



# Canadian Institutes of Health Research Institute of Cancer Research



## ANNUAL REPORT 2004/2005



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Cat. No.: MR1-22/2005  
0-662-69277-2



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## MESSAGE FROM THE PRESIDENT OF CIHR

The opportunities for dramatic advances in cancer research and cancer treatment have never been greater. In this post-genomics era we have a much improved understanding of the mechanisms underlying cancer and are now poised at a crossroad where this new knowledge will rapidly translate into new approaches to the prevention, diagnosis, treatment and ultimately cure of many forms of cancer.

Scientific advances have led to the identification of new tumour targets, opening the door for novel cancer therapies. The time is fast approaching when individualized therapy will become a reality. The new generation of anti-cancer drugs offers improved specificity with reduced side effects when compared to conventional treatments and, when used alone or in combination with other agents, these drugs offer the promise of cure, or at least of transforming cancer into a manageable disease. These new drugs are also expensive and hence require objective evidence of their cost benefits. CIHR's Institute of Cancer Research (ICR) is well placed to take advantage of the many opportunities for progress in this exciting era of cancer research.

I am proud of the contributions ICR has made to cancer control in 2004/2005. The highly successful palliative and end-of-life care initiative represents an excellent example of the value of partnerships and perfectly illustrates how the creation of CIHR with its 13 Institutes has changed the way health research is done in Canada. An initiative of this scale and scope would not have been possible a few years ago and it is a credit to ICR and its partners who together have transformed the field of palliative care in Canada.



*Place Bell Building,  
home of CIHR offices in Ottawa*



The creation of the Canadian Cancer Research Alliance (CCRA) is also an important and exciting new development that represents the first time all the major organizations and agencies that support cancer control in Canada have formally joined forces to plan and implement a national agenda for cancer research. The identification of two large-scale initiatives sets a goal for the Canadian cancer research community that will be realized through partnership.

ICR is looking ahead to 2005/2006 with the launch of a new initiative on access to quality cancer care. This issue is of importance to all Canadians and is a priority for both federal and provincial governments as the country addresses the increasing demands on health care services, brought about by our aging population and by the development of new technologies and treatments.

ICR's achievements clearly show how the efforts of a small but dedicated team can have a major impact on a sizable and well established research community. Continued support of Canada's outstanding researchers and their excellent research will maintain Canada's position as a world leader in cancer research.

I would like to acknowledge the outstanding work of Dr. Philip Branton, the members of ICR's Institute Advisory Board and ICR staff, for their continued hard work and dedication. I also point out with pride the many outstanding Canadian researchers who have contributed to the remarkable progress that has been made in cancer control in recent years. Collectively, their work is contributing to the world-wide efforts to eradicate this terrible disease.

Dr. Alan Bernstein, O.C., FRSC  
President  
Canadian Institutes of Health Research



## MESSAGE FROM THE SCIENTIFIC DIRECTOR

Dear Colleagues,

We are fortunate in Canada that our cancer community is backed by the Canadian Strategy for Cancer Control (CSCC), a broad organization of dedicated individuals, attempting in a unified way to raise awareness of the coming crisis in cancer control and to find avenues to lessen its impact. Unless we make more concerted efforts, the number of cancer cases and deaths due to cancer will almost double over the next 25 years, the equivalent of losing the combined population of Ottawa and Vancouver. This scenario is unacceptable, especially if it is within our power to do something about it.

It is largely through research that we can find the means to change this situation. Fortunately these are very exciting and encouraging times in cancer research. Research has brought us to a point where we now believe with some confidence that we have enough scientific knowledge and technical tools to provide at least some dramatically new methods of prevention, detection, diagnosis and treatment of cancer. Research will bring these breakthroughs into the clinic and new groundbreaking, targeted technologies are already in the development pipeline. Further research should provide us with many additional possibilities, making it possible that cancer may become a more manageable disease within a decade.

We must also promote greater efforts in research on the prevention of cancer. Although some factors remain to be identified, we probably already know the major preventable determinants of cancer, such as cigarette smoking, sunlight, poor diet, lack of exercise, and certain viruses. We need to understand better how to convince people to alter their lifestyle and, to meet this goal, cancer research in the past few years has broadened considerably, now including many areas of behavioural and population-based research. We must also carefully research psychosocial and clinical aspects of palliative and end-of-life care when prevention and treatment fails.

ICR continues to believe that a sustained effort must be made to increase research capacity and continues to support 22 Strategic Training Initiatives in cancer research. In terms of the identification of new targets for diagnosis, staging and treatment, ICR identified a national tumour bank as a critical platform and provided the funds to set up the Canadian Tumour Repository Network (CTRNet). This network, which

*McIntyre Building, McGill University,  
home of the ICR office in Montreal*



operates through the Canadian Association of Provincial Cancer Agencies, links major provincially funded tumour-banking efforts. ICR also has been instrumental in the establishment of the Canadian Chemical Biology Network, which will enhance the development of new drugs for cancer treatment and detection. In partnership with other CIHR Institutes, we play a leadership role in a large initiative in tobacco control, through the Canadian Tobacco Control Research Initiative, and we play a role in a major combined effort in research into diet and exercise. Probably our biggest impact has been in palliative care, where our efforts have made Canada an international leader in this area of research. I am also enthusiastic about several new initiatives that are in the planning stage, especially one on access to quality cancer care. Our health care system is already struggling to keep pace with the needs of Canadians for prompt and effective cancer care. Without profound insights provided by research to change our health care system, it is hard to imagine how life will be for cancer patients twenty years from now.

I am very proud of the successes of our Institute and of the tremendous contributions of the ICR staff, our Institute Advisory Board, and members of our various working groups. I am also aware that CIHR represents just part of the efforts that make Canada one of the very best sources in the world for outstanding cancer research. That is why I am very enthusiastic about the creation of the Canadian Cancer Research Alliance which embraces the principles of the CSCC and unites all of the major cancer research funding organizations in Canada in efforts to coordinate and optimize their programs, to identify priorities for cancer research, and seek significant increases in federal and provincial funding for cancer research to help us avoid a cancer epidemic.

It is a continuing pleasure to work with all of you to undertake the research and knowledge translation that will make a difference.

Philip E. Branton, Ph.D., FRSC  
Scientific Director  
CIHR Institute of Cancer Research  
and Gilman Cheney Professor



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## PROFILE OF THE INSTITUTE

As one of the 13 Institutes of the Canadian Institutes of Health Research (CIHR), the Institute of Cancer Research (ICR) is committed to the goal of encouraging and supporting researchers from all areas of health research, including biomedical and clinical researchers, social scientists and scholars in the humanities, physical scientists, engineers and mathematicians. Through a strategic and proactive approach, ICR has developed a suite of research initiatives that builds on the existing strong foundation of excellent Canadian cancer research and responds to current challenges in cancer control. Partnership is central to the ICR philosophy and the Institute continues to play an instrumental role in building and strengthening collaborations within the cancer research community and beyond.

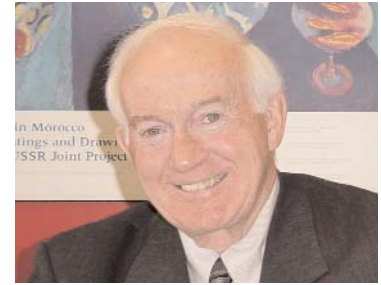
ICR is located at McGill University, Montreal, research home of its Scientific Director, Dr. Philip Branton. Like all CIHR Institutes, ICR operates with a small, dedicated staff located at both the Institute office and at CIHR headquarters in Ottawa. The Ottawa-based staff is shared 50:50 with the CIHR Institute of Infection and Immunity. In spring 2004, Project and Communications Officer, Patrick Haag left the Ottawa-based Institute team to join the Web Services division at CIHR headquarters. We wish Patrick well with his new career and would like to take this opportunity to thank him for his contributions to the early development of the Institute. In September 2004, the Institute welcomed Erik Blache, who left the Canada Science and Technology Museum to join the Ottawa-based team as Project Manager/Analyst for the Institute.





ICR is supported by an outstanding Institute Advisory Board (IAB) comprised of individuals from across the entire spectrum of cancer control, including lay representation from the cancer survivor community.

Every year, several members retire from the Board and are replaced by new members in a process of continuous renewal. In 2004/2005, the Institute said goodbye to Drs. Sharon Buehler, Carol Cass, Neil MacDonald and James Till and welcomed new members Drs. Ronald Barr, Margaret Fitch and Anne-Marie Mes-Masson. The IAB plays an important role in the identification of priority research areas and in leading the development of strategic research initiatives. One of the best examples of this process in action is the tireless efforts of Dr. Neil MacDonald in driving forward the Palliative and End-of-Life Care initiative which has changed the face of palliative care research in Canada and serves as an example for the rest of the world. The IAB met four times during 2004/2005 in Vancouver, Winnipeg, Montreal and Toronto, interacting each time with members of the local research community and representatives of stakeholder organizations to provide information on the Institute's activities and obtain input on future directions.



*Dr. Neil MacDonald,  
McGill University*

In its first year of operation, ICR, with input from the IAB and the cancer research community at large, identified training of the next generation of cancer researchers as an overarching priority and the Institute now supports 22 cancer-related CIHR Strategic Training Programs. In addition, six strategic research priorities were identified. They were:

In its first year of operation, ICR, with input from the IAB and the cancer research community at large, identified training of the next generation of cancer researchers as an overarching priority and the Institute now supports 22 cancer-related CIHR Strategic Training Programs. In addition, six strategic research priorities were identified. They were:



In 2004/2005, a seventh strategic research priority was identified, Access to Quality Cancer Care.

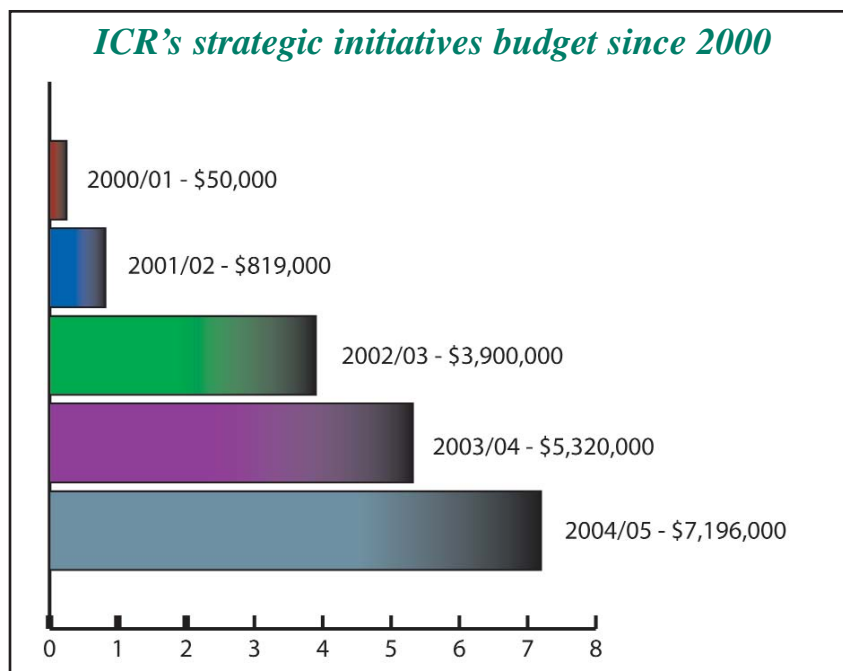




Access to Quality Cancer Care is a high priority for Canadians, particularly as it relates to excessive wait times for health services. Wait times for primary/community and specialized/diagnostic services related to prevention, screening, diagnosis, treatment and palliation, are an important element of access to quality cancer care. However, economic factors also have a significant impact on access, especially now, when science is producing a new generation of improved and often expensive technologies and treatments. Inequality of access is also of concern, particularly for those living in rural and northern communities and for vulnerable and marginalized populations. At the January 2004 IAB meeting, ICR established a small steering committee, led by Dr. William Mackillop, to organize a workshop as a first step towards the development of a multi-partnered research initiative leading to the potential launch of a Request for Applications (RFA) in December 2005.

## OUTSTANDING RESEARCH

Cancer research in Canada is a well-organized and well-supported field with a history of collaboration and a reputation for world-class research and researchers. In 2004/2005 CIHR committed more than \$105 million to cancer research (see Appendix 2), continuing a consistent pattern of increased annual funding. ICR's strategic research budget also increased in 2004/2005 to a total of \$7.2 million.



As an example of the effectiveness of CIHR's Institutes in changing the face of health research in Canada, ICR has launched and funded several initiatives that have dramatically changed the landscape in certain areas of cancer research. The examples that follow are of successful programs that were funded in 2004/2005.

## Palliative and End-of-life Care

The Palliative and End-of-Life Care initiative, launched in 2003 and described in detail in the 2003/2004 Annual Report, provides an excellent example of the outstanding research that can be supported through targeted funding and partnership. Palliative and end-of-life care has long been recognized as an area of concern in cancer control, as many of the people who could benefit from such care do not receive it. All too often it is left to patients, their families and a loosely knit community of volunteer organizations to sort through the myriad of physical, psychological, spiritual and ethical choices. Historically, palliative and end-of-life care research has been under-funded in Canada and small groups of highly committed and dedicated researchers have struggled to obtain recognition for the field as an independent health discipline. In recent years more and more countries, including



**Table 1: Partners Supporting Palliative and End-of-Life Care Research**

Alberta Cancer Board
British Columbia Cancer Agency
Canadian Breast Cancer Research Alliance
CIHR
Institute of Aboriginal Peoples' Health
Institute of Aging
Institute of Cancer Research
Institute of Circulatory and Respiratory Health
Institute of Gender and Health
Institute of Health Services and Policy Research
Institute of Human Development, Child and Youth Health
Institute of Neurosciences, Mental Health and Addiction
CIHR Knowledge Translation Branch
CancerCare Manitoba
Health Canada
Heart and Stroke Foundation of Canada
National Ovarian Cancer Association
National Cancer Institute of Canada



Canada, have recognized the importance of effective and timely palliative and end-of-life care and are turning their attention towards building strong research communities supported by increased research funding.

During the initial Institute priority-setting exercises, ICR identified palliative and end-of-life care as its number one priority and responded immediately by partnering with the CIHR Institute of Aging on a five-year New Emerging Team (NET) grant and with the National Cancer Institute of Canada (NCIC) on a six-year CIHR Strategic Training Program.

This was followed by the launch of the Palliative and End-of-Life Care initiative in 2003. In 2004/2005 the final phase of funding for this initiative was completed with the support of an additional nine NET grants. Through extensive partnership based on a multi-disciplinary approach that extended the focus beyond cancer, the final result has been a commitment of more than \$16.5 million towards the support of palliative and end-of-life care research.

**Table 2: NETs Funded Under the Palliative and End-of-Life Care Initiative**

Principal Investigator	Institution Name	Project Title
Allard, Pierre	Elizabeth Bruyère Research Institute, Ottawa	Optimizing end-of-life care for seniors
Baracos, Vickie E	University of Alberta	New emerging teams in palliative care: Cancer-associated cachexia-anorexia syndrome
Chochinov, Harvey; Stienstra, Deborah	University of Manitoba	End-of-life care and vulnerable populations
Doll, Richard Kazanjian, Arminée	British Columbia Cancer Agency	Palliative care in cross-cultural context: A NET for equitable and quality cancer care for ethnically diverse populations
Gagnon, Pierre R	Laval University	Developing, evaluating and implementing new interventions in palliative care
Hagen, Neil A; Fainsinger, Robin; Brasher, Penelope	University of Calgary	A multidisciplinary cancer pain research network to improve the classification, assessment, and management of difficult cancer pain problems
Heyland, Daren K	Queen's University	Understanding and improving communication and decision-making at the end of life
Kirk, Peter; Lau, Francis	Royal Jubilee Hospital (Victoria, BC)	Overcoming barriers to communication through end-of-life and palliative transitions
Siden, Harold B	University of British Columbia	Transitions in pediatric palliative and end-of-life care
Stajduhar, Kelli; Cohen, S.R.	University of Victoria (British Columbia)	Family care-giving in palliative and end-of-life care: A new emerging team



Funded programs include 19 one-year Pilot Projects, one Career Transition Award, one Strategic Training Program and 10 NETs. This remarkable achievement would not have been possible without the support and commitment of the many partners listed in Table 1 (page 9). Table 2 (page 10) shows the diversity of the funded NETs. Research areas include nutritional aspects of care, access to care, cultural dimensions, communication issues and pain control. Many of these research programs build on existing centres of outstanding research.

Examples of the outstanding research funded in these NET grants includes the work of Dr. Neil Hagen and his team at the Tom Baker Cancer Centre in Calgary who are studying the control of cancer pain and plan to create an innovative, coordinated, multidisciplinary network involving many of Canada's leaders in cancer-pain practice and research. His team will investigate the standardization of pain classification, develop new cancer pain interventions and create a rigorous new graduate research training model. Dr. Daren Heyland's team working out of both Queen's University and McMaster University is studying palliative and end-of-life care issues across the continuum of care, including intensive care units, hospitals and home settings. The team supports a family-centred approach focused on studies that will lead to improved communication and decision-making at the end of life. Dr. Harold Siden and his team of national and international experts will conduct research to optimize the provision of care for children with life-limiting conditions and their families, caregivers and healthcare providers. The results of their studies will strengthen Canada's reputation for leadership in children's health services.



*Dr. Daren Heyland  
Queen's University*



*Dr. Harold Siden  
Children's & Women's Health Centre of  
British Columbia*



To support the anticipated continued growth in palliative and end-of-life care research and to better meet the needs of this growing scientific community, ICR has been working with staff in the Knowledge Creations Branch at CIHR and in the Palliative and End-of-Life Care Secretariat at Health Canada to establish a new peer review panel, Palliative and End-of-Life Care (PEC), dedicated to the evaluation of all operating grant applications in the field. The mandate of the committee, which will begin operation in September 2005, will include:

- Epidemiologic studies and surveys of problems related to palliative and end-of-life care;
- The development of methods for the early detection, prevention and management of suffering associated with life-limiting illness and prolonged morbidity resulting from any disease;
- Studies on medical, physical, psychosocial and spiritual approaches to minimizing pain and stress for patients and families;
- Training for care-givers in innovative communication and decision-making processes;
- Health services research, including the development of novel methods and tools;
- The promotion of knowledge translation through informed policies and clinical practices aimed at improving the quality and dignity of life for the patients; and
- Critical evaluation of ethical, legal, economic and moral issues pertaining to the utilization of health care resources and quality of care.

ICR is now exploring opportunities for international partnerships in palliative and end-of-life care research with both the National Cancer Research Institute (UK) and the National Cancer Institute (US) to build a truly international, multidisciplinary research network.



*Dame Cicely Saunders  
and Dr. Harvey  
Chochinov*

*Dame Cicely Saunders died at the age of 87 at St. Christopher's Hospice - the hospice that she founded in 1967. Dame Saunders helped transform the care and treatment of the terminally ill, and will be missed by everyone who knew her.*

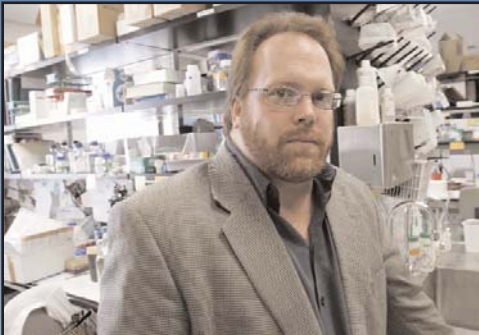
## Novel Technology Applications in Health Research

The 2003 launch of the Novel Technology Applications in Health Research RFA addressed a need, identified by the ICR Working Group on Molecular and Functional Imaging, to integrate emerging technologies from fields outside the life sciences, such as chemistry, physics, engineering, mathematics, computational science, nanotechnology and communications with biomedical and clinical research methodologies. The RFA focused on the need for improved imaging and spectroscopic technologies for the early detection, screening, diagnosis and image-guided treatment of cancer. The program offered up to \$200,000 per year for two years to small, multidisciplinary teams in which investigators from different fields could combine their expertise to create new imaging tools and contrast agents. In 2004/2005 four outstanding research projects were funded (Table 3).

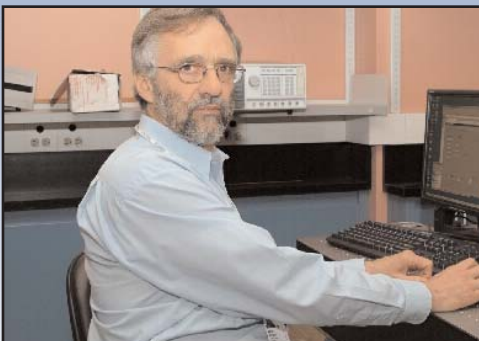
The research proposed in these projects offers the promise of important advances in imaging capabilities. Dr. Bernard and his team will develop new imaging methods in animal models using a combination of magnetic resonance imaging, positron emission tomography and new pharmaceutical and contrast agents to predict a tumor's metastatic potential by non-invasive imaging rather than biopsy or surgery.

**Table 3: Projects funded under the Novel Technology Applications in Health Research RFA**

Principal Investigator	Institution Name	Project Title
Bernard, François	University of Sherbrooke	Integrated multimodality molecular imaging of tumour biological characteristics and vascular microenvironment in small animal models
Ferguson, Stephen	John P. Robarts Research Institute, University of Western Ontario	Molecular Imaging of Ras/MAPK Signaling in Cancer: New Diagnostic Tools
Fradin, Cecile	McMaster University	Optical Methods for Detecting the Progression of Apoptosis
Wilson, Brian	Princess Margaret Hospital	Quantum-dot Based, Molecular-Targeted Fluorescence Endoscopy for Early Gastrointestinal Cancer Diagnosis



*Dr. Stephen Fergeson*  
*John P. Robarts Research Institute*



*Dr. Brian Wilson*  
*Princess Margaret Hospital*

Dr. Fergeson and his team will develop new molecular imaging technologies, using functional visualization molecules in small animals, that will focus on malignancy-associated changes in signal transduction pathways, paving the way for more directed and appropriate therapy. Dr. Fradin's team will study the mechanisms of apoptosis in the malignant cells of leukemia patients. Through development of an optical method for measuring cell apoptosis, the team hopes to be able to optimize treatment based on the patient's response. Lastly, the team led by Dr. Brian Wilson, will use the new nanotechnology of quantum dots in conjunction with antibodies targeted to early malignant markers to enable detection of gastrointestinal cancers and pre-cancers by minimally invasive means.

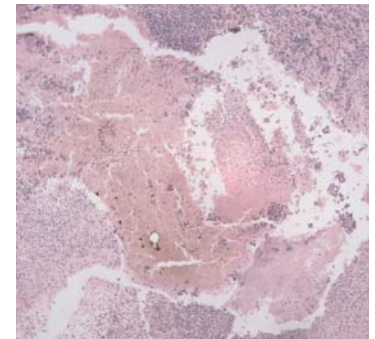
All of these teams illustrate the benefits of multidisciplinary research and the advantages of bridging the gap between the physical and life sciences in order to capitalize on new discoveries and technologies in both fields for the benefit of health research and to expedite the uptake of new knowledge into practice.

## Canadian Tumour Repository Network (CTRNet)

Tumour profiling is an important area of cancer research, particularly in light of the recent revolution in our understanding of molecular biology that followed the sequencing of the human genome. New technologies have rapidly advanced our ability to screen tumours for novel targets suitable for use in the development of new anti-cancer agents. Central to this research is the requirement for tumour tissue that is linked to clinical data. In 2003/2004, based on the recommendations of the Molecular Profiling of Tumours Working Group, ICR issued an invitation for a single application for the creation of a national tumour banking network. In June 2004, the Canadian Tumour Repository Network (CTRNet) was launched. Led by Dr. Brent Schacter of the Canadian Association of Provincial Cancer Agencies, in partnership with representatives from five provincially supported tumour banks, Alberta, British Columbia, Manitoba, Ontario and Quebec, CTRNet will provide a national resource to foster



studies into the determinants of cancer, the prediction of drug responses and the identification of new drug targets. Participating provincial tumour banks have agreed to subscribe to standardized collection protocols and the sharing of tumour information, including patient data, with researchers and commercial investigators. During its first few months of operation, CTRNet has appointed a Director and taken the first steps towards implementing a network-wide informatics infrastructure and developing a standard operating procedure for the collection and storage of samples. ICR has committed nearly \$4 million to CTRNet over five years.



*Microscopic slide of skin cancer*

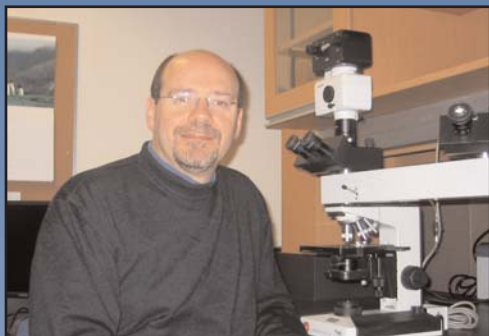
### Cancer Screening from a Canadian Perspective

Early detection is an important component of cancer control. In general, the earlier a malignancy is detected the better the chance of cure. Several effective screening programs are available in Canada such as the PAP smear for cervical cancer and mammography for breast cancer. For many other cancers, however, screening programs either do not exist, have not been adopted at the national level or in some cases, although effective, may cause serious complications. In 2003/2004, ICR launched an RFA designed to evaluate existing Canadian cancer screening technologies, examine the costs and benefits of screening programs and measure the rate of serious complications in routine colonoscopy. Two one-year operating grants were funded in 2004/2005 (Table 4).

The reports generated by these two projects will provide valuable information on the efficacy of a new, affordable and non-invasive technique for the early diagnosis of colon cancer; provide valuable up-to-date data on the safety of colonoscopy in Canada and inform the IAB decisions regarding future initiatives in early detection and screening.

**Table 4: Projects funded under the Cancer Screening from a Canadian Perspective RFA**

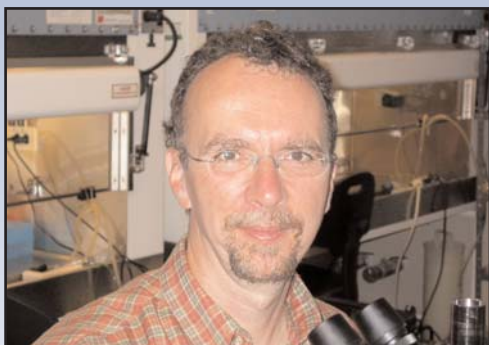
Principal Investigator	Institution Name	Project Title
Rabeneck, Linda	Sunnybrook and Woman's College Health Sciences Centre	Serious complications of colonoscopy among four Canadian provinces
Smith, Ian	University of Manitoba	Evaluation of advanced spectroscopic methods for the diagnosis of colorectal cancer



*Dr. Jeremy Jass  
McGill University*



*Dr. Etienne Leygue  
University of Manitoba*



*Dr. Mario Filion  
Bioniche Life Sciences Inc.*

## OUTSTANDING RESEARCHERS IN INNOVATIVE ENVIRONMENTS

Canada's cancer researchers have an international reputation for excellence. There are many examples of truly outstanding researchers working in every area of cancer research from prevention to palliation.

Dr. Chris Lavato, who is studying smoking patterns in teenagers, is one such example. She hopes that her research will lead to new ways to discourage tobacco use among teens either by finding ways to prevent them from smoking in the first place or by exploring mechanisms appropriate to young people, rather than adults, that will be effective in encouraging them to stop smoking. Dr. Jeremy Jass at McGill University is studying hyperplastic polyps in the large intestine to better understand the link between certain genetic changes in the polyp and aggressive behaviour leading to malignancy. This information will be useful for diagnosing dangerous polyps, designing safe follow-up recommendations and preventing colon cancer.

Many cancer researchers study early markers of malignancy in the hope of discovering new tumour targets useful for both screening and therapy. Dr. Etienne Leygue at the University of Manitoba has recently identified a novel gene called hSBEM that appears to have potential for breast cancer diagnostics.

Similarly, Dr. Mario Filion and his team have identified candidate genes that distinguish aggressive ovarian cancer from its less aggressive counterpart and normal ovarian tissue. The best candidates will be used in drug screening in the hope of identifying new treatment strategies for ovarian cancer.

Dr. Mark Basik at the Lady Davis Institute for Medical Research in Montreal is investigating molecular changes in a bank of 70 frozen colon cancers to identify new targets for the development of anti-cancer drugs. In the field of gene therapy, Dr. Marcel Bally at the B.C. Cancer Research Centre is studying new delivery systems for agents known to regulate the expression of targeted genes involved in oncogenesis and Dr. Bill Muller, at McGill University is studying ways to turn off the breast cancer gene, erbB2.

Imaging technologies have improved dramatically in recent years and, in many cases, now offer a viable non-invasive alternative for cancer diagnosis. Dr. Aaron Fenster and his group at the John P. Robarts Research Institute have developed a new method for the diagnosis and staging of prostate cancer. Through the addition of robotic aids and real time processing to their technique of 3D prostate ultrasound imaging, the group hopes to develop an accurate, precise and adjustable prostate brachytherapy system.

Dr. Ann Chambers and her group, also at the University of Western Ontario are using novel imaging approaches to study tumour metastasis with the intent of gaining a better understanding of how cancer cells metastasize and why many cancer treatments fail, and to identify new ways to treat or prevent metastasis.

Many of the health problems experienced by cancer patients have a deleterious effect on quality of life. Pain, fatigue, nausea, vomiting, weight loss, depression and anxiety can be debilitating side effects of treatment. Complementary and alternative medicine can sometimes complement western medicine to improve its overall effectiveness. Chinese herbal medicine is a good example of this alternative approach.



*Dr. Aaron Fenster  
John P. Robarts Research Institute*



*Dr. Ann Chambers  
University of Western Ontario*



Dr. Jean-Paul Collet and his team, based at Sir Mortimer B. Davis Jewish General Hospital in Montreal, are exploring Chinese herbal medicines, acupoint-based therapy, such as acupuncture and acupressure massage, and energy-based therapy such as Qi gong and Tai Chi in randomized controlled clinical trials. This project was originally submitted to CIHR in response to an ICR priority announcement for clinical trials on non-cytotoxic cancer drugs.

Institute priority announcements are intended to stimulate research in specific areas by encouraging researchers to apply to the regular suite of CIHR programs. Institutes allocate strategic funds to support highly ranked applications in identified high-priority areas. Additional applications submitted to the ICR priority announcement are still awaiting review.

Fluctuations in federal funding for health research, coupled with variations in application pressure, sometimes result in outstanding researchers failing to obtain funding for excellent research projects. To support such researchers, ICR provided up to one year in bridging funding in 2004/2005 for 12 operating grants in cancer research that failed to receive funding in the CIHR open competition, despite an extremely high ranking in peer review. Bridging funding offers researchers the opportunity to continue their research and maintain their laboratories while reapplying to subsequent CIHR grants competitions, in which they are very often successful.

ICR has an active workshop support program and, in 2004/2005, contributed funds towards the support of 22 workshops and symposia, often in partnership with other CIHR Institutes. Topics ranged from community cancer control and chronic disease prevention to cell signaling, oncolytic viruses and oncogenetics. These workshops offer researchers the opportunity to present their results and learn from each others' research and also to form collaborative networks that will strengthen Canadian cancer research and promote links with the international cancer research community.

## PARTNERSHIPS AND PUBLIC ENGAGEMENT

Partnerships are central to the philosophy of ICR, whether they be between CIHR Institutes or external organizations. The success of the palliative and end-of-life care initiative exemplifies the power of partnership in creating large national research networks and building capacity where it is most needed.

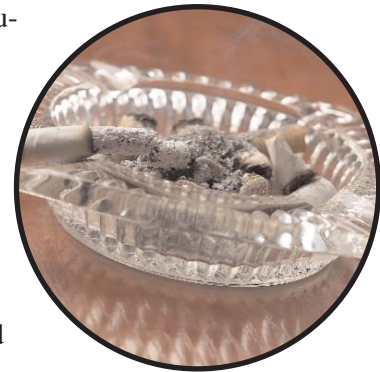


## Canadian Cancer Research Alliance

One of ICR's greatest achievements has been its role in the creation of the Canadian Cancer Research Alliance (CCRA). CCRA brings together, for the first time, all of the major organizations and agencies that support cancer research in Canada. In late 2004/2005, ICR began the process of obtaining more than 20 signatures on a Letter of Intent that formally commits CCRA members to working together to plan and execute a national cancer research agenda. At the same time, plans were made to establish an interim board and set into motion the first task of CCRA - an environmental scan of all Canadian funded cancer research. Discussions around the two primary initiatives supported by CCRA, a translational research initiative and a large national cohort study have continued during 2004/2005.

## Partnership with other CIHR Institutes

In 2004/2005 ICR continued to take advantage of partnership opportunities with other CIHR Institutes in areas of mutual interest. For example, ICR was a lead partner with the CIHR Institute of Neurosciences, Mental Health and Addiction in the "Advancing the Science to Reduce Tobacco Abuse and Nicotine Addiction" RFA. In 2004/2005, ICR contributed more than \$800,000 to support student research grants, policy research grants, knowledge synthesis grants, idea grants, researcher travel grants and Interdisciplinary Capacity Enhancement (ICE) Team Grants. These



projects represent research across a host of disciplines and will contribute to our understanding of the mechanisms of tobacco abuse and nicotine addiction in order to inform the intervention strategies of addiction professionals, policy makers and the Canadian public health community. ICR also partnered with the Institute of Gender and Health (IGH) on its "New Perspectives in Health" RFA, funding one Pilot Project on pediatric cancer that focused on the long-term effects on cardiac function of the anti-cancer drug Doxorubicin. In alignment with the new ICR strategic research

priority on access to quality cancer care, ICR partnered with Institute of Health Services and Policy Research on the RFA, "Toward Canadian Benchmarks for Health Services Wait Times - Evidence, Application and Research Priorities". This rapid-response RFA was launched to assist the Provincial/Territorial Deputy Ministers of Health in meeting their commitment to reduce wait times and improve access by determining evidence-based benchmarks for medically acceptable wait times in identified priority areas, including cancer.





*The Briars Resort and Conference Centre, Jackson's Point, Ontario.*

The Institute of Cancer Research co-hosted, with the Institute of Genetics, the 3rd Annual New Principal Investigators Meeting at The Briars Resort and Conference Centre in Jackson's Point, Ontario, on November 12-14, 2004. The meeting brought together 89 new principal investigators and 12 more senior and well established researchers to discuss science, and also to share and exchange the "DOs and DON'Ts" of a successful career in health research. Participants included active cancer researchers in areas from apoptosis to palliative care, and genetics researchers in areas from bioinformatics to health policy and ethics.

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## Partnerships with External Organizations

CIHR has a long-standing and successful partnership with the **Canadian Breast Cancer Research Alliance** that dates back to an original agreement with the Medical Research Council (MRC). Since this partnership entered its third phase of renewal in 2003, CIHR has committed \$8.7 million to support operating grants related to breast cancer. In 2004/2005 both ICR and IGH renewed their partnership with the Canadian Breast Cancer Research Alliance on "Translation Acceleration Grants for Breast Cancer Control". This program is intended to accelerate the translation of basic breast cancer research findings into practice and is open to multidisciplinary teams of three or more investigators who are recognized experts in the field of breast cancer. In the first competition, two grants were funded: "Translating Target Discovery into Better Outcomes for Women with Breast Cancer", and "Therapeutic Cell Genetic Immunization for Breast Cancer". In March 2004 a second competition was launched, in which one project, "IGF and Insulin Signaling Pathways in Breast Cancer", led by Dr. Michael Polack was approved for funding. Funding for this project will begin in July 2005. Both ICR and IGH have committed \$2 million over six years to support projects funded under this partnership agreement for a total CIHR commitment of \$4 million over six years.

In 2004/2005, ICR also committed funds to support personnel awards in the field of obesity under the "Target Obesity Personnel Awards" RFA led by the **Heart and Stroke Foundation of Canada** in partnership with five CIHR Institutes and the Canadian Diabetes Society. ICR funds went towards the support of three doctoral research awards and four fellowship awards. ICR continues to value partnership opportunities with organizations and foundations supporting cancer research and is proud of all the partnerships already in place. By working together, we will all benefit from advances made in any area of cancer control.

# APPENDICES

 Canadian Institutes of Health Research  
Instituts de recherche en santé du Canada

## Canadian Institutes of Health Research Institute of Cancer Research



## ANNUAL REPORT 2004/2005



Canada 



## APPENDIX I

Institute Advisory Board of the ICR		
	Dr. Heather Bryant	Director and Vice-President, Division of Epidemiology, Prevention and Screening, Alberta Cancer Board
	Dr. Ronald Barr	Professor of Pediatrics, McMaster University
	Dr. Neil Berman	Manager, National Cancer Coordination; Executive Director, Canadian Strategy for Cancer Control, Health Canada
	Dr. Angela Brooks-Wilson	Head of Cancer Genetics, Genome Sciences Centre, BC Cancer Agency; Assistant Professor, Medical Genetics, University of British Columbia
	Dr. Roy Cameron	Executive Director, Centre for Behavioural Research and Program Evaluation, Lyle Hallman Institute, University of Waterloo
	Dr. Margaret I. Fitch	Head, Oncology Nursing & Supportive Care Toronto Sunnybrook Regional Cancer Centre University of Toronto
	Dr. Gerald Johnston	Professor and Head, Department of Microbiology and Immunology, Dalhousie University President, National Cancer Institute of Canada (NCIC)
	Dr. Anne Leis	Associate Professor, Department of Community Health and Epidemiology, University of Saskatchewan



## APPENDIX I

### Institute Advisory Board of the ICR

	Ms. Joan Loveridge	Past President, Ontario Division, Canadian Cancer Society
	Dr. Neil MacDonald	Director, Cancer Nutrition/Rehabilitation Program Professor, Departments of Oncology and Medicine McGill University
	Dr. William Mackillop	Head, Division of Cancer Care and Epidemiology, Queen's University Cancer Research Institute; Professor and Chair, Community Health and Epidemiology, Queen's University
	Dr. Anne-Marie Mes-Masson	Professor, Department of Medicine, University of Montreal
	Dr. Joseph L. Pater	Director, NCIC Clinical Trials Group, Queen's University
	Ms. Diane Proulx Guerrera	Founder and Administrator, CURE Foundation
	Dr. Ian C. P. Smith	Director General, Institute for Biodiagnostics, National Research Council Canada
	Dr. Jim Woodgett	Division Head, Experimental Therapeutics, Ontario Cancer Institute, Princess Margaret Hospital



## APPENDIX 2

<b>CIHR Cancer Research Funding - 2004/2005</b>		
<b>FUNDING PROGRAM</b>	<b>AMOUNT</b>	<b>NUMBER</b>
<b>Grant Programs</b>		
Operating Grants	52,667,129	583
Group Grants	5,790,266	26
Equipment and Maintenance Grants	2,134,392	24
Randomized Controlled Trials	697,915	4
NCE Operating Grants	3,525,000	1
<b>Total</b>	<b>64,814,702</b>	<b>638</b>
<b>Training Awards</b>		
Studentships and Ph.D. Research Awards	2,331,039	138
Fellowships	3,170,305	96
Clinical Scientists	524,156	12
<b>Total</b>	<b>6,025,500</b>	<b>246</b>
<b>Investigator Awards</b>		
New Investigator	2,383,035	49
Investigator	1,800,742	30
Senior Investigator	502,604	7
Chair	50,000	1
<b>Total</b>	<b>4,736,381</b>	<b>87</b>
<b>Workshops and Symposia</b>		
ICR-sponsored Workshops and Symposia <sup>1*</sup>	(316,670)	22
<b>Total</b>	<b>(316,670)</b>	<b>22</b>
<b>Strategic Initiative Grants</b>		
ICR Institute Support Grant	1,000,000	1
ICR Strategic Initiative Grants <sup>2*</sup>	4,536,219	41
Other Institute Strategic Initiative Grants (cancer)	3,634,777	36
Canadian Breast Cancer Research Alliance	3,663,120	25
Canadian Prostate Cancer Control Research Initiative <sup>3*</sup>	462,499	16
Canadian Tobacco Control Research Initiative	2,018,971	57
Strategic Training Initiative in Health Research <sup>4*</sup>	2,352,059	22
<b>Total</b>	<b>17,567,645</b>	<b>198</b>
<b>SUB - TOTAL</b>	<b>93,144,227</b>	<b>1,191</b>
<b>Canada Research Chairs Funded through CIHR</b>		
CRC-Health <sup>5*</sup>	12,100,000	81
<b>Total</b>	<b>12,100,000</b>	<b>81</b>
<b>TOTAL (including CRC-Health)</b>	<b>105,244,227</b>	<b>1,272</b>

<sup>1</sup>Funds for ICR-sponsored workshops & symposia are accounted for in ICR Institute Support Grant

<sup>2</sup>Excluding STIHR grants

<sup>3</sup>Includes \$100,000 from ICR for the CPCRI Idea Program accounted for in the ICR Institute Support Grant

<sup>4</sup>Amount proportional to cancer research component of 22 training programs

<sup>5</sup>The research interest of the chairholder is relevant to cancer research and/or the chairholder has been awarded operating grants for cancer research

## APPENDIX 3

### Institute Support Grant - For the year ending March 31<sup>st</sup>, 2005

<b>Available Funds</b>		<b>\$ 1,959,833</b>
<b>Expenses</b>		
Institute Development		
Conference, Symposia and Workshops	\$ 642,741	
Institute Advisory Board	103,065	
Professional Services	81,648	
		<b>\$ 827,454</b>
Institute Operations		
Salaries and Benefits	\$ 334,194	
Office Accomodations	36,000	
Telephone and Communication Services	4,162	
Supplies, Material and Other Services	1,494	
Office Furniture and Fixtures	1,362	
Computer Equipment and IT Support	7,553	
Travel Expenditures	26,637	
		<b>\$ 411,402</b>
<b>Total Expenses</b>		<b>\$ 1,238,856</b>
<b>Unspent Balance*</b>		<b>\$ 720,977</b>

\*Note: The unspent balance as at March 31, 2005 is carried forward to the subsequent fiscal year

\* The Table entitled "CIHR Cancer Research Funding" (Appendix 2) reflects an estimate of CIHR's support of research related to research. The numbers were generated through a search of the CIHR database for grants and awards. The expenditures in this table reflect in-year investments for projects that included, but were not necessarily exclusively related to, cancer research.

The following classification codes were used to search the CIHR database: Research Area (primary or secondary) was "Cancer" OR Research Classification (primary or secondary) was related to cancer. As well, grant and award projects in which the applicant chose the Institute of Cancer Research (ICR) as the primary institute were included. Expenditures that were contributed by the Institute of Cancer Research, including those funded through the Institute Support Grant were also included. Finally funding for Strategic Training Initiatives in Health Research that have a cancer component, and grants to Canada Research Chairs where the research interest of the Chairholder is relevant to cancer research and/or the Chairholder has been awarded operating grants for cancer research, were included.

It is not possible to determine the proportion of a project's expenditures that are relevant to a specific research area or population. Therefore project expenditures can be reported multiple times across several CIHR institutes as estimated expenditures relevant to their areas of research. It would therefore be inappropriate to add up similar numbers from all Institutes to determine CIHR's overall support of health research. Certainly, such a process would lead to a figure that exceeds CIHR's total budget.



## APPENDIX 4

### Institute Investments in Strategic Initiatives - For the year ending March 31<sup>st</sup>, 2005

Strategic Initiatives	Contributions through Grants and Awards					Total
	Number	2004-05	2005-06	2006-07	2007 and beyond	
Invention Tools, Techniques and Devices for Research and Medicine	2	71,348	65,403	-	-	136,751
Healthy and Successful Aging	1	100,000	100,000	100,000	100,000	400,000
Excellence, Innovation and Advancement in the study of obesity and healthy body weight	1	50,000	50,000	50,000	50,000	200,000
Operating Grants to Open Competition	14	832,689	228,079	-	-	1,060,768
New Perspectives on Gender and Health	1	50,000	-	-	-	50,000
Training Awards	1	1,778	-	-	-	1,778
Gene Therapy-Neurological Diseases	1	50,000	50,000	-	-	100,000
CIHR Training Program Grants	17	1,676,965	2,295,792	2,346,333	3,361,372	9,680,462
Palliative and End-of-life Care	24	893,701	1,212,922	1,198,635	2,812,045	6,117,303
Tobacco	41	880,000	157,555	105,025	80,050	1,222,630
Cancer Screening from a Canadian Perspective	2	145,200	48,400	-	-	193,600
Novel Technology Applications in Health Research	4	459,677	649,858	214,705	-	1,324,240
National Tumor Banking Network	1	1,165,000	665,000	665,000	1,330,000	3,825,000
Translation Acceleration Grant	2	250,000	250,000	250,000	-	750,000
Target Obesity	7	66,906	102,812	85,625	36,615	291,958
Cuccione-ICR Paediatric Oncology	2	58,667	44,750	-	-	103,417
	<b>121</b>	<b>\$6,751,931</b>	<b>\$5,920,571</b>	<b>\$5,015,323</b>	<b>\$7,770,082</b>	<b>\$25,457,907</b>

Note : Grants and awards in respect to these programs are approved for 1 to 6 years. Figures displayed represent CIHR financial commitments for these programs in 2004-05 and subsequent years. Availability of these funds in future years are subject to funding appropriations by Parliament. For some initiatives, partners also contributed to the funding of the grants and awards.