

Omicron (SARS-CoV-2, B.1.1.529) Talking Points

- First identified in South Africa on Nov. 9, 2021
- Designated as a variant of Concern by WHO on November 26, 2021
- The primary target of COVID-19 vaccines and monoclonal antibody treatment is the spike protein
- Omicron has shown stronger binding ability to the hosts cells than the Delta variant making it more transmissible than the Delta variant¹. An unpublished study from Japan indicates the Omicron variant is 4.2 times more contagious than the Delta variant which is more than double the transmissibility of the original COVID-19 virus.
- Infection doubling every 48 hours.
- Omicron has at least 30 mutations of the spike protein potentially reducing the effectiveness of both vaccines and monoclonal antibody treatment. Approximately 20 other mutations have also been observed
- Early laboratory studies have confirmed the above assumption regarding reduced effectiveness of vaccines and monoclonal antibody (mAb) treatment². One preliminary study has shown that certain mAB treatments lost all effectiveness³.
- Independent studies on the effectiveness of antiviral remdesivir have yet to be published. Gilead Sciences, the manufacturer of remdesivir stated that preliminary data suggests that remdesivir marketed under the name Veklury, remains effective, but treatment is intravenous making it possible most likely in hospital settings.
- Other drugs may work but not approved yet: Monupiravir and Paxlovid.
- Because of the mutations it is feared that detection may be compromised leading to an increase in false negatives. However, recent research indicates that tests using 2019-nCoV-N1 primer-probe (e.g., CDC 2019-nCoV Real-Time RT-PCR Diagnostic Panel) continued to be effective at detecting COVID-19 including the Omicron variant⁴. Further research is required to determine the efficacy of other diagnostic tests.

¹ "SARS-CoV-2 Omicron Spike Glycoprotein Receptor Binding Domain Exhibits Super-Binder Ability with ACE2 but not Convalescent Monoclonal Antibody." bioRxiv (2021).

² Wilhelm, Alexander, Marek Widera, Katharina Grikscheit, Tuna Toptan, Barbara Schenk, Christiane Pallas, Melinda Metzler, Niko Kohmer, Sebastian Hoehl, Fabian A. Helfritz, Timo Wolf, Udo Goetsch, and Sandra Ciesek. "Reduced Neutralization of SARS-CoV-2 Omicron Variant by Vaccine Sera and Monoclonal Antibodies." medRxiv (2021).

³ "An infectious SARS-CoV-2 B.1.1.529 Omicron virus escapes neutralization by several therapeutic monoclonal antibodies." bioRxiv (2021).

⁴ Bei, Yanxia, Kyle B. Vrtis, Janine G. Borgaro, Bradley W. Langhorst, and Nicole M. Nichols. "The Omicron variant mutation at position 28,311 in the SARS-CoV-2 N gene does not perturb CDC N1 target detection." medRxiv (2021).