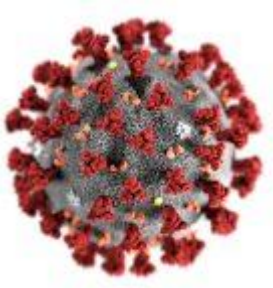
Do mutations in the SARS-CoV-2 spike protein enhances viral infectivity?



Disclaimer: This is a summary of an article that is in a preprint and has not been peer reviewed.

Authors in a pre-peer reviewed publication analyzed the Spike gene sequences of SARS-CoV-2 submitted to the Global Initiative on Sharing All Influenza Data (GISAID) database (https://nextstrain.org/ncov). They used a lentiviral pseudotype neutralizing antibody assay to evaluate the neutralizing sensitivity of the S-D614 and S-G614 mutation to convalescent sera from COVID-19 patients. Firstly, they found that the entry efficiency of the S-G614 pseudotyped virus was ±2.4 times higher than that of the S-D614 pseudovirus – suggesting that the D614G mutation can enhance viral infectivity. Secondly, although the majority of sera (93%) from convalescent COVID-19 patients could neutralize either S-D614 and S-G614 pseudotyped viruses, 7% (3/41) were unable to neutralize the D614G mutation in spike, showing that this mutation can lead to loss of neutralizing antibody activity. Whether this might be translated to a wider loss of sensitivity in infected patients remains to be seen, but possibly represents an important mutation to be aware of in upcoming vaccine trials.

Journal Article: Hu et al., Pre-Print. The D614G mutation of SARS-CoV-2 spike protein enhances viral infectivity and

decreases neutralization sensitivity to individual convalescent sera. MedRxiv.

Summary by Clive Gray