PERKEMBANGAN TERKINI VIRUS COVID19 & PENANGANAN NYA

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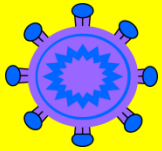
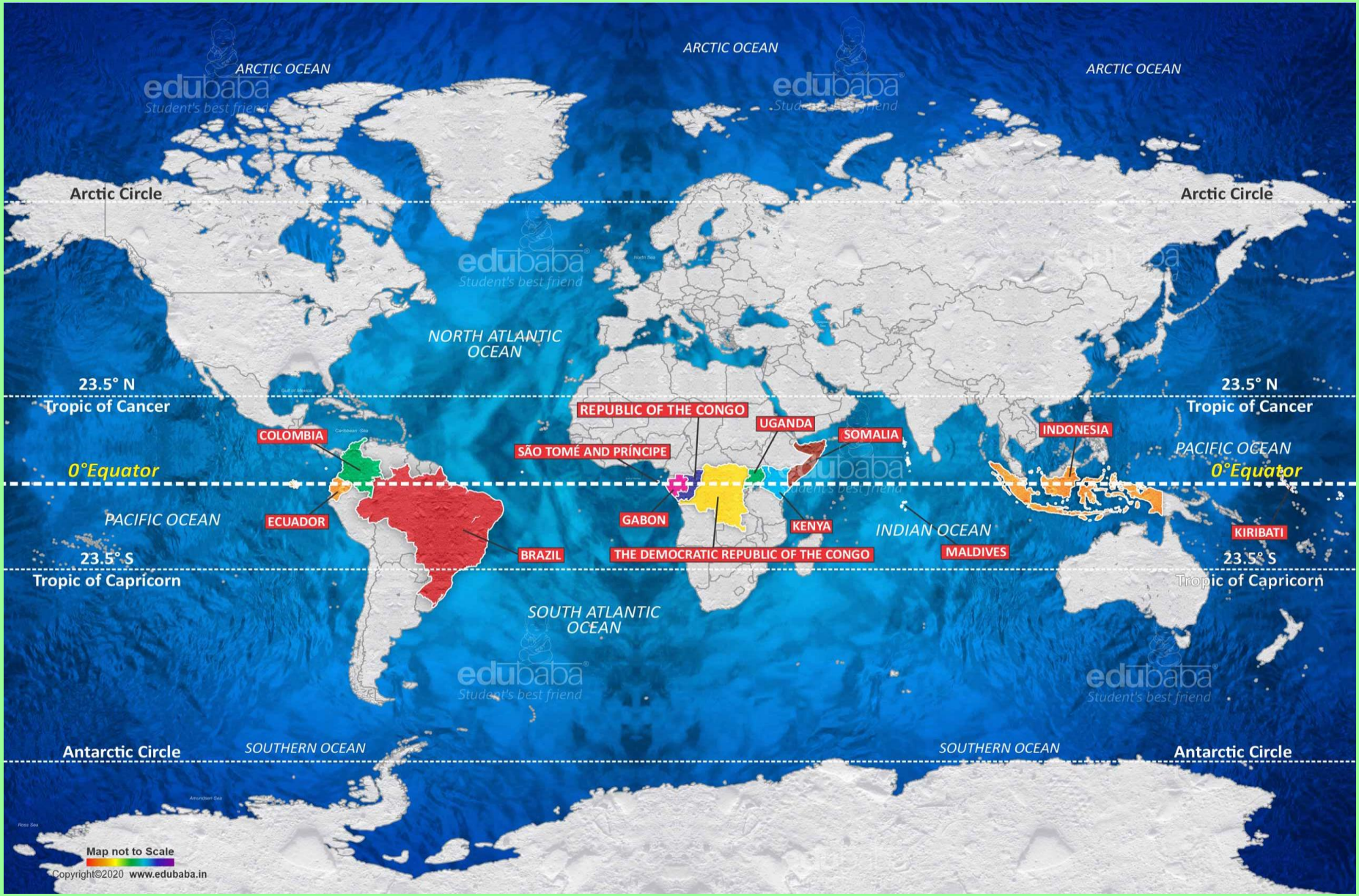
(Seminar Nasional, Balai Veteriner Subang, PDHI Jabar, 15 Januari 2022)



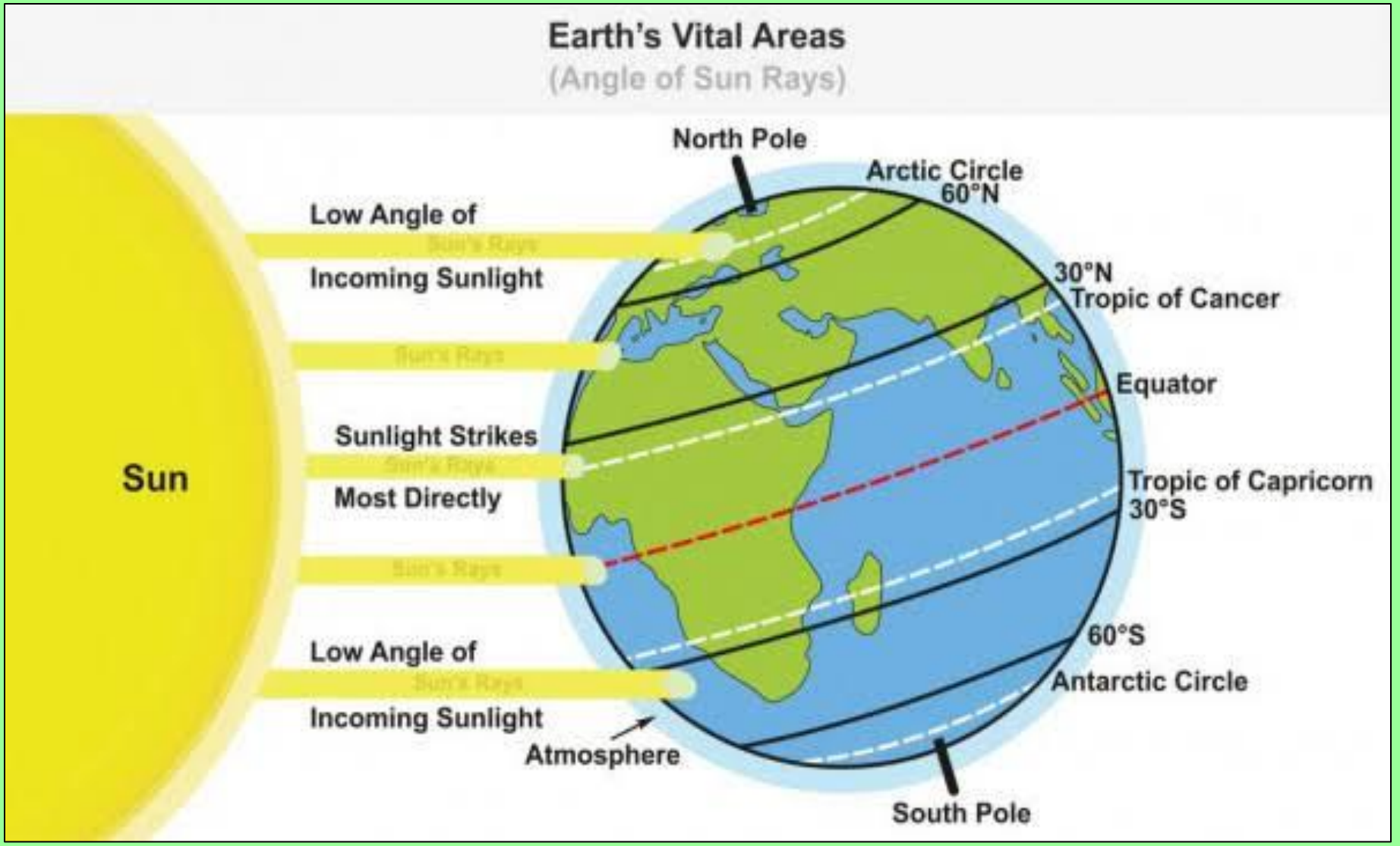
BAGIAN 1

MENGENAL VARIAN VIRUS

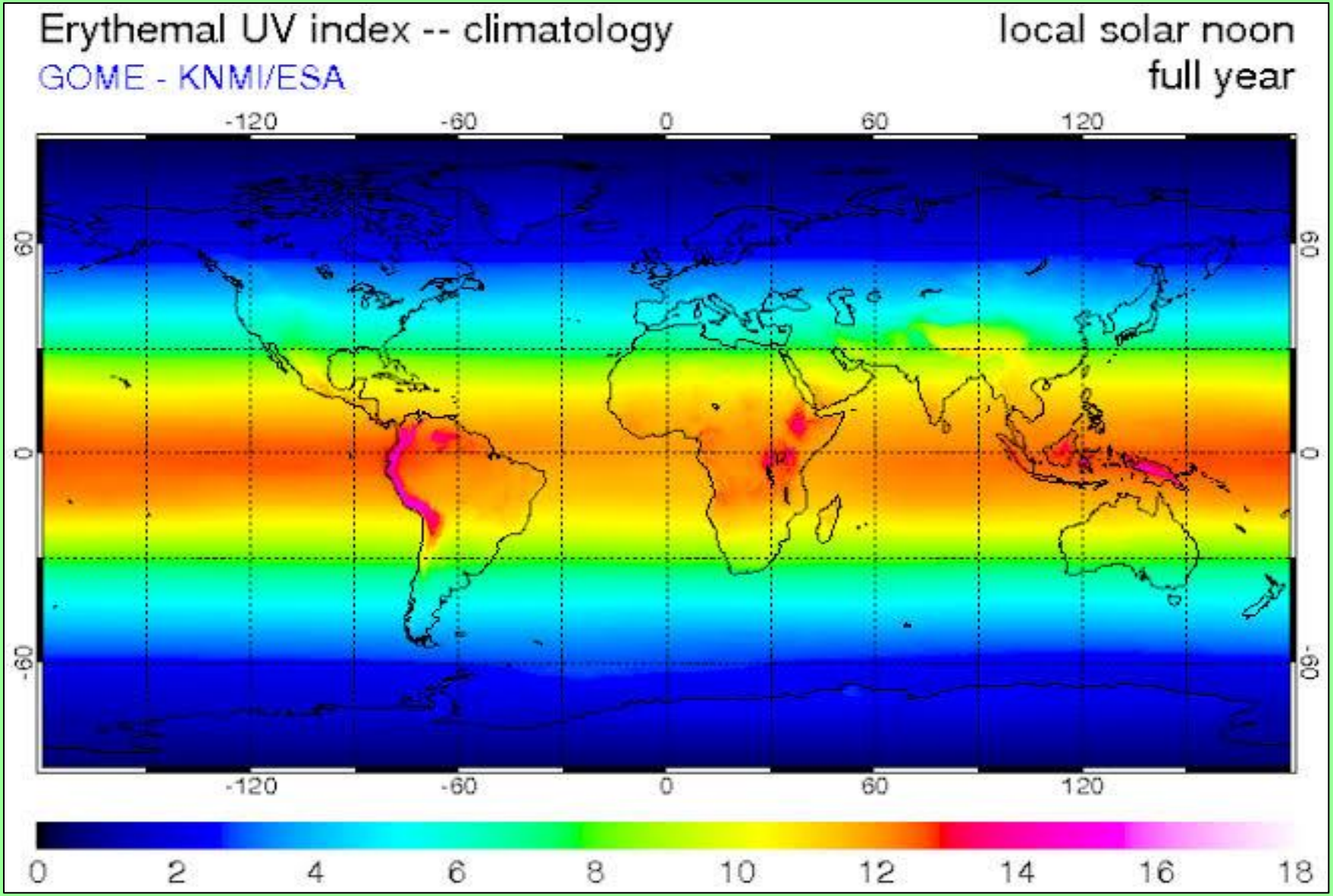
INDONESIA & GARIS KATULISTIWA (1)



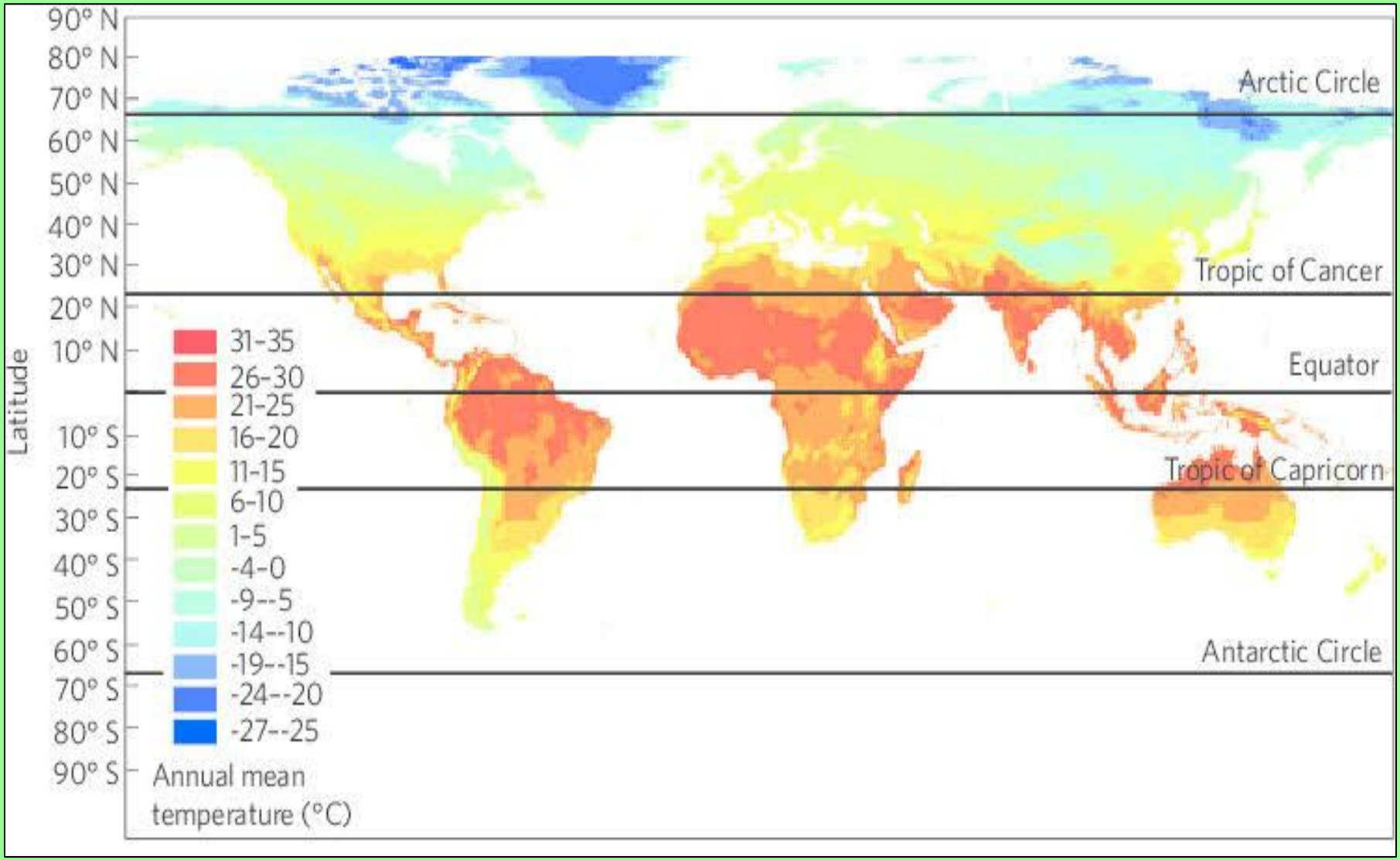
INDONESIA & GARIS KATULISTIWA (2)



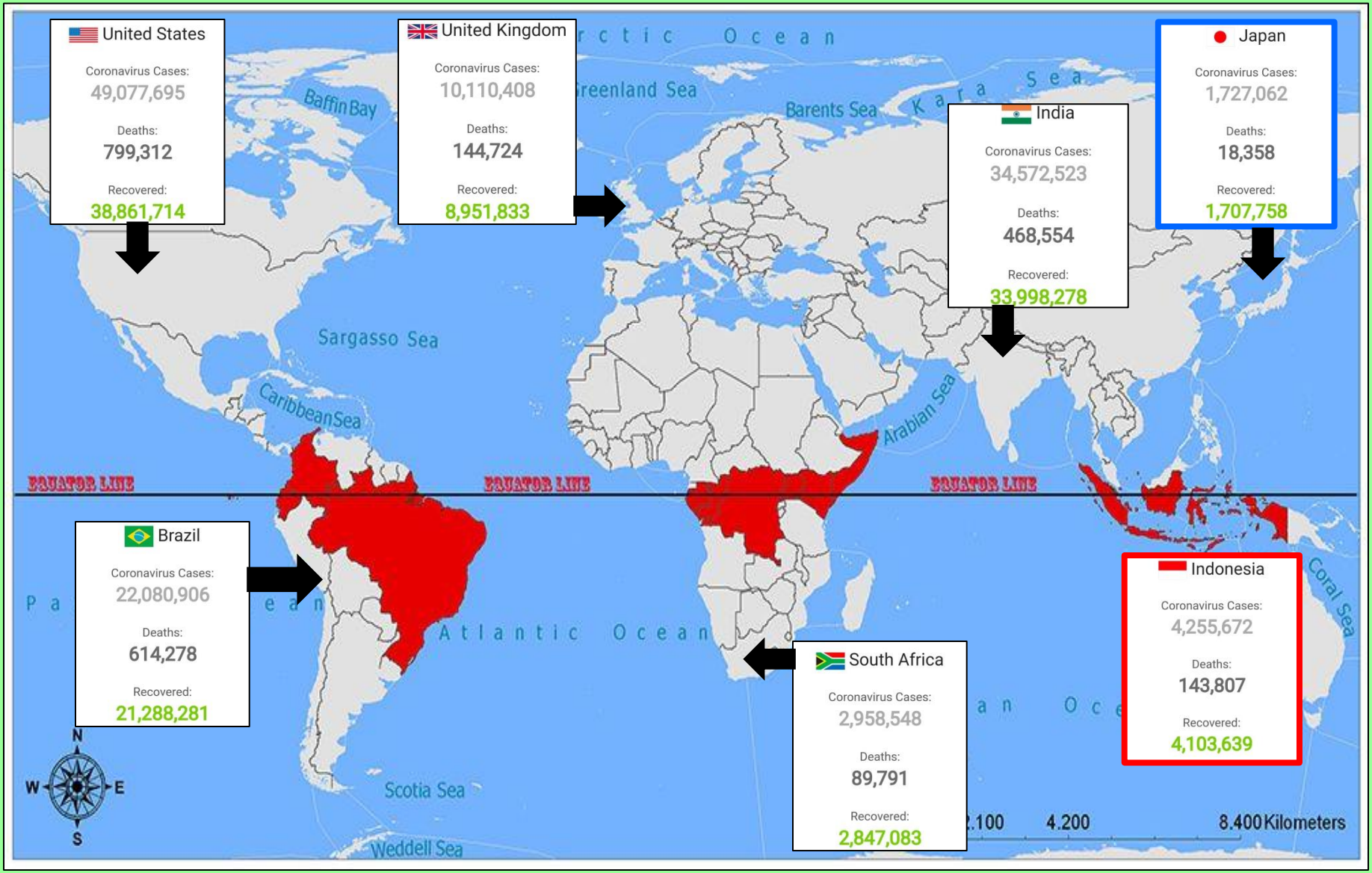
INDONESIA & GARIS KATULISTIWA (3)



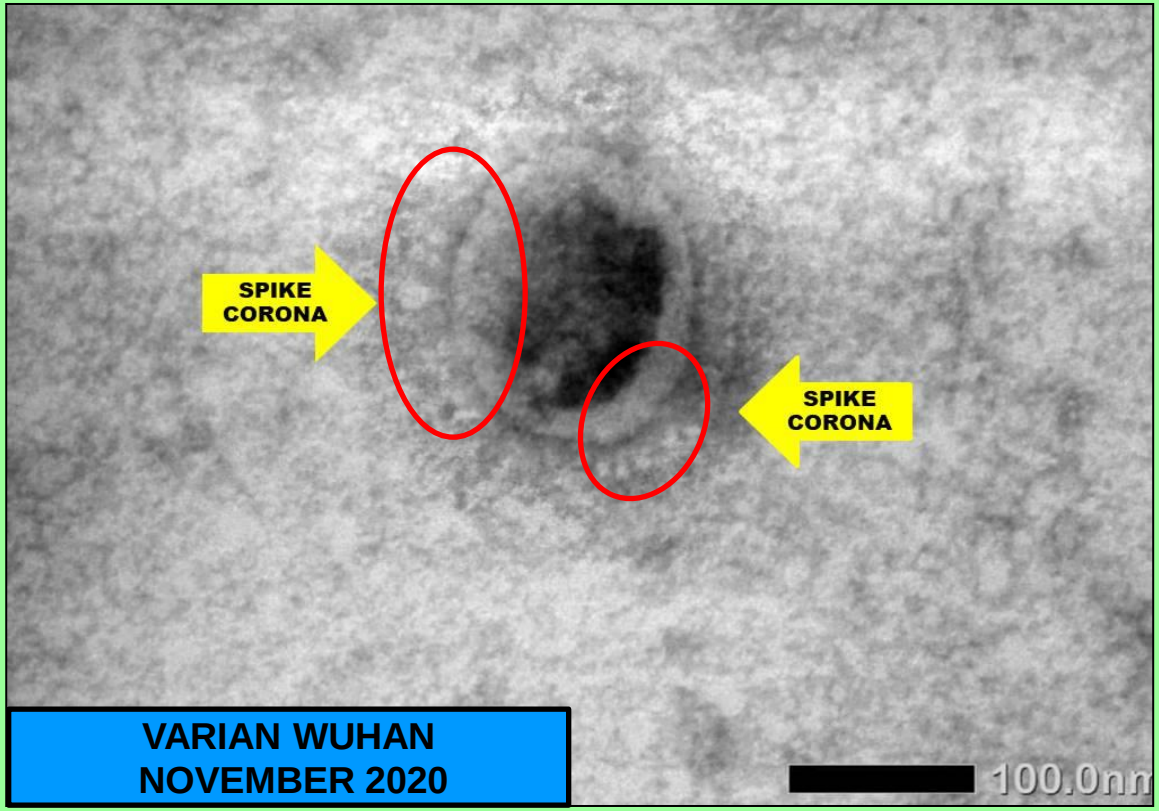
INDONESIA & GARIS KATULISTIWA (4)



INDONESIA & GARIS KATULISTIWA (2)



ISOLAT VIRUS CoViD19 INDONESIA



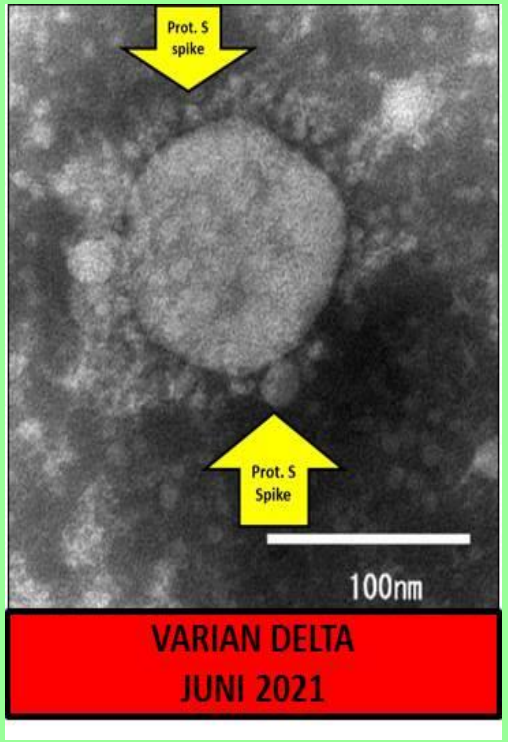
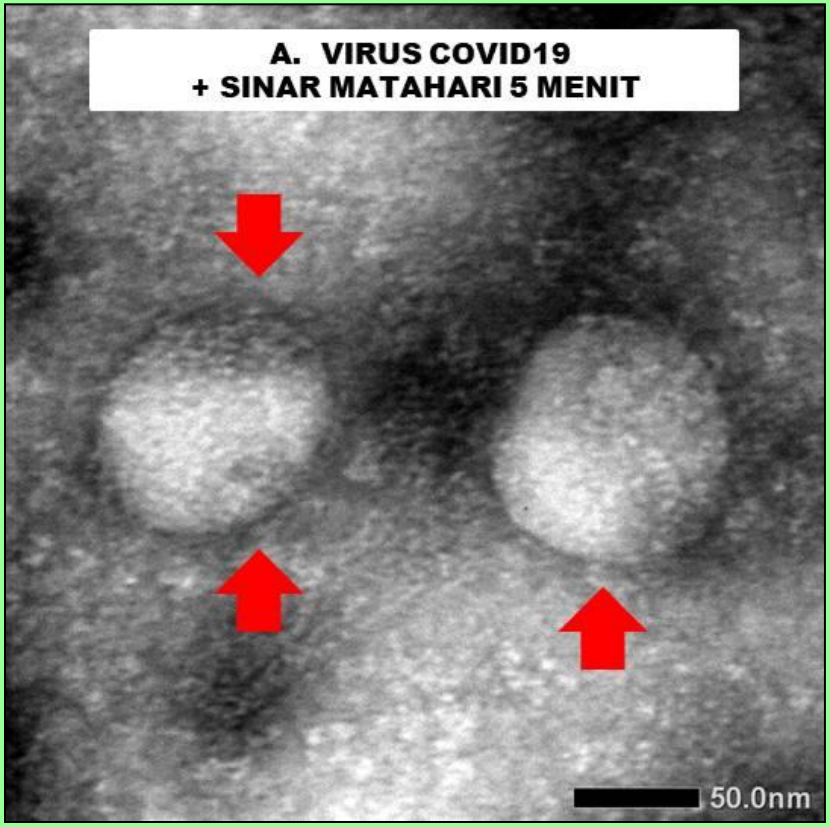


Foto virus SARS CoV2 pertama di Indonesia menggunakan Transmisible Elektron Mikroscope. Ukuran virus SARS CoV2 100 nm (1 nm = 1/10 juta cm)

KELEMAHAN VIRUS CoViD19 DI INDONESIA



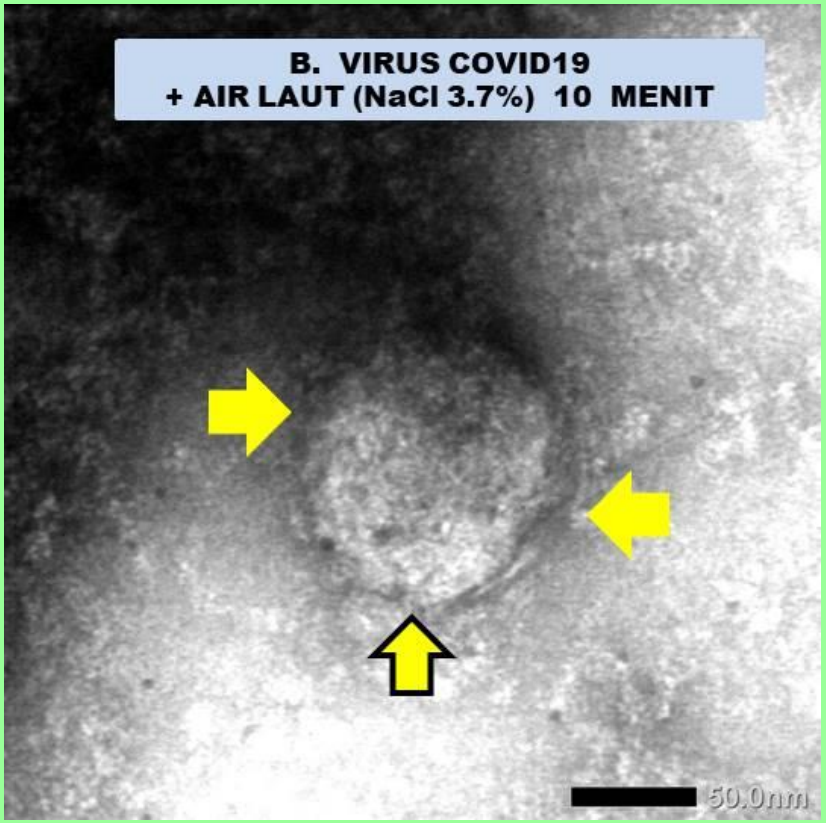
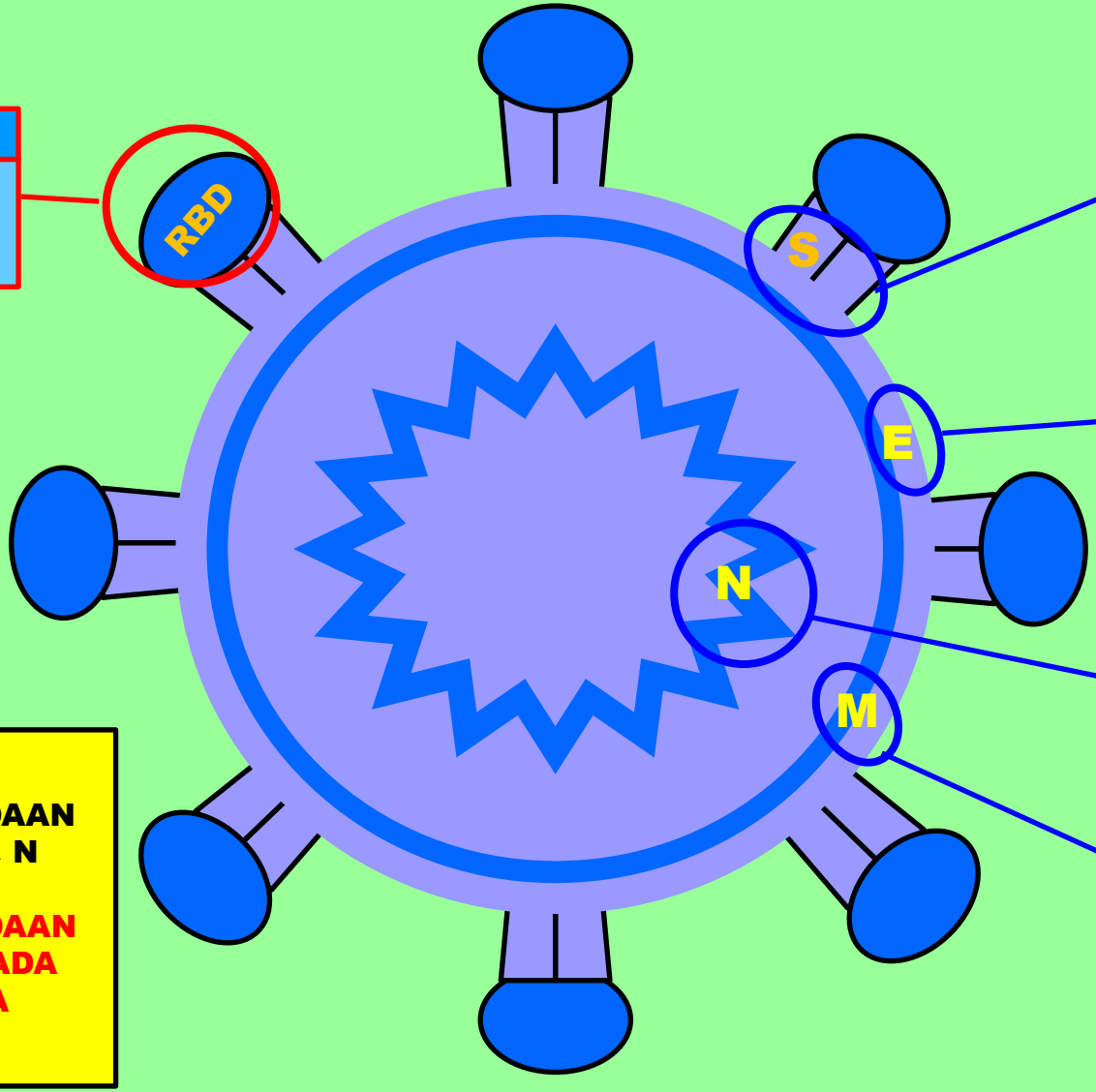


Foto Mikroskop Elektron kehancuran virus SARS CoV2 saat tereKspose sinar matahari selama 5 menit (protein S /spike hancur sehingga virus ini tidak bisa menempel ke reseptor) & kehancuran protein M (membran) + protein E (Envelope) saat direndam air laut selama 10 menit.

Virus terbuat dari protein & lemak sehingga SEMUA PELARUT LEMAK (sabun/deterjen/pembersih lantai/pemutih pakaian/cairan pencuci piring) dapat MENGHANCURKAN VIRUS.

VARIAN, PROTEIN VIRUS COVID19 & UJI DETEKSI PCR



SEQUENCE

VARIAN - RBD (RECEPTOR BINDING DOMAIN)

PCR & RAPID TEST

S (SPIKE)

PCR

E (ENVELOPE)

PCR

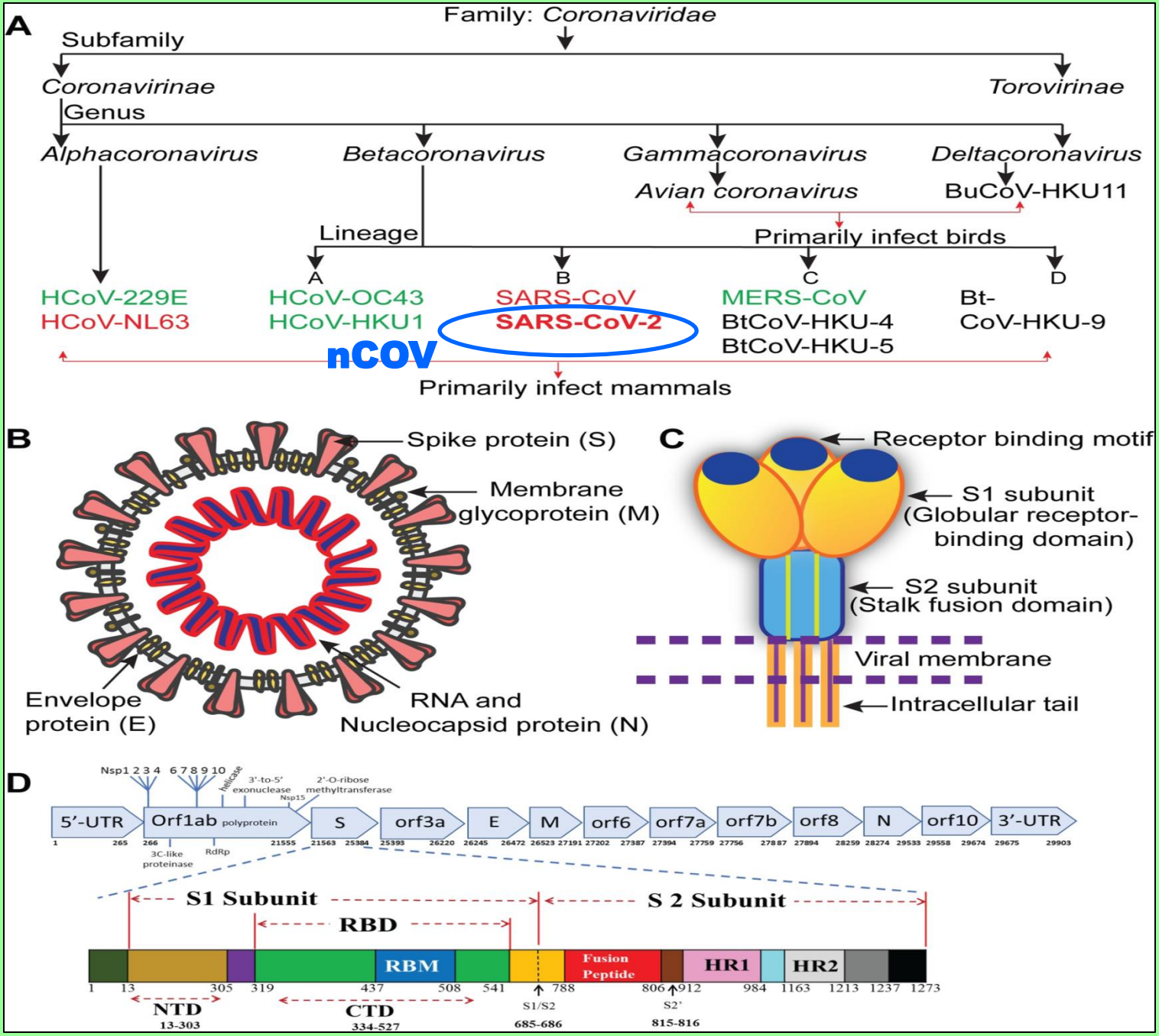
N (NUKLEOPROTEIN)

PCR

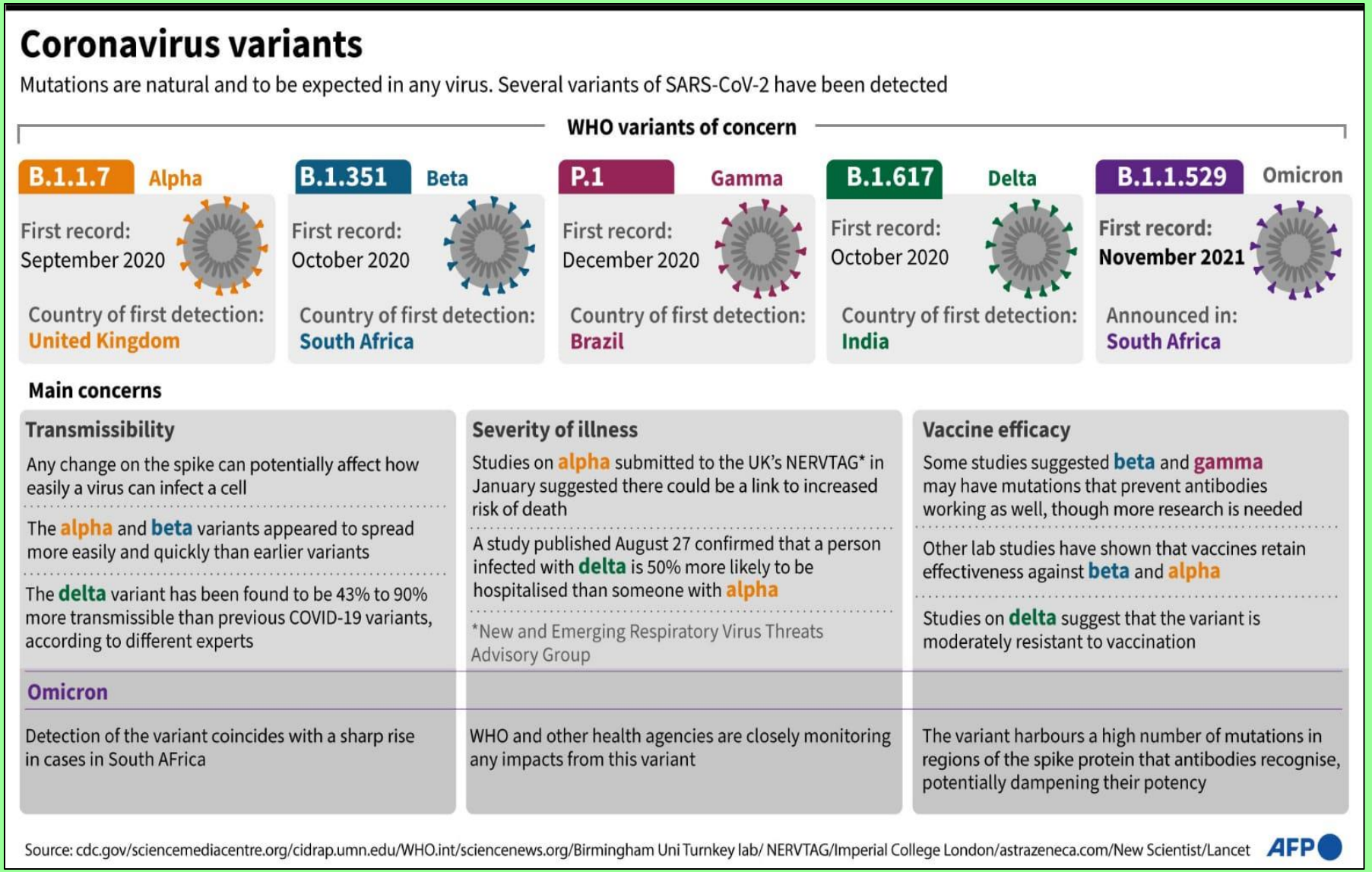
M (MEMBRANE)

STRAIN : PERBEDAAN PROTEIN M,E,& N

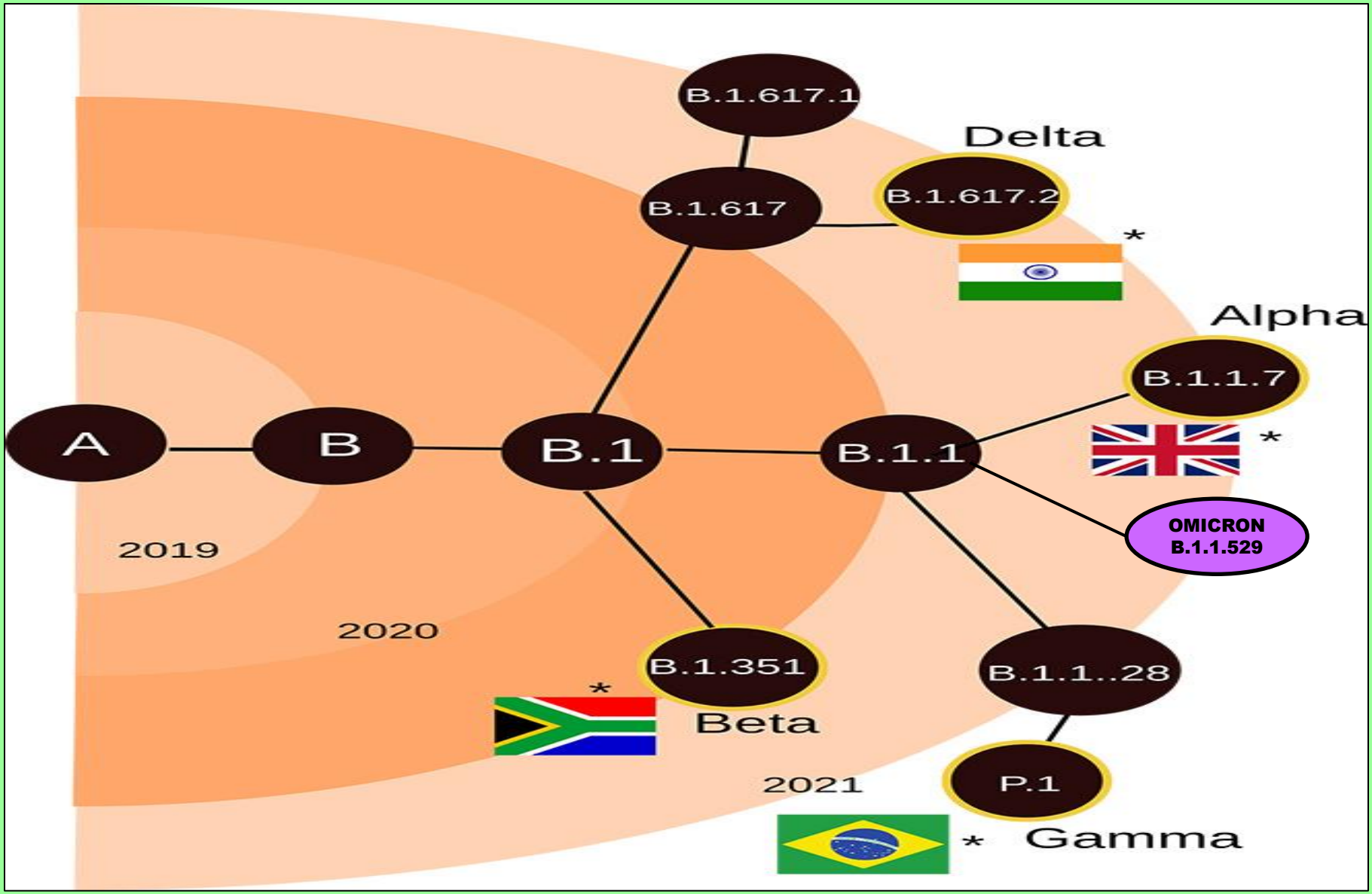
VARIAN : PERBEDAAN PROTEIN RBD PADA STRAIN SAMA


A
Family: Coronaviridae
Subfamily
Coronavirinae
Torovirinae
Genus
Alphacoronavirus
Betacoronavirus
Gammacoronavirus
Deltacoronavirus
Avian coronavirus
BuCoV-HKU11
Primarily infect birds
Lineage
A
B
C
D
HCoV-229E
HCoV-NL63
HCoV-OC43
HCoV-HKU1
SARS-CoV
SARS-CoV-2
nCOV
MERS-CoV
BtCoV-HKU-4
BtCoV-HKU-5
Bt-
CoV-HKU-9
Primarily infect mammals
B
Spike protein (S)
Membrane
glycoprotein (M)
Envelope
protein (E)
RNA and
Nucleocapsid protein (N)
C
Receptor binding motif
S1 subunit
(Globular receptor-
binding domain)
S2 subunit
(Stalk fusion domain)
Viral membrane
Intracellular tail
D
Nsp1 2 3 4 6 7 8 9 10
Helicase
3'-to-5'
exonuclease
Nsp15
2'-O-ribose
methyltransferase
5'-UTR
Orf1ab polyprotein
S
orf3a
E
M
orf6
orf7a
orf7b
orf8
N
orf10
3'-UTR
1
265
266
21555
21563
25384
25393
26220
26245
26472
26523
27191
27202
27387
27394
27759
27756
27887
27894
28259
28274
29533
29558
29674
29675
29903
3C-like
proteinase
RdRp
S1 Subunit
S 2 Subunit
RBD
RBM
Fusion
Peptide
HR1
HR2
1
13
305
319
437
508
541
788
806
912
984
1163
1213
1237
1273
NTD
13-303
CTD
334-527
S1/S2
685-686
S2'
815-816

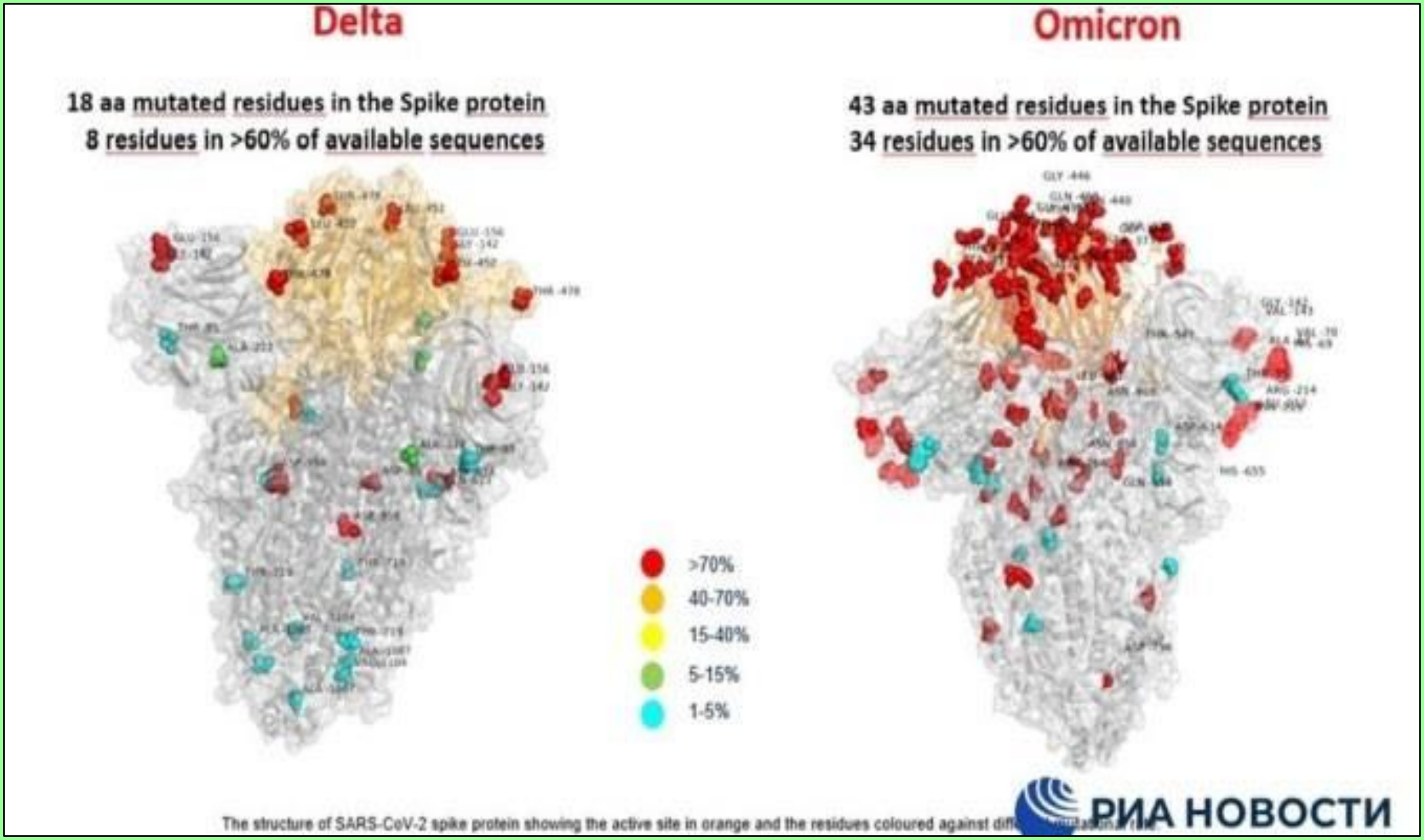
VARIAN = KUMPULAN MUTASI PROTEIN S-RBD
BUKAN PERUBAHAN SELURUH VIRUS



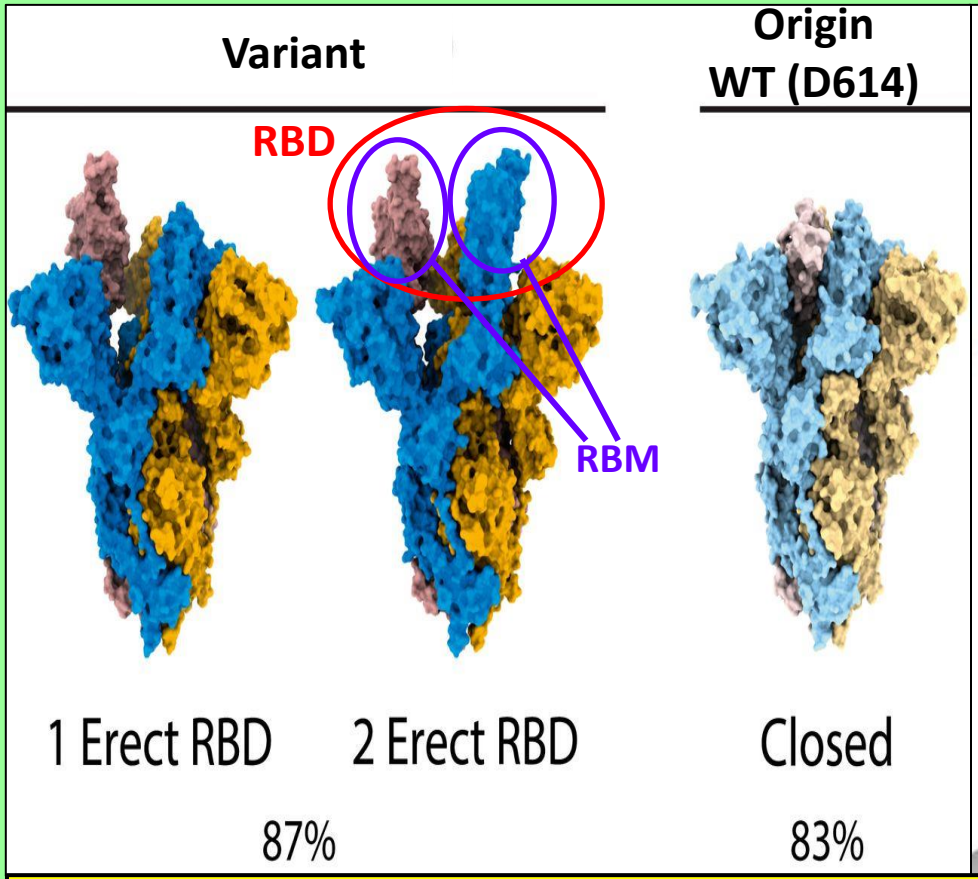
PHYLOGENETIC TREE CLADE VARIAN VIRUS COVID19 / nCoV (RBD PROTEIN S)

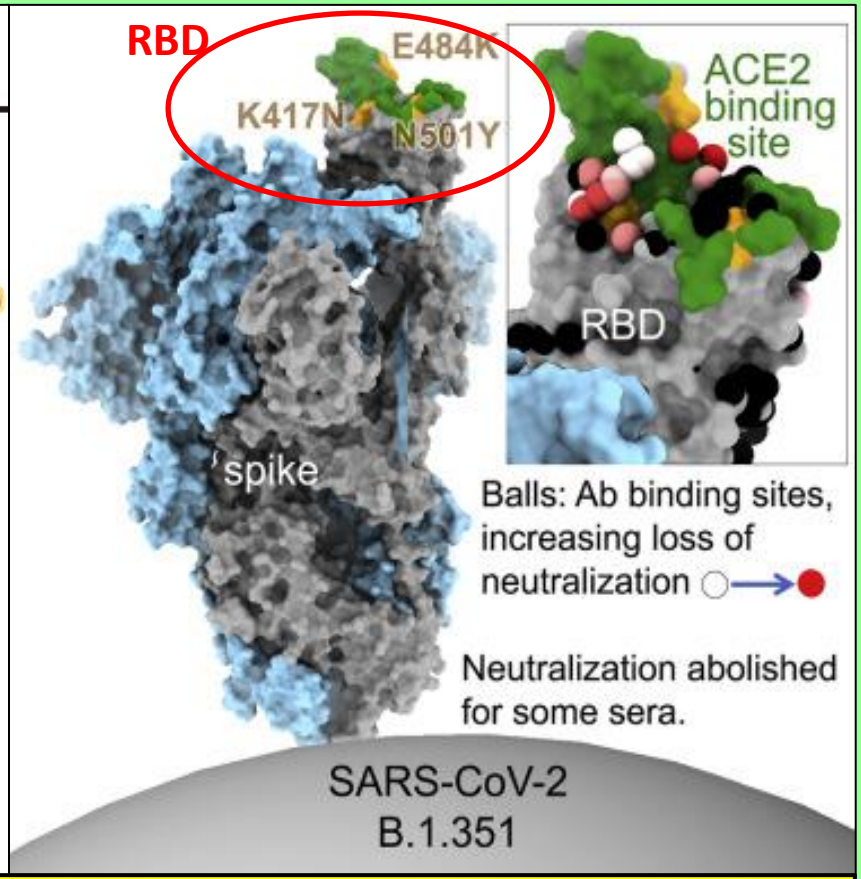


VARIAN = KUMPULAN MUTASI PROTEIN S-RBD
BUKAN PERUBAHAN SELURUH VIRUS



PERKIRAAN BENTUK MUTASI DI LOKASI RBM (BAGIAN DARI RBD)

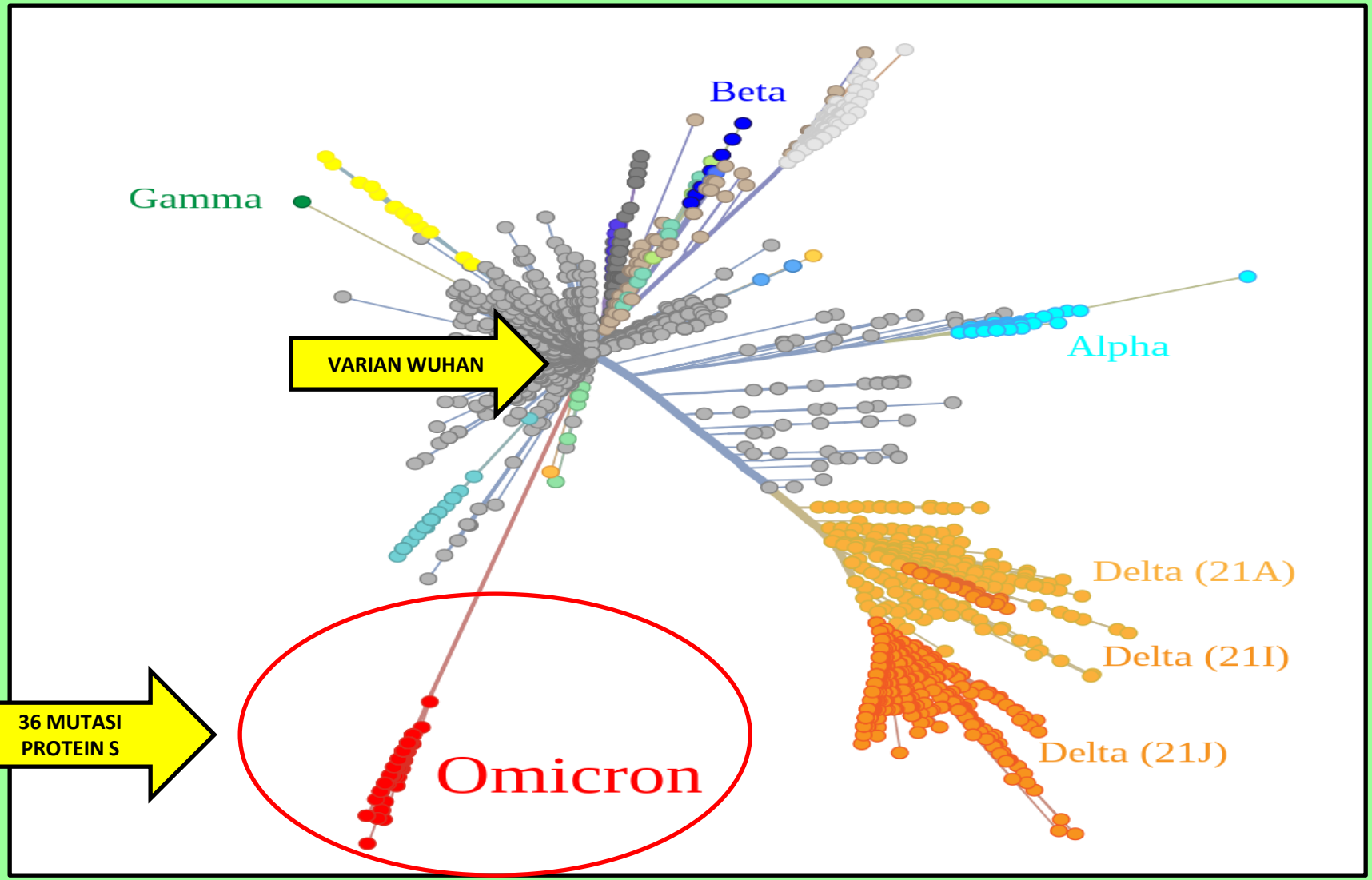




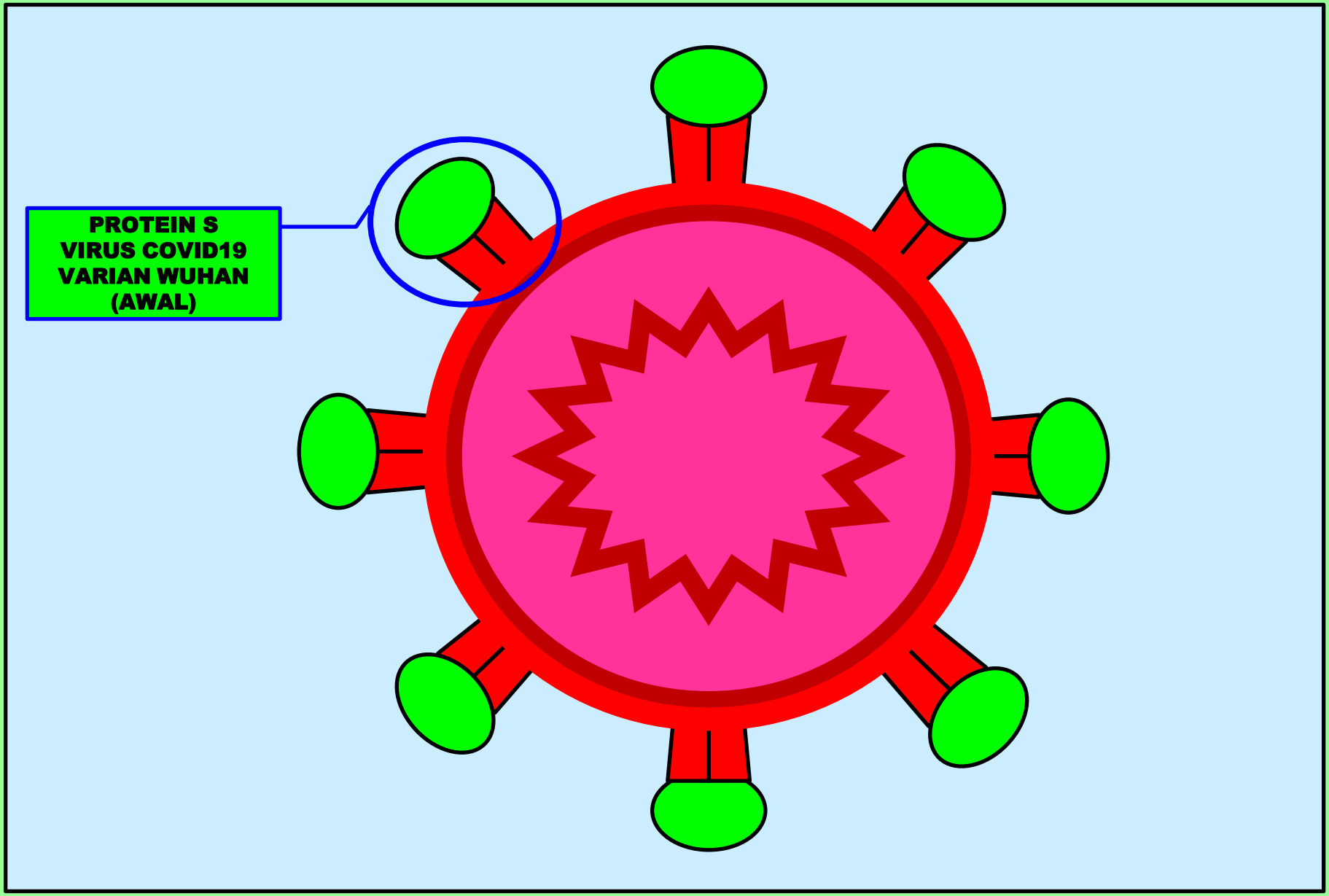
Perubahan / Mutasi asam amino pada RBM (urutan protein S -437-508) tejadi di 3 lokasi yaitu :

1. **N501Y : perubahan N (Asparagine) menjadi Y (Tyrosine) di urutan 501**
2. **E484 A : perubahan E (Glutamic Acid) menjadi A (Alanine) di urutan 484**
3. **K417N : perubahan K (Lysine) menjadi N (Asparagine) di lokasi 417**

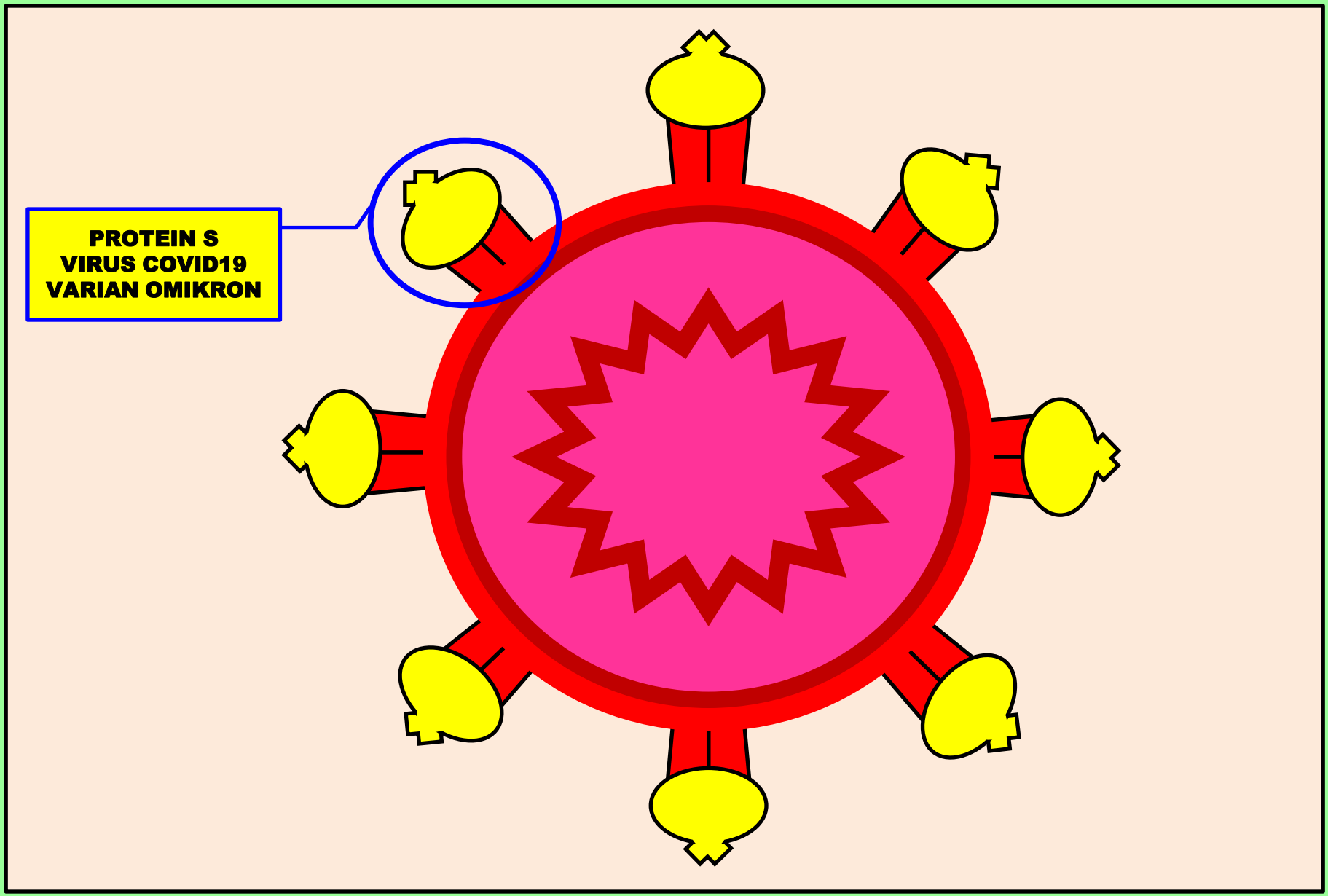
PHYLOGENETIC TREE PROTEIN S VARIAN VIRUS COVID19



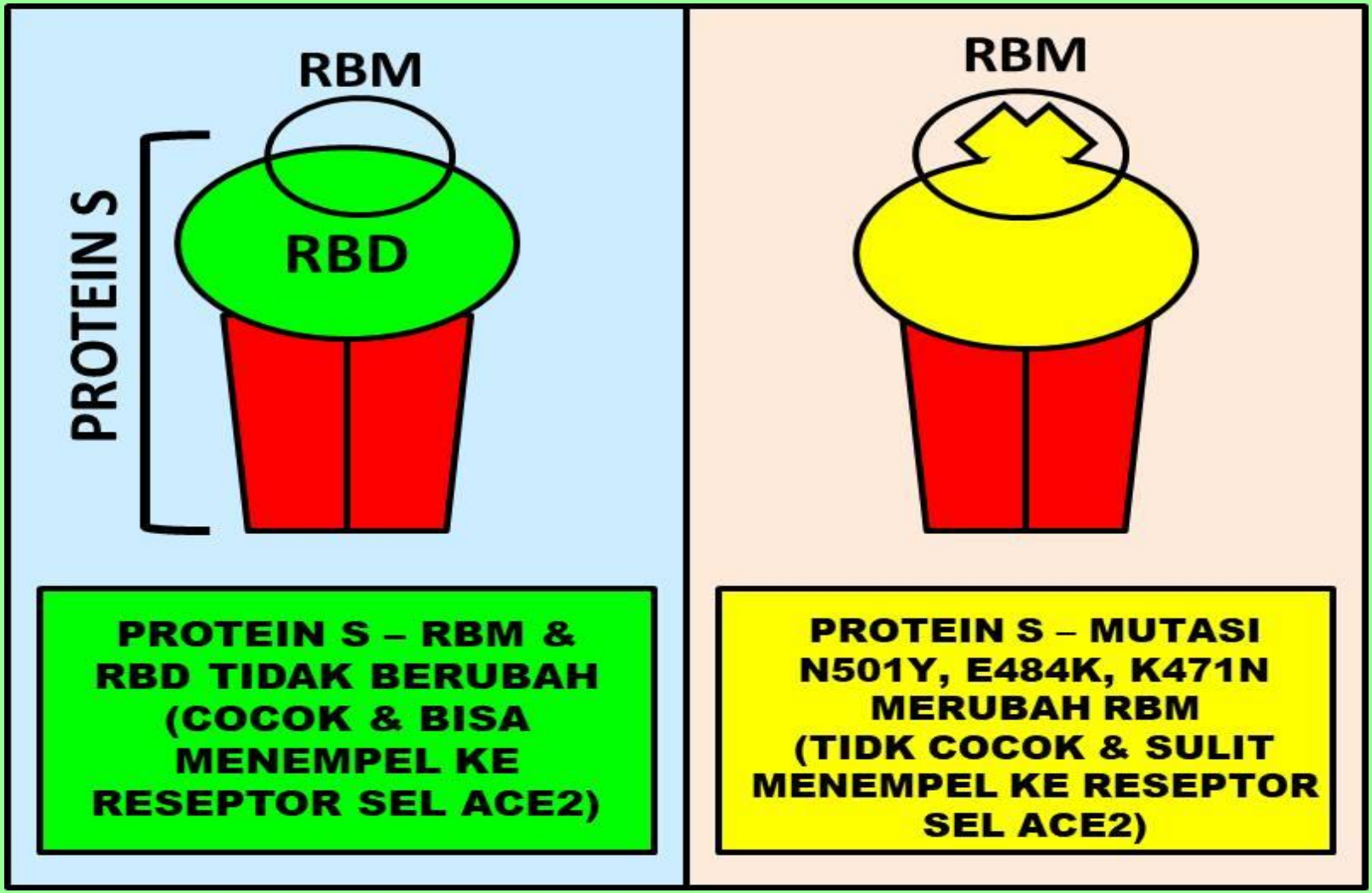
VIRUS COVID VARIAN WUHAN
(AWAL & TANPA PERUBAHAN PROTEIN S / SPIKE)



VIRUS COVID VARIAN OMIKRON
(36 MUTASI DI PROTEIN S / SPIKE)

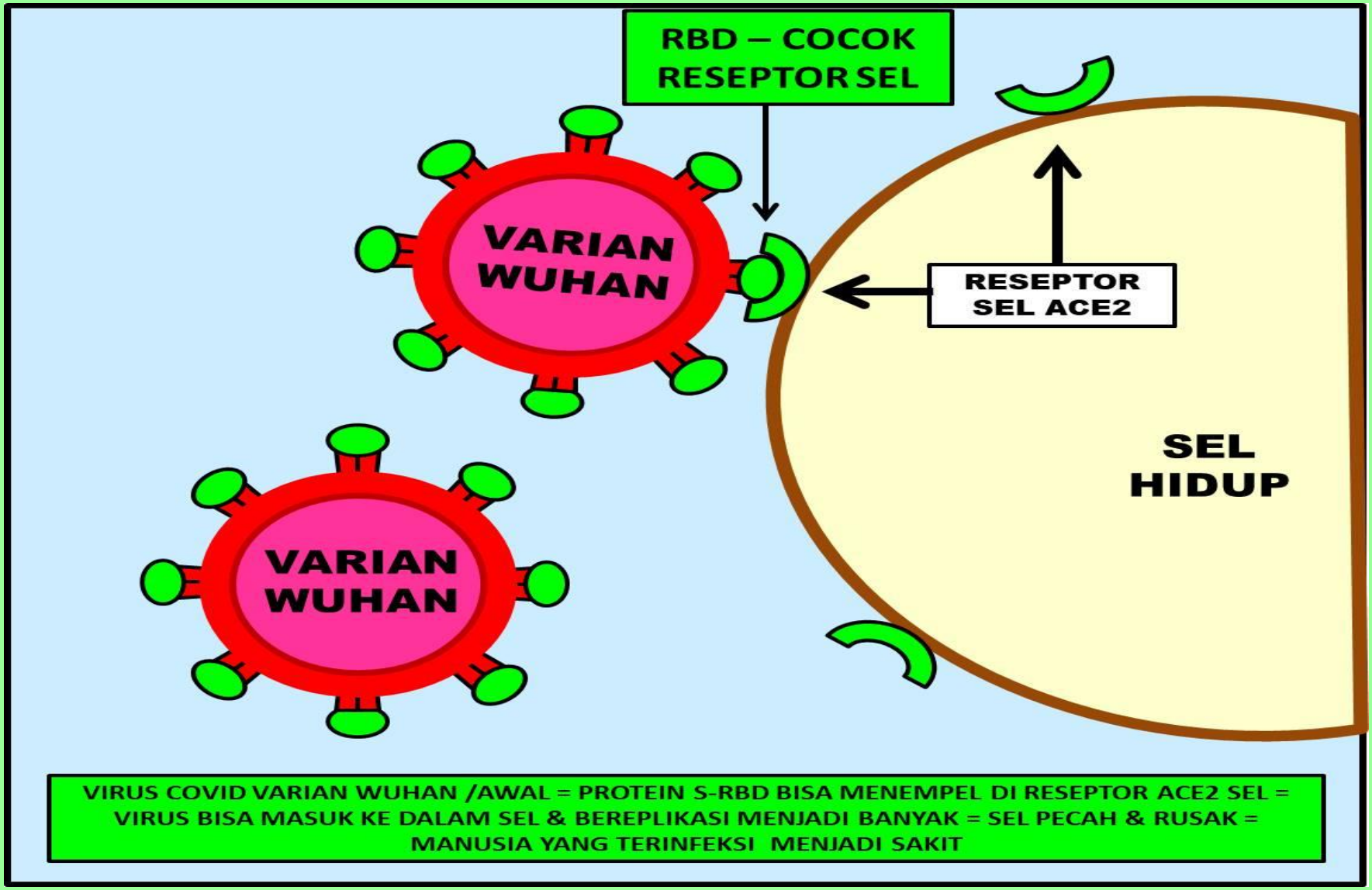


PERBEDAAN UJUNG RBD PROTEIN S VARIAN WUHAN & VARIAN OMIKRON

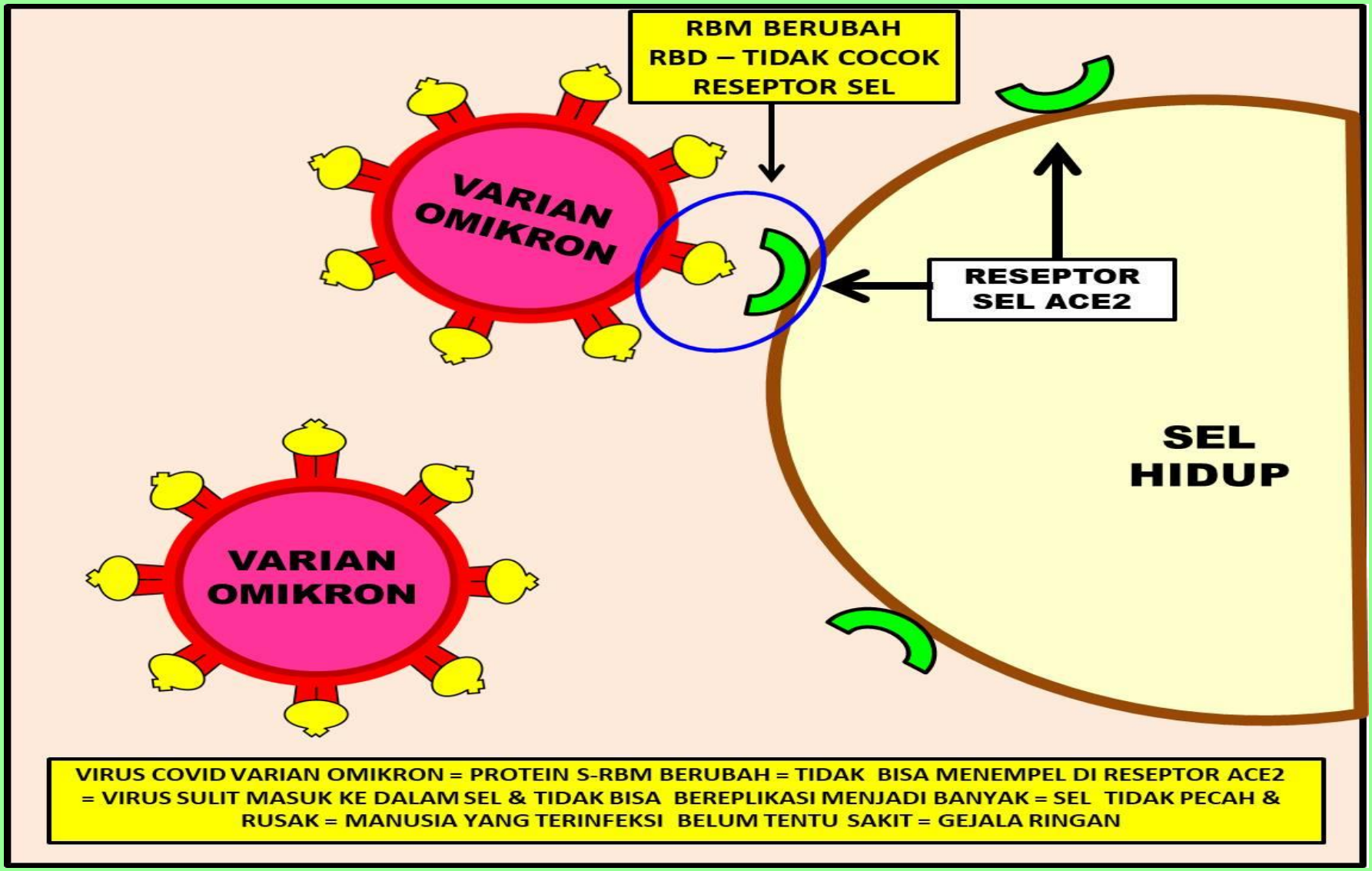


- PROTEIN S = SPIKE / DURI VIRUS COVID 19
- RBD = RECEPTOR BINDING DOMAIN / BAGIAN UJUNG BULAT PROTEIN S YANG MENEMPEL KE RESEPTOR
- RBM = RECEPTOR BINDING MOTIF / BAGIAN PALIN UJUNG RBM
- ACE2 = ANGIOTENSIN CONVERTER ENZYME 2 / BAGIAN RESPETOR SEL UNTUK TEMPAT TEMPELAN VIRUS COVID19

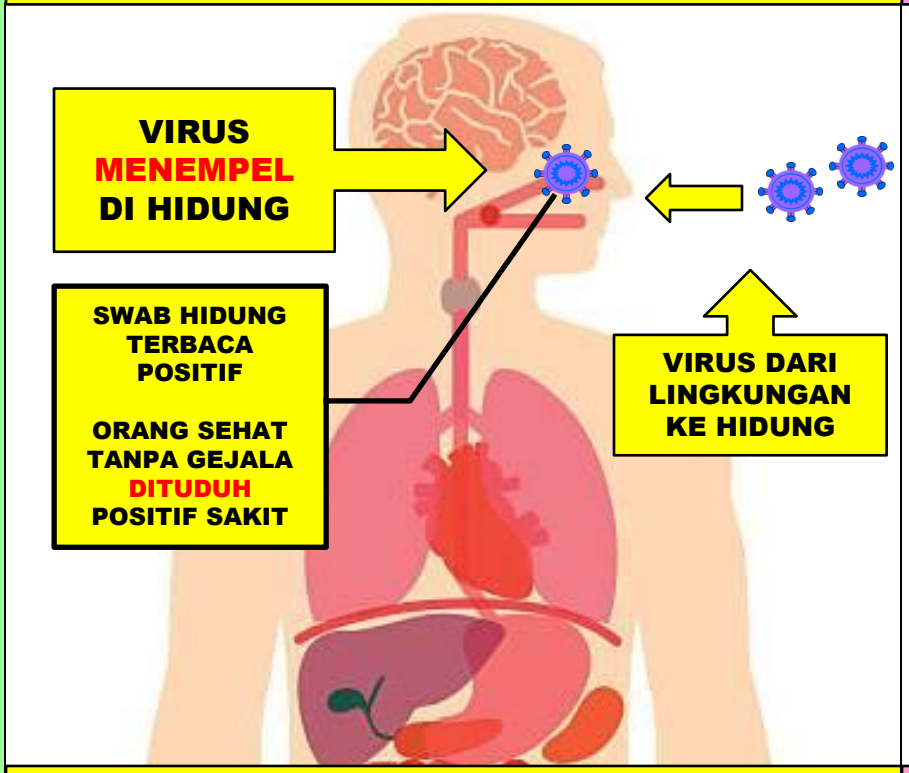
HUBUNGAN RBD VARIAN WUHAN-RESEPTOR ACE2 SPESIFIK (IKATAN KUNCI & GEMBOK)



HUBUNGAN RBD VARIAN OMIKRON-RESEPTOR ACE2 BERUBAH (KUNCI BERUBAH & SULIT COCOK DENGAN GEMBOK)



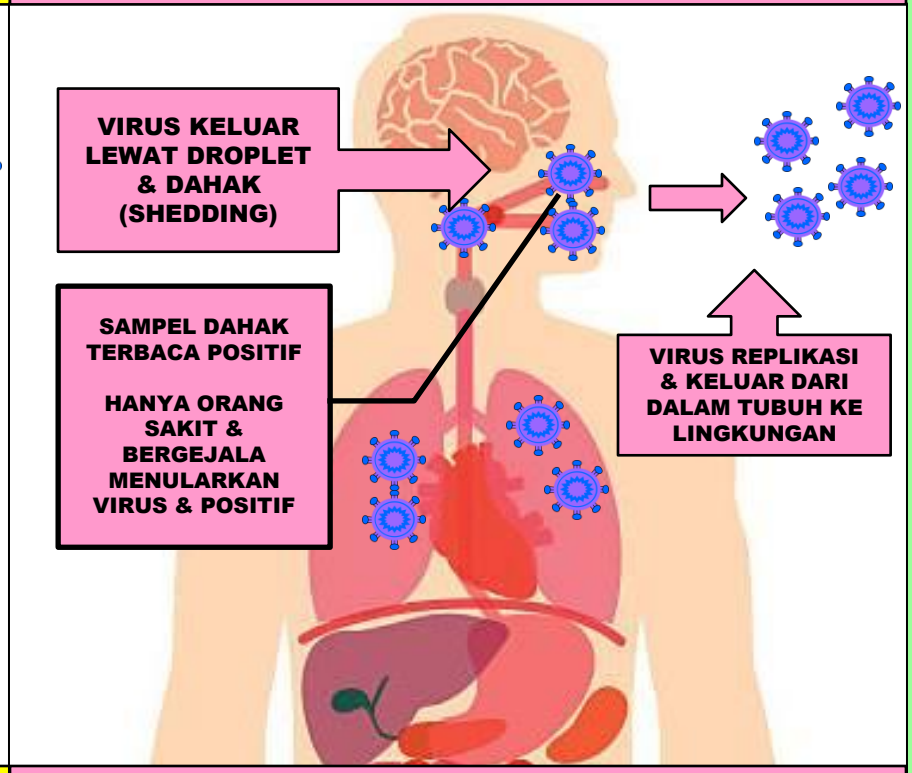
TERPAPAR / CONTRACTED



SOLUSI MENGATASI PAPARAN :

1. RUTIN CUCI HIDUNG & KUMUR AIR GARAM NON YODIUM 1% ATAU NaCl 0.9% UNTUK MELEPAS VIRUS DI RONGGA HIDUNG & MULUT
2. CUCI HIDUNG & KUMUR AIR GARAM MELEPAS VIRUS DI RONGGA HIDUNG & MULUT UNTUK MENCEGAH INFEKSI BUKAN MENGOBATI INFEKSI

TERINFEKSI / INFECTED



SOLUSI MENGATASI INFEKSI :

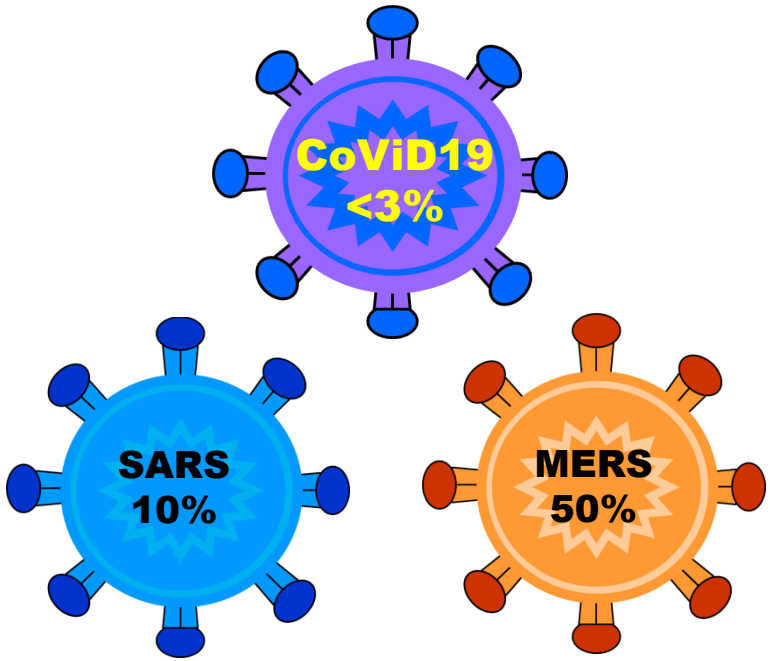
1. KONSUMSI RAMUAN 131 (1 RUAS JAHE + 3 BATANG SERAI + 1 RUAS LENGKUAS DIREBUS 10 MENIT) SETIAP PAGI & SORE SELAMA 2 MINGGU UNTUK MENGHAMBAT REPLIKASI VIRUS
2. MINUM VIT E SEHARI SEBUTIR SELAMA 2 MINGGU UNTUK MENINGKATKAN PRODUKSI ANTIBODY MELAWAN VIRUS

SOLUSI UJI DIAGNOSTIK :

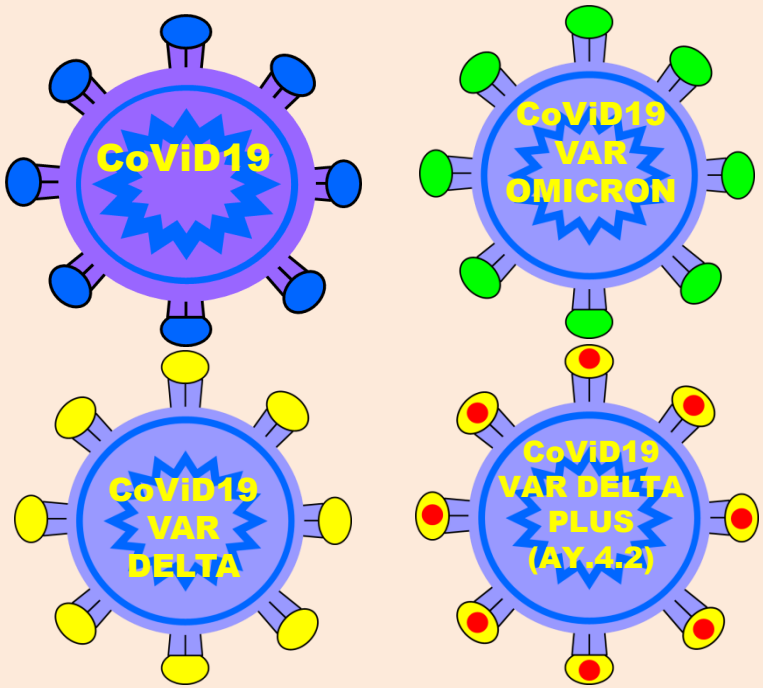
1. UJI DIAGNOSTIK PCR & RAPID TEST HANYA UNTUK YANG SAKIT - BUKAN YANG SEHAT
2. SAMPEL DAHAK UNTUK UJI PCR & RAPID TEST – BUKAN SWAB HIDUNG

PERBEDAAN STRAIN & VARIAN

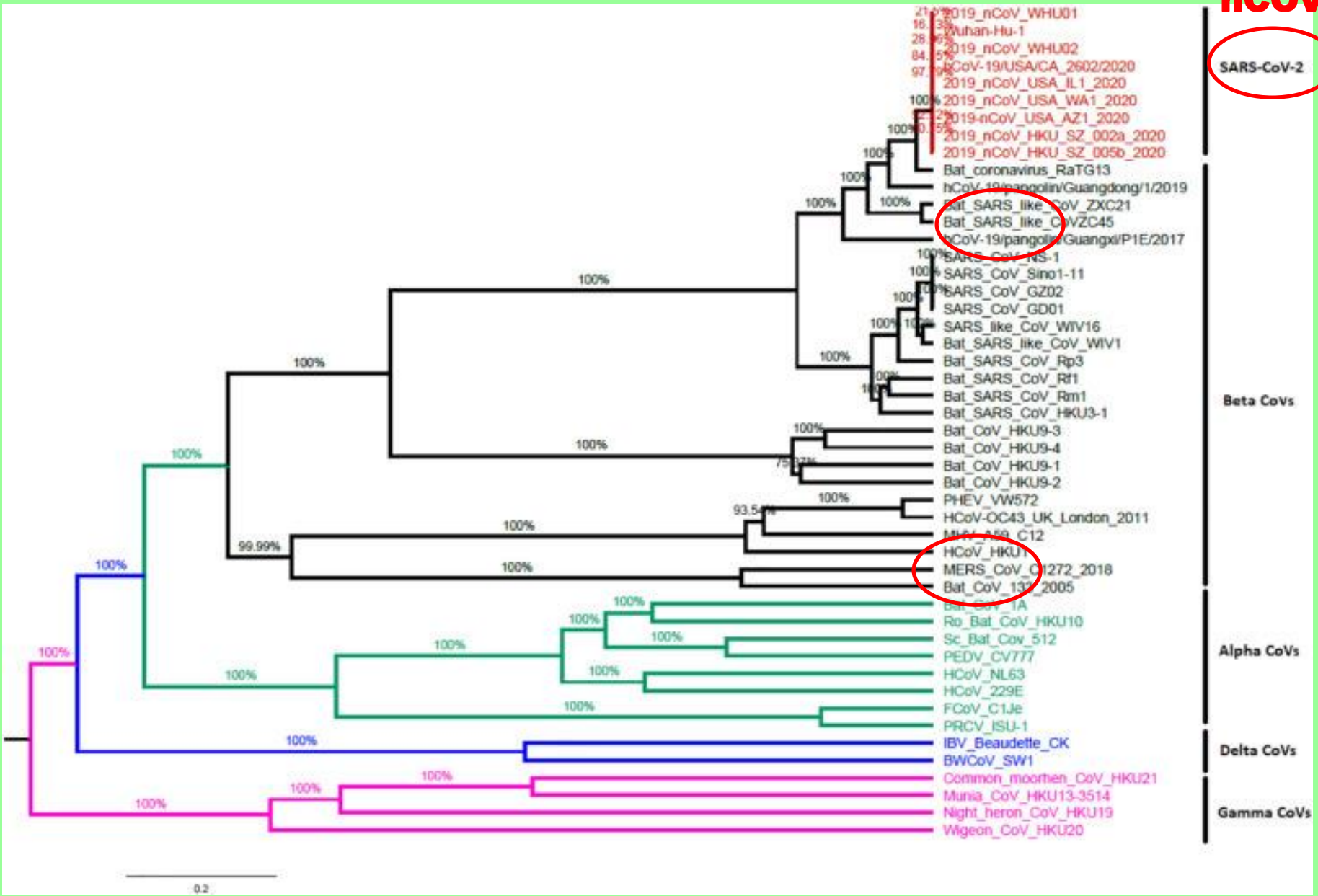
STRAIN : PERBEDAAN PROTEIN M,E, & N MENUNJUKAN SIFAT VIRUS YANG BERBEDA

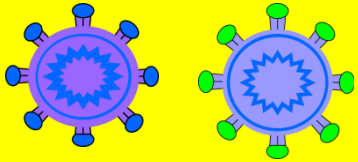


VARIAN : PERUBAHAAN PROTEIN S PADA STRAIN YANG SAMA – CoViD19 (TANPA PERUBAHAN PROTEIN M,E, & N)



PHYLOGENETIC TREE STRAIN BETACORONAVIRUS (PROTEIN M, E, N, S)

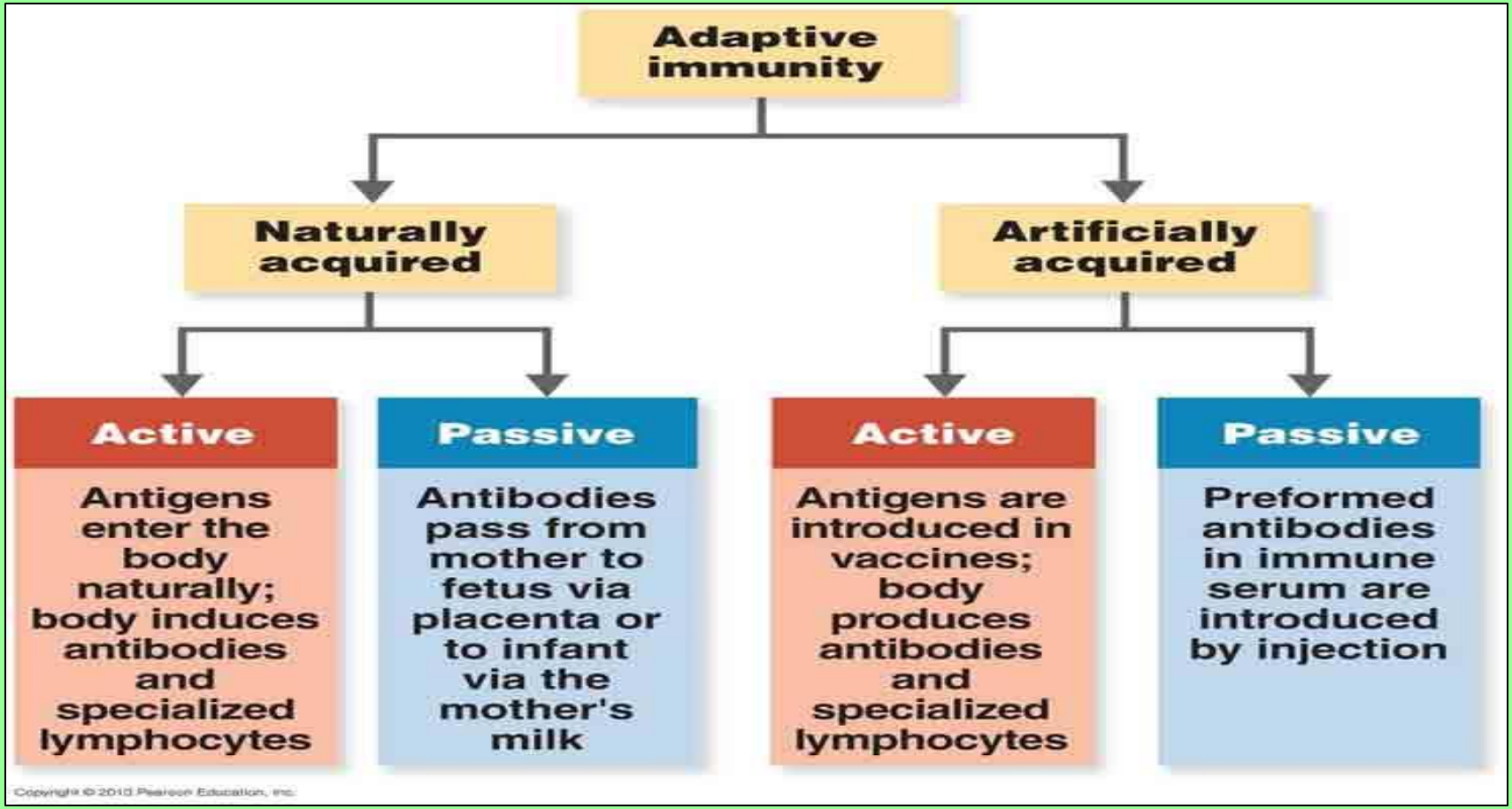




BAGIAN 2

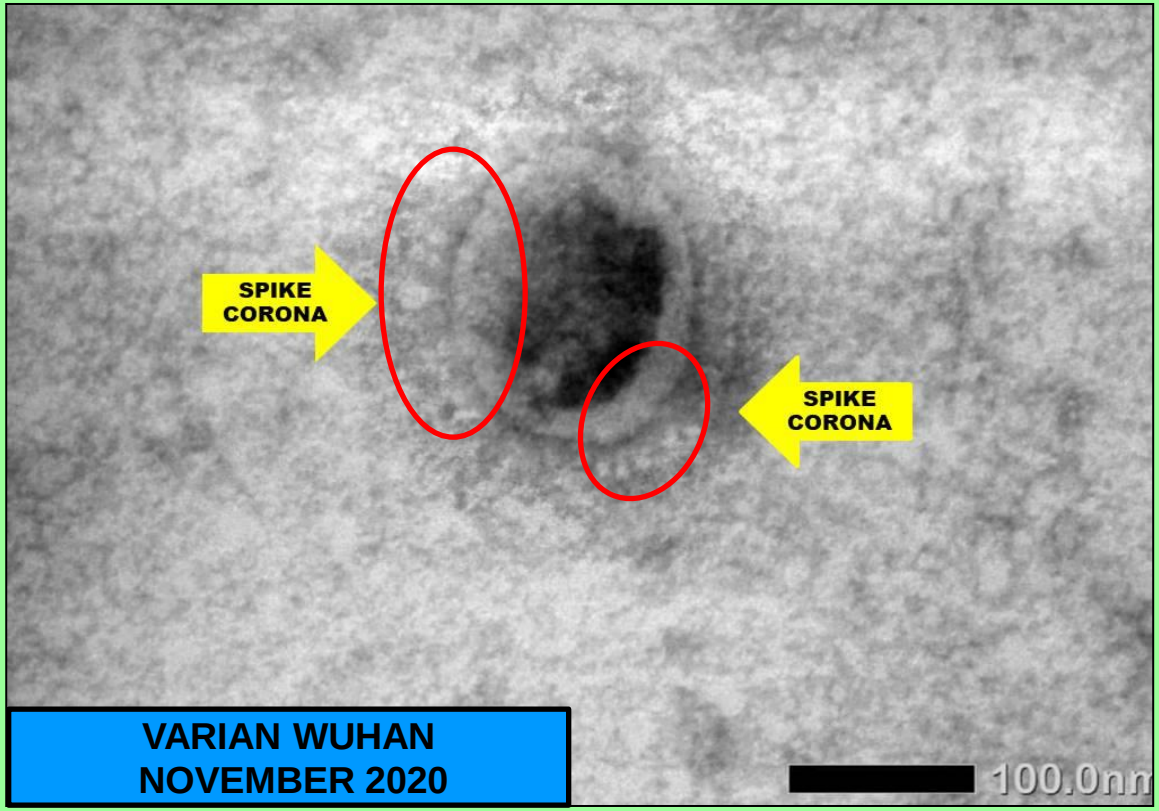
VAKSIN & VIRUS NETRALISASI

JENIS-JENIS KEKEBALAN



- **Kekebalan dibagi 2 : Alami & buatan**
- **Kekebalan alami dibagi 2 – kekebalan aktif (lewat infeksi alami & sembuh) & kekebalan pasif (Antibody dilewatkan ASI kepada bayinya.**
- **Kekebalan buatan dibagi 2 – kekebalan aktif (lewat vaksin virus utuh) & kekebalan pasif (lewat serum/ plasma)**

ISOLAT VIRUS CoViD19 INDONESIA



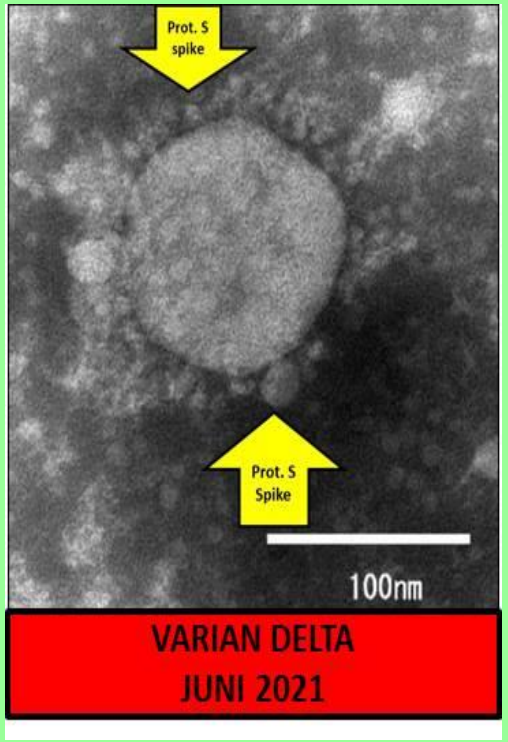
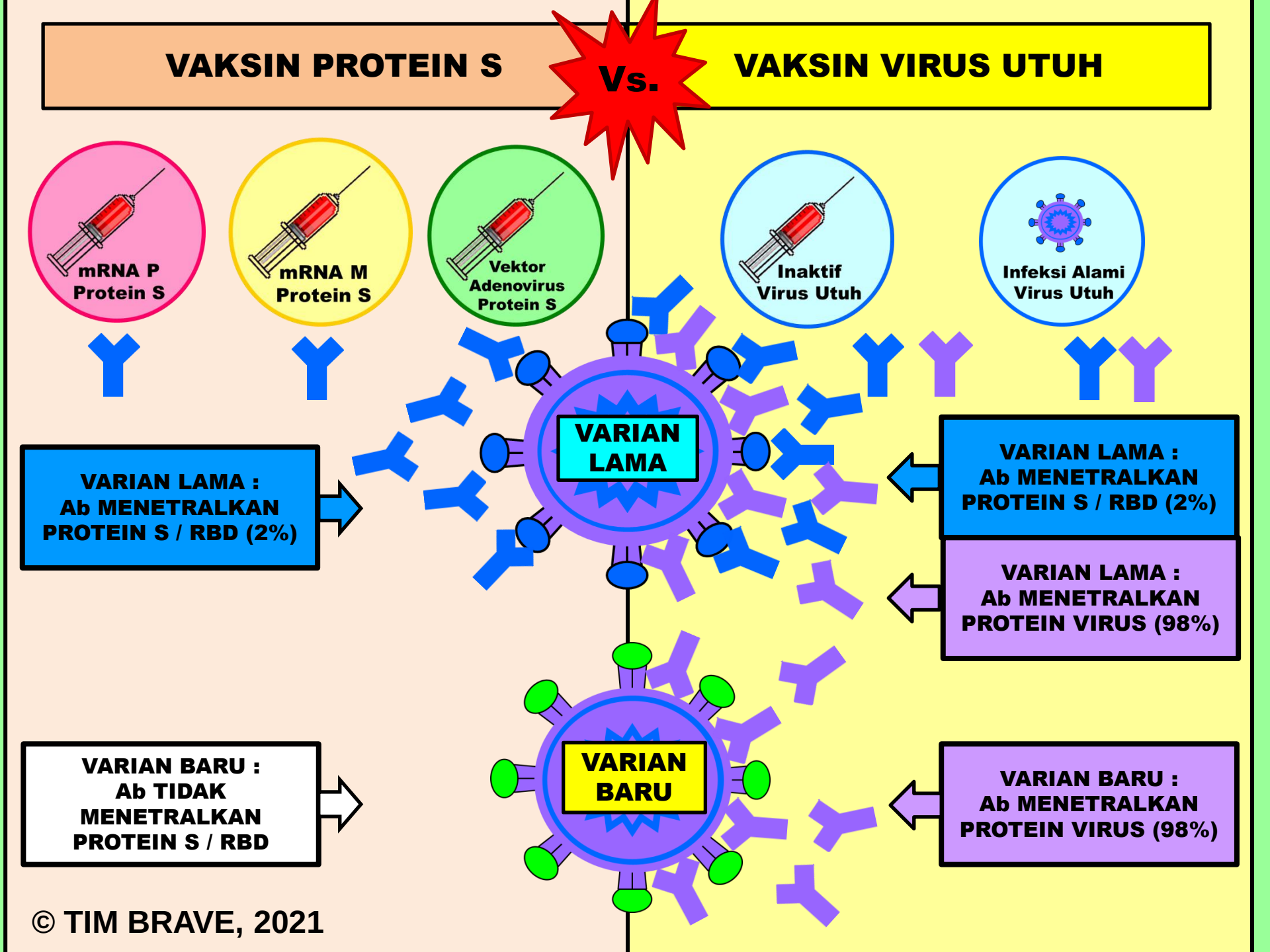


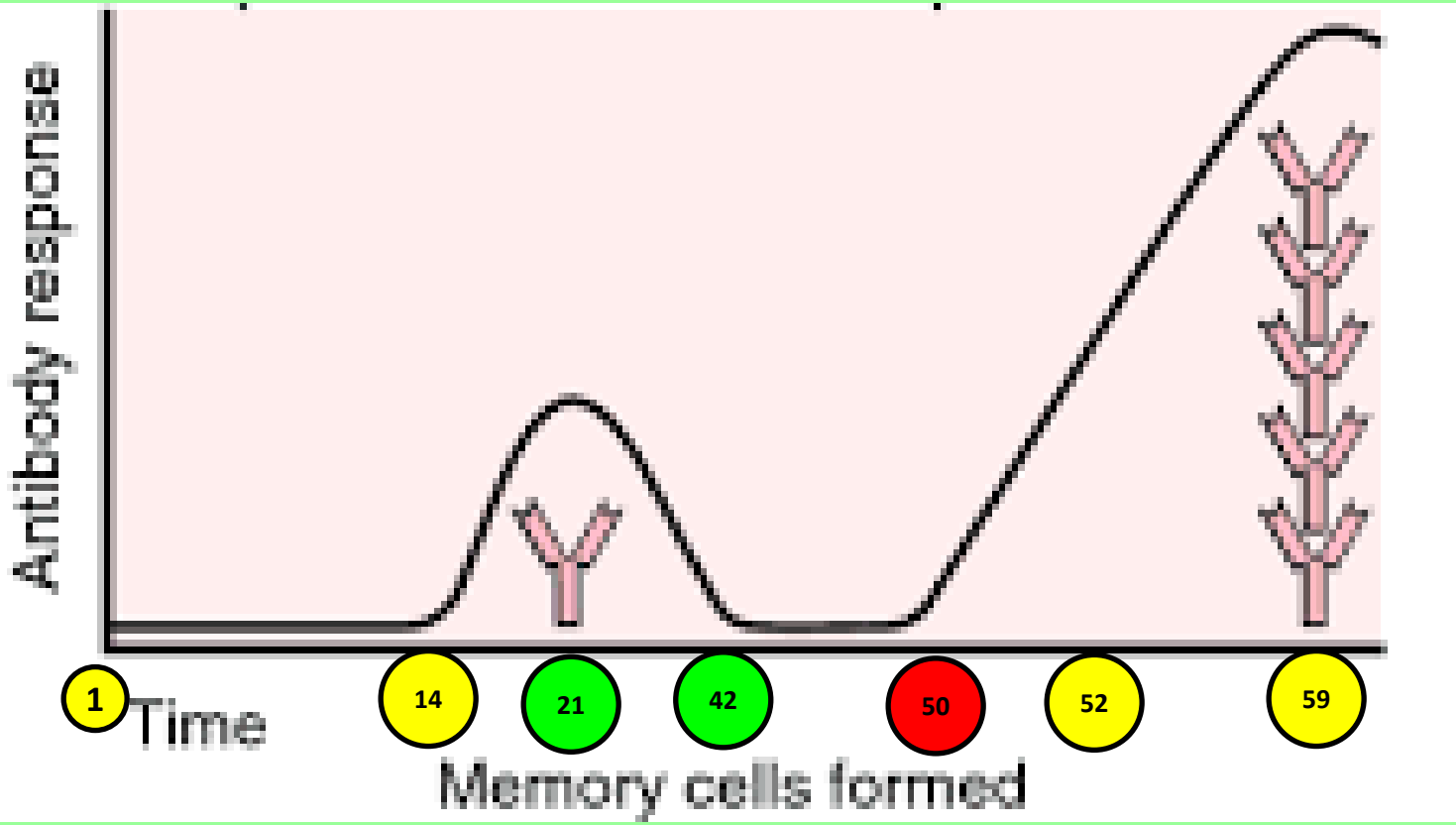
Foto virus SARS CoV2 pertama di Indonesia menggunakan Transmisible Elektron Mikroscope. Ukuran virus SARS CoV2 100 nm (1 nm = 1/10 juta cm)

PLATFORM VAKSIN KOMERSIL DI INDONESIA

No.	Jenis vaksin	Netralisasi Ab terhadap virus CoViD19	Waktu Ab muncul (hari post vaksin)		Kandungan	Efek samping
			Awal	Puncak		
1	Virus utuh inaktif (Sinovac, Sinopharm, Coronavac Biofarma)	Seluruh protein virus	14	21	. Virus utuh inaktif (formaldehyde/beta propiolaktone 0.1%0 . Ajuvan (Aluminium Hidrokside)	. Rasa pegal & radang ringan di lokasi suntikan . Mengantuk & pusing . Lapar
2	Vektor Adenovirus (AstraZenica, Johnson & Johnson, Sputnik, Cansino)	Protein S saja	7	14	. Adenovirus mutant + protein S virus CoviD19 (ChAdoX-1S) . Aquabidest steril	. Demam 4 hari . Penggumpalan darah . Sesak nafas . Gangguan reproduksi
3	Vaksin mRNA (Moderna, Pfizer)	Protein S saja	3	7	. mRNA protein S . Nanopartikel lemak (+ protein CD, TLR, atau IL)	. Demam 3 hari . Nyeri tubuh . Gangguan jantung . Anemia
4	Virus hidup (Infeksi alami CoViD19 varian awal)	Seluruh protein virus	7	14	. Virus CoViD19 hidup	. Demam selama 3-4 hari . Anosmia . Lemas

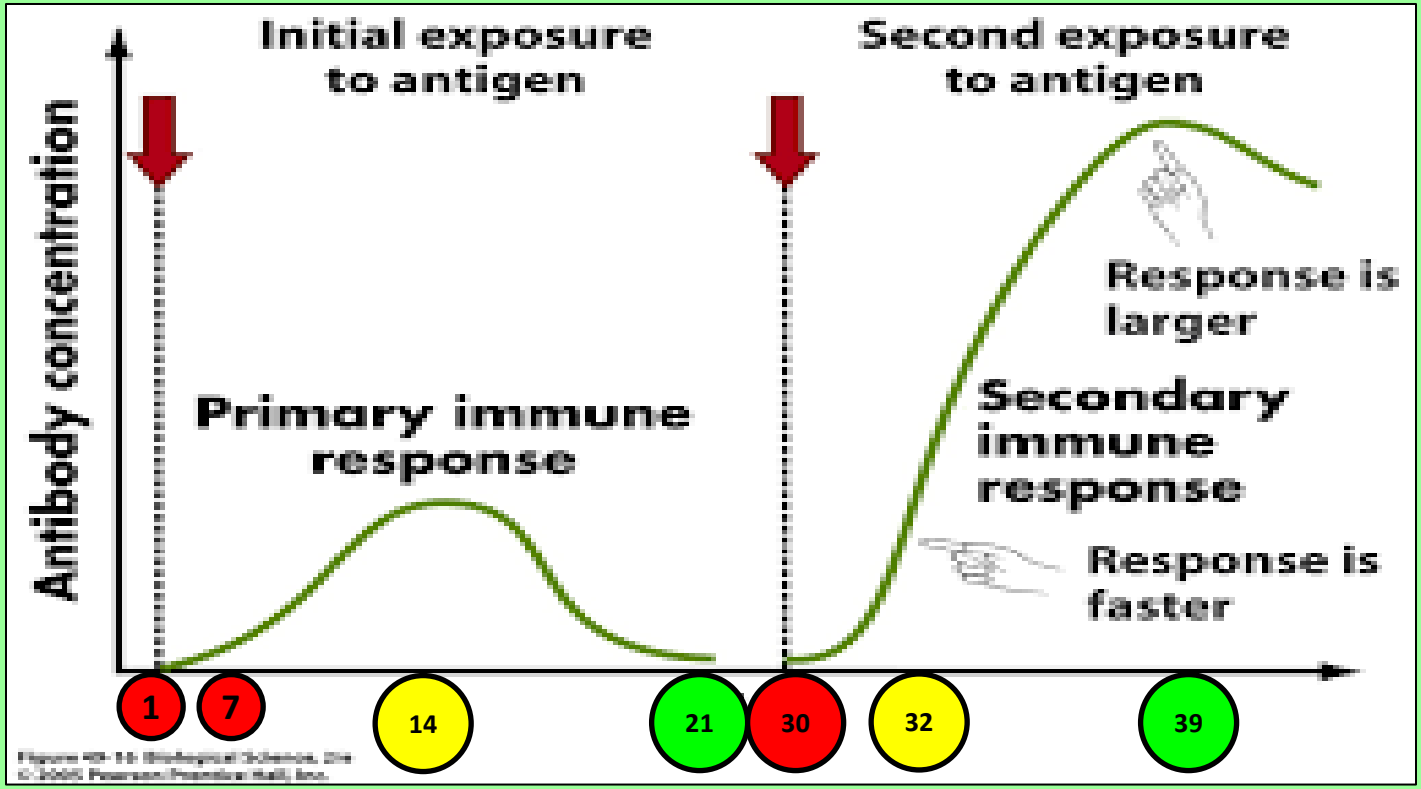


REAKSI ANTIBODY VAKSIN MELAWAN VIRUS SARS-CoV2



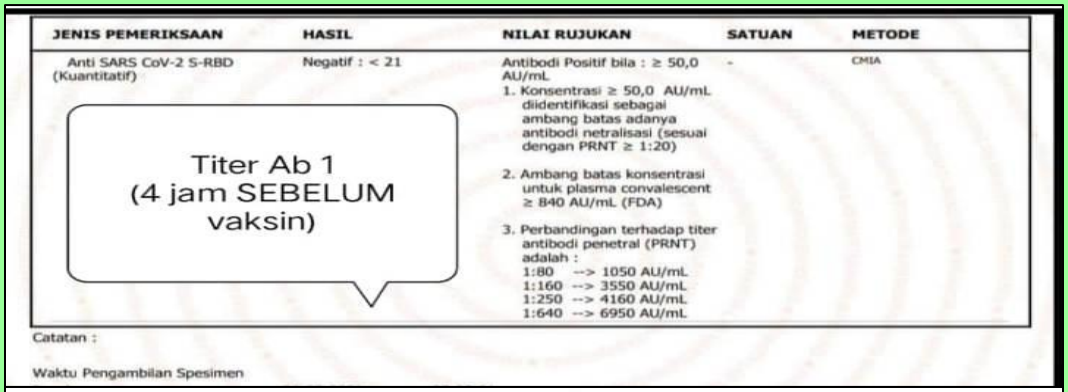
1. Vaksinasi virus inaktif (hari 1)
2. Antibody BARU dikeluarkan saat hari 14 & terus maningkat maksimal sampai hari 21, disini tubuh akan mengalami lemas akibat energy tubuh dipakai utk memproduksi antibody.
3. Di hari 42 virus sudah habis & tubuh memiliki sel memory terhadap virus, shg saat infeksi kedua antibody akan keluar lebih cepat (1-2 hari).

INGATAN SEL MEMORY HASIL INFEKSI ALAMI (SEMBUH = KEBAL)



1. Infeksi virus dimulai dari demam (hari 1)
2. Tubuh akan mengalami sakit awal infeksi (hari 1-7 pasca demam)
3. Antibody BARU dikeluarkan saat hari 7 & terus maningkat maksimal sampai hari 14, disini tubuh akan mengalami lemas akibat energy tubuh dipakai utk memproduksi antibody.
4. Di hari 21 virus sudah habis & tubuh memiliki sel memory terhadap virus, shg saat infeksi kedua antibody akan keluar lebih cepat (1-2 hari) tanpa rasa sakit seperti infeksi awal.

EVALUASI VAKSINASI : UJI TITER ANTIBODY (1)

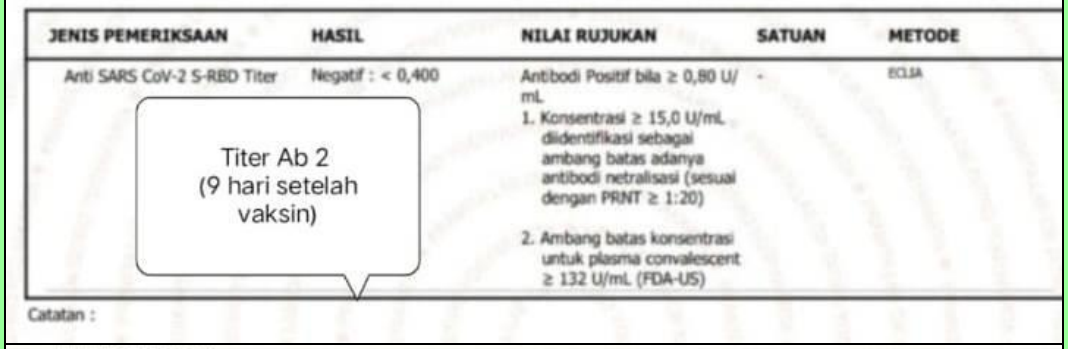


JENIS PEMERIKSAAN	HASIL	NILAI RUJUKAN	SATUAN	METODE
Anti SARS CoV-2 S-RBD (Kuantitatif)	Negatif : < 21	Antibodi Positif bila : ≥ 50,0 AU/mL 1. Konsentrasi ≥ 50,0 AU/mL diidentifikasi sebagai ambang batas adanya antibodi netralisasi (sesuai dengan PRNT ≥ 1:20) 2. Ambang batas konsentrasi untuk plasma convalescent ≥ 840 AU/mL (FDA) 3. Perbandingan terhadap titer antibodi penetral (PRNT) adalah : 1:80 --> 1050 AU/mL 1:160 --> 3550 AU/mL 1:250 --> 4160 AU/mL 1:640 --> 6950 AU/mL	-	CMIA

Titer Ab 1
(4 jam SEBELUM vaksin)

Catatan :

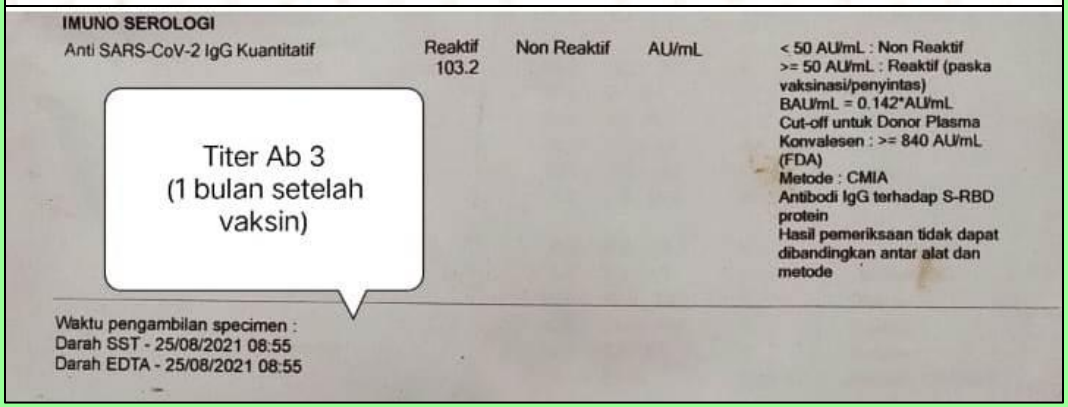
Waktu Pengambilan Spesimen



JENIS PEMERIKSAAN	HASIL	NILAI RUJUKAN	SATUAN	METODE
Anti SARS CoV-2 S-RBD Titer	Negatif : < 0,400	Antibodi Positif bila ≥ 0,80 U/mL 1. Konsentrasi ≥ 15,0 U/mL diidentifikasi sebagai ambang batas adanya antibodi netralisasi (sesuai dengan PRNT ≥ 1:20) 2. Ambang batas konsentrasi untuk plasma convalescent ≥ 132 U/mL (FDA-US)	-	ECLIA

Titer Ab 2
(9 hari setelah vaksin)

Catatan :



IMUNO SEROLOGI

Anti SARS-CoV-2 IgG Kuantitatif	Reaktif 103.2	Non Reaktif	AU/mL	< 50 AU/mL : Non Reaktif >= 50 AU/mL : Reaktif (paska vaksinasi/penyintas) BAU/mL = 0.142*AU/mL Cut-off untuk Donor Plasma Konvalesen : >= 840 AU/mL (FDA) Metode : CMIA Antibodi IgG terhadap S-RBD protein Hasil pemeriksaan tidak dapat dibandingkan antar alat dan metode

Titer Ab 3
(1 bulan setelah vaksin)

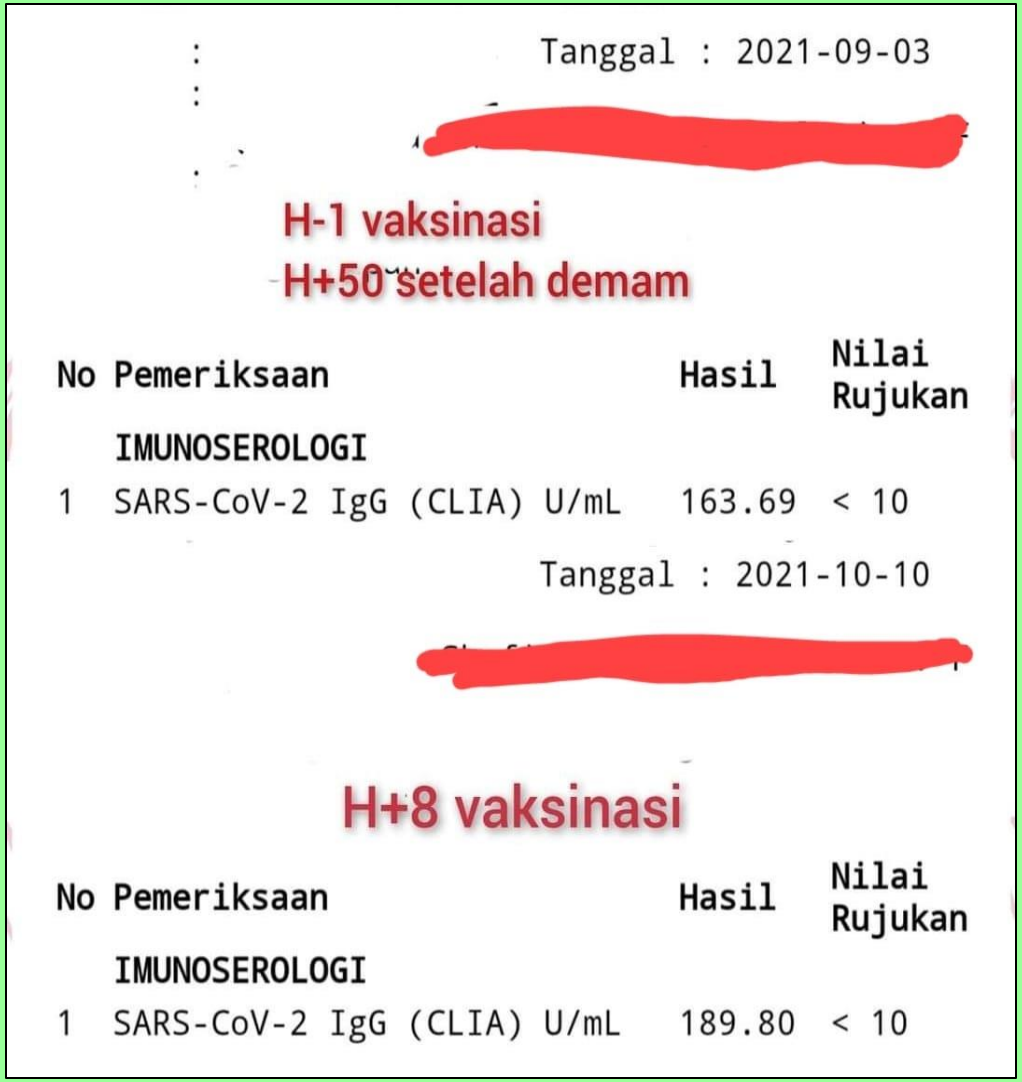
Waktu pengambilan specimen :
Darah SST - 25/08/2021 08:55
Darah EDTA - 25/08/2021 08:55

Titer Ab tidak ada (sebelum vaksin)

Titer Ab belum muncul (9 hari stl vaksin)

Titer Ab MUNCUL (48 hari stl vaksin)

EVALUASI KEKEBALAN : UJI TITER ANTIBODY (2)
PENGARUH KEKEBALAN ALAMI



: Tanggal : 2021-09-03
:
:

[redacted]

H-1 vaksinasi
H+50 setelah demam

No	Pemeriksaan	Hasil	Nilai Rujukan
	IMUNOSEROLOGI		
1	SARS-CoV-2 IgG (CLIA) U/mL	163.69	< 10

Tanggal : 2021-10-10

[redacted]

H+8 vaksinasi

No	Pemeriksaan	Hasil	Nilai Rujukan
	IMUNOSEROLOGI		
1	SARS-CoV-2 IgG (CLIA) U/mL	189.80	< 10

Titer Ab sudah ada (sebelum vaksin)

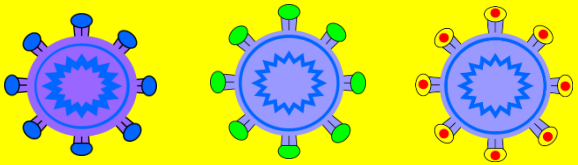
Titer Ab tetap ada (8 hari stl vaksin)

KESIMPULAN AKHIR

1. **Vaksin yang mampu menghasilkan Ab secara lengkap untuk menetralkan infeksi virus utuh adalah vaksin berbasis virus utuh (98-100%).**

2. **Vaksin berbasis protein S (2%) hanya menetralkan sebagian protein S virus saja & akan berubah setiap kali muncul varian baru.**

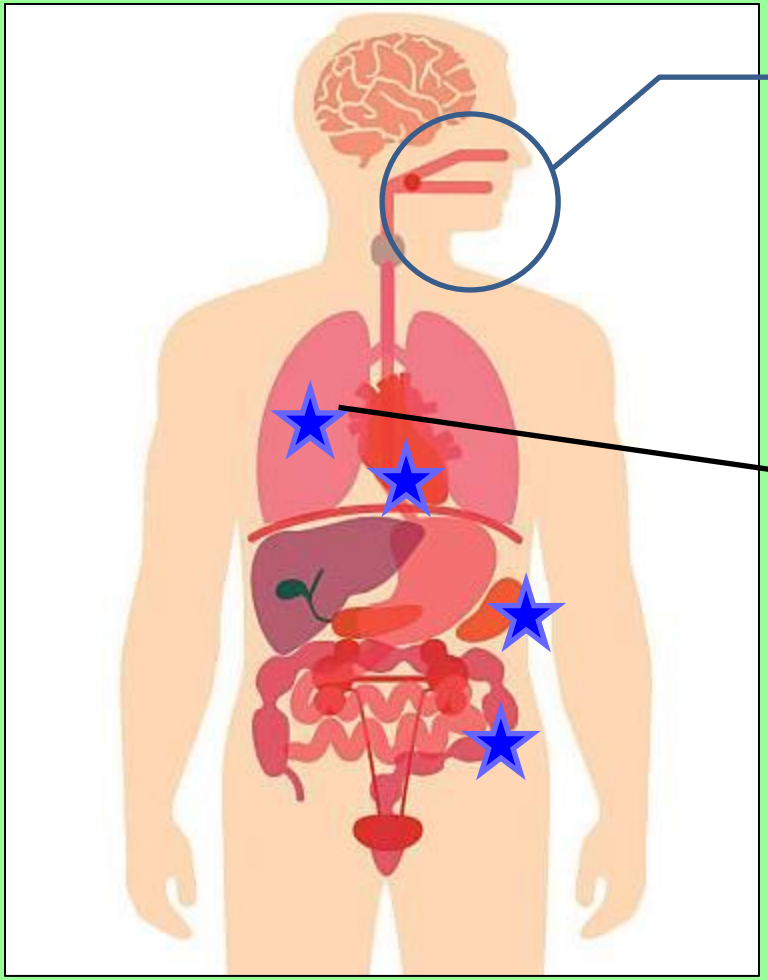
3. **Sel memory tetap berfungsi & bisa membantu tubuh untuk memproduksi Ab dalam melindungi tubuh untuk melawan infeksi virus.**



BAGIAN 3

PAPARAN &INFEKSI

PRINSIP DASAR PAPARAN & INFEKSI



TEMPAT PERLEKATAN VIRUS (PAPARAN)
Virus SARS CoV2 mampu MELEKAT ERAT di lapisan mukosa Nasopharynx/oro pharynx.

SOLUSI : Cuci hidung & kumur Air garam 1% atau Sodium Chloride 0,9% (cairan infus)

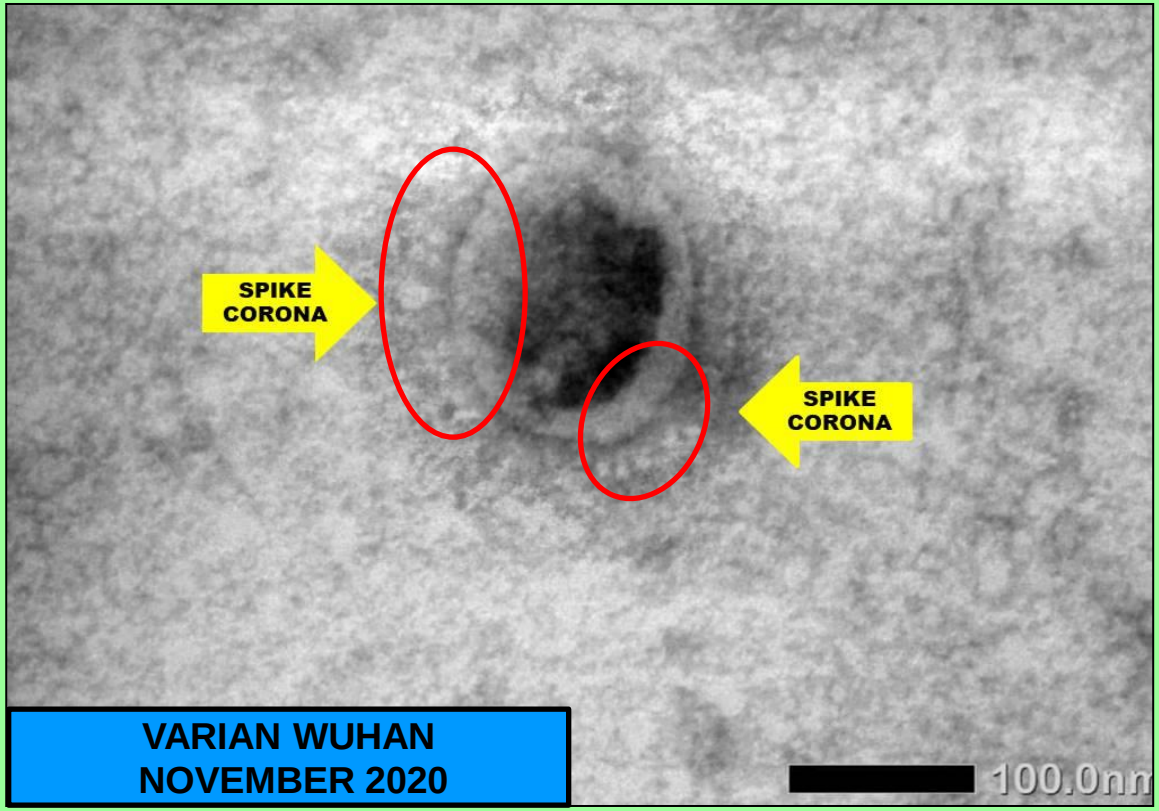
LOKASI RESEPTOR VIRUS (INFEKSI)
Virus HANYA mampu MERUSAK sel & organ yg memiliki RESEPTOR ACE2. Virus akan menimbulkan radang & demam.

SOLUSI : Virus akan dinetralkan oleh ANTIBODY yg diproduksi oleh limpa 7 hari SETELAH demam (infeksi alami) atau 14 hari setelah vaksinasi + RUTIN mengkonsumsi ramuan 131 untuk mencegah replikasi virus

PRINSIP INFEKSI VIRUS VS. ANTIBODY

1. VIRUS HANYA BISA DINETRALISIR OLEH ANTIBODY
2. ANTIBODY TIDAK BISA DIBELI, ANTIBODY DIPRODUKSI TUBUH SENDIRI
3. ANTIBODY DIPRODUKSI ALAMI DARI DALAM TUBUH SENDIRI
4. VIRUS BANYAK + ANTIBODY SEDIKIT = SAKIT
5. ANTIBODY BANYAK + VIRUS SEDIKIT = SEHAT

ISOLAT VIRUS CoViD19 INDONESIA



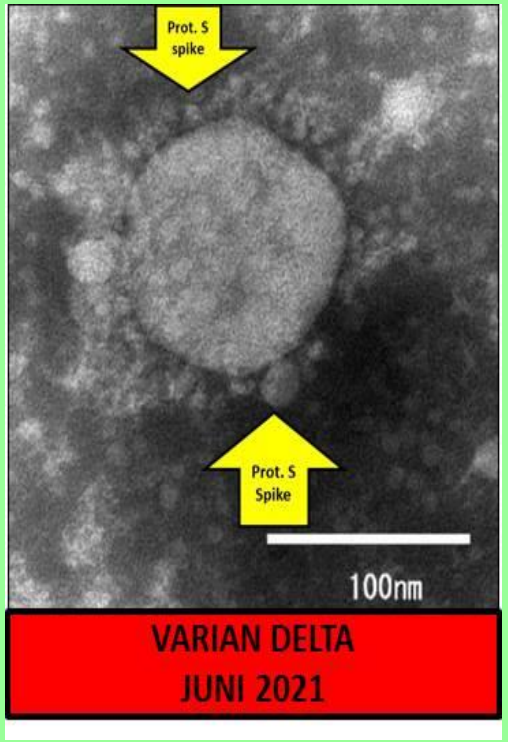
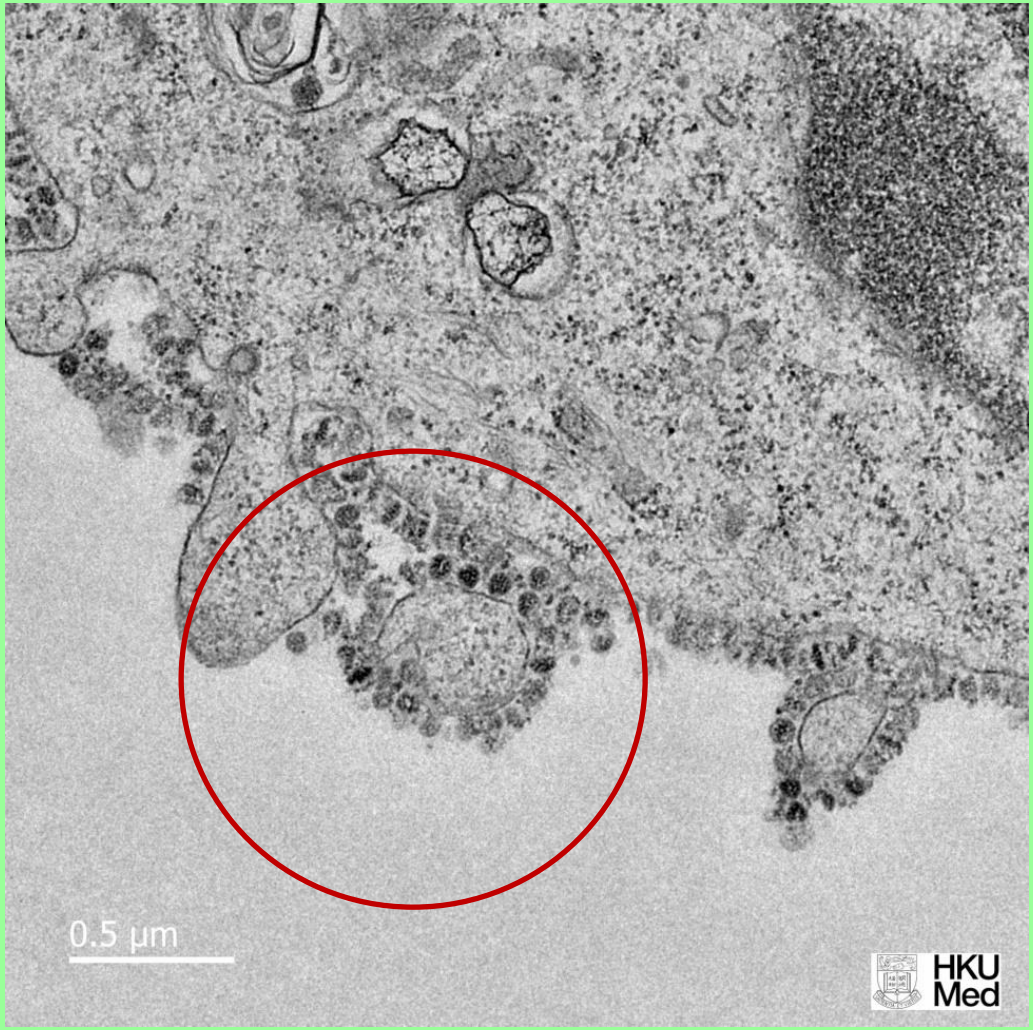


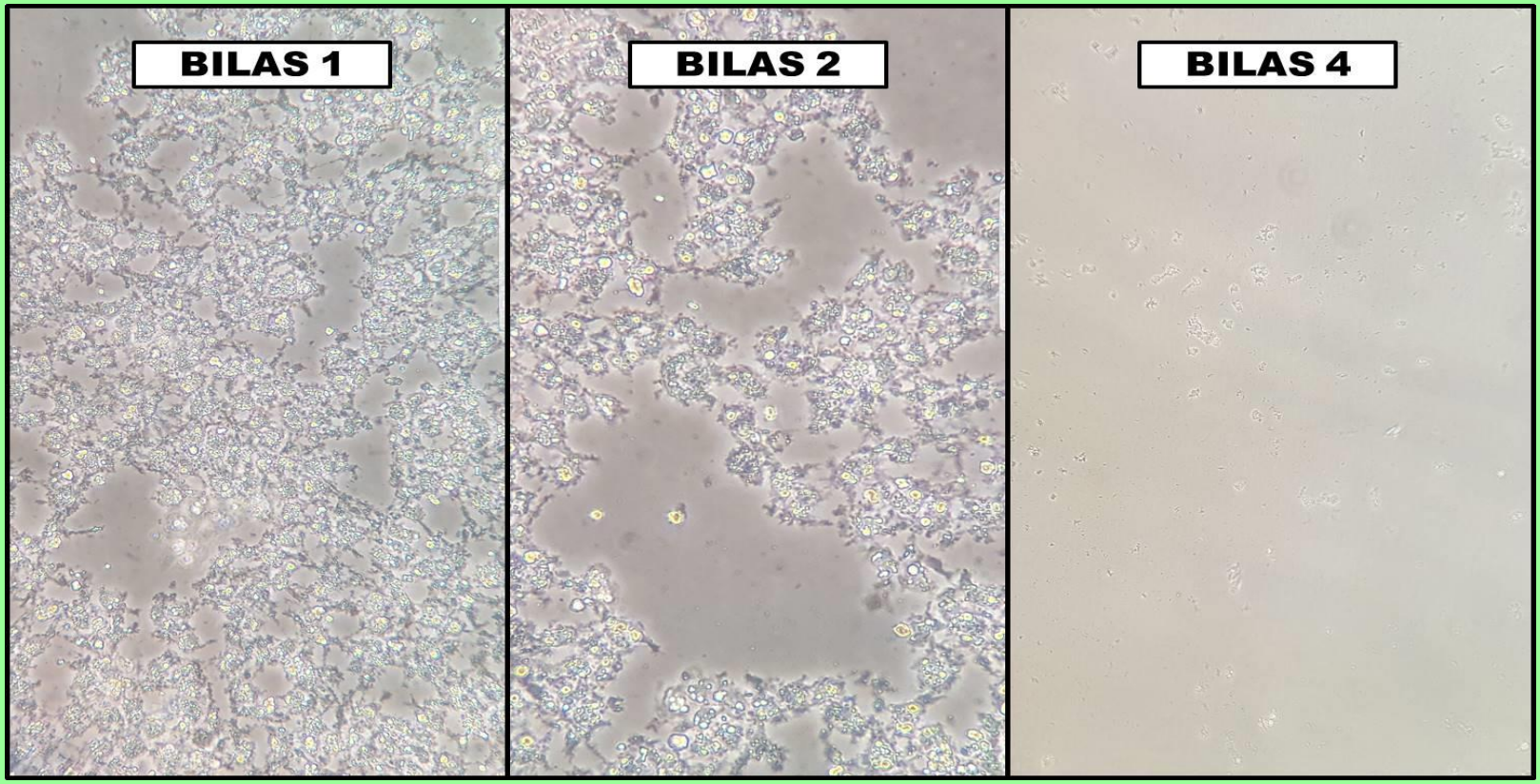
Foto virus SARS CoV2 pertama di Indonesia menggunakan Transmisible Elektron Mikroscope. Ukuran virus SARS CoV2 100 nm (1 nm = 1/10 juta cm)

KEKUATAN VIRUS CoViD19



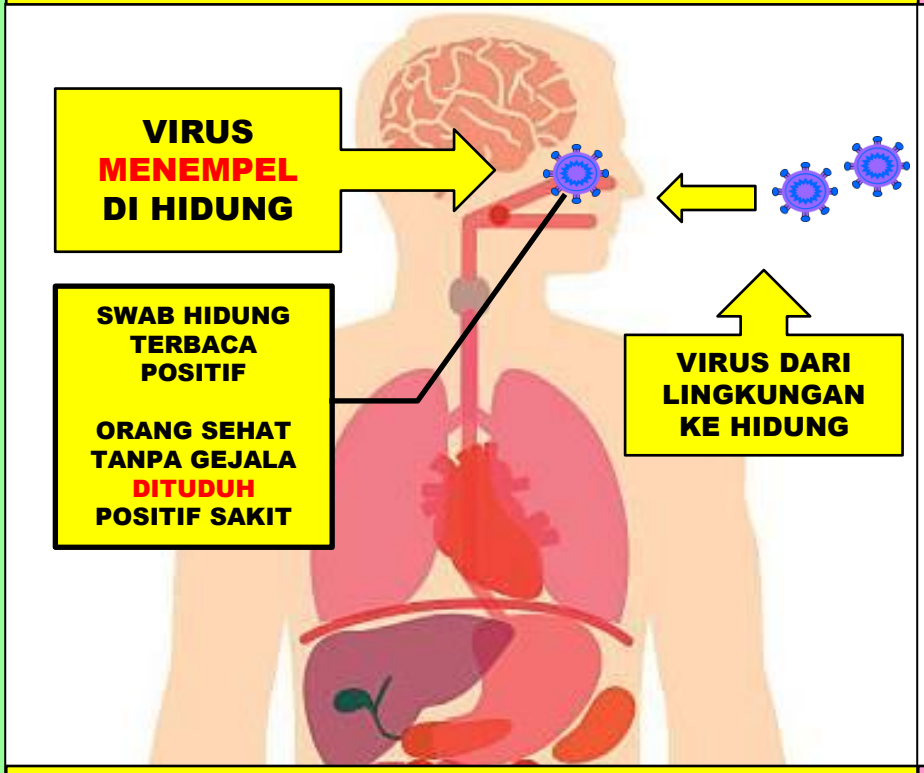
- Perlekatan virus SARS CoV2 dengan lapisan sel.
- Virus MELEKAT KUAT pada permukaan sel mukosa saluran pernafasan.
- Perlekatan ini TIDAK BISA dilepas menggunakan enzym, listrik, & suhu dingin ekstrim.
- Perlekatan ini diakibatkan oleh muatan ion negatif ekstrim pada ujung spike/duri virus SARS CoV2.
- NaCl mengandung muatan + & - yg akan mengganggu ikatan virus SARS CoV2 dengan lapisan sel.

SOLUSI MENGATASI KEKUATAN VIRUS CoViD19



- Pengujian kinerja air garam (NaCl) 1% untuk melepaskan ikatan virus SARS CoV2 dengan lapisan sel.
- Air garam (NaCl) 1% mampu melepaskan ikatan virus SARS-CoV2, sehingga loading virus di sel berkurang & mampu menaikan nilai CT Value RT-PCR hingga menjadi negatif

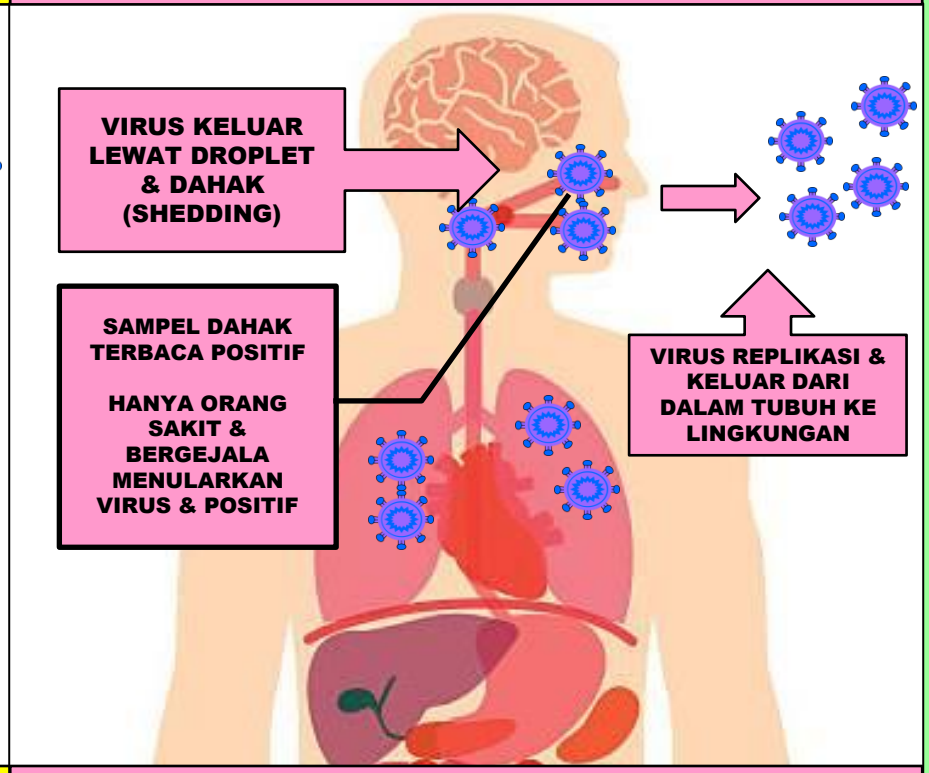
TERPAPAR / CONTRACTED



SOLUSI MENGATASI PAPARAN :

1. **RUTIN CUCI HIDUNG & KUMUR AIR GARAM NON YODIUM 1% ATAU NaCl 0.9% UNTUK MELEPAS VIRUS DI RONGGA HIDUNG & MULUT**
2. **CUCI HIDUNG & KUMUR AIR GARAM MELEPAS VIRUS DI RONGGA HIDUNG & MULUT UNTUK MENCEGAH INFEKSI BUKAN MENGOBATI INFEKSI**

TERINFEKSI / INFECTED



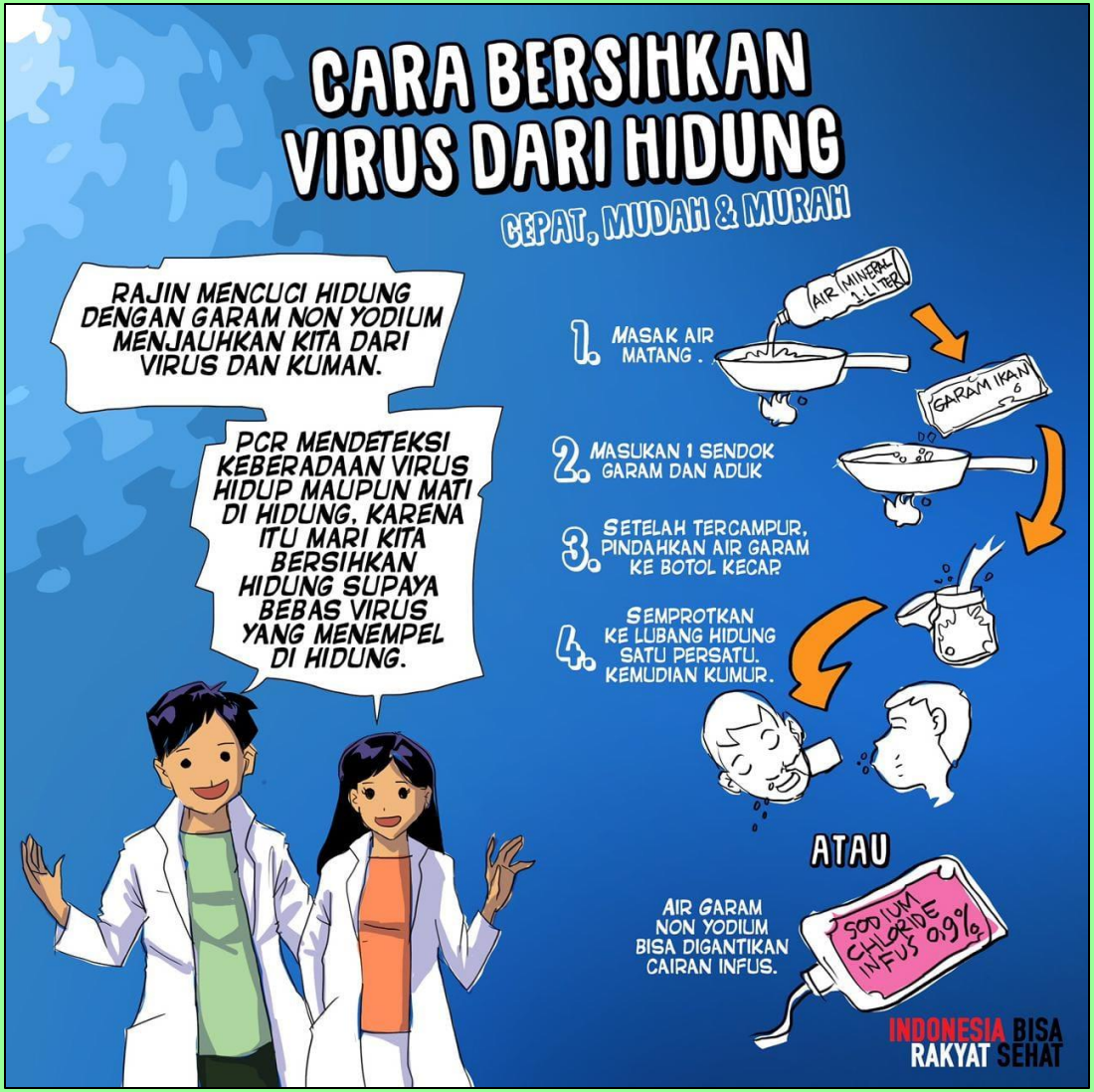
SOLUSI MENGATASI INFEKSI :

1. **KONSUMSI RAMUAN 131 (1 RUAS JAHE + 3 BATANG SERAI + 1 RUAS LENGKUAS DIREBUS 10 MENIT) SETIAP PAGI & SORE SELAMA 2 MINGGU UNTUK MENGHAMBAT REPLIKASI VIRUS**
2. **MINUM VIT E SEHARI SEBUTIR SELAMA 2 MINGGU UNTUK MENINGKATKAN PRODUKSI ANTIBODY MELAWAN VIRUS**

SOLUSI UJI DIAGNOSTIK :

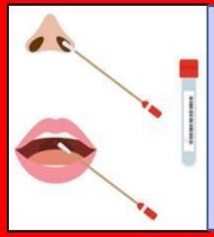
1. **UJI DIAGNOSTIK PCR & RAPID TEST HANYA UNTUK YANG SAKIT - BUKAN YANG SEHAT**
2. **SAMPEL DAHAK UNTUK UJI PCR & RAPID TEST – BUKAN SWAB HIDUNG**

APLIKASI PRAKTIS MELEPAS VIRUS CoViD19 DI RONGGA HIDUNG



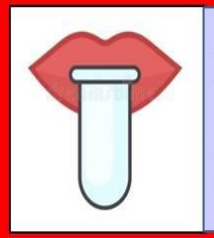
1. Gunakan garam NON YODIUM – garam grosok/krosok/kampung/pin dang/ikan
2. NaCl MELEPAS ikatan virus
3. Yodium/iodine justru MELEKATKAN virus
4. Buat campuran garam 1 sendok (10 gram) + 1 liter air mineral/air sumur
5. Menggunakan wadah plastik/spuit semprot air garam ke hidung kanan & kiri @3x + kumur 3x
6. Lakukan sehari 2x atau setelah kembali dari tugas luar

JENIS SAMPEL UNTUK UJI PCR

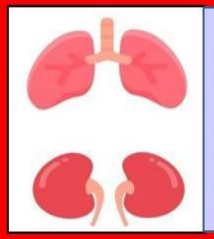


SAMPEL SWAB :
Digunakan untuk mendeteksi **paparan** virus dari lingkungan

SAMPEL DARAH :
Digunakan untuk mendeteksi **infeksi** virus dalam tubuh

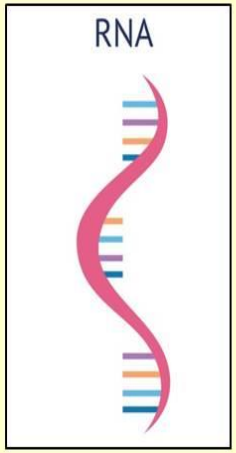


SAMPEL DAHAK :
Digunakan untuk mendeteksi **sebaran** virus dari dalam tubuh

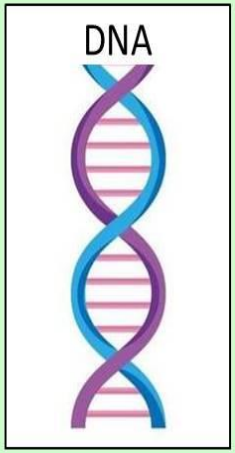


SAMPEL ORGAN :
Digunakan untuk mendeteksi virus **penyebab kematian**

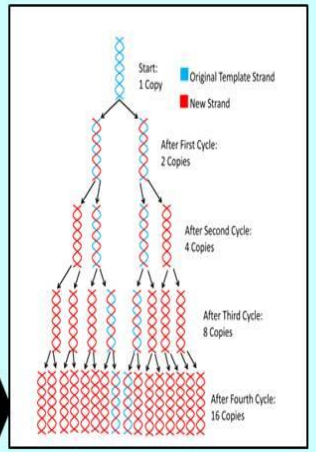
UJI DETEKSI PCR



Sampel uji (tergantung jenis pengambilan sampel) diekstraksi menjadi RNA.
Jenis pengambilan sampel menentukan hasil PCR



RNA sampel diubah menjadi DNA & ditempelkan PRIMER DETEKSI DNA



PRIMER DETEKSI DNA diperbanyak. Perbanyakan (CYCLE) dihitung sebagai nilai CT . Nilai CT dihitung untuk menentukan hasil positif atau negatif

UJI RT-PCR MENGGUNAKAN SALIVA/DAHAK DI JEPANG (1)

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Saliva is more sensitive than nasopharyngeal or nasal swabs for diagnosis of asymptomatic and mild COVID-19 infection

Alvin Kuo Jing Teo[1], Yukti Choudhury[2], Iain Beehuat Tan[3,4,5], Chae Yin Cher[2], Shi Hao Chew[6], Zi Yi Wan[2], Lionel Tim Ee Cheng[7], Lynette Lin Ean Oon[8], Min Han Tan[2], Kian Sing Chan[8] & Li Yang Hsu[1,9]

We aimed to test the sensitivity of naso-oropharyngeal saliva and self-administered nasal (SN) swab compared to nasopharyngeal (NP) swab for COVID-19 testing in a large cohort of migrant workers in Singapore. We also tested the utility of next-generation sequencing (NGS) for diagnosis of COVID-19. Saliva, NP and SN swabs were collected from subjects who presented with acute respiratory infection, their asymptomatic roommates, and prior confirmed cases who were undergoing isolation at a community care facility in June 2020. All samples were tested using RT-PCR. SARS-CoV-2 amplicon-based NGS with phylogenetic analysis was done for 30 samples. We recruited 200 subjects, of which 91 and 46 were tested twice and thrice respectively. In total, 62.0%, 44.5%, and 37.7% of saliva, NP and SN samples were positive. Cycle threshold (Ct) values were lower during the earlier period of infection across all sample types. The percentage of test-positive saliva was higher than NP and SN swabs. We found a strong correlation between viral genome coverage by NGS and Ct values for SARS-CoV-2. Phylogenetic analyses revealed Clade O and lineage B.6 known to be circulating in Singapore. We found saliva to be a sensitive and viable sample for COVID-19 diagnosis.

UJI RT-PCR MENGGUNAKAN SALIVA/DAHAK DI JEPANG (2)

A novel strategy for SARS-CoV-2 mass screening with quantitative antigen testing of saliva: a diagnostic accuracy study

Isao Yokota, Peter Y Shane*, Kazufumi Okada, Yoko Unoki, Yichi Yang, Sumio Iwasaki, Shinichi Fujisawa, Mutsumi Nishida, Takanori Teshima*

Summary

Background Quantitative RT-PCR (RT-qPCR) of nasopharyngeal swab (NPS) samples for SARS-CoV-2 detection requires medical personnel and is time consuming, and thus is poorly suited to mass screening. In June, 2020, a chemiluminescent enzyme immunoassay (CLEIA; Lumipulse G SARS-CoV-2 Ag kit, Fujirebio, Tokyo, Japan) was developed that can detect SARS-CoV-2 nucleoproteins in NPS or saliva samples within 35 min. In this study, we assessed the utility of CLEIA in mass SARS-CoV-2 screening.

Methods We did a diagnostic accuracy study to develop a mass-screening strategy for salivary detection of SARS-CoV-2 by CLEIA, enrolling hospitalised patients with clinically confirmed COVID-19, close contacts identified at community health centres, and asymptomatic international arrivals at two airports, all based in Japan. All test participants were enrolled consecutively. We assessed the diagnostic accuracy of CLEIA compared with RT-qPCR, estimated according to concordance (Kendall's coefficient of concordance, *W*), and sensitivity (probability of CLEIA positivity given RT-qPCR positivity) and specificity (probability of CLEIA negativity given RT-qPCR negativity) for different antigen concentration cutoffs (0·19 pg/mL, 0·67 pg/mL, and 4·00 pg/mL; with samples considered positive if the antigen concentration was equal to or more than the cutoff and negative if it was less than the cutoff). We also assessed a two-step testing strategy post hoc with CLEIA as an initial test, using separate antigen cutoff values for test negativity and positivity from the predefined cutoff values. The proportion of intermediate results requiring secondary RT-qPCR was then quantified assuming prevalence values of RT-qPCR positivity in the overall tested population of 10%, 30%, and 50%.

Findings Self-collected saliva was obtained from 2056 participants between June 12 and Aug 6, 2020. Results of CLEIA and RT-qPCR were concordant in 2020 (98·2%) samples (Kendall's *W*=0·99). Test sensitivity was 85·4% (76 of 89 positive samples; 90% credible interval [CrI] 78·0–90·3) at the cutoff of 0·19 pg/mL; 76·4% (68 of 89; 68·2–82·8) at the cutoff of 0·67 pg/mL; and 52·8% (47 of 89; 44·1–61·3) at the cutoff of 4·0 pg/mL. Test specificity was 91·3% (1796 of 1967 negative samples; 90% CrI 90·2–92·3) at the cutoff of 0·19 pg/mL, 99·2% (1952 of 1967; 98·8–99·5) at the cutoff of 0·67 pg/mL, and 100·0% (1967 of 1967; 99·8–100·0) at the cutoff of 4·00 pg/mL. Using a two-step testing strategy with a CLEIA negativity cutoff of 0·19 pg/mL (to maximise sensitivity) and a CLEIA positivity cutoff of 4·00 pg/mL (to maximise specificity), the proportions of indeterminate results (ie, samples requiring secondary RT-qPCR) would be approximately 11% assuming a prevalence of RT-qPCR positivity of 10%, 16% assuming a prevalence of RT-qPCR positivity of 30%, and 21% assuming a prevalence of RT-qPCR positivity of 50%.

Interpretation CLEIA testing of self-collected saliva is simple and provides results quickly, and is thus suitable for mass testing. To improve accuracy, we propose a two-step screening strategy with an initial CLEIA test followed by confirmatory RT-qPCR for intermediate concentrations, varying positive and negative thresholds depending on local prevalence. Implementation of this strategy has expedited sample processing at Japanese airports since July, 2020, and might apply to other large-scale mass screening initiatives.

Lancet Microbe 2021; 2: e397–404

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Correspondence to: Prof Takanori Teshima, Department of Hematology, Hokkaido University Faculty of Medicine, Sapporo 060-8638, Japan **teshima@med.hokudai.ac.jp**

UJI RT-PCR MENGGUNAKAN SALIVA/DAHAK DI JEPANG (3)

THE JOURNAL OF
Obstetrics and Gynaecology Research

doi:10.1111/jog.14591 J. Obstet. Gynaecol. Res. Vol. 47, No. 4: 1253–1255, April 2021

Screening of COVID-19 polymerase chain reaction tests using saliva for pregnant women and their partners in Himeji city

Shinsuke Okamura[1], Nobuo Akamatsu[1], Takashi Kitajima[1], Koji Nakabayashi[1], Shun Fukumoto[1], Takaaki Katayama[1], Yasushi Mizutani[1], Hideyasu Kiyomoto[2] and Hideto Yamada[3]

[1]*Himeji Association of Obstetricians and Gynecologists, Himeji, Japan*
[2]*Himeji City Office, Himeji, Japan*
[3]*Department of Obstetrics and Gynecology, Kobe University Graduate School of Medicine, Kobe, Japan*

Abstract

A screening of coronavirus disease 2019 (COVID-19) polymerase chain reaction (PCR) tests using saliva for pregnant women and their partners was performed at all 12 maternity facilities located in Himeji city between May 29 and September 5, 2020. Pregnant women at 37 or more weeks of gestation or who experienced threatened labor and their partners who cared for an infant underwent a saliva PCR test with informed consent. As a result, all of 1475 pregnant women and 1343 partners tested negative for COVID-19 PCR. There were no cases of false positive or false negative PCR tests. This cohort study revealed for the first time that a screening of COVID-19 PCR tests using saliva may be useful to sustain perinatal medical care during the pandemic period in Japan.

Key words: COVID-19, Himeji city, pregnancy, saliva PCR, SARS-CoV-2, screening.

UJI RT-PCR MENGGUNAKAN SALIVA/DAHAK DI JEPANG (4)

JMA JOURNAL

DOI: 10.31662/jmaj.2021-0012
https://www.jmaj.jp/

Review Article: COVID-19

Microbiological Testing for Coronavirus Disease 2019

Kei Yamamoto, and Norio Ohmagari

Abstract:
Microbiological diagnosis of coronavirus disease 2019 (COVID-19) is mainly performed through nucleic acid amplification test (NAAT) and antigen test. Although NAAT is the standard diagnostic test, its use is limited by insufficient laboratory resources and long turnaround time. Point-of-care NAAT tests have been introduced to address these shortcomings, but their varied sensitivity and resource constraints remain a concern. Antigen tests require fewer resources but have low sensitivity. Nevertheless, low-sensitivity tests may be useful depending on the situation. In contrast, in some clinical phases of COVID-19, high-sensitivity tests may provide false-negative results. Therefore, the right testing strategy is needed for an accurate diagnosis. In this review, the characteristics and clinical applications of microbiological tests available in Japan (NAAT, antigen test, and antibody test) are discussed. The clinical diagnosis of COVID-19 is slightly complicated, and cases in which the infection spreads from asymptomatic infected individuals are many; hence, laboratory diagnosis is essential to prevent further transmission.

Key Words:
COVID-19, microbiological test, nucleic acid detection test, antigen test, Japan

DOI: 10.31662/jmaj.2021-0012
https://www.jmaj.jp/

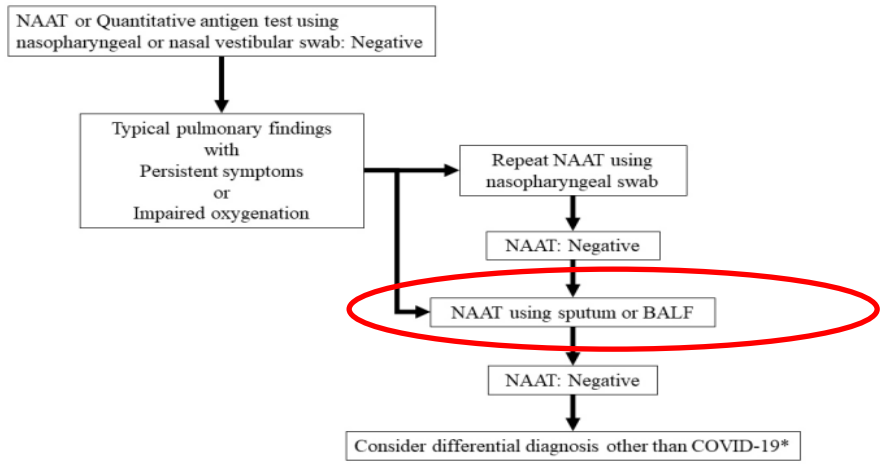


Figure 3. Repeat testing strategy for the patients of coronavirus disease 2019 who need aiding in therapeutic intervention.
NAAT, nucleic acid amplification tests; BALF, bronchoalveolar lavage fluid.
*Consider antibody testing, if necessary.

UJI RT-PCR MENGGUNAKAN SALIVA/DAHAK DI JEPANG (5)

WORLD / COUNTRIES / JAPAN

Last updated: November 27, 2021, 04:33 GMT

Japan

Coronavirus Cases:

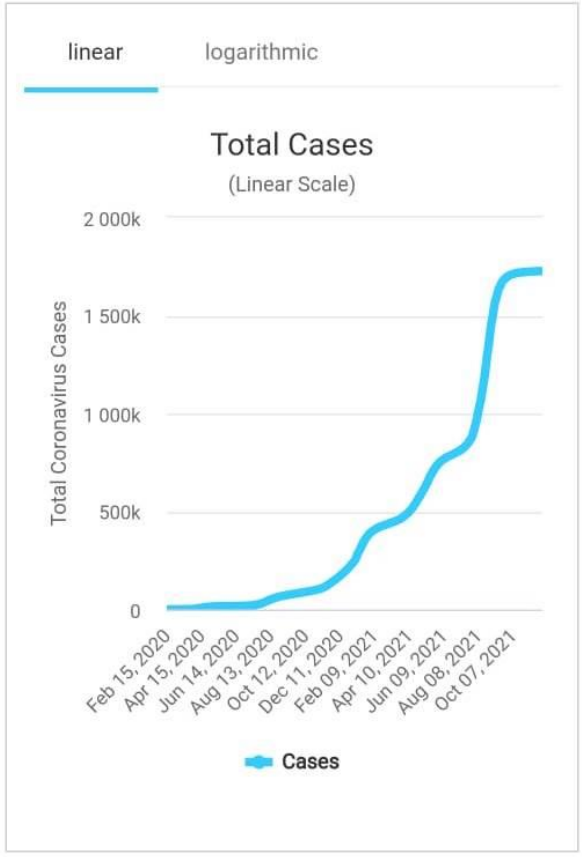
1,726,823

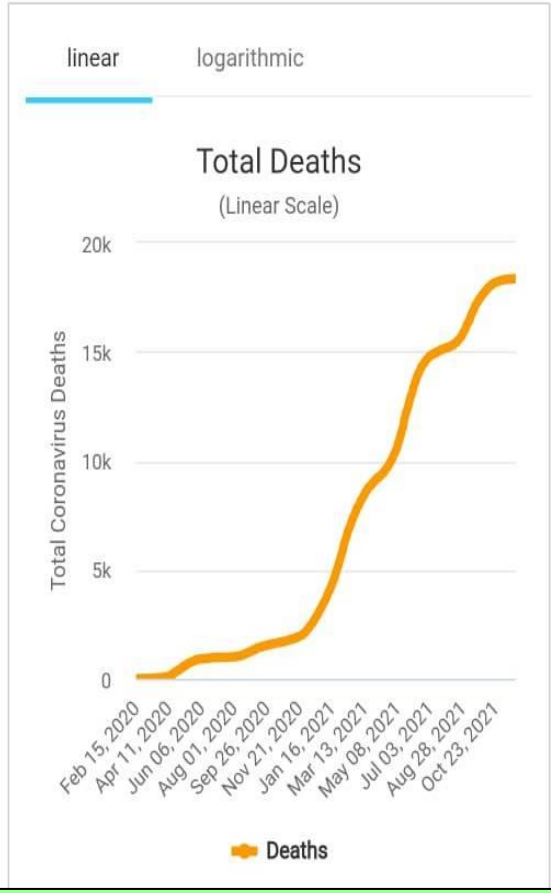
Deaths:

18,353

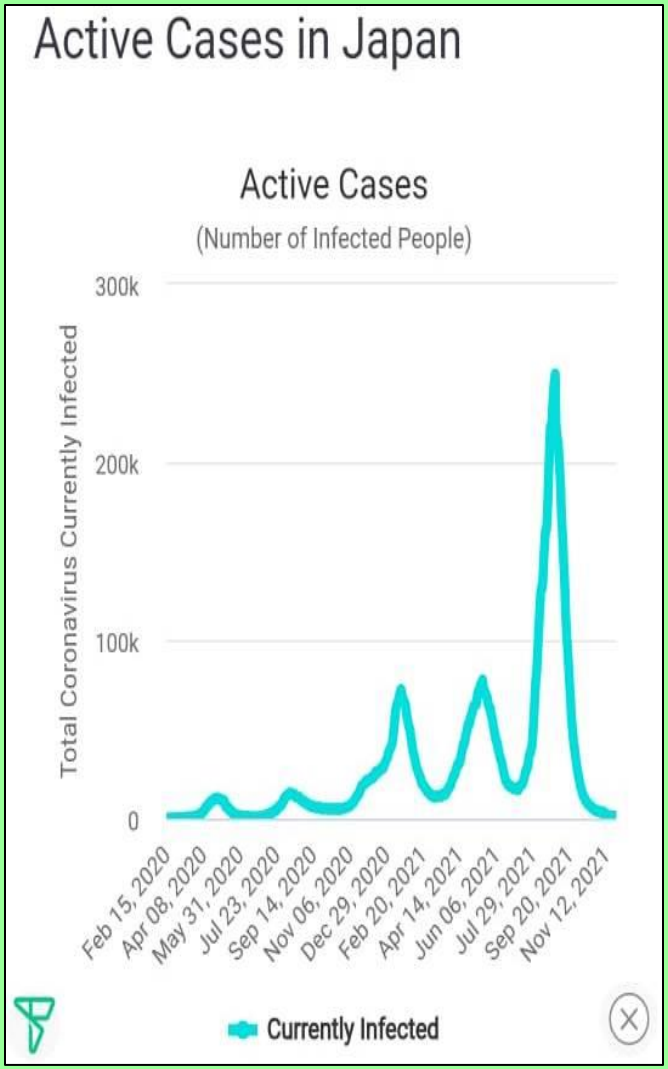
Recovered:

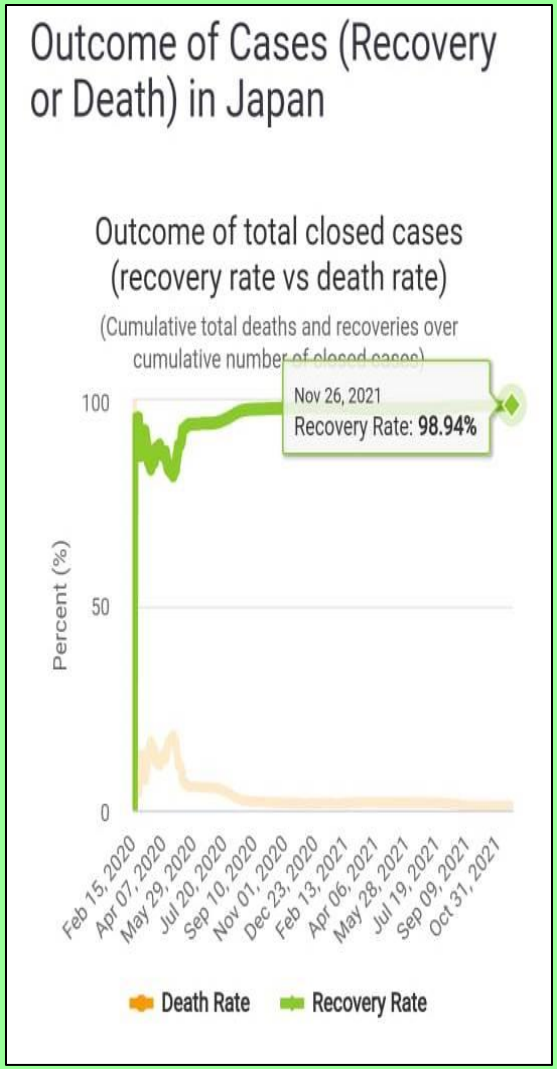
1,707,419

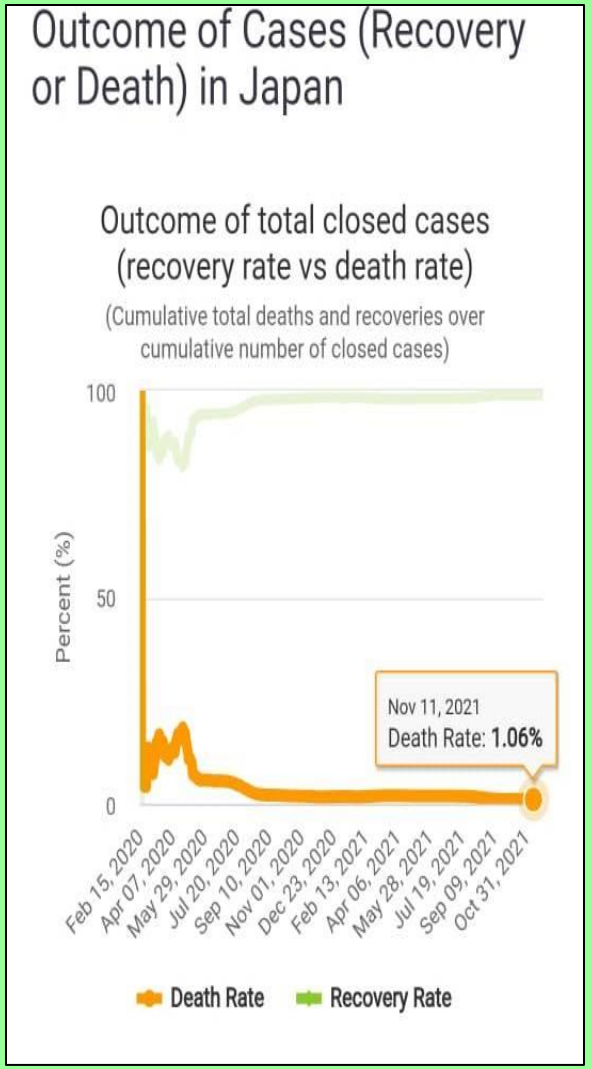




UJI RT-PCR MENGGUNAKAN SALIVA/DAHAK DI JEPANG (6)



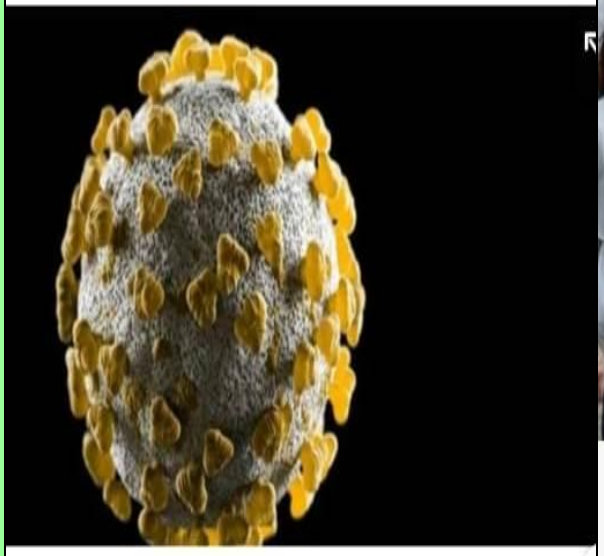




Para Pakar Bingung, Virus Corona Varian Delta Tiba-tiba Hilang dari Jepang

Selasa, 23 November 2021 11:12

Editor: Seli Andin...



Home › Global

Covid-19 Varian Delta Tiba-tiba Hilang di Jepang, Apakah Bermutasi sampai Punah?

Jumat, 26 November 2021 | 17:00 WIB

Komentar

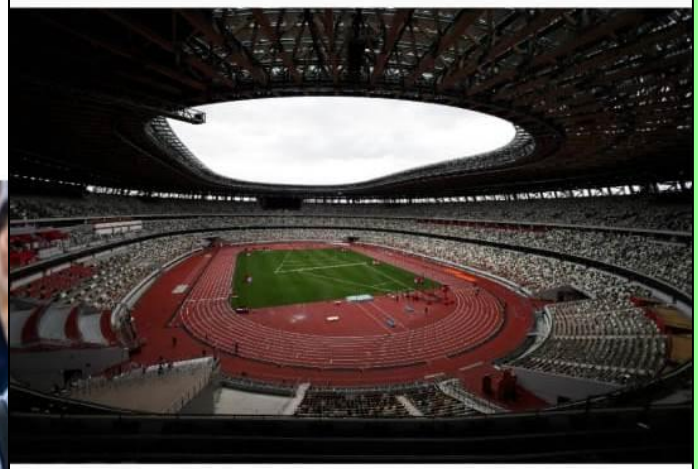
GETTY IMAGES via BBC INDONESIA

Ilustrasi Covid-19 di Jepang.

the japan times

SUMMER OLYMPICS

Tokyo Games workers to self-collect saliva samples for COVID-19 testing



National Stadium is seen during a Tokyo 2020 Paralympics athletics test event on May 11. | REUTERS

KYODO

SHARE May 21, 2021

Tokyo Olympic and Paralympic staff and workers, including those from overseas, will be required to regularly self-collect saliva samples for COVID-19 testing,

MENGATASI INFEKSI DENGAN PROTOKOL SEHAT RAKYAT (RAMUAN 131 + CUCI HIDUNG)

URUTAN WAKTU (TIME LINE) PENYAKIT VIRUS & PENANGANAN NYA

PENCEGAHAN (HANYA TERPAPAR)

1. Cuci hidung & kumur dengan air garam non yodium 1% - Rutin setiap pulang ke rumah.

2. Minum ramuan 131 pagi sore

PENANGANAN (INFEKSI DLM TUBUH – DIAWALI DEMAM)

HARI 1-3/4	HARI 5-7	HARI 7-9
Demam	Anosmia.	Badan lemas
Beri Paracetamol saat demam	Beri minyak kayuputih	Istirahat & Makan + madu

Minum ramuan 131 pagi sore +
Vit E & C sebutir sehari (hari 1-14)

PEMBERSIHAN (SISA SHEDDING)

1. Cuci hidung & kumur dengan air garam non yodium 1% - sehari 3x (hari 10-14)
2. Minum ramuan 131 pagi sore + vit E & C sebutir sehari
3. Hari 14 sembuh

RAMUAN 131 MENGATASI INFEKSI VIRUS CoViD19

PROTOKOL SEHAT RAKYAT

Respon rakyat menangani, mengatasi, & mencegah paran & INFEKSI virus CoViD19 secara nyata di lingkungan

KESIMPULAN AKHIR

4 STRATEGI MENGATASI PANDEMI :

1. STRATEGI GEOGRAFIS – INDONESIA DIUNTUNGKAN DENGAN POSISI NEGARA DI GARIS KATULISTIWA

2. STRATEGI VAKSINASI – MENGGUNAKAN VAKSIN BERBASIS VIRUS UTUH & MENGUKUR RESPON ANTIBODY NASIONAL UNTUK MENGECEK HERD IMMUNITY

3. STRATEGI UJI DIAGNOSTIK – MELAKUKAN PENGAMBILAN SAMPEL DARI DAHAK UNTUK UJI PCR & HANYA MENGUJI ORANG YANG SAKIT / BERGEJALA

4. STATEGI EDUKASI – MEMBERIKAN EDUKASI PUBLIK TENTANG PENANGANAN PAPARAN & INFEKSI VIRUS + PENANGANANNYA (DENGAN BAHASA PUBLIK)

“Logika mengalahkan kepanikan, Pengetahuan mengalahkan ketakutan”

- Moh Indro Cahyono, 2020

SELAMAT MENJALANI TAHUN BARU 2022
DENGAN BERLOGIKA & BERGEMBIRA