

I BEST OF THE WEEK (08 ago – 13 ago 2022)

Kim S.L. et al

Homogeneous surrogate virus neutralization assay to rapidly assess neutralization activity of anti-SARS-CoV-2 antibodies

Nature Communications, July 2022; doi.org/10.1038/s41467-022-31300-9

Abstract

The COVID-19 pandemic triggered the development of numerous diagnostic tools to monitor infection and to determine immune response. Although assays to measure binding antibodies against SARS-CoV-2 are widely available, more specific tests measuring neutralization activities of antibodies are immediately needed to quantify the extent and duration of protection that results from infection or vaccination. We previously developed a 'Serological Assay based on a Tri-part split-NanoLuc® (SATiN)' to detect antibodies that bind to the spike (S) protein of SARS-CoV-2. Here, we expand on our previous work and describe a reconfigured version of the SATiN assay, called Neutralization SATiN (Neu-SATiN), which measures neutralization activity of antibodies directly from convalescent or vaccinated sera. The results obtained with our assay and other neutralization assays are comparable but with significantly shorter preparation and run time for Neu-SATiN. As the assay is modular, we further demonstrate that Neu-SATiN enables rapid assessment of the effectiveness of vaccines and level of protection against existing SARS-CoV-2 variants of concern and can therefore be readily adapted for emerging variants.

M.M. Higdon et al.

Duration of effectiveness of vaccination against COVID-19 caused by the omicron variant

The Lancet Infectious Diseases, June 2022; doi.org/10.1016/S1473-3099(22)00409-1

Abstract

We recently conducted a systematic review and meta-regression of the duration of effectiveness of primary series COVID-19 vaccination against clinical outcomes before the predominance of the omicron (B.1.1.529) SARS-CoV-2 variant. Here we assess the duration of vaccine protection, after a primary vaccine series and after the first booster dose, against omicron, the current predominant variant, using the same methods.¹ We systematically reviewed published and preprint literature from Dec 3, 2021, to April 21, 2022, by searching for studies assessing absolute vaccine effectiveness over time during an omicron-dominant period. We estimated the mean change in vaccine effectiveness from 1 month to 6 months after primary vaccine series completion and from 1 month to 4 months after booster vaccination, using random-effects meta-regression.