



UBC MD PhD

UBC MD/PhD Program

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Newsletter – 2016 Winter Term

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

Student Research Forum & Open House

The 17th annual UBC MD/PhD Student Research Forum and Open House was held on Friday, 9 September 2016, 1:15-4:45 pm, at The Nest, UBC Campus. This annual event is to showcase the research by our students, and to talk about our program and answer questions from new students and interested faculty. 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. Stuart Turvey**, Professor, Division of Allergy and Immunology, Department of Pediatrics, UBC. The title of his talk was “The clinician-scientist wearing two hats”.

➤ Student presentations

Amanda Dancsok, **Parker Jobin** and **Adam Ramzy** talked about their experiences in their MD/PhD training.

➤ Poster presentations

Amanda Dancsok, “KDM2B: Setting the stage for aberrant silencing in synovial sarcoma?”

Parker Jobin, “The cytokine role of moonlighting extracellular tryptophanyl tRNA synthetase and their MMP regulation”

Philip Edgcumbe, “Augmented reality imaging for robot-assisted partial nephrectomy surgery”

UBC MD/PhD Program Admissions & Advisory Committee 2016-2017

The MD/PhD Admissions/Advisory Committee consists of four Ex-officio members and six appointed members. Ex-officio members hold standing spots on the committee because of their primary positions: the Associate Dean of Admissions, the Assistant Dean of Graduate & Postgraduate Education, the MD/PhD Program Director and the MD/PhD Associate Program Director. Appointed members are composed of clinician-scientists, basic scientists, graduate program advisors, student research supervisors and senior student representatives. To ensure that the MD/PhD Committee may benefit from maximum faculty involvement, diverse ideas and a healthy turn-over rate, the appointed members' terms are for three years, renewable once. The Committee meets at least twice a year to review the admissions process and to finalize the ranking of MD/PhD applicants. Members of the Committee also serve on student Thesis Research Supervisory Committees, PhD Comprehensive Examination Committees and PhD Final Oral Examination Committees.



Bruce Fleming, MD

Associate Dean, Admissions, Faculty of Medicine, UBC



Wendy Robinson, PhD

Assistant 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



Liam Brunham, MD/PhD (Alumnus, UBC MD/PhD Program)

Assistant Professor, Department of Medicine, UBC
Principal Investigator, Centre for Heart and Lung Innovation, UBC & St. Paul's Hospital



Jan Dutz, MD

Professor, Department of Dermatology & Skin Science, UBC
Scientist, Child and Family Research Institute



Eric Jan, PhD

Associate Professor, Department of Biochemistry and Molecular Biology, UBC
Graduate Admissions Advisor, Department of Biochemistry and Molecular Biology, UBC



Vicky Monsalve, PhD

Senior Instructor, Department of Pathology and Laboratory Medicine
MD Undergraduate Education



Pamela Hoodless, PhD

Professor, Department of Medical Genetics, UBC
Senior Scientist, Terry Fox Laboratory, BC Cancer Agency



Parker Jobin

Year 4, MD/PhD Student, UBC

UBC MD/PhD PROGRAM

MD/PhD Student Representative - Parker Jobin

Parker Jobin, Year 4 student, is our 2016-2017 student representative. **Paulina Piesik** is our alternate student representative and **Sandy Wright** is 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 **Parker**:

Being this year's student representative has been a surreal experience. I can say with certainty that being the representative of a program with so many outstanding young researchers, all of whom have demonstrated records of excellence both in and out of their labs, can make anyone feel a little insecure. However, my insecurity is overwhelmed by the pride of knowing I am part of the fast growing research strength of UBC's Faculty of Medicine. As a fourth year student past my comprehensive exam and far into my project under the supervision of **Dr. Christopher Overall** in the Department of Biochemistry and Molecular Biology, I am amazed of how much I have accomplished but humbled by how far I have to go. Thankfully, my fellow students and I enjoy the steady leadership of Director **Dr. Lynn Raymond** and Associate Director **Dr. Torsten Nielsen**. Their ceaseless energy has created a research training program in which we can thrive and is worthy of the envy it receives nationwide.

When I first entered college, I didn't picture myself as a future MD/PhD graduate. Starting a Science degree at Grande Prairie Regional College for two years before finishing my BSc at UBC, I only hoped medical school would be a possibility. Then one day I fell into what changed my understanding of what research was and what it could accomplish. I contacted Dr. Overall in my third year asking about a review one of his associates had written for Nature Reviews Drug Discovery about the problems drug design was facing trying to target the matrix metalloproteinases (MMPs) family of enzymes. For forty years, all anyone cared about these extracellular proteases was their classic function of degrading the extracellular matrix (ECM) that holds our tissues together and their importance to cancer aggressiveness. Unfortunately, more than fifty drugs have been designed to inhibit their role in cancer and none have gotten past clinical trials thanks to ineffectiveness and negative side effects. It turns out they have unexpected activities as signal molecules, transcription factors, and direct bactericidal agents, all of which are necessary for the healthy functioning of cells. One meeting later, I joined the Overall lab to characterize their beneficial roles in biology and aid in rational drug design.

Originally my work characterized the processing of intracellular proteins moving out of the cell into the matrix to become MMPs targets. Thanks to the diversity of international post-doctoral fellows and sabbatical visitors that come through the Overall lab, I've have opportunities to take on and incorporate new projects into my doctoral work looking at MMPs as outsiders moving into the cell to affect nuclear and cytoplasmic processes. As a member of a graduate and a clinical program, I also try to translate my research into designing clinical tests for the MMPs and targets I study as biomarkers for diseases including bacterial sepsis, rheumatoid arthritis, and systemic lupus erythematosus.

Beyond research and medical school, I've enjoyed becoming part of UBC's student culture. I served as the program's student representative to the Graduate Student Society governing body for graduate students across the university, helping fashion policies that promote graduate student success during their time at UBC. These days though, I try to focus on developing a sustainable work/life balance. My time is juggled between work and my amazing girlfriend, someone who is always there to remind me just how important family is with a demanding career and that there is more to life than work.




Wishing the best for 2017!



Social on 24 October 2016.

From left: **Paulina Piesik, Wissam Nassrallah, Andrea Jones, Philip Edgcumbe, Allen Zhang, Parker Jobin.**
Back: **Dave Twa, Jordan Squair, Alvin Qiu, Mark Trinder.**

Meet Our Incoming Students - September 2016

	<p>Wissam Nassrallah</p> <p>Wissam completed his BSc in Biomedical Science and his MSc in Neuroscience both at the University of Ottawa. During his graduate studies, he developed an interest in the field of electrophysiology and the rules governing synaptic plasticity. Specifically, he studied the implication of the endoplasmic reticulum in the homeostatic synaptic response. His thesis, “Store-operated response in CA1 pyramidal neurons exhibits features of homeostatic synaptic plasticity”, explored novel traits of homeostatic synaptic plasticity. Wissam will be working in Dr. Lynn Raymond’s laboratory during the MD/PhD Program, exploring the alteration of these synaptic rules in a mouse model of Huntington disease (HD). Wissam hopes that discovering key traits of the pathophysiology of HD would reveal new therapeutic targets of this terrible brain disorder. For leisure, Wissam enjoys composing musical pieces, going to the gym as well as spending quality time with family and friends.</p>
	<p>Alvin Qiu</p> <p>Alvin was born in Shanghai, China and grew up in Toronto, ON. Throughout his undergraduate degree, he was involved in a number of projects ranging from studying cancer-related signal transduction at the Princess Margaret Cancer Centre (Toronto, ON) to investigating molecular memory traces that underlie behavioural memory at the Montreal Neurological Institute (Montreal, QC). Alvin just completed his BSc in Anatomy and Cell Biology at McGill University and his Honour’s thesis explored the role of Small Optic Lobes (SOL) calpain in cleaving protein kinase Cs (PKCs) during learning and memory. For his PhD, Alvin is interested in cancer research and is beginning a project on epigenomics with Drs. Martin Hirst and Torsten Nielsen. At UBC, Alvin is also involved with the UBC Medical Journal (UBCMJ), the UBC Students in Health Annual Research Conference (SHARC) and intramural ultimate (on team Herniated Discs). Outside of school, Alvin enjoys running, swimming, music and watching reality TV.</p>
	<p>Mark Trinder</p> <p>Mark found his interest in research during his undergraduate studies that consisted of a thesis project which investigated the role of the beta cell insulin receptor on murine fetal pancreatic development. He subsequently switched fields to complete his MSc in Microbiology and Immunology at the University of Western Ontario under the supervision of Dr. Gregor Reid. His thesis was entitled “Mitigation of pesticide toxicity by food-grade lactobacilli” and involved characterizing novel mechanisms of probiotic function. Mark’s research during the MD/PhD program will focus on the interplay between lipoproteins and sepsis. Sepsis is a systemic exaggerated host immune response to infection that has a high mortality rate, limited effective treatments, and is a considerable economic health care burden. The Brunham lab and collaborators at St. Paul’s Centre for Heart and Lung Innovation, where Mark proposes to work, have observed that patients with low levels of high density lipoprotein (HDL) have a poor sepsis prognosis. However, mechanistic understanding of why HDL levels are low in certain septic patients is unknown. Differences in sepsis pathogenesis and outcomes has the potential to be explained by variations in human genetics. Mark is hopeful that this work will provide insights into improved management and generation of better treatment options for sepsis. For fun outside academics, Mark attempts to run ultramarathons, brew beer (can’t escape microbiology), and drum.</p>

Welcome to the Program!

MD/PhD Student Profile - Philip Edgcumbe

Congratulations! **Philip Edgcumbe**, Year 6 MD/PhD student, received the Nestor Korchinsky Student Leadership Award at the UBC Student Leadership Conference on 7 January 2017. In honour of **Dr. Nestor Korchinsky**, the founder of UBC Recreation, this award is to recognize one exemplary student leader for his/her distinguished level of character, impact, and service to the campus community.



(Photo: **Dr. Nestor Korchinsky** and **Philip Edgcumbe**)

Philip has made UBC a better place by creating companies, patents, licences, clubs and mentorship programs. Philip has also been an excellent UBC ambassador through an academic exchange program in India, research in Germany and entrepreneurship in Silicon Valley (see story on next page). Behind all of these accomplishments is a person with integrity, compassion, kindness and humility who is quietly focused on finding a fulfilling life and keen to bring everyone along with him on that journey.

Philip is an innovator, entrepreneur, visionary, and community-builder. His goal is to improve the lives of millions of patients by pursuing his passion of biomedical engineering research. As an MD/PhD student at UBC, Philip is learning to speak the languages of doctors and engineers. He has invented, patented and licensed a medical device and has been part of two biomedical start-up companies. He spent the summer of 2016 in Silicon Valley at Singularity University where he focused on the application of exponential technology in medicine.

Philip is passionate about advocating for and building the UBC student community. To that end, he has served as the Science One Survivors President, Vice-Chair of the UBC Vancouver Senate, Chair of the UBC Alma Mater Society (AMS) Advisory Board for Business and Administration and co-founder of the UBC Technology in Medicine Club. He is energized by meeting and working with other student leaders who share his vision for a better university and world. He is a recipient of the UBC Thunderbird Men's Field Hockey Award, the Ahmad Bhimani Memorial Scholarship, the Vanier Canada Graduate Scholarship, UBC Wesbrook Scholar Award, the HSBC Emerging Leader Scholarship award, the and the Nestor Korchinsky award.

Philip's speech at the award ceremony:

Hello UBC and thank you for the award. Now that we've spent a day together learning and dreaming about big ideas, I am extra fired up to be here. And here's our challenge, we have to convert our collective energy and potential into action. So, let me give you two leadership principles that I've learned over the years.

First, empower your teams. I've been successful when I've stepped back and given define roles and real responsibility to my team members and developed a shared vision.

Second, attack problems in radically different ways. That is how we will leave our mark. Jessica, our keynote speaker wasn't satisfied with following the establishments playbook of incrementally increasing charitable giving and instead she attacked poverty with by establishing Kiva for micro-lending.

Dr. Korchinsky created Day of the Longboat and Storm the Wall. Those started as fun and radical ideas that have become iconic UBC traditions in which tens of thousands of students have participated. This legendary man, Dr. Korchinsky, empowered generations of UBC students by creating a nationally renowned intramural sports program serving as Director of Intramurals for 33 years. Bottom line, I feel humbled, honoured and inspired to receive an award in his name.

Thank you.



Dr. Lynn Raymond, Director of the MD/PhD Program nominated Philip for this award — Leader, visionary, disrupter, entrepreneur, innovator, athlete, and community-builder are all words that accurately describe **Philip Edgcumbe**.

To Silicon Valley and Back Again – Philip Edgcombe

In the summer of 2016, **Philip Edgcombe** was a participant in the Singularity University Global Solutions Program (GSP). Philip lived for 10 weeks in the heart of Silicon Valley in California on the Singularity University campus at the NASA Ames research center. He joined 78 participants from 40 countries who had bold ideas and big dreams about changing the world for the better with technology and entrepreneurship. We asked Philip to share his thoughts about his Singularity University experience.



My time at Singularity University was a phenomenal experience that changed my perspective about what is possible. I have always felt grateful to be a UBC MDPHD student. Society invests in us and the rigorous dual-degree program empowers us. We are being trained to lead the translational research agenda as clinician-scientists in our respective specialties and to bring medical innovation and to improve patient care for all Canadians. This is why I am in the MDPHD program. I aspire to help my patients as well as to have an impact on the entire medical system.

I applied to the Singularity University for three reasons: I hoped to meet change-makers from around the world, learn about entrepreneurship from the best and brightest of Silicon Valley and better understand the impact of “exponential technology” on our future. The experience has prepared me to maximize my impact as a clinician-scientist and given me the tools to pursue my passion of commercialization of medical technology.

Photo: The SU mantra - How will you positively impact a billion people?

As the name suggests, the Global Solutions Program was global in nature. The 80 program participants came from over 40 countries and diverse backgrounds. The average age of the participants was 33 and the class included entrepreneurs, engineers, scientists, activists, investors and a few artists and designers. Almost everyone had reached a point in their career where they had taken a risk and charted their own course in pursuit of a big bold objective or passion they had. To give you an idea of the participants, I've listed a few: Rouba Mhaisen (UK), an economist, activist and development expert who runs the Sawa Foundation which supports Syrian refugees. Sourav Sinha (USA), the co-founder and CEO of Oncolinx which develops antibody-drug conjugates. Cristina Fonseca (Portugal), the co-founder of Talkdesk which is a platform for companies to create call centers. Maïke Henningsen from Germany, an MDPHD OBGYN with 10 years of gynecology cancer research and clinical experience. Joanna Wei from China, founder of Beijing's maker space and angel investor.

While the participants at GSP were phenomenal, so too was the academic programming. We had five weeks of intense lectures from experts from fields such as digital health, climate change, manufacturing, computing networks, and many others. The lecturers introduced us to the state of the art in their fields and often made predictions about what new technology we could expect in the next 5-10 years. We heard inspirational stories and tips and tricks from many successful entrepreneurs. However, the real lesson for me was discovering my imagination again. Optimism and out-of-the-box thinking pervaded GSP. When we pitched ideas we were consistently challenged to go bigger and bolder. We were constantly reminded that big corporations are the masters of incremental improvements and we will make our mark through disruptive innovations and unconventional ideas and strategies.

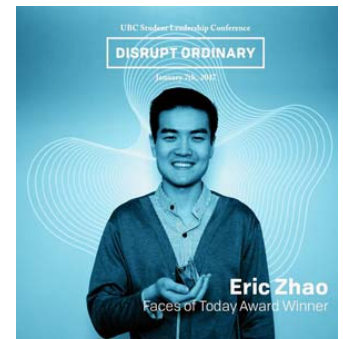
In the second half of the program the emphasis shifted to applying knowledge to build companies. The mission of Singularity University is to educate, inspire & empower leaders to apply exponential technologies to address humanity's grand challenges. My team, called Lume Biotics, developed a design and business plan for a device to treat vaginal bacterial infections with phototherapy instead of antibiotics. My teammate, Maïke, has continued working on the concept of phototherapy in Berlin in Germany and recently won 80,000 Euro of in-kind engineering support to develop such a device.

Now that my GSP adventure has come to an end, I am back at UBC and focused on finishing my PhD research. In addition to a global network of friends and new inspiration for dreaming big and starting companies, my reading list has also changed. If you'd like to get a taste of Singularity University through reading I recommend Abundance by Peter Diamandis, How to Create a Mind and The Singularity is Near by Ray Kurzweil and Superintelligence by Nick Bostrom. You can learn more about Singularity University and GSP at <https://su.org/programs/global-solutions-program/>. Please feel free to get in touch with me if you have any questions about my experience.

Sincerely,
Philip Edgcombe

MD/PhD Student Profile - Eric Zhao

Congratulations to Eric Zhao, Year 4 MD/PhD student. He was one of the Faces of Today winners at the UBC Student Leadership Conference, 7 January 2017. The Faces of Today Awards are intended to recognize outstanding student leaders for their sustained leadership achievements and their efforts to innovate, improve and shape the life on and off campus. Every year, 8 student leaders are selected as the Faces of Today winners.



During his time at UBC, Eric was involved in several programs and has served the UBC community in several roles. Eric was an orientations squad leader and Science Peer Academic Coach. As VP Academic of the UBC Physics Society, he created a tutoring service targeted at first year students. He volunteered with the Transition Program, an accelerated secondary school, teaching music for their annual winter concert and even giving two commencement addresses. During medical school, Eric was a mentor in the Undergraduate Research Opportunities Research Experience Program. He also served as the President of the UBC Medical Undergraduate Society and implemented the Medical Education Committee in order to ensure the needs of members are met and student leaders receive the support they need. Eric maintains positive physical and mental wellness habits, and is vocal on topics of mental health and physician burnout. Working with the Mental Illness Network for Destigmatization, he has helped to plan mental health promoting initiatives for medical students and the UBC community.

Eric is an all-around student leader, possessing vision, commitment, and a sensitivity to his team members, his peers, and himself. He has consistently become engaged at a high level in nearly every community he has been a part of. In doing so, he has made impressive accomplishments, but takes most pride in his approachable character, valuing diverse viewpoints and experiences. Most of all, he acts in alignment with his values, and craves a challenge to which he can apply a creative and often unconventional solution.

- ✓ As a person and leader, Eric is approachable and generous with time, always genuinely interested in offering support to colleagues. This quality has allowed Eric to understand and address the challenges his peers face and seek targeted solutions.
- ✓ As a learner and leader, Eric appears to ceaselessly seek the path of most resistance. He takes joy in challenges, finds intrinsic value in personal development, and maintains alignment between his actions and values. In the process, he has been involved not only at the regional level, but also nationally, serving on committees within the Canadian Federation of Medical Students and the Canadian Institutes of Health Research.
- ✓ As an MD/PhD student and Vanier Scholar, Eric balances his leadership endeavours with a full medical courseload and extensive research activities. He gladly fills his evenings with meetings and teleconferences, and (very importantly) socializing and engaging with his peers in medicine and graduate school. He seems to be at a different conference or national meeting every other month, and takes great joy in his various engagements.

Eric's capacity to maintain balance in his responsibilities is impressive and will undoubtedly allow him to keep consistently engaged well into the future. Well done, Eric.

Eric Zhao passed his comprehensive examination on 6 October 2016 and had been admitted to PhD candidacy. His research project is entitled "Dynamics and clinical implications of a homologous repair deficiency mutation signature". His research supervisor is **Dr. Steven Jones**, Graduate Program in Bioinformatics. Congratulations!

The MD/PhD Comprehensive Examination format consists of two parts: CIHR style research grant proposal in an area of research, and an oral examination.

CSCI/CITAC Annual Conference and Young Investigators Forum

Three MD/PhD students presented their research at the Canadian Society for Clinical Investigation (CSCI) / Clinician Investigator Trainee Associate of Canada (CITAC) Young Investigators Forum, 21-23 November 2016, in Toronto, Ontario.

Andrea Jones, Year 4, “MD/PhD training in Canada: results from a national trainee and program director review”

Adam Ramzy, Year 4, “Removing and replacing insulin in the β -cell”

Eric Zhao, Year 4, “Guiding platinum-based chemotherapy in breast cancer with a somatic mutation signature of homologous recombination deficiency”

UBC Students in Health Annual Research Conference

The MD/PhD Program, UBC Medical Undergraduate Society and UBC Medical Journal held the Students in Health Annual Research Conference (SHARC) on 17 October 2016 at the Life Sciences Centre. Students came and discovered the diverse range of projects being conducted by UBC students involved in biomedical health research. This year’s event was held in conjunction with Flexible and Enhanced Learning (FLEX) Activity Day and featured a variety of scholarly projects in addition to research.

MD/PhD students were SHARC executives for the event.

From left:

Parker Jobin - Senior Program Manager
Alvin Qiu - Junior Program Manager
Paulina Piesik - Senior Co-chair
Mark Trinder - Junior Co-chair

Thank you.



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, 2894 Detwiller Pavilion, 2255 Wesbrook Mall, UBC, Vancouver, BC, Canada V6T 2A1. Phone: 1-604-822-7198 Fax: 1-604-822-7917
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