

**Supplementary Table 2.** List of the immunogenic peptides according to Net MHC Pan (%Rank) and its respective Vaxijen score (OPPA prediction).

MHC-I allele	Peptide	%Rank	OPPA-vaxijen
HLA-A*01:01	LLTDEMIAQY	0.0105	-0.1976
HLA-A*01:01	LADAGFIKQY	0.0748	0.3679
HLA-A*01:01	LIDLQELGKY	0.0943	0.7076
HLA-A*01:01	LTDEMIAQYT	0.0954	0.2149
HLA-A*01:01	NLDSKVGGNY	0.1041	0.7882
HLA-A*01:01	NTSNQVAVLY	0.1257	0.4403
HLA-A*01:01	YTNSFTRGVY	0.1276	-0.3695
HLA-A*01:01	SSANNCTFEY	0.2000	-0.0845
HLA-A*01:01	GWTAGAAAYY	0.2305	0.5358
HLA-A*01:01	QTGKIADYNY	0.2558	1.5116
HLA-A*01:01	IGAHEVNNSY	0.2775	1.2671
HLA-A*01:01	FCNDPFLGVY	0.3408	0.2713
HLA-A*01:01	PTNGVGYQPY	0.3472	0.0787
HLA-A*01:01	CNDPFLGVYY	0.3618	0.4496
HLA-A*01:01	NCVADYSVLY	0.3680	-0.1358
HLA-A*02:01	KLNDLCFTNV	0.2287	2.6927
HLA-A*02:01	FELLHAPATV	0.3513	0.5982
HLA-A*02:01	KLPDDFTGCV	0.3676	-0.5308
HLA-A*02:01	YHLMSFPQSA	0.4427	0.1588
HLA-A*02:01	SRLDPPEAEV	0.4857	0.4519
HLA-A*03:01	RQIAPGQTGK	0.0281	1.7893
HLA-A*03:01	KQIYKTPPIK	0.0528	-0.0905
HLA-A*03:01	HVTYVPAQEK	0.1565	1.0786
HLA-A*03:01	TEILPVSMTK	0.1664	1.4160
HLA-A*03:01	SLIDLQELGK	0.2065	1.0275
HLA-A*03:01	GVYYPDKVFR	0.2875	-0.1378
HLA-A*03:01	ILPDPSKPSK	0.2965	-0.0975
HLA-A*03:01	YLQPRTFLLK	0.2975	-0.0183
HLA-A*03:01	RASANLAATK	0.3043	0.6339
HLA-A*03:01	YRLFRKSNLK	0.3091	-0.2770
HLA-A*03:01	VTLADAGFIK	0.3220	0.8702
HLA-A*03:01	ANQFNSAIGK	0.3648	-0.1068
HLA-A*03:01	KGIYQTSNFR	0.4209	0.3992
HLA-A*03:01	SAWSHPQFEK	0.4546	0.1710
HLA-A*11:01	TEILPVSMTK	0.0899	1.4160
HLA-A*11:01	SAWSHPQFEK	0.1182	0.1710
HLA-A*11:01	VTLADAGFIK	0.1366	0.8702
HLA-A*11:01	GVYYPDKVFR	0.2020	-0.1378
HLA-A*11:01	HVTYVPAQEK	0.2111	1.0786
HLA-A*11:01	RQIAPGQTGK	0.2413	1.7893
HLA-A*11:01	SLIDLQELGK	0.2777	1.0275
HLA-A*11:01	YNSASFSTFK	0.3407	0.2612

HLA-A*11:01	SVASQSIAY	0.3795	0.2707
HLA-A*11:01	RASANLAATK	0.3951	0.6339
HLA-A*11:01	SSVLNDILSR	0.4106	-0.5841
HLA-A*11:01	ANQFNSAIGK	0.4483	-0.1068
HLA-A*23:01	TYVPAQEKNF	0.0366	0.7276
HLA-A*23:01	VYSSANNCTF	0.0627	-0.1475
HLA-A*23:01	IYKTPPIKDF	0.0733	-0.1626
HLA-A*23:01	LYNSASFSTF	0.1339	0.0707
HLA-A*23:01	VFVSNATHWF	0.1661	0.0625
HLA-A*23:01	VYYHKNNKSW	0.2733	0.4497
HLA-A*23:01	GYLQPRTFLL	0.2811	0.7535
HLA-A*23:01	CYFPLQSYGF	0.3803	0.7776
HLA-A*23:01	IYSKHTPINL	0.3931	1.2064
HLA-A*23:01	QLPPAYTNSF	0.3978	0.3474
HLA-A*23:01	RVYSTGSNVF	0.4290	-0.1018
HLA-A*24:02	VYSSANNCTF	0.0316	-0.1475
HLA-A*24:02	TYVPAQEKNF	0.0424	0.7276
HLA-A*24:02	IYKTPPIKDF	0.0741	-0.1626
HLA-A*24:02	LYNSASFSTF	0.0835	0.0707
HLA-A*24:02	VFVSNATHWF	0.1658	0.0625
HLA-A*24:02	VYYHKNNKSW	0.2607	0.4497
HLA-A*24:02	GYLQPRTFLL	0.2671	0.7535
HLA-A*24:02	RVYSTGSNVF	0.2823	-0.1018
HLA-A*24:02	IYSKHTPINL	0.2880	1.2064
HLA-A*24:02	QLPPAYTNSF	0.3729	0.3474
HLA-A*24:02	CYFPLQSYGF	0.4313	0.7776
HLA-A*25:01	EVFAQVKQIY	0.0711	0.1621
HLA-A*25:01	EFVFNIDGY	0.0806	0.1214
HLA-A*25:01	SVASQSIAY	0.1300	0.2707
HLA-A*25:01	NCVADYSVLY	0.1346	-0.1358
HLA-A*25:01	EILDITPCSF	0.1477	1.2698
HLA-A*25:01	YTNSFTRGVY	0.3581	-0.3695
HLA-A*25:01	DSKVGGNYNY	0.3703	1.1165
HLA-A*25:01	NTSNQVAVLY	0.4600	0.4403
HLA-A*25:01	FVFNIDGYF	0.4707	0.1142
HLA-A*26:01	EFVFNIDGY	0.0309	0.1214
HLA-A*26:01	NCVADYSVLY	0.0399	-0.1358
HLA-A*26:01	EVFAQVKQIY	0.0442	0.1621
HLA-A*26:01	SVASQSIAY	0.0745	0.2707
HLA-A*26:01	NTSNQVAVLY	0.1208	0.4403
HLA-A*26:01	YTNSFTRGVY	0.1412	-0.3695
HLA-A*26:01	EILDITPCSF	0.1991	1.2698
HLA-A*26:01	DSKVGGNYNY	0.2352	1.1165
HLA-A*26:01	GWTAGAAAYY	0.2372	0.5358
HLA-A*26:01	FVFNIDGYF	0.3513	0.1142
HLA-A*26:01	QIPFAMQMAY	0.4428	1.2149

HLA-A*29:01	SWMESEFRVY	0.2091	0.3861
HLA-A*29:01	GFQPTNGVGY	0.2326	0.5547
HLA-A*29:01	GWTAGAAAYY	0.2377	0.5358
HLA-A*29:01	NCVADYSVLY	0.2724	-0.1358
HLA-A*29:01	SVASQSIIAY	0.2922	0.2707
HLA-A*29:01	KVGGNYNYLY	0.3021	0.5338
HLA-A*29:01	NTSNQVAVLY	0.4141	0.4403
HLA-A*29:01	KNIDGYFKIY	0.4367	-0.3249
HLA-A*29:01	YTNSFTRGVY	0.4710	-0.3695
HLA-A*29:01	SSANNCTFEY	0.4717	-0.0845
HLA-A*30:01	AARDLICAQK	0.2836	0.6670
HLA-A*30:01	RASANLAATK	0.3100	0.6339
HLA-A*30:01	KQIYKTPPIK	0.3374	-0.0905
HLA-A*30:01	RQIAPGQTGK	0.3994	1.7893
HLA-A*31:01	GVYYPDKVFR	0.0795	-0.1378
HLA-A*31:01	RFASVYAWNR	0.0959	0.0493
HLA-A*31:01	KFLPFQQFGR	0.1604	0.4410
HLA-A*31:01	RVQPTESIVR	0.2112	0.1411
HLA-A*31:01	KGIYQTSNFR	0.2975	0.3992
HLA-A*31:01	STGSNVFQTR	0.3125	0.5411
HLA-A*31:01	VFKNIDGYFK	0.3276	-0.5666
HLA-A*31:01	ASVYAWNRKR	0.3300	0.6453
HLA-A*31:01	RFQTLALHR	0.3518	0.3353
HLA-A*31:01	AYYVGYLQPR	0.4215	1.3309
HLA-A*31:01	RKSNLKPFER	0.4348	0.8187
HLA-A*31:01	VQIDRLITGR	0.4609	-0.6679
HLA-A*32:01	RVYSTGSNVF	0.0876	-0.1018
HLA-A*32:01	RGVYYPDKVF	0.3202	0.5225
HLA-A*32:01	ATRFASVYAW	0.3492	-0.1278
HLA-A*33:01	NVYADSFVIR	0.0674	-0.3210
HLA-A*33:01	NYNLYRLLFR	0.0936	-0.3934
HLA-A*33:01	DLPIGINITR	0.1663	1.8171
HLA-A*33:01	RFASVYAWNR	0.2394	0.0493
HLA-A*33:01	DPFLGVYYHK	0.2643	0.9542
HLA-A*33:01	IPFAMQMAYR	0.3774	1.5145
HLA-A*33:01	GVYYPDKVFR	0.3911	-0.1378
HLA-A*66:01	DGVYFASTEK	0.1374	0.3846
HLA-A*66:01	NCVADYSVLY	0.1788	-0.1358
HLA-A*66:01	EFVFKNIDGY	0.1795	0.1214
HLA-A*66:01	SVASQSIIAY	0.1953	0.2707
HLA-A*66:01	EVFAQVKQIY	0.1993	0.1621
HLA-A*66:01	NVYADSFVIR	0.2288	-0.3210
HLA-A*66:01	DIADTTDAVR	0.3617	0.8147
HLA-A*66:01	NTSNQVAVLY	0.3944	0.4403
HLA-A*66:01	YTNSFTRGVY	0.4005	-0.3695
HLA-A*66:01	GWTAGAAAYY	0.4187	0.5358

HLA-A*68:01	NVYADSFVIR	0.0762	-0.3210
HLA-A*68:01	GVYYPDKVFR	0.1992	-0.1378
HLA-A*68:01	STGSNVFQTR	0.2211	0.5411
HLA-A*68:01	HVTYVPAQEK	0.2517	1.0786
HLA-A*68:01	DGVYFASTK	0.2598	0.3846
HLA-A*68:01	HVSGTNGTKR	0.3046	0.8315
HLA-A*68:01	DLPIGINITR	0.3285	1.8171
HLA-A*68:01	NTQEVFAQVK	0.3695	0.5676
HLA-A*68:01	DIADTTDAVR	0.4165	0.8147
HLA-A*68:01	YNSASFSTFK	0.4769	0.2612
HLA-A*68:01	SSVLNDILSR	0.4852	-0.5841
HLA-A*74:01	GVYYPDKVFR	0.0447	-0.1378
HLA-A*74:01	RVQPTESIVR	0.2379	0.1411
HLA-A*74:01	KGIYQTSNFR	0.2484	0.3992
HLA-A*74:01	RQIAPGQTGK	0.3872	1.7893
HLA-A*74:01	ASVYAWNRRK	0.4292	0.6453
HLA-A*74:01	SLIDLQELGK	0.4998	1.0275
HLA-B*07:02	YDPKVFRRSSV	0.3017	-0.4456
HLA-B*07:02	VPVAIHADQL	0.3214	0.1766
HLA-B*07:02	TPCSFGGVSV	0.3909	1.7080
HLA-B*07:02	LPIGINITRF	0.4512	1.3027
HLA-B*07:02	QPYRVVVLFS	0.4916	0.8458
HLA-B*08:01	SAIGKIQDSL	0.4781	0.3302
HLA-B*13:01	AQKFNGLTVL	0.2243	0.1412
HLA-B*13:01	ALQIPFAMQM	0.4206	0.9620
HLA-B*14:01	IVRFPNITNL	0.2910	0.5548
HLA-B*14:01	KRFDNPVLPF	0.4360	0.3451
HLA-B*51:01	FPQSAPHGVV	0.2895	-0.0492
HLA-B*51:01	LPFQQFGRDI	0.3650	0.0043
HLA-B*51:01	YDPKVFRRSSV	0.4315	-0.4456
HLA-B*51:01	VAYSNNSIAI	0.4565	1.0545
HLA-B*18:01	FERDISTEY	0.0640	-0.7585
HLA-B*18:01	DGEWVLLSTF	0.3204	0.6551
HLA-B*18:01	TECSNLLLQY	0.4223	0.3653
HLA-B*35:01	LPIGINITRF	0.0959	1.3027
HLA-B*35:01	VLPFNDGVYF	0.1763	0.4809
HLA-B*35:01	QIPFAMQMAY	0.2719	1.2149
HLA-B*35:01	LPFFSNVTWF	0.3944	0.6567
HLA-B*35:01	SVASQSIIAY	0.4081	0.2707
HLA-B*35:01	FPNITNLCPF	0.4307	1.3964
HLA-B*44:03	TEKSNIIRGW	0.0276	-0.7651
HLA-B*44:03	SETKCTLKSF	0.1588	0.6433
HLA-B*44:03	TECSNLLLQY	0.2608	0.3653
HLA-B*44:03	FERDISTEY	0.2810	-0.7585
HLA-B*44:03	PEAPRDGQAY	0.4608	-0.7057
HLA-B*14:02	IVRFPNITNL	0.2910	0.5548

HLA-B*14:02	KRFDNPVLPF	0.4360	0.3451
HLA-B*44:02	TEKSNIIRGW	0.0063	-0.7651
HLA-B*44:02	SETKCTLKSF	0.1215	0.6433
HLA-B*44:02	TECSNLLLQY	0.3371	0.3653
HLA-B*44:02	FERDISTEII	0.3518	-0.7585
HLA-B*44:02	TESNKKFLPF	0.4851	1.0405
HLA-C*04:01	TVYDPLQPEL	0.0632	0.4913
HLA-C*04:01	KRFDNPVLPF	0.2436	0.3451
HLA-C*04:01	VYDPLQPELD	0.3395	0.2809
HLA-C*07:02	KRFDNPVLPF	0.0901	0.3451
HLA-C*07:02	IVRFPNITNL	0.1895	0.5548
HLA-A*30:02	KVGGNYNYLY	0.1005	0.5338
HLA-A*30:02	GWTAGAAAYY	0.1282	0.5358
HLA-A*30:02	GFQPTNGVGY	0.2566	0.5547
HLA-A*30:02	KSFTVEKGIY	0.2727	0.0585
HLA-A*30:02	YTNSFTRGVY	0.2731	-0.3695
HLA-A*30:02	KNIDGYFKIY	0.2745	-0.3249
HLA-A*30:02	SSANNCTFEY	0.2912	-0.0845
HLA-A*30:02	SVASQSIIAY	0.3172	0.2707
HLA-A*30:02	TNSFTRGVYY	0.4152	-0.2510
HLA-A*30:02	IGAHEVNNSY	0.4353	1.2671
HLA-B*35:03	LPIGINITRF	0.1519	1.3027
HLA-B*35:03	FPQSAPHGVV	0.2878	-0.0492
HLA-B*35:03	YDPKVFRSSV	0.3251	-0.4456
HLA-B*35:03	VPVAIHADQL	0.3565	0.1766
HLA-B*35:03	VLPFNDGVYF	0.3584	0.4809
HLA-B*35:03	LPDDFTGCVI	0.4109	-0.3737
HLA-B*35:03	LPFFSNVTWF	0.4127	0.6567
HLA-B*38:01	IHADQLTPTW	0.1123	0.2628
HLA-B*38:01	KRFDNPVLPF	0.1728	0.3451
HLA-B*38:01	HHSASWHPQF	0.2475	0.7170
HLA-B*38:01	VRDPQTLEIL	0.2967	0.5446
HLA-B*38:01	YVRKDGEWVL	0.3421	0.7238
HLA-C*07:01	KRFDNPVLPF	0.0800	0.3451
HLA-C*07:01	IVRFPNITNL	0.1311	0.5548
HLA-C*07:01	YVRKDGEWVL	0.2665	0.7238
HLA-C*07:01	VRKDGEWVLL	0.4792	0.7326
HLA-C*08:02	AVRDPQTLEI	0.4053	0.7083
HLA-C*08:02	TVYDPLQPEL	0.4354	0.4913
HLA-C*05:01	AVRDPQTLEI	0.1321	0.7083
HLA-C*05:01	LVDLPIGINI	0.1770	1.3499
HLA-C*05:01	TVYDPLQPEL	0.2591	0.4913
HLA-C*05:01	SRLDPPEAEV	0.3607	0.4519
HLA-C*05:01	TLDSKTQSLL	0.4872	0.8490
HLA-C*15:02	TVYDPLQPEL	0.4016	0.4913
HLA-C*15:02	AVRDPQTLEI	0.4849	0.7083

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HLA-C*17:01	TVYDPLQPEL	0.3410	0.4913
HLA-C*17:01	LVDLPIGINI	0.4774	1.3499

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