Premier's Summit Award

2007 Award Winners

Premier's Summit Award in Medical Research

The Premier's Summit Award in Medical Research provides extraordinary research support to a small number of outstanding medical researchers, helping attract them to or retain them in Ontario and enabling them to significantly expand their research programs. The Award forms part of a cohesive innovation strategy that focuses on excellence in research and commercialization as cornerstones of the economic future of the province of Ontario.

Winners of the Premier's Summit Award are internationally recognized leaders in medical research whose work is transformative in their field, and who are conducting research in an academic or research institution in Ontario. The Award is intended for an individual researcher who has made a substantial and distinguished contribution already, but who shows promise to do even more.

The Award competition will be held annually for five years or until the award fund is depleted or replenished. Each of the anticipated ten winners of the Award will receive $5 million over a five-year period, derived from a $2.5 million contribution from the Award program matched by $2.5 million from the sponsoring institution. This structure is designed to help catalyze new investment in research in Ontario. The Award funds will be directed to the needs and priorities of the recipient.

The spirit of the Award — to enhance research in Ontario — also means that institutions may use the Award to recruit a top medical researcher to the province and to their institution.

The Province of Ontario identified MaRS Discovery District as the administrator of the Award and the provider of logistical support. MaRS will disburse the funds and monitor reporting and use of the funds throughout the Award term.

The Award Process

In this, its inaugural year, the Premier's Summit Award program received fourteen applications from outstanding scientists and their sponsoring institutions across Ontario. Each applicant was nominated by the President of his or her institution and submitted a number of other application elements, including a statement focusing on what the Award will enable the applicant to do that he/she would not otherwise be able to do.

The Award Committee reviewed all of the complete applications and chose these four outstanding individuals as the first winners of the Award. They recognized each researcher's significant contributions to their field, the research community, and their promise for even more world leading work in the coming years.

The Award will be directed to the needs and priorities of the recipient and will cover research and operating costs.

The Award Committee

The internationally-renowned members of the Award Committee represent a wide range of expertise in medical research:

John Bell - Nuffield Professor of Clinical Medicine and Regius Professor of Medicine, University of Oxford

David R. Colman - Director, Montreal Neurological Institute

John Evans, Chair - President Emeritus, University of Toronto

Brett Finlay - Peter Wall Distinguished Professor, Michael Smith Laboratories, University of British Columbia

Suzanne Fortier - President, Natural Sciences and Engineering Council of Canada (NSERC)

Henry Friesen - Distinguished Professor Emeritus, Faculty of Medicine, University of Manitoba; former President of the Medical Research Council of Canada and its successor, the Canadian Institutes of Health Research

Sir Keith Peters - Regius Professor of Physic and head of the University's School of Clinical Medicine, University of Cambridge; currently President of the Academy of Medical Sciences (UK)

Phillip A. Sharp - Institute Professor, Center for Cancer Research, Massachusetts Institute of Technology; Nobel Laureate in Physiology or Medicine, 1993

John E. Dick

University Health Network

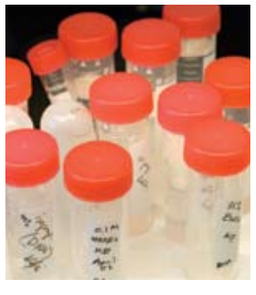
Dr. John Dick's discovery of cancer stem cells is considered to be the most important discovery about the biology of cancer over the past decade. By identifying these stem cells, he has fundamentally shifted the understanding of the origins and nature of human tumours.

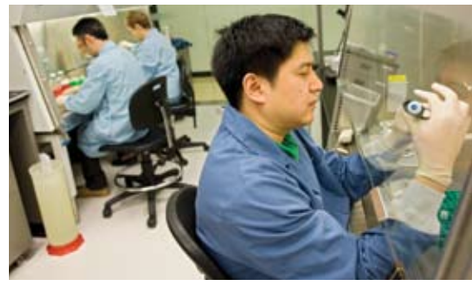
Thanks to Dr. Dick's research, the scientific community now understands that within the population of cancer cells, there are cells that possess various degrees of tumour-seeding ability and a large number of cells that are incapable of seeding a new tumour. Dr. Dick's work on leukemia has led to important concepts that are now being applied to solid tumours as well.

The discoveries made by Dr. Dick suggest that a small number of cells in a tumour retain stem cell-like properties, like self-renewal. Based on the premise that these cancer stem cells are the "root" of a cancer tumour, and serve to initiate and sustain the cells that make up the tumour, Dr. Dick hypothesized that by killing the cancer stem cells, the cancer can be more effectively treated, and thereby reduce the chances of recurrence. Current cancer treatments such as chemotherapy or radiotherapy may successfully kill the bulk of the cells that make up a tumour, triggering the patient to go into remission. However, these types of treatments are resisted by properties of cancer stem cells, allowing the tumour to regenerate from the root.

Dr. Dick's proposed research program intends to further explore the nature of cancer stem cells, including the unique genes that are enabled or disabled in cancer stem cells, the pathways that determine their biological properties, and the factors present on the surface of and inside these cells. The new therapies that will arise based on this more thorough understanding will likely be less harmful to normal tissues and attack the cancer root more effectively.

Dr. Dick is currently Senior Scientist at the Toronto General Research Institute (TGRI) of the University Health Network, Professor in the Department of Molecular Genetics at the University of Toronto, and Canada Research Chair in Stem Cell Biology. He has already published more than 115 articles in top peer-reviewed journals like Nature, Cell, Science, and Nature Medicine and has been cited more than 7000 times. In recognition of his work, Dr. Dick has earned a number of awards, including the Michael Smith Award for Excellence from the Canadian Institutes of Health Research, the Robert L. Noble Prize for Excellence in Cancer Research from the Canadian Cancer Society, and the William Dameshek Prize from the American Society of Hematology, and has been named a Fellow of the Royal Society of Canada.



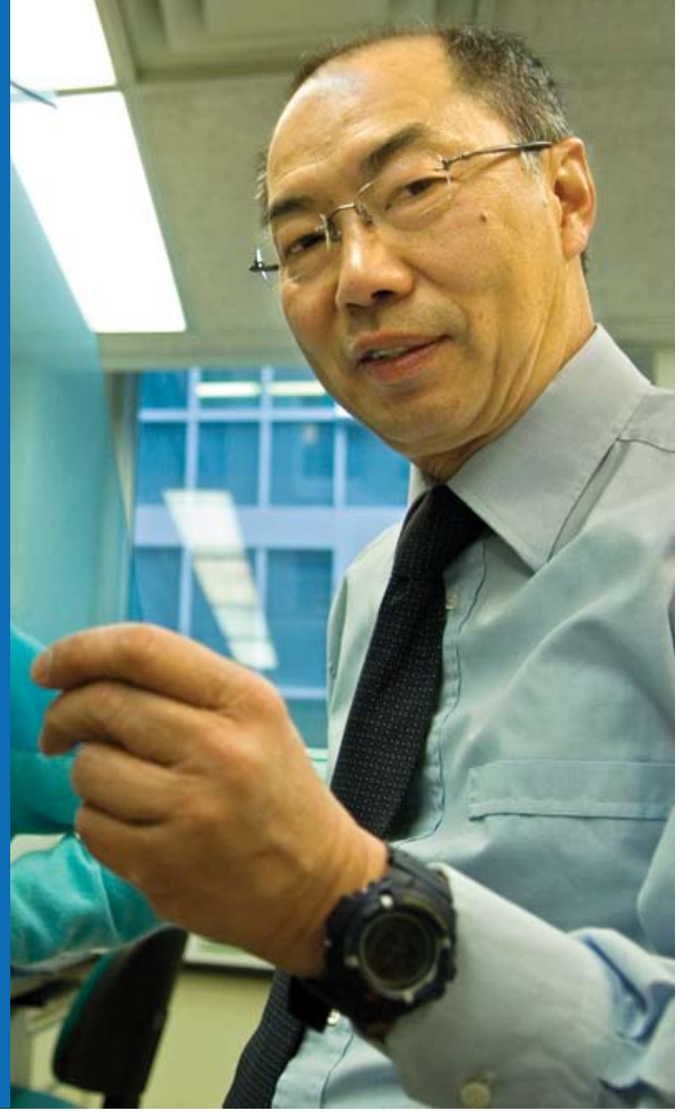


Tak W. Mak

The Campbell Family Institute for Breast Cancer Research

Princess Margaret Hospital

University Health Network



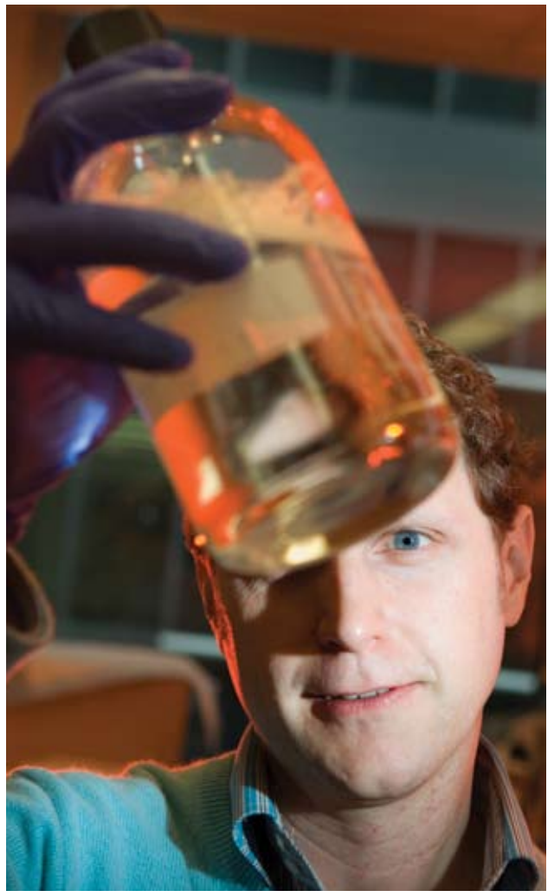
The research Dr. Mak now pursues is dedicated to finding more effective and specific forms of cancer treatment for malignant tumours. Dr. Mak and his lab plan to develop cancer drugs that target cancer cells without damaging healthy cells surrounding tumours, and that are more effective in killing the cancer cells completely to prevent relapses.

The development of these drugs is predicated on the understanding that cancer cells are dependent on high levels of energy consumption, delivered via specific pathways. Consequently, by blocking these pathways, these cancer cells can be "starved" of their energy and destroyed, ultimately providing more effective clinical therapies for cancer.

Dr. Mak is Director of the new Campbell Family Institute for Breast Cancer Research at the University Health Network, Director of the Advanced Medical Discovery Institute with the Ontario Cancer Institute (OCI), and University Professor in Medical Biophysics at the University of Toronto. He has filed 24 patents and published over 600 articles, with 180 in the last five years (with more than 3000 citations) in leading journals. Dr. Mak has had numerous honours bestowed on him, including the Gairdner Foundation International Award, the Emil von Behring Prize, the Steacie Prize, and the General Motors Research Foundation Alfred P. Sloan Prize, among others. Dr. Mak is an Officer of the Order of Canada and Fellow of the Royal Society of Canada and the Royal Society of London.

Dr. Tak Mak is one of Canada's pre-eminent researchers and an outstanding world-class immunologist. The discoveries made by Dr. Mak have made an enormous contribution to the understanding of immunity in general, and how it relates to cancer and HIV/AIDS specifically. In 1984, Dr. Mak discovered the T-cell receptor, a seminal achievement. Dr. Mak first cloned T-cell receptors and determined how these white blood cells are able to recognize and react to foreign substances and pathogens invading the human body.

Dr. Mak has made further contributions to the scientific community through his development and use of "knockout" or genetically modified and transgenic mice. "Knockouts" are mice developed lacking particular genes in order to determine the function of a specific gene or the effect that its presence or absence has on an organism. The mouse strains developed by Dr. Mak have found widespread and practical application in labs engaged in research on a myriad of disorders.



Anthony J. Pawson

Samuel Lunenfeld Research Institute

MOUNT SINAI HOSPITAL

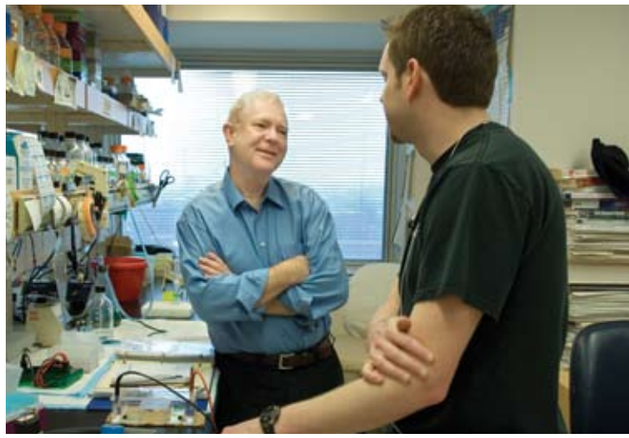
Dr. Pawson's work represents a convergence of fields: biochemistry, genetics, cell biology and structural analysis, showing that protein interaction domains provide a unifying mechanism in cellular organization. Through his frequent collaborations with colleagues he has also made significant contributions to fields as diverse as bacterial pathogenesis and "knockout" mouse technology.

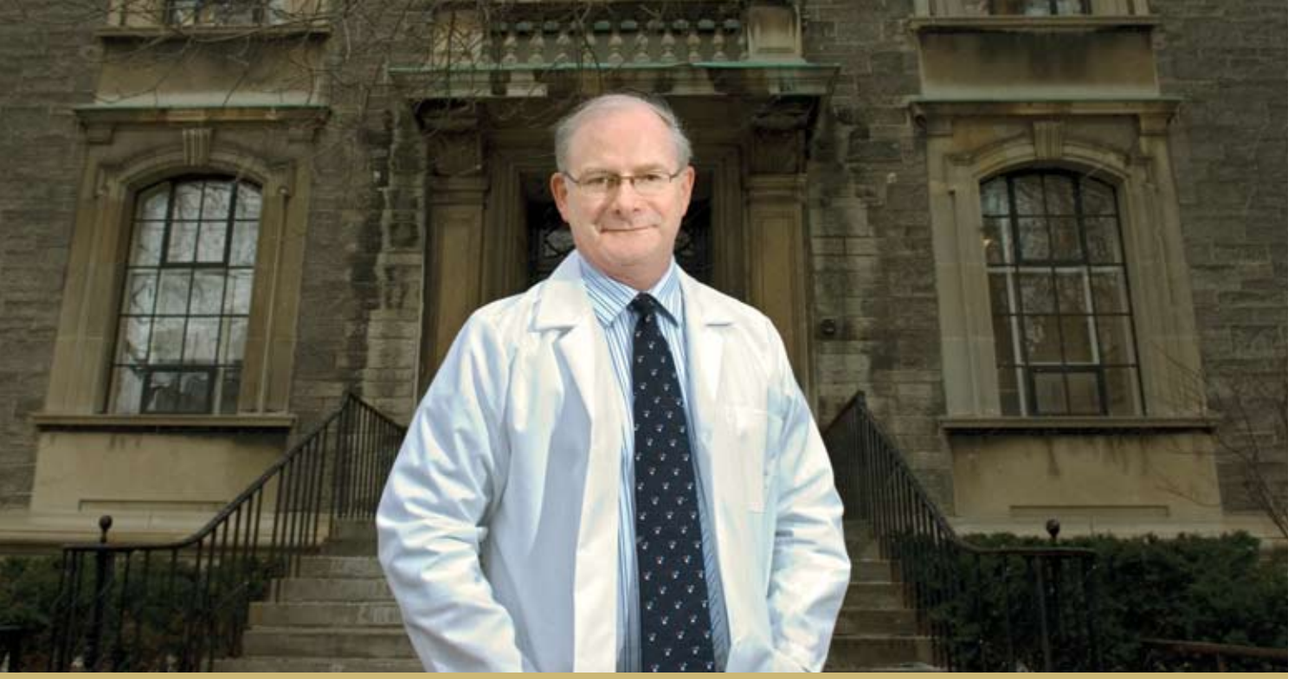
Dr. Pawson will further study the organization of signaling networks in normal cells and the processes by which these networks give rise to complex cellular behaviours such as cell polarity and tissue formation. This work will help realize the full potential of sequencing the human genome. Ultimately, the purpose of this research is to better understand the intracellular mechanism of disease states.

Early on, Dr. Pawson recognized the importance of systems biology and re-engineered his lab to address this field. He has put together one of the top teams in systems biology in the world at the Samuel Lunenfeld Research Institute at Mount Sinai Hospital. He is also University Professor in Molecular and Medical Genetics at the University of Toronto. Dr. Pawson has won numerous awards, including the Gairdner Award for Science, the Heineken Award (Netherlands), the Louisa Gross Horwitz Prize (Columbia University) and the Wolf Prize (Israel). He is also a fellow of the Royal Society of London, and the Royal Society of Canada, and was recently named to the Order of the Companions of Honour by Her Majesty Queen Elizabeth II, one of only nine Canadians to have received such an honour.

Dr. Tony Pawson is a world leader in the field of intracellular signal transduction—studying how cells grow and communicate with one another. He is best known for his research on protein interactions, which introduced a new framework for understanding cell signaling and cellular regulation.

Dr. Pawson showed how tyrosine kinases alter cellular behaviour, by controlling protein-protein interactions. Tyrosine kinases are receptors at the surface of cells that transmit commands for cell growth and metabolism. As a result, Dr. Pawson has been called "the world leader in the area of intracellular signal transduction for the past 20 years." His discoveries have facilitated the development of new drugs that stop some cancer cells by blocking oncogenic tyrosine kinase signals.





Peter H. St George-Hyslop

UNIVERSITY OF TORONTO

University Health Network

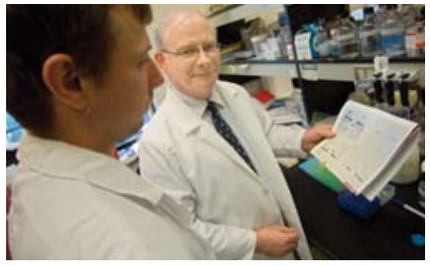
Centre for Research in Neurodegenerative Diseases

Considered by his colleagues to be the foremost geneticist in age-related neurodegenerative disorders, Dr. Peter St George-Hyslop's contributions to neurodegenerative disease research have helped uncover the genetic nature of Alzheimer's disease. Between 1985 and 2007, Dr. St George-Hyslop and his team have identified six independent genes that cause Alzheimer's. He has used these genes to define the biological mechanisms that lead to brain cell death and has worked to turn this knowledge into therapies currently being used in human clinical trials.

Dr. St George-Hyslop's research has contributed to the development of Alzheimer's detection, treatment and prevention, which has and will continue to have an enormous impact on patient care. In addition, his work on the presenilin proteins has led to the discovery of a novel biological mechanism (presenilin-dependent regulated intramembranous proteolysis) that is involved both in the cause of Alzheimer's and in several intercellular signaling pathways that are essential for life. Dr. St George-Hyslop's work on the genetic nature of Alzheimer's has helped provide the first targets for potential therapies to prevent or halt this disease.

Dr. St George-Hyslop hopes to develop ways to diagnose neurodegenerative diseases before the onset of symptoms and to create methods to repair tissue that has been damaged. The proposed research will look for ways to improve the brain's own repair mechanisms with techniques such as modified cells and stem cells and specially-designed nanomaterials that could help rebuild damaged nerve connections in order to restore brain function.

Dr. St George-Hyslop's work has revolutionized research into neurodegenerative disorders and provided the foundation for the work of many others. He currently directs the Centre for Research in Neurodegenerative Diseases at the University of Toronto and the Toronto Western Hospital Research Institute at the University Health Network. He has been honoured with a number of awards, including the Gold Medal in Medicine from the Royal College of Physicians of Canada, the Michael Smith Gold Medal Award for Research Excellence from the Canadian Institutes of Health Research, and Howard Hughes Foundation International Scholar Awards in 1997, 2002 and 2007, among others. He is also a Fellow of the Royal Society of London, and has published over 250 papers in prestigious publications such as Science, Nature, Cell, Nature Cell Biology, Nature Medicine, and Nature Genetics.



About MaRS

MaRS is a not-for-profit corporation dedicated to maximizing the economic and social impact of innovation. MaRS does this by connecting and fostering collaboration between the communities of science, business and capital.

The MaRS Centre is located in Toronto's renowned "Discovery District" – Canada's largest concentration of biomedical research, spread across major teaching hospitals, the University of Toronto, and more than two dozen affiliated research centres.

The MaRS model uses place and partnerships to build a community in which innovators, entrepreneurs, scientists, professionals and investors can exchange knowledge, share best practices, and expand their networks. MaRS offers a broad range of educational programs and business services to address the needs of emerging and growth-oriented companies. Public outreach activities span both science and culture, while entrepreneurship programs for students reach a wide cross-disciplinary audience and create a culture that celebrates innovative ideas, entrepreneurship and commercialization.

www.marsdd.com

MaRS Discovery District

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