

Supplementary Table 4: Prediction of potential linear B-cell epitopes from whole early and late aminoacid sequences of HPV45

S.No.	Linear B-cell epitopes	Start position	Score (Threshold 0.5)
E1			
1	CSKIDEGGDWRPIVQF	423	0.95
2	SEVSGDTPEWIQRLTI	323	0.94
3	YRTGISNISEVSGDTP	315	0.93
4	KTTCTDWVMAIFGVNP	223	0.91
5	QSSGGDSSDNAENVDP	165	0.91
6	VETIVEKKTGDVISDD	20	0.9
7	G(VLILALLRY)KCGKNR	265	0.89
8	YGLSFTDLVRNFKSDK	208	0.88
9	KTLIKPATLYAHIQCL	245	0.87
10	HTCWTFYFDNYMRNALD	519	0.86
11	KRRLFTISDSGYGCSE	126	0.86
12	RLTIHQHGIDDSNFL	335	0.85
13	TCMLIEPPKLRSSLAA	296	0.85
14	GDVISDDEDETATDTG	29	0.85
15	EGIPFGTFKCVTGQNT	625	0.84
16	AVMCRHYKRAQKRQMN	399	0.83
17	QLSVDTDLSPRLREIS	102	0.83
18	PEGTDGEGTGCNGWFF	4	0.82
19	TATDTGSDMVDFIDTQ	39	0.82
20	KELLQASNKKAAMLAV	188	0.82
21	GNPVYEINDKNWKCF	591	0.81
22	GNPISIDRKHKPLLQL	535	0.81
23	FWLEPLADTKVAMLDD	501	0.81
24	CSEVEAAETQVTVNTN	139	0.81
25	QWIKYRCSKIDEGGDW	417	0.8
26	YKCGKNRLTVAKGLST	274	0.8
27	PILLTSNIDPAKDNKW	554	0.79
28	SDMVQWAFDNDLTDES	351	0.79
29	CFFERTWSRLDLHEDD	604	0.78
30	QKRQMNMSQWIKYRCS	409	0.78
31	R(SSLAALYWY)RTGISN	306	0.78
32	QGAIISFVNSNSHFWL	488	0.77
33	HCSITELKELLQASNK	181	0.77
34	QVTVNTNAENGGSVHS	148	0.77
35	EDDEDADTEGIPFGTF	617	0.76
36	V(FTFPHAFP)DKNGNP	578	0.76
37	EGTGCNGWFFVETIVE	10	0.75
38	EFLKGT PKKNCILLYG	455	0.74
39	PTVAEGFKTLIKPATL	238	0.74

40	GGSKENSPLGEQLSVD	91	0.73
41	TDESDMAFQYAQLADC	363	0.72
42	AFPFDKNGNPVYEIND	584	0.71
43	GGDWRPIVQFLRYQGV	429	0.71
44	QETAQALFHAQEVQND	63	0.7
45	KDNKWPYLESRVTVFT	565	0.69
46	QFLRYQGVFISFLRA	437	0.69
47	KSNCQAKYLKDCAVMC	387	0.69
48	PRLREISLNSGHKKAK	111	0.68
49	A(MLAVFKDIY)GLSFTD	199	0.67
50	AHIQCLDCKWGV LILA	255	0.65
51	VDFIDTQLSICEQAEQ	48	0.64
52	SGHKKAKRRLFTISDS	120	0.64
53	YGPANTGKSYFGMSFI	469	0.63
54	NAENVDPHCSITELKE	174	0.63
55	AIFGVNPTVAEGFKTL	232	0.62
56	LHLLKRKFAGGSKENS	82	0.61
57	SYFGMSFIHFLQGAI	477	0.61
58	VAKGLSTLLHVPETCM	283	0.61
59	NAAAFKSNQCQAKYLK	381	0.6
60	QYAQLADCNSNAAAF	371	0.6
61	KNCILLYGPANTGKSY	463	0.54
E2			
1	KPHIQTPATKRPRQCG	240	0.95
2	TWHWTGCKKNTGILTV	323	0.92
3	QDKILDHYENDSKDIN	18	0.91
4	DGDTTYVYVQFKSECEK	169	0.91
5	KGGKTVHVYFDGNKDN	118	0.91
6	EWTLQDTCEELWNTEP	97	0.86
7	ISYWQLIRLENAILFT	36	0.86
8	SNTWEVQYGGNVIDCN	188	0.86
9	(CVSYWGVVY)IKDGDTT	158	0.86
10	K(NTGILTVTY)NSEVQR	331	0.85
11	HYSEISSTWHWTGCKK	316	0.85
12	HGLVNTHVHNSLLCSS	261	0.84
13	GNVIDCNDSMCSTSDD	197	0.84
14	PKTASVGTPKPHIQTP	231	0.83
15	LQHACTSTPKTASVGT	223	0.82
16	DSIYY(MTETGIWEK)TA	141	0.82
17	YRLRKYADHYSEISST	308	0.81
18	TPIIHLKGDKNSLKCL	291	0.79
19	GLTEQHHGLVNTHVHN	255	0.77
20	GLAQSKYNNEEWTLQD	87	0.75
21	YFDGNKDNMNYVVWD	126	0.75
22	TAREHGITKLNHQVVP	51	0.74

23	TVTYNSEVQRNTFLDV	337	0.74
24	TVSATQIVRQLQHACT	213	0.74
25	TGIWEKTAACVSYWGV	149	0.74
26	LQMALKGLAQSKYNNE	81	0.73
27	MQTPKESLSERLSALQ	3	0.73
28	CSTSDDTVSATQIVRQ	207	0.73
29	VQFKSECEKYGNSNTW	176	0.73
30	LCSSTSNNKRRKVCSG	273	0.72
31	LWNTEPSQCFKKGGKT	107	0.72
32	HVHNSLLCSSTSNNKR	267	0.69
33	HQVVPINISKSKAHK	62	0.65
34	HYENDSKDINSQISYW	24	0.64
35	DKNSLKCLRYRLRYA	299	0.61
36	VVTIPNSVQISVGYMT	352	0.58
E4			
1	PPRRPPKPHPWAPQNP	24	0.93
2	PWAPQNPTSRRLSD	33	0.9
3	LDSYNTPPRRPPKPHP	18	0.9
4	CVQVQVTTKEGKCVVV	71	0.87
5	TPTCTTRSCVQVQVTT	63	0.83
6	TTRYPLLRLLDYNTP	9	0.8
7	DSQSSTDLSTPTCTT	53	0.8
E5			
1	IVVITSPLTAFVYIC	40	0.84
2	YLLPMFVLHMHALHTL	57	0.8
3	AVYICCYLLPMFVLHM	51	0.76
4	CFSVCLYVCCNVPLVQ	9	0.65
5	YVCCNVPLVQSVYVCA	15	0.6
E6			
1	SIAGQYRGQCNTCCDQ	129	0.87
2	YGETLEKITNTELYNL	86	0.85
3	SRIRELRYYSNSVYGE	73	0.85
4	HKCIDF(YSRIRELRY)Y	66	0.83
5	MARFDDPKQRPYKLPD	1	0.82
6	CVYCKATLERTEVYQF	32	0.81
7	PDLCTELNTSLQDVSI	15	0.81
8	RRHLKDKRRFHSIAGQ	118	0.8
9	YNLLIRCLRCQKPLNP	99	0.78
10	QRPYKLPDLCTELNTS	9	0.77
11	YQFAFKDLCIVYRDCI	45	0.74
12	TCCDQARQERLCRRRE	140	0.74
13	DCIAYAACHKCIDFYS	58	0.72
14	TLE(RTEVYQFAF)KDLC	38	0.67
15	QKPLNPAEKRRHLKDK	109	0.67
E7			

1	LQEIVLHLEPQNELDP	8	0.92
2	ADGVSHAQLPARRAEP	42	0.89
3	TVEISAEDLRTLQQLF	76	0.85
4	DGRIELTVEISAEDLR	70	0.85
5	LPARRAEPQRHNILCV	50	0.81
6	ILCVCCCKCDGRIELTV	62	0.78
7	SESEEENDEADGVSHA	33	0.78
8	HLEPQNELDPVDLLCY	14	0.65
9	LFLSTLSFVCPWCATN	90	0.58
L1			
1	AVTCQKDTTPPEKQDP	110	0.92
2	PPEKQDPYDKLKFWTV	119	0.89
3	R(HVEEYDLQF)IFQLCT	50	0.87
4	NGICWHNQLFVTVVDT	5	0.87
5	TAEVMSYIHSMNSSIL	69	0.84
6	TSLVDTYRFVQSVAVT	97	0.8
7	HSMNSSILENWNFGVP	77	0.79
8	LCTITLTAEVMSYIHS	63	0.78
9	QNPVPTPYDPTKFKQY	33	0.75
10	TVVDTTRSTNLTLCAS	16	0.75
11	RFVQSVAVTCQKDTTP	104	0.72
12	DPTKFKQYSRHHVEEYD	41	0.64
13	ILENWNFGVPPPPTS	83	0.63
14	DKLKFWTVDLKEKFSS	127	0.59
L2			
1	GK(QIGGRVHFY)HDISP	310	0.93
2	LSATDDSDLFDVYADF	338	0.91
3	SGSGTEPISSTPLPTV	203	0.91
4	MVSHRAARRKRASATD	1	0.9
5	SHTPMWPSTSPTNAAT	410	0.89
6	TVRRVAGPRLYSRANQ	217	0.89
7	DVGPTRPPVVIIEVGP	83	0.88
8	TGSGSGGRTGYVPLGG	61	0.88
9	LTRPSS(LVTFDNPAY)E	242	0.88
10	YYLWPWYYYFPKRRKR	436	0.86
11	PSIIEVPQTGEVSGNI	165	0.86
12	GGRSTTVVDVGPTRPP	75	0.85
13	PSTINKSFTYPKYSLT	361	0.85
14	TMPSTAASSYSNVTVP	376	0.84
15	PPASTTPSTINKSFTY	355	0.84
16	LFDVYADFPPASTTP	346	0.84
17	GFEITSSGTTTPAVLD	127	0.84
18	PDIIIPSHTPMWPSTS	404	0.83
19	APVPTFTGTSGFEITS	117	0.83
20	AWDVPIYTGPDIIIPS	395	0.82

21	KTCKQSGTCPPDVINK	19	0.82
22	TPTSGSHGYEEIPLQT	184	0.82
23	YEPLDTTLSFEPTSNV	256	0.81
24	PISSTPLPTVRRVAGP	209	0.81
25	SVVSSGAPVPTFTGTS	111	0.81
26	GGLGIGTGSGSGGRTG	55	0.8
27	GRTGYVPLGGRSTTVV	67	0.79
28	HRPALSSRRGTVRFSR	283	0.79
29	SVSIS(STSFTNPAF)SD	149	0.79
30	VSTSQFLTRPSSLVTF	236	0.78
31	TTPAVLDITPTVDSVS	136	0.78
32	NVTVPL(TSAWDVPIY)T	387	0.77
33	TEEIELQPLLSATDDS	329	0.77
34	DPSIVTLVEESSVVSS	100	0.76
35	RKRASATDLYKTCKQS	9	0.75
36	FTYPKYSLTMPSTAAS	368	0.75
37	TSTYIGIHGTQYYLWP	425	0.73
38	EIPLQTFASSGSGTEP	194	0.73
39	HDISPIAATEEIELQP	321	0.72
40	SFTNPA(FSDPSIIEV)P	156	0.72
41	PKKRKRIPYFFADGFV	446	0.71
42	SFEPTSNVPHSDFMDI	264	0.71
43	PVVIEPVGPTDPSIVT	90	0.7
44	NKVEGTTLADRILQWS	33	0.7
45	(LVTFDNPAY)EPLDTTL	248	0.69
46	PQTGEVSGNIFVGTPT	171	0.67
47	SPTNAATSTYIGIHGT	419	0.66
48	SRLGQRATMFTRSGKQ	297	0.66
49	PRLYSRANQQVRVSTS	224	0.64
50	DFMDIIRLHRPALSSR	275	0.63

Note: The B-cell epitopes sequences were highlighted in Bold, represents the potential immunogenic CD8+ T cell epitopes overlapped regions