medicine gets personal
2014 UHN research report
University Health Network (UHN) comprises four hospitals: Princess Margaret Cancer Centre, (PM Cancer Centre), Toronto General Hospital (TGH), Toronto Rehab (TR) and Toronto Western Hospital (TWH). It also has five research institutes: PM Cancer Centre, Techna Institute for the Advancement of Technology for Health (Techna), Toronto General Research Institute (TGRI), Toronto Rehabilitation Institute (TRI) and Toronto Western Research Institute (TWRI). The scope of research and complexity of cases at UHN have made it a national and international source for discovery, education and patient care. UHN is a research hospital affiliated with the University of Toronto (UT) and is a member of the Toronto Academic Health Science Network (TAHSN).

UHN Research Snapshot

Total Researchers 883
Fellows 675
Graduate Students 767

Total Trainees 1,442
Support Staff 1,628
Research Space 981,953 sq. ft.
Publications 2,910

Total Funding $344,384,007

Cover Image: Kwan Ho Tang, PhD, Postdoctoral Fellow, Princess Margaret Cancer Centre, University Health Network
## Personalized Medicine

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brightening the Brain</td>
<td>4</td>
</tr>
<tr>
<td>Making Hepatitis C History</td>
<td>6</td>
</tr>
<tr>
<td>The Artistry of Gene Analysis</td>
<td>8</td>
</tr>
<tr>
<td>The Road to Recovery</td>
<td>10</td>
</tr>
<tr>
<td>Good Things in Small Packages</td>
<td>12</td>
</tr>
<tr>
<td>Better Health Through Chemistry</td>
<td>14</td>
</tr>
<tr>
<td>Year in Discovery</td>
<td>16</td>
</tr>
<tr>
<td>Discoveries to Reality</td>
<td>18</td>
</tr>
<tr>
<td>Year in Funding</td>
<td>20</td>
</tr>
<tr>
<td>Research News</td>
<td>22</td>
</tr>
<tr>
<td>Research Distinctions</td>
<td>23</td>
</tr>
<tr>
<td>UHN Foundations</td>
<td>26</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>UHN Research Institutes</td>
<td>32</td>
</tr>
<tr>
<td>UHN Research Committees</td>
<td>42</td>
</tr>
<tr>
<td>External Sponsors</td>
<td>44</td>
</tr>
<tr>
<td>Financials</td>
<td>46</td>
</tr>
<tr>
<td>International Research Advisory Board</td>
<td>48</td>
</tr>
</tbody>
</table>
Making Medicine Personal

Recent advances in our understanding of human biology have set in motion a potential revolution in health care based on an individual’s unique makeup. The best ways to acquire and integrate personal information into medical practice comprise major challenges to UHN’s research teams.

Medicine has always been personal—at some level—whether or not we knew it.

First, we each have a personal array of genes: our genome. Sometimes these genes are defective from birth, leading to diseases that may be mild to catastrophic. More commonly, genes mutate over the course of our lives; most mutations are inconsequential, but some lead to serious diseases like cancer. Acting on this knowledge remained nearly impossible until the advent of fast and accurate methods to determine the genetic makeup of normal and cancer cells, and the discovery of drugs that target particular mutations. Our research teams are developing ways to integrate this information into medical practice. Clinical trials focused on integrating molecular profiling of tumours into cancer diagnostics and treatment are already well underway.

At a different level, what could be more personal than when your immune cells attack your own tissue? This occurs in autoimmune inflammatory diseases such as rheumatoid arthritis, inflammatory...
bowel disease and multiple sclerosis. While there have been major advances in treating these conditions, we still do not know why some patients respond to one anti-inflammatory drug while others do not. UHN research teams are discovering new ways to predict response and tailor interventions for these patients.

A bold example of personalized medicine is growing new tissue from a person’s own cells. UHN researchers have established protocols to grow heart cells to replace damaged tissue, insulin-producing cells to control diabetes and cartilage-producing cells to improve damaged joints. New imaging technologies are also being developed to monitor these cells in the body, which is critical for their use in the clinic. These early steps portend an entirely new approach to treating disease.

Making medicine personal at UHN goes far beyond cells, molecules and tissues.

Can there be anything more personal than talking to your surgeon as an electrode is inserted into your brain? UHN has pioneered deep brain stimulation for movement disorders, depression, Alzheimer disease and other disorders. Because each brain is unique, dialog between patient and surgeon helps pinpoint the exact location of the electrode, transforming the patient into a key member of their own surgical team.

Ultimately, making health care personal means putting the patient first. At UHN, integrated care teams bring together health professionals and patients with the aim of optimizing care and improving the patient experience. Collaborative practice for a patient recovering from stroke brings together individuals skilled in acute care, and experts in rehabilitation and patient/family education.

A critical issue is to determine if personalized medicine is affordable—or if it is, in fact, the only way to make health care sustainable. In the long run, will customized treatments save money through greater efficiency and fewer subsequent visits? UHN researchers are studying the effect of personalized approaches on the health care system and beyond. These studies will guide policy makers on the most effective use of our health care dollars and help health care providers to better use existing resources.

Even with our four hospitals, five research institutes and four foundations (The Princess Margaret Cancer Foundation, Toronto General & Western Hospital Foundation, Toronto Rehab Foundation, Arthritis Research Foundation), UHN cannot progress fast enough on our own to meet our lofty goals. Fortunately, we are helped enormously by our partnership with the University of Toronto and the other research hospitals in the Toronto Academic Health Science Network. Working with these colleagues and others in Canada and around the world, UHN researchers are improving health care at multiple levels by making medicine personal.
Depressive disorders exert huge tolls on society through health care-related costs and lost productivity. Moreover, it is very difficult to predict which treatments will benefit which patients. In fact, very little is known about why some individuals respond well to certain treatments, while others do not. To address this issue, Dr. Jonathan Downar investigated whether individual patient response to repetitive transcranial magnetic stimulation (rTMS) could be predicted by imaging the brain using functional magnetic resonance imaging (fMRI). rTMS treatment for depression uses powerful, focused magnetic field pulses to alter activity within emotion-regulating brain regions.

Brain maps were created for 25 patients before and after rTMS treatment. About half the patients showed a positive response to treatment, while the other half had little improvement. After analyzing the fMRI images, Dr. Downar’s team found that patients that responded well to rTMS had high connectivity within specific circuits in the frontal lobes of the brain. These regions have been previously linked to depression and, on a functional level, are involved in self-regulation of thoughts, feelings and behaviour.

This study provides important new insights into the underlying neurobiological mechanisms that indicate which individuals may respond better to rTMS treatment and brings researchers one step closer to better customizing rTMS for different patients.

Measuring brain connectivity could be used to ensure that individuals are provided with therapies that benefit them the most.

Salomons TV et al. Neuropsychopharmacology 2014 Jan. Supported by Ontario Brain Institute, Canadian Biomarker Integration Network for Depression, Buchan Family Foundation and Toronto General & Western Hospital Foundation.
The dorsal medial prefrontal cortex (dmPFC) and its nearby neural networks are believed to have a central role in regulating emotion and the pathophysiology of major depression.
Making Hepatitis C History
Tailoring a cure to each patient’s infection

Over 180 million people worldwide are infected with the hepatitis C virus (HCV). The virus causes progressive damage to the liver that can lead to liver failure or liver cancer. Traditionally, HCV infections are treated with a combination of medications for up to a year that can cause serious side effects yet have relatively low cure rates. A person’s response to these medications varies and depends on age, race, the strain of virus, the amount of virus in the blood and the extent of liver damage.

In the past two years, significant progress has been made in the fight against HCV; researchers have identified several drug combinations that are highly effective at curing HCV infections. One of these drug combinations was evaluated in a study led by Dr. Jordan Feld.

The study enrolled over 600 patients who had never been treated previously and were infected with genotype 1 HCV, the most common strain of the virus. Participants received either the new therapeutic regimen or a placebo—pills containing no medicine—for 12 weeks. Overall, 96% of patients treated with the new regimen were cured of their infection and the pills were tolerated well with only mild side effects.

HCV leads to more years of life lost than any other infectious disease in Ontario and is the most common cause for liver transplantation. With this new treatment regimen and others in development showing extremely high cure rates with relatively few side effects, eliminating HCV infection from Canada is now possible.


Eliminating a disease is a rare opportunity in medicine. These new treatments make it possible to move towards an HCV-free Canada.
Representative heat map of Canada showing total HCV cases per province (red >100,000; orange >25,000; green <1,000; data from Public Health Agency of Canada, 2007). The new therapeutic regimen, represented by the blue pill, could help eliminate the virus.
Cancers arise due to spontaneous changes in DNA, which accumulate over time and cause unrestricted cell growth. The accumulation of these changes makes it challenging to ascertain which ones initiated the cancer.

To bypass this problem, researchers normally introduce DNA errors into cells and then use the cells as a tool for identifying cancer-causing genes. However, this has only been successfully achieved using cells from zebrafish and mice. Recent efforts by Dr. Rama Khokha’s laboratory have provided a powerful new method to address this gap. Using several cutting-edge genomic techniques, they successfully introduced traceable genome-wide DNA errors into normal human cells.

The team used a new combination of retroviruses and short DNA sequences to insert DNA at random sites across the genome. This rapidly transformed the normal cells into tumour cells with DNA alterations comparable to those found in many human cancers.

Detailed genomic analyses of these newly generated tumours yielded 80 candidate genes with the potential to drive cancer growth. Importantly, one of the genes was defective in at least one in ten of the tumours that were generated. This gene is known to be involved in regulating DNA organization and has previously been shown to suppress cell growth.

As Dr. Khokha explains, “Our results reveal the potential for using viruses and transposons to rapidly uncover new cancer-causing targets. This will accelerate the global effort to decipher the genes, pathways and networks that drive cancer development and growth.”

Uncovering the genetic elements that cause cancer will help us develop customized treatments to meet each patient’s needs.

Molyneux SD et al. Nat Genet 2014 Aug. Supported by Ontario Institute for Cancer Research, Canadian Cancer Society Research Institute and PM Cancer Foundation. T Mak is a Tier 1 Canada Research Chair in Inflammation Responses and Traumatic Injury.
The Road to Recovery
Customizing stroke rehabilitation one step at a time

For those recovering from a stroke, walking using each side of the body equally (ie, symmetrically) can be a challenge. This ‘gait asymmetry’ is due to impaired movement control on one side of the body, a common stroke-related condition. While a frequent rehabilitation goal is to restore symmetry, there are few studies on how gait asymmetry changes with rehabilitation, making it difficult to know which approach works best in which patient.

To address this, Dr. Kara Patterson followed the individual progress of stroke rehabilitation inpatients over two years. Patients showed robust improvements in controlling leg movements, balance and overall mobility. However, over 80% of those with gait asymmetry did not improve in symmetry of either length or timing of steps taken by each side when walking.

People with gait asymmetry could be at risk for further complications, such as loss of bone density in the compromised limb or injury to the functioning limb. This study reveals a need to re-evaluate rehabilitation programs after stroke and place more attention on restoring gait symmetry.

“Although movement control improves after rehabilitation, gait asymmetry persists in stroke patients,” says Dr. Patterson. “This suggests that there are other unknown underlying causes that need to be targeted during rehabilitation and coupled with individualized feedback for each patient. Such customized programs could help patients to correct their gait using approaches that work best for them.”

Tailored rehabilitation solutions could help patients regain the full use of both sides of their body after a stroke.

Patterson KK et al. Neurorehabil Neural Repair. 2014 May. Supported by Heart & Stroke Foundation (Focus on Stroke personnel award), Canadian Stroke Network, Canada Foundation for Innovation, Ontario Innovation Trust, Ministry of Research and Innovation, and Toronto Rehab Foundation.
Photothermal therapy is a promising treatment option in cancer. It works like this: a nanoparticle converts laser light into localized heat that kills nearby cancer cells. Gold nanoparticles are currently used for photothermal therapy, but they are non-biodegradable and have toxicity concerns.

An emerging alternative nanoparticle is the porphysome, which is biodegradable and as effective as gold in transforming laser light into heat energy. An added benefit is that porphysomes may accumulate in tumour tissue, which along with the precision of laser light delivery, ensures that healthy cells remain unharmed. Unlike a metal such as gold, porphysomes can break apart and lose their ability to convert light into heat under sustained high-intensity light.

Dr. Gang Zheng and his team are leading the race to develop porphysomes for cancer therapy. Recently, they created a porphysome loaded with manganese particles. They found that these porphysomes are non-toxic, have excellent photothermal properties and are highly stable (able to maintain their photothermal ability even after prolonged light exposure).

Adding manganese also makes these particles detectable by MRI. This has important implications for image-guided therapy, as porphysomes can be used to simultaneously visualize tumours and apply treatment in real time.

This porphysome is a valuable new tool for personalized therapies that could be used to target a variety of difficult-to-treat cancers.
Cancer cells close to laser-excited porphysomes are killed. Both the location of the laser and the ability of porphysomes to be targeted to tumours allows for the treatment to be tailored to each patient.
**Better Health Through Chemistry**

Expanding medicinal chemistry at UHN

Basic research provides insights into the mechanisms, pathways and genetics of human diseases. These insights power a new way of developing therapies known as rational drug design: seeking out substances capable of affecting disease pathways to provide therapeutic benefits to patients. Whether it is to block an enzyme in a cancerous tumour or to prevent the build-up of plaques in the brain that cause Alzheimer disease, new drugs hold great promise for the future of health care.

Between the discovery of a disease pathway in the lab and the first clinical trial of a new drug is a critical effort by medicinal chemists to find chemicals that have the desired effect. By strategically designing small molecules to interact with a biomolecular target, medicinal chemists must identify and optimize a compound that is ‘drug-like’—a compound that safely influences the molecular target in the body, while avoiding the creation of toxic side-effects.

UHN’s drug discovery efforts received a major boost last year with the launch of a new medicinal chemistry facility at TWRI headed by Dr. Donald Weaver, a medicinal chemist and neurologist who has led several successful drug design programs. The facility provides computational resources for drug design and modelling; and facilities for the biological screening and preclinical development of candidate drugs.

This new facility complements existing UHN medicinal chemistry capabilities that include the Therapeutics Group at the Campbell Family Institute (led by Dr. Henry Pauls, Director, Medicinal Chemistry) and the Center for Molecular Design and Preformulations (led by Dr. Lakshmi Kotra, Director). These facilities collaborate with UHN researchers to provide the specialized computer simulations, chemical synthesis and detailed analysis needed to develop a new drug. Adding a new dimension to these facilities is UHNShanghai, a foreign enterprise wholly owned by UHN, that synthesizes chemical reagents and pharmaceutical intermediates for use in research and development services worldwide.

**Medicinal chemists help transform biological insights into innovations that improve health for Canadians.**

*Image caption: Compound 1140 (black) represents the pinnacle candidate in the search for a drug to prevent harmful plaques in Alzheimer disease. It was optimized from a pool of representative compounds (coloured) using a structure-based design program (courtesy of Dr. Donald Weaver).*
Year in Discovery
A selection of high-impact research at UHN

**Earlier Detection of Leukemia**
A team of scientists led by Dr. John Dick identified a mutation in the protein known as DNMT3α that is linked to the development of acute myeloid leukemia (AML). AML is a cancer that grows in bone marrow and interferes with the production of normal blood cells. The identification of DNMT3α mutations as a pre-leukemic marker could lead to earlier detection and improved strategies for the treatment of AML. Shlush LI et al. Nature. 2014 Feb.

**Improving Quality of Life**
The results of a clinical trial led by Dr. Camilla Zimmermann suggest that early palliative care can significantly enhance the quality of life in patients with advanced cancer. Better quality of life, including reduced emotional distress and physical pain, can improve compliance with medical treatments and relationships with caregivers. Patients with cancer typically have a reduced quality of life, which worsens with progression of the disease. Zimmermann C et al. Lancet. 2014 May.

**From Drug Discovery to Clinical Testing**
A possible anticancer therapy has been discovered by scientists at the Campbell Family Institute. Dr. Tak Mak and his team identified the enzyme PLK4 as a new cancer target. The finding led to the identification of CFI-400945 as a potential anticancer drug. Administration of CFI-400945 inhibited the activity of PLK4 and reduced tumour growth in mice. Clinical testing is now evaluating the drug’s ability to reduce solid tumour growth. Mason JM et al. Cancer Cell. 2014 Aug.

**Inflammation in Diabetes**
Inflammation mediated by macrophages (a type of blood cell) contributes to the development of type 2 diabetes (T2D). By altering the activity of a subset of nerves, Dr. Minna Woo and her team promoted the anti-inflammatory activity of macrophages, which prevented the onset of T2D in an experimental model. Inducing the anti-inflammatory state of macrophages may represent a powerful new strategy to prevent and treat T2D. Wang L et al. Nat Med. 2014 May.

**Dealing with Stress to Prevent Cancer**
Blood is sustained by hematopoietic stem cells (HSCs) that survive for long periods of time and are able to self-renew. Because of their longevity, HSCs are exposed to stressful stimuli, like fluctuations in nutrient levels and toxic substances, that can damage cells and make them cancerous. Dr. John Dick and his team recently revealed the cellular mechanism that maintains a healthy HSC pool by clearing individual cells that have been damaged by stress. van Galen P et al. Nature. 2014 June.

**A Better Treatment for HIV**
A superior treatment for human immunodeficiency virus (HIV) was discovered. The new drug dolutegravir, along with the drug combination of abacavir and lamivudine, was found to be more effective and had fewer side effects than the currently recommended treatment for HIV. The clinical trial was led by Dr. Sharon Walmsley, who is currently studying the efficacy and safety of this new drug combination over a longer time period. Walmsley SL et al. N Engl J Med. 2013 Nov.
Discoveries to Reality
A selection of UHN commercialization milestones

2013 UHN Inventors of the Year
The recipients of UHN’s Inventor of the Year award are scientists who have demonstrated an outstanding ability to apply biomedical research towards the creation of new, inventive and patient-oriented technologies, products and therapeutics. The 2013 award was presented to two recipients: The Campbell Family Institute’s Drug Development Team (led by Dr. Tak Mak) for the development of multiple new cancer therapeutics; and Dr. Ralph DaCosta for a device that can detect bacterial infections in wounds.

The Campbell Family Team developed multiple new cancer drugs that are in or are nearing clinical trials. The most recent drug, CFI-400945, shows preclinical efficacy in the difficult-to-treat ‘triple negative’ form of breast cancer. Their research has also led to licensing agreements and the founding of several spin-off companies (eg, Miikana, Agios). These discoveries are major contributions to the cancer treatment landscape.

Dr. DaCosta invented a handheld optical imaging device that detects the quantity and distribution of bacteria in wounds. It can deliver results at the point of care, enabling clinicians to make informed decisions in real time. This inexpensive device may also help to revolutionize wound care in developing countries.

UHN transforms innovative research into technologies, products and drugs that reach people worldwide.

Photo caption (L-R): Drs. Ralph DaCosta and Tak Mak.
Medical Device
MyndMove™ is a therapy marketed by MyndTec Inc., a company co-founded by Dr. Milos Popovic. It helps to recover hand and arm motion in patients suffering from paralysis caused by stroke or spinal cord injury. During rehabilitation, a patient actively attempts a movement (eg, holding a cup) while a trained therapist uses the non-invasive device to stimulate various sets of muscles to create functional movements. This strengthens new neural connections specific to each patient that expedite recovery from paralysis and minimize long-term disability. This year, milestones include: Health Canada medical device licensing approval, a nationwide launch of MyndMove™ and the issuance of its first US patent.

Therapeutic Agent
The research of Drs. John Dick and Jean Wang has revealed new ways to target cancer stem cells. Cancer stem cells are formed when normal stem cells, immature cells found in bone marrow that give rise to all blood cells, develop certain mutations that lead to blood cancers like acute myeloid leukemia. Cancer stem cells are often resistant to conventional therapies. The research findings, licensed to Trillium Therapeutics Inc., will help to develop more effective drugs to target mutations in leukemia. Trillium recently secured $33 million towards their cancer stem cell program based on this research. These funds will help advance new drug studies, drug manufacturing and Phase I clinical trials.

Quality Assurance
Drs. Mohammad Islam, Robert Heaton and David Jaffray have developed IQM, a device that provides an automated ‘final check’ of machines that deliver radiation therapy (pictured above). These machines require vigilant quality testing because each radiation therapy treatment has an individualized plan due to factors that can change even within the same patient (eg, position). IQM streamlines quality assurance testing to ensure safe and successful delivery of radiation. In turn, this maximizes the time that machines can be used to treat cancer patients (over 50% receive radiation during their treatment). This year, IQM was licensed to iRT, a German start-up company, and was deployed to over 20 clinical testing sites.
Year in Funding
A selection of UHN research funding milestones

Targeting Each Patient’s Tumour
On September 10, 2014, a team of researchers led by Drs. Bradly Wouters and Robert Bristow were awarded $6.6 million over five years from the Terry Fox Foundation. These funds will support research to develop new and more personalized treatments that target the low oxygen levels in tumours—a characteristic that may contribute to a cancer’s ability to resist treatment and spread within a person. Other UHN researchers involved in this project include Drs. David Jaffray, Marianne Koritzinsky, Michael Milosevic and Anthony Fyles.

The announcement was made by Dr. Victor Ling (President and Scientific Director, Terry Fox Research Institute) during a special event held at PM Cancer Centre. According to Dr. Ling, a total of $14.6 million was awarded through the Terry Fox New Frontiers Program to five innovative research projects across Canada—three of which were in Ontario. “Each of the Ontario-based projects that we are funding has the potential to revolutionize care for patients with hard-to-treat or advanced cancers through a personalized approach to treatment,” said Dr. Ling.

Terry Fox Foundation funding will support innovative research programs that will accelerate the growth and realization of personalized medicine treatments.
Clinical Trials
On September 12, 2014, Brain Canada announced that it will provide $10 million to fund a Phase III trial (the FRONTIER trial) to evaluate the effectiveness of NA-1, a promising new drug developed by Dr. Michael Tymianski. To test the drug’s ability to reduce the damage caused by a stroke, paramedics will administer the drug to 518 stroke patients in Toronto, Peel Region and Vancouver starting in January 2015. “NA-1 is the only emergency treatment that can re-open blocked arteries if given within three to four-and-a-half hours of the onset of stroke symptoms,” says Dr. Laurie Morrison, lead researcher on the FRONTIER trial.

Infrastructure
On January 8, 2014, the Canada Foundation for Innovation announced that nine teams led by UHN researchers were awarded $4.8 million through its John R. Evans Leaders Fund program. This investment, with additional contributions from the private sector, the Ontario Ministry of Research and Innovation, and UHN foundations, will help to develop state-of-the-art facilities to advance research focused on arrhythmias (P. Backx), spinal cord injury (M. Fehlings), cancer (D. Jaffray, H. He, T. Pugh), diabetes and obesity (T. Lam), neurodegenerative diseases (D. Weaver), infectious and neurological diseases (L. Kotra) and vision disorders (V. Wallace).

Researchers
This year, five UHN researchers successfully renewed their Tier 1 Canada Research Chairs, including Drs. Tak Mak (Chair in Inflammation Responses and Traumatic Injury), Linda Penn (Chair in Molecular Oncology), Benjamin Neel (Chair in Signal Transduction and Human Disease), Eleanor Fish (Chair in Women’s Health and Immunobiology) and Gordon Keller (Chair in Embryonic Stem Cell Biology). Over the next seven years, these Chairs will provide $7 million to help support the innovative research programs of these world-leading scientists.
Research News

UHN Ranked Number One
For the fourth year in a row, UHN was listed as Canada’s top-funded research hospital on the Top 40 Research Hospitals in Canada List 2014, released by RE$EARCH Infosource Inc. The list ranks hospitals across Canada by research funding data. During the 2013 fiscal year, UHN reported $312 million in research expenditures.

caTissueSuite Launch
On December 20, 2013, caTissueSuite was officially launched at UHN. This comprehensive database gives researchers access to information on tissue samples collected and analyzed across UHN’s research labs. This includes clinical data (eg, pathology reports) and patient consent information.

New Global Partnership
The PM Cancer Centre signed a Memorandum of Understanding with India’s Tata Memorial Centre to create a partnership aimed at advancing innovation and delivery of best practices in cancer care, research and education. The centres will pool their knowledge and expertise, and encourage academic collaboration.

UHN’s Vector Facility
The much-anticipated Vector Core Facility was officially launched at the Krembil Discovery Tower this year. This essential resource, which is led by Dr. Jeffrey Medin, will provide researchers with custom-made tools for gene delivery, markers for in vivo cell tracking and next-generation tools to optimize cell therapy applications.

Customizing Medicine
Techna hosted its second annual Symposium focused on the topic of personalized cancer medicine (PCM) and its future potential in health care. Experts from across disciplines and sectors discussed the technologies needed to realize PCM and the challenges ahead for research, development and implementation.

Top Cancer Discovery
Dr. Camilla Zimmermann’s research, which determined the factors that influence the quality of life of individuals caring for patients with advanced cancer, was selected as one of the top discoveries of 2013 by the Canadian Cancer Society. The study suggested that early palliative care would improve the well-being of caregivers.
# Research Distinctions

Selected honours bestowed upon UHN researchers

<table>
<thead>
<tr>
<th>Dr. David Alter</th>
<th>Dr. Nigil Haroon</th>
<th>Dr. Catherine O’Brien</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013 Heart &amp; Stroke Foundation Ontario Mid-Career Investigator Award</td>
<td>2013 SAA-Jane Bruckel Young Investigator Award, Spondylitis Association of America (SAA)</td>
<td>Early Researcher Award, Ontario Ministry of Research and Innovation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dr. Phyllis Billia</th>
<th>Dr. Brian Hodges</th>
<th>Dr. Lillian Siu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinician Scientist Salary Award (Phase 2), Canadian Institutes of Health Research</td>
<td>2014 ASME Gold Medal Award, Association for the Study of Medical Education (ASME)</td>
<td>Board of Directors, American Association for Cancer Research</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dr. Marcelo Cypel</th>
<th>Dr. Murray Krahn</th>
<th>Dr. Peter St George-Hyslop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Researcher Award, Ontario Ministry of Research and Innovation</td>
<td>2013 Dr. Jill M. Sanders Award of Excellence in Health Technology Assessment, Canadian Agency for Drugs and Technologies in Health</td>
<td>2014 Dan David Prize, Dan David Foundation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dr. John Dick</th>
<th>Dr. Douglas Lee</th>
<th>Dr. Donna Stewart</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fellow, The Royal Society (UK)</td>
<td>2014 Robert E. Beamish Award, Canadian Cardiovascular Society</td>
<td>Member, Order of Canada</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dr. Michael Fehlings</th>
<th>Dr. Tak Mak</th>
<th>Dr. Ian Tannock</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fellow, Royal Society of Canada</td>
<td>2014 Dr. Chew Wei Memorial Prize in Cancer Research, University of British Columbia</td>
<td>Member, Order of Canada</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dr. Tak Mak</th>
<th>Dr. Donna Stewart</th>
<th>Dr. Brian Wilson</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014 Dr. Chew Wei Memorial Prize in Cancer Research, University of British Columbia</td>
<td></td>
<td>Fellow, The Optical Society</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dr. Brian Wilson</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2014 Britton Chance Biomedical Optics Award, International Society for Optics and Photonics</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
UHN Foundations

Arthritis Research Foundation

The Princess Margaret Cancer Foundation

Toronto General & Western Hospital Foundation

Toronto Rehab Foundation
A Day at the Races On October 6, 2013, the Arthritis Research Foundation proudly held the 14th annual Day at the Races, the Foundation’s signature fundraising event in support of arthritis and autoimmune disease research. This event has raised over $1,680,000 for arthritis and related autoimmune disease research.

This year, Honorary Chair Dr. Edward Keystone was recognized for his outstanding research contributions in the areas of rheumatoid arthritis and clinical therapeutics.

Dr. Keystone is committed to overcoming key challenges currently faced by rheumatologists. One of these challenges is the lack of clinical tools that are capable of predicting how individual patients will respond to different medications. This is particularly important because treatments are often administered by trial and error, which can be prohibitively costly and expose patients to harmful side effects. Dr. Keystone’s work addresses this issue through exploring ways to better utilize the existing suite of therapeutic options so that the right treatment is provided at the right time to the right patient.

Dr. Keystone’s research program is also focused on the development of new rheumatoid arthritis therapies that more effectively target the disease. His approach takes full advantage of new, cutting-edge technologies, analytical approaches and computing power. This highly collaborative project represents an unprecedented global effort to pinpoint the genes and protein markers that identify early signs of rheumatoid arthritis, predict disease progression and the optimal therapy for individual patients, as well as inform the development of innovative therapies.

The ultimate success of this research will be to translate findings into innovative strategies that prevent disease onset and drive remission.

Photo caption (L-R): Peter Kircher, Sandy Hawley, Helen Ching-Kircher and Dr. Edward Keystone (photo by Jono & Laynie Co.)
The Princess Margaret Cancer Foundation

Billion Dollar Challenge: Getting Closer
On October 15, 2014, The PM Cancer Foundation celebrated the halfway point in its five-year Billion Dollar Challenge with an event called ‘A Golden Day’. The campaign aims to help revolutionize cancer care by supporting the creation of a new gold standard of personalized cancer medicine. The funds raised are already facilitating PM Cancer Centre’s largest physical research expansion in its history and its most ambitious recruitment drive.

The halfway celebration of the Billion Dollar Challenge was attended by supporters from the Canadian mining industry who donated over $3.2 million—represented by six gold bars. Ian Telfer, Chairman of the Board of Goldcorp Inc., spoke at the event on behalf of the gold mining industry and the thousands of patients treated at the Centre each year. As a patient benefitting from research into more precise and personalized cancer care, he was pleased to make his own generous donation to support research at the PM Cancer Centre.

The PM Cancer Centre is getting closer to realizing its goal of personalized cancer medicine, thanks to new technology and a better understanding of the individual and complex nature of cancer. The IMPACT and COMPACT studies are excellent examples of how the Centre is re-tooling and preparing for a more personalized approach to cancer diagnostics. These studies have already sequenced the DNA of over 2,000 tumours and used this information to direct patients to clinical studies of drugs targeted to their specific type of cancer.

The Billion Dollar Challenge is a partnership between the Foundation and researchers at PM Cancer Centre. At the beginning of the campaign, each group was challenged to raise $500 million over five years. At the halfway point, the groups have raised $576 million.

Photo caption: Canadian gold mining industry leaders (left image) Ian Telfer with RCMP Officers and (right image; L-R) Sean Boyd, President and CEO of Agnico Eagle Mines Limited, with Ian Telfer (photo by Michael Tenaglia).
A New Home for Discovery Over seven years of planning, fundraising and construction culminated in the celebration of the official opening of the Krembil Discovery Tower on November 20, 2013. At the heart of the celebration was a tribute to the generosity of the Krembil Family.

“Researchers will tell you they don’t lack ideas or pathways to pursue in their labs—they lack only the human and physical resources to do so. That’s what we told Bob and Linda Krembil and family,” said Tennys Hanson, President and CEO of Toronto General & Western Hospital Foundation. The Krembil Family listened and stepped forward with a $30 million lead gift for the building, which was matched with an additional $30 million in private funding. With $60 million in donations secured, UHN was able to attract $29 million in support from the Canada Foundation for Innovation for the Tower.

“The Krembil Discovery Tower is now a reality thanks to the fundraising efforts of our generous donor community who were inspired by the Krembil family’s leadership,” said John Mulvihill, Chair of the UHN Board of Trustees. He also acknowledged Robert Krembil’s volunteer services as a UHN Trustee and son Mark Krembil’s involvement as a Toronto General & Western Hospital Foundation Board Member.

At the celebration, Robert Krembil explained why it was so important to his family to support TWRI. “We have been involved with neuroscience at TWH for several years and have observed the evolving breadth and depth of talent. Our team of scientists and clinicians is exceptionally impressive on many dimensions in comparison to other neuroscience centres around the world. Now we have a facility that is appropriate for such a renowned group.”

Photo caption (L-R): Jacob Krembil, John Mulvihill, Stacey Krembil, Nancy Mulvihill, Linda Krembil, Mark Krembil, Dr. Gerry Halbert, Tootsie Halbert and Robert Krembil (photo by John Loper).
New Outpatient Centre Opens its Doors
Toronto Rehab’s Fred A. Litwin Outpatient Centre is a one-stop destination for patients and families, housing a number of essential services under one roof. The multimillion dollar donation from Fred A. Litwin and the Litwin family is enabling pioneering research and more efficient service for thousands of patients each year.

“Toronto Rehab is a jewel in the health care landscape,” says Fred Litwin, Chief Executive Officer and President of Forum Financial Corporation. “The hospital cares for individuals as they regain their independence and recapture their potential. What could be more rewarding than helping people return to their families, their communities and their lives? I am so proud of my family’s association with this great hospital.”

Through the Fred A. Litwin Outpatient Centre, patients can access the latest therapies being developed by researchers at Toronto Rehab. For example, patients with paralysis resulting from spinal cord injury and stroke can now have their limb function restored through Functional Electric Stimulation (FES)—a therapy that uses electricity to push muscles into action and retrain the central nervous system. MyndMove™, a device created by Dr. Milos Popovic, has produced unprecedented levels of recovery and is the first therapy to produce significant increases in upper arm mobility in patients.

The Litwin family’s transformative gift is enabling world-leading advances that will impact the future of health care. “On May 29, 2014, Toronto Rehab celebrated the establishment and the dedication of the Fred A. Litwin Outpatient Centre,” says Cindy Yelle, President and CEO of Toronto Rehab Foundation. “It was an important moment that will undoubtedly go down in the history of this great organization.”

Photo caption: Fred and Mary Litwin pictured in Toronto Rehab’s Fred A. Litwin Outpatient Centre (photo by William Suarez).
UHN Research Institutes

Princess Margaret Cancer Centre

Techna Institute

Toronto General Research Institute

Toronto Rehabilitation Institute

Toronto Western Research Institute
Research Council on Oncology (RCO)

Director, PM Cancer Centre; Chair, RCO; Director, Executive Committee Benjamin Neel
Executive Committee Mitsuhiko Ikura, Rama Khokha, Senthil Muthuswamy, Pamela Ohashi, Gary Rodin, Ming-Sound Tsao, Brian Wilson, Bradly Wouters
Chair, Appointments Committee Rama Khokha
Medical Director, Laboratory Medicine Program Sylvia Asa
Medical Director, Cancer Program Mary Gospodarowicz
Head, Radiation Medicine Fei-Fei Liu
Head, Medical Oncology and Hematology Malcolm Moore
Head, CCRU Amit Oza
Chief, Surgical Oncology Jonathan Irish
Executive Director, Research Operations Lisa Alcia
Senior Vice President, UHN and Executive Lead, PM Cancer Centre Marnie Escaf
Vice President, Research Christopher Paige

Researchers

Senior Scientists
Kenneth Aldape
Cheryl Arrowsmith
Sylvia Asa
Norman Boyd
Robert Bristow
Avijit Chakrabarty
Gerald Devins
John Dick
Shereen Ezzat
Lucia Gagliese
Razqallah Hakem
David Hedley
Richard Hill
Doris Howell
Mitsuhiko Ikura
Norman Iscove
David Jaffray
Igor Jurisica
Gordon Keller

Rama Khokha
Thomas Kislinger
Lothar Lilge
Fei-Fei Liu
Geoffrey Liu
Tak Mak
Jeffrey Medin
Mark Minden
Senthil Muthuswamy
Benjamin Neel
Pamela Ohashi
Emil Pai
Christopher Paige
Linda Penn
Gilbert Privé
Brian Raught
Gary Rodin
Robert Rottapel
Aaron Schimmer
Vuk Stambolic

External Funding $150,154,247
Publications 1,224
Senior Scientists 45
Scientists 17
Affiliate Scientists 14
Assistant Scientists 3
CCRU 297
Total Researchers 376
Fellows 286
Graduate Students 242
Total Trainees 528
Total Staff 780
Michael Roehrl
Rodger Tiedemann
Gelareh Zadeh
Camilla Zimmermann
**Assistant Scientists**
Toshiyuki Araki
Zhenyue Hao
Lakshmi Muthuswamy
**Affiliate Scientists**
Eric Xueyu Chen
Mary Jane Esplen
Anthony Joshua
C Anne Koch
Malcolm Moore
Michael Moran
Michael Reedijk
Paul Ritvo
Leonardo Salmena
Michael Sherrar
Suzanne Trudel
Jean Wang
Julia Wang
Wei Xu
**Cancer Clinical Research Unit (CCRU)**
Ayman Al Habeeb
Hamideh Alasti
Eitan Amir
Mostafa Atri
Wing Au
Michael Baker
Linda Balneaves
Subrata Banerjee
David Barth
Eric Bartlett
Andrew Bayley
Philippe Bedard
J Robert Beecroft
Akbar Beiki-Ardakani
Robert Bell
Hal Berman
Marcus Bernardini
Lori Bernstein
Mark Bernstein
Andrea Bezjak
Jean-Pierre Bissonnette
Martin Blackstein
Ivan Blasutig
Robert Bleakney
Scott Boerner
Jette Borg
Anthony Brade
Donald Branch
Stephen Breen
William Brien
James Brierley
Dale Brown
John Bryson
Karina Bukhanov
Ronald Burkes
Marcus Butler
Marco Car lone
Charles Catton
Pamela Catton
David Cescon
Hong Chang
Tanya Chawla
Christine Chen
Douglas Chepeha
Runjan Chetty
Carol Cheung
Frederick Cheung
John Cho
Charles Cho
Young-bin Cho
James Chow
Caroline Chung
Peter Chung
Tulin Cil
Blaise Clarke
Sean Cleary
Tatiana Conrad
Catherine Coolens
Timothy Craig
Adrian Crawley
Andrew Crean
R Michael Crump
Pavel Crystal
Christine Cserti
Bernard Cummings
Marcelo Cypel
Norma D’Agostino
Andrei Damyanovich
Gail Darling
Laura Dawson
John de Almeida
Marc de Perrot
Jan Delabie
Neesha Dhani
Elefterios Diamandis
Robert Dinniwel
Jason Dodge
Susan Done
James Downar
Alexandra Easson
Saibishkumar Elantholi
Parameswaran
Mary Elliott
Christine Elser
Jaime Escallon
Andrew Evans
Ronald Feld
Louis Fenkell
Peter Ferguson
Sarah Ferguson
Antonio Finelli
Peter Fitzgerald
Rachel Fleming
Neil Fleshner
Jeremy Freeman
Anthony Fyles
Steven Gallinger
William Geddie
Frederick Gentili
Sandeep Ghai
Sangeet Ghai
Danny Ghazarian
Ralph Gilbert
Meredith Giuliani
Rebecca Gladdy
David Goldstein
Pamela Goodwin
Mary Gospodarowicz
David Grant
David Green
Paul Greig
Robert Gryfe
Patrick Gullane
Abha Gupta
Vikas Gupta
Sarah Hafezi-Bakhtiari
Masoom Haider
Sarah Hales
Robert Hamilton
Kathy Han
Anthony Hanbidge
Breffni Hannon
Robert Heaton
Mostafa Heydarian
Chia-Sing Ho
David Hodgson
Stefan Hofer
David Hogg
Andrew Hope
David Hwang
Elizabeth Hyjek
Jonathan Irish
Mohammad Islam
Nassir Jaffer
Hyun-Jung Jang
Raymond Jang
Jeff Jaskolka
<table>
<thead>
<tr>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michael Jewett</td>
</tr>
<tr>
<td>Kartik Jhaveri</td>
</tr>
<tr>
<td>John Jezioranski</td>
</tr>
<tr>
<td>Jennifer Jones</td>
</tr>
<tr>
<td>John Kachura</td>
</tr>
<tr>
<td>Tuula Kalliomäki</td>
</tr>
<tr>
<td>Suzanne Kamel-Reid</td>
</tr>
<tr>
<td>Zahra Kassam</td>
</tr>
<tr>
<td>Edward Kassel</td>
</tr>
<tr>
<td>Ebru Kaya</td>
</tr>
<tr>
<td>Armand Keating</td>
</tr>
<tr>
<td>Harald Keller</td>
</tr>
<tr>
<td>Erin Kennedy</td>
</tr>
<tr>
<td>Shaf Keshavjee</td>
</tr>
<tr>
<td>Korosh Khalili</td>
</tr>
<tr>
<td>Tim-Rasmus Kiehl</td>
</tr>
<tr>
<td>Dong Hwan Kim</td>
</tr>
<tr>
<td>John Kim</td>
</tr>
<tr>
<td>Tae Kyoung Kim</td>
</tr>
<tr>
<td>Jennifer Knox</td>
</tr>
<tr>
<td>Hyang-Mi Ko</td>
</tr>
<tr>
<td>Paul Kongkham</td>
</tr>
<tr>
<td>Hatem Krema</td>
</tr>
<tr>
<td>Timo Krings</td>
</tr>
<tr>
<td>Monika Krzyzanowska</td>
</tr>
<tr>
<td>Walter Kucharczyk</td>
</tr>
<tr>
<td>Vishal Kukreti</td>
</tr>
<tr>
<td>Vathany Kulasingam</td>
</tr>
<tr>
<td>Girish Kulkarni</td>
</tr>
<tr>
<td>Supriya Kulkarni</td>
</tr>
<tr>
<td>Kevin Kuo</td>
</tr>
<tr>
<td>John Kuruvilla</td>
</tr>
<tr>
<td>Stéphane Laframboise</td>
</tr>
<tr>
<td>Normand Laperriere</td>
</tr>
<tr>
<td>Natasha Leighl</td>
</tr>
<tr>
<td>Wey-Liang Leong</td>
</tr>
<tr>
<td>Daniel Létourneau</td>
</tr>
<tr>
<td>Wilfred Levin</td>
</tr>
<tr>
<td>Madeline Li</td>
</tr>
<tr>
<td>Winnie Li</td>
</tr>
<tr>
<td>Patricia Lindsay</td>
</tr>
<tr>
<td>Jeffrey Lipton</td>
</tr>
<tr>
<td>Christopher Lo</td>
</tr>
<tr>
<td>Helen Mackay</td>
</tr>
<tr>
<td>Miller Macpherson</td>
</tr>
<tr>
<td>Ernie Mak</td>
</tr>
<tr>
<td>Lee Manchul</td>
</tr>
<tr>
<td>Myles Margolis</td>
</tr>
<tr>
<td>Warren Mason</td>
</tr>
<tr>
<td>Andrew Matthew</td>
</tr>
<tr>
<td>J Andrea McCart</td>
</tr>
<tr>
<td>David McCready</td>
</tr>
<tr>
<td>Ian McGillray</td>
</tr>
<tr>
<td>Robin McLeod</td>
</tr>
<tr>
<td>Andrea McNiven</td>
</tr>
<tr>
<td>Tatiana Melnyk</td>
</tr>
<tr>
<td>Cynthia Ménard</td>
</tr>
<tr>
<td>Ravi Menezes</td>
</tr>
<tr>
<td>Ozgur Mete</td>
</tr>
<tr>
<td>Ur Metser</td>
</tr>
<tr>
<td>Howard Michaels</td>
</tr>
<tr>
<td>David Mikulis</td>
</tr>
<tr>
<td>Barbara-Ann Millar</td>
</tr>
<tr>
<td>Kim Miller</td>
</tr>
<tr>
<td>Naomi Miller</td>
</tr>
<tr>
<td>Michael Milosevic</td>
</tr>
<tr>
<td>Chantal Morel</td>
</tr>
<tr>
<td>Lyndon Morley</td>
</tr>
<tr>
<td>Douglas Moseley</td>
</tr>
<tr>
<td>Carol-anne Moulton</td>
</tr>
<tr>
<td>Anna Marie Mulligan</td>
</tr>
<tr>
<td>K Joan Murphy</td>
</tr>
<tr>
<td>Kieran Murphy</td>
</tr>
<tr>
<td>Rumina Musani</td>
</tr>
<tr>
<td>Elsie Nguyen</td>
</tr>
<tr>
<td>Rinat Nissim</td>
</tr>
<tr>
<td>Nancy Olivieri</td>
</tr>
<tr>
<td>Martin O’Malley</td>
</tr>
<tr>
<td>Anne O’Neill</td>
</tr>
<tr>
<td>Brian O’Sullivan</td>
</tr>
<tr>
<td>Amit Oza</td>
</tr>
<tr>
<td>Sofia Pantazi</td>
</tr>
<tr>
<td>Narinder Paul</td>
</tr>
<tr>
<td>Jacob Pendergrast</td>
</tr>
<tr>
<td>Bayardo Perez-Ordonez</td>
</tr>
<tr>
<td>Andrew Pierre</td>
</tr>
<tr>
<td>Anna Porwit</td>
</tr>
<tr>
<td>Anca Prca</td>
</tr>
<tr>
<td>Thomas Purdie</td>
</tr>
<tr>
<td>Fayez Quereshy</td>
</tr>
<tr>
<td>Dheeraj Rajan</td>
</tr>
<tr>
<td>Albiruni Razak</td>
</tr>
<tr>
<td>Donna Reece</td>
</tr>
<tr>
<td>Julia Ridley</td>
</tr>
<tr>
<td>G Jolie Ringash</td>
</tr>
<tr>
<td>Alexandra Rink</td>
</tr>
<tr>
<td>Heidi Roberts</td>
</tr>
<tr>
<td>Graham Roche-Nagle</td>
</tr>
<tr>
<td>Patrik Rogalla</td>
</tr>
<tr>
<td>Barry Rosen</td>
</tr>
<tr>
<td>Lorne Rotstein</td>
</tr>
<tr>
<td>Marjan Rouzbahman</td>
</tr>
<tr>
<td>Gilda Santos</td>
</tr>
<tr>
<td>Anabel Scaranelo</td>
</tr>
<tr>
<td>Andre Schuh</td>
</tr>
<tr>
<td>Matthew Seftel</td>
</tr>
<tr>
<td>Stefano Serra</td>
</tr>
<tr>
<td>Michael Sharpe</td>
</tr>
<tr>
<td>Patricia Shaw</td>
</tr>
<tr>
<td>Frances Shepherd</td>
</tr>
<tr>
<td>Manohar Shroff</td>
</tr>
<tr>
<td>E Rand Simpson</td>
</tr>
<tr>
<td>Lillian Siu</td>
</tr>
<tr>
<td>Roger Smith</td>
</tr>
<tr>
<td>Boraiah Sreeharsha</td>
</tr>
<tr>
<td>Srirala Sridhar</td>
</tr>
<tr>
<td>Teodor Stanesescu</td>
</tr>
<tr>
<td>Alexander Sun</td>
</tr>
<tr>
<td>D Robert Sutherland</td>
</tr>
<tr>
<td>Carol Swallow</td>
</tr>
<tr>
<td>Joan Sweet</td>
</tr>
<tr>
<td>Jeff Tanguay</td>
</tr>
<tr>
<td>Mohamed Taremi</td>
</tr>
<tr>
<td>Bryce Taylor</td>
</tr>
<tr>
<td>Karel terbruggel</td>
</tr>
<tr>
<td>Seng Thippavong</td>
</tr>
<tr>
<td>Paaladinesh Thavendiranathan</td>
</tr>
<tr>
<td>Santhosh Thyagu</td>
</tr>
<tr>
<td>Anne Tieren</td>
</tr>
<tr>
<td>Ants Toi</td>
</tr>
<tr>
<td>Emina Tolakovic</td>
</tr>
<tr>
<td>John Trachtenberg</td>
</tr>
<tr>
<td>Richard Tsang</td>
</tr>
<tr>
<td>Theodore van der Kwest</td>
</tr>
<tr>
<td>Monique van Prooijen</td>
</tr>
<tr>
<td>Thomas Waddell</td>
</tr>
<tr>
<td>John Waldron</td>
</tr>
<tr>
<td>Richard Ward</td>
</tr>
<tr>
<td>Padraig Warde</td>
</tr>
<tr>
<td>David Warr</td>
</tr>
<tr>
<td>Alice Wei</td>
</tr>
<tr>
<td>Ilan Weinreb</td>
</tr>
<tr>
<td>Woodrow Wells</td>
</tr>
<tr>
<td>Xiao-Yan Wen</td>
</tr>
<tr>
<td>Kirsten Wentlandt</td>
</tr>
<tr>
<td>Lawrence White</td>
</tr>
<tr>
<td>Daniel Winer</td>
</tr>
<tr>
<td>Bernd Wintersperger</td>
</tr>
<tr>
<td>Ian Witterick</td>
</tr>
<tr>
<td>Rebecca Wong</td>
</tr>
<tr>
<td>Robert Wood</td>
</tr>
<tr>
<td>Jay Wunder</td>
</tr>
<tr>
<td>Kazuhiro Yasufuku</td>
</tr>
<tr>
<td>Karen Yee</td>
</tr>
<tr>
<td>Erik Yeo</td>
</tr>
<tr>
<td>Ivan Yeung</td>
</tr>
<tr>
<td>Bruce Youngson</td>
</tr>
<tr>
<td>Eugene Yu</td>
</tr>
<tr>
<td>Beibei Zhang</td>
</tr>
<tr>
<td>Toni Zhong</td>
</tr>
<tr>
<td>Alexandre Zlotta</td>
</tr>
</tbody>
</table>
## Techna Institute

<table>
<thead>
<tr>
<th>Research Space</th>
<th>9,730 sq. ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>External Funding</td>
<td>$2,366,677</td>
</tr>
<tr>
<td>Publications</td>
<td>249</td>
</tr>
<tr>
<td>Core Leads</td>
<td>8</td>
</tr>
<tr>
<td>Faculty</td>
<td>3</td>
</tr>
<tr>
<td>Affiliated Faculty</td>
<td>39</td>
</tr>
<tr>
<td>Total Researchers</td>
<td>50</td>
</tr>
<tr>
<td>Fellows</td>
<td>11</td>
</tr>
<tr>
<td>Graduate Students</td>
<td>55</td>
</tr>
<tr>
<td>Total Trainees</td>
<td>66</td>
</tr>
<tr>
<td>Total Staff</td>
<td>32</td>
</tr>
</tbody>
</table>

## Techna Leadership Team

**Director, Techna Institute** David Jaffray  
**Director, Clinical Faculty** Kieran Murphy  
**Director, Commercialization** Mark Taylor  
**Director, Operations & Engineering** Luke Brzozowski  
**Director, Clinical Processes** Howard Abrams  
**Director, Research Faculty** Paul Santerre  
**Director, Communication & Knowledge Transfer** Gunther Eysenbach  
**Vice President, Research** Christopher Paige

## Researchers

### Design & Engineering for Health

**Core Lead**  
Joseph Cafazzo  
**Affiliated Faculty**  
James Drake  
Anthony Easty  
Emily Seto  
Patricia Trbovich  
Leonard Tse

### Guided Therapeutics

**Core Leads**  
Jonathan Irish  
David Jaffray  
**Faculty**  
Margarete Akens  
Ralph DaCosta  
Arash Zarrine-Afsar  
**Affiliated Faculty**  
Dionne Aleman  
Jean-Pierre Bissonnette  
Timothy Chan  
Catherine Coolens  
John De Almeida  
James Drake  
Gabor Fichtinger  
Justin Grant  
Mojgan Hodaie  
Andrew Hope  
Mohammad Islam  
Daniel LéTourneau  
Andres Lozano  
Claire McCann  
Cynthia Ménard  
Narinder Paul  
Thomas Purdie  
Dheeraj Rajan  
Alexandra Rink  
Michael Sharpe  
Michael Sherar  
Teodor Stanescu  
I Alex Vitkin  
Robert Weersink  
Bernd Wintersperger  
Kazuhiro Yasufuku  
**Informatics & Communications Technology**  
**Core Leads**  
Igor Jurisica  
Peter Rossos

### Nanotechnology & Radiochemistry

**Core Leads**  
Ur Metsger  
Gang Zheng  
**Affiliated Faculty**  
Christine Allen  
Shyh-Dar Li  
John Valliant

### Photonics

**Core Lead**  
Brian Wilson
Research Council

Director, TGRI; Chair, TGRI Research Council; Division Head (Acting), Experimental Therapeutics  Mansoor Husain
Division Head, Advanced Diagnostics  Myron Cybulsky
Division Head, Support, Systems & Outcomes  David Urbach
Program Medical Director, Peter Munk Cardiac Centre  Barry Rubin
Program Medical Director, Transplantation  Atul Humar
Surgeon-in-Chief; Program Medical Director, Surgical & Critical Care  Shaf Keshavjee
Physician-in-Chief; Program Medical Director, Medical & Community Care  Edward Cole
Chair, TGRI Appointments Committee  Thomas Waddell
Group Lead, Cardiovascular  Douglas Lee
Group Lead, Metabolism  Michael Wheeler
Group Lead, Infection & Immunity  TBD
Group Lead, Respiratory & Critical Care  Mingyao Liu
Group Lead, Communities of Health  Shabbir Alibhai
Executive Director, Research Operations  Lisa Alcia
Senior Vice President, UHN and Executive Lead, TGH  Scott McIntaggart
Vice President, Research  Christopher Paige

Researchers

**Advanced Diagnostics**

**Senior Scientists**

Johane Allard
Peter Backx
Stuart Berger
Daniel Cattran
Myron Cybulsky
I George Fantus
Eleanor Fish
Joseph Fisher
John Flores
Reginald Gorczynski
Avrum Gotheb
Tony Lam
Gary Lewis
Mingyao Liu
Peter Liu

**Scientists**

Kelly MacDonald
Kumaraswamy
Nanthakumar
York Pei
Barry Rubin
Katherine Stminovitch
Michael Wheeler
Eldad Zackensely
Li Zhang

**Affiliate Scientists**

Heather Reich
Clinton Robbins
Jonathan Rocheau
Daniel Winer
Minna Woo

**Experimental Therapeutics**

**Senior Scientists**

T Douglas Bradley

**Researchers**

Mark Cattral
Marc de Perrot
Niall Ferguson
Atul Humar
Mansoor Husain
Armand Keating
David Kelvin
Shaf Keshavjee
Walter Kucharczyk
Gary Levy
Ren-Ke Li
Nancy Olivieri
Vivek Rao
Thomas Waddell
Sharon Walmsley
Richard Weisel

Scientists
Vijay Chauhan
M. Margaret Herridge
Jordan Feld
Rupert Kaul
Lakshmi Kotra
J. Andrea McCart
Ian McGilvray
M. Cristina Nostro

Affiliate Scientists
Marissa Battistella
Denise Belsham
Limin Chen
Chung-Wai Chow
Gregory Downey
Stephen Fremes
Anand Ghanekar
David Grant
Raymond Hui
Shahid Husain
David Hung
Joel Katz
Thomas Lindsay
Cheri McGowan
Milica Radisic
Raymond Reilly
Sheila Riazi
Heather Ross
Coleman Rotstein
Masaaki Sato
Michael Sefton
Markus Selzner
Darrell Tan
Kazuhiro Yasufuku
Terrence Yau

Support, Systems & Outcomes

Senior Scientists
Shabbir Alibhai
Anne Bassett
Claire Bombardier
Angela Cheung
Abdallah Daar
Anthony Easty
Gunther Eysenbach
Alastair Flint

Clinical Researchers
Susan Abbey
Howard Abrams
Mostafa Arrti
Carmen Avila-Casado
Michael Baker
Joanne Bargman
W. Scott Beattie
Ivan Blasutig
Isaac Bogoch
Vera Bril
Ryan Brydges
Joseph Cafazzo
Douglas Cameron
Charles Chan
Christopher Chan
Anil Chopra
Hance Clarke
Sean Clarke
Edward Cole
Richard Cooper

Robert Cusimano
Paul Daly
Tirone David
Diego Delgado
Eleftherios Diamandis
George Djaiani
Adam Dubrowski
Vladimir Dzavik
Eddy Fan
Michael Farkouh
Ludwik Fedorko
Christopher Feindel
Scott Fung
Sandra Grigas
Michael Garmard
Susan George
Sangeet Ghai
Shiphra Ginsburg
John Granton
Sophie Grigoriadis
Flavio Habal
Michelle Hladunewich
Eric Horlick
Susy Hota
Cheryl Jaigobin
S. Vanita Jassal
Angela Jerath
Michael Jewett
Rohan John
K. Wayne Johnston
Jacek Karski
Hans Katzberg
Sidney Kennedy
Edward Keystone
S. Joseph Kim
Tae Kyong Kim
Simon Kitto
Deepali Kumar
Ayelet Kuper
Megan Landes
Leslie Lilly
Christine Maheu
Stuart McCluskey
Traci McFarlane
Massimiliano Meineri
Judith Miller
Leonid Minkovich
Chantal Morel
Caroline Moulton
Emily Musing
Gary Newton
Gerald O’Leary
Mark Osten

Christopher Overgaard
Maral Ouzounian
Carolyn Plummer
Heather Pollex
Dheeraj Pollock
Harry Rakowski
Anthony Ralph-Edwards
Eberhard Renner
Robert Richardson
Charlotte Ringsted
Heidi Roberts
Graham Roche-Nagle
John Ross
Peter Rossos
John Rutka
Irving Salit
James Scholley
Leonard Schwartz
Nazia Selznier-Malekhi
Shane Shapera
Morris Sherman
Candice Silversides
Lianne Singer
Samir Sinha
Smit Sinha
Anna Skorzewska
Peter Slinger
Miranda So
Sanjeev Sockalingam
Michael Sole
Marshall Sussman
Kong Teng Tan
Palaadinesh
Thavendiranathan
Kathryn Tinckam
Wendy Tsang
Leonard Tse
Alice Tseng
Annette Vegas
Rachel Maya Wald
Marcin Wasowicz
Duminda Wijeysundera
Stephen Wolman
Pui-Yuen Wong
Rene Wong
Nicole Woods
Douglas Wooster
Robert Wu
Paul Yip
Research Advisory Committee (RAC)

*Director, TRI; Chair, RAC* Geoff Fernie

*Team Leaders* T Douglas Bradley, Tilak Dutta, Robin Green, Avril Mansfield, Katherine McGilton, Alex Mihailidis, Paul Oh, Milos Popovic, Yana Yunusova

*Sub-Committee Chairs* Katherine McGilton, Catriona Steele

*Business Development* Catharine Hancharek, Gavin Ouyang, Promise Xu

*Research Operations* Kamal Garcha, Alex Karabanow, Bridgette Murphy, Lois Ward, Amy Xi Chen, Katherine Zeman

*Trainee Representatives* Alexandra Arnold-Oatley, Gabriela Melo Ghisi, Jennifer Tomaszczyk

*Clinical Liaison* Mark Bayley

*Liaisons* Susan Rappolt, Elizabeth Rochon

*Senior Vice President, UHN and Executive Lead, TR* Susan Jewell

*Vice President, Research* Christopher Paige

Researchers

**Artificial Intelligence & Robotics**

*Senior Scientist* Alex Mihailidis

*Scientists* Frank Rudzicz, Babak Taati

*Affiliate Scientists* Sven Dickinson, David Fleet, Deborah Hébert, Jesse Hoey, Dana Kulić, James Little, Alan Mackworth, Goldie Nejat, Pascal Poupart, Rosemary Ricciardelli, Rosalie Wang

**Cardiorespiratory Fitness**

*Senior Scientists* David Alter, Sherry Grace

*Scientists* Tracey Colella, Paul Oh

*Affiliate Scientists* Krista Lanctôt

**Cognition**

*Senior Scientists* Angela Colantonio, Robin Green

*Scientists* Mark Bayley, Nora Cullen

*Affiliate Scientists* Nicole Anderson, Deirdre Dawson, Michelle Keightley

**Communication**

*Senior Scientist* Elizabeth Rochon

*Scientist* Frank Rudzicz

*Affiliate Scientists* Sonya Allin, Melanie Baljko, Boaz Ben-David, Craig Chambers, Tom Chau, Petros Faloutsos, Karen Gordon, Julie Mendelson, Aravind Namashivayam, M Kathleen Pichora-Fuller, Frank Russo

Research Space 64,515 sq. ft.

External Funding $8,650,762

Publications 389

Senior Scientists 18

Scientists 22

Affiliate Scientists 78

Total Researchers 118

Fellows 55

Graduate Students 177

Total Trainees 232

Total Staff 127
Alexander Shaw
Fraser Shein
Gurjit Singh
Pascal van Lieshout
Yana Yunusova

**Mobility**

**Senior Scientists**
Dina Brooks
Brian Maki
William McIlroy

**Scientists**
William Gage
Avril Mansfield
Kara Patterson

**Affiliate Scientists**
Alastair Flint
Mary Fox
Andrea Iaboni
Andrew Laing
Sunita Mathur
Laura Middleton
George Mochizuki
Stephen Perry
James Pratt
Karl Zabjek

**Optimize**

**Senior Scientists**
Cheryl Cott
Sherry Grace
Susan Jaglal
Pia Kontos
Katherine McGilton
I Gary Naglie
Susan Rappolt

**Scientists**
Shabbir Aliabhai
Andrea Furlan
Walter Wodchis

**Affiliate Scientists**
G Ross Baker
Veronique Boscart
Jill Cameron
Mary Fox
Michel Landry
Nizar Mahomed
Denise Reid
Nancy Salbach
Kathryn Sibley

**Sleep & Upper Airway**

**Senior Scientists**
T Douglas Bradley
Catriona Steele

**Scientists**
Hisham Alshaer
Frank Rudzicz
Azadeh Yadollahi

**Affiliate Scientists**
Liza Duizer
Jack Goodman
David James
Heather Keller
Sonja Molfenter
Brian Murray
Clodagh Ryan
Scott Thomas

**Neural Engineering & Therapeutics**

**Senior Scientist**
Milos Popovic

**Scientists**
B Catharine Craven
César Márquez-Chin
Kei Masani
Kristin Musselman
Frank Rudzicz
Jose Zarifia

**Affiliate Scientists**
Sandra Black
Julio Furlan
Lora Giangregorio
Pamela Houghton
Mary Nagai
Ethne Nussbaum
Linda Rapson
Ze’ev Seltzer
John Shepherd
Molly Verrier
Timothy Welsh
Paul Yoo

**Technology**

**Senior Scientist**
Geoff Fernie

**Scientists**
Jennifer Campos
Tilak Dutta
Andrea Furlan
Bruce Haycock
César Márquez-Chin
Christine Novak
Azadeh Yadollahi

**Affiliate Scientists**
Veronique Boscart
Karen Gordon
Dinesh Kumbhare
Matthew Muller
Hani Naguib
Donald Philip
Veronica Wadey
### Research Council

**Director and Chair, TWRI Research Council** Donald Weaver  
**Division Head, Brain, Imaging & Behaviour – Systems Neuroscience** Karen Davis  
**Division Head, Fundamental Neurobiology** Peter Carlen  
**Division Head, Genetics & Development** James Eubanks  
**Division Head, Health Care & Outcomes Research** Elizabeth Badley  
**Division Head, Patient-based Clinical Research** TBD  
**Division Head, Vision Science** Valerie Wallace  
**Interim Clinical Representative, Krembil Neuroscience Program** Vera Bril  
**Clinical Representative, Musculoskeletal Health & Arthritis Program** Robert Inman  
**Clinical Representative, Musculoskeletal Program** Nizar Mahomed  
**Chair, Trainee Affairs Committee** Frances Skinner  
**Executive Director, Research Operations** Lisa Alcia  
**Senior Vice President, UHN and Executive Lead, TWH** Katherine Sabo  
**Vice President, Research** Christopher Paige

### Researchers

#### Brain, Imaging & Behaviour - Systems Neuroscience

- **Senior Scientists**  
  - Jonathan Brotchie  
  - Robert Chen  
  - Karen Davis  
  - William Hutchison  
  - Andres Lozano  
  - Mary Pat McAndrews  
  - David Mikulis  
  - Paul Sandor  
  - Antonio Strafella

- **Scientists**  
  - Jonathan Downar  
  - Mojgan Hodaie  
  - Luc De Nil  
  - Nicholas Diamant  
  - Jonathan Dostovsky  

- **Walter Kucharczyk**

#### Fundamental Neurobiology

- **Senior Scientists**  
  - Peter Carlen  
  - Frances Skinner  
  - Shuzo Sugita  
  - Michael Tymianski  
  - Donald Weaver

- **Scientist**  
  - Ivan Radovanovic

- **Affiliate Scientists**  
  - Herbert Gaisano  
  - Magdy Hassouna  
  - Taufik Valiante  
  - Liang Zhang  
  - Georg Zoidl

#### Genetics & Development

- **Senior Scientists**  
  - Cathy Barr  
  - James Eubanks  
  - Michael Fehlings  
  - Robert Inman  
  - Philippe Monnier  
  - Lynanne Schlichter  
  - Elise Stanley  
  - Charles Tator  
  - Florence Tsui  
  - Joan Wither

- **Scientists**  
  - W Mark Erwin  
  - Lorraine Kalia  
  - Suneil Kalia  
  - Mohit Kapoor

- **Affiliate Scientist**  
  - Nigil Haroon

### Research Space

- Total Research Space: 155,246 sq. ft.
- Total External Funding: $36,606,009
- Total Publications: 667
- Total Senior Scientists: 37
- Total Scientists: 11
- Total Affiliate Scientists: 20
- Total Clinical Researchers: 93
- Total Researchers: 161
- Total Fellows: 98
- Total Graduate Students: 128
- Total Trainees: 226
- Total Staff: 225
Health Care & Outcomes Research

Senior Scientists
Elizabeth Badley
J David Cassidy
Aileen Davis
Dafna Gladman
Nizar Mahomed
Murray Urowitz

Affiliate Scientists
Cheryl Cott
Paul Fortin
Monique Gignac
Rosemary Martino

Patient-based Clinical Research

Senior Scientists
Anthony Lang
Colin Shapiro

Scientists
Mark Bernstein
Susan Tarlo

Vector Core

Senior Scientist
Jeffrey Medin

Vision Science

Senior Scientists
Martin Steinbach
Graham Trope
Agnes Wong
Valerie Wallace

Scientists
Christopher Hudson
Jeremy Sivak

Affiliate Scientists
Helen Dimaras
Moshe Eizenman
John Flanagan
Brenda Gallie
Elizabeth Irving
Frances Wilkinson

Clinical Researchers
Dimitrios Anastakis
Danielle Andrade
Jeff Bloom
Arthur Bookman
Michael Brent
Yvonne Buys
Simon Carette
Leanne Casaubon
Rodrigo Cavalcanti

Vincent Chan
Vinod Chandran
Kenneth Chapman
Ki Jinn Chin
Frances Chung
Maria Cino
Paula Cripps-McMartin
J Roderick Davey
Margaret De Melo
J Martin del Campo
Robert Devenyi
Trina Epstein
Richard Farb
Susan Fox
Rajiv Gandhi
Fred Gentili
Ewan Goligher
Brent Graham
Clement Hamani
Aaron Hendler
R Mark Iwanochko
Timothy Jackson
Harry Janssen
Sindhu Johnson
Lisa Kenny
Ron Keren
Paul Kongkham
Robert Lam
Wai-Ching Lam
Carol Landolt-Marticorena
Stephen Lewis
Charles Lynde
Angela Mailis-Gagnon
Daniel Mandell
Pirjo Manninen
Theodore Marras
Connie Marras
K Wayne Marshall
Steven McCabe
Roger McIntyre
Virginia Misener-Knight
Ahtsham Niazi
Ivy Oandasan
Darrell Ogilvie-Harris
Allan Okrainec
Sagar Parikh
Laura Passalent
Philip Peng
Todd Penner
Anahi Perlas
Anthony Perruccio
Atul Prabhu
Fayez Quereshy
Sidney Radomska

Yoga Rampersaud
David Rootman
Cheryl Rosen
Jorge Sanchez-Guerrero
Chanth Seyone
Hemant Shah
Mohammed Shamji
Sanjay Siddha
Frank Silver
Martin Simons
Jeffrey Singh
Allan Slomovic
Roger Smith
Sumeet Sodhi
Peter St George-Hyslop
Kalid Syed
Peter Tai
David Tang-Wai
Carmela Tartaglia
Maria Tassone
Karel terBrugge
Karen Tu
Lashmi Venkatraghavan
Richard Wennberg
Robert Willinsky
David Wong
David T Wong
Jean Wong
Gelareh Zadeh
Mateusz Zurowski
<table>
<thead>
<tr>
<th>UHN Research Committees</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cancer Clinical</strong></td>
</tr>
<tr>
<td><strong>Research Unit</strong></td>
</tr>
<tr>
<td><strong>Executive</strong></td>
</tr>
<tr>
<td>James Brierley</td>
</tr>
<tr>
<td>Pamela Degendorfer</td>
</tr>
<tr>
<td>Krystal Internicola</td>
</tr>
<tr>
<td>Jennifer Knox</td>
</tr>
<tr>
<td>Martin O’Malley</td>
</tr>
<tr>
<td>Michael Reedijk</td>
</tr>
<tr>
<td>Aaron Schimmer</td>
</tr>
<tr>
<td>Theodorus van der Kwast</td>
</tr>
<tr>
<td>Rebecca Wong</td>
</tr>
<tr>
<td>Camilla Zimmermann</td>
</tr>
<tr>
<td><strong>Cancer Clinical</strong></td>
</tr>
<tr>
<td><strong>Research Unit</strong></td>
</tr>
<tr>
<td><strong>Management Committee</strong></td>
</tr>
<tr>
<td>Chantale Blattler</td>
</tr>
<tr>
<td>Robin Cheiken</td>
</tr>
<tr>
<td>Heather Cole</td>
</tr>
<tr>
<td>Pamela Degendorfer</td>
</tr>
<tr>
<td>Jeff Doi</td>
</tr>
<tr>
<td>Marcia Flynn-Post</td>
</tr>
<tr>
<td>Karen Hersey</td>
</tr>
<tr>
<td>Tuula Kalliomäki</td>
</tr>
<tr>
<td>Alex Kerr</td>
</tr>
<tr>
<td>Margaret Molnar</td>
</tr>
<tr>
<td>Gerard Paras</td>
</tr>
<tr>
<td>J Giovanni Piza</td>
</tr>
<tr>
<td>Maria Schlag</td>
</tr>
<tr>
<td>Susanna Sellmann</td>
</tr>
<tr>
<td>Vanessa Speers</td>
</tr>
<tr>
<td>Marissa Tang-Fong</td>
</tr>
<tr>
<td>Ruth Turner</td>
</tr>
<tr>
<td><strong>Cancer Registry</strong></td>
</tr>
<tr>
<td><strong>and Data Access</strong></td>
</tr>
<tr>
<td><strong>Committee</strong></td>
</tr>
<tr>
<td>Niki Agelastos</td>
</tr>
<tr>
<td>James Brierley</td>
</tr>
<tr>
<td>Carol Cheung</td>
</tr>
<tr>
<td>Darlene Dale</td>
</tr>
<tr>
<td>Alexandra Easson</td>
</tr>
<tr>
<td>Calven Eggert</td>
</tr>
<tr>
<td>David Goldstein</td>
</tr>
<tr>
<td>David Hodgson</td>
</tr>
<tr>
<td>Monika Krzyzanowska</td>
</tr>
<tr>
<td>Tony Panzarella</td>
</tr>
<tr>
<td>Bayardo Perez-Ordonez</td>
</tr>
<tr>
<td>Matthew Seftel</td>
</tr>
<tr>
<td><strong>Clinical Studies</strong></td>
</tr>
<tr>
<td><strong>Quality Committee</strong></td>
</tr>
<tr>
<td>Lisa Alcia</td>
</tr>
<tr>
<td>Charles Chan</td>
</tr>
<tr>
<td>Neil Fleshner</td>
</tr>
<tr>
<td>John Floras</td>
</tr>
<tr>
<td>Carole Garmaise</td>
</tr>
<tr>
<td>John Granton</td>
</tr>
<tr>
<td>Flavio Habal</td>
</tr>
<tr>
<td>Jinx-Hyeun Huh</td>
</tr>
<tr>
<td>Deepali Kumar</td>
</tr>
<tr>
<td>Kathryn Nichol</td>
</tr>
<tr>
<td>Paul Oh</td>
</tr>
<tr>
<td>Amit Oza</td>
</tr>
<tr>
<td>Christopher Paige</td>
</tr>
<tr>
<td>Katherine Patterson</td>
</tr>
<tr>
<td>Patrik Rogalla</td>
</tr>
<tr>
<td>Katie Rosopa</td>
</tr>
<tr>
<td>David Urbach</td>
</tr>
<tr>
<td><strong>Data Safety</strong></td>
</tr>
<tr>
<td><strong>Monitoring Board</strong></td>
</tr>
<tr>
<td>Mary Anne Chappell</td>
</tr>
<tr>
<td>Robin Cheiken</td>
</tr>
<tr>
<td>Heather Cole</td>
</tr>
<tr>
<td>Krystal Internicola</td>
</tr>
<tr>
<td>Haiyan Jang</td>
</tr>
<tr>
<td>Girish Kulkarni</td>
</tr>
<tr>
<td>Helen Mackay</td>
</tr>
<tr>
<td>Matthew Seftel</td>
</tr>
<tr>
<td>Alexander Sun</td>
</tr>
<tr>
<td><strong>PM Cancer Centre</strong></td>
</tr>
<tr>
<td><strong>Appointments Committee</strong></td>
</tr>
<tr>
<td>Richard Hill</td>
</tr>
<tr>
<td>Norman Iscove</td>
</tr>
<tr>
<td>David Jaffray</td>
</tr>
<tr>
<td>Rama Khokha</td>
</tr>
<tr>
<td>Tak Mak</td>
</tr>
<tr>
<td>Mark Minden</td>
</tr>
<tr>
<td>Benjamin Neel</td>
</tr>
<tr>
<td>Gilbert Privé</td>
</tr>
<tr>
<td>Gary Rodin</td>
</tr>
<tr>
<td>Vuk Stambolic</td>
</tr>
<tr>
<td><strong>PM Cancer Centre</strong></td>
</tr>
<tr>
<td><strong>Space Committee</strong></td>
</tr>
<tr>
<td>Mutsuhiko Ikura</td>
</tr>
<tr>
<td>Senthil Muthuswamy</td>
</tr>
<tr>
<td>Gary Rodin</td>
</tr>
<tr>
<td>Bradly Wouters</td>
</tr>
<tr>
<td><strong>Radionuclide Safety</strong></td>
</tr>
<tr>
<td><strong>Committee</strong></td>
</tr>
<tr>
<td>Shelley Belford</td>
</tr>
<tr>
<td>Jonathan Brotchie</td>
</tr>
<tr>
<td>Gina Capone</td>
</tr>
<tr>
<td>Perry Chong</td>
</tr>
<tr>
<td>Mary Fountas</td>
</tr>
<tr>
<td>Judith Gabrys</td>
</tr>
<tr>
<td>Mihaela Ginj</td>
</tr>
<tr>
<td>David Green</td>
</tr>
<tr>
<td>Norman Iscove</td>
</tr>
<tr>
<td>Ian McDermott</td>
</tr>
<tr>
<td>Ur Metser</td>
</tr>
<tr>
<td>Jerry Plastino</td>
</tr>
<tr>
<td>Deborah Scollard</td>
</tr>
<tr>
<td>Frank Tourneur</td>
</tr>
<tr>
<td>Li Zhang</td>
</tr>
<tr>
<td><strong>Research Biosafety</strong></td>
</tr>
<tr>
<td><strong>Committee</strong></td>
</tr>
<tr>
<td>Richard Bilan</td>
</tr>
<tr>
<td>Razzqallah Hakem</td>
</tr>
<tr>
<td>Camille Lemieux</td>
</tr>
<tr>
<td>Ian McDermott</td>
</tr>
<tr>
<td>Jeffrey Medin</td>
</tr>
<tr>
<td>Badru Moloo</td>
</tr>
<tr>
<td>John Shannon</td>
</tr>
<tr>
<td>Joan Wither</td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel B</strong></td>
</tr>
<tr>
<td>Carol Bargman</td>
</tr>
<tr>
<td>Alan Barolet (Chair)</td>
</tr>
<tr>
<td>Ruth Anne Baron</td>
</tr>
<tr>
<td>David Barth (Vice-Chair)</td>
</tr>
<tr>
<td>David Cherney</td>
</tr>
<tr>
<td>Sean Cleary</td>
</tr>
<tr>
<td>Natasha Danson</td>
</tr>
<tr>
<td>Nigil Haroon</td>
</tr>
<tr>
<td>Magdy Hassoun</td>
</tr>
<tr>
<td>Michael Hutcheon</td>
</tr>
<tr>
<td>Stephanie Kellowan</td>
</tr>
<tr>
<td>Charmaine Lok</td>
</tr>
<tr>
<td>Christopher Longtin</td>
</tr>
<tr>
<td>Roger McIntyre</td>
</tr>
<tr>
<td>Ali Naraghi</td>
</tr>
<tr>
<td>Todd Orvitz</td>
</tr>
<tr>
<td>John Parker</td>
</tr>
<tr>
<td>Akari Sano</td>
</tr>
<tr>
<td>Ronald Seto</td>
</tr>
<tr>
<td>Morris Sherman</td>
</tr>
<tr>
<td>Naomi Visanji</td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Oncology Panel C</strong></td>
</tr>
<tr>
<td>Eitan Amir</td>
</tr>
<tr>
<td>Jennifer Bell</td>
</tr>
<tr>
<td>Hal Berman</td>
</tr>
<tr>
<td>Anthony Brade (Vice-Chair)</td>
</tr>
<tr>
<td>Carol Ann Buckley</td>
</tr>
<tr>
<td>Marcus Butler</td>
</tr>
<tr>
<td>Michael Crump</td>
</tr>
<tr>
<td>Stephanie DeLuca</td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td>Alan Barolet (Chair)</td>
</tr>
<tr>
<td>Sharon Braganza</td>
</tr>
<tr>
<td>Daniel Buchman</td>
</tr>
<tr>
<td>Kim Cadario</td>
</tr>
<tr>
<td>Derek CATHcart</td>
</tr>
<tr>
<td>Robert Cusimano</td>
</tr>
<tr>
<td>Seema David</td>
</tr>
<tr>
<td>James Downar</td>
</tr>
<tr>
<td>Scott Fung</td>
</tr>
<tr>
<td>Peter Giacobbe</td>
</tr>
<tr>
<td>Andrew Ha</td>
</tr>
<tr>
<td>Jane Lui</td>
</tr>
<tr>
<td>Connie Marras (Vice-Chair)</td>
</tr>
<tr>
<td>Heather Sampson</td>
</tr>
<tr>
<td>Samantha Sonshine</td>
</tr>
<tr>
<td>Carl Virtanen</td>
</tr>
<tr>
<td>Jean Wang</td>
</tr>
<tr>
<td>Duminda Wijeyundera</td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
<tr>
<td><strong>Research Ethics Board:</strong></td>
</tr>
<tr>
<td><strong>Biomedical Panel A</strong></td>
</tr>
</tbody>
</table>
Robert Dinniwell
Jaime Escallon
Ronald Feld
Donna Graham
Vikas Gupta
Robert Hamilton
Aaron Hansen
Jack Holland (Chair)
Leila Khoja
Belling Leung
Carmen Li
Lee Manchul
Warren Mason
Joy Matthews
Fotios Michelis
Andrew Milroy
Albiruni Razak
Gordon Robinson
Donald Short
Greg St. Pierre
Jenna Sykes
Santhosh Thyagu
Ruth Turner
Karen Yee

Research Ethics Board: Rehabilitation Medicine & Science Panel D
Tania Artinian
Jeffery Baine
Jennifer Boger
Anthony Burns
Tracey Colella
Carol Fancott
Heather Flett
Diana Frasca
Inez Gannicott
Igor Gontcharov
Susan Gorski
Lindsay Green-Noble
Ann Heesters (Vice-Chair)
Alexander Karabanow (Ex-Officio)
Shadi Katirai
Pia Kontos
Avril Mansfield
César Márquez-Chin
Kei Masani
Daeniell Miller (Ex-Officio)
Diane Nixon
Stephanie Nixon
Paul Oh (Chair)
Archna Patel
Marta Pesin
Karen Sasaki
Kathryn Sibley
Catriona Steele
Shauna Stokely
Yervant Terzian
Daniel Vena
Rosalie Wang
Rosalind Waxman
Lesley Wylie
Audrey Yap

Research Risk and Audit Committee
Lisa Alcia (Chair)
Chip Campbell
Gabriella Fischer
Thomas Goldthorpe
Tony Goncalves
Catherine Hancharek
Alexander Karabanow
Amy Ma
Paul MacPherson
Ian McDermott
Peggy McGill
Carley McPherson
Badru Moloo
Lisa Murphy
Christopher Paige
Katherine Patterson (Ex-Officio)
Rosalyn Reid
Katie Roposa (Co-Chair)
Anita Sengar
John Shannon
Michael Voth
Lois Ward

TRI International Scientific Advisory Committee
Martin Ferguson-Pell
William Mann
Anne Martin-Matthews (Chair)
Alain Prito
Jerker Rönnberg
John Steeves

TRI Peer Review Committee
Robin Green
Julie Mendelson
Alex Mihailidis
Catriona Steele
Lois Ward
Walter Wodchis

TRI Standard Operating Procedures Committee
Robin Green
Alex Mihailidis
Catriona Steele (Chair)
Lois Ward
Walter Wodchis

TRI Team Leaders’ Committee
T Douglas Bradley
Amy Xi Chen (Ex-Officio)
Tilak Dutta
Geoff Fernie (Chair)
Robin Green
Avril Mansfield
Katherine McGilton
Alex Mihailidis
Paul Oh
Milos Popovic
Lois Ward (Ex-Officio)

TGRI Appointments Committee
Shabbir Alibhai
Myron Cybulsky
Mansoor Husain
Douglas Lee
Mingyao Liu (Chair)
Scott McIntaggart
Michael Sheeres
David Urbach
Michael Wheeler
Nancy White

TGRI Infrastructure Committee
Paul Oh (Chair)
Archna Patel
Marta Pesin
Karen Sasaki
Kathryn Sibley
Catriona Steele
Shauna Stokely
Yervant Terzian
Daniel Vena
Rosalie Wang
Rosalind Waxman
Lesley Wylie
Audrey Yap

TGRI Appointments Committee
Elizabeth Badley
Peter Carlen
Karen Davis
James Eubanks
Andres Lozano (Chair)
Valerie Wallace
Donald Weaver

TGRI Space Committee
Elizabeth Badley
Karen Davis
James Eubanks (Chair)
Ian McDermott
Carley McPherson
Frank Vidic
Valerie Wallace
Donald Weaver
Joan Wither

TWRI Appointments Committee
Elizabeth Badley
Karen Davis
James Eubanks
Ian McDermott
Carley McPherson
Frank Vidic
Valerie Wallace
Donald Weaver
Joan Wither

TWRI Trainee Affairs Committee
Yuriy Baglaenko
Robert Chen
Joshua Cheng
Priscilla DeLuca
Danielle DeSouza
Elena Diez Cecilia
Katie Dunlop
Alexandre Guet-McCreight
William Hutchison
Gaayathiri
Jegatheeswaran
Lee-Anne Khuu
Aaron Kucyi
Alex Laliberte
Carley McPherson
Gray Moonen
Samira Patel
Mary Purcell
Gabriela Rozanski
Crystal Ruff
Frances Skinner (Chair)
Kaviraja Udupa
Manoj Vasudeva
Reaz Vawda
Julie Wan
Joan Wither

TWRI Space Committee
Elizabeth Badley
Karen Davis
James Eubanks
Ian McDermott
Carley McPherson
Frank Vidic
Valerie Wallace
Donald Weaver
Joan Wither

TWRI Trainee Affairs Committee
Yuriy Baglaenko
Robert Chen
Joshua Cheng
Priscilla DeLuca
Danielle DeSouza
Elena Diez Cecilia
Katie Dunlop
Alexandre Guet-McCreight
William Hutchison
Gaayathiri
Jegatheeswaran
Lee-Anne Khuu
Aaron Kucyi
Alex Laliberte
Carley McPherson
Gray Moonen
Samira Patel
Mary Purcell
Gabriela Rozanski
Crystal Ruff
Frances Skinner (Chair)
Kaviraja Udupa
Manoj Vasudeva
Reaz Vawda
Julie Wan
Joan Wither
External Sponsors

Abbott Laboratories
AbbVie Corporation
Abiomed
Acetion Pharmaceuticals
Actevo
Advanced Neuromodulation Systems
AGA Medical
Agios
Alberta Health Services
Alberta Innovates - Health Solutions
Allergan
Alliance for Lupus Research
Alliance for Clinical Trials in Oncology
AlloCure
Alzheimer Society of Canada
American Association for Thoracic Surgery
American Association of Neurological Surgeons
American Brain Foundation
American College of Radiology Imaging Network
American Society of Clinical Oncology
American Society of Hematology
American Society of Nephrology
American Society of Transplantation
Amgen Canada
AOSpine North America
Arbor Research Collaborative for Health
Arthritis Research Foundation
Association for International Cancer Research
Association for Surgical Education
Association of University Radiologists
Astex Pharma
Astxenca Pharmaceuticals
AstraZeneca Canada
AVEO Oncology
Baker IDI Heart and Diabetes Institute
Baxter Healthcare
Baycrest
Bayer
Baylis Medical Company
Baylor College of Medicine
Beckman Coulter
Beckman Research Institute of City of Hope
Benvenue Medical
Beth Israel Deaconess Medical Center
Bill & Melinda Gates Foundation
BioDiscovery Toronto
Biosensor International
BIOTRONIK
BioVex
Boehringer Ingelheim
Boston Medical Center
Boston Scientific
Bracco Diagnostics
Brain & Behavior Research Foundation
Brain Canada
Bristol-Myers Squibb
British Columbia Cancer Agency
California Institute for Regenerative Medicine
Canada Foundation for Innovation
Canada Health Infoway
Canada Research Chairs Program
Canadian Anesthesiologists’ Society
Canadian Association of Radiation Oncology
Canadian Blood Services
Canadian Breast Cancer Foundation
Canadian Cancer Society Research Institute
Canadian Diabetes Association
Canadian Foundation for AIDS Research
Canadian Foundation on Fetal Alcohol Research
Canadian Hematology Society
Canadian Initiative for Outcomes in Rheumatology eAre
Canadian Institutes of Health Research
Canadian Liver Foundation
Canadian Lung Association
Canadian Medical Protective Association
Canadian Patient Safety Institute
Canadian Psychological Association
Canadian Rheumatology Association
Canadian Society for Vascular Surgery
Canadian Society of Endocrinology and Metabolism
Canadian Society of Hospital Pharmacists
Canadian Stroke Consortium
Canadian Stroke Network
Canadian Urologic Oncology Group
Canadian Urological Association
Cancer Care Ontario
Cancer Research Institute
Cancer Research Society
Capital District Health Authority
Carestream Health
Caris Life Sciences
Cedars-Sinai Medical Center
Celator Pharmaceuticals
Celgene
Centre for Addiction and Mental Health
Centre for Commercialization of Regenerative Medicine
Centre for Drug Research and Development
Centre Hospitalier de l’Université de Montréal
Cervical Spine Research Society
CIHR Canadian HIV Trials Network
Claron Technology
Colon Cancer Canada
Columbia University Medical Center
Concordia University
Cook Group
Cordis
Covance
CReATe Cord Blood Bank
CSL Behring
Cystic Fibrosis Canada
Daichi Sankyo
Dartmouth College
DiagnoCure
DLVR Therapeutics
Douglas Mental Health University Institute
Duke University
Dystonia Medical Research Foundation
Edwards Lifesciences
Eisai
Eli Lilly Canada
Endologix
Estate of Ilonka Seder
Exelixis
Ferring Pharmaceuticals
Foreign Affairs, Trade and Development Canada
Foundation Fighting Blindness
Fred Hutchinson Cancer Research Center
Frederick National Laboratory for Cancer Research
Fresenius Kabi Deutschland
Genentech
Genome Canada
Genzyme Canada
Gilead Sciences
Glaucoma Research Society of Canada
GlaxoSmithKline
Grand Challenges Canada
Hamilton Health Sciences
Hauptman-Woodward Medical Research Institute
Health Resources in Action
Heart & Stroke Foundation of Canada
Heart & Stroke Foundation of Ontario
HemaQuest Pharmaceuticals
Henry Ford Health System
Hoffmann-La Roche
Holland Bloorview Kids Rehabilitation Hospital
Hospital for Sick Children
Human Frontier Science Program
Icahn School of Medicine at Mount Sinai
Ikaria
Immune Diagnostics & Research
Impact Genetics
INC Research
Inception 2
InSightec
Insmed
Institut Universitaire de Cardiologie et de Pneumologie de Québec
Intercept Pharmaceuticals
International Science and Technology Partnerships Canada
Intuitive Surgical
Janssen Biotech
Jewish General Hospital
Johns Hopkins University
Johnson & Johnson
Juvenile Diabetes Research Foundation
Financials
Core and external research funding in 2013/2014

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>UHN Foundations</td>
<td>$27,541,361</td>
</tr>
<tr>
<td>Grant Funding (indirect costs)</td>
<td>$8,887,000</td>
</tr>
<tr>
<td>Investment Income</td>
<td>$3,449,330</td>
</tr>
<tr>
<td>Rental Income</td>
<td>$6,756,918</td>
</tr>
<tr>
<td>Other (including ancillary revenues)</td>
<td>$22,767,191</td>
</tr>
<tr>
<td>Ministry of Health and Long-Term Care</td>
<td>$3,400,950</td>
</tr>
<tr>
<td><strong>Total Core Research Funding</strong></td>
<td><strong>$72,802,750</strong></td>
</tr>
</tbody>
</table>
Total External Project Funding
$271,581,257
International Research Advisory Board

Philip Branton, PhD, FRSC (Chair)
Gilman Cheney Professor, Department of Biochemistry and Oncology, McGill University

Samuel Weiss, PhD (Chair-Elect)
Professor, Departments of Cell Biology & Anatomy and Physiology & Pharmacology, University of Calgary; Inaugural Director of the Hotchkiss Brain Institute

Thomas Rockwell Mackie, PhD
Professor Emeritus, Medical Physics and Human Oncology, University of Wisconsin; Director, Medical Devices Focus Area, Morgridge Institute for Research

Lynne Warner Stevenson, MD
Director, Cardiomyopathy and Heart Failure Program, Brigham and Women’s Hospital; Professor, Harvard Medical School

John E Wennberg, MD, MPH
Active Professor Emeritus of Community & Family Medicine, Peggy Y Thomson Professor Emeritus in Evaluative Clinical Sciences and Director Emeritus and Founder, The Dartmouth Institute for Health Policy & Clinical Practice

Disclaimers
Publications, Personnel: Publication data provided by UHN Research Program Planning & Analysis. Leadership data provided by UHN institute Business Managers. Data are accurate as of September 1, 2014. Some figures may be rounded and/or may include data not represented in institute data. Publications jointly authored by investigators at multiple UHN institutes are counted only once in the UHN Research total. Researchers with more than one affiliation within an institute, or between institutes, are only included once in the total count. Clinical Researchers and CCRU investigators are not formally appointed at the research institutes and are therefore not subject to the research institutes’ scientific and performance reviews.

Trainees, Research Committees: Data is current as of September 1, 2014. The institute trainee counts reflect only those trainees supervised by researchers with a primary appointment at the institute.

Space: Data provided by UHN Research Facilities Planning & Safety and based on space audited by September 30, 2014 across UHN sites. To account for significant transitions in research space at TWRI and PM Cancer Centre during the 2014 calendar year, data is projected to be accurate as of end of December, 2014. Core facilities and Research Support Services spaces are not included in institute space totals.

Financial Data: All figures represent the fiscal year ending March 31, 2014, and include the PM Cancer Centre, TGRI, TRI, TWRI, Techna and Research Operations. Figures have been provided by UHN Research Financial Services. Total funding includes External and Core Funding amounts and is listed within the UHN Research Snapshot on the inside front cover.

Production Credits: This report is published by the Office of the Vice President, Research, UHN. Graphic design, writing and production by UHN Research Communications. Photographs courtesy of DoYoon Kim (Techna), iRT Systems GmbH, John Loper, Jono & Laynie Co., Michael Tenaglia, MyndTec Inc., Myron Cybulsky, SimonQ (Flickr), UHN PhotoGraphics, UHN Research Communications, Wikimedia Commons and William Suarez.

Welcome Message: Dr. Robert Bell was the Chief Executive Officer (CEO) of UHN until May 23, 2014. Ms. Justine Jackson is the acting interim CEO until January 1, 2015.
The hard-copy version of this report was printed on 100% recycled paper, which saved a total of:

- 13 trees
- 47,800 L of water
- 586 kg of waste
- 1,922 kg CO₂
- 12,858 km driven
- 11 GJ
- 53,121 60W light bulbs for 1 hour
- 2 kg NOₓ
  emissions of one truck over 8 days