MD/PhD Student Funding – Update

The UBC MD/PhD Program works to integrate clinical and research training right from the beginning and provides adequate financial support throughout these studies, to maximize chances that our students will continue on to successful careers combining medicine and research. A few years ago, the Canadian Institutes of Health Research (CIHR) pulled funding from MD/PhD programs nationally. This was a gradual phase out which becomes total this year, so the continuing health of our program and ability to recruit students is dependent on funding from other sources.

Over the years, we have been able to accept only a certain number of new students per year based on the support we receive from The Faculty of Graduate and Postdoctoral Studies, the Faculty of Medicine, and philanthropic donations from supporters including the Constance Livingstone-Friedman and Sydney Friedman Foundation, Naotaka Ide and Dr. & Mrs. Anthony W. Chow. The other particularly important source of support for our students has been the versatile funding we have been provided by four UBC-affiliated research institutes: BC Cancer, the BC Children’s Hospital Research Institute, the Providence Health Care Research Institute and the Vancouver Coastal Health Research Institute.

We are proud to be able to thank these four institutes (and their research directors, Drs. Kim Chi, Stuart Turvey, Darryl Knight and David Granville) for recently committing to renew their funding support for MD/PhD student stipends for the next six years (2022-2028), at an increased stipend level per student.

These resources from our research institute benefactors give us the opportunity to offer more places in our program than would otherwise be possible. There are many brilliant aspiring young clinician-scientists who apply to our program each year. We want to be able to provide a training opportunity for as many as possible to develop their skills to improve the health of Canadians and of people around the world.

Our students have and continue to be distributed among the multiple research sites that are affiliated with UBC. The renewed research institute funding may even provide us an opportunity to leverage more funding from external organizations. Training Clinician-Scientists is a recognized need in Canada; recruitment and retention of physicians who make a career of research is the topic of a task force recently initiated by the CIHR. Over the past several years UBC has built premier programs for training clinician-scientists. With more funding, we hope to further increase the number of students in the MD/PhD program.

Thank you to all our supporters. We are proud to present the largest ever class of new students we have ever recruited in a single year. In 2021, we made 8 offers, all of which were accepted. You can “Meet our Incoming Students” on Page 8 of this newsletter!
Student Research Forum & Open House

The 22nd annual UBC MD/PhD Student Research Forum and Open House was held virtually via UBC Zoom on Wednesday, 1 September 2021, 1:00-5:00 pm. Opening remarks by Dr. Torsten Nielsen, Director of the MD/PhD Program, set off the annual event, where we showcase the research being done by our students, and answer questions from prospective new students and even from faculty interested in our program. We thank all the participants, including those from outside of Vancouver, who joined our second virtual open house.

Sincere thanks to our invited guest speaker, Dr. Quynh Doan. Dr. Doan’s research program is comprised of projects evaluating pediatric emergency department patterns of use, the quality of the care provided, and the efficiency of service delivery. She gave an inspiring talk on her clinician-investigator training path and answered questions from our students and prospective applicants. Thank you, Dr. Doan.

Student presentations:

Dhiraj Mannar presented “Structure, function, and broad neutralization of SARS-CoV-2 variant spike glycoproteins”.

Shayda Swann presented “Healthy aging in women living with HIV”.

Katrina Besler talked about her research “Smooth muscle cell lysosomal acid lipase in atherosclerosis” and learning experiences in her MD/PhD training.

They received great feedback from the audience.

Thanks also to Andy An and Maryam Vaseghi-Shanjani, our student representatives, for organizing the event. It was a fun-filled learning experience for everyone.
The MD/PhD Admissions/Advisory Committee consists of ex-officio and appointed members. The former hold spots because of their primary positions: the Assistant Dean of MD Admissions, the Associate Deans of Undergraduate Medical and of Graduate & Postgraduate Education, the MD/PhD Program Director and Associate Director. Appointed members are clinician-scientists, basic scientists, graduate program advisors, research supervisors and student representative. To ensure that the MD/PhD Committee brings diverse ideas and a healthy turn-over rate, the appointed members’ terms are usually for three years. The full Committee meets at least twice a year to review the admissions process and to finalize the ranking of MD/PhD applicants, as well as to discuss program policy. Members of the Committee undertake admissions interviews, and also frequently serve on MD/PhD students’ Thesis Research Supervisory, PhD Comprehensive Examination and PhD Final Oral Examination Committees.

Shahin Shirzad, MD  
Assistant Dean, Admissions, Undergraduate Medical Education, Faculty of Medicine, UBC

Cheryl Holmes, MD  
Associate Dean, Undergraduate Medical Education Program, Faculty of Medicine

Michael Hunt, PhD  
Associate Dean, Graduate & Postgraduate Education, Faculty of Medicine, UBC

Torsten Nielsen, MD/PhD  
Director, MD/PhD Program, UBC  
Professor, Department of Pathology & Laboratory Medicine, UBC

Liam Brunham, MD/PhD (Alumnus, UBC MD/PhD Program)  
Associate Director, MD/PhD Program, UBC  
Associate Professor, Department of Medicine, UBC  
Principal Investigator, Centre for Heart Lung Innovation, UBC & St. Paul’s Hospital

Maureen Ashe, PhD  
Associate Professor, Department of Family Practice, UBC  
Research Scientist, Centre for Hip Health and Mobility  
Canada Research Chair in Community Mobility

Karen Cheung, PhD  
Professor, Department of Electrical & Computer Engineering, UBC  
Associate Director, School of Biomedical Engineering, UBC  
Director, Graduate Biomedical Engineering Program, UBC

Thalia Field, MD  
Associate Professor, Department of Medicine, UBC  
Neurologist, Vancouver Stroke Program  
Sauder Family and Heart and Stroke Foundation Professorship of Stroke Research

Melanie Murray, MD, PhD  
Assistant Professor, Department of Medicine, UBC

Lynn Raymond, MD, PhD  
Professor, Department of Psychiatry, UBC  
Director, Djavad Mowafaghian Centre for Brain Health, UBC  
Louise A. Brown Chair in Neuroscience

Paul Yong, MD/PhD (Alumnus, UBC MD/PhD Program)  
Associate Professor, Department of Obstetrics & Gynaecology, UBC  
Research Director, Centre for Pelvic Pain and Endometriosis

Andy An  
Year 4, MD/PhD Student, UBC
2021 Faculty of Medicine Distinguished Achievement Awards

Each year, the Faculty of Medicine recognizes faculty members who exemplify exceptional contributions in the areas of education, research and/or service, and who are dedicated to advancing both the Faculty’s values and vision of transforming health for everyone. Congratulations to the 2021 recipients affiliated with our program, who swept the two available awards for clinical/applied research:

Excellence in Clinical or Applied Research
Recognizes outstanding clinical or applied research and scholarly contributions.

Julie Bettinger
Pediatrics and School of Population and Public Health

Julie Bettinger is a vaccine safety scientist at the Vaccine Evaluation Center, a leading center for applied vaccine research in Canada. Her research interests include vaccine safety, vaccine hesitancy and vaccine preventable diseases, as well as attitudes and beliefs around immunization uptake and use. She is also the epidemiologist for the Immunization Monitoring Program, an active national surveillance system for vaccine preventable diseases and vaccine adverse events in 12 pediatric tertiary care centers across Canada and the lead investigator for the Canadian National Vaccine Safety (CANVAS) network, an active surveillance network that monitors the safety of vaccines. Dr. Bettinger was until recently a member of the MD/PhD committee, but by mutual agreement she ended her appointed term early so she could focus on her national role helping us all to get through the COVID-19 pandemic!

Torsten Nielsen
Medicine and Pathology & Laboratory Medicine

And congratulations also to our very own Program Director, Dr. Torsten Nielsen! For those of you who don’t know him, here is a bit of his story: Torsten grew up in North Vancouver, across the street from Cates Park. As a child, he was inspired by Terry Fox to dedicate his life to cancer research. His MD/PhD (earned at McGill) gave him opportunities to succeed in translational research as a resident, which ultimately secured a faculty position within UBC. Since 2003, he has held competitive funding from Canadian and US agencies for his many research programs. Dr. Nielson was honoured for his work developing new cancer diagnostics – including a breast cancer test that is FDA cleared and used internationally and a sarcoma test that has become the new first line molecular diagnostic in British Columbia – as well as for foundational research that ultimately led to new therapies for tenosynovial giant cell tumor.
MD/PhD Student Liaison – Andy An

Andy An, Year 4 student, is our 2021-2022 student liaison, supported by alternate student representative Maryam Vasegh-Shanjani. The major responsibility of the student liaison is to sit on the MD/PhD Admissions/Advisory Committee. Other duties include helping to organize the MD/PhD monthly student meetings/seminars, student socials, attending national MD/PhD meetings and presenting at student events to promote the MD/PhD Program. Prospective applicants are welcome to contact not only Andy, but any of our students to ask questions.

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

Message from Andy:

I’m Andy, a fourth year in the program and the student representative for the 2021-2022 year.
I grew up in Vancouver and completed my BSc at UBC in Pharmacology, with a minor in Commerce, before entering the MD/PhD program.
During my undergraduate degree, I got my first exposure to research in Dr. Stefan Taubert’s lab, where I investigated the role of the eukaryotic elongation factor 2 kinase in the context of cancer growth and neurodegenerative disease development in the nematode Caenorhabditis elegans. Yes, worms were literally what baited me into research, and I am thankful for the guidance and mentorship I received in the Taubert lab to support my early research career.

Around the end of my undergraduate degree, I also became fascinated in immunology after taking some upper year immunology courses. I was convinced that one of the few not fully explored frontiers in medicine was the immune system, and I wanted to be part of the gold rush. With this in mind, I decided to join Dr. Bob Hancock’s lab when I entered the MD/PhD program, focusing on a disease called sepsis, a life-threatening condition caused by the body’s severe immune response to infection. Every year, 99,000 Canadians suffer from sepsis and is involved in 1 in 5 deaths worldwide. Furthermore, those who survive sepsis can develop long-term symptoms such as a persistent impairment of the immune system. This weakens the ability of sepsis survivors to fight infections and increases their risk of rehospitalization and death. It is not well understood why the immune system remains dysfunctional months after sepsis. To answer this question, we need to track how the immune system of a sepsis patient changes over time. My project will examine changes in gene expression (what genes turn on or off) in patients during and after sepsis, to determine what immune pathways are malfunctioning. At the same time, I will investigate changes in DNA methylation, an epigenetic process where methyl group molecules are added to areas of DNA to turn genes off for long periods of time, which may be “locking in” the changes in gene expression to cause long-term immune dysfunction. Sepsis is also the most common complication of COVID-19 and COVID-19 survivors can have similar long-term symptoms as sepsis survivors (think “Long COVID”), so I have also been studying immune dysfunction in a group of COVID-19 patients and survivors. My hope is that the results of my research will identify potential pathways to target to reverse immune dysfunction and return patients and survivors to their pre-sepsis quality of life.
MD/PhD Student Liaison – Andy An (continued)

Outside of research, I like to spend my time in the pottery studio or creating digital art. I also am a big believer in making medical science accessible, so I create YouTube videos about diseases and drugs on my channel Medicurio, as well as write and edit science communication blog posts as part of the Centre for Blood Research Knowledge Translation Committee. You can also find me hiking in this beautiful province’s incredible outdoors or taking care of my own slice of nature at home with my houseplants and my aquariums.

2021 has been a difficult year for many of us, and there are many people I’d like to thank for helping all the students in our program, especially Dr. Torsten Nielsen and Dr. Liam Brunham for their leadership during another tumultuous and uncertain year. This year we also had to say goodbye to Jane Lee, our outgoing program coordinator, who deserves a wonderful and restful retirement after playing such an integral part (since the start of our program!) in making sure that the program ran smoothly and that all the students had multiple opportunities to excel and receive accolades for their work. A warm welcome as well to Naureen Khan, our new coordinator, who has already been a great source of support for students despite the steep learning curve! Also, thank you Maryam Vaseghi-Shanjani, our alternate student representative, for helping me organize another successful Open House as well as our hybrid seminars, which have been a great way for students to finally meet in-person and build those valuable interdisciplinary connections (and eat a delicious dinner!). Lastly, thank you to my cohort of Lianne Cho, Katrina Besler, Rohit Singla, and Luke MacLean – I am lucky to have such wonderful group of brilliant people to talk science (but more importantly talk non-science).

I am excited to see what 2022 brings to our program, but I know many things are for certain – we will get wonderful new students in the program, many students will receive prestigious awards for their fantastic research, and we will have brilliant people graduate from the program and continue making a positive impact in their communities.

MD/PhD Social

First in-person social after the lockdown!!! Andy organized all these below socials:

When: Saturday 21 August 2021
Where: Jericho Beach Park East
MD/PhD Social (continued)

Social dinner after Jordan Squair’s presentation on 27 September 2021.

Social dinner after MD/PhD building bridges seminar on 18 October 2021.
Meet Our Incoming Students – September 2021

Maggie Chopra grew up in Calgary, Alberta and found her passion for research at a young age by participating in science fair competitions throughout grade school. Maggie completed her BHSc at McMaster University specializing in the Biomedical Sciences. During her undergraduate studies, Maggie investigated the mechanisms that maintain early allergic memory against food allergens in Dr. Manel Jordana’s laboratory. During her summer months in Calgary, Maggie worked under the supervision of Dr. Antoine Dufour at the University of Calgary where she applied discovery-based mass-spectrometry tools to characterize protein signatures of various healthy and disease tissues such as multiple sclerosis and ulcerative colitis. For her thesis project, she studied how acute aerobic exercise changes the spinal cord proteome in a mouse model of multiple sclerosis. During her doctoral studies, Maggie hopes to continue developing tools for predicting and treating chronic immune diseases under the supervision of Dr. Kelly McNagny. Outside of her studies, Maggie enjoys exploring new restaurants and café’s, doing paint-by-number kits, playing basketball and spending time outdoors with her friends and family.

Saif Dababneh grew up in Jordan and moved to Ottawa, Canada in 2013. Saif completed his BSc in Translational & Molecular Medicine at the University of Ottawa. During his undergraduate studies, Saif undertook several research projects investigating the development and function of the heart’s muscle and the heart’s electrical conduction system at the University of Ottawa Heart Institute, under the supervision of Dr. Kyoung-Han Kim. His honours thesis focused on uncovering the role of the Irf1 transcription factor in the heart’s atrioventricular conduction system. Consistent with his research goals, Saif was also involved in advocacy work with the Heart & Stroke Foundation of Canada. Saif aims to pursue a PhD with the objective of uncovering the pathophysiology and genetic determinants of sudden cardiac death, particularly in patients with an electrical heart disorder known as catecholaminergic polymorphic ventricular tachycardia. Saif hopes this research can accelerate the development of personalized treatments for patients with electrical heart abnormalities. Outside of academics, Saif enjoys photography, soccer, and spending time with family and friends.

Elizabeth Gregory grew up right here in Vancouver, BC. She completed her BSc in biopsychology at the University of Victoria in 2019. During undergrad, she spent her summers home in Vancouver, working as a research assistant in the Non-Invasive Neurostimulation Therapies Lab, where she discovered her passion for clinical psychiatric research and studying new and innovative ways of treating psychiatric disorders. Following undergrad, Elizabeth went on to pursue a Master’s degree under the supervision of Dr. Fidel Vila-Rodriguez. Her thesis investigated the cognitive benefits of transcranial magnetic stimulation, a well-tolerated and effective treatment, for patients with major depressive disorder. For her PhD, Elizabeth will continue to work with Dr. Vila-Rodriguez, with the goal of improving transcranial magnetic stimulation delivery methods, by using patients’ functional brain activity to personalize their treatment parameters. In her spare time, Elizabeth enjoys any outdoor activity she can bring her dog along for, taking on Do-It-Yourself projects, and going for runs.

Christopher Lee was born and raised in Victoria, B.C. and completed his BSc at the University of Victoria with a major in Biology. During his undergraduate degree, Chris researched in the lab of Dr. Stephanie Willerth, and worked on the engineering of pluripotent stem cell and diseased cell neural tissue models. Specifically, he developed a 3D-printed, hydrogel-based model for glioblastoma multiforme.
Meet Our Incoming Students – September 2021 (continued)

He then completed an MSc in Neuroscience at the University of British Columbia under the supervision of Dr. Haakon Nygaard, where his research focused on investigating the cellular aspects of progranulin-mutant frontotemporal dementia using patient-derived, reprogrammed stem cells that had been differentiated into a neural lineage. Chris’s PhD project will continue under the supervision of Dr. Nygaard, and will focus on developing 3D, patient-derived, pluripotent stem cell-based neural tissue models of Alzheimer’s disease for the investigation of disease pathophysiology and screening of potential therapeutic drugs. Outside of his research, Chris is an avid outdoorsy-type and enjoys hiking, backpacking, rock climbing and bouldering. He also spends much of his free time playing field hockey or chess, and training in Olympic weightlifting.

Erica McDonald completed her BSc in Health Studies at the University of Waterloo. She was first exposed to clinical research while completing co-op work terms at Sunnybrook Hospital and The Hospital for Sick Children in Toronto, Ontario. Through these experiences Erica discovered her keen interest in epidemiology and working with children and youth. In her final year of undergraduate studies, Erica led an investigation exploring community level marginalization and emergency department wait times. Interested in growing her research skills, Erica remained at the University of Waterloo where she spent her MSc exploring discrepancies on mental health assessments between parent proxy-report and youth self-report. With the desire to leverage these experiences, Erica will be completing her doctoral studies under the supervision of Dr. Quynh Doan at BC Children's Hospital. Using machine learning methods, Erica’s PhD project will endeavor to predict, based on past healthcare encounters, patient workload in a pediatric emergency department. It is her hope this project will improve patient safety, satisfaction, and emergency department efficiency by supporting task allocation. Outside of her studies Erica enjoys yoga, running, and any adventure that includes ice cream.

Kira Tosefsky was born and raised in Vancouver and completed her Honours B.Sc. in Cellular, Anatomical and Physiological Sciences at UBC. She began her research work under the supervision of Dr. Carolyn Brown, studying the epigenetic mechanisms of X-chromosome inactivation and escape from inactivation. She later developed an interest in the field of protein palmitoylation through her work in Dr. Elizabeth Conibear’s lab, and pursued this interest further as a summer and honours thesis student in Dr. Shernaz Bamji’s lab. Her thesis focused on the role of activity-dependent hippocampal protein palmitate turnover in synaptic plasticity. She intends to continue working in the cellular neuroscience field for her PhD, examining the role of neuron-glia interactions in neurodegenerative diseases under the supervision of Dr. Brian MacVicar. Outside of research, Kira enjoys running, biking, dancing and spending time with friends and family.

Amy Wang has always been passionate about improving health outcomes through research. She immigrated to Canada in 2004 and completed an Honours BSc. at UBC. During her degree, Amy investigated bone and brain cancers in a 16-month Co-op with Dr. Poul Sorensen at the BC Cancer Research Institute. She then helped develop a diagnostic test for soft tissue sarcomas in her undergraduate thesis, in addition to presenting at conferences at Harvard, Stanford, and the European Molecular Biology Laboratory. Amy will continue her research on sarcomas during her PhD, with a focus on characterizing oncogenesis and investigating drug treatments in synovial sarcoma. She is also involved with the Canadian Cancer Society and Vancouver Coastal Health, in addition to her hobbies of photography, hiking, and badminton.

Peipei Wang grew up in Hamilton, Ontario and completed a BSc in Integrated Science at McMaster University with a concentration in biochemistry and a minor in statistics. In her third-year project and honours thesis, she investigated the effects of acute cannabis smoke exposure on in vivo lung immune response under the supervision of Dr. Martin Stampfli and Dr. Jeremy Hirota at the McMaster Immunology Research Centre. Throughout her undergraduate studies, Peipei also worked on a research project to statistically determine clinical factors that identify children with a higher risk of vertebral fracture from a dataset of children with bone-related disorders across Canada. This work was conducted under the guidance of Dr. Jinhui Ma in the Department of Health Research Methods, Evidence, and Impact at McMaster. In her PhD, she hopes to combine her interests in immunology, statistics, and bioinformatics in a manner that applies to both wet lab and clinical research contexts. Outside of school, Peipei spends her time running, playing piano, playing ultimate frisbee, or reading a good sci-fi book.
Kudos

Katie Baillie – MD/PhD student representative, Faculty of Medicine, Graduate Student Advisory Group (2021-2022); Nettie Polischuk Memorial Cancer Research Fund graduate research award.

Lianne Cho – Accepted into UBC Public Scholars Initiative:
The UBC Public Scholars Initiative is an innovative award program at UBC that supports PhD students undertaking non-traditional academic projects that overtly benefit the public good. In addition to project funding, the program offers scholars workshops on advocacy-based work and a network of peers who are interested in making similar impacts during their doctoral training. For her project, titled "Community Brain Art", Lianne is working with other trainees, clinicians, and community members on a knowledge translation initiative that aims to bring Hotel Study findings (regarding brain health in a homeless and precariously housed sample) to the broader community through visual art. See this link for more information about the initiative and Lianne's work: https://www.grad.ubc.ca/campus-community/meet-our-students/cho-lianne

Dhiraj Mannar – following up on his recent publication in Cell Reports, Dij is also the first author of this fabulous, timely and important paper on COVID-19 variant viruses, that was the subject of a news article: https://www.med.ubc.ca/news/ubc-scientists-first-in-the-world-to-unveil-molecular-level-analysis-of-omicron-spike-protein/

Change of Office Administrators

We are sad to share the news that Jane Lee finished her time as MD/PhD Program Coordinator in October 2021. A sincere thank you to Jane for all she has done and all the support she has provided to the program and to many of us during her 20 years in the position. Jane has been with the UBC MD/PhD program since its beginning under founding program director Dr. Tony Chow. We wish Jane happy retirement!
We welcome Naureen Khan, our new Program Coordinator. Naureen has been with UBC for more than three years where she was able to implement new initiatives and support program management in her previous position in Engineering. Naureen is passionate about creating and supporting pathways to better health and wellbeing for communities and we are very excited to have her join our team!

Jane Lee, at her retirement dinner at Tojo’s, October 2021. Jane is flanked by founding UBC MD/PhD program director Dr. Tony Chow, and current director Dr. Torsten Nielsen. Photo by Tony’s successor, and Torsten’s predecessor, long time program director Dr. Lynn Raymond!
MD/PhD "Building Bridges Seminar Series" - ALL ARE WELCOME

Our seminar series aims to illuminate the relationship that exists between clinical practice and medical research, allowing MD/PhD and other interested students to hear about different career tracks and various ways they may be able 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.

A huge THANK YOU to our recent speakers for their amazing presentations and for giving their time:

Date: 18 October 2021
Invited speaker: Dr. Melanie Murray
Assistant Professor, Department of Medicine
(Infectious Diseases), UBC

Dr. Melanie Murray is an assistant professor in the Department of Medicine at UBC. She is also an infectious disease specialist in HIV care at BC Women’s Oak Tree Clinic, and an Infectious Diseases Specialist and Staff Physician at St. Paul’s Hospital, Vancouver as well as a new recruit to the MD/PhD program committee!

Date: 22 November 2021
Invited speaker: Dr. Gina Ogilvie
Professor, School of Population & Public, UBC
Associate Director, Women’s Health Research Institute
Senior Public Health Scientist, BC Centre for Disease Control
Tier 1 Canada Research Chair, Global Control of HPV Related Diseases and Prevention

Dr. Ogilvie’s research is focused on both the public health and clinical aspects of reproductive health, sexually transmitted infections, HPV screening and the HPV vaccine, and her findings have been highly influential in setting and directing health policy both in Canada and globally.

Dr. Ogilvie has published over 100 peer reviewed manuscripts and has provided advice and consultation to national and global institutions, including the Canadian Partnership Against Cancer, Public Health Agency of Canada, the World Health Organization and Ministries of Health globally on STI, HIV and HPV vaccine policy and programming. Dr. Ogilvie speaks widely at international and national research and education conferences, and has supervised medical students, residents, and graduate students throughout her career.

**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, 11/F, Gordon & Leslie Diamond Health Care Center, 2775 Laurel Street, Vancouver, BC, Canada V5Z 1M9. Email: md.phd@ubc.ca Website: [http://www.med.ubc.ca/mdphd](http://www.med.ubc.ca/mdphd)