



UBC MD PhD

UBC MD/PhD Program

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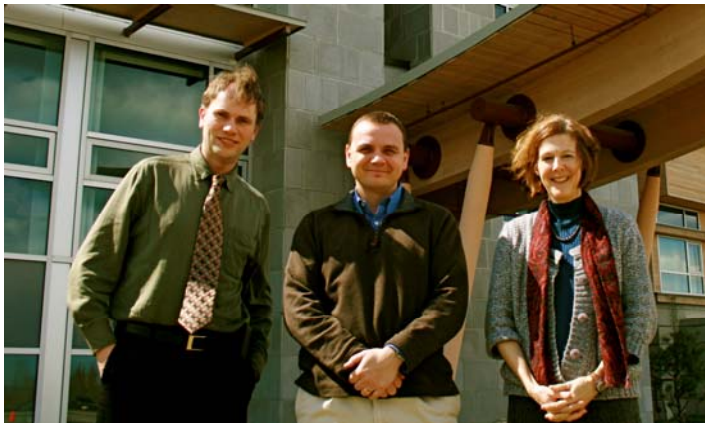
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Newsletter – Summer 2010

http://www.med.ubc.ca/education/md_ugrad/mdphd/news.htm

MD/PhD Program Site Visit to Northern Medical Program (NMP) - 7 May 2010

The UBC MD/PhD Program Director, **Dr. Lynn Raymond**, and Associate Director, **Dr. Torsten Nielsen**, visited the Northern Medical Program (NMP) campus to meet with researchers and tour the facilities. The Program Directors met with **Dr. Geoff Payne**, Assistant Dean of the MD Undergraduate Education & Research in the Northern Medical Program. Dr. Payne is also a research scientist in the area of vascular pathophysiology, and a UBC/UNBC Associate Professor. He gave an overview of the NMP academic faculty's research interests and led a tour of research labs and core facilities.



Drs. Torsten Nielsen, Geoff Payne and Lynn Raymond

The NMP is housed in a beautiful new building and includes well-equipped labs and teaching rooms. Basic scientists at this site focus on vascular biology, environmental toxicology, as well as diabetes and obesity-related research. Some of the research involves animal models, housed in a comprehensive animal facility, and state-of-the-art *in vivo* microscopic approaches. Other academic faculty members combine clinical work with research, in areas that include Psychiatry (early intervention programs in the community), Neurology (Alzheimer's disease), and research based in aboriginal health care delivery. There are regular research meetings of all academic faculty members to discuss

opportunities to collaborate. Moreover, video-conferencing to this site from Vancouver is utilized for Clinical Department rounds and some research seminars, in order to increase interactions with other sites in the UBC Medical Program. In addition, students in the Interdisciplinary Studies (MSc) Program have organized journal clubs and discussion groups for those interested in medical research. The MD/PhD Program Directors were quite impressed with the research faculty, facilities, and infrastructure support under the leadership of Dr. Payne.

The MD/PhD Program Directors welcome applications from students wishing to complete the combined program in the NMP, recognizing that challenges remain in order to complete all components of the integrated MD/PhD Program on site. However, the Directors are optimistic that by working together with MD curriculum administrators and UBC Graduate Program Advisors, these challenges can be overcome with creative solutions and increased curricular flexibility.

Will Guest - Recipient of Canada's Highly Prestigious Vanier Canada Graduate Scholarship



Will Guest

Will Guest, Year 3 MD/PhD student, is a recipient of the Canadian Institutes of Health Research (CIHR) Vanier Canada Graduate Scholarship -- one of the most prestigious scholarships available for doctoral studies at a Canadian university.

The Vanier Canada Graduate Scholarships (CGS) program is designed to attract and retain world-class doctoral students who demonstrate leadership skills and a high standard of scholarly achievement in doctoral studies. The program helps attract top doctoral students to Canadian universities by offering a significant financial award to assist successful candidates during their studies. Beginning May 2010, Will will receive \$50,000 per year for up to three years to support his graduate studies at UBC.

★★ Congratulations, Will! ★★

Will's PhD research co-supervisors are **Dr. Neil Cashman** and **Dr. Steve Plotkin**. Dr. Cashman is a Neurologist and the Director of the Prion Network. Dr. Plotkin is a UBC Physics Professor with expertise in modeling protein structures. Will's hosting department is the Experimental Medicine Graduate Program, and his PhD thesis title is "Biophysical processes in protein misfolding diseases". His project focuses on the use of protein structure information to predict regions of instability and potential misfolding. He applies this theoretical work to designing antibodies against epitopes of prion proteins in order to prevent their misfolding and thereby prevent Prion diseases, such as Creutzfeldt-Jacob and Bovine Spongiform Encephalopathy.

Will is remarkable in all aspects, including academic and research achievement, his leadership abilities, personal characteristics and integrity, and especially his potential to become a future world-class leader as a clinician scientist. Going back to his high school days, Will was a finalist in a world-wide public speaking competition, as well as in national physics competitions. His undergraduate record from the University of Manitoba is uniquely outstanding. He had a straight A+ average in the highly challenging dual program of Honours Physics and Biochemistry. Will ranked first in his graduating class of approximately 500 and won the University Gold Medal along with several other scholarship awards as an undergraduate. As well, he worked in experimental physics, developing a novel instrument designed to improve analysis of proteins by mass spectrometry.

Thus far in the MD/PhD Program, while taking medical school courses as well as graduate course work, Will has been quite productive in his research. One of his first author papers describes a novel algorithm for predicting misfolding-prone regions in proteins. He has already filed a patent for this algorithm and has played a key role in negotiations with industry partners to secure \$500,000 in funding to experimentally test his model. As well, Will successfully passed his PhD Comprehensive Exam on 31 May and had been admitted into PhD candidacy.

At UBC, Will has developed new modules for teaching medical students in Radiology. Last year he organized a biophysics symposium together with Dr. Plotkin that included 35 speakers from both UBC and SFU. Will has served as a representative to a new student-led clinician/investigator trainee organization, Clinician Investigator Trainee Association of Canada (CITAC), and is the current Treasurer at CITAC. Will is also our student representative on the Faculty of Medicine Research Council.

Will also received the CIHR MD/PhD Studentship award and Michael Smith Foundation for Health Research (MSFHR) Junior Trainee award, and other awards from the UBC Faculty of Medicine and Faculty of Graduate Studies.

Aaron Joe, Year 7 MD/PhD student, has his first cover. One of Aaron's recent first-authored publications was chosen as the cover article in the journal 'Nature Cell Biology'.

Joe AW, Yi L, Natarajan A, Le Grand F, So L, Wang J, Rudnicki MA, Rossi FM. Muscle injury activates resident fibro/adipogenic progenitors that facilitate myogenesis. Nat Cell Biol 12(2):153-63. 2010.

Congratulations, Aaron! That is an awesome cover, the article is also brilliant.



Aaron Joe



See our publication list on page 9.



Canadian National Medical Student Research Forum (CNMSRS)

From 1-3 June 2010, **Arezoo Astanehe** (Year 5) and **Will Guest** (Year 3) attended the Canadian National Medical Student Research Symposium (CNMSRS) at the invitation of **Dr. Sharon Salloum**, Associate Dean of Student Affairs, UBC Faculty of Medicine. The conference was held in Winnipeg and hosted by the University of Manitoba, Faculty of Medicine. The event brought together MD and MD/PhD students from 13 universities across the country to share their research projects in two days of talks.

Arezoo presented her PhD thesis research on the molecular determinants of herceptin resistance in breast cancer, while Will described his PhD work using biophysics to predict patterns of protein misfolding. Their talks were very well-received. In addition to the many fascinating talks there was also plenty of time to relax, with a banquet at Winnipeg's Inn at the Forks and a boat cruise on the Red River. The event was a great opportunity to get to know students from other schools and exchange ideas about clinical and basic science.



Arezoo Astanehe and Will Guest at the Winnipeg conference

PhD Oral Defense

Congratulations go to **Mike Kozoriz** (Year 4), **Brennan Eadie** (Year 5) and **Suze Berkhout** (Year 6) for successfully defending their PhD theses. We are very proud to share their research interests with everyone. Great work!!



Mike Kozoriz – PhD research supervisor **Dr. Christian Naus**, Department of Cellular and Physiological Sciences, defended his thesis on 6 May 2010, “Mitochondrial potassium sequestration and neuroprotection is mediated by connexin43”. The examination committee rated Mike’s performance in presenting a synopsis of his research studies, responding to questions, and defending the work as meeting the standard of excellence expected of a doctoral candidate.

ABSTRACT

The gap junction protein connexin43 is expressed in brain astrocytes. Connexins form *gap junction* channels, which allow passage of ions and molecules between cells, and *hemichannels*, which pass substances between intracellular and extracellular spaces. Connexins play an important role in cellular injury. Reduction of connexin43 increases damage following stroke induced by middle cerebral artery occlusion (MCAO). A potential mechanism for increased damage is the disruption of gap junctional buffering of extracellular potassium (K^+_o). During stroke, K^+_o concentration ($[K^+_o]$) increases with multiple detrimental effects on neuronal function. It is known that connexin43 contributes to the clearance of K^+_o and mitochondria, organelles capable of taking up K^+ , express connexin43. This thesis examines the role of mitochondrial connexin43 in sequestering rises in $[K^+_o]$.

To assess mitochondrial K^+ sequestration, astrocytes were loaded with the fluorescent K^+ indicator PBF1. K^+ was released from mitochondria by uncoupling the mitochondrial membrane potential with CCCP and was detected by cytosolic PBF1. Transient applications of elevated $[K^+]_o$ led to increases in K^+ within mitochondria, as assessed by increases in the magnitudes of cytoplasmic $[K^+]$ transients evoked by brief exposures to CCCP. Blockade of plasmalemmal K^+ uptake routes by ouabain, Ba^{2+} , or a cocktail of voltage-activated K^+ channel inhibitors reduced K^+ uptake into mitochondria. Reductions in mitochondrial K^+ uptake also occurred in the presence of the $mitoK_{ATP}$ channel inhibitors. Furthermore, K^+ uptake was reduced by gap junction blockers and in astrocytes isolated from connexin43-null mice, suggesting that connexins also play a role in K^+ uptake into astrocyte mitochondria.

In a second study, the function of the carboxy-terminal (CT) region of connexin43, a region important for channel activity, was examined in mutant mice expressing a truncated form of connexin43 (Cx43 Δ CT mice). These mice exhibited greater damage following MCAO. In the peri-infarct region, astrogliosis was reduced and inflammatory cell invasion was increased. Astrocytes from Cx43 Δ CT mice were less coupled, and displayed alterations in channel gating, hemichannel activity, Ca^{2+} wave properties and showed impairment of mitochondrial K^+ sequestration. These results suggest that astrocytic connexin43 contributes to the mitochondrial K^+ sequestration and that the CT region plays an important role in protection following stroke.



Brennan Eadie – PhD research co-supervisors **Drs. Brian Christie** and **Yu-Tian Wang**, Graduate Program in Neuroscience, defended his thesis on 12 May 2010, “Neuronal plasticity in the dentate gyrus of a mouse model of fragile-X syndrome”. The examination committee found Brennan’s presentation excellent, and accepted his outstanding thesis with minor revision.

ABSTRACT

Fragile-X syndrome (FXS) is the most common form of inherited intellectual disability (ID), representing a considerable burden of health in our society. FXS is caused by repression of the transcription of one gene, *Fmr1*. Normally, expression of the *Fmr1* gene leads to the production of one type of protein, the Fragile-X Mental Retardation Protein (FMRP). At the cellular level, FXS is caused by a lack of FMRP.

The fact that mice and humans possess a nearly identical *Fmr1* gene has permitted the generation of a mouse model of FXS using modern transgenesis techniques (*Fmr1* knockout (KO) mice). The study of the behavior of *Fmr1* KO mice was expected to quickly reveal ID with subsequent elucidation of the syndrome's neurobiological underpinnings. Unfortunately, the manifestation of presumed ID at the behavioral and neurobiological levels in *Fmr1* KO mice has been surprisingly elusive. How repression of *Fmr1* gene expression affects the brain to produce ID is unclear.

The dentate gyrus (DG) subfield of the hippocampus is a region of the brain that is associated with learning and emotion, exhibits marked structural and functional plasticity, and was unexplored in *Fmr1* KO mice prior to the work presented in this thesis. Our overarching hypothesis is that lack of transcription of the *Fmr1* gene deleteriously alters structural and functional plasticity in the mammalian DG, and impairs aspects of learning and emotion associated with this brain region.

Chapter 1 introduces topics such as FXS, the hippocampus, plasticity and the mouse model of FXS. Specific hypotheses are listed at the end of chapter 1. Chapters 2 and 3 are manuscripts written for publication in peer-reviewed journals. The bulk of the data relating to the testing of the specific hypotheses are presented in these chapters. Chapter 4 is a general discussion that seeks to place the results presented in the thesis into context within the literature, and also identifies important future directions. The thesis concludes with a new model posited for the pathophysiology of FXS.



Suze Berkhout – PhD research co-supervisors **Drs. Mark Tyndall** and **Scott Anderson**, Experimental Medicine Graduate Program, defended her thesis on 18 May 2010, “Social identity, agency, and the politics of adherence to antiretroviral therapy in HIV/AIDS care”. The examination committee commented that Suze delivered an excellent presentation of her work, was articulate, and handled questions from the committee proficiently.

ABSTRACT

Within Vancouver's Downtown Eastside community, gendered disparities exist with respect to uptake and continuity of antiretroviral therapy; limited access and adherence to therapy is commonly reported in the medical literature concerning women in the community. These findings are particularly hard to reconcile, given that HIV treatment exists amidst a range of neighbourhood health and social support services that are ostensibly accessible to all through a universal health care system.

In this dissertation, I examine conventional approaches to facilitating treatment uptake and adherence along with dominant narratives employed to explain treatment challenges faced by women in Downtown Eastside Vancouver. Bringing together discourse analysis, qualitative interviewing, and participant observation with HIV-positive women and their health care providers I propose an alternate lens with which to examine gender disparities in HIV care. I argue that discourses of adherence to antiretroviral therapy are suffused with cultural imagery and tropes associated with women at high risk of HIV infection: images of sex work, drug use, homelessness, and mental illness. Additionally, an individualist, rationalist bias exists within much of the North American literature regarding women's access and adherence to care; the literature finds points of convergence with larger normative frameworks of liberalism within medical practices.

Contrary to a conventional emphasis on psychosocial “barriers” to care, I focus on social interests, institutional authorities, relations of power, and strategies of social control. These are exerted on, resisted, and internalized by women attempting to negotiate care. I also suggest how a normative liberal framework underpinning HIV research and care may have the inadvertent consequence of further entrenching images of HIV positive women as deviant, dangerous, and/or irrational. My reframing issues of access and adherence as matters of negotiation and negative agency leads me to discuss the ways in which liberal conceptions of autonomous agency are employed within discourses of HIV/AIDS care, structuring health care decision making and possible courses of action. The arguments I offer endorse a constitutively relational account of the self and autonomy. A relational account can, I argue, provide insight and guidance concerning adherence to antiretroviral therapy.

Electronic copies of our MD/PhD student theses are available at the UBC website <http://circle.ubc.ca>.

Arezoo Astanehe

Arezoo Astanehe (Year 5). Her PhD research is studying the role of the oncogenic transcription factor Y-box binding protein (YB-1) in breast cancer. Her most recent work has important clinical implications. Trastuzumab (Herceptin®), an approved treatment modality for use in women with HER2 positive breast cancers, has improved outcome for patients. However, clinical observations indicate that only 30% have an initial response to treatment; thus intrinsic resistance is apparent. Moreover, the majority of patients who achieve a response to trastuzumab acquire resistance within one year. Through her latest research, Arezoo has unravelled a mechanism by which cancer cells acquire resistance to trastuzumab. More importantly, her work suggests novel therapeutic targets to combat resistance to trastuzumab in the women affected. Arezoo is completing her PhD research with **Dr. Sandra Dunn** in the Experimental Medicine Graduate Program.

Arezoo Astanehe has won numerous academic and research awards, below is a list of her recent awards. Way to go, Arezoo.

- **Child and Family Research Institute (CFRI) Trainee research award for outstanding achievement by a doctoral candidate.** In June, the Selection Committee for the CFRI 2010 Trainee Research Awards Program was pleased to announce that Arezoo Astanehe has been selected as the 2010 recipient of the “Outstanding Achievement by a Doctoral Student”. This award recognizes the outstanding achievement of a Doctoral student based at the Children’s & Women’s Health Centre of British Columbia site whose originality of thought, research skills and analytical capacity clearly demonstrate the individual’s potential to make an original contribution to the scientific community.
- **Canadian Institute of Health Research (CIHR) National Research Poster Competition Award of Excellence (Gold category)**
- **Canadian Institute of Health Research (CIHR) Institute of Cancer Research Award**
Arezoo was nominated by UBC Faculty of Medicine and Faculty of Graduate Studies, as being within the top 5% of doctoral students, for participation in the Canadian Institute for Health Research (CIHR) National Student Research Poster Competition (2 June 2010) at the Canadian Student Health Research Forum (CSHRF) in Winnipeg. This event has been held for 23 years and provides a venue for health research trainees from across Canada to present their work, network, and be recognized for the excellence of their contributions.
- **Association of American Physicians (AAP) Stanley J Korsmeyer Young Investigator Award**
- **American Society for Clinical Investigation (ASCI)/Association of American Physicians (AAP) Outstanding Poster Presentation Award**
- **American Physician Scientist Association (APSA) Travel Award**
Arezoo presented her poster “MNK1 mediates Herceptin resistance through phosphorylation of YB-1” at the Association of American Physicians and the American Society for Clinical Investigation (ASCI/AAP) 6th Joint Meeting, 23-25 April 2010, Chicago, IL.

Arezoo is also an active member in the UBC Faculty of Medicine Graduate Student Committee, American Physician Scientists Association, Clinician Investigator Trainee Association of Canada, Women in Cancer Research, European Association of Cancer Research and American Association of Cancer Research.

David McVea

At the Vancouver Coastal Health Research Institute (VCHRI) Celebrate Research Week (10 March) Poster Competition, **David McVea** (Year 3), won the first “VCHRI Poster Idol” and was awarded a UBC bookstore certificate. All VCHRI trainees conveyed their key research message in 45 seconds with one PowerPoint slide to a discriminating audience of their peers. A winner was then chosen based on audience ballots. Around 35 VCHRI trainees and their supervisors were in attendance to view the posters entered in the competition. David presented his poster “Complex patterns of spontaneous cortical activity reflect functional neural circuits” and won the award. David’s PhD research supervisor is **Dr. Tim Murphy**, Graduate Program in Neuroscience.

Michael Copley

At the Stem Cell Network Annual Scientific Meeting, Montreal, Quebec. (Nov 2009), **Michael Copley** (Year 2), won a top poster prize for his presentation “Changes in levels of regulatory let-7b microRNA correlates inversely with Hmga2 expression in hematopoietic stem and progenitor cells during development”. Michael’s PhD research supervisor is **Dr. Connie Eaves**, Experimental Medicine Graduate Program.

Long Nguyen

Long Nguyen (Year 1) won the CIHR Frederick Banting and Charles Best Canada Graduate Scholarship (one year term), he is one of the 49 awardees at UBC in the 201002 competition. Long’s research project title is, “Characterization of breast cancer stem cells”.

Clara Westwell-Roper

Clara Westwell-Roper (Year 2) won two awards to present her research at the Keystone Symposia on Molecular and Cellular Biology.

➤ Islet Biology and Diabetes, April 12-17, Whistler, BC. Clara presented “Human islet amyloid polypeptide induces pro-inflammatory cytokine production by murine macrophages in a MyD88-dependent manner”. She received a Keystone Symposium scholarship.

➤ Innate Immunity: Mechanisms Linking with Adaptive Immunity, June 7-12, Dublin, Ireland.

Clara received a Child & Family Research Institute (CFRI) Trainee Travel Grant for this meeting. She presented “Human islet amyloid polypeptide promotes macrophage recruitment to islets and induces MyD88-dependent TNF-alpha release”. Clara’s PhD research supervisor is **Dr. Bruce Verchere**, Department of Pathology & Laboratory Medicine.

Kate Potter and Fiona Young

Kate Potter and **Fiona Young** (both Year 5) received an Inaugural Travel Award from the American Physician Scientists Association (APSA) to present at the 6th ASCI/APP Joint Meeting (23-25 April), Chicago, IL. Kate presented her poster “Role of CHOP in dysfunction of sub-optimal mass islet transplants” and Fiona presented her poster “Loss of murine HIP14 results in an HD-like phenotype, which is rescued by human HIP14”. Kate is completing her PhD research with **Dr. Bruce Verchere**, Department of Pathology & Laboratory Medicine. Fiona is completing her PhD research with **Dr. Michael Hayden**, Department of Medical Genetics.



David
McVea



Kate
Potter



Fiona
Young



Clara
Westwell-
Roper



Michael
Copley



Alexis
Crabtree



Farzad
Jamshidi



Long
Nguyen



Gareth
Mercer

Graduate Support Initiative

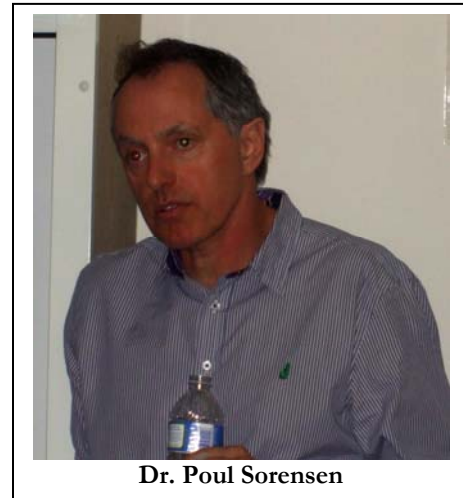
Our four Year 1 students were awardees of the Faculty of Medicine Graduate Support Initiative Tuition Award. They have all identified their supervisor, hosting department and set up their research proposal. **Alexis Crabtree**’s supervisor is **Dr. Jane Buxton** (School of Population & Public Health). **Farzad Jamshidi** is doing his research with **Dr. Torsten Nielsen** (Interdisciplinary Oncology Program). **Long Nguyen** is working with **Dr. Connie Eaves** (Experimental Medicine Graduate Program). **Gareth Mercer**’s research co-supervisors are **Drs. Tobias Kollmann** and **Julie Bettinger** (School of Population & Public Health).

MD/PhD "Building Bridges Seminar Series" — ALL ARE WELCOME

This well established seminar series is aimed at illustrating the relationship that exists between clinical practice and medical research. The meetings offer a casual and relaxed atmosphere to profile individuals who have successfully combined both clinical and research aspects into their medical careers. In addition to talking about their active research, the invited speakers also talk about their experiences, discuss their training background, share their advice for prospective clinician-scientists, and offer their opinions on career development options for clinician-scientists.

All faculty, clinical investigator trainees and students in the Faculty of Medicine are invited. Presentations are video-conferenced and broadcast to the Island Medical Program and the Northern Medical Program. The event is held every other month at the Medical Student Alumni Centre, 12th Avenue & Heather Street, from 6:00 - 7:00 pm.

On 12 April 2010, our invited speaker, **Dr. Poul Sorensen**, Johal Chair in Childhood Cancer Research, Professor, Department of Pathology & Laboratory Medicine, UBC and Senior Scientist, BC Cancer Research Centre, made a great presentation about his active research, discussed his training background and how he combines teaching, clinical work and research, and shared his advice for clinician-scientist trainees. His talk was well received by the audience.



Dr. Poul Sorensen

Thank you, Dr. Sorensen.

For information on upcoming seminars, please visit our webpage at http://www.med.ubc.ca/education/md_ugrad/mdphd/seminars.htm

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Rural and Underserved Community Practice

Arezoo Astanehe, Suze Berkhout, Brennan Eadie and Mike Kozoriz participated in the Rural Family Practice Clerkship (4 week practicum in rural communities) in the summer of 2010. They spent 4 weeks one on one with a rural physician. The training allowed them to apprentice with family physicians in rural and underserved community practices.

In June, Mike worked with **Dr. Clarence Fernandes** in Maple Ridge, and Arezoo worked with **Dr. James Francis** in Nanaimo. Brennan worked with **Dr. Jack Bryson** in Sechelt (late June to mid July), and Suze worked with **Dr. Larry Ness** in Campbell River in the month of July. The four of them have completed their PhD thesis, and get immersed back into clinical medicine before starting clerkships in the end of August 2010.

Thanks go out to **Mr. Mark Nash** in the Department of Family Practice for his hard work in organizing the rotations!

MD/PhD Students Recent Publications (selected list)

- **Guest WC**, Cashman NR, Plotkin SS. Electrostatics in the stability and misfolding of the prion protein: salt bridges, self energy, and solvation. *Biochem Cell Biol* 88(2):371-81. 2010. [[PMID 20453937](#)]
- **Heslop CL**, Frohlich JJ, Hill JS. Myeloperoxidase and C-reactive protein have combined utility for long-term prediction of cardiovascular mortality after coronary angiography. *J Am Coll Cardiol* 55(11):1102-9. 2010. [[PMID 20223364](#)]
- Ivison SM, Himmel ME, **Mayer ML**, Yao Y, Kifayet A, Levings MK, Steiner TS. The stress signal extracellular ATP modulates anti-flagellin immune responses in intestinal epithelial cells. *Inflamm Bowel Dis*. In press.
- **Kozoriz MG**, Bechberger JF, Bechberger GR, Suen MW, Moreno AP, Maass K, Willecke K, Naus CC. The connexin43 C-terminal region mediates neuroprotection during stroke. *J Neuropathol Exp Neurol* 69(2):196-206. 2010. [[PMID 20084014](#)]
- **Mayer ML**, Hancock REW. Cathelicidins link endocrine and immune systems. *Cell Host Microb* 7(4):257-259. 2010. [[PMID 20413092](#)]
- **Mayer ML**, Easton DM, Hancock REW. Chapter 12. Fine tuning host responses in the face of infection: Emerging roles and clinical applications of host defence peptides. In: *Antimicrobial Peptides: Discovery, Design and Novel Therapeutic Strategies*, 2010. G. Wang (ed). CABI: Oxfordshire, UK. [[ISBN: 9781845936570](#)]
- Meng F, Abedini A, Plesner A, Middleton CT, **Potter KJ**, Zanni MT, Verchere CB, Raleigh DP. The sulfated triphenyl methane derivative acid fuchsin is a potent inhibitor of amyloid formation by human islet amyloid polypeptide and protects against the toxic effects of amyloid formation. *J Mol Biol*. 2010 May 7. [Epub ahead of print] [[PMID 20452363](#)]
- Mohajerani MH, **McVea DA**, Fingas M, Murphy TH. Mirrored bilateral slow-wave cortical activity within local circuits revealed by fast bihemispheric voltage-sensitive dye imaging in anesthetized and awake mice. *J Neurosci* 30(10):3745-51. 2010. [[PMID 20220008](#)]
- Nijnik A, Madera L, Ma S, Waldbrook M, Elliott MR, Easton DM, **Mayer ML**, Mullaly SC, Kindrachuk J, Jenssen H, Hancock RE. Synthetic cationic peptide IDR-1002 provides protection against bacterial infections through chemokine induction and enhanced leukocyte recruitment. *J Immunol* 184(5):2539-50. 2010. [[PMID 20107187](#)]
- **Potter KJ**, Abedini A, Marek P, Klimek AM, Butterworth S, Driscoll M, Baker R, Nilsson MR, Warnock GL, Oberholzer J, Bertera S, Trucco M, Korbitt GS, Fraser PE, Raleigh DP, Verchere CB. Islet amyloid deposition limits the viability of human islet grafts but not porcine islet grafts. *Proc Natl Acad Sci* 107(9):4305-10. 2010. [[PMID 20160085](#)]
- Rezai N, Deisher TA, **Heine HL**, Wang X, Corbel SY, Leung J, Kerjner A, Rossi FM, Podor TJ, McManus BM. Effects of granulocyte-colony stimulating factor on bone marrow-derived progenitor cells in murine cardiac transplantation. *Cardiovasc Path* 19(1):36-47. 2010. [[PMID 19144547](#)]
- To K, Fotovati A, Reipas KM, Law JH, Hu K, Wang J, **Astanehe A**, Davies AH, Lee L, Stratford AL, Raouf A, Johnson P, Berquin IM, Royer HD, Eaves CJ, Dunn SE. Y-box binding protein-1 induces the expression of CD44 and CD49f leading to enhanced self-renewal, mammosphere growth, and drug resistance. *Cancer Res* 70(7):2840-51. 2010. [[PMID 20332234](#)]
- Zraika S, Hull RL, Verchere CB, Clark A, **Potter KJ**, Fraser PE, Raleigh DP, Kahn SE. Toxic oligomers and islet beta cell death: guilty by association or convicted by circumstantial evidence? *Diabetologia* 53(6):1046-56. 2010. [[PMID 20182863](#)]



6th Annual MUS-UBCMJ Medical Student Research Forum

The 6th Annual Medical Student Research Forum took place on 30 March 2010 (5:30-10 pm) at the UBC Life Sciences Centre West Atrium. This event was co-hosted by the Medical Undergraduate Society (MUS), the UBC Medical Journal (UBCMJ), and the UBC MD/PhD Program. The UBCMJ was developed with the aim of promoting a stronger student research community and has partnered with the MUS and the MD/PhD Program to host this year's research forum.

The purpose of this annual event is to celebrate research by providing an opportunity for medical students to share their projects and ideas through poster presentations. In addition, this year's research forum coincided with the much anticipated release of the second issue of the UBCMJ focusing on Global Health. The forum was also meant as a launch party for this new issue.

Guest speakers included **Dean Gavin Stuart**, UBC Faculty of Medicine and **Dr. Evan Wood**, Co-Director of the Urban Health Research Initiative and Clinical Associate Professor, Division of AIDS, Faculty of Medicine, UBC. Major sponsors included the Michael Smith Foundation for Health Research (MSFHR). **Dr. John Challis**, MSFHR President & CEO presented the poster awards at the event.

Our MD/PhD students actively presented their outstanding research work and gained awards. Outstanding Poster Awards were awarded to **Brennan Eadie** (Year 5) and **Will Guest** (Year 3), and Honorable Mention Awards went to **Kate Potter** (Year 5) and **Clara Westwell-Roper** (Year 2).

Presenters:

- Suze Berkhout** – “Surveillance and medicalization in street-based HIV care: Implications for long-term adherence”
- Michael Copley** – “Changes in levels of regulatory let-7 family microRNAs correlate inversely with Hmga2 expression in hematopoietic stem and progenitor cells during development”
- Alexis Crabtree** – “Prion diseases and laboratory safety: A structured assessment of prion risk perception in Canadian medical laboratories”
- Will Guest** – “Electrostatic effects in prion protein misfolding”
- Matt Mayer** – “Immunomodulatory peptides attenuate local and systemic inflammation in a murine DSS-colitis model”
- David McVea** – “Complex patterns of spontaneous cortical activity reflect functional neural circuits”
- Gareth Mercer** – “Charting the diversity of Cenarchaeum symbiosum symbionts within marine sponges”
- Kate Potter** – “CHOP as a target for preservation of graft mass”
- Clara Westwell-Roper** – “Role of human islet amyloid polypeptide in pancreatic islet inflammation”
- Fiona Young** – “Loss of murine HIP14 results in an HD-like phenotype, which is rescued by human HIP14”



Left to right: Clara Westwell-Roper, Fiona Young, Brennan Eadie and David McVea

Medical Journal (UBC Faculty of Medicine)

The UBC Medical Journal (UBCMJ) is a student-run academic journal with a goal to engage students in dialogue in medicine. The scope ranges from original research and review articles in medicine to medical trends, clinical reports, elective reports and commentaries in the principles and practice of medicine. Students strive to maintain a high level of integrity and accuracy in their work, to encourage collaborative production and cross-disciplinary communication, and to stimulate critical and independent thinking. They have a goal of establishing themselves as one of the leading student-run publications in Canada and internationally, and expect high quality from their submissions. Accepted articles are in all areas of medicine, including but not limited to research, reviews, case reports, medical history, ethics, medical anthropology, epidemiology, public health, and international health.

The UBCMJ has been around for two years now, and the students publish two issues each year. Volume 1, issue 2, a special issue on “Global Health” was published in March 2010. Set to come out in September 2010 is Volume 2, issue 1, with a special focus on “Interdisciplinary Health Care”. In spring of 2011 will be Volume 2, issue 2, with the theme “Rural Medicine”.

Clara Westwell-Roper (Year 2) and **Long Nguyen** (Year 1) are actively involved in the UBCMJ. Clara acts as Senior Section Editor for the Reviews Section of the journal, and Long acts as Junior Section Editor for the News & Letters Section. The News & Letters section is a new addition to the journal this year, and in addition to news articles and letters to the editor, Long also manages guest editorial submissions from experts in various fields of medicine or medical research, and feature interviews with prominent physicians in a particular specialty that the medical student readers would find interesting. This year the students managed to obtain submissions from **Dr. Stephen Toope** (President of UBC) as well as **Dr. David Naylor** (President of the University of Toronto).

The journal website address is <http://www.ubcmj.com>. Interested readers can take a look at the current content.

Contact info: Long Nguyen, Junior Sectional Editor, News & Letters, email news@ubcmj.com
Clara Westwell-Roper, Senior Sectional Editor, Reviews, email reviews@ubcmj.com

Student Presentations (selected list)



Suze Berkhout (Year 6) presented her paper entitled “Private parts: Identity, identification, and representation in the practice of anonymizing research participants” at the Panel Presentation on Anonymity, Congress of the Social Sciences and Humanities (Canadian Society for the Study of Practical Ethics), Montreal, QC 30 May-2 June 2010.

Alexis Crabtree (Year 1) presented at the Canadian Public Health Association (CPHR) Centenary Conference, Toronto, ON 13-16 June 2010. Her poster was entitled “Tick talk: BC physicians’ Lyme Disease knowledge, Attitudes, and Practices”.

Matt Mayer (Year 5) was invited to speak at the Vancouver Coastal Health Research Institute (Immunity and Infection Research Centre) VCHRI-IIRC seminar on 31 May 2010. Matt presented his research “Inflammation and human disease: New applications for immunomodulation”.

Gareth Mercer (Year 1) presented his research entitled “How to increase global health education where there is no formal global health education: A student-driven year long United Nations Millennium Development Goals (UNMDG) teaching campaign” at the Alliances for Global Health Education, a joint conference between: 19th Annual GHEC Conference and 1st Latin American and Caribbean Conference on Global Health, Cuernavaca, Mexico, 9-11 April 2010.

Upcoming Events

*CITAC/CSCI Annual Meeting: Young Investigators Forum, 20-23 September 2010, Ottawa ON

UBC will be very well represented at this year's Clinician Investigator Trainee Association of Canada / Canadian Society for Clinical Investigation (CSCI) Young Investigators Forum. Our Associate Program Director, **Dr. Torsten Nielsen**, the recipient of the Joe Doupe Young Investigator award, will be speaking at the meeting. A few MD/PhD students will be presenting their outstanding research as well.

- **Suze Berkhout** (Year 7) – “Adherence to antiretroviral therapy: social identity, marginality, and threats to agency
- **Michael Copley** (Year 2) – “FETAL stage hematopoietic stem and progenitor cells differ from their adult counterparts by elevated high-mobility group A2 (*Hmga2*) expression and correspondingly low expression of its regulatory counterpart *let-7b*”
- **Will Guest** (Year 3) – “Probing structural transitions in superoxide dismutase 1, a protein with prion-like template-directed misfolding activity”
- **Matt Mayer** (Year 3) – “Immunomodulatory peptide IDR-1018 attenuates local and systemic inflammation in a murine DSS-colitis model”
- **Long Nguyen** (Year 1) – “Developing a vector tracking strategy to analyze the clonal expansion potential of normal and malignant human mammary epithelial cells in vivo”
- **Kate Potter** (Year 5) – “Knockout of CHOP improves function of transplanted marginal mass islet grafts”

*Annual MD/PhD Student Research Forum & Open House

This annual event is scheduled for Monday, 13 September 2010, 1-4 pm, at the Multi-Purpose Room, G/F, Michael Smith Laboratories, 2185 East Mall, UBC. The program includes faculty and student presentations and an informal research forum with poster presentations by the currently enrolled MD/PhD students. The event is intended to showcase the research by our students, and to recruit new students and interested faculty into our Program. It is a very informal arrangement, mainly giving an opportunity for students and prospective applicants to ask questions about the clinician-scientist career path. All are welcome!

*MD/PhD Admissions 2011

The deadline for application is 1 October 2010.

Please visit our admissions webpage at http://www.med.ubc.ca/education/md_ugrad/mdphd/admissions.htm

Comments and Suggestions!

We welcome comments and suggestions to the UBC MD/PhD Program and to our newsletters. Please send comments to the MD/PhD Program office, 2N6 - 2818 Detwiller Pavilion, 2255 Wesbrook Mall, UBC, Vancouver, BC, Canada V6T 2A1. Phone: 1-604-822-7198 Fax: 1-604-822-7917 Email: ubcmdphd@interchange.ubc.ca Website: <http://www.med.ubc.ca/mdphd>

Edited by Jane Lee, Program Coordinator, MD/PhD Program, UBC