

Delta and its sub lineages reduce Covaxin antibodies: ICMR study

Reference News-

Reference news According to a study by scientists at the Indian Council of Medical Research-National Institute of Virology, antibodies produced in response to Covaxin were reduced when tested against the Delta variant and its sub lineages but continued to be high enough to remain protective,

- This demonstrates the possible role of memory cells in immune boosting with post-infection or infection after immunisation.

Next Analysis-

What is Adaptive response?

- When infected by a virus, non-specific immune response in the form of macrophages, neutrophils and other cells tend to prevent the virus from causing symptoms.
- Soon after, the body makes antibodies specific to the virus called the immunoglobulin's — IgG and IgM, called the adaptive response.
- In addition, cellular immunity kicks in when the body makes T-cells that destroy cells that have been infected by the virus.
- The combination of adaptive response and cellular immunity may prevent progression to severe illness or re-infection by the same virus.
- This process is often measured by the presence of antibodies in blood.
- Besides T cells, people infected with corona virus also make memory B cells, which rapidly produce antibodies when required.
- If they find the virus again, they remember and start to make antibodies very, very quickly.
- Even when the antibodies were present at low levels, it was sufficient to neutralise the virus.
- Most convalescent plasmas obtained from individuals who recover from COVID-19 do not contain high levels of neutralizing activity yet have antibodies with potent antiviral activity were found in all these individuals.
- Also, pre-existing memory T cells may only reduce COVID-19 severity, do not prevent infection

How the memory T cells may help reduce the severity of the disease?

- The cross-reactive memory T cells on activation would help in the development of plasma cells, antibody production, and in the development of killer T cells that would kill virus infected cells.
 - Cross-reactivity refers to **a situation in which an antibody reacts to a substance other than its corresponding antigen.**
- The latter reduces the reservoirs of infection.
- This would most likely reduce disease severity.

Why do antibodies reduce over time?

- B cells are responsible for releasing antibodies into the blood.
- When an infection or vaccination occurs, some of them will metamorphose into specialised antibody-production factories, known as plasma cells.

- Antibodies are proteins, and like any other protein will be naturally broken down and removed from the body within a few months at most.
- For longer-term protection, we need to produce antibodies for ourselves.
- Once the infection or vaccine has been completely removed, memory B cells no longer replenish the plasma cell population, which then declines.

Preventive Detention only to forestall public disorder: SC

Reference News-

The Supreme Court held in a judgment recently that [Preventive detention](#) could be used only to prevent public disorder.

- It is also said that the State should not arbitrarily resort to “preventive detention” to deal with all and sundry “law and order” problems, which could be dealt with by the ordinary laws of the country.
- Preventive detention must fall within the four corners of Article 21 (due process of law) read with Article 22 (safeguards against arbitrary arrest and detention) and the statute in question.

Next Analysis -

What is Preventive Detention?

- It is the imprisonment of a person with the aim of preventing him from committing further offences or of maintaining public order.
- **Article 22 (3)** – If a person is arrested or detained under preventive detention, then the protection against arrest and detention under Article 22 (1) and 22(2) shall not be available.
- A detainee under preventive detention can have no right of personal liberty guaranteed by Article 19 or Article 21.
- To prevent reckless use of Preventive Detention, certain safeguards are provided in the constitution:
- A person may be taken to preventive custody only for 3 months at the first instance.
- The detainee is entitled to know the grounds of his detention.
- The detaining authorities must give the detainee earliest opportunities for making representation against the detention.

Zika Virus

Reference news-

A multidisciplinary team to Maharashtra to monitor the [Zika virus](#) situation and support the State government in management of infections.

Next Analysis-

What is Zika virus?

- Zika virus is a mosquito-borne flavivirus that was first identified in Uganda in 1947 in monkeys.

- It was later identified in humans in 1952 in Uganda and the United Republic of Tanzania.
- ZVD is caused by a virus transmitted primarily by Aedes mosquitoes (AM), mainly Aedes aegypti.
- This is the same mosquito that transmits dengue, chikungunya and yellow fever.
- **Transmission:** From mother to fetus during pregnancy, through sexual contact, transfusion of blood and blood products, and organ transplantation.
- **Symptoms:** Fever, rash, conjunctivitis, muscle and joint pain, malaise or headache.
- Most people with Zika virus infection do not develop symptoms.
- Zika virus infection during pregnancy can cause infants to be born with microcephaly (smaller than normal head size) and other congenital malformations, known as congenital Zika syndrome.
- **Treatment:** There is no vaccine or medicine for Zika.
- The focus is on relieving symptoms and includes rest, rehydration and acetaminophen for fever and pain.

Launch of 'Adi-Prashikshan Portal'

Reference news Ministry of Tribal Affairs (MoTA) has launched 'Adi-Prashikshan Portal'.

- It will act as a central repository of all training programs conducted by Ministry of [Tribal](#) Affairs and other organizations funded by the Ministry.

Next Analysis-

About the Portal

- It was launched for strengthening the capacities (in terms of knowledge, skills, attitude) of government functionaries, ST PRI members, Teachers, SHG women, Youth and Tribal Communities.
- The main objective of the portal is to create an end-to-end centralized online interactive training platform on tribal development which brings together training organizers, resource persons, master trainers, trainees and training material at one place.
- All Tribal Research Institutes including Gujarat Tribal Research & Training Society, Gandhinagar have been given training on the functionality of the portal.

Pradhan Mantri Mudra Yojana – A boon for entrepreneurs

Pradhan Mantri MUDRA Yojana (PMMY) scheme was launched by Prime Minister Narendra Modi on April 8, 2015. Under this yojana, the government provides financial assistance of Rs 10 lakh to non-corporate, non-farm small/micro enterprises to promote startups. Commercial Banks, RRBs, Small Finance Banks, MFIs and NBFCs have been roped in to provide this loan facility to the right beneficiaries. Government has said that over 30 crore loans amounting to 15 lakh 97

thousand crore rupees have been sanctioned under Pradhan Mantri Mudra Yojana since inception of the Scheme in April, 2015.

Next Analysis-

Significance and objective of mudra yojana:

- Under the Pradhan Mantri MUDRA Yojana (PMMY), MUDRA scheme offers credit to businesses with a loan requirement of up to ₹ 10,00,000/-. The scheme aims to promote entrepreneurship among the youth, generate employment and enhance income.
- The yojana develop and improve entrepreneurial culture in the country by providing collateral free and cheap credit to “millions of unfunded micro units” which were otherwise struggling to establish due to lack of availability of funds.
- The MUDRA Yojna filled the gap of unfunding or shortage of the funds.
- It also boosts the morale of “first generation entrepreneurs” by providing financial assistance for setting up their businesses and expanding it further.

Advantages of Mudra loan

- **Collateral-free:** You do not run the risk of losing personal or business property in case you are unable to repay the loan.
- **Not expensive:** The rates of interest are very reasonable – 8.40 – 12.45%. If you are a woman entrepreneur, you get the benefit of lower rates of interest.
- **Overdraft:** In addition to the loan, you can avail an overdraft facility of up to ₹ 5000/-.
- **Debit card:** You can apply for the MUDRA debit card that can be used at any ATM to access your loan funds.
- **Flexibility in loan tenure:** You can choose to extend the tenure of the loan to 7 years or you may repay it within a shorter period.
- **Limited processing fees:** The processing fees for loans is nominal. If you apply under the Shishu category, you do not have to pay any processing fees.

Rate of interest: rate of interest is bearable for people

- The loan include under the MUDRA loan are ‘Shishu’, ‘Kishor’ and ‘Tarun’.
- Shishu: For initial stages of a business or for those interested in starting a new business – for loans up to ₹ 50,000/-
- Kishor: For those who need funds to expand their operations – for loans ranging from ₹ 50,000/- to ₹ 5,00,000/-
- Tarun: For those who have an established business and are looking for further growth or diversification – for loans ranging from ₹ 5,00,000/- to ₹ 10,00,000/-

Ozone Levels Exceeding Permitted Levels

Reference news Recently, a Centre for Science and Environment (CSE) study has found that [ozone levels](#) are exceeding the permitted levels even during winter in Delhi-NCR, making the smog more “toxic”.

- Despite the [pandemic and lockdowns](#), more days and locations witnessed higher and longer duration of ozone spells.
- CSE is a public interest research and advocacy organisation based in New Delhi.

Next Analysis

What are the key findings of the report?

- Contrary to the notion that Ozone is a summer phenomenon, it has been found that gas has emerged as an equally strong concern during winter as well.
- But the 'good' category days have fallen to 115 days in 2020, which is 24 days less than in 2019 in Delhi.
- A location-wise analysis shows that exceeding the eight-hour average standard is quite widely distributed in the city.
- Even smaller towns of NCR, including Bulandshahr in Uttar Pradesh and Bhiwani in Haryana, appeared in the top 20 list of ozone-afflicted towns and cities. South Delhi locations dominate the list with four mentions in top 10.

What is Smog?

- Smog is air pollution that reduces visibility.
- The term "smog" was first used in the early 1900s to describe a mix of smoke and fog.
- The smoke usually came from burning coal. Smog is common in industrial areas, and remains a familiar sight in cities today. Today, most of the smog we see is Photochemical Smog.
 - Photochemical smog is produced when sunlight reacts with nitrogen oxides (NO_x) and at least one volatile organic compound (VOC) in the atmosphere.
 - Nitrogen oxides come from car exhaust, coal power plants, and factory emissions. VOCs are released from gasoline, paints, and many cleaning solvents. When sunlight hits these chemicals, they form airborne particles and ground-level ozone – or smog.

What is Ozone?

- Ozone (composed of three atoms of oxygen) is a gas that occurs both in the Earth's upper atmosphere and at ground level.
- Ozone can be "good" or "bad" for health and the environment, depending on its location in the atmosphere.
- The 'good' ozone present in the earth's stratosphere layer protects human beings from harmful Ultraviolet (UV) radiation whereas the ground level ozone is highly reactive and can have adverse impacts on human health.
- Ground level ozone is dangerous for those suffering from respiratory conditions and asthma.