



RESEARCH AND INNOVATION TO PREVENT AND TREATMENT PANDEMIC COVID-19



INDONESIAN INSTITUTE OF SCIENCES

Bogor, 23 August 2021

REFOCUSING OF THE RESEARCH AND INNOVATION ACTIVITIES TO COMBATE COVID-19



Provision of formula, training, provision of production equipment to partners and the community for the production of hand sanitizer and disinfectant standard WHO

Intensive training for lab-related personnel with bio-safety levels (BSL) to ensure the safety and standards of operators in various BSL-2 and BSL-3

PCR test in BSL-3 LIPI in collaboration with private partners for the provision of consumables and hospitals with a maximum capacity of 1,000 samples / day

Support the local community to learn packaging technology and processes of local processed foods that have difficulty doing conventional sales.

Making face shield, and sterilization equipment for special purpose in BSL-3 LIPI.



Perencanaan untuk Memenuhi Standar Per Antiviral ASTM F1671:2003
Kandidat Anti Microbial

Status
1. AgNPs : Patent LIPI, Pilot Scale
2. Seaweed Salt: Patent LIPI, Pilot Scale
3. Silver Nanowire: Novelty, Lab Scale

1 Karakterisasi Bahan dan Aktivitas Anti Microbial

2 Uji Antivirus

3 Uji Aplikasi Hazmat dan Alih Teknologi

Output
1. Prototype APD
2. Patent drafting.
3. Journal Int.
4. License.

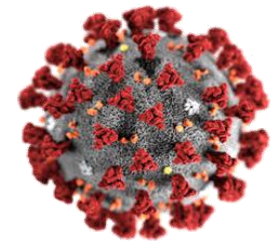
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IMMUNOMODULATOR CANDIDATE FOR ANTIVIRUS SARS-CoV-2 FROM INDONESIA HERBAL

SARS-COV-2
Single-stranded RNA viruses



SARS-3CLpro controls the replication



Innate immune response
Adaptive immune response

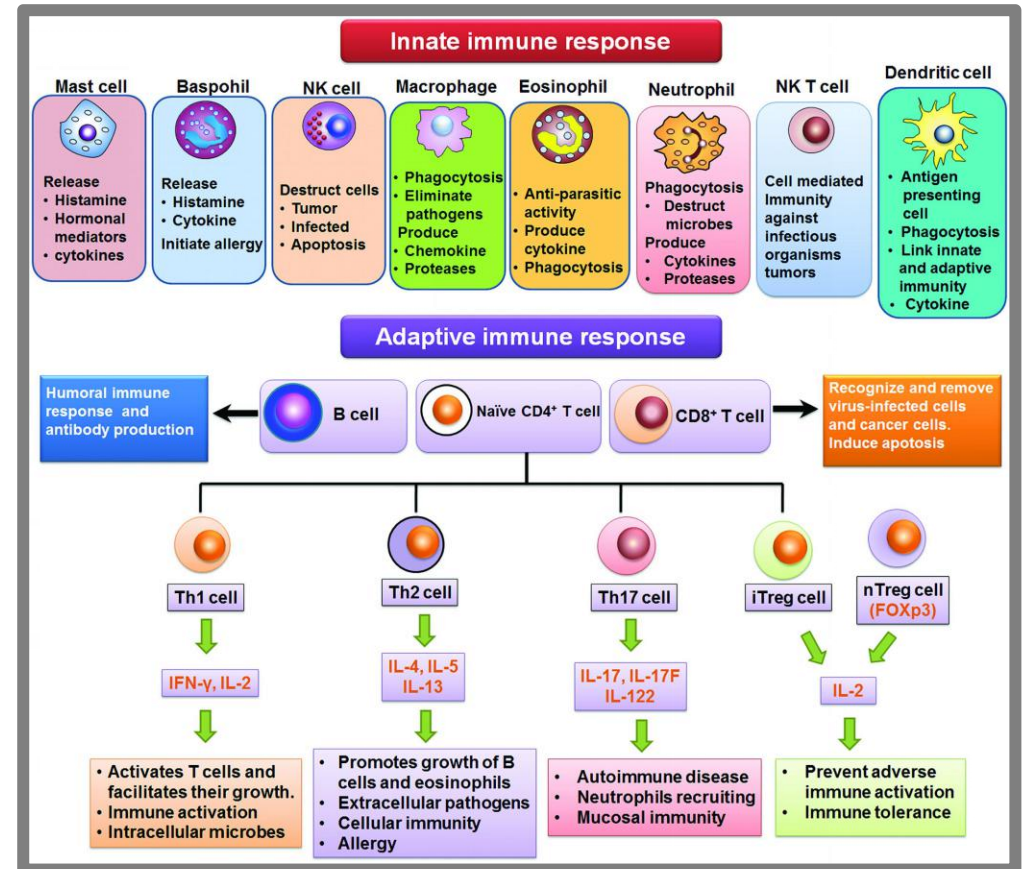
ACE-2 receptor

Human Cell Target

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BIODIVERSITAS INDONESIA

- *Zingiber officinale* (Jahe merah)
- *Echinacea purpurea* (Echinacea)
- *Phyllanthus niruri* (Meniran)
- *Andrographis paniculata* (Sambiloto)
- *Cedrela sinensis* (Kayu Surian)
- *Glycyrrhiza glabra* (Akar manis)
- *Hibiscus sabdariffa* (Rosella)
- *Vitis vinifera* L. semen (Biji anggur)
- *Allium sativum* (Bawang putih)
- *Holothuria scabra* (Teripang)
- Tempe





Products that have obtained a partner/license agreement/ distribution permit are:

- ✓ HFNC ventilator,
- ✓ UVC sterilization equipment,
- ✓ multipurpose autonomous robot,
- ✓ ozone nanomist,
- ✓ ATACT air purifier



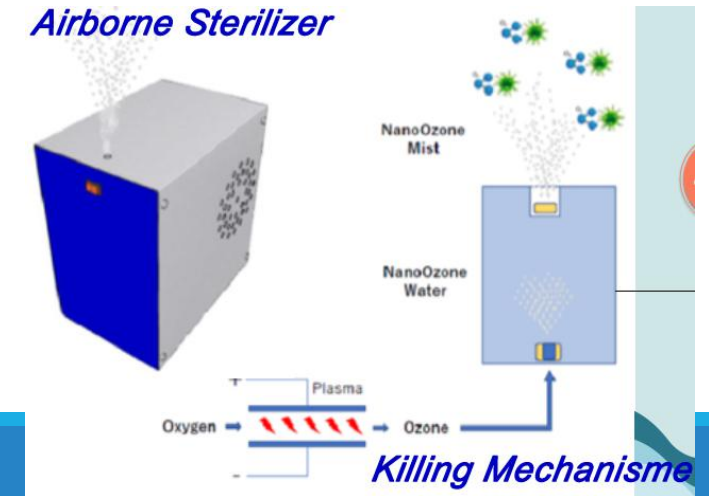
LIPI Ventilator (GLP-03)



LIPI Ventilator (GLP-01 & GLP-02)
Bimtek BPFK 27/04/2020

Partner Industri : PT Gerlink Utama Mandiri

Airborne Sterilizer

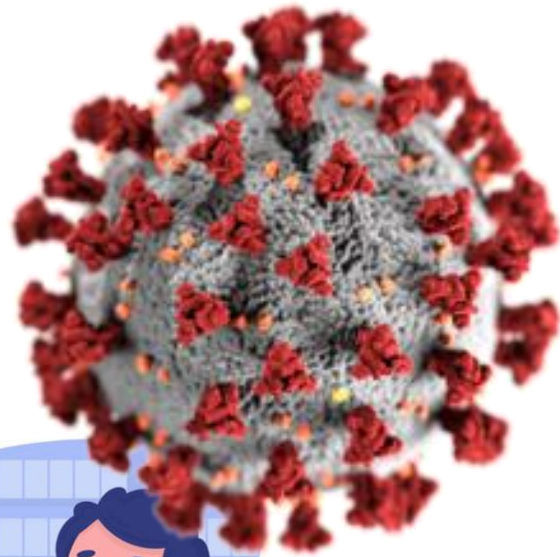




WHOLE GENOME SEQUENCING OF VIRUS SARS COV-2 FROM LOCAL TRANSMISSION IN INDONESIA



**Nanopore
Technology**



01

Extraction of RNA for Long-Read Sequencing

02

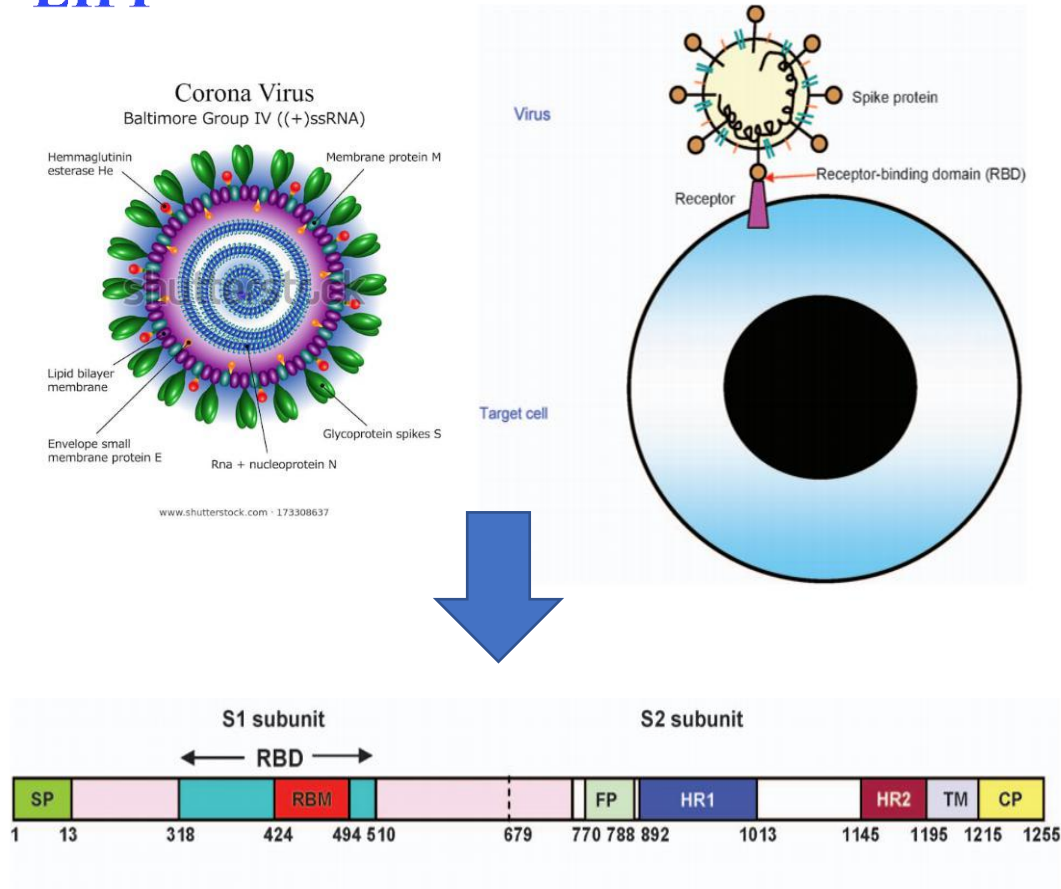
Library Preparation

03

Direct RNA Sequencing dan Analisis Data

Development of recombinant fusion protein vaccine candidates for COVID-19

Spike protein (Protein-S) is able to induce a neutralization antibody response and provide protection. Function as an antigen is enhanced through the fusion of receptor binding domain (RBD) with the Fc of human IgG1.



Gene Construction

Transformation, Transfection and Selection

Purification and Characterisation

Need Transfer Technologies:

1. How to produce seed vaccine based on protein recombinant
2. How to produce biology molecular enzymes in pilot plant

SURVEI PERSEPSI PUBLIK TENTANG KETERBUKAAN INFORMASI PASIEN POSITIF COVID-19

Sebaran Responden



Informasi lebih lanjut
 Dicky Pelupessy : dickypsy@pul.ac.id
 Gusti Ayu Ketut Surtiari : gusti004@lipi.go.id
 Tim Panel Sosial untuk Kebencanaan



97% responden setuju RIWAYAT PERJALANAN pasien positif Covid-19 dibuka

*Responden di Pulau Jawa (56.2%) dan luar Pulau Jawa (52.2%) setuju riwayat perjalanan 14 hari terakhir pasien penting untuk diketahui

61,2%

Setuju jika nama pasien positif covid-19 dibuka untuk publik

65,8% Responden Setuju ALAMAT RT/RW pasien positif Covid-19 dibuka

64% Responden Setuju ALAMAT KECAMATAN pasien positif Covid-19 dibuka

Platform penyebaran informasi terkait COVID yang disukai responden



80,71% memilih APLIKASI PESAN INSTAN (WHATSAPP, LINE)
 70,04% memilih WEBSITE
 25,66% memilih SMS
 2,78% memilih MEDIA SOSIAL PEMERINTAH

KONSEKUENSI KETERBUKAAN INFORMASI



Masih ada orang-orang yang berada dalam kasus pemantauan ataupun positif Covid-19 yang diperlakukan buruk dan didiskriminasi di lingkungannya.

Beberapa daerah di Indonesia yang tidak memiliki kasus terlapor merasa tidak perlu takut pada virus ini sehingga mereka pun menjalankan kehidupan seperti biasa tanpa melakukan proses adaptasi.

Public Perception Survey on Information Disclosure for Covid-19 Positive Patients



- National Research and Innovation Agency (BRIN), Indonesian Institute of Sciences (LIPI), National Disaster Management Agency (BNPB), University of Indonesia, Gadjah Mada University, Bandung Institute of Technology, Statistics Polytechnic College of Statistics, Disaster Journalists and the Indonesian Crisis, and U-Inspire conducted a survey of Public Perceptions of Information Disclosure for COVID-19 Positive Patients

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Biosafety Level 3 Facility dan Indonesian Culture Collection (InaCC)



**Biosafety Level-3 :
4 Laboratories**

**Clean Rooms :
Health Biotechnology Lab
Food Biotechnology Lab**

**Biosafety Lab :
BSL-3 Lab
Animal BSL-3 Lab**

InaCC is a microorganism storage institution located at the LIPI Cibinong Science Center which has standards from the World Federation Culture Collection



UTILIZATION OF LEARNING AND FACILITIES RESIDENCIAL



- The location is Cibinong Science Center Botanical Garden LIPI
- Facilities: Complete study room
- Recidential: Residential building used for lodging (150 rooms), including consumption and shuttle trainees, ambulances





Terima Kasih
Thank you very much