Vanderbilt COVID-19 Antibody Therapy Protects Immunocompromised Patients

Vanderbilt University

As COVID-19 spread in 2020, researchers at Vanderbilt University Medical Center recognized that millions of people with weakened immune systems, including those undergoing cancer treatment or recovering from organ transplants, would remain vulnerable despite widespread vaccination.

In response, a team of scientists at the Vanderbilt Center for Antibody Therapeutics developed a monoclonal antibody therapy to offer long-acting protection against COVID-19. The therapy, later named Evusheld™, became the first preventive treatment for the virus authorized in the U.S. for immunocompromised individuals. The research team was led by James E. Crowe, Jr., MD, director of the Vanderbilt Center for Antibody Therapeutics, along with Robert H. Carnahan, PhD, Pavlo Gilchuk, PhD, and Seth J. Zost, PhD.

Evusheld™ is a combination of two lab-engineered antibodies, tixagevimab and cilgavimab, isolated from the B cells of recovered COVID-19 patients and optimized using a rapid antibody discovery platform.

Unlike vaccines, which rely on a person's immune system to generate protection, Evusheld™ delivers ready-made antibodies through a pair of intramuscular injections. It offers immediate, durable protection for people with weakened immune systems, including those undergoing cancer treatment, recovering from organ transplants, or managing chronic autoimmune or immune deficiency conditions.

Clinical trials showed the treatment reduced the risk of symptomatic COVID-19 by 83% and provided protection for at least six months.

Vanderbilt's Center for Technology Transfer and Commercialization (CTTC) played a critical role in moving Evusheld™ from discovery to global use. CTTC negotiated material transfer agreements to access patient samples from multiple countries and finalized research collaborations to test and refine the antibodies. The team secured a federal manufacturing waiver allowing production in the United Kingdom and completed an exclusive license with AstraZeneca in just three weeks.

"Through this work, AstraZeneca received emergency use authorization to distribute the Vanderbilt antibody cocktail to immunocompromised patients, saving hundreds of thousands of lives across the globe," said Alan Bentley, Assistant Vice Chancellor for Technology Transfer.

The research was supported by the Defense Advanced Research Projects Agency, the National Institute of Allergy and Infectious Diseases, and the Dolly Parton COVID-19 Research Fund at Vanderbilt.

Evusheld™ has earned recognition, including a 2022 R&D 100 Award, a spot on TIME magazine's Best Inventions list, and the Harrington Prize for Innovation in Medicine awarded to Crowe.

Evusheld's rapid development showed how university research can translate into real-world health solutions during a public health emergency. The therapy has since become a global example of academic innovation responding to urgent medical need.

This story was originally published in 2026.