

Table S1. Genomes submitted by NICCRAT-BRIN team.

Accession ID	Collection Date	Patient Age	Gender	Pango Lineage	Pangolin Version	AA Substitutions	Is High Coverage?	Patient Status
EPI_ISL_1020188	13/01/2021	61	Male	B.1.459	16/09/2021	Spike_L18F,N_D377Y,NSP12_I539T,Spike_S689R,NSP3_P822L,N_A119S,NSP2_V284I,N_T205I,NS3_Q57H,NSP3_F53L,NS8_S67F,NS6_E54stop,NSP12_P323L,NSP16_I68V,Spike_D614G,NSP3_I483V,NSP3_N844S,NSP3_E37D	NO	Unknown
EPI_ISL_1117592	7/12/2020	67	Male	B.1.459	16/09/2021	NSP14_T173A,NSP3_P822L,N_S193I,NS3_Q57H,NSP12_P323L,Spike_D614G,NSP12_G596S,NSP2_P91L	YES	Hospitalized
EPI_ISL_1118280	6/12/2020	12	Male	B.1.470	16/09/2021	Spike_T719I,NSP3_L368F,NSP14_A323S,N_S194L,NSP6_H11Y,NSP3_T656I,NS3_Q57H,NS3_D27H,NSP12_P323L,Spike_D614G,NSP12_P227L	YES	Symptomatic
EPI_ISL_1020197	1/12/2020	22	Female	B.1.1.398	16/09/2021	Spike_P812Q,N_R203K,N_G204R,NSP12_V299F,NSP12_P323L,Spike_D614G,Spike_Q613H	YES	Asymptomatic
EPI_ISL_1117591	1/12/2020	20	Female	B.1.459	16/09/2021	NSP2_L271F,Spike_E654Q,NSP3_P822L,N_S193I,NSP12_K91R,NS3_Q57H,NSP12_P323L,N_P365L,Spike_D614G,NSP12_G596S,N_Q289H	NO	Symptomatic
EPI_ISL_1117590	30/11/2020	45	Female	B.1.1.398	16/09/2021	NS3_A99V,N_R203K,N_G204R,NSP3_S1285F,NSP12_P323L,Spike_D614G,NSP3_F814L	YES	Symptomatic

Accession ID	Collection Date	Patient Age	Gender	Pango Lineage	Pangolin Version	AA Substitutions	Is High Coverage?	Patient Status
EPI_ISL_111745_1	9/11/2020	33	Female	B.1.1.398	16/09/2021	NSP6_L33M,NSP2_V447I,N_R203K,NSP6_F34V,NSP6_W31Y,N_G204R,NSP5_L220F,NSP6_Q30E,NSP12_P323L,Spike_D614G,NSP6_ins35VL,NSP6_L37F,NS3_S177T,NSP6_T29P	YES	Unknown
EPI_ISL_113760_1	30/10/2020	53	Female	B.1.1.398	16/09/2021	N_R203K,NS3_T89I,N_G204R,NSP12_P323L,Spike_D614G,NSP13_E341D	NO	Symptomatic
EPI_ISL_102019_2	13/10/2020	32	Female	B.1.1.398	16/09/2021	N_R203K,Spike_T719S,N_G204R,NSP3_M1436I,NSP12_P323L,Spike_D614G,Spike_Q613H	YES	Asymptomatic
EPI_ISL_102020_3	18/09/2020	38	Male	B.1.1	16/09/2021	N_P365S,N_R203K,NSP3_L1328F,N_G204R,NSP12_P323L,Spike_D614G	YES	Symptomatic
EPI_ISL_111745_6	7/09/2020	55	Male	B.1.459	16/09/2021	NS8_L118V,NSP3_P822L,NSP12_M666I,N_S193I,NS3_Q57H,NSP12_P323L,Spike_D614G,NSP12_G596S	YES	Unknown
EPI_ISL_111745_7	7/09/2020	30	Male	B.1.459	16/09/2021	NSP3_P822L,N_S193I,NS3_Q57H,Spike_A348S,NSP12_P323L,Spike_D614G,NSP12_G596S,NSP16_A34V	YES	Asymptomatic

Blue and yellow highlights: mutations shared by all genomes

**Table S2.** List of Indonesian institutions that carried out SARS-CoV-2 WGS per 1 October 2021.

Institution	Sequencing Platform				
	Illumina & Sanger	Illumina only	ONT	Sanger Only	Sub Total
BRIN	-	-	11	-	11
BRIN-WJHL	-	-	55	-	55
EIJK	38	792	-	-	830
EIJK-NIHRD	-	383	-	-	383
EIJK-RSRM	-	437	-	-	437
EIJK-UNSRI	-	54	-	-	54
EIJK-UNWAR	-	353	-	-	353
EIJK-USK	-	6	-	-	6
EIJK-WJHL	-	85	-	-	85
GSILab	-	-	1323	1	1324
IRCVS	-	-	2	-	2
ITD-UNAIR	-	161	10	-	171
LIPI	-	-	223	-	223
<b>LIPI-NICCRAT</b>	-	-	<b>12</b>	-	<b>12</b>
LIPI-NIHRD	-	-	139	-	139
LIPI-UNSOED	-	-	15	-	15
UNHAS	-	-	44	-	44
MRINUPH	-	-	-	17	17
MRINUPH-EIJK	-	92	-	-	92
NIHRD	7	2021	12	17	2057
SHSIU	-	-	14	-	14
TFRIC	-	14	2	-	16
TUH	-	11	11	-	22
UA	-	70	-	-	70
UGM	-	161	-	-	161
UI	-	37	55	-	92

Institution	Sequencing Platform				
	Illumina & Sanger	Illumina only	ONT	Sanger Only	Sub Total
UI-NIHRD	-	46	-	-	46
UNS	-	10	-	-	10
UPNVJ	-	9	-	-	9
USU	-	23	-	-	23
WJHL-ITB	-	100	-	-	100
<b>Total</b>	<b>45</b>	<b>4865</b>	<b>1928</b>	<b>35</b>	<b>6873</b>

BRIN: National Research and Innovation Agency; Eijk: Eijkman Research Center for Molecular Biology; GSILab: Laboratory of Genomik Solidaritas Indonesia ; IRCVS: Indonesian Research Center for Veterinary Science; ITB: Bandung Institute of technology; ITD-UNAIR: Research Center for Vaccine Technology and Development, Institute of Tropical Disease, Airlangga University; LIPI: Indonesian Institute of Sciences; MRINUPH: Mochtar Riady Institute for Nanotechnology-Universitas Pelita Harapan; NICCRAT: Nottingham Indonesia Collaboration for Clinical Research and Training; NIHRD: National Institute of Health Research and Development; RSRM: Raden Mattaher Regional General Hospital ; SHSIU: Syarif Hidayatullah State Islamic University Jakarta; TFRIC: Padjadjaran University; Bandung Insitute of Technology; West Java Health Laboratory; TUH: Tanjungpura University Hospital; UA: Institute of Tropical Disease-Airlangga University; UGM: Gadjah Mada University; UHAS: Hasanuddin University; UI: University of Indonesia; UNS: Sebelas Maret University; UNSOED: Jenderal Soedirman University; UNSRI: Sriwijaya University; UNWAR: Warmadewa University; UPNVJ: University of Pembangunan Nasional Veteran Jakarta; USK: Syiah Kuala University; USU: Sumatera Utara University; WJHL: West Java Health Laboratory.

**Table S3.** Clinical metadata of genomes in Indonesia, Southeast and East Asia Pre-Delta Outbreak per 1 June 2021.

Country	Live	Deceased	Not Hospitalized/ Asymptomatic	Hospitalized/ Symptomatic	No. Sequenced Genomes	Recorded Metadata (% Sequenced Genome)
Japan	114	16	62	9,114	50,241	18.5%
South Korea	25	9	0	0	6216	0.5%
Philippines	3,593	73	0	11	4295	85.6%
Hong Kong	601	26	0	323	2837	33.5%
Singapore	0	0	0	553	2576	21.5%
<b>Indonesia</b>	<b>811</b>	<b>25</b>	<b>26</b>	<b>477</b>	<b>1806</b>	<b>74.1%</b>
Thailand	8	0	0	3	1404	0.8%
China	239	1	2	153	1220	32.4%
Malaysia	476	7	3	64	745	73.8%
Cambodia	278	0	0	0	281	98.9%
Taiwan	25	0	0	74	193	51.3%
Vietnam	79	0	0	3	158	51.9%
Myanmar	2	0	0	0	41	4.9%
Timor-Leste	0	0	0	0	19	0.0%
Brunei	0	0	0	0	10	0.0%

**Table S4.** Age and Sex Distribution of Countries.

Country	% Ages of Total Population			% Sex of Total Population	
	0-14 Years [1]	15-64 Years [2]	>65 Years [3]	Female [4]	Male [5]
China	13	71	11	48.7	51
Hong Kong	12	70	17	54.0	46
Indonesia	26	68	6	49.6	50
Japan	13	59	28	51.2	49
South Korea	13	72	15	49.9	50
United Kingdom	18	64	19	50.6	49

**Table S5.** Functions of genes and their mutation effects.

<b>Mutation</b>	<b>Variant</b>	<b>Gene Function</b>	<b>Mutation Effect</b>
NSP12_P323L	All shared	RNA-dependent RNA polymerase (RdRp) [6]	Correlate with increase mortality rate in the East Mediterranean Region when mutation is in single incidence [6]
NSP4_K35R	All shared	Transmembrane proteins involved in regulating the host immunity, modifying host cell organelles for viral replication and escape [7]	Currently no data
NSP6_L37F	All shared	Transmembrane protein involved in regulation of the host autophagy [8]	Correlate with asymptomatic infection; reduced abilities to activate inflammasomes and pyroptosis [8]
Spike_D614G	All shared	Trimeric spike (S) protein [9]	More stabilisation of ACE2 binding [9]
Spike_N439K	B.1.466.2	Receptor binding motif (RBM) of the trimeric (S) protein [10]	Enhanced binding affinity to the hACE2 receptor and confers resistance against several neutralizing monoclonal antibodies [10]
NS3_S220I	B.1.4770	Accessory protein to mask virus from class I major histocompatibility factors (MHC) [11]	Currently no data
NSP2_L217V	B.1.4770	Transmembrane protein [12]	Currently no data

## References

1. Population ages 0-14 (% of total population) | Data, (n.d.). [https://data.worldbank.org/indicator/SP.POP.0014.TO.ZS?name\\_desc=false&view=chart](https://data.worldbank.org/indicator/SP.POP.0014.TO.ZS?name_desc=false&view=chart) (accessed June 13, 2021).
2. Population ages 15-64 (% of total population) | Data, (n.d.). [https://data.worldbank.org/indicator/SP.POP.1564.TO.ZS?name\\_desc=false&view=chart](https://data.worldbank.org/indicator/SP.POP.1564.TO.ZS?name_desc=false&view=chart) (accessed June 13, 2021).
3. Population ages 65 and above (% of total population) | Data, (n.d.). [https://data.worldbank.org/indicator/SP.POP.65UP.TO.ZS?name\\_desc=false&view=chart](https://data.worldbank.org/indicator/SP.POP.65UP.TO.ZS?name_desc=false&view=chart) (accessed June 13, 2021).
4. Population, female (% of total population) | Data, (n.d.). [https://data.worldbank.org/indicator/SP.POP.TOTL.FE.ZS?name\\_desc=false](https://data.worldbank.org/indicator/SP.POP.TOTL.FE.ZS?name_desc=false) (accessed June 13, 2021).
5. Population, male (% of total population) | Data, (n.d.). [https://data.worldbank.org/indicator/SP.POP.TOTL.MA.ZS?name\\_desc=false](https://data.worldbank.org/indicator/SP.POP.TOTL.MA.ZS?name_desc=false) (accessed June 13, 2021).
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