-Variation (Biology) / Virus

Mutations driving Covid-19 response

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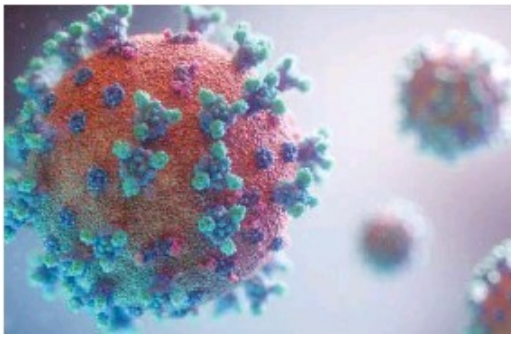
VIRUS mutations have been a hot topic since the spread of Covid-19 variants such as Alpha, Beta, and the highly infectious Delta, prompting changes in the global response to a pandemic that has infected over 230 million people, 2.6 million of them Filipinos.



Viruses, experts have explained, mutate over time, particularly unstable ones like SARS-CoV-2 that causes Covid-19. According to the World Health Organization, mutations are more likely if viruses are "widely circulating." More opportunities to reproduce mean "more opportunities ... to undergo changes."

A virus will mutate if it makes "mistakes" during its reproduction, infectious diseases specialist Edsel Maurice Salvana told The Manila Times.

"The mutations accumulate across different hosts. Mutation rates can increase for many reasons, especially in immunocompromised hosts where viruses may achieve higher virus levels and are able to multiply without much interference from the immune system," he added.

"The more infections there are, the more chances for the virus to mutate and acquire mutations."

Cynthia Saloma, executive director of the Philippine Genome Center, said mutations were especially higher with the Covid-19 virus, which has ribonucleic acid (RNA) as its genetic material.

"The mutation rate of the RNA virus is much faster than the DNA (deoxyribonucleic acid) virus, that is why it mutates." Saloma told The Times.

Mutations can be triggered by a "response in its environment," such as exposure to ultraviolet light or chemicals. "Some mutations are deleterious enough to kill organisms," Saloma added.

The country has so far reported more than 3,366 Delta variant cases, making it the most prevalent variant since the Philippine Genome Center started sequencing in December last year. In addition, there are 2,559 Alpha variant cases, 2,920 Beta cases, 461 P.3 variant cases, and three Gamma cases.

In August, the WHO confirmed that the highly infectious Delta variant, which first emerged in India, had become the most dominant in the country. The rise of mutations has decreased the efficacy of existing vaccines but experts said that the jabs remained effective against hospitalizations and deaths.

Some have acknowledged that vaccine efficacy will decrease over time, making people more vulnerable to Covid-19. This has prompted some countries to start giving booster doses to vulnerable sectors. The government, meanwhile, is considering acquiring "second generation" vaccines that are currently undergoing clinical trials.