

SURGEON SCIENTIST TRAINING PROGRAM MEET AND GREET EVENING SYNOPSIS
Monday October 15, 2018 ∞ 5:30 – 7:30 pm ► CRL Event Room 1 (2-9320) → 686 Bay Street

Dr. Michael Fehlings hosted the SSTP Meet and Greet evening on Monday October 15th. Several SSTP residents and residents who will be starting in the SSTP as of July 2019 were in attendance. Drs. Chris Forrest, Andras Kapus, Fayez Quereshy and Cari Whyne made the significant effort to join the SSTP residents. Val Cabral (Research Program Manager), Nancy Condo (Business Manager), and Tess Weber (Postgraduate Coordinator) were also in attendance. Last, but not least, our invited guest speakers, Drs. Warren Chan (IBBME Director), Nicola Jones (CIP Director), Mingyao Liu (IMS Director) and Natalie Coburn (IHPME full member and Surgical Oncologist) spoke to us about their respective Graduate Department and truly enlightened all of us.

Dr. Andras Kapus is Associate Vice Chair Research in the Department of Surgery, University of Toronto. Dr. Kapus is a senior scientist at St. Michael's Hospital. Dr. Kapus stated that the SSTP started as a concept by Dr. Bernard Langer in 1984 and grew to being the staple SSTP it is today. He spoke about the unmatched opportunities that the SSTP offers both in researchable topics and the availability of potential supervisors in the Department of Surgery (including > 170 surgeon scientists, surgeon investigators and 44 basic science scientists) and at U of T in general. The purpose of the SSTP is to provide exceptional research training for surgical residents who wish to pursue a career in academic surgery. The focus is on excellent research training, not on a specific discipline or project. Topics encompass basic research (e.g., cellular and molecular biology, pathology, pathophysiology, neuroscience, bioengineering), clinical research, clinical epidemiology, medical bioethics, or health services research. The 'psychology' of being a successful SSTP trainee, calls attention to challenges of the transition from a very structured to a predominantly self-motivated and organized lifestyle, and the most effective strategies that minimize the stress and sense of incompetence, and maximize the creativity and productivity of the trainees. Dr. Kapus encouraged future SSTP residents to consider and capitalize on working with one of more than 40 scientists in the Department of Surgery.

Dr. Warren Chan is currently the Director and Distinguished Professor in the Institute of Biomaterials and Biomedical Engineering (IBBME) at the University of Toronto. He is also affiliated with a number of different departments at the University of Toronto: Department of Materials Science and Engineering, the Terrence Donnelly Center for Cellular and Biomolecular Research Chemistry, Chemistry and Chemical Engineering. Dr. Chan stated that IBBME links research innovations in engineering, medicine and dentistry to address the most pressing health-care challenges in the world. The objective of biomedical engineering is to use engineering principles to design new treatment and detection systems for diseases. IBBME works around 4 research themes. 1 – Molecular Engineering: Nanotechnology, molecular imaging and systems biology; 2 – Cellular and Tissue Engineering: Biomaterials, tissue engineering and regenerative medicine; 3 – Patient Engineering: Devices for use in patients (neural, sensory systems and rehabilitation); 4 – Clinical Engineering: Adapting new engineering technologies in the clinic. He gave several examples of work that has evolved around these themes, such as shape-shifting nanoparticles for delivering cancer drugs to tumors; mini diagnostic tools for rapid, on-site results; lab-grown heart and liver tissue for drug testing; non-invasive devices and technologies to assist persons with disabilities; sensing, signal processing and machine-learning methods for children and youth with disabilities to interact with their environment; All-Terain Knee [AT-Knee] which enables cost-effective mobility for those with physical disabilities; virtual reality therapy, which is the use of video games to enable new therapeutic frontiers for children's rehabilitation. Dr. Chan stated that diseases drive the engineering process. A student can work towards a Master of Applied Science (MASc) research degree and transfer to a PhD in biomedical engineering or clinical engineering. You can also work towards a Master of Health Science (MHSc) or Master of Engineering (Meng) with biomedical devices focus. Students have come from different departments at the University of Toronto, driven by solving medical problems. IBBME has over 100 faculty members and over 300 graduate students and 40 undergraduate students. Two surgery residents successfully received their PhD through IBBME and are doing extremely well. He stressed that IBBME staff are always available to discuss options with residents. Dr. Chan stayed at the end of the talks to mingle with the residents, which the residents extremely appreciated.

Dr. Nicola Jones is a Professor of Paediatrics and Physiology at the University of Toronto, Senior Scientist in the Cell Biology Program, and staff physician in the Division of GI/Heptology and Nutrition at Sick Kids. She was recently appointed as the Director of the Integrated Physician Scientist Training Program at the University of Toronto. The Clinician Investigator Program (CIP) is an accredited postgraduate medical education program of the Royal College of Physicians and Surgeon. The Royal College approved the CIP in 1995. CIP was initiated as an educational tool for physicians towards their independent career as a clinical investigator combining medical practice and research. CIP is the largest program in Canada with over 140 trainees enrolled in graduate and postdoctoral fellowship programs. CIP offers a novel e-learning and seminar/workshop-based multi-faceted curriculum. The goal of the University of Toronto CIP is to educate physicians towards an independent career as a clinical investigator combining medical practice and research. Residents enrolled in a specialty/subspecialty training program accredited by the Royal College of Physicians and Surgeons of Canada are eligible to enroll in the CIP. The U of T Faculty of Medicine website includes a list of all specialty and subspecialty programs. All CIP trainees commence their research training while registered as a postgraduate (PGY) trainee at the Faculty of Medicine, Postgraduate Medical Education office. The CIP gives residents the opportunity to integrate research and clinical training, and provide the skills and knowledge fundamental to a career as a clinician investigator. University of Toronto CIP residents engage in research in fields spanning the disciplines of biomedical research, clinical research, population health, health economics and policy, and social determinants of health. The CIP is designed to educate a new generation of physician investigators. Residents who complete the CIP will have engaged in a curriculum that features the knowledge, skills, and attitudes fundamental to embarking on a career in health research. Approximately 70% of the CIP graduates across Canada are engaged in investigative careers as faculty members. Residents in a specialty/ subspecialty program have an opportunity to train as clinician investigators in an accredited and audited Royal College research training program and concomitantly pursue a Master's of Science or Doctor of Philosophy degree, or a Postdoctoral Fellowship. CIP provides dedicated research time within the context of a rigorous training milieu. CIP trainees have the opportunity to participate in seminars specifically designed for the clinician scientist trainee. CIP trainees at the University of Toronto share their education with a large group of fellow trainees with whom they can share experiences, discuss relevant issues, and mold their training environment. CIP graduates obtain a certificate of completion from the RCPSC, attesting to the completion of the research and clinical components of the program. CIP graduates are positioned for success as independent investigators because they have research training credentials and practical research experience. SSTP residents are encouraged to apply for CIP-MOH funding the first or second year in the Program for full salary & benefits support.

Dr. Mingyao Liu is Director of the Institute of Medical Science and Professor of Surgery, Medicine and Physiology at Faculty of Medicine, University of Toronto. He is James and Mary Davie Chair in Lung Injury, Repair and Regeneration and Head of Respiratory and Critical Care Research at the Toronto General Hospital Research Institute, University Health Network. Dr. Liu started by announcing that IMS celebrated its 50th Anniversary International Conference on October 3rd highlighting graduate education in medical science. He went on to proudly state that Dr. Bernard Langer established the SSTP in 1984 with three trainees. By 1996 over 40 residents were enrolled in the SSTP. The Annual Bernard Langer Lecture in Health Sciences was established in 1998 by IMS. Over 40% of the SSTP residents are in IMS. Residents need to realize that while in graduate training, the supervisor, not the program, is more important. Research area, mentorship and research support are the essential components in any research endeavour. Several staff members are cross appointed among IBBME/IHPME/IMS. Interdisciplinary research is what is expected and collaboration, not competition is vital. Your supervisor's appointment with a graduate school will lead you to start your search for graduate school registration. Dr. Liu indicated that there are several notable alumni, specifically Drs. Trevor Young and Catharine Whiteside, as well as Surgery staff members, Andrew Smith (President and Chief Executive Officer, Sunnybrook Health Sciences Centre) and Robert Bell (Former Deputy Minister of Health and Long-Term Care). Of course, there are Ori D. Rotstein and Shaf Keshavjee, to name a few. At present there are 198 doctoral students, 232 masters students, 73 professional masters students and 45 clinician scientists enrolled through IMS. Funding sources through IMS is very impressive. Research Publications from Faculty of Medicine IMS staff is extremely inspiring, as is the number of times cited. Over 90% of the Thoracic Surgery team at Toronto General Hospital are IMS faculty and alumni. Similar teams in surgery span from neurosurgery (Charles Tator, Michael Fehlings, James Rutka), to cardiac surgery (Richard Weisel, Ren-Ke Li, Vivek Rao, Terry Yau), to orthopaedic surgery (Robert Salter, Ben Alman), to general surgery (Ori Rotstein,

Steven Gallinger, Carol Swallow). There are high expectations and requirement for residents who are in IMS, from PAC meetings twice a year, to minimum page count for MSc thesis as well as larger exam committees and more competitive student awards.

Dr. Natalie Coburn is a surgical oncologist, specializing in hepatobiliary and gastric cancer. She completed her general surgery residency at Brown University, her surgical oncology fellowship at the University of Toronto, and a master's of Public Health in Quantitative Methods at Harvard University. She is an adjunct scientist at ICES and a Professor in the Department of Surgery at the University of Toronto, with a cross appointment to the Department of Health Policy, Management and Evaluation. Dr. Coburn stated that each year IHPME accepts applications from a spectrum of trainees, from MD-PhD students to residents and fellows. Application deadline is November 15, but the discussions within the department and division and with potential mentors should occur during PGY 1 and early PGY 2 rotations. IHPME accepts 25-30 students annually. Some pre-existing research experience and evidence of translating this research to a finished product must be evident in the application in order for the resident/student to be accepted. The spectrum of students in clinical epidemiology is diverse. Students start their first course in July of their first year with an intro to clinical epidemiology course that runs from July and half of August. Students generally enter the program at the same level, taking the same course, and in the first year declare whether they will focus on a Masters or PhD degree. Thesis-base Masters on average is 2 years. PhD degree completion is normally 4 years. Non-thesis masters option is available, which is a good approach for students already heavily engaged in a research program. The IHPME program is an essential aspect of training for students/residents who plan on a career in clinical research. Drs. Rob Fowler and Jill Tinmouth are the two people who residents may be interested in contacting.

Chris Ahuja and Kevin Zuo gave brief summaries of their roles as SSTP representatives on the Department of Surgery Research Committee. Chris is neurosurgery resident working towards his PhD in IMS with Dr. Fehlings at Toronto Western Hospital, University Health Network. His research focus is on regenerating the traumatically injured spinal cord using human stem cells. Kevin Zuo is Plastic and Reconstructive Surgery resident working towards his MASc in IBBME with Dr. Gregory Borschel at the Hospital for Sick Children. His research is on translational strategies to enhance axon regeneration after nerve gap reconstruction. Both Chris and Kevin reviewed their motivation to join the SSTP and the highly encouraging skills obtained thus far. They emphasized the importance of keeping all options open as you choose your career path.

Dr. Fehlings concluded that there will be several venues for SSTP residents' orientation and career planning. Gallie Day is the academic highlight of the year. It is designed to highlight student, trainees and faculty achievements and provide opportunities for scientific presentations.

Residents emailed queries to Val Cabral, which Dr. Fehlings and staff members addressed. The Q & A was ongoing throughout the evening. Dr. Fehlings emphasized that SSTP residents need to choose their supervisor (mentor) and project carefully. This is a 2 – 4-year commitment that may ultimately mold your career path. They are in a well-established University and Department. Their supervisor, Committee members and staff are available to discuss their career objectives.

Residents had ample opportunity to “mingle” with other residents in the SSTP and the available staff.

