USB Stick Can Test HIV Viral Load

The new technology provides results within 30 minutes.

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Scientists have developed a USB stick that can measure an HIV-positive person's viral load. Using a drop of blood, the miniature technology can be plugged into a computer, laptop or handheld electronic device to give results within half an hour.

Now in the early stages of development, the USB stick test, which uses a mobile chip, was created by scientists at Imperial College London and DNA Electronics. The test results, reports Imperial College London, are 94 percent accurate. The research was published in Scientific Report.

Routine HIV tests determine whether a person is HIV positive but do not look at viral load, a measurement of how much virus is in the bloodstream. But people who are living with HIV need to know their viral load because it helps assess how well HIV treatment is working and whether resistance to meds is developing.

"Monitoring viral load is crucial to the success of HIV treatment," Graham Cooke, MD, the senior author of the research, said in the Imperial College London report. "At the moment, testing often requires costly and complex equipment that can take a couple of days to produce a result. We have taken the job done by this equipment, which is the size of a large photocopier and shrunk it down to a USB chip."

"USB" stands for "universal serial bus" and refers to an interface that connects equipment to computers, for example one of the ways a keyboard or a camera is "plugged in" to another device.

On average, traditional viral load tests take three days to give results and require that samples be sent to laboratories. Across the world, many people with HIV do not have access to these kinds of tests. Scientists hope this new device will help with that problem.

As Imperial College London reports, the technology could be particularly powerful in remote regions in sub-Saharan Africa that may not have easy access to testing facilities.

Scientists are investigating whether the device can be used with other diseases including hepatitis.

This USB stick can test for HIV viral load and give results in 30 minutes.Courtesy of Imperial College London

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