

Cancer	Survival	Age	Gender	Race	
	HR	Correlation	FC (M/F)	FC (A/W)	FC (B/W)
BLCA	5.60E-07	-0.0234	0.94	0.78*	0.96
BRCA	1.90E-22	-0.1286*	NA	0.92	0.95
CESC	9.20E-23	0.0922	NA	NA	1.1
COAD	1.10E-24	0.036	1.12	NA	0.85
GBM	1.90E+20	-0.0841	NA	NA	NA
HNSC	5.80E-50	-0.0452	0.97	NA	1
KIRC	2.50E-31	-0.0557	0.89*	NA	0.97
LGG	3.2e+153*	0.0409	1.02	NA	NA
LIHC	5.10E-08	0.0267	1	0.97	NA
LUAD	2.20E-42	-0.0298	0.92*	NA	1.09
LUSC	1.20E+54	0.0193	0.93	NA	0.94
MESO	5.90E-05	NA	NA	NA	NA
PAAD	8.70E+01	0.011	0.73*	NA	NA
SARC	4.40E-77	-0.0045	1.1	NA	NA
SKCM	1.70E-06	-0.0888	0.98	NA	NA
KIRP	NA	-0.0818	0.88	NA	1.06
PCPG	NA	-0.0553	0.98	NA	NA
PRAD	NA	0.0502	NA	NA	NA
TGCT	NA	-0.1815	NA	NA	NA
THCA	NA	-0.0146	0.92	0.87	1.08
UCEC	NA	-0.0593	NA	NA	1.17

\*: FDR<0.1

HR: Hazard Ratio from Cox proportional hazard model

M/F: Male/Female

A/W: Asian/White

B/W: Black/White

Supplementary Table 1. Clinical associations of CPK. Associations of CPK with patient survival, age, gender and race were documented in this table. Hazard ratios were obtained from multivariate Cox regression corrected for patient age and clinical stage. Statistical significance for age association was evaluated using Spearman's correlation and that for fold changes of gender and race were evaluated using Wilcoxon test.

Pos	Peptide	ID	HLA-A*0101		HLA-A*0201		HLA-A*0301		HLA-A*2402		HLA-A*2601		HLA-A*3001		Core					
			nM	Rank	Core	nM	Rank	Core	nM	Rank	Core	nM	Rank	Core		nM	Rank	Core		
0	SCLKTSLKV	PRAMEF4	25294.9		20 SCLKTSLKV	7701.2		13 SCLKTSLKV	30301.2		39 SCLKTSLKV	22481.7		15 SCLKTSLKV	35319.2		65 SCLKTSLKV	8575.8		12 SCLKTSLKV
1	CLKTSLKV	PRAMEF4	23310		15 CLKTSLKV	10532.7		16 CLKTSLKV	21045.8		20 CLKTSLKV	27503		20 CLKTSLKV	22510.9		14 CLKTSLKV	7416.3		11 CLKTSLKV
2	LKTSLKVLT	PRAMEF4	28402.7		30 LKTSLKVLT	36004.8		70 LKTSLKVLT	39281		75 LKTSLKVLT	41263.2		55 LKTSLKVLT	31876.1		42 LKTSLKVLT	20418		33 LKTSLKVLT
3	KTSLKVLT	PRAMEF4	15455.2		5.5 KTSLKVLT	3153.7		7.5 KTSLKVLT	9091.5		8 KTSLKVLT	3059.5		2.5 KTSLKVLT	27146.2		24 KTSLKVLT	272.2		1 KTSLKVLT
4	TSKVLVLT	PRAMEF4	23587		16 TSKVLVLT	17143.4		23 TSKVLVLT	29048.2		36 TSKVLVLT	35309.3		33 TSKVLVLT	26396		21 TSKVLVLT	8069.6		12 TSKVLVLT
5	SLKVLVLT	PRAMEF4	30290		38 SLKVLVLT	18641.5		25 SLKVLVLT	21597.4		21 SLKVLVLT	39622.1		46 SLKVLVLT	29279.5		30 SLKVLVLT	6220		9 SLKVLVLT
6	LKVLVLT	PRAMEF4	29908.7		36 LKVLVLT	22254.4		31 LKVLVLT	36767		65 LKVLVLT	42429		60 LKVLVLT	27354.3		24 LKVLVLT	18435.5		29 LKVLVLT
7	KVLVLT	PRAMEF4	19774.4		9.5 KVLVLT	92.7		1 KVLVLT	10696.8		9 KVLVLT	20193.9		13 KVLVLT	27745.4		25 KVLVLT	153.5		0.7 KVLVLT
8	VLVLT	PRAMEF4	15615.9		5.5 VLVLT	1419.5		5 VLVLT	14613.5		13 VLVLT	20175.3		13 VLVLT	22368.1		13 VLVLT	9423.3		14 VLVLT
0	SCLKTSLKF	PRAMEF4-W	23239.7		15 SCLKTSLKF	23792.4		33 SCLKTSLKF	27743		32 SCLKTSLKF	1533.9		1.5 SCLKTSLKF	28631.9		28 SCLKTSLKF	14423.4		21 SCLKTSLKF
1	CLKTSLKF	PRAMEF4-W	21133.9		11 CLKTSLKF	5163.6		14 CLKTSLKF	16355.2		14 CLKTSLKF	26828.5		19 CLKTSLKF	18132.6		8 CLKTSLKF	2374.1		4 CLKTSLKF
2	LKTSLKFLT	PRAMEF4-W	27242.7		26 LKTSLKFLT	32510.7		55 LKTSLKFLT	39806.4		80 LKTSLKFLT	35520.4		33 LKTSLKFLT	30736.7		36 LKTSLKFLT	20091.2		32 LKTSLKFLT
3	KTSLKFLT	PRAMEF4-W	13318.9		4.5 KTSLKFLT	3583.3		8 KTSLKFLT	7546.1		7 KTSLKFLT	1037.6		1.2 KTSLKFLT	26131.2		21 KTSLKFLT	155.5		0.7 KTSLKFLT
4	TSLKFLTIT	PRAMEF4-W	22797.2		14 TSKFLTIT	15189.6		21 TSKFLTIT	28645		35 TSKFLTIT	33675		29 TSKFLTIT	27024.8		23 TSKFLTIT	6407.1		9 TSKFLTIT
5	SLKFLTIT	PRAMEF4-W	29283.3		33 SLKFLTIT	16991.2		23 SLKFLTIT	15814		14 SLKFLTIT	36458		36 SLKFLTIT	28029.6		26 SLKFLTIT	5464		8 SLKFLTIT
6	LKFLTITNC	PRAMEF4-W	26866.2		24 LKFLTITNC	15234.4		21 LKFLTITNC	33859.5		55 LKFLTITNC	40018		47 LKFLTITNC	27927.3		26 LKFLTITNC	13017.7		19 LKFLTITNC
7	KFLTITNCV	PRAMEF4-W	20169.9		9.5 KFLTITNCV	2837.9		7 KFLTITNCV	17616.8		40 KFLTITNCV	2731.9		2.5 KFLTITNCV	31633.2		40 KFLTITNCV	434.8		1.3 KFLTITNCV
8	FLTITNCV	PRAMEF4-W	12064.9		4 FLTITNCV	171.4		1.5 FLTITNCV	16585.3		14 FLTITNCV	24151.3		16 FLTITNCV	15767.4		6.5 FLTITNCV	14539		22 FLTITNCV
0	TGDTPLPDP	MUC4	25662.2		21 TGDTPLPDP	38379.5		75 TGDTPLPDP	37605		70 TGDTPLPDP	43003.5		65 TGDTPLPDP	37757.9		80 TGDTPLPDP	34600.9		75 TGDTPLPDP
1	GDTPLPDP	MUC4	34492.5		60 GDTPLPDP	40360.3		85 GDTPLPDP	38597.3		75 GDTPLPDP	46948.5		95 GDTPLPDP	37680.4		80 GDTPLPDP	26445.5		48 GDTPLPDP
2	DTPLPDP	MUC4	30200.7		37 DTPLPDP	42032.4		90 DTPLPDP	43469.4		95 DTPLPDP	42060.6		60 DTPLPDP	34285.6		55 DTPLPDP	32453.1		70 DTPLPDP
3	TPPLPDP	MUC4	32411.3		48 TPPLPDP	38096.5		75 TPPLPDP	39851.2		75 TPPLPDP	43565.5		70 TPPLPDP	31777.9		41 TPPLPDP	29554.7		60 TPPLPDP
4	TPLPDP	MUC4	33510.3		55 TPLPDP	41465.1		90 TPLPDP	43612.7		95 TPLPDP	42616.8		60 TPLPDP	34793.1		60 TPLPDP	34615.9		75 TPLPDP
5	PLPDP	MUC4	32750.8		50 PLPDP	33099.9		60 PLPDP	42570.7		90 PLPDP	43908.6		70 PLPDP	32335.6		44 PLPDP	36535.4		85 PLPDP
6	LPDTPDSSA	MUC4	24444.2		18 LPDTPDSSA	33433.2		60 LPDTPDSSA	38306.1		70 LPDTPDSSA	46379		90 LPDTPDSSA	31670.5		41 LPDTPDSSA	32627		70 LPDTPDSSA
7	PDPDTPDSSA	MUC4	33800.9		55 PDPDTPDSSA	45930.6		95 PDPDTPDSSA	43412.6		95 PDPDTPDSSA	46078.9		90 PDPDTPDSSA	35031.9		60 PDPDTPDSSA	37340.7		85 PDPDTPDSSA
8	DTDTPDSSA	MUC4	3239.9		1.2 DTDTPDSSA	37837.7		75 DTDTPDSSA	38791.5		75 DTDTPDSSA	45198.5		80 DTDTPDSSA	26057.2		21 DTDTPDSSA	32292.3		70 DTDTPDSSA
0	TGDTPLPVP	MUC4-WT	4277.8		1.4 TGDTPLPVP	13450.1		19 TGDTPLPVP	29404.6		37 TGDTPLPVP	40276.5		48 TGDTPLPVP	34484.3		60 TGDTPLPVP	20945.6		34 TGDTPLPVP
1	GDTPLPVP	MUC4-WT	33224		55 GDTPLPVP	39034.9		80 GDTPLPVP	34812.3		55 GDTPLPVP	45918.2		65 GDTPLPVP	35370.1		65 GDTPLPVP	23037.2		39 GDTPLPVP
2	DTPLPVP	MUC4-WT	30939.6		41 DTPLPVP	38360.8		75 DTPLPVP	40256.5		80 DTPLPVP	39888.3		47 DTPLPVP	32523.4		45 DTPLPVP	28416.8		55 DTPLPVP
3	TPPLPVP	MUC4-WT	30859.7		40 TPPLPVP	32766.7		55 TPPLPVP	35289.8		60 TPPLPVP	41423.4		55 TPPLPVP	26340.9		21 TPPLPVP	26186.4		47 TPPLPVP
4	TPLPVP	MUC4-WT	29066.8		32 TPLPVP	35736.3		65 TPLPVP	41175.4		85 TPLPVP	40560.8		49 TPLPVP	31571.6		40 TPLPVP	28387.6		55 TPLPVP
5	PLPVP	MUC4-WT	31011.3		41 PLPVP	35782.3		65 PLPVP	42050.2		90 PLPVP	44060.9		70 PLPVP	32570.2		45 PLPVP	34877.2		75 PLPVP
6	LPVDTSSA	MUC4-WT	28539.5		30 LPVDTSSA	37010.9		70 LPVDTSSA	38363.3		75 LPVDTSSA	45206.8		80 LPVDTSSA	24141.1		16 LPVDTSSA	24478.3		42 LPVDTSSA
7	PVDTSSA	MUC4-WT	29924.5		36 PVDTSSA	43176.5		95 PVDTSSA	38662.9		75 PVDTSSA	45788.2		85 PVDTSSA	25782.9		20 PVDTSSA	28380.9		55 PVDTSSA
8	VTDTSSA	MUC4-WT	1409.2		0.7 VTDTSSA	19644.3		27 VTDTSSA	31028.4		41 VTDTSSA	42874.8		65 VTDTSSA	30872		37 VTDTSSA	21027.1		34 VTDTSSA
0	THITEPSTG	MUC5B	31477.1		43 THITEPSTG	43622.1		95 THITEPSTG	42816		95 THITEPSTG	27987.5		21 THITEPSTG	33498.7		50 THITEPSTG	31712		65 THITEPSTG
1	HITEPSTGT	MUC5B	30654.7		39 HITEPSTGT	20625.4		28 HITEPSTGT	25423.6		27 HITEPSTGT	45841.2		85 HITEPSTGT	21782.5		12 HITEPSTGT	19902.1		32 HITEPSTGT
2	ITEPSTGTS	MUC5B	16146.7		6 ITEPSTGTS	37149.7		70 ITEPSTGTS	34750.2		55 ITEPSTGTS	41150.9		55 ITEPSTGTS	28751.5		29 ITEPSTGTS	10794.6		16 ITEPSTGTS
3	TEPSTGTS	MUC5B	33510.7		55 TEPSTGTS	42235.8		95 TEPSTGTS	33948.2		55 TEPSTGTS	38699.7		42 TEPSTGTS	26430.9		22 TEPSTGTS	36933.7		85 TEPSTGTS
4	EPSTGTS	MUC5B	28297.8		29 EPSTGTS	43280.8		95 EPSTGTS	39932.8		80 EPSTGTS	45688.7		85 EPSTGTS	26617.1		22 EPSTGTS	36508.5		85 EPSTGTS
5	PSTGTS	MUC5B	31955.8		46 PSTGTS	43609.8		95 PSTGTS	39963.9		80 PSTGTS	33229.8		29 PSTGTS	32326.2		44 PSTGTS	20996		34 PSTGTS
6	STGTS	MUC5B	8563.4		2.5 STGTS	18942.2		26 STGTS	23823.5		24 STGTS	40273.4		48 STGTS	25388.2		19 STGTS	912.7		2.5 STGTS
7	TGTS	MUC5B	26972.3		25 TGTS	35254.3		65 TGTS	33865.3		55 TGTS	41587.3		55 TGTS	32555.3		45 TGTS	2782.6		4.5 TGTS
8	GTS	MUC5B	17833.6		7.5 GTS	22785.6		32 GTS	26924.4		31 GTS	43965.1		70 GTS	31170.1		38 GTS	8287.9		12 GTS
0	THITEPSTV	MUC5B-WT	24917.9		19 THITEPSTV	31366.3		50 THITEPSTV	36530.7		65 THITEPSTV	14491.3		8.5 THITEPSTV	28784.5		29 THITEPSTV	25690.2		46 THITEPSTV
1	HITEPSTVT	MUC5B-WT	29910		36 HITEPSTVT	26504.2		39 HITEPSTVT	23163.7		23 HITEPSTVT	43659.9		70 HITEPSTVT	23646.1		15 HITEPSTVT	18733.7		29 HITEPSTVT
2	ITEPSTVTS	MUC5B-WT	17540.6		7 ITEPSTVTS	28802.5		44 ITEPSTVTS	31647.2		43 ITEPSTVTS	37660		39 ITEPSTVTS	31076.8		38 ITEPSTVTS	8720		13 ITEPSTVTS
3	TEPSTVTS	MUC5B-WT	32325.8		47 TEPSTVTS	39227.1		80 TEPSTVTS	33405		49 TEPSTVTS	37764.1		39 TEPSTVTS	25049.3		18 TEPSTVTS	36494.3		85 TEPSTVTS
4	EPSTVTS	MUC5B-WT	26050.7		22 EPSTVTS	39902.6		85 EPSTVTS	39959.6		80 EPSTVTS	45225.9		80 EPSTVTS	24844.4		18 EPSTVTS	33665.9		75 EPSTVTS
5	PSTVTS	MUC5B-WT	28505.8		30 PSTVTS	42702.1		95 PSTVTS	40533.6		85 PSTVTS	35986.9		35 PSTVTS	33578.2		55 PSTVTS	16131.8		24 PSTVTS
6	STVTS	MUC5B-WT	14917.5		5 STVTS	15729.5		22 STVTS	22568.7		22 STVTS	41945.7		60 STVTS	12498.6		4.5 STVTS	360.6		1.2 STVTS
7	TVTS	MUC5B-WT	20820.7		11 TVTS	7578.7		13 TVTS	20392.6		19 TVTS	40414.9		49 TVTS	11897.2		4 TVTS	735.5		1.8 TVTS
8	VTS	MUC5B-WT	13167.3		4.5 VTS	20553.4		28 VTS	26849.1		30 VTS	38797.8		43 VTS	31672.2		41 VTS	8786.8		13 VTS

HLA-B0702		HLA-B0801		HLA-B1501		HLA-B2705		HLA-B3901		HLA-B4001		HLA-B5801								
nM	Rank	Core	nM	Rank	Core	nM	Rank	Core	nM	Rank	Core	nM	Rank	Core						
27556.3	27	SCLKTSLKV	20385.1	25	SCLKTSLKV	35446.3	70	SCLKTSLKV	21429.8	21	SCLKTSLKV	18393.1	9	SCLKTSLKV	17966.8	11	SCLKTSLKV	25068.8	36	SCLKTSLKV
17124.8	12	CLKTSKLV	166.1	0.4	CLKTSKLV	3024.8	6.5	CLKTSKLV	20377.8	19	CLKTSKLV	25573.2	16	CLKTSKLV	25403.0	22	CLKTSKLV	22381.9	28	CLKTSKLV
28730.9	30	LKTSKLVLT	26239.9	38	LKTSKLVLT	29704.5	85	LKTSKLVLT	11321.0	10	LKTSKLVLT	28318.3	21	LKTSKLVLT	32810.7	48	LKTSKLVLT	23657.1	32	LKTSKLVLT
13821.5	9.5	KTSKVLVTI	10886.8	11	KTSKVLVTI	10108.6	14	KTSKVLVTI	14653.1	13	KTSKVLVTI	22905.7	13	KTSKVLVTI	21719.7	15	KTSKVLVTI	89.0	0.4	KTSKVLVTI
21639.5	17	TSKVLVTIT	22927.3	30	TSKVLVTIT	29801.8	47	TSKVLVTIT	28101.9	34	TSKVLVTIT	27028.1	18	TSKVLVTIT	27902.6	29	TSKVLVTIT	6460.6	6	TSKVLVTIT
26223.8	24	SLKVLVTITN	22826.8	30	SLKVLVTITN	17661.3	24	SLKVLVTITN	30314.6	40	SLKVLVTITN	31274.8	27	SLKVLVTITN	30078.7	37	SLKVLVTITN	23575.8	31	SLKVLVTITN
33041.9	44	LKVLVTITNC	32128.5	60	LKVLVTITNC	30914.1	55	LKVLVTITNC	19859.3	19	LKVLVTITNC	24242.9	15	LKVLVTITNC	25678.2	23	LKVLVTITNC	24598.3	34	LKVLVTITNC
14395.8	10	KVLVTITNCV	13616.6	14	KVLVTITNCV	16666.0	22	KVLVTITNCV	18816.6	17	KVLVTITNCV	16106.5	7.5	KVLVTITNCV	26189.8	24	KVLVTITNCV	6977.1	6	KVLVTITNCV
14572.1	10	VLTIITNCVL	8999.2	8.5	VLTIITNCVL	3148.5	6.5	VLTIITNCVL	27225.6	32	VLTIITNCVL	6396.7	3	VLTIITNCVL	17584.1	10	VLTIITNCVL	15597.0	16	VLTIITNCVL
24457.7	21	SCLKTSLKFL	18906.2	22	SCLKTSLKFL	12192.1	17	SCLKTSLKFL	16057.5	14	SCLKTSLKFL	22803.8	13	SCLKTSLKFL	15928.0	9	SCLKTSLKFL	7043.7	6	SCLKTSLKFL
24320.5	21	CLKTSLKFL	403.7	0.8	CLKTSLKFL	8917.3	13	CLKTSLKFL	16386.9	15	CLKTSLKFL	31272.4	27	CLKTSLKFL	26447.5	25	CLKTSLKFL	21643.4	27	CLKTSLKFL
28399.9	29	LKTSLKFLT	26637.0	39	LKTSLKFLT	40774.2	90	LKTSLKFLT	7437.7	7.5	LKTSLKFLT	28468.5	21	LKTSLKFLT	32413.8	46	LKTSLKFLT	17037.6	18	LKTSLKFLT
11961.5	8.5	KTSLKFLTI	3824.0	4	KTSLKFLTI	8506.3	13	KTSLKFLTI	13668.4	12	KTSLKFLTI	22210.9	12	KTSLKFLTI	16846.0	9.5	KTSLKFLTI	214.2	0.6	KTSLKFLTI
24680.2	22	TSLKFLTIT	21683.7	27	TSLKFLTIT	30884.4	50	TSLKFLTIT	29789.5	39	TSLKFLTIT	26991.2	18	TSLKFLTIT	28290.1	30	TSLKFLTIT	11289.0	10	TSLKFLTIT
25907.6	24	SLKFLTITN	23743.5	32	SLKFLTITN	16284.7	22	SLKFLTITN	27218.2	32	SLKFLTITN	30467.5	25	SLKFLTITN	30028.0	36	SLKFLTITN	23841.8	32	SLKFLTITN
31053.9	37	LKFLTITNC	28544.1	45	LKFLTITNC	25569.0	37	LKFLTITNC	15206.4	14	LKFLTITNC	21109.2	11	LKFLTITNC	22723.1	17	LKFLTITNC	25472.9	37	LKFLTITNC
26333.0	25	KFLTITNCV	16276.6	18	KFLTITNCV	25240.0	37	KFLTITNCV	22228.4	22	KFLTITNCV	22206.8	12	KFLTITNCV	25532.2	22	KFLTITNCV	18329.9	20	KFLTITNCV
13258.4	9	FLTIITNCVL	1913.3	2.5	FLTIITNCVL	1564.3	4.5	FLTIITNCVL	22289.1	22	FLTIITNCVL	255.9	0.4	FLTIITNCVL	13434.7	7	FLTIITNCVL	15299.2	15	FLTIITNCVL
33182.7	44	TGDTTLPDP	38133.6	85	TGDTTLPDP	40832.4	90	TGDTTLPDP	35838.5	65	TGDTTLPDP	17806.0	8.5	TGDTTLPDP	29867.6	36	TGDTTLPDP	18286.3	20	TGDTTLPDP
39119.9	75	GDTTLPDP	41928.9	99	GDTTLPDP	41533.3	95	GDTTLPDP	36528.7	65	GDTTLPDP	41805.2	90	GDTTLPDP	28836.2	32	GDTTLPDP	30231.4	55	GDTTLPDP
37486.8	65	DTTLPDPT	40006.3	95	DTTLPDPT	43156.9	99	DTTLPDPT	40361.1	85	DTTLPDPT	34506.0	38	DTTLPDPT	33618.9	55	DTTLPDPT	14185.2	14	DTTLPDPT
30956.3	37	TTPLPDPT	40324.9	95	TTPLPDPT	38704.3	80	TTPLPDPT	37769.0	70	TTPLPDPT	39804.7	70	TTPLPDPT	33971.8	55	TTPLPDPT	29591.6	55	TTPLPDPT
12880.7	9	TPLPDDTS	34478.0	70	TPLPDDTS	38758.4	80	TPLPDDTS	40258.6	85	TPLPDDTS	18545.3	9	TPLPDDTS	34706.3	60	TPLPDDTS	29418.0	55	TPLPDDTS
36859.4	65	PLPDDTSS	41962.0	99	PLPDDTSS	33874.1	60	PLPDDTSS	39257.3	80	PLPDDTSS	41848.6	90	PLPDDTSS	37812.3	80	PLPDDTSS	32475.9	65	PLPDDTSS
870.1	1.6	LPDDTSSA	16718.4	18	LPDDTSSA	36239.7	70	LPDDTSSA	34618.9	60	LPDDTSSA	13034.5	5.5	LPDDTSSA	31579.8	42	LPDDTSSA	31392.4	60	LPDDTSSA
36415.0	60	PDDTSSAS	39536.0	90	PDDTSSAS	37932.4	80	PDDTSSAS	39673.6	80	PDDTSSAS	38334.2	60	PDDTSSAS	35576.9	65	PDDTSSAS	36966.8	90	PDDTSSAS
35300.9	55	DDTSSAST	32588.5	60	DDTSSAST	38472.2	80	DDTSSAST	35201.7	13	DDTSSAST	23204.1	13	DDTSSAST	32083.0	44	DDTSSAST	28074.6	46	DDTSSAST
24997.6	22	TGDTTLPVP	26369.5	38	TGDTTLPVP	32974.8	60	TGDTTLPVP	25683.2	28	TGDTTLPVP	2202.4	1.2	TGDTTLPVP	23495.3	18	TGDTTLPVP	15428.5	15	TGDTTLPVP
35328.4	55	GDTTLPVPT	38124.5	85	GDTTLPVPT	37245.5	75	GDTTLPVPT	35706.9	65	GDTTLPVPT	39088.6	65	GDTTLPVPT	26090.2	24	GDTTLPVPT	28410.4	47	GDTTLPVPT
3670.0	60	DTTLPVTD	37629.1	85	DTTLPVTD	41795.3	95	DTTLPVTD	38409.0	85	DTTLPVTD	30292.0	25	DTTLPVTD	35017.8	60	DTTLPVTD	15299.5	15	DTTLPVTD
29719.6	33	TTPLPVTD	39515.5	90	TTPLPVTD	37068.6	70	TTPLPVTD	37220.9	70	TTPLPVTD	36839.1	49	TTPLPVTD	33156.5	49	TTPLPVTD	29228.5	55	TTPLPVTD
8535.6	6.5	TPLPVTDTS	31122.2	55	TPLPVTDTS	36710.2	75	TPLPVTDTS	38165.0	75	TPLPVTDTS	14637.2	6.5	TPLPVTDTS	32851.9	48	TPLPVTDTS	25774.3	38	TPLPVTDTS
36975.2	65	PLPVDTS	40276.5	95	PLPVDTS	35378.9	90	PLPVDTS	40778.6	90	PLPVDTS	41616.1	85	PLPVDTS	36235.4	70	PLPVDTS	32727.7	70	PLPVDTS
279.9	0.8	LPVDTSSA	8981.4	8.5	LPVDTSSA	27288.1	41	LPVDTSSA	34261.2	55	LPVDTSSA	15930.4	7	LPVDTSSA	31942.3	44	LPVDTSSA	30803.3	60	LPVDTSSA
29518.7	32	PVDTSSAS	35392.6	75	PVDTSSAS	31213.9	55	PVDTSSAS	36508.1	65	PVDTSSAS	34555.3	38	PVDTSSAS	34958.4	60	PVDTSSAS	32435.1	65	PVDTSSAS
24302.0	21	VTDTSSAST	31501.6	55	VTDTSSAST	29978.3	48	VTDTSSAST	32892.1	49	VTDTSSAST	23241.5	13	VTDTSSAST	26807.9	26	VTDTSSAST	15799.1	16	VTDTSSAST
34209.3	48	THITEPSTG	37004.4	80	THITEPSTG	33105.6	60	THITEPSTG	38795.3	80	THITEPSTG	3451.2	1.7	THITEPSTG	32635.4	47	THITEPSTG	27786.0	45	THITEPSTG
20078.6	15	HITEPSTGT	34825.9	70	HITEPSTGT	29373.4	46	HITEPSTGT	27444.4	32	HITEPSTGT	26904.9	18	HITEPSTGT	28825.3	32	HITEPSTGT	22536.7	29	HITEPSTGT
22865.1	19	ITEPSTGTS	32337.7	60	ITEPSTGTS	31001.2	55	ITEPSTGTS	36978.4	70	ITEPSTGTS	34217.5	37	ITEPSTGTS	27753.8	29	ITEPSTGTS	24129.4	33	ITEPSTGTS
28409.8	29	TEPSTGSH	41149.5	95	TEPSTGSH	13614.3	18	TEPSTGSH	34149.8	55	TEPSTGSH	26483.8	18	TEPSTGSH	4771.2	3	TEPSTGSH	31651.3	65	TEPSTGSH
8110.7	6	EPSTGTSHT	22690.9	29	EPSTGTSHT	36949.6	75	EPSTGTSHT	36898.5	70	EPSTGTSHT	18282.7	9	EPSTGTSHT	35127.5	60	EPSTGTSHT	24094.2	33	EPSTGTSHT
36860.6	65	PSTGTSHTP	36341.4	75	PSTGTSHTP	33340.7	60	PSTGTSHTP	37773.9	70	PSTGTSHTP	30868.0	26	PSTGTSHTP	31889.2	44	PSTGTSHTP	15276.8	15	PSTGTSHTP
12223.0	8.5	STGTSHTPA	6898.5	6.5	STGTSHTPA	7802.7	12	STGTSHTPA	27842.5	33	STGTSHTPA	22524.3	13	STGTSHTPA	22890.9	17	STGTSHTPA	15827.5	16	STGTSHTPA
18917.0	14	TGTSHTPAA	16165.0	18	TGTSHTPAA	23254.1	33	TGTSHTPAA	32591.0	48	TGTSHTPAA	21983.3	12	TGTSHTPAA	30527.2	38	TGTSHTPAA	27458.7	44	TGTSHTPAA
22414.9	18	GTSHTPAA	32390.6	60	GTSHTPAA	24258.7	35	GTSHTPAA	27982.4	34	GTSHTPAA	23759.4	14	GTSHTPAA	23814.0	19	GTSHTPAA	9924.8	9	GTSHTPAA
28839.9	30	THITEPSTV	30481.0	55	THITEPSTV	32055.6	55	THITEPSTV	31947.5	45	THITEPSTV	41.4	0.1	THITEPSTV	24387.1	20	THITEPSTV	24738.2	35	THITEPSTV
13740.3	9.5	HITEPSTVT	28214.6	44	HITEPSTVT	21257.3	29	HITEPSTVT	30132.8	40	HITEPSTVT	18532.1	9	HITEPSTVT	28304.5	30	HITEPSTVT	20023.3	23	HITEPSTVT
25699.1	23	ITEPSTVTS	31360.9	55	ITEPSTVTS	27915.2	43	ITEPSTVTS	35518.9	60	ITEPSTVTS	27993.3	20	ITEPSTVTS	27269.2	27	ITEPSTVTS	20326.5	24	ITEPSTVTS
29121.8	31	TEPSTVTSHT	40502.0	95	TEPSTVTSHT	34191.2	22	TEPSTVTSHT	34191.2	55	TEPSTVTSHT	26017.2	17	TEPSTVTSHT	8419.4	4.5	TEPSTVTSHT	31517.3	60	TEPSTVTSHT
10107.2	7	EPSTVTSHT	22244.8	28	EPSTVTSHT	36636.3	75	EPSTVTSHT	35694.9	60	EPSTVTSHT	18818.8	9	EPSTVTSHT	34508.9	60	EPSTVTSHT	22397.2	28	EPSTVTSHT
38080.8	70	PSTVTSHTP	35728.5	75	PSTVTSHTP	34664.6	65	PSTVTSHTP	39960.9	85	PSTVTSHTP	33930.6	36	PSTVTSHTP	30352.0	38	PSTVTSHTP	13608.8	13	PSTVTSHTP
9025.5	6.5	STVTSHTPA	12584.5	13	STVTSHTPA	4411.5	8	STVTSHTPA	25664.6	28	STVTSHTPA	15634.5	7	STVTSHTPA	19050.9	12	STVTSHTPA	11779.8	11	STVTSHTPA
5624.4	4.5	TVTSHTPAA	14246.3	15	TVTSHTPAA	13512.9	18	TVTSHTPAA	30088.2	39	TVTSHTPAA	16246.4	7.5	TVTSHTPAA	25936.8	23	TVTSHTPAA	26536.0	40	TVTSHTPAA
18640.1	14	VTSHTPAA	30955.0	55	VTSHTPAA	22136.3	31	VTSHTPAA	30793.0	42	VTSHTPAA	22669.0	13	VTSHTPAA	26278.3	24	VTSHTPAA	8478.5	7.5	VTSHTPAA

HLA-C0401		HLA-C0602		HLA-C0702		Core	H_Avg_Rank	N_binders
nM	Rank	nM	Rank	nM	Rank			
19383.4		11 SCLKTSLKV	17768.8	7 SCLKTSLKV	39704.1	36 SCLKTSLKV	16.873	0
15731.1		7 CLKTSLKVL	12354.8	4.5 CLKTSLKVL	15399.3	5.5 CLKTSLKVL	4.132	1
20658		12 LKTSLKVLT	35110	24 LKTSLKVLT	40379.5	39 LKTSLKVLT	28.829	0
25688.8		18 KTSLKVLT	19365.4	7.5 KTSLKVLT	33165.5	21 KTSLKVLT	3.133	2
26396.6		19 TSLKVLIT	37862.7	30 TSLKVLIT	43416.8	55 TSLKVLIT	20.032	0
28800.7		23 SLKVLITIN	41635	43 SLKVLITIN	37291	29 SLKVLITIN	25.835	0
29522.2		24 LKVLITINC	41173.6	41 LKVLITINC	42650.9	49 LKVLITINC	31.717	0
15979.5		7 KVLITINCV	13855.7	5 KVLITINCV	36254.2	27 KVLITINCV	4.256	2
22882.2		15 VLTITINCVL	27471.8	14 VLTITINCVL	23295.6	10 VLTITINCVL	8.788	0
12571.3		4.5 SCLKTSLKFL	24873.7	12 SCLKTSLKFL	21184.2	9 SCLKTSLKFL	8.543	1
14434.3		6 CLKTSLKFL	10296.2	3.5 CLKTSLKFL	22704.4	10 CLKTSLKFL	5.719	1
25585.3		18 LKTSLKFLT	36790.9	27 LKTSLKFLT	34745.3	23 LKTSLKFLT	25.64	0
21168.7		13 KTSLKFLTI	32537.1	20 KTSLKFLTI	37566.4	30 KTSLKFLTI	2.995	3
28837.1		23 TSLKFLTIT	35428.7	24 TSLKFLTIT	42073.4	46 TSLKFLTIT	21.036	0
26594.7		19 SLKFLTITIN	42365.7	47 SLKFLTITIN	36611.8	27 SLKFLTITIN	22.987	0
23894		16 LKFLTITNC	26974.9	13 LKFLTITNC	38018.2	31 LKFLTITNC	22.347	0
11085		3.5 KFLTITINCV	16447.5	6 KFLTITINCV	29680.1	16 KFLTITINCV	6.761	1
16455.3		7.5 FLTITINCVL	9802.8	3.5 FLTITINCVL	6123.2	1.9 FLTITINCVL	2.815	3
21456.7		13 TGDTPPLPD	44681.1	65 TGDTPPLPD	37137.6	29 TGDTPPLPD	32.022	0
32213.8		29 GDTTPLPDT	42251.7	46 GDTTPLPDT	42881.3	50 GDTTPLPDT	58.881	0
31221.7		27 DTTPLPDDT	44692.3	65 DTTPLPDDT	34489.5	23 DTTPLPDDT	44.768	0
31718.1		28 TTPLPDDT	41337	42 TTPLPDDT	43183.5	55 TTPLPDDT	54.292	0
20112.1		11 TPLPDDTSS	44067.1	60 TPLPDDTSS	36992	28 TPLPDDTSS	30.453	0
29028.4		23 PLPDDTSS	40790	39 PLPDDTSS	40795.3	40 PLPDDTSS	56.274	0
13268.3		5 LPDDTSSA	43786.2	55 LPDDTSSA	45046.7	65 LPDDTSSA	12.273	1
28344.4		22 PDTDTSSAS	39864.2	36 PDTDTSSAS	38694.7	33 PDTDTSSAS	57.59	0
21086.1		13 DTDSSAST	42110.7	45 DTDSSAST	43671.2	55 DTDSSAST	12.933	1
14014.4		5.5 TGDTPPLPV	36857	27 TGDTPPLPV	32290.2	20 TGDTPPLPV	7.242	2
29032.5		23 GDTTPLPVT	42462.1	47 GDTTPLPVT	40985.1	41 GDTTPLPVT	48.812	0
27407.3		20 DTTPLPVD	44511.8	60 DTTPLPVD	29745.1	16 DTTPLPVD	38.397	0
31228.8		27 TTPLPVDT	35777.3	25 TTPLPVDT	41651.2	44 TTPLPVDT	42.698	0
14262.6		5.5 TPLPVDTSS	44879.8	65 TPLPVDTSS	36874.2	28 TPLPVDTSS	21.203	0
32440.4		29 PLPVDTSS	43894.3	55 PLPVDTSS	43324.8	55 PLPVDTSS	60.786	0
16467.1		7.5 LPVDTSSA	45299.8	70 LPVDTSSA	44822	65 LPVDTSSA	8.354	1
27497.7		21 PVDTSSAS	35259.6	24 PVDTSSAS	35992.8	26 PVDTSSAS	40.42	0
18405.8		9.5 VTDSSAST	38953	33 VTDSSAST	41545.9	43 VTDSSAST	7.978	1
27385.7		20 HITEPSTG	39329.1	34 HITEPSTG	40562.1	39 HITEPSTG	17.267	1
27767.6		21 HITEPSTGT	38823.9	33 HITEPSTGT	36722.9	28 HITEPSTGT	26.954	0
25497.7		18 ITEPSTGTS	41954.3	44 ITEPSTGTS	35426.8	25 ITEPSTGTS	25.553	0
13837.9		5.5 TEPSTGSH	41870.4	44 TEPSTGSH	36577.7	27 TEPSTGSH	17.927	0
20693.3		12 EPSTGTSHT	45346.9	70 EPSTGTSHT	41883.5	45 EPSTGTSHT	25.269	0
34896.4		35 PSTGTSHTP	35552.3	25 PSTGTSHTP	39728.1	36 PSTGTSHTP	38.53	0
20473.3		12 STGTSHTPA	45162.3	65 STGTSHTPA	36078.5	26 STGTSHTPA	9.557	0
16585.1		7.5 TGTSHTPAA	36576.5	27 TGTSHTPAA	34113.2	22 TGTSHTPAA	18.55	0
26845.9		20 GTSHTPAAT	44896.8	65 GTSHTPAAT	32883.9	20 GTSHTPAAT	19.962	0
18366		9.5 THITEPSTV	20682.3	8.5 THITEPSTV	27810	14 THITEPSTV	1.492	1
25621.3		18 HITEPSTVT	28064.5	14 HITEPSTVT	31847.1	19 HITEPSTVT	20.851	0
23743.2		16 ITEPSTVTS	40897	40 ITEPSTVTS	32236.8	19 ITEPSTVTS	23.251	0
17404.7		8.5 TEPSTVTSHT	37821.3	30 TEPSTVTSHT	34127.6	22 TEPSTVTSHT	21.399	0
18317.8		9.5 EPSTVTSHT	45743.1	70 EPSTVTSHT	41765	44 EPSTVTSHT	24.044	0
35693.8		38 PSTVTSHTP	35664	25 PSTVTSHTP	40819.6	40 PSTVTSHTP	37.992	0
18185.5		9 STVTSHTPA	45670.9	70 STVTSHTPA	34935.3	24 STVTSHTPA	7.147	1
11676.8		3.5 TVTSHTPAA	27630.7	14 TVTSHTPAA	33025.8	21 TVTSHTPAA	7.909	1
26905.8		20 VTSHTPAAT	42673.1	48 VTSHTPAAT	29924.2	17 VTSHTPAAT	16.965	0

Supplementary Table 2. MHC-I binding predictions for 9 amino-acid peptides produced by the top 3 mutations described in the main text. Both mutated and wild type (marked WT) peptides were documented.

Sample ID	Cancer	HLA-A genotype		HLA-B genotype		HLA-C genotype		CDR3 motif Mutation	
TCGA-4K-AA1I	TGCT	A*01:01	A*30:01	B*13:02	B*13:02	C*06:02	C*06:02	GESEQY	PRAMEF4 F300V
TCGA-2G-AAGE	TGCT	A*01:01	A*01:01	B*08:01	B*57:01	C*07:01	C*07:01	GESEQY	PRAMEF4 F300V
TCGA-2G-AAKO	TGCT	A*01:01	A*02:01	B*08:01	B*18:01	C*07:01	C*12:03	GESEQY	PRAMEF4 F300V
TCGA-B8-4621	KIRC	A*68:02	A*74:01	B*53:01	B*53:01	C*04:01	C*04:01	GLAEQY	MUC4 V4195D
TCGA-G8-6325	DLBC	A*02:02	A*68:02	B*35:01	B*58:01	C*04:01	C*07:18	GLAEQY	MUC4 V4195D
TCGA-FF-8041	DLBC	A*01:01	A*02:07	B*15:02	B*15:17	C*07:01	C*08:01	GLAEQY	MUC4 V4195D
TCGA-BH-A0HA	BRCA	A*03:01	A*31:01	B*07:02	B*07:02	C*07:02	C*07:02	RDNSYEQY	MUC5B V3490G
TCGA-G8-6326	DLBC	A*01:01	A*33:03	B*08:01	B*50:01	C*06:02	C*07:01	RDNSYEQY	MUC5B V3490G
TCGA-FF-A7CR	DLBC	A*24:07	A*24:10	B*15:02	B*27:06	C*03:04	C*07:02	RDNSYEQY	MUC5B V3490G

Supplementary Table 3. HLA typing information for the 9 individuals carrying any of the top 3 mutations and the corresponding CDR3 motifs. Two alleles of HLA-A,B,C genes for each individual were solved using POLYSOLVER.