HIV Vaccine Awareness Day 2019

Federal researchers describe two paths to a vaccine—and one of them uses high-tech computers to design a vaccine candidate!

May 17, 2019 By Trent Straube

Saturday, May 18, marks HIV Vaccine Awareness Day (#HVAD) 2019. Not only is it a chance to shine a spotlight on the pursuit for a vaccine, but it's also a time to show gratitude for the volunteers and researchers involved in the endeavor.

"The development and deployment of a safe and effective HIV vaccine would provide long-lasting protection and alleviate the need to depend heavily on prevention methods that require continued access and adherence," said federal research leaders Anthony Fauci, MD, and Maureen Goodenow, PhD, in a National Institutes of Health (NIH) statement about the awareness day. Fauci is the director of the NIH's National Institute of Allergy and Infectious Diseases, and Goodenow is the NIH associate director for AIDS research and the director of the NIH Office of AIDS Research.

Another section of the statement reads:

> NIH is pursuing two scientific paths to develop a safe and effective HIV vaccine. One path aims to build on the promise of modest results seen in RV144, the U.S. Army–led HIV vaccine trial in Thailand. RV144 was the first and only trial to date to demonstrate that an HIV vaccine can protect against infection. The Phase IIb/III HIV vaccine trial HVTN 702 began on World AIDS Day 2016 and has nearly completed enrollment of 5,400 men and women in South Africa. Another large vaccine efficacy clinical trial called HVTN 705/HPX2008 or Imbokodo launched in 2017. This Phase IIb proof-of-concept trial is evaluating an investigational vaccine regimen designed to induce immune responses against a variety of global HIV strains. This trial is nearing complete enrollment of 2,600 women in sub-Saharan Africa.
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> The second path to developing an HIV vaccine is based on theory and involves studying the body's immune response to HIV infection and generating and enhancing those responses through vaccination. The main theoretical approach to developing an HIV vaccine aims to prevent HIV infection by eliciting broadly neutralizing antibodies (bNAbs) (link is external)—antibodies shown in the laboratory to stop most HIV strains from infecting human cells. Some people living with HIV naturally produce bNAbs. However, these antibodies develop too late after initial infection to clear the virus. Scientists at NIH and other institutions have isolated numerous bNAbs from people living with HIV and are working to develop vaccines that elicit these antibodies in healthy people.

POZ recently reported on a machine learning algorithm that designed small sets of proteins potentially useful in creating a vaccine candidate for the Imbokodo trial mentioned above. For details, read “How High-Tech Computers Designed a Promising HIV Vaccine.”

And in related vaccine news, read “Gradual Delivery of HIV Vaccine Packs a Bigger Punch in Monkey Study.”

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