



## Sections +

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## Q&A: Brain Canada and Canadian Neuroscience Funding



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**Canada has invested significant resources into efforts to increase understanding of the brain and nervous system. What are the key strategic reasons for the investment and what are the primary objectives?**

In 2006, Brain Canada (then NeuroScience Canada) published *The Case for Canada's Increased Investment in Neuroscience Research*. The purpose was to provide the rationale for considering the more than 1,000 neurological diseases, mental illnesses, and brain injuries as one grouping of brain disorders and to calculate their collective impact. Brain disorders account for about 38 percent of the burden of disease, which is greater than cancer (at 12.7 percent) and cardiovascular disease (at 11.8 percent) combined. Brain disorders directly impact 1 in 3 Canadians, as well as their families and caregivers, and are the leading cause of disability and the major health challenge of our time.

*The Case* provided the basis to rally the research community, disease-focused brain charities, and other

organizations working in this area, and resulted in a call to action to governments and to the philanthropic community to increase funding for brain research to a level proportionate to the burden of disease. In addition, Canada has been a leader in this field, but funding has fallen below what is needed to fully optimize our research capacity.

In 2011, Brain Canada successfully advocated for a dedicated fund to support Canada's excellent and innovative brain research. The government of Canada established the Canada Brain Research Fund, a public-private partnership through which government is matching all funds raised by Brain Canada and its partners on a 1:1 basis, up to \$100 million over a six-year period. By the fall of 2015, Brain Canada had reached its goal and, with the government match, created a \$200 million fund for Canadian brain research. To date, more than two-thirds of the Canada Brain Research Fund has been committed to multidisciplinary team grants, operating support for research platforms, and training and mentorship. The operating funding for platforms has been a real innovation and particularly well received by the community: These fill a funding gap for operations and maintenance of major research platforms that provide national or regional technical capability to multiple neuroscience investigators from a number of institutions.

The Canada Brain Research Fund is well-aligned with Brain Canada's mission: to increase the scale and scope of funding to accelerate the pace of Canadian brain research; to create a collective commitment to brain research across the public, private and voluntary sectors; and to deliver transformative, original, and outstanding research programs.

**How do you see strategic investments such as this one supporting basic science in ways that move the field forward?**

Brain Canada seeks to accelerate research advances at all stages in the process, from basic science through population health. All parts of the process are critical, and Brain Canada complements the operating funding provided by the Canadian Institutes of Health Research to labs across the country, as well as the funding provided by health charities and other funders. It is sometimes difficult to make the case for more funding for basic research when those living with the direct and indirect impacts of brain disorders want funding to focus primarily on the translation of discoveries into new or improved diagnostics, prevention measures, treatments, and ultimately cures. But without the pipeline of discovery research, we will not reach these outcomes. Moreover, many diseases share common underlying mechanisms, and funding science to understand the basic mechanisms of brain function will bring the insights that will lead to improved understanding of diseases.

In addition to the "one system" approach to research, Brain Canada's team funding programs harness the collaborative spirit of Canadian research: scientists from different fields and disciplines working with common purpose. The organization also fosters collaboration between academia and industry, and academia and the clinic. This is needed to address the complexity of the brain and brain diseases.

**What are some of the key challenges and opportunities presented by this initiative?**

Because the Canada Brain Research Fund is at an arm's length from the government, Canadian government

has not imposed predetermined priorities. Brain Canada selects grants for funding based on merit only: the outcome of international peer review. The organization rewards excellence and innovation and is able to take more risk to fund high-potential ideas, with rigorous annual reviews of progress against agreed-upon milestones.

The matching model of the Canada Brain Research Fund (\$1 government spending for each \$1 of nongovernmental funding) provides donors and partners with the opportunity to determine priority areas of focus for investment. What gets funded is at the intersection of donor and partner interest and Canadian researchers proposing their best ideas. However, this means that there is less space for purely open competitions and sometimes leads to a greater focus on diseases (which is often the reason for a major donor's commitment or the mandate of a disease-focused charity). It would be beneficial to the brain research community to also have some funding available for purely open competitions, without a matching fund requirement. It is hoped that initiatives in other countries that focus on connectomes, big data, and open science, for example, will help drive donor and partner interest in investing in understanding the brain more broadly.

Ultimately, the major challenge for the Canada Brain Research Fund is sustainability. It will be important to showcase to government the tremendous momentum that has been achieved thus far and that Brain Canada has been a driving force for Canadian brain research. The Canada Brain Research Fund is now a critical source of funding in an area that continues to be underfunded — and at a time when there is so much promise for major breakthroughs.

### **How will Canada's efforts complement the work of other large-scale brain projects being undertaken in countries around the world?**

Scientists in Canada have long collaborated with colleagues around the world (and in fact, the brain science community is a global community addressing a global challenge). What is needed is a way to ensure that countries enable these collaborations to continue and to grow. A key challenge is to link the priorities of different countries into a matrix of brain research funding that benefits society as a whole. The large-scale projects promote a top-down approach to facilitating brain research, but at the same time, we require mechanisms that also support and promote bottom-up collaborative research from small labs in different countries developing new collaborations.

No single country has all the resources, and there is a move toward a more coordinated effort to recognize the areas where each country can uniquely (or most strongly) contribute, and to work toward shared goals and common purpose. The U.S. BRAIN Initiative and the European Human Brain Project, for example, will no doubt provide data, tools, and technologies to move the whole field forward and therefore benefit researchers around the world. A national strategy on brain health in Canada that is developed in conjunction with other international efforts would be the best way forward.

### **How do you describe to public audiences the importance of Canada's investment in this area, and why they should support it?**

Much of the messaging goes back to *The Case for Canada's Increased Investment in Neuroscience Research*. Although published a decade ago, the burden-of-disease estimates still hold true, although there is now much more attention on mental illness, on diseases that will become more prevalent as the population ages, and on brain injury.

There is a need to more clearly articulate to the public how research advances contribute to health. Brain research has accelerated and now informs health care systems, such as the development of healthy aging protocols. Additional work needs to be done in areas such as informing education systems and child development.

There is hope and excitement about the major brain initiatives underway and the advances in technology that are creating new tools for researchers. With timely investments, Canadian scientists will continue to make major contributions to understanding the brain — the greatest mystery of human science — and to promoting brain health.

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