

# 5<sup>th</sup> Annual Canadian Neurometabolic Club Meeting

Satellite of the Canadian Association for Neuroscience meeting



May 27-28, 2017

Montreal – Hotel Bonaventure



## CAN-ACN

CANADIAN ASSOCIATION FOR NEUROSCIENCE  
ASSOCIATION CANADIENNE DES NEUROSCIENCES

**We are grateful for educational grants from**

The Lilly logo is written in a red, cursive script font.The Shire logo features a blue stylized 'S' icon followed by the word 'Shire' in a bold, blue, sans-serif font.

**Organizers:**

Maia Kokoeva  
Thierry Alquier  
Stephanie Fulton  
Claire-Dominique Walker  
Alfonso Abizaid

## PROGRAM AT A GLANCE

### Saturday, May 27 *Hotel Bonaventure*

5:00 – 6:00 Badge pick-up  
6:00 – 7:00 **KEYNOTE LECTURE**  
7:30 – Dinner, drinks and entertainment at the Forum Montreal

### Sunday, May 28 *Hotel Bonaventure*

8:30 – 10:10AM **Session I: NEUROBEHAVIORAL CONTROLS OF PALATABILITY AND HYPERPHAGIA**  
10:10 – 10:30AM Coffee break  
10:30 – 12:10PM **Session II: HYPOTHALAMIC ADAPTATIONS TO DIET AND OBESITY**  
12:10 – 12:30pm **POSTER PITCH**  
12:30 – 2:10 PM Buffet lunch and posters  
2:10 – 3:50PM **Session III: GUT-BRAIN AXIS & DISEASE MODELS**  
3:50 – 4:00 PM Concluding remarks and prize announcements

**VENUE:** HOTEL BONAVENTURE - 900 de la Gauchetière W. Montréal, QC H5A 1E4

### SATURDAY, MAY 27 -

**5:00 – 6:00PM** Badge pick-up and presentation drop-off

**6:00 – 7:00PM** **Keynote lecture: Harvey Grill, PhD**

Professor of Psychology, University of Pennsylvania  
Obesity Unit Director of the Penn Institute for Diabetes, Obesity and Metabolism

***"Treating the hyperphagia driving obesity:  
Focus on feeding inhibition"***

**7:30PM --** Social, food & entertainment at the **Forum Sports Bar**  
4<sup>th</sup> floor of the Montreal Forum - 2313 St-Catherine St. West H3H 1N2

### SUNDAY, MAY 28 - TRAINEE PRESENTATIONS

**8:30 AM – ORAL SESSION I**

**NEUROBEHAVIORAL CONTROLS OF PALATABILITY AND HYPERPHAGIA**

**1. BMI-BRAIN STRUCTURE ASSOCIATIONS ARE LARGELY GENETIC AND PARTLY MEDIATED BY COGNITIVE ABILITIES AND PERSONALITY TRAITS.**

Uku Vainik <sup>\*1,2</sup>, Travis Baker <sup>3</sup>, Andréanne Michaud <sup>1</sup>, Bratislav Misic <sup>1</sup>, Mahsa Dadar <sup>1</sup>, Yashar Zeighami <sup>1</sup>, José C. García Alanis <sup>4</sup>, Yu Zhang <sup>1</sup>, D. Louis Collins <sup>1</sup>, Alain Dagher<sup>1</sup>

1. Montreal Neurological Institute, McGill University. 2. Institute of Psychology, University of Tartu. 3. Rutgers University. 4. Department of Psychology, Philipps-Universität Marburg

**2. ROLE OF CENTRAL GPR120 IN ENERGY BALANCE, ANXIO-DEPRESSIVE BEHAVIOR AND NEUROINFLAMMATION**

Geneviève Demers\*, Alexandre Fisette, Khalil Bouyakdan, Demetra Rodaros, Jérôme Roy, Nathalie Arbour, Thierry Alquier, and Stephanie Fulton.

CHUM Research Center and Montreal Diabetes Research Center. Department of Nutrition, Biochemistry and Molecular Medicine, Faculty of Medicine, University of Montreal.

**3. INVESTIGATING THE ROLE OF GHRELIN IN THE ANTICIPATION OF SCHEDULED TREAT**

Rim Khazall\*, Harry MacKay, Fatema Khazall, Lindsay Hyland, Alfonso Abizaid  
Carleton University

**4. STRANGER DANGER! GHRELIN RECEPTOR SIGNALLING IN THE VTA AND ITS ROLE IN SOCIAL APPROACH AND SOCIAL INTERACTION.**

**Park, S.1\***, King, S.1, De Sante, S.1, Culka, G.2, Parodi, G.1, Hyland, L.1, Khazall, R.1, Zigman, J.M.3, Woodside, B.4, Abizaid A.1, 1-Department of Neuroscience, Carleton University, Ottawa ON, Canada; 2-Department of Integrated Science, Carleton University, Ottawa ON, Canada; 3-Departments of Internal Medicine and Psychiatry, The University of Texas Southwestern Medical Center, Dallas, TX, USA. 4-Centre for the Study of Behavioral Neurobiology, Concordia University, Montreal QC, Canada;

**10:10 – 10:30 COFFEE BREAK**

## **10:30 AM – ORALSESSION II**

### ***HYPOTHALAMIC ADAPTATIONS TO DIET AND OBESITY***

#### **1. 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>, Alexandre Fiset<sup>1</sup>, Demetra Rodaros<sup>1</sup>, Fabienne Liénard<sup>2</sup>, Eric Biron<sup>3</sup>, Luc Pénicaud<sup>2</sup>, Xavier Fioramonti<sup>2</sup>, Thierry Alquier<sup>1</sup> 1- CRCHUM & Université de Montréal. 2- CSGA & Université de Bourgogne. 3- CRCHUQ & Université Laval

#### **2. LEPTIN SENSING IN THE MEDIAN EMINENCE**

Sarah Robins\*, Lillia Butiaeva, Xiaohong Liu, Christina Kim and Maia Kokoeva.  
Metabolic Disorders and Complications, McGill University Health Center, Montreal, Canada

#### **3. EFFECTS OF THE SATURATED FATTY ACID PALMITATE ON CELLULAR NEUROINFLAMMATION AND POMC EXPRESSION IN THE MHYPOA-POMC/GFP NEURONAL CELL MODELS**

Erika K. Tse<sup>1\*</sup>, Denise D. Belsham<sup>1,2,3</sup>  
Department of 1-Physiology, 2-Medicine, and 3-Obstetrics and Gynaecology, Faculty of Medicine, University of Toronto, ON, Canada

#### **4. THE TUBBY PROTEIN REGULATES EXPRESSION OF GENES INVOLVED IN METABOLISM AND NEURONAL FUNCTIONS**

Hamza Taufique\*<sup>1,2</sup>, Ryan Mui<sup>3</sup> and Sabine P. Cordes<sup>1,2</sup>

1. Department of Molecular Genetics, University of Toronto. 2. Lunenfeld-Tanenbaum Research Institute, Mount Sinai Hospital. 3. College of Osteopathic Medicine, Michigan State University

**12:10 – 12:30 POSTER PITCH (30 seconds each)**

**12:30 – 2:10 BUFFET LUNCH AND POSTER SESSION**

**2:10 PM – ORAL SESSION III**  
**GUT-BRAIN AXIS & DISEASE MODELS**

**1. MECHANISM OF METFORMIN ACTION IN THE UPPER SMALL INTESTINE**

T. M. Zaved Waise<sup>1\*</sup>, Frank A. Duca<sup>1†</sup>, Paige V. Bauer<sup>1,2</sup>, Mozhgan Rasti<sup>1</sup>, Christopher J. Rhodes<sup>3</sup> & Tony K.T. Lam<sup>1,2,4,5</sup>

1Toronto General Research Institute and Department of Medicine, 2Departments of Physiology, University of Toronto, 3. Kovler Diabetes Center, Department of Medicine, Section of Endocrinology, Diabetes and Metabolism, University of Chicago, Chicago, IL, USA 60637. 4. Departments of Medicine, University of Toronto. 5. Banting and Best Diabetes Centre, University of Toronto. †Current address: School of Animal and Comparative Biomedical Sciences, University of Arizona, Tucson, AZ, USA 85721.

**2. NICOTINAMIDE-N-METHYLTRANSFERASE CONTROLS METABOLISM AND BEHAVIOR BY REGULATING NEURONAL AUTOPHAGY**

**Kathrin Schmeisser<sup>1\*</sup>**, Alex Parker<sup>1,2</sup>

<sup>1</sup>Centre de Recherche du Centre Hospitalier de l'Université de Montréal (CRCHUM), 900 St-Denis Street, Montréal, Québec, Canada H2X 0A9. <sup>2</sup>Department of Neuroscience, University of Montréal, 2960 Chemin de la Tour, Montréal, Québec, Canada H3T 1J4

**3. AEROBIC GLYCOLYSIS: FOOD FOR THOUGHT OR ACHILLES HEEL FOR ALZHEIMER'S DISEASE?**

Richard A. Harris, Timothy Scholl, Robert Bartha, Robert C. Cumming\*  
Western University, Ontario Canada

**4. CHARACTERIZATION OF A NEW ANIMAL MODEL OF OBESITY AND CHRONIC LIVER DISEASE FOR THE STUDY OF HEPATIC ENCEPHALOPATHY**

**Ochoa-Sanchez R.**, Tréblay M., Clément MA, Rose C.  
CRCHUM & Université de Montréal

**3:50 PM - CONCLUDING REMARKS AND PRIZE ANNOUNCEMENTS**

# POSTERS

## FEEDING: PALATABILITY & REWARD

### **1. METABOLIC (DE)COUPLING AND INTERACTION OF GLUCOSE AND LACTATE METABOLITES UNDER VARYING SYSTEMIC CONDITIONS.**

**Ms. Alexandria Béland-Millar\*** , Ms. Justine Courtemanche , Mr. Jeremy Larcher , Tina Yuan Prof. Claude Messier. University of Ottawa, Faculty of Social Sciences.

### **2. SUBJECTIVE VALUE FOR HIGH CALORIE SNACK FOODS RELATES TO WEIGHT GAIN IN THE FIRST YEAR STUDENTS**

**Selin Neseliler\***, Kevin Larcher, Yashar Zeighami, Stephanie Scala, Alain Dagher  
Montreal Neurological Institute, Montreal, Qc

### **3. THE STIMULATION OF THE SHELL PART OF THE NUCLEUS ACCUMBENS DECREASES SUCROSE INTAKE IN FEMALE RATS**

**Sandrine Chometton\***, Geneviève Guèvremont, Elena Timofeeva . CRIUCPQ, Université Laval, Québec

### **4. STUDYING THE IMPACT OF PHYSICAL ACTIVITY ON FOOD REWARD AND ANXIETY-LIKE BEHAVIORS**

**Franco, A\***, Jacob-Brassard, E, Décarie-Spain, L, & Fulton, S. .Université de Montréal and Centre de Recherche du CHUM

### **5. ANXIODEPRESSIVE-LIKE BEHAVIOURS INDUCED BY HIGH FAT FEEDING: PARTICULARITIES IN THE FEMALE MOUSE**

Décarie-Spain, L, Fiset, A, **Jacob-Brassard, E\***, Fiuza, D, Takla, M, Barker, P, Alquier, T & Fulton, S. Centre de recherche du CHUM, Montreal Diabetes Research Centre & Université de Montréal, Montreal, Canada

## HYPOTHALAMUS & ENERGY HOMEOSTASIS

### **6. GLYCEMIC STATE ALTERS ADROPIN RESPONSIVENESS OF RAT PARAVENTRICULAR NUCLEUS NEURONS.**

**Spencer P. Loewen\*** & Alastair V. Ferguson. Department of Biomedical and Molecular Sciences, Queen's University, Kingston, ON, Canada

## **7. ANTIPSYCHOTIC-INDUCED HYPOTHALAMIC INFLAMMATION AS A POTENTIAL MEDIATOR OF METABOLIC SIDE EFFECTS**

**Chantel Kowalchuk, BSc**<sup>a, b</sup>, Denise Belsham, PhD<sup>c, d</sup>, Gary J. Remington MD, PhD, FRCPC<sup>a, b, e</sup>, Margaret K. Hahn, MD, PhD, FRCPC<sup>a, b, e</sup> a- Centre for Addiction and Mental Health, Toronto, Ontario, Canada. b- Institute of Medical Sciences, University of Toronto, Toronto, Ontario, Canada. c- Department of Physiology, University of Toronto, Toronto, Ontario, Canada. d- Departments of Medicine and Obstetrics and Gynecology, University of Toronto, Toronto, Ontario, Canada. e- Department of Psychiatry, University of Toronto, Toronto, Ontario, Canada

## **8. TNF-ALPHA EXPOSURE INDUCES NEUROINFLAMMATION AND INSULIN RESISTANCE IN A RAT-DERIVED HYPOTHALAMIC CELL MODEL**

**Matthew N. Clemenzi\*** (1), Makram E. Aljghami (1), Leigh Wellhauser (1), and Denise D. Belsham (1) Departments of Physiology, (2) Medicine and (3) Obstetrics and Gynaecology; University of Toronto, ON, Canada.

## **9. TIME-LAPSE IMAGING OF HYPOTHALAMIC LEPTIN RECEPTOR NEURONS IN LIVING MICE**

**Liliia Butiaeva\***, Xiaohong Liu and Maia Kokoeva  
McGill University, Department of Medicine, Division of Endocrinology and Metabolism, Montréal, Canada

## **10. THE EFFECTS OF RELAXIN-3 AND A SPECIFIC RXFP3 AGONIST ON FOOD INTAKE AND CIRCULATING HORMONES IN RATS**

**de Ávila C<sup>1\*</sup>**, Chometton S<sup>1</sup>, Guèvremont G<sup>1</sup>, Calvez, J<sup>1</sup>, Lenglos C<sup>1</sup>, Gundlach, AL<sup>2</sup>, Timofeeva E<sup>1</sup>  
1- Faculté de Médecine, Département de Psychiatrie et de Neurosciences, Centre de recherche de l'Institut universitaire de cardiologie et de pneumologie de Québec, Université Laval, Québec, QC, Canada, 2- The Florey Institute of Neuroscience and Mental Health, Parkville, VIC, Australia.

## **11. THE EFFECT OF BISPHENOL A AND BISPHENOL S ON HYPOTHALAMIC FEEDING-RELATED NPY/AGRP NEURONS**

**Neruja Loganathan\***<sup>1</sup>, Emma McIlwraith<sup>1</sup> and Denise D. Belsham<sup>1,2</sup>.  
Departments of Physiology<sup>1</sup>, Medicine<sup>2</sup> and Obstetrics and Gynecology<sup>2</sup>, Faculty of Medicine, University of Toronto, Ontario, Canada

## **12. REGULATION OF THE NOVEL REPRODUCTIVE PEPTIDE, PHOENIXIN, BY BISPHENOL A AND PALMITATE, BUT NOT 17B-ESTRADIOL, IN HYPOTHALAMIC CELL MODELS**

**Emma McIlwraith\*** (1), Neruja Loganathan (1), Denise D. Belsham (1,2)  
(1)Departments of Physiology, (2) Medicine and (2) Obstetrics and Gynaecology, University of Toronto, Toronto, ON, Canada

## **13. ALTERATIONS IN NEUROINFLAMMATORY CYTOKINES IN CO-CULTURE OF HYPOTHALAMIC NEURONS AND MICROGLIA EXPOSED TO PALMITATE**

**Soyeon Park\***, Mun Huei Kim, Jennifer A. Chalmers, Denise D. Belsham  
Departments of Physiology, University of Toronto, Toronto, Ontario, Canada.



#### **14. INVESTIGATING THE ROLE OF GHSR SIGNALING IN THE DMH AND PMV ON ENERGY HOMEOSTASIS**

Lindsay Hyland\*, Su-Bin Park, Alexander Edwards, Yosra Abdelaziz, Barbara Woodside, and Alfonso Abizaid. Department of Neuroscience, Carleton University, Ottawa, ON, Canada

#### **15. THE EFFECT OF THE ENDOCRINE DISRUPTING CHEMICAL BISPHENOL A ON PRO-OPIOMELANOCORTIN, CIRCADIAN RHYTHM AND NEUROINFLAMMATORY MARKER GENE EXPRESSION IN HYPOTHALAMIC CELL MODELS**

Ashkan Salehi 1(\*), Denise D. Belsham 1,2,3. 1 Physiology, 2 Obstetrics and Gynaecology, 3 Medicine, University of Toronto, Toronto, ON, Canada

### **NEUROINFLAMMATION & DISEASE MODELS**

#### **16. ANTI-SEIZURE ACTIVITY OF ANNONA SENEGALENSIS ON THE GENETIC EPILEPSY WITH FEBRILE SEIZURE PLUS MODEL IN DROSOPHILA MELANOGASTER**

Samuel Sunday Dare<sup>1</sup> \*, Jimena Berni<sup>2</sup> Department of Anatomy, Kampala International University Western Campus, Ishaka Uganda, 2- Department of Zoology, University of Cambridge United Kingdom

#### **17. BEYOND AMYLOID - MANIPULATING METABOLISM AS A POTENTIAL THERAPY FOR ALZHEIMER'S DISEASE**

Asad Lone\* and Robert C. Cumming. University of Western Ontario

#### **18. DETERMINING THE EVOLUTIONARILY CONSERVED ROLE OF GLIAL DERIVED LACTATE IN DROSOPHILA MELANOGASTER MEMORY**

Mr. Ariel Frame\* , Dr. Anne Simon , Dr. Robert Cumming. Western University

#### **19. INVESTIGATING THE PROTECTIVE EFFECTS OF MITOCHONDRIAL TARGETED TELOMERASE REVERSE TRANSCRIPTASE ON NEURONAL METABOLISM UNDER OXIDATIVE STRESS AND SENSITIVITY TO AMYLOID-BETA.**

Olivia Singh\*, Robert C. Cumming. Western University

#### **20. PALINOPALLESTHESIA: A NEW SYNDROME**

Neil Sondhi \* , Mina Al Sayyab, Dr. Alan Hirsch  
Aureus University School of Medicine

#### **21. POMEGRANATE EXTRACTS AND DERIVATIVES SHOW NEUROPROTECTIVE EFFECTS IN SIMPLE AMYOTROPHIC LATERAL SCLEROSIS AND HUNTINGTON DISEASE MODELS**

\*Constantin Bretonneau<sup>1,2</sup>, Audrey Labarre<sup>1,2</sup>, Gilles Tossing<sup>1,2</sup>, Alex Parker<sup>1,2</sup>  
1-CRCHUM, Université de Montréal, 2-Département de Neurosciences.

## **22. H<sub>2</sub>S HYPERPOLARIZES AREA POSTREMA NEURONS TO DECREASE BLOOD PRESSURE IN RATS**

**Susan J. Wang\***, Pauline M. Smith, Alastair V. Ferguson  
Queen's University

## **23. GLUTAMINE SYNTHETASE IN ENDOTHELIAL CELLS OF THE BLOOD-BRAIN BARRIER: ROLE IN PREVENTING HEPATIC ENCEPHALOPATHY?**

Mariana M Oliveira<sup>1</sup>, Mélanie Tremblay<sup>1</sup>, Christopher F Rose<sup>1</sup>  
<sup>1</sup>Laboratory Hepato-Neuro, CRCHUM, Dept. of Medicine, Université de Montréal, Quebec

## **24. GPR120 ACTIVATION IN PRIMARY MICROGLIAL AND ROLE IN INFLAMMATORY RESPONSES**

**Jérôme Roy**<sup>1,2,6</sup>, Khalil Bouyakdan<sup>1,6</sup>, Alexandre Fiset<sup>1,2,6</sup>, Genevieve Demers<sup>1,6</sup>, Demetra Rodaros<sup>1,2</sup>, Stéphanie Fulton<sup>1,3,6</sup> and Thierry Alquier<sup>1,4,6</sup>.  
1- CRCHUM and Montreal Diabetes Research Center and Departments of: 2- Neuroscience, 3- Nutrition, 4- Biochemistry and Molecular Medicine, 5- Medicine, 6- Université de Montréal, Montreal QC H3T1J4, Canada

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