

Classification of corona variants

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In news: Health authorities in the UK recently said that two variants from the **B.1.617 lineage** or **Indian variant of the SARS-CoV-2 virus** have been identified and monitored as Variants Under Investigation (VUI).

About the variants-

- Variants of a virus have one or more mutations that differentiate it from the other variants that are in circulation.
- While most mutations are deleterious for the virus, some make it easier for the virus to survive.
- The SARS-CoV-2 virus is evolving fast because of its **high levels of circulation which makes it able to replicate faster.**
- The B.1.617 variant of the virus has **two mutations – E484Q and L452R.**
- Both are separately found in many other coronavirus variants, but they have been **reported together for the first time in India.**
- This variant is classified as a **Variant of Interest (VOI)** by the World Health Organisation (WHO).
- The L452R mutation has been found in some other VOIs such as B.1.427/ B.1.429, which are believed to be more transmissible and may be able to override neutralising antibodies.
- The WHO has said that samples from individuals who had natural infection may have reduced neutralisation against variants.

Classification of Coronavirus-

The **US Centers for Disease Control and Prevention (CDC)**,

classifies variants into three categories – **variant of interest (VOI)**, **variant of concern (VOC)** and **variant of high consequence**.

VOI is defined as, “A variant with specific genetic markers that have been associated with changes to receptor binding, reduced neutralization by antibodies generated against previous infection or vaccination, reduced efficacy of treatments, potential diagnostic impact, or predicted increase in transmissibility or disease severity.”

VOC is defined as, “A variant for which there is evidence of an increase in transmissibility, more severe disease (e.g., increased hospitalizations or deaths), significant reduction in neutralization by antibodies generated during previous infection or vaccination, reduced effectiveness of treatments or vaccines, or diagnostic detection failures.” The **B.1.1.7**, **B.1.351**, **P.1**, **B.1.427**, and **B.1.429** variants circulating in the US are classified as VOC.

A **variant of high consequence** has clear evidence that prevention measures or medical countermeasures (MCMs) have significantly reduced effectiveness relative to previously circulating variants.

Possible **attributes** of a variant of high consequence are-

- Demonstrated failure of diagnostics
- Evidence to suggest a significantly reduction in vaccine effectiveness,
- A disproportionately high number of vaccine breakthrough cases, or very low vaccine-induced protection against severe disease
- Significantly reduced susceptibility to multiple Emergency Use Authorization (EUA) or approved therapeutics
- More severe clinical disease and increased hospitalizations

It would **require notification to WHO under the International Health Regulations**. Currently there are **no SARS-CoV-2 variants that rise to the level of high consequence**.