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Omicron-specific mRNA-based Booster vaccine

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Why is in news? Omicron-specific mRNA-based Booster vaccine developed using the indigenous platform technology

The Department of Biotechnology (DBT) has announced that the **Omicron-specific mRNA-based Booster vaccine developed using the indigenous platform technology** by Gennova Biopharmaceuticals Ltd. and supported under the **Mission COVID Suraksha**, implemented by Biotechnology Industry Research Assistance Council (BIRAC), has **got a nod** from the office of the Drug Control General of India (DCGI) **for Emergency Use Authorization (EUA)**.

DBT has facilitated establishing Gennova's **mRNA-based next-generation vaccine** manufacturing for developing the platform technology from proof of concept till Phase I clinical trial of the prototype mRNA-based vaccine developed against the Wuhan strain.

The project was further supported under the Mission COVID Suraksha.

The Indian COVID-19 Vaccine Development Mission' by DBT's **dedicated Mission Implementation** Unit at Biotechnology Industry Research Assistance Council (BIRAC), for further clinical development and Scale up of the prototype vaccine, which received EUA on 29th June 2022. The platform technology developed was used to develop an Omicron-specific booster vaccine for COVID-19.

GEMCOVAC®-OM is an **Omicron-specific mRNA-based Booster vaccine** developed using the indigenous platform technology by Gennova in collaboration with DBT.

Like the prototype vaccine, GEMCOVAC®-OM is a **thermostable vaccine**, which **does not require ultra-cold chain infrastructure** used for other approved mRNA-based vaccines, making it easy for deployment pan India.

It is delivered intra-dermally using a needle-free injection device system. When administered intradermally in participants as a booster, it generated significantly higher immune responses. The clinical outcome demonstrates the need for variant-specific vaccines for desired immune response.

mRNA vaccines:

mRNA vaccines **trick the body into producing some of the viral proteins itself**.

They work by using mRNA, or messenger RNA, which is the molecule that essentially puts DNA instructions into action.

Inside a cell, mRNA is used as a template to build a protein.

Mission COVID Suraksha:

Mission COVID Suraksha is **India's targeted effort to enable the development of indigenous, affordable and accessible vaccines** for the country and will complement the ongoing mission of Atmanirbhar Bharat.

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The Mission with its end-to-end focus from preclinical development through clinical development and manufacturing and regulatory facilitation for deployment, would consolidate all available and funded resources towards accelerated product development.

Phase-I of the Mission has been allotted Rs. 900 Crore for a period of 12 months.

The **grant will be provided to the Department of Biotechnology** (DBT) for Research and Development (R&D) of Indian Covid-19 vaccines.

It will be led by DBT and **implemented by a dedicated Mission Implementation Unit** at the **Biotechnology Industry Research Assistance Council** (BIRAC is a Public Sector Enterprise, set up by the Department of Biotechnology).

The existing activities under **National Bio Pharma Mission** (NBM) and **Ind-CEPI Mission** will provide complementary strengths to this Mission.

The DBT is supporting the implementation of the **Ind-CEPI Mission**, “Epidemic preparedness through rapid vaccine development: Support of Indian vaccine development aligned with the global initiative of the Coalition for Epidemic Preparedness Innovations (CEPI)”.

The Ind-CEPI Mission was approved in March 2019.

BIRAC:

Biotechnology Industry Research Assistance Council (BIRAC) is a **not-for-profit** Section 8, Schedule B, **Public Sector Enterprise**, set up by the Department of Biotechnology (DBT), Government of India, as an Interface Agency to strengthen and empower the emerging Biotech enterprises to undertake strategic research and innovation, addressing nationally relevant product development needs.