UBC MD PhD

UBC MD/PhD Program

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Newsletter – 2014 Winter

http://mdprogram.med.ubc.ca/mdphd/news/

Student Research Forum & Open House

The 14th annual UBC MD/PhD Student Research Forum and Open House was held on Friday, 6 September 2013, 2:00-5:00 pm, at the Michael Smith Laboratories, UBC. Opening remarks by **Dr. Lynn Raymond**, Director of the MD/PhD Program, set off the exciting event. Sincere thanks to our invited guest speaker, **Dr. Patrick Tang**, Department of Pathology & Laboratory Medicine, UBC. Prospective applicants had some excellent questions and discussions with the speakers and the current MD/PhD students. Thanks to **Farzad Jamshidi**, our student representative, and **Cynthia Min**, our alternate student representative for organizing the event.

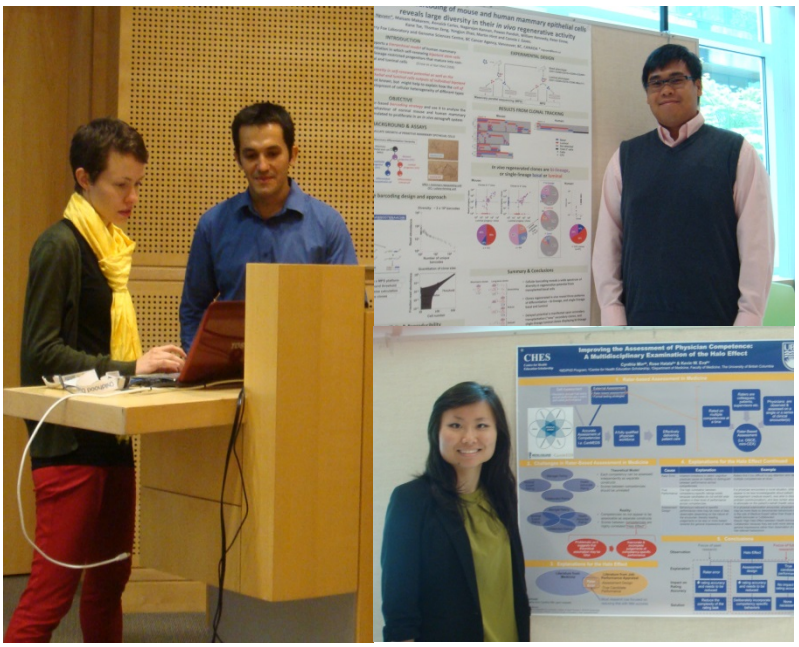
Dr. Patrick Tang, Medical Microbiologist, BC Centre of Disease Control

UBC's MD/PhD Program is one of the nation's best and most competitive programs for training future clinician-scientists. Our alumni go on to top-tier residency programs across North America in specialties such as neurosurgery and neuropathology, ophthalmology, internal medicine, radiology, and emergency medicine, and later establish careers bridging clinical medicine with scientific research. Our program boasts an exceptional student publication record, guaranteed funding for all our students starting in the spring of the first year of the program, and outstanding success in external funding applications.

Student Research Forum & Open House (con't)

- Student presentation

Philip Edgcumbe, "Development of augmented reality ultrasound navigation system for the da Vinci Surgical System".
Farzad Jamshidi, "Genomic landscape of epithelioid sarcoma, significance of SMARCB1 loss and insights into novel therapy".
Cynthia Min, "Improving the assessment of physician competence: A multidisciplinary examination of the halo effect".
Long Nguyen, "Cellular barcoding of mouse and human mammary epithelial cells reveals large diversity in their *in vivo* regenerative activity".
Clara Westwell-Roper, "Resident islet macrophages are required for islet inflammation and dysfunction induced by aggregates of islet amyloid polypeptide".



From left: Clara Westwell-Roper, Farzad Jamshidi, Long Nguyen and Cynthia Min

Farzad Jamshidi (left)
Dr. Lynn Raymond (right)

Sandy Wright (left)
Philip Edgcumbe (right)

Poster session

Program Admissions & Advisory Committee (PAAC) 2013-2014

The MD/PhD Admissions/Advisory Committee consists of four Ex-officio members and six appointed members. Ex-officio members are appointed as for their primary positions(s), including Associate Dean of Admissions, Associate Dean of Graduate & Postgraduate Education, MD/PhD Program Director and MD/PhD Associate Program Director. Appointed members are composed of clinician-scientists, basic scientists, graduate program advisors, student research supervisors and a senior student representative. To ensure that the MD/PhD Committee may benefit from maximum faculty involvement and has a healthy turn-over rate, the appointed members' term is for three years, renewable once. The Committee meets to review the admissions process and to finalize the ranking of MD/PhD applicants and to assign the CIHR MD/PhD Studentships to individual MD/PhD students. Members of the Committee also serve on the student Thesis Research Supervisory Committees, the PhD Comprehensive Examination Committees and the PhD Final Oral Examination Committees.

	**Bruce Fleming, MD** Associate Dean, Admissions, Faculty of Medicine, UBC
	**Peter Leung, PhD** Associate Dean, Graduate & Postgraduate Education, Faculty of Medicine, UBC
	**Lynn Raymond, MD, PhD** Director, MD/PhD Program, UBC Professor, Department of Psychiatry, UBC
	**Torsten Nielsen, MD/PhD** Associate Director, MD/PhD Program, UBC Professor, Department of Pathology & Laboratory Medicine, UBC
	**Dawn Cooper, PhD** Instructor, Department of Cellular & Physiological Sciences, UBC Co-Director, FLEX and Foundations of Scholarship, MD Undergraduate Program Curriculum, UBC
	**Robert Holt, PhD** Professor, Department of Medical Genetics, UBC Professor, Molecular Biology & Biochemistry, Simon Fraser University Head of Sequencing, Michael Smith Genome Sciences Centre, BC Cancer Agency
	**Timothy O'Connor, PhD** Professor, Department of Cellular & Physiological Sciences, UBC Graduate Advisor, Graduate Program in Neuroscience, UBC
	**Patrick Tang, MD/PhD** (Alumnus, UBC MD/PhD Program) Clinical Associate Professor, Pathology & Laboratory Medicine, UBC Medical Microbiologist, BC Centre for Disease Control Program Head, TB/Mycobacteriology and Molecular Microbiology & Genomics, BC Public Health
	**Stuart Turvey, MBBS, DPhil** Associate Professor, Division of Infectious & Immunological Diseases, Department of Pediatrics, UBC Director, Clinical Research, Child & Family Research Institute
	**Farzad Jamshidi** Year 5, MD/PhD Student, UBC

Our sincere thanks go to **Drs. Haydn Pritchard and Claudia Krebs** for their contribution to the committee in the past three years.

UBC MD/PhD PROGRAM

MD/PhD Student Representative - Farzad Jamshidi

Farzad Jamshidi is our 2013-2014 student representative, along with alternate student representative, **Cynthia Min** and **Sandy Wright,** our student representative at the Southern Medical Program. The major responsibility of the student representative is to sit on the MD/PhD Admissions/Advisory Committee. Other duties include helping to organize the MD/PhD monthly student meetings/seminars and presenting at student events to promote the MD/PhD Program. Prospective applicants are welcome to contact any of our students to ask questions. http://mdprogram.med.ubc.ca/mdphd/students/

Message from **Farzad Jamshidi**:

Farzad Jamshidi

It is a great honor to be the 2013-2014 student representative for the UBC combined MD/PhD Program. I started the program four and a half years ago and since then, I have had an incredible experience in both medicine and research and also in observing the interaction of the two.

I have finished two years of medicine, and am currently focusing on my doctoral thesis. My supervisor is **Dr. Torsten Nielsen**, pathologist and scientist at the Vancouver General Hospital (VGH) and the BC Cancer Agency and also the Associate Director of the MD/PhD Program. My research focuses on understanding the pathobiology of a rare but devastating tumour known as epithelioid sarcoma. Incredibly unusual in presentation, this tumor is a diagnostic challenge, has poor prognosis, and there are no effective systemic therapies for disseminated disease. Because it is very much understudied, there is a lot to be done and I hope that my doctoral work will contribute to the understanding of this tumor with the ultimate goal of improving treatment.

In studying epithelioid sarcoma, we decided to take a two-pronged approach. First, we would use state-of-the-art next generation sequencing to study the genomic landscape of this tumor and second, we would use molecular and cellular techniques to study the biology of the disease at the same time. Through our initial studies, we focused on the tumor suppressor gene *SMARCB1*, its mechanism of inactivation and role in pathogenesis of epithelioid sarcoma; I have been fortunate to present my results at conferences across Canada. Additionally, we have been able to establish international collaborations; sharing samples, cell lines, and ideas, to push forward the deciphering of this tumour's development thus overcoming the challenges posed by the rarity of this tumour.

One of the side projects that I got involved with, which I believe represents a great marriage of basic science and clinical medicine and hence a great exposure for an MD/PhD student, is the Personalized Oncogenomics initiative at the BC Cancer Agency. Here, next-generation sequencing is used to help oncologists make the best possible decisions when dealing with difficult cases. While sequencing whole genomes in a clinical time-frame would seem like science-fiction a decade ago, today it has become a reality. In one of the cases, the unexpected finding of loss of *SMARCB1*, the gene I study, led to a revision of the original diagnosis, which changed the course of treatment.

My exposure to basic research and seeing its elements used in the cutting edge of health-care delivery has made me cherish my decision to pursue a combined degree. However, I have also been exposed to other aspects of medical research which I greatly value. Organizing the national Clinician Investigator Trainee conference in Ottawa in 2012, learning about grant preparations and participating in a site-visit from the CIHR, as well as helping with a 4th year elective for medical students were among some of the activities that helped me value the importance of delivery of information as well as its generation. I am looking forward to next few years when I will finish my degree and embark on the next stage of a career in medicine and science.

PhD Oral Defense

Congratulations go to **David McVea**, Year 7 MD/PhD student, for successfully defending his PhD dissertation on 27 September 2013. David made a superb presentation of his research work and answered all questions well. David's research work was highly recognized by the Examination Committee. The Chair of the Examination Committee commented that "The thesis was well organized and presented and the results of the thesis have provided important contributions to the literature in this field".

David McVea

David's PhD research supervisor is **Dr. Timothy Murphy**, Department of Psychiatry.
We are very proud to share David's research interests with everyone.
Great work!!

* * *

Dissertation title "**Spatial and temporal details of spontaneous cortical activity provide insights into functions in the adult and developing brain**".

ABSTRACT

While the body rests, the mind remains active. In fact, the brain exhibits a rich pattern of structured activity despite having few immediate sensory or motor tasks. During infancy, this brain activity appears tailored to assist in the maturation of neural systems. In the adult, it influences memory consolidation and maintenance of synaptic connections. In this thesis, I address these differences by using voltage-sensitive dye imaging to record spontaneous cortical activity in rodents during development and adulthood.

In the adult, I examine slow-wave activity, a key form of spontaneous activity. I show that functionally related regions of the cortex activate synchronously, forming a core set of structures that underlie spontaneous activation. I also show that sensory connections shape the patterns of this activity. These effects hold true in the quietly awake mouse, to a lesser extent. These findings are consistent with an active role for slow-wave activity in the maintenance of cortical connections. In the infant, I examine a dominant form of brain activity, the spindle burst. This pattern of activity follows spontaneous sensory inputs generated by the developing sensory systems, including small twitches in the limbs and tail. It is generally thought to remain localized with the appropriate cortical sensory system, but using wide-field imaging, I show it spreads medially across the cortex. This suggests a potential role in the maturation of connections between sensory and motor regions.

I explored this possibility more closely by recording activity in early life from the whisker system of the rat. In the adult, connections exist between the sensory and motor regions of the whisker system. To gain insight into whether the spontaneous activation of these systems contributed to their development, I compared the activity evoked by stimulation to the spontaneous activation of these systems. I found synchronized spontaneous activation of motor and sensory areas that were not yet functionally connected. This suggests that other structures synchronize these areas to promote the maturation of connections between them.

Overall, this work reveals details about spontaneous activity that provide clues to why the brain devotes time and energy to activity disconnected from the outside world.

PhD Comprehensive Exam

Daniel Woodsworth

Congratulations to **Daniel Woodsworth**, Year 4 MD/PhD student. Daniel passed his comprehensive examination on 9 December 2013, and had been admitted to candidacy.

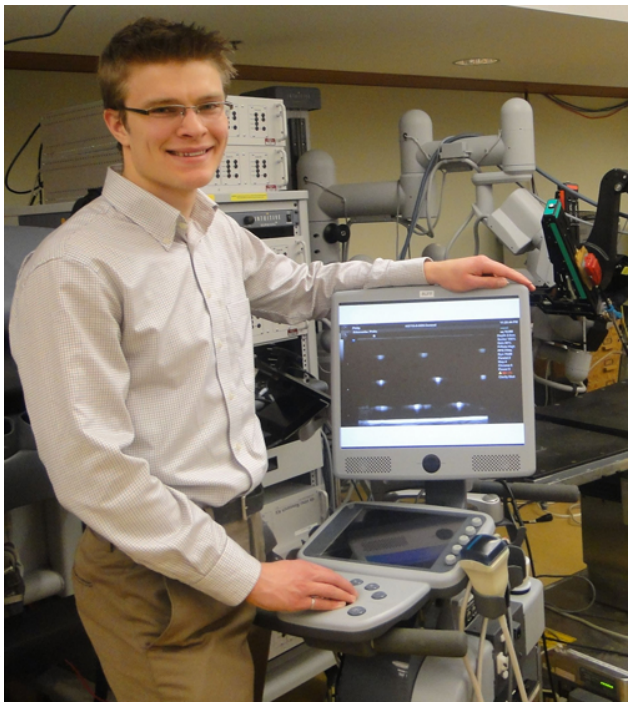
The MD/PhD Comprehensive Examination format consists of two parts:

- a CIHR style research grant proposal in an area of research
- an oral examination.

Daniel's research supervisor is **Dr. Robert Holt**, Genome Science & Technology Graduate Program. The topic of his research project is "Development of a cytotoxic based cell-to-cell therapeutic delivery system".

Award Winner

Philip Edgcumbe, Year 3, MD/PhD student, was selected as one of the five first-ever recipients of the prestigious Prostate Cancer Canada Graduate Studentship award. Philip is the recipient of the Amy and Donald McInnes Graduate Studentship Award (2014). Following a rigorous selection process, Prostate Cancer Canada are funding a total of 5 top Canadian graduate students to help nurture research talent and building the next generation of prostate cancer research leaders.



Philip Edgcumbe

Patients with prostate cancer are often required to have surgery. To help reduce post-operative complications, Philip's research proposes to develop an Augmented Reality Elastography Navigation Aid, called ARENA. ARENA will provide surgeons with a real-time and accurate ultrasound display of blood vessels, nerves and tumours beneath the surface during surgery.

Philip's PhD research co-supervisors are **Dr. Robert Rohling**, Department of Electrical and Computer Engineering and Department of Mechanical Engineering, UBC, and **Dr. Christopher Nguan**, Department of Urological Sciences, UBC.

Philip also received a number of academic and research awards, including Dr. John Ankenman Clinical Research Prize at the UBC Department of Urological Sciences 7th Annual Lorne D. Sullivan Research Day, UBC Four Year Fellowship for PhD students, Canadian Institutes of Health Research (CIHR) Frederick Banting and Charles Best Canada Graduate Scholarship-Master's Program and CIHR MD/PhD studentship award.
For more details please go to http://bit.ly/1diz8E8. Way to go, Philip. Congratulations!

Philip presented his research project "Multi-parametric ultrasound cancer imaging for diagnosis and surgery" at the MD/PhD "Building Bridges" seminar series on 25 November 2013. A social event was organized after the talk.

Left to right: Philip Edgcumbe, Farzad Jamshidi, Cynthia Min, Eric Zhao, Parker Jobin, Andrea Jones, Amanda Dancsok, Victor Li and Long Nguyen.

UBC MD PhD Award Winners

Michael Copley, Year 6
- Louis Lipsey Toohill Scholarship, Faculty of Medicine, UBC

Parker Jobin, Year 1
- Dofasco Inc. First Nations Fellowship, UBC
- Aboriginal Graduate Fellowship, Faculty of Graduate & Postdoctoral Studies, UBC

Hwan Lee, Year 2
- Echoridge Educational Foundation Scholarship in Medicine, Faculty of Medicine, UBC
- Roman M. Babicki Fellowship in Medical Research, Faculty of Medicine, UBC
- Vancouver Medical Association John Mawer Pearson Medical Entrance Scholarship
- Faculty of Medicine Graduate Award, UBC

Julia Pon, Year 4
- Faculty of Science Graduate Award, UBC

Daniel Woodsworth, Year 4
- Faculty of Science Graduate Award, UBC

CONGRATULATIONS!

Sandy Wright, Year 3
- Dorothy May Ladner Memorial Fellowship, Faculty of Medicine, UBC

Eric Zhao, Year 1
- Four Year Fellowship for PhD students, Faculty of Graduate & Postdoctoral Studies, UBC

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

This well-established seminar series aims to illustrate the relationship that exists between clinical practice and medical research. The seminars are organized for budding clinician-scientists of the MD/PhD and Clinician Investigator Programs, which allow the trainees to hear about different career tracks and various ways to combine clinical and research work. In addition to speaking about their active research, the invited speakers discuss their experiences and training backgrounds, share their advice with prospective clinician-scientists, and give their opinions on career development options for clinician-scientists. All faculty, clinical investigator trainees, and students in the Faculty of Medicine are invited. Our usual venue is at the Medical Student Alumni Centre, 6:00-7:00 pm, video-conferenced to Victoria, Prince George and Kelowna.

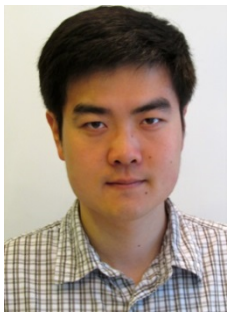
Monday, 7 October 2013
Invited speaker: **Dr. Lynn Raymond**, Director, MD/PhD Program, UBC
Title of talk: "Combining neurology practice with basic neuroscience research: Huntington disease as a model"
Monday, 27 January 2014
Invited speaker: **Dr. Desmond Nunez**, Head, Division of Otolaryngology, Department of Surgery, UBC
Title of talk: "Otolaryngology Head and Neck Surgery – an academic view"

For information on upcoming seminars, please visit our webpage at http://mdprogram.med.ubc.ca/mdphd/seminars/

Dr. Lynn Raymond

Dr. Desmond Nunez

Meet Our Incoming Students - September 2013

				
Amanda Dancsok	**Parker Jobin**	**Andrea Jones**	**Frank Lee**	**Eric Zhao**

Amanda Dancsok, Parker Jobin, Andrea Jones, Frank Lee and **Eric Zhao** were accepted in the MD/PhD Program in September 2013. They each come from different places, graduated from different programs, and are taking on projects in different fields. We welcome them into this first phase of training as future clinician-scientists!

All MD/PhD students receive a studentship award through the MD/PhD Program (annual stipend $21,000, renewable each year for a maximum of 6 years).

Welcome to the Program!

Amanda Dancsok

I am thrilled and excited to join the MD/PhD family at UBC! The journey ahead of us is long and daunting, but I couldn't be happier with the peers and mentors I have to help along the way.

I was born and raised a prairie girl in Regina, Saskatchewan, where I completed a Bachelor of Science degree in Biochemistry, with an honours focus on Microbiology. My research there focused on pathogen-host interactions and host specificity of bacterial genus *Pantoea*. I also worked as a research assistant in a lab researching differences in *Physcomitrella patens* moss growth in light and dark. Having fully explored all kingdoms of life besides the one I'm part of, I finally decided to make the switch to the study of medicine.

For my doctoral research, I will be working with **Dr. Torsten Nielsen**, who is himself an MD/PhD graduate and an excellent mentor for me. My work will focus on experimental therapeutics for the aggressive cancer synovial sarcoma. This cancer is a soft-tissue tumor of the extremities that affects mostly adolescents and young adults. It is a rare but devastating diagnosis, as it responds only transiently to chemotherapy, and surgery is often radical and disabling. I am working to find an alternative systemic treatment in order to improve prognosis and quality of life for these patients.

During my time as an undergrad, I co-founded and ran the University of Regina Amnesty International club for two years, organizing fundraising, letter-writing, and documentary-viewing events. I also worked for all four years as a tutor for the department of Math and Statistics! I spent my summers giving historical tours of the Saskatchewan Legislative Building and my winters in the ballet studio. I am an enthusiastic hobby ballerina, having achieved distinction in my Royal Academy of Dance Advanced Ballet examination. I have had a passion for dance from a young age, and one of my proudest accomplishments is having danced the title role in Alice in Wonderland the ballet. I also spent many years as part of a pre-professional theatre company, giving me the opportunity to perform in many different shows and productions. Besides my time in the studio, the lab, and the classroom, I enjoy downhill skiing, playing the guitar, reading, baking, and all that is fancy!

Meet Our Incoming Students - September 2013 (con't)

Parker Jobin

I am very excited to become part of the MD/PhD Program family here at UBC. Born and raised in Northern Alberta, I only came to Vancouver after two years spent at Grande Prairie Regional College. After two years here, I completed my Bachelor degree with honours in Biochemistry always with a goal of integrating my undergraduate interests one day with a career in Medicine. Voila!

As an undergraduate I have worked on multiple projects. First, I worked on a minor project investigating the dangers that coliform bacteria pose to people involved in rerouting waste water to irrigation and re-forestation efforts. More recently, I have worked in **Dr. Christopher Overall**'s lab investigating a phenomenal class of proteins called "moonlighters", proteins that possess non canonical and often exciting functions when found outside their localized environment in physiology. For my PhD, I plan to continue along a similar path with Dr. Overall, both investigating these proteins novel functions and how they are activated, deactivated and fine-tuned when exposed to certain enzymes such as matrix metalloproteinases.

Beyond being a nerd, I also have interests in my community and varsity athletics. As an administrator, I have chaired the Kidsport Alberta Aboriginal Sport Initiative for two years, responsible for organizing and coaching sporting camps for underprivileged youth in Alberta. As a volunteer, I have volunteered as coordinator for local Aboriginal youth programs, often through centers like the Vancouver Aboriginal Friendship Center. I am also pleased to compete in my fifth and final year of men's varsity volleyball for UBC while entering my first year of this combined program, traveling to China and to California this year to compete with our Universitas 21 partner universities and NCAA opponents. Beyond that, I enjoy the Metis fiddle and dance, plus all the amazing outdoor activities Vancouver has to offer.

Andrea Jones

I am thrilled to join the community of MD/PhD students and clinician scientists here at UBC! Born in Markham, Ontario, I completed a BScH in Life Sciences specializing in Neuroscience at Queen's University. Following my undergraduate training, I began graduate research here at UBC under the supervision of **Dr. William Honer** at the BC Mental Health and Addictions Research Institute. The Hotel Study is a longitudinal observational study following marginally housed individuals in Vancouver, many of whom are afflicted with psychiatric illness and poverty. My work aims to characterize physical, behavioural and social factors that contribute to the preservation or deterioration of mental health in this population. Recently, our group has demonstrated that frequent, harmful drug use, as captured by the Composite Harm Score, is associated with worse mental health outcomes, as well as physical and social health. I am excited to have the opportunity to continue this rewarding work among such esteemed and passionate investigators!

Outside of the lab and classroom, I engage in activities that support my passions of education, advocacy and adventure. As co-founder and president of the UBC Chapter for the Institute for Healthcare Improvement Open School (IHI UBC), I am driven to create a community that facilitates student education and engagement in health care quality improvement. Since its conception two years ago, this community has grown to over 200 members and offers events, scholarships and shadowing opportunities for students to learn from local health care leaders and dream big of about the system they would like to work within. I am also a mentor with the Mom2Mom Charity that supports single mothers struggling with poverty and health challenges. I currently volunteer with the UBC Aboriginal Health Initiative and previously with educational programs such as Brain Talks and Let's Talk Science. Further, despite being relatively new to outdoor exploration, I can often be found hiking, snowshoeing or skiing in the coastal mountains or enjoying hot yoga, tea and my all-purpose rice cooker on a rainy day!

I would like to thank the UBC MD/PhD family for their warm welcome this fall and am looking forward to more adventures to come!

Meet Our Incoming Students - September 2013 (con't)

Frank Lee

It is a great privilege to have the opportunity of integrating my interests in clinical medicine and basic science research as part of the MD/PhD Program at the University of British Columbia. I completed a four-year honours degree in Health Sciences with a minor in Biochemistry at McMaster University in Hamilton, Ontario. My decision to pursue the clinician-scientist path stemmed from various experiences that gave me aspirations of becoming both a physician and research investigator.

My interest in studying medicine largely materialized from the multi-disciplinary nature of my undergraduate coursework, my extra-curricular commitments and personal interests, as well as having the opportunity of shadowing physician specialists in an intensive care unit in Chai Wan, Hong Kong.

It was under the mentorship of Dr. Howard Chan at McMaster University where I was able to experience the fruits of basic science research while undertaking a research project on FVIII-deficiency and factor-specific anticoagulation. Having the opportunity to problem-solve and critically apply information made my research both stimulating and rewarding, of course with the ultimate goal of discovering new insights into improving medical care. I am looking forward to grow as a scientist while completing my PhD work in developing novel clot-busting agents under the guidance of **Dr. Edward Pryzdial** at the Centre for Blood Research.

These experiences together have coalesced into my decision to pursue the clinician-scientist path. My first semester in the MD/PhD Program has been amazing and I am excited to discover what the future has in store.

Born and having grown up in Toronto, settling down in Vancouver has been an exciting change! Throughout my life, I have found great joy in being able to balance my scholarly commitments with my lifelong passion for sports and the performing arts. I am currently involved in intramural sports and I hope to start a band of some sort in the near future. Also, exploring the many outdoor activities that Vancouver has to offer is a must!

Eric Zhao

I am excited to be part of the MD/PhD Program. A product of the information age, I grew up with computer technology and the internet like old childhood friends (although so far they have had much greater success at impacting humanity, which makes reunions awkward). I am passionate about technological solutions to medicine's big data problems.

I graduated in 2013 with a B.Sc. in honours physiology and a minor in physics. My honours thesis investigated demyelination in multiple sclerosis using magnetic resonance imaging and transcranial magnetic stimulation. Prior to this, I worked in computational analysis of genome sequencing data. I have had the opportunity to present at international conferences on both medical genetics and MRI. I have also worked with industry innovators in medical technology as a co-organizer for the Health Technology Forum, an initiative to connect medical professionals, technology developers, and entrepreneurs to improve healthcare.

My PhD research is in Bioinformatics, under the guidance of **Dr. Steven Jones**. I am part of a project at Canada's Michael Smith Genome Sciences Center at the BC Cancer Agency aiming to realise personalized cancer therapy on the basis of an individual's genome. Outside of research, I am involved as an executive member of the Medical Undergraduate Society, the Clinician Investigator Training Association of Canada (CITAC), and the Education Committee of UBC's Alma Mater Society (AMS). I am also a mentor for the Research EXperience (REX) at UBC, and an adjunct of the University Transition Program where I direct collaborative music.

I focus my interests through the lens of compassion and humanity, refined through ongoing volunteer work at the Vancouver General Hospital Palliative Care Unit and hobbies in the musical, performance, and visual arts. My goal is to develop an ability to provide excellent and compassionate medical care while pushing the horizons of medical innovation. I am grateful for the opportunity to study alongside stellar colleagues in mutual pursuit of this vision.

Student Publications 2013 (selected)

(01) Ali S, Hirschfeld AF, **Mayer ML**, Fortuno ES 3rd, Corbett N, Kaplan M, Wang S, Schneiderman J, Fjell CD, Yan J, Akhabir L, Aminuddin F, Marr N, Lacaze-Masmonteil T, Hegele RG, Becker A, Chan-Yeung M, Hancock RE, Kollmann TR, Daley D, Sandford AJ, Lavoie PM, Turvey SE. Functional genetic variation in NFKBIA and susceptibility to childhood asthma, bronchiolitis, and bronchopulmonary dysplasia. J Immunol 190(8):3949-58. 2013. [PMID 23487427]

(02) Cheung AM, **Nguyen LV**, Carles A, Beer P, Miller PH, Knapp DJHF, Dhillon K, Hirst M, Eaves CJ. Analysis of the clonal growth and differentiation dynamics of primitive barcoded human cord blood cells in NSG mice. Blood 122(18):3129-37. 2013. [PMID 24030380]

(03) **Copley MR**, Babovic S, Benz C, Knapp DJ, Beer PA, Kent DG, Wohrer S, Treloar DQ, Day C, Rowe K, Mader H, Kuchenbauer F, Humphries RK, Eaves CJ. The Lin28b–let-7–Hmga2 axis determines the higher self-renewal potential of fetal haematopoietic stem cells. Nat Cell Biol 15(8)916-25. 2013. [PMID 23811688]

(04) **Copley MR**, Eaves CJ. Developmental changes in hematopoietic stem cell properties. Exp Mol Med 2013 Nov 15;45:e55. doi: 10.1038/emm.2013.98. [PMID 24232254]

(05) **Crabtree A**, **Mercer G**, Horan R, Grant S, Tan T, Buxton JA. A qualitative study of the perceived effects of blue lights in washrooms on people who use injection drugs. Harm Reduct J. 2013 Oct 8;10(1):22. doi: 10.1186/1477-7517-10-22. [PMID 24099145]

(06) Ma HK, **Min C**, Neville A, Eva K. How good is good? Students and assessors' perceptions of qualitative markers of performance. Teach Learn Med 25(1):15-23. 2013. [PMID 23330890]

(07) Makarem M, Kannan N, **Nguyen LV**, Knapp DJ, Balani S, Prater MD, Stingl J, Raouf A, Nemirovsky O, Eirew P, Eaves CJ. Developmental changes in the in vitro activated regenerative activity of primitive mammary epithelial cells. PLoS Biol. 11(8):e1001630. doi: 10.1371/journal.pbio.1001630. Epub 2013 Aug 13. [PMID 23966837]

(08) **Mayer ML**, Blohmke CJ, Falsafi R, Fjell CD, Madera L, Turvey SE, Hancock RE. Rescue of dysfunctional autophagy attenuates hyperinflammatory responses from cystic fibrosis cells. J Immunol 190(3):1227-38. 2013. [PMID 23264659]

(09) Mohajerani MH, Chan AW, Mohsenvand M, Ledue J, Liu R, **McVea DA**, Boyd JD, Wang YT, Reimers M, Murphy TH. Spontaneous cortical activity alternates between motifs defined by regional axonal projections. Nat Neurosci Aug 25. doi: 10.1038/nn.3499. 2013. [Epub ahead of print] [PMID 23974708]

(10) Morin RD, Mungall K, Pleasance E, Mungall AJ, Goya R, Huff R, Scott DW, Ding J, Roth A, Chiu R, Corbett RD, Chan FC, Mendez-Lago M, Trinh DL, Bolger-Munro M, Taylor G, Hadj Khodabakhshi A, Ben-Neriah S, **Pon J**, Meissner B, Woolcock B, Farnoud N, Rogic S, Lim E, Johnson NA, Shah S, Jones S, Steidl C, Holt R, Birol I, Moore R, Connors JM, Gascoyne RD, Marra MA. Mutational and structural analysis of diffuse large B-cell lymphoma using whole genome sequencing. Blood 122(7):1256-65. 2013. [PMID 23699601]

(11) Sabatini PV, Krentz NA, Zarrouki B, **Westwell-Roper C**, Nian C, Uy RA, Shapiro AM, Poitout V, Lynn FC. Npas4 Is a Novel Activity-Regulated Cytoprotective Factor in Pancreatic β-Cells. Diabetes 62(8):2808-20. 2013. [PMID 23656887]

(12) Sutton LM, Sanders SS, Butland SL, Singaraja RR, Franciosi S, Southwell AL, Doty CN, Schmidt ME, Mui KK, Kovalik V, **Young FB**, Zhang W, Hayden MR. Hip14l-deficient mice develop neuropathological and behavioural features of Huntington disease. Hum Mol Genet 22(3):452-65. 2013. [PMID 23077216]

(13) **Westwell-Roper C**, Dunne A, Kim ML, Verchere CB, Masters SL. Activating the NLRP3 Inflammasome Using the Amyloidogenic Peptide IAPP. Methods Mol Biol 1040:9-18. 2013. [PMID 23852593]

(14) **Westwell-Roper C**, Ehses JA. Is there a role for the adaptive immune system in pancreatic beta cell failure in type 2 diabetes? Diabetologia. 2013 Dec 21. [PMID 24362729]

(15) **Westwell-Roper CY**, Ehses JA, Verchere CB. Resident macrophages mediate islet amyloid polypeptide-induced islet IL-1β production and beta cell dysfunction. Diabetes. 2013 Nov 12. [PMID 24222351]

(16) **Woodsworth DJ**, Castellarin M, Holt RA. Sequence analysis of T-cell repertoires in health and disease. Genome Med 5(10):98. 2013. [PMID 24172704]

(17) Xia J, Fjell CD, **Mayer ML**, Pena OM, Wishart DS, Hancock RE. INMEX–a web-based tool for integrative meta-analysis of expression data. Nucleic Acids Res 41(W1):W63-W70. 2013. [PMID 23766290]

(18) Xia J, Lyle NH, **Mayer ML**, Pena OM, Hancock RE. INVEX–a web-based tool for integrative visualization of expression data. Bioinformatics 29(24):3232-4. 2013. [PMID 24078684]

CSCI/CITAC Annual Conference and Young Investigators Forum

UBC was very well represented at the Canadian Society for Clinical Investigation (CSCI) / Clinician Investigator Trainee Associate of Canada (CITAC) Young Investigators Forum, 16-18 September 2013, in Ottawa. Four MD/PhD students were selected to present their outstanding research projects!

Cynthia Min, Year 3, "Improving the assessment of physician competence".
Julia Pon, Year 4, "Regulatory networks impacted by *MEF2B* mutations recurrent in non Hodgkin lymphoma".
Daniel Woodsworth, Year 4, "Biophysical models of T-cell toxicity".
Clara Westwell-Roper, Year 6, "Interleukin-1 receptor antagonist improves human islet amyloid polypeptide-induced islet dysfunction and limits early amyloid formation".

Good job, everyone.

Eric Zhao, Year I, was elected as Chair of the Special Projects Committee at CITAC.

CITAC engages in many different initiatives during each fiscal year. The Special Projects Committee oversees the timing, design and execution of these projects from year to year.

Hello from Taipei - Clara Westwell-Roper

Hello from Taipei! I was honoured to be selected as the educator for Team Canada at this year's Taiwan International Science Fair (20-26 January 2014). I have spent the past few months preparing for the trip with **Kiri Daust** (Telkwa, BC) and **Andrew Schulz** (Fraser Lake, BC), both grade 11 students chosen to represent Canada at the fair. It has been a privilege to work with these two young scientists; they have not only produced work that is competitive among the top projects from over 21 countries, but they have also been outstanding ambassadors for their communities and for Canada. We are also very proud of Kiri for winning a second place award in plant sciences!

Clara Westwell-Roper (centre)

Throughout the week I have had the opportunity to participate in a rich cultural exchange with other educators, who include high school science teachers, university faculty members, and representatives from organizations that support science fair programs. I have learned about science and research education in Egypt, Hong Kong, India, Indonesia, Italy, Japan, Korea, Malaysia, Mexico, New Zealand, the Philippines, Taiwan, Russia, Singapore, South Africa, Switzerland, Thailand, Tunisia, Turkey, and the USA. We have discussed common challenges and shared success stories, with a focus on the most effective models for combining the efforts of governments, science centres/museums, academic institutions, teachers, and parents to support inquiry-based learning in science, education, technology, and mathematics.

The three of us spent our last day exploring Taiwan before returning home. We were energized by the enthusiasm of over 200 high school students from around the world and with many new friends who share a common interest in supporting young researchers.

Comments and Suggestions

We welcome comments and suggestions to the UBC MD/PhD Program and to our newsletters.
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