

Moderna begins trial of HIV vaccine that uses mRNA technology

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In news– Recently, Moderna has announced that it has started trials on an mRNA HIV vaccine.

About mRNA HIV vaccine–

- The vaccine **uses** mRNA, or messenger RNA technology (similar to **Moderna's Covid 19 vaccine**) which **teaches the body's cells how to make proteins that trigger immune response.**
- It **uses a novel approach to elicit broadly neutralizing HIV-1 antibodies (bnAbs)** and eventually target multiple HIV strains.
- **BNAbs are produced by certain types of B cells,** which are rare: one in 300,000 B cells have this capability and **the vaccine aims to stimulate production of bnAbs that can act against many variants of HIV.**
- **The immunogens being tested were developed by scientific teams at the non-profit International AIDS Vaccine Initiative (IAVI)** and Scripps Research, and delivered via Moderna's mRNA technology.
- The MODERNA/IAVI study is a phase 1, randomized, first-in-human, open label study to evaluate the safety and immunogenicity of the vaccines, mRNA-1644 and mRNA-1644v2-Core, in HIV-uninfected individuals.
- The vaccine is supposed to teach B lymphocytes, which are part of the immune system, to generate these antibodies.
- In this trial, participants are injected with an immunogen – a substance that can trigger an immune response – and then a booster immunogen later.

- This Phase 1 trial is being carried out in the United States among 56 healthy adults who are HIV negative.
- Fifty-six individuals will be randomized in four groups and safety/immunogenicity results will be available in 2023.

About Human Immunodeficiency Virus (HIV)-

- HIV is a virus that attacks the body's immune system.
- **It attacks CD4, a type of White Blood Cell (T cells)** in the body's immune system.
- T cells move around the body detecting anomalies and infections in cells.
- If HIV is not treated, it can lead to AIDS (Acquired Immuno Deficiency Syndrome).
- There is currently no effective cure.
- Once people get HIV, they have it for life.
- But with proper medical care, HIV can be controlled.
- The virus can be transmitted through contact with infected blood, semen or vaginal fluids, breast milk.
- According to the World Health Organization (WHO), HIV continues to be a major global public health issue having claimed 36.3 million lives so far.
- India has around 21 lakh people living with HIV and every year an estimated 68,000 new infections are added.