

# The Delta Plus variant of COVID-19: Will it be the worst nightmare in the SARS-CoV-2 pandemic?

Roy B<sup>1\*</sup>, Roy H<sup>2</sup>

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**\*Corresponding author:**

Dr. Bedanta Roy,  
Senior Lecturer, Department of Physiology, Faculty of  
Medicine, Quest International University, Ipoh, Perak,  
Malaysia

**Email:** [bedanta.roy@gmail.com](mailto:bedanta.roy@gmail.com) [ORCID](#)

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The emergence of COVID-19 in Wuhan, China, and the continued spread of the SARS-CoV-2 virus have reshaped humanity with millions of deaths, billions of job losses, and trillions of dollars of economic loss. The Delta COVID-19 variant (B.1.617.2) was first identified in India in October 2020, later found in other countries. Variants of Interest (VOIs) and Variants of Concern (VOCs) was declared on April 4, 2021, and May 1, 2021.

In May 2021, WHO tagged the Delta COVID-19 variant, which drove the deadly second wave of coronavirus infection in India.

Recently a variant of Delta is identified as “Delta Plus”. According to Public Health England, the Delta Plus variant has been identified in six genomes from India till June 7, 2021. As of June 27, 2021, the UK health agency identified 63 genomes of the Delta variant of SARS-CoV-2, which has the K417N mutation. K417N is present in the spike protein on the surface of the SARS-CoV-2 virus.

Although the number of Delta Plus variants infections is less, prominent national news outlets of India reported new cases from different states. So, the strain has already become a grave concern for a possible third wave of COVID-19 in India in near future. Delta plus variants also made news headlines in the USA, Canada, United Kingdom, Russia, Japan, Portugal, Poland, Turkey, Nepal and Switzerland.

Two versions of the Delta Plus variant are slowly spreading across the globe – “AY.1” and “AY.2”. “AY.1”, is prevalent internationally, whereas “AY.2” is confounding in the U.S. and detected 150 times.

**Why are we raising concerns about the Delta Plus variant?**

1. The mutated variant is resisting the monoclonal antibody Casirivimab and Imdevimab used in the cocktail treatment for COVID-19, which was approved by Central Drugs Standard Control Organization (CDSCO). Still, plasma from vaccinated people needs to be tested whether any significant escape from the body's immune response.
2. Some reports suggested that Delta Plus has a greater affinity to the mucosal lining in the lungs, which is comparatively higher than other variants.

As discussed earlier, the K417 position, where the mutation took place, is crucial as it interacts with the ACE2 receptor protein, which helps the virus infect human cells in different organs like the lung, heart, kidney, and intestine. When the spike protein come across with ACE2, it changes from a “closed” to an “open” state which increases the ability to bind and infect the cell. This same trail is also evident in other highly transmissible and antibody resistant variants.

Existing vaccines work against the original Delta variant but shows low efficacy amongst the older age groups, those who had not to mount an effective immune response, or whose protection may diminish faster. Reports showed after the first dose of Pfizer or the AstraZeneca vaccine has only 33 percent efficacy against the symptomatic Delta variant affected patients. The efficacy rate increased to 60 percent and 88 percent after the second dose of AstraZeneca and Pfizer.

Earlier research on the Beta variant documented that K417 mutations helped to evade antibodies, so we can't exclude the same fate with Delta Plus, i.e. dodging vaccines and antibodies. Still, we firmly believe that it may be too early to predict the Delta Plus variant's transmissibility, its effect on lungs and other body organs after infection and doubting the vaccine efficacy. More evidence is required to confirm all predictions towards the Delta Plus variant.

Dr. Bedanta Roy  
Deputy Editor,  
Journal of Biomedical Sciences  
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Harekrishna Roy  
Member, NHWS

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Antiviral, chloroquine, drug, infection, SARS-CoV-2, treatment, trials, virus

### Abbreviations

Coronavirus disease (COVID-19), Severe acute respiratory syndrome (SARS-Coronavirus) Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), Middle East respiratory syndrome coronavirus (MERS-CoV)

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### Author information

Dr. Bedanta Roy, Senior Lecturer, Department of Physiology, Faculty of Medicine, Quest International University, Ipoh, Perak, Malaysia [ORCID](#)

Harekrishna Roy, Chief Research Officer, Department of Fishery Genetics, CMRA, West Bengal, India [ORCID](#)