

Table S1

no.	gene i.d.	gene name	mutation	25mer peptide sequence	min. predicted epitope	MHCI	SYFPEITHI score (>19)
1.	NM_172393	Aim1	R893H	LKVFNFNSSNTSR L GGSSHMEKYPQK	F N S S N T S R L	H2-Db	25
2.	NM_001242396	Jmjd1c	L1715P	VKGQPHDHKHLMP T QIIPGSVLTDL			
3.	NM_008787	Pent	A2385V	AKDNLQKELQIEV S RCEALLAQEKG			
4.	NM_029134	Lrriq1	T274S	IRNLHLKMEEER S RSELQEKEKAR			
5.	NM_001146707	Nap1l1	E57K	DVEEVEEETG E KTKIKARQLTVQM			
6.	NM_025706	Tbc1d15	I586V	INELSMKIDVED V LCKAEAISLQMA			
7.	NM_134010	Nup107	H128N	SSQRLGLYTN T ENHSMTEDVNLSTV			
8.	NM_001162905	Mdm1	S403L	STRRLEMPEPAAL V RRKLAWDAEES			
9.	NM_001162905	Mdm1	D437G	RAEEDGREERG Q GQTCAVELEKPD			
10.	NM_030207	Sfi1	E1110G	QLLPGDSISTR T GPVYGSEATGHT			
11.	NM_001199274	Mat2b	T302I	ETLGIGQRTPF R IGIKESLWPFLLID			
12.	NM_013552	Hmmr	T414K	LEEETKSTAE Q LKRLDNLLREKEVE			
13.	NM_013552	Hmmr	A153S	LTELTRANELL K SKFSEDPGHQKNMR			
14.	NM_013552	Hmmr	N148K	SLEKRLTEL T RAKELLSKFSEDPGH			
15.	NM_013552	Hmmr	A94V	DKDVKRLEKEI R VLLQERGTQDKRI			
16.	NM_009831	Ccng1	S9A	MIEVLTT D AQKLLHQLNTLLE			
17.	NM_013917	Pttg1	R16S	LIFVDKDNEEP G SRLASKDGLKLG			
18.	NM_001045520	Clint1	N446S	SSQSMNFS L MSTSTVGLGLPMSRSQ			
19.	NM_001024846	Zfp62	L123S	GNVHPAHIAD K SHKCDECGKSFKY			
20.	NM_001024846	Zfp62	R172H	TFRSSSLRV H KHIHTGEKPYKDE			
21.	NM_001163671	Mapk9	R309Q	LLSKMLVIDP D KQISVDEALRHPYI			
22.	NM_029745	Tbc1d9b	I73T	ILHQ T QDSQVYWTVACGSSRKEITK			
23.	NM_001110499	Canx	V560G	E E KQKSDAEEDGGTGSQDEEDSKPK			
24.	NM_009329	Zfp354a	V568M	HRSSLT N HYKIHMD E DP			
25.	NM_007714	Clk4	H42R	KRRSHS S TQENRRCKPHHQFKDSDC			

26.	NM_011991	Cops3	Q265H	IKPLSNAYHELAHVYSTNNPSELRN			
27.	NM_146019	Chd3	I1784F	LHTLWQNEERAAFSSGKLEIWHRR			
28.	NM_001078167	Srsf1	V185G	RKLDNTKFRSHEGGYTLILFFGQNW			
29.	NM_028276	Utp14a	H724D	KLTA PKVVTKPGDI IKPITAEDVDC			
30.	NM_008175	Grn	C80R	HHLDGSCQTHGHRPAGYSCLLTVSG	R P A G Y S C L	H2-Kb	22
31.	NM_145436	Cdc27	D105N	SGGVFNKQKSHDNLVTEFGDSACFT	K S H D N L V T E F	H2-Db	28
32.	NM_183016	Cdc42bpb	F403L	FSGHLHLPFIGFTLTTESCFSDRGSL			
33.	NM_009239	Sp4	H42Q	NKKPKTSGSQDSQPSPLALLAATCS	S Q P S P L A L L	H2-Db	20
34.	NM_010748	Lyst	S1467N	GQNCWPHLSEGFNVSLWFNVEYIHE	S E G F N V S L W F	H2-Db	21
35.	NM_001045535	Serpinb6e	V313D	ISYKLLIQWTRLDKMEEEEVQVFLP			
36.	NM_009068	Ripk1	T473I	NNGLYNQHGFGTIGTWVYPPNLSQ			
37.	NM_026947	Eci3	R59Q	PSQKRGADKAQESKDILVTSEDG			
38.	NM_001110332	Eci2	R102Q	PSQKRGADKAQESKDILVTSEDG			
39.	NM_145938	Rpp40	P185H	KPLKFDLFLAWHHTGTTEESTMSYF			
40.	NM_145938	Rpp40	S58N	IPECGLLSKELKNLVMDIGPYYSVK	K E L K N L V M D I	H2-Db	26
41.	NM_001039188	Rreb1	I74V	EKSSYNCPLEKVCCTTQHQLTMHIR			
42.	NM_024242	Riok1	L29V	DDADSSDSENKEVQPIHAEDGGVLL			
43.	NM_024242	Riok1	I528V	QAGCRNHIADPDVDKKERKKMVKEA			
44.	:NM_023842	Dsp	S1166G	LQKARQCEKENLWQKLESEKAIKE			
45.	NM_010888	Ndufs6	V4A	MAAALTFRRLTLPR		H2-Kb	23
46.	NM_010872	Naip2	Y540N	AFLWASGCCPLLNRFQLVFYLSLSS	C P L L N R F Q L C P L L N R F Q L V	H2-Db H2-Db	22 20
47.	NM_001177666	Gm7120	Q2L	MLGMRTRACWFLT			
48.	NM_001177666	Gm7120	L59F	IGLGIFCLVADRFLRFPIIQHNDWL			
49.	NM_194347	AY358078	V378A	TSDIFGSPVTATAPLAHPNPKPDHV			
50.	NM_194347	AY358078	S404A	LCEGEDSKSDLKAAATDSTPRGEQGD			
51.	NM_025945	Polr3d	G92C	EKRERDRDRQRECHGRGRGRPEVIQ			
52.	NM_177381	Cog3	I635V	IAPFHTEFTIKEVSLDLKKTRDAAF			

53.	NM_009429	Tpt1	H124Q	KPFMTGAAEQIKQILANFNNYQFFI			
54.	NM_001163676	Abcc4	T607M	KDGAPEGQDAENMQAVQPEESRSEG			
55.	NM_011232	Rad1	Q263R	LSLQYMIRNEDGRICFVEYYCCPDE	Y M I R N E D G R I	H2-Db	26
56.	NM_022816	Acot10	T177S	KFTGHVSWVGNTSMEVKMKMFQLHD	S W V G N T S M E V	H2-Db	22
57.	NM_022816	Acot10	L140P N137K	LVCYMHNNHSTKMSPLSIVTVLVDKID	M H N H N H S T K M	H2-Db	22
58.	NM_022816	Acot10	I82M	LPKSQKVLPPRKM RDSYIEVLLPLG			
59.	NM_001165971	Gm5803	F148V D147E	EIMTDRGSGKKREVAFTVFDHDSVD			
60.	NM_199449	Zhx2	L70P	TEVVEVKSMGENPSKKLQGGYECKY	S M G E N P S K K L	H2-Db	27
61.	NM_199449	Zhx2	M699L	TLSWLEQYQRHHLSDDRGRDAVSRK			
62.	NM_144848	Eppk1	E3048V	TMEVKRGHLRGHVVPVWDILTSNYV			
63.	NM_001033276	Mll2	R2358Q	PPPPESCCAPPQSLPDPFSRVPA			
64.	NM_011415	Snai2	A145G	LCNKTYSTFSGLGKHKQLHCDAQSR			
65.	NM_139232	Fgd4	I632V	GFTDSEKKRRGVLEIESAEVSGNS			
66.	NM_080457	Muc4	T804A	VSPSSQNMSTVSAPIITSTQILSTLP	S A P I T S T Q I	H2-Db	20
67.	NM_080457	Muc4	I1226T P1233L	QNMSTVSAPITSTQILSTLLQSQHT			
68.	NM_080457	Muc4	N1246K	QSQHTGSKGTSTKPQTTTTPEVTTTS			
69.	NM_080457	Muc4	T1277K	RDQIQTETSSQRKISPGETTTSHAP			
70.	NM_080457	Muc4	L1347I	PSSQNMTTTS SHAIMSSAPSTHML			
71.	NM_080457	Muc4	E1864Q	SSTHMLSTASSTQITSGDTRHTTAI			
72.	NM_024250	Phf10	P10L	MAAAGPGAALSPGRCDSDPASP			
73.	NM_212438	Wiz	Q871R	VNDLQQKLEEVRRPPPRVFPVPSL			
74.	NM_010390	H2-Q1	D219E	KAHVTHHPRSQGEVTLRCWALGFYP			
75.	NM_010392	H2-Q2	D219E	KAHVTHHPRSQGEVTLRCWALGFYP			
76.	NM_010392	H2-Q2	D244E	ADITLTWQLNGEELTQDMELVETRP	T W Q L N G E E L	H2-Db	25
77.	NM_010391	H2-Q10	D222E	KTHVTHHPSGSEGEVTLRCWALGFYP			
78.	NM_010787	Mea1	A169P	EDVVQKALQARQPSPAWK			

79.	NM_013664	Sh3g11	G85A	TVSKIRGQVKNPAYPQSEGLLGECM			
80.	NM_001114131	Ppp4r1	S562R	CNISHDTCVPLIRAAEENAEATPDY			
81.	NM_011033	Pabpc2	S237C	DEGGKSKGFGFVCFERHEDAQKAVD			
82.	NM_134137	Lars	R1128W	KLMRFDDPLLGPWRVVPVLRHSEK			
83.	NM_001039474	Tcerg1	S750T	MEEAKFNPRATFTEFAAKHAKDSRF			
84.	NM_026386	Snx2	K456R	QQAKNEIREWEARVQQGERDFEQIS			
85.	NM_001198984	Tcof1	S79L	DDETLQAKKSRVLDPVSSSESDQE			
86.	NM_027556	Cep192	P292R	TAHTESEGGHGCRPGTSGCVGTVDN			
87.	NM_027556	Cep192	C351R	GCGGEEIVVKRLRAVDETLRSTYRH			
88.	NM_027556	Cep192	V648A	GFSSGDLNEQSQAQLSEGSVMLKAE			
89.	NM_027556	Cep192	T833I	VCATNSREAETIAAIFCAENIESD			
90.	NM_027556	Cep192	P1010T	VLESLSAYHQRTHLESELSQLACS			
91.	NM_027556	Cep192	M1327V	PQNLLSTAKFPFVTNCEETPRDSG			
92.	NM_027556	Cep192	V1530A	WRCTFTFSKEPIHASLKAAPHADITA			
93.	NM_027556	Cep192	I1752V	ILSNKQFLTWGGVPLGRTQLKQLAL			
94.	NM_027556	Cep192	S1884R	LITMNDLIPGKERKVVFSIRNTGSR			
95.	NM_027556	Cep192	T2041A	KITLSVIGEFRGAICSREFLQPSSS			
96.	NM_027556	Cep192	I2138T	KTGCFQIINNSVTLKFEELYWPAHC	Q I I N N S V T L F Q I I N N S V T L Q I I N N S V T L L	H2-Db H2-Db H2-Db	24 28 24
97.	NM_172967	Las2	I94T	IGNGLQFSSYVHTPDNAFVNLDPKQ	H T P D N A F V N L	H2-Db	26
98.	NM_001136090	Poli	G540R	SPCEPGTSGLSPRSTSHPSGKDCS			
99.	NM_001164168	Pias2	T293I	NYSMSVYLVRQLISAMLLQRLKMKG			
100.	NM_001025566	Chka	V151G	VLLRLYGAILKMGSPGFTWEGLVH			
101.	NM_016861	Pdlim1	K209E	MLQEKQELNEPPEQSTSFVLQEIL			
102.	NM_009826	Rb1cc1	D1360G	DKLKSTMQQQERKDLIESLSEDR			
103.	NM_001161816	Gm15455	P817R	GIVTPIEAQTRVGGSLGARGSSYG			
104.	NM_001161816	Gm15455	S765T	PEPKRRKYGGISTASVDFEQPTRDG			

105.	NM_001161816	Gm15455	T731M	SENELEALEKNDMEQMKYRDRAAER	A L E K N D M E Q M	H2-Db	24
106.	NM_001161816	Gm15455	K663E	VAAYSGESDSEEQERGGPEREKL			
107.	NM_001161816	Gm15455	W534R	AQSQQYLYWDGERRTYIPALEQSAD			
108.	NM_001161816	Gm15455	Y516S	YDSQTGLYYDPNSQYYNAQSQQYL			
109.	NM_001161816	Gm15455	A328T	EGSRINAASVASTAIAAAQWAISSQA			
110.	NM_001161816	Gm15455	G311D	TINVEFAKGSKRDMASNEGSRINAA	D M A S N E G S R I	H2-Db	25
111.	NM_001161816	Gm15455	S222N	LSQGSEPSSENANDTIILRNLNPHS	S E N A N D T I I P S S E N A N D T I S E N A N D T I I L	H2-Db	23 28 21
112.	NM_001161816	Gm15455	N139D	MHYSDPKPKINEDWLCNKCGVQNFK	K P K I N E D W L	H2-Db	22
113.	NM_001161816	Gm15455	N133K	LGQKVMHYSDPKPKINEDWLCNKC	K P K I N E D W L	H2-Db	22
114.	NM_001161816	Gm15455	E40D	ENRSRDHDYRDMYRSYPREYGRQE			
115.	NM_010477	Hspd1	A120P	EAGDGTATTATVLRPSIAKEGFEKIS			
116.	NM_007561	Bmpr2	P651Q	HLHATNVAQSIGQTPVCLQLTEEDL			
117.	NM_145518	Ndufs1	V491A	SALQRDDGAAILAAVSNMVQKIRVT	A A V S N M V Q K I	H2-Db	29
118.	NM_172505	A730008H23Rik	P591L	AKSHNTSGASGWL			
119.	NM_172505	A730008H23Rik	S371A	TESWAVDVYRSGAKSPGSRQDVETC			
120.	NM_198652	Hjurp	E146G	YLTQVDILPQDEGYFKNAEKRGKGD			
121.	NM_198652	Hjurp	L96S	EGDSESSGADTSSSEENWPSCSSAMR			
122.	NM_177643	Zfp281	V843E	QAFGSQFKSGSREPMFTFITNSNGEV			
123.	NM_023871	Set	K131N	LTRVEVTEFEDINSGYRIDFYFDEN	F E D I N S G Y R I	H2-Db	23
124.	NM_028521	Phospho2	V60E	MGRVFKYLDRDEGEKADELKRAVTSL			
125.	NM_080558	Ssfa2	T319A	KTEKGEKGGSSPAAEKGRTLSISLSE			
126.	NM_080558	Ssfa2	I1071M	SPLNVMEPVTELMREQSYLKSELGL			
127.	NM_008402	Itgav	A872G	PLRIKTPEKNDTGAAGQGERNHLIT			
128.	NM_008402	Itgav	A921S	TCQVGRDRGKSSILYVKSLLWTET			
129.	NM_001081260	Tnks1bp1	P351A	SAVLPAPPPGHSASSELPAAEAPET			
130.	NM_001081260	Tnks1bp1	A619V	AAREEALPVLEPVLGQQQPTPSDQP			

131.	NM_001081260	Tnks1bp1	N941D	LDIHGSRATAQQDQEFGKSAWFQDY			
132.	NM_018828	Fnbp4	P238S	PEPKAATPALSSSTASNGSDTAQTP			
133.	NM_018828	Fnbp4	K692Q	LMPGEEEEESQTQEVVRDESLPKLTV			
134.	NM_025991	Kbtbd4	I34V	KDRSHSGRVAQGVMKLCLEELFAD			
135.	NM_025991	Kbtbd4	I294V	KHGGDLYVVGGSVPRRMWKCNNATV			
136.	NM_008948	Psmc3	T9A	MQEMNLLPAPESPVTRQEKMA			
137.	NM_007387	Acp2	N131S	AGLFPNNEVQHFSPNISWQPIPVHT			
138.	NM_001166024	Arfgap2	N481D	GSSAISSSDLFGDMDGAGGGTVSL			
139.	NM_001033451	Zfp408	S205R	ETCPAKQLDVPSRQCPSIAQTSEPG			
140.	NM_001145902	Arhgap1	D297E	SLQHLQEKSPGQEPPIPIVLRVAV			
141.	NM_172669	Ambra1	R1230Q	EPGQLAERALSPTASWDQSTSGR			
142.	NM_138755	Phf21a	P240A	TSIVIATPGTRLAQPQTVQLSKPSL			
143.	NM_145122	Pex16	R268Q	SLSLSDRKNLTQRERLELRRRTIL			
144.	NM_007466	Api5	T39A	AYQVILDGVKGGAKKEKRLAAQFIPK			
145.	NM_007952	Pdia3	G420E	HCKNLEPKYKELEEKLSKDPNIVIA			
146.	NM_023220	2010106G01Rik	A187V	LVVIFVIAVFTVVLGGYWSGLIELE			
147.	NM_001163301	Pxmp3	G284A	FLFDIYFTCPKCA TEVHSVQPLKSG			
148.	NM_026332	Dnajc19	K102E	HPDKGGSPYIAAEINEAKDLLEGQA			
149.	NM_172681	D930015E06Rik	S563A	SGDACRRNVLGMAQFAFTKKSKETE			
150.	NM_029797	Mnd1	C147G	QQLKAEVEKYREGDPQVVEEIREAN			
151.	NM_001177773	Fbxw7	N63D	EHTARNGELVGDPRPGDQNDTQQG			
152.	NM_016959	Rps3a	D108G	CLTNFHGMDLTRGKMCSMVKKWQTM			
153.	NM_001083318	Etv3	M410I	QGKEEQTQEVDSIRSRTIEEGKGTG			
154.	NM_001083318	Etv3	V454A	PLEGTEDESDRSAREPGVPEKKEDA			
155.	NM_001003912	Arhgef11	M147T	NPSSLGGPRVNP T I P P P P P P P L P P			
156.	NM_001003912	Arhgef11	S806A	MKKENLMPREELARLFPNLPELIEI	L A R L F P N L	H2-Kb	23
157.	NM_001003912	Arhgef11	Y933H	NI IKHTAGGTSEHEKLCRARDQCRE			
158.	NM_028460	Pear1	E876D	LPADWKHRREPHDRGASHLDRSYSC			

159.	NM_028460	Pear1	T160A	CGNSSCDPKSGACFCPSGLQPPNC			
160.	NM_033573	Prcc	G34E	EPEEEDVAAPMPEPTLGGLFASLPA	A A P M P E P T L	H2-Db	20
161.	NM_177663	Isg2012	Q90R	KKEAAAASKRDSERSKDKKAPLSWLT			
162.	NM_177663	Isg2012	P172L	GSKKKPLKKNVNLNSTQARSEDKCP			
163.	NM_016701	Nes	R319G	LEAENSRLQTPGGSSQASLGFPDPK			
164.	NM_016701	Nes	T458S	GGEQPDHFPDDPSLAPPLNPHHSI			
165.	NM_016701	Nes	M535K	TEEIQDSQGPLQKETLEALGDKPL			
166.	NM_016701	Nes	E544K	PLQKETLEALGDKPLMSLKTQNHET			
167.	NM_016701	Nes	S570L	GKENCNSSIEENLGTVK SPEKEKQT	S I E E N L G T V	H2-Db	22
168.	NM_016701	Nes	L587S	SPEKEKQTPPKSSSEKNVEAEKMLE			
169.	NM_016701	Nes	M673I	QYPLGGPEAEDQILERLVEKEDQRF			
170.	NM_016701	Nes	E734D	EKERQESLKSPEDEDQQAFLLEKE			
171.	NM_016701	Nes	E778D	EKERQESLKSPEDEDQQAFLLEKE			
172.	NM_016701	Nes	E900D	EKENVQSPRYLEDHMIKSLLLEDK			
173.	NM_016701	Nes	R1008G	AESKLENESQDSGKSLEDESQETFG			
174.	NM_016701	Nes	A1591V	QGEARKEGWSPAVLAAQGLSDPPEE			
175.	NM_016701	Nes	T1684A	EDADEEEGAESGAQWWGPGPSGGGV			
176.	NM_001198913	Arhgef2	M650T	KDLLLGPCVDLPTTSREPALPLDSD			
177.	NM_027389	Gon4l	A1062S	GVRGEDGFESPTSLPAMP CGSEART			
178.	NM_027389	Gon4l	S1374R	ELDSESPQEKPSRASEMSKQTVLQR			
179.	NM_027389	Gon4l	M1389T	EMSKQTVLQREDTQAAKSPSPVQDA			
180.	NM_027389	Gon4l	S2051P	SETERLPETVEHPAPLPSPVSTRTR			
181.	NM_144898	Msto1	D106E	AVAWQKGLSTHREDAQPKNPNLQGL			
182.	NM_138679	Ash1l	R51W	IEGATEEEDPRKWNRRERGTEAGKED			
183.	NM_138679	Ash1l	S1668F	SLAGSQSASDKPQRSSESTNCSPPT			
184.	NM_138679	Ash1l	S1706C	NGVPSRSPRLVACMDDSVDSLQRI			
185.	NM_007712	Clk2	Q188R	VVQCVDHRRGGTRVALKI IKNVEKY			
186.	NM_029937	Nup210l	I1084V	PRHIEVFPPFRLVPEKMTLIATNMM			

187.	NM_029937	Nup210l	N1528S	QTDATGVGVARSPGTATIFHNIPG			
188.	NM_029937	Nup210l	T1843I	KVQTIPVVYVPTIGTTQPGSYTATC			
189.	NM_026677	Rab13	K196N	PSSTGLKTSDDKNNKCLLG	S D K K N N K C L D K K N N K C L L S D K K N N K C L L	H2-Db H2-Db	22 20 23
190.	NM_001037711	Cgn	A1034P	RLASSEGFQKPSPLSQLESQNQLL			
191.	NM_001037711	Cgn	R774Q	EKQQLEELNAAQEEEGNLAALKRA			
192.	NM_001037711	Cgn	Q647R	AEQQNQEVTVGRHRNQVLEKQLAALR			
193.	NM_001037711	Cgn	N238Y	SANHWTRGTYDYHVDSSKNPSQKQ			
194.	NM_017395	Rfx5	R569Q	GRPEGPGGGEAEQETVLVQGGQDG			
195.	NM_009336	Vps72	R99C	KAYKEPLKSLRPKVSTPASSSQA			
196.	NM_009336	Vps72	A247V	EGLDPAPTASALVPHAGTGTGAAAA			
197.	NM_023320	Plekho1	P251S	LSRPWEKPKGASVTPQALKKFPST			
198.	NM_177145	Pde4dip	V114M	KYEVSREDVYKRMSESSAPGTVCP			
199.	NM_001029836	Npnt	G67R	QCQPVCQPQCKHRECVGPNKCKCHP			
200.	NM_025669	Sfrs18	R476G	NSLSLLEASEADGDAVNDKKRTPNE			
201.	NM_026871	Hint2	V81I	LYEDQQCLVFRDIAPQAPVHFLVIP			
202.	NM_173400	Haus6	P850S	PKTLEQHKVELSSVAKAVQADDAHT			
203.	NM_007408	Plin2	L183M	NSGVDNAITKSEMVDQYFPLTQEE			
204.	NM_184088	Dennd4	A1149V	EPVVGDNVAETAVENTCNSLQSNH			
205.	NM_184088	Dennd4	N1177H	SRDTQAGAQPVHKRSSSYATRKA			
206.	NM_184088	Dennd4	V1613I	ESSDEIKKTNGDIQSVKMSSVPNSL			
207.	NM_026368	5830433M19Rik	V221G	STSSLRENKQPEGLESKQGGEDSD			
208.	NM_172696	Inadl	A961P	DMMEETFGLDSRPPIPSSEGNQHG			
209.	NM_172696	Inadl	A1509T	IVIHEVYEEGAATRDGRLWAGDQIL			
210.	NM_001081264	Alg6	F231S	FKKGLKGLLALSIRIACVTLASFL			
211.	NM_028132	Pgm2	V525I	TIRLYIDSYEKDIKINQDPQVMLA			
212.	NM_175036	Leprot	D92G	SAFGLPVVLARVGIKWGACGLVLA			

213.	NM_025647	Cmpk1	K202E	TKPIIDLYEEMGEVKKIDASKSVDE			
214.	NM_009185	Stil	L374V	SKTLPVKRSSQKVSPGKIPINKHDT			
215.	NM_009185	Stil	M686T	SCVPHPCAMCMHTPNTAPDNGMMGL			
216.	NM_009185	Stil	V740M	SLDPGSHKT VATMEDTVKAAKQ MEL			
217.	NM_009185	Stil	R942H	TEEPPTKAVVTNHECAKTQNTHHAR			
218.	NM_008126	Gjb3	T85M	NIRLWALQLIFVMCPSMLVILHVAY			
219.	NM_194462	Akap9	I2244M	KEIEIDRLNEQFMKLQQQLKLTNDN	I D R L N E Q F M L N E Q F M K L	H2-Db H2-Kb	21 23
220.	NM_194462	Akap9	K2980E	EIEDLRAQINGGEMTLEREQGT EKS	R A Q I N G G E M	H2-Db	24
221.	NM_018878	Paxip1	P994S	VECAGGKVLAKQSSFRKLMEHKQNK	K Q S S F R K L	H2-Kb	22
222.	NM_001037940	Dnajb6	D63E	EAYEVLSDAKKREIYDKYGKEGLNG			
223.	NM_001081422	Bod11	T1529A	ATTSSEVGEKGAALPCTSIEADEG			
224.	NM_172146	Ppat	I208M	AVRDPYGNRPLCMGRMLPVSVDVNDK	D P Y G N R P L C M	H2-Db	20
225.	NM_028298	Zfp655	Q60K	PISKPDGISEREKDLQVFDLESKNR			
226.	NM_018810	Mkrm1	N346Y	CRITSNFVIPSEYWVEEKEEKQKLI			
227.	NM_133930	Crel d1	Y328N	GENEKCENTEGGNRCVCAEGYRQED			
228.	NM_013546	Hebp1	L86V	VGMGMTVPVSFAVFPNEDGSLQKKL	A V F P N E D G S L	H2-Db	22
229.	NM_021284	Kras	G12V	MTEYKLVVVGAVGVGKSALTIQLI			
230.	NM_001081113	Ipo8	A578S	LICEYSQDVASISVDTTQHLAEIFG			
231.	NM_177192	Dennd5b	E817K	HLLQFQDREKQKHLTDSPVALGPE			
232.	NM_010418	Herc2	G1235D	GGFWTVIDGKVYDIKDFQTQSLTGN			
233.	NM_001081345	Chd2	T647A	DFKSNHRLITGAPLQNSLKELWSL	A P L Q N S L K E L	H2-Db	27
234.	NM_028801	Muc5b	Y1769H	PSVVTARSTSQGHS LPPSSPHTTNS			
235.	NM_028801	Muc5b	F1861S	SASSTAGPGTQTSSTTCQPQCQWTK			
236.	NM_198031	Tubgcp3	G190S	FLPGQSHQAPGVSDGLRQQLGPRLA			
237.	NM_181854	Zfp828	C170S	AGPLISPPEQAPSLPAEASKAAPVP			
238.	NM_181854	Zfp828	P244T	ALSPESPVLATSTEPWGP SLSASPE			
239.	NM_181854	Zfp828	F549L	KRALFPESRKHVLLPELPKSAVFS D			

240.	NM_172751	Arhgef10	M207I	ARWAADPANTAWIENPEEAIYDDVP	A W I E N P E E A A W I E N P E E A I	H2-Db H2-Db	20 28
241.	NM_172751	Arhgef10	G348R	GLEKTKAAVKRGRSFIRTRSLVSQD	A A V K R G R S F I	H2-Db	20
242.	NM_001081149	Myst3	H555R	LKYMKSRTILQQRMKKCGWFHPPAN			
243.	NM_001205054	Aga	L54M	AAWWTLLSGGSAMDAVENGCAVCEK			
244.	NM_001205054	Aga	S193P	PYKPSGFLKQSI PPKHEEVDIHSHD			
245.	NM_146208	Neil3	M510V	HHSKSDGSP LCKVHHRRCVLRVVRK			
246.	NM_146208	Neil3	P90H	ETLGKELFMYFGHRALRIHFGMKGS			
247.	NM_001013379	Zfp930	S424G	CNQCCKAFSEPSGLQMHKRTHNGEK			
248.	NM_172410	Nup93	S247G	LTPATDALKSRSGVEVRMDFVKQAL			
249.	NM_133954	AA960436	V211I	DLTTFYQDPSFHI SLAWCVGDASLQ			
250.	NM_009864	Cdh1	P267Q	TDQNDNRPEFTQQVFEGFVAEGAVP			
251.	NM_139229	Cog8	L580I	VFCLDEQELGPDIVAPAPELPAEQR			
252.	NM_001083118	Terf2	K426E	STEPSPGLNSSHEAMSASKPRALNQ			
253.	NM_178380	Dhx38	R59W	SLGLD L L A S L K W R E R E E K D D G E D K			
254.	NM_177700	Atmin	M554V	PPQSDPKILGQVVEKSAPVLNFSAQ			
255.	NM_177700	Atmin	T565A	VVEKSAPVLNFSAQNGLLPAHTMTD			
256.	NM_026572	Gcsh	M152L	WLKMTLSDPSELDELMSEEAYEKY			
257.	NM_026572	Gcsh	T21A	LRVVAYSLRTALAFCSRPCVPSAA			
258.	NM_172924	C230081A13Rik	T413M	SLTSKSSVKVPEMHKAVLALRLQEK			
259.	NM_033607	Uchl4	Y140F	ESVSMSP EERAKFLENYDAIRVTHE	K F L E N Y D A I	H2-Db	26
260.	NM_033607	Uchl4	W189R	VHVDGHL YELDGRKPPFINHGKTS			
261.	NM_008182	Gsta2	T96S	KDMKERALIDMYS E G I L D L T E M I G Q			
262.	NM_008182	Gsta2	V66A	QVPMVEIDGMKLAQTRAILNYIATK			
263.	NM_008182	Gsta2	Y9H	MAGKPV L H H F N A R G R M E C I R W	L H H F N A R G R M	H2-Db	22
264.	NM_001039147	Morf411	A177D	TSETPQP P R K R D R V D P T V E N E E T F			
265.	NM_027918	1300017J02Rik	K396N	EETPEDCIAATMNGEADAMSLDGGF			
266.	NM_173019	Pfkfb4	I169F	SICVDPEVVAANFVQVKLGSPDYVN			

267.	NM_010918	Nktr	C194R	KDVF E K R K R K P T R SE G S D S S S R S S S			
268.	NM_010918	Nktr	Q1170H	DE C MA H PRAG G E H ESS M SE S K T L G E			
269.	NM_010918	Nktr	A1236P	GN L S V STATT S S P LD V KALSTVPEV			
270.	NM_010620	Kif15	G77D	PDPK T F V F D Y V AD M DTTQESV F STV			
271.	NM_010620	Kif15	H474Q	FREDQIM R LER L Q K EGRGSFLPEEQ			
272.	NM_153168	Lars2	R22G	FYV S PL K R Q L V S G PPVILWERLIPG			
273.	NM_153168	Lars2	D863N	KIPV P Q H V A Q D Q N KVHELVLQSELG			
274.	NM_008784	Igbp1	A264P	QAKV F G T G Y P S L P TMTVSDWYEQHQ			

Table S2

no.	gene name	mutation	min. predicted epitope	MHC class	SYFPEITHI score
1.	Aim1	R893H	F N S S N T S R L	H2-Db	25
2.	Grn	C80R	R P <u>A</u> G Y S C L	H2-Kb	22
3.	Cdc27	D105N	K S H D N L V T E F	H2-Db	28
4.	Sp4	H42Q	S Q P S P L A L L	H2-Db	20
5.	Lyst	S1467N	S E G F N V S L W F	H2-Db	21
6.	Rpp40	S58N	K E L K N L V M D I	H2-Db	26
7.	Naip2	Y540N	C P L L N R F Q L	H2-Db	22
8.	Naip2	Y540N	C P L L N R F Q L V	H2-Db	20
9.	Rad1	Q263R	Y M I R N E D G R I	H2-Db	26
10.	Acot10	T177S	S W V G N T S M E V	H2-Db	22
11.	Acot10	L140P	M H N H N H S T K M	H2-Db	22
12.	Zhx2	L70P	S M G E N P S K K L	H2-Db	27
13.	Muc4	T804A	S A P I T S T Q I	H2-Db	20
14.	H2-Q2	D244E	T W Q L N G E E L	H2-Db	25
15.	Cep192	I2138T	Q I I N N S V T L	H2-Db	24
16.	Cep192	I2138T	F Q I I N N S V T L	H2-Db	28
17.	Cep192	I2138T	Q I I N N S V T L L	H2-Db	24
18.	Las2	I94T	H T P D N A F V N L	H2-Db	26
19.	Gm15455	T731M	A L E K N D M E Q M	H2-Db	24
20.	Gm15455	G311D	D M A S N E G S R I	H2-Db	25
21.	Gm15455	S222N	S E N A N D T I I	H2-Db	23
22.	Gm15455	S222N	P S S E N A N D T I	H2-Db	28
23.	Gm15455	S222N	S E N A N D T I I L	H2-Db	21
24.	Gm15455	N139D+ NK133K	K P K I N E D W L	H2-Db	22
25.	Ndufs1	V491A	A A V S N M V Q K I	H2-Db	29
26.	Set	K131N	F E D I N S G Y R I	H2-Db	23
27.	Arhgef11	S806A	L A R L F P N L	H2-Kb	23
28.	Prc	G34E	A A P M P E P T L	H2-Db	20
29.	Nes	S570L	S I E E N L G T V	H2-Db	22
30.	Rab13	K196N	S D K K N N K C L	H2-Db	22
31.	Rab13	K196N	D K K N N K C L L	H2-Db	20
32.	Rab13	K196N	S D K K N N K C L L	H2-Db	23
33.	Akap9	I2244M	I D R L N E Q F M	H2-Kb	21
34.	Akap9	I2244M	L N <u>E</u> Q F M K L	H2-Db	23
35.	Akap9	K2980E	R A Q I N G G E M	H2-Db	24
36.	Paxip1	P994S	K Q <u>S</u> S F R K L	H2-Kb	22
37.	Ppat	I208M	D P Y G N R P L C M	H2-Db	20
38.	Hebp1	L86V	A V F P N E D G S L	H2-Db	22
39.	Chd2	T647A	A P L Q N S L K E L	H2-Db	27
40.	Arhgef10	M207I	A W I E N P E E A	H2-Db	20
41.	Arhgef10	M207I	A W I E N P E E A I	H2-Db	28
42.	Arhgef10	G348R	A A V K R G R S F I	H2-Db	20

43.	Uchl4	Y140F	K F L E N Y D A I	H2-Db	26
44.	Gsta2	Y9H	L H H F N A R G R M	H2-Db	22