



University of Toronto Neuroscience Program Newsletter
June 2011 | Volume 27 | Number 10

DISTINGUISHED LECTURESHIP SERIES 2010-2011

The 2010-2011 Distinguished Lectureship Series was a great success! We would like to thank the speakers, hosts and all those who attended this past year's Series. Your contributions, attendance and interactions made a difference. We are looking forward to the year ahead.

UPCOMING DISTINGUISHED LECTURESHIP SERIES 2011-2012

WEDNESDAY, OCTOBER 12TH, 2011



Speaker | Dr. Gail Mandel, Senior Scientist at the Vollum Institute and Professor in the Department of Biochemistry and Molecular Biology in the School of Medicine at Oregon Health Sciences University.

WEDNESDAY, OCTOBER 26TH, 2011



Speaker | Dr. Nicholas P. Franks, Professor of Biophysics and Anaesthetics, Head of Division of Cell and Molecular Biology, Head of Biophysics Section, Blackett Laboratory, Imperial College London
UTNP Host | Dr. Richard L. Horner, PhD

THURSDAY, NOVEMBER 3RD, 2011



Speaker | Dr. Richard Morris, Centre for Cognitive and Neural Systems, University of Edinburgh, UK

MONDAY, DECEMBER 12TH, 2011



Speaker | Dr. Michael E. Goldberg
David Mahoney Professor of Brain and Behavior, Director of The Mahoney Center at Columbia University (New York)

TUESDAY, APRIL 24TH, 2012



Speaker | Dr. Keith Cicerone
Director of Neuropsychology, JFK Johnson Rehabilitation Institute & New Jersey Neuroscience Institute, JFK Medical Center, New Jersey

CPIN Students must attend 75% of the Lectureship Series each year according to their program (Masters or PhD) requirement.

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NEW CPIN GRADUATES

Congratulations to the most recent graduates of the Collaborative Program in Neuroscience. We wish you all the very best in your future endeavours and thank you for being a part of the neuroscience community at UofT.

Zenya Brown, PhD., Psychology (Supervisor: Suzanne Erb)

Justin Chee, MSc., Rehabilitation Science (Supervisor: Karl Zabjek)

Edith Ng, MSc., Rehabilitation Science (Supervisor: Deirdre Dawson)

Laura Tan, PhD., Cell and Systems Biology (Supervisor: David Lovejoy)

UTNP AT CAN MEETING 2011

May 29 - June 1, 2011 - Quebec City Convention Centre



This year's Canadian Association for Neuroscience (CAN) Meeting was held from May 29th to June 1st in Quebec City. Keynote speakers were Bert Sakmann of the Max Planck Florida Institute, William T. Newsome of Stanford University, and Fred H. Gage of the Salk Institute for Biological Studies.

A number of people from the UTNP community participated, including faculty members Drs. Paul Frankland, Min Zhuo, and Melanie Woodin, who each chaired sessions in the parallel symposia that occurred over the meeting's three days.

With the help of SickKids and the Canadian Association for Neuroscience, UTNP was able to sponsor a bus to take attendees to and from Quebec City for the meeting. A number of CPIN students took advantage of this offer to make the trip.

Thanks to Dr. Melanie Woodin and Maureen Peng, past program coordinator, along with our generous sponsors, for making this possible.

NEUROSCIENCE NEWS

FOOTBALL STAR TO DONATE BRAIN TO UTNP RESEARCHER

The National Post reports that former Canadian Football League quarterback and coach, Matt Dunnigan, has agreed to give his brain – after he dies – to UTNP researcher Dr. Charles Tator and his colleagues at the Krembil Neuroscience Centre. Dr. Tator, the founder of ThinkFirst, a charitable foundation devoted to preventing brain and spinal cord injuries, has been a key figure in furthering both the scientific and political commitment to research on the possible links between repeated concussions and late deterioration brain function.

For its part, the CFL Alumni Association is also supporting Dr. Tator's research by helping to find other former football players willing to match Dunnigan's donation. The group's executive director, Leo Ezerins, called attention to players' desires to get more information on the long term impact of concussions. "We're kind of middle-aged," he said, "so we don't know how much of the memory loss or lack of energy and all that stuff is related to concussions and how much is we're just getting old." Dr. Tator agrees, noting that, on a scale of one to ten, the amount that researchers actually know about the effect of concussions in the long term would have to be rated as less than one.

"We don't know why one player gets this and another doesn't," Tator said. "We don't know how many concussions are necessary to produce this condition, we don't know how to treat it once it's started ... hopefully one day we'll find a way of actually preventing this." Dr. Tator's comments were made during an event to announce the launch of a new nationwide concussion awareness campaign.

Source: *The National Post*, May 3, 2011 (<http://sports.nationalpost.com/2011/05/03/dunigan-to-donate-brain-to-concussion-study/>)

We would also like to congratulate Dr. Charles Tator as he was honoured with a "Global Achievement Award" by the university health Network on June 15 in recognition of his seminal contributions to neurosurgery and neurotrauma research, care and prevention.



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FOR HEARING PARTS OF BRAIN, DEAFNESS REORGANIZES SENSORY INPUTS, NOT BEHAVIORAL FUNCTION

The part of the brain that uses hearing to determine sound location is reorganized in deaf animals to locate visual targets, according to a new study by a team of researchers from Virginia Commonwealth University and the University of Western Ontario in Canada.

These findings propose a new theory for cross-modal plasticity: loss of one sensory modality is substituted by another while maintaining the original function of the brain region. It is known that persons who have suffered major sensory loss, such as deafness, show compensatory, or even superior performance in the remaining senses. This occurs through a process of cross-modal plasticity, where loss of one sensory modality is replaced by the remaining senses. But researchers have not known how the brain region vacated by one sensory modality selects its sensory replacement -- until now.

In a study, published online the week of May 9 in the Early Edition of the *Proceedings of the National Academy of Sciences*, the team first examined the region of auditory cortex in hearing adult animals that responded to auditory stimuli and controlled orienting and localization behaviors in response to sounds.

"However, in deaf animals, that same cortical region responded to visual stimuli yet still controlled orienting and localization behaviors, thus preserving the functional role of the region despite the loss of its original sensory inputs," said principal investigator Alex Meredith, Ph.D., professor in the VCU Department of Anatomy and Neurobiology in the VCU School of Medicine.

According to Meredith, this research provides insight into brain reorganization following sensory loss, which may help researchers better understand how rehabilitative medicine, such as cochlear implants, may function more effectively in deaf patients.

These findings build on research published last year in the journal *Nature Neuroscience* by Meredith and colleagues from the University of Western Ontario. That research examined the brain regions in congenitally deaf adult animals responsible for cross-modal plasticity. Those results showed that cross-modal plasticity does not randomly distribute across the areas of the brain vacated by the lost sensory modality, but demonstrated that cross-modal plasticity takes up residence in selected areas. The present study indicates

that brain areas exhibiting cross-modal plasticity retain their original behavioral function.

Meredith collaborated with researchers in the laboratory of Stephen G. Lomber, Ph.D., with the Centre for Brain and Mind in the Department of Physiology and Pharmacology and the Department of Psychology at the University of Western Ontario in Canada.

The study was funded by the National Institutes of Health, the Jeffress Foundation and the Canadian Institutes of Health Research.

SOURCE | <http://www.sciencedaily.com/releases/2011/05/110510175204.htm>

U OF T NEUROSCIENCE EVENTS AND SEMINARS

WEDNESDAY, JUNE 22, 2011

Time | 12:00 p.m. - 3:00 p.m.

Topic | Quality of Life in Childhood Epilepsy: A Symposium in Honour of Irene Elliott

Location | Main Auditorium, The Hospital for Sick Children

Speakers | Mary Jo Haddad, The Hospital for Sick Children; Mary Lou Smith, PhD, University of Toronto and The Hospital for Sick Children; Joan Austin, PhD, Indiana University School of Nursing; Elizabeth Kerr, PhD, The Hospital for Sick Children; Lucy Lach, PhD, McGill University; Mary Lou Smith, PhD, University of Toronto and The Hospital for Sick Children; and O. Carter Snead III, MD.

Host | The Hospital for Sick Children

UPCOMING NEUROSCIENCE MEETINGS

BRAIN CONNECTIVITY WORKSHOP

Date | June 21-23, 2011

Location | Montreal, QC

Theme | The tripartite relationship between anatomical connectivity, brain dynamics and cognitive function

Website | <http://bcw2011.org/>

The Brain Connectivity Workshop (BCW) series aims to bring together experts in computational neuroscience, neuroscience methodology and experimental neuroscience with a special interest in understanding the tripartite relationship between anatomical connectivity, brain dynamics and cognitive function. This year marks the 10th



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annual Brain Connectivity Workshop (BCW) and the event will be hosted by the University of Montreal and Ste-Justine Hospital research centre in Montreal, Canada on June 21-23, 2011. The workshop will cover animal models and connectivity, the connectivity of the developing brain, and epilepsy in a developing brain. Childhood is a critical period where brain regions become specialized and neural networks are organized for efficient information processing. Pathological development, such as that observed in epileptic brains is highly disruptive. Regrettably, our understandings of the mechanisms involved in the pathogenic processes are still unclear. Advances in brain connectivity analyses will push forward state-of the art research in brain development and epilepsy. For more information and to register, please go to: <http://bcw2011.org/>

2011 INTERNATIONAL CONFERENCE ON BRAIN INJURY IN CHILDREN

Dates | July 12-14, 2011

Topics | Pre-and Peri-natal brain injury, Non-accidental brain injury, Head injury in sport, Management of severe traumatic brain injury, Non-traumatic causes of brain injury, Neurorehabilitation

Location | The Four Seasons Hotel, 21 Avenue Road, Toronto, ON, Canada

Website | www.sickkidsbrainconference.ca

ACQUIRED BRAIN INJURY 2011 PROVINCIAL CONFERENCE

Date | November 2-4, 2011

Location | Sheraton on the Falls Hotel, Niagara Falls, Ontario

Website | www.obia.on.ca

NEUROSCIENCE SCHOOL OF ADVANCED STUDIES (SAN QUIRICO D'ORCIA, ITALY) WWW.NSAS.IT

The Neuroscience School of Advanced Studies is home of residential, intensive Courses, where leading investigators from around the world spend two full weeks discussing upcoming research challenges with a small, highly selected number of participants in the unique atmosphere of the fortified medieval village of San Quirico d'Orcia, all within the most idyllic Tuscan countryside.

The Courses of the Neuroscience School of Advanced Studies are unique. Faculties are undisputed leaders in their own field and intense scientific interaction takes place in a manner that cannot be experienced in a typical conference venue. The walled town lends itself nicely as a self-contained campus to a relaxed yet intense learning experience. This atmosphere spontaneously combines with the Tuscan countryside, with its people and tradition and with the natural thermal spas of

Bagno Vignoni, part of the village. The associated art, cultural and wine & gourmet programs are the natural completion of each Course learning experience.

May 16-28: Endocannabinoids. Coordinator: D. Piomelli (USA)

June 13-25: Neurodegeneration and molecular neuropathology. Coordinator: P.L. Nicotera (D)

July 18-30: Protein misfolding disorders. Coordinator: A. Aguzzi (CH)

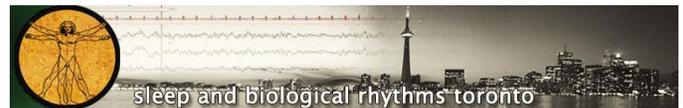
September 12-24: Pathophysiology of basal ganglia disorders. Coordinator: A.A. Grace (USA)

October 3-15: Translational research for CNS diseases. Coordinator: G.C. Terstappen (D)

October 24 - November 5: Addictive disorders. Coordinator: G.F. Koob (USA)

FELLOWSHIPS AND AWARDS

OPPORTUNITY FOR FUNDING - GRAD STUDENTS AND POST-DOCS IN NEUROSCIENCE



The Second deadline for funding from the CIHR Team Research and Training Program in Sleep and Biological Rhythms is October 15th 2011. There are funds for at least **5 post-doc awards per year, and 6 graduate awards per year**, each accompanied by an additional **\$3,000 research allowance** and a **\$1,000 travel allowance**.

For FULL application and review details please see the new website at <http://www.utoronto.ca/sleepandrhythms>

Please note:

Any research **teams** engaging in true new collaborative projects incorporating sleep-wake states, sedation and/or biological timing systems into their projects (**in whatever discipline**) are eligible to apply. No boundaries, just new science of high impact.

The vision of the program is that in 5 years time there will be more faculty and trainees incorporating some component of their research in these important areas, addressing fundamental questions in biology, physiology, medicine and health care. If the big picture questions are addressed, this will lead to effective new collaborations, funded projects, major publications and new capacity for research, education and knowledge transfer.



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Details: The application procedure is straightforward and short, but requires planning. In the first instance it is estimated that three post-doctoral awards will be available in the February competition, and two in the October competition (i.e., a total of 5 post-doc awards per year). Three graduate student awards will be available in each competition (i.e., a total of 6 graduate awards per year). Each stipend will also be accompanied by an additional \$3,000 research allowance to foster new research in the collaborating laboratories, and a \$1,000 travel allowance from the Program. Trainees have access to world-class infrastructure for molecular, cellular and behavioural analyses in animal models and humans. Supervisor top-up of salary to set levels is expected (all details are on the website). (5) The website is designed to be fully transparent, with all the details of the objectives of the program, eligibility to apply, application forms, how the applications will be reviewed, the reviewer forms, and how the funds will be distributed. (6) There are also funds available to support a total of **ten visits** from prominent researchers per year (**\$1,000 per visit**). Please see website for details ('funds' page).

Info: <http://www.utoronto.ca/sleepandrhythms/>

E-mail all queries to **Rhiannon Davies, Program Coordinator** at sleep.rhythms@utoronto.ca

POSITIONS AVAILABLE

CANADA

FREDERICK ANDERMANN FELLOWSHIP IN EPILEPTOLOGY AND EEG

This 2-year Clinical and Research Fellowship in Epileptology and EEG offers a trainee, who has completed neurology residency, clinical and research training in adult epileptology and EEG. The Fellow will gain knowledge of the basic principles in clinical epileptology and EEG, and develop skills in clinical research. Upon completing this training, the Fellow will be prepared for a career as an independent epileptologist at an academic medical centre.

The Fellow will complete a clinical rotation in the Epilepsy Unit by participating in outpatient epilepsy clinics and training in the acquisition and interpretation of EEGs in adults with epilepsy; and will participate in the development and completion of a research project that will result in one or more publications. Specifically, the Fellow will

- learn the classification of the Epilepsies and seizure

types, their aetiologies, differential diagnosis, management and medical treatment, and indications for surgical therapy;

- become familiar with the basic principles of the pharmacotherapy of the epileptic seizures, the underlying neurophysiology and neuro-anatomy of the EEG, and the basic mechanisms involved in epilepsy;
- review EEG abnormalities in epileptic disorders including scalp and invasive intracerebral EEG recordings, EEG in the neuro-intensive care unit for critically-ill epileptic patients, and EEG in the operating room (electrocorticogram);
- participate in magnetoencephalography (MEG) recordings and interpretations, recently approved as a clinical neurophysiology tool for epilepsy investigation in Québec;
- pursue an opportunity for a 3-month rotation in pediatric EEG, if interested; and
- benefit from an introductory exposure to MRI interpretation, EEG/fMRI, MEG and EEG/Near Infra-Red Spectroscopy (NIRS), high-resolution and post-processing MRI, Positron Emission Tomography (PET), neuropathology in epilepsy, basic principles of neuropsychological evaluation, and clinical genetics related to epileptic disorders.

This Fellowship is funded by UCB Pharma and by research grants and other funds. The stipend will be commensurate with Fellowships offered by the Canadian Institutes of Health Research.

The Montreal Neurological Institute and Hospital provides a unique environment for trainees who have regular and close interaction with a broad range of experts in clinical and basic neurosciences. The Fellow will benefit from the EEG service and neurology training programs that include weekly, academic half-day neurology and neurosurgery rounds and epilepsy conferences, and research group lab meetings. The Fellow will have use of the services and facilities of McGill University and the McGill University Health Centre.

For more information, please contact the Fellowship Directors:

Eliane Kobayashi, MD, PhD at Eliane.kobayashi@mcgill.ca
François Dubeau, MD at Francois.dubeau@muhc.mcgill.ca

To apply:

Candidates should review the Fellowship admission requirements and complete an online application for McGill University Post Graduate Medical Education at http://www.medicine.mcgill.ca/postgrad/fellowship_programs.htm



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MSc / PhD POSITION IN NEUROSCIENCE

An MSc / PhD position is available immediately in the Neuroscience Laboratory of Dr. Raad Nashmi in the Department of Biology at the *University of Victoria* (UVic). The successful applicant will be admitted to the *Graduate Neuroscience Program* at UVic.

Eligibility: Applicants must have a Bachelor of Science or Master of Science degree and preferably hold a major scholarship from any of the following agencies, NSERC, CIHR, or other provincial agencies such as the Michael Smith Foundation. Outstanding candidates will be considered regardless of scholarship award.

Research Interests in the Lab: Nicotinic receptors are a major class of ligand-gated ion channels in the brain that modulate synaptic transmission. Altered nicotinic receptor function are implicated in the pathogenesis of many neurological disorders including nicotine addiction, epilepsy and schizophrenia. The candidate will examine the functional role of nicotinic receptors in the CNS using a variety of techniques including brain slice whole-cell patch-clamp recordings and confocal imaging. The lab employs other approaches including molecular biology and knock-in mouse genetic engineering to examine nicotinic receptor function, expression and regulation in the CNS.

Lab Resources: The lab is equipped with modern instruments including a spectral confocal microscope, two patch-clamp electrophysiology rigs, cell culture facility, and molecular biology equipment. Excellent research facilities and equipment are available at the UVic campus including a new 10,000 ft² animal facility, a Mass Spectrometry facility, and two multiphoton microscopes.

About UVic and Victoria: The University of Victoria (www.uvic.ca) is a mid-size school of about 20,000 located on Vancouver Island in the city of Victoria, the capital of British Columbia. Greater Victoria region has a population of

330,000 and has all the amenities common to major Canadian cities. Victoria boasts breathtaking natural scenery and a mild climate, making it one of the most desirable places to live in Canada.

Contact Info: Please email transcripts and a CV to Dr. Raad Nashmi (raad@uvic.ca).
Department Web site:
<http://web.uvic.ca/biology/people/facpages/nashmi.php>
Lab Home Page: <http://web.uvic.ca/~raad/>

POSTDOCTORAL POSITION IN ELECTROPHYSIOLOGY AND NEUROCHEMISTRY

A postdoctoral position is presently available at the Université de Montréal for a project dealing with the impact of early developmental insults on the effects of cannabis on brain function. The position is initially offered for a one year period, with a possibility to renew for one or two additional years as a function of performance. The applicant should ideally have some experience in patch-clamp electrophysiology. The annual salary will initially be 35 000\$. The project involves a collaboration between the laboratories of Drs Daniel Lévesque

(http://www.pharm.umontreal.ca/propos_faculte/fichesProfs/d_levesque.html), Louis-Eric Trudeau

(<http://www.mapageweb.umontreal.ca/trudeal>) and Pierre-Paul Rompré. Interested candidates should send their CV and a letter of interest to: louis-eric.trudeau@umontreal.ca

FUNDING OPPORTUNITIES

NATIONAL MULTIPLE SCLEROSIS SOCIETY (NMSS) – Research Grants

The society supports fundamental as well as applied studies, non-clinical or clinical in nature, including projects in patient management, care and rehabilitation.

Deadline for Applications: August 3, 2011.

AMERICAN EPILEPSY SOCIETY (AES) – Research Initiative Awards

The AES has established a novel grant opportunity for its membership that will provide seed support to encourage innovative basic or clinical research associated with the epilepsy field. The proposed project requires the participation of one or more investigators outside the candidate's area of expertise, preferably in a different department or a different institution.

Deadline for Letters of Intent: August 22, 2011



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FOX FOUNDATION FOR PARKINSON'S RESEARCH, MICHAEL

J. –Call for Submissions:

Biomarker Development

LRRK2 Challenge

Dyskinesia Challenge - Identification and Testing of Novel Targets

Deadline for Submissions: Continuous

Therapeutics for Neurotropic Biodefense Toxins and Pathogens (R21/R33):

Deadline: October 24, 2011

Technology Development for High-Throughput Functional Genomics (R01). Also available in a (R21 mechanism):

Deadline: August 2, 2011

NATIONAL INSTITUTES OF HEALTH (NIH) – Requests for Applications and Program Announcements:

NIDCD Research On Hearing Health Care (R21/R33):

Deadline: October 31, 2011

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