



September 2009 e-newsletter

Our newsletter provides members and friends with regular, concise updates on the key issues and stories related to the Brain Research Centre. If you wish to submit an item for the newsletter or have any comments, please email communications@brain.ubc.ca.

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Research Days: Opportunities for learning exchange and collaboration



Each year the Brain Research Centre hosts several Research Days on topics of interest and currency to our membership, staff, and trainees. Featuring a slate of local and invited speakers who are experts in the featured topic, our Research Days are a great opportunity for learning exchange, collaboration, and networking.

On June 6, 2009 the Brain Research Centre hosted a Research Day on Inflammation in De- and Re-generation of the Central Nervous System. The invited speakers were V. Wee Yong (University of Calgary) and Valerie Verge (University of Saskatchewan), and the local speakers were **Tim Murphy**, **Alex Mackay**, **Jacqueline Quandt**, **James McLarnon**, **Neil Cashman**, **Wolfram Tetzlaff**, and **Peter Rieckmann**.

Our next Research Day, hosted by **Brian Cairns** and **Terry Snutch**, will take place on **October 3, 2009** on the topic of pain. More information is available in the [Upcoming events](#) section of this newsletter.

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Transforming research and policy: An update on PrioNet Canada



In 2005, the Federal Government invested \$35 million through the Networks of Centres of Excellence program to create a national multi-partner and collaborative network for research and policy development relating to prion diseases, including bovine spongiform encephalopathy (more popularly known as mad cow disease), chronic wasting disease, and Creutzfeldt-Jakob disease. Under the scientific direction of **Neil Cashman**, PrioNet Canada has accomplished much in the past four years.

Since 2005, the network has increased its scientific membership from 35 to 90 members, and expanded the reach of its network to 13 different Canadian universities. PrioNet Canada has created opportunities for skill-building and training that did not exist previously, and the network now boasts a membership of 230 in its Student and Young Professional Association and 11 different training programs. This past year, they experienced their largest and most successful annual scientific conference (PrP^{CANADA}), with more than 300 participants, making it the second largest prion research conference in the world.

PrioNet Canada continues to support research and projects that show potential to further our understanding of

prions and prion diseases and mitigate their negative impacts on society. In the past year alone, the network awarded more than \$9 million to numerous projects, bringing the total number of projects funded to 29. In only four years, PrioNet Canada has drastically transformed the research, management, and policy development approaches towards these currently untreatable diseases. For more information on this network, visit www.prionetcanada.ca.

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Sunlight, infections, and vitamin D associated with MS relapses



MS is the most common cause of non-trauma-related disability in young adults. Relapses are both unpredictable and unpreventable, though their occurrence can be reduced to a certain degree by immunomodulatory drug treatments. Research has shown that relapses can vary by season, but the specific putative mechanisms—such as ambient environmental factors, infections, and vitamin D levels—have not been examined in much depth until now. **Helen Tremlett** and colleagues at the Menzies Research Institute, University of Tasmania recently provided the first evidence that directly links vitamin D, upper respiratory tract infection rates, and sunlight exposure to MS relapses.

Dr. Tremlett found that the variation in monthly relapse rates was inversely related to the variation of monthly sunlight levels and vitamin D levels. In other words, low levels of sunlight were associated with lower vitamin D production and a higher risk of relapses. Furthermore, she found that relapses were positively associated with upper respiratory tract infections. She speculates that this might be due to the effect of

vitamin D on the immune system.

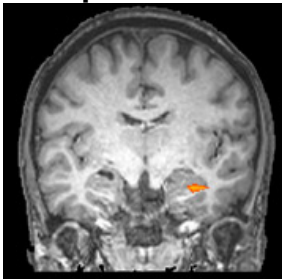
The results of the study, which was the first to assess sunlight, vitamin D levels, and infections and their role in MS relapses, were published in the journal *Neuroepidemiology*. Two hundred and three patients in Tasmania were prospectively followed for nearly two and a half years.

While Dr. Tremlett's research indicates that low ambient sunlight, low vitamin D levels, and high infection rates are associated with MS relapses, the specific causality of the observed associations and the complex inter-relationship between the factors have not yet been determined. However, her research provides a new avenue of exploration for therapies such as vitamin D supplements or greater safe sunlight exposure as ways to possibly prevent MS relapses.

The study was made possible through a Multiple Sclerosis International Federation Du Pré Grant. The Longitudinal Study of Multiple Sclerosis in Southern Tasmania was funded by the Australian National Health and Medical Research Council and the MS Trish Foundation.

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Researchers develop online tests to assess people's orientation skills: Could lead to therapies for developmental topographical disorientation



Learning about an environment activates the hippocampus in the brain (shown in colour).

Helping people find answers as to why they get lost even within their own homes and neighbourhoods is the continuing work of **Jason Barton** and **Giuseppe Iaria**, formerly a postdoctoral fellow with Dr. Barton and now an Assistant Professor in the Department of Psychology at the University of Calgary. With the assistance of Tali Cherniawsky and Dylan Sargent from the University of Victoria, they have developed a series of online tests to assess important cognitive skills, including the use of different strategies for orientation. The tests are available to everyone at www.gettinglost.ca/Test.html.

Last year, Drs. Iaria and Barton documented the first case of a patient who, without apparent brain damage or other cognitive impairment, was unable to orient within any environment. Using functional magnetic resonance imaging together with behavioural studies to assess and characterize the navigational deficiencies of the patient, they found that the patient had never developed specific orientation skills. Drs. Iaria and Barton referred to this newly discovered cognitive disorder as developmental topographical disorientation (DTD), defining it as a condition in which people

experience daily orientation problems in the absence of any brain damage, neurological conditions, or cognitive impairment. This work garnered considerable local, national, and international media attention and prompted more than 400 people from around the world to come forward and self-identify as having the disorder.

Now, Drs. Iaria and Barton have developed online tests that characterize peoples' navigational difficulties. The researchers are hoping that more people—including those who have no navigational difficulties as well as those who self-identify with the disorder—will complete the online tests.

Currently, upon completing the tests, participants receive their scores and explanations about what ability each test assesses. As more participants complete the tests, the researchers hope to collect enough data so that in the future they can provide participants with more detailed feedback and to define the navigational performance as pathological or as within healthy parameters. Drs. Iaria and Barton also hope to translate their investigation of this disorder into rehabilitation treatments for those who are affected.

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Upcoming events

The **Research Day on Pain** will take place on **Saturday, October 3, 2009** at the Life Sciences Centre. Local and invited speakers include Allan Basbaum, UCSF; Jeff Mogil, McGill University; **Chris Ahern**, Department of Anesthesiology, Pharmacology & Therapeutics and Department of Cellular & Physiological Sciences, UBC; **Sian Spacey**, Division of Neurology, Department of Medicine, UBC and Vancouver Coastal Health; **Peter Soja**, Faculty of Pharmaceutical Sciences, UBC; **Jon Stoessl**, Division of Neurology, Department of Medicine, UBC and Vancouver Coastal Health; and **Terry Snutch**, Michael Smith Laboratories, UBC. Full information, including registration details, is available at www.brain.ubc.ca. This event is sponsored in part by Pfizer Canada Inc.

This year's **Pacific Northwest Chapters Meeting of the Society for Neuroscience** will be held on **Saturday, October 3, 2009** at Western Washington University in Bellingham, WA. This meeting serves to facilitate research communication between several institutions, including UBC, SFU, UVic, and University of Washington. The meeting is co-sponsored by the Brain Research Centre, and will be, for the first time, hosted by Western Washington University. For more information, visit www.wvu.edu/neuroscience.

The **2009 Gairdner Foundation National Program** takes place on **Monday, October 26, 2009** at the Life Sciences Centre. For more information, visit www.gairdner.org for more information.

The annual **Neuroscience Extravaganza**, a poster competition for neuroscience students and postdoctoral fellows, will take place on **Thursday, October 29, 2009** at the Brain Research Centre. Abstracts and registrations may be submitted in either the Cellular & Molecular or Systems & Behaviour categories. Prizes will be awarded to the top three winners in both categories. For more information, visit www.brain.ubc.ca.

The **1st Annual Mind Foundation of BC Research Colloquium**, sponsored in part by the Brain Research Centre, will take place on **Friday, November 6, 2009** at UBC Robson Square. The symposium—on the topic of Causes and Treatments in Addiction: Bench to Bedside and Back—is aimed at clinical practitioners, clinical researchers, and basic researchers in the addiction field. Online registration for the event, which is free, is available at www.mhanet.ca/event_registration.

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Member update

Recent additions include:



Jehannine Austin, Department of Psychiatry & Department of Medical Genetics – Dr. Austin's research focuses on investigating the clinical implications of psychiatric genetics. In addition to conducting two randomized controlled trials of the impact of psychiatric genetic counselling, she is conducting a 5-year prospective, longitudinal study looking at the roles of blood levels of folate and a specific variation (in a gene that encodes an enzyme that is important to how the body metabolizes dietary folate) in the development of postpartum depression and psychosis. This study is designed to test the hypothesis that genetic information can be used to individualize recommended folate intake to reduce the risk of postpartum depression/psychosis in vulnerable women. Dr. Austin is certified as a genetic counsellor by both American and Canadian boards.



Gary Birch, Department of Computer & Electrical Engineering, UBC and the Neil Squire Society – Dr. Birch is an Adjunct Professor in the Department of Computer & Electrical Engineering and Executive Director of the Neil Squire Society. His specific areas of expertise are robotic control systems, EEG signal processing, digital signal processing, human-machine interface systems, and biological systems.



Claudia Jacova, Division of Neurology, Department of Medicine, UBC – Dr. Jacova's areas of interest and expertise comprise the cognitive and neuroimaging footprints of prodromal Alzheimer Disease and Frontotemporal Lobar Degeneration, non-pharmacological treatment approaches for cognitive impairment and dementia, and instrument development targeted to meet the evolving needs of the dementia clinic.



Gregory Miller, Department of Psychology, UBC – Dr. Miller investigates the biological mechanisms through which thoughts and feelings “get inside the body” to influence the development and progression of medical illnesses. He is also interested in the biological embedding of early-life socioeconomic experiences, the psychobiology of caregiving, and stress and health during the transition to adulthood.



Jacqueline Quandt, Department of Pathology, UBC – Dr. Quandt joined the Department of Pathology in April as an Assistant Professor. Her research is focused on translational studies, such as mechanisms to induce immunological tolerance and its potential in disease prevention and therapeutic application both in models of MS and other disorders of the brain and spinal cord. She also investigates immunological damage, neuroprotection and repair related to multiple sclerosis and other diseases of the nervous system.



William Tippett, Department of Psychology, UNBC – Dr. Tippett investigates the use of a non-invasive psychophysical testing procedure to detect cognitive decline in individuals with Alzheimer's disease and cerebrovascular disease. To assist in this evaluation he examines the relationship between visuomotor ability, cognitive variables, and brain changes observable using modern neuroimaging methods. He also investigates the ability of post stroke individuals to produce effective visually guided movements. Dr. Tippett will be opening a Brain Research Clinic at UNBC that will examine the effects of cognitive training in Alzheimer's patients, as well as in individuals that have experienced traumatic brain injuries.



Filip Van Petegem, Department of Biochemistry & Molecular Biology, UBC – Dr. Van Petegem investigates calcium channels using a combination of techniques, using protein X-ray crystallography to study the high-resolution 3D structures of these channels, isothermal titration calorimetry to study their protein-protein interactions, and electrophysiology to determine the mechanisms that underlie channel gating. He currently focuses on voltage-gated calcium channels, including presynaptic channels and their regulation by SNARE proteins. He also looks at ryanodine receptors, large intracellular channels that govern the release of calcium from the endoplasmic reticulum, where he explores how genetic disease mutations alter their structure and function.

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Awards

- **Andrei Krassioukov** received the 2009 Alan T. Brown Foundation SCI Research Award by the American Spinal Injury Association. This award is given to a researcher, clinician, or group who has demonstrated excellence in translating basic science research developments to clinical care on secondary conditions, long term outcomes, and/or issues relating to aging after SCI. Dr. Krassioukov was recognized for his excellence in the field of autonomic dysfunction following spinal cord injury.

- **Jon Stoessl** and **Trevor Young** were both elected Fellows of the Canadian Academy of Health Sciences.
- **Adele Diamond** received the YWCA Women of Distinction Award in the Science, Technology & Industry category.
- **Lakshmi Yatham** received the Mogens Schou Award for International Advocacy and Education on Bipolar Disorder from the International Conference on Bipolar Disorders and the Canadian College of Neuropsychopharmacology Medal from the CCNP.
- **Todd Woodward** received a Distinguished Achievement Award for Excellence in Clinical or Applied Research from the UBC Faculty of Medicine.
- **Jason Barton** received a Distinguished Achievement Award for Overall Excellence from the UBC Faculty of Medicine.
- **Adele Diamond** received a Distinguished Achievement Award for Service to the University or Community from the UBC Faculty of Medicine.
- **Antony Hodgson** was awarded an Associate Chair in Design Engineering by NSERC.
- **Michael Hayden** received an honorary degree from the University of Alberta.

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Awards funding

- **Results of the March 2009 CIHR Operating Grant Competition**
 - **Douglas Allan** – Target-dependent neuronal differentiation in Drosophila
 - **Shoukat Dedhar** – Role of integrin-linked kinase in mitotic spindle dynamics & centrosome clustering in cancer cells
 - **Deborah Giaschi** – Predicting occlusion therapy outcomes for children with amblyopia
 - **Wilf Jefferies** – Regulation of antigen processing machinery in carcinomas
 - **Joanne Matsubara** – Pathogenesis of age-related macular degeneration (Note: This grant was ranked first in its peer review committee.)
 - **Bruce McManus** – Mechanisms of allograft vasculopathy
 - **Fabio Rossi** – Regulation of the balance between repair and regeneration in skeletal muscle
 - **Weihong Song** – Regulation of the BACE1 gene expression in AD pathogenesis
- **Claudia Jacova** received a CIHR Catalyst Grant.
- **Stephanie Borgland** received funding for three projects: “Understanding impulse control disorders in Parkinson’s disease” (new investigator award from the Parkinson Society of Canada), “Modulation of synaptic transmission in orbitofrontal cortex neurons: A possible relationship to cognitive inflexibility” (new investigator award from Mind Foundation of British Columbia), and “Role of feeding-related peptides on brain reward pathways” (operating grant from NSERC).
- **Filip Van Petegem** received an operating grant from the Heart & Stroke Foundation for a project entitled “Cardiac ryanodine receptors: Crystallographic analysis of disease mutants and regulation by calmodulin.”
- **Liisa Galea** received an NSERC equipment grant entitled “Image analysis program, microtome and operant chambers for investigating effects of hormones on cognition and brain.”
- **Joanne Weinberg** received a MERIT award from NIH/NIAAA, which will provide 10 years of funding for her research program entitled “Alcohol and Stress: Interactive effects.”
- **Tamara Bodnar (Joanne Weinberg)** received an Aboriginal Graduate Fellowship, which consists of the Pacific Century Graduate Scholarship, UBC Aboriginal Graduate Scholarship, and Westcoast Energy Inc First Nations Fellowship.
- **Kristina Uban (Joanne Weinberg)** received a travel award from the International Society for Developmental Psychobiology to attend their annual meeting.
- **Kelly Butts (Joanne Weinberg)** received a CIHR IMPART (Intersections of Mental Health Perspectives in Addictions Research Training) Fellowship.
- **Katie Lavigne**, a master’s student with **Todd Woodward**, received a Joseph-Armand Bombardier Canada Graduate Scholarship from SSHRC and a Fonds Québécois de Recherche sur la Société et Culture master’s research scholarship.
- **Allen Chan (Tim Murphy & Yu Tian Wang)** received a post-doctoral fellowship from the Heart & Stroke Foundation.
- **Results of the Frederick Banting and Charles Best Canada Graduate Scholarship Competition**
 - Peggy Assinck (Wolfram Tetzlaff)
 - Oliver Ayling (Tim Murphy)
 - Simon Chen (Kurt Haas)
 - Kevin Eade (Doug Allan)

- Kimberly Girling (Yu Tian Wang)
- Fergil Mills (Shernaz Bamji)
- Eugenia Petoukov (Shernaz Bamji)
- James Stevenson (Martin McKeown)
- Jonathan Tang (Doug Allan)
- **Xuelai Fan (Yu Tian Wang)** received a CIHR Training Grant.
- **Ada Tang (Janice Eng)** received an Allied Health Professional Fellowship.
- **Monica Castellanos (Doug Allan)** received a Mexican National Council for Science and Technology Tuition Award.
- **Jesse Gillis**, a postdoctoral fellow with **Paul Pavlidis**, received a Mind Foundation of BC fellowship award, in addition to a CIHR postdoctoral fellowship award.
- **Simon Chen** received an international travel award to attend the Society for Neuroscience annual meeting in Chicago in October.
- **Xuelai (Shelly) Fan**, a doctoral student with **Yu Tian Wang**, received a CIHR Award.
- **Sesath Hewapathirane (Kurt Haas)** received an international conference travel award from the Disabilities Health Research Network to attend the Society for Neuroscience annual meeting in Chicago in October. His Savoy graduate scholarship was also renewed for a fourth year.
- **Giorgia Tropini (Martin McKeown)** received a travel award to the XVIII WFN World Congress on Parkinson's disease and Related Disorders to be held in Miami December 13 – 16.
- **Scott Mackey (Doris Doudet)** received a travel award to attend the World Molecular Imaging Congress to be held in Montreal September 23 – 26.
- **Jennifer Whitman**, a doctoral student with **Todd Woodward**, received a UBC Four Year Fellowship.
- **Blair Duncan (Kurt Haas)** received a grant from the Mind Foundation of BC.

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Distinctions

- A paper on the revised criteria for the diagnosis of Alzheimer's disease, published in 2007 in *The Lancet Neurology*, by **Howard Feldman** and colleagues was the most highly cited paper in 2008 for that journal.
- A grant by **Helen Tremlett** and colleagues to investigate the long-term benefits and adverse effects of beta-interferon for multiple sclerosis received the Stephen C. Reingold Award for highest merit-ranked project for the National MS Society.
- **C. Laird Birmingham** has co-authored a second edition of *Medical Management of Eating Disorders: A Practical Handbook for Healthcare Professionals*, which will be available in March 2010 from Cambridge University Press.
- **Ghassan Hamarneh** has been promoted to the position of Associate Professor.
- An article by **Catharine Winstanley** and colleagues was selected for a new blog function and research discussion forum of the American College of Neuropsychopharmacology. An article by **Stan Floresco** was also selected for this new function and forum as well.
- **Judy Illes** published a paper in the *American Journal of Bioethics* entitled "Neurologisms" and has another paper in press with *Neuroscience* entitled "Negotiating the relationship between addiction, ethics, and brain science." She also presented at three conferences in Vancouver: the IBRO School, the Centre for Health Evaluation and Outcomes, and the Joint Educational Session of the Superior and Supreme Court Judges of British Columbia.
- **Bradley Vines**, formerly a postdoctoral fellow with **Allan Young**, was promoted to Research Associate in the Department of Psychiatry.
- **Kate Tairyan (Judy Illes)** presented a talk entitled "New Models of Education in the Era of Technology, Neuroscience and Ethics" at the 4th International Summer Institute on Brain, Mind and Education in Italy in August.
- **Anna Poon**, a master's student with **Dan Goldowitz** received a NIDA award to attend the 50th Annual Short Course on Medical and Experimental Mammalian Genetics held at the Jackson Laboratory in collaboration with Johns Hopkins University in July. She presented a poster on the mapping of regions of the genome correlated with adult neurogenesis in the rostral migratory stream of the mouse.

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Media coverage

May 2009

- **Paul Steinbok**, Department of Surgery – Surgery safe for babies with epilepsy, study finds (*CTV.ca*)
- **Tim Oberlander** – Pregnant pause (*Vogue Magazine*)

June 2009

- **Adele Diamond**, Department of Psychiatry – Awards honour women of distinction (*The Vancouver Sun*)
- **Catharine Winstanley**, Department of Psychology – UBC researchers develop new method to study gambling addictions (*UBC Public Affairs*); Rats play odds in gambling task (*BBC Online*); also reported by *CBS*, *The Canadian Press*, *CTV*, *Vancouver Sun*, *CBC*, all major Australian newspapers, *Discover Magazine*, *24 Hours Vancouver*, and others
- **Kalina Christoff**, Department of Psychology – A Wandering Mind Heads Straight Toward Insight; Researchers Map the Anatomy of the Brain's Breakthrough Moments and Reveal the Payoff of Daydreaming (*Wall Street Journal*, *Global TV*, *The Globe & Mail*, *The Vancouver Sun*, *The Ubysey*)
- **Adele Diamond**, Department of Psychiatry – YWCA's Women of Distinction (*The National Post*)
- **Alasdair Barr**, Department of Anesthesiology, Pharmacology & Therapeutics – Drinking in week before surgery a bad idea, doctors say (*The Vancouver Sun*)
- **Bradley Vines (Allan Young)**, Department of Psychiatry – Doctor's prescription: 2 arias + a chorus (*The Globe and Mail* and *The Vancouver Sun*)

July 2009

- **Allan Young**, Department of Psychiatry – Schizophrenia and bipolar disorder share gene variants, studies show (*The Globe and Mail*)
- **Lara Boyd**, Department of Physical Therapy – Thinking cap that can help the brain learn moves a step closer (*UK Daily Telegraph*)

June 2009

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- **Adele Diamond**, Department of Psychiatry – YWCA's Women of Distinction (*The National Post*)
- **Alasdair Barr**, Department of Anesthesiology, Pharmacology & Therapeutics – Drinking in week before surgery a bad idea, doctors say (*The Vancouver Sun*)

July 2009

- **Allan Young**, Department of Psychiatry – Schizophrenia and bipolar disorder share gene variants, studies show (*The Globe and Mail*)
- **Lara Boyd**, Department of Physical Therapy – Thinking cap that can help the brain learn moves a step closer (*UK Daily Telegraph*)
- **Gregory Miller**, Department of Psychology – Poor children are more likely to get sick later in life: Study (*The Province*)

August 2009

- **Lara Boyd**, Department of Physical Therapy – Jump-starting brain cells for stroke patients (*The Globe & Mail*)
- **Jon Stoessl**, Division of Neurology, Department of Medicine – PET scanners and Parkinson's research (*Global TV*)

September 2009

- **Brian MacVicar**, Department of Psychiatry – Study illuminates fMRI interpretation (*UPI*)

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Newsletter credits

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The Brain Research Centre is a partnership between the Vancouver Coastal Health Research Institute and the Faculty of Medicine at UBC.

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