Therapeutic TriMix / mRNA based Vaccine in Chronic HIV-1 Infected Patients Receiving Antiretroviral Therapy

Fact Sheet

Project Information

IHIVARNA
Grant agreement ID: 602570
Status
Closed project
Start date 1 December 2013
End date 30 November 2017

Funded under
FP7-HEALTH
Overall budget € 7 826 907,20
EU contribution € 5 984 720

Coordinated by
CONSORCI INSTITUT D'INVESTIGACIONS BIOMEDIQUES AUGUST PI I SUNYER
Spain

Objective

To find a therapy alternative to cART for life is one of the hot topics of investigation in HIV field. Therapeutic vaccination seems to be the best option. We have reported in a double-blind placebo controlled study some of the best, most solid data showing that HIV-1 specific immune responses elicited by therapeutic dendritic cell (DC) vaccines pulsed ex vivo with inactivated autologous whole virus could significantly change pVL set-point (mean peak drop of -1.2 log10 copies/ml). Similar efficacy has been found in a preliminary non controlled clinical trial using DC electroporated with mRNA encoding autologous HIV-1 antigens. However, the logistics of developing a specific vaccine by ex vivo manipulating autologous DC for each patient may be prohibitive. Therefore, we propose that in vivo targeting of DC by direct administration of a rational designed HIV mRNA encoding immunomodulating
administration of a rational designed HIV mRNA encoding immunomodulating proteins might be an attractive alternative to target DCs in situ. Our candidate is highly innovative: 1. It is a mRNA based immunogen: it is expected to have a good safety profile, it is classified as nongene therapy by the American and German authorities, is easier to produce and to store regardless of the encoded antigen and is not restricted to a defined HLA type of individuals. 2. The HIV antigen encoded by mRNA has been selected with a rational design: based on our previous works selecting viral targets of protective HIV-1 specific T cell responses in 3 large cohorts of HIV infected individuals. 3. The candidate includes TriMix to target DC in vivo: our data suggest that mRNA encoding a mixture of antigen presenting cells activation molecules (CD40L, a constitutive active variant of TLR4 and CD70) significantly enhanced the induction of antigen-specific T cells. If this candidate would be able to obtain the functional cure in at least a proportion of patients it could be applicable to developing countries and would improve the care and cost of HIV infection.

Field of science
/natural sciences/biological sciences/biochemistry/biomolecules/proteins
/medical and health sciences/basic medicine/pharmacology and pharmacy/pharmaceutical drug/vaccines

Programme(s)

Topic(s)

Call for proposal
FP7-HEALTH-2013-INNOVATION-1

Funding Scheme
CP-FP - Small or medium-scale focused research project

Coordinator
CONSORCI INSTITUT D'INVESTIGACIONS BIOMEDIQUES AUGUST PI I SUNYER

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<tr>
<th>Address</th>
<th>Activity type</th>
<th>EU contribution</th>
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<td>Calle Rossello 149 Puerta Bjs 08036 Barcelona</td>
<td>Other</td>
<td>€ 1 114 220</td>
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