

Collaborative Program in Neuroscience (CPIN)

University of Toronto

Newsletter – Vol. 32, No. 3 – November 2015

Featured In This Issue

Welcome New CPIN Faculty Members We would like to welcome **Dr. Katherine Duncan** (Assistant Professor, Psychology), **Dr. Jim Woodgett** (Professor, Medical Biophysics; Director of Research, Lunenfeld-Tanenbaum Research Institute, Sinai Health System) and **Dr. Xiao Yu (Shirley) Wu** (Professor, Leslie Dan Faculty of Pharmacy) to the CPIN community. Please see page 3 for more details.

News – CPIN Faculty Members We would like to welcome **Dr. Howard Hu** (Dean, Dalla Lana School of Public Health, U of T; Professor of Environmental Health, Epidemiology, Global Health and Medicine, U of T) to the CPIN community. We would also like to thank **Dr. Barry J. Sessle** (Professor, Faculties of Dentistry and Medicine, U of T) for his role on the CPIN Academic Committee and support for the program over the years. Please see page 4 for more details.

News – CPIN Students Congratulations to CPIN student member **Fernando Caravaggio** (Institute of Medical Science, Supervisor Dr. Ariel Graff-Guerrero) on recently completing the CPIN requirements and graduating from his PhD program. Please see page 5 for more details.

Welcome New Sponsor We would like to welcome our new sponsor, the **Human Biology Program** at U of T. Please see page 5 for more details

Neuroscience Opportunities Please see page 6 for details.

2014-2015 CPIN Annual Report is now available on the CPIN Annual Report webpage: <http://www.neuroscience.utoronto.ca/communications/annualreports.htm>

2015-16 CPIN Distinguished Lectureship Series

<http://www.neuroscience.utoronto.ca/events/lectureship.htm>



Speaker | **Dr. Roberto Caldara**, Professor, Department of Psychology, University of Fribourg; Chair, Cognitive Neuroscience, Department of Psychology, University of Fribourg

Title | *Mapping face and visual processing through human diversity*

Date | **Thursday, November 5, 2015**

Time | 4:00 pm

Location | 1190 Auditorium, Bahen Centre Information Tech, 40 St. George Street, U of T

Host | Dr. Kang Lee, University Distinguished Professor, Dr. Eric Jackman Institute of Child Study, Applied Psychology and Human Development, OISE, U of T
Co-sponsor | Applied Psychology and Human Development, OISE, U of T



Speaker | **Dr. Shekar Kurpad**, Professor of Neurological Surgery, Director, Spinal Cord Injury Center Medical College of Wisconsin, Chief of Neurological Surgery, Clement J. Zablocki VA Medical Center

Title | *The case for early surgical intervention in the management of traumatic SCI: Evidence from animal and clinical studies*

Date | **Wednesday, November 11, 2015**

Time | 5:00 pm

Location | Room AB, BMO Education & Conference Centre, Krembil Discovery Tower, Toronto Western Hospital

Host | Dr. Michael Fehlings, Professor & Vice Chair of Research, Department of Surgery, U of T
Co-sponsors | (i) 29th E. Harry Botterell Lectureship in Neurosurgery (ii) Dr. Michael Fehlings, Co-Director, U of T Spine Program; Head, Spine and Spinal Cord Injury Program; Senior Scientist, McEwen Centre for Molecular Medicine, Toronto Western Hospital, University Health Network

<http://www.neuroscience.utoronto.ca/communications/newsletter.htm>

CPIN Newsletter

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CPIN
Graduate Studies

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Lead Faculty
Faculty of Medicine

CPIN Participating Units
Applied Psychology & Human Development
Biochemistry
Biomaterials & Biomedical Engineering
Cell & Systems Biology
Computer Science
Dentistry
Laboratory Medicine & Pathobiology
Medical Biophysics
Medical Science
Music
Pharmaceutical Sciences
Pharmacology & Toxicology
Physiology
Psychology
Rehabilitation Science

Contributors:

Human Biology Program
Krembil Research Institute
St. Michael's Neuroscience Research Program

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2015-16 CPIN Distinguished Lectureship Series (contd.)

<http://www.neuroscience.utoronto.ca/events/lectureship.htm>



Speaker | **Dr. Tobias Langenhan**, Principal Investigator, Institute of Physiology, University of Würzburg, Germany; Chairperson, Adhesion-GPCR Consortium (AGC; <http://www.adhesiongpcr.org>)

Title | *Adhesion GPCRs - A novel class of metabotropic mechanoreceptors*

Date | **Thursday, November 12, 2015**

Time | 2:00 pm

Location | Red Seminar Room, Terrence Donnelly Centre for Cellular and Biomolecular Research, 160 College Street, U of T

Host | Dr. Oliver Ernst, Professor, Departments of Biochemistry & Molecular Genetics, U of T

Co-sponsors | Department of Pharmacology & Toxicology, U of T; Faculty of Pharmacy, U of T



Speaker | **Dr. Jan Schwab**, Professor, Department of Neurology and Neuroscience; Head, Spinal Cord Injury Division; William E. Hunt & Charlotte M. Curtis Chair; Ohio State University Wexner Medical Center

Title | *Spinal Cord Injury-induced Immune Deficiency Syndrome (SCI-IDS) – Clinical relevance and experimental evidence*

Date | **Friday, November 13, 2015**

Time | 5:00 pm

Location | Room ABC, BMO Education & Conference Centre, Krembil Discovery Tower, 60 Leonard Ave., Toronto Western Hospital

Host | Dr. Michael Fehlings, Head, Spinal Program, Krembil Neuroscience Centre, Toronto Western Hospital and Co-Chair, University of Toronto Spine Program

Co-Sponsors | (i) University of Toronto Spine Program; (ii) Barbara Turnbull Foundation; (iii) CIHR; (iv) Halbert Chair in Neural Repair and Regeneration

Note: Professor Schwab's lecture is also the Keynote Speech at the Charles Tator-Barbara Turnbull Spinal Cord Injury Symposium -- which will run from 1 pm – 6 pm on Fri. Nov 13th at the BMO Education & Conference Centre. In addition, the 2015 Barbara Turnbull Award Presentation and Lecture will take place at 1:45 – 2:30 pm during the Symposium. Other confirmed speakers at the event include: Cathy Craven, Samuel David, Michael Fehlings, Cindi Morshead, Andrea Mothe, Kristin Musselman, Milos Popovic, Molly Shoichet and Derek van der Kooy. CPIN students are most welcome to attend all or part of the Symposium. For further details, please see the following link:

<http://drfehlings.ca/news-events/2015-tator-turnbull-lectureship-announced/>



Speaker | **Dr. J. David Sweatt**, Professor, Department of Neurobiology, University of Alabama at Birmingham School of Medicine; Director, McKnight Brain Institute; Director, Civitan International Research Center

Title | *Epigenetic Mechanisms in Memory Formation*

Date | **Thursday, November 19, 2015**

Time | 9:30 am

Location | 103 Main Lecture Room, FitzGerald Building, 150 College Street, U of T

Host | Dr. Iva Zovkic, Assistant Professor, U of T Mississauga

Co-sponsor | Department of Psychology, U of T Mississauga



Speaker | **Dr. John Disterhoft**, Ernest J. and Hattie H. Magerstadt Memorial Research Professor of Physiology and Weinberg College of Arts & Sciences, Northwestern University Feinberg School of Medicine

Title | *Neuronal Changes in Forebrain during Acquisition and after Consolidation of Trace Eyeblink Conditioning*

Date | **Wednesday, December 9, 2015**

Time | 4:00 pm

Location | Rm. 2170, Medical Sciences Building, 1 King's College Circle, U of T

Host | Dr. Kaori Takehara-Nishiuchi, Associate Professor, Departments of Psychology, Cell and Systems Biology and the Institute of Medical Science, U of T

Co-sponsor | Department of Psychology, U of T

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CPIN Young Researcher Seminar Series



Speaker | **Vivek Sharma**, PhD Candidate, Faculty of Music, University of Toronto
Title | *Music, membranes, & mysteries: Questions & answers about music processing in the human brain*
Date | **Tuesday, November 3, 2015**
Time | 5:00 pm
Location | Toronto Western Hospital, Main Auditorium, West Wing, Second Floor, Room WW2-401
Host | Dr. Peter Carlen, Professor, Depts. of Medicine, Physiology, Institute of Biomaterials and Biomedical Engineering, U of T; Senior Scientist, Toronto Western Research Institute (TWRI)



Speaker | **Cheryl Jones**, PhD Candidate, Faculty of Music, University of Toronto
Title | *The potential for music-based interventions to remediate cognitive deficits following brain injury*
Date | **Wednesday, November 25, 2015**
Time | 1:00 pm
Location | Room 140 Rehabilitation Science, 500 University Avenue
Host | Dr. Lee Bartel, Professor, Founding and Acting Director of MaHRC, Director of CMERC, Faculty of Music, U of T

Welcome New CPIN Faculty Members



Dr. Katherine Duncan
Assistant Professor, Psychology
Research Interests: Episodic Memory; Encoding; Retrieval; Learning; Hippocampus; Reward; Novelty; Neuromodulators
Research Profile Link: <http://kdduncan.wix.com/drkatherineduncan>



Dr. Jim Woodgett
Professor, Medical Biophysics; Director of Research, Lunenfeld-Tanenbaum Research Institute, Sinai Health System
Research Interests: Signal transduction, mood disorders, Alzheimers disease, metastasis, stem cells, diabetes.
Research Profile Link: <http://www.lunenfeld.ca/researchers/woodgett>



Dr. Xiao Yu (Shirley) Wu
Professor, Leslie Dan Faculty of Pharmacy
Research Interests: Controlled drug delivery; pharmaceutical nanotechnology; modified release formulations and computer-aided design; nanoparticles for delivery of imaging and therapeutic agents to the brain; nanomedicine for treatment of diseases in the brain; synergistic nanoparticle-based drug delivery strategies for enhanced chemotherapy of multidrug resistant and metastatic cancers; glucose-responsive closed loop insulin delivery; bioreactive metal oxide nanoparticles for modulation of tumor microenvironment and enhancement of radiation therapy of tumors.
Research Profile Link: <http://www.shirleywulab.com/>

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News - CPIN Faculty Members

http://www.neuroscience.utoronto.ca/communications/news_cpिन_faculty_members.htm



We would like to welcome **Dr. Howard Hu** (Dean, Dalla Lana School of Public Health, U of T; Professor of Environmental Health, Epidemiology, Global Health and Medicine, U of T) to the CPIN community.

Dr. Hu is a physician-scientist, trained as an internist, occupational and environmental medicine specialist, and epidemiologist. Previously, Dr. Hu was Professor at Harvard University and the Channing Laboratory of the Brigham & Women's Hospital in Boston (1988-2006) where he founded the NIH/NIEHS/P01 Center for Children's Environmental Health and Disease Research; and Professor at the University of Michigan (2006-2012) where he founded the NIH/NIEHS/P30 Core Center for Environmental Health.

Since 1990, Dr. Hu has led multi-institutional and international teams of scientists, students and fellows devoted to investigating the environmental, nutritional, social, psychosocial, genetic and epigenetic determinants of chronic disease and impaired child development in population-based molecular epidemiology studies in the U.S., Mexico, India, China, and elsewhere. Neurobehavioural development and neurodegenerative diseases comprise a major component of the portfolio of outcomes studied. His team's research has generated over 280 publications and won several awards, such as the 1999 Achievement Award from the U.S. National Institute for Environmental Health Sciences, the 2009 Linus Pauling Lifetime Achievement Award, the 2011 Award of Excellence from the American Public Health Association, and the 2015 John Goldsmith Award for Outstanding Contributions to Environmental Epidemiology from the International Society for Environmental Epidemiology.



We would like to thank **Dr. Barry J. Sessle** (Professor, Faculties of Dentistry and Medicine, U of T) for his role on the CPIN Academic Committee and support for the program over the years.

Dr. Sessle is a member of the Centre for the Study of Pain. He is also an elected Fellow of the Royal Society of Canada and member of the Canadian Academy of Science. He is Past-President of the Canadian Pain Society, the International Association for the Study of Pain (IASP), the Canadian Association for Dental Research, and the International Association for Dental Research (IADR), and was the holder of a Canada Research Chair (2001-2014). His other honours include the IADR Oral Sciences

Award; the IADR Pindborg International Prize in Oral Biology; the Distinguished Career Award and the Outstanding Mentorship Award of the Canadian Pain Society; Honorary member of IASP, the American Academy of Orofacial Pain, and the Academy of Dentistry; honorary doctorates (D.Sc.) from McGill University and Aalborg University (Denmark).

Dr Sessle obtained his dental training and his Ph.D. in neurophysiology in Sydney (Australia), and after post-doctoral research at the U.S. National Institute of Dental Research, he joined the University of Toronto in 1971. He was Dean of the Faculty of Dentistry from 1990-2001. He has co-authored or edited 12 books, published over 400 journal articles and book chapters, delivered over 440 invited lectures in numerous countries, and serves on the Editorial Board of 8 scientific journals, and is Editor-in-Chief of the Journal of Oral & Facial Pain and Headache. His research into orofacial pain and neuromuscular function and dysfunction has been continuously supported for over 40 years by both the Canadian Institutes of Health Research and the U.S. National Institutes of Health.

Dr. Sessle also had the following to say about his involvement with CPIN:

I have been a member of CPIN since its establishment 30 years ago. Indeed, I was associated with its formulation and served on its executive for many of those years as the representative of the Faculty of Dentistry which has always been supportive of the program during and after its formulation. This included my serving as the Acting Director of CPIN when its first Director (Ted Petit) went on sabbatical leave in 1987. At that time, CPIN involved a small number of students and faculty members but was nonetheless at the vanguard of such programs and one of the first of its kind in North America. Since then, I have seen the program grow and flourish under the successive leaderships of Ted Petit and John Yeomans of the Faculty of Arts & Sciences and Jonathan Dostrovsky of the Faculty of Medicine to one that became the largest collaborative graduate program at U of T. It is now comprises 100s of students and faculty members across the 3 campuses of U of T and its teaching hospitals and research institutes. There have been challenges along the way from both economic and academic perspectives; these included indeed resistance from some quarters of the University to the very continued existence of the program. However, these challenges have been met successfully by the executive and members of CPIN, resulting in a fiscally viable enterprise that under the leadership of Zhong-Ping Feng continues to function as a truly inter-disciplinary and inter-Faculty academic program that includes students and faculty members from all the biological and clinical aspects of neuroscience.

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News - CPIN Students

http://www.neuroscience.utoronto.ca/communications/news_cpिन_students.htm



Congratulations to CPIN student member **Fernando Caravaggio** (Institute of Medical Science, Supervisor Dr. Ariel Graff-Guerrero) on recently completing the CPIN requirements and graduating from his PhD program.

Fernando Caravaggio conducted brain imaging research at the Centre for Addiction and Mental Health, through the Institute of Medical Sciences, under the supervision of Dr. Ariel Graff-Guerrero. Fernando's research involved quantifying endogenous dopamine in the brains of healthy persons and persons with schizophrenia using Positron Emission Tomography. Fernando has several first-authored publications and received the Frist-Jus Memorial Award in Neuropsychopharmacology in recognition of his contribution to neuroreceptor research. Fernando has also won several scholarships and travel awards. These include the Ontario Graduate Scholarship, the Institute of Medical Science Open Fellowship Award, the Mary Gertrude l'Anson Scholarship, the School of Graduate Studies Conference Grant, the Schizophrenia Research 2013 Best Poster Award, and the Society for Biological Psychiatry 2014 Travel Award. Fernando was also a U of T finalist in the Three-Minute Thesis (3MT©) competition. Fernando has presented his research at several international conferences and as part of the U of T CPIN Neurotalks program. Fernando expresses the utmost thanks to the CPIN program, the Institute of Medical Science, and his supervisor and colleagues at the Centre for Addiction and Mental Health for making this research possible.

Select Publications:

Caravaggio, F., Nakajima, S., Borlido, C., Remington, G., Gerretsen, P., Wilson, A., . . . Graff-Guerrero, A. (2014). Estimating endogenous dopamine levels at D2 and D3 receptors in humans using the agonist radiotracer [¹¹C]-(+)-PHNO. *Neuropsychopharmacology*, 39(12), 2769-2776. doi:10.1038/npp.2014.125

Caravaggio, F., Borlido, C., Hahn, M., Feng, Z., Fervaha, G., Gerretsen, P., . . . Graff-Guerrero, A. (2015). Reduced insulin sensitivity is related to less endogenous dopamine at D2/3 receptors in the ventral striatum of healthy nonobese humans. *Int J Neuropsychopharmacol*, 18(7), pyv014. doi:10.1093/ijnp/pyv014

Welcome New Sponsor

<http://www.neuroscience.utoronto.ca/aboutus/Sponsors.htm>

CPIN would like to welcome our new sponsor, the **Human Biology Program** at U of T (<http://hmb.utoronto.ca/>).

The Human Biology Program (HBP) provides rigorous undergraduate education in the interdisciplinary field of human biology, including Neuroscience. Enrollment in the Neuroscience Specialist and Major programs exceeds 900 students. All of these students receive the following set of core competencies: critical and creative thinking, self-directed learning, quantitative and analytical reasoning, effective communication, scholarship and research.

The HMB Neuroscience students are engaged with the leading edge of research. They recently hosted Feng Zhang (MIT) for an informal discussion titled "The Inspirations behind CRISPR". Several of them also served as hosts for recent Gairdner Laureates and attended the Gairdner Awards Gala dinner. These HMB Neuroscience students are part of the next generation of world-class researchers to emerge from the University of Toronto.

All Neuroscience Specialist students conduct an independent research project in a research lab. If you are interested in hosting a student in your lab please contact the program Director, Melanie Woodin (m.woodin@utoronto.ca).



Human Biology
UNIVERSITY OF TORONTO



HMB neuroscience students at the recent Gairdner Awards dinner

<http://www.neuroscience.utoronto.ca/communications/newsletter.htm>

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Upcoming Events

U of T Neuroscience Seminars

<http://neuroscience.utoronto.ca/events/seminar.htm>

Conferences and Meetings

http://neuroscience.utoronto.ca/events/Conf_M.htm

Neuroscience Opportunities

http://www.neuroscience.utoronto.ca/communications/Positions_Available.htm

MSc or PhD position

Rehabilitation Sciences Institute, University of Toronto

Toronto, Canada

Description: An MSc or PhD position starting Fall 2016 is available in the laboratory for Promoting Upper Limb Stroke rEcovery (PULSE), led by Dr. Joyce Chen at Sunnybrook Research Institute, University of Toronto. Research in the PULSE lab aims to enhance the recovery of arm and hand movements after stroke using two approaches: 1) non-invasive brain stimulation and, 2) music-movement links. The research project can be based on either topics and involve behavioural, neuroimaging and/or non-invasive brain stimulation approaches. The project is funded by the Natural Sciences and Engineering Research Council of Canada. Although a basic-science approach will be taken, the research should strive to inform clinical practice. The student will apply to complete graduate studies at the Rehabilitation Sciences Institute, University of Toronto (Application deadline February 1st 2016). Research will take place at Sunnybrook Research Institute, part of Sunnybrook Health Sciences Centre, a University of Toronto teaching hospital. The student will have access to a 3T Siemens Prisma MRI scanner, Transcranial Magnetic Stimulation, and Transcranial Direct Current Stimulation.

Dr. Chen is also part of the Canadian Partnership for Stroke Recovery (CPSR) and Collaborative Program In Neuroscience (CPIN). The candidate will have the opportunity to learn about the latest research in stroke and neuroscience, and participate in weekly CPSR meetings, among many other seminar series offered at Sunnybrook and the University of Toronto. Interested candidates should send a CV, an unofficial transcript of undergraduate/graduate studies, and a brief statement describing your qualifications and research interests to Dr. Joyce Chen, before February 1st, 2016: j.chen@sri.utoronto.ca

Lab website: <http://joycelchen.weebly.com>

Postdoctoral Position

University of Pittsburgh

Pittsburgh, USA

Description: The Meriney lab in the Department of Neuroscience at the University of Pittsburgh is seeking a postdoctoral fellow to join our energetic and highly collaborative team. We are studying synaptic function and plasticity at the neuromuscular junction with a focus on the role of voltage-gated ion channels and transmitter release within active zone regions of the nerve terminal. Our NIH-funded work focuses on using traditional electrophysiology and cellular imaging, in combination with superresolution fluorescence imaging, optical quantal analysis using novel tools, and MCell computer simulations of 3-D diffusion and reaction events within nerve terminals. Motivated and enthusiastic individuals with a demonstrated track record in neuroscience are welcome to apply. Experience with imaging and/or molecular tools would be preferred. See our lab web page for more background and details related to recent work: <http://merineylab.weebly.com>

Interested candidates should apply by emailing their CVs along with any supporting documents to Dr. Stephen Meriney (meriney@pitt.edu).

Reminders

Volunteer Opportunity at the 2016 Toronto Brain Bee CPIN Faculty and trainee members are invited to volunteer at the **18th Annual Toronto Brain Bee** that will be held on **Friday, April 1, 2016** at the University of Toronto. Please fill out the online volunteer form at <http://www.neuroscience.utoronto.ca/events/brainbee.htm>

Submissions for News Updates The CPIN Office requests trainee and faculty members to submit updates in research discoveries, events, and other achievements involving CPIN members. Please send your submissions to p.neuroscience@utoronto.ca

<http://www.neuroscience.utoronto.ca/communications/newsletter.htm>