Hybrid Hope

Scientists merge three antibodies that target almost all strains of HIV.

March 5, 2018 By Kate Ferguson

Later this year, researchers plan to start clinical trials to test a combination drug consisting of three antibodies that may work to prevent or treat HIV in humans.

The idea for this study flowered after investigators previously isolated three individual HIV antibodies, each of which neutralizes many strains of HIV in people. Scientists combined these substances into one entity that they tested on 24 monkeys injected with SHIV, a simian version of the virus.

Results from the findings, published in the medical journal Science, showed that the triple-threat antibody neutralized 99 percent of HIV strains among primates given the new drug.

Researchers tested a number of single antibodies to determine which ones performed most effectively together. They called the most powerful grouping of three a “trispecific” antibody because each part of the combo latches onto a different location on the virus. Antibodies that the body produces to help fight infection prompted scientists to take a harder look at these substances as a way to destroy HIV.

Combinations of antibodies that each bind to a distinct site on HIV may work better to overcome the defenses of the virus in the effort to achieve effective antibody-based treatment and prevention, explains Anthony Fauci, MD, the director of the National Institutes of Allergy and Infectious Disease.

The trispecific antibody would work to stimulate the immune system to quickly create these antibodies when the body is exposed to HIV.

According to reports, scientists also propose a separate study to test the combination antibody on people currently living with the virus. Other researchers say the trispecific antibodies may also qualify for use beyond HIV prevention and treatment as therapy for autoimmune diseases and cancers.

Gary Nabel, MD, PhD, one of the study’s authors, says that as potential HIV killers these antibodies “are more potent and have greater breadth than any single naturally occurring antibody that’s been discovered.”

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