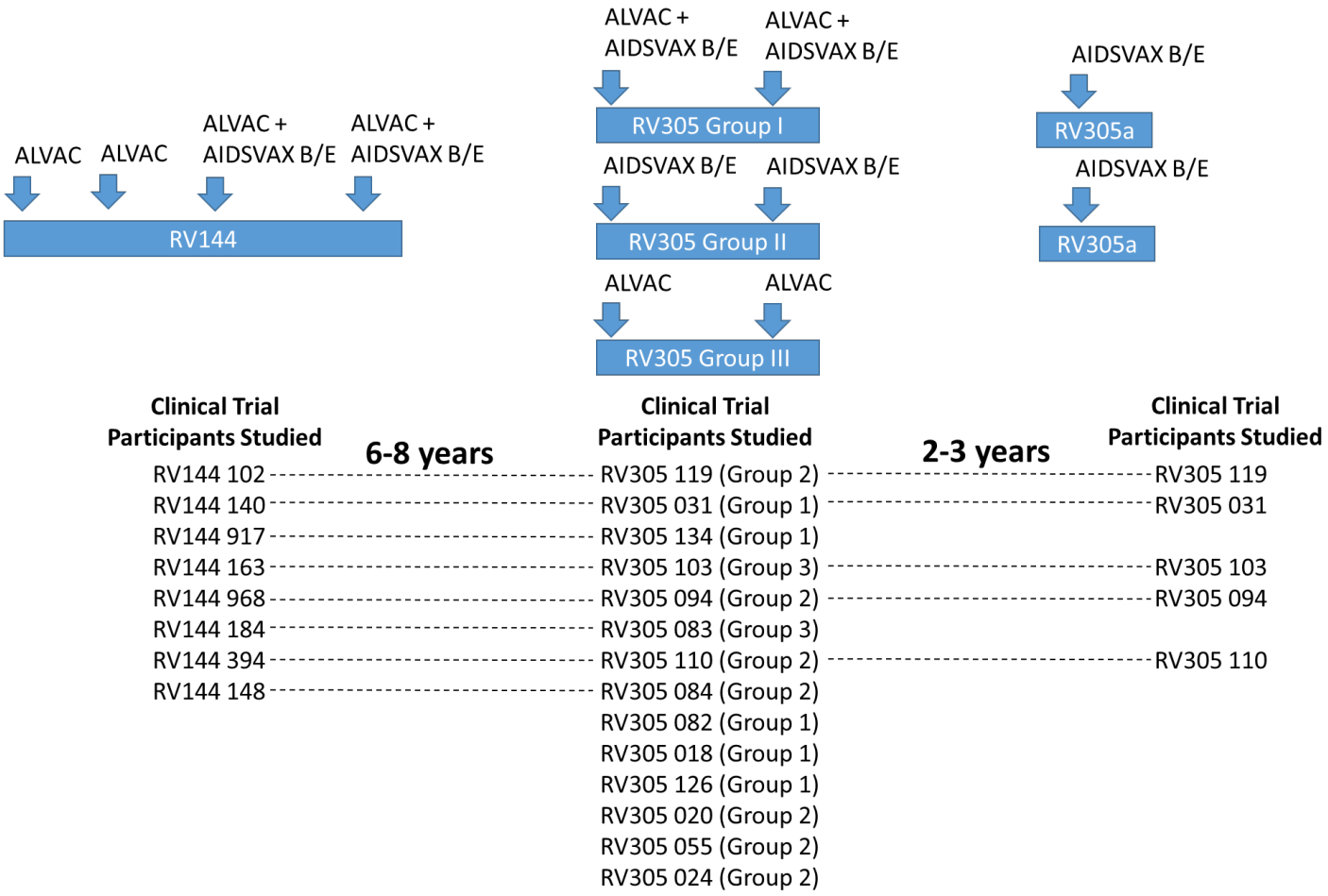


Figure S1. Clinical trials and participants studied. RV305 was a boosting of HIV-1 uninfected RV144 participants that occurred 6-8 years after the conclusion of RV144. In RV305 participants were boosted with either ALVAC + AIDSVAX B/E (Group I), AIDSVAX B/E (Group II) or ALVAC (Group III). In RV305a a subset of the same participants were boosted again 2-3 years later with AIDSVAX B/E. Pub IDs change from the RV144 to RV305 clinical trial but the participant is the same person. No participants from placebo groups were studied here.

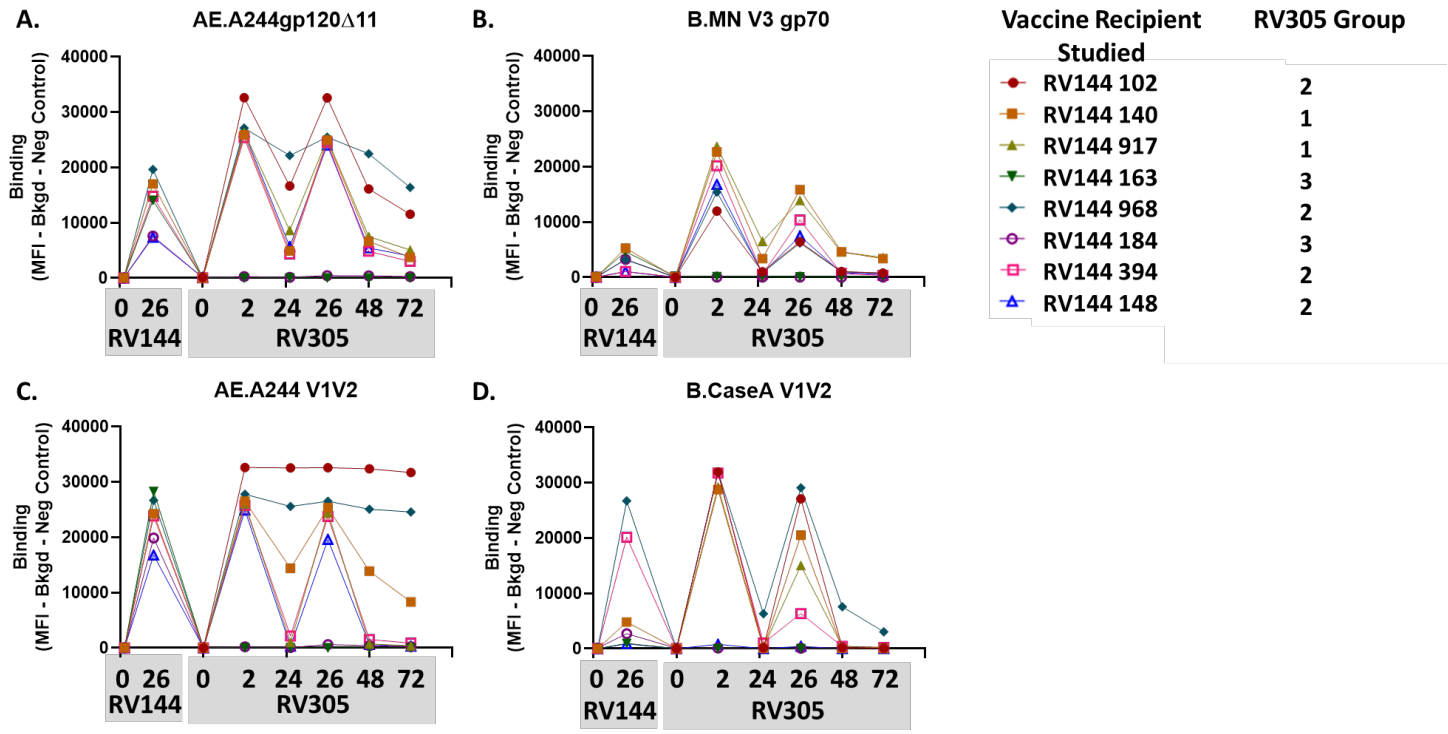
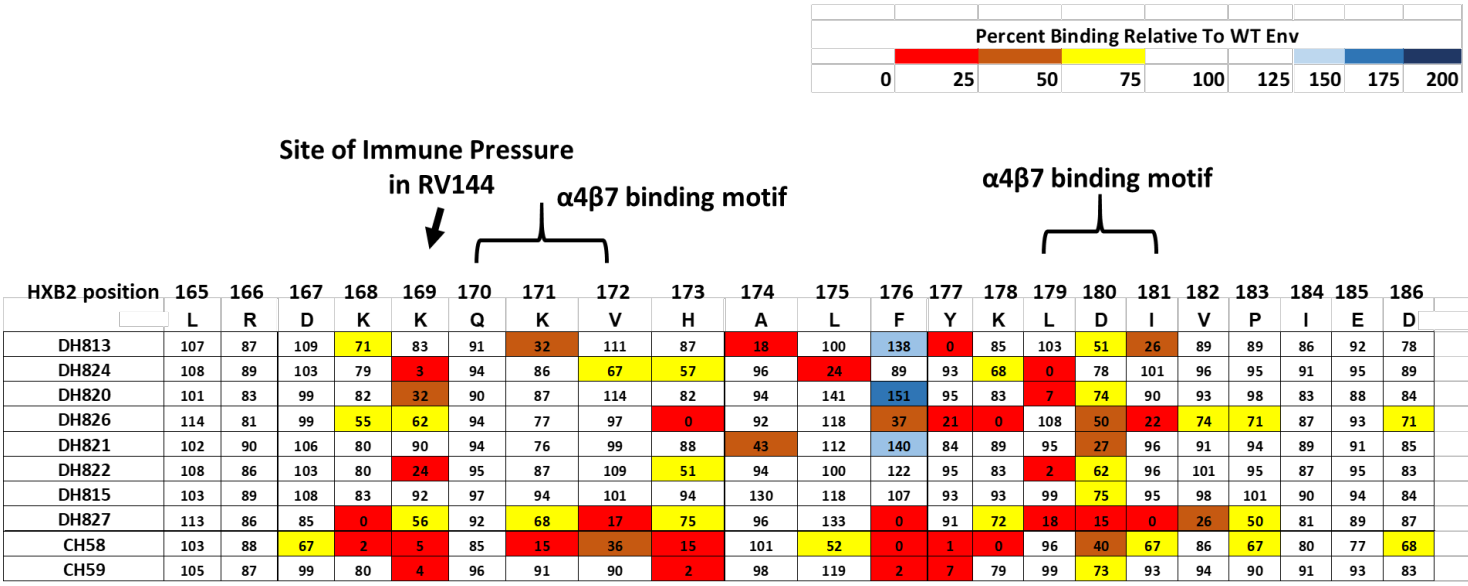


Figure S2. Serum antibody binding to HIV Env antigens in RV144 and after boosting in RV305. Vaccine-induced circulating plasma antibody titers of eight volunteers that participated in RV144 and were boosted 6-8 years later in the RV305 clinical trial were evaluated by binding antibody multiplex assay (BAMA) for binding to (**A**) AE.A244gp120Δ11, (**B**) B.MN V3 gp70, (**C**) AE.A244 V1V2 tags and (**D**) gp70 B.CaseA V1V2. Data are shown as background subtracted binding mean fluorescent intensity of plasma antibody binding for two RV144 time points (week 0 and 26) and six RV305 time points (week 0, 2, 24, 26, 48 and 72). RV305 Group 1 = ALVAC + AIDSVAX B/E boosting, RV305 Group 2 = AIDSVAX B/E boosting and RV305 Group 3 = ALVAC boosting.



HXB2 position	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186
	L	R	D	K	K	Q	K	V	H	A	L	F	Y	K	L	D	I	V	P	I	E	D
DH813	107	87	109	71	83	91	32	111	87	18	100	138	0	85	103	51	26	89	89	86	92	78
DH824	108	89	103	79	3	94	86	67	57	96	24	89	93	68	0	78	101	96	95	91	95	89
DH820	101	83	99	82	32	90	87	114	82	94	141	151	95	83	7	74	90	93	98	83	88	84
DH826	114	81	99	55	62	94	77	97	0	92	118	37	21	0	108	50	22	74	71	87	93	71
DH821	102	90	106	80	90	94	76	99	88	43	112	140	84	89	95	27	96	91	94	89	91	85
DH822	108	86	103	80	24	95	87	109	51	94	100	122	95	83	2	62	96	101	95	87	95	83
DH815	103	89	108	83	92	97	94	101	94	130	118	107	93	93	99	75	95	98	101	90	94	84
DH827	113	86	85	0	56	92	68	17	75	96	133	0	91	72	18	15	0	26	50	81	89	87
CH58	103	88	67	2	5	85	15	36	15	101	52	0	1	0	96	40	67	86	67	80	77	68
CH59	105	87	99	80	4	96	91	90	2	98	119	2	7	79	99	73	93	94	90	91	93	83

Figure S3. Epitope mapping of linear peptide binding V2-specific mAbs by ELISA. Individual V2 peptides with alanine point mutation (alanine to glutamic acid mutation at position 174) at each position spanning Env HXB2 number 165-186 were coated on an ELISA plate. Recombinantly expressed mAbs were assayed for binding. Data are expressed as percent binding relative to the binding WT peptide. Values are the mean of two independent experiments.

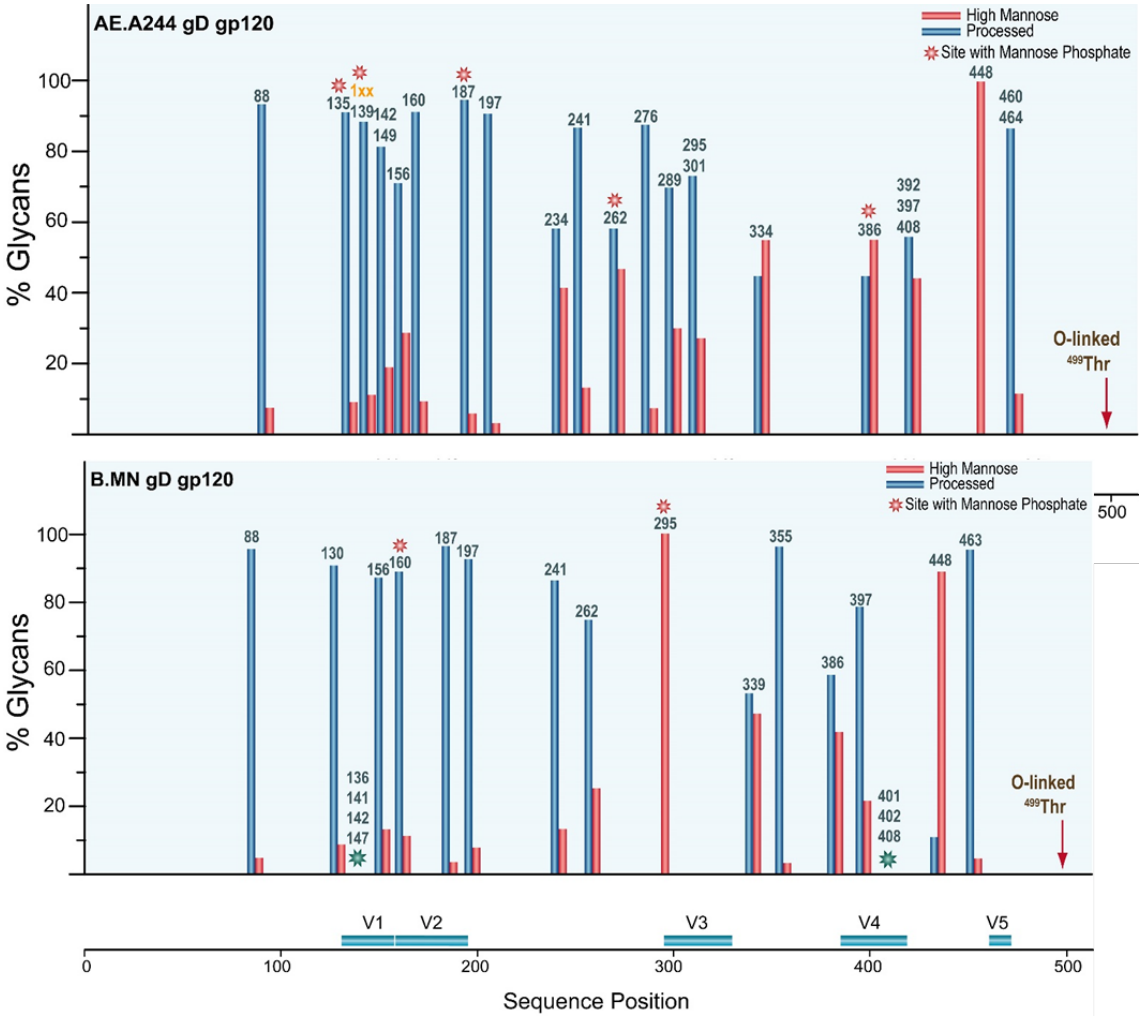


Figure S4. Mass spectrometry analysis of the glycosylation profile of the AIDSVAX B/E AE.244 gD gp120 and B. MN gD gp120 Envs used in the RV144 and RV305 vaccine trials. Red bars show percent of high mannose residues and blue bars show percent of complex processed glycan residues.

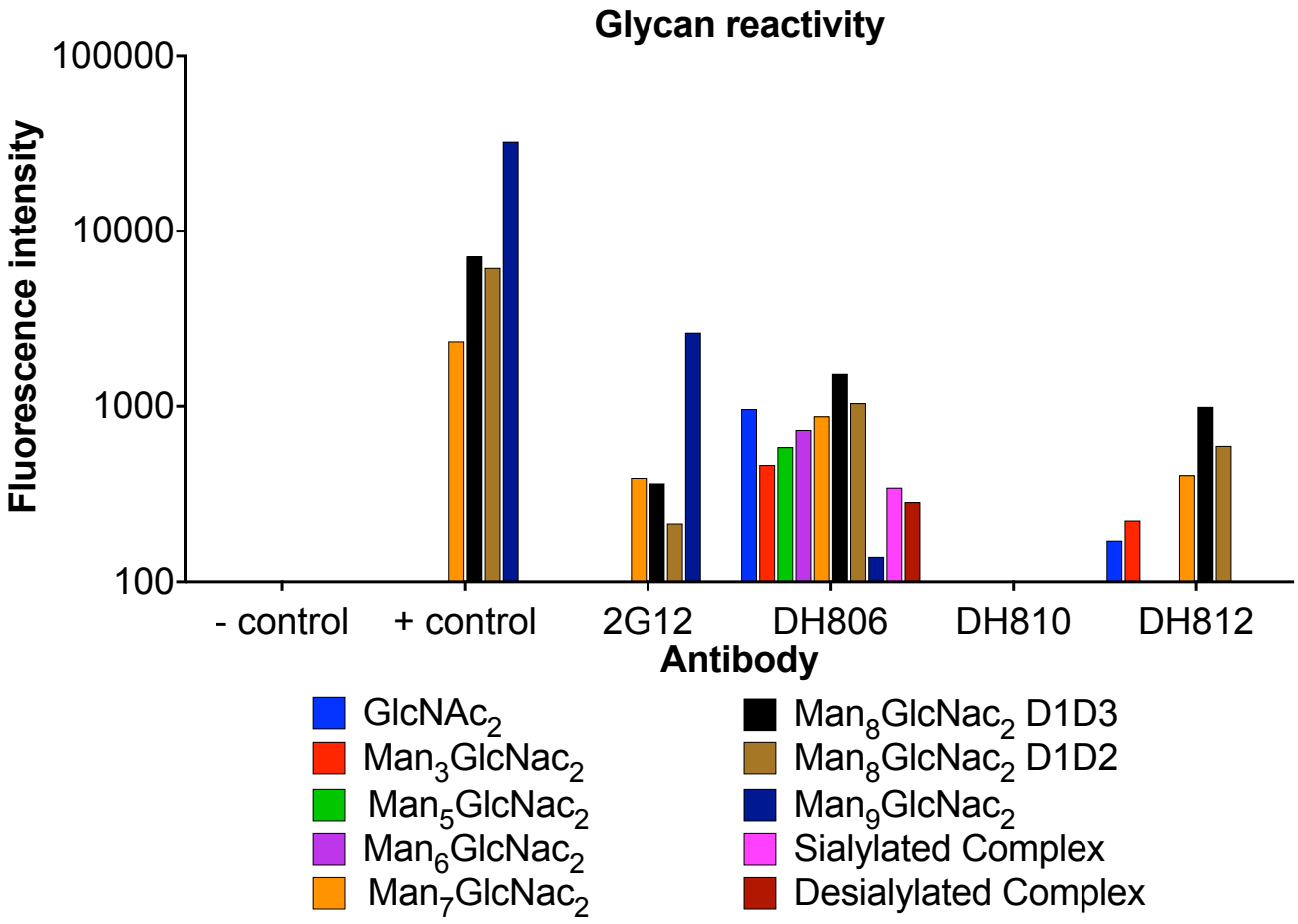


Figure S5. RV305 glycan-dependent V1V2-specific mAb binding to free glycan. Antibody binding to biotinylated glycans was measured by Luminex. Individual bars indicate background-subtracted binding to each glycan by each antibody. HIV-1 envelope peptide-specific antibody 19B was used a negative control antibody, and a variant of the anti-HIV-1 envelope glycan-specific antibodies DH501 and 2G12 were used as high and low positive control mAbs. Values are the mean of two independent experiments.

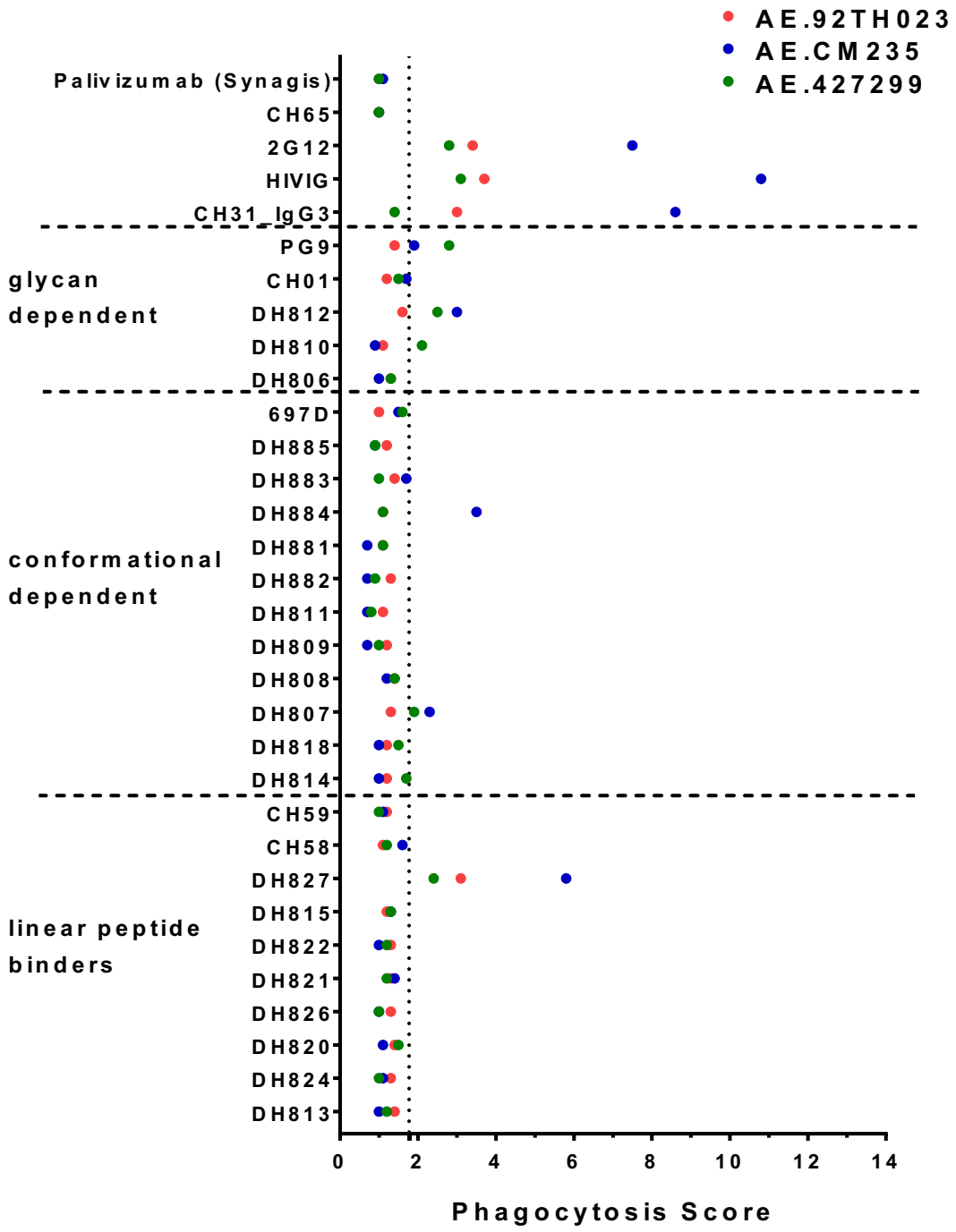


Figure S6. Linear peptide binding, conformational dependent and glycan dependent groups of V2-specific mAb phagocytosis of fluorescently labeled virus. Recombinantly expressed V2-specific mAbs were assayed for antibody-mediated phagocytosis of infectious HIV-1 virions (ADCP). ADCP against 3 clade A/E virion strains (92TH023, CM235, and Thai transmitted/founder strain 427299) was examined. Virions were internally labeled with Tomato fluorescence, and incubated with phagocytes (human primary monocytes) in the presence or absence of mAb. ADCP was indicated by an increase in monocyte-associated fluorescence over background, and quantified as a phagocytosis score (see Materials and Methods). The vertical black dotted line indicates the positivity cutoff at 1.77, based on the mean + 3 standard deviations of historical negative controls.