

Supporting Information

S1 Table.

List of the sequenced isolates analyzed from GISAID database (www.gisaid.org) available till June 7, 2020. Each of these isolates included complete gene sequence for the spike protein. The mutations of spike protein variant for each isolate were mentioned along with the docking score of S-R complex for the variant. The docking scores of the variants with mutations between amino acid positions 1-26 and 1148-1273 were not determined because of the unavailability of the modeling template (Walls et al., 2020; Wrapp et al., 2020) and therefore mentioned as NA (not available).

Accession ID	Virus name	Location	Collection date	Mutation Type	Docking Score	Standard Error
EPI_ISL_413522	hCoV-19/India/1-27/2020	Asia / India / Kerala	2020-01-27	Y145del:R407I	-105.2	7.245
EPI_ISL_413523	hCoV-19/India/1-31/2020	Asia / India / Kerala	2020-01-31	A930V	-140.7	1.039
EPI_ISL_426414	hCoV-19/India/GBRC1/2020	Asia / India / Gujarat	2020-04-05	D614G:Q271R	-109.5	0.477
EPI_ISL_426415	hCoV-19/India/GBRC1s/2020	Asia / India / Gujarat	2020-04-05	D614G:Q271R	-109.5	0.477
EPI_ISL_428479	hCoV-19/India/nimh-0113/2020	Asia / India / Karnataka	2020-04-06	D614G	-149.3	1.037
EPI_ISL_428481	hCoV-19/India/nimh-0130/2020	Asia / India / Karnataka	2020-04-06	D614G	-149.3	1.037
EPI_ISL_428482	hCoV-19/India/nimh-0182/2020	Asia / India / Karnataka	2020-04-08	D614G:C1250F	NA	NA

EPI_ISL_428483	hCoV-19/India/nimh-0318/2020	Asia / India / Karnataka	2020-04-10	Ancestral	-129.8	1.124
EPI_ISL_428484	hCoV-19/India/nimh-0351/2020	Asia / India / Karnataka	2020-04-10	Ancestral	-129.8	1.124
EPI_ISL_428486	hCoV-19/India/nimh-0996/2020	Asia / India / Karnataka	2020-04-14	Ancestral	-129.8	1.124
EPI_ISL_428487	hCoV-19/India/nimh-1071/2020	Asia / India / Karnataka	2020-04-14	Ancestral	-129.8	1.124
EPI_ISL_430464	hCoV-19/India/S3/2020	Asia / India / West Bengal / Kolkata	2020-03-21	D614G:G1124V	-121.3	1.565
EPI_ISL_430465	hCoV-19/India/S5/2020	Asia / India / West Bengal / Darjeeling	2020-03-28	D614G	-149.3	1.037
EPI_ISL_430466	hCoV-19/India/S6/2020	Asia / India / West Bengal / Tehatta	2020-03-26	D614G:T723I	-120	1.201
EPI_ISL_430467	hCoV-19/India/S11/2020	Asia / India / West Bengal / East Medinipur	2020-04-03	D614G	-149.3	1.037
EPI_ISL_430468	hCoV-19/India/S2/2020	Asia / India / West Bengal / Kolkata	2020-03-21	D614G:G1124V	-121.3	1.565
EPI_ISL_431101	hCoV-19/India/GMC-RK100/2020	Asia / India / Telangana / Hyderabad	2020-03-01	Y28H	-109.2	1.092
EPI_ISL_431102	hCoV-19/India/GMC-KN318/2020	Asia / India / Telangana / Hyderabad	2020-03-11	D614G	-149.3	1.037

EPI_ISL_431103	hCoV-19/India/GMC-KN443/2020	Asia / India / Telangana / Hyderabad	2020-03-16	Ancestral	-129.8	1.124
EPI_ISL_431117	hCoV-19/India/GMC-TC469/2020	Asia / India / Telangana / Hyderabad	2020-03-20	D614G	-149.3	1.037
EPI_ISL_435049	hCoV-19/India/GBRC2/2020	Asia / India / Gujarat / Ahmedabad	2020-04-13	D614G	-149.3	1.037
EPI_ISL_435050	hCoV-19/India/GBRC3/2020	Asia / India / Gujarat / Ahmedabad	2020-04-13	D614G	-149.3	1.037
EPI_ISL_435051	hCoV-19/India/GBRC4/2020	Asia / India / Gujarat / Ahmedabad	2020-04-13	D614G	-149.3	1.037
EPI_ISL_435052	hCoV-19/India/GBRC5/2020	Asia / India / Gujarat / Ahmedabad	2020-04-13	D614G	-149.3	1.037
EPI_ISL_435053	hCoV-19/India/GBRC6/2020	Asia / India / Gujarat / Ahmedabad	2020-04-07	D614G	-149.3	1.037
EPI_ISL_435054	hCoV-19/India/GBRC7/2020	Asia / India / Gujarat / Ahmedabad	2020-04-14	D614G	-149.3	1.037
EPI_ISL_435055	hCoV-19/India/GBRC8/2020	Asia / India / Gujarat / Gandhinagar	2020-04-22	D614G	-149.3	1.037
EPI_ISL_435056	hCoV-19/India/GBRC9/2020	Asia / India / Gujarat / Mansa	2020-04-21	D614G	-149.3	1.037

EPI_ISL_435060	hCoV-19/India/NCDC-01257/2020	Asia / India / Uttar Pradesh / Noida	2020-03-12	D614G	-149.3	1.037
EPI_ISL_435061	hCoV-19/India/NCDC-01537/2020	Asia / India / Delhi	2020-03-16	D614G:P1263L	NA	NA
EPI_ISL_435062	hCoV-19/India/NCDC-01538/2020	Asia / India / Punjab	2020-03-16	D614G	-149.3	1.037
EPI_ISL_435063	hCoV-19/India/NCDC-01326/2020	Asia / India / Delhi	2020-03-13	D614G	-149.3	1.037
EPI_ISL_435064	hCoV-19/India/NCDC-01705/2020	Asia / India / Delhi	2020-03-18	D614G	-149.3	1.037
EPI_ISL_435065	hCoV-19/India/NCDC-01475/2020	Asia / India / Delhi	2020-03-15	D614G	-149.3	1.037
EPI_ISL_435066	hCoV-19/India/NCDC-01711/2020	Asia / India / Delhi	2020-03-18	D614G	-149.3	1.037
EPI_ISL_435067	hCoV-19/India/NCDC-01712/2020	Asia / India / Delhi	2020-03-18	D614G:T299I	-120.9	1.636
EPI_ISL_435068	hCoV-19/India/NCDC-01757/2020	Asia / India / Delhi	2020-03-18	D614G	-149.3	1.037
EPI_ISL_435069	hCoV-19/India/NCDC-01744/2020	Asia / India / Delhi	2020-03-18	D614G	-149.3	1.037
EPI_ISL_435070	hCoV-19/India/NCDC-01710/2020	Asia / India / Delhi	2020-03-18	D614G	-149.3	1.037
EPI_ISL_435071	hCoV-19/India/NCDC-02105/2020	Asia / India / Delhi	2020-03-25	D614G	-149.3	1.037
EPI_ISL_435072	hCoV-19/India/NCDC-02155/2020	Asia / India / Delhi	2020-03-26	D614G	-149.3	1.037

EPI_ISL_435074	hCoV-19/India/NCDC-02250/2020	Asia / India / West Bengal	2020-03-28	Ancestral	-129.8	1.124
EPI_ISL_435075	hCoV-19/India/NCDC-02331/2020	Asia / India / Tamil Nadu	2020-03-29	K77M:A771V	-91.3	1.125
EPI_ISL_435078	hCoV-19/India/NCDC-02311/2020	Asia / India / Tamil Nadu	2020-03-29	Ancestral	-129.8	1.124
EPI_ISL_435079	hCoV-19/India/NCDC-02318/2020	Asia / India / Tamil Nadu	2020-03-29	Ancestral	-129.8	1.124
EPI_ISL_435080	hCoV-19/India/NCDC-02334/2020	Asia / India / Tamil Nadu	2020-03-29	Ancestral	-129.8	1.124
EPI_ISL_435081	hCoV-19/India/NCDC-02248/2020	Asia / India / West Bengal	2020-03-28	Ancestral	-129.8	1.124
EPI_ISL_435082	hCoV-19/India/NCDC-02322/2020	Asia / India / Uttar Pradesh	2020-03-29	Ancestral	-129.8	1.124
EPI_ISL_435083	hCoV-19/India/NCDC-02242/2020	Asia / India / Tamil Nadu	2020-03-28	Ancestral	-129.8	1.124
EPI_ISL_435084	hCoV-19/India/NCDC-02309/2020	Asia / India / Tamil Nadu	2020-03-29	Ancestral	-129.8	1.124
EPI_ISL_435085	hCoV-19/India/NCDC-02310/2020	Asia / India / Mumbai	2020-03-29	Ancestral	-129.8	1.124
EPI_ISL_435086	hCoV-19/India/NCDC-02315/2020	Asia / India / Mumbai	2020-03-29	Ancestral	-129.8	1.124
EPI_ISL_435087	hCoV-19/India/NCDC-02333/2020	Asia / India / Tamil Nadu	2020-03-29	Ancestral	-129.8	1.124
EPI_ISL_435088	hCoV-19/India/NCDC-02336/2020	Asia / India / Odisha	2020-03-29	Ancestral	-129.8	1.124
EPI_ISL_435090	hCoV-19/India/NCDC-02326/2020	Asia / India / Jammu	2020-03-29	Ancestral	-129.8	1.124

EPI_ISL_435091	hCoV-19/India/NCDC-02245/2020	Asia / India / Tamil Nadu	2020-03-28	Ancestral	-129.8	1.124
EPI_ISL_435092	hCoV-19/India/NCDC-02244/2020	Asia / India / Tamil Nadu	2020-03-28	Ancestral	-129.8	1.124
EPI_ISL_435093	hCoV-19/India/NCDC-02312/2020	Asia / India / Tamil Nadu	2020-03-29	Ancestral	-129.8	1.124
EPI_ISL_435094	hCoV-19/India/NCDC-02327/2020	Asia / India / Tamil Nadu	2020-03-29	Ancestral	-129.8	1.124
EPI_ISL_435095	hCoV-19/India/NCDC-02328/2020	Asia / India / Tamil Nadu	2020-03-29	Ancestral	-129.8	1.124
EPI_ISL_435096	hCoV-19/India/NCDC-02332/2020	Asia / India / Tamil Nadu	2020-03-29	Ancestral	-129.8	1.124
EPI_ISL_435097	hCoV-19/India/NCDC-02252/2020	Asia / India / West Bengal	2020-03-28	Ancestral	-129.8	1.124
EPI_ISL_435099	hCoV-19/India/NCDC-02320/2020	Asia / India / Uttar Pradesh	2020-03-29	Ancestral	-129.8	1.124
EPI_ISL_435100	hCoV-19/India/NCDC-02321/2020	Asia / India / Uttar Pradesh	2020-03-29	Ancestral	-129.8	1.124
EPI_ISL_435101	hCoV-19/India/NCDC-01441/2020	Asia / India / Ladakh	2020-03-15	Ancestral	-129.8	1.124
EPI_ISL_435102	hCoV-19/India/NCDC-01444/2020	Asia / India / Ladakh	2020-03-15	Ancestral	-129.8	1.124
EPI_ISL_435103	hCoV-19/India/NCDC-01604/2020	Asia / India / Ladakh	2020-03-17	Ancestral	-129.8	1.124
EPI_ISL_435104	hCoV-19/India/NCDC-01614/2020	Asia / India / Ladakh	2020-03-17	Ancestral	-129.8	1.124
EPI_ISL_435105	hCoV-19/India/NCDC-01616/2020	Asia / India / Ladakh	2020-03-17	Ancestral	-129.8	1.124

EPI_ISL_435106	hCoV-19/India/NCDC-01760/2020	Asia / India / Ladakh	2020-03-18	Ancestral	-129.8	1.124
EPI_ISL_435107	hCoV-19/India/NCDC-02370/2020	Asia / India / Kargil	2020-03-29	Ancestral	-129.8	1.124
EPI_ISL_435108	hCoV-19/India/NCDC-01457/2020	Asia / India / Delhi	2020-03-15	L5F	NA	NA
EPI_ISL_435109	hCoV-19/India/NCDC-01638/2020	Asia / India / Delhi	2020-03-17	Ancestral	-129.8	1.124
EPI_ISL_435110	hCoV-19/India/NCDC-01501/2020	Asia / India / Delhi	2020-03-16	L18F	NA	NA
EPI_ISL_435111	hCoV-19/India/NCDC-02415/2020	Asia / India / Delhi	2020-03-30	Ancestral	-129.8	1.124
EPI_ISL_435112	hCoV-19/India/NCDC-02251/2020	Asia / India / Bihar	2020-03-28	Ancestral	-129.8	1.124
EPI_ISL_436137	hCoV-19/India/nimh-2873/2020	Asia / India / Karnataka	2020-04-21	Ancestral	-129.8	1.124
EPI_ISL_436138	hCoV-19/India/nimh-3952/2020	Asia / India / Karnataka	2020-04-23	D614G	-149.3	1.037
EPI_ISL_436139	hCoV-19/India/nimh-3970/2020	Asia / India / Karnataka	2020-04-23	D614G	-149.3	1.037
EPI_ISL_436140	hCoV-19/India/nimh-4376/2020	Asia / India / Karnataka	2020-04-24	D614G	-149.3	1.037
EPI_ISL_436141	hCoV-19/India/nimh-4378/2020	Asia / India / Karnataka	2020-04-24	D614G	-149.3	1.037
EPI_ISL_436156	hCoV-19/India/nimh-1596/2020	Asia / India / Karnataka	2020-04-17	Ancestral	-129.8	1.124
EPI_ISL_436157	hCoV-19/India/nimh-1598/2020	Asia / India / Karnataka	2020-04-17	Ancestral	-129.8	1.124

EPI_ISL_436413	hCoV-19/India/NCDC-2443/2020	Asia / India / Uttar Pradesh	2020-03-30	D614G	-149.3	1.037
EPI_ISL_436414	hCoV-19/India/NCDC-2502/2020	Asia / India / West Bengal	2020-03-31	Ancestral	-129.8	1.124
EPI_ISL_436415	hCoV-19/India/NCDC-2507/2020	Asia / India / Delhi	2020-03-31	Ancestral	-129.8	1.124
EPI_ISL_436416	hCoV-19/India/NCDC-2514/2020	Asia / India / Tamil Nadu	2020-03-31	T274I	-90.9	1.283
EPI_ISL_436417	hCoV-19/India/NCDC-2515/2020	Asia / India / Bihar	2020-03-31	Ancestral	-129.8	1.124
EPI_ISL_436418	hCoV-19/India/NCDC-2517/2020	Asia / India / Tamil Nadu	2020-03-31	Ancestral	-129.8	1.124
EPI_ISL_436419	hCoV-19/India/NCDC-2519/2020	Asia / India / Bihar	2020-03-31	K77M:S494P	-76.3	4.382
EPI_ISL_436420	hCoV-19/India/NCDC-2522/2020	Asia / India / Rajasthan	2020-03-31	Ancestral	-129.8	1.124
EPI_ISL_436421	hCoV-19/India/NCDC-2525/2020	Asia / India / Assam	2020-03-31	Ancestral	-129.8	1.124
EPI_ISL_436422	hCoV-19/India/NCDC-2535/2020	Asia / India / Assam	2020-03-31	Ancestral	-129.8	1.124
EPI_ISL_436424	hCoV-19/India/NCDC-3163/2020	Asia / India / Delhi	2020-04-05	Ancestral	-129.8	1.124
EPI_ISL_436425	hCoV-19/India/NCDC-3170/2020	Asia / India / Delhi	2020-04-05	Ancestral	-129.8	1.124
EPI_ISL_436426	hCoV-19/India/NCDC-3175/2020	Asia / India / Delhi	2020-04-05	A243S	-119.9	0.950
EPI_ISL_436427	hCoV-19/India/NCDC-3176/2020	Asia / India / Delhi	2020-04-05	Ancestral	-129.8	1.124

EPI_ISL_436428	hCoV-19/India/NCDC-3181/2020	Asia / India / Delhi	2020-04-05	Ancestral	-129.8	1.124
EPI_ISL_436429	hCoV-19/India/NCDC-3190/2020	Asia / India / Delhi	2020-04-05	Ancestral	-129.8	1.124
EPI_ISL_436430	hCoV-19/India/NCDC-3195/2020	Asia / India / Delhi	2020-04-05	Ancestral	-129.8	1.124
EPI_ISL_436431	hCoV-19/India/NCDC-3230/2020	Asia / India / Delhi	2020-04-05	Ancestral	-129.8	1.124
EPI_ISL_436432	hCoV-19/India/NCDC-3264/2020	Asia / India / Delhi	2020-04-05	Ancestral	-129.8	1.124
EPI_ISL_436433	hCoV-19/India/NCDC-3271/2020	Asia / India / Delhi	2020-04-05	Ancestral	-129.8	1.124
EPI_ISL_436434	hCoV-19/India/NCDC-3279/2020	Asia / India / Delhi	2020-04-05	Ancestral	-129.8	1.124
EPI_ISL_436435	hCoV-19/India/NCDC-3394/2020	Asia / India / Delhi	2020-04-09	Ancestral	-129.8	1.124
EPI_ISL_436436	hCoV-19/India/NCDC-3400/2020	Asia / India / Delhi	2020-04-06	Ancestral	-129.8	1.124
EPI_ISL_436437	hCoV-19/India/NCDC-3831/2020	Asia / India / Delhi	2020-04-08	E224G	-95.9	0.857
EPI_ISL_436438	hCoV-19/India/NCDC-3835/2020	Asia / India / Maharashtra	2020-04-07	Ancestral	-129.8	1.124
EPI_ISL_436439	hCoV-19/India/NCDC-3934/2020	Asia / India / Bihar	2020-04-09	Ancestral	-129.8	1.124
EPI_ISL_436440	hCoV-19/India/NCDC-3936/2020	Asia / India / Andhra Pradesh	2020-04-09	Ancestral	-129.8	1.124

EPI_ISL_436441	hCoV-19/India/NCDC-3941/2020	Asia / India / Bihar	2020-04-09	Ancestral	-129.8	1.124
EPI_ISL_436442	hCoV-19/India/NCDC-3950/2020	Asia / India / Maharashtra	2020-04-09	D290Y	-119.1	1.389
EPI_ISL_436443	hCoV-19/India/NCDC-3961/2020	Asia / India / Madhya Pradesh	2020-04-09	Ancestral	-129.8	1.124
EPI_ISL_436444	hCoV-19/India/NCDC-3965/2020	Asia / India / Maharashtra	2020-04-09	Ancestral	-129.8	1.124
EPI_ISL_436445	hCoV-19/India/NCDC-3982/2020	Asia / India / Delhi	2020-04-09	Ancestral	-129.8	1.124
EPI_ISL_436447	hCoV-19/India/NCDC-4055/2020	Asia / India / Karnataka	2020-04-10	Ancestral	-129.8	1.124
EPI_ISL_436448	hCoV-19/India/NCDC-4138/2020	Asia / India / Delhi	2020-04-12	Ancestral	-129.8	1.124
EPI_ISL_436449	hCoV-19/India/NCDC-4155/2020	Asia / India / Bihar	2020-04-12	A243S	-119.9	0.950
EPI_ISL_436450	hCoV-19/India/NCDC-4189/2020	Asia / India / Delhi	2020-04-13	K77M	-84.8	0.194
EPI_ISL_436451	hCoV-19/India/NCDC-4205/2020	Asia / India / Delhi	2020-04-13	Ancestral	-129.8	1.124
EPI_ISL_436452	hCoV-19/India/NCDC-4208/2020	Asia / India / Delhi	2020-04-14	Ancestral	-129.8	1.124
EPI_ISL_436454	hCoV-19/India/NCDC-4475/2020	Asia / India / Delhi	2020-04-13	D614G	-149.3	1.037
EPI_ISL_436455	hCoV-19/India/NCDC-4476/2020	Asia / India / Delhi	2020-04-13	D614G	-149.3	1.037

EPI_ISL_436456	hCoV-19/India/NCDC-4846/2020	Asia / India / Madhya Pradesh	2020-04-20	D614G	-149.3	1.037
EPI_ISL_436457	hCoV-19/India/NCDC-4859/2020	Asia / India / Madhya Pradesh	2020-04-20	D614G	-149.3	1.037
EPI_ISL_436459	hCoV-19/India/NCDC-4874/2020	Asia / India / Madhya Pradesh	2020-04-20	D614G	-149.3	1.037
EPI_ISL_436460	hCoV-19/India/NCDC-4876/2020	Asia / India / Madhya Pradesh	2020-04-20	D614G	-149.3	1.037
EPI_ISL_436461	hCoV-19/India/NCDC-4877/2020	Asia / India / Madhya Pradesh	2020-04-20	D614G	-149.3	1.037
EPI_ISL_436462	hCoV-19/India/NCDC-4878/2020	Asia / India / Madhya Pradesh	2020-04-16	D614G	-149.3	1.037
EPI_ISL_437440	hCoV-19/India/GBRC12/2020	Asia / India / Gujarat / Surat	2020-04-26	D614G:K1181R	NA	NA
EPI_ISL_437441	hCoV-19/India/GBRC13/2020	Asia / India / Gujarat / Surat	2020-04-26	Ancestral	-129.8	1.124
EPI_ISL_437442	hCoV-19/India/GBRC14/2020	Asia / India / Gujarat / Surat	2020-04-27	Ancestral	-129.8	1.124
EPI_ISL_437444	hCoV-19/India/GBRC16/2020	Asia / India / Gujarat / Surat	2020-04-26	Ancestral	-129.8	1.124
EPI_ISL_437445	hCoV-19/India/GBRC17a/2020	Asia / India / Gujarat / Ahmedabad	2020-04-26	D614G:A706S:C1243F	NA	NA

EPI_ISL_437446	hCoV-19/India/GBRC17b/2020	Asia / India / Gujarat / Ahmedabad	2020-04-26	D614G:C1243F	NA	NA
EPI_ISL_437447	hCoV-19/India/GBRC18/2020	Asia / India / Gujarat / Ahmedabad	2020-04-26	D614G	-149.3	1.037
EPI_ISL_437448	hCoV-19/India/GBRC19/2020	Asia / India / Gujarat / Ahmedabad	2020-04-26	D614G	-149.3	1.037
EPI_ISL_437449	hCoV-19/India/GBRC20/2020	Asia / India / Gujarat / Ahmedabad	2020-04-26	D614G	-149.3	1.037
EPI_ISL_437450	hCoV-19/India/GBRC21/2020	Asia / India / Gujarat / Ahmedabad	2020-04-26	D614G:Q677H	-145.2	1.091
EPI_ISL_437451	hCoV-19/India/GBRC22/2020	Asia / India / Gujarat / Ahmedabad	2020-04-26	D614G	-149.3	1.037
EPI_ISL_437452	hCoV-19/India/GBRC23/2020	Asia / India / Gujarat / Ahmedabad	2020-04-26	D614G:L54F	-137.6	1.061
EPI_ISL_437453	hCoV-19/India/GBRC24a/2020	Asia / India / Gujarat / Ahmedabad	2020-04-26	Ancestral	-129.8	1.124
EPI_ISL_437454	hCoV-19/India/GBRC24b/2020	Asia / India / Gujarat / Ahmedabad	2020-04-26	E583D	-141	6.485
EPI_ISL_437537	hCoV-19/India/S8/2020	Asia / India / West Bengal / Howrah	2020-03-30	D614G	-149.3	1.037

EPI_ISL_437539	hCoV-19/India/S12/2020	Asia / India / West Bengal / East Medinipur	2020-04-06	D614G	-149.3	1.037
EPI_ISL_437626	hCoV-19/India/GMC-KP1125/2020	Asia / India / Telangana / Hyderabad	2020-03-24	D614G	-149.3	1.037
EPI_ISL_438138	hCoV-19/India/GMC-RR1191/2020	Asia / India / Telangana / Hyderabad	2020-03-25	Ancestral	-129.8	1.124
EPI_ISL_438139	hCoV-19/India/GMC-RK1090/2020	Asia / India / Telangana / Hyderabad	2020-03-25	Ancestral	-129.8	1.124
EPI_ISL_444456	hCoV-19/India/GBRC25/2020	Asia / India / Gujarat / Ahmedabad	2020-04-26	D614G	-149.3	1.037
EPI_ISL_444457	hCoV-19/India/GBRC26/2020	Asia / India / Gujarat / Ahmedabad	2020-04-26	D614G	-149.3	1.037
EPI_ISL_444458	hCoV-19/India/GBRC27/2020	Asia / India / Gujarat / Ahmedabad	2020-04-26	D614G	-149.3	1.037
EPI_ISL_444459	hCoV-19/India/GBRC28/2020	Asia / India / Gujarat / Ahmedabad	2020-04-30	D614G:E583D	-128.8	1.091
EPI_ISL_444460	hCoV-19/India/GBRC29/2020	Asia / India / Gujarat / Ahmedabad	2020-04-30	D614G	-149.3	1.037
EPI_ISL_444461	hCoV-19/India/GBRC30/2020	Asia / India / Gujarat / Ahmedabad	2020-04-29	D614G	-149.3	1.037

EPI_ISL_444462	hCoV-19/India/GBRC31/2020	Asia / India / Gujarat / Ahmedabad	2020-04-29	D614G	-149.3	1.037
EPI_ISL_444463	hCoV-19/India/GBRC32/2020	Asia / India / Gujarat / Ahmedabad	2020-04-29	D614G:Q677H	-145.2	1.091
EPI_ISL_444464	hCoV-19/India/GBRC33/2020	Asia / India / Gujarat / Ahmedabad	2020-04-29	D614G	-149.3	1.037
EPI_ISL_444465	hCoV-19/India/GBRC34/2020	Asia / India / Gujarat / Ahmedabad	2020-04-29	D614G:T572I	-145.6	8.737
EPI_ISL_444466	hCoV-19/India/GBRC35/2020	Asia / India / Gujarat / Ahmedabad	2020-04-29	D614G:T572I	-145.6	8.737
EPI_ISL_444467	hCoV-19/India/GBRC36/2020	Asia / India / Gujarat / Ahmedabad	2020-04-29	D614G	-149.3	1.037
EPI_ISL_444468	hCoV-19/India/GBRC37/2020	Asia / India / Gujarat / Ahmedabad	2020-04-29	D614G	-149.3	1.037
EPI_ISL_444469	hCoV-19/India/GBRC38/2020	Asia / India / Gujarat / Ahmedabad	2020-04-29	D614G:E583D	-128.8	1.091
EPI_ISL_444470	hCoV-19/India/GBRC39/2020	Asia / India / Gujarat / Ahmedabad	2020-04-29	D614G	-149.3	1.037
EPI_ISL_444471	hCoV-19/India/GBRC40/2020	Asia / India / Gujarat / Ahmedabad	2020-04-29	D614G	-149.3	1.037

EPI_ISL_444472	hCoV-19/India/GBRC41/2020	Asia / India / Gujarat / Ahmedabad	2020-04-29	D614G	-149.3	1.037
EPI_ISL_444473	hCoV-19/India/GBRC42/2020	Asia / India / Gujarat / Ahmedabad	2020-04-29	D614G:A892V	-143	3.897
EPI_ISL_444474	hCoV-19/India/GBRC43/2020	Asia / India / Gujarat / Ahmedabad	2020-04-29	D614G:T827I	-124.5	5.789
EPI_ISL_444475	hCoV-19/India/GBRC44/2020	Asia / India / Gujarat / Ahmedabad	2020-04-29	D614G	-149.3	1.037
EPI_ISL_444476	hCoV-19/India/GBRC45/2020	Asia / India / Gujarat / Ahmedabad	2020-04-29	D614G:T572I	-145.6	8.737
EPI_ISL_444477	hCoV-19/India/GBRC46/2020	Asia / India / Gujarat / Ahmedabad	2020-04-29	D614G	-149.3	1.037
EPI_ISL_444478	hCoV-19/India/GBRC47/2020	Asia / India / Gujarat / Ahmedabad	2020-04-30	D614G:E156D	-146.6	2.590
EPI_ISL_444479	hCoV-19/India/GBRC48/2020	Asia / India / Gujarat / Ahmedabad	2020-04-29	D614G	-149.3	1.037
EPI_ISL_444480	hCoV-19/India/GBRC49/2020	Asia / India / Gujarat / Ahmedabad	2020-04-30	D614G	-149.3	1.037
EPI_ISL_444481	hCoV-19/India/GBRC50/2020	Asia / India / Gujarat / Ahmedabad	2020-04-30	D614G	-149.3	1.037

EPI_ISL_444482	hCoV-19/India/GBRC51/2020	Asia / India / Gujarat / Prantij	2020-05-02	D614G	-149.3	1.037
EPI_ISL_444483	hCoV-19/India/GBRC52/2020	Asia / India / Gujarat / Prantij	2020-05-02	D614G	-149.3	1.037
EPI_ISL_444484	hCoV-19/India/GBRC53/2020	Asia / India / Gujarat / Modasa	2020-05-04	D614G:R78M	-147.1	4.033
EPI_ISL_444485	hCoV-19/India/GBRC54/2020	Asia / India / Gujarat / Modasa	2020-05-04	D614G:R78M	-147.1	4.033
EPI_ISL_444486	hCoV-19/India/GBRC55/2020	Asia / India / Gujarat / Dhansura	2020-05-04	D614G:L54F	-137.6	1.061
EPI_ISL_447030	hCoV-19/India/GBRC56a/2020	Asia / India / Gujarat / Ahmedabad	2020-05-03	D614G:S13I	NA	NA
EPI_ISL_447031	hCoV-19/India/GBRC56b/2020	Asia / India / Gujarat / Ahmedabad	2020-05-03	D614G	-149.3	1.037
EPI_ISL_447033	hCoV-19/India/GBRC58/2020	Asia / India / Gujarat / Ahmedabad	2020-05-03	D614G:L54F	-137.6	1.061
EPI_ISL_447035	hCoV-19/India/GBRC60/2020	Asia / India / Gujarat / Ahmedabad	2020-05-03	D614G:T572I	-145.6	8.737
EPI_ISL_447036	hCoV-19/India/GBRC61/2020	Asia / India / Gujarat / Ahmedabad	2020-05-03	D614G	-149.3	1.037

EPI_ISL_447037	hCoV-19/India/GBRC62/2020	Asia / India / Gujarat / Ahmedabad	2020-05-03	D614G:V1104L	-152.1	1.600
EPI_ISL_447038	hCoV-19/India/GBRC63/2020	Asia / India / Gujarat / Ahmedabad	2020-05-03	D614G:F2L	NA	NA
EPI_ISL_447039	hCoV-19/India/GBRC64/2020	Asia / India / Gujarat / Ahmedabad	2020-05-03	D614G	-149.3	1.037
EPI_ISL_447040	hCoV-19/India/GBRC65a/2020	Asia / India / Gujarat / Ahmedabad	2020-05-03	D614G:M177I	-156.3	0.917
EPI_ISL_447041	hCoV-19/India/GBRC65b/2020	Asia / India / Gujarat / Ahmedabad	2020-05-03	D614G:M177I	-156.3	0.917
EPI_ISL_447042	hCoV-19/India/GBRC66/2020	Asia / India / Gujarat / Ahmedabad	2020-05-03	D614G:A879S	-146.6	21.300
EPI_ISL_447043	hCoV-19/India/GBRC67a/2020	Asia / India / Gujarat / Ahmedabad	2020-05-03	D614G:E583D	-128.8	1.091
EPI_ISL_447044	hCoV-19/India/GBRC67b/2020	Asia / India / Gujarat / Ahmedabad	2020-05-03	D614G:E583D	-128.8	1.091
EPI_ISL_447045	hCoV-19/India/GBRC68/2020	Asia / India / Gujarat / Ahmedabad	2020-05-03	D614G	-149.3	1.037
EPI_ISL_447046	hCoV-19/India/GBRC69/2020	Asia / India / Gujarat / Ahmedabad	2020-05-04	D614G:L54F:E471Q	-144.3	2.941

EPI_ISL_447047	hCoV-19/India/GBRC70/2020	Asia / India / Gujarat / Gandhinagar	2020-04-29	D614G	-149.3	1.037
EPI_ISL_447048	hCoV-19/India/GBRC71/2020	Asia / India / Gujarat / Gandhinagar	2020-04-27	D614G	-149.3	1.037
EPI_ISL_447049	hCoV-19/India/GBRC72a/2020	Asia / India / Gujarat / Gandhinagar	2020-04-29	D614G:A706S	-136	4.137
EPI_ISL_447050	hCoV-19/India/GBRC72b/2020	Asia / India / Gujarat / Gandhinagar	2020-04-29	D614G	-149.3	1.037
EPI_ISL_447051	hCoV-19/India/GBRC73/2020	Asia / India / Gujarat / Gandhinagar	2020-04-29	D614G	-149.3	1.037
EPI_ISL_447052	hCoV-19/India/GBRC74/2020	Asia / India / Gujarat / Gandhinagar	2020-05-02	D614G	-149.3	1.037
EPI_ISL_447053	hCoV-19/India/GBRC75/2020	Asia / India / Gujarat / Gandhinagar	2020-04-29	D614G	-149.3	1.037
EPI_ISL_447534	hCoV-19/India/GBRC76/2020	Asia / India / Gujarat / Modasa	2020-05-05	D614G:R78M	-147.1	4.033
EPI_ISL_447535	hCoV-19/India/GBRC77/2020	Asia / India / Gujarat / Modasa	2020-05-05	D614G:R78M	-147.1	4.033
EPI_ISL_447536	hCoV-19/India/GBRC78a/2020	Asia / India / Gujarat / Modasa	2020-05-05	D614G	-149.3	1.037

EPI_ISL_447537	hCoV-19/India/GBRC78b/2020	Asia / India / Gujarat / Modasa	2020-05-05	D614G:R78M	-147.1	4.033
EPI_ISL_447538	hCoV-19/India/GBRC79a/2020	Asia / India / Gujarat / Modasa	2020-05-05	D614G	-149.3	1.037
EPI_ISL_447539	hCoV-19/India/GBRC79b/2020	Asia / India / Gujarat / Modasa	2020-05-05	D614G	-149.3	1.037
EPI_ISL_447540	hCoV-19/India/GBRC81a/2020	Asia / India / Gujarat / Modasa	2020-05-05	D614G:R78M	-147.1	4.033
EPI_ISL_447541	hCoV-19/India/GBRC81b/2020	Asia / India / Gujarat / Modasa	2020-05-05	D614G:R78M	-147.1	4.033
EPI_ISL_447542	hCoV-19/India/GBRC82a/2020	Asia / India / Gujarat / Modasa	2020-05-05	D614G:R78M	-147.1	4.033
EPI_ISL_447543	hCoV-19/India/GBRC82b/2020	Asia / India / Gujarat / Modasa	2020-05-05	D614G:R78M	-147.1	4.033
EPI_ISL_447544	hCoV-19/India/GBRC83/2020	Asia / India / Gujarat / Modasa	2020-05-05	D614G	-149.3	1.037
EPI_ISL_447545	hCoV-19/India/GBRC84/2020	Asia / India / Gujarat / Prantij	2020-05-05	D614G	-149.3	1.037
EPI_ISL_447546	hCoV-19/India/GBRC85/2020	Asia / India / Gujarat / Himatnagar	2020-05-05	D614G:E583D	-128.8	1.091

EPI_ISL_447547	hCoV-19/India/GBRC86/2020	Asia / India / Gujarat / Gandhinagar	2020-04-28	D614G	-149.3	1.037
EPI_ISL_447548	hCoV-19/India/GBRC87/2020	Asia / India / Gujarat / Dahegam	2020-04-28	D614G	-149.3	1.037
EPI_ISL_447549	hCoV-19/India/GBRC88a/2020	Asia / India / Gujarat / Dahegam	2020-05-03	D614G	-149.3	1.037
EPI_ISL_447550	hCoV-19/India/GBRC88b/2020	Asia / India / Gujarat / Dahegam	2020-05-03	D614G	-149.3	1.037
EPI_ISL_447551	hCoV-19/India/GBRC89/2020	Asia / India / Gujarat / Gandhinagar	2020-04-25	D614G	-149.3	1.037
EPI_ISL_447552	hCoV-19/India/GBRC90/2020	Asia / India / Gujarat / Gandhinagar	2020-05-02	D614G	-149.3	1.037
EPI_ISL_447553	hCoV-19/India/GBRC91/2020	Asia / India / Gujarat / Gandhinagar	2020-04-27	D614G	-149.3	1.037
EPI_ISL_447554	hCoV-19/India/GBRC92/2020	Asia / India / Gujarat / Gandhinagar	2020-04-26	D614G	-149.3	1.037
EPI_ISL_447555	hCoV-19/India/GBRC93/2020	Asia / India / Gujarat / Mansa	2020-04-28	D614G	-149.3	1.037
EPI_ISL_447556	hCoV-19/India/CCMB_J021/2020	Asia / India / Telangana	2020-03-30	K77M	-84.8	0.194
EPI_ISL_447557	hCoV-19/India/CCMB_J009/2020	Asia / India / Telangana	2020-03-30	Ancestral	-129.8	1.124

EPI_ISL_447558	hCoV-19/India/CCMB_J014/2020	Asia / India / Telangana	2020-03-30	Ancestral	-129.8	1.124
EPI_ISL_447559	hCoV-19/India/CCMB_J048/2020	Asia / India / Telangana	2020-03-31	Ancestral	-129.8	1.124
EPI_ISL_447560	hCoV-19/India/CCMB_J043/2020	Asia / India / Telangana	2020-03-31	Ancestral	-129.8	1.124
EPI_ISL_447561	hCoV-19/India/CCMB_J067/2020	Asia / India / Telangana	2020-03-31	Ancestral	-129.8	1.124
EPI_ISL_447562	hCoV-19/India/CCMB_J068/2020	Asia / India / Telangana	2020-03-31	Ancestral	-129.8	1.124
EPI_ISL_447563	hCoV-19/India/CCMB_J057/2020	Asia / India / Telangana	2020-03-31	Ancestral	-129.8	1.124
EPI_ISL_447564	hCoV-19/India/CCMB_J212/2020	Asia / India / Telangana	2020-04-01	Ancestral	-129.8	1.124
EPI_ISL_447565	hCoV-19/India/CCMB_J278/2020	Asia / India / Telangana	2020-04-01	Ancestral	-129.8	1.124
EPI_ISL_447566	hCoV-19/India/CCMB_J131/2020	Asia / India / Telangana	2020-04-01	K77M	-84.8	0.194
EPI_ISL_447567	hCoV-19/India/CCMB_J304/2020	Asia / India / Telangana	2020-04-01	Ancestral	-129.8	1.124
EPI_ISL_447568	hCoV-19/India/CCMB_J166/2020	Asia / India / Telangana	2020-04-01	Ancestral	-129.8	1.124
EPI_ISL_447569	hCoV-19/India/CCMB_J206/2020	Asia / India / Telangana	2020-04-01	Ancestral	-129.8	1.124
EPI_ISL_447570	hCoV-19/India/CCMB_J207/2020	Asia / India / Telangana	2020-04-01	Ancestral	-129.8	1.124
EPI_ISL_447571	hCoV-19/India/CCMB_J224/2020	Asia / India / Telangana	2020-04-01	K77M:S1021F	-128.5	0.354

EPI_ISL_447572	hCoV-19/India/CCMB_J230/2020	Asia / India / Telangana	2020-04-01	Ancestral	-129.8	1.124
EPI_ISL_447573	hCoV-19/India/CCMB_J118/2020	Asia / India / Telangana	2020-04-01	Ancestral	-129.8	1.124
EPI_ISL_447574	hCoV-19/India/CCMB_J208/2020	Asia / India / Telangana	2020-04-01	Ancestral	-129.8	1.124
EPI_ISL_447575	hCoV-19/India/CCMB_J458/2020	Asia / India / Telangana	2020-04-02	Ancestral	-129.8	1.124
EPI_ISL_447576	hCoV-19/India/CCMB_J232/2020	Asia / India / Telangana	2020-04-02	Ancestral	-129.8	1.124
EPI_ISL_447577	hCoV-19/India/CCMB_J321/2020	Asia / India / Telangana	2020-04-02	Ancestral	-129.8	1.124
EPI_ISL_447578	hCoV-19/India/CCMB_J327/2020	Asia / India / Telangana	2020-04-02	Ancestral	-129.8	1.124
EPI_ISL_447579	hCoV-19/India/CCMB_K128/2020	Asia / India / Telangana	2020-04-10	Ancestral	-129.8	1.124
EPI_ISL_447580	hCoV-19/India/CCMB_K496/2020	Asia / India / Telangana	2020-04-13	Ancestral	-129.8	1.124
EPI_ISL_447581	hCoV-19/India/CCMB_K600B/2020	Asia / India / Telangana	2020-04-14	Ancestral	-129.8	1.124
EPI_ISL_447582	hCoV-19/India/CCMB_K601/2020	Asia / India / Telangana	2020-04-14	Ancestral	-129.8	1.124
EPI_ISL_447583	hCoV-19/India/CCMB_L007/2020	Asia / India / Telangana	2020-04-16	Ancestral	-129.8	1.124

EPI_ISL_447584	hCoV-19/India/CCMB_C1-12/2020	Asia / India / Tamil Nadu	2020-04-16	Ancestral	-129.8	1.124
EPI_ISL_447585	hCoV-19/India/CCMB_C2-13/2020	Asia / India / Tamil Nadu	2020-04-16	Ancestral	-129.8	1.124
EPI_ISL_447586	hCoV-19/India/CCMB_C3-14/2020	Asia / India / Tamil Nadu	2020-04-16	Ancestral	-129.8	1.124
EPI_ISL_447587	hCoV-19/India/CCMB_C4-15/2020	Asia / India / Tamil Nadu	2020-04-20	D614G	-149.3	1.037
EPI_ISL_447847	hCoV-19/India/CCMB_J045/2020	Asia / India / Telangana	2020-03-31	Ancestral	-129.8	1.124
EPI_ISL_447848	hCoV-19/India/CCMB_J165/2020	Asia / India / Telangana	2020-04-01	Ancestral	-129.8	1.124
EPI_ISL_447849	hCoV-19/India/CCMB_J107/2020	Asia / India / Telangana	2020-04-01	Ancestral	-129.8	1.124
EPI_ISL_447850	hCoV-19/India/CCMB_J132/2020	Asia / India / Telangana	2020-04-01	K77M	-84.8	0.194
EPI_ISL_447851	hCoV-19/India/CCMB_J223/2020	Asia / India / Telangana	2020-04-01	Ancestral	-129.8	1.124
EPI_ISL_447852	hCoV-19/India/CCMB_J235/2020	Asia / India / Telangana	2020-04-01	Ancestral	-129.8	1.124
EPI_ISL_447853	hCoV-19/India/CCMB_J247/2020	Asia / India / Telangana	2020-04-01	Ancestral	-129.8	1.124
EPI_ISL_447854	hCoV-19/India/CCMB_J350/2020	Asia / India / Telangana	2020-04-02	Ancestral	-129.8	1.124
EPI_ISL_447855	hCoV-19/India/CCMB_J318/2020	Asia / India / Telangana	2020-04-02	Ancestral	-129.8	1.124
EPI_ISL_447856	hCoV-19/India/CCMB_J374/2020	Asia / India / Telangana	2020-04-02	K77M	-84.8	0.194

EPI_ISL_447857	hCoV-19/India/CCMB_J390/2020	Asia / India / Telangana	2020-04-02	Ancestral	-129.8	1.124
EPI_ISL_447858	hCoV-19/India/CCMB_J812/2020	Asia / India / Telangana	2020-04-06	K77M	-84.8	0.194
EPI_ISL_447859	hCoV-19/India/CCMB_K771/2020	Asia / India / Telangana	2020-04-15	Ancestral	-129.8	1.124
EPI_ISL_447860	hCoV-19/India/CCMB_K849/2020	Asia / India / Telangana	2020-04-16	Ancestral	-129.8	1.124
EPI_ISL_447861	hCoV-19/India/CCMB_L149/2020	Asia / India / Telangana	2020-04-16	Ancestral	-129.8	1.124
EPI_ISL_447862	hCoV-19/India/CCMB_J047/2020	Asia / India / Telangana	2020-03-31	Ancestral	-129.8	1.124
EPI_ISL_447863	hCoV-19/India/CCMB_K599/2020	Asia / India / Telangana	2020-04-14	Ancestral	-129.8	1.124
EPI_ISL_447864	hCoV-19/India/CCMB_L044/2020	Asia / India / Telangana	2020-04-16	Ancestral	-129.8	1.124
EPI_ISL_447865	hCoV-19/India/CCMB_K499/2020	Asia / India / Telangana	2020-04-14	Ancestral	-129.8	1.124
EPI_ISL_447866	hCoV-19/India/CCMB_K500/2020	Asia / India / Telangana	2020-04-14	T602I	-122.2	1.061
EPI_ISL_450321	hCoV-19/India/CCMB_NIV1/2020	Asia / India / Maharashtra	2020-04-04	Ancestral	-129.8	1.124

EPI_ISL_450322	hCoV-19/India/CCMB_NIV2/2020	Asia / India / Maharashtra	2020-04-04	Ancestral	-129.8	1.124
EPI_ISL_450323	hCoV-19/India/CCMB_NIV3/2020	Asia / India / Maharashtra	2020-03-27	D614G	-149.3	1.037
EPI_ISL_450324	hCoV-19/India/CCMB_NIV4/2020	Asia / India / Maharashtra	2020-03-26	Ancestral	-129.8	1.124
EPI_ISL_450325	hCoV-19/India/CCMB_NIV5/2020	Asia / India / Maharashtra	2020-03-17	D614G	-149.3	1.037
EPI_ISL_450326	hCoV-19/India/CCMB_J125/2020	Asia / India / Telangana	2020-04-01	Ancestral	-129.8	1.124
EPI_ISL_450327	hCoV-19/India/CCMB_J199/2020	Asia / India / Telangana	2020-04-01	Ancestral	-129.8	1.124
EPI_ISL_450328	hCoV-19/India/CCMB_J283/2020	Asia / India / Telangana	2020-04-01	Ancestral	-129.8	1.124
EPI_ISL_450329	hCoV-19/India/CCMB_J288/2020	Asia / India / Telangana	2020-04-01	Ancestral	-129.8	1.124
EPI_ISL_450330	hCoV-19/India/CCMB_J375/2020	Asia / India / Telangana	2020-04-02	K77M	-84.8	0.194
EPI_ISL_450331	hCoV-19/India/CCMB_J220/2020	Asia / India / Telangana	2020-04-01	Ancestral	-129.8	1.124
EPI_ISL_450332	hCoV-19/India/CCMB_J222/2020	Asia / India / Telangana	2020-04-01	Ancestral	-129.8	1.124
EPI_ISL_450781	hCoV-19/India/GBRC94/2020	Asia / India / Gujarat / Junagadh	2020-05-09	D614G	-149.3	1.037

EPI_ISL_450782	hCoV-19/India/GBRC95a/2020	Asia / India / Gujarat / Ahmedabad	2020-04-11	D614G:H1083Q:E583D	-152.4	3.817
EPI_ISL_450783	hCoV-19/India/GBRC95b/2020	Asia / India / Gujarat / Ahmedabad	2020-04-11	D614G:H1083Q:R78M	-141.7	1.131
EPI_ISL_450784	hCoV-19/India/GBRC96/2020	Asia / India / Gujarat / Botad	2020-05-09	Ancestral	-129.8	1.124
EPI_ISL_450785	hCoV-19/India/GBRC97a/2020	Asia / India / Gujarat / Una	2020-05-10	D614G	-149.3	1.037
EPI_ISL_450786	hCoV-19/India/GBRC97b/2020	Asia / India / Gujarat / Una	2020-05-10	D614G	-149.3	1.037
EPI_ISL_450787	hCoV-19/India/GBRC98/2020	Asia / India / Gujarat / Una	2020-05-11	Q677H	-118.9	3.498
EPI_ISL_450788	hCoV-19/India/GBRC99/2020	Asia / India / Gujarat / Rajkot	2020-05-06	D614G	-149.3	1.037
EPI_ISL_450789	hCoV-19/India/GBRC100/2020	Asia / India / Gujarat / Kodinar	2020-05-10	D614G	-149.3	1.037
EPI_ISL_450790	hCoV-19/India/GBRC101/2020	Asia / India / Gujarat / Rajkot	2020-04-28	Ancestral	-129.8	1.124
EPI_ISL_450791	hCoV-19/India/GBRC102/2020	Asia / India / Gujarat / Rajkot	2020-04-27	Ancestral	-129.8	1.124
EPI_ISL_451149	hCoV-19/India/GBRC104/2020	Asia / India / Gujarat / Jamnagar	2020-05-07	D614G	-149.3	1.037

EPI_ISL_451150	hCoV-19/India/GBRC105/2020	Asia / India / Gujarat / Jamnagar	2020-05-06	D614G:L5F:S162I	NA	NA
EPI_ISL_451151	hCoV-19/India/GBRC106/2020	Asia / India / Gujarat / Jamnagar	2020-05-05	D614G	-149.3	1.037
EPI_ISL_451152	hCoV-19/India/GBRC107/2020	Asia / India / Gujarat / Jamnagar	2020-05-09	D614G	-149.3	1.037
EPI_ISL_451153	hCoV-19/India/GBRC108/2020	Asia / India / Gujarat / Jamnagar	2020-05-10	D614G:L54F	-137.6	1.061
EPI_ISL_451154	hCoV-19/India/GBRC109/2020	Asia / India / Gujarat / Dahod	2020-05-03	Ancestral	-129.8	1.124
EPI_ISL_451155	hCoV-19/India/GBRC110/2020	Asia / India / Gujarat / Vadodara	2020-05-03	D614G	-149.3	1.037
EPI_ISL_451156	hCoV-19/India/GBRC111/2020	Asia / India / Gujarat / Dahod	2020-05-01	Ancestral	-129.8	1.124
EPI_ISL_451157	hCoV-19/India/GBRC112/2020	Asia / India / Gujarat / Vadodara	2020-05-02	D614G	-149.3	1.037
EPI_ISL_451158	hCoV-19/India/GBRC113/2020	Asia / India / Gujarat / Vadodara	2020-05-03	D614G	-149.3	1.037
EPI_ISL_451159	hCoV-19/India/GBRC114/2020	Asia / India / Gujarat / Dahod	2020-05-03	Ancestral	-129.8	1.124

EPI_ISL_451160	hCoV-19/India/GBRC115/2020	Asia / India / Gujarat / Vadodara	2020-05-03	D614G	-149.3	1.037
EPI_ISL_451161	hCoV-19/India/GBRC116/2020	Asia / India / Gujarat / Dahod	2020-05-03	Ancestral	-129.8	1.124
EPI_ISL_451162	hCoV-19/India/GBRC117/2020	Asia / India / Gujarat / Vadodara	2020-05-03	D614G	-149.3	1.037
EPI_ISL_451163	hCoV-19/India/GBRC118/2020	Asia / India / Gujarat / Vadodara	2020-05-02	D614G	-149.3	1.037
EPI_ISL_451666	hCoV-19/India/GBRC103/2020	Asia / India / Gujarat / Jamnagar	2020-05-04	Ancestral	-129.8	1.124
EPI_ISL_452192	hCoV-19/India/NIV-10380/2020	Asia / India / Maharashtra	2020-04-16	D614G	-149.3	1.037
EPI_ISL_452193	hCoV-19/India/NIV-10419/2020	Asia / India / Maharashtra	2020-04-16	D614G	-149.3	1.037
EPI_ISL_452194	hCoV-19/India/NIV-11677/2020	Asia / India / Maharashtra	2020-04-19	D614G	-149.3	1.037
EPI_ISL_452195	hCoV-19/India/NIV-11681/2020	Asia / India / Maharashtra	2020-04-19	D614G:T22I	NA	NA
EPI_ISL_452196	hCoV-19/India/NIV-11683/2020	Asia / India / Maharashtra	2020-04-19	D614G:T22I	NA	NA
EPI_ISL_452197	hCoV-19/India/NIV-11687/2020	Asia / India / Maharashtra	2020-04-19	D614G:Q677H	-145.2	1.091
EPI_ISL_452198	hCoV-19/India/NIV-11855/2020	Asia / India / Maharashtra	2020-04-20	D614G	-149.3	1.037

EPI_ISL_452199	hCoV-19/India/NIV-12019/2020	Asia / India / Maharashtra	2020-04-20	D614G	-149.3	1.037
EPI_ISL_452200	hCoV-19/India/NIV-12024/2020	Asia / India / Maharashtra	2020-04-20	D614G	-149.3	1.037
EPI_ISL_452201	hCoV-19/India/NIV-12067/2020	Asia / India / Maharashtra	2020-04-20	D614G	-149.3	1.037
EPI_ISL_452202	hCoV-19/India/NIV-2810/2020	Asia / India / Maharashtra	2020-03-16	Ancestral	-129.8	1.124
EPI_ISL_452203	hCoV-19/India/NIV-4367/2020	Asia / India / Maharashtra	2020-03-22	Ancestral	-129.8	1.124
EPI_ISL_452204	hCoV-19/India/NIV-5109/2020	Asia / India / Maharashtra	2020-03-26	Ancestral	-129.8	1.124
EPI_ISL_452205	hCoV-19/India/NIV-5119/2020	Asia / India / Maharashtra	2020-03-26	Ancestral	-129.8	1.124
EPI_ISL_452206	hCoV-19/India/NIV-6311/2020	Asia / India / Maharashtra	2020-03-30	Ancestral	-129.8	1.124
EPI_ISL_452207	hCoV-19/India/NIV-7439/2020	Asia / India / Maharashtra	2020-04-05	D614G	-149.3	1.037
EPI_ISL_452208	hCoV-19/India/NIV-7511/2020	Asia / India / Maharashtra	2020-04-05	Ancestral	-129.8	1.124
EPI_ISL_452209	hCoV-19/India/NIV-7786/2020	Asia / India / Maharashtra	2020-04-06	Ancestral	-129.8	1.124
EPI_ISL_452210	hCoV-19/India/NIV-7830/2020	Asia / India / Maharashtra	2020-04-06	D614G:Q677H:K558N	-133.8	2.711
EPI_ISL_452211	hCoV-19/India/NIV-9157/2020	Asia / India / Maharashtra	2020-04-13	D614G	-149.3	1.037
EPI_ISL_452212	hCoV-19/India/NIV-9768/2020	Asia / India / Maharashtra	2020-04-15	D614G:F797C	-147.5	1.147

EPI_ISL_452213	hCoV-19/India/NIV-981/2020	Asia / India / Maharashtra	2020-03-10	Ancestral	-129.8	1.124
EPI_ISL_452214	hCoV-19/India/NIV-QA-709/2020	Asia / India / Maharashtra	2020-04-07	D614G	-149.3	1.037
EPI_ISL_452215	hCoV-19/India/NIV-QC-797/2020	Asia / India / Maharashtra	2020-04-22	Q677H	-118.9	3.498
EPI_ISL_452216	hCoV-19/India/NIV-QC-802/2020	Asia / India / Maharashtra	2020-04-27	D614G	-149.3	1.037
EPI_ISL_452217	hCoV-19/India/NIV-QC-800/2020	Asia / India / Maharashtra	2020-04-26	D614G	-149.3	1.037
EPI_ISL_452787	hCoV-19/India/NIHSAD-2004-18/2020	Asia / India / Madhya Pradesh	2020-04-19	D614G	-149.3	1.037
EPI_ISL_452790	hCoV-19/India/NIHSAD-2604-22/2020	Asia / India / Madhya Pradesh	2020-04-24	D614G	-149.3	1.037
EPI_ISL_452792	hCoV-19/India/NIHSAD-0105-77/2020	Asia / India / Madhya Pradesh	2020-04-30	D614G:C1243F	NA	NA
EPI_ISL_452793	hCoV-19/India/NIHSAD-0405-24/2020	Asia / India / Madhya Pradesh	2020-05-03	Ancestral	-129.8	1.124
EPI_ISL_452794	hCoV-19/India/NIHSAD-0905-216/2020	Asia / India / Madhya Pradesh	2020-05-08	D614G	-149.3	1.037
EPI_ISL_452795	hCoV-19/India/NIHSAD-1005-52/2020	Asia / India / Madhya Pradesh	2020-05-09	Ancestral	-129.8	1.124
EPI_ISL_454521	hCoV-19/India/NIV-11182/2020	Asia / India / Maharashtra	2020-04-18	D614G	-149.3	1.037

EPI_ISL_454524	hCoV-19/India/NIV-12058/2020	Asia / India / Maharashtra	2020-04-20	D614G:P82L	-131.5	1.422
EPI_ISL_454525	hCoV-19/India/NIV-1738/2020	Asia / India / Maharashtra	2020-03-12	Ancestral	-129.8	1.124
EPI_ISL_454526	hCoV-19/India/NIV-1804/2020	Asia / India / Maharashtra	2020-03-13	Ancestral	-129.8	1.124
EPI_ISL_454527	hCoV-19/India/NIV-2387/2020	Asia / India / Maharashtra	2020-03-13	D614G	-149.3	1.037
EPI_ISL_454528	hCoV-19/India/NIV-3472/2020	Asia / India / Maharashtra	2020-03-17	I1179N	NA	NA
EPI_ISL_454529	hCoV-19/India/NIV-4130/2020	Asia / India / Maharashtra	2020-03-21	D614G	-149.3	1.037
EPI_ISL_454530	hCoV-19/India/NIV-4271/2020	Asia / India / Maharashtra	2020-03-22	D614G:E484Q	-150.4	0.714
EPI_ISL_454531	hCoV-19/India/NIV-4369/2020	Asia / India / Maharashtra	2020-03-22	Ancestral	-129.8	1.124
EPI_ISL_454532	hCoV-19/India/NIV-4379/2020	Asia / India / Maharashtra	2020-03-23	D614G	-149.3	1.037
EPI_ISL_454533	hCoV-19/India/NIV-4438/2020	Asia / India / Maharashtra	2020-03-23	D614G	-149.3	1.037
EPI_ISL_454534	hCoV-19/India/NIV-4622/2020	Asia / India / Maharashtra	2020-03-24	Ancestral	-129.8	1.124
EPI_ISL_454536	hCoV-19/India/NIV-5102/2020	Asia / India / Maharashtra	2020-03-26	Ancestral	-129.8	1.124
EPI_ISL_454537	hCoV-19/India/NIV-5104/2020	Asia / India / Maharashtra	2020-03-26	Ancestral	-129.8	1.124
EPI_ISL_454539	hCoV-19/India/NIV-5815-1/2020	Asia / India / Maharashtra	2020-04-12	Ancestral	-129.8	1.124

EPI_ISL_454540	hCoV-19/India/NIV-6216/2020	Asia / India / Maharashtra	2020-04-01	Ancestral	-129.8	1.124
EPI_ISL_454542	hCoV-19/India/NIV-6315/2020	Asia / India / Maharashtra	2020-03-30	Ancestral	-129.8	1.124
EPI_ISL_454543	hCoV-19/India/NIV-6423/2020	Asia / India / Maharashtra	2020-03-31	Ancestral	-129.8	1.124
EPI_ISL_454544	hCoV-19/India/NIV-6614/2020	Asia / India / Maharashtra	2020-04-02	W258del	-116.7	1.637
EPI_ISL_454547	hCoV-19/India/NIV-7044/2020	Asia / India / Maharashtra	2020-04-04	Ancestral	-129.8	1.124
EPI_ISL_454549	hCoV-19/India/NIV-7558/2020	Asia / India / Maharashtra	2020-04-05	Ancestral	-129.8	1.124
EPI_ISL_454551	hCoV-19/India/NIV-7893/2020	Asia / India / Maharashtra	2020-04-07	Ancestral	-129.8	1.124
EPI_ISL_454552	hCoV-19/India/NIV-7966/2020	Asia / India / Maharashtra	2020-04-06	Ancestral	-129.8	1.124
EPI_ISL_454556	hCoV-19/India/NIV-9127/2020	Asia / India / Maharashtra	2020-04-12	D614G	-149.3	1.037
EPI_ISL_454557	hCoV-19/India/NIV-9154/2020	Asia / India / Maharashtra	2020-04-13	D614G	-149.3	1.037
EPI_ISL_454558	hCoV-19/India/NIV-9314/2020	Asia / India / Maharashtra	2020-04-13	D614G:T22I:L7I	NA	NA
EPI_ISL_454560	hCoV-19/India/NIV-701_3/2020	Asia / India / Maharashtra	2020-04-06	D614G	-149.3	1.037
EPI_ISL_454561	hCoV-19/India/NIV-729_3/2020	Asia / India / Maharashtra	2020-04-07	Ancestral	-129.8	1.124
EPI_ISL_454562	hCoV-19/India/NIV-815_3/2020	Asia / India / Maharashtra	2020-04-07	D614G:R634S	-144.5	1.814

EPI_ISL_454563	hCoV-19/India/NIV-QA-707/2020	Asia / India / Maharashtra	2020-04-10	D614G:I1179N	NA	NA
EPI_ISL_454564	hCoV-19/India/NIV-QA-708/2020	Asia / India / Maharashtra	2020-04-04	D614G	-149.3	1.037
EPI_ISL_454565	hCoV-19/India/NIV-QA-710/2020	Asia / India / Maharashtra	2020-03-31	D614G	-149.3	1.037
EPI_ISL_454566	hCoV-19/India/NIV-QC-795/2020	Asia / India / Maharashtra	2020-04-21	D614G	-149.3	1.037
EPI_ISL_454567	hCoV-19/India/NIV-QC-796/2020	Asia / India / Maharashtra	2020-04-22	D614G:D574H	-173.1	3.875
EPI_ISL_454568	hCoV-19/India/NIV-QC-798/2020	Asia / India / Maharashtra	2020-04-25	Ancestral	-129.8	1.124
EPI_ISL_454569	hCoV-19/India/NIV-QC-799/2020	Asia / India / Maharashtra	2020-04-26	D614G	-149.3	1.037
EPI_ISL_454570	hCoV-19/India/NIV-QC-801/2020	Asia / India / Maharashtra	2020-04-26	D614G	-149.3	1.037
EPI_ISL_454830	hCoV-19/India/SMSCOV109/2020	Asia / India / Rajasthan / Jaipur	2020-04-23	Ancestral	-129.8	1.124
EPI_ISL_454831	hCoV-19/India/SMSCOV141/2020	Asia / India / Rajasthan / Jaipur	2020-04-29	T1027I	-136.7	1.131
EPI_ISL_454832	hCoV-19/India/SMSCOV161/2020	Asia / India / Rajasthan / Jaipur	2020-04-21	Ancestral	-129.8	1.124
EPI_ISL_454833	hCoV-19/India/SMSCOV175/2020	Asia / India / Rajasthan / Jaipur	2020-04-27	Ancestral	-129.8	1.124

EPI_ISL_454858	hCoV-19/India/THSTI-BAL_39/2020	Asia / India / Haryana	2020-04-07	Ancestral	-129.8	1.124
EPI_ISL_454859	hCoV-19/India/THSTI-BAL_41/2020	Asia / India / Haryana	2020-04-07	Ancestral	-129.8	1.124
EPI_ISL_454860	hCoV-19/India/THSTI-BAL_42/2020	Asia / India / Haryana	2020-04-07	Ancestral	-129.8	1.124
EPI_ISL_454861	hCoV-19/India/THSTI-BAL_47/2020	Asia / India / Haryana	2020-04-07	Ancestral	-129.8	1.124
EPI_ISL_454862	hCoV-19/India/THSTI-BAL_231/2020	Asia / India / Haryana	2020-04-11	Ancestral	-129.8	1.124
EPI_ISL_454863	hCoV-19/India/THSTI-BAL_360/2020	Asia / India / Haryana	2020-04-13	Ancestral	-129.8	1.124
EPI_ISL_454864	hCoV-19/India/THSTI-BAL_912/2020	Asia / India / Haryana	2020-04-16	Ancestral	-129.8	1.124
EPI_ISL_454865	hCoV-19/India/THSTI-BAL_913/2020	Asia / India / Haryana	2020-04-16	Ancestral	-129.8	1.124
EPI_ISL_454866	hCoV-19/India/THSTI-BAL_914/2020	Asia / India / Haryana	2020-04-16	Ancestral	-129.8	1.124
EPI_ISL_454867	hCoV-19/India/THSTI-BAL_918/2020	Asia / India / Haryana	2020-04-16	Ancestral	-129.8	1.124
EPI_ISL_455015	hCoV-19/India/GBRC80/2020	Asia / India / Gujarat / Rajkot	2020-04-28	Ancestral	-129.8	1.124
EPI_ISL_455016	hCoV-19/India/GBRC119/2020	Asia / India / Gujarat / Rajkot	2020-04-27	Ancestral	-129.8	1.124
EPI_ISL_455017	hCoV-19/India/GBRC120/2020	Asia / India / Gujarat / Vadodara	2020-05-02	D614G	-149.3	1.037

EPI_ISL_455018	hCoV-19/India/GBRC121/2020	Asia / India / Gujarat / Vadodara	2020-05-02	D614G:N148Y	-154	1.652
EPI_ISL_455019	hCoV-19/India/GBRC122/2020	Asia / India / Gujarat / Vadodara	2020-05-02	D614G	-149.3	1.037
EPI_ISL_455020	hCoV-19/India/GBRC123/2020	Asia / India / Gujarat / Vadodara	2020-05-02	D614G:S255F	-150.2	2.121
EPI_ISL_455021	hCoV-19/India/GBRC124/2020	Asia / India / Gujarat / Vadodara	2020-05-02	D614G	-149.3	1.037
EPI_ISL_455022	hCoV-19/India/GBRC125/2020	Asia / India / Gujarat / Vadodara	2020-05-02	D614G	-149.3	1.037
EPI_ISL_455023	hCoV-19/India/GBRC126/2020	Asia / India / Gujarat / Vadodara	2020-05-02	D614G	-149.3	1.037
EPI_ISL_455024	hCoV-19/India/GBRC127/2020	Asia / India / Gujarat / Vadodara	2020-05-02	D614G	-149.3	1.037
EPI_ISL_455025	hCoV-19/India/GBRC128/2020	Asia / India / Gujarat / Vadodara	2020-05-02	D614G	-149.3	1.037
EPI_ISL_455026	hCoV-19/India/GBRC129/2020	Asia / India / Gujarat / Vadodara	2020-05-02	D614G	-149.3	1.037
EPI_ISL_455027	hCoV-19/India/GBRC130/2020	Asia / India / Gujarat / Vadodara	2020-05-02	D614G	-149.3	1.037
EPI_ISL_455478	hCoV-19/India/RMRC49/2020	Asia / India / Odisha	2020-04-09	D614G	-149.3	1.037

EPI_ISL_455640	hCoV-19/India/S4/2020	Asia / India / West_Bengal / East Medinipur	2020-03-27	D614G:T941K	-152.5	3.522
EPI_ISL_455641	hCoV-19/India/S7/2020	Asia/India / West_Bengal / Kolkata	2020-03-31	Ancestral	-129.8	1.124
EPI_ISL_455643	hCoV-19/India/S13/2020	Asia / India / West_Bengal / North 24 Parganas	2020-03-30	D614G	-149.3	1.037
EPI_ISL_455644	hCoV-19/India/S14/2020	Asia / India / West_Bengal / East Medinipur	2020-04-02	D614G	-149.3	1.037
EPI_ISL_455645	hCoV-19/India/S15/2020	Asia / India / West_Bengal / Kolkata	2020-04-03	Ancestral	-129.8	1.124
EPI_ISL_455646	hCoV-19/India/S16/2020	Asia / India / West_Bengal / Howrah	2020-04-03	D614G	-149.3	1.037
EPI_ISL_455647	hCoV-19/India/S17/2020	Asia / India / West_Bengal / Kolkata	2020-04-19	D614G	-149.3	1.037
EPI_ISL_455648	hCoV-19/India/S18/2020	Asia / India / West_Bengal / Kolkata	2020-04-20	D614G:G261S	-134.7	2.531
EPI_ISL_455649	hCoV-19/India/S19/2020	Asia / India / West_Bengal / Kolkata	2020-04-20	Ancestral	-129.8	1.124
EPI_ISL_455650	hCoV-19/India/S20/2020	Asia / India / West_Bengal / Kolkata	2020-04-20	D614G	-149.3	1.037

EPI_ISL_455651	hCoV-19/India/S21/2020	Asia / India / West_Bengal / Kolkata	2020-04-21	D614G	-149.3	1.037
EPI_ISL_455652	hCoV-19/India/S22/2020	Asia / India / West_Bengal / South 24 Parganas	2020-04-21	D614G	-149.3	1.037
EPI_ISL_455653	hCoV-19/India/S23/2020	Asia / India / West_Bengal / South 24 Parganas	2020-04-21	D614G	-149.3	1.037
EPI_ISL_455654	hCoV-19/India/S24/2020	Asia/India / West_Bengal / Kolkata	2020-04-21	D614G	-149.3	1.037
EPI_ISL_455655	hCoV-19/India/S25/2020	Asia / India / Rajasthan / Bikaner	2020-04-30	D614G:T323I	-159.1	9.390
EPI_ISL_455656	hCoV-19/India/S27/2020	Asia / India / West_Bengal / South 24 Parganas	2020-04-30	Ancestral	-129.8	1.124
EPI_ISL_455657	hCoV-19/India/S28/2020	Asia/India / West_Bengal / Kolkata	2020-04-30	D614G	-149.3	1.037
EPI_ISL_455658	hCoV-19/India/S29/2020	Asia / India / West_Bengal / South 24 Parganas	2020-04-30	Ancestral	-129.8	1.124
EPI_ISL_455659	hCoV-19/India/S30/2020	Asia / India / West_Bengal / South 24 Parganas	2020-05-01	D614G	-149.3	1.037

EPI_ISL_455660	hCoV-19/India/S31/2020	Asia / India / West_Bengal / South 24 Parganas	2020-05-01	D614G	-149.3	1.037
EPI_ISL_455661	hCoV-19/India/S32/2020	Asia/India / West_Bengal / Kolkata	2020-05-01	D614G:H49Y	-152.4	2.654
EPI_ISL_455662	hCoV-19/India/S33/2020	Asia / India / West_Bengal / Howrah	2020-05-02	D614G	-149.3	1.037
EPI_ISL_455663	hCoV-19/India/S34/2020	Asia / India / West_Bengal / South 24 Parganas	2020-05-02	D614G:T323I	-159.1	9.390
EPI_ISL_455664	hCoV-19/India/S42/2020	Asia/India / West_Bengal / Kolkata	2020-05-03	D614G	-149.3	1.037
EPI_ISL_455665	hCoV-19/India/S44/2020	Asia/India / West_Bengal / Kolkata	2020-05-01	D614G	-149.3	1.037
EPI_ISL_455666	hCoV-19/India/S45/2020	Asia/India / West_Bengal / Kolkata	2020-05-01	D614G:G261S	-134.7	2.531
EPI_ISL_455667	hCoV-19/India/S46/2020	Asia / India / West_Bengal / South 24 Parganas	2020-05-03	D614G	-149.3	1.037
EPI_ISL_455668	hCoV-19/India/S48/2020	Asia / India / West_Bengal / North 24 Parganas	2020-05-05	D614G:T323I	-159.1	9.390

EPI_ISL_455669	hCoV-19/India/S49/2020	Asia / India / West_Bengal / Kolkata	2020-05-03	D614G:G261S	-134.7	2.531
EPI_ISL_455670	hCoV-19/India/S50/2020	Asia / India / West_Bengal / Kolkata	2020-05-03	D614G:G261S:G769V	-131.3	3.347
EPI_ISL_455671	hCoV-19/India/S51/2020	Asia / India / West_Bengal / Kolkata	2020-05-03	Ancestral	-129.8	1.124
EPI_ISL_455672	hCoV-19/India/S52/2020	Asia / India / West_Bengal / North 24 Parganas	2020-05-03	D614G	-149.3	1.037
EPI_ISL_455673	hCoV-19/India/S53/2020	Asia / India / West_Bengal / South 24 Parganas	2020-05-02	D614G	-149.3	1.037
EPI_ISL_455674	hCoV-19/India/S55/2020	Asia / India / West_Bengal / Kolkata	2020-05-03	D614G	-149.3	1.037
EPI_ISL_455675	hCoV-19/India/S56/2020	Asia / India / West_Bengal / North 24 Parganas	2020-05-03	D614G	-149.3	1.037
EPI_ISL_455676	hCoV-19/India/S58/2020	Asia / India / West_Bengal / Kolkata	2020-05-03	D614G	-149.3	1.037
EPI_ISL_455678	hCoV-19/India/S61/2020	Asia / India / West_Bengal / North 24 Parganas	2020-04-30	D614G	-149.3	1.037

EPI_ISL_455679	hCoV-19/India/S62/2020	Asia / India / West_Bengal / East Medinipur	2020-05-04	D614G	-149.3	1.037
EPI_ISL_455749	hCoV-19/India/RMRC103/2020	Asia / India / Odisha	2020-05-06	Ancestral	-129.8	1.124
EPI_ISL_455750	hCoV-19/India/RMRC104/2020	Asia / India / Odisha	2020-05-06	Ancestral	-129.8	1.124
EPI_ISL_455751	hCoV-19/India/RMRC106/2020	Asia / India / Odisha	2020-05-06	Ancestral	-129.8	1.124
EPI_ISL_455752	hCoV-19/India/RMRC108/2020	Asia / India / Odisha	2020-05-06	Ancestral	-129.8	1.124
EPI_ISL_455753	hCoV-19/India/RMRC110/2020	Asia / India / Odisha	2020-05-06	Ancestral	-129.8	1.124
EPI_ISL_455754	hCoV-19/India/RMRC112/2020	Asia / India / Odisha	2020-05-06	D614G	-149.3	1.037
EPI_ISL_455755	hCoV-19/India/RMRC154/2020	Asia / India / Odisha	2020-05-07	D614G	-149.3	1.037
EPI_ISL_455756	hCoV-19/India/RMRC155/2020	Asia / India / Odisha	2020-05-07	D614G:L5F	NA	NA
EPI_ISL_455757	hCoV-19/India/RMRC156/2020	Asia / India / Odisha	2020-05-07	D614G	-149.3	1.037
EPI_ISL_455758	hCoV-19/India/RMRC157/2020	Asia / India / Odisha	2020-05-07	Ancestral	-129.8	1.124
EPI_ISL_455759	hCoV-19/India/RMRC158/2020	Asia / India / Odisha	2020-05-07	Ancestral	-129.8	1.124
EPI_ISL_455760	hCoV-19/India/RMRC159/2020	Asia / India / Odisha	2020-05-07	Ancestral	-129.8	1.124

EPI_ISL_455761	hCoV-19/India/RMRC160/2020	Asia / India / Odisha	2020-05-07	A930T	-156.4	5.020
EPI_ISL_455762	hCoV-19/India/RMRC162/2020	Asia / India / Odisha	2020-05-07	Ancestral	-129.8	1.124
EPI_ISL_455763	hCoV-19/India/RMRC163/2020	Asia / India / Odisha	2020-05-07	Ancestral	-129.8	1.124
EPI_ISL_455764	hCoV-19/India/RMRC164/2020	Asia / India / Odisha	2020-05-07	Ancestral	-129.8	1.124
EPI_ISL_455765	hCoV-19/India/RMRC165/2020	Asia / India / Odisha	2020-05-07	D614G	-149.3	1.037
EPI_ISL_455766	hCoV-19/India/RMRC166/2020	Asia / India / Odisha	2020-05-07	Ancestral	-129.8	1.124
EPI_ISL_455767	hCoV-19/India/RMRC167/2020	Asia / India / Odisha	2020-05-07	Ancestral	-129.8	1.124
EPI_ISL_455768	hCoV-19/India/RMRC169/2020	Asia / India / Odisha	2020-05-07	A831S:G857C	-164.4	2.425
EPI_ISL_455769	hCoV-19/India/RMRC170/2020	Asia / India / Odisha	2020-05-07	Ancestral	-129.8	1.124
EPI_ISL_455770	hCoV-19/India/RMRC171/2020	Asia / India / Odisha	2020-05-07	T761S	-137.6	5.838
EPI_ISL_455771	hCoV-19/India/RMRC2/2020	Asia / India / Odisha	2020-03-19	D614G:H1101Y:K1191N	NA	NA
EPI_ISL_455773	hCoV-19/India/RMRC22/2020	Asia / India / Odisha	2020-04-04	D614G:I402L	-135.1	1.101
EPI_ISL_455774	hCoV-19/India/RMRC23/2020	Asia / India / Odisha	2020-04-04	D614G	-149.3	1.037
EPI_ISL_455775	hCoV-19/India/RMRC24/2020	Asia / India / Odisha	2020-04-04	D614G	-149.3	1.037

EPI_ISL_455776	hCoV-19/India/RMRC27/2020	Asia / India / Odisha	2020-04-04	D614G:L828P	-158	4.044
EPI_ISL_455777	hCoV-19/India/RMRC28/2020	Asia / India / Odisha	2020-04-04	D614G	-149.3	1.037
EPI_ISL_455778	hCoV-19/India/RMRC30/2020	Asia / India / Odisha	2020-04-04	D614G	-149.3	1.037
EPI_ISL_455779	hCoV-19/India/RMRC38/2020	Asia / India / Odisha	2020-04-04	D614G	-149.3	1.037
EPI_ISL_455780	hCoV-19/India/RMRC46/2020	Asia / India / Odisha	2020-04-08	D614G	-149.3	1.037
EPI_ISL_455782	hCoV-19/India/RMRC5/2020	Asia / India / Odisha	2020-04-02	D614G	-149.3	1.037
EPI_ISL_455783	hCoV-19/India/RMRC6/2020	Asia / India / Odisha	2020-04-02	D614G	-149.3	1.037
EPI_ISL_455784	hCoV-19/India/RMRC7/2020	Asia / India / Odisha	2020-04-02	D614G	-149.3	1.037
EPI_ISL_455786	hCoV-19/India/RMRC90/2020	Asia / India / Odisha	2020-05-04	D614G	-149.3	1.037
EPI_ISL_455787	hCoV-19/India/RMRC92/2020	Asia / India / Odisha	2020-05-04	D614G	-149.3	1.037
EPI_ISL_458030	hCoV-19/India/CCMB_C12/2020	Asia / India / Tamil Nadu	2020-04-26	D614G	-149.3	1.037
EPI_ISL_458031	hCoV-19/India/CCMB_C6/2020	Asia / India / Tamil Nadu	2020-04-26	D614G	-149.3	1.037
EPI_ISL_458032	hCoV-19/India/CCMB_C8/2020	Asia / India / Tamil Nadu	2020-04-27	D614G	-149.3	1.037
EPI_ISL_458033	hCoV-19/India/CCMB_C5/2020	Asia / India / Tamil Nadu	2020-04-29	D614G	-149.3	1.037
EPI_ISL_458034	hCoV-19/India/CCMB_C11/2020	Asia / India / Tamil Nadu	2020-04-29	D614G	-149.3	1.037

EPI_ISL_458035	hCoV-19/India/CCMB_C13/2020	Asia / India / Tamil Nadu	2020-04-29	K558N	-143.8	4.450
EPI_ISL_458036	hCoV-19/India/CCMB_C10/2020	Asia / India / Tamil Nadu	2020-04-29	D614G	-149.3	1.037
EPI_ISL_458037	hCoV-19/India/CCMB_C7/2020	Asia / India / Tamil Nadu	2020-04-29	D614G	-149.3	1.037
EPI_ISL_458038	hCoV-19/India/CCMB_C9/2020	Asia / India / Tamil Nadu	2020-04-29	D614G	-149.3	1.037
EPI_ISL_458039	hCoV-19/India/CCMB_C16/2020	Asia / India / Tamil Nadu	2020-05-06	D614G	-149.3	1.037
EPI_ISL_458040	hCoV-19/India/CCMB_C19/2020	Asia / India / Tamil Nadu	2020-05-06	D614G	-149.3	1.037
EPI_ISL_458041	hCoV-19/India/CCMB_C15/2020	Asia / India / Tamil Nadu	2020-05-06	D614G	-149.3	1.037
EPI_ISL_458042	hCoV-19/India/CCMB_C18/2020	Asia / India / Tamil Nadu	2020-05-06	D614G	-149.3	1.037
EPI_ISL_458043	hCoV-19/India/CCMB_C14/2020	Asia / India / Tamil Nadu	2020-05-06	D614G	-149.3	1.037
EPI_ISL_458044	hCoV-19/India/CCMB_C17/2020	Asia / India / Tamil Nadu	2020-05-06	D614G	-149.3	1.037
EPI_ISL_458045	hCoV-19/India/CCMB_L1017/2020	Asia / India / Telangana	2020-05-11	D614G:A520S:G1251V	NA	NA
EPI_ISL_458046	hCoV-19/India/CCMB_L1021/2020	Asia / India / Telangana	2020-05-11	D614G:A520S:G1251V	NA	NA
EPI_ISL_458047	hCoV-19/India/CCMB_L1022/2020	Asia / India / Telangana	2020-05-11	D614G:A520S:G1251V	NA	NA

EPI_ISL_458048	hCoV-19/India/CCMB_L1024/2020	Asia / India / Telangana	2020-05-11	D614G:A520S:G1251V	NA	NA
EPI_ISL_458049	hCoV-19/India/CCMB_L1025/2020	Asia / India / Telangana	2020-05-11	D614G:A520S:G1251V	NA	NA
EPI_ISL_458050	hCoV-19/India/CCMB_L1026/2020	Asia / India / Telangana	2020-05-11	D614G:A520S:G1251V	NA	NA
EPI_ISL_458051	hCoV-19/India/CCMB_L1062/2020	Asia / India / Telangana	2020-05-12	D614G	-149.3	1.037
EPI_ISL_458052	hCoV-19/India/CCMB_L1063/2020	Asia / India / Telangana	2020-05-12	D614G:V1068F	-158	4.785
EPI_ISL_458053	hCoV-19/India/CCMB_L1064/2020	Asia / India / Telangana	2020-05-12	D614G	-149.3	1.037
EPI_ISL_458054	hCoV-19/India/CCMB_L1073/2020	Asia / India / Telangana	2020-05-13	D614G	-149.3	1.037
EPI_ISL_458055	hCoV-19/India/CCMB_L1082/2020	Asia / India / Telangana	2020-05-13	D614G:D1163Y	NA	NA
EPI_ISL_458056	hCoV-19/India/CCMB_L1085/2020	Asia / India / Telangana	2020-05-13	D614G	-149.3	1.037
EPI_ISL_458057	hCoV-19/India/CCMB_L1089/2020	Asia / India / Telangana	2020-05-13	D614G	-149.3	1.037

EPI_ISL_458058	hCoV-19/India/CCMB_L1090/2020	Asia / India / Telangana	2020-05-13	D614G	-149.3	1.037
EPI_ISL_458059	hCoV-19/India/CCMB_L1100/2020	Asia / India / Telangana	2020-05-13	D614G	-149.3	1.037
EPI_ISL_458060	hCoV-19/India/CCMB_L1103/2020	Asia / India / Telangana	2020-05-13	D614G	-149.3	1.037
EPI_ISL_458061	hCoV-19/India/CCMB_L1108/2020	Asia / India / Telangana	2020-05-13	D614G	-149.3	1.037
EPI_ISL_458062	hCoV-19/India/CCMB_L299/2020	Asia / India / Telangana	2020-04-20	Ancestral	-129.8	1.124
EPI_ISL_458063	hCoV-19/India/CCMB_L301/2020	Asia / India / Telangana	2020-04-20	Ancestral	-129.8	1.124
EPI_ISL_458064	hCoV-19/India/CCMB_L988/2020	Asia / India / Telangana	2020-05-11	D614G	-149.3	1.037
EPI_ISL_458065	hCoV-19/India/CCMB_L989/2020	Asia / India / Telangana	2020-05-11	D614G	-149.3	1.037
EPI_ISL_458066	hCoV-19/India/CCMB_O1/2020	Asia / India / Telangana	2020-04-13	Ancestral	-129.8	1.124
EPI_ISL_458067	hCoV-19/India/CCMB_O2/2020	Asia / India / Telangana	2020-04-15	Ancestral	-129.8	1.124
EPI_ISL_458068	hCoV-19/India/CCMB_O3/2020	Asia / India / Telangana	2020-04-14	Ancestral	-129.8	1.124

EPI_ISL_458069	hCoV-19/India/CCMB_O4/2020	Asia / India / Telangana	2020-04-03	Ancestral	-129.8	1.124
EPI_ISL_458070	hCoV-19/India/CCMB_K272/2020	Asia / India / Telangana	2020-04-12	Ancestral	-129.8	1.124
EPI_ISL_458071	hCoV-19/India/CCMB_J130/2020	Asia / India / Telangana	2020-04-01	Ancestral	-129.8	1.124
EPI_ISL_458072	hCoV-19/India/CCMB_J812_P1/2020	Asia / India / Telangana	2020-04-08	K77M	-84.8	0.194
EPI_ISL_458073	hCoV-19/India/CCMB_L276_P1/2020	Asia / India / Telangana	2020-04-20	Ancestral	-129.8	1.124
EPI_ISL_458074	hCoV-19/India/CCMB_L301_P1/2020	Asia / India / Telangana	2020-04-20	Ancestral	-129.8	1.124
EPI_ISL_458075	hCoV-19/India/CCMB_O2_P1/2020	Asia / India / Telangana	2020-04-15	Ancestral	-129.8	1.124
EPI_ISL_458076	hCoV-19/India/CCMB_L302_P1/2020	Asia / India / Telangana	2020-04-20	Ancestral	-129.8	1.124
EPI_ISL_458077	hCoV-19/India/CCMB_L040_P1/2020	Asia / India / Telangana	2020-04-18	Ancestral	-129.8	1.124
EPI_ISL_458080	hCoV-19/India/CCMB_J300/2020	Asia / India / Telangana	2020-04-03	Ancestral	-129.8	1.124
EPI_ISL_458086	hCoV-19/India/GBRC131/2020	Asia / India / Gujarat /	2020-05-24	D614G	-149.3	1.037

		Ahmedabad				
EPI_ISL_458087	hCoV-19/India/GBRC132/2020	Asia / India / Gujarat / Ahmedabad	2020-05-24	D614G	-149.3	1.037
EPI_ISL_458088	hCoV-19/India/GBRC133/2020	Asia / India / Gujarat / Ahmedabad	2020-05-24	D614G	-149.3	1.037
EPI_ISL_458089	hCoV-19/India/GBRC134/2020	Asia / India / Gujarat / Ahmedabad	2020-05-24	D614G	-149.3	1.037
EPI_ISL_458090	hCoV-19/India/GBRC135a/2020	Asia / India / Gujarat / Ahmedabad	2020-05-24	D614G:T572I	-145.6	8.737
EPI_ISL_458091	hCoV-19/India/GBRC135b/2020	Asia / India / Gujarat / Ahmedabad	2020-05-24	D614G:T572I	-145.6	8.737
EPI_ISL_458092	hCoV-19/India/GBRC136a/2020	Asia / India / Gujarat / Ahmedabad	2020-05-24	D614G	-149.3	1.037
EPI_ISL_458093	hCoV-19/India/GBRC136b/2020	Asia / India / Gujarat / Ahmedabad	2020-05-24	D614G	-149.3	1.037
EPI_ISL_458094	hCoV-19/India/GBRC137a/2020	Asia / India / Gujarat / Ahmedabad	2020-05-24	D614G	-149.3	1.037
EPI_ISL_458095	hCoV-19/India/GBRC137b/2020	Asia / India / Gujarat / Ahmedabad	2020-05-24	D614G	-149.3	1.037
EPI_ISL_458096	hCoV-19/India/GBRC138/2020	Asia / India / Gujarat /	2020-05-24	D614G	-149.3	1.037

		Ahmedabad				
EPI_ISL_458097	hCoV-19/India/GBRC139a/2020	Asia / India / Gujarat / Ahmedabad	2020-05-24	D614G	-149.3	1.037
EPI_ISL_458098	hCoV-19/India/GBRC139b/2020	Asia / India / Gujarat / Ahmedabad	2020-05-24	D614G	-149.3	1.037
EPI_ISL_458099	hCoV-19/India/GBRC140/2020	Asia / India / Gujarat / Ahmedabad	2020-05-24	D614G	-149.3	1.037
EPI_ISL_458100	hCoV-19/India/GBRC141a/2020	Asia / India / Gujarat / Ahmedabad	2020-05-24	D614G:L54F	-137.6	1.061
EPI_ISL_458101	hCoV-19/India/GBRC141b/2020	Asia / India / Gujarat / Ahmedabad	2020-05-24	D614G:L54F	-137.6	1.061
EPI_ISL_458102	hCoV-19/India/GBRC142/2020	Asia / India / Gujarat / Ahmedabad	2020-05-24	D614G	-149.3	1.037
EPI_ISL_458103	hCoV-19/India/GBRC143/2020	Asia / India / Gujarat / Bayad	2020-05-05	D614G:T572I:L5F	NA	NA
EPI_ISL_458104	hCoV-19/India/GBRC144/2020	Asia / India / Gujarat / Prantij	2020-05-06	D614G	-149.3	1.037
EPI_ISL_458105	hCoV-19/India/GBRC145/2020	Asia / India / Gujarat / Prantij	2020-05-06	D614G	-149.3	1.037
EPI_ISL_458106	hCoV-19/India/GBRC146a/2020	Asia / India / Gujarat / Himatnagar	2020-05-16	D614G	-149.3	1.037

EPI_ISL_458107	hCoV-19/India/GBRC146b/2020	Asia / India / Gujarat / Himatnagar	2020-05-16	D614G	-149.3	1.037
EPI_ISL_458108	hCoV-19/India/GBRC147/2020	Asia / India / Gujarat / Khedbrahma	2020-05-16	D614G	-149.3	1.037
EPI_ISL_458109	hCoV-19/India/GBRC148a/2020	Asia / India / Gujarat / Khedbrahma	2020-05-17	D614G	-149.3	1.037
EPI_ISL_458110	hCoV-19/India/GBRC148b/2020	Asia / India / Gujarat / Khedbrahma	2020-05-17	Ancestral	-129.8	1.124
EPI_ISL_458111	hCoV-19/India/GBRC149/2020	Asia / India / Gujarat / Himatnagar	2020-05-17	D614G	-149.3	1.037
EPI_ISL_458112	hCoV-19/India/GBRC150a/2020	Asia / India / Gujarat / Himatnagar	2020-05-18	D614G:L54F	-137.6	1.061
EPI_ISL_458113	hCoV-19/India/GBRC150b/2020	Asia / India / Gujarat / Himatnagar	2020-05-18	D614G:L54F	-137.6	1.061
EPI_ISL_458298	hCoV-19/India/CCMB_J714/2020	Asia / India / Telangana	2020-04-06	Ancestral	-129.8	1.124
EPI_ISL_459911	hCoV-19/India/MaxCov0003_CSIR-IGIB/2020	Asia / India / Delhi	2020-05-09	Ancestral	-129.8	1.124
EPI_ISL_459915	hCoV-19/India/MaxCov0013_CSIR-IGIB/2020	Asia / India / Delhi	2020-05-12	Ancestral	-129.8	1.124

EPI_ISL_459916	hCoV-19/India/MaxCov0014_CSI R-IGIB/2020	Asia / India / Delhi	2020-05-12	Ancestral	-129.8	1.124
EPI_ISL_459917	hCoV-19/India/MaxCov0015_CSI R-IGIB/2020	Asia / India / Delhi	2020-05-08	Ancestral	-129.8	1.124
EPI_ISL_459918	hCoV-19/India/MaxCov0016_CSI R-IGIB/2020	Asia / India / Delhi	2020-05-09	Ancestral	-129.8	1.124
EPI_ISL_459919	hCoV-19/India/MaxCov0017_CSI R-IGIB/2020	Asia / India / Delhi	2020-05-21	Ancestral	-129.8	1.124
EPI_ISL_459920	hCoV-19/India/MaxCov0018_CSI R-IGIB/2020	Asia / India / Delhi	2020-05-21	Ancestral	-129.8	1.124
EPI_ISL_459921	hCoV-19/India/MaxCov0019_CSI R-IGIB/2020	Asia / India / Delhi	2020-05-08	Ancestral	-129.8	1.124
EPI_ISL_459922	hCoV-19/India/MaxCov0020_CSI R-IGIB/2020	Asia / India / Delhi	2020-05-10	Ancestral	-129.8	1.124
EPI_ISL_459923	hCoV-19/India/MaxCov0021_CSI R-IGIB/2020	Asia / India / Delhi	2020-05-08	Ancestral	-129.8	1.124
EPI_ISL_459925	hCoV-19/India/MaxCov0023_CSI R-IGIB/2020	Asia / India / Delhi	2020-05-08	Ancestral	-129.8	1.124

EPI_ISL_459926	hCoV-19/India/MaxCov0024_CSI R-IGIB/2020	Asia / India / Delhi	2020	Ancestral	-129.8	1.124
EPI_ISL_459927	hCoV-19/India/MaxCov0025_CSI R-IGIB/2020	Asia / India / Delhi	2020	Ancestral	-129.8	1.124
EPI_ISL_459928	hCoV-19/India/MaxCov0026_CSI R-IGIB/2020	Asia / India / Delhi	2020	Ancestral	-129.8	1.124
EPI_ISL_459929	hCoV-19/India/MaxCov0027_CSI R-IGIB/2020	Asia / India / Delhi	2020	Ancestral	-129.8	1.124
EPI_ISL_459930	hCoV-19/India/MaxCov0028_CSI R-IGIB/2020	Asia / India / Delhi	2020	Ancestral	-129.8	1.124
EPI_ISL_459931	hCoV-19/India/MaxCov0029_CSI R-IGIB/2020	Asia / India / Delhi	2020-05-09	Ancestral	-129.8	1.124
EPI_ISL_459932	hCoV-19/India/MaxCov0030_CSI R-IGIB/2020	Asia / India / Delhi	2020-05-13	Ancestral	-129.8	1.124
EPI_ISL_459933	hCoV-19/India/MaxCov0031_CSI R-IGIB/2020	Asia / India / Delhi	2020-05-05	Ancestral	-129.8	1.124
EPI_ISL_459934	hCoV-19/India/MaxCov0032_CSI R-IGIB/2020	Asia / India / Delhi	2020-05-05	Ancestral	-129.8	1.124

EPI_ISL_459935	hCoV-19/India/MaxCov0033_CSI R-IGIB/2020	Asia / India / Delhi	2020-05-06	Ancestral	-129.8	1.124
EPI_ISL_459936	hCoV-19/India/MaxCov0034_CSI R-IGIB/2020	Asia / India / Delhi	2020-05-10	Ancestral	-129.8	1.124
EPI_ISL_459937	hCoV-19/India/MaxCov0035_CSI R-IGIB/2020	Asia / India / Delhi	2020-05-10	Ancestral	-129.8	1.124
EPI_ISL_459938	hCoV-19/India/MaxCov0036_CSI R-IGIB/2020	Asia / India / Delhi	2020-05-11	Ancestral	-129.8	1.124
EPI_ISL_459939	hCoV-19/India/MaxCov0037_CSI R-IGIB/2020	Asia / India / Delhi	2020-05-11	Ancestral	-129.8	1.124
EPI_ISL_459940	hCoV-19/India/MaxCov0038_CSI R-IGIB/2020	Asia / India / Delhi	2020-05-10	Ancestral	-129.8	1.124
EPI_ISL_459941	hCoV-19/India/MaxCov0039_CSI R-IGIB/2020	Asia / India / Delhi	2020-05-11	Ancestral	-129.8	1.124
EPI_ISL_459942	hCoV-19/India/MaxCov0040_CSI R-IGIB/2020	Asia / India / Delhi	2020-04-27	Ancestral	-129.8	1.124
EPI_ISL_459943	hCoV-19/India/MaxCov0041_CSI R-IGIB/2020	Asia / India / Delhi	2020-05-01	Ancestral	-129.8	1.124

EPI_ISL_459944	hCoV-19/India/MaxCov0042_CSI R-IGIB/2020	Asia / India / Delhi	2020-05-01	Ancestral	-129.8	1.124
EPI_ISL_459945	hCoV-19/India/MaxCov0043_CSI R-IGIB/2020	Asia / India / Delhi	2020-04-29	Ancestral	-129.8	1.124
EPI_ISL_459946	hCoV-19/India/MaxCov0044_CSI R-IGIB/2020	Asia / India / Delhi	2020-04-27	Ancestral	-129.8	1.124
EPI_ISL_459947	hCoV-19/India/MaxCov0045_CSI R-IGIB/2020	Asia / India / Delhi	2020-04-28	Ancestral	-129.8	1.124
EPI_ISL_459948	hCoV-19/India/MaxCov0046_CSI R-IGIB/2020	Asia / India / Delhi	2020-05-06	Ancestral	-129.8	1.124
EPI_ISL_459949	hCoV-19/India/MaxCov0047_CSI R-IGIB/2020	Asia / India / Delhi	2020-04-27	Ancestral	-129.8	1.124
EPI_ISL_459950	hCoV-19/India/MaxCov0048_CSI R-IGIB/2020	Asia / India / Delhi	2020-05-01	Ancestral	-129.8	1.124
EPI_ISL_459951	hCoV-19/India/MaxCov0049_CSI R-IGIB/2020	Asia / India / Delhi	2020-05-01	Ancestral	-129.8	1.124
EPI_ISL_459952	hCoV-19/India/MaxCov0050_CSI R-IGIB/2020	Asia / India / Delhi	2020-05-18	Ancestral	-129.8	1.124

EPI_ISL_461478	hCoV-19/India/GBRC151a/2020	Asia / India / Gujarat / Vadodara	2020-05-02	D614G	-149.3	1.037
EPI_ISL_461479	hCoV-19/India/GBRC151b/2020	Asia / India / Gujarat / Vadodara	2020-05-02	D614G	-149.3	1.037
EPI_ISL_461480	hCoV-19/India/GBRC152/2020	Asia / India / Gujarat / Vadodara	2020-05-02	D614G:Q613H	-117.6	1.320
EPI_ISL_461481	hCoV-19/India/GBRC153a/2020	Asia / India / Gujarat / Rajkot	2020-04-27	D614G	-149.3	1.037
EPI_ISL_461482	hCoV-19/India/GBRC153b/2020	Asia / India / Gujarat / Rajkot	2020-04-27	Ancestral	-129.8	1.124
EPI_ISL_461483	hCoV-19/India/GBRC154/2020	Asia / India / Gujarat / Ahmedabad	2020-05-27	D614G	-149.3	1.037
EPI_ISL_461484	hCoV-19/India/GBRC155/2020	Asia / India / Gujarat / Ahmedabad	2020-05-27	D614G:T572I	-145.6	8.737
EPI_ISL_461485	hCoV-19/India/GBRC156/2020	Asia / India / Gujarat / Ahmedabad	2020-05-27	D614G:E583D:D574Y:D1153Y	NA	NA
EPI_ISL_461486	hCoV-19/India/GBRC157a/2020	Asia / India / Gujarat / Ahmedabad	2020-05-27	D614G	-149.3	1.037
EPI_ISL_461487	hCoV-19/India/GBRC157b/2020	Asia / India / Gujarat / Ahmedabad	2020-05-27	D614G	-149.3	1.037

EPI_ISL_461488	hCoV-19/India/GBRC158/2020	Asia / India / Gujarat / Ahmedabad	2020-05-27	D614G:P809S	-148.7	5.746
EPI_ISL_461489	hCoV-19/India/GBRC159a/2020	Asia / India / Gujarat / Ahmedabad	2020-05-27	D614G	-149.3	1.037
EPI_ISL_461490	hCoV-19/India/GBRC159b/2020	Asia / India / Gujarat / Ahmedabad	2020-05-27	D614G	-149.3	1.037
EPI_ISL_461491	hCoV-19/India/GBRC160a/2020	Asia / India / Gujarat / Ahmedabad	2020-05-27	D614G	-149.3	1.037
EPI_ISL_461492	hCoV-19/India/GBRC160b/2020	Asia / India / Gujarat / Ahmedabad	2020-05-27	D614G	-149.3	1.037
EPI_ISL_461493	hCoV-19/India/GBRC161a/2020	Asia / India / Gujarat / Ahmedabad	2020-05-27	D614G	-149.3	1.037
EPI_ISL_461494	hCoV-19/India/GBRC161b/2020	Asia / India / Gujarat / Ahmedabad	2020-05-27	D614G	-149.3	1.037
EPI_ISL_461495	hCoV-19/India/GBRC162a/2020	Asia / India / Gujarat / Ahmedabad	2020-05-27	D614G:E583D:Q1201K	NA	NA
EPI_ISL_461496	hCoV-19/India/GBRC162b/2020	Asia / India / Gujarat / Ahmedabad	2020-05-27	D614G	-149.3	1.037
EPI_ISL_461497	hCoV-19/India/GBRC163a/2020	Asia / India / Gujarat / Ahmedabad	2020-05-27	D614G	-149.3	1.037

EPI_ISL_461498	hCoV-19/India/GBRC163b/2020	Asia / India / Gujarat / Ahmedabad	2020-05-27	D614G	-149.3	1.037
EPI_ISL_461499	hCoV-19/India/GBRC164/2020	Asia / India / Gujarat / Ahmedabad	2020-05-27	D614G	-149.3	1.037
EPI_ISL_461500	hCoV-19/India/GBRC165/2020	Asia / India / Gujarat / Ahmedabad	2020-05-27	D614G:Q173H	-143.9	2.993
EPI_ISL_461501	hCoV-19/India/GBRC166a/2020	Asia / India / Gujarat / Ahmedabad	2020-05-27	D614G	-149.3	1.037
EPI_ISL_461502	hCoV-19/India/GBRC166b/2020	Asia / India / Gujarat / Ahmedabad	2020-05-27	D614G	-149.3	1.037
EPI_ISL_461503	hCoV-19/India/GBRC167a/2020	Asia / India / Gujarat / Ahmedabad	2020-05-27	D614G	-149.3	1.037
EPI_ISL_461504	hCoV-19/India/GBRC167b/2020	Asia / India / Gujarat / Ahmedabad	2020-05-27	D614G	-149.3	1.037
EPI_ISL_461505	hCoV-19/India/GBRC168a/2020	Asia / India / Gujarat / Ahmedabad	2020-05-27	D614G	-149.3	1.037
EPI_ISL_461506	hCoV-19/India/GBRC168b/2020	Asia / India / Gujarat / Ahmedabad	2020-05-27	D614G	-149.3	1.037

S2 Table.

Countrywide and state-wise frequency distribution matrix of circulating variants along with the docking score of S-R complex for each variant. The docking scores of the variants with mutations between amino acid positions 1-26 and 1148-1273 were not determined because of the unavailability of the modeling template (Walls et al., 2020; Wrapp et al., 2020) and therefore mentioned as NA (not available). The variant mutation positions marked by asterisks denote convergent nature of these mutations, suggesting their independent accumulation multiple times along phylogenetically unlinked allelic backgrounds. The variants that were detected to be uniquely present in Indian population were compared to a total of 17529 worldwide genomic isolates available from the GISAID database till May 9, 2020.

Mutation Type		Unique in Indian population	Docking Score	Standard Error	State-wise Frequency																			Total Frequency			
					A																						
					N																						
					D																						
					H																						
					R																						
					A	A	B	D																			
					P				G	H																	
					R				A	A	J																
					A	S	I	E	J	R	A	M															
					D	S	H	L	A	A	N	M															
					E	S	A	H	A	N	M	K															
					S	A	A	I	A	N	M	K															
					H	M	R		T	A	U	A															
Ancestor 1 (Wuhan-Hu-1/2019)		-129.8	1.124	1	2	4	57	16	0	1	8	0	7	3	31	15	0	4	16	65	3	10					253

Ancestor 1 derived

A243 S		-119.9	0.950	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
A831 S:G85 7C	Y	-164.4	2.425	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
A930 T	Y	-156.4	5.020	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
A930 V	Y	-140.7	1.039	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
D290 Y	Y	-119.1	1.389	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
E224 G	Y	-95.9	0.857	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
E583 D*		-141	6.485	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
I1179 N	Y	NA	NA	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
K558 N*		-143.8	4.450	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
K77M	Y	-84.8	0.194	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	8
K77M :A771 V		-91.3	1.125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
K77M :S102 1F	Y	-128.5	0.354	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
K77M :S494 P	Y	-76.3	4.382	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
L18F		NA	NA	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
L5F*		NA	NA	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Q677 H*		-118.9	3.498	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2
T1027		-136.7	1.131	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1

	I																							
	T274I	Y	-90.9	1.283	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
	T602I	Y	-122.2	1.061	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	T761S	Y	-137.6	5.838	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	W258 del		-116.7	1.637	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
	Y145 del:R4 07I		-105.2	7.245	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	Y28H		-109.2	1.092	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	Ancestor 2 (D614G)		-149.3	1.037	0	0	0	11	120	0	0	6	0	0	9	27	16	1	0	15	14	2	27	248
Ancestor 2 derived	D614 G:A5 20S:G 1251 V	Y	NA	NA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6
	D614 G:A7 06S		-136	4.137	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	D614 G:A7 06S:C 1243F *	Y	NA	NA	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	D614 G:A8 79S		-146.6	21.300	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	D614 G:A8 92V	Y	-143	3.897	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	D614 G:C12 43F*	Y	NA	NA	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0

D614 G:C12 50F	Y	NA	NA	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
D614 G:D1 163Y		NA	NA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
D614 G:D5 74H*	Y	-173.1	3.875	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
D614 G:E15 6D		-146.6	2.590	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
D614 G:E48 4Q	Y	-150.4	0.714	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
D614 G:E58 3D*		-128.8	1.091	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
D614 G:E58 3D*: D574 Y*:D 1153 Y	Y	NA	NA	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
D614 G:E58 3D*: Q120 1K		NA	NA	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
D614 G:F2L		NA	NA	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
D614 G:F79 7C	Y	-147.5	1.147	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1

D614 G:G1 124V		-121.3	1.565	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
D614 G:G2 61S	Y	-134.7	2.531	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
D614 G:G2 61S:G 769V	Y	-131.3	3.347	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
D614 G:H1 083Q: E583 D*	Y	-152.4	3.817	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
D614 G:H1 083Q: R78M *	Y	-141.7	1.131	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
D614 G:H1 101Y: K119 1N		NA	NA	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
D614 G:H4 9Y		-152.4	2.654	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
D614 G:I11 79N	Y	NA	NA	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
D614 G:I40 2L	Y	-135.1	1.101	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1

D614 G:K1 181R	Y	NA	NA	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
D614 G:L54 F*		-137.6	1.061	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
D614 G:L54 F*:E4 71Q	Y	-144.3	2.941	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
D614 G:L5F *		NA	NA	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
D614 G:L5F *:S16 2I	Y	NA	NA	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
D614 G:L82 8P	Y	-158	4.044	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
D614 G:M1 77I		-156.3	0.917	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
D614 G:N1 48Y	Y	-154	1.652	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
D614 G:P12 63L		NA	NA	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
D614 G:P80 9S		-148.7	5.746	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
D614 G:P82 L	Y	-131.5	1.422	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1

D614 G:Q1 73H	Y	-143.9	2.993	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
D614 G:Q2 71R	Y	-109.5	0.477	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
D614 G:Q6 13H		-117.6	1.320	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
D614 G:Q6 77H*		-145.2	1.091	0	0	0	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3
D614 G:Q6 77H*: K558 N*	Y	-133.8	2.711	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
D614 G:R63 4S	Y	-144.5	1.814	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
D614 G:R78 M*		-147.1	4.033	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
D614 G:S13 I		NA	NA	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
D614 G:S25 5F		-150.2	2.121	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
D614 G:T22 I		NA	NA	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
D614 G:T22 I:L7I		NA	NA	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1

D614 G:T29 9I	Y	-120.9	1.636	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
D614 G:T32 3I		-159.1	9.390	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	3
D614 G:T57 2I		-145.6	8.737	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
D614 G:T57 2I:L5 F*		NA	NA	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
D614 G:T72 3I	Y	-120	1.201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
D614 G:T82 7I	Y	-124.5	5.789	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
D614 G:T94 1K	Y	-152.5	3.522	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
D614 G:V1 068F	Y	-158	4.785	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
D614 G:V1 104L	Y	-152.1	1.600	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

S3 Table.

State-wise distribution of the type and frequency of spike protein variants, along with the calculated diversity based on Simpson's index (Simpson, 1949).

State/Union Territories	No. of sequenced isolates	No. of variant types	Frequency of variants	Diversity (Simpson index)	Standard Error
Andhra Pradesh	1	1	1	not calculable	
Assam	2	1	2	1	0
Bihar	6	3	4, 1, 1	0.5	0.19245
Delhi	75	9	57, 11, 1, 1, 1, 1, 1, 1, 1	0.60036	0.06602
Gujarat	196	34	16, 120, 1, 1, 1, 1, 1, 1, 5, 1, 1, 1, 1, 1, 1, 8, 1, 1, 2, 1, 1, 1, 2, 1, 2, 9, 1, 1, 7, 1, 1, 1, 1, 1	0.38817	0.0403
Haryana	10	1	10	1	0
Jammu and Kashmir	1	1	1	not calculable	
Karnataka	15	3	8, 6, 1	0.44889	0.06218
Kerala	2	2	1, 1	not calculable	
Ladakh	7	1	7	1	0
Madhya Pradesh	13	3	3, 9, 1	0.53846	0.12964
Maharashtra	73	16	31, 27, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 2	0.32032	0.03673
Odisha	38	9	15, 16, 1, 1, 1, 1, 1, 1, 1	0.33795	0.0482
Punjab	1	1	1	not calculable	
Rajasthan	6	3	4, 1, 1	0.5	0.19245
Tamil Nadu	34	5	16, 15, 1, 1, 1	0.41869	0.04181
Telangana	97	9	65, 14, 6, 1, 1, 7, 1, 1, 1	0.47944	0.05549
Uttar Pradesh	5	2	3, 2	0.52	0.08764
West Bengal	48	9	10, 27, 2, 3, 1, 1, 2, 1, 1	0.36892	0.06541

S1 Dataset. Positional information of the spike protein mutations in the docked S-R complex.

There are numerous non-synonymous mutations found over the entire range of Spike protein of the beta-coronavirus emerged worldwide till date. These mutations are not restricted at the receptor-binding domain (RBD) S-protein, hence may not modulate binding to the host directly, but allosterically, which could not be predicted from the docked complex alone.

We have modeled the spike protein and then docked each of 58 variants S-R complex within the available range of Swiss-model template [residue range: 27-1147] (Walls et al., 2020; Wrapp et al., 2020).

The S1 subunit (residue range: 14-685) of spike protein has N-terminal (NTD, residue range:14-305), receptor binding domains (RBD, residue range: 319-541) and receptor binding motif (RBM, residue range: 437-508) while S2 subunit (residue range: 686-1195) comprises of fusion peptide (FP), heptad repeat 1 (HR1) and heptad repeat 2 (HR2, residue range:1163-1213). Among our analyzed variants, ancestor1 contains 12 single point mutation variants positioned at S1 subunit, while 4 single point mutants were spotted on S2 subunit. Among the five analyzed double mutant/deletion-mutation, two were entirely located at S1 subunit, two were spotted on both S1 and S2 subunit, and one was solely located at S2 subunit. Ancestor 2 has twelve singly mutated analyzed variants located at S2 subunit and twenty-one analyzed variants were spotted on S1 subunit in D614G background. Two double-mutant variants in D614G background were positioned at S1 subunit and three were found in S2 subunit.

A closer look at the mutations was illustrated below.

Ancestor 1 (Wuhan-Hu-1/2019)

The docked structure of Ancestor 1 to the hACE2 was successfully reproduced the native salt bridges and hydrogen bonds reported in crystal structure (Lan et al., 2020).

Y28H

This mutation was found in a β -strand of the N-terminal domain of S1 subunit and was far away from the binding site. No significant structural change has been observed from the docked complex upon mutation.

K77M

This mutation was in N-terminal domain of S1 subunit, not in the binding domain, but far away from the binding site. The mutation has led to a small helix (Thr76-8Asn81) formation which was absent in Ancestor 1.

K77M:S494P

S494P mutation has emerged in K77M background. Pro494 is located at β 6 strand at RBD. As mentioned in case of K77M, this double mutation also introduced the similar small helix of the range Thr76-8Asn81.

K77M:A771V

The A771V mutation has emerged in K77M background. K77M is in the N-terminal domain of S1 subunit, while A771V was spotted in S2 subunit. The K77M mutation was in one of the loop of the N-terminal domain, while A771V is far away from the binding site. A771V mutation

did not modify secondary structure, but K77M, being in the loop, altered the loop flexibility. The loop where the K77M mutation located was recoiled to form a small helix of (Thr76-8Asn81).

K77M:1021F

The S1021F mutation has emerged in K77M background. This mutation was found in the region of S2 subunit, connecting HR1 and HR2 domains. There was no visible conformational change nearby the mutational site. However both mutations are away from the binding site.

Y145del:R407I

The mutation comprised of one amino acid deletion at Tyr145 followed by mutation of arginine by isoleucine at 407, which was one of the binding site residues. The deletion was in S1 subunit, away from the binding site, in a loop, while mutation was at the RBD.

E224G

Mutation was positioned at the N-terminal domain of S1 subunit. Glutamate mutation by small and neutral glycine, far away from the binding site, did not show any significant secondary structural alternation.

A243S

The mutation was located at the N-terminal domain of S1 subunit, but replacement of alanine by serine causes two-residue shrink of a β -strand located (Thr236-His245 in ancestor-1 shrinks to Thr236-Ser243).

W258del

This mutation was located at the N-terminal domain of S1 subunit, in a flexible loop. There was no structural change observed in the docked

complex except the fluctuation of the loop.

T274I

The mutation was located at the N-terminal domain of S1 subunit in a β -strand. There was two-residue elongation of the β -strand (Leu270-Lys278) upon mutation.

D290Y

The mutation was located at the N-terminal domain of S1 subunit, in a β -strand, and induced strong interactions at the binding site. There was no observed secondary structural change in the docked complex.

K558N

The mutation was located at S1 subunit, in a loop. No structural change has been observed in the docked complex.

E583D

The mutation was spotted on the S1 subunit in a β -strand. No significant change in secondary structure was observed in docked structure upon mutation.

T602I

This mutation was position at the S1 subunit in a connecting loop of two β -strands. There was no structural change observed in the docked complex.

D614G

Receptor binding domain of S1 subunit contained this mutation in a connecting loop. The docked complex highly resembled Ancestor-1.

Q677H

This mutation was position at the S1 subunit. A short helix (Tyr674-Ans679) formation was observed upon mutation alike the native Ancestor-1.

T761S

The mutation was located in a well-packed helical region of S2 subunit. No visible structural change has been observed.

A831S:G857C

Any significant change in secondary structure was not observed in this case. Both mutations are located at the S2 subunit in the region connected to fusion peptide and HR1 domain.

A930V

This mutation was located at HR1 domain of S2 subunit in a close-packed helix. No visible change in secondary structure has been observed.

A930T

This mutation was located at HR1 domain of S2 subunit in a close-packed helix as well. No visible secondary structural change has been found.

T1027I

This mutation was located at the connecting region of HR1 and HR1 domain of S2 subunit, in a close-packed helix. There was no structural change observed in the docked complex.

Ancestor-2 (D614G variants)

D614G:H49Y

The mutation was located at N-terminal domain of S1 subunit, in a β -strand. No structural change has been observed in the docked complex.

D614G:L54F

The mutation was located in the β -strand of N-terminal domain of S1 subunit. No change in secondary structure has been observed in the docked complex.

D614G:L54F:E471Q

This was a double mutation in D614G background. L54F was located at N-terminal domain and E471Q was positioned at binding site of S1 subunit. Both were found at the fluctuating loops as observed in the docked complex.

D614G:R78M

The mutation was located at N-terminal domain of S1 subunit in a flexible loop as observed in the docked structure.

D614G:P82L

The mutation was positioned at N-terminal domain of S1 subunit in a β -strand. No structural change was observed in the docked complex.

N148Y

The mutation was spotted at one of the loops of N-terminal domain of S1 subunit. No change in secondary structure was observed in the docked complex, except loop fluctuation.

D614G:E156D

The mutation was located at N-terminal domain of S1 subunit in a fluctuating loop.

D614G:Q173H

The mutation was located at N-terminal domain of S1 subunit and positioned in a loop, thus fluctuations were observed in the docked complex.

D614G:M177I

The mutation was located at N-terminal domain of S1 subunit in a flexible loop as observed from docked structure.

D614GL:S255F

The mutation was located at the N-terminal domain of S1 subunit. The mutation was positioned at the connecting loop of the β -strands, thus fluctuation has been observed in the docked complex.

D614G:G261S

The mutation was located at the N-terminal domain of S1 subunit. It was found to connect loop of the two β -strands, thus fluctuation has been observed in the docked complex.

D614G:G261S:G769V

This was a double mutation. G261S was located at N-terminal domain of S1 subunit and the fusion peptide of S2 subunit harbored G769V. The double mutation was in the flexible loop as it was observed in the docked complex.

D614G:Q271R

The mutation was located at N-terminal domain of S1 subunit, in a long β -strand. No structural change has been observed in the docked complex.

D614G:T299I

The mutation was found in a helix of the N-terminal domain of S1 subunit. No structural change has been observed in the docked complex.

D614G T323I

The mutation was spotted at the receptor-binding domain of S1 subunit, connecting two β -strands. No structural change has been observed in the docked complex.

D614G I402L

The mutation was located at the binding site in a fluctuating loop of the S1 subunit. No structural change has been observed in the docked complex.

D614G:E484Q

This mutation was located at receptor binding motif of S1 subunit in a fluctuating loop. No other structural change has been observed.

D614G:T572I

The mutation was found in the receptor binding domain of S1 subunit in a β -hairpin. No structural alteration has been observed in docked complex.

D614G:E583D

This mutation was located at S1 subunit, in a β -strand. The region contains flexible loops, as observed from the docked complex.

D614G:D574H

The mutation was found in a loop of the S1 subunit. No structural change has been found except nearby loop fluctuation.

D614G:Q613H

β -strand of S1 domain harbored this mutation. No significant change at the secondary structural level has been observed in the docked complex.

D614G:R634S

The mutation was spotted at the S1 subunit. It was located at the loop, thus fluctuation was observed in the docked structure.

D614G_Q677H

The mutation was located at S1 domain and far away from the binding site. This mutation caused a shrink of the β -strand compared to the same of the Ancestor-2.

D614G:Q677H:K558N

This was a double mutation, located at N-terminal domain of S1 subunit and fusion peptide of S2 subunit. Both mutations were positioned in fluctuating loops.

D614G:A706S

The mutation was located at S2 subunit, connecting S1 subunit and fusion peptide.

D614G:T723I

The mutation was located at S2 subunit in a well-packed β -strand. No structural change has been observed in the docked complex.

D614G:F797C

The mutation was located at S2 domain. The location of the mutation was far away from the binding site and the mutation does not cause any alteration in the secondary structure of the docked complex.

D614G:P809S

The mutation was located at the S2 subunit. Upon mutation, as proline is replaced by serine, a β -strand formation has been observed in the docked complex.

D614G:T827I

The mutation was located at S2 subunit in a connecting loop. No significant change was observed in the docked complex except loop fluctuation.

D614G:L828P

This mutation was located at the S2 subunit. No significant change at the secondary structural level has been observed.

D614G:A879S

The mutation was located at S2 domain in a helical region. No structural change has been observed in the docked complex.

D614G:A892V

The mutation was located at S2 domain. There was no secondary structural change observed upon docking.

D614G:T941K

The mutation was positioned at HR1 domain of S2 subunit, in a closely packed helical region. There was no secondary structural change observed upon docking.

D614G:V1068F

The mutation was located at S2 subunit in a loop connecting HR1 and HR2 domains. No secondary structural change was observed except loop fluctuation upon docking.

D614G:H1083Q:R78M

This was a double mutation in D614G background. H1083Q was located at S2 subunit in the region connecting HR1 and HR2 domain, while R78M lies on N-terminal domain of S1 subunit. Upon R78M mutation, loop containing the mutation has been converted to the β -strand. H1083Q however was positioned in a relatively stable spot.

D614G:V1104L

The mutation was located at S2 domain. There was no secondary structural change observed upon docking.

D614G:G1124V

The mutation was located at S2 subunit in a β -strand. No structural change has been observed in the docked complex.

References

- Lan, J., Ge, J., Yu, J., Shan, S., Zhou, H., Fan, S., Zhang, Q., Shi, X., Wang, Q., Zhang, L., Wang, X., 2020. Structure of the SARS-CoV-2 spike receptor-binding domain bound to the ACE2 receptor. *Nature* 581, 215-220.
- Simpson, E.H., 1949. Measurement in Diversity. *Nature* 163, 688.
- Walls, A.C., Park, Y.J., Tortorici, M.A., Wall, A., McGuire, A.T., Velesler, D., 2020. Structure, Function, and Antigenicity of the SARS-CoV-2 Spike Glycoprotein. *Cell* 181, 281-292 e286.
- Wrapp, D., Wang, N., Corbett, K.S., Goldsmith, J.A., Hsieh, C.L., Abiona, O., Graham, B.S., McLellan, J.S., 2020. Cryo-EM structure of the 2019-nCoV spike in the prefusion conformation. *Science* 367, 1260-1263.