

1 **Supplementary materials include Supplementary Figure Legend, Figs S1-5 and**
2 **Tables S1-3.**

3

4 **Supplementary Figure Legend**

5

6 **Figure S1.** SDS-PAGE analysis of recombinant HIV-1 Env gp140 proteins. HIV-1
7 Env gp140 proteins as indicated on the top of gels were produced as described in
8 the Methods section, loaded at 1ug per lane, fractionated on 4-20% gradient SDS-
9 PAGE under non-reducing (Panel A) or reducing conditions (Panel B), and stained
10 with Coomassie blue.

11

12 **Figure S2.** Blue native PAGE and Western blot analysis of HIV-1 gp140 Envs.
13 HIV-1 Env gp140 proteins as indicated on the top of gels were fractionated on 4-
14 20% gradient blue native PAGE (A), and detected in Western blots by mAbs 2F5
15 (B), PG9 (C), CH31 (D) and 17B (E). Arrowheads indicate the monomeric,
16 dimeric, trimeric and tetrameric forms of gp140.

17

18 **Figure S3.** IC₅₀ neutralization titers (vertical axis) for sera from individual guinea pigs
19 received the indicated HIV-1 Envs (grouped into consensus, T/F and chronic families)
20 were determined against a panel of subtype A, B, C and E pseudoviruses (horizontal
21 axis). Panel (A) shows results for the conservative criterion, while panel (B) displays
22 those from the inclusive approach. This figure mirrors Fig. 2 in the body of the text, but
23 instead of including the geometric mean per group, each animal in each group is shown.

1

2 **Figure S4.** Alignment of the V3 loop amino acid sequences. Shown are alignment of the
3 V3 loop amino acid sequences of HIV-1 Envs used for immunization and HIV-1 viruses
4 used for neutralization assays. The alignment is relative to CON-S, and amino acids
5 identical to CON-S are shown as dashes (-).

6

7 **Figure S5.** Levels and specificity of serum antibodies of immunized guinea pigs to HIV-
8 1 Envs. Serum samples in serial 1:3 dilutions (1:30 to 1: 5314410) of immunized guinea
9 pigs grouped by immunogens of consensus (red), chronic (blue), and T/F (green) were
10 tested in ELISA for binding to clades B (A) and C (B) and group M consensus (C) V3
11 peptides.. Pre-bleed sera was used as negative controls and showed no detectable binding
12 to these peptides (data not shown). Serum binding antibody titers were expressed as
13 EC50 (reciprocal serum dilutions) in y-axis. The open circles in each column represent
14 the EC50 for each member of a group of animals immunized with the same immunogen;
15 the filled circle represents the geometric mean of the group. This geometric mean score
16 was used to represent each of the immunogens, for a statistically compare the classes of
17 vaccines. The V3 responses were highly clade specific. For example, the sera from the
18 chronic B vaccinated guinea pigs had a much higher levels of responses to the B.con
19 peptide than C.con peptide, and vice versa for the chronic C vaccinated animals. Also,
20 the T/F C clade responses were much more intense to the C clade V3 peptide than the B
21 V3 clade peptide. Thus clade-specific effects confound a direct comparison of V3
22 responses. To attempt to minimize clade effects, and to get the best estimate of total V3
23 responses (given measurements were not done autologous V3 peptides), in (D) the

1 highest response for each vaccine to any of the 3 V3 peptides is shown. This was done to
2 approximate the level of the V3 response, while minimizing the impact of sequence
3 specificity. The median value of the geometric means is indicated by the horizontal bar.
4 Vaccine classes (consensus, chronic, and T/F) were compared using a Kruskal-Wallis
5 omnibus test. In this case the consensus immunogens had statistically higher levels of V3
6 activity, however this result may also reflect sequence specificity to some degree, as the
7 consensus sequences are more similar to each other than are the natural strains in the V3
8 region (Fig. S4). Parts (E) and (F) show that within-clade V3 peptide reactivity correlated
9 with the Tier-1 neutralization potency. In (E), the geometric mean of the 4 animals given
10 each vaccine of the V3 B.con peptide response is compared to the geometric mean
11 neutralization of the B clade Tier 1 pseudovirus SF162, and a highly significant rank
12 correlation was observed ($p = 0.008$). Similarly the V3 C.con peptide responses were
13 significantly correlated with the neutralization of the C clade Tier 1 pseudovirus BR025
14 ($p=0.001$). The correlations between cross-clade V3 peptide responses and neutralization
15 were either much diminished or lost (data not shown), presumably due to the clade/
16 sequence specificity evident in (A-C). Tier 2 responses were not correlated with V3
17 peptide responses.

18

19

Figure S1

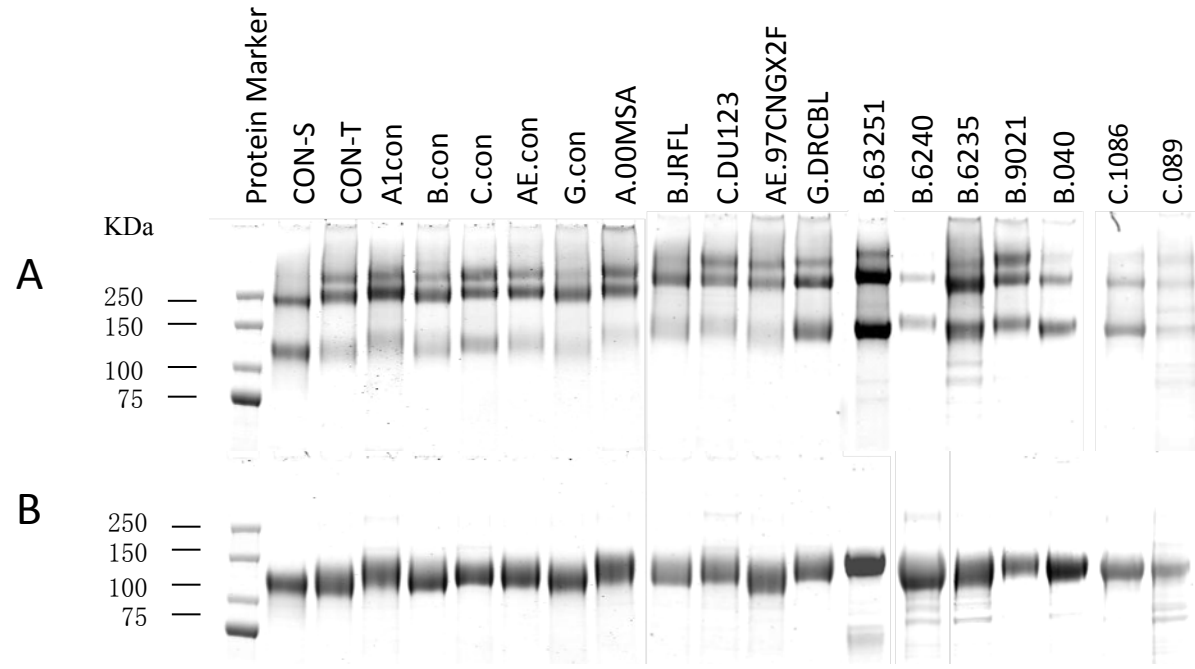


Figure S2

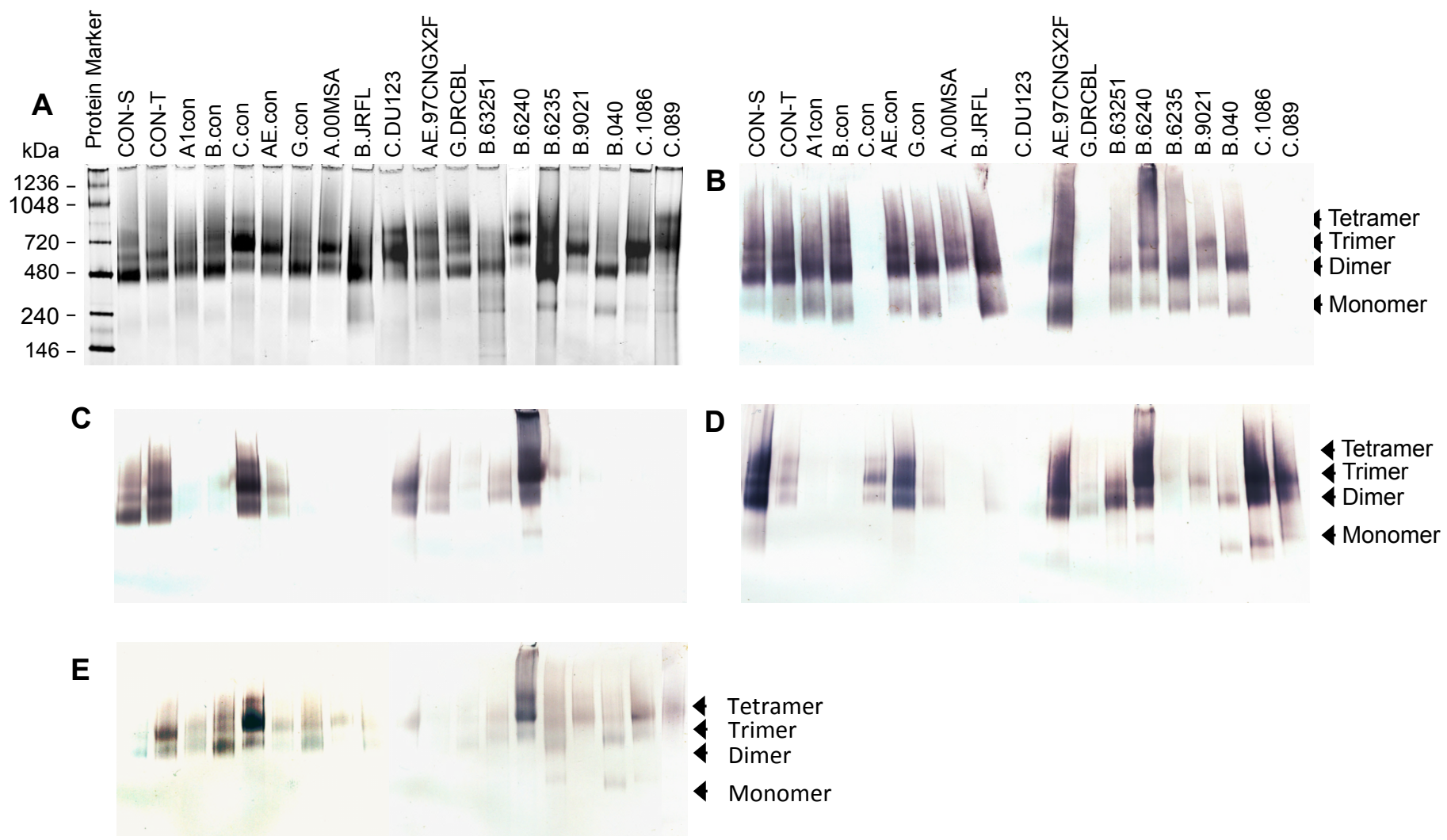
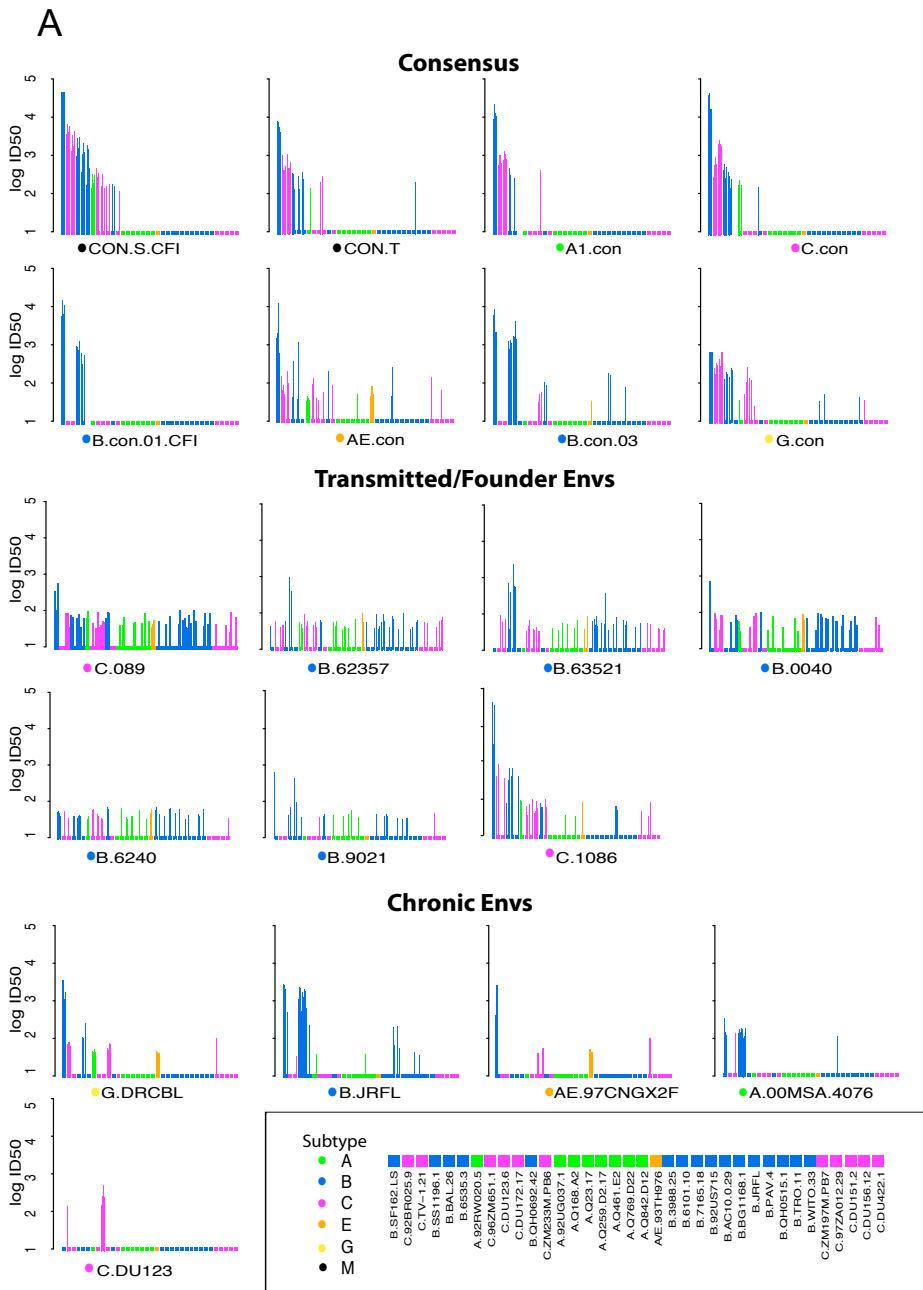


Figure S3

Traditional threshold



Inclusive threshold

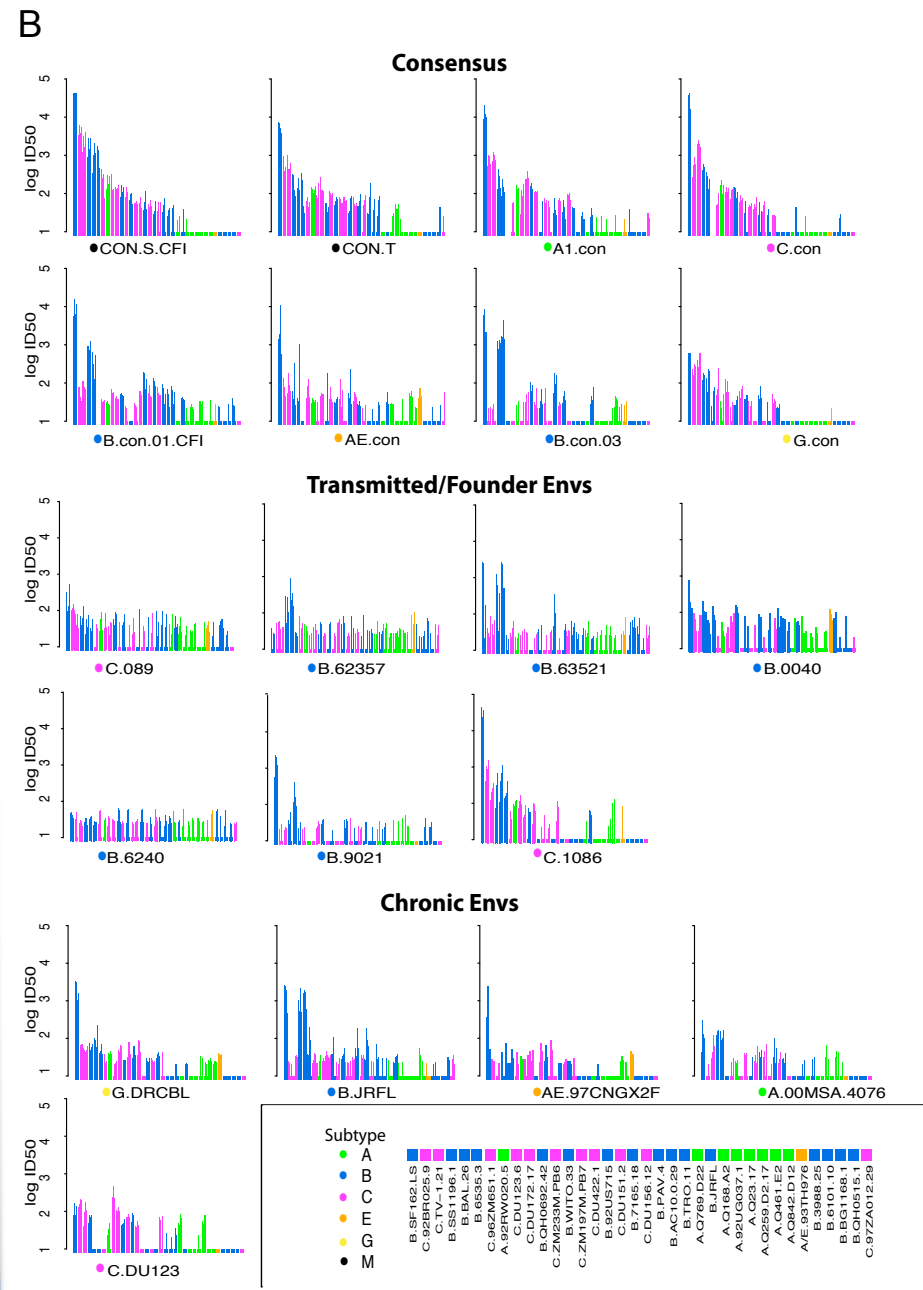


Figure S4

M.CON_S	TRPNNNTRKS	IRIGPGQAFY	ATGDIIGDIR	QAH	} Consensus Immunogens
M.CON_T	-----	-----	-----	---	
A1.con	-----	-----	-----	---	
B.con_01	-----	-H---R---	T--E-----	---	
B.con_03	-----	-H---R---	T--E-----	---	
C.Con	-----	-----	T-----	---	
AE.Con	---S---T-	-T-----V--	R-----	K-Y	
G.Con	-----	-----	-----	---	
A.00MSA	I--G-----	VH-----	-----	---	} Chronic Immunogens
C.DU123	-----	-----TV-	--N-----	---	
G.DRCBL	-----R-	VA-----	T--EV-----	K--	
AE.97CNGX2F	---S---T-	-TM---V--	R-----	K-Y	
B.JRFL	-----	-H---R---	T--E-----	---	
B.040	-----	-PM---K---	-R---T----	K-Y	} Transmitted Immunogens
B.63521	-----	-H---R---	--E--N---	---	
B.62400	-----G	-H--L-R-L-	-----	---	
B.9021	---G-----	-H-A--RT--	--E-----	R--	
B.62357	-----	-H-----	T--A-----	--Y	
C.1086	-----	-----T-	-----N--	---	
C.089	I-----R-	-----	-ANG-V-N--	---	
B.QH0692.42	---G-----	-H---R---	-----	---	} Test Panel
B.SS1196.1	-----	-H---R---	---GV-----	---	
B.SF162.LS	-----	-T---R---	-----	---	
B.Bal.26	-----	-H---R-L-	T--E-----	---	
B.92US715	-----	-H---R---	T--E-----	---	
B.JRFL-MC	-----	-H---R---	T--E-----	---	
B.6101.10	-----	-HM--A--	-R-EV-----	---	
B.6535.3	-----	-NL--R---	-----	---	
B.7165.18	-----G	-H---R---	T--Q-----	---	
B.QH0515.1	-----	-H--A-K-L-	T--E-----	---	
B.3988.25	-----	-N--R-V	--A-----	---	
B.BG1168.1	E-----I--	-HL---R-WH	--Q-----	K-F	
B.AC10.0.29	I-----G	-H---R---	T-----	---	
B.PVO.4	-----	-S---R---	-----	---	
B.TRO.11	-----R-	-H---R---	-----	---	
B.WITO.33	---G---R-	-N---R---	--A-----	K--	
C.TV1.21	-----	V-----	--N-V-----	---	
C.Du123.6	-----	-----TV-	--N-----	---	
C.Du172.17	---S-----	V-----T-F	-----	---	
C.Du151.2	-----R-	-----T--	--E--N---	E--	
C.Du156.12	-----	V-----T--	-----	---	
C.Du422.1	-----	V-----T--	--E-----	E--	
C.97ZA012.29	-----	M-----T--	-----	--Y	
C.96ZM651.2	V-----Q-	-----T--	-----	---	
C.92BR025.9	-----	-----	--E-----	---	
C.02ZM233M.PB6	-----	-----S--	--E-V-N--	E--	
C.02ZM197M.PB7	V-----G	V-----T-F	--E-----	---	
A.92RW020.05	-----	-G V-----	--G-----	---	
A.92UG037.01	-----R-	V-----T--	-----	---	
A.Q23.17	I-----	-----	-----	---	
A.Q168.a2	---D---T-	-----	-----	--Y	
A.Q259.d2.17	-----	V-----	--D--N---	--Y	
A.Q461.e2	I--G-----	V-----	-----T----	N--	
A.Q769.d22	---G-----	-HL---KV--	-----	K--	
A.Q842.d12	-----	-H-----	-----	---	
AE.93TH976	---ST---T-	-----V--	R---T----	K-Y	

Figure S5

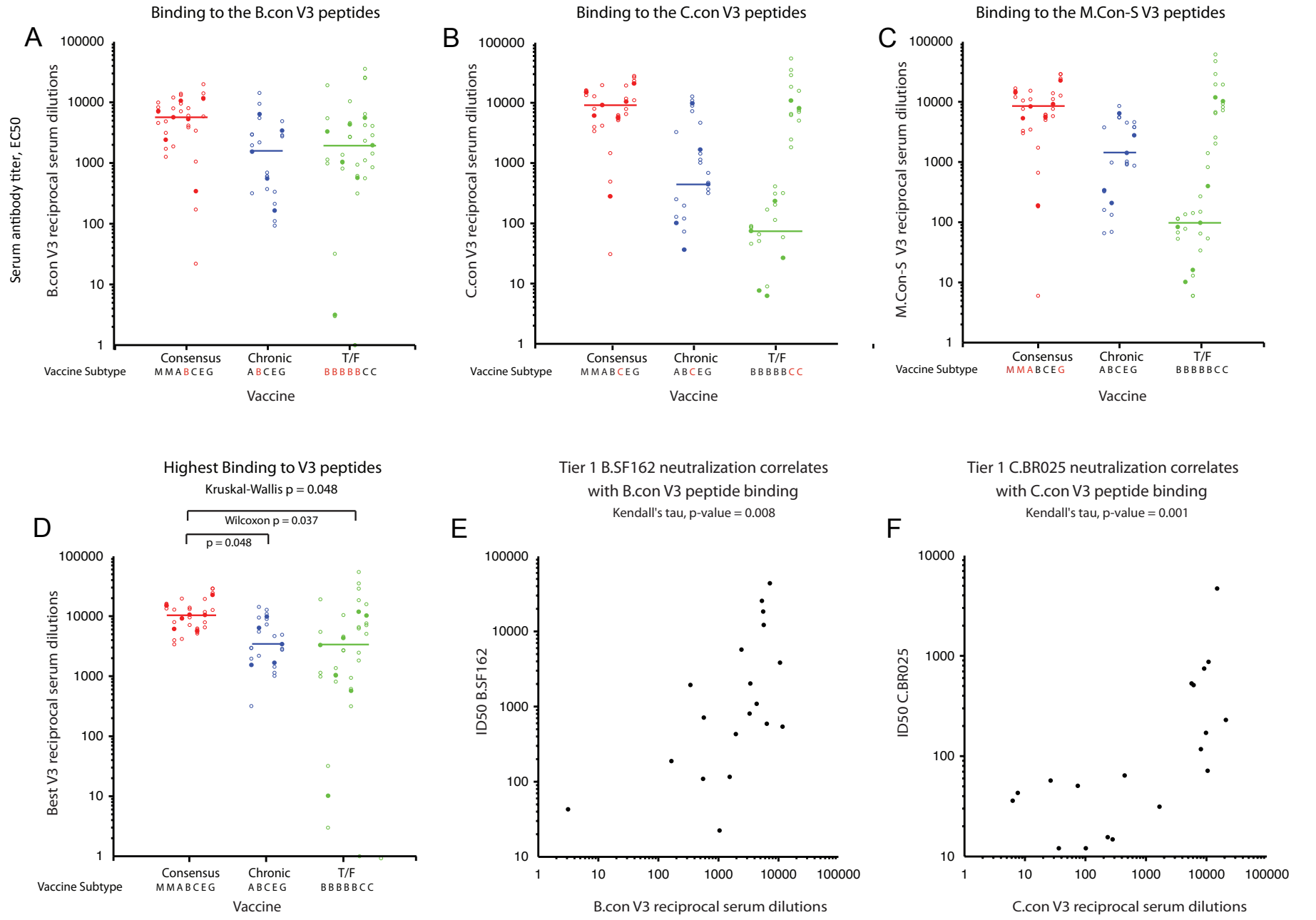


Table S1. HIV-1 Envs used in the study.

Env name	Env type	Group/subtype	Construct design	Website / accession No.
CON-S_01	Consensus	M	gp140CFI	http://hiv-web.lanl.gov
CON-T_03	Consensus	M	gp140CF	http://hiv-web.lanl.gov
A.con	Consensus	A	gp140CF	http://hiv-web.lanl.gov
B.con_01	Consensus	B	gp140CF	http://hiv-web.lanl.gov
B.con_03	Consensus	B	gp140CF	http://hiv-web.lanl.gov
C.con	Consensus	C	gp140CF	http://hiv-web.lanl.gov
AE.con	Consensus	CRF01_AE	gp140CF	http://hiv-web.lanl.gov
G.con	Consensus	G	gp140CF	http://hiv-web.lanl.gov
A.00MSA	Chronic	A	gp140CF	AF457084
B.JRFL	Chronic	B	gp140CF	AAD14578
C.DU123	Chronic	C	gp140CF	ABD83628
AE01.97CNGX2F	Chronic	CRF01_AE	gp140CF	AAG38897
G. DRCBL	Chronic	G	gp140CF	AAD14578
B.63521	T/F	B	gp140C	ACE64215
B.6240	T/F	B	gp140C	ACE65864
B.6235	T/F	B	gp140C	ABY50658
B.9021	T/F	B	gp140C	ABY50691
B.040	T/F	B	gp140C	ACR51151
C.1086	T/F	C	gp140C,	ACS67968
C.089	T/F	C	gp140C	ACO99154

Table S2. Comparing mAb binding between T/F, consensus and chronic viruses.

Antibody	Comparison*	p-value**	fdr p-value***	p-value**	fdr p-value***
		ELISA	ELISA	SPR	SPR
17b	Omnibus	0.0039	0.0234	0.0055	0.0329
17b	T/F x Chronic	0.0164	0.1477	0.0051	0.0909
17b	Chronic x Consensus	0.2857	0.7347	0.1342	0.5966
17b	T/F x Consensus	0.0070	0.1259	0.0734	0.5966
2F5	Omnibus	0.6405	0.8682	0.2549	0.5101
2F5	T/F x Chronic	0.6098	0.9805	0.2424	0.5966
2F5	Chronic x Consensus	0.3268	0.7354	0.8377	0.8869
2F5	T/F x Consensus	0.9726	0.9805	0.1690	0.5966
2G12	Omnibus	0.8682	0.8682	0.8450	0.8450
2G12	T/F x Chronic	0.7210	0.9805	0.9596	0.9596
2G12	Chronic x Consensus	0.9307	0.9805	0.5065	0.8288
2G12	T/F x Consensus	0.6556	0.9805	0.8357	0.8869
4E10	Omnibus	0.1918	0.3836	0.6635	0.7962
4E10	T/F x Chronic	0.2172	0.6515	0.6818	0.8766
4E10	Chronic x Consensus	0.8290	0.9805	0.4697	0.8288
4E10	T/F x Consensus	0.0921	0.4143	0.6084	0.8424
PG9	Omnibus	0.7771	0.8682	0.3401	0.5101
PG9	T/F x Chronic	0.6212	0.9805	0.3232	0.6465
PG9	Chronic x Consensus	0.5498	0.9805	0.1558	0.5966
PG9	T/F x Consensus	0.9388	0.9805	0.8339	0.8869
VRC01	Omnibus	0.0876	0.2629	0.3395	0.5101
VRC01	T/F x Chronic	0.1604	0.5773	0.2652	0.5966
VRC01	Chronic x Consensus	0.9805	0.9805	0.2381	0.5966
VRC01	T/F x Consensus	0.0332	0.1993	0.5618	0.8424

*Statistical comparisons of the three distributions T/F, chronic and consensus were done using a Kruskal-Wallis omnibus test, followed by pair-wise comparisons using a Wilcoxon-rank order test.

**p-value provides the uncorrected p-value for each comparison.

***fdr: false discovery adjustment for multiple tests using the Benjamini-Hochberg method.

B.JRFL	GP1402	2558	968	1622	23	38	23	56	10	10	10	28	10	10	28	10
	GP1403	2261	561	1189	22	35	10	42	10	10	10	27	10	10	23	10
	GP1404	1342	299	1055	20	22	10	34	10	10	10	10	10	10	10	10
	GP791	1489		1893	32		17				20					32
	GP793	1888		1664	28		14				16					31
	GP796	79			34		18				18					22
	GP797	468			38		14				23					27
C.DU123	GP1623	51	48	10	10	10	21	10	10	10	10	10	10	10	10	10
	GP1624	126	78	10	10	10	10	10	10	10	10	10	10	10	53	10
	GP1625	49	71	10	10	10	10	10	10	10	10	10	10	10	84	10
	GP1626	131	77	30	10	10	10	10	10	10	10	10	10	10	63	10
G.DRCBL	GP1397	3295	75	99	21	40	47	22	10	10	10	29	10	10	29	10
	GP1398	3181	47	91	10	45	67	23	21	10	10	37	10	10	60	10
	GP1399	1029	58	57	22	67	83	31	10	10	10	40	10	10	60	10
	GP1401	1552	70	223	20	37	44	32	10	10	10	32	10	10	22	10
A1.CON	GP1300	650	54	61	24		10	30	25	10	10	32	44	10	72	10
	GP1301	650	338	237	42		25	77	32	10	10	67	41	40	83	10
	GP1302	650	382	238	28		10	38	22	10	10	43	26	10	10	10
	GP1303	650	226	95	10		10	27	22	10	10	21	42	10	64	10
AE.CON	GP1369	1339	60	24	21		26	54	10	23	10	21	10	10	22	10
	GP1370	1815	33	27	22		10	40	10	10	10	10	10	10	29	10
	GP1371	10598	1048	650	27		23	38	31	22	10	31	10	10	10	10
	GP1372	541	25	26	20		33	10	25	10	10	10	10	10	41	26
B.CON.01	GP1098	650	650	610	40		23	184	81	10	10	134	90	24	69	40
	GP1099	650	650	650	42		27	177	65	27	10	112	72	23	62	25
	GP1132	650	650	650	36		23	69	28	10	10	59	27	10	41	24
	GP980	650	650	650	35		20	126	55	10	10	83	51	10	65	10
B.CON ENV03	GP1389	6000	1145	1362	29		32	52	10	10	10	28	10	10	21	10
	GP1390	8407	498	1527	38		55	50	10	10	10	44	10	10	33	10
	GP1391	2082	1162	1414	34		92	92	10	10	10	52	10	10	67	10
	GP1392	1585	1076	1189	30		39	141	10	10	10	34	10	10	27	10
C.CON	GP1268	37634	402	356	43		10	27	10	10	10	28	10	10	30	10
	GP1269	41842	650	293	45		26	60	10	10	10	40	10	10	65	10
	GP1270	16225	253	134	10		10	10	10	10	10	10	10	10	10	10
	GP1271	16511	484	233	10		10	34	10	10	10	10	10	10	10	10
G.CON	GP1590	7003	83	92	10	84	10	31		29	10	23	40	10		10
	GP1591	2914	43	46	10	10	10	34		10	10	22	10	10		10
	GP1592	24916	217	224	10	168	10	51		21	10	46	10	10		10
	GP1597	20111	162	125	10	110	10	10	10	10	10	650	10	10	48	10
CON-S	GP963	39485	333	240	10	160	10	21		10	10	10		10		10
	GP964	27103	917	472	10	1734	10	34		10	10	10		10		10
	GP965	24895	723	760	10	1405	10	10		10	10	10		10		10
	GP966	44788	1183	727	10	452	10	21		10	10	10		10		10

CON-T	GP1156	650	322	142	10	349	53	30	10	10	10	46	31	10	50	10
	GP1162	650	300	260	10	226	39	34	25	10	10	48	29	10	65	10
	GP1163	650	120	120	10	48	40	77	68	10	10	62	83	10	81	44
	GP1164	650	88	54	10	31	53	84	86	10	10	98	188	10	70	43

Immunogen	Neutralization titer, ID50 (reciprocal serum dilution), clade C											
	TV-1	92BR025	96ZM651	97ZA012	DU172	DU151	DU156	DU422	DU123	ZM197M	ZM233M6	
B.0040	169	96	262	142	186	239	10	43	27	10	10	
	82	64	89	141	96	504	71	216	39	10	10	
	82	30	42	64	96	161	34	10	10	10	10	
B.62357	36	52	82	49	40	83	28	53	24	10	22	
	10	10	10	10	10	22	10	10	10	10	10	
	40	56	37	94	49	104	36	54	10	27	28	
	39	57	52	46	34	172	30	67	27	23	26	
B.6240	25	32	23	25	32	59	20	26	20	10	23	
	31	48	52	209	30	174	61	146	40	27	28	
	29	50	55	244	29	201	37	205	35	23	25	
	21	44	10	10	10	56	29	10	10	10	10	
B.63521	53	40	30	49	38	180	33	10	25	10	21	
	21	29	22	21	42	104	24	10	10	10	10	
	25	66	40	25	79	158	35	31	34	10	27	
	65	85	62	46	115	126	33	36	31	26	32	
B.9021	20	21	21	10	22	111	26	10	10	10	10	
	10	10	10	10	25	148	10	10	10	10	10	
	24	28	24	10	34	50	21	10	10	10	10	
	23	10	10	10	28	53	24	10	10	10	10	
C.089	81	104	34	30	38	63	10	22	31	10	10	
	41	118	42	103	21	413	24	25	32	10	31	
	79	146	94	127	49	463	84	62	84	41	49	
	144	106	127	36	46	150	10	25	34	10	10	
C.1086	106	111	131	102	52	260	35	157	57	10	42	
	125	114	209	175	91	254	63	178	77	25	66	
	397	200	290	39	99	169	20	27	125	10	28	
	156	186	217	169	126	471	30	154	180	10	82	
	119	403	10	10	40	10	10	10	71	21	27	
	196	1028	62	10	46	32	10	10	118	10	102	
	255	880	10	10	86	117	10	20	170	10	97	
	365	1561	36	10	53	79	10	26	96	46	59	
A.00MSA	22	10	10	10	26	22	10	10	36	34	27	
	23	10	23	10	25	22	10	10	28	10	10	
	25	10	10	10	10	10	10	10	25	10	22	
	10	43	30	10	83	26	10	20	35	70	10	
AE.97CNGX2F	10	61	10	10	92	10	10	10	28	10	23	
	67	93	44	10	191	22	30	10	21	79	72	
	60	136	24	10	115	24	10	10	61	74	73	

	28	66	21	10	122	23	10	10	36	45	46
	10	25	10	10	45	10	10	25	24	23	23
	10	21	10	10	36	10	10	10	25	10	21
	10	22	27	10	29	10	10	10	10	10	10
B.JRFL	33	11	40	28	31	35	24	31	29	23	20
	32	14	38	19	25	30	19	27	24	22	14
	35	21	38	36	30	36	13	22	34	9	21
	31	18	22	20	36	25	23	28	26	6	29
	41	107	10	10	35	24	69	10	170	26	33
C.DU123	94	152	10	10	75	24	57	10	231	29	49
	180	204	10	10	99	43	10	10	458	41	76
	105	203	10	10	115	10	75	10	226	48	72
	42	122	10	10	79	23	10	10	55	30	31
G.DRCBL	44	274	39	10	148	26	44	10	64	89	79
	88	267	10	10	142	22	10	10	85	84	80
	62	126	10	10	102	24	10	10	38	44	33
	650	210	10	27	241	69	97	63	29	78	112
A1.CON	650	995	55	31	237	78	89	43	106	58	119
	650	985	59	30	389	64	105	10	47	10	108
	650	594	10	23	251	62	69	10	57	66	113
	37	179	31	10	36	29	21	10	85	37	36
AE.CON	174	106	57	10	52	34	10	10	43	93	72
	85	156	120	55	120	51	10	10	39	10	35
	27	71	22	25	88	26	25	10	50	69	40
	112	76	36	10	40	52	74	59	67	29	24
B.CON.01	109	75	30	10	43	87	53	60	63	26	21
	78	42	33	10	38	43	48	40	53	23	10
	67	32	34	10	38	42	46	47	56	10	10
	20	66	10	10	38	24	10	10	32	29	26
B.CON 03	27	64	10	10	164	26	10	10	34	31	10
	10	107	10	10	127	30	10	10	47	68	71
	10	46	10	10	131	28	10	10	29	10	22
	2029	276	10	10	70	33	34	32	107	27	49
C.CON	2547	546	149	10	121	50	85	51	150	64	100
	1933	908	10	10	128	64	85	40	108	21	87
	1699	578	10	10	152	10	78	46	136	10	96
	303	232	149		131	31	25	50	59	21	62
G.CON	153	199	96		147	40	29	79	46	21	40
	650	374	136		129	30	38	44	86	22	82
	416	255	87	10	122	27	38	10	67	26	58
	1332	3438	28		45	10	35	26	101	27	51
CON-S	1747	4793	69		38	10	59	26	191	10	54
	1345	650	318		31	10	10	81	137	64	27
	2801	9919	74		41	10	61	23	132	22	50
CON-T	650	940	62	10	269	79	10	83	115	82	118

355	377	80	26	121	52	50	82	71	71	105
273	384	45	10	126	46	69	64	74	57	94
332	496	60	10	115	58	90	69	73	57	103

Immunogen	Neutralization titer, ID50 (reciprocal serum dilution), clade A										Control MuLV
	Q23	Q259	Q4612	93TH976	Q769	92RW020	Q168	AC10	Q842	QH0692	
B.0040	266	368	540	119	109	55	79	69	28	158	35
	493	540	540	90	94	30	161	63	30	138	26
	214	328	448	61	67	22	26	63	10	97	30
B.62357	243	201	267	87	68	49	48	10	29	119	31
	10	21	33	10	10	10	10	10	10	10	10
	127	156	202	49	88	42	38	20	10	55	32
	207	242	386	102	57	32	53	34	10	49	28
B.6240	131	257	56	10	52	10	20	115	10	29	10
	477	321	462	44	108	30	60	69	29	64	23
	428	406	540	57	134	35	83	42	30	57	25
	10	28	10	10	10	10	10	28	10	27	10
B.63521	107	444	415	33	36	22	10	31	10	134	23
	26	25	21	10	23	10	10	20	10	97	10
	49	46	25	25	29	21	21	28	10	124	23
	190	122	118	78	62	29	32	10	27	138	26
B.9021	76	79	51	10	21	10	10	10	10	29	10
	10	10	10	10	10	10	10	10	10	36	10
	35	41	26	10	34	10	10	10	10	39	21
	33	39	26	10	10	10	10	10	10	50	10
C.089	53	57	45	33	42	27	23	10	10	59	10
	289	540	540	40	216	58	38	39	10	39	10
	283	512	540	50	222	90	64	96	49	88	30
	74	461	154	25	78	29	26	10	10	78	22
C.1086	225	460	111	37	93	38	98	80	31	72	29
	295	412	423	136	145	89	133	140	69	92	25
	136	241	163	120	85	46	36	72	10	121	22
	412	540	540	117	211	117	218	161	89	123	38
	10	10	10	10	10	92	10	10	10	10	30
	10	23	102	81	10	82	10	10	10	73	20
	10	10	10	10	10	117	10	10	10	56	23
10	36	130	10	33	121	10	10	10	58	10	
A.00MSA	31	28	47	30	33	24	10	10	33	10	36
	30	26	33	34	24	20	10	10	32	10	20
	23	10	10	10	10	10	10	10	23	10	33
	28	21	42	10	44	40	10	10	49	21	62
AE.97CNGX2F	10	40	21	10	10	10	10	10	10	10	30
	10	124	29	74	62	74	10	10	63	10	50
	10	76	28	54	10	65	10	10	63	24	39
	27	60	28	47	38	31	10	10	29	10	35

	10	10	10	22	27	10	22	10	24	39	24
	10	10	10	10	10	22	10	10	10	39	25
B.JRFL	10	10	10	10	10	10	10	10	10	32	25
						25					
						18					
						32					
						35					
C.DU123	10	37	10	10	20	10	10	10	10	44	34
	10	53	10	10	40	10	10	10	10	46	46
	10	65	10	10	57	10	10	10	10	49	64
	10	61	10	10	49	10	10	10	10	61	62
G.DRCBL	29	34	26	33	31	28	10	10	22	27	32
	34	96	22	39	26	40	10	10	59	24	31
	10	92	29	94	65	80	10	10	73	26	49
	10	35	24	37	31	27	10	10	28	26	47
A1.CON	10	10	10	10	10	57	10	10	10	170	87
	10	10	28	21	10	169	24	20	10	181	100
	21	10	10	10	10	134	10	10	10	261	56
	10	10	10	10	10	137	10	10	10	218	96
AE.CON	48	27	52	52	30	29	10	10	30	10	30
	37	10	44	63	10	65	22	10	38	10	10
	29	10	59	44	40	25	28	10	34	28	31
	38	10	31	52	10	30	10	10	32	10	37
B.CON.01	10	33	10	10	10	30	10	69	10	49	71
	20	32	10	10	10	33	22	49	35	53	78
	10	27	10	27	10	27	10	10	10	46	48
	10	33	10	10	10	26	10	23	10	44	63
B.CON 03	22	33	23	10	10	22	10	10	27	36	24
	37	74	44	44	54	27	10	10	50	105	31
	46	97	39	10	76	66	10	10	41	59	36
	24	59	35	25	10	10	10	10	30	88	26
C.CON	10	10	10	10	10	168	10	10	10	149	36
	10	10	10	10	10	229	10	10	10	138	74
	10	10	10	10	10	98	10	10	10	76	63
	10	10	10	10	10	170	10	10	10	110	74
G.CON		37		10	39	40			10	30	44
		35		10	39	43			10	30	50
		44		10	49	20			10	42	59
	10	28	10	10	33	31	10	10	10	43	44
CON-S	10	10	10	10	10	53	10			62	42
	10	10	10	10	10	118	10		10	107	51
	10	10	10	10	10	51	10			122	52
	10	10	10	10	10	112	10			115	36
CON-T	22	10	10	10	10	151	10	10	10	58	28
	10	10	10	10	10	130	10	10	10	57	23

10	10	10	10	10	106	26	36	10	33	22
10	10	10	10	10	126	30	73	10	39	36

¹ Serum neutralization titers were listed for post immunization sera. When neutralization titer was undetectable at the highest serum concentration tested (1:20), It was score as <20. The value 10 was assigned for data analysis purpose for samples with neutralization titer at <20.