

AIDS cure: Study sees advance for 'kick and kill' strategy

July 22 2014

The elusive quest for an HIV cure received a boost at the world AIDS conference Tuesday as scientists said they had forced the virus out of a hiding place where it had lurked after being suppressed by drugs.

The experiment, carried out with six HIV-infected volunteers, is an important advance in the so-called "kick-and-kill" approach for a cure, they said.

The technique aims to force the human immunodeficiency [virus](#) (HIV) from its last redoubt after it is beaten back by [antiretroviral drugs](#).

These drugs can bring HIV in the blood to below detectable levels, enabling sick patients to return almost miraculously to normal life. But the therapy has to be taken every day, is costly and carries potential side effects.

If the drugs are stopped, HIV usually rebounds within a few weeks and starts once more to infect other immune cells, exposing the body to opportunistic microbes.

So scientists, for the last three years, have focused on ways to kick HIV out of its bolthole and then kill the hideaway cells.

In a presentation at the International AIDS Conference in Melbourne, researchers from Aarhus University in Denmark described a step forward in the first stage of this process.

Six patients who were on antiretrovirals took an anti-cancer drug called romidepsin, which prompted virus production in HIV-infected cells to crank up to between 2.1 and 3.9 times above normal. In five patients, the level of virus in the blood increased to measurable levels, an important threshold.

The pilot study sought only to see if it was possible to flush out the hiding virus and make it detectable.

Further work will show whether all the remaining virus was exposed this way. And a way has to be found to destroy the holdout cells where HIV reproduces after waking up.

"We have now shown that we can activate a hibernating virus with romidepsin and that the activated virus moves into the bloodstream in large amounts," said lead researcher Ole Schmeltz Sogaard.

"This is a step in the right direction but there is a long way to go and many obstacles to overcome before we can start talking about a cure against HIV."

HIV 'fingerprint'

Seen through a microscope, the reactivated virus leaves a trace on the outside of infected CD4 [immune cells](#) as it returns to the bloodstream, he said.

The hope is that this tiny smear, rather like a fingerprint at a crime scene, can be spotted by so-called killer T-cells, the immune system's heavy armour.

The researchers now hope to combine romidepsin to wake up the dormant HIV and then use a vaccine called vacc-4x to prime T-cells to

recognise and then destroy the bolthole.

The six volunteers did not suffer any major side effects from romidepsin, apart from known complaints such as passing fatigue and nausea, and the lymphoma drug did not interfere with their antiretrovirals.

Cure research suffered a big disappointment in the run-up to the 2014 AIDS forum with the news that a strategic prong—delivering a powerful dose of [antiretrovirals](#) at a very early stage of infection—is unlikely to work.

Hopes had centred on an American infant known as "the Mississippi Baby", who was born with HIV. She was given drugs immediately at birth and the treatment continued for 18 months, when physicians lost track of her.

When doctors next checked her five months later, they found no sign of the virus. Now, though, it has been found that after the child had lived for 27 months without HIV and drugs, the virus has bounced back.

Research on lab monkeys published on Sunday in the journal *Nature* suggests HIV's haven, formally called the reservoir, is established within days of infection.

On Monday, scientists at Temple University in Philadelphia reported using an enzyme to snip out HIV genes from infected human cells in a lab dish, a useful but still very early contribution towards a cure.

© 2014 AFP

Citation: AIDS cure: Study sees advance for 'kick and kill' strategy (2014, July 22) retrieved 2 May 2024 from <https://medicalxpress.com/news/2014-07-aids-advance-strategy.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.