

Researchers develop novel vaccine that induces antibodies that contribute to protection

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Researchers at the Icahn School of Medicine at Mount Sinai have developed a novel vaccine consisting of DNA and recombinant proteins?proteins composed of a portion of an HIV protein and another unrelated protein. This vaccine was tested in monkeys and was shown to induce antibodies similar to those associated with protection from HIV,

the virus that causes AIDS.

Researchers first identified a part of the virus which, when bound to antibodies, results in the destruction of the virus and of virus-infected cells. Then they designed a vaccine that would induce these types of antibodies. This approach to [vaccine design](#) is called "reverse vaccinology."

The target identified by the researchers on the virus is called the V1V2 loop of the gp120 envelope protein. In studies of monkeys vaccinated with gp120 DNA and a combination of three novel recombinant proteins carrying the V1V2 region, antibodies were induced that display many different antiviral functions. These antibodies were of the type that had been associated with a reduced rate of HIV infection in previous human clinical trials, according to the study published in *Cell Reports* in July.

"Our lab, together with researchers from several institutions in the United States, has been working for more than a decade on a novel approach to developing a vaccine against HIV/AIDS," said lead author Susan Zolla-Pazner, Ph.D., Professor of Medicine and Microbiology at the Icahn School of Medicine at Mount Sinai. "The vaccine we have developed is safe, in that it contains nothing that is infectious to the individual vaccinated. In the study now being published, we show that this novel vaccine induces the desired antibodies in monkeys, which suggests strongly that similar protective antibodies can be induced in humans and may play an important role in preventing HIV infection."

Showing that a vaccine will induce antibodies in monkeys is important since it suggests that humans will react similarly. The successful production of [antibodies](#) in monkeys with the novel vaccine studied in this report indicates that the vaccine should move forward to first-in-[human studies](#) to determine if it is as safe, well-tolerated, and immunogenic as it was in monkeys.

Provided by The Mount Sinai Hospital

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