	9e-05	30
HLA-B*44:02	1	1130	1138	9	VNNTVYDPL	9e-05	24
HLA-A*30:01	1	1136	1145	10	DPLQPELDSF	9e-05	60
HLA-A*30:01	1	1147	1155	9	EELDKYFKN	9e-05	60
HLA-B*53:01	1	1151	1159	9	KYFKNHTSP	9e-05	24
HLA-A*68:01	1	1157	1166	10	TSPDVDLGGI	9e-05	33
HLA-B*08:01	1	1157	1166	10	TSPDVDLGGI	9e-05	50
HLA-A*68:01	1	1162	1171	10	DLGDISGINA	9e-05	33
HLA-A*03:01	1	1171	1180	10	ASVVNIQKEI	9e-05	30
HLA-A*32:01	1	1171	1179	9	ASVVNIQKE	9e-05	27
HLA-B*57:01	1	1174	1182	9	VNIQKEIDR	9e-05	49
HLA-B*58:01	1	1227	1235	9	VTIMLCCMT	9e-05	38
HLA-A*68:01	1	1228	1236	9	TIMLCCMTS	9e-05	33
HLA-A*31:01	1	1259	1267	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	SSQCVNLTTR	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	PKVFRSSV	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	SKTQSLIIV	8.9e-05	22
HLA-B*35:01	1	122	131	10	NATNVVIKVC	8.9e-05	25
HLA-B*15:01	1	184	193	10	GNFKNLREFV	8.9e-05	36
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*24:02	1	235	243	9	ITRFQTLHR	8.9e-05	21
HLA-B*58:01	1	236	244	9	TRFQTLHRS	8.9e-05	38
HLA-A*68:01	1	264	273	10	VGYLQPRTF	8.9e-05	33
HLA-A*33:01	1	268	277	10	QPRTFLLKYN	8.9e-05	38
HLA-A*02:06	1	279	288	10	NGTITDAVDC	8.9e-05	45
HLA-A*30:02	1	287	296	10	DCALDPLSET	8.9e-05	58
HLA-A*30:01	1	291	300	10	DPLSEKCTL	8.9e-05	61
HLA-A*11:01	1	303	312	10	FTVEKGIYQT	8.9e-05	22
HLA-A*03:01	1	312	321	10	TSNFRVQPT	8.9e-05	30
HLA-B*53:01	1	325	334	10	RFPNITNLCP	8.9e-05	24
HLA-A*11:01	1	329	338	10	ITNLCPFGEV	8.9e-05	22
HLA-B*58:01	1	335	343	9	FGEVFNATR	8.9e-05	38
HLA-A*23:01	1	357	366	10	NCVADYSVLY	8.9e-05	22
HLA-A*31:01	1	390	399	10	TNVYADSFVI	8.9e-05	37
HLA-A*33:01	1	421	430	10	KLPDDFTGCV	8.9e-05	38
HLA-B*58:01	1	447	455	9	NYLYRLFRK	8.9e-05	38
HLA-A*31:01	1	461	469	9	FERDISTEI	8.9e-05	37
HLA-A*01:01	1	468	477	10	EIYQAGSTPC	8.9e-05	51
HLA-B*07:02	1	471	480	10	QAGSTPCNGV	8.9e-05	33
HLA-B*53:01	1	472	480	9	AGSTPCNGV	8.9e-05	24
HLA-A*03:01	1	482	490	9	GFNCYFPLQ	8.9e-05	30
HLA-A*23:01	1	498	507	10	YGVGYQPYRV	8.9e-05	22
HLA-A*11:01	1	499	508	10	GVGYQPYRVV	8.9e-05	22
HLA-B*53:01	1	516	525	10	HAPATVCGPK	8.9e-05	24
HLA-A*32:01	1	519	528	10	ATVCGPKKST	8.9e-05	27
HLA-A*02:03	1	526	535	10	KSTNLVKNKC	8.9e-05	38
HLA-B*58:01	1	528	536	9	TNLVKNKCV	8.9e-05	38
HLA-B*44:02	1	554	563	10	KKFLPFQFG	8.9e-05	24
HLA-A*01:01	1	567	576	10	ADTTDAVRDP	8.9e-05	51
HLA-B*57:01	1	580	588	9	EILDITPCS	8.9e-05	49
HLA-B*15:01	1	590	598	9	GGVSVITPG	8.9e-05	36
HLA-A*68:01	1	603	611	9	NQVAVLYQG	8.9e-05	33
HLA-B*57:01	1	603	611	9	NQVAVLYQG	8.9e-05	49
HLA-A*23:01	1	621	629	9	IHADQLTPT	8.9e-05	22
HLA-B*53:01	1	626	635	10	LTPTWRVYST	8.9e-05	24
HLA-B*53:01	1	630	639	10	WRVYSTGSNV	8.9e-05	24
HLA-A*11:01	1	638	646	9	NVFQTRAGC	8.9e-05	22
HLA-A*30:01	1	658	667	10	ECDIPIGAGI	8.9e-05	61
HLA-B*40:01	1	663	671	9	IGAGICASY	8.9e-05	21
HLA-A*26:01	1	672	681	10	QTQTNSPRRA	8.9e-05	31
HLA-B*44:02	1	690	698	9	IAYTMSLGV	8.9e-05	24
HLA-A*68:02	1	696	705	10	LGVENSVAYS	8.9e-05	38
HLA-A*32:01	1	717	725	9	ISVTTEILP	8.9e-05	27
HLA-B*15:01	1	717	725	9	ISVTTEILP	8.9e-05	36
HLA-A*68:02	1	726	735	10	VSMTKTSVDC	8.9e-05	38
HLA-A*30:01	1	742	751	10	DSTECSNLLL	8.9e-05	61
HLA-A*02:03	1	745	753	9	ECSNLLLQY	8.9e-05	38
HLA-A*31:01	1	749	757	9	LLLQYGSFC	8.9e-05	37
HLA-B*08:01	1	768	776	9	AVEQDKNTQ	8.9e-05	50
HLA-A*02:06	1	792	801	10	KDFGGFNFSQ	8.9e-05	45
HLA-B*57:01	1	792	800	9	KDFGGFNFS	8.9e-05	49
HLA-B*53:01	1	793	802	10	DFGGFNFSQI	8.9e-05	24
HLA-B*35:01	1	802	810	9	ILPDPSKPS	8.9e-05	25
HLA-B*44:02	1	808	816	9	KPSKRSFIE	8.9e-05	24
HLA-A*68:01	1	823	831	9	VTLADAGFI	8.9e-05	33
HLA-A*02:06	1	841	850	10	IAARDLICAQ	8.9e-05	45
HLA-B*44:02	1	850	859	10	QKFNGLTVLP	8.9e-05	24
HLA-A*32:01	1	854	863	10	GLTVLPPLL	8.9e-05	27
HLA-A*30:02	1	864	872	9	DEMIAQYTS	8.9e-05	58
HLA-A*31:01	1	867	876	10	IAQYTSALLA	8.9e-05	37
HLA-A*68:02	1	885	894	10	FGAGAALQIP	8.9e-05	38
HLA-A*23:01	1	905	913	9	GIGVTQNVL	8.9e-05	22
HLA-A*31:01	1	910	919	10	QNVLYENQKL	8.9e-05	37
HLA-A*31:01	1	914	923	10	YENQKLIANQ	8.9e-05	37
HLA-A*02:06	1	925	934	10	NSAIGKIQDS	8.9e-05	45

HLA-B*57:01	1	928	937	10	IGKIQDSLSS	8.9e-05	49
HLA-A*31:01	1	932	941	10	QDLSSTASA	8.9e-05	37
HLA-B*07:02	1	946	955	10	QDVVNQNAQA	8.9e-05	33
HLA-B*15:01	1	985	994	10	EAEVQIDRLI	8.9e-05	36
HLA-A*24:02	1	989	997	9	QIDRLITGR	8.9e-05	21
HLA-A*03:01	1	1003	1012	10	TYVTQQLIRA	8.9e-05	30
HLA-A*01:01	1	1006	1014	9	TQQLIRAAE	8.9e-05	51
HLA-B*44:02	1	1015	1023	9	IRASANLAA	8.9e-05	24
HLA-B*44:03	1	1022	1030	9	AATKMSECV	8.9e-05	23
HLA-B*15:01	1	1033	1042	10	QSKRVDFCGK	8.9e-05	36
HLA-B*57:01	1	1048	1056	9	SFPQSAPHG	8.9e-05	49
HLA-A*23:01	1	1049	1058	10	FPQSAPHGVV	8.9e-05	22
HLA-A*68:01	1	1069	1077	9	EKNFTTAPA	8.9e-05	33
HLA-B*15:01	1	1071	1080	10	NFTTAPAICH	8.9e-05	36
HLA-A*03:01	1	1095	1103	9	NGTHWFVTQ	8.9e-05	30
HLA-A*30:02	1	1128	1136	9	GIVNNTVYD	8.9e-05	58
HLA-A*31:01	1	1129	1137	9	IVNNTVYDP	8.9e-05	37
HLA-A*68:01	1	1129	1138	10	IVNNTVYDPL	8.9e-05	33
HLA-A*11:01	1	1138	1147	10	LQPELDSFKE	8.9e-05	22
HLA-A*01:01	1	1149	1158	10	LDKYFKNHTS	8.9e-05	51
HLA-B*44:02	1	1154	1163	10	KNHTSPDVDL	8.9e-05	24
HLA-B*35:01	1	1164	1173	10	GDISGINASV	8.9e-05	25
HLA-B*08:01	1	1192	1201	10	ESLIDLQELG	8.9e-05	50
HLA-A*31:01	1	1215	1223	9	LGFIAGLIA	8.9e-05	37
HLA-B*51:01	1	1255	1263	9	EDDSEPVLK	8.9e-05	44
HLA-B*51:01	1	1260	1269	10	PVLKGVKLHY	8.9e-05	44
HLA-B*08:01	1	12	21	10	SSQCVNLTR	8.8e-05	50
HLA-A*23:01	1	65	73	9	FHAIHVSQT	8.8e-05	22
HLA-B*58:01	1	104	113	10	WIFGTTLDSK	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*68:02	1	212	221	10	LVRGLPQGF	8.8e-05	38
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*31:01	1	238	247	10	FQTLHRSYLT	8.8e-05	37
HLA-B*08:01	1	240	249	10	TLHRSYLTPG	8.8e-05	50
HLA-A*68:01	1	249	257	9	GDSSSGWTA	8.8e-05	33
HLA-A*02:01	1	260	268	9	AAYYVGYLQ	8.8e-05	35
HLA-A*11:01	1	260	269	10	AAYYVGYLQP	8.8e-05	23
HLA-A*33:01	1	315	324	10	FRVQPTESIV	8.8e-05	38
HLA-B*07:02	1	330	338	9	TNLCPFGEV	8.8e-05	33
HLA-B*57:01	1	330	338	9	TNLCPFGEV	8.8e-05	50
HLA-A*23:01	1	357	365	9	NCVADYSVL	8.8e-05	22
HLA-A*24:02	1	357	366	10	NCVADYSVLY	8.8e-05	22
HLA-A*03:01	1	360	369	10	ADYSVLYNSA	8.8e-05	30
HLA-A*31:01	1	373	382	10	TFKCYGVSP	8.8e-05	37
HLA-A*30:01	1	376	385	10	CYGVSPTKLN	8.8e-05	61
HLA-B*08:01	1	389	398	10	FTNVYADSFV	8.8e-05	50
HLA-B*44:02	1	394	402	9	ADSFVIRGD	8.8e-05	24
HLA-B*44:02	1	400	409	10	RGDEVRQIAP	8.8e-05	24
HLA-A*03:01	1	408	416	9	APGQTGNIA	8.8e-05	30
HLA-B*07:02	1	410	418	9	GQTGNIAIDY	8.8e-05	33
HLA-A*31:01	1	419	427	9	NYKLPDDFT	8.8e-05	37
HLA-B*35:01	1	420	428	9	YKLPDDFTG	8.8e-05	25
HLA-A*68:01	1	424	432	9	DDFTGCVIA	8.8e-05	33
HLA-B*07:02	1	424	432	9	DDFTGCVIA	8.8e-05	33
HLA-A*24:02	1	443	452	10	GGNYNYLYRL	8.8e-05	22
HLA-B*44:03	1	452	461	10	LFRKSNLKP	8.8e-05	23
HLA-B*35:01	1	457	465	9	NLKPFERDI	8.8e-05	25
HLA-B*40:01	1	483	492	10	FNCYFPLQSY	8.8e-05	21

HLA-B*08:01	1	484	493	10	NCYFPLQSYG	8.8e-05	50
HLA-A*30:02	1	495	503	9	QPTYGVGYQ	8.8e-05	58
HLA-A*11:01	1	498	507	10	YGVGYQPYRV	8.8e-05	23
HLA-B*35:01	1	501	510	10	GYQPYRVVVL	8.8e-05	25
HLA-B*35:01	1	538	546	9	FNFNGLTGT	8.8e-05	25
HLA-B*44:02	1	539	548	10	NFNGLTGTGV	8.8e-05	24
HLA-B*07:02	1	544	552	9	TGTGVLTES	8.8e-05	33
HLA-A*31:01	1	574	582	9	RDPQTLLEIL	8.8e-05	37
HLA-A*68:02	1	595	604	10	ITPGTNTSNQ	8.8e-05	38
HLA-B*53:01	1	595	604	10	ITPGTNTSNQ	8.8e-05	24
HLA-A*31:01	1	609	617	9	YQGVNCTEV	8.8e-05	37
HLA-A*30:02	1	610	619	10	QGVNCTEVPV	8.8e-05	58
HLA-B*08:01	1	616	624	9	EVVVAIHAD	8.8e-05	50
HLA-A*33:01	1	630	639	10	WRVYSTGSNV	8.8e-05	38
HLA-B*40:01	1	635	643	9	TGSNVFQTR	8.8e-05	21
HLA-B*58:01	1	638	647	10	NVFQTRAGCL	8.8e-05	38
HLA-A*30:01	1	654	663	10	NNSYECDIPI	8.8e-05	61
HLA-B*51:01	1	668	677	10	CASYQTQTN	8.8e-05	44
HLA-A*33:01	1	681	689	9	ARSVASQSI	8.8e-05	38
HLA-B*40:01	1	686	695	10	SQSIIAYTMS	8.8e-05	21
HLA-A*31:01	1	691	700	10	AYTMSLGVEN	8.8e-05	37
HLA-A*68:01	1	702	711	10	VAYSNNISIAI	8.8e-05	33
HLA-A*03:01	1	704	712	9	YSNNSIAIP	8.8e-05	30
HLA-A*24:02	1	728	737	10	MTKTSVDCTM	8.8e-05	22
HLA-B*07:02	1	751	759	9	LQYGSFCTQ	8.8e-05	33
HLA-A*30:02	1	752	761	10	QYGSFCTQLN	8.8e-05	58
HLA-B*51:01	1	778	787	10	VFAQVKQIYK	8.8e-05	44
HLA-A*11:01	1	785	794	10	IYKTPPIKDF	8.8e-05	23
HLA-A*02:03	1	793	802	10	DFGGFNFSQI	8.8e-05	38
HLA-A*01:01	1	795	804	10	GGFNFSQILP	8.8e-05	51
HLA-A*30:01	1	840	849	10	DIAARDLICA	8.8e-05	61
HLA-A*01:01	1	852	860	9	FNGLTVLPP	8.8e-05	51
HLA-A*02:03	1	885	894	10	FGAGAALQIP	8.8e-05	38
HLA-A*31:01	1	886	895	10	GAGAALQIPF	8.8e-05	37
HLA-A*11:01	1	888	897	10	GAAALQIPFAM	8.8e-05	23
HLA-A*68:02	1	889	898	10	AALQIPFAMQ	8.8e-05	38
HLA-B*40:01	1	892	901	10	QIPFAMQMAY	8.8e-05	21
HLA-A*31:01	1	905	913	9	GIGVTQNVL	8.8e-05	37
HLA-B*35:01	1	910	919	10	QNVLYENQKL	8.8e-05	25
HLA-B*07:02	1	914	923	10	YENQKLIANQ	8.8e-05	33
HLA-A*01:01	1	929	938	10	GKIQDSLSS	8.8e-05	51
HLA-A*30:01	1	932	940	9	QDSLSS	8.8e-05	61
HLA-B*44:03	1	938	946	9	TASALGKLQ	8.8e-05	23
HLA-B*58:01	1	958	966	9	TLVKQLSSN	8.8e-05	38
HLA-B*15:01	1	963	971	9	LSSNFGAIS	8.8e-05	36
HLA-B*35:01	1	975	984	10	NDILSRDLKV	8.8e-05	25
HLA-B*58:01	1	976	984	9	DILSRDLKV	8.8e-05	38
HLA-B*57:01	1	983	991	9	KVEAEVQID	8.8e-05	50
HLA-A*31:01	1	990	998	9	IDRLITGRL	8.8e-05	37
HLA-A*31:01	1	1019	1028	10	ANLAATKMSE	8.8e-05	37
HLA-B*15:01	1	1020	1029	10	NLAATKMSEC	8.8e-05	36
HLA-A*02:03	1	1044	1052	9	YHLMSFPQS	8.8e-05	38
HLA-B*07:02	1	1056	1065	10	GVVFLHVTYV	8.8e-05	33
HLA-A*02:03	1	1069	1078	10	EKNFTTAPAI	8.8e-05	38
HLA-B*07:02	1	1069	1078	10	EKNFTTAPAI	8.8e-05	33
HLA-B*35:01	1	1081	1089	9	DGKAHFPRE	8.8e-05	25
HLA-A*11:01	1	1084	1093	10	AHFPREGV	8.8e-05	23
HLA-A*68:01	1	1104	1113	10	RNFYEQIIT	8.8e-05	33
HLA-A*24:02	1	1118	1126	9	FVSGNCDVV	8.8e-05	22
HLA-A*30:01	1	1120	1128	9	SGNCDVVIG	8.8e-05	61
HLA-A*01:01	1	1131	1139	9	NNTVYDPLQ	8.8e-05	51
HLA-B*51:01	1	1138	1147	10	LQPELDSFKE	8.8e-05	44
HLA-A*02:03	1	1155	1163	9	NHTSPDVDL	8.8e-05	38
HLA-A*02:03	1	1156	1164	9	HTSPDVDL	8.8e-05	38
HLA-A*23:01	1	1166	1174	9	ISGINASVV	8.8e-05	22
HLA-B*57:01	1	1179	1188	10	EIDRLNEVAK	8.8e-05	50

HLA-A*03:01	1	1185	1194	10	EVAKNLNESL	8.8e-05	30
HLA-A*02:01	1	1196	1204	9	DLQELGKYE	8.8e-05	35
HLA-B*40:01	1	1206	1214	9	YIKWPWYIW	8.8e-05	21
HLA-B*53:01	1	1212	1221	10	YIWLGFIAGL	8.8e-05	24
HLA-B*53:01	1	1257	1266	10	DSEPVLKGVK	8.8e-05	24
HLA-A*02:03	1	1262	1270	9	LKGVKLHYT	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	SFTRGVVYYP	8.7e-05	33
HLA-A*02:03	1	33	42	10	TRGVVYPPDKV	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*31:01	1	258	267	10	GAAAYVGYL	8.7e-05	37
HLA-B*58:01	1	274	282	9	LKYNGENTI	8.7e-05	38
HLA-B*35:01	1	308	316	9	GIYQTSNFR	8.7e-05	26
HLA-A*11:01	1	339	347	9	FNATRFASV	8.7e-05	23
HLA-B*08:01	1	354	362	9	RISNCVADY	8.7e-05	50
HLA-B*51:01	1	370	379	10	SFSTFKCYGV	8.7e-05	44
HLA-B*51:01	1	372	380	9	STFKCYGVS	8.7e-05	44
HLA-A*30:01	1	385	393	9	NDLCFTNVY	8.7e-05	61
HLA-A*30:02	1	395	404	10	DSFVIRGDEV	8.7e-05	59
HLA-B*51:01	1	408	417	10	APGQTGNIAD	8.7e-05	44
HLA-B*08:01	1	420	428	9	YKLPDDFTG	8.7e-05	50
HLA-A*30:02	1	430	439	10	VIAWNSNLD	8.7e-05	59
HLA-A*32:01	1	432	441	10	AWNSNLDLDSK	8.7e-05	27
HLA-A*68:02	1	434	443	10	NSNNLDKVG	8.7e-05	38
HLA-A*68:01	1	444	453	10	GNYNLYRLF	8.7e-05	33
HLA-B*57:01	1	445	454	10	NYNLYRLF	8.7e-05	50
HLA-A*11:01	1	453	461	9	FRKSNLKP	8.7e-05	23
HLA-B*15:01	1	453	462	10	FRKSNLKPFE	8.7e-05	36
HLA-A*33:01	1	456	465	10	SNLKPFERDI	8.7e-05	38
HLA-A*32:01	1	465	473	9	ISTEIQAG	8.7e-05	27
HLA-A*23:01	1	496	504	9	PTYGVGYQP	8.7e-05	22
HLA-A*24:02	1	498	507	10	YGVGYQPYRV	8.7e-05	22
HLA-B*53:01	1	501	510	10	GYQPYRVVVL	8.7e-05	25
HLA-B*58:01	1	515	523	9	LHAPATVCG	8.7e-05	38
HLA-B*15:01	1	516	524	9	HAPATVCGP	8.7e-05	36
HLA-A*02:03	1	569	578	10	TTDAVRDPQT	8.7e-05	38
HLA-B*15:01	1	595	604	10	ITPGTNTSNQ	8.7e-05	36
HLA-B*07:02	1	606	615	10	AVLYQGVNCT	8.7e-05	33
HLA-A*30:02	1	610	618	9	QGVNCTEVP	8.7e-05	59
HLA-A*26:01	1	620	628	9	AIHADQLTP	8.7e-05	31
HLA-A*68:01	1	621	629	9	IHADQLTPT	8.7e-05	33
HLA-A*02:01	1	633	641	9	YSTGSNVFQ	8.7e-05	35
HLA-A*02:06	1	650	659	10	AEHVNNSYEC	8.7e-05	46
HLA-A*26:01	1	663	672	10	IGAGICASYQ	8.7e-05	31
HLA-A*68:02	1	668	677	10	CASYQTQTN	8.7e-05	38
HLA-A*33:01	1	673	681	9	TQTNSPRRA	8.7e-05	38
HLA-A*68:02	1	691	700	10	AYTMSLGVEN	8.7e-05	38
HLA-A*02:03	1	692	700	9	YTMSLGVEN	8.7e-05	38
HLA-A*68:01	1	693	701	9	TMSLGVENS	8.7e-05	33
HLA-B*57:01	1	705	713	9	SNNSIAIPT	8.7e-05	50
HLA-B*40:01	1	728	737	10	MTKTSVDCTM	8.7e-05	21
HLA-A*68:01	1	736	745	10	TMYICGDSTE	8.7e-05	33
HLA-A*31:01	1	756	764	9	FCTQLNRAL	8.7e-05	37
HLA-A*23:01	1	758	766	9	TQLNRALTG	8.7e-05	22

HLA-A*03:01	1	759	768	10	QLNRALTGIA	8.7e-05	30
HLA-A*11:01	1	787	795	9	KTPPIKDFG	8.7e-05	23
HLA-A*32:01	1	800	809	10	SQILPDPSKP	8.7e-05	27
HLA-A*33:01	1	827	835	9	DAGFIKQYG	8.7e-05	38
HLA-B*58:01	1	828	836	9	AGFIKQYGD	8.7e-05	38
HLA-A*02:01	1	837	845	9	CLGDIAARD	8.7e-05	35
HLA-A*33:01	1	850	859	10	QKFNGLTVLP	8.7e-05	38
HLA-A*31:01	1	881	890	10	SGWTFGAGAA	8.7e-05	37
HLA-B*44:03	1	891	900	10	LQIPFAMQMA	8.7e-05	23
HLA-A*03:01	1	906	915	10	IGVTQNVLYE	8.7e-05	30
HLA-A*02:03	1	909	918	10	TQNVLYENQK	8.7e-05	38
HLA-B*40:01	1	926	934	9	SAIGKIQDS	8.7e-05	21
HLA-A*33:01	1	932	941	10	QDLSSTASA	8.7e-05	38
HLA-A*02:06	1	939	947	9	ASALGKLQD	8.7e-05	46
HLA-A*26:01	1	953	962	10	AQALNTLVKQ	8.7e-05	31
HLA-B*44:02	1	964	973	10	SSNFGAISSV	8.7e-05	24
HLA-A*02:03	1	1069	1077	9	EKNFTTAPA	8.7e-05	38
HLA-A*23:01	1	1083	1091	9	KAHFPREGV	8.7e-05	22
HLA-A*68:01	1	1084	1093	10	AHFPREGV FV	8.7e-05	33
HLA-A*03:01	1	1085	1093	9	HFPRGV FV	8.7e-05	30
HLA-B*07:02	1	1089	1098	10	EGVFSNGTH	8.7e-05	33
HLA-A*32:01	1	1112	1120	9	ITTDNTFVS	8.7e-05	27
HLA-A*01:01	1	1114	1122	9	TDNTFVSGN	8.7e-05	51
HLA-A*30:01	1	1122	1130	9	NCDVVIGIV	8.7e-05	61
HLA-B*51:01	1	1131	1140	10	NNTVYDPLQP	8.7e-05	44
HLA-A*03:01	1	1132	1140	9	NTVYDPLQP	8.7e-05	30
HLA-B*53:01	1	1167	1176	10	SGINASVVNI	8.7e-05	25
HLA-A*30:01	1	1207	1216	10	IKWPWYIWLG	8.7e-05	61
HLA-A*30:02	1	1210	1218	9	PWYIWLGF I	8.7e-05	59
HLA-B*51:01	1	1210	1218	9	PWYIWLGF I	8.7e-05	44
HLA-A*23:01	1	1219	1227	9	AGLIAIVMV	8.7e-05	22
HLA-A*02:03	1	1240	1249	10	CLKGCCSCGS	8.7e-05	38
HLA-B*51:01	1	5	14	10	LVLLPLVSSQ	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*68:01	1	75	84	10	GTKRFANPVL	8.6e-05	33
HLA-A*03:01	1	84	93	10	LPFNDGVYFA	8.6e-05	30
HLA-B*53:01	1	122	131	10	NATNVVIKVC	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*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-A*23:01	1	240	248	9	TLHRSYLTP	8.6e-05	22
HLA-B*07:02	1	262	270	9	YYVGYLQPR	8.6e-05	33
HLA-B*08:01	1	271	280	10	TFLLKYNENG	8.6e-05	50
HLA-B*08:01	1	288	297	10	CALDPLSETK	8.6e-05	50
HLA-A*26:01	1	292	300	9	PLSETKCTL	8.6e-05	31
HLA-B*51:01	1	298	306	9	CTLKSFTVE	8.6e-05	44
HLA-A*02:03	1	302	311	10	SFTVEKGIYQ	8.6e-05	38
HLA-B*08:01	1	311	320	10	QTSNFRVQPT	8.6e-05	50
HLA-B*07:02	1	317	325	9	VQPTESIVR	8.6e-05	33
HLA-A*31:01	1	322	331	10	SIVRFPNITN	8.6e-05	37
HLA-A*02:01	1	331	340	10	NLCPFGEVFN	8.6e-05	36
HLA-A*26:01	1	360	369	10	ADYSVLYNSA	8.6e-05	31
HLA-B*08:01	1	364	372	9	VLYNSASFS	8.6e-05	50

HLA-A*33:01	1	390	399	10	TNVYADSFVI 8.6e-05	38
HLA-B*58:01	1	399	408	10	IRGDEVQRQIA 8.6e-05	38
HLA-B*51:01	1	402	411	10	DEVQRQIAPGQ 8.6e-05	44
HLA-A*11:01	1	405	414	10	RQIAPGQTGN 8.6e-05	23
HLA-A*03:01	1	418	426	9	YNYKLPDDF 8.6e-05	30
HLA-B*58:01	1	432	441	10	AWNSNNLDSK 8.6e-05	38
HLA-A*30:01	1	434	443	10	NSNNLDSKVG 8.6e-05	61
HLA-A*02:01	1	447	455	9	NYLYRLLFRK 8.6e-05	36
HLA-B*15:01	1	454	463	10	RKSNLKPFR 8.6e-05	36
HLA-A*30:02	1	467	475	9	TEIYQAGST 8.6e-05	59
HLA-A*68:01	1	467	476	10	TEIYQAGSTP 8.6e-05	33
HLA-A*23:01	1	468	477	10	EIYQAGSTPC 8.6e-05	22
HLA-A*01:01	1	473	482	10	GSTPCNGVKG 8.6e-05	52
HLA-A*02:03	1	485	494	10	CYFPLQSYGF 8.6e-05	38
HLA-A*02:03	1	503	511	9	QPYRVVVL 8.6e-05	38
HLA-A*03:01	1	513	522	10	ELLHAPATVC 8.6e-05	30
HLA-B*57:01	1	518	526	9	PATVCGPKK 8.6e-05	50
HLA-A*03:01	1	519	527	9	ATVCGPKKS 8.6e-05	30
HLA-A*30:02	1	531	539	9	VKNKCVNFN 8.6e-05	59
HLA-B*15:01	1	545	554	10	GTGVLTESNK 8.6e-05	36
HLA-A*01:01	1	555	563	9	KFLPFQFG 8.6e-05	52
HLA-B*57:01	1	565	574	10	DIADTTDAVR 8.6e-05	50
HLA-A*02:01	1	576	584	9	PQTLIILDI 8.6e-05	36
HLA-A*68:02	1	579	587	9	LEILDITPC 8.6e-05	38
HLA-A*68:02	1	579	588	10	LEILDITPCS 8.6e-05	38
HLA-B*58:01	1	581	590	10	ILDITPCSF 8.6e-05	38
HLA-B*51:01	1	592	600	9	VSVITPGTN 8.6e-05	44
HLA-A*33:01	1	639	648	10	VFQTRAGCLI 8.6e-05	38
HLA-B*15:01	1	665	674	10	AGICASYQTQ 8.6e-05	36
HLA-A*24:02	1	681	690	10	ARSVASQSII 8.6e-05	22
HLA-A*68:01	1	699	708	10	ENSVAYSNNS 8.6e-05	33
HLA-A*33:01	1	700	708	9	NSVAYSNNS 8.6e-05	38
HLA-B*40:01	1	702	711	10	VAYSNNSIAI 8.6e-05	21
HLA-A*68:02	1	703	712	10	AYSNNSIAIP 8.6e-05	38
HLA-A*03:01	1	705	713	9	SNNSIAIPT 8.6e-05	30
HLA-B*57:01	1	706	714	9	NNSIAIPTN 8.6e-05	50
HLA-A*02:03	1	712	721	10	PTNFTISVTT 8.6e-05	38
HLA-A*31:01	1	720	729	10	TTEILPVSM 8.6e-05	37
HLA-B*07:02	1	741	750	10	GDSTECSNLL 8.6e-05	33
HLA-A*11:01	1	750	759	10	LLQYGSFCTQ 8.6e-05	23
HLA-A*32:01	1	754	763	10	GSFCTQLNRA 8.6e-05	28
HLA-B*57:01	1	760	769	10	LNRLTGIIV 8.6e-05	50
HLA-A*23:01	1	784	793	10	QIYKTPPIKD 8.6e-05	22
HLA-A*24:02	1	784	793	10	QIYKTPPIKD 8.6e-05	22
HLA-A*02:01	1	793	802	10	DFGGFNFSQI 8.6e-05	36
HLA-B*15:01	1	814	823	10	FIEDLLFNKV 8.6e-05	36
HLA-A*23:01	1	819	827	9	LFNKVTLAD 8.6e-05	22
HLA-B*40:01	1	838	847	10	LGDIARDLI 8.6e-05	21
HLA-B*58:01	1	852	861	10	FNGLTVLPPL 8.6e-05	38
HLA-A*01:01	1	858	867	10	LPPLLTDEMI 8.6e-05	52
HLA-B*51:01	1	873	881	9	ALLAGTITS 8.6e-05	44
HLA-B*15:01	1	884	893	10	TFGAGAALQI 8.6e-05	36
HLA-A*32:01	1	893	902	10	IPFAMQMAYR 8.6e-05	28
HLA-A*68:01	1	900	908	9	AYRFNGIGV 8.6e-05	33
HLA-A*68:01	1	940	949	10	SALGKLQDVV 8.6e-05	33
HLA-A*26:01	1	991	1000	10	DRLITGRLQS 8.6e-05	31
HLA-A*68:02	1	1026	1035	10	MSECVLGQSK 8.6e-05	38
HLA-A*03:01	1	1058	1066	9	VFLHVTVVP 8.6e-05	30
HLA-B*07:02	1	1066	1074	9	PAQEKNF 8.6e-05	33
HLA-A*68:01	1	1067	1075	9	AQEKNF 8.6e-05	33
HLA-A*68:02	1	1067	1076	10	AQEKNF 8.6e-05	38
HLA-A*26:01	1	1069	1077	9	EKNFTTAPA 8.6e-05	31
HLA-B*51:01	1	1070	1079	10	KNFTTAPAIC 8.6e-05	44
HLA-A*26:01	1	1096	1105	10	GTHWFVTQRN 8.6e-05	31
HLA-A*02:01	1	1103	1112	10	QRNFYEPQII 8.6e-05	36
HLA-B*58:01	1	1105	1114	10	NFYEPQIIIT 8.6e-05	38



HLA-A*02:06	1	1143	1151	9	DSFKEELDK	8.6e-05	46
HLA-B*44:03	1	1150	1158	9	DKYFKNHTS	8.6e-05	23
HLA-B*58:01	1	1160	1169	10	DVDLGDISGI	8.6e-05	38
HLA-B*35:01	1	1168	1176	9	GINASVVNI	8.6e-05	26
HLA-B*51:01	1	1191	1199	9	NESLIDLQE	8.6e-05	44
HLA-A*68:01	1	1192	1201	10	ESLIDLQELG	8.6e-05	33
HLA-B*07:02	1	1215	1224	10	LGFIAGLIAI	8.6e-05	33
HLA-B*51:01	1	1220	1228	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	TNVVIKVCFF	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*26:01	1	240	248	9	TLHRSYLTP	8.5e-05	31
HLA-A*32:01	1	272	280	9	FLLKYNENG	8.5e-05	28
HLA-A*33:01	1	275	283	9	KYNENGTIT	8.5e-05	38
HLA-A*03:01	1	303	312	10	FTVEKGIYQT	8.5e-05	30
HLA-A*68:01	1	305	313	9	VEKGIYQTS	8.5e-05	33
HLA-B*08:01	1	308	316	9	GIYQTSNFR	8.5e-05	50
HLA-B*44:03	1	308	316	9	GIYQTSNFR	8.5e-05	23
HLA-B*40:01	1	309	317	9	IYQTSNFRV	8.5e-05	21
HLA-A*32:01	1	310	318	9	YQTSNFRVQ	8.5e-05	28
HLA-B*44:03	1	315	324	10	FRVQPTESIV	8.5e-05	23
HLA-A*03:01	1	339	347	9	FNATRFASV	8.5e-05	30
HLA-B*58:01	1	360	369	10	ADYSVLYNSA	8.5e-05	39
HLA-B*44:02	1	361	369	9	DYSVLYNSA	8.5e-05	24
HLA-A*23:01	1	385	393	9	NDLCFTNVY	8.5e-05	23
HLA-A*30:01	1	385	394	10	NDLCFTNVYA	8.5e-05	61
HLA-B*08:01	1	390	399	10	TNVYADSFVI	8.5e-05	50
HLA-B*44:02	1	403	411	9	EVQRQIAPGQ	8.5e-05	24
HLA-A*03:01	1	409	418	10	PGQTGNIADY	8.5e-05	30
HLA-A*30:02	1	422	431	10	LPDDFTGCVI	8.5e-05	59
HLA-A*32:01	1	489	497	9	LQSYGFQPT	8.5e-05	28
HLA-B*51:01	1	538	547	10	FNFNGLTGTG	8.5e-05	45
HLA-B*08:01	1	549	558	10	LTESNKKFLP	8.5e-05	50
HLA-B*44:03	1	553	561	9	NKKFLPFQ	8.5e-05	23
HLA-A*31:01	1	603	612	10	NQVAVLYQGV	8.5e-05	37
HLA-B*40:01	1	603	611	9	NQVAVLYQG	8.5e-05	21
HLA-B*57:01	1	657	665	9	YECDIPIGA	8.5e-05	50
HLA-A*68:02	1	658	666	9	ECDIPIGAG	8.5e-05	38
HLA-A*31:01	1	659	667	9	CDIPIGAGI	8.5e-05	37
HLA-B*44:02	1	670	679	10	SYQTQTNSPR	8.5e-05	24
HLA-B*44:03	1	679	687	9	RRARSVASQ	8.5e-05	23
HLA-A*02:01	1	689	697	9	IIAYTMSLG	8.5e-05	36
HLA-B*51:01	1	695	703	9	SLGVENSVA	8.5e-05	45
HLA-A*02:03	1	696	705	10	LGVENSVAYS	8.5e-05	39
HLA-A*03:01	1	713	721	9	TNFTISVTT	8.5e-05	30
HLA-B*44:02	1	713	721	9	TNFTISVTT	8.5e-05	24
HLA-A*02:01	1	721	729	9	TEILPVSMT	8.5e-05	36
HLA-A*32:01	1	726	735	10	VSMTKTSVDC	8.5e-05	28
HLA-B*44:02	1	742	751	10	DSTECSNLLL	8.5e-05	24
HLA-B*58:01	1	749	757	9	LLLQYGSFC	8.5e-05	39
HLA-A*31:01	1	775	784	10	TQEVFAQVKQ	8.5e-05	37

HLA-A*33:01	1	775	784	10	TQEVFAQVKQ	8.5e-05	38
HLA-A*31:01	1	787	796	10	KTPPIKDFGG	8.5e-05	37
HLA-A*03:01	1	790	799	10	PIKDFGGFNF	8.5e-05	30
HLA-A*33:01	1	801	810	10	QILPDPSKPS	8.5e-05	38
HLA-B*07:02	1	819	828	10	LFNKVTLADA	8.5e-05	34
HLA-A*02:03	1	839	848	10	GDIAARDLIC	8.5e-05	39
HLA-B*53:01	1	870	878	9	YTSALLAGT	8.5e-05	25
HLA-A*33:01	1	871	879	9	TSALLAGTI	8.5e-05	38
HLA-B*44:03	1	932	941	10	QDLSSTASA	8.5e-05	23
HLA-B*51:01	1	932	940	9	QDLSSTAS	8.5e-05	45
HLA-A*23:01	1	941	949	9	ALGKLQDVV	8.5e-05	23
HLA-A*68:02	1	948	957	10	VVNQNAQALN	8.5e-05	38
HLA-B*53:01	1	950	958	9	NQNAQALNT	8.5e-05	25
HLA-B*58:01	1	955	964	10	ALNTLVKQLS	8.5e-05	39
HLA-A*26:01	1	970	978	9	ISSVLNDIL	8.5e-05	31
HLA-B*15:01	1	1011	1020	10	RAAEIRASAN	8.5e-05	36
HLA-A*32:01	1	1014	1022	9	EIRASANLA	8.5e-05	28
HLA-A*31:01	1	1081	1089	9	DGKAHFPRE	8.5e-05	37
HLA-A*30:01	1	1086	1095	10	FPREGVFVSN	8.5e-05	61
HLA-A*26:01	1	1102	1110	9	TORNFYEPQ	8.5e-05	31
HLA-B*44:03	1	1114	1122	9	TDNTFVSGN	8.5e-05	23
HLA-A*33:01	1	1134	1143	10	VYDPLQPELD	8.5e-05	38
HLA-A*68:02	1	1148	1156	9	ELDKYFKNH	8.5e-05	38
HLA-B*35:01	1	1170	1179	10	NASVVNIQKE	8.5e-05	26
HLA-A*24:02	1	1171	1180	10	ASVVNIQKEI	8.5e-05	22
HLA-A*26:01	1	1174	1182	9	VNIQKEIDR	8.5e-05	31
HLA-A*23:01	1	1193	1202	10	SLIDLQELGK	8.5e-05	23
HLA-A*30:01	1	1210	1219	10	PWYIWLGFIA	8.5e-05	61
HLA-A*23:01	1	1257	1265	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	SQCWNLTTRT	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	NATNVVIVKVC	8.4e-05	36
HLA-A*02:01	1	127	136	10	VIKVCEFQFC	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*02:03	1	207	215	9	HTPINLVRG	8.4e-05	39
HLA-A*30:01	1	217	225	9	PQGFSALEP	8.4e-05	61
HLA-A*31:01	1	243	251	9	RSYLTPGDS	8.4e-05	38
HLA-A*68:02	1	299	308	10	TLKSFTVEKG	8.4e-05	38
HLA-B*44:02	1	310	319	10	YQTSNFRVQP	8.4e-05	25
HLA-A*02:01	1	325	334	10	RFPNITNLCP	8.4e-05	36
HLA-A*68:02	1	338	346	9	VFNATRFAS	8.4e-05	38
HLA-A*02:06	1	343	352	10	RFASVYAWNR	8.4e-05	46
HLA-A*68:02	1	373	382	10	TFKCYGVSPT	8.4e-05	38
HLA-A*01:01	1	378	386	9	GVSPTKLND	8.4e-05	52
HLA-B*44:03	1	385	394	10	NDLCFTNVYA	8.4e-05	23
HLA-A*24:02	1	390	399	10	TNVYADSFVI	8.4e-05	22
HLA-A*02:01	1	398	406	9	VIRGDEVQR	8.4e-05	36
HLA-A*02:01	1	404	413	10	VRQIAPGQTG	8.4e-05	36
HLA-B*40:01	1	407	415	9	IAPGQTGNI	8.4e-05	21
HLA-B*15:01	1	413	421	9	GNIADYNYK	8.4e-05	36
HLA-A*26:01	1	420	429	10	YKLPDDFTGC	8.4e-05	31
HLA-B*44:02	1	421	430	10	KLPDDFTGCV	8.4e-05	25
HLA-A*02:01	1	457	466	10	NLKPFERDIS	8.4e-05	36
HLA-A*26:01	1	473	481	9	GSTPCNGVK	8.4e-05	31
HLA-A*32:01	1	485	493	9	CYFPLQSYG	8.4e-05	28
HLA-B*07:02	1	509	517	9	VLSFELLHA	8.4e-05	34

HLA-B*07:02	1	511	520	10	SFELLHAPAT	8.4e-05	34
HLA-A*33:01	1	514	522	9	LLHAPATVC	8.4e-05	38
HLA-B*44:02	1	517	525	9	APATVCGPK	8.4e-05	25
HLA-B*35:01	1	532	540	9	KNKCVNFNF	8.4e-05	26
HLA-B*44:03	1	548	557	10	VLTESNKKFL	8.4e-05	23
HLA-A*11:01	1	549	557	9	LTESNKKFL	8.4e-05	23
HLA-A*01:01	1	557	566	10	LPFQQFGRDI	8.4e-05	52
HLA-A*11:01	1	564	573	10	RDIADTTDAV	8.4e-05	23
HLA-A*68:01	1	583	591	9	DITPCSFVG	8.4e-05	33
HLA-A*02:06	1	584	593	10	ITPCSFGGVS	8.4e-05	46
HLA-B*58:01	1	586	594	9	PCSFGGVSV	8.4e-05	39
HLA-A*33:01	1	595	604	10	ITPGTNTSNQ	8.4e-05	38
HLA-B*58:01	1	596	605	10	TPGTNTSNQV	8.4e-05	39
HLA-A*32:01	1	603	611	9	NQVAVLYQG	8.4e-05	28
HLA-A*02:06	1	616	624	9	EVPVAIHAD	8.4e-05	46
HLA-A*30:01	1	617	625	9	VPVAIHADQ	8.4e-05	61
HLA-A*33:01	1	620	629	10	AIHADQLTPT	8.4e-05	38
HLA-A*02:06	1	651	659	9	EHVNSYEC	8.4e-05	46
HLA-B*07:02	1	652	661	10	HVNNSYECDI	8.4e-05	34
HLA-A*11:01	1	661	669	9	IPIGAGICA	8.4e-05	23
HLA-A*23:01	1	671	679	9	YQTQNSPR	8.4e-05	23
HLA-B*53:01	1	672	680	9	QTQNSPRR	8.4e-05	25
HLA-A*32:01	1	674	683	10	QTNSPRRARS	8.4e-05	28
HLA-A*68:01	1	682	690	9	RSVASQSII	8.4e-05	33
HLA-A*11:01	1	687	695	9	QSIAYTMS	8.4e-05	23
HLA-A*32:01	1	709	718	10	IAIPTNFTIS	8.4e-05	28
HLA-B*51:01	1	745	754	10	ECSNLLLQYG	8.4e-05	45
HLA-A*01:01	1	757	766	10	CTQLNRALTG	8.4e-05	52
HLA-B*15:01	1	792	801	10	KDFGGFNFSQ	8.4e-05	36
HLA-A*02:01	1	798	806	9	NFSQILPDP	8.4e-05	36
HLA-B*44:02	1	799	808	10	FSQILPDPSK	8.4e-05	25
HLA-A*11:01	1	805	814	10	DPSKPSKRSF	8.4e-05	23
HLA-B*35:01	1	814	823	10	FIEDLLFNKV	8.4e-05	26
HLA-A*03:01	1	822	831	10	KVTLADAGFI	8.4e-05	30
HLA-A*30:02	1	840	848	9	DIAARDLIC	8.4e-05	59
HLA-B*40:01	1	848	857	10	CAQKFNGLTV	8.4e-05	21
HLA-B*53:01	1	861	869	9	LLTDEMIAQ	8.4e-05	25
HLA-A*03:01	1	873	882	10	ALLAGTITSG	8.4e-05	30
HLA-B*07:02	1	882	890	9	GWTFGAGAA	8.4e-05	34
HLA-B*08:01	1	882	890	9	GWTFGAGAA	8.4e-05	51
HLA-A*23:01	1	921	930	10	ANQFNSAIGK	8.4e-05	23
HLA-A*24:02	1	933	942	10	DSLSTASAL	8.4e-05	22
HLA-A*30:01	1	945	954	10	LQDVVNQNAQ	8.4e-05	61
HLA-A*02:01	1	948	957	10	VVNQNAQALN	8.4e-05	36
HLA-A*01:01	1	957	966	10	NTLVKQLSSN	8.4e-05	52
HLA-A*68:01	1	958	966	9	TLVKQLSSN	8.4e-05	33
HLA-B*57:01	1	967	976	10	FGAISSVLND	8.4e-05	50
HLA-A*03:01	1	973	982	10	VLNDILSRLD	8.4e-05	30
HLA-B*15:01	1	979	987	9	SRLDKVEAE	8.4e-05	36
HLA-A*33:01	1	990	999	10	IDRLITGRLQ	8.4e-05	38
HLA-B*40:01	1	992	1000	9	RLITGRLQS	8.4e-05	21
HLA-A*03:01	1	1001	1010	10	LQTYVTQQLI	8.4e-05	30
HLA-A*68:01	1	1001	1010	10	LQTYVTQQLI	8.4e-05	33
HLA-B*44:03	1	1001	1010	10	LQTYVTQQLI	8.4e-05	23
HLA-B*35:01	1	1006	1014	9	TQQLIRAAE	8.4e-05	26
HLA-A*02:01	1	1024	1033	10	TKMSECVLGQ	8.4e-05	36
HLA-B*07:02	1	1035	1044	10	KRVDFCGKGY	8.4e-05	34
HLA-B*53:01	1	1058	1066	9	VFLHVTVVP	8.4e-05	25
HLA-A*26:01	1	1062	1071	10	VTYVPAQEKN	8.4e-05	31
HLA-B*57:01	1	1065	1073	9	VPAQEKNFT	8.4e-05	50
HLA-A*02:06	1	1074	1083	10	TAPAICHGDK	8.4e-05	46
HLA-B*40:01	1	1079	1087	9	CHDGKAHFP	8.4e-05	21
HLA-A*02:03	1	1093	1102	10	VSNGTHWFVT	8.4e-05	39
HLA-B*40:01	1	1102	1110	9	TQRNFYEPQ	8.4e-05	21
HLA-A*11:01	1	1105	1113	9	NFYEQIIT	8.4e-05	23
HLA-B*58:01	1	1105	1113	9	NFYEQIIT	8.4e-05	39

HLA-B*44:02	1	1158	1166	9	SPDVLDGDI	8.4e-05	25
HLA-A*01:01	1	1162	1170	9	DLGDISGIN	8.4e-05	52
HLA-A*30:01	1	1165	1174	10	DISGINASVV	8.4e-05	61
HLA-A*30:01	1	1172	1181	10	SVVNIQKEID	8.4e-05	61
HLA-A*02:01	1	1192	1201	10	ESLIDLQELG	8.4e-05	36
HLA-A*03:01	1	1245	1253	9	CSCGSCCKF	8.4e-05	30
HLA-A*02:03	1	1252	1260	9	KFDEDDSEP	8.4e-05	39
HLA-A*33:01	1	15	24	10	CVNLTRTRQL	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	FHAIHVSGT	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	NATNVVIKVC	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	VYSSANNC	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*31:01	1	207	215	9	HTPINLVRG	8.3e-05	38
HLA-A*01:01	1	209	217	9	PINLVRGLP	8.3e-05	52
HLA-A*68:01	1	212	221	10	LVRGLPQGFS	8.3e-05	33
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*33:01	1	240	248	9	TLHRSYLTP	8.3e-05	39
HLA-B*57:01	1	245	254	10	YLTPGDSSSG	8.3e-05	51
HLA-B*44:03	1	253	261	9	SGWTAGAAA	8.3e-05	23
HLA-A*11:01	1	256	264	9	TAGAAAYYV	8.3e-05	23
HLA-A*33:01	1	259	268	10	AAAYYVGYLQ	8.3e-05	39
HLA-B*07:02	1	270	278	9	RTFLLKYNE	8.3e-05	34
HLA-A*03:01	1	275	283	9	KYNENGTIT	8.3e-05	31
HLA-B*53:01	1	281	289	9	TITDAVDCA	8.3e-05	25
HLA-A*33:01	1	292	300	9	PLSETKCTL	8.3e-05	39
HLA-B*58:01	1	305	313	9	VEKGIYQTS	8.3e-05	39
HLA-A*32:01	1	329	337	9	ITNLCPFGE	8.3e-05	28
HLA-A*03:01	1	348	356	9	YAWNKRKRIS	8.3e-05	31
HLA-A*23:01	1	356	365	10	SNCVADYSVL	8.3e-05	23
HLA-A*32:01	1	358	367	10	CVADYSVLYN	8.3e-05	28
HLA-A*33:01	1	358	367	10	CVADYSVLYN	8.3e-05	39
HLA-A*26:01	1	360	368	9	ADYSVLYNS	8.3e-05	31
HLA-B*58:01	1	361	369	9	DYSVLYNSA	8.3e-05	39
HLA-A*23:01	1	368	376	9	SASFSTFKC	8.3e-05	23
HLA-A*01:01	1	373	381	9	TFKCYGVSP	8.3e-05	52
HLA-B*07:02	1	374	383	10	FKCYGVSPTK	8.3e-05	34
HLA-A*11:01	1	383	391	9	KLNDLCFTN	8.3e-05	23
HLA-A*24:02	1	383	392	10	KLNDLCFTNV	8.3e-05	22
HLA-A*11:01	1	384	393	10	LNLDLCFTNVY	8.3e-05	23
HLA-B*58:01	1	387	395	9	LCFTNVYAD	8.3e-05	39
HLA-B*15:01	1	407	416	10	IAPGQTGNIA	8.3e-05	36
HLA-B*44:02	1	413	421	9	GNIADYNYK	8.3e-05	25
HLA-B*53:01	1	420	428	9	YKLPDDFTG	8.3e-05	25
HLA-B*58:01	1	429	437	9	CVIAWNSNN	8.3e-05	39
HLA-A*02:06	1	443	451	9	GGNYNYLYR	8.3e-05	46
HLA-B*53:01	1	468	477	10	EIQAGSTPC	8.3e-05	25
HLA-B*53:01	1	469	477	9	IYQAGSTPC	8.3e-05	25
HLA-A*30:01	1	477	485	9	CNGVKGFNC	8.3e-05	62

HLA-A*02:01	1	480	489	10	VKGFNCYFPL	8.3e-05	36
HLA-A*23:01	1	482	490	9	GFNCYFPLQ	8.3e-05	23
HLA-A*24:02	1	483	492	10	FNCYFPLQSY	8.3e-05	22
HLA-B*08:01	1	492	501	10	YGFQPTYGVG	8.3e-05	51
HLA-B*58:01	1	512	521	10	FELLHAPATV	8.3e-05	39
HLA-A*23:01	1	515	523	9	LHAPATVCG	8.3e-05	23
HLA-A*31:01	1	523	531	9	GPKKSTNLV	8.3e-05	38
HLA-B*35:01	1	546	554	9	TGVLTESNK	8.3e-05	26
HLA-A*02:06	1	552	560	9	SNKKFLPFQ	8.3e-05	46
HLA-B*08:01	1	577	586	10	QTLEILDITP	8.3e-05	51
HLA-A*02:06	1	597	605	9	PGTNTSNQV	8.3e-05	46
HLA-A*02:03	1	604	613	10	QVAVLYQGVN	8.3e-05	39
HLA-A*01:01	1	628	636	9	PTWRVYSTG	8.3e-05	52
HLA-B*58:01	1	630	639	10	WRVYSTGSNV	8.3e-05	39
HLA-A*03:01	1	638	647	10	NVFQTRAGCL	8.3e-05	31
HLA-A*33:01	1	648	656	9	IGAELVNNNS	8.3e-05	39
HLA-B*07:02	1	651	659	9	EHVNNSEYEC	8.3e-05	34
HLA-B*15:01	1	656	665	10	SYECDIPIGA	8.3e-05	36
HLA-B*53:01	1	656	665	10	SYECDIPIGA	8.3e-05	25
HLA-A*02:03	1	665	673	9	AGICASYQT	8.3e-05	39
HLA-A*31:01	1	673	681	9	TQTNSPRRA	8.3e-05	38
HLA-B*40:01	1	676	684	9	NSPRRARSV	8.3e-05	21
HLA-B*40:01	1	679	687	9	RRARSVASQ	8.3e-05	21
HLA-B*58:01	1	693	701	9	TMSLGVENS	8.3e-05	39
HLA-B*44:03	1	716	724	9	TISVTTEIL	8.3e-05	23
HLA-B*08:01	1	723	732	10	ILPVSMTKTS	8.3e-05	51
HLA-B*57:01	1	724	732	9	LPVSMTKTS	8.3e-05	51
HLA-A*33:01	1	730	739	10	KTSVDCTMYI	8.3e-05	39
HLA-A*31:01	1	747	755	9	SNLLLQYGS	8.3e-05	38
HLA-A*68:02	1	750	758	9	LLQYGSFCT	8.3e-05	39
HLA-B*57:01	1	763	772	10	ALTGIAVEQD	8.3e-05	51
HLA-A*30:02	1	772	780	9	DKNTQEVFA	8.3e-05	59
HLA-B*44:02	1	778	787	10	VFAQVKQIYK	8.3e-05	25
HLA-B*51:01	1	796	804	9	GFNFSQILP	8.3e-05	45
HLA-B*40:01	1	801	809	9	QILPDPSKP	8.3e-05	21
HLA-A*02:03	1	806	814	9	PSKPSKRSF	8.3e-05	39
HLA-A*02:01	1	810	819	10	SKRSFIEDLL	8.3e-05	36
HLA-B*58:01	1	832	840	9	KQYGDCLGD	8.3e-05	39
HLA-A*11:01	1	844	852	9	RDLICAQKF	8.3e-05	23
HLA-A*02:03	1	847	856	10	ICAQKFNGLT	8.3e-05	39
HLA-A*02:01	1	851	860	10	KFNGLTVLPP	8.3e-05	36
HLA-A*30:02	1	852	861	10	FNGLTVLPPL	8.3e-05	59
HLA-B*58:01	1	858	867	10	LPPLLTDEMI	8.3e-05	39
HLA-A*01:01	1	864	872	9	DEMIAQYTS	8.3e-05	52
HLA-B*53:01	1	867	876	10	IAQYTSALLA	8.3e-05	25
HLA-A*11:01	1	874	883	10	LLAGTITSGW	8.3e-05	23
HLA-A*33:01	1	886	895	10	GAGAALQIPF	8.3e-05	39
HLA-B*44:03	1	890	898	9	ALQIPFAMQ	8.3e-05	23
HLA-B*44:03	1	901	910	10	YRFNGIGVTQ	8.3e-05	23
HLA-B*44:02	1	902	910	9	RFNGIGVTQ	8.3e-05	25
HLA-A*02:01	1	909	918	10	TQNVLYENQK	8.3e-05	36
HLA-A*26:01	1	914	922	9	YENQKLIAN	8.3e-05	31
HLA-A*68:01	1	918	926	9	KLIANQFNS	8.3e-05	33
HLA-B*51:01	1	918	927	10	KLIANQFNSA	8.3e-05	45
HLA-B*44:02	1	930	938	9	KIQDSLST	8.3e-05	25
HLA-A*23:01	1	933	942	10	DSLSTASAL	8.3e-05	23
HLA-A*03:01	1	945	953	9	LQDVVNQNA	8.3e-05	31
HLA-B*35:01	1	987	996	10	EVQIDRLITG	8.3e-05	26
HLA-A*01:01	1	991	1000	10	DRLITGRLQS	8.3e-05	52
HLA-A*11:01	1	1000	1009	10	SLQTYVTQQL	8.3e-05	23
HLA-B*51:01	1	1006	1014	9	TQQLIRAAE	8.3e-05	45
HLA-B*44:03	1	1007	1016	10	QQLIRAAEIR	8.3e-05	23
HLA-B*58:01	1	1007	1016	10	QQLIRAAEIR	8.3e-05	39
HLA-B*35:01	1	1009	1017	9	LIRAAEIRA	8.3e-05	26
HLA-A*24:02	1	1012	1021	10	AAEIRASANL	8.3e-05	22
HLA-A*26:01	1	1025	1033	9	KMSECVLGQ	8.3e-05	31

HLA-B*35:01	1	1030	1039	10	VLGQSKRVDF	8.3e-05	26
HLA-B*40:01	1	1030	1039	10	VLGQSKRVDF	8.3e-05	21
HLA-A*01:01	1	1039	1048	10	FCGKGYHLMS	8.3e-05	52
HLA-A*33:01	1	1040	1048	9	CGKGYHLMS	8.3e-05	39
HLA-A*02:06	1	1062	1071	10	VTYVPAQEKFN	8.3e-05	46
HLA-B*15:01	1	1064	1073	10	YVPAQEKFNFT	8.3e-05	36
HLA-B*08:01	1	1080	1088	9	HDGKAHFPR	8.3e-05	51
HLA-A*68:01	1	1097	1105	9	THWFVTQRN	8.3e-05	33
HLA-B*53:01	1	1119	1127	9	VSGNCDVVI	8.3e-05	25
HLA-A*68:02	1	1128	1137	10	GIVNNTVYDP	8.3e-05	39
HLA-A*03:01	1	1138	1147	10	LQPELDSFKE	8.3e-05	31
HLA-B*40:01	1	1145	1154	10	FKEELDKYFK	8.3e-05	21
HLA-B*40:01	1	1150	1158	9	DKYFKNHTS	8.3e-05	21
HLA-B*44:02	1	1150	1158	9	DKYFKNHTS	8.3e-05	25
HLA-A*68:01	1	1171	1180	10	ASVVNIQKEI	8.3e-05	33
HLA-A*68:01	1	1177	1186	10	QKEIDRLNEV	8.3e-05	33
HLA-B*40:01	1	1179	1187	9	EIDRLNEVA	8.3e-05	21
HLA-A*68:01	1	1181	1190	10	DRLNEVAKNL	8.3e-05	33
HLA-A*02:06	1	1208	1216	9	KWPWYIWL	8.3e-05	46
HLA-A*31:01	1	1209	1217	9	WPWYIWLGF	8.3e-05	38
HLA-B*44:02	1	1223	1231	9	AIVMVTIML	8.3e-05	25
HLA-A*01:01	1	1233	1241	9	CMTSCCSCS	8.3e-05	52
HLA-A*31:01	1	1258	1267	10	SEPVKKGVKL	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	SSQCVNLTT	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*03:01	1	79	87	9	FANPVLPFN	8.2e-05	31
HLA-A*33:01	1	82	90	9	PVLPFNDGV	8.2e-05	39
HLA-A*33:01	1	93	101	9	ASTEKSNI	8.2e-05	39
HLA-B*44:02	1	101	110	10	IRGWIFGTTL	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-B*51:01	1	211	219	9	NLVRGLPQG	8.2e-05	45
HLA-A*03:01	1	224	233	10	EPLVDLPIGI	8.2e-05	31
HLA-A*02:03	1	246	254	9	LTPGDSSSG	8.2e-05	39
HLA-B*51:01	1	254	263	10	GWTAGAAAYY	8.2e-05	45
HLA-B*44:02	1	260	268	9	AAYYVGYLQ	8.2e-05	25
HLA-B*53:01	1	263	271	9	YVGYLQPR	8.2e-05	25
HLA-A*03:01	1	288	296	9	CALDPLSET	8.2e-05	31
HLA-A*32:01	1	300	309	10	LKSFTVEKGI	8.2e-05	28
HLA-B*44:02	1	304	312	9	TVEKGIYQT	8.2e-05	25
HLA-A*26:01	1	311	320	10	QTSNFRVQPT	8.2e-05	32
HLA-A*24:02	1	315	324	10	FRVQPTESIV	8.2e-05	22
HLA-A*68:01	1	318	327	10	QPTESIVRFP	8.2e-05	34
HLA-A*02:01	1	337	346	10	EVFNATRFAS	8.2e-05	36
HLA-A*23:01	1	340	348	9	NATRFASVY	8.2e-05	23
HLA-B*44:03	1	346	355	10	SVYAWNKRRI	8.2e-05	23
HLA-A*32:01	1	351	359	9	NRKRISNCV	8.2e-05	28
HLA-B*57:01	1	364	372	9	VLYNSASF	8.2e-05	51
HLA-A*30:02	1	371	380	10	FSTFKCYGVS	8.2e-05	59
HLA-B*40:01	1	376	384	9	CYGVSPTKL	8.2e-05	21
HLA-A*24:02	1	384	392	9	LNDLCFTNV	8.2e-05	22
HLA-A*30:02	1	385	394	10	NDLCFTNVYA	8.2e-05	59
HLA-A*03:01	1	390	399	10	TNVYADSFVI	8.2e-05	31

HLA-B*51:01	1	392	401	10	VYADSFVIRG	8.2e-05	45
HLA-B*58:01	1	404	413	10	VRQIAPGQTG	8.2e-05	39
HLA-A*68:01	1	411	419	9	QTGNIADYN	8.2e-05	34
HLA-A*02:06	1	413	421	9	GNIADYNYK	8.2e-05	47
HLA-B*44:03	1	416	424	9	ADYNYKLPD	8.2e-05	23
HLA-A*30:01	1	417	426	10	DYNYKLPDDF	8.2e-05	62
HLA-A*02:01	1	418	426	9	YNYKLPDDF	8.2e-05	36
HLA-A*01:01	1	431	439	9	IAWNSNNLD	8.2e-05	53
HLA-B*35:01	1	440	449	10	SKVGGNYNYL	8.2e-05	26
HLA-B*58:01	1	442	451	10	VGGNYNYLYR	8.2e-05	39
HLA-A*32:01	1	445	454	10	NYNYLYRLEFR	8.2e-05	28
HLA-A*23:01	1	451	460	10	RLFRKSNLKP	8.2e-05	23
HLA-B*57:01	1	468	477	10	EIYQAGSTPC	8.2e-05	51
HLA-A*68:01	1	471	480	10	QAGSTPCNGV	8.2e-05	34
HLA-B*51:01	1	471	479	9	QAGSTPCNG	8.2e-05	45
HLA-A*26:01	1	479	488	10	GVKGFNCYFP	8.2e-05	32
HLA-B*58:01	1	479	488	10	GVKGFNCYFP	8.2e-05	39
HLA-B*44:02	1	491	500	10	SYGFQPTYGV	8.2e-05	25
HLA-A*03:01	1	527	536	10	STNLVKNKCV	8.2e-05	31
HLA-A*23:01	1	559	567	9	FQFGRDIA	8.2e-05	23
HLA-B*44:02	1	559	567	9	FQFGRDIA	8.2e-05	25
HLA-B*08:01	1	563	572	10	GRDIADTTDA	8.2e-05	51
HLA-A*02:03	1	584	593	10	ITPCSFGGVS	8.2e-05	39
HLA-B*44:03	1	587	595	9	CSFGGVSVI	8.2e-05	23
HLA-A*33:01	1	591	599	9	GVSVITPGT	8.2e-05	39
HLA-B*44:02	1	618	626	9	PVAIHADQL	8.2e-05	25
HLA-A*26:01	1	621	629	9	IHADQLTPT	8.2e-05	32
HLA-B*35:01	1	656	665	10	SYECDIPIGA	8.2e-05	26
HLA-B*44:02	1	669	677	9	ASYQTQTN	8.2e-05	25
HLA-A*02:01	1	681	690	10	ARSVASQSII	8.2e-05	36
HLA-B*40:01	1	697	706	10	GVENSVAYSN	8.2e-05	21
HLA-A*03:01	1	702	711	10	VAYSNNSIAI	8.2e-05	31
HLA-B*08:01	1	703	712	10	AYSNNIAI	8.2e-05	51
HLA-A*03:01	1	727	735	9	SMTKTSVDC	8.2e-05	31
HLA-A*31:01	1	736	745	10	TMYICGDSTE	8.2e-05	38
HLA-A*02:06	1	743	752	10	STECNLLLQ	8.2e-05	47
HLA-A*31:01	1	744	752	9	TECNLLLQ	8.2e-05	38
HLA-B*58:01	1	747	755	9	SNLLLQYGS	8.2e-05	39
HLA-A*03:01	1	761	769	9	NRALTGI	8.2e-05	31
HLA-A*03:01	1	769	778	10	VEQDKNTQEV	8.2e-05	31
HLA-A*02:03	1	775	783	9	TQEVFAQVK	8.2e-05	39
HLA-B*08:01	1	786	795	10	YKTPPIKDFG	8.2e-05	51
HLA-A*01:01	1	797	806	10	FNFSQILPDP	8.2e-05	53
HLA-A*02:06	1	806	814	9	PSKPSKRSF	8.2e-05	47
HLA-B*58:01	1	807	815	9	SKPSKRSFI	8.2e-05	39
HLA-A*01:01	1	819	828	10	LFNKVTLADA	8.2e-05	53
HLA-A*32:01	1	824	833	10	TLADAGFIKQ	8.2e-05	28
HLA-A*68:01	1	840	848	9	DIAARDLIC	8.2e-05	34
HLA-A*68:02	1	843	851	9	ARDLICAQK	8.2e-05	39
HLA-B*44:02	1	851	859	9	KFNGLTVLP	8.2e-05	25
HLA-A*30:02	1	852	860	9	FNGLTVLPP	8.2e-05	59
HLA-A*23:01	1	857	865	9	VLPLLTD	8.2e-05	23
HLA-A*24:02	1	868	877	10	AQYTSALLAG	8.2e-05	22
HLA-A*24:02	1	882	890	9	GWTFGAGAA	8.2e-05	22
HLA-B*53:01	1	889	898	10	AALQIPFAMQ	8.2e-05	25
HLA-B*15:01	1	903	912	10	FNGIGVTQNV	8.2e-05	37
HLA-B*35:01	1	911	920	10	NVLYENQKLI	8.2e-05	26
HLA-A*30:02	1	917	926	10	QKLIANQFNS	8.2e-05	59
HLA-B*44:02	1	937	946	10	STASALGKLQ	8.2e-05	25
HLA-A*68:01	1	945	954	10	LQDVVNQNAQ	8.2e-05	34
HLA-B*08:01	1	946	955	10	QDVVNQNAQA	8.2e-05	51
HLA-B*51:01	1	953	961	9	AQALNTLVK	8.2e-05	45
HLA-B*58:01	1	956	964	9	LNTLVKQLS	8.2e-05	39
HLA-B*51:01	1	967	976	10	FGAISSVLND	8.2e-05	45
HLA-B*53:01	1	971	980	10	SSVLNDILSR	8.2e-05	25
HLA-B*35:01	1	979	987	9	SRLDKVEAE	8.2e-05	26

HLA-B*44:02	1	999	1007	9	QSLQTYVTQ	8.2e-05	25
HLA-A*01:01	1	1019	1028	10	ANLAATKMSE	8.2e-05	53
HLA-B*08:01	1	1023	1032	10	ATKMSECVLG	8.2e-05	51
HLA-B*44:02	1	1050	1058	9	PQSAPHGVV	8.2e-05	25
HLA-A*03:01	1	1059	1068	10	FLHVTVVPAQ	8.2e-05	31
HLA-B*58:01	1	1060	1068	9	LHVTVVPAQ	8.2e-05	39
HLA-B*44:03	1	1061	1070	10	HVTVVPAQEK	8.2e-05	23
HLA-B*58:01	1	1067	1076	10	AQEKNFTTAP	8.2e-05	39
HLA-B*44:02	1	1077	1085	9	AICHDGKAH	8.2e-05	25
HLA-A*02:03	1	1078	1087	10	ICHDGKAHFP	8.2e-05	39
HLA-A*32:01	1	1082	1091	10	GKAHFPPREGV	8.2e-05	28
HLA-A*03:01	1	1101	1109	9	VTQRNFYEP	8.2e-05	31
HLA-A*31:01	1	1121	1130	10	GNCDVVIGIV	8.2e-05	38
HLA-B*53:01	1	1132	1141	10	NTVYDPLQPE	8.2e-05	25
HLA-A*23:01	1	1137	1146	10	PLQPELDSFK	8.2e-05	23
HLA-B*15:01	1	1140	1149	10	PELDSFKEEL	8.2e-05	37
HLA-B*57:01	1	1160	1168	9	DVDLGDISG	8.2e-05	51
HLA-B*35:01	1	1169	1177	9	INASVVNIQ	8.2e-05	26
HLA-A*03:01	1	1175	1183	9	NIQKEIDRL	8.2e-05	31
HLA-B*35:01	1	1191	1199	9	NESLIDLQE	8.2e-05	26
HLA-B*58:01	1	1194	1202	9	LIDLQELGK	8.2e-05	39
HLA-B*08:01	1	1208	1216	9	KWPWYIWLG	8.2e-05	51
HLA-B*40:01	1	1252	1260	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	HAIHVSNGTH	8.1e-05	32
HLA-A*23:01	1	68	76	9	IHVSNGTH	8.1e-05	23
HLA-B*08:01	1	68	77	10	IHVSNGTHK	8.1e-05	51
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	IKVCEFAQFC	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-A*24:02	1	206	215	10	KHTPINLVRG	8.1e-05	22
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-B*53:01	1	235	243	9	ITRFQTLHR	8.1e-05	25
HLA-A*26:01	1	245	254	10	YLTPGDSSSG	8.1e-05	32
HLA-B*53:01	1	260	269	10	AAYYVGYLQP	8.1e-05	25
HLA-B*58:01	1	262	270	9	YYVGYLQPR	8.1e-05	39
HLA-B*44:03	1	268	277	10	QPRTFLLKYN	8.1e-05	24
HLA-A*68:01	1	277	286	10	NENGTITDAV	8.1e-05	34
HLA-A*23:01	1	302	311	10	SFTVEKGIYQ	8.1e-05	23
HLA-A*01:01	1	334	343	10	PFGEVFNATR	8.1e-05	53
HLA-A*02:01	1	335	343	9	FGEVFNATR	8.1e-05	36
HLA-A*33:01	1	342	351	10	TRFASVYAWN	8.1e-05	39
HLA-A*31:01	1	350	358	9	WNRKRISNC	8.1e-05	38
HLA-A*32:01	1	356	365	10	SNCVADYSVL	8.1e-05	28
HLA-B*40:01	1	356	365	10	SNCVADYSVL	8.1e-05	21
HLA-B*58:01	1	360	368	9	ADYSVLVYNS	8.1e-05	39
HLA-A*02:03	1	366	375	10	YNSASFSTFK	8.1e-05	39
HLA-B*40:01	1	420	429	10	YKLPDDFTGC	8.1e-05	21
HLA-B*08:01	1	436	444	9	NNLDSKVG	8.1e-05	51
HLA-A*03:01	1	479	488	10	GVKGFNCYFP	8.1e-05	31
HLA-B*15:01	1	496	504	9	PTYGVGYQP	8.1e-05	37
HLA-A*23:01	1	527	535	9	STNLVKKNC	8.1e-05	23
HLA-A*68:01	1	536	544	9	VNFNFNGLT	8.1e-05	34



HLA-A*23:01	1	539	547	9	NFNGLTGTG	8.1e-05	23
HLA-A*24:02	1	539	547	9	NFNGLTGTG	8.1e-05	22
HLA-B*08:01	1	552	561	10	SNKKFLPFQQ	8.1e-05	51
HLA-A*68:02	1	555	564	10	KFLPFQFGR	8.1e-05	39
HLA-A*03:01	1	565	573	9	DIADTTDAV	8.1e-05	31
HLA-A*32:01	1	581	590	10	ILDITPCSFQ	8.1e-05	28
HLA-A*02:03	1	600	609	10	NTSNQVAVLY	8.1e-05	39
HLA-B*35:01	1	607	615	9	VLYQGVNCT	8.1e-05	26
HLA-A*01:01	1	610	619	10	QGVNCTEVPV	8.1e-05	53
HLA-B*08:01	1	619	627	9	VAIHADQLT	8.1e-05	51
HLA-B*40:01	1	636	644	9	GSNVVFQTRA	8.1e-05	21
HLA-A*01:01	1	642	650	9	TRAGCLIGA	8.1e-05	53
HLA-A*26:01	1	644	652	9	AGCLIGAEH	8.1e-05	32
HLA-B*44:02	1	644	652	9	AGCLIGAEH	8.1e-05	25
HLA-A*68:02	1	650	658	9	AEHVNSYE	8.1e-05	60
HLA-A*33:01	1	665	673	9	AGICASYQT	8.1e-05	39
HLA-B*44:02	1	710	719	10	AIPTNFTISV	8.1e-05	25
HLA-A*11:01	1	718	727	10	SVTTEILPVS	8.1e-05	23
HLA-A*33:01	1	729	737	9	TKTSVDCTM	8.1e-05	39
HLA-A*68:01	1	747	755	9	SNLLLYQGS	8.1e-05	34
HLA-B*15:01	1	750	758	9	LLQYGSFCT	8.1e-05	37
HLA-A*02:01	1	768	777	10	AVEQDKNTQE	8.1e-05	36
HLA-A*11:01	1	786	794	9	YKTPPIKDF	8.1e-05	23
HLA-A*01:01	1	790	798	9	PIKDFGGFN	8.1e-05	53
HLA-B*57:01	1	807	816	10	SKPSKRSFIE	8.1e-05	51
HLA-A*24:02	1	814	823	10	FIEDLLFNKV	8.1e-05	22
HLA-A*01:01	1	819	827	9	LFNKVTLAD	8.1e-05	53
HLA-B*08:01	1	828	836	9	AGFIKQYGD	8.1e-05	51
HLA-A*30:01	1	838	846	9	LGDIAARDL	8.1e-05	62
HLA-A*32:01	1	841	849	9	IAARDLICA	8.1e-05	28
HLA-B*07:02	1	852	861	10	FNGLTVLPPL	8.1e-05	34
HLA-A*31:01	1	855	864	10	LTVLPPLD	8.1e-05	38
HLA-A*02:01	1	858	867	10	LPPLLTDEMI	8.1e-05	36
HLA-B*40:01	1	861	870	10	LLTDEMIAQY	8.1e-05	21
HLA-A*01:01	1	869	878	10	QYTSALLAGT	8.1e-05	53
HLA-A*02:03	1	879	888	10	ITSGWTFGAG	8.1e-05	39
HLA-A*24:02	1	910	919	10	QNVLYENQKL	8.1e-05	22
HLA-A*31:01	1	913	921	9	LYENQKLIA	8.1e-05	38
HLA-B*44:02	1	933	942	10	DSLSSTASAL	8.1e-05	25
HLA-A*33:01	1	940	949	10	SALGKLQDVV	8.1e-05	39
HLA-A*03:01	1	941	949	9	ALGKLQDVV	8.1e-05	31
HLA-A*33:01	1	945	954	10	LQDVVNQNAQ	8.1e-05	39
HLA-B*44:03	1	946	955	10	QDVVNQNAQA	8.1e-05	24
HLA-B*44:02	1	947	955	9	DVVNQNQAQA	8.1e-05	25
HLA-B*35:01	1	950	958	9	NQNAQALNT	8.1e-05	26
HLA-A*33:01	1	961	970	10	KQLSSNFGAI	8.1e-05	39
HLA-B*07:02	1	988	996	9	VQIDRLITG	8.1e-05	34
HLA-B*44:03	1	989	997	9	QIDRLITGR	8.1e-05	24
HLA-B*35:01	1	1002	1011	10	QTYVVTQLIR	8.1e-05	26
HLA-B*40:01	1	1021	1029	9	LAATKMSEC	8.1e-05	21
HLA-A*30:01	1	1024	1033	10	TKMSECVLGQ	8.1e-05	62
HLA-B*44:03	1	1030	1039	10	VLGQSKRVDF	8.1e-05	24
HLA-A*02:01	1	1036	1045	10	RVDFCGKGYH	8.1e-05	36
HLA-A*31:01	1	1039	1047	9	FCGKGYHLM	8.1e-05	38
HLA-B*58:01	1	1042	1051	10	KGYHLMSFPQ	8.1e-05	39
HLA-A*11:01	1	1043	1051	9	GYHLMSFPQ	8.1e-05	23
HLA-B*44:03	1	1049	1058	10	FPQSAPHGVV	8.1e-05	24
HLA-A*02:03	1	1073	1081	9	TTAPAICHD	8.1e-05	39
HLA-B*57:01	1	1102	1110	9	TORNFYEPQ	8.1e-05	51
HLA-B*58:01	1	1127	1136	10	IGIVNNTVYD	8.1e-05	39
HLA-B*35:01	1	1129	1138	10	IVNNTVYDPL	8.1e-05	26
HLA-A*33:01	1	1138	1147	10	LQPELDSFKE	8.1e-05	39
HLA-B*44:03	1	1138	1146	9	LQPELDSFK	8.1e-05	24
HLA-B*40:01	1	1163	1171	9	LGDISGINA	8.1e-05	21
HLA-A*68:02	1	1199	1208	10	ELGKYEQYIK	8.1e-05	39
HLA-B*07:02	1	1205	1214	10	QYIKWPWYIW	8.1e-05	34

HLA-A*02:06	1	1208	1217	10	KWPWYIWLGF	8.1e-05	47
HLA-A*31:01	1	1229	1237	9	IMLCCMTSC	8.1e-05	38
HLA-A*02:01	1	1239	1247	9	SCLKGCCSC	8.1e-05	36
HLA-B*58:01	1	1239	1247	9	SCLKGCCSC	8.1e-05	39
HLA-A*32:01	1	1244	1253	10	CCSCGSCCKF	8.1e-05	28
HLA-A*68:02	1	1258	1266	9	SEPVKLGVK	8.1e-05	39
HLA-B*08:01	1	1260	1268	9	PVLKGVKLN	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	TNSFTRGVYY	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	72	80	9	GTNGTKRFA	8e-05	22
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	TQSLLIVNN	8e-05	25
HLA-B*51:01	1	128	136	9	IKVCEFFQC	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-B*15:01	1	235	244	10	ITRFQTLHRS	8e-05	37
HLA-B*08:01	1	262	271	10	YYVGYLQPR	8e-05	51
HLA-A*68:02	1	273	281	9	LLKYNENGT	8e-05	39
HLA-B*40:01	1	273	282	10	LLKYNENGTI	8e-05	22
HLA-A*11:01	1	294	303	10	SETKCTLKSF	8e-05	23
HLA-B*44:03	1	304	312	9	TVEKGIYQT	8e-05	24
HLA-B*08:01	1	312	321	10	TSNFRVQPT	8e-05	51
HLA-A*02:06	1	321	330	10	ESIVRFPNIT	8e-05	47
HLA-A*33:01	1	334	342	9	PFGEVFNAT	8e-05	39
HLA-A*03:01	1	336	344	9	GEVFNATRF	8e-05	31
HLA-A*31:01	1	337	346	10	EVFNATRFAS	8e-05	38
HLA-B*53:01	1	356	364	9	SNCVADYSV	8e-05	25
HLA-A*02:01	1	359	368	10	VADYSVLVNS	8e-05	36
HLA-A*02:03	1	359	368	10	VADYSVLVNS	8e-05	39
HLA-A*03:01	1	380	389	10	SPTKLNDLCF	8e-05	31
HLA-B*53:01	1	396	405	10	SFVIRGDEV	8e-05	25
HLA-A*02:03	1	398	406	9	VIRGDEVQR	8e-05	39
HLA-A*30:01	1	426	435	10	FTGCVIAWNS	8e-05	62
HLA-B*08:01	1	433	442	10	WNSNNLDSKV	8e-05	51
HLA-A*30:02	1	436	444	9	NNLDSKVG	8e-05	60
HLA-A*02:03	1	440	448	9	SKVGGNYNY	8e-05	39
HLA-A*11:01	1	440	449	10	SKVGGNYNYL	8e-05	23
HLA-A*31:01	1	480	489	10	VKGFNCYFPL	8e-05	38
HLA-A*33:01	1	499	508	10	GVGYQPYRVV	8e-05	39
HLA-B*57:01	1	513	522	10	ELLHAPATVC	8e-05	51
HLA-A*68:01	1	539	548	10	NFNGLTGTGV	8e-05	34
HLA-A*26:01	1	540	548	9	NFNGLTGTGV	8e-05	32
HLA-A*02:03	1	561	570	10	QFGRDIADTT	8e-05	39
HLA-A*01:01	1	611	620	10	GVNCTEVPVA	8e-05	53
HLA-B*58:01	1	639	648	10	VFQTRAGCLI	8e-05	39
HLA-A*01:01	1	644	653	10	AGCLIGAHEV	8e-05	53
HLA-B*15:01	1	652	661	10	HVNNSYECDI	8e-05	37
HLA-A*68:02	1	664	673	10	GAGICASYQT	8e-05	39

HLA-A*03:01	1	668	677	10	CASYQTQTN8e-05	31
HLA-A*26:01	1	669	678	10	ASYQTQTN8e-05	32
HLA-A*24:02	1	672	680	9	QTQTN8e-05	22
HLA-B*57:01	1	677	685	9	SPRRAR8e-05	51
HLA-B*58:01	1	697	706	10	GVENSVA8e-05	39
HLA-A*30:01	1	699	708	10	ENSVAYS8e-05	62
HLA-A*33:01	1	702	711	10	VAYSN8e-05	39
HLA-A*11:01	1	706	715	10	NNSIAIPT8e-05	23
HLA-A*01:01	1	723	732	10	ILPVSMT8e-05	53
HLA-A*68:02	1	727	735	9	SMTKTSV8e-05	39
HLA-A*03:01	1	755	764	10	SFCTQLNR8e-05	31
HLA-B*35:01	1	755	764	10	SFCTQLNR8e-05	26
HLA-B*51:01	1	765	773	9	TGIAVEQ8e-05	45
HLA-A*31:01	1	782	791	10	VKQIYK8e-05	38
HLA-B*08:01	1	787	795	9	KTPPIK8e-05	51
HLA-A*68:02	1	791	799	9	IKDFGG8e-05	39
HLA-A*68:02	1	795	804	10	GGFNFS8e-05	39
HLA-A*32:01	1	796	804	9	GFNF8e-05	28
HLA-B*57:01	1	837	846	10	CLGDIA8e-05	51
HLA-A*03:01	1	847	855	9	ICAQKF8e-05	31
HLA-A*31:01	1	853	862	10	NGLTVL8e-05	38
HLA-B*40:01	1	863	871	9	TDEMIA8e-05	22
HLA-B*35:01	1	870	878	9	YTSALL8e-05	26
HLA-B*44:03	1	882	891	10	GWTFG8e-05	24
HLA-B*44:02	1	886	895	10	GAGAAL8e-05	25
HLA-B*07:02	1	887	896	10	AGAALQ8e-05	34
HLA-A*01:01	1	897	906	10	MQMAYR8e-05	53
HLA-A*03:01	1	915	923	9	ENQKLI8e-05	31
HLA-B*08:01	1	918	926	9	KLIANQ8e-05	51
HLA-A*68:02	1	921	930	10	ANQFN8e-05	39
HLA-A*01:01	1	928	937	10	IGKIQD8e-05	53
HLA-B*44:03	1	932	940	9	QDLSST8e-05	24
HLA-B*40:01	1	943	951	9	GKLQDV8e-05	22
HLA-B*44:02	1	952	961	10	NAQALN8e-05	25
HLA-A*02:06	1	963	972	10	LSSNFG8e-05	47
HLA-B*51:01	1	986	995	10	AEVQID8e-05	45
HLA-B*44:02	1	991	999	9	DRLITG8e-05	25
HLA-B*57:01	1	998	1006	9	LQSLQT8e-05	51
HLA-A*30:02	1	1031	1040	10	LGQSKR8e-05	60
HLA-A*33:01	1	1045	1054	10	HLMSFP8e-05	39
HLA-B*08:01	1	1061	1070	10	HVTYVP8e-05	51
HLA-A*02:03	1	1063	1072	10	TYVPAQ8e-05	39
HLA-A*02:01	1	1069	1078	10	EKNFTT8e-05	36
HLA-B*44:02	1	1082	1091	10	GKAHFP8e-05	25
HLA-A*01:01	1	1102	1110	9	TQRNFY8e-05	53
HLA-B*35:01	1	1107	1115	9	YEPQII8e-05	26
HLA-B*35:01	1	1111	1119	9	IITDNT8e-05	26
HLA-A*03:01	1	1113	1121	9	TTDNTF8e-05	31
HLA-A*30:01	1	1113	1122	10	TTDNTF8e-05	62
HLA-A*23:01	1	1125	1133	9	VVIGIV8e-05	23
HLA-A*30:01	1	1128	1136	9	GIVNNT8e-05	62
HLA-A*26:01	1	1130	1138	9	VNNTVY8e-05	32
HLA-A*02:01	1	1138	1147	10	LQPELD8e-05	36
HLA-A*68:01	1	1155	1163	9	NHTSPD8e-05	34
HLA-A*23:01	1	1167	1176	10	SGINAS8e-05	23
HLA-A*01:01	1	1168	1177	10	GINASV8e-05	53
HLA-A*23:01	1	1171	1180	10	ASVVNI8e-05	23
HLA-B*58:01	1	1172	1181	10	SVVNIQ8e-05	39
HLA-A*68:02	1	1173	1182	10	VVNIQK8e-05	39
HLA-A*02:06	1	1176	1184	9	IQKEID8e-05	47
HLA-A*03:01	1	1178	1187	10	KEIDRL8e-05	31
HLA-B*40:01	1	1186	1195	10	VAKNLN8e-05	22
HLA-A*03:01	1	1197	1205	9	LQELGK8e-05	31
HLA-B*58:01	1	1224	1233	10	IVMVTI8e-05	39
HLA-A*32:01	1	1225	1233	9	VMVTIM8e-05	28
HLA-A*24:02	1	2	11	10	FVFLVL8e-05	22

HLA-A*30:02	1	8	16	9	LPLVSSQCV	7.9e-05	60
HLA-A*26:01	1	14	23	10	QCVNLTTRTQ	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	PFFSNVTFW	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	TQSLLIVNN	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	NKSWMESEF	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*02:03	1	209	217	9	PINLVRLP	7.9e-05	39
HLA-B*51:01	1	212	221	10	LVRGLPQGFS	7.9e-05	46
HLA-B*44:02	1	214	222	9	RGLPQGFS	7.9e-05	25
HLA-A*68:01	1	215	224	10	GLPQGFSALE	7.9e-05	34
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-B*15:01	1	236	244	9	TRFQTLHRS	7.9e-05	37
HLA-B*40:01	1	281	290	10	TITDAVDCAL	7.9e-05	22
HLA-A*03:01	1	304	313	10	TVEKGIYQTS	7.9e-05	31
HLA-B*57:01	1	309	318	10	IYQTSNFRVQ	7.9e-05	51
HLA-A*68:02	1	322	331	10	SIVRFPNITN	7.9e-05	39
HLA-A*26:01	1	329	338	10	ITNLCPFGEV	7.9e-05	32
HLA-A*33:01	1	333	342	10	CPFGEVFNAT	7.9e-05	39
HLA-B*44:03	1	345	354	10	ASVYAWNRRK	7.9e-05	24
HLA-A*02:03	1	349	358	10	AWNRRKRISNC	7.9e-05	39
HLA-A*26:01	1	380	388	9	SPTKLNLDLC	7.9e-05	32
HLA-B*44:03	1	388	397	10	CFTNVYADSF	7.9e-05	24
HLA-B*07:02	1	393	401	9	YADSFVIRG	7.9e-05	34
HLA-B*57:01	1	414	423	10	NIADYNYKLP	7.9e-05	51
HLA-A*02:03	1	418	426	9	YNYKLPDDF	7.9e-05	39
HLA-B*15:01	1	420	429	10	YKLPDDFTGC	7.9e-05	37
HLA-A*26:01	1	438	447	10	LDSKVGGNYN	7.9e-05	32
HLA-B*40:01	1	442	450	9	VGGNYNYLY	7.9e-05	22
HLA-A*03:01	1	447	456	10	NYLYRLFRKS	7.9e-05	31
HLA-A*02:06	1	452	460	9	LFRKSNLKP	7.9e-05	47
HLA-A*23:01	1	454	463	10	RKSNLKPFR	7.9e-05	23
HLA-A*02:03	1	465	473	9	ISTEIIYQAG	7.9e-05	39
HLA-A*33:01	1	481	490	10	KGFNCYFPLQ	7.9e-05	39
HLA-A*11:01	1	496	504	9	PTYGVGYQP	7.9e-05	23
HLA-A*03:01	1	501	510	10	GYQPYRVVVL	7.9e-05	31
HLA-A*02:03	1	504	512	9	PYRVVVLVSF	7.9e-05	39
HLA-A*26:01	1	519	527	9	ATVCGPKKS	7.9e-05	32
HLA-A*23:01	1	523	531	9	GPKKSTNLV	7.9e-05	23
HLA-A*02:01	1	528	536	9	TNLVKNKCV	7.9e-05	37
HLA-A*32:01	1	559	567	9	FQQFGRDIA	7.9e-05	28
HLA-B*44:03	1	559	567	9	FQQFGRDIA	7.9e-05	24
HLA-B*07:02	1	574	583	10	RDPQTLIELD	7.9e-05	34
HLA-B*07:02	1	579	587	9	LEILDITPC	7.9e-05	34
HLA-A*02:01	1	586	595	10	PCSFGGVSVI	7.9e-05	37
HLA-A*26:01	1	591	599	9	GVSVITPGT	7.9e-05	32
HLA-B*15:01	1	595	603	9	ITPGTNTSN	7.9e-05	37
HLA-B*44:02	1	603	612	10	NQVAVLYQGV	7.9e-05	25
HLA-B*40:01	1	606	614	9	AVLYQGVNC	7.9e-05	22
HLA-B*08:01	1	611	619	9	GVNCTEVPV	7.9e-05	52
HLA-B*44:02	1	613	622	10	NCTEVPVAIH	7.9e-05	25

HLA-A*26:01	1	617	625	9	VPVAIHADQ	7.9e-05	32
HLA-A*68:02	1	623	631	9	ADQLTPTWR	7.9e-05	39
HLA-A*24:02	1	634	643	10	STGSNVFQTR	7.9e-05	22
HLA-B*40:01	1	639	647	9	VFQTRAGCL	7.9e-05	22
HLA-A*68:02	1	653	661	9	VNNSYECDI	7.9e-05	39
HLA-B*44:03	1	669	677	9	ASYQTQTN	7.9e-05	24
HLA-B*53:01	1	698	706	9	VENSVAYS	7.9e-05	25
HLA-A*02:03	1	703	712	10	AYSNNSIAIP	7.9e-05	39
HLA-A*01:01	1	711	720	10	IPNFTISVT	7.9e-05	53
HLA-A*02:06	1	712	720	9	PTNFTISVT	7.9e-05	47
HLA-B*51:01	1	713	722	10	TNFTISVTTE	7.9e-05	46
HLA-A*01:01	1	724	732	9	LPVSMTKTS	7.9e-05	53
HLA-A*32:01	1	743	752	10	STECNLLLQ	7.9e-05	28
HLA-A*02:01	1	767	775	9	IAVEQDKNT	7.9e-05	37
HLA-B*57:01	1	775	784	10	TQEVFAQVKQ	7.9e-05	51
HLA-B*15:01	1	813	822	10	SFIEDLLFNK	7.9e-05	37
HLA-B*51:01	1	823	832	10	VTLADAGFIK	7.9e-05	46
HLA-A*68:01	1	853	861	9	NGLTVLPPL	7.9e-05	34
HLA-A*11:01	1	854	862	9	GLTVLPPLL	7.9e-05	23
HLA-A*03:01	1	855	864	10	LTVLPPLTD	7.9e-05	31
HLA-B*51:01	1	857	865	9	VLPLLTDDE	7.9e-05	46
HLA-A*32:01	1	858	866	9	LPPLLTDEM	7.9e-05	28
HLA-A*30:02	1	860	868	9	PLLTDemia	7.9e-05	60
HLA-B*44:02	1	863	871	9	TDEMIAQYT	7.9e-05	25
HLA-B*08:01	1	869	877	9	QYTSALLAG	7.9e-05	52
HLA-B*40:01	1	872	880	9	SALLAGTIT	7.9e-05	22
HLA-A*68:02	1	879	888	10	ITSGWTFGAG	7.9e-05	39
HLA-A*32:01	1	896	904	9	AMQMAYRFN	7.9e-05	28
HLA-A*68:01	1	903	912	10	FNGIGVTQNV	7.9e-05	34
HLA-A*26:01	1	909	918	10	TQNVLYENQK	7.9e-05	32
HLA-B*44:03	1	936	944	9	SSTASALGK	7.9e-05	24
HLA-A*30:01	1	941	950	10	ALGKLQDVVN	7.9e-05	62
HLA-A*68:01	1	944	953	10	KLQDVVNQNA	7.9e-05	34
HLA-A*26:01	1	950	958	9	NQNAQALNT	7.9e-05	32
HLA-A*32:01	1	951	960	10	QNAQALNTLV	7.9e-05	28
HLA-B*40:01	1	969	977	9	AISSVLNDI	7.9e-05	22
HLA-A*03:01	1	979	987	9	SRLDKVEAE	7.9e-05	31
HLA-A*68:01	1	979	988	10	SRLDKVEAEV	7.9e-05	34
HLA-A*26:01	1	1022	1030	9	AATKMSECV	7.9e-05	32
HLA-B*08:01	1	1028	1036	9	ECVLGQSKR	7.9e-05	52
HLA-B*44:03	1	1050	1058	9	PQSAPHGVV	7.9e-05	24
HLA-A*31:01	1	1060	1068	9	LHVTVVPAQ	7.9e-05	38
HLA-A*68:01	1	1073	1082	10	TTAPAICHDG	7.9e-05	34
HLA-B*53:01	1	1097	1105	9	THWFVTQRN	7.9e-05	25
HLA-B*35:01	1	1103	1111	9	QRNFYEPQI	7.9e-05	26
HLA-B*07:02	1	1117	1126	10	TFVSGNCDVV	7.9e-05	34
HLA-B*40:01	1	1118	1126	9	FVSGNCDVV	7.9e-05	22
HLA-A*11:01	1	1132	1140	9	NTVYDPLQP	7.9e-05	23
HLA-A*33:01	1	1156	1164	9	HTSPDVDLG	7.9e-05	39
HLA-A*68:02	1	1157	1165	9	TSPDVDLGD	7.9e-05	39
HLA-A*02:01	1	1171	1179	9	ASVVNIQKE	7.9e-05	37
HLA-A*32:01	1	1194	1202	9	LIDLQELGK	7.9e-05	28
HLA-A*02:01	1	1227	1236	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	SQCVNLTRRT	7.8e-05	24
HLA-A*02:03	1	15	23	9	CVNLTRRTQ	7.8e-05	40
HLA-B*08:01	1	18	27	10	LTRTQLPPA	7.8e-05	52
HLA-B*51:01	1	18	27	10	LTRTQLPPA	7.8e-05	46
HLA-B*35:01	1	20	29	10	TRTQLPAYT	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	IHSVGTNGT	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-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*40:01	1	236	244	9	TRFQTLHRS	7.8e-05	22
HLA-A*26:01	1	262	271	10	YYVGYLQPR	7.8e-05	32
HLA-A*23:01	1	274	282	9	LKYNENGTI	7.8e-05	23
HLA-A*32:01	1	275	283	9	KYNENGTIT	7.8e-05	28
HLA-B*07:02	1	281	289	9	TITDAVDCA	7.8e-05	35
HLA-A*31:01	1	292	300	9	PLSETKCTL	7.8e-05	39
HLA-B*15:01	1	297	306	10	KCTLKSFTVE	7.8e-05	37
HLA-A*26:01	1	298	306	9	CTLKSFTVE	7.8e-05	32
HLA-A*23:01	1	310	318	9	YQTSNFRVQ	7.8e-05	23
HLA-A*68:01	1	314	322	9	NFRVQPTES	7.8e-05	34
HLA-B*35:01	1	314	322	9	NFRVQPTES	7.8e-05	27
HLA-A*32:01	1	315	324	10	FRVQPTESIV	7.8e-05	28
HLA-A*30:01	1	327	335	9	PNITNLCPF	7.8e-05	63
HLA-B*57:01	1	331	340	10	NLCPFGEVFN	7.8e-05	52
HLA-A*33:01	1	349	358	10	AWNKRKISNC	7.8e-05	39
HLA-B*07:02	1	364	373	10	VLYNSASFST	7.8e-05	35
HLA-A*23:01	1	383	392	10	KLNDLCFTNV	7.8e-05	23
HLA-A*01:01	1	405	414	10	RQIAPGQTGN	7.8e-05	54
HLA-A*02:03	1	408	416	9	APGQTGNIA	7.8e-05	40
HLA-B*58:01	1	420	429	10	YKLPDDFTGC	7.8e-05	40
HLA-A*68:02	1	437	446	10	NLDSKVGGNY	7.8e-05	39
HLA-B*08:01	1	446	455	10	YNYLYRLFRK	7.8e-05	52
HLA-B*08:01	1	447	456	10	NYLYRLFRKS	7.8e-05	52
HLA-A*02:01	1	453	461	9	FRKSNLKPFP	7.8e-05	37
HLA-A*30:02	1	453	462	10	FRKSNLKPFE	7.8e-05	60
HLA-A*01:01	1	455	464	10	KSNLKPFERD	7.8e-05	54
HLA-A*30:02	1	456	464	9	SNLKPFERD	7.8e-05	60
HLA-B*15:01	1	467	475	9	TEIYQAGST	7.8e-05	37
HLA-B*53:01	1	467	475	9	TEIYQAGST	7.8e-05	26
HLA-A*31:01	1	468	476	9	EIYQAGSTP	7.8e-05	39
HLA-A*02:06	1	472	481	10	AGSTPCNGVK	7.8e-05	47
HLA-A*32:01	1	480	489	10	VKGFNCYFPL	7.8e-05	28
HLA-A*11:01	1	485	494	10	CYFPLQSYGF	7.8e-05	23
HLA-B*15:01	1	497	506	10	TYGVGYQPYR	7.8e-05	37
HLA-B*53:01	1	506	515	10	RVVLSFELL	7.8e-05	26
HLA-B*40:01	1	521	530	10	VCGPKKSTNL	7.8e-05	22
HLA-A*33:01	1	540	548	9	FNGLTGTGV	7.8e-05	39
HLA-B*08:01	1	541	550	10	NGLTGTGVLT	7.8e-05	52
HLA-A*02:06	1	549	558	10	LTESNKKFLP	7.8e-05	47
HLA-A*11:01	1	568	577	10	DTTDAVRDPQ	7.8e-05	23
HLA-B*08:01	1	585	593	9	TPCSFGGVS	7.8e-05	52
HLA-A*26:01	1	603	611	9	NQVAVLYQG	7.8e-05	32
HLA-B*53:01	1	632	641	10	VYSTGSNVFQ	7.8e-05	26
HLA-A*33:01	1	637	646	10	SNVFQTRAGC	7.8e-05	39
HLA-B*40:01	1	638	646	9	NVFQTRAGC	7.8e-05	22
HLA-B*44:03	1	644	652	9	AGCLIGAETH	7.8e-05	24
HLA-B*40:01	1	648	657	10	IGAEHVNNNSY	7.8e-05	22
HLA-A*30:02	1	660	669	10	DIPIGAGICA	7.8e-05	60
HLA-B*58:01	1	665	673	9	AGICASYQT	7.8e-05	40
HLA-B*15:01	1	667	675	9	ICASYQTQT	7.8e-05	37
HLA-B*53:01	1	670	678	9	SYQTQTNSP	7.8e-05	26
HLA-B*35:01	1	671	680	10	YQTQTNSPRR	7.8e-05	27
HLA-B*07:02	1	675	683	9	TNSPRRRARS	7.8e-05	35
HLA-B*44:02	1	679	687	9	RRARVASQ	7.8e-05	25
HLA-A*02:03	1	696	704	9	LGVENSVAY	7.8e-05	40
HLA-A*30:01	1	697	706	10	GVENSVAYSN	7.8e-05	63

HLA-A*68:01	1	716	725	10	TISVTTEILP	7.8e-05	34
HLA-B*15:01	1	726	735	10	VSMTKTSVDC	7.8e-05	37
HLA-B*07:02	1	728	736	9	MTKTSVDCT	7.8e-05	35
HLA-B*51:01	1	737	745	9	MYICGDSTE	7.8e-05	46
HLA-A*02:01	1	740	749	10	CGDSTECSNL	7.8e-05	37
HLA-B*58:01	1	740	749	10	CGDSTECSNL	7.8e-05	40
HLA-A*02:01	1	744	753	10	TECSNLLLQY	7.8e-05	37
HLA-B*51:01	1	753	762	10	YGSFCTQLNR	7.8e-05	46
HLA-A*30:02	1	757	766	10	CTQLNRALTG	7.8e-05	60
HLA-A*01:01	1	758	766	9	TQLNRALTG	7.8e-05	54
HLA-A*33:01	1	762	771	10	RALTGIAVEQ	7.8e-05	39
HLA-A*68:02	1	765	773	9	TGIAVEQDK	7.8e-05	39
HLA-A*68:02	1	783	792	10	KQIYKTPPIK	7.8e-05	39
HLA-A*02:06	1	788	797	10	TPPIKDFGGF	7.8e-05	47
HLA-A*02:03	1	795	804	10	GGFNFSQILP	7.8e-05	40
HLA-A*02:06	1	797	805	9	FNFSQILPD	7.8e-05	47
HLA-B*15:01	1	850	859	10	QKFNGLTVLP	7.8e-05	37
HLA-B*51:01	1	861	869	9	LLTDEMIAQ	7.8e-05	46
HLA-B*57:01	1	861	869	9	LLTDEMIAQ	7.8e-05	52
HLA-A*01:01	1	863	872	10	TDEMIAQYTS	7.8e-05	54
HLA-B*35:01	1	874	882	9	LLAGTITSG	7.8e-05	27
HLA-A*02:06	1	900	909	10	AYRFNGIGVT	7.8e-05	47
HLA-A*02:06	1	908	917	10	VTQNVLYENQ	7.8e-05	47
HLA-A*33:01	1	910	919	10	QNVLYENQKL	7.8e-05	39
HLA-A*33:01	1	914	922	9	YENQKLIAN	7.8e-05	39
HLA-B*58:01	1	924	932	9	FNSAIGKIQ	7.8e-05	40
HLA-A*03:01	1	932	941	10	QDLSSTASA	7.8e-05	31
HLA-A*33:01	1	939	948	10	ASALGKLQDV	7.8e-05	39
HLA-B*40:01	1	951	960	10	QNAQALNTLV	7.8e-05	22
HLA-B*53:01	1	969	978	10	AISSVLNDIL	7.8e-05	26
HLA-A*33:01	1	986	994	9	AEVQIDRLI	7.8e-05	39
HLA-A*68:01	1	988	996	9	VQIDRLITG	7.8e-05	34
HLA-B*07:02	1	1000	1008	9	SLQTYVTQQ	7.8e-05	35
HLA-A*31:01	1	1021	1029	9	LAATKMSEC	7.8e-05	39
HLA-A*01:01	1	1024	1033	10	TKMSECVLGQ	7.8e-05	54
HLA-A*30:01	1	1024	1032	9	TKMSECVLG	7.8e-05	63
HLA-B*35:01	1	1026	1035	10	MSECVLGQSK	7.8e-05	27
HLA-A*24:02	1	1036	1044	9	RVDFCGKGY	7.8e-05	23
HLA-A*02:03	1	1041	1049	9	GKGYHLMSF	7.8e-05	40
HLA-B*53:01	1	1055	1063	9	HGVVFLHVT	7.8e-05	26
HLA-A*33:01	1	1060	1069	10	LHVTVVPAQE	7.8e-05	39
HLA-B*07:02	1	1074	1083	10	TAPAICHDGK	7.8e-05	35
HLA-B*44:03	1	1075	1083	9	APAICHDGK	7.8e-05	24
HLA-B*35:01	1	1084	1093	10	AHFPPREGV	7.8e-05	27
HLA-A*02:01	1	1093	1102	10	VSNGTHWFVT	7.8e-05	37
HLA-A*03:01	1	1111	1119	9	IITTDNTFV	7.8e-05	31
HLA-A*68:01	1	1129	1137	9	IVNNTVYDP	7.8e-05	34
HLA-A*33:01	1	1163	1171	9	LGDISGINA	7.8e-05	39
HLA-A*01:01	1	1175	1184	10	NIQKEIDRLN	7.8e-05	54
HLA-B*44:02	1	1179	1187	9	EIDRLNEVA	7.8e-05	25
HLA-B*08:01	1	1194	1202	9	LIDLQELGK	7.8e-05	52
HLA-B*44:03	1	1197	1205	9	LQELGKYEQ	7.8e-05	24
HLA-A*01:01	1	1202	1210	9	KYEQYIKWP	7.8e-05	54
HLA-A*33:01	1	1210	1218	9	PWYIWLGFI	7.8e-05	39
HLA-A*01:01	1	1221	1230	10	LIAIVMVTIM	7.8e-05	54
HLA-A*68:01	1	1222	1231	10	IATVMVTIML	7.8e-05	34
HLA-A*32:01	1	1225	1234	10	VMVTIMLCCM	7.8e-05	28
HLA-B*58:01	1	1252	1261	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	CVNLTRTRQ	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	SFTRGVYYP	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-A*02:03	1	74	82	9	NGTKRFANP	7.7e-05	40
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	KTQSLIVNNA	7.7e-05	29
HLA-A*01:01	1	115	124	10	QSLIVNNA	7.7e-05	54
HLA-B*57:01	1	116	125	10	SLLIVNNA	7.7e-05	52
HLA-A*02:03	1	122	131	10	NATNVVIVKVC	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-B*44:02	1	214	223	10	RGLPQGFSA	7.7e-05	25
HLA-A*30:02	1	220	228	9	FSALEPLVD	7.7e-05	60
HLA-A*33:01	1	225	233	9	PLVDLPIGI	7.7e-05	40
HLA-B*15:01	1	244	252	9	SYLTPGDSS	7.7e-05	37
HLA-A*33:01	1	249	257	9	GDSSSGWTA	7.7e-05	40
HLA-B*44:02	1	266	275	10	YLPRTFLLK	7.7e-05	25
HLA-A*11:01	1	270	279	10	RTFLLKYNE	7.7e-05	24
HLA-A*26:01	1	270	278	9	RTFLLKYNE	7.7e-05	32
HLA-B*57:01	1	285	294	10	AVDCALDPLS	7.7e-05	52
HLA-B*53:01	1	297	305	9	KCTLKSFTV	7.7e-05	26
HLA-A*02:01	1	302	311	10	SFTVEKGIYQ	7.7e-05	37
HLA-B*53:01	1	310	318	9	YQTSNFRVQ	7.7e-05	26
HLA-A*01:01	1	323	331	9	IVRFPNITN	7.7e-05	54
HLA-A*30:01	1	326	334	9	FPNITNLCP	7.7e-05	63
HLA-B*44:02	1	327	335	9	PNITNLCPF	7.7e-05	25
HLA-A*01:01	1	332	341	10	LCPFGEVFN	7.7e-05	54
HLA-B*07:02	1	344	352	9	FASVYAWNR	7.7e-05	35
HLA-B*57:01	1	349	358	10	AWNRKRISNC	7.7e-05	52
HLA-B*15:01	1	350	358	9	WNRKRISNC	7.7e-05	37
HLA-A*31:01	1	351	359	9	NRKRISNCV	7.7e-05	39
HLA-B*15:01	1	360	369	10	ADYSVLYNSA	7.7e-05	37
HLA-B*44:02	1	380	388	9	SPTKLNDLC	7.7e-05	25
HLA-B*08:01	1	382	390	9	TKLNDLCFT	7.7e-05	52
HLA-A*32:01	1	384	393	10	LNDLCFTNVY	7.7e-05	29
HLA-A*30:01	1	388	397	10	CFTNVYADSF	7.7e-05	63
HLA-A*01:01	1	404	412	9	VRQIAPGQT	7.7e-05	54
HLA-B*57:01	1	426	434	9	FTGCVIAWN	7.7e-05	52
HLA-A*68:02	1	433	441	9	WNSNNLDSK	7.7e-05	40
HLA-A*03:01	1	440	449	10	SKVGGNYNYL	7.7e-05	31
HLA-B*08:01	1	441	450	10	KVGGNYNYLY	7.7e-05	52
HLA-A*02:01	1	460	469	10	PFERDISTEI	7.7e-05	37
HLA-A*02:06	1	463	471	9	RDISTEIQ	7.7e-05	47
HLA-A*68:01	1	466	475	10	STEIQAGST	7.7e-05	34
HLA-A*03:01	1	473	482	10	GSTPCNGVKG	7.7e-05	31
HLA-B*08:01	1	494	503	10	FQPTYGVGYQ	7.7e-05	52
HLA-B*08:01	1	496	504	9	PTYGVGYQP	7.7e-05	52
HLA-A*01:01	1	515	524	10	LHAPATVCGP	7.7e-05	54
HLA-A*33:01	1	519	528	10	ATVCGPKKST	7.7e-05	40
HLA-B*44:02	1	555	563	9	KFLPFQQFG	7.7e-05	25
HLA-A*31:01	1	565	573	9	DIADTTDAV	7.7e-05	39
HLA-B*51:01	1	569	578	10	TTDAVRDPQT	7.7e-05	46
HLA-B*08:01	1	614	623	10	CTEVPVAIHA	7.7e-05	52
HLA-A*01:01	1	618	627	10	PVAIHADQLT	7.7e-05	54
HLA-B*07:02	1	619	627	9	VAIHADQLT	7.7e-05	35
HLA-B*57:01	1	628	637	10	PTWRVYSTGS	7.7e-05	52
HLA-B*35:01	1	634	642	9	STGSNVFQT	7.7e-05	27
HLA-B*40:01	1	644	652	9	AGCLIGAHEH	7.7e-05	22



HLA-B*57:01	1	664	673	10	GAGICASYQT 7.7e-05	52
HLA-A*26:01	1	670	678	9	SYQTQTNSP 7.7e-05	32
HLA-A*31:01	1	694	703	10	MSLGVENSV 7.7e-05	39
HLA-A*30:01	1	735	744	10	CTMYICGDST 7.7e-05	63
HLA-A*68:02	1	735	743	9	CTMYICGDS 7.7e-05	40
HLA-B*40:01	1	738	746	9	YICGDSTEC 7.7e-05	22
HLA-B*53:01	1	767	776	10	IAVEQDKNTQ 7.7e-05	26
HLA-A*68:02	1	769	777	9	VEQDKNTQE 7.7e-05	40
HLA-B*07:02	1	811	820	10	KRSFIEDLLF 7.7e-05	35
HLA-B*35:01	1	817	826	10	DLLFNKVTLA 7.7e-05	27
HLA-A*23:01	1	821	830	10	NKVTLADAGF 7.7e-05	23
HLA-A*03:01	1	823	831	9	VTLADAGFI 7.7e-05	31
HLA-A*02:01	1	840	848	9	DIAARDLIC 7.7e-05	37
HLA-B*44:02	1	844	853	10	RDLICAQKFN 7.7e-05	25
HLA-A*01:01	1	847	856	10	ICAQKFNGLT 7.7e-05	54
HLA-B*58:01	1	851	860	10	KFNGLTVLPP 7.7e-05	40
HLA-A*32:01	1	895	904	10	FAMQMAYRFN 7.7e-05	29
HLA-B*35:01	1	898	906	9	QMAYRFNGI 7.7e-05	27
HLA-B*53:01	1	899	907	9	MAYRFNGIG 7.7e-05	26
HLA-B*57:01	1	915	923	9	ENQKLIANQ 7.7e-05	52
HLA-B*53:01	1	953	961	9	AQALNTLVK 7.7e-05	26
HLA-A*23:01	1	979	987	9	SRLDKVEAE 7.7e-05	23
HLA-A*03:01	1	986	994	9	AEVQIDRLI 7.7e-05	31
HLA-A*68:01	1	991	1000	10	DRLITGRLQS 7.7e-05	34
HLA-A*33:01	1	993	1002	10	LITGRLQSLQ 7.7e-05	40
HLA-B*15:01	1	993	1002	10	LITGRLQSLQ 7.7e-05	37
HLA-A*03:01	1	1007	1015	9	QQLIRAAEI 7.7e-05	31
HLA-B*51:01	1	1008	1017	10	QLIRAAEIRA 7.7e-05	46
HLA-A*31:01	1	1011	1020	10	RAAEIRASAN 7.7e-05	39
HLA-A*68:01	1	1045	1054	10	HLMSPQASAP 7.7e-05	34
HLA-A*11:01	1	1048	1057	10	SFPQSAPHGV 7.7e-05	24
HLA-A*33:01	1	1064	1073	10	YVPAQEKNT 7.7e-05	40
HLA-A*31:01	1	1067	1076	10	AQEKNTTAP 7.7e-05	39
HLA-B*08:01	1	1089	1098	10	EGVFSNGTH 7.7e-05	52
HLA-A*30:01	1	1109	1118	10	PQIITTDNTF 7.7e-05	63
HLA-A*02:03	1	1113	1121	9	TTDNTFVSG 7.7e-05	40
HLA-A*31:01	1	1117	1125	9	TFVSGNCDV 7.7e-05	39
HLA-B*53:01	1	1124	1132	9	DVVIGIVNN 7.7e-05	26
HLA-A*03:01	1	1129	1137	9	IVNNTVYDP 7.7e-05	31
HLA-A*23:01	1	1129	1138	10	IVNNTVYDPL 7.7e-05	23
HLA-A*02:03	1	1131	1140	10	NNTVYDPLQP 7.7e-05	40
HLA-B*08:01	1	1138	1146	9	LQPELDSFK 7.7e-05	52
HLA-A*26:01	1	1140	1149	10	PELDSFKEEL 7.7e-05	32
HLA-A*68:01	1	1167	1176	10	SGINASVVNI 7.7e-05	34
HLA-A*31:01	1	1178	1187	10	KEIDRLNEVA 7.7e-05	39
HLA-A*03:01	1	1179	1187	9	EIDRLNEVA 7.7e-05	31
HLA-B*15:01	1	1179	1187	9	EIDRLNEVA 7.7e-05	37
HLA-A*26:01	1	1180	1188	9	IDRLNEVAK 7.7e-05	32
HLA-A*03:01	1	1209	1217	9	WPWYIWLGF 7.7e-05	31
HLA-B*15:01	1	1219	1228	10	AGLIAIVMVT 7.7e-05	37
HLA-B*53:01	1	1219	1227	9	AGLIAIVMV 7.7e-05	26
HLA-A*26:01	1	1253	1261	9	FDEDDSEPV 7.7e-05	32
HLA-B*07:02	1	1255	1263	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	NLTTTRTQLP 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	SFTRGVYYP 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	IHSVGTNGTK 7.6e-05	37
HLA-B*53:01	1	69	78	10	HVSGTNGTKR 7.6e-05	26
HLA-A*11:01	1	72	81	10	GTNGTKRFAN 7.6e-05	24

HLA-A*02:01	1	76	84	9	TKRFANPVL	7.6e-05	37
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*68:01	1	210	218	9	INLVRGLPQ	7.6e-05	34
HLA-B*51:01	1	243	252	10	RSYLTPGDSS	7.6e-05	46
HLA-A*30:01	1	245	254	10	YLTPGDSSSSG	7.6e-05	63
HLA-A*02:01	1	253	262	10	SGWTAGAAAY	7.6e-05	37
HLA-A*03:01	1	312	320	9	TSNFRVQPT	7.6e-05	32
HLA-B*44:02	1	345	353	9	ASVYAWNRRK	7.6e-05	26
HLA-A*68:02	1	350	358	9	WNRKRISNC	7.6e-05	40
HLA-A*30:01	1	352	361	10	RKRISNCVAD	7.6e-05	63
HLA-A*23:01	1	356	364	9	SNCVADYSV	7.6e-05	24
HLA-A*02:01	1	361	369	9	DYSVLYNSA	7.6e-05	37
HLA-B*07:02	1	364	372	9	VLNSASFSS	7.6e-05	35
HLA-A*33:01	1	372	381	10	STFKCYGVSP	7.6e-05	40
HLA-A*03:01	1	376	384	9	CYGVSPTKL	7.6e-05	32
HLA-A*01:01	1	381	390	10	PTKLNDLCFT	7.6e-05	54
HLA-B*44:02	1	404	413	10	VRQIAPGQTG	7.6e-05	26
HLA-B*58:01	1	426	435	10	FTGCVIAWNS	7.6e-05	40
HLA-B*57:01	1	427	436	10	TGCVIAWNSN	7.6e-05	52
HLA-A*02:06	1	430	439	10	VIAWNSNNLD	7.6e-05	48
HLA-A*02:03	1	437	445	9	NLDSKVGGN	7.6e-05	40
HLA-A*03:01	1	461	469	9	FERDISTEI	7.6e-05	32
HLA-A*03:01	1	478	487	10	NGVKGFNCYF	7.6e-05	32
HLA-B*40:01	1	478	486	9	NGVKGFNCY	7.6e-05	22
HLA-B*15:01	1	485	493	9	CYFPLQSYG	7.6e-05	38
HLA-A*68:01	1	499	508	10	GVGYPYRVV	7.6e-05	34
HLA-B*51:01	1	507	516	10	VVLSFELLH	7.6e-05	46
HLA-A*01:01	1	515	523	9	LHAPATVCG	7.6e-05	54
HLA-A*11:01	1	523	531	9	GPKKSTNLV	7.6e-05	24
HLA-B*58:01	1	544	553	10	TGTGVLTESN	7.6e-05	40
HLA-A*26:01	1	548	557	10	VLTESNKKFL	7.6e-05	32
HLA-A*03:01	1	554	563	10	KKFLPFQQFG	7.6e-05	32
HLA-A*24:02	1	565	573	9	DIADTTDAV	7.6e-05	23
HLA-B*08:01	1	565	574	10	DIADTTDAVR	7.6e-05	52
HLA-A*32:01	1	585	594	10	TPCSFGGVS	7.6e-05	29
HLA-A*33:01	1	588	597	10	SFGGVSVIP	7.6e-05	40
HLA-A*68:01	1	607	615	9	VLYQGVNCT	7.6e-05	34
HLA-B*58:01	1	611	619	9	GVNCTEVPV	7.6e-05	40
HLA-A*33:01	1	617	625	9	VPVAIHADQ	7.6e-05	40
HLA-A*32:01	1	619	628	10	VAIHADQLTP	7.6e-05	29
HLA-B*44:03	1	620	628	9	AIHADQLTP	7.6e-05	24
HLA-B*53:01	1	623	632	10	ADQLTPTWRV	7.6e-05	26
HLA-B*51:01	1	628	636	9	PTWRVYSTG	7.6e-05	46
HLA-A*23:01	1	634	642	9	STGSNVFQT	7.6e-05	24
HLA-A*02:01	1	666	674	9	GICASYQTQ	7.6e-05	37
HLA-A*02:03	1	666	674	9	GICASYQTQ	7.6e-05	40
HLA-A*24:02	1	671	680	10	YQTQTNPRR	7.6e-05	23
HLA-A*02:01	1	680	688	9	RARSVASQS	7.6e-05	37
HLA-B*44:02	1	686	695	10	SQSIIAYTMS	7.6e-05	26
HLA-B*15:01	1	700	709	10	NSVAYSNNSI	7.6e-05	38
HLA-B*15:01	1	727	736	10	SMTKTSVDCT	7.6e-05	38
HLA-A*23:01	1	729	737	9	TKTSVDCTM	7.6e-05	24
HLA-B*08:01	1	729	738	10	TKTSVDCTMY	7.6e-05	52
HLA-B*07:02	1	732	740	9	SVDCTMYIC	7.6e-05	35
HLA-B*51:01	1	736	745	10	TMYICGDSTE	7.6e-05	46

HLA-A*68:01	1	741	749	9	GDSTECSNL	7.6e-05	34
HLA-A*02:06	1	744	752	9	TECSNLLLQ	7.6e-05	48
HLA-B*51:01	1	746	754	9	CSNLLLQYG	7.6e-05	46
HLA-A*01:01	1	762	770	9	RALTGIAVE	7.6e-05	54
HLA-A*33:01	1	762	770	9	RALTGIAVE	7.6e-05	40
HLA-A*26:01	1	764	773	10	LTGIAVEQDK	7.6e-05	32
HLA-A*03:01	1	776	784	9	QEVFAQVKQ	7.6e-05	32
HLA-A*01:01	1	780	789	10	AQVKQIYKTP	7.6e-05	54
HLA-B*51:01	1	785	793	9	IYKTPPIKD	7.6e-05	46
HLA-B*51:01	1	786	795	10	YKTPPIKDFG	7.6e-05	46
HLA-B*53:01	1	800	809	10	SQILPDPSKP	7.6e-05	26
HLA-A*24:02	1	810	818	9	SKRSFIEDL	7.6e-05	23
HLA-A*02:03	1	811	820	10	KRSFIEDLLF	7.6e-05	40
HLA-A*03:01	1	819	828	10	LFNKVTLADA	7.6e-05	32
HLA-B*44:03	1	842	851	10	AARDLICAQK	7.6e-05	24
HLA-A*33:01	1	852	861	10	FNGLTVLPPL	7.6e-05	40
HLA-B*44:02	1	862	871	10	LTDEMIAQYT	7.6e-05	26
HLA-A*31:01	1	869	877	9	QYTSALLAG	7.6e-05	39
HLA-B*07:02	1	870	878	9	YTSALLAGT	7.6e-05	35
HLA-A*68:01	1	872	881	10	SALLAGTITS	7.6e-05	34
HLA-B*40:01	1	873	881	9	ALLAGTITS	7.6e-05	22
HLA-B*51:01	1	877	886	10	GTITSGWTFG	7.6e-05	46
HLA-A*33:01	1	878	886	9	TITSGWTFG	7.6e-05	40
HLA-B*40:01	1	881	889	9	SGWTFGAGA	7.6e-05	22
HLA-A*03:01	1	888	897	10	GAALQIPFAM	7.6e-05	32
HLA-A*01:01	1	894	902	9	PFAMQMAYR	7.6e-05	54
HLA-B*44:02	1	897	905	9	MQMAYRFNG	7.6e-05	26
HLA-B*40:01	1	929	938	10	GKIQDLSLST	7.6e-05	22
HLA-B*08:01	1	932	940	9	QDLSLSTAS	7.6e-05	52
HLA-B*40:01	1	936	945	10	SSTASALGKL	7.6e-05	22
HLA-B*57:01	1	947	955	9	DVVNQNAQA	7.6e-05	52
HLA-B*08:01	1	956	965	10	LNTLVKQLSS	7.6e-05	52
HLA-A*32:01	1	958	966	9	TLVKQLSSN	7.6e-05	29
HLA-A*33:01	1	975	984	10	NDILSRLDKV	7.6e-05	40
HLA-B*07:02	1	978	987	10	LSRLDKVEAE	7.6e-05	35
HLA-B*07:02	1	997	1006	10	RLQSLQTYVT	7.6e-05	35
HLA-B*15:01	1	1003	1011	9	TYVTQQLIR	7.6e-05	38
HLA-A*11:01	1	1042	1050	9	KGYHLSFSP	7.6e-05	24
HLA-A*26:01	1	1047	1056	10	MSFPQSAPHG	7.6e-05	32
HLA-A*24:02	1	1053	1061	9	APHGVVFLH	7.6e-05	23
HLA-A*23:01	1	1064	1073	10	YVPAQEKNT	7.6e-05	24
HLA-B*53:01	1	1074	1083	10	TAPAICHGDK	7.6e-05	26
HLA-A*30:02	1	1080	1089	10	HDGKAHFPRE	7.6e-05	61
HLA-A*02:03	1	1095	1104	10	NGTHWFVTQR	7.6e-05	40
HLA-A*11:01	1	1104	1113	10	RNFYEPQIIT	7.6e-05	24
HLA-B*08:01	1	1108	1116	9	EPQIITTDN	7.6e-05	52
HLA-B*51:01	1	1135	1143	9	YDPLQPELD	7.6e-05	46
HLA-A*30:01	1	1140	1149	10	PELDSFKEEL	7.6e-05	63
HLA-B*35:01	1	1167	1175	9	SGINASVVN	7.6e-05	27
HLA-A*11:01	1	1186	1194	9	VAKNLNESL	7.6e-05	24
HLA-B*57:01	1	1187	1195	9	AKNLNESLI	7.6e-05	52
HLA-B*35:01	1	1194	1202	9	LIDLQELGK	7.6e-05	27
HLA-B*40:01	1	1206	1215	10	YIKWPWYIWL	7.6e-05	22
HLA-A*01:01	1	1216	1224	9	GFIAGLIAI	7.6e-05	54
HLA-A*26:01	1	1220	1229	10	GLIAIVMVTI	7.6e-05	32
HLA-B*44:03	1	1222	1230	9	IAIVMVTIM	7.6e-05	24
HLA-A*30:01	1	1236	1244	9	SCCCLKGC	7.6e-05	63
HLA-B*58:01	1	1238	1247	10	CSCLKGCCSC	7.6e-05	40
HLA-B*07:02	1	1252	1260	9	KFDEDDSEP	7.6e-05	35
HLA-A*03:01	1	1258	1267	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	RTQLPPPAYT	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-B*44:03	1	72	80	9	GTNGTKRFA	7.5e-05	24
HLA-A*02:01	1	97	105	9	KSNIIRGWI	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-A*68:01	1	258	267	10	GAAAYYVGYL	7.5e-05	34
HLA-A*33:01	1	281	289	9	TITDAVDCA	7.5e-05	40
HLA-B*51:01	1	294	302	9	SETKCTLKS	7.5e-05	46
HLA-A*01:01	1	300	309	10	LKSFTVEKGI	7.5e-05	54
HLA-A*11:01	1	304	313	10	TVEKGIYQTS	7.5e-05	24
HLA-B*53:01	1	331	340	10	NLCPFGEVFN	7.5e-05	26
HLA-B*58:01	1	365	373	9	LYNSASFST	7.5e-05	40
HLA-A*24:02	1	385	393	9	NDLCFTNVY	7.5e-05	23
HLA-A*01:01	1	395	403	9	DSFVIRGDE	7.5e-05	54
HLA-A*01:01	1	401	409	9	GDEVQRQIAP	7.5e-05	54
HLA-B*44:03	1	401	409	9	GDEVQRQIAP	7.5e-05	24
HLA-A*68:02	1	441	450	10	KVGGNYNYLY	7.5e-05	40
HLA-A*26:01	1	446	455	10	YNYLYRFRK	7.5e-05	33
HLA-B*51:01	1	451	460	10	RLFRKSNLKP	7.5e-05	46
HLA-A*68:01	1	454	462	9	RKSNLKPFE	7.5e-05	34
HLA-B*15:01	1	462	471	10	ERDISTEIQ	7.5e-05	38
HLA-B*15:01	1	463	471	9	RDISTEIQ	7.5e-05	38
HLA-A*01:01	1	469	477	9	IYQAGSTPC	7.5e-05	54
HLA-A*02:01	1	475	483	9	TPCNGVKGF	7.5e-05	37
HLA-B*44:02	1	477	486	10	CNGVKGFNCY	7.5e-05	26
HLA-B*44:03	1	515	523	9	LHAPATVCG	7.5e-05	24
HLA-B*07:02	1	516	524	9	HAPATVCGP	7.5e-05	35
HLA-A*33:01	1	521	530	10	VCGPKKSTNL	7.5e-05	40
HLA-A*33:01	1	534	543	10	KCVNFNFNGL	7.5e-05	40
HLA-A*23:01	1	537	546	10	NFNFNGLTGT	7.5e-05	24
HLA-B*51:01	1	539	547	9	NFNGLTGTG	7.5e-05	46
HLA-B*53:01	1	540	549	10	FNGLTGTGVL	7.5e-05	26
HLA-B*07:02	1	542	550	9	GLTGTGVL	7.5e-05	35
HLA-B*57:01	1	542	550	9	GLTGTGVL	7.5e-05	52
HLA-A*02:01	1	543	552	10	LTGTGVLTES	7.5e-05	37
HLA-B*44:02	1	553	561	9	NKKFLPFQQ	7.5e-05	26
HLA-B*08:01	1	569	578	10	TTDAVRDPQT	7.5e-05	52
HLA-A*01:01	1	575	584	10	DPQTLEILDI	7.5e-05	54
HLA-B*07:02	1	600	609	10	NTSNQVAVLY	7.5e-05	35
HLA-A*24:02	1	615	623	9	TEVPVAIHA	7.5e-05	23
HLA-B*53:01	1	634	643	10	STGSNVFQTR	7.5e-05	26
HLA-B*07:02	1	639	648	10	VFQTRAGCLI	7.5e-05	35
HLA-A*11:01	1	642	650	9	TRAGCLIGA	7.5e-05	24
HLA-B*51:01	1	644	652	9	AGCLIGAEH	7.5e-05	46
HLA-A*30:01	1	646	654	9	CLIGAHEVN	7.5e-05	63
HLA-B*35:01	1	648	656	9	IGAHEVNNS	7.5e-05	27
HLA-A*02:01	1	670	679	10	SYQTQTNSPR	7.5e-05	37
HLA-A*26:01	1	675	684	10	TNSPRRARSV	7.5e-05	33
HLA-A*02:06	1	676	685	10	NSPRRARSVA	7.5e-05	48
HLA-A*26:01	1	682	691	10	RSVASQSIIA	7.5e-05	33
HLA-A*11:01	1	704	712	9	YSNNSIAIP	7.5e-05	24
HLA-B*07:02	1	709	718	10	IAIPTNFTIS	7.5e-05	35
HLA-A*02:01	1	728	736	9	MTKTSVDCT	7.5e-05	37
HLA-B*53:01	1	737	746	10	MYICGDSTEC	7.5e-05	26
HLA-A*30:02	1	740	749	10	CGDSTECNSL	7.5e-05	61
HLA-A*02:01	1	741	749	9	GDSTECNSL	7.5e-05	37
HLA-B*08:01	1	747	755	9	SNLLLQYGS	7.5e-05	52

HLA-A*11:01	1	771	779	9	QDKNTQEVF	7.5e-05	24
HLA-A*68:02	1	775	783	9	TQEVFAQVK	7.5e-05	40
HLA-A*31:01	1	776	784	9	QEVFAQVKQ	7.5e-05	39
HLA-A*11:01	1	808	816	9	KPSKRSFIE	7.5e-05	24
HLA-B*57:01	1	809	817	9	PSKRSFIED	7.5e-05	52
HLA-A*01:01	1	813	821	9	SFIEDLLFN	7.5e-05	54
HLA-B*07:02	1	823	831	9	VTLADAGFI	7.5e-05	35
HLA-B*58:01	1	829	838	10	GFIKQYGDCL	7.5e-05	40
HLA-A*68:01	1	854	863	10	GLTVLPLLLT	7.5e-05	34
HLA-B*07:02	1	864	872	9	DEMIAQYTS	7.5e-05	35
HLA-A*02:06	1	878	886	9	TITSGWTFG	7.5e-05	48
HLA-A*01:01	1	880	888	9	TSGWTFGAG	7.5e-05	54
HLA-B*53:01	1	898	906	9	QMAYRFNGI	7.5e-05	26
HLA-B*07:02	1	936	944	9	SSTASALGK	7.5e-05	35
HLA-A*32:01	1	947	956	10	DVVNQNAQAL	7.5e-05	29
HLA-A*03:01	1	950	959	10	NQNAQALNTL	7.5e-05	32
HLA-B*07:02	1	971	980	10	SSVLNDILSR	7.5e-05	35
HLA-B*58:01	1	977	985	9	ILSRLDKVE	7.5e-05	40
HLA-B*44:02	1	1001	1010	10	LQTYVTQQLI	7.5e-05	26
HLA-A*02:01	1	1003	1011	9	TYVTQQLIR	7.5e-05	37
HLA-B*15:01	1	1009	1018	10	LIRAAEIRAS	7.5e-05	38
HLA-B*44:03	1	1029	1037	9	CVLGQSKRV	7.5e-05	24
HLA-A*23:01	1	1036	1044	9	RVDFCGKGY	7.5e-05	24
HLA-B*58:01	1	1054	1062	9	PHGVVFLHV	7.5e-05	40
HLA-A*01:01	1	1055	1063	9	HGVVFLHVT	7.5e-05	54
HLA-A*68:02	1	1062	1071	10	TYVPAQEKN	7.5e-05	40
HLA-A*02:01	1	1063	1072	10	TYVPAQEKNF	7.5e-05	37
HLA-A*68:01	1	1063	1071	9	TYVPAQEKN	7.5e-05	34
HLA-B*44:03	1	1065	1073	9	VPAQEKNFT	7.5e-05	24
HLA-B*15:01	1	1066	1075	10	PAQEKNFTTA	7.5e-05	38
HLA-A*33:01	1	1082	1091	10	GKAHFPREGV	7.5e-05	40
HLA-A*02:01	1	1085	1094	10	HFPREGVFVS	7.5e-05	37
HLA-A*26:01	1	1085	1094	10	HFPREGVFVS	7.5e-05	33
HLA-B*58:01	1	1086	1094	9	FPREGVFVS	7.5e-05	40
HLA-A*02:06	1	1108	1117	10	EPQIITDNT	7.5e-05	48
HLA-B*15:01	1	1119	1127	9	VSGNCDVVI	7.5e-05	38
HLA-A*03:01	1	1185	1193	9	EVAKNLNES	7.5e-05	32
HLA-A*30:01	1	1195	1204	10	IDLQELGKYE	7.5e-05	63
HLA-A*03:01	1	1196	1205	10	DLQELGKYEQ	7.5e-05	32
HLA-A*68:01	1	1199	1207	9	ELGKYEQYI	7.5e-05	34
HLA-B*35:01	1	1199	1207	9	ELGKYEQYI	7.5e-05	27
HLA-A*33:01	1	1215	1224	10	LGFIAGLIAI	7.5e-05	40
HLA-A*31:01	1	1222	1231	10	IAIVMVTIML	7.5e-05	39
HLA-A*32:01	1	1229	1237	9	IMLCCMTSC	7.5e-05	29
HLA-A*01:01	1	1238	1246	9	CSCLKGCCS	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	CVNLTRTRQ	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	IHSVGTNGT	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	GYYHKNK	7.4e-05	23
HLA-B*15:01	1	143	151	9	VYYHKNKS	7.4e-05	38
HLA-B*53:01	1	150	159	10	KSWMSEFRV	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	252	260	9	SSGWTAGAA	7.4e-05	24
HLA-A*31:01	1	263	271	9	YVGYLQPR	7.4e-05	39
HLA-A*33:01	1	291	299	9	DPLSETKCT	7.4e-05	40
HLA-B*58:01	1	296	305	10	TKCTLKSFTV	7.4e-05	41
HLA-B*35:01	1	312	320	9	TSNFRVQPT	7.4e-05	27
HLA-A*02:03	1	313	321	9	SNFRVQPT	7.4e-05	40
HLA-B*08:01	1	329	338	10	ITNLCPFGEV	7.4e-05	53
HLA-A*26:01	1	330	338	9	TNLCPFGEV	7.4e-05	33
HLA-B*51:01	1	348	357	10	YAWNRKRISN	7.4e-05	46
HLA-B*07:02	1	349	358	10	AWNRKRISNC	7.4e-05	35
HLA-B*35:01	1	360	369	10	ADYSVLYNSA	7.4e-05	27
HLA-B*57:01	1	361	369	9	DYSVLYNSA	7.4e-05	52
HLA-B*58:01	1	370	379	10	SFSTFKCYGV	7.4e-05	41
HLA-B*44:03	1	406	415	10	QIAPGQTGNI	7.4e-05	24
HLA-A*30:01	1	409	418	10	PGQTGNIADY	7.4e-05	63
HLA-B*44:03	1	409	418	10	PGQTGNIADY	7.4e-05	24
HLA-B*53:01	1	467	476	10	TEIYQAGSTP	7.4e-05	26
HLA-A*01:01	1	511	520	10	SFELLHAPAT	7.4e-05	55
HLA-A*02:03	1	511	520	10	SFELLHAPAT	7.4e-05	40
HLA-B*08:01	1	515	524	10	LHAPATVCGP	7.4e-05	53
HLA-A*01:01	1	516	524	9	HAPATVCGP	7.4e-05	55
HLA-B*07:02	1	558	566	9	PFQQFGRDI	7.4e-05	35
HLA-A*02:06	1	568	576	9	DTTDAVRDP	7.4e-05	48
HLA-A*11:01	1	573	582	10	VRDPQTLEIL	7.4e-05	24
HLA-A*03:01	1	588	596	9	SFGGVSUIT	7.4e-05	32
HLA-B*51:01	1	588	597	10	SFGGVSUITP	7.4e-05	46
HLA-B*35:01	1	589	597	9	FGGVSUITP	7.4e-05	27
HLA-B*51:01	1	590	598	9	GGVSUITPG	7.4e-05	46
HLA-B*40:01	1	593	602	10	SVITPGTNTS	7.4e-05	22
HLA-A*31:01	1	613	621	9	NCTEVPVAI	7.4e-05	39
HLA-B*15:01	1	619	627	9	VAIHADQLT	7.4e-05	38
HLA-A*01:01	1	651	659	9	EHVNNSYEC	7.4e-05	55
HLA-A*11:01	1	655	663	9	NSYECDIPI	7.4e-05	24
HLA-A*01:01	1	659	668	10	CDIPIGAGIC	7.4e-05	55
HLA-B*35:01	1	669	677	9	ASYQTQTN	7.4e-05	27
HLA-B*15:01	1	674	683	10	QTNSPRRARS	7.4e-05	38
HLA-B*08:01	1	682	691	10	RSVASQSIIA	7.4e-05	53
HLA-A*01:01	1	689	697	9	IIAYTMSLG	7.4e-05	55
HLA-A*02:01	1	712	721	10	PTNFTISVTT	7.4e-05	37
HLA-A*31:01	1	718	727	10	SVTTEILPVS	7.4e-05	39
HLA-B*07:02	1	723	731	9	ILPVSMTKT	7.4e-05	35
HLA-B*35:01	1	728	736	9	MTKTSVDCT	7.4e-05	27
HLA-A*30:01	1	735	743	9	CTMYICGDS	7.4e-05	63
HLA-A*30:02	1	735	743	9	CTMYICGDS	7.4e-05	61
HLA-B*44:03	1	742	751	10	DSTECSNLLL	7.4e-05	24
HLA-B*53:01	1	755	764	10	SFCTQLNRAL	7.4e-05	26
HLA-A*02:01	1	757	765	9	CTQLNRALT	7.4e-05	37
HLA-A*02:03	1	778	787	10	VFAQVKQIYK	7.4e-05	40
HLA-A*02:01	1	787	795	9	KTPPIKDFG	7.4e-05	37
HLA-A*32:01	1	802	810	9	ILPDPSKPS	7.4e-05	29
HLA-A*02:06	1	805	814	10	DPSKPSKRSF	7.4e-05	48
HLA-B*15:01	1	806	815	10	PSKPSKRSFI	7.4e-05	38
HLA-A*23:01	1	814	822	9	FIEDLLFNK	7.4e-05	24
HLA-A*33:01	1	819	827	9	LFNKVTLAD	7.4e-05	40
HLA-A*30:02	1	828	837	10	AGFIKQYGDC	7.4e-05	61
HLA-A*24:02	1	839	847	9	GDIAARDLI	7.4e-05	23
HLA-A*26:01	1	874	882	9	LLAGTITSG	7.4e-05	33
HLA-A*68:02	1	908	917	10	VTQNVLYENQ	7.4e-05	40
HLA-A*68:02	1	925	933	9	NSAIGKIQD	7.4e-05	40
HLA-A*32:01	1	937	946	10	STASALGKLQ	7.4e-05	29
HLA-A*68:02	1	956	964	9	LNTLVKQLS	7.4e-05	40
HLA-A*33:01	1	962	970	9	QLSSNFGAI	7.4e-05	40
HLA-B*44:03	1	971	980	10	SSVLNDILSR	7.4e-05	24

HLA-B*53:01	1	978	986	9	LSRLDKVEA	7.4e-05	26
HLA-A*68:01	1	996	1005	10	GRLQSLQTYV	7.4e-05	35
HLA-A*03:01	1	1021	1029	9	LAATKMSEC	7.4e-05	32
HLA-B*44:02	1	1032	1040	9	GQSKRVDFC	7.4e-05	26
HLA-B*40:01	1	1046	1054	9	LMSFPQSAP	7.4e-05	22
HLA-A*30:02	1	1072	1081	10	FTTAPAICHD	7.4e-05	61
HLA-A*02:01	1	1077	1085	9	AICHDGKAH	7.4e-05	37
HLA-A*01:01	1	1094	1103	10	SNGTHWFVTQ	7.4e-05	55
HLA-B*08:01	1	1095	1104	10	NGTHWFVTQR	7.4e-05	53
HLA-A*68:02	1	1098	1107	10	HWFVTQRNFY	7.4e-05	40
HLA-A*01:01	1	1107	1116	10	YEPQIITTDN	7.4e-05	55
HLA-A*33:01	1	1111	1119	9	IITTDNTFV	7.4e-05	40
HLA-A*03:01	1	1112	1120	9	ITTDNTFVS	7.4e-05	32
HLA-B*15:01	1	1112	1120	9	ITTDNTFVS	7.4e-05	38
HLA-A*30:02	1	1148	1157	10	ELDKYFKNHT	7.4e-05	61
HLA-A*31:01	1	1155	1163	9	NHTSPDVDL	7.4e-05	39
HLA-A*02:01	1	1156	1164	9	HTSPDVDLG	7.4e-05	37
HLA-B*08:01	1	1164	1172	9	GDISGINAS	7.4e-05	53
HLA-A*68:01	1	1191	1199	9	NESLIDLQE	7.4e-05	35
HLA-A*30:01	1	1201	1210	10	GKYEQYIKWP	7.4e-05	63
HLA-B*07:02	1	1202	1211	10	KYEQYIKWPW	7.4e-05	35
HLA-B*44:03	1	1213	1221	9	IWLGFIAGL	7.4e-05	24
HLA-B*44:03	1	1223	1231	9	AIVMVTIML	7.4e-05	24
HLA-A*24:02	1	1253	1261	9	FDEDDSEPV	7.4e-05	23
HLA-A*68:02	1	1256	1264	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	EKGQGNFKN	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-A*11:01	1	243	251	9	RSYLTPGDS	7.3e-05	24
HLA-B*53:01	1	244	252	9	SYLTPGDSS	7.3e-05	26
HLA-A*30:01	1	248	257	10	PGDSSSGWTA	7.3e-05	64
HLA-B*35:01	1	252	261	10	SSGWTAGAAA	7.3e-05	27
HLA-A*01:01	1	261	269	9	AYYVGYLQP	7.3e-05	55
HLA-B*44:03	1	264	273	10	VGYLQPRTF	7.3e-05	25
HLA-A*02:01	1	290	298	9	LDPLSETKC	7.3e-05	38
HLA-B*44:02	1	297	305	9	KCTLKSFTV	7.3e-05	26
HLA-A*02:03	1	313	322	10	SNFRVQPTES	7.3e-05	40
HLA-A*02:03	1	314	322	9	NFRVQPTES	7.3e-05	40
HLA-A*03:01	1	329	338	10	ITNLCPFGEV	7.3e-05	32
HLA-A*33:01	1	329	338	10	ITNLCPFGEV	7.3e-05	40
HLA-A*30:02	1	334	342	9	PFGVFNAT	7.3e-05	61
HLA-A*03:01	1	349	357	9	AWNKRKRISN	7.3e-05	32
HLA-B*08:01	1	353	361	9	KRISNCVAD	7.3e-05	53
HLA-B*53:01	1	365	373	9	LYNSASFST	7.3e-05	26
HLA-B*40:01	1	374	383	10	FKCYGVSPTK	7.3e-05	22
HLA-B*44:03	1	394	402	9	ADSFVIRGD	7.3e-05	25
HLA-B*44:02	1	399	408	10	IRGDEVQRQA	7.3e-05	26
HLA-A*31:01	1	406	414	9	QIAPGQTGN	7.3e-05	39
HLA-A*68:02	1	412	420	9	TGNIADYNY	7.3e-05	40

HLA-A*02:03	1	415	423	9	IADYNYKLP	7.3e-05	40
HLA-A*33:01	1	417	425	9	DYNYKLPDD	7.3e-05	40
HLA-B*44:02	1	424	432	9	DDFTGCVIA	7.3e-05	26
HLA-A*30:02	1	437	445	9	NLDSKVGGN	7.3e-05	61
HLA-A*03:01	1	443	452	10	GGNYNYLYRL	7.3e-05	32
HLA-A*24:02	1	450	459	10	YRLFRKSNLK	7.3e-05	23
HLA-B*44:03	1	454	463	10	RKSNLKPFER	7.3e-05	25
HLA-A*30:01	1	467	475	9	TEIYQAGST	7.3e-05	64
HLA-B*53:01	1	471	480	10	QAGSTPCNGV	7.3e-05	26
HLA-B*57:01	1	532	541	10	KNKCVNFNFN	7.3e-05	53
HLA-A*68:01	1	537	546	10	NFNFNGLTGT	7.3e-05	35
HLA-B*58:01	1	550	558	9	TESNKKFLP	7.3e-05	41
HLA-A*11:01	1	556	565	10	FLPFQQFGRD	7.3e-05	24
HLA-B*53:01	1	556	565	10	FLPFQQFGRD	7.3e-05	26
HLA-A*31:01	1	571	580	10	DAVRDPQTLE	7.3e-05	39
HLA-A*11:01	1	606	615	10	AVLYQGVNCT	7.3e-05	24
HLA-B*15:01	1	609	618	10	YQGVNCTEVP	7.3e-05	38
HLA-B*57:01	1	610	618	9	QGVNCTEVP	7.3e-05	53
HLA-B*58:01	1	626	635	10	LTPTWRVYST	7.3e-05	41
HLA-A*02:01	1	639	647	9	VFQTRAGCL	7.3e-05	38
HLA-A*30:02	1	640	649	10	FQTRAGCLIG	7.3e-05	61
HLA-B*51:01	1	642	650	9	TRAGCLIGA	7.3e-05	47
HLA-A*30:01	1	650	659	10	AEHVNSYEC	7.3e-05	64
HLA-A*01:01	1	666	675	10	GICASYQTQT	7.3e-05	55
HLA-A*02:06	1	674	683	10	QTNSPRRARS	7.3e-05	48
HLA-B*44:02	1	675	684	10	TNSPRRARSV	7.3e-05	26
HLA-B*44:02	1	702	711	10	VAYSNNIAI	7.3e-05	26
HLA-B*57:01	1	721	729	9	TEILPVSMT	7.3e-05	53
HLA-A*68:02	1	723	732	10	ILPVSMTKTS	7.3e-05	40
HLA-A*32:01	1	750	758	9	LLQYGSFCT	7.3e-05	29
HLA-B*57:01	1	761	770	10	NRALTGIAVE	7.3e-05	53
HLA-B*15:01	1	765	773	9	TGIAVEQDK	7.3e-05	38
HLA-A*26:01	1	769	777	9	VEQDKNTQE	7.3e-05	33
HLA-B*57:01	1	782	791	10	VKQIYKTPPI	7.3e-05	53
HLA-B*15:01	1	787	795	9	KTPPIKDFG	7.3e-05	38
HLA-B*40:01	1	792	801	10	KDFGGFNFSQ	7.3e-05	22
HLA-A*02:03	1	803	812	10	LPDPSKPSKR	7.3e-05	40
HLA-B*07:02	1	821	830	10	NKVTLADAGF	7.3e-05	36
HLA-A*31:01	1	822	831	10	KVTLADAGFI	7.3e-05	39
HLA-A*32:01	1	837	846	10	CLGDIAARDL	7.3e-05	29
HLA-A*68:01	1	845	853	9	DLICAQKFN	7.3e-05	35
HLA-A*32:01	1	883	892	10	WTFGAGAALQ	7.3e-05	29
HLA-B*08:01	1	883	892	10	WTFGAGAALQ	7.3e-05	53
HLA-B*15:01	1	886	894	9	GAGAALQIP	7.3e-05	38
HLA-B*58:01	1	900	908	9	AYRFNGIGV	7.3e-05	41
HLA-B*44:03	1	902	910	9	RFNGIGVTQ	7.3e-05	25
HLA-A*11:01	1	912	921	10	VLYENQKLIA	7.3e-05	24
HLA-B*53:01	1	914	922	9	YENQKLIAN	7.3e-05	26
HLA-B*51:01	1	937	946	10	STASALGKLQ	7.3e-05	47
HLA-A*33:01	1	944	952	9	KLQDVVNQN	7.3e-05	40
HLA-A*33:01	1	946	955	10	QDVVNQNAQA	7.3e-05	40
HLA-A*32:01	1	953	962	10	AQALNTLVKQ	7.3e-05	29
HLA-A*11:01	1	986	994	9	AEVQIDRLI	7.3e-05	24
HLA-A*01:01	1	990	999	10	IDRLITGRLQ	7.3e-05	55
HLA-A*02:01	1	998	1007	10	LQSLQTYVTQ	7.3e-05	38
HLA-A*33:01	1	998	1006	9	LQSLQTYVT	7.3e-05	40
HLA-A*02:03	1	999	1008	10	QSLQTYVTQQ	7.3e-05	40
HLA-B*53:01	1	1003	1011	9	TYVTQQLIR	7.3e-05	26
HLA-B*35:01	1	1008	1016	9	QLIRAAEIR	7.3e-05	27
HLA-A*23:01	1	1012	1021	10	AAEIRASANL	7.3e-05	24
HLA-A*31:01	1	1012	1021	10	AAEIRASANL	7.3e-05	39
HLA-B*58:01	1	1013	1022	10	AEIRASANLA	7.3e-05	41
HLA-A*11:01	1	1016	1024	9	RASANLAAT	7.3e-05	24
HLA-B*58:01	1	1019	1027	9	ANLAATKMS	7.3e-05	41
HLA-A*32:01	1	1020	1028	9	NLAATKMSE	7.3e-05	29
HLA-B*58:01	1	1025	1034	10	KMSECVLGQS	7.3e-05	41



HLA-A*02:01	1	1027	1035	9	SECVLGQSK	7.3e-05	38
HLA-A*31:01	1	1032	1040	9	GQSKRVDFC	7.3e-05	39
HLA-B*51:01	1	1037	1045	9	VDFCGKGYH	7.3e-05	47
HLA-A*32:01	1	1038	1047	10	DFCGKGYHLM	7.3e-05	29
HLA-A*11:01	1	1049	1057	9	FPQSAPHGV	7.3e-05	24
HLA-B*44:03	1	1085	1093	9	HFPREGVfv	7.3e-05	25
HLA-B*53:01	1	1101	1109	9	VTQRNFYEP	7.3e-05	26
HLA-B*44:03	1	1174	1183	10	VNIQKEIDRL	7.3e-05	25
HLA-A*01:01	1	1184	1193	10	NEVAKNLNES	7.3e-05	55
HLA-B*08:01	1	1184	1193	10	NEVAKNLNES	7.3e-05	53
HLA-A*11:01	1	1189	1197	9	NLNESLIDL	7.3e-05	24
HLA-A*02:06	1	1200	1209	10	LGKYEQYIKW	7.3e-05	48
HLA-B*51:01	1	1200	1208	9	LGKYEQYIK	7.3e-05	47
HLA-B*08:01	1	1202	1210	9	KYEQYIKWP	7.3e-05	53
HLA-A*30:02	1	1218	1227	10	IAGLIAIVMV	7.3e-05	61
HLA-A*30:02	1	1243	1252	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	HAIHVSGTN	7.2e-05	53
HLA-A*31:01	1	67	75	9	AIHVSGTNG	7.2e-05	40
HLA-A*11:01	1	78	87	10	RFANPVLPFN	7.2e-05	24
HLA-B*57:01	1	85	93	9	PFNDGVYFA	7.2e-05	53
HLA-A*68:01	1	86	94	9	FNDGVYFAS	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	TQSLILVNN	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	GVYYHKNNKS	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*26:01	1	208	217	10	TPINLVRGLP	7.2e-05	33
HLA-B*57:01	1	210	219	10	INLVRGLPQG	7.2e-05	53
HLA-A*02:03	1	229	237	9	LPIGINITR	7.2e-05	41
HLA-B*08:01	1	260	268	9	AAYVVGYLQ	7.2e-05	53
HLA-A*32:01	1	298	306	9	CTLKSFTVE	7.2e-05	29
HLA-A*32:01	1	313	321	9	SNFRVQPT	7.2e-05	29
HLA-B*53:01	1	320	329	10	TESIVRFPNI	7.2e-05	26
HLA-A*02:06	1	334	342	9	PFGEVFNAT	7.2e-05	48
HLA-A*26:01	1	367	376	10	NSASFSTFKC	7.2e-05	33
HLA-A*02:03	1	378	386	9	GVSPKTLND	7.2e-05	41
HLA-A*33:01	1	385	394	10	NDLCFTNVYA	7.2e-05	41
HLA-B*51:01	1	387	395	9	LCFTNVYAD	7.2e-05	47
HLA-B*53:01	1	389	398	10	FTNVYADSFV	7.2e-05	26
HLA-B*44:02	1	409	418	10	PGQTGNIADY	7.2e-05	26
HLA-A*30:01	1	414	423	10	NIADYNYKLP	7.2e-05	64
HLA-A*30:01	1	422	430	9	LPDDFTGCV	7.2e-05	64
HLA-A*33:01	1	427	435	9	TGCVIAWNS	7.2e-05	41
HLA-A*02:01	1	433	442	10	WNSNNLDSKV	7.2e-05	38
HLA-B*40:01	1	443	452	10	GGNYNYLYRL	7.2e-05	22
HLA-B*58:01	1	468	477	10	EIYQAGSTPC	7.2e-05	41
HLA-A*02:03	1	488	497	10	PLQSYGFQPT	7.2e-05	41
HLA-B*44:03	1	491	500	10	SYGFQPTYGV	7.2e-05	25
HLA-A*23:01	1	494	503	10	FQPTYGVGYQ	7.2e-05	24
HLA-B*08:01	1	495	503	9	QPTYGVGYQ	7.2e-05	53
HLA-B*53:01	1	499	507	9	GVGYQPYRV	7.2e-05	26
HLA-B*53:01	1	500	509	10	VGYPYRVVV	7.2e-05	26

HLA-B*15:01	1	503	511	9	QPYRVVLS	7.2e-05	38
HLA-A*11:01	1	511	519	9	SFELLHAPA	7.2e-05	24
HLA-A*68:01	1	511	519	9	SFELLHAPA	7.2e-05	35
HLA-B*35:01	1	511	519	9	SFELLHAPA	7.2e-05	27
HLA-B*58:01	1	518	526	9	PATVCGPKK	7.2e-05	41
HLA-A*31:01	1	536	544	9	VNFNFNGLT	7.2e-05	40
HLA-B*57:01	1	536	544	9	VNFNFNGLT	7.2e-05	53
HLA-A*31:01	1	542	550	9	GLTGTGVL	7.2e-05	40
HLA-B*51:01	1	560	569	10	QQFGRDIADT	7.2e-05	47
HLA-B*40:01	1	563	572	10	GRDIADTTDA	7.2e-05	22
HLA-B*58:01	1	568	576	9	DTTDAVRDP	7.2e-05	41
HLA-A*33:01	1	570	579	10	TDAVRDPQTL	7.2e-05	41
HLA-A*11:01	1	571	580	10	DAVRDPQTLE	7.2e-05	24
HLA-A*68:01	1	574	582	9	RDPQTLLEIL	7.2e-05	35
HLA-B*08:01	1	577	585	9	QTLIELDIT	7.2e-05	53
HLA-B*40:01	1	585	594	10	TPCSFGGVS	7.2e-05	22
HLA-B*44:02	1	587	595	9	CSFGGVSVI	7.2e-05	26
HLA-A*03:01	1	596	604	9	TPGTNTSNQ	7.2e-05	32
HLA-A*11:01	1	607	615	9	VLYQGVNCT	7.2e-05	24
HLA-B*57:01	1	610	619	10	QGVNCTEVPV	7.2e-05	53
HLA-A*68:02	1	627	636	10	TPTWRVYSTG	7.2e-05	40
HLA-A*01:01	1	647	656	10	LIGAEHVNNS	7.2e-05	55
HLA-A*01:01	1	655	664	10	NSYECDIPIG	7.2e-05	55
HLA-A*30:02	1	655	664	10	NSYECDIPIG	7.2e-05	62
HLA-A*31:01	1	677	685	9	SPRRARVA	7.2e-05	40
HLA-B*08:01	1	679	688	10	RRARVASQS	7.2e-05	53
HLA-B*40:01	1	685	693	9	ASQSIIAYT	7.2e-05	22
HLA-A*33:01	1	693	701	9	TMSLGVENS	7.2e-05	41
HLA-A*33:01	1	698	706	9	VENSVAYSN	7.2e-05	41
HLA-A*02:01	1	705	713	9	SNNSIAIPT	7.2e-05	38
HLA-B*07:02	1	722	731	10	EILPVSMTKT	7.2e-05	36
HLA-A*26:01	1	781	790	10	QVKQIYKTPP	7.2e-05	33
HLA-A*32:01	1	781	790	10	QVKQIYKTPP	7.2e-05	29
HLA-A*01:01	1	798	807	10	NFSQILPDPS	7.2e-05	55
HLA-A*02:01	1	813	821	9	SFIEDLLFN	7.2e-05	38
HLA-A*02:03	1	832	840	9	KQYGDCLGD	7.2e-05	41
HLA-A*26:01	1	848	857	10	CAQKFNGLTV	7.2e-05	33
HLA-A*30:02	1	864	873	10	DEMIAQYTSA	7.2e-05	62
HLA-A*26:01	1	873	881	9	ALLAGTITS	7.2e-05	33
HLA-A*68:02	1	875	884	10	LAGTITSGWT	7.2e-05	40
HLA-B*40:01	1	875	883	9	LAGTITSGW	7.2e-05	22
HLA-A*24:02	1	892	900	9	QIPFAMQMA	7.2e-05	23
HLA-A*68:02	1	897	905	9	MQMAYRFNG	7.2e-05	40
HLA-B*57:01	1	902	911	10	RFNGIGVTQN	7.2e-05	53
HLA-A*26:01	1	929	938	10	GKIQDLSLST	7.2e-05	33
HLA-B*58:01	1	942	950	9	LGKLQDVVN	7.2e-05	41
HLA-B*58:01	1	946	955	10	QDVVNQNAQA	7.2e-05	41
HLA-B*44:03	1	951	960	10	QNAQALNTLV	7.2e-05	25
HLA-B*08:01	1	968	977	10	GAISSVLNDI	7.2e-05	53
HLA-A*68:01	1	991	999	9	DRLITGRLQ	7.2e-05	35
HLA-B*35:01	1	1003	1011	9	TYVTQQLIR	7.2e-05	27
HLA-A*03:01	1	1004	1013	10	YVTQQLIRAA	7.2e-05	32
HLA-B*57:01	1	1006	1015	10	TQLIRAAEI	7.2e-05	53
HLA-A*02:03	1	1007	1016	10	QQLIRAAEIR	7.2e-05	41
HLA-A*24:02	1	1011	1019	9	RAAEIRASA	7.2e-05	23
HLA-B*58:01	1	1012	1020	9	AAEIRASAN	7.2e-05	41
HLA-A*68:02	1	1018	1027	10	SANLAATKMS	7.2e-05	40
HLA-B*57:01	1	1054	1062	9	PHGVVFLHV	7.2e-05	53
HLA-A*31:01	1	1059	1068	10	FLHVTVVPAQ	7.2e-05	40
HLA-A*68:02	1	1075	1083	9	APAICHDGK	7.2e-05	40
HLA-A*26:01	1	1099	1108	10	WFVTQRNFYE	7.2e-05	33
HLA-B*08:01	1	1121	1130	10	GNCDVVIGIV	7.2e-05	53
HLA-B*07:02	1	1150	1159	10	DKYFKNHTSP	7.2e-05	36
HLA-B*35:01	1	1169	1178	10	INASVVNIQK	7.2e-05	27
HLA-B*44:03	1	1180	1188	9	IDRLNEVAK	7.2e-05	25
HLA-A*26:01	1	1187	1195	9	AKNLNESLI	7.2e-05	33

HLA-A*30:01	1	1188	1196	9	KNLNESLID	7.2e-05	64
HLA-B*51:01	1	1193	1202	10	SLIDLQELGK	7.2e-05	47
HLA-B*53:01	1	1196	1204	9	DLQELGKYE	7.2e-05	26
HLA-A*11:01	1	1208	1217	10	KWPWYIWLGF	7.2e-05	24
HLA-B*44:02	1	1261	1270	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	CVNLTRTRQ	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	TTRTQLPPA	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*02:06	1	74	82	9	NGTKRFANP	7.1e-05	48
HLA-B*07:02	1	90	98	9	VYFASTEKS	7.1e-05	36
HLA-B*51:01	1	94	102	9	STEKSNIIIR	7.1e-05	47
HLA-A*03:01	1	121	130	10	NNATNVVIKV	7.1e-05	32
HLA-B*44:02	1	121	129	9	NNATNVVIK	7.1e-05	26
HLA-B*40:01	1	124	133	10	TNVVIKVICEF	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-A*26:01	1	211	219	9	NLVRGLPQG	7.1e-05	33
HLA-A*24:02	1	239	247	9	QTLHRSYLT	7.1e-05	23
HLA-B*07:02	1	243	251	9	RSYLTGDS	7.1e-05	36
HLA-A*68:02	1	244	253	10	SYLTPGDSSS	7.1e-05	41
HLA-B*08:01	1	254	263	10	GWTAGAAAYY	7.1e-05	53
HLA-B*07:02	1	257	266	10	AGAAAYYVGY	7.1e-05	36
HLA-B*35:01	1	275	283	9	KYNENGTIT	7.1e-05	27
HLA-A*30:01	1	300	308	9	LKSFTVEKG	7.1e-05	64
HLA-B*44:02	1	303	311	9	FTVEKGIYQ	7.1e-05	26
HLA-B*44:03	1	310	319	10	YQTSNFRVQP	7.1e-05	25
HLA-A*26:01	1	313	321	9	SNFRVQPT	7.1e-05	33
HLA-A*30:01	1	320	328	9	TESIVRFPN	7.1e-05	64
HLA-A*11:01	1	322	331	10	SIVRFPNITN	7.1e-05	24
HLA-B*35:01	1	323	331	9	IVRFPNITN	7.1e-05	27
HLA-B*35:01	1	331	340	10	NLCPFGEVFN	7.1e-05	27
HLA-A*11:01	1	359	367	9	VADYSVLYN	7.1e-05	24
HLA-B*35:01	1	375	384	10	KCYGVSPTKL	7.1e-05	27
HLA-A*30:02	1	377	386	10	YGVSPTKLND	7.1e-05	62
HLA-B*57:01	1	381	390	10	PTKLNDLCFT	7.1e-05	53
HLA-B*08:01	1	395	403	9	DSFVIRGDE	7.1e-05	53
HLA-B*58:01	1	396	404	9	SFVIRGDEV	7.1e-05	41
HLA-A*02:06	1	403	412	10	EVQRQIAPGQT	7.1e-05	48
HLA-A*32:01	1	406	414	9	QIAPGQTGN	7.1e-05	29
HLA-B*44:02	1	422	431	10	LPDDFTGCVI	7.1e-05	26
HLA-B*58:01	1	433	441	9	WNSNNLDSK	7.1e-05	41
HLA-A*68:02	1	449	458	10	LYRLFRKSNL	7.1e-05	41
HLA-B*44:02	1	451	460	10	RLFRKSNLKP	7.1e-05	26
HLA-A*01:01	1	482	491	10	GFNCYFPLQS	7.1e-05	55
HLA-A*03:01	1	495	503	9	QPTYGVGYQ	7.1e-05	32
HLA-B*58:01	1	536	545	10	VNFNFNGLTG	7.1e-05	41
HLA-B*08:01	1	542	550	9	GLTGTGVLT	7.1e-05	53
HLA-B*44:03	1	547	555	9	GVLTESNKK	7.1e-05	25
HLA-B*15:01	1	553	561	9	NKKFLPFQQ	7.1e-05	38
HLA-A*01:01	1	563	572	10	GRDIADTTDA	7.1e-05	55
HLA-A*02:01	1	565	574	10	DIADTTDAVR	7.1e-05	38
HLA-A*33:01	1	584	592	9	ITPCSFGGV	7.1e-05	41
HLA-B*51:01	1	588	596	9	SFGGVSUIT	7.1e-05	47
HLA-A*68:01	1	596	605	10	TPGTNTSNQV	7.1e-05	35
HLA-A*33:01	1	606	614	9	AVLYQGVNC	7.1e-05	41
HLA-B*08:01	1	614	622	9	CTEVPVAIH	7.1e-05	53
HLA-B*07:02	1	616	625	10	EVPVAIHADQ	7.1e-05	36
HLA-B*35:01	1	640	648	9	FQTRAGCLI	7.1e-05	27
HLA-A*32:01	1	641	649	9	QTRAGCLIG	7.1e-05	29

HLA-A*24:02	1	642	650	9	TRAGCLIGA	7.1e-05	23
HLA-A*31:01	1	642	650	9	TRAGCLIGA	7.1e-05	40
HLA-A*24:02	1	649	657	9	GAEHVNNSY	7.1e-05	23
HLA-A*30:01	1	699	707	9	ENSVAYSNN	7.1e-05	64
HLA-B*40:01	1	704	712	9	YSNNSIAIP	7.1e-05	22
HLA-B*07:02	1	719	727	9	VTTEILPVS	7.1e-05	36
HLA-A*31:01	1	721	729	9	TEILPVSMT	7.1e-05	40
HLA-A*31:01	1	757	765	9	CTQLNRALT	7.1e-05	40
HLA-A*24:02	1	758	766	9	TQLNRALTG	7.1e-05	23
HLA-B*53:01	1	762	771	10	RALTGIAVEQ	7.1e-05	27
HLA-A*03:01	1	785	793	9	IYKTPPIKD	7.1e-05	32
HLA-A*03:01	1	787	795	9	KTPPIKDFG	7.1e-05	32
HLA-A*01:01	1	816	824	9	EDLLFNKVT	7.1e-05	55
HLA-B*44:02	1	832	841	10	KQYGDCLGDI	7.1e-05	26
HLA-A*68:02	1	838	846	9	LGDIAARDL	7.1e-05	41
HLA-A*11:01	1	843	852	10	ARDLICAQKF	7.1e-05	24
HLA-A*31:01	1	872	881	10	SALLAGTITS	7.1e-05	40
HLA-B*08:01	1	872	881	10	SALLAGTITS	7.1e-05	53
HLA-B*15:01	1	896	904	9	AMQMAYRFN	7.1e-05	38
HLA-A*23:01	1	897	905	9	MQMAYRFNG	7.1e-05	24
HLA-A*31:01	1	911	920	10	NVLYENQKLI	7.1e-05	40
HLA-B*44:02	1	913	922	10	LYENQKLIAN	7.1e-05	26
HLA-B*57:01	1	914	923	10	YENQKLIANQ	7.1e-05	53
HLA-B*07:02	1	931	940	10	IQDLSLSTAS	7.1e-05	36
HLA-A*31:01	1	947	956	10	DVVNQNAQAL	7.1e-05	40
HLA-A*31:01	1	968	977	10	GAISSVLNDI	7.1e-05	40
HLA-A*68:02	1	975	983	9	NDILSRLDK	7.1e-05	41
HLA-A*32:01	1	980	989	10	RLDKVEAEVQ	7.1e-05	29
HLA-A*11:01	1	988	996	9	VQIDRLITG	7.1e-05	24
HLA-A*24:02	1	1017	1026	10	ASANLAATKM	7.1e-05	23
HLA-A*33:01	1	1030	1039	10	VLGQSKRVDF	7.1e-05	41
HLA-A*02:01	1	1035	1044	10	KRVDFCGKGY	7.1e-05	38
HLA-A*03:01	1	1037	1046	10	VDFCGKGYHL	7.1e-05	32
HLA-B*35:01	1	1037	1046	10	VDFCGKGYHL	7.1e-05	27
HLA-A*30:02	1	1060	1069	10	LHVTYVPAQE	7.1e-05	62
HLA-A*26:01	1	1082	1091	10	GKAHFPREGV	7.1e-05	33
HLA-A*11:01	1	1097	1106	10	THWFVTQRNF	7.1e-05	24
HLA-A*23:01	1	1097	1105	9	THWFVTQRN	7.1e-05	24
HLA-B*44:02	1	1102	1110	9	TQRNFYEPQ	7.1e-05	26
HLA-B*07:02	1	1121	1129	9	GNCDDVIGI	7.1e-05	36
HLA-B*53:01	1	1121	1129	9	GNCDDVIGI	7.1e-05	27
HLA-A*30:02	1	1124	1133	10	DVVIGIVNNT	7.1e-05	62
HLA-B*35:01	1	1124	1132	9	DVVIGIVNN	7.1e-05	27
HLA-A*11:01	1	1129	1138	10	IVNNTVYDPL	7.1e-05	24
HLA-A*31:01	1	1136	1145	10	DPLQPELDSF	7.1e-05	40
HLA-B*57:01	1	1152	1161	10	YFKNHTSPDV	7.1e-05	53
HLA-B*58:01	1	1157	1165	9	TSPDVDLGD	7.1e-05	41
HLA-A*32:01	1	1160	1169	10	DVDLGDISGI	7.1e-05	29
HLA-B*08:01	1	1193	1202	10	SLIDLQELGK	7.1e-05	53
HLA-A*33:01	1	1195	1204	10	IDLQELGKYE	7.1e-05	41
HLA-B*15:01	1	1196	1205	10	DLQELGKYEQ	7.1e-05	38
HLA-B*58:01	1	1197	1205	9	LQELGKYEQ	7.1e-05	41
HLA-A*33:01	1	1209	1218	10	WPWYIWLGFI	7.1e-05	41
HLA-B*40:01	1	1217	1225	9	FIAGLIAIV	7.1e-05	22
HLA-A*02:03	1	1226	1235	10	MVTIMLCCMT	7.1e-05	41
HLA-A*01:01	1	1227	1235	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-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	NNATNVVIKV	7e-05	27
HLA-A*01:01	1	123	132	10	ATNVVIKVCE	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*68:01	1	238	247	10	FQTLHRSYLT 7e-05	35
HLA-B*07:02	1	241	249	9	LHRSYLTGP 7e-05	36
HLA-B*57:01	1	278	286	9	ENGTITDAV 7e-05	53
HLA-A*02:01	1	320	329	10	TESIVRFPNI 7e-05	38
HLA-A*31:01	1	320	329	10	TESIVRFPNI 7e-05	40
HLA-A*23:01	1	330	338	9	TNLCPFGEV 7e-05	24
HLA-A*03:01	1	337	346	10	EVFNATRFAS 7e-05	33
HLA-A*02:01	1	354	363	10	RISNCVADYS 7e-05	38
HLA-A*02:01	1	362	370	9	YSVLYNSAS 7e-05	38
HLA-A*33:01	1	363	372	10	SVLYNSASF 7e-05	41
HLA-B*58:01	1	364	373	10	VLYNSASFST 7e-05	41
HLA-A*68:01	1	370	379	10	SFSTFKCYGV 7e-05	35
HLA-A*01:01	1	371	380	10	FSTFKCYGVS 7e-05	56
HLA-B*57:01	1	371	380	10	FSTFKCYGVS 7e-05	53
HLA-B*53:01	1	377	385	9	YGVSPTKLN 7e-05	27
HLA-A*11:01	1	378	386	9	GVSPTKLND 7e-05	24
HLA-A*68:01	1	378	386	9	GVSPTKLND 7e-05	35
HLA-B*35:01	1	398	406	9	VIRGDEVQR 7e-05	28
HLA-B*51:01	1	402	410	9	DEVQRQIAPG 7e-05	47
HLA-A*02:01	1	430	439	10	VIAWNSNNLD 7e-05	38
HLA-A*68:02	1	431	440	10	IAWNSNNLDS 7e-05	41
HLA-A*24:02	1	434	442	9	NSNNLDSKV 7e-05	23
HLA-A*31:01	1	466	474	9	STEIYQAGS 7e-05	40
HLA-A*68:02	1	480	489	10	VKGFNCYFPL 7e-05	41
HLA-A*31:01	1	482	491	10	GFNCYFPLQS 7e-05	40
HLA-B*07:02	1	491	499	9	SYGFQPTYG 7e-05	36
HLA-A*26:01	1	498	507	10	YGVGYQPYRV 7e-05	33
HLA-B*44:03	1	499	507	9	GVGYQPYRV 7e-05	25
HLA-B*15:01	1	524	532	9	PKKSTNLVK 7e-05	39
HLA-A*24:02	1	527	535	9	STNLVKKNC 7e-05	23
HLA-A*33:01	1	547	556	10	GVLTESNKKF 7e-05	41
HLA-A*03:01	1	548	557	10	VLTESNKKFL 7e-05	33
HLA-A*23:01	1	558	567	10	PFQQFGRDIA 7e-05	24
HLA-B*51:01	1	560	568	9	QQFGRDIAD 7e-05	47
HLA-A*33:01	1	561	570	10	QFGRDIADTT 7e-05	41
HLA-A*30:01	1	579	587	9	LEILDITPC 7e-05	64
HLA-B*57:01	1	590	598	9	GGVSVITPG 7e-05	53
HLA-B*44:02	1	593	602	10	SVITPGTNTS 7e-05	27
HLA-A*02:06	1	623	631	9	ADQLTPTWR 7e-05	49
HLA-A*02:06	1	639	647	9	VFQTRAGCL 7e-05	49
HLA-A*23:01	1	679	687	9	RRARVASQ 7e-05	24
HLA-A*26:01	1	681	690	10	ARSVASQSII 7e-05	33
HLA-B*44:03	1	686	695	10	SQSIIAYTMS 7e-05	25
HLA-A*02:01	1	690	699	10	IAYTMSLGV 7e-05	38
HLA-A*11:01	1	710	718	9	AIPTNFTIS 7e-05	24
HLA-A*11:01	1	714	723	10	NFTISVTTEI 7e-05	24
HLA-B*07:02	1	720	729	10	TTEILPVSM 7e-05	36
HLA-B*58:01	1	727	736	10	SMTKTSVDCT 7e-05	41
HLA-B*35:01	1	741	749	9	GDSTECSNL 7e-05	28
HLA-A*33:01	1	760	768	9	LNRLTGIA 7e-05	41
HLA-B*07:02	1	780	788	9	AQVKQIYKT 7e-05	36
HLA-B*07:02	1	780	789	10	AQVKQIYKTP 7e-05	36
HLA-A*33:01	1	784	793	10	QIYKTPPIKD 7e-05	41
HLA-B*08:01	1	801	810	10	QILPDPSPKS 7e-05	54
HLA-A*32:01	1	803	812	10	LPDPSPSKR 7e-05	30
HLA-B*51:01	1	827	836	10	DAGFIKQYGD 7e-05	47
HLA-A*02:06	1	831	840	10	IKQYGDCLGD 7e-05	49
HLA-B*44:02	1	835	843	9	GDCLGDIAA 7e-05	27
HLA-A*02:03	1	839	847	9	GDIAARDLI 7e-05	41

HLA-B*57:01	1	840	848	9	DIAARDLIC	7e-05	53
HLA-A*68:01	1	844	852	9	RDLICAQKF	7e-05	35
HLA-A*03:01	1	846	855	10	LICAQKFNGL	7e-05	33
HLA-A*23:01	1	850	859	10	QKFNGLTVLP	7e-05	24
HLA-B*35:01	1	851	859	9	KFNGLTVLP	7e-05	28
HLA-A*33:01	1	867	876	10	IAQYTSALLA	7e-05	41
HLA-B*35:01	1	877	886	10	GTITSGWTFG	7e-05	28
HLA-B*15:01	1	880	889	10	TSGWTFGAGA	7e-05	39
HLA-A*24:02	1	895	904	10	FAMQMAYRFN	7e-05	23
HLA-A*30:02	1	895	904	10	FAMQMAYRFN	7e-05	62
HLA-A*02:01	1	901	909	9	YRFNGIGVT	7e-05	38
HLA-A*32:01	1	901	910	10	YRFNGIGVTQ	7e-05	30
HLA-A*11:01	1	915	923	9	ENQKLIANQ	7e-05	24
HLA-A*30:01	1	917	925	9	QKLIANQFN	7e-05	64
HLA-A*11:01	1	920	928	9	IANQFNSAI	7e-05	24
HLA-B*40:01	1	931	940	10	IQDLSLSTAS	7e-05	23
HLA-A*30:02	1	941	950	10	ALGKLQDVVN	7e-05	62
HLA-A*31:01	1	941	949	9	ALGKLQDVV	7e-05	40
HLA-A*24:02	1	951	960	10	QNAQALNTLV	7e-05	23
HLA-A*02:01	1	952	961	10	NAQALNTLVK	7e-05	38
HLA-A*03:01	1	968	977	10	GAISSVLNDI	7e-05	33
HLA-A*11:01	1	971	979	9	SSVLNDILS	7e-05	24
HLA-A*23:01	1	989	997	9	QIDRLITGR	7e-05	24
HLA-A*03:01	1	995	1003	9	TGRLQSLQT	7e-05	33
HLA-A*32:01	1	998	1006	9	LQSLQTYVT	7e-05	30
HLA-A*68:01	1	1039	1047	9	FCGKGYHLM	7e-05	35
HLA-B*07:02	1	1055	1063	9	HGVVFLHVT	7e-05	36
HLA-A*68:01	1	1059	1068	10	FLHVTVVPAQ	7e-05	35
HLA-A*03:01	1	1060	1068	9	LHVTVVPAQ	7e-05	33
HLA-A*11:01	1	1063	1072	10	TYVPAQEKNF	7e-05	24
HLA-A*01:01	1	1068	1077	10	QEKNFTTAPA	7e-05	56
HLA-A*02:06	1	1072	1081	10	FTTAPAICHD	7e-05	49
HLA-B*44:02	1	1078	1087	10	ICHDGKAHFP	7e-05	27
HLA-A*30:01	1	1081	1090	10	DGKAHFPPREG	7e-05	64
HLA-B*44:03	1	1082	1090	9	GKAHFPPREG	7e-05	25
HLA-A*03:01	1	1086	1094	9	FPREGVFVS	7e-05	33
HLA-A*01:01	1	1096	1105	10	GTHWFVTQRN	7e-05	56
HLA-A*33:01	1	1102	1111	10	TQRNFYEPQI	7e-05	41
HLA-B*08:01	1	1129	1137	9	IVNNTVYDP	7e-05	54
HLA-A*32:01	1	1134	1143	10	VYDPLQPELD	7e-05	30
HLA-A*30:02	1	1146	1155	10	KEELDKYFKN	7e-05	62
HLA-B*53:01	1	1147	1156	10	EELDKYFKNH	7e-05	27
HLA-B*44:02	1	1153	1161	9	FKNHTSPDV	7e-05	27
HLA-A*23:01	1	1186	1195	10	VAKNLNESLI	7e-05	24
HLA-A*02:01	1	1187	1195	9	AKNLNESLI	7e-05	38
HLA-B*53:01	1	1187	1195	9	AKNLNESLI	7e-05	27
HLA-B*58:01	1	1202	1210	9	KYEYQIKWP	7e-05	41
HLA-B*57:01	1	1236	1244	9	SCCSCLKGC	7e-05	53
HLA-B*35:01	1	1261	1270	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	WFHAIHVSGT	6.9e-05	62
HLA-B*51:01	1	80	88	9	ANPVLPFND	6.9e-05	47
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	KTQSLLIVNN	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-A*11:01	1	206	215	10	KHTPINLVRG	6.9e-05	24
HLA-B*57:01	1	211	219	9	NLVRGLPQG	6.9e-05	53
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*40:01	1	240	248	9	TLHRSYLTP	6.9e-05	23
HLA-B*57:01	1	244	252	9	SYLTPGDSS	6.9e-05	53
HLA-A*02:01	1	250	259	10	DSSSGWTAGA	6.9e-05	38
HLA-B*08:01	1	251	260	10	SSSGWTAGAA	6.9e-05	54
HLA-A*32:01	1	259	268	10	AAAYYVGYLQ	6.9e-05	30
HLA-B*51:01	1	259	268	10	AAAYYVGYLQ	6.9e-05	47
HLA-A*01:01	1	274	282	9	LKYNENGTI	6.9e-05	56
HLA-A*68:01	1	285	293	9	AVDCALDPL	6.9e-05	35
HLA-B*07:02	1	287	296	10	DCALDPLSET	6.9e-05	36
HLA-B*35:01	1	301	309	9	KSFTVEKGI	6.9e-05	28
HLA-B*44:02	1	308	316	9	GIYQTSNFR	6.9e-05	27
HLA-A*03:01	1	313	322	10	SNFRVQPTES	6.9e-05	33
HLA-A*68:02	1	314	322	9	NFRVQPTES	6.9e-05	41
HLA-B*07:02	1	329	338	10	ITNLCPFGEV	6.9e-05	36
HLA-A*02:01	1	340	348	9	NATRFASVY	6.9e-05	38
HLA-A*02:06	1	344	353	10	FASVYAWNRK	6.9e-05	49
HLA-B*53:01	1	346	355	10	SVYAWNRKRI	6.9e-05	27
HLA-B*51:01	1	355	363	9	ISNCVADYS	6.9e-05	47
HLA-A*30:01	1	357	365	9	NCVADYSVL	6.9e-05	65
HLA-B*08:01	1	384	393	10	LNDLCFTNVY	6.9e-05	54
HLA-B*44:03	1	399	408	10	IRGDEVQRQA	6.9e-05	25
HLA-A*02:01	1	400	409	10	RGDEVQRQIAP	6.9e-05	38
HLA-A*68:02	1	400	409	10	RGDEVQRQIAP	6.9e-05	41
HLA-A*26:01	1	408	416	9	APGQTGNIA	6.9e-05	34
HLA-A*68:02	1	446	455	10	YNYLYRFRK	6.9e-05	41
HLA-A*24:02	1	451	460	10	RLFRKSNLKP	6.9e-05	24
HLA-A*68:02	1	452	460	9	LFRKSNLKP	6.9e-05	41
HLA-B*58:01	1	456	464	9	SNLKPFERD	6.9e-05	42
HLA-A*01:01	1	471	479	9	QAGSTPCNG	6.9e-05	56
HLA-A*11:01	1	478	487	10	NGVKGFNCYF	6.9e-05	24
HLA-A*02:01	1	485	494	10	CYFPLQSYGF	6.9e-05	38
HLA-A*01:01	1	495	503	9	QPTYGVGYQ	6.9e-05	56
HLA-A*03:01	1	504	512	9	PYRVVLSF	6.9e-05	33
HLA-A*02:06	1	505	513	9	YRVVLSFE	6.9e-05	49
HLA-A*03:01	1	529	538	10	NLVKKNKCVNF	6.9e-05	33
HLA-B*40:01	1	529	538	10	NLVKKNKCVNF	6.9e-05	23
HLA-A*33:01	1	531	540	10	VKNKCVNFNF	6.9e-05	41
HLA-B*08:01	1	543	551	9	LTGTGVLTE	6.9e-05	54
HLA-B*51:01	1	551	560	10	ESNKKFLPFQ	6.9e-05	47
HLA-B*44:03	1	555	563	9	KFLPFQFG	6.9e-05	25
HLA-B*58:01	1	556	564	9	FLPFQQFGR	6.9e-05	42
HLA-B*44:03	1	560	568	9	QQFGRDIAD	6.9e-05	25
HLA-B*40:01	1	577	585	9	QTLIELDIT	6.9e-05	23
HLA-A*01:01	1	588	596	9	SFGGVSUIT	6.9e-05	56
HLA-A*33:01	1	592	601	10	VSVITPGTNT	6.9e-05	41
HLA-B*15:01	1	602	611	10	SNQVAVLYQG	6.9e-05	39
HLA-A*03:01	1	611	619	9	GVNCTEVPV	6.9e-05	33
HLA-B*35:01	1	623	632	10	ADQLTPTWRV	6.9e-05	28
HLA-A*02:03	1	627	635	9	TPTWRVYST	6.9e-05	41
HLA-A*31:01	1	627	635	9	TPTWRVYST	6.9e-05	40
HLA-B*07:02	1	643	651	9	RAGCLIGAE	6.9e-05	36
HLA-A*01:01	1	657	666	10	YECDIPIGAG	6.9e-05	56
HLA-B*53:01	1	658	666	9	ECDIPIGAG	6.9e-05	27
HLA-A*23:01	1	673	681	9	TQTNSPRRA	6.9e-05	24
HLA-A*32:01	1	684	693	10	VASQSIIAYT	6.9e-05	30
HLA-B*08:01	1	684	693	10	VASQSIIAYT	6.9e-05	54
HLA-B*44:03	1	702	710	9	VAYSNNSIA	6.9e-05	25
HLA-B*40:01	1	705	713	9	SNNSIAIPT	6.9e-05	23
HLA-A*03:01	1	706	715	10	NNSIAIPTNF	6.9e-05	33
HLA-A*32:01	1	707	716	10	NSIAIPTNFT	6.9e-05	30
HLA-A*11:01	1	717	725	9	ISVTTEILP	6.9e-05	24

HLA-B*07:02	1	730	739	10	KTSVDCTMYI	6.9e-05	36
HLA-B*35:01	1	737	746	10	MYICGDSTEC	6.9e-05	28
HLA-B*58:01	1	741	749	9	GDSTEC SNL	6.9e-05	42
HLA-A*02:03	1	754	762	9	GSFCTQLNR	6.9e-05	41
HLA-B*35:01	1	754	762	9	GSFCTQLNR	6.9e-05	28
HLA-B*07:02	1	771	780	10	QDKNTQEVFA	6.9e-05	36
HLA-B*51:01	1	771	780	10	QDKNTQEVFA	6.9e-05	47
HLA-B*40:01	1	772	780	9	DKNTQEVFA	6.9e-05	23
HLA-B*44:03	1	778	787	10	VFAQVKQIYK	6.9e-05	25
HLA-A*02:06	1	791	800	10	IKDFGGFNFS	6.9e-05	49
HLA-A*01:01	1	793	801	9	DFGGFNFSQ	6.9e-05	56
HLA-A*32:01	1	801	810	10	QILPDP SKPS	6.9e-05	30
HLA-A*23:01	1	802	810	9	ILPDP SKPS	6.9e-05	24
HLA-A*23:01	1	803	812	10	LPDP SKPSKR	6.9e-05	24
HLA-B*07:02	1	834	843	10	YGDCLGDI AA	6.9e-05	36
HLA-A*68:01	1	847	855	9	ICAQKF NGL	6.9e-05	35
HLA-A*23:01	1	859	867	9	PPLLTDEMI	6.9e-05	24
HLA-A*02:01	1	860	869	10	PLLTDEMI AQ	6.9e-05	38
HLA-B*57:01	1	869	877	9	QYTSALLAG	6.9e-05	53
HLA-A*33:01	1	870	879	10	YTSALLAGTI	6.9e-05	41
HLA-B*44:03	1	886	895	10	GAGAALQIPF	6.9e-05	25
HLA-B*57:01	1	896	904	9	AMQMAYRFN	6.9e-05	53
HLA-A*01:01	1	901	909	9	YRFNGIGVT	6.9e-05	56
HLA-A*31:01	1	904	913	10	NGIGVTQ NVL	6.9e-05	40
HLA-B*51:01	1	909	917	9	TQNVLYENQ	6.9e-05	47
HLA-B*08:01	1	928	937	10	IGKIQDSLSS	6.9e-05	54
HLA-B*07:02	1	929	937	9	GKIQDSLSS	6.9e-05	36
HLA-B*08:01	1	943	951	9	GKLQDVVNQ	6.9e-05	54
HLA-B*44:03	1	964	973	10	SSNFGAISSV	6.9e-05	25
HLA-A*11:01	1	969	978	10	AISSV LNDIL	6.9e-05	24
HLA-A*03:01	1	984	993	10	VEAEV IDRL	6.9e-05	33
HLA-B*58:01	1	987	996	10	EVQIDRLITG	6.9e-05	42
HLA-A*03:01	1	991	1000	10	DRLITGR LQS	6.9e-05	33
HLA-B*07:02	1	1003	1012	10	TYVTQQLIRA	6.9e-05	36
HLA-B*51:01	1	1003	1011	9	TYVTQQLIR	6.9e-05	47
HLA-B*53:01	1	1004	1013	10	YVTQQLIR AA	6.9e-05	27
HLA-B*51:01	1	1016	1025	10	RASANLAATK	6.9e-05	47
HLA-B*58:01	1	1019	1028	10	ANLAATKMSE	6.9e-05	42
HLA-A*30:02	1	1020	1029	10	NLAATKMSEC	6.9e-05	62
HLA-A*01:01	1	1025	1034	10	KMSECVLGQS	6.9e-05	56
HLA-B*07:02	1	1028	1037	10	ECVLGQSKRV	6.9e-05	36
HLA-A*02:06	1	1068	1077	10	QEKNF TTAPA	6.9e-05	49
HLA-B*15:01	1	1069	1077	9	EKNF TTAPA	6.9e-05	39
HLA-B*07:02	1	1079	1087	9	CHDGKAHFP	6.9e-05	36
HLA-B*44:03	1	1082	1091	10	GKAHF PREGV	6.9e-05	25
HLA-B*57:01	1	1089	1097	9	EGV FVSNGT	6.9e-05	53
HLA-B*07:02	1	1100	1108	9	FVTQRNFYE	6.9e-05	36
HLA-B*35:01	1	1102	1110	9	TQRNFYEPQ	6.9e-05	28
HLA-B*35:01	1	1105	1114	10	NFYEPQIITT	6.9e-05	28
HLA-A*01:01	1	1130	1139	10	VNNTVYDPLQ	6.9e-05	56
HLA-B*44:02	1	1148	1157	10	ELDKYFKNHT	6.9e-05	27
HLA-A*30:01	1	1160	1169	10	DVDLGDISGI	6.9e-05	65
HLA-A*02:01	1	1172	1181	10	SVVNIQKEID	6.9e-05	38
HLA-A*30:02	1	1196	1204	9	DLQELGKYE	6.9e-05	62
HLA-B*15:01	1	1214	1222	9	WLGFIAGLI	6.9e-05	39
HLA-A*68:02	1	1219	1228	10	AGLIAIVMVT	6.9e-05	41
HLA-A*26:01	1	1222	1231	10	IAIVMVTIML	6.9e-05	34
HLA-A*33:01	1	1227	1235	9	VTIMLCMT	6.9e-05	41
HLA-A*30:02	1	1233	1242	10	CMTSCC SCLK	6.9e-05	62
HLA-A*26:01	1	1256	1264	9	DDSEPV LKG	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	VYYPDKVFRS	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	WFHAIHVS GT	6.8e-05	41
HLA-A*02:03	1	68	76	9	IHVSGTNGT	6.8e-05	41



HLA-B*08:01	1	68	76	9	IHVSGTNGT	6.8e-05	54
HLA-B*44:03	1	69	77	9	HVSGTNGTK	6.8e-05	25
HLA-A*68:02	1	79	88	10	FANPVLPFND	6.8e-05	41
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	DPFLGVYYHK	6.8e-05	30
HLA-B*51:01	1	141	150	10	LGVYYHKNNK	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-A*23:01	1	235	243	9	ITRFQTLHR	6.8e-05	25
HLA-B*51:01	1	235	244	10	ITRFQTLHRS	6.8e-05	48
HLA-B*07:02	1	236	244	9	TRFQTLHRS	6.8e-05	36
HLA-B*58:01	1	242	251	10	HRSYLTPGDS	6.8e-05	42
HLA-B*35:01	1	274	282	9	LKYNENGTI	6.8e-05	28
HLA-A*01:01	1	286	295	10	VDCALDPLSE	6.8e-05	56
HLA-A*02:06	1	292	301	10	PLSETKCTLK	6.8e-05	49
HLA-A*68:02	1	301	310	10	KSFTVEKGIY	6.8e-05	41
HLA-A*32:01	1	327	335	9	PNITNLCPF	6.8e-05	30
HLA-A*26:01	1	331	340	10	NLCPFGEVFN	6.8e-05	34
HLA-A*30:01	1	335	344	10	FGEVFNATRF	6.8e-05	65
HLA-A*02:03	1	350	359	10	WNRKRISNCV	6.8e-05	41
HLA-A*30:02	1	351	360	10	NRKRISNCVA	6.8e-05	62
HLA-A*02:03	1	365	374	10	LYNSASFSTF	6.8e-05	41
HLA-A*02:03	1	373	382	10	TFKCYGVSPT	6.8e-05	41
HLA-A*02:03	1	374	382	9	FKCYGVSPT	6.8e-05	41
HLA-A*30:01	1	377	386	10	YGVSPTKLND	6.8e-05	65
HLA-A*33:01	1	383	391	9	KLNDLCFTN	6.8e-05	42
HLA-A*03:01	1	384	393	10	LNDLCFTNVY	6.8e-05	33
HLA-B*51:01	1	385	394	10	NDLCFTNVYA	6.8e-05	48
HLA-A*30:02	1	388	396	9	CFTNVYADS	6.8e-05	62
HLA-A*68:01	1	388	397	10	CFTNVYADSF	6.8e-05	36
HLA-B*44:02	1	456	465	10	SNLKPFERDI	6.8e-05	27
HLA-A*26:01	1	467	475	9	TEIYQAGST	6.8e-05	34
HLA-A*11:01	1	472	480	9	AGSTPCNGV	6.8e-05	25
HLA-A*68:01	1	472	480	9	AGSTPCNGV	6.8e-05	36
HLA-A*03:01	1	484	493	10	NCYFPLQSYG	6.8e-05	33
HLA-A*31:01	1	502	511	10	YQPYRVVLS	6.8e-05	40
HLA-A*30:02	1	504	513	10	PYRVVLSFE	6.8e-05	62
HLA-B*44:03	1	517	525	9	APATVCGPK	6.8e-05	25
HLA-B*44:02	1	520	528	9	TVCGPKKST	6.8e-05	27
HLA-A*24:02	1	537	546	10	NFNFNGLTGT	6.8e-05	24
HLA-A*01:01	1	544	553	10	TGTGVLTESN	6.8e-05	56
HLA-B*57:01	1	558	566	9	PFQQFGRDI	6.8e-05	54
HLA-B*51:01	1	574	583	10	RDPQTLLEILD	6.8e-05	48
HLA-B*53:01	1	597	605	9	PGTNTSNQV	6.8e-05	27
HLA-B*44:03	1	599	608	10	TNTSNQVAVL	6.8e-05	25
HLA-B*57:01	1	604	613	10	QVAVLYQGVN	6.8e-05	54
HLA-A*30:01	1	616	625	10	EVPVAIHADQ	6.8e-05	65
HLA-B*51:01	1	632	641	10	VYSTGSNVFQ	6.8e-05	48
HLA-A*23:01	1	634	643	10	STGSNVFQTR	6.8e-05	25
HLA-B*07:02	1	635	644	10	TGSNVFQTRA	6.8e-05	36
HLA-B*35:01	1	639	647	9	VFQTRAGCL	6.8e-05	28
HLA-A*11:01	1	657	665	9	YECDIPIGA	6.8e-05	25
HLA-A*02:03	1	660	668	9	DIPIGAGIC	6.8e-05	41
HLA-A*23:01	1	672	680	9	QTQTNSPRR	6.8e-05	25
HLA-A*01:01	1	679	687	9	RRARSVASQ	6.8e-05	56

HLA-A*24:02	1	679	687	9	RRARSVASQ	6.8e-05	24
HLA-A*33:01	1	682	690	9	RSVASQSII	6.8e-05	42
HLA-A*03:01	1	691	700	10	AYTMSLGVEN	6.8e-05	33
HLA-A*03:01	1	695	703	9	SLGVENSVA	6.8e-05	33
HLA-B*07:02	1	707	716	10	NSIAIPTNFT	6.8e-05	36
HLA-B*44:03	1	710	719	10	AIPTNFTISV	6.8e-05	25
HLA-B*51:01	1	712	721	10	PTNFTISVTT	6.8e-05	48
HLA-A*68:02	1	745	754	10	ECSNLLLQYG	6.8e-05	41
HLA-A*68:02	1	760	768	9	LNRLALTGIA	6.8e-05	41
HLA-B*51:01	1	762	771	10	RALTGIAVEQ	6.8e-05	48
HLA-B*35:01	1	765	773	9	TGIAVEQDK	6.8e-05	28
HLA-B*57:01	1	765	774	10	TGIAVEQDKN	6.8e-05	54
HLA-B*58:01	1	781	790	10	QVKQIYKTPP	6.8e-05	42
HLA-A*26:01	1	787	795	9	KTPPIKDFG	6.8e-05	34
HLA-B*40:01	1	796	804	9	GFNFSQLP	6.8e-05	23
HLA-A*32:01	1	814	823	10	FIEDLLFNKV	6.8e-05	30
HLA-B*57:01	1	819	828	10	LFNKVTLADA	6.8e-05	54
HLA-A*02:03	1	825	833	9	LADAGFIKQ	6.8e-05	41
HLA-A*24:02	1	825	834	10	LADAGFIKQY	6.8e-05	24
HLA-A*30:02	1	828	836	9	AGFIKQYGD	6.8e-05	62
HLA-B*08:01	1	833	841	9	QYGDCLGDI	6.8e-05	54
HLA-B*57:01	1	840	849	10	DIAARDLICA	6.8e-05	54
HLA-A*33:01	1	841	849	9	IAARDLICA	6.8e-05	42
HLA-B*44:02	1	842	850	9	AARDLICAQ	6.8e-05	27
HLA-A*01:01	1	860	869	10	PLLTDEMIAQ	6.8e-05	56
HLA-A*03:01	1	865	874	10	EMIAQYTSAL	6.8e-05	33
HLA-B*58:01	1	873	882	10	ALLAGTITSG	6.8e-05	42
HLA-A*03:01	1	887	896	10	AGAALQIPFA	6.8e-05	33
HLA-B*57:01	1	927	936	10	AIGKIQDLSL	6.8e-05	54
HLA-A*31:01	1	933	942	10	DSLSSTASAL	6.8e-05	40
HLA-A*33:01	1	969	977	9	AISSVLNDI	6.8e-05	42
HLA-B*53:01	1	987	996	10	EVQIDRLITG	6.8e-05	27
HLA-B*07:02	1	998	1006	9	LQSLQTYVT	6.8e-05	36
HLA-A*02:01	1	1009	1018	10	LIRAAEIRAS	6.8e-05	38
HLA-A*33:01	1	1016	1024	9	RASANLAAT	6.8e-05	42
HLA-B*58:01	1	1028	1037	10	ECVLGQSKRV	6.8e-05	42
HLA-A*24:02	1	1042	1051	10	KGYHLMSFPQ	6.8e-05	24
HLA-A*33:01	1	1049	1058	10	FPQSAPHGVV	6.8e-05	42
HLA-A*68:01	1	1055	1063	9	HGVVFLHVT	6.8e-05	36
HLA-B*35:01	1	1056	1065	10	GVVFLHVTYV	6.8e-05	28
HLA-B*07:02	1	1066	1075	10	PAQEKNFSTA	6.8e-05	36
HLA-A*33:01	1	1069	1078	10	EKNFTTAPAI	6.8e-05	42
HLA-A*24:02	1	1070	1079	10	KNFTTAPAIC	6.8e-05	24
HLA-B*57:01	1	1074	1082	9	TAPAICHDG	6.8e-05	54
HLA-A*26:01	1	1079	1088	10	CHDGKAHFPR	6.8e-05	34
HLA-A*03:01	1	1085	1094	10	HFPREGVFSV	6.8e-05	33
HLA-B*44:03	1	1097	1105	9	THWFVTQRN	6.8e-05	25
HLA-A*02:06	1	1099	1107	9	WFVTQRNFY	6.8e-05	49
HLA-A*26:01	1	1103	1112	10	QRNFYEPQII	6.8e-05	34
HLA-B*44:03	1	1106	1114	9	FYEPQIITT	6.8e-05	25
HLA-A*68:01	1	1113	1122	10	TTDNTFVSGN	6.8e-05	36
HLA-B*15:01	1	1113	1121	9	TTDNTFVSG	6.8e-05	39
HLA-A*33:01	1	1121	1130	10	GNCVVIGIV	6.8e-05	42
HLA-B*07:02	1	1143	1152	10	DSFKEELDKY	6.8e-05	36
HLA-B*58:01	1	1155	1163	9	NHTSPDVDL	6.8e-05	42
HLA-A*26:01	1	1160	1168	9	DVDLGDISG	6.8e-05	34
HLA-A*24:02	1	1165	1173	9	DISGINASV	6.8e-05	24
HLA-B*08:01	1	1175	1184	10	NIQKEIDRLN	6.8e-05	54
HLA-A*24:02	1	1186	1195	10	VAKNLNESLI	6.8e-05	24
HLA-A*24:02	1	1211	1220	10	WYIWLGFIAI	6.8e-05	24
HLA-B*58:01	1	1212	1221	10	YIWLGFIAI	6.8e-05	42
HLA-A*24:02	1	1217	1225	9	FIAGLIAIV	6.8e-05	24
HLA-A*68:02	1	1225	1233	9	VMVTIMLCC	6.8e-05	41
HLA-A*68:02	1	1252	1260	9	KFDEDDSEP	6.8e-05	41
HLA-B*44:02	1	1253	1261	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	CVNLTRTRQL	6.7e-05	25
HLA-B*15:01	1	18	27	10	LTRTRQLPPA	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-B*51:01	1	71	80	10	SGTNGTKRFA	6.7e-05	48
HLA-B*57:01	1	76	85	10	TKRFANPVLP	6.7e-05	54
HLA-A*01:01	1	78	87	10	RFANPVLPFN	6.7e-05	56
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	DSKTQSLIV	6.7e-05	28
HLA-B*08:01	1	114	122	9	TQSLIVNN	6.7e-05	54
HLA-B*51:01	1	115	124	10	QSLIVNNAT	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*23:01	1	239	247	9	QTLHRSYLT	6.7e-05	25
HLA-A*24:02	1	240	248	9	TLHRSYLT	6.7e-05	24
HLA-B*15:01	1	261	270	10	AYYVGYLQPR	6.7e-05	39
HLA-A*23:01	1	281	290	10	TITDAVDCAL	6.7e-05	25
HLA-A*02:06	1	313	322	10	SNFRVQPTES	6.7e-05	49
HLA-B*53:01	1	316	325	10	RVQPTESIVR	6.7e-05	27
HLA-A*01:01	1	319	328	10	PTESIVRFPN	6.7e-05	56
HLA-A*68:02	1	335	344	10	FGEVFNATRF	6.7e-05	41
HLA-A*02:06	1	355	363	9	ISNCVADYS	6.7e-05	49
HLA-A*68:02	1	359	367	9	VADYSVLYN	6.7e-05	41
HLA-B*44:03	1	361	369	9	DYSVLYNSA	6.7e-05	25
HLA-B*08:01	1	385	394	10	NDLCFTNVYA	6.7e-05	54
HLA-B*57:01	1	387	395	9	LCFTNVYAD	6.7e-05	54
HLA-A*31:01	1	407	415	9	IAPGQTGNI	6.7e-05	40
HLA-A*26:01	1	439	447	9	DSKVGGNYN	6.7e-05	34
HLA-B*35:01	1	444	452	9	GNYNYLYRL	6.7e-05	28
HLA-A*02:03	1	445	453	9	NYNYLYRLF	6.7e-05	42
HLA-A*11:01	1	445	453	9	NYNYLYRLF	6.7e-05	25
HLA-B*15:01	1	457	466	10	NLKPFERDIS	6.7e-05	39
HLA-A*03:01	1	485	493	9	CYFPLQSYG	6.7e-05	33
HLA-A*24:02	1	492	501	10	YGFQPTYGVG	6.7e-05	24
HLA-A*03:01	1	498	507	10	YGVGYQPYRV	6.7e-05	33
HLA-A*30:01	1	513	522	10	ELLHAPATVC	6.7e-05	65
HLA-B*57:01	1	515	523	9	LHAPATVCG	6.7e-05	54
HLA-B*53:01	1	516	524	9	HAPATVCGP	6.7e-05	27
HLA-A*30:02	1	521	529	9	VCGPKKSTN	6.7e-05	63
HLA-B*44:02	1	527	536	10	STNLVKNKCV	6.7e-05	27
HLA-A*01:01	1	537	546	10	NFNFNGLTGT	6.7e-05	56
HLA-A*33:01	1	550	558	9	TESNKKFLP	6.7e-05	42
HLA-A*03:01	1	553	562	10	NKKFLPFQF	6.7e-05	33
HLA-A*26:01	1	557	566	10	LPFQQFGRDI	6.7e-05	34
HLA-A*24:02	1	559	567	9	FQQFGRDIA	6.7e-05	24
HLA-A*01:01	1	561	570	10	QFGRDIADTT	6.7e-05	56
HLA-A*33:01	1	564	573	10	RDIADTTDAV	6.7e-05	42
HLA-B*51:01	1	564	572	9	RDIADTTDA	6.7e-05	48
HLA-B*57:01	1	566	575	10	IADTTDAVRD	6.7e-05	54
HLA-A*11:01	1	569	578	10	TTDAVRDPQT	6.7e-05	25
HLA-A*31:01	1	571	579	9	DAVRDPQTL	6.7e-05	40
HLA-A*03:01	1	617	626	10	VPVAIHADQL	6.7e-05	33
HLA-B*07:02	1	634	642	9	STGSNVFQT	6.7e-05	37
HLA-B*53:01	1	639	647	9	VFQTRAGCL	6.7e-05	27
HLA-B*53:01	1	644	652	9	AGCLIGAHE	6.7e-05	27
HLA-B*58:01	1	647	655	9	LIGAHEVNN	6.7e-05	42
HLA-A*03:01	1	655	663	9	NSYECDIPI	6.7e-05	33
HLA-B*58:01	1	670	679	10	SYQTQTNSPR	6.7e-05	42

HLA-A*31:01	1	675	683	9	TNSPRRARS	6.7e-05	40
HLA-B*51:01	1	688	697	10	SIIAYTMSLG	6.7e-05	48
HLA-B*51:01	1	718	727	10	SVTTEILPVS	6.7e-05	48
HLA-A*02:03	1	731	740	10	TSVDCTMYIC	6.7e-05	42
HLA-B*08:01	1	736	745	10	TMYICGDSTE	6.7e-05	54
HLA-A*30:01	1	764	772	9	LTGIAVEQD	6.7e-05	65
HLA-B*40:01	1	784	792	9	QIYKTPPIK	6.7e-05	23
HLA-A*24:02	1	794	803	10	FGGFNFSQIL	6.7e-05	24
HLA-A*68:01	1	810	819	10	SKRSFIEDLL	6.7e-05	36
HLA-B*53:01	1	824	833	10	TLADAGFIKQ	6.7e-05	27
HLA-B*58:01	1	827	835	9	DAGFIKQYG	6.7e-05	42
HLA-B*08:01	1	829	837	9	GFIKQYGDC	6.7e-05	54
HLA-A*30:01	1	840	848	9	DIAARDLIC	6.7e-05	65
HLA-B*44:03	1	851	859	9	KFNGLTVLP	6.7e-05	25
HLA-A*68:02	1	852	860	9	FNGLTVLPP	6.7e-05	41
HLA-B*44:03	1	867	875	9	IAQYTSALL	6.7e-05	25
HLA-A*23:01	1	868	877	10	AQYTSALLAG	6.7e-05	25
HLA-A*32:01	1	868	877	10	AQYTSALLAG	6.7e-05	30
HLA-B*15:01	1	870	878	9	YTSALLAGT	6.7e-05	39
HLA-B*58:01	1	881	890	10	SGWTFGAGAA	6.7e-05	42
HLA-B*44:03	1	888	896	9	GAALQIPFA	6.7e-05	25
HLA-A*03:01	1	899	908	10	MAYRFNGIGV	6.7e-05	33
HLA-B*51:01	1	901	910	10	YRFNGIGVTQ	6.7e-05	48
HLA-A*03:01	1	904	912	9	NGIGVTQNV	6.7e-05	33
HLA-B*35:01	1	910	918	9	QNVLYENQK	6.7e-05	28
HLA-A*02:06	1	914	922	9	YENQKLIAN	6.7e-05	49
HLA-B*58:01	1	915	923	9	ENQKLIANQ	6.7e-05	42
HLA-A*30:02	1	920	929	10	IANQFNSAIG	6.7e-05	63
HLA-B*57:01	1	924	932	9	FNSAIGKIQ	6.7e-05	54
HLA-B*44:02	1	926	934	9	SAIGKIQDS	6.7e-05	27
HLA-A*11:01	1	932	941	10	QDSLSSTASA	6.7e-05	25
HLA-A*02:01	1	936	944	9	SSTASALGK	6.7e-05	39
HLA-A*31:01	1	947	955	9	DVVNQNAQA	6.7e-05	40
HLA-A*32:01	1	955	964	10	ALNTLVKQLS	6.7e-05	30
HLA-A*01:01	1	977	985	9	ILSRLDKVE	6.7e-05	56
HLA-A*33:01	1	977	986	10	ILSRLDKVEA	6.7e-05	42
HLA-A*02:03	1	1005	1014	10	VTQQLIRAAE	6.7e-05	42
HLA-A*68:01	1	1019	1028	10	ANLAATKMSE	6.7e-05	36
HLA-B*08:01	1	1025	1033	9	KMSECVLGQ	6.7e-05	54
HLA-A*01:01	1	1033	1041	9	QSKRVDFCG	6.7e-05	56
HLA-B*35:01	1	1059	1068	10	FLHVTVVPAQ	6.7e-05	28
HLA-A*02:03	1	1102	1110	9	TQRNFYEPQ	6.7e-05	42
HLA-A*30:02	1	1120	1128	9	SGNCDVVIG	6.7e-05	63
HLA-A*03:01	1	1129	1138	10	IVNNTVYDPL	6.7e-05	33
HLA-A*02:03	1	1138	1147	10	LQPELDSFKE	6.7e-05	42
HLA-A*30:02	1	1150	1158	9	DKYFKNHTS	6.7e-05	63
HLA-A*31:01	1	1150	1159	10	DKYFKNHTSP	6.7e-05	40
HLA-A*31:01	1	1154	1163	10	KNHTSPDVL	6.7e-05	40
HLA-B*51:01	1	1157	1165	9	TSPDVDLGD	6.7e-05	48
HLA-B*40:01	1	1160	1169	10	DVDLGDISGI	6.7e-05	23
HLA-B*53:01	1	1162	1171	10	DLGDISGINA	6.7e-05	27
HLA-A*02:01	1	1173	1182	10	VVNIQKEIDR	6.7e-05	39
HLA-A*30:02	1	1173	1181	9	VVNIQKEID	6.7e-05	63
HLA-A*01:01	1	1183	1192	10	LNEVAKNLNE	6.7e-05	56
HLA-A*26:01	1	1188	1197	10	KNLNESLIDL	6.7e-05	34
HLA-A*26:01	1	1195	1204	10	IDLQELGKYE	6.7e-05	34
HLA-A*31:01	1	1196	1204	9	DLQELGKYE	6.7e-05	40
HLA-B*35:01	1	1206	1215	10	YIKWPWYIWL	6.7e-05	28
HLA-B*07:02	1	1212	1220	9	YIWLGFIAG	6.7e-05	37
HLA-A*01:01	1	1216	1225	10	GFIAGLIAIV	6.7e-05	56
HLA-B*40:01	1	1219	1227	9	AGLIAIVMV	6.7e-05	23
HLA-A*26:01	1	18	27	10	LTTRTQLPPA	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	GYYYPDKVFR	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*11:01	1	75	84	10	GTKRFANPVL	6.6e-05	25
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	NVVIKVCFEQ	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*02:01	1	240	249	10	TLHRSYLTPG	6.6e-05	39
HLA-A*32:01	1	244	252	9	SYLTPGDSS	6.6e-05	30
HLA-B*44:03	1	266	275	10	YLQPRTFLLK	6.6e-05	26
HLA-A*01:01	1	270	279	10	RTFLLKYNEN	6.6e-05	57
HLA-B*58:01	1	278	286	9	ENGTITDAV	6.6e-05	42
HLA-A*01:01	1	286	294	9	VDCALDPLS	6.6e-05	57
HLA-B*40:01	1	305	314	10	VEKGIYQTSN	6.6e-05	23
HLA-B*15:01	1	329	338	10	ITNLCPFGEV	6.6e-05	39
HLA-B*40:01	1	330	338	9	TNLCPFGEV	6.6e-05	23
HLA-A*26:01	1	347	355	9	VYAWNRKRI	6.6e-05	34
HLA-B*51:01	1	354	362	9	RISNCVADY	6.6e-05	48
HLA-B*07:02	1	356	364	9	SNCVADYSV	6.6e-05	37
HLA-A*24:02	1	357	365	9	NCVADYSVL	6.6e-05	24
HLA-A*02:01	1	365	373	9	LYNSASFST	6.6e-05	39
HLA-B*40:01	1	367	375	9	NSASFSTFK	6.6e-05	23
HLA-A*02:03	1	380	389	10	SPTKLNDLCF	6.6e-05	42
HLA-B*44:03	1	381	389	9	PTKLNDLCF	6.6e-05	26
HLA-A*32:01	1	398	406	9	VIRGDEVQR	6.6e-05	30
HLA-A*33:01	1	398	407	10	VIRGDEVQR	6.6e-05	42
HLA-B*53:01	1	414	423	10	NIADYNYKLP	6.6e-05	27
HLA-B*58:01	1	414	423	10	NIADYNYKLP	6.6e-05	42
HLA-B*58:01	1	415	424	10	IADYNYKLPD	6.6e-05	42
HLA-A*11:01	1	459	468	10	KPFERDISTE	6.6e-05	25
HLA-A*26:01	1	474	482	9	STPCNGVKG	6.6e-05	34
HLA-A*31:01	1	483	491	9	FNCYFPLQS	6.6e-05	41
HLA-A*23:01	1	490	499	10	QSYGFQPTYG	6.6e-05	25
HLA-A*03:01	1	494	503	10	FQPTYGVGYQ	6.6e-05	33
HLA-B*53:01	1	498	507	10	YGVGYQPYRV	6.6e-05	27
HLA-A*02:01	1	503	512	10	QPYRVVLSF	6.6e-05	39
HLA-A*02:03	1	503	512	10	QPYRVVLSF	6.6e-05	42
HLA-A*33:01	1	504	513	10	PYRVVLSFE	6.6e-05	42
HLA-A*02:06	1	515	524	10	LHAPATVCGP	6.6e-05	49
HLA-B*15:01	1	516	525	10	HAPATVCGPK	6.6e-05	39
HLA-A*01:01	1	520	529	10	TVCGPKKSTN	6.6e-05	57
HLA-A*32:01	1	523	532	10	GPKKSTNLVK	6.6e-05	30
HLA-A*68:02	1	538	547	10	FNFNGLTGTG	6.6e-05	41
HLA-B*40:01	1	538	546	9	FNFNGLTGT	6.6e-05	23
HLA-B*40:01	1	540	548	9	FNGLTGTGV	6.6e-05	23
HLA-B*58:01	1	540	549	10	FNGLTGTGVL	6.6e-05	42
HLA-B*35:01	1	543	551	9	LTGTGVLTE	6.6e-05	28
HLA-B*51:01	1	549	558	10	LTESNKKFLP	6.6e-05	48
HLA-A*02:06	1	556	565	10	FLPFQQFGRD	6.6e-05	49
HLA-A*30:02	1	558	567	10	PFQQFGRDIA	6.6e-05	63
HLA-A*01:01	1	579	588	10	LEILDITPCS	6.6e-05	57
HLA-B*15:01	1	584	592	9	ITPCSFGGV	6.6e-05	39
HLA-A*23:01	1	586	595	10	PCSFGGVSVI	6.6e-05	25
HLA-A*26:01	1	595	603	9	ITPGTNTSN	6.6e-05	34
HLA-B*44:02	1	599	608	10	TNTSNQVAVL	6.6e-05	27
HLA-A*03:01	1	619	628	10	VAIHADQLTP	6.6e-05	33
HLA-B*40:01	1	645	653	9	GCLIGAEHV	6.6e-05	23
HLA-B*44:03	1	655	663	9	NSYECDIPI	6.6e-05	26

HLA-A*30:02	1	658	666	9	ECDIPIGAG	6.6e-05	63
HLA-A*68:01	1	664	672	9	GAGICASYQ	6.6e-05	36
HLA-A*02:06	1	668	677	10	CASYQTQTN	6.6e-05	49
HLA-A*02:06	1	679	688	10	RRARSVASQ	6.6e-05	49
HLA-B*53:01	1	689	698	10	IIAYTMSLGV	6.6e-05	27
HLA-A*33:01	1	691	700	10	AYTMSLGVEN	6.6e-05	42
HLA-B*57:01	1	710	718	9	AIPTNFTIS	6.6e-05	54
HLA-B*51:01	1	712	720	9	PTNFTISVT	6.6e-05	48
HLA-A*23:01	1	713	721	9	TNFTISVTT	6.6e-05	25
HLA-A*03:01	1	714	722	9	NFTISVTTE	6.6e-05	33
HLA-B*15:01	1	717	726	10	ISVTTEILPV	6.6e-05	39
HLA-A*30:02	1	735	744	10	CTMYICGDST	6.6e-05	63
HLA-B*07:02	1	761	770	10	NRALTGIAVE	6.6e-05	37
HLA-A*26:01	1	762	770	9	RALTGIAVE	6.6e-05	34
HLA-A*68:02	1	764	773	10	LTGIAVEQDK	6.6e-05	41
HLA-A*68:02	1	793	801	9	DFGGFNFSQ	6.6e-05	41
HLA-A*23:01	1	809	818	10	PSKRSFIEDL	6.6e-05	25
HLA-A*23:01	1	848	857	10	CAQKFNGLTV	6.6e-05	25
HLA-B*07:02	1	859	868	10	PPLLTDEMIA	6.6e-05	37
HLA-B*53:01	1	859	868	10	PPLLTDEMIA	6.6e-05	27
HLA-A*02:06	1	860	869	10	PPLTDEMIAQ	6.6e-05	49
HLA-B*44:03	1	863	871	9	TDEMIAQYT	6.6e-05	26
HLA-A*68:01	1	864	873	10	DEMIAQYTS	6.6e-05	36
HLA-B*35:01	1	873	881	9	ALLAGTITS	6.6e-05	28
HLA-B*44:02	1	901	910	10	YRFNGIGVTQ	6.6e-05	27
HLA-B*40:01	1	909	917	9	TONVLYENQ	6.6e-05	23
HLA-A*23:01	1	918	926	9	KLIANQFNS	6.6e-05	25
HLA-B*35:01	1	932	940	9	QDLSSTAS	6.6e-05	28
HLA-B*44:02	1	936	945	10	SSTASALGKL	6.6e-05	27
HLA-A*01:01	1	938	947	10	TASALGKLQD	6.6e-05	57
HLA-B*15:01	1	957	965	9	NTLVKQLSS	6.6e-05	39
HLA-A*02:06	1	967	976	10	FGAISSVLND	6.6e-05	49
HLA-A*31:01	1	977	986	10	ILSRLDKVEA	6.6e-05	41
HLA-A*33:01	1	985	994	10	EAEVQIDRLI	6.6e-05	42
HLA-A*23:01	1	992	1000	9	RLITGRLQS	6.6e-05	25
HLA-B*35:01	1	995	1003	9	TGRLQSLQT	6.6e-05	28
HLA-A*33:01	1	1015	1023	9	IRASANLAA	6.6e-05	42
HLA-B*57:01	1	1019	1028	10	ANLAATKMSE	6.6e-05	54
HLA-A*31:01	1	1025	1034	10	KMSECVLGQS	6.6e-05	41
HLA-B*57:01	1	1041	1050	10	GKGYHLMSFP	6.6e-05	54
HLA-A*68:02	1	1046	1055	10	LMSFPQSAPH	6.6e-05	41
HLA-B*44:02	1	1048	1056	9	SFPQSAPHG	6.6e-05	27
HLA-A*30:02	1	1059	1068	10	FLHVTVVPAQ	6.6e-05	63
HLA-A*33:01	1	1068	1077	10	QEKNFTTAPA	6.6e-05	42
HLA-A*26:01	1	1073	1082	10	TTAPAICHDG	6.6e-05	34
HLA-A*02:06	1	1078	1087	10	ICHDGKAHFP	6.6e-05	49
HLA-A*02:06	1	1079	1087	9	CHDGKAHFP	6.6e-05	49
HLA-A*26:01	1	1086	1095	10	FPREGVFSVN	6.6e-05	34
HLA-A*01:01	1	1089	1097	9	EGVFSVNGT	6.6e-05	57
HLA-A*26:01	1	1102	1111	10	TQRNFYEPQI	6.6e-05	34
HLA-A*02:03	1	1112	1121	10	ITTDNTFVSG	6.6e-05	42
HLA-B*40:01	1	1126	1134	9	VIGIVNNTV	6.6e-05	23
HLA-A*30:02	1	1130	1139	10	VNNTVYDPLQ	6.6e-05	63
HLA-B*44:02	1	1138	1146	9	LQPELDSFK	6.6e-05	27
HLA-A*26:01	1	1146	1154	9	KEELDKYFK	6.6e-05	34
HLA-A*24:02	1	1148	1156	9	ELDKYFKNH	6.6e-05	24
HLA-A*30:02	1	1149	1157	9	LDKYFKNHT	6.6e-05	63
HLA-A*68:01	1	1164	1172	9	GDISGINAS	6.6e-05	36
HLA-A*11:01	1	1165	1173	9	DISGINASV	6.6e-05	25
HLA-A*02:06	1	1174	1182	9	VNIQKEIDR	6.6e-05	49
HLA-A*30:01	1	1175	1184	10	NIQKEIDRLN	6.6e-05	65
HLA-B*44:03	1	1179	1188	10	EIDRLNEVAK	6.6e-05	26
HLA-B*44:03	1	1190	1199	10	LNESLIDLQE	6.6e-05	26
HLA-B*15:01	1	1195	1204	10	IDLQELGKYE	6.6e-05	39
HLA-B*40:01	1	1200	1209	10	LGKYEQYIKW	6.6e-05	23
HLA-B*57:01	1	1219	1228	10	AGLIAIVMVT	6.6e-05	54

HLA-A*30:02	1	1224	1233	10	IVMVTIMLCC	6.6e-05	63
HLA-A*30:02	1	1227	1236	10	VTIMLCMCTS	6.6e-05	63
HLA-A*68:02	1	1245	1253	9	CSCGSCCKF	6.6e-05	41
HLA-B*40:01	1	1257	1265	9	DSEPVLKGV	6.6e-05	23
HLA-A*11:01	1	1259	1267	9	EPVLKGVKL	6.6e-05	25
HLA-A*32:01	1	1259	1268	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-A*26:01	1	77	85	9	KRFANPVLV	6.5e-05	34
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	SLLVNATN	6.5e-05	42
HLA-B*07:02	1	121	130	10	NNATNVVIKV	6.5e-05	37
HLA-A*68:01	1	122	131	10	NATNVVIKVC	6.5e-05	36
HLA-A*02:06	1	143	151	9	VYYHKNNKS	6.5e-05	50
HLA-A*32:01	1	145	153	9	YHKNNKSWM	6.5e-05	30
HLA-A*32:01	1	149	158	10	NKSWMSEFR	6.5e-05	30
HLA-B*40:01	1	172	180	9	SQPFMLDLE	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-A*31:01	1	212	221	10	LVRGLPQGFS	6.5e-05	41
HLA-A*33:01	1	212	221	10	LVRGLPQGFS	6.5e-05	42
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*11:01	1	237	246	10	RFQTLHRSYL	6.5e-05	25
HLA-B*35:01	1	237	246	10	RFQTLHRSYL	6.5e-05	28
HLA-A*11:01	1	238	246	9	FQTLHRSYL	6.5e-05	25
HLA-A*01:01	1	242	251	10	HRSYLTPGDS	6.5e-05	57
HLA-A*11:01	1	244	252	9	SYLTPGDSS	6.5e-05	25
HLA-B*35:01	1	244	252	9	SYLTPGDSS	6.5e-05	28
HLA-A*26:01	1	252	260	9	SSGWTAGAA	6.5e-05	34
HLA-A*01:01	1	262	271	10	YYVGYLQPR	6.5e-05	57
HLA-B*35:01	1	263	271	9	YVGYLQPR	6.5e-05	28
HLA-A*03:01	1	292	300	9	PLSETKCTL	6.5e-05	34
HLA-A*31:01	1	315	324	10	FRVQPTESIV	6.5e-05	41
HLA-A*30:02	1	331	340	10	NLCPFGEVFN	6.5e-05	63
HLA-A*26:01	1	332	341	10	LCPFGEVFNA	6.5e-05	34
HLA-A*01:01	1	338	346	9	VFNATRFAS	6.5e-05	57
HLA-A*26:01	1	373	381	9	TFKCYGVSP	6.5e-05	34
HLA-A*11:01	1	379	387	9	VSPTKLNDL	6.5e-05	25
HLA-A*31:01	1	384	393	10	LNDLCFTNVY	6.5e-05	41
HLA-B*07:02	1	390	398	9	TNVYADSFV	6.5e-05	37
HLA-B*35:01	1	396	405	10	SFVIRGDEV	6.5e-05	28
HLA-B*08:01	1	417	425	9	DYNYKLPDD	6.5e-05	55
HLA-B*51:01	1	419	428	10	NYKLPDDFTG	6.5e-05	48
HLA-A*03:01	1	422	430	9	LPDDFTGCV	6.5e-05	34
HLA-A*03:01	1	425	433	9	DFTGCVIAW	6.5e-05	34
HLA-A*68:01	1	426	435	10	FTGCVIAWNS	6.5e-05	36
HLA-B*57:01	1	439	447	9	DSKVGGNYN	6.5e-05	54
HLA-A*33:01	1	449	457	9	LYRLFRRSN	6.5e-05	42
HLA-A*26:01	1	463	472	10	RDISTEIIYQA	6.5e-05	34
HLA-A*01:01	1	479	488	10	GVKGFNCYFP	6.5e-05	57
HLA-A*24:02	1	480	489	10	VKGFNCYFPL	6.5e-05	24
HLA-B*58:01	1	483	491	9	FNCYFPLQS	6.5e-05	43
HLA-B*35:01	1	489	497	9	LQSYGFQPT	6.5e-05	28
HLA-A*33:01	1	509	518	10	VLSFELLHAP	6.5e-05	42
HLA-A*32:01	1	541	549	9	NGLTGTGVL	6.5e-05	30
HLA-A*31:01	1	550	558	9	TESNKKFLP	6.5e-05	41

HLA-B*58:01	1	557	566	10	LPFQQFGRDI	6.5e-05	43
HLA-A*23:01	1	564	573	10	RDIADTTDAV	6.5e-05	25
HLA-B*58:01	1	565	574	10	DIADTTDAVR	6.5e-05	43
HLA-A*30:02	1	579	587	9	LEILDITPC	6.5e-05	63
HLA-B*08:01	1	584	592	9	ITPCSFGGV	6.5e-05	55
HLA-B*44:03	1	585	594	10	TPCSFGGVSV	6.5e-05	26
HLA-A*02:03	1	605	614	10	VAVLYQGVNC	6.5e-05	42
HLA-B*51:01	1	606	615	10	AVLYQGVNCT	6.5e-05	48
HLA-B*40:01	1	609	618	10	YQGVNCTEVP	6.5e-05	23
HLA-B*57:01	1	609	617	9	YQGVNCTEV	6.5e-05	54
HLA-A*30:01	1	647	655	9	LIGAEHVNN	6.5e-05	65
HLA-A*33:01	1	652	661	10	HVNNSYECDI	6.5e-05	42
HLA-B*44:03	1	661	669	9	IPIGAGICA	6.5e-05	26
HLA-A*30:01	1	664	673	10	GAGICASYQT	6.5e-05	65
HLA-B*58:01	1	664	673	10	GAGICASYQT	6.5e-05	43
HLA-A*31:01	1	665	673	9	AGICASYQT	6.5e-05	41
HLA-B*07:02	1	667	675	9	ICASYQTQT	6.5e-05	37
HLA-A*11:01	1	670	678	9	SYQTQTNSP	6.5e-05	25
HLA-B*07:02	1	678	686	9	PRRARSVAS	6.5e-05	37
HLA-B*51:01	1	703	712	10	AYSNNIAIP	6.5e-05	48
HLA-A*03:01	1	717	725	9	ISVTTEILP	6.5e-05	34
HLA-A*24:02	1	718	726	9	SVTTEILPV	6.5e-05	24
HLA-A*01:01	1	737	746	10	MYICGDSTEC	6.5e-05	57
HLA-B*58:01	1	755	763	9	SFCTQLNRA	6.5e-05	43
HLA-A*33:01	1	758	767	10	TQLNRALTGI	6.5e-05	42
HLA-A*33:01	1	761	770	10	NRALTGIAVE	6.5e-05	42
HLA-B*07:02	1	768	777	10	AVEQDKNTQE	6.5e-05	37
HLA-A*31:01	1	769	778	10	VEQDKNTQEV	6.5e-05	41
HLA-B*44:02	1	773	782	10	KNTQEVFAQV	6.5e-05	27
HLA-A*33:01	1	781	790	10	QVKQIYKTPP	6.5e-05	42
HLA-A*32:01	1	792	800	9	KDFGGFNFS	6.5e-05	30
HLA-B*44:02	1	793	802	10	DFGGFNFSQI	6.5e-05	27
HLA-A*23:01	1	794	803	10	FGGFNFSQIL	6.5e-05	25
HLA-B*53:01	1	813	821	9	SFIEDLLFN	6.5e-05	27
HLA-A*30:01	1	816	824	9	EDLLFNKVT	6.5e-05	65
HLA-A*23:01	1	825	834	10	LADAGFIKQY	6.5e-05	25
HLA-A*02:06	1	837	845	9	CLGDIAARD	6.5e-05	50
HLA-A*32:01	1	843	851	9	ARDLICAQK	6.5e-05	30
HLA-A*24:02	1	859	867	9	PPLLTDEMI	6.5e-05	24
HLA-A*11:01	1	877	886	10	GTITSGWTFG	6.5e-05	25
HLA-A*30:02	1	885	894	10	FGAGAALQIP	6.5e-05	63
HLA-A*68:01	1	887	896	10	AGAALQIPFA	6.5e-05	36
HLA-A*23:01	1	892	900	9	QIPFAMQMA	6.5e-05	25
HLA-A*11:01	1	904	912	9	NGIGVTQNV	6.5e-05	25
HLA-A*03:01	1	926	934	9	SAIGKIQDS	6.5e-05	34
HLA-B*53:01	1	936	944	9	SSTASALGK	6.5e-05	27
HLA-A*68:01	1	939	948	10	ASALGKLQDV	6.5e-05	36
HLA-B*44:02	1	939	948	10	ASALGKLQDV	6.5e-05	27
HLA-A*30:02	1	942	950	9	LGKLQDVVN	6.5e-05	63
HLA-A*68:01	1	943	951	9	GKLQDVVNQ	6.5e-05	36
HLA-B*44:02	1	944	952	9	KLQDVVNQN	6.5e-05	27
HLA-A*02:06	1	956	965	10	LNTLVKQLSS	6.5e-05	50
HLA-A*23:01	1	969	978	10	AISSVLNDIL	6.5e-05	25
HLA-A*68:01	1	977	986	10	ILSRLDKVEA	6.5e-05	36
HLA-A*11:01	1	979	987	9	SRLDKVEAE	6.5e-05	25
HLA-A*32:01	1	982	990	9	DKVEAEVQI	6.5e-05	30
HLA-A*02:01	1	985	994	10	EAEVQIDRLI	6.5e-05	39
HLA-B*57:01	1	986	995	10	AEVQIDRLIT	6.5e-05	54
HLA-B*40:01	1	999	1007	9	QSLQTYVTQ	6.5e-05	23
HLA-A*32:01	1	1010	1019	10	IRAAEIRASA	6.5e-05	30
HLA-B*53:01	1	1014	1022	9	EIRASANLA	6.5e-05	27
HLA-B*51:01	1	1015	1024	10	IRASANLAAT	6.5e-05	48
HLA-A*31:01	1	1022	1031	10	AATKMSECVL	6.5e-05	41
HLA-B*58:01	1	1028	1036	9	ECVLGQSKR	6.5e-05	43
HLA-A*23:01	1	1029	1037	9	CVLGQSKRV	6.5e-05	25
HLA-A*30:01	1	1032	1041	10	GQSKRVDFCG	6.5e-05	65



HLA-A*02:01	1	1041	1049	9	GKGYHLMSF	6.5e-05	39
HLA-B*44:03	1	1090	1098	9	GVFVSNATH	6.5e-05	26
HLA-A*33:01	1	1093	1102	10	VSNATHWFVT	6.5e-05	42
HLA-A*11:01	1	1103	1111	9	QRNFYEPQI	6.5e-05	25
HLA-A*33:01	1	1103	1112	10	QRNFYEPQII	6.5e-05	42
HLA-B*35:01	1	1124	1133	10	DVVIGIVNNT	6.5e-05	28
HLA-B*53:01	1	1129	1137	9	IVNNTVYDP	6.5e-05	27
HLA-B*08:01	1	1135	1144	10	YDPLQPELDS	6.5e-05	55
HLA-A*68:01	1	1176	1185	10	IQKEIDRLNE	6.5e-05	36
HLA-B*08:01	1	1181	1189	9	DRLNEVAKN	6.5e-05	55
HLA-A*68:02	1	1208	1217	10	KWPWYIWLGF	6.5e-05	42
HLA-B*08:01	1	1210	1218	9	PWYIWLGFII	6.5e-05	55
HLA-B*07:02	1	1216	1225	10	GFIAGLIAIV	6.5e-05	37
HLA-B*35:01	1	1224	1232	9	IVMVTIMLC	6.5e-05	28
HLA-A*30:01	1	1240	1248	9	CLKGCCSCG	6.5e-05	65
HLA-B*40:01	1	1255	1263	9	EDDSEPVLK	6.5e-05	23
HLA-A*03:01	1	1257	1265	9	DSEPVLKGV	6.5e-05	34
HLA-A*68:01	1	14	22	9	QCVNLTRT	6.4e-05	36
HLA-A*02:01	1	18	26	9	LTRTQLPP	6.4e-05	39
HLA-A*02:03	1	70	78	9	VSGTNGTKR	6.4e-05	42
HLA-A*01:01	1	72	81	10	GTNGTKRFAN	6.4e-05	57
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	RGWIFGTTLD	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	SLLIVNNATN	6.4e-05	66
HLA-A*30:02	1	125	134	10	NVVIKVFCEQ	6.4e-05	63
HLA-A*68:01	1	129	137	9	KVCEQFCN	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	KSWMESEFR	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	LMDLGKQG	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-A*02:03	1	233	242	10	INITRFQTLH	6.4e-05	42
HLA-B*58:01	1	234	243	10	NITRFQTLHR	6.4e-05	43
HLA-A*68:01	1	240	248	9	TLHRSYLTP	6.4e-05	36
HLA-B*15:01	1	240	249	10	TLHRSYLTPG	6.4e-05	40
HLA-B*58:01	1	245	253	9	YLTPGDSSS	6.4e-05	43
HLA-A*03:01	1	255	264	10	WTAGAAAYYV	6.4e-05	34
HLA-B*44:02	1	275	283	9	KYNENGTIT	6.4e-05	28
HLA-A*68:02	1	285	294	10	AVDCALDPLS	6.4e-05	42
HLA-B*57:01	1	286	295	10	VDCALDPLSE	6.4e-05	55
HLA-B*53:01	1	287	295	9	DCALDPLSE	6.4e-05	27
HLA-B*44:03	1	288	297	10	CALDPLSETK	6.4e-05	26
HLA-A*68:01	1	326	334	9	FPNITNLCP	6.4e-05	36
HLA-B*53:01	1	367	376	10	NSASFSTFKC	6.4e-05	27
HLA-A*68:02	1	369	378	10	ASFSTFKCYG	6.4e-05	42
HLA-A*02:01	1	372	380	9	STFKCYGVS	6.4e-05	39
HLA-B*58:01	1	384	392	9	LNDLCFTNV	6.4e-05	43
HLA-A*11:01	1	390	399	10	TNVYADSFVI	6.4e-05	25
HLA-B*08:01	1	423	431	9	PDDFTGCVI	6.4e-05	55
HLA-A*30:02	1	434	443	10	NSNNLDSKVG	6.4e-05	63
HLA-A*30:02	1	435	443	9	SNNLDSKVG	6.4e-05	63
HLA-A*11:01	1	444	453	10	GNYNLYRLF	6.4e-05	25
HLA-B*51:01	1	447	455	9	NYLYRLF	6.4e-05	49
HLA-A*02:01	1	470	479	10	YQAGSTPCNG	6.4e-05	39

HLA-A*03:01	1	472	480	9	AGSTPCNGV	6.4e-05	34
HLA-A*68:01	1	474	482	9	STPCNGVKG	6.4e-05	36
HLA-A*68:02	1	493	502	10	GFQPTYGVGY	6.4e-05	42
HLA-A*03:01	1	512	521	10	FELLHAPATV	6.4e-05	34
HLA-B*51:01	1	531	540	10	VKNKCVNFNF	6.4e-05	49
HLA-B*57:01	1	540	548	9	FNGLTGTGV	6.4e-05	55
HLA-A*02:03	1	559	568	10	FQQFGRDIAD	6.4e-05	42
HLA-B*53:01	1	564	573	10	RDADTTDAV	6.4e-05	27
HLA-A*23:01	1	565	573	9	DIADTTDAV	6.4e-05	25
HLA-B*44:02	1	565	574	10	DIADTTDAVR	6.4e-05	28
HLA-B*44:02	1	567	576	10	ADTTDAVRDP	6.4e-05	28
HLA-B*35:01	1	568	576	9	DTTDAVRDP	6.4e-05	28
HLA-B*40:01	1	570	578	9	TDVAVRDPQT	6.4e-05	23
HLA-B*57:01	1	575	584	10	DPQTLLEIDI	6.4e-05	55
HLA-B*15:01	1	578	587	10	TLEILDITPC	6.4e-05	40
HLA-A*24:02	1	586	595	10	PCSFGGVSVI	6.4e-05	24
HLA-A*11:01	1	592	601	10	VSVITPGTNT	6.4e-05	25
HLA-A*33:01	1	596	605	10	TPGTNTSNQV	6.4e-05	42
HLA-B*07:02	1	597	605	9	PGTNTSNQV	6.4e-05	37
HLA-A*68:01	1	611	619	9	GVNCTEVPV	6.4e-05	36
HLA-B*08:01	1	619	628	10	VAIHADQLTP	6.4e-05	55
HLA-B*44:02	1	634	642	9	STGSNVFQT	6.4e-05	28
HLA-A*23:01	1	657	665	9	YECDIPIGA	6.4e-05	25
HLA-B*35:01	1	700	709	10	NSVAYSNNSI	6.4e-05	28
HLA-A*02:03	1	712	720	9	PTNFTISVT	6.4e-05	42
HLA-A*02:06	1	713	722	10	TNFTISVTTE	6.4e-05	50
HLA-B*44:02	1	719	728	10	VTTEILPVSM	6.4e-05	28
HLA-A*30:02	1	724	732	9	LPVSMTKTS	6.4e-05	63
HLA-B*57:01	1	759	768	10	QLNRALTGIA	6.4e-05	55
HLA-B*35:01	1	761	770	10	NRALTGIAVE	6.4e-05	28
HLA-A*02:03	1	768	777	10	AVEQDKNTQE	6.4e-05	42
HLA-B*08:01	1	772	781	10	DKNTQEVFAQ	6.4e-05	55
HLA-B*44:03	1	773	782	10	KNTQEVFAQV	6.4e-05	26
HLA-A*02:06	1	776	784	9	QEVFAQVKQ	6.4e-05	50
HLA-A*68:01	1	783	791	9	KQIYKTPPI	6.4e-05	36
HLA-B*08:01	1	784	793	10	QIYKTPPIKD	6.4e-05	55
HLA-A*02:06	1	789	797	9	PPIKDFGGF	6.4e-05	50
HLA-B*44:03	1	790	799	10	PIKDFGGFNF	6.4e-05	26
HLA-A*23:01	1	792	801	10	KDFGGFNFSQ	6.4e-05	25
HLA-B*51:01	1	792	800	9	KDFGGFNFS	6.4e-05	49
HLA-B*44:03	1	793	802	10	DFGGFNFSQI	6.4e-05	26
HLA-A*31:01	1	795	804	10	GGFNFSQILP	6.4e-05	41
HLA-A*23:01	1	806	815	10	PSKPSKRSFI	6.4e-05	25
HLA-B*57:01	1	807	815	9	SKPSKRSFI	6.4e-05	55
HLA-B*40:01	1	824	832	9	TLADAGFIK	6.4e-05	23
HLA-A*68:01	1	827	835	9	DAGFIKQYG	6.4e-05	36
HLA-A*68:02	1	833	841	9	QYGDCLGDI	6.4e-05	42
HLA-A*30:02	1	834	843	10	YGDCLGDIAA	6.4e-05	63
HLA-B*35:01	1	834	843	10	YGDCLGDIAA	6.4e-05	28
HLA-A*33:01	1	839	847	9	GDIAARDLI	6.4e-05	42
HLA-B*07:02	1	841	850	10	IAARDLICAQ	6.4e-05	37
HLA-B*07:02	1	861	869	9	LLTDEMIAQ	6.4e-05	37
HLA-B*58:01	1	861	869	9	LLTDEMIAQ	6.4e-05	43
HLA-A*30:01	1	863	871	9	TDEMIAQYT	6.4e-05	66
HLA-A*31:01	1	878	886	9	TITSGWTFG	6.4e-05	41
HLA-B*07:02	1	903	912	10	FNGIGVTQNV	6.4e-05	37
HLA-B*40:01	1	911	920	10	NVLYENQKLI	6.4e-05	23
HLA-A*11:01	1	923	931	9	QFNSAIGKI	6.4e-05	25
HLA-B*57:01	1	923	932	10	QFNSAIGKIQ	6.4e-05	55
HLA-A*26:01	1	925	934	10	NSAIGKIQDS	6.4e-05	34
HLA-A*03:01	1	927	936	10	AIGKIQDSL	6.4e-05	34
HLA-A*02:06	1	928	937	10	IGKIQDSLSS	6.4e-05	50
HLA-B*57:01	1	928	936	9	IGKIQDSL	6.4e-05	55
HLA-A*26:01	1	935	944	10	LSSTASALGK	6.4e-05	34
HLA-A*01:01	1	949	957	9	VNQNAQALN	6.4e-05	57
HLA-A*31:01	1	960	969	10	VKQLSSNFGA	6.4e-05	41

HLA-A*31:01	1	970	978	9	ISSVLNDIL	6.4e-05	41
HLA-A*02:01	1	971	979	9	SSVLNDILS	6.4e-05	39
HLA-B*51:01	1	979	987	9	SRLDKVEAE	6.4e-05	49
HLA-A*32:01	1	993	1002	10	LITGRLQSLQ	6.4e-05	30
HLA-B*40:01	1	997	1006	10	RLQSLQTYVT	6.4e-05	23
HLA-A*33:01	1	1001	1010	10	LQTYVTQQLI	6.4e-05	42
HLA-B*51:01	1	1011	1020	10	RAAEIRASAN	6.4e-05	49
HLA-B*51:01	1	1035	1044	10	KRVDFCGKGY	6.4e-05	49
HLA-A*24:02	1	1055	1064	10	HGVVFLHVTY	6.4e-05	24
HLA-B*15:01	1	1058	1067	10	VFLHVTYVPA	6.4e-05	40
HLA-A*68:01	1	1060	1068	9	LHVTYVPAQ	6.4e-05	36
HLA-B*44:03	1	1072	1080	9	FTTAPAICH	6.4e-05	26
HLA-B*08:01	1	1099	1108	10	WFVTQRNFYE	6.4e-05	55
HLA-A*31:01	1	1112	1120	9	ITTDNTFVS	6.4e-05	41
HLA-B*35:01	1	1117	1125	9	TFVSGNCDV	6.4e-05	28
HLA-A*02:03	1	1119	1127	9	VSGNCDVVI	6.4e-05	42
HLA-A*02:06	1	1124	1132	9	DVVGIVNN	6.4e-05	50
HLA-B*44:03	1	1150	1159	10	DKYFKNHTSP	6.4e-05	26
HLA-B*08:01	1	1155	1164	10	NHTSPDVDLG	6.4e-05	55
HLA-B*57:01	1	1155	1163	9	NHTSPDVDL	6.4e-05	55
HLA-A*31:01	1	1170	1179	10	NASVVNIQKE	6.4e-05	41
HLA-A*68:02	1	1180	1188	9	IDRLNEVAK	6.4e-05	42
HLA-A*01:01	1	1183	1191	9	LNEVAKNLN	6.4e-05	57
HLA-A*68:01	1	1184	1192	9	NEVAKNLNE	6.4e-05	36
HLA-B*53:01	1	1192	1201	10	ESLIDLQELG	6.4e-05	27
HLA-B*07:02	1	1195	1203	9	IDLQELGKY	6.4e-05	37
HLA-B*08:01	1	1199	1208	10	ELGKYEQYIK	6.4e-05	55
HLA-B*40:01	1	1213	1221	9	IWLGFIAGL	6.4e-05	23
HLA-B*35:01	1	1256	1264	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-B*53:01	1	79	88	10	FANPVLFPND	6.3e-05	28
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	STEKSNIRG	6.3e-05	35
HLA-A*03:01	1	96	104	9	EKSNIRGW	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	VVIKVCFFQ	6.3e-05	28
HLA-A*01:01	1	146	155	10	HKNNKSWMES	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-A*23:01	1	206	215	10	KHTPINLVRG	6.3e-05	25
HLA-B*44:03	1	214	223	10	RGLPQGFSA	6.3e-05	26
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*32:01	1	243	251	9	RSYLTPGDS	6.3e-05	31
HLA-A*33:01	1	245	253	9	YLTPGDSSS	6.3e-05	43
HLA-A*01:01	1	249	258	10	GDSSSGWTAG	6.3e-05	58
HLA-A*31:01	1	249	257	9	GDSSSGWTA	6.3e-05	41
HLA-B*35:01	1	252	260	9	SSGWTAGAA	6.3e-05	29
HLA-A*30:02	1	272	280	9	FLLKYNENG	6.3e-05	64
HLA-B*44:02	1	288	296	9	CALDPLSET	6.3e-05	28
HLA-B*08:01	1	292	301	10	PLSETKCTLK	6.3e-05	55
HLA-A*31:01	1	319	327	9	PTESIVRFP	6.3e-05	41
HLA-B*15:01	1	320	329	10	TESIVRFPNI	6.3e-05	40
HLA-B*40:01	1	333	341	9	CPFGEVFNA	6.3e-05	23
HLA-A*24:02	1	339	348	10	FNATRFASVY	6.3e-05	24
HLA-B*40:01	1	351	359	9	NRKRISNCV	6.3e-05	23
HLA-B*44:03	1	357	365	9	NCVADYSVL	6.3e-05	26
HLA-A*26:01	1	365	373	9	LYNSASFST	6.3e-05	35
HLA-B*07:02	1	372	380	9	STFKCYGVS	6.3e-05	37
HLA-A*02:06	1	377	386	10	YGVSPTKLND	6.3e-05	50

HLA-B*35:01	1	378	387	10	GVSPTKLNDL	6.3e-05	29
HLA-A*26:01	1	395	403	9	DSFVIRGDE	6.3e-05	35
HLA-A*32:01	1	404	413	10	VRQIAPGQTG	6.3e-05	31
HLA-A*02:06	1	420	428	9	YKLPDDFTG	6.3e-05	50
HLA-A*03:01	1	429	438	10	CVIAWNSNNL	6.3e-05	34
HLA-A*30:01	1	430	439	10	VIAWNSNNLD	6.3e-05	66
HLA-B*44:02	1	433	441	9	WNSNNLDSK	6.3e-05	28
HLA-A*11:01	1	434	442	9	NSNNLDSKV	6.3e-05	25
HLA-A*23:01	1	438	446	9	LDSKVGGNY	6.3e-05	25
HLA-A*02:01	1	445	453	9	NYNLYRLF	6.3e-05	39
HLA-A*02:06	1	448	457	10	YLYRLFRRKS	6.3e-05	50
HLA-A*02:03	1	465	474	10	ISTEIQAGS	6.3e-05	42
HLA-A*11:01	1	466	474	9	STEIQAGS	6.3e-05	25
HLA-A*26:01	1	471	480	10	QAGSTPCNGV	6.3e-05	35
HLA-A*31:01	1	505	513	9	YRVVLSFE	6.3e-05	41
HLA-A*26:01	1	512	520	9	FELLHAPAT	6.3e-05	35
HLA-A*30:02	1	512	520	9	FELLHAPAT	6.3e-05	64
HLA-B*08:01	1	520	529	10	TVCGPKKSTN	6.3e-05	55
HLA-B*44:03	1	539	548	10	NFNGLTGTGV	6.3e-05	26
HLA-A*02:01	1	546	555	10	TGVLTESNKK	6.3e-05	39
HLA-A*02:03	1	555	563	9	KFLPFQFG	6.3e-05	42
HLA-B*57:01	1	568	577	10	DTTDAVRDPQ	6.3e-05	55
HLA-B*57:01	1	576	584	9	PQTLIILDI	6.3e-05	55
HLA-B*15:01	1	585	594	10	TPCSFGGVSV	6.3e-05	40
HLA-A*32:01	1	615	623	9	TEVPVAIHA	6.3e-05	31
HLA-A*33:01	1	650	658	9	AEHVNNSYE	6.3e-05	43
HLA-B*57:01	1	653	661	9	VNNSYECDI	6.3e-05	55
HLA-B*51:01	1	654	662	9	NNSYECDIP	6.3e-05	49
HLA-A*02:03	1	655	664	10	NSYECDIPIG	6.3e-05	42
HLA-A*30:02	1	661	670	10	IPIGAGICAS	6.3e-05	64
HLA-B*57:01	1	666	675	10	GICASYQTQT	6.3e-05	55
HLA-A*02:03	1	687	695	9	QSIIAYTMS	6.3e-05	42
HLA-A*33:01	1	691	699	9	AYTMSLQVE	6.3e-05	43
HLA-A*68:01	1	712	721	10	PTNFTISVTT	6.3e-05	36
HLA-A*01:01	1	713	722	10	TNFTISVTT	6.3e-05	58
HLA-B*57:01	1	723	731	9	ILPVSMTKT	6.3e-05	55
HLA-A*68:01	1	725	733	9	PVSMTKTSV	6.3e-05	36
HLA-A*03:01	1	747	756	10	SNLLLQYGSF	6.3e-05	34
HLA-B*40:01	1	773	782	10	KNTQEVFAQV	6.3e-05	23
HLA-B*51:01	1	789	798	10	PIKDFGGFN	6.3e-05	49
HLA-A*02:01	1	790	799	10	PIKDFGGFN	6.3e-05	39
HLA-A*33:01	1	801	809	9	QILPDPSKP	6.3e-05	43
HLA-A*03:01	1	810	819	10	SKRSFIEDLL	6.3e-05	34
HLA-A*11:01	1	811	819	9	KRSFIEDLL	6.3e-05	25
HLA-B*08:01	1	813	822	10	SFIEDLLFNK	6.3e-05	55
HLA-B*08:01	1	834	842	9	YGDCLGDIA	6.3e-05	55
HLA-A*02:06	1	835	843	9	GDCLGDIAA	6.3e-05	50
HLA-B*58:01	1	835	844	10	GDCLGDIAAR	6.3e-05	43
HLA-B*08:01	1	838	847	10	LGDIAARDLI	6.3e-05	55
HLA-A*02:01	1	844	852	9	RDLICAQKF	6.3e-05	39
HLA-B*07:02	1	850	859	10	QKFNGLTVLP	6.3e-05	37
HLA-A*68:02	1	851	860	10	KFNGLTVLPP	6.3e-05	42
HLA-B*53:01	1	851	859	9	KFNGLTVLP	6.3e-05	28
HLA-A*33:01	1	864	872	9	DEMIAQYTS	6.3e-05	43
HLA-A*03:01	1	868	877	10	AQYTSALLAG	6.3e-05	34
HLA-A*01:01	1	875	884	10	LAGTITSGWT	6.3e-05	58
HLA-B*15:01	1	881	890	10	SGWTFGAGAA	6.3e-05	40
HLA-A*11:01	1	886	895	10	GAGAALQIPF	6.3e-05	25
HLA-A*32:01	1	892	900	9	QIPFAMQMA	6.3e-05	31
HLA-B*44:03	1	893	902	10	IPFAMQMAYR	6.3e-05	26
HLA-A*03:01	1	896	904	9	AMQMAYRFN	6.3e-05	34
HLA-B*53:01	1	910	918	9	QNVLYENQK	6.3e-05	28
HLA-B*44:03	1	913	922	10	LYENQKLIAN	6.3e-05	26
HLA-B*40:01	1	916	925	10	NQKLIANQFN	6.3e-05	23
HLA-B*40:01	1	930	938	9	KIQDLSLST	6.3e-05	23
HLA-A*31:01	1	945	954	10	LQDVVNQNAQ	6.3e-05	41

HLA-B*57:01	1	960	969	10	VKQLSSNFGA	6.3e-05	55
HLA-B*53:01	1	961	969	9	KQLSSNFGA	6.3e-05	28
HLA-B*44:02	1	971	980	10	SSVLNDILSR	6.3e-05	28
HLA-B*35:01	1	989	998	10	QIDRLITGRL	6.3e-05	29
HLA-B*53:01	1	998	1006	9	LQSLQTYVT	6.3e-05	28
HLA-A*31:01	1	1015	1023	9	IRASANLAA	6.3e-05	41
HLA-B*44:03	1	1038	1047	10	DFCGKGYHLM	6.3e-05	26
HLA-B*53:01	1	1054	1062	9	PHGVVFLHV	6.3e-05	28
HLA-B*40:01	1	1058	1066	9	VFLHVITYVP	6.3e-05	23
HLA-B*51:01	1	1058	1067	10	VFLHVITYVPA	6.3e-05	49
HLA-B*40:01	1	1065	1073	9	VPAQEKNT	6.3e-05	23
HLA-A*03:01	1	1068	1076	9	QEKNTTAP	6.3e-05	34
HLA-B*08:01	1	1077	1085	9	AICHDGKAH	6.3e-05	55
HLA-A*02:01	1	1078	1087	10	ICHDGKAHFP	6.3e-05	39
HLA-B*44:02	1	1085	1093	9	HFPREGVVF	6.3e-05	28
HLA-B*44:02	1	1126	1134	9	VIGIVNNTV	6.3e-05	28
HLA-B*57:01	1	1128	1137	10	GIVNNTVYDP	6.3e-05	55
HLA-B*07:02	1	1132	1140	9	NTVYDPLQP	6.3e-05	37
HLA-B*58:01	1	1140	1149	10	PELDSFKEEL	6.3e-05	43
HLA-A*26:01	1	1170	1179	10	NASVNNIQKE	6.3e-05	35
HLA-B*51:01	1	1179	1188	10	EIDRLNEVAK	6.3e-05	49
HLA-A*02:06	1	1180	1188	9	IDRLNEVAK	6.3e-05	50
HLA-A*31:01	1	1195	1204	10	IDLQELGKYE	6.3e-05	41
HLA-A*32:01	1	1201	1210	10	GKYEQYIKWP	6.3e-05	31
HLA-A*03:01	1	1203	1211	9	YEQYIKWPW	6.3e-05	34
HLA-A*31:01	1	1212	1220	9	YIWLGFIAI	6.3e-05	41
HLA-A*30:01	1	1214	1222	9	WLGFIAGLI	6.3e-05	66
HLA-B*57:01	1	1220	1228	9	GLIAIVMVT	6.3e-05	55
HLA-A*03:01	1	1222	1230	9	IAIVMVTIM	6.3e-05	34
HLA-A*30:01	1	1238	1247	10	CSCLKGCCSC	6.3e-05	66
HLA-A*02:01	1	1260	1268	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	LVLPLVSSQ	6.2e-05	38
HLA-B*08:01	1	14	22	9	QCVNLTTRT	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-A*30:01	1	80	88	9	ANPVLPFND	6.2e-05	66
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	SKTQSLLIV	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	CNDPFLGVY	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	SQPFLMDLE	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-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-B*07:02	1	245	254	10	YLTPGDSSSG	6.2e-05	38
HLA-A*03:01	1	249	257	9	GDSSSGWTA	6.2e-05	34
HLA-B*51:01	1	256	265	10	TAGAAAYYVG	6.2e-05	49
HLA-A*26:01	1	261	269	9	AYYVGYLQP	6.2e-05	35
HLA-A*68:01	1	268	277	10	QPRTFLLKYN	6.2e-05	37

HLA-A*68:01	1	280	288	9	GTITDAVDC	6.2e-05	37
HLA-B*08:01	1	301	310	10	KSFTVEKGIY	6.2e-05	56
HLA-A*24:02	1	307	316	10	KGIYQTSNFR	6.2e-05	24
HLA-A*31:01	1	310	319	10	YQTSNFRVQP	6.2e-05	41
HLA-B*07:02	1	310	319	10	YQTSNFRVQP	6.2e-05	38
HLA-A*11:01	1	315	323	9	FRVQPTESI	6.2e-05	25
HLA-A*23:01	1	339	348	10	FNATRFASVY	6.2e-05	25
HLA-B*44:03	1	369	378	10	ASFSTFKCYG	6.2e-05	26
HLA-B*15:01	1	373	381	9	TFKCYGVSP	6.2e-05	40
HLA-B*08:01	1	402	411	10	DEVQRQIAPGQ	6.2e-05	56
HLA-B*35:01	1	402	410	9	DEVQRQIAPG	6.2e-05	29
HLA-A*02:03	1	403	411	9	EVQRQIAPGQ	6.2e-05	43
HLA-B*57:01	1	418	427	10	YNYKLPDDFT	6.2e-05	55
HLA-A*02:06	1	431	439	9	IAWNSNNLD	6.2e-05	50
HLA-A*02:01	1	454	463	10	RKSNLKPFER	6.2e-05	40
HLA-A*68:02	1	454	463	10	RKSNLKPFER	6.2e-05	42
HLA-A*32:01	1	470	478	9	YQAGSTPCN	6.2e-05	31
HLA-A*02:03	1	475	483	9	TPCNGVKGF	6.2e-05	43
HLA-A*02:01	1	488	497	10	PLQSYGFQPT	6.2e-05	40
HLA-A*31:01	1	511	520	10	SFELLHAPAT	6.2e-05	41
HLA-B*44:02	1	519	527	9	ATVCGPKKS	6.2e-05	28
HLA-B*07:02	1	540	548	9	FNGLTGTGV	6.2e-05	38
HLA-A*33:01	1	541	549	9	NGLTGTGVL	6.2e-05	43
HLA-B*58:01	1	542	550	9	GLTGTGVL	6.2e-05	43
HLA-A*32:01	1	551	560	10	ESNKKFLPFQ	6.2e-05	31
HLA-B*53:01	1	556	564	9	FLPFQFGR	6.2e-05	28
HLA-B*57:01	1	561	570	10	QFGRDIADTT	6.2e-05	55
HLA-A*68:01	1	562	570	9	FGRDIADTT	6.2e-05	37
HLA-A*02:03	1	564	572	9	RDIADTTDA	6.2e-05	43
HLA-B*35:01	1	564	573	10	RDIADTTDAV	6.2e-05	29
HLA-A*68:01	1	594	603	10	VITPGTNTSN	6.2e-05	37
HLA-B*58:01	1	603	611	9	NQVAVLYQG	6.2e-05	43
HLA-A*02:06	1	604	613	10	QVAVLYQGVN	6.2e-05	50
HLA-A*32:01	1	608	617	10	LYQGVNCTEV	6.2e-05	31
HLA-B*40:01	1	612	621	10	VNCTEVPVAI	6.2e-05	24
HLA-A*32:01	1	626	634	9	LTPTWRVYS	6.2e-05	31
HLA-A*02:01	1	627	635	9	TPTWRVYST	6.2e-05	40
HLA-B*07:02	1	629	637	9	TWRVYSTGS	6.2e-05	38
HLA-B*44:03	1	642	650	9	TRAGCLIGA	6.2e-05	26
HLA-A*24:02	1	655	663	9	NSYECDIPI	6.2e-05	24
HLA-A*68:01	1	675	684	10	TNSPRRARSV	6.2e-05	37
HLA-A*33:01	1	682	691	10	RSVASQSIIA	6.2e-05	43
HLA-B*40:01	1	687	696	10	QSIIAYTMSL	6.2e-05	24
HLA-A*68:01	1	696	705	10	LGVENSVAYS	6.2e-05	37
HLA-B*57:01	1	698	706	9	VENSVAYS	6.2e-05	55
HLA-B*44:02	1	702	710	9	VAYSNNSIA	6.2e-05	28
HLA-A*68:01	1	703	711	9	AYSNNSIAI	6.2e-05	37
HLA-B*58:01	1	706	714	9	NNSIAIPTN	6.2e-05	43
HLA-A*32:01	1	716	725	10	TISVTTEILP	6.2e-05	31
HLA-A*31:01	1	725	733	9	PVSMTKTSV	6.2e-05	41
HLA-A*68:01	1	735	744	10	CTMYICGDST	6.2e-05	37
HLA-A*33:01	1	750	758	9	LLQYGSFCT	6.2e-05	43
HLA-A*02:01	1	766	775	10	GIAVEQDKNT	6.2e-05	40
HLA-B*07:02	1	772	780	9	DKNTQEVFA	6.2e-05	38
HLA-A*01:01	1	784	793	10	QIYKTPPIKD	6.2e-05	58
HLA-A*02:06	1	793	802	10	DFGGFNFSQI	6.2e-05	50
HLA-A*33:01	1	807	816	10	SKPSKRSFIE	6.2e-05	43
HLA-A*24:02	1	809	818	10	PSKRSFIEDL	6.2e-05	24
HLA-B*44:03	1	813	822	10	SFIEDLLFNK	6.2e-05	26
HLA-B*44:02	1	818	826	9	LLFNKVTLA	6.2e-05	28
HLA-B*53:01	1	838	847	10	LGDI AARDLI	6.2e-05	28
HLA-A*02:01	1	839	848	10	GDIAARDLIC	6.2e-05	40
HLA-B*44:03	1	844	853	10	RDLICAQKFN	6.2e-05	26
HLA-A*02:01	1	850	859	10	QKFNGLTVLP	6.2e-05	40
HLA-A*68:01	1	854	862	9	GLTVLPPLL	6.2e-05	37
HLA-B*08:01	1	854	863	10	GLTVLPPLLT	6.2e-05	56

HLA-B*15:01	1	854	863	10	GLTVLPPLLT	6.2e-05	40
HLA-A*23:01	1	855	863	9	LTVLPPLLT	6.2e-05	25
HLA-A*26:01	1	869	878	10	QYTSALLAGT	6.2e-05	35
HLA-A*01:01	1	873	882	10	ALLAGTITSG	6.2e-05	58
HLA-B*44:03	1	881	889	9	SGWTFGAGA	6.2e-05	26
HLA-A*01:01	1	895	904	10	FAMQMAYRFN	6.2e-05	58
HLA-A*33:01	1	907	915	9	GVTQNVLYE	6.2e-05	43
HLA-A*68:01	1	912	921	10	VLYENQKLIA	6.2e-05	37
HLA-B*51:01	1	928	936	9	IGKIQDSL	6.2e-05	49
HLA-B*58:01	1	928	936	9	IGKIQDSL	6.2e-05	43
HLA-B*08:01	1	929	938	10	GKIQDSLST	6.2e-05	56
HLA-B*08:01	1	938	946	9	TASALGKLQ	6.2e-05	56
HLA-B*57:01	1	942	950	9	LGKLQDVVN	6.2e-05	55
HLA-B*44:03	1	943	951	9	GKLQDVVNQ	6.2e-05	26
HLA-A*30:02	1	957	966	10	NTLVKQLSSN	6.2e-05	64
HLA-B*57:01	1	977	985	9	ILSRDKVE	6.2e-05	55
HLA-B*08:01	1	990	999	10	IDRLITGRLQ	6.2e-05	56
HLA-A*33:01	1	997	1006	10	RLQSLQTYVT	6.2e-05	43
HLA-B*44:03	1	999	1007	9	QSLQTYVTV	6.2e-05	26
HLA-B*07:02	1	1008	1016	9	QLIRAAEIR	6.2e-05	38
HLA-B*44:02	1	1008	1016	9	QLIRAAEIR	6.2e-05	28
HLA-A*23:01	1	1011	1019	9	RAAEIRASA	6.2e-05	25
HLA-A*02:06	1	1028	1036	9	ECVLGQSKR	6.2e-05	50
HLA-B*53:01	1	1028	1037	10	ECVLGQSKRV	6.2e-05	28
HLA-A*03:01	1	1031	1039	9	LGQSKRVDF	6.2e-05	34
HLA-A*01:01	1	1032	1040	9	GQSKRVDFC	6.2e-05	58
HLA-A*30:02	1	1039	1048	10	FCGKGYHLMS	6.2e-05	64
HLA-B*15:01	1	1053	1062	10	APHGVVFLHV	6.2e-05	40
HLA-A*02:06	1	1060	1069	10	LHVTVVPAQE	6.2e-05	50
HLA-B*15:01	1	1069	1078	10	EKNFTTAPAI	6.2e-05	40
HLA-A*02:01	1	1095	1104	10	NGTHWFVTQR	6.2e-05	40
HLA-A*26:01	1	1120	1129	10	SGNCDVVIGI	6.2e-05	35
HLA-A*02:01	1	1128	1136	9	GIVNNTVYD	6.2e-05	40
HLA-A*01:01	1	1139	1148	10	QPELDSFKEE	6.2e-05	58
HLA-A*33:01	1	1139	1148	10	QPELDSFKEE	6.2e-05	43
HLA-A*02:01	1	1143	1152	10	DSFKEELDKY	6.2e-05	40
HLA-A*02:01	1	1158	1166	9	SPDVDLGGI	6.2e-05	40
HLA-B*15:01	1	1165	1174	10	DISGINASVV	6.2e-05	40
HLA-A*11:01	1	1171	1180	10	ASVVNIQKEI	6.2e-05	25
HLA-B*53:01	1	1171	1180	10	ASVVNIQKEI	6.2e-05	28
HLA-B*58:01	1	1174	1182	9	VNIQKEIDR	6.2e-05	43
HLA-B*35:01	1	1193	1201	9	SLIDLQELG	6.2e-05	29
HLA-B*40:01	1	1199	1207	9	ELGKYEQYI	6.2e-05	24
HLA-A*68:02	1	1214	1223	10	WLGFIAGLIA	6.2e-05	42
HLA-A*03:01	1	1217	1226	10	FIAGLIAIVM	6.2e-05	34
HLA-A*03:01	1	1219	1227	9	AGLIAIVMV	6.2e-05	34
HLA-B*51:01	1	1233	1241	9	CMTSCCSC	6.2e-05	49
HLA-A*30:01	1	1253	1262	10	FDEDDSEPV	6.2e-05	66
HLA-B*57:01	1	1255	1263	9	EDDSEPVK	6.2e-05	55
HLA-A*02:06	1	1259	1268	10	EPVLKGVKLG	6.2e-05	50
HLA-B*53:01	1	14	23	10	QCVNLTRTQ	6.1e-05	28
HLA-A*24:02	1	15	24	10	CVNLTTRTQL	6.1e-05	25
HLA-B*07:02	1	17	25	9	NLTTRTQLP	6.1e-05	38
HLA-A*32:01	1	52	61	10	QDLFLPFFSN	6.1e-05	31
HLA-B*07:02	1	53	62	10	DLFLPFFSNV	6.1e-05	38
HLA-B*44:02	1	53	62	10	DLFLPFFSNV	6.1e-05	28
HLA-B*44:02	1	75	83	9	GTKRFANPV	6.1e-05	28
HLA-A*23:01	1	91	99	9	YFASTEKSN	6.1e-05	26
HLA-A*02:01	1	93	102	10	ASTEKSNIIR	6.1e-05	40
HLA-B*07:02	1	102	111	10	RGWIFGTTLD	6.1e-05	38
HLA-A*02:06	1	107	115	9	GTTLDSKTQ	6.1e-05	50
HLA-B*44:03	1	108	116	9	TTLDSKTQS	6.1e-05	26
HLA-A*33:01	1	115	124	10	QSLIIVNNAT	6.1e-05	43
HLA-A*68:01	1	120	128	9	VNNATNVVI	6.1e-05	37
HLA-B*44:03	1	121	130	10	NNATNVVIK	6.1e-05	26
HLA-A*26:01	1	163	171	9	ANNCTFEYV	6.1e-05	35

HLA-A*01:01	1	174	183	10	PFLMDLEGKQ	6.1e-05	58
HLA-B*08:01	1	182	190	9	KQGNFKNLR	6.1e-05	56
HLA-A*03:01	1	188	197	10	NLREFVFKNI	6.1e-05	34
HLA-B*44:02	1	194	203	10	FKNIDGYFKI	6.1e-05	28
HLA-B*44:03	1	208	217	10	TPINLVRGLP	6.1e-05	26
HLA-A*26:01	1	216	224	9	LPQGFSALE	6.1e-05	35
HLA-B*08:01	1	227	236	10	VDLPIGINIT	6.1e-05	56
HLA-B*40:01	1	227	236	10	VDLPIGINIT	6.1e-05	24
HLA-B*57:01	1	244	253	10	SYLTPGDSSS	6.1e-05	55
HLA-B*57:01	1	245	253	9	YLTPGDSSS	6.1e-05	55
HLA-A*30:02	1	248	257	10	PGDSSSGWTA	6.1e-05	64
HLA-B*40:01	1	253	262	10	SGWTAGAAAY	6.1e-05	24
HLA-A*03:01	1	258	267	10	GAAAYVGYL	6.1e-05	34
HLA-A*68:02	1	275	283	9	KYNENGTIT	6.1e-05	42
HLA-B*44:03	1	282	290	9	ITDAVDCAL	6.1e-05	26
HLA-A*33:01	1	294	302	9	SETKCTLKS	6.1e-05	43
HLA-A*02:03	1	298	306	9	CTLKSFTVE	6.1e-05	43
HLA-A*32:01	1	303	312	10	FTVEKGIYQT	6.1e-05	31
HLA-A*30:01	1	305	314	10	VEKGIYQTSN	6.1e-05	66
HLA-B*51:01	1	307	316	10	KGIYQTSNFR	6.1e-05	49
HLA-B*53:01	1	313	321	9	SNFRVQPTTE	6.1e-05	28
HLA-A*24:02	1	314	322	9	NFRVQPTES	6.1e-05	25
HLA-A*02:01	1	323	331	9	IVRFPNITN	6.1e-05	40
HLA-A*02:06	1	350	358	9	WNRKRISNC	6.1e-05	50
HLA-A*02:06	1	353	362	10	KRISNCVADY	6.1e-05	50
HLA-A*11:01	1	354	363	10	RISNCVADYS	6.1e-05	26
HLA-A*31:01	1	354	363	10	RISNCVADYS	6.1e-05	42
HLA-A*03:01	1	362	371	10	YSVLYNSASF	6.1e-05	34
HLA-A*11:01	1	365	373	9	LYNSASFST	6.1e-05	26
HLA-B*53:01	1	366	375	10	YNSASFSTFK	6.1e-05	28
HLA-A*24:02	1	367	375	9	NSASFSTFK	6.1e-05	25
HLA-A*30:01	1	388	396	9	CFTNVYADS	6.1e-05	66
HLA-A*11:01	1	406	414	9	QIAPGQTGN	6.1e-05	26
HLA-B*07:02	1	420	428	9	YKLPDDFTG	6.1e-05	38
HLA-A*32:01	1	429	437	9	CVIAWNSNN	6.1e-05	31
HLA-A*02:01	1	437	445	9	NLDSKVGGN	6.1e-05	40
HLA-A*02:01	1	452	460	9	LFRKSNLKP	6.1e-05	40
HLA-B*40:01	1	456	465	10	SNLKPFERDI	6.1e-05	24
HLA-B*07:02	1	472	481	10	AGSTPCNGVK	6.1e-05	38
HLA-A*68:02	1	473	481	9	GSTPCNGVK	6.1e-05	42
HLA-B*40:01	1	481	489	9	KGFNCYFPL	6.1e-05	24
HLA-A*31:01	1	489	497	9	LQSYGFQPT	6.1e-05	42
HLA-B*40:01	1	499	508	10	GVGYPYRVV	6.1e-05	24
HLA-A*68:01	1	501	509	9	GYQPYRVVV	6.1e-05	37
HLA-A*68:01	1	509	518	10	VLSFELLHAP	6.1e-05	37
HLA-A*02:06	1	511	520	10	SFELLHAPAT	6.1e-05	50
HLA-B*15:01	1	517	526	10	APATVCGPKK	6.1e-05	40
HLA-B*53:01	1	520	528	9	TVCGPKKST	6.1e-05	28
HLA-B*51:01	1	526	534	9	KSTNLVKNK	6.1e-05	49
HLA-B*51:01	1	537	546	10	NFNFNGLTGT	6.1e-05	49
HLA-B*53:01	1	537	545	9	NFNFNGLTG	6.1e-05	28
HLA-A*33:01	1	548	557	10	VLTESNKKFL	6.1e-05	43
HLA-B*53:01	1	548	557	10	VLTESNKKFL	6.1e-05	28
HLA-B*51:01	1	552	560	9	SNKKFLPFQ	6.1e-05	49
HLA-B*51:01	1	554	563	10	KKFLPFQQFG	6.1e-05	49
HLA-A*68:01	1	555	563	9	KFLPFQQFG	6.1e-05	37
HLA-B*51:01	1	561	570	10	QFGRDIADTT	6.1e-05	49
HLA-A*11:01	1	565	573	9	DIADTTDAV	6.1e-05	26
HLA-B*53:01	1	569	577	9	TTDAVRDPQ	6.1e-05	28
HLA-B*08:01	1	595	604	10	ITPGTNTSNQ	6.1e-05	56
HLA-B*53:01	1	606	614	9	AVLYQGVNC	6.1e-05	28
HLA-A*33:01	1	633	642	10	YSTGSNVFQT	6.1e-05	43
HLA-A*24:02	1	650	659	10	AEHVNSYEC	6.1e-05	25
HLA-A*01:01	1	656	664	9	SYECDIPIG	6.1e-05	58
HLA-A*03:01	1	663	672	10	IGAGICASYQ	6.1e-05	34
HLA-B*35:01	1	663	672	10	IGAGICASYQ	6.1e-05	29



HLA-B*51:01	1	671	680	10	YQTQTNSPRR	6.1e-05	49
HLA-A*03:01	1	687	695	9	QSIIAYTMS	6.1e-05	34
HLA-A*03:01	1	692	701	10	YTMSLGVENS	6.1e-05	34
HLA-B*57:01	1	693	701	9	TMSLGVENS	6.1e-05	55
HLA-A*02:01	1	696	705	10	LGVENSVAYS	6.1e-05	40
HLA-A*31:01	1	697	705	9	GVENSVAYS	6.1e-05	42
HLA-A*02:01	1	706	715	10	NNSIAIPTNF	6.1e-05	40
HLA-A*30:02	1	706	714	9	NNSIAIPTN	6.1e-05	64
HLA-B*08:01	1	716	725	10	TISVTTEILP	6.1e-05	56
HLA-B*44:02	1	724	733	10	LPVSMTKTSV	6.1e-05	28
HLA-B*44:03	1	745	754	10	ECSNLLLQYG	6.1e-05	26
HLA-A*01:01	1	749	758	10	LLLQYGSFCT	6.1e-05	58
HLA-B*58:01	1	761	769	9	NRALTGIAV	6.1e-05	44
HLA-B*07:02	1	769	777	9	VEQDKNTQE	6.1e-05	38
HLA-A*23:01	1	775	783	9	TQEVFAQVK	6.1e-05	26
HLA-B*35:01	1	780	788	9	AQVKQIYKT	6.1e-05	29
HLA-B*53:01	1	780	788	9	AQVKQIYKT	6.1e-05	28
HLA-A*31:01	1	781	790	10	QVKQIYKTPP	6.1e-05	42
HLA-A*02:03	1	790	799	10	PIKDFGGFNF	6.1e-05	43
HLA-A*31:01	1	793	802	10	DFGGFNFSQI	6.1e-05	42
HLA-A*11:01	1	795	804	10	GGFNFSQILP	6.1e-05	26
HLA-A*26:01	1	805	813	9	DPSKPSKRS	6.1e-05	35
HLA-A*11:01	1	806	814	9	PSKPSKRSF	6.1e-05	26
HLA-B*08:01	1	823	831	9	VTLADAGFI	6.1e-05	56
HLA-B*40:01	1	825	833	9	LADAGFIKQ	6.1e-05	24
HLA-B*07:02	1	836	844	9	DCLGDIAAR	6.1e-05	38
HLA-A*02:03	1	838	846	9	LGDIAARDL	6.1e-05	43
HLA-A*26:01	1	851	859	9	KFNGLTVLP	6.1e-05	35
HLA-A*23:01	1	879	887	9	ITSGWTFGA	6.1e-05	26
HLA-B*40:01	1	886	895	10	GAGAALQIPF	6.1e-05	24
HLA-B*44:02	1	888	897	10	GAALQIPFAM	6.1e-05	28
HLA-B*15:01	1	895	904	10	FAMQMAYRFN	6.1e-05	40
HLA-A*02:06	1	913	921	9	LYENQKLIA	6.1e-05	50
HLA-B*51:01	1	925	933	9	NSAIGKIQD	6.1e-05	49
HLA-B*15:01	1	927	936	10	AIGKIQDLSL	6.1e-05	40
HLA-B*07:02	1	937	946	10	STASALGKLQ	6.1e-05	38
HLA-A*03:01	1	950	958	9	NQNAQALNT	6.1e-05	34
HLA-A*02:03	1	963	971	9	LSSNFGAIS	6.1e-05	43
HLA-A*24:02	1	966	975	10	NFGAISSVLN	6.1e-05	25
HLA-A*03:01	1	977	986	10	ILSRLDKVEA	6.1e-05	34
HLA-B*07:02	1	983	992	10	KVEAEVQIDR	6.1e-05	38
HLA-A*31:01	1	993	1002	10	LITGRLQSLQ	6.1e-05	42
HLA-A*31:01	1	995	1003	9	TGRLQSLQT	6.1e-05	42
HLA-B*08:01	1	1019	1028	10	ANLAATKMSE	6.1e-05	56
HLA-B*07:02	1	1023	1032	10	ATKMSECVLG	6.1e-05	38
HLA-A*02:06	1	1026	1035	10	MSECVLGQSK	6.1e-05	50
HLA-B*53:01	1	1028	1036	9	ECVLGQSKR	6.1e-05	28
HLA-A*26:01	1	1033	1042	10	QSKRVDFCGK	6.1e-05	35
HLA-A*02:03	1	1036	1045	10	RVDFCGKGYH	6.1e-05	43
HLA-A*32:01	1	1042	1051	10	KGYHLMSFPQ	6.1e-05	31
HLA-A*02:01	1	1048	1056	9	SFPQSAPHG	6.1e-05	40
HLA-A*03:01	1	1058	1067	10	VFLHVTVVPA	6.1e-05	34
HLA-B*15:01	1	1082	1091	10	GKAHFPREGV	6.1e-05	40
HLA-A*11:01	1	1085	1093	9	HFPREGVVFV	6.1e-05	26
HLA-B*07:02	1	1102	1110	9	TQRNFYEPQ	6.1e-05	38
HLA-A*33:01	1	1115	1123	9	DNTFVSGNC	6.1e-05	43
HLA-B*57:01	1	1117	1126	10	TFVSGNCDVV	6.1e-05	55
HLA-A*23:01	1	1126	1135	10	VIGIVNNTVY	6.1e-05	26
HLA-A*01:01	1	1135	1143	9	YDPLQPELD	6.1e-05	58
HLA-A*02:03	1	1143	1152	10	DSFKEELDKY	6.1e-05	43
HLA-B*08:01	1	1145	1154	10	FKEELDKYFK	6.1e-05	56
HLA-A*02:06	1	1160	1168	9	DVDLGDISG	6.1e-05	50
HLA-B*40:01	1	1171	1180	10	ASVVNIQKEI	6.1e-05	24
HLA-B*44:02	1	1171	1179	9	ASVVNIQKE	6.1e-05	28
HLA-A*03:01	1	1177	1186	10	QKEIDRLNEV	6.1e-05	34
HLA-A*02:01	1	1179	1188	10	EIDRLNEVAK	6.1e-05	40

HLA-A*30:01	1	1181	1189	9	DRLNEVAKN	6.1e-05	66
HLA-A*30:01	1	1183	1192	10	LNEVAKNLNE	6.1e-05	66
HLA-A*30:02	1	1190	1198	9	LNESLIDLQ	6.1e-05	64
HLA-A*23:01	1	1193	1201	9	SLIDLQELG	6.1e-05	26
HLA-B*07:02	1	1197	1205	9	LQELGKYEQ	6.1e-05	38
HLA-A*11:01	1	1204	1213	10	EQYIKWPWYI	6.1e-05	26
HLA-A*33:01	1	1222	1231	10	IAIVMVTIML	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	QCVNLTTRT	6e-05	40
HLA-A*33:01	1	14	23	10	QCVNLTTRTQ	6e-05	43
HLA-A*33:01	1	18	27	10	LTRTQLPPA	6e-05	43
HLA-B*15:01	1	18	26	9	LTRTQLPP	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	NVTFWHAIH	6e-05	40
HLA-B*53:01	1	68	77	10	IHSVGTNGTK	6e-05	28
HLA-B*57:01	1	74	82	9	NGTKRFANP	6e-05	56
HLA-B*40:01	1	75	83	9	GTKRFANPV	6e-05	24
HLA-B*35:01	1	78	87	10	RFANPVLPFN	6e-05	29
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	SKTQSLIIV	6e-05	43
HLA-A*01:01	1	125	134	10	NVVIKVCEFQ	6e-05	59
HLA-A*68:02	1	125	134	10	NVVIKVCEFQ	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	EKGQGNFKN	6e-05	56
HLA-B*58:01	1	188	196	9	NLREFVFKN	6e-05	44
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-A*02:06	1	233	242	10	INITRFQTLH	6e-05	51
HLA-B*58:01	1	245	254	10	YLTPGDSSSG	6e-05	44
HLA-B*53:01	1	267	275	9	LQPRTFLLK	6e-05	28
HLA-A*68:02	1	272	281	10	FLLKYNENGT	6e-05	43
HLA-A*31:01	1	285	293	9	AVDCALDPL	6e-05	42
HLA-A*33:01	1	296	305	10	TKCTLKSFTV	6e-05	43
HLA-A*26:01	1	297	305	9	KCTLKSFTV	6e-05	35
HLA-B*53:01	1	305	313	9	VEKGIYQTS	6e-05	28
HLA-A*02:06	1	319	327	9	PTESIVRFP	6e-05	51
HLA-B*53:01	1	337	346	10	EVFNATRFAS	6e-05	28
HLA-B*51:01	1	345	353	9	ASVYAWNRRK	6e-05	49
HLA-A*33:01	1	349	357	9	AWNRRKRISN	6e-05	43
HLA-A*31:01	1	358	367	10	CVADYSVLYN	6e-05	42
HLA-B*07:02	1	384	392	9	LNDLCFTNV	6e-05	38
HLA-B*40:01	1	392	400	9	VYADSFVIR	6e-05	24
HLA-A*68:01	1	393	401	9	YADSFVIRG	6e-05	37
HLA-A*26:01	1	405	414	10	RQIAPGQTGN	6e-05	35
HLA-A*33:01	1	406	414	9	QIAPGQTGN	6e-05	43
HLA-A*30:02	1	414	423	10	NIADYNYKLP	6e-05	64
HLA-A*11:01	1	421	430	10	KLPDDFTGCV	6e-05	26
HLA-A*31:01	1	424	433	10	DDFTGCVIAW	6e-05	42
HLA-B*35:01	1	433	441	9	WNSNNLDSK	6e-05	29

HLA-B*44:03	1	454	462	9	RKSNLKPF 6e-05	26
HLA-A*68:02	1	457	466	10	NLKPFRDIS 6e-05	43
HLA-B*58:01	1	466	475	10	STEIYQAGST 6e-05	44
HLA-A*02:01	1	490	499	10	QSYGFQPTYG 6e-05	40
HLA-A*23:01	1	492	501	10	YGFQPTYGVG 6e-05	26
HLA-A*02:06	1	497	506	10	TYGVGYQPYP 6e-05	51
HLA-B*35:01	1	509	517	9	VLSFELLHA 6e-05	29
HLA-B*53:01	1	509	517	9	VLSFELLHA 6e-05	28
HLA-B*44:03	1	510	518	9	LSFELLHAP 6e-05	26
HLA-B*07:02	1	528	536	9	TNLVKNKCV 6e-05	38
HLA-B*40:01	1	535	543	9	CVNFNFNGL 6e-05	24
HLA-B*44:02	1	535	543	9	CVNFNFNGL 6e-05	28
HLA-A*24:02	1	536	545	10	VNFNFNGLTG 6e-05	25
HLA-A*26:01	1	560	569	10	QQFGRDIADT 6e-05	35
HLA-A*30:02	1	566	575	10	IADTTDAVRD 6e-05	64
HLA-B*15:01	1	569	577	9	TTDAVRDPQ 6e-05	41
HLA-B*08:01	1	575	583	9	DPQTL EILD 6e-05	56
HLA-B*58:01	1	578	586	9	TLEILDITP 6e-05	44
HLA-A*30:02	1	579	588	10	LEILDITPCS 6e-05	64
HLA-B*15:01	1	587	596	10	CSFGGVS VIT 6e-05	41
HLA-B*58:01	1	590	598	9	GGVSVITPG 6e-05	44
HLA-B*51:01	1	602	610	9	SNQVAVLYQ 6e-05	49
HLA-B*07:02	1	611	620	10	GVNCTEVPVA 6e-05	38
HLA-B*40:01	1	611	619	9	GVNCTEVPV 6e-05	24
HLA-A*33:01	1	612	621	10	VNCTEVPVAI 6e-05	43
HLA-B*08:01	1	616	625	10	EVPVAIHADQ 6e-05	56
HLA-B*08:01	1	623	631	9	ADQLTPTWR 6e-05	56
HLA-B*07:02	1	626	634	9	LTPTWRVYS 6e-05	38
HLA-B*44:03	1	645	653	9	GCLIGAEHV 6e-05	26
HLA-A*68:01	1	648	656	9	IGAEHVNNS 6e-05	37
HLA-A*23:01	1	649	657	9	GAEHVNSY 6e-05	26
HLA-B*44:02	1	655	663	9	NSYECDIPI 6e-05	28
HLA-B*51:01	1	659	668	10	CDIPIGAGIC 6e-05	49
HLA-A*02:06	1	661	670	10	IPIGAGICAS 6e-05	51
HLA-B*40:01	1	680	688	9	RARSVASQS 6e-05	24
HLA-A*11:01	1	681	689	9	ARSVASQSI 6e-05	26
HLA-B*08:01	1	700	708	9	NSVAYSNNS 6e-05	56
HLA-A*31:01	1	717	726	10	ISVTTEILPV 6e-05	42
HLA-A*68:01	1	731	740	10	TSVDCTMYIC 6e-05	37
HLA-B*35:01	1	736	744	9	TM YICGDST 6e-05	29
HLA-B*57:01	1	741	749	9	GDSTEC SNL 6e-05	56
HLA-A*23:01	1	742	751	10	DSTEC SNLLL 6e-05	26
HLA-B*53:01	1	744	752	9	TECSNLLLQ 6e-05	28
HLA-A*01:01	1	747	755	9	SNLLLQYGS 6e-05	59
HLA-A*01:01	1	748	757	10	NLLLQYGSFC 6e-05	59
HLA-B*08:01	1	762	771	10	RALTGIAVEQ 6e-05	56
HLA-A*11:01	1	791	799	9	IKDFGGFNF 6e-05	26
HLA-A*32:01	1	808	816	9	KPSKR SFIE 6e-05	31
HLA-A*32:01	1	832	840	9	KQYGDCLGD 6e-05	31
HLA-A*33:01	1	845	853	9	DLICAQKFN 6e-05	43
HLA-A*68:01	1	850	859	10	QKFNGLT VLP 6e-05	37
HLA-B*53:01	1	864	873	10	DEMI AQY TSA 6e-05	28
HLA-B*51:01	1	875	884	10	LAGTITSGWT 6e-05	49
HLA-B*44:02	1	888	896	9	GAALQIPFA 6e-05	28
HLA-B*44:02	1	891	900	10	LQIPFAMQMA 6e-05	28
HLA-A*24:02	1	921	930	10	ANQFN SAIGK 6e-05	25
HLA-B*08:01	1	924	932	9	FNSAIGKI Q 6e-05	56
HLA-B*35:01	1	932	941	10	QD SLSSTASA 6e-05	29
HLA-A*68:01	1	942	951	10	LGK LQDVVNQ 6e-05	37
HLA-A*11:01	1	945	953	9	LQDVVNQNA 6e-05	26
HLA-A*68:01	1	950	958	9	NQNAQALNT 6e-05	37
HLA-A*24:02	1	969	978	10	AISSV LNDIL 6e-05	25
HLA-B*53:01	1	979	988	10	SRLDKVEAEV 6e-05	28
HLA-A*03:01	1	990	998	9	IDRLITGRL 6e-05	35
HLA-A*23:01	1	998	1006	9	LQSLQTYVT 6e-05	26
HLA-A*26:01	1	999	1008	10	QSLQTYVTQQ 6e-05	35

HLA-A*68:02	1	1005	1014	10	VTQQLIRAAE	6e-05	43
HLA-B*08:01	1	1017	1025	9	ASANLAATK	6e-05	56
HLA-A*02:06	1	1018	1027	10	SANLAATKMS	6e-05	51
HLA-A*68:01	1	1022	1030	9	AATKMSECV	6e-05	37
HLA-B*15:01	1	1030	1038	9	VLGQSKRVD	6e-05	41
HLA-B*40:01	1	1052	1061	10	SAPHGVVFLH	6e-05	24
HLA-B*07:02	1	1060	1068	9	LHVTVVPAQ	6e-05	38
HLA-A*02:06	1	1065	1073	9	VPAQEKNF	6e-05	51
HLA-A*26:01	1	1068	1077	10	QEKNFTTAPA	6e-05	35
HLA-B*35:01	1	1097	1105	9	THWFVTQRN	6e-05	29
HLA-B*44:03	1	1102	1110	9	TQRNFYEPQ	6e-05	26
HLA-A*30:02	1	1107	1115	9	YEPQIITTD	6e-05	64
HLA-B*07:02	1	1107	1115	9	YEPQIITTD	6e-05	38
HLA-A*68:01	1	1111	1120	10	IITTDNTFVS	6e-05	37
HLA-A*33:01	1	1118	1126	9	FVSGNCDVV	6e-05	43
HLA-A*68:01	1	1130	1139	10	VMNTVYDPLQ	6e-05	37
HLA-A*23:01	1	1147	1155	9	EELDKYFKN	6e-05	26
HLA-B*53:01	1	1154	1163	10	KNHTSPDVLD	6e-05	28
HLA-A*33:01	1	1164	1172	9	GDISGINAS	6e-05	43
HLA-B*58:01	1	1179	1188	10	EIDRLNEVAK	6e-05	44
HLA-A*03:01	1	1195	1204	10	IDLQELGKYE	6e-05	35
HLA-A*02:03	1	1199	1208	10	ELGKYEQYIK	6e-05	43
HLA-A*02:06	1	1200	1208	9	LGKYEQYIK	6e-05	51
HLA-A*03:01	1	1202	1211	10	KYEQYIKWPW	6e-05	35
HLA-A*11:01	1	1205	1214	10	QYIKWPWYIW	6e-05	26
HLA-A*24:02	1	1209	1218	10	WPWYIWLGFI	6e-05	25
HLA-B*51:01	1	1224	1233	10	IVMVTIMLCC	6e-05	49
HLA-A*33:01	1	1256	1264	9	DDSEPVLKG	6e-05	43
HLA-B*44:03	1	1261	1270	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	NLTTTRTQLP	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	WFHAIHVSG	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*51:01	1	80	89	10	ANPVLPFNDG	5.9e-05	50
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	TNVVIKVC	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*11:01	1	232	241	10	GINITRFQTL	5.9e-05	26
HLA-A*33:01	1	239	248	10	QTLHRSYLT	5.9e-05	44
HLA-A*33:01	1	260	269	10	AAYYVGYLQP	5.9e-05	44
HLA-A*24:02	1	278	286	9	ENGTITDAV	5.9e-05	25
HLA-B*08:01	1	290	299	10	LDPLSETKCT	5.9e-05	56
HLA-A*01:01	1	297	306	10	KCTLKSFTVE	5.9e-05	59
HLA-A*02:03	1	331	340	10	NLCPFGEVFN	5.9e-05	43
HLA-B*44:02	1	333	341	9	CPFGEVFN	5.9e-05	28
HLA-A*03:01	1	343	351	9	RFASVYAWN	5.9e-05	35
HLA-B*44:02	1	345	354	10	ASVYAWNRKR	5.9e-05	28

HLA-B*57:01	1	351	359	9	NRKRISNCV	5.9e-05	56
HLA-A*23:01	1	354	362	9	RISNCVADY	5.9e-05	26
HLA-A*32:01	1	360	368	9	ADYSVLYNS	5.9e-05	31
HLA-B*07:02	1	397	406	10	FVIRGDEVQR	5.9e-05	38
HLA-A*68:01	1	405	413	9	RQIAPGQTG	5.9e-05	37
HLA-A*02:01	1	406	414	9	QIAPGQTGN	5.9e-05	40
HLA-B*44:02	1	416	424	9	ADYNYKLPD	5.9e-05	28
HLA-B*07:02	1	423	431	9	PDDFTGCVI	5.9e-05	38
HLA-A*24:02	1	438	446	9	LDSKVGGNY	5.9e-05	25
HLA-B*15:01	1	443	451	9	GGNYNYLYR	5.9e-05	41
HLA-B*35:01	1	448	456	9	YLYRFLFRKS	5.9e-05	29
HLA-A*32:01	1	472	481	10	AGSTPCNGVK	5.9e-05	31
HLA-B*44:03	1	477	486	10	CNGVKGFNCY	5.9e-05	27
HLA-A*30:02	1	487	495	9	FPLQSYGFQ	5.9e-05	65
HLA-B*51:01	1	488	496	9	PLQSYGFQP	5.9e-05	50
HLA-B*44:03	1	494	503	10	FQPTYGVGYQ	5.9e-05	27
HLA-B*08:01	1	497	506	10	TYGVGYQPYR	5.9e-05	56
HLA-B*57:01	1	514	523	10	LLHAPATVCG	5.9e-05	56
HLA-B*57:01	1	515	524	10	LHAPATVCGP	5.9e-05	56
HLA-A*31:01	1	528	536	9	TNLVKNKCV	5.9e-05	42
HLA-B*57:01	1	539	548	10	NFNGLTGTGV	5.9e-05	56
HLA-B*40:01	1	553	561	9	NKKFLPFQQ	5.9e-05	24
HLA-A*30:02	1	557	566	10	LPFQQFGRDI	5.9e-05	65
HLA-B*35:01	1	560	568	9	QQFGRDIAD	5.9e-05	29
HLA-A*24:02	1	564	573	10	RDIADTTDAV	5.9e-05	25
HLA-B*44:02	1	588	596	9	SFGGVSUIT	5.9e-05	28
HLA-A*02:06	1	594	603	10	VITPGTNTSN	5.9e-05	51
HLA-A*30:02	1	617	625	9	VPVAIHADQ	5.9e-05	65
HLA-A*03:01	1	639	647	9	VFQTRAGCL	5.9e-05	35
HLA-B*51:01	1	641	650	10	QTRAGCLIGA	5.9e-05	50
HLA-A*02:06	1	643	651	9	RAGCLIGAE	5.9e-05	51
HLA-A*68:01	1	651	659	9	EHVNNSYEC	5.9e-05	37
HLA-A*26:01	1	652	661	10	HVNNSYECDI	5.9e-05	35
HLA-B*08:01	1	658	666	9	ECDIPIGAG	5.9e-05	56
HLA-A*68:02	1	659	668	10	CDIPIGAGIC	5.9e-05	43
HLA-A*01:01	1	665	673	9	AGICASYQT	5.9e-05	59
HLA-A*33:01	1	676	685	10	NSPRRARSVA	5.9e-05	44
HLA-B*58:01	1	676	685	10	NSPRRARSVA	5.9e-05	44
HLA-B*07:02	1	692	701	10	YTMSLGVENS	5.9e-05	38
HLA-A*03:01	1	693	702	10	TMSLGVENSV	5.9e-05	35
HLA-A*01:01	1	697	706	10	GVENSVAYS	5.9e-05	59
HLA-A*26:01	1	697	705	9	GVENSVAYS	5.9e-05	35
HLA-B*08:01	1	709	718	10	IAIPTNFTIS	5.9e-05	56
HLA-A*03:01	1	720	729	10	TTEILPVSM	5.9e-05	35
HLA-A*03:01	1	721	729	9	TEILPVSM	5.9e-05	35
HLA-B*58:01	1	723	731	9	ILPVSMTKT	5.9e-05	44
HLA-B*15:01	1	726	734	9	VSMTKTSVD	5.9e-05	41
HLA-B*40:01	1	729	738	10	TKTSVDCTMY	5.9e-05	24
HLA-A*02:06	1	747	755	9	SNLLLQYGS	5.9e-05	51
HLA-A*68:01	1	747	756	10	SNLLLQYGSF	5.9e-05	37
HLA-B*07:02	1	756	765	10	FCTQLNRALT	5.9e-05	38
HLA-A*26:01	1	765	773	9	TGIAVEQDK	5.9e-05	35
HLA-A*01:01	1	766	774	9	GIAVEQDKN	5.9e-05	59
HLA-A*24:02	1	775	783	9	TQEVFAQVK	5.9e-05	25
HLA-A*02:01	1	785	794	10	IYKTPPIKDF	5.9e-05	40
HLA-A*26:01	1	792	800	9	KDFGGFNFS	5.9e-05	35
HLA-B*07:02	1	793	802	10	DFGGFNFSQI	5.9e-05	38
HLA-A*33:01	1	794	802	9	FGGFNFSQI	5.9e-05	44
HLA-B*08:01	1	797	806	10	FNFSQILPDP	5.9e-05	56
HLA-B*58:01	1	797	805	9	FNFSQILPD	5.9e-05	44
HLA-B*35:01	1	800	809	10	SQILPDPSPK	5.9e-05	29
HLA-B*44:02	1	824	833	10	TLADAGFIKQ	5.9e-05	28
HLA-B*51:01	1	829	838	10	GFIKQYGDCL	5.9e-05	50
HLA-A*01:01	1	832	841	10	KQYGDCLGDI	5.9e-05	59
HLA-B*08:01	1	835	843	9	GDCLGDI	5.9e-05	56
HLA-A*26:01	1	845	853	9	DLICAQKFN	5.9e-05	35

HLA-A*23:01	1	846	855	10	LICAQKFNGL	5.9e-05	26
HLA-A*31:01	1	871	879	9	TSALLAGTI	5.9e-05	42
HLA-B*44:02	1	905	913	9	GIGVTQNVL	5.9e-05	28
HLA-A*30:01	1	920	929	10	IANQFNSAIG	5.9e-05	67
HLA-A*26:01	1	932	941	10	QDLSSTASA	5.9e-05	35
HLA-B*15:01	1	935	944	10	LSSTASALGK	5.9e-05	41
HLA-B*35:01	1	936	944	9	SSTASALGK	5.9e-05	29
HLA-A*24:02	1	944	953	10	KLQDVVNQNA	5.9e-05	25
HLA-A*26:01	1	961	970	10	KQLSSNFGAI	5.9e-05	35
HLA-B*53:01	1	961	970	10	KQLSSNFGAI	5.9e-05	28
HLA-A*11:01	1	978	986	9	LSRLDKVEA	5.9e-05	26
HLA-B*44:02	1	981	989	9	LDKVEAEVQ	5.9e-05	28
HLA-B*44:02	1	1002	1011	10	QTYVTQQLIR	5.9e-05	28
HLA-A*24:02	1	1008	1016	9	QLIRAAEIR	5.9e-05	25
HLA-B*07:02	1	1012	1020	9	AAEIRASAN	5.9e-05	38
HLA-A*68:01	1	1015	1023	9	IRASANLAA	5.9e-05	37
HLA-B*07:02	1	1015	1024	10	IRASANLAAT	5.9e-05	38
HLA-A*32:01	1	1021	1029	9	LAATKMSEC	5.9e-05	31
HLA-A*30:02	1	1032	1041	10	GQSKRVDFCG	5.9e-05	65
HLA-A*02:03	1	1039	1048	10	FCGKGYHLMS	5.9e-05	43
HLA-B*57:01	1	1040	1048	9	CGKGYHLMS	5.9e-05	56
HLA-A*33:01	1	1046	1054	9	LMSFPQSAP	5.9e-05	44
HLA-A*11:01	1	1057	1066	10	VVFLHVITYVP	5.9e-05	26
HLA-B*58:01	1	1069	1078	10	EKNFTTAPAI	5.9e-05	44
HLA-A*31:01	1	1070	1079	10	KNFTTAPAIC	5.9e-05	42
HLA-B*44:03	1	1077	1085	9	AICHDGKAH	5.9e-05	27
HLA-A*02:01	1	1079	1087	9	CHDGKAHFP	5.9e-05	40
HLA-A*32:01	1	1095	1103	9	NGTHWFVTQ	5.9e-05	31
HLA-B*40:01	1	1106	1115	10	FYEQIITTD	5.9e-05	24
HLA-A*24:02	1	1107	1115	9	YEQIITTD	5.9e-05	25
HLA-B*53:01	1	1109	1117	9	PQIITDNT	5.9e-05	28
HLA-A*26:01	1	1117	1126	10	TFVSGNCDVV	5.9e-05	35
HLA-A*68:01	1	1131	1139	9	NNTVYDPLQ	5.9e-05	37
HLA-A*68:01	1	1131	1140	10	NNTVYDPLQP	5.9e-05	37
HLA-B*57:01	1	1138	1147	10	LQPELDSFKE	5.9e-05	56
HLA-A*31:01	1	1145	1153	9	FKEELDKYF	5.9e-05	42
HLA-A*33:01	1	1171	1180	10	ASVWNIQKEI	5.9e-05	44
HLA-A*33:01	1	1184	1192	9	NEVAKNLNE	5.9e-05	44
HLA-B*57:01	1	1189	1198	10	NLNESLIDLQ	5.9e-05	56
HLA-A*31:01	1	1190	1198	9	LNESLIDLQ	5.9e-05	42
HLA-A*03:01	1	1218	1226	9	IAGLIAIVM	5.9e-05	35
HLA-A*26:01	1	1220	1228	9	GLIAIVMVT	5.9e-05	35
HLA-B*44:02	1	1222	1230	9	IAIVMVTIM	5.9e-05	28
HLA-A*23:01	1	1253	1261	9	FDEDDSEPV	5.9e-05	26
HLA-A*30:02	1	1253	1261	9	FDEDDSEPV	5.9e-05	65
HLA-B*57:01	1	1254	1263	10	DEDDSEPVLK	5.9e-05	56
HLA-A*11:01	1	1257	1265	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*33:01	1	74	82	9	NGTKRFANP	5.8e-05	44
HLA-A*02:06	1	78	87	10	RFANPVLPFN	5.8e-05	51
HLA-A*01:01	1	80	88	9	ANPVLPFN	5.8e-05	59
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-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-A*02:06	1	240	249	10	TLHRSYLTPG	5.8e-05	51
HLA-B*07:02	1	254	263	10	GWTAGAAAYY	5.8e-05	39
HLA-A*03:01	1	270	279	10	RTFLLKYNEN	5.8e-05	35
HLA-B*35:01	1	270	278	9	RTFLLKYNE	5.8e-05	29
HLA-A*11:01	1	275	283	9	KYNENGTIT	5.8e-05	26
HLA-A*01:01	1	279	288	10	NGTITDAVDC	5.8e-05	59
HLA-A*24:02	1	289	298	10	ALDPLSETKC	5.8e-05	25
HLA-B*07:02	1	313	321	9	SNFRVQPT	5.8e-05	39
HLA-A*33:01	1	320	329	10	TESIVRFPNI	5.8e-05	44
HLA-B*57:01	1	326	334	9	FPNITNLCP	5.8e-05	56
HLA-A*03:01	1	347	355	9	VYAWNKRRI	5.8e-05	35
HLA-B*40:01	1	352	360	9	RKRISNCVA	5.8e-05	24
HLA-B*08:01	1	367	376	10	NSASFSTFKC	5.8e-05	57
HLA-A*32:01	1	378	386	9	GVSPTKLND	5.8e-05	31
HLA-B*40:01	1	380	388	9	SPTKLNDLC	5.8e-05	24
HLA-A*02:06	1	381	389	9	PTKLNDLCF	5.8e-05	51
HLA-A*31:01	1	381	389	9	PTKLNDLCF	5.8e-05	42
HLA-B*51:01	1	393	402	10	YADSFVIRGD	5.8e-05	50
HLA-A*68:02	1	412	421	10	TGNIADYNYK	5.8e-05	43
HLA-A*32:01	1	413	421	9	GNIADYNYK	5.8e-05	31
HLA-A*01:01	1	419	428	10	NYKLPDDFTG	5.8e-05	59
HLA-A*32:01	1	422	430	9	LPDDFTGCV	5.8e-05	31
HLA-A*01:01	1	436	445	10	NNLDSKVGGN	5.8e-05	59
HLA-B*51:01	1	436	444	9	NNLDSKVG	5.8e-05	50
HLA-A*03:01	1	454	462	9	RKSNLKPFE	5.8e-05	35
HLA-A*03:01	1	456	465	10	SNLKPFERDI	5.8e-05	35
HLA-B*53:01	1	462	471	10	ERDISTEIQ	5.8e-05	28
HLA-B*40:01	1	464	472	9	DISTEIQ	5.8e-05	24
HLA-A*02:03	1	469	477	9	IYQAGSTPC	5.8e-05	44
HLA-A*68:01	1	481	490	10	KGFNCYFPLQ	5.8e-05	37
HLA-A*01:01	1	485	493	9	CYFPLQSYG	5.8e-05	59
HLA-A*24:02	1	496	504	9	PTYGVGYQP	5.8e-05	25
HLA-A*31:01	1	504	513	10	PYRVVLSFE	5.8e-05	42
HLA-A*02:06	1	516	525	10	HAPATVCGPK	5.8e-05	51
HLA-A*31:01	1	519	527	9	ATVCGPKKS	5.8e-05	42
HLA-B*44:02	1	519	528	10	ATVCGPKKST	5.8e-05	29
HLA-A*33:01	1	522	531	10	CGPKKSTNLV	5.8e-05	44
HLA-A*02:01	1	526	535	10	KSTNLVKKNC	5.8e-05	41
HLA-A*24:02	1	558	567	10	PFQQFGRDIA	5.8e-05	25
HLA-A*31:01	1	566	575	10	IADTTDAVRD	5.8e-05	42
HLA-A*30:02	1	575	584	10	DPQTLEILDI	5.8e-05	65
HLA-A*01:01	1	576	584	9	PQTLEILDI	5.8e-05	59
HLA-A*02:06	1	576	585	10	PQTLEILDIT	5.8e-05	51
HLA-B*40:01	1	576	584	9	PQTLEILDI	5.8e-05	24
HLA-B*57:01	1	578	586	9	TLEILDITP	5.8e-05	56
HLA-B*51:01	1	579	588	10	LEILDITPCS	5.8e-05	50
HLA-A*30:01	1	583	591	9	DITPCSF	5.8e-05	67
HLA-A*26:01	1	602	610	9	SNQVAVLYQ	5.8e-05	36
HLA-A*01:01	1	610	618	9	QGVNCTEVP	5.8e-05	59
HLA-B*44:02	1	625	634	10	QLTPTWRVVS	5.8e-05	29
HLA-A*02:01	1	645	654	10	GLIGAHEVNV	5.8e-05	41
HLA-B*57:01	1	646	654	9	CLIGAHEVNV	5.8e-05	56
HLA-B*35:01	1	673	681	9	TQTNSPRRA	5.8e-05	29

HLA-A*33:01	1	689	698	10	IIAYTMSLGV	5.8e-05	44
HLA-B*07:02	1	689	698	10	IIAYTMSLGV	5.8e-05	39
HLA-B*15:01	1	692	701	10	YTMSLGVENS	5.8e-05	41
HLA-A*02:03	1	741	749	9	GDSTECSNL	5.8e-05	44
HLA-A*31:01	1	750	758	9	LLQYGSFCT	5.8e-05	42
HLA-B*51:01	1	750	759	10	LLQYGSFCTQ	5.8e-05	50
HLA-A*26:01	1	757	765	9	CTQLNRALT	5.8e-05	36
HLA-A*31:01	1	769	777	9	VEQDKNTQE	5.8e-05	42
HLA-B*40:01	1	771	780	10	QDKNTQEVFA	5.8e-05	24
HLA-A*33:01	1	794	803	10	FGGFNFSQIL	5.8e-05	44
HLA-B*44:02	1	813	822	10	SFIEDLLFNK	5.8e-05	29
HLA-A*23:01	1	822	831	10	KVTLADAGFI	5.8e-05	26
HLA-A*30:01	1	830	839	10	FIKQYGDCLG	5.8e-05	67
HLA-B*44:03	1	835	843	9	GDCLGDIAA	5.8e-05	27
HLA-B*53:01	1	839	847	9	GDIAARDLI	5.8e-05	28
HLA-A*02:01	1	842	850	9	AARDLICAQ	5.8e-05	41
HLA-B*53:01	1	846	855	10	LICAQKFNGL	5.8e-05	28
HLA-B*35:01	1	848	857	10	CAQKFNGLTV	5.8e-05	29
HLA-A*03:01	1	850	859	10	QKFNGLTVLP	5.8e-05	35
HLA-B*15:01	1	853	862	10	NGLTVLPPLL	5.8e-05	41
HLA-A*02:03	1	886	894	9	GAGAALQIP	5.8e-05	44
HLA-A*30:01	1	898	907	10	QMAYRFNGIG	5.8e-05	67
HLA-A*68:02	1	913	921	9	LYENQKLIA	5.8e-05	43
HLA-B*35:01	1	930	939	10	KIQDLSLSTA	5.8e-05	29
HLA-B*15:01	1	946	955	10	QDVVNQNAQA	5.8e-05	41
HLA-A*02:01	1	949	958	10	VNQAALNT	5.8e-05	41
HLA-A*31:01	1	950	958	9	NQAALNT	5.8e-05	42
HLA-A*02:03	1	952	961	10	NAQALNTLVK	5.8e-05	44
HLA-A*68:02	1	962	971	10	QLSSNFGAIS	5.8e-05	43
HLA-B*51:01	1	970	979	10	ISSVLNDILS	5.8e-05	50
HLA-A*32:01	1	985	993	9	EAEVQIDRL	5.8e-05	31
HLA-B*35:01	1	988	997	10	VQIDRLITGR	5.8e-05	29
HLA-B*53:01	1	988	996	9	VQIDRLITG	5.8e-05	28
HLA-B*07:02	1	994	1003	10	ITGRLQSLQT	5.8e-05	39
HLA-B*07:02	1	1003	1011	9	TYVTQQLIR	5.8e-05	39
HLA-B*58:01	1	1014	1023	10	EIRASANLAA	5.8e-05	44
HLA-B*15:01	1	1023	1032	10	ATKMSECVLG	5.8e-05	41
HLA-B*44:03	1	1023	1031	9	ATKMSECVL	5.8e-05	27
HLA-A*02:06	1	1026	1034	9	MSECVLGQS	5.8e-05	51
HLA-B*53:01	1	1026	1035	10	MSECVLGQSK	5.8e-05	28
HLA-A*33:01	1	1042	1050	9	KGYHLMSFP	5.8e-05	44
HLA-B*53:01	1	1060	1068	9	LHVTVVPAQ	5.8e-05	28
HLA-B*44:02	1	1072	1080	9	FTTAPAICH	5.8e-05	29
HLA-A*11:01	1	1073	1081	9	TTAPAICH	5.8e-05	26
HLA-B*44:02	1	1082	1090	9	GKAHFPREG	5.8e-05	29
HLA-A*02:06	1	1088	1097	10	REGVFSVNGT	5.8e-05	51
HLA-A*23:01	1	1107	1115	9	YEPQIITD	5.8e-05	26
HLA-A*03:01	1	1110	1119	10	QIITDNTFV	5.8e-05	35
HLA-B*44:03	1	1158	1166	9	SPDVDLGD	5.8e-05	27
HLA-B*15:01	1	1164	1172	9	GDISGINAS	5.8e-05	41
HLA-A*68:02	1	1174	1182	9	VNIQKEIDR	5.8e-05	43
HLA-A*02:03	1	1194	1202	9	LIDLQELGK	5.8e-05	44
HLA-A*03:01	1	1200	1209	10	LGKYEQYIKW	5.8e-05	35
HLA-A*32:01	1	1200	1208	9	LGKYEQYIK	5.8e-05	31
HLA-B*15:01	1	1201	1210	10	GKYEQYIKWP	5.8e-05	41
HLA-A*68:01	1	1212	1220	9	YIWLGFIA	5.8e-05	37
HLA-A*31:01	1	1219	1228	10	AGLIAIVMVT	5.8e-05	42
HLA-A*30:02	1	1235	1243	9	TSCCCLKG	5.8e-05	65
HLA-A*02:06	1	1255	1263	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	FHAIHVS	5.7e-05	25
HLA-A*68:01	1	82	90	9	PVLPFND	5.7e-05	38
HLA-A*11:01	1	95	104	10	TEKSNIIR	5.7e-05	26
HLA-B*07:02	1	95	103	9	TEKSNIIR	5.7e-05	39
HLA-B*44:03	1	101	110	10	IRGWIFGT	5.7e-05	27
HLA-A*68:02	1	124	132	9	TNVVIKV	5.7e-05	43
HLA-B*53:01	1	134	142	9	QFCNDPFL	5.7e-05	29
HLA-A*68:01	1	145	153	9	YHKNNKSW	5.7e-05	38
HLA-B*51:01	1	158	167	10	RVYSSANN	5.7e-05	50
HLA-A*23:01	1	161	170	10	SSANNCTFE	5.7e-05	26
HLA-A*03:01	1	170	178	9	YVSQPFLM	5.7e-05	35
HLA-B*15:01	1	178	187	10	DLEGKQGN	5.7e-05	41
HLA-A*68:02	1	179	187	9	LEGKQGNF	5.7e-05	43
HLA-B*58:01	1	182	191	10	KQGNFKNL	5.7e-05	45
HLA-A*02:06	1	186	195	10	FKNLREFV	5.7e-05	51
HLA-B*15:01	1	186	195	10	FKNLREFV	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	IDGYFKIYS	5.7e-05	41
HLA-A*23:01	1	202	211	10	KIYSKHTPI	5.7e-05	26
HLA-A*02:06	1	220	228	9	FSALEPLVD	5.7e-05	51
HLA-B*35:01	1	223	232	10	LEPLVDLPI	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	252	260	9	SSGWTAGAA	5.7e-05	35
HLA-A*32:01	1	252	260	9	SSGWTAGAA	5.7e-05	32
HLA-A*31:01	1	255	264	10	WTAGAAAYV	5.7e-05	42
HLA-B*15:01	1	259	268	10	AAAYYVGYL	5.7e-05	41
HLA-A*01:01	1	273	281	9	LLKYNENGT	5.7e-05	60
HLA-A*68:01	1	277	285	9	NENGTITDA	5.7e-05	38
HLA-B*44:02	1	281	289	9	TITDAVDCA	5.7e-05	29
HLA-A*23:01	1	289	298	10	ALDPLSETK	5.7e-05	26
HLA-B*44:03	1	289	298	10	ALDPLSETK	5.7e-05	27
HLA-A*01:01	1	291	299	9	DPLSETKCT	5.7e-05	60
HLA-B*57:01	1	292	301	10	PLSETKCTL	5.7e-05	56
HLA-B*51:01	1	293	301	9	LSETKCTLK	5.7e-05	50
HLA-A*02:01	1	313	321	9	SNFRVQPT	5.7e-05	41
HLA-B*07:02	1	313	322	10	SNFRVQPT	5.7e-05	39
HLA-A*68:01	1	320	329	10	TESIVRFPN	5.7e-05	38
HLA-B*58:01	1	326	334	9	FPNITNLCP	5.7e-05	45
HLA-B*53:01	1	356	365	10	SNCVADYSV	5.7e-05	29
HLA-B*08:01	1	361	370	10	DYSVLYNSA	5.7e-05	57
HLA-B*44:02	1	366	375	10	YNSASFSTFK	5.7e-05	29
HLA-A*02:03	1	371	380	10	FSTFKCYGVS	5.7e-05	44
HLA-A*02:06	1	377	385	9	YGVSPTKLN	5.7e-05	51
HLA-A*68:02	1	377	386	10	YGVSPTKLND	5.7e-05	43
HLA-B*15:01	1	386	394	9	DLCFTNVYA	5.7e-05	41
HLA-B*53:01	1	398	407	10	VIRGDEVRQ	5.7e-05	29
HLA-B*15:01	1	422	430	9	LPDDFTGCV	5.7e-05	41
HLA-A*24:02	1	454	463	10	RKSNLKPFE	5.7e-05	25
HLA-B*44:03	1	456	465	10	SNLKPFERDI	5.7e-05	27
HLA-A*02:06	1	469	478	10	IYQAGSTPCN	5.7e-05	51
HLA-B*08:01	1	470	478	9	YQAGSTPCN	5.7e-05	57
HLA-B*08:01	1	479	488	10	GVKGFNCYFP	5.7e-05	57
HLA-A*26:01	1	485	493	9	CYFPLQSYG	5.7e-05	36
HLA-A*26:01	1	486	495	10	YFPLQSYGF	5.7e-05	36
HLA-B*57:01	1	487	496	10	FPLQSYGFQP	5.7e-05	56
HLA-B*08:01	1	493	501	9	GFQPTYGVG	5.7e-05	57
HLA-B*40:01	1	495	504	10	QPTYGVGYQP	5.7e-05	24
HLA-A*02:06	1	504	512	9	PYRVVLSF	5.7e-05	51
HLA-A*11:01	1	510	519	10	LSFELLHAPA	5.7e-05	26
HLA-B*51:01	1	526	535	10	KSTNLVKNK	5.7e-05	50
HLA-A*11:01	1	553	562	10	NKKFLPFQF	5.7e-05	26
HLA-A*26:01	1	553	561	9	NKKFLPFQF	5.7e-05	36
HLA-A*33:01	1	554	563	10	KKFLPFQFG	5.7e-05	44
HLA-A*03:01	1	577	585	9	QTLEILDIT	5.7e-05	35

HLA-B*07:02	1	580	588	9	EILDITPCS	5.7e-05	39
HLA-B*51:01	1	582	590	9	LDITPCSFG	5.7e-05	50
HLA-B*15:01	1	594	603	10	VITPGTNTSN	5.7e-05	41
HLA-B*44:02	1	601	610	10	TSNQVAVLYQ	5.7e-05	29
HLA-A*30:02	1	604	613	10	QVAVLYQGVN	5.7e-05	65
HLA-A*11:01	1	607	616	10	VLYQGVNCTE	5.7e-05	26
HLA-B*58:01	1	618	627	10	PVAIHADQLT	5.7e-05	45
HLA-B*40:01	1	638	647	10	NVFQTRAGCL	5.7e-05	24
HLA-A*31:01	1	644	653	10	AGCLIGAEHV	5.7e-05	42
HLA-B*15:01	1	645	654	10	GCLIGAEHVN	5.7e-05	41
HLA-A*03:01	1	648	656	9	IGAEHVNNS	5.7e-05	35
HLA-A*30:02	1	654	663	10	NNSYECDIPI	5.7e-05	65
HLA-A*02:06	1	655	664	10	NSYECDIPIG	5.7e-05	51
HLA-A*31:01	1	667	675	9	ICASYQTQT	5.7e-05	42
HLA-A*33:01	1	667	675	9	ICASYQTQT	5.7e-05	44
HLA-A*02:03	1	670	679	10	SYQTQTNSPR	5.7e-05	44
HLA-A*02:06	1	679	687	9	RRARSVASQ	5.7e-05	51
HLA-A*32:01	1	679	687	9	RRARSVASQ	5.7e-05	32
HLA-A*68:01	1	689	697	9	IIAYTMSLG	5.7e-05	38
HLA-B*35:01	1	707	716	10	NNSIAIPTNFT	5.7e-05	30
HLA-B*58:01	1	722	731	10	EILPVSMTKT	5.7e-05	45
HLA-A*01:01	1	736	745	10	TMYICGDSTE	5.7e-05	60
HLA-A*24:02	1	736	745	10	TMYICGDSTE	5.7e-05	25
HLA-A*68:02	1	747	755	9	SNLLQYGS	5.7e-05	43
HLA-B*40:01	1	747	756	10	SNLLQYGSF	5.7e-05	24
HLA-B*58:01	1	750	759	10	LLQYGSFCTQ	5.7e-05	45
HLA-A*11:01	1	755	763	9	SFCTQLNRA	5.7e-05	26
HLA-B*58:01	1	763	772	10	ALTGIAVEQD	5.7e-05	45
HLA-B*07:02	1	774	783	10	NTQEVFAQVK	5.7e-05	39
HLA-A*11:01	1	776	784	9	QEVFAQVKQ	5.7e-05	26
HLA-A*26:01	1	786	795	10	YKTPPIKDFG	5.7e-05	36
HLA-A*23:01	1	792	800	9	KDFGGFNFS	5.7e-05	26
HLA-A*32:01	1	818	827	10	LLFNKVTLAD	5.7e-05	32
HLA-A*68:02	1	829	838	10	GFIKQYGDCL	5.7e-05	43
HLA-B*08:01	1	832	841	10	KQYGDCLGDI	5.7e-05	57
HLA-B*44:03	1	836	844	9	DCLGDIAAR	5.7e-05	27
HLA-B*44:02	1	857	866	10	VLPLLLTDEM	5.7e-05	29
HLA-A*11:01	1	867	875	9	IAQYTSALL	5.7e-05	26
HLA-B*07:02	1	871	880	10	TSALLAGTIT	5.7e-05	39
HLA-A*31:01	1	882	890	9	GWTFGAGAA	5.7e-05	42
HLA-A*03:01	1	884	893	10	TFGAGAALQI	5.7e-05	35
HLA-B*44:03	1	900	908	9	AYRFNGIGV	5.7e-05	27
HLA-B*51:01	1	902	910	9	RFNGIGVTQ	5.7e-05	50
HLA-B*51:01	1	905	914	10	GIGVTQNVLY	5.7e-05	50
HLA-B*58:01	1	914	922	9	YENQKLIAN	5.7e-05	45
HLA-B*44:03	1	930	938	9	KIQDLSLST	5.7e-05	27
HLA-B*51:01	1	931	940	10	IQDLSLSTAS	5.7e-05	50
HLA-A*68:02	1	934	943	10	SLSSTASALG	5.7e-05	43
HLA-B*08:01	1	945	954	10	LQDVVNQNAQ	5.7e-05	57
HLA-A*03:01	1	960	969	10	VKQLSSNFGA	5.7e-05	35
HLA-A*03:01	1	978	987	10	LSRLDKVEAE	5.7e-05	35
HLA-A*31:01	1	990	999	10	IDRLITGRLQ	5.7e-05	42
HLA-A*11:01	1	993	1002	10	LITGRLQSLQ	5.7e-05	26
HLA-A*02:06	1	994	1002	9	ITGRLQSLQ	5.7e-05	51
HLA-A*11:01	1	1003	1012	10	TYVTQQLIRA	5.7e-05	26
HLA-A*68:02	1	1007	1016	10	QLLIRAAEIR	5.7e-05	43
HLA-A*68:01	1	1013	1022	10	AEIRASANLA	5.7e-05	38
HLA-B*53:01	1	1014	1023	10	EIRASANLAA	5.7e-05	29
HLA-B*58:01	1	1015	1024	10	IRASANLAAT	5.7e-05	45
HLA-A*26:01	1	1020	1029	10	NLAATKMSEC	5.7e-05	36
HLA-A*31:01	1	1022	1030	9	AATKMSECV	5.7e-05	42
HLA-A*32:01	1	1032	1040	9	GQSKRVDFC	5.7e-05	32
HLA-B*44:03	1	1032	1040	9	GQSKRVDFC	5.7e-05	27
HLA-A*02:03	1	1038	1047	10	DFCGKGYHLM	5.7e-05	44
HLA-B*51:01	1	1041	1050	10	GKGYHLMSFP	5.7e-05	50
HLA-A*68:02	1	1060	1069	10	LHVTYVPAQE	5.7e-05	43

HLA-B*58:01	1	1064	1073	10	YVPAQEKNT 5.7e-05	45
HLA-A*24:02	1	1071	1080	10	NFTTAPAICH 5.7e-05	25
HLA-A*02:03	1	1073	1082	10	TTAPAICHDG 5.7e-05	44
HLA-A*31:01	1	1073	1081	9	TTAPAICH 5.7e-05	42
HLA-A*02:01	1	1097	1106	10	THWVFTQRNF 5.7e-05	41
HLA-A*31:01	1	1103	1112	10	QRNFYEPQII 5.7e-05	42
HLA-A*68:02	1	1126	1135	10	VIGIVNNTVY 5.7e-05	43
HLA-A*01:01	1	1167	1175	9	SGINASVVN 5.7e-05	60
HLA-A*11:01	1	1192	1200	9	ESLIDLQEL 5.7e-05	26
HLA-A*30:02	1	1196	1205	10	DLQELGKYEQ 5.7e-05	65
HLA-B*51:01	1	1196	1205	10	DLQELGKYEQ 5.7e-05	50
HLA-A*33:01	1	1198	1207	10	QELGKYEQYI 5.7e-05	44
HLA-A*23:01	1	1214	1222	9	WLGFIAGLI 5.7e-05	26
HLA-A*68:01	1	1216	1224	9	GFIAGLIAI 5.7e-05	38
HLA-A*68:01	1	1220	1228	9	GLIAIVMVT 5.7e-05	38
HLA-A*30:01	1	1226	1235	10	MVTIMLCCMT 5.7e-05	67
HLA-B*15:01	1	12	20	9	SSQCVNLT 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	PKVFRSSVL 5.6e-05	60
HLA-B*44:02	1	51	60	10	TQDLFLPFFS 5.6e-05	29
HLA-B*58:01	1	76	85	10	TKRFANPVL 5.6e-05	45
HLA-A*11:01	1	79	87	9	FANPVLPFN 5.6e-05	26
HLA-B*07:02	1	88	97	10	DGVYFASTEK 5.6e-05	39
HLA-B*15:01	1	94	103	10	STKSNIIRG 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	KNNKSWESE 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-B*15:01	1	207	215	9	HTPINLVRG 5.6e-05	41
HLA-A*68:01	1	208	217	10	TPINLVRGLP 5.6e-05	38
HLA-B*44:02	1	208	217	10	TPINLVRGLP 5.6e-05	29
HLA-A*11:01	1	213	222	10	VRGLPQGFS 5.6e-05	26
HLA-A*68:02	1	215	224	10	GLPQGFSALE 5.6e-05	43
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*57:01	1	248	257	10	PGDSSSGWTA 5.6e-05	57
HLA-B*53:01	1	255	264	10	WTAGAAAYV 5.6e-05	29
HLA-B*07:02	1	267	275	9	LQPRTFLLK 5.6e-05	39
HLA-A*68:01	1	287	295	9	DCALDPLSE 5.6e-05	38
HLA-B*15:01	1	292	301	10	PLSETKCTLK 5.6e-05	41
HLA-A*32:01	1	293	301	9	LSETKCTLK 5.6e-05	32
HLA-B*08:01	1	298	307	10	CTLKSFTVEK 5.6e-05	57
HLA-B*40:01	1	308	316	9	GIYQTSNFR 5.6e-05	25
HLA-A*68:01	1	309	318	10	IYQTSNFRVQ 5.6e-05	38
HLA-A*03:01	1	311	320	10	QTSNFRVQPT 5.6e-05	35
HLA-A*68:01	1	315	324	10	FRVQPTESIV 5.6e-05	38
HLA-A*03:01	1	325	334	10	RFPNITNLCP 5.6e-05	35
HLA-A*26:01	1	338	347	10	VFNATRFASV 5.6e-05	36
HLA-A*31:01	1	352	360	9	RKRISNCVA 5.6e-05	43
HLA-A*24:02	1	356	365	10	SNCVADYSVL 5.6e-05	25
HLA-A*32:01	1	365	373	9	LYNSASFST 5.6e-05	32

HLA-B*53:01	1	372	381	10	STFKCYGVSP	5.6e-05	29
HLA-A*02:06	1	374	382	9	FKCYGVSPT	5.6e-05	52
HLA-B*15:01	1	378	386	9	GVSPTKLND	5.6e-05	41
HLA-B*53:01	1	386	394	9	DLCFTNVYA	5.6e-05	29
HLA-B*44:03	1	391	400	10	NVYADSFVIR	5.6e-05	27
HLA-B*07:02	1	396	405	10	SFVIRGDEV	5.6e-05	39
HLA-A*33:01	1	414	423	10	NIADYNYKLP	5.6e-05	44
HLA-A*30:01	1	420	428	9	YKLPDDFTG	5.6e-05	68
HLA-A*11:01	1	424	433	10	DDFTGCVIAW	5.6e-05	26
HLA-A*01:01	1	426	435	10	FTGCVIAWNS	5.6e-05	60
HLA-A*02:06	1	427	435	9	TGCVIAWNS	5.6e-05	52
HLA-B*07:02	1	456	465	10	SNLKPFERDI	5.6e-05	39
HLA-B*35:01	1	462	471	10	ERDISTEIQ	5.6e-05	30
HLA-B*44:02	1	494	503	10	FQPTYGVGYQ	5.6e-05	29
HLA-A*33:01	1	495	503	9	QPTYGVGYQ	5.6e-05	44
HLA-A*24:02	1	509	517	9	VLSFELLHA	5.6e-05	25
HLA-A*03:01	1	510	519	10	LSFELLHAPA	5.6e-05	35
HLA-B*15:01	1	527	536	10	STNLVKNKCV	5.6e-05	41
HLA-A*02:01	1	535	544	10	CVNFNFNGLT	5.6e-05	41
HLA-A*02:03	1	536	544	9	VNFNFNGLT	5.6e-05	44
HLA-B*53:01	1	539	548	10	NFNGLTGTGV	5.6e-05	29
HLA-B*07:02	1	561	570	10	QFGRDIADTT	5.6e-05	39
HLA-B*35:01	1	568	577	10	DTTDAVRDPQ	5.6e-05	30
HLA-A*30:02	1	583	592	10	DITPCSFGGV	5.6e-05	66
HLA-A*01:01	1	588	597	10	SFGGVSIVTP	5.6e-05	60
HLA-A*68:01	1	608	617	10	LYQGVNCTEV	5.6e-05	38
HLA-B*07:02	1	613	622	10	NCTEVPVAIH	5.6e-05	39
HLA-A*68:02	1	618	627	10	PVAIHADQLT	5.6e-05	43
HLA-A*33:01	1	619	627	9	VAIHADQLT	5.6e-05	44
HLA-B*07:02	1	619	628	10	VAIHADQLTP	5.6e-05	39
HLA-A*32:01	1	620	629	10	AIHADQLTPT	5.6e-05	32
HLA-B*58:01	1	627	635	9	TPTWRVYST	5.6e-05	45
HLA-B*35:01	1	642	650	9	TRAGCLIGA	5.6e-05	30
HLA-B*53:01	1	643	652	10	RAGCLIGAEH	5.6e-05	29
HLA-A*68:01	1	647	656	10	LIGAEHVNNS	5.6e-05	38
HLA-A*03:01	1	659	667	9	CDIPIGAGI	5.6e-05	35
HLA-B*53:01	1	669	678	10	ASYQTQTNSP	5.6e-05	29
HLA-A*32:01	1	673	681	9	TQTNSPRRA	5.6e-05	32
HLA-A*11:01	1	680	689	10	RARSVASQSI	5.6e-05	26
HLA-A*33:01	1	710	718	9	AIPTNFTIS	5.6e-05	44
HLA-B*40:01	1	714	723	10	NFTISVTTEI	5.6e-05	25
HLA-B*44:03	1	719	728	10	VTTEILPVSM	5.6e-05	27
HLA-A*33:01	1	724	733	10	LPVSMTKTSV	5.6e-05	44
HLA-A*68:02	1	743	752	10	STECSNLLLQ	5.6e-05	43
HLA-A*68:02	1	762	771	10	RALTGIAVEQ	5.6e-05	43
HLA-B*40:01	1	762	770	9	RALTGIAVE	5.6e-05	25
HLA-B*44:03	1	768	776	9	AVEQDKNTQ	5.6e-05	27
HLA-A*68:01	1	769	778	10	VEQDKNTQEV	5.6e-05	38
HLA-B*51:01	1	769	777	9	VEQDKNTQE	5.6e-05	50
HLA-A*01:01	1	772	780	9	DKNTQEVFA	5.6e-05	60
HLA-A*68:01	1	780	789	10	AQVKQIYKTP	5.6e-05	38
HLA-B*07:02	1	782	791	10	VKQIYKTPPI	5.6e-05	39
HLA-A*30:01	1	788	796	9	TPPIKDFGG	5.6e-05	68
HLA-B*51:01	1	793	801	9	DFGGFNFSQ	5.6e-05	50
HLA-B*15:01	1	796	804	9	GFNFSQILP	5.6e-05	41
HLA-A*23:01	1	814	823	10	FIEDLLFNKV	5.6e-05	26
HLA-A*24:02	1	814	822	9	FIEDLLFNK	5.6e-05	25
HLA-A*32:01	1	817	826	10	DLLFNKVTLA	5.6e-05	32
HLA-A*03:01	1	818	827	10	LLFNKVTLAD	5.6e-05	35
HLA-A*30:02	1	818	827	10	LLFNKVTLAD	5.6e-05	66
HLA-A*33:01	1	829	838	10	GFIKQYGDCL	5.6e-05	44
HLA-B*44:03	1	830	838	9	FIKQYGDCL	5.6e-05	27
HLA-B*57:01	1	832	840	9	KQYGDCLGD	5.6e-05	57
HLA-A*68:02	1	833	842	10	QYGDCLGDIA	5.6e-05	43
HLA-A*03:01	1	841	850	10	IAARDLICAQ	5.6e-05	35
HLA-A*26:01	1	850	859	10	QKFNGLTVLP	5.6e-05	36

HLA-A*11:01	1	857	866	10	VLPPLLTDEM	5.6e-05	26
HLA-A*23:01	1	865	873	9	EMIAQY TSA	5.6e-05	26
HLA-B*44:02	1	869	877	9	QYTSALLAG	5.6e-05	29
HLA-A*68:01	1	872	880	9	SALLAGTIT	5.6e-05	38
HLA-A*01:01	1	881	890	10	SGWTFGAGAA	5.6e-05	60
HLA-A*01:01	1	885	894	10	FGAGAALQIP	5.6e-05	60
HLA-B*58:01	1	898	907	10	QMAYRFNGIG	5.6e-05	45
HLA-A*03:01	1	910	919	10	QNVLYENQKL	5.6e-05	35
HLA-B*51:01	1	914	923	10	YENQKLIANQ	5.6e-05	50
HLA-A*03:01	1	929	938	10	GKIQDSLSSST	5.6e-05	35
HLA-B*35:01	1	945	954	10	LQDVVNQNAQ	5.6e-05	30
HLA-A*03:01	1	947	956	10	DVVNQNAQAL	5.6e-05	35
HLA-B*51:01	1	953	962	10	AQALNTLVKQ	5.6e-05	50
HLA-B*08:01	1	956	964	9	LNTLVKQLS	5.6e-05	57
HLA-A*08:01	1	961	969	9	KQLSSNFGA	5.6e-05	36
HLA-B*35:01	1	971	979	9	SSVLNDILS	5.6e-05	30
HLA-A*68:01	1	976	985	10	DILSRLDKVE	5.6e-05	38
HLA-A*68:02	1	995	1004	10	TGRLQSLQTY	5.6e-05	43
HLA-A*68:02	1	1000	1008	9	SLQTYVTQQ	5.6e-05	43
HLA-B*08:01	1	1002	1011	10	QTYVTQQLIR	5.6e-05	57
HLA-B*44:03	1	1002	1011	10	QTYVTQQLIR	5.6e-05	27
HLA-A*02:03	1	1003	1011	9	TYVTQQLIR	5.6e-05	44
HLA-A*26:01	1	1009	1017	9	LIRAAEIRA	5.6e-05	36
HLA-B*08:01	1	1027	1036	10	SECVLGQSKR	5.6e-05	57
HLA-B*57:01	1	1034	1042	9	SKRVDFCGK	5.6e-05	57
HLA-A*01:01	1	1042	1050	9	KGYHLMSFP	5.6e-05	60
HLA-A*68:01	1	1046	1054	9	LMSFPQSAP	5.6e-05	38
HLA-A*03:01	1	1048	1056	9	SFPQSAPHG	5.6e-05	35
HLA-A*24:02	1	1060	1068	9	LHVTVVPAQ	5.6e-05	25
HLA-B*35:01	1	1063	1071	9	TYVPAQEKN	5.6e-05	30
HLA-B*53:01	1	1068	1076	9	QEKNF T TAP	5.6e-05	29
HLA-A*02:03	1	1075	1084	10	APAICHDGKA	5.6e-05	44
HLA-A*31:01	1	1079	1087	9	CHDGKAHFP	5.6e-05	43
HLA-B*51:01	1	1093	1102	10	VSNGTHWFVT	5.6e-05	50
HLA-A*02:03	1	1097	1106	10	THWFVTQRNF	5.6e-05	44
HLA-A*11:01	1	1106	1114	9	FYEPQIITT	5.6e-05	26
HLA-B*44:03	1	1117	1125	9	TFVSGNCDV	5.6e-05	27
HLA-B*53:01	1	1147	1155	9	EELDKYFKN	5.6e-05	29
HLA-B*51:01	1	1148	1157	10	ELDKYFKNHT	5.6e-05	50
HLA-A*23:01	1	1152	1160	9	YFKNHTSPD	5.6e-05	26
HLA-A*02:06	1	1156	1165	10	HTSPD VDLGD	5.6e-05	52
HLA-A*02:03	1	1163	1172	10	LGDISGINAS	5.6e-05	44
HLA-A*24:02	1	1167	1176	10	SGINASVVNI	5.6e-05	25
HLA-B*53:01	1	1169	1178	10	INASVVNIQK	5.6e-05	29
HLA-A*01:01	1	1172	1181	10	SVVNIQKEID	5.6e-05	60
HLA-B*58:01	1	1173	1182	10	VVNIQKEIDR	5.6e-05	45
HLA-A*01:01	1	1176	1184	9	IQKEIDRLN	5.6e-05	60
HLA-B*44:03	1	1179	1187	9	EIDRLNEVA	5.6e-05	27
HLA-B*40:01	1	1190	1199	10	LNESLIDLQE	5.6e-05	25
HLA-A*30:02	1	1214	1223	10	WLGFIAGLIA	5.6e-05	66
HLA-A*03:01	1	1216	1225	10	GFIAGLIAIV	5.6e-05	35
HLA-A*32:01	1	1223	1232	10	AIVMVTIMLC	5.6e-05	32
HLA-A*30:02	1	1251	1260	10	CKFEDDSEPV	5.6e-05	66
HLA-A*68:01	1	1253	1262	10	FDEDDSEPV	5.6e-05	38
HLA-A*02:06	1	1258	1266	9	SEPV LKGVK	5.6e-05	52
HLA-B*07:02	1	1261	1270	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	SSQCVNL TTR	5.5e-05	27
HLA-B*44:02	1	13	22	10	SQCVNL TTRT	5.5e-05	29
HLA-A*68:02	1	16	25	10	VNL TTRTQLP	5.5e-05	44
HLA-B*58:01	1	17	26	10	NL TTRTQLPP	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	YDPK VFRSS	5.5e-05	26
HLA-A*31:01	1	38	46	9	YDPK VFRSS	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	FHAIHVSGTN	5.5e-05	57
HLA-A*02:06	1	68	76	9	IHVSGTNGT	5.5e-05	52
HLA-A*01:01	1	74	82	9	NGTKRFANP	5.5e-05	60
HLA-A*24:02	1	75	84	10	GTKRFANPVL	5.5e-05	26
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	KTQSLLIIVN	5.5e-05	41
HLA-A*30:01	1	125	134	10	NVVIKVFCEQ	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-A*26:01	1	214	222	9	RGLPQGFS	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*02:01	1	244	252	9	SYLTPGDSS	5.5e-05	41
HLA-A*68:02	1	247	256	10	TPGDSSSGWT	5.5e-05	44
HLA-B*40:01	1	260	268	9	AAYVYGYLQ	5.5e-05	25
HLA-B*35:01	1	266	275	10	YLPRTFLLK	5.5e-05	30
HLA-B*44:02	1	274	282	9	LKYNENGTI	5.5e-05	29
HLA-A*02:01	1	293	301	9	LSETKCTLK	5.5e-05	41
HLA-B*08:01	1	300	309	10	LKSFTVEKGI	5.5e-05	58
HLA-B*44:03	1	303	311	9	FTVEKGIYQ	5.5e-05	27
HLA-A*33:01	1	310	319	10	YQTSNFRVQP	5.5e-05	45
HLA-A*03:01	1	314	322	9	NFRVQPTES	5.5e-05	36
HLA-A*02:03	1	318	327	10	QPTESIVRFP	5.5e-05	44
HLA-A*11:01	1	322	330	9	SIVRFPNIT	5.5e-05	26
HLA-A*01:01	1	350	358	9	WNRKRISNC	5.5e-05	60
HLA-A*31:01	1	359	368	10	VADYSVLVNS	5.5e-05	43
HLA-B*44:03	1	374	383	10	FKCYGVSPTK	5.5e-05	27
HLA-A*03:01	1	379	387	9	VSPTKLNLDL	5.5e-05	36
HLA-A*03:01	1	385	393	9	NDLCFTNVY	5.5e-05	36
HLA-B*08:01	1	398	406	9	VIRGDEVQR	5.5e-05	58
HLA-B*51:01	1	404	412	9	VRQIAPGQT	5.5e-05	51
HLA-A*68:01	1	419	427	9	NYKLPDDFT	5.5e-05	38
HLA-B*44:03	1	420	428	9	YKLPDDFTG	5.5e-05	27
HLA-A*24:02	1	422	430	9	LPDDFTGCV	5.5e-05	26
HLA-A*68:01	1	433	442	10	WNSNNLDSKV	5.5e-05	38
HLA-A*11:01	1	450	458	9	YRFRKSNL	5.5e-05	26
HLA-B*44:02	1	454	463	10	RKSNLKPFR	5.5e-05	29
HLA-A*01:01	1	457	466	10	NLKPFRDIS	5.5e-05	60
HLA-B*58:01	1	464	473	10	DISTEIYQAG	5.5e-05	45
HLA-A*11:01	1	467	476	10	TEIYQAGSTP	5.5e-05	26
HLA-A*02:06	1	474	482	9	STPCNGVKG	5.5e-05	52
HLA-A*24:02	1	482	490	9	GFNCYFPLQ	5.5e-05	26
HLA-A*02:01	1	483	491	9	FNCYFPLQS	5.5e-05	41
HLA-B*40:01	1	485	494	10	CYFPLQSYGF	5.5e-05	25
HLA-B*07:02	1	515	523	9	LHAPATVCG	5.5e-05	39
HLA-A*30:02	1	529	537	9	NLVKNKCVN	5.5e-05	66
HLA-B*51:01	1	536	545	10	VNFNFGLTG	5.5e-05	51
HLA-A*02:06	1	545	554	10	GTGVLTESNK	5.5e-05	52
HLA-A*02:01	1	556	565	10	FLPFQFGRD	5.5e-05	41
HLA-B*53:01	1	581	590	10	ILDITPCSGF	5.5e-05	29
HLA-A*23:01	1	600	609	10	NTSNQVAVLY	5.5e-05	26

HLA-A*01:01	1	605	613	9	VAVLYQGVN	5.5e-05	60
HLA-A*33:01	1	609	617	9	YQGVNCTEV	5.5e-05	45
HLA-A*24:02	1	621	629	9	IHADQLTPT	5.5e-05	26
HLA-A*30:02	1	627	636	10	TPTWRVYSTG	5.5e-05	66
HLA-B*44:03	1	630	639	10	WRVYSTGSNV	5.5e-05	27
HLA-B*58:01	1	639	647	9	VFQTRAGCL	5.5e-05	45
HLA-A*02:06	1	643	652	10	RAGCLIGAEH	5.5e-05	52
HLA-B*58:01	1	643	651	9	RAGCLIGAE	5.5e-05	45
HLA-A*02:06	1	653	661	9	VNNSYECDI	5.5e-05	52
HLA-A*11:01	1	664	672	9	GAGICASYQ	5.5e-05	26
HLA-B*57:01	1	664	672	9	GAGICASYQ	5.5e-05	57
HLA-B*08:01	1	665	673	9	AGICASYQT	5.5e-05	58
HLA-A*01:01	1	677	686	10	SPRRARSVAS	5.5e-05	60
HLA-A*02:06	1	677	685	9	SPRRARVA	5.5e-05	52
HLA-B*53:01	1	680	688	9	RARSVASQS	5.5e-05	29
HLA-A*26:01	1	689	697	9	IIAYTMSLG	5.5e-05	36
HLA-B*35:01	1	693	702	10	TMSLGVNSV	5.5e-05	30
HLA-A*30:01	1	745	754	10	ECSNLLLQYG	5.5e-05	68
HLA-B*15:01	1	755	763	9	SFCTQLNRA	5.5e-05	42
HLA-B*44:03	1	763	771	9	ALTGIAVEQ	5.5e-05	27
HLA-B*53:01	1	763	771	9	ALTGIAVEQ	5.5e-05	29
HLA-A*68:02	1	768	776	9	AVEQDKNTQ	5.5e-05	44
HLA-A*68:02	1	776	784	9	QEVFAQVKQ	5.5e-05	44
HLA-B*07:02	1	796	804	9	GFNFSQILP	5.5e-05	39
HLA-A*30:02	1	798	807	10	NFSQILPDPS	5.5e-05	66
HLA-A*23:01	1	800	809	10	SQILPDPSKP	5.5e-05	26
HLA-B*58:01	1	814	823	10	FIEDLLFNKV	5.5e-05	45
HLA-B*40:01	1	829	838	10	GFIKQYGDCL	5.5e-05	25
HLA-A*30:02	1	834	842	9	YGDCLGDIA	5.5e-05	66
HLA-A*02:03	1	852	860	9	FNGLTVLPP	5.5e-05	44
HLA-B*58:01	1	865	873	9	EMIAQY TSA	5.5e-05	45
HLA-A*03:01	1	871	879	9	TSALLAGTI	5.5e-05	36
HLA-B*08:01	1	873	882	10	ALLAGTITSG	5.5e-05	58
HLA-A*11:01	1	880	889	10	TSGWTFGAGA	5.5e-05	26
HLA-A*11:01	1	887	896	10	AGAALQIPFA	5.5e-05	26
HLA-A*23:01	1	891	900	10	LQIPFAMQMA	5.5e-05	26
HLA-A*02:03	1	896	905	10	AMQMAYRFNG	5.5e-05	44
HLA-A*32:01	1	903	912	10	FNGIGVTQNV	5.5e-05	32
HLA-B*15:01	1	910	918	9	QNVLYENQK	5.5e-05	42
HLA-B*57:01	1	913	921	9	LYENQKLIA	5.5e-05	57
HLA-B*51:01	1	916	925	10	NQKLIANQFN	5.5e-05	51
HLA-B*44:03	1	926	934	9	SAIGKIQDS	5.5e-05	27
HLA-B*07:02	1	932	940	9	QDLSSTAS	5.5e-05	39
HLA-A*03:01	1	943	951	9	GKLQDVVNQ	5.5e-05	36
HLA-B*44:03	1	944	952	9	KLQDVVNQN	5.5e-05	27
HLA-B*51:01	1	948	957	10	VVNQNAQALN	5.5e-05	51
HLA-A*03:01	1	952	960	9	NAQALNTLV	5.5e-05	36
HLA-B*51:01	1	959	968	10	LVKQLSSNFG	5.5e-05	51
HLA-A*01:01	1	968	976	9	GAISSVLND	5.5e-05	60
HLA-B*58:01	1	974	983	10	LNDILSR LDK	5.5e-05	45
HLA-B*08:01	1	975	983	9	NDILSR LDK	5.5e-05	58
HLA-B*07:02	1	1010	1018	9	IRAAEIRAS	5.5e-05	39
HLA-A*33:01	1	1013	1022	10	AEIRASANLA	5.5e-05	45
HLA-A*11:01	1	1014	1022	9	EIRASANLA	5.5e-05	26
HLA-B*08:01	1	1015	1024	10	IRASANLAAT	5.5e-05	58
HLA-B*44:02	1	1016	1025	10	RASANLAATK	5.5e-05	29
HLA-A*30:02	1	1024	1032	9	TKMSECVLG	5.5e-05	66
HLA-A*68:01	1	1058	1067	10	VFLHVTVVPA	5.5e-05	38
HLA-B*57:01	1	1060	1068	9	LHVTVVPAQ	5.5e-05	57
HLA-A*01:01	1	1063	1071	9	TYVPAQ EKN	5.5e-05	60
HLA-B*15:01	1	1107	1115	9	YEPQIITTD	5.5e-05	42
HLA-B*07:02	1	1112	1120	9	ITTDNTFVS	5.5e-05	39
HLA-A*24:02	1	1118	1127	10	FVSGNCDVVI	5.5e-05	26
HLA-A*68:01	1	1120	1129	10	SGNCDVVI GI	5.5e-05	38
HLA-A*02:03	1	1128	1136	9	GIVNNTVYD	5.5e-05	44
HLA-A*11:01	1	1129	1137	9	IVNNTVYDP	5.5e-05	26

HLA-A*02:06	1	1150	1158	9	DKYFKNHTS	5.5e-05	52
HLA-A*02:06	1	1170	1179	10	NASVVNIQKE	5.5e-05	52
HLA-A*30:02	1	1170	1179	10	NASVVNIQKE	5.5e-05	66
HLA-A*26:01	1	1186	1195	10	VAKNLNESLI	5.5e-05	36
HLA-A*68:02	1	1189	1198	10	NLNESLIDLQ	5.5e-05	44
HLA-B*51:01	1	1219	1228	10	AGLIAIVMVT	5.5e-05	51
HLA-B*58:01	1	1220	1228	9	GLIAIVMVT	5.5e-05	45
HLA-A*01:01	1	1234	1243	10	MTSCCSCLKG	5.5e-05	60
HLA-B*07:02	1	1239	1247	9	SCLKGCCSC	5.5e-05	39
HLA-B*57:01	1	1242	1250	9	KGCCSCGSC	5.5e-05	57
HLA-A*02:01	1	1254	1263	10	DEDDSEPVLK	5.5e-05	41
HLA-B*08:01	1	1257	1266	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	IHVSGTNGT	5.4e-05	30
HLA-A*02:01	1	74	83	10	NGTKRFANPV	5.4e-05	41
HLA-A*23:01	1	75	84	10	GTKRFANPVL	5.4e-05	27
HLA-A*02:03	1	76	85	10	TKRFANPVL	5.4e-05	44
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	ASTEKSNIIIR	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	VVIKVCEFQ	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-A*30:02	1	210	219	10	INLVRGLPQG	5.4e-05	66
HLA-A*24:02	1	213	222	10	VRGLPQGFS	5.4e-05	26
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*07:02	1	250	258	9	DSSSGWTAG	5.4e-05	40
HLA-B*15:01	1	250	258	9	DSSSGWTAG	5.4e-05	42
HLA-A*26:01	1	252	261	10	SSGWTAGAAA	5.4e-05	37
HLA-B*44:02	1	268	277	10	QPRTFLLKYN	5.4e-05	29
HLA-A*11:01	1	281	289	9	TITDAVDCA	5.4e-05	27
HLA-B*51:01	1	295	304	10	ETKCTLKSFT	5.4e-05	51
HLA-B*40:01	1	302	310	9	SFTVEKGIY	5.4e-05	25
HLA-B*08:01	1	309	318	10	IYQTSNFRVQ	5.4e-05	58
HLA-A*03:01	1	315	324	10	FRVQPTESIV	5.4e-05	36
HLA-A*68:02	1	328	336	9	NITNLCPFG	5.4e-05	44
HLA-B*15:01	1	338	347	10	VFNATRFASV	5.4e-05	42
HLA-A*23:01	1	349	357	9	AWNKRKRIS	5.4e-05	27
HLA-A*24:02	1	356	364	9	SNCVADYSV	5.4e-05	26
HLA-A*02:01	1	366	375	10	YNSASFSTFK	5.4e-05	41
HLA-B*44:02	1	379	387	9	VSPTKLNLDL	5.4e-05	29
HLA-A*68:01	1	385	394	10	NDLCFTNVYA	5.4e-05	38



HLA-A*32:01	1	386	394	9	DLCFTNVYA	5.4e-05	32
HLA-A*31:01	1	390	398	9	TNVYADSFV	5.4e-05	43
HLA-B*40:01	1	412	420	9	TGNIADYNY	5.4e-05	25
HLA-B*57:01	1	425	434	10	DFTGCVIAWN	5.4e-05	57
HLA-B*58:01	1	426	434	9	FTGCVIAWN	5.4e-05	45
HLA-A*68:02	1	430	439	10	VIAWNSNNLD	5.4e-05	44
HLA-B*44:03	1	430	438	9	VIAWNSNNL	5.4e-05	28
HLA-A*68:02	1	431	439	9	IAWNSNNLD	5.4e-05	44
HLA-A*03:01	1	434	442	9	NSNNLDSKV	5.4e-05	36
HLA-A*24:02	1	439	448	10	DSKVGGNVNY	5.4e-05	26
HLA-B*57:01	1	458	467	10	LKPFERDIST	5.4e-05	57
HLA-B*44:02	1	475	484	10	TPCNGVKGFN	5.4e-05	29
HLA-B*58:01	1	480	489	10	VKGFNCYFPL	5.4e-05	45
HLA-A*31:01	1	493	501	9	GFQPTYGVG	5.4e-05	43
HLA-B*51:01	1	511	520	10	SFELLHAPAT	5.4e-05	51
HLA-A*02:03	1	515	524	10	LHAPATVCGP	5.4e-05	44
HLA-B*57:01	1	517	525	9	APATVCGPK	5.4e-05	57
HLA-B*53:01	1	544	552	9	TGTGVLTES	5.4e-05	29
HLA-A*03:01	1	553	561	9	NKKFLPFQQ	5.4e-05	36
HLA-B*15:01	1	565	574	10	DIADTTDAVR	5.4e-05	42
HLA-B*08:01	1	569	577	9	TTDAVRDPQ	5.4e-05	58
HLA-A*33:01	1	574	582	9	RDPQTLLEIL	5.4e-05	45
HLA-A*26:01	1	575	584	10	DPQTLLEILDI	5.4e-05	37
HLA-A*33:01	1	596	604	9	TPGTNTSNQ	5.4e-05	45
HLA-A*24:02	1	600	609	10	NTSNQVAVLY	5.4e-05	26
HLA-B*58:01	1	603	612	10	NQVAVLYQGV	5.4e-05	45
HLA-B*40:01	1	612	620	9	VNCTEVPVA	5.4e-05	25
HLA-B*15:01	1	614	623	10	CTEVPVAIHA	5.4e-05	42
HLA-B*44:02	1	621	629	9	IHADQLTPT	5.4e-05	29
HLA-A*01:01	1	650	659	10	AEHVNSYEC	5.4e-05	61
HLA-B*44:02	1	661	669	9	IPIGAGICA	5.4e-05	29
HLA-B*07:02	1	672	681	10	QTQTNPRRA	5.4e-05	40
HLA-B*35:01	1	687	695	9	QSIIAYTMS	5.4e-05	30
HLA-A*03:01	1	713	722	10	TNFTISVTTE	5.4e-05	36
HLA-A*03:01	1	718	727	10	SVTTEILPVS	5.4e-05	36
HLA-B*15:01	1	741	749	9	GDSTECNL	5.4e-05	42
HLA-A*68:01	1	756	765	10	FCTQLNRALT	5.4e-05	38
HLA-A*26:01	1	761	770	10	NRALTGIAVE	5.4e-05	37
HLA-B*57:01	1	761	769	9	NRALTGIAV	5.4e-05	57
HLA-A*02:01	1	768	776	9	AVEQDKNTQ	5.4e-05	41
HLA-A*02:06	1	769	777	9	VEQDKNTQE	5.4e-05	52
HLA-A*26:01	1	775	784	10	TQEVFAQVKQ	5.4e-05	37
HLA-A*26:01	1	780	789	10	AQVKQIYKTP	5.4e-05	37
HLA-B*57:01	1	785	793	9	IYKTPPIKD	5.4e-05	57
HLA-A*31:01	1	794	803	10	FGGFNFSQIL	5.4e-05	43
HLA-A*68:02	1	797	805	9	FNFSQILPD	5.4e-05	44
HLA-B*07:02	1	832	841	10	KQYGDCLGDI	5.4e-05	40
HLA-B*40:01	1	834	842	9	YGDCLGDIA	5.4e-05	25
HLA-B*53:01	1	834	842	9	YGDCLGDIA	5.4e-05	29
HLA-A*30:02	1	839	848	10	GDIAARDLIC	5.4e-05	66
HLA-B*08:01	1	851	860	10	KFNGLTVLPP	5.4e-05	58
HLA-A*68:02	1	864	872	9	DEMIAQYTS	5.4e-05	44
HLA-B*51:01	1	869	877	9	QYTSALLAG	5.4e-05	51
HLA-B*53:01	1	872	881	10	SALLAGTITS	5.4e-05	29
HLA-A*33:01	1	882	890	9	GWTFGAGAA	5.4e-05	45
HLA-A*68:01	1	884	893	10	TFGAGAALQI	5.4e-05	38
HLA-B*15:01	1	887	896	10	AGAALQIPFA	5.4e-05	42
HLA-B*53:01	1	891	900	10	LQIPFAMQMA	5.4e-05	29
HLA-A*24:02	1	893	902	10	IPFAMQMAYR	5.4e-05	26
HLA-A*30:02	1	898	907	10	QMAYRFNGIG	5.4e-05	66
HLA-B*57:01	1	916	925	10	NQKLIANQFN	5.4e-05	57
HLA-A*31:01	1	924	932	9	FNSAIGKIQ	5.4e-05	43
HLA-B*08:01	1	927	936	10	AIGKIQDSL	5.4e-05	58
HLA-A*02:03	1	929	937	9	GKIQDSLSS	5.4e-05	44
HLA-B*35:01	1	930	938	9	KIQDSLSS	5.4e-05	30
HLA-A*03:01	1	933	942	10	DSLSSSTASAL	5.4e-05	36

HLA-A*02:03	1	936	944	9	SSTASALGK	5.4e-05	44
HLA-B*40:01	1	936	944	9	SSTASALGK	5.4e-05	25
HLA-A*26:01	1	941	949	9	ALGKLQDVV	5.4e-05	37
HLA-A*03:01	1	945	954	10	LQDVVNQNAQ	5.4e-05	36
HLA-A*23:01	1	947	956	10	DVVNQNQAAL	5.4e-05	27
HLA-A*68:02	1	960	969	10	VKQLSSNFGA	5.4e-05	44
HLA-B*58:01	1	960	969	10	VKQLSSNFGA	5.4e-05	45
HLA-A*03:01	1	977	985	9	ILSRLDKVE	5.4e-05	36
HLA-B*53:01	1	984	992	9	VEAEVQIDR	5.4e-05	29
HLA-A*31:01	1	991	999	9	DRLITGRLQ	5.4e-05	43
HLA-B*53:01	1	1016	1024	9	RASANLAAT	5.4e-05	29
HLA-A*23:01	1	1017	1026	10	ASANLAATKM	5.4e-05	27
HLA-B*15:01	1	1021	1030	10	LAATKMSECV	5.4e-05	42
HLA-A*68:01	1	1022	1031	10	AATKMSECVL	5.4e-05	38
HLA-A*11:01	1	1029	1037	9	CVLGQSKRV	5.4e-05	27
HLA-A*24:02	1	1029	1037	9	CVLGQSKRV	5.4e-05	26
HLA-A*03:01	1	1032	1040	9	GQSKRVDFC	5.4e-05	36
HLA-A*23:01	1	1032	1040	9	GQSKRVDFC	5.4e-05	27
HLA-A*02:06	1	1038	1047	10	DFCGKGYHLM	5.4e-05	52
HLA-A*03:01	1	1038	1047	10	DFCGKGYHLM	5.4e-05	36
HLA-A*68:01	1	1043	1051	9	GYHLMSFPQ	5.4e-05	38
HLA-A*32:01	1	1049	1058	10	FPQSAPHGVV	5.4e-05	32
HLA-A*68:01	1	1058	1066	9	VFLHVTVYP	5.4e-05	38
HLA-A*01:01	1	1060	1068	9	LHVTVVPAQ	5.4e-05	61
HLA-A*26:01	1	1063	1071	9	TYVPAQEKV	5.4e-05	37
HLA-B*35:01	1	1069	1078	10	EKNFTTAPAI	5.4e-05	30
HLA-A*23:01	1	1070	1079	10	KNFTTAPAIC	5.4e-05	27
HLA-B*57:01	1	1076	1085	10	PAICHGKGAH	5.4e-05	57
HLA-A*23:01	1	1078	1087	10	ICHGKGAHFP	5.4e-05	27
HLA-B*58:01	1	1094	1103	10	SNGTHWFVTQ	5.4e-05	45
HLA-B*51:01	1	1112	1121	10	ITDNTFVSG	5.4e-05	51
HLA-A*68:02	1	1113	1122	10	TTDNTFVSGN	5.4e-05	44
HLA-B*08:01	1	1119	1127	9	VSGNCDVVI	5.4e-05	58
HLA-A*24:02	1	1129	1138	10	IVNNTVYDPL	5.4e-05	26
HLA-A*02:06	1	1142	1151	10	LDSFKEELDK	5.4e-05	52
HLA-A*33:01	1	1149	1158	10	LDKYFKNHTS	5.4e-05	45
HLA-A*11:01	1	1164	1172	9	GDISGINAS	5.4e-05	27
HLA-B*08:01	1	1169	1177	9	INASVVNIQ	5.4e-05	58
HLA-B*53:01	1	1174	1183	10	VNIQKEIDRL	5.4e-05	29
HLA-A*32:01	1	1179	1188	10	EIDRLNEVAK	5.4e-05	32
HLA-B*51:01	1	1180	1188	9	IDRLNEVAK	5.4e-05	51
HLA-B*35:01	1	1186	1195	10	VAKNLNESLI	5.4e-05	30
HLA-B*15:01	1	1199	1208	10	ELGKYEQYIK	5.4e-05	42
HLA-A*68:02	1	1208	1216	9	KWPWYIWLG	5.4e-05	44
HLA-A*11:01	1	1221	1229	9	LIAIVMVTI	5.4e-05	27
HLA-A*23:01	1	1225	1233	9	VMVTIMLCC	5.4e-05	27
HLA-A*02:01	1	1226	1235	10	MVTIMLCCMT	5.4e-05	41
HLA-B*53:01	1	1252	1260	9	KFDEDDSEP	5.4e-05	29
HLA-B*53:01	1	1254	1263	10	DEDDSEPVLK	5.4e-05	29
HLA-B*07:02	1	1260	1269	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	SQCVNLTRRT	5.3e-05	58
HLA-B*07:02	1	14	23	10	QCVNLTRRTQ	5.3e-05	40
HLA-A*30:02	1	31	40	10	SFTRGVVYYP	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	IHSVSGTNGTK	5.3e-05	30
HLA-A*02:03	1	71	79	9	SGTNGTKRF	5.3e-05	45
HLA-A*02:06	1	76	85	10	TKRFANPVLP	5.3e-05	52
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	TQSLIVNNA	5.3e-05	30
HLA-A*23:01	1	123	131	9	ATNVVIVKVC	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-B*15:01	1	213	222	10	VRGLPQGFSFA	5.3e-05	42
HLA-B*58:01	1	228	237	10	DLPIGINITR	5.3e-05	46
HLA-B*35:01	1	246	254	9	LTPGDSSSG	5.3e-05	30
HLA-B*53:01	1	259	268	10	AAAYVGYLQ	5.3e-05	29
HLA-A*31:01	1	269	278	10	PRTFLLKYNE	5.3e-05	43
HLA-B*40:01	1	275	283	9	KYNENGTIT	5.3e-05	25
HLA-B*40:01	1	290	298	9	LDPLSETKC	5.3e-05	25
HLA-B*08:01	1	296	304	9	TKCTLKSFT	5.3e-05	58
HLA-A*02:03	1	301	310	10	KSFTVEKGIY	5.3e-05	45
HLA-B*40:01	1	301	310	10	KSFTVEKGIY	5.3e-05	25
HLA-A*11:01	1	311	320	10	QTSNFRVQPT	5.3e-05	27
HLA-A*24:02	1	318	327	10	QPTESIVRFP	5.3e-05	26
HLA-A*01:01	1	322	331	10	SIVRFPNITN	5.3e-05	61
HLA-A*24:02	1	330	338	9	TNLCPFGEV	5.3e-05	26
HLA-B*53:01	1	330	338	9	TNLCPFGEV	5.3e-05	29
HLA-A*02:03	1	338	346	9	VFNATRFAS	5.3e-05	45
HLA-B*44:02	1	341	349	9	ATRFASVYA	5.3e-05	30
HLA-B*44:03	1	341	349	9	ATRFASVYA	5.3e-05	28
HLA-A*33:01	1	356	365	10	SNCVADYSVL	5.3e-05	45
HLA-B*44:02	1	368	376	9	SASFSTFKC	5.3e-05	30
HLA-A*24:02	1	371	379	9	FSTFKCYGV	5.3e-05	26
HLA-A*03:01	1	378	386	9	GVSPTKLND	5.3e-05	36
HLA-A*68:02	1	378	386	9	GVSPTKLND	5.3e-05	44
HLA-A*68:01	1	381	389	9	PTKLNLCF	5.3e-05	38
HLA-A*68:01	1	417	426	10	DYNYKLPDDF	5.3e-05	38
HLA-A*26:01	1	422	431	10	LPDDFTGCVI	5.3e-05	37
HLA-B*57:01	1	428	437	10	GCVIAWNSNN	5.3e-05	58
HLA-A*31:01	1	449	457	9	LYRFLFRKSN	5.3e-05	43
HLA-B*35:01	1	455	463	9	KSNLKPFER	5.3e-05	30
HLA-A*33:01	1	460	469	10	PFERDISTEI	5.3e-05	45
HLA-A*68:01	1	481	489	9	KGFNCYFPL	5.3e-05	38
HLA-B*53:01	1	497	506	10	TYGVGYQPYR	5.3e-05	29
HLA-B*58:01	1	502	511	10	YQPYRVVLS	5.3e-05	46
HLA-A*32:01	1	503	511	9	QPYRVVLS	5.3e-05	32
HLA-B*44:02	1	525	534	10	KKSTNLVKNK	5.3e-05	30
HLA-B*35:01	1	539	547	9	NFNGLTGTG	5.3e-05	30
HLA-B*44:03	1	560	569	10	QQFGRDIADT	5.3e-05	28
HLA-A*02:06	1	561	570	10	QFGRDIADTT	5.3e-05	52
HLA-B*44:03	1	570	578	9	TDAVRDPQT	5.3e-05	28
HLA-A*03:01	1	574	582	9	RDPQTLEIL	5.3e-05	36
HLA-B*44:03	1	580	588	9	EILDITPCS	5.3e-05	28
HLA-A*30:02	1	583	591	9	DITPCSFEG	5.3e-05	66
HLA-A*26:01	1	596	604	9	TPGTNTSNQ	5.3e-05	37
HLA-B*07:02	1	608	616	9	LYQGVNCTE	5.3e-05	40
HLA-B*35:01	1	608	616	9	LYQGVNCTE	5.3e-05	30
HLA-B*58:01	1	610	618	9	QGVNCTEVP	5.3e-05	46
HLA-A*03:01	1	611	620	10	GVNCTEVPVA	5.3e-05	36
HLA-B*35:01	1	612	620	9	VNCTEVPVA	5.3e-05	30
HLA-B*44:02	1	638	647	10	NVFQTRAGCL	5.3e-05	30
HLA-A*68:02	1	641	649	9	QTRAGCLIG	5.3e-05	44
HLA-B*15:01	1	666	675	10	GICASYQTQT	5.3e-05	42
HLA-A*01:01	1	690	699	10	IAYTMSLGVE	5.3e-05	61
HLA-A*26:01	1	699	708	10	ENSVAYSNNS	5.3e-05	37
HLA-A*31:01	1	704	712	9	YSNNSIAIP	5.3e-05	43
HLA-A*24:02	1	713	721	9	TNFTISVTT	5.3e-05	26
HLA-A*03:01	1	714	723	10	NFTISVTTEI	5.3e-05	36
HLA-A*26:01	1	717	726	10	ISVTTEILPV	5.3e-05	37
HLA-B*44:02	1	745	754	10	ECSNLLLQYG	5.3e-05	30
HLA-B*44:03	1	751	759	9	LQYGSFCTQ	5.3e-05	28

HLA-B*35:01	1	755	763	9	SFCTQLNRA	5.3e-05	30
HLA-A*03:01	1	758	766	9	TQLNRALTG	5.3e-05	36
HLA-B*57:01	1	760	768	9	LNRLTGVIA	5.3e-05	58
HLA-B*57:01	1	771	780	10	QDKNTQEVFA	5.3e-05	58
HLA-B*53:01	1	775	783	9	TQEVFAQVK	5.3e-05	29
HLA-A*68:02	1	787	796	10	KTPPIKDFGG	5.3e-05	44
HLA-B*44:03	1	818	826	9	LLFNKVTLA	5.3e-05	28
HLA-A*02:01	1	820	828	9	FNKVTLADA	5.3e-05	42
HLA-A*02:01	1	835	844	10	GDCLGDIAAR	5.3e-05	42
HLA-B*35:01	1	839	847	9	GDIAARDLI	5.3e-05	30
HLA-A*31:01	1	841	849	9	IAARDLICA	5.3e-05	43
HLA-A*02:06	1	847	856	10	ICAQKFNGLT	5.3e-05	52
HLA-A*68:01	1	848	857	10	CAQKFNGLTV	5.3e-05	38
HLA-B*53:01	1	874	882	9	LLAGTITSG	5.3e-05	29
HLA-B*51:01	1	878	887	10	TITSGWTFGA	5.3e-05	51
HLA-A*11:01	1	885	893	9	FGAGAALQI	5.3e-05	27
HLA-A*33:01	1	887	896	10	AGAALQIPFA	5.3e-05	45
HLA-B*44:03	1	888	897	10	GAAALQIPFAM	5.3e-05	28
HLA-A*26:01	1	889	898	10	AALQIPFAMQ	5.3e-05	37
HLA-A*30:01	1	895	904	10	FAMQMAYRFN	5.3e-05	69
HLA-A*32:01	1	896	905	10	AMQMAYRFNG	5.3e-05	32
HLA-A*33:01	1	902	911	10	RFNGIGVTQN	5.3e-05	45
HLA-A*30:02	1	925	933	9	NSAIGKIQD	5.3e-05	66
HLA-A*68:02	1	932	940	9	QDLSSTAS	5.3e-05	44
HLA-B*40:01	1	932	940	9	QDLSSTAS	5.3e-05	25
HLA-B*40:01	1	932	941	10	QDLSSTASA	5.3e-05	25
HLA-A*68:02	1	935	944	10	LSSTASALGK	5.3e-05	44
HLA-A*02:01	1	937	946	10	STASALGKLQ	5.3e-05	42
HLA-A*01:01	1	943	952	10	GKLQDVVNQN	5.3e-05	61
HLA-A*31:01	1	946	955	10	QDVVNQNAQA	5.3e-05	43
HLA-A*68:01	1	962	970	9	QLSSNFGAI	5.3e-05	38
HLA-A*68:02	1	970	979	10	ISSVLNDILS	5.3e-05	44
HLA-A*68:01	1	980	989	10	RLDKVEAEVQ	5.3e-05	38
HLA-A*02:03	1	986	995	10	AEVQIDRLIT	5.3e-05	45
HLA-B*44:03	1	1008	1016	9	QLIRAAEIR	5.3e-05	28
HLA-B*08:01	1	1009	1018	10	LIRAAEIRAS	5.3e-05	58
HLA-B*44:03	1	1009	1017	9	LIRAAEIRA	5.3e-05	28
HLA-B*53:01	1	1021	1030	10	LAATKMSECV	5.3e-05	29
HLA-B*40:01	1	1031	1039	9	LGQSKRVDF	5.3e-05	25
HLA-B*07:02	1	1047	1056	10	MSFPQSAPHG	5.3e-05	40
HLA-A*24:02	1	1078	1087	10	ICHDGKAHFP	5.3e-05	26
HLA-A*31:01	1	1082	1091	10	GKAHFPREGV	5.3e-05	43
HLA-B*44:03	1	1130	1138	9	VNNTVYDPL	5.3e-05	28
HLA-A*33:01	1	1131	1139	9	NNTVYDPLQ	5.3e-05	45
HLA-A*02:03	1	1150	1158	9	DKYFKNHTS	5.3e-05	45
HLA-A*68:01	1	1163	1171	9	LGDISGINA	5.3e-05	38
HLA-B*35:01	1	1171	1179	9	ASVVNIQKE	5.3e-05	30
HLA-A*02:03	1	1173	1182	10	VVNIQKEIDR	5.3e-05	45
HLA-A*01:01	1	1176	1185	10	IQKEIDRLNE	5.3e-05	61
HLA-A*03:01	1	1176	1184	9	IQKEIDRLN	5.3e-05	36
HLA-A*24:02	1	1177	1186	10	QKEIDRLNEV	5.3e-05	26
HLA-A*33:01	1	1184	1193	10	NEVAKNLNES	5.3e-05	45
HLA-A*68:02	1	1200	1209	10	LGKYEQYIKW	5.3e-05	44
HLA-B*40:01	1	1201	1210	10	GKYEQYIKWP	5.3e-05	25
HLA-B*53:01	1	1201	1210	10	GKYEQYIKWP	5.3e-05	29
HLA-B*53:01	1	1214	1222	9	WLGFIAGLI	5.3e-05	29
HLA-B*08:01	1	1224	1233	10	IVMVTIMLCC	5.3e-05	58
HLA-A*01:01	1	1225	1234	10	VMVTIMLCCM	5.3e-05	61
HLA-A*03:01	1	1225	1234	10	VMVTIMLCCM	5.3e-05	36
HLA-A*33:01	1	1228	1236	9	TIMLCCMTS	5.3e-05	45
HLA-B*51:01	1	1229	1237	9	IMLCCMTSC	5.3e-05	51
HLA-A*33:01	1	1244	1252	9	CCSCGSCCK	5.3e-05	45
HLA-B*35:01	1	1252	1260	9	KFDEDDSEP	5.3e-05	30
HLA-B*44:02	1	1252	1260	9	KFDEDDSEP	5.3e-05	30
HLA-B*53:01	1	1255	1263	9	EDDSEPVLK	5.3e-05	29
HLA-A*23:01	1	1256	1265	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	FASTEKSNII	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	FGTTLDSTQ	5.2e-05	69
HLA-A*02:01	1	114	122	9	TQSLLIIVN	5.2e-05	42
HLA-A*31:01	1	124	132	9	TNVVIKVC	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	GNFKNREFV	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-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-B*35:01	1	236	244	9	TRFQTLHRS	5.2e-05	31
HLA-B*07:02	1	238	247	10	FQTLHRSYLT	5.2e-05	40
HLA-B*58:01	1	244	253	10	SYLTPGDSSS	5.2e-05	46
HLA-B*51:01	1	245	254	10	YLTPGDSSSS	5.2e-05	52
HLA-A*24:02	1	249	257	9	GDSSSGWTA	5.2e-05	26
HLA-A*02:03	1	260	268	9	AAYYVGYLQ	5.2e-05	45
HLA-B*08:01	1	260	269	10	AAYYVGYLQP	5.2e-05	59
HLA-B*57:01	1	272	280	9	FLLKYNENG	5.2e-05	58
HLA-A*33:01	1	285	293	9	AVDCALDPL	5.2e-05	46
HLA-B*58:01	1	286	295	10	VDCALDPLSE	5.2e-05	46
HLA-B*44:03	1	288	296	9	CALDPLSET	5.2e-05	28
HLA-B*44:03	1	292	300	9	PLSETKCTL	5.2e-05	28
HLA-A*23:01	1	307	316	10	KGIYQTSNFR	5.2e-05	27
HLA-B*51:01	1	313	322	10	SNFRVQPTES	5.2e-05	52
HLA-A*32:01	1	318	327	10	QPTESIVRFP	5.2e-05	32
HLA-B*58:01	1	325	334	10	RFPNITNLCP	5.2e-05	46
HLA-A*11:01	1	340	349	10	NATRFASVYA	5.2e-05	27
HLA-A*68:01	1	357	365	9	NCVADYSVL	5.2e-05	39
HLA-B*40:01	1	357	366	10	NCVADYSVLY	5.2e-05	25
HLA-B*35:01	1	366	375	10	YNSASFSTFK	5.2e-05	31
HLA-B*40:01	1	398	407	10	VIRGDEVQR	5.2e-05	25
HLA-A*23:01	1	399	408	10	IRGDEVQR	5.2e-05	27
HLA-A*68:02	1	402	411	10	DEVQR	5.2e-05	44
HLA-B*07:02	1	404	412	9	VRQIAPGQT	5.2e-05	40
HLA-B*07:02	1	406	414	9	QIAPGQTGN	5.2e-05	40
HLA-B*35:01	1	406	415	10	QIAPGQTGNI	5.2e-05	31
HLA-B*53:01	1	408	417	10	APGQTGNIAD	5.2e-05	30
HLA-A*02:06	1	411	420	10	QTGNIADYNY	5.2e-05	53
HLA-B*07:02	1	415	423	9	IADYNYKLP	5.2e-05	40
HLA-A*02:03	1	424	432	9	DDFTGCVIA	5.2e-05	45
HLA-A*02:06	1	425	433	9	DFTGCVIAW	5.2e-05	53
HLA-B*08:01	1	435	443	9	SNNLDSKVG	5.2e-05	59
HLA-B*44:03	1	446	454	9	YNYLYRFLR	5.2e-05	28
HLA-B*44:03	1	451	460	10	RLFRKSNLKP	5.2e-05	28
HLA-A*03:01	1	489	497	9	LQSYGFQPT	5.2e-05	36
HLA-B*57:01	1	489	497	9	LQSYGFQPT	5.2e-05	58
HLA-B*40:01	1	499	507	9	GVGYPYRV	5.2e-05	25
HLA-A*68:01	1	504	512	9	PYRVVLSF	5.2e-05	39
HLA-A*68:02	1	511	520	10	SFELLHAPAT	5.2e-05	44
HLA-B*08:01	1	514	523	10	LLHAPATVCG	5.2e-05	59

HLA-A*32:01	1	517	526	10	APATVCGPKK	5.2e-05	32
HLA-B*58:01	1	536	544	9	VNFNFNGLT	5.2e-05	46
HLA-A*02:01	1	537	546	10	NFNFNGLTGT	5.2e-05	42
HLA-B*07:02	1	546	554	9	TGVLTESNK	5.2e-05	40
HLA-B*57:01	1	550	558	9	TESNKKFLP	5.2e-05	58
HLA-A*23:01	1	561	570	10	QFGRDIADTT	5.2e-05	27
HLA-A*02:01	1	575	584	10	DPQTLEILDI	5.2e-05	42
HLA-B*15:01	1	577	585	9	QTLEILDIT	5.2e-05	42
HLA-B*40:01	1	578	586	9	TLEILDITP	5.2e-05	25
HLA-A*01:01	1	582	590	9	LDITPCSF	5.2e-05	62
HLA-A*33:01	1	583	591	9	DITPCSF	5.2e-05	46
HLA-B*58:01	1	590	599	10	GGVSVITPGT	5.2e-05	46
HLA-A*32:01	1	592	601	10	VSVITPGTNT	5.2e-05	32
HLA-A*01:01	1	616	624	9	EVPVAIHAD	5.2e-05	62
HLA-A*02:03	1	622	631	10	HADQLTPTWR	5.2e-05	45
HLA-B*40:01	1	623	631	9	ADQLTPTWR	5.2e-05	25
HLA-B*08:01	1	633	641	9	YSTGSNVFQ	5.2e-05	59
HLA-B*57:01	1	637	645	9	SNVFTQTRAG	5.2e-05	58
HLA-A*24:02	1	657	665	9	YECDIPIGA	5.2e-05	26
HLA-B*57:01	1	658	666	9	ECDIPIGAG	5.2e-05	58
HLA-B*07:02	1	671	680	10	YQTQNSPRR	5.2e-05	40
HLA-A*02:03	1	672	680	9	QTQNSPRR	5.2e-05	45
HLA-B*40:01	1	672	681	10	QTQNSPRRA	5.2e-05	25
HLA-A*02:03	1	674	683	10	QNSPRRARS	5.2e-05	45
HLA-B*08:01	1	687	695	9	QSIAYTMS	5.2e-05	59
HLA-B*15:01	1	690	699	10	IAYTMSLGVE	5.2e-05	42
HLA-A*23:01	1	693	702	10	TMSLGVENS	5.2e-05	27
HLA-A*31:01	1	693	701	9	TMSLGVENS	5.2e-05	44
HLA-A*03:01	1	703	712	10	AYSNNSIAIP	5.2e-05	36
HLA-A*02:01	1	711	720	10	IPTNFTISVT	5.2e-05	42
HLA-A*11:01	1	720	729	10	TTEILPVSM	5.2e-05	27
HLA-A*11:01	1	728	736	9	MTKTSVDCT	5.2e-05	27
HLA-A*03:01	1	736	744	9	TMYICGDST	5.2e-05	36
HLA-A*32:01	1	738	746	9	YICGDSTEC	5.2e-05	32
HLA-A*24:02	1	740	749	10	CGDSTEC	5.2e-05	26
HLA-A*24:02	1	741	749	9	GDSTEC	5.2e-05	26
HLA-A*30:01	1	753	761	9	YGSFCTQLN	5.2e-05	69
HLA-A*31:01	1	759	768	10	QLNRALTGIA	5.2e-05	44
HLA-B*40:01	1	763	771	9	ALTGIAVEQ	5.2e-05	25
HLA-A*32:01	1	764	773	10	LTGIAVEQDK	5.2e-05	32
HLA-B*08:01	1	765	773	9	TGIAVEQDK	5.2e-05	59
HLA-A*68:02	1	767	776	10	IAVEQDKNTQ	5.2e-05	44
HLA-B*07:02	1	767	776	10	IAVEQDKNTQ	5.2e-05	40
HLA-B*35:01	1	772	780	9	DKNTQEVFA	5.2e-05	31
HLA-A*33:01	1	787	795	9	KTPPIKDFG	5.2e-05	46
HLA-A*68:02	1	790	799	10	PIKDFGGFNF	5.2e-05	44
HLA-A*02:01	1	836	844	9	DCLGDIAAR	5.2e-05	42
HLA-A*24:02	1	838	847	10	LGDIAARDLI	5.2e-05	26
HLA-B*15:01	1	839	847	9	GDIAARDLI	5.2e-05	42
HLA-A*24:02	1	846	855	10	LICAQKFNG	5.2e-05	26
HLA-B*08:01	1	859	868	10	PPLLTDEMIA	5.2e-05	59
HLA-A*26:01	1	864	872	9	DEMIAQYTS	5.2e-05	37
HLA-A*02:01	1	885	894	10	FGAGAALQIP	5.2e-05	42
HLA-A*24:02	1	888	897	10	GAALQIPFAM	5.2e-05	26
HLA-A*11:01	1	891	900	10	LQIPFAMQMA	5.2e-05	27
HLA-A*68:02	1	894	902	9	PFAMQMAYR	5.2e-05	44
HLA-B*51:01	1	897	905	9	MQMAYRFNG	5.2e-05	52
HLA-B*58:01	1	902	911	10	RFNGIGVTQN	5.2e-05	46
HLA-A*01:01	1	907	916	10	GVTQNVLYEN	5.2e-05	62
HLA-B*08:01	1	913	922	10	LYENQKLIAN	5.2e-05	59
HLA-B*51:01	1	942	951	10	LGKQLQDVVNQ	5.2e-05	52
HLA-A*11:01	1	943	951	9	GKQLQDVVNQ	5.2e-05	27
HLA-A*31:01	1	943	951	9	GKQLQDVVNQ	5.2e-05	44
HLA-B*08:01	1	953	962	10	AQALNTLVKQ	5.2e-05	59
HLA-A*68:01	1	957	966	10	NTLVKQLSSN	5.2e-05	39
HLA-B*53:01	1	957	965	9	NTLVKQLSS	5.2e-05	30

HLA-B*53:01	1	964	972	9	SSNFGAISS	5.2e-05	30
HLA-A*33:01	1	980	989	10	RLDKVEAEVQ	5.2e-05	46
HLA-A*26:01	1	994	1002	9	ITGRLQSLQ	5.2e-05	37
HLA-A*03:01	1	1010	1019	10	IRAAEIRASA	5.2e-05	36
HLA-B*40:01	1	1010	1019	10	IRAAEIRASA	5.2e-05	25
HLA-B*58:01	1	1014	1022	9	EIRASANLA	5.2e-05	46
HLA-A*68:01	1	1021	1030	10	LAATKMSECV	5.2e-05	39
HLA-A*68:02	1	1023	1032	10	ATKMSECVLG	5.2e-05	44
HLA-A*68:01	1	1041	1049	9	GKGYHLMSF	5.2e-05	39
HLA-B*08:01	1	1041	1050	10	GKGYHLMSFP	5.2e-05	59
HLA-A*02:01	1	1047	1056	10	MSFPQSAPHG	5.2e-05	42
HLA-A*33:01	1	1050	1059	10	PQSAPHGVVF	5.2e-05	46
HLA-B*57:01	1	1050	1058	9	PQSAPHGVV	5.2e-05	58
HLA-A*68:01	1	1065	1073	9	VPAQEKNT	5.2e-05	39
HLA-A*26:01	1	1067	1076	10	AQEKNTTAP	5.2e-05	37
HLA-A*02:01	1	1070	1079	10	KNFTTAPAIC	5.2e-05	42
HLA-B*53:01	1	1071	1080	10	NFTTAPAICH	5.2e-05	30
HLA-B*57:01	1	1081	1089	9	DGKAHFPRE	5.2e-05	58
HLA-B*58:01	1	1097	1105	9	THWVFTQRN	5.2e-05	46
HLA-A*02:01	1	1099	1107	9	WVFTQRNFY	5.2e-05	42
HLA-B*57:01	1	1124	1132	9	DVVGIVNN	5.2e-05	58
HLA-B*53:01	1	1138	1146	9	LQPELDSFK	5.2e-05	30
HLA-B*51:01	1	1162	1170	9	DLGDISGIN	5.2e-05	52
HLA-A*02:03	1	1179	1188	10	EIDRLNEVAK	5.2e-05	45
HLA-B*44:02	1	1195	1204	10	IDLQELGKYE	5.2e-05	30
HLA-B*44:02	1	1196	1204	9	DLQELGKYE	5.2e-05	30
HLA-B*57:01	1	1197	1205	9	LQELGKYEQ	5.2e-05	58
HLA-A*02:06	1	1201	1210	10	GKYEQYIKWP	5.2e-05	53
HLA-B*35:01	1	1204	1213	10	EQYIKWPWYI	5.2e-05	31
HLA-B*58:01	1	1213	1222	10	IWLGFIAGLI	5.2e-05	46
HLA-A*02:03	1	1227	1236	10	VTIMLCCMTS	5.2e-05	45
HLA-A*30:01	1	1235	1244	10	TSCCCLKGC	5.2e-05	69
HLA-A*01:01	1	1244	1252	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	NLTTTRTQLPP	5.1e-05	67
HLA-B*08:01	1	18	26	9	LTTTRTQLPP	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	TQDLFLPFPS	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*51:01	1	86	95	10	FNDGVYFAST	5.1e-05	52
HLA-A*02:06	1	88	96	9	DGVYFAST	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	IFGTTLDSK	5.1e-05	45
HLA-B*51:01	1	105	113	9	IFGTTLDSK	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	TNVVIKVFCE	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	DPFLGVVYHK	5.1e-05	46
HLA-A*03:01	1	147	156	10	KNNKSWMESE	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*58:01	1	211	219	9	NLVRGLPQG	5.1e-05	46
HLA-B*53:01	1	212	221	10	LVRGLPQGF	5.1e-05	30
HLA-B*44:03	1	232	241	10	GINITRFQTL	5.1e-05	28
HLA-B*35:01	1	260	269	10	AAYYVGYLQP	5.1e-05	31
HLA-A*68:01	1	261	269	9	AAYYVGYLQP	5.1e-05	39
HLA-A*02:03	1	268	276	9	QPRTFLLKY	5.1e-05	45
HLA-B*15:01	1	274	283	10	LKYNGTIT	5.1e-05	43
HLA-B*58:01	1	285	294	10	AVDCALDPLS	5.1e-05	46
HLA-A*30:01	1	291	299	9	DPLSETKCT	5.1e-05	69
HLA-A*68:02	1	293	301	9	LSETKCTLK	5.1e-05	45
HLA-A*31:01	1	306	315	10	EKGIYQTSNF	5.1e-05	44
HLA-A*24:02	1	310	318	9	YQTSNFRVQ	5.1e-05	26
HLA-A*23:01	1	314	322	9	NFRVQPTES	5.1e-05	27
HLA-A*11:01	1	330	339	10	TNLCPFGEVF	5.1e-05	27
HLA-A*68:01	1	330	338	9	TNLCPFGEV	5.1e-05	39
HLA-A*02:06	1	338	346	9	VFNATRFAS	5.1e-05	53
HLA-B*08:01	1	343	352	10	RFASVYAWNR	5.1e-05	59
HLA-A*32:01	1	344	353	10	FASVYAWNRK	5.1e-05	33
HLA-B*44:02	1	348	356	9	YAWNRKRIS	5.1e-05	30
HLA-B*51:01	1	351	360	10	NRKRISNCVA	5.1e-05	52
HLA-A*03:01	1	359	367	9	VADYSVLYN	5.1e-05	37
HLA-B*44:03	1	366	375	10	YNSASFSTFK	5.1e-05	28
HLA-A*02:01	1	368	377	10	SASFSTFKCY	5.1e-05	42
HLA-A*02:06	1	371	380	10	FSTFKCYGVS	5.1e-05	53
HLA-A*02:06	1	373	381	9	TFKCYGVSP	5.1e-05	53
HLA-B*51:01	1	374	382	9	FKCYGVSP	5.1e-05	52
HLA-A*02:01	1	379	388	10	VSPTKLNLC	5.1e-05	42
HLA-B*15:01	1	389	398	10	FTNVYADSFV	5.1e-05	43
HLA-B*40:01	1	402	411	10	DEVQRQIAPGQ	5.1e-05	25
HLA-B*40:01	1	406	415	10	QIAPGQTGNI	5.1e-05	25
HLA-A*11:01	1	408	416	9	APGQTGNIA	5.1e-05	27
HLA-A*23:01	1	420	429	10	YKLPDDFTGC	5.1e-05	27
HLA-A*23:01	1	422	430	9	LPDDFTGCV	5.1e-05	27
HLA-A*01:01	1	432	440	9	AWNSNNLDS	5.1e-05	62
HLA-A*23:01	1	439	448	10	DSKVGGNYNY	5.1e-05	27
HLA-A*68:02	1	443	451	9	GGNYNYLYR	5.1e-05	45
HLA-A*26:01	1	460	469	10	PFERDISTEI	5.1e-05	37
HLA-A*02:03	1	483	491	9	FNCYFPLQS	5.1e-05	45
HLA-B*57:01	1	483	491	9	FNCYFPLQS	5.1e-05	58
HLA-A*30:02	1	487	496	10	FPLQSYGFQP	5.1e-05	67
HLA-A*68:02	1	487	495	9	FPLQSYGFQ	5.1e-05	45
HLA-B*57:01	1	495	503	9	QPTYGVGYQ	5.1e-05	58
HLA-A*32:01	1	502	511	10	YQPYRVVVL	5.1e-05	33
HLA-B*58:01	1	517	525	9	APATVCGPK	5.1e-05	46
HLA-B*15:01	1	519	527	9	ATVCGPKKS	5.1e-05	43
HLA-B*58:01	1	532	541	10	KNKCVNFNFN	5.1e-05	46
HLA-A*26:01	1	540	549	10	FNGLTGTGVL	5.1e-05	37
HLA-A*02:01	1	559	568	10	FQQFGRDIAD	5.1e-05	42
HLA-A*26:01	1	559	567	9	FQQFGRDIA	5.1e-05	37
HLA-B*58:01	1	560	568	9	QQFGRDIAD	5.1e-05	46
HLA-A*02:03	1	566	574	9	IADTTDAVR	5.1e-05	45
HLA-A*31:01	1	584	592	9	ITPCSFGGV	5.1e-05	44
HLA-B*35:01	1	584	593	10	ITPCSFGGVS	5.1e-05	31
HLA-B*44:03	1	601	610	10	TSNQVAVLYQ	5.1e-05	28
HLA-A*31:01	1	603	611	9	NQVAVLYQG	5.1e-05	44
HLA-B*08:01	1	611	620	10	GVNCTEVPVA	5.1e-05	59
HLA-A*03:01	1	613	621	9	NCTEVPVAI	5.1e-05	37
HLA-A*31:01	1	616	625	10	EVPVAIHADQ	5.1e-05	44
HLA-A*31:01	1	617	626	10	VPVAIHADQL	5.1e-05	44
HLA-A*11:01	1	625	634	10	QLTPTWRVYS	5.1e-05	27
HLA-A*24:02	1	626	634	9	LTPTWRVYS	5.1e-05	26
HLA-A*03:01	1	629	637	9	TWRVYSTGS	5.1e-05	37
HLA-A*30:02	1	645	654	10	GCLIGAEHVN	5.1e-05	67



HLA-B*57:01	1	647	655	9	LIGAEHVNN	5.1e-05	58
HLA-A*01:01	1	650	658	9	AEHVNNSEY	5.1e-05	62
HLA-B*51:01	1	663	672	10	IGAGICASYQ	5.1e-05	52
HLA-A*32:01	1	665	674	10	AGICASYQTQ	5.1e-05	33
HLA-A*24:02	1	671	679	9	YQTQTNspr	5.1e-05	26
HLA-B*51:01	1	673	682	10	TQTNSPRRAR	5.1e-05	52
HLA-B*44:02	1	680	688	9	RARSVASQS	5.1e-05	30
HLA-A*32:01	1	692	701	10	YTMSLGVENS	5.1e-05	33
HLA-B*44:02	1	701	710	10	SVAYSNNSIA	5.1e-05	30
HLA-B*44:03	1	702	711	10	VAYSNNSIAI	5.1e-05	28
HLA-B*15:01	1	722	731	10	EILPVSMTKT	5.1e-05	43
HLA-B*44:03	1	724	732	9	LPVSMTKTS	5.1e-05	28
HLA-A*24:02	1	741	750	10	GDSTECSNLL	5.1e-05	26
HLA-B*53:01	1	751	759	9	LQYGSFCTQ	5.1e-05	30
HLA-B*51:01	1	763	771	9	ALTGIAVEQ	5.1e-05	52
HLA-B*58:01	1	769	777	9	VEQDKNTQE	5.1e-05	46
HLA-A*11:01	1	770	779	10	EQDKNTQEVF	5.1e-05	27
HLA-A*33:01	1	780	789	10	AQVKQIYKTP	5.1e-05	46
HLA-B*51:01	1	801	810	10	QILPDPSPKPS	5.1e-05	52
HLA-B*44:02	1	804	812	9	PDPSPKPSKR	5.1e-05	30
HLA-B*51:01	1	804	813	10	PDPSPKPSKRS	5.1e-05	52
HLA-A*01:01	1	805	813	9	DPSKPSKRS	5.1e-05	62
HLA-A*26:01	1	812	821	10	RSFIEDLLFN	5.1e-05	37
HLA-B*53:01	1	813	822	10	SFIEDLLFNK	5.1e-05	30
HLA-A*23:01	1	819	828	10	LFNKVTLADA	5.1e-05	27
HLA-B*07:02	1	822	831	10	KVTLADAGFI	5.1e-05	40
HLA-B*57:01	1	839	848	10	GDIAARDLIC	5.1e-05	58
HLA-A*01:01	1	851	860	10	KFNGLTVLPP	5.1e-05	62
HLA-B*40:01	1	866	875	10	MIAQYTSALL	5.1e-05	25
HLA-A*11:01	1	872	881	10	SALLAGTITS	5.1e-05	27
HLA-A*03:01	1	880	889	10	TSGWTFGAGA	5.1e-05	37
HLA-B*53:01	1	881	889	9	SGWTFGAGA	5.1e-05	30
HLA-A*02:01	1	886	894	9	GAGAALQIP	5.1e-05	42
HLA-A*02:06	1	893	902	10	IPFAMQMAYR	5.1e-05	53
HLA-B*07:02	1	899	907	9	MAYRFNGIG	5.1e-05	40
HLA-B*58:01	1	927	936	10	ATGKIQDSLS	5.1e-05	46
HLA-B*44:02	1	943	951	9	GKLQDVVNQ	5.1e-05	30
HLA-B*57:01	1	945	954	10	LQDVVNQNAQ	5.1e-05	58
HLA-A*03:01	1	947	955	9	DVVNQNQAQA	5.1e-05	37
HLA-A*23:01	1	951	960	10	QNAQALNTLV	5.1e-05	27
HLA-A*11:01	1	968	977	10	GAISSVLNDI	5.1e-05	27
HLA-B*40:01	1	978	986	9	LSRLDKVEA	5.1e-05	25
HLA-B*15:01	1	981	989	9	LDKVEAEVQ	5.1e-05	43
HLA-A*02:03	1	984	992	9	VEAEVQIDR	5.1e-05	45
HLA-A*03:01	1	994	1003	10	ITGRLQSLQT	5.1e-05	37
HLA-B*08:01	1	998	1007	10	LQSLQTYVTQ	5.1e-05	59
HLA-A*32:01	1	999	1008	10	QSLQTYVTQQ	5.1e-05	33
HLA-B*57:01	1	1006	1014	9	TQQLIRAAE	5.1e-05	58
HLA-A*11:01	1	1009	1017	9	LIRAAEIRA	5.1e-05	27
HLA-A*32:01	1	1011	1020	10	RAAEIRASAN	5.1e-05	33
HLA-A*33:01	1	1022	1030	9	AATKMSECV	5.1e-05	46
HLA-A*33:01	1	1024	1033	10	TKMSECVLQ	5.1e-05	46
HLA-A*01:01	1	1040	1048	9	CGKGYHLMS	5.1e-05	62
HLA-B*40:01	1	1044	1052	9	YHLMSFPQS	5.1e-05	25
HLA-B*53:01	1	1044	1052	9	YHLMSFPQS	5.1e-05	30
HLA-B*35:01	1	1045	1054	10	HLMSPQSAP	5.1e-05	31
HLA-A*26:01	1	1046	1054	9	LMSFPQSAP	5.1e-05	37
HLA-A*23:01	1	1047	1055	9	MSFPQSAPH	5.1e-05	27
HLA-A*01:01	1	1071	1079	9	NFTTAPAIC	5.1e-05	62
HLA-A*02:06	1	1073	1082	10	TTAPAICHDG	5.1e-05	53
HLA-A*01:01	1	1081	1089	9	DGKAHFPRE	5.1e-05	62
HLA-B*58:01	1	1089	1097	9	EGVFSVNGT	5.1e-05	46
HLA-A*11:01	1	1093	1102	10	VSNQTHWFVT	5.1e-05	27
HLA-A*11:01	1	1095	1103	9	NGTHWFVTQ	5.1e-05	27
HLA-B*07:02	1	1098	1107	10	HWFVTQRNFY	5.1e-05	40
HLA-B*44:03	1	1104	1113	10	RNFYEQIIT	5.1e-05	28

HLA-B*15:01	1	1105	1114	10	NFYEPQIITT 5.1e-05	43
HLA-A*02:01	1	1109	1118	10	PQIITTDNTF 5.1e-05	42
HLA-A*24:02	1	1111	1119	9	IITTDNTFV 5.1e-05	26
HLA-A*30:01	1	1114	1122	9	TDNTFVSGN 5.1e-05	69
HLA-A*26:01	1	1131	1140	10	NNTVYDPLQP 5.1e-05	37
HLA-A*26:01	1	1137	1146	10	PLQPELDSFK 5.1e-05	37
HLA-A*11:01	1	1144	1153	10	SFKEELDKYF 5.1e-05	27
HLA-A*30:01	1	1146	1155	10	KEELDKYFKN 5.1e-05	69
HLA-A*26:01	1	1150	1159	10	DKYFKNHTSP 5.1e-05	37
HLA-B*44:02	1	1163	1171	9	LGDISGINA 5.1e-05	30
HLA-A*33:01	1	1171	1179	9	ASVVNIQKE 5.1e-05	46
HLA-B*58:01	1	1176	1185	10	IQKEIDRLNE 5.1e-05	46
HLA-A*30:01	1	1184	1192	9	NEVAKNLNE 5.1e-05	69
HLA-A*30:02	1	1192	1201	10	ESLIDLQELG 5.1e-05	67
HLA-A*11:01	1	1197	1205	9	LQELGKYEQ 5.1e-05	27
HLA-B*58:01	1	1199	1208	10	ELGKYEQYIK 5.1e-05	46
HLA-A*02:01	1	1208	1216	9	KWPWYIWLG 5.1e-05	42
HLA-B*58:01	1	1208	1216	9	KWPWYIWLG 5.1e-05	46
HLA-B*08:01	1	1214	1223	10	WLGFIAGLIA 5.1e-05	59
HLA-B*44:03	1	1218	1226	9	IAGLIAIVM 5.1e-05	28
HLA-A*31:01	1	1221	1230	10	LIAIVMVTIM 5.1e-05	44
HLA-A*01:01	1	1222	1231	10	IAIVMVTIML 5.1e-05	62
HLA-A*33:01	1	1225	1233	9	VMVTIMLCC 5.1e-05	46
HLA-B*08:01	1	1232	1240	9	CCMTSCCSC 5.1e-05	59
HLA-A*68:02	1	1235	1244	10	TSCCSCCLGC 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	PFFSNVTF 5e-05	25
HLA-B*58:01	1	57	66	10	PFFSNVTFH 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*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	SLLIVNNATN 5e-05	67
HLA-A*30:02	1	122	131	10	NATNVVIKVC 5e-05	67
HLA-A*23:01	1	136	145	10	CNDPFLGVYY 5e-05	27
HLA-A*23:01	1	139	148	10	PFLGVYYHKN 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-B*08:01	1	210	219	10	INLVRGLPQG 5e-05	59
HLA-A*01:01	1	211	219	9	NLVRGLPQG 5e-05	62
HLA-A*31:01	1	222	231	10	ALEPLVDLPI 5e-05	44
HLA-B*35:01	1	261	269	9	AYYVGYLQP 5e-05	31
HLA-A*68:02	1	272	280	9	FLLKYNENG 5e-05	45
HLA-A*02:01	1	274	282	9	LKYNENGTI 5e-05	42
HLA-A*02:01	1	276	285	10	YNENGTITDA 5e-05	42
HLA-B*35:01	1	276	285	10	YNENGTITDA 5e-05	31
HLA-A*31:01	1	281	290	10	TITDAVDCAL 5e-05	44
HLA-A*11:01	1	287	295	9	DCALDPLSE 5e-05	27
HLA-B*58:01	1	287	296	10	DCALDPLSET 5e-05	47
HLA-A*32:01	1	288	296	9	CALDPLSET 5e-05	33
HLA-A*01:01	1	290	299	10	LDPLSETKCT 5e-05	62
HLA-A*68:02	1	291	299	9	DPLSETKCT 5e-05	45
HLA-A*11:01	1	294	302	9	SETKCTLKS 5e-05	27
HLA-A*02:03	1	295	304	10	ETKCTLKSFT 5e-05	45
HLA-B*57:01	1	328	337	10	NITNLCPFGE 5e-05	59
HLA-A*31:01	1	330	338	9	TNLCPFGEV 5e-05	44

HLA-A*33:01	1	347	356	10	VYAWNRRKRIS 5e-05	46
HLA-A*11:01	1	362	371	10	YSVLYNSASF 5e-05	27
HLA-A*02:03	1	368	377	10	SASFSTFKCY 5e-05	45
HLA-A*02:01	1	378	386	9	GVSPTKLNLD 5e-05	42
HLA-A*11:01	1	386	394	9	DLCFTNVYA 5e-05	27
HLA-B*57:01	1	395	403	9	DSFVIRGDE 5e-05	59
HLA-A*26:01	1	398	406	9	VIRGDEVQR 5e-05	37
HLA-A*01:01	1	415	424	10	IADYNYKLDP 5e-05	62
HLA-A*02:03	1	418	427	10	YNYKLPDDFT 5e-05	45
HLA-A*23:01	1	429	438	10	CVIAWNSNLD 5e-05	27
HLA-B*08:01	1	437	445	9	NLDSKVGGN 5e-05	59
HLA-B*07:02	1	448	456	9	YLYRLEFRKS 5e-05	41
HLA-A*02:06	1	452	461	10	LFRKSNLKP 5e-05	53
HLA-A*03:01	1	462	471	10	ERDISTEIQ 5e-05	37
HLA-A*26:01	1	466	474	9	STEIQAGS 5e-05	37
HLA-A*31:01	1	468	477	10	EIQAGSTPC 5e-05	44
HLA-A*02:06	1	481	490	10	KGFNCYFPLQ 5e-05	53
HLA-B*07:02	1	490	499	10	QSYGFQPTYG 5e-05	41
HLA-A*68:02	1	497	505	9	TYGVGYQPY 5e-05	45
HLA-A*24:02	1	515	523	9	LHAPATVCG 5e-05	26
HLA-A*33:01	1	516	524	9	HAPATVCGP 5e-05	46
HLA-B*40:01	1	520	528	9	TVCGPKKST 5e-05	25
HLA-A*31:01	1	521	530	10	VCGPKKSTNL 5e-05	44
HLA-A*68:02	1	539	547	9	NFNGLTGTG 5e-05	45
HLA-B*35:01	1	540	549	10	FNGLTGTGVL 5e-05	31
HLA-A*31:01	1	544	552	9	TGTGVLTES 5e-05	44
HLA-A*24:02	1	547	555	9	GVLTESNKK 5e-05	26
HLA-B*35:01	1	550	558	9	TESNKKFLP 5e-05	31
HLA-B*07:02	1	556	565	10	FLPFQQFGRD 5e-05	41
HLA-A*11:01	1	566	575	10	IADTTDAVRD 5e-05	27
HLA-A*02:03	1	576	584	9	PQTEILDI 5e-05	45
HLA-A*01:01	1	585	593	9	TPCSFGGVS 5e-05	62
HLA-A*68:01	1	588	596	9	SFGGVSVIT 5e-05	39
HLA-B*15:01	1	592	600	9	VSVITPGTN 5e-05	43
HLA-B*44:02	1	596	604	9	TPGTNTSNQ 5e-05	30
HLA-B*44:02	1	598	607	10	GTNTSNQVAV 5e-05	30
HLA-B*40:01	1	600	609	10	NTSNQVAVLY 5e-05	25
HLA-A*02:06	1	613	622	10	NCTEVPVAIH 5e-05	53
HLA-A*30:01	1	618	627	10	PVAIHADQLT 5e-05	69
HLA-B*40:01	1	622	631	10	HADQLTPTWR 5e-05	25
HLA-B*44:03	1	634	642	9	STGSNVFQT 5e-05	29
HLA-B*40:01	1	642	650	9	TRAGCLIGA 5e-05	25
HLA-A*11:01	1	648	656	9	IGAHEVNNNS 5e-05	27
HLA-A*11:01	1	663	672	10	IGAGICASYQ 5e-05	27
HLA-A*26:01	1	666	674	9	GICASYQTQ 5e-05	37
HLA-B*53:01	1	667	675	9	ICASYQTQT 5e-05	30
HLA-B*44:03	1	669	678	10	ASYQTQTNSP 5e-05	29
HLA-A*11:01	1	673	681	9	TQTNSPRRA 5e-05	27
HLA-A*33:01	1	677	686	10	SPRRARSVAS 5e-05	46
HLA-A*68:01	1	679	688	10	RRARSVASQS 5e-05	39
HLA-B*35:01	1	685	693	9	ASQSIIAYT 5e-05	31
HLA-A*24:02	1	693	702	10	TMSLGVNSV 5e-05	26
HLA-B*35:01	1	693	701	9	TMSLGVNS 5e-05	31
HLA-B*35:01	1	717	725	9	ISVTTEILP 5e-05	31
HLA-B*07:02	1	718	727	10	SVTTEILPVS 5e-05	41
HLA-A*31:01	1	726	735	10	VSMTKTSVDC 5e-05	44
HLA-A*31:01	1	727	735	9	SMTKTSVDC 5e-05	44
HLA-A*02:01	1	735	744	10	CTMYICGDST 5e-05	42
HLA-A*68:02	1	737	745	9	MYICGDSTE 5e-05	45
HLA-A*30:02	1	738	747	10	YICGDSTEC 5e-05	67
HLA-A*26:01	1	741	750	10	GDSTECSNLL 5e-05	37
HLA-B*08:01	1	750	759	10	LLQYGSFCTQ 5e-05	59
HLA-B*07:02	1	758	766	9	TQLNRALTG 5e-05	41
HLA-B*40:01	1	760	769	10	LNRLTGIADV 5e-05	25
HLA-B*15:01	1	771	780	10	QDKNTQEVFA 5e-05	43
HLA-A*03:01	1	781	790	10	QVKQIYKTPP 5e-05	37

HLA-A*32:01	1	806	815	10	PSKPSKRSFI	5e-05	33
HLA-A*03:01	1	807	815	9	SKPSKRSFI	5e-05	37
HLA-A*30:02	1	807	816	10	SKPSKRSFIE	5e-05	67
HLA-A*31:01	1	819	827	9	LFNKVTLAD	5e-05	44
HLA-B*15:01	1	820	828	9	FNKVTLADA	5e-05	43
HLA-B*07:02	1	837	846	10	CLGDIAARDL	5e-05	41
HLA-B*07:02	1	838	847	10	LGDIAARDLI	5e-05	41
HLA-A*01:01	1	839	848	10	GDIAARDLIC	5e-05	62
HLA-B*58:01	1	840	848	9	DIAARDLIC	5e-05	47
HLA-A*33:01	1	848	856	9	CAQKFNGLT	5e-05	46
HLA-A*01:01	1	852	861	10	FNGLTVLPPL	5e-05	62
HLA-A*32:01	1	861	869	9	LLTDEMIAQ	5e-05	33
HLA-A*11:01	1	871	879	9	TSALLAGTI	5e-05	27
HLA-B*07:02	1	878	887	10	TITSGWTFGA	5e-05	41
HLA-B*08:01	1	884	892	9	TFGAGAALQ	5e-05	59
HLA-B*53:01	1	892	900	9	QIPFAMQMA	5e-05	30
HLA-A*03:01	1	897	906	10	MQMAYRFNGI	5e-05	37
HLA-A*24:02	1	901	909	9	YRFNGIGVT	5e-05	26
HLA-B*07:02	1	927	936	10	AIGKIQDSLS	5e-05	41
HLA-A*23:01	1	930	939	10	KIQDLSSTA	5e-05	27
HLA-B*15:01	1	935	943	9	LSSTASALG	5e-05	43
HLA-A*68:02	1	939	947	9	ASALGKLQD	5e-05	45
HLA-A*02:06	1	942	951	10	LGKLDVVNQ	5e-05	53
HLA-B*58:01	1	943	951	9	GKLDVVNQ	5e-05	47
HLA-A*26:01	1	945	953	9	LQDVVNQNA	5e-05	37
HLA-A*68:01	1	945	953	9	LQDVVNQNA	5e-05	39
HLA-A*68:01	1	956	964	9	LNTLVKQLS	5e-05	39
HLA-B*07:02	1	963	971	9	LSSNFGAIS	5e-05	41
HLA-A*02:06	1	970	979	10	ISSVLNDILS	5e-05	53
HLA-A*32:01	1	977	986	10	ILSRLDKVEA	5e-05	33
HLA-B*08:01	1	980	989	10	RLDKVEAEVQ	5e-05	59
HLA-A*30:01	1	985	994	10	EAEVQIDRLI	5e-05	69
HLA-B*58:01	1	1006	1015	10	TQQLIRAAEI	5e-05	47
HLA-A*02:03	1	1010	1018	9	IRAAEIRAS	5e-05	45
HLA-A*11:01	1	1021	1029	9	LAATKMSEC	5e-05	27
HLA-A*26:01	1	1022	1031	10	AATKMSECVL	5e-05	37
HLA-B*53:01	1	1046	1054	9	LMSFPQSAP	5e-05	30
HLA-B*58:01	1	1048	1056	9	SFPQSAPHG	5e-05	47
HLA-A*11:01	1	1053	1062	10	APHGVVFLHV	5e-05	27
HLA-A*02:01	1	1055	1064	10	HGVVFLHVTY	5e-05	42
HLA-B*51:01	1	1067	1076	10	AQEKNFHTAP	5e-05	52
HLA-B*08:01	1	1070	1079	10	KNFTTAPAIC	5e-05	59
HLA-A*68:02	1	1107	1115	9	YEPQIITTD	5e-05	45
HLA-B*44:02	1	1125	1134	10	VVIGIVNNTV	5e-05	30
HLA-B*58:01	1	1137	1146	10	PLQPELDSFK	5e-05	47
HLA-B*15:01	1	1142	1151	10	LDSFKEELDK	5e-05	43
HLA-B*15:01	1	1145	1154	10	FKEELDKYFK	5e-05	43
HLA-A*24:02	1	1152	1160	9	YFKNHTSPD	5e-05	26
HLA-B*07:02	1	1152	1160	9	YFKNHTSPD	5e-05	41
HLA-A*31:01	1	1156	1164	9	HTSPDVDLG	5e-05	44
HLA-A*03:01	1	1161	1169	9	VDLGDISGI	5e-05	37
HLA-A*31:01	1	1163	1171	9	LGDISGINA	5e-05	44
HLA-A*68:01	1	1174	1183	10	VNIQKEIDRL	5e-05	39
HLA-A*11:01	1	1175	1183	9	NIQKEIDRL	5e-05	27
HLA-B*58:01	1	1189	1198	10	NLNESLIDLQ	5e-05	47
HLA-A*32:01	1	1199	1208	10	ELGKYEQYIK	5e-05	33
HLA-A*02:01	1	1203	1212	10	YEQYIKWPWY	5e-05	42
HLA-A*32:01	1	1210	1218	9	PWYIWLGFI	5e-05	33
HLA-A*03:01	1	1219	1228	10	AGLIAIVMVT	5e-05	37
HLA-B*58:01	1	1219	1228	10	AGLIAIVMVT	5e-05	47
HLA-A*03:01	1	1224	1233	10	IVMVTIMLCC	5e-05	37
HLA-B*35:01	1	1252	1261	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	LTRTQLPP	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-B*44:02	1	76	85	10	TKRFANPVL	4.9e-05	31
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	TQSLLIVNNA	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	NVVIKVCEFQ	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	CNDPFLGVYY	4.9e-05	26
HLA-B*58:01	1	142	151	10	GVEYHKNKNS	4.9e-05	47
HLA-A*26:01	1	143	151	9	VYYHKNKNS	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-B*57:01	1	215	224	10	GLPQGFSALE	4.9e-05	59
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-B*15:01	1	234	243	10	NITRFQTLHR	4.9e-05	43
HLA-B*53:01	1	239	247	9	QTLHRSYLT	4.9e-05	30
HLA-B*40:01	1	245	253	9	YLTPGDSSS	4.9e-05	26
HLA-B*40:01	1	252	261	10	SSGWTAGAAA	4.9e-05	26
HLA-B*08:01	1	255	264	10	WTAGAAAYV	4.9e-05	60
HLA-B*51:01	1	257	265	9	AGAAAYVYG	4.9e-05	52
HLA-A*32:01	1	263	271	9	YVGYLQPR	4.9e-05	33
HLA-A*31:01	1	275	284	10	KYNENGTITD	4.9e-05	44
HLA-A*33:01	1	277	286	10	NENGTITDAV	4.9e-05	47
HLA-A*24:02	1	281	290	10	TITDAVDCAL	4.9e-05	27
HLA-B*44:03	1	297	305	9	KCTLKSFTV	4.9e-05	29
HLA-B*53:01	1	303	312	10	FTVEKGIYQT	4.9e-05	30
HLA-A*32:01	1	310	319	10	YQTSNFRVQP	4.9e-05	33
HLA-A*02:03	1	322	331	10	SIVRFPNITN	4.9e-05	46
HLA-B*53:01	1	323	331	9	IVRFPNITN	4.9e-05	30
HLA-B*44:02	1	324	333	10	VRFPNITNLC	4.9e-05	31
HLA-A*11:01	1	338	346	9	VFNATRFAS	4.9e-05	27
HLA-B*51:01	1	338	346	9	VFNATRFAS	4.9e-05	52
HLA-B*44:03	1	344	352	9	FASVYAWNR	4.9e-05	29
HLA-B*35:01	1	351	359	9	NRKRISNCV	4.9e-05	31
HLA-B*15:01	1	356	364	9	SNCVADYSV	4.9e-05	43
HLA-B*15:01	1	360	368	9	ADYSVLVNS	4.9e-05	43
HLA-A*30:02	1	395	403	9	DSFVIRGDE	4.9e-05	68
HLA-A*33:01	1	420	429	10	YKLPDDFTGC	4.9e-05	47
HLA-A*68:01	1	421	430	10	KLPDDFTGCV	4.9e-05	39
HLA-A*33:01	1	425	434	10	DFTGCVIAWN	4.9e-05	47
HLA-B*07:02	1	425	433	9	DFTGCVIAW	4.9e-05	41
HLA-A*68:02	1	427	435	9	TGCVIAWNS	4.9e-05	45
HLA-B*35:01	1	429	438	10	CVIAWNSNNL	4.9e-05	31
HLA-A*68:02	1	438	446	9	LDSKVGGNY	4.9e-05	45
HLA-A*26:01	1	453	462	10	FRKSNLKPFE	4.9e-05	38
HLA-A*02:01	1	458	467	10	LKPFERDIST	4.9e-05	43
HLA-A*02:01	1	459	468	10	KPFERDISTE	4.9e-05	43
HLA-B*15:01	1	474	482	9	STPCNGVKG	4.9e-05	43
HLA-A*01:01	1	482	490	9	GFNCYFPLQ	4.9e-05	63

HLA-B*57:01	1	494	503	10	FQPTYGVGYQ	4.9e-05	59
HLA-B*35:01	1	496	504	9	PTYGVGYQP	4.9e-05	31
HLA-A*23:01	1	509	517	9	VLSFELLHA	4.9e-05	28
HLA-A*24:02	1	528	536	9	TNLVKNKCV	4.9e-05	27
HLA-A*23:01	1	536	545	10	VNFNFNGLTG	4.9e-05	28
HLA-B*15:01	1	576	584	9	PQTLEILDI	4.9e-05	43
HLA-A*68:01	1	585	593	9	TPCSFGGVS	4.9e-05	39
HLA-B*08:01	1	592	601	10	VSVITPGTNT	4.9e-05	60
HLA-A*11:01	1	596	604	9	TPGTNTSNQ	4.9e-05	27
HLA-A*33:01	1	606	615	10	AVLYQGVNCT	4.9e-05	47
HLA-B*07:02	1	607	616	10	VLYQGVNCTE	4.9e-05	41
HLA-B*44:02	1	608	617	10	LYQGVNCTEV	4.9e-05	31
HLA-B*35:01	1	616	624	9	EVPVAIHAD	4.9e-05	31
HLA-B*44:02	1	619	628	10	VAIHADQLTP	4.9e-05	31
HLA-B*40:01	1	621	629	9	IHADQLTPT	4.9e-05	26
HLA-B*58:01	1	623	631	9	ADQLTPTWR	4.9e-05	47
HLA-B*07:02	1	625	634	10	QLTPTWRVYS	4.9e-05	41
HLA-B*35:01	1	625	634	10	QLTPTWRVYS	4.9e-05	31
HLA-B*44:03	1	625	634	10	QLTPTWRVYS	4.9e-05	29
HLA-B*44:03	1	632	641	10	VYSTGSNVFQ	4.9e-05	29
HLA-A*02:03	1	645	654	10	GCLIGAHEVN	4.9e-05	46
HLA-B*44:02	1	645	653	9	GCLIGAHEV	4.9e-05	31
HLA-B*07:02	1	650	658	9	AEHVNSYE	4.9e-05	41
HLA-A*68:01	1	670	678	9	SYQTQTNSP	4.9e-05	39
HLA-A*32:01	1	675	684	10	TNSPRRARSV	4.9e-05	33
HLA-A*68:01	1	686	695	10	SQSIIAYTMS	4.9e-05	39
HLA-B*08:01	1	696	705	10	LGVENSVAYS	4.9e-05	60
HLA-B*58:01	1	697	705	9	GVENSVAYS	4.9e-05	47
HLA-A*68:01	1	724	733	10	LPVSMTKTSV	4.9e-05	39
HLA-A*02:06	1	726	734	9	VSMTKTSVD	4.9e-05	54
HLA-A*02:01	1	729	737	9	TKTSVDCTM	4.9e-05	43
HLA-A*02:03	1	729	737	9	TKTSVDCTM	4.9e-05	46
HLA-A*31:01	1	737	746	10	MYICGDSTEC	4.9e-05	44
HLA-B*44:03	1	747	755	9	SNLLLQYGS	4.9e-05	29
HLA-B*08:01	1	749	758	10	LLLQYGSFCT	4.9e-05	60
HLA-A*31:01	1	752	761	10	QYGSFCTQLN	4.9e-05	44
HLA-B*08:01	1	752	761	10	QYGSFCTQLN	4.9e-05	60
HLA-A*68:02	1	761	770	10	NRALTGIAVE	4.9e-05	45
HLA-B*58:01	1	766	774	9	GIAVEQDKN	4.9e-05	47
HLA-A*33:01	1	771	780	10	QDKNTQEVFA	4.9e-05	47
HLA-A*02:01	1	781	790	10	QVKQIYKTPP	4.9e-05	43
HLA-A*68:01	1	790	799	10	PIKDFGGFNF	4.9e-05	39
HLA-A*24:02	1	792	801	10	KDFGGFNFSQ	4.9e-05	27
HLA-B*07:02	1	792	800	9	KDFGGFNFS	4.9e-05	41
HLA-B*15:01	1	795	804	10	GGFNFSQILP	4.9e-05	43
HLA-A*02:03	1	799	807	9	FSQILPDP	4.9e-05	46
HLA-A*11:01	1	802	810	9	ILPDPSKPS	4.9e-05	27
HLA-B*07:02	1	809	818	10	PSKRSFIEDL	4.9e-05	41
HLA-B*08:01	1	813	821	9	SFIEDLLFN	4.9e-05	60
HLA-A*26:01	1	820	828	9	FNKVTLADA	4.9e-05	38
HLA-A*11:01	1	841	849	9	IAARDLICA	4.9e-05	27
HLA-B*58:01	1	859	867	9	PPLLTDEMI	4.9e-05	47
HLA-A*30:01	1	860	868	9	PLLTDEMIA	4.9e-05	70
HLA-B*15:01	1	864	872	9	DEMIAQYTS	4.9e-05	43
HLA-A*31:01	1	870	879	10	YTSALLAGTI	4.9e-05	44
HLA-B*44:03	1	879	887	9	ITSGWTFGA	4.9e-05	29
HLA-A*23:01	1	893	902	10	IPFAMQMAYR	4.9e-05	28
HLA-A*33:01	1	900	909	10	AYRFNGIGVT	4.9e-05	47
HLA-A*68:01	1	901	909	9	YRFNGIGVT	4.9e-05	39
HLA-A*02:06	1	910	918	9	QNVLYENQK	4.9e-05	54
HLA-A*03:01	1	919	928	10	LIANQFNSAI	4.9e-05	37
HLA-B*08:01	1	923	932	10	QFNSAIGKIQ	4.9e-05	60
HLA-A*33:01	1	925	934	10	NSAIGKIQDS	4.9e-05	47
HLA-A*02:03	1	928	937	10	IGKIQDSLSS	4.9e-05	46
HLA-A*30:01	1	938	947	10	TASALGKLQD	4.9e-05	70
HLA-B*53:01	1	941	949	9	ALGKLQDVV	4.9e-05	30

HLA-A*31:01	1	942	951	10	LGKLQDVVNQ	4.9e-05	44
HLA-A*26:01	1	943	951	9	GKLQDVVNQ	4.9e-05	38
HLA-A*30:01	1	943	952	10	GKLQDVVNQN	4.9e-05	70
HLA-B*44:03	1	952	961	10	NAQALNTLVK	4.9e-05	29
HLA-B*40:01	1	954	962	9	QALNTLVKQ	4.9e-05	26
HLA-A*01:01	1	960	969	10	VKQLSSNFGA	4.9e-05	63
HLA-B*35:01	1	961	969	9	KQLSSNFGA	4.9e-05	31
HLA-B*15:01	1	962	971	10	QLSSNFGAIS	4.9e-05	43
HLA-B*35:01	1	969	977	9	AISSVLNDI	4.9e-05	31
HLA-A*02:03	1	971	979	9	SSVLNDILS	4.9e-05	46
HLA-A*31:01	1	973	982	10	VLNDILSRLD	4.9e-05	44
HLA-A*24:02	1	979	987	9	SRLDKVEAE	4.9e-05	27
HLA-B*51:01	1	994	1002	9	ITGRLQSLQ	4.9e-05	52
HLA-B*51:01	1	1008	1016	9	QLIRAAEIR	4.9e-05	52
HLA-A*33:01	1	1012	1021	10	AAEIRASANL	4.9e-05	47
HLA-B*44:02	1	1014	1023	10	EIRASANLAA	4.9e-05	31
HLA-B*58:01	1	1037	1045	9	VDFCGKGYH	4.9e-05	47
HLA-A*31:01	1	1040	1048	9	CGKGYHLMS	4.9e-05	44
HLA-A*33:01	1	1043	1052	10	GYHLMSFPQS	4.9e-05	47
HLA-A*11:01	1	1050	1059	10	PQSAPHGVVF	4.9e-05	27
HLA-A*02:03	1	1055	1064	10	HGVVFLHVTY	4.9e-05	46
HLA-B*57:01	1	1071	1079	9	NFTTAPAIC	4.9e-05	59
HLA-B*44:03	1	1078	1087	10	ICHDGKAHFP	4.9e-05	29
HLA-B*40:01	1	1099	1107	9	WFVTQRNFY	4.9e-05	26
HLA-B*15:01	1	1100	1108	9	FVTQRNFYE	4.9e-05	43
HLA-A*03:01	1	1102	1111	10	TQRNFYEQI	4.9e-05	37
HLA-A*23:01	1	1118	1127	10	FVSGNCDVVI	4.9e-05	28
HLA-A*01:01	1	1147	1155	9	EELDKYFKN	4.9e-05	63
HLA-A*30:02	1	1149	1158	10	LDKYFKNHTS	4.9e-05	68
HLA-A*03:01	1	1154	1163	10	KNHTSPDVDL	4.9e-05	37
HLA-B*08:01	1	1158	1167	10	SPDVDLGDIS	4.9e-05	60
HLA-A*02:03	1	1164	1172	9	GDISGINAS	4.9e-05	46
HLA-B*51:01	1	1164	1172	9	GDISGINAS	4.9e-05	52
HLA-B*15:01	1	1167	1175	9	SGINASVVN	4.9e-05	43
HLA-B*08:01	1	1173	1182	10	VVNIQKEIDR	4.9e-05	60
HLA-B*40:01	1	1180	1188	9	IDRLNEVAK	4.9e-05	26
HLA-B*51:01	1	1184	1193	10	NEVAKNLNES	4.9e-05	52
HLA-B*44:02	1	1185	1193	9	EVAKNLNES	4.9e-05	31
HLA-B*08:01	1	1195	1204	10	IDLQELGKYE	4.9e-05	60
HLA-B*35:01	1	1200	1208	9	LGKYEQYIK	4.9e-05	31
HLA-B*53:01	1	1212	1220	9	YIWLGFIAI	4.9e-05	30
HLA-A*01:01	1	1213	1222	10	IWLGFIAGLI	4.9e-05	63
HLA-A*26:01	1	1225	1234	10	VMVTIMLCCM	4.9e-05	38
HLA-B*51:01	1	1227	1235	9	VTIMLCCMT	4.9e-05	52
HLA-A*31:01	1	1233	1241	9	CMTSCCSCL	4.9e-05	44
HLA-A*01:01	1	1235	1244	10	TSCCSCLKGC	4.9e-05	63
HLA-B*44:03	1	1253	1261	9	FDEDDSEPV	4.9e-05	29
HLA-B*15:01	1	1254	1263	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*53:01	1	77	85	9	KRFANPVL	4.8e-05	30
HLA-A*32:01	1	79	87	9	FANPVLPFN	4.8e-05	33
HLA-B*07:02	1	79	87	9	FANPVLPFN	4.8e-05	41
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	VYYHKNKNSW	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-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-A*01:01	1	248	256	9	PGDSSSGWT	4.8e-05	63
HLA-A*26:01	1	249	257	9	GDSSSGWTA	4.8e-05	38
HLA-A*23:01	1	270	278	9	RTFLLKYNE	4.8e-05	28
HLA-A*33:01	1	273	281	9	LLKYNENGT	4.8e-05	47
HLA-B*44:03	1	275	283	9	KYNENGTIT	4.8e-05	29
HLA-A*31:01	1	280	289	10	GTITDAVDCA	4.8e-05	45
HLA-A*31:01	1	281	289	9	TITDAVDCA	4.8e-05	45
HLA-B*58:01	1	287	295	9	DCALDPLSE	4.8e-05	47
HLA-A*24:02	1	288	297	10	CALDPLSETK	4.8e-05	27
HLA-A*30:02	1	305	314	10	VEKGIYQTSN	4.8e-05	68
HLA-A*33:01	1	326	334	9	FPNITNLCP	4.8e-05	47
HLA-B*40:01	1	327	335	9	PNITNLCPF	4.8e-05	26
HLA-A*31:01	1	333	341	9	CPFGEVFNA	4.8e-05	45
HLA-A*33:01	1	350	359	10	WNRKRISNCV	4.8e-05	47
HLA-A*02:01	1	351	359	9	NRKRISNCV	4.8e-05	43
HLA-B*44:02	1	356	364	9	SNCVADYSV	4.8e-05	31
HLA-A*32:01	1	359	368	10	VADYSVLVNS	4.8e-05	33
HLA-A*68:01	1	359	368	10	VADYSVLVNS	4.8e-05	40
HLA-A*23:01	1	367	375	9	NSASFSTFK	4.8e-05	28
HLA-A*23:01	1	368	377	10	SASFSTFKCY	4.8e-05	28
HLA-A*02:06	1	369	378	10	ASFSTFKCYG	4.8e-05	54
HLA-A*02:06	1	382	391	10	TKLNDLCFTN	4.8e-05	54
HLA-A*33:01	1	388	396	9	CFTNVYADS	4.8e-05	47
HLA-A*24:02	1	400	408	9	RGDEVQRQA	4.8e-05	27
HLA-B*08:01	1	404	413	10	VRQIAPGQTG	4.8e-05	60
HLA-B*08:01	1	409	418	10	PGQTGNIADY	4.8e-05	60
HLA-B*57:01	1	415	424	10	IADYNYKLPD	4.8e-05	59
HLA-B*57:01	1	419	428	10	NYKLPDDFTG	4.8e-05	59
HLA-A*24:02	1	420	429	10	YKLPDDFTGC	4.8e-05	27
HLA-A*31:01	1	432	440	9	AWNSNNLDS	4.8e-05	45
HLA-B*44:02	1	435	443	9	SNNLDSKVG	4.8e-05	31
HLA-B*44:02	1	454	462	9	RKSNLKPFE	4.8e-05	31
HLA-B*15:01	1	469	478	10	IYQAGSTPCN	4.8e-05	43
HLA-B*53:01	1	477	486	10	CNGVKGFNCY	4.8e-05	30
HLA-A*68:01	1	482	490	9	GFNCYFPLQ	4.8e-05	40
HLA-B*57:01	1	486	495	10	YFPLQSYGFQ	4.8e-05	59
HLA-B*58:01	1	489	497	9	LQSYGFQPT	4.8e-05	47
HLA-A*01:01	1	492	501	10	YGFQPTYGVG	4.8e-05	63
HLA-A*03:01	1	511	519	9	SFELLHAPA	4.8e-05	37
HLA-B*58:01	1	538	546	9	FNFNGLTGT	4.8e-05	47
HLA-B*07:02	1	539	547	9	NFNGLTGTG	4.8e-05	41
HLA-B*44:02	1	541	549	9	NGLTGTGVL	4.8e-05	31
HLA-B*57:01	1	541	550	10	NGLTGTGVLT	4.8e-05	59
HLA-B*53:01	1	559	567	9	FQQFGRDIA	4.8e-05	30
HLA-A*31:01	1	570	579	10	TDAVRDPQTL	4.8e-05	45
HLA-B*35:01	1	577	586	10	QTLEILDITP	4.8e-05	31
HLA-A*03:01	1	585	594	10	TPCSFGGVSV	4.8e-05	37
HLA-B*15:01	1	586	595	10	PCSFGGVSVI	4.8e-05	43
HLA-A*03:01	1	588	597	10	SFGGVSVITP	4.8e-05	37
HLA-A*68:02	1	607	616	10	VLYQGVNCTE	4.8e-05	45
HLA-B*51:01	1	607	616	10	VLYQGVNCTE	4.8e-05	53
HLA-A*03:01	1	609	617	9	YQGVNCTEV	4.8e-05	37
HLA-B*15:01	1	612	620	9	VNCTEVPVA	4.8e-05	43
HLA-A*02:03	1	616	624	9	EVPVAIHAD	4.8e-05	46
HLA-A*68:01	1	618	626	9	PVAIHADQL	4.8e-05	40



HLA-A*32:01	1	628	636	9	PTWRVYSTG	4.8e-05	33
HLA-A*01:01	1	637	646	10	SNVFAQTRAGC	4.8e-05	63
HLA-B*07:02	1	645	653	9	GCLIGAEHV	4.8e-05	41
HLA-A*68:01	1	650	658	9	AEHVNNNSYE	4.8e-05	40
HLA-B*15:01	1	650	659	10	AEHVNNNSYEC	4.8e-05	43
HLA-B*35:01	1	658	666	9	ECDIPIGAG	4.8e-05	31
HLA-A*02:06	1	665	674	10	AGICASYQTQ	4.8e-05	54
HLA-A*31:01	1	700	708	9	NSVAYSNNNS	4.8e-05	45
HLA-B*51:01	1	704	713	10	YSNNSIAIPT	4.8e-05	53
HLA-B*57:01	1	723	732	10	ILPVSMTKTS	4.8e-05	59
HLA-A*68:01	1	727	736	10	SMTKTSVDCT	4.8e-05	40
HLA-A*23:01	1	736	745	10	TMYICGDSTE	4.8e-05	28
HLA-A*68:02	1	740	749	10	CGDSTECSNL	4.8e-05	45
HLA-A*30:01	1	741	749	9	GDSTECSNL	4.8e-05	70
HLA-A*11:01	1	776	785	10	QEVFAQVKQI	4.8e-05	28
HLA-A*02:03	1	787	796	10	KTPPIKDFGG	4.8e-05	46
HLA-A*24:02	1	787	796	10	KTPPIKDFGG	4.8e-05	27
HLA-B*08:01	1	789	798	10	PIKDFGGFN	4.8e-05	60
HLA-B*08:01	1	791	800	10	IKDFGGFNFS	4.8e-05	60
HLA-B*08:01	1	792	800	9	KDFGGFNFS	4.8e-05	60
HLA-A*24:02	1	800	809	10	SQILPDPSPK	4.8e-05	27
HLA-A*33:01	1	805	813	9	DPSKPSKRS	4.8e-05	47
HLA-A*11:01	1	810	818	9	SKRSFIEDL	4.8e-05	28
HLA-B*53:01	1	810	819	10	SKRSFIEDLL	4.8e-05	30
HLA-A*68:02	1	835	844	10	GDCLGDIAAR	4.8e-05	45
HLA-B*35:01	1	835	843	9	GDCLGDIAA	4.8e-05	31
HLA-A*02:03	1	836	844	9	DCLGDIAAR	4.8e-05	46
HLA-A*02:01	1	838	847	10	LGDIAARDLI	4.8e-05	43
HLA-B*44:03	1	842	850	9	AARDLICAQ	4.8e-05	29
HLA-A*23:01	1	852	861	10	FNGLTVLPLP	4.8e-05	28
HLA-A*24:02	1	855	863	9	LTVLPPLLT	4.8e-05	27
HLA-A*02:03	1	858	867	10	LPPLLTDEMI	4.8e-05	46
HLA-A*02:06	1	864	872	9	DEMIAQYTS	4.8e-05	54
HLA-B*40:01	1	874	883	10	LLAGTITSGW	4.8e-05	26
HLA-B*08:01	1	878	887	10	TITSGWTFGA	4.8e-05	60
HLA-B*35:01	1	891	900	10	LQIPFAMQMA	4.8e-05	31
HLA-A*68:01	1	897	905	9	MQMAYRFNG	4.8e-05	40
HLA-A*26:01	1	908	916	9	VTQNVLYEN	4.8e-05	38
HLA-B*07:02	1	929	938	10	GKIQDSLSST	4.8e-05	41
HLA-B*44:03	1	933	942	10	DSLSSTASAL	4.8e-05	29
HLA-B*51:01	1	938	947	10	TASALGKLQD	4.8e-05	53
HLA-B*08:01	1	942	951	10	LGKLQDVVNQ	4.8e-05	60
HLA-A*02:03	1	956	965	10	LNTLVKQLSS	4.8e-05	46
HLA-A*11:01	1	976	984	9	DILSRLDKV	4.8e-05	28
HLA-B*58:01	1	986	995	10	AEVQIDRLIT	4.8e-05	47
HLA-A*26:01	1	991	999	9	DRLITGRLQ	4.8e-05	38
HLA-A*02:01	1	994	1003	10	ITGRLQSLQT	4.8e-05	43
HLA-B*44:03	1	1003	1011	9	TYVTQQLIR	4.8e-05	29
HLA-A*24:02	1	1006	1014	9	TQQLIRAAE	4.8e-05	27
HLA-A*26:01	1	1006	1014	9	TQQLIRAAE	4.8e-05	38
HLA-A*11:01	1	1020	1028	9	NLAATKMSE	4.8e-05	28
HLA-A*02:03	1	1023	1032	10	ATKMSECVLG	4.8e-05	46
HLA-B*35:01	1	1029	1037	9	CVLGQSKRV	4.8e-05	31
HLA-A*02:03	1	1035	1044	10	KRVDFCGKGY	4.8e-05	46
HLA-A*68:01	1	1042	1051	10	KGYHLMSPFQ	4.8e-05	40
HLA-A*26:01	1	1050	1058	9	PQSAPHGVV	4.8e-05	38
HLA-B*07:02	1	1058	1066	9	VFLHVTVYP	4.8e-05	41
HLA-B*57:01	1	1058	1067	10	VFLHVTVVPA	4.8e-05	59
HLA-B*51:01	1	1068	1077	10	QEKNFHTTAPA	4.8e-05	53
HLA-B*35:01	1	1071	1079	9	NFTTAPAIC	4.8e-05	31
HLA-B*15:01	1	1073	1081	9	TTAPAICHD	4.8e-05	43
HLA-A*68:02	1	1086	1095	10	FPREGVFVSN	4.8e-05	45
HLA-A*02:06	1	1094	1102	9	SNGTHWFVT	4.8e-05	54
HLA-B*08:01	1	1094	1103	10	SNGTHWFVTQ	4.8e-05	60
HLA-B*08:01	1	1112	1120	9	ITTDNTFVS	4.8e-05	60
HLA-B*58:01	1	1117	1126	10	TFVSGNCDVV	4.8e-05	47

HLA-B*57:01	1	1120	1128	9	SGNCDDVIG	4.8e-05	59
HLA-A*11:01	1	1130	1138	9	VNNTVYDPL	4.8e-05	28
HLA-B*57:01	1	1130	1139	10	VNNTVYDPLQ	4.8e-05	59
HLA-B*15:01	1	1134	1143	10	VYDPLQPELD	4.8e-05	43
HLA-A*23:01	1	1138	1147	10	LQPELDSFKE	4.8e-05	28
HLA-B*08:01	1	1140	1148	9	PELDSFKEE	4.8e-05	60
HLA-A*01:01	1	1150	1158	9	DKYFKNHTS	4.8e-05	63
HLA-B*35:01	1	1162	1171	10	DLGDISGINA	4.8e-05	31
HLA-A*02:03	1	1169	1178	10	INASVVNIQK	4.8e-05	46
HLA-A*02:03	1	1175	1184	10	NIQKEIDRLN	4.8e-05	46
HLA-B*15:01	1	1175	1184	10	NIQKEIDRLN	4.8e-05	43
HLA-A*31:01	1	1176	1184	9	IQKEIDRLN	4.8e-05	45
HLA-B*07:02	1	1182	1191	10	RLNEVAKNLN	4.8e-05	41
HLA-A*11:01	1	1185	1194	10	EVAKNLNESL	4.8e-05	28
HLA-A*33:01	1	1191	1199	9	NESLIDLQE	4.8e-05	47
HLA-B*51:01	1	1194	1202	9	LIDLQELGK	4.8e-05	53
HLA-A*02:01	1	1199	1208	10	ELGKYEQYIK	4.8e-05	43
HLA-B*44:02	1	1202	1210	9	KYEQYIKWP	4.8e-05	31
HLA-A*11:01	1	1217	1225	9	FIAGLIAIV	4.8e-05	28
HLA-A*01:01	1	1228	1236	9	TIMLCCMTS	4.8e-05	63
HLA-A*02:03	1	1230	1239	10	MLCCMTSCCS	4.8e-05	46
HLA-A*30:01	1	1244	1253	10	CCSCGSCCKF	4.8e-05	70
HLA-B*08:01	1	1251	1260	10	CKFDEDDSEP	4.8e-05	60
HLA-B*35:01	1	1251	1259	9	CKFDEDDSE	4.8e-05	31
HLA-B*53:01	1	5	14	10	LVLPLVSSQ	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	AIHVSNGTNGT	4.7e-05	40
HLA-B*57:01	1	67	76	10	AIHVSNGTNGT	4.7e-05	60
HLA-B*44:02	1	68	77	10	IHVSNGTNGTK	4.7e-05	31
HLA-B*07:02	1	74	82	9	NGTKRFANP	4.7e-05	42
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	KSNIIRGWIF	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	EFVFNIDG	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*01:01	1	208	217	10	TPINLVRGLP	4.7e-05	64
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-A*30:02	1	247	256	10	TPGDSSSGWT	4.7e-05	68
HLA-A*24:02	1	271	280	10	TFLLKYNENG	4.7e-05	27
HLA-A*30:01	1	272	281	10	FLLKYNENGT	4.7e-05	70
HLA-B*58:01	1	272	280	9	FLLKYNENG	4.7e-05	48
HLA-A*26:01	1	289	298	10	ALDPLSETKC	4.7e-05	38
HLA-A*33:01	1	297	306	10	KCTLKSFTVE	4.7e-05	47
HLA-B*08:01	1	305	314	10	VEKGIYQTSN	4.7e-05	60
HLA-A*03:01	1	314	323	10	NFRVQPTESI	4.7e-05	38
HLA-A*33:01	1	331	340	10	NLCPFGEVFN	4.7e-05	47
HLA-A*33:01	1	332	341	10	LCPFGEVFNA	4.7e-05	47
HLA-A*26:01	1	333	342	10	CPFGEVFNAT	4.7e-05	38
HLA-A*32:01	1	333	341	9	CPFGEVFNA	4.7e-05	33
HLA-A*03:01	1	338	347	10	VFNATRFASV	4.7e-05	38
HLA-B*15:01	1	344	352	9	FASVYAWNR	4.7e-05	44
HLA-A*02:06	1	347	355	9	VYAWNRKRI	4.7e-05	54
HLA-B*07:02	1	348	357	10	YAWNRKRISN	4.7e-05	42
HLA-B*44:03	1	356	364	9	SNCVADYSV	4.7e-05	29
HLA-A*33:01	1	357	365	9	NCVADYSVL	4.7e-05	47
HLA-A*68:01	1	359	367	9	VADYSVLYN	4.7e-05	40
HLA-B*44:03	1	368	376	9	SASFSTFKC	4.7e-05	29
HLA-A*30:02	1	376	385	10	CYGVSPTKLN	4.7e-05	68
HLA-B*44:02	1	391	400	10	NVYADSFVIR	4.7e-05	31
HLA-A*31:01	1	393	401	9	YADSFVIRG	4.7e-05	45
HLA-B*40:01	1	393	401	9	YADSFVIRG	4.7e-05	26
HLA-A*30:01	1	394	402	9	ADSFVIRGD	4.7e-05	70
HLA-A*02:06	1	410	419	10	GQTGNIADYN	4.7e-05	54
HLA-A*02:03	1	426	435	10	FTGCVIAWNS	4.7e-05	46
HLA-A*02:06	1	429	437	9	CVIAWNSNN	4.7e-05	54
HLA-A*24:02	1	429	438	10	CVIAWNSNLL	4.7e-05	27
HLA-A*02:01	1	431	440	10	IAWNSNNLDS	4.7e-05	43
HLA-A*30:02	1	435	444	10	SNNLDSKVG	4.7e-05	68
HLA-B*53:01	1	446	454	9	YNYLYRLFR	4.7e-05	31
HLA-A*02:03	1	459	468	10	KPFERDISTE	4.7e-05	46
HLA-B*58:01	1	460	469	10	PFERDISTEI	4.7e-05	48
HLA-B*07:02	1	466	475	10	STEIYQAGST	4.7e-05	42
HLA-B*57:01	1	475	484	10	TPCNGVKGFN	4.7e-05	60
HLA-A*03:01	1	486	495	10	YFPLQSYGFQ	4.7e-05	38
HLA-B*08:01	1	488	496	9	PLQSYGFQP	4.7e-05	60
HLA-A*24:02	1	494	503	10	FQPTYGVGYQ	4.7e-05	27
HLA-B*08:01	1	496	505	10	PTYGVGYQPY	4.7e-05	60
HLA-B*44:02	1	505	514	10	YRVVLSFEL	4.7e-05	31
HLA-A*11:01	1	513	521	9	ELLHAPATV	4.7e-05	28
HLA-B*58:01	1	513	522	10	ELLHAPATVC	4.7e-05	48
HLA-A*03:01	1	522	530	9	CGPKKSTNL	4.7e-05	38
HLA-A*02:06	1	531	540	10	VKNKCVNFNF	4.7e-05	54
HLA-A*68:01	1	535	544	10	CVNFNFNGLT	4.7e-05	40
HLA-A*02:06	1	567	576	10	ADTTDAVRDP	4.7e-05	54
HLA-B*53:01	1	574	583	10	RDPQTLEILD	4.7e-05	31
HLA-B*58:01	1	576	584	9	PQTLEILDI	4.7e-05	48
HLA-B*07:02	1	577	585	9	QTLEILDIT	4.7e-05	42
HLA-B*35:01	1	578	586	9	TLEILDITP	4.7e-05	32
HLA-A*11:01	1	584	592	9	ITPCSFGGV	4.7e-05	28
HLA-A*02:03	1	595	604	10	ITPGTNTSNQ	4.7e-05	46
HLA-A*24:02	1	597	605	9	PGTNTSNQV	4.7e-05	27
HLA-A*23:01	1	603	612	10	NQVAVLYQGV	4.7e-05	28
HLA-B*35:01	1	603	611	9	NQVAVLYQG	4.7e-05	32
HLA-A*30:01	1	609	618	10	YQGVNCTEVP	4.7e-05	70
HLA-B*35:01	1	610	618	9	QGVNCTEVP	4.7e-05	32
HLA-B*57:01	1	618	627	10	PVAIHADQLT	4.7e-05	60
HLA-B*53:01	1	634	642	9	STGSNVFQT	4.7e-05	31
HLA-A*68:02	1	639	648	10	VFQTRAGCLI	4.7e-05	46
HLA-B*58:01	1	653	661	9	VNNSYECDI	4.7e-05	48
HLA-B*07:02	1	660	668	9	DIPIGAGIC	4.7e-05	42
HLA-A*01:01	1	664	672	9	GAGICASYQ	4.7e-05	64
HLA-A*01:01	1	667	676	10	ICASYQTQTN	4.7e-05	64
HLA-B*35:01	1	667	675	9	ICASYQTQT	4.7e-05	32

HLA-B*08:01	1	692	701	10	YTMSLGVENS 4.7e-05	60
HLA-A*03:01	1	693	701	9	TMSLGVENS 4.7e-05	38
HLA-B*40:01	1	693	702	10	TMSLGVENS 4.7e-05	26
HLA-B*51:01	1	693	701	9	TMSLGVENS 4.7e-05	53
HLA-B*15:01	1	698	706	9	VENSVAYSN 4.7e-05	44
HLA-A*11:01	1	702	711	10	VAYSNNSIAI 4.7e-05	28
HLA-A*01:01	1	705	714	10	SNNSIAIPTN 4.7e-05	64
HLA-A*23:01	1	709	718	10	IAIPTNFTIS 4.7e-05	28
HLA-B*15:01	1	718	727	10	SVTTEILPVS 4.7e-05	44
HLA-A*32:01	1	723	731	9	ILPVSMTKT 4.7e-05	33
HLA-A*26:01	1	724	732	9	LPVSMTKTS 4.7e-05	38
HLA-B*53:01	1	732	740	9	SVDCTMYIC 4.7e-05	31
HLA-B*58:01	1	735	744	10	CTMYICGDST 4.7e-05	48
HLA-B*53:01	1	737	745	9	MYICGDSTE 4.7e-05	31
HLA-B*51:01	1	744	752	9	TECSNLLLQ 4.7e-05	53
HLA-A*68:02	1	749	757	9	LLLQYGSFC 4.7e-05	46
HLA-B*07:02	1	754	762	9	GSFCTQLNR 4.7e-05	42
HLA-A*32:01	1	759	768	10	QLNRALTGIA 4.7e-05	33
HLA-B*58:01	1	761	770	10	NRALTGIAVE 4.7e-05	48
HLA-A*30:02	1	766	774	9	GIAVEQDKN 4.7e-05	68
HLA-A*26:01	1	768	777	10	AVEQDKNTQE 4.7e-05	38
HLA-A*33:01	1	768	777	10	AVEQDKNTQE 4.7e-05	47
HLA-B*51:01	1	787	796	10	KTPPIKDFGG 4.7e-05	53
HLA-A*02:03	1	797	805	9	FNFSQILPD 4.7e-05	46
HLA-B*57:01	1	798	806	9	NFSQILPDP 4.7e-05	60
HLA-A*02:01	1	799	807	9	FSQILPDPS 4.7e-05	43
HLA-A*24:02	1	799	808	10	FSQILPDPSK 4.7e-05	27
HLA-A*02:03	1	805	814	10	DPSKPSKRSF 4.7e-05	46
HLA-A*02:03	1	809	818	10	PSKRSFIEDL 4.7e-05	46
HLA-A*24:02	1	822	831	10	KVTLADAGFI 4.7e-05	27
HLA-B*15:01	1	830	839	10	FIKQYGDCLG 4.7e-05	44
HLA-A*01:01	1	833	841	9	QYGDCLGDI 4.7e-05	64
HLA-B*08:01	1	848	856	9	CAQKFNGLT 4.7e-05	60
HLA-B*35:01	1	853	862	10	NGLTVLPPLL 4.7e-05	32
HLA-A*24:02	1	879	887	9	ITSGWTFGA 4.7e-05	27
HLA-A*32:01	1	879	888	10	ITSGWTFGAG 4.7e-05	33
HLA-B*40:01	1	898	906	9	QMAYRFNGI 4.7e-05	26
HLA-B*07:02	1	907	915	9	GVTQNVLYE 4.7e-05	42
HLA-B*15:01	1	908	916	9	VTQNVLYEN 4.7e-05	44
HLA-B*51:01	1	921	930	10	ANQFNSAIGK 4.7e-05	53
HLA-B*15:01	1	928	936	9	IGKIQDSLS 4.7e-05	44
HLA-A*02:06	1	935	943	9	LSSTASALG 4.7e-05	54
HLA-B*44:02	1	940	949	10	SALGKLQDVV 4.7e-05	31
HLA-A*02:06	1	941	950	10	ALGKLQDVVN 4.7e-05	54
HLA-A*24:02	1	947	956	10	DVNVNQAQAL 4.7e-05	27
HLA-A*11:01	1	950	958	9	NQNAQALNT 4.7e-05	28
HLA-A*02:03	1	954	962	9	QALNTLVKQ 4.7e-05	46
HLA-A*02:06	1	976	985	10	DILSRLDKVE 4.7e-05	54
HLA-B*57:01	1	979	987	9	SRLDKVEAE 4.7e-05	60
HLA-B*07:02	1	987	996	10	EVQIDRLITG 4.7e-05	42
HLA-A*02:01	1	995	1003	9	TGRLQSLQT 4.7e-05	43
HLA-A*23:01	1	1005	1013	9	VTQQLIRAA 4.7e-05	28
HLA-B*40:01	1	1016	1024	9	RASANLAAT 4.7e-05	26
HLA-B*07:02	1	1026	1035	10	MSECVLGQSK 4.7e-05	42
HLA-A*31:01	1	1028	1037	10	ECVLGQSKRV 4.7e-05	45
HLA-A*02:01	1	1031	1040	10	LGQSKRVDFC 4.7e-05	43
HLA-A*68:02	1	1036	1044	9	RVDFCGKGY 4.7e-05	46
HLA-A*03:01	1	1040	1049	10	CGKGYHLSMF 4.7e-05	38
HLA-B*08:01	1	1063	1071	9	TYVPAQEK 4.7e-05	60
HLA-A*23:01	1	1071	1080	10	NFTTAPAICH 4.7e-05	28
HLA-B*57:01	1	1075	1084	10	APAICHDGKA 4.7e-05	60
HLA-A*30:01	1	1076	1084	9	PAICHDGKA 4.7e-05	70
HLA-A*68:02	1	1079	1087	9	CHDGKAHFP 4.7e-05	46
HLA-A*03:01	1	1094	1103	10	SNGTHWFVTQ 4.7e-05	38
HLA-B*51:01	1	1106	1115	10	FYEPQIITTD 4.7e-05	53
HLA-B*07:02	1	1107	1116	10	YEPQIITTDN 4.7e-05	42

HLA-B*44:02	1	1110	1119	10	QIITDNTFV	4.7e-05	31
HLA-A*68:01	1	1117	1126	10	TFVSGNCDVV	4.7e-05	40
HLA-A*30:02	1	1124	1132	9	DVVGIVNN	4.7e-05	68
HLA-A*24:02	1	1125	1133	9	VVIGIVNNT	4.7e-05	27
HLA-A*02:01	1	1131	1140	10	NNTVYDPLQP	4.7e-05	43
HLA-A*03:01	1	1134	1143	10	VYDPLQPELD	4.7e-05	38
HLA-A*26:01	1	1150	1158	9	DKYFKNHTS	4.7e-05	38
HLA-A*30:02	1	1155	1164	10	NHTSPDVDLG	4.7e-05	68
HLA-B*08:01	1	1156	1164	9	HTSPDVDLG	4.7e-05	60
HLA-A*30:02	1	1162	1170	9	DLGDISGIN	4.7e-05	68
HLA-A*30:01	1	1190	1198	9	LNESLIDLQ	4.7e-05	70
HLA-A*68:01	1	1198	1207	10	QELGKYEQYI	4.7e-05	40
HLA-A*03:01	1	1208	1216	9	KWPWYIWLG	4.7e-05	38
HLA-A*02:03	1	1210	1218	9	PWYIWLGFI	4.7e-05	46
HLA-B*15:01	1	1214	1223	10	WLGFIAGLIA	4.7e-05	44
HLA-A*24:02	1	1222	1231	10	IAIVMVTIML	4.7e-05	27
HLA-A*31:01	1	1224	1233	10	IVMVTIMLCC	4.7e-05	45
HLA-A*68:01	1	1226	1235	10	MVTIMLCCMT	4.7e-05	40
HLA-A*30:01	1	1235	1243	9	TSCCCLKG	4.7e-05	70
HLA-A*03:01	1	1253	1262	10	FDEDDSEPV	4.7e-05	38
HLA-A*31:01	1	1254	1262	9	DEDDSEPV	4.7e-05	45
HLA-B*35:01	1	1260	1268	9	PVLKGVKLV	4.7e-05	32
HLA-A*02:06	1	1262	1270	9	LKGVKLHYT	4.7e-05	54
HLA-A*33:01	1	1262	1270	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-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	TNVVIKVFCE	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	KSWMESEFRV	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*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-A*24:02	1	236	244	9	TRFQTLHRS	4.6e-05	27
HLA-B*51:01	1	243	251	9	RSYLTGDS	4.6e-05	53
HLA-A*02:03	1	247	255	9	TPGDSSSWG	4.6e-05	47

HLA-B*44:02	1	253	261	9	SGWTAGAAA	4.6e-05	31
HLA-A*03:01	1	256	264	9	TAGAAAYYV	4.6e-05	38
HLA-A*30:02	1	276	284	9	YNENGTITD	4.6e-05	69
HLA-A*33:01	1	276	285	10	YNENGTITDA	4.6e-05	48
HLA-B*58:01	1	284	293	10	DAVDCALDPL	4.6e-05	48
HLA-A*32:01	1	292	301	10	PLSETKCTLK	4.6e-05	34
HLA-A*02:01	1	295	303	9	ETKCTLKSF	4.6e-05	44
HLA-A*31:01	1	296	304	9	TKCTLKSFT	4.6e-05	45
HLA-B*07:02	1	296	305	10	TKCTLKSFTV	4.6e-05	42
HLA-A*03:01	1	305	313	9	VEKGIYQTS	4.6e-05	38
HLA-A*23:01	1	318	327	10	QPTESIVRFP	4.6e-05	28
HLA-B*15:01	1	337	346	10	EVFNATRFAS	4.6e-05	44
HLA-A*32:01	1	348	356	9	YAWNRKRIS	4.6e-05	34
HLA-A*30:02	1	353	361	9	KRISNCVAD	4.6e-05	69
HLA-A*32:01	1	357	365	9	NCVADYSVL	4.6e-05	34
HLA-A*11:01	1	381	389	9	PTKLNDLCF	4.6e-05	28
HLA-A*23:01	1	384	392	9	LNDLCFTNV	4.6e-05	28
HLA-A*23:01	1	393	401	9	YADSFVIRG	4.6e-05	28
HLA-A*32:01	1	393	401	9	YADSFVIRG	4.6e-05	34
HLA-A*24:02	1	399	408	10	IRGDEVRIA	4.6e-05	27
HLA-A*02:03	1	400	409	10	RGDEVRIAP	4.6e-05	47
HLA-B*44:03	1	403	411	9	EVRQIAPGQ	4.6e-05	29
HLA-B*58:01	1	408	416	9	APGQTGNIA	4.6e-05	48
HLA-B*57:01	1	410	419	10	GQTGNIADYN	4.6e-05	60
HLA-A*23:01	1	420	428	9	YKLPDDFTG	4.6e-05	28
HLA-A*26:01	1	432	441	10	AWNSNLDISK	4.6e-05	38
HLA-A*02:01	1	448	457	10	YLYRLFRRKSN	4.6e-05	44
HLA-B*40:01	1	452	461	10	LFRKSNLKP	4.6e-05	26
HLA-B*57:01	1	456	464	9	SNLKPFRD	4.6e-05	60
HLA-B*35:01	1	460	469	10	PFRDISTEI	4.6e-05	32
HLA-A*32:01	1	464	472	9	DISTEIYQA	4.6e-05	34
HLA-B*08:01	1	466	475	10	STEIYQAGST	4.6e-05	61
HLA-A*03:01	1	470	478	9	YQAGSTPCN	4.6e-05	38
HLA-B*57:01	1	470	479	10	YQAGSTPCNG	4.6e-05	60
HLA-B*44:02	1	472	480	9	AGSTPCNGV	4.6e-05	31
HLA-A*30:01	1	487	496	10	FPLQSYGFQP	4.6e-05	71
HLA-B*08:01	1	490	499	10	QSYGFQPTYG	4.6e-05	61
HLA-B*08:01	1	504	513	10	PYRVVLSFE	4.6e-05	61
HLA-A*02:01	1	519	527	9	ATVCGPKKS	4.6e-05	44
HLA-A*23:01	1	522	531	10	CGPKKSTNLV	4.6e-05	28
HLA-B*44:03	1	528	536	9	TNLVKNKCV	4.6e-05	29
HLA-A*68:01	1	534	543	10	KCVNFNFNGL	4.6e-05	40
HLA-A*32:01	1	542	551	10	GLTGTGVLTE	4.6e-05	34
HLA-B*58:01	1	552	561	10	SNKKFLPFQQ	4.6e-05	48
HLA-B*07:02	1	588	597	10	SFGGVSVITP	4.6e-05	42
HLA-B*44:03	1	593	602	10	SVITPGTNTS	4.6e-05	29
HLA-A*68:02	1	602	610	9	SNQVAVLYQ	4.6e-05	46
HLA-A*31:01	1	611	620	10	GVNCTEVPVA	4.6e-05	45
HLA-B*57:01	1	616	625	10	EVPVAIHADQ	4.6e-05	60
HLA-B*44:03	1	621	629	9	IHADQLTPT	4.6e-05	29
HLA-A*26:01	1	626	635	10	LTPTWRVYST	4.6e-05	38
HLA-A*23:01	1	630	639	10	WRVYSTGSNV	4.6e-05	28
HLA-B*35:01	1	636	644	9	GSNVFQTRA	4.6e-05	32
HLA-A*11:01	1	637	646	10	SNVFQTRAGC	4.6e-05	28
HLA-B*57:01	1	647	656	10	LIGAEHVNNS	4.6e-05	60
HLA-B*58:01	1	651	659	9	EHVNNSYEC	4.6e-05	48
HLA-A*30:02	1	667	676	10	ICASYQTQTN	4.6e-05	69
HLA-A*30:02	1	677	686	10	SPRRARSVAS	4.6e-05	69
HLA-A*31:01	1	688	697	10	SIIAYTMSLG	4.6e-05	45
HLA-B*51:01	1	689	697	9	IIAYTMSLG	4.6e-05	53
HLA-A*68:01	1	690	699	10	IAYTMSLGV	4.6e-05	40
HLA-A*32:01	1	691	700	10	AYTMSLGVEN	4.6e-05	34
HLA-A*68:01	1	712	720	9	PTNFTISVT	4.6e-05	40
HLA-A*11:01	1	713	722	10	TNFTISVTTE	4.6e-05	28
HLA-B*08:01	1	717	726	10	ISVTTEILPV	4.6e-05	61
HLA-B*15:01	1	737	746	10	MYICGDSTEC	4.6e-05	44

HLA-A*30:01	1	740	749	10	CGDSTECSNL 4.6e-05	71
HLA-B*08:01	1	754	763	10	GSFCTQLNRA 4.6e-05	61
HLA-A*68:01	1	755	764	10	SFCTQLNRAL 4.6e-05	40
HLA-B*51:01	1	757	765	9	CTQLNRALT 4.6e-05	53
HLA-B*08:01	1	767	776	10	IAVEQDKNTQ 4.6e-05	61
HLA-A*02:06	1	786	795	10	YKTPPIKDFG 4.6e-05	54
HLA-A*68:01	1	791	800	10	IKDFGGFNFS 4.6e-05	40
HLA-B*57:01	1	793	802	10	DFGGFNFSQI 4.6e-05	60
HLA-B*44:03	1	796	804	9	GFNFSQILP 4.6e-05	29
HLA-A*31:01	1	798	806	9	NFSQILPDP 4.6e-05	45
HLA-B*44:03	1	804	812	9	PDPSKPSKR 4.6e-05	29
HLA-A*30:02	1	808	817	10	KPSKRSFIED 4.6e-05	69
HLA-A*68:02	1	809	818	10	PSKRSFIEDL 4.6e-05	46
HLA-B*51:01	1	813	821	9	SFIEDLLFN 4.6e-05	53
HLA-A*24:02	1	819	828	10	LFNKVTLADA 4.6e-05	27
HLA-A*30:01	1	831	839	9	IKQYGDCLG 4.6e-05	71
HLA-A*68:01	1	839	847	9	GDIAARDLI 4.6e-05	40
HLA-A*02:01	1	852	860	9	FNGLTVLPP 4.6e-05	44
HLA-A*11:01	1	857	865	9	VLPLLLTDE 4.6e-05	28
HLA-B*44:03	1	862	871	10	LTDEMIAQYT 4.6e-05	29
HLA-A*30:02	1	863	871	9	TDEMIAQYT 4.6e-05	69
HLA-A*24:02	1	865	873	9	EMIAQY TSA 4.6e-05	27
HLA-B*44:03	1	867	876	10	IAQYTSALLA 4.6e-05	29
HLA-B*08:01	1	877	886	10	GTITSGWTFG 4.6e-05	61
HLA-A*02:01	1	886	895	10	GAGAALQIPF 4.6e-05	44
HLA-A*03:01	1	886	895	10	GAGAALQIPF 4.6e-05	38
HLA-A*68:02	1	890	898	9	ALQIPFAMQ 4.6e-05	46
HLA-B*07:02	1	891	900	10	LQIPFAMQMA 4.6e-05	42
HLA-B*35:01	1	906	915	10	IGVTQNVLYE 4.6e-05	32
HLA-A*68:02	1	909	918	10	TQNVLYENQK 4.6e-05	46
HLA-A*02:03	1	913	921	9	LYENQK LIA 4.6e-05	47
HLA-A*02:01	1	915	924	10	ENQKLIANQF 4.6e-05	44
HLA-B*15:01	1	924	932	9	FNSAIGKIQ 4.6e-05	44
HLA-B*44:03	1	941	949	9	ALGK LQDVV 4.6e-05	29
HLA-A*23:01	1	966	975	10	NFGAISSVLN 4.6e-05	28
HLA-A*02:06	1	967	975	9	FGAISSVLN 4.6e-05	54
HLA-B*07:02	1	973	982	10	VLNDILSR LD 4.6e-05	42
HLA-A*02:03	1	978	987	10	LSRLDKVEAE 4.6e-05	47
HLA-B*58:01	1	979	987	9	SRLDKVEAE 4.6e-05	48
HLA-A*68:02	1	994	1002	9	ITGRLQSLQ 4.6e-05	46
HLA-B*07:02	1	1002	1011	10	QTYVTQQLIR 4.6e-05	42
HLA-A*11:01	1	1004	1013	10	YVTQQLIRAA 4.6e-05	28
HLA-A*24:02	1	1005	1013	9	VTQQLIRAA 4.6e-05	27
HLA-A*11:01	1	1007	1015	9	QQLIRAAEI 4.6e-05	28
HLA-B*44:02	1	1014	1022	9	EIRASANLA 4.6e-05	31
HLA-A*32:01	1	1027	1036	10	SECVLGQSKR 4.6e-05	34
HLA-B*40:01	1	1036	1045	10	RVDFCGKGYH 4.6e-05	26
HLA-B*40:01	1	1045	1054	10	HLMSPQSAP 4.6e-05	26
HLA-B*15:01	1	1060	1068	9	LHVTVVPAQ 4.6e-05	44
HLA-B*51:01	1	1062	1071	10	VTYVPAQEKN 4.6e-05	53
HLA-B*58:01	1	1065	1073	9	VPAQEKNFT 4.6e-05	48
HLA-A*02:03	1	1070	1079	10	KNFTTAPAIC 4.6e-05	47
HLA-B*51:01	1	1071	1080	10	NFTTAPAICH 4.6e-05	53
HLA-B*08:01	1	1073	1082	10	TTAPAICH DG 4.6e-05	61
HLA-A*01:01	1	1080	1089	10	HDGKAHFPRE 4.6e-05	64
HLA-B*51:01	1	1088	1097	10	REGVFVSNGT 4.6e-05	53
HLA-A*32:01	1	1089	1098	10	EGVFVSNGTH 4.6e-05	34
HLA-B*51:01	1	1094	1102	9	SNGTHWFVT 4.6e-05	53
HLA-B*57:01	1	1097	1105	9	THWFVTQRN 4.6e-05	60
HLA-A*02:03	1	1127	1135	9	IGIVNNTVY 4.6e-05	47
HLA-B*08:01	1	1131	1140	10	NNTVYDPLQP 4.6e-05	61
HLA-B*44:03	1	1134	1143	10	VYDPLQPELD 4.6e-05	29
HLA-A*11:01	1	1136	1145	10	DPLQPELDSF 4.6e-05	28
HLA-A*32:01	1	1143	1151	9	DSFKEELDK 4.6e-05	34
HLA-A*23:01	1	1148	1156	9	ELDKYFKNH 4.6e-05	28
HLA-B*15:01	1	1150	1158	9	DKYFKNHTS 4.6e-05	44

HLA-A*30:01	1	1160	1168	9	DVDLGDISG	4.6e-05	71
HLA-B*58:01	1	1165	1174	10	DISGINASVV	4.6e-05	48
HLA-A*01:01	1	1166	1175	10	ISGINASVVN	4.6e-05	64
HLA-B*08:01	1	1170	1179	10	NASVVNIQKE	4.6e-05	61
HLA-B*44:03	1	1171	1179	9	ASVVNIQKE	4.6e-05	29
HLA-B*15:01	1	1174	1182	9	VNIQKEIDR	4.6e-05	44
HLA-A*31:01	1	1177	1186	10	QKEIDRLNEV	4.6e-05	45
HLA-A*32:01	1	1177	1186	10	QKEIDRLNEV	4.6e-05	34
HLA-B*40:01	1	1183	1192	10	LNEVAKNLNE	4.6e-05	26
HLA-B*44:02	1	1190	1199	10	LNESLIDLQE	4.6e-05	31
HLA-B*15:01	1	1196	1204	9	DLQELGKYE	4.6e-05	44
HLA-B*40:01	1	1209	1217	9	WPWYIWLGF	4.6e-05	26
HLA-B*15:01	1	1229	1237	9	IMLCCMTSC	4.6e-05	44
HLA-A*33:01	1	1253	1262	10	FDEDDSEPV	4.6e-05	48
HLA-B*40:01	1	1259	1268	10	EPVLKGVKLN	4.6e-05	26
HLA-B*53:01	1	1261	1270	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*03:01	1	72	81	10	GTNGTKRFAN	4.5e-05	38
HLA-B*07:02	1	74	83	10	NGTKRFANPV	4.5e-05	42
HLA-B*35:01	1	77	85	9	KRFANPVL	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	QSLLIIVNAT	4.5e-05	61
HLA-B*40:01	1	118	126	9	LIVNATNV	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-B*53:01	1	222	231	10	ALEPLVDLPI	4.5e-05	31
HLA-A*02:06	1	234	243	10	NITRFQTLHR	4.5e-05	55
HLA-A*68:01	1	244	253	10	SYLTPGDSSS	4.5e-05	40
HLA-A*02:01	1	247	255	9	TPGDSSSGW	4.5e-05	44
HLA-B*44:03	1	262	270	9	YYVGYLQPR	4.5e-05	30
HLA-B*51:01	1	262	271	10	YYVGYLQPR	4.5e-05	54
HLA-A*31:01	1	268	277	10	QPRTFLLKYN	4.5e-05	46
HLA-A*24:02	1	274	282	9	LKYNENGTI	4.5e-05	27
HLA-A*26:01	1	276	285	10	YNENGTITDA	4.5e-05	39
HLA-A*23:01	1	278	286	9	ENGTITDAV	4.5e-05	28
HLA-B*51:01	1	280	288	9	GTITDAVDC	4.5e-05	54
HLA-A*03:01	1	285	293	9	AVDCALDPL	4.5e-05	38
HLA-A*23:01	1	288	297	10	CALDPLSETK	4.5e-05	28
HLA-A*68:01	1	293	302	10	LSETKCTLKS	4.5e-05	40
HLA-A*26:01	1	294	302	9	SETKCTLKS	4.5e-05	39
HLA-B*15:01	1	305	314	10	VEKGIYQTSN	4.5e-05	44
HLA-B*08:01	1	307	316	10	KGIYQTSNFR	4.5e-05	61
HLA-A*02:06	1	309	318	10	IYQTSNFRVQ	4.5e-05	55



HLA-A*26:01	1	310	319	10	YQTSNFRVQP	4.5e-05	39
HLA-A*30:02	1	328	336	9	NITNLCPPFG	4.5e-05	69
HLA-B*57:01	1	333	342	10	CPFGEVFNAT	4.5e-05	60
HLA-A*32:01	1	335	343	9	FGEVFNATR	4.5e-05	34
HLA-A*02:03	1	340	348	9	NATRFASVY	4.5e-05	47
HLA-A*33:01	1	348	357	10	YAWNKRKRISN	4.5e-05	48
HLA-A*68:01	1	355	363	9	ISNCVADYS	4.5e-05	40
HLA-A*02:01	1	365	374	10	LYNSASFSTF	4.5e-05	44
HLA-B*35:01	1	369	378	10	ASFSTFKCYG	4.5e-05	32
HLA-B*44:02	1	369	378	10	ASFSTFKCYG	4.5e-05	32
HLA-B*07:02	1	371	379	9	FSTFKCYGV	4.5e-05	42
HLA-B*44:02	1	374	383	10	FKCYGVSPTK	4.5e-05	32
HLA-A*31:01	1	385	393	9	NDLCFTNVY	4.5e-05	46
HLA-B*44:02	1	401	410	10	GDEVQRQIAPG	4.5e-05	32
HLA-A*68:01	1	405	414	10	RQIAPGQTGN	4.5e-05	40
HLA-B*53:01	1	406	414	9	QIAPGQTGN	4.5e-05	31
HLA-A*02:01	1	408	416	9	APGQTGNIA	4.5e-05	44
HLA-B*51:01	1	412	421	10	TGNIADYNYK	4.5e-05	54
HLA-B*44:02	1	414	423	10	NIADYNYKLP	4.5e-05	32
HLA-B*51:01	1	430	439	10	VIAWNSNNLD	4.5e-05	54
HLA-A*68:02	1	439	447	9	DSKVGGNYN	4.5e-05	46
HLA-B*07:02	1	441	450	10	KVGGNYNYLY	4.5e-05	42
HLA-A*23:01	1	448	456	9	YLYRFRKS	4.5e-05	28
HLA-B*44:02	1	450	459	10	YRFRKSNLK	4.5e-05	32
HLA-A*02:03	1	462	470	9	ERDISTEYI	4.5e-05	47
HLA-B*35:01	1	463	472	10	RDISTEYIQA	4.5e-05	32
HLA-B*08:01	1	464	473	10	DISTEYIQAG	4.5e-05	61
HLA-B*15:01	1	469	477	9	IYQAGSTPC	4.5e-05	44
HLA-A*03:01	1	482	491	10	GFNCYFPLQS	4.5e-05	38
HLA-B*08:01	1	482	490	9	GFNCYFPLQ	4.5e-05	61
HLA-B*58:01	1	487	496	10	FPLQSYGFQP	4.5e-05	48
HLA-B*35:01	1	491	500	10	SYGFQPTYGV	4.5e-05	32
HLA-A*03:01	1	502	511	10	YQPYRVVVL	4.5e-05	38
HLA-A*11:01	1	514	522	9	LLHAPATVC	4.5e-05	28
HLA-B*15:01	1	550	558	9	TESNKKFLP	4.5e-05	44
HLA-B*44:02	1	552	560	9	SNKKFLPFQ	4.5e-05	32
HLA-A*31:01	1	561	570	10	QFGRDIADTT	4.5e-05	46
HLA-B*58:01	1	561	570	10	QFGRDIADTT	4.5e-05	48
HLA-A*30:01	1	562	571	10	FGRDIADTTD	4.5e-05	71
HLA-B*44:03	1	565	574	10	DIADTTDAVR	4.5e-05	30
HLA-A*03:01	1	568	577	10	DTTDAVRDPQ	4.5e-05	38
HLA-B*44:02	1	580	588	9	EILDITPCS	4.5e-05	32
HLA-B*51:01	1	583	591	9	DITPCSFQG	4.5e-05	54
HLA-B*53:01	1	586	594	9	PCSFQGVSV	4.5e-05	31
HLA-A*68:02	1	597	606	10	PGTNTSNQVA	4.5e-05	46
HLA-A*31:01	1	612	621	10	VNCTEVPVAI	4.5e-05	46
HLA-B*44:03	1	613	622	10	NCTEVPVAIH	4.5e-05	30
HLA-A*30:01	1	615	624	10	TEVPVAIHAD	4.5e-05	71
HLA-B*51:01	1	615	624	10	TEVPVAIHAD	4.5e-05	54
HLA-A*02:06	1	616	625	10	EVPVAIHADQ	4.5e-05	55
HLA-A*30:02	1	618	627	10	PVAIHADQLT	4.5e-05	69
HLA-A*11:01	1	627	635	9	TPTWRVYST	4.5e-05	28
HLA-B*08:01	1	643	652	10	RAGCLIGAEH	4.5e-05	61
HLA-B*57:01	1	645	654	10	GCLIGAEHVN	4.5e-05	60
HLA-A*68:01	1	649	658	10	GAEHVNNSYE	4.5e-05	40
HLA-A*01:01	1	652	660	9	HVNNSYECD	4.5e-05	64
HLA-A*30:02	1	664	673	10	GAGICASYQT	4.5e-05	69
HLA-A*03:01	1	666	675	10	GICASYQTQT	4.5e-05	38
HLA-B*44:03	1	670	679	10	SYQTQTNSPR	4.5e-05	30
HLA-B*57:01	1	675	683	9	TNSPRRARS	4.5e-05	60
HLA-A*11:01	1	677	685	9	SPRRARSVA	4.5e-05	28
HLA-A*68:01	1	689	698	10	IIAYTMSLGV	4.5e-05	40
HLA-A*31:01	1	709	718	10	IAIPTNFTIS	4.5e-05	46
HLA-A*23:01	1	725	733	9	PVSMTKTSV	4.5e-05	28
HLA-B*15:01	1	741	750	10	GDSTECSNLL	4.5e-05	44
HLA-B*51:01	1	747	755	9	SNLLLQYGS	4.5e-05	54

HLA-A*02:01	1	753	762	10	YGSFCTQLNR	4.5e-05	44
HLA-B*40:01	1	754	762	9	GSFCTQLNR	4.5e-05	26
HLA-B*07:02	1	755	763	9	SFCTQLNRA	4.5e-05	42
HLA-B*08:01	1	757	766	10	CTQLNRALTG	4.5e-05	61
HLA-A*30:02	1	761	770	10	NRALTGIAVE	4.5e-05	69
HLA-A*32:01	1	765	773	9	TGIAVEQDK	4.5e-05	34
HLA-B*07:02	1	767	775	9	IAVEQDKNT	4.5e-05	42
HLA-B*44:03	1	773	781	9	KNTQEVFAQ	4.5e-05	30
HLA-B*08:01	1	787	796	10	KTPPIKDFGG	4.5e-05	61
HLA-A*03:01	1	788	797	10	TPPIKDFGGF	4.5e-05	38
HLA-A*02:01	1	797	806	10	FNFSQILPDP	4.5e-05	44
HLA-A*68:02	1	798	807	10	NFSQILPDPS	4.5e-05	46
HLA-A*33:01	1	799	807	9	FSQILPDPS	4.5e-05	48
HLA-B*53:01	1	807	815	9	SKPSKRSFI	4.5e-05	31
HLA-A*68:01	1	812	821	10	RSFIEDLLFN	4.5e-05	40
HLA-B*40:01	1	816	824	9	EDLLFNKVT	4.5e-05	26
HLA-B*57:01	1	817	826	10	DLLFNKVTLA	4.5e-05	60
HLA-A*01:01	1	818	827	10	LLFNKVTLAD	4.5e-05	64
HLA-A*30:01	1	820	829	10	FNKVTLADAG	4.5e-05	71
HLA-A*33:01	1	823	831	9	VLADAGFI	4.5e-05	48
HLA-B*51:01	1	835	843	9	GDCLGDIAA	4.5e-05	54
HLA-B*58:01	1	847	856	10	ICAQKFNGLT	4.5e-05	48
HLA-A*31:01	1	848	857	10	CAQKFNGLTV	4.5e-05	46
HLA-B*44:02	1	855	863	9	LTVLPPLL	4.5e-05	32
HLA-B*44:03	1	857	866	10	VLPPLLTDEM	4.5e-05	30
HLA-B*58:01	1	857	865	9	VLPPLLTDE	4.5e-05	48
HLA-A*01:01	1	869	877	9	QYTSALLAG	4.5e-05	64
HLA-A*33:01	1	872	880	9	SALLAGTIT	4.5e-05	48
HLA-A*68:02	1	880	888	9	TSGWTFGAG	4.5e-05	46
HLA-A*02:03	1	882	890	9	GWTFGAGAA	4.5e-05	47
HLA-A*02:03	1	886	895	10	GAGAALQIPF	4.5e-05	47
HLA-A*68:02	1	900	909	10	AYRFNGIGVT	4.5e-05	46
HLA-A*33:01	1	905	913	9	GIGVTQNVL	4.5e-05	48
HLA-B*15:01	1	908	917	10	VTQNVLYENQ	4.5e-05	44
HLA-A*02:01	1	909	917	9	TQNVLYENQ	4.5e-05	44
HLA-B*51:01	1	910	918	9	QNVLYENQK	4.5e-05	54
HLA-B*35:01	1	922	931	10	NQFNSAIGKI	4.5e-05	32
HLA-A*68:02	1	944	952	9	KLQDVVNQN	4.5e-05	46
HLA-A*02:03	1	963	972	10	LSSNFGAISS	4.5e-05	47
HLA-A*03:01	1	970	978	9	ISSVLNDIK	4.5e-05	38
HLA-B*07:02	1	975	983	9	NDILSRDLK	4.5e-05	42
HLA-B*53:01	1	975	984	10	NDILSRLDKV	4.5e-05	31
HLA-A*11:01	1	979	988	10	SRLDKVEAEV	4.5e-05	28
HLA-B*08:01	1	986	995	10	AEVQIDRLIT	4.5e-05	61
HLA-B*51:01	1	994	1003	10	ITGRLQSLQT	4.5e-05	54
HLA-A*32:01	1	998	1007	10	LQSLQTYVTQ	4.5e-05	34
HLA-B*44:02	1	1010	1018	9	IRAAEIRAS	4.5e-05	32
HLA-B*44:03	1	1010	1018	9	IRAAEIRAS	4.5e-05	30
HLA-B*57:01	1	1010	1018	9	IRAAEIRAS	4.5e-05	60
HLA-B*44:03	1	1014	1023	10	EIRASANLAA	4.5e-05	30
HLA-A*11:01	1	1015	1023	9	IRASANLAA	4.5e-05	28
HLA-B*53:01	1	1016	1025	10	RASANLAATK	4.5e-05	31
HLA-B*57:01	1	1020	1028	9	NLAATKMSE	4.5e-05	60
HLA-B*44:03	1	1028	1037	10	ECVLGQSKRV	4.5e-05	30
HLA-A*24:02	1	1032	1040	9	GQSKRVDFC	4.5e-05	27
HLA-B*07:02	1	1034	1042	9	SKRVDFCGK	4.5e-05	42
HLA-A*02:01	1	1038	1047	10	DFCGKGYHLM	4.5e-05	44
HLA-B*44:03	1	1045	1054	10	HLMSPQSAP	4.5e-05	30
HLA-A*11:01	1	1046	1054	9	LMSFPQSAP	4.5e-05	28
HLA-A*33:01	1	1054	1062	9	PHGVVFLHV	4.5e-05	48
HLA-B*57:01	1	1059	1067	9	FLHVTVVPA	4.5e-05	60
HLA-B*53:01	1	1066	1074	9	PAQEKNFIT	4.5e-05	31
HLA-A*68:02	1	1070	1079	10	KNFTTAPAIC	4.5e-05	46
HLA-A*02:06	1	1071	1079	9	NFTTAPAIC	4.5e-05	55
HLA-B*53:01	1	1071	1079	9	NFTTAPAIC	4.5e-05	31
HLA-A*01:01	1	1086	1095	10	FPREGVFVSN	4.5e-05	64

HLA-A*30:01	1	1087	1095	9	PREGVFSN	4.5e-05	71
HLA-A*68:02	1	1096	1105	10	GTHWFVTQRN	4.5e-05	46
HLA-B*53:01	1	1107	1115	9	YEQIITTD	4.5e-05	31
HLA-A*68:01	1	1109	1118	10	PQIITDNTF	4.5e-05	40
HLA-A*11:01	1	1111	1119	9	IITDNTFV	4.5e-05	28
HLA-A*31:01	1	1116	1125	10	NTFVSGNCDV	4.5e-05	46
HLA-B*44:02	1	1120	1129	10	SGNCDVVIIGI	4.5e-05	32
HLA-A*33:01	1	1130	1139	10	VNNTVYDPLQ	4.5e-05	48
HLA-A*32:01	1	1137	1146	10	PLQPELDSFK	4.5e-05	34
HLA-B*08:01	1	1138	1147	10	LQPELDSFKE	4.5e-05	61
HLA-B*58:01	1	1138	1147	10	LQPELDSFKE	4.5e-05	48
HLA-B*07:02	1	1141	1150	10	ELDSFKEELD	4.5e-05	42
HLA-A*02:01	1	1147	1156	10	EELDKYFKNH	4.5e-05	44
HLA-A*68:01	1	1156	1165	10	HTSPDVLGD	4.5e-05	40
HLA-B*15:01	1	1156	1164	9	HTSPDVLG	4.5e-05	44
HLA-A*26:01	1	1158	1166	9	SPDVLGDI	4.5e-05	39
HLA-A*68:01	1	1161	1169	9	VDLGDISGI	4.5e-05	40
HLA-A*26:01	1	1166	1174	9	ISGINASVV	4.5e-05	39
HLA-A*32:01	1	1168	1177	10	GINASVVNIQ	4.5e-05	34
HLA-A*02:01	1	1184	1193	10	NEVAKNLNES	4.5e-05	44
HLA-B*35:01	1	1184	1192	9	NEVAKNLNE	4.5e-05	32
HLA-B*51:01	1	1184	1192	9	NEVAKNLNE	4.5e-05	54
HLA-B*44:02	1	1186	1195	10	VAKNLNESLI	4.5e-05	32
HLA-B*44:02	1	1188	1197	10	KNLNLNLI	4.5e-05	32
HLA-A*03:01	1	1192	1200	9	ESLIDLQEL	4.5e-05	38
HLA-B*44:03	1	1200	1208	9	LKYEYQYIK	4.5e-05	30
HLA-B*57:01	1	1207	1216	10	IKWPWYIWL	4.5e-05	60
HLA-A*30:01	1	1211	1220	10	WYIWLGFIA	4.5e-05	71
HLA-B*53:01	1	1215	1224	10	LGFIAGLIAI	4.5e-05	31
HLA-A*01:01	1	1220	1228	9	GLIAIVMVT	4.5e-05	64
HLA-A*03:01	1	1221	1230	10	LIAIVMVTIM	4.5e-05	38
HLA-A*02:03	1	1240	1248	9	CLKGCCSCG	4.5e-05	47
HLA-B*08:01	1	1240	1248	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*02:03	1	94	102	9	STEKSNIIIR	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	TQSLIVNNA	4.4e-05	29
HLA-A*24:02	1	123	131	9	ATNVVIKVC	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	NCTFEYVSQ	4.4e-05	54
HLA-A*33:01	1	215	224	10	GLPQGFSALE	4.4e-05	48
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*53:01	1	237	246	10	RFQTLHRSYL	4.4e-05	31
HLA-B*35:01	1	240	248	9	TLHRSYLTP	4.4e-05	32
HLA-A*68:01	1	246	254	9	LTPGDSSSG	4.4e-05	40
HLA-B*53:01	1	249	257	9	GDSSSGWTA	4.4e-05	31
HLA-A*02:03	1	259	268	10	AAAYYVGYLQ	4.4e-05	47
HLA-B*40:01	1	270	278	9	RTFLLKYNE	4.4e-05	27
HLA-B*51:01	1	334	342	9	PFGEVFNAT	4.4e-05	54
HLA-A*02:03	1	335	343	9	FGEVFNATR	4.4e-05	47
HLA-B*58:01	1	338	347	10	VFNATRFASV	4.4e-05	49

HLA-A*32:01	1	349	358	10	AWNKRKISNC 4.4e-05	34
HLA-A*31:01	1	356	365	10	SNCVADYSVL 4.4e-05	46
HLA-B*35:01	1	356	364	9	SNCVADYSV 4.4e-05	32
HLA-A*33:01	1	359	368	10	VADYSVLYNS 4.4e-05	48
HLA-A*33:01	1	369	378	10	ASFSTFKCYG 4.4e-05	48
HLA-A*68:02	1	374	382	9	FKCYGVSPT 4.4e-05	47
HLA-A*68:02	1	386	395	10	DLCFTNVYAD 4.4e-05	47
HLA-A*31:01	1	389	398	10	FTNVYADSFV 4.4e-05	46
HLA-A*24:02	1	393	401	9	YADSFVIRG 4.4e-05	28
HLA-A*68:01	1	398	407	10	VIRGDEVRQI 4.4e-05	40
HLA-B*58:01	1	403	411	9	EVRQIAPGQ 4.4e-05	49
HLA-A*33:01	1	409	418	10	PGQTGNIADY 4.4e-05	48
HLA-B*35:01	1	413	422	10	GNIADYNYKL 4.4e-05	32
HLA-B*51:01	1	425	434	10	DFTGCVIAWN 4.4e-05	54
HLA-B*15:01	1	432	441	10	AWNSNNLDSK 4.4e-05	45
HLA-B*44:03	1	438	447	10	LDSKVGGNYN 4.4e-05	30
HLA-B*51:01	1	441	450	10	KVGGNYNYLY 4.4e-05	54
HLA-A*11:01	1	448	456	9	YLYRLFRRKS 4.4e-05	29
HLA-B*57:01	1	448	457	10	YLYRLFRRKS 4.4e-05	61
HLA-B*40:01	1	451	460	10	RLFRKSNLKP 4.4e-05	27
HLA-A*33:01	1	454	462	9	RKSNLKPFE 4.4e-05	48
HLA-A*33:01	1	457	466	10	NLKPFFERDIS 4.4e-05	48
HLA-A*31:01	1	460	469	10	PFERDISTEI 4.4e-05	46
HLA-A*31:01	1	462	471	10	ERDISTEIQ 4.4e-05	46
HLA-A*32:01	1	468	477	10	EIQAGSTPC 4.4e-05	34
HLA-B*57:01	1	469	477	9	IYQAGSTPC 4.4e-05	61
HLA-A*26:01	1	470	478	9	YQAGSTPCN 4.4e-05	39
HLA-B*58:01	1	470	479	10	YQAGSTPCNG 4.4e-05	49
HLA-A*24:02	1	472	480	9	AGSTPCNGV 4.4e-05	28
HLA-A*02:06	1	485	493	9	CYFPLQSYG 4.4e-05	55
HLA-A*11:01	1	495	503	9	QPTYGVGYQ 4.4e-05	29
HLA-A*02:06	1	497	505	9	TYGVGYQPY 4.4e-05	55
HLA-B*40:01	1	504	512	9	PYRVVLSF 4.4e-05	27
HLA-B*35:01	1	506	515	10	RVVLSFELL 4.4e-05	32
HLA-B*53:01	1	510	519	10	LSFELLHAPA 4.4e-05	31
HLA-A*01:01	1	524	532	9	PKKSTNLVK 4.4e-05	65
HLA-B*44:03	1	525	534	10	KKSTNLVKNK 4.4e-05	30
HLA-B*40:01	1	534	543	10	KCVNFNFNGL 4.4e-05	27
HLA-B*53:01	1	554	563	10	KKFLPFQQFG 4.4e-05	31
HLA-B*15:01	1	555	563	9	KFLPFQQFG 4.4e-05	45
HLA-B*08:01	1	559	568	10	FQQFGRDIAD 4.4e-05	61
HLA-B*35:01	1	564	572	9	RDIADTTDA 4.4e-05	32
HLA-B*53:01	1	564	572	9	RDIADTTDA 4.4e-05	31
HLA-A*33:01	1	566	575	10	IADTTDAVRD 4.4e-05	48
HLA-B*44:03	1	567	576	10	ADTTDAVRDP 4.4e-05	30
HLA-B*08:01	1	586	595	10	PCSFGGVSVI 4.4e-05	61
HLA-B*15:01	1	602	610	9	SNQVAVLYQ 4.4e-05	45
HLA-B*58:01	1	608	617	10	LYQGVNCTEV 4.4e-05	49
HLA-B*57:01	1	617	625	9	VPVAIHADQ 4.4e-05	61
HLA-B*08:01	1	633	642	10	YSTGSNVFQT 4.4e-05	61
HLA-A*01:01	1	636	645	10	GSNVFQTRAG 4.4e-05	65
HLA-B*58:01	1	640	649	10	FQTRAGCLIG 4.4e-05	49
HLA-B*51:01	1	657	666	10	YECDIPIGAG 4.4e-05	54
HLA-A*31:01	1	661	669	9	IPIGAGICA 4.4e-05	46
HLA-A*30:01	1	667	676	10	ICASYQTQTN 4.4e-05	71
HLA-A*02:03	1	668	677	10	CASYQTQTN 4.4e-05	47
HLA-A*02:01	1	670	678	9	SYQTQTN 4.4e-05	44
HLA-A*32:01	1	670	678	9	SYQTQTN 4.4e-05	34
HLA-A*03:01	1	677	686	10	SPRRARSVAS 4.4e-05	39
HLA-B*44:02	1	687	696	10	QSIIAYTMSL 4.4e-05	32
HLA-A*01:01	1	688	697	10	SIIAYTMSLG 4.4e-05	65
HLA-B*08:01	1	698	706	9	VENSVAYSN 4.4e-05	61
HLA-B*08:01	1	706	714	9	NNSIAIPTN 4.4e-05	61
HLA-A*24:02	1	710	718	9	AIPTNFTIS 4.4e-05	28
HLA-A*68:02	1	714	722	9	NFTISVTTE 4.4e-05	47
HLA-A*32:01	1	728	736	9	MTKTSVDCT 4.4e-05	34

HLA-A*32:01	1	729	737	9	TKTSVDCTM	4.4e-05	34
HLA-A*02:06	1	735	743	9	CTMYICGDS	4.4e-05	55
HLA-A*30:01	1	738	747	10	YICGDSTEC	4.4e-05	71
HLA-A*31:01	1	742	751	10	DSTECSNLLL	4.4e-05	46
HLA-A*68:02	1	747	756	10	SNLLLQYGSF	4.4e-05	47
HLA-A*03:01	1	750	758	9	LLQYGSFCT	4.4e-05	39
HLA-B*44:02	1	765	773	9	TGIAVEQDK	4.4e-05	32
HLA-B*53:01	1	765	773	9	TGIAVEQDK	4.4e-05	31
HLA-A*33:01	1	769	778	10	VEQDKNTQEV	4.4e-05	48
HLA-B*07:02	1	778	787	10	VFAQVKQIYK	4.4e-05	42
HLA-A*23:01	1	781	789	9	QVKQIYKTP	4.4e-05	29
HLA-B*53:01	1	789	798	10	PPIKDFGGFN	4.4e-05	31
HLA-A*11:01	1	793	801	9	DFGGFNFSQ	4.4e-05	29
HLA-A*68:02	1	818	827	10	LLFNKVTLAD	4.4e-05	47
HLA-A*24:02	1	821	830	10	NKVTLADAGF	4.4e-05	28
HLA-B*51:01	1	833	842	10	QYGDCLGDIA	4.4e-05	54
HLA-B*58:01	1	836	844	9	DCLGDIAAR	4.4e-05	49
HLA-A*68:01	1	846	855	10	LICAQKFNGL	4.4e-05	40
HLA-B*40:01	1	855	863	9	LTVLPLLLT	4.4e-05	27
HLA-A*32:01	1	862	871	10	LTDEMIAQYT	4.4e-05	34
HLA-B*15:01	1	878	886	9	TITSGWTFG	4.4e-05	45
HLA-A*68:01	1	894	903	10	PFAMQMAYRF	4.4e-05	40
HLA-A*02:06	1	896	905	10	AMQMAYRFNG	4.4e-05	55
HLA-A*03:01	1	897	905	9	MQMAYRFNG	4.4e-05	39
HLA-A*32:01	1	899	907	9	MAYRFNGIG	4.4e-05	34
HLA-B*07:02	1	905	914	10	GIGVTQNVLY	4.4e-05	42
HLA-A*23:01	1	919	928	10	LIANQFNSAI	4.4e-05	29
HLA-B*53:01	1	924	932	9	FNSAIGKIQ	4.4e-05	31
HLA-B*44:03	1	936	945	10	SSTASALGKL	4.4e-05	30
HLA-B*57:01	1	941	950	10	ALGKLQDVVN	4.4e-05	61
HLA-A*11:01	1	952	960	9	NAQALNTLV	4.4e-05	29
HLA-B*08:01	1	957	966	10	NLVKQLSSN	4.4e-05	61
HLA-B*51:01	1	958	966	9	TLVKQLSSN	4.4e-05	54
HLA-A*02:03	1	959	968	10	LVKQLSSNFG	4.4e-05	47
HLA-B*53:01	1	959	968	10	LVKQLSSNFG	4.4e-05	31
HLA-A*11:01	1	961	970	10	KQLSSNFGAI	4.4e-05	29
HLA-A*24:02	1	964	973	10	SSNFGAISSV	4.4e-05	28
HLA-A*30:02	1	966	975	10	NFGAISSVLN	4.4e-05	69
HLA-B*44:02	1	968	977	10	GAISSVLNDI	4.4e-05	32
HLA-B*51:01	1	978	987	10	LSRLDKVEAE	4.4e-05	54
HLA-B*57:01	1	987	995	9	EVQIDRLIT	4.4e-05	61
HLA-A*24:02	1	998	1006	9	LQSLQTYVT	4.4e-05	28
HLA-A*24:02	1	1004	1012	9	YVTQQLIRA	4.4e-05	28
HLA-A*23:01	1	1008	1016	9	QLIRAAEIR	4.4e-05	29
HLA-B*57:01	1	1009	1018	10	LIRAAEIRAS	4.4e-05	61
HLA-B*15:01	1	1012	1020	9	AAEIRASAN	4.4e-05	45
HLA-B*08:01	1	1024	1032	9	TKMSECVLG	4.4e-05	61
HLA-B*07:02	1	1032	1040	9	GQSKRVDFC	4.4e-05	42
HLA-B*51:01	1	1032	1040	9	GQSKRVDFC	4.4e-05	54
HLA-A*26:01	1	1048	1056	9	SFPQSAPHG	4.4e-05	39
HLA-B*53:01	1	1074	1082	9	TAPAICHDG	4.4e-05	31
HLA-A*68:02	1	1078	1087	10	ICHDGKAHFP	4.4e-05	47
HLA-A*33:01	1	1079	1087	9	CHDGKAHFP	4.4e-05	48
HLA-B*44:02	1	1089	1098	10	EGVFSNGTH	4.4e-05	32
HLA-A*32:01	1	1093	1102	10	VSNGTHWFVT	4.4e-05	34
HLA-B*51:01	1	1102	1110	9	TORNFYEPQ	4.4e-05	54
HLA-A*02:03	1	1109	1118	10	PQIITTDNTF	4.4e-05	47
HLA-A*68:01	1	1114	1122	9	TDNTFVSGN	4.4e-05	40
HLA-A*30:02	1	1116	1124	9	NTFVSGNCD	4.4e-05	69
HLA-A*01:01	1	1124	1132	9	DVVIGIVNN	4.4e-05	65
HLA-B*08:01	1	1124	1132	9	DVVIGIVNN	4.4e-05	61
HLA-A*30:01	1	1127	1136	10	IGIVNNTVYD	4.4e-05	71
HLA-A*68:02	1	1127	1135	9	IGIVNNTVY	4.4e-05	47
HLA-A*31:01	1	1132	1140	9	NTVYDPLQP	4.4e-05	46
HLA-A*68:01	1	1137	1145	9	PLQPELDSF	4.4e-05	40
HLA-B*15:01	1	1162	1171	10	DLGDISGINA	4.4e-05	45

HLA-B*07:02	1	1164	1172	9	GDISGINAS	4.4e-05	42
HLA-A*30:01	1	1177	1185	9	QKEIDRLNE	4.4e-05	71
HLA-A*68:01	1	1178	1187	10	KEIDRLNEVA	4.4e-05	40
HLA-B*53:01	1	1178	1187	10	KEIDRLNEVA	4.4e-05	31
HLA-A*31:01	1	1179	1187	9	EIDRLNEVA	4.4e-05	46
HLA-A*30:02	1	1188	1196	9	KNLNESLID	4.4e-05	69
HLA-B*57:01	1	1190	1198	9	LNESLIDLQ	4.4e-05	61
HLA-B*58:01	1	1191	1199	9	NESLIDLQE	4.4e-05	49
HLA-B*44:02	1	1197	1205	9	LQELGKYEQ	4.4e-05	32
HLA-A*30:02	1	1207	1216	10	IKWPWYIWLG	4.4e-05	69
HLA-A*30:01	1	1229	1238	10	IMLCCMTSCC	4.4e-05	71
HLA-A*30:01	1	1240	1249	10	CLKGCCSCGS	4.4e-05	71
HLA-A*24:02	1	1244	1253	10	CCSCGSCCKF	4.4e-05	28
HLA-A*03:01	1	1256	1265	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	HAIHVSQTNG	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-B*51:01	1	78	87	10	RFANPVLPFN	4.3e-05	54
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	KTQSLLIVN	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-B*40:01	1	213	222	10	VRGLPQGFS	4.3e-05	27
HLA-A*23:01	1	215	224	10	GLPQGFSALE	4.3e-05	29
HLA-A*24:02	1	215	224	10	GLPQGFSALE	4.3e-05	28
HLA-A*26:01	1	215	224	10	GLPQGFSALE	4.3e-05	39
HLA-B*53:01	1	240	248	9	TLHRSYLTP	4.3e-05	32
HLA-B*51:01	1	241	249	9	LHRSYLTPG	4.3e-05	54
HLA-A*03:01	1	281	289	9	TITDAVDCA	4.3e-05	39
HLA-B*44:02	1	291	299	9	DPLSETKCT	4.3e-05	32
HLA-B*58:01	1	299	308	10	TLKSFTVEKG	4.3e-05	49
HLA-A*11:01	1	309	318	10	IYQTSNFRVQ	4.3e-05	29
HLA-B*58:01	1	309	318	10	IYQTSNFRVQ	4.3e-05	49
HLA-A*02:01	1	311	320	10	QTSNFRVQPT	4.3e-05	44
HLA-A*30:02	1	321	330	10	ESIVRFPNIT	4.3e-05	70

HLA-A*68:01	1	325	334	10	RFPNITNLCP	4.3e-05	41
HLA-A*32:01	1	330	338	9	TNLCPFGEV	4.3e-05	34
HLA-A*31:01	1	334	342	9	PFGEVFNAT	4.3e-05	46
HLA-A*23:01	1	344	352	9	FASVYAWNR	4.3e-05	29
HLA-B*51:01	1	349	358	10	AWNRKRISNC	4.3e-05	54
HLA-B*57:01	1	350	359	10	WNRKRISNCV	4.3e-05	61
HLA-A*03:01	1	352	360	9	RKRISNCVA	4.3e-05	39
HLA-A*26:01	1	356	364	9	SNCVADYSV	4.3e-05	39
HLA-A*23:01	1	363	372	10	SVLYNSASFV	4.3e-05	29
HLA-B*15:01	1	365	373	9	LYNSASFST	4.3e-05	45
HLA-A*31:01	1	378	386	9	GVSPTKLND	4.3e-05	46
HLA-B*44:02	1	383	392	10	KLNDLCFTNV	4.3e-05	32
HLA-A*23:01	1	390	398	9	TNVYADSFV	4.3e-05	29
HLA-A*30:02	1	394	403	10	ADSFVIRGDE	4.3e-05	70
HLA-A*33:01	1	415	423	9	IADYNYKLP	4.3e-05	49
HLA-B*44:03	1	421	430	10	KLPDDFTGCV	4.3e-05	30
HLA-A*02:01	1	424	432	9	DDFTGCVIA	4.3e-05	44
HLA-A*01:01	1	430	439	10	VIAWNSNLD	4.3e-05	65
HLA-B*40:01	1	437	446	10	NLDSKVGNGY	4.3e-05	27
HLA-B*58:01	1	449	458	10	LYRLFRKSNL	4.3e-05	49
HLA-A*26:01	1	451	460	10	RLFRKSNLKP	4.3e-05	39
HLA-B*15:01	1	458	467	10	LKPFERDIST	4.3e-05	45
HLA-B*51:01	1	465	474	10	ISTEIQAGS	4.3e-05	54
HLA-B*44:03	1	470	478	9	YQAGSTPCN	4.3e-05	30
HLA-A*68:02	1	472	481	10	AGSTPCNGVK	4.3e-05	47
HLA-A*11:01	1	477	486	10	CNGVKGFNCY	4.3e-05	29
HLA-A*02:03	1	480	489	10	VKGFNCYFPL	4.3e-05	48
HLA-A*02:03	1	485	493	9	CYFPLQSYG	4.3e-05	48
HLA-B*57:01	1	487	495	9	FPLQSYGFQ	4.3e-05	61
HLA-B*07:02	1	496	505	10	PTYGVGYQPY	4.3e-05	43
HLA-A*02:01	1	497	506	10	TYGVGYQPYR	4.3e-05	44
HLA-B*40:01	1	497	505	9	TYGVGYQPY	4.3e-05	27
HLA-A*11:01	1	500	509	10	VGYPYRVVV	4.3e-05	29
HLA-B*57:01	1	504	513	10	PYRVVLSFE	4.3e-05	61
HLA-B*53:01	1	509	518	10	VLSFELLHAP	4.3e-05	32
HLA-B*40:01	1	517	525	9	APATVCGPK	4.3e-05	27
HLA-B*44:03	1	520	528	9	TVCGPKKST	4.3e-05	30
HLA-B*15:01	1	526	535	10	KSTNLVKNKC	4.3e-05	45
HLA-A*01:01	1	536	545	10	VNFNFNGLTG	4.3e-05	65
HLA-B*07:02	1	537	545	9	NFNFNGLTG	4.3e-05	43
HLA-A*03:01	1	538	546	9	NFNFNGLTGT	4.3e-05	39
HLA-A*23:01	1	540	549	10	FNGLTGTGVL	4.3e-05	29
HLA-A*24:02	1	540	549	10	FNGLTGTGVL	4.3e-05	28
HLA-B*44:03	1	541	549	9	NGLTGTGVL	4.3e-05	30
HLA-A*31:01	1	542	551	10	GLTGTGVLTE	4.3e-05	46
HLA-B*07:02	1	543	551	9	LTGTGVLTE	4.3e-05	43
HLA-B*53:01	1	550	558	9	TESNKKFLP	4.3e-05	32
HLA-B*35:01	1	551	560	10	ESNKKFLPFQ	4.3e-05	33
HLA-A*02:03	1	557	566	10	LPFQQFGRDI	4.3e-05	48
HLA-A*24:02	1	561	570	10	QFGRDIADTT	4.3e-05	28
HLA-B*07:02	1	563	572	10	GRDIADTTDA	4.3e-05	43
HLA-A*26:01	1	569	578	10	TTDAVRDPQT	4.3e-05	39
HLA-B*07:02	1	569	578	10	TTDAVRDPQT	4.3e-05	43
HLA-A*68:01	1	579	588	10	LEILDITPCS	4.3e-05	41
HLA-B*57:01	1	579	588	10	LEILDITPCS	4.3e-05	61
HLA-B*58:01	1	580	588	9	EILDITPCS	4.3e-05	49
HLA-A*30:02	1	582	590	9	LDITPCSG	4.3e-05	70
HLA-A*11:01	1	599	608	10	TNTSNQVAVL	4.3e-05	29
HLA-A*02:03	1	602	611	10	SNQVAVLYQG	4.3e-05	48
HLA-B*58:01	1	602	611	10	SNQVAVLYQG	4.3e-05	49
HLA-A*30:02	1	609	618	10	YQGVNCTEVP	4.3e-05	70
HLA-A*31:01	1	612	620	9	VNCTEVPVA	4.3e-05	46
HLA-B*35:01	1	635	644	10	TGSNVFQTRA	4.3e-05	33
HLA-A*31:01	1	643	651	9	RAGCLIGAE	4.3e-05	46
HLA-B*15:01	1	645	653	9	GCLIGAEHV	4.3e-05	45
HLA-B*53:01	1	652	661	10	HVNNSYECDI	4.3e-05	32

HLA-B*08:01	1	657	666	10	YECDIPIGAG	4.3e-05	62
HLA-A*32:01	1	658	667	10	ECDIPIGAGI	4.3e-05	34
HLA-B*58:01	1	666	675	10	GICASYQTQT	4.3e-05	49
HLA-A*24:02	1	673	681	9	TQTNSPRRA	4.3e-05	28
HLA-A*02:01	1	675	684	10	TNSPRRARSV	4.3e-05	44
HLA-A*24:02	1	675	684	10	TNSPRRARSV	4.3e-05	28
HLA-B*44:03	1	675	684	10	TNSPRRARSV	4.3e-05	30
HLA-B*15:01	1	676	685	10	NSPRRARSVA	4.3e-05	45
HLA-A*26:01	1	679	688	10	RRARSVASQS	4.3e-05	39
HLA-A*03:01	1	681	690	10	ARSVASQSII	4.3e-05	39
HLA-A*03:01	1	689	697	9	IIAYTMSLG	4.3e-05	39
HLA-B*35:01	1	695	703	9	SLGVENSVA	4.3e-05	33
HLA-A*33:01	1	704	712	9	YSNNSIAIP	4.3e-05	49
HLA-B*15:01	1	705	713	9	SNNSIAIPT	4.3e-05	45
HLA-B*40:01	1	710	719	10	AIPTNFTISV	4.3e-05	27
HLA-A*03:01	1	725	733	9	PVSMTKTSV	4.3e-05	39
HLA-B*35:01	1	732	740	9	SVDCTMYIC	4.3e-05	33
HLA-A*68:01	1	738	746	9	YICGDSTEC	4.3e-05	41
HLA-A*30:01	1	740	748	9	CGDSTECSN	4.3e-05	72
HLA-A*33:01	1	760	769	10	LNRLTGIIV	4.3e-05	49
HLA-A*02:06	1	761	770	10	NRALTGIAVE	4.3e-05	55
HLA-A*01:01	1	766	775	10	GIAVEQDKNT	4.3e-05	65
HLA-B*57:01	1	769	777	9	VEQDKNTQE	4.3e-05	61
HLA-B*07:02	1	776	784	9	QEVFAQVKQ	4.3e-05	43
HLA-A*68:02	1	791	800	10	IKDFGGFNFS	4.3e-05	47
HLA-A*11:01	1	807	815	9	SKPSKRSEFI	4.3e-05	29
HLA-B*53:01	1	808	817	10	KPSKRSEFIED	4.3e-05	32
HLA-A*33:01	1	818	827	10	LLFNKVTLAD	4.3e-05	49
HLA-B*08:01	1	839	848	10	GDIAARDLIC	4.3e-05	62
HLA-A*11:01	1	841	850	10	IAARDLICAQ	4.3e-05	29
HLA-B*53:01	1	842	851	10	AARDLICAQK	4.3e-05	32
HLA-A*32:01	1	852	861	10	FNGLTVLPLP	4.3e-05	34
HLA-B*07:02	1	857	865	9	VLPLLLTDE	4.3e-05	43
HLA-A*68:02	1	861	869	9	LLTDEMIAQ	4.3e-05	47
HLA-A*01:01	1	868	877	10	AQYTSALLAG	4.3e-05	65
HLA-A*02:03	1	877	886	10	GTITSGWTFG	4.3e-05	48
HLA-B*08:01	1	880	889	10	TSGWTFGAGA	4.3e-05	62
HLA-A*23:01	1	882	890	9	GWTFGAGAA	4.3e-05	29
HLA-A*26:01	1	884	892	9	TFGAGAALQ	4.3e-05	39
HLA-A*11:01	1	897	905	9	MQMAYRFNG	4.3e-05	29
HLA-A*03:01	1	900	909	10	AYRFNGIGVT	4.3e-05	39
HLA-B*35:01	1	900	908	9	AYRFNGIGV	4.3e-05	33
HLA-B*08:01	1	905	914	10	GIGVTQNVLY	4.3e-05	62
HLA-B*53:01	1	913	921	9	LYENQKLIA	4.3e-05	32
HLA-B*40:01	1	919	927	9	LIANQFNSA	4.3e-05	27
HLA-A*32:01	1	934	943	10	SLSSTASALG	4.3e-05	34
HLA-A*68:02	1	955	964	10	ALNTLVKQLS	4.3e-05	47
HLA-A*33:01	1	963	971	9	LSSNFGAIS	4.3e-05	49
HLA-A*68:02	1	968	976	9	GAISSVLND	4.3e-05	47
HLA-B*35:01	1	969	978	10	AISSVLNDIL	4.3e-05	33
HLA-B*57:01	1	990	999	10	IDRLITGRLQ	4.3e-05	61
HLA-B*35:01	1	996	1005	10	GRLQSLQTYV	4.3e-05	33
HLA-A*02:03	1	998	1007	10	LQSLQTYVTQ	4.3e-05	48
HLA-B*51:01	1	999	1008	10	QSLQTYVTQQ	4.3e-05	54
HLA-A*24:02	1	1017	1025	9	ASANLAATK	4.3e-05	28
HLA-A*33:01	1	1019	1028	10	ANLAATKMSE	4.3e-05	49
HLA-A*24:02	1	1022	1030	9	AATKMSECV	4.3e-05	28
HLA-A*32:01	1	1023	1032	10	ATKMSECVLG	4.3e-05	34
HLA-B*44:02	1	1024	1032	9	TKMSECVLG	4.3e-05	32
HLA-B*44:03	1	1024	1032	9	TKMSECVLG	4.3e-05	30
HLA-B*51:01	1	1026	1034	9	MSECVLGQS	4.3e-05	54
HLA-B*08:01	1	1032	1041	10	GQSKRVDFCG	4.3e-05	62
HLA-B*51:01	1	1039	1048	10	FCGKGYHLMS	4.3e-05	54
HLA-B*08:01	1	1042	1050	9	KGYHLMSFP	4.3e-05	62
HLA-B*53:01	1	1045	1054	10	HLMSFPQSAP	4.3e-05	32
HLA-A*02:03	1	1071	1079	9	NFTTAPAIC	4.3e-05	48



HLA-A*30:02	1	1074	1082	9	TAPAICHDG	4.3e-05	70
HLA-B*57:01	1	1080	1089	10	HDGKAHFPRE	4.3e-05	61
HLA-B*07:02	1	1081	1089	9	DGKAHFPRE	4.3e-05	43
HLA-A*02:03	1	1089	1097	9	EGVFVSNGT	4.3e-05	48
HLA-B*15:01	1	1095	1104	10	NGTHWFVTQR	4.3e-05	45
HLA-A*03:01	1	1097	1105	9	THWFVTQRN	4.3e-05	39
HLA-B*07:02	1	1101	1109	9	VTQRNFYEP	4.3e-05	43
HLA-B*44:02	1	1105	1114	10	NFYEQIITT	4.3e-05	32
HLA-A*23:01	1	1120	1129	10	SGNCDVVIGI	4.3e-05	29
HLA-A*11:01	1	1126	1134	9	VIGIVNNTV	4.3e-05	29
HLA-B*44:03	1	1126	1134	9	VIGIVNNTV	4.3e-05	30
HLA-B*07:02	1	1138	1146	9	LQPELDSFK	4.3e-05	43
HLA-B*57:01	1	1139	1147	9	QPELDSFKE	4.3e-05	61
HLA-A*02:06	1	1145	1154	10	FKEELDKYFK	4.3e-05	55
HLA-B*35:01	1	1150	1159	10	DKYFKNHTSP	4.3e-05	33
HLA-A*02:01	1	1164	1172	9	GDISGINAS	4.3e-05	44
HLA-A*02:01	1	1169	1178	10	INASVVNIQK	4.3e-05	44
HLA-A*01:01	1	1184	1192	9	NEVAKNLNE	4.3e-05	65
HLA-A*31:01	1	1186	1195	10	VAKNLNESLI	4.3e-05	46
HLA-B*44:03	1	1188	1197	10	KNLNEIDL	4.3e-05	30
HLA-A*33:01	1	1190	1198	9	LNEIDLQ	4.3e-05	49
HLA-A*33:01	1	1192	1201	10	ESLIDLQELG	4.3e-05	49
HLA-B*51:01	1	1201	1210	10	GKYEQYIKWP	4.3e-05	54
HLA-A*11:01	1	1202	1211	10	KYEQYIKWPW	4.3e-05	29
HLA-A*30:01	1	1209	1217	9	WPWYIWLGF	4.3e-05	72
HLA-A*02:06	1	1210	1218	9	PWYIWLGFI	4.3e-05	55
HLA-A*02:01	1	1211	1219	9	WYIWLGFIA	4.3e-05	44
HLA-A*68:01	1	1211	1219	9	WYIWLGFIA	4.3e-05	41
HLA-B*58:01	1	1216	1225	10	GFIAGLIAIV	4.3e-05	49
HLA-A*01:01	1	1225	1233	9	VMVTIMLCC	4.3e-05	65
HLA-A*02:01	1	1232	1240	9	CCMTSCCSC	4.3e-05	44
HLA-A*32:01	1	1233	1241	9	CMTSCCSCS	4.3e-05	34
HLA-A*23:01	1	1260	1268	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	NSFTRGVVYP	4.2e-05	43
HLA-A*33:01	1	33	42	10	TRGVVYPDKV	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-A*31:01	1	74	83	10	NGTKRFANPV	4.2e-05	47
HLA-A*68:01	1	76	84	9	TKRFANPVL	4.2e-05	41
HLA-A*30:01	1	80	89	10	ANPVLPFNDG	4.2e-05	72
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	TQSLIIVNN	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	NDPFLGVVYH	4.2e-05	27
HLA-B*44:02	1	138	147	10	DPFLGVVYHK	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	YVSQPLMD	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*58:01	1	210	219	10	INLVRGLPQG	4.2e-05	49
HLA-B*57:01	1	216	225	10	LPQGFSALEP	4.2e-05	61
HLA-A*26:01	1	235	244	10	ITRFQTLHRS	4.2e-05	40
HLA-A*26:01	1	239	248	10	QTLHRSYLTP	4.2e-05	40
HLA-B*07:02	1	239	248	10	QTLHRSYLTP	4.2e-05	43
HLA-A*31:01	1	242	250	9	HRSYLTPGD	4.2e-05	47
HLA-A*68:02	1	243	251	9	RSYLTPGDS	4.2e-05	47
HLA-B*35:01	1	243	252	10	RSYLTPGDSS	4.2e-05	33
HLA-B*51:01	1	244	253	10	SYLTPGDSSS	4.2e-05	55
HLA-A*23:01	1	249	257	9	GDSSSGWTA	4.2e-05	29
HLA-B*44:02	1	261	270	10	AYYVGYLQPR	4.2e-05	33
HLA-A*03:01	1	263	271	9	YVGYLQPR	4.2e-05	39
HLA-A*03:01	1	273	282	10	LLKYNENGTI	4.2e-05	39
HLA-B*35:01	1	276	284	9	YNENGTITD	4.2e-05	33
HLA-A*31:01	1	278	286	9	ENGTITDAV	4.2e-05	47
HLA-A*02:01	1	298	306	9	CTLKSFTVE	4.2e-05	45
HLA-A*02:01	1	318	327	10	QPTESIVRFP	4.2e-05	45
HLA-A*31:01	1	318	327	10	QPTESIVRFP	4.2e-05	47
HLA-A*02:03	1	343	352	10	RFASVYAWNR	4.2e-05	48
HLA-A*02:01	1	358	367	10	CVADYSVLYN	4.2e-05	45
HLA-A*30:02	1	361	370	10	DYSVLYNSAS	4.2e-05	70
HLA-A*26:01	1	364	373	10	VLYNSASFST	4.2e-05	40
HLA-B*57:01	1	376	385	10	CYGVSPTKLN	4.2e-05	61
HLA-B*08:01	1	383	391	9	KLNDLCFTN	4.2e-05	62
HLA-A*31:01	1	384	392	9	LNDLCFTNV	4.2e-05	47
HLA-B*35:01	1	395	403	9	DSFVIRGDE	4.2e-05	33
HLA-A*33:01	1	407	415	9	IAPGQTGNI	4.2e-05	49
HLA-B*44:02	1	407	415	9	IAPGQTGNI	4.2e-05	33
HLA-B*44:03	1	407	415	9	IAPGQTGNI	4.2e-05	31
HLA-B*53:01	1	409	418	10	PGQTGNIADY	4.2e-05	32
HLA-B*58:01	1	410	419	10	GQTGNIADYN	4.2e-05	49
HLA-A*68:01	1	421	429	9	KLPDDFTGC	4.2e-05	41
HLA-A*02:03	1	422	431	10	LPDDFTGCVI	4.2e-05	48
HLA-A*23:01	1	425	434	10	DFTGCVIAWN	4.2e-05	29
HLA-A*31:01	1	427	435	9	TGCVIAWNS	4.2e-05	47
HLA-A*68:02	1	429	437	9	CVIAWNSNN	4.2e-05	47
HLA-A*26:01	1	433	442	10	WNSNNLDSKV	4.2e-05	40
HLA-A*02:06	1	446	455	10	YNYLYRFRK	4.2e-05	56
HLA-B*44:03	1	450	459	10	YRFRKSNLK	4.2e-05	31
HLA-A*02:03	1	452	461	10	LFRKSNLKP	4.2e-05	48
HLA-B*40:01	1	455	463	9	KSNLKPFR	4.2e-05	27
HLA-A*68:02	1	463	471	9	RDISTEIYQ	4.2e-05	47
HLA-A*02:03	1	464	473	10	DISTEIYQAG	4.2e-05	48
HLA-A*33:01	1	467	476	10	TEIYQAGSTP	4.2e-05	49
HLA-A*03:01	1	477	486	10	CNGVKGFNCY	4.2e-05	39
HLA-B*51:01	1	477	486	10	CNGVKGFNCY	4.2e-05	55
HLA-A*01:01	1	481	489	9	KGFNCYFPL	4.2e-05	66
HLA-B*53:01	1	485	493	9	CYFPLQSYG	4.2e-05	32
HLA-A*68:02	1	486	495	10	YFPLQSYGFQ	4.2e-05	47
HLA-B*53:01	1	489	497	9	LQSYGFQPT	4.2e-05	32
HLA-B*44:03	1	498	506	9	YGVGYQPYR	4.2e-05	31
HLA-B*44:02	1	499	508	10	GVGYQPYRVV	4.2e-05	33
HLA-B*40:01	1	510	519	10	LSFELLHAPA	4.2e-05	27
HLA-B*08:01	1	524	532	9	PKKSTNLVK	4.2e-05	62
HLA-A*24:02	1	526	534	9	KSTNLVKNK	4.2e-05	28
HLA-B*07:02	1	526	534	9	KSTNLVKNK	4.2e-05	43
HLA-B*15:01	1	529	537	9	NLVKNKCVN	4.2e-05	45
HLA-A*26:01	1	530	539	10	LVKNKCVNFN	4.2e-05	40
HLA-B*57:01	1	535	544	10	CVNFNFNGLT	4.2e-05	61
HLA-A*02:03	1	538	547	10	FNFNGLTGTG	4.2e-05	48
HLA-B*08:01	1	538	547	10	FNFNGLTGTG	4.2e-05	62
HLA-A*26:01	1	543	551	9	LTGTGVLTE	4.2e-05	40
HLA-B*57:01	1	562	571	10	FGRDIADTTD	4.2e-05	61
HLA-A*02:03	1	568	576	9	DTTDAVRDP	4.2e-05	48
HLA-A*02:06	1	570	578	9	TDAVRDPQT	4.2e-05	56

HLA-A*32:01	1	576	584	9	PQTLLEILDI	4.2e-05	35
HLA-B*15:01	1	577	586	10	QTLEILDITP	4.2e-05	45
HLA-B*53:01	1	583	591	9	DITPCSFVG	4.2e-05	32
HLA-B*07:02	1	584	592	9	ITPCSFGGV	4.2e-05	43
HLA-A*30:02	1	585	593	9	TPCSFGGVS	4.2e-05	70
HLA-B*53:01	1	586	595	10	PCSFGGVSVI	4.2e-05	32
HLA-A*32:01	1	588	596	9	SFGGVSVIT	4.2e-05	35
HLA-B*44:03	1	596	605	10	TPGTNTSNQV	4.2e-05	31
HLA-B*44:02	1	602	610	9	SNQVAVLYQ	4.2e-05	33
HLA-B*44:03	1	602	610	9	SNQVAVLYQ	4.2e-05	31
HLA-B*53:01	1	603	611	9	NQVAVLYQG	4.2e-05	32
HLA-A*31:01	1	605	614	10	VAVLYQGVNC	4.2e-05	47
HLA-A*11:01	1	608	616	9	LYQGVNCTE	4.2e-05	29
HLA-B*08:01	1	609	618	10	YQGVNCTEVP	4.2e-05	62
HLA-B*40:01	1	619	627	9	VATHADQLT	4.2e-05	27
HLA-B*53:01	1	621	629	9	IHADQLTPT	4.2e-05	32
HLA-B*57:01	1	623	631	9	ADQLTPTWR	4.2e-05	61
HLA-A*01:01	1	628	637	10	PTWRVYSTGS	4.2e-05	66
HLA-B*07:02	1	632	641	10	VYSTGSNVFQ	4.2e-05	43
HLA-A*26:01	1	633	642	10	YSTGSNVFQT	4.2e-05	40
HLA-A*31:01	1	633	642	10	YSTGSNVFQT	4.2e-05	47
HLA-A*02:03	1	641	649	9	QTRAGCLIG	4.2e-05	48
HLA-B*58:01	1	645	654	10	GCLIGAHEVN	4.2e-05	49
HLA-A*30:01	1	653	662	10	VNNSYECDIP	4.2e-05	72
HLA-A*02:03	1	662	671	10	PIGAGICASY	4.2e-05	48
HLA-A*03:01	1	676	684	9	NSPRRARSV	4.2e-05	39
HLA-B*58:01	1	677	685	9	SPRRARSVA	4.2e-05	49
HLA-B*08:01	1	678	687	10	PRRARSVASQ	4.2e-05	62
HLA-A*01:01	1	679	688	10	RRARSVASQS	4.2e-05	66
HLA-B*51:01	1	686	695	10	SQSIIAYTMS	4.2e-05	55
HLA-B*44:02	1	691	700	10	AYTMSLGVEN	4.2e-05	33
HLA-A*26:01	1	698	706	9	VENSVAYSN	4.2e-05	40
HLA-B*57:01	1	699	708	10	ENSVAYSNNS	4.2e-05	61
HLA-B*07:02	1	703	712	10	AYSNNSIAIP	4.2e-05	43
HLA-B*15:01	1	703	712	10	AYSNNSIAIP	4.2e-05	45
HLA-B*44:02	1	708	716	9	SIAIPTNFT	4.2e-05	33
HLA-A*33:01	1	712	721	10	PTNFTISVTT	4.2e-05	49
HLA-A*33:01	1	718	727	10	SVTTEILPVS	4.2e-05	49
HLA-A*24:02	1	725	733	9	PVSMTKTSV	4.2e-05	28
HLA-A*24:02	1	729	737	9	TKTSVDCTM	4.2e-05	28
HLA-A*68:02	1	734	743	10	DCTMYICGDS	4.2e-05	47
HLA-A*31:01	1	736	744	9	TMYICGDST	4.2e-05	47
HLA-B*58:01	1	739	748	10	ICGDSTECASN	4.2e-05	49
HLA-A*23:01	1	741	750	10	GDSTECSNLL	4.2e-05	29
HLA-A*32:01	1	741	750	10	GDSTECSNLL	4.2e-05	35
HLA-A*23:01	1	751	759	9	LQYGSFCTQ	4.2e-05	29
HLA-A*02:01	1	756	765	10	FCTQLNRALT	4.2e-05	45
HLA-A*01:01	1	760	768	9	LNRLTGTIA	4.2e-05	66
HLA-A*32:01	1	760	769	10	LNRLTGTIAV	4.2e-05	35
HLA-A*02:03	1	771	779	9	QDKNTQEVF	4.2e-05	48
HLA-A*26:01	1	779	788	10	FAQVKQIYKT	4.2e-05	40
HLA-A*24:02	1	781	789	9	QVKQIYKTP	4.2e-05	28
HLA-B*58:01	1	785	793	9	IYKTPPIKD	4.2e-05	49
HLA-B*44:03	1	793	801	9	DFGGFNFSQ	4.2e-05	31
HLA-B*57:01	1	802	810	9	ILPDPSKPS	4.2e-05	61
HLA-B*07:02	1	824	833	10	TLADAGFIKQ	4.2e-05	43
HLA-B*44:03	1	825	833	9	LADAGFIKQ	4.2e-05	31
HLA-A*30:02	1	830	839	10	FIKQYGDCLG	4.2e-05	70
HLA-A*68:02	1	834	842	9	YGDCLGDIA	4.2e-05	47
HLA-A*03:01	1	841	849	9	IAARDLICA	4.2e-05	39
HLA-A*32:01	1	851	860	10	KFNGLTVLPP	4.2e-05	35
HLA-A*33:01	1	851	860	10	KFNGLTVLPP	4.2e-05	49
HLA-A*02:03	1	859	868	10	PPLLTDEMLA	4.2e-05	48
HLA-A*33:01	1	863	871	9	TDEMIAQYT	4.2e-05	49
HLA-A*11:01	1	866	875	10	MIAQYTSALL	4.2e-05	29
HLA-A*31:01	1	874	882	9	LLAGTITSG	4.2e-05	47

HLA-B*44:02	1	881	889	9	SGWTFGAGA	4.2e-05	33
HLA-A*11:01	1	899	908	10	MAYRFNGIGV	4.2e-05	29
HLA-B*15:01	1	900	909	10	AYRFNGIGVT	4.2e-05	45
HLA-A*02:01	1	906	915	10	IGVTQNVLYE	4.2e-05	45
HLA-A*03:01	1	914	923	10	YENQKLIANQ	4.2e-05	39
HLA-A*33:01	1	916	925	10	NQKLIANQFN	4.2e-05	49
HLA-A*01:01	1	923	932	10	QFNSAIGKIQ	4.2e-05	66
HLA-A*68:02	1	924	932	9	FNSAIGKIQ	4.2e-05	47
HLA-B*51:01	1	928	937	10	IGKIQDSLSS	4.2e-05	55
HLA-B*08:01	1	931	940	10	IQDSLSTAS	4.2e-05	62
HLA-B*35:01	1	936	945	10	SSTASALGKL	4.2e-05	33
HLA-B*57:01	1	943	951	9	GKLQDVVNQ	4.2e-05	61
HLA-B*58:01	1	947	955	9	DVVNQNAQA	4.2e-05	49
HLA-A*32:01	1	950	958	9	NQNAQALNT	4.2e-05	35
HLA-B*35:01	1	959	968	10	LVKQLSSNFG	4.2e-05	33
HLA-B*40:01	1	960	969	10	VKQLSSNFGA	4.2e-05	27
HLA-A*30:01	1	966	975	10	NFGAISSVLN	4.2e-05	72
HLA-A*33:01	1	969	978	10	AISSVLNDIL	4.2e-05	49
HLA-B*44:02	1	970	978	9	ISSVLNDIL	4.2e-05	33
HLA-A*24:02	1	971	980	10	SSVLNDILSR	4.2e-05	28
HLA-A*68:01	1	975	984	10	NDILSRLDKV	4.2e-05	41
HLA-A*01:01	1	979	987	9	SRLDKVEAE	4.2e-05	66
HLA-B*07:02	1	986	995	10	AEVQIDRLIT	4.2e-05	43
HLA-A*02:01	1	987	995	9	EVQIDRLIT	4.2e-05	45
HLA-A*33:01	1	994	1003	10	ITGRLQSLQT	4.2e-05	49
HLA-B*53:01	1	996	1005	10	GRLQSLQTYV	4.2e-05	32
HLA-B*51:01	1	998	1007	10	LQSLQTYVTQ	4.2e-05	55
HLA-A*23:01	1	1004	1012	9	YVTQQLIRA	4.2e-05	29
HLA-A*31:01	1	1006	1015	10	TQQLIRAAEI	4.2e-05	47
HLA-A*11:01	1	1019	1028	10	ANLAATKMSE	4.2e-05	29
HLA-A*32:01	1	1019	1028	10	ANLAATKMSE	4.2e-05	35
HLA-B*44:03	1	1044	1052	9	YHLMSFPQS	4.2e-05	31
HLA-B*44:02	1	1045	1054	10	HLMSPQSAP	4.2e-05	33
HLA-B*15:01	1	1058	1066	9	VFLHVTVYP	4.2e-05	45
HLA-A*11:01	1	1060	1068	9	LHVTYVPAQ	4.2e-05	29
HLA-A*31:01	1	1060	1069	10	LHVTYVPAQE	4.2e-05	47
HLA-A*68:01	1	1069	1078	10	EKNFTTAPAI	4.2e-05	41
HLA-A*32:01	1	1071	1080	10	NFTTAPAICH	4.2e-05	35
HLA-B*58:01	1	1074	1082	9	TAPAICHDG	4.2e-05	49
HLA-B*07:02	1	1095	1103	9	NGTHWFVTQ	4.2e-05	43
HLA-A*01:01	1	1097	1105	9	THWFVTQRN	4.2e-05	66
HLA-B*44:02	1	1097	1105	9	THWFVTQRN	4.2e-05	33
HLA-A*11:01	1	1105	1114	10	NFYEQIITT	4.2e-05	29
HLA-A*68:02	1	1106	1115	10	FYEQIITTD	4.2e-05	47
HLA-A*02:01	1	1112	1121	10	ITTDNTFVSG	4.2e-05	45
HLA-A*11:01	1	1113	1122	10	TTDNTFVSGN	4.2e-05	29
HLA-A*01:01	1	1120	1128	9	SGNCDVVG	4.2e-05	66
HLA-A*01:01	1	1128	1137	10	GIVNNTVYDP	4.2e-05	66
HLA-A*32:01	1	1132	1140	9	NTVYDPLQP	4.2e-05	35
HLA-A*23:01	1	1146	1154	9	KEELDKYFK	4.2e-05	29
HLA-B*15:01	1	1146	1154	9	KEELDKYFK	4.2e-05	45
HLA-B*40:01	1	1146	1155	10	KEELDKYFKN	4.2e-05	27
HLA-B*44:02	1	1149	1157	9	LDKYFKNHT	4.2e-05	33
HLA-B*53:01	1	1150	1159	10	DKYFKNHTSP	4.2e-05	32
HLA-B*53:01	1	1155	1164	10	NHTSPDVDLG	4.2e-05	32
HLA-A*03:01	1	1162	1171	10	DLGDISGINA	4.2e-05	39
HLA-A*33:01	1	1176	1184	9	IQKEIDRLN	4.2e-05	49
HLA-A*33:01	1	1186	1195	10	VAKNLNESLI	4.2e-05	49
HLA-B*58:01	1	1190	1198	9	LNESLIDLQ	4.2e-05	49
HLA-A*02:01	1	1209	1217	9	WPWYIWLGF	4.2e-05	45
HLA-A*01:01	1	1214	1223	10	WLGFIAGLIA	4.2e-05	66
HLA-A*33:01	1	1220	1229	10	GLIAIVMVTI	4.2e-05	49
HLA-A*30:01	1	1242	1251	10	KGCCSCGCC	4.2e-05	72
HLA-B*58:01	1	1245	1254	10	CSCGSCCKFD	4.2e-05	49
HLA-A*30:01	1	1253	1261	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	SQCVNLTTTRT 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	AIHVSQGTNGT 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*44:02	1	75	84	10	GTKRFANPVL 4.1e-05	33
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	GWIFGTLLDS 4.1e-05	40
HLA-B*07:02	1	114	123	10	TQSLLLIVNNA 4.1e-05	43
HLA-A*68:01	1	119	128	10	IVNNATNVVI 4.1e-05	41
HLA-A*68:02	1	120	129	10	VNNATNVVIK 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-B*44:03	1	213	222	10	VRGLPQGFS 4.1e-05	31
HLA-A*02:06	1	217	225	9	PQGFSALEP 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	GFSALEPLVD 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-A*68:02	1	233	242	10	INITRFQTLH 4.1e-05	47
HLA-A*02:03	1	234	243	10	NITRFQTLHR 4.1e-05	48
HLA-A*32:01	1	245	253	9	YLTPGDSSS 4.1e-05	35
HLA-B*53:01	1	246	254	9	LTPGDSSSG 4.1e-05	32
HLA-B*35:01	1	259	268	10	AAAYYVGYLQ 4.1e-05	33
HLA-B*57:01	1	277	286	10	NENGTITDAV 4.1e-05	62
HLA-A*26:01	1	280	288	9	GTITDAVDC 4.1e-05	40
HLA-B*15:01	1	280	288	9	GTITDAVDC 4.1e-05	46
HLA-B*57:01	1	287	295	9	DCALDPLSE 4.1e-05	62
HLA-A*68:02	1	290	298	9	LDPLSETKC 4.1e-05	47
HLA-A*02:06	1	294	302	9	SETKCTLKS 4.1e-05	56
HLA-B*58:01	1	295	304	10	ETKCTLKSFT 4.1e-05	50
HLA-B*53:01	1	304	313	10	TVEKGIYQTS 4.1e-05	32
HLA-A*30:01	1	326	335	10	FPNITNLCPF 4.1e-05	72
HLA-B*44:02	1	335	343	9	FGEVFNATR 4.1e-05	33
HLA-B*53:01	1	341	349	9	ATRFASVYA 4.1e-05	32
HLA-A*31:01	1	342	351	10	TRFASVYAWN 4.1e-05	47
HLA-B*35:01	1	344	353	10	FASVYAWNRK 4.1e-05	33
HLA-B*07:02	1	345	354	10	ASVYAWNRKR 4.1e-05	43
HLA-A*33:01	1	362	370	9	YSVLYNSAS 4.1e-05	49
HLA-B*53:01	1	363	372	10	SVLYNSASFS 4.1e-05	32
HLA-A*03:01	1	373	381	9	TFKCYGVSP 4.1e-05	40
HLA-A*01:01	1	377	386	10	YGVSPTKLND 4.1e-05	66
HLA-A*68:02	1	381	389	9	PTKLNDLCF 4.1e-05	47

HLA-A*24:02	1	395	404	10	DSFVIRGDEV	4.1e-05	28
HLA-B*44:03	1	397	405	9	FVIRGDEVR	4.1e-05	31
HLA-A*30:01	1	402	410	9	DEVQRQIAPG	4.1e-05	72
HLA-A*26:01	1	407	416	10	IAPGQTGNIA	4.1e-05	40
HLA-B*57:01	1	408	416	9	APGQTGNIA	4.1e-05	62
HLA-B*51:01	1	409	418	10	PGQTGNIADY	4.1e-05	55
HLA-A*02:03	1	419	427	9	NYKLPDDFT	4.1e-05	48
HLA-A*68:02	1	426	434	9	FTGCVIAWN	4.1e-05	47
HLA-B*44:02	1	432	441	10	AWNSNNLDSK	4.1e-05	33
HLA-A*02:06	1	439	448	10	DSKVGGNYYN	4.1e-05	56
HLA-B*58:01	1	439	447	9	DSKVGGNYN	4.1e-05	50
HLA-B*15:01	1	443	452	10	GGNYNYLYRL	4.1e-05	46
HLA-B*35:01	1	446	454	9	YNYLYRFLFR	4.1e-05	33
HLA-A*02:03	1	454	463	10	RKSNLKPFR	4.1e-05	48
HLA-A*11:01	1	461	469	9	FERDISTEI	4.1e-05	29
HLA-B*07:02	1	465	473	9	ISTEIQAG	4.1e-05	43
HLA-A*03:01	1	469	477	9	IYQAGSTPC	4.1e-05	40
HLA-B*07:02	1	470	478	9	YQAGSTPCN	4.1e-05	43
HLA-B*44:02	1	470	478	9	YQAGSTPCN	4.1e-05	33
HLA-B*53:01	1	470	478	9	YQAGSTPCN	4.1e-05	32
HLA-A*01:01	1	477	485	9	CNGVKGFNC	4.1e-05	66
HLA-A*26:01	1	489	497	9	LQSYGFQPT	4.1e-05	40
HLA-B*08:01	1	507	516	10	VVLSFELLH	4.1e-05	62
HLA-A*01:01	1	514	523	10	LLHAPATVCG	4.1e-05	66
HLA-B*51:01	1	518	526	9	PATVCGPKK	4.1e-05	55
HLA-B*44:02	1	522	531	10	CGPKKSTNLV	4.1e-05	33
HLA-B*40:01	1	523	532	10	GPKKSTNLVK	4.1e-05	27
HLA-A*26:01	1	537	546	10	NFNFNGLTGT	4.1e-05	40
HLA-A*31:01	1	539	547	9	NFNGLTGTG	4.1e-05	47
HLA-A*33:01	1	543	552	10	LTGTGVLTES	4.1e-05	49
HLA-B*53:01	1	546	554	9	TGVLTESNK	4.1e-05	32
HLA-B*44:02	1	557	566	10	LPFQQFGRDI	4.1e-05	33
HLA-A*01:01	1	558	566	9	PFQQFGRDI	4.1e-05	66
HLA-B*08:01	1	558	567	10	PFQQFGRDIA	4.1e-05	62
HLA-B*44:02	1	560	569	10	QQFGRDIADT	4.1e-05	33
HLA-B*51:01	1	562	571	10	FGRDIADTTD	4.1e-05	55
HLA-A*33:01	1	568	576	9	DTTDAVRDP	4.1e-05	49
HLA-A*30:02	1	578	587	10	TLEILDITPC	4.1e-05	70
HLA-A*01:01	1	583	591	9	DITPCSFEGG	4.1e-05	66
HLA-A*26:01	1	583	591	9	DITPCSFEGG	4.1e-05	40
HLA-A*68:02	1	585	593	9	TPCSFEGGVS	4.1e-05	47
HLA-B*44:03	1	596	604	9	TPGTNTSNQ	4.1e-05	31
HLA-A*03:01	1	599	607	9	TNTSNQVAV	4.1e-05	40
HLA-B*51:01	1	608	616	9	LYQGVNCTE	4.1e-05	55
HLA-B*57:01	1	608	616	9	LYQGVNCTE	4.1e-05	62
HLA-B*35:01	1	612	621	10	VNCTEVPVAI	4.1e-05	33
HLA-A*11:01	1	620	629	10	AIHADQLTPT	4.1e-05	29
HLA-A*03:01	1	641	649	9	QTRAGCLIG	4.1e-05	40
HLA-B*51:01	1	641	649	9	QTRAGCLIG	4.1e-05	55
HLA-B*44:02	1	642	650	9	TRAGCLIGA	4.1e-05	33
HLA-A*68:01	1	652	661	10	HVNNSYECDI	4.1e-05	41
HLA-B*44:02	1	675	683	9	TNSPRRARS	4.1e-05	33
HLA-A*02:03	1	679	687	9	RRARSVASQ	4.1e-05	48
HLA-B*44:03	1	680	688	9	RARSVASQS	4.1e-05	31
HLA-A*26:01	1	691	700	10	AYTMSLGVEN	4.1e-05	40
HLA-A*32:01	1	693	701	9	TMSLGVENS	4.1e-05	35
HLA-A*26:01	1	694	703	10	MSLGVENSVA	4.1e-05	40
HLA-B*08:01	1	704	713	10	YSNNSIAIPT	4.1e-05	62
HLA-A*03:01	1	716	725	10	TISVTTEILP	4.1e-05	40
HLA-B*44:03	1	728	737	10	MTKTSVDCTM	4.1e-05	31
HLA-A*26:01	1	736	745	10	TMYICGDSTE	4.1e-05	40
HLA-A*32:01	1	736	744	9	TMYICGDST	4.1e-05	35
HLA-A*23:01	1	741	749	9	GDSTECSNL	4.1e-05	30
HLA-B*15:01	1	753	762	10	YGSFCTQLNR	4.1e-05	46
HLA-A*30:01	1	766	775	10	GIAVEQDKNT	4.1e-05	72
HLA-A*33:01	1	772	781	10	DKNTQEVFAQ	4.1e-05	49

HLA-B*44:03	1	779	787	9	FAQVKQIYK	4.1e-05	31
HLA-B*51:01	1	782	790	9	VKQIYKTPP	4.1e-05	55
HLA-B*51:01	1	791	800	10	IKDFGGFNFS	4.1e-05	55
HLA-A*24:02	1	795	804	10	GGFNFSQILP	4.1e-05	28
HLA-B*57:01	1	797	805	9	FNFSQILPD	4.1e-05	62
HLA-B*40:01	1	832	840	9	KQYGDCLGD	4.1e-05	27
HLA-A*33:01	1	833	841	9	QYGDCLGDI	4.1e-05	49
HLA-A*30:02	1	840	849	10	DIAARDLICA	4.1e-05	70
HLA-A*68:02	1	845	854	10	DLICAQKFNG	4.1e-05	47
HLA-B*58:01	1	846	854	9	LICAQKFNG	4.1e-05	50
HLA-B*51:01	1	847	856	10	ICAQKFNGLT	4.1e-05	55
HLA-A*11:01	1	865	873	9	EMIAQY TSA	4.1e-05	29
HLA-A*02:03	1	878	886	9	TITSGWTFG	4.1e-05	48
HLA-A*02:01	1	879	888	10	ITSGWTFGAG	4.1e-05	45
HLA-B*44:03	1	894	903	10	PFAMQMAYRF	4.1e-05	31
HLA-A*24:02	1	908	916	9	VTQNVLYEN	4.1e-05	28
HLA-A*02:03	1	909	917	9	TQNVLYENQ	4.1e-05	48
HLA-B*58:01	1	914	923	10	YENQKLIANQ	4.1e-05	50
HLA-A*23:01	1	944	953	10	KLQDVVNQNA	4.1e-05	30
HLA-B*35:01	1	951	960	10	QNAQALNTLV	4.1e-05	33
HLA-A*02:03	1	968	976	9	GAISSVLND	4.1e-05	48
HLA-A*01:01	1	976	985	10	DILSRLDKVE	4.1e-05	66
HLA-A*31:01	1	998	1006	9	LQSLQTYVT	4.1e-05	47
HLA-A*32:01	1	1008	1017	10	QLIRAAEIRA	4.1e-05	35
HLA-B*53:01	1	1009	1017	9	LIRAAEIRA	4.1e-05	32
HLA-A*11:01	1	1013	1022	10	AEIRASANLA	4.1e-05	29
HLA-A*31:01	1	1014	1023	10	EIRASANLAA	4.1e-05	47
HLA-B*53:01	1	1015	1023	9	IRASANLAA	4.1e-05	32
HLA-B*44:02	1	1019	1027	9	ANLAATKMS	4.1e-05	33
HLA-B*53:01	1	1020	1028	9	NLAATKMSE	4.1e-05	32
HLA-B*15:01	1	1028	1036	9	ECVLGQSKR	4.1e-05	46
HLA-B*57:01	1	1029	1038	10	CVLGQSKRVD	4.1e-05	62
HLA-B*44:02	1	1036	1045	10	RVDFCGKGYH	4.1e-05	33
HLA-A*68:01	1	1042	1050	9	KGYHLM SFP	4.1e-05	41
HLA-A*02:06	1	1054	1062	9	PHGVVFLHV	4.1e-05	56
HLA-B*07:02	1	1057	1066	10	VVFLHV TYVP	4.1e-05	43
HLA-A*11:01	1	1065	1073	9	VPAQEK NFT	4.1e-05	29
HLA-B*44:02	1	1065	1074	10	VPAQEK NFFT	4.1e-05	33
HLA-B*35:01	1	1066	1074	9	PAQEK NFFT	4.1e-05	33
HLA-A*30:02	1	1076	1084	9	PAICH DGKA	4.1e-05	70
HLA-B*57:01	1	1079	1088	10	CHDGKAHFPR	4.1e-05	62
HLA-A*68:02	1	1090	1098	9	GVFV SNGTH	4.1e-05	47
HLA-A*11:01	1	1094	1103	10	SNGTHWFVTQ	4.1e-05	29
HLA-A*68:01	1	1100	1109	10	FVTQRNFYEP	4.1e-05	41
HLA-A*33:01	1	1109	1118	10	PQIITTDNTF	4.1e-05	49
HLA-B*53:01	1	1116	1125	10	NTFVSGNCDV	4.1e-05	32
HLA-A*68:01	1	1117	1125	9	TFVSGNCDV	4.1e-05	41
HLA-A*23:01	1	1118	1126	9	FVSGNCDVV	4.1e-05	30
HLA-A*03:01	1	1130	1138	9	VNNTVYDPL	4.1e-05	40
HLA-B*57:01	1	1145	1154	10	FKEELDKYFK	4.1e-05	62
HLA-A*11:01	1	1147	1156	10	EELDKYFKNH	4.1e-05	29
HLA-B*51:01	1	1149	1158	10	LDKYFKNHTS	4.1e-05	55
HLA-A*11:01	1	1156	1164	9	HTSPDV DLG	4.1e-05	29
HLA-B*58:01	1	1160	1168	9	DVDLGD ISG	4.1e-05	50
HLA-B*15:01	1	1163	1171	9	LGDISGINA	4.1e-05	46
HLA-B*08:01	1	1167	1175	9	SGINASVVN	4.1e-05	62
HLA-A*02:06	1	1175	1184	10	NIQKEIDRLN	4.1e-05	56
HLA-B*35:01	1	1180	1188	9	IDRLNEVAK	4.1e-05	33
HLA-A*30:02	1	1184	1192	9	NEVAKNLNE	4.1e-05	70
HLA-A*33:01	1	1188	1197	10	KNLNESLIDL	4.1e-05	49
HLA-A*30:01	1	1191	1199	9	NESLIDLQE	4.1e-05	72
HLA-A*68:01	1	1202	1211	10	KYEQYIKWPW	4.1e-05	41
HLA-B*51:01	1	1202	1210	9	KYEQYIKWP	4.1e-05	55
HLA-A*01:01	1	1208	1216	9	KWPWYIWLG	4.1e-05	66
HLA-B*44:02	1	1218	1226	9	IAGLIAIVM	4.1e-05	33
HLA-A*30:01	1	1230	1238	9	MLCCMTSCC	4.1e-05	72

HLA-A*30:01	1	1232	1240	9	CCMTSCCSC	4.1e-05	72
HLA-B*58:01	1	1236	1244	9	SCCSCCLKGC	4.1e-05	50
HLA-A*30:02	1	1256	1264	9	DDSEPVKKG	4.1e-05	70
HLA-A*02:06	1	1257	1266	10	DSEPVKKGVK	4.1e-05	56
HLA-B*58:01	1	1258	1266	9	SEPVKKGVK	4.1e-05	50
HLA-B*44:02	1	1260	1268	9	PVLKGVKHLH	4.1e-05	33
HLA-B*51:01	1	1261	1270	10	VLKGVKHLHYT	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	FHAIHVSGT	4e-05	32
HLA-B*40:01	1	68	77	10	IHVSGTNGTK	4e-05	28
HLA-A*31:01	1	74	82	9	NGTKRFANP	4e-05	47
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	NVVIKVFCEQ	4e-05	56
HLA-B*08:01	1	128	136	9	IKVCEFC	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*24:02	1	207	215	9	HTPINLVRG	4e-05	29
HLA-A*11:01	1	211	220	10	NLVRGLPQGF	4e-05	30
HLA-A*26:01	1	213	222	10	VRGLPQGFS	4e-05	40
HLA-B*35:01	1	213	222	10	VRGLPQGFS	4e-05	33
HLA-B*53:01	1	213	222	10	VRGLPQGFS	4e-05	32
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*23:01	1	233	242	10	INITRFQTLH	4e-05	30
HLA-B*08:01	1	235	244	10	ITRFQTLHRS	4e-05	63
HLA-B*44:02	1	240	248	9	TLHRSYLTP	4e-05	33
HLA-B*07:02	1	246	254	9	LTPGDSSSG	4e-05	44
HLA-B*57:01	1	275	284	10	KYNENGTITD	4e-05	62
HLA-A*11:01	1	281	290	10	TITDAVDCAL	4e-05	30
HLA-A*02:01	1	282	291	10	ITDAVDCALD	4e-05	45
HLA-A*30:01	1	284	292	9	DAVDCALDP	4e-05	73
HLA-B*57:01	1	284	292	9	DAVDCALDP	4e-05	62
HLA-A*68:02	1	287	295	9	DCALDPLSE	4e-05	48
HLA-A*01:01	1	296	304	9	TKCTLKSFT	4e-05	67
HLA-A*30:02	1	296	304	9	TKCTLKSFT	4e-05	71
HLA-A*11:01	1	305	313	9	VEKGIYQTS	4e-05	30
HLA-B*40:01	1	308	317	10	GIYQTSNFRV	4e-05	28
HLA-B*53:01	1	312	321	10	TSNFRVQPT	4e-05	32
HLA-B*53:01	1	317	325	9	VQPTESIVR	4e-05	32
HLA-A*30:02	1	320	328	9	TESIVRFPN	4e-05	71
HLA-B*51:01	1	320	328	9	TESIVRFPN	4e-05	55
HLA-A*26:01	1	322	331	10	SIVRFPNITN	4e-05	40
HLA-B*35:01	1	322	330	9	SIVRFPNIT	4e-05	33
HLA-B*40:01	1	326	335	10	FPNITNLCPF	4e-05	28
HLA-B*44:02	1	330	338	9	TNLCPFGEV	4e-05	33
HLA-B*40:01	1	339	348	10	FNATRFASVY	4e-05	28



HLA-B*57:01	1	343	351	9	RFASVYAWN 4e-05	62
HLA-B*40:01	1	346	355	10	SVYAWNRKRI 4e-05	28
HLA-A*02:01	1	359	367	9	VADYSVLYN 4e-05	45
HLA-A*02:03	1	369	378	10	ASFSTFKCYG 4e-05	49
HLA-B*08:01	1	376	385	10	CYGVSPTKLN 4e-05	63
HLA-B*58:01	1	394	402	9	ADSFVIRGD 4e-05	50
HLA-A*30:01	1	410	419	10	GQTGNIADYN 4e-05	73
HLA-B*40:01	1	429	438	10	CVIAWNSNNL 4e-05	28
HLA-B*08:01	1	430	439	10	VIAWNSNNLD 4e-05	63
HLA-A*01:01	1	435	443	9	SNNLDSKVG 4e-05	67
HLA-B*44:02	1	446	454	9	YNYLYRFR 4e-05	33
HLA-A*02:03	1	449	458	10	LYRFRKSNL 4e-05	49
HLA-A*02:06	1	449	458	10	LYRFRKSNL 4e-05	56
HLA-A*01:01	1	460	468	9	PFERDISTE 4e-05	67
HLA-A*02:06	1	488	497	10	PLQSYGFQPT 4e-05	56
HLA-A*02:01	1	496	505	10	PTYGVGYQPY 4e-05	45
HLA-B*44:02	1	498	506	9	YGVGYQPYR 4e-05	33
HLA-B*57:01	1	505	513	9	YRVVLSFE 4e-05	62
HLA-B*15:01	1	520	529	10	TVCGPKKSTN 4e-05	46
HLA-A*30:01	1	524	533	10	PKKSTNLVKN 4e-05	73
HLA-B*57:01	1	538	547	10	FNFNGLTGTG 4e-05	62
HLA-A*68:01	1	539	547	9	NFNGLTGTG 4e-05	42
HLA-A*02:03	1	550	559	10	TESNKKFLPF 4e-05	49
HLA-A*33:01	1	559	567	9	FQFGRDIA 4e-05	50
HLA-A*68:01	1	560	569	10	QQFGRDIADT 4e-05	42
HLA-B*44:02	1	560	568	9	QQFGRDIAD 4e-05	33
HLA-B*58:01	1	564	572	9	RDIADTTDA 4e-05	50
HLA-A*30:02	1	570	578	9	TDAVRDPQT 4e-05	71
HLA-A*68:02	1	576	585	10	PQTLILDIT 4e-05	48
HLA-A*01:01	1	579	587	9	LEILDITPC 4e-05	67
HLA-B*57:01	1	588	596	9	SFGGVSUIT 4e-05	62
HLA-A*03:01	1	594	603	10	VITPGTNTSN 4e-05	40
HLA-A*32:01	1	594	603	10	VITPGTNTSN 4e-05	35
HLA-A*68:02	1	596	604	9	TPGTNTSNQ 4e-05	48
HLA-A*01:01	1	602	611	10	SNQVAVLYQG 4e-05	67
HLA-A*01:01	1	605	614	10	VAVLYQGVNC 4e-05	67
HLA-A*03:01	1	618	626	9	PVAIHADQL 4e-05	40
HLA-A*31:01	1	618	626	9	PVAIHADQL 4e-05	47
HLA-B*40:01	1	630	639	10	WRVYSTGSNV 4e-05	28
HLA-B*53:01	1	635	644	10	TGSNVFQTRA 4e-05	32
HLA-B*44:03	1	639	647	9	VFQTRAGCL 4e-05	31
HLA-A*01:01	1	646	654	9	CLIGAEHVN 4e-05	67
HLA-B*58:01	1	647	656	10	LIGAEHVNS 4e-05	50
HLA-A*32:01	1	657	665	9	YECDIPIGA 4e-05	35
HLA-A*68:01	1	661	670	10	IPIGAGICAS 4e-05	42
HLA-B*51:01	1	670	679	10	SYQTQTNSPR 4e-05	55
HLA-A*68:01	1	680	689	10	RARVASQSI 4e-05	42
HLA-A*33:01	1	686	695	10	SQSIIAYTMS 4e-05	50
HLA-A*03:01	1	690	699	10	IAYTMSLGVE 4e-05	40
HLA-A*11:01	1	694	703	10	MSLGVENVA 4e-05	30
HLA-A*03:01	1	707	716	10	NSIAIPTNFT 4e-05	40
HLA-A*02:03	1	713	722	10	TNFTISVTTE 4e-05	49
HLA-B*15:01	1	713	722	10	TNFTISVTTE 4e-05	46
HLA-B*07:02	1	714	722	9	NFTISVTTE 4e-05	44
HLA-A*31:01	1	723	732	10	ILPVSMTKTS 4e-05	47
HLA-B*58:01	1	724	732	9	LPVSMTKTS 4e-05	50
HLA-B*44:02	1	728	737	10	MTKTSVDCTM 4e-05	33
HLA-A*30:02	1	732	741	10	SVDCTMYICG 4e-05	71
HLA-A*26:01	1	737	746	10	MYICGDSTEC 4e-05	40
HLA-B*53:01	1	741	750	10	GDSTECSNLL 4e-05	32
HLA-B*44:02	1	751	759	9	LQYGSFCTQ 4e-05	33
HLA-A*33:01	1	756	765	10	FCTQLNRALT 4e-05	50
HLA-A*26:01	1	762	771	10	RALTGIAVEQ 4e-05	40
HLA-A*30:01	1	765	774	10	TGIAVEQDKN 4e-05	73
HLA-B*57:01	1	766	775	10	GIAVEQDKNT 4e-05	62
HLA-A*03:01	1	769	777	9	VEQDKNTQE 4e-05	40

HLA-B*08:01	1	776	784	9	QEVFAQVKQ	4e-05	63
HLA-B*53:01	1	779	788	10	FAQVKQIYKT	4e-05	32
HLA-A*01:01	1	781	790	10	VKQIYKTPP	4e-05	67
HLA-A*30:02	1	782	790	9	VKQIYKTPP	4e-05	71
HLA-B*07:02	1	787	796	10	KTPPIKDFGG	4e-05	44
HLA-A*26:01	1	794	802	9	FGGFNFSQI	4e-05	40
HLA-A*33:01	1	797	805	9	FNFSQILPD	4e-05	50
HLA-B*08:01	1	804	812	9	PDPSKPSKR	4e-05	63
HLA-A*03:01	1	816	825	10	EDLLFNKVTL	4e-05	40
HLA-A*31:01	1	828	837	10	AGFIKQYGDC	4e-05	47
HLA-B*07:02	1	830	839	10	FIKQYGDCLG	4e-05	44
HLA-A*30:02	1	831	839	9	IKQYGDCLG	4e-05	71
HLA-A*30:01	1	839	848	10	GDIAARDLIC	4e-05	73
HLA-B*40:01	1	842	851	10	AARDLICAQK	4e-05	28
HLA-A*30:02	1	875	884	10	LAGTITSGWT	4e-05	71
HLA-B*44:02	1	879	887	9	ITSGWTFGA	4e-05	33
HLA-A*30:01	1	894	903	10	PFAMQMAYRF	4e-05	73
HLA-B*44:02	1	904	913	10	NGIGVTQNVL	4e-05	33
HLA-A*32:01	1	909	917	9	TQNVLYENQ	4e-05	35
HLA-B*35:01	1	912	921	10	VLYENQKLIA	4e-05	33
HLA-A*30:02	1	917	925	9	QKLIANQFN	4e-05	71
HLA-A*24:02	1	918	926	9	KLIANQFNS	4e-05	29
HLA-B*51:01	1	918	926	9	KLIANQFNS	4e-05	55
HLA-B*08:01	1	925	933	9	NSAIGKIQD	4e-05	63
HLA-A*24:02	1	930	939	10	KIQDLSLSTA	4e-05	29
HLA-B*58:01	1	945	954	10	LQDVVNQNAQ	4e-05	50
HLA-B*35:01	1	967	975	9	FGAISSVLN	4e-05	33
HLA-A*24:02	1	983	992	10	KVEAEVQIDR	4e-05	29
HLA-A*68:02	1	999	1008	10	QSLQTYVTQQ	4e-05	48
HLA-A*02:01	1	1005	1014	10	VTQQLIRAAE	4e-05	45
HLA-B*58:01	1	1006	1014	9	TQQLIRAAE	4e-05	50
HLA-A*23:01	1	1010	1019	10	IRAAEIRASA	4e-05	30
HLA-B*35:01	1	1010	1018	9	IRAAEIRAS	4e-05	33
HLA-B*35:01	1	1037	1045	9	VDFCGKGYH	4e-05	33
HLA-A*24:02	1	1046	1054	9	LMSFPQSAP	4e-05	29
HLA-A*01:01	1	1058	1067	10	VFLHVTVVPA	4e-05	67
HLA-A*26:01	1	1060	1068	9	LHVTVVPAQ	4e-05	40
HLA-A*33:01	1	1065	1074	10	VPAQEKNFTT	4e-05	50
HLA-B*51:01	1	1072	1081	10	FTTAPAICHD	4e-05	55
HLA-B*53:01	1	1077	1085	9	AICHDGKAH	4e-05	32
HLA-B*53:01	1	1078	1087	10	ICHDGKAHFP	4e-05	32
HLA-B*44:02	1	1079	1088	10	CHDGKAHFPR	4e-05	33
HLA-B*53:01	1	1079	1087	9	CHDGKAHFP	4e-05	32
HLA-B*57:01	1	1094	1102	9	SNGTHWFVT	4e-05	62
HLA-A*26:01	1	1101	1109	9	VTQRNFYEP	4e-05	40
HLA-A*02:01	1	1102	1110	9	TQRNFYEPQ	4e-05	45
HLA-A*26:01	1	1108	1117	10	EPQIITTDNT	4e-05	40
HLA-A*30:01	1	1108	1117	10	EPQIITTDNT	4e-05	73
HLA-A*26:01	1	1113	1122	10	TTDNTFVSGN	4e-05	40
HLA-A*68:02	1	1114	1123	10	TDNTFVSGNC	4e-05	48
HLA-B*07:02	1	1116	1125	10	NTFVSGNCDV	4e-05	44
HLA-A*31:01	1	1118	1126	9	FVSGNCDVV	4e-05	47
HLA-A*11:01	1	1120	1129	10	SGNCDVVIIGI	4e-05	30
HLA-A*32:01	1	1140	1149	10	PELDSFKEEL	4e-05	35
HLA-A*24:02	1	1146	1154	9	KEELDKYFK	4e-05	29
HLA-B*44:02	1	1150	1159	10	DKYFKNHTSP	4e-05	33
HLA-B*57:01	1	1150	1159	10	DKYFKNHTSP	4e-05	62
HLA-A*30:01	1	1155	1164	10	NHTSPDVDLG	4e-05	73
HLA-B*07:02	1	1160	1168	9	DVDLGDISG	4e-05	44
HLA-A*11:01	1	1178	1187	10	KEIDRLNEVA	4e-05	30
HLA-B*40:01	1	1193	1202	10	SLIDLQELGK	4e-05	28
HLA-B*44:03	1	1195	1204	10	IDLQELGKYE	4e-05	31
HLA-A*03:01	1	1198	1207	10	QELGKYEQYI	4e-05	40
HLA-A*02:06	1	1199	1208	10	ELGKYEQYIK	4e-05	56
HLA-A*31:01	1	1210	1219	10	PWYIWLGFIA	4e-05	47
HLA-A*23:01	1	1220	1229	10	GLIAIVMVTI	4e-05	30

HLA-B*40:01	1	1220	1228	9	GLIAIVMVT	4e-05	28
HLA-A*11:01	1	1222	1230	9	IAIVMVTIM	4e-05	30
HLA-B*08:01	1	1223	1232	10	AIVMVTIMLC	4e-05	63
HLA-B*08:01	1	1228	1237	10	TIMLCCMTSC	4e-05	63
HLA-B*07:02	1	1257	1266	10	DSEPVLKGVK	4e-05	44
HLA-B*15:01	1	1257	1265	9	DSEPVLKGV	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-B*15:01	1	71	80	10	SGTNGTKRFA	3.9e-05	46
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	IRGWIFGT	3.9e-05	51
HLA-A*33:01	1	105	114	10	IFGTTLDSKT	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	VNATNVVIK	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	ATNVVIKVCE	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-B*51:01	1	210	218	9	INLVRGLPQ	3.9e-05	56
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*02:01	1	233	242	10	INITRFQTLH	3.9e-05	46
HLA-B*51:01	1	238	247	10	FQTLHRSYLT	3.9e-05	56
HLA-A*31:01	1	252	260	9	SSGWTAGAA	3.9e-05	48
HLA-B*40:01	1	254	263	10	GWTAGAAAYY	3.9e-05	28
HLA-B*08:01	1	257	266	10	AGAAAYYVGY	3.9e-05	63
HLA-B*53:01	1	261	269	9	AYYVGYLQP	3.9e-05	33
HLA-A*01:01	1	272	280	9	FLLKYNENG	3.9e-05	67
HLA-A*03:01	1	281	290	10	TITDAVDCAL	3.9e-05	40
HLA-B*44:02	1	281	290	10	TITDAVDCAL	3.9e-05	34
HLA-B*15:01	1	284	293	10	DAVDCALDPL	3.9e-05	46
HLA-B*53:01	1	289	298	10	ALDPLSETKC	3.9e-05	33
HLA-B*44:03	1	296	305	10	TKCTLKSFTV	3.9e-05	31
HLA-A*11:01	1	310	319	10	YQTSNFRVQP	3.9e-05	30
HLA-A*32:01	1	311	320	10	QTSNFRVQPT	3.9e-05	35
HLA-A*01:01	1	328	337	10	NITNLCPFGE	3.9e-05	67
HLA-A*02:01	1	329	337	9	ITNLCPFGE	3.9e-05	46
HLA-A*02:03	1	329	337	9	ITNLCPFGE	3.9e-05	49
HLA-A*68:02	1	329	337	9	ITNLCPFGE	3.9e-05	48
HLA-A*30:01	1	333	342	10	CPFGEVFNAT	3.9e-05	73

HLA-B*08:01	1	334	343	10	PFGEVFNATR 3.9e-05	63
HLA-B*08:01	1	342	351	10	TRFASVYAWN 3.9e-05	63
HLA-A*24:02	1	344	352	9	FASVYAWN 3.9e-05	29
HLA-A*24:02	1	345	353	9	ASVYAWN 3.9e-05	29
HLA-A*26:01	1	354	363	10	RISNCVADYS 3.9e-05	41
HLA-A*03:01	1	361	369	9	DYSVLYNSA 3.9e-05	40
HLA-A*24:02	1	368	377	10	SASFSTFKCY 3.9e-05	29
HLA-A*01:01	1	370	378	9	SFSTFKCYG 3.9e-05	67
HLA-A*68:01	1	370	378	9	SFSTFKCYG 3.9e-05	42
HLA-B*07:02	1	374	382	9	FKCYGVSPT 3.9e-05	44
HLA-B*35:01	1	377	385	9	YGVSPTKLN 3.9e-05	34
HLA-B*40:01	1	390	399	10	TNVYADSFVI 3.9e-05	28
HLA-A*02:06	1	392	401	10	VYADSFVIRG 3.9e-05	57
HLA-A*02:06	1	393	402	10	YADSFVIRGD 3.9e-05	57
HLA-B*44:03	1	401	410	10	GDEVQRQIAPG 3.9e-05	31
HLA-A*03:01	1	407	415	9	IAPGQTGNI 3.9e-05	40
HLA-A*68:01	1	409	418	10	PGQTGNIADY 3.9e-05	42
HLA-A*02:01	1	412	420	9	TGNIADYNY 3.9e-05	46
HLA-B*08:01	1	427	435	9	TGCVIAWNS 3.9e-05	63
HLA-A*11:01	1	429	437	9	CVIAWNSNN 3.9e-05	30
HLA-A*02:06	1	432	441	10	AWNSNNLDSK 3.9e-05	57
HLA-B*15:01	1	433	441	9	WNSNNLDSK 3.9e-05	46
HLA-A*02:01	1	443	451	9	GGNYNYLYR 3.9e-05	46
HLA-B*15:01	1	448	457	10	YLYRLFRRKSN 3.9e-05	46
HLA-B*07:02	1	454	463	10	RKSNLKPFR 3.9e-05	44
HLA-A*24:02	1	463	472	10	RDISTEIQ 3.9e-05	29
HLA-A*26:01	1	463	471	9	RDISTEIQ 3.9e-05	41
HLA-A*01:01	1	464	473	10	DISTEIQAG 3.9e-05	67
HLA-A*31:01	1	467	476	10	TEIQAGSTP 3.9e-05	48
HLA-A*31:01	1	469	478	10	IYQAGSTPCN 3.9e-05	48
HLA-B*08:01	1	474	482	9	STPCNGVKG 3.9e-05	63
HLA-A*11:01	1	479	488	10	GVKGFNCYFP 3.9e-05	30
HLA-A*33:01	1	482	491	10	GFNCYFPLQS 3.9e-05	50
HLA-A*02:03	1	484	493	10	NCYFPLQSYG 3.9e-05	49
HLA-B*07:02	1	493	501	9	GFQPTYGVG 3.9e-05	44
HLA-B*53:01	1	499	508	10	GVGYQPYRVV 3.9e-05	33
HLA-A*11:01	1	501	510	10	GYQPYRVVVL 3.9e-05	30
HLA-B*15:01	1	511	519	9	SFELLHAPA 3.9e-05	46
HLA-B*58:01	1	514	523	10	LLHAPATVCG 3.9e-05	51
HLA-B*40:01	1	517	526	10	APATVCGPKK 3.9e-05	28
HLA-A*68:02	1	520	529	10	TVCGPKKSTN 3.9e-05	48
HLA-A*02:06	1	538	547	10	FNFNGLTGTG 3.9e-05	57
HLA-B*53:01	1	543	551	9	LTGTGVLTE 3.9e-05	33
HLA-A*02:06	1	554	563	10	KKFLPFQQFG 3.9e-05	57
HLA-A*68:02	1	555	563	9	KFLPFQQFG 3.9e-05	48
HLA-B*51:01	1	559	568	10	FQQFGRDIAD 3.9e-05	56
HLA-A*30:02	1	563	572	10	GRDIADTTDA 3.9e-05	71
HLA-A*11:01	1	571	579	9	DAVRDPQTL 3.9e-05	30
HLA-B*51:01	1	578	587	10	TLEILDITPC 3.9e-05	56
HLA-A*30:01	1	583	592	10	DITPCSFGGV 3.9e-05	73
HLA-B*07:02	1	586	595	10	PCSFGGVSVI 3.9e-05	44
HLA-A*02:01	1	595	603	9	ITPGTNTSN 3.9e-05	46
HLA-A*02:03	1	597	605	9	PGTNTSNQV 3.9e-05	49
HLA-A*03:01	1	599	608	10	TNTSNQVAVL 3.9e-05	40
HLA-A*01:01	1	603	611	9	NQVAVLYQG 3.9e-05	67
HLA-B*44:02	1	606	614	9	AVLYQGVNC 3.9e-05	34
HLA-A*02:01	1	614	622	9	CTEVPVAIH 3.9e-05	46
HLA-A*03:01	1	627	635	9	TPTWRVYST 3.9e-05	40
HLA-A*33:01	1	640	648	9	FQTRAGCLI 3.9e-05	50
HLA-A*02:01	1	644	652	9	AGCLIGAHEH 3.9e-05	46
HLA-A*26:01	1	647	656	10	LIGAHEHVNS 3.9e-05	41
HLA-A*30:02	1	657	666	10	YECDIPIGAG 3.9e-05	71
HLA-A*02:06	1	660	668	9	DIPIGAGIC 3.9e-05	57
HLA-A*33:01	1	665	674	10	AGICASYQTQ 3.9e-05	50
HLA-B*53:01	1	669	677	9	ASYQTQTN 3.9e-05	33
HLA-B*51:01	1	675	683	9	TNSPRRARS 3.9e-05	56

HLA-A*11:01	1	679	688	10	RRARSVASQS	3.9e-05	30
HLA-A*23:01	1	686	695	10	SQSIIAYTMS	3.9e-05	30
HLA-A*32:01	1	687	695	9	QSIIAYTMS	3.9e-05	35
HLA-A*33:01	1	704	713	10	YSNNSIAIPT	3.9e-05	50
HLA-A*26:01	1	714	722	9	NFTISVTTE	3.9e-05	41
HLA-A*11:01	1	721	729	9	TEILPVSMT	3.9e-05	30
HLA-B*58:01	1	721	729	9	TEILPVSMT	3.9e-05	51
HLA-A*68:01	1	723	731	9	ILPVSMTKT	3.9e-05	42
HLA-A*02:01	1	729	738	10	TKTSVDCTMY	3.9e-05	46
HLA-B*07:02	1	744	752	9	TECSNLLLQ	3.9e-05	44
HLA-B*44:02	1	755	763	9	SFCTQLNRA	3.9e-05	34
HLA-B*53:01	1	758	767	10	TQLNRALTGI	3.9e-05	33
HLA-A*26:01	1	760	769	10	LNRLTGVIAV	3.9e-05	41
HLA-B*53:01	1	769	777	9	VEQDKNTQE	3.9e-05	33
HLA-A*02:01	1	771	779	9	QDKNTQEVF	3.9e-05	46
HLA-A*23:01	1	795	804	10	GGFNFSQILP	3.9e-05	30
HLA-A*30:01	1	796	805	10	GFNFSQILPD	3.9e-05	73
HLA-A*01:01	1	797	805	9	FNFSQILPD	3.9e-05	67
HLA-B*51:01	1	808	817	10	KPSKRSFIED	3.9e-05	56
HLA-B*57:01	1	819	827	9	LFNKVTLAD	3.9e-05	63
HLA-B*57:01	1	820	828	9	FNKVTLADA	3.9e-05	63
HLA-A*30:02	1	827	835	9	DAGFIKQYG	3.9e-05	71
HLA-A*02:06	1	828	837	10	AGFIKQYGDC	3.9e-05	57
HLA-A*02:03	1	838	847	10	LGDI AARDLI	3.9e-05	49
HLA-A*26:01	1	841	850	10	IAARDLICAQ	3.9e-05	41
HLA-A*02:03	1	848	856	9	CAQKFNGLT	3.9e-05	49
HLA-B*15:01	1	852	861	10	FNGLTVLPPL	3.9e-05	46
HLA-B*35:01	1	852	861	10	FNGLTVLPPL	3.9e-05	34
HLA-A*26:01	1	854	863	10	GLTVLPPLLT	3.9e-05	41
HLA-A*23:01	1	856	864	9	TVLPPLLT	3.9e-05	30
HLA-B*51:01	1	860	868	9	PLLTDEMIA	3.9e-05	56
HLA-B*51:01	1	863	872	10	TDEMIAQYTS	3.9e-05	56
HLA-A*33:01	1	872	881	10	SALLAGTITS	3.9e-05	50
HLA-B*44:02	1	873	881	9	ALLAGTITS	3.9e-05	34
HLA-B*44:03	1	889	898	10	AALQIPFAMQ	3.9e-05	31
HLA-A*02:03	1	893	901	9	IPFAMQMay	3.9e-05	49
HLA-B*07:02	1	897	905	9	MQMAYRFNG	3.9e-05	44
HLA-A*32:01	1	916	925	10	NQKLIANQFN	3.9e-05	35
HLA-B*35:01	1	916	925	10	NQKLIANQFN	3.9e-05	34
HLA-B*35:01	1	924	932	9	FNSAIGKIQ	3.9e-05	34
HLA-B*35:01	1	929	937	9	GKIQDSLSS	3.9e-05	34
HLA-A*02:03	1	935	943	9	LSSTASALG	3.9e-05	49
HLA-B*44:03	1	939	948	10	ASALGKLQDV	3.9e-05	31
HLA-A*30:01	1	946	954	9	QDVVNQNAQ	3.9e-05	73
HLA-A*33:01	1	946	954	9	QDVVNQNAQ	3.9e-05	50
HLA-B*08:01	1	946	954	9	QDVVNQNAQ	3.9e-05	63
HLA-A*33:01	1	960	969	10	VKQLSSNFGA	3.9e-05	50
HLA-B*51:01	1	963	972	10	LSSNFGAISS	3.9e-05	56
HLA-B*44:03	1	970	978	9	ISSVLNDIL	3.9e-05	31
HLA-A*26:01	1	973	982	10	VLNDILSRLD	3.9e-05	41
HLA-A*26:01	1	976	985	10	DILSRLDKVE	3.9e-05	41
HLA-B*07:02	1	980	989	10	RLDKVEAEVQ	3.9e-05	44
HLA-A*02:06	1	983	991	9	KVEAEVQID	3.9e-05	57
HLA-A*23:01	1	984	992	9	VEAEVQIDR	3.9e-05	30
HLA-B*07:02	1	991	1000	10	DRLITGRLQS	3.9e-05	44
HLA-B*44:03	1	992	1000	9	RLITGRLQS	3.9e-05	31
HLA-B*15:01	1	994	1003	10	ITGRLQSLQT	3.9e-05	46
HLA-A*11:01	1	1001	1010	10	LQTYVTQQLI	3.9e-05	30
HLA-B*44:02	1	1003	1011	9	TYVTQQLIR	3.9e-05	34
HLA-B*51:01	1	1010	1018	9	IRAAEIRAS	3.9e-05	56
HLA-A*03:01	1	1012	1021	10	AAEIRASANL	3.9e-05	40
HLA-B*44:03	1	1014	1022	9	EIRASANLA	3.9e-05	31
HLA-A*02:03	1	1018	1027	10	SANLAATKMS	3.9e-05	49
HLA-A*32:01	1	1025	1034	10	KMSECVLGQS	3.9e-05	35
HLA-B*58:01	1	1031	1040	10	LGQSKRVDFC	3.9e-05	51
HLA-A*68:02	1	1033	1042	10	QSKRVDFCGK	3.9e-05	48

HLA-B*07:02	1	1037	1045	9	VDFCGKGYH	3.9e-05	44
HLA-B*57:01	1	1037	1045	9	VDFCGKGYH	3.9e-05	63
HLA-B*58:01	1	1040	1048	9	CGKGYHLMSP	3.9e-05	51
HLA-B*07:02	1	1042	1050	9	KGYHLMSFP	3.9e-05	44
HLA-B*44:03	1	1048	1056	9	SFPQSAPHG	3.9e-05	31
HLA-B*51:01	1	1063	1071	9	TYVPAQEKD	3.9e-05	56
HLA-B*57:01	1	1068	1076	9	QEKDFTTAP	3.9e-05	63
HLA-A*01:01	1	1074	1082	9	TAPAICHDG	3.9e-05	67
HLA-A*11:01	1	1086	1094	9	FPREGVFVS	3.9e-05	30
HLA-B*44:03	1	1086	1094	9	FPREGVFVS	3.9e-05	31
HLA-A*03:01	1	1093	1102	10	VSNQTHWFVT	3.9e-05	40
HLA-A*03:01	1	1120	1129	10	SGNCDVVIGI	3.9e-05	40
HLA-B*53:01	1	1120	1129	10	SGNCDVVIGI	3.9e-05	33
HLA-B*44:02	1	1125	1133	9	VVIGIVNNT	3.9e-05	34
HLA-B*58:01	1	1128	1137	10	GIVNNTVYDP	3.9e-05	51
HLA-A*32:01	1	1146	1154	9	KEELDKYFK	3.9e-05	35
HLA-A*02:06	1	1147	1156	10	EELDKYFKNH	3.9e-05	57
HLA-A*68:01	1	1152	1161	10	YFKNHTSPDV	3.9e-05	42
HLA-A*32:01	1	1155	1163	9	NHTSPDVDL	3.9e-05	35
HLA-B*35:01	1	1164	1172	9	GDISGINAS	3.9e-05	34
HLA-B*53:01	1	1164	1173	10	GDISGINASV	3.9e-05	33
HLA-A*26:01	1	1172	1181	10	SVVNIQKEID	3.9e-05	41
HLA-A*68:01	1	1186	1195	10	VAKNLNESLI	3.9e-05	42
HLA-B*44:02	1	1190	1198	9	LNESLIDLQ	3.9e-05	34
HLA-A*02:01	1	1195	1203	9	IDLQELGKY	3.9e-05	46
HLA-A*02:06	1	1202	1211	10	KYEYIKWPW	3.9e-05	57
HLA-A*02:01	1	1205	1214	10	QYIKWPWYIW	3.9e-05	46
HLA-A*11:01	1	1206	1215	10	YIKWPWYIWL	3.9e-05	30
HLA-B*08:01	1	1207	1216	10	IKWPWYIWL	3.9e-05	63
HLA-A*30:01	1	1209	1218	10	WPWYIWLGF	3.9e-05	73
HLA-A*02:03	1	1211	1219	9	WYIWLGFIA	3.9e-05	49
HLA-B*35:01	1	1211	1219	9	WYIWLGFIA	3.9e-05	34
HLA-A*01:01	1	1218	1227	10	IAGLIAIVMV	3.9e-05	67
HLA-A*11:01	1	1220	1228	9	GLIAIVMVT	3.9e-05	30
HLA-A*30:02	1	1226	1235	10	MVTIMLCCMT	3.9e-05	71
HLA-A*02:06	1	1236	1244	9	SCCCLKGC	3.9e-05	57
HLA-A*01:01	1	1238	1247	10	CCLKGCCSC	3.9e-05	67
HLA-B*44:03	1	1245	1253	9	CSCGSCCKF	3.9e-05	31
HLA-A*68:02	1	1260	1269	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	SFTRGVVYYP	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-A*01:01	1	76	85	10	TKRFANPVLP	3.8e-05	68
HLA-A*68:01	1	78	87	10	RFANPVLPFN	3.8e-05	42
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	IFGTTLDST	3.8e-05	68
HLA-A*02:03	1	106	114	9	FGTTLDST	3.8e-05	49
HLA-A*11:01	1	114	122	9	TQSLIIVNN	3.8e-05	30
HLA-B*57:01	1	128	136	9	IKVCFQFC	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*01:01	1	210	218	9	INLVRGLPQ	3.8e-05	68
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-A*24:02	1	233	242	10	INITRFQTLH	3.8e-05	29
HLA-A*32:01	1	240	249	10	TLHRSYLTGP	3.8e-05	36
HLA-A*26:01	1	243	252	10	RSYLTDPGDSS	3.8e-05	41
HLA-B*08:01	1	243	252	10	RSYLTDPGDSS	3.8e-05	64
HLA-A*11:01	1	244	253	10	SYLTDPGDSSS	3.8e-05	30
HLA-B*58:01	1	244	252	9	SYLTDPGDSS	3.8e-05	51
HLA-B*15:01	1	256	264	9	TAGAAAYYV	3.8e-05	47
HLA-B*44:03	1	256	264	9	TAGAAAYYV	3.8e-05	32
HLA-B*51:01	1	272	280	9	FLLKYNENG	3.8e-05	56
HLA-B*53:01	1	273	282	10	LLKYNENGTI	3.8e-05	33
HLA-A*02:01	1	275	283	9	KYNENGTIT	3.8e-05	46
HLA-A*30:02	1	282	291	10	ITDAVDCALD	3.8e-05	71
HLA-A*01:01	1	284	292	9	DAVDCALDP	3.8e-05	68
HLA-A*30:01	1	284	293	10	DAVDCALDPL	3.8e-05	73
HLA-A*02:01	1	294	303	10	SETKCTLKSF	3.8e-05	46
HLA-A*03:01	1	294	302	9	SETKCTLKS	3.8e-05	41
HLA-B*35:01	1	298	306	9	CTLKSFTVE	3.8e-05	34
HLA-A*03:01	1	310	319	10	YQTSNFRVQP	3.8e-05	41
HLA-B*07:02	1	311	320	10	QTSNFRVQPT	3.8e-05	45
HLA-A*02:06	1	328	336	9	NITNLCPFG	3.8e-05	57
HLA-B*44:03	1	330	338	9	TNLCPFGEV	3.8e-05	32
HLA-B*35:01	1	336	345	10	GEVFNATRFA	3.8e-05	34
HLA-B*35:01	1	338	346	9	VFNATRFAS	3.8e-05	34
HLA-A*32:01	1	340	349	10	NATRFASVYA	3.8e-05	36
HLA-A*01:01	1	348	357	10	YAWNKRKISN	3.8e-05	68
HLA-B*44:02	1	352	360	9	RKRISNCVA	3.8e-05	34
HLA-B*07:02	1	360	368	9	ADYSVLYNS	3.8e-05	45
HLA-A*01:01	1	361	370	10	DYSVLYNSAS	3.8e-05	68
HLA-A*23:01	1	361	370	10	DYSVLYNSAS	3.8e-05	30
HLA-A*11:01	1	364	373	10	VLYNSASFST	3.8e-05	30
HLA-B*53:01	1	371	379	9	FSTFKCYGV	3.8e-05	33
HLA-B*35:01	1	373	381	9	TFKCYGVSP	3.8e-05	34
HLA-A*68:01	1	376	384	9	CYGVSPTKL	3.8e-05	42
HLA-A*03:01	1	379	388	10	VSPTKLNDLC	3.8e-05	41
HLA-A*68:01	1	379	387	9	VSPTKLNDL	3.8e-05	42
HLA-A*02:01	1	382	391	10	TKLNDLCFTN	3.8e-05	46
HLA-B*53:01	1	384	392	9	LNDLCFTNV	3.8e-05	33
HLA-A*32:01	1	389	398	10	FTNVYADSFV	3.8e-05	36
HLA-A*23:01	1	400	408	9	RGDEVQRQIA	3.8e-05	30
HLA-A*01:01	1	402	411	10	DEVQRQIAPGQ	3.8e-05	68
HLA-A*01:01	1	404	413	10	VRQIAPGQTG	3.8e-05	68
HLA-B*44:02	1	410	419	10	GQTGNIADYN	3.8e-05	34
HLA-A*24:02	1	415	423	9	IADYNYKLP	3.8e-05	29
HLA-B*44:02	1	415	423	9	IADYNYKLP	3.8e-05	34
HLA-B*40:01	1	421	430	10	KLPDDFTGCV	3.8e-05	28
HLA-A*03:01	1	429	437	9	CVIAWNSNN	3.8e-05	41
HLA-B*44:03	1	433	441	9	WNSNNLDSK	3.8e-05	32
HLA-A*02:06	1	437	445	9	NLDSKVGGN	3.8e-05	57
HLA-A*02:06	1	438	446	9	LDSKVGGNY	3.8e-05	57
HLA-A*68:02	1	444	453	10	GNVNYLYRLF	3.8e-05	48
HLA-A*32:01	1	455	464	10	KSNLKPFERD	3.8e-05	36
HLA-B*40:01	1	458	467	10	LKPFERDIST	3.8e-05	28
HLA-B*57:01	1	462	471	10	ERDISTEIQ	3.8e-05	63
HLA-A*23:01	1	464	472	9	DISTEIQQA	3.8e-05	30

HLA-A*02:01	1	466	474	9	STEIYQAGS	3.8e-05	46
HLA-A*02:03	1	466	474	9	STEIYQAGS	3.8e-05	49
HLA-A*33:01	1	466	474	9	STEIYQAGS	3.8e-05	51
HLA-A*68:01	1	470	478	9	YQAGSTPCN	3.8e-05	42
HLA-A*26:01	1	472	480	9	AGSTPCNGV	3.8e-05	41
HLA-B*40:01	1	472	480	9	AGSTPCNGV	3.8e-05	28
HLA-B*51:01	1	472	481	10	AGSTPCNGVK	3.8e-05	56
HLA-A*03:01	1	487	495	9	FPLQSYGFQ	3.8e-05	41
HLA-B*07:02	1	496	504	9	PTYGVGYQP	3.8e-05	45
HLA-B*07:02	1	498	507	10	YGVGYQPYRV	3.8e-05	45
HLA-A*23:01	1	505	513	9	YRVVLSFE	3.8e-05	30
HLA-B*44:03	1	505	514	10	YRVVLSFEL	3.8e-05	32
HLA-B*44:02	1	510	518	9	LSFELLHAP	3.8e-05	34
HLA-B*44:02	1	515	523	9	LHAPATVCG	3.8e-05	34
HLA-B*58:01	1	515	524	10	LHAPATVCGP	3.8e-05	51
HLA-B*53:01	1	521	530	10	VCGPKKSTNL	3.8e-05	33
HLA-A*02:03	1	525	534	10	KKSTNLVKNK	3.8e-05	49
HLA-A*02:06	1	525	534	10	KKSTNLVKNK	3.8e-05	57
HLA-B*08:01	1	526	535	10	KSTNLVKNKC	3.8e-05	64
HLA-A*68:02	1	537	545	9	NFNGLTG	3.8e-05	48
HLA-B*15:01	1	539	548	10	NFNGLTGTGV	3.8e-05	47
HLA-A*23:01	1	540	548	9	FNGLTGTGV	3.8e-05	30
HLA-A*03:01	1	550	558	9	TESNKKFLP	3.8e-05	41
HLA-A*23:01	1	550	558	9	TESNKKFLP	3.8e-05	30
HLA-A*01:01	1	554	563	10	KKFLPFQQFG	3.8e-05	68
HLA-B*15:01	1	555	564	10	KFLPFQQFGR	3.8e-05	47
HLA-B*07:02	1	556	564	9	FLPFQQFGR	3.8e-05	45
HLA-A*32:01	1	560	568	9	QQFGRDIAD	3.8e-05	36
HLA-B*58:01	1	562	571	10	FGRDIADTTD	3.8e-05	51
HLA-A*02:03	1	575	584	10	DPQMLEILDI	3.8e-05	49
HLA-A*30:01	1	578	587	10	TLEILDITPC	3.8e-05	73
HLA-B*53:01	1	578	586	9	TLEILDITP	3.8e-05	33
HLA-B*58:01	1	583	591	9	DITPCSFEGG	3.8e-05	51
HLA-B*15:01	1	588	596	9	SFGGVSVIT	3.8e-05	47
HLA-B*40:01	1	594	602	9	VITPGTNTS	3.8e-05	28
HLA-A*31:01	1	595	603	9	ITPGTNTSN	3.8e-05	48
HLA-A*01:01	1	608	616	9	LYQGVNCTE	3.8e-05	68
HLA-B*07:02	1	610	619	10	QGVNCTEVPV	3.8e-05	45
HLA-B*35:01	1	611	619	9	GVNCTEVPV	3.8e-05	34
HLA-B*51:01	1	611	620	10	GVNCTEVPVA	3.8e-05	56
HLA-B*15:01	1	617	625	9	VPVAIHADQ	3.8e-05	47
HLA-A*33:01	1	618	626	9	PVAIHADQL	3.8e-05	51
HLA-B*40:01	1	627	635	9	TPTWRVYST	3.8e-05	28
HLA-A*68:02	1	632	641	10	VYSTGSNVFQ	3.8e-05	48
HLA-B*44:02	1	638	646	9	NVFQTRAGC	3.8e-05	34
HLA-B*40:01	1	639	648	10	VFQTRAGCLI	3.8e-05	28
HLA-A*68:01	1	646	654	9	CLIGAEHVN	3.8e-05	42
HLA-B*51:01	1	651	660	10	EHVNNSYECD	3.8e-05	56
HLA-A*32:01	1	656	665	10	SYECDIPIGA	3.8e-05	36
HLA-B*15:01	1	658	667	10	ECDIPIGAGI	3.8e-05	47
HLA-A*03:01	1	664	672	9	GAGICASYQ	3.8e-05	41
HLA-A*68:01	1	673	681	9	TQTNSPRRA	3.8e-05	42
HLA-B*57:01	1	677	686	10	SPRRARSVAS	3.8e-05	63
HLA-B*44:02	1	695	703	9	SLGVENSVA	3.8e-05	34
HLA-B*58:01	1	695	703	9	SLGVENSVA	3.8e-05	51
HLA-B*58:01	1	698	706	9	VENSVAYSN	3.8e-05	51
HLA-A*31:01	1	704	713	10	YSNNSIAIPT	3.8e-05	48
HLA-B*44:03	1	708	716	9	SIAIPTNFT	3.8e-05	32
HLA-A*33:01	1	709	718	10	IAIPTNFTIS	3.8e-05	51
HLA-B*58:01	1	710	718	9	AIPTNFTIS	3.8e-05	51
HLA-A*26:01	1	712	720	9	PTNFTISVT	3.8e-05	41
HLA-A*33:01	1	712	720	9	PTNFTISV	3.8e-05	51
HLA-B*44:03	1	715	724	10	FTISVTTEIL	3.8e-05	32
HLA-A*68:01	1	717	726	10	ISVTTEILPV	3.8e-05	42
HLA-B*15:01	1	720	729	10	TTEILPVSM	3.8e-05	47
HLA-B*40:01	1	724	733	10	LPVSMTKTSV	3.8e-05	28



HLA-A*23:01	1	727	735	9	SMTKTSVDC	3.8e-05	30
HLA-B*40:01	1	732	740	9	SVDCTMYIC	3.8e-05	28
HLA-A*68:02	1	748	757	10	NLLLQYGSFC	3.8e-05	48
HLA-B*51:01	1	750	758	9	LLQYGSFCT	3.8e-05	56
HLA-A*24:02	1	754	762	9	GSFCTQLNR	3.8e-05	29
HLA-A*11:01	1	757	765	9	CTQLNRALT	3.8e-05	30
HLA-A*31:01	1	760	769	10	LNRALTGIAV	3.8e-05	48
HLA-A*01:01	1	765	774	10	TGIAVEQDKN	3.8e-05	68
HLA-B*40:01	1	768	776	9	AVEQDKNTQ	3.8e-05	28
HLA-B*53:01	1	768	776	9	AVEQDKNTQ	3.8e-05	33
HLA-A*30:01	1	772	781	10	DKNTQEVFAQ	3.8e-05	73
HLA-B*44:02	1	793	801	9	DFGGFNFSQ	3.8e-05	34
HLA-A*02:03	1	806	815	10	PSKPSKRSFI	3.8e-05	49
HLA-A*68:01	1	807	815	9	SKPSKRSFI	3.8e-05	42
HLA-B*40:01	1	808	816	9	KPSKRSFIE	3.8e-05	28
HLA-B*35:01	1	823	832	10	VTLADAGFIK	3.8e-05	34
HLA-B*44:03	1	824	833	10	TLADAGFIKQ	3.8e-05	32
HLA-B*44:02	1	825	833	9	LADAGFIKQ	3.8e-05	34
HLA-A*26:01	1	827	835	9	DAGFIKQYG	3.8e-05	41
HLA-B*40:01	1	839	848	10	GDIAARDLIC	3.8e-05	28
HLA-B*57:01	1	844	853	10	RDLICAQKFN	3.8e-05	63
HLA-A*26:01	1	853	862	10	NGLTVLPPLL	3.8e-05	41
HLA-A*02:06	1	859	867	9	PPLLTDEMI	3.8e-05	57
HLA-B*44:02	1	872	880	9	SALLAGTIT	3.8e-05	34
HLA-A*02:01	1	877	886	10	GTITSGWTFG	3.8e-05	46
HLA-A*03:01	1	877	886	10	GTITSGWTFG	3.8e-05	41
HLA-A*32:01	1	878	886	9	TITSGWTFG	3.8e-05	36
HLA-A*03:01	1	881	890	10	SGWTFGAGAA	3.8e-05	41
HLA-B*53:01	1	885	894	10	FGAGAALQIP	3.8e-05	33
HLA-B*44:02	1	894	903	10	PFAMQMAYRF	3.8e-05	34
HLA-B*44:03	1	901	909	9	YRFNGIGVT	3.8e-05	32
HLA-B*07:02	1	920	929	10	IANQFNISAIG	3.8e-05	45
HLA-A*03:01	1	924	932	9	FNSAIGKIQ	3.8e-05	41
HLA-B*15:01	1	928	937	10	IGKIQDSLSS	3.8e-05	47
HLA-A*23:01	1	940	949	10	SALGKLQDVV	3.8e-05	30
HLA-A*02:01	1	945	954	10	LQDVVNQNAQ	3.8e-05	46
HLA-B*40:01	1	946	954	9	QDVVNQNAQ	3.8e-05	28
HLA-B*58:01	1	950	958	9	NQNAQALNT	3.8e-05	51
HLA-B*15:01	1	951	960	10	QNAQALNTLV	3.8e-05	47
HLA-B*44:02	1	955	964	10	ALNTLVKQLS	3.8e-05	34
HLA-A*33:01	1	956	965	10	LNTLVKQLSS	3.8e-05	51
HLA-B*08:01	1	971	979	9	SSVLNDILS	3.8e-05	64
HLA-B*40:01	1	976	984	9	DILSRLDKV	3.8e-05	28
HLA-B*51:01	1	991	999	9	DRLITGRLQ	3.8e-05	56
HLA-A*26:01	1	993	1002	10	LITGRLQSLQ	3.8e-05	41
HLA-A*68:01	1	995	1003	9	TGRLQSLQT	3.8e-05	42
HLA-B*08:01	1	1016	1025	10	RASANLAATK	3.8e-05	64
HLA-B*44:03	1	1019	1027	9	ANLAATKMS	3.8e-05	32
HLA-A*68:01	1	1026	1034	9	MSECVLGQS	3.8e-05	42
HLA-A*30:01	1	1030	1038	9	VLGQSKRVD	3.8e-05	73
HLA-A*02:03	1	1034	1042	9	SKRVDFCGK	3.8e-05	49
HLA-B*58:01	1	1034	1042	9	SKRVDFCGK	3.8e-05	51
HLA-A*11:01	1	1044	1053	10	YHLMSFPQSA	3.8e-05	30
HLA-B*44:03	1	1054	1062	9	PHGVVFLHV	3.8e-05	32
HLA-B*40:01	1	1055	1064	10	HGVVFLHVTY	3.8e-05	28
HLA-A*03:01	1	1060	1069	10	LHVTVVPAQE	3.8e-05	41
HLA-A*26:01	1	1076	1085	10	PAICHGKKAH	3.8e-05	41
HLA-A*02:01	1	1079	1088	10	CHDGKAHFPR	3.8e-05	46
HLA-B*57:01	1	1088	1097	10	REGVFSVNGT	3.8e-05	63
HLA-A*02:06	1	1096	1105	10	GTHWFVTQRN	3.8e-05	57
HLA-A*24:02	1	1097	1105	9	THWFVTQRN	3.8e-05	29
HLA-A*26:01	1	1107	1116	10	YEQIITTDN	3.8e-05	41
HLA-A*30:01	1	1115	1123	9	DNTFVSGNC	3.8e-05	73
HLA-B*44:02	1	1117	1126	10	TFVSGNCDVV	3.8e-05	34
HLA-B*40:01	1	1118	1127	10	FVSGNCDVVI	3.8e-05	28
HLA-A*01:01	1	1122	1131	10	NCDVVIGIVN	3.8e-05	68

HLA-A*01:01	1	1124	1133	10	DVIVIGVNT	3.8e-05	68
HLA-A*31:01	1	1124	1133	10	DVIVIGVNT	3.8e-05	48
HLA-B*40:01	1	1132	1140	9	NTVYDPLQP	3.8e-05	28
HLA-A*30:02	1	1147	1155	9	EELDKYFKN	3.8e-05	71
HLA-A*26:01	1	1154	1163	10	KNHTSPDVDL	3.8e-05	41
HLA-B*57:01	1	1163	1172	10	LGDISGINAS	3.8e-05	63
HLA-B*08:01	1	1169	1178	10	INASVVNIQK	3.8e-05	64
HLA-A*02:03	1	1176	1184	9	IQKEIDRLN	3.8e-05	49
HLA-A*11:01	1	1176	1185	10	IQKEIDRLNE	3.8e-05	30
HLA-B*51:01	1	1176	1184	9	IQKEIDRLN	3.8e-05	56
HLA-A*03:01	1	1180	1189	10	IDRLNEVAKN	3.8e-05	41
HLA-A*68:02	1	1182	1191	10	RLNEVAKNLN	3.8e-05	48
HLA-A*30:01	1	1183	1191	9	LNEVAKNLN	3.8e-05	73
HLA-A*26:01	1	1184	1192	9	NEVAKNLNE	3.8e-05	41
HLA-B*44:03	1	1186	1195	10	VAKNLNESLI	3.8e-05	32
HLA-A*24:02	1	1193	1201	9	SLIDLQELG	3.8e-05	29
HLA-B*57:01	1	1195	1204	10	IDLQELGKYE	3.8e-05	63
HLA-B*44:03	1	1196	1204	9	DLQELGKYE	3.8e-05	32
HLA-A*33:01	1	1211	1220	10	WYIWLGFYAG	3.8e-05	51
HLA-A*01:01	1	1215	1224	10	LGFIAGLIAI	3.8e-05	68
HLA-A*03:01	1	1215	1223	9	LGFIAGLIAI	3.8e-05	41
HLA-B*07:02	1	1220	1228	9	GLIAIVMVT	3.8e-05	45
HLA-A*11:01	1	1226	1234	9	MVTIMLCCM	3.8e-05	30
HLA-A*01:01	1	1227	1236	10	VTIMLCCMTS	3.8e-05	68
HLA-A*24:02	1	1233	1241	9	CMTSCCCL	3.8e-05	29
HLA-B*51:01	1	1244	1253	10	CCSCGSCCKF	3.8e-05	56
HLA-B*57:01	1	1248	1256	9	GSCCKFDED	3.8e-05	63
HLA-B*58:01	1	1254	1263	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	SQCVNLTTTRT	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	FHAIHVSGTN	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-B*44:02	1	71	80	10	SGTNGTKRFA	3.7e-05	34
HLA-A*30:02	1	73	81	9	TNGTKRFAN	3.7e-05	72
HLA-B*44:03	1	75	83	9	GTKRFANPV	3.7e-05	32
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	NVVIKVCDFQ	3.7e-05	57
HLA-B*08:01	1	126	134	9	VVIKVCDFQ	3.7e-05	64
HLA-B*53:01	1	139	147	9	PFLGVYYHK	3.7e-05	33
HLA-B*44:02	1	146	154	9	HKNNKSWME	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*30:01	1	209	218	10	PINLVRGLPQ	3.7e-05	74
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*02:01	1	234	243	10	NITRFQTLHR	3.7e-05	47
HLA-B*07:02	1	234	243	10	NITRFQTLHR	3.7e-05	45
HLA-B*40:01	1	234	242	9	NITRFQTLH	3.7e-05	28
HLA-A*02:01	1	243	251	9	RSYLTPGDS	3.7e-05	47
HLA-A*68:02	1	253	262	10	SGWTAGAAAY	3.7e-05	49
HLA-A*11:01	1	258	267	10	GAAAYVGYL	3.7e-05	30
HLA-B*07:02	1	261	270	10	AYYVGYLQPR	3.7e-05	45
HLA-B*58:01	1	269	278	10	PRTFLLKYNE	3.7e-05	51
HLA-A*23:01	1	273	282	10	LLKYNENGTI	3.7e-05	31
HLA-B*53:01	1	276	285	10	YNENGTITDA	3.7e-05	33
HLA-B*44:03	1	285	293	9	AVDCALDPL	3.7e-05	32
HLA-B*07:02	1	298	306	9	CTLKSFTVE	3.7e-05	45
HLA-A*32:01	1	302	311	10	SFTVEKGIYQ	3.7e-05	36
HLA-A*32:01	1	304	313	10	TVEKGIYQTS	3.7e-05	36
HLA-A*11:01	1	324	333	10	VRFPNITNLC	3.7e-05	30
HLA-A*68:01	1	329	338	10	ITNLCPFGEV	3.7e-05	43
HLA-B*58:01	1	337	346	10	EVFNATRFAS	3.7e-05	51
HLA-A*24:02	1	341	349	9	ATRFASVYA	3.7e-05	29
HLA-A*02:03	1	345	353	9	ASVYAWNRRK	3.7e-05	50
HLA-B*44:02	1	356	365	10	SNCVADYSVL	3.7e-05	34
HLA-B*35:01	1	360	368	9	ADYSVLYNS	3.7e-05	34
HLA-B*53:01	1	383	391	9	KLNDLCFTN	3.7e-05	33
HLA-A*32:01	1	390	398	9	TNVYADSFV	3.7e-05	36
HLA-B*35:01	1	390	398	9	TNVYADSFV	3.7e-05	34
HLA-B*15:01	1	393	401	9	YADSFVIRG	3.7e-05	47
HLA-A*23:01	1	395	404	10	DSFVIRGDEV	3.7e-05	31
HLA-B*07:02	1	404	413	10	VRQIAPGQTG	3.7e-05	45
HLA-B*51:01	1	404	413	10	VRQIAPGQTG	3.7e-05	57
HLA-B*40:01	1	415	423	9	IADYNYKLP	3.7e-05	28
HLA-A*31:01	1	420	429	10	YKLPDDFTGC	3.7e-05	48
HLA-A*30:01	1	424	433	10	DDFTGCVIAW	3.7e-05	74
HLA-A*68:01	1	427	435	9	TGCVIAWNS	3.7e-05	43
HLA-B*08:01	1	432	441	10	AWNSNNLDSK	3.7e-05	64
HLA-B*07:02	1	446	454	9	YNYLYRFR	3.7e-05	45
HLA-A*68:01	1	452	461	10	LFRKSNLKPFP	3.7e-05	43
HLA-A*68:01	1	453	462	10	FRKSNLKPFE	3.7e-05	43
HLA-B*58:01	1	454	462	9	RKSNLKPFE	3.7e-05	51
HLA-A*30:02	1	460	468	9	PFERDISTE	3.7e-05	72
HLA-A*32:01	1	460	469	10	PFERDISTEI	3.7e-05	36
HLA-A*31:01	1	465	473	9	ISTEIQAG	3.7e-05	48
HLA-A*03:01	1	466	474	9	STEIQAGS	3.7e-05	41
HLA-B*07:02	1	473	481	9	GSTPCNGVK	3.7e-05	45
HLA-A*33:01	1	477	485	9	CNGVKGFNC	3.7e-05	51
HLA-A*32:01	1	484	493	10	NCYFPLQSYG	3.7e-05	36
HLA-A*23:01	1	511	520	10	SFELLHAPAT	3.7e-05	31
HLA-A*68:02	1	514	523	10	LLHAPATVCG	3.7e-05	49
HLA-A*02:06	1	517	526	10	APATVCGPKK	3.7e-05	57
HLA-A*23:01	1	528	536	9	TNLVKNKCV	3.7e-05	31
HLA-A*31:01	1	530	539	10	LVKNKCVNFN	3.7e-05	48
HLA-B*07:02	1	538	546	9	FNFNGLTGT	3.7e-05	45
HLA-A*24:02	1	540	548	9	FNGLTGTGV	3.7e-05	29
HLA-B*35:01	1	540	548	9	FNGLTGTGV	3.7e-05	34
HLA-B*58:01	1	540	548	9	FNGLTGTGV	3.7e-05	51
HLA-A*33:01	1	541	550	10	NGLTGTGVLT	3.7e-05	51
HLA-B*40:01	1	542	550	9	GLTGTGVLT	3.7e-05	28
HLA-B*51:01	1	542	550	9	GLTGTGVLT	3.7e-05	57
HLA-A*03:01	1	543	552	10	LTGTGVLTES	3.7e-05	41
HLA-A*68:02	1	545	554	10	GTGVLTESNK	3.7e-05	49
HLA-A*32:01	1	546	554	9	TGVLTESNK	3.7e-05	36
HLA-A*26:01	1	552	561	10	SNKKFLPFQQ	3.7e-05	41
HLA-A*01:01	1	560	569	10	QQFGRDIADT	3.7e-05	68
HLA-B*57:01	1	560	568	9	QQFGRDIAD	3.7e-05	63
HLA-B*51:01	1	566	575	10	IADTTDAVRD	3.7e-05	57
HLA-A*02:01	1	568	576	9	DTTDAVRDP	3.7e-05	47

HLA-A*31:01	1	568	577	10	DTTDAVRDPQ	3.7e-05	48
HLA-B*51:01	1	569	577	9	TTDAVRDPQ	3.7e-05	57
HLA-B*07:02	1	570	578	9	TDAVRDPQT	3.7e-05	45
HLA-A*11:01	1	574	582	9	RDPQTLEIL	3.7e-05	30
HLA-A*31:01	1	585	594	10	TPCSFGGVS	3.7e-05	48
HLA-A*26:01	1	587	596	10	CSFGGVS	3.7e-05	41
HLA-B*07:02	1	589	597	9	FGGVS	3.7e-05	45
HLA-B*15:01	1	589	597	9	FGGVS	3.7e-05	47
HLA-A*11:01	1	595	603	9	ITPGTNTSN	3.7e-05	30
HLA-A*23:01	1	603	611	9	NQVAVLYQG	3.7e-05	31
HLA-B*08:01	1	605	614	10	VAVLYQGVNC	3.7e-05	64
HLA-B*08:01	1	610	619	10	QGVNCTEVPV	3.7e-05	64
HLA-B*44:02	1	639	648	10	VFQTRAGCLI	3.7e-05	34
HLA-A*33:01	1	642	651	10	TRAGCLIGAE	3.7e-05	51
HLA-B*07:02	1	644	653	10	AGCLIGAEHV	3.7e-05	45
HLA-A*30:01	1	646	655	10	CLIGAEHVNN	3.7e-05	74
HLA-B*07:02	1	648	656	9	IGAEHVNNS	3.7e-05	45
HLA-A*02:06	1	650	658	9	AEHVNNSYE	3.7e-05	57
HLA-A*24:02	1	653	661	9	VNNSYEC	3.7e-05	29
HLA-A*02:03	1	661	670	10	IPIGAGICAS	3.7e-05	50
HLA-A*02:06	1	662	671	10	PIGAGICASY	3.7e-05	57
HLA-A*31:01	1	664	672	9	GAGICASYQ	3.7e-05	48
HLA-A*23:01	1	673	682	10	TQTNSPRRAR	3.7e-05	31
HLA-A*24:02	1	673	682	10	TQTNSPRRAR	3.7e-05	29
HLA-A*03:01	1	688	697	10	SIAYTMSLG	3.7e-05	41
HLA-A*31:01	1	690	699	10	IAYTMSLGVE	3.7e-05	48
HLA-A*03:01	1	694	703	10	MSLGVENSVA	3.7e-05	41
HLA-A*32:01	1	695	703	9	SLGVENSVA	3.7e-05	36
HLA-B*53:01	1	696	705	10	LGVENSVA	3.7e-05	33
HLA-B*35:01	1	705	713	9	SNNSIAIPT	3.7e-05	34
HLA-A*01:01	1	706	714	9	NNSIAIPTN	3.7e-05	68
HLA-A*24:02	1	709	718	10	IAIPTNFTIS	3.7e-05	29
HLA-B*44:02	1	715	724	10	FTISVTTEIL	3.7e-05	34
HLA-A*03:01	1	724	733	10	LPVSMTKTSV	3.7e-05	41
HLA-B*44:02	1	724	732	9	LPVSMTKTS	3.7e-05	34
HLA-B*40:01	1	742	751	10	DSTECNLLL	3.7e-05	28
HLA-A*02:03	1	744	753	10	TECSNLLLQY	3.7e-05	50
HLA-A*33:01	1	748	757	10	NLLLQYGSFC	3.7e-05	51
HLA-A*30:01	1	749	758	10	LLLQYGSFCT	3.7e-05	74
HLA-B*58:01	1	756	765	10	FCTQLNRALT	3.7e-05	51
HLA-A*68:02	1	766	775	10	GIAVEQDKNT	3.7e-05	49
HLA-B*40:01	1	779	787	9	FAQVKQIYK	3.7e-05	28
HLA-A*01:01	1	782	791	10	VKQIYKTPPI	3.7e-05	68
HLA-B*44:02	1	786	795	10	YKTPPIKDFG	3.7e-05	34
HLA-A*31:01	1	788	797	10	TPPIKDFGGF	3.7e-05	48
HLA-A*68:02	1	792	801	10	KDFGGFNFSQ	3.7e-05	49
HLA-B*35:01	1	812	821	10	RSFIEDLLFN	3.7e-05	34
HLA-B*08:01	1	820	829	10	FNKVTLADAG	3.7e-05	64
HLA-B*44:02	1	823	831	9	VTLADAGFI	3.7e-05	34
HLA-A*32:01	1	829	838	10	GFIKQYGDCL	3.7e-05	36
HLA-B*44:02	1	829	838	10	GFIKQYGDCL	3.7e-05	34
HLA-A*30:02	1	835	843	9	GDCLGDIAA	3.7e-05	72
HLA-B*44:03	1	835	844	10	GDCLGDIAAR	3.7e-05	32
HLA-B*44:02	1	836	844	9	DCLGDIAAR	3.7e-05	34
HLA-B*58:01	1	837	846	10	CLGDIAARDL	3.7e-05	51
HLA-B*58:01	1	840	849	10	DIAARDLICA	3.7e-05	51
HLA-A*68:01	1	855	864	10	LTVLPPLTD	3.7e-05	43
HLA-A*30:01	1	863	872	10	TDEMIAQYTS	3.7e-05	74
HLA-A*68:02	1	863	871	9	TDEMIAQYT	3.7e-05	49
HLA-A*26:01	1	867	876	10	IAQYTSALLA	3.7e-05	41
HLA-B*44:02	1	872	881	10	SALLAGTITS	3.7e-05	34
HLA-A*26:01	1	878	886	9	TITSGWTFG	3.7e-05	41
HLA-B*53:01	1	886	894	9	GAGAALQIP	3.7e-05	33
HLA-B*44:02	1	889	898	10	AALQIPFAMQ	3.7e-05	34
HLA-B*08:01	1	896	905	10	AMQMAYRFNG	3.7e-05	64
HLA-B*40:01	1	897	905	9	MQMAYRFNG	3.7e-05	28

HLA-A*23:01	1	903	912	10	FNGIGVTQNV	3.7e-05	31
HLA-A*68:01	1	905	913	9	GIGVTQNVL	3.7e-05	43
HLA-B*44:03	1	905	913	9	GIGVTQNVL	3.7e-05	32
HLA-A*26:01	1	908	917	10	VTQNVLYENQ	3.7e-05	41
HLA-B*58:01	1	916	925	10	NQKLIANQFN	3.7e-05	51
HLA-B*53:01	1	932	941	10	QDLSSTASA	3.7e-05	33
HLA-B*51:01	1	935	944	10	LSSTASALGK	3.7e-05	57
HLA-A*33:01	1	942	951	10	LGKLQDVVNQ	3.7e-05	51
HLA-B*57:01	1	943	952	10	GKLQDVVNQN	3.7e-05	63
HLA-B*58:01	1	949	957	9	VNQAQALN	3.7e-05	51
HLA-B*44:02	1	964	972	9	SSNFGAISS	3.7e-05	34
HLA-A*01:01	1	966	975	10	NFGAISSVLN	3.7e-05	68
HLA-A*68:02	1	967	976	10	FGAISSVLND	3.7e-05	49
HLA-B*35:01	1	979	988	10	SRLDKVEAEV	3.7e-05	34
HLA-A*26:01	1	981	990	10	LDKVEAEVQI	3.7e-05	41
HLA-B*44:03	1	981	989	9	LDKVEAEVQ	3.7e-05	32
HLA-B*58:01	1	987	995	9	EVQIDRLIT	3.7e-05	51
HLA-B*07:02	1	1001	1010	10	LQTYVTQQLI	3.7e-05	45
HLA-B*44:02	1	1010	1019	10	IRAAEIRASA	3.7e-05	34
HLA-A*32:01	1	1014	1023	10	EIRASANLAA	3.7e-05	36
HLA-B*44:03	1	1016	1025	10	RASANLAATK	3.7e-05	32
HLA-A*23:01	1	1017	1025	9	ASANLAATK	3.7e-05	31
HLA-B*58:01	1	1020	1028	9	NLAATKMSE	3.7e-05	51
HLA-A*33:01	1	1032	1040	9	GQSKRVDFC	3.7e-05	51
HLA-A*68:01	1	1044	1052	9	YHLMSEFPQS	3.7e-05	43
HLA-A*24:02	1	1047	1055	9	MSFPQSAPH	3.7e-05	29
HLA-A*32:01	1	1050	1058	9	PQSAPHGVV	3.7e-05	36
HLA-A*01:01	1	1059	1068	10	FLHVTVVPAQ	3.7e-05	68
HLA-A*01:01	1	1060	1069	10	LHVTVVPAQE	3.7e-05	68
HLA-A*33:01	1	1065	1073	9	VPAQEKNFT	3.7e-05	51
HLA-A*03:01	1	1068	1077	10	QEKNFTTAPA	3.7e-05	41
HLA-A*01:01	1	1069	1077	9	EKNFTTAPA	3.7e-05	68
HLA-A*68:01	1	1093	1102	10	VSNGTHWFVT	3.7e-05	43
HLA-A*31:01	1	1097	1105	9	THWFVTQRN	3.7e-05	48
HLA-A*68:01	1	1103	1111	9	QRNFYEPQI	3.7e-05	43
HLA-B*44:03	1	1105	1114	10	NFYEPQIITT	3.7e-05	32
HLA-A*26:01	1	1114	1122	9	TDNTFVSGN	3.7e-05	41
HLA-A*26:01	1	1116	1124	9	NTFVSGNCD	3.7e-05	41
HLA-A*24:02	1	1126	1135	10	VIGIVNNTVY	3.7e-05	29
HLA-B*51:01	1	1127	1136	10	IGIVNNTVYD	3.7e-05	57
HLA-B*15:01	1	1132	1140	9	NTVYDPLQP	3.7e-05	47
HLA-A*26:01	1	1147	1155	9	EELDKYFKN	3.7e-05	41
HLA-B*44:03	1	1148	1157	10	ELDKYFKNHT	3.7e-05	32
HLA-B*44:03	1	1149	1157	9	LDKYFKNHT	3.7e-05	32
HLA-A*68:01	1	1150	1158	9	DKYFKNHTS	3.7e-05	43
HLA-A*68:01	1	1160	1168	9	DVDLGDISG	3.7e-05	43
HLA-A*26:01	1	1168	1177	10	GINASVVNIQ	3.7e-05	41
HLA-A*02:06	1	1169	1177	9	INASVVNIQ	3.7e-05	57
HLA-A*32:01	1	1176	1185	10	IQKEIDRLNE	3.7e-05	36
HLA-B*58:01	1	1184	1193	10	NEVAKNLNES	3.7e-05	51
HLA-B*51:01	1	1189	1198	10	NLNESLIDLQ	3.7e-05	57
HLA-A*02:01	1	1208	1217	10	KWPWYIWLGF	3.7e-05	47
HLA-A*33:01	1	1210	1219	10	PWYIWLGFIA	3.7e-05	51
HLA-A*01:01	1	1211	1219	9	WYIWLGFIA	3.7e-05	68
HLA-A*01:01	1	1223	1232	10	AIVMVTIMLC	3.7e-05	68
HLA-A*11:01	1	1228	1236	9	TIMLCCMTS	3.7e-05	30
HLA-B*15:01	1	1234	1242	9	MTSCCCLK	3.7e-05	47
HLA-A*24:02	1	1256	1265	10	DDSEPVKGV	3.7e-05	29
HLA-B*07:02	1	1260	1268	9	PVLKGVKLV	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	CVNLTTRTQL	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	TRGVYYPDKV	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	WFHAIHVSST	3.6e-05	49
HLA-A*26:01	1	67	75	9	AIHVSSTNG	3.6e-05	42
HLA-A*02:03	1	70	79	10	VSGTNGTKRF	3.6e-05	50
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	FGTTLDSTK	3.6e-05	47
HLA-B*51:01	1	106	115	10	FGTTLDSTKQ	3.6e-05	57
HLA-A*33:01	1	107	116	10	GTTLDSTKQS	3.6e-05	51
HLA-A*26:01	1	120	129	10	VNNATNVVVK	3.6e-05	42
HLA-A*01:01	1	127	136	10	VIKVCFQFC	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*23:01	1	207	215	9	HTPINLVRG	3.6e-05	31
HLA-A*31:01	1	216	224	9	LPQGFSALE	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-B*07:02	1	233	242	10	INITRFQTLH	3.6e-05	45
HLA-A*68:01	1	237	246	10	RFQTLHRSYL	3.6e-05	43
HLA-A*26:01	1	244	252	9	SYLTPGDSS	3.6e-05	42
HLA-B*53:01	1	250	259	10	DSSSGWTAGA	3.6e-05	34
HLA-B*57:01	1	262	271	10	YYVGYLQPR	3.6e-05	64
HLA-A*24:02	1	270	278	9	RTFLLKYNE	3.6e-05	30
HLA-A*33:01	1	287	295	9	DCALDPLSE	3.6e-05	51
HLA-B*58:01	1	292	301	10	PLSETKCTLK	3.6e-05	52
HLA-B*08:01	1	294	302	9	SETKCTLKS	3.6e-05	65
HLA-A*31:01	1	295	304	10	ETKCTLKSFT	3.6e-05	49
HLA-B*35:01	1	320	329	10	TESIVRFPNI	3.6e-05	35
HLA-B*44:03	1	325	333	9	RFPNITNLC	3.6e-05	32
HLA-B*51:01	1	328	336	9	NITNLCPFG	3.6e-05	57
HLA-B*51:01	1	331	340	10	NLCPFGEVFN	3.6e-05	57
HLA-B*53:01	1	336	345	10	GEVFNATRFA	3.6e-05	34
HLA-B*57:01	1	338	346	9	VFNATRFAS	3.6e-05	64
HLA-A*02:01	1	345	353	9	ASVYAWNRK	3.6e-05	47
HLA-B*40:01	1	347	355	9	VYAWNRKRI	3.6e-05	29

HLA-A*26:01	1	348	356	9	YAWNRRKRIS	3.6e-05	42
HLA-A*02:03	1	353	362	10	KRISNCVADY	3.6e-05	50
HLA-A*24:02	1	354	362	9	RISNCVADY	3.6e-05	30
HLA-A*31:01	1	355	364	10	ISNCVADYSV	3.6e-05	49
HLA-A*24:02	1	361	370	10	DYSVLVNSAS	3.6e-05	30
HLA-B*07:02	1	366	375	10	YNSASFSTFK	3.6e-05	45
HLA-B*07:02	1	370	379	10	SFSTFKCYGV	3.6e-05	45
HLA-A*68:01	1	377	385	9	YGVSPTKLN	3.6e-05	43
HLA-A*33:01	1	379	388	10	VSPTKLNDLC	3.6e-05	51
HLA-A*68:01	1	380	388	9	SPTKLNDLC	3.6e-05	43
HLA-B*58:01	1	382	391	10	TKLNDLCFTN	3.6e-05	52
HLA-B*07:02	1	386	394	9	DLCFTNVYA	3.6e-05	45
HLA-B*07:02	1	388	397	10	CFTNVYADSF	3.6e-05	45
HLA-A*26:01	1	392	401	10	VYADSFVIRG	3.6e-05	42
HLA-A*32:01	1	403	411	9	EVQRQIAPGQ	3.6e-05	36
HLA-B*57:01	1	435	443	9	SNNLDSKVG	3.6e-05	64
HLA-A*24:02	1	443	451	9	GGNYNYLYR	3.6e-05	30
HLA-A*26:01	1	443	452	10	GGNYNYLYRL	3.6e-05	42
HLA-B*35:01	1	451	459	9	RLFRKSNLK	3.6e-05	35
HLA-A*32:01	1	452	460	9	LFRKSNLKP	3.6e-05	36
HLA-B*51:01	1	457	466	10	NLKPFERDIS	3.6e-05	57
HLA-A*01:01	1	458	467	10	LKPFERDIST	3.6e-05	69
HLA-A*24:02	1	460	468	9	PFERDISTE	3.6e-05	30
HLA-A*02:06	1	462	471	10	ERDISTEIQ	3.6e-05	58
HLA-A*30:01	1	464	473	10	DISTEIQAG	3.6e-05	74
HLA-A*33:01	1	465	473	9	ISTEIQAG	3.6e-05	51
HLA-A*23:01	1	472	480	9	AGSTPCNGV	3.6e-05	31
HLA-A*68:02	1	475	484	10	TPCNGVKGFN	3.6e-05	49
HLA-A*33:01	1	479	488	10	GVKGFNCYFP	3.6e-05	51
HLA-A*32:01	1	481	490	10	KGFNCYFPLQ	3.6e-05	36
HLA-B*53:01	1	492	501	10	YGFQPTYGVG	3.6e-05	34
HLA-A*68:02	1	495	503	9	QPTYGVGYQ	3.6e-05	49
HLA-B*44:02	1	500	509	10	VGYPYRVVV	3.6e-05	35
HLA-B*07:02	1	508	517	10	VVLSFELLHA	3.6e-05	45
HLA-B*15:01	1	515	523	9	LHAPATVCG	3.6e-05	47
HLA-A*33:01	1	526	535	10	KSTNLVKKNC	3.6e-05	51
HLA-A*02:06	1	529	537	9	NLVKNKCVN	3.6e-05	58
HLA-A*33:01	1	530	539	10	LVKNKCVNFN	3.6e-05	51
HLA-B*35:01	1	531	540	10	VKNKCVNFN	3.6e-05	35
HLA-A*31:01	1	541	549	9	NGLTGTGVL	3.6e-05	49
HLA-B*44:03	1	552	560	9	SNKKFLPFQ	3.6e-05	32
HLA-B*35:01	1	556	565	10	FLPFQQFGRD	3.6e-05	35
HLA-A*32:01	1	557	566	10	LPFQQFGRDI	3.6e-05	36
HLA-B*08:01	1	561	569	9	QFGRDIADT	3.6e-05	65
HLA-A*30:01	1	566	575	10	IADTTDAVRD	3.6e-05	74
HLA-A*03:01	1	569	578	10	TTDAVRDPQT	3.6e-05	41
HLA-A*03:01	1	570	579	10	TDAVRDPQTL	3.6e-05	41
HLA-A*03:01	1	571	579	9	DAVRDPQTL	3.6e-05	41
HLA-A*26:01	1	579	587	9	LEILDITPC	3.6e-05	42
HLA-A*33:01	1	579	587	9	LEILDITPC	3.6e-05	51
HLA-B*35:01	1	581	590	10	ILDITPCSFG	3.6e-05	35
HLA-A*68:01	1	584	593	10	ITPCSFGGVS	3.6e-05	43
HLA-B*35:01	1	588	596	9	SFGGVSVIT	3.6e-05	35
HLA-A*03:01	1	595	603	9	ITPGTNTSN	3.6e-05	41
HLA-B*15:01	1	612	621	10	VNCTEVPVAI	3.6e-05	47
HLA-B*53:01	1	614	623	10	CTEVPVAIHA	3.6e-05	34
HLA-A*26:01	1	615	624	10	TEVPVAIHAD	3.6e-05	42
HLA-B*44:02	1	620	629	10	AIHADQLTPT	3.6e-05	35
HLA-B*15:01	1	626	634	9	LTPTWRVYS	3.6e-05	47
HLA-A*26:01	1	632	641	10	VYSTGSNVFQ	3.6e-05	42
HLA-B*44:02	1	635	644	10	TGSNVFQTRA	3.6e-05	35
HLA-B*58:01	1	637	645	9	SNVFQTRAG	3.6e-05	52
HLA-A*02:06	1	641	649	9	QTRAGCLIG	3.6e-05	58
HLA-A*68:01	1	642	651	10	TRAGCLIGAE	3.6e-05	43
HLA-A*30:02	1	646	655	10	CLIGAEHVNN	3.6e-05	72
HLA-A*03:01	1	650	658	9	AEHVNNNSYE	3.6e-05	41

HLA-A*02:01	1	651	659	9	EHVNSYEC	3.6e-05	47
HLA-A*31:01	1	652	661	10	HVNSYECDI	3.6e-05	49
HLA-A*23:01	1	658	667	10	ECDIPIGAGI	3.6e-05	31
HLA-B*40:01	1	669	678	10	ASYQTQTNSP	3.6e-05	29
HLA-A*30:02	1	678	687	10	PRRARSVASQ	3.6e-05	72
HLA-B*53:01	1	685	693	9	ASQSIIAYT	3.6e-05	34
HLA-B*08:01	1	691	699	9	AYTMSLGVE	3.6e-05	65
HLA-B*44:02	1	693	702	10	TMSLGVENS	3.6e-05	35
HLA-B*57:01	1	697	705	9	GVENSVAYS	3.6e-05	64
HLA-B*07:02	1	704	713	10	YSNNSIAIPT	3.6e-05	45
HLA-B*35:01	1	727	735	9	SMTKTSVDC	3.6e-05	35
HLA-A*31:01	1	732	740	9	SVDCTMYIC	3.6e-05	49
HLA-A*01:01	1	735	743	9	CTMYICGDS	3.6e-05	69
HLA-A*01:01	1	746	755	10	CSNLLLQYGS	3.6e-05	69
HLA-A*23:01	1	754	762	9	GSFCTQLNR	3.6e-05	31
HLA-B*53:01	1	754	762	9	GSFCTQLNR	3.6e-05	34
HLA-A*33:01	1	758	766	9	TQLNRALTG	3.6e-05	51
HLA-B*35:01	1	759	767	9	QLNRALTGI	3.6e-05	35
HLA-B*51:01	1	759	768	10	QLNRALTGIA	3.6e-05	57
HLA-A*02:06	1	764	773	10	LTGIAVEQDK	3.6e-05	58
HLA-A*30:02	1	764	772	9	LTGIAVEQD	3.6e-05	72
HLA-A*30:02	1	766	775	10	GIAVEQDKNT	3.6e-05	72
HLA-A*11:01	1	767	776	10	IAVEQDKNTQ	3.6e-05	31
HLA-B*15:01	1	767	775	9	IAVEQDKNT	3.6e-05	47
HLA-A*02:06	1	773	781	9	KNTQEVFAQ	3.6e-05	58
HLA-B*35:01	1	775	784	10	TQEVFAQVKQ	3.6e-05	35
HLA-A*26:01	1	784	793	10	QIYKTPPIKD	3.6e-05	42
HLA-A*68:01	1	793	802	10	DFGGFNFSQI	3.6e-05	43
HLA-B*57:01	1	797	806	10	FNFSQILPDP	3.6e-05	64
HLA-A*01:01	1	807	816	10	SKPSKRSFIE	3.6e-05	69
HLA-B*53:01	1	817	826	10	DLLFNKVTLA	3.6e-05	34
HLA-A*30:01	1	835	843	9	GDCLGDIAA	3.6e-05	74
HLA-A*03:01	1	837	846	10	CLGDIAARDL	3.6e-05	41
HLA-A*26:01	1	841	849	9	IAARDLICA	3.6e-05	42
HLA-B*08:01	1	841	850	10	IAARDLICAQ	3.6e-05	65
HLA-B*35:01	1	843	851	9	ARDLICAQK	3.6e-05	35
HLA-B*58:01	1	852	860	9	FNGLTVLPP	3.6e-05	52
HLA-A*03:01	1	853	862	10	NGLTVLPPLL	3.6e-05	41
HLA-A*32:01	1	857	865	9	VLPPLLTDE	3.6e-05	36
HLA-B*07:02	1	862	871	10	LTDEMIAQYT	3.6e-05	45
HLA-B*44:02	1	866	875	10	MIAQYTSALL	3.6e-05	35
HLA-A*23:01	1	867	876	10	IAQYTSALLA	3.6e-05	31
HLA-A*31:01	1	868	877	10	AQYTSALLAG	3.6e-05	49
HLA-A*68:01	1	874	882	9	LLAGTITSG	3.6e-05	43
HLA-B*07:02	1	880	889	10	TSGWTFGAGA	3.6e-05	45
HLA-A*24:02	1	881	890	10	SGWTFGAGAA	3.6e-05	30
HLA-A*02:01	1	896	905	10	AMQMAYRFNG	3.6e-05	47
HLA-A*24:02	1	897	905	9	MQMAYRFNG	3.6e-05	30
HLA-A*33:01	1	906	915	10	IGVTQNVLYE	3.6e-05	51
HLA-A*68:01	1	914	922	9	YENQKLIAN	3.6e-05	43
HLA-B*35:01	1	914	923	10	YENQKLIANQ	3.6e-05	35
HLA-A*26:01	1	918	926	9	KLIANQFNS	3.6e-05	42
HLA-A*24:02	1	923	932	10	QFNSAIGKIQ	3.6e-05	30
HLA-B*44:03	1	940	949	10	SALGKLQDVV	3.6e-05	32
HLA-A*33:01	1	941	949	9	ALGKLQDVV	3.6e-05	51
HLA-A*26:01	1	945	954	10	LQDVVNQNAQ	3.6e-05	42
HLA-A*11:01	1	946	954	9	QDVVNQNAQ	3.6e-05	31
HLA-B*07:02	1	953	962	10	AQALNTLVKQ	3.6e-05	45
HLA-A*11:01	1	954	963	10	QALNTLVKQL	3.6e-05	31
HLA-A*68:02	1	958	966	9	TLVKQLSSN	3.6e-05	49
HLA-B*51:01	1	960	969	10	VKQLSSNFGA	3.6e-05	57
HLA-A*02:01	1	976	985	10	DILSRLDKVE	3.6e-05	47
HLA-A*24:02	1	984	992	9	VEAEVQIDR	3.6e-05	30
HLA-A*68:01	1	994	1003	10	ITGRLQSLQT	3.6e-05	43
HLA-A*26:01	1	998	1007	10	LQSLQTYVTQ	3.6e-05	42
HLA-B*53:01	1	1000	1008	9	SLQTYVTQQ	3.6e-05	34



HLA-A*31:01	1	1024	1033	10	TKMSECVLGQ	3.6e-05	49
HLA-B*15:01	1	1024	1033	10	TKMSECVLGQ	3.6e-05	47
HLA-A*02:03	1	1028	1036	9	ECVLGQSKR	3.6e-05	50
HLA-B*35:01	1	1028	1037	10	ECVLGQSKRV	3.6e-05	35
HLA-A*01:01	1	1031	1040	10	LGQSKRVDFC	3.6e-05	69
HLA-A*03:01	1	1049	1058	10	FPQSAPHGVV	3.6e-05	41
HLA-A*03:01	1	1063	1071	9	TYVPAQEKV	3.6e-05	41
HLA-A*03:01	1	1065	1073	9	VPAQEKVFT	3.6e-05	41
HLA-A*68:01	1	1067	1076	10	AQEKVFTTAP	3.6e-05	43
HLA-B*35:01	1	1068	1077	10	QEKVFTTAPA	3.6e-05	35
HLA-A*01:01	1	1070	1079	10	KNFTTAPAIC	3.6e-05	69
HLA-B*40:01	1	1080	1088	9	HDGKAHFPR	3.6e-05	29
HLA-B*44:02	1	1104	1113	10	RNFYEPQIIT	3.6e-05	35
HLA-A*68:01	1	1108	1117	10	EPQIITDNT	3.6e-05	43
HLA-A*23:01	1	1110	1119	10	QIITDNTFV	3.6e-05	31
HLA-B*44:02	1	1111	1119	9	IITDNTFV	3.6e-05	35
HLA-B*57:01	1	1114	1123	10	TDNTFVSGNC	3.6e-05	64
HLA-B*15:01	1	1117	1125	9	TFVSGNCDV	3.6e-05	47
HLA-B*08:01	1	1120	1128	9	SGNCDVVIG	3.6e-05	65
HLA-B*57:01	1	1124	1133	10	DVIVIGVNT	3.6e-05	64
HLA-B*53:01	1	1145	1154	10	FKEELDKYFK	3.6e-05	34
HLA-A*02:06	1	1146	1154	9	KEELDKYFK	3.6e-05	58
HLA-B*57:01	1	1147	1155	9	EELDKYFKN	3.6e-05	64
HLA-A*68:01	1	1149	1158	10	LDKYFKNHTS	3.6e-05	43
HLA-A*68:02	1	1149	1157	9	LDKYFKNHT	3.6e-05	49
HLA-B*15:01	1	1150	1159	10	DKYFKNHTSP	3.6e-05	47
HLA-A*23:01	1	1153	1161	9	FKNHTSPDV	3.6e-05	31
HLA-A*24:02	1	1164	1173	10	GDISGINASV	3.6e-05	30
HLA-B*57:01	1	1175	1184	10	NIQKEIDRLN	3.6e-05	64
HLA-B*44:03	1	1176	1185	10	IQKEIDRLNE	3.6e-05	32
HLA-A*11:01	1	1179	1187	9	EIDRLNEVA	3.6e-05	31
HLA-B*35:01	1	1193	1202	10	SLIDLQELGK	3.6e-05	35
HLA-A*31:01	1	1198	1207	10	QELGKYEQYI	3.6e-05	49
HLA-B*58:01	1	1212	1220	9	YIWLGFIAI	3.6e-05	52
HLA-A*68:01	1	1215	1223	9	LGFIAGLIA	3.6e-05	43
HLA-A*33:01	1	1218	1227	10	IAGLIAIVMV	3.6e-05	51
HLA-A*01:01	1	1220	1229	10	GLIAIVMVTI	3.6e-05	69
HLA-B*44:02	1	1221	1229	9	LIAIVMVTI	3.6e-05	35
HLA-A*32:01	1	1228	1236	9	TIMLCCMTS	3.6e-05	36
HLA-B*51:01	1	1228	1236	9	TIMLCCMTS	3.6e-05	57
HLA-A*02:01	1	1232	1241	10	CCMTSCCSC	3.6e-05	47
HLA-B*57:01	1	1238	1246	9	CCLKGCSCS	3.6e-05	64
HLA-A*30:01	1	1239	1248	10	SCLKGCSCSG	3.6e-05	74
HLA-B*44:02	1	1245	1253	9	CSCGSCCKF	3.6e-05	35
HLA-A*03:01	1	1252	1261	10	KFDEDDSEPV	3.6e-05	41
HLA-A*33:01	1	1252	1261	10	KFDEDDSEPV	3.6e-05	51
HLA-B*58:01	1	1255	1263	9	EDDSEPVLK	3.6e-05	52
HLA-B*51:01	1	1260	1268	9	PVLKGVKLH	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	PLVSSQCVNL	3.5e-05	49
HLA-B*51:01	1	13	22	10	SQCVNLTTRT	3.5e-05	58
HLA-A*23:01	1	20	29	10	TRTQLPPAYT	3.5e-05	31
HLA-B*53:01	1	21	30	10	RTQLPPAYTN	3.5e-05	34
HLA-B*44:02	1	26	34	9	PAYTNSFTR	3.5e-05	35
HLA-B*58:01	1	27	35	9	AYTNSFTRG	3.5e-05	52
HLA-A*32:01	1	32	40	9	FTRGVYYPD	3.5e-05	37
HLA-A*26:01	1	34	42	9	RGVYYPDKV	3.5e-05	42
HLA-A*23:01	1	41	50	10	KVFRSSVLHS	3.5e-05	31
HLA-A*11:01	1	43	51	9	FRSSVLHST	3.5e-05	31
HLA-B*35:01	1	53	62	10	DLFLPFFSNV	3.5e-05	35
HLA-B*15:01	1	57	66	10	PFFSNVTWFH	3.5e-05	48
HLA-B*44:03	1	60	69	10	SNVTWFHAIH	3.5e-05	33
HLA-A*68:01	1	64	72	9	WFHAIHVS	3.5e-05	43
HLA-A*32:01	1	72	81	10	GTNGTKRFAN	3.5e-05	37
HLA-A*33:01	1	90	99	10	VYFASTEKSN	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-B*58:01	1	208	217	10	TPINLVRGLP	3.5e-05	52
HLA-B*58:01	1	216	225	10	LPQGFSALEP	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-B*44:02	1	244	252	9	SYLTPGDSS	3.5e-05	35
HLA-A*31:01	1	245	253	9	YLTPGDSSS	3.5e-05	49
HLA-A*02:01	1	254	262	9	GWTAGAAAY	3.5e-05	47
HLA-B*44:03	1	260	269	10	AAYVGYLQP	3.5e-05	33
HLA-B*44:02	1	262	270	9	YVGYLQPR	3.5e-05	35
HLA-A*01:01	1	272	281	10	FLLKYNENGT	3.5e-05	69
HLA-A*30:02	1	272	281	10	FLLKYNENGT	3.5e-05	73
HLA-A*02:03	1	274	283	10	LKYNENGTIT	3.5e-05	50
HLA-A*23:01	1	277	286	10	NENGTITDAV	3.5e-05	31
HLA-A*11:01	1	285	294	10	AVDCALDPLS	3.5e-05	31
HLA-B*15:01	1	295	304	10	ETKCTLKSFT	3.5e-05	48
HLA-B*51:01	1	300	308	9	LKSFTVEKG	3.5e-05	58
HLA-A*02:03	1	312	321	10	TSNFRVQPT	3.5e-05	50
HLA-B*58:01	1	333	342	10	CPFGEVFNAT	3.5e-05	52
HLA-B*15:01	1	342	351	10	TRFASVYAWN	3.5e-05	48
HLA-B*35:01	1	347	355	9	VYAWNKRRI	3.5e-05	35
HLA-A*02:01	1	353	362	10	KRISNCVADY	3.5e-05	47
HLA-B*35:01	1	374	382	9	FKCYGVSPT	3.5e-05	35
HLA-A*68:02	1	377	385	9	YGVSPTKLN	3.5e-05	49
HLA-A*02:01	1	380	388	9	SPTKLNLDLC	3.5e-05	47
HLA-A*68:02	1	381	390	10	PTKLNLDLCFT	3.5e-05	49
HLA-A*31:01	1	399	408	10	IRGDEVQRQA	3.5e-05	49
HLA-B*35:01	1	406	414	9	QIAPGQTGN	3.5e-05	35
HLA-A*31:01	1	409	418	10	PGQTGNIADY	3.5e-05	49
HLA-A*30:02	1	423	431	9	PDDFTGCVI	3.5e-05	73
HLA-B*44:02	1	423	431	9	PDDFTGCVI	3.5e-05	35
HLA-B*08:01	1	425	434	10	DFTGCVIAWN	3.5e-05	65
HLA-A*02:01	1	426	435	10	FTGCVIAWNS	3.5e-05	47
HLA-A*01:01	1	427	435	9	TGCVIAWNS	3.5e-05	69
HLA-A*31:01	1	429	437	9	CVIAWNSNN	3.5e-05	49
HLA-A*68:01	1	457	465	9	NLKPFERDI	3.5e-05	43
HLA-A*32:01	1	459	468	10	KPFERDISTE	3.5e-05	37
HLA-A*24:02	1	464	472	9	DISTEIQAG	3.5e-05	30
HLA-A*68:01	1	464	473	10	DISTEIQAG	3.5e-05	43
HLA-A*02:01	1	465	473	9	ISTEIQAG	3.5e-05	47

HLA-A*02:01	1	465	474	10	ISTEIQAGS	3.5e-05	47
HLA-A*31:01	1	471	480	10	QAGSTPCNGV	3.5e-05	49
HLA-A*02:03	1	474	482	9	STPCNGVKG	3.5e-05	50
HLA-A*11:01	1	482	490	9	GFNCYFPLQ	3.5e-05	31
HLA-B*15:01	1	498	507	10	YGVGYQPYRV	3.5e-05	48
HLA-B*35:01	1	500	509	10	VGYPYRVVV	3.5e-05	35
HLA-A*68:02	1	504	512	9	PYRVVLSF	3.5e-05	49
HLA-A*23:01	1	510	518	9	LSFELLHAP	3.5e-05	31
HLA-A*68:02	1	515	523	9	LHAPATVCG	3.5e-05	49
HLA-A*33:01	1	519	527	9	ATVCGPKKS	3.5e-05	52
HLA-B*44:02	1	521	530	10	VCGPKKSTNL	3.5e-05	35
HLA-B*40:01	1	531	540	10	VKNKCVNFN	3.5e-05	29
HLA-A*11:01	1	538	546	9	FNFNGLTGT	3.5e-05	31
HLA-B*44:02	1	540	548	9	FNGLTGTGV	3.5e-05	35
HLA-B*07:02	1	541	550	10	NGLTGTGVL	3.5e-05	46
HLA-B*53:01	1	546	555	10	TGVLTESNKK	3.5e-05	34
HLA-A*31:01	1	549	558	10	LTESNKKFLP	3.5e-05	49
HLA-A*68:01	1	549	558	10	LTESNKKFLP	3.5e-05	43
HLA-A*01:01	1	553	561	9	NKKFLPFQQ	3.5e-05	69
HLA-B*57:01	1	553	561	9	NKKFLPFQQ	3.5e-05	64
HLA-B*44:02	1	555	564	10	KFLPFQFGR	3.5e-05	35
HLA-A*01:01	1	556	565	10	FLPFQFGRD	3.5e-05	69
HLA-B*08:01	1	556	565	10	FLPFQFGRD	3.5e-05	65
HLA-A*02:06	1	557	566	10	LPFQFGRDI	3.5e-05	58
HLA-A*30:01	1	557	565	9	LPFQFGRD	3.5e-05	74
HLA-B*44:03	1	557	566	10	LPFQFGRDI	3.5e-05	33
HLA-B*07:02	1	560	569	10	QQFGRDIAD	3.5e-05	46
HLA-B*44:02	1	568	576	9	DTTDAVRDP	3.5e-05	35
HLA-B*58:01	1	576	585	10	PQTLILDIT	3.5e-05	52
HLA-B*40:01	1	577	586	10	QTLILDITP	3.5e-05	29
HLA-A*03:01	1	578	587	10	TLEILDITPC	3.5e-05	42
HLA-B*57:01	1	583	591	9	DITPCSFGG	3.5e-05	64
HLA-A*30:01	1	589	598	10	FGGVSUITPG	3.5e-05	74
HLA-A*33:01	1	595	603	9	ITPGTNTSN	3.5e-05	52
HLA-B*40:01	1	607	615	9	VLYQGVNCT	3.5e-05	29
HLA-B*53:01	1	607	615	9	VLYQGVNCT	3.5e-05	34
HLA-A*68:01	1	611	620	10	GVNCTEVPVA	3.5e-05	43
HLA-A*68:01	1	612	620	9	VNCTEVPVA	3.5e-05	43
HLA-A*03:01	1	617	625	9	VPVAIHADQ	3.5e-05	42
HLA-A*31:01	1	619	628	10	VAIHADQLTP	3.5e-05	49
HLA-B*15:01	1	623	631	9	ADQLTPTWR	3.5e-05	48
HLA-A*11:01	1	630	639	10	WRVYSTGSNV	3.5e-05	31
HLA-B*51:01	1	643	652	10	RAGCLIGAEH	3.5e-05	58
HLA-A*33:01	1	644	653	10	AGCLIGAEHV	3.5e-05	52
HLA-A*02:03	1	646	655	10	CLIGAEHVNN	3.5e-05	50
HLA-B*15:01	1	647	656	10	LIGAEHVNNS	3.5e-05	48
HLA-B*07:02	1	657	666	10	YECDIPIGAG	3.5e-05	46
HLA-B*57:01	1	661	670	10	IPIGAGICAS	3.5e-05	64
HLA-A*02:01	1	662	671	10	PIGAGICASY	3.5e-05	47
HLA-A*68:01	1	668	677	10	CASYQTQTN	3.5e-05	43
HLA-B*40:01	1	670	679	10	SYQTQTNspr	3.5e-05	29
HLA-A*26:01	1	676	685	10	NSPRRARSVA	3.5e-05	42
HLA-B*44:03	1	687	696	10	QSIAYTMSL	3.5e-05	33
HLA-B*51:01	1	699	708	10	ENSVAYSNNS	3.5e-05	58
HLA-A*11:01	1	703	712	10	AYSNNSIAIP	3.5e-05	31
HLA-A*68:01	1	711	720	10	IPNFTISVT	3.5e-05	43
HLA-B*08:01	1	712	720	9	PTNFTISVT	3.5e-05	65
HLA-B*53:01	1	714	722	9	NFTISVTE	3.5e-05	34
HLA-A*03:01	1	728	736	9	MTKTSVDCT	3.5e-05	42
HLA-A*33:01	1	731	740	10	TSVDCTMYIC	3.5e-05	52
HLA-A*30:01	1	739	747	9	ICGDSTEC	3.5e-05	74
HLA-A*33:01	1	741	750	10	GDSTECNLL	3.5e-05	52
HLA-B*44:02	1	747	755	9	SNLLQYGS	3.5e-05	35
HLA-B*51:01	1	748	757	10	NLLQYGSFC	3.5e-05	58
HLA-B*07:02	1	749	757	9	LLLQYGSFC	3.5e-05	46
HLA-B*57:01	1	752	761	10	QYGSFCTQLN	3.5e-05	64

HLA-B*35:01	1	758	766	9	TQLNRALTG	3.5e-05	35
HLA-A*68:01	1	771	780	10	QDKNTQEVFA	3.5e-05	43
HLA-A*02:03	1	772	780	9	DKNTQEVFA	3.5e-05	50
HLA-B*07:02	1	779	788	10	FAQVKQIYKT	3.5e-05	46
HLA-A*68:01	1	785	793	9	IYKTPPIKD	3.5e-05	43
HLA-B*44:03	1	786	795	10	YKTPPIKDFG	3.5e-05	33
HLA-A*11:01	1	801	810	10	QILPDPSPKPS	3.5e-05	31
HLA-A*24:02	1	801	809	9	QILPDPSPK	3.5e-05	30
HLA-A*02:06	1	809	818	10	PSKRSFIEDL	3.5e-05	58
HLA-A*30:02	1	815	824	10	IEDLLFNKVT	3.5e-05	73
HLA-A*31:01	1	818	827	10	LLFNKVTLAD	3.5e-05	49
HLA-A*24:02	1	823	832	10	VTLADAGFIK	3.5e-05	30
HLA-A*02:06	1	830	839	10	FIKQYGDCLG	3.5e-05	58
HLA-B*57:01	1	834	842	9	YGDCLGDIA	3.5e-05	64
HLA-A*03:01	1	839	847	9	GDIAARDLI	3.5e-05	42
HLA-A*01:01	1	859	867	9	PPLLTDEMI	3.5e-05	69
HLA-A*02:03	1	860	869	10	PLLTDEMIAQ	3.5e-05	50
HLA-B*44:02	1	867	876	10	IAQYTSALLA	3.5e-05	35
HLA-B*08:01	1	868	877	10	AQYTSALLAG	3.5e-05	65
HLA-B*35:01	1	869	877	9	QYTSALLAG	3.5e-05	35
HLA-B*58:01	1	869	877	9	QYTSALLAG	3.5e-05	52
HLA-A*03:01	1	878	886	9	TITSGWTFG	3.5e-05	42
HLA-A*26:01	1	895	904	10	FAMQMAYRFN	3.5e-05	42
HLA-A*11:01	1	898	906	9	QMAYRFNGI	3.5e-05	31
HLA-A*26:01	1	900	909	10	AYRFNGIGVT	3.5e-05	42
HLA-A*31:01	1	901	909	9	YRFNGIGVT	3.5e-05	49
HLA-B*15:01	1	902	911	10	RFNGIGVTQN	3.5e-05	48
HLA-A*23:01	1	909	918	10	TQNVLYENQK	3.5e-05	31
HLA-A*02:01	1	913	921	9	LYENQKLIA	3.5e-05	47
HLA-A*11:01	1	914	923	10	YENQKLIANQ	3.5e-05	31
HLA-B*35:01	1	915	923	9	ENQKLIANQ	3.5e-05	35
HLA-B*08:01	1	921	930	10	ANQFNSAIGK	3.5e-05	65
HLA-A*33:01	1	935	943	9	LSSTASALG	3.5e-05	52
HLA-B*08:01	1	937	946	10	STASALGKLQ	3.5e-05	65
HLA-A*01:01	1	941	950	10	ALGKLQDVVN	3.5e-05	69
HLA-A*33:01	1	943	951	9	GKLQDVVNQ	3.5e-05	52
HLA-A*31:01	1	956	964	9	LNTLVKQLS	3.5e-05	49
HLA-B*15:01	1	968	976	9	GAISSVLND	3.5e-05	48
HLA-A*11:01	1	970	978	9	ISSVLNDIL	3.5e-05	31
HLA-A*30:01	1	976	985	10	DILSRLDKVE	3.5e-05	74
HLA-A*26:01	1	978	986	9	LSRLDKVEA	3.5e-05	42
HLA-A*23:01	1	983	992	10	KVEAEVQIDR	3.5e-05	31
HLA-A*24:02	1	985	994	10	EAEVQIDRLI	3.5e-05	30
HLA-B*15:01	1	986	995	10	AEVQIDRLIT	3.5e-05	48
HLA-A*32:01	1	987	996	10	EVQIDRLITG	3.5e-05	37
HLA-A*11:01	1	991	999	9	DRLITGRLQ	3.5e-05	31
HLA-A*31:01	1	994	1003	10	ITGRLQSLQT	3.5e-05	49
HLA-B*08:01	1	994	1002	9	ITGRLQSLQ	3.5e-05	65
HLA-A*03:01	1	998	1006	9	LQSLQTYVT	3.5e-05	42
HLA-A*32:01	1	1005	1014	10	VTQQLIRAAE	3.5e-05	37
HLA-A*68:02	1	1009	1018	10	LIRAAEIRAS	3.5e-05	49
HLA-A*68:01	1	1018	1027	10	SANLAATKMS	3.5e-05	43
HLA-B*15:01	1	1018	1027	10	SANLAATKMS	3.5e-05	48
HLA-B*44:03	1	1035	1043	9	KRVDFCGKG	3.5e-05	33
HLA-A*02:03	1	1040	1048	9	CGKGYHLMS	3.5e-05	50
HLA-B*15:01	1	1040	1048	9	CGKGYHLMS	3.5e-05	48
HLA-A*33:01	1	1067	1076	10	AQEKNFTTAP	3.5e-05	52
HLA-A*11:01	1	1068	1076	9	QEKNFTTAP	3.5e-05	31
HLA-A*03:01	1	1069	1077	9	EKNFTTAPA	3.5e-05	42
HLA-A*03:01	1	1070	1079	10	KNFTTAPAIC	3.5e-05	42
HLA-B*58:01	1	1071	1079	9	NFTTAPAIC	3.5e-05	52
HLA-A*26:01	1	1072	1081	10	FTTAPAICHD	3.5e-05	42
HLA-B*53:01	1	1073	1081	9	TTAPAICHD	3.5e-05	34
HLA-A*32:01	1	1075	1083	9	APAICHDGK	3.5e-05	37
HLA-A*30:02	1	1086	1095	10	FPREGVFVSN	3.5e-05	73
HLA-B*53:01	1	1095	1104	10	NGTHWFVTQR	3.5e-05	34

HLA-A*03:01	1	1103	1112	10	QRNFYEPQII	3.5e-05	42
HLA-B*44:03	1	1110	1119	10	QIITDNTFV	3.5e-05	33
HLA-A*23:01	1	1111	1119	9	IITDNTFV	3.5e-05	31
HLA-A*30:01	1	1114	1123	10	TDNTFVSGNC	3.5e-05	74
HLA-B*58:01	1	1114	1122	9	TDNTFVSGN	3.5e-05	52
HLA-A*30:02	1	1115	1123	9	DNTFVSGNC	3.5e-05	73
HLA-B*57:01	1	1117	1125	9	TFVSGNCDV	3.5e-05	64
HLA-B*53:01	1	1124	1133	10	DVVIGIVNNT	3.5e-05	34
HLA-B*07:02	1	1129	1137	9	IVNNTVYDP	3.5e-05	46
HLA-B*58:01	1	1130	1139	10	VNNTVYDPLQ	3.5e-05	52
HLA-A*30:01	1	1131	1139	9	NNTVYDPLQ	3.5e-05	74
HLA-B*57:01	1	1139	1148	10	QPELDSFKEE	3.5e-05	64
HLA-A*26:01	1	1145	1154	10	FKEELDKYFK	3.5e-05	42
HLA-A*26:01	1	1148	1157	10	ELDKYFKNHT	3.5e-05	42
HLA-A*01:01	1	1152	1160	9	YFKNHTSPD	3.5e-05	69
HLA-A*26:01	1	1156	1165	10	HTSPDVDLGD	3.5e-05	42
HLA-B*44:03	1	1156	1164	9	HTSPDVDLG	3.5e-05	33
HLA-A*02:06	1	1157	1165	9	TSPDVDLGD	3.5e-05	58
HLA-A*02:03	1	1158	1166	9	SPDVDLGD	3.5e-05	50
HLA-A*33:01	1	1168	1177	10	GINASVVNIQ	3.5e-05	52
HLA-A*11:01	1	1200	1209	10	LGKYEQYIKW	3.5e-05	31
HLA-B*53:01	1	1200	1208	9	LGKYEQYIK	3.5e-05	34
HLA-B*58:01	1	1207	1216	10	IKWPWYIWLG	3.5e-05	52
HLA-B*57:01	1	1210	1218	9	PWYIWLGF	3.5e-05	64
HLA-B*57:01	1	1212	1220	9	YIWLGF	3.5e-05	64
HLA-A*24:02	1	1214	1222	9	WLGFIAGLI	3.5e-05	30
HLA-A*11:01	1	1219	1227	9	AGLIAIVMV	3.5e-05	31
HLA-A*33:01	1	1221	1230	10	LIAIVMVTIM	3.5e-05	52
HLA-A*31:01	1	1227	1235	9	VTIMLC	3.5e-05	49
HLA-B*51:01	1	1234	1242	9	MTSCC	3.5e-05	58
HLA-A*02:06	1	1251	1260	10	CKFDEDDSEP	3.5e-05	58
HLA-B*44:03	1	1251	1260	10	CKFDEDDSEP	3.5e-05	33
HLA-A*68:01	1	1256	1264	9	DDSEPV	3.5e-05	43
HLA-B*15:01	1	1257	1266	10	DSEPV	3.5e-05	48
HLA-A*11:01	1	1258	1267	10	SEPV	3.5e-05	31
HLA-A*23:01	1	1261	1270	10	VLKGV	3.5e-05	31
HLA-B*44:02	1	2	10	9	FVFLV	3.4e-05	35
HLA-B*53:01	1	13	21	9	SQCVN	3.4e-05	34
HLA-A*11:01	1	18	27	10	LTRT	3.4e-05	31
HLA-B*51:01	1	21	30	10	RTQL	3.4e-05	58
HLA-B*44:02	1	33	42	10	TRGV	3.4e-05	35
HLA-A*30:01	1	39	48	10	PKV	3.4e-05	75
HLA-A*68:01	1	42	51	10	VFR	3.4e-05	44
HLA-A*02:06	1	52	60	9	QDL	3.4e-05	58
HLA-A*32:01	1	55	63	9	FLP	3.4e-05	37
HLA-A*02:03	1	61	69	9	NVT	3.4e-05	51
HLA-A*02:06	1	63	72	10	TWF	3.4e-05	58
HLA-B*44:03	1	68	76	9	IHV	3.4e-05	33
HLA-B*40:01	1	70	79	10	VSG	3.4e-05	29
HLA-A*30:01	1	79	88	10	FAN	3.4e-05	75
HLA-A*30:02	1	79	88	10	FAN	3.4e-05	73
HLA-A*03:01	1	82	90	9	PV	3.4e-05	42
HLA-B*51:01	1	87	96	10	NDG	3.4e-05	58
HLA-A*33:01	1	96	105	10	EKS	3.4e-05	52
HLA-A*01:01	1	100	108	9	IIR	3.4e-05	70
HLA-A*11:01	1	104	112	9	WIF	3.4e-05	31
HLA-A*33:01	1	106	115	10	FGT	3.4e-05	52
HLA-B*35:01	1	106	114	9	FGT	3.4e-05	35
HLA-A*33:01	1	117	126	10	LLI	3.4e-05	52
HLA-A*32:01	1	123	132	10	ATN	3.4e-05	37
HLA-A*30:02	1	124	132	9	TNV	3.4e-05	73
HLA-A*11:01	1	143	151	9	VYH	3.4e-05	31
HLA-B*57:01	1	143	151	9	VYH	3.4e-05	65
HLA-A*01:01	1	147	156	10	KNN	3.4e-05	70
HLA-A*32:01	1	147	155	9	KNN	3.4e-05	37
HLA-B*35:01	1	153	162	10	MESE	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*68:01	1	213	222	10	VRGLPQGFSA	3.4e-05	44
HLA-B*44:02	1	213	222	10	VRGLPQGFSA	3.4e-05	35
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-B*57:01	1	240	249	10	TLHRSYLTPG	3.4e-05	65
HLA-B*07:02	1	255	264	10	WTAGAAAYYV	3.4e-05	46
HLA-A*24:02	1	257	266	10	AGAAAYYVGY	3.4e-05	30
HLA-B*58:01	1	268	277	10	QPRTFLLKYN	3.4e-05	53
HLA-A*26:01	1	273	282	10	LLKYNENGTI	3.4e-05	42
HLA-A*03:01	1	277	285	9	NENGTITDA	3.4e-05	42
HLA-B*08:01	1	284	292	9	DAVDCALDP	3.4e-05	66
HLA-A*02:03	1	285	294	10	AVDCALDPLS	3.4e-05	51
HLA-A*30:02	1	286	295	10	VDCALDPLSE	3.4e-05	73
HLA-B*15:01	1	300	309	10	LKSFTVEKGI	3.4e-05	48
HLA-B*07:02	1	302	311	10	SFTVEKGIYQ	3.4e-05	46
HLA-A*23:01	1	310	319	10	YQTSNFRVQP	3.4e-05	32
HLA-A*11:01	1	318	327	10	QPTESIVRFP	3.4e-05	31
HLA-A*32:01	1	325	334	10	RFPNITNLCP	3.4e-05	37
HLA-A*02:06	1	326	334	9	FPNITNLCP	3.4e-05	58
HLA-A*33:01	1	327	335	9	PNITNLCPF	3.4e-05	52
HLA-B*58:01	1	330	338	9	TNLCPFGEV	3.4e-05	53
HLA-A*32:01	1	331	340	10	NLCPFGEVFN	3.4e-05	37
HLA-A*68:01	1	331	340	10	NLCPFGEVFN	3.4e-05	44
HLA-A*02:01	1	335	344	10	FGEVFNATRF	3.4e-05	48
HLA-A*26:01	1	342	351	10	TRFASVYAWN	3.4e-05	42
HLA-B*15:01	1	344	353	10	FASVYAWNRR	3.4e-05	48
HLA-B*44:02	1	344	352	9	FASVYAWNRR	3.4e-05	35
HLA-A*01:01	1	351	360	10	NRKRISNCVA	3.4e-05	70
HLA-A*31:01	1	355	363	9	ISNCVADYS	3.4e-05	50
HLA-B*15:01	1	361	369	9	DYSVLYNSA	3.4e-05	48
HLA-A*68:02	1	370	378	9	SFSTFKCYG	3.4e-05	50
HLA-B*15:01	1	371	379	9	SFSTFKCYGV	3.4e-05	48
HLA-B*40:01	1	372	381	10	STFKCYGVSP	3.4e-05	29
HLA-A*31:01	1	379	388	10	VSPTKLNDLC	3.4e-05	50
HLA-A*02:01	1	380	389	10	SPTKLNDLCF	3.4e-05	48
HLA-A*30:02	1	381	390	10	PTKLNDLCFT	3.4e-05	73
HLA-A*11:01	1	384	392	9	LNDLCFTNV	3.4e-05	31
HLA-B*51:01	1	386	395	10	DLCFTNVYAD	3.4e-05	58
HLA-B*15:01	1	390	398	9	TNVYADSFV	3.4e-05	48
HLA-B*44:03	1	393	401	9	YADSFVIRG	3.4e-05	33
HLA-A*23:01	1	397	405	9	FVIRGDEV	3.4e-05	32
HLA-B*44:02	1	397	405	9	FVIRGDEV	3.4e-05	35
HLA-B*35:01	1	401	409	9	GDEV	3.4e-05	35
HLA-B*57:01	1	403	412	10	EVRIAPGQT	3.4e-05	65
HLA-B*15:01	1	412	421	10	TGNIADYNYK	3.4e-05	48
HLA-B*35:01	1	414	423	10	NIADYNYKLP	3.4e-05	35
HLA-A*68:01	1	415	423	9	IADYNYKLP	3.4e-05	44
HLA-B*44:03	1	420	429	10	YKLPDDFTGC	3.4e-05	33
HLA-B*53:01	1	420	429	10	YKLPDDFTGC	3.4e-05	34
HLA-B*07:02	1	430	439	10	VIAWNSNNLD	3.4e-05	46
HLA-A*02:06	1	433	441	9	WNSNNLDSK	3.4e-05	58
HLA-B*08:01	1	442	451	10	VGGNYNYLYR	3.4e-05	66
HLA-B*44:02	1	447	455	9	NYLYRLFRK	3.4e-05	35
HLA-B*53:01	1	455	463	9	KSNLKPFE	3.4e-05	34
HLA-A*02:03	1	467	475	9	TEIYQAGST	3.4e-05	51
HLA-A*26:01	1	472	481	10	AGSTPCNGVK	3.4e-05	42
HLA-A*11:01	1	489	497	9	LQSYGFQPT	3.4e-05	31
HLA-B*15:01	1	493	501	9	GFQPTYGVG	3.4e-05	48

HLA-A*11:01	1	494	503	10	FOPTYGVGYQ	3.4e-05	31
HLA-A*23:01	1	499	508	10	GVGYQPYRVV	3.4e-05	32
HLA-A*26:01	1	500	509	10	VGYPYRVVV	3.4e-05	42
HLA-A*26:01	1	509	518	10	VLSFELLHAP	3.4e-05	42
HLA-A*24:02	1	511	520	10	SFELLHAPAT	3.4e-05	30
HLA-B*44:02	1	522	530	9	CGPKKSTNL	3.4e-05	35
HLA-A*01:01	1	530	539	10	LVKNKCVNFN	3.4e-05	70
HLA-A*01:01	1	539	547	9	NFNGLTGTG	3.4e-05	70
HLA-A*23:01	1	547	555	9	GVLTESNKK	3.4e-05	32
HLA-B*53:01	1	555	564	10	KFLPFQQFGR	3.4e-05	34
HLA-A*30:02	1	562	571	10	FGRDIADTTD	3.4e-05	73
HLA-A*32:01	1	565	574	10	DIADTTDAVR	3.4e-05	37
HLA-A*02:01	1	571	580	10	DAVRDPQTLE	3.4e-05	48
HLA-B*44:02	1	571	580	10	DAVRDPQTLE	3.4e-05	35
HLA-B*44:03	1	577	585	9	QTLIELDIT	3.4e-05	33
HLA-B*07:02	1	578	586	9	TLEILDITP	3.4e-05	46
HLA-A*26:01	1	586	595	10	PCSFGGVSVI	3.4e-05	42
HLA-A*03:01	1	587	596	10	CSFGGVSVIT	3.4e-05	42
HLA-B*53:01	1	588	596	9	SFGGVSVIT	3.4e-05	34
HLA-A*02:01	1	597	605	9	PGTNTSNQV	3.4e-05	48
HLA-B*08:01	1	601	610	10	TSNQVAVLYQ	3.4e-05	66
HLA-A*32:01	1	605	614	10	VAVLYQGVNC	3.4e-05	37
HLA-B*35:01	1	606	614	9	AVLYQGVNC	3.4e-05	35
HLA-B*44:03	1	608	617	10	LYQGVNCTEV	3.4e-05	33
HLA-A*30:02	1	616	624	9	EVPVAIHAD	3.4e-05	73
HLA-A*30:02	1	616	625	10	EVPVAIHADQ	3.4e-05	73
HLA-A*26:01	1	619	627	9	VAIHADQLT	3.4e-05	42
HLA-A*23:01	1	627	635	9	TPTWRVYST	3.4e-05	32
HLA-B*44:03	1	627	635	9	TPTWRVYST	3.4e-05	33
HLA-A*02:03	1	633	641	9	YSTGSNVFQ	3.4e-05	51
HLA-A*32:01	1	633	641	9	YSTGSNVFQ	3.4e-05	37
HLA-B*07:02	1	650	659	10	AEHVNNSYEC	3.4e-05	46
HLA-B*57:01	1	651	659	9	EHVNNSYEC	3.4e-05	65
HLA-A*30:01	1	658	666	9	ECDIPIGAG	3.4e-05	75
HLA-B*58:01	1	661	670	10	IPIGAGICAS	3.4e-05	53
HLA-A*02:06	1	663	672	10	IGAGICASYQ	3.4e-05	58
HLA-B*07:02	1	666	674	9	GICASYQTQ	3.4e-05	46
HLA-A*68:01	1	668	676	9	CASYQTQTN	3.4e-05	44
HLA-A*31:01	1	681	690	10	ARSVASQSII	3.4e-05	50
HLA-A*68:01	1	681	689	9	ARSVASQSI	3.4e-05	44
HLA-A*02:06	1	697	706	10	GVENSVAYSN	3.4e-05	58
HLA-A*68:01	1	698	706	9	VENSVAYSN	3.4e-05	44
HLA-B*35:01	1	698	706	9	VENSVAYSN	3.4e-05	35
HLA-A*24:02	1	700	709	10	NSVAYSNNSI	3.4e-05	30
HLA-A*32:01	1	705	713	9	SNNSIAIPT	3.4e-05	37
HLA-A*03:01	1	709	718	10	IAIPTNFTIS	3.4e-05	42
HLA-A*26:01	1	713	722	10	TNFTISVTE	3.4e-05	42
HLA-A*03:01	1	717	726	10	ISVTTEILPV	3.4e-05	42
HLA-A*68:01	1	717	725	9	ISVTTEILP	3.4e-05	44
HLA-A*33:01	1	732	740	9	SVDCTMYIC	3.4e-05	52
HLA-A*31:01	1	738	746	9	YICGDSTEC	3.4e-05	50
HLA-B*08:01	1	744	752	9	TECSNLLLQ	3.4e-05	66
HLA-A*33:01	1	745	754	10	ECSNLLLQYG	3.4e-05	52
HLA-B*07:02	1	750	758	9	LLQYGSFCT	3.4e-05	46
HLA-A*03:01	1	760	768	9	LNRRALTGIA	3.4e-05	42
HLA-A*33:01	1	768	776	9	AVEQDKNTQ	3.4e-05	52
HLA-A*33:01	1	789	797	9	PPIKDFGGF	3.4e-05	52
HLA-A*03:01	1	795	804	10	GGFNFSQILP	3.4e-05	42
HLA-A*68:01	1	796	804	9	GFNFSQILP	3.4e-05	44
HLA-B*07:02	1	804	813	10	PDPSKPSKRS	3.4e-05	46
HLA-A*02:01	1	805	814	10	DPSKPSKRFS	3.4e-05	48
HLA-B*44:02	1	806	815	10	PSKPSKRFSI	3.4e-05	35
HLA-B*15:01	1	809	818	10	PSKRFSIEDL	3.4e-05	48
HLA-B*53:01	1	810	818	9	SKRSFIEDL	3.4e-05	34
HLA-B*58:01	1	819	828	10	LFNKVTLADA	3.4e-05	53
HLA-A*26:01	1	829	838	10	GFIKQYGDC	3.4e-05	42

HLA-A*33:01	1	832	841	10	KQYGDCLGDI	3.4e-05	52
HLA-B*58:01	1	839	848	10	GDIAARDLIC	3.4e-05	53
HLA-A*23:01	1	842	851	10	AARDLICAQK	3.4e-05	32
HLA-A*03:01	1	853	861	9	NGLTVLPPL	3.4e-05	42
HLA-A*03:01	1	858	866	9	LPPLLTDEM	3.4e-05	42
HLA-A*11:01	1	858	866	9	LPPLLTDEM	3.4e-05	31
HLA-A*68:02	1	859	867	9	PPLLTDEMI	3.4e-05	50
HLA-B*44:03	1	872	880	9	SALLAGTIT	3.4e-05	33
HLA-B*07:02	1	886	894	9	GAGAALQIP	3.4e-05	46
HLA-B*35:01	1	886	894	9	GAGAALQIP	3.4e-05	35
HLA-A*31:01	1	896	905	10	AMQMAYRFNG	3.4e-05	50
HLA-A*03:01	1	901	909	9	YRFNGIGVT	3.4e-05	42
HLA-B*35:01	1	907	915	9	GVTQNVLYE	3.4e-05	35
HLA-B*51:01	1	907	915	9	GVTQNVLYE	3.4e-05	58
HLA-A*11:01	1	910	919	10	QNVLYENQKL	3.4e-05	31
HLA-A*02:06	1	914	923	10	YENQKLIANQ	3.4e-05	58
HLA-A*68:02	1	917	926	10	QKLIANQFNS	3.4e-05	50
HLA-B*07:02	1	918	926	9	KLIANQFNS	3.4e-05	46
HLA-B*44:02	1	929	938	10	GKIQDSLST	3.4e-05	35
HLA-B*57:01	1	929	938	10	GKIQDSLST	3.4e-05	65
HLA-B*58:01	1	931	940	10	IQDSLSTAS	3.4e-05	53
HLA-A*02:06	1	935	944	10	LSSTASALGK	3.4e-05	58
HLA-A*11:01	1	950	959	10	NQNAQALNTL	3.4e-05	31
HLA-B*07:02	1	955	964	10	ALNTLVKQLS	3.4e-05	46
HLA-A*03:01	1	963	971	9	LSSNFGAIS	3.4e-05	42
HLA-B*07:02	1	966	975	10	NFGAISSVLN	3.4e-05	46
HLA-A*32:01	1	975	984	10	NDILSRDLKV	3.4e-05	37
HLA-B*44:03	1	980	989	10	RLDKVEAEVQ	3.4e-05	33
HLA-A*02:01	1	986	995	10	AEVQIDRLIT	3.4e-05	48
HLA-A*03:01	1	990	999	10	IDRLITGRLQ	3.4e-05	42
HLA-B*35:01	1	991	1000	10	DRLITGRLQS	3.4e-05	35
HLA-B*35:01	1	998	1007	10	LQSLQTYVTQ	3.4e-05	35
HLA-A*26:01	1	1015	1024	10	IRASANLAAT	3.4e-05	42
HLA-A*24:02	1	1022	1031	10	AATKMSECVL	3.4e-05	30
HLA-A*26:01	1	1034	1042	9	SKRVDFCGK	3.4e-05	42
HLA-B*44:02	1	1034	1042	9	SKRVDFCGK	3.4e-05	35
HLA-A*68:02	1	1041	1049	9	GKGYHLMSF	3.4e-05	50
HLA-A*11:01	1	1045	1054	10	HLMSFPQSAP	3.4e-05	31
HLA-B*15:01	1	1048	1056	9	SFPQSAPHG	3.4e-05	48
HLA-B*51:01	1	1060	1069	10	LHVTYVPAQE	3.4e-05	58
HLA-A*24:02	1	1061	1070	10	HVTYVPAQEK	3.4e-05	30
HLA-A*02:01	1	1065	1073	9	VPAQEKNFT	3.4e-05	48
HLA-A*11:01	1	1067	1076	10	AQEKNFHTTAP	3.4e-05	31
HLA-A*32:01	1	1067	1076	10	AQEKNFHTTAP	3.4e-05	37
HLA-B*44:02	1	1075	1084	10	APAICHDGKA	3.4e-05	35
HLA-A*11:01	1	1078	1086	9	ICHDGKAHF	3.4e-05	31
HLA-A*31:01	1	1078	1087	10	ICHDGKAHFP	3.4e-05	50
HLA-A*68:01	1	1082	1091	10	GKAHFPREGV	3.4e-05	44
HLA-B*15:01	1	1099	1108	10	WFVTQRNFYE	3.4e-05	48
HLA-A*33:01	1	1114	1123	10	TDNTFVSGNC	3.4e-05	52
HLA-B*51:01	1	1114	1123	10	TDNTFVSGNC	3.4e-05	58
HLA-B*58:01	1	1128	1136	9	GIVNNTVYD	3.4e-05	53
HLA-A*26:01	1	1134	1143	10	VYDPLQPELD	3.4e-05	42
HLA-B*35:01	1	1140	1149	10	PELDSFKEEL	3.4e-05	35
HLA-B*15:01	1	1143	1151	9	DSFKEELDK	3.4e-05	48
HLA-B*53:01	1	1146	1154	9	KEELDKYFK	3.4e-05	34
HLA-A*31:01	1	1152	1160	9	YFKNHTSPD	3.4e-05	50
HLA-B*35:01	1	1154	1163	10	KNHTSPDVLD	3.4e-05	35
HLA-A*30:01	1	1157	1165	9	TSPDVLDGD	3.4e-05	75
HLA-A*68:02	1	1162	1170	9	DLGDISGIN	3.4e-05	50
HLA-A*03:01	1	1163	1171	9	LGDISGINA	3.4e-05	42
HLA-B*35:01	1	1163	1172	10	LGDISGINAS	3.4e-05	35
HLA-A*11:01	1	1164	1173	10	GDISGINASV	3.4e-05	31
HLA-A*23:01	1	1164	1173	10	GDISGINASV	3.4e-05	32
HLA-B*07:02	1	1167	1175	9	SGINASVVN	3.4e-05	46
HLA-A*01:01	1	1173	1181	9	VVNIQKEID	3.4e-05	70



HLA-B*40:01	1	1176	1184	9	IQKEIDRLN	3.4e-05	29
HLA-B*51:01	1	1182	1191	10	RLNEVAKNLN	3.4e-05	58
HLA-B*44:03	1	1183	1192	10	LNEVAKNLNE	3.4e-05	33
HLA-A*68:02	1	1184	1192	9	NEVAKNLNE	3.4e-05	50
HLA-B*44:03	1	1185	1193	9	EVAKNLNES	3.4e-05	33
HLA-A*32:01	1	1187	1195	9	AKNLNESLI	3.4e-05	37
HLA-A*68:02	1	1194	1202	9	LIDLQELGK	3.4e-05	50
HLA-B*44:02	1	1196	1205	10	DLQELGKYEQ	3.4e-05	35
HLA-A*32:01	1	1215	1223	9	LGFIAGLIA	3.4e-05	37
HLA-A*23:01	1	1217	1226	10	FIAGLIAIVM	3.4e-05	32
HLA-A*23:01	1	1225	1234	10	VMVTIMLCCM	3.4e-05	32
HLA-A*23:01	1	1226	1234	9	MVTIMLCCM	3.4e-05	32
HLA-B*08:01	1	1244	1253	10	CCSCGSCCKF	3.4e-05	66
HLA-B*53:01	1	1244	1253	10	CCSCGSCCKF	3.4e-05	34
HLA-B*57:01	1	1250	1259	10	CCKFDEDDSE	3.4e-05	65
HLA-A*02:06	1	1251	1259	9	CKFDEDDSE	3.4e-05	58
HLA-B*07:02	1	1256	1264	9	DDSEPVKLG	3.4e-05	46
HLA-B*57:01	1	1256	1264	9	DDSEPVKLG	3.4e-05	65
HLA-B*53:01	1	1260	1268	9	PVLKGVKHL	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	QCVNLTTRT	3.3e-05	50
HLA-A*32:01	1	14	23	10	QCVNLTTRTQ	3.3e-05	37
HLA-A*03:01	1	17	25	9	NLTTRTQLP	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	YDPKVFRRSS	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*35:01	1	75	84	10	GTKRFANPVL	3.3e-05	36
HLA-A*11:01	1	76	84	9	TKRFANPVL	3.3e-05	32
HLA-A*01:01	1	79	88	10	FANPVLPFND	3.3e-05	70
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*01:01	1	206	215	10	KHTPINLVRG	3.3e-05	70
HLA-A*02:01	1	207	215	9	HTPINLVRG	3.3e-05	48
HLA-B*35:01	1	207	215	9	HTPINLVRG	3.3e-05	36
HLA-A*02:06	1	208	217	10	TPINLVRGLP	3.3e-05	59
HLA-A*02:01	1	212	221	10	LVRGLPQGFS	3.3e-05	48
HLA-B*35:01	1	212	221	10	LVRGLPQGFS	3.3e-05	36

HLA-B*07:02	1	223	232	10	LEPLVDLPIG 3.3e-05	47
HLA-A*30:02	1	242	250	9	HRSYLTPGD 3.3e-05	73
HLA-B*44:03	1	252	261	10	SSGWTAGAAA 3.3e-05	33
HLA-A*26:01	1	253	261	9	SGWTAGAAA 3.3e-05	43
HLA-B*07:02	1	273	281	9	LLKYNENGT 3.3e-05	47
HLA-B*07:02	1	274	283	10	LKYNENGTIT 3.3e-05	47
HLA-A*01:01	1	275	284	10	KYNENGTITD 3.3e-05	70
HLA-A*26:01	1	275	283	9	KYNENGTIT 3.3e-05	43
HLA-B*53:01	1	275	283	9	KYNENGTIT 3.3e-05	35
HLA-B*51:01	1	279	288	10	NGTITDAVDC 3.3e-05	59
HLA-B*40:01	1	284	293	10	DAVDCALDPL 3.3e-05	30
HLA-A*30:02	1	287	295	9	DCALDPLSE 3.3e-05	73
HLA-A*68:02	1	294	302	9	SETKCTLKS 3.3e-05	50
HLA-B*15:01	1	294	302	9	SETKCTLKS 3.3e-05	48
HLA-B*35:01	1	297	305	9	KCTLKSFTV 3.3e-05	36
HLA-B*53:01	1	300	309	10	LKSFTVEKGI 3.3e-05	35
HLA-B*15:01	1	314	322	9	NFRVQPTES 3.3e-05	48
HLA-B*53:01	1	325	333	9	RFPNITNLC 3.3e-05	35
HLA-A*02:01	1	333	342	10	CPFGEVFNAT 3.3e-05	48
HLA-B*15:01	1	333	341	9	CPFGEVFNAT 3.3e-05	48
HLA-B*07:02	1	334	342	9	PFGEVFNAT 3.3e-05	47
HLA-B*44:02	1	338	347	10	VFNATRFASV 3.3e-05	36
HLA-A*23:01	1	345	353	9	ASVYAWNRK 3.3e-05	32
HLA-A*11:01	1	356	364	9	SNCVADYSV 3.3e-05	32
HLA-A*68:01	1	356	365	10	SNCVADYSVL 3.3e-05	44
HLA-B*51:01	1	369	378	10	ASFSTFKCYG 3.3e-05	59
HLA-A*32:01	1	370	379	10	SFSTFKCYGV 3.3e-05	37
HLA-A*68:01	1	373	381	9	TFKCYGVSP 3.3e-05	44
HLA-B*07:02	1	373	382	10	TFKCYGVSPT 3.3e-05	47
HLA-A*68:02	1	382	390	9	TKLNDLCFT 3.3e-05	50
HLA-B*40:01	1	383	392	10	KLNDLCFTNV 3.3e-05	30
HLA-A*68:02	1	385	393	9	NDLCFTNVY 3.3e-05	50
HLA-B*44:02	1	390	398	9	TNVYADSFV 3.3e-05	36
HLA-B*44:02	1	390	399	10	TNVYADSFVI 3.3e-05	36
HLA-B*57:01	1	394	402	9	ADSFVIRGD 3.3e-05	65
HLA-A*32:01	1	397	406	10	FVIRGDEVRO 3.3e-05	37
HLA-B*07:02	1	405	414	10	RQIAPGQTGN 3.3e-05	47
HLA-B*08:01	1	408	417	10	APGQTGNIAD 3.3e-05	66
HLA-A*68:02	1	411	419	9	QTGNIADYN 3.3e-05	50
HLA-B*08:01	1	411	420	10	QTGNIADYNY 3.3e-05	66
HLA-A*68:02	1	417	426	10	DYNYKLPDDF 3.3e-05	50
HLA-A*11:01	1	422	430	9	LPDDFTGCV 3.3e-05	32
HLA-B*15:01	1	422	431	10	LPDDFTGCVI 3.3e-05	48
HLA-A*24:02	1	425	434	10	DFTGCVIAWN 3.3e-05	31
HLA-A*01:01	1	426	434	9	FTGCVIAWN 3.3e-05	70
HLA-A*30:01	1	428	436	9	GCVIAWNSN 3.3e-05	75
HLA-B*57:01	1	428	436	9	GCVIAWNSN 3.3e-05	65
HLA-A*33:01	1	429	437	9	CVIAWNSNN 3.3e-05	53
HLA-B*35:01	1	444	453	10	GNYNLYRLF 3.3e-05	36
HLA-A*68:02	1	447	456	10	NYLYRLFRRK 3.3e-05	50
HLA-A*11:01	1	452	461	10	LFRKSNLKP 3.3e-05	32
HLA-A*01:01	1	456	464	9	SNLKPFRD 3.3e-05	70
HLA-A*30:01	1	460	468	9	PFERDISTE 3.3e-05	75
HLA-B*08:01	1	471	479	9	QAGSTPCNG 3.3e-05	66
HLA-B*15:01	1	480	489	10	VKGFNCYFPL 3.3e-05	48
HLA-A*11:01	1	487	495	9	FPLQSYGFQ 3.3e-05	32
HLA-A*68:02	1	488	496	9	PLQSYGFQP 3.3e-05	50
HLA-B*15:01	1	492	501	10	YGFQPTYGVG 3.3e-05	48
HLA-B*07:02	1	507	516	10	VVLSFELLH 3.3e-05	47
HLA-B*44:02	1	509	517	9	VLSFELLHA 3.3e-05	36
HLA-A*02:01	1	511	520	10	SFELLHAPAT 3.3e-05	48
HLA-B*40:01	1	515	524	10	LHAPATVCGP 3.3e-05	30
HLA-A*02:03	1	516	525	10	HAPATVCGPK 3.3e-05	51
HLA-B*08:01	1	516	525	10	HAPATVCGPK 3.3e-05	66
HLA-B*15:01	1	517	525	9	APATVCGPK 3.3e-05	48
HLA-B*51:01	1	519	527	9	ATVCGPKKS 3.3e-05	59

HLA-A*03:01	1	520	529	10	TVCGPKKSTN	3.3e-05	43
HLA-B*08:01	1	526	534	9	KSTNLVKNK	3.3e-05	66
HLA-B*40:01	1	528	536	9	TNLVKNKCV	3.3e-05	30
HLA-B*44:03	1	535	543	9	CVNFNFNGL	3.3e-05	33
HLA-B*44:02	1	537	545	9	NFNFNGLTG	3.3e-05	36
HLA-B*51:01	1	546	555	10	TGVLTESNKK	3.3e-05	59
HLA-A*11:01	1	549	558	10	LTESNKKFLP	3.3e-05	32
HLA-B*07:02	1	551	560	10	ESNKKFLPFQ	3.3e-05	47
HLA-A*02:03	1	552	560	9	SNKKFLPFQ	3.3e-05	51
HLA-A*11:01	1	554	563	10	KKFLPFQFG	3.3e-05	32
HLA-B*44:03	1	555	564	10	KFLPFQFGR	3.3e-05	33
HLA-A*11:01	1	564	572	9	RDIADTTDA	3.3e-05	32
HLA-B*44:02	1	576	584	9	PQTLEILDI	3.3e-05	36
HLA-B*44:02	1	577	586	10	QTLEILDITP	3.3e-05	36
HLA-B*53:01	1	608	617	10	LYQGVNCTEV	3.3e-05	35
HLA-B*58:01	1	608	616	9	LYQGVNCTE	3.3e-05	53
HLA-A*01:01	1	609	618	10	YQGVNCTEVP	3.3e-05	70
HLA-B*58:01	1	610	619	10	QGVNCTEVPV	3.3e-05	53
HLA-B*44:02	1	611	619	9	GVNCTEVPV	3.3e-05	36
HLA-A*02:01	1	613	622	10	NCTEVPVAIH	3.3e-05	48
HLA-A*32:01	1	627	635	9	TPTWRVYST	3.3e-05	37
HLA-B*07:02	1	633	641	9	YSTGSNVFQ	3.3e-05	47
HLA-A*68:02	1	637	645	9	SNVFQTRAG	3.3e-05	50
HLA-A*31:01	1	640	648	9	FQTRAGCLI	3.3e-05	50
HLA-A*31:01	1	645	653	9	GCLIGAEHV	3.3e-05	50
HLA-B*51:01	1	649	658	10	GAEHVNNSYE	3.3e-05	59
HLA-A*30:01	1	654	662	9	NNSYECDIP	3.3e-05	75
HLA-A*31:01	1	658	667	10	ECDIPIGAGI	3.3e-05	50
HLA-A*03:01	1	675	683	9	TNSPRRARS	3.3e-05	43
HLA-A*11:01	1	676	684	9	NSPRRARSV	3.3e-05	32
HLA-A*33:01	1	678	687	10	PRRARSVASQ	3.3e-05	53
HLA-A*31:01	1	686	695	10	SQSIIAYTMS	3.3e-05	50
HLA-B*35:01	1	692	701	10	YTMSLGVENS	3.3e-05	36
HLA-B*44:03	1	695	703	9	SLGVENSVA	3.3e-05	33
HLA-B*40:01	1	701	710	10	SVAYSNNSIA	3.3e-05	30
HLA-A*11:01	1	717	726	10	ISVTTEILPV	3.3e-05	32
HLA-B*35:01	1	725	733	9	PVSMTKTSV	3.3e-05	36
HLA-B*07:02	1	726	734	9	VSMTKTSVD	3.3e-05	47
HLA-A*24:02	1	727	735	9	SMTKTSVDC	3.3e-05	31
HLA-A*68:01	1	735	743	9	CTMYICGDS	3.3e-05	44
HLA-A*02:06	1	737	745	9	MYICGDSTE	3.3e-05	59
HLA-A*01:01	1	739	748	10	ICGDSTECNS	3.3e-05	70
HLA-A*30:02	1	749	758	10	LLLQYGSFCT	3.3e-05	73
HLA-B*53:01	1	753	762	10	YGSFCTQLNR	3.3e-05	35
HLA-A*23:01	1	760	769	10	LNRAITGIAV	3.3e-05	32
HLA-A*03:01	1	767	776	10	IAVEQDKNTQ	3.3e-05	43
HLA-A*02:01	1	775	784	10	TQEVFAQVKQ	3.3e-05	48
HLA-B*35:01	1	779	788	10	FAQVKQIYKT	3.3e-05	36
HLA-A*33:01	1	791	800	10	IKDFGGFNFS	3.3e-05	53
HLA-A*32:01	1	793	802	10	DFGGFNFSQI	3.3e-05	37
HLA-B*08:01	1	795	804	10	GGFNFSQILP	3.3e-05	66
HLA-A*30:02	1	796	805	10	GFNFSQILPD	3.3e-05	73
HLA-B*15:01	1	799	807	9	FSQILPDPS	3.3e-05	48
HLA-B*53:01	1	799	807	9	FSQILPDPS	3.3e-05	35
HLA-A*32:01	1	813	821	9	SFIEDLLFN	3.3e-05	37
HLA-A*23:01	1	818	827	10	LLFNKVTLAD	3.3e-05	32
HLA-B*35:01	1	819	827	9	LFNKVTLAD	3.3e-05	36
HLA-B*53:01	1	823	832	10	VTLADAGFIK	3.3e-05	35
HLA-A*03:01	1	826	835	10	ADAGFIKQYG	3.3e-05	43
HLA-A*02:03	1	834	843	10	YGDCLGDIAA	3.3e-05	51
HLA-B*57:01	1	834	843	10	YGDCLGDIAA	3.3e-05	65
HLA-B*58:01	1	834	843	10	YGDCLGDIAA	3.3e-05	53
HLA-A*23:01	1	837	846	10	CLGDIAARDL	3.3e-05	32
HLA-B*07:02	1	851	860	10	KFNGLTVLPP	3.3e-05	47
HLA-B*57:01	1	852	860	9	FNGLTVLPP	3.3e-05	65
HLA-A*02:01	1	869	878	10	QYTSALLAGT	3.3e-05	48

HLA-B*44:03	1	873	881	9	ALLAGTITS	3.3e-05	33
HLA-A*32:01	1	875	884	10	LAGTITSGWT	3.3e-05	37
HLA-A*68:02	1	886	894	9	GAGAALQIP	3.3e-05	50
HLA-B*57:01	1	894	902	9	PFAMQMAYR	3.3e-05	65
HLA-A*01:01	1	899	907	9	MAYRFNGIG	3.3e-05	70
HLA-B*40:01	1	900	909	10	AYRFNGIGVT	3.3e-05	30
HLA-A*11:01	1	902	911	10	RFNGIGVTQN	3.3e-05	32
HLA-A*11:01	1	905	913	9	GIGVTQNVL	3.3e-05	32
HLA-B*40:01	1	905	914	10	GIGVTQNVLY	3.3e-05	30
HLA-B*51:01	1	906	915	10	IGVTQNVLYE	3.3e-05	59
HLA-A*02:01	1	908	916	9	VTQNVLYEN	3.3e-05	48
HLA-A*01:01	1	917	926	10	QKLIANQFNS	3.3e-05	70
HLA-B*44:02	1	918	927	10	KLIANQFNSA	3.3e-05	36
HLA-A*24:02	1	919	928	10	LIANQFNSAI	3.3e-05	31
HLA-A*68:01	1	919	928	10	LIANQFNSAI	3.3e-05	44
HLA-B*44:02	1	919	927	9	LIANQFNSA	3.3e-05	36
HLA-A*68:01	1	925	933	9	NSAIGKIQD	3.3e-05	44
HLA-A*30:02	1	932	940	9	QDLSSTAS	3.3e-05	73
HLA-B*51:01	1	934	943	10	SLSSTASALG	3.3e-05	59
HLA-A*32:01	1	935	943	9	LSSTASALG	3.3e-05	37
HLA-A*24:02	1	940	949	10	SALGKLQDVV	3.3e-05	31
HLA-B*51:01	1	942	950	9	LGKLQDVVN	3.3e-05	59
HLA-B*07:02	1	944	952	9	KLQDVVNQN	3.3e-05	47
HLA-A*03:01	1	946	955	10	QDVVNQNAQA	3.3e-05	43
HLA-B*35:01	1	946	954	9	QDVVNQNAQ	3.3e-05	36
HLA-A*24:02	1	952	961	10	NAQALNTLVK	3.3e-05	31
HLA-A*11:01	1	962	970	9	QLSSNFGAI	3.3e-05	32
HLA-A*68:01	1	963	972	10	LSSNFGAISS	3.3e-05	44
HLA-B*35:01	1	963	971	9	LSSNFGAIS	3.3e-05	36
HLA-A*23:01	1	971	980	10	SSVLNDILSR	3.3e-05	32
HLA-B*35:01	1	975	983	9	NDILSRLDK	3.3e-05	36
HLA-A*33:01	1	981	989	9	LDKVEAEVQ	3.3e-05	53
HLA-B*40:01	1	987	996	10	EVQIDRLITG	3.3e-05	30
HLA-B*44:02	1	992	1000	9	RLITGRLQS	3.3e-05	36
HLA-B*53:01	1	994	1002	9	ITGRLQSLQ	3.3e-05	35
HLA-A*33:01	1	1006	1015	10	TQLIRAAEI	3.3e-05	53
HLA-B*40:01	1	1007	1016	10	QQLIRAAEIR	3.3e-05	30
HLA-A*26:01	1	1008	1017	10	QLIRAAEIRA	3.3e-05	43
HLA-B*44:03	1	1008	1017	10	QLIRAAEIRA	3.3e-05	33
HLA-B*51:01	1	1012	1020	9	AAEIRASAN	3.3e-05	59
HLA-A*33:01	1	1019	1027	9	ANLAATKMS	3.3e-05	53
HLA-A*02:06	1	1024	1033	10	TKMSECVLGQ	3.3e-05	59
HLA-B*57:01	1	1024	1033	10	TKMSECVLGQ	3.3e-05	65
HLA-A*02:03	1	1040	1049	10	CGKGYHLMSF	3.3e-05	51
HLA-A*31:01	1	1044	1052	9	YHLMSFPQS	3.3e-05	50
HLA-A*32:01	1	1054	1062	9	PHGVVFLHV	3.3e-05	37
HLA-A*32:01	1	1058	1067	10	VFLHVTVVPA	3.3e-05	37
HLA-B*07:02	1	1059	1068	10	FLHVTVVPAQ	3.3e-05	47
HLA-B*44:03	1	1060	1068	9	LHVTVVPAQ	3.3e-05	33
HLA-A*03:01	1	1072	1081	10	FTTAPAICHD	3.3e-05	43
HLA-B*58:01	1	1075	1084	10	APAICHDGKA	3.3e-05	53
HLA-A*02:03	1	1079	1087	9	CHDGKAHFP	3.3e-05	51
HLA-B*35:01	1	1080	1088	9	HDGKAHFPR	3.3e-05	36
HLA-B*08:01	1	1088	1096	9	REGVFVSNQ	3.3e-05	66
HLA-A*26:01	1	1104	1113	10	RNFYEPQIIT	3.3e-05	43
HLA-A*01:01	1	1108	1117	10	EPQIITTDNT	3.3e-05	70
HLA-A*68:02	1	1109	1117	9	PQIITTDNT	3.3e-05	50
HLA-A*68:01	1	1112	1121	10	ITTDNTFVSG	3.3e-05	44
HLA-A*02:06	1	1113	1122	10	TTDNTFVSGN	3.3e-05	59
HLA-B*44:02	1	1114	1123	10	TDNTFVSGNC	3.3e-05	36
HLA-B*15:01	1	1116	1125	10	NTFVSGNCDV	3.3e-05	48
HLA-B*07:02	1	1138	1147	10	LQPELDSFKE	3.3e-05	47
HLA-A*68:01	1	1139	1148	10	QPELDSFKEE	3.3e-05	44
HLA-B*44:02	1	1139	1147	9	QPELDSFKE	3.3e-05	36
HLA-A*33:01	1	1146	1155	10	KEELDKYFKN	3.3e-05	53
HLA-B*35:01	1	1147	1155	9	EELDKYFKN	3.3e-05	36

HLA-B*44:02	1	1156	1164	9	HTSPDVDLG	3.3e-05	36
HLA-A*02:06	1	1167	1175	9	SGINASVVN	3.3e-05	59
HLA-B*53:01	1	1169	1177	9	INASVVNIQ	3.3e-05	35
HLA-B*07:02	1	1174	1182	9	VNIQKEIDR	3.3e-05	47
HLA-A*68:01	1	1175	1184	10	NIQKEIDRLN	3.3e-05	44
HLA-B*40:01	1	1176	1185	10	IQKEIDRLNE	3.3e-05	30
HLA-A*02:03	1	1180	1188	9	IDRLNEVAK	3.3e-05	51
HLA-B*07:02	1	1184	1193	10	NEVAKNLNES	3.3e-05	47
HLA-A*30:01	1	1196	1205	10	DLQELGKYEQ	3.3e-05	75
HLA-B*53:01	1	1197	1205	9	LQELGKYEQ	3.3e-05	35
HLA-B*07:02	1	1202	1210	9	KYEQYIKWP	3.3e-05	47
HLA-A*11:01	1	1209	1217	9	WPWYIWLGF	3.3e-05	32
HLA-B*35:01	1	1219	1227	9	AGLIAIVMV	3.3e-05	36
HLA-A*02:06	1	1232	1241	10	CCMTSCCSC	3.3e-05	59
HLA-A*01:01	1	1239	1247	9	SCLKGCCSC	3.3e-05	70
HLA-B*44:03	1	1252	1261	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	NLTTRTQLP	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	TWFHAIHVSG	3.2e-05	54
HLA-A*02:01	1	67	75	9	AIHVSGTNG	3.2e-05	49
HLA-A*33:01	1	67	76	10	AIHVSGTNGT	3.2e-05	53
HLA-B*53:01	1	70	78	9	VSGTNGTKR	3.2e-05	35
HLA-B*15:01	1	72	81	10	GTNGTKRFAN	3.2e-05	49
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	STEKSNIIIR	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	SKTQSLIIVN	3.2e-05	59
HLA-A*11:01	1	112	121	10	SKTQSLIIVN	3.2e-05	32
HLA-A*68:01	1	112	120	9	SKTQSLIIV	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	MDLEGKQGN	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-A*11:01	1	207	215	9	HTPINLVRG	3.2e-05	32
HLA-A*32:01	1	211	219	9	NLVRGLPQG	3.2e-05	38
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-B*07:02	1	235	244	10	ITRFQTLHRS	3.2e-05	47
HLA-A*33:01	1	243	252	10	RSYLTPGDSS	3.2e-05	53

HLA-B*53:01	1	244	253	10	SYLTPGDSSS 3.2e-05	35
HLA-B*15:01	1	257	265	9	AGAAAYYVG 3.2e-05	49
HLA-A*33:01	1	258	267	10	GAAAYYVGYL 3.2e-05	53
HLA-B*53:01	1	258	267	10	GAAAYYVGYL 3.2e-05	35
HLA-B*44:02	1	260	269	10	AAYYVGYLQP 3.2e-05	36
HLA-A*30:02	1	269	278	10	PRTFLLKYNE 3.2e-05	74
HLA-A*68:01	1	269	278	10	PRTFLLKYNE 3.2e-05	44
HLA-B*15:01	1	270	279	10	RTFLLKYNEN 3.2e-05	49
HLA-A*23:01	1	271	280	10	TFLLKYNENG 3.2e-05	32
HLA-B*57:01	1	276	285	10	YNENGTITDA 3.2e-05	66
HLA-B*40:01	1	280	288	9	GTITDAVDC 3.2e-05	30
HLA-B*44:03	1	291	299	9	DPLSETKCT 3.2e-05	34
HLA-B*44:02	1	296	305	10	TKCTLKSFTV 3.2e-05	36
HLA-A*30:02	1	300	308	9	LKSFTVEKG 3.2e-05	74
HLA-A*23:01	1	305	313	9	VEKGIYQTS 3.2e-05	32
HLA-B*15:01	1	312	321	10	TSNFRVQPT 3.2e-05	49
HLA-A*23:01	1	313	321	9	SNFRVQPT 3.2e-05	32
HLA-A*33:01	1	318	327	10	QPTESIVRFP 3.2e-05	53
HLA-B*08:01	1	319	327	9	PTESIVRFP 3.2e-05	67
HLA-A*02:03	1	333	342	10	CPFGEVFNAT 3.2e-05	52
HLA-A*11:01	1	337	346	10	EVFNATRFAS 3.2e-05	32
HLA-A*68:01	1	351	359	9	NRKRISNCV 3.2e-05	44
HLA-B*58:01	1	351	359	9	NRKRISNCV 3.2e-05	54
HLA-A*33:01	1	355	364	10	ISNCVADYSV 3.2e-05	53
HLA-A*68:01	1	364	373	10	VLYNSASFST 3.2e-05	44
HLA-A*03:01	1	370	379	10	SFSTFKCYGV 3.2e-05	43
HLA-A*68:01	1	383	392	10	KLNDLCFTNV 3.2e-05	44
HLA-B*57:01	1	386	394	9	DLCFNTVYA 3.2e-05	66
HLA-B*08:01	1	387	395	9	LCFTNVYAD 3.2e-05	67
HLA-A*02:06	1	388	397	10	CFTNVYADSF 3.2e-05	59
HLA-A*03:01	1	396	404	9	SFVIRGDEV 3.2e-05	43
HLA-B*44:02	1	398	406	9	VIRGDEVQR 3.2e-05	36
HLA-B*40:01	1	401	410	10	GDEVQRQIAPG 3.2e-05	30
HLA-B*07:02	1	402	411	10	DEVQRQIAPGQ 3.2e-05	47
HLA-B*35:01	1	402	411	10	DEVQRQIAPGQ 3.2e-05	36
HLA-A*24:02	1	413	421	9	GNIADYNYK 3.2e-05	31
HLA-B*51:01	1	415	424	10	IADYNYKLPD 3.2e-05	59
HLA-B*15:01	1	420	428	9	YKLPDDFTG 3.2e-05	49
HLA-A*24:02	1	422	431	10	LPDDFTGCVI 3.2e-05	31
HLA-B*44:03	1	422	431	10	LPDDFTGCVI 3.2e-05	34
HLA-A*03:01	1	424	433	10	DDFTGCVIAW 3.2e-05	43
HLA-A*11:01	1	427	435	9	TGCVIAWNS 3.2e-05	32
HLA-A*11:01	1	429	438	10	CVIAWNSNNL 3.2e-05	32
HLA-B*51:01	1	434	443	10	NSNNLDSKVG 3.2e-05	59
HLA-B*15:01	1	438	447	10	LDSKVGGNYN 3.2e-05	49
HLA-B*44:02	1	445	454	10	NYNYLYRLLFR 3.2e-05	36
HLA-B*58:01	1	445	454	10	NYNYLYRLLFR 3.2e-05	54
HLA-A*01:01	1	449	458	10	LYRLFRKSNL 3.2e-05	71
HLA-B*53:01	1	451	459	9	RLFRKSNLK 3.2e-05	35
HLA-B*08:01	1	456	464	9	SNLKPFRD 3.2e-05	67
HLA-A*23:01	1	463	472	10	RDISTEIQAG 3.2e-05	32
HLA-A*26:01	1	465	473	9	ISTEIQAG 3.2e-05	43
HLA-B*51:01	1	466	475	10	STEIQAGST 3.2e-05	59
HLA-B*08:01	1	477	486	10	CNGVKGFNCY 3.2e-05	67
HLA-B*07:02	1	492	501	10	YGFQPTYGVG 3.2e-05	47
HLA-B*53:01	1	508	517	10	VVLSFELLHA 3.2e-05	35
HLA-A*26:01	1	511	519	9	SFELLHAPA 3.2e-05	43
HLA-B*44:02	1	511	519	9	SFELLHAPA 3.2e-05	36
HLA-A*01:01	1	521	529	9	VCGPKKSTN 3.2e-05	71
HLA-A*23:01	1	526	534	9	KSTNLVKNK 3.2e-05	32
HLA-A*30:01	1	529	537	9	NLVKNKCVN 3.2e-05	76
HLA-A*26:01	1	537	545	9	NFNFNGLTG 3.2e-05	43
HLA-A*31:01	1	537	545	9	NFNFNGLTG 3.2e-05	51
HLA-A*26:01	1	539	547	9	NFNGLTGTG 3.2e-05	43
HLA-B*58:01	1	539	548	10	NFNGLTGTGV 3.2e-05	54
HLA-A*26:01	1	543	552	10	LTGTGVLTES 3.2e-05	43

HLA-B*53:01	1	547	555	9	GVLTESNKK	3.2e-05	35
HLA-B*51:01	1	558	567	10	PFQQFGRDIA	3.2e-05	59
HLA-B*40:01	1	562	570	9	FRDIADTT	3.2e-05	30
HLA-A*68:01	1	564	572	9	RDIADTTDA	3.2e-05	44
HLA-A*30:02	1	568	577	10	DTTDAVRDPQ	3.2e-05	74
HLA-A*02:06	1	574	583	10	RDPQTLEILD	3.2e-05	59
HLA-B*44:02	1	577	585	9	QTLEILDIT	3.2e-05	36
HLA-A*33:01	1	579	588	10	LEILDITPCS	3.2e-05	53
HLA-B*57:01	1	579	587	9	LEILDITPC	3.2e-05	66
HLA-B*40:01	1	580	588	9	EILDITPCS	3.2e-05	30
HLA-B*51:01	1	581	590	10	ILDITPCSF3	3.2e-05	59
HLA-A*11:01	1	588	596	9	SFGGVSVIT	3.2e-05	32
HLA-A*02:03	1	590	598	9	GGVSVITPG	3.2e-05	52
HLA-A*02:03	1	594	603	10	VITPGTNTSN	3.2e-05	52
HLA-B*15:01	1	596	604	9	TPGTNTSNQ	3.2e-05	49
HLA-A*11:01	1	599	607	9	TNTSNQVAV	3.2e-05	32
HLA-B*07:02	1	603	612	10	NQVAVLYQGV	3.2e-05	47
HLA-A*68:02	1	608	616	9	LYQGVNCTE	3.2e-05	51
HLA-B*08:01	1	610	618	9	QGVNCTEVP	3.2e-05	67
HLA-A*02:03	1	614	622	9	CTEVPVAIH	3.2e-05	52
HLA-B*07:02	1	614	623	10	CTEVPVAIHA	3.2e-05	47
HLA-A*01:01	1	615	624	10	TEVPVAIHAD	3.2e-05	71
HLA-A*03:01	1	616	625	10	EVPVAIHADQ	3.2e-05	43
HLA-A*01:01	1	617	625	9	VPVAIHADQ	3.2e-05	71
HLA-A*68:01	1	619	628	10	VAIHADQLTP	3.2e-05	44
HLA-B*44:02	1	619	627	9	VAIHADQLT	3.2e-05	36
HLA-A*26:01	1	635	644	10	TGSNVFQTRA	3.2e-05	43
HLA-B*15:01	1	635	644	10	TGSNVFQTRA	3.2e-05	49
HLA-A*32:01	1	654	663	10	NNSYECDIPI	3.2e-05	38
HLA-A*24:02	1	658	667	10	ECDIPIGAGI	3.2e-05	31
HLA-A*33:01	1	669	678	10	ASYQTQTNSP	3.2e-05	53
HLA-A*33:01	1	690	699	10	IAYTMSLGVE	3.2e-05	53
HLA-A*32:01	1	697	706	10	GVENSVAYS	3.2e-05	38
HLA-B*07:02	1	697	705	9	GVENSVAYS	3.2e-05	47
HLA-B*15:01	1	697	706	10	GVENSVAYS	3.2e-05	49
HLA-A*23:01	1	700	709	10	NSVAYSNNSI	3.2e-05	32
HLA-A*26:01	1	705	713	9	SNNSIAIPT	3.2e-05	43
HLA-A*26:01	1	709	718	10	IAIPTNFTIS	3.2e-05	43
HLA-A*24:02	1	713	722	10	TNFTISVTE	3.2e-05	31
HLA-B*08:01	1	717	725	9	ISVTTEILP	3.2e-05	67
HLA-B*40:01	1	719	727	9	VTTEILPVS	3.2e-05	30
HLA-B*15:01	1	724	732	9	LPVSMTKTS	3.2e-05	49
HLA-A*26:01	1	737	745	9	MYICGDSTE	3.2e-05	43
HLA-A*30:02	1	748	757	10	NLLLQYGSFC	3.2e-05	74
HLA-A*33:01	1	752	761	10	QYGSFCTQLN	3.2e-05	53
HLA-A*03:01	1	757	765	9	CTQLNRALT	3.2e-05	43
HLA-A*02:01	1	767	776	10	IAVEQDKNTQ	3.2e-05	49
HLA-B*15:01	1	772	780	9	DKNTQEVFA	3.2e-05	49
HLA-B*44:02	1	773	781	9	KNTQEVFAQ	3.2e-05	36
HLA-B*53:01	1	773	782	10	KNTQEVFAQV	3.2e-05	35
HLA-A*68:01	1	787	796	10	KTPPIKDFGG	3.2e-05	44
HLA-A*23:01	1	791	800	10	IKDFGGFNFS	3.2e-05	32
HLA-A*26:01	1	791	800	10	IKDFGGFNFS	3.2e-05	43
HLA-A*33:01	1	795	804	10	GGFNFSQILP	3.2e-05	53
HLA-B*53:01	1	802	810	9	ILPDPSKPS	3.2e-05	35
HLA-A*02:01	1	812	821	10	RSFIEDLLFN	3.2e-05	49
HLA-A*02:03	1	813	821	9	SFIEDLLFN	3.2e-05	52
HLA-A*68:02	1	816	824	9	EDLLFNKVT	3.2e-05	51
HLA-B*35:01	1	816	824	9	EDLLFNKVT	3.2e-05	36
HLA-B*57:01	1	818	827	10	LLFNKVTLAD	3.2e-05	66
HLA-B*15:01	1	819	828	10	LFNKVTLADA	3.2e-05	49
HLA-A*30:01	1	821	830	10	NKVTLADAGF	3.2e-05	76
HLA-A*01:01	1	830	839	10	FIKQYGDCLG	3.2e-05	71
HLA-A*32:01	1	833	841	9	QYGDCLGDI	3.2e-05	38
HLA-B*08:01	1	833	842	10	QYGDCLGDIA	3.2e-05	67
HLA-A*02:03	1	835	844	10	GDCLGDIAAR	3.2e-05	52

HLA-A*31:01	1	836	845	10	DCLGDIAARD	3.2e-05	51
HLA-A*24:02	1	837	846	10	CLGDIAARDL	3.2e-05	31
HLA-A*26:01	1	838	846	9	LGDIAARDL	3.2e-05	43
HLA-A*33:01	1	846	854	9	LICAQKFNG	3.2e-05	53
HLA-A*33:01	1	854	863	10	GLTVLPPLLT	3.2e-05	53
HLA-B*08:01	1	860	868	9	PLLTDEMIA	3.2e-05	67
HLA-A*26:01	1	869	877	9	QYTSALLAG	3.2e-05	43
HLA-B*07:02	1	869	877	9	QYTSALLAG	3.2e-05	47
HLA-A*31:01	1	872	880	9	SALLAGTIT	3.2e-05	51
HLA-A*31:01	1	873	882	10	ALLAGTITSG	3.2e-05	51
HLA-A*02:03	1	875	884	10	LAGTITSGWT	3.2e-05	52
HLA-A*26:01	1	880	889	10	TSGWTFGAGA	3.2e-05	43
HLA-B*07:02	1	880	888	9	TSGWTFGAG	3.2e-05	47
HLA-B*35:01	1	884	892	9	TFGAGAALQ	3.2e-05	36
HLA-A*33:01	1	896	904	9	AMQMAYRFN	3.2e-05	53
HLA-B*53:01	1	897	906	10	MQMAYRFNGI	3.2e-05	35
HLA-B*08:01	1	902	911	10	RFNGIGVTQN	3.2e-05	67
HLA-A*24:02	1	903	912	10	FNGIGVTQNV	3.2e-05	31
HLA-A*30:02	1	903	911	9	FNGIGVTQN	3.2e-05	74
HLA-A*26:01	1	906	915	10	IGVTQNVLYE	3.2e-05	43
HLA-A*03:01	1	913	921	9	LYENQKLIA	3.2e-05	43
HLA-A*03:01	1	915	924	10	ENQKLIANQF	3.2e-05	43
HLA-B*44:03	1	919	927	9	LIANQFNFA	3.2e-05	34
HLA-B*07:02	1	921	930	10	ANQFNFAIGK	3.2e-05	47
HLA-B*58:01	1	923	932	10	QFNFAIGKIQ	3.2e-05	54
HLA-B*53:01	1	935	943	9	LSSTASALG	3.2e-05	35
HLA-A*30:02	1	938	947	10	TASALGKLQD	3.2e-05	74
HLA-A*11:01	1	940	949	10	SALGKLQDVV	3.2e-05	32
HLA-A*01:01	1	942	950	9	LGKLQDVVN	3.2e-05	71
HLA-B*07:02	1	946	954	9	QDVVNQNAQ	3.2e-05	47
HLA-B*35:01	1	953	962	10	AQALNTLVKQ	3.2e-05	36
HLA-A*33:01	1	955	964	10	ALNTLVKQLS	3.2e-05	53
HLA-A*03:01	1	956	965	10	LNTLVKQLSS	3.2e-05	43
HLA-A*68:02	1	956	965	10	LNTLVKQLSS	3.2e-05	51
HLA-A*33:01	1	958	966	9	TLVKQLSSN	3.2e-05	53
HLA-B*40:01	1	964	972	9	SSNFGAISS	3.2e-05	30
HLA-B*44:03	1	968	977	10	GAISSVLNDI	3.2e-05	34
HLA-A*68:01	1	982	990	9	DKVEAEVQI	3.2e-05	44
HLA-A*23:01	1	985	994	10	EAEVQIDRLI	3.2e-05	32
HLA-B*44:02	1	990	999	10	IDRLITGRLQ	3.2e-05	36
HLA-B*51:01	1	993	1002	10	LITGRLQSLQ	3.2e-05	59
HLA-B*44:02	1	998	1006	9	LQSLQTYVT	3.2e-05	36
HLA-B*15:01	1	1010	1018	9	IRAAEIRAS	3.2e-05	49
HLA-A*02:01	1	1011	1020	10	RAAEIRASAN	3.2e-05	49
HLA-A*68:01	1	1011	1020	10	RAAEIRASAN	3.2e-05	44
HLA-B*35:01	1	1021	1030	10	LAATKMSECV	3.2e-05	36
HLA-A*02:03	1	1027	1035	9	SECVLGQSK	3.2e-05	52
HLA-A*02:03	1	1029	1038	10	CVLGQSKRVD	3.2e-05	52
HLA-B*08:01	1	1030	1038	9	VLGQSKRVD	3.2e-05	67
HLA-B*44:03	1	1036	1045	10	RVDFCGKGYH	3.2e-05	34
HLA-A*26:01	1	1044	1052	9	YHLMSFPQS	3.2e-05	43
HLA-B*07:02	1	1058	1067	10	VFLHVTVVPA	3.2e-05	47
HLA-B*51:01	1	1059	1068	10	FLHVTVVPAQ	3.2e-05	59
HLA-A*68:01	1	1068	1076	9	QEKNFITAP	3.2e-05	44
HLA-B*07:02	1	1071	1080	10	NFITAPAICH	3.2e-05	47
HLA-B*40:01	1	1077	1085	9	AICHDGKAH	3.2e-05	30
HLA-A*31:01	1	1086	1094	9	FPREGVFVS	3.2e-05	51
HLA-B*15:01	1	1086	1095	10	FPREGVFVSN	3.2e-05	49
HLA-A*02:06	1	1098	1107	10	HWFVTQRNFY	3.2e-05	59
HLA-B*40:01	1	1105	1114	10	NFYEQIITIT	3.2e-05	30
HLA-A*02:03	1	1107	1115	9	YEQIITITD	3.2e-05	52
HLA-B*40:01	1	1113	1121	9	TTDNTFVSG	3.2e-05	30
HLA-B*44:02	1	1113	1121	9	TTDNTFVSG	3.2e-05	36
HLA-A*31:01	1	1117	1126	10	TFVSGNCDVV	3.2e-05	51
HLA-B*07:02	1	1119	1127	9	VSGNCDVVI	3.2e-05	47
HLA-A*24:02	1	1120	1129	10	SGNCDVVIIGI	3.2e-05	31



HLA-B*58:01	1	1120	1128	9	SGNCDDVIG	3.2e-05	54
HLA-B*44:02	1	1132	1140	9	NTVYDPLQP	3.2e-05	36
HLA-A*23:01	1	1133	1141	9	TVYDPLQPE	3.2e-05	32
HLA-A*11:01	1	1137	1145	9	PLQPELDSF	3.2e-05	32
HLA-A*68:01	1	1139	1147	9	QPELDSFKE	3.2e-05	44
HLA-B*15:01	1	1152	1160	9	YFKNHTSPD	3.2e-05	49
HLA-B*15:01	1	1157	1166	10	TSPDVDLGD	3.2e-05	49
HLA-B*58:01	1	1162	1171	10	DLGDISGINA	3.2e-05	54
HLA-B*44:02	1	1167	1176	10	SGINASVVNI	3.2e-05	36
HLA-A*02:01	1	1175	1184	10	NIQKEIDRLN	3.2e-05	49
HLA-A*31:01	1	1187	1195	9	AKNLNESLI	3.2e-05	51
HLA-A*30:01	1	1190	1199	10	LNESLIDLQE	3.2e-05	76
HLA-B*07:02	1	1193	1201	9	SLIDLQELG	3.2e-05	47
HLA-B*51:01	1	1197	1205	9	LQELGKYEQ	3.2e-05	59
HLA-A*02:03	1	1203	1212	10	YEQYIKWPWY	3.2e-05	52
HLA-A*26:01	1	1208	1216	9	KWPWYIWL	3.2e-05	43
HLA-B*40:01	1	1208	1217	10	KWPWYIWLGF	3.2e-05	30
HLA-B*57:01	1	1214	1222	9	WLGFIAGLI	3.2e-05	66
HLA-A*31:01	1	1218	1227	10	IAGLIAIVMV	3.2e-05	51
HLA-B*40:01	1	1221	1229	9	LIAIVMTI	3.2e-05	30
HLA-A*32:01	1	1224	1233	10	IVMVTIMLCC	3.2e-05	38
HLA-A*33:01	1	1225	1234	10	VMVTIMLCCM	3.2e-05	53
HLA-B*51:01	1	1225	1234	10	VMVTIMLCCM	3.2e-05	59
HLA-B*15:01	1	1230	1238	9	MLCCMTSCC	3.2e-05	49
HLA-B*15:01	1	1253	1261	9	FDEDDSEPV	3.2e-05	49
HLA-A*24:02	1	1255	1263	9	EDDSEPVLK	3.2e-05	31
HLA-A*11:01	1	1256	1265	10	DDSEPVLKGV	3.2e-05	32
HLA-B*40:01	1	12	20	9	SSQCVNLT	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	PFFSNVTFWFH	3.1e-05	35
HLA-A*31:01	1	68	76	9	IHSVGTNGT	3.1e-05	51
HLA-B*44:03	1	74	82	9	NGTKRFANP	3.1e-05	34
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	SNIIRGWIF	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	DSKTQSLIIV	3.1e-05	51
HLA-A*31:01	1	115	124	10	QSLIIVNNAT	3.1e-05	51
HLA-B*44:03	1	116	124	9	SLIIVNNAT	3.1e-05	34
HLA-B*58:01	1	116	125	10	SLIIVNNATN	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	QPFLMDLEGG	3.1e-05	38
HLA-A*02:06	1	176	185	10	LMDLEGGKQGN	3.1e-05	60
HLA-B*57:01	1	176	185	10	LMDLEGGKQGN	3.1e-05	66

HLA-B*08:01	1	182	191	10	KOGNFKNLRE	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*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-A*31:01	1	250	259	10	DSSSGWTAGA	3.1e-05	51
HLA-A*01:01	1	257	265	9	AGAAAYYVG	3.1e-05	71
HLA-A*02:03	1	257	266	10	AGAAAYYVGY	3.1e-05	52
HLA-A*32:01	1	268	277	10	QPRTFLLKYN	3.1e-05	38
HLA-B*53:01	1	270	278	9	RTFLLKYNE	3.1e-05	35
HLA-A*33:01	1	280	289	10	GTITDAVDCA	3.1e-05	54
HLA-B*15:01	1	280	289	10	GTITDAVDCA	3.1e-05	49
HLA-B*51:01	1	283	292	10	TDAVDCALDP	3.1e-05	59
HLA-B*44:03	1	284	292	9	DAVDCALDP	3.1e-05	34
HLA-A*03:01	1	291	300	10	DPLSETKCTL	3.1e-05	44
HLA-B*35:01	1	294	302	9	SETKCTLKS	3.1e-05	36
HLA-B*44:02	1	308	317	10	GIYQTSNFRV	3.1e-05	37
HLA-B*51:01	1	309	318	10	IYQTSNFRVQ	3.1e-05	59
HLA-B*57:01	1	319	328	10	PTESIVRFPN	3.1e-05	66
HLA-B*08:01	1	322	331	10	SIVRFPNITN	3.1e-05	67
HLA-A*32:01	1	338	346	9	VFNATRFAS	3.1e-05	38
HLA-A*31:01	1	348	357	10	YAWNKRKISN	3.1e-05	51
HLA-B*35:01	1	356	365	10	SNCVADYSVL	3.1e-05	36
HLA-B*53:01	1	360	369	10	ADYSVLYNSA	3.1e-05	35
HLA-B*53:01	1	362	370	9	YSVLYNSAS	3.1e-05	35
HLA-A*23:01	1	374	383	10	FKCYGVSPTK	3.1e-05	33
HLA-B*44:03	1	379	387	9	VSPTKLNDL	3.1e-05	34
HLA-A*30:02	1	382	391	10	TKLNDLCFTN	3.1e-05	74
HLA-A*11:01	1	400	409	10	RGDEVRQIAP	3.1e-05	32
HLA-A*68:01	1	400	408	9	RGDEVRQIA	3.1e-05	45
HLA-B*15:01	1	402	411	10	DEVRQIAPGQ	3.1e-05	49
HLA-A*02:01	1	403	412	10	EVQRQIAPGQ	3.1e-05	49
HLA-B*40:01	1	403	411	9	EVQRQIAPGQ	3.1e-05	30
HLA-B*51:01	1	406	414	9	QIAPGQTGN	3.1e-05	59
HLA-A*30:01	1	416	424	9	ADYNYKLPD	3.1e-05	76
HLA-A*30:01	1	417	425	9	DYNYKLPDD	3.1e-05	76
HLA-A*31:01	1	419	428	10	NYKLPDDFTG	3.1e-05	51
HLA-B*08:01	1	433	441	9	WNSNNLDSK	3.1e-05	67
HLA-B*51:01	1	433	441	9	WNSNNLDSK	3.1e-05	59
HLA-B*58:01	1	435	443	9	SNNLDSKVG	3.1e-05	54
HLA-B*44:02	1	438	447	10	LDSKVGGINYN	3.1e-05	37
HLA-A*23:01	1	443	451	9	GGNYNYLYR	3.1e-05	33
HLA-B*44:03	1	447	455	9	NYLYRLEFRK	3.1e-05	34
HLA-B*08:01	1	454	462	9	RKSNLKPFE	3.1e-05	67
HLA-A*26:01	1	456	465	10	SNLKPFERDI	3.1e-05	44
HLA-B*07:02	1	457	466	10	NLKPFERDIS	3.1e-05	48
HLA-A*68:01	1	458	467	10	LKPFERDIST	3.1e-05	45
HLA-A*02:06	1	467	475	9	TEIYQAGST	3.1e-05	60
HLA-A*01:01	1	475	484	10	TPCNGVKGFN	3.1e-05	71
HLA-A*02:01	1	478	487	10	NGVKGFNCYF	3.1e-05	49
HLA-B*35:01	1	483	491	9	FNCYFPLQS	3.1e-05	36
HLA-B*57:01	1	491	499	9	SYGFQPTYG	3.1e-05	66
HLA-B*35:01	1	497	506	10	TYGVGYQPYP	3.1e-05	36
HLA-A*68:01	1	500	509	10	VGYQPYRVVV	3.1e-05	45
HLA-A*02:03	1	505	513	9	YRVVLSFE	3.1e-05	52
HLA-B*44:02	1	506	515	10	RVVLSFELL	3.1e-05	37
HLA-A*11:01	1	509	518	10	VLSFELLHAP	3.1e-05	32
HLA-A*23:01	1	512	520	9	FELLHAPAT	3.1e-05	33
HLA-A*32:01	1	516	525	10	HAPATVCGPK	3.1e-05	38
HLA-A*11:01	1	522	530	9	CGPKKSTNL	3.1e-05	32
HLA-B*58:01	1	525	533	9	KKSTNLVKN	3.1e-05	54
HLA-A*68:01	1	537	545	9	NFNFNGLTG	3.1e-05	45

HLA-A*68:01	1	540	548	9	FNGLTGTGV	3.1e-05	45
HLA-A*02:03	1	549	558	10	LTESNKKFLP	3.1e-05	52
HLA-B*35:01	1	553	561	9	NKKFLPFQQ	3.1e-05	36
HLA-A*30:02	1	559	568	10	FQQFGRDIAD	3.1e-05	74
HLA-B*57:01	1	560	569	10	QQFGRDIADT	3.1e-05	66
HLA-A*02:06	1	563	572	10	GRDIADTTDA	3.1e-05	60
HLA-B*15:01	1	564	572	9	RDIADTTDA	3.1e-05	49
HLA-B*44:03	1	571	580	10	DAVRDPQTLE	3.1e-05	34
HLA-A*68:02	1	576	584	9	PQTLEILDI	3.1e-05	51
HLA-B*15:01	1	579	588	10	LEILDITPCS	3.1e-05	49
HLA-A*24:02	1	585	594	10	TPCSFGGVS	3.1e-05	31
HLA-B*35:01	1	586	594	9	PCSFSGGVS	3.1e-05	36
HLA-A*33:01	1	587	596	10	CSFSGGVS	3.1e-05	54
HLA-B*58:01	1	588	596	9	SFSGGVS	3.1e-05	54
HLA-A*02:01	1	595	604	10	ITPGTNTSNQ	3.1e-05	49
HLA-A*02:03	1	595	603	9	ITPGTNTSN	3.1e-05	52
HLA-B*53:01	1	608	616	9	LYQGVNCTE	3.1e-05	35
HLA-B*51:01	1	609	618	10	YQGVNCTE	3.1e-05	59
HLA-A*11:01	1	611	620	10	GVNCTE	3.1e-05	32
HLA-A*11:01	1	616	625	10	EVPVAIHADQ	3.1e-05	32
HLA-B*57:01	1	616	624	9	EVPVAIHAD	3.1e-05	66
HLA-A*68:02	1	617	625	9	VPVAIHADQ	3.1e-05	51
HLA-B*51:01	1	625	634	10	QLTPTWRVYS	3.1e-05	59
HLA-B*44:02	1	627	635	9	TPTWRVYST	3.1e-05	37
HLA-A*31:01	1	628	636	9	PTWRVYSTG	3.1e-05	51
HLA-B*15:01	1	637	645	9	SNVFQTRAG	3.1e-05	49
HLA-A*11:01	1	638	647	10	NVFQTRAGCL	3.1e-05	32
HLA-B*08:01	1	642	651	10	TRAGCLIGAE	3.1e-05	67
HLA-A*33:01	1	654	663	10	NNSYECDIPI	3.1e-05	54
HLA-B*15:01	1	660	669	10	DIPIGAGICA	3.1e-05	49
HLA-A*30:02	1	662	670	9	PIGAGICAS	3.1e-05	74
HLA-A*68:01	1	667	675	9	ICASYQTQT	3.1e-05	45
HLA-B*08:01	1	668	676	9	CASYQTQTN	3.1e-05	67
HLA-A*11:01	1	681	690	10	ARSVASQSII	3.1e-05	32
HLA-B*44:02	1	684	693	10	VASQSIIAYT	3.1e-05	37
HLA-A*68:01	1	688	697	10	SIAYTMSLG	3.1e-05	45
HLA-B*53:01	1	692	701	10	YTMSLGVENS	3.1e-05	35
HLA-B*51:01	1	699	707	9	ENSVAYSNN	3.1e-05	59
HLA-B*44:02	1	700	709	10	NSVAYSNN	3.1e-05	37
HLA-B*44:03	1	701	710	10	SVAYSNN	3.1e-05	34
HLA-A*23:01	1	713	722	10	TNFTISVTTE	3.1e-05	33
HLA-A*01:01	1	714	722	9	NFTISVTTE	3.1e-05	71
HLA-A*02:06	1	714	722	9	NFTISVTTE	3.1e-05	60
HLA-A*33:01	1	717	726	10	ISVTTEILPV	3.1e-05	54
HLA-A*03:01	1	726	735	10	VSMTKTSVDC	3.1e-05	44
HLA-A*11:01	1	731	740	10	TSVDCTMYIC	3.1e-05	32
HLA-A*68:01	1	732	740	9	SVDCTMYIC	3.1e-05	45
HLA-B*35:01	1	736	745	10	TMYICGDSTE	3.1e-05	36
HLA-A*30:02	1	739	747	9	ICGDSTECS	3.1e-05	74
HLA-A*30:02	1	746	755	10	CSNLLLQYGS	3.1e-05	74
HLA-A*26:01	1	754	763	10	GSFCTQLNRA	3.1e-05	44
HLA-A*30:02	1	763	772	10	ALTGIAVEQD	3.1e-05	74
HLA-B*44:03	1	765	773	9	TGIAVEQDK	3.1e-05	34
HLA-B*58:01	1	766	775	10	GIAVEQDKNT	3.1e-05	54
HLA-A*32:01	1	768	777	10	AVEQDKNTQE	3.1e-05	38
HLA-A*11:01	1	780	789	10	AQVKQIYKTP	3.1e-05	32
HLA-A*30:01	1	788	797	10	TPPIKDFGGF	3.1e-05	76
HLA-A*30:02	1	788	796	9	TPPIKDFGG	3.1e-05	74
HLA-B*40:01	1	788	797	10	TPPIKDFGGF	3.1e-05	30
HLA-A*03:01	1	789	797	9	PPIKDFGGF	3.1e-05	44
HLA-A*31:01	1	789	797	9	PPIKDFGGF	3.1e-05	51
HLA-A*31:01	1	794	802	9	FGGFNFSQI	3.1e-05	51
HLA-A*32:01	1	795	804	10	GGFNFSQILP	3.1e-05	38
HLA-A*31:01	1	820	828	9	FNKVTLADA	3.1e-05	51
HLA-A*11:01	1	822	831	10	KVTLADAGFI	3.1e-05	32
HLA-A*23:01	1	823	832	10	VTLADAGFIK	3.1e-05	33

HLA-B*44:03	1	828	836	9	AGFIKQYGD	3.1e-05	34
HLA-A*03:01	1	830	838	9	FIKQYGDCL	3.1e-05	44
HLA-A*30:01	1	837	846	10	CLGDIAARDL	3.1e-05	76
HLA-A*33:01	1	855	864	10	LTVLPPLLTD	3.1e-05	54
HLA-A*24:02	1	856	864	9	TVLPPLLTD	3.1e-05	31
HLA-B*35:01	1	859	868	10	PPLLTDemia	3.1e-05	36
HLA-B*07:02	1	868	877	10	AQYTSALLAG	3.1e-05	48
HLA-B*51:01	1	868	877	10	AQYTSALLAG	3.1e-05	59
HLA-B*08:01	1	885	894	10	FGAGAALQIP	3.1e-05	67
HLA-B*51:01	1	890	898	9	ALQIPFAMQ	3.1e-05	59
HLA-A*24:02	1	891	900	10	LQIPFAMQMA	3.1e-05	31
HLA-B*57:01	1	896	905	10	AMQMAYRFNG	3.1e-05	66
HLA-B*35:01	1	897	905	9	MQMAYRFNG	3.1e-05	36
HLA-B*51:01	1	900	909	10	AYRFNGIGVT	3.1e-05	59
HLA-A*68:02	1	905	914	10	GIGVTQNVLY	3.1e-05	51
HLA-A*02:03	1	906	914	9	IGVTQNVLY	3.1e-05	52
HLA-A*68:02	1	906	915	10	IGVTQNVLYE	3.1e-05	51
HLA-A*32:01	1	908	917	10	VTQNVLYENQ	3.1e-05	38
HLA-B*53:01	1	916	925	10	NQKLIANQFN	3.1e-05	35
HLA-B*57:01	1	917	926	10	QKLIANQFNS	3.1e-05	66
HLA-A*31:01	1	919	928	10	LIANQFNsAI	3.1e-05	51
HLA-A*11:01	1	923	932	10	QFNsAIGKIQ	3.1e-05	32
HLA-A*01:01	1	924	933	10	FNsAIGKIQD	3.1e-05	71
HLA-A*68:02	1	927	936	10	AIGKIQDsls	3.1e-05	51
HLA-B*08:01	1	936	944	9	SSTASALGK	3.1e-05	67
HLA-B*44:03	1	937	946	10	STASALGLQ	3.1e-05	34
HLA-B*15:01	1	942	951	10	LGKLQDVVNQ	3.1e-05	49
HLA-A*11:01	1	945	954	10	LQDVVNQNAQ	3.1e-05	32
HLA-A*23:01	1	950	958	9	NQNAQALNT	3.1e-05	33
HLA-A*23:01	1	952	961	10	NAQALNTLVK	3.1e-05	33
HLA-B*07:02	1	958	966	9	TLVKQLSSN	3.1e-05	48
HLA-B*35:01	1	968	977	10	GAISSVLNDI	3.1e-05	36
HLA-A*32:01	1	971	979	9	SSVLNDILS	3.1e-05	38
HLA-B*40:01	1	975	983	9	NDILSRLDK	3.1e-05	30
HLA-A*02:01	1	978	987	10	LSRLDKVEAE	3.1e-05	49
HLA-A*23:01	1	981	990	10	LDKVEAEVQI	3.1e-05	33
HLA-A*11:01	1	984	993	10	VEAEVQIDRL	3.1e-05	32
HLA-B*35:01	1	991	999	9	DRLITGRLQ	3.1e-05	36
HLA-B*08:01	1	999	1008	10	QSLQTYVTQQ	3.1e-05	67
HLA-A*11:01	1	1008	1017	10	QLIRAAEIRA	3.1e-05	32
HLA-A*02:06	1	1010	1018	9	IRAAEIRAS	3.1e-05	60
HLA-A*02:01	1	1015	1024	10	IRASANLAAT	3.1e-05	49
HLA-B*07:02	1	1019	1028	10	ANLAATKMSE	3.1e-05	48
HLA-A*23:01	1	1022	1031	10	AATKMSECVL	3.1e-05	33
HLA-B*51:01	1	1024	1032	9	TKMSECVLG	3.1e-05	59
HLA-B*15:01	1	1031	1040	10	LGQSKRVDFC	3.1e-05	49
HLA-A*02:06	1	1040	1049	10	CGKGYHLMSF	3.1e-05	60
HLA-B*40:01	1	1054	1062	9	PHGVVFLHV	3.1e-05	30
HLA-B*53:01	1	1056	1065	10	GVVFLHVTVV	3.1e-05	35
HLA-A*02:03	1	1062	1071	10	VTYVPAQEKN	3.1e-05	52
HLA-A*02:01	1	1068	1076	9	QEKNFTTAP	3.1e-05	49
HLA-A*02:01	1	1071	1079	9	NFTTAPAIC	3.1e-05	49
HLA-A*02:01	1	1073	1081	9	TTAPAICHD	3.1e-05	49
HLA-B*08:01	1	1074	1083	10	TAPAICHDGK	3.1e-05	67
HLA-B*15:01	1	1074	1083	10	TAPAICHDGK	3.1e-05	49
HLA-B*44:02	1	1081	1089	9	DGKAHFPRE	3.1e-05	37
HLA-B*08:01	1	1093	1102	10	VSNGTHWFVT	3.1e-05	67
HLA-A*68:02	1	1097	1105	9	THWFVTRN	3.1e-05	51
HLA-A*31:01	1	1100	1109	10	FVTQRNFYEP	3.1e-05	51
HLA-A*02:06	1	1106	1115	10	FYEPQIITTD	3.1e-05	60
HLA-A*30:02	1	1106	1115	10	FYEPQIITTD	3.1e-05	74
HLA-A*31:01	1	1106	1115	10	FYEPQIITTD	3.1e-05	51
HLA-A*33:01	1	1122	1130	9	NCDVVIGIV	3.1e-05	54
HLA-B*44:02	1	1122	1130	9	NCDVVIGIV	3.1e-05	37
HLA-A*01:01	1	1128	1136	9	GIVNNTVYD	3.1e-05	71
HLA-A*11:01	1	1139	1147	9	QPELDSFKE	3.1e-05	32

HLA-A*32:01	1	1142	1151	10	LDSFKEELDK	3.1e-05	38
HLA-A*02:01	1	1143	1151	9	DSFKEELDK	3.1e-05	49
HLA-B*51:01	1	1145	1154	10	FKEELDKYFK	3.1e-05	59
HLA-B*08:01	1	1146	1154	9	KEELDKYFK	3.1e-05	67
HLA-A*68:01	1	1150	1159	10	DKYFKNHTSP	3.1e-05	45
HLA-A*30:01	1	1158	1166	9	SPDVDLGDI	3.1e-05	76
HLA-B*40:01	1	1158	1166	9	SPDVDLGDI	3.1e-05	30
HLA-A*23:01	1	1160	1169	10	DVDLGDISGI	3.1e-05	33
HLA-B*15:01	1	1160	1169	10	DVDLGDISGI	3.1e-05	49
HLA-A*30:02	1	1161	1170	10	VDLGDISGIN	3.1e-05	74
HLA-A*33:01	1	1161	1169	9	VDLGDISGI	3.1e-05	54
HLA-A*03:01	1	1166	1174	9	ISGINASVV	3.1e-05	44
HLA-A*32:01	1	1178	1187	10	KEIDRLNEVA	3.1e-05	38
HLA-A*11:01	1	1188	1197	10	KNLNESLIDL	3.1e-05	32
HLA-B*58:01	1	1188	1196	9	KNLNESLID	3.1e-05	54
HLA-B*07:02	1	1193	1202	10	SLIDLQELGK	3.1e-05	48
HLA-A*02:01	1	1197	1205	9	LQELGKYEQ	3.1e-05	49
HLA-B*08:01	1	1201	1210	10	GKYEQYIKWP	3.1e-05	67
HLA-A*03:01	1	1212	1220	9	YIWLGFIAI	3.1e-05	44
HLA-B*15:01	1	1213	1222	10	IWLGFIAGLI	3.1e-05	49
HLA-A*03:01	1	1214	1223	10	WLGFIAGLIA	3.1e-05	44
HLA-A*03:01	1	1222	1231	10	IAIVMVTIML	3.1e-05	44
HLA-A*01:01	1	1232	1241	10	CCMTSCCSCS	3.1e-05	71
HLA-B*57:01	1	1242	1251	10	KGCCSCGSCC	3.1e-05	66
HLA-A*30:02	1	1245	1254	10	CSCGSCCKFD	3.1e-05	74
HLA-A*30:01	1	1251	1260	10	CKFDEDDSEP	3.1e-05	76
HLA-A*33:01	1	1253	1261	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-A*02:01	1	78	87	10	RFANPVLPFN	3e-05	49
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	IFGTTLDST	3e-05	33
HLA-A*68:01	1	105	114	10	IFGTTLDST	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	SLLIVNNA	3e-05	38
HLA-A*32:01	1	117	125	9	LLIVNNA	3e-05	38
HLA-A*24:02	1	121	130	10	NNATNVVIKV	3e-05	32
HLA-A*32:01	1	121	129	9	NNATNVVIK	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	NCTFEYVSQP 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*08:01	1	213	221	9	VRGLPQGFS 3e-05	68
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-B*40:01	1	238	247	10	FQTLHRSYLT 3e-05	31
HLA-B*44:02	1	252	261	10	SSGWTAGAAA 3e-05	37
HLA-B*44:03	1	261	270	10	AYYVGYLQPR 3e-05	35
HLA-A*33:01	1	269	278	10	PRTFLLKYNE 3e-05	55
HLA-B*44:03	1	270	278	9	RTFLLKYNE 3e-05	35
HLA-B*58:01	1	277	286	10	NENGTITDAV 3e-05	55
HLA-A*68:01	1	279	288	10	NGTITDAVDC 3e-05	45
HLA-A*26:01	1	284	292	9	DAVDCALDP 3e-05	44
HLA-A*68:01	1	291	299	9	DPLSETKCT 3e-05	45
HLA-A*26:01	1	292	301	10	PLSETKCTLK 3e-05	44
HLA-A*31:01	1	293	302	10	LSETKCTLKS 3e-05	52
HLA-B*07:02	1	294	302	9	SETKCTLKS 3e-05	48
HLA-B*15:01	1	296	305	10	TKCTLKSFTV 3e-05	50
HLA-B*35:01	1	304	313	10	TVEKGIYQTS 3e-05	37
HLA-B*53:01	1	308	317	10	GIYQTSNFRV 3e-05	36
HLA-A*11:01	1	320	329	10	TESIVRFPNI 3e-05	33
HLA-A*68:01	1	328	336	9	NITNLCFPG 3e-05	45
HLA-A*26:01	1	334	343	10	PFGEVFNATR 3e-05	44
HLA-A*24:02	1	335	343	9	FGEVFNATR 3e-05	32
HLA-B*53:01	1	344	353	10	FASVYAWNPK 3e-05	36
HLA-A*01:01	1	350	359	10	WNRKRISNCV 3e-05	72
HLA-A*03:01	1	350	358	9	WNRKRISNC 3e-05	44
HLA-A*68:02	1	351	360	10	NRKRISNCVA 3e-05	51
HLA-B*08:01	1	359	367	9	VADYSVLYN 3e-05	68
HLA-B*44:02	1	365	373	9	LYNSASFST 3e-05	37
HLA-B*57:01	1	370	378	9	SFSTFKCYG 3e-05	67
HLA-B*58:01	1	371	380	10	FSTFKCYGVS 3e-05	55
HLA-A*23:01	1	379	388	10	VSPTKLNLC 3e-05	33
HLA-A*30:01	1	382	391	10	TKLNLCFTN 3e-05	77
HLA-A*02:06	1	384	393	10	LNLCFTNVY 3e-05	60
HLA-B*40:01	1	384	392	9	LNLCFTNV 3e-05	31
HLA-A*26:01	1	385	394	10	NLCFTNVYA 3e-05	44
HLA-B*07:02	1	389	398	10	FTNVYADSFV 3e-05	48
HLA-A*02:01	1	393	402	10	YADSFVIRGD 3e-05	49
HLA-A*68:02	1	393	402	10	YADSFVIRGD 3e-05	51
HLA-B*44:02	1	393	401	9	YADSFVIRG 3e-05	37
HLA-B*08:01	1	397	406	10	FVIRGDEVQR 3e-05	68
HLA-A*33:01	1	399	408	10	IRGDEVQRQA 3e-05	55
HLA-B*15:01	1	399	408	10	IRGDEVQRQA 3e-05	50
HLA-A*03:01	1	400	409	10	RGDEVQRQIA 3e-05	44
HLA-B*15:01	1	403	412	10	EVQRQIAPGQT 3e-05	50
HLA-A*31:01	1	404	413	10	VQRQIAPGQTG 3e-05	52
HLA-A*23:01	1	415	423	9	IADYNYKLP 3e-05	33
HLA-A*02:01	1	418	427	10	YNYKLPDDFT 3e-05	49
HLA-B*53:01	1	419	427	9	NYKLPDDFT 3e-05	36
HLA-B*07:02	1	420	429	10	YKLPDDFTGC 3e-05	48
HLA-A*31:01	1	422	430	9	LPDDFTGCV 3e-05	52
HLA-A*02:01	1	425	433	9	DFTGCVIAW 3e-05	49
HLA-A*33:01	1	426	435	10	FTGCVIAWNS 3e-05	55
HLA-A*68:01	1	431	440	10	IAWNSNLDLS 3e-05	45

HLA-B*58:01	1	435	444	10	SNNLDSKVG 3e-05	55
HLA-A*32:01	1	442	451	10	VGGNYNYLYR 3e-05	38
HLA-B*51:01	1	443	451	9	GGNYNYLYR 3e-05	60
HLA-A*02:01	1	444	453	10	GNYNYLYRLF 3e-05	49
HLA-A*02:03	1	446	455	10	YNYLYRFRK 3e-05	53
HLA-B*35:01	1	447	455	9	NYLYRFRK 3e-05	37
HLA-B*53:01	1	450	459	10	YRFRKSNLK 3e-05	36
HLA-A*01:01	1	454	462	9	RKSNLKPFE 3e-05	72
HLA-B*57:01	1	454	462	9	RKSNLKPFE 3e-05	67
HLA-A*26:01	1	458	467	10	LKPFERDIST 3e-05	44
HLA-A*68:01	1	465	474	10	ISTEIQAGS 3e-05	45
HLA-B*08:01	1	466	474	9	STEIQAGS 3e-05	68
HLA-B*58:01	1	469	477	9	IYQAGSTPC 3e-05	55
HLA-A*30:02	1	477	485	9	CNGVKGFNC 3e-05	75
HLA-A*02:01	1	478	486	9	NGVKGFNCY 3e-05	49
HLA-B*44:03	1	485	493	9	CYFPLQSYG 3e-05	35
HLA-A*31:01	1	487	495	9	FPLQSYGFQ 3e-05	52
HLA-B*44:03	1	509	517	9	VLSFELLHA 3e-05	35
HLA-A*23:01	1	515	524	10	LHAPATVCGP 3e-05	33
HLA-B*35:01	1	527	536	10	STNLVKNKCV 3e-05	37
HLA-B*44:03	1	527	536	10	STNLVKNKCV 3e-05	35
HLA-B*08:01	1	536	544	9	VNFNFNGLT 3e-05	68
HLA-B*07:02	1	537	546	10	NFNFNGLTGT 3e-05	48
HLA-B*15:01	1	537	545	9	NFNFNGLTG 3e-05	50
HLA-A*32:01	1	542	550	9	GLTGTGVL 3e-05	38
HLA-A*30:01	1	544	553	10	TGTGVLTESN 3e-05	77
HLA-A*30:02	1	544	553	10	TGTGVLTESN 3e-05	75
HLA-B*35:01	1	547	555	9	GVLTESNKK 3e-05	37
HLA-A*11:01	1	550	558	9	TESNKKFLP 3e-05	33
HLA-A*24:02	1	550	558	9	TESNKKFLP 3e-05	32
HLA-B*07:02	1	552	560	9	SNKKFLPFQ 3e-05	48
HLA-B*40:01	1	555	564	10	KFLPFQQFGR 3e-05	31
HLA-B*53:01	1	555	563	9	KFLPFQQFG 3e-05	36
HLA-A*03:01	1	564	572	9	RDIADTTDA 3e-05	44
HLA-A*02:03	1	567	576	10	ADTTDAVRDP 3e-05	53
HLA-B*35:01	1	574	583	10	RDPQTLEILD 3e-05	37
HLA-A*33:01	1	575	584	10	DPQTLEILDI 3e-05	55
HLA-B*57:01	1	578	587	10	TLEILDITPC 3e-05	67
HLA-A*32:01	1	580	588	9	EILDITPCS 3e-05	38
HLA-B*57:01	1	583	592	10	DITPCSFGGV 3e-05	67
HLA-A*23:01	1	585	594	10	TPCSFGGVSV 3e-05	33
HLA-B*44:03	1	588	596	9	SFGGVSVIT 3e-05	35
HLA-A*01:01	1	591	600	10	GVSVITPGTN 3e-05	72
HLA-B*44:02	1	591	599	9	GVSVITPGT 3e-05	37
HLA-B*57:01	1	596	604	9	TPGTNTSNQ 3e-05	67
HLA-B*53:01	1	603	612	10	NQVAVLYQGV 3e-05	36
HLA-B*58:01	1	604	613	10	QVAVLYQGVN 3e-05	55
HLA-B*40:01	1	613	622	10	NCTEVPVAIH 3e-05	31
HLA-A*02:06	1	615	624	10	TEVPVAIHAD 3e-05	60
HLA-B*58:01	1	616	624	9	EVPVAIHAD 3e-05	55
HLA-B*58:01	1	617	625	9	VPVAIHADQ 3e-05	55
HLA-A*26:01	1	641	649	9	QTRAGCLIG 3e-05	44
HLA-A*32:01	1	645	653	9	GCLIGAEHV 3e-05	38
HLA-A*02:06	1	646	655	10	CLIGAEHVNN 3e-05	60
HLA-A*02:06	1	649	658	10	GAEHVNNSYE 3e-05	60
HLA-A*11:01	1	650	658	9	AEHVNNSYE 3e-05	33
HLA-B*35:01	1	650	659	10	AEHVNNSYEC 3e-05	37
HLA-B*51:01	1	650	658	9	AEHVNNSYE 3e-05	60
HLA-A*02:06	1	659	668	10	CDIPIGAGIC 3e-05	60
HLA-B*44:02	1	674	683	10	QTNSPRRARS 3e-05	37
HLA-A*02:01	1	677	685	9	SPRRARSVA 3e-05	49
HLA-B*40:01	1	682	691	10	RSVASQSIIA 3e-05	31
HLA-B*07:02	1	690	699	10	IAYTMSLGVE 3e-05	48
HLA-B*15:01	1	704	713	10	YSNNSIAIPT 3e-05	50
HLA-A*23:01	1	721	729	9	TEILPVSM 3e-05	33
HLA-A*31:01	1	724	733	10	LPVSMTKTSV 3e-05	52

HLA-B*53:01	1	730	739	10	KTSVDCTMYI 3e-05	36
HLA-B*07:02	1	736	745	10	TMYICGDSTE 3e-05	48
HLA-A*03:01	1	737	745	9	MYICGDSTE 3e-05	44
HLA-A*32:01	1	742	751	10	DSTECSNLLL 3e-05	38
HLA-A*31:01	1	746	754	9	CSNLLLQYG 3e-05	52
HLA-B*58:01	1	759	768	10	QLNRALTGIA 3e-05	55
HLA-B*58:01	1	760	769	10	LNRLALTGIAV 3e-05	55
HLA-A*31:01	1	767	776	10	IAVEQDKNTQ 3e-05	52
HLA-A*02:03	1	768	776	9	AVEQDKNTQ 3e-05	53
HLA-B*53:01	1	771	780	10	QDKNTQEVFA 3e-05	36
HLA-B*58:01	1	771	780	10	QDKNTQEVFA 3e-05	55
HLA-A*01:01	1	785	793	9	IYKTPPIKD 3e-05	72
HLA-B*57:01	1	791	800	10	IKDFGGFNFS 3e-05	67
HLA-A*68:01	1	798	806	9	NFSQILPDP 3e-05	45
HLA-B*44:02	1	801	810	10	QILPDPSPKPS 3e-05	37
HLA-A*32:01	1	809	818	10	PSKRSFIEDL 3e-05	38
HLA-B*07:02	1	820	828	9	FNKVTLADA 3e-05	48
HLA-B*07:02	1	829	837	9	GFIKQYGDC 3e-05	48
HLA-B*57:01	1	833	841	9	QYGDCLGDI 3e-05	67
HLA-A*30:01	1	834	842	9	YGDCLGDI 3e-05	77
HLA-A*68:02	1	835	843	9	GDCLGDIAA 3e-05	51
HLA-B*44:02	1	835	844	10	GDCLGDIAAR 3e-05	37
HLA-A*11:01	1	839	847	9	GDIAARDLI 3e-05	33
HLA-B*53:01	1	840	849	10	DIAARDLICA 3e-05	36
HLA-B*53:01	1	843	851	9	ARDLICAQK 3e-05	36
HLA-A*68:01	1	846	854	9	LICAQKFNG 3e-05	45
HLA-A*68:02	1	847	856	10	ICAQKFNGLT 3e-05	51
HLA-A*11:01	1	853	861	9	NGLTVLPPL 3e-05	33
HLA-B*44:03	1	853	861	9	NGLTVLPPL 3e-05	35
HLA-A*31:01	1	858	866	9	LPPLLTDEM 3e-05	52
HLA-A*30:02	1	859	867	9	PLLLTDEMI 3e-05	75
HLA-A*68:02	1	860	868	9	PLLTDEMIA 3e-05	51
HLA-B*35:01	1	870	879	10	YTSALLAGTI 3e-05	37
HLA-A*68:02	1	873	882	10	ALLAGTITSG 3e-05	51
HLA-B*53:01	1	873	881	9	ALLAGTITS 3e-05	36
HLA-A*32:01	1	880	889	10	TSGWTFGAGA 3e-05	38
HLA-B*35:01	1	884	893	10	TFGAGAALQI 3e-05	37
HLA-B*40:01	1	884	893	10	TFGAGAALQI 3e-05	31
HLA-B*44:02	1	893	902	10	IPFAMQMAYR 3e-05	37
HLA-A*68:01	1	902	911	10	RFNGIGVTQN 3e-05	45
HLA-A*01:01	1	903	911	9	FNGIGVTQN 3e-05	72
HLA-B*51:01	1	903	911	9	FNGIGVTQN 3e-05	60
HLA-A*23:01	1	909	917	9	TQNVLYENQ 3e-05	33
HLA-B*08:01	1	909	918	10	TQNVLYENQK 3e-05	68
HLA-A*03:01	1	914	922	9	YENQKLIAN 3e-05	44
HLA-B*57:01	1	914	922	9	YENQKLIAN 3e-05	67
HLA-A*68:01	1	929	938	10	GKIQDSLST 3e-05	45
HLA-B*58:01	1	929	937	9	GKIQDSLSS 3e-05	55
HLA-B*53:01	1	930	939	10	KIQDSLSSA 3e-05	36
HLA-A*03:01	1	934	943	10	SLSSTASALG 3e-05	44
HLA-B*40:01	1	939	948	10	ASALGKLQDV 3e-05	31
HLA-B*58:01	1	941	950	10	ALGKLQDVVN 3e-05	55
HLA-A*01:01	1	942	951	10	LGKLQDVVNQ 3e-05	72
HLA-B*35:01	1	948	957	10	VVNQNAQALN 3e-05	37
HLA-B*51:01	1	955	964	10	ALNTLVKQLS 3e-05	60
HLA-A*31:01	1	956	965	10	LNTLVKQLSS 3e-05	52
HLA-A*11:01	1	963	971	9	LSSNFGAIS 3e-05	33
HLA-A*31:01	1	963	971	9	LSSNFGAIS 3e-05	52
HLA-A*33:01	1	963	972	10	LSSNFGAISS 3e-05	55
HLA-A*68:02	1	967	975	9	FGAISSVLN 3e-05	51
HLA-B*53:01	1	971	979	9	SSVLNDILS 3e-05	36
HLA-A*23:01	1	973	982	10	VLNDILSRLD 3e-05	33
HLA-B*58:01	1	974	982	9	LNDILSRLD 3e-05	55
HLA-A*23:01	1	975	984	10	NDILSRLDKV 3e-05	33
HLA-B*51:01	1	975	983	9	NDILSRLDK 3e-05	60
HLA-B*53:01	1	979	987	9	SRLDKVEAE 3e-05	36



HLA-A*68:02	1	986	995	10	AEVQIDRLIT 3e-05	51
HLA-A*11:01	1	997	1006	10	RLQSLQTYVT 3e-05	33
HLA-A*02:03	1	999	1007	9	QSLQTYVVTQ 3e-05	53
HLA-A*23:01	1	999	1007	9	QSLQTYVVTQ 3e-05	33
HLA-A*24:02	1	1000	1008	9	SLQTYVVTQQ 3e-05	32
HLA-B*15:01	1	1003	1012	10	TYVTQQLIRA 3e-05	50
HLA-B*51:01	1	1005	1014	10	VTQQLIRAAE 3e-05	60
HLA-A*11:01	1	1012	1021	10	AAEIRASANL 3e-05	33
HLA-A*11:01	1	1014	1023	10	EIRASANLAA 3e-05	33
HLA-B*44:02	1	1018	1027	10	SANLAATKMS 3e-05	37
HLA-A*33:01	1	1021	1030	10	LAATKMSECV 3e-05	55
HLA-A*03:01	1	1022	1031	10	AATKMSECVL 3e-05	44
HLA-A*02:03	1	1027	1036	10	SECVLGQSKR 3e-05	53
HLA-A*02:03	1	1030	1038	9	VLGQSKRVD 3e-05	53
HLA-A*11:01	1	1032	1040	9	GQSKRVDFC 3e-05	33
HLA-B*58:01	1	1032	1041	10	GQSKRVDFCG 3e-05	55
HLA-B*35:01	1	1036	1045	10	RVDFCGKGYH 3e-05	37
HLA-A*11:01	1	1037	1046	10	VDFCGKGYHL 3e-05	33
HLA-B*57:01	1	1039	1048	10	FCGKGYHLMS 3e-05	67
HLA-A*02:06	1	1040	1048	9	CGKGYHLMS 3e-05	60
HLA-B*58:01	1	1060	1069	10	LHVTVVPAQE 3e-05	55
HLA-A*02:03	1	1065	1073	9	VPAQEKNT 3e-05	53
HLA-A*03:01	1	1065	1074	10	VPAQEKNTT 3e-05	44
HLA-A*68:01	1	1065	1074	10	VPAQEKNTT 3e-05	45
HLA-A*30:01	1	1072	1081	10	FTTAPAICH 3e-05	77
HLA-A*33:01	1	1072	1081	10	FTTAPAICH 3e-05	55
HLA-A*02:03	1	1074	1083	10	TAPAICHGK 3e-05	53
HLA-A*31:01	1	1076	1085	10	PAICHGKAH 3e-05	52
HLA-B*08:01	1	1076	1085	10	PAICHGKAH 3e-05	68
HLA-B*07:02	1	1078	1087	10	ICHGKAHFP 3e-05	48
HLA-B*58:01	1	1079	1087	9	CHDGKAHFP 3e-05	55
HLA-A*02:06	1	1080	1088	9	HDGKAHFPR 3e-05	60
HLA-B*15:01	1	1080	1088	9	HDGKAHFPR 3e-05	50
HLA-A*02:06	1	1081	1089	9	DGKAHFPRE 3e-05	60
HLA-B*40:01	1	1082	1090	9	GKAHFPRG 3e-05	31
HLA-B*58:01	1	1086	1095	10	FPREGVFVSN 3e-05	55
HLA-A*24:02	1	1099	1108	10	WFTQRNFYE 3e-05	32
HLA-B*35:01	1	1101	1109	9	VTQRNFYEP 3e-05	37
HLA-B*44:02	1	1106	1115	10	FYEPQIITD 3e-05	37
HLA-A*33:01	1	1107	1115	9	YEPQIITD 3e-05	55
HLA-B*51:01	1	1111	1120	10	IITTDNTFVS 3e-05	60
HLA-B*35:01	1	1117	1126	10	TFVSGNCDVV 3e-05	37
HLA-B*15:01	1	1120	1129	10	SGNCDVVIGI 3e-05	50
HLA-B*44:03	1	1120	1129	10	SGNCDVVIGI 3e-05	35
HLA-B*44:03	1	1131	1140	10	NNTVYDPLQP 3e-05	35
HLA-A*24:02	1	1138	1147	10	LQPELDSFKE 3e-05	32
HLA-A*02:01	1	1142	1151	10	LDSFKEELDK 3e-05	49
HLA-A*24:02	1	1147	1155	9	EELDKYFKN 3e-05	32
HLA-A*23:01	1	1150	1158	9	DKYFKNHTS 3e-05	33
HLA-B*08:01	1	1151	1160	10	KYFKNHTSPD 3e-05	68
HLA-B*57:01	1	1151	1160	10	KYFKNHTSPD 3e-05	67
HLA-A*33:01	1	1153	1161	9	FKNHTSPDV 3e-05	55
HLA-B*57:01	1	1153	1161	9	FKNHTSPDV 3e-05	67
HLA-B*58:01	1	1153	1161	9	FKNHTSPDV 3e-05	55
HLA-A*03:01	1	1156	1164	9	HTSPDVLG 3e-05	44
HLA-A*02:01	1	1160	1168	9	DVDLGDISG 3e-05	49
HLA-A*24:02	1	1160	1169	10	DVDLGDISGI 3e-05	32
HLA-B*07:02	1	1162	1171	10	DLGDISGINA 3e-05	48
HLA-A*68:01	1	1163	1172	10	LGDISGINAS 3e-05	45
HLA-B*58:01	1	1163	1172	10	LGDISGINAS 3e-05	55
HLA-A*31:01	1	1164	1172	9	GDISGINAS 3e-05	52
HLA-B*40:01	1	1167	1176	10	SGINASVVNI 3e-05	31
HLA-B*07:02	1	1173	1182	10	VVNIQKEIDR 3e-05	48
HLA-B*44:03	1	1174	1182	9	VNIQKEIDR 3e-05	35
HLA-A*30:02	1	1190	1199	10	LNESLIDLQE 3e-05	75
HLA-A*30:02	1	1191	1199	9	NESLIDLQE 3e-05	75

HLA-B*15:01	1	1191	1199	9	NESLIDLQE	3e-05	50
HLA-B*44:03	1	1196	1205	10	DLQELGKYEQ	3e-05	35
HLA-A*26:01	1	1197	1205	9	LQELGKYEQ	3e-05	44
HLA-A*02:03	1	1201	1210	10	GKYEQYIKWP	3e-05	53
HLA-B*44:02	1	1206	1215	10	YIKWPWYIWL	3e-05	37
HLA-B*44:02	1	1219	1227	9	AGLIAIVMV	3e-05	37
HLA-B*07:02	1	1220	1229	10	GLIAIVMVTI	3e-05	48
HLA-A*01:01	1	1230	1238	9	MLCCMTSCC	3e-05	72
HLA-A*02:06	1	1234	1242	9	MTSCCCLK	3e-05	60
HLA-A*26:01	1	1244	1253	10	CCSCGSCCKF	3e-05	44
HLA-B*51:01	1	1251	1260	10	CKFDEDDSEP	3e-05	60
HLA-B*44:03	1	1252	1260	9	KFDEDDSEP	3e-05	35
HLA-A*68:01	1	1255	1264	10	EDDSEPVKLG	3e-05	45
HLA-A*02:03	1	1260	1268	9	PVLKGVKLH	3e-05	53
HLA-B*44:03	1	1260	1268	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	SQCVNLTTTRT	2.9e-05	39
HLA-B*15:01	1	14	22	9	QCVNLTTTRT	2.9e-05	50
HLA-B*53:01	1	14	22	9	QCVNLTTTRT	2.9e-05	36
HLA-B*53:01	1	17	25	9	NLTTTRTQLP	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	FFSNVTWFHA	2.9e-05	50
HLA-B*35:01	1	61	70	10	NVTWFHAIHV	2.9e-05	37
HLA-A*24:02	1	75	83	9	GKRFANPV	2.9e-05	32
HLA-A*23:01	1	76	85	10	TKRFANPVL	2.9e-05	33
HLA-A*68:01	1	76	85	10	TKRFANPVL	2.9e-05	46
HLA-B*53:01	1	80	89	10	ANPVLPFNDG	2.9e-05	36
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	SNIRGWIFG	2.9e-05	72
HLA-A*32:01	1	98	107	10	SNIRGWIFG	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	KTQSLLIVNN	2.9e-05	50
HLA-B*44:02	1	116	124	9	SLLIVNNAT	2.9e-05	38
HLA-A*02:03	1	123	132	10	ATNVVIVKCE	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*03:01	1	211	219	9	NLVRGLPQG	2.9e-05	45
HLA-A*68:01	1	211	219	9	NLVRGLPQG	2.9e-05	46
HLA-A*01:01	1	230	239	10	PIGINITRFQ	2.9e-05	72
HLA-A*24:02	1	238	247	10	FQTLHRSYLT	2.9e-05	32

HLA-B*44:03	1	244	252	9	SYLTPGDSS	2.9e-05	35
HLA-A*68:02	1	248	257	10	PGDSSSGWTA	2.9e-05	52
HLA-A*30:01	1	256	265	10	TAGAAAYYVG	2.9e-05	77
HLA-A*23:01	1	257	266	10	AGAAAYYVGY	2.9e-05	33
HLA-A*68:02	1	267	276	10	LQPRTFLLKY	2.9e-05	52
HLA-A*68:01	1	270	279	10	RTFLLKYNEN	2.9e-05	46
HLA-A*24:02	1	273	282	10	LLKYNENGTI	2.9e-05	32
HLA-B*51:01	1	273	281	9	LLKYNENGT	2.9e-05	60
HLA-B*58:01	1	275	284	10	KYNENGTITD	2.9e-05	55
HLA-B*44:03	1	281	289	9	TITDAVDCA	2.9e-05	35
HLA-A*01:01	1	283	292	10	TDAVDCALDP	2.9e-05	72
HLA-B*40:01	1	296	305	10	TKCTLKSFTV	2.9e-05	31
HLA-A*26:01	1	299	308	10	TLKSFTVEKG	2.9e-05	45
HLA-A*23:01	1	304	312	9	TVEKGIYQT	2.9e-05	33
HLA-A*02:01	1	312	321	10	TSNFRVQPT	2.9e-05	50
HLA-A*01:01	1	320	328	9	TESIVRFPN	2.9e-05	72
HLA-B*40:01	1	322	330	9	SIVRFPNIT	2.9e-05	31
HLA-B*44:02	1	325	333	9	RFPNITNLC	2.9e-05	38
HLA-B*51:01	1	329	337	9	ITNLCPFGE	2.9e-05	60
HLA-B*58:01	1	331	340	10	NLCPFGEVFN	2.9e-05	55
HLA-B*57:01	1	334	343	10	PFGVEFNATR	2.9e-05	67
HLA-A*02:03	1	335	344	10	FGEVFNATRF	2.9e-05	53
HLA-A*32:01	1	337	346	10	EVFNATRFAS	2.9e-05	39
HLA-A*01:01	1	342	351	10	TRFASVYAWN	2.9e-05	72
HLA-B*35:01	1	348	357	10	YAWNKRKRIS	2.9e-05	37
HLA-A*68:01	1	354	363	10	RISNCVADYS	2.9e-05	46
HLA-A*11:01	1	355	363	9	ISNCVADYS	2.9e-05	33
HLA-B*15:01	1	355	364	10	ISNCVADYSV	2.9e-05	50
HLA-A*23:01	1	360	368	9	ADYSVLYNS	2.9e-05	33
HLA-A*24:02	1	363	372	10	SVLYNSASF	2.9e-05	32
HLA-A*02:03	1	377	386	10	YGVSPTKLND	2.9e-05	53
HLA-B*51:01	1	383	391	9	KLNDLCFTN	2.9e-05	60
HLA-A*31:01	1	385	394	10	NDLCFTNVYA	2.9e-05	52
HLA-B*53:01	1	398	406	9	VIRGDEVQR	2.9e-05	36
HLA-A*03:01	1	399	408	10	IRGDEVQRQA	2.9e-05	45
HLA-A*24:02	1	411	420	10	QTGNIADYNY	2.9e-05	32
HLA-A*02:03	1	413	421	9	GNIADYNYK	2.9e-05	53
HLA-A*01:01	1	420	428	9	YKLPDDFTG	2.9e-05	72
HLA-A*02:06	1	424	433	10	DDFTGCVIAW	2.9e-05	61
HLA-A*30:02	1	428	436	9	GCVIAWNSN	2.9e-05	75
HLA-B*58:01	1	428	436	9	GCVIAWNSN	2.9e-05	55
HLA-B*08:01	1	432	440	9	AWNSNNLDS	2.9e-05	68
HLA-B*40:01	1	441	450	10	KVGGNYNYLY	2.9e-05	31
HLA-B*07:02	1	442	450	9	VGGNYNYLY	2.9e-05	49
HLA-A*23:01	1	449	457	9	LYRLEFRKSN	2.9e-05	33
HLA-B*58:01	1	458	467	10	LKPFERDIST	2.9e-05	55
HLA-A*23:01	1	459	467	9	KPFERDIST	2.9e-05	33
HLA-A*23:01	1	460	468	9	PFERDISTE	2.9e-05	33
HLA-A*11:01	1	462	471	10	ERDISTEIQ	2.9e-05	33
HLA-B*08:01	1	463	471	9	RDISTEIQ	2.9e-05	68
HLA-B*53:01	1	464	473	10	DISTEIQAG	2.9e-05	36
HLA-A*01:01	1	480	489	10	VKGFNCYFPL	2.9e-05	72
HLA-A*30:01	1	488	497	10	PLQSYGFQPT	2.9e-05	77
HLA-B*40:01	1	490	499	10	QSYGFQPTYG	2.9e-05	31
HLA-A*33:01	1	492	501	10	YGFQPTYGVG	2.9e-05	55
HLA-B*57:01	1	493	501	9	GFQPTYGVG	2.9e-05	67
HLA-A*03:01	1	505	513	9	YRVVLSFE	2.9e-05	45
HLA-A*24:02	1	510	518	9	LSFELLHAP	2.9e-05	32
HLA-A*68:01	1	512	520	9	FELLHAPAT	2.9e-05	46
HLA-A*68:01	1	513	522	10	ELLHAPATVC	2.9e-05	46
HLA-B*53:01	1	513	522	10	ELLHAPATVC	2.9e-05	36
HLA-A*23:01	1	514	522	9	LLHAPATVC	2.9e-05	33
HLA-A*02:06	1	517	525	9	APATVCGPK	2.9e-05	61
HLA-B*44:03	1	519	528	10	ATVCGPKKST	2.9e-05	35
HLA-A*26:01	1	520	529	10	TVCGPKKSTN	2.9e-05	45
HLA-A*26:01	1	525	534	10	KKSTNLVKNK	2.9e-05	45

HLA-A*68:01	1	531	540	10	VKNKCVNFNF	2.9e-05	46
HLA-A*11:01	1	543	552	10	LTGTGVLTES	2.9e-05	33
HLA-A*11:01	1	544	552	9	TGTGVLTES	2.9e-05	33
HLA-A*02:03	1	546	555	10	TGVLTESNKK	2.9e-05	53
HLA-B*35:01	1	555	563	9	KFLPFQQFG	2.9e-05	37
HLA-A*32:01	1	558	566	9	PFQQFGRDI	2.9e-05	39
HLA-A*68:01	1	559	567	9	FQQFGRDIA	2.9e-05	46
HLA-A*31:01	1	560	569	10	QQFGRDIADT	2.9e-05	52
HLA-A*01:01	1	562	571	10	FGRDIADTTD	2.9e-05	72
HLA-A*26:01	1	564	572	9	RDIADTTDA	2.9e-05	45
HLA-B*44:02	1	569	577	9	TTDAVRDPQ	2.9e-05	38
HLA-A*01:01	1	576	585	10	PQTLIILDIT	2.9e-05	72
HLA-B*08:01	1	579	588	10	LEILDITPCS	2.9e-05	68
HLA-A*31:01	1	587	596	10	CSFGGVSVIT	2.9e-05	52
HLA-A*02:06	1	591	600	10	GVSVITPGTN	2.9e-05	61
HLA-B*53:01	1	591	599	9	GVSVITPGT	2.9e-05	36
HLA-A*23:01	1	593	601	9	SVITPGTNT	2.9e-05	33
HLA-B*40:01	1	596	605	10	TPGTNTSNQV	2.9e-05	31
HLA-A*32:01	1	602	611	10	SNQVAVLYQG	2.9e-05	39
HLA-A*23:01	1	607	615	9	VLYQGVNCT	2.9e-05	33
HLA-A*32:01	1	614	623	10	CTEVPVAIHA	2.9e-05	39
HLA-B*53:01	1	616	624	9	EVPVAIHAD	2.9e-05	36
HLA-B*51:01	1	620	629	10	AIHADQLTPT	2.9e-05	60
HLA-B*53:01	1	625	634	10	QLTPTWRVYS	2.9e-05	36
HLA-A*32:01	1	632	641	10	VYSTGSNVFQ	2.9e-05	39
HLA-B*53:01	1	645	653	9	GCLIGAHEHV	2.9e-05	36
HLA-B*57:01	1	646	655	10	CLIGAHEVNN	2.9e-05	67
HLA-B*53:01	1	648	656	9	IGAHEVNNS	2.9e-05	36
HLA-B*40:01	1	672	680	9	QTQTNSPRR	2.9e-05	31
HLA-A*68:02	1	677	686	10	SPRRARSVAS	2.9e-05	52
HLA-B*53:01	1	681	690	10	ARSVASQSII	2.9e-05	36
HLA-A*11:01	1	686	695	10	SQSIIAYTMS	2.9e-05	33
HLA-B*08:01	1	690	699	10	IAYTMSLQVE	2.9e-05	68
HLA-B*15:01	1	691	700	10	AYTMSLQVEN	2.9e-05	50
HLA-B*44:02	1	692	700	9	YTMSLQVEN	2.9e-05	38
HLA-B*40:01	1	708	716	9	SIAIPTNFT	2.9e-05	31
HLA-B*35:01	1	710	718	9	AIPTNFTIS	2.9e-05	37
HLA-B*07:02	1	717	726	10	ISVTTEILPV	2.9e-05	49
HLA-A*03:01	1	723	732	10	ILPVSMTKTS	2.9e-05	45
HLA-A*24:02	1	726	735	10	VSMTKTSVDC	2.9e-05	32
HLA-B*08:01	1	730	739	10	KTSVDCTMYI	2.9e-05	68
HLA-B*07:02	1	737	745	9	MYICGDSTE	2.9e-05	49
HLA-A*03:01	1	742	750	9	DSTECSNLL	2.9e-05	45
HLA-A*30:01	1	748	757	10	NLLLQYGSFC	2.9e-05	77
HLA-B*15:01	1	748	757	10	NLLLQYGSFC	2.9e-05	50
HLA-B*51:01	1	756	765	10	FCTQLNRALT	2.9e-05	60
HLA-A*68:01	1	765	774	10	TGIAVEQDKN	2.9e-05	46
HLA-B*07:02	1	765	773	9	TGIAVEQDK	2.9e-05	49
HLA-A*26:01	1	767	776	10	IAVEQDKNTQ	2.9e-05	45
HLA-A*33:01	1	767	776	10	IAVEQDKNTQ	2.9e-05	55
HLA-A*30:02	1	772	781	10	DKNTQEVFAQ	2.9e-05	75
HLA-B*08:01	1	775	784	10	TQEVFAQVKQ	2.9e-05	68
HLA-B*07:02	1	782	790	9	VKQIYKTPP	2.9e-05	49
HLA-A*23:01	1	787	796	10	KTPPIKDFGG	2.9e-05	33
HLA-A*02:01	1	792	801	10	KDFGGFNFSQ	2.9e-05	50
HLA-A*33:01	1	797	806	10	NFSQILPDP	2.9e-05	55
HLA-B*08:01	1	798	807	10	NFSQILPDP	2.9e-05	68
HLA-B*35:01	1	798	806	9	NFSQILPDP	2.9e-05	37
HLA-B*53:01	1	798	806	9	NFSQILPDP	2.9e-05	36
HLA-B*35:01	1	808	817	10	KPSKRSFIED	2.9e-05	37
HLA-A*11:01	1	810	819	10	SKRSFIEDLL	2.9e-05	33
HLA-B*44:02	1	814	822	9	FIEDLLFNK	2.9e-05	38
HLA-A*23:01	1	838	847	10	LGDIAARDLI	2.9e-05	33
HLA-A*32:01	1	838	847	10	LGDIAARDLI	2.9e-05	39
HLA-B*40:01	1	841	849	9	IAARDLICA	2.9e-05	31
HLA-A*03:01	1	848	857	10	CAQKFNGLTV	2.9e-05	45

HLA-A*24:02	1	848	857	10	CAQKFNGLTV 2.9e-05	32
HLA-B*40:01	1	852	861	10	FNGLTVLPPL 2.9e-05	31
HLA-B*08:01	1	869	878	10	QYTSALLAGT 2.9e-05	68
HLA-B*44:03	1	869	877	9	QYTSALLAG 2.9e-05	35
HLA-A*02:01	1	871	880	10	TSALLAGTIT 2.9e-05	50
HLA-A*02:06	1	875	884	10	LAGTITSGWT 2.9e-05	61
HLA-B*44:03	1	877	886	10	GTITSGWTFG 2.9e-05	35
HLA-B*15:01	1	878	887	10	TITSGWTFGA 2.9e-05	50
HLA-A*11:01	1	884	893	10	TFGAGAALQI 2.9e-05	33
HLA-B*58:01	1	896	904	9	AMQMAYRFN 2.9e-05	55
HLA-A*11:01	1	897	906	10	MQMAYRFNGI 2.9e-05	33
HLA-A*32:01	1	902	911	10	RFNGIGVTQN 2.9e-05	39
HLA-B*40:01	1	903	912	10	FNGIGVTQNV 2.9e-05	31
HLA-B*53:01	1	907	915	9	GVTQNVLYE 2.9e-05	36
HLA-A*68:02	1	909	917	9	TQNVLYENQ 2.9e-05	52
HLA-A*24:02	1	913	922	10	LYENQKLIAN 2.9e-05	32
HLA-A*23:01	1	918	927	10	KLIANQFNFA 2.9e-05	33
HLA-A*24:02	1	919	927	9	LIANQFNFA 2.9e-05	32
HLA-A*30:01	1	924	933	10	FNSAIGKIQD 2.9e-05	77
HLA-A*03:01	1	940	949	10	SALGKLQDVV 2.9e-05	45
HLA-A*11:01	1	947	955	9	DVVNQNAQA 2.9e-05	33
HLA-A*02:01	1	956	965	10	LNTLVKQLSS 2.9e-05	50
HLA-A*31:01	1	959	968	10	LVKQLSSNFG 2.9e-05	52
HLA-B*08:01	1	960	969	10	VKQLSSNFGA 2.9e-05	68
HLA-A*32:01	1	963	971	9	LSSNFGAIS 2.9e-05	39
HLA-A*11:01	1	978	987	10	LSRLDKVEAE 2.9e-05	33
HLA-A*32:01	1	981	990	10	LDKVEAEVQI 2.9e-05	39
HLA-B*51:01	1	983	992	10	KVEAEVQIDR 2.9e-05	60
HLA-A*01:01	1	991	999	9	DRLITGRLQ 2.9e-05	72
HLA-A*11:01	1	994	1003	10	ITGRLQSLQT 2.9e-05	33
HLA-B*53:01	1	995	1003	9	TGRLQSLQT 2.9e-05	36
HLA-B*40:01	1	1004	1013	10	YVTQQLIRAA 2.9e-05	31
HLA-A*23:01	1	1010	1018	9	IRAAEIRAS 2.9e-05	33
HLA-A*26:01	1	1010	1018	9	IRAAEIRAS 2.9e-05	45
HLA-B*44:03	1	1010	1019	10	IRAAEIRASA 2.9e-05	35
HLA-B*35:01	1	1018	1027	10	SANLAATKMS 2.9e-05	37
HLA-A*23:01	1	1022	1030	9	AATKMSECV 2.9e-05	33
HLA-A*02:01	1	1023	1032	10	ATKMSECVLG 2.9e-05	50
HLA-A*02:01	1	1027	1036	10	SECVLGQSKR 2.9e-05	50
HLA-A*32:01	1	1028	1036	9	ECVLGQSKR 2.9e-05	39
HLA-B*51:01	1	1033	1041	9	QSKRVDFCG 2.9e-05	60
HLA-A*02:06	1	1041	1050	10	GKGYHLMSFP 2.9e-05	61
HLA-B*58:01	1	1044	1052	9	YHLMSFPQS 2.9e-05	55
HLA-B*53:01	1	1050	1058	9	PQSAPHGVV 2.9e-05	36
HLA-A*03:01	1	1073	1081	9	TTAPAICHD 2.9e-05	45
HLA-A*68:01	1	1075	1084	10	APAICHDGKA 2.9e-05	46
HLA-B*58:01	1	1085	1094	10	HFPREGVFVS 2.9e-05	55
HLA-B*44:03	1	1089	1098	10	EGVFVSNPTH 2.9e-05	35
HLA-B*15:01	1	1095	1103	9	NGTHWFVTQ 2.9e-05	50
HLA-B*57:01	1	1099	1108	10	WFVTQRNFYE 2.9e-05	67
HLA-A*33:01	1	1100	1109	10	FVTQRNFYEP 2.9e-05	55
HLA-B*58:01	1	1102	1110	9	TQRNFYEPQ 2.9e-05	55
HLA-B*08:01	1	1107	1116	10	YEPQIITTDN 2.9e-05	68
HLA-A*02:03	1	1108	1117	10	EPQIITTDNT 2.9e-05	53
HLA-B*44:03	1	1111	1119	9	IITTDNTFV 2.9e-05	35
HLA-A*33:01	1	1112	1121	10	ITTDNTFVSG 2.9e-05	55
HLA-A*68:01	1	1115	1123	9	DNTFVSGNC 2.9e-05	46
HLA-B*44:02	1	1116	1125	10	NTFVSGNCDV 2.9e-05	38
HLA-B*08:01	1	1137	1146	10	PLQPELDSFK 2.9e-05	68
HLA-A*30:01	1	1139	1147	9	QPELDSFKE 2.9e-05	77
HLA-A*68:02	1	1149	1158	10	LDKYFKNHTS 2.9e-05	52
HLA-B*40:01	1	1149	1157	9	LDKYFKNHT 2.9e-05	31
HLA-A*30:02	1	1154	1162	9	KNHTSPDVD 2.9e-05	75
HLA-A*32:01	1	1157	1166	10	TSPDVDLGDII 2.9e-05	39
HLA-A*30:02	1	1158	1167	10	SPDVDLGDII 2.9e-05	75
HLA-A*03:01	1	1160	1169	10	DVDLGDISGI 2.9e-05	45

HLA-A*68:02	1	1163	1172	10	LGDISGINAS	2.9e-05	52
HLA-B*07:02	1	1169	1178	10	INASVVNIQK	2.9e-05	49
HLA-A*03:01	1	1174	1183	10	VNIQKEIDRL	2.9e-05	45
HLA-B*51:01	1	1175	1184	10	NIQKEIDRLN	2.9e-05	60
HLA-B*51:01	1	1190	1198	9	LNESLIDLQ	2.9e-05	60
HLA-B*57:01	1	1190	1199	10	LNESLIDLQE	2.9e-05	67
HLA-B*58:01	1	1190	1199	10	LNESLIDLQE	2.9e-05	55
HLA-A*02:06	1	1191	1199	9	NESLIDLQE	2.9e-05	61
HLA-B*07:02	1	1191	1199	9	NESLIDLQE	2.9e-05	49
HLA-A*24:02	1	1194	1203	10	LIDLQELGKY	2.9e-05	32
HLA-B*44:03	1	1199	1208	10	ELGKYEQYIK	2.9e-05	35
HLA-B*07:02	1	1200	1208	9	LGKYEQYIK	2.9e-05	49
HLA-B*40:01	1	1212	1221	10	YIWLGFIAGL	2.9e-05	31
HLA-B*40:01	1	1217	1226	10	FIAGLIAIVM	2.9e-05	31
HLA-A*68:01	1	1227	1236	10	VTIMLCCMTS	2.9e-05	46
HLA-A*30:02	1	1228	1237	10	TIMLCCMTSC	2.9e-05	75
HLA-A*31:01	1	1228	1236	9	TIMLCCMTS	2.9e-05	52
HLA-A*68:02	1	1228	1237	10	TIMLCCMTSC	2.9e-05	52
HLA-A*68:02	1	1230	1238	9	MLCCMTSCC	2.9e-05	52
HLA-A*30:01	1	1232	1241	10	CCMTSCCSC	2.9e-05	77
HLA-A*02:03	1	1239	1247	9	SCLKGCCSC	2.9e-05	53
HLA-A*31:01	1	1253	1262	10	FDEDDSEPV	2.9e-05	52
HLA-A*30:01	1	1255	1264	10	EDDSEPVKGV	2.9e-05	77
HLA-A*31:01	1	1256	1265	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	LTTRTQLPP	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*23:01	1	74	83	10	NGTKRFANPV	2.8e-05	34
HLA-A*23:01	1	75	83	9	GTKRFANPV	2.8e-05	34
HLA-B*35:01	1	80	89	10	ANPVLPFNDG	2.8e-05	37
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	SKTQSLIV	2.8e-05	33
HLA-A*26:01	1	114	122	9	TQSLIVNN	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	TNVVIKVCE	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	FLGVYYHKN	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*26:01	1	210	218	9	INLVRGLPQ	2.8e-05	45
HLA-B*15:01	1	216	224	9	LPQGFSALE	2.8e-05	51
HLA-B*44:03	1	233	242	10	INITRFQTLH	2.8e-05	36
HLA-B*44:02	1	235	243	9	ITRFQTLHR	2.8e-05	38
HLA-B*15:01	1	239	247	9	QTLHRSYLT	2.8e-05	51

HLA-B*35:01	1	239	247	9	QTLHRSYLT	2.8e-05	37
HLA-B*44:03	1	240	248	9	TLHRSYLT	2.8e-05	36
HLA-A*23:01	1	241	249	9	LHRSYLT	2.8e-05	34
HLA-B*08:01	1	246	254	9	LTPGDSSSG	2.8e-05	69
HLA-A*26:01	1	247	256	10	TPGDSSSGWT	2.8e-05	45
HLA-A*02:06	1	248	257	10	PGDSSSGWTA	2.8e-05	61
HLA-B*58:01	1	248	257	10	PGDSSSGWTA	2.8e-05	56
HLA-B*44:02	1	249	258	10	GDSSSGWTAG	2.8e-05	38
HLA-A*33:01	1	252	260	9	SSGWTAGAA	2.8e-05	56
HLA-A*23:01	1	255	264	10	WTAGAAAYV	2.8e-05	34
HLA-A*26:01	1	260	269	10	AAYVGYLQP	2.8e-05	45
HLA-A*03:01	1	262	271	10	YVGYLQPR	2.8e-05	45
HLA-B*40:01	1	266	275	10	YLQPRTFLLK	2.8e-05	31
HLA-A*03:01	1	280	289	10	GTITDAVDCA	2.8e-05	45
HLA-B*40:01	1	288	296	9	CALDPLSET	2.8e-05	31
HLA-B*51:01	1	298	307	10	CTLKSFTVEK	2.8e-05	61
HLA-B*53:01	1	298	307	10	CTLKSFTVEK	2.8e-05	36
HLA-B*35:01	1	302	311	10	SFTVEKGIYQ	2.8e-05	37
HLA-A*24:02	1	311	319	9	QTSNFRVQP	2.8e-05	32
HLA-A*02:01	1	322	331	10	SIVRFPNITN	2.8e-05	50
HLA-A*31:01	1	327	335	9	PNITNLCPF	2.8e-05	53
HLA-A*02:06	1	328	337	10	NITNLCPFGE	2.8e-05	61
HLA-A*03:01	1	351	359	9	NRKRISNCV	2.8e-05	45
HLA-A*02:03	1	355	363	9	ISNCVADYS	2.8e-05	54
HLA-B*08:01	1	355	364	10	ISNCVADYSV	2.8e-05	69
HLA-A*02:03	1	358	367	10	CVADYSVLYN	2.8e-05	54
HLA-B*44:02	1	363	372	10	SVLYNSASFS	2.8e-05	38
HLA-A*32:01	1	367	376	10	NSASFSTFKC	2.8e-05	39
HLA-A*23:01	1	371	379	9	FSTFKCYGV	2.8e-05	34
HLA-B*08:01	1	377	385	9	YGVSPTKLN	2.8e-05	69
HLA-B*51:01	1	377	386	10	YGVSPTKLND	2.8e-05	61
HLA-B*51:01	1	378	386	9	GVSPTKLND	2.8e-05	61
HLA-A*31:01	1	388	396	9	CFTNVYADS	2.8e-05	53
HLA-B*35:01	1	389	398	10	FTNVYADSFV	2.8e-05	37
HLA-B*51:01	1	396	405	10	SFVIRGDEVR	2.8e-05	61
HLA-A*68:02	1	398	406	9	VIRGDEVRQ	2.8e-05	52
HLA-A*33:01	1	405	414	10	RQIAPGQTGN	2.8e-05	56
HLA-A*26:01	1	411	419	9	QTGNIADYN	2.8e-05	45
HLA-B*08:01	1	413	421	9	GNIADYNYK	2.8e-05	69
HLA-A*31:01	1	415	423	9	IADYNYKLP	2.8e-05	53
HLA-A*31:01	1	418	427	10	YNYKLDDFT	2.8e-05	53
HLA-B*08:01	1	431	439	9	IAWNSNLD	2.8e-05	69
HLA-B*57:01	1	435	444	10	SNLDSKVGG	2.8e-05	68
HLA-A*33:01	1	436	444	9	NNLDSKVGG	2.8e-05	56
HLA-B*51:01	1	445	454	10	NYNYLYRFR	2.8e-05	61
HLA-B*53:01	1	447	455	9	NYLYRFRK	2.8e-05	36
HLA-A*31:01	1	453	462	10	FRKSNLKPFE	2.8e-05	53
HLA-B*40:01	1	454	462	9	RKSNLKPFE	2.8e-05	31
HLA-B*44:03	1	458	467	10	LKPFERDIST	2.8e-05	36
HLA-B*53:01	1	463	472	10	RDISTEIQQA	2.8e-05	36
HLA-A*01:01	1	470	479	10	YQAGSTPCNG	2.8e-05	73
HLA-A*68:02	1	470	478	9	YQAGSTPCN	2.8e-05	52
HLA-A*11:01	1	484	493	10	NCYFPLQSYG	2.8e-05	33
HLA-B*35:01	1	485	493	9	CYFPLQSYG	2.8e-05	37
HLA-A*11:01	1	486	495	10	YFPLQSYGFQ	2.8e-05	33
HLA-A*68:01	1	487	496	10	FPLQSYGFQP	2.8e-05	46
HLA-A*23:01	1	489	497	9	LQSYGFQPT	2.8e-05	34
HLA-B*58:01	1	494	503	10	FQPTYGVGYQ	2.8e-05	56
HLA-B*15:01	1	495	503	9	QPTYGVGYQ	2.8e-05	51
HLA-A*02:03	1	496	505	10	PTYGVGYQPY	2.8e-05	54
HLA-A*24:02	1	499	508	10	GVGYQPVRV	2.8e-05	32
HLA-B*44:03	1	499	508	10	GVGYQPVRV	2.8e-05	36
HLA-B*58:01	1	505	513	9	YRVVLSFE	2.8e-05	56
HLA-B*07:02	1	509	518	10	VLSFELLHAP	2.8e-05	49
HLA-A*31:01	1	512	520	9	FELLHAPAT	2.8e-05	53
HLA-B*58:01	1	529	537	9	NLVKNKCVN	2.8e-05	56

HLA-A*26:01	1	535	544	10	CVNFNFNGLT	2.8e-05	45
HLA-B*58:01	1	537	545	9	NFNFNGLTG	2.8e-05	56
HLA-B*08:01	1	542	551	10	GLTGTGVLTE	2.8e-05	69
HLA-B*40:01	1	552	560	9	SNKKFLPFQ	2.8e-05	31
HLA-A*26:01	1	555	563	9	KFLPFQQFG	2.8e-05	45
HLA-B*51:01	1	555	564	10	KFLPFQQFGR	2.8e-05	61
HLA-A*02:01	1	557	566	10	LPFQQFGRDI	2.8e-05	50
HLA-B*44:02	1	561	570	10	QFGRDIADTT	2.8e-05	38
HLA-A*31:01	1	562	570	9	FGRDIADTT	2.8e-05	53
HLA-B*44:02	1	569	578	10	TTDAVRDPQT	2.8e-05	38
HLA-A*30:02	1	576	585	10	PQTLEILDIT	2.8e-05	76
HLA-B*44:03	1	576	584	9	PQTLEILDI	2.8e-05	36
HLA-A*03:01	1	578	586	9	TLEILDITP	2.8e-05	45
HLA-A*30:01	1	582	590	9	LDITPCSFG	2.8e-05	78
HLA-B*35:01	1	595	603	9	ITPGTNTSN	2.8e-05	37
HLA-A*03:01	1	605	614	10	VAVLYQGVNC	2.8e-05	45
HLA-A*02:06	1	610	618	9	QGVNCTEVP	2.8e-05	61
HLA-B*44:02	1	614	622	9	CTEVPVAIH	2.8e-05	38
HLA-B*08:01	1	615	624	10	TEVPVAIHAD	2.8e-05	69
HLA-B*58:01	1	616	625	10	EVPVAIHADQ	2.8e-05	56
HLA-B*44:03	1	618	626	9	PVAIHADQL	2.8e-05	36
HLA-B*44:03	1	620	629	10	AIHADQLTPT	2.8e-05	36
HLA-A*03:01	1	621	629	9	IHADQLTPT	2.8e-05	45
HLA-B*15:01	1	621	629	9	IHADQLTPT	2.8e-05	51
HLA-A*02:06	1	632	641	10	VYSTGSNVFQ	2.8e-05	61
HLA-A*11:01	1	633	642	10	YSTGSNVFQT	2.8e-05	33
HLA-A*32:01	1	635	644	10	TGSNVFQTRA	2.8e-05	39
HLA-A*01:01	1	637	645	9	SNVFQTRAG	2.8e-05	73
HLA-A*31:01	1	641	649	9	QTRAGCLIG	2.8e-05	53
HLA-A*32:01	1	646	654	9	CLIGAEHVN	2.8e-05	39
HLA-B*51:01	1	647	656	10	LIGAEHVNNS	2.8e-05	61
HLA-A*02:06	1	657	666	10	YECDIPIGAG	2.8e-05	61
HLA-A*30:01	1	657	666	10	YECDIPIGAG	2.8e-05	78
HLA-A*11:01	1	659	667	9	CDIPIGAGI	2.8e-05	33
HLA-B*44:02	1	662	671	10	PIGAGICASY	2.8e-05	38
HLA-A*23:01	1	675	684	10	TNSPRRARSV	2.8e-05	34
HLA-B*51:01	1	679	688	10	RRARSVASQS	2.8e-05	61
HLA-A*24:02	1	685	693	9	ASQSIIAYT	2.8e-05	32
HLA-B*35:01	1	690	699	10	IAYTMSLGVE	2.8e-05	37
HLA-A*03:01	1	691	699	9	AYTMSLGVE	2.8e-05	45
HLA-A*68:01	1	691	699	9	AYTMSLGVE	2.8e-05	46
HLA-A*26:01	1	693	701	9	TMSLGVENS	2.8e-05	45
HLA-A*02:01	1	703	712	10	AYSNNSIAIP	2.8e-05	50
HLA-B*44:02	1	703	712	10	AYSNNSIAIP	2.8e-05	38
HLA-A*31:01	1	716	725	10	TISVTTEILP	2.8e-05	53
HLA-A*31:01	1	717	725	9	ISVTTEILP	2.8e-05	53
HLA-B*58:01	1	723	732	10	ILPVSMTKTS	2.8e-05	56
HLA-B*44:03	1	724	733	10	LPVSMTKTSV	2.8e-05	36
HLA-B*44:02	1	725	733	9	PVSMTKTSV	2.8e-05	38
HLA-A*11:01	1	726	735	10	VSMTKTSVDC	2.8e-05	33
HLA-A*03:01	1	732	740	9	SVDCTMYIC	2.8e-05	45
HLA-A*02:03	1	735	743	9	CTMYICGDS	2.8e-05	54
HLA-A*68:01	1	736	744	9	TMYICGDST	2.8e-05	46
HLA-B*57:01	1	736	744	9	TMYICGDST	2.8e-05	68
HLA-A*01:01	1	739	747	9	ICGDSTECS	2.8e-05	73
HLA-A*11:01	1	742	750	9	DSTECSNLL	2.8e-05	33
HLA-A*11:01	1	747	756	10	SNLLLQYGSF	2.8e-05	33
HLA-B*44:03	1	755	763	9	SFCTQLNRA	2.8e-05	36
HLA-A*11:01	1	758	766	9	TQLNRALTG	2.8e-05	33
HLA-A*11:01	1	758	767	10	TQLNRALTGI	2.8e-05	33
HLA-A*68:01	1	767	775	9	IAVEQDKNT	2.8e-05	46
HLA-A*68:01	1	772	781	10	DKNTQEVFAQ	2.8e-05	46
HLA-B*08:01	1	773	781	9	KNTQEVFAQ	2.8e-05	69
HLA-B*15:01	1	773	781	9	KNTQEVFAQ	2.8e-05	51
HLA-A*23:01	1	780	789	10	AQVKQIYKTP	2.8e-05	34
HLA-B*53:01	1	786	795	10	YKTPPIKDFG	2.8e-05	36



HLA-A*02:01	1	787	796	10	KTPPIKDFGG	2.8e-05	50
HLA-B*07:02	1	787	795	9	KTPPIKDFG	2.8e-05	49
HLA-A*01:01	1	809	817	9	PSKRSFIED	2.8e-05	73
HLA-B*35:01	1	813	821	9	SFIEDLLFN	2.8e-05	37
HLA-B*35:01	1	820	828	9	FNKVTLADA	2.8e-05	37
HLA-B*53:01	1	832	841	10	KQYGDCLGDI	2.8e-05	36
HLA-A*02:01	1	835	843	9	GDCLGDI	2.8e-05	50
HLA-A*01:01	1	837	845	9	CLGDIAARD	2.8e-05	73
HLA-A*68:02	1	845	853	9	DLICAQKFN	2.8e-05	52
HLA-B*08:01	1	845	854	10	DLICAQKFNG	2.8e-05	69
HLA-B*07:02	1	848	856	9	CAQKFNGLT	2.8e-05	49
HLA-B*51:01	1	854	863	10	GLTVLPPLLT	2.8e-05	61
HLA-B*44:02	1	856	864	9	TVLPPLTLD	2.8e-05	38
HLA-A*30:02	1	863	872	10	TDEMIAQYTS	2.8e-05	76
HLA-A*11:01	1	868	877	10	AQYTSALLAG	2.8e-05	33
HLA-A*33:01	1	874	882	9	LLAGTITSG	2.8e-05	56
HLA-B*44:02	1	884	892	9	TFGAGAALQ	2.8e-05	38
HLA-B*07:02	1	885	894	10	FGAGAALQIP	2.8e-05	49
HLA-B*40:01	1	886	894	9	GAGAALQIP	2.8e-05	31
HLA-A*32:01	1	887	896	10	AGAALQIPFA	2.8e-05	39
HLA-B*07:02	1	894	903	10	PFAMQMAYRF	2.8e-05	49
HLA-B*57:01	1	900	909	10	AYRFNGIGVT	2.8e-05	68
HLA-B*44:03	1	904	913	10	NGIGVTQNVL	2.8e-05	36
HLA-B*15:01	1	913	921	9	LYENQKLIA	2.8e-05	51
HLA-B*44:03	1	918	927	10	KLIANQFNFA	2.8e-05	36
HLA-A*33:01	1	919	928	10	LIANQFNFAI	2.8e-05	56
HLA-A*23:01	1	923	932	10	QFNFAIGKIQ	2.8e-05	34
HLA-B*44:02	1	924	932	9	FNFAIGKIQ	2.8e-05	38
HLA-B*35:01	1	935	943	9	LSSTASALG	2.8e-05	37
HLA-B*07:02	1	945	954	10	LQDVVNQNAQ	2.8e-05	49
HLA-B*51:01	1	945	954	10	LQDVVNQNAQ	2.8e-05	61
HLA-A*03:01	1	946	954	9	QDVVNQNAQ	2.8e-05	45
HLA-A*31:01	1	949	957	9	VNQNQAALN	2.8e-05	53
HLA-A*31:01	1	958	966	9	TLVKQLSSN	2.8e-05	53
HLA-A*26:01	1	963	971	9	LSSNFGAIS	2.8e-05	45
HLA-A*11:01	1	966	974	9	NFGAISSVL	2.8e-05	33
HLA-B*53:01	1	967	975	9	FGAISSVLN	2.8e-05	36
HLA-B*58:01	1	975	984	10	NDILSRLDKV	2.8e-05	56
HLA-A*31:01	1	977	985	9	ILSRLDKVE	2.8e-05	53
HLA-A*26:01	1	980	989	10	RLDKVEAEVQ	2.8e-05	45
HLA-B*51:01	1	981	989	9	LDKVEAEVQ	2.8e-05	61
HLA-B*44:02	1	987	995	9	EVQIDRLIT	2.8e-05	38
HLA-A*03:01	1	991	999	9	DRLITGRLQ	2.8e-05	45
HLA-B*40:01	1	1008	1016	9	QLIRAAEIR	2.8e-05	31
HLA-B*44:02	1	1008	1017	10	QLIRAAEIRA	2.8e-05	38
HLA-A*03:01	1	1010	1018	9	IRAAEIRAS	2.8e-05	45
HLA-A*03:01	1	1011	1020	10	RAAEIRASAN	2.8e-05	45
HLA-A*01:01	1	1019	1027	9	ANLAATKMS	2.8e-05	73
HLA-A*03:01	1	1020	1029	10	NLAATKMSEC	2.8e-05	45
HLA-B*44:02	1	1025	1033	9	KMSECVLGQ	2.8e-05	38
HLA-A*31:01	1	1065	1074	10	VPAQEKNFTT	2.8e-05	53
HLA-B*40:01	1	1065	1074	10	VPAQEKNFTT	2.8e-05	31
HLA-B*15:01	1	1070	1079	10	KNFTTAPAIC	2.8e-05	51
HLA-B*51:01	1	1073	1082	10	TTAPAICHDG	2.8e-05	61
HLA-A*32:01	1	1074	1083	10	TAPAICHDGK	2.8e-05	39
HLA-B*08:01	1	1076	1084	9	PAICHDGKA	2.8e-05	69
HLA-A*02:06	1	1079	1088	10	CHDGKAHFPR	2.8e-05	61
HLA-B*51:01	1	1080	1088	9	HDGKAHFPR	2.8e-05	61
HLA-A*02:03	1	1088	1097	10	REGVFSVNGT	2.8e-05	54
HLA-B*58:01	1	1088	1097	10	REGVFSVNGT	2.8e-05	56
HLA-B*15:01	1	1096	1105	10	GTHWFVTQRN	2.8e-05	51
HLA-B*57:01	1	1106	1115	10	FYEPQIITTD	2.8e-05	68
HLA-B*44:03	1	1113	1121	9	TTDNTFVSG	2.8e-05	36
HLA-B*44:03	1	1125	1133	9	VVIGIVNNT	2.8e-05	36
HLA-B*57:01	1	1128	1136	9	GIVNNTVYD	2.8e-05	68
HLA-A*30:02	1	1139	1148	10	QPELDSFKEE	2.8e-05	76

HLA-B*58:01	1	1139	1147	9	QPELDSFKE	2.8e-05	56
HLA-B*58:01	1	1139	1148	10	QPELDSFKEE	2.8e-05	56
HLA-A*30:01	1	1140	1148	9	PELDSFKEE	2.8e-05	78
HLA-B*57:01	1	1141	1150	10	ELDSFKEELD	2.8e-05	68
HLA-A*31:01	1	1148	1157	10	ELDKYFKNHT	2.8e-05	53
HLA-A*68:01	1	1149	1157	9	LDKYFKNHT	2.8e-05	46
HLA-B*35:01	1	1152	1161	10	YFKNHTSPDV	2.8e-05	37
HLA-A*03:01	1	1155	1163	9	NHTSPDVDL	2.8e-05	45
HLA-A*02:01	1	1156	1165	10	HTSPDVDLGD	2.8e-05	50
HLA-B*44:03	1	1162	1171	10	DLGDISGINA	2.8e-05	36
HLA-B*57:01	1	1162	1171	10	DLGDISGINA	2.8e-05	68
HLA-A*11:01	1	1163	1171	9	LGDISGINA	2.8e-05	33
HLA-A*68:01	1	1166	1174	9	ISGINASVV	2.8e-05	46
HLA-B*57:01	1	1184	1193	10	NEVAKNLNES	2.8e-05	68
HLA-A*03:01	1	1187	1195	9	AKNLNESLI	2.8e-05	45
HLA-B*44:02	1	1189	1198	10	NLNESLIDLQ	2.8e-05	38
HLA-A*11:01	1	1191	1199	9	NESLIDLQE	2.8e-05	33
HLA-A*23:01	1	1194	1203	10	LIDLQELGKY	2.8e-05	34
HLA-B*58:01	1	1195	1204	10	IDLQELGKYE	2.8e-05	56
HLA-A*02:01	1	1200	1208	9	LGKYEQYIK	2.8e-05	50
HLA-A*26:01	1	1200	1208	9	LGKYEQYIK	2.8e-05	45
HLA-B*44:03	1	1206	1215	10	YIKWPWYIWL	2.8e-05	36
HLA-B*44:02	1	1217	1225	9	FIAGLIAIV	2.8e-05	38
HLA-B*44:03	1	1219	1227	9	AGLIAIVMV	2.8e-05	36
HLA-B*51:01	1	1223	1232	10	AIVMTIMLC	2.8e-05	61
HLA-B*53:01	1	1234	1242	9	MTSCCCLK	2.8e-05	36
HLA-A*33:01	1	1243	1252	10	GCCSCGSCCK	2.8e-05	56
HLA-B*15:01	1	1252	1260	9	KFDEDDSEP	2.8e-05	51
HLA-B*15:01	1	1252	1261	10	KFDEDDSEPV	2.8e-05	51
HLA-A*02:01	1	1255	1263	9	EDDSEPVLK	2.8e-05	50
HLA-B*58:01	1	1256	1264	9	DDSEPVKKG	2.8e-05	56
HLA-A*02:03	1	1259	1268	10	EPVLKGVKLH	2.8e-05	54
HLA-A*01:01	1	1262	1270	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	QCVNLTTRTQ	2.7e-05	51
HLA-B*35:01	1	14	23	10	QCVNLTTRTQ	2.7e-05	38
HLA-A*33:01	1	16	25	10	VNLTTRTQLP	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	WFHAIHVSG	2.7e-05	68
HLA-A*68:02	1	67	75	9	AIHVSGTNG	2.7e-05	53
HLA-B*44:02	1	67	76	10	AIHVSGTNGT	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-A*68:02	1	73	82	10	TNGTKRFANP	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	DGVYFASTK	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	SLLIVNNATN	2.7e-05	51
HLA-A*31:01	1	118	127	10	LIVNNATNVV	2.7e-05	53
HLA-B*40:01	1	119	128	10	IVNNATNVVI	2.7e-05	32
HLA-A*01:01	1	124	132	9	TNVVIVKVC	2.7e-05	74
HLA-A*11:01	1	125	134	10	NVVIVKVEFQ	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*08:01	1	209	217	9	PINLVRGLP	2.7e-05	69
HLA-B*57:01	1	209	217	9	PINLVRGLP	2.7e-05	68
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*51:01	1	234	243	10	NITRFQTLHR	2.7e-05	61
HLA-B*53:01	1	236	244	9	TRFQTLHRS	2.7e-05	37
HLA-B*53:01	1	239	248	10	QTLHRSYLTP	2.7e-05	37
HLA-A*68:02	1	242	251	10	HRSYLTPGDS	2.7e-05	53
HLA-B*07:02	1	242	251	10	HRSYLTPGDS	2.7e-05	50
HLA-B*40:01	1	246	255	10	LTPGDSSSGW	2.7e-05	32
HLA-A*32:01	1	247	256	10	TPGDSSSGWT	2.7e-05	40
HLA-A*03:01	1	250	259	10	DSSSGWTAGA	2.7e-05	46
HLA-B*35:01	1	258	267	10	GAAAYVGYL	2.7e-05	38
HLA-A*02:01	1	277	285	9	NENGTITDA	2.7e-05	51
HLA-B*44:02	1	284	293	10	DAVDCALDPL	2.7e-05	39
HLA-A*30:02	1	291	299	9	DPLSETKCT	2.7e-05	76
HLA-A*31:01	1	291	300	10	DPLSETKCTL	2.7e-05	53
HLA-A*02:03	1	293	301	9	LSETKCTLK	2.7e-05	54
HLA-A*02:01	1	297	306	10	KCTLKSFTVE	2.7e-05	51
HLA-A*24:02	1	310	319	10	YQTSNFRVQP	2.7e-05	33
HLA-B*40:01	1	313	322	10	SNFRVQPTE	2.7e-05	32
HLA-A*30:02	1	326	334	9	FPNITNLCP	2.7e-05	76
HLA-A*01:01	1	333	342	10	CPFGEVFNAT	2.7e-05	74
HLA-A*68:01	1	338	347	10	VFNATRFASV	2.7e-05	47
HLA-B*07:02	1	343	352	10	RFASVYAWN	2.7e-05	50
HLA-B*15:01	1	343	352	10	RFASVYAWN	2.7e-05	51
HLA-A*02:01	1	344	353	10	FASVYAWNRK	2.7e-05	51
HLA-B*07:02	1	345	353	9	ASVYAWNRK	2.7e-05	50
HLA-B*35:01	1	345	353	9	ASVYAWNRK	2.7e-05	38
HLA-A*02:01	1	347	355	9	VYAWNRKRI	2.7e-05	51
HLA-A*01:01	1	349	357	9	AWNKRKRIS	2.7e-05	74
HLA-B*51:01	1	353	362	10	KRISNCVADY	2.7e-05	61
HLA-A*68:02	1	354	362	9	RISNCVADY	2.7e-05	53
HLA-A*11:01	1	361	369	9	DYSVLYNSA	2.7e-05	34
HLA-A*31:01	1	362	370	9	YSVLYNSAS	2.7e-05	53
HLA-B*07:02	1	367	376	10	NSASFSTFKC	2.7e-05	50
HLA-A*11:01	1	371	379	9	FSTFKCYGV	2.7e-05	34
HLA-B*08:01	1	372	380	9	STFKCYGVS	2.7e-05	69
HLA-A*02:01	1	373	381	9	TFKCYGVSP	2.7e-05	51
HLA-A*11:01	1	376	384	9	CYGVSPTKL	2.7e-05	34
HLA-A*33:01	1	376	385	10	CYGVSPTKLN	2.7e-05	56

HLA-A*23:01	1	383	391	9	KLNDLCFTN	2.7e-05	34
HLA-B*44:02	1	384	392	9	LNLDLCFTNV	2.7e-05	39
HLA-A*24:02	1	388	396	9	CFTNVYADS	2.7e-05	33
HLA-B*08:01	1	392	401	10	VYADSFVIRG	2.7e-05	69
HLA-A*26:01	1	402	410	9	DEVQRQIAPG	2.7e-05	46
HLA-A*23:01	1	404	413	10	VRQIAPGQTG	2.7e-05	34
HLA-A*02:06	1	412	421	10	TGNIADYNYK	2.7e-05	62
HLA-B*58:01	1	418	427	10	YNYKLPDDFT	2.7e-05	56
HLA-A*23:01	1	422	431	10	LPDDFTGCVI	2.7e-05	34
HLA-B*53:01	1	423	431	9	PDDFTGCVI	2.7e-05	37
HLA-A*24:02	1	424	432	9	DDFTGCVIA	2.7e-05	33
HLA-A*11:01	1	425	433	9	DFTGCVIAW	2.7e-05	34
HLA-B*08:01	1	434	443	10	NSNNLDSKVG	2.7e-05	69
HLA-A*68:02	1	442	450	9	VGGNYNYLY	2.7e-05	53
HLA-B*44:03	1	445	454	10	NYNYLYRLEFR	2.7e-05	36
HLA-B*35:01	1	452	460	9	LFRKSNLKP	2.7e-05	38
HLA-B*07:02	1	453	462	10	FRKSNLKPFE	2.7e-05	50
HLA-B*58:01	1	462	471	10	ERDISTEIQ	2.7e-05	56
HLA-B*35:01	1	463	471	9	RDISTEIQ	2.7e-05	38
HLA-A*26:01	1	475	484	10	TPCNGVKGFN	2.7e-05	46
HLA-A*03:01	1	488	496	9	PLQSYGFQP	2.7e-05	46
HLA-B*44:03	1	500	509	10	VGYPYRVVV	2.7e-05	36
HLA-A*68:01	1	501	510	10	GYQPYRVVVL	2.7e-05	47
HLA-A*11:01	1	505	514	10	YRVVLSFEL	2.7e-05	34
HLA-B*40:01	1	509	518	10	VLSFELLHAP	2.7e-05	32
HLA-A*68:01	1	512	521	10	FELLHAPATV	2.7e-05	47
HLA-A*24:02	1	514	522	9	LLHAPATVC	2.7e-05	33
HLA-A*31:01	1	516	524	9	HAPATVCGP	2.7e-05	53
HLA-A*32:01	1	517	525	9	APATVCGPK	2.7e-05	40
HLA-A*30:01	1	518	527	10	PATVCGPKKS	2.7e-05	78
HLA-A*02:03	1	523	532	10	GPKKSTNLVK	2.7e-05	54
HLA-A*23:01	1	538	546	9	FNFNGLTGT	2.7e-05	34
HLA-A*26:01	1	544	552	9	TGTGVLTES	2.7e-05	46
HLA-B*44:02	1	546	554	9	TGVLTESNK	2.7e-05	39
HLA-A*02:03	1	550	558	9	TESNKKFLP	2.7e-05	54
HLA-B*53:01	1	551	560	10	ESNKKFLPFQ	2.7e-05	37
HLA-A*68:02	1	560	568	9	QQFGRDIAD	2.7e-05	53
HLA-B*58:01	1	560	569	10	QQFGRDIADT	2.7e-05	56
HLA-A*24:02	1	561	569	9	QFGRDIADT	2.7e-05	33
HLA-B*15:01	1	561	570	10	QFGRDIADTT	2.7e-05	51
HLA-B*51:01	1	568	577	10	DTTDAVRDPQ	2.7e-05	61
HLA-B*58:01	1	568	577	10	DTTDAVRDPQ	2.7e-05	56
HLA-A*32:01	1	578	586	9	TLEILDITP	2.7e-05	40
HLA-B*57:01	1	589	598	10	FGGVSVITPG	2.7e-05	68
HLA-B*44:03	1	594	602	9	VITPGTNTS	2.7e-05	36
HLA-A*23:01	1	597	605	9	PGTNTSNQV	2.7e-05	34
HLA-B*53:01	1	598	606	9	GTNTSNQVA	2.7e-05	37
HLA-A*02:06	1	602	610	9	SNQVAVLYQ	2.7e-05	62
HLA-A*03:01	1	603	612	10	NQVAVLYQGV	2.7e-05	46
HLA-B*15:01	1	608	616	9	LYQGVNCTE	2.7e-05	51
HLA-B*35:01	1	614	623	10	CTEVPVAIHA	2.7e-05	38
HLA-A*11:01	1	617	626	10	VPVAIHADQL	2.7e-05	34
HLA-A*26:01	1	637	645	9	SNVFQTRAG	2.7e-05	46
HLA-B*44:03	1	638	646	9	NVFQTRAGC	2.7e-05	36
HLA-B*44:03	1	638	647	10	NVFQTRAGCL	2.7e-05	36
HLA-B*08:01	1	640	649	10	FQTRAGCLIG	2.7e-05	69
HLA-A*30:02	1	642	651	10	TRAGCLIGAE	2.7e-05	76
HLA-B*53:01	1	649	658	10	GAEHVNNSYE	2.7e-05	37
HLA-A*31:01	1	651	659	9	EHVNNSYEC	2.7e-05	53
HLA-B*53:01	1	654	663	10	NNSYECDIPI	2.7e-05	37
HLA-A*03:01	1	658	667	10	ECDIPIGAGI	2.7e-05	46
HLA-A*01:01	1	660	668	9	DIPIGAGIC	2.7e-05	74
HLA-A*68:02	1	662	671	10	PIGAGICASY	2.7e-05	53
HLA-B*44:02	1	667	675	9	ICASYQTQT	2.7e-05	39
HLA-B*15:01	1	668	677	10	CASYQTQTNS	2.7e-05	51
HLA-B*58:01	1	675	683	9	TNSPRRARS	2.7e-05	56

HLA-B*53:01	1	676	685	10	NSPRRARSVA	2.7e-05	37
HLA-B*44:03	1	692	700	9	YTMSLGVEN	2.7e-05	36
HLA-A*31:01	1	695	703	9	SLGVENSVA	2.7e-05	53
HLA-A*30:02	1	698	707	10	VENSVAYSNN	2.7e-05	76
HLA-A*26:01	1	704	713	10	YSNNSIAIPT	2.7e-05	46
HLA-A*11:01	1	707	716	10	NSIAIPTNFT	2.7e-05	34
HLA-A*23:01	1	708	716	9	SIAIPTNFT	2.7e-05	34
HLA-A*33:01	1	724	732	9	LPVSMTKTS	2.7e-05	56
HLA-B*53:01	1	727	735	9	SMTKTSVDC	2.7e-05	37
HLA-B*53:01	1	728	736	9	MTKTSVDCT	2.7e-05	37
HLA-B*58:01	1	736	745	10	TMYICGDSTE	2.7e-05	56
HLA-A*68:01	1	738	747	10	YICGDSTECS	2.7e-05	47
HLA-A*68:02	1	744	752	9	TECSNLLLQ	2.7e-05	53
HLA-A*03:01	1	745	754	10	ECSNLLLQYG	2.7e-05	46
HLA-B*57:01	1	750	758	9	LLQYGSFCT	2.7e-05	68
HLA-A*68:02	1	758	766	9	TQLNRALTG	2.7e-05	53
HLA-A*11:01	1	761	769	9	NRALTGIAV	2.7e-05	34
HLA-A*02:01	1	765	773	9	TGIAVEQDK	2.7e-05	51
HLA-B*53:01	1	772	780	9	DKNTQEVFA	2.7e-05	37
HLA-A*26:01	1	773	781	9	KNTQEVFAQ	2.7e-05	46
HLA-A*24:02	1	774	783	10	NTQEVFAQVK	2.7e-05	33
HLA-A*33:01	1	786	795	10	YKTPPIKDFG	2.7e-05	56
HLA-A*24:02	1	792	800	9	KDFGGFNFS	2.7e-05	33
HLA-B*44:02	1	798	806	9	NFSQILPDP	2.7e-05	39
HLA-B*58:01	1	798	806	9	NFSQILPDP	2.7e-05	56
HLA-A*33:01	1	806	815	10	PSKPSKRSFI	2.7e-05	56
HLA-B*35:01	1	807	815	9	SKPSKRSFI	2.7e-05	38
HLA-B*58:01	1	809	817	9	PSKRSFIED	2.7e-05	56
HLA-B*44:03	1	814	822	9	FIEDLLFNK	2.7e-05	36
HLA-B*07:02	1	823	832	10	VTLADAGFIK	2.7e-05	50
HLA-A*32:01	1	825	833	9	LADAGFIKQ	2.7e-05	40
HLA-B*57:01	1	830	839	10	FIKQYGDCLG	2.7e-05	68
HLA-A*26:01	1	833	841	9	QYGDCLGDI	2.7e-05	46
HLA-B*51:01	1	845	853	9	DLICAQKFN	2.7e-05	61
HLA-A*02:01	1	848	856	9	CAQKFNGLT	2.7e-05	51
HLA-A*11:01	1	872	880	9	SALLAGTIT	2.7e-05	34
HLA-A*26:01	1	872	881	10	SALLAGTITS	2.7e-05	46
HLA-B*07:02	1	873	882	10	ALLAGTITSG	2.7e-05	50
HLA-B*35:01	1	885	894	10	FGAGAALQIP	2.7e-05	38
HLA-B*15:01	1	896	905	10	AMQMAYRFNG	2.7e-05	51
HLA-B*08:01	1	903	911	9	FNGIGVTQN	2.7e-05	69
HLA-B*58:01	1	913	921	9	LYENQKLI	2.7e-05	56
HLA-B*40:01	1	918	927	10	KLIANQFN	2.7e-05	32
HLA-B*44:03	1	924	932	9	FNSAIGKIQ	2.7e-05	36
HLA-A*03:01	1	931	940	10	IQDLSSTAS	2.7e-05	46
HLA-B*57:01	1	931	940	10	IQDLSSTAS	2.7e-05	68
HLA-B*40:01	1	945	954	10	LQDVVNQNAQ	2.7e-05	32
HLA-B*57:01	1	949	957	9	VNQAQALN	2.7e-05	68
HLA-B*57:01	1	949	958	10	VNQAQALNT	2.7e-05	68
HLA-B*58:01	1	949	958	10	VNQAQALNT	2.7e-05	56
HLA-A*11:01	1	956	965	10	LNTLVKQLSS	2.7e-05	34
HLA-A*02:03	1	957	966	10	NLTVKQLSSN	2.7e-05	54
HLA-B*53:01	1	968	976	9	GAISSVLND	2.7e-05	37
HLA-A*33:01	1	973	982	10	VLNDILSRLD	2.7e-05	56
HLA-A*68:02	1	978	987	10	LSRLDKVEAE	2.7e-05	53
HLA-B*08:01	1	982	991	10	DKVEAEVQID	2.7e-05	69
HLA-A*11:01	1	985	993	9	EAEVQIDRL	2.7e-05	34
HLA-A*68:01	1	990	999	10	IDRLITGRLQ	2.7e-05	47
HLA-B*44:03	1	990	999	10	IDRLITGRLQ	2.7e-05	36
HLA-B*15:01	1	991	1000	10	DRLITGRLQS	2.7e-05	51
HLA-A*02:03	1	994	1002	9	ITGRLQSLQ	2.7e-05	54
HLA-B*51:01	1	997	1006	10	RLQSLQTYVT	2.7e-05	61
HLA-A*68:01	1	998	1006	9	LQSLQTYVT	2.7e-05	47
HLA-B*35:01	1	999	1008	10	QSLQTYVTQQ	2.7e-05	38
HLA-A*23:01	1	1007	1016	10	QQLIRAAEIR	2.7e-05	34
HLA-B*07:02	1	1007	1016	10	QQLIRAAEIR	2.7e-05	50

HLA-B*53:01	1	1018	1027	10	SANLAATKMS	2.7e-05	37
HLA-B*44:02	1	1022	1031	10	AATKMSECVL	2.7e-05	39
HLA-B*08:01	1	1026	1035	10	MSECVLGQSK	2.7e-05	69
HLA-A*32:01	1	1028	1037	10	ECVLGQSKRV	2.7e-05	40
HLA-A*02:01	1	1031	1039	9	LGQSKRVDF	2.7e-05	51
HLA-B*57:01	1	1035	1043	9	KRVDFCGKG	2.7e-05	68
HLA-B*53:01	1	1042	1050	9	KGYHLMSFP	2.7e-05	37
HLA-B*15:01	1	1044	1052	9	YHLMSFPQS	2.7e-05	51
HLA-B*40:01	1	1060	1068	9	LHVTYVPAQ	2.7e-05	32
HLA-A*31:01	1	1071	1079	9	NFTTAPAIC	2.7e-05	53
HLA-B*44:02	1	1074	1083	10	TAPAICHGDK	2.7e-05	39
HLA-B*40:01	1	1081	1089	9	DGKAHFPRE	2.7e-05	32
HLA-A*02:01	1	1095	1103	9	NGTHWFVTQ	2.7e-05	51
HLA-B*51:01	1	1109	1117	9	PQIITTDNT	2.7e-05	61
HLA-A*11:01	1	1110	1119	10	QIITTDNTFV	2.7e-05	34
HLA-A*32:01	1	1112	1121	10	ITTDNTFVSG	2.7e-05	40
HLA-B*15:01	1	1117	1126	10	TFVSGNCDVV	2.7e-05	51
HLA-A*03:01	1	1118	1126	9	FVSGNCDVV	2.7e-05	46
HLA-B*35:01	1	1129	1137	9	IVNNTVYDP	2.7e-05	38
HLA-A*24:02	1	1133	1141	9	TVYDPLQE	2.7e-05	33
HLA-A*01:01	1	1142	1150	9	LDSFKEELD	2.7e-05	74
HLA-A*26:01	1	1142	1151	10	LDSFKEELDK	2.7e-05	46
HLA-A*03:01	1	1145	1153	9	FKEELDKYF	2.7e-05	46
HLA-B*53:01	1	1150	1158	9	DKYFKNHTS	2.7e-05	37
HLA-A*03:01	1	1152	1161	10	YFKNHTSPDV	2.7e-05	46
HLA-A*32:01	1	1152	1161	10	YFKNHTSPDV	2.7e-05	40
HLA-A*33:01	1	1154	1163	10	KNHTSPDVDL	2.7e-05	56
HLA-A*30:02	1	1157	1165	9	TSPDVDLGD	2.7e-05	76
HLA-B*57:01	1	1164	1172	9	GDISGINAS	2.7e-05	68
HLA-A*32:01	1	1174	1182	9	VNIQKEIDR	2.7e-05	40
HLA-A*23:01	1	1176	1184	9	IQKEIDRLN	2.7e-05	34
HLA-B*44:02	1	1183	1192	10	LNEVAKNLNE	2.7e-05	39
HLA-A*26:01	1	1191	1199	9	NESLIDLQE	2.7e-05	46
HLA-A*11:01	1	1193	1201	9	SLIDLQELG	2.7e-05	34
HLA-A*02:01	1	1196	1205	10	DLQELGKYEQ	2.7e-05	51
HLA-B*07:02	1	1196	1204	9	DLQELGKYE	2.7e-05	50
HLA-B*07:02	1	1196	1205	10	DLQELGKYEQ	2.7e-05	50
HLA-B*44:02	1	1212	1221	10	YIWLGFIAGL	2.7e-05	39
HLA-B*53:01	1	1218	1227	10	IAGLIAIVMV	2.7e-05	37
HLA-B*40:01	1	1220	1229	10	GLIAIVMVTI	2.7e-05	32
HLA-B*44:03	1	1221	1229	9	LIAIVMVTI	2.7e-05	36
HLA-A*33:01	1	1224	1233	10	IVMVTIMLCC	2.7e-05	56
HLA-A*03:01	1	1228	1236	9	TIMLCCMTS	2.7e-05	46
HLA-B*58:01	1	1238	1246	9	CSCCLKGCCS	2.7e-05	56
HLA-A*23:01	1	1244	1253	10	CCSCGSCCKF	2.7e-05	34
HLA-A*02:01	1	1245	1253	9	CSCGSCCKF	2.7e-05	51
HLA-B*07:02	1	1245	1253	9	CSCGSCCKF	2.7e-05	50
HLA-A*68:01	1	1252	1261	10	KFDEDDSEPV	2.7e-05	47
HLA-A*68:02	1	1255	1264	10	EDDSEPVKLG	2.7e-05	53
HLA-B*40:01	1	1256	1264	9	DDSEPVKLG	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	FHAIHVSMTN	2.6e-05	74
HLA-A*24:02	1	70	78	9	VSGTNGTKR	2.6e-05	33
HLA-A*33:01	1	73	81	9	TNGTKRFAN	2.6e-05	57

HLA-A*32:01	1	74	83	10	NGTKRFANPV	2.6e-05	40
HLA-B*58:01	1	74	83	10	NGTKRFANPV	2.6e-05	57
HLA-B*44:03	1	75	84	10	GTKRFANPVL	2.6e-05	37
HLA-A*33:01	1	76	85	10	TKRFANPVL	2.6e-05	57
HLA-A*02:03	1	78	87	10	RFANPVLPFN	2.6e-05	55
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	TQSLLVNN	2.6e-05	35
HLA-B*35:01	1	114	122	9	TQSLLVNN	2.6e-05	38
HLA-A*11:01	1	116	124	9	SLLIVNNAT	2.6e-05	34
HLA-B*40:01	1	121	130	10	NNATNVVIKV	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	FKNLREFVF	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*33:01	1	208	217	10	TPINLVRGLP	2.6e-05	57
HLA-B*51:01	1	209	217	9	PINLVRGLP	2.6e-05	62
HLA-A*31:01	1	211	219	9	NLVRGLPQG	2.6e-05	54
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-B*44:02	1	233	242	10	INITRFQTLH	2.6e-05	39
HLA-A*26:01	1	238	247	10	FQTLHRSYLT	2.6e-05	46
HLA-B*44:03	1	239	247	9	QTLHRSYLT	2.6e-05	37
HLA-A*01:01	1	241	249	9	LHRSYLT	2.6e-05	74
HLA-B*40:01	1	243	252	10	RSYLT	2.6e-05	32
HLA-B*08:01	1	257	265	9	AGAAAYYVG	2.6e-05	70
HLA-B*44:02	1	270	278	9	RTFLLKYNE	2.6e-05	39
HLA-A*30:02	1	271	280	10	TFLLKYNENG	2.6e-05	77
HLA-B*15:01	1	272	281	10	FLLKYNENGT	2.6e-05	52
HLA-A*03:01	1	273	281	9	LLKYNENGT	2.6e-05	46
HLA-A*68:01	1	275	283	9	KYNENGTIT	2.6e-05	47
HLA-B*58:01	1	284	292	9	DAVDCALDP	2.6e-05	57
HLA-A*30:01	1	286	294	9	VDCALDPLS	2.6e-05	78
HLA-A*30:01	1	287	295	9	DCALDPLSE	2.6e-05	78
HLA-A*02:06	1	295	304	10	ETKCTLKSFT	2.6e-05	62
HLA-A*02:03	1	297	306	10	KCTLKSFTVE	2.6e-05	55
HLA-B*07:02	1	298	307	10	CTLKSFTVEK	2.6e-05	50
HLA-A*02:06	1	306	315	10	EKGIIYQTSNF	2.6e-05	62
HLA-A*23:01	1	311	319	9	QTSNFRVQP	2.6e-05	35
HLA-B*53:01	1	324	333	10	VRFPNITNLC	2.6e-05	37
HLA-B*35:01	1	325	333	9	RFPNITNLC	2.6e-05	38
HLA-A*23:01	1	335	343	9	FGEVFNATR	2.6e-05	35
HLA-B*15:01	1	338	346	9	VFNATRFAS	2.6e-05	52
HLA-B*40:01	1	345	353	9	ASVYAWNRRK	2.6e-05	32
HLA-B*53:01	1	345	353	9	ASVYAWNRRK	2.6e-05	37
HLA-A*11:01	1	347	355	9	VYAWNRRKRI	2.6e-05	34

HLA-B*44:03	1	352	360	9	RKRISNCVA	2.6e-05	37
HLA-B*53:01	1	355	364	10	ISNCVADYSV	2.6e-05	37
HLA-B*51:01	1	358	367	10	CVADYSVLYN	2.6e-05	62
HLA-A*03:01	1	359	368	10	VADYSVLYNS	2.6e-05	46
HLA-A*11:01	1	359	368	10	VADYSVLYNS	2.6e-05	34
HLA-B*44:02	1	370	379	10	SFSTFKCYGV	2.6e-05	39
HLA-A*23:01	1	372	381	10	STFKCYGVSP	2.6e-05	35
HLA-A*33:01	1	377	385	9	YGVSPTKLN	2.6e-05	57
HLA-B*44:02	1	377	385	9	YGVSPTKLN	2.6e-05	39
HLA-A*68:02	1	388	397	10	CFTNVYADSF	2.6e-05	53
HLA-B*44:03	1	395	404	10	DSFVIRGDEV	2.6e-05	37
HLA-B*44:02	1	396	405	10	SFVIRGDEV	2.6e-05	39
HLA-A*11:01	1	398	407	10	VIRGDEV	2.6e-05	34
HLA-A*68:01	1	399	407	9	IRGDEV	2.6e-05	47
HLA-B*40:01	1	400	409	10	RGDEV	2.6e-05	32
HLA-A*02:01	1	403	411	9	EV	2.6e-05	51
HLA-B*08:01	1	406	414	9	QI	2.6e-05	70
HLA-A*68:01	1	407	416	10	I	2.6e-05	47
HLA-A*68:01	1	408	416	9	AP	2.6e-05	47
HLA-B*44:03	1	410	419	10	Q	2.6e-05	37
HLA-A*23:01	1	411	420	10	Q	2.6e-05	35
HLA-A*23:01	1	413	421	9	G	2.6e-05	35
HLA-B*15:01	1	415	423	9	I	2.6e-05	52
HLA-A*23:01	1	417	425	9	D	2.6e-05	35
HLA-B*53:01	1	419	428	10	NY	2.6e-05	37
HLA-A*02:06	1	426	434	9	FT	2.6e-05	62
HLA-B*58:01	1	436	444	9	NN	2.6e-05	57
HLA-A*24:02	1	449	457	9	LY	2.6e-05	33
HLA-A*02:03	1	472	481	10	AG	2.6e-05	55
HLA-B*44:03	1	472	480	9	AG	2.6e-05	37
HLA-A*68:01	1	473	482	10	G	2.6e-05	47
HLA-A*23:01	1	482	491	10	GF	2.6e-05	35
HLA-A*03:01	1	483	491	9	F	2.6e-05	46
HLA-B*44:02	1	485	493	9	CY	2.6e-05	39
HLA-A*33:01	1	487	496	10	F	2.6e-05	57
HLA-B*15:01	1	487	495	9	F	2.6e-05	52
HLA-A*01:01	1	488	497	10	PL	2.6e-05	74
HLA-A*23:01	1	488	496	9	PL	2.6e-05	35
HLA-A*11:01	1	491	499	9	SY	2.6e-05	34
HLA-B*51:01	1	493	501	9	GF	2.6e-05	62
HLA-A*68:02	1	494	503	10	FQ	2.6e-05	53
HLA-B*44:03	1	495	503	9	QP	2.6e-05	37
HLA-B*40:01	1	500	509	10	VG	2.6e-05	32
HLA-A*11:01	1	502	511	10	YQ	2.6e-05	34
HLA-B*40:01	1	509	517	9	V	2.6e-05	32
HLA-B*40:01	1	511	519	9	S	2.6e-05	32
HLA-B*51:01	1	519	528	10	AT	2.6e-05	62
HLA-A*68:01	1	522	530	9	CG	2.6e-05	47
HLA-A*30:01	1	533	541	9	NK	2.6e-05	78
HLA-B*08:01	1	536	545	10	VN	2.6e-05	70
HLA-A*01:01	1	538	547	10	FN	2.6e-05	74
HLA-B*35:01	1	539	548	10	NF	2.6e-05	38
HLA-B*51:01	1	543	552	10	LT	2.6e-05	62
HLA-B*15:01	1	544	552	9	TG	2.6e-05	52
HLA-B*44:02	1	546	555	10	TG	2.6e-05	39
HLA-B*08:01	1	547	555	9	GV	2.6e-05	70
HLA-A*33:01	1	549	558	10	LT	2.6e-05	57
HLA-B*44:03	1	552	561	10	SN	2.6e-05	37
HLA-A*02:03	1	553	562	10	NK	2.6e-05	55
HLA-B*57:01	1	559	567	9	FQ	2.6e-05	69
HLA-B*58:01	1	559	567	9	FQ	2.6e-05	57
HLA-A*30:02	1	563	571	9	GR	2.6e-05	77
HLA-B*57:01	1	563	572	10	GR	2.6e-05	69
HLA-B*44:03	1	568	576	9	DT	2.6e-05	37
HLA-B*08:01	1	574	583	10	RD	2.6e-05	70
HLA-B*44:02	1	575	584	10	DP	2.6e-05	39



HLA-B*07:02	1	577	586	10	QTLEILDITP	2.6e-05	50
HLA-B*44:03	1	577	586	10	QTLEILDITP	2.6e-05	37
HLA-A*33:01	1	578	587	10	TLEILDITPC	2.6e-05	57
HLA-B*07:02	1	578	587	10	TLEILDITPC	2.6e-05	50
HLA-A*24:02	1	589	597	9	FGGVSVITP	2.6e-05	33
HLA-B*08:01	1	590	598	9	GGVSVITPG	2.6e-05	70
HLA-A*03:01	1	592	600	9	VSVITPGTN	2.6e-05	46
HLA-A*23:01	1	594	602	9	VITPGTNTS	2.6e-05	35
HLA-B*07:02	1	594	603	10	VITPGTNTSN	2.6e-05	50
HLA-B*44:02	1	607	615	9	VLYQGVNCT	2.6e-05	39
HLA-A*33:01	1	610	619	10	QGVNCTEVPV	2.6e-05	57
HLA-B*53:01	1	610	618	9	QGVNCTEVP	2.6e-05	37
HLA-A*32:01	1	611	620	10	GVNCTEVPVA	2.6e-05	40
HLA-B*44:03	1	612	620	9	VNCTEVPVA	2.6e-05	37
HLA-A*30:02	1	615	624	10	TEVPVAIHAD	2.6e-05	77
HLA-B*57:01	1	615	624	10	TEVPVAIHAD	2.6e-05	69
HLA-A*23:01	1	616	624	9	EVPVAIHAD	2.6e-05	35
HLA-A*11:01	1	617	625	9	VPVAIHADQ	2.6e-05	34
HLA-B*44:03	1	617	625	9	VPVAIHADQ	2.6e-05	37
HLA-B*51:01	1	618	627	10	PVAIHADQLT	2.6e-05	62
HLA-A*30:02	1	628	637	10	PTWRVYSTGS	2.6e-05	77
HLA-A*24:02	1	630	639	10	WRVYSTGSNV	2.6e-05	33
HLA-B*40:01	1	634	642	9	STGSNVFQT	2.6e-05	32
HLA-B*44:03	1	635	644	10	TGSNVFQTRA	2.6e-05	37
HLA-B*53:01	1	636	644	9	GSNVFQTRA	2.6e-05	37
HLA-A*03:01	1	639	648	10	VFQTRAGCLI	2.6e-05	46
HLA-A*02:01	1	640	649	10	FQTRAGCLIG	2.6e-05	51
HLA-A*68:01	1	641	649	9	QTRAGCLIG	2.6e-05	47
HLA-A*32:01	1	642	650	9	TRAGCLIGA	2.6e-05	40
HLA-A*01:01	1	647	655	9	LIGAEHVNN	2.6e-05	74
HLA-B*08:01	1	649	658	10	GAEHVNNSYE	2.6e-05	70
HLA-A*24:02	1	650	658	9	AEHVNNSYE	2.6e-05	33
HLA-B*58:01	1	650	659	10	AEHVNNSYEC	2.6e-05	57
HLA-A*02:03	1	651	659	9	EHVNNSYEC	2.6e-05	55
HLA-A*68:01	1	652	660	9	HVNNSYECD	2.6e-05	47
HLA-A*30:01	1	662	670	9	PIGAGICAS	2.6e-05	78
HLA-B*51:01	1	667	676	10	ICASYQTQTN	2.6e-05	62
HLA-B*40:01	1	670	678	9	SYQTQTNSP	2.6e-05	32
HLA-A*02:03	1	675	683	9	TNSPRRARS	2.6e-05	55
HLA-A*26:01	1	675	683	9	TNSPRRARS	2.6e-05	46
HLA-A*68:01	1	677	686	10	SPRRARSVAS	2.6e-05	47
HLA-A*23:01	1	685	693	9	ASQSIIAYT	2.6e-05	35
HLA-A*02:01	1	687	695	9	QSIIAYTMS	2.6e-05	51
HLA-A*11:01	1	689	698	10	IIAYTMSLGV	2.6e-05	34
HLA-B*40:01	1	698	707	10	VENSVAYSNN	2.6e-05	32
HLA-A*02:01	1	700	708	9	NSVAYSNN	2.6e-05	51
HLA-A*11:01	1	704	713	10	YSNNSIAIPT	2.6e-05	34
HLA-A*02:03	1	714	722	9	NFTISVTTE	2.6e-05	55
HLA-A*02:06	1	724	732	9	LPVSMTKTS	2.6e-05	62
HLA-A*30:01	1	725	734	10	PVSMTKTSVD	2.6e-05	78
HLA-A*03:01	1	729	737	9	TKTSVDCTM	2.6e-05	46
HLA-A*26:01	1	731	740	10	TSVDCTMYIC	2.6e-05	46
HLA-B*57:01	1	735	743	9	CTMYICGDS	2.6e-05	69
HLA-A*03:01	1	738	746	9	YICGDSTEC	2.6e-05	46
HLA-A*30:01	1	739	748	10	ICGDSTEC	2.6e-05	78
HLA-A*31:01	1	741	750	10	GDSTEC	2.6e-05	54
HLA-A*68:02	1	746	754	9	CSNLLLQYG	2.6e-05	53
HLA-B*58:01	1	750	758	9	LLQYGSFCT	2.6e-05	57
HLA-B*15:01	1	757	765	9	CTQLNRALT	2.6e-05	52
HLA-A*01:01	1	763	772	10	ALTGIAVEQD	2.6e-05	74
HLA-A*30:01	1	766	774	9	GIAVEQDKN	2.6e-05	78
HLA-A*23:01	1	774	783	10	NTQEVFAQVK	2.6e-05	35
HLA-B*40:01	1	774	783	10	NTQEVFAQVK	2.6e-05	32
HLA-B*51:01	1	775	784	10	TQEVFAQVKQ	2.6e-05	62
HLA-A*24:02	1	780	789	10	AQVKQIYKTP	2.6e-05	33
HLA-B*07:02	1	784	793	10	QIYKTPPIKD	2.6e-05	50

HLA-A*02:03	1	786	795	10	YKTPPIKDFG	2.6e-05	55
HLA-A*11:01	1	787	796	10	KTPPIKDFGG	2.6e-05	34
HLA-B*35:01	1	793	802	10	DFGGFNFSQI	2.6e-05	38
HLA-A*31:01	1	806	815	10	PSKPSKRFSFI	2.6e-05	54
HLA-A*03:01	1	807	816	10	SKPSKRFSFIE	2.6e-05	46
HLA-B*08:01	1	812	821	10	RSFIEDLLFN	2.6e-05	70
HLA-B*53:01	1	816	824	9	EDLLFNKVT	2.6e-05	37
HLA-A*11:01	1	817	825	9	DLLFNKVTL	2.6e-05	34
HLA-B*51:01	1	818	827	10	LLFNKVTLAD	2.6e-05	62
HLA-A*02:06	1	819	827	9	LFNKVTLAD	2.6e-05	62
HLA-A*03:01	1	819	827	9	LFNKVTLAD	2.6e-05	46
HLA-A*02:03	1	829	837	9	GFIKQYGDC	2.6e-05	55
HLA-A*31:01	1	829	837	9	GFIKQYGDC	2.6e-05	54
HLA-A*31:01	1	833	841	9	QYGDCLGDI	2.6e-05	54
HLA-B*35:01	1	838	847	10	LGDIARDLI	2.6e-05	38
HLA-B*15:01	1	840	848	9	DIAARDLIC	2.6e-05	52
HLA-A*68:02	1	841	850	10	IAARDLICAQ	2.6e-05	53
HLA-B*53:01	1	841	850	10	IAARDLICAQ	2.6e-05	37
HLA-B*08:01	1	846	854	9	LICAQKFNG	2.6e-05	70
HLA-B*44:02	1	848	857	10	CAQKFNGLTV	2.6e-05	39
HLA-A*68:01	1	863	871	9	TDEMIAQYT	2.6e-05	47
HLA-A*68:02	1	863	872	10	TDEMIAQYTS	2.6e-05	53
HLA-B*44:02	1	870	879	10	YTSALLAGTI	2.6e-05	39
HLA-B*44:02	1	877	886	10	GTITSGWTFG	2.6e-05	39
HLA-B*15:01	1	884	892	9	TFGAGAALQ	2.6e-05	52
HLA-B*53:01	1	890	898	9	ALQIPFAMQ	2.6e-05	37
HLA-B*08:01	1	894	902	9	PFAMQMAYR	2.6e-05	70
HLA-A*01:01	1	897	905	9	MQMAYRFNG	2.6e-05	74
HLA-B*40:01	1	899	908	10	MAYRFNGIGV	2.6e-05	32
HLA-B*57:01	1	901	909	9	YRFNGIGVT	2.6e-05	69
HLA-A*23:01	1	905	914	10	GIGVTQNVLY	2.6e-05	35
HLA-A*02:03	1	906	915	10	IGVTQNVLYE	2.6e-05	55
HLA-A*02:06	1	907	916	10	GVTQNVLYEN	2.6e-05	62
HLA-B*53:01	1	908	916	9	VTQNVLYEN	2.6e-05	37
HLA-A*24:02	1	909	917	9	TQNVLYENQ	2.6e-05	33
HLA-B*53:01	1	912	921	10	VLYENQKLIA	2.6e-05	37
HLA-A*01:01	1	913	922	10	LYENQKLIAN	2.6e-05	74
HLA-A*11:01	1	913	921	9	LYENQKLIA	2.6e-05	34
HLA-B*40:01	1	913	922	10	LYENQKLIAN	2.6e-05	32
HLA-A*24:02	1	918	927	10	KLIANQFNFA	2.6e-05	33
HLA-A*26:01	1	923	932	10	QFNFAIGKIQ	2.6e-05	46
HLA-A*31:01	1	929	938	10	GKIQDLSLST	2.6e-05	54
HLA-B*44:03	1	929	938	10	GKIQDLSLST	2.6e-05	37
HLA-A*23:01	1	930	938	9	KIQDLSLST	2.6e-05	35
HLA-A*68:02	1	931	940	10	IQDLSLSTAS	2.6e-05	53
HLA-B*53:01	1	938	947	10	TASALGKLQD	2.6e-05	37
HLA-A*30:02	1	946	954	9	QDVVNQNAQ	2.6e-05	77
HLA-B*35:01	1	946	955	10	QDVVNQNAQA	2.6e-05	38
HLA-A*26:01	1	948	957	10	VVNQNAQALN	2.6e-05	46
HLA-A*68:02	1	949	958	10	VNNAQALNT	2.6e-05	53
HLA-B*57:01	1	950	958	9	NQNAQALNT	2.6e-05	69
HLA-A*68:02	1	953	962	10	AQALNTLVKQ	2.6e-05	53
HLA-A*02:01	1	963	971	9	LSSNFGAIS	2.6e-05	51
HLA-B*44:03	1	964	972	9	SSNFGAISS	2.6e-05	37
HLA-A*33:01	1	966	975	10	NFGAISSVLN	2.6e-05	57
HLA-A*30:01	1	974	982	9	LNDILSRDL	2.6e-05	78
HLA-B*57:01	1	975	983	9	NDILSRDLK	2.6e-05	69
HLA-B*58:01	1	975	983	9	NDILSRDLK	2.6e-05	57
HLA-A*30:01	1	981	989	9	LDKVEAEVQ	2.6e-05	78
HLA-B*44:03	1	998	1006	9	LQSLQTYVT	2.6e-05	37
HLA-A*24:02	1	999	1007	9	QSLQTYVTQ	2.6e-05	33
HLA-B*35:01	1	1003	1012	10	TYVTQQLIRA	2.6e-05	38
HLA-B*40:01	1	1003	1011	9	TYVTQQLIR	2.6e-05	32
HLA-A*03:01	1	1009	1018	10	LIRAAEIRAS	2.6e-05	46
HLA-B*40:01	1	1009	1017	9	LIRAAEIRA	2.6e-05	32
HLA-A*01:01	1	1010	1018	9	IRAAEIRAS	2.6e-05	74

HLA-A*01:01	1	1015	1024	10	IRASANLAAT	2.6e-05	74
HLA-A*23:01	1	1016	1025	10	RASANLAATK	2.6e-05	35
HLA-A*24:02	1	1016	1025	10	RASANLAATK	2.6e-05	33
HLA-B*44:02	1	1016	1024	9	RASANLAAT	2.6e-05	39
HLA-A*02:06	1	1019	1027	9	ANLAATKMS	2.6e-05	62
HLA-A*11:01	1	1024	1033	10	TKMSECVLGQ	2.6e-05	34
HLA-B*35:01	1	1025	1033	9	KMSECVLGQ	2.6e-05	38
HLA-A*03:01	1	1028	1037	10	ECVLGQSKRV	2.6e-05	46
HLA-A*30:02	1	1029	1038	10	CVLGQSKRVD	2.6e-05	77
HLA-B*51:01	1	1031	1040	10	LGQSKRVDFC	2.6e-05	62
HLA-B*08:01	1	1037	1045	9	VDFCGKGYH	2.6e-05	70
HLA-A*03:01	1	1039	1047	9	FCGKGYHLM	2.6e-05	46
HLA-B*58:01	1	1041	1050	10	GKGYHLMSFP	2.6e-05	57
HLA-B*07:02	1	1043	1051	9	GYHLMSFPQ	2.6e-05	50
HLA-A*03:01	1	1044	1052	9	YHLMSFPQS	2.6e-05	46
HLA-A*32:01	1	1055	1063	9	HGVVFLHVT	2.6e-05	40
HLA-B*57:01	1	1059	1068	10	FLHVTVVPAQ	2.6e-05	69
HLA-B*07:02	1	1063	1071	9	TYVPAQEK	2.6e-05	50
HLA-A*26:01	1	1065	1073	9	VPAQEKNT	2.6e-05	46
HLA-B*44:03	1	1065	1074	10	VPAQEKNTT	2.6e-05	37
HLA-A*31:01	1	1068	1077	10	QEKNTTAPA	2.6e-05	54
HLA-B*53:01	1	1069	1077	9	EKNFTTAPA	2.6e-05	37
HLA-A*32:01	1	1073	1081	9	TTAPAICH	2.6e-05	40
HLA-B*44:02	1	1092	1101	10	FVSNGTW	2.6e-05	39
HLA-A*24:02	1	1095	1104	10	NGTHWFV	2.6e-05	33
HLA-B*08:01	1	1097	1105	9	THWFVTQR	2.6e-05	70
HLA-A*30:02	1	1108	1117	10	EPQIITD	2.6e-05	77
HLA-A*31:01	1	1109	1118	10	PQIITDNT	2.6e-05	54
HLA-B*15:01	1	1109	1117	9	PQIITDNT	2.6e-05	52
HLA-A*32:01	1	1117	1126	10	TFVSGN	2.6e-05	40
HLA-A*30:01	1	1119	1128	10	VSGNCDV	2.6e-05	78
HLA-B*35:01	1	1119	1127	9	VSGNCDV	2.6e-05	38
HLA-A*26:01	1	1121	1130	10	GNCDDV	2.6e-05	46
HLA-A*68:02	1	1128	1136	9	GIVNNTV	2.6e-05	53
HLA-A*03:01	1	1130	1139	10	VNNTVYD	2.6e-05	46
HLA-B*51:01	1	1131	1139	9	NNTVYD	2.6e-05	62
HLA-A*33:01	1	1140	1149	10	PELDSF	2.6e-05	57
HLA-B*44:02	1	1142	1151	10	LDSFKEE	2.6e-05	39
HLA-A*31:01	1	1150	1158	9	DKYFKN	2.6e-05	54
HLA-B*40:01	1	1150	1159	10	DKYFKN	2.6e-05	32
HLA-A*24:02	1	1153	1161	9	FKNHTS	2.6e-05	33
HLA-A*02:06	1	1161	1170	10	VDLGDIS	2.6e-05	62
HLA-A*31:01	1	1161	1169	9	VDLGDIS	2.6e-05	54
HLA-B*53:01	1	1174	1182	9	VNIQKEI	2.6e-05	37
HLA-B*58:01	1	1175	1184	10	NIQKEID	2.6e-05	57
HLA-A*24:02	1	1176	1184	9	IQKEIDR	2.6e-05	33
HLA-A*68:01	1	1176	1184	9	IQKEIDR	2.6e-05	47
HLA-A*30:02	1	1177	1185	9	QKEIDRL	2.6e-05	77
HLA-B*40:01	1	1185	1193	9	EVAKNL	2.6e-05	32
HLA-A*31:01	1	1191	1200	10	NESLIDL	2.6e-05	54
HLA-A*02:03	1	1195	1203	9	IDLQELG	2.6e-05	55
HLA-B*44:03	1	1202	1210	9	KYEQYIK	2.6e-05	37
HLA-A*68:02	1	1210	1218	9	PWYIWL	2.6e-05	53
HLA-A*11:01	1	1215	1223	9	LGFIAGL	2.6e-05	34
HLA-A*32:01	1	1218	1227	10	IAGLIAI	2.6e-05	40
HLA-A*11:01	1	1224	1233	10	IVMVTIM	2.6e-05	34
HLA-B*57:01	1	1226	1235	10	MVTIMLC	2.6e-05	69
HLA-B*15:01	1	1228	1236	9	TIMLCMT	2.6e-05	52
HLA-A*33:01	1	1229	1237	9	IMLCMTS	2.6e-05	57
HLA-A*02:01	1	1230	1239	10	MLCCMTS	2.6e-05	51
HLA-B*57:01	1	1232	1241	10	CCMTSCC	2.6e-05	69
HLA-A*30:02	1	1238	1247	10	CSCLKGC	2.6e-05	77
HLA-A*30:02	1	1242	1251	10	KGCCSCG	2.6e-05	77
HLA-A*33:01	1	1244	1253	10	CCSCGSC	2.6e-05	57
HLA-A*23:01	1	1256	1264	9	DDSEPV	2.6e-05	35
HLA-A*02:01	1	1259	1268	10	EPVLKGV	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	VSSQCVNLTT	2.5e-05	71
HLA-B*44:02	1	15	24	10	CVNLTRTRTQL	2.5e-05	40
HLA-B*07:02	1	16	25	10	VNLTRTRTQLP	2.5e-05	51
HLA-A*24:02	1	17	25	9	NLTRTRTQLP	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-B*35:01	1	75	83	9	GTKRFANPV	2.5e-05	39
HLA-A*03:01	1	76	85	10	TKRFANPVL	2.5e-05	47
HLA-A*11:01	1	76	85	10	TKRFANPVL	2.5e-05	35
HLA-B*44:02	1	78	87	10	RFANPVLPFN	2.5e-05	40
HLA-A*31:01	1	88	96	9	DGVYFASTE	2.5e-05	54
HLA-A*02:06	1	95	103	9	TEKSNIIRG	2.5e-05	63
HLA-A*31:01	1	98	107	10	SNIIRGWIFG	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	IFGTTLDLSD	2.5e-05	35
HLA-B*15:01	1	105	113	9	IFGTTLDLSD	2.5e-05	52
HLA-A*68:01	1	112	121	10	SKTQSLLLIVN	2.5e-05	48
HLA-B*53:01	1	113	121	9	KTQSLLLIVN	2.5e-05	38
HLA-A*68:01	1	115	124	10	QSLLLIVNNAT	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-A*32:01	1	207	215	9	HTPINLVRG	2.5e-05	40
HLA-A*30:02	1	209	218	10	PINLVRGLPQ	2.5e-05	77
HLA-B*15:01	1	210	218	9	INLVRGLPQ	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-A*23:01	1	238	247	10	FQTLHRSYLT	2.5e-05	35
HLA-B*58:01	1	240	249	10	TLHRSYLT	2.5e-05	58
HLA-B*08:01	1	242	250	9	HRSYLT	2.5e-05	71
HLA-B*53:01	1	252	261	10	SSGWTAGAAA	2.5e-05	38
HLA-A*02:03	1	254	262	9	GWTAGAAAY	2.5e-05	55
HLA-A*02:01	1	257	266	10	AGAAAYVGY	2.5e-05	52
HLA-A*23:01	1	258	267	10	GAAAYVGYL	2.5e-05	35
HLA-A*33:01	1	270	279	10	RTFLLKYNEN	2.5e-05	58
HLA-B*57:01	1	273	281	9	LLKYNENG	2.5e-05	70
HLA-A*24:02	1	277	286	10	NENGTITDAV	2.5e-05	34
HLA-B*57:01	1	277	285	9	NENGTITDA	2.5e-05	70

HLA-A*30:01	1	279	288	10	NGTITDAVDC	2.5e-05	79
HLA-B*51:01	1	280	289	10	GTITDAVDCA	2.5e-05	63
HLA-B*44:03	1	284	293	10	DAVDCALDPL	2.5e-05	37
HLA-B*57:01	1	286	294	9	VDCALDPLS	2.5e-05	70
HLA-A*11:01	1	297	305	9	KCTLKSFTV	2.5e-05	35
HLA-A*31:01	1	300	309	10	LKSFTVEKGI	2.5e-05	54
HLA-A*24:02	1	303	311	9	FTVEKGIYQ	2.5e-05	34
HLA-A*24:02	1	304	312	9	TVEKGIYQT	2.5e-05	34
HLA-A*02:01	1	305	313	9	VEKGIYQTS	2.5e-05	52
HLA-A*32:01	1	305	313	9	VEKGIYQTS	2.5e-05	40
HLA-A*26:01	1	320	328	9	TESIVRFPN	2.5e-05	47
HLA-A*26:01	1	325	334	10	RFPNITNLCP	2.5e-05	47
HLA-B*15:01	1	325	334	10	RFPNITNLCP	2.5e-05	52
HLA-A*31:01	1	326	335	10	FPNITNLCPF	2.5e-05	54
HLA-A*01:01	1	332	340	9	LCPFGEVFN	2.5e-05	75
HLA-A*23:01	1	333	341	9	CPFGEVFNA	2.5e-05	35
HLA-A*23:01	1	337	345	9	EVFNATRFA	2.5e-05	35
HLA-A*23:01	1	341	349	9	ATRFASVYA	2.5e-05	35
HLA-B*51:01	1	342	351	10	TRFASVYAWN	2.5e-05	63
HLA-A*32:01	1	343	351	9	RFASVYAWN	2.5e-05	40
HLA-B*51:01	1	345	354	10	ASVYAWNRKR	2.5e-05	63
HLA-A*02:06	1	348	357	10	YAWNRKRISN	2.5e-05	63
HLA-A*68:02	1	348	357	10	YAWNRKRISN	2.5e-05	54
HLA-B*40:01	1	348	356	9	YAWNRKRIS	2.5e-05	32
HLA-A*02:06	1	350	359	10	WNRKRISNCV	2.5e-05	63
HLA-A*26:01	1	350	359	10	WNRKRISNCV	2.5e-05	47
HLA-A*23:01	1	353	361	9	KRISNCVAD	2.5e-05	35
HLA-A*32:01	1	362	370	9	YSVLYNSAS	2.5e-05	40
HLA-A*11:01	1	370	379	10	SFSTFKCYGV	2.5e-05	35
HLA-A*30:02	1	374	382	9	FKCYGVSPT	2.5e-05	77
HLA-A*31:01	1	376	385	10	CYGVSPKLN	2.5e-05	54
HLA-A*32:01	1	379	388	10	VSPTKLN DLC	2.5e-05	40
HLA-A*03:01	1	381	389	9	PTKLN DLCF	2.5e-05	47
HLA-A*30:01	1	387	395	9	LCFTNVYAD	2.5e-05	79
HLA-A*30:01	1	387	396	10	LCFTNVYADS	2.5e-05	79
HLA-B*44:02	1	394	403	10	ADSFVIRGDE	2.5e-05	40
HLA-A*11:01	1	396	404	9	SFVIRGDEV	2.5e-05	35
HLA-A*24:02	1	397	405	9	FVIRGDEV R	2.5e-05	34
HLA-A*26:01	1	399	408	10	IRGDEV RQIA	2.5e-05	47
HLA-B*44:03	1	400	409	10	RGDEV RQIAP	2.5e-05	37
HLA-B*57:01	1	402	411	10	DEV RQIAPGQ	2.5e-05	70
HLA-B*35:01	1	403	412	10	EV RQIAPGQT	2.5e-05	39
HLA-A*68:02	1	410	418	9	GQTGNIADY	2.5e-05	54
HLA-A*32:01	1	412	421	10	TGNIADYNYK	2.5e-05	40
HLA-B*07:02	1	414	423	10	NIADYNYKLP	2.5e-05	51
HLA-A*68:01	1	418	427	10	YNYKLPDDFT	2.5e-05	48
HLA-B*07:02	1	418	427	10	YNYKLPDDFT	2.5e-05	51
HLA-B*44:03	1	423	431	9	PDDFTGCVI	2.5e-05	37
HLA-A*68:01	1	431	439	9	IAWNSN NLD	2.5e-05	48
HLA-B*44:03	1	432	441	10	AWNSN NLD SK	2.5e-05	37
HLA-B*44:03	1	435	443	9	SN NLD SKVG	2.5e-05	37
HLA-A*03:01	1	437	445	9	NLDSKVGGN	2.5e-05	47
HLA-B*07:02	1	443	452	10	GGNYNYLYRL	2.5e-05	51
HLA-A*02:03	1	444	453	10	GNYNYLYRLF	2.5e-05	55
HLA-B*07:02	1	447	455	9	NYLYRLF RK	2.5e-05	51
HLA-A*32:01	1	448	457	10	YLYRLF RKSN	2.5e-05	40
HLA-B*08:01	1	460	468	9	PFERDISTE	2.5e-05	71
HLA-A*30:02	1	464	473	10	DISTEIQAG	2.5e-05	77
HLA-A*33:01	1	466	475	10	STEIQAGST	2.5e-05	58
HLA-B*15:01	1	466	474	9	STEIQAGS	2.5e-05	52
HLA-B*44:02	1	471	480	10	QAGSTPCNGV	2.5e-05	40
HLA-A*24:02	1	474	482	9	STPCNGVKG	2.5e-05	34
HLA-A*30:01	1	475	484	10	TPCNGVKGFN	2.5e-05	79
HLA-A*33:01	1	480	489	10	VKGFNCYFPL	2.5e-05	58
HLA-A*02:03	1	482	491	10	GFNCYFPLQS	2.5e-05	55
HLA-B*44:03	1	484	493	10	NCYFPLQSYG	2.5e-05	37

HLA-B*15:01	1	487	496	10	FPLQSYGFQP	2.5e-05	52
HLA-A*30:02	1	488	497	10	PLQSYGFQPT	2.5e-05	77
HLA-A*02:03	1	497	506	10	TYGVGYQPYR	2.5e-05	55
HLA-A*23:01	1	503	511	9	QPYRVVVL	2.5e-05	35
HLA-A*31:01	1	513	522	10	ELLHAPATVC	2.5e-05	54
HLA-A*02:01	1	515	524	10	LHAPATVCGP	2.5e-05	52
HLA-B*44:03	1	515	524	10	LHAPATVCGP	2.5e-05	37
HLA-A*02:03	1	517	526	10	APATVCGPKK	2.5e-05	55
HLA-A*32:01	1	519	527	9	ATVCGPKKS	2.5e-05	40
HLA-B*44:03	1	519	527	9	ATVCGPKKS	2.5e-05	37
HLA-A*23:01	1	520	528	9	TVCGPKKST	2.5e-05	35
HLA-A*68:01	1	522	531	10	CGPKKSTNLV	2.5e-05	48
HLA-A*31:01	1	534	542	9	KCVNFNFG	2.5e-05	54
HLA-A*31:01	1	535	544	10	CVNFNFNGLT	2.5e-05	54
HLA-A*02:01	1	536	544	9	VNFNFNGLT	2.5e-05	52
HLA-A*33:01	1	540	549	10	FNGLTGTGVL	2.5e-05	58
HLA-A*68:01	1	541	549	9	NGLTGTGVL	2.5e-05	48
HLA-A*31:01	1	543	552	10	LTGTGVLTES	2.5e-05	54
HLA-A*03:01	1	544	552	9	TGTGVLTES	2.5e-05	47
HLA-A*02:03	1	545	554	10	GTGVLTESNK	2.5e-05	55
HLA-A*02:01	1	546	554	9	TGVLTESNK	2.5e-05	52
HLA-B*07:02	1	546	555	10	TGVLTESNKK	2.5e-05	51
HLA-B*35:01	1	546	555	10	TGVLTESNKK	2.5e-05	39
HLA-B*35:01	1	548	557	10	VLTESNKKFL	2.5e-05	39
HLA-A*02:01	1	549	558	10	LTESNKKFLP	2.5e-05	52
HLA-A*68:01	1	550	558	9	TESNKKFLP	2.5e-05	48
HLA-A*32:01	1	552	560	9	SNKKFLPFQ	2.5e-05	40
HLA-B*15:01	1	552	561	10	SNKKFLPFQQ	2.5e-05	52
HLA-B*51:01	1	553	561	9	NKKFLPFQQ	2.5e-05	63
HLA-A*02:01	1	554	563	10	KKFLPFQQFG	2.5e-05	52
HLA-A*01:01	1	558	567	10	PFQQFGRDIA	2.5e-05	75
HLA-A*24:02	1	566	574	9	IADTTDAVR	2.5e-05	34
HLA-A*01:01	1	567	575	9	ADTTDAVRD	2.5e-05	75
HLA-A*01:01	1	574	583	10	RDPQTLEILD	2.5e-05	75
HLA-B*58:01	1	574	583	10	RDPQTLEILD	2.5e-05	58
HLA-A*23:01	1	575	584	10	DPQTLEILDI	2.5e-05	35
HLA-A*24:02	1	575	584	10	DPQTLEILDI	2.5e-05	34
HLA-A*03:01	1	579	588	10	LEILDITPCS	2.5e-05	47
HLA-A*26:01	1	588	596	9	SFGGVSVIT	2.5e-05	47
HLA-A*32:01	1	588	597	10	SFGGVSVITP	2.5e-05	40
HLA-A*24:02	1	594	602	9	VITPGTNTS	2.5e-05	34
HLA-B*44:03	1	598	607	10	GTNTSNQVAV	2.5e-05	37
HLA-A*30:01	1	604	613	10	QVAVLYQGVM	2.5e-05	79
HLA-B*08:01	1	604	613	10	QVAVLYQGVM	2.5e-05	71
HLA-B*44:03	1	607	615	9	VLYQGVNCT	2.5e-05	37
HLA-A*03:01	1	608	617	10	LYQGVNCTEV	2.5e-05	47
HLA-B*35:01	1	608	617	10	LYQGVNCTEV	2.5e-05	39
HLA-A*26:01	1	612	621	10	VNCTEVPVAI	2.5e-05	47
HLA-B*44:03	1	614	622	9	CTEVPVAIH	2.5e-05	37
HLA-A*31:01	1	617	625	9	VPVAIHADQ	2.5e-05	54
HLA-B*51:01	1	623	631	9	ADQLTPTWR	2.5e-05	63
HLA-A*24:02	1	627	635	9	TPTWRVYST	2.5e-05	34
HLA-B*07:02	1	637	645	9	SNVFQTRAG	2.5e-05	51
HLA-A*01:01	1	640	649	10	FQTRAGCLIG	2.5e-05	75
HLA-A*31:01	1	647	656	10	LIGAEHVNNS	2.5e-05	54
HLA-A*02:03	1	650	659	10	AEHVNNSYEC	2.5e-05	55
HLA-B*15:01	1	651	659	9	EHVNNSYEC	2.5e-05	52
HLA-A*23:01	1	653	661	9	VNNSYECDI	2.5e-05	35
HLA-A*68:02	1	657	666	10	YECDIPIGAG	2.5e-05	54
HLA-B*53:01	1	657	666	10	YECDIPIGAG	2.5e-05	38
HLA-B*07:02	1	658	666	9	ECDIPIGAG	2.5e-05	51
HLA-A*02:03	1	659	668	10	CDIPIGAGIC	2.5e-05	55
HLA-A*01:01	1	661	670	10	IPIGAGICAS	2.5e-05	75
HLA-A*02:03	1	665	674	10	AGICASYQTQ	2.5e-05	55
HLA-A*31:01	1	666	675	10	GICASYQTQT	2.5e-05	54
HLA-B*53:01	1	671	680	10	YQTQTNSPRR	2.5e-05	38

HLA-A*68:01	1	676	685	10	NSPRRARSVA	2.5e-05	48
HLA-A*30:02	1	678	686	9	PRRARSVAS	2.5e-05	77
HLA-A*68:02	1	679	688	10	RRARSVASQS	2.5e-05	54
HLA-B*44:03	1	693	702	10	TMSLGVENS	2.5e-05	37
HLA-B*58:01	1	699	708	10	ENSVAYSNNS	2.5e-05	58
HLA-A*24:02	1	704	712	9	YSNNSIAIP	2.5e-05	34
HLA-B*44:02	1	704	712	9	YSNNSIAIP	2.5e-05	40
HLA-B*44:02	1	706	714	9	NNSIAIPTN	2.5e-05	40
HLA-B*44:02	1	707	716	10	NSIAIPTNFT	2.5e-05	40
HLA-B*35:01	1	713	722	10	TNFTISVTTE	2.5e-05	39
HLA-B*15:01	1	716	725	10	TISVTTEILP	2.5e-05	52
HLA-A*32:01	1	718	727	10	SVTTEILPVS	2.5e-05	40
HLA-B*44:02	1	719	727	9	VTTEILPVS	2.5e-05	40
HLA-B*35:01	1	720	729	10	TTEILPVSM	2.5e-05	39
HLA-B*44:02	1	722	731	10	EILPVSMTK	2.5e-05	40
HLA-B*07:02	1	729	738	10	TKTSVDCTMY	2.5e-05	51
HLA-B*53:01	1	731	740	10	TSVDCTMYIC	2.5e-05	38
HLA-B*53:01	1	736	744	9	TMYICGDST	2.5e-05	38
HLA-B*57:01	1	736	745	10	TMYICGDSTE	2.5e-05	70
HLA-B*57:01	1	737	745	9	MYICGDSTE	2.5e-05	70
HLA-B*58:01	1	739	747	9	ICGDSTEC	2.5e-05	58
HLA-B*51:01	1	743	752	10	STECNLLLQ	2.5e-05	63
HLA-A*02:06	1	746	755	10	CSNLLLQYGS	2.5e-05	63
HLA-B*08:01	1	746	754	9	CSNLLLQYG	2.5e-05	71
HLA-A*32:01	1	757	765	9	CTQLNRALT	2.5e-05	40
HLA-A*26:01	1	759	768	10	QLNRALTGIA	2.5e-05	47
HLA-A*26:01	1	771	780	10	QDKNTQEVFA	2.5e-05	47
HLA-A*33:01	1	787	796	10	KTPPIKDFGG	2.5e-05	58
HLA-A*23:01	1	801	809	9	QILPDPSKP	2.5e-05	35
HLA-A*33:01	1	809	818	10	PSKRSFIEDL	2.5e-05	58
HLA-A*32:01	1	819	828	10	LFNKVTLADA	2.5e-05	40
HLA-B*44:02	1	823	832	10	VTLADAGFIK	2.5e-05	40
HLA-B*08:01	1	826	835	10	ADAGFIKQYG	2.5e-05	71
HLA-B*40:01	1	826	835	10	ADAGFIKQYG	2.5e-05	32
HLA-B*07:02	1	833	841	9	QYGDCLGDI	2.5e-05	51
HLA-B*08:01	1	835	844	10	GDCLGDIAAR	2.5e-05	71
HLA-B*15:01	1	836	844	9	DCLGDIAAR	2.5e-05	52
HLA-A*26:01	1	837	846	10	CLGDIAARDL	2.5e-05	47
HLA-A*31:01	1	837	846	10	CLGDIAARDL	2.5e-05	54
HLA-A*33:01	1	837	846	10	CLGDIAARDL	2.5e-05	58
HLA-A*31:01	1	839	847	9	GDIAARDLI	2.5e-05	54
HLA-A*30:01	1	845	854	10	DLICAQKFNG	2.5e-05	79
HLA-A*32:01	1	846	854	9	LICAQKFNG	2.5e-05	40
HLA-A*24:02	1	852	861	10	FNGLTVLPPL	2.5e-05	34
HLA-B*53:01	1	852	861	10	FNGLTVLPPL	2.5e-05	38
HLA-B*53:01	1	855	864	10	LTVLPPLTD	2.5e-05	38
HLA-A*01:01	1	859	868	10	PPLLTDEMI	2.5e-05	75
HLA-A*03:01	1	860	869	10	PLLTDEMIAQ	2.5e-05	47
HLA-B*44:03	1	866	875	10	MIAQYTSALL	2.5e-05	37
HLA-B*08:01	1	871	880	10	TSALLAGTIT	2.5e-05	71
HLA-A*26:01	1	872	880	9	SALLAGTIT	2.5e-05	47
HLA-A*11:01	1	878	886	9	TITSGWTFG	2.5e-05	35
HLA-B*08:01	1	878	886	9	TITSGWTFG	2.5e-05	71
HLA-B*35:01	1	881	890	10	SGWTFGAGAA	2.5e-05	39
HLA-A*02:06	1	895	904	10	FAMQMAYRFN	2.5e-05	63
HLA-A*02:03	1	899	907	9	MAYRFNGIG	2.5e-05	55
HLA-B*58:01	1	901	909	9	YRFNGIGVT	2.5e-05	58
HLA-A*02:06	1	915	923	9	ENQKLIANQ	2.5e-05	63
HLA-A*31:01	1	917	926	10	QKLIANQFNS	2.5e-05	54
HLA-B*58:01	1	917	926	10	QKLIANQFNS	2.5e-05	58
HLA-A*23:01	1	919	927	9	LIANQFN	2.5e-05	35
HLA-A*01:01	1	920	929	10	IANQFN	2.5e-05	75
HLA-B*08:01	1	920	929	10	IANQFN	2.5e-05	71
HLA-A*11:01	1	924	932	9	FNSAIGKIQ	2.5e-05	35
HLA-A*33:01	1	925	933	9	NSAIGKIQD	2.5e-05	58
HLA-B*58:01	1	929	938	10	GKIQD	2.5e-05	58

HLA-B*35:01	1	931	940	10	IQDLSSTAS	2.5e-05	39
HLA-A*68:01	1	935	943	9	LSSTASALG	2.5e-05	48
HLA-B*15:01	1	939	947	9	ASALGKLQD	2.5e-05	52
HLA-A*03:01	1	942	951	10	LGKLQDVVNQ	2.5e-05	47
HLA-B*53:01	1	944	952	9	KLQDVVNQN	2.5e-05	38
HLA-A*03:01	1	951	960	10	QNAQALNTLV	2.5e-05	47
HLA-A*11:01	1	955	964	10	ALNTLVKQLS	2.5e-05	35
HLA-B*44:03	1	955	964	10	ALNTLVKQLS	2.5e-05	37
HLA-A*02:06	1	957	966	10	NTLVKQLSSN	2.5e-05	63
HLA-A*68:02	1	959	968	10	LVKQLSSNFG	2.5e-05	54
HLA-A*32:01	1	960	969	10	VKQLSSNFGA	2.5e-05	40
HLA-A*68:01	1	967	975	9	FGAISSVLN	2.5e-05	48
HLA-B*08:01	1	967	975	9	FGAISSVLN	2.5e-05	71
HLA-A*23:01	1	968	977	10	GAISSVLNDI	2.5e-05	35
HLA-B*44:02	1	969	978	10	AISSVLNDIL	2.5e-05	40
HLA-A*26:01	1	971	979	9	SSVLNDILS	2.5e-05	47
HLA-B*15:01	1	971	979	9	SSVLNDILS	2.5e-05	52
HLA-A*33:01	1	977	985	9	ILSRLDKVE	2.5e-05	58
HLA-A*68:01	1	977	985	9	ILSRLDKVE	2.5e-05	48
HLA-B*51:01	1	977	985	9	ILSRLDKVE	2.5e-05	63
HLA-A*24:02	1	981	990	10	LDKVEAEVQI	2.5e-05	34
HLA-A*33:01	1	981	990	10	LDKVEAEVQI	2.5e-05	58
HLA-A*32:01	1	985	994	10	EAEVQIDRLI	2.5e-05	40
HLA-A*31:01	1	987	996	10	EVQIDRLITG	2.5e-05	54
HLA-A*24:02	1	992	1000	9	RLITGRLQS	2.5e-05	34
HLA-A*23:01	1	1000	1008	9	SLQTYVTQQ	2.5e-05	35
HLA-B*51:01	1	1007	1016	10	QQLIRAAEIR	2.5e-05	63
HLA-A*68:01	1	1010	1018	9	IRAAEIRAS	2.5e-05	48
HLA-B*35:01	1	1013	1022	10	AEIRASANLA	2.5e-05	39
HLA-A*33:01	1	1020	1029	10	NLAATKMSEC	2.5e-05	58
HLA-A*68:01	1	1020	1029	10	NLAATKMSEC	2.5e-05	48
HLA-A*02:01	1	1028	1036	9	ECVLGQSKR	2.5e-05	52
HLA-A*11:01	1	1031	1039	9	LGQSKRVDF	2.5e-05	35
HLA-B*08:01	1	1033	1042	10	QSKRVDFCGK	2.5e-05	71
HLA-A*02:06	1	1034	1042	9	SKRVDFCGK	2.5e-05	63
HLA-B*08:01	1	1036	1045	10	RVDVFCGKYH	2.5e-05	71
HLA-A*02:03	1	1041	1050	10	GKGYHLMSFP	2.5e-05	55
HLA-B*44:02	1	1044	1052	9	YHLMSFPQS	2.5e-05	40
HLA-A*23:01	1	1046	1054	9	LMSFPQSAP	2.5e-05	35
HLA-A*26:01	1	1058	1066	9	VFLHVTYVP	2.5e-05	47
HLA-B*58:01	1	1059	1067	9	FLHVTYVPA	2.5e-05	58
HLA-A*02:01	1	1060	1069	10	LHVTYVPAQE	2.5e-05	52
HLA-A*02:03	1	1060	1069	10	LHVTYVPAQE	2.5e-05	55
HLA-A*02:06	1	1060	1068	9	LHVTYVPAQ	2.5e-05	63
HLA-B*44:02	1	1060	1068	9	LHVTYVPAQ	2.5e-05	40
HLA-B*40:01	1	1061	1070	10	HVTYVPAQEK	2.5e-05	32
HLA-A*02:01	1	1062	1071	10	VTYVPAQEKN	2.5e-05	52
HLA-A*31:01	1	1066	1074	9	PAQEKNFTT	2.5e-05	54
HLA-A*33:01	1	1066	1074	9	PAQEKNFTT	2.5e-05	58
HLA-A*23:01	1	1068	1076	9	QEKNFTTAP	2.5e-05	35
HLA-A*24:02	1	1068	1076	9	QEKNFTTAP	2.5e-05	34
HLA-A*03:01	1	1075	1084	10	APAICHDGKA	2.5e-05	47
HLA-A*30:01	1	1076	1085	10	PAICHDGKAH	2.5e-05	79
HLA-A*33:01	1	1076	1085	10	PAICHDGKAH	2.5e-05	58
HLA-B*07:02	1	1079	1088	10	CHDGKAHFPR	2.5e-05	51
HLA-B*44:03	1	1079	1088	10	CHDGKAHFPR	2.5e-05	37
HLA-B*15:01	1	1081	1089	9	DGKAHFPRE	2.5e-05	52
HLA-A*23:01	1	1099	1108	10	WFVTQRNFYE	2.5e-05	35
HLA-A*02:06	1	1101	1110	10	VTQRNFYEPQ	2.5e-05	63
HLA-B*57:01	1	1114	1122	9	TDNTFVSGN	2.5e-05	70
HLA-A*01:01	1	1115	1123	9	DNTFVSGNC	2.5e-05	75
HLA-A*32:01	1	1116	1125	10	NTFVSGNCDV	2.5e-05	40
HLA-A*33:01	1	1116	1124	9	NTFVSGNCD	2.5e-05	58
HLA-B*35:01	1	1116	1124	9	NTFVSGNCD	2.5e-05	39
HLA-A*11:01	1	1118	1126	9	FVSGNCDVV	2.5e-05	35
HLA-B*44:02	1	1118	1126	9	FVSGNCDVV	2.5e-05	40



HLA-B*40:01	1	1126	1135	10	VIGIVNNTVY 2.5e-05	32
HLA-A*02:06	1	1127	1136	10	IGIVNNTVYD 2.5e-05	63
HLA-A*33:01	1	1129	1137	9	IVNNTVYDP 2.5e-05	58
HLA-A*33:01	1	1131	1140	10	NNTVYDPLQP 2.5e-05	58
HLA-A*68:01	1	1136	1144	9	DPLQPELDS 2.5e-05	48
HLA-A*11:01	1	1139	1148	10	QPELDSFKEE 2.5e-05	35
HLA-B*15:01	1	1139	1148	10	QPELDSFKEE 2.5e-05	52
HLA-B*35:01	1	1145	1154	10	FKEELDKYFK 2.5e-05	39
HLA-A*01:01	1	1146	1155	10	KEELDKYFKN 2.5e-05	75
HLA-A*02:06	1	1147	1155	9	EELDKYFKN 2.5e-05	63
HLA-A*32:01	1	1147	1156	10	EELDKYFKNH 2.5e-05	40
HLA-B*51:01	1	1152	1160	9	YFKNHTSPD 2.5e-05	63
HLA-A*01:01	1	1159	1168	10	PDVDLGDISG 2.5e-05	75
HLA-A*02:01	1	1163	1172	10	LGDISGINAS 2.5e-05	52
HLA-A*31:01	1	1165	1174	10	DISGINASVV 2.5e-05	54
HLA-B*44:02	1	1169	1178	10	INASVVNIQK 2.5e-05	40
HLA-B*07:02	1	1176	1185	10	IQKEIDRLNE 2.5e-05	51
HLA-B*08:01	1	1177	1185	9	QKEIDRLNE 2.5e-05	71
HLA-A*33:01	1	1187	1195	9	AKNLNESLI 2.5e-05	58
HLA-B*35:01	1	1187	1195	9	AKNLNESLI 2.5e-05	39
HLA-A*32:01	1	1189	1198	10	NLNESLIDLQ 2.5e-05	40
HLA-A*03:01	1	1191	1199	9	NESLIDLQE 2.5e-05	47
HLA-B*44:02	1	1192	1201	10	ESLIDLQELG 2.5e-05	40
HLA-A*68:02	1	1196	1205	10	DLQELGKYEQ 2.5e-05	54
HLA-A*02:03	1	1208	1216	9	KWPWYIWLG 2.5e-05	55
HLA-A*02:03	1	1209	1218	10	WPWYIWLGFI 2.5e-05	55
HLA-A*01:01	1	1212	1220	9	YIWLGFIAAG 2.5e-05	75
HLA-B*40:01	1	1222	1231	10	IAIVMVTIML 2.5e-05	32
HLA-A*01:01	1	1224	1233	10	IVMVTIMLCC 2.5e-05	75
HLA-B*35:01	1	1228	1236	9	TIMLCCMTS 2.5e-05	39
HLA-A*01:01	1	1245	1254	10	CSCGSCCKFD 2.5e-05	75
HLA-A*03:01	1	1252	1260	9	KFDEDDSEP 2.5e-05	47
HLA-A*11:01	1	1255	1264	10	EDDSEPVKLG 2.5e-05	35
HLA-A*24:02	1	1260	1268	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	SSQCVNLTR 2.4e-05	39
HLA-A*02:03	1	14	23	10	QCVNLTRTQ 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	NGTKRFANP 2.4e-05	53
HLA-B*15:01	1	76	85	10	TKRFANPVL 2.4e-05	53
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	DSKTQSLIV	2.4e-05	34
HLA-B*07:02	1	115	124	10	QSLIVNNAT	2.4e-05	52
HLA-A*03:01	1	117	125	9	LLIVNNATN	2.4e-05	47
HLA-A*11:01	1	120	128	9	VNNATNVVI	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	SQPFMLDLEG	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-B*15:01	1	210	219	10	INLVRGLPQG	2.4e-05	53
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*44:02	1	239	247	9	QTLHRSYLT	2.4e-05	40
HLA-B*53:01	1	243	252	10	RSYLTPGDSS	2.4e-05	38
HLA-B*44:02	1	244	253	10	SYLTPGDSSS	2.4e-05	40
HLA-A*11:01	1	250	259	10	DSSSGWTAGA	2.4e-05	35
HLA-A*11:01	1	268	277	10	QPRTFLLKYN	2.4e-05	35
HLA-A*30:01	1	276	284	9	YNENGTITD	2.4e-05	80
HLA-B*51:01	1	276	284	9	YNENGTITD	2.4e-05	63
HLA-A*11:01	1	277	286	10	NENGTITDAV	2.4e-05	35
HLA-A*03:01	1	280	288	9	GTITDAVDC	2.4e-05	47
HLA-A*30:01	1	282	291	10	ITDAVDCALD	2.4e-05	80
HLA-B*44:02	1	284	292	9	DAVDCALDP	2.4e-05	40
HLA-A*03:01	1	285	294	10	AVDCALDPLS	2.4e-05	47
HLA-A*02:06	1	286	295	10	VDCALDPLSE	2.4e-05	63
HLA-A*30:01	1	286	295	10	VDCALDPLSE	2.4e-05	80
HLA-A*30:02	1	286	294	9	VDCALDPLS	2.4e-05	78
HLA-B*07:02	1	290	298	9	LDPLSETKC	2.4e-05	52
HLA-B*58:01	1	294	302	9	SETKCTLKS	2.4e-05	58
HLA-B*08:01	1	297	306	10	KCTLKSFTVE	2.4e-05	71
HLA-B*51:01	1	302	311	10	SFTVEKGIYQ	2.4e-05	63
HLA-B*08:01	1	306	314	9	EKGIYQTSN	2.4e-05	71
HLA-A*11:01	1	313	322	10	SNFRVQPTES	2.4e-05	35
HLA-A*33:01	1	320	328	9	TESIVRFPN	2.4e-05	58
HLA-A*03:01	1	326	334	9	FPNITNLCP	2.4e-05	47
HLA-A*03:01	1	326	335	10	FPNITNLCPF	2.4e-05	47
HLA-B*15:01	1	326	334	9	FPNITNLCP	2.4e-05	53
HLA-B*44:03	1	326	334	9	FPNITNLCP	2.4e-05	38
HLA-A*24:02	1	333	341	9	CPFGEVFNAT	2.4e-05	34
HLA-A*02:01	1	334	342	9	PFGEVFNAT	2.4e-05	53
HLA-B*58:01	1	343	351	9	RFASVYAWN	2.4e-05	58
HLA-B*58:01	1	347	356	10	VYAWNRKRIS	2.4e-05	58
HLA-B*44:03	1	356	365	10	SNCVADYSVL	2.4e-05	38
HLA-B*35:01	1	372	380	9	STFKCYGVS	2.4e-05	39
HLA-A*68:01	1	373	382	10	TFKCYGVSPT	2.4e-05	48
HLA-B*44:02	1	373	381	9	TFKCYGVSP	2.4e-05	40
HLA-B*57:01	1	382	391	10	TKLNDLCFTN	2.4e-05	70

HLA-A*02:03	1	386	395	10	DLCFTNVYAD	2.4e-05	56
HLA-A*24:02	1	390	398	9	TNVYADSFV	2.4e-05	34
HLA-B*44:03	1	390	399	10	TNVYADSFVI	2.4e-05	38
HLA-B*44:03	1	396	405	10	SFVIRGDEV	2.4e-05	38
HLA-B*35:01	1	419	427	9	NYKLPDDFT	2.4e-05	39
HLA-B*58:01	1	419	428	10	NYKLPDDFTG	2.4e-05	58
HLA-A*32:01	1	422	431	10	LPDDFTGCVI	2.4e-05	41
HLA-A*30:02	1	424	432	9	DDFTGCVIA	2.4e-05	78
HLA-A*01:01	1	429	437	9	CVIAWNSNN	2.4e-05	76
HLA-B*15:01	1	429	437	9	CVIAWNSNN	2.4e-05	53
HLA-A*02:03	1	447	455	9	NYLYRFRK	2.4e-05	56
HLA-B*07:02	1	449	457	9	LYRFRKSN	2.4e-05	52
HLA-B*44:02	1	456	464	9	SNLKPFERD	2.4e-05	40
HLA-A*33:01	1	458	467	10	LKPFERDIST	2.4e-05	58
HLA-A*32:01	1	463	471	9	RDISTEIQ	2.4e-05	41
HLA-A*02:06	1	464	473	10	DISTEIQAG	2.4e-05	63
HLA-B*44:03	1	475	484	10	TPCNGVKGFN	2.4e-05	38
HLA-B*40:01	1	478	487	10	NGVKGFNCYF	2.4e-05	33
HLA-A*24:02	1	482	491	10	GFNCYFPLQS	2.4e-05	34
HLA-A*02:06	1	484	493	10	NCYFPLQSYG	2.4e-05	63
HLA-B*44:02	1	484	493	10	NCYFPLQSYG	2.4e-05	40
HLA-B*15:01	1	486	495	10	YFPLQSYGFQ	2.4e-05	53
HLA-B*58:01	1	491	499	9	SYGFQPTYG	2.4e-05	58
HLA-A*23:01	1	495	504	10	QPTYGVGYQP	2.4e-05	36
HLA-A*03:01	1	505	514	10	YRVVLSFEL	2.4e-05	47
HLA-B*51:01	1	505	513	9	YRVVLSFE	2.4e-05	63
HLA-A*32:01	1	513	522	10	ELLHAPATVC	2.4e-05	41
HLA-A*03:01	1	514	523	10	LLHAPATVCG	2.4e-05	47
HLA-A*24:02	1	515	524	10	LHAPATVCGP	2.4e-05	34
HLA-A*31:01	1	515	523	9	LHAPATVCG	2.4e-05	55
HLA-A*02:01	1	517	526	10	APATVCGPKK	2.4e-05	53
HLA-B*40:01	1	519	527	9	ATVCGPKKS	2.4e-05	33
HLA-A*02:06	1	523	532	10	GPKKSTNLVK	2.4e-05	63
HLA-B*07:02	1	526	535	10	KSTNLVKKNC	2.4e-05	52
HLA-B*40:01	1	527	536	10	STNLVKKNCV	2.4e-05	33
HLA-A*02:01	1	532	540	9	KNKCVNFN	2.4e-05	53
HLA-A*03:01	1	536	544	9	VNFNFNGLT	2.4e-05	47
HLA-A*32:01	1	540	549	10	FNGLTGTGVL	2.4e-05	41
HLA-B*40:01	1	547	555	9	GVLTESNKK	2.4e-05	33
HLA-B*51:01	1	547	555	9	GVLTESNKK	2.4e-05	63
HLA-A*68:01	1	548	557	10	VLTESNKKFL	2.4e-05	48
HLA-A*02:06	1	551	560	10	ESNKKFLPFQ	2.4e-05	63
HLA-B*07:02	1	560	568	9	QQFGRDIAD	2.4e-05	52
HLA-A*02:01	1	561	570	10	QFGRDIADTT	2.4e-05	53
HLA-B*44:02	1	563	572	10	GRDIADTTDA	2.4e-05	40
HLA-B*53:01	1	568	577	10	DTTDAVRDPQ	2.4e-05	38
HLA-A*31:01	1	579	588	10	LEILDITPCS	2.4e-05	55
HLA-B*53:01	1	584	593	10	ITPCSFGGVS	2.4e-05	38
HLA-A*68:01	1	586	595	10	PCSFGGVSVI	2.4e-05	48
HLA-A*32:01	1	587	596	10	CSFGGVSVIT	2.4e-05	41
HLA-A*23:01	1	589	597	9	FGGVSVITP	2.4e-05	36
HLA-B*40:01	1	591	599	9	GVSVITPGT	2.4e-05	33
HLA-A*02:06	1	597	606	10	PGTNTSNQVA	2.4e-05	63
HLA-A*68:02	1	602	611	10	SNQVAVLYQG	2.4e-05	54
HLA-A*01:01	1	604	613	10	QVAVLYQGVN	2.4e-05	76
HLA-B*07:02	1	605	614	10	VAVLYQGVNC	2.4e-05	52
HLA-B*15:01	1	610	619	10	QGVNCTEVPV	2.4e-05	53
HLA-B*57:01	1	621	629	9	IHADQLTPT	2.4e-05	70
HLA-B*58:01	1	621	629	9	IHADQLTPT	2.4e-05	58
HLA-A*32:01	1	623	631	9	ADQLTPTWR	2.4e-05	41
HLA-B*35:01	1	626	634	9	LTPTWRVYS	2.4e-05	39
HLA-A*01:01	1	627	636	10	TPTWRVYSTG	2.4e-05	76
HLA-A*33:01	1	628	636	9	PTWRVYSTG	2.4e-05	58
HLA-A*30:01	1	630	638	9	WRVYSTGSN	2.4e-05	80
HLA-B*15:01	1	642	650	9	TRAGCLIGA	2.4e-05	53
HLA-B*58:01	1	646	655	10	CLIGAEHVNN	2.4e-05	58

HLA-A*33:01	1	647	656	10	LIGAEHVNNS	2.4e-05	58
HLA-B*44:02	1	648	656	9	IGAEHVNNS	2.4e-05	40
HLA-B*44:02	1	652	661	10	HVNNSYECDI	2.4e-05	40
HLA-A*02:03	1	664	673	10	GAGICASYQT	2.4e-05	56
HLA-B*51:01	1	664	672	9	GAGICASYQ	2.4e-05	63
HLA-B*35:01	1	666	674	9	GICASYQTQ	2.4e-05	39
HLA-A*03:01	1	667	675	9	ICASYQTQT	2.4e-05	47
HLA-B*53:01	1	673	681	9	TQTNSPRRA	2.4e-05	38
HLA-A*33:01	1	679	688	10	RRARSVASQS	2.4e-05	58
HLA-A*26:01	1	686	695	10	SQSIIAYTMS	2.4e-05	47
HLA-B*07:02	1	686	695	10	SQSIIAYTMS	2.4e-05	52
HLA-B*07:02	1	689	697	9	IIAYTMSLG	2.4e-05	52
HLA-B*51:01	1	697	705	9	GVENSVAYS	2.4e-05	63
HLA-A*31:01	1	700	709	10	NSVAYSNNSI	2.4e-05	55
HLA-B*07:02	1	700	708	9	NSVAYSNNS	2.4e-05	52
HLA-B*53:01	1	700	708	9	NSVAYSNNS	2.4e-05	38
HLA-B*53:01	1	706	714	9	NNSIAIPTN	2.4e-05	38
HLA-A*11:01	1	709	718	10	IAIPTNFTIS	2.4e-05	35
HLA-A*02:01	1	712	720	9	PTNFTISVT	2.4e-05	53
HLA-B*57:01	1	714	722	9	NFTISVTTE	2.4e-05	70
HLA-A*11:01	1	716	725	10	TISVTTEILP	2.4e-05	35
HLA-B*40:01	1	717	725	9	ISVTTEILP	2.4e-05	33
HLA-A*03:01	1	724	732	9	LPVSMTKTS	2.4e-05	47
HLA-B*57:01	1	732	741	10	SVDCTMYICG	2.4e-05	70
HLA-B*57:01	1	739	747	9	ICGDSTECs	2.4e-05	70
HLA-A*03:01	1	742	751	10	DSTECsnLLl	2.4e-05	47
HLA-A*01:01	1	761	770	10	NRALTGIAVE	2.4e-05	76
HLA-A*02:06	1	772	780	9	DKNTQEVFA	2.4e-05	63
HLA-B*40:01	1	779	788	10	FAQVKQIYKT	2.4e-05	33
HLA-B*44:03	1	782	791	10	VKQIYKTPPI	2.4e-05	38
HLA-B*07:02	1	785	793	9	IYKTPPIKD	2.4e-05	52
HLA-A*11:01	1	789	797	9	PPIKDFGGF	2.4e-05	35
HLA-A*30:01	1	789	797	9	PPIKDFGGF	2.4e-05	80
HLA-A*24:02	1	791	800	10	IKDFGGFNFS	2.4e-05	34
HLA-B*40:01	1	794	803	10	FGGFNFSQIL	2.4e-05	33
HLA-B*07:02	1	799	807	9	FSQILPDPS	2.4e-05	52
HLA-B*58:01	1	802	810	9	ILPDPSKPS	2.4e-05	58
HLA-A*02:06	1	806	815	10	PSKPSKRSFI	2.4e-05	63
HLA-A*68:01	1	807	816	10	SKPSKRSFIE	2.4e-05	48
HLA-B*15:01	1	808	816	9	KPSKRSFIE	2.4e-05	53
HLA-A*30:02	1	809	817	9	PSKRSFIED	2.4e-05	78
HLA-B*35:01	1	810	819	10	SKRSFIEDLL	2.4e-05	39
HLA-B*07:02	1	816	824	9	EDLLFNKVT	2.4e-05	52
HLA-A*68:01	1	820	828	9	FNKVTLADA	2.4e-05	48
HLA-A*26:01	1	822	831	10	KVTLADAGFI	2.4e-05	47
HLA-B*51:01	1	826	835	10	ADAGFIKQYG	2.4e-05	63
HLA-B*51:01	1	828	836	9	AGFIKQYGD	2.4e-05	63
HLA-A*02:01	1	830	839	10	FIKQYGDCLG	2.4e-05	53
HLA-A*02:01	1	834	842	9	YGDCLGDIA	2.4e-05	53
HLA-B*44:02	1	838	847	10	LGDIAAARDLI	2.4e-05	40
HLA-A*24:02	1	842	851	10	AARDLICAQK	2.4e-05	34
HLA-A*01:01	1	845	853	9	DLICAQKFN	2.4e-05	76
HLA-A*31:01	1	846	854	9	LICAQKFNG	2.4e-05	55
HLA-B*35:01	1	846	855	10	LICAQKFNGL	2.4e-05	39
HLA-A*11:01	1	847	855	9	ICAQKFNGL	2.4e-05	35
HLA-A*11:01	1	851	860	10	KFNGLTVLPP	2.4e-05	35
HLA-A*26:01	1	852	861	10	FNGLTVLPLP	2.4e-05	47
HLA-B*44:03	1	856	864	9	TVLPLLTD	2.4e-05	38
HLA-A*02:01	1	859	867	9	PPLLTDEMI	2.4e-05	53
HLA-A*30:02	1	860	869	10	PLLTDemiaQ	2.4e-05	78
HLA-A*02:06	1	863	871	9	TDEMIAQYT	2.4e-05	63
HLA-A*03:01	1	870	879	10	YTSALLAGTI	2.4e-05	47
HLA-A*30:01	1	875	884	10	LAGTITSGWT	2.4e-05	80
HLA-B*57:01	1	876	884	9	AGTITSGWT	2.4e-05	70
HLA-B*40:01	1	879	887	9	ITSGWTFGA	2.4e-05	33
HLA-A*68:01	1	881	890	10	SGWTFGAGAA	2.4e-05	48

HLA-B*35:01	1	903	912	10	FNGIGVTQNV	2.4e-05	39
HLA-A*24:02	1	905	914	10	GIGVTQNVLY	2.4e-05	34
HLA-B*40:01	1	909	918	10	TQNVLYENQK	2.4e-05	33
HLA-B*44:03	1	912	921	10	VLYENQKLIA	2.4e-05	38
HLA-B*53:01	1	915	923	9	ENQKLIANQ	2.4e-05	38
HLA-A*11:01	1	939	947	9	ASALGKLQD	2.4e-05	35
HLA-B*40:01	1	946	955	10	QDVVNQNAQA	2.4e-05	33
HLA-B*40:01	1	952	961	10	NAQALNTLVK	2.4e-05	33
HLA-A*03:01	1	963	972	10	LSSNFGAISS	2.4e-05	47
HLA-B*51:01	1	966	975	10	NFGAISSVLN	2.4e-05	63
HLA-A*68:01	1	968	977	10	GAISSVLNDI	2.4e-05	48
HLA-B*40:01	1	971	979	9	SSVLNDILS	2.4e-05	33
HLA-B*40:01	1	971	980	10	SSVLNDILSR	2.4e-05	33
HLA-A*24:02	1	973	982	10	VLNDILSRDL	2.4e-05	34
HLA-B*57:01	1	974	982	9	LNDILSRDL	2.4e-05	70
HLA-A*02:06	1	975	983	9	NDILSRDLK	2.4e-05	63
HLA-A*24:02	1	975	984	10	NDILSRDLKV	2.4e-05	34
HLA-B*44:02	1	980	989	10	RLDKVEAEVQ	2.4e-05	40
HLA-B*58:01	1	981	989	9	LDKVEAEVQ	2.4e-05	58
HLA-A*03:01	1	986	995	10	AEVQIDRLIT	2.4e-05	47
HLA-B*35:01	1	986	995	10	AEVQIDRLIT	2.4e-05	39
HLA-A*03:01	1	987	995	9	EVQIDRLIT	2.4e-05	47
HLA-B*35:01	1	992	1000	9	RLITGRLQS	2.4e-05	39
HLA-A*23:01	1	1006	1014	9	TQQLIRAAE	2.4e-05	36
HLA-A*26:01	1	1006	1015	10	TQQLIRAAEI	2.4e-05	47
HLA-A*24:02	1	1010	1019	10	IRAAEIRASA	2.4e-05	34
HLA-B*40:01	1	1014	1023	10	EIRASANLAA	2.4e-05	33
HLA-A*33:01	1	1022	1031	10	AATKMSECVL	2.4e-05	58
HLA-B*58:01	1	1024	1033	10	TKMSECVLGQ	2.4e-05	58
HLA-B*44:03	1	1025	1033	9	KMSECVLGQ	2.4e-05	38
HLA-A*02:01	1	1026	1035	10	MSECVLGQSK	2.4e-05	53
HLA-A*31:01	1	1033	1041	9	QSKRVDFCG	2.4e-05	55
HLA-A*11:01	1	1038	1046	9	DFCGKGYHL	2.4e-05	35
HLA-A*02:06	1	1039	1048	10	FCGKGYHLMS	2.4e-05	63
HLA-A*33:01	1	1039	1048	10	FCGKGYHLMS	2.4e-05	58
HLA-A*11:01	1	1040	1048	9	CGKGYHLMS	2.4e-05	35
HLA-A*68:01	1	1048	1056	9	SFPQSAPHG	2.4e-05	48
HLA-B*35:01	1	1048	1056	9	SFPQSAPHG	2.4e-05	39
HLA-A*31:01	1	1049	1058	10	FPQSAPHGVV	2.4e-05	55
HLA-B*40:01	1	1059	1067	9	FLHVTVVPA	2.4e-05	33
HLA-A*68:02	1	1063	1071	9	TYVPAQEKN	2.4e-05	54
HLA-A*32:01	1	1064	1073	10	YVPAQEKNFT	2.4e-05	41
HLA-B*40:01	1	1066	1075	10	PAQEKNFTTA	2.4e-05	33
HLA-B*53:01	1	1066	1075	10	PAQEKNFTTA	2.4e-05	38
HLA-A*32:01	1	1070	1079	10	KNFTTAPAIC	2.4e-05	41
HLA-A*23:01	1	1072	1080	9	FTTAPAICH	2.4e-05	36
HLA-B*08:01	1	1073	1081	9	TTAPAICHD	2.4e-05	71
HLA-A*24:02	1	1074	1083	10	TAPAICHDGK	2.4e-05	34
HLA-A*68:02	1	1076	1084	9	PAICHDGKA	2.4e-05	54
HLA-B*15:01	1	1085	1094	10	HFPREGVFVS	2.4e-05	53
HLA-A*02:06	1	1089	1098	10	EGVFSVNGTH	2.4e-05	63
HLA-B*40:01	1	1092	1101	10	FVSNGTHWFV	2.4e-05	33
HLA-A*02:03	1	1094	1102	9	SNGTHWFVT	2.4e-05	56
HLA-A*24:02	1	1094	1102	9	SNGTHWFVT	2.4e-05	34
HLA-A*23:01	1	1095	1104	10	NGTHWFVTQR	2.4e-05	36
HLA-B*53:01	1	1102	1111	10	TQRNFYEQPI	2.4e-05	38
HLA-B*44:03	1	1106	1115	10	FYEQPIITTD	2.4e-05	38
HLA-A*68:01	1	1107	1115	9	YEQPIITTD	2.4e-05	48
HLA-A*24:02	1	1110	1119	10	QIITTDNTFV	2.4e-05	34
HLA-B*40:01	1	1110	1119	10	QIITTDNTFV	2.4e-05	33
HLA-A*23:01	1	1116	1125	10	NTFVSGNCDV	2.4e-05	36
HLA-A*24:02	1	1116	1125	10	NTFVSGNCDV	2.4e-05	34
HLA-B*40:01	1	1117	1125	9	TFVSGNCDV	2.4e-05	33
HLA-B*58:01	1	1117	1125	9	TFVSGNCDV	2.4e-05	58
HLA-A*02:03	1	1124	1132	9	DVVIGIVNN	2.4e-05	56
HLA-B*44:03	1	1132	1140	9	NTVYDPLQP	2.4e-05	38

HLA-A*30:02	1	1136	1144	9	DPLQPELDS	2.4e-05	78
HLA-A*03:01	1	1139	1148	10	QPELDSFKEE	2.4e-05	47
HLA-B*44:03	1	1139	1147	9	QPELDSFKE	2.4e-05	38
HLA-B*40:01	1	1143	1151	9	DSFKEELDK	2.4e-05	33
HLA-A*68:01	1	1146	1155	10	KEELDKYFKN	2.4e-05	48
HLA-B*58:01	1	1147	1155	9	EELDKYFKN	2.4e-05	58
HLA-A*02:03	1	1149	1158	10	LDKYFKNHTS	2.4e-05	56
HLA-A*03:01	1	1150	1158	9	DKYFKNHTS	2.4e-05	47
HLA-A*68:01	1	1154	1163	10	KNHTSPDVDL	2.4e-05	48
HLA-B*07:02	1	1156	1164	9	HTSPDVDLG	2.4e-05	52
HLA-A*01:01	1	1161	1170	10	VDLGDISGIN	2.4e-05	76
HLA-A*68:02	1	1168	1177	10	GINASVVNIQ	2.4e-05	54
HLA-A*32:01	1	1176	1184	9	IQKEIDRLN	2.4e-05	41
HLA-A*30:02	1	1180	1189	10	IDRLNEVAKN	2.4e-05	78
HLA-A*30:02	1	1183	1191	9	LNEVAKNLN	2.4e-05	78
HLA-B*53:01	1	1188	1197	10	KNLNEIDL	2.4e-05	38
HLA-A*02:03	1	1200	1209	10	LGKYEQYIKW	2.4e-05	56
HLA-A*68:01	1	1208	1216	9	KWPWYIWL	2.4e-05	48
HLA-A*01:01	1	1209	1218	10	WPWYIWL	2.4e-05	76
HLA-A*02:01	1	1209	1218	10	WPWYIWL	2.4e-05	53
HLA-B*57:01	1	1209	1218	10	WPWYIWL	2.4e-05	70
HLA-A*30:02	1	1210	1219	10	PWYIWL	2.4e-05	78
HLA-A*68:02	1	1210	1219	10	PWYIWL	2.4e-05	54
HLA-B*08:01	1	1211	1220	10	WYIWL	2.4e-05	71
HLA-A*11:01	1	1212	1221	10	YIWL	2.4e-05	35
HLA-B*40:01	1	1215	1223	9	LGFIAGLIA	2.4e-05	33
HLA-A*26:01	1	1223	1232	10	AIVMVTIMLC	2.4e-05	47
HLA-A*33:01	1	1233	1241	9	CMTSCCSCCL	2.4e-05	58
HLA-A*30:02	1	1236	1244	9	SCCCLKGC	2.4e-05	78
HLA-B*08:01	1	1238	1246	9	CCLKGCCS	2.4e-05	71
HLA-A*30:02	1	1240	1248	9	CLKGCCSCG	2.4e-05	78
HLA-A*01:01	1	1243	1252	10	GCCSCGSCCK	2.4e-05	76
HLA-B*58:01	1	1243	1251	9	GCCSCGSCC	2.4e-05	58
HLA-A*33:01	1	1252	1260	9	KFEDDSEP	2.4e-05	58
HLA-B*57:01	1	1253	1261	9	FEDDSEPV	2.4e-05	70
HLA-A*24:02	1	1256	1264	9	DDSEPVKGC	2.4e-05	34
HLA-B*57:01	1	1258	1266	9	SEPVKGVK	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	NLTRTQLP	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	WFHAIHVS	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-A*24:02	1	74	82	9	NGTKRFANP	2.3e-05	35
HLA-A*02:01	1	79	88	10	FANPVL	2.3e-05	53
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	YFASTEKSN	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	DSKTQSLIV 2.3e-05	36
HLA-B*07:02	1	113	121	9	KTQSLIVN 2.3e-05	52
HLA-A*24:02	1	115	123	9	QSLIVNNA 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	DPFLGVYYHK 2.3e-05	53
HLA-B*53:01	1	141	150	10	LGVYYHKNNK 2.3e-05	39
HLA-A*02:01	1	143	151	9	VYYHKNNKS 2.3e-05	53
HLA-B*58:01	1	143	151	9	VYYHKNNKS 2.3e-05	59
HLA-A*03:01	1	144	153	10	YYHKNNKSWM 2.3e-05	48
HLA-A*26:01	1	146	154	9	HKNNKSWME 2.3e-05	48
HLA-A*02:03	1	147	155	9	KNNKSWMES 2.3e-05	56
HLA-A*02:06	1	148	157	10	NNKSWMESEF 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-A*02:06	1	206	215	10	KHTPINLVRG 2.3e-05	64
HLA-B*08:01	1	206	215	10	KHTPINLVRG 2.3e-05	72
HLA-B*44:02	1	206	215	10	KHTPINLVRG 2.3e-05	41
HLA-A*02:01	1	208	217	10	TPINLVRGLP 2.3e-05	53
HLA-B*07:02	1	210	218	9	INLVRGLPQ 2.3e-05	52
HLA-B*35:01	1	211	219	9	NLVRGLPQG 2.3e-05	40
HLA-B*58:01	1	215	224	10	GLPQGFSALE 2.3e-05	59
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	LVDLPIGIN 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*35:01	1	233	242	10	INITRFQTLH 2.3e-05	40
HLA-B*44:02	1	239	248	10	QTLHRSYLTP 2.3e-05	41
HLA-A*01:01	1	240	249	10	TLHRSYLTPG 2.3e-05	76
HLA-B*35:01	1	244	253	10	SYLTPGDSSS 2.3e-05	40
HLA-A*02:06	1	256	265	10	TAGAAAYYVG 2.3e-05	64
HLA-A*02:06	1	257	265	9	AGAAAYYVG 2.3e-05	64
HLA-B*40:01	1	257	266	10	AGAAAYYVGY 2.3e-05	33
HLA-B*51:01	1	261	270	10	AYYVGYLQPR 2.3e-05	64
HLA-A*11:01	1	262	271	10	YYVGYLQPR 2.3e-05	36
HLA-A*02:06	1	270	279	10	RTFLLKYNEN 2.3e-05	64
HLA-A*02:06	1	271	280	10	TFLLKYNENG 2.3e-05	64
HLA-A*33:01	1	272	281	10	FLLKYNENGT 2.3e-05	59
HLA-A*32:01	1	280	288	9	GTITDAVDC 2.3e-05	42
HLA-B*40:01	1	281	289	9	TITDAVDCA 2.3e-05	33
HLA-B*35:01	1	289	298	10	ALDPLSETKC 2.3e-05	40
HLA-A*02:06	1	291	299	9	DPLSETKCT 2.3e-05	64
HLA-B*35:01	1	293	301	9	LSETKCTLK 2.3e-05	40
HLA-B*44:02	1	296	304	9	TKCTLKSFT 2.3e-05	41

HLA-B*53:01	1	312	320	9	TSNFRVQPT	2.3e-05	39
HLA-B*07:02	1	320	328	9	TESIVRFPN	2.3e-05	52
HLA-B*07:02	1	321	330	10	ESIVRFPNIT	2.3e-05	52
HLA-A*33:01	1	322	331	10	SIVRFPNITN	2.3e-05	59
HLA-B*53:01	1	322	330	9	SIVRFPNIT	2.3e-05	39
HLA-A*02:03	1	334	342	9	PFGEVFNAT	2.3e-05	56
HLA-B*40:01	1	335	343	9	FGEVFNATR	2.3e-05	33
HLA-A*02:01	1	339	348	10	FNATRFASVY	2.3e-05	53
HLA-A*68:01	1	342	351	10	TRFASVYAWN	2.3e-05	49
HLA-B*35:01	1	342	351	10	TRFASVYAWN	2.3e-05	40
HLA-B*44:02	1	343	352	10	RFASVYAWN	2.3e-05	41
HLA-B*07:02	1	347	356	10	VYAWNRRKRIS	2.3e-05	52
HLA-A*68:02	1	354	363	10	RISNCVADYS	2.3e-05	55
HLA-A*24:02	1	360	368	9	ADYSVLYNS	2.3e-05	35
HLA-A*26:01	1	361	370	10	DYSVLYNSAS	2.3e-05	48
HLA-A*11:01	1	370	378	9	SFSTFKCYG	2.3e-05	36
HLA-A*24:02	1	372	381	10	STFKCYGVSP	2.3e-05	35
HLA-A*32:01	1	382	391	10	TKLNDLCFTN	2.3e-05	42
HLA-A*68:01	1	383	391	9	KLNDLCFTN	2.3e-05	49
HLA-B*35:01	1	387	395	9	LCFTNVYAD	2.3e-05	40
HLA-A*03:01	1	388	397	10	CFTNVYADSF	2.3e-05	48
HLA-A*23:01	1	388	396	9	CFTNVYADS	2.3e-05	36
HLA-B*40:01	1	391	400	10	NVYADSFVIR	2.3e-05	33
HLA-A*02:01	1	392	401	10	VYADSFVIRG	2.3e-05	53
HLA-A*02:03	1	392	401	10	VYADSFVIRG	2.3e-05	56
HLA-A*68:01	1	394	403	10	ADSFVIRGDE	2.3e-05	49
HLA-B*53:01	1	395	403	9	DSFVIRGDE	2.3e-05	39
HLA-B*51:01	1	397	406	10	FVIRGDEVRO	2.3e-05	64
HLA-A*03:01	1	402	411	10	DEVROIAPGQ	2.3e-05	48
HLA-B*15:01	1	402	410	9	DEVROIAPG	2.3e-05	53
HLA-A*03:01	1	403	412	10	EVROIAPGQT	2.3e-05	48
HLA-A*33:01	1	407	416	10	IAPGQTGNIA	2.3e-05	59
HLA-A*11:01	1	409	418	10	PGQTGNIADY	2.3e-05	36
HLA-A*32:01	1	409	418	10	PGQTGNIADY	2.3e-05	42
HLA-A*02:01	1	411	420	10	QTGNIADYNY	2.3e-05	53
HLA-A*31:01	1	414	423	10	NIADYNYKLP	2.3e-05	55
HLA-B*44:03	1	414	423	10	NIADYNYKLP	2.3e-05	38
HLA-A*24:02	1	423	431	9	PDDFTGCVI	2.3e-05	35
HLA-A*02:01	1	432	441	10	AWNSNNLDSK	2.3e-05	53
HLA-B*07:02	1	433	442	10	WNSNNLDSKV	2.3e-05	52
HLA-B*44:03	1	436	444	9	NNLDSKVG	2.3e-05	38
HLA-B*57:01	1	436	444	9	NNLDSKVG	2.3e-05	71
HLA-A*02:03	1	438	446	9	LDSKVG	2.3e-05	56
HLA-A*24:02	1	448	456	9	YLYRFRKS	2.3e-05	35
HLA-B*44:03	1	456	464	9	SNLKPFRD	2.3e-05	38
HLA-A*02:01	1	466	475	10	STEIQAGST	2.3e-05	53
HLA-B*44:02	1	466	474	9	STEIQAGS	2.3e-05	41
HLA-A*23:01	1	468	476	9	EIQAGSTP	2.3e-05	36
HLA-B*57:01	1	469	478	10	IYQAGSTPCN	2.3e-05	71
HLA-A*02:01	1	473	481	9	GSTPCNGVK	2.3e-05	53
HLA-A*02:03	1	478	486	9	NGVKGFNCY	2.3e-05	56
HLA-B*07:02	1	479	488	10	GVKGFNCYFP	2.3e-05	52
HLA-A*31:01	1	495	503	9	QPTYGVGYQ	2.3e-05	55
HLA-A*24:02	1	512	520	9	FELLHAPAT	2.3e-05	35
HLA-A*32:01	1	514	523	10	LLHAPATVCG	2.3e-05	42
HLA-B*51:01	1	514	523	10	LLHAPATVCG	2.3e-05	64
HLA-B*07:02	1	515	524	10	LHAPATVCGP	2.3e-05	52
HLA-A*11:01	1	520	529	10	TVCGPKKSTN	2.3e-05	36
HLA-B*57:01	1	524	532	9	PKKSTNLVK	2.3e-05	71
HLA-A*32:01	1	539	548	10	NFNGLTGTGV	2.3e-05	42
HLA-B*53:01	1	539	547	9	NFNGLTGTG	2.3e-05	39
HLA-B*58:01	1	541	550	10	NGLTGTGVLT	2.3e-05	59
HLA-A*11:01	1	542	550	9	GLTGTGVLT	2.3e-05	36
HLA-A*02:03	1	546	554	9	TGVLTESNK	2.3e-05	56
HLA-B*08:01	1	546	555	10	TGVLTESNKK	2.3e-05	72
HLA-A*02:01	1	550	559	10	TESNKKFLPF	2.3e-05	53



HLA-A*02:01	1	552	560	9	SNKKFLPFQ	2.3e-05	53
HLA-A*02:01	1	553	562	10	NKKFLPFQF	2.3e-05	53
HLA-B*44:02	1	558	566	9	PFQQFGRDI	2.3e-05	41
HLA-B*53:01	1	558	566	9	PFQQFGRDI	2.3e-05	39
HLA-A*01:01	1	560	568	9	QQFGRDIAD	2.3e-05	76
HLA-A*23:01	1	561	569	9	QFGRDIADT	2.3e-05	36
HLA-A*23:01	1	566	574	9	IADTTDAVR	2.3e-05	36
HLA-B*44:02	1	567	575	9	ADTTDAVRD	2.3e-05	41
HLA-A*68:01	1	570	578	9	TDAVRDPQT	2.3e-05	49
HLA-B*07:02	1	575	583	9	DPQMLEILD	2.3e-05	52
HLA-A*03:01	1	581	590	10	ILDITPCFSG	2.3e-05	48
HLA-B*07:02	1	583	592	10	DITPCFSGGV	2.3e-05	52
HLA-B*44:03	1	591	599	9	GVSVITPGT	2.3e-05	38
HLA-A*11:01	1	592	600	9	VSVITPGTN	2.3e-05	36
HLA-A*02:01	1	594	603	10	VITPGTNTSN	2.3e-05	53
HLA-B*44:02	1	594	602	9	VITPGTNTS	2.3e-05	41
HLA-A*02:01	1	602	611	10	SNQVAVLYQG	2.3e-05	53
HLA-A*23:01	1	606	614	9	AVLYQGVNC	2.3e-05	36
HLA-B*44:03	1	606	614	9	AVLYQGVNC	2.3e-05	38
HLA-A*68:01	1	610	619	10	QGVNCTEVPV	2.3e-05	49
HLA-A*26:01	1	611	620	10	GVNCTEVPVA	2.3e-05	48
HLA-B*07:02	1	612	620	9	VNCTEVPVA	2.3e-05	52
HLA-B*44:02	1	612	621	10	VNCTEVPVAI	2.3e-05	41
HLA-B*44:03	1	612	621	10	VNCTEVPVAI	2.3e-05	38
HLA-B*53:01	1	612	620	9	VNCTEVPVA	2.3e-05	39
HLA-A*68:01	1	615	624	10	TEVPVAIHAD	2.3e-05	49
HLA-A*11:01	1	619	628	10	VAIHADQLTP	2.3e-05	36
HLA-A*26:01	1	619	628	10	VAIHADQLTP	2.3e-05	48
HLA-A*31:01	1	619	627	9	VAIHADQLT	2.3e-05	55
HLA-A*23:01	1	626	634	9	LTPTWRVYS	2.3e-05	36
HLA-B*40:01	1	634	643	10	STGSNVFQTR	2.3e-05	33
HLA-B*44:02	1	637	645	9	SNVFQTRAG	2.3e-05	41
HLA-A*02:01	1	643	652	10	RAGCLIGAEH	2.3e-05	53
HLA-B*51:01	1	646	654	9	CLIGAEHVN	2.3e-05	64
HLA-A*26:01	1	648	656	9	IGAEHVNNS	2.3e-05	48
HLA-A*02:01	1	650	659	10	AEHVNSYEC	2.3e-05	53
HLA-A*68:02	1	652	660	9	HVNNSYEC	2.3e-05	55
HLA-B*15:01	1	657	666	10	YECDIPIGAG	2.3e-05	53
HLA-B*44:02	1	658	666	9	ECDIPIGAG	2.3e-05	41
HLA-A*30:02	1	659	668	10	CDIPIGAGIC	2.3e-05	78
HLA-B*08:01	1	662	671	10	PIGAGICASY	2.3e-05	72
HLA-B*15:01	1	668	676	9	CASYQTQTN	2.3e-05	53
HLA-B*35:01	1	669	678	10	ASYQTQTNSP	2.3e-05	40
HLA-A*24:02	1	686	695	10	SQSIIAYTMS	2.3e-05	35
HLA-B*53:01	1	687	695	9	QSIIAYTMS	2.3e-05	39
HLA-A*11:01	1	693	702	10	TMSLGVNSV	2.3e-05	36
HLA-B*53:01	1	693	701	9	TMSLGVNS	2.3e-05	39
HLA-A*33:01	1	695	703	9	SLGVNSVA	2.3e-05	59
HLA-B*57:01	1	695	703	9	SLGVNSVA	2.3e-05	71
HLA-A*33:01	1	697	705	9	GVNSVAYS	2.3e-05	59
HLA-B*08:01	1	697	705	9	GVNSVAYS	2.3e-05	72
HLA-A*02:06	1	698	706	9	VNSVAYSN	2.3e-05	64
HLA-B*15:01	1	711	720	10	IPNFTISVT	2.3e-05	53
HLA-B*07:02	1	716	725	10	TISVTTEILP	2.3e-05	52
HLA-B*08:01	1	718	727	10	SVTTEILPVS	2.3e-05	72
HLA-A*23:01	1	719	727	9	VTTEILPVS	2.3e-05	36
HLA-A*68:02	1	726	734	9	VSMTKTSVD	2.3e-05	55
HLA-B*44:03	1	727	735	9	SMTKTSVDC	2.3e-05	38
HLA-A*23:01	1	729	738	10	TKTSVDCTMY	2.3e-05	36
HLA-A*02:01	1	743	752	10	STECNLLLQ	2.3e-05	53
HLA-A*31:01	1	745	754	10	ECSNLLLQYG	2.3e-05	55
HLA-A*11:01	1	748	756	9	NLLLQYGSF	2.3e-05	36
HLA-A*24:02	1	751	759	9	LQYGSFCTQ	2.3e-05	35
HLA-A*26:01	1	756	765	10	FCTQLNRALT	2.3e-05	48
HLA-A*31:01	1	760	768	9	LNRALTGIA	2.3e-05	55
HLA-B*15:01	1	764	773	10	LTGIAVEQDK	2.3e-05	53

HLA-A*68:02	1	768	777	10	AVEQDKNTQE	2.3e-05	55
HLA-A*11:01	1	769	778	10	VEQDKNTQEV	2.3e-05	36
HLA-A*03:01	1	771	780	10	QDKNTQEVFA	2.3e-05	48
HLA-A*32:01	1	773	781	9	KNTQEVFAQ	2.3e-05	42
HLA-B*40:01	1	789	797	9	PPIKDFGGF	2.3e-05	33
HLA-B*58:01	1	793	801	9	DFGGFNFSQ	2.3e-05	59
HLA-A*26:01	1	794	803	10	FGGFNFSQIL	2.3e-05	48
HLA-A*30:02	1	797	805	9	FNFSQILPD	2.3e-05	78
HLA-B*58:01	1	797	806	10	FNFSQILPDP	2.3e-05	59
HLA-A*03:01	1	798	806	9	NFSQILPDP	2.3e-05	48
HLA-A*24:02	1	804	812	9	PDPSKPSKR	2.3e-05	35
HLA-A*02:01	1	806	814	9	PSKPSKRSF	2.3e-05	53
HLA-B*44:03	1	813	821	9	SFIEDLLFN	2.3e-05	38
HLA-B*08:01	1	823	832	10	VTLADAGFIK	2.3e-05	72
HLA-B*40:01	1	823	831	9	VTLADAGFI	2.3e-05	33
HLA-B*44:03	1	823	832	10	VTLADAGFIK	2.3e-05	38
HLA-B*58:01	1	834	842	9	YGDCLGDIA	2.3e-05	59
HLA-B*57:01	1	837	845	9	CLGDIAARD	2.3e-05	71
HLA-A*68:01	1	838	846	9	LGDIAARDL	2.3e-05	49
HLA-B*15:01	1	838	846	9	LGDIAARDL	2.3e-05	53
HLA-B*44:02	1	838	846	9	LGDIAARDL	2.3e-05	41
HLA-B*51:01	1	839	848	10	GDIAARDLIC	2.3e-05	64
HLA-A*02:01	1	847	856	10	ICAQKFNGLT	2.3e-05	53
HLA-A*33:01	1	848	857	10	CAQKFNGLTV	2.3e-05	59
HLA-A*68:01	1	853	862	10	NGLTVLPPL	2.3e-05	49
HLA-B*44:02	1	853	861	9	NGLTVLPPL	2.3e-05	41
HLA-B*07:02	1	863	871	9	TDEMIAQYT	2.3e-05	52
HLA-B*35:01	1	863	871	9	TDEMIAQYT	2.3e-05	40
HLA-A*68:01	1	864	872	9	DEMIAQYTS	2.3e-05	49
HLA-A*68:01	1	871	880	10	TSALLAGTIT	2.3e-05	49
HLA-A*03:01	1	872	880	9	SALLAGTIT	2.3e-05	48
HLA-A*23:01	1	873	881	9	ALLAGTITS	2.3e-05	36
HLA-A*33:01	1	877	886	10	GTITSGWTFG	2.3e-05	59
HLA-A*02:01	1	878	886	9	TIITSGWTFG	2.3e-05	53
HLA-B*51:01	1	880	888	9	TSGWTFGAG	2.3e-05	64
HLA-A*11:01	1	881	890	10	SGWTFGAGAA	2.3e-05	36
HLA-A*02:01	1	882	890	9	GWTFGAGAA	2.3e-05	53
HLA-A*68:02	1	882	890	9	GWTFGAGAA	2.3e-05	55
HLA-B*15:01	1	882	890	9	GWTFGAGAA	2.3e-05	53
HLA-B*51:01	1	884	892	9	TFGAGAALQ	2.3e-05	64
HLA-B*58:01	1	884	892	9	TFGAGAALQ	2.3e-05	59
HLA-B*08:01	1	896	904	9	AMQMAYRFN	2.3e-05	72
HLA-A*02:01	1	900	909	10	AYRFNGIGVT	2.3e-05	53
HLA-B*53:01	1	901	909	9	YRFNGIGVT	2.3e-05	39
HLA-B*35:01	1	909	917	9	TQNVLYENQ	2.3e-05	40
HLA-A*23:01	1	913	922	10	LYENQKLIAN	2.3e-05	36
HLA-B*15:01	1	923	932	10	QFNSAIGKIQ	2.3e-05	53
HLA-A*32:01	1	926	934	9	SAIGKIQDS	2.3e-05	42
HLA-B*51:01	1	929	938	10	GKIQDSLSST	2.3e-05	64
HLA-A*24:02	1	930	938	9	KIQDSLSST	2.3e-05	35
HLA-A*31:01	1	931	940	10	IQDSLSSTAS	2.3e-05	55
HLA-A*02:03	1	935	944	10	LSSTASALGK	2.3e-05	56
HLA-B*35:01	1	941	949	9	ALGKLQDVV	2.3e-05	40
HLA-B*58:01	1	943	952	10	GKLQDVVNQN	2.3e-05	59
HLA-A*24:02	1	944	952	9	KLQDVVNQN	2.3e-05	35
HLA-B*51:01	1	944	952	9	KLQDVVNQN	2.3e-05	64
HLA-A*03:01	1	948	957	10	VVNQNAQALN	2.3e-05	48
HLA-A*68:01	1	948	957	10	VVNQNAQALN	2.3e-05	49
HLA-B*51:01	1	949	958	10	VNQNAQALNT	2.3e-05	64
HLA-B*07:02	1	962	971	10	QLSSNFGAIS	2.3e-05	52
HLA-A*02:01	1	963	972	10	LSSNFGAISS	2.3e-05	53
HLA-A*11:01	1	963	972	10	LSSNFGAISS	2.3e-05	36
HLA-A*31:01	1	966	975	10	NFGAISSVLN	2.3e-05	55
HLA-B*35:01	1	968	976	9	GAISSVLND	2.3e-05	40
HLA-B*40:01	1	968	977	10	GAISSVLNDI	2.3e-05	33
HLA-B*35:01	1	981	989	9	LDKVEAEVQ	2.3e-05	40

HLA-A*11:01	1	995	1003	9	TGRLQSLQT	2.3e-05	36
HLA-B*40:01	1	998	1007	10	LQSLQTYVTQ	2.3e-05	33
HLA-B*53:01	1	999	1008	10	QSLQTYVTQQ	2.3e-05	39
HLA-B*44:03	1	1016	1024	9	RASANLAAT	2.3e-05	38
HLA-A*31:01	1	1018	1027	10	SANLAATKMS	2.3e-05	55
HLA-A*03:01	1	1019	1027	9	ANLAATKMS	2.3e-05	48
HLA-A*31:01	1	1023	1032	10	ATKMSECVLG	2.3e-05	55
HLA-B*44:03	1	1034	1042	9	SKRVDFCGK	2.3e-05	38
HLA-B*40:01	1	1038	1047	10	DFCGKGYHLM	2.3e-05	33
HLA-A*03:01	1	1040	1048	9	CGKGYHLM	2.3e-05	48
HLA-A*02:01	1	1054	1062	9	PHGVVFLHV	2.3e-05	53
HLA-A*02:03	1	1054	1062	9	PHGVVFLHV	2.3e-05	56
HLA-A*31:01	1	1054	1062	9	PHGVVFLHV	2.3e-05	55
HLA-B*53:01	1	1059	1067	9	FLHVTYVPA	2.3e-05	39
HLA-A*26:01	1	1065	1074	10	VPAQEKNFTT	2.3e-05	48
HLA-A*24:02	1	1067	1076	10	AQEKNFTTAP	2.3e-05	35
HLA-A*31:01	1	1072	1081	10	FTTAPAICH	2.3e-05	55
HLA-B*44:03	1	1081	1089	9	DGKAHFPRE	2.3e-05	38
HLA-B*53:01	1	1081	1089	9	DGKAHFPRE	2.3e-05	39
HLA-A*32:01	1	1085	1094	10	HFPREGVFVS	2.3e-05	42
HLA-B*44:02	1	1086	1094	9	FPREGVFVS	2.3e-05	41
HLA-A*30:02	1	1087	1095	9	PREGVFVSN	2.3e-05	78
HLA-B*51:01	1	1088	1096	9	REGVFVSN	2.3e-05	64
HLA-B*07:02	1	1089	1097	9	EGVFVSN	2.3e-05	52
HLA-B*40:01	1	1098	1107	10	HWFVTQRNFY	2.3e-05	33
HLA-A*68:01	1	1102	1111	10	TQRNFYEPQI	2.3e-05	49
HLA-A*33:01	1	1108	1117	10	EPQIITDNT	2.3e-05	59
HLA-A*11:01	1	1111	1120	10	IITDNTFVS	2.3e-05	36
HLA-B*40:01	1	1122	1130	9	NCDVIGIV	2.3e-05	33
HLA-B*58:01	1	1124	1132	9	DVIGIVNN	2.3e-05	59
HLA-A*03:01	1	1128	1137	10	GIVNNTVYDP	2.3e-05	48
HLA-A*30:02	1	1131	1139	9	NNTVYDPLQ	2.3e-05	78
HLA-A*30:02	1	1141	1150	10	ELDSFKEELD	2.3e-05	78
HLA-B*58:01	1	1145	1154	10	FKEELDKYFK	2.3e-05	59
HLA-A*02:03	1	1147	1156	10	EELDKYFKNH	2.3e-05	56
HLA-A*03:01	1	1148	1157	10	ELDKYFKNHT	2.3e-05	48
HLA-B*58:01	1	1154	1162	9	KNHTSPDVD	2.3e-05	59
HLA-B*44:02	1	1162	1171	10	DLGDISGINA	2.3e-05	41
HLA-B*53:01	1	1167	1175	9	SGINASVVN	2.3e-05	39
HLA-A*02:01	1	1174	1182	9	VNIQKEIDR	2.3e-05	53
HLA-B*35:01	1	1174	1183	10	VNIQKEIDRL	2.3e-05	40
HLA-B*51:01	1	1174	1182	9	VNIQKEIDR	2.3e-05	64
HLA-B*44:03	1	1175	1184	10	NIQKEIDRLN	2.3e-05	38
HLA-B*51:01	1	1176	1185	10	IQKEIDRLNE	2.3e-05	64
HLA-A*02:01	1	1180	1188	9	IDRLNEVAK	2.3e-05	53
HLA-B*44:03	1	1181	1189	9	DRLNEVAKN	2.3e-05	38
HLA-B*53:01	1	1184	1192	9	NEVAKNLNE	2.3e-05	39
HLA-A*03:01	1	1191	1200	10	NESLIDLQEL	2.3e-05	48
HLA-A*31:01	1	1192	1201	10	ESLIDLQELG	2.3e-05	55
HLA-A*68:01	1	1195	1204	10	IDLQELGKYE	2.3e-05	49
HLA-B*51:01	1	1195	1204	10	IDLQELGKYE	2.3e-05	64
HLA-A*68:02	1	1200	1208	9	LGKYEQYIK	2.3e-05	55
HLA-A*23:01	1	1201	1210	10	GKYEQYIKWP	2.3e-05	36
HLA-A*26:01	1	1201	1210	10	GKYEQYIKWP	2.3e-05	48
HLA-A*02:06	1	1202	1210	9	KYEQYIKWP	2.3e-05	64
HLA-B*44:03	1	1212	1221	10	YIWLGFIAGL	2.3e-05	38
HLA-B*58:01	1	1214	1222	9	WLGFIAGLI	2.3e-05	59
HLA-A*68:01	1	1219	1227	9	AGLIAIVMV	2.3e-05	49
HLA-B*07:02	1	1225	1233	9	VMVTIMLCC	2.3e-05	52
HLA-A*30:02	1	1230	1238	9	MLCCMTSCC	2.3e-05	78
HLA-A*33:01	1	1230	1238	9	MLCCMTSCC	2.3e-05	59
HLA-B*15:01	1	1232	1241	10	CCMTSCCSCL	2.3e-05	53
HLA-B*53:01	1	1233	1241	9	CMTSCCSCL	2.3e-05	39
HLA-B*57:01	1	1236	1245	10	SCCSCLKGCC	2.3e-05	71
HLA-A*68:02	1	1239	1247	9	SCLKGCCSC	2.3e-05	55
HLA-A*30:02	1	1244	1252	9	CCSCGSCCK	2.3e-05	78

HLA-B*57:01	1	1255	1264	10	EDDSEPVLK 2.3e-05	71
HLA-A*02:03	1	1258	1266	9	SEPVLKGVK 2.3e-05	56
HLA-A*24:02	1	1261	1270	10	VLKGVKLHYT 2.3e-05	35
HLA-A*68:02	1	1262	1270	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	VYYPKVFRS 2.2e-05	39
HLA-B*57:01	1	39	48	10	PKVFRSSVL 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	AHVSGTNG 2.2e-05	36
HLA-B*40:01	1	68	76	9	IHVSGTNGT 2.2e-05	34
HLA-A*31:01	1	72	81	10	GTNGTKRFAN 2.2e-05	56
HLA-B*53:01	1	75	84	10	GTRFANPVL 2.2e-05	39
HLA-B*08:01	1	80	89	10	ANPVLPFNDG 2.2e-05	73
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	NNATNVVIVK 2.2e-05	42
HLA-A*03:01	1	124	132	9	TNVVIVKCE 2.2e-05	49
HLA-B*58:01	1	125	134	10	NVVIVKCEFQ 2.2e-05	60
HLA-A*32:01	1	127	136	10	VIVKCEFQFC 2.2e-05	42
HLA-B*40:01	1	127	135	9	VIVKCEFQF 2.2e-05	34
HLA-B*51:01	1	127	136	10	VIVKCEFQFC 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	GVYYHKNK 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	QPFLMDLEGK 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*44:03	1	206	215	10	KHTPINLVRG 2.2e-05	39
HLA-A*02:06	1	209	217	9	PINLVRGLP 2.2e-05	64
HLA-A*68:02	1	209	217	9	PINLVRGLP 2.2e-05	55
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-A*68:01	1	243	251	9	RSYLTPGDS 2.2e-05	50
HLA-A*26:01	1	244	253	10	SYLTPGDSSS 2.2e-05	49
HLA-B*15:01	1	250	259	10	DSSSGWTAGA 2.2e-05	54
HLA-B*40:01	1	258	267	10	GAAAYVGYL 2.2e-05	34

HLA-B*08:01	1	270	279	10	RTFLLKYNNEN 2.2e-05	73
HLA-B*58:01	1	276	285	10	YNENGTITDA 2.2e-05	60
HLA-A*11:01	1	277	285	9	NENGTITDA 2.2e-05	36
HLA-A*68:02	1	278	287	10	ENGTITDAVD 2.2e-05	55
HLA-A*02:01	1	279	288	10	NGTITDAVDC 2.2e-05	54
HLA-B*08:01	1	280	289	10	GTITDAVDCA 2.2e-05	73
HLA-A*68:02	1	282	291	10	ITDAVDCALD 2.2e-05	55
HLA-A*68:01	1	285	294	10	AVDCALDPLS 2.2e-05	50
HLA-B*51:01	1	286	294	9	VDCALDPLS 2.2e-05	65
HLA-B*58:01	1	290	298	9	LDPLSETKC 2.2e-05	60
HLA-A*33:01	1	293	302	10	LSETKCTLKS 2.2e-05	60
HLA-A*31:01	1	294	302	9	SETKCTLKS 2.2e-05	56
HLA-A*23:01	1	296	305	10	TKCTLKSFTV 2.2e-05	37
HLA-A*33:01	1	296	304	9	TKCTLKSFT 2.2e-05	60
HLA-A*33:01	1	300	309	10	LKSFTVEKGI 2.2e-05	60
HLA-B*08:01	1	300	308	9	LKSFTVEKG 2.2e-05	73
HLA-B*58:01	1	300	308	9	LKSFTVEKG 2.2e-05	60
HLA-B*44:02	1	302	311	10	SFTVEKGIYQ 2.2e-05	42
HLA-A*03:01	1	306	315	10	EKGIYQTSNF 2.2e-05	49
HLA-B*35:01	1	310	319	10	YQTSNFRVQP 2.2e-05	40
HLA-B*53:01	1	310	319	10	YQTSNFRVQP 2.2e-05	39
HLA-A*26:01	1	312	321	10	TSNFRVQPTE 2.2e-05	49
HLA-A*02:03	1	319	327	9	PTESIVRFP 2.2e-05	57
HLA-A*02:01	1	326	335	10	FPNITNLCPF 2.2e-05	54
HLA-B*07:02	1	327	335	9	PNITNLCPF 2.2e-05	53
HLA-A*31:01	1	328	337	10	NITNLCPFGE 2.2e-05	56
HLA-B*15:01	1	330	338	9	TNLCPFGEV 2.2e-05	54
HLA-A*30:01	1	331	340	10	NLCPFGEVFN 2.2e-05	81
HLA-A*03:01	1	332	341	10	LCPFGEVFNA 2.2e-05	49
HLA-A*30:02	1	333	342	10	CPFGEVFNAT 2.2e-05	79
HLA-A*23:01	1	336	345	10	GEVFNATRFA 2.2e-05	37
HLA-A*02:01	1	338	346	9	VFNATRFAS 2.2e-05	54
HLA-B*44:02	1	338	346	9	VFNATRFAS 2.2e-05	42
HLA-A*68:01	1	343	351	9	RFASVYAWN 2.2e-05	50
HLA-A*02:03	1	344	353	10	FASVYAWNRK 2.2e-05	57
HLA-B*44:03	1	348	356	9	YAWNRKRIS 2.2e-05	39
HLA-A*03:01	1	349	358	10	AWNRKRISNC 2.2e-05	49
HLA-B*15:01	1	350	359	10	WNRKRISNCV 2.2e-05	54
HLA-A*01:01	1	352	360	9	RKRISNCVA 2.2e-05	77
HLA-B*57:01	1	353	361	9	KRISNCVAD 2.2e-05	72
HLA-A*33:01	1	355	363	9	ISNCVADYS 2.2e-05	60
HLA-A*03:01	1	356	364	9	SNCVADYSV 2.2e-05	49
HLA-B*44:03	1	363	372	10	SVLYNSASF 2.2e-05	39
HLA-B*44:03	1	365	373	9	LYNSASFST 2.2e-05	39
HLA-A*26:01	1	370	379	10	SFSTFKCYGV 2.2e-05	49
HLA-B*44:02	1	372	381	10	STFKCYGVSP 2.2e-05	42
HLA-B*07:02	1	378	386	9	GVSPTKLND 2.2e-05	53
HLA-A*02:03	1	380	388	9	SPTKLNDLC 2.2e-05	57
HLA-A*01:01	1	382	391	10	TKLNDLCFTN 2.2e-05	77
HLA-B*51:01	1	382	390	9	TKLNDLCFT 2.2e-05	65
HLA-A*24:02	1	383	391	9	KLNDLCFTN 2.2e-05	35
HLA-A*11:01	1	385	394	10	NLDCFTNVYA 2.2e-05	36
HLA-B*08:01	1	386	395	10	DLCFTNVYAD 2.2e-05	73
HLA-A*02:06	1	387	395	9	LCFTNVYAD 2.2e-05	64
HLA-A*02:06	1	387	396	10	LCFTNVYADS 2.2e-05	64
HLA-B*57:01	1	387	396	10	LCFTNVYADS 2.2e-05	72
HLA-B*58:01	1	394	403	10	ADSFVIRGDE 2.2e-05	60
HLA-A*30:01	1	401	409	9	GDEVQRQIAP 2.2e-05	81
HLA-A*24:02	1	404	413	10	VRQIAPGQTG 2.2e-05	35
HLA-B*07:02	1	411	420	10	QTGNIADYNY 2.2e-05	53
HLA-A*02:01	1	413	421	9	GNIADYNYK 2.2e-05	54
HLA-B*35:01	1	420	429	10	YKLPDDFTGC 2.2e-05	40
HLA-B*58:01	1	427	436	10	TGCVIAWNSN 2.2e-05	60
HLA-A*30:01	1	428	437	10	GCVIAWNSNN 2.2e-05	81
HLA-A*02:01	1	431	439	9	IAWNSNNLD 2.2e-05	54
HLA-A*02:03	1	431	440	10	IAWNSNNLDS 2.2e-05	57

HLA-A*02:03	1	432	441	10	AWNSNNLDSK 2.2e-05	57
HLA-A*33:01	1	433	442	10	WNSNNLDSKV 2.2e-05	60
HLA-B*35:01	1	439	447	9	DSKVGGNYN 2.2e-05	40
HLA-B*57:01	1	447	456	10	NYLYRFRKFS 2.2e-05	72
HLA-A*31:01	1	448	457	10	YLYRFRKSN 2.2e-05	56
HLA-A*33:01	1	448	457	10	YLYRFRKSN 2.2e-05	60
HLA-B*44:02	1	449	458	10	LYRFRKSNL 2.2e-05	42
HLA-B*40:01	1	450	459	10	YRFRKSNLK 2.2e-05	34
HLA-B*51:01	1	456	464	9	SNLKPFRD 2.2e-05	65
HLA-B*53:01	1	456	465	10	SNLKPFRDI 2.2e-05	39
HLA-A*30:02	1	458	467	10	LKPFRDIST 2.2e-05	79
HLA-A*68:02	1	462	471	10	ERDISTEIQ 2.2e-05	55
HLA-A*33:01	1	464	473	10	DISTEIQAG 2.2e-05	60
HLA-A*31:01	1	465	474	10	ISTEIQAGS 2.2e-05	56
HLA-A*33:01	1	467	475	9	TEIQAGST 2.2e-05	60
HLA-A*68:01	1	467	475	9	TEIQAGST 2.2e-05	50
HLA-A*33:01	1	470	478	9	YQAGSTPCN 2.2e-05	60
HLA-B*07:02	1	474	482	9	STPCNGVK 2.2e-05	53
HLA-B*51:01	1	491	499	9	SYGFQPTY 2.2e-05	65
HLA-B*40:01	1	498	506	9	YGVGYQPY 2.2e-05	34
HLA-A*02:01	1	505	513	9	YRVVLSFE 2.2e-05	54
HLA-B*44:03	1	506	515	10	RVVLSFELL 2.2e-05	39
HLA-A*31:01	1	515	524	10	LHAPATVCGP 2.2e-05	56
HLA-A*33:01	1	515	523	9	LHAPATVCG 2.2e-05	60
HLA-B*07:02	1	519	527	9	ATVCGPKKS 2.2e-05	53
HLA-A*33:01	1	520	529	10	TVCGPKKSTN 2.2e-05	60
HLA-A*26:01	1	521	530	10	VCGPKKSTNL 2.2e-05	49
HLA-B*44:03	1	525	533	9	KKSTNLVKN 2.2e-05	39
HLA-B*57:01	1	525	533	9	KKSTNLVKN 2.2e-05	72
HLA-A*26:01	1	528	536	9	TNLVKNKCV 2.2e-05	49
HLA-B*08:01	1	528	537	10	TNLVKNKCVN 2.2e-05	73
HLA-A*02:03	1	532	540	9	KNKCVNFNF 2.2e-05	57
HLA-A*33:01	1	538	547	10	FNFNGLTGTG 2.2e-05	60
HLA-B*58:01	1	538	547	10	FNFNGLTGTG 2.2e-05	60
HLA-A*26:01	1	542	550	9	GLTGTGVL 2.2e-05	49
HLA-A*68:01	1	542	550	9	GLTGTGVL 2.2e-05	50
HLA-A*68:01	1	554	563	10	KKFLPFQFG 2.2e-05	50
HLA-B*07:02	1	554	563	10	KKFLPFQFG 2.2e-05	53
HLA-B*07:02	1	555	563	9	KFLPFQFG 2.2e-05	53
HLA-B*57:01	1	557	565	9	LPFQFGRD 2.2e-05	72
HLA-A*33:01	1	558	566	9	PFQFGRDI 2.2e-05	60
HLA-A*32:01	1	560	569	10	QQFGRDIADT 2.2e-05	42
HLA-A*26:01	1	562	570	9	FGRDIADTT 2.2e-05	49
HLA-B*15:01	1	563	572	10	GRDIADTTDA 2.2e-05	54
HLA-B*44:03	1	575	584	10	DPQTLEILDI 2.2e-05	39
HLA-A*26:01	1	578	587	10	TLEILDITPC 2.2e-05	49
HLA-B*53:01	1	583	592	10	DITPCSFGGV 2.2e-05	39
HLA-B*58:01	1	584	593	10	ITPCSFGGVS 2.2e-05	60
HLA-B*57:01	1	585	593	9	TPCSFGGVS 2.2e-05	72
HLA-A*68:01	1	590	599	10	GGVSVITPGT 2.2e-05	50
HLA-A*33:01	1	597	605	9	PGTNTSNQV 2.2e-05	60
HLA-B*35:01	1	602	610	9	SNQVAVLYQ 2.2e-05	40
HLA-A*24:02	1	603	612	10	NQVAVLYQGV 2.2e-05	35
HLA-B*08:01	1	605	613	9	VAVLYQGVN 2.2e-05	73
HLA-A*24:02	1	607	615	9	VLYQGVNCT 2.2e-05	35
HLA-B*07:02	1	610	618	9	QGVNCTEVP 2.2e-05	53
HLA-A*68:01	1	612	621	10	VNCTEVPVAI 2.2e-05	50
HLA-A*03:01	1	626	635	10	LTPTWRVYST 2.2e-05	49
HLA-A*68:01	1	629	637	9	TWRVYSTGS 2.2e-05	50
HLA-B*53:01	1	633	642	10	YSTGSNVFQT 2.2e-05	39
HLA-B*15:01	1	643	651	9	RAGCLIGAE 2.2e-05	54
HLA-A*02:01	1	646	655	10	CLIGAEHVNN 2.2e-05	54
HLA-A*02:06	1	647	655	9	LIGAEHVNN 2.2e-05	64
HLA-A*68:02	1	650	659	10	AEHVNNSEYEC 2.2e-05	55
HLA-B*57:01	1	650	659	10	AEHVNNSEYEC 2.2e-05	72
HLA-A*02:06	1	652	660	9	HVNNSYECD 2.2e-05	64

HLA-A*02:01	1	653	661	9	VNNSYECDI	2.2e-05	54
HLA-A*01:01	1	654	662	9	NNSYECDIP	2.2e-05	77
HLA-A*02:01	1	655	664	10	NSYECDIPIG	2.2e-05	54
HLA-B*57:01	1	656	664	9	SYECDIPIG	2.2e-05	72
HLA-B*58:01	1	658	666	9	ECDIPIGAG	2.2e-05	60
HLA-B*35:01	1	660	668	9	DIPIGAGIC	2.2e-05	40
HLA-A*02:01	1	661	670	10	IPIGAGICAS	2.2e-05	54
HLA-A*02:01	1	665	674	10	AGICASYQTQ	2.2e-05	54
HLA-B*08:01	1	665	674	10	AGICASYQTQ	2.2e-05	73
HLA-B*51:01	1	665	674	10	AGICASYQTQ	2.2e-05	65
HLA-B*15:01	1	675	684	10	TNSPRRARSV	2.2e-05	54
HLA-A*32:01	1	677	685	9	SPRRARSVA	2.2e-05	42
HLA-A*24:02	1	683	691	9	SVASQSIIA	2.2e-05	35
HLA-A*03:01	1	686	695	10	SQSIIAYTMS	2.2e-05	49
HLA-A*23:01	1	687	695	9	QSIIAYTMS	2.2e-05	37
HLA-A*31:01	1	689	697	9	IIAYTMSLG	2.2e-05	56
HLA-B*07:02	1	691	699	9	AYTMSLGVE	2.2e-05	53
HLA-B*40:01	1	692	700	9	YTMSLGVEN	2.2e-05	34
HLA-B*53:01	1	695	703	9	SLGVENSVA	2.2e-05	39
HLA-A*30:02	1	699	708	10	ENSVAYSNNS	2.2e-05	79
HLA-B*15:01	1	700	708	9	NSVAYSNNS	2.2e-05	54
HLA-A*23:01	1	702	710	9	VAYSNNSIA	2.2e-05	37
HLA-A*24:02	1	708	716	9	SIAIPTNFT	2.2e-05	35
HLA-A*32:01	1	710	718	9	AIPTNFTIS	2.2e-05	42
HLA-A*03:01	1	711	720	10	IPTNFTISV	2.2e-05	49
HLA-B*35:01	1	718	727	10	SVTTEILPVS	2.2e-05	40
HLA-B*53:01	1	720	729	10	TTEILPVSM	2.2e-05	39
HLA-A*24:02	1	723	732	10	ILPVSMTKTS	2.2e-05	35
HLA-A*33:01	1	723	732	10	ILPVSMTKTS	2.2e-05	60
HLA-A*24:02	1	724	733	10	LPVSMTKTSV	2.2e-05	35
HLA-A*32:01	1	726	734	9	VSMTKTSVD	2.2e-05	42
HLA-B*40:01	1	727	735	9	SMTKTSVDC	2.2e-05	34
HLA-B*44:02	1	727	735	9	SMTKTSVDC	2.2e-05	42
HLA-B*44:02	1	730	739	10	KTSVDCTMYI	2.2e-05	42
HLA-B*44:02	1	732	740	9	SVDCTMYIC	2.2e-05	42
HLA-A*68:02	1	736	745	10	TMYICGDST	2.2e-05	55
HLA-B*58:01	1	736	744	9	TMYICGDST	2.2e-05	60
HLA-B*57:01	1	739	748	10	ICGDSTECNS	2.2e-05	72
HLA-B*53:01	1	740	749	10	CGDSTECNSL	2.2e-05	39
HLA-A*03:01	1	741	749	9	GDSTECNSL	2.2e-05	49
HLA-A*11:01	1	742	751	10	DSTECNSLLL	2.2e-05	36
HLA-B*15:01	1	742	751	10	DSTECNSLLL	2.2e-05	54
HLA-A*23:01	1	749	757	9	LLLQYGSFC	2.2e-05	37
HLA-B*35:01	1	753	762	10	YGSFCTQLNR	2.2e-05	40
HLA-A*03:01	1	756	764	9	FCTQLNRL	2.2e-05	49
HLA-A*33:01	1	759	768	10	QLNRALTGIA	2.2e-05	60
HLA-B*53:01	1	760	769	10	LNRALTGIAV	2.2e-05	39
HLA-A*31:01	1	761	770	10	NRALTGIAVE	2.2e-05	56
HLA-B*44:03	1	762	770	9	RALTGIAVE	2.2e-05	39
HLA-A*30:02	1	765	774	10	TGIAVEQDKN	2.2e-05	79
HLA-B*57:01	1	766	774	9	GIAVEQDKN	2.2e-05	72
HLA-A*32:01	1	768	776	9	AVEQDKNTQ	2.2e-05	42
HLA-A*02:06	1	771	780	10	QDKNTQEVFA	2.2e-05	64
HLA-A*02:03	1	775	784	10	TQEVFAQVKQ	2.2e-05	57
HLA-A*02:01	1	776	784	9	QEVFAQVKQ	2.2e-05	54
HLA-A*26:01	1	782	791	10	VKQIYKTPPI	2.2e-05	49
HLA-A*02:03	1	788	797	10	TPPIKDFGGF	2.2e-05	57
HLA-A*68:01	1	795	804	10	GGFNFSQILP	2.2e-05	50
HLA-B*35:01	1	796	804	9	GFNFSQILP	2.2e-05	40
HLA-A*02:03	1	798	807	10	NFSQILPDPS	2.2e-05	57
HLA-B*07:02	1	798	806	9	NFSQILPDP	2.2e-05	53
HLA-A*31:01	1	799	807	9	FSQILPDPS	2.2e-05	56
HLA-B*53:01	1	801	810	10	QILPDPSKPS	2.2e-05	39
HLA-B*15:01	1	805	813	9	DPSKPSKRS	2.2e-05	54
HLA-A*03:01	1	806	815	10	PSKPSKRSFI	2.2e-05	49
HLA-A*02:03	1	812	821	10	RSFIEDLLFN	2.2e-05	57

HLA-A*02:06	1	815	824	10	IEDLLFNKVT 2.2e-05	64
HLA-A*02:06	1	816	824	9	EDLLFNKVT 2.2e-05	64
HLA-B*44:02	1	817	826	10	DLLFNKVTLA 2.2e-05	42
HLA-B*53:01	1	819	827	9	LFNKVTLAD 2.2e-05	39
HLA-B*35:01	1	823	831	9	VTLADAGFI 2.2e-05	40
HLA-B*44:03	1	823	831	9	VTLADAGFI 2.2e-05	39
HLA-A*33:01	1	826	835	10	ADAGFIKQYG 2.2e-05	60
HLA-A*02:01	1	828	837	10	AGFIKQYGDC 2.2e-05	54
HLA-B*51:01	1	828	837	10	AGFIKQYGDC 2.2e-05	65
HLA-A*68:02	1	830	839	10	FIKQYGDCLG 2.2e-05	55
HLA-B*58:01	1	833	841	9	QYGDCLGDI 2.2e-05	60
HLA-B*51:01	1	836	845	10	DCLGDIAARD 2.2e-05	65
HLA-A*02:03	1	841	850	10	IAARDLICAQ 2.2e-05	57
HLA-A*01:01	1	844	853	10	RDLICAQKFN 2.2e-05	77
HLA-A*68:02	1	844	852	9	RDLICAQKF 2.2e-05	55
HLA-A*30:01	1	845	853	9	DLICAQKFN 2.2e-05	81
HLA-B*15:01	1	855	864	10	LTVLPPLTDE 2.2e-05	54
HLA-A*23:01	1	856	865	10	TVLPPLTDE 2.2e-05	37
HLA-A*24:02	1	856	865	10	TVLPPLTDE 2.2e-05	35
HLA-B*35:01	1	857	865	9	VLPPLLTDE 2.2e-05	40
HLA-B*15:01	1	858	867	10	LPPLLTDEMI 2.2e-05	54
HLA-B*07:02	1	869	878	10	QYTSALLAGT 2.2e-05	53
HLA-B*15:01	1	869	877	9	QYTSALLAG 2.2e-05	54
HLA-A*26:01	1	881	889	9	SGWTFGAGA 2.2e-05	49
HLA-A*68:02	1	884	892	9	TFGAGAALQ 2.2e-05	55
HLA-A*23:01	1	890	898	9	ALQIPFAMQ 2.2e-05	37
HLA-B*53:01	1	894	902	9	PFAMQMAYR 2.2e-05	39
HLA-A*02:06	1	896	904	9	AMQMAYRFN 2.2e-05	64
HLA-A*01:01	1	902	911	10	RFNGIGVTQN 2.2e-05	77
HLA-A*23:01	1	908	916	9	VTQNVLYEN 2.2e-05	37
HLA-A*24:02	1	909	918	10	TQNVLYENQK 2.2e-05	35
HLA-B*51:01	1	909	918	10	TQNVLYENQK 2.2e-05	65
HLA-B*40:01	1	912	921	10	VLYENQKLI 2.2e-05	34
HLA-A*31:01	1	913	922	10	LYENQKLIAN 2.2e-05	56
HLA-B*53:01	1	914	923	10	YENQKLIANQ 2.2e-05	39
HLA-B*08:01	1	921	929	9	ANQFNSAIG 2.2e-05	73
HLA-B*44:02	1	923	932	10	QFNSAIGKIQ 2.2e-05	42
HLA-A*31:01	1	928	936	9	IGKIQDSL 2.2e-05	56
HLA-A*01:01	1	929	937	9	GKIQDSLSS 2.2e-05	77
HLA-B*35:01	1	937	946	10	STASALGKLQ 2.2e-05	40
HLA-A*03:01	1	943	952	10	GKLQDVVNQN 2.2e-05	49
HLA-A*32:01	1	948	957	10	VVNQNAQALN 2.2e-05	42
HLA-A*24:02	1	953	962	10	AQALNTLVKQ 2.2e-05	35
HLA-A*68:01	1	962	971	10	QLSSNFGAIS 2.2e-05	50
HLA-B*07:02	1	963	972	10	LSSNFGAISS 2.2e-05	53
HLA-A*03:01	1	971	979	9	SSVLNDILS 2.2e-05	49
HLA-B*51:01	1	974	982	9	LNDILSRLD 2.2e-05	65
HLA-A*03:01	1	985	993	9	EAEVQIDRL 2.2e-05	49
HLA-A*26:01	1	986	995	10	AEVQIDRLIT 2.2e-05	49
HLA-B*51:01	1	990	999	10	IDRLITGRLQ 2.2e-05	65
HLA-A*31:01	1	991	1000	10	DRLITGRLQS 2.2e-05	56
HLA-B*53:01	1	991	999	9	DRLITGRLQ 2.2e-05	39
HLA-A*02:01	1	994	1002	9	ITGRLQSLQ 2.2e-05	54
HLA-A*32:01	1	994	1003	10	ITGRLQSLQT 2.2e-05	42
HLA-B*44:02	1	999	1008	10	QSLQTYVTQQ 2.2e-05	42
HLA-A*68:01	1	1007	1015	9	QLLIRAAEI 2.2e-05	50
HLA-A*68:02	1	1010	1018	9	IRAAEIRAS 2.2e-05	55
HLA-B*53:01	1	1013	1022	10	AEIRASANLA 2.2e-05	39
HLA-B*40:01	1	1014	1022	9	EIRASANLA 2.2e-05	34
HLA-A*68:02	1	1019	1027	9	ANLAATKMS 2.2e-05	55
HLA-A*68:01	1	1023	1032	10	ATKMSECVLG 2.2e-05	50
HLA-B*35:01	1	1027	1036	10	SECVLGQSKR 2.2e-05	40
HLA-A*02:03	1	1031	1039	9	LGQSKRVDF 2.2e-05	57
HLA-A*33:01	1	1033	1041	9	QSKRVDFCG 2.2e-05	60
HLA-B*44:02	1	1033	1042	10	QSKRVDFCGK 2.2e-05	42
HLA-A*23:01	1	1045	1054	10	HLMSFPQSAP 2.2e-05	37



HLA-A*26:01	1	1059	1068	10	FLHVTVVPAQ 2.2e-05	49
HLA-B*53:01	1	1059	1068	10	FLHVTVVPAQ 2.2e-05	39
HLA-A*23:01	1	1061	1070	10	HVTVVPAQEK 2.2e-05	37
HLA-A*31:01	1	1064	1073	10	YVPAQEKNFT 2.2e-05	56
HLA-B*15:01	1	1065	1073	9	VPAQEKNFT 2.2e-05	54
HLA-A*11:01	1	1068	1077	10	QEKNFTTAPA 2.2e-05	36
HLA-A*32:01	1	1069	1078	10	EKNFTTAPAI 2.2e-05	42
HLA-A*33:01	1	1070	1079	10	KNFTTAPAIC 2.2e-05	60
HLA-B*07:02	1	1070	1079	10	KNFTTAPAIC 2.2e-05	53
HLA-A*02:03	1	1072	1081	10	FTTAPAICHD 2.2e-05	57
HLA-A*32:01	1	1073	1082	10	TTAPAICHDG 2.2e-05	42
HLA-B*35:01	1	1079	1088	10	CHDGKAHFPR 2.2e-05	40
HLA-A*68:02	1	1088	1097	10	REGVFSVNGT 2.2e-05	55
HLA-B*07:02	1	1093	1102	10	VSNGTHWFVT 2.2e-05	53
HLA-A*02:03	1	1096	1105	10	GTHWFVTQRN 2.2e-05	57
HLA-B*35:01	1	1099	1108	10	WFVTQRNFYE 2.2e-05	40
HLA-B*07:02	1	1106	1115	10	FYEPQIITTD 2.2e-05	53
HLA-A*68:02	1	1109	1118	10	PQIITTDNTF 2.2e-05	55
HLA-B*40:01	1	1112	1120	9	ITTDNTFVS 2.2e-05	34
HLA-B*57:01	1	1115	1123	9	DNTFVSGNC 2.2e-05	72
HLA-A*03:01	1	1124	1133	10	DVIVIGVNN 2.2e-05	49
HLA-A*68:02	1	1137	1146	10	PLQPELDSFK 2.2e-05	55
HLA-A*03:01	1	1139	1147	9	QPELDSFKE 2.2e-05	49
HLA-A*02:03	1	1143	1151	9	DSFKEELDK 2.2e-05	57
HLA-A*68:01	1	1148	1157	10	ELDKYFKNHT 2.2e-05	50
HLA-B*07:02	1	1148	1157	10	ELDKYFKNHT 2.2e-05	53
HLA-B*44:02	1	1149	1158	10	LDKYFKNHTS 2.2e-05	42
HLA-B*51:01	1	1151	1160	10	KYFKNHTSPD 2.2e-05	65
HLA-A*68:01	1	1155	1164	10	NHTSPDVLG 2.2e-05	50
HLA-A*31:01	1	1162	1171	10	DLGDISGINA 2.2e-05	56
HLA-B*08:01	1	1163	1172	10	LGDISGINAS 2.2e-05	73
HLA-A*03:01	1	1164	1172	9	GDISGINAS 2.2e-05	49
HLA-A*11:01	1	1166	1174	9	ISGINASVV 2.2e-05	36
HLA-A*31:01	1	1166	1174	9	ISGINASVV 2.2e-05	56
HLA-B*40:01	1	1166	1174	9	ISGINASVV 2.2e-05	34
HLA-B*44:03	1	1169	1178	10	INASVVNIQK 2.2e-05	39
HLA-B*53:01	1	1171	1179	9	ASVVNIQKE 2.2e-05	39
HLA-B*44:02	1	1174	1182	9	VNIQKEIDR 2.2e-05	42
HLA-B*44:02	1	1175	1184	10	NIQKEIDRLN 2.2e-05	42
HLA-B*44:02	1	1176	1185	10	IQKEIDRLNE 2.2e-05	42
HLA-A*11:01	1	1177	1186	10	QKEIDRLNEV 2.2e-05	36
HLA-B*44:02	1	1182	1191	10	RLNEVAKNLN 2.2e-05	42
HLA-A*32:01	1	1185	1193	9	EVAKNLNES 2.2e-05	42
HLA-B*07:02	1	1189	1198	10	NLNESLIDLQ 2.2e-05	53
HLA-A*68:02	1	1191	1199	9	NESLIDLQE 2.2e-05	55
HLA-A*02:06	1	1196	1205	10	DLQELGKYEQ 2.2e-05	64
HLA-B*07:02	1	1200	1209	10	LGKYEQYIKW 2.2e-05	53
HLA-A*68:02	1	1202	1211	10	KYEQYIKWPW 2.2e-05	55
HLA-B*40:01	1	1205	1214	10	QYIKWPWYIW 2.2e-05	34
HLA-A*31:01	1	1207	1216	10	IKWPWYIWL 2.2e-05	56
HLA-A*11:01	1	1208	1216	9	KWPWYIWL 2.2e-05	36
HLA-A*30:02	1	1209	1218	10	WPWYIWLGFI 2.2e-05	79
HLA-A*32:01	1	1211	1219	9	WYIWLGFIA 2.2e-05	42
HLA-A*03:01	1	1213	1222	10	IWLGFIAGLI 2.2e-05	49
HLA-A*26:01	1	1215	1224	10	LGFIAGLIAI 2.2e-05	49
HLA-B*40:01	1	1216	1225	10	GFIAGLIAIIV 2.2e-05	34
HLA-B*44:03	1	1217	1225	9	FIAGLIAIIV 2.2e-05	39
HLA-A*68:02	1	1225	1234	10	VMVTIMLCCM 2.2e-05	55
HLA-A*03:01	1	1229	1237	9	IMLCCMTSC 2.2e-05	49
HLA-B*57:01	1	1233	1242	10	CMTSCCCLK 2.2e-05	72
HLA-B*35:01	1	1234	1242	9	MTSCCCLK 2.2e-05	40
HLA-A*02:06	1	1235	1244	10	TSCCCLKGC 2.2e-05	64
HLA-A*32:01	1	1252	1261	10	KFDEDDSEPV 2.2e-05	42
HLA-B*51:01	1	1255	1264	10	EDDSEPVKLG 2.2e-05	65
HLA-A*02:06	1	1256	1264	9	DDSEPVKLG 2.2e-05	64
HLA-A*02:03	1	1257	1266	10	DSEPVKLGKV 2.2e-05	57

HLA-A*02:01	1	1262	1270	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	SSQCVNLTRT	2.1e-05	34
HLA-B*08:01	1	14	23	10	QCVNLTRRTQ	2.1e-05	73
HLA-B*44:02	1	14	23	10	QCVNLTRRTQ	2.1e-05	43
HLA-B*44:02	1	15	23	9	CVNLTRRTQ	2.1e-05	43
HLA-A*31:01	1	17	25	9	NLTRRTQLP	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	SFTRGVVYP	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-B*35:01	1	72	80	9	GTNGTKRFA	2.1e-05	41
HLA-B*58:01	1	74	82	9	NGTKRFANP	2.1e-05	60
HLA-A*31:01	1	76	85	10	TKRFANPVL	2.1e-05	57
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	STEKSNIIIR	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	GWIFGTLLDS	2.1e-05	56
HLA-A*23:01	1	104	113	10	WIFGTLLDSK	2.1e-05	37
HLA-A*02:03	1	105	114	10	IFGTLLDSKT	2.1e-05	58
HLA-B*35:01	1	106	115	10	FGTLLDSKTQ	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*53:01	1	207	215	9	HTPINLVRG	2.1e-05	40
HLA-A*01:01	1	209	218	10	PINLVRGLPQ	2.1e-05	78
HLA-B*57:01	1	210	218	9	INLVRGLPQ	2.1e-05	72
HLA-A*33:01	1	211	219	9	NLVRGLPQG	2.1e-05	61
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*02:01	1	246	254	9	LTPGDSSSG	2.1e-05	55
HLA-B*35:01	1	251	260	10	SSSGWTAGAA	2.1e-05	41
HLA-A*02:03	1	253	262	10	SGWTAGAAAY	2.1e-05	58
HLA-A*23:01	1	253	261	9	SGWTAGAAA	2.1e-05	37
HLA-A*02:06	1	274	283	10	LKYNENGTIT	2.1e-05	65
HLA-A*03:01	1	277	286	10	NENGTITDAV	2.1e-05	50
HLA-A*68:01	1	292	300	9	PLSETKCTL	2.1e-05	50
HLA-B*57:01	1	294	302	9	SETKCTLKS	2.1e-05	72
HLA-B*07:02	1	295	304	10	ETKCTLKSFT	2.1e-05	54
HLA-B*35:01	1	295	304	10	ETKCTLKSFT	2.1e-05	41
HLA-A*01:01	1	305	314	10	VEKGIYQTSN	2.1e-05	78
HLA-A*24:02	1	305	313	9	VEKGIYQTS	2.1e-05	36
HLA-B*07:02	1	309	318	10	IYQTSNFRVQ	2.1e-05	54
HLA-A*02:01	1	313	322	10	SNFRVQPTES	2.1e-05	55
HLA-A*32:01	1	313	322	10	SNFRVQPTES	2.1e-05	43
HLA-B*40:01	1	318	327	10	QPTESIVRFP	2.1e-05	34
HLA-B*08:01	1	320	328	9	TESIVRFPN	2.1e-05	73
HLA-A*26:01	1	326	334	9	FPNITNLCP	2.1e-05	49
HLA-A*33:01	1	328	336	9	NITNLCPFGE	2.1e-05	61
HLA-B*08:01	1	329	337	9	ITNLCPFGE	2.1e-05	73
HLA-A*31:01	1	332	341	10	LCPFGEVFN	2.1e-05	57
HLA-A*31:01	1	359	367	9	VADYSVLYN	2.1e-05	57
HLA-A*11:01	1	362	370	9	YSVLYNSAS	2.1e-05	37
HLA-B*15:01	1	367	376	10	NSASFSTFKC	2.1e-05	55
HLA-B*08:01	1	369	378	10	ASFSTFKCYG	2.1e-05	73
HLA-A*03:01	1	370	378	9	SFSTFKCYG	2.1e-05	50
HLA-B*07:02	1	370	378	9	SFSTFKCYG	2.1e-05	54
HLA-B*57:01	1	373	381	9	TFKCYGVSP	2.1e-05	72
HLA-B*44:03	1	383	392	10	KLNDLCFTNV	2.1e-05	40
HLA-B*53:01	1	387	395	9	LCFTNVYAD	2.1e-05	40
HLA-A*11:01	1	388	397	10	CFTNVYADSF	2.1e-05	37
HLA-A*11:01	1	399	407	9	IRGDEVQRQI	2.1e-05	37
HLA-A*26:01	1	400	408	9	RGDEVQRQIA	2.1e-05	49
HLA-B*53:01	1	400	409	10	RGDEVQRQIAP	2.1e-05	40
HLA-A*03:01	1	404	413	10	VRQIAPGQTG	2.1e-05	50
HLA-B*57:01	1	404	412	9	VRQIAPGQT	2.1e-05	72
HLA-A*11:01	1	407	415	9	IAPGQTGNI	2.1e-05	37
HLA-B*51:01	1	413	421	9	GNIADYNYK	2.1e-05	65
HLA-B*44:03	1	415	423	9	IADYNYKLP	2.1e-05	40
HLA-A*01:01	1	416	424	9	ADYNYKLPD	2.1e-05	78
HLA-A*68:01	1	420	429	10	YKLPDDFTGC	2.1e-05	50
HLA-B*44:02	1	421	429	9	KLPDDFTGC	2.1e-05	43
HLA-A*30:01	1	423	431	9	PDDFTGCVI	2.1e-05	81
HLA-A*02:03	1	425	433	9	DFTGCVIAW	2.1e-05	58
HLA-B*15:01	1	430	439	10	VIAWNSNNLD	2.1e-05	55
HLA-B*51:01	1	432	441	10	AWNSNNLDSK	2.1e-05	65
HLA-B*53:01	1	433	442	10	WNSNNLDSKV	2.1e-05	40
HLA-B*44:02	1	436	444	9	NNLDSKVGG	2.1e-05	43
HLA-B*07:02	1	439	447	9	DSKVGGNYN	2.1e-05	54
HLA-A*03:01	1	448	457	10	YLYRLEFRKSN	2.1e-05	50
HLA-A*26:01	1	452	460	9	LFRKSNLKP	2.1e-05	49
HLA-A*24:02	1	459	467	9	KPFERDIST	2.1e-05	36
HLA-A*23:01	1	465	473	9	ISTEIQAG	2.1e-05	37
HLA-B*44:02	1	468	477	10	EIQAGSTPC	2.1e-05	43
HLA-A*01:01	1	469	478	10	IYQAGSTPCN	2.1e-05	78
HLA-A*26:01	1	469	477	9	IYQAGSTPC	2.1e-05	49
HLA-B*07:02	1	469	478	10	IYQAGSTPCN	2.1e-05	54
HLA-A*23:01	1	470	478	9	YQAGSTPCN	2.1e-05	37
HLA-A*02:01	1	472	481	10	AGSTPCNGVK	2.1e-05	55
HLA-B*35:01	1	473	481	9	GSTPCNGVK	2.1e-05	41
HLA-A*30:02	1	475	484	10	TPCNGVKGFN	2.1e-05	79
HLA-A*32:01	1	477	486	10	CNGVKGFNCY	2.1e-05	43
HLA-B*51:01	1	479	488	10	GVKGFNCYFP	2.1e-05	65
HLA-A*30:02	1	480	488	9	VKGFNCYFP	2.1e-05	79
HLA-B*58:01	1	487	495	9	FPLQSYGFQ	2.1e-05	60

HLA-A*68:01	1	491	499	9	SYGFQPTYG 2.1e-05	50
HLA-A*32:01	1	494	503	10	FQPTYGVGYQ 2.1e-05	43
HLA-B*44:02	1	502	511	10	YQPYRVVVLS 2.1e-05	43
HLA-A*68:02	1	505	513	9	YRVVLSFE 2.1e-05	56
HLA-B*15:01	1	505	513	9	YRVVLSFE 2.1e-05	55
HLA-B*57:01	1	511	519	9	SFELLHAPA 2.1e-05	72
HLA-B*35:01	1	513	522	10	ELLHAPATVC 2.1e-05	41
HLA-B*15:01	1	522	531	10	CGPKKSTNLV 2.1e-05	55
HLA-A*02:01	1	523	532	10	GPKKSTNLVK 2.1e-05	55
HLA-B*07:02	1	524	532	9	PKKSTNLVK 2.1e-05	54
HLA-A*03:01	1	531	540	10	VKNKCVNFN 2.1e-05	50
HLA-A*32:01	1	534	542	9	KCVNFNFN 2.1e-05	43
HLA-B*44:02	1	534	543	10	KCVNFNFNGL 2.1e-05	43
HLA-A*33:01	1	542	550	9	GLTGTGVL 2.1e-05	61
HLA-B*15:01	1	543	552	10	LTGTGVLTES 2.1e-05	55
HLA-A*11:01	1	545	553	9	GTGVLTESN 2.1e-05	37
HLA-A*01:01	1	557	565	9	LPFQFGRD 2.1e-05	78
HLA-A*31:01	1	558	566	9	PFQFGRDI 2.1e-05	57
HLA-A*03:01	1	559	567	9	FQFGRDIA 2.1e-05	50
HLA-B*35:01	1	560	569	10	QFGRDIADT 2.1e-05	41
HLA-A*02:03	1	561	569	9	QFGRDIADT 2.1e-05	58
HLA-B*51:01	1	563	572	10	GRDIADTTDA 2.1e-05	65
HLA-A*11:01	1	568	576	9	DTTDAVRDP 2.1e-05	37
HLA-A*02:03	1	570	578	9	TDAVRDPQT 2.1e-05	58
HLA-B*40:01	1	571	580	10	DAVRDPQTL 2.1e-05	34
HLA-B*07:02	1	587	596	10	CSFGGVSUIT 2.1e-05	54
HLA-A*24:02	1	593	601	9	SVITPGTNT 2.1e-05	36
HLA-A*68:02	1	594	603	10	VITPGTNTSN 2.1e-05	56
HLA-B*07:02	1	595	603	9	ITPGTNTSN 2.1e-05	54
HLA-B*44:03	1	602	611	10	SNQVAVLYQG 2.1e-05	40
HLA-A*02:01	1	608	616	9	LYQGVNCTE 2.1e-05	55
HLA-A*23:01	1	612	620	9	VNCTEVPVA 2.1e-05	37
HLA-B*44:02	1	612	620	9	VNCTEVPVA 2.1e-05	43
HLA-B*44:03	1	619	628	10	VAIHADQLTP 2.1e-05	40
HLA-B*51:01	1	629	637	9	TWRVYSTGS 2.1e-05	65
HLA-B*35:01	1	630	639	10	WRVYSTGSNV 2.1e-05	41
HLA-B*44:02	1	630	639	10	WRVYSTGSNV 2.1e-05	43
HLA-B*40:01	1	633	641	9	YSTGSNVFQ 2.1e-05	34
HLA-A*68:01	1	640	648	9	FQTRAGCLI 2.1e-05	50
HLA-B*51:01	1	640	649	10	FQTRAGCLIG 2.1e-05	65
HLA-A*11:01	1	641	649	9	QTRAGCLIG 2.1e-05	37
HLA-B*08:01	1	643	651	9	RAGCLIGAE 2.1e-05	73
HLA-B*15:01	1	644	653	10	AGCLIGAEHV 2.1e-05	55
HLA-B*08:01	1	646	654	9	CLIGAEHVN 2.1e-05	73
HLA-A*03:01	1	647	656	10	LIGAEHVNNS 2.1e-05	50
HLA-A*03:01	1	649	658	10	GAEHVNNSYE 2.1e-05	50
HLA-A*11:01	1	649	658	10	GAEHVNNSYE 2.1e-05	37
HLA-B*07:02	1	649	658	10	GAEHVNNSYE 2.1e-05	54
HLA-A*33:01	1	650	659	10	AHVNNSYEC 2.1e-05	61
HLA-B*08:01	1	652	660	9	HVNNSYECD 2.1e-05	73
HLA-B*57:01	1	659	668	10	CDIPIGAGIC 2.1e-05	72
HLA-B*57:01	1	660	669	10	DIPIGAGICA 2.1e-05	72
HLA-B*07:02	1	662	671	10	PIGAGICASY 2.1e-05	54
HLA-B*08:01	1	666	675	10	GICASYQTQT 2.1e-05	73
HLA-B*44:02	1	666	674	9	GICASYQTQ 2.1e-05	43
HLA-A*33:01	1	689	697	9	IIAYTMSLG 2.1e-05	61
HLA-B*07:02	1	693	701	9	TMSLGVENS 2.1e-05	54
HLA-A*03:01	1	696	705	10	LGVENSVAYS 2.1e-05	50
HLA-A*30:01	1	698	707	10	VENSVAYSNN 2.1e-05	81
HLA-A*31:01	1	698	706	9	VENSVAYSN 2.1e-05	57
HLA-B*44:03	1	704	712	9	YSNNSIAIP 2.1e-05	40
HLA-A*23:01	1	710	718	9	AIPTNFTIS 2.1e-05	37
HLA-A*26:01	1	711	720	10	IPTNFTISV 2.1e-05	49
HLA-A*33:01	1	711	720	10	IPTNFTISVT 2.1e-05	61
HLA-B*53:01	1	716	725	10	TISVTTEILP 2.1e-05	40
HLA-A*24:02	1	719	727	9	VTTEILPVS 2.1e-05	36

HLA-B*44:03	1	719	727	9	VTTEILPVS	2.1e-05	40
HLA-A*24:02	1	721	729	9	TEILPVSMT	2.1e-05	36
HLA-B*35:01	1	723	731	9	ILPVSMTKT	2.1e-05	41
HLA-A*33:01	1	727	735	9	SMTKTSVDC	2.1e-05	61
HLA-B*58:01	1	732	741	10	SVDCTMYICG	2.1e-05	60
HLA-A*33:01	1	738	746	9	YICGDSTEC	2.1e-05	61
HLA-A*30:02	1	740	748	9	CGDSTECNS	2.1e-05	79
HLA-A*33:01	1	749	758	10	LLLQYGSFCT	2.1e-05	61
HLA-B*35:01	1	750	759	10	LLQYGSFCT	2.1e-05	41
HLA-A*02:03	1	753	762	10	YGSFCTQLNR	2.1e-05	58
HLA-B*08:01	1	754	762	9	GSFCTQLNR	2.1e-05	73
HLA-B*44:02	1	762	770	9	RALTGIAVE	2.1e-05	43
HLA-A*03:01	1	763	772	10	ALTGIAVEQD	2.1e-05	50
HLA-B*51:01	1	768	776	9	AVEQDKNTQ	2.1e-05	65
HLA-A*02:03	1	771	780	10	QDKNTQEVFA	2.1e-05	58
HLA-A*23:01	1	776	784	9	QEVFAQVKQ	2.1e-05	37
HLA-B*44:02	1	782	790	9	VKQIYKTPP	2.1e-05	43
HLA-B*58:01	1	782	791	10	VKQIYKTPPI	2.1e-05	60
HLA-B*07:02	1	789	798	10	PIKDFGGFN	2.1e-05	54
HLA-A*02:03	1	791	800	10	IKDFGGFNFS	2.1e-05	58
HLA-B*44:02	1	795	804	10	GGFNFSQILP	2.1e-05	43
HLA-A*68:01	1	797	805	9	FNFSQILPD	2.1e-05	50
HLA-A*03:01	1	805	813	9	DPSKPSKRS	2.1e-05	50
HLA-B*15:01	1	813	821	9	SFIEDLLFN	2.1e-05	55
HLA-A*30:02	1	816	824	9	EDLLFNKVT	2.1e-05	79
HLA-A*68:01	1	819	828	10	LFNKVTLADA	2.1e-05	50
HLA-B*51:01	1	819	827	9	LFNKVTLAD	2.1e-05	65
HLA-A*24:02	1	824	833	10	TLADAGFIKQ	2.1e-05	36
HLA-A*68:02	1	826	835	10	ADAGFIKQYG	2.1e-05	56
HLA-B*53:01	1	826	835	10	ADAGFIKQYG	2.1e-05	40
HLA-B*57:01	1	827	836	10	DAGFIKQYGD	2.1e-05	72
HLA-A*31:01	1	828	836	9	AGFIKQYGD	2.1e-05	57
HLA-A*33:01	1	828	837	10	AGFIKQYGDC	2.1e-05	61
HLA-B*44:03	1	829	838	10	GFIKQYGDCL	2.1e-05	40
HLA-B*57:01	1	829	837	9	GFIKQYGDC	2.1e-05	72
HLA-A*02:06	1	833	841	9	QYGDCLGDI	2.1e-05	65
HLA-B*53:01	1	833	841	9	QYGDCLGDI	2.1e-05	40
HLA-B*53:01	1	834	843	10	YGDCLGDIAA	2.1e-05	40
HLA-B*07:02	1	835	843	9	GDCLGDIAA	2.1e-05	54
HLA-A*02:01	1	841	850	10	IAARDLICAQ	2.1e-05	55
HLA-A*02:06	1	846	854	9	LICAQKFNG	2.1e-05	65
HLA-A*68:01	1	851	860	10	KFNGLTVLPP	2.1e-05	50
HLA-B*44:03	1	856	865	10	TVLPPLLTDE	2.1e-05	40
HLA-A*33:01	1	863	872	10	TDEMIAQYTS	2.1e-05	61
HLA-A*68:02	1	868	877	10	AQYTSALLAG	2.1e-05	56
HLA-B*40:01	1	872	881	10	SALLAGTITS	2.1e-05	34
HLA-B*40:01	1	877	886	10	GTITSGWTFG	2.1e-05	34
HLA-B*07:02	1	878	886	9	TITSGWTFG	2.1e-05	54
HLA-B*51:01	1	878	886	9	TITSGWTFG	2.1e-05	65
HLA-B*53:01	1	878	887	10	TITSGWTFGA	2.1e-05	40
HLA-A*32:01	1	881	890	10	SGWTFGAGAA	2.1e-05	43
HLA-B*57:01	1	884	892	9	TFGAGAALQ	2.1e-05	72
HLA-A*02:01	1	893	902	10	IPFAMQMAYR	2.1e-05	55
HLA-A*02:03	1	893	902	10	IPFAMQMAYR	2.1e-05	58
HLA-A*11:01	1	911	920	10	NVLYENQKLI	2.1e-05	37
HLA-B*44:02	1	912	921	10	VLYENQKLI	2.1e-05	43
HLA-B*44:02	1	919	928	10	LIANQFNSAI	2.1e-05	43
HLA-B*51:01	1	923	932	10	QFNSAIGKIQ	2.1e-05	65
HLA-A*68:01	1	932	940	9	QDLSSTAS	2.1e-05	50
HLA-A*11:01	1	933	942	10	DSLSTASAL	2.1e-05	37
HLA-A*24:02	1	936	944	9	SSTASALGK	2.1e-05	36
HLA-B*53:01	1	937	946	10	STASALGKLQ	2.1e-05	40
HLA-A*32:01	1	938	946	9	TASALGKLQ	2.1e-05	43
HLA-B*40:01	1	938	946	9	TASALGKLQ	2.1e-05	34
HLA-A*02:03	1	939	947	9	ASALGKLQD	2.1e-05	58
HLA-A*32:01	1	943	952	10	GKLQDVVNQN	2.1e-05	43

HLA-A*23:01	1	944	952	9	KLQDVVNQN	2.1e-05	37
HLA-B*51:01	1	946	954	9	QDVVNQNAQ	2.1e-05	65
HLA-B*53:01	1	946	955	10	QDVVNQNAQA	2.1e-05	40
HLA-A*31:01	1	948	957	10	VVNQNAQALN	2.1e-05	57
HLA-A*33:01	1	949	958	10	VNQNAQALNT	2.1e-05	61
HLA-A*03:01	1	959	968	10	LVKQLSSNFG	2.1e-05	50
HLA-A*23:01	1	959	968	10	LVKQLSSNFG	2.1e-05	37
HLA-A*03:01	1	962	971	10	QLSSNFGAIS	2.1e-05	50
HLA-A*68:01	1	968	976	9	GAISSVLND	2.1e-05	50
HLA-A*68:02	1	980	989	10	RLDKVEAEVQ	2.1e-05	56
HLA-B*53:01	1	1003	1012	10	TYVTQQLIRA	2.1e-05	40
HLA-A*26:01	1	1005	1014	10	VTQQLIRAAE	2.1e-05	49
HLA-B*53:01	1	1006	1015	10	TQQLIRAAEI	2.1e-05	40
HLA-B*58:01	1	1010	1018	9	IRAAEIRAS	2.1e-05	60
HLA-B*35:01	1	1011	1020	10	RAAEIRASAN	2.1e-05	41
HLA-B*08:01	1	1019	1027	9	ANLAATKMS	2.1e-05	73
HLA-A*31:01	1	1020	1029	10	NLAATKMSEC	2.1e-05	57
HLA-A*11:01	1	1022	1030	9	AATKMSECV	2.1e-05	37
HLA-A*33:01	1	1026	1034	9	MSECVLGQS	2.1e-05	61
HLA-A*23:01	1	1027	1035	9	SECVLGQSK	2.1e-05	37
HLA-B*53:01	1	1027	1036	10	SECVLGQSKR	2.1e-05	40
HLA-B*15:01	1	1033	1041	9	QSKRVDFCG	2.1e-05	55
HLA-A*68:02	1	1035	1044	10	KRVDFCGKGY	2.1e-05	56
HLA-B*15:01	1	1043	1051	9	GYHLMSFPQ	2.1e-05	55
HLA-A*24:02	1	1045	1054	10	HLMSPQSAP	2.1e-05	36
HLA-B*40:01	1	1046	1055	10	LMSFPQSAPH	2.1e-05	34
HLA-B*44:02	1	1046	1055	10	LMSFPQSAPH	2.1e-05	43
HLA-B*44:02	1	1054	1062	9	PHGVVFLHV	2.1e-05	43
HLA-A*11:01	1	1058	1066	9	VFLHVTYVP	2.1e-05	37
HLA-A*23:01	1	1060	1069	10	LHVTYVPAQE	2.1e-05	37
HLA-B*08:01	1	1060	1069	10	LHVTYVPAQE	2.1e-05	73
HLA-A*11:01	1	1063	1071	9	TYVPAQEKN	2.1e-05	37
HLA-A*24:02	1	1066	1074	9	PAQEKNFTT	2.1e-05	36
HLA-B*35:01	1	1066	1075	10	PAQEKNFTTA	2.1e-05	41
HLA-A*68:01	1	1068	1077	10	QEKNFTTAPA	2.1e-05	50
HLA-A*23:01	1	1069	1078	10	EKNFTTAPAI	2.1e-05	37
HLA-A*11:01	1	1072	1081	10	FTTAPAICHD	2.1e-05	37
HLA-B*44:03	1	1075	1084	10	APAICHDGKA	2.1e-05	40
HLA-A*68:01	1	1076	1085	10	PAICHDGKAH	2.1e-05	50
HLA-B*35:01	1	1076	1085	10	PAICHDGKAH	2.1e-05	41
HLA-B*58:01	1	1076	1085	10	PAICHDGKAH	2.1e-05	60
HLA-A*03:01	1	1082	1091	10	GKAHFPREGV	2.1e-05	50
HLA-B*08:01	1	1088	1097	10	REGVFSNGT	2.1e-05	73
HLA-B*51:01	1	1094	1103	10	SNGTHWFVTQ	2.1e-05	65
HLA-B*35:01	1	1095	1104	10	NGTHWFVTQR	2.1e-05	41
HLA-A*26:01	1	1097	1105	9	THWFVTQRN	2.1e-05	49
HLA-A*02:01	1	1098	1107	10	HWFVTQRNFY	2.1e-05	55
HLA-A*30:01	1	1107	1116	10	YEPQIITTDN	2.1e-05	81
HLA-B*57:01	1	1107	1115	9	YEPQIITTD	2.1e-05	72
HLA-A*02:03	1	1109	1117	9	PQIITTDNT	2.1e-05	58
HLA-A*23:01	1	1112	1120	9	ITTDNTFVS	2.1e-05	37
HLA-A*03:01	1	1113	1122	10	TTDNTFVSGN	2.1e-05	50
HLA-A*02:06	1	1114	1122	9	TDNTFVSGN	2.1e-05	65
HLA-A*03:01	1	1116	1125	10	NTFVSGNCDV	2.1e-05	50
HLA-A*11:01	1	1116	1125	10	NTFVSGNCDV	2.1e-05	37
HLA-B*08:01	1	1116	1124	9	NTFVSGNCD	2.1e-05	73
HLA-B*53:01	1	1116	1124	9	NTFVSGNCD	2.1e-05	40
HLA-B*40:01	1	1119	1127	9	VSGNCDVVI	2.1e-05	34
HLA-A*68:01	1	1121	1130	10	GNCVVIGIV	2.1e-05	50
HLA-A*24:02	1	1122	1130	9	NCDVVIGIV	2.1e-05	36
HLA-A*30:01	1	1122	1131	10	NCDVVIGIVN	2.1e-05	81
HLA-A*31:01	1	1128	1137	10	GIVNNTVYDP	2.1e-05	57
HLA-B*15:01	1	1128	1136	9	GIVNNTVYD	2.1e-05	55
HLA-B*15:01	1	1128	1137	10	GIVNNTVYDP	2.1e-05	55
HLA-B*53:01	1	1131	1140	10	NNTVYDPLQP	2.1e-05	40
HLA-A*68:02	1	1145	1154	10	FKEELDKYFK	2.1e-05	56

HLA-A*68:02	1	1146	1154	9	KEELDKYFK	2.1e-05	56
HLA-A*68:02	1	1147	1156	10	EELDKYFKNH	2.1e-05	56
HLA-B*07:02	1	1149	1157	9	LDKYFKNHT	2.1e-05	54
HLA-A*02:03	1	1150	1159	10	DKYFKNHTSP	2.1e-05	58
HLA-A*23:01	1	1158	1166	9	SPDVDLGDI	2.1e-05	37
HLA-B*53:01	1	1164	1172	9	GDISGINAS	2.1e-05	40
HLA-B*44:03	1	1169	1177	9	INASVVNIQ	2.1e-05	40
HLA-B*08:01	1	1172	1181	10	SVVNIQKEID	2.1e-05	73
HLA-A*68:01	1	1180	1189	10	IDRLNEVAKN	2.1e-05	50
HLA-A*30:02	1	1183	1192	10	LNEVAKNLNE	2.1e-05	79
HLA-A*02:06	1	1184	1192	9	NEVAKNLNE	2.1e-05	65
HLA-A*68:01	1	1190	1199	10	LNESLIDLQE	2.1e-05	50
HLA-B*35:01	1	1192	1201	10	ESLIDLQELG	2.1e-05	41
HLA-B*44:03	1	1192	1201	10	ESLIDLQELG	2.1e-05	40
HLA-A*02:03	1	1196	1205	10	DLQELGKYEQ	2.1e-05	58
HLA-B*51:01	1	1199	1208	10	ELGKYEQYIK	2.1e-05	65
HLA-A*02:03	1	1203	1211	9	YEQYIKWPW	2.1e-05	58
HLA-A*02:06	1	1207	1216	10	IKWPWYIWL	2.1e-05	65
HLA-A*02:06	1	1211	1220	10	WYIWLGFIA	2.1e-05	65
HLA-B*53:01	1	1213	1222	10	IWLGFIAGLI	2.1e-05	40
HLA-A*03:01	1	1214	1222	9	WLGFIAGLI	2.1e-05	50
HLA-B*44:02	1	1216	1225	10	GFIAGLIAIV	2.1e-05	43
HLA-B*08:01	1	1219	1228	10	AGLIAIVMVT	2.1e-05	73
HLA-A*11:01	1	1225	1233	9	VMVTIMLCC	2.1e-05	37
HLA-B*57:01	1	1232	1240	9	CCMTSCCSC	2.1e-05	72
HLA-A*31:01	1	1234	1243	10	MTSCCCLKG	2.1e-05	57
HLA-B*15:01	1	1240	1248	9	CLKGCCSCG	2.1e-05	55
HLA-B*58:01	1	1242	1250	9	KGCCSCGSC	2.1e-05	60
HLA-B*57:01	1	1243	1252	10	GCCSCGSCCK	2.1e-05	72
HLA-A*31:01	1	1244	1253	10	CCSCGSCCKF	2.1e-05	57
HLA-A*02:03	1	1245	1253	9	CSCGSCCKF	2.1e-05	58
HLA-B*58:01	1	1248	1257	10	GSCCKFDEDD	2.1e-05	60
HLA-B*53:01	1	1251	1260	10	CKFDEDDSEP	2.1e-05	40
HLA-A*68:01	1	1253	1261	9	FDEDDSEPV	2.1e-05	50
HLA-B*40:01	1	1260	1269	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	SQCVNLTTTRT	2e-05	38
HLA-B*07:02	1	13	22	10	SQCVNLTTTRT	2e-05	55
HLA-A*03:01	1	14	22	9	QCVNLTTTRT	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	YPDKVFRSSV	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*68:01	1	72	81	10	GTNGTKRFAN	2e-05	51
HLA-A*01:01	1	73	81	9	TNGTKRFAN	2e-05	78
HLA-A*24:02	1	74	83	10	NGTKRFANPV	2e-05	36
HLA-B*15:01	1	74	83	10	NGTKRFANPV	2e-05	55
HLA-A*02:01	1	76	85	10	TKRFANPVLP	2e-05	55
HLA-B*53:01	1	78	87	10	RFANPVLPFN	2e-05	41
HLA-A*02:03	1	79	88	10	FANPVLPFN	2e-05	58
HLA-A*23:01	1	79	87	9	FANPVLPFN	2e-05	38

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	GTTLDSKTQS 2e-05	74
HLA-B*08:01	1	113	121	9	KTQSLLIVN 2e-05	74
HLA-B*53:01	1	116	124	9	LLIVNNAT 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	HKNKSWME 2e-05	73
HLA-B*44:02	1	147	155	9	KNNKSWME 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	NCTFEYVSQL 2e-05	38
HLA-A*02:06	1	169	178	10	EYVSQPFMD 2e-05	66
HLA-A*32:01	1	172	181	10	SQPFMDLEG 2e-05	43
HLA-A*23:01	1	173	182	10	QPFMDLEGK 2e-05	38
HLA-B*44:03	1	173	181	9	QPFMDLEG 2e-05	40
HLA-B*44:03	1	175	183	9	FLMDLEGKQ 2e-05	40
HLA-B*35:01	1	176	184	9	LMDELEGKQ 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-B*07:02	1	211	219	9	NLVRGLPQG 2e-05	55
HLA-B*44:02	1	211	219	9	NLVRGLPQG 2e-05	43
HLA-A*11:01	1	215	224	10	GLPQGFSALE 2e-05	38
HLA-B*40:01	1	215	224	10	GLPQGFSALE 2e-05	35
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-B*44:03	1	235	243	9	ITRFQTLHR 2e-05	40
HLA-A*30:01	1	241	250	10	LHRSYLTPGD 2e-05	82
HLA-B*44:03	1	244	253	10	SYLTPGDSSS 2e-05	40
HLA-A*30:01	1	247	256	10	TPGDSSSGWT 2e-05	82
HLA-B*53:01	1	252	260	9	SSGWTAGAA 2e-05	41
HLA-B*08:01	1	259	268	10	AAAYVGYLQ 2e-05	74
HLA-A*31:01	1	272	280	9	FLLKYNENG 2e-05	57
HLA-A*31:01	1	273	282	10	LLKYNENGTI 2e-05	57
HLA-A*33:01	1	274	282	9	LKYNENGTI 2e-05	61
HLA-A*31:01	1	280	288	9	GTITDAVDC 2e-05	57
HLA-B*44:03	1	281	290	10	TITDAVDCAL 2e-05	40
HLA-A*31:01	1	285	294	10	AVDCALDPLS 2e-05	57
HLA-B*07:02	1	287	295	9	DCALDPLSE 2e-05	55
HLA-B*44:03	1	293	302	10	LSETKCTLKS 2e-05	40
HLA-A*68:01	1	294	302	9	SETKCTLKS 2e-05	51
HLA-B*53:01	1	295	304	10	ETKCTLKSFT 2e-05	41
HLA-B*57:01	1	300	308	9	LKSFTVEKG 2e-05	73



HLA-A*23:01	1	303	311	9	FTVEKGIYQ	2e-05	38
HLA-B*07:02	1	312	321	10	TSNFRVQPT	2e-05	55
HLA-B*44:02	1	313	322	10	SNFRVQPTES	2e-05	43
HLA-A*03:01	1	319	327	9	PTESIVRFP	2e-05	50
HLA-A*68:01	1	320	328	9	TESIVRFPN	2e-05	51
HLA-A*02:01	1	321	330	10	ESIVRFPNIT	2e-05	55
HLA-A*30:01	1	328	337	10	NITNLCPFGE	2e-05	82
HLA-B*57:01	1	328	336	9	NITNLCPFG	2e-05	73
HLA-B*15:01	1	329	337	9	ITNLCPFGE	2e-05	55
HLA-A*31:01	1	331	340	10	NLCPFGEVFN	2e-05	57
HLA-A*01:01	1	334	342	9	PFGEVFNAT	2e-05	78
HLA-B*44:03	1	338	347	10	VFNATRFASV	2e-05	40
HLA-A*01:01	1	347	356	10	VYAWNKRKRIS	2e-05	78
HLA-A*02:03	1	352	360	9	RKRISNCVA	2e-05	58
HLA-A*68:01	1	355	364	10	ISNCVADYSV	2e-05	51
HLA-B*35:01	1	364	372	9	VLYNSASFS	2e-05	42
HLA-B*58:01	1	370	378	9	SFSTFKCYG	2e-05	61
HLA-A*31:01	1	377	385	9	YGVSPTKLN	2e-05	57
HLA-A*02:03	1	381	389	9	PTKLNLCF	2e-05	58
HLA-A*32:01	1	384	392	9	LNDLCFTNV	2e-05	43
HLA-B*07:02	1	384	393	10	LNDLCFTNVY	2e-05	55
HLA-B*35:01	1	384	392	9	LNDLCFTNV	2e-05	42
HLA-A*03:01	1	393	401	9	YADSFVIRG	2e-05	50
HLA-A*30:02	1	393	402	10	YADSFVIRGD	2e-05	80
HLA-A*31:01	1	395	404	10	DSFVIRGDEV	2e-05	57
HLA-B*53:01	1	399	408	10	IRGDEVQRQA	2e-05	41
HLA-A*26:01	1	404	413	10	VRQIAPGQTG	2e-05	50
HLA-B*44:02	1	406	414	9	QIAPGQTGN	2e-05	43
HLA-B*44:02	1	412	421	10	TGNIADYNYK	2e-05	43
HLA-A*02:06	1	419	427	9	NYKLPDDFT	2e-05	66
HLA-A*68:02	1	420	428	9	YKLPDDFTG	2e-05	57
HLA-B*44:03	1	421	429	9	KLPDDFTGC	2e-05	40
HLA-B*53:01	1	421	429	9	KLPDDFTGC	2e-05	41
HLA-A*30:01	1	422	431	10	LPDDFTGCVI	2e-05	82
HLA-A*01:01	1	423	432	10	PDDFTGCVIA	2e-05	78
HLA-B*35:01	1	431	440	10	IAWNSNNLDS	2e-05	42
HLA-B*15:01	1	439	447	9	DSKVGGNYN	2e-05	55
HLA-B*53:01	1	439	447	9	DSKVGGNYN	2e-05	41
HLA-A*24:02	1	442	451	10	VGGNYNYLYR	2e-05	36
HLA-A*02:03	1	443	451	9	GGNYNYLYR	2e-05	58
HLA-B*53:01	1	443	451	9	GGNYNYLYR	2e-05	41
HLA-B*40:01	1	448	456	9	YLYRFRKS	2e-05	35
HLA-A*02:01	1	449	458	10	LYRFRKSNL	2e-05	55
HLA-A*26:01	1	449	458	10	LYRFRKSNL	2e-05	50
HLA-B*57:01	1	453	462	10	FRKSNLKPFE	2e-05	73
HLA-A*33:01	1	456	464	9	SNLKPFERD	2e-05	61
HLA-B*51:01	1	462	471	10	ERDISTEIQ	2e-05	66
HLA-A*02:01	1	463	471	9	RDISTEIQ	2e-05	55
HLA-A*68:01	1	469	477	9	IYQAGSTPC	2e-05	51
HLA-B*58:01	1	469	478	10	IYQAGSTPCN	2e-05	61
HLA-A*31:01	1	470	478	9	YQAGSTPCN	2e-05	57
HLA-B*35:01	1	471	480	10	QAGSTPCNGV	2e-05	42
HLA-B*53:01	1	471	479	9	QAGSTPCNG	2e-05	41
HLA-B*44:02	1	472	481	10	AGSTPCNGVK	2e-05	43
HLA-A*31:01	1	474	482	9	STPCNGVK	2e-05	57
HLA-B*44:02	1	489	497	9	LQSYGFQPT	2e-05	43
HLA-A*03:01	1	491	499	9	SYGFQPTYG	2e-05	50
HLA-B*40:01	1	496	504	9	PTYGVGYQP	2e-05	35
HLA-B*44:03	1	502	511	10	YQPYRVVLS	2e-05	40
HLA-A*02:06	1	520	529	10	TVCGPKKSTN	2e-05	66
HLA-A*32:01	1	520	529	10	TVCGPKKSTN	2e-05	43
HLA-A*32:01	1	522	531	10	CGPKKSTNLV	2e-05	43
HLA-B*44:03	1	524	532	9	PKKSTNLVK	2e-05	40
HLA-B*35:01	1	526	534	9	KSTNLVKNK	2e-05	42
HLA-A*24:02	1	527	536	10	STNLVKNKCV	2e-05	36
HLA-A*01:01	1	529	537	9	NLVKNKCVN	2e-05	78

HLA-B*58:01	1	530	539	10	LVKNKCVNFN 2e-05	61
HLA-A*33:01	1	535	544	10	CVNFNFNGLT 2e-05	61
HLA-A*31:01	1	536	545	10	VNFNFNGLTG 2e-05	57
HLA-A*32:01	1	536	545	10	VNFNFNGLTG 2e-05	43
HLA-A*03:01	1	537	546	10	NFNFNGLTGT 2e-05	50
HLA-B*44:02	1	539	547	9	NFNGLTGTG 2e-05	43
HLA-A*31:01	1	540	548	9	FNGLTGTGV 2e-05	57
HLA-A*33:01	1	542	551	10	GLTGTGVLTE 2e-05	61
HLA-A*11:01	1	548	557	10	VLTESNKKFL 2e-05	38
HLA-A*23:01	1	551	560	10	ESNKKFLPFQ 2e-05	38
HLA-B*44:02	1	552	561	10	SNKKFLPFQQ 2e-05	43
HLA-A*02:06	1	558	567	10	PFQFGRDIA 2e-05	66
HLA-A*03:01	1	560	569	10	QQFGRDIADT 2e-05	50
HLA-A*33:01	1	560	569	10	QQFGRDIADT 2e-05	61
HLA-B*08:01	1	562	571	10	FGRDIADTTD 2e-05	74
HLA-B*44:03	1	563	572	10	GRDIADTTDA 2e-05	40
HLA-A*03:01	1	566	575	10	IADTTDAVRD 2e-05	50
HLA-B*44:03	1	569	577	9	TTDAVRDPQ 2e-05	40
HLA-A*33:01	1	570	578	9	TDAVRDPQT 2e-05	61
HLA-B*57:01	1	574	583	10	RDPQTLEILD 2e-05	73
HLA-B*58:01	1	579	588	10	LEILDITPCS 2e-05	61
HLA-A*02:01	1	584	593	10	ITPCSFGGVS 2e-05	55
HLA-A*03:01	1	584	592	9	ITPCSFGGV 2e-05	50
HLA-A*11:01	1	585	594	10	TPCSFGGVSV 2e-05	38
HLA-B*40:01	1	586	594	9	PCSFGGVSV 2e-05	35
HLA-B*51:01	1	590	599	10	GGVSVITPGT 2e-05	66
HLA-A*32:01	1	591	600	10	GVSVITPGTN 2e-05	43
HLA-B*44:02	1	592	601	10	VSVITPGTNT 2e-05	43
HLA-A*26:01	1	594	603	10	VITPGTNTSN 2e-05	50
HLA-A*31:01	1	594	603	10	VITPGTNTSN 2e-05	57
HLA-B*08:01	1	595	603	9	ITPGTNTSN 2e-05	74
HLA-B*53:01	1	595	603	9	ITPGTNTSN 2e-05	41
HLA-A*31:01	1	596	604	9	TPGTNTSNQ 2e-05	57
HLA-B*58:01	1	596	604	9	TPGTNTSNQ 2e-05	61
HLA-B*51:01	1	597	606	10	PGTNTSNQVA 2e-05	66
HLA-B*35:01	1	598	607	10	GTNTSNQVAV 2e-05	42
HLA-B*53:01	1	602	610	9	SNQVAVLYQ 2e-05	41
HLA-A*26:01	1	608	616	9	LYQGVNCTE 2e-05	50
HLA-B*40:01	1	608	617	10	LYQGVNCTEV 2e-05	35
HLA-B*53:01	1	611	619	9	GVNCTEVPV 2e-05	41
HLA-B*35:01	1	615	624	10	TEVPVAIHAD 2e-05	42
HLA-B*15:01	1	616	625	10	EVPVAIHADQ 2e-05	55
HLA-B*44:02	1	617	625	9	VPVAIHADQ 2e-05	43
HLA-B*44:03	1	619	627	9	VAIHADQLT 2e-05	40
HLA-A*33:01	1	628	637	10	PTWRVYSTGS 2e-05	61
HLA-A*03:01	1	633	642	10	YSTGSNVFQT 2e-05	50
HLA-A*02:03	1	637	645	9	SNVFQTRAG 2e-05	58
HLA-A*03:01	1	640	648	9	FQTRAGCLI 2e-05	50
HLA-A*02:03	1	644	652	9	AGCLIGAHEH 2e-05	58
HLA-A*32:01	1	648	656	9	IGAHEHVNS 2e-05	43
HLA-A*68:02	1	650	658	9	AHEHVNSYE 2e-05	57
HLA-A*32:01	1	653	661	9	VNNSYECDI 2e-05	43
HLA-B*35:01	1	657	666	10	YECDIPIGAG 2e-05	42
HLA-A*02:01	1	660	668	9	DIPIGAGIC 2e-05	55
HLA-A*68:01	1	660	668	9	DIPIGAGIC 2e-05	51
HLA-B*15:01	1	661	670	10	IPIGAGICAS 2e-05	55
HLA-A*01:01	1	662	670	9	PIGAGICAS 2e-05	78
HLA-B*15:01	1	664	672	9	GAGICASYQ 2e-05	55
HLA-B*07:02	1	665	673	9	AGICASYQT 2e-05	55
HLA-A*02:01	1	668	677	10	CASYQTQTN 2e-05	55
HLA-B*53:01	1	673	682	10	TQTNSPRRAR 2e-05	41
HLA-A*02:01	1	676	685	10	NSPRRARSVA 2e-05	55
HLA-B*15:01	1	677	686	10	SPRRARSVAS 2e-05	55
HLA-B*35:01	1	679	687	9	RRARSVASQ 2e-05	42
HLA-A*68:01	1	681	690	10	ARSVASQSII 2e-05	51
HLA-B*07:02	1	687	695	9	QSIAYTMS 2e-05	55

HLA-A*24:02	1	690	699	10	IAYTMSLGV 2e-05	36
HLA-B*44:02	1	692	701	10	YTMSLGVENS 2e-05	43
HLA-A*11:01	1	696	705	10	LGVENSVAYS 2e-05	38
HLA-A*31:01	1	696	705	10	LGVENSVAYS 2e-05	57
HLA-A*01:01	1	699	707	9	ENSVAYSNN 2e-05	78
HLA-A*33:01	1	703	712	10	AYSNNSIAIP 2e-05	61
HLA-B*08:01	1	712	721	10	PTNFTISVTT 2e-05	74
HLA-B*07:02	1	717	725	9	ISVTTEILP 2e-05	55
HLA-A*32:01	1	720	729	10	TTEILPVSM 2e-05	43
HLA-B*40:01	1	724	732	9	LPVSMTKTS 2e-05	35
HLA-A*02:03	1	726	734	9	VSMTKTSVD 2e-05	58
HLA-A*31:01	1	729	737	9	TKTSVDCTM 2e-05	57
HLA-A*03:01	1	731	740	10	TSVDCTMYIC 2e-05	50
HLA-A*11:01	1	738	746	9	YICGDSTEC 2e-05	38
HLA-A*02:06	1	739	747	9	ICGDSTEC 2e-05	66
HLA-B*08:01	1	743	752	10	STECNLLLQ 2e-05	74
HLA-A*32:01	1	746	754	9	CSNLLLQYG 2e-05	43
HLA-A*11:01	1	747	755	9	SNLLLQYGS 2e-05	38
HLA-B*08:01	1	753	762	10	YGSFCTQLNR 2e-05	74
HLA-A*11:01	1	755	764	10	SFCTQLNRAL 2e-05	38
HLA-A*02:06	1	757	766	10	CTQLNRALTG 2e-05	66
HLA-B*53:01	1	758	766	9	TQLNRALTG 2e-05	41
HLA-A*02:06	1	760	768	9	LNRLALTGIA 2e-05	66
HLA-B*53:01	1	761	770	10	NRALTGIAVE 2e-05	41
HLA-B*44:02	1	762	771	10	RALTGIAVEQ 2e-05	43
HLA-A*03:01	1	772	780	9	DKNTQEVFA 2e-05	50
HLA-A*26:01	1	772	780	9	DKNTQEVFA 2e-05	50
HLA-A*03:01	1	782	791	10	VKQIYKTPPI 2e-05	50
HLA-B*44:03	1	782	790	9	VKQIYKTPP 2e-05	40
HLA-B*51:01	1	784	793	10	QIYKTPPIKD 2e-05	66
HLA-A*03:01	1	787	796	10	KTPPIKDFGG 2e-05	50
HLA-A*11:01	1	788	797	10	TPPIKDFGGF 2e-05	38
HLA-A*68:02	1	788	796	9	TPPIKDFGG 2e-05	57
HLA-B*44:03	1	798	806	9	NFSQILPDP 2e-05	40
HLA-B*58:01	1	798	807	10	NFSQILPDPS 2e-05	61
HLA-A*11:01	1	799	807	9	FSQILPDPS 2e-05	38
HLA-A*26:01	1	808	816	9	KPSKRSFIE 2e-05	50
HLA-A*33:01	1	812	821	10	RSFIEDLLFN 2e-05	61
HLA-B*44:02	1	813	821	9	SFIEDLLFN 2e-05	43
HLA-B*44:03	1	817	826	10	DLLFNKVTLA 2e-05	40
HLA-A*02:06	1	829	837	9	GFIKQYGD 2e-05	66
HLA-B*35:01	1	829	838	10	GFIKQYGDCL 2e-05	42
HLA-B*51:01	1	830	839	10	FIKQYGDCLG 2e-05	66
HLA-A*30:02	1	831	840	10	IKQYGDCLGD 2e-05	80
HLA-A*11:01	1	832	841	10	KQYGDCLGDI 2e-05	38
HLA-B*44:03	1	832	840	9	KQYGDCLGD 2e-05	40
HLA-A*32:01	1	836	844	9	DCLGDIAAR 2e-05	43
HLA-B*44:02	1	839	848	10	GDIAARDLIC 2e-05	43
HLA-B*51:01	1	843	851	9	ARDLICAQK 2e-05	66
HLA-B*58:01	1	844	853	10	RDLICAQKFN 2e-05	61
HLA-B*08:01	1	845	853	9	DLICAQKFN 2e-05	74
HLA-B*44:03	1	848	857	10	CAQKFNGLTV 2e-05	40
HLA-B*44:03	1	855	863	9	LTVLPPLL 2e-05	40
HLA-A*33:01	1	860	869	10	PLLTDEMIAQ 2e-05	61
HLA-A*31:01	1	864	873	10	DEMIAQY TSA 2e-05	57
HLA-A*68:02	1	869	877	9	QYTSALLAG 2e-05	57
HLA-A*32:01	1	872	880	9	SALLAGTIT 2e-05	43
HLA-A*24:02	1	873	881	9	ALLAGTITS 2e-05	36
HLA-A*26:01	1	873	882	10	ALLAGTITSG 2e-05	50
HLA-B*53:01	1	884	892	9	TFGAGAALQ 2e-05	41
HLA-A*24:02	1	890	898	9	ALQIPFAMQ 2e-05	36
HLA-A*02:06	1	894	903	10	PFAMQMAYRF 2e-05	66
HLA-A*03:01	1	894	903	10	PFAMQMAYRF 2e-05	50
HLA-A*01:01	1	896	904	9	AMQMAYRFN 2e-05	78
HLA-A*01:01	1	900	909	10	AYRFNGIGVT 2e-05	78
HLA-B*53:01	1	900	908	9	AYRFNGIGV 2e-05	41

HLA-B*44:02	1	901	909	9	YRFNGIGVT	2e-05	43
HLA-B*57:01	1	903	911	9	FNGIGVTQN	2e-05	73
HLA-B*08:01	1	906	915	10	IGVTQNVLYE	2e-05	74
HLA-A*11:01	1	907	916	10	GVTQNVLYEN	2e-05	38
HLA-A*32:01	1	910	918	9	QNVLYENQK	2e-05	43
HLA-A*31:01	1	914	922	9	YENQKLIAN	2e-05	57
HLA-A*68:02	1	914	923	10	YENQKLIANQ	2e-05	57
HLA-A*02:01	1	915	923	9	ENQKLIANQ	2e-05	55
HLA-B*15:01	1	915	923	9	ENQKLIANQ	2e-05	55
HLA-B*44:03	1	918	926	9	KLIANQFNS	2e-05	40
HLA-A*01:01	1	921	929	9	ANQFNSAIG	2e-05	78
HLA-A*02:01	1	928	937	10	IGKIQDSLSS	2e-05	55
HLA-A*02:03	1	928	936	9	IGKIQDSLSS	2e-05	58
HLA-A*02:01	1	929	937	9	GKIQDSLSS	2e-05	55
HLA-B*51:01	1	929	937	9	GKIQDSLSS	2e-05	66
HLA-B*53:01	1	930	938	9	KIQDSLSSST	2e-05	41
HLA-A*02:01	1	938	946	9	TASALGKLQ	2e-05	55
HLA-B*08:01	1	941	950	10	ALGKLQDVVN	2e-05	74
HLA-A*24:02	1	950	958	9	NQNAQALNT	2e-05	36
HLA-B*51:01	1	956	965	10	LNTLVKQLSS	2e-05	66
HLA-B*53:01	1	958	966	9	TLVKQLSSN	2e-05	41
HLA-B*08:01	1	962	971	10	QLSSNFGAIS	2e-05	74
HLA-B*15:01	1	963	972	10	LSSNFGAISS	2e-05	55
HLA-B*58:01	1	966	975	10	NFGAISSVLN	2e-05	61
HLA-A*02:01	1	970	979	10	ISSVLNDILS	2e-05	55
HLA-A*33:01	1	971	979	9	SSVLNDILS	2e-05	61
HLA-A*32:01	1	977	985	9	ILSRLDKVE	2e-05	43
HLA-B*44:03	1	978	986	9	LSRLDKVEA	2e-05	40
HLA-A*03:01	1	982	990	9	DKVEAEVQI	2e-05	50
HLA-B*15:01	1	983	991	9	KVEAEVQID	2e-05	55
HLA-A*11:01	1	987	995	9	EVQIDRLIT	2e-05	38
HLA-B*53:01	1	988	997	10	VQIDRLITGR	2e-05	41
HLA-B*57:01	1	991	1000	10	DRLITGRLQS	2e-05	73
HLA-A*68:02	1	993	1002	10	LITGRLQSLQ	2e-05	57
HLA-A*68:01	1	1009	1018	10	LIRAAEIRAS	2e-05	51
HLA-A*32:01	1	1020	1029	10	NLAATKMSEC	2e-05	43
HLA-A*11:01	1	1023	1032	10	ATKMSECVLG	2e-05	38
HLA-B*07:02	1	1025	1033	9	KMSECVLGQ	2e-05	55
HLA-B*15:01	1	1028	1037	10	ECVLGQSKRV	2e-05	55
HLA-A*02:06	1	1029	1038	10	CVLGQSKRVD	2e-05	66
HLA-B*40:01	1	1029	1037	9	CVLGQSKRV	2e-05	35
HLA-A*02:06	1	1030	1038	9	VLGQSKRVD	2e-05	66
HLA-B*58:01	1	1030	1038	9	VLGQSKRVD	2e-05	61
HLA-B*53:01	1	1033	1041	9	QSKRVDFCG	2e-05	41
HLA-A*30:02	1	1034	1043	10	SKRVDFCGKG	2e-05	80
HLA-A*26:01	1	1035	1043	9	KRVDFCGKG	2e-05	50
HLA-B*44:02	1	1040	1049	10	CGKGYHLMFS	2e-05	43
HLA-A*02:06	1	1043	1052	10	GYHLMSPQS	2e-05	66
HLA-A*32:01	1	1048	1056	9	SFPQSAPHG	2e-05	43
HLA-B*53:01	1	1048	1056	9	SFPQSAPHG	2e-05	41
HLA-A*03:01	1	1050	1058	9	PQSAPHGVV	2e-05	50
HLA-B*15:01	1	1065	1074	10	VPAQEKNFVT	2e-05	55
HLA-B*35:01	1	1067	1076	10	AQEKNFVTAP	2e-05	42
HLA-A*33:01	1	1073	1082	10	TTAPAICHDG	2e-05	61
HLA-B*35:01	1	1073	1081	9	TTAPAICHD	2e-05	42
HLA-B*44:02	1	1073	1081	9	TTAPAICHD	2e-05	43
HLA-A*02:01	1	1074	1083	10	TAPAICHDGK	2e-05	55
HLA-B*08:01	1	1082	1090	9	GKAHFPREG	2e-05	74
HLA-A*01:01	1	1088	1097	10	REGVFSVNGT	2e-05	78
HLA-B*15:01	1	1093	1102	10	VSNQTHWFVT	2e-05	55
HLA-B*07:02	1	1095	1104	10	NGTHWFVTQR	2e-05	55
HLA-B*07:02	1	1100	1109	10	FVTQRNFYEP	2e-05	55
HLA-A*32:01	1	1101	1110	10	VTQRNFYEPQ	2e-05	43
HLA-A*68:02	1	1102	1110	9	TQRNFYEPQ	2e-05	57
HLA-A*30:02	1	1108	1116	9	EPQIITTDN	2e-05	80
HLA-B*40:01	1	1111	1119	9	IITTDNTFV	2e-05	35

HLA-A*24:02	1	1112	1120	9	ITTDNTFVS	2e-05	36
HLA-B*08:01	1	1112	1121	10	ITTDNTFVSG	2e-05	74
HLA-B*15:01	1	1112	1121	10	ITTDNTFVSG	2e-05	55
HLA-A*23:01	1	1113	1121	9	TTDNTFVSG	2e-05	38
HLA-A*30:02	1	1114	1122	9	TDNTFVSGN	2e-05	80
HLA-B*08:01	1	1114	1123	10	TDNTFVSGNC	2e-05	74
HLA-B*51:01	1	1115	1124	10	DNTFVSGNCD	2e-05	66
HLA-A*02:06	1	1116	1124	9	NTFVSGNCD	2e-05	66
HLA-B*35:01	1	1116	1125	10	NTFVSGNCDV	2e-05	42
HLA-B*40:01	1	1120	1129	10	SGNCDVVIGI	2e-05	35
HLA-B*51:01	1	1120	1128	9	SGNCDVVIG	2e-05	66
HLA-B*44:03	1	1122	1130	9	NCDVVIGIV	2e-05	40
HLA-A*68:01	1	1128	1137	10	GIVNNTVYDP	2e-05	51
HLA-A*30:01	1	1136	1144	9	DPLQPELDS	2e-05	82
HLA-B*44:03	1	1137	1146	10	PLQPELDSFK	2e-05	40
HLA-A*68:02	1	1142	1151	10	LDSFKEELDK	2e-05	57
HLA-B*35:01	1	1146	1154	9	KEELDKYFK	2e-05	42
HLA-B*51:01	1	1146	1154	9	KEELDKYFK	2e-05	66
HLA-A*31:01	1	1147	1155	9	EELDKYFKN	2e-05	57
HLA-A*31:01	1	1149	1157	9	LDKYFKNHT	2e-05	57
HLA-A*03:01	1	1150	1159	10	DKYFKNHTSP	2e-05	50
HLA-B*40:01	1	1152	1161	10	YFKNHTSPDV	2e-05	35
HLA-B*51:01	1	1155	1164	10	NHTSPDVLG	2e-05	66
HLA-A*02:01	1	1157	1165	9	TSPDVLGD	2e-05	55
HLA-B*53:01	1	1157	1165	9	TSPDVLGD	2e-05	41
HLA-A*02:03	1	1161	1170	10	VDLGDISGIN	2e-05	58
HLA-A*30:01	1	1161	1170	10	VDLGDISGIN	2e-05	82
HLA-A*33:01	1	1166	1174	9	ISGINASVV	2e-05	61
HLA-B*51:01	1	1166	1175	10	ISGINASVVN	2e-05	66
HLA-A*68:01	1	1167	1175	9	SGINASVVI	2e-05	51
HLA-B*44:03	1	1167	1176	10	SGINASVVI	2e-05	40
HLA-A*26:01	1	1175	1184	10	NIQKEIDRLN	2e-05	50
HLA-A*33:01	1	1175	1184	10	NIQKEIDRLN	2e-05	61
HLA-A*23:01	1	1178	1187	10	KEIDRLNEVA	2e-05	38
HLA-A*01:01	1	1180	1189	10	IDRLNEVAKN	2e-05	78
HLA-A*30:02	1	1181	1189	9	DRLNEVAKN	2e-05	80
HLA-B*15:01	1	1184	1192	9	NEVAKNLNE	2e-05	55
HLA-B*58:01	1	1184	1192	9	NEVAKNLNE	2e-05	61
HLA-A*02:06	1	1190	1199	10	LNESLIDLQE	2e-05	66
HLA-B*57:01	1	1191	1199	9	NESLIDLQE	2e-05	73
HLA-B*57:01	1	1196	1205	10	DLQELGKYEQ	2e-05	73
HLA-A*24:02	1	1197	1205	9	LQELGKYEQ	2e-05	36
HLA-A*26:01	1	1209	1218	10	WPWYIWLGFI	2e-05	50
HLA-A*26:01	1	1211	1219	9	WYIWLGFIA	2e-05	50
HLA-B*44:02	1	1211	1219	9	WYIWLGFIA	2e-05	43
HLA-B*44:02	1	1213	1222	10	IWLGFIAGLI	2e-05	43
HLA-A*26:01	1	1219	1227	9	AGLIAIVMV	2e-05	50
HLA-A*03:01	1	1226	1234	9	MVTIMLCCM	2e-05	50
HLA-A*31:01	1	1227	1236	10	VTIMLCCMTS	2e-05	57
HLA-A*31:01	1	1228	1237	10	TIMLCCMTSC	2e-05	57
HLA-B*07:02	1	1228	1236	9	TIMLCCMTS	2e-05	55
HLA-A*68:02	1	1233	1241	9	CMTSCCSCL	2e-05	57
HLA-A*02:01	1	1251	1260	10	CKFDEDDSEP	2e-05	55
HLA-B*58:01	1	1251	1260	10	CKFDEDDSEP	2e-05	61
HLA-B*15:01	1	1255	1263	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	LVLLPLVSS	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	NLTTTRTQLP	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-A*24:02	1	79	87	9	FANPVLPFN	1.9e-05	37
HLA-A*30:02	1	80	88	9	ANPVLPFND	1.9e-05	81
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	IFGTTLDSK	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	IFGTTLDSK	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	SLLVNNATN	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	HKNKSWME	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	REFVFKNID	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*03:01	1	207	215	9	HTPINLVRG	1.9e-05	51
HLA-B*07:02	1	207	215	9	HTPINLVRG	1.9e-05	55
HLA-A*03:01	1	208	217	10	TPINLVRGLP	1.9e-05	51
HLA-B*53:01	1	211	219	9	NLVRGLPQG	1.9e-05	41
HLA-B*44:02	1	215	224	10	GLPQGFSALE	1.9e-05	44
HLA-B*44:03	1	215	224	10	GLPQGFSALE	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*40:01	1	233	242	10	INITRFQTLH	1.9e-05	35
HLA-A*03:01	1	238	247	10	FQTLHRSYLT	1.9e-05	51
HLA-A*33:01	1	243	251	9	RSYLTPGDS	1.9e-05	62
HLA-B*53:01	1	245	254	10	YLTPGDSSSG	1.9e-05	41
HLA-B*08:01	1	248	257	10	PGDSSSGWTA	1.9e-05	75
HLA-B*40:01	1	252	260	9	SSGWTAGAA	1.9e-05	35
HLA-A*01:01	1	256	265	10	TAGAAAYVVG	1.9e-05	79
HLA-B*07:02	1	259	268	10	AAAYVVGYLQ	1.9e-05	55
HLA-B*58:01	1	262	271	10	YYVGYLQPR	1.9e-05	62
HLA-A*31:01	1	273	281	9	LLKYNENGT	1.9e-05	58
HLA-B*40:01	1	274	283	10	LKYNENGTIT	1.9e-05	35
HLA-A*31:01	1	277	285	9	NENGTITDA	1.9e-05	58
HLA-A*11:01	1	278	286	9	ENGTITDAV	1.9e-05	38
HLA-B*15:01	1	278	286	9	ENGTITDAV	1.9e-05	56
HLA-B*44:02	1	287	295	9	DCALDPLSE	1.9e-05	44
HLA-B*44:02	1	287	296	10	DCALDPLSET	1.9e-05	44
HLA-A*30:01	1	290	298	9	LDPLSETKC	1.9e-05	82
HLA-B*53:01	1	294	302	9	SETKCTLKS	1.9e-05	41
HLA-A*24:02	1	296	305	10	TKCTLKSFTV	1.9e-05	37
HLA-A*68:02	1	296	304	9	TKCTLKSFT	1.9e-05	57
HLA-A*24:02	1	298	307	10	CTLKSFTVEK	1.9e-05	37
HLA-B*44:03	1	300	309	10	LKSFTVEKGI	1.9e-05	41
HLA-B*44:03	1	302	311	10	SFTVEKGIYQ	1.9e-05	41
HLA-B*51:01	1	305	314	10	VEKGIYQTSN	1.9e-05	67
HLA-B*57:01	1	305	314	10	VEKGIYQTSN	1.9e-05	74
HLA-B*44:03	1	308	317	10	GIYQTSNFRV	1.9e-05	41
HLA-A*26:01	1	309	318	10	IYQTSNFRVQ	1.9e-05	51
HLA-B*51:01	1	311	320	10	QTSNFRVQPT	1.9e-05	67
HLA-A*02:01	1	319	327	9	PTESIVRFP	1.9e-05	56
HLA-A*68:01	1	319	327	9	PTESIVRFP	1.9e-05	52
HLA-A*03:01	1	320	329	10	TESIVRFPNI	1.9e-05	51
HLA-B*35:01	1	324	333	10	VRFPNITNLC	1.9e-05	42
HLA-A*02:01	1	326	334	9	FPNITNLC	1.9e-05	56
HLA-A*11:01	1	326	335	10	FPNITNLC	1.9e-05	38
HLA-A*01:01	1	328	336	9	NITNLC	1.9e-05	79
HLA-B*44:02	1	331	340	10	NLC	1.9e-05	44
HLA-B*40:01	1	332	341	10	LCP	1.9e-05	35
HLA-B*44:03	1	332	341	10	LCP	1.9e-05	41
HLA-B*44:03	1	335	343	9	FGEVFNATR	1.9e-05	41
HLA-B*58:01	1	338	346	9	VFNATRFAS	1.9e-05	62
HLA-B*08:01	1	344	353	10	FASVYAWNRK	1.9e-05	75
HLA-A*23:01	1	355	364	10	ISNCVADYSV	1.9e-05	39
HLA-B*35:01	1	355	363	9	ISNCVADYS	1.9e-05	42
HLA-B*35:01	1	361	370	10	DYSVLVNSAS	1.9e-05	42
HLA-A*23:01	1	364	372	9	VLYNSASFS	1.9e-05	39
HLA-A*23:01	1	367	376	10	NSASFSTFKC	1.9e-05	39
HLA-A*33:01	1	374	382	9	FKCYGVSPT	1.9e-05	62
HLA-B*15:01	1	374	382	9	FKCYGVSPT	1.9e-05	56
HLA-B*08:01	1	378	386	9	GVSPTKLND	1.9e-05	75
HLA-A*11:01	1	379	388	10	VSPTKLNDLC	1.9e-05	38
HLA-B*40:01	1	381	389	9	PTKLNDLCF	1.9e-05	35
HLA-B*07:02	1	385	394	10	NDLCFTNVYA	1.9e-05	55
HLA-A*03:01	1	389	398	10	FTNVYADSFV	1.9e-05	51
HLA-B*44:02	1	395	404	10	DSFVIRGDEV	1.9e-05	44
HLA-B*58:01	1	395	403	9	DSFVIRGDE	1.9e-05	62
HLA-B*51:01	1	398	406	9	VIRGDEV	1.9e-05	67
HLA-B*35:01	1	399	408	10	IRGDEV	1.9e-05	42
HLA-B*15:01	1	400	409	10	RGDEV	1.9e-05	56
HLA-B*07:02	1	402	410	9	DEV	1.9e-05	55
HLA-A*23:01	1	404	412	9	VRQIAPGQT	1.9e-05	39
HLA-B*44:03	1	404	412	9	VRQIAPGQT	1.9e-05	41
HLA-A*30:01	1	408	417	10	APGQTGN	1.9e-05	82

HLA-B*08:01	1	412	421	10	TGNIADYNYK	1.9e-05	75
HLA-A*03:01	1	415	423	9	IADYNYKLP	1.9e-05	51
HLA-A*30:01	1	416	425	10	ADYNYKLPDD	1.9e-05	82
HLA-A*24:02	1	417	425	9	DYNYKLPDD	1.9e-05	37
HLA-A*30:02	1	417	425	9	DYNYKLPDD	1.9e-05	81
HLA-B*35:01	1	419	428	10	NYKLPDDFTG	1.9e-05	42
HLA-A*03:01	1	420	429	10	YKLPDDFTGC	1.9e-05	51
HLA-A*03:01	1	424	432	9	DDFTGCVIA	1.9e-05	51
HLA-B*15:01	1	424	432	9	DDFTGCVIA	1.9e-05	56
HLA-A*30:01	1	427	436	10	TGCVIAWNSN	1.9e-05	82
HLA-A*33:01	1	432	440	9	AWNSNNLDS	1.9e-05	62
HLA-B*15:01	1	432	440	9	AWNSNNLDS	1.9e-05	56
HLA-B*44:02	1	433	442	10	WNSNNLDSKV	1.9e-05	44
HLA-B*51:01	1	435	443	9	SNNLDSKVG	1.9e-05	67
HLA-A*30:01	1	436	445	10	NNLDSKVGGN	1.9e-05	82
HLA-A*02:03	1	439	448	10	DSKVGGNVNY	1.9e-05	59
HLA-B*15:01	1	442	451	10	VGGNYNYLYR	1.9e-05	56
HLA-B*51:01	1	446	455	10	YNYLYRFRK	1.9e-05	67
HLA-B*51:01	1	447	456	10	NYLYRFRKS	1.9e-05	67
HLA-B*53:01	1	448	456	9	YLYRFRKS	1.9e-05	41
HLA-B*53:01	1	451	460	10	RLFRKSNLKP	1.9e-05	41
HLA-A*03:01	1	453	462	10	FRKSNLKPFE	1.9e-05	51
HLA-B*15:01	1	454	462	9	RKSNLKPFE	1.9e-05	56
HLA-B*51:01	1	458	466	9	LKPFERDIS	1.9e-05	67
HLA-A*23:01	1	462	471	10	ERDISTEIQ	1.9e-05	39
HLA-B*35:01	1	464	473	10	DISTEIQAG	1.9e-05	42
HLA-A*33:01	1	465	474	10	ISTEIQAGS	1.9e-05	62
HLA-B*15:01	1	466	475	10	STEIQAGST	1.9e-05	56
HLA-B*51:01	1	466	474	9	STEIQAGS	1.9e-05	67
HLA-A*11:01	1	470	478	9	YQAGSTPCN	1.9e-05	38
HLA-B*08:01	1	470	479	10	YQAGSTPCNG	1.9e-05	75
HLA-B*51:01	1	470	479	10	YQAGSTPCNG	1.9e-05	67
HLA-B*44:02	1	473	481	9	GSTPCNGVK	1.9e-05	44
HLA-B*57:01	1	476	485	10	PCNGVKGFNC	1.9e-05	74
HLA-B*07:02	1	480	489	10	VKGFCYFPL	1.9e-05	55
HLA-A*02:06	1	482	491	10	GFNCYFPLQS	1.9e-05	66
HLA-B*57:01	1	482	490	9	GFNCYFPLQ	1.9e-05	74
HLA-A*11:01	1	483	491	9	FNCYFPLQS	1.9e-05	38
HLA-B*07:02	1	485	493	9	CYFPLQSYG	1.9e-05	55
HLA-B*44:03	1	487	496	10	FPLQSYGFQP	1.9e-05	41
HLA-A*24:02	1	488	496	9	PLQSYGFQP	1.9e-05	37
HLA-B*58:01	1	495	503	9	QPTYGVGYQ	1.9e-05	62
HLA-B*44:02	1	497	506	10	TYGVGYQPYP	1.9e-05	44
HLA-A*02:01	1	504	512	9	PYRVVLSF	1.9e-05	56
HLA-B*44:02	1	513	522	10	ELLHAPATVC	1.9e-05	44
HLA-B*07:02	1	514	523	10	LLHAPATVCG	1.9e-05	55
HLA-A*31:01	1	520	529	10	TVCGPKKSTN	1.9e-05	58
HLA-A*31:01	1	522	531	10	CGPKKSTNLV	1.9e-05	58
HLA-B*44:02	1	525	533	9	KKSTNLVKN	1.9e-05	44
HLA-A*23:01	1	527	536	10	STNLVKNKCV	1.9e-05	39
HLA-B*51:01	1	529	537	9	NLVKNKCVN	1.9e-05	67
HLA-B*53:01	1	534	543	10	KCVNFNFNGL	1.9e-05	41
HLA-B*44:03	1	537	545	9	NFNFNGLTG	1.9e-05	41
HLA-B*15:01	1	539	547	9	NFNGLTGTG	1.9e-05	56
HLA-B*44:03	1	540	548	9	FNGLTGTGV	1.9e-05	41
HLA-A*03:01	1	541	549	9	NGLTGTGVL	1.9e-05	51
HLA-A*68:02	1	542	551	10	GLTGTGVLTE	1.9e-05	57
HLA-A*02:01	1	545	554	10	GTGVLTESNK	1.9e-05	56
HLA-B*44:03	1	546	554	9	TGVLTESNK	1.9e-05	41
HLA-A*03:01	1	549	558	10	LTESNKKFLP	1.9e-05	51
HLA-A*32:01	1	549	558	10	LTESNKKFLP	1.9e-05	44
HLA-A*02:01	1	550	558	9	TESNKKFLP	1.9e-05	56
HLA-A*24:02	1	551	560	10	ESNKKFLPFQ	1.9e-05	37
HLA-B*15:01	1	557	566	10	LPFQQFGRDI	1.9e-05	56
HLA-A*01:01	1	559	568	10	FQQFGRDIAD	1.9e-05	79
HLA-A*31:01	1	559	567	9	FQQFGRDIA	1.9e-05	58



HLA-A*23:01	1	560	568	9	QQFGRDIAD	1.9e-05	39
HLA-B*53:01	1	560	569	10	QQFGRDIADT	1.9e-05	41
HLA-A*30:01	1	563	571	9	GRDIADTTD	1.9e-05	82
HLA-B*51:01	1	563	571	9	GRDIADTTD	1.9e-05	67
HLA-B*44:03	1	567	575	9	ADTTDAVRD	1.9e-05	41
HLA-A*11:01	1	570	579	10	TDAVRDPQTL	1.9e-05	38
HLA-A*31:01	1	581	590	10	ILDITPCSF	1.9e-05	58
HLA-A*33:01	1	581	590	10	ILDITPCSF	1.9e-05	62
HLA-A*33:01	1	582	590	9	LDITPCSF	1.9e-05	62
HLA-B*57:01	1	582	591	10	LDITPCSF	1.9e-05	74
HLA-B*58:01	1	582	590	9	LDITPCSF	1.9e-05	62
HLA-A*26:01	1	585	593	9	TPCSF	1.9e-05	51
HLA-A*11:01	1	587	596	10	CSF	1.9e-05	38
HLA-B*44:02	1	588	597	10	SF	1.9e-05	44
HLA-B*44:03	1	588	597	10	SF	1.9e-05	41
HLA-A*01:01	1	590	599	10	GGV	1.9e-05	79
HLA-A*68:02	1	590	598	9	GGV	1.9e-05	57
HLA-A*68:01	1	592	600	9	VSV	1.9e-05	52
HLA-A*03:01	1	596	605	10	TPGT	1.9e-05	51
HLA-A*24:02	1	596	605	10	TPGT	1.9e-05	37
HLA-A*02:03	1	597	606	10	PGT	1.9e-05	59
HLA-A*02:01	1	601	610	10	TSNQVAVLYQ	1.9e-05	56
HLA-A*33:01	1	602	611	10	SNQVAVLYQ	1.9e-05	62
HLA-A*24:02	1	603	611	9	NQVAVLYQ	1.9e-05	37
HLA-A*68:02	1	609	618	10	YQGVNCTEVP	1.9e-05	57
HLA-A*02:03	1	618	627	10	PVAIHADQLT	1.9e-05	59
HLA-A*23:01	1	619	627	9	VAIHADQLT	1.9e-05	39
HLA-A*32:01	1	619	627	9	VAIHADQLT	1.9e-05	44
HLA-A*23:01	1	620	629	10	AIHADQLTPT	1.9e-05	39
HLA-A*02:01	1	623	631	9	ADQLTPTWR	1.9e-05	56
HLA-B*08:01	1	628	636	9	PTWRVYSTG	1.9e-05	75
HLA-B*08:01	1	629	638	10	TWRVYSTGSN	1.9e-05	75
HLA-A*68:01	1	637	645	9	SNVFQTRAG	1.9e-05	52
HLA-A*23:01	1	638	646	9	NVFQTRAGC	1.9e-05	39
HLA-B*44:02	1	641	650	10	QTRAGCLIGA	1.9e-05	44
HLA-B*53:01	1	642	650	9	TRAGCLIGA	1.9e-05	41
HLA-B*08:01	1	647	656	10	LIGAEHVNNS	1.9e-05	75
HLA-A*31:01	1	649	658	10	GAEHVNNSYE	1.9e-05	58
HLA-B*58:01	1	650	658	9	AEHVNNSYE	1.9e-05	62
HLA-A*68:01	1	654	663	10	NNSYECDIPI	1.9e-05	52
HLA-B*08:01	1	656	664	9	SYECDIPIG	1.9e-05	75
HLA-B*51:01	1	656	664	9	SYECDIPIG	1.9e-05	67
HLA-A*32:01	1	661	669	9	IPIGAGICA	1.9e-05	44
HLA-A*02:06	1	662	670	9	PIGAGICAS	1.9e-05	66
HLA-A*02:01	1	664	673	10	GAGICASYQT	1.9e-05	56
HLA-B*51:01	1	664	673	10	GAGICASYQT	1.9e-05	67
HLA-B*15:01	1	665	673	9	AGICASYQT	1.9e-05	56
HLA-A*68:01	1	666	675	10	GICASYQTQT	1.9e-05	52
HLA-B*51:01	1	666	674	9	GICASYQTQ	1.9e-05	67
HLA-B*40:01	1	667	675	9	ICASYQTQT	1.9e-05	35
HLA-B*44:03	1	667	675	9	ICASYQTQT	1.9e-05	41
HLA-A*32:01	1	668	676	9	CASYQTQTN	1.9e-05	44
HLA-B*44:02	1	668	676	9	CASYQTQTN	1.9e-05	44
HLA-B*35:01	1	670	679	10	SYQTQTN	1.9e-05	42
HLA-A*03:01	1	675	684	10	TNSPRRARSV	1.9e-05	51
HLA-A*31:01	1	677	686	10	SPRRARSVAS	1.9e-05	58
HLA-A*02:01	1	679	687	9	RRARSVASQ	1.9e-05	56
HLA-B*44:02	1	679	688	10	RRARSVASQ	1.9e-05	44
HLA-A*11:01	1	693	701	9	TMSLGVENS	1.9e-05	38
HLA-A*03:01	1	698	706	9	VENSVAYSN	1.9e-05	51
HLA-A*03:01	1	700	708	9	NSVAYSNNS	1.9e-05	51
HLA-A*32:01	1	703	712	10	AYSNNSIAIP	1.9e-05	44
HLA-A*23:01	1	704	712	9	YSNNSIAIP	1.9e-05	39
HLA-A*33:01	1	706	714	9	NNSIAIPTN	1.9e-05	62
HLA-A*33:01	1	717	725	9	ISVTTEILP	1.9e-05	62
HLA-B*44:03	1	722	731	10	EILPVSMTKT	1.9e-05	41

HLA-A*68:01	1	723	732	10	ILPVSMTKTS	1.9e-05	52
HLA-B*57:01	1	725	734	10	PVSMTKTSVD	1.9e-05	74
HLA-A*11:01	1	727	735	9	SMTKTSVDC	1.9e-05	38
HLA-A*31:01	1	727	736	10	SMTKTSVDCT	1.9e-05	58
HLA-B*07:02	1	727	736	10	SMTKTSVDCT	1.9e-05	55
HLA-A*24:02	1	729	738	10	TKTSVDCTMY	1.9e-05	37
HLA-A*31:01	1	731	740	10	TSVDCTMYIC	1.9e-05	58
HLA-A*26:01	1	735	744	10	CTMYICGDST	1.9e-05	51
HLA-A*68:01	1	737	746	10	MYICGDSTEC	1.9e-05	52
HLA-B*07:02	1	738	747	10	YICGDSTEC	1.9e-05	55
HLA-B*58:01	1	738	747	10	YICGDSTEC	1.9e-05	62
HLA-A*02:03	1	740	749	10	CGDSTEC	1.9e-05	59
HLA-A*23:01	1	740	749	10	CGDSTEC	1.9e-05	39
HLA-A*32:01	1	741	749	9	GDSTEC	1.9e-05	44
HLA-A*68:01	1	741	750	10	GDSTEC	1.9e-05	52
HLA-B*35:01	1	741	750	10	GDSTEC	1.9e-05	42
HLA-A*23:01	1	744	752	9	TECSNLLQ	1.9e-05	39
HLA-A*02:06	1	746	754	9	CSNLLQYG	1.9e-05	66
HLA-A*33:01	1	746	754	9	CSNLLQYG	1.9e-05	62
HLA-A*02:03	1	765	773	9	TGIAVEQDK	1.9e-05	59
HLA-A*32:01	1	776	784	9	QEVFAQVKQ	1.9e-05	44
HLA-A*11:01	1	781	790	10	QVKQIYKTPP	1.9e-05	38
HLA-B*44:02	1	781	790	10	QVKQIYKTPP	1.9e-05	44
HLA-B*53:01	1	781	790	10	QVKQIYKTPP	1.9e-05	41
HLA-A*33:01	1	782	791	10	VKQIYKTPPI	1.9e-05	62
HLA-B*40:01	1	782	790	9	VKQIYKTPP	1.9e-05	35
HLA-A*23:01	1	786	795	10	YKTPPIKDFG	1.9e-05	39
HLA-B*53:01	1	787	795	9	KTPPIKDFG	1.9e-05	41
HLA-B*58:01	1	791	800	10	IKDFGGFNFS	1.9e-05	62
HLA-B*07:02	1	792	801	10	KDFGGFNFSQ	1.9e-05	55
HLA-B*35:01	1	792	800	9	KDFGGFNFS	1.9e-05	42
HLA-A*02:06	1	793	801	9	DFGGFNFSQ	1.9e-05	66
HLA-A*31:01	1	798	807	10	NFSQILPDPS	1.9e-05	58
HLA-B*57:01	1	798	807	10	NFSQILPDPS	1.9e-05	74
HLA-B*44:03	1	801	810	10	QILPDPSKPS	1.9e-05	41
HLA-B*57:01	1	805	813	9	DPSKPSKRS	1.9e-05	74
HLA-A*31:01	1	807	816	10	SKPSKRSFIE	1.9e-05	58
HLA-A*02:06	1	808	816	9	KPSKRSFIE	1.9e-05	66
HLA-B*40:01	1	812	821	10	RSFIEDLLFN	1.9e-05	35
HLA-B*35:01	1	813	822	10	SFIEDLLFNK	1.9e-05	42
HLA-A*33:01	1	815	824	10	IEDLLFNKVT	1.9e-05	62
HLA-A*11:01	1	816	825	10	EDLLFNKVTL	1.9e-05	38
HLA-B*58:01	1	818	827	10	LLFNKVTLAD	1.9e-05	62
HLA-A*02:01	1	821	830	10	NKVTLADAGF	1.9e-05	56
HLA-B*08:01	1	822	831	10	KVTLADAGFI	1.9e-05	75
HLA-A*02:06	1	826	835	10	ADAGFIKQYG	1.9e-05	66
HLA-A*11:01	1	826	835	10	ADAGFIKQYG	1.9e-05	38
HLA-A*31:01	1	826	835	10	ADAGFIKQYG	1.9e-05	58
HLA-A*02:03	1	828	837	10	AGFIKQYGD	1.9e-05	59
HLA-A*02:06	1	828	836	9	AGFIKQYGD	1.9e-05	66
HLA-B*44:02	1	828	836	9	AGFIKQYGD	1.9e-05	44
HLA-B*51:01	1	851	860	10	KFNGLTVLPP	1.9e-05	67
HLA-A*11:01	1	855	864	10	LTVLPPLLTD	1.9e-05	38
HLA-A*30:01	1	858	867	10	LPPLLTDEMI	1.9e-05	82
HLA-A*30:02	1	858	867	10	LPPLLTDEMI	1.9e-05	81
HLA-A*32:01	1	859	867	9	PPLLTDEMI	1.9e-05	44
HLA-B*44:02	1	861	869	9	LLTDEMIAQ	1.9e-05	44
HLA-B*08:01	1	863	872	10	TDEMIAQYTS	1.9e-05	75
HLA-A*02:06	1	869	877	9	QYTSALLAG	1.9e-05	66
HLA-A*03:01	1	869	877	9	QYTSALLAG	1.9e-05	51
HLA-A*68:01	1	869	877	9	QYTSALLAG	1.9e-05	52
HLA-B*40:01	1	870	878	9	YTSALLAGT	1.9e-05	35
HLA-B*07:02	1	877	886	10	GTITSGWTFG	1.9e-05	55
HLA-B*51:01	1	882	890	9	GWTFGAGAA	1.9e-05	67
HLA-A*02:06	1	884	892	9	TFGAGAALQ	1.9e-05	66
HLA-B*44:03	1	884	892	9	TFGAGAALQ	1.9e-05	41

HLA-B*08:01	1	886	894	9	GAGAALQIP	1.9e-05	75
HLA-B*35:01	1	887	896	10	AGAALQIPFA	1.9e-05	42
HLA-B*44:02	1	896	905	10	AMQMAYRFNG	1.9e-05	44
HLA-B*58:01	1	896	905	10	AMQMAYRFNG	1.9e-05	62
HLA-A*68:01	1	899	907	9	MAYRFNGIG	1.9e-05	52
HLA-A*02:06	1	902	911	10	RFNGIGVTQN	1.9e-05	66
HLA-A*02:03	1	908	916	9	VTQNVLYEN	1.9e-05	59
HLA-B*08:01	1	908	916	9	VTQNVLYEN	1.9e-05	75
HLA-B*07:02	1	910	918	9	QNVLYENQK	1.9e-05	55
HLA-A*02:03	1	914	923	10	YENQKLIANQ	1.9e-05	59
HLA-A*68:02	1	920	929	10	IANQFNSAIG	1.9e-05	57
HLA-B*57:01	1	921	929	9	ANQFNSAIG	1.9e-05	74
HLA-A*02:01	1	925	934	10	NSAIGKIQDS	1.9e-05	56
HLA-B*07:02	1	925	934	10	NSAIGKIQDS	1.9e-05	55
HLA-A*32:01	1	927	936	10	AIGKIQDLSL	1.9e-05	44
HLA-A*24:02	1	939	948	10	ASALGKLQDV	1.9e-05	37
HLA-B*51:01	1	939	947	9	ASALGKLQD	1.9e-05	67
HLA-A*01:01	1	943	951	9	GKLQDVVNQ	1.9e-05	79
HLA-B*53:01	1	953	962	10	AQALNTLVKQ	1.9e-05	41
HLA-A*68:02	1	957	966	10	NTLVKQLSSN	1.9e-05	57
HLA-B*44:02	1	957	965	9	NTLVKQLSS	1.9e-05	44
HLA-A*02:06	1	959	968	10	LVKQLSSNFG	1.9e-05	66
HLA-A*33:01	1	959	968	10	LVKQLSSNFG	1.9e-05	62
HLA-A*31:01	1	963	972	10	LSSNFGAISS	1.9e-05	58
HLA-A*02:01	1	968	976	9	GAISSVLND	1.9e-05	56
HLA-A*33:01	1	968	977	10	GAISSVLNDI	1.9e-05	62
HLA-B*44:03	1	969	978	10	AISSVLNDIL	1.9e-05	41
HLA-A*31:01	1	975	984	10	NDILSRLDKV	1.9e-05	58
HLA-B*35:01	1	977	985	9	ILSRLDKVE	1.9e-05	42
HLA-B*44:02	1	978	986	9	LSRDLKVEA	1.9e-05	44
HLA-A*68:01	1	981	989	9	LDKVEAEVQ	1.9e-05	52
HLA-A*68:01	1	981	990	10	LDKVEAEVQI	1.9e-05	52
HLA-A*31:01	1	985	993	9	EAEVQIDRL	1.9e-05	58
HLA-A*03:01	1	987	996	10	EVQIDRLITG	1.9e-05	51
HLA-B*15:01	1	990	999	10	IDRLITGRLQ	1.9e-05	56
HLA-B*07:02	1	999	1008	10	QSLQTYVTQQ	1.9e-05	55
HLA-B*40:01	1	1005	1014	10	VTQQLIRAAE	1.9e-05	35
HLA-B*44:02	1	1009	1017	9	LIRAAEIRA	1.9e-05	44
HLA-A*31:01	1	1021	1030	10	LAATKMSECV	1.9e-05	58
HLA-A*11:01	1	1026	1034	9	MSECVLGQS	1.9e-05	38
HLA-A*30:01	1	1029	1038	10	CVLGQSKRVD	1.9e-05	82
HLA-A*68:01	1	1031	1039	9	LGQSKRVDF	1.9e-05	52
HLA-A*02:06	1	1033	1042	10	QSKRVDFCGK	1.9e-05	66
HLA-A*01:01	1	1034	1042	9	SKRVDFCGK	1.9e-05	79
HLA-A*68:01	1	1040	1049	10	CGKGYHLMSF	1.9e-05	52
HLA-A*68:02	1	1040	1048	9	CGKGYHLMS	1.9e-05	57
HLA-B*44:03	1	1040	1049	10	CGKGYHLMSF	1.9e-05	41
HLA-A*23:01	1	1042	1050	9	KGYHLMSFP	1.9e-05	39
HLA-B*15:01	1	1042	1051	10	KGYHLMSFPQ	1.9e-05	56
HLA-A*03:01	1	1043	1052	10	GYHLMSFPQS	1.9e-05	51
HLA-B*44:03	1	1046	1054	9	LMSFPQSAP	1.9e-05	41
HLA-B*07:02	1	1054	1062	9	PHGVVFLHV	1.9e-05	55
HLA-B*53:01	1	1057	1066	10	VVFLHVTVYP	1.9e-05	41
HLA-A*11:01	1	1058	1067	10	VFLHVTVVPA	1.9e-05	38
HLA-A*26:01	1	1060	1069	10	LHVTVVPAQE	1.9e-05	51
HLA-A*03:01	1	1080	1089	10	HDGKAHFPRE	1.9e-05	51
HLA-A*02:03	1	1081	1089	9	DGKAHFPRE	1.9e-05	59
HLA-A*03:01	1	1081	1089	9	DGKAHFPRE	1.9e-05	51
HLA-A*03:01	1	1086	1095	10	FPREGVFVSN	1.9e-05	51
HLA-B*58:01	1	1094	1102	9	SNGTHWFVT	1.9e-05	62
HLA-A*03:01	1	1099	1108	10	WFVTQRNFYE	1.9e-05	51
HLA-A*26:01	1	1106	1115	10	FYEPQIITTD	1.9e-05	51
HLA-A*02:06	1	1107	1116	10	YEPQIITTDN	1.9e-05	66
HLA-B*58:01	1	1107	1115	9	YEPQIITTD	1.9e-05	62
HLA-A*30:01	1	1108	1116	9	EPQIITTDN	1.9e-05	82
HLA-A*01:01	1	1109	1117	9	PQIITTDNT	1.9e-05	79

HLA-A*30:02	1	1114	1123	10	TDNTFVSGNC	1.9e-05	81
HLA-A*32:01	1	1117	1125	9	TFVSGNCDV	1.9e-05	44
HLA-B*44:03	1	1125	1134	10	VVIGIVNNTV	1.9e-05	41
HLA-B*44:02	1	1131	1140	10	NNTVYDPLQP	1.9e-05	44
HLA-A*30:01	1	1135	1143	9	YDPLQPELD	1.9e-05	82
HLA-B*51:01	1	1137	1146	10	PLQPELDSFK	1.9e-05	67
HLA-A*68:02	1	1139	1148	10	QPELDSFKEE	1.9e-05	57
HLA-B*44:02	1	1141	1150	10	ELDSFKEELD	1.9e-05	44
HLA-B*07:02	1	1146	1154	9	KEELDKYFK	1.9e-05	55
HLA-A*24:02	1	1158	1166	9	SPDVDLGDI	1.9e-05	37
HLA-A*68:02	1	1158	1167	10	SPDVDLGDIS	1.9e-05	57
HLA-B*40:01	1	1158	1167	10	SPDVDLGDIS	1.9e-05	35
HLA-A*31:01	1	1160	1169	10	DVDLGDISGI	1.9e-05	58
HLA-B*51:01	1	1161	1170	10	VDLGDISGIN	1.9e-05	67
HLA-B*53:01	1	1162	1170	9	DLGDISGIN	1.9e-05	41
HLA-B*07:02	1	1163	1172	10	LGDISGINAS	1.9e-05	55
HLA-A*02:03	1	1169	1177	9	INASVVNIQ	1.9e-05	59
HLA-A*24:02	1	1171	1179	9	ASVVNIQKE	1.9e-05	37
HLA-A*68:01	1	1172	1181	10	SVVNIQKEID	1.9e-05	52
HLA-A*31:01	1	1180	1189	10	IDRLNEVAKN	1.9e-05	58
HLA-A*11:01	1	1182	1191	10	RLNEVAKNLN	1.9e-05	38
HLA-A*03:01	1	1184	1192	9	NEVAKNLNE	1.9e-05	51
HLA-B*35:01	1	1184	1193	10	NEVAKNLNES	1.9e-05	42
HLA-A*33:01	1	1190	1199	10	LNESLIDLQE	1.9e-05	62
HLA-A*23:01	1	1191	1199	9	NESLIDLQE	1.9e-05	39
HLA-A*68:02	1	1194	1203	10	LIDLQELGKY	1.9e-05	57
HLA-B*40:01	1	1194	1203	10	LIDLQELGKY	1.9e-05	35
HLA-B*53:01	1	1199	1208	10	ELGKYEQYIK	1.9e-05	41
HLA-A*03:01	1	1202	1210	9	KYEQYIKWP	1.9e-05	51
HLA-A*02:03	1	1205	1214	10	QYIKWPWYIW	1.9e-05	59
HLA-A*11:01	1	1218	1226	9	IAGLIAIVM	1.9e-05	38
HLA-A*11:01	1	1227	1236	10	VTIMLCCMTS	1.9e-05	38
HLA-A*30:02	1	1232	1241	10	CCMTSCCSCS	1.9e-05	81
HLA-B*15:01	1	1251	1259	9	CKFDEDDSE	1.9e-05	56
HLA-B*51:01	1	1251	1259	9	CKFDEDDSE	1.9e-05	67
HLA-A*23:01	1	1255	1263	9	EDDSEPVLK	1.9e-05	39
HLA-A*30:02	1	1255	1264	10	EDDSEPVLKG	1.9e-05	81
HLA-A*32:01	1	1257	1266	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	SFTRGVVYYP	1.8e-05	57
HLA-A*24:02	1	33	42	10	TRGVVYYPDKV	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	FFSNVTWFHA	1.8e-05	42
HLA-B*40:01	1	60	69	10	SNVTWFHAIH	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*30:02	1	73	82	10	TNGTKRFANP	1.8e-05	81
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	GTTLDSTQ	1.8e-05	58
HLA-A*32:01	1	111	120	10	DSKTQSLLIV	1.8e-05	44
HLA-A*03:01	1	112	121	10	SKTQSLLIVN	1.8e-05	52
HLA-B*51:01	1	112	121	10	SKTQSLLIVN	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	HKNNKSWME	1.8e-05	56
HLA-B*35:01	1	146	154	9	HKNNKSWME	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*51:01	1	206	215	10	KHTPINLVRG	1.8e-05	67
HLA-A*01:01	1	213	221	9	VRGLPQGFS	1.8e-05	80
HLA-A*23:01	1	213	221	9	VRGLPQGFS	1.8e-05	39
HLA-B*15:01	1	217	225	9	PQGFSALEP	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	LVLDPIGIN	1.8e-05	56
HLA-A*31:01	1	227	236	10	VLDPIGINIT	1.8e-05	59
HLA-B*07:02	1	227	236	10	VLDPIGINIT	1.8e-05	56
HLA-B*53:01	1	227	236	10	VLDPIGINIT	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-A*32:01	1	238	247	10	FQTLHRSYLT	1.8e-05	44
HLA-B*07:02	1	240	249	10	TLHRSYLTPG	1.8e-05	56
HLA-B*44:03	1	243	252	10	RSYLTPGDSS	1.8e-05	42
HLA-A*68:01	1	245	254	10	YLTPGDSSSG	1.8e-05	52
HLA-B*35:01	1	245	254	10	YLTPGDSSSG	1.8e-05	43
HLA-A*30:02	1	248	256	9	PGDSSSGWT	1.8e-05	81
HLA-A*32:01	1	249	257	9	GDSSSGWTA	1.8e-05	44
HLA-B*44:03	1	249	258	10	GDSSSGWTAG	1.8e-05	42
HLA-A*31:01	1	250	258	9	DSSSGWTAG	1.8e-05	59
HLA-B*44:02	1	250	259	10	DSSSGWTAGA	1.8e-05	45
HLA-A*24:02	1	251	259	9	SSSGWTAGA	1.8e-05	38
HLA-A*24:02	1	255	264	10	WTAGAAAYV	1.8e-05	38
HLA-B*51:01	1	271	279	9	TFLLYNEN	1.8e-05	67
HLA-A*32:01	1	273	281	9	LLKYNENGT	1.8e-05	44
HLA-B*44:03	1	273	282	10	LLKYNENGTI	1.8e-05	42
HLA-A*68:02	1	274	283	10	LKYNENGTIT	1.8e-05	58
HLA-B*58:01	1	276	284	9	YNENGTITD	1.8e-05	63
HLA-B*57:01	1	283	292	10	TDAVDCALDP	1.8e-05	75
HLA-B*44:03	1	287	296	10	DCALDPLSET	1.8e-05	42
HLA-A*02:06	1	293	302	10	LSETKCTLKS	1.8e-05	67
HLA-B*44:02	1	299	308	10	TLKSFTVEKG	1.8e-05	45
HLA-B*35:01	1	307	316	10	KGIYQTSNFR	1.8e-05	43
HLA-B*44:03	1	307	316	10	KGIYQTSNFR	1.8e-05	42
HLA-B*53:01	1	309	318	10	IYQTSNFRVQ	1.8e-05	42
HLA-A*24:02	1	313	321	9	SNFRVQPTTE	1.8e-05	38
HLA-B*15:01	1	313	322	10	SNFRVQPTES	1.8e-05	57

HLA-B*53:01	1	321	330	10	ESIVRFPNIT 1.8e-05	42
HLA-B*44:03	1	322	330	9	SIVRFPNIT 1.8e-05	42
HLA-B*40:01	1	326	334	9	FPNITNLCP 1.8e-05	36
HLA-A*11:01	1	330	338	9	TNLCPFGEV 1.8e-05	39
HLA-A*68:02	1	331	340	10	NLCPFGEVFN 1.8e-05	58
HLA-A*24:02	1	333	342	10	CPFGEVFNAT 1.8e-05	38
HLA-B*44:03	1	338	346	9	VFNATRFAS 1.8e-05	42
HLA-A*11:01	1	343	351	9	RFASVYAWN 1.8e-05	39
HLA-A*23:01	1	345	354	10	ASVYAWNRKR 1.8e-05	39
HLA-B*08:01	1	345	354	10	ASVYAWNRKR 1.8e-05	76
HLA-A*11:01	1	349	357	9	AWNRKRISN 1.8e-05	39
HLA-A*33:01	1	351	360	10	NRKRISNCVA 1.8e-05	63
HLA-A*03:01	1	362	370	9	YSVLYNSAS 1.8e-05	52
HLA-B*40:01	1	365	373	9	LYNSASFST 1.8e-05	36
HLA-B*44:02	1	367	376	10	NSASFSTFKC 1.8e-05	45
HLA-B*44:03	1	370	379	10	SFSTFKCYGV 1.8e-05	42
HLA-A*24:02	1	373	382	10	TFKCYGVSPT 1.8e-05	38
HLA-A*23:01	1	380	388	9	SPTKLN DLC 1.8e-05	39
HLA-A*01:01	1	382	390	9	TKLN DLCFT 1.8e-05	80
HLA-A*02:03	1	382	390	9	TKLN DLCFT 1.8e-05	60
HLA-A*24:02	1	384	393	10	LN DLCFTNVY 1.8e-05	38
HLA-A*03:01	1	385	394	10	NL DLCFTNVYA 1.8e-05	52
HLA-A*02:01	1	387	396	10	LCFTNVYADS 1.8e-05	57
HLA-B*44:03	1	390	398	9	TNVYADSFV 1.8e-05	42
HLA-B*35:01	1	398	407	10	VIRGDEV RQI 1.8e-05	43
HLA-B*53:01	1	402	410	9	DEV RQIAPG 1.8e-05	42
HLA-A*31:01	1	403	412	10	EV RQIAPGQT 1.8e-05	59
HLA-B*44:02	1	404	412	9	VRQIAPGQT 1.8e-05	45
HLA-B*44:03	1	406	414	9	QIAPGQTGN 1.8e-05	42
HLA-B*40:01	1	413	421	9	GNIADYNYK 1.8e-05	36
HLA-B*51:01	1	416	424	9	ADYNYKLPD 1.8e-05	67
HLA-B*53:01	1	418	427	10	YNYKLPDDFT 1.8e-05	42
HLA-A*26:01	1	419	427	9	NYKLPDDFT 1.8e-05	51
HLA-A*24:02	1	420	428	9	YKLPDDFTG 1.8e-05	38
HLA-B*44:02	1	420	428	9	YKLPDDFTG 1.8e-05	45
HLA-A*31:01	1	431	440	10	IAWNSN L DS 1.8e-05	59
HLA-B*15:01	1	431	440	10	IAWNSN L DS 1.8e-05	57
HLA-A*01:01	1	435	444	10	SN L DSKVGG 1.8e-05	80
HLA-A*68:01	1	438	447	10	LDSKVGGNYN 1.8e-05	52
HLA-A*02:01	1	446	455	10	YNYLYR L FRK 1.8e-05	57
HLA-A*68:01	1	452	460	9	LFRKSN L KP 1.8e-05	52
HLA-B*40:01	1	454	463	10	RKSN L KPFER 1.8e-05	36
HLA-A*30:01	1	458	466	9	LKPFERDIS 1.8e-05	83
HLA-B*40:01	1	462	471	10	ERDISTEIQ 1.8e-05	36
HLA-B*51:01	1	463	471	9	RDISTEIQ 1.8e-05	67
HLA-A*11:01	1	468	477	10	EIQAGSTPC 1.8e-05	39
HLA-B*40:01	1	468	477	10	EIQAGSTPC 1.8e-05	36
HLA-A*68:02	1	470	479	10	YQAGSTPCNG 1.8e-05	58
HLA-A*68:02	1	471	479	9	QAGSTPCNG 1.8e-05	58
HLA-A*01:01	1	476	485	10	PCNGVKGFNC 1.8e-05	80
HLA-B*53:01	1	483	491	9	FNCYFPLQS 1.8e-05	42
HLA-A*11:01	1	485	493	9	CYFPLQSYG 1.8e-05	39
HLA-A*03:01	1	487	496	10	FPLQSYGFQP 1.8e-05	52
HLA-A*33:01	1	488	496	9	PLQSYGFQP 1.8e-05	63
HLA-B*15:01	1	488	496	9	PLQSYGFQP 1.8e-05	57
HLA-A*68:02	1	491	499	9	SYGFQPTYG 1.8e-05	58
HLA-A*33:01	1	493	501	9	GFQPTYGVG 1.8e-05	63
HLA-B*44:03	1	496	504	9	PTYGVGYQP 1.8e-05	42
HLA-B*44:02	1	498	507	10	YGVGYQPYRV 1.8e-05	45
HLA-A*24:02	1	503	511	9	QPYRVV VLS 1.8e-05	38
HLA-A*23:01	1	507	516	10	VV VLS FELLH 1.8e-05	39
HLA-B*57:01	1	512	520	9	FELLHAPAT 1.8e-05	75
HLA-B*58:01	1	512	520	9	FELLHAPAT 1.8e-05	63
HLA-B*08:01	1	519	527	9	ATVCGPKKS 1.8e-05	76
HLA-B*07:02	1	520	529	10	TVCGPKKSTN 1.8e-05	56
HLA-A*26:01	1	524	532	9	PKKSTNLVK 1.8e-05	51

HLA-B*58:01	1	524	532	9	PKKSTNLVK	1.8e-05	63
HLA-A*01:01	1	525	533	9	KKSTNLVK	1.8e-05	80
HLA-B*53:01	1	527	536	10	STNLVKNKCV	1.8e-05	42
HLA-A*32:01	1	530	539	10	LVKNKCVNFN	1.8e-05	44
HLA-A*03:01	1	535	544	10	CVNFNFNGLT	1.8e-05	52
HLA-B*15:01	1	536	544	9	VNFNFNGLT	1.8e-05	57
HLA-A*03:01	1	537	545	9	NFNFNGLTG	1.8e-05	52
HLA-B*57:01	1	537	545	9	NFNFNGLTG	1.8e-05	75
HLA-A*68:01	1	545	553	9	GTGVLTESN	1.8e-05	52
HLA-B*15:01	1	545	553	9	GTGVLTESN	1.8e-05	57
HLA-B*44:02	1	551	560	10	ESNKKFLPFQ	1.8e-05	45
HLA-A*33:01	1	557	566	10	LPFQQFGRDI	1.8e-05	63
HLA-A*02:03	1	558	567	10	PFQQFGRDIA	1.8e-05	60
HLA-B*15:01	1	558	566	9	PFQQFGRDI	1.8e-05	57
HLA-A*30:01	1	559	568	10	FQQFGRDIAD	1.8e-05	83
HLA-A*03:01	1	561	570	10	QFGRDIADTT	1.8e-05	52
HLA-A*24:02	1	563	572	10	GRDIADTTDA	1.8e-05	38
HLA-B*40:01	1	569	578	10	TTDAVRDPQT	1.8e-05	36
HLA-A*02:01	1	570	578	9	TDAVRDPQT	1.8e-05	57
HLA-A*23:01	1	572	580	9	AVRDPQTL	1.8e-05	39
HLA-B*58:01	1	575	584	10	DPQTLEILDI	1.8e-05	63
HLA-B*07:02	1	576	584	9	PQTLEILDI	1.8e-05	56
HLA-B*58:01	1	579	587	9	LEILDITPC	1.8e-05	63
HLA-B*08:01	1	583	591	9	DITPCSFVG	1.8e-05	76
HLA-B*40:01	1	588	596	9	SFGGVSUIT	1.8e-05	36
HLA-B*51:01	1	589	598	10	FGGVSUITPG	1.8e-05	67
HLA-B*58:01	1	589	598	10	FGGVSUITPG	1.8e-05	63
HLA-A*01:01	1	590	598	9	GGVSUITPG	1.8e-05	80
HLA-B*35:01	1	591	599	9	GVSUITPGT	1.8e-05	43
HLA-B*53:01	1	592	600	9	VSVITPGTN	1.8e-05	42
HLA-A*23:01	1	596	605	10	TPGTNTSNQV	1.8e-05	39
HLA-A*23:01	1	598	607	10	GTNTSNQVAV	1.8e-05	39
HLA-B*35:01	1	605	613	9	VAVLYQGVN	1.8e-05	43
HLA-A*24:02	1	606	614	9	AVLYQGVNC	1.8e-05	38
HLA-A*31:01	1	610	619	10	QGVNCTEVPV	1.8e-05	59
HLA-A*02:03	1	616	625	10	EVPVAIHADQ	1.8e-05	60
HLA-A*33:01	1	620	628	9	AIHADQLTP	1.8e-05	63
HLA-A*68:01	1	627	636	10	TPTWRVYSTG	1.8e-05	52
HLA-A*23:01	1	628	636	9	PTWRVYSTG	1.8e-05	39
HLA-B*15:01	1	646	655	10	CLIGAHEVNN	1.8e-05	57
HLA-A*30:02	1	653	662	10	VNNSYECDIP	1.8e-05	81
HLA-B*07:02	1	654	663	10	NNSYECDIPI	1.8e-05	56
HLA-B*58:01	1	657	666	10	YECDIPIGAG	1.8e-05	63
HLA-A*11:01	1	658	667	10	ECDIPIGAGI	1.8e-05	39
HLA-A*33:01	1	660	668	9	DIPIGAGIC	1.8e-05	63
HLA-A*03:01	1	661	670	10	IPIGAGICAS	1.8e-05	52
HLA-A*23:01	1	661	669	9	IPIGAGICA	1.8e-05	39
HLA-A*68:02	1	663	672	10	IGAGICASYQ	1.8e-05	58
HLA-B*53:01	1	663	672	10	IGAGICASYQ	1.8e-05	42
HLA-A*01:01	1	664	673	10	GAGICASYQT	1.8e-05	80
HLA-B*53:01	1	666	674	9	GICASYQTQ	1.8e-05	42
HLA-A*68:02	1	668	676	9	CASYQTQTN	1.8e-05	58
HLA-B*53:01	1	670	679	10	SYQTQTNSPR	1.8e-05	42
HLA-B*44:03	1	674	683	10	QTNSPRRARS	1.8e-05	42
HLA-A*11:01	1	675	683	9	TNSPRRARS	1.8e-05	39
HLA-A*31:01	1	676	685	10	NSPRRARSVA	1.8e-05	59
HLA-B*44:02	1	677	686	10	SPRRARSVAS	1.8e-05	45
HLA-A*68:02	1	679	687	9	RRARSVASQ	1.8e-05	58
HLA-B*44:03	1	679	688	10	RRARSVASQS	1.8e-05	42
HLA-B*51:01	1	679	687	9	RRARSVASQ	1.8e-05	67
HLA-A*33:01	1	681	690	10	ARSVASQSII	1.8e-05	63
HLA-B*44:02	1	682	691	10	RSVASQSIIA	1.8e-05	45
HLA-B*44:03	1	684	693	10	VASQSIIAYT	1.8e-05	42
HLA-B*44:03	1	693	701	9	TMSLGVENS	1.8e-05	42
HLA-B*40:01	1	697	705	9	GVENSVAYS	1.8e-05	36
HLA-A*26:01	1	703	712	10	AYSNNIAIAP	1.8e-05	51

HLA-A*68:01	1	706	714	9	NNSIAIPTN	1.8e-05	52
HLA-B*44:03	1	707	716	10	NSIAIPTNFT	1.8e-05	42
HLA-A*31:01	1	712	721	10	PTNFTISVTT	1.8e-05	59
HLA-A*32:01	1	712	721	10	PTNFTISVTT	1.8e-05	44
HLA-A*33:01	1	716	725	10	TISVTTEILP	1.8e-05	63
HLA-B*53:01	1	717	726	10	ISVTTEILPV	1.8e-05	42
HLA-A*11:01	1	723	731	9	ILPVSMTKT	1.8e-05	39
HLA-A*32:01	1	723	732	10	ILPVSMTKTS	1.8e-05	44
HLA-B*44:03	1	725	733	9	PVSMTKTSV	1.8e-05	42
HLA-A*33:01	1	727	736	10	SMTKTSVDCT	1.8e-05	63
HLA-A*02:03	1	729	738	10	TKTSVDCTMY	1.8e-05	60
HLA-A*03:01	1	737	746	10	MYICGDSTEC	1.8e-05	52
HLA-B*15:01	1	738	747	10	YICGDSTEC	1.8e-05	57
HLA-B*57:01	1	738	747	10	YICGDSTEC	1.8e-05	75
HLA-B*58:01	1	740	748	9	CGDSTEC	1.8e-05	63
HLA-A*68:01	1	746	754	9	CSNLLLQYG	1.8e-05	52
HLA-A*11:01	1	749	757	9	LLLQYGSFC	1.8e-05	39
HLA-A*31:01	1	749	758	10	LLLQYGSFCT	1.8e-05	59
HLA-B*15:01	1	749	758	10	LLLQYGSFCT	1.8e-05	57
HLA-A*01:01	1	752	761	10	QYGSFCTQLN	1.8e-05	80
HLA-B*51:01	1	753	761	9	YGSFCTQLN	1.8e-05	67
HLA-A*68:01	1	758	767	10	TQLNRALTGI	1.8e-05	52
HLA-A*02:03	1	767	776	10	IAVEQDKNTQ	1.8e-05	60
HLA-A*26:01	1	767	775	9	IAVEQDKNT	1.8e-05	51
HLA-B*44:02	1	782	791	10	VKQIYKTPPI	1.8e-05	45
HLA-A*32:01	1	785	793	9	IYKTPPIKD	1.8e-05	44
HLA-A*30:02	1	789	798	10	PPIKDFGGFN	1.8e-05	81
HLA-A*02:01	1	791	800	10	IKDFGGFNFS	1.8e-05	57
HLA-B*15:01	1	791	800	10	IKDFGGFNFS	1.8e-05	57
HLA-B*44:02	1	791	800	10	IKDFGGFNFS	1.8e-05	45
HLA-B*58:01	1	793	802	10	DFGGFNFSQI	1.8e-05	63
HLA-B*44:02	1	794	802	9	FGGFNFSQI	1.8e-05	45
HLA-A*26:01	1	796	804	9	GFNFSQILP	1.8e-05	51
HLA-B*35:01	1	797	805	9	FNFSQILPD	1.8e-05	43
HLA-A*26:01	1	798	806	9	NFSQILPDP	1.8e-05	51
HLA-A*01:01	1	804	813	10	PDPSPSKRS	1.8e-05	80
HLA-A*33:01	1	804	813	10	PDPSPSKRS	1.8e-05	63
HLA-B*40:01	1	805	813	9	DPSKPSKRS	1.8e-05	36
HLA-B*58:01	1	805	813	9	DPSKPSKRS	1.8e-05	63
HLA-B*44:02	1	812	821	10	RSFIEDLLFN	1.8e-05	45
HLA-A*31:01	1	821	830	10	NKVTLADAGF	1.8e-05	59
HLA-A*32:01	1	826	835	10	ADAGFIKQYG	1.8e-05	44
HLA-A*33:01	1	828	836	9	AGFIKQYGD	1.8e-05	63
HLA-B*44:03	1	828	837	10	AGFIKQYGDC	1.8e-05	42
HLA-B*40:01	1	834	843	10	YGDCLGDIAA	1.8e-05	36
HLA-A*33:01	1	835	843	9	GDCLGDIAA	1.8e-05	63
HLA-A*32:01	1	838	846	9	LGDIAARDL	1.8e-05	44
HLA-A*33:01	1	838	846	9	LGDIAARDL	1.8e-05	63
HLA-B*44:03	1	838	847	10	LGDIAARDLI	1.8e-05	42
HLA-A*33:01	1	845	854	10	DLICAQKFNG	1.8e-05	63
HLA-B*40:01	1	846	855	10	LICAQKFNGL	1.8e-05	36
HLA-A*68:01	1	848	856	9	CAQKFNGLT	1.8e-05	52
HLA-B*53:01	1	850	859	10	QKFNGLTVLP	1.8e-05	42
HLA-A*33:01	1	852	860	9	FNGLTVLPP	1.8e-05	63
HLA-A*31:01	1	863	871	9	TDEMIAQYT	1.8e-05	59
HLA-B*53:01	1	863	871	9	TDEMIAQYT	1.8e-05	42
HLA-A*03:01	1	864	873	10	DEMIAQYTS	1.8e-05	52
HLA-A*33:01	1	868	877	10	AQYTSALLAG	1.8e-05	63
HLA-A*68:01	1	868	877	10	AQYTSALLAG	1.8e-05	52
HLA-B*53:01	1	878	886	9	TITSGWTFG	1.8e-05	42
HLA-A*68:01	1	879	888	10	ITSGWTFGAG	1.8e-05	52
HLA-A*02:03	1	880	888	9	TSGWTFGAG	1.8e-05	60
HLA-A*33:01	1	880	888	9	TSGWTFGAG	1.8e-05	63
HLA-A*23:01	1	881	890	10	SGWTFGAGAA	1.8e-05	39
HLA-A*24:02	1	881	889	9	SGWTFGAGA	1.8e-05	38
HLA-B*44:02	1	886	894	9	GAGAALQIP	1.8e-05	45



HLA-A*26:01	1	887	896	10	AGAALQIPFA 1.8e-05	51
HLA-A*33:01	1	895	904	10	FAMQMAYRFN 1.8e-05	63
HLA-A*68:01	1	897	906	10	MQMAYRFNGI 1.8e-05	52
HLA-B*51:01	1	898	907	10	QMAYRFNGIG 1.8e-05	67
HLA-B*40:01	1	907	915	9	GVTQNVLYE 1.8e-05	36
HLA-A*26:01	1	913	921	9	LYENQKLIA 1.8e-05	51
HLA-A*11:01	1	914	922	9	YENQKLIAN 1.8e-05	39
HLA-A*11:01	1	915	924	10	ENQKLIANQF 1.8e-05	39
HLA-B*07:02	1	915	923	9	ENQKLIANQ 1.8e-05	56
HLA-A*02:03	1	920	929	10	IANQFNSAIG 1.8e-05	60
HLA-A*33:01	1	928	936	9	IGKIQDSLS 1.8e-05	63
HLA-A*33:01	1	929	938	10	GKIQDSLSST 1.8e-05	63
HLA-B*57:01	1	929	937	9	GKIQDSLSS 1.8e-05	75
HLA-A*02:01	1	935	944	10	LSSTASALGK 1.8e-05	57
HLA-A*26:01	1	935	943	9	LSSTASALG 1.8e-05	51
HLA-A*03:01	1	939	947	9	ASALGKLQD 1.8e-05	52
HLA-B*44:02	1	943	952	10	GKLDVVNQ 1.8e-05	45
HLA-A*11:01	1	947	956	10	DVVNQNAQAL 1.8e-05	39
HLA-A*31:01	1	949	958	10	VNQNAQALNT 1.8e-05	59
HLA-A*11:01	1	951	960	10	QNAQALNTLV 1.8e-05	39
HLA-A*33:01	1	957	966	10	NTLVKQLSSN 1.8e-05	63
HLA-B*40:01	1	957	965	9	NTLVKQLSS 1.8e-05	36
HLA-A*32:01	1	963	972	10	LSSNFGAISS 1.8e-05	44
HLA-B*57:01	1	966	975	10	NFGAISSVLN 1.8e-05	75
HLA-A*24:02	1	968	977	10	GAISSVLNDI 1.8e-05	38
HLA-A*68:01	1	970	979	10	ISSVLNDILS 1.8e-05	52
HLA-A*31:01	1	971	979	9	SSVLNDILS 1.8e-05	59
HLA-B*07:02	1	971	979	9	SSVLNDILS 1.8e-05	56
HLA-A*03:01	1	975	984	10	NDILSRLDKV 1.8e-05	52
HLA-B*57:01	1	976	985	10	DILSRLDKVE 1.8e-05	75
HLA-B*07:02	1	977	985	9	ILSRLDKVE 1.8e-05	56
HLA-B*53:01	1	986	995	10	AEVQIDRLIT 1.8e-05	42
HLA-B*15:01	1	987	995	9	EVQIDRLIT 1.8e-05	57
HLA-B*07:02	1	990	999	10	IDRLITGRLQ 1.8e-05	56
HLA-B*07:02	1	991	999	9	DRLITGRLQ 1.8e-05	56
HLA-A*23:01	1	997	1006	10	RLQSLQTYVT 1.8e-05	39
HLA-B*07:02	1	998	1007	10	LQSLQTYVTQ 1.8e-05	56
HLA-B*44:03	1	999	1008	10	QSLQTYVTQQ 1.8e-05	42
HLA-B*44:03	1	1003	1012	10	TYVTQQLIRA 1.8e-05	42
HLA-B*44:03	1	1005	1014	10	VTQQLIRAAE 1.8e-05	42
HLA-B*53:01	1	1006	1014	9	TQQLIRAAE 1.8e-05	42
HLA-A*31:01	1	1010	1018	9	IRAAEIRAS 1.8e-05	59
HLA-A*33:01	1	1011	1020	10	RAAEIRASAN 1.8e-05	63
HLA-B*53:01	1	1011	1020	10	RAAEIRASAN 1.8e-05	42
HLA-A*33:01	1	1015	1024	10	IRASANLAAT 1.8e-05	63
HLA-A*26:01	1	1018	1027	10	SANLAATKMS 1.8e-05	51
HLA-B*44:02	1	1021	1029	9	LAATKMSEC 1.8e-05	45
HLA-A*11:01	1	1022	1031	10	AATKMSECVL 1.8e-05	39
HLA-B*57:01	1	1024	1032	9	TKMSECVLG 1.8e-05	75
HLA-A*26:01	1	1025	1034	10	KMSECVLGQS 1.8e-05	51
HLA-B*57:01	1	1030	1038	9	VLGQSKRVD 1.8e-05	75
HLA-A*33:01	1	1031	1040	10	LGQSKRVDFC 1.8e-05	63
HLA-A*68:02	1	1031	1039	9	LGQSKRVDF 1.8e-05	58
HLA-B*53:01	1	1036	1045	10	RVDFCGKGYH 1.8e-05	42
HLA-B*08:01	1	1043	1052	10	GYHLMSFPQS 1.8e-05	76
HLA-B*35:01	1	1043	1051	9	GYHLMSFPQ 1.8e-05	43
HLA-B*57:01	1	1044	1052	9	YHLMSFPQS 1.8e-05	75
HLA-A*23:01	1	1055	1063	9	HGVVFLHVT 1.8e-05	39
HLA-B*40:01	1	1055	1063	9	HGVVFLHVT 1.8e-05	36
HLA-B*53:01	1	1062	1071	10	VTYVPAQEKN 1.8e-05	42
HLA-A*23:01	1	1067	1076	10	AQEKNFTTAP 1.8e-05	39
HLA-A*02:01	1	1068	1077	10	QEKNFTTAPA 1.8e-05	57
HLA-A*24:02	1	1072	1080	9	FTTAPAICH 1.8e-05	38
HLA-A*26:01	1	1075	1084	10	APAICHDGKA 1.8e-05	51
HLA-A*03:01	1	1076	1085	10	PAICHDGKAH 1.8e-05	52
HLA-B*07:02	1	1076	1085	10	PAICHDGKAH 1.8e-05	56

HLA-A*02:01	1	1089	1097	9	EGVFSVNGT	1.8e-05	57
HLA-B*44:02	1	1089	1097	9	EGVFSVNGT	1.8e-05	45
HLA-A*02:06	1	1094	1103	10	SNGTHWFVTQ	1.8e-05	67
HLA-A*02:03	1	1099	1107	9	WFVTQRNFY	1.8e-05	60
HLA-A*02:01	1	1108	1117	10	EPQIITDNT	1.8e-05	57
HLA-A*03:01	1	1112	1121	10	ITTDNTFVSG	1.8e-05	52
HLA-A*26:01	1	1112	1121	10	ITTDNTFVSG	1.8e-05	51
HLA-A*31:01	1	1112	1121	10	ITTDNTFVSG	1.8e-05	59
HLA-A*33:01	1	1113	1122	10	TTDNTFVSGN	1.8e-05	63
HLA-B*44:03	1	1114	1123	10	TDNTFVSGNC	1.8e-05	42
HLA-B*58:01	1	1114	1123	10	TDNTFVSGNC	1.8e-05	63
HLA-A*33:01	1	1118	1127	10	FVSGNCDVVI	1.8e-05	63
HLA-A*03:01	1	1124	1132	9	DVVIGIVNN	1.8e-05	52
HLA-A*68:01	1	1128	1136	9	GIVNNTVYD	1.8e-05	52
HLA-A*26:01	1	1129	1137	9	IVNNTVYDP	1.8e-05	51
HLA-B*40:01	1	1129	1138	10	IVNNTVYDPL	1.8e-05	36
HLA-A*11:01	1	1130	1139	10	VNNTVYDPLQ	1.8e-05	39
HLA-B*58:01	1	1131	1139	9	NNTVYDPLQ	1.8e-05	63
HLA-B*44:02	1	1132	1141	10	NTVYDPLQPE	1.8e-05	45
HLA-A*68:02	1	1138	1147	10	LQPELDSFKE	1.8e-05	58
HLA-A*02:06	1	1139	1148	10	QPELDSFKEE	1.8e-05	67
HLA-A*26:01	1	1139	1148	10	QPELDSFKEE	1.8e-05	51
HLA-A*30:02	1	1139	1147	9	QPELDSFKE	1.8e-05	81
HLA-A*31:01	1	1139	1148	10	QPELDSFKEE	1.8e-05	59
HLA-B*51:01	1	1140	1148	9	PELDSFKEE	1.8e-05	67
HLA-A*26:01	1	1141	1150	10	ELDSFKEELD	1.8e-05	51
HLA-A*02:01	1	1145	1154	10	FKEELDKYFK	1.8e-05	57
HLA-A*03:01	1	1147	1155	9	EELDKYFKN	1.8e-05	52
HLA-B*58:01	1	1152	1161	10	YFKNHTSPDV	1.8e-05	63
HLA-A*11:01	1	1154	1163	10	KNHTSPDVDL	1.8e-05	39
HLA-B*35:01	1	1155	1164	10	NHTSPDVDLG	1.8e-05	43
HLA-A*31:01	1	1157	1166	10	TSPDVDLGGDI	1.8e-05	59
HLA-A*33:01	1	1157	1166	10	TSPDVDLGGDI	1.8e-05	63
HLA-A*11:01	1	1161	1169	9	VDLGDISGI	1.8e-05	39
HLA-A*26:01	1	1163	1172	10	LGDISGINAS	1.8e-05	51
HLA-A*33:01	1	1163	1172	10	LGDISGINAS	1.8e-05	63
HLA-B*44:03	1	1163	1171	9	LGDISGINA	1.8e-05	42
HLA-B*35:01	1	1167	1176	10	SGINASVVNI	1.8e-05	43
HLA-B*44:02	1	1169	1177	9	INASVVNIQ	1.8e-05	45
HLA-A*23:01	1	1171	1179	9	ASVVNIQKE	1.8e-05	39
HLA-B*07:02	1	1171	1179	9	ASVVNIQKE	1.8e-05	56
HLA-B*08:01	1	1173	1181	9	VVNIQKEID	1.8e-05	76
HLA-A*68:02	1	1175	1184	10	NIQKEIDRLN	1.8e-05	58
HLA-A*24:02	1	1178	1187	10	KEIDRLNEVA	1.8e-05	38
HLA-A*26:01	1	1181	1189	9	DRLNEVAKN	1.8e-05	51
HLA-B*51:01	1	1181	1189	9	DRLNEVAKN	1.8e-05	67
HLA-A*33:01	1	1183	1192	10	LNEVAKNLNE	1.8e-05	63
HLA-B*07:02	1	1184	1192	9	NEVAKNLNE	1.8e-05	56
HLA-B*35:01	1	1189	1198	10	NLNESLIDLQ	1.8e-05	43
HLA-B*35:01	1	1195	1204	10	IDLQELGKYE	1.8e-05	43
HLA-A*23:01	1	1197	1205	9	LQELGKYEQ	1.8e-05	39
HLA-A*02:01	1	1200	1209	10	LGKYEQYIKW	1.8e-05	57
HLA-A*24:02	1	1200	1208	9	LGKYEQYIK	1.8e-05	38
HLA-A*01:01	1	1201	1210	10	GKYEQYIKWP	1.8e-05	80
HLA-A*24:02	1	1201	1210	10	GKYEQYIKWP	1.8e-05	38
HLA-A*68:02	1	1201	1210	10	GKYEQYIKWP	1.8e-05	58
HLA-A*68:02	1	1203	1212	10	YEQYIKWPWY	1.8e-05	58
HLA-A*02:03	1	1208	1217	10	KWPWYIWLGF	1.8e-05	60
HLA-B*07:02	1	1211	1219	9	WYIWLGFIA	1.8e-05	56
HLA-A*26:01	1	1212	1220	9	YIWLGFIAIAG	1.8e-05	51
HLA-B*35:01	1	1215	1224	10	LGFIAGLIAI	1.8e-05	43
HLA-A*68:01	1	1216	1225	10	GFIAGLIAIIV	1.8e-05	52
HLA-A*68:01	1	1223	1232	10	AIVMVTIMLC	1.8e-05	52
HLA-A*24:02	1	1226	1234	9	MVTIMLCCM	1.8e-05	38
HLA-A*03:01	1	1227	1236	10	VTIMLCCMSTS	1.8e-05	52
HLA-A*11:01	1	1227	1235	9	VTIMLCCMT	1.8e-05	39

HLA-B*08:01	1	1227	1235	9	VTIMLCCMT	1.8e-05	76
HLA-A*02:03	1	1233	1242	10	CMTSCCSCCLK	1.8e-05	60
HLA-A*02:03	1	1234	1242	9	MTSCCSCCLK	1.8e-05	60
HLA-A*02:06	1	1238	1247	10	CCLKGCCSC	1.8e-05	67
HLA-B*08:01	1	1239	1248	10	SCLKGCCSCG	1.8e-05	76
HLA-B*57:01	1	1243	1251	9	GCCSCGCC	1.8e-05	75
HLA-B*35:01	1	1244	1253	10	CCSCGSCCKF	1.8e-05	43
HLA-B*58:01	1	1253	1261	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	WFHAIHVSG	1.7e-05	53
HLA-A*24:02	1	64	73	10	WFHAIHVSGT	1.7e-05	39
HLA-A*11:01	1	66	74	9	HAIHVSGTN	1.7e-05	40
HLA-A*33:01	1	66	75	10	HAIHVSGTNG	1.7e-05	64
HLA-A*24:02	1	67	76	10	AIHVSGTNGT	1.7e-05	39
HLA-B*44:03	1	71	80	10	SGTNGTKRFA	1.7e-05	43
HLA-A*01:01	1	73	82	10	SGTNGTKRFA	1.7e-05	81
HLA-A*68:02	1	78	87	10	RFANPVLPFN	1.7e-05	59
HLA-B*44:02	1	79	87	9	FANPVLPFN	1.7e-05	46
HLA-B*44:03	1	79	87	9	FANPVLPFN	1.7e-05	43
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	SNIIRGWIFG	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	DSKTQSLLIV	1.7e-05	43
HLA-A*31:01	1	122	131	10	NATNVVIVKVC	1.7e-05	60
HLA-B*35:01	1	124	132	9	TNVVIVKVC	1.7e-05	44
HLA-A*02:01	1	128	136	9	IKVCEFQFC	1.7e-05	58
HLA-A*02:06	1	129	138	10	KVCEFQFCND	1.7e-05	68
HLA-A*32:01	1	129	138	10	KVCEFQFCND	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	LMDLEGKQG	1.7e-05	43
HLA-B*57:01	1	178	187	10	DLEGKQGNFK	1.7e-05	75
HLA-B*58:01	1	178	187	10	DLEGKQGNFK	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*02:01	1	209	217	9	PINLVRGLP	1.7e-05	58
HLA-A*03:01	1	209	218	10	PINLVRGLPQ	1.7e-05	53
HLA-A*23:01	1	211	219	9	NLVRGLPQG	1.7e-05	40
HLA-B*44:03	1	211	219	9	NLVRGLPQG	1.7e-05	43
HLA-A*32:01	1	215	224	10	GLPQGFSALE	1.7e-05	45
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	PLVDLPIGI	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*53:01	1	234	243	10	NITRFQTLHR	1.7e-05	43
HLA-B*44:03	1	239	248	10	QTLHRSYLTP	1.7e-05	43
HLA-B*08:01	1	243	251	9	RSYLTPGDS	1.7e-05	76
HLA-A*23:01	1	245	253	9	YLTPGDSSS	1.7e-05	40
HLA-A*23:01	1	251	259	9	SSSGWTAGA	1.7e-05	40
HLA-A*30:02	1	256	265	10	TAGAAAYVVG	1.7e-05	82
HLA-A*24:02	1	258	267	10	GAAAYVGYL	1.7e-05	39
HLA-A*02:01	1	259	268	10	AAAYVGYLQ	1.7e-05	58
HLA-B*40:01	1	260	269	10	AAAYVGYLQP	1.7e-05	37
HLA-B*35:01	1	261	270	10	AYVGYLQPR	1.7e-05	44
HLA-A*11:01	1	263	271	9	YVGYLQPR	1.7e-05	40
HLA-A*33:01	1	271	280	10	TFLLKYNENG	1.7e-05	64
HLA-A*33:01	1	272	280	9	FLLKYNENG	1.7e-05	64
HLA-B*51:01	1	272	281	10	FLLKYNENGT	1.7e-05	68
HLA-A*33:01	1	273	282	10	LLKYNENGTI	1.7e-05	64
HLA-A*03:01	1	276	285	10	YNENGTITDA	1.7e-05	53
HLA-A*68:01	1	276	285	10	YNENGTITDA	1.7e-05	53
HLA-B*08:01	1	280	288	9	GTITDAVDC	1.7e-05	76
HLA-A*32:01	1	281	289	9	TITDAVDC	1.7e-05	45
HLA-A*68:01	1	284	292	9	DAVDCALDP	1.7e-05	53
HLA-A*02:01	1	286	295	10	VDCALDPLSE	1.7e-05	58
HLA-A*23:01	1	290	298	9	LDPLSETKC	1.7e-05	40
HLA-A*02:01	1	291	299	9	DPLSETKCT	1.7e-05	58
HLA-A*24:02	1	292	301	10	PLSETKCTLK	1.7e-05	39
HLA-B*44:02	1	293	301	9	LSETKCTLK	1.7e-05	46
HLA-B*44:02	1	293	302	10	LSETKCTLKS	1.7e-05	46
HLA-A*31:01	1	296	305	10	TKCTLKSFTV	1.7e-05	60
HLA-B*51:01	1	296	304	9	TKCTLKSFT	1.7e-05	68
HLA-B*53:01	1	298	306	9	CTLKSFTVE	1.7e-05	43
HLA-A*68:01	1	300	309	10	LKSFTVEKGI	1.7e-05	53
HLA-A*68:02	1	302	310	9	SFTVEKGIY	1.7e-05	59
HLA-B*40:01	1	303	312	10	FTVEKGIYQT	1.7e-05	37
HLA-B*53:01	1	307	316	10	KGIYQTSNFR	1.7e-05	43
HLA-B*35:01	1	312	321	10	TSNFRVQPT	1.7e-05	44
HLA-A*11:01	1	319	327	9	PTESIVRFP	1.7e-05	40
HLA-A*33:01	1	319	327	9	PTESIVRFP	1.7e-05	64
HLA-A*31:01	1	321	330	10	ESIVRFPNIT	1.7e-05	60
HLA-A*02:03	1	326	334	9	FPNITNLCP	1.7e-05	61
HLA-A*02:01	1	328	336	9	NITNLCPFG	1.7e-05	58
HLA-A*11:01	1	335	344	10	FGEVFNATRF	1.7e-05	40

HLA-A*24:02	1	337	345	9	EVFNATRFA	1.7e-05	39
HLA-B*44:02	1	337	346	10	EVFNATRFAS	1.7e-05	46
HLA-A*24:02	1	345	354	10	ASVYAWNRKR	1.7e-05	39
HLA-B*08:01	1	345	353	9	ASVYAWNRK	1.7e-05	76
HLA-A*11:01	1	348	356	9	YAWNRKRIS	1.7e-05	40
HLA-A*68:01	1	348	357	10	YAWNRKRISN	1.7e-05	53
HLA-A*02:01	1	350	358	9	WNRKRISNC	1.7e-05	58
HLA-A*02:06	1	353	361	9	KRISNCVAD	1.7e-05	68
HLA-B*40:01	1	354	362	9	RISNCVADY	1.7e-05	37
HLA-B*53:01	1	355	363	9	ISNCVADYS	1.7e-05	43
HLA-B*44:02	1	358	367	10	CVADYSVLYN	1.7e-05	46
HLA-B*40:01	1	362	370	9	YSVLYNSAS	1.7e-05	37
HLA-B*53:01	1	364	372	9	VLYNSASF	1.7e-05	43
HLA-A*33:01	1	371	380	10	FSTFKCYGVS	1.7e-05	64
HLA-B*35:01	1	371	379	9	FSTFKCYGV	1.7e-05	44
HLA-B*35:01	1	372	381	10	STFKCYGVSP	1.7e-05	44
HLA-B*44:03	1	372	381	10	STFKCYGVSP	1.7e-05	43
HLA-A*02:01	1	377	386	10	YGVSPTKLND	1.7e-05	58
HLA-B*58:01	1	381	390	10	PTKLNDLCFT	1.7e-05	64
HLA-B*44:03	1	383	391	9	KLNDLCFTN	1.7e-05	43
HLA-B*57:01	1	385	394	10	NDLCFTNVYA	1.7e-05	75
HLA-A*01:01	1	386	395	10	DLCFTNVYAD	1.7e-05	81
HLA-A*23:01	1	386	394	9	DLCFTNVYA	1.7e-05	40
HLA-B*58:01	1	386	394	9	DLCFTNVYA	1.7e-05	64
HLA-A*01:01	1	394	403	10	ADSFVIRGDE	1.7e-05	81
HLA-B*40:01	1	396	405	10	SFVIRGDEVR	1.7e-05	37
HLA-B*44:03	1	398	406	9	VIRGDEVRQ	1.7e-05	43
HLA-B*07:02	1	401	409	9	GDEVRQIAP	1.7e-05	57
HLA-A*31:01	1	402	411	10	DEVQRQIAPGQ	1.7e-05	60
HLA-A*26:01	1	404	412	9	VRQIAPGQT	1.7e-05	52
HLA-A*68:02	1	404	413	10	VRQIAPGQTG	1.7e-05	59
HLA-B*08:01	1	405	414	10	RQIAPGQTGN	1.7e-05	76
HLA-A*31:01	1	408	416	9	APGQTGNIA	1.7e-05	60
HLA-A*03:01	1	410	419	10	GQTGNIADYN	1.7e-05	53
HLA-A*11:01	1	411	419	9	QTGNIADYN	1.7e-05	40
HLA-A*02:03	1	412	421	10	TGNIADYNYK	1.7e-05	61
HLA-A*32:01	1	414	423	10	NIADYNYKLP	1.7e-05	45
HLA-B*40:01	1	417	426	10	DYNYKLPDDF	1.7e-05	37
HLA-B*58:01	1	419	427	9	NYKLPDDFT	1.7e-05	64
HLA-B*51:01	1	423	432	10	PDDFTGCVIA	1.7e-05	68
HLA-A*33:01	1	431	440	10	IAWNSNNLDS	1.7e-05	64
HLA-A*02:01	1	433	441	9	WNSNNLDSK	1.7e-05	58
HLA-A*02:01	1	439	448	10	DSKVGGNYNY	1.7e-05	58
HLA-B*44:03	1	443	452	10	GGNYNYLYRL	1.7e-05	43
HLA-B*15:01	1	446	455	10	YNYLYRLFRK	1.7e-05	58
HLA-B*15:01	1	447	455	9	NYLYRLFRK	1.7e-05	58
HLA-A*03:01	1	449	458	10	LYRLFRKSNL	1.7e-05	53
HLA-B*40:01	1	449	458	10	LYRLFRKSNL	1.7e-05	37
HLA-A*02:01	1	452	461	10	LFRKSNLKPF	1.7e-05	58
HLA-A*11:01	1	452	460	9	LFRKSNLKP	1.7e-05	40
HLA-A*01:01	1	453	462	10	FRKSNLKPF	1.7e-05	81
HLA-A*02:03	1	453	462	10	FRKSNLKPF	1.7e-05	61
HLA-A*23:01	1	453	462	10	FRKSNLKPF	1.7e-05	40
HLA-A*31:01	1	456	464	9	SNLKPFERD	1.7e-05	60
HLA-A*68:01	1	456	465	10	SNLKPFERDI	1.7e-05	53
HLA-B*57:01	1	457	466	10	NLKPFERDIS	1.7e-05	75
HLA-B*44:02	1	458	467	10	LKPFERDIST	1.7e-05	46
HLA-B*07:02	1	462	471	10	ERDISTEIQ	1.7e-05	57
HLA-A*11:01	1	469	477	9	IYQAGSTPC	1.7e-05	40
HLA-B*58:01	1	475	484	10	TPCNGVKGFN	1.7e-05	64
HLA-B*08:01	1	480	488	9	VKGFNCYFP	1.7e-05	76
HLA-B*51:01	1	481	490	10	KGFNCYFPLQ	1.7e-05	68
HLA-B*07:02	1	484	493	10	NCYFPLQSYG	1.7e-05	57
HLA-A*31:01	1	492	501	10	YGFQPTYGVG	1.7e-05	60
HLA-A*01:01	1	493	501	9	GFQPTYGVG	1.7e-05	81
HLA-B*44:02	1	495	503	9	QPTYGVGYQ	1.7e-05	46

HLA-B*07:02	1	497	506	10	TYGVGYQPYP	1.7e-05	57
HLA-A*01:01	1	505	513	9	YRVVLSFE	1.7e-05	81
HLA-B*35:01	1	509	518	10	VLSFELLHAP	1.7e-05	44
HLA-B*53:01	1	511	519	9	SFELLHAPA	1.7e-05	43
HLA-B*44:03	1	513	522	10	ELLHAPATVC	1.7e-05	43
HLA-A*68:01	1	514	522	9	LLHAPATVC	1.7e-05	53
HLA-B*35:01	1	515	524	10	LHAPATVCGP	1.7e-05	44
HLA-A*02:01	1	516	525	10	HAPATVCGPK	1.7e-05	58
HLA-A*02:03	1	517	525	9	APATVCGPK	1.7e-05	61
HLA-B*35:01	1	518	526	9	PATVCGPKK	1.7e-05	44
HLA-A*03:01	1	521	530	10	VCGPKKSTNL	1.7e-05	53
HLA-B*35:01	1	521	530	10	VCGPKKSTNL	1.7e-05	44
HLA-A*02:01	1	525	534	10	KKSTNLVKNK	1.7e-05	58
HLA-A*30:01	1	528	537	10	TNLVKNKCVN	1.7e-05	84
HLA-A*23:01	1	530	539	10	LVKNKCVNFN	1.7e-05	40
HLA-B*40:01	1	536	544	9	VNFNFLGLT	1.7e-05	37
HLA-A*32:01	1	538	546	9	FNFNGLTGT	1.7e-05	45
HLA-B*15:01	1	538	547	10	FNFNGLTGTG	1.7e-05	58
HLA-A*26:01	1	542	551	10	GLTGTGVLTE	1.7e-05	52
HLA-B*07:02	1	542	551	10	GLTGTGVLTE	1.7e-05	57
HLA-B*44:03	1	546	555	10	TGVLTESNKK	1.7e-05	43
HLA-A*11:01	1	553	561	9	NKKFLPFQ	1.7e-05	40
HLA-A*30:02	1	556	565	10	FLPFQQFGRD	1.7e-05	82
HLA-B*40:01	1	556	564	9	FLPFQQFGR	1.7e-05	37
HLA-B*40:01	1	557	566	10	LPFQQFGRDI	1.7e-05	37
HLA-B*58:01	1	558	566	9	PFQQFGRDI	1.7e-05	64
HLA-A*26:01	1	560	568	9	QQFGRDIAD	1.7e-05	52
HLA-A*33:01	1	564	572	9	RDIADTTDA	1.7e-05	64
HLA-A*02:01	1	569	577	9	TTDAVRDPQ	1.7e-05	58
HLA-A*30:01	1	576	585	10	PQTLILDIT	1.7e-05	84
HLA-A*31:01	1	578	586	9	TLEILDITP	1.7e-05	60
HLA-A*31:01	1	578	587	10	TLEILDITPC	1.7e-05	60
HLA-A*33:01	1	578	586	9	TLEILDITP	1.7e-05	64
HLA-A*68:01	1	578	586	9	TLEILDITP	1.7e-05	53
HLA-B*58:01	1	578	587	10	TLEILDITPC	1.7e-05	64
HLA-A*26:01	1	579	588	10	LEILDITPCS	1.7e-05	52
HLA-B*35:01	1	583	591	9	DITPCSFVG	1.7e-05	44
HLA-A*03:01	1	584	593	10	ITPCSFGGVS	1.7e-05	53
HLA-A*03:01	1	585	593	9	TPCSFGGVS	1.7e-05	53
HLA-A*11:01	1	585	593	9	TPCSFGGVS	1.7e-05	40
HLA-A*31:01	1	589	597	9	FGGVSVITP	1.7e-05	60
HLA-A*31:01	1	590	599	10	GGVSVITPGT	1.7e-05	60
HLA-A*32:01	1	595	603	9	ITPGTNTSN	1.7e-05	45
HLA-B*44:02	1	597	605	9	PGTNTSNQV	1.7e-05	46
HLA-B*44:02	1	602	611	10	SNQVAVLYQG	1.7e-05	46
HLA-A*68:01	1	605	614	10	VAVLYQGVNC	1.7e-05	53
HLA-B*15:01	1	605	614	10	VAVLYQGVNC	1.7e-05	58
HLA-B*35:01	1	607	616	10	VLYQGVNCTE	1.7e-05	44
HLA-A*02:03	1	608	616	9	LYQGVNCTE	1.7e-05	61
HLA-A*68:01	1	609	617	9	YQGVNCTEV	1.7e-05	53
HLA-A*26:01	1	610	619	10	QGVNCTEVPV	1.7e-05	52
HLA-A*03:01	1	612	620	9	VNCTEVPVA	1.7e-05	53
HLA-A*24:02	1	612	620	9	VNCTEVPVA	1.7e-05	39
HLA-A*11:01	1	613	621	9	NCTEVPVAI	1.7e-05	40
HLA-B*53:01	1	615	624	10	TEVPVAIHAD	1.7e-05	43
HLA-B*58:01	1	615	624	10	TEVPVAIHAD	1.7e-05	64
HLA-A*02:01	1	616	624	9	EVPVAIHAD	1.7e-05	58
HLA-B*07:02	1	616	624	9	EVPVAIHAD	1.7e-05	57
HLA-A*02:06	1	618	627	10	PVAIHADQLT	1.7e-05	68
HLA-A*11:01	1	618	626	9	PVAIHADQL	1.7e-05	40
HLA-A*11:01	1	626	635	10	LTPTWRVYST	1.7e-05	40
HLA-A*32:01	1	626	635	10	LTPTWRVYST	1.7e-05	45
HLA-A*68:02	1	628	637	10	PTWRVYSTGS	1.7e-05	59
HLA-A*30:02	1	630	638	9	WRVYSTGSN	1.7e-05	82
HLA-B*07:02	1	633	642	10	YSTGSNVFQT	1.7e-05	57
HLA-A*31:01	1	637	645	9	SNVFQTRAG	1.7e-05	60

HLA-B*44:03	1	637	645	9	SNVFQTRAG	1.7e-05	43
HLA-A*26:01	1	642	651	10	TRAGCLIGAE	1.7e-05	52
HLA-A*31:01	1	642	651	10	TRAGCLIGAE	1.7e-05	60
HLA-B*44:02	1	643	652	10	RAGCLIGAEH	1.7e-05	46
HLA-B*51:01	1	643	651	9	RAGCLIGAE	1.7e-05	68
HLA-A*01:01	1	645	654	10	GCLIGAEHVN	1.7e-05	81
HLA-A*33:01	1	645	653	9	GCLIGAEHV	1.7e-05	64
HLA-B*53:01	1	646	654	9	CLIGAEHVN	1.7e-05	43
HLA-A*32:01	1	647	656	10	LIGAEHVNNS	1.7e-05	45
HLA-A*23:01	1	648	656	9	IGAEHVNNS	1.7e-05	40
HLA-B*44:03	1	648	656	9	IGAEHVNNS	1.7e-05	43
HLA-A*26:01	1	654	663	10	NNSYECDIPI	1.7e-05	52
HLA-B*08:01	1	655	664	10	NSYECDIPIG	1.7e-05	76
HLA-A*31:01	1	656	664	9	SYECDIPIG	1.7e-05	60
HLA-B*58:01	1	659	668	10	CDIPIGAGIC	1.7e-05	64
HLA-A*03:01	1	660	669	10	DIPIGAGICA	1.7e-05	53
HLA-A*11:01	1	660	669	10	DIPIGAGICA	1.7e-05	40
HLA-A*26:01	1	661	670	10	IPIGAGICAS	1.7e-05	52
HLA-B*07:02	1	668	677	10	CASYQTQTN	1.7e-05	57
HLA-A*23:01	1	677	685	9	SPRRARSVA	1.7e-05	40
HLA-A*23:01	1	683	691	9	SVASQSIIA	1.7e-05	40
HLA-B*08:01	1	689	697	9	IIAYTMSLG	1.7e-05	76
HLA-A*23:01	1	690	699	10	IAYTMSLGVE	1.7e-05	40
HLA-B*44:03	1	691	700	10	AYTMSLGVEN	1.7e-05	43
HLA-B*51:01	1	691	699	9	AYTMSLGVE	1.7e-05	68
HLA-B*40:01	1	695	703	9	SLGVENSV	1.7e-05	37
HLA-A*03:01	1	700	709	10	NSVAYSNNNSI	1.7e-05	53
HLA-A*03:01	1	704	713	10	YSNNSIAIPT	1.7e-05	53
HLA-B*44:02	1	705	714	10	SNNSIAIPTN	1.7e-05	46
HLA-A*68:02	1	706	714	9	NNSIAIPTN	1.7e-05	59
HLA-A*31:01	1	712	720	9	PTNFTISVT	1.7e-05	60
HLA-B*07:02	1	712	720	9	PTNFTISVT	1.7e-05	57
HLA-A*02:01	1	713	722	10	TNFTISVTTE	1.7e-05	58
HLA-B*53:01	1	713	722	10	TNFTISVTTE	1.7e-05	43
HLA-B*53:01	1	718	727	10	SVTTEILPVS	1.7e-05	43
HLA-A*02:03	1	724	732	9	LPVSMTKTS	1.7e-05	61
HLA-A*23:01	1	724	733	10	LPVSMTKTSV	1.7e-05	40
HLA-B*40:01	1	725	733	9	PVSMTKTSV	1.7e-05	37
HLA-A*26:01	1	736	744	9	TMVICGDST	1.7e-05	52
HLA-B*57:01	1	740	748	9	CGDSTECSN	1.7e-05	75
HLA-A*02:03	1	746	754	9	CSNLLLQYG	1.7e-05	61
HLA-A*02:01	1	747	755	9	SNLLLQYGS	1.7e-05	58
HLA-B*07:02	1	750	759	10	LLQYGSFCTQ	1.7e-05	57
HLA-B*35:01	1	750	758	9	LLQYGSFCT	1.7e-05	44
HLA-B*07:02	1	754	763	10	GSFCTQLNRA	1.7e-05	57
HLA-A*32:01	1	755	763	9	SFCTQLNRA	1.7e-05	45
HLA-B*53:01	1	755	763	9	SFCTQLNRA	1.7e-05	43
HLA-A*26:01	1	758	766	9	TQLNRALTG	1.7e-05	52
HLA-A*24:02	1	760	769	10	LNRLTGIADV	1.7e-05	39
HLA-B*51:01	1	764	773	10	LTGIAVEQDK	1.7e-05	68
HLA-A*02:01	1	769	777	9	VEQDKNTQE	1.7e-05	58
HLA-A*31:01	1	771	780	10	QDKNTQEVFA	1.7e-05	60
HLA-B*35:01	1	783	792	10	KQIYKTPPIK	1.7e-05	44
HLA-B*35:01	1	786	795	10	YKTPPIKDFG	1.7e-05	44
HLA-B*40:01	1	790	799	10	PIKDFGGFNF	1.7e-05	37
HLA-B*44:03	1	791	800	10	IKDFGGFNFS	1.7e-05	43
HLA-A*02:01	1	797	805	9	FNFSQILPD	1.7e-05	58
HLA-A*68:01	1	797	806	10	FNFSQILPDP	1.7e-05	53
HLA-A*23:01	1	804	812	9	PDPSKPSKR	1.7e-05	40
HLA-A*30:01	1	804	813	10	PDPSKPSKRS	1.7e-05	84
HLA-B*44:02	1	807	816	10	SKPSKRSFIE	1.7e-05	46
HLA-B*44:02	1	808	817	10	KPSKRSFIED	1.7e-05	46
HLA-B*07:02	1	819	827	9	LFNKVTLAD	1.7e-05	57
HLA-B*35:01	1	819	828	10	LFNKVTLADA	1.7e-05	44
HLA-B*58:01	1	819	827	9	LFNKVTLAD	1.7e-05	64
HLA-A*02:03	1	821	830	10	NKVTLADAGF	1.7e-05	61

HLA-A*03:01	1	821	830	10	NKVTLADAGF	1.7e-05	53
HLA-A*33:01	1	822	831	10	KVTLADAGFI	1.7e-05	64
HLA-B*40:01	1	824	833	10	TLADAGFIKQ	1.7e-05	37
HLA-B*07:02	1	827	835	9	DAGFIKQYG	1.7e-05	57
HLA-B*51:01	1	829	837	9	GFIKQYGDC	1.7e-05	68
HLA-A*02:03	1	833	841	9	QYGDCLGDI	1.7e-05	61
HLA-B*07:02	1	833	842	10	QYGDCLGDIA	1.7e-05	57
HLA-B*07:02	1	835	844	10	GDCLGDIAAR	1.7e-05	57
HLA-A*26:01	1	836	845	10	DCLGDIAARD	1.7e-05	52
HLA-A*30:02	1	837	845	9	CLGDIAARD	1.7e-05	82
HLA-B*44:03	1	839	848	10	GDIAARDLIC	1.7e-05	43
HLA-A*03:01	1	840	848	9	DIAARDLIC	1.7e-05	53
HLA-B*44:03	1	841	849	9	IAARDLICA	1.7e-05	43
HLA-A*31:01	1	848	856	9	CAQKFNGLT	1.7e-05	60
HLA-B*44:02	1	853	862	10	NGLTVLPPLL	1.7e-05	46
HLA-A*26:01	1	855	864	10	LTVLPPLLD	1.7e-05	52
HLA-A*32:01	1	858	867	10	LPPLLDDEMI	1.7e-05	45
HLA-B*57:01	1	864	873	10	DEMIAQYTSA	1.7e-05	75
HLA-A*24:02	1	867	876	10	IAQYTSALLA	1.7e-05	39
HLA-A*23:01	1	874	882	9	LLAGTITSG	1.7e-05	40
HLA-A*01:01	1	876	884	9	AGTITSGWT	1.7e-05	81
HLA-A*02:06	1	876	884	9	AGTITSGWT	1.7e-05	68
HLA-B*58:01	1	876	884	9	AGTITSGWT	1.7e-05	64
HLA-B*53:01	1	880	889	10	TSGWTFGAGA	1.7e-05	43
HLA-A*23:01	1	881	889	9	SGWTFGAGA	1.7e-05	40
HLA-B*40:01	1	881	890	10	SGWTFGAGAA	1.7e-05	37
HLA-B*35:01	1	890	898	9	ALQIPFAMQ	1.7e-05	44
HLA-A*02:03	1	896	904	9	AMQMAYRFN	1.7e-05	61
HLA-A*02:06	1	899	907	9	MAYRFNGIG	1.7e-05	68
HLA-A*03:01	1	904	913	10	NGIGVTQNVL	1.7e-05	53
HLA-A*68:01	1	907	916	10	GVTQNVLYEN	1.7e-05	53
HLA-B*40:01	1	910	918	9	QNVLYENQK	1.7e-05	37
HLA-B*44:02	1	913	921	9	LYENQKLIA	1.7e-05	46
HLA-A*03:01	1	917	926	10	QKLIANQFNS	1.7e-05	53
HLA-A*33:01	1	917	926	10	QKLIANQFNS	1.7e-05	64
HLA-B*07:02	1	928	936	9	IGKIQDSL	1.7e-05	57
HLA-A*26:01	1	929	937	9	GKIQDSLSS	1.7e-05	52
HLA-A*11:01	1	931	940	10	IQDSLSSSTAS	1.7e-05	40
HLA-B*44:02	1	931	940	10	IQDSLSSSTAS	1.7e-05	46
HLA-A*26:01	1	932	940	9	QDSLSSSTAS	1.7e-05	52
HLA-B*53:01	1	932	940	9	QDSLSSSTAS	1.7e-05	43
HLA-B*57:01	1	932	940	9	QDSLSSSTAS	1.7e-05	75
HLA-A*23:01	1	933	941	9	DSLSSSTASA	1.7e-05	40
HLA-B*08:01	1	935	943	9	LSSTASALG	1.7e-05	76
HLA-A*31:01	1	939	947	9	ASALGKLQD	1.7e-05	60
HLA-A*68:01	1	941	949	9	ALGKLQDVV	1.7e-05	53
HLA-B*15:01	1	942	950	9	LGKLQDVVN	1.7e-05	58
HLA-B*15:01	1	946	954	9	QDVVNQNAQ	1.7e-05	58
HLA-A*32:01	1	947	955	9	DVVVNQNAQA	1.7e-05	45
HLA-A*03:01	1	949	958	10	VNQNQAALNT	1.7e-05	53
HLA-B*08:01	1	949	958	10	VNQNQAALNT	1.7e-05	76
HLA-A*23:01	1	953	962	10	AQALNTLVKQ	1.7e-05	40
HLA-A*02:06	1	956	964	9	LNTLVKQLS	1.7e-05	68
HLA-B*08:01	1	960	968	9	VKQLSSNFG	1.7e-05	76
HLA-B*44:03	1	960	969	10	VKQLSSNFGA	1.7e-05	43
HLA-A*02:03	1	970	979	10	ISSVLNDILS	1.7e-05	61
HLA-B*44:02	1	974	983	10	LNDILSRLDK	1.7e-05	46
HLA-B*53:01	1	975	983	9	NDILSRLDK	1.7e-05	43
HLA-A*30:02	1	981	989	9	LDKVEAEVQ	1.7e-05	82
HLA-B*40:01	1	991	999	9	DRLITGRLQ	1.7e-05	37
HLA-B*40:01	1	1000	1008	9	SLQTYVTQQ	1.7e-05	37
HLA-B*40:01	1	1002	1011	10	QTYVTQQLIR	1.7e-05	37
HLA-A*24:02	1	1007	1016	10	QLLIRAAEIR	1.7e-05	39
HLA-A*01:01	1	1009	1018	10	LIRAAEIRAS	1.7e-05	81
HLA-A*33:01	1	1009	1018	10	LIRAAEIRAS	1.7e-05	64
HLA-A*33:01	1	1010	1018	9	IRAAEIRAS	1.7e-05	64



HLA-B*40:01	1	1010	1018	9	IRAAEIRAS	1.7e-05	37
HLA-A*11:01	1	1011	1020	10	RAAEIRASAN	1.7e-05	40
HLA-B*35:01	1	1012	1020	9	AAEIRASAN	1.7e-05	44
HLA-A*23:01	1	1014	1023	10	EIRASANLAA	1.7e-05	40
HLA-A*23:01	1	1015	1024	10	IRASANLAAT	1.7e-05	40
HLA-A*23:01	1	1021	1029	9	LAATKMSEC	1.7e-05	40
HLA-A*03:01	1	1023	1032	10	ATKMSECVLG	1.7e-05	53
HLA-A*26:01	1	1024	1033	10	TKMSECVLGQ	1.7e-05	52
HLA-B*08:01	1	1024	1033	10	TKMSECVLGQ	1.7e-05	76
HLA-A*11:01	1	1025	1034	10	KMSECVLGQS	1.7e-05	40
HLA-A*02:01	1	1026	1034	9	MSECVLGQS	1.7e-05	58
HLA-A*24:02	1	1027	1035	9	SECVLGQSK	1.7e-05	39
HLA-B*15:01	1	1032	1041	10	GQSKRVDFCG	1.7e-05	58
HLA-A*23:01	1	1035	1043	9	KRVDFCGKG	1.7e-05	40
HLA-A*31:01	1	1041	1050	10	GKGYHLMSFP	1.7e-05	60
HLA-B*15:01	1	1041	1050	10	GKGYHLMSFP	1.7e-05	58
HLA-B*44:02	1	1046	1054	9	LMSFPQSAP	1.7e-05	46
HLA-A*26:01	1	1055	1063	9	HGVVFLHVT	1.7e-05	52
HLA-B*44:02	1	1056	1065	10	GVVFLHVTYV	1.7e-05	46
HLA-B*15:01	1	1060	1069	10	LHVTVVPAQE	1.7e-05	58
HLA-A*02:01	1	1069	1077	9	EKNFTTAPA	1.7e-05	58
HLA-A*31:01	1	1069	1077	9	EKNFTTAPA	1.7e-05	60
HLA-A*02:06	1	1071	1080	10	NFTTAPAICH	1.7e-05	68
HLA-B*44:03	1	1071	1080	10	NFTTAPAICH	1.7e-05	43
HLA-A*02:01	1	1080	1088	9	HDGKAHFPR	1.7e-05	58
HLA-A*23:01	1	1080	1088	9	HDGKAHFPR	1.7e-05	40
HLA-B*51:01	1	1082	1090	9	GKAHFPR	1.7e-05	68
HLA-A*02:06	1	1086	1095	10	FPREGVFVSN	1.7e-05	68
HLA-A*23:01	1	1086	1094	9	FPREGVFVS	1.7e-05	40
HLA-A*03:01	1	1094	1102	9	SNGTHWFVT	1.7e-05	53
HLA-A*11:01	1	1094	1102	9	SNGTHWFVT	1.7e-05	40
HLA-A*26:01	1	1094	1103	10	SNGTHWFVTQ	1.7e-05	52
HLA-A*68:01	1	1094	1102	9	SNGTHWFVT	1.7e-05	53
HLA-A*02:06	1	1099	1108	10	WFVTQRNFYE	1.7e-05	68
HLA-A*26:01	1	1100	1109	10	FVTQRNFYEP	1.7e-05	52
HLA-B*53:01	1	1100	1109	10	FVTQRNFYEP	1.7e-05	43
HLA-B*40:01	1	1101	1109	9	VTQRNFYEP	1.7e-05	37
HLA-A*11:01	1	1102	1111	10	TQRNFYEPQI	1.7e-05	40
HLA-A*02:03	1	1106	1115	10	FYEPQIITTD	1.7e-05	61
HLA-A*24:02	1	1113	1121	9	TTDNTFVSG	1.7e-05	39
HLA-B*51:01	1	1114	1122	9	TDNTFVSGN	1.7e-05	68
HLA-A*01:01	1	1115	1124	10	DNTFVSGNCD	1.7e-05	81
HLA-A*68:02	1	1115	1124	10	DNTFVSGNCD	1.7e-05	59
HLA-A*11:01	1	1117	1125	9	TFVSGNCDV	1.7e-05	40
HLA-A*01:01	1	1119	1128	10	VSGNCDVVIG	1.7e-05	81
HLA-A*26:01	1	1127	1136	10	IGIVNNTVYD	1.7e-05	52
HLA-B*53:01	1	1131	1139	9	NNTVYDPLQ	1.7e-05	43
HLA-B*53:01	1	1137	1146	10	PLQPELDSFK	1.7e-05	43
HLA-B*40:01	1	1138	1147	10	LQPELDSFKE	1.7e-05	37
HLA-A*31:01	1	1140	1149	10	PELDSFKEEL	1.7e-05	60
HLA-B*07:02	1	1143	1151	9	DSFKEELDK	1.7e-05	57
HLA-B*15:01	1	1147	1155	9	EELDKYFKN	1.7e-05	58
HLA-B*40:01	1	1149	1158	10	LDKYFKNHTS	1.7e-05	37
HLA-B*58:01	1	1150	1159	10	DKYFKNHTSP	1.7e-05	64
HLA-A*03:01	1	1151	1160	10	KYFKNHTSPD	1.7e-05	53
HLA-B*40:01	1	1157	1166	10	TSPDVLGDI	1.7e-05	37
HLA-B*44:03	1	1162	1170	9	DLGDISGIN	1.7e-05	43
HLA-A*03:01	1	1165	1174	10	DISGINASVV	1.7e-05	53
HLA-A*68:02	1	1167	1175	9	SGINASVVN	1.7e-05	59
HLA-A*23:01	1	1169	1178	10	INASVVNIQK	1.7e-05	40
HLA-A*24:02	1	1169	1178	10	INASVVNIQK	1.7e-05	39
HLA-B*35:01	1	1171	1180	10	ASVVNIQKEI	1.7e-05	44
HLA-A*02:03	1	1174	1182	9	VNIQKEIDR	1.7e-05	61
HLA-A*11:01	1	1174	1183	10	VNIQKEIDRL	1.7e-05	40
HLA-A*33:01	1	1182	1191	10	RLNEVAKNLN	1.7e-05	64
HLA-B*35:01	1	1188	1197	10	KNLNESLIDL	1.7e-05	44

HLA-B*53:01	1	1189	1198	10	NLNESLIDLQ	1.7e-05	43
HLA-A*68:02	1	1195	1203	9	IDLQELGKY	1.7e-05	59
HLA-A*11:01	1	1196	1204	9	DLQELGKYE	1.7e-05	40
HLA-B*57:01	1	1211	1219	9	WYIWLGFIA	1.7e-05	75
HLA-A*26:01	1	1214	1222	9	WLGFIAGLI	1.7e-05	52
HLA-A*33:01	1	1214	1222	9	WLGFIAGLI	1.7e-05	64
HLA-A*24:02	1	1220	1229	10	GLIAIVMVTI	1.7e-05	39
HLA-A*24:02	1	1225	1233	9	VMVTIMLCC	1.7e-05	39
HLA-B*44:02	1	1226	1234	9	MVTIMLCCM	1.7e-05	46
HLA-A*03:01	1	1227	1235	9	VTIMLCCMT	1.7e-05	53
HLA-B*57:01	1	1229	1237	9	IMLCCMTSC	1.7e-05	75
HLA-B*58:01	1	1242	1251	10	KGCCSCGSCC	1.7e-05	64
HLA-A*30:02	1	1243	1251	9	GCCSCGSCC	1.7e-05	82
HLA-A*11:01	1	1244	1253	10	CCSCGSCCKF	1.7e-05	40
HLA-B*58:01	1	1244	1252	9	CCSCGSCCK	1.7e-05	64
HLA-B*58:01	1	1250	1259	10	CCKFDEDDSE	1.7e-05	64
HLA-A*11:01	1	1252	1261	10	KFDEDDSEPV	1.7e-05	40
HLA-A*11:01	1	1253	1262	10	FDEDDSEPV	1.7e-05	40
HLA-A*23:01	1	1254	1263	10	DEDDSEPVK	1.7e-05	40
HLA-A*24:02	1	1254	1263	10	DEDDSEPVK	1.7e-05	39
HLA-A*32:01	1	1255	1263	9	EDDSEPVK	1.7e-05	45
HLA-A*03:01	1	1256	1264	9	DDSEPVKLG	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	SFTRGVYYPD	1.6e-05	77
HLA-B*58:01	1	31	40	10	SFTRGVYYPD	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	FHAIHVSBTN	1.6e-05	54
HLA-B*58:01	1	65	73	9	FHAIHVSBN	1.6e-05	65
HLA-A*02:06	1	66	75	10	HAIHVSBN	1.6e-05	69
HLA-A*23:01	1	67	76	10	AIHVSBN	1.6e-05	41
HLA-A*23:01	1	69	77	9	HVSGTNGTK	1.6e-05	41
HLA-B*53:01	1	72	80	9	GTNGTKRFA	1.6e-05	44
HLA-B*51:01	1	73	82	10	TNGTKRFANP	1.6e-05	69
HLA-B*53:01	1	75	83	9	GTKRFANPV	1.6e-05	44
HLA-A*03:01	1	86	94	9	FNDGVYFAS	1.6e-05	54
HLA-A*02:03	1	88	96	9	DGVYFAS	1.6e-05	62
HLA-A*23:01	1	88	97	10	DGVYFAS	1.6e-05	41
HLA-B*08:01	1	89	98	10	DGVYFAS	1.6e-05	77
HLA-B*51:01	1	90	99	10	DGVYFAS	1.6e-05	69
HLA-B*07:02	1	99	108	10	VYFAS	1.6e-05	58
HLA-B*35:01	1	99	107	9	NIIRGWIFGT	1.6e-05	44
HLA-A*11:01	1	101	110	10	NIIRGWIFG	1.6e-05	41
HLA-A*32:01	1	103	112	10	IRGWIFGTTL	1.6e-05	41
HLA-B*44:02	1	105	113	9	GWIFGTTLDS	1.6e-05	46
HLA-A*03:01	1	106	115	10	IFGTTLDSK	1.6e-05	47
HLA-B*07:02	1	106	114	9	FGTTLDSKTQ	1.6e-05	54
HLA-A*02:01	1	107	115	9	FGTTLDSKT	1.6e-05	58
HLA-A*32:01	1	115	124	10	GTTLDSKTQ	1.6e-05	59
HLA-A*31:01	1	116	125	10	QSLIVNNAT	1.6e-05	46
					SLLIVNNATN	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	ATNVVIVKVC 1.6e-05	77
HLA-A*30:01	1	128	137	10	IKVCEFQFCN 1.6e-05	84
HLA-B*58:01	1	128	137	10	IKVCEFQFCN 1.6e-05	65
HLA-A*02:06	1	131	139	9	CEFQFCNDP 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	YVSQPFLMD 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-B*07:02	1	206	215	10	KHTPINLVRG 1.6e-05	58
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	LVDLPIGIN 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-B*40:01	1	239	247	9	QTLHRSYLT 1.6e-05	37
HLA-A*02:03	1	242	251	10	HRSYLTPGDS 1.6e-05	62
HLA-B*57:01	1	242	250	9	HRSYLTPGD 1.6e-05	76
HLA-B*40:01	1	244	252	9	SYLTPGDSS 1.6e-05	37
HLA-A*30:01	1	248	256	9	PGDSSSGWT 1.6e-05	84
HLA-B*44:02	1	251	260	10	SSSGWTAGAA 1.6e-05	47
HLA-A*24:02	1	253	261	9	SGWTAGAAA 1.6e-05	39
HLA-A*02:01	1	256	265	10	TAGAAAYVVG 1.6e-05	59
HLA-B*44:02	1	258	267	10	GAAAYVGYL 1.6e-05	47
HLA-B*07:02	1	262	271	10	YVGYLQPR 1.6e-05	58
HLA-A*23:01	1	263	271	9	YVGYLQPR 1.6e-05	41
HLA-B*57:01	1	271	280	10	TFLLKYNENG 1.6e-05	76
HLA-B*44:02	1	273	282	10	LLKYNENGTI 1.6e-05	47
HLA-A*31:01	1	276	285	10	YNENGTITDA 1.6e-05	61
HLA-B*08:01	1	276	284	9	YNENGTITD 1.6e-05	77
HLA-A*23:01	1	277	285	9	NENGTITDA 1.6e-05	41
HLA-A*32:01	1	277	286	10	NENGTITDAV 1.6e-05	46
HLA-B*58:01	1	277	285	9	NENGTITDA 1.6e-05	65
HLA-A*32:01	1	278	286	9	ENGTITDAV 1.6e-05	46
HLA-B*58:01	1	283	292	10	TDAVDCALDP 1.6e-05	65
HLA-B*07:02	1	284	292	9	DAVDCALDP 1.6e-05	58
HLA-B*44:02	1	286	295	10	VDCALDPLSE 1.6e-05	47
HLA-B*44:03	1	286	295	10	VDCALDPLSE 1.6e-05	44
HLA-A*02:06	1	287	295	9	DCALDPLSE 1.6e-05	69
HLA-A*26:01	1	287	295	9	DCALDPLSE 1.6e-05	53
HLA-B*53:01	1	293	301	9	LSETKCTLK 1.6e-05	44
HLA-A*23:01	1	298	307	10	CTLSFTVEK 1.6e-05	41
HLA-B*07:02	1	299	308	10	TLKSFTVEKG 1.6e-05	58
HLA-B*51:01	1	299	308	10	TLKSFTVEKG 1.6e-05	69
HLA-B*07:02	1	300	309	10	LKSFTVEKGI 1.6e-05	58

HLA-B*40:01	1	300	309	10	LKSFTVEKGI	1.6e-05	37
HLA-B*44:02	1	300	309	10	LKSFTVEKGI	1.6e-05	47
HLA-B*53:01	1	302	311	10	SFTVEKGIYQ	1.6e-05	44
HLA-A*02:03	1	306	315	10	EKGIYQTSNF	1.6e-05	62
HLA-B*44:02	1	307	316	10	KGIYQTSNFR	1.6e-05	47
HLA-A*68:02	1	310	318	9	YQTSNFRVQ	1.6e-05	60
HLA-B*44:02	1	312	320	9	TSNFRVQPT	1.6e-05	47
HLA-B*44:03	1	313	322	10	SNFRVQPTES	1.6e-05	44
HLA-A*26:01	1	314	322	9	NFRVQPTES	1.6e-05	53
HLA-A*03:01	1	328	337	10	NITNLCPFGE	1.6e-05	54
HLA-B*08:01	1	328	336	9	NITNLCPFG	1.6e-05	77
HLA-A*24:02	1	329	338	10	ITNLCPFGEV	1.6e-05	39
HLA-B*35:01	1	330	338	9	TNLCPFGEV	1.6e-05	44
HLA-A*23:01	1	333	342	10	CPFGEVFNAT	1.6e-05	41
HLA-A*31:01	1	333	342	10	CPFGEVFNAT	1.6e-05	61
HLA-B*44:02	1	333	342	10	CPFGEVFNAT	1.6e-05	47
HLA-A*68:01	1	347	355	9	VYAWNRRKRI	1.6e-05	54
HLA-B*51:01	1	347	356	10	VYAWNRRKRIS	1.6e-05	69
HLA-B*07:02	1	349	357	9	AWNRRKRISN	1.6e-05	58
HLA-B*57:01	1	349	357	9	AWNRRKRISN	1.6e-05	76
HLA-B*58:01	1	350	358	9	WNRKRISNC	1.6e-05	65
HLA-B*53:01	1	351	359	9	NRKRISNCV	1.6e-05	44
HLA-A*02:03	1	359	367	9	VADYSVLYN	1.6e-05	62
HLA-B*07:02	1	359	367	9	VADYSVLYN	1.6e-05	58
HLA-B*57:01	1	361	370	10	DYSVLYNSAS	1.6e-05	76
HLA-A*02:01	1	374	382	9	FKCYGVSP	1.6e-05	59
HLA-B*15:01	1	380	388	9	SPTKLNDLC	1.6e-05	59
HLA-A*02:01	1	381	389	9	PTKLNDLCF	1.6e-05	59
HLA-A*33:01	1	382	390	9	TKLNDLCFT	1.6e-05	65
HLA-A*03:01	1	384	392	9	LNDLCFTNV	1.6e-05	54
HLA-A*23:01	1	384	393	10	LNDLCFTNVY	1.6e-05	41
HLA-B*35:01	1	385	394	10	NDLCFTNVYA	1.6e-05	44
HLA-A*11:01	1	389	398	10	FTNVYADSFV	1.6e-05	41
HLA-B*40:01	1	395	404	10	DSFVIRGDEV	1.6e-05	37
HLA-A*30:02	1	402	411	10	DEVQRQIAPGQ	1.6e-05	83
HLA-B*53:01	1	403	412	10	EVQRQIAPGQT	1.6e-05	44
HLA-B*35:01	1	404	413	10	VRQIAPGQTG	1.6e-05	44
HLA-A*30:02	1	408	417	10	APGQTGNIAD	1.6e-05	83
HLA-A*24:02	1	409	418	10	PGQTGNIADY	1.6e-05	39
HLA-A*03:01	1	414	423	10	NIADYNYKLP	1.6e-05	54
HLA-B*08:01	1	416	424	9	ADYNYKLPD	1.6e-05	77
HLA-B*40:01	1	416	424	9	ADYNYKLPD	1.6e-05	37
HLA-B*07:02	1	419	428	10	NYKLPDDFTG	1.6e-05	58
HLA-B*35:01	1	421	429	9	KLPDDFTGC	1.6e-05	44
HLA-A*23:01	1	423	431	9	PDDFTGCVI	1.6e-05	41
HLA-A*68:02	1	425	434	10	DFTGCVIAWN	1.6e-05	60
HLA-A*68:01	1	426	434	9	FTGCVIAWN	1.6e-05	54
HLA-A*23:01	1	431	440	10	IAWNSNNLDS	1.6e-05	41
HLA-B*53:01	1	431	440	10	IAWNSNNLDS	1.6e-05	44
HLA-A*03:01	1	432	440	9	AWNSNNLDS	1.6e-05	54
HLA-B*15:01	1	437	445	9	NLDSKVGGN	1.6e-05	59
HLA-B*15:01	1	445	454	10	NYNYLYRFR	1.6e-05	59
HLA-A*11:01	1	447	456	10	NYLYRFRKS	1.6e-05	41
HLA-B*44:02	1	448	456	9	YLYRFRKS	1.6e-05	47
HLA-B*53:01	1	452	460	9	LFKRKSNLKP	1.6e-05	44
HLA-B*08:01	1	455	464	10	KSNLKPFERD	1.6e-05	77
HLA-A*03:01	1	458	467	10	LKPFERDIST	1.6e-05	54
HLA-B*08:01	1	458	466	9	LKPFERDIS	1.6e-05	77
HLA-A*03:01	1	460	469	10	PFERDISTEI	1.6e-05	54
HLA-A*24:02	1	462	471	10	ERDISTEIYQ	1.6e-05	39
HLA-B*53:01	1	463	471	9	RDISTEIYQ	1.6e-05	44
HLA-A*24:02	1	465	473	9	ISTEIYQAG	1.6e-05	39
HLA-A*24:02	1	468	476	9	EIYQAGSTP	1.6e-05	39
HLA-B*07:02	1	471	479	9	QAGSTPCNG	1.6e-05	58
HLA-B*35:01	1	472	480	9	AGSTPCNGV	1.6e-05	44
HLA-B*44:03	1	472	481	10	AGSTPCNGVK	1.6e-05	44

HLA-A*02:03	1	473	481	9	GSTPCNGVK	1.6e-05	62
HLA-B*51:01	1	473	481	9	GSTPCNGVK	1.6e-05	69
HLA-A*68:02	1	477	485	9	CNGVKGFNC	1.6e-05	60
HLA-A*02:01	1	481	490	10	KGFNCYFPLQ	1.6e-05	59
HLA-A*26:01	1	481	489	9	KGFNCYFPL	1.6e-05	53
HLA-B*57:01	1	482	491	10	GFNCYFPLQS	1.6e-05	76
HLA-A*32:01	1	486	495	10	YFPLQSYGFQ	1.6e-05	46
HLA-A*26:01	1	487	496	10	FPLQSYGFQP	1.6e-05	53
HLA-B*40:01	1	487	496	10	FPLQSYGFQP	1.6e-05	37
HLA-A*26:01	1	491	499	9	SYGFQPTYG	1.6e-05	53

HLA</pre></body></html>