Kolaborasi Dengan Diaspora Dalam Riset Vaksin Covid-19

Amin Soebandrio

Types of coronavirus vaccine approaches

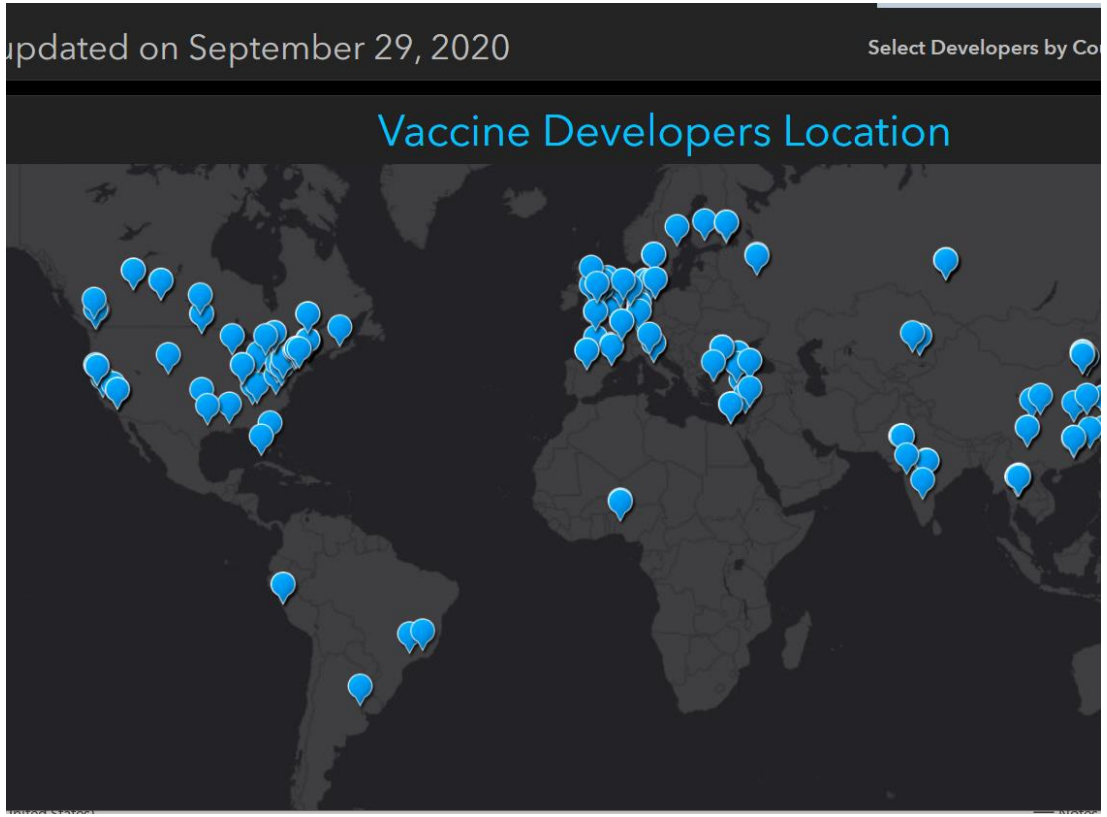
Scientists are casting a wide net to see what works best against the novel coronavirus.

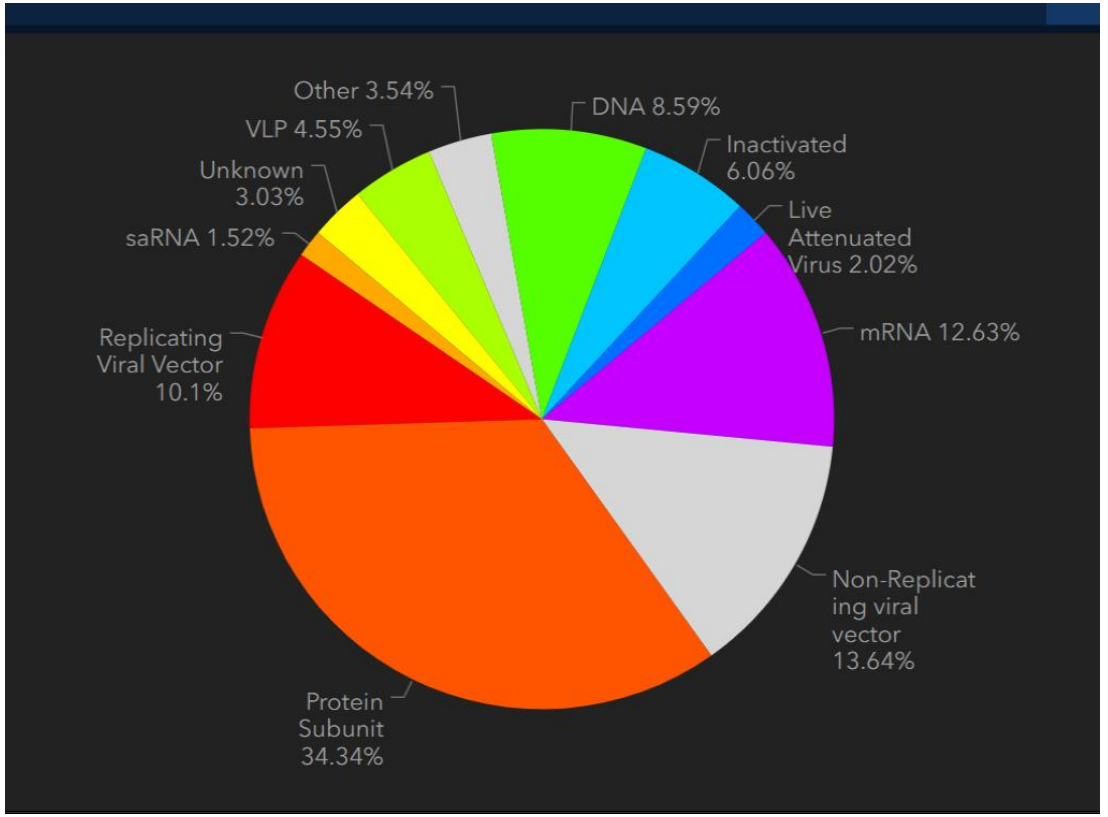
Types of vaccines	DNA and RNA	Live attenuated	Inactivated	Subunit	Viral vector
					
How it works	This vaccine uses DNA or RNA molecules to teach the immune system to target key viral proteins.	This is a weakened version of the actual virus.	An inactivated vaccine uses the whole virus after it has been killed with heat or chemicals.	This vaccine uses a piece of a virus' surface to focus your immune system on a single target.	This approach takes a harmless virus and uses it to deliver viral genes to build immunity.
Advantages	Easy and quick to design.	Stimulates a robust immune response without causing serious disease.	Safe because the virus is already dead and is easy to make.	Focuses the immune response on the most important part of the virus for protection and cannot cause infection.	Live viruses tend to elicit stronger immune responses than dead viruses or subunit vaccines.
Disadvantages	Never been done before. There are no licensed DNA or RNA vaccines currently in use.	May not be safe for those with compromised immune systems.	Not as effective as a live virus. Some previous inactivated vaccines have made the disease worse; safety for the novel coronavirus needs to be shown in clinical trials.	May not stimulate a strong response, other chemicals may need to be added to boost long-term immunity.	Important to pick a viral vector that is truly safe. An immune response to the viral vector could make the vaccine less effective.
Existing examples	• None	• Measles, Mumps and Rubella • Chickenpox	• Polio	• Pertussis • Hepatitis B • Human papillomavirus (HPV)	• Ebola • Veterinary medicine

Overview of Vaccine Production Platforms and Technologies for SARS-CoV-2

https://www.sandiegouniontribune.com/news/science/story/2020-06-06/race-for-vaccine

Covid-19 Vaccine Development in Some Countries





Steps in vaccine development

Actions taken to ensure a new vaccine is safe and works well

Pre-clinical studies	**Vaccine is tested in animal studies for efficacy and safety, including challenge studies**
Phase I clinical trial	**Small groups of healthy adult volunteers receive the vaccine to test for safety**
Phase II clinical trial	**Vaccine is given to people who have characteristics (such as age and physical health) similar to those for whom the new vaccine is intended**
Phase III clinical trial	**Vaccine is given to thousands of people and tested for efficacy and safety**
Phase IV post marketing surveillance	**Ongoing studies after the vaccine is approved and licensed, to monitor adverse events and to study long-term effects of the vaccine in the population**
Human challenge studies	**Studies in which a vaccine is given followed by the pathogen against which the vaccine is designed to protect. Such trials are uncommon in people**

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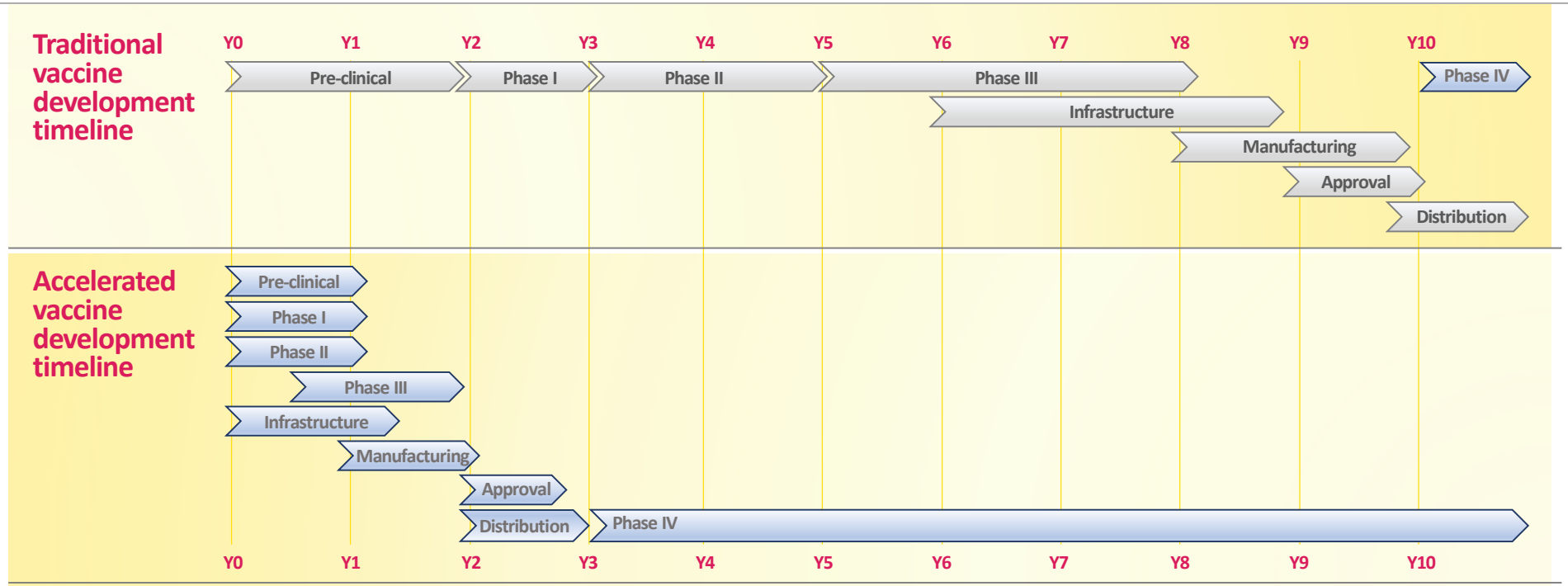
COVID-19 vaccine accelerated development



- Normal vaccine development performs each step in sequence
- To accelerate COVID-19 vaccine development, **steps are done in parallel**
- All usual safety and efficacy monitoring mechanisms remain in place; such as adverse event surveillance, safety data monitoring & long-term follow-up
- **Phase IV post-marketing surveillance** for side effects is critical and essential

Why we need Collaboration

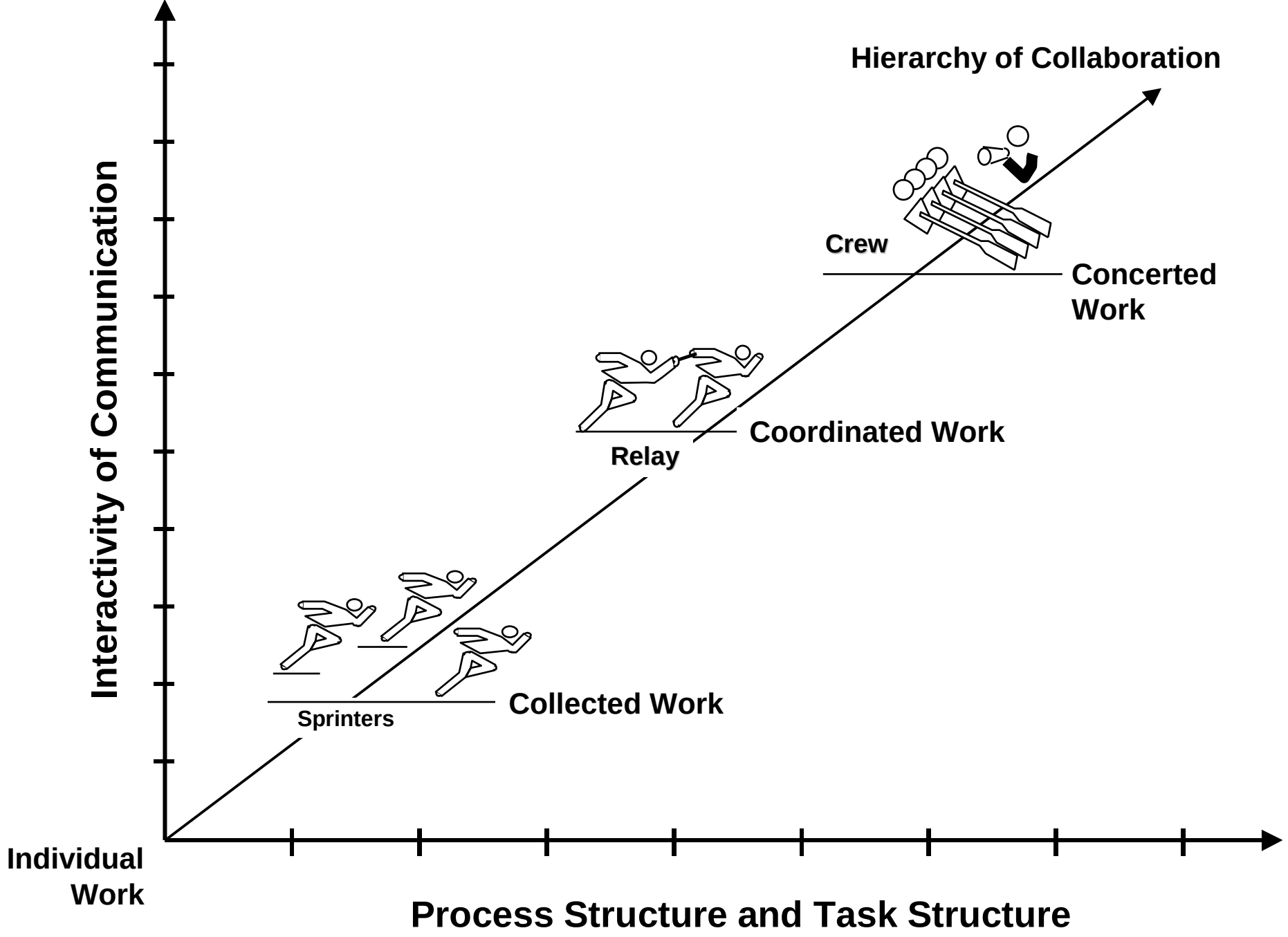
No one has all the

- **Resources**
- **Experience**
- **Knowledge**

To do the job alone

Collaboration

is defined as making joint cognitive effort toward achieving an agreed upon goal


Hierarchy of Collaboration
Interactivity of Communication
Crew
Concerted Work
Coordinated Work
Relay
Collected Work
Sprinters
Individual Work
Process Structure and Task Structure

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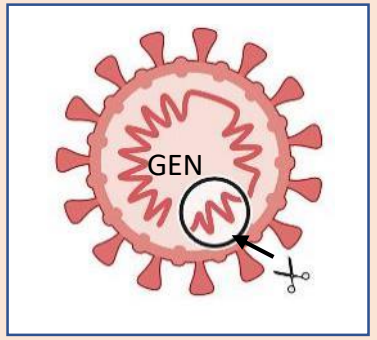
#INOVASI INDONESIA

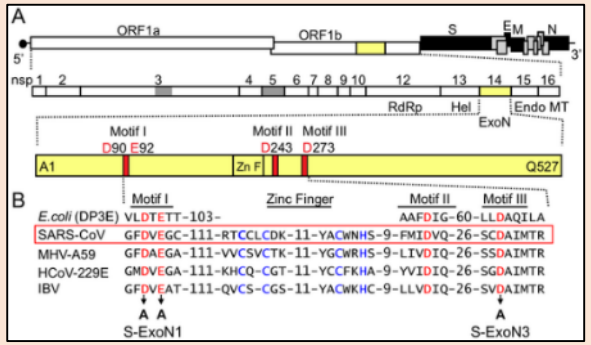
Pengembangan Vaksin COVID-19 Indonesia

LBM EIJKMAN dan KONSORSIUM bekerjasama dengan BIOFARMA dan BIN

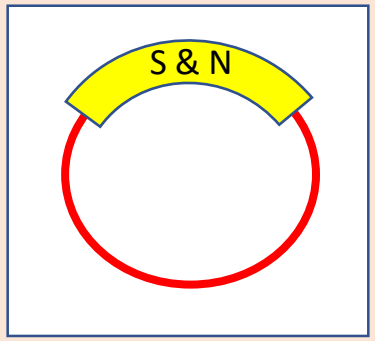
VAKSIN SUBUNIT PROTEIN



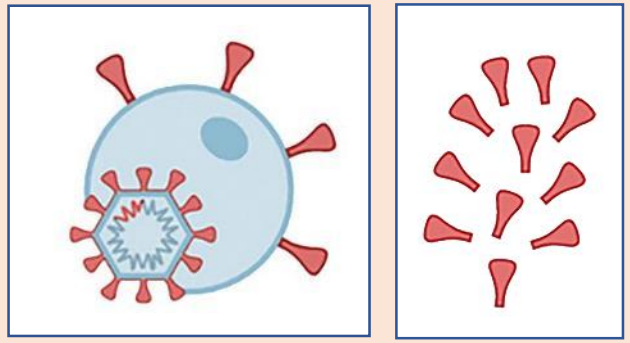
Isolasi Gen Virus Indonesia



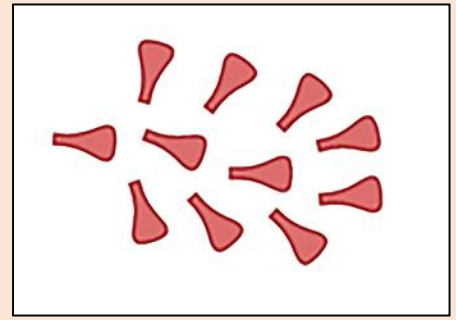
Analisa Sekuens Gen Spike



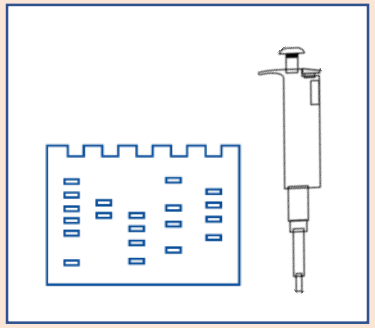
Kloning Gen Spike



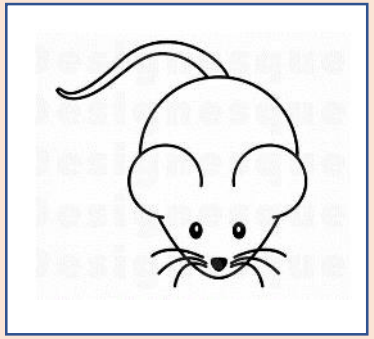
Ekspresi Protein Rekombinan



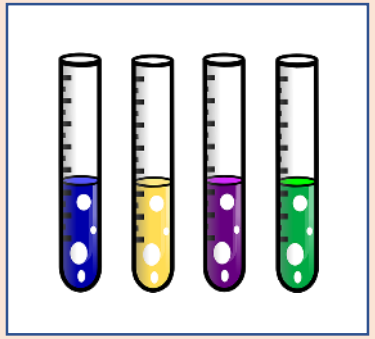
Protein Rekombinan sebagai antigen (kandidat vaksin)



Uji Antigenisitas & Imunogenisitas

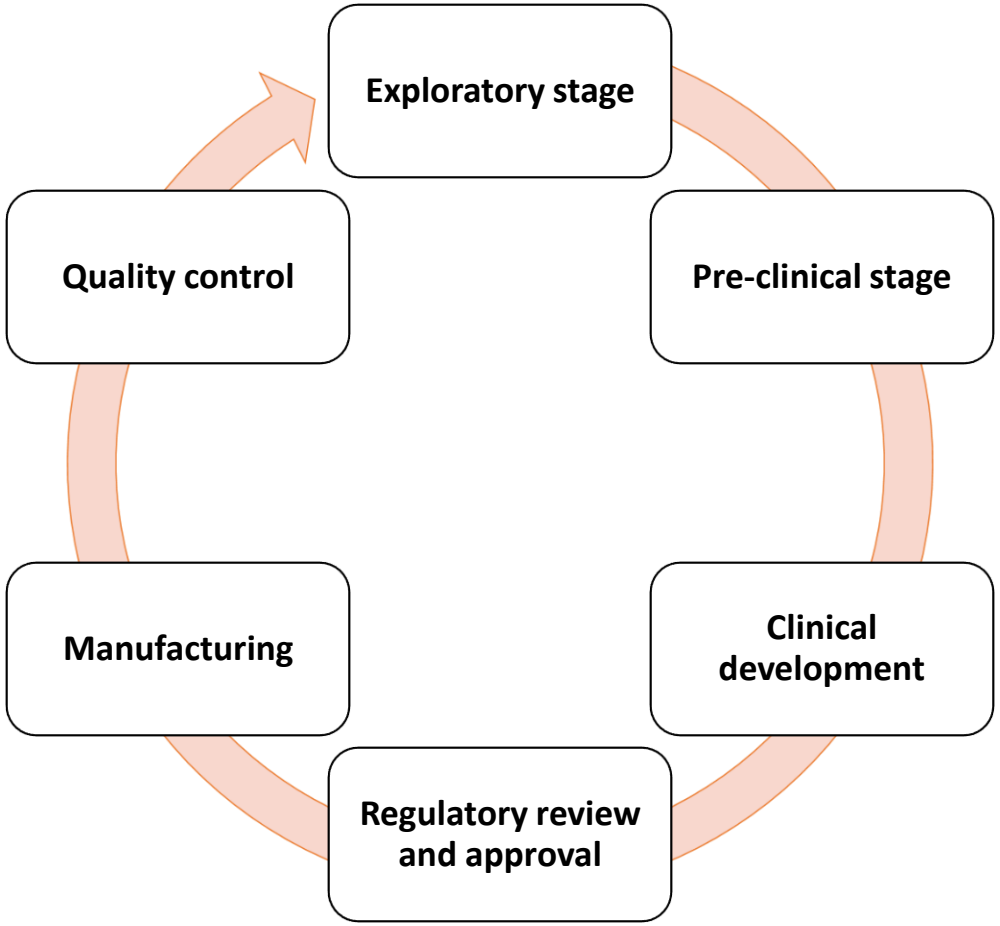


Uji efikasi pada hewan coba



Seed Vaccine ke BIOFARMA

Development of New Vaccines



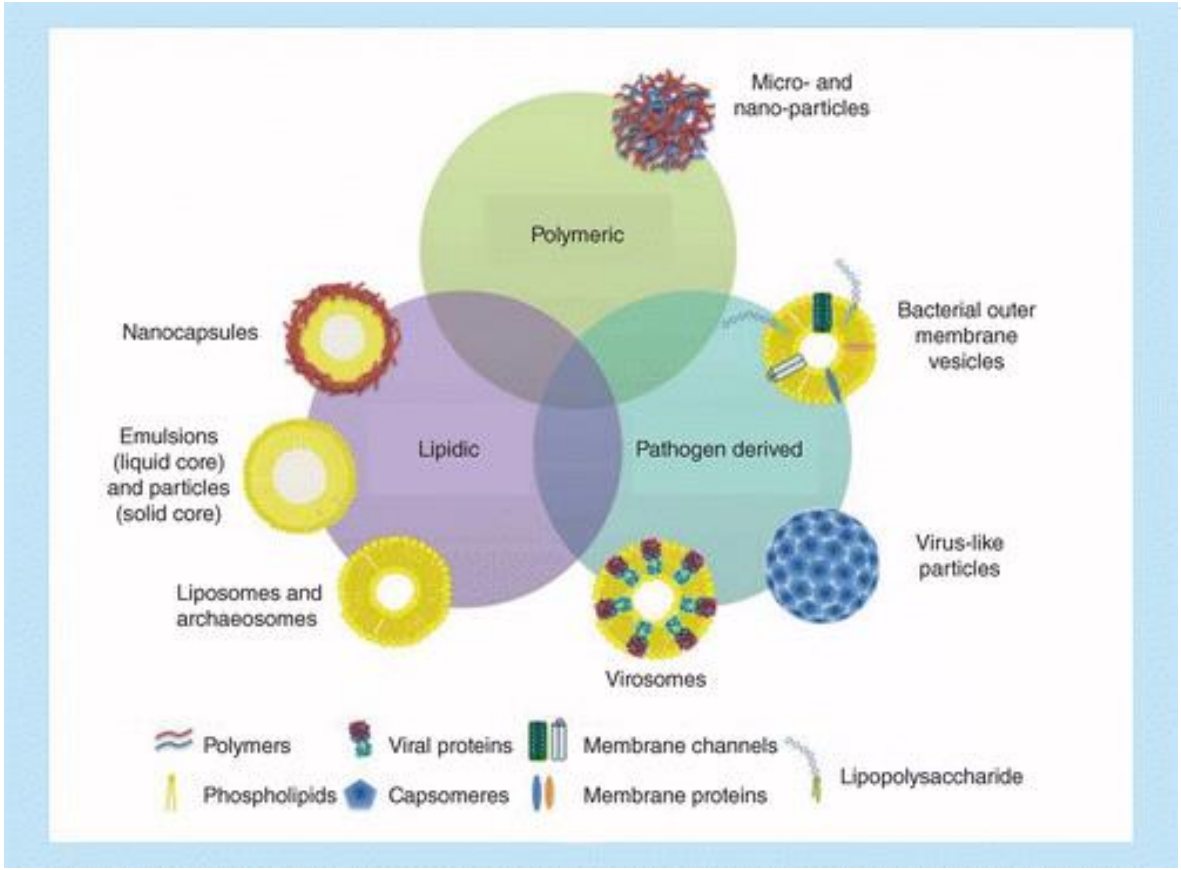
Collaboration can take place:

- **Between researchers from either a same-setting context (e.G., Academic institutions)**
- **From different-setting contexts (e.G., Between academic - government or academic - private industry)**
- **Across geographical locations**

Kolaborasi Pengembangan Vaksin

Ines Atmosukarto
Managing Director/Chief Executive Officer

Dr Atmosukarto completed PhD studies in molecular biology at the University of Adelaide. She was a Research Scientist and Project Leader at the Indonesian Institute of Sciences (LIPI) and has been the CSO of an Indonesian drug discovery company.



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About Lipotek
Board of Directors
Management
Principal Scientists

Directors

Michael Hoy
Chairman

Mr Hoy has more than 30 years corporate experience in Australia, the United Kingdom, USA and Asia. He is currently Chairman of the publicly listed biotechnology companies Biotron Ltd and Telesso Technologies Ltd and CityPrint Holdings Pty Ltd. He is a former director and Deputy CEO of John Fairfax Holdings Limited and the FXF Trust, and was an executive director of Times Newspapers Limited in London.

Ines Atmosukarto
Managing Director/Chief Executive Officer

Dr Atmosukarto completed PhD studies in molecular biology at the University of Adelaide. She was a Research Scientist and Project Leader at the Indonesian Institute of Sciences (LIPI) and has been the CSO of an Indonesian drug discovery company.

Mengapa Vaksin Merah Putih?

Dikembangkan

- **Menggunakan virus COVID-19 yang bersirkulasi di Indonesia**
- **di Institusi Penelitian Indonesia**
- **Oleh Peneliti2 muda Indonesia**
- **Untuk melindungi rakyat Indonesia dari COVID-19**

- Two to Hundreds of people
- Complex issues Addressed
- Everyone
    - Contributes Equally
    - Perceives everything Multiple Perspectives
    - Focuses Attention on Critical Issues
    - Takes ownership of the solution
- All Knowledge at everyone’s fingertips
- Design Customized Repeatable Processes
- Accomplish Goals and Produce Products

Concerted Collaboration

Terima Kasih