Supplementary Table 1: Predicted human T cell and B cell epitopes predicted on TpUB05 antigen

Immune epitopes on TpUB05 antigen were predicted *in silico* using algorithms found on www.iedb.org. MHC I and II binding peptides presented here are those with a percentile rank below 1.0. Percentile rank below1.0 were considered as those with a very high affinity for the MHC molecules. The lower the percentile rank the stronger the binding affinity. These would have to be tested *in vitro* and *in vivo* to confirm their immunogenicity.

No.	MHC I binding peptides	MHC II binding peptides	Antibody epitopes
1	FEFNLTHSLL	LSCTFLFMFGELLRL	TKRKPHST
2	FEFNLTHSL	SCTFLFMFGELLRLM	PHSTSFV
3	KGLNRLFPFR	CTFLFMFGELLRLMN	HSTSFVD
4	FLFMFGELLR	TFLFMFGELLRLMNN	STSFVDL
5	STSFVDLTR	FLFMFGELLRLMNNL	TSFVDLT
6	VLLSCTFLF	LFMFGELLRLMNNLE	SFVDLTR
7	RLFPFRRNF	FRRNFEFNLTHSLLF	FVDLTRF
8	FPFRRNFEF	TVLLSCTFLFMFGEL	DLTKRKPHS
9	GLNRLFPFR	SCTFLFMFGELLRLM	VDLTRFL
10	HSTSFVDLTR	CTFLFMFGELLRLMN	DLTRFLD
11	SVCVLLHSFR	TFLFMFGELLRLMNN	LTRFLDS
12	FMFGELLRLM	FMFGELLRLMNNLEF	TRFLDSG
13	FMFGELLRL	RRNFEFNLTHSLLFS	RFLDSGV
14	VLLSCTFLF	LTLFTVLLSCTFLFM	FLDSGVL
15	SVCVLLHSFR	LSCTFLFMFGELLRL	LDSGVLT
16	LFPFRRNFEF	CTFLFMFGELLRLMN	SGVLTLFTVLLSCTFL
17	SVCVLLHSFR	TFLFMFGELLRLMNN	FTVLLSC
18	FLFMFGELLR	SCTFLFMFGELLRLM	TVLLSCT
19	FPFRRNFEF	CTFLFMFGELLRLMN	VLLSCTF
20	FLDSGVLTL	TFLFMFGELLRLMNN	LLSCTFL
21	FMFGELLRL	VLLSCTFLFMFGELL	LSCTFLF
22	KGLNRLFPF	LLSCTFLFMFGELLR	SCTFLFM
23	TVLLSCTFLF	RNFEFNLTHSLLFSV	CTFLFMF
24	NLTHSLLFSV	SCTFLFMFGELLRLM	TFLFMFG
25	RNFEFNLTH	FLFMFGELLRLMNNL	FLFMFGE
26	KPHSTSFVDL	FLFMFGELLRLMNNL	LFMFGEL
27	FLFMFGELL	LFMFGELLRLMNNLE	FMFGELL
28	RLMNNLEFL	FMFGELLRLMNNLEF	MFGELLR
29	LLFSVCVLL	MFGELLRLMNNLEFL	HSLLFSVCVLLHS
30	LFMFGELLR	FGELLRLMNNLEFLN	FGELLRL
31	LFPFRRNFEF	GELLRLMNNLEFLNH	GELLRLM
32	TSFVDLTRF	LSCTFLFMFGELLRL	ELLRLMN
33	RFLDSGVLTL	NFEFNLTHSLLFSVC	LLRLMNN
34	CVLLHSFRR	LSCTFLFMFGELLRL	LRLMNNL
35	FMFGELLRL	CTFLFMFGELLRLMN	RLMNNLE
36	LTHSLLFSV	ELVKKGLNRLFPFRR	LMNNLEF
37	FPFRRNFEF	LVKKGLNRLFPFRRN	MNNLEFL
38	GELLRLMNNL	VKKGLNRLFPFRRNF	NNLEFLN
39	LEFLNHELV	KKGLNRLFPFRRNFE	MNNLEFLNHELVKK
40	RLMNNLEFL	KGLNRLFPFRRNFEF	
41	VLLSCTFLFM	FLFMFGELLRLMNNL	

42	CVLLHSFRR	LFMFGELLRLMNNLE	
43	LNRLFPFRR	TFLFMFGELLRLMNN	
44	LTHSLLFSV	SCTFLFMFGELLRLM	
45	LFTVLLSCTF	FEFNLTHSLLFSVCV	
46	FTVLLSCTF	ELLRLMNNLEFLNHE	
47	RLMNNLEFL	GLNRLFPFRRNFEFN	
48	FNLTHSLLF	LNRLFPFRRNFEFNL	
49	FLDSGVLTLF	FLFMFGELLRLMNNL	
50	FEFNLTHSL	LFMFGELLRLMNNLE	
51	FEFNLTHSL	SLLFSVCVLLHSFRR	
52	FPFRRNFEF	LLFSVCVLLHSFRRS	
53	STSFVDLTR	LFSVCVLLHSFRRSN	
54	STSFVDLTRF	GVLTLFTVLLSCTFL	
55	LLRLMNNLEF	SGVLTLFTVLLSCTF	
56	TFLFMFGEL	VLTLFTVLLSCTFLF	
57	NLTHSLLFSV	LTLFTVLLSCTFLFM	
58	KKGLNRLFPF	TLFTVLLSCTFLFMF	
59	FLDSGVLTL	LFTVLLSCTFLFMFG	
60	LLSCTFLFM	FTVLLSCTFLFMFGE	
61	KGLNRLFPF	LSCTFLFMFGELLRL	
62	FPFRRNFEFN	EFNLTHSLLFSVCVL	
63	NLTHSLLFSV	LFMFGELLRLMNNLE	
64	FLDSGVLTL	STSFVDLTRFLDSGV	
65	FLFMFGELL	TSFVDLTRFLDSGVL	
66	RLMNNLEFL	HSTSFVDLTRFLDSG	
67	LSCTFLFMF	LFMFGELLRLMNNLE	
68	FSVCVLLHSF	LTLFTVLLSCTFLFM	
69	FPFRRNFEFN	RNFEFNLTHSLLFSV	
70	FLNHELVKK	VLTLFTVLLSCTFLF	
71	LNRLFPFRR	RRNFEFNLTHSLLFS	
72	RLMNNLEFLN	PHSTSFVDLTRFLDS	
73	FMFGELLRLM	RNFEFNLTHSLLFSV	
74	GLNRLFPFRR	FNLTHSLLFSVCVLL	
75		NFEFNLTHSLLFSVC	
76		HSLLFSVCVLLHSFR	
77		SLLFSVCVLLHSFRR	
78		LLFSVCVLLHSFRRS	
79		LFSVCVLLHSFRRSN	
80		TVLLSCTFLFMFGEL	
81		RRNFEFNLTHSLLFS	
82		FMFGELLRLMNNLEF	
83		MFGELLRLMNNLEFL	
84		FGELLRLMNNLEFLN	
85		GELLRLMNNLEFLNH	
86		LTHSLLFSVCVLLHS	
87		LLSCTFLFMFGELLR	
88		VLLSCTFLFMFGELL	
89		FRRNFEFNLTHSLLF	
90		THSLLFSVCVLLHSF	

91		TRFLDSGVLTLFTVL	
92		ELLRLMNNLEFLNHE	
93		FEFNLTHSLLFSVCV	
94		SFVDLTRFLDSGVLT	
95		TSFVDLTRFLDSGVL	
96		STSFVDLTRFLDSGV	
97		PHSTSFVDLTRFLDS	
98		LLRLMNNLEFLNHEL	
99		HSTSFVDLTRFLDSG	
100		NFEFNLTHSLLFSVC	
101		SCTFLFMFGELLRLM	
102		FMFGELLRLMNNLEF	
103		LLSCTFLFMFGELLR	
104		FRRNFEFNLTHSLLF	
105		DLTRFLDSGVLTLFT	
106		VLLSCTFLFMFGELL	
107		LLSCTFLFMFGELLR	
108		LSCTFLFMFGELLRL	
109		SCTFLFMFGELLRLM	
110		CTFLFMFGELLRLMN	
111		SFVDLTRFLDSGVLT	
112		LTRFLDSGVLTLFTV	