Scientists test monoclonal antibodies as potential COVID-19 treatment

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Timothy Albertson, chair of internal medicine and specialist in pulmonary and critical care, is leading efforts at UC Davis Health to test a new antibody cocktail (REGN-COV2) as a prevention and treatment for COVID-19.

Albertson was awarded a grant to run the clinical trial at UC Davis Health. The grant comes from the Biomedical Advanced Research and Development Authority (BARDA), part of the office of the Assistant Secretary for Preparedness and Response at the U.S. Department of Health and Human Services.

The clinical trial is sponsored by Regeneron Pharmaceuticals. It is an adaptive phase I, II and III randomized, double-blinded, placebo-controlled study. It seeks to evaluate the efficacy and safety of REGN-COV2 (a combination of REGN10933+REGN10987 antibodies) in hospitalized adult patients with COVID-19. It builds on encouraging findings from a set of studies that showed the neutralizing impact of REGN10933 and REGN10987.

"We are very excited to test this antibody combination as a possible treatment to COVID-19," Albertson said. "We are all up and running on this clinical trial and will start patient recruitment soon."

At this time, there is no approved treatment that specifically targets SARS-CoV-2.

Disabling the SARS-CoV-2 Spike protein

The spike proteins on the outer envelope of coronaviruses allow entry and bind to the host cells. They appear to be central to why SARS-CoV-2 is so infectious. Previous studies have found that the viral infectivity of coronaviruses such as SARS-CoV and MERS-CoV was reduced when neutralizing antibodies were used against spike protein, blocking the host cell entry.

Currently, there are multiple efforts to develop antibodies that target the spike protein. Regeneron is developing and testing fully human, neutralizing monoclonal antibodies (mAbs) directed against the spike protein of SARS-CoV-2 for the treatment and prevention of COVID-19.

Regeneron antibody cocktail as potential COVID-19 treatment

To this end, Regeneron developed the REGN-COV2 antibodies to bind to the SARS-CoV-2 spike protein and block its interaction with the host receptor, which is expected to neutralize the virus.

The clinical trial will test the safety, tolerability and efficacy of REGN-COV2 as a promising therapeutic strategy to reduce SARS-CoV-2 viral shedding and COVID-19 disease progression.

Provided by UC Davis