

Supplementary information

Supplementary Table 1.

Amino acid mutations found in the spike protein in cases with full viral genomes.

Case Number	Pango Lineages	Amino acid mutations found in the spike protein										
1	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	
2	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	
3	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	
4	B.1.1.7	H69del	V70del	S98F	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H
5	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	
6	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	R683Q	T716I	S982A	D1118H
7	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	
8	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	
9	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	
10	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	
11	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	
12	B.1.1.7	H69del	V70del	T124I	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H
13	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	
14	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	
15	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	
16	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	
17	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	
18	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	
19	B.1.1.7	H69del	V70del	Y144del	R158S	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H
20	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	
21	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	
22	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	
23	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	
24	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	
25	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	
26	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	
27	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	C1243S
28	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	
29	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	
30	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	
31	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	
32	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	
33	B.1.1.7	H69del	V70del	Y144del	N501Y	A520P	A570D	D614G	P681H	T716I	S982A	D1118H
34	B.1.1.7	H69del	V70del	Y144del	N501Y	A570D	D614G	P681H	T716I	S982A	D1118H	D1259Y
35	B.1.617.2	T19R	G142D	E156G	F157del	R158del	T323I	L452R	T478K	D614G	P681R	D950N V1264L
36	B.1.617.2	T19R	T95I	G142D	E156G	F157del	R158del	L452R	T478K	D614G	P681R	D950N
37	B.1.617.2	T19R	T95I	G142D	E156G	F157del	R158del	L452R	T478K	D614G	P681R	D950N
38	B.1.617.2	T19R	T95I	G142D	E156G	F157del	R158del	L452R	T478K	D614G	P681R	D950N
39	B.1.617.2	T19R	G142D	E156G	F157del	R158del	A222V	P251L	L452R	T478K	D614G	P681R D950N
40	B.1.617.2	T19R	T95I	G142D	E156G	F157del	R158del	L452R	T478K	D614G	P681R	D950N
41	B.1.617.2	T19R	T95I	G142D	E156G	F157del	R158del	L452R	T478K	D614G	P681R	D950N
42	B.1.617.2	T19R	G142D	E156G	F157del	R158del	L452R	T478K	D614G	P681R	D950N	
43	P.1	L18F	T20N	P26S	D138Y	R190S	A222S	K417T	E484K	N501Y	D614G	H655Y T1027I V1176F
44	R.1	W152L	E484K	D614G	G769V							
45	R.1	W152L	E484K	D614G	N751D	G769V						
46	R.1	W152L	E484K	D614G	G769V							
47	R.1	W152L	E484K	D614G	G769V	C1235F						

Supplementary Table 2

Standardized case report form used for the nationwide COVID-19 vaccine breakthrough investigation in Japan (there have been several updates over the course of the investigation; shown is the latest version of the form).

Prefectural case ID (if assigned)	
HER-SYS ID	
Prefecture	
Notified public health center	
Designated public health center	
Public health institute	
Diagnosing healthcare facility	
Admitted/outpatient follow-up healthcare facilities	
Age	
Sex	
Occupation	
City of residence	
Overseas travel	☐ Yes ☐ No (country:)
Symptom presence (onset if symptomatic)	☐ Symptomatic (XXXX/XX/XX) ☐ Asymptomatic
Date of specimen collection for diagnosis	XXXX/XX/XX
Date of diagnosis	XXXX/XX/XX
Date of notification	XXXX/XX/XX
Variant	
Place of isolation	☐ Hospitalized ☐ Hotel isolation ☐ Home isolation
Severity (Please update in case of status change)	☐ Asymptomatic ☐ Mild (SpO ₂ ≥96%; no shortness of breath or pneumonia on chest X-ray/CT) ☐ Moderate class I (93%<SpO ₂ <96%) ☐ Moderate class II (SpO ₂ ≤93%; requires oxygen supplementation) ☐ ICU admission/intubation ☐ Death
Immunodeficiency	☐ Yes (condition:) ☐ No
Use of immunosuppressant	☐ Yes (drug:) ☐ No
Other past medical history	

Contact history in the past two weeks	☐ No ☐ Yes (☐ Household ☐ Healthcare facilities ☐ Other care facilities ☐ Other ())
Secondary cases from this case	☐ No ☐ Yes (# of cases: ; contact: ☐ Household ☐ Healthcare facilities ☐ Other care facilities ☐ Other ())
Contact history with variants	
First dose of vaccine (Example: Pfizer)	
Date of first dose	XXXX/XX/XX
Place of first dose	
Lot number of first dose	
Second dose of vaccine (Example: Pfizer)	
Date of second dose	XXXX/XX/XX
Place of second dose	
Lot number of second dose	
Respiratory specimen available to be sent to NIID	☐ Yes ☐ No
Viral genome sequencing done	☐ Yes ☐ No
Pango lineage (if sequencing is already done)	
Public health institute ID (if assigned)	
NIID Pathogen Genomic Center ID (if assigned)	
Date of respiratory specimen collection (if respiratory specimen available to be sent to NIID)	XXXX/XX/XX
Type of specimen collection (if respiratory specimen available to be sent to NIID)	☐ Nasopharyngeal swab ☐ Nasal swab ☐ Saliva ☐ Sputum ☐ Tracheal aspirate ☐ Bronchoalveolar lavage fluid ☐ Nasal aspirate
Respiratory specimen or RNA (if specimen available to be sent to NIID)	☐ Respiratory specimen ☐ RNA ☐ Other ()
Ct value (if available)	
Blood specimen (acute phase) available to be sent to NIID	☐ Yes ☐ No

Date of blood specimen (acute phase) collection (if specimen available to be sent to NIID)	XXXX/XX/XX
Blood specimen (convalescent phase) available to be sent to NIID	☐ Yes ☐ No
Date of blood specimen (convalescent phase) collection (if specimen available to be sent to NIID)	XXXX/XX/XX
Other	