

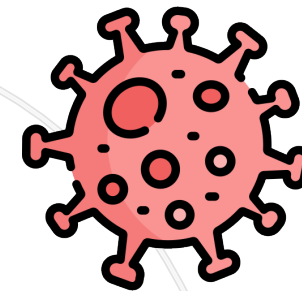
The different types of COVID-19 vaccines

Vaccines will play a major role in **ending the COVID-19 pandemic**.

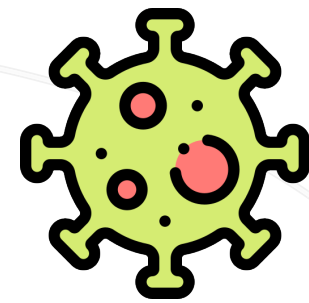
COVID-19 vaccines have already been proven **highly effective** at preventing severe illness, hospitalisation and death.

Approach

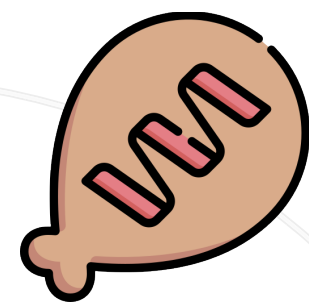
Inactivated or attenuated virus



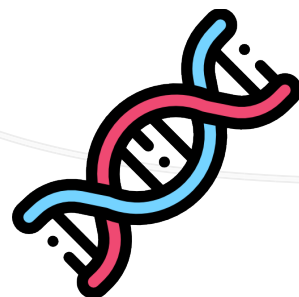
Viral vector (non-replicating)



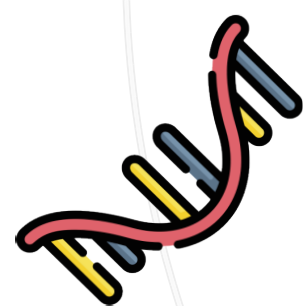
Protein subunit



DNA



RNA



How does it work?

Uses a form of the **virus** that has been **inactivated** or **weakened** so it doesn't cause disease, but still generates an immune response

Uses a virus that has been **genetically engineered** so that it can't cause disease but produces coronavirus proteins to safely generate an immune response

Uses harmless fragments of proteins that **mimic** the COVID-19 virus to safely generate an immune response

Synthetic **DNA fragment** (plasmid) that encodes a COVID-19 antigen

Typically the **RNA segment** of the viral genome that codes for the virus spike protein (or other antigenic region) is prepared in a suspension of lipid nanoparticles

What else do vaccines contain?

Adjuvants

Lipid nanoparticles (NLPs), present in RNA vaccines only

Why are they there?

To **enhance** the **immune response** and reduce the dose of antigen needed, e.g. by stimulating the body to produce more antibodies or a longer-lasting immune response

Encapsulate and **protect** the RNA and help it enter the body's cells where the RNA can start producing the desired protein that will produce the antigenic response

SARS-CoV-19 vaccines *

Sinopharm, Sinovac

Gamaleya Research Inst. (Sputnik V), AstraZeneca and Univ. Oxford, CanSino Biological Inc., Johnson & Johnson

EpiVacCorona, Novavax

Inovio

Pfizer/BioNTech, Moderna, Curevac

Similar vaccines

Cholera, Polio, MMR, Yellow fever, TBC

Ebola

Seasonal influenza, Hepatitis B, Tetanus

None (new tech)

None (new tech)

*Mention here is for illustrative purposes only and does not signify endorsement by the InterAcademy Partnership (IAP). Other vaccines produced using similar processes may be equally or more effective or still under trial. Icons designed by Freepik from Flaticon.com.