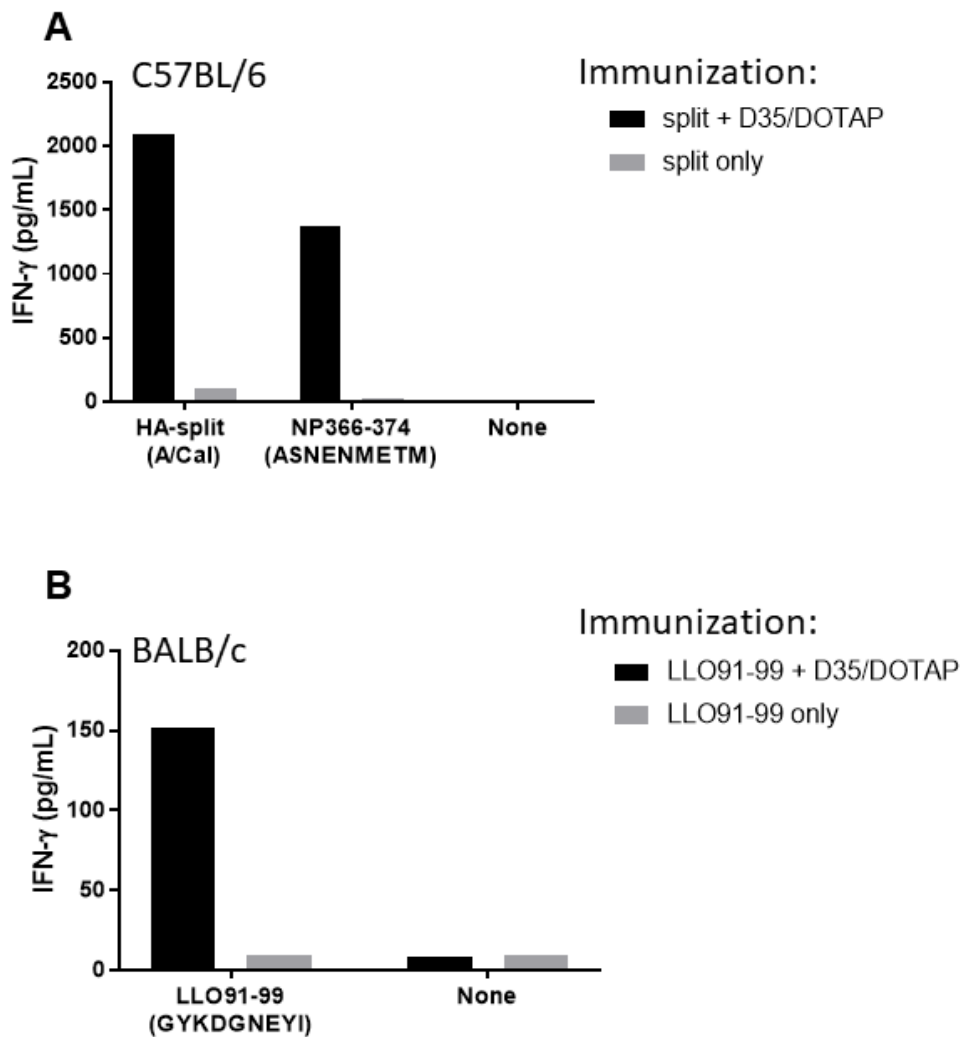


Supplementary Table 1. Peptide library used in this study

No.	Peptide sequence	No.	Peptide sequence	
gH	1	MLFRLWV FVLLTPCYSWRPW	81	PESRDNWNFFNGFQTCSPS
	2	LTPCYSWRPWTISNESHCKN	82	FNGFQTCSPSVGITTTCISDN
	3	TISNESHCKNGNSENPIVRP	83	VGITTCISDNCRKYLPERIT
	4	GNSENPIVRPGFITFNFYTK	84	CRKYLPERITYVNNFFVDNI
	5	GFITFNFYTKNDTRIQVVK	85	YVNNFFVDNIAGLEFNISEN
	6	NDTRIQVVKCLLGS DITYH	86	AGLEFNISENTDSFYSNIGF
	7	CLLGS DITYH LFD AINTTES	87	TDSFYSNIGFLLYLENPATG
	8	LFD AINTTESLTNYEKRVTR	88	LLYLENPATGITKIIRFFPN
	9	LTNYEKRVTRFYEPPMNDIL	89	ITKIIRFFPNSLTLFDITILN
	10	FYEPPMNDILRLSTVPAVKQ	90	SLTLFDITILNCLKYFHLKTG
11	RLSTVPAVKQFNLDHSIQPQ	91	CLKYFHLKTGVEFDLLKQME	
12	FNLDHSIQPQIVYSLNLYPS	92	VEFDLLKQMEAYNSKLPFRS	
13	IVYSLNLYPSHGIIYYIRVVE	93	AYNSKLPFRSSRPTILIRNT	
14	HGIYYIRVVEVRQM QYDNVS	94	MRPPRC SAPILVCAISMATA	
15	VRQM QYDNVSCKLPNSLNEL	95	LVCAISMATALS NATVYRDA	
16	CKLPNSLNELIFPVQVRC AK	96	LSNATVYRDAGTVESTPPPD	
17	IFPVQVRC AKITRYAGENIY	97	GTVESTPPPDDEDNYTAKYY	
18	ITRYAGENIYTHFFT P D F M I	98	DEDNYTAKYYDDSIYFN IYD	
19	THFFT P D F M IYIQNPAGDL	99	DDSIYFN IYDGTNPTPRRRT	
20	LYIQNPAGDLTMMYGNTT D I	100	GTNPTPRRRTLPEIISKFST	
21	TMMYGNTT D I N F K A P Y R K S S	101	LPEIISKFSTSEMSRLGGLK	
22	NFKAPYRKS SFIFKQTLTDD	102	SEMSRLGGLKVFPVDYTP T	
23	FIFKQTLTDDLLIVEKDVV	103	VFPVDYTP TTTLEDIEDLL	
24	LLLIVEKDVVDEEYRFISDA	104	TTLEDIEDLLNYAICDDNSC	
25	DEEYRFISDA TFVDETLDDV	105	NYAICDDNSCGCLIETEAR I	
26	TFVDETLDDVDEVEALLLKF	106	GCLIETEARIMFGDIIICVP	
27	DEVEALLLKFNNLGIQTLLR	107	MFGDIIICVPLSAESRGVRN	
28	NNLGIQTLLRGDCKKPDYAG	108	LSAESRGVRNLK N R L M P M G L	
29	GDCKKPDYAGIPQMMFLYGI	109	LKNRMLMPMGLSQILSSGLGL	
30	IPQMMFLYGIVHFSYSTKNT	110	SQILSSGLGLHFSLLYGAFG	
31	VHFSYSTKNTGMPVLRVLK	111	HFSLLYGAFGSNYSLAYME	
32	GMPVLRVLKTHE N L L S I D S	112	SNYSLAYMERL K P L T A M T A	
33	THE N L L S I D S F V N R C V N V S E	113	RLKPLTAMTAIAFCPMTSKL	
34	FVNRCVNVSEGTIQPKMKE	114	IAFCPMTSKLELRQNYRLEK	
35	GTIQPKMKEFLKYEPSDYS	115	ELRQNYRLEKARCELIVNIE	
36	FLKYEPSDYSITKNKSI PV	116	ARCELIVNIELLKI QNHGGQ	
37	YITKNKSI PVSTLLTYLATA	117	LLKI QNHGGQTIKTLT SFAI	
38	STLLTYLATAYETNVTISRY	118	TIKTLT SFAIVRKDNDGQDV	
39	YETNVTISRYKWSDIANTLQ	119	VRKDNDGQDWTCTRFASVS	
40	KWSDIANTLQKIYEKHMFFT	120	ETCTRFASVSIEDILKSKPA	
41	KIYEKHMFFTNLTFSDRETL	121	IEDILKSKPAANGTCCPPRD	
42	NLTFSDRETLFMLAEIANFI	122	ANGTCCPPRDVHHRPTLQS	
43	FMLAEIANFIPADERMQRHM	123	VHHRPTLQSSNSWTRTEYF	
44	PADERMQRHMQLLIGNLCNP	124	SNSWTRTEYFEPWQDVVDA Y	
45	QLLIGNLCNPVEIVSWAHML	125	EPWQDVVDA YVPINDNHCPN	
46	VEIVSWAHMLTADKAPNLEN	126	VPINDNHCPNDSYVVFQTLQ	
47	TADKAPNLENIYSPCASPV R	127	DSYVVFQTLQGEHWCSRLNK	
48	IYSPCASPVRRDVTNSFVKT	128	GHEWCSRLNKNDTKNYLSSV	
49	RDVTNSFVKT VLT YASLD RY	129	NDTKNYLSSVLA FKNALYET	
50	VLT YASLD RY RSDMMEMLSV	130	LAFKNALYETEELMETIGMR	
51	RSDMMEMLSVYRPPDMARVA	131	EELMETIGMRLASQILSLVG	
52	YRPPDMARVA AIQCLSPSEP	132	LASQILSLVGQRGTSIRNID	
53	AIQCLSPSEPAASLPLPNVT	133	QRGTSIRNIDPAIVSALWHS	
54	AASLPLPNVTFVLSPSYVIK	134	PAIVSALWHSLEPKLTTTNI	
55	FVISPSYVIKGVSLTITTTI	135	LPEKLT T T N I K Y D I A S P T H M	
56	GVSLTITTTIVATSIITAI	136	KYDIASPTHMSPALCTIFVQ	
57	VATSIITAIPLNSTCVSTN	137	SPALCTIFVQGTGSKQRFRN	
58	PLNSTCVSTNYKAGQDLLV	138	TGTGSKQRFRNAGLLMVNNIF	
59	YKAGQDLLVLRNISSQTCE	139	AGLLMVNNIFTVQARYSKQN	
60	LRNISSQTCEFCQSVVMEYD	140	TVQARYSKQNMFEKKIYGYE	
61	FCQSVVMEYDDIDGPLQYIY	141	MFEKKIYGYEHLGQALCEGG	
62	DIDGPLQYIYKNIDELKTL	142	HLGQALCEGGHVFNPRD VY	
63	IKNIDELKTLTDPNNNLLVP	143	HVFNPRD VYFQNIKMAATE	
64	TDPNNNLLVPNTRTHYLLLA	144	FQNIKMAATEPTVVRT	
65	NTRTHYLLLAKNGSVFEMSE	145	MHFVAVYILTFHAYPGVAA	
66	KNGSVFEMSEVGDIDQVSI	146	HFHAYPGVAALPFFSTLPKI	
67	VGIDIDQVSIILVIYVLI A	147	LFFSTLPKITSCCDHYVVL	
68	ILVIYVLI AIALFGLYRL	148	TSCCDHYVVLNSLSSVSSST	
69	IIALFGLYRLIRLC	149	NSLSSVSSSTPTCLDGEILF	
70	MELLLFVMSLILLTFSKAMP	150	PTCLDGEILFQNAGQKFCRP	
71	ILLTFSKAMPLFDHNSFYFE	151	QNAGQKFCRPFTDNRTIVYT	
72	LFDHNSFYFEKLDDCIAAVI	152	FTDNRTIVYTMQDQVQRPWS	
73	KLDDCIAAVINCTRSEVPLL	153	MQDQVQRPWSVTWMDFNLVI	
74	NCTRSEVPLLEPIYQAPVY	154	VTWMDFNLVISDYGRAVIEN	
75	LEPIYQAPVYNEDVMSILLK	155	SDYGRAVIENLTESAMSAHK	
76	NEDVMSILLKPPTKKKPFSR	156	LTESAMSAHKNGPRYLQMET	
77	PPTKKKPFSRIMVTNEFLSD	157	NGPRYLQMETFISDLFRYEC	
78	IMVTNEFLSDFLLQDNPEQ	158	FISDLFRYEC HRDNRYVLEK	
79	FLLQDNPEQLRTL FALIGD	159	HRDNRYVLEKKLQMFYPTTH	
80	LRTL FALIGDPESRDNLNLF	160	KLQMFYPTTHMNE LLFYPSD	
		161	MNE LLFYPSDPTLPSPYGNG	
		162	PTLPSPYGNGHY	

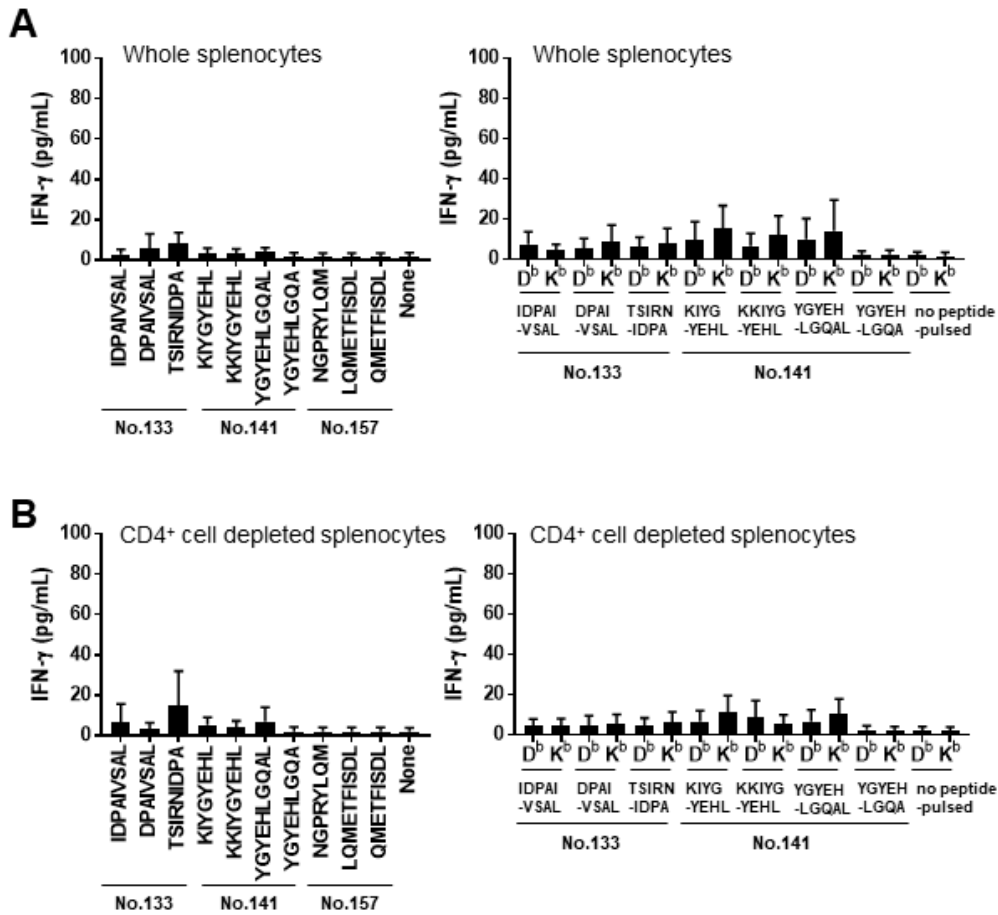


Supplementary Figure 1.

(A) C57BL/6 mice were immunised at the tail base with 40 μ g of influenza HA split vaccine with or without D35/DOTAP (D35: 10 μ g) adjuvant. Seven days after immunisation, splenocytes were stimulated with 5 μ g/mL A/California/7/2009 (X-179A) (H1N1) pdm09 or 5 μ g/mL epitope peptide ASNENMETM, which is the H2-Db restricted epitope peptide within the NP of Influenza A/PR/8/34 (H1N1). After 20 h of stimulation, the production of IFN- γ was measured by ELISA and data are presented in pg/mL.

Note that influenza HA split vaccine is a mixture of equal amounts of A/California/7/2009 (X-179A) (H1N1) pdm09, A/Hong Kong/4801/2014 (X-263) (H3N2), B/Phuket/3073/2013 (Yamagata), and B/Texas/2/2013 (Victoria) provided from the Research Foundation for Microbial Diseases of Osaka University.

(B) BALB/c mice were immunised at the tail base with 10 µg of LLO91-99 peptide (GYKDGNEYI) with or without D35/DOTAP (D35: 10 µg) adjuvant. Seven days after immunisation, splenocytes were stimulated with 5 µg/mL LLO91-99 peptide. After 20 h of stimulation, the production of IFN-γ was measured by ELISA and data are presented in pg/mL.



Supplementary Figure 2. Short peptide stimulation and the restricted MHC I molecule determination after expression plasmid DNA vaccination in C57BL/6 mice

(A) C57BL/6 splenocytes immunised with a mixture of gH, gL, gQ1, and gQ2 expression plasmids were stimulated with the indicated CD8⁺ T-cell short epitope candidate peptides. After 20 h of stimulation, IFN- γ (pg/mL) of each peptide was measured by ELISA (A; left). The restricted MHC I molecules were examined by each peptide-pulsed BW5147 cell line expressing H2Db or H2Kb (A; right).

(B) C57BL/6 splenocytes immunised with a mixture of gH, gL, gQ1, and gQ2 expression plasmids were first depleted of CD4⁺ T cells (to increase the detection sensitivity of CD8⁺ T-cell responses), and then stimulated with the indicated CD8⁺ T-cell short epitope candidate peptides. After 20 h of stimulation, IFN- γ (pg/mL) of each peptide was measured by ELISA (B; left). The restricted MHC I molecules were examined with each peptide-pulsed BW5147 cell line expressing H2Db or H2Kb (B; right).