

Supplemental information

SARS-CoV-2 prolonged infection during advanced

HIV disease evolves extensive immune escape

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Supplementary materials for SARS-CoV-2 prolonged infection during advanced HIV disease evolves extensive immune escape

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1 Table S1: Characteristics of SARS-CoV-2 convalescent or vaccinated study participants related to Figures 1 and 2

Participant number	Infected or BNT162b2 vaccinated	Variant/strain by infection date	Variant/strain by sequencing	Sequence ID	GISAID Accession	Age range (y)	Sex	Symptom onset or vaccination to plasma collection (days)
1	Infected	Ancestral	B.1.1.273	K008646	EPI_ISL_2397308	30-39	F	6, 20, 26, 34, 71, 106, 190
2	Infected	Ancestral	B.1.1	K003667	EPI_ISL_602623	50-59	M	29
3	Infected	Ancestral	B.1.1.273	K003675	EPI_ISL_602631	40-49	F	32
4	Infected	Ancestral	B.1.1.117	K003668	EPI_ISL_602624	70+	F	29
5	Infected	Ancestral	B.1.1	K004289	EPI_ISL_660170	60-69	F	27
6	Infected	Ancestral	B.1.140	K004295	EPI_ISL_660176	60-69	F	28
7	Infected	Ancestral	B.1.1.84	K003673	EPI_ISL_602629	40-49	F	28
8	Infected	Ancestral	B.1	K004291	EPI_ISL_660172	30-39	F	30
9	Infected	Ancestral	C.9	K004302	EPI_ISL_660181	60-69	M	26
10	Infected	Beta	Beta	K008635	N/A*	40-49	F	30
11	Infected	Beta	Beta	K008636	N/A*	40-49	F	41
12	Infected	Beta	Beta	K008628	N/A*	40-49	M	32
13	Infected	Beta	Beta	K008637	EPI_ISL_1229368	50-59	M	42
14	Infected	Beta	N/A [§]	N/A [§]	N/A	30-39	F	32
15	Infected	Beta	Beta	K010372	N/A*	30-39	M	33
16	Infected	Beta	Beta	K010356	N/A*	70+	F	48
17	Infected	Beta	Beta	K008633	EPI_ISL_1229367	60-69	F	29
18	Infected	Beta	Beta	K010370	N/A*	30-39	F	31
19	Infected	Delta	Delta	K021407	EPI_ISL_3722338	40-49	F	26
20	Infected	Delta	Delta	K021399	EPI_ISL_3722335	40-49	M	23 [#]
21	Infected	Delta	Delta	K021401	N/A*	50-59	M	31
22	Infected	Delta	Delta	K021225	N/A*	40-49	M	13 [#]
23	Infected	Delta	Delta	K021400	N/A*	40-49	M	44
24	Infected	Delta	Delta	K021226	N/A*	50-59	M	44
25	Infected	Delta	Delta	K020186	EPI_ISL_3939068	40-49	M	31
26	Infected	Delta	Delta	K020187	EPI_ISL_3939088	30-39	M	31
27	Infected	Delta	Delta	K020214	EPI_ISL_3447779	50-59	F	30 [#]
28	Infected	Delta	Delta	K021404	N/A*	30-39	M	32
29	BNT162b2	-	-	-	-	60-69	M	11
30	BNT162b2	-	-	-	-	60-69	M	10
31	BNT162b2	-	-	-	-	50-59	M	18
32	BNT162b2	-	-	-	-	40-49	F	9
33	BNT162b2	-	-	-	-	60-69	M	10
34	BNT162b2	-	-	-	-	20-29	F	8
35	BNT162b2	-	-	-	-	60-69	M	128
36	BNT162b2	-	-	-	-	30-39	F	134
37	BNT162b2	-	-	-	-	20-29	M	131
38	BNT162b2	-	-	-	-	50-59	M	152
39	BNT162b2	-	-	-	-	30-39	F	153
40	BNT162b2	-	-	-	-	30-39	M	158

N/A – Not available. * <90% coverage. Not submitted to GISAID but sufficient sequence for variant call. [§] Not sequenced. [#] Asymptomatic at diagnosis, date post-diagnostic test used instead of symptom onset date.

2 Table S2: Read counts of majority and minority genotypes detected in swab and outgrown virus related to Figure 2

AA change	Nucleotide change	Codon change	Day 0 Swab	Day 0 Swab	Day 6 Outgrowth Swab	Day 6 Outgrowth Swab	Day 20 Outgrowth Swab	Day 20 Outgrowth Swab	Day 34 Outgrowth Swab	Day 34 Outgrowth Swab	Day 71 Outgrowth Swab	Day 71 Outgrowth Swab	Day 106 Outgrowth Swab	Day 106 Outgrowth Swab	Day 190 Outgrowth Swab	Day 190 Outgrowth Swab
195I	21846C>T	ACT > ATT	ACT-143	ACT-6105	ACT-1342	ACT-2667	ACT-1540	ACT-935	ACT-96	ACT-1379	ACT-1609	ACT-11843	ACT-1593	ACT-231	ACT-1325	
			ATT-0	ATT-9	ATT-10	ATT-298	ATT-33	ATT-1626	ATT-1328	ATT-36	ATT-27	ATT-576	ATT-29	ATT-10	ATT-16	
G142Y	21987G>T	GGT>GTT	GGT-40	GGT-1386	GGT-316	GGT-880	GGT-1352	GGT-954	GGT-1238	GGT-480	GGT-1416	GGT-3621	GGT-1400	GGT-133	GGT-977	
			GTT-10	GTT-622	GTT-808	GTT-313	GTT-4	GTT-96	GTT-14	GTT-5	GTT-12	GTT-5	GTT-22	GTT-6		
R190K	22131G>A	AGG>AAG	AGG-46	AGG-5591	AGG-119	AGG-1702	AGG-357	AGG-1685	AGG-324	AGG-222	AGG-26	Gap in sequence	AGG-22	AGG-13	AGG-419	
			AAG-0	AAG-8	AAG-0	AAG-1	AAG-3	AAG-2	AAG-2	AAG-1096	AAG-378	sequence	AAG-468	AAG-40	AAG-33	
*1244del	22293 ACA>del	del-1	ACA-12	ACA-1378	ACA-371	ACA-50	ACA-0	ACA-17	ACA-17	ACA-414	ACA-692	ACA-11	ACA-693	ACA-64	ACA-653	
			del-1	del-0	del-4	del-158	del-635	del-176	del-556	del-4	del-3	del-0	del-7	del-0	del-1	
K417I	22812A>G	AAG>ACG	AAG-117	AAG-3237	AAG-141	AAG-3209	AAG-122	AAG-2587	AAG-96	AAG-299	AAG-6	AAG-32	AAG-0	AAG-0	AAG-0	
			ACG-0	ACG-1	ACG-0	ACG-0	ACG-0	ACG-1	ACG-0	ACG-1362	ACG-172	ACG-2	ACG-60	sequence	ACG-17	
D427Y	22841G>T	GAT>TAT	GAT-107	GAT-3856	GAT-1281	GAT-3719	GAT-1273	GAT-3434	GAT-1164	GAT-3434	GAT-1079	GAT-51	GAT-13	GAT-18	GAT-6	
			TAT-0	TAT-3	TAT-7	TAT-0	TAT-1	TAT-0	TAT-1	TAT-0	TAT-42	TAT-4	TAT-743	TAT-103	TAT-529	
L455F	22927G>T	TTG>TTT	TTG-11	TTG-3714	TTG-886	TTG-3219	TTG-978	TTG-4331	TTG-888	TTG-2983	TTG-784	TTG-527	TTG-636	TTG-114	TTG-454	
			TTT-0	TTT-9	TTT-0	TTT-0	TTT-2	TTT-3	TTT-3	TTT-4	TTT-2	TTT-317	TTT-0	TTT-0	TTT-1	
E456L	22928T>C	TTT>CTT	TTT-12	TTT-3739	TTT-1112	TTT-3248	TTT-1109	TTT-4361	TTT-1011	TTT-2971	TTT-882	TTT-537	TTT-725	TTT-138	TTT-544	
			CTT-0	CTT-6	CTT-31	CTT-0	CTT-19	CTT-0	CTT-20	CTT-3	CTT-19	CTT-310	CTT-2	CTT-0	CTT-24	
A475Y	22986C>T	GCC>GTC	GCC-17	GCC-3409	GCC-1180	GCC-3629	GCC-11	GCC-2874	GCC-43	GCC-3396	GCC-956	GCC-901	GCC-839	GCC-177	GCC-687	
			GTC-0	GTC-11	GTC-30	GTC-1218	GTC-1369	GTC-2421	GTC-1224	GTC-101	GTC-22	GTC-23	GTC-24	GTC-14	GTC-19	
E484K	23012G>A	GAA>AAA	GAA-17	GAA-56	GAA-363	GAA-1632	GAA-27	GAA-2395	GAA-55	GAA-3147	GAA-1120	GAA-688	GAA-1001	GAA-180	GAA-814	
			AAA-0	AAA-2063	AAA-917	AAA-2881	AAA-1276	AAA-2139	AAA-1133	AAA-196	AAA-22	AAA-40	AAA-5	AAA-53	AAA-4	
E490S	23031T>C	TTT>TCT	TTT-18	TTT-1605	TTT-1196	TTT-4067	TTT-1226	TTT-4007	TTT-1031	TTT-341	TTT-62	TTT-182	TTT-31	TTT-89	TTT-21	
			TCT-0	TCT-2	TCT-15	TCT-0	TCT-10	TCT-8	TCT-30	TCT-2912	TCT-935	TCT-446	TCT-784	TCT-125	TCT-669	
N501Y	23063A>T	AAT>TAT	AAT-13	AAT-810	AAT-1428	AAT-2034	AAT-1498	AAT-2855	AAT-1354	AAT-2510	AAT-1193	AAT-282	AAT-1026	AAT-19	AAT-6	
			TAT-0	TAT-2	TAT-2	TAT-1	TAT-29	TAT-10	TAT-14	TAT-2	TAT-13	TAT-0	TAT-180	TAT-726		
D614G	23403A>G	GAT>GGT	GAT-3	GAT-8	GAT-4	GAT-0	GAT-6	GAT-3	GAT-14	GAT-3	GAT-1	GAT-10	GAT-2	GAT-3	GAT-3	
			GGT-158	GGT16668	GGT 811	GGT-5299	GGT-904	GGT-2863	GGT-886	GGT-1560	GGT-702	GGT-26	GGT-827	GGT-173	GGT-834	
R682W	23606C>T	CGG>TGG	CGG-98	CGG-1831	CGG-189	CGG-27	CGG-618	CGG-59	CGG-607	CGG-124	CGG-523	CGG-471	CGG-40	CGG-424	CGG-3	
			TGG-1	TGG-4	TGG-407	TGG-0	TGG-5	TGG-0	TGG-3	TGG-0	TGG-6	TGG-1	TGG-4	TGG-3		
D796Y	23948G>T	GAT>TAT	GAT-16	GAT-4293	GAT-1155	GAT-1235	GAT-1409	GAT-568	GAT-1313	GAT-97	GAT-38	GAT-7	GAT-6	GAT-2	GAT-12	
			TAT-70	TAT-16	TAT-0	TAT-477	TAT-5	TAT-649	TAT-10	TAT-791	TAT-1257	TAT-0	TAT-1438	TAT-11	TAT-1223	
A1078V	24795C>T	GCT>GTT	GCT-219	GCT-772	GCT-772	GCT-4397	GCT-1319	GCT-2519	GCT-1270	GCT-1462	GCT-1418	GCT-13695	GCT-1418	GCT-286	GCT-1264	
			GTT-3	GTT-4833	GTT-358	GTT-1	GTT-18	GTT-12	GTT-45	GTT-30	GTT-85	GTT-74	GTT-36	GTT-17	GTT-29	

*Only deletions where the adjacent codon was preserved were counted.

3 Figure S1: Spike specific antibody levels with time post-SARS-CoV-2 diagnosis related to Figure 2.

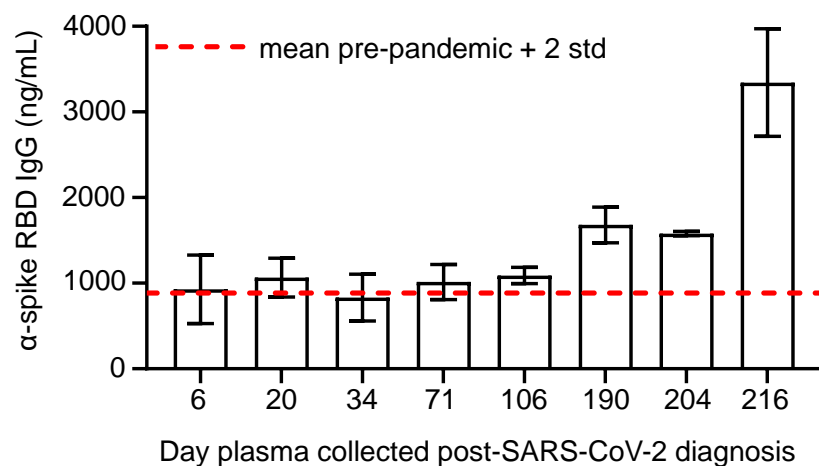


Fig S 1: Spike specific antibody levels with time post-SARS-CoV-2 diagnosis. Shown are mean (n=4 replicates per timepoint) and standard deviation of anti-spike RBD antibody concentrations measured in the plasma of the participant with advanced HIV disease by ELISA. Red dashed line denotes the mean + 2 standard deviations of signal from a set of 6 control samples, including plasma of pre-pandemic controls (n=4) and pre-pandemic commercial human serum (n=2).

4 Figure S2: Neutralization of Beta variant and evolved virus by a subset of BNT162b2 plasma donors related to Figure 2

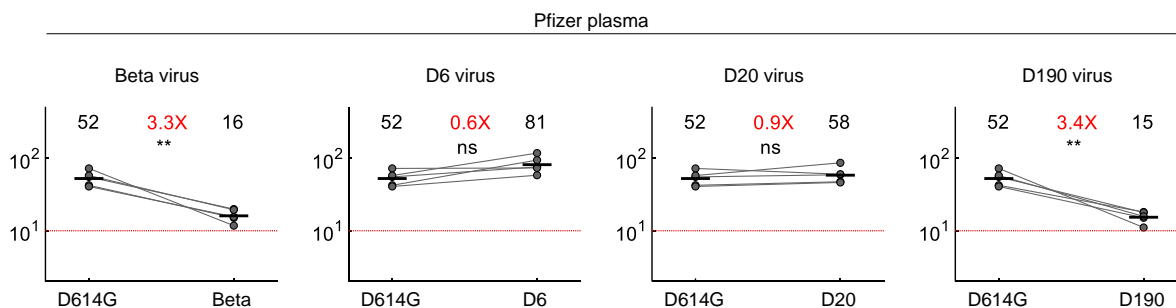


Fig S 2: Neutralization of Beta variant and evolved virus by a subset of BNT162b2 plasma donors. Neutralization of Beta, D6, D20, and D190 compared to D614G by Pfizer BNT162b2 plasma (n=5). Plasma donors were 136072, 136074, 136075, 136076, 136078. Red horizontal line denotes most concentrated plasma tested. Numbers in black are GMT FRNT50. Numbers in red are fold-change in GMT between virus strain on left and right. ** <0.01-0.001, as determined by the Wilcoxon rank sum test.