

New target to fight HIV infection identified

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A mutant of an immune cell protein called ADAP (adhesion and degranulation-promoting adaptor protein) is able to block infection by HIV-1 (human immunodeficiency virus 1), new University of Cambridge research reveals. The researchers, who were funded by the Wellcome Trust, believe that their discovery will lead to new ways of combatting HIV.

Professor Chris Rudd from the Department of Pathology, who led the research, said: "One exciting aspect about this new target for HIV intervention is that we should be able to fight HIV without compromising the immune system's ability to battle infections."

HIV infections cause a severe and selective depletion of T-cells, a type of white blood cell that plays a major role in the immune system. Infections result when the HIV [virus](#) enters T-cells of the immune system by binding to the surface receptor CD4. Once it enters the cell, it replicates or reproduces itself rapidly, and then spreads to other T-cells by releasing the virus. This spread can occur between an infected T-cell and an uninfected attached T-cell. The researchers found that an ADAP mutant is able to interfere with HIV-1 infection by targeting two events, by reducing the replication of the virus, and the contact between infected and uninfected T-cells.

Professor Rudd added: "The ADAP mutant is potent in its interference of HIV-1 transmission because it targets simultaneously two critical events, viral replication and the spread of the virus from one T-cell to another. One therapeutic possibility is the reconstitution of infected

individuals with T-cells expressing the mutant that are relatively resistant to HIV infection and which can react against the virus."

According the World Health Organisation, there are currently 35.3 million people living with HIV. Although the number of new HIV infections has dropped, it remains a major global public health issue. In the past three decades, it has killed more than 25 million people.

More information: The paper 'Immune adaptor ADAP in T cells regulates HIV-1 transcription and cell-cell viral spread via different co-receptors' is published in the journal *BioMed Central*
www.retrovirology.com/content/10/1/101

Provided by University of Cambridge

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