

Table S1. Neutralization IC80 values (µg/ml) for twenty-one PG9 resistant HIV-1 Env-pseudoviruses and their corresponding gain of function mutants

Clade	Virus		V1/V2 mAbs						Control mAbs ^a				
	Short name	Full name	PG9	PG16	CH01	CH04	PGT141	PGT145	VRC01	F105	17b	PGT128	4E10
C	3873	3873.V1.C24	>50 ^b	>50	>50	>50	0.287^c	0.042	5.72	>50	>50	0.016	>50
	3873-E171K	3873.V1.C24-E171K	0.072	0.011	12.9	12.0	0.197	0.04	4.19	>50	>50	0.015	29.1
C	6631	6631.V3.C10	>50	>50	>50	>50	>50	>50	>50	>50	>50	>50	>50
	6631-E169K	6631.V3.C10-E169K	1.42	0.44	12.5	7.52	>50	>50	>50	>50	>50	>50	>50
B	BG1168	BG1168.01	>50	>50	>50	>50	>50	>50	0.981	>50	>50	>50	9.41
	BG1168-ins171K	BG1168.01-ins171K	>50	>50	>50	>50	>50	2.16	4.00	>50	>50	>50	14.2
B	JRFL	JRFL.JB	>50	>50	>50	>50	>50	>50	0.092	>50	>50	0.024	17.9
	JRFL-E168K	JRFL.JB-E168K	0.051	0.023	>50	>50	>50	0.064	0.067	>50	>50	0.016	11.2
AG	T251	T251-18	>50	>50	>50	>50	>50	1.73	8.88	>50	>50	>50	>50
	T251-T169K	T251-18-T169K	0.32	0.08	>50	>50	>50	0.489	9.53	>50	>50	>50	40
	T251-C	T251-18-CAP45strandC	1.81	3.31	>50	>50	0.035	0.226	10.5	>50	>50	>50	>50
C	6471	6471.V1.C16	>50	>50	>50	>50	>50	>50	>50	>50	>50	>50	>50
	6471-E169K/E171K	6471.V1.C16-E169K.E171K	0.195	0.063	9.75	7.02	0.384	1.81	>50	>50	>50	>50	>50
B	CNE4	CNE4	>50	>50	>50	>50	>50	>50	1.85	>50	>50	11.6	8.00
	CNE4-N128T/T130D	CNE4-N128T.T130D	>50	>50	>50	>50	>50	>50	0.941	4.72	46.1	>50	1.46
	CNE4-ins171K	CNE4-ins171K	4.21	>50	>50	>50	>50	>50	1.01	1.48	1.19	>50	0.539
	CNE4-C	CNE4-CAP45strandC	0.398	>50	>50	>50	>50	>50	1.56	2.56	0.694	>50	0.677
C	CNE30	CNE30	>50	>50	>50	>50	>50	>50	3.59	>50	>50	1.43	>50
	CNE30-F164E	CNE30-F164E	>50	>50	>50	>50	>50	>50	3.45	>50	>50	2.18	>50
	CNE30-F164E/H169K	CNE30-F164E.H169K	12.3	4.9	>50	>50	>50	>50	2.38	>50	>50	1.02	>50
B	7165	7165.18	>50	>50	>50	>50	>50	0.301	>50	>50	>50	0.01	>50
	7165-E173Y	7165.18-E173Y	38.2	1.34	>50	>50	2.01	0.121	>50	>50	>50	0.009	14.9
	7165-C	7165.18-CAP45strandC	0.107	0.049	>50	>50	>50	0.195	>50	>50	>50	0.008	7.68
A	398	398-F1_F6_20	>50	>50	3.82	6.24	>50	>50	0.488	>50	>50	0.004	44.3
	398-C	398-F1_F6_20-CAP45strandC	0.017	0.012	0.468	0.987	4.34	26.3	0.425	>50	>50	0.006	15.5
C	6322	6322.V4.C1	>50	>50	>50	>50	0.064	1.46	>50	>50	>50	>50	45.6
	6322-C	6322.V4.C1-CAP45strandC	0.061	0.021	>50	>50	<0.003	0.006	>50	>50	>50	>50	40.4
D	6405	6405.v4.c34	>50	>50	>50	>50	>50	>50	4.60	>50	>50	14.3	38.9
	6405-N166R	6405.v4.c34-N166R	>50	>50	>50	>50	24.5	>50	5.36	>50	>50	13.2	24.1
	6405-C	6405.v4.c34-CAP45strandC	2.52	>50	>50	>50	0.015	10.8	4.07	>50	>50	21.0	14.8
AE	CNE56	CNE56	>50	>50	>50	>50	>50	11.7	1.21	>50	>50	>50	8.19
	CNE56-C	CNE56-CAP45strandC	1.05	0.227	>50	>50	0.569	8.61	1.32	>50	>50	>50	1.42
A	0439	0439.v5.c1	>50	>50	>50	>50	28.3	19.4	0.508	>50	>50	16.7	36.5
	0439-C	0439.v5.c1-CAP45strandC	>50	>50	>50	>50	>50	>50	0.422	>50	>50	11.4	11.5
D	A03349M1	A03349M1.vrc4a	>50	>50	>50	>50	>50	>50	20.7	>50	>50	0.041	14.4
	A03349M1-C	A03349M1.vrc4a-CAP45strandC	>50	>50	>50	>50	>50	0.630	3.84	>50	>50	>50	6.54
B	QH0515	QH0515.01	>50	>50	>50	>50	>50	>50	1.41	>50	>50	>50	13
	QH0515-ins171K	QH0515.01-ins171K	>50	>50	>50	>50	>50	>50	5.19	>50	>50	>50	22.7
	QH0515-C	QH0515.01-CAP45strandC	>50	>50	>50	>50	>50	>50	9.33	>50	>50	>50	12.7
A	QH209	QH209.14M.a2	>50	>50	>50	>50	>50	0.143	0.067	>50	>50	>50	14.9
	QH209-C	QH209.14M.a2-CAP45strandC	>50	>50	>50	>50	>50	>50	0.1	>50	>50	>50	20.1
B	RHPA	RHPA.7	>50	>50	>50	>50	0.458	0.189	0.164	>50	>50	0.027	>50
	RHPA-C	RHPA.7-CAP45strandC	5.93	0.918	>50	>50	>50	>50	0.158	>50	>50	0.03	43.3
G	X2088	X2088	>50	>50	>50	>50	>50	>50	>50	>50	>50	>50	>50
	X2088-C	X2088-CAP45strandC	>50	>50	>50	>50	>50	>50	>50	>50	>50	>50	>50
C	ZM135	ZM135.10a	>50	>50	>50	>50	>50	>50	2.24	>50	>50	20.4	1.00
	ZM135-C	ZM135.10a-CAP45strandC	0.372	0.389	>50	>50	0.043	8.4	6.3	>50	>50	>50	7.33
C	ZM651	ZM651.02	>50	>50	>50	>50	>50	>50	4.32	>50	>50	>50	3.23
	ZM651-C	ZM651.02-CAP45strandC	>50	>50	>50	>50	>50	>50	5.4	>50	>50	>50	8.4

^a Control mAb epitopes: VRC01 and F105, CD4 binding site; 17b, CD4-induced; PGT128, glycan/loop; 4E10, membrane-proximal region^b >50, no neutralization at 50 µg/ml^c bolded values are IC80 in µg/ml