

Variant of Covid Virus

- Kindly shared with us by Eddie Bollenbach M.A. biology

You have probably heard of the new variant of COVID virus in the United Kingdom and also another mutant strain in South Africa with similar mutations to the UK variant. Let's constrain ourselves to the UK mutant.



The reproductive number or R_0 of the wild strain is 1.1 which means 10 infected people will typically infect 11 others. It is believed that the reproductive number R_0 of the mutant strain is 1.5, which by division you can find that the new virus seems 70% more infectious. 10 people will most commonly infect 15 people.

The difference in infectivity is not enough to mean we cannot control the virus by mask-wearing, social distancing, and hand washing. It can be handled.

Now, since the genetic code of the new variant differs in 6 places in the spike protein, but USA Today says 8 places, the result is that two amino acids in the spike protein are different from the wild type. A protein is a long chain of amino acids linearly bonded to one another. Then this long line of amino acids folds a couple of times to give us the shape of the protein. A change of 2 amino acids in the spike protein will result in a slightly different shape for the spike protein. In this new variant, there are a whopping 17 new mutations altogether.

Since the shape of the spike protein matters because it is the target of antibodies induced by vaccination the concern arises regarding the antibody shape combining with the new spike protein shape.

The good news is vaccinologists believe the vaccines will still be effective and work. Continuing research is going on now in Britain to measure this.

This variant will soon be all over the world if its R_0 is higher than that of the wild strain. The US hasn't closed its border to people from the UK because the strain is probably here already and it will be treated the same way as our original wild-type strain.

In the foreseeable future we will learn more about this variant so stay tuned.