

# A transformative year in Canadian brain research

Annual Report 2012



Brain Canada



NeuroScience  
CANADA

# Table of Contents

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Highlights 2012-2013	1
Message from the Chair and President	2
<b>BRAIN CANADA</b>	
The case for increased investment in brain research	3
The Canada Brain Research Fund	4
<b>BRAIN CANADA RESEARCH PROGRAMS</b>	
Multi-Investigator Research Initiative (MIRI)	6
Training Awards	9
Platform Support Grants (PSGs)	12
<b>BRAIN REPAIR PROGRAM</b>	12
Uncovering the causes of Parkinson's Disease	13
<b>FUNDRAISING</b>	
Partnership development	15
2012 Parlour dinners	15-17
Thanks to our supporters across the country	18
Board of Directors	19
Science Advisory Council	20
International Science Advisory Council	21
Partnership and Foundation Financial Report	22



Partnership Registration number: 86870 6326 RR0001  
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The Brain Canada Foundation (referred to throughout as "Brain Canada") is a national, charitable organization with the goal of funding research aimed at unlocking the mystery of the brain, and developing diagnostics, treatments and ultimately cures for brain disorders.

# Highlights 2012-2013

## 2012

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- **May 3<sup>rd</sup>** – The Honourable Leona Aglukkaq, Canada’s Minister of Health, officially launched the Canada Brain Research Fund.
- **May 15<sup>th</sup>** – Held first of a series of RBC Foundation-sponsored parlour dinners in Toronto. Dinners followed in Calgary on October 2<sup>nd</sup>, 2012, and in Montreal on January 29<sup>th</sup>, 2013. All featured presentations by leading Canadian researchers.
- **May 15<sup>th</sup>** – Awarded the seventh Dr. Hubert van Tol Travel Fellowship to Dr. Jean-François Trempe, a post-doctoral student at McGill University/Montreal Neurological Institute and Hospital.
- **May 18<sup>th</sup>** – Launched Brain Canada’s Multi-Investigator Research Initiative (MIRI), the first of the Canada Brain Research Fund’s research programs. Following a rigorous two-stage international review process, applicants were informed of the results on February 12<sup>th</sup>, 2013.
- **August 1<sup>st</sup>** – Launched the first two training awards competitions with funding from Bell and CIBC. The awards are focused on Mental Health and Brain Cancer, respectively. Seven awards – three fellowships and four studentships – were selected for each theme. Funding commenced in February 2013.
- **December 21<sup>st</sup>** – The Government of Canada and Brain Canada announced the \$25-million *Chagnon Family - Brain Canada Multi-Investigator Research Initiative (MIRI) Interventions for Prevention of Alzheimer Disease and Related Disorders*, and the \$7.5-million *Azrieli Neurodevelopmental Research Program, Multi-Investigator Research Initiative (MIRI)*.

## 2013

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- **January 14<sup>th</sup>** – Brain Canada was prominently featured in a *Globe and Mail* article about the brain and brain research: “A big brainstorm is on the horizon in neuroscience”. This was the first in a six-part series on the brain and significantly raised the profile of Canadian brain research, as part of the global research community.
- **February 8<sup>th</sup>** – Bell and Brain Canada announced the recipients of the Bell Mental Health Research Training Awards in Vancouver, BC. This event included representation from Bell, six-time Canadian Olympic champion, Clara Hughes, who is the national spokesperson for Bell *Let’s Talk*, the Government of Canada and Brain Canada. A second event was held in Toronto on May 8<sup>th</sup> to recognize the Ontario-based recipients.
- **April 19<sup>th</sup>** – CIBC and Brain Canada announced the recipients of the CIBC–Brain Canada Brain Cancer Training Awards at the Montreal Neurological Institute. This event included representation from CIBC, Brain Canada and the Montreal Neurological Institute.
- **April 29<sup>th</sup>** – The W. Garfield Weston Foundation and Brain Canada announced the recipients of *The W. Garfield Weston Foundation – Brain Canada Multi-Investigator Research Initiative (MIRI)* at the MaRS Centre in Toronto.
- **May 21<sup>st</sup>** – Awarded the 2012 Barbara Turnbull Award for Spinal Cord Research to Dr. Stephen Scott, Queen’s University, at the Canadian Association for Neuroscience (CAN) annual meeting in Toronto.

# Message from the Chair and President

The human brain has been described as the “last frontier” of medical research and one of the most challenging areas in medicine. By unlocking the secrets of the brain, we have the potential to change the lives of millions of Canadians of all ages who are living with neurological diseases and disorders, mental illnesses, addictions, brain and spinal cord injuries.

Around the world, the dominant theme in the brain “space” is collaboration. Understanding the brain and brain diseases is a complex endeavor, requiring researchers from a range of science disciplines and clinical areas to come together in new ways. Equally important has been the involvement of patients, families and caregivers, and organizations representing patients have been key to the drive to collect patient data and make it available through open access platforms.

There has also been much debate about how to maximize the impact of research funding: should the focus be on basic research or on late-stage research with a potential commercial benefit. In fact, research is a process and advances are needed at every stage along the continuum to produce new or better diagnostics, prevention interventions, treatments, and ultimately cures. We need to understand how the brain works as one system (such as the recent announcement in the U.S. of the BRAIN initiative to map the human brain), and the underlying biology of brain disease in order to identify targets to develop diagnostics and treatments.



Members of the Brain Canada Board of Directors, Montreal, 2013. From left to right, standing: Franco J. Vaccarino, Marcel Côté, Vincent Castellucci, W. David Angus, Mark Krembil, David R. Kaplan. Seated: Inez Jabalpurwala, Rupert Duchesne, Catherine Zahn, Max S. Cynader (Absent: Lili de Grandpré, Brandt C. Louie, Larry Tanenbaum, Allan R. Taylor).

Since launching the Canada Brain Research Fund in May 2012, we have been thinking a great deal about how the Government of Canada/Brain Canada public-private partnership can lead to a transformation of brain research in this country, foster collaboration within Canada and with the global neuroscience community, and have the greatest impact all along the research continuum. This reflection has included dialogue with leading scientists on our Science Advisory Council and the Canadian Association for Neuroscience, and nationwide consultations with stakeholders, including researchers, clinicians, patients, families, voluntary health organizations, foundations, university/institutional officials, philanthropists and decision-makers.

We are delighted that our efforts to date have raised \$22.5 million towards our \$100-million goal. The programs and activities detailed in this report showcase Brain Canada’s collaborations along the research continuum and across the spectrum of disorders. These include our signature Multi-Investigator Research Initiatives, and a series of partnerships that include private donors (The W. Garfield Weston Foundation, Krembil Foundation, Chagnon Family, Azrieli Foundation), corporations (Bell, CIBC, National Bank), and the Canadian Institutes of Health Research and Barbara Turnbull Foundation. We continue to conduct partnership development and outreach with a wide range of organizations in the brain space in Canada and around the world.

There has never been a more exciting time to be part of the global brain research and brain health community. We thank all of our supporters over the past year—and especially the Government of Canada, and our dedicated Board and staff. We look forward to advancing Canada’s central role in the coming year.

**Rupert Duchesne**  
Chair, Brain Canada

**Inez Jabalpurwala**  
President and CEO, Brain Canada

# The case for increased investment in brain research

The more than 1,000 neurological diseases and disorders, mental illnesses, addictions, brain and spinal cord injuries, affect as many as a billion people worldwide, of all ages and backgrounds. Brain disorders include schizophrenia, depression, Multiple Sclerosis, Alzheimer's, Parkinson's, traumatic brain injury and amyotrophic lateral sclerosis (ALS, commonly known as Lou Gehrig's disease). There are common mechanisms across these disorders as all are part of one brain system. Collectively, the diseases of the brain are the major health challenge of the 21<sup>st</sup> century, with a cost greater than cancer and cardiovascular disease combined.

**Brain Canada estimates that one in three Canadians, over 11 million people, will face a brain disorder at some point in their lives. Brain disorders are often chronic, progressive and degenerative. Apart from the economic impact, diminished quality of life, social stigma and prejudice are a heavy burden on affected individuals and their families and caregivers.**

Over 3.5 million Canadians are suffering from some form of neurological disease<sup>1</sup>, and more than 6.7 million people in Canada are living with a mental health problem or illness<sup>2</sup>. By the age of 40, nearly 50% of people in Canada will have had an experience with a mental health problem or illness<sup>2</sup>. The impact on the Canadian economy is staggering: when the total economic burden of neurological disorders, mental illness and addiction are tallied, they amount to approximately 38% of the global burden of disease, or \$60 billion/year<sup>3</sup>. But even this is an underestimate since not all neurological diseases are included in this sum, nor are additional societal costs such as law enforcement related to substance abuse (about \$7B/year<sup>4</sup>) or lost wages for informal caregivers. Many of these costs are bound to rise substantially as the Canadian population ages.

The direct costs of treating mental illness are predicted to rise from \$42B to \$79B by 2021<sup>2</sup>, and the economic burden of dementia will increase from \$15B in 2008 to \$37B in 2018<sup>5</sup>.

**There is an urgent need to accelerate brain research with both benefits for Canada and the world.**

Brain Canada is a national non-profit organization that develops and supports excellent and innovative brain research in Canada. For more than one decade, Brain Canada has made the case for the brain as a single, complex system with commonalities across the range of brain disorders.

The one-system "brain vision" has also enabled Brain Canada to connect the dots – bringing together different fields and disciplines of science, business leadership, disease-focused voluntary health organizations, patients, families and government – creating a strong voice for the brain and collective commitment to addressing the challenges that brain disorders present to the well-being of all Canadians and the prosperity of a knowledge-based economy.

**For more information about Brain Canada's activities, please visit our website: [www.braincanada.ca](http://www.braincanada.ca). The site includes current funding opportunities, general information about the brain and neuroscience, the latest developments in the research we are funding and a section for media.**

<sup>1</sup> Statistics Canada. *Table 105-1300 - Neurological conditions, by age group and sex, household population aged 0 and over, 2010/2011, occasional (number unless otherwise noted)*, CANSIM (database).

<sup>2</sup> Mental Health Commission of Canada "Making the Case for Investing in Mental Health in Canada," January, 2013.

<sup>3</sup> NeuroScience Canada "The Case for Canada's Increased Investment in Neuroscience Research," 2006. Lim K-L, Jacobs P, Ohimna A, et al. "A new population-based measure of the economic burden of mental illness in Canada," 2008. *Chronic Diseases in Canada*, 28(3): 92-98. Canadian Institute for Health Information "The Burden of Neurological Diseases, Disorders and Injuries in Canada," June 2011.

<sup>4</sup> BC Partners for Mental Health and Addictions Information Backgrounder "Economic Costs of Mental Disorders and Harmful Substance Use," 2008.

<sup>5</sup> The Alzheimer Society of Canada "Rising Tide: The Impact of Dementia on Canadian Society," January 2010.

## BRAIN CANADA

# The Canada Brain Research Fund

Announced in Budget 2011, the Canada Brain Research Fund is a public-private partnership between the Government of Canada and Brain Canada to support Canada's world-class brain research.

Over a six-year period, Government will match, on a 1:1 basis, up to \$100 million of private and non-governmental donations. The \$200-million Fund will be the largest single investment in brain research ever made in Canada.

The funds raised and matched will support research aimed at advancing our understanding of brain function and brain diseases. The Fund builds on a model developed by Brain Canada that produced important advances in diagnosing, preventing, treating and curing a range of brain disorders. Applying this experience, the Fund will support teams of researchers from different disciplines pursuing linkages across disorders including Multiple Sclerosis, stroke, Alzheimer's, psychiatric disorders and addictions, concussions and spinal cord injuries. In addition to team grants, the Fund will provide training awards to help attract and retain the

next generation of researchers, as well as support technology platforms to enhance scientific collaboration.

This visionary commitment by the federal government will ensure that Canada continues to be among the global leaders in brain research.

The purpose of the Canada Brain Research Fund is to:

- Strengthen the neuroscience research community by increasing collaborations among multidisciplinary researchers and decision-makers;
- Support the next generation of brain researchers - doctoral/postdoctoral trainees;
- Increase knowledge and understanding about brain disorders;
- Accelerate the development of new technologies to enable transformative research;
- Accelerate the development of new treatments for brain disorders;
- Increase the use/implementation of new and/or existing technologies for transformative research and new treatments for brain disorders; and
- Inform changes to health care system policies and/or practices.

*"Brain Canada will be a unifying force; it will bring together scientists from many disciplines to identify the causes of brain disorders and then use that knowledge to develop treatments for many different diseases of the brain and nervous system."*

— The Honourable Leona Aglukkaq, Minister of Health



From left to right: Judith Sale, Mark Krembil, Franco J. Vaccarino, Astrid Eberhart, Allan R. Taylor, David R. Kaplan, Barbara Turnbull, the Honourable Leona Aglukkaq, Rupert Duchesne, Inez Jabalpurwala, Michael H. Wilson.

# The Canada Brain Research Fund

A Public-Private Partnership to Support Canada's World-Class Brain Research



## BRAIN CANADA RESEARCH PROGRAMS

# Canada Brain Research Fund programs Multi-Investigator Research Initiative (MIRI)

The first competition of the Canada Brain Research Fund (CBRF), the Multi-Investigator Research Initiative (MIRI), was launched on May 17<sup>th</sup>, 2012. The aim of MIRI grants is to support multidisciplinary teams and to accelerate novel and transformative research that will fundamentally change our understanding of nervous system function and dysfunction and their impact on health.

A total of 165 applications were received from teams across the country. Thirty-one teams were invited to submit full applications. Topics spanned the field from application of molecular and cellular neurobiology to neurological disease, neurodegeneration, neurotrauma, mental health, and clinical neuroscience. The proposals were rigorously reviewed by an international Selection Committee of 12 clinicians and basic scientists, chaired by a leading researcher from the US, Dr. Lorne Mendell. The international composition ensured that conflicts of interest were minimized.

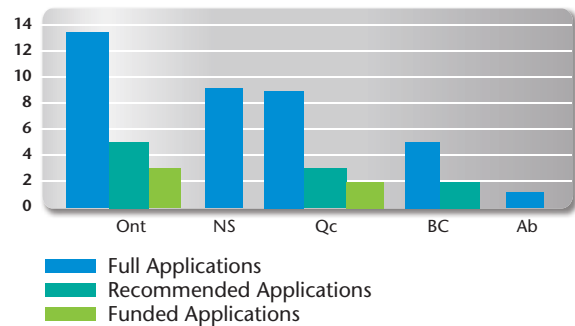
Of the 31 proposals, 10 were judged by the Selection Committee to have met their established threshold of excellence and were recommended for funding. The five top ranked teams are being funded by The W. Garfield Weston Foundation and Canada Brain Research Fund match, with additional funding provided by The Krembil Foundation. In recognition of the Weston's leadership donation, the grants are named *The W. Garfield Weston Foundation – Brain Canada Multi-Investigator Research Initiative (MIRI)*. The public event to announce these recipients was held in Toronto at the MaRS centre on April 29<sup>th</sup>, 2013.



The five funded projects are as follows:

- Validating an eye test to help early detection of neurodegenerative diseases such as Alzheimer's and frontotemporal dementia; team lead Dr. Sandra Black, Sunnybrook Health Sciences Centre;
- Exploring brain cell polarity and how it helps to build and maintain the brain as an underlying cause of neurological disorders; team lead Dr. Michel Cayouette, Institut de Recherches Cliniques de Montréal;
- Investigating how environmental factors alter the function of genes to identify potential biomarkers for mental illness; team lead Dr. Michael Meaney, McGill University;
- Mobilizing stem cells in the brain to treat brain injury in children; team lead Dr. Freda Miller, Hospital for Sick Children; and,
- Reprogramming skin cells to restore visual function in diseases such as age-related macular degeneration; team lead Dr. Valerie Wallace, Ottawa Hospital Research Institute.

Brain Canada is working with the remaining five teams to secure partner funding for their projects.



The Honourable Leona Aglukkaq, Minister of Health, with members of The W. Garfield Weston Foundation and Brain Canada, and members from the recipient teams of the Multi-Investigator Research Initiative (MIRI) grants.

From left to right: Dr. Donald Mabbott, Rupert Duchesne, Dr. David Andrews, W. Galen Weston, Dr. Franco J. Vaccarino, The Honourable Michael H. Wilson, Minister Aglukkaq, Mark Krembil, Inez Jabalpurwala, Dr. Michel Cayouette, Larry Tanenbaum, Dr. Freda Miller, Allan R. Taylor, Dr. Keith Murai, Dr. Artur Kania.



## Chagnon Family – Brain Canada MIRI: Interventions for Prevention of Alzheimer Disease and Related Disorders *Famille Chagnon*

On December 21<sup>st</sup>, 2012, a joint venture between the Chagnon Family of Quebec and Brain Canada was announced. Over the next five years, \$25 million will be provided to accelerate novel and transformative intervention research that will improve the prevention of Alzheimer Disease and Related Disorders (ADRD). This initiative is meant to stimulate and reward “outside-the-box” ideas by supporting research that is truly innovative and may challenge standard paradigms, in order to accelerate the achievement of outcomes that will have a positive and meaningful impact for those at risk from ADRD. The ultimate goal is to prevent ADRD. This will be the largest investment in interventions for prevention of ADRD ever made in this country and sets forth a challenge to fast-track a quantum leap in the field.

It is expected that three to five teams will be funded, in the range of \$1 million to \$2 million per year per team. There is a possibility that a further five years of funding will be available for studies that require a ten-year

timeline. The Chagnon Family and Brain Canada aim to support potentially high-gain research that might have difficulty being funded by other agencies, perhaps because it is conceptually ahead of its time, involves unusual alliances between disciplines, and features novel approaches, including interventions involving complementary and alternative medicine, and alternative uses for existing medications approved for other conditions.

The deadline to submit Letters of Intent (LOIs) was February 22<sup>nd</sup>, 2013. At the close of the LOI call, Brain Canada had received 25 applications. An international Selection Committee reviewed the LOIs and invitations to submit Full Applications were extended in early May. The review process will be completed by the fall, and an announcement event will be planned shortly thereafter.

The Request for Applications for this initiative can be found on the Brain Canada website.



Rupert Duchesne, André Chagnon and Inez Jabalpurwala

*“My children and I are concerned about the rise in cases of Alzheimer Disease in an aging population and, since we have been directly affected by this disease, we understand the impact on families and the importance of finding preventative measures to counter this disease.”*

— André Chagnon of the Chagnon Family

## The Azrieli Neurodevelopmental Research Program in partnership with Brain Canada MIRI



Developmental brain disorders are a leading cause of disability and impact not only the individuals affected, but also their family and the society in which they live. Autism Spectrum Disorders now affect 1 in 88 children and 1 in 54 boys. The 2012 statistics reflect a 78% increase in reported prevalence in the last six years. More children will be diagnosed with autism this year than with AIDS, diabetes and cancer combined. There is no medical detection or cure for autism. Fragile X syndrome is the most common inherited form of mental impairment and affects 1 in 4,000 boys and 1 in 6,000 girls of all races and ethnic groups.

On December 21st, 2012, a partnership between the Azrieli Foundation (of Quebec-Ontario-Israel) and Brain Canada was announced. Through this joint venture, the partners will support excellent translational research in the area of neurodevelopmental disorders, with a special focus on Autism Spectrum Disorders and Fragile X syndrome. Teams of Canadian researchers, or teams involving Canadian and international scientists, will be supported. Over the next five years, \$7.5 million will be

allocated. Additional funds will be directed to support postdoctoral students working in this area. The National Bank of Canada has also joined this initiative, and will be providing \$200,000—which will be matched by the Canada Brain Research Fund.

The ultimate goal of the initiative is to develop new diagnostics, treatment and prevention strategies for neurodevelopmental disorders, to reduce their economic and social burden on Canadians, and to improve the quality of life for those affected by neurodevelopmental disorders and their families. A secondary goal is to build Canadian research capacity in this area.

The deadline for the Letters of Intent (LOIs) was April 5<sup>th</sup>, 2013. The review process from LOIs to Full Applications will be completed in the fall, and an announcement event will be planned shortly thereafter.

The Request for Applications for this initiative can be found on the Brain Canada website.

*"The advances in brain research will be exponential, and they will ripple throughout the health system. And Canada, home to some of the world's foremost neuroscientists, has the potential to lead the way. Yet this will not happen without broad public understanding and financial support. Scientists tend to follow the money — not for personal gain, but for the critical mass of staff, resources and equipment that is the lifeblood of advanced research."*

— Naomi Azrieli, Chair and CEO of the Azrieli Foundation  
From *Living As Pioneers*, *Huffington Post Living*, *The Blog*, March 9, 2013

*"There has never been a more exciting time to explore, understand and treat neurodevelopmental disorders. The tools now available offer an exceptional opportunity to understand the brain as a whole system, and to identify targets and develop and test novel therapies that could revolutionize treatment. We are confident that this unprecedented investment will encourage the best scientists to come together in multidisciplinary teams and, through innovative work, close the gap between discoveries made in the research lab and clinical treatments."*

— Naomi Azrieli, Chair and CEO of the Azrieli Foundation

*"The Azrieli Foundation partnership with Brain Canada comes at a crucial time in research in neurodevelopmental disorders. The alignment of tremendous recent advances in biological and genetic research in brain development with substantive financial support will provide tremendous leverage to existing initiatives, and enable new collaborations to achieve breakthroughs that have a direct and positive impact on preventing and treating Autism Spectrum Disorder, Fragile X syndrome and other neurodevelopmental conditions."*

— Dan Goldowitz, Scientific Director, NeuroDevNet

*"These commitments by the Chagnon Family and the Azrieli Foundation provide tangible evidence that the approach outlined in Economic Action Plan 2011 is already delivering results. By matching financial contributions like these, we will advance Canadian neuroscience research on a range of neurological diseases, brain injuries and mental illnesses for the long-term benefit of Canadians while ensuring tax dollars have maximum impact."*

— The Honourable Jim Flaherty, Minister of Finance

## BRAIN CANADA RESEARCH PROGRAMS

# Training Awards

The Training Awards are designed to promote the next generation of Canadian neuroscience researchers by providing them with guidance, mentorship and training under the direction of world-leading researchers. A significant investment in Canada's most promising researchers, these funds will accelerate their progress and contribution to our understanding of the brain.

The first Training Awards competitions were launched August 1<sup>st</sup>, 2012. There are two research themes: Mental Health and Brain Cancer. Bell is the corporate partner for Mental Health; CIBC is the corporate partner for Brain Cancer. Each company provided \$500,000, which was matched by the Canada Brain Research Fund for a \$1-million allocation per theme. The deadline for applications was September 28<sup>th</sup>. By the close of the competition, Brain Canada had received 45 submissions to the

Mental Health theme, comprised of 22 fellowship and 23 studentship applications, and 12 submissions to the Brain Cancer theme, comprised of seven fellowship and five studentship applications. For the Mental Health competition, proposals were received from Nova Scotia, Quebec, Alberta and British Columbia. Distribution of applications from Brain Cancer was concentrated in various institutes in Ontario and Quebec.

Following a national review of applications, seven awards—three fellowships and four studentships—were selected for each theme. Fellows will receive \$50,000 per year for three years plus a \$5,000 career development supplement. Students will receive \$30,000 per year for three years, plus a \$5,000 career development supplement.

## Bell Mental Health Research Training Award recipients

The recipients of the Bell Mental Health Research Training Awards were announced at an event in Vancouver on February 8<sup>th</sup> 2013, and the two Vancouver-based recipients were presented with their awards. This event included representation from Bell (Mary Deacon, Chair of the Bell Mental Health Initiative, and six-time Canadian Olympic champion, Clara Hughes, who is the national spokesperson for Bell *Let's Talk*, a national mental health anti-stigma

campaign which culminates in *Let's Talk Day* on February 12<sup>th</sup>); the Government of Canada (Senator Yonah Martin) and Brain Canada (Dr. Max Cynader, Director, and Inez Jabalpurwala, President and CEO). A second event was held in Toronto on May 8<sup>th</sup>, at which time the Ontario-based recipients were presented with their awards.

## Canadian Imperial Bank of Commerce (CIBC) - Brain Canada Brain Cancer Training Awards recipients

The recipients of the CIBC – Brain Canada Brain Cancer Training Awards were announced at an event at the Montreal Neurological Institute on April 19<sup>th</sup> 2013. This event included representation from CIBC (Sylvain Vinet, Senior Vice-President of Retail Markets for Eastern Canada) and Brain Canada (Lili de Grandpré and Dr. Vincent

Castellucci, Directors, and Inez Jabalpurwala, President and CEO), the Director of the Montreal Neurological Institute (Dr. Guy Rouleau), and the Montreal-based studentship recipient, Ian Gerard, and his supervisor, Dr. D. Louis Collins.

## BRAIN CANADA RESEARCH PROGRAMS

### Bell Mental Health Research Training Awards recipients



#### Fellowships

RECIPIENT	SUPERVISOR	INSTITUTE	TITLE
Cornelia Walther	Dr. Stephen Ferguson	University of Western Ontario	CRF receptor-mediated sensitization of 5-HT <sub>2A</sub> receptor signalling
Guang Yang	Dr. Freda Miller	The Hospital for Sick Children	The Role of Translational Control in Cortical Dysgenesis in Mammalian Brain
Steven A. Connor	Dr. Anne Marie Craig; Dr. Yu Tian Wang	University of British Columbia	Characterization of the Role of LRRtMs in Synaptic Plasticity and Memory Formation

#### Studentships

RECIPIENT	SUPERVISOR	INSTITUTE	TITLE
Nancy Butcher	Dr. Anne Bassett	University of Toronto	Antipsychotic treatment in a genetic subtype of schizophrenia: Novel insights from neuroimaging and pharmacogenetics
Andrea Tyrer	Dr. Jeffrey Meyer	Centre for Addiction and Mental Health	Season, Light Exposure and Serotonin Transporter Binding
Jennie Pouget	Dr. James Kennedy	Centre for Addiction and Mental Health	Role of variants of the translocator protein (TSPO) gene in schizophrenia and antipsychotic-induced weight gain
Corey Baimel	Dr. Stephanie Borgland	The University of British Columbia/ Hotchkiss Brain Institute – University of Calgary	The effects of optogenetically activated orexin/hypocretin neurons on the mesolimbic reward pathway



On February 8th, 2013, the Bell Mental Health Research Training Awards were announced in Vancouver, BC.

From left to right: Inez Jabalpurwala, President, Brain Canada; Dr. Max S. Cynader, Director, Brain Research Centre, UBC & Brain Canada Board member; Cory Baimel, Award recipient; Dr. Steven Connor, Award recipient; Mary Deacon, Chair, Bell Mental Health Initiative; Clara Hughes, national spokesperson, Bell Let's Talk; The Honourable Yonah Martin, Senator.



On May 8<sup>th</sup>, 2013, Bell and Brain Canada recognized the Ontario-based recipients of the Bell Mental Health Research Training Awards.

First row left to right: Jennie Pouget (CAMH), Nancy Butcher (University of Toronto).  
Second row left to right: Mary Deacon (Bell), Andrea Tyrer (CAMH), Dr. Cornelia Walther (University of Western Ontario), Dr. Guang Yang (The Hospital for Sick Children), Inez Jabalpurwala (Brain Canada).



## Fellowships

RECIPIENT	SUPERVISOR	INSTITUTE	TITLE
Deena Gendoo	Dr. Annie Huang Dr. Gary Bader	The Hospital for Sick Children	Determining the role of non-coding RNA in molecular phenotypes of embryonic brain tumours using a global systems and informatics approach
Nadine Richard	Dr. Kim Edelstein, Dr. Lori J. Bernstein	Pencer Brain Tumour Centre, Princess Margaret Hospital	Validation of a cognitive rehabilitation program adapted to the needs of adults with brain cancer and adult survivors of childhood brain cancer
Katherine Rowland	Dr. Peter B. Dirks	The Hospital for Sick Children	Role of YAP/Hippo and Wnt signaling in human gliomagenesis and glioma tumour-initiating cells

## Studentships

RECIPIENT	SUPERVISOR	INSTITUTE	TITLE
Vincy Chan	Dr. Angela Colantonio	University of Toronto	The Profile and Trajectory of Brain Tumours Across the Continuum of Care in Ontario, Canada: A Population Based Study
Ian Gerard	Dr. D. Louis Collins	Montreal Neurological Institute	Nonlinear MR-US Registration for Image Guided Neurosurgery of Brain Tumours
Nishani Rajakulendran	Dr. Stephane Angers	University of Toronto	Wnt Signalling Circuits in glioma Progression
Mohini Singh	Dr. Sheila K. Singh	McMaster University	Identification of Brain Metastasis Initiating Cells and Regulators of Brain Metastasis from Lung Cancer



From left to right: Inez Jabalpurwala, Brain Canada; Dr. Philip Barker, Montreal Neurological Institute; Lili de Grandpré, Brain Canada; Dr. Guy Rouleau, Montreal Neurological Institute; Sylvain Vinet, CIBC; Ian Gerald, CIBC – Brain Canada Fellow; Dr. Vincent Castellucci, Brain Canada; Dr. Louis Collins, Montreal Neurological Institute.

# Platform Support Grants (PSGs)

Brain Canada has announced a call for expressions of interest for a new program that we are developing, Platform Support Grants. These grants will support major research platforms that provide national or regional technical capability to multiple neuroscience investigators from a number of institutions. Examples could include brain banks, clinical trials networks, imaging facilities, transgenic animal facilities, specialized high-throughput genomics facilities, drug discovery platforms, data repositories and data-sharing systems. The linking and coordination of existing local or regional facilities into a national resource or network is especially encouraged under this scheme, as is

the integration of Canadian resources into an international platform or consortium, as long as these actions improve its accessibility and utility to Canadian investigators.

Central to PSGs is the concept of added value, that is, Brain Canada's support must improve the operations of existing platforms so that research is facilitated and accelerated. The emphasis is not on creating new infrastructure, but on improving, upgrading, linking, and coordinating existing infrastructure so that it works better and/or is more widely accessible. PSGs are not intended merely to replace current sources of funding.

## Brain Repair Program

The Canada Brain Research Fund is based on the success of the Brain Repair Program, which was aimed at accelerating collaborative, multidisciplinary, multi-institutional brain repair research. This program enabled world-class Canadian researchers across the country to form highly focused teams, and to make a number of important breakthroughs. Each team of researchers received \$1.5 million over three years, plus an additional maximum of \$20,000 per year for networking activities. The grants provided vital support to our best and most promising scientists, allowing them to maximize the investments in infrastructure and salaries that have already been made by governments and private donors.

In total, five teams were funded. Through the first competition launched in 2003, three teams were funded and they completed their three-year grants in 2007. The second competition was launched in 2006 and two additional teams were selected for funding in 2007. They completed their three-year grants in 2009 and 2010. All five teams made major discoveries within the term of their grants:

- The use of stem cells from skin to repair central nervous system white matter, and in particular, to reverse the effects of acute and long-term spinal cord injury in animals;

- The discovery that the immune system plays a key role in chronic pain, which offers new opportunities to develop effective therapeutics;
- The development of drugs that can restore the normal brain function of people with psychiatric disorders, with no obvious side effect;
- The identification of new agents that protect the brain from injury, including ultraviolet radiation and Vitamin D; and
- Determining the role of the genes associated with developing Parkinson's.

One of the projects selected in the second competition was *Uncovering the causes of Parkinson's Disease*, led by Dr. Louis-Eric Trudeau at the Université de Montréal. When funding for this project ended in 2010, Dr. David Park, a member of the team, submitted a request to continue a key component of the project. The external review recommended that this project continue as it was assessed to have a high potential for breakthroughs. The Krembil Foundation, with matching funds from Brain Canada, is providing the team with three additional years of funding.

## BRAIN REPAIR PROGRAM

# Uncovering the causes of Parkinson's Disease



**Dr. David Park**  
University of Ottawa



**Dr. Ruth Slack**  
University of Ottawa



**Dr. Louis-Éric Trudeau**  
University of Montreal

Parkinson's disease (PD) is a common neurodegenerative disease, appearing usually in those over 50 years of age, with disabling symptoms of tremor and rigidity that make movement difficult. It has long been known that in PD there is a selective loss of neurons that make a chemical called dopamine, a chemical messenger released from neurons and used to communicate with other neurons. Dr. Park and his colleagues want to know what makes these neurons die. Certain types of PD run in families, and are associated with mutations in specific genes. The team will try to understand how dysfunction in three genes associated with PD (Pink1, Parkin, DJ-1) leads to this familial type of PD. While dysfunction of these genes is found in only a small proportion of all cases of PD, discovering how they function will help us understand what goes wrong in PD generally.

One promising lead is that these three genes seem to be involved in the function of the mitochondria, the cell's energy powerhouses. Maintaining the ability of mitochondria to produce energy is critical to the health of cells. In addition, proper mitochondrial function is essential for the release of dopamine. This work will likely reveal new drug candidates for treating PD. These must be tested first in an animal model that is as close as possible to human PD, and the team is developing an improved model.

This work deals with fundamental cellular mechanisms that are also disrupted in other devastating brain diseases such as Alzheimer's. Drs. Park, Slack and Trudeau expect that their discoveries will also help to identify new treatments for some of these other neurodegenerative brain diseases.

The team has made significant progress over the first year:

**1)** They have shown that deficiency of Pink1, a gene linked to familial PD leads to sensitization of dopamine expressing neurons to an environmental stress (the mitochondrial toxin MPTP). This work was published recently in *Journal of Biological Chemistry* (Haque et al., 2012).

**2)** They have shown that increased ROS (reactive oxygen species) leads to activation of the Pink1/Parkin pathway in neurons. They have also shown that loss of DJ-1, which is known to increase ROS production, leads to increased Pink1/Parkin activation. This work was published in *Human Molecular Genetics* (Joselin et al, 2012).

**3)** One important goal of this grant was to develop new novel ways of looking at dopaminergic loss and dysfunction. To this end, they generated a novel mouse model of PD by generating DJ-1 deficiency on a particular mouse background (C57Bl). This mouse shows early unilateral degeneration of the SNc neurons which also degenerate in human PD. This is the first progressive model of PD that has been described in mice and they will utilize these mice in further experiments. This work was recently published in *Proceedings of the National Academy of Sciences* (Rousseaux et al., 2012).

**4)** In their efforts to better understand the basic function of dopamine neurons, a cell population showing degeneration in PD, they discovered that some of them, in particular the dopamine neurons from the ventral tegmental area (VTA) that are spared in PD, express a vesicular glutamate transporter (VGLUT2)

and thus have the capacity to release glutamate as a second neurotransmitter. They have recently discovered that VGLUT2 expression contributes to the development and survival of dopamine neurons. This paper is now in press in the *Journal of Neuroscience* (Fortin et al., 2012). They are now extending this work to determine whether overexpression of VGLUT2 in dopamine neurons could represent a novel pro-survival therapeutic strategy. They used a viral vector to overexpress VGLUT2 in cultured dopamine neurons. They found that this increases the length of the axonal arborization. They are now evaluating the impact on cell death.

## Dr. Hubert van Tol Travel Fellowship

The neuroscience community lost a brilliant scientist when Dr. Hubert van Tol died suddenly in a bicycle accident on April 20, 2006. Dr. van Tol was an internationally recognized and respected neuroscientist who received numerous awards and greatly advanced the entire field of molecular neurobiology. To honour him, his family set up the Dr. Hubert van Tol Fund at Brain Canada, through which the Dr. Hubert van Tol Travel Fellowship was established. The fund has received more than \$30,000 in donations since it was established. The fellowship enables PhD students and postdoctoral fellows performing research as part of a Brain Canada funded team to attend major international conferences, symposia or training courses outside of Canada. This is consistent with Dr. van Tol's belief in the importance of international experiences.

In 2012, the recipient of the award was Dr. Jean-François Trempe, a post-doctoral student at McGill University. Dr. Trempe is working in the lab of Brain Repair Program team member Dr. Ted Fon. His main area of research is on the human gene parkin, whose mutations are known to cause a familial form of Parkinson's disease. The award enabled Dr. Trempe to attend the Keystone symposium on Ubiquitin Signaling, held in Whistler on March 18-23, 2012. By attending this conference, Dr. Trempe was made aware of several unpublished studies that will help further his own research and also received useful feedback on his work that will guide the direction of his future experiments. The 2012 Dr. Hubert van Tol Travel Fellowship was announced at a special dinner in Toronto on May 15<sup>th</sup>, 2012. Members of the Seger-van Tol family were present at the event for the announcement.

Brain Canada is honoured to be associated with the Dr. Hubert van Tol Travel Fellowship, through which we are recognizing Dr. van Tol's continued legacy. The

family and supporters of this fellowship would like to ensure that a total of ten annual awards are given, each valued at up to \$5,000.

## Barbara Turnbull Award for Spinal Cord Research

This award, in support of Canadian research on spinal cord injury, is funded by the Institute of Neurosciences, Mental Health and Addiction (INMHA) of the Canadian Institutes of Health Research (CIHR) in partnership with Brain Canada and the Barbara Turnbull Foundation, and is valued at \$50,000. The award recipient is judged, from among the CIHR-funded investigators each year, to be conducting the most promising and exciting research in this area.

The 2012 recipient of the Barbara Turnbull Award for Spinal Cord Research was Dr. Stephen Scott of Queen's University. Dr. Scott is a professor in the Department of Biomedical and Molecular Sciences at Queen's University. He is also a member of the Centre for Neuroscience Studies and the Canadian Institutes of Health Research Group in Sensory-Motor Systems. The award was presented to Dr. Scott at the 2013 Canadian Association for Neuroscience (CAN) annual meeting in Toronto on May 21<sup>st</sup>, 2013.

Dr. Scott and his research team focus on how feedback to the primary motor cortex, which is a key region in the brain for voluntary control, interacts with spinal activity. This will enable them to understand how sensory feedback from the limb (and vision) is essential while performing voluntary motor skills, such as reaching and grasping a cup or other objects in the world. This knowledge will also bring insights into the impact of neurological disorders, such as stroke, on brain function and motor performance.



From left to right: Astrid Eberhart, Director, Partnerships and Stakeholder Relations, Brain Canada; Dr. Anthony Phillips, Scientific Director, CIHR Institute of Neurosciences, Mental Health and Addiction; Dr. Stephen Scott, Professor, Department of Biomedical and Molecular Sciences, Queen's University; and Barbara Turnbull, Chair and President of the Barbara Turnbull Foundation. Dr. Scott is the recipient of 2012 Barbara Turnbull Award for Spinal Cord Research.



# Fundraising

With the launch of the Canada Brain Research Fund public-private partnership, Brain Canada has embarked on a \$100-million, national fundraising campaign. All funds raised from private and non-governmental sources over six years will be matched by Government on a 1:1 basis. Brain Canada will focus our efforts on major donors and partnerships. The fundraising total to date (towards the \$100-million campaign goal) is **\$22.5 million**.

Brain Canada encourages all organizations raising funds for brain research to either contribute directly to the fund and have their donor dollars matched, or to partner on research programs to further leverage the public-private match.

Brain Canada and the MS Society of Canada have confirmed a collaboration to raise a minimum of \$1 million (and secure equivalent matching dollars from the Canada Brain Research Fund). The resulting \$2 million will be designated to fund grants made by Brain Canada for research on neurodegeneration and/or progression in Multiple Sclerosis including its potential relevance to other neurodegenerative diseases.

Brain Canada has always taken pride in keeping non-research related expenses to the minimum required for operation efficiency and good governance. Brain Canada Directors have also made generous gifts to operations. Through these efforts, ninety percent of every dollar raised is disbursed directly to Canadian researchers.

## Partnership development

Partnerships are a central component of the Canada Brain Research Fund (CBRF) and Brain Canada is committed to working with funding partners with interests across the entire range of neurological diseases and injuries, mental illnesses and addictions. Numerous discussions with potential partners in Canada and internationally have been held since the launch of the CBRF in May, including federal granting councils, provincial agencies, universities and research institutes, hospitals, and voluntary health organizations in

Canada and the US. US outreach has included relevant institutions of the NIH and One Mind for Research, a public-private partnership co-Chaired by philanthropist Garen Staglin and Patrick Kennedy.

## Parlour dinners

Thanks to a generous contribution from the RBC Foundation, Brain Canada is organizing a series of intimate parlour meeting dinners to raise awareness about our work to promote Canadian brain research. The first dinner was held in Toronto on May 15<sup>th</sup>, 2012 and featured presentations by Drs. Michael Salter, Louis-Eric Trudeau and Ruth Slack, all members of research teams funded by Brain Canada. The dinner was co-chaired by Brain Canada Chair, Rupert Duchesne, and Jamie Anderson, Deputy Chairman, RBC Capital Markets.

The second dinner took place in Calgary on October 2<sup>nd</sup>, 2012. The keynote speaker was Dr. Bryan Kolb from the University of Lethbridge, whose topic was *Brain Development and its Implications for Health and Wellness Throughout Life*. The event was co-chaired by Rupert Duchesne and Bill Sembo, Vice Chairman, RBC Capital Markets.

The most recent dinner was held in Montreal on January 29<sup>th</sup>, 2013, and featured Dr. Michael Meaney from Douglas Mental Health University Institute/McGill University. His topic was *Why your DNA is not your destiny: how genes and environment interact*. The co-chairs were Rupert Duchesne and the Honourable Michael Fortier, PC, Vice Chairman, RBC Capital Markets. The final two events will be held in Vancouver on September 30<sup>th</sup> and in Halifax in the fall of 2013.

The RBC Foundation also provided funding to support media/communications training for researchers who will be giving presentations at the parlour meetings and in other venues. The training will focus on making complex science concepts accessible to broader audiences outside of the research community.

*"We are delighted that, since the launch of the Canada Brain Research Fund in May 2012, several visionary philanthropists have stepped forward and validated the public-private model and Brain Canada's research program. Brain Canada is committed to working closely with donors to build programs in neuroscience that are aimed at bringing the best minds together to focus on outcomes that will benefit people. We look forward to other philanthropists and organizations participating in this opportunity to double their donations while supporting world-class research on the brain."*

— Rupert Duchesne, Chair, Brain Canada

# Parlour dinners

These events were possible thanks to the generous support of the RBC Foundation



RBC Foundation  
RBC Fondation

## Calgary dinner - October 2<sup>nd</sup>, 2012



From left to right: Bruce MacKenzie, Bill Sembo, Allan R. Taylor



From left to right: Max S. Cynader, Franco J. Vaccarino, Rupert Duchesne



From left to right, standing: Bruce MacKenzie, Chen Fong, Bill Sembo, Allan R. Taylor. Seated: Vincent Castellucci, Ann McCaig, Inez Jabalpurwala, David Bissett



From left to right: Dan Goldowitz, Glenda MacQueen, Frank MacMaster



From left to right, standing: Rupert Duchesne, Nancy Mannix  
Seated: Judith Sale, Bryan Kolb, Michael Mahon, Mark Bisby



From left to right, standing: Saifa Koonar, W. David Angus, Glenda MacQueen. Seated: Jerry Koonar, Jaideep Bains, Jerilynn Daniels, Lili de Grandpré, Daniel Weeks



From left to right: Stacey Krembil, Bryan Kolb, David R. Kaplan, Mark Krembil



Max S. Cynader, Jaideep Bains

## Montreal dinner - January 29<sup>th</sup>, 2013



From left to right: Robert Levine, Rupert Duchesne, Hon. Michael Fortier, Janis Levine



From left to right: Astrid Eberhart, Max S. Cynader, Albert J. Aguayo



Hon. Michael Fortier, Louise Otis



Richard Ingram, Mark Bisby



From left to right: Louis-Eric Trudeau, Michael Meaney, Stacey Krembil, Mark Krembil



From left to right: Lili de Grandpré, Inez Jabalpurwala, Heather Munroe-Blum



From left to right: Janis Levine, Catherine Zahn, Louise Otis



From left to right: Pierre Drapeau, John Kalaska, Kathleen Cullen

## Stakeholder consultations

Brain Canada has undertaken a series of consultations with researchers, clinicians, patients/families (directly or through stakeholder organizations), philanthropists, and decision makers to help inform the research program of the Canada Brain Research Fund (CBRF). This project was made possible with a grant from the Max Bell Foundation. Through the consultation process, Brain Canada garnered feedback on the research program to ensure that the CBRF is directed to areas that will yield the greatest benefit for Canadians, and sought input on how best to disseminate research findings and ensure meaningful patient outcomes. Other objectives of the consultations included the identification and recruitment of champions for Brain Canada,

strengthening the links between Brain Canada and various stakeholders, and positioning Brain Canada as a voice for the brain that brings together the public, private and voluntary sectors.

The consultation schedule was as follows:

April 3 <sup>rd</sup> ,	2013:	Calgary
April 5 <sup>th</sup> ,	2013:	Vancouver
April 19 <sup>th</sup> ,	2013:	Toronto
April 24 <sup>th</sup> ,	2013:	Montreal
May 6 <sup>th</sup> ,	2013:	Halifax

# Thanks to our supporters across the country

We would like to gratefully acknowledge the following individuals, foundations and corporations.

## Canada Brain Research Fund donors Individuals and private Foundations

### Lead donors

The Chagnon Family - \$12.5 million  
The Azrieli Foundation - \$4.25 million  
The W. Garfield Weston Foundation - \$3 million  
The Krembil Foundation - \$1 million

### \$100,000 – \$249,000

The Max Bell Foundation  
The Jim Pattison Foundation  
The Rotman Family Foundation  
The Lawrence and Judith Tanenbaum Foundation

### \$50,000 – \$99,999

Michael H. Wilson

### \$25,000 – \$49,999

Rupert Duchesne  
Marianne Seger  
Allan R. and Shirley Taylor

### \$10,000 – \$24,999

The Ira Gluskin & Maxine Granovsky Gluskin Charitable Foundation  
The Hon. John and Mrs. Joan MacKenzie  
The Barbara Turnbull Foundation

## Corporations

### \$500,000

Bell Canada  
CIBC

### \$200,000

National Bank of Canada

### \$100,000

Power Corporation of Canada  
RBC Foundation

## Gifts were made to honour

Diana Murphy  
Déric Pronovost  
Virginia Zarate de Baksh

# Board of Directors

In May 2012, Senator W. David Angus, retired Senior Partner, Stikeman Elliott (Montreal) was elected a Director.

In October 2012, Dr. Catherine Zahn, President and CEO, Centre for Addiction and Mental Health (Toronto) was elected a Director.

In 2012, the Research Policy Committee of the Board was established, chaired by Dr. Franco J. Vaccarino. Members are: Dr. Vincent Castellucci, Dr. Max S. Cynader, Dr. David R. Kaplan, and Mr. Mark Krembil.

## Honourary Chair

**Michael H. Wilson, P.C., C.C.**

Chairman  
Barclays Canada (Toronto)

## Chair

**Rupert Duchesne**

*Chair, Executive Committee*  
Group Chief Executive  
AIMIA Inc. (Montreal)

**Sen. W. David Angus, Q.C.**

Retired Senior Partner, Stikeman Elliott  
(Montreal)

**Vincent Castellucci, Ph.D.**

Professor Emeritus, Faculty of Medicine  
Université de Montréal (Montreal)

**Marcel Côté**

Strategic Advisor  
KPMG - Secor (Montreal)

**Max S. Cynader, C.M., O.B.C., Ph.D., FRSC, FCAHS**

Director of the Brain Research Centre  
Vancouver Coastal Health Research Institute  
and University of British Columbia (Vancouver)

**Lili de Grandpré**

Managing Director  
CenCEO Consulting (Montreal)

**Inez Jabalpurwala**

President and CEO  
NeuroScience Canada Partnership  
and Brain Canada Foundation (Montreal)

**David R. Kaplan, Ph.D.**

Senior Scientist, Cell Biology Program,  
Hospital for Sick Children;  
Canada Research Chair in Cancer and Neuroscience;  
Professor, Department of Molecular Genetics,  
University of Toronto (Toronto)

**Mark Krembil**

*Chair, Audit, Finance and Investment Committee*  
President  
The Krembil Foundation (Toronto)

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Chairman and CEO, H. Y. Louie Limited;  
Chairman of the Board, London Drugs Limited (Vancouver)

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Retired partner,  
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**Allan R. Taylor, O.C.**

*Chair, Governance, Nominating and Ethics Committee*  
Retired Chairman and CEO  
Royal Bank of Canada (Toronto)

**Franco J. Vaccarino, Ph.D.**

*Chair, Research Policy Committee*  
Principal  
University of Toronto Scarborough;  
Vice-President, University of Toronto (Toronto)

**Catherine Zahn, M.D., F.R.C.P.(C), M.HSc**

President and CEO  
Centre for Addiction and Mental Health (Toronto)

## Honourary Members

**Albert J. Aguayo, O.C., M.D., FRSC**

Emeritus Professor, and Former Director,  
Centre for Research in Neuroscience, McGill University,  
Montreal General Hospital Research Institute (Montreal)

**Rick Hansen, C.C., O.B.C.**

President and CEO  
Rick Hansen Man in Motion Foundation  
and Rick Hansen Institute (Vancouver)

**Ronald N. Mannix, O.C.**

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Professor Emeritus of Physiology  
and Neuroscience  
Centre for Neuroscience  
University of Alberta (Edmonton)

**Barbara Turnbull**

President, The Barbara Turnbull Foundation  
for Spinal Cord Research (Toronto)

**Dave Williams, M. D.**

Canadian Astronaut;  
President and CEO  
Southlake Regional Health Centre (Newmarket)

# Science Advisory Council

In early 2012, Brain Canada's Science Advisory Council was reconstituted to include a balanced representation of active, leading researchers who have knowledge about the current research needs, latest advances, and areas of future promise, as well as access to networks that will be important to engage and keep informed. The SAC provided key input on the development of the Canada Brain Research Fund programs. In 2013, the research programs had been developed and the Board of Directors established a permanent Board committee, the Research Policy Committee, and moved to dissolve the SAC and International Science Advisory Council, and establish a combined Canadian and international committee, the Science Advisory Forum. The mandate and membership of this new advisory platform are currently being developed.

**David R. Kaplan, Ph.D. - Co-Chair**

Senior Scientist, Cell Biology Program  
The Hospital for Sick Children

**Yves De Koninck, Ph.D. - Co-Chair**

Past-President, Canadian Association for Neuroscience;  
Professor of Psychiatry & Neuroscience, Laval University;  
Director, Div. of Cellular & Molecular Neuroscience,  
Quebec Mental Health Institute

**Paul Albert, Ph.D.**

Senior Scientist  
Associate Director Neuroscience Program  
Ottawa Hospital Research Institute;

**Jaideep Bains, Ph.D.**

Professor, Dept. of Physiology and Pharmacology  
Faculty of Medicine  
University of Calgary

**Phil Barker, Ph.D.**

Professor, James McGill Scholar  
and FRSQ Chercheur National  
Montreal Neurological Institute and Hospital  
McGill University

**Robert M. Brownstone, M.D.; Ph.D.**

Assistant Dean, Research - Clinical Departments  
Faculty of Medicine  
Dalhousie University

**Kathleen Cullen, Ph.D.**

Professor  
Department of Physiology  
McGill University

**Sam David, Ph.D.**

President, Canadian Association for Neuroscience  
Centre for Research in Neuroscience  
Montreal General Hospital  
McGill University Health Centre

**Karen Davis, Ph.D.**

Head  
Division of Brain, Imaging & Behaviour Systems  
Toronto Western Research Institute (TWRI)  
Toronto Western Hospital

**Pierre Drapeau, Ph.D.**

Director, Department of Pathology and Cell Biology  
Université de Montréal

**Melvyn A. Goodale, Ph.D.**

Canada Research Chair in Visual Neuroscience  
Director, The Brain and Mind Institute  
Department of Psychology  
Western University

**John Kalaska, Ph.D.**

Professor of Physiology  
Faculty of Medicine  
University of Montreal

**Marco Leyton, Ph.D.**

President  
Canadian College of Psychopharmacology  
William Dawson Chair  
Department of Psychiatry  
McGill University

**André Longtin, Ph.D.**

Director, Center for Neural Dynamics  
Physics Department  
University of Ottawa

**Brian MacVicar, Ph.D.**

Brain Research Centre  
Department of Psychiatry  
University of British Columbia

**Freda Miller, Ph.D.**

Senior Scientist  
Developmental & Stem Cell Biology  
The Hospital for Sick Children

**Doug Munoz, Ph.D.**

Director, Centre for Neuroscience Studies  
Queen's University

**Lynn A. Raymond, Ph.D.**

Professor, Department of Psychiatry  
Director, MD/PhD Program  
Kinsmen Laboratory of Neurological Research  
University of British Columbia

**Michael Salter, M.D., Ph.D.**

Head and Senior Scientist  
Neurosciences & Mental Health  
The Hospital for Sick Children

# International Science Advisory Council

**Albert J. Aguayo, OC, M.D., FRSC**  
Emeritus Professor, and Former Director  
Centre for Research in Neuroscience  
McGill University  
Montreal General Hospital Research Institute  
(Montreal, Quebec)

**Larry Benowitz, Ph.D.**  
Director  
Laboratories for Neuroscience  
Research in Neurosurgery  
Children's Hospital Boston  
(Boston, Massachusetts)

**Gary E. Landreth, Ph.D.**  
Professor of Neurosciences  
and Neurology;  
Director, Alzheimer Research Laboratory  
Case Western Reserve University  
School of Medicine  
(Cleveland, Ohio)

**Lorne M. Mendell, Ph.D.**  
Distinguished Professor  
Department of Neurobiology and Behavior  
State University of New York at Stony Brook  
(Stony Brook, New York)

**Alain Privat, M.D., Ph.D.**  
Director, Spinal Cord Team  
Institut National de la Santé et  
de la Recherche Médicale (INSERM)  
(Montpellier, France)

**Peter R. Rapp, Ph.D.**  
Senior Investigator  
Chief, Laboratory of Experimental Gerontology  
National Institute on Aging  
(Baltimore, Maryland)

**Scott R. Whittemore, Ph.D.**  
Professor and Vice-Chair for Research  
Department of Neurological Surgery;  
Henry D. Garretson Endowed Chair in  
Spinal Cord Injury Research;  
Scientific Director  
Kentucky Spinal Cord Injury Research Center  
University of Louisville School of Medicine  
(Louisville, Kentucky)

# Partnership and Foundation Financial Report

## NeuroScience Canada Partnership Brain Canada Foundation

Combined Financial Statements

At December 31	2012 \$	2011 \$	For the year ended December 31	2012 \$	2011 \$
<b>ASSETS</b>			<b>REVENUES</b>		
<b>Current Assets</b>			Contributions		
Cash and cash equivalents	14 786 452	99 923	Less deferred amount	3 512 447	688 005
Short term investments	10 513 287	290 000		(1 998 767)	(302 445)
Other receivables	58 261	19 871		1 513 680	385 560
Prepays and deposits	74 191	48 554	Other contributions	24 315	24 370
	25 432 191	458 348		1 537 995	409 930
Computer equipment	7 068	1 858	Interest income	4 006	863
Investments	-	128 571		<b>1 542 001</b>	<b>410 793</b>
	<b>25 439 259</b>	<b>588 777</b>			
<b>LIABILITIES</b>			<b>EXPENDITURES</b>		
<b>Current liabilities</b>			Grants and awards		
Accounts payable and accrued liabilities	152 926	22 449	Operating expenses	452 115	78 513
Salaries and bonus payable	77 033	-	Amortization	1 088 124	427 994
Deferred contributions	2 288 992	330 225		1 921	706
	2 518 951	352 674		1 542 160	507 213
<b>Non-current liabilities</b>			Unrealized loss from investments	(128 571)	(59 340)
Deferred contributions	22 812 935	-	Excess of expenditures over revenues	<b>(128 730)</b>	<b>(155 760)</b>
<b>NET ASSETS</b>					
Unrestricted net assets	100 305	234 245	The financial statements of NeuroScience Canada Partnership and Brain Canada Foundation are audited by KPMG LLP and are available upon request.		
Invested in computer equipment	7 068	1 858			
	107 373	236 103			
	<b>25 439 259</b>	<b>588 777</b>			