The Canadian Association for Neuroscience presents

# 12<sup>th</sup> Annual Canadian Neuroscience Meeting

Meeting Program

CAN-ACN

CANADIAN ASSOCIATION FOR NEUROSCIEN ASSOCIATION CANADIENNE DES NEUROSCIEN

# May 13–16, 2018

Sheraton Wall Centre Vancouver, BC

can-acn.org





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### LETTER FROM THE PRESIDENT



### **Dear Colleagues and Friends**

It is a great pleasure to welcome you to the 12th annual Canadian Neuroscience Meeting. Congratulations to the scientific committee, chaired by **Shernaz Bamji** and co-chair **Paul Frankland**, for putting together an innovative scientific program, which is complemented by community building social, networking, advocacy and career development sessions.

Highlights of the scientific program include keynote and plenary lectures by **Freda Miller**, **Richard Huganir**, **Gordon Shepherd**, **Rui Costa**, **Kay Tye** and **Beth Stevens**. Plenary and parallel symposia, proposed by our members complete our diverse scientific program.

I wish to thank the local chair, **Timothy O'Connor**, for the organisation of local events, including the ever-popular Student social, public lectures at Science World, and a special tasting of BC wine at the opening reception, which will be paired with a presentation on neuroenology, by **Gordon Shepherd**.

I also want to thank our public lectures speakers Catharine Winstanley and Luke Clark, who

will speak to the public on the very timely topic of addictions. The 2018 Advocacy session, organized by **Katalin Toth**, will shed light on the decision-making process on science policy at the federal government. We are thrilled to announce that the following MPs have accepted our invitation to present their party's vision for Canada's role in promoting and supporting scientific research, and starting a discussion on this topic with our members: **Matt Jeneroux**, MP for Edmonton Riverbend, and Conservative Shadow Minister for Science; **Joyce Murray**, MP for Vancouver Quadra; **Elizabeth May**, MP for Saanich – Gulf Islands, and Leader of the Green Party & **Brian Masse**, New Democratic Party MP for Windsor West, Critic for Innovation, Science and Economic Development, NDP.

Stephanie Borgland has organized a promising Careers development session for trainees, which is always a highlight of the meeting for those who participate in this session. CAN is dedicated to promoting diversity in neuroscience, and to this end, we have organized an interactive luncheon workshop on this topic. Judy Illes will lead the Equity, Diversity and Inclusivity in Neuroscience workshop (EDI-Neuro) on Monday May 14th 2018 at noon. This event will allow us to survey our membership to learn what CAN can do as a professional society to promote balance, fairness, diversity and productivity in our organization.

The members of the scientific program and organizing committees also deemed it important to make a strong statement on respect within our association and at our meeting. **CAN is dedicated to being an inclusive and harassment-free association for its membership. We ask that all members and conference participants help us to achieve this goal by being respectful in their interactions and mindful of behaviour that can contribute to an exclusionary or hostile environment.** 

We hope you enjoy the meeting!

Jon C. Raymond

Lynn Raymond President of the Canadian Association for Neuroscience

### Chers collègues et amis

C'est un grand plaisir de vous accueillir au 12ème congrès canadien des neurosciences.

Félicitations au comité scientifique, présidé par **Shernaz Bamji** et co-présidé par **Paul Frankland**, pour la mise sur pied d'un programme scientifique novateur, qui sera complémenté par des séances de réseautage, de défense des intérêts et de développement de carrière.

Les conférences de **Freda Miller**, **Richard Huganir**, **Gordon Shepherd**, **Rui Costa**, **Kay Tye** et **Beth Stevens** font partie des points forts du programme scientifique. Des symposiums pléniers et parallèles, proposés par nos membres, complètent notre programme scientifique diversifié.

Je tiens à remercier le président du comité d'organisation local, **Timothy O'Connor**, pour l'organisation d'événements locaux, y compris le toujours très populaire social des étudiants, les conférences publiques de l'ACN à Science World, et une dégustation spéciale de vins de la Colombie Britannique à la réception d'ouverture qui sera jumelée avec une présentation sur la neuroenologie, présentée par **Gordon Shepherd**.

Je tiens également à remercier **Catharine Winstanley** et Luke Clark, qui s'adresseront au public sur le sujet très actuel des dépendances.

La session de mobilisation 2018, organisée par **Katalin Toth**, fera la lumière sur le processus décisionnel en matière de politique scientifique au gouvernement fédéral. Nous sommes ravis d'annoncer que les députés suivants ont accepté notre invitation à présenter la vision de leur parti sur le rôle du Canada dans la promotion et le soutien de la recherche scientifique et à amorcer une discussion sur ce sujet avec nos membres: **Matt Jeneroux**, député d'Edmonton Riverbend et Ministre fantôme des sciences conservateur; **Joyce Murray**, députée de Vancouver Quadra; **Elizabeth May**, députée de Saanich – Gulf Islands, et chef du Parti vert; et **Brian Masse**, député de Windsor Ouest et critique en matière d'innovation, des sciences et du développement économique, NPD.

Stephanie Borgland a organisé une session de développement de carrière prometteuse pour les stagiaires, qui est toujours un moment fort du congrès pour ceux qui y participent. L'ACN est dédié à la promotion de la diversité en neurosciences et, à cette fin, nous avons organisé un atelier-lunch interactif sur ce sujet. Judy Illes dirigera l'atelier sur l'équité, la diversité et l'inclusion en neurosciences (EDI-Neuro) le lundi 14 mai 2018 à midi. Cet événement nous permettra de sonder nos membres afin de savoir ce que l'ACN peut faire en tant que société professionnelle pour promouvoir l'équilibre, l'équité, la diversité et la productivité dans notre organisation.

Les membres du programme scientifique et les comités organisateurs ont également jugé important de faire une déclaration forte sur le respect au sein de notre association et lors de notre congrès. L'ACN est voué à être une association inclusive et sans harcèlement pour ses membres. Nous demandons que tous les membres et les participants au congrès nous aident à atteindre cet objectif en étant respectueux dans leurs interactions et en tenant compte des comportements qui peuvent contribuer à un environnement d'exclusion ou d'hostilité.

Nous espérons que vous apprécierez le congrès!

Yound . Raymond

Lynn Raymond President of the Canadian Association for Neuroscience

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### **ABOUT CAN-ACN**



The Canadian Association for Neuroscience is a community of scientists, researchers and students brought together with the common purpose of representing the interests of Canadian neuroscientists at national and international levels. CAN's mission is to promote communication among neuroscientists throughout Canada, and generate interest and understanding of the importance of scientific research and development.

### **CAN-ACN Annual Meeting**

Since 2007, the Canadian Neuroscience Annual Meetings have been an important platform for researchers to present their work, generate scholarly debate, and obtain valuable feedback and be informed about the important neuroscience research done across country and abroad. This highly regarded conference is in its 12<sup>th</sup> year.

## 12<sup>th</sup> Annual Canadian Neuroscience Meeting 2018

## Download the official CAN Mobile App!

Building on the well-received usage of our app, we are excited to bring you the 2018 edition of the official CAN Mobile Meeting App! The app is, once again, available as a free download for iPhone, Android, Blackberry and all tablets, and in a web version for all other web browserenabled smartphones. Maximize your time and experience with the CAN Meeting – scan the QR code to access the app or simply search for 'Canadian Association for Neuroscience' or 'CAN ACN' to download from the app store.

#### The CAN app allows you to:

- View all conference information (sessions, abstracts, speakers, exhibitors, maps, attendee profiles, etc.) on your mobile device
- Build a personalized schedule and access any session handouts
- Find information quickly with the search feature
- Opt into messaging with other attendees
- · Receive important conference-related notifications and updates
- Take notes on your mobile device during specific sessions with the ability to extract the information later
- Browse local restaurants and attractions
- And much more...



### **CAN-ACN LEADERSHIP**

Elected members govern the Canadian Association for Neuroscience. These members comprise the Board of Directors and the Executive Committee. The Society's Bylaws govern how the Board manages the Society.

### **Executive Committee**

President:	Lynn Raymond University of British Columbia
Vice-president (President-elect):	Jaideep Bains University of Calgary
Secretary:	Edward Ruthazer McGill University
Secretary-elect:	Alyson Fournier McGill University
Treasurer:	Derek Bowie McGill University
Past-Treasurer:	Ellis Cooper McGill University

### **Board Members**

Past-President & Chair of the Nominations Committee Freda Miller University of Toronto Chair of the Advocacy Committee: Katalin Toth Université Laval Alanna Watt McGill University Jean-Claude Béique University d'Ottawa Martin Paré Queen's University Shernaz Bamji University of British Columbia Stephanie Borgland University of Calgary Roger Thompson University of Calgary

### 2018 Scientific and Local Program Committee

 Conference Chair:
 Shernaz Bamji
 University of British Columbia

 Co-Chair:
 Paul Frankland
 SickKids Hospital

 Chair of the Local Organizing
 Timothy O'Connor
 University of British Columbia

### **Committee Members**

Jean-Claude Béïque University of Ottawa Maurice Chacron McGill University James Fawcett Dalhousie University Stephanie Fulton Université de Montréal Michael Hendricks McGill University Sarah McFarlane University of Calgary Martin Paré Queen's University Marco Prado Western University Marie-Ève Tremblay Université Laval Ian Winship University of Alberta

### 2018 Advocacy Committee

Advocacy Chair: **Katalin Toth** Université Laval **Charles Bourque** McGill University **Liisa Galea** University of British Columbia **Kurt Haas** University of British Columbia **Michael Hendricks** McGill University **David Kaplan** University of Toronto **Beverley Orser** University of Toronto **Doug Zochodne** University of Alberta **Nafisa Jadavji** Carleton University, Liaison to CSMB

Association secretariat & conference management secretariat@can-acn.org

Podium Conference Specialists

Jude Ross Marischal De Armond Pam Prewett

Chief Operating & Advocacy Officerinfo@can-acn.orgJulie Poupart

### Membership information

CAN membership is open to all scientists, principal investigators and students actively involved in neuroscience research from across Canada and around the world. CAN membership dues are paid annually and cover the calendar year from September 1st to August 31st.

### **Benefits**

CAN-ACN membership includes the following benefits:

- Eligibility to submit or sponsor communications at CAN Scientific meetings
- A significant reduction on registration for our annual meeting
- Networking opportunities
- The possibility of advertising positions and meetings on the CAN-ACN website
- A forum to exchange information with colleagues and the general public
- Eligibility for CAN-ACN prizes and awards
- Members, Honorary Members and Emeritus Members, but not Student Members or Corporate Members, shall have the right to vote at any duly constituted business meeting of the Association and shall have the right to hold office in the Association.

#### To become a CAN-ACN Member please visit us at the registration desk today.

### **GENERAL CONFERENCE INFORMATION**

#### **Conference venue**

#### **Sheraton Wall Centre Vancouver**

1088 Burrard Street, Vancouver, BC, V6Z 2R9, Canada All conference sessions will take place in this location.

### Registration

Annual Conference registration fees include access to all sessions including panel, symposium, and poster sessions. Registration also includes 2 daily refreshment breaks.

### Name badges

Your name badge is your admission ticket to the conference sessions, coffee breaks, reception. Please wear it at all times. At the end of the Conference we ask that you recycle your name badge in one of the name badge recycling stations that will be set out, or leave it at the registration desk.

#### Lost name badges:

#### There is a \$25 replacement fee for any lost or missing name

**badges** – If you've lost your name badge, visit the registration desk for a replacement as soon as possible.

### WIFI access

There is WIFI available for CAN delegates in the meeting space. Please follow the login details below:

The WIFI name is: SHERATON-MEETING Password: canvan2018



BRA

REPAIR

### **Registration and information desk hours**

The CAN-ACN registration and information desk, located in the Junior Ballroom Foyer, will be open during the following dates and times:

Sunday, May 13	8:00 am to 8:00 pm
Monday, May 14	8:00 am to 7:00 pm
Tuesday, May 15	8:00 am to 7:00 pm
Wednesday, May 16	8:00 am to 5:00 pm

If you need assistance during the conference, please visit the registration desk.



### **GENERAL CONFERENCE INFORMATION**

### **Poster information**

#### Set-up / removal

There are three poster sessions during the Meeting and posters have been allocated to one of the sessions based on poster themes. Poster presenters must set-up and remove their posters during the following times.

#### Poster session 1 – Monday, May 14 Sponsored by McMaster University



#### Poster hours

10:15 am - 10:45 am 12:00 pm - 1:30 pm (lunch on own - posters will remain open) 3:30 pm - 5:30 pm **Poster set-up** Monday, May 14: 7:30 am - 10:00 am (all posters must be on display by 10:15 am) **Removal** of all posters by: 7:00 pm on May 14

#### Poster session 2 – Tuesday, May 15

#### **Poster hours**

10:15 am - 10:45 am 12:00 pm - 1:30 pm (lunch on own - posters will remain open) 3:30 pm - 5:30 pm

**Poster set-up** Tuesday, May 15: 7:30 am - 10:00 am (all posters must be on display by 10:15 am) **Removal** of all posters by: 7:00 pm on May 15

#### Poster session 3 – Wednesday, May 16

#### Poster hours

10:15 am - 10:45 am 12:00 pm - 1:30 pm (lunch on own - posters will remain open) 1:30 pm - 3:30 pm **Poster set-up** Wednesday, May 16: 7:30 am - 10:00 am (all posters must be on display by 10:15 am) **Removal** of all posters by: 4:00 pm on May 16

Information on poster authors, poster numbers and poster titles begins on page 37. Digital copies can be downloaded from the member only section of the CAN-ACN website. Posters can also be browsed using the CAN app, search for Canadian Association of Neuroscience or CAN ACN to download the app from the Apple store/Google play store.

### Message board

For your convenience, a message board will be located near the registration desk. Feel free to leave messages of interest to other conference participants.

### Staff

CAN-ACN staff from Podium Conference Management can be identified by ribbons on their name badges. Feel free to ask anyone of our staff for assistance. For immediate assistance please visit us at the registration desk.





### GENERAL CONFERENCE INFORMATION

The Canadian Association for Neuroscience | 12<sup>th</sup> Annual Meeting 2018 | can-acn.org

### **AWARD WINNERS**

# 2018 Young investigator awardee

Sponsored by Montreal Neurological Institute and Hospital at McGill University



### Karun K Singh McMaster University

Dr. Karun Singh's research has made significant impact on our knowledge of signaling mechanisms that regulate brain development, and of the genetic risk factors underlying neurodevelopmental disorders. Neurological disorders of the developing brain such as autism impacts 1 in 66 individuals in Canada while schizophrenia affects

1% of the population. Affected individuals and families are burdened by life-long health, social and economic issues. Unfortunately, there are no specific therapies for individuals because these disorders remain poorly understood. However, since neurodevelopmental disorders have a strong genetic basis, this provides a starting point to identify underlying disease pathogenesis mechanisms.

Dr. Singh's work combines powerful human genetic studies and animal models. Using this approach, he has made novel insights into how autism and schizophrenia risk genes disrupt neural development. For example, in complex brain disorders where there is a loss of multiple genes (named microdeletions), Dr. Singh's team recently identified that in each disorder, a single gene plays a strong role in the development of the disease. In addition, his work has uncovered that patient-derived mutations in multiple genes disrupt synaptic communication between neurons in the brain. These discoveries have pinpointed precise signaling pathways that are disrupted by mutations in high risk genes, providing a path forward for screening and identifying therapeutics that will reverse the neural impairments.

Building on these discoveries, Dr. Singh has established clinical and genetic sequencing collaborators to create a resource of human induced pluripotent stem cell (iPS cell) models to study brain development disorders. He is combining this approach with CRISPR gene editing to better dissect the precise mechanisms by which genetic mutations cause defects in neural development. His platform has established a mechanism to identify drugs that will be streamlined for future clinical trials.

In earlier work, Dr. Singh identified new signaling mechanisms regulating how the peripheral nervous system is established. These fundamental studies have uncovered how peripheral nerve cells form appropriate connections with target organs, while incorrect connections are eliminated. These studies provide new insights into pathology and treatment peripheral nerve diseases and injury. His work has been published in several top neuroscience and genetics journals (both first and/or corresponding author) including Neuron, Nature Neuroscience, Molecular Psychiatry, American Journal of Human Genetics, and Cell Reports. In addition, his recent published papers have received a significant amount of attention in several media outlets. He currently holds a prestigious David Braley Chair in Human Stem Cell Research, and his success has allowed him to become the Neural Program Lead at the Stem Cell and Cancer Research Institute at McMaster University. His program is funded by multiple National and International sources including CIHR, NSERC, Ontario Brain Institute, Brain Canada, and the European Research Area Networks.

Dr. Singh has quickly become a leader in the brain development and neurodevelopmental disorders fields. His work is uncovering new disease mechanisms for ASD and schizophrenia, which is paving the way forward to identify new therapeutics. The Canadian Association for Neuroscience is very proud to present Karun Singh with the 2018 Young Investigator Award.

#### Learn more about Karun Singh

<u>sccri.mcmaster.ca/people/karun-singh</u> fhs.mcmaster.ca/biochem/KarunSingh.html

#### Abstract

#### Investigating signaling mechanisms controlling neuronal growth and brain development disorders

The development of the mammalian brain requires precise formation of synaptic connections between neurons, and abnormalities in this process play a central role in the pathophysiology of neurodevelopmental and psychiatric disorders. Our lab studies the biology of autism spectrum disorder (ASD) and schizophrenia genetic risk factors and their signaling mechanisms in the brain. To do this we combine cellular models with human genetics to determine how risk genes and specific patient-derived mutations harm brain development. Our recent studies uncovered that in complex neurodevelopmental disorders caused by the loss of multiple genes (chromosomal microdeletions), a single gene is likely driving the expression of neurological disease phenotypes. Specifically, in common microdeletions, OTUD7A, a deubiquitinase, was found to be driving the 15g13.3 microdeletion syndrome, while TAOK2, a kinase, is a key player in the 16p11.2 microdeletion syndrome. These studies unravel a complex genetic mystery for commonly identified microdeletions in the clinic. While the disrupted pathways associated with these microdeletions are different, they converge at the cellular level to cause abnormal synaptic development and function, providing new insight into the disease. Our ongoing studies incorporate the use of patient-derived and isogenic CRISPR-iPS cells to dissect the precise mechanisms that underlie disease. We are building on our initial success and expanding our efforts to multiple high-risk genes. The goal of this large-scale effort is to identify neural phenotypes associated with the ASD and schizophrenia risk genes and to reverse the neurological deficits using pharmacological approaches.

### 2017 CIHR-INMHA Brain Star Award Recipients

### Monday, May 14

Lauran Cole | Department of Clinical Neurosciences, University of Calgary

*Clinical characteristics, risk factors, and outcomes associated with neonatal hemorrhagic stroke: a population-based case-control study* Hemorrhage into the brain of term newborns often results in lifelong disability. The fundamental clinical epidemiology of neonatal hemorrhagic stroke (NHS) remains undefined, hindering the development of strategies to improve outcomes. We aimed to characterize the incidence, associated factors, and outcomes of neonatal hemorrhagic stroke. This was a population-based, case-control study. Term neonates with MRI-confirmed NHS including primary and secondary intracerebral hemorrhage, hemorrhagic transformation of ischemic injury, and presumed perinatal hemorrhagic stroke were enrolled. Controls were recruited from a population-based study. NHS cases underwent chart and neuroimaging review. Clinical risk factor common data elements were explored using logistic regression. We identified 86 cases: 59% with NHS, of which 67% were idiopathic, 35% were hemorrhagic transformation of primary ischemic injuries, and 6% were presumed perinatal hemorrhagic stroke. Incidence of pure NHS was 1 in 9500 live births and 1 in 6300 for all forms. A primary cause was evident in 37% of non–hemorrhagic transformation (bradycardia [OR, 15.0; 95% Cl, 2.19–101.9] and low Apgar [OR, 14.3; 95% Cl, 2.77–73.5]). Follow-up of 50 cases (median of 37 months) demonstrated poor neurological outcomes in 44%. This study concluded that NHS is more common than previously reported, occurring in at least 1 in 6300 live births. Clinical associations do not suggest a common mechanism. Recurrence is rare. Outcomes are often poor, mandating attention to prevention and rehabilitation.

### Tuesday, May 15

Andrew Kaplan | Department of Neurology and Neurosurgery, Montreal Neurological Institute, McGill University \*Andrew is the 2017 Marlene Reimer Brain Star of the Year

#### Small-molecule modulation of 14-3-3 proteins for axon regeneration

Axons in the central nervous system do not spontaneously regenerate after injury. This underlies persistent deficits in neurological function after spinal cord or nerve injuries. Therapeutic stimulation of axon regeneration could be an effective means to treat these conditions. We found that a family of adaptor proteins called '14-3-3s' stimulates axon outgrowth and regeneration. 14-3-3s are highly expressed in CNS neurons and bind to hundreds of functionally diverse 'client proteins.' We discovered a pharmacological approach to harness the activity of 14-3-3s using fusicoccin-A (FC-A), a small-molecule that stabilizes a subset of 14-3-3 client protein-protein interactions. Using in vitro models of axonal injury and a mouse model of optic nerve injury, we found that FC-A stimulates axon regeneration. Using affinity chromatography and mass spectrometry, we found that FC-A binds to complex between 14-3-3 and a stress response protein called GCN1, resulting in GCN1 turnover and releasing an intrinsic 'brake' on axon growth. We have now explored structure activity relationship of the compound using a high-content neurite outgrowth screen of semisynthetic FC-A derivatives. We identified a series of novel derivatives with potent neurite outgrowth activity, suggesting new routes for further development of these compounds for CNS injury indications.

### Wednesday, May 16

Nicole E. Burma | Department of Physiology & Pharmacology, Hotchkiss Brain Institute, Cumming School of Medicine, University of Calgary and Department of Comparative Biology & Experimental Medicine, Faculty of Veterinary Medicine, University of Calgary

#### A new use for an old drug: probenecid alleviates opioid withdrawal in rodents

Opioids, such as morphine, are among the most effective and widely prescribed analgesics for managing pain. However, their repeated use can lead to opioid physical dependence, which manifests as a withdrawal syndrome upon drug cessation. We have identified the pannexin-1 (Panx1) channel as a critical substrate underlying opioid withdrawal. Here, we investigated the potential benefits of probenecid, a broad spectrum Panx1 blocker currently approved as an anti-gout medication, at alleviating opioid withdrawal preclinically. Rats and mice were treated with escalating doses of morphine or fentanyl. Opioid withdrawal was precipitated by injection of the opioid receptor antagonist, naloxone, into opioid-dependent animals. Following naloxone injection, opioid treated animals displayed a robust withdrawal syndrome, characterized by autonomic and somatic hyperactivity. To test the therapeutic effects of broad-spectrum Panx1 blockers on opioid withdrawal, we systemically administered probenecid one hour prior to naloxone challenge, and found that this acute injection significantly attenuated the opioid withdrawal syndrome. In particular, probenecid reduced grooming, wet-dog shakes, teeth chattering and tremor behaviours associated with opioid withdrawal in rodents. These results suggest that probenecid may represent a therapeutic option for combating opioid withdrawal in the clinic, and extends the clinical potential of Panx1-targeted therapies.

### **SPECIAL MEETINGS & SOCIAL EVENTS**

### **SATURDAY, MAY 12, 2018**

4:00 — 6:00 pm Science World 1455 Quebec St, Vancouver, BC V6A 3Z7	CAN 2018 Public lecture Against the odds: insights into the nature of addiction from studying decision making in rats					
SUNDAY, MAY 13, 2018						
6:15 – 7:15 pm	Presidential lecture					
Grand Ballroom AB <b>6:15 – 7:00 pm</b> Grand Ballroom AB	Rick Huganir   Johns Hopkins School of Medicine					
	Sponsored by: the International Society for Neurochemistry					
	Special lecture					
	Gordon M. Shepherd   Yale School of Medicine					
7:00 – 8:15 pm	Opening reception & wine tasting					

Pavilion Ballroom

### MONDAY, MAY 14, 2018

**12:00 – 1:30 pm** Grand Ballroom D (limited attendance, must be pre-registered)

5:30 – 7:00 pm Career inside and outside academia Grand Ballroom A Supported by the University of Calgary Department of Physiology and Pharmacology

#### Science Policy Session Pavilion Ballroom

Ever wondered how elected officials make decisions about science policy? CAN has invited elected officials to participate in a conversation about science policy at the CAN2018 meeting, so you can ask them. We are thrilled to announce that the following MPs have already accepted our invitation:

- Matt Jeneroux | Conservative MP for Edmonton Riverbend, and Conservative Shadow Minister for Science
- Joyce Murray | Liberal MP for Vancouver Quadra
- Elizabeth May | Green Party MP for Saanich Gulf Islands, and Leader of the Green Party
- **Brian Masse** | New Democratic Party MP for Windsor West, Critic for Innovation, Science and Economic Development, NDP

This event will be an opportunity to build bridges between politicians and scientists, and to initiate a constructive relationship that will ensure that all Canadians reap the benefits that supporting fundamental research brings. Members of all major political parties will be invited to make a presentation about their vision for Canada's role in promoting and supporting scientific research. This will be followed by a discussion panel with the audience.

Free drink tickets will be given to the first 150 attendees!

### **CAN-ACN PRE-CONFERENCE EVENTS**

Each year, the opportunity for like-minded groups to hold a Satellite Meeting at CAN-ACN is offered. This year, CAN-ACN is pleased to offer the following satellite meetings. If you or a group you are involved in are interested in holding a satellite meeting at future CAN-ACN meetings, please stop by the registration desk to speak to a member of the planning team.

#### Please note: pre-registration is required for these events

### SATURDAY, MAY 12

8:00 am – 5:00 pm	Satellite 5
Center for Brain Health —	Neural signal and image processing: quantitative analysis of neural activity
University of British Columbia	perception, action and their interaction: data, models and dysfunction

This one-day course will provide a survey of diverse topics, including methods for analyzing single and multiple spike trains, local field potential, EEG/MEG recordings, and fMRI data.

6:00 – 7:00 pm	6th Annual Canadian Neurometabolic meeting keynote lecture					
Port McNeil Room,						
Sheraton Wall Centre	Giovanni Marsicano	Research Director INSERM; Team Endocannabinoids and Neuroadaptation;				
	NeuroCentre Magendie,	University of Bordeaux				
	Cannabinoid CB1 rec	eptor signalling in the brain: the where matters				

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### SUNDAY, MAY 13

#### 8:00 am – 4:30 pm Satellite 1 Pavilion D CAPpet/CP

### CAPnet/CPS

With thanks to our sponsors:

Department of Psychology, University of Alberta / Faculty of Kinesiology, Sport and Recreation, University of Alberta / Vision: Science to Applications (VISTA) / York University Brain and Mind Institute (BMI) / Western University / Canadian Physiological Society (CPS)

This one-day satellite symposium broadly focuses on perception and action and we invite abstract submissions from anyone working in this research area. The specific topic this year is on visual and motor perception and production in both the acting agent as well as the observation of movement in other agents, and how this dyadic interplay affects both actor and observer.

Organized by the Canadian Action and Perception Network (CAPnet), this is an annual gathering of some of the top Canadian scientists investigating sensation, perception, and movement control.

### 8:30 am – 4:00 pm Satellite 2

### Pavilion C 6th Annual Canadian Neurometabolic meeting

With thanks to our sponsors: Lilly Canada / Montreal Diabetes Research Center / CMDO / CRCHUM Universite de Montréal / Zeiss

The CNS plays a primordial role in regulating whole body energy balance whereas intracellular metabolism is critical for neural signalling, plasticity and behaviour. Studying the interactions between metabolic processes and brain function and the contribution of nutrition, diet and physical activity is of utmost importance for understanding the development of metabolic, neuropsychiatric and neurodegenerative disorders.

### **CAN PRE-CONFERENCE EVENTS**

#### 8:30 am – 3:50 pm Pavilion B Satellite 3 Canadian Neurophotonics Platform

Sponsored by: Bliq Photonics

#### The Canadian Neurophotonics Platform funded by Brain Canada and partners

An all-day short course to articulate new methods and applications of light microscopic imaging and optogenetic manipulation of nervous system tissues. Optogenetics topics include: optogenetic probe development, optogenetic activation and inhibition, with emphasis on region selective expression, light, and probe delivery. Imaging topics include: in vivo approaches (2-photon fast scanning, wide-field), super-resolution imaging, and methodologies for assessing the structure and function of large brain networks. Data analysis topics include visualization of activity in large networks, and image processing strategies to improve light microscopic images.

#### 8:30 am – 4:30 pm Satellite 4

Pavilion A

#### <sup>n A</sup> Neural stem cells in development and adulthood

With thanks to our sponsors: CERVO Brain Research Center / SickKids Neurosciences and Mental Health Program

The objective of this satellite event is to bring together experts and trainees in the field of neural stem cells (NSC). The scientists working on embryonic and adult NSC will discuss recent advances in the field and bring new insights on fundamental mechanisms controlling physiology and function of these cells. The speakers will provide different perspectives on the role of NSC during brain development and in adulthood, and how these cells can be reactivated during aging or after different pathological conditions. The meeting will be a great platform to exchange ideas and develop novel collaborative projects.

Notes

### ANNUAL CONFERENCE SCHEDULE

### SUNDAY, MAY 13, 2018

<b>9:00 am – 4:30 pm</b>	CAN satellite meetings
Pavilion Ballroom	(see page 12/13 for details)
<b>4:45 – 5:00 pm</b> Grand Ballroom AB	Welcome and opening remarks Lynn Raymond   President of the Canadian Association for Neuroscience
<b>5:00 – 5:15 pm</b>	Plenary address
Grand Ballroom AB	Sam Weiss   Scientific Director of CIHR's Institute of Neurosciences, Mental Health and Addiction
<b>5:15 – 6:15 pm</b> Grand Ballroom AB	Presidential lecture         Rick Huganir   Johns Hopkins School of Medicine         Receptors, synapses and memory         Sponsored by: the International Society for Neurochemistry
<b>6:15 – 7:15 pm</b> Grand Ballroom AB	Special lecture Gordon M. Shepherd   Yale School of Medicine From microcircuits to neuroenology: the revolutions in olfaction
<b>7:15 — 8:15 pm</b>	<b>Opening reception</b>
Pavilion Ballroom	Join us for a wine tasting reception upstairs on the 3rd Floor in the Pavilion

### MONDAY, MAY 14, 2018

8:30 – 10:15 am Grand Ballroom AB	Plenary symposium 1 The role of cortico-striatal networks in cognition and action				
	Chair: Melvyn Goodale   Western University				
	<b>Catharine Winstanley</b>   University of British Columbia Deciphering decision making: exploring the neural systems underlying the evaluation versus employment of cognitive effort in rats				
	Julien Doyon   Université de Montréal Cortico-striatal contributions to motor sequence learning and consolidation				
	Jessica Grahn   Western University Striatal role in auditory sequence perception				
<b>10:15 – 10:45 am</b> Junior Ballroom	<b>Coffee break</b> posters/exhibits				
<b>10:45 – 11:45 pm</b> Grand Ballroom AB	Featured plenary speaker				
	Rui Costa   Columbia's Zuckerman Institute				
	Starting new actions and learning from it				

### **ANNUAL CONFERENCE SCHEDULE**

11:45 – 12:00 pm	Brain Star talk	
	Lauran Cole   University of Calgary Clinical characteristics, risk factors, and outcomes associated with ne a population-based case-control study	eonatal hemorrhagic stroke:
<b>12:00 – 1:30 pm</b> Grand Ballroom D	Lunch on own Equity, diversity and inclusivity in neuroscience workshop & lunch (limited attendance, must be pre-registered)	
<b>1:30 – 3:00 pm</b> Pavilion AB	Parallel symposium 1 Tackling proteinopathies: new strategies to identify and test drug targets	UOTTAWA
	Chair: Maxime W. Rousseaux   Baylor College of Medicine Maxime W. Rousseaux   Baylor College of Medicine Probing the druggable genome for new modulators of a-synuclein le	evels
	Jinsoo Seo   Daegu Gyeongbuk Institute of Science and Technology Modeling Alzheimer's disease using hiPSC-derived brain cell types an	nd cerebral organoids
	Jeehye Park   Sick Kids Hospital Unraveling the role of MATR3 in amyotrophic lateral sclerosis (ALS)	
	Blair R. Leavitt   University of British Columbia Huntington disease therapies: from bench to bedside	
	Sponsored by Brain and Mind Research Institute at the University of Ot	tawa
Grand Ballroom A	Parallel symposium 2 Novel insights in the neurobiology of depression	CENTRE DE RECHERCHE CERRVO BRAIN RESEARCH CENTRE
	Chair: Naguib Mechawar   Douglas Institute (McGill University)	
	Caroline Ménard   CERVO Brain Research Centre (Université Laval) Social stress induces neurovascular pathology and immune response	e promoting depression
	Benoit Labonté   CERVO Brain Research Centre (Université Laval) Sex-specific transcriptional signatures in human depression	
	Mounira Banasr   CAMH (University of Toronto) Linking GABAergic, astroglial and synaptic dysfunctions to stress-inc endophenotype: importance of astroglial integrity	luced depressive-like
	Naguib Mechawar   Douglas Institute (McGill University) The impact of child abuse on oligodendrocytes and myelination in th	ne human brain
	Sponsored by CERVO Brain Research Centre	

Pavilion C	Parallel symposium 3 Cannabinoid-metabolism interplay in the control o	f cognition and behaviour					
	Chair: <b>Stephanie Fulton</b>   Université de Montréal						
	Giovanni Marsicano   University of Bordeaux Hippocampal CB1 receptors control incidental asso	ciations					
	Matthew Hill   University of Calgary Genetic variance in endocannabinoid signaling mor feeding and metabolism	dulates hormonal and dietary influences on					
	Guillaume Ferreira   University of Bordeaux Obesogenic diet impairs memory through hippocampal endocannabinoid system						
	Stephanie Fulton   Université de Montréal ABHD6 in the nucleus accumbens as a unique modu metabolism and reward	lator of endocannabinoid tone, energy					
Pavilion D	Parallel symposium 4 Mild traumatic brain injury: understanding an invi	sible injury					
	Chair: Anne Wheeler   SickKids Hospital						
	Brian Christie   University of Victoria Effects of repeated concussions in the juvenile brain.						
	Richelle Mychasiuk   University of Calgary The use of telomere length as a biomarker for mild and clinical populations	traumatic brain injury (mTBI) in preclinical					
	Cheryl Wellington   University of British Columbia Advances in the CHIMERA (Closed Head Injury Mode platform of experimental traumatic brain injury	el of Engineered Rotational Acceleration)					
	Sandy Shultz   Monash University Neurological abnormalities in collision sport athlet	es with a history of concussion					
<b>3:00 — 3:30 pm</b> Junior Ballroom	Coffee break posters/exhibits						
<b>3:30 — 5:30 pm</b> Junior Ballroom	Poster session 1 & exhibits Sponsored by: McMaster University	McMaster University					
5:30 — 7:00 pm Grand Ballroom A	Parallel sessions Career inside and outside academia	WIVERSITY OF CALGARY CUMMING SCHOOL OF MEDICINE Department of Physiology and Pharmacology					
	Organizer & Moderator: Stephanie Borgland   University	of Calgary					
	Euan Ramsey, PhD.   Co-Founder & COO of Precision Nand Orsha Magyar, M. Sc, CHN   CEO & Founder, NeuroTrition Steven Wainwright, PhD.   Medical Science Liaison for S	osystems hire Pharma Canada					
	Sponsored by University of Calgary Department of Ph	ysiology and Pharmacology					

### **ANNUAL CONFERENCE SCHEDULE**

Pavilion Ballroom

### Science policy session

(see page 11 for further details)

Organizer: **Katalin Toth** | Université Laval Moderator: **Jaideep Bains** | University of Calgary

Matt Jeneroux | MP, Conservative Shadow Minister of Science Joyce Murray | Liberal MP for Vancouver Quadra Elizabeth May | MP, leader of the Green Party Brian Masse | MP, Critic for Innovation Science and Economic Development, NDP

7:30 – 9:30 pm Venue Nightclub 881 Granville Street, Vancouver

### pm CAN student social

Meet up with friends and colleagues at the annual Student Social. Light appetizers will be served. Directions are available in the Maps section of the app.



### **TUESDAY, MAY 15, 2018**

<b>8:30 – 10:15 am</b> Grand Ballroom AB	Plenary symposium 2 Shaping motivational drive: from synapses to circuits to mesoscale responses						
	ponsored by Hotchkiss Brain Institute, University of Calgary						
	hair: Stephanie Borgland   Hotchkiss Brain Institute						
	Stephanie Borgland   Hotchkiss Brain Institute Synaptic alterations in the lateral OFC with diet induced obesity						
	Rosemary Bagot   McGill University Neural endophenotypes of stress susceptibility						
	Timothy Murphy   University of British Columbia High-throughput electrophysiological, behavioral, or social event triggered imaging of mouse mesoscale brain activity						
<b>10:15 — 10:45 am</b> Junior Ballroom	<b>Coffee break</b> posters/exhibits						
<b>10:45 – 11:45 am</b> Grand Ballroom AB	Featured plenary speaker:       Kay Tye   MIT Picower Institute for learning and memory         Neural circuits underlying positive and negative valence         Sponsored by the International Society for Neurochemistry						
<b>11:45 – 12:00 pm</b> Grand Ballroom AB	Brain Star talk Andrew Kaplan   McGill University Small-molecule modulation of 14-3-3 proteins for axon regeneration						
<b>12:00 – 12:30 pm</b> Grand Ballroom AB	CAN-ACN Annual General Meeting of members						
12:30 – 1:30 pm	Lunch on own						

#### **1:30 – 3:00 pm** Grand Ballroom A **Parallel symposium 5** *Synapse to nucleus: new in*:

and Ballroom A	Synapse to nucleus: new insights into epigenomic, transcriptional, and translational programs underlying neural circuit plasticity
	Sponsored by Brain and Mind Research Institute at the University of Ottawa
	Chair: <b>Stefano Brigidi</b>   University of California San Diego
	Iva Zovkic   University of Toronto Mississauga Histone variants regulate memory formation
	Wayne Sossin   McGill University RNA granules consist of stalled polysomes: exploring mechanisms for their formation
	Tae-Kyung Kim   University of Texas Southwestern Activity-dependent gene expression program underlying brain plasticity
	<b>Stefano Brigidi</b>   University of California San Diego <i>Communication of pathway-specific circuit activity to the genome by the immediate early gene</i> <i>Npas4</i>
Pavilion AB	Parallel symposium 6 Bridging the gap between mesoscopic and microscopic brain imaging
	Chair: Ravi Rungta   French National Institute of Health and Medical Research (INSERM)
	Ravi Menon   Robarts Research Institute, University of Western Ontario Using fMRI to study laminar and columnar activity
	<b>Ravi Rungta</b>   French National Institute of Health and Medical Research (INSERM) <i>Linking synaptic activation to hemodynamic signals for functional brain imaging</i>
	Bojana Stefanovic   Sunnybrook Health Sciences Centre Neurovascular imaging in health and in Alzheimer's Disease
	Matthieu Vanni   University of British Columbia Neural circuits mapping using mesoscopic calcium imaging in mice
	Sponsored by CERVO Brain Research Centre
Pavilion D	Parallel symposium 7 Novel molecular targets of Alzheimer's
	Chair: Hideto Takahashi   Institut de recherches cliniques de Montréal
	<b>Hideto Takahashi</b>   Institut de recherches cliniques de Montréal <i>Role of synaptic organizer Neurexin on amyloid β-induced synaptic pathology</i>
	Vania Ferreira Prado   University of Western Ontario Role of cholinergic-induced RNA metabolism change in Alzheimer's-like pathology
	Jack H. Jhamandas   University of Alberta Amylin Receptor: a potential therapeutic target for Alzheimer's disease
	Weihong Song   University of British Columbia Prenatal Vitamin A deficiency facilitates Alzheimer's pathogenesis

### **ANNUAL CONFERENCE SCHEDULE**

8:30 – 10:15 am	Plenary symposium 3			
WEDNESDAY, MAY 16, 2	018			
	Sponsored by The SickKids Centre for Bra SickKids Program in Neuroscience & M	ain & Mental Health ental Health		
	Stem cells and growth factors: building	g and repairing the mam	malian nervous sys	INSTITUTE tem Neurosciences & Mental Healt
Grand Ballroom AB	Reynole leclure	SickKids	& Mental Health	<b>SICKNIOS</b> research
(.00 7.00	Vounate la sture			0:
	Spansored by Montreal Neurological Inc	titute and Hospital at McG	ill University	
GIANG BAIITOOM AB	Karun K Singh   McMaster University Investigating signaling mechanisms of brain development disorders	ontrolling neuronal grow	th and	TREUTO Stut et hôpital neurologiques de Montréal Intreal Neurological institute and Hospital
<b>5:30 – 6:00 pm</b>	Young investigator lecture			
<b>3:30 — 5:30 pm</b> Junior Ballroom	Posters session 2 & exhibits			
<b>3:00 – 3:30 pm</b> Junior Ballroom	Coffee break posters/exhibits			
	Sponsored by Tucker-Davis Technologies			
	Mihaela lordanova   Concordia University Mesolimbic circuits of aversive predict	tion error		
	Michael McDannald   Boston College Beyond reward: ventral striatal/ventr discrimination	al pallidal contributions t	o rapid and accurat	e fear
	Susan Sangha   Purdue University Effect of safety cues on fear and rewa	rd seeking behaviors and	its neuronal correla	tes
	Gavan McNally   The University of New So Parsing the amygdala mechanisms for	uth Wales <b>r learning</b>		
	Chair: <b>Mihaela lordanova</b>   Concordia Uni	versity	IUUKER-I	JAVIS TECHNULUGIES
Pavilion C	Parallel symposium 8 Predicting fear and safety in the brain	1	7	$\supset T$

Grand Ballroom ABGlia in brain health, disease and repairChair: Brian MacVicar | University of British ColumbiaBrian MacVicar | University of British ColumbiaRoles for astrocytes and pericytes in the regeneration of cerebral blood vessels after strokeMichael Salter | University of TorontoSex, pain and microgliaKeith Murai | McGill UniversityOptimizing brain circuit microenvironments through neuron-astrocyte communication

<b>10:15 — 10:45 am</b> Junior Ballroom	<b>Coffee break</b> posters/exhibits	
<b>10:45 – 11:45 am</b> Grand Ballroom AB	Featured plenary speaker Beth Stevens   Harvard Medical School <i>How the immune system sculpts brain circuitry</i> Sponsored by Djavad Mowafaghian   Centre for Brain Health (UBC)	Djavad Mowafaghian CENTRE FOR BRAIN HEALTH
<b>11:45 – 12:00 pm</b> Grand Ballroom AB	Brain Star talk Nicole E. Burma   University of Calgary A new use for an old drug: probenecid alleviates opioid withdrawal in rode	nts
<b>12:00 – 12:15 pm</b> Grand Ballroom AB	NSERC funding information session Mark Shore, PhD   Natural Sciences and Engineering Research Council of Canada Rese	earch Grant Program Officer
12:15 – 1:30 pm	Lunch on own	
<b>1:30 – 3:30 pm</b> Junior Ballroom	Poster session 3 & exhibits	
<b>3:00 – 3:30 pm</b> Junior Ballroom	<b>Coffee break</b> posters/exhibits	
<b>3:30 – 5:00 pm</b> Pavilion AB	Parallel symposium 9 Time and memory Chair: Sheena Josselyn   The Hospital for Sick Children Mary Cheng   University of Toronto Mississauga miR-132/212 mediates seasonal plasticity of the central circadian clock Qi Yuan   Memorial University Pheromone communication of odor-specific fear in rats Satoshi Kida   Tokyo University of Agriculture Time-dependent regulation of memory retrieval by hippocampal clock Mauro Costa-Mattioli   Baylor College of Medicine New mechanisms underlying memory dysfunction	CENTRE DE RECHERCHE DE CERECO BRAIN RESEARCH CENTRE
	Sponsored by CERVO Brain Research Centre	

### **ANNUAL CONFERENCE SCHEDULE**

Port McNeil	Parallel symposium 10 Novel approaches to promoting spinal plasticity				
	Chair: Ian Winship   University of Alberta				
	Wolfram Tetzlaff   University of British Columbia Cortical motor map plasticity and functional recovery via spared dorsolaterally projecting corticospinal neurons after spinal cord injury				
	Alyson Fournier   McGill University Small molecule stabilization of 14-3-3 Protein-Protein interactions to promote axon regeneration				
	Karim Fouad   University of Alberta Eliciting inflammation enables successful rehabilitative training in chronic spinal cord injury				
	Ian Winship   University of Alberta Enhancing spinal plasticity to improve recovery from cortical stroke				
Pavilion D	Parallel symposium 11       centre for         Mechanisms underlying brain dysfunction in Alzheimer's disease       studies				
	Chair: Doug Munoz   Queen's University				
	Marco A.M. Prado   Western University Crossing the translational gap in Alzheimer's disease research				
	Fernanda G. De Felice   Queen's University Molecular connections between Alzheimer's disease and Type 2 diabetes				
	Isabelle Aubert   University of Toronto Alzheimer's disease: vascular and neuronal plasticity				
	Douglas P. Munoz   Queen's University Biomarkers of disease progression in a non-human primate model of Alzheimer's disease				
	Sponsored by Centre for neuroscience studies at Queen's University				
Pavilion C	Parallel symposium 12 Development and function of motor circuits: from hardwired patterning to functional maturation and sensory integration				
	Chair: Artur Kania   IRCM (Institut de recherches cliniques de Montreal)				
	Douglas W. Allan   University of British Columbia Target-dependent gene activation in neurons is mediated by widespread deployment of a BMP-responsive cis-regulatory element.				
	<b>Angelo Iulianella</b>   Dalhousie University Taming the gradient: the intrinsic regulation of Sonic Hedgehog signaling in the specification of ventral cell identities in the developing spinal cord				
	Tuan Vu Bui   University of Ottawa A switch in the mode of operation of spinal locomotor networks in the developing zebrafish				
	Tomoko Ohyama   McGill University Circuit mechanism underlying a Drosophila larval escape sequence				
	Sponsored by Dalhousie University Department of Medical Neuroscience				

### **KEYNOTE SESSIONS & PLENARY SYMPOSIA ABSTRACTS**

### SUNDAY, MAY 12, 2018

### 5:15 – 6:15 pm

Grand Ballroom AB

### **Presidential lecture**

#### Receptors, synapses and memory

Rick Huganir | Johns Hopkins School of Medicine



Neurotransmitter receptors mediate signal transduction at synaptic connections between neurons in the brain and the regulation of receptor function is critical for synaptic plasticity. My laboratory has been elucidating the molecular mechanisms underlying the regulation of AMPA receptors, the major excitatory neurotransmitters receptors in the central nervous system. We have found that AMPA receptors are extensively posttranslationally modified by phosphorylation, palmitoylation and ubiquination. Protein phosphorylation is a major form of AMPA receptor regulation and the receptors are phosphorylated on serine, threonine and tyrosine residues by many different protein kinases. We have shown that phosphorylation of the receptor regulates its ion channel properties and membrane trafficking and that receptor phosphorylation is critical for the expression of several forms of synaptic plasticity and for learning and memory. We have also identified a variety of AMPA receptor interacting proteins, including GRIP1/2, PICK1, GRASP1, SNX27, KIBRA, and SynGAP that interact with AMPA receptors and are necessary for their proper subcellular trafficking. This AMPA receptor complex is important for several forms of synaptic plasticity and learning and memory. These studies indicate that the modulation of receptor function is a major mechanism for the regulation of synaptic transmission and is a critical determinant of animal behavior. Recent evidence has indicated that AMPA receptor function may be disrupted in several neurological and psychiatric disorders. Specifically, mutations in SynGAP, GRIP1 and GRASP1 have been found to be associated with cognitive disorders including intellectual disability, autism, and schizophrenia. We have been characterizing some of these disease-associated mutations to examine their effect on protein function, AMPA receptor trafficking, synaptic plasticity and behavior. These studies may help develop novel therapeutics for these devastating disorders.

Sponsored by the International Society for Neurochemistry

6:15 – 7:15 pm Grand Ballroom AB

### **Special lecture**

#### From microcircuits to neuroenology: the revolutions in olfaction Gordon M. Shepherd | Yale School of Medicine

Evidence is building for a new understanding of the dominant role of smell in the life of animals, including humans. I will review several of the revolutions that are taking place, especially in how the brain creates the flavor of food and wine. The revolutions begin in studies of the earliest evolution of mammals 240 mya, where recent paleontological evidence shows that olfaction was a driving force. A key point is that in mammals olfaction evolved into a dual sense: orthonasal smell for external odors, and most importantly retronasal smell for internal aromas from ingested food and wine. Olfactory transduction occurs by GPCRs; the responses are converted into spatial representations by olfactory bulb microcircuits, and into odor objects within olfactory cortex microcircuits, which act as a content addressable memory system. The outcome is projected to orbitofrontal cortex where multimodal flavor perception occurs. This array of central flavor perception is being seen to have wide ramifications for human health, international economies, and the global environment, which is being addressed by a new field of neurogastronomy. Application to a new science of wine tasting will be discussed.

### MONDAY, MAY 14, 2018

8:30 – 10:15 am

Grand Ballroom AB

#### Plenary symposium 1

*The role of cortico-striatal networks in cognition and action* Chair: **Melvyn Goodale** | Western University

#### *Deciphering decision making: exploring the neural systems underlying the evaluation versus employment of cognitive effort in rats* **Catharine Winstanley** | University of British Columbia

The degree to which we are willing to select options that require more cognitive effort but which have the potential to lead to greater rewards has far-reaching consequences for our economic and personal success. However, relatively little is known regarding the neurobiology governing the adjudication and application of cognitive effort in the decision-making process. We therefore developed a decision-making paradigm for rats which requires animals to choose between two options that differ in the degree of cognitive effort required to attain success. In this rat cognitive effort task (rCET), animals decide at the start of each trial whether to perform an easy or difficult attentional challenge. In the easy condition, rats must correctly localize a visuospatial target which is illuminated for 1.0s, whereas on hard trials, the target is only presented for 0.2s. Hard trials are therefore more attentionally demanding, but accurate performance is rewarded with double the number of sugar pellets. We have observed that rats differ dramatically in their preference for the hard option, independent of their attentional ability, leading to their classification as either "workers" or "slackers". Through a series of pharmacological inactivation experiments, we have begun to characterize a network of regions within the affective corticostriatal loop that are involved in determining choice. Collectively, these studies indicate that the evaluation versus employment of cognitive effort are regulated by somewhat unique and dissociable neurobiological mechanisms.

#### Cortico-striatal contributions to motor sequence learning and consolidation

Julien Doyon | Université de Montréal

For more than 20 years, research in my laboratory has focused on investigating the behavioural determinants, neuronal substrates and neurophysiological correlates of motor skill learning and consolidation. During this presentation, I will first review some of our work focusing on motor sequence learning (MSL), which refers to the process by which movement elements come to be performed effortlessly as a unitary sequence through multiple sessions of practice. I will summarize the results of studies, which demonstrate that interactions between the cortico-striatal and cortico-cerebellar systems are critical for establishing the motor routines used to acquire new sequence of movements. I will then discuss our studies showing that the consolidation of such a memory trace depends upon greater functional integration of the cortico-striatal system and non-rapid eye movement (N-REM) sleep spindle activity (11-17 Hz) measured during the night following the initial training session. More specifically, I will describe the results of our simultaneous fMRI/EEG recording experiment, which show that: a) the cortico-striatal network recruited during MSL is reactivated during sleep, time-locked to spindles, b) such a reactivation of the memory trace is followed by reorganization of the neural representation toward a subcortically-dominant consolidated trace during the post-training night, and c) sleep spindles promote skill consolidation by locally reactivating and functionally binding task-relevant cortical and subcortical regions including the striatum.

#### Striatal role in auditory sequence perception

#### Jessica Grahn | Western University

An important role for the striatum has long been known for sequences of actions, but more recent work also implicates the striatum in the perception of temporal sequences that are not derived from movement patterns. Sensitivities to certain patterns in temporal sequences may be unique to humans, such as our sensitivity to musical rhythm, in which we rapidly identify the central structural component called the 'beat'. The beat is the regular time interval that we tap to, and against which other time intervals in the rhythm are measured. Existing models of time perception cannot account for the many behavioural advantages observed for timing of sequences with a beat, compared to irregular sequences that have no beat. In general, perception of auditory rhythms activates brain areas typically associated with movement (especially the premotor cortex, supplementary motor area (SMA), cerebellum, and striatum), in addition to auditory areas. Here, I will review neuroimaging research that elucidates striatal contributions to sequence perception, showing that the striatum is preferentially activated during perception of rhythms with a regular beat, compared to irregular rhythms. I further discuss research that demonstrates how alterations to activity in the striatal network alter perception of these sequences. I will also touch on cross-species comparative work designed to assess whether beat perception is unique to humans.

#### 10:45 - 11:45 am

Grand Ballroom AB

#### Featured plenary speaker

#### Starting new actions and learning from it

Rui Costa | Columbia's Zuckerman Institute

The ability of animals to build individual repertoires based on the consequences of their actions is fascinating, and essential for survival. Understanding this process, i.e. how actions are learned through trial and feedback, requires mechanistic insight into how self-paced actions are initiated, how they can be selected/initiated again, and how feedback can shape their execution and organization. We use behavioral, genetic, electrophysiological, and optical approaches to gain this mechanistic insight. The combination of these approaches allowed us to uncover that dopaminergic neurons are transiently active before self-paced movement initiation. This activity is not action-specific and modulates both the probability of initiation and the vigor of future movements, but does not affect ongoing movement. Dopamine is supposed to have opposite effects on downstream striatal direct and indirect pathways. Contrary to what is classically postulated, we found that both striatal direct and indirect pathways are active during movement initiation. The activity in both pathways is action-specific, is organized into specific spatiotemporal patterns, and has complementary but different roles in movement initiation. Furthermore, when animals organize their individual movements in sequences or chunks, activity related to the initiation or termination of these chunks emerges in dopaminergic and striatal circuits. The behavioral and neuronal re-organization that accompanies sequence learning requires plasticity between the cortex and striatum. Finally, using operant tasks and closed-loop brain machine paradigms, we revealed that cortico-striatal plasticity is necessary to select, reinforce and shape the specific neural and behavioral patterns that lead to desirable outcomes. These data invite new models on the mechanisms underlying self-paced movement initiation, and motor dysfunction in Parkinson's disease. They also suggest that cortico-basal ganglia circuits play a generic role in learning to produce task-relevant neural acti

### TUESDAY, MAY 15, 2018

**8:30 – 10:15 am** Grand Ballroom AB

### **Plenary symposium 2**

Sponsored by Hotchkiss Brain Institute, University of Calgary

*Shaping motivational drive: From synapses to circuits to mesoscale responses* Chair: **Stephanie Borgland** | Hotchkiss Brain Institute

#### Synaptic alterations in the lateral OFC with diet induced obesity Stephanie Borgland | Hotchkiss Brain Institute

The orbitofrontal cortex (OFC) receives sensory information about food and integrates these signals with expected outcomes. Thus, the OFC registers the current value of foods and updates actions based on this information. Our previous work demonstrated a decrease in GABA release probability onto pyramidal neurons of the OFC from obese rats. Because high fat diets alter endocannabinoid signaling, we tested the hypothesis that enhanced endocannabinoid signaling alter GABA release probability in the OFC.

Rats were given restricted (1h /day), extended (23h/day) or no (chow only) access to a cafeteria diet. Whole cell patch clamp electrophysiology was used to assess alterations in local inhibitory synaptic transmission onto pyramidal neurons.

Rats became obese after 40- 45 days of extended, but not restricted access to a cafeteria diet. OFC pyramidal neurons from rats with extended access to a cafeteria diet had decreased inhibitory input partially due to an increase in endocannabinoid signaling at inhibitory synapses onto pyramidal neurons. Rats with extended access to a cafeteria diet exhibited increased endocannabinoid tone due to altered group 1 mGluR signaling. Obesity-induced changes in astrocytes in the OFC may contribute to these synaptic changes.

Taken together, these data suggest that cellular adaptations in the lateral OFC are associated with extended but not restricted access to a cafeteria diet. Thus, obesity can decrease inhibitory input to OFC pyramidal neurons which may underlie impaired food devaluation observed in observed and humans.



### **KEYNOTE SESSIONS & PLENARY SYMPOSIA ABSTRACTS**

#### Neural endophenotypes of stress susceptibility

#### Rosemary Bagot | McGill University

Alterations in nucleus accumbens (NAc) activity have been linked to the pathophysiology of depression. Mice that exhibit depressive-like symptoms after chronic social defeat stress (CSDS) show distinct changes in NAc activity. However, the pre-existing individual differences in neural activity that make certain mice resilient and others susceptible to stress are yet to be described. We hypothesized that individual differences in NAc activity present before exposure to stress may associate with future stress susceptibility. Until recently it has not been possible to differentiate between alterations in neural activity that are a consequence of stress exposure and those that precede stress and, thus, may have utility in pre-identifying stress-susceptible individuals. Using in vivo fiber photometry calcium imaging, we recorded activity in NAc D1- and D2- medium spiny neurons (MSN) in awake behaving mice before exposing mice to ten days of social defeat stress to identify resilient and susceptible individuals. We report that, prior to stress, mice that later become resilient have higher D1 – MSN activity than mice that later become susceptible, an effect observed both in baseline neuronal activity and during social interaction. We suggest that reduced D1-MSN activity before defeat may be a predisposing factor for stress susceptibility. We also observed differences in D2- MSN activity temporally correlated with behavior, pointing to an additional role for D2-MSN in susceptibility to stress. We are currently exploring afferent sources of altered D1-MSN activity that may contribute to circuit-level endophenotypes associated with individual differences in stress adaptation. Our findings demonstrate the utility of fiber photometry in identifying a neural signature of susceptibility and suggest a possible mechanism of stress-induced susceptibility. Ultimately these efforts may lead to the potential to predict at-risk individuals prior to encountering stress.

#### *High-throughput electrophysiological, behavioral, or social event triggered imaging of mouse mesoscale brain activity* **Timothy Murphy** | University of British Columbia

Resting state brain spontaneous activity is commonly used to map the brain at the mesoscale in a number of species. With the recent development of mice expressing new genetically encoded calcium indicator (GCaMP), cortical activity can be measured at high sensitivity and neuronal selectivity during behavior. We have developed a mouse training protocol and home-cage based imaging system in which water restricted mice are trained to self-initiate cortical imaging trials in exchange for water rewards.

Up to 10 GCaMP6 transgenic female or male mice can be housed together in the automated home-cage imaging system. Mice are identified by RFID and wide-field, mesoscopic imaging of the dorsal cortex is performed to assess functional connectivity and responses to sensory stimuli as well as behaviorally-driven motifs. We have based the automated home-cage hardware on the Raspberry Pi single board computer. Using the Pi minimizes cost and maximizes the potential to scale up the automated home-cage imaging to many vivarium hosted, remote controlled cages. The system is also ideal for scenarios where handling animals can perturb results such as studies of circadian rhythms, micro-biomes, pathogens, or social interactions.

In addition to autonomous image acquisition, a new challenge is combining mesoscale imaging with multiple parallel measurements that range in spatial and temporal scales from single neuron electrophysiology to behavior. Here, we explored the relationship between mesoscale spontaneous calcium activity in cortex and single cell electrophysiological activity (spike detection) and secondly, with behavior. We make use of a rich set of cortical activity motifs that are present in spontaneous activity in anesthetized and awake animals. A mesoscale spike-triggered averaging procedure allowed the identification of motifs that are preferentially linked to individual spiking neurons by employing genetically targeted indicators of neuronal activity (GCaMP6). Thalamic neurons predicted and reported specific cycles of wide-scale cortical inhibition/excitation. In contrast, spike-triggered maps derived from single cortical neurons yielded spatio-temporal maps expected for regional cortical consensus function.

Lastly, the low cost and compact foot print of Raspberry Pi based imaging systems permits imaging to be multiplexed across animals permitting dual-animal brain imaging during social interaction. We also propose that this social interaction brain imaging paradigm may be a way to evaluate animals that model aspects of psychiatric disorders where conventional assays may difficult to employ.

### 10:45 - 11:45 am

Grand Ballroom AB

### Featured plenary speaker

#### Neural circuits underlying positive and negative valence



The Tye Lab is interested in understanding how neural circuits important for driving positive and negative motivational valence (seeking pleasure or avoiding punishment) are anatomically, genetically and functionally arranged. We study the neural mechanisms that underlie a wide range of behaviors ranging from learned to innate, including social, feeding, reward-seeking and anxiety-related behaviors. How are these circuits interconnected with one another, and how are competing mechanisms orchestrated on a neural population level? We employ optogenetic, electrophysiological, electrochemical, pharmaco-logical and imaging approaches to probe these circuits during behavior.

#### Sponsored by the International Society for Neurochemistry



6:00 - 7:00 pm

Grand Ballroom AB

#### **Keynote lecture**

SickKids | Centre for Brain & Mental Health

SickKids

Neurosciences & Mental Health

RESEARCH INSTITUTE

Stem cells and growth factors: building and repairing the mammalian nervous system Freda Miller | University of Toronto

This lecture will focus on how the environment, and in particular growth factors, regulate the genesis of neurons and glia from stem cells during normal and abnormal neural development. Moreover, the lecture will describe how an understanding of the cellular underpinnings of normal brain development can lead to predictable, and sometimes not so predictable, strategies for repairing the injured CNS.

#### Sponsored by The SickKids Centre for Brain & Mental Health SickKids Program in Neuroscience & Mental Health

### **WEDNESDAY, MAY 16, 2018**

**8:30 – 10:15 am** Grand Ballroom AB

### Plenary symposium 3

#### Glia in brain health, disease and repair

Chair: Brian MacVicar | University of British Columbia

#### Roles for astrocytes and pericytes in the regeneration of cerebral blood vessels after stroke

Brian MacVicar | University of British Columbia

The developmental maturation of cerebral blood vessels and the integrity of the blood-brain barrier (BBB) require the coordinated support from both pericytes and astrocytes. Astrocytes are known to proliferate and become reactive following stroke but the alterations in brain pericytes are unknown. Therefore we examined what roles brain pericytes play in repairing and restoring the cerebral microvasculature following CNS trauma and whether there are coordinated interactions with astrocytes. Following stroke, pericytes proliferate and migrate into the infarct region where they accumulate inside a border of reactive astrocytes. The pericyte-astrocyte interface forms an angiogenic zone that progressively migrates into the ischemic core, thereby supporting a wave of tissue revascularization. Within a few weeks normal vessels with an intact BBB are found perfusing the previously ischemic cortical area. Using single cell and population RNA sequencing, we identify resting transcriptional signatures of pericyte subpopulations as well as a functional and transcriptional profile of activated pericytes following trauma. Brain pericytes in the adult brain represent a major progenitor population that can modify their phenotype to contribute to the regeneration of cerebral blood vessels following injury in a process that recapitulates their role in developmental vasculogenesis. Our work defines a spatial and temporal coordination of the pericyte-astrocyte crosstalk that is critical in stroke recovery.

#### Sex, pain and microglia

#### Michael Salter | University of Toronto

Interactions between microglia and neurons play key roles in physiological and pathological processes in the CNS. Microglia have been found to play a causal role in neuropathic pain behaviours resulting from peripheral nerve injury, and a core neuron-microglia-neuron signaling pathway has been elucidated. Within the dorsal horn, microglia suppress neuronal inhibition by a cascade involving activation of microglial P2X4 receptors causing the release of brain derived neurotrophic factor (BDNF). BDNF acts on trkB receptors which leads to a rise in intracellular CI- concentration in dorsal horn nociceptive output neurons, transforming the response properties of these neurons. In addition to suppressing inhibition, peripheral nerve injury causes activity-dependent potentiation at dorsal horn glutamatergic synapses which enhances nociceptive transmission. BDNF mediates the enhancement of synaptic NMDAR responses through activation of TrkB and the Src-family kinase, Fyn. This core signaling pathway has been extensively characterized, in studies using male mice. We have recently discovered that microglia-neuron signaling is dispensable in female mice. Rather, pain hypersensitivity in female mice depends upon the adaptive immune system, likely upon T cells. Despite this profound difference in cellular mechanisms, pain hypersensitivity in female mice is as robust as that in male mice. Taking into consideration sex differences in the spinal immune-neuronal signaling has important implications ranging from diagnostics, to therapeutics, to prevention of chronic pain.Funding: Supported by CIHR, Krembil Fdn, CRC, Anne and Max Tanenbaum Chair, and Northbridge Chair.

### **KEYNOTE SESSIONS & PLENARY SYMPOSIA ABSTRACTS**

### Optimizing brain circuit microenvironments through neuron-astrocyte communication

#### Keith Murai | McGill University

Astrocytes are key partners for neurons in the healthy brain and contribute to the physiology and homeostasis of neural circuits. The complex molecular, functional, and structural properties of astrocytes enable these cells to precisely regulate extracellular ionic balance, neurotransmission, brain energetics, and cerebrovasculature. However, the mechanisms that enable astrocytes to perform highly diverse and specialized functions in the brain remain poorly understood. In this presentation, results will be provided showing the remarkable anatomical and functional complexity of astrocytes using advanced electron microscopy and molecular techniques. Furthermore, new findings will be shown demonstrating how mature neurons signal to neighbouring astrocytes to guide their molecular and physiological features in multiple brain regions. This neuron to astrocyte communication is both necessary and sufficient for astrocyte molecular diversification including the expression of important molecules including glutamate transporters and receptors, potassium channels, and water channels. Thus, ongoing communication between neurons and astrocytes plays a fundamental role in optimizing local neural circuit microenvironments to ensure optimal brain health and function.

### Featured plenary speaker

### How the immune system sculpts brain circuitry

Beth Stevens | Harvard Medical School

One of the major unsolved mysteries in neuroscience is how synapses are eliminated in the developing and diseased brain. During development synaptic pruning is required for precise brain wiring; however the mechanisms that drive the elimination of specific synapses remain elusive. Emerging evidence implicates resident phagocytes called microglia, and molecules traditionally associated with the immune system. Our recent studies support a model in which 'weaker' or less active synapses in the developing brain are targeted by complement proteins and then eliminated by phagocytic microglia that express receptors for complement and other immune molecules. These findings raise the question of how microglia differentiate the synapses or axons to prune from those to leave intact. Microglia-mediated synaptic refinement appears to depend on a careful balance of "eat me" (ie. complement) and a group

of novel immune- related "don't eat me" signals. Illuminating the mechanisms by which developing synaptic circuits are sculpted is providing important insight on understanding how to protect synapses in neurodegenerative and psychiatric disorders of synaptic dysfunction.

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### PARALLEL SYMPOSIA ABSTRACTS

**Please note:** the individual abstracts of all symposium presentations listed below are available on the CAN Conference App, and on the CAN-ACN website. If you haven't already downloaded the conference app, you can scan the QR code or search 'Canadian Association for Neuroscience' or 'CAN ACN' on the app store.

### MONDAY, MAY 14, 2018

**1:30 – 3:00 pm** Pavilion AB

#### Parallel symposium 1

#### *Tackling proteinopathies: new strategies to identify and test drug targets* Chair: Maxime W. Rousseaux | Baylor College of Medicine

Maxime W. Rousseaux | Baylor College of Medicine Jinsoo Seo | Daegu Gyeongbuk Institute of Science and Technology Jeehye Park | Sick Kids Hospital Blair R. Leavitt | University of British Columbia u Ottawa

Institut de recherche sur le cerveau Brain and Mind Research Institute

The mammalian brain is exquisitely sensitive to protein homeostasis. Genetic mutations and environmental stressors cause some proteins to accumulate over time, resulting in a constellation of neurological disorders collectively termed "proteinopathies". While their aetiologies are becoming increasingly clear, new strategies to treat these disorders are direly needed. In this symposium, speakers will present novel approaches for understanding disease pathogenesis and progression, as well as platforms to nominate and test therapeutics. From screening systems and disease modeling to pre-clinical studies, these presentations will provide new insights into tackling proteinopathies. Dr. Maxime Rousseaux will describe functional genomics strategies to identify novel Parkinson's disease therapeutics. Dr. Jinsoo Seo will discuss new methods to model Alzheimer's disease using three-dimensional human neuronal organoids. Dr. Jeehye Park will demonstrate cross-species efforts to understand the molecular mechanism of Amyotrophic Lateral Sclerosis. Dr. Blair Leavitt will address how insights from animal models of Huntington's disease are making inroads into clinical therapies.

#### Sponsored by Brain and Mind Research Institute at the University of Ottawa

**1:30 – 3:00 pm** Grand Ballroom A

### Parallel symposium 2

### Novel insights in the neurobiology of depression

Chair: Naguib Mechawar | Douglas Institute (McGill University)

Caroline Ménard | CERVO Brain Research Centre (Université Laval) Benoit Labonté | CERVO Brain Research Centre (Université Laval) Mounira Banasr | CAMH (University of Toronto) Naguib Mechawar | Douglas Institute (McGill University)

Major depressive disorder (MDD) is a serious condition that affects millions of Canadians. In recent years, significant progress has been made in our understanding of the neurobiological underpinnings of this mental illness. This symposium aims at bringing together some of these advances. The first talk will pesent results showing that chronic social stress alters the integrity of the blood-brain barrier, promoting neuroinflammation and depression (Ménard). This will be followed by a talk on animal and human data showing dramatic sexual dimorphism at the transcriptional level in MDD (Labonté). Then, the pivotal role played by astroglial impairments in the context of altered synaptic plasticity in MDD will be discussed (Banasr). Finally, recent results indicating a lasting impact of child abuse, a strong predictor of MDD, on oligodendrocyte function and myelination in human cerebral cortex will be presented (Mechawar).

#### Sponsored by CERVO Brain Research Centre



### PARALLEL SYMPOSIA ABSTRACTS

#### 1:30 - 3:00 pm

Pavilion C

#### Parallel symposium 3

*Cannabinoid-metabolism interplay in the control of cognition and behaviour* Chair: **Stephanie Fulton** | Université de Montréal

Giovanni Marsicano | University of Bordeaux Matthew Hill | University of Calgary Guillaume Ferreira | University of Bordeaux Stephanie Fulton | Université de Montréal

Emerging findings are uncovering important exchanges between metabolic processes and the endocannabinoid (eCB) system. On the one hand, eCBs have signaling actions that can directly modify intracellular metabolism to influence memory or can modulate the potency of metabolic signals to control appetite. On the other hand, the metabolic consequences associated with nutrient overload significantly affect eCB tone and associated cognitive and behavioural outcomes. This symposium will present recent findings focusing on this unique interaction: First, Giovanni Marsicano will discuss the novel role of mitochondrial CB1 receptor signaling in the hippocampus in cannabis-induced amnesia. Next, Matt Hill will present new findings on how genetic variance in the eCB system modulates the impact of metabolic hormones on feeding and energy expenditure. Next, Guillaume Ferreira will reveal how metabolic adaptations to a high-fat diet transform eCB-mediated hippocampal and cognitive functions. Finally, Stephanie Fulton will share new results on the ability of an eCB-degrading enzyme to significantly modulate energy balance and motivation via restricting eCB signaling in the nucleus accumbens.

#### 1:30 - 3:00 pm

Pavilion D

### Parallel symposium 4

*Mild Traumatic Brain Injury: understanding an invisible injury* Chair: **Anne Wheeler** | SickKids Hospital

Brian Christie | University of Victoria Sandy Shultz | Monash University Richelle Mychasiuk | University of Calgary Cheryl Wellington | University of British Columbia

Each year 250,000 Canadians suffer from concussion (a type of mild traumatic brain injury (mTBI)) and as many as 30% of these individuals will experience persistent symptoms, including headaches, sleep disturbances, and emotional distress. Repeated concussions may have lifelong consequences, including a suspected higher risk of neurodegenerative diseases. Despite increased media attention, the biological basis of concussion is not well known. In this symposium, the first three speakers will introduce clinically relevant rodent models of mTBI which are elucidating both developmental and sex specific factors involved in concussion. Dr. Christie will introduce and present data from his new awake closed-head injury procedure. Dr. Mychasiuk will present data from her rotational force model. Dr. Wellington will present data from her CHIMERA model, and introduce a national approach toward blood tests for human concussion. Finally, Dr. Shultz will introduce MRI, oculomotor, and biochemical work that involves Australian Rules footballers and rugby players.

### **TUESDAY, MAY 15, 2018**

**1:30 – 3:00 pm** Grand Ballroom A

### Parallel symposium 5

*Synapse to nucleus: new insights into epigenomic, transcriptional, and translational programs underlying neural circuit plasticity* Chair: **Stefano Brigidi** | University of California San Diego

Iva Zovkic | University of Toronto Mississauga Wayne Sossin | McGill University Tae-Kyung Kim | University of Texas Southwestern Stefano Brigidi | University of California San Diego

Signals generated at synapses must traverse long distances to reach the nucleus and trigger changes in gene expression and protein synthesis. This retrograde signaling phenomenon is essential for the function and plasticity of neural circuits. In turn, neurons have evolved multiple mechanisms to communicate on-going circuit activity to the genome. In this symposium, speakers will present new and exciting insights into the genomic control of circuit plasticity using a variety of approaches including genetic manipulations, electrophysiology, deep sequencing, and CRISPR-Cas9 gene editing. Dr. Iva Zovkic will discuss the remodeling of DNA-packaging by histone variants that underlies memory formation. Dr. Wayne Sossin will demonstrate how local translation of dendritic mRNAs by reactivated polysomes regulates synapse strengthening. Dr. Tae-Kyung Kim will focus on the gene expression programs induced in response to neuronal activity. Finally, Dr. Stefano Brigidi will address how the neuronal genome can decipher distinct forms of activity within a microcircuit.

#### Sponsored by Brain and Mind Research Institute at the University of Ottawa

**1:30 – 3:00 pm** Pavilion AB

#### Parallel symposium 6

#### Bridging the gap between mesoscopic and microscopic brain imaging

Chair: Ravi Rungta | French National Institute of Health and Medical Research (INSERM)

Ravi Menon | Robarts Research Institute, University of Western Ontario Ravi Rungta | French National Institute of Health and Medical Research (INSERM) Bojana Stefanovic | Sunnybrook Health Sciences Centre Matthieu Vanni | University of British Columbia

Macro to mesoscopic scale imaging of hemodynamics is commonly used to study resting state and evoked brain activity in humans, whereas cellular resolution imaging and electrophysiology are used to measure local synaptic activity in animals. This symposium will focus on bridging the gap between cognitive, systems, and cellular neuroscience by presenting advances in mesoscopic imaging approaches and by examining the link between synaptic activation and vascular responses. Ravi Menon will discuss the use of fMRI to study laminar and columnar activity. Ravi Rungta will talk on the spatial-temporal dynamics of functional hyperaemia along the entire vascular arbor, from the synapse to the pia. Bojana Stefanovic will compare MRI vs. two-photon measurements of cerebral hemodynamics in health vs. a transgenic rat model of Alzheimer's disease. Finally, Matthieu Vanni will combine calcium imaging with electrophysiology and behavior to discuss functional connectivity at different scales in mice.

#### Sponsored by CERVO Brain Research Centre







### PARALLEL SYMPOSIA ABSTRACTS

#### 1:30 - 3:00 pm

Pavilion D

### Parallel symposium 7

Novel molecular targets of Alzheimer's disease pathology Chairs: Hideto Takahashi | Institut de recherches cliniques de Montréal Vania Prado | University of Western Ontario

Hideto Takahashi | Institut de recherches cliniques de Montréal Vania Ferreira Prado | University of Western Ontario Jack H. Jhamandas | University of Alberta Weihong Song | University of British Columbia

Many advanced countries including Canada face a growing burden of care for patients with Alzheimer's disease (AD). Although many clinical trials have been performed, any effective treatments for AD symptoms have not yet been established. Therefore, our greater understanding of the pathological mechanisms of AD is crucial for the development of new therapeutic strategies for AD. The last several years have benefit from important advances regarding the identification of new molecular targets and mechanisms of amyloid-beta (Aβ) production and Aβ-induced neuronal and synaptic pathology. This symposium will picture recent findings regarding the identification of these novel molecular targets and mechanisms and discuss about the possibilities of new therapeutic strategies for AD.

### 1:30 – 3:00 pm

Pavilion C

### Parallel symposium 8

*Predicting fear and safety in the brain* Chair: **Mihaela lordanova** | Concordia University

Gavan McNally | The University of New South Wales Susan Sangha | Purdue University Michael McDannald | Boston College Mihaela Iordanova | Concordia University

Fear and safety are at constant interplay in the environment, and the ability to accurately predict whether a situation is safe or dangerous underscores adaptive behaviour and survival. Traditionally, subnuclei of the amygdala have been implicated in encoding fear memories. This symposium will look beyond this traditional role of the amygdala by exploring its role in safety encoding, and safety-based salience regulation. In addition, we will look beyond the amygdala in examining how aversive events are predicted with focus on some unlikely candidates including the ventral tegmental area, the ventral striatum and ventral pallidum. The goal of this symposium is to offer novel insight into the integration of circuits that support appetitive (safety, reward) and aversive (fear) memories.

#### Sponsored by Tucker-Davis Technologies



### **WEDNESDAY, MAY 16, 2018**

3:30 – 5:00 pm

Pavilion AB

#### Parallel symposium 9

*Time and memory* Chair: **Sheena Josselyn** | The Hospital for Sick Children

Mary Cheng | University of Toronto Mississauga Qi Yuan | Memorial University Satoshi Kida | Tokyo University of Agriculture Mauro Costa-Mattioli | Baylor College of Medicine



This symposium will bring together four investigators who have made important new contributions to the understanding the processes underlying memory regulation at the molecular, cellular and circuit levels. These investigators identified novel factors (such as time, odors, pheromones and microbiota) that control memory and added novel insights into how memories are formed and using cutting-edge technologies and new conceptual frameworks. In particular, several speakers will focus on the relationship between circadian clock and memory while the others will introduce new memory mechanisms regulated by memory modulators. Importantly, they use a range of approaches (including molecular, neurophysiological, behavioral and optogenetic tools), and are diverse in terms of geography (3 countries) and gender (2 women and 2 men). I will co-chair this symposium with Dr. Satoshi Kida.

Sponsored by CERVO Brain Research Centre

**3:30 – 5:00 pm** Port McNeil

#### Parallel symposium 10

*Novel approaches to promoting spinal plasticity* Chair: **Ian Winship** | University of Alberta

Wolfram Tetzlaff | University of British Columbia Alyson Fournier | McGill University Karim Fouad | University of Alberta Ian Winship | University of Alberta

Spontaneous recovery after central nervous system injury is based on plasticity in spared neuronal networks, and treatments that can promote such plasticity can improve recovery. The proposed symposium will bring together scientists exploring the mechanisms of neuronal rewiring in the spinal cord and the functional implications of manipulating these mechanisms. First, Dr. W. Tetzlaff will discuss his research using optogenetic and chemogenetic approaches to demonstrate the pivotal role of a small dorsolateral corticospinal pathway in mediating recovery after spinal cord injury (SCI). Next, Dr. A. Fournier will discuss a family of natural small molecules, called fusicoccanes, that stimulate neurite outgrowth and promote neurite growth after traumatic injury in vivo. Dr. K. Fouad will then show that induced inflammation can enhance neuronal plasticity and improve training efficacy in a rat model of chronic SCI. Finally, Dr. I. Winship will discuss pro-plasticity therapy in the spinal cord to enable recovery even weeks after a cortical stroke in rats.

### PARALLEL SYMPOSIA ABSTRACTS

3:30 - 5:00 pm

Pavilion D

### Parallel symposium 11

Mechanisms underlying brain dysfunction in Alzheimer's disease Chair: **Doug Munoz** | Queen's University

Chair: Artur Kania | IRCM (Institut de recherches cliniques de Montreal)

refinement of sensory integration in the computation of a locomotor response in Drosophila larvae.

Sponsored by Dalhousie University Department of Medical Neuroscience

Douglas W. Allan | University of British Columbia Angelo Iulianella | Dalhousie University Tuan Vu Bui | University of Ottawa Tomoko Ohyama | McGill University

Marco A.M. Prado | Western University Isabelle Aubert | University of Toronto Fernanda G. De Felice | Queen's University **Douglas P. Munoz** Queen's University

Alzheimer's disease (AD) results from a complex series of brain changes that take place over many years, likely decades. The specific mechanisms leading to the decline in brain function probably include a combination of genetic, environmental, and lifestyle factors. Major research efforts have been done in the past three decades aiming to unravel specific genetic, molecular, and cellular mechanisms germane to AD so that effective therapies can be developed. In this symposium, four experts in AD with complementary expertise propose to present an overview of the current knowledge on AD molecular mechanisms. PRADO will discuss the role of neuroinflammation in AD. DE FELICE will talk about the emerging concept that insulin resistance is a key mechanism underlying neuronal dysfunction in AD and that insulin and other hormones exert important neuroprotective actions in AD. AUBERT will present data on the beneficial effects of physical exercise in AD and also discuss that disruption of the blood-brain barrier with focused ultrasound can be helpful in AD. Finally, MUNOZ will describe a new monkey model of AD that presents pathological and behavioural correlates with the human disease.

Development and function of motor circuits: from hardwired patterning to functional maturation and sensory integration

This symposium will attempt to unite our understanding of the earliest events in neuronal development such as morphogen interpretation in the neural tube and target-to-neuron signalling that controls neuronal specification, with later events such as maturation of zebrafish spinal cord swimming circuit, and the

Sponsored by Queen's University

3:30 - 5:00 pm Pavilion C

Parallel symposium 12



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#### Booth 4

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### Parkinson Canada – T08

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### Plexon – T07

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### Society for Neuroscience – Booth 6

The Society for Neuroscience is the world's largest organization of scientists and physicians devoted to understanding the brain and nervous system. The nonprofit organization, founded in 1969, now has nearly 37,000 members in 90 countries.

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### Stoelting Co. – Booth 7

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#### **Poster Sessions**

#### Session 1: Monday, May 14

10:15 – 10:45 am, 12:00 – 1:30 pm (lunch on own – posters will remain open) & 3:30 – 5:30 pm

Session 2: Tuesday, May 15

10:15 – 10:45 am, 12:00 – 1:30 pm (lunch on own – posters will remain open) & 3:30 – 5:30 pm

**Session 3: Wednesday, May 16** 10:15 – 10:45 am, 12:00 – 1:30 pm (lunch on own –

posters will remain open) & 1:30 – 3:30 pm

#### The poster board numbers work in the following way: Session – Theme – Board number (e.g 1-A-1)

Location of individual poster boards indicated on poster board floor plans at the back of the program.

All abstracts are available to view online at can-acn.org, or on the CAN App – scan the QR code to download the app or search for 'Canadian Association for Neuroscience' or 'CAN ACN' in the App Store.

#### Themes

- A Development
- B Neural Excitability, Synapses, and Glia: Cellular Mechanisms
- C Disorders of the Nervous System
- D Sensory and Motor Systems
- E Homeostatic and Neuroendocrine Systems
- F Cognition and Behavior
- G Novel Methods and Technology Development
- H History, Teaching, Public Awareness and Societal Impacts in Neuroscience

#### IBRO International Brain Research Organization

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1-A-1 The Role of Gut Bacteria in Obesity Predisposition in Preterms

Elisha Phull<sup>1</sup>, Diana Bedoya<sup>1</sup> <sup>1</sup>Simon Fraser University

1-A-2 The role of Clusterin and its putative Plexina4 receptor in the developing zebrafish brain

Zachary Nurcombe<sup>1</sup>, Carrie Hehr<sup>1</sup>, Sarah McFarlane<sup>1</sup> <sup>1</sup>University of Calgary

1-A-3 Uncovering the molecular pathways regulating dopaminergic neurons axon guidance through PlexinC1

Caroline Lafrechoux<sup>1</sup>, Martin Lévesque<sup>1</sup>

<sup>1</sup>Université Laval

1-A-4 Identification of novel Schwann cell-derived factors regulating axonal growth through cell-cell communication modelling

Jeremy Toma<sup>1</sup>, Scott Yuzwa<sup>1</sup>, David Kaplan<sup>1</sup>, Freda Miller<sup>1</sup> <sup>1</sup>The Hospital for Sick Children

## 1-A-5 Developmental emergence of adult neural stem cells as revealed by single cell transcriptional profiling

Scott Yuzwa<sup>1</sup>, Michael Borrett<sup>1</sup>, Brendan Innes<sup>2</sup>, Anastassia Voronova<sup>1</sup>, Troy Ketela<sup>3</sup>, David Kaplan<sup>1</sup>, Gary Bader<sup>2</sup>, Freda Miller<sup>1</sup>

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## 1-A-6 A population of dormant, ventricle-contacting neurogenic precursors in the adult forebrain

Sandra Joppé<sup>1</sup>, Loic Cochard<sup>1</sup>, Pierre Ameslon<sup>1</sup>, Laura Hamilton<sup>1</sup>, Louis-Charles Levros<sup>1</sup>, Anne Aumont<sup>1</sup>, Karl Fernandes<sup>1</sup> <sup>1</sup>Université de Montréal

# 1-A-7 Dormant neural stem cells in the adult brain are activated upon ectopic stimulation of EGFR signalling

Loic Cochard<sup>1</sup>, Sandra Joppé<sup>1</sup>, Anne Aumont<sup>1</sup>, Karl Fernandes<sup>1</sup> <sup>1</sup>Université de Montréal

# 1-A-8 Pannexin1 regulates neurite development via a novel protein-protein interaction with Collapsin response mediator protein 2

Xiaoxue Xu<sup>1</sup>, Leigh Wicki-Stordeur<sup>2</sup>, Mei Liu<sup>1</sup>, Maria Weaver<sup>1</sup>, Catherine Choi<sup>1</sup>, Leigh Anne Swayne<sup>1</sup>

<sup>1</sup>University of Victoria, <sup>2</sup>University of British Columbia

#### 1-A-9 Development of Spine Interactions in Auditory Cortex

Megan Boucher-Routhier<sup>1</sup>, Jean-Philippe Thivierge<sup>1</sup> <sup>1</sup>University of Ottawa 1-A-10 Differential contributions of NMDA receptor subtypes to juvenile lamina II synaptic responses

Hadir Mahmoud<sup>1</sup>, Michael Hildebrand<sup>1</sup> <sup>1</sup>Carleton University

1-A-11 Methylglyoxal suppresses the translation of Notch1 mRNA to alter neural stem cell homeostasis in the developing mouse cortex

Deivid Rodrigues<sup>1</sup>, Holly Liu<sup>2</sup>, Fatin Ishraque<sup>2</sup>, Jose Perez<sup>2</sup>, James Ellis<sup>1</sup>, David Kaplan<sup>1</sup>, Guang Yang<sup>2</sup>

<sup>1</sup>The Hospital for Sick Children, <sup>2</sup>University of Calgary

1-A-12 Semaphorin3fa Mediates Retinal Progenitor Cell Dynamics and Differentiation

Rami Halabi<sup>1</sup>, Carrie Hehr<sup>1</sup>, Sarah McFarlane<sup>1</sup> <sup>1</sup>University of Calgary

1-A-13 The effects of perinatal high fat diet on myelination, microglia, and behavioral deficits associated with neurodevelopmental disorders in the offspring

Maude Bordeleau<sup>1</sup>, Giamal Luheshi<sup>1</sup>, Marie-Eve Tremblay<sup>2</sup> <sup>1</sup>McGill University, Doulas Mental Health Institute, <sup>2</sup>Centre de recherche du CHU de Québec

## 1-A-14 Impact of energy consumption and autophagy on neuronal migration

Cedric Bressan<sup>1</sup>, Marina Snapyan<sup>1</sup>, Dave Gagnon<sup>1</sup>, Simon Labrecque<sup>1</sup>, Johannes Klaus<sup>2</sup>, Martin Parent<sup>3</sup>, Paul De Koninck<sup>1</sup>, Stephen Robertson<sup>4</sup>, Silvia Cappello<sup>2</sup>, Armen Saghatelyan<sup>1</sup>

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# 1-A-15 Loss of microglia compromises survival and sensorimotor reflexes of mouse pups after perinatal insults

**Sophie Tremblay<sup>1</sup>, Alex Pai<sup>1</sup>, Weiwei Meng<sup>1</sup>, Daniel Goldowitz<sup>2</sup>** <sup>1</sup>Centre for Molecular Medicine and Therapeutics, <sup>2</sup>University of British Columbia

# 1-A-16 Regulation of mossy fiber-granule cell synaptic plasticity by a novel FMRP-Cav3.1 calcium channel association

Xiaoqin Zhan<sup>1</sup>, Giriraj Sahu<sup>1</sup>, Hadhimulya Asmara<sup>1</sup>, Charmaine Szalay<sup>1</sup>, Gerald Zamponi<sup>1</sup>, Raymond Turner<sup>1</sup> <sup>1</sup>University of Calqary

B – Neural Excitability, Synapses, and Glia: Cellular Mechanisms

# 1-B-17 electrophysiological and firing properties of layer 2/3 and layer 5 of human tissue: in vitro study

Homeira Moradi<sup>1</sup>, lihua wang<sup>1</sup>, Taufik valiante<sup>2</sup>, liang zhang<sup>1</sup>, Peter Carlen<sup>3</sup>

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## 1-B-18 Control of Neuroplasticity Effector Arc/Arg3.1 by Protein Lysine Acetylation

Jasmin Lalonde<sup>1</sup>, Surya Reis<sup>2</sup>, Sudhir Sivakumaran<sup>3</sup>, Carl Holland<sup>2</sup>, Hendrik Wesseling<sup>4</sup>, John Sauld<sup>4</sup>, Begum Alural<sup>2</sup>, Wen-Ning Zhao<sup>2</sup>, Judith Steen<sup>4</sup>, Stephen Haggarty<sup>2</sup>

<sup>1</sup>University of Guelph, <sup>2</sup>Massachusetts General Hospital / Harvard Medical School, <sup>3</sup>Boston University School of Medicine, <sup>4</sup>Boston Children's Hospital / Harvard Medical School

## 1-B-19 The nucleus reuniens thalami coordinates slow oscillatory activity between the neocortex and hippocampus

Brandon Hauer<sup>1</sup>, Silvia Pagliardini<sup>1</sup>, Clayton Dickson<sup>1</sup>

<sup>1</sup>University of Alberta

## 1-B-20 Electrophysiological Profile of Differentiating Human Spinal Cord Stem Cells

Kyle Malone<sup>1</sup>, Ahmad Galuta<sup>2</sup>, Shawn Hayley<sup>1</sup>, Eve Tsai<sup>3</sup>, Michael Hildebrand<sup>1</sup>

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#### 1-B-21 A model of failed remyelination to examine the mechanisms by which remyelination protects axons

Greg Duncan<sup>1</sup>, Brett Hilton<sup>2</sup>, Peggy Assinck<sup>3</sup>, Oscar Seira<sup>1</sup>, Philip Ly<sup>1</sup>, Ryan Hirata<sup>4</sup>, Akash Gupta<sup>4</sup>, Mohammad Asadi-Lari<sup>4</sup>, Catherine Pallen<sup>1</sup>, Jason Plemel<sup>5</sup>, Wolfram Tetzlaff<sup>1</sup>

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# 1-B-22 Resting astrocyte calcium bidirectionally regulates tonic brain blood flow

#### Jordan Haidey<sup>1</sup>, Grant Gordon<sup>2</sup>

<sup>1</sup>University of Calgary, <sup>2</sup>Hotchkiss Brain Institute, University of Calgary

# 1-B-23 Cholinergic neurotransmission in different subregions of the substantia nigra differentially controls DA neuronal excitability and locomotion

Jasem Estakhr<sup>1</sup>, Danya Abazari<sup>2</sup>, Kaitlyn Frisby<sup>1</sup>, J. Michael McIntosh<sup>1</sup>, Raad Nashmi<sup>1</sup>

<sup>1</sup>University of Victoria, <sup>2</sup>University of British Columbia

#### 1-B-24 Piezo1 is a novel calcium entry pathway in astrocytes

**Leigh Wicki-Stordeur<sup>1</sup>, Rebecca Ko<sup>1</sup>, Brian MacVicar<sup>1</sup>** <sup>1</sup>University of British Columbia

## 1-B-25 Uncommonly unconscious commonalities between sleep and anesthesia

Rachel Ward-Flanagan<sup>1</sup>, Alto Lo<sup>1</sup>, Marissa Sobey<sup>1</sup>, Clayton Dickson<sup>1</sup> <sup>1</sup>University of Alberta

# 1-B-26 Nonlinear frequency-dependent recruitment of a slow inhibitory circuit in the raphe by habenula inputs

Michael Lynn<sup>1</sup>, Sean Geddes<sup>1</sup>, Sébastien Maillé<sup>1</sup>, David Lemelin<sup>1</sup>, Richard Naud<sup>1</sup>, Samir Haj-Dahmane<sup>2</sup>, Jean-Claude Beique<sup>3</sup>

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#### **1-B-27** Roles of GSK3 in Brain Anatomy and Synaptic Function Tsukiko Miyata<sup>1</sup>, Ariel Avila<sup>2</sup>, John Georgiou<sup>3</sup>, Graham Collingridge<sup>4</sup>, Lily Qiu<sup>5</sup>, Jason Lerch<sup>5</sup>, James Woodgett<sup>1</sup>

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#### **1-B-28** The verified channelome of the rat subfornical organ Colleen Peterson<sup>1</sup>, Alasatir Ferguson<sup>2</sup>, William Fry<sup>1</sup>

<sup>1</sup>University of Manitoba, <sup>2</sup>Queen's University

#### **1-B-29** Astrocyte coupling and lactate shuttle deficits underlie long-term plasticity impairments after acute stress Ciaran Murphy-Royal<sup>1</sup>, Jaideep Bains<sup>1</sup>, Grant Gordon<sup>1</sup>

<sup>1</sup>Hotchkiss Brain Institute, University of Calgary

#### 1-B-31 Regional specialization of the Blood-Brain Barrier

Marie Blanchette<sup>1</sup>, Nadine Ruderisch<sup>2</sup>, Richard Daneman<sup>1</sup> <sup>1</sup>University of California, San Diego, <sup>2</sup>Abbvie

# 1-B-32 Molecular mechanisms of Irisin-induced turning response at developing motoneuron.

Jau-Cheng Liou<sup>1</sup>

<sup>1</sup>National Sun Yat-Sen University

# 1-B-33 TLR4-mediated increase of microglial glycolysis inhibits expression of LTP through IL-1b

Elisa York<sup>1</sup>, Jingfei Zhang<sup>1</sup>, Hyun Choi<sup>1</sup>, Rebecca Ko<sup>1</sup>, Jeff LeDue<sup>1</sup>, Brian MacVicar<sup>1</sup>

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# 1-B-34 It's about time: PKA-dependent LTP integrates the timing of stimuli via LIMK1

Sammy Cai<sup>1</sup>, Graham Collingridge<sup>1</sup>, Zhengping Jia<sup>1</sup>

<sup>1</sup>University of Toronto

#### 1-B-35 Discovering novel Ankyrin B interactions and understanding its role in neuronal function

**Catherine Choi<sup>1</sup>, Laura Arbour<sup>2</sup>, Leigh Anne Swayne<sup>1</sup>** <sup>1</sup>University of Victoria, <sup>2</sup>University of British Columbia

# 1-B-36 ATP-induced endocytosis of Pannexin 1: molecular mechanisms

**Andrew KJ Boyce<sup>1</sup>, Leigh Anne Swayne<sup>2</sup>** <sup>1</sup>University of Calgary, <sup>2</sup>University of Victoria

### **1-B-37** Lack of novel current in NALCN-transfected HEK-293 cells Mark Fry<sup>1</sup>, Colleen Peterson<sup>1</sup>, Jennifer Egan<sup>1</sup>

<sup>1</sup>University of Manitoba

# 1-B-38 The role of endogenous cellular prion protein in brain synaptic function

# Aeen Ebrahim Amini<sup>1</sup>, John Georgiou<sup>2</sup>, Changiz Taghibiglou<sup>3</sup>, Graham Collingridge<sup>1</sup>

<sup>1</sup>University of Toronto, <sup>2</sup>Lunenfeld–Tanenbaum Research Institude, Mount Sinai Hospital, <sup>3</sup>University of Saskatchewan

#### 1-B-39 Pannexin 1: a novel regulator of dendritic spine development in the postnatal cerebral cortex

Juan Sanchez-Arias<sup>1</sup>, Olga Shevtsova<sup>1</sup>, Mei Liu<sup>1</sup>, Maria Weaver<sup>1</sup>, Leigh Anne Swayne<sup>1</sup>

<sup>1</sup>University of Victoria

# 1-B-40 Longitudinal imaging of thalamocortical axon dynamics reveals central diabetic neuropathy

**Eslam Mehina<sup>1</sup>, Craig Brown<sup>1</sup>** <sup>1</sup>University of Victoria

#### C – Disorders of the Nervous System

## 1-C-41 Suppressing interferons reinvigorates microglial repair of microbleeds in the diabetic brain

Stephanie Taylor<sup>1</sup>, Eslam Mehina<sup>1</sup>, Emily White<sup>1</sup>, Kristian Doyle<sup>2</sup>, Patrick Reeson<sup>1</sup>, Craig Brown<sup>1</sup>

<sup>1</sup>University of Victoria, <sup>2</sup>University of Arizona

# 1-C-42 High-throughput phenomic characterization of ASD-associated genes reveals a functional gene network underlying hypersensitivity and impaired habituation

Troy McDiarmid<sup>1</sup>, Manuel Belmadani<sup>1</sup>, Fabian Meili<sup>1</sup>, Kurt Haas<sup>1</sup>, Paul Pavlidis<sup>1</sup>, Catharine Rankin<sup>1</sup>

<sup>1</sup>University of British Columbia

# 1-C-43 White Matter Tract Alterations in Drug-naive Parkinson's Disease Patients with Impulse Control Disorders

Mahtab Mojtahed Zadeh<sup>1</sup>, Farzaneh Ghazi Sherbaf<sup>1</sup>, Mohammad Hadi Aarabi<sup>1</sup>

<sup>1</sup>Tehran University of Medical Sciences

# 1-C-44 Revisiting the Sygen© data using data mining methods reveals the dose dependency of efficacy of the GM-1 ganglioside in Spinal Cord Injury (SCI) patients

Navid Khosravi-Hashemi<sup>1</sup>, Fred Geisler<sup>2</sup>, John Kramer<sup>1</sup> <sup>1</sup>University of British Columbia, <sup>2</sup>Rush-Copley Medical Center

# 1-C-45 Antidepressant Effects of Transcranial Direct Current Stimulation (tDCS) in Adolescent and Adult Rats

Shannon Waye<sup>1</sup>, Joshua Dean Conway<sup>1</sup>, Lucas Walters<sup>1</sup>, Francis Bambico<sup>1</sup> <sup>1</sup>Memorial University of Newfoundland

1-C-46 Neuregulin-1 fosters a pro-regenerative response by microglia and regulatory T cells in demyelinating conditions

Ghazaleh Mohammadzadeh Shahriary<sup>1</sup>, Hardeep Kataria<sup>2</sup>, Arsalan Alizadeh<sup>2</sup>, Thomas K. Santhosh<sup>1</sup>, Soheila Karimi-Abdolrezaee<sup>2</sup>

<sup>1</sup>Regenerative Medicine Program, Department of Physiology and Pathophysiology, University of Manitoba, <sup>2</sup>University of Manitoba

# 1-C-47 Neural adaptations in Parkinson's Disease for complex locomotion

**Trina Mitchell<sup>1</sup>, Alexander Thiel<sup>1</sup>, Oury Monchi<sup>2</sup>, Caroline Paquette<sup>1</sup>** <sup>1</sup>McGill University, <sup>2</sup>University of Calgary

#### C – Disorders of the Nervous System: Vascular Contributions to Cognitive Impairment (Poster cluster: 1-C-48 to 1-C-52)

1-C-48 Age-Dependent White Matter Inflammation and Cognitive Impairment in the TgAPP21 Rat Model of Alzheimer Disease Alexander Levit<sup>1</sup>, Brian Allman<sup>2</sup>, Nagalingam Rajakumar<sup>1</sup>, Vladimir Hachinski<sup>3</sup>, Shawn Whitehead<sup>2</sup>

<sup>1</sup>University of Western Ontario, <sup>2</sup>Western University, <sup>3</sup>London Health Sciences Centre

## 1-C-49 Correlating white matter changes to executive dysfunction in a rat model of mediodorsal thalamic stroke

Jessica Snyder<sup>1</sup>, Brian Allman<sup>1</sup>, Shawn Whitehead<sup>1</sup> <sup>1</sup>Western University

#### 1-C-50 White Matter Hyperintensities: A combined post mortem 7T MRI and histological study of microvascular and inflammatory changes

Austyn Roseborough<sup>1</sup>, Kristopher Langdon<sup>1</sup>, Robert Hammond<sup>1</sup>, Stephen Pasternak<sup>1</sup>, Ali Khan<sup>1</sup>, Shawn Whitehead<sup>1</sup>

<sup>1</sup>Western University

#### 1-C-51 Assessing Cardiac Dysfunction Post-Stroke in the Insular Cortex Ischemic Stroke Rat Model

Victoria Jaremek<sup>1</sup>, Brittany Balint<sup>1</sup>, Victoria Thorburn<sup>1</sup>, Maryse Paquet<sup>1</sup>, Jamie Melling<sup>1</sup>, Luciano Sposato<sup>1</sup>, Shawn Whitehead<sup>2</sup>

<sup>1</sup>The University of Western Ontario, <sup>2</sup>Western University

#### 1-C-52 Development of an Insular Ischemic Stroke Animal Model to Study the Pathophysiology of Atrial Fibrillation Detected after Stroke (AFDAS)

Victoria Thorburn<sup>1</sup>, Brittany Balint<sup>1</sup>, Maryse Paquet<sup>1</sup>, Luciano Sposato<sup>1</sup>, Shawn Whitehead<sup>2</sup>

<sup>1</sup>The University of Western Ontario, <sup>2</sup>Western University

# 1-C-53 Real-time evaluation of BACE1 activity on APP C99 site through a novel cell-based protein reporter

Bruno Herculano<sup>1</sup>, Zhe Wang<sup>1</sup>, Weihong Song<sup>1</sup>

<sup>1</sup>University of British Columbia

#### 1-C-54 BACE2 is a conditional beta-secretase for Alzheimer Disease

Zhe Wang<sup>1</sup>, Qin Xu<sup>1</sup>, Fang Cai<sup>1</sup>, Xi Liu<sup>1</sup>, Weihong Song<sup>1</sup> <sup>1</sup>University of British Columbia

# 1-C-55 A presenilin-1 mutation causes Alzheimer disease without affecting Notch signaling

Shuting Zhang<sup>1</sup>, Yili Wu<sup>1</sup>, Tahereh Bozorgmehr<sup>1</sup>, Zhe Wang<sup>1</sup>, Weihong Song<sup>1</sup>

<sup>1</sup>University of British Columbia

# 1-C-56 Inflammatory cytokines, klotho and DPP4 plasma levels in the patients with Alzheimer's disease

Mohsen Sedighi Mournani<sup>1</sup>, Tourandokht Baluchnejadmojarad<sup>1</sup>, Mehrdad Roghani<sup>2</sup>, Siamak Afshin Majd<sup>2</sup>

<sup>1</sup>Iran University of Medical Science (IUMS), <sup>2</sup>Shahed University

### POSTER SESSION 1 - MONDAY, MAY 14, 2018

# 1-C-57 Protracted post-traumatic neuronal death in the developing hippocampus

**Trevor Balena<sup>1</sup>**, **Negah Rahmati<sup>1</sup>**, **Yero Saponjian<sup>1</sup>**, **Kevin Staley<sup>1</sup>** <sup>1</sup>Massachusetts General Hospital

## 1-C-58 Locomotor recovery following contusive spinal cord injury does not require oligodendrocyte remyelination

Sohrab Manesh<sup>1</sup>, Greg Duncan<sup>1</sup>, Brett Hilton<sup>2</sup>, Peggy Assinck<sup>3</sup>, Jie Liu<sup>1</sup>, Aaron Moulson<sup>1</sup>, Jason Plemel<sup>4</sup>, Wolfram Tetzlaff<sup>1</sup>

<sup>1</sup>University of British Columbia, <sup>2</sup>Deutsches Zentrum für Neurodegenerative Erkrankungen (DZNE), <sup>3</sup>The University of Edinburgh, <sup>4</sup>The University of Calgary

## 1-C-59 A role for brain pericytes in cerebrovascular regeneration after stroke

Louis-Philippe Bernier<sup>1</sup>, Jasmin Hefendehl<sup>1</sup>, Coral-Ann Lewis<sup>1</sup>, Wilder Scott<sup>1</sup>, Lasse Dissing-Olesen<sup>1</sup>, Fabio Rossi<sup>1</sup>, Micheal Underhill<sup>1</sup>, Brian MacVicar<sup>1</sup>

<sup>1</sup>University of British Columbia

## 1-C-60 Acute astrogliosis and behavioural deficits in rats following repeated mild traumatic brain injury

Melissa Clarkson<sup>1</sup>, Brian Christie<sup>1</sup>, Patrick Nahirney<sup>1</sup>, Katie Neale<sup>1</sup>, Sara Taylor<sup>1</sup>

<sup>1</sup>University of Victoria

#### 1-C-61 Combining Visual Feedback and Functional Electrical Stimulation to Improve Motor Functions of Stroke Patients with a Brain-Computer Interface System

Slav Dimov<sup>1</sup>, Christoph Guger<sup>1</sup>, Rupert Ortner<sup>2</sup>, Woosang Cho<sup>2</sup> <sup>1</sup>g.tec neurotechnology USA, Inc., <sup>2</sup>g.tec medical engineering GmbH

# 1-C-62 Single APP knock-in mouse model of Alzheimer's disease showed age dependent cognitive deficit, cholinergic and catecholamine dysfunction

Sean Lacoursiere<sup>1</sup>, Valerie Lapointe<sup>1</sup>, Takashi Saito<sup>2</sup>, Takaomi Saido<sup>3</sup>, Bruce McNaughton<sup>1</sup>, Robert Sutherland<sup>1</sup>, Robert McDonald<sup>1</sup>, Majid Mohajerani<sup>1</sup>

<sup>1</sup>University of Lethbridge, <sup>2</sup>RIKEN Brain Science Institute & Japan Science and Technology Agency, <sup>3</sup>RIKEN Brain Science Institute

#### 1-C-63 Extending the translational validity of the CHIMERA (Closed Head Impact Model of Engineered Rotational Acceleration) platform: defining the relationships between neurological, electrophysiological, biochemical and neuropathological outcomes

Asma Bashir<sup>1</sup>, Sophie Stukas<sup>1</sup>, Kurt McInnes<sup>1</sup>, Zelalem Abebe<sup>1</sup>, Igor Tatarnikov<sup>1</sup>, Wai Hang Cheng<sup>1</sup>, Carlos Barron<sup>1</sup>, Anna Wilkinson<sup>1</sup>, Guilaine Boyce<sup>1</sup>, Matthew Farrer<sup>1</sup>, Peter Cripton<sup>1</sup>, Cheryl Wellington<sup>1</sup>

<sup>1</sup>University of British Columbia

# 1-C-64 Effect Of Ischemia/Reperfusion Event On The Phosphorylation Of Mapk

Roxana Avalos-Chacon<sup>1</sup>, Ricardo Santana-Martinez<sup>1</sup>, Alma Ortiz-Plata<sup>1</sup>, Perla Maldonado-Jimenez<sup>1</sup>

<sup>1</sup>Instituto Nacional De Neurología Y Neurocirugia

## 1-C-65 Ketogenic diet reduces inflammation after spinal cord injury

Kathleen Kolehmainen<sup>1</sup>, Oscar Seira<sup>1</sup>, Theresa Matzinger<sup>2</sup>, Jie Liu<sup>1</sup>, Wolfram Tetzlaff<sup>1</sup>

<sup>1</sup>University of British Columbia, <sup>2</sup>Franzens Universitat Innsbruck

# 1-C-66 Small molecule inducers of ABCA1 and apoE that act though indirect activation of the LXR pathway

Jianjia Fan<sup>1</sup>, Rui Qi Zhao<sup>1</sup>, Cameron Parro<sup>1</sup>, Wenchen Zhao<sup>1</sup>, Hsien-Ya Chou<sup>1</sup>, Jerome Robert<sup>1</sup>, Tarek Deeb<sup>2</sup>, John Linley<sup>3</sup>, Samantha Barichievy<sup>3</sup>, Nicholas Brandon<sup>3</sup>, Michael Wood<sup>3</sup>, Iva Kulic<sup>1</sup>, Cheryl Wellington<sup>1</sup>

<sup>1</sup>University of British Columbia, <sup>2</sup>Tufts-AstraZeneca Lab for Basic and Translational Neuroscience, <sup>3</sup>AstraZeneca

# 1-C-67 Changes in Nrf2 nuclear translocation in cortex, striatum and hippocampus of rats, submitted to ischemia and reperfusion.

Cesar Gonzalez-Gutierrez<sup>1</sup>, Ricardo Santana-Martinez<sup>2</sup>, Alma Ortiz-Plata<sup>1</sup>, Perla Maldonado-Jimenez<sup>1</sup>

<sup>1</sup>Instituto Nacional De Neurologia Y Neurocirugia, <sup>2</sup>Instituto Nacional De Neurología Y Neurocirugia

#### 1-C-68 Assessing modulation of glutamate release in Huntington's Disease using iGluSnFR, an optogenetic probe Ellen Koch<sup>1</sup>, Cameron Woodard<sup>1</sup>, Maria Sepers<sup>1</sup>, Lynn Raymond<sup>1</sup>

<sup>1</sup>University of British Columbia

#### 1-C-69 Dietary Fats Modulate Select Immune Functions of Microglia

Jessica Lowry<sup>1</sup>, Andis Klegeris<sup>1</sup> <sup>1</sup>University of British Columbia Okanagan

#### 1-C-70 Death-associated protein kinase 1 promotes extrasynaptic GluN2B phosphorylation and striatal spine loss in Huntington disease

Mandi Schmidt<sup>1</sup>, Louisa Dal Cengio<sup>1</sup>, Nicholas Caron<sup>1</sup>, Nikola Lazic<sup>1</sup>, Lynn Raymond<sup>1</sup>, Michael Hayden<sup>1</sup>

<sup>1</sup>University of British Columbia

#### 1-C-71 1. Functional Biomarkers of Parkinson's disease: Changes in brain-wide network connectivity in Default Mode and Frontalparietal Control Networks

Nole Hiebert<sup>1</sup>, Lorina Naci<sup>2</sup>, Adrian Owen<sup>1</sup>, Penny MacDonald<sup>3</sup> <sup>1</sup>Brain and Mind Institute/ Western University, <sup>2</sup>Trinity College Dublin, <sup>3</sup>Western University

# 1-C-72 Biomarkers In Amyotrophic Lateral Sclerosis: A Metallomics Approach

#### Deise Mendonça<sup>1</sup>, Jessica Paloma Silva<sup>1</sup>, Renata Barbosa<sup>2</sup>, Edgar Francisco de Jesus<sup>3</sup>, Leila Chimelli<sup>4</sup>, Ana Maria Martinez<sup>3</sup>

<sup>1</sup>Federal University of Sergipe, <sup>2</sup>São Paulo University, <sup>3</sup>Federal University of Rio de Janeiro, <sup>4</sup>Paulo Niemyer State Institute of the Brain

# 1-C-73 Microglial maturation, dysfunction, and role in synaptic loss in Huntington's disease

Julie Savage<sup>1</sup>, Marie-Kim St.-Pierre<sup>1</sup>, Hassan El-Hajj<sup>1</sup>, Maria Sanchez<sup>1</sup>, Francesca Cicchetti<sup>1</sup>, Marie-Eve Tremblay<sup>2</sup>

<sup>1</sup>Université Laval, <sup>2</sup>Centre de recherche du CHU de Québec

#### 1-C-74 Canonical Wnt Pathway is Required for Maintenance of the Blood Brain Barrier Integrity Upon Stroke: Impact on Thrombolytic Therapy

Noëmie Jean LeBlanc<sup>1</sup> <sup>1</sup>CHUL

1-C-75 Neuropathies of Stüve-Wiedemann Syndrome due to mutations in leukemia inhibitory factor receptor (LIFR) gene Alexandra Oxford<sup>1</sup>, Cheryl Jorcyk<sup>1</sup>, Julia Oxford<sup>1</sup>

<sup>1</sup>Boise State University

# **1-C-76** Altered endocannabinoid-mediated excitatory synaptic plasticity in the striatum in a Huntington disease mouse model Marja Sepers<sup>1</sup>, James Mackay<sup>1</sup>, Matthew Hill<sup>2</sup>, Lynn Raymond<sup>1</sup>

<sup>1</sup>University of British Columbia, <sup>2</sup>University of Calgary

"University of British Columbia, "University of Calgary

# 1-C-77 Effect of lactate or medium chain triglycerides on behaviour and blood lactate and glucose.

Michael Murack<sup>1</sup>, Hazim Khalil<sup>1</sup>, Claude Messier<sup>1</sup> <sup>1</sup>University of Ottawa

1-C-78 Effects of Ketogenic diet in mitochondrial function after Spinal Cord Injury

Oscar Seira<sup>1</sup>, Kathleen Kolehmainen<sup>1</sup>, Jie Liu<sup>1</sup>, Robert Boushel<sup>2</sup>, Wolfram Tetzlaff<sup>1</sup>

<sup>1</sup>University of British Columbia, <sup>2</sup>University of British Columbia (University of British Columbia )/ICORD

#### 1-C-79 MicroRNA Biomarkers for Injury Severity in Acute Human Traumatic Spinal Cord Injury

Seth Tigchelaar<sup>1</sup>, Rishab Gupta<sup>1</sup>, Femke Streijger<sup>2</sup>, Sunita Sinha<sup>3</sup>, Stephane Flibotte<sup>3</sup>, Michael Rizzuto<sup>1</sup>, Kendall Van Keuren - Jensen<sup>4</sup>, Corey Nislow<sup>3</sup>, Brian Kwon<sup>2</sup>

<sup>1</sup>ICORD, <sup>2</sup>University of British Columbia, <sup>3</sup>Pharmaceutical Sciences, <sup>4</sup>Translational Genomics

#### 1-C-80 Longitudinal Assessment of Behavior in a Novel Progressive Model of Parkinson's Disease

Logan Bigelow<sup>1</sup>, Melissa Perry<sup>1</sup>, Jackalina VanKampen<sup>1</sup>, Andrew Tasker<sup>1</sup> <sup>1</sup>University of Prince Edward Island

# 1-C-81 Acute cellular response of the neurovascular unit following a small focal ischemic stroke.

Kathleen Fifield<sup>1</sup>, Jacqueline Vanderluit<sup>1</sup> <sup>1</sup>Memorial University of Newfoundland

#### 1-C-82 Probing neural correlates of spatial navigation deficits in a second generation mouse model of Alzheimer's disease (APPNL-G-F)

Samsoon Inayat<sup>1</sup>, Jogender Mehla<sup>1</sup>, Jianjun Sun<sup>1</sup>, Jaira Ranger<sup>1</sup>, Robert Sutherland<sup>1</sup>, Bruce McNaughton<sup>1</sup>, Majid Mohajerani<sup>1</sup> <sup>1</sup>University of Lethbridge

# 1-C-83 Aberrant ER Ca2+ handling alters synaptic glutamate release in the YAC128 mouse Huntington Disease Model

James Mackay<sup>1</sup>, Amy Smith-Dijak<sup>1</sup>, Ellen Koch<sup>1</sup>, Lynn Raymond<sup>1</sup> <sup>1</sup>University of British Columbia

# 1-C-84 Timing of acute vasopressor administration after traumatic SCI: The impact on blood flow, oxygenation, pressure, and metabolic responses using a porcine model

Amanda Cheung<sup>1</sup>, Kitty So<sup>1</sup>, Femke Streijger<sup>1</sup>, Elena Okon<sup>1</sup>, Neda Manouchehri<sup>1</sup>, Katelyn Shortt<sup>1</sup>, Sheung Man Keung<sup>1</sup>, Kyoung-Tae Kim<sup>1</sup>, Allan Fong<sup>1</sup>, Jenny Sun<sup>1</sup>, Donald Griesdale<sup>1</sup>, Mypinder Sekhon<sup>1</sup>, Brian Kwon<sup>1</sup>

#### <sup>1</sup>University of British Columbia

1-C-85 Noradrenergic fiber degeneration in the piriform cortex and a difficult odor pattern separation deficit are observed in an Alzheimer's disease model mimicking Braak's pretangle hyperphosphorylated tau in the locus coeruleus

Abhinaba Ghosh<sup>1</sup>, Bandhan Mukherjee<sup>1</sup>, Faith McCarthy<sup>1</sup>, Vanessa Strong<sup>1</sup>, Susan Walling<sup>1</sup>, Gerard Martin<sup>1</sup>, Carolyn Harley<sup>1</sup>, Qi Yuan<sup>1</sup> <sup>1</sup>Memorial University Of Newfoundland

#### 1-C-86 When the garbage truck malfunctions: Glymphatic clearance visualization following repetitive TBI in adolescent female rats

Jennaya Christensen<sup>1</sup>, Glenn Yamakawa<sup>1</sup>, David Wright<sup>2</sup>, Sandy Shultz<sup>2</sup>, Richelle Mychasiuk<sup>1</sup>

<sup>1</sup>University of Calgary, <sup>2</sup>University of Victoria

# 1-C-87 The differential effects of ketamine, Ro25-6981 and (2R, 6R)-HNK on synaptic plasticity and depressive-like behaviour in the Wistar-Kyoto rat

Lily Aleksandrova<sup>1</sup>, Yu Tian Wang<sup>1</sup>, Anthony Phillips<sup>1</sup>

<sup>1</sup>University of British Columbia

#### 1-C-88 Behavioural and Pathophysiological Effects of Sleep Deprivation Following Repetitive Mild Traumatic Brain Injury in Adolescent Rats

Sabrina Salberg<sup>1</sup>, Jennaya Christensen<sup>1</sup>, Glenn Yamakawa<sup>1</sup>, Haris Malik<sup>1</sup>, Jason Tabor<sup>1</sup>, Ali Hazari<sup>1</sup>, Richelle Mychasiuk<sup>1</sup> <sup>1</sup>University of Calgary

1-C-89 The human TOR1A gene is a novel GSK3beta target gene Ioanna Armata<sup>1</sup>, Sandra Turcotte<sup>1</sup>

<sup>1</sup>The University of Moncton

#### **D** – Sensory and Motor Systems

#### 1-D-90 Difference in temperature between home and experimental tanks alters behavioral responses in zebrafish.

Benjamin Tsang<sup>1</sup>, Hayden Chow<sup>2</sup>, Hifsa Zahid<sup>1</sup>, Rida Ansari<sup>1</sup>, Richard Chi Yeung Lee<sup>1</sup>, Robert Gerlai<sup>1</sup>

<sup>1</sup>University of Toronto, <sup>2</sup>University of Western Ontario

#### 1-D-91 You must stop balancing before you can walk

Romain Tisserand<sup>1</sup>, Christopher Dakin<sup>2</sup>, Machiel Van der Loos<sup>1</sup>, Elizabeth Croft<sup>1</sup>, Timothy Inglis<sup>1</sup>, Jean-Sebastien Blouin<sup>1</sup> <sup>1</sup>University of British Columbia, <sup>2</sup>Utah State University

### POSTER SESSION 1 - MONDAY, MAY 14, 2018

#### 1-D-92 Assessing Cognitive-Motor Integration In Middle-Aged Athletes: The Effects Of Dementia Risk & Concussion

Andrea Cavaliere<sup>1</sup>, Diana Gorbet<sup>1</sup>, Lauren Sergio<sup>1</sup>

<sup>1</sup>York University

#### 1-D-93 IGF-1 activates AMPK to bidirectionally regulate mitochondrial function in adult sensory neurons

Mohamad-Reza Aghanoori<sup>1</sup>, Darrell Smith<sup>1</sup>, Mohammad Golam Sabbir<sup>1</sup>, Paul Fernyhough<sup>1</sup>

<sup>1</sup>Division of Neurodegenerative Disorders, St Boniface Hospital Albrechtsen Research Centre

#### 1-D-94 Regeneration of Auditory Neurons by Reprogramming Endogenous Spiral Ganglion Glial Cells

#### Steven Meas<sup>1</sup>, Teppei Noda<sup>2</sup>, Koji Nishimura<sup>2</sup>, Alain Dabdoub<sup>1</sup>

<sup>1</sup>University of Toronto/Sunnybrook Research Institute, <sup>2</sup>Sunnybrook Research Institute

#### 1-D-95 Effects of Dynorphin on Spinal Network Activity

Prince Ozogbuda<sup>1</sup>, Patrick Whelan<sup>1</sup>

<sup>1</sup>University of Calgary

## 1-D-96 Nile grass rats as a novel model of protracted type-2 diabetes-induced peripheral sensory neuropathy

Jyoti Singh<sup>1</sup>, Saad Yousuf<sup>1</sup>, Paige Shelemey<sup>1</sup>, Twinkle Joy<sup>1</sup>, Haecy Macandili<sup>1</sup>, Bradley Kerr<sup>1</sup>, Kelvin Jones<sup>1</sup>, Yves Sauve<sup>1</sup>, Klaus Ballanyi<sup>1</sup>, Christine Webber<sup>1</sup>

<sup>1</sup>University of Alberta

# 1-D-97 Neural correlates of sensory and motor information retained in parietal area 5 for memory-guided obstacle avoidance in the walking cat

Carmen Wong<sup>1</sup>, Stephen Lomber<sup>1</sup>

<sup>1</sup>The University of Western Ontario

# 1-D-98 Pain resolution and motor recovery following peripheral nerve injury: how can exercise help?

Charlie Kwok<sup>1</sup>, Kyle Mayr<sup>1</sup>, Patrick Whelan<sup>1</sup>, Tuan Trang<sup>1</sup> <sup>1</sup>University of Calgary

# 1-D-99 Asymmetric Vestibular Function in Adolescents with Idiopathic Scoliosis

Emma Woo<sup>1</sup>, Gunter Siegmund<sup>2</sup>, Christopher Reilly<sup>3</sup>, Jean-Sebastien Blouin<sup>1</sup>

<sup>1</sup>University of British Columbia, <sup>2</sup>MEA Forensic Engineers & Scientists, <sup>3</sup>BC Children's Hospital

#### 1-D-100 Influences of Emotional modulation on human brainstem pain-signaling pathways

Jocelyn Powers<sup>1</sup>, Patrick Stroman<sup>1</sup>, Natasha Talwar<sup>1</sup>

<sup>1</sup>Queen's University

# 1-D-101 Deficits in global motion perception and functional MT+ responses in enucleated children

Benjamin Dunkley<sup>1</sup>, Arijit Chakraborty<sup>2</sup>, Brenda Gallie<sup>1</sup>, Daphen McCulloch<sup>2</sup>, Margot Taylor<sup>1</sup>, Ben Thompson<sup>2</sup>

<sup>1</sup>Hospital for Sick Children, <sup>2</sup>University of Waterloo

# 1-D-102 Advillin is expressed throughout the autonomic nervous system

Diana Hunter<sup>1</sup>, Brittney Smaila<sup>1</sup>, Douglas Lopes<sup>2</sup>, Franziska Denk<sup>2</sup>, Matthew Ramer<sup>1</sup>

<sup>1</sup>University of British Columbia, <sup>2</sup>King's College London

# 1-D-103 The influence of visual stimulation and systemic metabolite availability on extracellular fluctuations of glucose and lactate in the mouse visual cortex

Alexandria Beland<sup>1</sup>, Claude Messier<sup>1</sup> <sup>1</sup>University of Ottawa

#### E – Homeostatic and Neuroendocrine Systems

# 1-E-104 Circadian Rhythm Alters Anxiolytic Effects of Ethanol on Zebrafish Behaviour

**Rida Ansari<sup>1</sup>, Amna Azhar<sup>2</sup>, Benjamin Tsang<sup>1</sup>, Robert Gerlai<sup>1</sup>** <sup>1</sup>University of Toronto, <sup>2</sup>University of Toronto Mississauga

# 1-E-105 Astrocyte-derived ACBP/DBI activates the hypothalamic melanocortin pathway to regulate feeding and energy homeostasis.

Khalil Bouyakdan<sup>1</sup>, Chloé Chrétien<sup>2</sup>, Demetra Rodaros<sup>3</sup>, Fabienne Liénard<sup>2</sup>, Érik Biron<sup>4</sup>, Luc Pénicaud<sup>2</sup>, Xavier Fioramonti<sup>5</sup>

<sup>1</sup>Centre de recherche du CHUM, <sup>2</sup>Université de Bourgogne, <sup>3</sup>CRCHUM – Univeristé de Montréal, <sup>4</sup>CHUL, <sup>5</sup>Université de Bordeaux

## 1-E-106 Local blockage of cannabinoid signalling attenuates the orexigenic effect of ghrelin when it is infused into the VTA

Alexander Edwards<sup>1</sup>, Lindsay Hyland<sup>1</sup>, Melissa Chee<sup>1</sup>, Alfonso Abizaid<sup>1</sup> <sup>1</sup>Carleton University

#### 1-E-107 A Genetic Variant of Fatty Acid Amide Hydrolase Regulates the Opposing Crosstalk between Leptin and Glucocorticoids in the Context of Feeding

Georgia Balsevich<sup>1</sup>, Gavin Petrie<sup>1</sup>, Arashdeep Singh<sup>1</sup>, Martin Sticht<sup>1</sup>, Stephanie Borgland<sup>1</sup>, Prasanth Chelikani<sup>1</sup>, Matthew Hill<sup>1</sup> <sup>1</sup>University of Calqary

# 1-E-108 Growth differentiation factor 15 modulates the activity of neurons involved in energy balance

Nick Simpson<sup>1</sup>, Hanna Grover<sup>1</sup>, Alastair Ferguson<sup>1</sup>

<sup>1</sup>Queen's University

# 1-E-109 Sexually dimorphic endocannabinoid-mediated plasticity in the VTA after acute fasting

Nathan Godfrey<sup>1</sup>, Min Qiao<sup>1</sup>, Stephanie Borgland<sup>1</sup>

<sup>1</sup>University of Calgary

# 1-E-110 Phoenixin activates nucleus of the solitary tract neurons and this excitatory effect is abolished in chronic stress-like conditions

Hanna Grover<sup>1</sup>, Alastair Ferguson<sup>1</sup>

<sup>1</sup>Queen's University

### F – Cognition and Behavior

#### 1-F-111 Effect of PGE inhibition on striatal neuroinflammation in 6-OHDA lesion

Temitope Adu<sup>1</sup>, Musa Mabandla<sup>1</sup>

<sup>1</sup>University of KwaZulu– Natal

#### 1-F-112 Involvement of orexinergic receptors within the nucleus accumbens in stress- and drug priming-induced reinstatement of morphine-seeking behaviors in the rats

Abbas Haghparast<sup>1</sup>, Marjan Sahafzadeh<sup>2</sup>, Zahra Farzinpour<sup>3</sup>

<sup>1</sup>Neuroscience Research Center Shahid Beheshti University of Medical science, <sup>2</sup>Rheinische Friedrich-Wilhelm University of Bonn, <sup>3</sup>University of Science and Technology of China

#### 1-F-114 Effect of orexin receptor 1 blockade in the anterior cingulate and orbitofrontal cortex on cost and benefit decision-making

Sara Karimi<sup>1</sup>, Abbaa Haghparast<sup>2</sup>, Gholam Ali Hamidi<sup>1</sup>

<sup>1</sup>Kashan University of medical sciences, <sup>2</sup>Shahid behesti University of medical science

#### 1-F-115 Involvement of D1-like dopaminergic receptors in the nucleus accumbens in modulation of formalin-induced orofacial pain

Amirhossein Pirasteh<sup>1</sup>, Abbas Haghparast<sup>1</sup>

<sup>1</sup>Neuroscience Research Center Shahid Beheshti University of Medical science

#### 1-F-117 The possibility of improving processing speed with 3D MOT training: enhance memory performance in seniors

Stela Musteata<sup>1</sup>, Kaya Yoshida<sup>1</sup>, Caroline Spaner<sup>1</sup>, Olav Krigolson<sup>1</sup>, Brian Christie<sup>1</sup>

<sup>1</sup>University of Victoria

#### 1-F-118 Imposing Structure on Odor Representations During Learning in OFC and BLA

Peter Wang<sup>1</sup>, Cristian Boboila<sup>1</sup>, Kristen Lawlor<sup>1</sup>, Richard Axel<sup>1</sup> <sup>1</sup>Columbia University

#### 1-F-119 An intermittent hypercaloric diet alters gut microbiota, prefrontal cortical gene expression and social behaviours in rats

Amy Reichelt<sup>1</sup>, Amy Loughman<sup>1</sup>, Ashton Bernard<sup>1</sup>, James Dachtler<sup>2</sup>, Mukesh Raipuria<sup>3</sup>, Thi Thu Hao Vann<sup>1</sup>, Robert Moore<sup>1</sup>

<sup>1</sup>RMIT University, <sup>2</sup>Durham University, <sup>3</sup>Federation University

#### 1-F-121 Multiple object tracking training can enhance selective attention and cognitive flexibility in older adults.

Caroline Spaner<sup>1</sup>, Stela Musteata<sup>1</sup>, Brian Christie<sup>1</sup>

<sup>1</sup>University of Victoria

#### 1-F-122 Effects of amyloid beta seeding on Morris water task performance

Sean Lacoursiere<sup>1</sup>, Majid Mohajerani<sup>1</sup>, Robert Sutherland<sup>1</sup> <sup>1</sup>University of Lethbridge

#### 1-F-123 Electroencephalographic correlates for risk and ambiguity in financial decision making

Mitchel Kappen<sup>1</sup>, Cameron Hassall<sup>1</sup>, Olav Krigolson<sup>1</sup>

<sup>1</sup>University of Victoria

#### 1-F-124 Optogenetic activation of foraging neurons in Drosophila melanogaster induces a nociceptive-like escape behaviour Jeffrey Dason<sup>1</sup>, Amanda Cheung<sup>2</sup>, Aaron Allen<sup>3</sup>, Marla Sokolowski<sup>3</sup> <sup>1</sup>University of Windsor, <sup>2</sup>University of British Columbia, <sup>3</sup>University of Toronto

#### 1-F-125 Role for estrogen signalling in anxiodepressive behaviour induced by saturated high-fat feeding

Léa Décarie-Spain<sup>1</sup>, Cécile Hryhorczuk<sup>1</sup>, Alexandre Fisette<sup>1</sup>, Élizabeth Jacob-Brassard<sup>1</sup>, Thierry Alquier<sup>1</sup>, Stephanie Fulton<sup>1</sup> <sup>1</sup>CRCHUM – Univeristé de Montréal

1-F-126 When a rat's past dictates its future: Effects of past activity-based anorexia on future cocaine self-administration Stephanie Gallant<sup>1</sup>, Michelle Da Paz<sup>1</sup>, Nora Chujunian<sup>1</sup>, Alexandra Usypchuk<sup>1</sup>, Alexandra Chisholm<sup>1</sup>, Uri Shalev<sup>1</sup>

<sup>1</sup>Concordia University

#### 1-F-127 Morphometric Analysis of Dorsal Hippocampal Neurons in a Mouse Model of Sporadic Alzheimer's Disease

Rasha Mehder<sup>1</sup>, Brian Bennett<sup>1</sup>, R. David Andrew<sup>1</sup> <sup>1</sup>Queen's University

#### 1-F-128 L-DOPA impairs regularity detection: an auditory EEG study in PD and age-matched controls

Penny MacDonald<sup>1</sup>, Jessica Grahn<sup>1</sup>, Abdullah Al Jaja<sup>2</sup>, Björn Herrmann<sup>2</sup> <sup>1</sup>Western University, <sup>2</sup>Brain and Mind Institute/Western University

#### 1-F-129 Neonatal Ventral Hippocampal Lesions (NVHL) rats show working memory deficits on a delayed alternation task

Nathaniel Powell<sup>1</sup>, Jeremy Seamans<sup>1</sup>

<sup>1</sup>University of British Columbia

#### 1-F-130 The role of neurotensin in the bed nucleus of the stria terminalis in the augmentation of heroin seeking induced by chronic food restriction

Alexandra Chisholm<sup>1</sup>, Rosalie Dauth<sup>1</sup>, Emilie Fortin<sup>1</sup>, Damaris Rizzo<sup>1</sup>, Natasha Gonzalez<sup>1</sup>, Alexandra Bumbu<sup>1</sup>, Christina McAnulty<sup>1</sup>, Shalev Uri<sup>1</sup> <sup>1</sup>Concordia University

#### 1-F-131 Neural Correlates of Feedback Congruency: Top-Down Modulation of the Reward Positivity

Taryn Berman<sup>1</sup>, Ashley Howse<sup>1</sup>, Chad Williams<sup>1</sup>, Olav Krigolson<sup>1</sup> <sup>1</sup>University of Victoria

#### 1-F-132 Glucocorticoid receptor phosphorylation in the dorsal and ventral hippocampus after acquisition of contextual fear conditionina

Renata Ponce Lina<sup>1</sup>, Norma Serafín<sup>1</sup>, Martha Carranza<sup>1</sup>, Carlos Arámburo<sup>1</sup>, Roberto Prado Alcalá<sup>1</sup>, Maricela Luna Muñoz<sup>1</sup>, Gina Ouirarte<sup>1</sup>

<sup>1</sup>Instituto de Neurobiología, UNAM Campus Juriguilla

#### 1-F-133 Effects of Centrally and Systemically Administered Thiamethoxam on Central Nervous System Function in the Rat Maria Soriani<sup>1</sup>, Jerrica Cormier<sup>1</sup>, Andrew Tasker<sup>1</sup>

<sup>1</sup>University of Prince Edward Island

#### 1-F-134 Neuroplasticity modulation by 4E-BP1 protein during motor skill learning

Maxence Brouillette<sup>1</sup>, Michel Cyr<sup>1</sup>

<sup>1</sup>UOTR – Université du Ouébec à Trois–Rivières

### POSTER SESSION 1 – MONDAY, MAY 14, 2018

1-F-135 Behavioural phenotypes associated with the MDGA2+/mouse model of Autism spectrum disorder

Richard Brown<sup>1</sup>, Michaela Purdon<sup>1</sup>, Emre Fertan<sup>1</sup>

<sup>1</sup>Dalhousie University

1-F-136 Optogenetic silencing of activity in the prelimbic cortex during action selection and action outcomes differentially biases risky choice

Debra Bercovici<sup>1</sup>, Oren Princz-Lebel<sup>1</sup>, Stan Floresco<sup>1</sup> <sup>1</sup>University of British Columbia

1-F-137 The medial orbitofrontal cortex plays a dissociable role in "reinstater" vs "non-reinstater" rats during cue-induced reinstatement of reward-seeking behaviour

Nicole Jenni<sup>1</sup>, Nicola Symonds<sup>1</sup>, Stan Floresco<sup>1</sup> <sup>1</sup>University of British Columbia

1-F-138 Great, I found it: Evidence for the association of reward with spatial information following navigation with the use of EEG Thomas Ferguson<sup>1</sup>, Chad Williams<sup>2</sup>, Ron Skelton<sup>2</sup>, Olav Krigolson<sup>2</sup> <sup>1</sup>Center for Biomedical Research, University of Victoria, <sup>2</sup>University of Victoria

1-F-139 Relationship between Response Network and Default Mode Network Predicts Reaction Time in the Stroop Task Paradigm Jessica Luk<sup>1</sup>, Todd Woodward<sup>1</sup>

<sup>1</sup>University of British Columbia

#### **G** – Novel Methods and Technology Development

1-G-140 High-density lipoproteins reduce amyloid-beta-deposition in a novel in vitro model of the human brain vasculature Jerome Robert<sup>1</sup>

<sup>1</sup>University of British Columbia

1-G-141 Machine learning classification of children with Fetal Alcohol Spectrum Disorder through eye movement behaviour analysis

Deng Wang<sup>1</sup>, Shelby Thompson<sup>1</sup>, Kennedy Denys<sup>2</sup>, Katherine Flannigan<sup>2</sup>, Gunnar Blohm<sup>1</sup>, Tim Oberlander<sup>2</sup>, Christine Loock<sup>2</sup>, James Revnolds<sup>1</sup>

<sup>1</sup>Queen's University, <sup>2</sup>University of British Columbia

#### 1-G-142 MiniSOG photoconversion as a new tool to study the ultrastructural features of cholinergic axons in the subthalamic nucleus

Maya Chebl<sup>1</sup>, Cynthia Lecours<sup>2</sup>, Christophe Proulx<sup>1</sup>, Marie-Eve Tremblay<sup>2</sup>, Martin Parent<sup>3</sup>

<sup>1</sup>Centre de recherche CERVO, <sup>2</sup>Centre de recherche du CHU de Québec, <sup>3</sup>Université Laval

#### 1-G-143 Portable Electroencephalography: Investigating Self-Reported Fatigue and the P300

#### Wande Abimbola<sup>1</sup>, Olav Krigolson<sup>2</sup>

<sup>1</sup>Centre for Biomedical Research, University of Victoria, <sup>2</sup>University of Victoria

#### 1-G-144 Rapid optogenetic kindling in neocortex

Amanda McFarlan<sup>1</sup>, Amrit Sampalli<sup>1</sup>, Elvis Cela<sup>1</sup>, P. Jesper Sjöström<sup>1</sup> <sup>1</sup>McGill University Health Centre

1-G-145 Optogenetic strategy to measure chloride transport kinetics in single neurons in situ Isabel Plasencia Fernandez<sup>1</sup>, Yves De Koninck<sup>1</sup> <sup>1</sup>Université Laval – CERVO Research center

1-G-146 Ligand-directed integrin labeling: Novel insights into glia mediated engulfment in synaptic elimination

Wyatt Slattery<sup>1</sup>, Fred Menard<sup>1</sup> <sup>1</sup>University of British Columbia Okanagan

1-G-147 Automated, high-throughput assessment of functional connectivity in mouse homecage following stroke Matilde Balbi<sup>1</sup>, Matthieu Vanni<sup>1</sup>, Jamie Boyd<sup>1</sup>, Federico Bolanos<sup>1</sup>, Jeffrey LeDue<sup>1</sup>, Timothy Murphy<sup>1</sup>

<sup>1</sup>University of British Columbia

#### IBRO

1-IBRO-148 Mechanisms underlying neuroprotection against Ischemia-like damage on differentiated neuroblastma SH-SY5Y cells

Rachid Akki<sup>1</sup>, Rosalba Siracusa<sup>2</sup>, Rossana Morabito<sup>2</sup>, Alessia Remigante<sup>2</sup>, Michela campolo<sup>2</sup>, Mohammed Errami<sup>1</sup>, Giuseppina La Spada<sup>3</sup>, Salvatore Cuzzocrea<sup>3</sup>, Angela Marino<sup>3</sup>

<sup>1</sup>Faculty of Sciences, University Abdelmalek Essaadi, <sup>2</sup>University of Messina, <sup>3</sup>University of Messinaadi

#### 1-IBRO-149 Neuronal glycoprotein M6a as a key regulator of synaptic plasticity during extra uterine brain development

Gabriela Aparicio<sup>1</sup>, Micaela García<sup>1</sup>, Alberto Frasch<sup>1</sup>, Camila Scorticati<sup>1</sup> <sup>1</sup>Instituto de Investigaciones Biotecnológicas Dr. Rodolfo Ugalde – Universidad

Nacional de General San Martín (IIB-UNSAM)

1-IBRO-150 Investigating the epileptogenic potential of Taenia excretory/secretory products and acetylcholinesterases

Anja de Lange<sup>1</sup>, Joseph Raimondo<sup>1</sup>

<sup>1</sup>University of Cape Town

#### 1-IBRO-151 Entrainment of the circadian clock in the goat (Capra hircus) by daily ambient temperature cycles

Hicham Farsi<sup>1</sup>, Driss Harti<sup>1</sup>, Mohamed Rachid Achaaban<sup>1</sup>, Mohammed Piro<sup>1</sup>, Veronique Raverot<sup>2</sup>, Beatrice Brothorel<sup>3</sup>, Mohammed Ouassat<sup>1</sup>, Etienne Challet<sup>3</sup>, Paul Pevet<sup>3</sup>, Khalid El Allali<sup>1</sup>

<sup>1</sup>Hassan II Institute of Agronomy and Veterinary Medicine, <sup>2</sup>Centre de Biologie Est – Groupement Hospitalier Est Hospices Civils de Lyon, <sup>3</sup>University of Strasbourg

#### 1-IBRO-152 Evidence for progenitor cell reprogramming in the developing cerebral cortex following selective neuronal ablation Bruna Landeira<sup>1</sup>, Jéssica Araújo<sup>1</sup>, Marcos Costa<sup>1</sup>

<sup>1</sup>Universidade Federal do Rio Grande do Norte – Instituto do Cérebro

Notes		

### POSTER SESSION 2 - TUESDAY, MAY 15, 2018

#### A – Development

2-A-1 Examining possible sex differences in maturation rate of new neurons in adult rats

Daria Tai<sup>1</sup>, Shunya Yagi<sup>1</sup>, Liisa A. Galea<sup>1</sup>

<sup>1</sup>University of British Columbia

2-A-2 Presynaptic development precedes dendritic input in C. elegans inhibitory motor neurons: different assembly sequences and a strategy to minimize disruption to circuit output

Ben Mulcahy<sup>1</sup>, James Mitchell<sup>2</sup>, Daniel Witvliet<sup>1</sup>, WanXian Koh<sup>1</sup>, Maggie Chang<sup>1</sup>, Peter Bermant<sup>2</sup>, Doug Holmyard<sup>1</sup>, Richard Schalek<sup>2</sup>, Jeff Lichtman<sup>2</sup>, Andrew Chisholm<sup>3</sup>, Aravinthan Samuel<sup>2</sup>, Mei Zhen<sup>1</sup>

<sup>1</sup>Mount Sinai Hospital, <sup>2</sup>Harvard University, <sup>3</sup>UCSD

# 2-A-3 Adult Neurogenesis Regulates the Activity of Neurons Born in Early Postnatal Development

Shaina Cahill<sup>1</sup>, Angela Martinovic<sup>1</sup>, John Darby Cole<sup>1</sup>, Jason Snyder<sup>1</sup> <sup>1</sup>University of British Columbia

#### 2-A-4 Adult-born neurons modulate activity in developmentally-born neurons in the rodent dentate gyrus

Alyssa Ash<sup>1</sup>, Jack Clemans-Gibbon<sup>1</sup>, Timothy O'Leary<sup>1</sup>, Erin Chahley<sup>1</sup>, Desiree Seib<sup>1</sup>, Jason Snyder<sup>1</sup>

<sup>1</sup>University of British Columbia

# 2-A-5 Regional distribution, density, and morphology of the peripheral myeloid cells invading the murine brain during normal postnatal development

**micael Carrier<sup>1</sup>**, **Julie Savage<sup>2</sup>**, **Frederic Geissmann<sup>1</sup>**, **Marie-Eve Tremblay<sup>3</sup>** <sup>1</sup>CHU de québec CHUL, <sup>2</sup>Université Laval, <sup>3</sup>Centre de recherche du CHU de Québec

# 2-A-6 Effects of perinatal exposure to nicotine on neuronal and glial cell number in the cingulate cortex and paraventricular nucleus of male rat offspring

Lydia Jeong<sup>1</sup>, Dana Tabet<sup>1</sup>, Xavier Seyer<sup>1</sup>, Alison Holloway<sup>2</sup>, Anne Konkle<sup>1</sup>

<sup>1</sup>University of Ottawa, <sup>2</sup>McMaster University

# 2-A-7 Axon elaboration in the developing retinotectal system is promoted by stimulation of neighbouring inputs

#### Tasnia Rahman<sup>1</sup>, Martin Munz<sup>2</sup>, Edward Ruthazer<sup>1</sup>

<sup>1</sup>McGill University, Montreal Neurological Institute, <sup>2</sup>Friedrich Meischer Institute

# 2-A-8 Brainphys neuronal medium: a medium that promotes the maturation and synaptic function of human pluripotent stem cell (hpsc)-derived neurons in long-term cultures

Carmen Mak<sup>1</sup>, Kasandra McCormack<sup>1</sup>, Sam Lloyd-Burton<sup>1</sup>, Allen Eaves<sup>1</sup>, Terry Thomas<sup>1</sup>, Sharon Louis<sup>1</sup>, Vivian Lee<sup>1</sup>

<sup>1</sup>Stemcell Technologies

# 2-A-9 Nervous system development requires pro-survival protein Mcl-1.

**Robert Flemmer<sup>1</sup>, Joseph Opferman<sup>2</sup>, Jacqueline Vanderluit<sup>1</sup>** <sup>1</sup>Memorial University of Newfoundland, <sup>2</sup>St. Jude Children's Research Hospital

# 2-A-10 Early subset of cerebellar nuclei neurons derived from mesencephalon in mice

Maryam Rahimi Balaei<sup>1</sup>, Xiaodan Jiao<sup>2</sup>, Behzad Yeganeh<sup>3</sup>, Hassan Marzban<sup>2</sup>

<sup>1</sup>University of Manitoba, <sup>2</sup>University of Manitoba, School of Medicine, <sup>3</sup>University of Toronto

# 2-A-11 Cell-dependent aging of cortical microcircuit correlates with mood and cognitive behaviors

Rammohan Shukla<sup>1</sup>, Thomas Prevot<sup>2</sup>, Leon French<sup>2</sup>, Ruth Isserlin<sup>1</sup>, Brad Rocco<sup>2</sup>, Mounira Banasr<sup>2</sup>, Gary Bader<sup>1</sup>, Etienne Sibille<sup>2</sup>

<sup>1</sup>University of Toronto, <sup>2</sup>CAMH

# 2-A-12 Myelination of the developing Xenopus laevis retinotectal system

Zahraa Chorghay<sup>1</sup>, Anne Schohl<sup>1</sup>, Nicholas Marsh-Armstrong<sup>2</sup>, Ragnhildur Thóra Káradóttir<sup>3</sup>, Edward Ruthazer<sup>1</sup>

<sup>1</sup>McGill University – MNI, <sup>2</sup>UC Davis, <sup>3</sup>University of Cambridge – Wellcome Trust MRC Stem Cell Institute

# B – Neural Excitability, Synapses, and Glia: Cellular Mechanisms

#### 2-B-13 Metabolic triggers of slow wave brain states

Axita Shienh<sup>1</sup>, Claire Scavuzzo<sup>1</sup>, Clayton Dickson<sup>1</sup>

<sup>1</sup>University of Alberta

# 2-B-14 Selective melatonin MT2 receptor ligands relieve neuropathic pain through modulation of brainstem descending antinociceptive pathways and opioid interactions

Luca Posa<sup>1</sup>, Martha Lopez-Canul<sup>1</sup>, Stefano Comai<sup>2</sup>, Serena Boccella<sup>3</sup>, Sabatino Maione<sup>3</sup>, Vinicio Granados-Soto<sup>4</sup>, Gabriella Gobbi<sup>1</sup>

<sup>1</sup>McGill University, <sup>2</sup>Vita-Salute University, <sup>3</sup>Università di Napoli, <sup>4</sup>Centro de Investigación y de Estudios Avanzados del I.P.N

# 2-B-16 Molecular mechanisms underlying Pannexin 1 trafficking in neural cells

**Anna Epp<sup>1</sup>, Leigh Wicki-Stordeur<sup>2</sup>, Andrew Boyce<sup>3</sup>, Leigh Anne Swayne<sup>1</sup>** <sup>1</sup>University of Victoria, <sup>2</sup>University of British Columbia, <sup>3</sup>University of Calgary

# 2-B-17 Novel role of cGMP signaling in hippocampal synaptic plasticity and mouse cognitive function

Jelena Borovac<sup>1</sup>, Thomas Luyben<sup>1</sup>, Keizo Takao<sup>2</sup>, Kenichi Okamoto<sup>3</sup> <sup>1</sup>University of Toronto, <sup>2</sup>University of Toyama, <sup>3</sup>Lunenfeld-Tanenbaum Research Institute

#### 2-B-18 Metabolically slowing down the brain during sleep

Claire Scavuzzo<sup>1</sup>, Axita Shienh<sup>1</sup>, Clayton Dickson<sup>1</sup> <sup>1</sup>University of Alberta

# 2-B-19 The cellular and molecular mechanisms underlying the role of LIMK1 in synaptic plasticity

Youssif Ben Zablah<sup>1</sup>

<sup>1</sup>University of Toronto/ Hospital for sick children

#### 2-B-20 Differential expression pattern of the endocannabinoid system in the monkey primary visual cortex

Ryan Kucera<sup>1</sup>, Joseph Bouskila<sup>2</sup>, Michel Toutoungy<sup>1</sup>, Karys Peterson<sup>1</sup>, Roberta Palmour<sup>2</sup>, Jean-François Bouchard<sup>1</sup>, Maurice Ptito<sup>1</sup> <sup>1</sup>Université de Montréal, <sup>2</sup>McGill University

# 2-B-21 Dynamic behavioral and molecular changes induced by chronic stress exposure in mice: importance of astroglia integrity

Thomas Prevot<sup>1</sup>, Keith Misquitta<sup>1</sup>, Corey Fee<sup>1</sup>, Dwight Newton<sup>1</sup>, Hyunjung Oh<sup>1</sup>, Etienne Sibille<sup>1</sup>, Mounira Banasr<sup>1</sup> <sup>1</sup>CAMH

#### 2-B-22 An acute session of continuous theta burst stimulation (cTBS) decreases dopamine release in non-human primate striatum

Lucero Aceves Serrano<sup>1</sup>, Jason Neva<sup>1</sup>, Katelyn Brown<sup>1</sup>, Lara Boyd<sup>1</sup>, Doris Doudet<sup>1</sup>

<sup>1</sup>University of British Columbia

#### 2-B-23 An interaction between monoglycosylated form of PrPc and GluA2 regulates Ca2+ impermeable AMPA receptor trafficking to the neuronal lipid rafts

Hajar Miranzadeh-Mahabadi<sup>1</sup>, Sathiya Sekar<sup>1</sup>, Graham Collingridge<sup>2</sup>, Changiz Taghibiglou<sup>1</sup>

<sup>1</sup>University of Saskatchewan, <sup>2</sup>University of Toronto

#### 2-B-24 Role of JAK2-STAT3 in Synaptic and Homeostatic Plasticity

Sun-Lim Choi<sup>1</sup>, Eric Salter<sup>2</sup>, Tomas Sanderson<sup>3</sup>, Graham Collingridge<sup>2</sup>

<sup>1</sup>Mount Sinai Hospital, <sup>2</sup>University of Toronto, <sup>3</sup>University of Bristol

#### 2-B-25 Enhancement of DA efflux by Heantos-4, a traditional herbal treatment for opiate addiction, involves activity-dependent release modulated by antagonism at the presynaptic D2 autoreceptor

Soyon Ahn<sup>1</sup>, Kitty So<sup>1</sup>, Giada Vacca<sup>1</sup>, Haiyan Zou<sup>1</sup>, Maya Nesbit<sup>1</sup>, Peter Axerio-Cilies<sup>1</sup>, Tran Van Sung<sup>2</sup>, Anthony Phillips<sup>1</sup>

<sup>1</sup>University of British Columbia, <sup>2</sup>Vietnam Academy of Science and Technology

#### 2-B-26 Extracellular cardiolipin modulates microglial phagocytosis and their cytokine secretion in a toll-like receptor (TLR) 4-dependent manner

Tyler Wenzel<sup>1</sup>, Caitlin Pointer<sup>1</sup>, Andis Klegeris<sup>1</sup>

<sup>1</sup>University of British Columbia Okanagan

# 2-B-27 The X-linked intellectual disability gene, zDHHC9, is essential for dendritic maintenance and inhibitory synapse formation

Jordan Shimell<sup>1</sup>, Bhavin Shah<sup>1</sup>, Stuart Cain<sup>1</sup>, D. Blair Jovellar<sup>1</sup>, G. Stefano Brigidi<sup>1</sup>, Igor Tatarnikov<sup>1</sup>, Naila Kuhlmann<sup>1</sup>, Dayne Beccano-Kelly<sup>1</sup>, Austen Milnerwood<sup>2</sup>, Terrance P Snutch<sup>1</sup>, Shernaz Bamji<sup>1</sup> <sup>1</sup>University of British Columbia, <sup>2</sup>Montreal Neurological Institute

# $\label{eq:2-B-28} \begin{array}{l} Amyloid \ \beta \ reduces \ pannexin-1 \ channel \ opening \ during \ ischemia \ through \ an \ mGlu R1-mediated \ mechanism \end{array}$

Laura Palmer<sup>1</sup>, Andrew Boyce<sup>1</sup>, Alexander Lohman<sup>1</sup>, Connor Anderson<sup>1</sup>, Roger Thompson<sup>1</sup>

<sup>1</sup>University of Calgary

#### 2-B-29 Prefrontal responses to optogenetic release of endogenous acetylcholine depend on expression of alpha5 nicotinic receptors

Sridevi Venkatesan<sup>1</sup>, Daniel Sparks<sup>1</sup>, Evelyn Lambe<sup>1</sup> <sup>1</sup>University of Toronto

# 2-B-30 What happens when astrocytes talk to neurons? A PI3K interactome in neurons following exposure to astrocyte secretome Samih Alqawlaq<sup>1</sup>, Izhar Livne-Bar<sup>2</sup>, Darren Chan<sup>1</sup>, Jeremy Sivak<sup>1</sup> <sup>1</sup>University of Toronto, <sup>2</sup>Krembil Research Institute, UHN

#### 2-B-31 Lactate from astrocytes: a critical energy source for the learning-induced translation required for long-term memory Giannina Descalzi<sup>1</sup>, Virginia Gao<sup>1</sup>, Michael Steinman<sup>1</sup>, Cristina Alberini<sup>1</sup> <sup>1</sup>New York University

#### 2-B-32 Transcriptomic correlates of electrophysiological diversity within and across cell types

Claire Bomkamp<sup>1</sup>, Shreejoy Tripathy<sup>1</sup>, Paul Pavlidis<sup>1</sup>, Ann Marie Craig<sup>1</sup> <sup>1</sup>University of British Columbia

# 2-B-33 Investigating the function of the complement cascade in hippocampus synaptic plasticity

**Eric Salter<sup>1</sup>, Sun-Lim Choi<sup>2</sup>, John Georgiou<sup>3</sup>, Graham Collingridge<sup>1</sup>** <sup>1</sup>University of Toronto, <sup>2</sup>Mount Sinai Hospital, <sup>3</sup>Lunenfeld-Tanenbaum Research Institute, Mount Sinai Hospital

# 2-B-34 Cholinergic regulation of deleted-in-colorectal cancer facilitates persistent firing in the entorhinal cortex.

Stephen Glasgow<sup>1</sup>, Julien Gibon<sup>2</sup>, Philippe Séguéla<sup>1</sup>, Edward Ruthazer<sup>3</sup>, Timothy Kennedy<sup>1</sup>

<sup>1</sup>Montreal Neurological Institute, <sup>2</sup>University of British Columbia – Okanagan, <sup>3</sup>McGill University – MNI

#### 2-B-35 Frequency-dependent coupling between neuronal activity and mitochondrial Ca2+ dynamics in situ

Chris Groten<sup>1</sup>, Alexa Nelson<sup>2</sup>, Brian MacVicar<sup>2</sup>

<sup>1</sup>Post-doc, <sup>2</sup>University of British Columbia

# 2-B-36 A Putative Channel that Drives Spreading Depolarization evoked by Ischemia

R. David Andrew<sup>1</sup>, Peter Gagolewicz<sup>1</sup>

<sup>1</sup>Queen's University

# 2-B-37 Illuminating axon tension with a beta spectrin-based sensor in organotypic brain slices

Linda Dansereau<sup>1</sup>, Dong Li<sup>1</sup>, Marianna Kiraly<sup>1</sup>, Daniel Madison<sup>1</sup>, Miriam Goodman<sup>1</sup>

<sup>1</sup>Stanford University

### C – Disorders of the Nervous System

#### 2-C-38 Combining vibro-tactile P300 and Motor Imagery Brain-Computer Interface to assess and communicate with Locked-in Patients

Slav Dimov<sup>1</sup>, Christoph Guger<sup>1</sup>, Rossella Spataro<sup>2</sup>, Alexander Heilinger<sup>3</sup>, Woosang Cho<sup>3</sup>, Rupert Ortner<sup>3</sup>

<sup>1</sup>g.tec neurotechnology USA, Inc., <sup>2</sup>University of Palermo, <sup>3</sup>g.tec medical engineering GmbH

### POSTER SESSION 2 - TUESDAY, MAY 15, 2018

# 2-C-39 Structural Biomarkers of Parkinson's disease: Striatal sub-regional structural analysis with 3T MRI

Nole Hiebert<sup>1</sup>, Ali Khan<sup>2</sup>, Andrew Vo<sup>3</sup>, Brian Wang<sup>3</sup>, Adrian Owen<sup>1</sup>, Penny MacDonald<sup>2</sup>

<sup>1</sup>Brain and Mind Institute/ Western University, <sup>2</sup>Western University, <sup>3</sup>University of Western Ontario

#### 2-C-40 Cell autonomous effects of Mecp2 mutation on spontaneous and nicotinic acetylcholine receptor evoked responses in medial prefrontal cortex layer V/VI pyramidal neurons in female Rett model mice

Azam Asgari<sup>1</sup>, Jay Leung<sup>1</sup>, Kerry R Delaney<sup>1</sup>

<sup>1</sup>University of Victoria

# 2-C-41 Impaired homeostatic plasticity in YAC128 HD mouse cortical neurons rescued by pridopidine

Amy Smith-Dijak<sup>1</sup>, Wissam Nassrallah<sup>1</sup>, James Mackay<sup>1</sup>, Geva Michal<sup>2</sup>, Michael Hayden<sup>1</sup>, Lynn Raymond<sup>1</sup>

<sup>1</sup>University of British Columbia, <sup>2</sup>Teva Pharmaceutical Industries Ltd

# 2-C-42 Rescue of motor deficits in an ARSACS mouse model by a mitochondria-targeted antioxidant

Brenda Toscano<sup>1</sup>, Jeanette Hui<sup>1</sup>, Sasha McDowell<sup>1</sup>, Anne McKinney<sup>1</sup>, Alanna Watt<sup>1</sup>

<sup>1</sup>McGill University

# 2-C-43 Mild Na+/K+ ATPase inhibition by ouabain facilitates tissue swelling during spreading depolarization

Yanqi Liu<sup>1</sup>, Brian MacVicar<sup>1</sup>

<sup>1</sup>University of British Columbia

#### 2-C-44 Myelin Water Changes in Normal Appearing White Matter Correspond with Postural Tremor in Parkinson's Disease

Jowon Laura Kim<sup>1</sup>, Tobias Baumeister<sup>1</sup>, Martin McKeown<sup>1</sup> <sup>1</sup>University of British Columbia

2-C-45 D-lysergic acid diethylamide (LSD) reverses depressive-like behavior and serotonergic (5-HT) neurotransmission impairments in a murine model of chronic stress.

Danilo De Gregorio<sup>1</sup>, Justine Enns<sup>1</sup>, Luca Posa<sup>1</sup>, Martha Lopez-Canul<sup>1</sup>, Gabriella Gobbi<sup>1</sup>

<sup>1</sup>McGill University

# 2-C-46 Characterization of hiPSC derived striatal neurons to study Huntington disease pathology.

Sakthikumar Mathivanan<sup>1</sup>, Sergey Akimov<sup>2</sup>, Christopher A Ross<sup>2</sup>, Lynn Raymond<sup>1</sup>

<sup>1</sup>University of British Columbia, <sup>2</sup>John Hopkins University School of Medicine

#### **2-C-47 CHIMERA repetitive mild traumatic brain injury induces long-term pathological and PTSD-like changes in APP/PS1 mice** Wai Hang Cheng<sup>1</sup>, Kris Martens<sup>1</sup>, Sophie Stukas<sup>1</sup>, Emily Button<sup>1</sup>, Anna Wilkinson<sup>1</sup>, Asma Bashir<sup>1</sup>, Carlos Barron<sup>1</sup>, Peter Cripton<sup>1</sup>, Cheryl

<sup>1</sup>University of British Columbia

# 2-C-48 The impact of methylenetetrahydrofolate reductase (MTHFR) deficiency in a paraquat mouse model of Parkinson's disease

Lauren Murray<sup>1</sup>, Nafisa Jadavji<sup>1</sup>, Chris Rudyk<sup>1</sup>, Shawn Hayley<sup>1</sup>, Patrice Smith<sup>1</sup>

<sup>1</sup>Carleton University

#### 2-C-49 A Comparison of Neural Circuitry in Older Persons with Late-Life Depression, Mild Cognitive Impairment, Alzheimer's Dementia, or Normal Cognition

Neda Rashidi-Ranjbar<sup>1</sup>, Benoit Mulsant<sup>1</sup>, Nathan Herrmann<sup>2</sup>, Linda Mah<sup>3</sup>, Alastair Flint<sup>4</sup>, Corrine Fischer<sup>5</sup>, Bruce Pollock<sup>1</sup>, Sanjeev Kumar<sup>1</sup>, Tarek Rajji<sup>1</sup>, Aristotle Voineskos<sup>1</sup>, on behalf of the PACt-MD Study Group<sup>1</sup>

<sup>1</sup>Centre for Addiction and Mental Health, <sup>2</sup>Sunnybrook Health Sciences Centre, <sup>3</sup>Rotman Research Institute, Baycrest, <sup>4</sup>Centre for Mental Health, University Health Network, <sup>5</sup>Mental Health Service, St. Michael's Hospital

# 2-C-50 Isolation of plasma high-density lipoproteins by differing methods reveals multiple distinct protective effects on brain endothelial cells against amyloid beta

Emily Button<sup>1</sup>, Jerome Robert<sup>1</sup>, Megan Gilmour<sup>1</sup>, Harleen Cheema<sup>1</sup>, Cheryl Wellington<sup>1</sup>

<sup>1</sup>University of British Columbia

# 2-C-51 Murine overexpression of the LRRK2 G2019S mutation is implicated in stress response and neuroplastic effects following sub-chronic paraquat treatment

Zachary Dwyer<sup>1</sup>, Christopher Rudyk<sup>1</sup>, Ashley Thompson<sup>1</sup>, Shawn Hayley<sup>1</sup> <sup>1</sup>Carleton University

## 2-C-52 Mechanism of pannexin channel activation in Alzheimer's disease

Chetan Patil<sup>1</sup>, Natalie Lavine<sup>1</sup>, Michael Jackson<sup>1</sup>

<sup>1</sup>The University of Manitoba

# 2-C-53 Effect of unilateral Endothelin-1 injections into the medial prefrontal cortex and/or nucleus accumbens on depressive- and anxiety-like behaviour in the rat

Denise Happ<sup>1</sup>, R. Andrew Tasker<sup>1</sup>, Gregers Wegener<sup>2</sup>

<sup>1</sup>University of Prince Edward Island, <sup>2</sup>Aarhus University

# 2-C-54 Mismatch negativity-indexed auditory change detection of speech sounds in early and chronic schizophrenia

# Derek Fisher<sup>1</sup>, Erica Rudolph<sup>2</sup>, Emma Ells<sup>1</sup>, Verner Knott<sup>3</sup>, Alain Labelle<sup>3</sup>, Philip Tibbo<sup>4</sup>

<sup>1</sup>Mount Saint Vincent University, <sup>2</sup>Saint Mary's University, <sup>3</sup>The Royal's Institute of Mental Health Research, <sup>4</sup>Dalhousie University

# 2-C-55 Medulloblastoma secreted ligands disrupt normal neural stem cell function

Alexander Gont<sup>1</sup>, Freda Miller<sup>1</sup>, David Kaplan<sup>1</sup> <sup>1</sup>The Hospital for Sick Children

Wellington<sup>1</sup>

# 2-C-56 Contribution of Pannexin-1 activation to amyloid-β induced synaptic dysfunction

Albert Yeung<sup>1</sup>, Yufeng Xie<sup>2</sup>, Natalie Lavine<sup>3</sup>, Michael Jackson<sup>3</sup> <sup>1</sup>University of Manitoba, <sup>2</sup>Western University, <sup>3</sup>The University of Manitoba

#### 2-C-57 Investigating an Alpha-Synuclein Binding Aptamer as a Potential Treatment Avenue to Prevent Protein Fibril Formation in Parkinson's Disease

Katelyn Ventura<sup>1</sup>, Erin McConnell<sup>1</sup>, Joshua Callahan<sup>1</sup>, Vernon Hunt<sup>1</sup>, Anna Koudrina<sup>1</sup>, Maria DeRosa<sup>1</sup>, Matthew Holahan<sup>1</sup> <sup>1</sup>Carleton University

#### 2-C-58 Effect of Low Field Magnetic Stimulation on Restoring Neuronal and Glial Function Against 1-Methyl-4-Phenyl-1,2,3,6-Tetrahydropyridine Induced Parkinson's Disease Mouse Model

Sathiya Sekar<sup>1</sup>, Yanbo Zhang<sup>1</sup>, Changiz Taghibiglou<sup>1</sup> <sup>1</sup>University of Saskatchewan

### 2-C-59 Loss of Activating Transcription Factor 3 function diminishes the intrinsic regenerative response of peripheral nerves

Seth Holland<sup>1</sup>, Ana Maria Oproescu<sup>1</sup>, Matt Ramer<sup>1</sup>

<sup>1</sup>University of British Columbia

# 2-C-60 Inflammation in the gut of a new progressive model of Parkinson's disease

Joyce Sze Tung Lam<sup>1</sup>, Geoffrey Ching<sup>2</sup>, Daniel Kim<sup>2</sup>, Jupjeet Sandhu<sup>2</sup>, John O'Kusky<sup>2</sup>, Doris Doudet<sup>2</sup>

<sup>1</sup>University of British Columbia & Pacific Parkinson's Research Centre, <sup>2</sup>University of British Columbia

# 2-C-61 Altered coordination among functional networks underlying semantic association in schizophrenia

Meighen Roes<sup>1</sup>, Todd Woodward<sup>1</sup> <sup>1</sup>University of British Columbia

# 2-C-62 MicroRNA-RNA interactions within a pain-centered EAE mouse model: an unbiased predictive computational approach utilizing Next Generation Sequencing

Timo Friedman<sup>1</sup>, Muhammad Saad Yousuf<sup>1</sup>, Ana Cantuneanu<sup>1</sup>, Bradley Kerr<sup>1</sup>

<sup>1</sup>University of Alberta

# 2-C-63 Focused ultrasound (FUS) enhancement of intranasal delivery of GDNF DNA nanoparticles to the rat brain

Amirah Aly<sup>1</sup>, Tao Sun<sup>2</sup>, Yongzhi Zhang<sup>2</sup>, Ozge Sesenoglu-Laird<sup>3</sup>, Linas Padegimas<sup>3</sup>, Mark Cooper<sup>3</sup>, Nathan McDannold<sup>2</sup>, Barbara Wasczak<sup>1</sup>

<sup>1</sup>Northeastern University, <sup>2</sup>Harvard Medical School/Brigham and Women's Hospital, <sup>3</sup>Copernicus Therapeutics

# 2-C-64 Role of Palmitoylation of huntingtin (HTT) on the HTT post-translational modification (PTM) network in Huntington disease

Fanny Lemarie<sup>1</sup>, Shaun Sanders<sup>1</sup>, Dale Martin<sup>1</sup>, Michael Hayden<sup>1</sup> <sup>1</sup>University of British Columbia

#### 2-C-65 Stress During Gestation Augments Females' Prone to Develop Alzheimer's Disease Later in Life

Zahra Jafari<sup>1</sup>, Bryan E. Kolb<sup>1</sup>, Majid M. Mohajerani<sup>1</sup> <sup>1</sup>University of Lethbridge

# 2-C-66 Effects of Repeated Mild Traumatic Brain Injury on Hippocampal Synaptic Plasticity in the Juvenile Brain

Cristina Pinar<sup>1</sup>, Christine Fontaine<sup>1</sup>, Juan Trivino-Paredes<sup>1</sup>, Brian Christie<sup>1</sup> <sup>1</sup>University of Victoria

#### **2-C-67** Early seizures differentially regulate excitatory synaptic Inputs to CA1 pyramidal and interneurons in the immature brain Ting Ting Wang<sup>1</sup>, Hongyu Sun<sup>1</sup>

<sup>1</sup>Carleton University

#### 2-C-68 Mesoscale cortical calcium imaging reveals time-dependent functional connectivity changes in a mouse model of electroconvulsive therapy

**D. Blair Jovellar<sup>1</sup>, Jeffrey LeDue<sup>1</sup>, Fidel Vila-Rodriguez<sup>1</sup>, Timothy Murphy<sup>1</sup>** <sup>1</sup>University of British Columbia

#### 2-C-69 CD8-expressing cell density is stage-specifically increased in chronic traumatic encephalopathy and comorbid Alzheimer's disease

Ian Mahar<sup>1</sup>, David Kwasnik<sup>1</sup>, Thor Stein<sup>1</sup>, Rebecca Mathias<sup>1</sup>, Jason Adams<sup>1</sup>, Victor Alvarez<sup>2</sup>, Jonathan Cherry<sup>1</sup>, Ann McKee<sup>1</sup>, Bertrand Huber<sup>1</sup>

<sup>1</sup>Boston University, <sup>2</sup>VA Boston Healthcare System

#### 2-C-70 Inhibiting axon degeneration

Adelaida Kolaj<sup>1</sup>, Konstantin Feinberg<sup>1</sup>, Chen Wu<sup>2</sup>, Natalie Grinshtein<sup>3</sup>, Jonathan Krieger<sup>1</sup>, Michael Moran<sup>1</sup>, Lee Rubin<sup>2</sup>, Freda Miller<sup>1</sup>, David Kaplan<sup>1</sup>

<sup>1</sup>The Hospital for Sick Children, <sup>2</sup>Harvard, <sup>3</sup>McMaster University

#### 2-C-71 Deletion of the GABA-A receptor's alpha1 subunit causes Juvenile Myoclonic Epilepsy (JME) and aberrant postnatal neurogenesis in mice

Sara-Ivana Calce<sup>1</sup>, Louis-Charles Levros<sup>2</sup>, Brianna Goldenstein<sup>1</sup>, Ana Stoica<sup>1</sup>, Caroline Meloche<sup>1</sup>, Patrick Cossette<sup>1</sup>

<sup>1</sup>Centre de recherche du Centre hospitalier de l'Université de Montréal, <sup>2</sup>Université de Montréal

# 2-C-72 The serine protease HtrA1 contributes to the formation of an extracellular 25-kDa apolipoprotein E fragment that stimulates neuritogenesis

Sonia Sanz Muñoz<sup>1</sup>, Hongyun Li<sup>1</sup>, Qian Chu<sup>2</sup>, Alan Saghatelian<sup>2</sup>, Lezanne Ooi<sup>1</sup>, Brett Garner<sup>1</sup>

<sup>1</sup>University of Wollongong / IHMRI, <sup>2</sup>The Salk Insitute for Biological Studies

# 2-C-73 Oxytocin to mitigate the effects of prenatal alcohol exposure on neurogenesis, stress reactivity, and anxiety-like behaviour in adult male and female rats

Samantha L Baglot<sup>1</sup>, Cecilia Fung<sup>1</sup>, Nicole Minielly<sup>1</sup>, Pushpkiran Ubi<sup>1</sup>, Erin Morgan<sup>1</sup>, Stephanie E Lieblich<sup>1</sup>, Wayne Yu<sup>1</sup>, Joanne Weinberg<sup>1</sup>, Liisa AM Galea<sup>1</sup>

<sup>1</sup>University of British Columbia

# 2-C-74 Developmental and Regenerative Roles of Arginase1 in the Nervous System

Christopher Richmond<sup>1</sup>, Colin Funk<sup>1</sup>, Nader Ghasemlou<sup>1</sup> <sup>1</sup>Queen's University

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## 2-C-75 Impaired fatty acid metabolism mediates cognitive and metabolic symptoms in Alzheimer`s disease

Laura Hamilton<sup>1</sup>, Sandra Joppé<sup>1</sup>, Martin Dufresne<sup>2</sup>, Anne Aumont<sup>1</sup>, Pierre Chaurand<sup>3</sup>, Stephanie Fulton<sup>4</sup>, Karl Fernandes<sup>1</sup>

<sup>1</sup>Université de Montréal, <sup>2</sup>Université de Montreal, <sup>3</sup>Univeriste de Montreal, <sup>4</sup>CRCHUM – Univeristé de Montréal

# 2-C-76 Investigating potential biomarkers of prenatal alcohol exposure using embryonic alcohol exposure in differentiating neural stem cells

Shayan Amiri<sup>1</sup>, Carl Olson<sup>1</sup>, Wayne Xu<sup>1</sup>, James Davie<sup>1</sup>, Mojgan Rastegar<sup>1</sup> <sup>1</sup>University of Manitoba

2-C-77 Assessment of neurological and behavioural deficits following repeated mild traumatic brain injury in juvenile rats.

Katie Neale<sup>1</sup>, Ryan Wortman<sup>1</sup>, Brian Christie<sup>1</sup>

<sup>1</sup>University of Victoria

## 2-C-78 The role of PACAP-PAC1 pathway in migraine model induced by repeated electrical stimulation

**Qing Zhang<sup>1</sup>, Hangfei Wu<sup>2</sup>, Zhao Dong<sup>2</sup>, Weihong Song<sup>1</sup>, Shengyuan Yu<sup>2</sup>** <sup>1</sup>University of British Columbia, <sup>2</sup>Chinese PLA General Hospital

## 2-C-79 Ryanodine Receptor Type 2: a Novel Therapeutic Target for Alzheimer's Disease

Jinjing Yao<sup>1</sup>, Bo Sun<sup>1</sup>, Xiaoqin Zhan<sup>1</sup>, Florian Hiess<sup>1</sup>, Wenting Guo<sup>1</sup>, Alexander W Chen<sup>1</sup>, Ruiwu Wang<sup>1</sup>, Henk Ter Keurs<sup>1</sup>, Thomas G. Back<sup>1</sup>, Michael Fill<sup>2</sup>, Raymond Turner<sup>1</sup>, S. R. Wayne Chen<sup>1</sup>

<sup>1</sup>University of Calgary, <sup>2</sup>Rush University Medical Center

### 2-C-80 Obesity leads to impairment in neurogenesis and reduces brain size

Caroline Fernandes da Silva<sup>1</sup>

<sup>1</sup>Federal University of Rio de Janeiro

# **2-C-81 Contribution of GABAA Receptors in laterodorsal thalamic nuclei activity and Spike-Wave Discharges in WAG/Rij Rats** maryam jafarian<sup>1</sup>

<sup>1</sup>shefa neuroscience research center

# 2-C-82 Structural and functional cerebrovascular remodeling in two mouse models of ischemic stroke

# Xavier Toussay<sup>1</sup>, Cesar Comin<sup>2</sup>, Melissa Yin<sup>3</sup>, Luciano Da F. Costa<sup>2</sup>, Baptiste Lacoste<sup>4</sup>

<sup>1</sup>The Ottawa Hospital Research Institute, Neuroscience Program., <sup>2</sup>IFSC, University of Sao Paulo, <sup>3</sup>FUJIFILM Visualsonics, Inc., <sup>4</sup>The Ottawa Hospital Research Institute, Neuroscience Program. Faculty of Medicine, University of Ottawa

# 2-C-83 Role of cerebrovascular abnormalities in the pathophysiology of autism spectrum disorders

Julie Ouellette<sup>1</sup>, Xavier Toussay<sup>2</sup>, Cesar Comin<sup>3</sup>, Mirabelle Ho<sup>4</sup>, Yen Truong<sup>5</sup>, Cameron Morse<sup>2</sup>, Jean-François Thibodeau<sup>6</sup>, Melissa Yin<sup>7</sup>, Christopher Kennedy<sup>8</sup>, Dylan Burger<sup>8</sup>, Luciano Da F. Costa<sup>3</sup>, Duncan Stewart<sup>4</sup>, Adam Shuhendler<sup>9</sup>, Baptiste Lacoste<sup>1</sup>

<sup>1</sup>The Ottawa Hospital Research Institute, Neuroscience Program. Faculty of Medicine, University of Ott, <sup>2</sup>The Ottawa Hospital Research Institute,

Neuroscience Program., <sup>3</sup>IFSC, University of Sao Paulo, <sup>4</sup>The Ottawa Hospital Research Institute, Regenerative Medicine Program., <sup>5</sup>Faculty of Science, University of Ottawa., <sup>6</sup>The Ottawa Hospital Research Institute, Kidney Research Center., <sup>7</sup>FUJIFILM Visualsonics, Inc., <sup>8</sup>The Ottawa Hospital Research Institute, Kidney Research Center. Faculty of Medicine, University of O, <sup>9</sup>Faculty of Science, University of Ottawa. University of Ottawa Brain and Mind

# 2-C-84 Testosterone metabolism affects hippocampal amyloid beta levels and tau phosphorylation in the 3xTg mouse model of Alzheimer's disease

Hayley Wilson<sup>1</sup>, Ari Mendell<sup>1</sup>, Samantha Creighton<sup>1</sup>, Boyer Winters<sup>1</sup>, Neil MacLusky<sup>1</sup>

<sup>1</sup>University of Guelph

# 2-C-85 Inhibition of 5alpha-reductase impairs object recognition memory and dysregulates hippocampal dendritic morphology in male 3xTg-AD mice

Ari Mendell<sup>1</sup>, Samantha Creighton<sup>1</sup>, Hayley Wilson<sup>1</sup>, Lauren Isaacs<sup>1</sup>, Boyer Winters<sup>1</sup>, Neil MacLusky<sup>1</sup>

<sup>1</sup>University of Guelph

# 2-C-86 Increasing APOE in primary human brain pericytes does not modify migration in a scratch-wound assay

Sonja Soo<sup>1</sup>, Jianjia Fan<sup>1</sup>, Wenchen Zhao<sup>1</sup>, Jerome Robert<sup>1</sup>, Cheryl Wellington<sup>1</sup>

<sup>1</sup>University of British Columbia

#### 2-D-87 Robotic Quantification of Systematic Age-Related Developments in Bimanual Coordination

Stephan Dobri<sup>1</sup>, Stephen Scott<sup>1</sup>, T. Claire Davies<sup>1</sup> <sup>1</sup>Queen's University

#### **D** – Sensory and Motor Systems

# 2-D-88 The Influence of Postural Threat Type and Direction on Anticipatory Postural Control

Alyssa Bax<sup>1</sup>, Kyle Johnson<sup>1</sup>, Alexander Watson<sup>1</sup>, Allan Adkin<sup>1</sup>, Mark Carpenter<sup>2</sup>, Craig Tokuno<sup>1</sup>

<sup>1</sup>Brock University, <sup>2</sup>University of British Columbia

# 2-D-89 The influence of optogenetic rebound effects on visual after-responses in mouse primary visual cortex

Jared Shapiro<sup>1</sup>, Jillian King<sup>1</sup>, Nathan Crowder<sup>1</sup> <sup>1</sup>Dalhousie University

# 2-D-90 Motor deterioration and Purkinje cell firing alterations in aging mice

**Eviatar Fields**<sup>1</sup>, **Sriram Jayabal**<sup>2</sup>, **Alanna Watt**<sup>1</sup> <sup>1</sup>McGill University, <sup>2</sup>Stanford University

## 2-D-91 Effects of Magnocellular Selective Inhibition on Dorsal Stream Vision-For-Action Tasks.

Megan McFadyen<sup>1</sup>, Jenni Karl<sup>1</sup>

<sup>1</sup>Thompson Rivers University

2-D-92 Single neuron defined cortico-subcortical mesoscale networks are associated with specific motor actions in awake chronic mice.

Dongsheng Xiao<sup>1</sup>, Jeffrey LeDue<sup>1</sup>, Matthieu Vanni<sup>1</sup>, Timothy Murphy<sup>1</sup> <sup>1</sup>University of British Columbia

# 2-D-93 Therapeutic exercise in a mouse model of spinocerebellar ataxia type 6

Anna Cook<sup>1</sup>, Sriram Jayabal<sup>2</sup>, Mohini Bhade<sup>1</sup>, Alanna Watt<sup>1</sup> <sup>1</sup>McGill University, <sup>2</sup>Stanford University

#### 2-D-94 Shape-mask similarity seems to influence successful localization of a masked target shape

**Robert Whitwell<sup>1</sup>**, James Enns<sup>1</sup>, Robert Foley<sup>2</sup> <sup>1</sup>The University of British Columbia, <sup>2</sup>Carleton University

#### 2-D-95 Optogenetic Modulation of GABAergic Interneurons Affects Contrast Response Functions in Mouse Primary Visual Cortex

Jillian King<sup>1</sup>, Cheryl Gill<sup>1</sup>, Rachel Erskine<sup>1</sup>, Jared Shapiro<sup>1</sup>, Nathan Crowder<sup>1</sup>

<sup>1</sup>Dalhousie University

#### 2-D-96 Distinct Neural Signatures of Reward and Sensory Prediction Error in Motor Learning

**Dimitrios Palidis<sup>1</sup>**, **Joshua Cashaback<sup>1</sup>**, **Paul Gribble<sup>1</sup>** <sup>1</sup>University of Western Ontario

University of western Unitatio

# 2-D-97 Altered sensory processing during absence seizures: a view from inside cortical and thalamic neurons.

Mark Williams<sup>1</sup>, Sarah Lecas<sup>1</sup>, Severine Mahon<sup>1</sup>, Stéphane Charpier<sup>1</sup> <sup>1</sup>ICM – Brain and Spine Institute

# 2-D-98 Continuous modulation of human spinal cord function in advance of thermal pain assessed with fMRI

Patrick Stroman<sup>1</sup>, Patrick Stroman<sup>1</sup>, Gabriela Ioachim<sup>1</sup> <sup>1</sup>Queen's University

#### 2-D-99 Dissecting Neural Circuits Underlying Delayed Motor Learning of 16p11.2+/- Mice

Xuming Yin<sup>1</sup>, Nabil Asraoui<sup>1</sup>, Marie-Eve Mathieu<sup>1</sup>, Simon Chen<sup>1</sup> <sup>1</sup>University of Ottawa

#### E – Homeostatic and Neuroendocrine Systems

**2-E-100** Conductance-based model of subfornical organ neurons predicts integration of cardiovascular and inflammatory signals Laura Medlock<sup>1</sup>, Nick Simpson<sup>1</sup>, Dominic Standage<sup>1</sup>, Alastair Ferguson<sup>1</sup> <sup>1</sup>Queen's University

**2-E-101** Fluoxetine increased IL-1beta in the maternal hippocampus and reversed maternal care deficits with postpartum corticosterone treatment but not depressive-like behaviour Wansu Qiu<sup>1</sup>, Kim Go<sup>1</sup>, Rand Mahmoud<sup>1</sup>, Natasha Black<sup>1</sup>, Aarthi Gobinath<sup>1</sup>, Paula Duarte-Guterman<sup>1</sup>, Liisa Galea<sup>1</sup>

<sup>1</sup>University of British Columbia

2-E-102 Aromatase expression in the neocortex of adult male rats Chloe Soutar<sup>1</sup>, Patrick Grenier<sup>1</sup>, Mary Olmstead<sup>1</sup>, Hans Dringenberg<sup>1</sup> <sup>1</sup>Queen's University

#### 2-E-103 Expression and release of growth hormone from the B lymphocytes of the chicken bursa of Fabricius: Action of hypothalamic hormones

Santiago Pech Pool<sup>1</sup>, Laura Berumen<sup>1</sup>, Carlos Martínez Moreno<sup>2</sup>, Guadalupe García Alcocer<sup>1</sup>, Martha Carranza Salas<sup>2</sup>, Carlos Arámburo<sup>3</sup>, Maricela Luna Muñoz<sup>3</sup>

<sup>1</sup>Autonomous University of Querétaro, <sup>2</sup>National Autonomous University of México, <sup>3</sup>Instituto de Neurobiología, UNAM Campus Juriquilla

#### 2-E-104 Perinatal Exposure to a Contaminant Mixture: Effects on Estrogen Receptor Expression in the Ventral Tegmental Area

Sandra Konji<sup>1</sup>, Hannah Landry<sup>1</sup>, Dana Tabet<sup>1</sup>, Anne TM Konkle<sup>1</sup> <sup>1</sup>University of Ottawa

# 2-E-105 Stress-induced Activation of Discrete Projection Neuron Populations in the Basolateral Amygdala

Robert Aukema<sup>1</sup>, Andrei Nastase<sup>1</sup>, Matthew Hill<sup>1</sup>

<sup>1</sup>University of Calgary

# 2-E-106 Formaldehyde Induces Diabetes-related Cognitive Dysfunction

Yun Zhang<sup>1</sup>, Tan Tao<sup>2</sup>, Wenhong Luo<sup>3</sup>, Jihui Lv<sup>4</sup>, Chanshuai Han<sup>5</sup>, Jason N.R. Hamlin<sup>5</sup>, Hongjun Luo<sup>3</sup>, Hui Li<sup>3</sup>, You Wan<sup>6</sup>, Yang Xu<sup>7</sup>, Zhiqian Tong<sup>2</sup>, Weihong Song<sup>1</sup>

<sup>1</sup>The University of British Columbia, <sup>2</sup>Capital Medical University, <sup>3</sup>Shantou University Medical College, <sup>4</sup>Beijing Geriatric Hospital, <sup>5</sup>McGill University, <sup>6</sup>Peking University, <sup>7</sup>Central China Normal University,

# 2-E-107 Genetic deletion of melanin-concentrating hormone receptor 1 from GABAergic neurons in the nucleus accumbens increases ambulatory activity

Alex Hebert<sup>1</sup>, Stephen Flaherty III<sup>2</sup>, Nadege Briançon<sup>2</sup>, Pavlos Pissios<sup>2</sup>, Jeffrey Flier<sup>3</sup>, Eleftheria Maratos-Flier<sup>2</sup>, Melissa Chee<sup>1</sup>

<sup>1</sup>Carleton University, <sup>2</sup>Beth Israel Deaconess Medical Center, Harvard Medical School, <sup>3</sup>Harvard Medical School

### F – Cognition and Behavior

# 2-F-108 SLC6A3 Polymorphism Affects Ability to Encode, but not Recall, Abstract Images in Medicated Parkinson's Disease

Brian Robertson<sup>1</sup>, Abdullah Al Jaja<sup>2</sup>, Ken Seergobin<sup>3</sup>, Nole Hiebert<sup>2</sup>, Adrian Owen<sup>2</sup>, Penny MacDonald<sup>4</sup>

<sup>1</sup>Schulich School of Medicine and Dentistry / Western University, <sup>2</sup>Brain and Mind Institute/ Western University, <sup>3</sup>University of Western Ontario, <sup>4</sup>Western University

# 2-F-109 Cognitive, emotional, and postural adaptations to repeated postural threat exposure

Kyle Johnson<sup>1</sup>, Martin Zaback<sup>2</sup>, Craig Tokuno<sup>1</sup>, Mark Carpenter<sup>2</sup>, Allan Adkin<sup>1</sup>

<sup>1</sup>Brock University, <sup>2</sup>University of British Columbia

# 2-F-110 The influence of lactate dehydrogenase on long-term memory in Drosophila melanogaster

Ariel Frame<sup>1</sup>, Anne Simon<sup>1</sup>, Robert Cumming<sup>1</sup> <sup>1</sup>Western University

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## 2-F-111 Developing novel mouse lines to investigate the roles of TAN-secreted ACh and Glu

Ornela Kljakic<sup>1</sup>, Helena Janickova<sup>1</sup>, Mohammed Al Onaizi<sup>1</sup>, Salah Mestikawy<sup>2</sup>, Marco Prado<sup>1</sup>, Vania Prado<sup>1</sup>

<sup>1</sup>Robarts Research Institute, University of Western Ontario, <sup>2</sup>McGill University

# 2-F-112 Motor learning and execution: Involvement of Akt3-GSK-3 pathway

Bruno Ouimet<sup>1</sup>, Michel Cyr<sup>1</sup>

<sup>1</sup>Université du Québec à Trois-Rivières

#### 2-F-113 High-throughput touchscreen tasks and open access database integration to accelerate drug discovery for neurodegenerative disorders

Flavio Beraldo<sup>1</sup>, Daniel Palmer<sup>1</sup>, David Wasserman<sup>1</sup>, Benjamin Kolisnyk<sup>2</sup>, Samantha Creighton<sup>3</sup>, Justin Mels<sup>1</sup>, Wai-Jane Lee<sup>1</sup>, Matthew Cowan<sup>1</sup>, Chris Fodor<sup>1</sup>, Tom Gee<sup>4</sup>, Robert Bartha<sup>1</sup>, Stephen Strother<sup>4</sup>, Tim Bussey<sup>5</sup>, Lisa Saksida<sup>1</sup>, Vania Prado<sup>6</sup>, Boyer Winters<sup>3</sup>, M

<sup>1</sup>University of Western Ontario, <sup>2</sup>Rockefeller University, <sup>3</sup>University of Guelph, <sup>4</sup>Rotman Research Institute, <sup>5</sup>Western University, <sup>6</sup>Robarts Research Institute, University of Western Ontario

## 2-F-114 Aerobic glycolysis is required for spatial memory consolidation but not memory retrieval in mice

Richard Harris<sup>1</sup>, Asad Lone<sup>2</sup>, Heeseung Lim<sup>2</sup>, Timothy Scholl<sup>2</sup>, Robert Cumming<sup>3</sup>

<sup>1</sup>University of Ottawa, <sup>2</sup>University of Western Ontario, <sup>3</sup>Western University

# 2-F-115 Glutamatergic modulation of dopamine activity in the nucleus accumbens can enhance or inhibit motivation as a function of recent failure or success

David Lindenbach<sup>1</sup>, Anthony Phillips<sup>1</sup>, Jeremy Seamans<sup>1</sup>

<sup>1</sup>University of British Columbia

# 2-F-116 The role of microbiota in major depressive disorder: a pilot study in gnotobiotic mice.

Marc Louis-Auguste<sup>1</sup>, Giada De Palma<sup>1</sup>, Jun Lu<sup>1</sup>, Elena Verdu<sup>1</sup>, Rebecca Anglin<sup>1</sup>, Mike Surette<sup>1</sup>, Steve Collins<sup>1</sup>, Premysl Bercik<sup>1</sup>

<sup>1</sup>Farncombe Institute, McMaster University

# 2-F-117 Independent effects of age and levodopa on reversal learning in healthy volunteers

Andrew Vo<sup>1</sup>, Ken Seergobin<sup>1</sup>, Penny MacDonald<sup>2</sup> <sup>1</sup>University of Western Ontario, <sup>2</sup>Western University

# 2-F-118 Adaptation and retention of standing balance changes following prolonged exposure to height-related threat

Martin Zaback<sup>1</sup>, Minh Luu<sup>1</sup>, Allan Adkin<sup>2</sup>, Mark Carpenter<sup>1</sup> <sup>1</sup>University of British Columbia, <sup>2</sup>Brock University

# 2-F-119 Microglial GPR120 plays an essential role in the prevention of inflammation

Geneviève Demers<sup>1</sup>, Jérôme Roy<sup>1</sup>, Diane Bairamian<sup>1</sup>, Khalil Bouyakdan<sup>1</sup>, Nathalie Arbour<sup>1</sup>, Cyril Laurent<sup>1</sup>, Vincent Poitout<sup>1</sup>, Guillaume Ferreira<sup>2</sup>, Stephanie Fulton<sup>3</sup>, Thierry Alquier<sup>1</sup>

<sup>1</sup>Centre de recherche du CHUM, <sup>2</sup>Institut national de la recherche agronomique (INRA), <sup>3</sup>CRCHUM – Univeristé de Montréal

# 2-F-120 A novel platform for quantifying social interactions: mesocopic dual brain imaging of GCaMP mice

Federico Bolanos<sup>1</sup>, Luis Bolanos<sup>1</sup>, Jeffrey LeDue<sup>1</sup>, Matilde Balbi<sup>1</sup>, Matthieu Vanni<sup>1</sup>, Dongsheng Xiao<sup>1</sup>, Allen Chan<sup>1</sup>, Timothy Murphy<sup>1</sup> <sup>1</sup>University of British Columbia

# 2-F-122 Internal states of low self-efficacy can induce learned nocebo effects on thermal sensation in youth

Ella Weik<sup>1</sup>, Christine Tipper<sup>2</sup>, Regula Neuenschwander<sup>1</sup>, Karin Jensen<sup>3</sup>, Tim Oberlander<sup>2</sup>

<sup>1</sup>University of British Columbia, BC Childrens Research Institute, <sup>2</sup>University of British Columbia, <sup>3</sup>Karolinska Institute

# 2-F-123 Age, rather than body weight, is a determinant of cognitive abilities in certain inbred mouse strains

Gabor Nagy<sup>1</sup>, Gyorgy Levay<sup>1</sup>

<sup>1</sup>Gedeon Richter Plc

# 2-F-124 Ablation of hippocampal neurogenesis and chronic inhibition of immature hippocampal neurons with DREADDs differently affect delay-based decision-making

Desiree Seib<sup>1</sup>, Delane Espinueva<sup>1</sup>, Oren Princz-Lebel<sup>1</sup>, Erin Chahley<sup>1</sup>, Stan Floresco<sup>1</sup>, Jason Snyder<sup>1</sup>

<sup>1</sup>University of British Columbia

# 2-F-125 Within-session intermittent cocaine self-administration produces addiction-like behaviours in rats, even with short daily sessions

Florence Allain<sup>1</sup>, Anne-Noël Samaha<sup>1</sup>

<sup>1</sup>Université de Montréal

## 2-F-126 Variability in Cognitive Trajectories: Validation Study of the Kaplan-Baycrest Neurocognitive Assessment (KBNA)

Natalia Ladyka-Wojcik<sup>1</sup>, Kristoffer Romero<sup>1</sup>, Larry Leach<sup>1</sup>, Guy Proulx<sup>1</sup> <sup>1</sup>Glendon College of York University

# 2-F-127 Enhancing the inhibition control associated with the left prefrontal cortex by increasing connectivity in the right prefrontal cortex: a tDCS-fMRI study

Abrar Alhindi<sup>1</sup>, Natalie Wright<sup>1</sup>, Eun Hyung Choi<sup>1</sup>, Lawrence Ryner<sup>1</sup>, Andrew Goertzen<sup>1</sup>, Colleen Millikin<sup>1</sup>, Ji Hyun Ko<sup>1</sup>

<sup>1</sup>University of Manitoba

# 2-F-128 Are teacher ratings of self-regulation more accurate than parent ratings in children with acquired brain injuries?

Stela Musteata<sup>1</sup>, Chand Taneja<sup>2</sup>, Esther Direnfeld<sup>3</sup>, Mauricio Garcia-Barrera<sup>1</sup>

<sup>1</sup>University of Victoria, <sup>2</sup>Island Health Authority/University of Victoria, <sup>3</sup>Hamilton Health Sciences

#### 2-F-129 A Comparison of 2-Dimensional and 3-Dimensional Multiple Object Tracking Training

Erika Shaw<sup>1</sup>, Brian Christie<sup>1</sup> <sup>1</sup>University of Victoria 2-F-130 Sex differences in the role of adult neurogenesis in visuo-spatial learning and memory is dependent on stress during training.

**Timothy O'Leary**<sup>1</sup>, **Delane Espinueva**<sup>1</sup>, **Desiree Seib**<sup>1</sup>, **Jason Snyder**<sup>1</sup> <sup>1</sup>University of British Columbia

#### 2-F-131 Age-related bidirectional regulation of object memory by the lysine acetyltransferase PCAF in the 3xTG mouse model of Alzheimer's disease

Samantha Creighton<sup>1</sup>, Alexa Desimone<sup>1</sup>, Kristen Jardine<sup>1</sup>, Megan Zmetana<sup>1</sup>, Sabrina Castellano<sup>2</sup>, Ciro Milite<sup>2</sup>, Gianluca Sbardella<sup>2</sup>, Boyer Winters<sup>1</sup>

<sup>1</sup>University of Guelph, <sup>2</sup>University of Salerno

# 2-F-132 Roles of the basolateral and central nuclei of the amygdala in reward-related behaviors: Studies using in vivo optogenetics

Alice Servonnet<sup>1</sup>, Giovanni Hernandez<sup>1</sup>, Pierre-Paul Rompré<sup>1</sup>, Anne-Noël Samaha<sup>1</sup>

<sup>1</sup>Université de Montréal

#### F – Cognition and Behavior: Exercise, Mobility and Brain Health Lab (Poster Cluster: 2-F-133 to 2-F-136)

2-F-133 Can meditation strategies improve attention in older adults with a history of falls?

Sabrina Ford<sup>1</sup>, Lindsay Nagamatsu<sup>1</sup>

<sup>1</sup>Western University

**2-F-134 Working Memory and Falls Risk in Older Adults** Yee (Michelle) Wong<sup>1</sup>, Lindsay Nagamatsu<sup>1</sup>

<sup>1</sup>Western University

2-F-135 Mind Over Matter: Understanding the Relationship Between Memory Self-Efficacy, Cognition and Brain Health in Older Adults with Probable Mild Cognitive Impairment; A Pilot Study

**Rebecca Horst<sup>1</sup>, Lindsay Nagamatsu<sup>1</sup>** <sup>1</sup>Western University

2-F-136 Assessing cognitive function and brain health in older adults at-risk for diabetes

Joyla Furlano<sup>1</sup>, Lindsay Nagamatsu<sup>1</sup>

<sup>1</sup>Western University

2-F-137 Association Between Cognitive Reserve and Cognitive Performance in People with HIV: A Systematic Review and Meta-Analysis

Navaldeep Kaur<sup>1</sup>, Nandini Dendukuri<sup>1</sup>, Lesley Fellows<sup>1</sup>, Marie-Josée Brouillette<sup>1</sup>, Nancy Mayo<sup>1</sup>

<sup>1</sup>McGill University

#### G – Novel Methods and Technology Development

#### 2-G-138 A simple protocol to use Dil for dendritic spine visualization in lightly fixed rat sections

Juan Trivino Paredes<sup>1</sup>, Patrick Nahirney<sup>1</sup>, Brian Christie<sup>1</sup> <sup>1</sup>University of Victoria

#### 2-G-139 Spontaneous Cortical Dynamics Revealed by High-Speed Voltage Imaging

Mark Reimers<sup>1</sup>, Majid Mohajerani<sup>2</sup>, Mike Moore<sup>1</sup>, Javad Karimi<sup>2</sup>, Sam Nola<sup>1</sup>

<sup>1</sup>Michigan State University, <sup>2</sup>University of Lethbridge

# 2-G-140 Body movements triggered mesoscopic cortical activity in mice.

Matthieu Vanni<sup>1</sup>, Dongsheng Xiao<sup>1</sup>, Matilde Balbi<sup>1</sup>, Jamie Boyd<sup>1</sup>, Tim Murphy<sup>1</sup>

<sup>1</sup>University of British Columbia

#### 2-G-141 A Novel Neuro-Rehabilitation Cooperative Journey: Incorporating Patient Input

Bonita Davidson<sup>1</sup> <sup>1</sup>Vancouver Island University

#### 2-G-143 Motion free micro-endoscopic system for imaging in freely behaving animals at variable focal depths using liquid crystal lenses.

**Arutyun Bagramyan<sup>1</sup>, Tigran Galstian<sup>1</sup>, Armen Saghatelyan<sup>2</sup>** <sup>1</sup>University Laval, <sup>2</sup>CERVO Brain research center, Laval University

#### 2-G-144 AAV-compatible MiniPromoters Delivered Intravenously Target Specific Cell Types of the Brain including the Cortex, Striatum, Dorsal Raphe, Locus Coeruleus, and Endothelial Cells of the Blood Brain Barrier

Andrea Korecki<sup>1</sup>, Siu Ling Lam<sup>1</sup>, Rachelle Farkas<sup>1</sup>, Oriol Fornes<sup>1</sup>, Anthony Mathelier<sup>1</sup>, Wyeth Wasserman<sup>1</sup>, Elizabeth Simpson<sup>1</sup> <sup>1</sup>University of British Columbia

2-G-145 On the Generalizability of Nonlinear Models of fMRI Data

and the True Model Selection Problem

James Hughes<sup>1</sup>, Mark Daley<sup>1</sup> <sup>1</sup>University of Western Ontario

# 2-G-147 Engineering next-generation optogenetic Pannexin-1 channels

Alexander Lohman<sup>1</sup>, Robert Campbell<sup>2</sup>, Roger Thompson<sup>1</sup> <sup>1</sup>University of Calgary, <sup>2</sup>University of A

### IBRO

# 2-IBRO-148 Sex differences in the antiallodynic effect of L-655,708 correlate with Gabra5 expression in a model of neuropathic pain in rats

Úrzula Monserrat Franco-Enzástiga<sup>1</sup>, Ana Belen Salinas-Abarca<sup>1</sup>, Vinicio Granados-Soto<sup>1</sup>

#### <sup>1</sup>CINVESTAV

#### 2-IBRO-149 Mechanistic investigation of antimalarial drugs induced modulation of aggressive behavior using Drosophila melanogaster

#### Ahmed Adedeji<sup>1</sup>, Sodiq Lawal<sup>2</sup>, Magori Cassian<sup>2</sup>

<sup>1</sup>Department of Pharmacology, Faculty of Health Sciences, Habib Medical School, Islamic University In , <sup>2</sup>St.Francis University College Of Health And Allied Sciences

### POSTER SESSION 2 - TUESDAY, MAY 15, 2018

2-IBRO-150 Redox homeostasis in brain of rats subjected to global perinatal asphyxia

Notes

Carolyne Lespay Lespay-Rebolledo<sup>1</sup>, Ronald Perez-Lobos<sup>1</sup>, Andrea Tapia-Bustos<sup>1</sup>, Paola Morales<sup>1</sup>, Mario Herrera-Marschitz<sup>1</sup> <sup>1</sup>University of Chile

#### **Poster Cluster: Neurodevelopment** disorders

#### 2-A-152 Uncovering novel OTUD7A binding partners in the brain using the BioID2 system

Brianna Unda<sup>1</sup>, Mohammed Uddin<sup>2</sup>, Vickie Kwan<sup>1</sup>, Nicholas Holzapfel<sup>1</sup>, Nadeem Murtaza<sup>1</sup>, Kristin Hope<sup>1</sup>, Brad Doble<sup>1</sup>, Jacob Nielsen<sup>3</sup>, Stephen Scherer<sup>4</sup>, Karun Singh<sup>1</sup>

<sup>1</sup>McMaster University, <sup>2</sup>Mohammed Bin Rashid University of Medicine and Health Sciences, <sup>3</sup>Lundbeck A/S, <sup>4</sup>The Hospital for Sick Children

#### 2-C-151 Disruption of the TAOK2 gene in human iPSC-derived neurons and its effect on neuron development and function

#### Nadeem Murtaza<sup>1</sup>, Eric Deneault<sup>2</sup>, Susan Walker<sup>2</sup>, Ryan Yuen<sup>2</sup>, Melanie Richter<sup>3</sup>, Robin Scharrenberg<sup>3</sup>, Birgit Schwanke<sup>3</sup>, Froylan Calderon De Anda<sup>3</sup>, James Ellis<sup>2</sup>, Stephen Scherer<sup>2</sup>, Karun Singh<sup>1</sup>

<sup>1</sup>McMaster University, <sup>2</sup>Sickkids Hospital, <sup>3</sup>University of Hamburg

### POSTER SESSION 3 – WEDNESDAY, MAY 16, 2018

#### A – Development

3-A-1 The Molecular Mechanisms of Plexin-dependent Synaptic Tiling

**Mizuki Kurashina<sup>1</sup>, Akihiro Shibata<sup>2</sup>, Hideji Murakoshi<sup>2</sup>, Kota Mizumoto<sup>1</sup>** <sup>1</sup>University of British Columbia, <sup>2</sup>National Institute for Physiological Sciences

**3-A-2** Axonal tiling in D-type motor neurons Ardalan Hendi<sup>1</sup>, Kota Mizumoto<sup>1</sup> <sup>1</sup>University of British Columbia

# 3-A-3 mab-9, a T-box transcription factor, is required for synaptic tiling in C. elegans

Jane Wang<sup>1</sup>, Kota Mizumoto<sup>1</sup> <sup>1</sup>University of British Columbia

# 3-A-4 TNIK/mig-15 is a negative regulator of synapse formation in C. elegans.

Ethan Fortes<sup>1</sup>, Kota Mizumoto<sup>2</sup> <sup>1</sup>Mr., <sup>2</sup>University of British Columbia

# 3-A-5 Wnt Signaling in Asymmetrical Neurite Pruning in C. elegans

Menghao Lu<sup>1</sup>, Kota Mizumoto<sup>1</sup> <sup>1</sup>University of British Columbia

#### 3-A-6 The role of MDGA proteins in regulation of neuroligin-neurexin signaling

Vedrana Cvetkovska<sup>1</sup>, Jonathan Elegheert<sup>2</sup>, Ina Ammendrup-Johnsen<sup>1</sup>, Daiki Ojima<sup>3</sup>, Steven Connor<sup>4</sup>, Amber Clayton<sup>2</sup>, Yicheng Xie<sup>1</sup>, Tohru Yamamoto<sup>3</sup>, Radu Aricescu<sup>2</sup>, Ann Marie Craig<sup>1</sup>

<sup>1</sup>University of British Columbia, <sup>2</sup>University of Oxford, <sup>3</sup>Kagawa University, <sup>4</sup>York University

# **3-A-7** Gap junctions are required for glia-glia communication, calcium signaling and survival in the Drosophila peripheral nerve Mriga Das<sup>1</sup>, Till Matzat<sup>1</sup>, Vanessa Auld<sup>1</sup>

<sup>1</sup>University of British Columbia

### 3-A-8 APP in developmental axonal pruning

Andres de Leon<sup>1</sup>, Julien Gibon<sup>2</sup>, Philip Barker<sup>2</sup>

<sup>1</sup>McGill University, <sup>2</sup>University of British Columbia - Okanagan

# 3-A-9 Calcium signaling determines the transition from quiescent to proliferative states of neural stem cell of the adult brain.

## Archana Gengatharan<sup>1</sup>, Marina Snapyan<sup>1</sup>, Marie-Anne Lebel-Cormier<sup>1</sup>, Magdalena Gotz<sup>2</sup>, Armen Saghatelyan<sup>3</sup>

<sup>1</sup>CERVO Brain Research Center, <sup>2</sup>Institute for Stem Cell Research, National Research Center for Environmental Health, <sup>3</sup>CERVO Brain research center, Laval University

# 3-A-10 Pleiotrophin reduces chondroitin sulfate proteoglycan mediated inhibition of neurite growth via anaplastic lymphoma kinase

Anna Wiersma<sup>1</sup>, Somnath Gupta<sup>1</sup>, Ian Winship<sup>1</sup>, Kathryn Todd<sup>1</sup> <sup>1</sup>University of Alberta

# 3-A-11 TNF pathway genes in Drosophila sensory neuron development

**Charlene Hoi<sup>1</sup>, Wenjing Ruan<sup>2</sup>, Redouane Allache<sup>2</sup>, Philip Barker<sup>1</sup>** <sup>1</sup>University of British Columbia, Okanagan Campus, <sup>2</sup>McGill University

# 3-A-12 Axon degeneration requires cytosolic Ca2+ influx through TrpV1

#### Aaron Johnstone<sup>1</sup>, Philip Barker<sup>2</sup>

<sup>1</sup>Montreal Neurological Hospital/ McGill University, <sup>2</sup>University of British Columbia - Okanagan

# 3-A-13 Changes in laterality of spinofugal projections caused by spinal cord deletion of DCC during development

Farin Bourojeni<sup>1</sup>, Ronan da Silva<sup>1</sup>, Isobel Orfi<sup>1</sup>, Hanns Zeilhofer<sup>2</sup>, Artur Kania<sup>1</sup>

<sup>1</sup>IRCM (Institut de recherches cliniques de Montreal), <sup>2</sup>Swiss Federal Institute of Technology

# 3-A-14 Role of the msxC gene in stem cell populations of the CNS during development and regeneration

Benjamin Lindsey<sup>1</sup>, David Zheng<sup>1</sup>, Shei Keil<sup>1</sup>, Selena Do<sup>1</sup>, Marie-Andree Akimenko<sup>1</sup>, Tuan Bui<sup>1</sup>

<sup>1</sup>University of Ottawa

### 3-A-15 The role of microglia in the adult olfactory bulb

Sarah Malvaut<sup>1</sup>, Jasna Kriz<sup>1</sup>, Armen Saghatelyan<sup>1</sup> <sup>1</sup>CERVO Brain research center, Laval University

#### **3-A-16 Pre-adolescent Oxytocin Treatment Increases Social Investigation Dependent on Sex and Maternal Fluoxetine Exposure** Nicole Minielly<sup>1</sup>, Wansu Qiu<sup>1</sup>, Natasha Black<sup>1</sup>, Jared Splinter<sup>1</sup>, Paula Duarte-Guterman<sup>1</sup>, Liisa Galea<sup>1</sup> <sup>1</sup>University of British Columbia

#### **3-A-17 Rostrocaudal differences within developing spinal locomotor networks in larval zebrafish (Danio rerio)** Melissa Paradis<sup>1</sup>, Tuan Bui<sup>1</sup>, Yann Roussel<sup>1</sup>

<sup>1</sup>University of Ottawa

#### 3-A-18 Transcriptome of subfornical organ is altered by early postnatal overnutrition

Colleen Peterson<sup>1</sup>, Shuo Huang<sup>2</sup>, Samantha Lee<sup>1</sup>, Alastair Ferguson<sup>3</sup>, William Fry<sup>1</sup>

<sup>1</sup>University of Manitoba, <sup>2</sup>University of Calgary, <sup>3</sup>Queen's University

# 3-A-19 The influence of cortical morphology on bold signal variability

Daiana Pur<sup>1</sup>, Roy Eagleson<sup>1</sup>, Nathalie Mella<sup>2</sup>, Anik de Ribaupierre<sup>2</sup>, Sandrine de Ribaupierre<sup>1</sup>

<sup>1</sup>Western University, <sup>2</sup>University of Geneva

# 3-A-20 Guidance and beyond: Roles for axon guidance genes in the adult nervous system

Aarya Vaikakkara Chithran<sup>1</sup>, Douglas Allan<sup>1</sup>, Timothy O'Connor<sup>1</sup> <sup>1</sup>University of British Columbia

### POSTER SESSION 3 – WEDNESDAY, MAY 16, 2018

# B – Neural Excitability, Synapses, and Glia: Cellular Mechanisms

## 3-B-21 Structure-function analysis of Pannexin-1's permeability to anandamide

Connor Anderson<sup>1</sup>, Allison Werner<sup>1</sup>, Alex Lohman<sup>1</sup>, Roger Thompson<sup>1</sup> <sup>1</sup>University of Calgary

## 3-B-22 Contribution of Pannexin-1 to 4-AP Seizures in Mouse Neocortex

Mark Aquilino<sup>1</sup>, Paige Whyte-Fagundes<sup>2</sup>, Georg Zoidl<sup>2</sup>, Berj Bardakjian<sup>1</sup>, Peter Carlen<sup>3</sup>

<sup>1</sup>University of Toronto, <sup>2</sup>York University, <sup>3</sup>University Health Network

## 3-B-23 A spike timing-dependent plasticity rule for single, clustered and distributed dendritic spines

Roberto Araya<sup>1</sup>, Sabrina Tazerart<sup>1</sup>, Diana Mitchell<sup>1</sup>, Soledad Miranda-Rottmann<sup>1</sup>

<sup>1</sup>Université de Montréal

## 3-B-24 A T-type calcium-activated signaling cascade for CREB activation

Hadhimulya Asmara<sup>1</sup>, Xiaoqin Zhan<sup>1</sup>, Giriraj Sahu<sup>1</sup>, Peter Stys<sup>1</sup>, Gerald Zamponi<sup>1</sup>, Raymond Turner<sup>1</sup>

<sup>1</sup>University of Calgary

#### **3-B-25 Non-random distribution of mGluR5 in murine astrocytes** Brian Marriott<sup>1</sup>, Brian Lozinski<sup>1</sup>, Kristin Milloy<sup>2</sup>, Matt Joel<sup>2</sup>, Neil Rasiah<sup>2</sup>, Adrienne Benediktsson<sup>1</sup>

<sup>1</sup>Mount Royal University, <sup>2</sup>University of Calgary

## 3-B-26 Gamma oscillations in the rodent anterior limbic system: local generation or external source?

James Carmichael<sup>1</sup>, Matthew Yuen<sup>1</sup>, Matthijs van der Meer<sup>1</sup> <sup>1</sup>Dartmouth College

# 3-B-27 Acute photoinactivation of a cGMP-dependent protein kinase reveals distinct functions in nerve terminal growth and synaptic vesicle cycling

Jeffrey Dason<sup>1</sup>, Aaron Allen<sup>2</sup>, Oscar Vasquez<sup>2</sup>, Marla Sokolowski<sup>2</sup> <sup>1</sup>University of Windsor, <sup>2</sup>University of Toronto

# 3-B-28 Influence of Neurexin 1 and PTPsigma on the formation of synapses established by dopaminergic neurons

Charles Ducrot<sup>1</sup>, Charlotte Michaud-Tardif<sup>1</sup>, Anne-Sophie Racine<sup>1</sup>, Samuel Burke-Nani<sup>1</sup>, Marie-Josée Bourque<sup>1</sup>, Gisselle Correa<sup>1</sup>, Guillaume Fortin<sup>1</sup>, Louis-Eric Trudeau<sup>1</sup>

<sup>1</sup>Université de Montréal

# 3-B-29 Fxr1 regulates homeostatic synaptic plasticity through changes in AMPAR composition

Alesya Evstratova<sup>1</sup>, Jivan Khlghatyan<sup>2</sup>, Aleksandra Marakhovskaia<sup>1</sup>, Tiago Silva<sup>1</sup>, Simon Chamberland<sup>3</sup>, Valerie Mongrain<sup>4</sup>, Katalin Toth<sup>2</sup>, Martin Beaulieu<sup>1</sup>

<sup>1</sup>University of Toronto, <sup>2</sup>Université Laval, <sup>3</sup>New York University, <sup>4</sup>Université de Montréal

# 3-B-30 Differential expression of gangliosides across multiple microglial phenotypes and their role in fine-tuning microglia activation

Danny Galleguillos<sup>1</sup>, Qian Wang<sup>1</sup>, Karin Rubinstein<sup>1</sup>, Matthew Churchward<sup>2</sup>, Kamaldeep Dhami<sup>1</sup>, Kathryn Todd<sup>2</sup>, Simonetta Sipione<sup>1</sup> <sup>1</sup>Neuroscience and Mental Health Institute – University of Alberta, <sup>2</sup>University of Alberta

## 3-B-31 Non-uniform subthreshold dynamics and integrative features in dorsal raphe neurons

Emerson Harkin<sup>1</sup>, Michael Lynn<sup>1</sup>, Alexandre Payeur<sup>1</sup>, Andre Longtin<sup>1</sup>, Richard Naud<sup>1</sup>, Jean-Claude Beique<sup>1</sup>

<sup>1</sup>University of Ottawa

# 3-B-32 The glial source of TNF during homeostatic synaptic plasticity

Renu Heir<sup>1</sup>, Pragya Komal<sup>1</sup>, Marie Franquin<sup>1</sup>, Julien Chambon<sup>1</sup>, David Stellwagen<sup>1</sup>

<sup>1</sup>McGill University

## 3-B-33 Microglia-driven cognitive impairments in offspring of dams with gestational diabetes

Jin Hee Kim<sup>1</sup>, Lori Tessler<sup>1</sup>, Tiina Kauppinen<sup>1</sup>

<sup>1</sup>University of Manitoba

# 3-B-34 Quality control of hiPSCs-derived neurons and astrocytes: assessing and improving maturation

Mahshad Kolahdouzan<sup>1</sup>, Marie Franquin<sup>1</sup>, Blandine Ponroy<sup>1</sup>, Huashan Peng<sup>1</sup>, Carl Ernst<sup>1</sup>, David Stellwagen<sup>1</sup>

<sup>1</sup>McGill University

## 3-B-35 The neuron baseball card project: A catalog of interneuron types in the primate lateral pre-frontal cortex

Eric Kuebler<sup>1</sup>, Megan Roussy<sup>2</sup>, Jackson Blonde<sup>1</sup>, Roberto Gulli<sup>1</sup>, Rogelio Luna<sup>1</sup>, Gustavo Parfitt<sup>1</sup>, Jude Reslan<sup>1</sup>, Michelle Jimenez<sup>1</sup>, Julia Sunstrum<sup>1</sup>, Sara Matovic<sup>1</sup>, Meagan Wiederman<sup>1</sup>, Chakravarthi Narla<sup>1</sup>, Jaymin Jeong<sup>1</sup>, Michelle Everest<sup>1</sup>, Kim Thomaes<sup>1</sup>, Rhonda <sup>1</sup>Robarts Research Institute, <sup>2</sup>University of Western Ontario

# 3-B-36 Rapid cAMP signalling regulates postsynaptic structural modification underlying synaptic plasticity

Tyler Luyben<sup>1</sup>, Jelena Borovac<sup>2</sup>, Megan Valencia<sup>2</sup>, Fiona Bergin<sup>3</sup>, Mustafa Khan<sup>3</sup>, Hang Li<sup>3</sup>, Takashi Tominaga<sup>4</sup>, Kenichi Okamoto<sup>5</sup>

<sup>1</sup>Visa, <sup>2</sup>University of Toronto, <sup>3</sup>The Lunenfeld-Tanenbaum Research Institute, <sup>4</sup>Tokushima Bunri University, <sup>5</sup>Lunenfeld-Tanenbaum Research Institute

### 3-B-37 Frequency coding at individual CA1 synapses

Cary Soares<sup>1</sup>, Andre Longtin<sup>1</sup>, Richard Naud<sup>1</sup>, Jean-Claude Beique<sup>2</sup>

<sup>1</sup>University of Ottawa Brain and Mind Institute, Centre for Neural Dynamics, <sup>2</sup>University of Ottawa

# 3-B-38 Ventral pallidum Drd3-expressing neurons mediate persistent cocaine seeking behaviors

Horia Pribiag<sup>1</sup>, Sora Shin<sup>1</sup>, Eric Wang<sup>1</sup>, Varoth Lilascharoen<sup>1</sup>, Byungkook Lim<sup>1</sup>

<sup>1</sup>University of California, San Diego

#### 3-B-39 Aryl hydrocarbon receptor nuclear translocator-2 expression in glia is influenced by inflammatory mediators in vitro and in models of multiple sclerosis

Pierre Becquart<sup>1</sup>, Jake Johnston<sup>1</sup>, Maria-Elizabeth Baeva<sup>1</sup>, Jacqueline Quandt<sup>1</sup>

<sup>1</sup>University of British Columbia

# 3-B-40 Ethanol inhibition of long term depression and NMDA receptor currents in the developing rat dentate gyrus

Scott Sawchuk<sup>1</sup>, Brian Christie<sup>1</sup>

<sup>1</sup>University of Victoria

## 3-B-41 Dense core vesicle transport and synaptic capture in neurons

Alexandra Vela<sup>1</sup>, Michael Silverman<sup>1</sup>

<sup>1</sup>Simon Fraser University

# 3-B-42 Quantifying dendritic chloride dynamics in cytotoxic edema using fluorescence lifetime imaging

#### Nicholas Weilinger<sup>1</sup>, Brian MacVicar<sup>2</sup>

<sup>1</sup>Centre For Brain Health / University of British Columbia, <sup>2</sup>University of British Columbia

# 3-B-43 Pannexin-1 dependent long-term depression at the CA3-CA1 synapse

Allison Werner<sup>1</sup>, Roger Thompson<sup>1</sup>

<sup>1</sup>University of Calgary

# 3-B-44 Antibiotic treatment disrupts synaptic plasticity in the PVN and impairs memory of an acute stress

Agnieszka Zurek<sup>1</sup>, Toni-Lee Sterley<sup>1</sup>, Dina Baimoukhametova<sup>1</sup>, Jaideep Bains<sup>2</sup>

<sup>1</sup>University of Calgary, <sup>2</sup>Hotchkiss Brain Institute, University of Calgary

### C – Disorders of the Nervous System

# 3-C-45 18F-FDG PET imaging of brain glucose hypometabolism in the 3xTg mouse model of Alzheimer's disease

Aida Adlimoghaddam<sup>1</sup>, Wanda Snow<sup>1</sup>, George Stortz<sup>2</sup>, Andrew Goertzen<sup>3</sup>, Ji Ko<sup>3</sup>, Jelena Djordjevic<sup>4</sup>, Claudia Perez<sup>4</sup>, Benedict Albensi<sup>1</sup> <sup>1</sup>St. Boniface Hospital Research Centre / University of Manitoba, <sup>2</sup>University of British Columbia, <sup>3</sup>University of Manitoba, <sup>4</sup>St. Boniface Hospital Research Centre

#### 3-C-46 SMaRT Human Neural Stem Cells to Degrade Glial Scar and Enhance Regeneration after Cervical Spinal Cord Injury

**Christopher Ahuja<sup>1</sup>, Mohamad Khazaei<sup>1</sup>, Jian Wang<sup>1</sup>, Michael Fehlings<sup>2</sup>** <sup>1</sup>University of Toronto, <sup>2</sup>Krembil Research Institute / University Health Network

# 3-C-47 Neuregulin-1: a novel regulator of immune response in traumatic spinal cord injury

Arsalan Alizadeh<sup>1</sup>, Kallivalappil Santhosh<sup>1</sup>, Hardeep Kataria<sup>1</sup>, Adelilah S. Gounni<sup>1</sup>, Soheila Karimi-Abdolrezaee<sup>1</sup>

<sup>1</sup>University of Manitoba

#### **3-C-48** Stress controllability reverses chronic stress-induced behavioural deficits: involvement of cortical endocannabinoids Courtney Leigh Clarke<sup>1</sup>, Victoria Elizabeth Mackey<sup>1</sup>, Jordan Osmond<sup>1</sup>, Sarah Bugden<sup>1</sup>, Francis Bambico<sup>1</sup>

<sup>1</sup>Memorial University of Newfoundland

# 3-C-49 Development of an opioid self-administration assay to study drug seeking in zebrafish

Gabriel Bosse<sup>1</sup>, Randall Peterson<sup>1</sup>

<sup>1</sup>University of Utah

#### 3-C-50 Impact of minocycline treatment on spatial learning and memory performance following prenatal alcohol exposure

Melissa Chiu<sup>1</sup>, Amanada Chao<sup>1</sup>, Srishti Sarkar<sup>1</sup>, Samantha Baglot<sup>1</sup>, Tamara Bodnar<sup>1</sup>, Joanne Weinberg<sup>1</sup>

<sup>1</sup>University of British Columbia

# 3-C-51 Post-mortem analysis of a Parkinson's disease brain after 11 years of deep brain stimulation of the subthalamic nucleus

Francis Desmeules<sup>1</sup>, Cynthia Lecours<sup>2</sup>, Sylvine Carrondo Cottin<sup>3</sup>, Angela Noecker<sup>4</sup>, Peter Gould<sup>3</sup>, Stephan Saikali<sup>3</sup>, Marie-Eve Tremblay<sup>2</sup>, Cameron McIntyre<sup>4</sup>, Michel Prud'Homme<sup>3</sup>, Léo Cantin<sup>3</sup>, Martin Parent<sup>5</sup>

<sup>1</sup>CERVO Brain Research Centre, <sup>2</sup>Centre de recherche du CHU de Québec, <sup>3</sup>Hôpital de l'Enfant-Jésus, <sup>4</sup>Cleveland Clinic, <sup>5</sup>Université Laval

# 3-C-52 Long-term 'fear-network' hyperconnectivity underlying threat perception in post-traumatic stress disorder

Benjamin Dunkley<sup>1</sup>, Simeon Wong<sup>1</sup>, Jimmy Wong<sup>1</sup>, Margot Taylor<sup>1</sup> <sup>1</sup>Hospital for Sick Children

#### 3-C-53 Sensory-evoked activity in whisker barrel cortex as a model to probe cortical plasticity in a mouse model of Rett syndrome

Farnoosh Farhoomand<sup>1</sup>, Jay Leung<sup>1</sup>, Kerry Delaney<sup>1</sup> <sup>1</sup>University of Victoria

#### 3-C-54 Alterations of mismatch negativity (MMN) in schizophrenia patients differing on perceived spatial location of auditory hallucinations

Derek Fisher<sup>1</sup>, Dylan Smith<sup>2</sup>, Alain Labelle<sup>3</sup>, Verner Knott<sup>3</sup> <sup>1</sup>Mount Saint Vincent University, <sup>2</sup>University of Ottawa, <sup>3</sup>The Royal's Institute of Mental Health Research

# 3-C-55 Synaptic changes in the ALS cortex: an interplay between neurons and astrocytes

Marie Franquin<sup>1</sup>, Mahshad Kolahdouzan<sup>1</sup>, Blandine Ponroy<sup>1</sup>, Pragya Komal<sup>1</sup>, Carl Ernst<sup>1</sup>, David Stellwagen<sup>1</sup>

<sup>1</sup>McGill University

**3-C-56 Characterization of Adult Human Spinal Cord Stem Cell Proliferation/Differentiation Behavior: A Translational Perspective** Ahmad Galuta<sup>1</sup>, Diana Ghinda<sup>2</sup>, Mahmoud Bedaiwy<sup>2</sup>, Hussam Jabri<sup>2</sup>, Mohammad AlShardan<sup>2</sup>, Michael Taccone<sup>2</sup>, Carolyn Lai<sup>2</sup>, Jessica Rabski<sup>2</sup>, Suzan Chen<sup>3</sup>, Eve Tsai<sup>4</sup>

<sup>1</sup>University of Ottawa, <sup>2</sup>Division of Neurosurgery, Department of Surgery / The Ottawa Hospital, <sup>3</sup>Ottawa Hospital Research Institute, <sup>4</sup>The Ottawa Hospital

#### 3-C-57 Investigating the early decline of neural stem cells in a mouse model of Alzheimer's disease

#### Richard Harris<sup>1</sup>, Bensun Fong<sup>1</sup>, David Park<sup>1</sup>, Ruth Slack<sup>1</sup> <sup>1</sup>University of Ottawa

### POSTER SESSION 3 – WEDNESDAY, MAY 16, 2018

# 3-C-58 Effects of the type 1 cannabinoid receptor positive allosteric modulator GAT211 on absence seizures and the anxiety-like phenotype of Genetic Absence Epilepsy Rats from Strasbourg

John Howland<sup>1</sup>, Quentin Greba<sup>1</sup>, Mariam Alaverdashvili<sup>1</sup>, Michael Anderson<sup>1</sup>, Andrew Roebuck<sup>1</sup>, Wendie Marks<sup>1</sup>, Pushkar Kulkarni<sup>2</sup>, Terrance Snutch<sup>3</sup>, Ganesh Thakur<sup>2</sup>, Robert Laprairie<sup>1</sup>

<sup>1</sup>University of Saskatchewan, <sup>2</sup>Northeastern University, <sup>3</sup>University of British Columbia

# 3-C-59 Traffic Noise Stress Negatively Modifies Brain Structure-Function

Zahra Jafari<sup>1</sup>, Bryan Kolb<sup>1</sup>, Majid Mohajerani<sup>1</sup>

<sup>1</sup>University of Lethbridge

# 3-C-60 Increased risk for heterotopic ossification and delayed bone consolidation in orthopedic patients suffering from a concomitant mild traumatic brain injury

Marianne Jodoin<sup>1</sup>, Dominique Rouleau<sup>2</sup>, Benoit Benoit<sup>2</sup>, Stephane Leduc<sup>2</sup>, Yves Laflamme<sup>2</sup>, Emilie Sandman<sup>2</sup>, Erik Therrien<sup>2</sup>, Louis De Beaumont<sup>1</sup>

<sup>1</sup>Université de Montréal, <sup>2</sup>Sacred Heart Hospital of Montreal

#### 3-C-61 Mechanisms of AMPA-receptor trafficking alterations in a novel VPS35 p.D620N knock-in mouse model of Parkinson's disease.

#### Chelsie Kadgien<sup>1</sup>, Matthew Farrer<sup>2</sup>, Austen Milnerwood<sup>3</sup>

<sup>1</sup>University of British Columbia | McGill, <sup>2</sup>University of British Columbia, <sup>3</sup>Montreal Neurological Institute

## 3-C-62 Adult-Generated GABA-ergic Neurons within the Injured Cortex after Stroke

Timal Kannangara<sup>1</sup>, Anthony Carter<sup>1</sup>, Jean-Claude Beique<sup>1</sup>, Diane Lagace<sup>1</sup>

<sup>1</sup>University of Ottawa

# 3-C-63 The role of LRRK2 at cortico- and thalamo-striatal synapses

Naila Kuhlmann<sup>1</sup>, Liping Cao<sup>2</sup>, Matthew Farrer<sup>1</sup>, Austen Milnerwood<sup>3</sup> <sup>1</sup>University of British Columbia, <sup>2</sup>Centre for Applied Neurogenetics, <sup>3</sup>Montreal Neurological Institute

# 3-C-64 Expression of microRNA-21 in non-traumatic spinal cord injury is associated with poor motor function

Alex Laliberte<sup>1</sup>, Spyridon Karadimas<sup>1</sup>, Pia Vidal<sup>2</sup>, Kajana Satkunendrarajah<sup>2</sup>, Michael Fehlings<sup>2</sup>

<sup>1</sup>University of Toronto, <sup>2</sup>Krembil Research Institute / University Health Network

#### **3-C-65 Amyloid-Beta Oligomers Impair Presynaptic Differentiation by Interfering Beta-Neurexin Protein Complexes** Alfred Lee<sup>1</sup>, Yusuke Naito<sup>1</sup>, Husam Khaled<sup>2</sup>, Hideto Takahashi<sup>3</sup>

<sup>1</sup>Institut de recherches cliniques de Montréal/ McGill University, <sup>2</sup>Institut de recherches cliniques de Montréal/ Université de Montréal, <sup>3</sup>Institut de recherches cliniques de Montréal

# 3-C-66 The metabolic regulator p66Shc as a therapeutic target for Alzheimer's Disease

Asad Lone<sup>1</sup>, Robert Cumming<sup>2</sup>

<sup>1</sup>University of Western Ontario, <sup>2</sup>Western University

#### 3-C-67 Metformin results in hippocampal remodeling and improved memory encoding in paediatric brain tumor survivors treated with cranial radiation: A pilot randomized controlled crossover study

Ramy Ayoud<sup>1</sup>, Freda Miller<sup>1</sup>, Kiran Beera<sup>1</sup>, Cynthia de Medeiros<sup>1</sup>, Suzanne Laughlin<sup>1</sup>, Eric Bouffet<sup>1</sup>, Donald Mabbott<sup>1</sup>

<sup>1</sup>The Hospital for Sick Children

#### 3-C-68 Depressive etiology of chronic traumatic encephalopathy in anterior cingulate white matter

Sarah Rind<sup>1</sup>, Ian Mahar<sup>1</sup>, Rebecca Mathias<sup>1</sup>, Jonathan Cherry<sup>1</sup>, Ann McKee<sup>1</sup>

<sup>1</sup>Boston University

#### **3-C-69** A new model for repeated concussion can cause acute neurologic impairment without structural damage in juvenile rats Alicia Meconi<sup>1</sup>, Ryan Wortman<sup>1</sup>, David Wright<sup>1</sup>, Sandy Shultz<sup>1</sup>, Brian Christie<sup>1</sup>

<sup>1</sup>University of Victoria

# 3-C-70 Alpha-mangostin attenuates inflammation induced by systemic LPS administration in C57BL/6J mice and ameliorates memory deficits in a transgenic mouse model of Alzheimer's disease

Miryam Nava-Catorce<sup>1</sup>, Goar Gevorkyan<sup>1</sup>, Gonzalo Acero<sup>1</sup> <sup>1</sup>Universidad Nacional Autónoma de México

#### 3-C-71 Non-amyloid Beta Impacts of Presenilin in Alzheimer's Associated Olfactory Deficits

Mahraz Parvand<sup>1</sup>, Tahereh Bozorgmehr<sup>1</sup>, Dawson Born<sup>1</sup>, Catharine Rankin<sup>1</sup>

<sup>1</sup>University of British Columbia

# 3-C-72 Comparing spatial normalization methods on brain MRI data in the presence of MS lesions on real and simulated data

Salina Pirzada<sup>1</sup>, Nasir Uddin<sup>1</sup>, Chase Figley<sup>1</sup>, Teresa Figley<sup>1</sup>

<sup>1</sup>University of Manitoba

#### 3-C-73 Testing the Robustness of Promising Neuro-Protective Drug Candidates in a Cervical Hemi-Contusion Model of Rats

Ward Plunet<sup>1</sup>, Ward Plunet<sup>1</sup>, Jie Liu<sup>1</sup>, Elizabeth Raffaele<sup>1</sup>, Suhana Kamakari<sup>1</sup>, Oscar Seira<sup>1</sup>, Kathleen Kole<sup>1</sup>, Yuan Jiang<sup>1</sup>, Lowell McPhail<sup>1</sup>, Wolfram Tetzlaff<sup>1</sup>

<sup>1</sup>University of British Columbia

# 3-C-74 Association between peripheral neuroinflammation and DATSCAN data of the striatal nuclei in PD patients

Hossein Sanjari Moghaddam<sup>1</sup> <sup>1</sup>Tehran University of medical sciences

#### 3-C-75 Motor cortical circuit interactions in Parkinson's disease

James Saravanamuttu<sup>1</sup>, Natasha Radhu<sup>1</sup>, Kaviraja Udupa<sup>2</sup>, Carolyn Gunraj<sup>1</sup>, Julianne Baarbé<sup>1</sup>, Robert Chen<sup>1</sup>

<sup>1</sup>University Health Network, <sup>2</sup>National Institute of Mental Health and NeuroSciences

#### 3-C-76 Isolation and Characterization of Heterogeneous Amyloid Beta Oligomer Populations Using Size Exclusion Chromatography and Oligomer-Specific Antibody

Chih Chieh Shyu<sup>1</sup>, Neil Cashman<sup>1</sup>, Ebrima Gibbs<sup>1</sup> <sup>1</sup>University of British Columbia

#### 3-C-77 Mouse models to explore genetic underpinnings of Developmental coordination disorder (DCD)

Jeffy Rajan Soundara Rajan<sup>1</sup>, Kamaldeep Gill<sup>1</sup>, Jill Zwicker<sup>1</sup>, Daniel Goldowitz<sup>1</sup>

<sup>1</sup>University of British Columbia

# 3-C-78 Direct comparison of MRI based myelin measurements in MS lesions and normal appearing white matter

Md Nasir Uddin<sup>1</sup>, Teresa Figley<sup>1</sup>, Ruth Ann Marrie<sup>1</sup>, Chase Figley<sup>1</sup> <sup>1</sup>University of Manitoba

# 3-C-79 Advances in familial multiple sclerosis genetics pave the way for novel neuroscience research

Carles Vilarino-Guell<sup>1</sup>

<sup>1</sup>University of British Columbia

3-C-80 The effects of SDC3 and FGFRL1 on neurodegeneration in AD and PD

Juelu Wang<sup>1</sup>, Weihong Song<sup>1</sup> <sup>1</sup>University of British Columbia

#### 3-C-81 Double-Tap: A novel high-throughput machine vision behavioural paradigm to study sensorimotor gating using Caenorhabditis elegans

Anna Willms<sup>1</sup>, Troy McDiarmid<sup>1</sup>, Catharine Rankin<sup>1</sup> <sup>1</sup>University of British Columbia

#### C – Disorders of the Nervous System: Functional Variomics Group at UBC (Poster cluster: 3-C-82 to 3-C-85)

# 3-C-82 Functional Variomics Group: Analysis of ASD-associated PTEN gene variants in hippocampal neurons

Riki Dingwall<sup>1</sup>, Matthew Edwards<sup>1</sup>, Danya Abazari<sup>1</sup>, Kathryn Post<sup>1</sup>, Fabian Meili<sup>1</sup>, Manuel Belmadani<sup>1</sup>, Benjamin Callaghan<sup>1</sup>, Payel Ganguly<sup>1</sup>, Troy McDiarmid<sup>1</sup>, Kurt Haas<sup>1</sup>, Chris Loewen<sup>1</sup>, Paul Pavlidis<sup>1</sup>, Douglas Allan<sup>1</sup>, Timothy O'Connor<sup>1</sup>, Catharine Rankin<sup>1</sup>, Shern <sup>1</sup>University of British Columbia

#### University of british columbia

# 3-C-83 Functional Variomics Group:High-volume functionalization of human autism PTEN variants in Drosophila

Payel Ganguly<sup>1</sup>, Kathryn Post<sup>1</sup>, Riki Dingwall<sup>1</sup>, Matthew Edwards<sup>1</sup>, Tianshun Lian<sup>1</sup>, Troy McDiarmid<sup>1</sup>, Manuel Belmadani<sup>1</sup>, Ben Callaghan<sup>1</sup>, Fabian Meili<sup>1</sup>, Barry Young<sup>1</sup>, Warren Meyers<sup>1</sup>, Keneth Matreyek<sup>2</sup>, Douglas Fowler1, Sanja Rogic<sup>1</sup>, Paul Pavlidis<sup>1</sup>, Christopher Loewen<sup>1</sup>, Catharine Rankin<sup>1</sup>, Shernaz Bamji<sup>1</sup>, Kurt Haas<sup>1</sup>, Timothy O'Connor<sup>1</sup>, Douglas Allan<sup>1</sup>

<sup>1</sup>University of British Columbia, <sup>2</sup>University of Washington

#### 3-C-84 Functional Variomics Group: Precise structure-function analysis of ASD associated gene variants in PTEN using targeted CRISPR gene replacement in Caenorhabditis elegans

Troy McDiarmid<sup>1</sup>, Kathryn Post<sup>1</sup>, Riki Dingwall<sup>1</sup>, Payel Ganguly<sup>1</sup>, Matthew Edwards<sup>1</sup>, Ben Callaghan<sup>1</sup>, Manuel Belmadani<sup>1</sup>, Fabian Meili<sup>1</sup>, Warren Meyers<sup>1</sup>, Barry Young<sup>1</sup>, Sanja Rojic<sup>1</sup>, Chris Loewen<sup>1</sup>, Douglas Allan<sup>1</sup>, Timothy O'Connor<sup>1</sup>, Shernaz Bamji<sup>1</sup>, Paul Pavlidis

<sup>1</sup>University of British Columbia

#### 3-C-85 Functional Variomics Group: Precise structure-function analysis of ASD associated gene variants in PTEN using Saccharomyces cerevisiae

Kathryn Post<sup>1</sup>, Barry Young<sup>1</sup>, Fabian Meili<sup>1</sup>, Benjamin Callaghan<sup>1</sup>, Sanja Rogic<sup>1</sup>, Catharine Rankin<sup>1</sup>, Timothy O'Connor<sup>1</sup>, Paul Pavlidis<sup>1</sup>, Douglas Allan<sup>1</sup>, Shernaz Bamji<sup>1</sup>, Manuel Belmadani<sup>1</sup>, Christopher Loewen<sup>1</sup>, Kurt Haas<sup>1</sup>

<sup>1</sup>University of British Columbia

### D – Sensory and Motor Systems

#### 3-D-86 Centrally evoked blood pressure changes after chemogenetic activation of serotonergic neurons in the rat

Katrina Armstrong<sup>1</sup>, Mona Nazzal<sup>1</sup>, Xiaoyu Chen<sup>1</sup>, Larry Jordan<sup>1</sup>, Katinka Stecina<sup>1</sup>

<sup>1</sup>University of Manitoba

#### 3-D-87 Periaqueductal Grey Volume Associated with Neonatal Priming of Adult Paw Incision Pain

Sofia Assi<sup>1</sup>, Simon Beggs<sup>2</sup>, YuShan Tu<sup>3</sup>, Lily Qiu<sup>3</sup>, Arun Ramani<sup>3</sup>, Shahrzad Ghazisaeidi<sup>1</sup>, Michael Brudno<sup>3</sup>, Jason Lerch<sup>3</sup>, Michael Salter<sup>3</sup> <sup>1</sup>University of Toronto, <sup>2</sup>University College London, <sup>3</sup>The Hospital for Sick Children

#### 3-D-88 "Graspability" Determines the Utility of Weber's Law in Evaluating the Visual Codes Supporting Grasping and Manual Estimation

Naila Ayala<sup>1</sup>, Matthew Heath<sup>1</sup>, Gordon Binsted<sup>2</sup> <sup>1</sup>Western University, <sup>2</sup>University of British Columbia

## 3-D-89 The effect of pregabalin on neurological function following spinal cord injury

Erin Erskine<sup>1</sup>, Ward Plunet<sup>2</sup>, Nicholas Salterio<sup>1</sup>, Wolfram Tetzlaff<sup>2</sup>, Matthew Ramer<sup>2</sup>, John Kramer<sup>2</sup>

<sup>1</sup>University of British Columbia ICORD, <sup>2</sup>University of British Columbia

#### 3-D-90 The Effects of Exercise-Induced Fatigue and Eccentric Muscle Damage on Kinesthesia

Gregg Eschelmuller<sup>1</sup>, George Grose<sup>1</sup>, Damian Manzone<sup>2</sup>, Ryan Peters<sup>1</sup>, Mark Carpenter<sup>1</sup>, J. Timothy Inglis<sup>1</sup>, Romeo Chua<sup>1</sup>

<sup>1</sup>University of British Columbia, <sup>2</sup>The University of Toronto

# 3-D-91 Characterization of neural activity in a hippocampus-like region of teleost fish brain in the context of active spatial navigation

Haleh Fotowat<sup>1</sup>, James Jun<sup>2</sup>, Candice Lee<sup>3</sup>, Leonard Maler<sup>3</sup> <sup>1</sup>Harvard University, <sup>2</sup>Columbia University, <sup>3</sup>University of Ottawa

#### 3-D-92 PAX6 Gene Therapy Rescues Corneal Defects in Mouse Model of Aniridia; a Rare Blinding Disorder

Jack Hickmott<sup>1</sup>, Siu Ling Lam<sup>1</sup>, Elizabeth Simpson<sup>1</sup> <sup>1</sup>University of British Columbia

### POSTER SESSION 3 – WEDNESDAY, MAY 16, 2018

## 3-D-93 Noxious heat pain processing is global phenomenon - a contact heat evoked potential study

Catherine Jutzeler<sup>1</sup>, Armin Curt<sup>2</sup>, Jan Rosner<sup>2</sup>, Michele Hubli<sup>2</sup>, John Kramer<sup>1</sup>

<sup>1</sup>University of British Columbia, <sup>2</sup>University of Zurich

## 3-D-94 Does electrical vestibular stimulation circumvent the velocity storage?

Navid Khosravi-Hashemi<sup>1</sup>, Anthony Chen<sup>1</sup>, Oscar Ortiz-Angulo<sup>1</sup>, John Kramer<sup>1</sup>, Jean-Sebastien Blouin<sup>1</sup>

<sup>1</sup>University of British Columbia

## 3-D-95 Foot sole cutaneous signals modulate soleus tendon vibration reflex coupling during standing

Robyn Mildren<sup>1</sup>, Gregg Eschelmuller<sup>1</sup>, Jean-Sebastien Blouin<sup>1</sup>, Mark Carpenter<sup>1</sup>, J. Timothy Inglis<sup>1</sup>

<sup>1</sup>University of British Columbia

#### 3-D-96 Towards CRISPR/Cas9-Mediated Gene Therapy to Correct Blindness in a Novel Mouse Model of Aniridia

Zeinab Mirjalili Mohanna<sup>1</sup>, Siu Ling Lam<sup>2</sup>, Tom Johnson<sup>1</sup>, Tess Lengyell<sup>1</sup>, Elizabeth Simpson<sup>2</sup>

<sup>1</sup>BC Children's Hospital Research Institute/ University of British Columbia, <sup>2</sup>University of British Columbia

## 3-D-97 Development of the dedicated neural circuit for swimming in the Zebrafish (Danio rerio) spinal cord.

Yann Roussel<sup>1</sup>, Tuan Bui<sup>1</sup>

<sup>1</sup>University of Ottawa

## 3-D-98 Differential effects of electrical vestibular stimuli on gait in Parkinson's disease

Stephanie Tran<sup>1</sup>, Saurabh Garg<sup>1</sup>, Mahsa Shafiee<sup>1</sup>, Christina Jones<sup>1</sup>, Martin McKeown<sup>1</sup>

<sup>1</sup>University of British Columbia

## 3-D-99 Identification of active cortical networks during motor behaviour

Marc Vani<sup>1</sup>, Timal Kannangara<sup>1</sup>, Yingben Xue<sup>1</sup>, Christine Denny<sup>2</sup>, Diane Lagace<sup>1</sup>

<sup>1</sup>University of Ottawa, <sup>2</sup>Columbia University

#### E – Homeostatic and Neuroendocrine Systems

**3-E-100 PVN CRH neuron anticipate innate coping strategies** Nuria Daviu Abant<sup>1</sup>, Tamás Füzesi<sup>1</sup>, David Rosenegger<sup>1</sup>, Neilen Rasiah<sup>1</sup>, Toni-Lee Sterley<sup>1</sup>, Jaideep Bains<sup>1</sup>

<sup>1</sup>Hotchkiss Brain Institute, University of Calgary

#### 3-E-101 Fear and anxiety in the hypothalamus

Tamás Füzesi<sup>1</sup>, David Rosenegger<sup>1</sup>, Nuria Daviu<sup>1</sup>, Neilen Rasiah<sup>1</sup>, Jaideep Bains<sup>1</sup>

<sup>1</sup>Hotchkiss Brain Institute, University of Calgary

#### 3-E-102 Short-Term Gonadectomy Alters the Morphology of Pyramidal Neurons in the Hippocampus and Medial Prefrontal Cortex in Male Rats

Eric Lawton<sup>1</sup>, Lauren Isaacs<sup>1</sup>, Ari Mendell<sup>1</sup>, Craig Bailey<sup>1</sup>, Neil MacLusky<sup>1</sup> <sup>1</sup>University of Guelph

3-E-103 Neurogenic and Neuroimmune Consequences of Chronic Stress: Distinct Modulatory Roles of Estrogen Receptors Alpha and Beta

Rand Mahmoud<sup>1</sup>, Rand Mahmoud<sup>1</sup>, Jessica Chaiton<sup>1</sup>, Stephanie E Lieblich<sup>1</sup>, Carmen Chow<sup>1</sup>, Paula Duarte-Guterman<sup>1</sup>, Liisa AM Galea<sup>1</sup> <sup>1</sup>University of British Columbia

# 3-E-104 Genetic disruption of Adipose Triglyceride Lipase (ATGL) in mediobasal hypothalamic neurons induces overweight and metabolic disturbances.

Romane Manceau<sup>1</sup>, Khalil Bouyakdan<sup>2</sup>, Alexandre Fisette<sup>1</sup>, Demetra Rodaros<sup>1</sup>, Grant Mitchell<sup>3</sup>, Stephanie Fulton<sup>1</sup>, Thierry Alquier<sup>2</sup>

<sup>1</sup>CRCHUM – Univeristé de Montréal, <sup>2</sup>Centre de recherche du CHUM, <sup>3</sup>Centre de Recherche du CHU-Ste-Justine

# 3-E-105 Effect of dietary fructose on synaptic plasticity at AgRP neurons

Mikayla Payant<sup>1</sup>, Alex Hebert<sup>1</sup>, Eleftheria Maratos-Flier<sup>2</sup>, Melissa Chee<sup>1</sup> <sup>1</sup>Carleton University, <sup>2</sup>Beth Israel Deaconess Medical Center, Harvard Medical School

# 3-E-106 Sex differences in stress habituation modulate pre- and post-synaptic 5-HT1A receptor function.

**Tristan Philippe<sup>1</sup>**, **Yi Yang<sup>1</sup>**, **Judy Chang<sup>1</sup>**, **Alexandra Ferland<sup>1</sup>**, **Victor Viau<sup>1</sup>** <sup>1</sup>University of British Columbia

# 3-E-107 Colitis promotes anxiety through a CRF-R1 mediated suppression of central anandamide signaling

Haley Vecchiarelli<sup>1</sup>, Kaitlyn Tan<sup>1</sup>, Vincent Chaing<sup>1</sup>, Maria Morena<sup>1</sup>, Catherine Keenan<sup>1</sup>, Martin Sticht<sup>1</sup>, Kira Leitl<sup>1</sup>, Winnie Ho<sup>1</sup>, Min Qiao<sup>1</sup>, Keith Sharkey<sup>1</sup>, Matthew Hill<sup>1</sup> <sup>1</sup>University of Calgary

#### F – Cognition and Behavior

**3-F-108** A Novel Iterative Screen in C. elegans Reveals a Protein in the Insulin Signaling Pathway to be a Key Mediator of Memory Sylvia Almeida<sup>1</sup>, Daniel Merritt<sup>1</sup>, Glenn Wolfe<sup>1</sup>, Afrin Bhattacharya<sup>1</sup>, Justina Melkis<sup>1</sup>, Derek van der Kooy<sup>1</sup>

<sup>1</sup>University of Toronto

#### 3-F-109 Emotional Memory in Bipolar Disorder and Major Depressive Disorder: A Preliminary Report

**Bryce Bogie<sup>1</sup>, Monisha Persaud<sup>1</sup>, Flavio Kapczinski<sup>1</sup>, Benicio Frey<sup>1</sup>** <sup>1</sup>McMaster University

# 3-F-110 Dissociable structural and functional hippocampal outputs via distinct classes of cells in the subiculum

Mark Cembrowski<sup>1</sup>, Matthew Phillips<sup>1</sup>, Salvatore DiLisio<sup>1</sup>, Brenda Shields<sup>1</sup>, Nelson Spruston<sup>1</sup> <sup>1</sup>Howard Hughes Medical Institute
#### 3-F-112 Can You Teach an Old Neuron New Tricks?

John Darby Cole<sup>1</sup>, Delane Espinueva<sup>1</sup>, Timothy O'Leary<sup>1</sup>, Desiree Seib<sup>1</sup>, Jason Snyder<sup>1</sup>

<sup>1</sup>University of British Columbia

## 3-F-113 Neural correlates of risk/reward decision making in the medial prefrontal cortex and basolateral amygdala

Einar Einarsson<sup>1</sup>, Ryan Fayyazi<sup>1</sup>, Jeremy Seamans<sup>1</sup>, Stan Floresco<sup>1</sup> <sup>1</sup>University of British Columbia

#### 3-F-114 Neuroanatomical Correlates of Mouse Home Cage Social Behaviours

**Darren Fernandes<sup>1</sup>, Lily Qiu<sup>2</sup>, Brooke Green<sup>2</sup>, Jason Lerch<sup>2</sup>** <sup>1</sup>University of Toronto, <sup>2</sup>The Hospital for Sick Children

#### 3-F-115 Ventro-dorsal hippocampal interaction controls context memory formation

Felipe Fredes<sup>1</sup>, Maria Alejandra Silva<sup>1</sup>, Kenta Kobayashi<sup>2</sup>, Maximilian Joesch<sup>1</sup>, Ryuichi Shigemoto<sup>1</sup>

<sup>1</sup>Institute of Science and Technology Austria IST, <sup>2</sup>National Institute for Physiological Sciences

# 3-F-116 Early intervention with a multi-ingredient dietary supplement improves mood and delays spatial memory decline in a triple transgenic mouse model of Alzheimer's disease

Craig Hutton<sup>1</sup>, Jennifer Lemon<sup>1</sup>, Boris Sakic<sup>1</sup>, David Rollo<sup>1</sup>, Douglas Boreham<sup>1</sup>, Margaret Fahnestock<sup>1</sup>, Martin Wojtowicz<sup>2</sup>, Sue Becker<sup>1</sup> <sup>1</sup>McMaster University, <sup>2</sup>University of Toronto

#### 3-F-117 The Effect of Social Context on Functional Connectivity and Between-Brain Coupling

Amna Hyder<sup>1</sup>, Naznin Virji-Babul<sup>1</sup>

<sup>1</sup>University of British Columbia

### 3-F-118 Differential spatiotemporal dynamics underlying externally and internally directed attention

Julia Kam<sup>1</sup>, Jack Lin<sup>2</sup>, Anne-Kristin Solbakk<sup>3</sup>, Tor Endestad<sup>3</sup>, Pal Larsson<sup>3</sup>, Robert Knight<sup>1</sup>

<sup>1</sup>University of California, Berkeley, <sup>2</sup>University of California, Irvine, <sup>3</sup>University of Oslo

## 3-F-119 Chronic Traffic Noise Exposure Increases the Risk of Developing Alzheimer's Disease

Hadil Karem<sup>1</sup>, Zahra Jafari<sup>1</sup>, Majid Mohajerani<sup>1</sup> <sup>1</sup>University of Lethbridge

## 3-F-120 Characterization of a neural circuit in a mouse model of schizophrenia

Benjamin Karimi<sup>1</sup>, Shreya Dhume<sup>1</sup>, Tabrez Siddiqui<sup>1</sup> <sup>1</sup>University of Manitoba

#### 3-F-121 Does repetitive, intentional heading cause sub-concussive injury in the young adult brain?

Rebecca Kenny<sup>1</sup>, Aaron Varga<sup>1</sup>, Chantel Mayo<sup>1</sup>, Jodie Gawryluk<sup>1</sup>, Mauricio Garcia-Barrera<sup>1</sup>, Brian Christie<sup>1</sup> <sup>1</sup>University of Victoria

# 3-F-122 The effect of chronic glycogen synthase kinase $3\beta$ inhibition on the behaviour and neuroanatomy of five mouse models of autism

Zsuzsa Lindenmaier<sup>1</sup>, Adrienne Kinman<sup>2</sup>, Tiffany Chien<sup>2</sup>, Kaitlyn Easson<sup>2</sup>, Jacob Ellegood<sup>2</sup>, Jane Foster<sup>3</sup>, Evdokia Anagnostou<sup>2</sup>, Jason Lerch<sup>1</sup>

<sup>1</sup>University of Toronto, <sup>2</sup>Hospital for Sick Children, <sup>3</sup>McMaster University

#### 3-F-123 Prenatal Disruption of D1R-SynGAP Complex Impairs GABAergic Interneuron Migration and Causes Cognitive Deficits in Adulthood

Terence Kai Ying Lai<sup>1</sup>, Ping Su<sup>2</sup>, Frankie Lee<sup>2</sup>, Andrew Abela<sup>2</sup>, Paul Fletcher<sup>1</sup>, Fang Liu<sup>1</sup>

<sup>1</sup>University of Toronto, <sup>2</sup>Campbell Family Mental Health Research Institute

# 3-F-124 Aerobic exercise does not help improve long-term cognitive alterations present in middle to late adulthood mild traumatic brain injury (mTBI) victims

Camille Larson-Dupuis<sup>1</sup>, Hélène Bergeron<sup>2</sup>, Edith Léveillé<sup>3</sup>, Martine Desjardins<sup>3</sup>, Véronique Pepin<sup>4</sup>, Louis De Beaumont<sup>1</sup>

<sup>1</sup>Université de Montréal, <sup>2</sup>Université du Québec à Trois-Rivières, <sup>3</sup>Montreal Sacred Heart Research Center, <sup>4</sup>Concordia University

## 3-F-125 Depressive behaviour and the dorsal raphe: Sex-specific effects of chronic social isolation

David Oliver<sup>1</sup>, Katheron Intson<sup>1</sup>, Derya Sargin<sup>1</sup>, Evelyn Lambe<sup>1</sup> <sup>1</sup>University of Toronto

# 3-F-127 Targeted memory reactivation during rapid eye movement sleep improves procedural skills learned in virtual reality: a pilot study

Claudia Picard-Deland<sup>1</sup>, Arnaud Samson-Richer<sup>2</sup>, Julianne Chénier<sup>2</sup>, Tyna Paquette<sup>2</sup>, Tore Nielsen<sup>1</sup>

<sup>1</sup>Université de Montréal; Dream and Nightmare Laboratory, Center for Advanced Research in Sleep Medici, <sup>2</sup>Dream and Nightmare Laboratory, Center for Advanced Research in Sleep Medicine, Hôpital du Sacré-Coe

#### 3-F-128 Assessing the Contribution of Anterior Cingulate Cortex On Checking Behaviors in a Rat Model of Obsessive Compulsive Disorder

Sukriti Gupta<sup>1</sup>, Nathaniel Powell<sup>1</sup>, Jeremy Seamans<sup>1</sup> <sup>1</sup>University of British Columbia

## 3-F-129 Functional mapping of cortical dopamine D2 receptor expressing neurons

Clémentine Quintana<sup>1</sup>, Jivan Khlghatyan<sup>2</sup>, Martin Parent<sup>2</sup>, Jean Martin Beaulieu<sup>1</sup>

#### <sup>1</sup>University of Toronto, <sup>2</sup>Université Laval

# 3-F-130 Functional connectivity organization underlying emotion perception in 8 month old infants following prenatal maternal exposure to SSRIs - Preliminary results

Naama Rotem-Kohavi<sup>1</sup>, Naznin Virji-Babul<sup>1</sup>, Tim Oberlander<sup>1</sup> <sup>1</sup>University of British Columbia

### 3-F-131 The effect of ketamine on 3D spatial working memory in rhesus macaques

Megan Roussy<sup>1</sup>, Rogelio Luna<sup>2</sup>, Lena Palaniyappan<sup>1</sup>, Julio Martinez-Trujillo<sup>2</sup>

<sup>1</sup>University of Western Ontario, <sup>2</sup>Robarts Research Institute

### POSTER SESSION 3 – WEDNESDAY, MAY 16, 2018

#### 3-F-132 Social communication of stress

**Toni-Lee Sterley<sup>1</sup>**, **Jaideep Bains<sup>2</sup>** <sup>1</sup>University of Calgary, <sup>2</sup>Hotchkiss Brain Institute, University of Calgary

**3-F-133 Underperformance in the Workplace: Using a Rodent Model to Explore the Neural Mechanisms of Lost Productivity** Jason Tabor<sup>1</sup>, Yannick Griep<sup>1</sup>, Richelle Mychasiuk<sup>1</sup>

<sup>1</sup>University of Calgary

3-F-134 The Impact of Acute Stress on Visual Processing of Emotional Facial Expressions: An Eye Tracking Study

Shruti Vyas<sup>1</sup>, Carson Pun<sup>1</sup>, Alexandra Fiocco<sup>1</sup> <sup>1</sup>Ryerson University

#### G – Novel Methods and Technology Development

3-G-136 Highly sensitive and specific in situ detection of splice junctions to visualize expression dynamics in circular RNAs and their linear counterparts at single-cell level in developing mouse brain using BaseScopeTM technology.

Annelies Laeremans<sup>1</sup>, Jonathan Samson<sup>1</sup>, Emily Park<sup>1</sup>, Xiao-Jun Ma<sup>1</sup> <sup>1</sup>Advanced Cell Diagnostics

## 3-G-137 Ultra-fast scanning two-photon microscopy reveals neuronal calcium dynamics in vivo

**Tristan Dellazizzo Toth<sup>1</sup>, Kelly Sakaki<sup>1</sup>, Kasper Podgorski<sup>2</sup>, Kurt Haas<sup>1</sup>** <sup>1</sup>University of British Columbia, <sup>2</sup>Janelia Research Campus

## 3-G-138 Common spatial pattern approach to EEG neurofeedback in Parkinson's disease

Emma Kiss<sup>1</sup>, Christina Jones<sup>1</sup>, Saurabh Garg<sup>1</sup>, Soojin Lee<sup>1</sup>, Martin McKeown<sup>1</sup>

<sup>1</sup>University of British Columbia

## 3-G-139 Decoding cortical and subcortical spike activity from mesoscopic cortex-wide calcium dynamics

Anna Luo<sup>1</sup>, Dongsheng Xiao<sup>1</sup>, Timothy Murphy<sup>1</sup> <sup>1</sup>University of British Columbia

3-G-140 Machine Learning Based Responsive Brain Stimulation: An Epilepsy Clinical Trial

Gerard O'Leary<sup>1</sup>, David Groppe<sup>1</sup>, Taufik valiante<sup>1</sup>, Roman Genov<sup>1</sup> <sup>1</sup>University of Toronto

### 3-G-141 Effects of Low Field Magnetic Stimulation on cognitive and motor functions in a Traumatic Brain Injury Mouse Model

Sathiya Sekar<sup>1</sup>, Yanbo Zhang<sup>1</sup>, Changiz Taghibiglou<sup>1</sup>

<sup>1</sup>University of Saskatchewan

3-G-142 Strategies Towards Live Imaging for 3D Glial Cell Cultures: A Preliminary Study

Christopher Tsui<sup>1</sup>, Kyle Koss<sup>1</sup>, Matthew Churchward<sup>1</sup>, Mischa Bandet<sup>1</sup>, Ian Winship<sup>1</sup>, Kathryn Todd<sup>1</sup>

<sup>1</sup>University of Alberta

# 3-G-143 Two-colour optogenetics for studying the roles of cAMP and cGMP in target synapses and subregions of the brain

Megan Valencia<sup>1</sup>, Thomas Luyben<sup>1</sup>, Kenichi Okamoto<sup>2</sup>

<sup>1</sup>University of Toronto, <sup>2</sup>Lunenfeld-Tanenbaum Research Institute

# 3-G-144 Assessing cognitive and motor behaviours within the mouse home-cage: applications for the study of genetic models of disease

**Cameron Woodard<sup>1</sup>**, **Jamie Boyd<sup>1</sup>**, **Timothy Murphy<sup>1</sup>**, **Lynn Raymond<sup>1</sup>** <sup>1</sup>University of British Columbia

## 3-G-145 Using 3D cell-printing to study astrocytes morphology changes in real time

Mitra Tabatabaee<sup>1</sup>, Kabilan Sakthivel<sup>1</sup>, Keekyoung Kim<sup>1</sup>, Frederic Menard<sup>1</sup>

<sup>1</sup>University of British Columbia Okanagan

#### H – History, Teaching, Public Awareness and Societal Impacts in Neuroscience

#### **3-H-146 A Brain Museum Tour of Europe Richard Brown<sup>1</sup>** <sup>1</sup>Dalhousie University

### IBRO

#### 3-IBRO-147 The exercise-induced hormone FNDC5/irisin contributes to hippocampal function and synaptic plasticity in adult mice

Luis Eduardo Bettio<sup>1</sup>, Michael Young<sup>2</sup>, Cristina Pinar<sup>1</sup>, Waisley Yang<sup>1</sup>, Mohammad Islam<sup>2</sup>, Christiane Wrann<sup>2</sup>, Brian Christie<sup>1</sup>

<sup>1</sup>University of Victoria, <sup>2</sup>Harvard Medical School

# 3-IBRO-148 The effects of repetitive stress on tat protein-induced pro-inflammatory cytokine release and steroid receptor expression in the hippocampus of rats

Khayelihle Makhathini<sup>1</sup>, Oualid Abboussi<sup>1</sup>, Musa Mabandla<sup>1</sup>, William Daniels<sup>2</sup>

<sup>1</sup>University of KwaZulu-Natal, <sup>2</sup>University of Witwatersrand

# 3-IBRO-149 Neuronal expression of NUsc1, a single-chain variable fragment antibody against A $\beta$ oligomers, protects synapses and rescues memory in Alzheimer's disease models

Maria Clara Selles<sup>1</sup>, Magali Cercato<sup>2</sup>, Juliana Fortuna<sup>1</sup>, Andre Bitencourt<sup>3</sup>, Amanda Souza<sup>1</sup>, Helena Janickova<sup>4</sup>, Maria Baez<sup>2</sup>, Jorge de Souza<sup>5</sup>, Soniza Alves-Leon<sup>5</sup>, Vania Prado<sup>4</sup>, Marco Prado<sup>4</sup>, Alberto Epstein<sup>6</sup>, Anna Salvetti<sup>7</sup>, William Klein<sup>8</sup>, Ottavio Arancio<sup>9</sup>,

<sup>1</sup>Institute of Medical Biochemistry Leopoldo de Meis, Federal University of Rio de Janeiro, <sup>2</sup>Laboratorio de Neuroplasticidad y Neurotoxinas, Instituto de Biología Celular y Neurociencia, Univer, <sup>3</sup>Department of Biochemistry and Immunology, Ribeirao Preto Medical School, University of Sao Paulo, <sup>4</sup>Department of Physiology & Pharmacology and Department of Anatomy & Cell Biology, Robarts Research I, <sup>5</sup>Division of Neurosurgery and Division of Neurology/Epilepsy Program, Clementino Fraga Filho Universi, <sup>6</sup>Centre Internationale de Recherche en Infectiologie, INSERM U1111, CNRS UMR5038, Ecole Normale Supér, <sup>7</sup>INSERM, U1052, Cancer Research Center of Lyon (CRCL), Université de Lyon (UCBL 1), CNRS UMR\_5286, Cen, <sup>8</sup>Department of Neurobiology, Northwestern University, <sup>9</sup>Department of Pathology and Cell Biology and Taub Institute for Research on Alzheimer's Disease and , <sup>0</sup>Centre for Neuroscience Studies, Department of Biomedical and Molecular Sciences, Queen's University, <sup>11</sup>Institute of Biophysics Carlos Chagas Filho, Federal University of Rio de Janeiro

# 3-IBRO-150 Next-generation sequencing and proteomics to identify molecular regulators of regeneration after an injury of the central nervous system in the axolotl

Alonso Ortega-Gurrola<sup>1</sup>, Brianda López-Aviña<sup>2</sup>, Jesús Chimal-Monroy<sup>2</sup>, Iván Velasco-Velázquez<sup>1</sup>

<sup>1</sup>Institute of Cellular Physiology, UNAM, <sup>2</sup>Institute of Biomedical Research, UNAM

#### 3-IBRO-151 Myenteric and mucosal enteric glia alterations associated to colonic inflammation in mouse model of Parkinson's disease induced by 6-OHDA

Beatriz Thomasi<sup>1</sup>, Luisa Valdetaro<sup>1</sup>, Amanda Mussauer<sup>1</sup>, Ana Carolina Fernandes<sup>1</sup>, Claudio Alberto Serfaty<sup>1</sup>, Paula Campello<sup>1</sup>, Adriana Melibeu<sup>1</sup>, Manuel Gustavo Ribeiro<sup>1</sup>, Vivaldo Moura-Neto<sup>2</sup>, Ana Lucia Tavares Gomes<sup>3</sup>

<sup>1</sup>Federal Fluminense University, <sup>2</sup>Federal University of Rio de Janeiro, <sup>3</sup>Fluminense Federal University

### POSTER & EXHIBITOR FLOOR PLANS

Exhibitor	Location
PeproTech, Inc.	Booth 1
Advanced Targeting Systems	Booth 2
Gene Tools LLC – Booth 3	Booth 3
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Tucker-Davis Technologies	Booth 10
The Centre for Drug Research & Development	Booth 12
RWD Life Science Inc.	Booth 13
g.tec medical engineering GmbH	Booth 14
STEMCELL Technologies Inc.	Booth 15

Exhibitor	Location
Bliq Photonics	T01
Spectra-Physics	T02
Integrated DNA Technologies	T03
BioLegend	T04
Cell Signaling Technology	T05
Lumenera Corporation	T06
Plexon	T07
Parkinson Canada	T08
Laserglow Technologies	T09
University of British Columbia	T10
Axion Biosystems	T11





- Development
- B Neural Excitability, Synapses & Glia: Cellular Mechanisms
- C Disorders of the Nervous System
- D Sensory & Motor Systems
- E Homeostatic & Neuroendocrine Systems
- F Cognition & Behaviour
- G Novel Methods & Technology Development
- H History, Teaching, Public Awareness and Societal Impacts in Neuroscience
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