Canadian Cancer Society / Société canadienne du cancer

Fondation Brain Canada Foundation
with financial support from Health Canada
avec le soutien financier de Santé Canada

For release on February 28th, 2017

NEWS RELEASE

The Canadian Cancer Society and Brain Canada fund six new research projects

Montreal, February 28th, 2017. The Canadian Cancer Society and Brain Canada (with financial support from Health Canada through the Canada Brain Research Fund) are proud to announce the funding of six new multi-disciplinary and multi-institutional research projects under the CCS' Innovation, Innovation to Impact and Impact grant competitions. The partners will award a total of almost $2.5M to six research teams to support innovative and creative problem solving, as well as significant progression, in brain and spinal cord cancer research.

Based in Ontario and Saskatchewan, the six distinguished research teams totalling 20 researchers will develop new diagnostic tools, including more effective imaging techniques, and new therapies for brain and spinal cord cancer.

"The partnership between the Canadian Cancer Society and Brain Canada encourages collaboration between scientists from both the cancer and brain research fields. The projects selected through this program have the potential to advance our understanding of brain cancer, and ultimately improve the quality of life and treatment of people affected by brain cancer," said Inez Jabalpurwala, President and CEO of the Brain Canada Foundation.

"There is a critical need for more research in brain cancer. We are very grateful for our partnership with Brain Canada, as well as our generous donors, to enable Canadian scientists to make significant contributions to improving diagnosis and treatment of brain cancer," said Dr. Michael Wortzman, Assistant Director, Research Programs from the Canadian Cancer Society.

Brain Canada funds are provided through a public-private partnership with Health Canada, known as the Canada Brain Research Fund.

Six projects for brain cancer in Canada

Quantitative MRI as a biomarker of tumour resistance to radiation treatment in brain metastasis
Greg Stanisz *(Sunnybrook Hospital), Arjun Sahgal, Hany Soliman and Kim Desmond (Odette Cancer Centre – Sunnybrook Health Sciences Centre, and Hatef Mehrabian and Angus Lau (Sunnybrook Research Institute)*
$441,000 over three years

Cancer that has spread to the brain can be treated with targeted high-dose radiation. However, it is difficult to tell early on if the tumour is responding to therapy. With the support of an Innovation Grant, Dr. Greg Stanisz' team showed that new medical resonance imaging (MRI) techniques could detect tumour response as early as one week after treatment. The team will now extend these MRI studies to differentiate between tumour progression and radiation side effects, which can look similar in medical scans but require very different treatments. These new techniques may help doctors adjust and improve treatment plans.

The feasibility of hyperpolarized 13C-Pyruvate MRI for monitoring patients with intracranial metastasis
Charles Cunningham *(Sunnybrook Research Institute), Arjun Saghal and Hany Soliman (Odette Cancer Centre – Sunnybrook Health Sciences Centre), and Michael Chan (Sunnybrook Health Sciences Centre)*
$187,915 over three years

Surgery and radiation are standard treatments for cancer that has spread to the brain. Recent research has revealed that cancer cells with high levels of the chemical lactate are aggressive and resist radiation therapy. Dr. Charles Cunningham's team will study whether an enhanced imaging method that can detect lactate can help predict how cancer in the brain will behave. They will compare it to other routine imaging techniques used to assess people affected by brain cancer before brain radiation therapy. This new method may help tailor treatment plans to prolong survival.

Integrative discovery of ion channels as drug targets in glioblastoma
Jüri Reimand *(Ontario Institute for Cancer Research) and Xi Huang (Sick Kids Research Institute)*
$196,000 over two years

Many different diseases are treated with drugs that act on tunnels that pass through the cell's surface and allow it to generate electrical signals. So far, these channels have not been the target of cancer drugs. Dr. Jüri Reimand's team will identify which channels are abnormal in cancer and can be targeted with drugs currently used to treat other diseases. They will then study the role of these channels in glioblastoma – an aggressive form of brain cancer – and test promising drugs in the lab. This could rapidly lead to new therapeutic options for hard to treat brain cancer.

Molecular characterization of transcriptional repressor capicua in GBM
Kenneth Aldape *and Severa Bunda (Princess Margaret Cancer Centre – UHN)*
$196,000 over two years

The capicua (CIC) protein acts as a brake on cell growth in normal cells. This brake is often lost in glioblastoma, an aggressive form of brain cancer, but little else is known about its role in cancer. Dr. Kenneth Aldape's team will study the impact of CIC loss in glioblastoma and whether this can cause resistance to therapies that have so far had disappointing results in people affected by brain cancer. Understanding these new aspects of brain cancer biology will help researchers develop new treatments for these hard to treat tumours.

Using synthetic antibody parts to construct antibody-based imaging devices – anti-EGFR molecular targeted imaging probes for diagnosing and monitoring glioblastoma
Clarence Geyer *and Humphrey Fonge (University of Saskatchewan), and Vijayananda Kundapur (Saskatchewan Cancer Agency – Saskatoon Cancer Centre)*
$195,968 over two years

Diagnostic features of glioblastoma, an aggressive form of brain cancer, are difficult to visualize using standard medical imaging techniques. Given that glioblastoma cells display high levels of the EGFR protein on their surface, Dr. Clarence Geyer's team will generate new imaging molecules that can detect EGFR in glioblastoma and display it on a positron emission tomography (PET) scan. These imaging tools could be used to improve glioblastoma detection and diagnosis and to guide surgery.

Advancing biology based therapies for rhabdoid brain tumours
***Annie Huang**, James Rutka and Eric Bouffet (The Hospital for Sick Children), Cheryl Arrowsmith (University of Toronto), and Daniel De Carvalho (Princess Margaret Cancer Centre - UHN)*
$1,214,047 over five years

Rhabdoid brain tumours are the most common brain cancers in infants. Usually these aggressive tumours are treated with intense chemotherapy and radiation therapy, which can have serious side effects. Dr. Annie Huang's team found that these brain tumours come in 2 forms, including one that can be cured using chemotherapy alone. Her team will now develop a test to distinguish between the 2 forms. She will also determine which drugs are the most effective against each form of the cancer in the lab. This will form the foundation for a clinical trial of personalized treatments.

About the Canadian Cancer Society
The Canadian Cancer Society is the largest national charitable funder of cancer research in Canada. Thanks to our generous donors and our rigorous, gold-standard peer-review process, we are funding hundreds of researchers in universities, hospitals and research centres across Canada. The Society has the most impact, against the most cancers, in the most communities in Canada. Together we are discovering new ways to change cancer forever. For more information, visit *www.cancer.ca or call our toll-free bilingual Cancer Information Service at 1-888-939-3333 (TTY 1-866-786-3934).*

About Brain Canada and the Canada Brain Research Fund
Brain Canada is a national non-profit organization headquartered in Montreal, Quebec, that enables and supports transformative, original and outstanding 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 neurological disorders, mental illnesses and addictions, brain and spinal cord injuries. Looking at the brain as one system has underscored the need for increased collaboration across disciplines and institutions, and a smarter way to invest in brain research that is focused on outcomes that will benefit people with lived experience and families. Brain Canada's vision is to understand the brain, in health and illness, to improve lives and achieve societal impact.

The Canada Brain Research Fund is a public-private partnership established between Brain Canada and Health Canada to encourage Canadians to increase their support of brain research, and maximize the impact and efficiency of those investments. Brain Canada is raising $120 million from private and non-federal sources, which is being matched by the Government of Canada on a 1:1 basis. The Fund supports "the very best Canadian neuroscience, fostering collaborative research and accelerating the pace of discovery, in order to improve the health and quality of life of Canadians who suffer from brain disorders." For more information: www.braincanada.ca.

The views expressed herein do not necessarily represent the views of Health Canada.

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