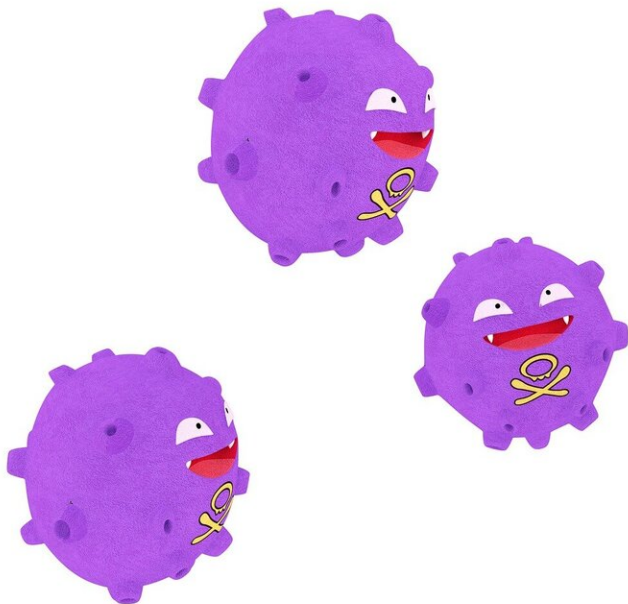


Antibody research shows promise in fight against COVID-19

July 17 2020, by Bill Snyder



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Based on positive results in preclinical studies reported today, potentially neutralizing antibodies identified by researchers at Vanderbilt University Medical Center are showing promise as a potential therapy for preventing and treating COVID-19.

The [monoclonal antibodies](#) were isolated from the blood of a couple from Wuhan, China, who were diagnosed with COVID-19 after traveling to Toronto, Canada, in late January. They were two of the earliest confirmed cases of COVID-19 in North America.

During the past two years, VUMC researchers led by James Crowe, Jr., MD, and Robert Carnahan, PhD, have developed ultra-fast methods for discovering highly potent antiviral [human monoclonal antibodies](#) and validating their ability to protect [small animals](#) and non-human primates, all in less than three months.

Reporting last week in the journal *Nature Medicine*, the researchers and colleagues from across the country describe how they used this rapid antibody discovery platform to isolate hundreds of human monoclonal [antibodies](#) against the surface spike (S) protein that enables SARS-CoV-2, the virus that causes COVID-19, to infect lung cells.

In a separate report published today in the journal *Nature*, VUMC scientists and their colleagues describe how two of the antibodies, COV2-2196 and COV2-2130, bind to distinct sites on the S protein and either alone or in combination reduce the viral "burden" in infected mice and protect them from weight loss and lung inflammation.

They also found that COV2-2196 and another potent antibody,

COV2-2381, given alone protected rhesus macaques from SARS-CoV-2 infection. Collectively these results suggest that these monoclonal antibodies, either alone or in combination, "are promising candidates for prevention or treatment of COVID-19," the researchers concluded.

Last month, the global biopharmaceutical company AstraZeneca licensed from Vanderbilt University one set of the antibodies described in the Nature paper for clinical evaluation and development. IDBiologics, a Nashville-based biotechnology firm, has licensed a separate set of the antibodies. Both companies are planning clinical trials this summer.

More information: Seth J. Zost et al. Rapid isolation and profiling of a diverse panel of human monoclonal antibodies targeting the SARS-CoV-2 spike protein, *Nature Medicine* (2020). [DOI: 10.1038/s41591-020-0998-x](https://doi.org/10.1038/s41591-020-0998-x)

Provided by Vanderbilt University

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