A World-Class Centre of Research Excellence

Few of us remain untouched by the scourge of cancer, the leading cause of premature death in Canada. Between 40 and 45 per cent of Canadians will develop cancer during their lifetime and one in four will die from it. Medical researchers at hospitals and universities around the world are making breakthroughs that are unravelling the mysteries of this devastating disease. McGill and its affiliated hospitals are on the leading edge of discovery in the field.

McGill University’s strong tradition of research into the basic nature of cancer extends back to 1965, when Dr. Phil Gold and his colleagues from the Faculty of Medicine discovered the carcino-embryonic antigen (CEA), which today is the most frequently used antigen for diagnosing recurring cancers.

The McGill Cancer Centre was established in 1978, through a bequest from Sir Mortimer B. Davis. Its mandate was – and remains – to serve as a hub for groundbreaking cancer research taking place in the Faculties of Medicine and Science by fostering a dynamic, interdisciplinary approach. The Centre was renamed in 2008, when Rosalind and Morris Goodman made a leadership gift that will also fund a chair to attract a world-class researcher in the field of pulmonary cancer.

Cancer is a multidimensional disease and research breakthroughs often come when scientists collaborate. The building that houses the Goodman Cancer Research Centre is an integral part of the Life Sciences Complex, which brings together more than 2,000 McGill scientists, technicians, graduate students and research fellows.
The GCRC Mandate

The Centre attracts internationally renowned research scientists whose discoveries are translated into clinical applications to improve the treatment and overall management of cancer. The GCRC trains future generations of cancer researchers and keeps the public informed about the latest research into the causes, prevention and treatment of cancer.

The Centre organizes its research along five themes:

**Breast Cancer**
This unit has earned an international reputation for successfully identifying and profiling several breast cancer oncogenes and creating some of the most important animal models of breast cancer in medical science.

**Embryonic Development**
An outstanding group of researchers examine the early mechanisms of cell movement, proliferation, organ formation, gene regulation and initial tumour formation in embryos.

**Metabolism and Cancer**
GCRC scientists discovered that certain genes that appear to contribute to cancer development are also implicated in the metabolism of cancerous cells and normal cells. Many play a role in the metabolic control of patients suffering from diabetes and obesity. This has prompted a major research initiative that will offer new clues as to how cancer develops.

**DNA Replication, Damage and Repair**
Apoptosis – programmed cell death – is suppressed in most forms of cancer, allowing cancerous cells to survive and proliferate. Reactivating the apoptosis machinery in cancerous cells is being aggressively pursued by investigators.

**Stem Cells and Signalling**
Scientists in this research area study the signalling pathways between healthy and cancerous cells, and between cancerous tumours and their surroundings. How potential cancer stem cells are able to resist current cancer therapies is among the critical issues the Centre’s scientists are presently examining.
The McGill Cancer Centre was established in 1978, through a bequest from Sir Mortimer B. Davis. In 2008, it was renamed the Goodman Cancer Research Centre (GCRC) in honour of major benefactors Rosalind and Morris Goodman.

Now housed in the Life Sciences Complex on the McGill University campus, the mission of the Rosalind and Morris Goodman Research Cancer Centre is to:

- bring together renowned scientists devoted to cancer research, providing them with the best resources available to effectively carry out cancer research programs;
- translate the discoveries of its scientists towards clinical applications to improve the treatment and overall management of cancer, thus directly benefiting patients;
- provide an internationally recognized training ground for future generations of cancer researchers;
- promote to the public and to the medical community the importance of fundamental research for understanding the causes of cancer, its prevention, prognosis and treatment.

Its first director was Dr. Phil Gold, a pioneering cancer researcher, who in 1965 co-discovered the carcino-embryonic antigen (CEA), which today is the most frequently used antigen for diagnosing cancer.

The Goodman Cancer Research Centre (GCRC) has attracted top scientists from around the world, with 15 nationalities represented among its 23 principal investigators and 310 employees – more than 50 per cent of them women.

Scientists working at this state-of-the-art hub for cancer research focus their activities on key facets of cancer to better manage the disease. Their work is facilitated by the GCRC’s close association with clinicians and scientists working at hospitals affiliated with the McGill University Health Centre (MUHC) and the Jewish General Hospital.

To harness the full potential of its investigative efforts, the GCRC organizes cancer research along five cohesive themes: breast cancer; embryonic development and cancer; stem cells and signalling; metabolism and cancer; and DNA replication, damage and repair.

Among its recent laureates are Nahum Sonenberg (at left, above), a 2008 recipient of the prestigious Gairdner Award, and Vincent Giguère, who was recently inducted as a Fellow into the Royal Society of Canada.

More than 95 per cent of the GCRC’s trainees remain in the field of cancer research – some pursuing academic careers and others entering the biopharmaceutical or medical fields.
Moving Forward

• To achieve its full potential as a centre of excellence for leading-edge cancer research, the GCRC relies on $10 million-$14 million in annual grant funding from private individuals and public agencies, including the Canadian Institutes for Health Research (CIHR), the Canada Foundation for Innovation (CFI) and the Canadian Cancer Society.

• These funds provide vital support for the overall operations of the laboratories, the purchase of state-of-the-art research equipment, fellowship awards for the doctoral- and graduate-level students and an Innovative Research Award Program uniquely designed to advance novel cancer programs of the GCRC scientists and associated members.

• The Goodman Cancer Research Centre is committed to building awareness of ongoing research into the causes and treatment of cancer and organizes a series of public lectures that are free of charge and open to the general public.

• The Centre has established three academic chairs for world-class leaders in cancer research whose work strengthens the GCRC’s capacity to shape clinical care, research and teaching.
  
  ○ **The Jeanne and J.-Louis Lévesque Chair in Cancer Research**, endowed by the Fondation Jeanne & Jean-Louis Lévesque, is currently held by Dr. Michel Tremblay, the Centre’s Director.
  
  ○ **The Diane and Sal Guerrera Chair in Cancer Genetics**, endowed by Diane and Salvatore Guerrera, is held by Dr. Morag Park, a leading expert on breast cancer.
  

• The inaugural Goodman Cancer Research Gala, held in June 2010, brought together 700 guests and raised more than $2.5 million for the Centre. The funds are being used to help principal investigators and graduate students with innovative research initiatives that are typically not funded by large granting agencies. Funds will also support some of the GGRC’s priority infrastructure needs – including the creation of a therapeutic lab and support for an advanced metabolism facility, where researchers can examine the relationship between nutrition, obesity and cancer.