

New Approaches Towards HIV Cure to be Tested in Protocol Zero

Lessons learned from the failure of strategies to purge the HIV reservoir and cure HIV infection open the door to test radically different approaches.

TOULON, VAR , FRANCE, July 4, 2014 /EINPresswire.com/ -- With the advent of combined anti-retroviral therapy HIV infection has become a chronic disease. However, if AIDS is no longer the penalty in correctly treated patients, the number of HIV-infected people increases regularly due to the decrease in mortality and the fact that the pandemic is not yet under control. Life-long anti-retroviral therapy brings the issue of cost in the context of a financial crisis with most patients living in poor-resources countries.

It is therefore mandatory to discover a [HIV cure](#) in order to stop anti-retrovirals in these patients.

The complexity of HIV persistence in an infected host is related to the existence of [HIV reservoirs](#) in different kinds of cells where the virus is latently integrated in the genome.

It might also be linked to the bad diffusion of some anti-retrovirals in tissue compartments, in particular in the lymphoid organs.

In 2007, the report of the [Berlin patient](#) who was apparently cured from HIV has spurred the global interest for gene therapy in order to eradicate HIV. However, this case was not reproduced and the use of Zinc Finger Nucleases failed to get rid of HIV.

Anecdotal cases of HIV remission have been reported after initiating anti-retroviral therapy very early at the time of acute infection. However, this functional cure concerns a minority of patients and diagnosis of HIV at the acute phase needs strong surveillance of populations that is difficult to implement.

In the past 5 years, cure research concentrated on strategies to activate dormant proviruses in order to deplete the reservoirs. A wide range of potent HIV activators has been selected in the laboratory and a couple of them, like vorinostat, panobinostat and disulfiram, reached clinical trials. Unfortunately results showed that they were not potent enough to reactivate all latent proviruses and, furthermore, cells with reactivated HIV were not eliminated by Cytotoxic T Lymphocytes (CTL), which are deficient in patients.

Consequently, new approaches towards HIV cure have to be tested.

During an international meeting on HIV last May, Professor Mark Wainberg from Montreal declared that "a revolutionary concept is at hand to obtain encouraging results." This concept is exactly the contrary of what has been done until now: silencing, and not activating, HIV.



Project Zero for HIV Cure

In the past, old world primates were infected by ancestral retroviruses which are now included in the human genome and remain silent. According to Doctor Alain Lafeuillade from France, the same could be obtained in HIV-infected patients by using drugs able to sabotage the natural history of HIV. In perspective is the use for a defined period of time of Dolutegravir, a new integrase inhibitor, as monotherapy in patients naive of therapy. When this drug selects viral resistance (and monotherapy is the ideal situation for this) it is associated with a dramatic decrease in viral fitness, meaning that we have got a crippled HIV.

Three pilot studies are in preparation to test this revolutionary approach in different populations. They are called "Project Zero" and will be started next September. Doctor Lafeuillade and Professor Wainberg are confident to obtain breaking news for the 7th International Workshop on HIV Persistence, Reservoirs and Eradication Strategies they will organize in Miami, FL, on December 8-11, 2015.

About the Community of Researchers for HIV Cure: it is a group of basic and clinical scientists involved in the study of HIV persistence and the set up of new therapies.

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