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Tat, the forgotten target that could help to cure from HIV

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The human immunodeficiency virus type-1 (HIV) eradication will require elimination of HIV infected cells. Antiretroviral treatments (cART) reduce the production of HIV from infected cells up to an undetectable level but HIV infected cells remain detectable. The reservoir of HIV infected cells is made of cells at the latent state, which is remarkably stable since its eradication in the peripheral blood even with successful cART would require at least 70 years. It was suggested that the major reservoir of latent HIV infected cells could be in the central nervous system (CNS) that would be a sanctuary where cytotoxic T-Lymphocytes (CTL) have no access and would refresh peripheral blood with activated HIV infected cells. However, the presence of a major reservoir in the CNS appears to be inconsistent with clinical studies measuring HIV DNA. The major reservoirs are gut and rectal tissues and it is clear that HIV infected cells survive in an environment containing CTL. Extra cellular Tat might protect HIV infected cells from CTL due to its capacity to cross CTL membranes and trigger apoptosis. Evidences of Tat secretion from HIV infected cells are shown with the detection of Tat antibodies in different clinical studies. Amazingly, very few vaccinal approaches have been developed against Tat since 30 years. Clinical trials carried out mainly in Italy and recently in France show that vaccines eliciting neutralizing antibodies against Tat reduce significantly the level of HIV infected cells. It could be a first step toward HIV eradication.

Biography

Erwann P Loret has completed his PhD in 1989 at Aix Marseille University. After completing his Postdoctoral studies at Oregon State University and University of California, he obtained a full position as Scientist in the Centre National de la Recherche Scientifique (CNRS) in 1992, which is the main scientific agency in France. He is the Director of the ETRAV Laboratory since its creation in 2007. He has published more than 30 papers in journals with an impact factor >4.

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