

MHC-I Binding Prediction Results

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Method used: netmhcpa\_el

allele	seq_num	start	end	length	peptide	score	percentile_rank
HLA-A*01:01	1	865	873	9	LTDEMIAQY	0.997196	0.01
HLA-B*35:01	1	896	904	9	IPFAMQMAY	0.994479	0.01
HLA-B*58:01	1	625	633	9	HADQLTPTW	0.990462	0.01
HLA-B*35:01	1	84	92	9	LPFNDGVYF	0.984594	0.01
HLA-B*44:03	1	1201	1209	9	QELGKYEQY	0.984568	0.01
HLA-B*53:01	1	56	64	9	LPFFSNVTW	0.98139	0.01
HLA-B*35:01	1	687	695	9	VASQSIIAY	0.979222	0.01
HLA-A*03:01	1	454	462	9	RLFRKSNLK	0.978678	0.01
HLA-B*40:01	1	1016	1024	9	AEIRASANL	0.976223	0.01
HLA-A*68:02	1	777	785	9	NTQEVFAQV	0.975719	0.01
HLA-A*02:03	1	976	984	9	VLNDILSRL	0.973205	0.01
HLA-A*02:01	1	269	277	9	YLPRTFLL	0.971198	0.02
HLA-B*57:01	1	625	633	9	HADQLTPTW	0.970982	0.04
HLA-B*44:02	1	1201	1209	9	QELGKYEQY	0.969971	0.01
HLA-B*53:01	1	625	633	9	HADQLTPTW	0.966089	0.01
HLA-A*01:01	1	864	873	10	LLTDEMIAQY	0.961805	0.01
HLA-B*44:02	1	95	104	10	TEKSNIIRGW	0.95443	0.01
HLA-B*57:01	1	344	353	10	ATRFASVYAW	0.954826	0.06
HLA-A*24:02	1	1208	1216	9	QYIKWPWYI	0.951647	0.01
HLA-B*44:03	1	95	104	10	TEKSNIIRGW	0.948122	0.02
HLA-B*53:01	1	84	92	9	LPFNDGVYF	0.947976	0.01
HLA-A*03:01	1	787	795	9	QIYKTPPIK	0.947791	0.02
HLA-B*35:01	1	321	329	9	QPTESIVRF	0.947034	0.02
HLA-A*68:01	1	725	733	9	EILPVSMTK	0.945141	0.04
HLA-A*11:01	1	1065	1073	9	VTYVPAQEK	0.944416	0.01
HLA-B*15:01	1	1264	1272	9	VLKGVKLHY	0.943479	0.01
HLA-B*51:01	1	714	722	9	IPTNFTISV	0.942802	0.01
HLA-A*23:01	1	1208	1216	9	QYIKWPWYI	0.942756	0.01
HLA-A*68:01	1	394	403	10	NVYADSFVIR	0.939877	0.04
HLA-A*02:01	1	976	984	9	VLNDILSRL	0.938498	0.03
HLA-A*24:02	1	1066	1075	10	TYVPAQEKNF	0.936206	0.02
HLA-A*31:01	1	458	466	9	KSNLKPFER	0.935717	0.01
HLA-B*58:01	1	815	823	9	RSFIEDLLF	0.933645	0.04
HLA-A*03:01	1	1065	1073	9	VTYVPAQEK	0.932408	0.02
HLA-B*57:01	1	815	823	9	RSFIEDLLF	0.931244	0.08
HLA-B*53:01	1	321	329	9	QPTESIVRF	0.930256	0.02
HLA-A*31:01	1	1099	1107	9	GTHWFVTQR	0.927106	0.01
HLA-A*03:01	1	302	310	9	TLKSFTVEK	0.926974	0.02
HLA-A*24:02	1	635	643	9	VYSTGSNVF	0.925478	0.02
HLA-A*68:02	1	718	726	9	FTISVTTEI	0.923585	0.02

HLA-B*40:01	1	168	176	9	FEYVSPFL	0.922159	0.06
HLA-A*11:01	1	89	97	9	GVYFASTEK	0.920846	0.01
HLA-A*31:01	1	349	357	9	SVYAWNRKR	0.919617	0.02
HLA-B*07:02	1	680	688	9	SPRRARVA	0.918799	0.04
HLA-A*03:01	1	89	97	9	GVYFASTEK	0.918399	0.02
HLA-A*01:01	1	604	612	9	TSNQVAVLY	0.917927	0.03
HLA-A*03:01	1	786	795	10	KQIYKTPPIK	0.916015	0.03
HLA-A*02:01	1	109	117	9	TLDSKTQSL	0.914998	0.03
HLA-A*23:01	1	1066	1075	10	TYVPAQEKNF	0.913776	0.02
HLA-B*53:01	1	55	64	10	FLPFFSNVTW	0.912066	0.02
HLA-B*57:01	1	878	886	9	LAGTITSGW	0.908875	0.1
HLA-A*03:01	1	408	417	10	RQIAPGQTGK	0.904489	0.03
HLA-B*58:01	1	878	886	9	LAGTITSGW	0.903533	0.06
HLA-A*11:01	1	1020	1028	9	ASANLAATK	0.900268	0.02
HLA-A*03:01	1	142	150	9	GVYYHKNNK	0.897956	0.03
HLA-B*44:03	1	989	997	9	AEVQIDRLI	0.89662	0.04
HLA-A*68:01	1	637	646	10	STGSNVFQTR	0.89597	0.07
HLA-A*26:01	1	780	789	10	EVFAQVKQIY	0.895499	0.02
HLA-A*24:02	1	159	168	10	VYSSANNCTF	0.895435	0.03
HLA-B*08:01	1	269	277	9	YLQPRTFLL	0.894495	0.02
HLA-A*31:01	1	36	44	9	VYYDPKVFR	0.892155	0.03
HLA-A*68:01	1	1099	1107	9	GTHWFVTQR	0.890855	0.08
HLA-A*24:02	1	368	377	10	LYNSASFSTF	0.890372	0.03
HLA-A*02:03	1	821	829	9	LLFNKVTLA	0.890132	0.03
HLA-A*02:06	1	269	277	9	YLQPRTFLL	0.889523	0.04
HLA-A*68:02	1	1168	1176	9	DISGINASV	0.887294	0.02
HLA-A*68:01	1	370	378	9	NSASFSTFK	0.886711	0.09
HLA-A*02:03	1	269	277	9	YLQPRTFLL	0.886651	0.03
HLA-B*58:01	1	624	633	10	IHADQLTPTW	0.886293	0.07
HLA-A*24:02	1	788	797	10	IYKTPPIKDF	0.885207	0.03
HLA-A*24:02	1	448	456	9	NYNLYRLF	0.883164	0.04
HLA-B*51:01	1	712	720	9	IAIPTNFTI	0.879596	0.02
HLA-A*31:01	1	677	685	9	QTNSPRRAR	0.878824	0.04
HLA-A*02:06	1	417	425	9	KIADYNYKL	0.878545	0.05
HLA-A*68:01	1	1173	1181	9	NASVVNIQK	0.876119	0.11
HLA-A*02:01	1	1000	1008	9	RLQSLQTYV	0.87376	0.05
HLA-A*26:01	1	192	200	9	FVFKNIDGY	0.869689	0.03
HLA-A*68:02	1	780	788	9	EVFAQVKQI	0.865844	0.03
HLA-A*02:01	1	417	425	9	KIADYNYKL	0.864611	0.05
HLA-A*03:01	1	41	49	9	KVFRSSVLH	0.859868	0.05
HLA-B*35:01	1	24	32	9	LPPAYTNSF	0.85814	0.06
HLA-A*68:01	1	349	357	9	SVYAWNRKR	0.857726	0.14
HLA-B*57:01	1	624	633	10	IHADQLTPTW	0.853487	0.16
HLA-B*51:01	1	1052	1060	9	FPQSAPHGV	0.853165	0.02

HLA-A*23:01	1	788	797	10	IYKTPPIKDF0.852007	0.03
HLA-A*24:02	1	1137	1145	9	VYDPLQPEL 0.851829	0.04
HLA-B*15:01	1	634	643	10	RVYSTGSNVF0.851186	0.04
HLA-A*02:06	1	1060	1068	9	VVFLHVTVYV 0.850041	0.06
HLA-B*40:01	1	464	472	9	FERDISTEI 0.84839	0.09
HLA-B*35:01	1	343	351	9	NATRFASVY 0.847454	0.06
HLA-A*02:03	1	1048	1056	9	HLMSFPQSA 0.845506	0.05
HLA-A*02:03	1	958	966	9	ALNTLVKQL 0.84284	0.05
HLA-A*26:01	1	258	266	9	WTAGAAAYY 0.842739	0.03
HLA-A*24:02	1	144	152	9	YYHKNNKSW 0.841714	0.04
HLA-A*01:01	1	828	837	10	LADAGFIKQY0.840121	0.05
HLA-B*53:01	1	250	258	9	TPGDSSSGW 0.834377	0.03
HLA-B*40:01	1	987	996	10	VEAEVQIDRL0.832715	0.09
HLA-A*68:02	1	122	130	9	NATNVVIKV 0.832699	0.04
HLA-B*44:02	1	989	997	9	AEVQIDRLI 0.829103	0.04
HLA-B*44:03	1	339	347	9	GEVFNATRF 0.828162	0.07
HLA-A*68:01	1	677	685	9	QTNSPRRAR 0.828157	0.19
HLA-B*35:01	1	229	238	10	LPIGINITRF0.828081	0.07
HLA-A*11:01	1	975	983	9	SVLNDILSR 0.826842	0.06
HLA-B*44:03	1	297	306	10	SETKCTLKSF0.825971	0.07
HLA-A*02:01	1	983	991	9	RLDKVEAEV 0.825045	0.06
HLA-B*08:01	1	109	117	9	TLDSKTQSL 0.824512	0.03
HLA-A*68:02	1	28	36	9	YTNSFTRGV 0.823738	0.05
HLA-A*23:01	1	448	456	9	NYNLYRLF 0.823695	0.04
HLA-A*68:01	1	1064	1073	10	HVTYVPAQEK0.821398	0.19
HLA-A*02:06	1	976	984	9	VLNDILSRL 0.821222	0.07
HLA-A*11:01	1	787	795	9	QIYKTPPIK 0.818509	0.07
HLA-B*15:01	1	962	970	9	LVKQLSSNF 0.818281	0.06
HLA-A*11:01	1	302	310	9	TLKSFTVEK 0.816787	0.07
HLA-B*58:01	1	1054	1062	9	QSAPHGVVF 0.815153	0.11
HLA-A*01:01	1	258	266	9	WTAGAAAYY 0.81389	0.06
HLA-A*26:01	1	361	369	9	CVADYSVLY 0.813057	0.04
HLA-B*57:01	1	880	888	9	GTITSGWTF 0.811974	0.2
HLA-A*31:01	1	35	44	10	GVYYPDKVFR0.811444	0.06
HLA-B*53:01	1	229	238	10	LPIGINITRF0.811192	0.03
HLA-B*57:01	1	814	823	10	KRSFIEDLLF0.809729	0.2
HLA-B*44:03	1	747	756	10	TECSNLLQY0.808921	0.08
HLA-B*40:01	1	1181	1189	9	KEIDRLNEV 0.808555	0.1
HLA-A*68:01	1	975	983	9	SVLNDILSR 0.808276	0.2
HLA-B*57:01	1	1054	1062	9	QSAPHGVVF 0.805824	0.2
HLA-A*11:01	1	724	733	10	TEILPVSMTK0.805288	0.08
HLA-A*68:01	1	777	786	10	NTQEVFAQVK0.804955	0.2
HLA-A*30:02	1	1264	1272	9	VKGVKLHY 0.804058	0.02
HLA-A*24:02	1	489	497	9	YFPLQSYGF 0.80393	0.06

HLA-A*02:03	1	1060	1068	9	VVFLHVTYV	0.803816	0.05
HLA-A*02:01	1	821	829	9	LLFNKVTLA	0.803506	0.08
HLA-B*44:02	1	297	306	10	SETKCTLKSF0	0.803485	0.05
HLA-A*11:01	1	1099	1107	9	GTHWFVTQR	0.802118	0.08
HLA-A*23:01	1	368	377	10	LYNSASFSTF0	0.801794	0.05
HLA-B*15:01	1	687	695	9	VASQSIIAY	0.798942	0.07
HLA-A*30:02	1	604	612	9	TSNQVAVLY	0.798698	0.02
HLA-A*02:01	1	1048	1056	9	HLMSFPQSA	0.798454	0.08
HLA-A*23:01	1	635	643	9	VYSTGSNVF	0.798231	0.05
HLA-B*35:01	1	56	64	9	LPFFSNVTW	0.798144	0.08
HLA-A*02:06	1	718	726	9	FTISVTTEI	0.796069	0.08
HLA-B*35:01	1	699	707	9	LGAENSVAY	0.795492	0.08
HLA-A*68:01	1	1098	1107	10	NGTHWFVTQR0	0.794017	0.21
HLA-B*15:01	1	919	927	9	NQKLIANQF	0.793418	0.07
HLA-A*68:01	1	228	237	10	DLPIGINITR0	0.793037	0.21
HLA-A*01:01	1	1197	1206	10	LIDLQELGKY0	0.791918	0.07
HLA-A*68:01	1	69	78	10	HVSGTNGTKR0	0.791522	0.21
HLA-A*23:01	1	1137	1145	9	VYDPLQPEL	0.790353	0.05
HLA-B*15:01	1	413	421	9	GQTGKIADY	0.790258	0.08
HLA-A*68:01	1	568	577	10	DIADTTDAVR0	0.789394	0.21
HLA-A*02:03	1	1185	1193	9	RLNEVAKNL	0.788651	0.06
HLA-A*11:01	1	370	378	9	NSASFSTFK	0.786812	0.08
HLA-A*31:01	1	558	567	10	KFLPFQQFGR0	0.786339	0.07
HLA-A*03:01	1	1064	1073	10	HVTYVPAQEK0	0.781911	0.1
HLA-B*44:03	1	1206	1214	9	YEQYIKWPW	0.781402	0.09
HLA-A*11:01	1	725	733	9	EILPVSMTK	0.780217	0.09
HLA-A*02:03	1	1000	1008	9	RLQSLQTYV	0.779805	0.06
HLA-A*33:01	1	36	44	9	VYYPDKVFR	0.779146	0.03
HLA-A*30:01	1	454	462	9	RLFRKSNLK	0.774723	0.02
HLA-A*30:02	1	372	380	9	ASFSTFKCY	0.77457	0.03
HLA-A*23:01	1	144	152	9	YYHKNNKSW	0.77397	0.05
HLA-B*53:01	1	896	904	9	IPFAMQMAY	0.771169	0.04
HLA-B*44:03	1	829	837	9	ADAGFIKQY	0.769592	0.1
HLA-A*30:01	1	302	310	9	TLKSFTVEK	0.766302	0.02
HLA-B*44:03	1	1016	1024	9	AEIRASANL	0.764604	0.1
HLA-B*15:01	1	894	902	9	LQIPFAMQM	0.763797	0.09
HLA-A*02:03	1	1220	1228	9	FIAGLIAIV	0.76346	0.07
HLA-A*03:01	1	269	278	10	YLQPRTFLLK0	0.762757	0.12
HLA-A*03:01	1	724	733	10	TEILPVSMTK0	0.762384	0.12
HLA-A*02:03	1	109	117	9	TLDSKTQSL	0.758786	0.07
HLA-B*40:01	1	989	997	9	AEVQIDRLI	0.758249	0.13
HLA-A*68:02	1	1136	1145	10	TVYDPLQPEL0	0.758137	0.06
HLA-B*57:01	1	1093	1102	10	GVFVSNNGTHW0	0.757943	0.25
HLA-A*31:01	1	319	328	10	RVQPTESIVR0	0.756377	0.08

HLA-B*15:01	1	698	707	10	SLGAENSVAY0.756258	0.1
HLA-A*26:01	1	191	200	10	EFVFKNIDGY0.75517	0.05
HLA-A*23:01	1	159	168	10	VYSSANNCTF0.754859	0.06
HLA-A*24:02	1	1094	1102	9	VFVSNQTHW 0.754597	0.07
HLA-B*44:02	1	1206	1214	9	YEQYIKWPW 0.754025	0.08
HLA-B*35:01	1	162	170	9	SANNCTFEY 0.753348	0.1
HLA-A*68:02	1	340	348	9	EVFNATRFA 0.751835	0.07
HLA-A*23:01	1	1094	1102	9	VFVSNQTHW 0.750957	0.06
HLA-B*15:01	1	1054	1062	9	QSAPHGVSF 0.749927	0.1
HLA-B*58:01	1	880	888	9	GTITSGWTF 0.748029	0.15
HLA-A*01:01	1	603	612	10	NTSNQVAVLY0.744843	0.08
HLA-A*23:01	1	507	515	9	PYRVVLSF 0.742903	0.07
HLA-A*68:01	1	35	44	10	GVYYPDKVFR0.741864	0.27
HLA-A*02:01	1	1060	1068	9	VVFLHVTYV 0.74167	0.11
HLA-B*08:01	1	233	241	9	INITRFQTL 0.740901	0.05
HLA-B*08:01	1	1262	1270	9	EPVLKGVKL 0.740861	0.05
HLA-A*11:01	1	939	947	9	SSTASALGK 0.738311	0.11
HLA-B*35:01	1	271	279	9	QPRTFLLKY 0.738211	0.1
HLA-A*11:01	1	409	417	9	QIAPGQTGK 0.738116	0.11
HLA-A*03:01	1	409	417	9	QIAPGQTGK 0.735412	0.14
HLA-B*51:01	1	122	130	9	NATNVVIKV 0.734906	0.06
HLA-A*68:01	1	1005	1014	10	QTYVTQQLIR0.734679	0.27
HLA-B*58:01	1	344	353	10	ATRFASVYAW0.733299	0.16
HLA-A*30:01	1	344	352	9	ATRFASVYA 0.731415	0.04
HLA-A*02:06	1	109	117	9	TLDSKTQSL 0.730577	0.1
HLA-B*44:02	1	829	837	9	ADAGFIKQY 0.727507	0.09
HLA-A*68:01	1	675	683	9	QTQTNSPRR 0.724704	0.28
HLA-A*31:01	1	182	190	9	KQGNFKNLR 0.724634	0.11
HLA-B*15:01	1	628	636	9	QLTPTWRVY 0.724015	0.12
HLA-B*15:01	1	240	248	9	TLLALHRSY 0.72265	0.12
HLA-B*15:01	1	212	220	9	LVRDLPQGF 0.72095	0.12
HLA-B*44:02	1	339	347	9	GEVFNATRF 0.720722	0.09
HLA-A*68:01	1	88	97	10	DGVYFASTEK0.718688	0.3
HLA-B*15:01	1	686	695	10	SVASQSIIAY0.718454	0.12
HLA-B*58:01	1	814	823	10	KRSFIEDLLF0.718378	0.17
HLA-B*07:02	1	1261	1270	10	SEPVLKGVKL0.718257	0.11
HLA-A*68:01	1	1065	1073	9	VTYVPAQEK 0.718109	0.3
HLA-A*11:01	1	408	417	10	RQIAPGQTGK0.715172	0.13
HLA-A*31:01	1	975	983	9	SVLNDILSR 0.713452	0.12
HLA-A*23:01	1	489	497	9	YFPLQSYGF 0.712888	0.08
HLA-B*15:01	1	497	505	9	FQPTNGVGY 0.712881	0.12
HLA-B*57:01	1	97	106	10	KSNIIRGWIF0.712739	0.29
HLA-A*24:02	1	507	515	9	PYRVVLSF 0.711831	0.09
HLA-A*26:01	1	686	695	10	SVASQSIIAY0.710856	0.06

HLA-A*11:01	1	142	150	9	GVYYHKNNK 0.70786	0.13
HLA-A*11:01	1	1064	1073	10	HVTYVPAQEK0.706779	0.13
HLA-A*02:03	1	975	984	10	SVLNDILSRL0.704355	0.1
HLA-A*11:01	1	550	558	9	GVLTESNKK 0.704285	0.14
HLA-B*35:01	1	895	904	10	QIPFAMQMAY0.702727	0.12
HLA-A*68:01	1	409	417	9	QIAPGQTGK 0.702055	0.32
HLA-B*35:01	1	192	200	9	FVFKNIDGY 0.69975	0.12
HLA-A*01:01	1	652	660	9	GAEHVNNNSY 0.698791	0.1
HLA-B*57:01	1	1203	1212	10	LGKYEQYIKW0.698299	0.3
HLA-A*02:06	1	1220	1228	9	FIAGLIAIV 0.697944	0.11
HLA-A*26:01	1	360	369	10	NCVADYSVLY0.696726	0.06
HLA-A*01:01	1	440	449	10	NLDSKVGNY0.696259	0.1
HLA-A*33:01	1	394	403	10	NVYADSFVIR0.695997	0.07
HLA-A*68:02	1	1060	1068	9	VVFLHVTYV 0.693503	0.08
HLA-A*01:01	1	161	170	10	SSANNCTFEY0.691415	0.1
HLA-B*40:01	1	1256	1265	10	FDEDDSEPV0.691166	0.16
HLA-A*68:02	1	568	576	9	DIADTTDAV 0.691027	0.09
HLA-B*58:01	1	604	612	9	TSNQVAVLY 0.690801	0.19
HLA-A*02:06	1	691	699	9	SIIAYTMSL 0.69038	0.11
HLA-B*57:01	1	879	888	10	AGTITSGWTF0.689438	0.31
HLA-B*35:01	1	898	906	9	FAMQMAYRF 0.68794	0.13
HLA-A*23:01	1	1101	1109	9	HWFVTQRNF 0.687107	0.09
HLA-A*33:01	1	349	357	9	SVYAWNRKR 0.686387	0.08
HLA-A*24:02	1	169	177	9	EYVSQPFLM 0.686017	0.11
HLA-A*31:01	1	637	646	10	STGSNVFQTR0.683526	0.14
HLA-B*40:01	1	339	347	9	GEVFNATRF 0.682004	0.16
HLA-B*07:02	1	526	534	9	GPKKSTNLV 0.678799	0.13
HLA-A*03:01	1	1196	1205	10	SLIDLQELGK0.677463	0.18
HLA-A*02:06	1	1136	1145	10	TVYDPLQPEL0.677074	0.12
HLA-B*44:02	1	1016	1024	9	AEIRASANL 0.676171	0.11
HLA-A*02:03	1	386	395	10	KLNDLCFTNV0.67519	0.11
HLA-B*51:01	1	8	16	9	LPLVSSQCV 0.673254	0.09
HLA-A*31:01	1	346	355	10	RFASVYAWNR0.672968	0.15
HLA-B*40:01	1	1261	1270	10	SEPVKGVKLO.670789	0.17
HLA-A*11:01	1	454	462	9	RLFRKSNLK 0.67072	0.16
HLA-A*03:01	1	349	357	9	SVYAWNRKR 0.668534	0.19
HLA-B*58:01	1	712	720	9	IAIPTNFTI 0.668254	0.21
HLA-A*33:01	1	395	403	9	VYADSFVIR 0.667693	0.08
HLA-B*57:01	1	49	58	10	HSTQDLFLPF0.665216	0.34
HLA-A*31:01	1	395	403	9	VYADSFVIR 0.664791	0.16
HLA-A*01:01	1	28	37	10	YTNSFTRGVY0.661513	0.1
HLA-A*03:01	1	1020	1028	9	ASANLAATK 0.660646	0.2
HLA-A*03:01	1	378	386	9	KCYGVSPK 0.660274	0.2
HLA-A*33:01	1	677	685	9	QTNSPRRAR 0.659706	0.08

HLA-A*30:01	1	378	386	9	KCYGVSPTK	0.659228	0.06
HLA-A*68:01	1	69	77	9	HVSGTNGTK	0.658881	0.36
HLA-A*68:01	1	400	408	9	FVIRGDEV	0.658436	0.37
HLA-B*57:01	1	604	612	9	TSNQVAVLY	0.657685	0.34
HLA-A*02:01	1	958	966	9	ALNTLVKQL	0.657403	0.16
HLA-A*23:01	1	488	497	10	CYFPLQSYGF	0.656733	0.09
HLA-A*24:02	1	1101	1109	9	HWFVTQRNF	0.656466	0.12
HLA-A*31:01	1	150	158	9	KSWMESEFR	0.653923	0.17
HLA-B*57:01	1	304	313	10	KSFTVEKGIY	0.653254	0.34
HLA-A*02:01	1	1185	1193	9	RLNEVAKNL	0.652653	0.16
HLA-A*30:01	1	1065	1073	9	VTYVPAQEK	0.651559	0.06
HLA-B*51:01	1	1052	1061	10	FPQSAPHGVV	0.65136	0.09
HLA-A*68:01	1	229	237	9	LPIGINITR	0.651161	0.38
HLA-A*31:01	1	237	246	10	RFQTLALHR	0.649947	0.18
HLA-B*57:01	1	249	258	10	LTPGDSSSGW	0.6494	0.35
HLA-A*02:03	1	915	923	9	VLYENQKLI	0.648983	0.12
HLA-B*35:01	1	56	65	10	LPFFSNVTWF	0.648367	0.14
HLA-A*01:01	1	361	369	9	CVADYSVLY	0.64603	0.11
HLA-A*23:01	1	1208	1217	10	QYIKWPWYIW	0.645985	0.1
HLA-A*24:02	1	488	497	10	CYFPLQSYGF	0.645963	0.13
HLA-A*23:01	1	169	177	9	EYVSQPFLM	0.644477	0.1
HLA-A*30:02	1	781	789	9	VFAQVKQIY	0.644353	0.08
HLA-A*03:01	1	805	814	10	ILPDSPKPSK	0.643677	0.21
HLA-A*02:06	1	1000	1008	9	RLQSLQTYV	0.64316	0.14
HLA-A*01:01	1	733	741	9	KTSVDCTMY	0.642966	0.12
HLA-B*44:02	1	747	756	10	TECSNLLQY	0.642665	0.12
HLA-A*02:01	1	1220	1228	9	FIAGLIAIV	0.641405	0.17
HLA-A*30:02	1	687	695	9	VASQSIIAY	0.641131	0.08
HLA-B*51:01	1	574	582	9	DAVRDPQTL	0.639281	0.1
HLA-A*11:01	1	827	835	9	TLADAGFIK	0.639216	0.18
HLA-A*33:01	1	265	273	9	YYVGYLQPR	0.638012	0.09
HLA-A*24:02	1	143	152	10	VYYHKNNKSW	0.637746	0.13
HLA-B*08:01	1	996	1004	9	LITGRLQSL	0.63729	0.08
HLA-A*32:01	1	417	425	9	KIADYNYKL	0.634457	0.05
HLA-A*24:02	1	203	212	10	IYSKHTPINL	0.634064	0.13
HLA-B*57:01	1	877	886	10	LLAGTITSGW	0.633888	0.36
HLA-B*53:01	1	83	92	10	VLPFNDGVYF	0.63303	0.07
HLA-A*30:01	1	787	795	9	QIYKTPPIK	0.631297	0.06
HLA-B*57:01	1	1209	1217	9	YIKWPWYIW	0.630823	0.37
HLA-B*35:01	1	625	633	9	HADQLTPTW	0.630203	0.15
HLA-A*31:01	1	264	273	10	AYVGYLQPRO	0.627498	0.21
HLA-A*68:01	1	302	310	9	TLKSFTVEK	0.623075	0.43
HLA-A*30:02	1	162	170	9	SANNCTFEY	0.62244	0.09
HLA-A*02:01	1	857	865	9	GLTVLPPLL	0.622173	0.18

HLA-B*35:01	1	478	486	9	TPCNGVEGF	0.622163	0.15
HLA-B*53:01	1	24	32	9	LPPAYTNSF	0.62158	0.07
HLA-A*30:01	1	142	150	9	GVYYHKNNK	0.619445	0.07
HLA-B*15:01	1	35	43	9	GVYYPDKVF	0.619435	0.2
HLA-A*30:02	1	628	636	9	QLTPTWRVY	0.619267	0.09
HLA-A*02:01	1	1192	1200	9	NLNESLIDL	0.618877	0.18
HLA-A*02:06	1	777	785	9	NTQEVFAQV	0.61807	0.15
HLA-B*35:01	1	604	612	9	TSNQVAVLY	0.6179	0.15
HLA-A*30:02	1	733	741	9	KTSVDCTMY	0.617596	0.1
HLA-A*31:01	1	310	319	10	KGIYQTSNFR0	0.617169	0.21
HLA-A*01:01	1	196	204	9	NIDGYFKIY	0.616114	0.13
HLA-A*02:06	1	894	902	9	LQIPFAMQM	0.61392	0.15
HLA-A*24:02	1	1208	1217	10	QYIKWPWYIW0	0.613352	0.14
HLA-B*35:01	1	83	92	10	VLPFNDGVYF0	0.613298	0.16
HLA-B*53:01	1	320	329	10	VQPTESIVRF0	0.612597	0.07
HLA-A*68:01	1	347	355	9	FASVYAWNR	0.611074	0.45
HLA-A*26:01	1	298	306	9	ETKCTLKSF	0.610601	0.08
HLA-B*51:01	1	84	92	9	LPFNDGVYF	0.610415	0.12
HLA-B*15:01	1	47	55	9	VLHSTQDLF	0.609724	0.21
HLA-B*35:01	1	861	869	9	LPPLLTDEM	0.608235	0.16
HLA-A*24:02	1	78	86	9	RFDNPVLPF	0.606479	0.14
HLA-B*35:01	1	487	495	9	NCYFPLQSY	0.605847	0.16
HLA-B*35:01	1	1054	1062	9	QSAPHGVSF	0.605672	0.16
HLA-B*15:01	1	192	200	9	FVFKNIDGY	0.603024	0.21
HLA-A*68:01	1	638	646	9	TGSNVFQTR	0.603019	0.47
HLA-A*02:06	1	1048	1056	9	HLMSFPQSA	0.601563	0.17
HLA-B*15:01	1	372	380	9	ASFSTFKCY	0.599051	0.21
HLA-A*01:01	1	30	38	9	NSFTRGVYY	0.597285	0.14
HLA-A*68:01	1	94	102	9	STEKSNIIR	0.596515	0.48
HLA-A*02:06	1	133	141	9	FQFCNDPFL	0.596191	0.17
HLA-A*11:01	1	349	357	9	SVYAWNRKR	0.596094	0.21
HLA-B*58:01	1	710	718	9	NSIAIPTNF	0.59572	0.25
HLA-A*23:01	1	143	152	10	VYYHKNNKSW0	0.595173	0.11
HLA-B*57:01	1	712	720	9	IAIPTNFIT	0.593982	0.41
HLA-A*11:01	1	348	356	9	ASVYAWNRK	0.59342	0.21
HLA-B*58:01	1	1093	1102	10	GVFVSNGTHW0	0.592182	0.26
HLA-B*40:01	1	1015	1024	10	AAEIRASANL0	0.591426	0.21
HLA-A*03:01	1	453	462	10	YRLFRKSNLK0	0.591204	0.25
HLA-A*32:01	1	634	643	10	RVYSTGSNVF0	0.589889	0.06
HLA-A*11:01	1	529	537	9	KSTNLVKNK	0.588891	0.21
HLA-A*11:01	1	292	300	9	ALDPLSETK	0.588815	0.21
HLA-A*31:01	1	311	319	9	GIYQTSNFR	0.587274	0.25
HLA-B*44:03	1	464	473	10	FERDISTEIIY0	0.586808	0.2
HLA-B*07:02	1	38	47	10	YDPKVFRRSSV0	0.586215	0.19



HLA-A*68:01	1	311	319	9	GIYQTSNFR 0.586097	0.5
HLA-B*15:01	1	1059	1067	9	GVVFLHVTY 0.585418	0.22
HLA-A*02:06	1	612	620	9	YQDVNCTEV 0.584332	0.18
HLA-B*15:01	1	852	861	10	AQKFNGLTVL0.584204	0.22
HLA-A*03:01	1	529	537	9	KSTNLVKNK 0.581593	0.26
HLA-B*35:01	1	329	338	10	FPNITNLCPF0.581019	0.18
HLA-A*68:02	1	717	726	10	NFTISVTTEI0.580993	0.14
HLA-A*02:01	1	691	699	9	SIIAYTMSL 0.580032	0.21
HLA-A*30:01	1	786	795	10	KQIYKTPPIK0.5792	0.09
HLA-A*68:02	1	1188	1197	10	EVAKNLNESL0.579163	0.14
HLA-A*31:01	1	348	357	10	ASVYAWNKRK0.578807	0.26
HLA-B*57:01	1	710	718	9	NSIAIPTNF 0.578173	0.43
HLA-A*31:01	1	454	462	9	RLFRKSNLK 0.576303	0.26
HLA-A*02:03	1	995	1004	10	RLITGRLQSL0.576159	0.18
HLA-B*58:01	1	49	58	10	HSTQDLFLPF0.575502	0.27
HLA-A*30:02	1	304	313	10	KSFTVEKGIY0.574093	0.11
HLA-A*11:01	1	826	835	10	VTLADAGFIK0.57408	0.23
HLA-B*40:01	1	1257	1265	9	DEDDSEPVL 0.57095	0.22
HLA-B*08:01	1	505	513	9	YQPYRVVVL 0.570928	0.11
HLA-A*30:02	1	240	248	9	TLLALHRYSY 0.5709	0.11
HLA-A*01:01	1	162	170	9	SANNCTFEY 0.570386	0.15
HLA-B*57:01	1	372	380	9	ASFSTFKCY 0.567253	0.44
HLA-A*11:01	1	35	44	10	GVYYPDKVFR0.566756	0.23
HLA-A*03:01	1	1264	1272	9	VLKGVKLHY 0.565504	0.27
HLA-A*30:02	1	865	873	9	LTDEMIAQY 0.565227	0.12
HLA-A*01:01	1	865	874	10	LTDEMIAQYT0.563645	0.16
HLA-A*30:02	1	30	38	9	NSFTRGVYY 0.563454	0.12
HLA-B*53:01	1	898	906	9	FAMQMAYRF 0.56343	0.1
HLA-A*02:03	1	417	425	9	KIADYNYKL 0.563133	0.19
HLA-A*02:01	1	424	433	10	KLPDDFTGCV0.562841	0.23
HLA-A*02:06	1	983	991	9	RLDKVEAEV 0.562526	0.19
HLA-A*30:02	1	444	453	10	KVGGNYNYLY0.561875	0.12
HLA-A*02:06	1	821	829	9	LLFNKVTLA 0.560973	0.19
HLA-B*53:01	1	56	65	10	LPPFSNVTWF0.559641	0.1
HLA-A*02:03	1	691	699	9	SIIAYTMSL 0.55817	0.2
HLA-A*02:03	1	424	433	10	KLPDDFTGCV0.556071	0.2
HLA-B*53:01	1	249	258	10	LTPGDSSSGW0.555638	0.1
HLA-A*03:01	1	827	835	9	TLADAGFIK 0.555592	0.28
HLA-A*30:02	1	686	695	10	SVASQSIIAY0.555378	0.13
HLA-B*58:01	1	898	906	9	FAMQMAYRF 0.55535	0.28
HLA-A*11:01	1	803	811	9	SQILPDPSK 0.555075	0.25
HLA-A*32:01	1	202	210	9	KIYSKHTPI 0.553766	0.07
HLA-A*68:01	1	974	983	10	SSVLNDILSR0.553501	0.55
HLA-B*07:02	1	1262	1270	9	EPVLKGVKL 0.553414	0.21

HLA-A*68:01	1	198	206	9	DGYFKIYSK 0.55328	0.55
HLA-B*57:01	1	50	59	10	STQDLFLPFF0.552122	0.47
HLA-A*32:01	1	880	888	9	GTITSGWTF 0.550974	0.08
HLA-A*24:02	1	268	277	10	GYLQPRTFLL0.549374	0.17
HLA-B*07:02	1	208	216	9	TPINLVRDL 0.548006	0.21
HLA-A*11:01	1	311	319	9	GIYQTSNFR 0.547005	0.25
HLA-A*33:01	1	448	457	10	NYNLYRLFR0.545544	0.13
HLA-A*33:01	1	449	457	9	YNYLYRLFR 0.544741	0.13
HLA-A*23:01	1	78	86	9	RFDNPVLPF 0.544699	0.14
HLA-A*30:01	1	634	642	9	RVYSTGSNV 0.543326	0.1
HLA-B*35:01	1	865	873	9	LTDEMIAYQ 0.541109	0.21
HLA-A*03:01	1	311	319	9	GIYQTSNFR 0.540742	0.29
HLA-A*23:01	1	57	65	9	PPFSNVTWF 0.540445	0.14
HLA-B*08:01	1	820	828	9	DLLFNKVTL 0.539186	0.13
HLA-A*24:02	1	1094	1103	10	VFVSNGTHWF0.537769	0.18
HLA-A*31:01	1	676	685	10	TQTNSPRRAR0.536946	0.31
HLA-A*33:01	1	228	237	10	DLPIGINITR0.536875	0.14
HLA-A*31:01	1	991	1000	10	VQIDRLITGR0.536572	0.31
HLA-A*02:01	1	386	395	10	KLNDLCFTNV0.533416	0.24
HLA-A*02:06	1	424	433	10	KLPDDFTGCV0.532999	0.21
HLA-B*35:01	1	361	369	9	CVADYSVLY 0.532646	0.22
HLA-B*35:01	1	30	38	9	NSFTRGVYY 0.532345	0.22
HLA-B*15:01	1	689	697	9	SQSIIAYTM 0.532235	0.26
HLA-B*53:01	1	878	886	9	LAGTITSGW 0.532125	0.12
HLA-B*51:01	1	923	931	9	IANQFNSAI 0.531818	0.16
HLA-A*03:01	1	725	733	9	EILPVSMTK 0.531629	0.3
HLA-B*58:01	1	249	258	10	LTPGDSSSGW0.530312	0.3
HLA-A*30:02	1	361	369	9	CVADYSVLY 0.53021	0.15
HLA-A*03:01	1	924	933	10	ANQFNSAIGK0.530033	0.3
HLA-B*35:01	1	686	695	10	SVASQSIIAY0.529484	0.22
HLA-B*15:01	1	1113	1121	9	QIITDNTF 0.529365	0.26
HLA-B*53:01	1	1139	1148	10	DPLQPELDSF0.526614	0.12
HLA-A*01:01	1	1039	1047	9	RVDFCGKGY 0.526344	0.18
HLA-B*51:01	1	24	32	9	LPPAYTNSF 0.52533	0.17
HLA-A*24:02	1	268	276	9	GYLQPRTF 0.523018	0.18
HLA-A*30:02	1	28	37	10	YTNSFTRGVY0.522409	0.16
HLA-A*03:01	1	292	300	9	ALDPLSETK 0.52164	0.31
HLA-A*68:01	1	676	685	10	TQTNSPRRAR0.521378	0.61
HLA-B*15:01	1	320	329	10	VQPTESIVRF0.520314	0.27
HLA-B*57:01	1	239	248	10	QTLALHRSY0.517764	0.52
HLA-A*24:02	1	312	320	9	IYQTSNFRV 0.517604	0.18
HLA-A*31:01	1	638	646	9	TGSNVFQTR 0.517116	0.34
HLA-A*03:01	1	310	319	10	KGIYQTSNFR0.516391	0.32
HLA-A*24:02	1	634	643	10	RVYSTGSNVF0.516328	0.18

HLA-A*32:01	1	344	353	10	ATRFASVYAW0.515027	0.1	
HLA-A*32:01	1	50	58	9	STQDLFLPF	0.51427	0.1
HLA-A*02:01	1	515	524	10	FELLHAPATV0.513156	0.26	
HLA-A*32:01	1	1185	1193	9	RLNEVAKNL	0.513013	0.1
HLA-A*68:02	1	704	712	9	SVAYSNNSI	0.512883	0.18
HLA-A*23:01	1	268	277	10	GYLQPRTFLL0.512651	0.15	
HLA-A*02:06	1	721	729	9	SVTTEILPV	0.511187	0.24
HLA-A*30:02	1	1147	1155	9	SFKEELDKY	0.508894	0.16
HLA-A*11:01	1	956	964	9	AQALNTLVK	0.508732	0.29
HLA-B*15:01	1	270	279	10	LQPRTFLKY0.508417	0.29	
HLA-A*02:06	1	786	794	9	KQIYKTPPI	0.50734	0.25
HLA-A*23:01	1	1094	1103	10	VFVSNGTHWF0.506266	0.16	
HLA-B*15:01	1	1200	1209	10	LQELGKYEQY0.505374	0.29	
HLA-B*08:01	1	241	249	9	LLALHRSYL	0.50463	0.15
HLA-A*11:01	1	1196	1205	10	SLIDLQELGK0.503672	0.29	
HLA-A*68:02	1	1220	1228	9	FIAGLIAIV	0.501049	0.19
HLA-A*02:03	1	634	642	9	RVYSTGSNV	0.500517	0.24
HLA-B*57:01	1	56	64	9	LPPFSNVTW	0.498723	0.54
HLA-A*68:01	1	1020	1028	9	ASANLAATK	0.498553	0.65
HLA-A*68:01	1	89	97	9	GVYFASTEK	0.497011	0.65
HLA-B*07:02	1	1052	1060	9	FPQSAPHGV	0.496693	0.25
HLA-A*30:01	1	529	537	9	KSTNLVKNK	0.495913	0.14
HLA-A*02:01	1	915	923	9	VLYENQKLI	0.495902	0.26
HLA-B*51:01	1	321	329	9	QPTESIVRF	0.495863	0.19
HLA-A*30:01	1	202	210	9	KIYSKHTPI	0.495841	0.14
HLA-A*33:01	1	347	355	9	FASVYAWNR	0.494019	0.16
HLA-B*57:01	1	898	906	9	FAMQMAYRF	0.49374	0.54
HLA-B*58:01	1	56	64	9	LPPFSNVTW	0.49366	0.33
HLA-A*31:01	1	457	466	10	RKSNLKPFER0.493077	0.37	
HLA-A*26:01	1	30	38	9	NSFTRGVYY	0.492899	0.12
HLA-A*11:01	1	41	49	9	KVFRSSVLH	0.492404	0.3
HLA-A*31:01	1	302	310	9	TLKSFTVEK	0.491043	0.38
HLA-A*30:02	1	258	266	9	WTAGAAAYY	0.490828	0.18
HLA-A*68:02	1	62	70	9	VTWFHAIHV	0.489747	0.2
HLA-B*58:01	1	687	695	9	VASQSIIAY	0.489747	0.33
HLA-B*51:01	1	56	64	9	LPPFSNVTW	0.488507	0.2
HLA-A*23:01	1	268	276	9	GYLQPRTFL	0.487874	0.17
HLA-A*24:02	1	1211	1220	10	KWPWYIWLGF0.48691	0.2	
HLA-A*03:01	1	1099	1107	9	GTHWFVTQR	0.486307	0.36
HLA-A*23:01	1	1211	1220	10	KWPWYIWLGF0.48608	0.17	
HLA-A*68:02	1	940	948	9	STASALGKL	0.485571	0.21
HLA-A*01:01	1	651	660	10	IGAHEVNNSY0.485311	0.2	
HLA-A*30:02	1	357	365	9	RISNCVADY	0.484483	0.18
HLA-A*26:01	1	583	592	10	EILDITPCSF0.484378	0.12	

HLA-A*68:01	1	724	733	10	TEILPVSMTK0.483356	0.67
HLA-A*30:02	1	666	674	9	IGAGICASY 0.482045	0.18
HLA-A*68:02	1	603	611	9	NTSNQVAVL 0.481301	0.21
HLA-A*01:01	1	1146	1155	10	DSFKEELDKY0.481064	0.2
HLA-B*15:01	1	152	160	9	WMESEFRVY 0.480932	0.32
HLA-B*58:01	1	879	888	10	AGTITSGWTF0.479615	0.34
HLA-A*32:01	1	815	823	9	RSFIEDLLF 0.479418	0.11
HLA-B*08:01	1	1137	1145	9	VYDPLQPEL 0.479112	0.16
HLA-A*03:01	1	35	44	10	GVYYPDKVFR0.477862	0.37
HLA-A*68:02	1	886	894	9	WTFGAGAAL 0.477819	0.21
HLA-A*26:01	1	603	612	10	NTSNQVAVLY0.476654	0.12
HLA-B*57:01	1	267	275	9	VGYLQPRTF 0.476575	0.56
HLA-A*68:01	1	827	835	9	TLADAGFIK 0.476129	0.69
HLA-A*30:01	1	41	49	9	KVFRSSVLH 0.474763	0.16
HLA-B*57:01	1	50	58	9	STQDLFLPF 0.474382	0.56
HLA-A*30:01	1	408	417	10	RQIAPGQTGK0.473041	0.16
HLA-B*07:02	1	321	329	9	QPTESIVRF 0.472976	0.27
HLA-B*07:02	1	714	722	9	IPTNFTISV 0.472945	0.27
HLA-A*24:02	1	193	201	9	VFKNIDGYF 0.472749	0.21
HLA-B*58:01	1	160	168	9	YSSANNCTF 0.472573	0.34
HLA-A*11:01	1	757	765	9	GSFCTQLNR 0.472002	0.33
HLA-A*30:01	1	1020	1028	9	ASANLAATK 0.471795	0.16
HLA-A*03:01	1	1019	1028	10	RASANLAATK0.471098	0.38
HLA-B*15:01	1	366	374	9	SVLYNSASF 0.470989	0.33
HLA-A*30:02	1	1039	1047	9	RVDFCGKGY 0.470607	0.2
HLA-B*51:01	1	111	119	9	DSKTQSLLI 0.470018	0.22
HLA-A*11:01	1	369	378	10	YNSASFSTFK0.469471	0.33
HLA-B*58:01	1	865	873	9	LTDEMIAYQ 0.467999	0.35
HLA-A*11:01	1	1019	1028	10	RASANLAATK0.466715	0.33
HLA-A*68:01	1	369	378	10	YNSASFSTFK0.465002	0.71
HLA-A*68:01	1	1031	1039	9	ECVLGQSKR 0.464311	0.71
HLA-A*03:01	1	454	463	10	RLFRKSNLKP0.463635	0.4
HLA-A*30:02	1	161	170	10	SSANNCTFEY0.463277	0.2
HLA-A*30:01	1	19	27	9	TTRTQLPPA 0.46289	0.17
HLA-B*35:01	1	1139	1148	10	DPLQPELDSF0.462749	0.25
HLA-B*15:01	1	852	860	9	AQKFNGLTV 0.462676	0.35
HLA-B*35:01	1	892	900	9	AALQIPFAM 0.462137	0.25
HLA-A*24:02	1	57	65	9	PFFSNVTWF 0.462093	0.22
HLA-B*07:02	1	24	32	9	LPPAYTNSF 0.461961	0.28
HLA-A*02:03	1	937	945	9	SLSSTASAL 0.461783	0.28
HLA-A*30:01	1	89	97	9	GVYFASTEK 0.460956	0.17
HLA-A*03:01	1	939	947	9	SSTASALGK 0.460777	0.4
HLA-B*15:01	1	464	473	10	FERDISTEIIY0.460469	0.35
HLA-A*23:01	1	193	201	9	VFKNIDGYF 0.460029	0.19

HLA-B*15:01	1	604	612	9	TSNQVAVLY	0.459562	0.35
HLA-A*11:01	1	924	933	10	ANQFNSAIGK	0.459415	0.35
HLA-A*24:02	1	23	32	10	QLPPAYTNSF	0.458879	0.22
HLA-A*31:01	1	449	457	9	YNYLYRLFR	0.456877	0.43
HLA-B*15:01	1	361	369	9	CVADYSVLY	0.456493	0.36
HLA-A*02:03	1	1047	1056	10	YHLMSFPQSA	0.456118	0.28
HLA-B*53:01	1	329	338	10	FPNITNLCPF	0.454515	0.16
HLA-A*30:02	1	413	421	9	GQTGKIADY	0.454215	0.21
HLA-B*35:01	1	714	722	9	IPTNFTISV	0.453722	0.27
HLA-A*03:01	1	550	558	9	GVLTESNKK	0.452652	0.4
HLA-A*02:03	1	947	956	10	KLQDVVNQNA	0.452435	0.28
HLA-B*40:01	1	1194	1203	10	NESLIDLQEL	0.4524	0.31
HLA-B*53:01	1	478	486	9	TPCNGVEGF	0.45206	0.16
HLA-A*31:01	1	13	21	9	SQCVNLTR	0.451954	0.43
HLA-B*07:02	1	506	515	10	QPYRVVLSF	0.451783	0.29
HLA-A*68:02	1	907	915	9	NGIGVTQNV	0.44936	0.23
HLA-A*30:02	1	195	204	10	KNIDGYFKIY	0.445822	0.22
HLA-A*02:03	1	1136	1145	10	TVYDPLQPEL	0.444648	0.29
HLA-B*08:01	1	342	350	9	FNATRFASV	0.44423	0.2
HLA-A*68:02	1	718	727	10	FTISVTTEIL	0.443734	0.24
HLA-A*26:01	1	604	612	9	TSNQVAVLY	0.442541	0.14
HLA-B*51:01	1	38	47	10	YDPKVFRSSV	0.4399	0.25
HLA-A*02:03	1	202	210	9	KIYSKHTPI	0.439809	0.29
HLA-A*31:01	1	265	273	9	YYVGYLQPR	0.439463	0.45
HLA-A*33:01	1	1006	1014	9	TYVTQQLIR	0.439206	0.22
HLA-A*02:01	1	1047	1056	10	YHLMSFPQSA	0.439192	0.32
HLA-A*30:02	1	496	505	10	GFQPTNGVGY	0.438863	0.23
HLA-A*30:01	1	235	243	9	ITRFQTLA	0.438742	0.2
HLA-B*44:03	1	1181	1189	9	KEIDRLNEV	0.438248	0.3
HLA-B*08:01	1	554	562	9	ESNKKFLPF	0.438191	0.2
HLA-A*01:01	1	414	423	10	QTGKIADYNY	0.437978	0.24
HLA-A*68:01	1	258	266	9	WTAGAAAYY	0.437904	0.76
HLA-B*44:02	1	464	473	10	FERDISTEIIY	0.437515	0.24
HLA-B*35:01	1	1052	1060	9	FPQSAPHGV	0.437126	0.29
HLA-A*30:02	1	192	200	9	FVFKNIDGY	0.435517	0.23
HLA-A*33:01	1	1098	1107	10	NGTHWFVTQR	0.43473	0.22
HLA-B*15:01	1	893	902	10	ALQIPFAMQM	0.434399	0.4
HLA-B*40:01	1	818	826	9	IEDLLFNKV	0.433395	0.33
HLA-B*58:01	1	877	886	10	LLAGTITSGW	0.433085	0.38
HLA-A*02:06	1	424	432	9	KLPDFTGC	0.432817	0.34
HLA-A*26:01	1	1095	1103	9	FVSNGTHWF	0.431696	0.15
HLA-B*58:01	1	1094	1102	9	VFVSNGTHW	0.43061	0.38
HLA-B*15:01	1	880	888	9	GTITSGWTF	0.430581	0.4
HLA-A*30:02	1	261	269	9	GAAAYYVGY	0.428567	0.24

HLA-A*30:02	1	487	495	9	NCYFPLQSY 0.428278	0.24
HLA-A*23:01	1	203	212	10	IYSKHTPINL0.427799	0.2
HLA-B*57:01	1	1086	1095	10	KAHFPREGVF0.426537	0.65
HLA-A*01:01	1	687	695	9	VASQSIIAY 0.42647	0.25
HLA-A*02:06	1	783	791	9	AQVKQIYKT 0.426345	0.35
HLA-A*03:01	1	975	983	9	SVLNDILSR 0.424744	0.44
HLA-A*24:02	1	379	387	9	CYGVSPTKL 0.424143	0.24
HLA-A*68:01	1	782	790	9	FAQVKQIYK 0.423831	0.79
HLA-B*57:01	1	1094	1102	9	VFVSNGTHW 0.423598	0.66
HLA-B*44:02	1	1181	1189	9	KEIDRLNEV 0.423281	0.25
HLA-A*02:06	1	62	70	9	VTWFHAIHV 0.422331	0.35
HLA-A*33:01	1	1099	1107	9	GTHWFVTQR 0.422018	0.25
HLA-A*02:06	1	634	642	9	RVYSTGSNV 0.420746	0.35
HLA-A*11:01	1	925	933	9	NQFNSAIGK 0.420485	0.39
HLA-B*44:02	1	553	562	10	TESNKKFLPF0.419839	0.25
HLA-A*26:01	1	865	873	9	LTDEMIAY 0.419837	0.16
HLA-B*57:01	1	687	695	9	VASQSIIAY 0.418371	0.66
HLA-A*30:01	1	845	854	10	AARDLICAQK0.418143	0.23
HLA-A*02:03	1	718	726	9	FTISVTTEI 0.41683	0.32
HLA-A*11:01	1	974	983	10	SSVLNDILSR0.416756	0.4
HLA-A*68:01	1	817	825	9	FIEDLLFNK 0.416738	0.81
HLA-B*57:01	1	212	220	9	LVRDLPQGF 0.415931	0.67
HLA-A*02:03	1	515	524	10	FELLHAPATV0.415603	0.32
HLA-A*02:01	1	975	984	10	SVLNDILSRL0.415115	0.35
HLA-A*02:06	1	28	36	9	YTNSFTRGV 0.415092	0.36
HLA-A*11:01	1	458	466	9	KSNLKPFER 0.414632	0.4
HLA-A*02:03	1	1192	1200	9	NLNESLIDL 0.414566	0.32
HLA-A*68:01	1	30	38	9	NSFTRGVYY 0.414371	0.81
HLA-A*11:01	1	786	795	10	KQIYKTPPIK0.414021	0.4
HLA-B*57:01	1	1005	1013	9	QTYVTQQLI 0.413312	0.68
HLA-A*02:01	1	947	956	10	KLQDVVNQNA0.413308	0.35
HLA-A*02:06	1	1004	1012	9	LQTYVTQQL 0.41247	0.36
HLA-B*15:01	1	699	707	9	LGAENSVAY 0.412412	0.42
HLA-A*30:02	1	257	266	10	GWTAGAAAYY0.411498	0.26
HLA-B*57:01	1	304	312	9	KSFTVEKGI 0.410858	0.69
HLA-A*01:01	1	135	144	10	FCNDPFLGVY0.410856	0.26
HLA-A*02:06	1	135	143	9	FCNDPFLGV 0.410169	0.36
HLA-A*02:01	1	995	1004	10	RLITGRLQSL0.410041	0.35
HLA-A*01:01	1	152	160	9	WMESEFRVY 0.410012	0.26
HLA-A*02:01	1	1136	1145	10	TVYDPLQPEL0.409155	0.35
HLA-A*01:01	1	136	145	10	CNDPFLGVYY0.407233	0.26
HLA-A*68:02	1	495	503	9	YGFQPTNGV 0.406838	0.27
HLA-A*31:01	1	757	765	9	GSFCTQLNR 0.406627	0.52
HLA-A*02:03	1	241	249	9	LLALHRSYL 0.406562	0.33

HLA-A*24:02	1	755	763	9	QYGSFCTQL	0.405495	0.26
HLA-B*53:01	1	624	633	10	IHADQLTPTW0.	405424	0.18
HLA-A*11:01	1	319	328	10	RVQPTESIVR0.	403998	0.42
HLA-A*02:03	1	983	991	9	RLDKVEAEV	0.403746	0.34
HLA-A*26:01	1	780	788	9	EVFAQVKQI	0.403279	0.17
HLA-B*35:01	1	574	582	9	DAVRDPQTL	0.403245	0.32
HLA-A*68:01	1	501	509	9	NGVGYQPYP	0.402687	0.84
HLA-A*02:06	1	975	984	10	SVLNDILSRL0.	401932	0.37
HLA-B*15:01	1	496	505	10	GFQPTNGVGY0.	401812	0.43
HLA-A*68:02	1	967	976	10	SSNFGAISSV0.	40136	0.27
HLA-A*33:01	1	198	206	9	DGYFKIYSK	0.401222	0.27
HLA-A*32:01	1	1209	1217	9	YIKWPWYIW	0.401025	0.16
HLA-A*02:06	1	943	951	9	SALGKLDV	0.400622	0.38
HLA-A*01:01	1	732	741	10	TKTSVDCTMY0.	400359	0.27
HLA-A*68:02	1	1128	1137	10	VVIGIVNNTV0.	400091	0.28
HLA-B*35:01	1	55	64	10	FLPFFSNVTW0.	399642	0.32
HLA-A*02:03	1	512	520	9	VLSFELLHA	0.399	0.34
HLA-A*11:01	1	637	646	10	STGSNVFQTR0.	398739	0.43
HLA-A*01:01	1	136	144	9	CNDPFLGVY	0.398499	0.27
HLA-B*53:01	1	687	695	9	VASQSIIAY	0.398403	0.19
HLA-A*02:06	1	626	635	10	ADQLTPTWRV0.	398089	0.38
HLA-A*33:01	1	638	646	9	TGSNVFQTR	0.397693	0.27
HLA-A*30:02	1	29	38	10	TNSFTRGVYY0.	396487	0.27
HLA-A*02:06	1	505	513	9	YQPYRVVVL	0.394518	0.39
HLA-A*68:02	1	691	699	9	SIIAYTMSL	0.393935	0.28
HLA-A*02:06	1	1007	1015	9	YVTQQLIRA	0.393796	0.39
HLA-A*02:06	1	852	861	10	AQKFNGLTVL0.	391583	0.4
HLA-A*26:01	1	28	37	10	YTNSFTRGVY0.	391325	0.18
HLA-A*24:02	1	267	276	10	VGYLQPRTFL0.	390779	0.26
HLA-B*44:03	1	553	562	10	TESNKKFLPF0.	389745	0.33
HLA-A*02:06	1	1181	1189	9	KEIDRLNEV	0.389617	0.4
HLA-B*57:01	1	865	873	9	LTDEMIAQY	0.387676	0.71
HLA-B*15:01	1	83	92	10	VLPFNDGVVYF0.	387438	0.44
HLA-B*35:01	1	1021	1029	9	SANLAATKM	0.386751	0.33
HLA-A*03:01	1	956	964	9	AQALNTLVK	0.385754	0.51
HLA-A*11:01	1	782	790	9	FAQVKQIYK	0.38485	0.44
HLA-B*35:01	1	160	168	9	YSSANNCTF	0.384582	0.33
HLA-A*30:02	1	445	453	9	VGGNYNYLY	0.384149	0.28
HLA-B*15:01	1	961	970	10	TLVKQLSSNF0.	383968	0.45
HLA-B*57:01	1	733	741	9	KTSVDCTMY	0.38378	0.72
HLA-A*30:02	1	1059	1067	9	GVVFLHVTY	0.383729	0.29
HLA-A*31:01	1	394	403	10	NVYADSFVIR0.	383163	0.57
HLA-B*51:01	1	727	736	10	LPVSMTKTSV0.	382919	0.32
HLA-B*07:02	1	620	629	10	VPVAIHADQL0.	382634	0.36

HLA-A*02:03	1	762	770	9	QLNRALTGI	0.38188	0.36
HLA-A*02:01	1	612	620	9	YQDVNCTEV	0.380963	0.4
HLA-B*53:01	1	1052	1060	9	FPQSAPHGV	0.380916	0.2
HLA-B*15:01	1	23	32	10	QLPPAYTNSF0.	380664	0.45
HLA-B*35:01	1	748	756	9	ECSNLLLQY	0.378678	0.34
HLA-A*03:01	1	69	77	9	HVSGTNGTK	0.378657	0.53
HLA-B*58:01	1	304	313	10	KSFTVEKGIY0.	378169	0.43
HLA-A*11:01	1	805	814	10	ILPDPSKPSK0.	377972	0.45
HLA-A*68:01	1	787	795	9	QIYKTPPIK	0.377952	0.9
HLA-A*26:01	1	748	756	9	ECSNLLLQY	0.37784	0.19
HLA-A*68:02	1	258	267	10	WTAGAAAYV0.	377231	0.3
HLA-A*68:02	1	1175	1183	9	SVVNIQKEI	0.376375	0.3
HLA-B*15:01	1	1004	1012	9	LQTYVTQQL	0.376088	0.46
HLA-A*02:01	1	718	726	9	FTISVTTEI	0.375875	0.4
HLA-B*08:01	1	453	461	9	YRLFRKSNL	0.375792	0.26
HLA-B*53:01	1	271	279	9	QPRTFLLKY	0.375619	0.21
HLA-A*11:01	1	301	310	10	CTLKSFTVEK0.	374903	0.46
HLA-B*51:01	1	780	788	9	EVFAQVKQI	0.374701	0.34
HLA-A*68:02	1	1095	1104	10	FVSNGTHWFV0.	374303	0.3
HLA-A*30:02	1	371	380	10	SASFSTFKCY0.	373767	0.31
HLA-A*68:01	1	780	789	10	EVFAQVKQIY0.	373626	0.91
HLA-B*35:01	1	1095	1103	9	FVSNGTHWF	0.373487	0.34
HLA-B*15:01	1	1080	1089	10	AICHDGKAHF0.	372469	0.47
HLA-B*07:02	1	1052	1061	10	FPQSAPHGVV0.	372441	0.37
HLA-B*44:03	1	779	788	10	QEVFAQVKQI0.	372218	0.34
HLA-B*51:01	1	1262	1270	9	EPVLKGVKL	0.372046	0.34
HLA-A*68:01	1	192	200	9	FVFKNIDGY	0.370407	0.91
HLA-B*35:01	1	481	489	9	NGVEGFNCY	0.370024	0.35
HLA-B*35:01	1	1113	1121	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	257	266	10	GWTAGAAAYY0.	366825	0.29
HLA-A*68:01	1	674	683	10	YQTQTNSPRR0.	366818	0.93
HLA-A*68:02	1	1260	1268	9	DSEPVLKGV	0.365221	0.32
HLA-A*33:01	1	229	237	9	LPIGINITR	0.364545	0.32
HLA-A*31:01	1	1005	1014	10	QTYVTQQLIRO.	362243	0.62
HLA-B*51:01	1	718	726	9	FTISVTTEI	0.361993	0.37
HLA-A*02:03	1	869	877	9	MIAQYTSAL	0.360459	0.4
HLA-A*31:01	1	675	683	9	QTQTNSPRR	0.360326	0.62
HLA-A*31:01	1	673	682	10	SYQTQTNSPR0.	359865	0.62
HLA-A*30:02	1	41	49	9	KVFRSSVLH	0.359703	0.33
HLA-A*03:01	1	319	328	10	RVQPTESIVR0.	359462	0.54
HLA-B*40:01	1	168	177	10	FEYVSPFLM0.	359256	0.42
HLA-A*68:02	1	1005	1013	9	QTYVTQQLI	0.359238	0.32



HLA-A*31:01	1	41	49	9	KVFRSSVLH	0.358944	0.62
HLA-B*15:01	1	773	782	10	EQDKNTQEVF0	0.358662	0.5
HLA-A*68:01	1	559	567	9	FLPFQQFGR	0.358274	0.96
HLA-B*57:01	1	126	135	10	VVIKVFCEQF0	0.357497	0.8
HLA-B*58:01	1	372	380	9	ASFSTFKCY	0.356723	0.46
HLA-A*68:02	1	516	524	9	ELLHAPATV	0.356044	0.33
HLA-B*57:01	1	160	168	9	YSSANNCTF	0.355521	0.8
HLA-A*68:01	1	361	369	9	CVADYSVLY	0.355209	0.96
HLA-A*30:02	1	151	160	10	SWMESEFRVY0	0.354502	0.33
HLA-A*68:02	1	1168	1177	10	DISGINASVV0	0.353851	0.33
HLA-B*57:01	1	55	64	10	FLPFFSNVTW0	0.353746	0.8
HLA-A*01:01	1	499	508	10	PTNGVGYQPY0	0.353345	0.31
HLA-A*68:01	1	604	612	9	TSNQVAVLY	0.352705	0.97
HLA-A*30:02	1	652	660	9	GAEHVNNSY	0.352551	0.34
HLA-A*02:06	1	871	879	9	AQYTSALLA	0.351816	0.47
HLA-A*02:06	1	712	720	9	IAIPTNFTI	0.35167	0.47
HLA-A*68:01	1	992	1000	9	QIDRLITGR	0.351529	0.97
HLA-B*15:01	1	50	58	9	STQDLFLPF	0.351445	0.51
HLA-A*23:01	1	312	320	9	IYQTSNFRV	0.350817	0.25
HLA-A*23:01	1	23	32	10	QLPPAYTNSF0	0.350772	0.25
HLA-A*02:01	1	512	520	9	VLSFELLHA	0.350734	0.45
HLA-B*58:01	1	733	741	9	KTSVDCTMY	0.34981	0.47
HLA-A*03:01	1	370	378	9	NSASFSTFK	0.348642	0.56
HLA-B*51:01	1	208	216	9	TPINLVRDL	0.348237	0.4
HLA-B*15:01	1	30	38	9	NSFTRGVYY	0.347996	0.52
HLA-B*35:01	1	208	216	9	TPINLVRDL	0.347963	0.37
HLA-B*35:01	1	652	660	9	GAEHVNNSY	0.347109	0.37
HLA-A*26:01	1	710	718	9	NSIAIPTNF	0.346315	0.21
HLA-A*01:01	1	360	369	10	NCVADYSVLY0	0.346028	0.31
HLA-A*02:03	1	28	36	9	YTNSFTRGV	0.346	0.42
HLA-A*32:01	1	269	277	9	YLPRTFLL	0.345894	0.21
HLA-A*30:01	1	683	691	9	RARSVASQS	0.345166	0.33
HLA-A*32:01	1	366	374	9	SVLYNSASF	0.344581	0.21
HLA-B*51:01	1	955	963	9	NAQALNTLV	0.344412	0.4
HLA-A*26:01	1	50	58	9	STQDLFLPF	0.344143	0.21
HLA-B*35:01	1	366	374	9	SVLYNSASF	0.343642	0.38
HLA-A*33:01	1	637	646	10	STGSNVFQTR0	0.343407	0.35
HLA-A*02:06	1	1192	1200	9	NLNESLIDL	0.343239	0.48
HLA-A*68:02	1	869	877	9	MIAQYTSAL	0.342602	0.34
HLA-A*32:01	1	1054	1062	9	QSAPHGVVF	0.34191	0.21
HLA-A*11:01	1	686	695	10	SVASQSI IAY0	0.340989	0.52
HLA-B*08:01	1	533	541	9	LVKNKCVNF	0.340377	0.3
HLA-B*35:01	1	710	718	9	NSIAIPTNF	0.339725	0.38
HLA-A*30:01	1	803	811	9	SQILPDPSK	0.339684	0.34

HLA-A*68:02	1	968	976	9	SNFGAISSV	0.339107	0.34
HLA-A*26:01	1	442	451	10	DSKVGGNVNY0	0.337749	0.21
HLA-A*32:01	1	691	699	9	SIIAYTMSL	0.337355	0.21
HLA-A*11:01	1	269	278	10	YLPRTFLLK0	0.336981	0.53
HLA-A*02:06	1	773	781	9	EQDKNTQEV	0.33688	0.49
HLA-B*53:01	1	574	582	9	DAVRDPQTL	0.336628	0.25
HLA-A*01:01	1	748	756	9	ECSNLLQY	0.336613	0.32
HLA-A*02:01	1	516	524	9	ELLHAPATV	0.336419	0.48
HLA-B*07:02	1	869	877	9	MIAQYTSAL	0.33632	0.43
HLA-A*68:01	1	399	408	10	SFVIRGDEV0	0.33592	1.1
HLA-B*15:01	1	533	541	9	LVKNKCVNF	0.335721	0.55
HLA-A*32:01	1	509	517	9	RVVLSFEL	0.335124	0.21
HLA-A*02:01	1	424	432	9	KLPDDFTGC	0.334903	0.48
HLA-A*33:01	1	450	458	9	NYLYRLFRK	0.334458	0.36
HLA-B*53:01	1	383	392	10	SPTKLNLCF0	0.333453	0.25
HLA-A*30:02	1	1101	1110	10	HWFVTQRNFY0	0.333339	0.36
HLA-A*26:01	1	718	726	9	FTISVTTEI	0.332779	0.21
HLA-A*11:01	1	549	558	10	TGVLTESNKK0	0.332729	0.54
HLA-A*02:06	1	958	966	9	ALNTLVKQL	0.332633	0.5
HLA-B*08:01	1	869	877	9	MIAQYTSAL	0.33241	0.31
HLA-A*68:01	1	26	34	9	PAYTNSFTR	0.331881	1.1
HLA-B*35:01	1	258	266	9	WTAGAAAYY	0.331721	0.39
HLA-B*51:01	1	92	100	9	FASTEKSNI	0.331413	0.42
HLA-B*15:01	1	864	873	10	LLTDEMIAQY0	0.330897	0.56
HLA-A*02:03	1	1171	1179	9	GINASVVNI	0.330579	0.45
HLA-A*33:01	1	35	44	10	GVYYPDKVFR0	0.330452	0.36
HLA-B*58:01	1	1203	1212	10	LGKYEQYIKW0	0.33025	0.5
HLA-B*08:01	1	691	699	9	SIIAYTMSL	0.330189	0.31
HLA-A*30:01	1	575	584	10	AVRDPQTLEI0	0.330094	0.35
HLA-B*15:01	1	551	559	9	VLTESNKKF	0.329933	0.56
HLA-B*07:02	1	84	92	9	LPFNDGVYF	0.329782	0.43
HLA-B*57:01	1	809	817	9	PSKPSKRSF	0.329605	0.86
HLA-B*51:01	1	229	238	10	LPIGINITRF0	0.329148	0.43
HLA-B*07:02	1	462	470	9	KPFERDIST	0.328583	0.44
HLA-A*33:01	1	975	983	9	SVLNDILSR	0.328563	0.37
HLA-B*51:01	1	896	904	9	IPFAMQMAY	0.328521	0.43
HLA-B*58:01	1	50	58	9	STQDLFLPF	0.327613	0.52
HLA-A*02:06	1	1185	1193	9	RLNEVAKNL	0.327598	0.51
HLA-A*68:02	1	135	143	9	FCNDPFLGV	0.327522	0.38
HLA-A*30:01	1	1064	1073	10	HVTYVPAQEK0	0.326791	0.37
HLA-B*51:01	1	425	433	9	LPDDFTGCV	0.325956	0.43
HLA-B*35:01	1	320	329	10	VQPTESIVRF0	0.325631	0.39
HLA-A*31:01	1	12	21	10	SSQCVNLTTR0	0.325231	0.71
HLA-B*08:01	1	202	210	9	KIYSKHTPI	0.324637	0.32

HLA-A*30:02	1	999	1007	9	GRLQSLQTY 0.324253	0.38
HLA-A*30:02	1	651	660	10	IGAЕHVNNSY0.324128	0.38
HLA-B*53:01	1	714	722	9	IPTNFTISV 0.324037	0.26
HLA-B*08:01	1	833	841	9	FIKQYGDCL 0.323762	0.32
HLA-B*57:01	1	962	970	9	LVKQLSSNF 0.323546	0.87
HLA-A*30:02	1	603	612	10	NTSNQVAVLY0.323431	0.38
HLA-A*11:01	1	777	786	10	NTQEVFAQVK0.323299	0.56
HLA-A*02:06	1	386	395	10	KLNDLCFTNV0.323023	0.52
HLA-B*51:01	1	560	569	10	LPFQQFGRDI0.322585	0.44
HLA-B*15:01	1	334	342	9	NLCPFGEVF 0.322517	0.58
HLA-B*58:01	1	97	106	10	KSNIIRGWIF0.322465	0.52
HLA-B*44:03	1	987	996	10	VEAEVQIDRL0.322031	0.38
HLA-B*35:01	1	138	146	9	DPFLGVYYH 0.321595	0.4
HLA-A*30:01	1	1019	1028	10	RASANLAATK0.321031	0.38
HLA-B*07:02	1	680	689	10	SPRRARVAS0.321024	0.44
HLA-A*11:01	1	816	825	10	SFIEDLLFNK0.320943	0.56
HLA-A*01:01	1	29	38	10	TNSFTRGVYY0.320865	0.35
HLA-B*57:01	1	204	212	9	YSKHTPINL 0.320589	0.87
HLA-B*07:02	1	588	597	10	TPCSFGGVS0.319415	0.45
HLA-B*51:01	1	324	332	9	ESIVRFPNI 0.319087	0.44
HLA-B*44:02	1	779	788	10	QEVAQVKQI0.31908	0.34
HLA-B*15:01	1	505	513	9	YQPYRVVVL 0.318775	0.59
HLA-A*68:01	1	826	835	10	VTLADAGFIK0.317847	1.1
HLA-A*30:02	1	443	451	9	SKVGGNYNY 0.31758	0.39
HLA-A*30:02	1	699	707	9	LGAENSVAY 0.317344	0.39
HLA-A*02:03	1	516	524	9	ELLHAPATV 0.317281	0.47
HLA-A*03:01	1	826	835	10	VTLADAGFIK0.317095	0.62
HLA-A*68:02	1	324	332	9	ESIVRFPNI 0.316674	0.38
HLA-A*02:03	1	857	865	9	GLTVLPPLL 0.316428	0.47
HLA-A*26:01	1	554	562	9	ESNKKFLPF 0.315557	0.23
HLA-A*26:01	1	487	495	9	NCYFPLQSY 0.315549	0.23
HLA-A*02:06	1	1137	1145	9	VYDPLQPEL 0.314486	0.54
HLA-A*02:06	1	995	1004	10	RLITGRLQSL0.313029	0.54
HLA-A*30:02	1	909	917	9	IGVTQNVLY 0.312847	0.41
HLA-A*68:01	1	1050	1058	9	MSFPQSAPH 0.312819	1.2
HLA-A*68:01	1	625	634	10	HADQLTPTWR0.312632	1.2
HLA-A*68:02	1	734	742	9	TSVDCTMYI 0.312368	0.39
HLA-A*26:01	1	1146	1155	10	DSFKEELDKY0.312308	0.24
HLA-B*57:01	1	144	152	9	YYHKNNKSW 0.311801	0.89
HLA-B*51:01	1	503	511	9	VGYPYRVV 0.311555	0.44
HLA-A*30:02	1	19	28	10	TTRTQLPPAY0.311293	0.41
HLA-B*15:01	1	34	43	10	RGVYYPDKVF0.310843	0.6
HLA-A*23:01	1	267	276	10	VGYLQPRTFLO.310776	0.29
HLA-B*35:01	1	1089	1097	9	FPREGVFS 0.310374	0.41

HLA-A*03:01	1	925	933	9	NQFNSAIGK	0.310061	0.63
HLA-A*33:01	1	839	847	9	DCLGDIAAR	0.309984	0.41
HLA-A*32:01	1	625	633	9	HADQLPTW	0.309795	0.24
HLA-A*03:01	1	104	113	10	WIFGTTLDSK0	0.309697	0.64
HLA-A*68:01	1	603	612	10	NTSNQVAVLY0	0.309036	1.2
HLA-A*11:01	1	378	386	9	KCYGVSPK	0.307895	0.59
HLA-A*24:02	1	269	277	9	YLQPRTFLL	0.30782	0.33
HLA-A*30:01	1	1014	1022	9	RAAEIRASA	0.307578	0.41
HLA-B*58:01	1	1005	1013	9	QTYVTQQLI	0.307506	0.54
HLA-A*11:01	1	817	825	9	FIEDLLFNK	0.306918	0.59
HLA-B*08:01	1	40	48	9	DKVFRSSVL	0.30644	0.34
HLA-B*51:01	1	495	503	9	YGFQPTNGV	0.306067	0.45
HLA-A*26:01	1	125	133	9	NVVIKVCEF	0.305959	0.24
HLA-B*51:01	1	1060	1068	9	VVFLHVTVV	0.305733	0.45
HLA-A*03:01	1	301	310	10	CTLKSFTVEK0	0.305624	0.65
HLA-A*32:01	1	1264	1272	9	VLKGVKLHY	0.305119	0.25
HLA-A*33:01	1	673	682	10	SYQTQTNSPR0	0.304197	0.42
HLA-B*15:01	1	261	269	9	GAAAYVGY	0.303395	0.62
HLA-B*58:01	1	267	275	9	VGYLQPRTF	0.303126	0.55
HLA-A*30:02	1	698	707	10	SLGAENSVAY0	0.302374	0.44
HLA-B*53:01	1	710	718	9	NSIAIPTNF	0.302006	0.28
HLA-B*07:02	1	727	736	10	LPVSMKTSV0	0.302005	0.47
HLA-A*26:01	1	687	695	9	VASQSIIAY	0.301442	0.25
HLA-B*35:01	1	1262	1270	9	EPVLKGVKL	0.300872	0.42
HLA-A*68:01	1	142	150	9	GVYYHKNNK	0.300562	1.2