

## **Protein variants could play a major role in natural defences against HIV**

Why do some HIV carriers manage to control the progression of this disease without medication for long periods of time? Dr Cécile Tremblay a researcher with the Centre hospitalier de l'Université de Montréal Research Centre (CRCHUM) has found one of the keys to this enigma. The answer could well be found in certain variants of a protein which in normal circumstances functions to alert the immune system to the presence of an infection. These variants could also be the main genetic factor that modulates the body's control of HIV.

In a study published in the online version of *Science*, an international research team has demonstrated that differences in the amino acids of the HLA-B protein determine whether people have the capacity to control their viral load. The Canadian research team, led by Dr Tremblay, contributed to the publication of these results, which could well pave the way for the discovery of a treatment for HIV-AIDS.

“One of the most likely approaches to finding a treatment lies in studying HIV carriers who do not develop AIDS,” notes Tremblay. Called *slow progressors*, these individuals account for less than 1% of people living with HIV. To this end, Tremblay, also Director of the CHUM's AIDS Research, Teaching and Care Unit, and Professor at Université de Montréal, has assembled a unique pan-Canadian cohort of slow progressors.

Earlier studies have shown that certain genes in the human leucocyte antigene (HLA) complex, in particular the HLA-B gene, play a role in controlling the infection, without, however, pinpointing which ones or their impact on viral load. In addition to demonstrating the role of a specific HLA protein, the present study shed light on how this protein functions in the immune system.

### **The slow progressors and their contribution to scientific research**

The cohort enables researchers to gather important information concerning the clinical course of HIV, which may lead to the identification of factors that predict a favourable outcome, and enables the collection of clinical data that is stored at the CRCHUM, information which will be made available to various investigators studying the progression of HIV.

This international multicentric study, the headquarters of which are in Boston, compared the immunological profile of 974 slow progressors to that of 2,648 people with a high viral load and among whom the disease has progressed. It was conducted as part of the International HIV Controllers Study ([www.hivcontrollers.com](http://www.hivcontrollers.com)). [www.sciencemag.org](http://www.sciencemag.org)

*The major genetic determinants influencing HIV-1 control map to discrete amino acids involved in HLA class I peptide presentation*

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