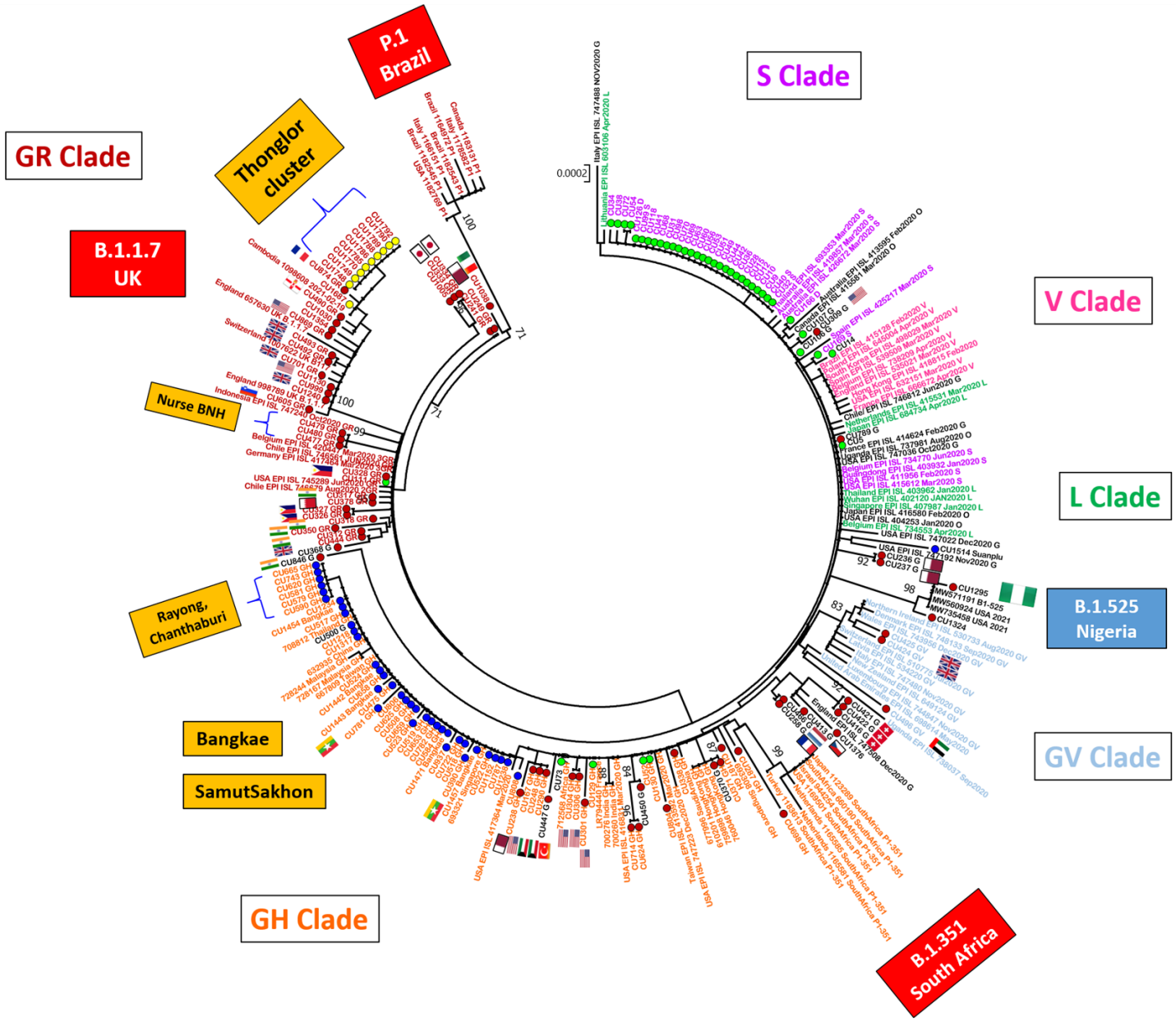


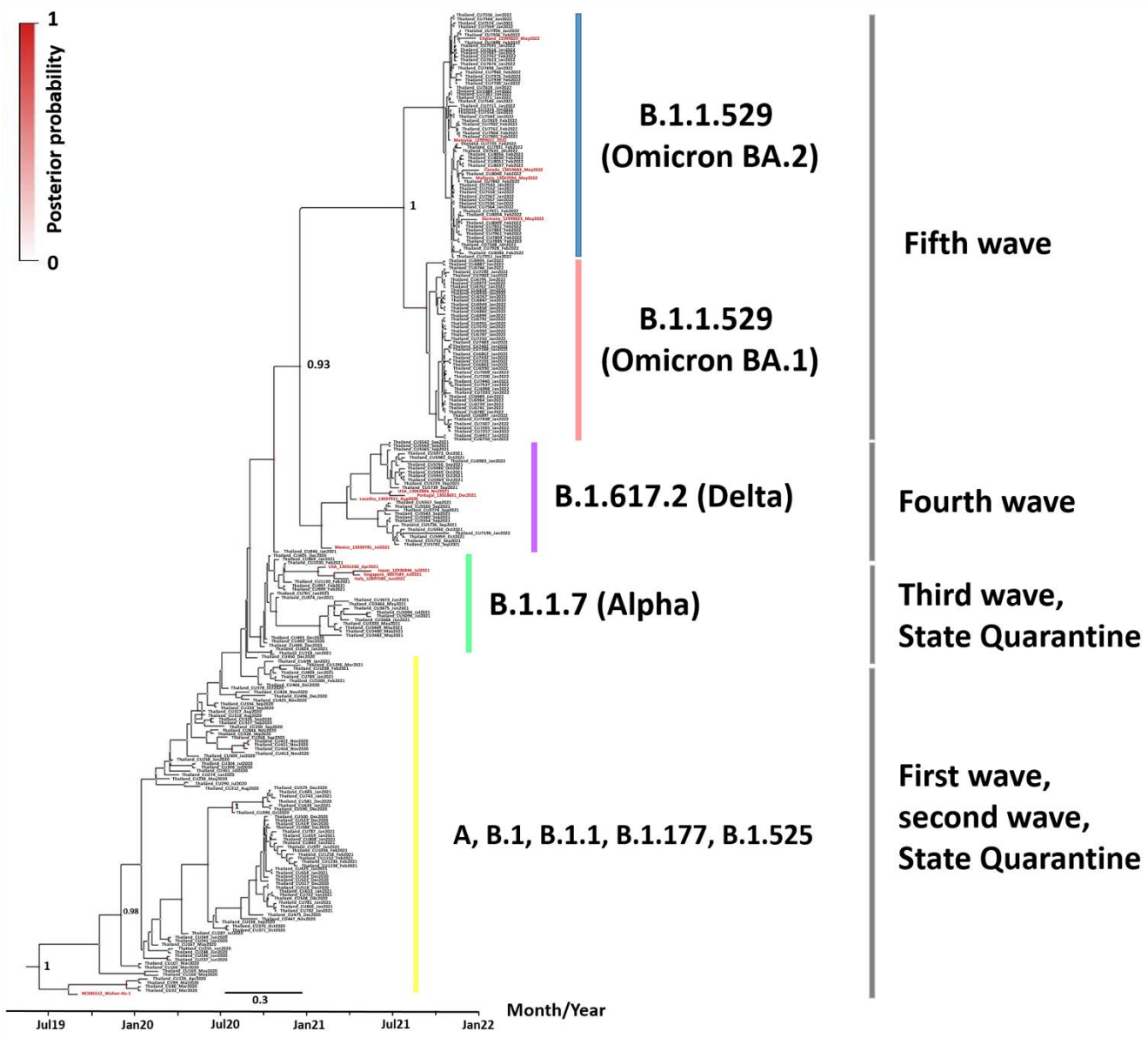
**Figure S1. Phylogenetic relatedness of concatenated SARS-CoV-2 sequences, including partial ORF1ab (nucleotide position 8,596–8,943 and 15,074–16,269), S (nucleotide position 21,346–25,468), ORF3a to E (nucleotide position 25,017–25,639 and 25,903–26,278), and ORF8 to N (nucleotide position 28,147–29,041) from Thailand's 2020-2021 outbreak.** Dots and colors precede the sequences isolated in this study with different epidemic waves. The phylogenetic tree was generated by the neighbor-joining method with 1,000 bootstrap replicates. The yellow boxes indicated the name of provinces or clusters in each waves.



- First wave
- State Quarantine
- Second wave
- Third wave

- Saudi Arabia
- Qatar
- USA
- UAE
- Kuwait
- Japan
- Philippine
- India
- Bahrain
- Myanmar
- Hong Kong
- Czech Republic
- Switzerland
- UK
- Northern Ireland
- Turkey
- Slovenia
- France
- Netherlands
- Italy
- Nigeria

**Figure S2.** A Bayesian phylogenetic tree based on complete spike protein nucleotide sequences of the 2020-2022 SARS-CoV-2 strains identified in Thailand (black) and the representative of SARS-CoV-2 global strains available from GISAID (red). Posterior support for major nodes is shown.



**Table S1** Primers used for conventional RT-PCR assays

Primer name	Nucleotide sequence 5'-3'	Strand	Target gene	Product size (bp)
P1_F8596	ACTTGTGTTCTTTTTGTTGCTGC	Sense	ORF1ab	387
P1_R8983	AGTGTA CTCTATAAGTTTTGATGGTGTGT	Antisense		
P2_F14997	GAGTTATGAGGATCAAGATGCAC	Sense	RdRp	1309
P2_R16306	GTCTACGTATGCAAGCACCAC	Antisense		
P3_F21301	CCACGCGAACA AATAGATGGTTA	Sense	Spike	1030
P3_R22331	CTGAAGAAGAATCACCAGGAGTC	Antisense		
P4_F22188	CTATTAATTTAGTGC GTGATCTCC	Sense	Spike	1035
P4_R23223	TCAGTAAGA ACACCTGTGCCTG	Antisense		
P5_F22978	CTATCAGGCCGGTAGCACACC	Sense	Spike	1118
P5_R24096	GCAATATCACCAAGGCAATCACC	Antisense		
P6_F23865	CTGGAATAGCTGTTGAACAAGAC	Sense	Spike	1083
P6_R24948	ACAACATCACAGTTACCAGACAC	Antisense		
P7_F24803	GAACTTCACA ACTGCTCCTGCC	Sense	Spike	670
P7_R25472	TCTGAAGGAGTAGCATCCTTGA	Antisense		
P8_F24979	TCCTTTGCAACCTGAATTAGACTCA	Sense	Spike to ORF3a	695
P8_R25673	AGGTGTGAGTAAACTGTTACAAACAAC	Antisense		
P9_F25903	TCAGGTGATGGCACAACAAGTC	Sense	ORF3a to E	412
P9_R26315	ACGAAAGCAAGAAAAAGAAGTACGC	Antisense		
P10_F28101	CCCATT CAGTACATCGATATCGG	Sense	ORF8 to N	744
P10_R28845	CGACTACGTGATGAGGAACGAG	Antisense		
P11_F28729	TAACAATGCTGCAATCGTGCTAC	Sense	N	960
P11_R29689	ACTGATTAAGATTGCTATGTGAGA	Antisense		

**Table S2** GenBank accession numbers

No.	Code	Accession numbers						GISAID Clade	Wave Outbreak
		ORF8 to N (28,147-29,041)	ORF1ab (15,074-16,269)	ORF1ab (8,596-8,943)	ORF3a (25,017-25,639)	ORF3a to E (25,903-26,278)	Spike (21,346-25,468)		
1	CU32	OK083891	OK084016	OK084141	OK084266	OK084391	OK084516	S	First
2	CU40	OK083892	OK084017	OK084142	OK084267	OK084392	OK084517	S	First
3	CU99	OK083893	OK084018	OK084143	OK084268	OK084393	OK084518	S	First
4	CU106	OK083894	OK084019	OK084144	OK084269	OK084394	OK084519	G	First
5	CU107	OK083895	OK084020	OK084145	OK084270	OK084395	OK084520	G	First
6	CU126	OK083896	OK084021	OK084146	OK084271	OK084396	OK084521	S	First
7	CU166	OK083897	OK084022	OK084147	OK084272	OK084397	OK084522	S	First
8	CU167	OK083898	OK084023	OK084148	OK084273	OK084398	OK084523	GH	SQ
9	CU169	OK083899	OK084024	OK084149	OK084274	OK084399	OK084524	S	First
10	CU236	OK083900	OK084025	OK084150	OK084275	OK084400	OK084525	G	SQ
11	CU237	OK083901	OK084026	OK084151	OK084276	OK084401	OK084526	G	SQ
12	CU238	OK083902	OK084027	OK084152	OK084277	OK084402	OK084527	GH	SQ
13	CU241	OK083903	OK084028	OK084153	OK084278	OK084403	OK084528	GR	SQ
14	CU248	OK083904	OK084029	OK084154	OK084279	OK084404	OK084529	GH	SQ
15	CU249	OK083905	OK084030	OK084155	OK084280	OK084405	OK084530	GR	SQ
16	CU258	OK083906	OK084031	OK084156	OK084281	OK084406	OK084531	G	SQ
17	CU287	OK083907	OK084032	OK084157	OK084282	OK084407	OK084532	GH	SQ
18	CU290	OK083908	OK084033	OK084158	OK084283	OK084408	OK084533	GH	SQ
19	CU301	OK083909	OK084034	OK084159	OK084284	OK084409	OK084534	GH	SQ
20	CU304	OK083910	OK084035	OK084160	OK084285	OK084410	OK084535	GH	SQ
21	CU306	OK083911	OK084036	OK084161	OK084286	OK084411	OK084536	GH	SQ
22	CU309	OK083912	OK084037	OK084162	OK084287	OK084412	OK084537	G	SQ
23	CU312	OK083913	OK084038	OK084163	OK084288	OK084413	OK084538	GR	SQ
24	CU317	OK083914	OK084039	OK084164	OK084289	OK084414	OK084539	GR	SQ
25	CU318	OK083915	OK084040	OK084165	OK084290	OK084415	OK084540	GR	SQ
26	CU326	OK083916	OK084041	OK084166	OK084291	OK084416	OK084541	GR	SQ
27	CU327	OK083917	OK084042	OK084167	OK084292	OK084417	OK084542	GR	SQ
28	CU328	OK083918	OK084043	OK084168	OK084293	OK084418	OK084543	GR	SQ
29	CU333	OK083919	OK084044	OK084169	OK084294	OK084419	OK084544	GR	SQ
30	CU334	OK083920	OK084045	OK084170	OK084295	OK084420	OK084545	GR	SQ
31	CU338	OK083921	OK084046	OK084171	OK084296	OK084421	OK084546	GH	SQ
32	CU350	OK083922	OK084047	OK084172	OK084297	OK084422	OK084547	GR	SQ

33	CU368	OK083923	OK084048	OK084173	OK084298	OK084423	OK084548	GR	SQ
34	CU370	OK083924	OK084049	OK084174	OK084299	OK084424	OK084549	G	SQ
35	CU371	OK083925	OK084050	OK084175	OK084300	OK084425	OK084550	GH	SQ
36	CU378	OK083926	OK084051	OK084176	OK084301	OK084426	OK084551	GR	SQ
37	CU390	OK083927	OK084052	OK084177	OK084302	OK084427	OK084552	GH	Second
38	CU413	OK083928	OK084053	OK084178	OK084303	OK084428	OK084553	G	SQ
39	CU416	OK083929	OK084054	OK084179	OK084304	OK084429	OK084554	G	SQ
40	CU421	OK083930	OK084055	OK084180	OK084305	OK084430	OK084555	G	SQ
41	CU422	OK083931	OK084056	OK084181	OK084306	OK084431	OK084556	G	SQ
42	CU424	OK083932	OK084057	OK084182	OK084307	OK084432	OK084557	GV	SQ
43	CU425	OK083933	OK084058	OK084183	OK084308	OK084433	OK084558	GV	SQ
44	CU444	OK083934	OK084059	OK084184	OK084309	OK084434	OK084559	GR	SQ
45	CU447	OK083935	OK084060	OK084185	OK084310	OK084435	OK084560	G	SQ
46	CU450	OK083936	OK084061	OK084186	OK084311	OK084436	OK084561	G	SQ
47	CU466	OK083937	OK084062	OK084187	OK084312	OK084437	OK084562	G	SQ
48	CU475	OK083938	OK084063	OK084188	OK084313	OK084438	OK084563	GH	Second
49	CU477	OK083939	OK084064	OK084189	OK084314	OK084439	OK084564	GR	SQ
50	CU479	OK083940	OK084065	OK084190	OK084315	OK084440	OK084565	GR	SQ
51	CU480	OK083941	OK084066	OK084191	OK084316	OK084441	OK084566	GR	SQ
52	CU490	OK083942	OK084067	OK084192	OK084317	OK084442	OK084567	GRY	SQ
53	CU492	OK083943	OK084068	OK084193	OK084318	OK084443	OK084568	GRY	SQ
54	CU493	OK083944	OK084069	OK084194	OK084319	OK084444	OK084569	GRY	SQ
55	CU496	OK083945	OK084070	OK084195	OK084320	OK084445	OK084570	GV	SQ
56	CU500	OK083946	OK084071	OK084196	OK084321	OK084446	OK084571	G	Second
57	CU508	OK083947	OK084072	OK084197	OK084322	OK084447	OK084572	GH	Second
58	CU522	OK083948	OK084073	OK084198	OK084323	OK084448	OK084573	GH	Second
59	CU524	OK083949	OK084074	OK084199	OK084324	OK084449	OK084574	GH	Second
60	CU579	OK083950	OK084075	OK084200	OK084325	OK084450	OK084575	GH	Second
61	CU581	OK083951	OK084076	OK084201	OK084326	OK084451	OK084576	GH	Second
62	CU584	OK083952	OK084077	OK084202	OK084327	OK084452	OK084577	GH	Second
63	CU517	OK083953	OK084078	OK084203	OK084328	OK084453	OK084578	GH	Second
64	CU518	OK083954	OK084079	OK084204	OK084329	OK084454	OK084579	GH	Second
65	CU519	OK083955	OK084080	OK084205	OK084330	OK084455	OK084580	GH	Second
66	CU523	OK083956	OK084081	OK084206	OK084331	OK084456	OK084581	GH	Second
67	CU590	OK083957	OK084082	OK084207	OK084332	OK084457	OK084582	GH	Second
68	CU665	OK083958	OK084083	OK084208	OK084333	OK084458	OK084583	GH	Second
69	CU658	OK083959	OK084084	OK084209	OK084334	OK084459	OK084584	GH	Second

70	CU659	OK083960	OK084085	OK084210	OK084335	OK084460	OK084585	GH	Second
71	CU653	OK083961	OK084086	OK084211	OK084336	OK084461	OK084586	GH	Second
72	CU624	OK083962	OK084087	OK084212	OK084337	OK084462	OK084587	GH	SQ
73	CU698	OK083963	OK084088	OK084213	OK084338	OK084463	OK084588	GH	SQ
74	CU722	OK083964	OK084089	OK084214	OK084339	OK084464	OK084589	GH	Second
75	CU714	OK083965	OK084090	OK084215	OK084340	OK084465	OK084590	GH	SQ
76	CU625	OK083966	OK084091	OK084216	OK084341	OK084466	OK084591	GH	Second
77	CU620	OK083967	OK084092	OK084217	OK084342	OK084467	OK084592	GH	Second
78	CU605	OK083968	OK084093	OK084218	OK084343	OK084468	OK084593	GRY	SQ
79	CU701	OK083969	OK084094	OK084219	OK084344	OK084469	OK084594	GRY	SQ
80	CU743	OK083970	OK084095	OK084220	OK084345	OK084470	OK084595	GH	Second
81	CU781	OK083971	OK084096	OK084221	OK084346	OK084471	OK084596	GH	Second
82	CU782	OK083972	OK084097	OK084222	OK084347	OK084472	OK084597	GH	Second
83	CU874	OK083973	OK084098	OK084223	OK084348	OK084473	OK084598	GRY	SQ
84	CU869	OK083974	OK084099	OK084224	OK084349	OK084474	OK084599	GRY	SQ
85	CU846	OK083975	OK084100	OK084225	OK084350	OK084475	OK084600	G	SQ
86	CU789	OK083976	OK084101	OK084226	OK084351	OK084476	OK084601	G	SQ
87	CU843	OK083977	OK084102	OK084227	OK084352	OK084477	OK084602	GH	Second
88	CU937	OK083978	OK084103	OK084228	OK084353	OK084478	OK084603	GH	Second
89	CU787	OK083979	OK084104	OK084229	OK084354	OK084479	OK084604	GH	Second
90	CU804	OK083980	OK084105	OK084230	OK084355	OK084480	OK084605	GH	SQ
91	CU806	OK083981	OK084106	OK084231	OK084356	OK084481	OK084606	GH	Second
92	CU808	OK083982	OK084107	OK084232	OK084357	OK084482	OK084607	GH	Second
93	CU999	OK083983	OK084108	OK084233	OK084358	OK084483	OK084608	GRY	SQ
94	CU1038	OK083984	OK084109	OK084234	OK084359	OK084484	OK084609	GR	SQ
95	CU1030	OK083985	OK084110	OK084235	OK084360	OK084485	OK084610	GRY	SQ
96	CU1005	OK083986	OK084111	OK084236	OK084361	OK084486	OK084611	GR	SQ
97	CU1130	OK083987	OK084112	OK084237	OK084362	OK084487	OK084612	GRY	SQ
98	CU1218	OK083988	OK084113	OK084238	OK084363	OK084488	OK084613	GH	Second
99	CU1152	OK083989	OK084114	OK084239	OK084364	OK084489	OK084614	GH	Second
100	CU1234	OK083990	OK084115	OK084240	OK084365	OK084490	OK084615	GH	Second
101	CU1238	OK083991	OK084116	OK084241	OK084366	OK084491	OK084616	GH	Second
102	CU1295	OK083992	OK084117	OK084242	OK084367	OK084492	OK084617	G/B.1.525	SQ
103	CU1442	OK083993	OK084118	OK084243	OK084368	OK084493	OK084618	GH	Second
104	CU1443	OK083994	OK084119	OK084244	OK084369	OK084494	OK084619	GH	Second
105	CU1454	OK083995	OK084120	OK084245	OK084370	OK084495	OK084620	GH	Second
106	CU1457	OK083996	OK084121	OK084246	OK084371	OK084496	OK084621	GH	Second



107	CU1471	OK083997	OK084122	OK084247	OK084372	OK084497	OK084622	GH	Second
108	CU1514	OK083998	OK084123	OK084248	OK084373	OK084498	OK084623	G	Second
109	CU1748	OK083999	OK084124	OK084249	OK084374	OK084499	OK084624	GRY	Third
110	CU1749	OK084000	OK084125	OK084250	OK084375	OK084500	OK084625	GRY	Third
111	CU1770	OK084001	OK084126	OK084251	OK084376	OK084501	OK084626	GRY	Third
112	CU1785	OK084002	OK084127	OK084252	OK084377	OK084502	OK084627	GRY	Third
113	CU1786	OK084003	OK084128	OK084253	OK084378	OK084503	OK084628	GRY	Third
114	CU1788	OK084004	OK084129	OK084254	OK084379	OK084504	OK084629	GRY	Third
115	CU1789	OK084005	OK084130	OK084255	OK084380	OK084505	OK084630	GRY	Third
116	CU1790	OK084006	OK084131	OK084256	OK084381	OK084506	OK084631	GRY	Third
117	CU1792	OK084007	OK084132	OK084257	OK084382	OK084507	OK084632	GRY	Third
118	CU1687	OK084008	OK084133	OK084258	OK084383	OK084508	OK084633	GRY	Third
119	CU1240	OK084009	OK084134	OK084259	OK084384	OK084509	OK084634	GRY	SQ
120	CU1317	OK084010	OK084135	OK084260	OK084385	OK084510	OK084635	GH	Second
121	CU1324	OK084011	OK084136	OK084261	OK084386	OK084511	OK084636	G/B.1.525	SQ
122	CU1354	OK084012	OK084137	OK084262	OK084387	OK084512	OK084637	G	SQ
123	CU1376	OK084013	OK084138	OK084263	OK084388	OK084513	OK084638	G	SQ
124	CU2750	OK084014	OK084139	OK084264	OK084389	OK084514	OK084639	GK	Fourth
125	CU2749	OK084015	OK084140	OK084265	OK084390	OK084515	OK084640	GK	Fourth
126	CU7374	N/A	N/A	N/A	N/A	N/A	OM984745	GK	Fourth
127	CU7381	N/A	N/A	N/A	N/A	N/A	OM984746	GK	Fourth
128	CU7384	N/A	N/A	N/A	N/A	N/A	OM984747	GK	Fourth
129	CU7508	N/A	N/A	N/A	N/A	N/A	OM984748	GK	Fourth
130	CU7418	N/A	N/A	N/A	N/A	N/A	OM984749	GK	Fourth
131	CU7498	N/A	N/A	N/A	N/A	N/A	OM984750	GK	Fourth
132	CU6983	N/A	N/A	N/A	N/A	N/A	OM984751	GK	Fourth
133	CU5973	N/A	N/A	N/A	N/A	N/A	OM984752	GK	Fourth
134	CU5739	N/A	N/A	N/A	N/A	N/A	OM984753	GK	Fourth
135	CU5542	N/A	N/A	N/A	N/A	N/A	OM984754	GK	Fourth
136	CU5729	N/A	N/A	N/A	N/A	N/A	OM984755	GK	Fourth
137	CU5982	N/A	N/A	N/A	N/A	N/A	OM984756	GK	Fourth
138	CU5949	N/A	N/A	N/A	N/A	N/A	OM984757	GK	Fourth
139	CU5933	N/A	N/A	N/A	N/A	N/A	OM984758	GK	Fourth
140	CU5563	N/A	N/A	N/A	N/A	N/A	OM984759	GK	Fourth
141	CU5565	N/A	N/A	N/A	N/A	N/A	OM984760	GK	Fourth
142	CU5760	N/A	N/A	N/A	N/A	N/A	OM984761	GK	Fourth
143	CU5969	N/A	N/A	N/A	N/A	N/A	OM984762	GK	Fourth

144	CU5774	N/A	N/A	N/A	N/A	N/A	OM984763	GK	Fourth
145	CU5980	N/A	N/A	N/A	N/A	N/A	OM984764	GK	Fourth
146	CU5557	N/A	N/A	N/A	N/A	N/A	OM984765	GK	Fourth
147	CU7196	N/A	N/A	N/A	N/A	N/A	OM984766	GK	Fourth
148	CU5959	N/A	N/A	N/A	N/A	N/A	OM984767	GK	Fourth
149	CU5940	N/A	N/A	N/A	N/A	N/A	OM984768	GK	Fourth
150	CU5752	N/A	N/A	N/A	N/A	N/A	OM984769	GK	Fourth
151	CU5560	N/A	N/A	N/A	N/A	N/A	OM984770	GK	Fourth
152	CU5554	N/A	N/A	N/A	N/A	N/A	OM984771	GK	Fourth
153	CU5782	N/A	N/A	N/A	N/A	N/A	OM984772	GK	Fourth
154	CU5543	N/A	N/A	N/A	N/A	N/A	OM984773	GK	Fourth
155	CU5550	N/A	N/A	N/A	N/A	N/A	OM984774	GK	Fourth
156	CU5736	N/A	N/A	N/A	N/A	N/A	OM984775	GK	Fourth
157	CU6973	N/A	N/A	N/A	N/A	N/A	OM984776	GRA/BA.1	Fifth
158	CU6883	N/A	N/A	N/A	N/A	N/A	OM984777	GRA/BA.1	Fifth
159	CU6847	N/A	N/A	N/A	N/A	N/A	OM984778	GRA/BA.1	Fifth
160	CU6935	N/A	N/A	N/A	N/A	N/A	OM984779	GRA/BA.1	Fifth
161	CU6746	N/A	N/A	N/A	N/A	N/A	OM984780	GRA/BA.1	Fifth
162	CU6762	N/A	N/A	N/A	N/A	N/A	OM984781	GRA/BA.1	Fifth
163	CU6767	N/A	N/A	N/A	N/A	N/A	OM984782	GRA/BA.1	Fifth
164	CU6795	N/A	N/A	N/A	N/A	N/A	OM984783	GRA/BA.1	Fifth
165	CU6818	N/A	N/A	N/A	N/A	N/A	OM984784	GRA/BA.1	Fifth
166	CU6858	N/A	N/A	N/A	N/A	N/A	OM984785	GRA/BA.1	Fifth
167	CU6887	N/A	N/A	N/A	N/A	N/A	OM984786	GRA/BA.1	Fifth
168	CU6916	N/A	N/A	N/A	N/A	N/A	OM984787	GRA/BA.1	Fifth
169	CU6949	N/A	N/A	N/A	N/A	N/A	OM984788	GRA/BA.1	Fifth
170	CU7003	N/A	N/A	N/A	N/A	N/A	OM984789	GRA/BA.1	Fifth
171	CU7292	N/A	N/A	N/A	N/A	N/A	OM984790	GRA/BA.1	Fifth
172	CU7432	N/A	N/A	N/A	N/A	N/A	OM984791	GRA/BA.1	Fifth
173	CU7283	N/A	N/A	N/A	N/A	N/A	OM984792	GRA/BA.1	Fifth
174	CU7266	N/A	N/A	N/A	N/A	N/A	OM984793	GRA/BA.1	Fifth
175	CU6791	N/A	N/A	N/A	N/A	N/A	OM984794	GRA/BA.1	Fifth
176	CU6899	N/A	N/A	N/A	N/A	N/A	OM984795	GRA/BA.1	Fifth
177	CU6990	N/A	N/A	N/A	N/A	N/A	OM984796	GRA/BA.1	Fifth
178	CU7009	N/A	N/A	N/A	N/A	N/A	OM984797	GRA/BA.1	Fifth

179	CU7483	N/A	N/A	N/A	N/A	N/A	OM984798	GRA/ BA.1	Fifth
180	CU7537	N/A	N/A	N/A	N/A	N/A	OM984799	GRA/ BA.1	Fifth
181	CU7070	N/A	N/A	N/A	N/A	N/A	OM984800	GRA/ BA.1	Fifth
182	CU7440	N/A	N/A	N/A	N/A	N/A	OM984801	GRA/ BA.1	Fifth
183	CU7257	N/A	N/A	N/A	N/A	N/A	OM984802	GRA/ BA.1	Fifth
184	CU7255	N/A	N/A	N/A	N/A	N/A	OM984803	GRA/ BA.1	Fifth
185	CU7200	N/A	N/A	N/A	N/A	N/A	OM984804	GRA/ BA.1	Fifth
186	CU6993	N/A	N/A	N/A	N/A	N/A	OM984805	GRA/ BA.1	Fifth
187	CU6897	N/A	N/A	N/A	N/A	N/A	OM984806	GRA/ BA.1	Fifth
188	CU6852	N/A	N/A	N/A	N/A	N/A	OM984807	GRA/ BA.1	Fifth
189	CU6843	N/A	N/A	N/A	N/A	N/A	OM984808	GRA/ BA.1	Fifth
190	CU6739	N/A	N/A	N/A	N/A	N/A	OM984809	GRA/ BA.1	Fifth
191	CU6741	N/A	N/A	N/A	N/A	N/A	OM984810	GRA/ BA.1	Fifth
192	CU6750	N/A	N/A	N/A	N/A	N/A	OM984811	GRA/ BA.1	Fifth
193	CU6780	N/A	N/A	N/A	N/A	N/A	OM984812	GRA/ BA.1	Fifth
194	CU6787	N/A	N/A	N/A	N/A	N/A	OM984813	GRA/ BA.1	Fifth
195	CU6917	N/A	N/A	N/A	N/A	N/A	OM984814	GRA/ BA.1	Fifth
196	CU6955	N/A	N/A	N/A	N/A	N/A	OM984815	GRA/ BA.1	Fifth
197	CU6964	N/A	N/A	N/A	N/A	N/A	OM984816	GRA/ BA.1	Fifth
198	CU6989	N/A	N/A	N/A	N/A	N/A	OM984817	GRA/ BA.1	Fifth
199	CU6998	N/A	N/A	N/A	N/A	N/A	OM984818	GRA/ BA.1	Fifth
200	CU7250	N/A	N/A	N/A	N/A	N/A	OM984819	GRA/ BA.1	Fifth
201	CU7265	N/A	N/A	N/A	N/A	N/A	OM984820	GRA/ BA.1	Fifth
202	CU7402	N/A	N/A	N/A	N/A	N/A	OM984821	GRA/ BA.1	Fifth
203	CU7407	N/A	N/A	N/A	N/A	N/A	OM984822	GRA/ BA.1	Fifth
204	CU7438	N/A	N/A	N/A	N/A	N/A	OM984823	GRA/ BA.1	Fifth
205	CU7711	N/A	N/A	N/A	N/A	N/A	OM984824	GRA/ BA.2	Fifth
206	CU7591	N/A	N/A	N/A	N/A	N/A	OM984825	GRA/ BA.2	Fifth
207	CU7559	N/A	N/A	N/A	N/A	N/A	OM984826	GRA/ BA.2	Fifth
208	CU7556	N/A	N/A	N/A	N/A	N/A	OM984827	GRA/ BA.2	Fifth
209	CU7566	N/A	N/A	N/A	N/A	N/A	OM984828	GRA/ BA.2	Fifth
210	CU7574	N/A	N/A	N/A	N/A	N/A	OM984829	GRA/ BA.2	Fifth
211	CU7616	N/A	N/A	N/A	N/A	N/A	OM984830	GRA/ BA.2	Fifth
212	CU7623	N/A	N/A	N/A	N/A	N/A	OM984831	GRA/ BA.2	Fifth
213	CU7676	N/A	N/A	N/A	N/A	N/A	OM984832	GRA/ BA.2	Fifth

214	CU7687	N/A	N/A	N/A	N/A	N/A	OM984833	GRA/ BA.2	Fifth
215	CU7700	N/A	N/A	N/A	N/A	N/A	OM984834	GRA/ BA.2	Fifth
216	CU7747	N/A	N/A	N/A	N/A	N/A	OM984835	GRA/ BA.2	Fifth
217	CU7735	N/A	N/A	N/A	N/A	N/A	OM984836	GRA/ BA.2	Fifth
218	CU7546	N/A	N/A	N/A	N/A	N/A	OM984837	GRA/ BA.2	Fifth
219	CU7536	N/A	N/A	N/A	N/A	N/A	OM984838	GRA/ BA.2	Fifth
220	CU7271	N/A	N/A	N/A	N/A	N/A	OM984839	GRA/ BA.2	Fifth
221	CU7543	N/A	N/A	N/A	N/A	N/A	OM984840	GRA/ BA.2	Fifth
222	CU7551	N/A	N/A	N/A	N/A	N/A	OM984841	GRA/ BA.2	Fifth
223	CU7552	N/A	N/A	N/A	N/A	N/A	OM984842	GRA/ BA.2	Fifth
224	CU7554	N/A	N/A	N/A	N/A	N/A	OM984843	GRA/ BA.2	Fifth
225	CU7557	N/A	N/A	N/A	N/A	N/A	OM984844	GRA/ BA.2	Fifth
226	CU7564	N/A	N/A	N/A	N/A	N/A	OM984845	GRA/ BA.2	Fifth
227	CU7565	N/A	N/A	N/A	N/A	N/A	OM984846	GRA/ BA.2	Fifth
228	CU7567	N/A	N/A	N/A	N/A	N/A	OM984847	GRA/ BA.2	Fifth
229	CU7622	N/A	N/A	N/A	N/A	N/A	OM984848	GRA/ BA.2	Fifth
230	CU7762	N/A	N/A	N/A	N/A	N/A	OM984849	GRA/ BA.2	Fifth
231	CU7558	N/A	N/A	N/A	N/A	N/A	OM984850	GRA/ BA.2	Fifth
232	CU3330	N/A	N/A	N/A	N/A	N/A	OM996047	GRY	Third
233	CU3466	N/A	N/A	N/A	N/A	N/A	OM996048	GRY	Third
234	CU3469	N/A	N/A	N/A	N/A	N/A	OM996049	GRY	Third
235	CU3480	N/A	N/A	N/A	N/A	N/A	OM996050	GRY	Third
236	CU3482	N/A	N/A	N/A	N/A	N/A	OM996051	GRY	Third
237	CU3673	N/A	N/A	N/A	N/A	N/A	OM996052	GRY	Third
238	CU3675	N/A	N/A	N/A	N/A	N/A	OM996053	GRY	Third
239	CU3688	N/A	N/A	N/A	N/A	N/A	OM996054	GRY	Third
240	CU5094	N/A	N/A	N/A	N/A	N/A	OM996055	GRY	Third
241	CU5096	N/A	N/A	N/A	N/A	N/A	OM996056	GRY	Third
242	CU7809	N/A	N/A	N/A	N/A	N/A	OM996057	GRA/ BA.2	Fifth
243	CU7819	N/A	N/A	N/A	N/A	N/A	OM996058	GRA/ BA.2	Fifth
244	CU7831	N/A	N/A	N/A	N/A	N/A	OM996059	GRA/ BA.2	Fifth
245	CU7842	N/A	N/A	N/A	N/A	N/A	OM996060	GRA/ BA.2	Fifth
246	CU7883	N/A	N/A	N/A	N/A	N/A	OM996061	GRA/ BA.2	Fifth
247	CU7885	N/A	N/A	N/A	N/A	N/A	OM996062	GRA/ BA.2	Fifth
248	CU7898	N/A	N/A	N/A	N/A	N/A	OM996063	GRA/ BA.2	Fifth

249	CU7902	N/A	N/A	N/A	N/A	N/A	OM996064	GRA/ BA.2	Fifth
250	CU7904	N/A	N/A	N/A	N/A	N/A	OM996065	GRA/ BA.2	Fifth
251	CU7905	N/A	N/A	N/A	N/A	N/A	OM996066	GRA/ BA.2	Fifth
252	CU7911	N/A	N/A	N/A	N/A	N/A	OM996067	GRA/ BA.2	Fifth
253	CU7926	N/A	N/A	N/A	N/A	N/A	OM996068	GRA/ BA.2	Fifth
254	CU7928	N/A	N/A	N/A	N/A	N/A	OM996069	GRA/ BA.2	Fifth
255	CU7931	N/A	N/A	N/A	N/A	N/A	OM996070	GRA/ BA.2	Fifth
256	CU7936	N/A	N/A	N/A	N/A	N/A	OM996071	GRA/ BA.2	Fifth
257	CU7939	N/A	N/A	N/A	N/A	N/A	OM996072	GRA/ BA.2	Fifth
258	CU7960	N/A	N/A	N/A	N/A	N/A	OM996073	GRA/ BA.2	Fifth
259	CU7961	N/A	N/A	N/A	N/A	N/A	OM996074	GRA/ BA.2	Fifth
260	CU7975	N/A	N/A	N/A	N/A	N/A	OM996075	GRA/ BA.2	Fifth
261	CU8009	N/A	N/A	N/A	N/A	N/A	OM996076	GRA/ BA.2	Fifth
262	CU8030	N/A	N/A	N/A	N/A	N/A	OM996077	GRA/ BA.2	Fifth
263	CU8037	N/A	N/A	N/A	N/A	N/A	OM996078	GRA/ BA.2	Fifth
264	CU8040	N/A	N/A	N/A	N/A	N/A	OM996079	GRA/ BA.2	Fifth
265	CU8046	N/A	N/A	N/A	N/A	N/A	OM996080	GRA/ BA.2	Fifth
266	CU8051	N/A	N/A	N/A	N/A	N/A	OM996081	GRA/ BA.2	Fifth
267	CU8054	N/A	N/A	N/A	N/A	N/A	OM996082	GRA/ BA.2	Fifth
268	CU8056	N/A	N/A	N/A	N/A	N/A	OM996083	GRA/ BA.2	Fifth

**Table S3** Multiplex rRT-PCR primers and TaqMan probes

Target region	Primer/Probe	Sequence (5'-3')	Position	Strand
Spike/Alpha	Alpha-F	CAACTCAGGACTTBTCTTACC	21711-21732	Sense
	Alpha-Probe	<b>HEX-</b> GTTCCATGCTATCTCTGGGACCAA- <b>BHQ1</b>	21754-21783	Sense
	Alpha-R	TGTTAGACTTCTCAGTGGGAAGC	21839-21860	Antisense
Spike/Delta	Delta-F	CAATTTTGTAATGATCCATTTTGGGTGT	21962-21990	Sense
	Delta-Probe	<b>Texas Red-</b> GATGGAAAGTGGAGTTTATTCTAGTGCG- <b>BHQ2</b>	22018-22051	Sense
	Delta-R	GCTGAGAGACATATTCAAAAGTGC	22059-22082	Antisense
Spike/Omicron BA.1	BA.1_F	TTCTAAGCACACGCCTATTATAG	22174-22199	Sense
	BA.1_Probe	<b>FAM-</b> CGTGAGCCAGAAGATCTCCCTCA - <b>BHQ1</b>	22193-22215	Sense
	BA.1_R	ACCTAGTGATGTTAATACCTATTG	22251-22274	Antisense
Spike/Omicron BA.2	BA.2_F	CTCTAGTCAGTGTGTTAATCTTAT	21595-21618	Sense
	BA.2_Probe	<b>Cy5-</b> CCAGAACTCAATCATACTAATTCTT- <b>BHQ3</b>	21630-21656	Sense
	BA.2_R	AAGAACAAGTCCTGAGTTGAATG	21707-21729	Antisense

**Table S4** Amino acid substitutions in the SARS-CoV-2 variants in this study, compared to Wuhan-Hu-1.

<b>Nucleotide region</b>	<b>Gene: Position</b>	<b>Wuhan-Hu-1</b>	<b>A.6</b>	<b>B.1.36.16</b>	<b>B.1.1</b>	<b>B.1.177</b>	<b>B.1.1.7</b>	<b>B.1.617.2</b>
	ORF1b: 662	G						S
<b>15,074–16,269</b>	ORF1b: 767	V		L				
	ORF3a: 24	T						I
	ORF3a: 26	S						L
<b>25,017-25,639</b>	ORF3a: 57	Q		H				
<b>25,903-26,278</b>	ORF8: 84	L	S					
	N: 3	D					L	
	N: 30	G						R
	N: 63	D						G
	N: 139	L		F				
	N: 194	S		L				
	N: 203	R				K	K	M
	N: 204	G				R	R	
	N: 220	A				V		
	N: 235	S					F	
<b>28,147-29,041</b>	N: 243	G				C		