FACT SHEET
CanCURE initiative

CanCURE: A CANADIAN RESEARCH EFFORT TOWARDS AN HIV CURE

The Canadian HIV Cure Enterprise (CanCURE), a collaboration of leading Canadian HIV researchers, will undertake an integrated and innovative research program to find new effective approaches to cure HIV infection in humans.

CanCURE plans to transform HIV cure research in Canada into a collaborative, interdisciplinary model of knowledge creation and application. CanCURE will pursue its goal of achieving an HIV cure through an accessible, interactive and coordinated scientific program that complements current international and Canadian research efforts. This multidisciplinary research endeavor will generate innovative therapeutic approaches that can be tested in human clinical trials and create a high-quality training and mentoring environment for the development of the next generation of biomedical researchers and experts in translational research associated with HIV/AIDS.

The CanCURE program, led by Dr. Éric A. Cohen at the IRCM, received $8.7 million in funding from the Canadian Initiative for HIV Cure Research, which was created as a partnership between the HIV/AIDS Research Initiative at the Canadian Institutes of Health Research (CIHR), the Canadian Foundation for AIDS Research (CANFAR) and the International AIDS Society (IAS) in order to increase investments in HIV cure research and significantly advance the global scientific search for a cure.

HIV cure research

The development of combination antiretroviral therapy for the long-term suppression of human immunodeficiency virus (HIV) replication has been one of the major successes of modern medicine. However, while improving health and prolonging life of HIV-infected patients, this therapy has not cured HIV/AIDS.

Despite the treatment's significant inhibiting effect, traces of the virus can still be detected by using ultra-sophisticated tests due to the virus's ability to persist in the body, in multiple cell types and tissues. These traces therefore prevent current treatments from eradicating HIV infection. Without lifetime therapy, the virus quickly rebounds, resulting in accelerated morbidity and mortality. Persistent forms of HIV are most commonly found in CD4 cells that are "resting" and harbouring the virus out of view from drugs and the immune system. However, evidence indicates that other cells, known as myeloid cells, also contribute to HIV persistence. Cells that allow virus persistence are called virus reservoirs and represent a significant barrier to an HIV cure despite active antiretroviral therapy. While much is known about HIV persistence, many questions remain about the source of persistent HIV, the mechanisms underlying its establishment and maintenance, and the ways to eradicate virus reservoirs.

CanCURE program objectives

By increasing knowledge of HIV latency and persistence in areas that are not well covered by other Canadian or international research teams, the CanCURE program ultimately aims to develop new research infrastructure and therapeutic paradigms that will bring us closer to the discovery of a cure for HIV infection.

This initiative will actively engage basic and clinical scientists in a synergistic and focused research effort to:

- Study the molecular, genetic and functional characteristics of HIV persistence in humans and animal models.
- Define the mechanisms governing HIV latency and persistence in myeloid cells.
- Identify new drug candidates and therapeutic strategies aimed at eliminating HIV persistent infection, and test effective strategies in preclinical studies.
- Establish approaches, expertise and infrastructure to conduct HIV cure clinical trials by examining whether immune-based therapies reduce or eliminate virus reservoirs in patients treated with combination antiretroviral therapy.

CanCURE: a group of Canadian experts
The CanCURE team is led by Dr. Éric A. Cohen, researcher at the Institut de recherches cliniques de Montréal (IRCM). This integrated, cross-disciplinary and multi-centre research program, predicated on existing productive collaborations together with new and exciting team interactions, brings together an expert group of 26 basic and clinical scientists with their wide-ranging provincial, national and international scientific networks. These investigators span 10 universities and affiliated research centers and operate in outstanding environments favouring high-quality research within their respective programs.

CanCURE's nine principal investigators include Dr. Petronela Ancuta from the CHUM Research Centre, Dr. Jonathan Angel from the Ottawa Hospital Research Institute, Dr. Jérôme Estaquier from the Centre hospitalier de l'Université Laval, Dr. Keith Fowke from the University of Manitoba, Dr. Andrew Mouland from the Lady Davis Institute for Medical Research, Dr. Mario Ostrowski from the University of Toronto, Dr. Jean-Pierre Routy from McGill University Health Centre, Dr. Michel J. Tremblay from the Centre Hospitalier Universitaire de Québec and Dr. Éric A. Cohen from the IRCM.

About Dr. Éric A. Cohen
Dr. Éric A. Cohen is Director of the Human Retrovirology research unit at the IRCM. He is also Professor in the Department of Microbiology and Immunology at the Université de Montréal. Dr. Cohen holds the Canada Research Chair in Human Retrovirology. Dr. Cohen obtained a baccalaureate degree in biochemistry from McGill University and a PhD in molecular biology from the Université de Montréal.

Dr. Cohen has been active in the field of research on the human immunodeficiency virus (HIV), the etiological agent of acquired immune deficiency syndrome (AIDS), for over 25 years. His early work led to the discovery of two viral proteins and the identification of a class of viral proteins, called accessory proteins, that allow the virus to persist in the host despite a vigorous antiviral immune response and highly-active antiretroviral therapy. After developing an innovative research program focused on the molecular and cellular aspects of HIV infection at the Université de Montréal's Department of Microbiology and Immunology, Dr. Cohen joined the IRCM in 2004, where his work has led to important breakthroughs on the function and mechanisms of action of HIV accessory proteins. Dr. Cohen's current work aims to better understand how HIV-1 interacts with the antiviral effectors of the host's innate immune response by using state-of-the-art experimental approaches.

Dr. Cohen led the research Team on HIV pathogenesis from the Canadian Institutes of Health Research (CIHR), and is currently principal investigator in the CIHR research Team on HIV-associated neurocognitive diseases. He is a member of numerous scientific committees, granting agencies, international scientific journals and scientific congresses. He is also the author of over 125 articles and books published in high-calibre scientific and medical journals, and he holds four international patents. Dr. Cohen is very active in the Canadian and Quebec scientific community in the field of HIV/AIDS. He is a founding member of the AIDS and Infectious Disease Network at the Fonds de recherche du Québec – Santé (FRQS), where he is currently a member of the Scientific Committee. He is also a member of CIHR's HIV/AIDS Research Advisory Committee.

About the IRCM
Founded in 1967, the Institut de recherches cliniques de Montréal (www.ircm.qc.ca) is currently comprised of 36 research units in various fields, namely immunity and viral infections, cardiovascular and metabolic diseases, cancer, neurobiology and development, systems biology and medicinal chemistry. It also houses four specialized research clinics, eight core facilities and three research platforms with state-of-the-art equipment. The IRCM employs 425 people and is an independent institution affiliated with the Université de Montréal. The IRCM Clinic is associated to the Centre hospitalier de l'Université de Montréal (CHUM). The IRCM also maintains a long-standing association with McGill University. The IRCM is funded by the Quebec ministry of Higher Education, Research, Science and Technology.