SARS-COV-2 NEUTRALIZING ANTIBODY EFFECTIVE AGAINST ALL VARIANTS

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Disease indication - SARS-CoV-2 infection (COVID-19)

Drug format – Chimeric monoclonal antibody

Drug class – Best-in-class

Research stage and Preliminary data – The inventors have developed and characterized this antibody, creating a chimeric version with a human IgG backbone. The antibody has been extensively tested in hACE2 transgenic mice. The researchers have also performed initial proof of concept experiments against all common SARS-CoV-2 variants (including the South Africa, UK, Brazil, and California variants) *in vitro* to show similar levels of efficacy.
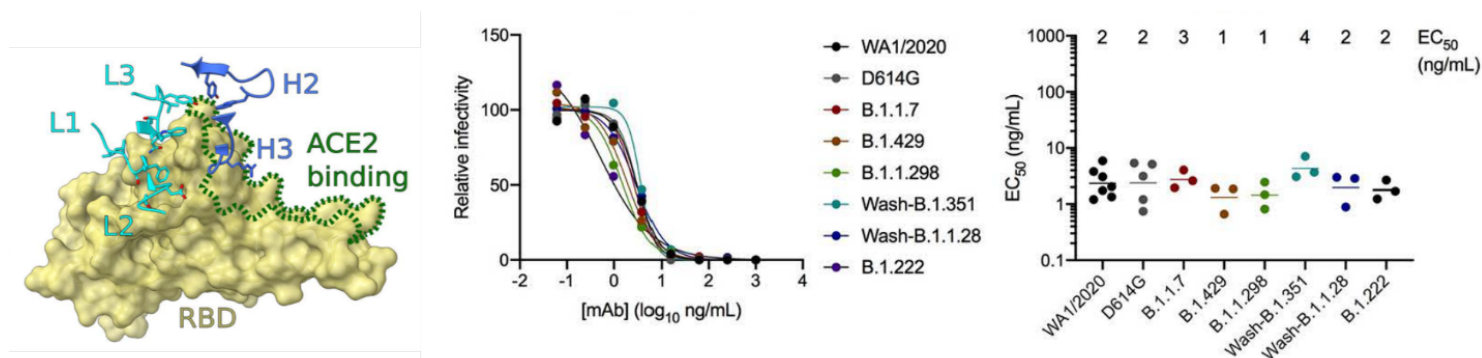
(Left) Cryo-EM depicting the antibody binding site on the SARS-CoV-2 spike protein RBD. (Center, Right) Results of in vitro focus-reduction neutralization tests with multiple circulating variants showing minimal change in dose response curves and EC_{50} values across variants.

Target – SARS-CoV-2 spike protein

Background – Mass vaccination is proving to be an effective strategy in combatting the spread of COVID-19. However, the emergence of new variants of SARS-CoV-2 remains a concern, particularly when the new variants show decreased susceptibility to vaccine-generated immune response due to mutations in the spike protein. Therapeutics targeted at conserved regions of the spike protein are ideally suited for use in all variants.

Mode of action – This antibody binds the viral spike protein at a highly-conserved epitope, neutralizing the virus by blocking entry at attachment and post-attachment steps.

Competitive edge – While other neutralizing antibodies for SARS-CoV-2 have been developed, they often show reduced efficacy on some variants due to mutation of the spike protein. This antibody's epitope is highly conserved across all common variants of SARS-CoV-2, providing effective treatment for all variants.

Publication – VanBlargan LA, Adams LJ, Liu Z, Chen RE, Gilchuk P, … Diamond MS. (2021). A potently neutralizing anti-SARS-CoV-2 antibody inhibits variants of concern by binding a highly conserved epitope. *bioRxiv.*

Patent status - Pending

Web Links – Diamond [Profile](#) & [Lab](#); Fremont [Profile](#) & [Lab](#)