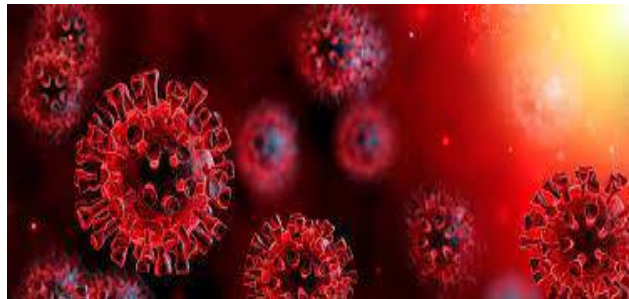


Let's not be alarmed just yet

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Infection with the coronavirus generates a very strong immune response, characterized by the production of several neutralizing antibodies that specifically target a protein present in the outer layer (spicules) of the virus. Since this protein (called protein S) is essential for the virus to enter and reproduce inside our cells, these antibodies therefore help prevent infection at the source and the development of COVID-19. This S protein can therefore be considered the Achilles heel of the coronavirus and it is for this reason that all vaccines currently available or in development are based on the production of antibodies against this protein.

MUTATIONS

These neutralizing antibodies create enormous evolutionary pressure on the virus, which favors the selection of the mutants most able to escape immune control to allow the virus to reproduce its genetic material (which remains the primary objective of a virus). The mutant recently identified in South Africa contains one of these beneficial mutations for the virus, a glutamic acid replaced by a lysine at position 484 (E484K). According to recent analyzes, this mutant reduces by about 10 times the neutralization capacity of the antibodies present in the serum of some patients (1). Before getting too alarmed, it should be mentioned that this decrease in activity is not observed in all patients and that, even in cases where the reactivity of the antibodies is reduced, it is not abolished and a residual immunity can be measured. This is important because several studies have shown that even in cases where the immune response generated against the virus is not very strong, it remains strong enough to prevent the development of severe forms of COVID-19. It is therefore likely that the immunity generated by current vaccines remains adequate to neutralize this mutant.

Therefore, whatever the coronavirus mutants in circulation, the absolute priority remains to vaccinate the population as quickly as possible, in particular those at risk. The immune response generated by these vaccines is excellent and, at present, there is every indication that they can neutralize all the viruses currently in circulation, even the most contagious forms. The sooner we can immunize the largest number of people, the better our chances of maintaining our advantage against the virus and of successfully controlling this pandemic.

- (1) Greaney AJ et coll. Comprehensive mapping of mutations to the SARS-CoV-2 receptor-binding domain that affect recognition by polyclonal human serum antibodies. bioRxiv (published online, January 4th 2021)