

***Major breakthrough in understanding how HIV interferes with infected cell division***  
**Montréal researchers identify cellular proteins recruited by HIV to compromise CD4+T cell function and enhance viral replication**

Montréal, July 12, 2007 – Dr. Éric A. Cohen, a researcher at the IRCM (Institut de recherches cliniques de Montréal), and his team will publish on Friday, July 13, in [PLoS Pathogens](#) a discovery that could lead to the development of a new class of drugs to combat HIV.

Human immunodeficiency virus type 1 (HIV-1) causes AIDS by depleting essential immune cells called CD4+T lymphocytes in infected individuals, resulting in a compromised immune system. At the center of this process is the HIV protein, viral protein R (Vpr), which stops infected CD4+T cells from dividing and as a consequence compromises their immune function. In addition, by arresting cell division, Vpr helps HIV to harness the infected cell's resources to enhance viral replication. The way Vpr exerts this effect is by interacting with cellular proteins that control cell division.

Dr. Cohen and his team have identified a novel cellular protein complex targeted by HIV-1 Vpr to stop infected cell division. This protein complex, designated DDB1-CUL4-VprBP, is involved in a process called ubiquitination. Ubiquitination is a mechanism by which a small protein called ubiquitin is conjugated to cellular proteins in order to modulate their biological activity or induce their degradation. The researchers demonstrated that association of Vpr with this ubiquitinating complex, also called an E3 ubiquitin ligase complex, is essential for the defect in cell division induced by Vpr. Further characterization of this protein complex as well as the elucidation of the mechanism by which it affects cell division may open new avenues for therapeutic intervention against HIV.

*Dr. Éric A. Cohen is the Director of the Human Retrovirology Research Unit at IRCM. He holds the Canada Research Chair in Human Retrovirology. His work is supported by grants from the Canadian Institutes of Health Research (CIHR) and the Fonds de la Recherche en Santé du Québec (FRSQ) AIDS and Infectious Diseases Network. Dr. Cohen is also professor in the Department of Microbiology and Immunology at the Université de Montréal.*

*Established in 1967, the IRCM ([www.ircm.qc.ca](http://www.ircm.qc.ca)) is recognized as one of the country's top-performing health research centres. It has a mandate to understand the causes and mechanisms of diseases in order to find diagnostic tools and means of prevention and treatment; to train a*

*new generation of high-level scientists; and to contribute to Québec's socio-economic development by facilitating the commercial development of new discoveries. The IRCM has 37 research units and a staff of more than 450.*

-30-

Contact: Lucette Thériault  
Communications Director  
IRCM  
Telephone: 514-987-5535  
Email: [lucette.theriault@ircm.qc.ca](mailto:lucette.theriault@ircm.qc.ca)