



BEATRICE HUNTER
Cancer Research Institute

Evolving Cancer Research in Atlantic Canada



■ BHCRI Inaugural
Report to the Community

BHCRI Inaugural Report to the Community

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Contact Us

Phone: 902-494-4513
Fax: 902-494-7119
Email: input@bhcri.ca
Web: www.bhcri.ca

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Welcome to the pages of the first 'Report to the Community' to be distributed by the Beatrice Hunter Cancer Research Institute (BHCRI).

The BHCRI, or 'Hunter Institute' as it is becoming known by some, is little more than a year old, but already participates in substantial cancer research activity taking place here in Atlantic Canada. This is because we have come into being to support a strong existing network of cancer researchers who work for you and future generations of Atlantic Canadians.

I hope that you will find many different things to attract your interest in these pages. We'd like to hear from you if you have thoughts or ideas on how the BHCRI can work best in our community to enhance and support research to benefit cancer patients and make our region known globally for the impact we make in the fight against cancer.

If you have any comments, or you'd simply like to be added to our distribution list for future information emerging from the BHCRI, please contact us (details to the left).

In the meantime, please read on to learn about our Institute and what it means for you.

Best wishes,



Jonathan Blay, PhD FIBMS FSB
Scientific Director, Beatrice Hunter Cancer Research Institute

A Brief History of the BHCRI

The Beatrice Hunter Cancer Research Institute (BHCRI) is a virtual institute, which means that it has no building or particular geographic centre. Its members are found throughout many institutions and in all four Atlantic Provinces. However, it is 'tethered' in Halifax, Nova Scotia in that its office and employees are found in Dalhousie Medical School, and many of its current activities take place within Dalhousie University or its affiliated hospitals there.

This reflects the historical roots of the Institute, which grew out of activities within Dalhousie Medical School and has since spread more widely, principally because of the well-established Cancer Research Training Program (CRTP).

It was an emphasis on students and training that began to bring together the cancer research community. In the 1990s, there were several informal groups that involved cancer researchers with similar interests, but little in the way of an organized structure. Researchers from different backgrounds first joined together to improve the training environment and support for students, leading first to the Cancer Research and Education (CaRE) initiative from 1998 to 2003, followed by the present CRTP. The CRTP currently supports approximately 30 trainees each year, including students who are beginning their graduate (MSc and PhD) programs, or who are progressing further in postdoctoral training in laboratory or clinical research.

As the training program grew, so did the momentum of the overall cancer community. This was aided by a substantial bequest through the Dalhousie Medical Research Foundation from Beatrice Hunter, after whom the present Institute is named. Since the time of that bequest, the number of endowed chairs in cancer research has risen to seven, the highest concentration of such chairs in all of Canada. Research activity across all of Atlantic Canada has also grown tremendously over that time thanks to various efforts across all of the provinces. At Dalhousie University, the efforts were initially focused through the Dalhousie Cancer Research Program (DCRP), but in April of 2009 the decision was made to create a cancer institute that would allow the full cooperation of research and funding partners who wish to work together to have the best impact on this disease.

Thus began the Beatrice Hunter Cancer Research Institute; and another step in the evolution of cancer research in Atlantic Canada.



Fighting Cancer on the Atlantic Canadian Front

8,400

Number of Atlantic Canadian men diagnosed with cancer each year

6,500

Number of Atlantic Canadian women diagnosed with cancer each year

30% higher

For every 100 men diagnosed with cancer in British Columbia, we have 130 in Atlantic Canada

20% higher

For every 100 women diagnosed with cancer in British Columbia, we have 120

East vs West

Atlantic Canada has the highest rates of cancer in the country. British Columbia has the lowest rates of cancer in the country

Action

These higher rates represent an enormous burden to our families and society we must reduce as quickly as we can

For further cancer statistics, refer to www.cancer.ca



A message from Dr. Louise Parker

Chair, Beatrice Hunter Cancer Research Institute Development Board

Canadian Cancer Society, Nova Scotia Division, Chair in Population Cancer Research

The Beatrice Hunter Cancer Research Institute is proving to be just the vehicle we need to mobilize a cohesive cancer research effort in Atlantic Canada. In the past year, the Institute's Scientific Director, Dr. Jonathan Blay, and I, and other members of the Institute have logged many miles throughout the region. We have traveled to meet with fellow researchers, health care administrators, policymakers, patient groups and charities who share our passion for research, to map out a plan for working more closely together.

Because it is based here in Atlantic Canada, the Beatrice Hunter Cancer Research Institute provides us with a means of tackling the cancer problem from within the region, rallying our own talent and drive, rather than relying on others for solutions. It's only right that we should do so, because really, this is our battle. As you may be aware, Atlantic Canada has the highest rates of cancer in the entire country, by significant margins, in virtually all kinds of cancers.

While cancer weighs heavily on the region, characteristics of Atlantic Canada and its people make me feel very optimistic about the contributions we can make. First and foremost, I have never met a community of researchers who are so eager and so willing to work collaboratively. Research is intensely competitive in many settings, but here people don't hesitate to share their ideas, their data, their methods and even their facilities, staff and trainees. Researchers are constantly seeking to make new connections that will open new avenues to new ways of addressing pressing questions. The Beatrice Hunter Cancer Research Institute is making it that much easier for them to connect.

I see a truly exciting opportunity for Atlantic Canada's cancer research and health care community to work in partnership with the public, with governments, and with charitable foundations, to lessen the burden of cancer in our region. And what we learn about preventing cancer and screening, treating and caring for cancer patients here will benefit people far beyond our borders. The Beatrice Hunter Cancer Research Institute will help lead the way.

Working Together as a Team

Dr Jonathan Blay, Scientific Director of the Institute and an active cancer researcher himself, quickly becomes enthusiastic when asked about the Beatrice Hunter Cancer Research Institute. "Research is about teamwork. What the Institute does is encourage links and allow more effective teamwork. These links may be between the researchers who work in laboratories and the doctors or other health professionals who do research as they interact with patients. Or the links may be between our scientists and the foundations who work to raise funds for the research to be done. In all ways, the result is more effective research that increases the impact for our community. Either better understanding of cancer, better ways of treating the patient, or better support for someone with cancer."

Dr Blay knows how bringing different groups together can lead to new outcomes. As a Past President of the Nova Scotia Institute for Science, and a Director of the Canadian Research Knowledge Network, he has had first hand experience seeing how such teamwork can raise the bar in what can be accomplished. "The BHCRI gives us an opportunity to do what cannot be done elsewhere," he says. "We have a wonderful mix of talented researchers, excellent clinicians and very bright trainees that – together with the unique environment here in Atlantic Canada – really lends itself to breaking down barriers and working together in ways that are simply not possible in other regions."

The Scientific Director is the first to agree that the BHCRI is one player in a network of organizations and individuals that are fighting cancer: "Researchers themselves are essentially small business leaders, who need to attract their own funding, work out their own business plan, and manage both their materials and their employees – the technicians and students who train in their research groups," he says. "We aim to support them directly, and over the past year have distributed more than a million dollars to assist their research. To do this, we work together with many charitable foundations* to raise funds that are needed. Our goal is to increase this level of support as we move ahead so that we can increase the momentum and scope of the research taking place in Atlantic Canada."

*See the back cover for a list of our supporting foundations



Dr. Jonathan Blay has recently been honoured as the inaugural recipient of the Ron MacDonald Distinguished Service Award through the Canadian Research Knowledge Network (CRKN). This award recognizes Dr. Blay as an individual who has demonstrated vision, dedication and outstanding service in building bridges to advance research knowledge infrastructure in Canada. Dr. Blay is an active cancer researcher and the current Scientific Director of the Beatrice Hunter Cancer Research Institute.

Focusing our Resources in Cancer Research

The BHCRI is a little more than a year old but already we are beginning to have impact. We are building upon an established foundation of research and training, and are working alongside strong local and national partners who are already committed to and provide substantial funding through local and national mechanisms for the effective support of cancer research.

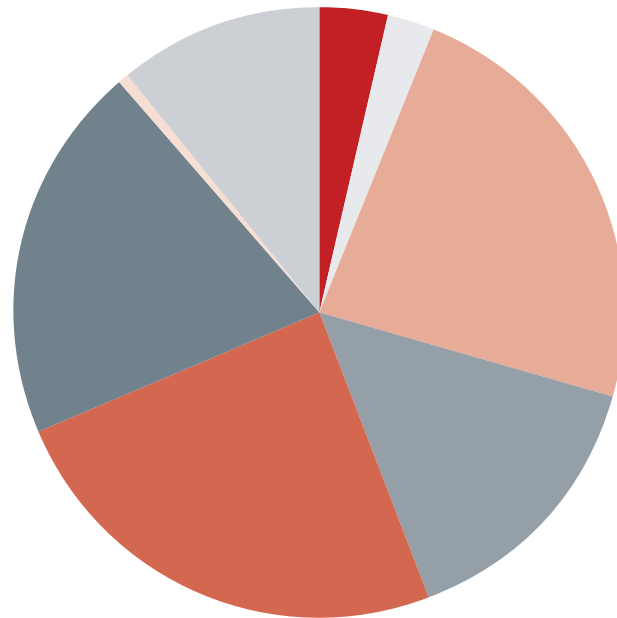
It has been possible to provide some early new funding for research, which you will read about elsewhere in this report. The full list of current supporting partners is shown inside the back cover of this report. In the past year we have received new project funding from the Dalhousie Medical Research Foundation and the QEII Foundation (from the Breast Cancer Society). This has supported four new initiatives in lung and breast cancer research (see opposite page).

The BHCRI also works with its partners to administer research initiatives in order to free up resources within the agencies themselves. We are pleased to administer the summer student training programs of the Canadian Breast Cancer Foundation for the Atlantic Region and Cancer Care Nova Scotia for the province. We have also been delighted to introduce a traineeship supported by the Motorcycle Ride for Dad (Nova Scotia). This is another way in which we are able to improve the efficiency of our community's research and training efforts.

We gratefully acknowledge all those who have contributed to the research community through BHCRI this year.

Jonathan Blay, Scientific Director

Funds Distributed Through the BHCRI to the Research Community 2009 - 2010



Canadian Breast Cancer Foundation, Atlantic Region	\$52,000
Canadian Cancer Society, Nova Scotia Division	\$35,750
Canadian Institute of Health Research / Terry Fox Foundation	\$325,000
Cancer Care Nova Scotia	\$208,500
Dalhousie Medical Research Foundation	\$342,480
Dalhousie Medical Research Foundation Cameron Personnel Awards	\$280,000
Motorcycle Ride for Dad, Nova Scotia	\$7,000
QEII Foundation/Breast Cancer Society	\$150,000
Total	\$1,400,730

In addition:

The Bank of Nova Scotia, its staff and clients, have made generous donations to the BHCRI totaling \$6,000

The Lord Nelson Hotel donates \$2 of every patient's stay to BHCRI. They recently presented the Institute with a cheque for \$2,500

Funding for administrative support of the BHCRI is provided by the Dalhousie Medical Research Foundation as well as through The Terry Fox Foundation Strategic Health Research Training Program in Cancer Research at CIHR

New Funding Awarded for Breast and Lung Cancer Research

Two new funding competitions were launched through the BHCRI in 2010: the Breast Cancer Society of Canada/QEII Foundation Awards for Breast Cancer Research and the BHCRI/Dalhousie Medical Research Foundation Lung Cancer Award for Lung Cancer Research.

Breast Cancer Society of Canada/QEII Foundation Awards for Breast Cancer Research:

Towards Safer Breast Cancer Drugs: Dr. Amitabh Jha, a professor in Acadia University's Department of Chemistry, has joined forces with Dr. Catherine Too, a professor in Dalhousie's Department of Biochemistry & Molecular Biology, to further investigate new chemical compounds he has designed to selectively block the specific estrogen receptors that drive breast cancer growth. Their goal is to lay the groundwork for targeted therapies that will stop breast cancers from growing without the side effects of current, less selective estrogen blockers, which include bone disease and cataracts. The researchers have received \$50,700 over two years.

Assessing Core Needle Biopsy Effects On Breast Cancer Growth and Metastasis: Dr. Carman Giacomantonio, associate professor in Dalhousie's Departments of Surgery, Pathology and Microbiology & Immunology, is working with his colleagues to determine whether core needle biopsies may contribute to breast cancer growth and metastasis by potentially 'seeding' tumour cells along the pathway cut by the core biopsy needle. The researchers have received \$39,400 for this interesting study.

Pioneering A Breast Cancer Blood Test: Dr. Alan Doucette, associate professor in Dalhousie University's Department of Chemistry, is collaborating with Dr. Steve Griffiths, a senior researcher at the Atlantic Cancer Research Institute in Moncton, NB, on a potential new way to detect and diagnose breast cancer. The researchers are investigating molecular packages known as microvesicles, which are released into the blood by cancer cells, to see if they may offer a reliable means of early detection and precise diagnosis. They have received \$40,000 for their project.

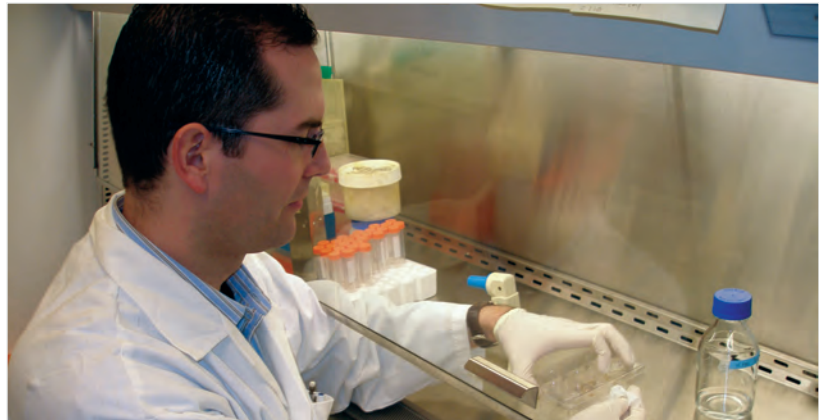
Beatrice Hunter Cancer Research Institute/Dalhousie Medical Research Foundation Lung Cancer Award:

Activating The Immune System Against Lung Cancer: Dr. Brent Johnson, Canada Research Chair in Inflammation and Immunity in Dalhousie's Departments of Microbiology and Immunology, Pediatrics and Pathology, is pitting Natural Killer T cells (NKT cells) against lung cancer, which continues to be the leading cause of cancer deaths. He has received \$80,000 from the Beatrice Hunter Institute to see if increasing the number of NKT cells activates a robust immune response to control established lung tumours. He and his team will also perform experiments to see if enhancing the signals from a molecule called CXCR6 will boost the anti-lung cancer capabilities of NKT cells.

Meet Our Members

Dr. Brent Johnston Pits Natural Killer T Cells Against Metastasis

The Beatrice Hunter Cancer Research Institute is open to cancer researchers in Atlantic Canada who want to join forces with others to achieve more in the fight against cancer. Many of our members are laboratory scientists, probing cancer's mysteries in search of better detection and cures. Many are health professionals who take part in research to improve their patients' lives. Others work in such fields as epidemiology and informatics, seeking to understand the big picture of cancer in our region.



"The Beatrice Hunter Institute regularly and purposefully brings basic scientists together with clinicians, to share what we're doing and the challenges we face. This helps scientists see more clearly how clinicians' priorities fit with what they're doing, so they can design experiments to generate results more readily translated into patient care."

—Dr. Brent Johnston, Dalhousie University

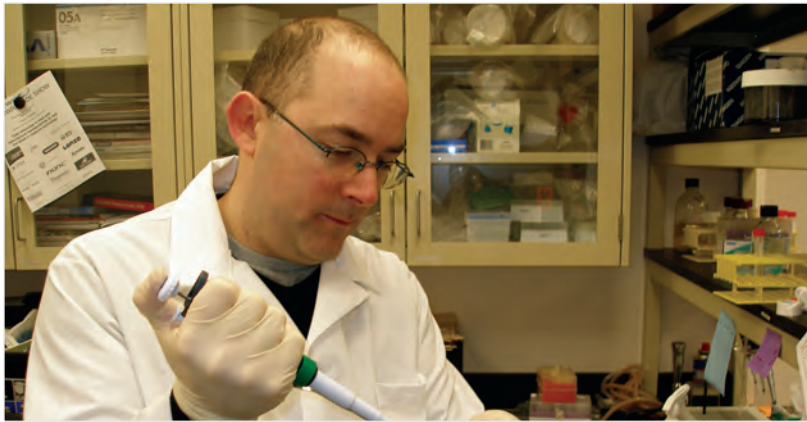
Dr. Brent Johnston believes our immune system can be a powerful ally against cancer, but tumours have ways of tricking immune cells into working for them—in effect, turning our own immune systems against us. To get around this problem, Dr. Johnston is developing methods of arming Natural Killer T (NKT) cells to search and destroy cancer cells.

"Tumours produce many factors that protect them from the immune system. However, cancer cells which have left the main tumour are likely to be more susceptible to NKT cells," says Dr. Johnston, explaining that NKT cells are white blood cells that can be activated to respond aggressively against cancer cells. "As we know, cancer kills when it spreads around the body. NKT cells have the potential to block this deadly process."

In the past year, Dr. Johnston has received funding from the Canadian Cancer Society, Canadian Breast Cancer Foundation—Atlantic Region and the Beatrice Hunter Cancer Research Institute. In his BHCRI-supported research, he will examine NKT cell functions and determine whether NKT cells could be used as a therapy to control established lung tumours.

Dr. Brent Johnston is an associate professor in the departments of Microbiology & Immunology, Pediatrics and Pathology in Dalhousie University's Faculty of Medicine. He holds the Canada Research Chair in Inflammation and Immunity. Dr. Johnston served as a member of the Cancer Research Training Program Management Committee for a number of years and is presently a member of the BHCRI Training Committee.

Dr. Graham Dellaire Targets Chemotherapy Resistance in Breast Cancer



“With the Beatrice Hunter Institute working to bring cancer researchers together across disciplines and across the region, the overall momentum of our efforts is gaining. As a community, we will be able to leverage the new collaborations that are forming to become increasingly successful in national funding competitions.”

—Dr. Graham Dellaire, Dalhousie University

Widespread access to breast screening programs and increasingly effective post-surgical (adjuvant) treatments have dramatically improved breast cancer survival over the past 15 – 20 years. Even with early diagnosis and current adjuvant treatments however, 10 – 15% of patients with a history of breast cancer will suffer a relapse within five years, explains Dr. Graham Dellaire, Cameron Research Scientist in Dalhousie Medical School. Unfortunately, in most cases, relapsed disease is treatable but not curable and often becomes increasingly resistant to different treatments over time.

Dr. Dellaire wants to re-sensitize treatment-resistant breast cancer cells. He’s working with IWK pediatric hematologist-oncologist Dr. Jason Berman—an expert on zebrafish models of cancer—to see if these tiny transparent fish can be used to screen potential re-sensitizing drugs. “We’re putting chemo-resistant breast cancer cells into the zebrafish, treating them, then observing the live fish under a microscope to see if the cells respond,” says Dr. Dellaire. “We plan to screen thousands of compounds this way.”

While seeking solutions to chemotherapy resistance, Dr. Dellaire is also looking for biomarkers that could be used in screening tests to detect cancer at its earliest, most treatable stages, to personalize chemotherapy, and to monitor the success of treatments. At the same time, he is studying how DNA damage leads to cancer and how this damage could potentially be repaired to prevent cancer from developing.

Dr. Dellaire joined Dalhousie University as an Assistant Professor in the Department of Pathology in 2007 after completing his research training at The Hospital for Sick Children in Toronto. His Cameron Research Scientist position is funded through the Cameron Endowment, established at the Dalhousie Medical Research Foundation by the late Mrs. Beatrice Hunter in memory of her parents, Dr. Owen and Mrs. Pearle Cameron. In addition, his work is funded by the Canadian Institutes of Health Research, the Canada Foundation for Innovation and Natural Sciences and Engineering Research Council of Canada. Dr. Dellaire co-chairs the Cancer Research Training Program’s Management Committee with Dr. Gerry Johnston.

Dr. Tony Reiman Involves Patients in Quest for Personalized Cancer Treatment



“New Brunswick has a growing cancer research scene that includes regional initiatives by Dalhousie University, the Beatrice Hunter Cancer Research Institute, and many other important institutions. Great progress can be made through collaboration.”

—Dr. Tony Reiman, Saint John Regional Hospital and Dalhousie Medicine New Brunswick

As a medical oncologist at the Saint John Regional Hospital, Dr. Tony Reiman conducts his research on the frontlines of patient care—and he is always on the lookout for ways to involve patients in his research.

Dr. Reiman has patients enrolled in numerous clinical trials of drug treatments, but he is also interested in banking and analyzing samples of patients’ tumours and blood. “Patient samples help us understand the biological basis of cancer and how it varies from person to person,” notes Dr. Reiman, who is setting up a lung tumour tissue bank in New Brunswick.

Because cancer arises within an individual, every cancer is in a sense unique. This poses a challenge to clinicians, who often have limited means to predict which treatments will work best for which patients. Dr. Reiman and his collaborators around the world want to change this.

“By analyzing the molecular characteristics of our patients’ tumours, in light of the treatments they took and how they fared, we should be able to identify what kinds of tumours respond best to which treatments,” he explains. “Our goal is to be able to analyze a biopsy from a newly diagnosed patient and know exactly which treatment will work best for this person.”

As Assistant Dean of Research at Dalhousie Medicine, New Brunswick, Dr. Reiman is working to develop facilities and programs to strengthen all areas of medical research in the province. Dr. Reiman is a member of the BHCRI Training Committee.

Dr. Melanie Keats Prescribes Physical Activity to Young Cancer Patients and Survivors



“The Beatrice Hunter Cancer Research Institute has shown itself to be proactive and open-minded in seeking someone like me to bring the behavioural sciences into its cancer research effort. They recognize that cancer requires a broad spectrum of approaches.”

—Dr. Melanie Keats, Dalhousie University Faculty of Health and Human Performance

Exercise psychologist Dr. Melanie Keats wants kids and teens with cancer to move their bodies—to break a sweat and have fun doing it. She has developed ‘Milestones,’ a program that makes exercise fun and tests its effect on kids and teens coping with cancer.

“Physical activity can be applied along a continuum of milestones in cancer,” Dr. Keats explains. “Not only can it help prevent cancer, but once a person is diagnosed, physical activity can help them prepare themselves physically and mentally for treatment, increase their tolerance to the treatments, and improve their overall health, quality of life and long-term survival after treatment.”

The Canada Foundation for Innovation, Nova Scotia Research Innovation Trust and Dalhousie’s Faculty of Health Professions have all funded Dr. Keats to design and launch Milestones, which uses ‘exer-gaming’ to get the kids’ heart rates into the training zone.

“We have tied video games into stationary bicycles, so the kids have to pedal hard for their game character to rack up points or win the race,” explains Dr. Keats, adding that three such portable systems will be in place at the IWK Health Centre within the next year. “People, especially kids, will only stick to exercise they enjoy.”

Dr. Keats and Dr. Mark Bernstein, head of pediatric hematology-oncology at the IWK, have funding from the Nova Scotia Health Research Foundation to launch a pilot study of the program with young cancer survivors at Dalhousie this fall.

In addition to the hospital- and university-based programs, Dr. Keats is developing a home-based program that will send survivors home with a Wii Fit system and a customized activity plan.

Dr. Keats knows first-hand how important physical activity can be for a young person with cancer. An athlete all her life, she was diagnosed with spinal cord cancer at the age of 12 and bladder cancer at age 18. “I stayed as active as I possibly could,” she recalls. “I’m convinced I’m here today because physical activity has always been a priority in my life.” Dr. Keats is a member of the BHCRI Training Committee.

DMRF Molly Appeal Brings Powerful Research Tool to Atlantic Canada

Cancer Researchers Rise to the Challenge

For the first time ever, in 2009, the Dalhousie Medical Research Foundation's Molly Appeal challenged the research community to a fundraising competition. Cancer researchers at Dalhousie rallied to the call, quickly forming two teams, which together raised more than \$8,000 for the RNA-interference library. Enthusiastic bakers in Dr. Jonathan Blay's lab baked their way to more than \$3,000, selling more than 600 gourmet homemade cupcakes and a parcel of raffle tickets. Staff and trainees in Dr. Patrick Lee's lab involved the local business community in donating items for a popular and exciting auction event that raised over \$5,300.



"The RNA-interference (RNAi) library will greatly facilitate not only our understanding of cancer, but also cancer prevention strategies and the development of cancer therapeutics."

Dr. Patrick Lee, Cameron Chair in Basic Cancer Research, Dalhousie University

Thanks to Maritimers who gave generously to the 2009-2010 Molly Appeal, cancer researchers in Atlantic Canada will now have access to powerful technology known as an RNA-interference library.

"The RNA-interference facility will give researchers 70,000 genetic tools they can use to determine the function of every gene in a cell," says Dr. Jonathan Blay, Scientific Director of the Beatrice Hunter Cancer Research Institute. "It will allow us to identify suspect genes and assess how the protein that the genes produce can block or trigger cancer. From there we can design therapies to regulate the protein and prevent cancer from progressing."

RNA-interference technology opens doors to so much new knowledge that the people who discovered it won the Nobel Prize in medicine in 2006.

The 2009-2010 Molly Appeal raised \$227,000, surpassing its goal of \$200,000. "The public recognizes the heavy toll cancer takes in this part of the world, and they have confidence in our local researchers to find ways of reducing this impact," says Jyl MacKinnon, Director of Development at Dalhousie Medical Research Foundation, which runs the annual Molly Appeal. "We were thrilled with the community's response to this cancer campaign, including outstanding fundraising efforts by the researchers themselves."

Cancer researchers also played a crucial role in the campaign's success by sharing their research with the public through television, radio and newspaper interviews. Drs. Jason Berman, Jonathan Blay, Graham Dellaire and Carman Giacomantonio all gave freely of their time to build support for the RNA-interference library.

Institute Events

The Beatrice Hunter Cancer Research Institute offers a monthly seminar series. Each seminar consists of two presentations, one by a discovery scientist and the second by a clinical scientist, epidemiologist or population or psychosocial researcher. Presentations held during the past year include those listed below.

Sub-Nuclear Domains And Tumour Suppression

Presenter: Dr. Graham Dellaire

Access To Care In Cancer Surgery

Presenter: Dr. Geoff Porter

Oncogenes As Regulators Of Cancer Cell Survival

Presenter: Dr. Kirill Rosen

The Influence Of Core Needle Biopsies In Cancer Metastasis

Presenter: Dr. Carman Giacomantonio

Blowfly Spit, Worms And Sea Sponges. Why We Can't Always Plan The Course Of Cancer Research

Presenter: Dr. Jonathan Blay

A Tale Of Two Fishes: Approaches To Use The Zebrafish To Model Myeloid Leukemia

Presenter: Dr. Jason Berman

Allergy And Cancer - A Mast Cell Link?

Presenter: Dr. Jean Marshall

Chewing The Fat: Roles Of Natural Killer T-Cells In Cancer Control

Presenter: Dr. Brent Johnston

The Crystal Ball: Predictive Markers And Micrometastatic Cancer

Presenter: Dr. Arik Drucker

Clinical Trials And Cancer Care: Essential Collaborations

Presenter: Dr. Daniel Rayson

Regulation Of The Transition From Quiescence To Active Cell Proliferation

Presenter: Dr. Gerry Johnston

(IR)Rational Design Of Early Phase Clinical Trials - Lessons Learned By A Newbie

Presenter: Dr. David MacDonald

Prodigiosenes - Synthesis And Evaluation Of Polypyrrrolic Anti-Cancer Agents

Presenter: Dr. Alison Thompson

Interactive Fitness And Quality Cancer Care

Presenter: Dr. Melanie Keats

Tumour Immunotherapy: Recent Breast Cancer Vaccine Developments

Presenter: Dr. Tong-Jun Lin

Clinical Research In Genitourinary Malignancies

Presenters: Dr. Lori Wood and Dr. Derek Wilke

Role Of AEBP1 In Regulation Of Mammary Gland Development And Tumorigenesis Via Stromal-Epithelial Crosstalk

Presenter: Dr. Hyo-Sung Ro

Proteomics Of Invasiveness – From Cell Biology To Biomarkers

Presenter: Dr. Devanand Pinto

Improving Thyroid Cancer Care Through A Multidisciplinary Approach

Presenter: Dr. Ali Imran

These sessions are held monthly from September through June. Should you wish to receive information about upcoming BHCRI events, including Seminar Series sessions, please contact Shannon at admin@bhcri.ca to be added to our email distribution list.

BHCRI Annual Cancer Research Symposium

The annual BHCRI Cancer Research Symposium is held each November. This is a two-day event that brings together many research viewpoints and also offers trainees the opportunity to present their research via poster or platform presentations. Guest speakers include faculty from Atlantic universities as well as national experts in various aspects of cancer care and research. Speakers for the 2010 Symposium included: Dr. David Huntsman, MD from the University of British Columbia whose topic was: *Next Generation Sequencing And Personalized Cancer Control – Myriads Of Opportunities and Myriads of Challenges*; Dr. Raymond M. Reilly, PhD from the University of Toronto, whose topic is: *Auger Electron Radioimmunotherapy Of HER2-Positive Breast Cancer* and Dr. Vickie E. Baracos, PhD from the University of Alberta whose topic was: *Cancer Cachexia In The Age of Obesity: Clinical And Experimental Approaches*.

The New Generation of Cancer Researchers

The Cancer Research Training Program (CRTP) is a cornerstone of the Beatrice Hunter Cancer Research Institute. It fosters the next generation of cancer researchers through scholarships and learning programs to help trainees develop skills they will need to be successful research professionals. Since 2002, the CRTP has funded a total of 88 graduate students and postdoctoral fellows to work with senior investigators. The trainees' efforts, energy and intelligence have enabled countless small steps of progress on the way to a future with better prevention, treatments and cures for cancer.

CRTP Trainees Funded in 2009 - 2010

Name	Department	Supervisor
Rafaela Andrade	Biochemistry and Molecular Biology ¹	Dr. Paola Marignani
Kathleen Atwood	Pathology ¹	Dr. Graham Dellaire
Tugce Balci	Pediatrics ¹	Dr. Jason Berman
Jeremy Benjamin	Microbiology and Immunology ¹	Dr. Gerry Johnston
Alamelu Bharadwaj	Biochemistry and Molecular Biology ¹	Dr. Hyo-Sung Ro
Julie Boutilier	Microbiology and Immunology ¹	Dr. Roy Duncan
Jack Chen	Pathology ¹	Dr. Graham Dellaire
Sherri Christian	Medical Sciences ²	Dr. Kensuke Hirasawa
Leanne Clattenburg	Pharmacology ¹	Dr. Jim Fawcett
Jennifer Corcoran	Microbiology and Immunology ¹	Dr. Craig McCormick
Dale Corkery	Biochemistry and Molecular Biology ¹	Dr. Graham Dellaire
Kevin Cormier	Chemistry & Biochemistry ³	Dr. Gilles Robichaud
Aimee Coulombe	Pediatric Psychology ¹	Dr. Christine Chambers
Robyn Cullen	Pathology ¹	Dr. Brent Johnston
Murray Cutler	Pharmacology ¹	Dr. Jonathan Blay
David Cyr	Microbiology and Immunology ¹	Dr. Craig McCormick
Michael Forrester	Microbiology and Immunology ¹	Dr. Jason Berman
Anna Greenshields	Pathology ¹	Dr. David Hoskin
Shashi Gujar	Microbiology and Immunology ¹	Dr. Patrick Lee
Megan Hickey	Microbiology and Immunology ¹	Dr. David Hoskin
Richard Hill	Microbiology and Immunology ¹	Dr. Patrick Lee
Robert Junkins	Microbiology and Immunology ¹	Dr. Tong-Jun Lin
FuiBoon Kai	Microbiology and Immunology ¹	Dr. Roy Duncan
Christine King	Microbiology and Immunology ¹	Dr. Craig McCormick
Emilie Lefort	Pathology ¹	Dr. Jonathan Blay
Adam MacNeil	Microbiology and Immunology ¹	Dr. Tong-Jun Lin
Patricia Madureira	Biochemistry and Molecular Biology ¹	Dr. David Waisman
Pascaline Ngweniform	Biochemistry and Molecular Biology ¹	Dr. Jan Rainey
Ryan Noyce	Microbiology and Immunology ¹	Dr. Christopher Richardson
Michael O'Brien	Pharmacology ¹	Dr. James Fawcett
Paul O'Connell	Biochemistry and Molecular Biology ¹	Dr. David Waisman
Kristy Roth	Microbiology and Immunology ¹	Dr. Tong Jun-Lin
Jeremy Roy	Physiology and Biophysics ¹	Dr. Paul Linsdell
Kim Sutton	Pathology ¹	Dr. David Hoskin
Kristin Tweel	Pharmacology ¹	Dr. Jonathan Blay
Linnea Veinotte	Microbiology and Immunology ¹	Dr. Brent Johnston
Erik Wibowo	Anatomy and Neurobiology ¹	Dr. Richard Wassersug
Paul Yaffe	Medical Sciences ¹	Dr. David Hoskin
Jing Zhao	Community Health and Humanities ²	Dr. Peizhong Peter Wang

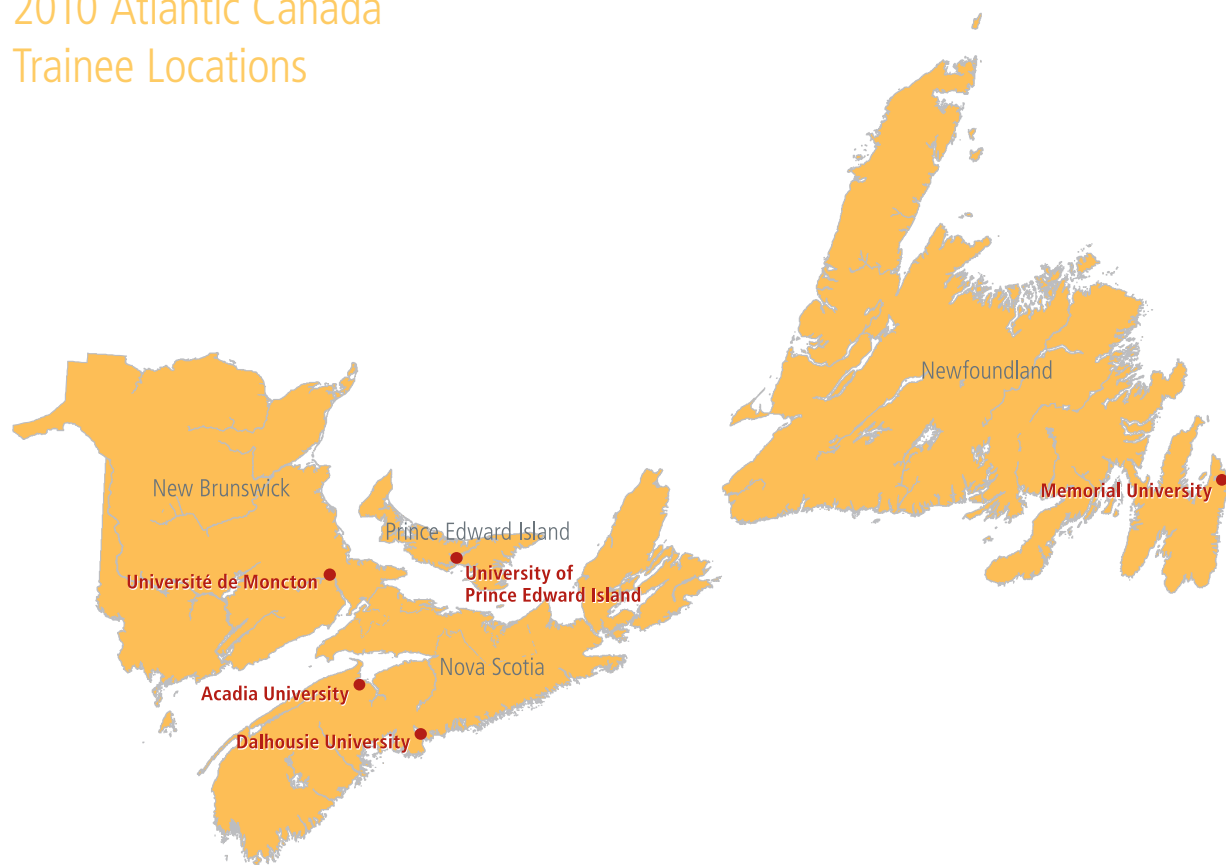
¹ Dalhousie University

² Memorial University

³ Université de Moncton

The New Generation of Cancer Researchers

2010 Atlantic Canada Trainee Locations



Institution	Trainee	Number
Dalhousie University	C RTP Traineeships and Fellowships	23
	CBCF Studentships	5
	Norah Stephen Studentships	4
	Motorcycle Ride for Dad	1
Acadia University	CBCF Summer Studentship	1
Université de Moncton	C RTP Traineeship	1
University of Prince Edward Island	CBCF Summer Studentship	1
Memorial University	C RTP Traineeship	1
	C RTP Fellowship	1
	CBCF Summer Studentship	1

Past CRTP Trainees: Where Are They Now?

Dr. Trevor Shepherd



"Being involved in the early days of the Cancer Research Training Program provided me with a tremendous opportunity to develop necessary administrative skills. Now the CRTP provides trainees with workshops and seminars that build essential career skills in grant writing, communicating results, and working in multidisciplinary teams."

—Dr. Trevor Shepherd, Assistant Professor,
University of Western Ontario/London Health Sciences Centre

Dr. Trevor Shepherd graduated from McMaster University's PhD program with a wide range of experience in breast cancer research. In his next step—postdoctoral studies—he wanted to apply his knowledge to a type of cancer that receives a lot less attention: ovarian cancer. "Ovarian cancer is still such a deadly cancer," says Dr. Shepherd. "It is difficult to detect and it does not need to enter the bloodstream to spread beyond the ovaries."

Dr. Shepherd received postdoctoral funding from the Cancer Research Training Program and played an active role in the new program as it developed. "The cancer research community gradually became more cohesive," he says, "as we developed more opportunities for trainees and researchers to get together to share information and ideas."

Upon completing his training at Dalhousie, Dr. Shepherd returned to Ontario, where he is a lead investigator in ovarian cancer research at the London Health Sciences Centre and an assistant professor at the University of Western Ontario. "I'm using patient tumour samples to develop realistic models of ovarian cancer metastasis," he says. "I want to know what pathways allow ovarian cancer cells to proliferate, migrate and invade surrounding tissues."

Dr. Sherri Christian



"It is very important for cancer researchers and trainees in Newfoundland to be connected to the larger cancer research community in Atlantic Canada. The Beatrice Hunter Cancer Research Institute and its Cancer Research Training Program are already strengthening ties between Memorial and Dalhousie and will lead to new partnerships and discoveries."

—Dr. Sherri Christian, Assistant Professor, Memorial University of Newfoundland

After three years of postdoctoral studies with Dr. Ken Hirasawa at Memorial University of Newfoundland, Dr. Sherri Christian is embarking on an exciting new phase of her cancer research career. In May 2010, she accepted an Assistant Professor position in the Department of Biochemistry at Memorial and began developing her own independent research program.

CRTP traineeship funding supported Dr. Christian's postdoctoral work in Dr. Hirasawa's lab, where she investigated the role of an important protein called Ras in cancer development. "Ras is activated in about 30 per cent of all cancers," notes Dr. Christian. "I have identified a number of Ras-regulated genes which may play a role in cancer progression and plan to continue exploring the Ras pathway."

Even though she was in Newfoundland throughout her time as a CRTP trainee, Dr. Christian was a full participant in the program. "I joined in all the seminars by teleconference and attended the annual symposium in Halifax," she says. "It was great to meet other cancer researchers in the region: these connections will help me as I go forward with my own research."

Ongoing CRTP Trainees

Kristin Tweel



“The Cancer Research Training Program runs learning sessions, symposia and other events that bring students, scientists and clinicians together. This helps students understand the breadth and depth of cancer research while building a collaborative mindset that will serve us well in our careers.”

—Kristin Tweel, PhD Student, Dalhousie University

Kristin Tweel is pursuing a PhD to answer pressing questions about cancer metastasis. Specifically, she is investigating how the biochemical environment in and around colon tumours encourages some cells to break away from the main tumour and migrate to the liver.

“We’re studying the CD26 protein, which is depleted in tumours,” says Ms. Tweel, who joined Dr. Jonathan Blay’s lab at Dalhousie in 2006, after receiving a B.Sc. in biology from the University of Prince Edward Island. “When CD26 is low, cancer cells travel more.”

These more mobile cancer cells then head to the liver, which secretes signaling molecules that attract cancer cells. “If we could inactivate these attractant molecules, perhaps the cancer cells would be less inclined to metastasize.”

Kristin was one of three students in Dr. Blay’s lab who received CRTP travel awards in 2009. The three young women flew to Paris to share their findings at an international conference on the tumour microenvironment and its influence on cancer growth and metastasis. “It was an amazing experience to meet and share information with top minds in the field,” says Kristin. “When we came home, we gave a presentation to share what we’d learned with our fellow trainees in the CRTP.”

Dr. Maya Shmulevitz



“The Cancer Research Training Program breaks down traditional barriers between disciplines to allow cross-pollination of ideas. Not only does it connect scientists and clinicians, it brings in epidemiologists and policy researchers so we better understand the context of our work and how it can be applied in the real world.”

—Dr. Maya Shmulevitz, Postdoctoral Research Associate, Dalhousie University

Virologist Dr. Maya Shmulevitz knows certain viruses are ideal cancer killers. That’s why she’s working with world-renowned cancer researcher, Dr. Patrick Lee, to turn the human reovirus into a more potent anti-cancer agent.

“We want to make the human reovirus both more selective and more deadly to cancer cells,” says Dr. Shmulevitz, who joined Dr. Lee’s lab at Dalhousie as a CRTP-funded postdoctoral fellow in 2005. A native of Israel who grew up in Edmonton, she completed her PhD at Dalhousie, followed by a stint at the Vaccines and Infectious Diseases Organization in Saskatoon.

Dr. Shmulevitz and colleague Dr. Paola Marcato have already revealed key mechanisms that allow the human reovirus to enter and destroy cancer cells. Now she is searching for proteins that will help the virus target cancer cells with deadly precision.

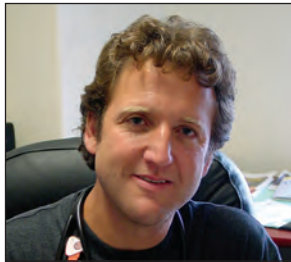
While she enjoys working at the bench, Dr. Shmulevitz is equally enthusiastic about what can be accomplished in the meeting room. “Being involved in CRTP programs helped me realize that I enjoy big-picture planning and problem solving,” she says. “I want to combine my scientific knowledge with my strategic thinking and organizational skills to make a bigger overall impact on research.”

The Institute Management Team



Dr. Louise Parker

Chair, Beatrice Hunter Cancer Research Institute Development Board; Canadian Cancer Society, Nova Scotia Division Endowed Chair in Population Cancer Research



Dr. Daniel Rayson

Vice Chair, Beatrice Hunter Cancer Research Institute Development Board; Director, Atlantic Clinical Cancer Research Unit



Dr. David Hoskin

Chair, Beatrice Hunter Cancer Research Institute Training Committee; Canadian Breast Cancer Foundation, Atlantic Region Endowed Chair in Breast Cancer Research



Dr. Sara Kirk

Canada Research Chair in Health Services Research



Ms. Alison Edwards

Executive Director, Dalhousie Medical Research Foundation



Ms. Maureen Summers

Chief Executive Officer, Canadian Cancer Society, Nova Scotia Division



Dr. Jonathan Blay¹

Scientific Director, Beatrice Hunter Cancer Research Institute



Ms. Cindy Pettipas²

Administrative Director, Beatrice Hunter Cancer Research Institute

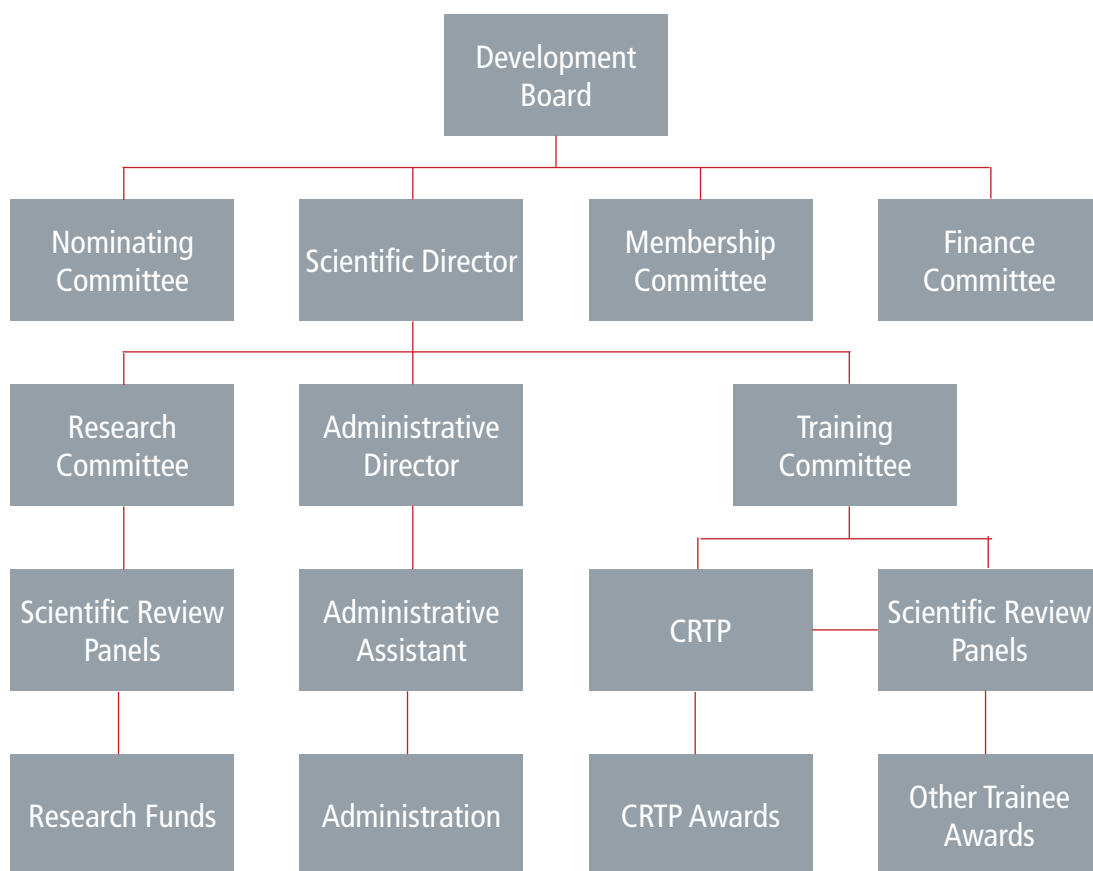


Shannon Donovan

Administrative Assistant, Beatrice Hunter Cancer Research Institute

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The Organizational Structure of the Institute



BHCRI Training Committee Members

Dr. David Hoskin, Chair
 Dr. Jonathan Blay, BHCRI Scientific Director*
 Dr. Brent Johnston
 Dr. Gerry Johnston, CRTP Management Committee Representative*
 Dr. Melanie Keats
 Dr. Sharon Oldford, Postdoctoral Fellow Representative
 Dr. Louise Parker
 Dr. Anthony Reiman
 Ms. Kristin Tweel, Graduate Student Representative

* - *Ex Officio*

CRTP Management Committee Members

Dr. Graham Dellaire, Co-Chair
 Dr. Gerry Johnston, Co-Chair
 Dr. Jason Berman
 Ms. Ashley Hilchie, Graduate Student Representative
 Dr. David Hoskin, Training Committee Representative*
 Dr. Karen Mann
 Dr. Jean Marshall
 Dr. Ryan Noyce, Postdoctoral Fellow Representative
 Dr. Catherine Too
 Ms. Jane Wilson, Canadian Cancer Society, Nova Scotia Division

Membership

The Beatrice Hunter Cancer Research Institute is now accepting applications for membership. Applications and guidelines are available on our website at www.bhcri.ca. Please contact Cindy at input@bhcri.ca should you have any questions.

Supporting Foundations of BHCRI

Contact Information

The Beatrice Hunter Cancer
Research Institute
C304, Clinical Research Centre
5849 University Avenue
Halifax, Nova Scotia B3H 4H7

Phone: 902-494-4513

Fax: 902-494-7119

Email: input@bhcri.ca

Website: www.bhcri.ca



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