

Stem-cell work closes a door to AIDS virus

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Lab work on mice has opened up a novel way of closing a gateway to the AIDS virus, according to a study published on Friday.

The doorway in question is called CCR5, a protein that helps the [human immunodeficiency virus](#) (HIV) penetrate a cell, its first step before hijacking the cellular machinery and reproducing itself.

Around a decade ago, scientists discovered that people who had a tiny gap in the [genetic code](#) for making CCR5 were surprisingly resistant to [HIV infection](#) and took more time to progress to [AIDS](#).

This [gene variant](#), known as CCR5 delta 32, results in smaller CCR5 proteins, which prevents most strains of HIV from infecting the cell.

Testing a theory, scientists in the United States took immature haematopoietic cells -- which make immune and [red blood cells](#) -- from mice.

They modified some of the cells, using a brand-new enzyme "cutter" to delete the famous CCR delta 32 section.

As a result, when these cells matured and divided, they lacked the key code for making normal CCR5.

The modified cells were reinjected back into the rodents, which were then exposed to HIV. Twelve weeks after infection, the animals had recovered their stock of immune T-cells and their levels of HIV were

very low.

But "control" mice that had not received the modified cells were highly infected and their immune systems weak.

If the approach is found to be safe and effective on humans, it opens the way to creating a long-term generation of HIV-resistant T-cells in the body -- in other words, a patient could suppress HIV without taking powerful [antiretroviral drugs](#).

The experiment headed by Paula Cannon of the University of Southern California, Los Angeles, and reported in the journal Nature Biotechnology, is the third avenue that has opened up for CCR5 investigators .

Drugs that inhibit CCR5 are already being licensed as "salvage" therapy for patients whose immune systems have been crippled by HIV.

Doctors are also testing in trials on volunteers a CCR delta 32 technique, but using T-cells as opposed to stem cells.

Around two million people died from AIDS in 2008, and 33.4 million were living with HIV, according to UN figures published last November.

The International AIDS Conference, an event held once every two years, takes place in Vienna from July 18-23.

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