

How do Viruses Mutate(Pfizer)

From what has been observed thus far regarding the genetic evolution of SARS-CoV-2, it appears that the virus is mutating relatively slowly as compared to other RNA viruses. Scientists think this is due to its ability to “proofread” newly made RNA [copies](#). This proofreading function does not exist in most other RNA viruses, including influenza. Studies to date estimate that the novel coronavirus mutates at a rate approximately four times slower than the influenza virus, also known as the seasonal flu virus. Although SARS-CoV-2 is mutating, thus far, it does not seem to be drifting antigenically. It should be noted, however, that SARS-CoV-2 is a newly discovered virus infecting humans. There are still many unknowns, and our understanding of the SARS-CoV-2 virus continues to grow. This relatively slow mutation rate for SARS-CoV-2 make us hopeful that investigational SARS-CoV-2 vaccine candidates will potentially have one less hurdle toward offering the ability to provide protection over a longer period of time.

Influenza viruses undergo antigenic shift, an abrupt, major change in the virus’s antigens that happens less frequently than antigenic [drift](#). It occurs when two different, but related, influenza virus strains infect a host cell at the same time. Because influenza virus genomes are formed by 8 separate pieces of RNA (called “genome segments”), sometimes these viruses can “mate,” in a process called, “reassortment.” During reassortment, two influenza viruses’ genome segments can combine to make a new strain of influenza virus.

https://www.pfizer.com/news/articles/how_do_viruses_mutate_and_what_it_means_for_a_vaccine

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