

# CANADIAN BRAIN RESEARCH STRATEGY

## Strategic Planning Meeting

11:00AM – 2:00PM PDT / 1:00 – 3:00PM EDT, Tuesday, June 29, Via Zoom



## Executive Summary

On June 29<sup>th</sup>, a strategic planning meeting was organized by the CBRS Secretariat with the aim to unite and translate the vision for a national brain research strategy into action. The meeting, held virtually over Zoom, was well attended, with almost 50 participants from our Conference of Neuroscience Leaders, cluster of early career researchers (ECR), members of our Indigenous Knowledge Holders Group, representatives of patients and people with lived experience (PWLE), and including meeting facilitators.

The meeting identified six Transformative Initiatives that represent the guiding values of a collaborative, transdisciplinary, and open approach to brain research that allows Canada to be a leader and role model on the international stage. Nominated Champions of each Transformative Initiative gave a brief presentation and remit on the topic followed by two rounds of small group discussions and reporting back to the plenary.

The resultant collective national vision for brain research and societal impact will be fleshed in the production of position papers from each respective task force. Research Leaders oversee the delivery of information to their respective constituents and will keep them fully apprised to ensure diverse representation in all CBRS activities. Tangible next steps in building consensus across sectors include continued group and one-on-one outreach to key stakeholders including Indigenous Peoples, patients and PWLE, and research funders across the country.

## Opening Remarks – Jennie Z. Young

Over the course of multiple past meetings, we have convened neuroscience and mental health leaders as well as early career researchers (ECRs), Indigenous Peoples, people with lived experience, and various other stakeholders in a series of meetings to build consensus on how best to leverage Canada's strength in brain research. Main themes have arisen that were common among all groups and represent Canada's distinctive **collaborative, transdisciplinary** and **open** approach to brain research. The insights and values brought forth have formed the basis of the transformative initiatives, that we will discuss today, as a means of translating our vision into strategic action. There is alignment in our shared values, and common interest in bringing together these sectors in a uniquely collaborative effort that will push the frontiers of brain science for the benefit of all Canadians.

The aim for our meeting today will be to recap our progress thus far, to unite under a collective vision, and to determine actionable next steps for each transformative initiative around these themes. At the end of the day, we will have a clear understanding of the unique value proposition of CBRS, a common plan to build a national strategy for brain research, and importantly, an understanding of how you and your constituents can be involved.

## CBRS History/Recap – Yves De Koninck

CBRS is a grassroots organization started by scientists, with our Conference of Neuroscience Leaders that is comprised of the heads of more than 30 of Canada's neuroscience and mental health research institutions. The overarching aim of the CBRS is to unite not just the scientists, but to play the role of conveners and facilitators in bringing in the diverse neuroscience ecosystem - brain initiatives, projects, public and private funders, communities, and patient organizations – towards the common goal to make brain research a national priority.

**Mission:** To build on Canada's strengths and current investments in neuroscience to transform neurological and mental health for Canadians.

**Vision:** Innovative and collaborative brain science driving policy, social, health and economic advancement for Canada and the world.

**Objective:** The CBRS is not seeking to become a parallel funding stream, but rather to inspire decision makers and funders to invest in a major brain research initiative for Canada, to further build programs that foster collaborative, transdisciplinary and open approaches to move Canada toward a big-science model for brain research.

CBRS aims to forge a vision for a big science approach in Canada. We have, through several meetings, forged a vision with the 4 pillars and a blue-sky question that distinguishes the human brain. We set up our vision originally to build on Canada's enormous strength in neuroscience and mental health to find an innovative and collaborative path for brain science to drive every facet towards a neuroscience-driven nation.

We have had a lot of consensus in our discussion around our enabling principles:

*Collaborative*

*Transdisciplinary*

*Open*

These have been the founding principles we have all agreed on – ways in which Canada uniquely contributes to global neuroscience and mental health research today - and in discussion with constituents and stakeholders (including, as you'll hear later from Caroline Ménard, early career researchers), it remains a general consensus. As I have impressed on all of you, we aren't looking for a research area to focus on within neuroscience, but Canada as a model of **how** to conduct neuroscience.

So, in the last 2 months, we conceived 6 task forces centered around a grand challenge of bridging the scales of complexity across brain, behaviour and society. In order to grasp a more complete understanding of the brain, we need to translate and collaborate across silos.

Together with our secretariat, we have convened today our leadership: the Conference of Neuroscience Leaders, Indigenous Knowledges Holders Group leaders, representatives from Early Career Researchers, and patient representatives. To move forward our work on these initiative, task forces will be formed to work on position papers that will form the basis of a national strategy for brain research as we present it to decision makers.

CBRS aims to inspire investment, rather than becoming a parallel funding stream. When meeting with other agencies - be they initiatives, funders, or other stakeholders - we are positioned as a neutral third party, which is a powerful position to be as an interlocuter and convener.

## **Presentations from Important Voices** – Caroline Ménard, Chelsea Gable, Deanna Groetzinger

Presentations were given by representatives of groups whose insights and considerations are critical to the development of a robust and equitable national strategy. Incorporating the voices of Early Career researchers, Indigenous Knowledge Holder's and Patient Representatives will serve to strengthen the foundations of our strategy and ensure that it meets Canada's current and future needs in the neurosciences and mental health.

We heard from Caroline Ménard as the representative for *Early Career Researchers*, who highlighted the highest priorities for ECRs: collaboration, transdisciplinarity, and training. This was published recently in Can J Neurol Sci. ([doi: 10.1017/cjn.2021.81](https://doi.org/10.1017/cjn.2021.81)).

We heard from Chelsea Gabel as the representative for the recently formed *Indigenous Knowledges Holder's* Group, who reported on the outcomes on the Indigenous Initiatives Workshop that CBRS recently held.

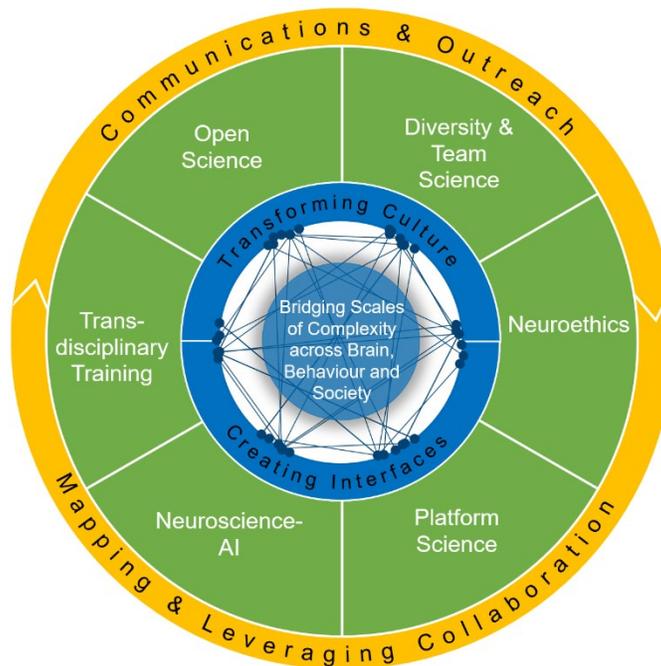
And finally, we heard from Deanna Groetzinger as a member of *Patient Representatives*, who outlined how the CBRS will continue to engage the voices of patients and people with lived experience, and relevant stakeholders as we progress in building our initiatives.

## Transformative Initiatives – Jennie Z. Young

We have research excellence in many areas and topics, but it's really *how* we approach research that sets us apart, and enables us be world leaders in neuroscience and mental health research despite having a relatively fewer people and funding resources. A number of themes have arisen that represent Canada's trademark collaborative, transdisciplinary, and open approach to brain research. They allow us to be a leader and role model on the international stage. They have the potential to transform neuroscience and mental health research as they are able to bridge the scales of complexity across the brain, behavior, and society.

We will be exploring 6 Transformative initiatives today that represent these themes: open science, diversity & team science, neuroethics, platform science, neuroscience-AI interface, and transdisciplinary training & career development. They can be largely grouped into ways in which we are transforming research culture, and creating new interfaces.

Supporting our work in these initiatives are foundational infrastructure pieces of communications and outreach and mapping & leveraging collaboration. There is a lot that we can achieve together and a lot of commonalities that we can bring out to have a louder unified voice. Neuroscience and mental health research deserve to have much higher visibility in this country.



We next had small presentations from each nominated champion on their initiative, addressing why this approach is necessary to transform the field, why it is critical for neuroscience, and how it is an opportunity for Canada to lead. Following these presentations, all attendees were split into breakout groups to further explore these initiatives with the goal of determining what is needed to advance brain research through each initiative.

## Platform Science – Yves De Koninck

Description: Distributed national infrastructure is needed to break down geographic and institutional barriers to developing and disseminating new brain research tools, technologies and methods. Beyond providing access to shared tools, these platforms will be dynamic, collaborative hubs that connect technology developers, testers and users, to accelerate the development and open dissemination of new tools.

### **Transdisciplinary Training** – Caroline Ménard

Description: Now more than ever, breakthroughs in neuroscience depend on the combined efforts of scientists from many fields. To make breakthrough discoveries, Canada needs to equip a new generation of scientists to do transdisciplinary neuroscience and mental health research.

### **Diversity & Team Science** – Lisa Saksida

Description: Equity, diversity and inclusivity (EDI) best practices strengthen the validity and impact of scientific research and are integral to innovation and scientific excellence. A data-driven approach is needed to identify and implement best practices in EDI, at all levels of career progression, in research teams and in research design.

### **Neuroethics** – Judy Illes

Description: Canadian neuroethicists provide global leadership in aligning ethical, social, legal and policy considerations with advances in neuroscience. Canada's neuroethics programs span neurodevelopmental disorders, neurodegenerative disease, traumatic brain injury, regenerative medicine, mental health, and addiction, and the intersections of these conditions with research, Canadian healthcare and policy, commercialization, and online health information.

### **Neuroscience-AI Interface** – Karim Jerbi

Description: A few years ago, the human brain served as the inspiration for building the first synthetic neural networks, one of the types of artificial intelligence (AI). Now AI is generating new knowledge that is consolidating our understanding of how the brain works—knowledge that in turn is proving useful for improving AI. Bringing together AI and neuroscience promises to yield benefits for both fields.

### **Open Science** – Guy Rouleau

Description: There is growing recognition across the health sciences that sharing of scientific research and healthcare data can dramatically accelerate research progress. The importance and opportunities of an open science approach are particularly recognized in the neurosciences, where data are collected across multiple levels of analysis and the most interesting insights come from combined analyses of these multivariate data sets. Canada has already demonstrated leadership in the international open science movement.

### **Closing Remarks & Next Steps** – Jennie Z. Young

The conversations that arose from today's groups are truly inspiring. Our accomplishments in this meeting and the wealth of ideas brought forward are indicative of the strength of our collaboration in Canada. We will flesh out this collective vision for brain research and societal impact as we produce a position paper from each of our respective transformative initiative. Each position paper task force will include early career researchers, as well as patient representatives and Indigenous knowledges holders.

The collaborative spirit is not only what we envision for Canadian brain research, but also how we will work together to advance brain research as a national priority. We have sought and will continue to seek collaboration across disciplines, sectors, and importantly, communities - including patient representatives and Indigenous knowledges holders, as we build a national strategy for brain research. The impact of our activities will be further amplified by creating synergies with neuroscience and mental health research funders and supporters across the country.

We will briefly touch on next steps: Through this meeting, you have gained a clear idea of what CBRS is, our goals, what we are going to do and how they can be involved. Neuroscience Leaders have committed to sharing the emerging strategy with their respective constituents and will keep them fully apprised to ensure diverse representation in all CBRS activities, including in the position paper task forces.

The collective brainpower we managed to assemble is simply astounding, thank you all for your input and contributions to our vision of what neuroscience can be.

### **List of Meeting Participants**

#### **Conference of Neuroscience Leaders**

Alan Evans (Canadian Open Neuroscience Platform, Healthy Brains for Healthy Lives CFREF, McGill University)  
Allison Sekuler (Rotman Research Institute, Baycrest, Centre for Aging + Brain Health Innovation)\*  
André Longtin (University of Ottawa)  
Aristotle Voineskos (The Centre for Addiction and Mental Health)  
Arlette Kolta (University of Montreal)  
Charles Bourque (Canadian Association for Neuroscience, McGill)  
Chris Anderson (University of Manitoba, Manitoba Neuroscience Network)  
David Park (University of Calgary)  
Donald Weaver (Krembil Brain Institute, University Health Network)\*  
Doug Crawford (Vision: Science to Applications CFREF, York University)  
Doug Munoz (Queen's University)  
Doug Zochodne (University of Alberta)  
Francisco Cayabyab (University of Saskatchewan)  
Gustavo Turecki (Douglas Research Centre, McGill University)  
Guy Rouleau (Montreal Neurological Institute, McGill University)  
Judy Illes (CBRS Co-Chair, Neuroethics Canada, University of British Columbia)  
Karim Jerbi (UNIQUE Neuro-AI Research Centre, University of Montreal)  
Karun Singh (Krembil Research Institute, University Health Network, McMaster University)  
Keith Murai (Centre for Research in Neuroscience, Brain Repair and Integrative Neuroscience Program, Montreal General Hospital, McGill University)  
Lisa Saksida (BrainsCAN CFREF, Azrieli Program in Brain, Mind & Consciousness CIFAR, Western University)  
Lynn Raymond (University of British Columbia)  
Michael Salter (SickKids Research Institute, University of Toronto)  
Michiru Hirasawa (Memorial University)  
Patricia Conrod (Regroupement en neuroscience and santé mentale, University of Montreal)  
Ravi Menon (Robarts Research Institute, Western University)  
Robert Sutherland (University of Lethbridge)  
Ruth Slack (Brain Mind Research Institute, University of Ottawa)  
Shernaz Bamji (Canadian Association for Neuroscience, University of British Columbia)  
Victor Rafuse (Dalhousie University)  
Yoshua Bengio (Montreal Institute for Learning Algorithms, Institut de valorisation des données CFREF, Learning in Machines and Brains CIFAR, University of Montreal)\*  
Yves De Koninck (CBRS Chair, Sentinel North CFREF, University of Laval)

**Early Career Researcher Representatives** Caroline Ménard (University of Laval) – Early Career Cluster Leader

Baptiste Lacoste (University of Ottawa)

Derya Sargin (University of Calgary)

Melissa Perreault (University of Guelph)

Tabrez Siddiqui (University of Manitoba)

**Indigenous Knowledge Holders Group Leaders**

Chelsea Gabel (McMaster University)

Christopher Mushquash (University of Lakehead)

Malcolm King (University of Saskatchewan)

Melissa Perreault (University of Guelph)

**Patient Representatives**

Bianca Stern (Executive Director, Health Innovations, Centre for Aging + Brain Health Innovation)\*

Deanna Groetzinger (Neurological Health Charities of Canada)

Halina (Lin) Haag (Wilfred Laurier University and Acquired Brain Injury Lab, University of Toronto)\*

Shauna Beaudoin (Hydrocephalus Canada)

**CBRS Secretariat**

Jennie Z. Young – Executive Director

Marianne Bacani – Events Director

Ashley Lawson – Knowledge Translation Specialist

**Outside Guests (Meeting Facilitation)**

Brie Linkenhoker – Founder, Worldview Studio

Sharon Lu – Strategy and Evaluation Analyst, Worldview Studio

Ioana Marin – Postdoctoral Associate, Stanford University

Maeve Bonner – Postdoctoral Associate, Massachusetts Institute of Technology

\*Regrets