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## Clinical Trial of Covid-19 Vaccine: ZyCoV-D

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### Why in News

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Recently, India has started phase I/II **clinical trials** of **Covid-19 vaccine - ZyCoV-D**, designed and developed by **Zydus** (a pharmaceutical company) with **support from the Department of Biotechnology (DBT)**.

- The adaptive phase I/II clinical trials will assess the **safety, tolerability and immunogenicity** of the vaccine.
- The **other indigenously developed** vaccine - Covaxin - produced by Hyderabad based Bharat Biotech is also underway to start clinical trials.

### Key Points

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- **Description:** ZyCoV-D, a **plasmid DNA vaccine**, comes under the **Vaccine Discovery Programme** supported by the Department of Biotechnology under the **National Biopharma Mission**.  
Plasmids are **circular deoxyribonucleic acid (DNA) vectors** that can be used as vaccines to prevent various types of diseases.
- **Pre-Clinical Phase:** It was found to initiate a **strong immune response** in multiple animal species like mice, rats, guinea pigs and rabbits.
  - The **antibodies** produced by the **vaccine** were able to **neutralize the wild type virus** indicating the protective potential of the vaccine candidate.
  - No safety concerns were observed in repeat dose by both **intramuscular** (directly into muscles) and **intradermal** (superficial injection into skin) routes of administration.

- **DNA Vaccine Platform:** The development of ZyCov-D has established the **DNA vaccine platform** in the country which is simple to deploy, temperature stable, and consistently manufacturable- thus lowering costs and enhancing the effectiveness of a vaccine.
  - It provides ease of manufacturing the vaccine with **minimal biosafety requirements**.
  - It has shown much improved **vaccine stability and lower cold chain requirements** making it easy for transportation to remote regions of the country.
  - Furthermore, the platform can be **rapidly used to modify the vaccine** in a couple of weeks in case the virus mutates.

### **National Biopharma Mission**

- It is an **industry-academia collaborative mission** for accelerating biopharmaceutical development in the country.
- It was **launched in 2017** at a total cost of **Rs. 1500 crore** and is 50% co-funded by **World Bank** loan.
- It is being implemented by the **Biotechnology Industry Research Assistance Council (BIRAC)**.  
 BIRAC is a **Public Sector Enterprise**, set up by the **Department of Biotechnology (DBT)**, Ministry of Science & Technology.
- Under this Mission, the **Government has launched Innovate in India (i3) programme** to create an enabling ecosystem to promote entrepreneurship and indigenous manufacturing in the biopharma sector.
- **Objectives:** Development of **vaccines, medical devices, diagnostics and biotherapeutics** besides, strengthening the **clinical trial capacity** and building technology transfer capabilities in the country.

**Source: PIB**