



XE Variant of the Coronavirus

Why in News?

Recently, a **50-year-old woman in Mumbai**, may have been **infected with the newly-discovered 'XE' variant of the coronavirus**.

- XE is a sub-variant of **Omicron**, which caused the **third wave of Covid-19**, which had not been found in India until now.
- So far, there is **no indication that it is more dangerous than other variants**.

What is the XE Variant of Coronavirus?

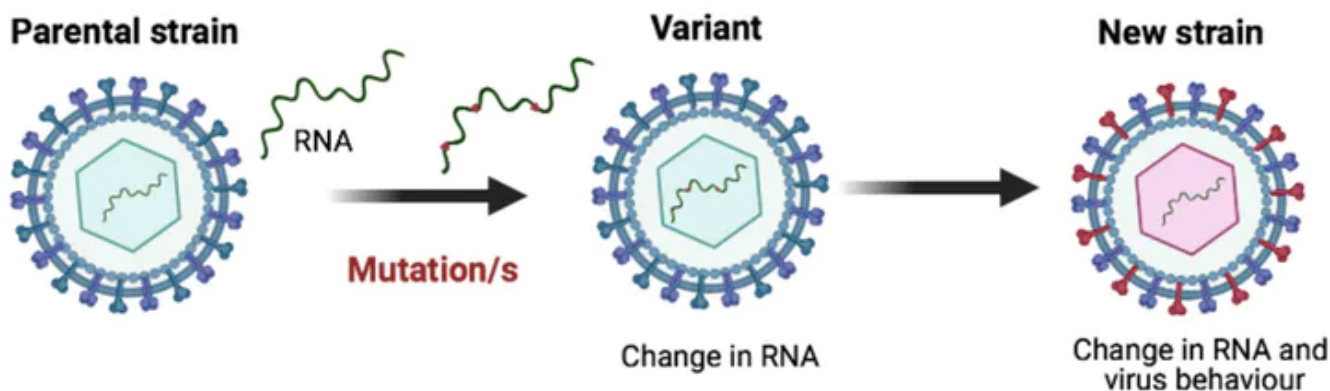
- The Omicron variant, which is responsible for over **90% of the infections** detected in 2022, has two **prominent sub-variants**, called **BA.1 and BA.2**.
- The XE variant is what is called a '**recombinant**'. This means it contains the **mutations found in BA.1 as well as BA.2 varieties of Omicron**.
 - Recombinant variants are **not uncommon**.
 - For example, variants that contain the **characteristic mutations of Delta and Omicron have also been identified**.
- This was first discovered in the United Kingdom in January 2022, and so far more than **600 samples of XE have been found in different countries**.
- In fact, variants that contain the characteristic mutations of **Delta and Omicron have also been identified**.

Is there a Threat from XE?

- As of now, there is **no evidence to show that the XE variant** is significantly different from the other varieties of Omicron.
- However, this variant is noticed to be about **10% more transmissible** than the dominant **BA.2 variant**.
 - In India, it was the BA.2 that was the **most dominant during the third wave**.
- Nevertheless, a **fresh wave of infections in India can never be ruled out**, considering that the virus has **not** been eliminated, and is also undergoing mutations.

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 Year Questions (PYQs)

Q. In the context of the developments in Bioinformatics, the term 'transcriptome', sometimes seen in the news, refers to (2016)

- (a) a range of enzymes used in genome editing
- (b) the full range of mRNA molecules expressed by an organism
- (c) the description of the mechanism of gene expression
- (d) a mechanism of genetic mutations taking place in cells

Ans: (b)

- Transcriptome is the full range of messenger RNA, or mRNA molecules expressed by an organism. The term, 'transcriptome' can also be used to describe the array of mRNA transcripts produced in a particular cell or tissue type.
- In contrast with the genome, which is characterised by its stability, the transcriptome actively changes. In fact, an organism's transcriptome varies depending on many factors, including stage

Q. Consider the following:

1. Bacteria
2. Fungi
3. Virus

Which of the above can be cultured in an artificial / synthetic medium?

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

Ans: (a)

Exp:

- Bacteria and Fungi can be cultured in an artificial/ synthetic medium. Whereas viruses require a living host cell for replication.

- Infected host cells (eukaryotic or prokaryotic) can be cultured and grown, and then the growth medium can be harvested as a source of the virus.

Source: IE

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