



# BF.7 Variant of the Coronavirus

## Why in News?

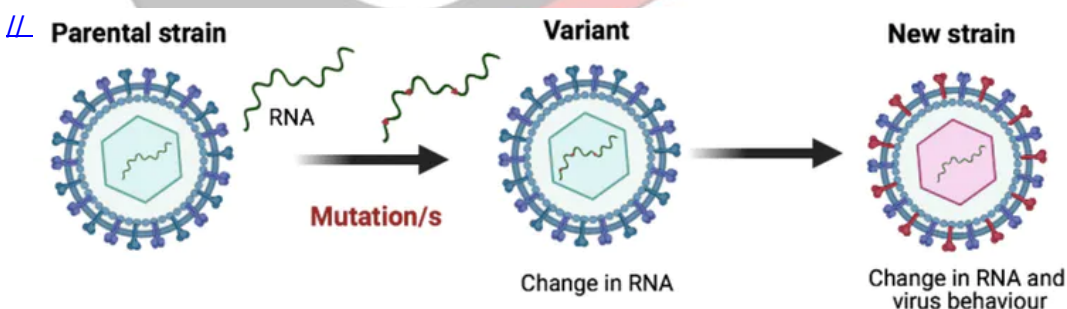
The current surge in [Covid-19 infections in China](#), is believed to be driven by the BF.7 sub-variant of [Omicron](#) that is circulating over there.

## What is the BF.7 Variant of Coronavirus?

- The dominant virus strain in China is BF.7, a sub-variant of Omicron that has been in circulation for over a year now.
- There are over **500 Omicron sub-variants currently in circulation.**
- BF.7 is the name for the BA.5.2.1.7, which itself has evolved from the BA.5 sub-variant.
- BF.7 is **not unique to China.**
  - It accounted for over **5% of the cases in the US in October, 2022** and over **7% of the cases in the UK.**
- When **viruses mutate, they create lineages and sub-lineages**— like the main trunk of the SARS-CoV-2 tree sprouting branches and sub-branches.
- A research study reported that the BF.7 sub-variant has a **4.4-fold higher neutralisation resistance** than the original D614G variant— meaning that in a lab setting, **antibodies from a vaccinated or infected individual were less likely to destroy BF.7 than the original Wuhan virus** that spread worldwide in 2020.
  - A **higher neutralisation resistance means there is a higher likelihood of the variant spreading in a population** and replacing other variants.

## How are New Variants Formed?

- When a virus multiplies, it **doesn't always manage to produce an exact copy of itself.**
  - This means that, over time, the virus may start to **differ slightly in terms of its genetic sequence.**



- Any changes to the viral genetic sequence during this process is **known as a Mutation.**
- Viruses with **new mutations are sometimes called Variants.** Variants can differ by one or multiple mutations.
- When a new variant has different functional properties to the original virus and becomes established in a population, it is sometimes referred to as a **New Strain of the virus.**

- All strains are variants, but **not all variants are strains.**

## UPSC Civil Services Examination, Previous Years Question (PYQ)

**Q. In the context of vaccines manufactured to prevent COVID-19 pandemic, consider the following statements: (2022)**

1. The Serum Institute of India produced COVID-19 vaccine named Covishield using mRNA platform.
2. Sputnik V vaccine is manufactured using vector-based platform.
3. COVAXIN is an inactivated pathogen-based vaccine.

**Which of the statements given above are correct?**

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

**Ans: (b)**

**Exp:**

- COVISHIELD vaccine is based on the platform which uses a recombinant, replication-deficient chimpanzee adenovirus vector encoding the SARS-CoV-2 Spike (S) glycoprotein. Following administration, the genetic material of part of coronavirus is expressed which stimulates an immune response. **Hence, statement 1 is not correct.**
- Sputnik V is the world's first registered vaccine based on a well-studied human adenovirus vector platform. It has been approved for use in 71 countries with a total population of 4 billion people. The vaccine is named after the first Soviet space satellite. The vaccine's efficacy is 97.6%, based on the analysis of data on the incidence of coronavirus among Russians vaccinated with both vaccine components between December 5, 2020 and March 31, 2021. **Hence, statement 2 is correct.**
- Covaxin is an inactivated viral vaccine. This vaccine is developed with Whole-Virion Inactivated Vero Cell-derived technology. They contain inactivated viruses, which cannot infect a person but still can teach the immune system to prepare a defence mechanism against the active virus. **Hence, statement 3 is correct.**
- **Hence, option (b) is correct.**

**Source: IE**

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