

Breakthrough HIV Treatment using Patient's Own Blood

A breakthrough treatment for HIV infection using the patient's own blood to increase the CD4+ T cells count while blocking the CD4+ T cells from re-infection.

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/EINPresswire.com/ -- Swiss R&D

Laboratories and Acquest Healthcare Stem Cell Research and Development

announce a [breakthrough treatment](#)

[for HIV infection](#) using the patient's

own blood to increase the patient's

CD4+ T cell count while genetically blocking the newly created CD4+ T cells from re-infection.

Currently called "HIV Knockout", the effectiveness and safety of this treatment have been

confirmed by in vivo studies in both simian immunodeficiency virus ([SIV](#)) [infected rhesus](#)

[macaques and HIV infected patients](#).



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According to Nattawat Onlamoon PHD “This new treatment strategy ("HIV Knockout") will have a high impact on the patient's quality of life by eliminating the need to take antiretroviral drugs which can cause a lot of serious side effects”

Human immunodeficiency virus (HIV) infection causes a marked immune defect due to the destruction of CD4+ T lymphocytes. HIV infects CD4+ T cells through binding with CD4 molecules and HIV co-receptors (i.e., receptors such as CCR5 and CXCR4).

Anti-retroviral therapy (ART) is effective at lowering a circulating viral load to low or undetectable level and increasing the CD4+ T cell numbers. Although ART is the most effective treatment for HIV infection, it requires a life-long treatment regimen and can have serious side effects. Additionally, some patients develop resistant strains of HIV that won't respond to ART. These

patients become more susceptible to developing opportunistic infections which could lead to disability and death.

Sustained HIV remission after ceasing ART was achieved in patients who were treated with stem cell transplants from donors carrying the CCR5 mutation which prevented expression of HIV co-receptor CCR5. The CCR5 is the doorway on the CD4+ T cells through which the HIV virus enters and infects the CD4 T Cells.

Timothy Brown, also known as the Berlin patient, was cured of HIV in 2006 after living with the virus for 11 years. Mr. Brown's own immune and blood-forming cells were destroyed by myeloablative therapy (radiation, drugs, and antibodies) and then replaced with cells from a donor with the CCR5 mutation. The existence of the genetic mutation of the normal cell protein called the CCR5 receptor blocked the HIV and thus rendered the Berlin patient virtually impervious to HIV infection. The HIV Knockout procedure involves a simple blood draw from the infected patient with no need for myeloablative therapy.

Additionally, Swiss R&D Laboratories announces they have made an advancement in the "[Cell Culture Protocol for CD4+ T Cell Expansion](#)". They have developed a new technique in which they can achieve a 4,000-fold expansion of CD4+ T cells. In the experiment, starting with 1 million CD4 cells, utilizing the old method of CD 4 expansion, they were able to expand to 384,000,000 viable CD4+ T cells. With the new technology, they saw a 4,000-fold increase in CD4+ T cells to 3,936,000,000. This new technological advancement in CD4+ T cell expansion will allow the "HIV Knockout" treatment to become even more effective at treating the HIV infected patient.

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