

**Table S4. BG505 glycan mutants.** MinVRC01 reverted variant antibodies were tested for neutralization on BG505 mutant viruses. (Top) Presented values are neutralization IC<sub>50</sub> in µg/ml and colored according to the listed legend. (Below) Presented values are fold-enhancement in neutralization potency compared to wild-type virus. LT, low titer. NA, not available due to low titer.

	MinVRC01 GL-L	MinVRC01	MinVRC01 LACDR1	MinVRC01 LAFW3	MinVRC01 HACDR1	MinVRC01 HACDR2	MinVRC01 HAF54	MinVRC01 HAFW3	MinVRC01 HΔdisulph	VRC01	PGT151	12A12
WT (T332N)	> 10	0.082	> 10	> 10	> 10	> 10	0.316	0.596	0.053	0.039	0.014	0.02
N197A	> 10	0.005	> 10	> 10	0.435	> 10	0.012	0.031	0.005	0.003	0.016	0.001
P206A	> 10	0.07	> 10	> 10	> 10	> 10	0.514	1	0.075	0.031	0.011	0.006
K207A	> 10	0.092	> 10	> 10	> 10	> 10	0.746	0.13	0.045	0.012	0.008	0.006
N234A	> 10	0.026	> 10	2	2	> 10	0.042	0.053	0.016	0.003	0.005	0.009
N262A	> 10	0.041	> 10	> 10	> 10	> 10	0.09	0.154	0.046	0.014	0.014	0.004
N276A	0.038	0.013	0.022	0.016	0.561	> 10	0.032	0.07	0.01	0.006	0.012	0.002
N301A	> 10	0.044	> 10	> 10	> 10	> 10	0.148	1	0.054	0.014	0.025	0.009
R304A	> 10	0.112	> 10	> 10	> 10	> 10	0.542	1	0.138	0.082	0.037	0.032
K305A	> 10	0.178	> 10	> 10	> 10	> 10	0.605	1	0.185	0.107	0.055	0.035
R308A	> 10	0.083	> 10	> 10	> 10	> 10	0.389	1	0.116	0.052	0.022	0.015
T332N	> 10	0.082	> 10	> 10	> 10	> 10	0.316	1	0.053	0.039	0.014	0.02
N332T	> 10	0.058	> 10	> 10	> 10	> 10	0.195	1	0.109	0.051	0.026	NA
N386A	> 10	0.037	> 10	> 10	~ 10	> 10	0.168	1	0.033	0.026	0.017	0.006
N392A	> 10	0.054	> 10	> 10	> 10	> 10	0.113	1	0.066	0.024	0.013	0.008
N425A	> 10	0.056	> 10	> 10	> 10	> 10	0.871	1	0.063	0.02	0.009	0.015
M426A	> 10	0.077	> 10	> 10	> 10	> 10	0.428	1	0.072	0.027	0.014	0.048
W427A	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT
Q428A	2.72	0.01	~ 10	2	0.126	> 10	0.117	0.047	0.006	0.003	0.004	0.012
R429A	> 10	0.081	> 10	> 10	> 10	> 10	0.802	0.4	0.109	0.028	0.012	0.016
Q432A	> 10	0.071	> 10	> 10	~ 10	> 10	0.447	0.459	0.097	0.035	0.015	0.015
N462A	> 10	0.049	> 10	> 10	> 10	> 10	0.312	~ 10	0.066	0.026	0.014	0.005

Neutralization IC <sub>50</sub> (µg/mL)	10	1	0.1	0.01	0.001
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	MinVRC01 GL-L	MinVRC01	MinVRC01 LACDR1	MinVRC01 LAFW3	MinVRC01 HACDR1	MinVRC01 HACDR2	MinVRC01 HAF54	MinVRC01 HAFW3	MinVRC01 HΔdisulph	VRC01	PGT151	12A12
N197A	1	17	1	1	23	1	26	19	11	11	0.9	18
P206A	1	1.2	1	1	1	1	0.6	0.6	0.7	1.2	1.3	3.1
K207A	1	0.9	1	1	1	1	0.4	4.6	1.2	3.3	1.7	3.5
N234A	1	3.1	1	5	5	1	7.5	11	3.4	14	3.2	2.2
N262A	1	2	1	1	1	1	3.5	3.9	1.2	2.9	1	4.9
N276A	260	6.3	455	620	18	1	10	8.5	5	6	1.2	13
N301A	1	1.9	1	1	1	1	2.1	0.6	1	2.7	0.6	2.2
R304A	1	0.7	1	1	1	1	0.6	0.6	0.4	0.5	0.4	0.6
K305A	1	0.5	1	1	1	1	0.5	0.6	0.3	0.4	0.3	0.6
R308A	1	1	1	1	1	1	0.8	0.6	0.5	0.7	0.7	1.4
T332N	1	1	1	1	1	1	1	0.6	1	1	1	1
N332T	1	1.4	1	1	1	1	1.6	0.6	0.5	0.8	0.6	ND
N386A	1	2.2	1	1	1	1	1.9	0.6	1.6	1.5	0.9	3.5
N392A	1	1.5	1	1	1	1	2.8	0.6	0.8	1.6	1.1	2.5
N425A	1	1.5	1	1	1	1	0.4	0.6	0.8	1.9	1.6	1.3
M426A	1	1.1	1	1	1	1	0.7	0.6	0.7	1.5	1	0.4
W427A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q428A	3.7	8.1	1	5	79	1	2.7	13	8.2	13	3.5	1.7
R429A	1	1	1	1	1	1	0.4	1.5	0.5	1.4	1.2	1.3
Q432A	1	1.2	1	1	1	1	0.7	1.3	0.6	1.1	0.9	1.4
N462A	1	1.7	1	1	1	1	1	17	0.8	1.5	1	4.3