# CAN Connection

The Canadian Association for Neuroscience Newsletter September 2015

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Dear Colleagues,

The upcoming year promises to be a very active one at the Canadian Association for Neuroscience and we hope to count on your support. Please renew your membership to show your support for our association, which is dedicated to the promotion of neuroscience research in Canada.

We are currently planning the 10th Annual Canadian Neuroscience meeting, May 29 - June 1 in Toronto - Expect a great celebration! Save the dates! The Call for proposals for parallel symposia will go out in the Fall.

I also invite you to join us for the CAN Social at SfN - at Shay Chicago, October 20th, view last page for all the details - The CAN Social is an event that brings our community together each year.

As many of you have expressed concern over the state of research funding, we have surveyed our members about the recent reforms to CIHR funding, and share our results in this newsletter (page 2).

The CAN Board has also written to candidates from all parties for the upcoming federal elections, to get their views on the role of government in funding research. Please read our questions and help us share them.

Also view our hot topics and Congratulations section for more news about our community!

Douglas Munoz
President - Canadian Association for Neuroscience

## CAN Membership

Renew / Join

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# CIHR funding reforms survey results

Recently we have asked the opinion of CAN members on CIHR reforms. The results of this survey show that the neuroscience community has serious concerns about the newly introduced changes to the funding structure and the peer-review system. Below is the summary based on survey results and the comments we received.

*We present highlights of the results of this survey and of the comments received here. More results are available on our website:* http://can-acn.org/cihr-reforms-questionnaire-results.

Answering the question "What do you think of the proposed changes to the funding structure?", almost 60% of the survey responders indicated they have "serious concerns about the reforms and think the reforms are fundamentally flawed", and ~25% felt that this change could only have been implemented successfully if sufficiently more funds were available for this system.

Of the survey responders, 68% think their chances of receiving sufficient, stable funding under the new Foundation and Project schemes are lower or much lower, while 12% think it is too early to tell.

Many of you expressed positive views on the Foundation Scheme comparing it to the HHMI philosophy where well deserving, larger labs would use a unique funding source. However, in absence of increased funding the Foundations Scheme further increased the pressure on the already financially struggling scientific community. The new Foundation Scheme has several aspects that put at risk the survival of even large and successful laboratories:

1. having one competition a year makes survival almost impossible in case of an unsuccessful application,
2. there is no contingency plan after the end of the 7 year term, if the application is unsuccessful the laboratory would lose everything,
3. budget criteria are unclear, currently grant recipients are unable to increase their budgets compared to previous years making growth impossible.

Most of our members felt that the currently almost equally split budget between Foundation and Projects Schemes should be significantly shifted towards Project Grants. Many of you felt the Project Grants should remain the hallmark and the most important building block of Canadian biomedical research. More emphasis on this scheme would ensure that large number of productive laboratories remain funded and 'star' labs will not thrive at the expense of smaller groups. Project Schemes should be judged purely on scientific value where basic scientific questions are deemed equally important to clinical studies. Scientific progress is best served by investigator-initiated, curiosity-driven independent projects, funding should be concentrated on these projects and not on targeted research.

Several comments expressed concern about the current situation of young investigators. Currently the Foundation Scheme review criteria are inappropriate to judge their potential fairly and the advantage of their participation in this scheme is unclear. They will receive funding for 5 years which is comparable the Project Scheme. Many of you suggested that the Foundation Scheme should be reserved for accomplished scientists and young investigators should have protected funding that would allow them to start their career with increased certainty. Others were concerned about the chances of mid-career scientist to survive in the new system, since they are compared to senior scientists, they will obtain relatively lower scores on review criteria such as their leadership qualities.

# CIHR funding reforms survey *(continued)*

Many of you emphasized the need for increased research funding. This was seen by several members as the most important solution to the problems our research community are facing. Dwindling success rates are seriously compromising the survival of several laboratories and the new system further decreases their chances. However, at healthier funding levels the new two-tier system has a potential to improve the funding structure.

The overwhelming majority of our members expressed serious concerns about the new on-line review system. Most of the comments underlined the need of face-to-face meetings in a fair and transparent peer-review. During on-line review, reviewers are not accountable for their ranking, scores and opinion, they can choose simply remain inactive during the asynchronous review phase. In face-to-face meetings reviewers need to defend their opinions in person which makes superficial and/or bias opinions unacceptable. These would embarrass anyone, and the committee has a collective wisdom to weed out these inputs and hence correct for these mistakes with open debates and the committee members' final scores. In the new system, the opinion of low quality, unsubstantiated comments have equal weight on the applicant's final ranking. This introduces a high degree of randomness to the review system. Among the comments we received the ones asking for the reinstatements of face-to-face meetings were by far the most numerous.

Many of our members commented on the current structured review. This format puts too much emphasis on issues such as 'leadership' and 'environment' instead of the quality of the science. There is not enough space in the grant for true scientific content that could be judged by experts. Several comments underlined the need of a revised review process where the focus is solely on the quality of science.

The feedback sent to applicants would need to be improved as well, these comments should help the applicant during the resubmission of their grant with the clear identification of problems. Currently reviewers are ranking applications among those they see. Many of you felt that this system is not fair as different reviewers see different sets of applications, which makes comparison uneven, and it disproportionally penalizes early- and mid-career scientists.

In summary, based on your comments what the biomedical research community would need most is more money that is spent on investigator-initiated curiosity-driven research. Stable funding for large number of laboratories is a key to long-term success, this ensures diversity among research subjects that is essential for innovation and discovery. Researchers should be supported at every career stage via a peer-review system where reviewers meet in face-to-face meetings and review criteria focus on the quality of the proposed scientific project.

The leadership of CAN thanks the membership for participating in the survey. The Board firmly believes that there is an urgent need to increase funding for investigator-initiated curiosity-driven research and advocacy efforts will be implemented to push for more funding. CAN will also strive to work with all partners to try and improve the peer review system during this transition phase

Results of the survey, including answers filtered by career level are available on our website:

http://can-acn.org/cihr-reforms-questionnaire-results

# 9th Annual Canadian Neuroscience Meeting in Vancouver

The 9th annual Canadian Neuroscience Meeting, organised by the Scientific Program Committee Chair, Kurt Haas, and Co-Chair, Kathleen Cullen, with the help of the members of the 2015 Program Committee showcased some of the best neuroscience research in Canada. Thanks to the Chairs and the Program Committee for their great work!

Distinguished neuroscientists

The presidential lecture, given by Melvyn Goodale, Canada Research Chair in Visual Neuroscience, and Director of The Brain and Mind Institute at the University of Western Ontario, titled "How We See and Hear Stuff: Visual and Auditory Routes to Understanding the Material Properties of Objects", was a fascinating account of the functional organization of visual pathways in the human brain.

Dr. Goodale's research has shown that multiple properties (size, expected weight, texture, composition) of an object assessed by visual cues are encoded in different brain regions. His recent research has studied at blind individual who use echolocation as a substitute for vision.

"Our experiments show that echolocation is not just a tool to help visually-impaired individuals navigate their environment, but can act as an effective sensory replacement for vision, allowing them to recognize the shape, size, and material properties of objects" says Mel Goodale. His research shows that information obtained through the auditory cues provided by echolocation is processed through the brain regions associated with vision.


Melvyn Goodale delivers the Presidential lecture

The 2015 Young Investigator Award lecture, given by Michael Gordon, from the University of British Columbia, highlighted how research done in model animals can teach us about the nervous system. Dr. Michael Gordon's research provides insight into two of the most critical decisions we, and other animals, have to make: what to eat, and how much. He studies this important and complex question in the fruit fly, Drosophila melanogaster, which has a relatively simple nervous system, with one million times fewer neurons than ours, yet displays a complex array of behaviours in response to food cues. He has significantly contributed to our understanding of the neural circuits that drive taste responses and feeding preferences.

Sam David, Michael Gordon, Douglas Munoz

## 2015 CAN Public Lectures

The 2015 CAN Public lectures were given by Jon Stoessl and Janet Werker, both from the

# 9th Annual Canadian Neuroscience Meeting in Vancouver

University of British Columbia, on May 23rd. The event was held at Telus Science World, whose collaboration helped make our event a great popular success.

Left to right: Lindsay Petley-Ragan, from ScienceWorld, Jon Stoessl, Janet Werker, Kurt Haas.

Dr. Jon Stoessl's talk, titled "The Clinic as Laboratory: Lessons from Parkinson's", explained how diseases like Parkinson's affect brain function, and explored how the healthy brain works. All the brains in attendance were also very interested in his presentation of the role of dopamine in the normal brain.

Dr. **Janet Werker'**s talk, titled "Understanding the foundations of language development by studying the infant brain." was a highly entertaining exploration of how babies acquire language, and how this learning shapes the growing brain. A very engaged public learned about the important windows of opportunity for learning that exist during early child development.

We wish to thank Drs. Janet Werker and Jon Stoessl for their great presentations, and for taking their time to share their knowledge. We also kindly acknowledge Science World for providing a great venue.

The Meeting also featured trainees that have distinguished themselves as the top three CIHR Brain Star awardees of the year. This year's awardees were

- Ying Chen, from York University
- Martin Munz from McGill University
- Robert Bonin from Université Laval (Brain Star of the year)

They are pictured below with Doug Munoz (left) and Eric Marcotte (right).

Do you want to read more about our 2015 meeting?

View the full program

View all abstracts in the CAN2015 Abstract booklet

Read our press releases and our press pack

View pictures in the CAN2015 meeting Flickr album

**SAVE THE DATES**

**10th Annual**
**Canadian Neuroscience Meeting**

**May 29 - June 1 2016 in Toronto**

Call for parallel symposia: Fall 2015

# Hot neuroscience topics: Pain processing in the brain and spinal cord

A collaboration between Michael Salter, at the SickKids Hospital and Jeffrey Mogil, at McGill University, has revealed that males and females process pain signals differently. Pain in males is transmitted through cells called microglia, while the same signals was shown to be transmitted through a completely different type of immune cells, called T cells, in female mice. These results highlight the importance of including females in research protocols.

As the nervous systems of mice and humans are believed to be very similar, these results will have profound consequences for the treatment of chronic pain, and on the development of the next generation of pain medications.

Press release - Original research article in Nature Neuroscience

Neuropathic pain has both physical and emotional components. New research done in Gerald Zamponi's laboratory at the Hotchkiss Brain Institute has investigated how signals of nerve injury are transmitted to the brain using optogenetic tools. They used light of different colors to either inhibit or stimulate pain response in animal models. By doing this, they were able to demonstrate that nerve injury reduced brain activity in a brain region called the prelimbic cortex through an enhancement of an inhibitory circuit. Zizhen Zhang, the lead author of the study, hopes the discovery will eventually lead to non-invasive treatments for pain management. "Imagine in the future, if we were able to reduce pain using laser light manipulation."

Press release - Original research article in Cell Reports

## Discoveries about the genetics of pain

Research done in the laboratory of Artur Kania, at Université de Montréal, has uncovered a role for a gene called Lmx1b in transmission of pain signal in the spinal cord. Specifically blocking the expression of this gene in the spinal cord of mice resulted in the loss of neurons that transmit pain signals, and a reduction in pain sensitivity. These results bring a better understanding of the pain pathways involved chronic pain conditions.

Press release - Original research article in the Journal of Neuroscience

Jeffrey Mogil from McGill University led an important study published recently in Science Translational Medicine showing that expression levels of the α6 subunit of the nicotinic acetylcholine receptor (nAChR), is highly associated with allodynia, a prominent symptom of chronic pain.

His team also showed that the nicotinic α6 subunit gene determines variability in chronic pain sensitivity and established the relevance of these results to humans by the observation of genetic association in patients suffering from chronic pain.

Read the full study in Science Translational Medicine: http://stm.sciencemag.org/content/7/287/287ra72

Read more neuroscience press releases on the CAN-ACN website.

We also share these news on Twitter and Facebook: Follow us!

# Congratulations!

Sandra Black named Officer of the Order of Canada

*For contributing to improved diagnosis and treatment of vascular dementia, Alzheimer's disease and stroke.*

Anthony Phillips named Member of the Order of Canada

*For achievements in neuroscience, notably for his research on addiction and mental health.*

Yves De Koninck received an honorary degree from Université de Montréal *for exceptional contributions to the fields of neuroscience and pain research.*


CIHR Canadian National Brain Bee 2015 winners

Janson Kappen, Calgary (first place - picture), Yao (Esa) Li, London and Jordan Waters, Guelph

Read more on the CIHR website

Barbara Turnbull named Member of the Order of Canada

*For her contributions to spinal cord injury research as an author, speaker and advocate. Read more about her legacy in the Toronto Star*

## In memory of Barbara Turnbull

We were very saddened by the passing of Barbara Turnbull last May.

The impact of the work she has done to raise awareness and to support spinal cord injury research will endure. Her life, though short, has helped make that of many Canadians better.

We wish to offer our condolences to those whose lives she has touched, as she has touched ours.

She will be remembered as a great and inspiring Canadian.


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