

Interest in the tat protein of the HIV virus as part of a therapeutic vaccine goes back to Dr. Zagury of the work in 1998 (Zagury JF et al Antibodies to the HIV-1 Tat protein correlated with nonprogression to AIDS: a. Rationale for the use of Tat toxoid as HIV-1 vaccine annually. J. Hum. Virol. 4, 282-292)

A CNRS researcher Erwann Loret continued and expanded research on the Tat protein and filed a patent (Vaccine HIV-1 comprising all or part of the protein HIV-1 tat CA 2370563 C) 12 April 2000. It is regrettable that a potentially patent as promising for patients and public finances has not been developed by CNRS in emergency or other government agencies and sold to the startup Biosantech

The HIV vaccine developed by Biosantech target Tat, a protein produced by cells infected with the HIV virus. Tat is a protein expressed in early stages of infection. Antiretroviral treatment does not block the secretion of Tat. A variant of the Tat protein, called Tat OYI, was isolated from a Gabonese patient carrier of the HIV virus but healthy. Tat OYI has mutations that had not been observed in other variants; it would a good immune response, hence the idea of using it for a vaccine.

Different approaches have been used to obtain a vaccine against Tat and clinical trial Biosantech uses the variant Tat OYI. Experiments in rabbits immunized with Tat OYI showed the production of antibodies recognizing not only Tat but also OYI Tat variants other subtypes of HIV. In addition, a Tat vaccine OYI has a protection in macaques.

The vaccine Tat OYI makes the virus undetectable in three patients

After being tested in animals, the vaccine started being evaluated in humans in 2013 (after approval by the National Agency for AIDS Research). The clinical trial was conducted in Marseille under the direction of Isabelle Ravaux. 48 infected patients for over ten years participated. They were divided into four groups: a placebo group (12 patients) and three groups testing different doses. Triple therapy was stopped to see the reaction of the virus.

The results presented to the press by Biosantech and researcher Erwann Loret indicate that the vaccine candidate has achieved undetectable levels of virus in HIV-positive patients. According to the researcher, "it saves 70 years of triple therapy to patients." The results should be published soon in the journal Retrovirology. According to the press release of the company, in three patients, the viral DNA was undetectable 24 months after injection with 33 micrograms of vaccine. The aim is to eliminate reservoirs cells and thus treat the disease by combining the vaccine with the triple therapy.

The media and officials of AIDS, the Director of ANRS, Jean-François Delfraissy in particular, hesitate between a major scientific breakthrough and a single communication campaign designed to reassure investors or potential industrial? The start-up that raised funds by Internet crowdfunding would research partners, as explained by L'Usine Nouvelle last November. The

C.104 bis- HIV therapeutic vaccine - Biosantech-Erwann Loret patent- Unjustifiable attacks

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company plans to carry out a larger trial in 2016 to seek authorization to market in 2018.

What is most shocking is the angry reaction of the Director of ANRS that instead of questioning the results announced by a brilliant researcher and recognized the CNRS and require publication in a refereed journal (which is not a guarantee of honesty) would support and fund the emergency and with enthusiasm, a confirmation test of the discovery. This behavior is unfortunately a common attitude in the world of research where talented researchers are hampered by formatted directions without daring.

Finally emphasize that if this discovery was confirmed, then all the small world that lives comfortably with AIDS funds (ANRS, associations, UNAIDS) will make the resistance not to disappear.

Publication of **Erwann Loret** on his vaccine: *Retrovirology* 2016 **13**:35

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