

Researchers Advance Toward an AIDS Vaccine

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After studying HIV patients who very slowly developed AIDS, researchers say they are a step closer to developing an AIDS vaccine.

As many as 20 percent of people infected with the HIV virus that causes AIDS slowly progress toward the disease, according to researchers who say the patients possess a broad range of so-called neutralizing antibodies that identify and attack the virus.

Until now, scientists say they have not known very much about the antibodies. They have attempted to create a vaccine against HIV, using single antibodies to keep people from being infected.

But researchers at The Rockefeller University in New York isolated 433 neutralizing antibodies from the blood of six HIV patients with a slow disease course and discovered how the antibodies work.

Michel Nuzzensweig led a team of 22 investigators that helped develop the technique to study the antibodies in detail. Nuzzensweig says they launch a multiple attack against the virus.

"I think the novelty is the kind of swarm of piraña idea," said Nuzzensweig. "You know, pirañas take small bites. They don't hurt anybody if they take one bite. But a whole bunch of them can do a lot of damage."

Researchers say this is the first time that so many antibodies have been isolated from a single HIV-infected person that have the potential to disarm the disease.

Nuzzensweig says a vaccine produced from the antibodies could address a problem that has hampered researchers - the ability of the virus to mutate from one person to the next.

"What these antibodies do is they are able to see many, many different strains," said Nuzzensweig. "In other words, they are broadly neutralizing, broadly against many strains of the virus. But any individual antibody is never sufficient to be broadly neutralizing."

John Mascola of the Vaccine Research Center at the National Institutes of Health, near Washington, collaborated on the antibody research. He says they have been shown to work in a petri dish against HIV. Mascola says the research offers a blueprint for designing a vaccine.

"There really hasn't been one that does this that makes these kinds of antibodies," said Mascola. "So we're still at the early stages of figuring out exactly how we want to design this vaccine. And, so these antibodies tell us what to design, so we can make it and do the animal studies."

The NIH and Rockefeller University researchers report their work in the journal Nature.

Reference: **[Broad diversity of neutralizing antibodies isolated from memory B cells in HIV-infected individuals](#)**

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