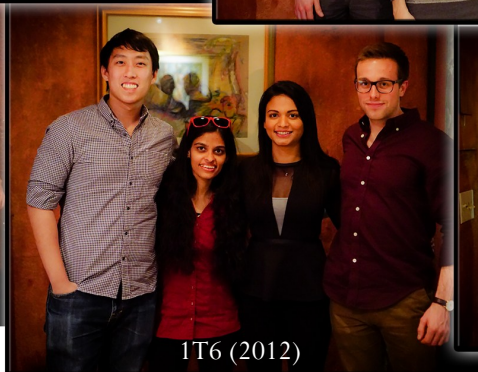


# PAIR O DOCS

VOLUME 21

SPRING 2016



2015-16 MD/PhD students by year of entry, making up the largest MD/PhD class to date, with 56 students. Together with 6 new incoming students, this will compose the 2016-2017 cohort of 60 MD/PhD students.

## MD/PhD Graduates of 2015



Pair O Docs would like to congratulate the graduating Class of 2015 and wish them the best on their future academic endeavours!

**Michal Bohdanowicz** (Dermatology, University of Toronto)

**Graeme Schwindt** (Anesthesiology, University of Toronto)

**David Tsui** (Internal Medicine, University of Alberta)

**Brian Ballios** (Ophthalmology, University of Toronto)

**Jacob Rullo** (Ophthalmology, Queens University)

**Greg Costain** (Medical Genetics, University of Toronto)

## Introducing the Incoming MD/PhD Students of 2015

### Azizi Paymon

I completed my undergraduate degree at McMaster University in the Life Sciences. Over the course of my degree, I became interested in research after working in multiple labs. Following that, I moved to the University of Toronto where I completed my master's degree with the Institute of Medical Science. I chose the MD/PhD program at the University Toronto as it provides world class medical education as well as being one of the major research hubs in the world.

My past research focused on metabolism and chronic disease. For my Master's, I worked in a cell biology lab with a focus on diabetes. I studied insulin transcytosis--the mechanism by which insulin taken up and transported across endothelial cells. My current research interests focus on the molecular bases of cardiovascular disease. I am interested in developing novel techniques and assays to better understand cardiovascular physiology and pathophysiology. Toronto is the city I call home, having been born, raised, and educated here (I completed my undergraduate degree at the University of Toronto in Biochemistry and Cell/Molecular Biology). During my time as an undergraduate, I was fortunate to have conducted research with two physician-scientists within the Multi-Organ Transplant Program at the University Health Network. This was where I gained exposure to and developed a passion for both clinical medicine and medical research. I chose the MD/PhD program at the University of Toronto to obtain high quality training for what I feel will be a rewarding career – one that involves serving individual patients as a physician while still solving important clinical problems and improving patient care more broadly as a scientist. In my spare time, I enjoy exercise, music, and murder mysteries.

### Binesh Marvasti, Tina

I completed my undergraduate degree in Physiology and Biochemistry and my Masters training in Medical Sciences at the University of Toronto. Both as an undergraduate and a graduate student, I worked with many clinician-scientists whose work inspired me to pursue the MD/PhD program at the University of Toronto.

I am driven by the curiosity of finding new scientific discoveries and translating them into improved patient care. The MD/PhD program provides me with the training to become a compassionate physician to individual patients and a skilled medical researcher pushing the

boundaries of knowledge. Outside of academics, I enjoy traveling and water sports such as dragon boat racing.

### Civitarese, Robert

My research interests revolve around understanding the causes of cardiovascular diseases such as atherosclerosis and heart failure using novel techniques. As a clinician-scientist in training, I aim to translate basic science research into clinical medicine to improve patient outcome and quality of life.

Growing up in a small town near Hamilton, completing my B.Kin and M.Sc. training at the University of Toronto has been an amazing journey. I have had the opportunity to participate in diverse research areas with multiple supervisors, gaining tremendous insight into scientific discovery. My education has also allowed me to glimpse into the clinical world, through both placements and course work concerning human biology. These vastly different, yet essentially intertwined, areas of study have stimulated my passion and determination to enter the MD / PhD program here at the University of Toronto, training that will be fundamental for future success and development as a clinician scientist.

The prognosis of heart failure, a vastly rising concern in North America and elsewhere, remains poor despite our best clinical advancements. Damaged or lost heart tissue, as a result of ischemia, has limited capacity to regenerate and repair. As such, I am interested in exploring the relationship between non-cardiac cells and the extracellular milieu on cardiac cell maturation, with the goal to utilize this knowledge to improve the efficiency and effectiveness of cardiac regenerative therapy and engineering.

### Elias, Gavin

Gavin Elias obtained a B.A. in Experimental Psychology from the University of Oxford, in 2014, with a GPA of 3.82/4.0, and "1st Class" standing. He has had the opportunity to participate in several research programs, including working with Dr. Andres Lozano on multiple projects relating to Deep Brain Stimulation (DBS), and Dr. Kieran Murphy on radiology/neuroradiology projects. He is second author on three publications, one published in Neuroradiology and two in J Vasc

Interv Radiol. He is a co-author of an article in The Lancet. Gavin is in the process of meeting with potential graduate supervisors for his PhD.

### Harmsen, Irene

Originally born in The Netherlands, I moved to Canada when I was seven. Through early exposure competing in national science fairs and volunteering at my local hospital, I developed an early passion for both research and medicine. I knew I wanted to pursue training as an MD/PhD to combine the fields in an effort to make a positive impact on individual and population health. For my undergraduate studies, I completed a Bsc in Biomedical Science at the University of Ottawa. With an interest in neuroscience and genetics, I conducted extensive research work on Parkinson's disease. Specifically, I explored the role of leucine-rich repeat kinase 2 (LRRK2), a Parkinson's associated gene, in microbial susceptibility or host response. I also have experience as an organic chemistry and biology researcher: I helped produce Sin Susto<sup>TM</sup>, a natural anti-anxiety drug, and was later involved in the discovery of antimicrobial activities of Marcgraviaceae, a neotropical plant family native to Central America. Outside of my academic life, I am a triathlete and avid traveller.

### Kumar, Sachin

I grew up just east of Toronto in the town of Ajax. Growing up I was very passionate about sports, and I played soccer as a goalkeeper for many years. I always had an aptitude for math and science, even enjoyed those math contests in high school, but unlike a lot of my peers I had no idea that I wanted to pursue a career as a physician until much later. I completed my undergraduate degree at the University of Toronto studying human biology and immunology and that's where I got my first taste of research. I was introduced to cell biology and molecular signalling research and had the opportunity to collect and analyze data as part of an HIV clinical trial. Collectively, these experiences

*Continued on page 3*

## Introducing the Incoming MD/PhD Students of 2014—*continued from page 2*

solidified my desire to pursue research in some capacity, but still I was left longing for more. I wanted to explore research and technology development from a translational perspective, particularly in the realms of diagnostics and therapeutics. This led me to pursue a Master's degree at the University of Toronto in the Department of Molecular Genetics. My research interests focused on cancer cell signalling, and bioengineering of therapeutic and diagnostic antibody tools.

During my Master's I finally realized that what made me happy was combining by curiosity and big picture thinking with clinical application and patient interaction. I joined the MD/PhD program as part of the "illustrious" group of UofT lifers, probably close to 16 years when all is said and done, but I'm excited for every minute of it. This combined program is one of the best in Canada, for the flexibility it offers and the cutting-edge research conducted by the faculty. With each passing week, I am always amazed at the new research that emerges from our campus, pushing the frontiers of medicine, science and policy. Looking forward, I hope to participate in research investigating t-cell reactivation and cancer immunotherapy.

**Liu, Peter (Jianrui)**

I started the MD/PhD Program at the University of Toronto in 2015 after completing a Bachelor of Health Sciences Honours degree at the University of Calgary. During my

undergraduate study, I have conducted research in Canadian and Chinese institutions and taught at a Nicaraguan university with a focus on oncology and molecular biology. The combination of experiences interacting with patients, identifying their unique struggles, and utilizing science to offer solutions fueled my aspiration to become a clinician-scientist. At the University of Toronto, I look forward to working with world-class scientists and contribute to high impact discoveries. In my spare time, I enjoy skiing, traveling, and practicing martial arts.

I aim to focus on high throughput genomics, stem cell, or cancer research in my scientific training.

**Lozano, Alexander**

My journey to this point in my career started when I was 14. I started to think about how I could make "impact" in my life, a somewhat nebulous concept, and decided that if I could invent something, I'd be able to make a real difference. I wanted to understand more about the world and how I could use science to make new things. This led me to pursue a physics and chemistry double major at U of T. While in undergrad, a friend and I started a company. We invented a shoe that generated electricity from the motion of walking, providing a mobile way to charge cell phones. We wanted to retail the shoe in north America to fund distribution in the developing world. The experience of

patenting, raising capital, and communicating the idea was thrilling, however I realized that it would never make impact on the scale that I could with advanced technology. During my undergrad I had the chance to work on some of that technology at Caltech for two summers. We made a novel structure for lithium ion battery electrodes with the hope of expanding their charge capacity. Closer to graduation, I started to think about how in biotech I could leverage my physical sciences background to bring a unique perspective to improving health. I also found that in my studies in physics I was missing out on my work having a direct connection to people. Medical tech for me provides incredible meaning, and and the opportunity to pursue fascinating technology that can make a real difference in someone's life. Ultimately, the MD/PhD will bring me closer to my goal and dream of becoming a technology entrepreneur and achieving that "impact" that I sought as a 14-year-old aspiring inventor.

**McQueen, Sydney**

I left my hometown of Georgetown, Ontario to complete undergraduate training in Life Sciences at Queen's University where I specialized and conducted research in the field of Neuroscience. During my undergraduate studies, I also became involved with medical education research and was captivated by the field. I went on to complete a Masters degree at McMaster University in Health Science Education. These experiences and inspiration from my mentors led me to pursue the next phase of my training at the University of Toronto in the MD/PhD program. Outside of academics, I enjoy running, painting, and travelling.

I have a keen interest in surgical education research, especially regarding motor skill acquisition, assessment, and feedback. My previous work has focused on the barriers to effective assessment and feedback in medical education, and how we might improve surgical training in the operating room. I am now

*Continued on page 4*



## Introducing the Incoming MD/PhD Students of 2015—*continued from page 3*

looking to shift my focus more towards the psychosocial factors impacting surgical performance and training.

**Mirali, Sara**

I completed my undergraduate degree at McGill University and have been involved in basic science research since freshman year. I have always wanted to pursue a career in medicine but I developed a passion for research at McGill, where I completed my honours thesis on pain memory under the supervision of Dr. Jeffrey Mogil and a summer project on the regulation of doublecortin under the supervision of Dr. Gary Brouhard. In addition to my positive experiences in Montréal, I was involved in two summer projects in Germany through the DAAD, where I worked in the neuropathology department at the Charité and in the airway immunology division at Fraunhofer ITEM. Throughout my various projects, I have been incredibly fortunate to meet several inspiring scientists and mentors who encouraged me to pursue a career in research. I chose the University of Toronto's MD/PhD program because of the amazing research opportunities and outstanding medical education. Going forward, I am confident

that the program will provide me with the necessary tools to bridge the gap between

**Tsang, Brian**

scientific discovery and medical application.

I completed an undergraduate Honours Biochemistry degree at the University of Waterloo. Through their cooperative education program, I had the chance to experience many different research opportunities. At the same time, I met many great mentors that encouraged me to pursue a clinician-scientist career. I decided to pursue my MD/PhD training at the University of Toronto because of the world-class research opportunities available here.

I have not decided on a formal project yet, but I am interested in structural biochemistry and neurobiology. Specifically, I am fascinated by fundamental basic research relating to regulatory processes for neurological function. I am certain that understanding basic neurological function will be a critical first step in developing treatment options for many neurological disorders.

**Walpole, Glenn**

I was born and raised in a small farming community along the shores of Lake Huron in southwestern Ontario and completed my undergraduate degree in Biochemistry (Biomedical Research Specialization) at McMaster University. Outside school, I am a member of the Paris Port Dover pipe band and I also compete in professional solo bagpiping. I am an avid golfer and can usually turn in a mid to low 70s score but also have the talent to turn in a mid 90s score without too much difficulty.

I became interested in the way cells function at a molecular level during my time in the laboratory of Dr. Ray Truant at McMaster University where I realized that understanding the cell biology of a particular disease can provide important avenues for therapeutics. I joined the MD/PhD program at the U of T in the fall of 2015 because it will allow me to understand and appreciate the mechanisms of a disease from the cellular level to the level of patients in the clinic.

### PhD's Completed

**Ashish Deshwar**, Molecular Genetics (Ian Scott, supervisor), Defining the Role of the Apelin Receptor and Mesp in Zebrafish Cardiac Progenitor Development.

**Robyn Elphinstone**, Laboratory Medicine and Pathobiology (Kevin Kain, supervisor). Investigating Mediators of Endothelial Dysfunction as Potential Therapeutic Targets in Severe Malaria.

**Jonathan Fuller**, Institute of Medical Science (Ross Upshur, supervisor). The New Medical Model: Chronic Disease and Evidence-Based Medicine.

**Ilya Mukovozov**, Institute of Medical Science (Lisa Robinson, supervisor). Slit2/Robo-1 Signaling in Monocyte and Macrophage Function: A Role in Vascular Inflammation.

**Sean Nestor**, Institute of Medical Science (Sandra Black, supervisor), Automated Brain Mapping to Evaluate the Relationship between Neurodegeneration, Cerebral Small Vessel Disease and Structural Covariance Network Disruption in Alzheimer's Disease.

**Enoch Ng**, Institute of Medical Science (Albert HC Wong and John C Roder, supervisors). The Effects of Neuronal Calcium Sensor-1 Deletion on Mouse Behaviour and Neurophysiology.

**Jennie Pouget**, Institute of Medical Science (James Kennedy, supervisor), Evaluating the Contribution of Immune Gene Variants to Schizophrenia.

**Lianne Rotin**, Institute of Medical Science (Aaron Schimmer, supervisor). Preclinical evaluation of synergistic drug combinations in acute myeloid leukemia.

**Rob Vanner**, Molecular Genetics (Peter Dirks, supervisor). Defining the Mode of Medulloblastoma Growth using the Ptch1 Heterozygous Mouse Model.

**Xin (Kevin) Wang**, Department of Biochemistry (Michael Taylor, supervisor). Unmasking novel epigenetic mechanisms of medulloblastoma pathogenesis.

## MD/PhD Graduating Class of 2016

### Patrick McVeigh

#### When did you start in the MD/PhD Program?

I came to Toronto in 2008 as part of the 1T2 class, earned my PhD in 2014 and will graduate this year as a 1T6. During that time I've seen two sets of MD/PhD program directors and administrators, gotten married, changed specialty aspirations at least 3x, and met some great future colleagues across all years of the program. At times it feels like a long road, but the last 2 years especially have disappeared in the blink of an eye.

#### And what are your plans for residency?

I'm happy to be staying in Toronto for vascular surgery, which is a 5 year CaRMS direct entry program.

#### What are your plans for research during residency?

Surgical specialties are notoriously tricky in terms of balancing dedicated research time with time in the OR, acquiring the procedural volume needed to be proficient clinically. One of the reasons I chose Toronto was the emphasis the department places on academic productivity and the resources available to support it. I am hoping to continue with a few core projects which have sprung off from my PhD in more of a supervisory role in order to be realistic about time commitments during residency during the first few years.

#### Any words of wisdom for the more junior trainees in the program?

Firstly, while it can seem at times onerous, the extra time you'll be in Toronto is the biggest advantage of the program. Don't become disconnected from the MD side of things just because you're in the lab: I spent at least a month each year doing clinical placements in fields I wanted to learn more about. This can help to narrow your focus in 3rd and 4th years, and allows you to meet people who will be on the CaRMS selection committees early on and develop a relationship far more easily than a traditional student who parachutes in for a 2 week elective.

Secondly, try and cast a wide net during your PhD – the most impactful publications during my time here are from side projects that are completely unrelated to my core thesis, and are the projects I will likely continue to work on during residency. While there were a lot of good ideas over my 8 years here, I regret that I never managed to finish a project/publication in collaboration with another MD/PhD student: I think it would be admirable of everyone to try and set that as a goal during their time here.

#### What is your most memorable moment from your time in the MD/PhD program?

When I first started in 2008, I remember getting a copy of the MD/PhD newsletter in the mail and my wife (who was my girlfriend at the time) looked at the graduating class photo and exclaimed "they're all so old!" Now, having been put through the wringer myself, I'm happy to be one of the old folks in the picture at the end. It will happen to all of you!



### Sean Nestor

I am grateful for the strong support and mentorship that I have received as a member of this internationally recognized program. The MD/PhD platform provided a unique opportunity to simulate the role of a clinician scientist without the demands of running a clinic and lab. Moreover, completing doctoral studies in medical school versus residency has many advantages. It allows you to explore your research interests early in your training and continue to build a strong foundation during your clerkship and residency. For example, during my PhD I became deeply interested in mapping how the human brain is structurally networked to support complex cognition and how these systems are disrupted in disease. This also influenced my decision to pursue a residency in psychiatry, and I look forward to pursuing further brain-mapping research next year as a resident in the U of T psychiatry program's clinician scientist stream. I plan to investigate how functional and structural brain systems are altered after novel therapeutic interventions for late-life depression and dementia.

My advice to junior trainees would be to allocate some time to travel, explore new concepts and read outside of your field. A practical tip: developing a method or technique as part of your thesis project can pay dividends in terms of research productivity during clerkship (e.g. co-authorships).

Finally, I have made several great friendships over my seven years in the program, and my fondest memories are the experiences I have shared with these remarkable individuals.





## The Royal College White Paper on Clinician Scientists in Canada and the Development of Physician Scientist Training at the University of Toronto

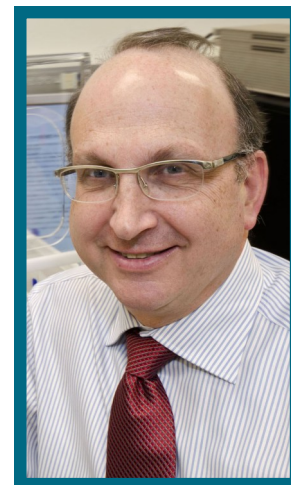
Editorial by Norman Rosenblum MD, FRCPC; Director, MD/PhD Program; Associate Dean, Physician Scientist Training

The Royal College of Physicians and Surgeons of Canada (RCPSC) recently published a white paper, *Clinician Scientists in Canada: Supporting Innovations in Patient Care Through Research*. This white paper is contributed in the context of the Future of Medical Education in Canada project and is timely, as well, given the implementation of Competency by Design by the RCPSC and persistent concerns that the physician scientist development pathway in Canada requires reform to support sustainability of this vital human resource within the community of clinical care and health research.

Among its major recommendations, the RCPSC White Paper highlighted the need for re-development of physician scientist educational programs along the continuum of education, and certainly in the postgraduate phase, to support integration of clinical and research, flexibility in educational pathway, competency based training and mentorship. The White Paper reinforced the notion that outstanding training must be linked to jobs designed to facilitate (not block) the sustainability of a physician scientist career. These recommendations are totally consistent with the recommendations of the University of Toronto Faculty of Medicine Task Force on Physician Scientist Education (2012) which highlighted four key elements in a proposed Integrated Physician scientist Training Pathway – integration, flexibility, customization, and sustainability.

In 2016, the University of Toronto will implement two innovations within the framework of a more expansive implementation plan for an Integrated Physician scientist Training Pathway. Both innovations are focused within the

undergraduate medical curriculum. Both aim to enhance the integration between clinical medicine and health research and to support the development of a physician scientist professional identity from the onset of medical education. First, the Case Based Learning component of the new Foundations Curriculum, which replaces the former pre-clerkship curriculum, will feature an enriched curriculum for students interested in health research (all MD/PhD students and other self-identifying medical students). This curriculum aims to foster generative thinking that is fundamental to research in the context of foundational topics in clinical medicine and to foster an understanding of how health research and innovation interfaces with the development of knowledge and practice in clinical medicine. Designed to be inclusive of students with different educational backgrounds (i.e. current MD/PhD, graduate training before medical school, other), this curricular component aims to foster a physician scientist career for learners with different educational backgrounds and at different stages of decision making regarding physician scientist training. Second, MD/PhD students will, for the first time, train within the Longitudinal Integrated Clerkship (LInC) pathway within the clerkship. LInC will provide a context in which MD/PhD students can customize their patient exposure and clinical mentorship beyond the core clinical experiences within LInC to include patients in particular areas of interest and mentors who are physician scientists and who can enhance their understanding of the physician scientist career. Further, LInC will provide an opportunity to engage in scholarship designed to build on students' previous work and to support their continued trajectory as a physician scientist.



Competency by Design presents tremendous opportunities for customization, integration, and flexibility in postgraduate training and the transition from undergraduate to postgraduate training. Currently, we are working with our colleagues in postgraduate medicine, nationally and locally, to develop a competency-based (versus time-based) approach to research training and models by which clinical and research training are integrated within specific medical and surgical specialties to generate coherent and relevant training pathways for physician scientists.

I look forward to providing more details on the outcome of these exciting activities as time moves forward. As we look to the future, curricular and regulatory innovations in both undergraduate and postgraduate medicine have the potential to generate a physician scientist development pathway that is coherent and relevant to the educational needs of our students and which prepares our students for a strong transition to a career beyond training.



## CITAC Annual General Meeting 2015 Overview

Nardin Samuel, 2015-2016 CITAC Representative

We were again fortunate to host the 2015 Annual CITAC-ACCFC Annual General Meeting (AGM) in Toronto for the second consecutive year. This meeting was again a huge success with another record number of participants. Building on the excellent feedback on last year's meeting and continuing with the tradition of CITAC meetings, the 2015 meeting agenda brought diverse perspectives and sessions that fostered inspiration and learning for trainees at all stages. This year's program featured lecture awards honoring clinician-scientists, opportunities for attendees to present their research through poster sessions and oral platforms and workshops geared towards career development.

One of the biggest and most successful changes to the meeting this year was the format of the poster presentations. The poster presentations were arranged such that each poster would be reviewed by a group – one faculty members and several students – giving each attendee a guaranteed opportunity to present and discuss their work. In turn, presenters were also evaluators, allowing peers and colleagues to exchange in the research discussions with one another.

Lastly, we also want to highlight a new workshop tailored to MD/PhD students on “Choosing the right specialty for you”. We held roundtable discussions with several clinician-

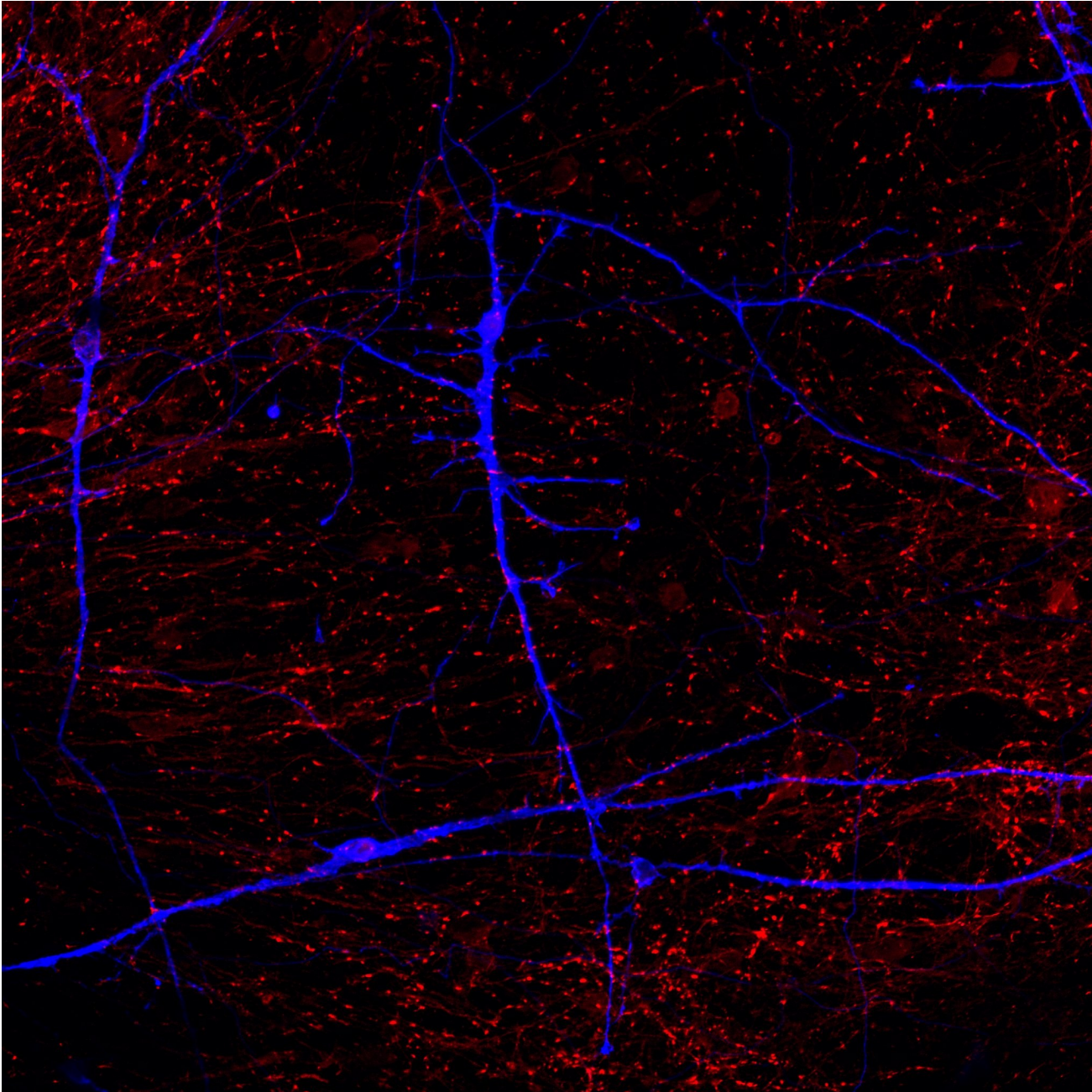
scientists in various disciplines and students had the chance to engage in conversation and gain exposure to how various physicians complement their clinical work with research. This session was held three times and was extremely well-received. It would not have been possible without the many clinician-scientists who generously volunteered their time to participate in this workshop.

Looking forward to another successful meeting in 2016!



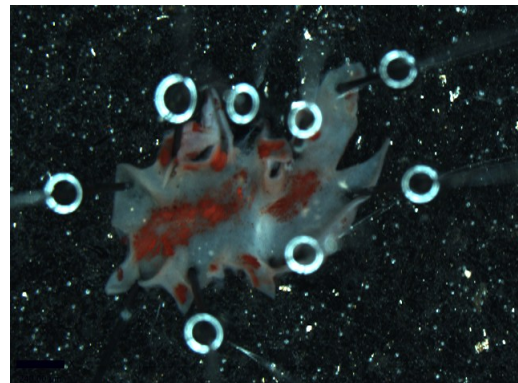
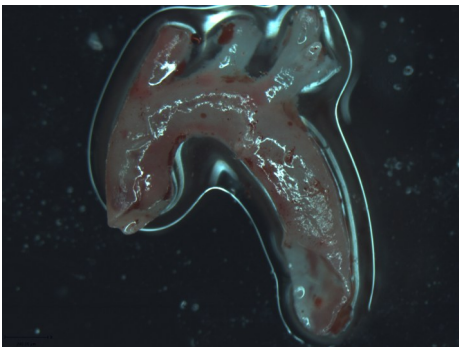
## Second Annual Dramatic Data Showcase

We have asked students to submit the most exciting images and art generated during the sweat-and-tears PhD phase of the program. These are intended for the covers of the very top scientific journals, but you get to see them here first!



Fluorescently labeled human neurons (blue) making synaptic connections (red, Synapsin I) with other neurons in vitro. The culture is composed predominantly of unlabeled control neurons (>95%), which allows comparisons of different lines of fluorescent neurons in a consistent environment.

-Kirill Zaslavsky

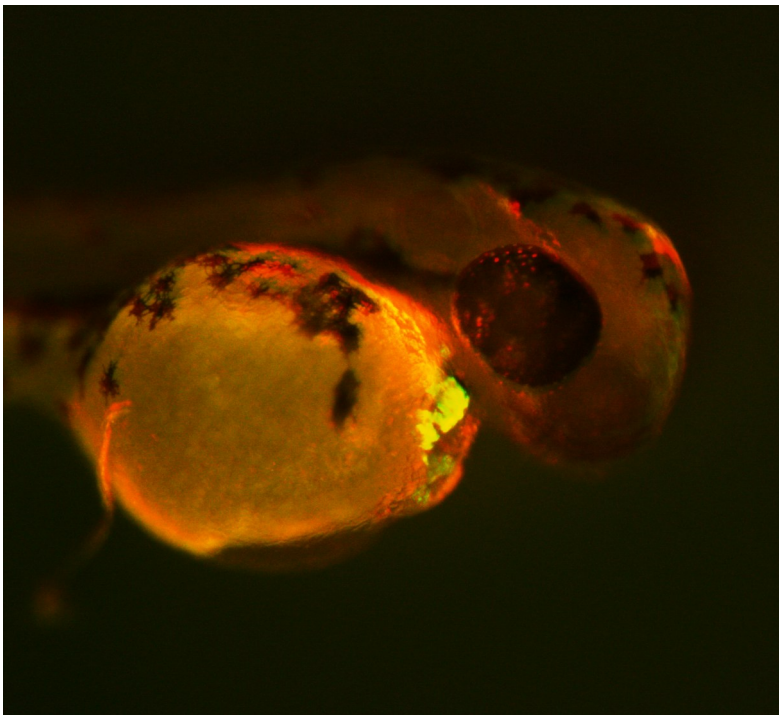


Aortic arch atherosclerotic lesions (red) in  $LDLR^{-/-}$  mice placed on a cholesterol rich diet.

-Ilya Mukovozov

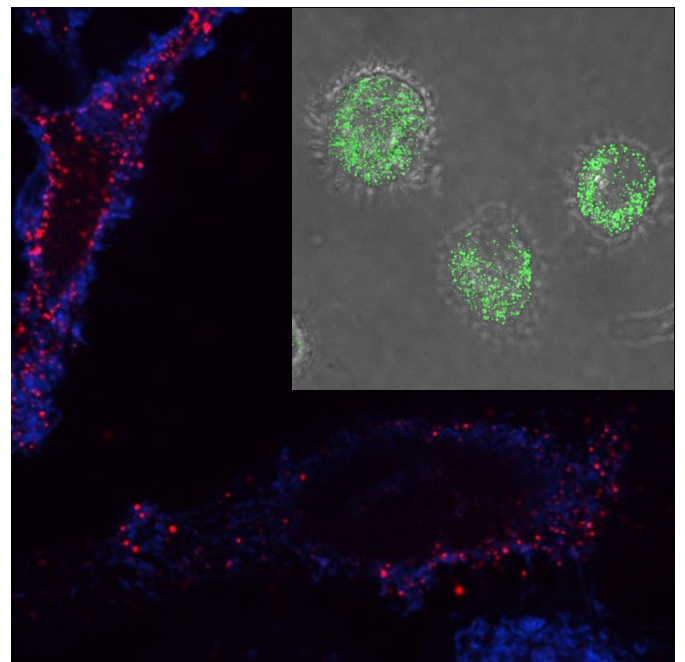
Left: extracted gallbladder from patient (with gallbladder stones). Right: piece of gallbladder being crushed with weights. Histology on the tissue sample is then immediately performed. I am trying to see how much crush force each gastrointestinal tissue can take before an unacceptable amount of tissue damage occurs, to define what the safe limits of compressive force in laparoscopic gastrointestinal surgery should be.

-Amy Khan



Transplanted cells contribute to a zebrafish heart.

-Ashish Deshwar



Human macrophages (blue) binding oxidized LDL (red). Inset: Bodipy (green) labeled lipid droplets in a foam cell formed from a human macrophage loaded with oxLDL for 24h.

-Ilya Mukovozov

## MD/PhD Class Council Update

Ashish Deshwar (President), Amy Khan (President-Elect)

It is that time of the year again to reflect on everything that has happened in the past year in the program and looking back, it sure was busy! The year was characterized by a number of highs (the retreat!) and lows (CIHR MD/PhD funding cuts) but as it goes with any good PhD, we made it out the other side stronger, wiser, and with better friends than when we started!

The inaugural MD/PhD program retreat was held on October 3<sup>rd</sup>-4<sup>th</sup> 2015 at the YMCA Cedar Glen outdoor center and we think it is safe to say that it was a resounding success! Turnout was fantastic with 47 students making it out. The morning of the retreat was spent working in small groups on how biomedical research should be funded in Canada. One unifying theme that emerged from the discussions was the importance of fundamental discovery based science. A great deal of the dialogue centered on how some of the most transformational research has resulted from following the most interesting scientific questions irrespective of perceived impact. The afternoon was then spent doing team building exercises outdoors. This included everyone taking part in games that while were almost certainly designed for those aged 8 years old and younger, were surprisingly thrilling and were a great way to unwind and bond! Dr. Rosenblum also led a discussion on MD/PhD curriculum changes and the day was capped off by a keynote talk from Dr. Allen Eaves. Following the formal programming for the day conversations were carried on well into the night around a warm fire and drinks! Too many people helped with the retreat to mention them all but in particular thanks to Rob Vanner, our outgoing president, Curtis Woodford, Ben Ouyang, John Soleas and Tim Rappon.

The year has also held some challenges, the biggest of which was undoubtedly the cancellation of the MD/PhD program grants by CIHR. This was met by both shock and disappointment within the program and the surrounding U of T medical community. Despite this life goes on, and we are happy to report a number of positive initiatives that have resulted. First and foremost was the strong commitment that was made by the Dean of Medicine around the importance of the MD/PhD program and a pledge to keep it alive and well regardless of CIHR funding. Second has been a great deal of advocacy on the part of our own students to lobby for reinstatement of the program grants. In particular Kevin Wang, Patrick Steadman and Kirill Zaslavsky were strongly involved in this and we commend them for their efforts!

Our annual town hall was held just recently on March 10<sup>th</sup> 2016. Attendance was excellent and while discussions covered a number of different topics, a great deal of time was spent discussing the upcoming curriculum changes. A number of excellent comments and questions were raised by students and after meeting with Dr. Rosenblum, we appear to be on the same page. Stay tuned in the fall for more details around the establishment of a working group to help ease the transition for students returning in 2017!

Class council was also busy with a number of different initiatives. The longitudinal mentorship program continues to be a resounding success and this past year has been extremely well run by Jieun Kim and Tim Rappon. Our SHINE reps, Enoch Ng and Natasha Lane, were also hard at work. Back in the fall they led an archery tag outing and this spring an escape room evening. Thanks to everyone mentioned and the rest of class council for an outstanding year!

Finally, while it is always nice to look back, we would like to say a few words about the year ahead! This fall we are hoping to hold the third MD/PhD mentorship symposium which we are sure will build on the first two and will continue to be a terrific event. In addition, we are also excited to announce that the next MD/PhD retreat will happen in the fall of 2017 so stay tuned for information on how to get involved. Last but not least, we are very eager to welcome the new incoming MD/PhD students that will be joining us this September!

Sincerely,

Ashish and Amy



## Publications

**Abraham KJ**, Zhang X, Vidal R, Pare G, Feilotter H, Tron VA. (2016) Roles for microRNA-375 in neuroendocrine differentiation and tumour suppressor via Notch pathway suppression in Merkel cell carcinoma. *Am. J. Pathol.* 186(4):1025-35.

Chung DKC, Chan JN, Strecker J, Zhang W, Ebrahimi-Ardebili S, Lu T, **Abraham KJ**, Durocher D, and Mekhail K (2015). Perinuclear tethers license telomeric DSBs for a broad kinesin- and NPC-dependent DNA repair process. *Nature Communications.* 6:7742.

Szafranski K\*, **Abraham KJ\***, and Mekhail K.

(2015) Non-coding RNA in neural function, disease, and aging. *Front. Genet.* 6(87):1-16.

Wang C, **Armstrong SM**, Sugiyama MG, Tabuchi A, Krauszman A, Kuebler WM, Mullen B, Advani S, Advani A, Lee WL. Influenza Primes Human Lung Microvascular Endothelium to Leak upon

## Publications—continued from page 12

- Exposure to *Staphylococcus aureus*. *Am J Respir Cell Mol Biol*. 2015 Feb 18.
- Johnston APW, Yuzwa SA\*, Carr MJ\*, Mahmud N, Storer M, Krause MP, Jones K, Paul S, Kaplan DR, Miller FD. 2016. Dedifferentiated Schwann cell precursors secreting paracrine factors are required for regeneration of the mammalian digit tip. *Cell Stem Cell*. [\* denotes co-authors]
- Carr MJ, Li Y, Rezakhanlou AM, Ghahary A. 2016. Keratinocyte-releasable factors stimulate the expression of granulocyte colony-stimulating factor in human dermal fibroblasts. *Journal of Cellular Biochemistry*.
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**A. F. Khan**, *Bioengineering for Surgery: The Critical Engineer-Surgeon Interface - Chapter 8: Virtual Simulation - Abdomen*. Elsevier, 2016.

## Awards

**K. Josh Abraham** is the 2016 recipient of the Mr. Robert and Ms. Francine Ruggles Innovation Award for his outstanding research productivity and innovation.

**K. Josh Abraham** earned 1st place prize for top basic science abstract selected for oral presentation at UME's 2016 Medical School Research Day and the 1st place poster prize at Lab Medicine and Pathobiology (LMP) Graduate Research Conference, Toronto, ON.

**Ayan Dey** received the 2016 Dr. Harvey Moldofsky Scholarship for merit in psychiatric/neuroscience research. He also received the Heart and Stroke Foundation Canadian Partnership for Stroke Recovery 2016 Trainee Award for the project "Functional Neuroimaging of vascular cognitive impairment due to Cerebral Small Vessel Disease."

**Nicholas Howell** received the 2016 Nishant J. Fozdar Memorial Award by the Faculty of Medicine.

**Amanda (Amy) Khan** is the 2016 recipient of the Ankle Award, awarded to a medical student who has completed a project that represents creative, or "outside the box" thinking with an outcome or outcomes related to improved health systems, patient care, research results or new ways of completing

## Awards—*continued from page 15*

tasks that enhance medical practice, for her project, "Defining the Safe Limits of Force in Laparoscopic Surgery."

**Amanda (Amy) Khan** was awarded the 2016 Perioperative Services Innovation Grant from the Hospital for Sick Children, Toronto.

**Sachin Kumar** received the Michael Gregg Memorial Award through the UME.

**Natasha Lane** was awarded the 2016 Ted Goldberg Award for Academic Excellence and Promise in Health Services Research.

**Natasha Lane** was awarded 1st Place in Oral Presentation Competition and 2nd Place in Poster Competition at the Four City Geriatric Research Day.

**K. Josh Abraham** was recognized as the student with highest academic standing in his department with the 2015 Laboratory Medicine and Pathobiology (LMP) Graduate award.

**Brian Ballios** has been selected as a recipient of the 2015 Gordon Cressy Student Leadership Award.

**Caitlin Chrystoja** was awarded the The Canadian Journal of Surgery Editor's Choice Award for ranking as 1 of the 3 best surgery abstracts among 270 submissions from surgery residents at the Canadian Surgery Forum. She also received The Canadian Association of General Surgeons (CAGS) Science Award at the Canadian Surgery Forum in recognition of submitting 1 of the 2

best surgery abstracts among 270 submissions from general surgery residents at the national conference.

**Ayan Dey** was awarded the 2015 Finkler Graduate Student Fellowship for his research "functional pathoconnectomics of Cerebral Small Vessel Disease: a cognitive neuroscience based approach to understanding variability in vascular cognitive impairment."

**Kyle Eastwood** received a 2015 CIHR Vanier Award for his research, "Development and Efficacy of Procedure Specific Instruments for Neurosurgery."

**Kyle Eastwood** was the 2015 recipient of the Mr. Robert and Ms. Francine Ruggles Innovation Award for his outstanding research productivity and innovation.

**Carlyn Figueiredo** received a 2015 CIHR Vanier Award for his research, "Gold nanoparticles with surface enhanced Raman scattering capability for the detection and treatment of glioblastoma tumours."

**Nicholas Howell** received a 2015 CIHR Vanier Award for his research, "What are the effects and economic impacts of walkable neighbourhood design on type 2 diabetes care?"

**Amanda (Amy) Khan** received a 2015 CIHR Vanier Award for her research, "The Development of Anthropomorphic Realistic Model "Phantoms" for Surgical and Medical Education."

**Patrick McVeigh** is the 2015 recipient of the Ankle Award, awarded to a medical student who

has completed a project that represents creative, or "outside the box" thinking with an outcome or outcomes related to improved health systems, patient care, research results or new ways of completing tasks that enhance medical practice.

**Maneesha Rojora** received a 2015 CIHR Vanier Award for her research, "Delivery of traceable, multifunctional, biomimetic nanoparticles to the brain to treat Alzheimer's disease."

**Lianne Rotin** is a 2015 recipient of a CIHR Frederick Banting and Charles Best Canada Graduate Scholarship for her project titled, "Investigating ibrutinib's off-target activity against acute myeloid leukemia cells."

**Graeme Schwandt** received the Hendry Memorial Scholarship and won the Cody Silver Medal for placing second overall in the graduating MD class of 2015.

**Shrey Sindhwani** received a 2015 Faculty of Applied Science & Engineering Graduate Student Endowment Fund (GSEF) Scholarship Award and a Wildcat Voyager Scholarship.

**Patrick Steadman** received a 2015 CIHR Vanier Award for his research, "Investigating Memory Neuronal Networks For Regulating Behaviour In Healthy And Disease States."

**Ho Yee Wan** received a 2015 CIHR Vanier Award for his research, "Microvascular alterations after experimental subarachnoid hemorrhage."

Pair O Docs is the newsletter of the MD/PhD Program at the University of Toronto. It is produced by the students in the program and is published once a year.

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