



How Are Vaccines Developed And Tested?

Experimental vaccines are first tested in animals to evaluate its safety and potential to prevent diseases. It is then tested in human clinical trials in 3 phases.

Phase I: Given to **small number of Volunteers** to assess its safety, generation of immune response and dosage.

Phase II: Vaccine given to **hundreds of volunteers** to monitor side effects and generation of immune response. Participants in this phase have same characteristics (age,sex,etc) as the people for whom the vaccine is intended. In this phase some volunteer receive the vaccine and others do not for comparison.

Phase III: **Thousands of volunteers** receive the vaccine, some receive the investigational vaccine and some do not, to allow comparison and draw conclusion. In this phase the safety and effectiveness of the vaccine against the disease is studied.

A series of steps is required following the clinical trial which includes review of efficacy, safety and manufacturing for regulatory and public health policy approvals. After this a vaccine may be introduced into a national immunization program. Close monitoring continues to detect any unexpected side effects and effectiveness.

(Source: WHO)

Types of Covid-19 Vaccines

Currently in Phase III Trials

- **mRNA Vaccines**
- **Protein Subunit Vaccines**
- **Vector Vaccines (New Technology)**

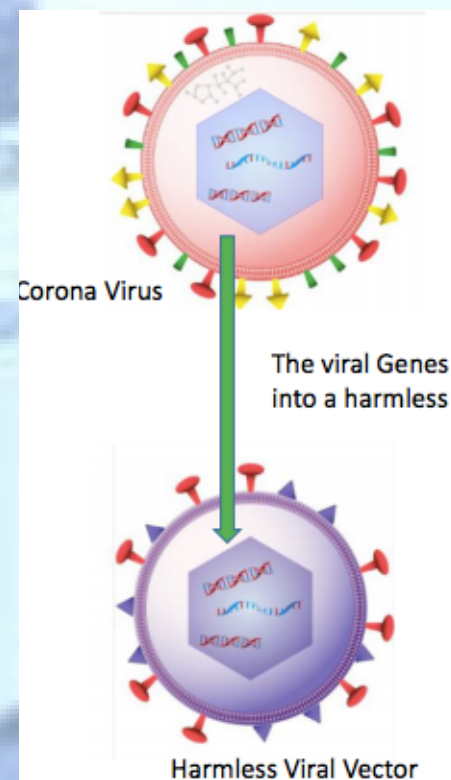
(Source: CDC)

What is A Viral Vector?

A different virus which has the genetic material from the virus that causes Covid19 inserted in it.

Mechanism

Once the viral vector is inside a human cell it gives instructions to make a protein that is unique to the COVID-19 causing virus. Using these instructions human cells make copies of the protein. This prompts our bodies to build T-cells and B-cells (memory cells) that will remember how to fight the virus if we are infected in the future.



Recent Covid-19 Updates

(Source: Deccan Herald)

- Covid-19 vaccination in India may start in January 2021, expect normal life by October: Adar Poonawalla
- Pfizer COVID Vaccine will reach hospitals across US on December 14.
- Emergency use authorisation for covid vaccine only after detailed analysis: Niti Ayog member VK Paul.
- Moderna begins the study of Covid-19 Vaccine in adolescence.