

CARDIOVASCULAR SCIENCES COLLABORATIVE PROGRAM

Faculty of Medicine, University of Toronto

ANNUAL REPORT **2012 – 2013**

FitzGerald Bldg., 150 College Street, Room 83E, Toronto ON M5S 3E2

Tel: 416/978-0746

Fax: 416/946-5713

E-mail: cv.program@utoronto.ca

Web site: www.cscp.utoronto.ca

CONTENTS

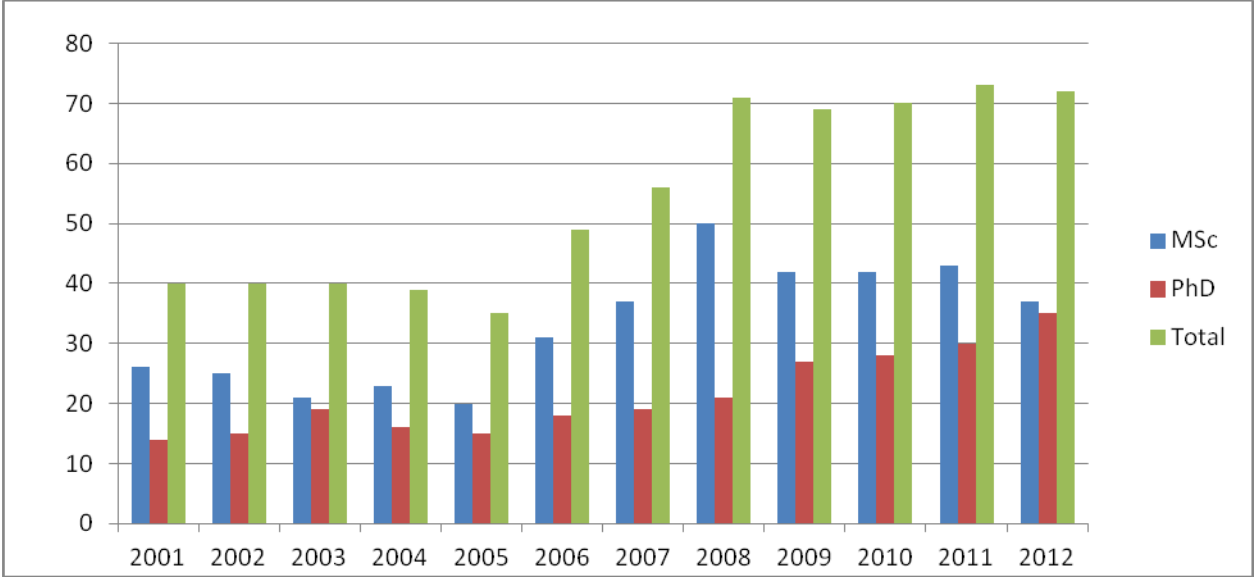
DIRECTOR'S MESSAGE	2
MISSION STATEMENT	4
COLLABORATING FACULTIES/DEPARTMENTS	4
COMMITTEES	5
- <i>Executive</i>	
- <i>Program</i>	
COURSES OFFERED	6
PROGRAM SPONSORED ACTIVITIES	6
- <i>Annual Student Research Day</i>	
- <i>Student Forum Night</i>	
- <i>Cardiovascular Summer Initiative – CSI</i>	
- <i>Circulation Rounds</i>	
AWARDS	13
- <i>Medtronic Travel Award</i>	
- <i>Bigelow Book Prize</i>	
- <i>Lorne Phenix Graduate Award</i>	
FINANCIAL SUPPORT	16
- <i>Ontario Student Opportunity Trust Funds (OSOTF) Award</i>	
- <i>Ontario Graduate Scholarships in Science and Technology (OGSST)</i>	
ADVERTISING MATERIAL	16
ACKNOWLEDGEMENTS	17
STUDENTS	18
- <i>Currently Enrolled</i>	
- <i>Convocated/Follow-Up</i>	
- <i>Awards and Honors</i>	
- <i>Publications</i>	
FACULTY	28
- <i>Members</i>	

DIRECTOR'S MESSAGE



It is my pleasure to present this annual report highlighting the Cardiovascular Sciences Collaborative Program's (CSCP) activities and accomplishments for the 2012-2013 academic year. This has been a pivotal year for the CSCP with a major restructuring of the administrative office to be as cost effective as possible while maintaining the high standards the CSCP has achieved to date. This is critical as we proceeded to approach our academic partners for support. As you read through the report, it should be immediately apparent that the CSCP does the extra to ensure that our trainee's experiences are optimized and that our efforts dovetail with those of our participating Faculties, Departments and Institutes/Centres. This enhances both programs; making this the best place for graduate training in this field.

As evidenced by the data in this report, student enrollment over the last 5 years has been such that despite significant numbers of graduating students each year, these have been replaced by new admissions thereby maintaining a total of around 70 students annually involved in the program. I am particularly pleased with these numbers as it reflects student enthusiasm for the program. As well, the completion numbers which are close to 100%, illustrate their dedication to training and the value added the CSCP brings. I am very proud and grateful to our faculty who have mentored our students through to their successes. I also expect these numbers to once again rise as some of our less active academic partner units will be more involved in the future.



The high level of student satisfaction with the Program is confirmed during their annual meeting with the CSCP Student Affairs Committee Chair and the exit surveys we continue to receive. These annual meetings also help guide our direction and, if needed, address any student concerns early, thus further assuring that we stay on track to meet the ever changing student needs. Evaluation surveys we conduct also record the students' appreciation for the annual student research day, seminars held and courses we run. It continues to be true that today's

discerning student is well aware that it is not enough to just fulfill their department's degree requirements if they hope to succeed post graduation. Even those who chose to enter professional degree programs know that a specialist certification, such as that issued upon successful completion of the CSCP, is a statement of excellence that provides them with an edge. All our students benefit from personal contact with our faculty who are top University of Toronto cardiovascular scientists from across the campus because they are involved with the CSCP at every level from administration to teaching to supervision. This has given the CSCP trainee exposure to the diversity of excellence we have both on campus and at our teaching hospitals and research centres. In the progressively more difficult financial times we face, clearly any time taken from the research done by the student could be viewed as lessening the productivity for the supervisor, yet participation in the CSCP is promoted. This is a testimonial to the value and quality offered by the CSCP to the cardiovascular research community and its' trainees.

As in previous years, details on the many highlights related to CSCP activities can be found within the body of this report and on our web site at www.cscp.utoronto.ca. The flagship event continues to be the day long Student Research Day, where students are able to network with other students across the campus in the many differing disciplines. This event is organized by the students and this past year a creative addition was to have lunch-and-learn sessions on career relevant topics which was well received. In addition, by sharing their research with their peers at the day, they learn from each other and we often hear that new collaborations with groups outside the students normal sphere evolve from their interactions within the CSCP. Another example of this, which is organized by the CSCP students, is 'Circulation Rounds', which consist of visits to the different research locations of our diverse faculty. This allows the students to meet and experience current and ongoing projects in the cardiovascular arena. The summer CSI series which has evolved to include practical visits to facilities such as Toronto Rehabilitation Centre and the Surgical Skills Laboratory further expands the awareness of the breadth and depth offered at the University of Toronto in the cardiovascular sciences. Our flagship graduate course JCV3000 series, made up of 4 modules each worth .5 FTE, continues to be very popular, and the evaluations rank each module very highly.

While maintaining our academic excellence, this past year we have embarked on the journey to fiscal sustainability by establishing the 'Office of Collaborative Programs' with its hub within the space and resources provided by the CSCP. This is a unique concept whereby a number of like minded programs are administered through one common office. As of January 1, 2013 the CSCP, CPIN and the Sleep and Biorhythms Program are all administered together thereby effectively reducing each group's costs by sharing jointly in the office infrastructure. It is also anticipated that the future Collaborative Program in Developmental Biology will also join this initiative further strengthening the concept. I also met with each Chair and Director of our partner units to re-visit their participation. I am pleased to say that this was a most productive endeavor which resulted in commitments, bridge funding, and a willingness to provide financial support annually, as needed, until the CSCP is able to fundraise successfully by those who felt their continued participation in our quality program of value. The fundraising side has been helped along with a commitment from the Department of Physiology to make the CSCP one of its' fundraising initiatives. It is also worth a mention that the CSCP is one of the few if not the only collaborative program that yearly allocated more than \$153,000 of student support including scholarships, bursaries and awards yearly. The CSCP is pleased to be able to provide this tangible monetary benefit for our partner units as but one compensation for their support. In wrapping up, I wish to once again take a moment to thank Drs. Margaret Rand and Scott Thomas, Chairs of the Scholarship & Awards Committee and Student Affairs Committee respectively, who volunteer their time to make that extra contribution. They have dedicated

many selfless hours to their additional responsibilities, which has been key to the ongoing academic success of the CSCP. I wish to also welcome Dr. Tony Gramolini who graciously agreed to take over the helm of the Curriculum Subcommittee, which oversees our courses and other educational delivery. Then there is our Senior Administrator/Business Officer, Victoria Simpson, who has gone beyond any call to duty during this past year of restructuring and has risen to the difficulties presented with the addition of the other programs to her administrative portfolio. She is and continues to be the real soul of the CSCP, and under her guidance the other programs have also benefited from her years of experience and commitment. Finally, it goes without saying that the CSCP is really about the active participation by our students and faculty who teach, organize and contribute in many ways to all our activities making the CSCP exciting and vibrant. It is much appreciated and we could not be where we are today without you all!

*Dr. Carin Wittnich, O.Ont.
Director, CSCP
Professor of Surgery & Physiology
Northrop Frye Scholar*

MISSION STATEMENT

“The Cardiovascular Sciences Collaborative Program, approved by the University and Ontario Council on Graduate Studies in 1992, and listed in the calendar of the School of Graduate Studies, exists to give formal, organized expression to cardiovascular studies and research at the graduate level. It builds on the strengths of all participating academic units, and other agencies, to enhance the visibility of cardiovascular studies and to facilitate collaborative, interdisciplinary training and research.”

The above mission is achieved by advertising and promoting the importance of, and opportunities in, cardiovascular studies, by making known the results of such studies, by recruitment of excellent students, and by coordinating the graduate collaborative program in cooperation with the academic units in which they are registered. Students in this collaborative program must fulfill the requirements of their home units as well as the Program. Upon graduation the notation “Specialization in Cardiovascular Sciences” will appear on the student’s academic transcript and the Program will present the student with a certificate and gift.

COLLABORATING FACULTIES

Dentistry
Kinesiology and Physical Education
Medicine
Leslie Dan Faculty of Pharmacy

COLLABORATING GRADUATE UNITS

Biomaterials and Biomedical Engineering
Dentistry
Exercise Sciences

Health Policy, Management & Evaluation
Laboratory Medicine and Pathobiology
Medical Biophysics
Medical Science
Nursing Science
Pharmaceutical Sciences
Pharmacology and Toxicology
Physiology
Public Health Sciences
Rehabilitation Science

SUPPORTING CLINICAL DEPARTMENTS

Anesthesia
Medicine
Surgery

COMMITTEES

Executive

The Executive Committee consists of 4 members of the Program Committee representing as wide a range of disciplines as possible and includes the Director. They also act as Chairs of the various subcommittees as noted beside their name. The Executive Committee provides student counseling, screens applicants, provides advice and acts as a Steering Committee.

Dr. C. Wittnich (Fundraising)
Dr. M. Rand (Scholarships & Awards)
Dr. T. Gramolini (Membership/Curriculum)
Dr. S. Thomas (Student Affairs)

Program

The Program Committee consists of a representative from each collaborating department as well as two student representatives. It administers the Program, selects the Director, and generally meets twice per year.

C. Wittnich (Chair)
D. Brooks (Rehabilitation Science)
S. Wu (Pharmaceutical Sciences)
D. Mazer (Anesthesia)
J. Parker (Pharmacology)
S. Heximer (Physiology)
D. Steinman (Institute of Biomaterials and Biomedical Engineering)
M. Rand (Laboratory Medicine and Pathobiology)
R-K. Li (Institute of Medical Science)
J. Flanagan (Dentistry)
S. Thomas (Exercise Sciences)
TBA (Health Policy, Management and Evaluation)
F. Silverman (Public Health)

TBA (Nursing)
G. Wright (Medical Biophysics)
President, CSCP Student Association
Vice-President, CSCP Student Association

COURSES OFFERED

EXS5508H	Cardiovascular Disease and Exercise
JCV1060H	Developmental Cardiovascular Physiology
JCV3060H*	Advanced Topics in Cardiovascular Sciences – Molecular Biology & Heart Signal Transduction
JCV3061H*	Advanced Topics in Cardiovascular Sciences – Hormones
JCV3062H*	Advanced Topics in Cardiovascular Sciences – Heart Function
JCV3063H*	Advanced Topics in Cardiovascular Sciences – Vascular
JEB1365H	Ultrasound: Theory and Applications in Biology and Medicine
JTC1331H	Biomaterials Science
LMP1015H	Vascular Pathobiology
LMP1504H	Cell and Molecular Biology of Cardiovascular Diseases
PSL1462H	Molecular Aspects of Cardiovascular Function

* Core Courses for PhD Trainees (2 of 4 modules required); JCV denotes joint listing with most of our collaborating departments.

Suggested Courses (Considered valuable but does not fulfill Program requirements)

CHL5201	Introducing Biostatistics for Students in Biological Sciences I
LMP1404S	Cellular and Molecular Mechanisms of Disease

PROGRAM SPONSORED ACTIVITIES

ANNUAL STUDENT RESEARCH DAY

The 14th Annual Cardiovascular Sciences Collaborative Program (CSCP) Student Research Day was held on Wednesday, April 17, 2013. This annual meeting offers trainees an opportunity to present their current research to their peers in a welcoming environment promoting discussion and the free flow of ideas. The day began with opening remarks from the Director, Dr. Carin Wittnich, followed by a day of excellent science presented by the Program students and finishing with inspiring presentations from our guest speakers, Professor Lee Adamson, Depts of Physiology and Obstetrics & Gynecology and Professor Peter Backx, Depts of Physiology and Medicine. New to this year's schedule was the added optional "Lunch 'n Learn" sessions which focused on creating an academic CV and on undergraduate teaching. Awards were also presented to students who were deemed to have given the best and most innovative presentations and certificates awarded to students who had completed their CSCP training.

STUDENT PRESENTATIONS

As part of the CSCP must present their research period. This presentation followed by a brief question



requirements, all students sometime during their training consists of a 10-minute talk period. This year students

gave presentations in a diverse range of cardiovascular topics as can be seen below, within the 4 sessions.

Session I: Chair – Danielle Bentley

Laura Banks (PhD – Institute of Medical Sciences)

Enhanced physiology for sub-maximal exercise in children after the Fontan Procedure

Zach Goodman (MSc – Exercise Sciences)

Cardiovascular effects of recreational pick-up hockey on middle-aged men

Gabriela Ghisi (PhD – Exercise Sciences)

Assessment of information needs in cardiac rehabilitation patients using psychometric validated INCRtool

Kaustabh (Bunty) Singh (PhD – Laboratory Medicine and Pathobiology)

β -catenin as a therapeutic target for improving cardiac remodeling after myocardial infarction

Jake Cosme (MSc – Physiology)

Discovery proteomics strategy identifies hypoxia-induced changes in the cardiac fibroblast exosome

Session II: Chair – Arash Ghashghai

Taylor Gray (MSc – Exercise Sciences)

Right heart hemodynamics during exercise: the influence of chronic endurance exercise

Cynthia Abassi (MSc – Physiology)

Generation and characterization of ERp44 (TXND4) knockout/knockin mice and zebrafish knock-out to study the role of ERp44 Ca²⁺ signalling and ER stress in the heart

Mark Blaser (PhD – Biomedical Engineering)

Versican-rich proteoglycan thickening in diet-induced early aortic valve disease in mice

Uswa Shahzad (MSc – Institute of Medical Science)

Transmyocardial revascularization enhances mesenchymal stem cell engraftment in infarcted hearts through SCF—c-kit and SDF-1—CXCR4 signaling axes

Ethan Ruderman (MSc – Exercise Sciences)

Effects of acute aerobic exercise on the pharmacokinetics of the anti-anxiety/anti-depressant drug sertraline.

Session III: Chair – Laura Banks

Richard Cheng (MSc – Physiology)

Retinal vascular reactivity response characteristics to oxygen

Susan El Rass (MSc – Institute of Medical Science)

Mutagenic gene trapping to study novel genes in zebrafish cardiovascular development

Steve Wright (MSc – Exercise Sciences)

Left and right atrial function during exercise

Nima Zamiri (MSc – Institute of Medical Science)

Novel strategy for improving survival following Ventricular Fibrillation (VF): new use for an old drug

Session IV: Chair – Laura Banks

Antonio Mauro (MSc – Institute of Medical Science)

High throughput analysis of compound efficacy targeting zebrafish vascular development

Amish Jain (MSc – Physiology)

Using established and novel echocardiography imaging to quantify right ventricle dimensions and function in newborn infants during early postnatal transition – assessment of feasibility, reliability and establishing normative data

Timothy Mak (MSc – Physiology)

Effects of surgery and phenylephrine on rectus abdominus muscle and free flap perfusion in a rat model

Lunch 'n Learn Sessions

This year a new element described as 'Lunch 'n Learn' was introduced into the Annual Student Research Day. Ben Moulton from the Teaching Assistant Training Program led us through some

strategies for creating interactive undergraduate teaching and Carin Wittnich shared some help tips about composing a strong academic CV. These sessions were a great success and we look forward to incorporating them into future research days.

CERTIFICATES/AWARDS

Dr. Wittnich presented certificates to students who successfully completed the Cardiovascular Sciences Collaborative Program over the past year:

MSc

Tina Hu, IMS (Supervisor: Dr. G. Hare)
Jemy Joseph, IMS (Supervisor: Dr. V. Rao)
Sam Esfandiara, EXS (Supervisor: Dr. J. Goodman)
Luke Tan, PSL (Supervisor: Dr. C. Wittnich)
Sagar Rohailla, IMS (Supervisor: Dr. C. Caldarone)
Paul Lee, IMS (Supervisor: Dr. H-L. Poi)

PhD

Jane MacIver, IMS (Supervisor: Dr. V. Rao)
Maral Ouzounian, IMS (Supervisor: Dr. P. Liu)

Congratulations to all the students and success in their future career endeavours!

Continuing the spirit of success and achievement, the annual CSCP student awards were presented by Dr. Carin Wittnich and Dr. Margaret Rand.

2013 Bigelow Book Prize Recipient – Katherine S. Allen

The CSCP congratulates Ms. Katherine Allan, a doctoral candidate in the Institute of Medical Science, supervised by Dr. P. Dorian, St. Michael's Hospital, who was presented with the 2013 Bigelow Book Prize for her continued and sustained academic scientific excellence. The sudden stoppage of a young person's heart ("heart arrest") is very upsetting for the victim's family, friends, and community. In the majority of cases, the heart stops pumping when it goes into a dangerous rhythm and in almost all cases, the young people die. Recent reviews have highlighted our lack of information on how many young people die every year, including the cause of why their heart suddenly stopped and if the cause is due to something in their genes. We want to understand why certain young people's hearts suddenly stop functioning, in order to see what can be done to prevent these events from happening in the first place. We think that by figuring out how many young people die suddenly each year in the Greater Toronto Area as well as why their hearts suddenly stopped might help prevent events in family members at risk.



L-R: Dr. Carin Wittnich, Katherine Allen

2012-13 Lorne Phenix Graduate Award Recipient – Danielle Bentley

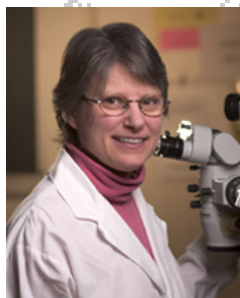
The CSCP congratulates Ms. Danielle Bentley, a doctoral candidate in the Department of Exercise Sciences, Faculty of Kinesiology and Physical Education, supervised by Dr. S. Thomas, University of Toronto, who was presented with the 2012-13 Lorne Phenix Graduate Award for her continued and sustained academic scientific excellence. Her research looks at the cardiovascular health of post-menopausal women, an at-risk population owing to the lost vascular protection of estrogens. Specifically, Danielle is trying to determine the most effective handgrip exercise protocol for reducing blood pressure in both the short-term (immediately following an exercise bout) and the long-term (following 4-6 weeks of handgrip training). This is new and exciting research which could help many women improve their cardiovascular health. At the moment, it is well known that aerobic exercise training can be used as an effective means of reducing one's blood pressure. However, due to various limitations (physical, social, financial etc.) this form of exercise is not always accessible. Isometric handgrip training may provide an alternative exercise strategy for the non-pharmaceutical control of blood pressure.



L-R: Ms. Kathryn Phenix, Danielle Bentley, Dr. Margaret Rand

Following the awards presentations, students socialized and networked during the complimentary lunch before attending the 'Lunch 'n Learn' sessions and being treated to our esteemed invited guest speakers.

GUEST SPEAKERS



Dr. Lee Adamson is a Full Professor in the Department of Physiology with a cross-appointment in the Department of Obstetrics & Gynaecology. Dr. Adamson is the Head of the Research Centre for Women's and Infants' Health and the Director of the BioBank Program at the Samuel Lunenfeld Research Institute of Mount Sinai Hospital and the Director of the Mouse Physiology Core, Centre for Modeling Human Disease of Mount Sinai Hospital, Toronto Centre for Phenogenomics.

Dr. Adamson's research interests are the influence of the placenta on fetal and maternal cardiovascular function during pregnancy and after birth. Specifically, abnormal placentation early in pregnancy is believed to cause the two most serious complications of human pregnancy, preeclampsia and fetal intrauterine growth restriction. These life-threatening conditions affect ~5% of all human pregnancies. In both disorders, the blood vessels in the placenta are abnormally formed and this is believed to contribute to the abnormal function of the placenta and the clinical signs of disease in the mother and her fetus. In her lab mice with mutations in genes believed to influence blood vessel growth in the placenta are being studied. They are performing physiological measurements in the mother, placenta, and fetus to determine the influence of aberrant placental development on pregnancy outcomes. Maternal and fetal cardiovascular function is monitored non-invasively using micro-ultrasound imaging and Doppler blood velocity measurements. Maternal and fetal blood vessels in the placenta are

imaged using micro-computed tomography, vascular corrosion casting, and histological techniques. They are seeking to discover the roles of specific genes expressed in the placenta in the etiology of preeclampsia and fetal intrauterine growth restriction using mice as animal models.



Dr. Peter Backx, DVM, PhD, is a Professor in the Departments of Physiology and Medicine, Senior Scientist in the Division of Cellular & Molecular Biology at the Toronto General Research Institute, Director of the Heart & Stroke/Richard Lewar Centre of Excellence Transgenic Physiology Lab and was recently elected to The Royal Society of Canada. Dr. Backx's research interests focus in two main areas: the molecular structure of cardiac ion channels and the physiological role of cardiac ion channels in normal and diseased myocardium. The ultimate goal of these studies is develop therapeutic agents to treat cardiovascular disease by targeting ion channels. Recent results in transgenic mice suggest that alterations in cardiac ion channel function can initiate and contribute to heart disease progression. In another set of studies they have developed a novel paradigm for the creation of tissue-specific agents for the modulation of ion channel function.

The CSCP thanks our guest speakers for the very insightful and interesting talks. Learning how interconnected their research paths were while at the same time so distinct. From veterinary training to impromptu faculty positions -- learning about how both of these researchers got to where they are was exciting and intriguing!



(L-R) Danielle Bentley, Peter Backx, Lee Adamson, Laura Banks

SESSION PRESENTATION AWARD WINNERS

Each presenter was evaluated for best presentation and most innovative research by four members of the organizing committee. Criteria included content (quality of research, organization of presentation), visuals (clarity, readability), delivery (voice level, pacing) and overall impression. Certificates/gifts were presented to the winners by the Organizing Committee Co-Chair Danielle Bentley. Congratulations to awardees Nima Zamiri for "Most Innovative Research" and Bunty Singh for "Best Presentation" for their outstanding talks.



(L-R) Danielle Bentley, Nima Zamiri



(L-R) Danielle Bentley, Bunty Singh

CLOSING



The Student Research Day was a success and would not have been possible without the combined efforts of several individuals. Thank you to the Organizing Committee (*Insert L-R: Arash Ghashghai, Stephanie Beadman, Laura Banks (Co-Chair), Danielle Bentley (Co-Chair), Nour Qa'aty, Mehroz Ehsan*) for all their hard work, Victoria Simpson for her support and knowledge in making this day successful, Professors Adamson and Backx for their outstanding and inspiring presentations, and the Sessions Chairs, Danielle Bentley, Arash Ghashghai and Laura Banks for keeping the sessions running smoothly.

Thank you to all the CSCP students and to all involved in making the 14th Annual CSCP Student Research Day a great success!

STUDENT FORUM

This event is an excellent opportunity for new students of the CSCP to meet one another and for senior students to catch up with old friends, and develop relationships with the up and comers. Discussions range from basic research, laboratory trials and triumphs, to future academic /career directions. Connections for research collaboration, as well as friendships are developed, and all those in attendance thoroughly enjoy the festive dinner and the change to meet other students. Due to a lack of funding we were unable to provide the CSCP student body with the 2012 CSCP Forum and Dinner. We hope to resume this event in 2013.

CARDIOVASCULAR SUMMER INITIATIVE (CSI)

The CSI program provides the graduate cardiovascular student community, as well as the undergraduate community, a more inclusive feel for the cardiovascular field. It gives them a broader frame of reference than just the lab experience and offers them chances to delve into areas they might not considered. The CSI program is a field trip experience where students are given the opportunity to go and learn more about various areas of cardiovascular research and potential alternative career paths. Field trips have included the MRI/CT Imaging Centre at St. Michael's Hospital, the Toronto Cardiac Rehabilitation outpatient centre, tour of an exercise physiology Lab, tour a pharmaceutical research division, tour a retinal blood flow lab, or a tour of the Surgical Skills Centre at Mt. Sinai Hospital, to name a few.

CIRCULATION ROUNDS

The CSCP student body organizes and runs this event which highlights the diverse nature of research carried out by our faculty. These academic rounds rotate through the various research sites at the University of Toronto and each event is hosted by a faculty member where their research focus is the topic of the day. The goal of this event is to provide graduate students, post-doctoral fellows, research associates, undergraduates and project/summer students with the chance to develop an appreciation of the vast range of excellent research being conducted in our widespread community. The students do a great job organizing these events and all seminars are well attended. For more detailed information regarding the presentations noted below, please go to the CSCP web site at www.cscp.utoronto.ca.



The first invited speaker was Dr. Michael Sefton, Michael E. Charles Professor in the Department of Chemical Engineering and Applied Chemistry and the Institute of Biomaterials and Biomedical Engineering, University of Toronto. This Circulation Round took place at the Donnelly Center at the University of Toronto on Wednesday, September 19th, 2012.

Dr. Sefton was educated at the University of Toronto (BASc, 1971) and at MIT (Sc.D., 1974) and has been at the University of Toronto since 1974. To commemorate the end of the 20th century, he was one of 20 given a Century of Achievement Award by the CSChE in 1999. He was Director of the Institute of Biomaterials and Biomedical Engineering at the University of Toronto from 1999-2005 and President of the US Society for Biomaterials in 2006. He received the Albright and Wilson Americas Award of CSChE in 1988. He was named University Professor in 2003 and elected a Fellow of the Royal Society of Canada in 2005. He has also received the Founders Award of the US Society for Biomaterials and the Killam Prize in Engineering of the Canada Council. Last year he received the Acta Biomaterialia Gold award.

Dr. Sefton's academic history started in the field of chemical engineering focusing on blood compatible materials. Gradually He migrated towards the mechanism of biomaterial associated inflammation. His current research interests include the mechanisms of cell transplantation / drug delivery, biomaterials and tissue engineering. Dr. Sefton ultimate focus is to engineer novel materials with living cells to yield functional tissue equivalents.

His discussion that afternoon was "*Vascularization of Tissue Constructs*". In Dr. Sefton's presentation, he discussed the development of a new generation of materials or devices capable of inducing the formation of new blood vessels. *Tissue Engineering* is built upon the basic cell biology of these host cells and the variety of signals that control their behaviour; including extracellular matrix, growth factors and the immune/inflammatory system. He emphasized the development of novel vascularization methods and subsequently, the role of blood flow hemodynamics in new vessel perfusion. Current studies investigate in-vivo inflammatory responses to newly vascularized tissue types; including cardiac and pancreatic tissue. Following the discussion, Dr. Sefton took us on a tour of his advanced research facility.



Circulation Rounds on Friday, February 1, 2013 brought students to Dr. Howard Leong-Poi, the Head of the Division of Cardiology at St. Michael's Hospital, and an Associate Professor of Medicine at the University of Toronto. This event was held in the Keenan Research Centre at the Li Ka Shing Knowledge Institute.

Dr. Howard Leong-Poi obtained his M.D. at The University of Toronto in 1992, and completed his internal medicine and cardiology training at The University of Toronto in 1996 and 1999 respectively. He then undertook a 3-year research echocardiography fellowship under the supervision of Dr. Sanjiv Kaul at the University of Virginia, funded by The Canadian Institutes of Health Research and The Heart and Stroke Foundation of Canada. Dr. Leong-Poi returned to Canada in 2002 and he holds the Brazilian Ball Research Chair in Cardiology, and is a Clinician Scientist in the Keenan Research Centre at the Li Ka Shing Knowledge Institute.

His clinical interests includes echocardiographic imaging of ischemic and valvular heart disease, and his research, supported by the Canadian Institutes of Health Research, Heart and Stroke Foundation of Canada, Ministry of Research and Innovation and the Canadian Foundation for Innovation.

Dr. Leong-Poi's topic for the afternoon was "Ultrasound-Mediated Gene and Progenitor Cell-Based Therapies for Cardiovascular Diseases." He specializes in non-invasive cardiac imaging, in particular echocardiography, stress and contrast echocardiography. Dr. Leong-Poi presentation discussed the novel diagnostic and therapeutic applications for contrast ultrasound and targeted microbubbles, which employs contrast ultrasound, and ultrasound-targeted gene- and cell-based regenerative therapies for cardiovascular diseases and cancer therapeutics. His talk was followed by a tour of his lab and a live echo demonstration.



Dr. Steffen Sebastian Bolz's lab hosted the third Circulation Rounds on March 28, 2013 at MSB 3154 and was very successful. The topic event was "TNF alpha, sphingosine-1-phosphate (S1P) and the cystic fibrosis transmembrane conductance regulator (CFTR) as central regulators of microvascular function in health and disease". This included faculty members from the Department of Physiology, post docs, and graduate students. Many interesting questions were asked at the end of the event and it was a good learning experience for everyone. The research seminar was followed by a lab tour in which isolated arteries were viewed with microscope.

AWARDS

MEDTRONIC TRAVEL AWARD

Two competitions were held (spring and fall) for the Medtronic Travel Award. This award, established in 1995, helps to defray costs of travel for Program students presenting their research work at recognized scientific meetings. Students supported by this award this academic year were:

Fall 2011:

Danielle Bentley, PhD Candidate, Dept. of Exercise Sciences (Supervisor: Dr. S. Thomas)

Canadian Hypertension Congress, Toronto ON, October 2012

"Acute blood pressure response to isometric handgrip resistive exercise in post-menopausal women: A pilot study"

"Long-term physical activity adherence following cardiac rehabilitation: A multifactorial analysis"

Steve Wright, MSc Candidate, Dept. of Exercise Sciences (Supervisor: Dr. J. Goodman)

Canadian Society for Exercise Physiology, Regina SA, October 2012

“Altered atrial function improves ventricular diastolic filling following short-term endurance training”

Spring 2012:

Robert Lakin, PhD Candidate, Dept. of Exercise Sciences (Supervisor: Dr. J. Goodman)

Experimental Biology, Boston MA, April 2013

“ Post-exertional blood pressure response following swim exercise is dependent on training status”

Uswa Shahzad, MSc Candidate, Institute of Medical Science (Supervisor: Dr. T. Yau)

International Society for Heart & Lung Transplantation Annual Meeting, Montreal QE, April 2013

“Transmyocardial revascularization enhances mesenchymal stem cell engraftment in infarcted hearts through SCF-c-kit and SDF-1-CXCR4 signaling axes”

Jake Cosme, MSc Candidate, Dept. of Physiology (Supervisor: Dr. A. Gramolini)

International Society for Heart Research XXI World Congress, San Diego CA, July 2013

“Discovery proteomics strategy identifies hypoxia-induced changes in the cardiac fibroblast exosome”

BIGELOW BOOK PRIZE

This prize was established in 1995 by the Cardiovascular Sciences Collaborative Program to recognize and honor a pioneer clinician and scientist in the field of cardiovascular sciences. Awardees should exemplify the personal traits of Dr. Bigelow - curiosity, drive, and scientific integrity. The award is given in every year that a qualified student is identified. Qualifications include sustained academic scientific excellence, innovative experimental approaches, original discoveries and good scientific productivity. Some weight is given to work that has recognizable clinical relevance, especially that which promises to improve patient care. The Bigelow Book Prize consists of 2 books written by Dr. W.G. Bigelow entitled “Cold Hearts” and “Mysterious Heparin” and a keeper plaque created to honor Dr. Bigelow. Appropriate candidates are identified and the final decision is made by the Program Committee.

1995 – John S. Ikonomidis
1996 – Shona M. Torrance
1997 – Vivek Rao
1998 – Bryce Cowan
1999 – Gideon Cohen
2000 – Michael Borger
2001 – Saeid Babaei
2002 – Wm. Jack Wallan
2003 – Paul W.M. Fedak
2004 – Nathalie Lapointe

2005 – Karim Bandali
2006 – Danny Ramzy
2007 – Patricia Rose
2008 – Mitesh Badiwala
2009 – Jane MacIver
2010 – Carlo Cifelli
2011 – Emma O’Donnell
2012 – Laura Banks
2013 – Katherine Allan



The CSCP congratulates Ms. Katherine Allan, a doctoral candidate in the Institute of Medical Science, supervised by Dr. P. Dorian, St. Michael’s Hospital, who was presented with the 2013 Bigelow Book Prize for her continued and sustained academic scientific excellence. The sudden stoppage of a young person’s heart (“heart arrest”) is very upsetting for the

victim's family, friends, and community. In the majority of cases, the heart stops pumping when it goes into a dangerous rhythm and in almost all cases, the young people die. Recent reviews have highlighted our lack of information on how many young people die every year, including the cause of why their heart suddenly stopped and if the cause is due to something in their genes. We want to understand why certain young people's hearts suddenly stop functioning, in order to see what can be done to prevent these events from happening in the first place. We think that by figuring out how many young people die suddenly each year in the Greater Toronto Area as well as why their hearts suddenly stopped might help prevent events in family members at risk.

LORNE PHENIX GRADUATE AWARD

This award was made possible by a generous donation in the memory of Mr. Lorne Phenix by Mrs. Geraldine Phenix. It is her hope that this award will focus attention on the issue of heart disease – which is still the #1 killer of both men and women in Canada. In addition, women who have heart problems are at least equal if not at greater risk than men and Mrs. Phenix hopes that this award will serve to encourage trainees to pursue this area of research to address this particular problem. It is awarded to a graduate student in the Faculty of Medicine on the basis of research and academic excellence. The award consists of a cash prize and certificate and is presented to the recipient at the Annual Student Research Day. Appropriate candidates are identified and a winner is selected by the Awards Subcommittee. The award is given in every year that a qualified student is identified and presented at the Annual Student Research Day.

2001 – Wm. Jack Wallen
2002 – Wm. Jack Wallen
2003 – Shathiyah Kulandavelu
2004 – Rachel Mitchell
2005 – Nesime Askin
2006 – Danny Quaglietta

2007 – Emma O'Donnell
2008 – Luke Tan
2009 – Amir Manbachi
2010 – Shazareen Khan
2012 – Danielle Bentley



The CSCP congratulates Ms. Danielle Bentley, a doctoral candidate in the Dept. of Exercise Sciences, Faculty of Kinesiology and Physical Education, supervised by Dr. S. Thomas, who was presented with the 2012-13 Lorne Phenix Graduate Award for her continued and sustained academic scientific excellence. Her research looks at the cardiovascular health of post-menopausal women, an at-risk population owing to the lost vascular protection of estrogens. Specifically, Danielle is trying to determine the most effective handgrip exercise protocol for reducing blood pressure in both the short-term (immediately following an exercise bout) and the long-term (following 4-6 weeks of handgrip training). This is new and exciting research which could help many women improve their cardiovascular health. At the moment, it is well known that aerobic exercise training can be used as an effective means of reducing one's blood pressure. However, due to various limitations (physical, social, financial etc.) this form of exercise is not always accessible. Isometric handgrip training may provide an alternative exercise strategy for the non-pharmaceutical control of blood pressure.

FINANCIAL SUPPORT

ONTARIO STUDENT OPPORTUNITY TRUST FUNDS (OSOTF) AWARD

The OSOTF award refers to a class of awards that have resulted from the Ontario government's "matching" program. Under the program every dollar of donation received for student assistance has been matched by the government as well as the university on a dollar-for-dollar basis. There are two major conditions for all OSOTF awards; recipients must be Ontario residents and demonstrate financial need. However, the CSCP has additional eligibility criteria that must be adhered to, including excellence in science and academic performance. One competition is held per academic year. The applications are handled centrally through the Office of the Associate Dean, Inter-Faculty and Graduate Affairs. Applications pertaining to the CSCP are sent to us and are then adjudicated by a subcommittee chaired by Dr. Margaret Rand. Committee recommendations are then forwarded to the OSOTF Awards Committee (Faculty of Medicine). The following student received funding for the 2012-2013 year:

Danielle Bentley, PhD Candidate, Dept. of Exercise Sciences (Supervisor: Dr. S. Thomas)
Arash Ghashghai, PhD Candidate, Institute of Medical Science (Supervisor: Dr. V. Rao)
Lee-Anne Khuu, PhD Candidate, Institute of Medical Science (Supervisor: Dr. C. Hudson)
Uswa Shahzad, MSc Candidate, Institute of Medical Science (Supervisor: Dr. T. Yau)

QEII – GSST (GRADUATE SCHOOL SCIENCE & TECHNOLOGY)

The QEII program is designed to encourage excellence in graduate studies in science and technology. The program is supported through funds provided by the Ministry of Training, Colleges and Universities and by funds raised by the University of Toronto and the Heart & Stroke Foundation of Ontario. To be awarded to graduate students at the University of Toronto who are pursuing cardiovascular/stroke research. Students must have maintained an overall A-average over the last two years of study at the post-secondary level and exhibit research ability/potential, good communication skills and interpersonal/leadership abilities. The following students were ranked and offered an award:

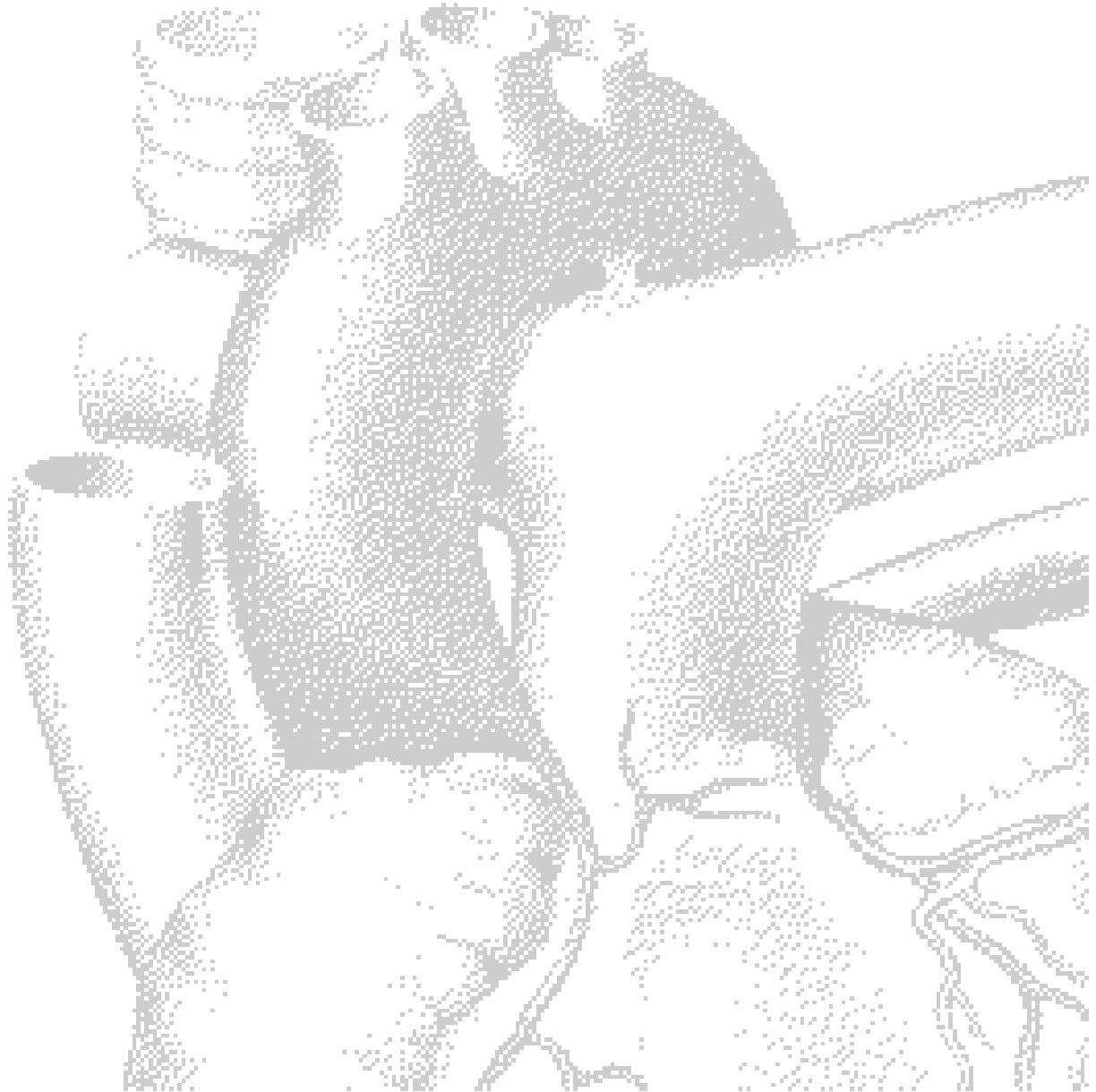
<u>Name</u>	<u>Degree</u>	<u>Dept.</u>	<u>Supervisor</u>
J. Kroetsch	PhD	PSL	S-S. Bolz
A. Jain	MSc	PSL	R. Jankov
O. Pucci	PhD	IMS	J. Fisher
W. Fung	PhD	BME	M. Bendeck
H. Cheng	PhD	LMP	J. Fish
P. Turgeon	PhD	LMP	P. Marsden
S. El-Rass	MSc	IMS	X-Y. Wen
C. Santiago	MSc	PCL	K. Lanctot
A. Korogyi	MSc	PSL	P. Backx

ADVERTISING MATERIAL

The CSCP maintains and updates its web site (www.cscp.utoronto.ca). Faculty information is updated whenever we are notified of relevant changes. Collaborating departments are encouraged to provide hypertext links to the CSCP on their web site.

ACKNOWLEDGEMENTS

The Cardiovascular Sciences Collaborative Program would like to thank the following sponsors for their generous support: Medtronic Canada, the Heart and Stroke/Richard Lewar Centre of Excellence and the Faculty of Medicine.



STUDENTS

Name	Supervisor	Degree	Department
Cynthia Abbasi	A. Gramolini	MSc	PSL
Alanna Adleman	C. Hudson	MSc	IMS
Katherine Allan	P. Dorian	PhD	IMS
Hajera Amatullah	H. Zhang	PhD	PSL
Nesime Askin	C. Wittnich	PhD	PSL
Mitesh Badiwala	V. Rao	PhD	IMS
Laura Banks	B. McCrindle	PhD	IMS
Stephanie Beadman	S. Heximer	MSc	PSL
Danielle Bentley	S. Thomas	PhD	EXS
Mark Blaser	C. Simmons	PhD	BME
Antoinette Bugyei-Twum	K. Connelly	PhD	IMS
Hao Chen	H. Leong-Poi	MSc	IMS
Henry Cheng	J. Fish	MSc	LMP
Richard Cheng	C. Hudson	MSc	PSL
Jake Cosme	A. Gramolini	MSc	PSL
Alex Di Battista	A. Gramolini	PhD	PSL
Mehroz Ehsan	S. Verma	MSc	IMS
Suzan El-Rass	X-Y. Wen	MSc	IMS
Sam Esfandiari	J. Goodman	MSc	EXS
M. Sadegh Farahvash	C. Hudson	MSc	IMS
Carlos Fernando	G. Moe	MSc	IMS
Richard Gao	M. Liu	MSc	PSL
Arash Ghashghai	V. Rao	PhD	IMS
Gabriela Ghisi	S. Thomas	PhD	EXS
Zachary Goodman	S. Thomas	MSc	EXS
Taylor Gray	J. Goodman	MSc	EXS
June (Hui Jun) Guo	A. Giacca	MSc	PSL
Tina Hu	G. Hare	MSc	IMS
Amish Jain*	R. Jankov	PhD	PSL
Jemy Joseph	V. Rao	MSc	IMS
David Kepecs	R. Gilbert	MSc	IMS
Lee-Anne Khuu	C. Hudson	PhD	IMS
Jeffrey Kroetsch	S-S. Bolz	PhD	PSL
Susith Kulasekara	C. Hudson/J. Flanagan	MSc	IMS
Robert Lakin	J. Goodman	PhD	EXS
Paul Lee	H. Leong-Poi	MSc	IMS
Elena Leontieva	C. Hudson	PhD	IMS
Kathryn Lipsett	A. Gramolini	MSc	PSL
Zhen Lu	A. Gramolini	MSc	PSL
Jane Maclver	V. Rao	PhD	IMS
Timothy Mak	G. Hare	MSc	PSL
Cedric Manlhiot	B. McCrindle	PhD	IMS
Farrokh Mansouri	N. Nanthakumar	MSc	BME
Antonio Mauro	X-Y. Wen	MSc	IMS
Adam McKillop	B. McCrindle	PhD	IMS
Azadeh Mofid*	H. Leong-Poi	PhD	IMS
Amelia Mociornita	V. Rao	MSc	IMS

Mark Moon	P. Liu	PhD	IMS
Emma O'Donnell	J. Goodman	PhD	EXS
Omodele Olowoyeye	A. Moody	PhD	IMS
Maral Ouzounian	P. Liu	PhD	IMS
Nour Qa'aty	A. Hinek	MSc	IMS
Azza Ramadan	S. Verma	PhD	IMS
Iran Rashedi	A. Keating	PhD	BME
Sagar Rohailla	C. Caldarone	MSc	IMS
Patricia Rose	C. Hudson	PhD	IMS (<i>inactive status</i>)
Ethan Ruderman	G. Wells	MSc	EXS
Shira Sasson	J. Parker	MSc	PCL
Eric Shikatani	M. Husain	PhD	LMP
Bunty Singh	R-K. Li	PhD	LMP
Navneet Singh	A. Moody	PhD	IMS
Renee Suen	D. Stewart	PhD	IMS (<i>inactive status</i>)
Luke Tan	C. Wittnich	MSc	PSL
Megan Thompson	S. Mital	MSc	IMS
Steve Wright	J. Goodman	MSc	EXS
Hanpo Yu	H. Zhang	MSc	PSL
Siming (Phil) Xue	R-K. Li	MSc	IMS
Nima Zamiri	K. Nanthakumar	MSc	IMS
Kangbin Zhou	J. Parker	PhD	PCL
Lily Zou	P. Dorian	MSc	PCL

* Students registered during the year at MSc and PhD training levels.

CONVOCATED STUDENTS/FOLLOW-UP

Sam Esfandiari, MSc, Department of Exercise Sciences (Supervisor: Dr. J. Goodman): "Short-Term High-Intensity Interval Training and Continuous Moderate-Intensity Training Improve Peak Aerobic Capacity and Diastolic Filling During Exercise"
(*PhD, Institute of Medical Science, University of Toronto*)

Tina Hu, MSc, Institute of Medical Science (Supervisor: Dr. G. Hare): "The Role of Beta-Adrenergic Receptors in Mediating Cerebral Perfusion During Acute Hemodilution"
(*Medicine and Research*)

Jemy Joseph, MSc, Institute of Medical Science (Supervisor: Dr. V. Rao): "Does Human Leukocyte Antigen-G (HLA-G) Play a Role in Immune Modulation and Vasculopathy in Heart Transplantation?"
(*Medicine – University of Ottawa*)

Paul Lee, MSc, Institute of Medical Science (Supervisor: Dr. H. Leong-Poi): "Survivin Gene Therapy Using Ultrasound-Targeted Microbubble Destruction in a Rat Model of Doxorubicin-Induced Cardiomyopathy"
(*Undecided*)

Jane MacIver, PhD, Institute of Medical Science (Supervisor: Dr. V. Rao): "Deciding About Heart Transplantation or Mechanical Support: An Empirical Study and Ethical Analysis"
(*Clinician Scientist, UHN*)

Amelia Mociornita, MSc, Institute of Medical Science (Supervisor: Dr. V. Rao): “The Role of Human Leukocyte Antigen-G in Cardiac Allograft Vasculopathy”
(*Pharmaceutical Industry/PhD*)

Maral Ouzounian, PhD, Institute of Medical Science (Supervisor: Dr. P. Liu): “Gene Expression Changes in Rats with Diastolic Dysfunction Induced by Diabetes and Hypertension and Humans with Diastolic Heart Failure”
(*Surgeon-Scientist, UHN*)

Sagar Rohailla, MSc, Department of Exercise Sciences (Supervisor: Dr. M. Locke): “A Langendorff-Perfused Mouse Heart Model for Delayed Remote Limb Ischemic Preconditioning Studies”
(*Medical School, University of Toronto, MD/PhD Program*)

Luke Tan, MSc, Department of Physiology (Supervisor: Dr. C. Wittnich): “A Newborn Sex-Related Response to Hyperoxia”
(*Medicine*)

AWARDS AND HONORS

NAME	HONORS AND AWARDS
Katherine Allan	<ul style="list-style-type: none"> - Bigelow Book Prize, CSCP, UofT 2013 - SGS Conference Grant, 2012 - CIHR Doctoral Award – Frederick Banting and Charles Best Canada Graduate Scholarship, 2011-2014 - Heart & Stroke Jump Start Resuscitation Doctoral Research Award, 2011-2014 (declined)
Laura Banks	<ul style="list-style-type: none"> - CIHR New Investigator Bridge Funding (Operating Grant): Early identification of Cardiac Dysfunction in Obese Adolescents: mechanisms & Modulation. \$100,000 (Co-Investigator: Dr. Wells (PI)) - Labatt Family Heart Centre Innovation Fund: Mechanisms of dysfunction and the influence of exercise on cardiac and skeletal muscle metabolism in children after the Fontan Procedure. \$47,600 (Dr. McCrindle (PI)) - Labatt Family Heart Centre Innovation Fund: Pathophysiological mechanisms of cardiac dysfunction in obese adolescents. Pilot study. \$24,000 (Co-Investigator: Dr. McCrindle (PI))
Mark Blaser	<ul style="list-style-type: none"> - CIHR Doctoral Award – Frederick Banting and Charles Best Canada Graduate Scholarship, 2011-2014
Henry Cheng	<ul style="list-style-type: none"> - Runner-up Poster Competition, HSRLCE, 2013 - SGS Conference Grant Award, UofT, 2013 - QEII/GSST HSFO, 2012-2013
Jake Cosme	<ul style="list-style-type: none"> - Medtronic Travel Award, CSCP, 2013 - SGS Conference Grant Award, UofT, 2012
Mehroz Ehsan	<ul style="list-style-type: none"> - UofT Fellowship/Entrance Award, 2012
Suzan El-Rass	<ul style="list-style-type: none"> - 1st place, Second Annual Biomedical Engineering & Sciences Technology poster presentation 2013 - QEII/GSST HSFO, 2012-2013 - LKSKI Scholarship, St. Michael’s Hospital, 2012-2013 - SGS Conference Grant Award, UofT, 2012
Sam Esfandiari	<ul style="list-style-type: none"> - IMS Entrance Award, 2012
Arash Ghashghai	<ul style="list-style-type: none"> - Dr. Jesse Keshin Graduate Student Award, UofT, 2012

	- OSOTF, CSCP, UofT, 2012
Gabriela de Melo Ghisi	- Dr. Roy Shephard QEII-GSST, UofT, 2012 - Graduate Scholarship Award, Cardiac Health Foundation Ontario, 2012
June Guo	- Canadian Diabetes Assoc. Doctoral Student Research Award, 2010-2013
Amish Jain	- QEII/GSST, HSFO, UofT, 2012-2013 - SickKids Clinical-Scientist Training Program (CSTP) Doctoral Award, 2013-2017 - Top 30 Abstract, American Thoracic Society, 2013 - POWER Teacher Award, Dept. of Pediatrics, UofT, 2013
Lee-Anne Khuu	- Doctorate Fellowship, Vision Science Research Program Award, UofT 2012 - Ontario Graduate Scholarship, 2012 - OSOTF, CSCP, UofT, 2012
Jeffrey Kroetsch	- QEII/GSST, HSFO, UofT, 2012
Susith Kulasekara	- Vision Science Research Program (VSRP) Scholarship, TWRI, Dept of Ophthalmology, UofT, 2012-2013
Robert Lakin	- Dr. Terry Kavanagh Fellowship, UofT, 2012
Kathryn Lipsett	- 17 th Annual International Exchange Workshop in Developmental and Perinatal biology, Stockholm Sweden, 2013
Zhen Lu	- QEII/GSST, HSFO, UofT, 2012-2013 - Graduate Stimulus Package, Dept. of Physiology, UofT, 2012
Timothy Mak	- OSOFT Dr. Alan W. Conn Graduate Award, 2012 - UHN Medical Staff Assoc. Volunteer Educational Award, 2012
Cedric Manlhiot	- CIHR Operating Grant. Cardiovascular health in young adults with a History of Kawasaki Disease. 2013-2018 - CIHR Team Grant. Novel approaches to the prediction, diagnosis and Treatment of cardiac late effects in survivors of childhood cancer. 2012-2017 - HSFO. Determinants of disease progression and recovery in paediatric Heart failure. 2012-2016 - NIH/Nat. Heart, Lung & Blood Inst. Pediatric Heart Network – The Hospital for Sick Children, Toronto, 2011-2016 - CIHR Operating Grant. Clinical Assessment of Thrombosis in Children And Heart surgery: The CATCH Study. 2010-2015 - HSFO/Baxter Healthcare. Antithrombin may improve clinical outcomes Through a reduction in the required heparain dose by promoting efficient Anticoagulation in infants undergoing cardiopulmonary bypass for cardiac Surgery. 2011-2013 - Institut Danone, Grant-in-Aid. Effect of a pilot healthy lifestyle program on Obesity prevetion in overweight adolescents with dyslipidemia: A 3-arm Randomized controlled clinical trial, 2011-2013 - CSL Behring – Publication & Research Grant. Thrombosis in pediatric Heart transplant recipients and risk factors for outcomes. 2012
Azadeh Mofid	- SGS Conference Grand Award, 2012
Azza Ramadan	- IMS Entrance Award, UofT, 2013
Shira Sasson	- Fellowship Scholarship, UofT, 2012-2013
Uswa Shahzad	- SGS Travel Grant, UofT, 2013 - Medtronic Travel Award, CSCP, UofT, 2013 - Lorne Phenix Graduate Award, CSCP, UofT, 2012-2013
Eric Shikatani	- 1 st Place, 16 th Annual Graduate Student Research Day, Poster Competition, LMP, UofT, 2013
Kaustabh (Bunty) Singh	- Best Presentation Award, 14 th Student Research Day, CSCP, 2013 - Ontario Graduate Scholarship, UofT, 2012-2013
Navneet Singh	- SGS Travel Award, UofT, 2012 - Certificate of Merit Award, Educational Exhibit, Radiology Society of

	<p>North America, 2012</p> <ul style="list-style-type: none"> - Honorable Mention, Original Research, North American Society of Cardiovascular Imaging, 2012 - CIHR Fellowship. Clinical Trial in Vascular Atherosclerosis and Biology imaging: Prospective evaluation of the ability of magnetic resonance imaging detected carotid intraplaque hemorrhage to predict individuals with high cardiovascular risk phenotype. \$220,000, 2012-2016 - Research Resident Grant, RSNA R&E Foundation; Ability of routine clinical high resolution 3-Tesla MR imaging of carotid intraplaque hemorrhage to identify vulnerable cardiovascular and cerebrovascular patients (retrospective), \$30,000, 2012-2013 - Resident Research Grant – PSI. Ability of routine clinical high resolution 3-Tesla MR imaging of carotid intraplaque hemorrhage to identify vulnerable cardiovascular and cerebrovascular patients (retrospective), \$20,000, 2012-2013 - Dept of Medical Imaging Grant, UofT. MRI physicist salary support. \$300,000, 2011-2014
Stephen Wright	- IMS Entrance Award, UofT, 2013
Nima Zamiri	<ul style="list-style-type: none"> - Young Investigator Award Competition Finalist (Honourable Mention), Heart rhythm society Annual Conference 2013 - Most Innovative Research Project, 14th Annual Student Research Day, CSCP, UofT, 2013 - SGS Conference Grant, UofT, 2012 - IMS Fellowship Award, UofT, 2012
Kangbin Zhou	- Connaught International Scholarship, 2012 - Present

PUBLICATIONS

Alkon J, Friedberg MK, **Manhiot C**, Kinnear C, et al: Genetic regulation of diastolic dysfunction and cardiac fibrosis in hypertrophic cardiomyopathy. *Pediatr Res*, 2012. [Epub2012-09-24]

Allan K, Wong N, Aves T, Dorian P: The benefits of a simplified method for CPR training for medical professionals: A randomized controlled study. *Resuscitation*, 2013. [Epub ahead of print]

Alsoufi B, Ahmed D, **Manhiot C**, Al-Halees Z, McCrindle BW, Fadel BM: Fate of the remaining neo-aortic root after autograft valve replacement with a stented prosthesis for the failing Ross procedure. *Ann Thorac Surg*, 2013. [Epub 2013-06-04]

Banks L, McCrindle BW, Russell JL, Longmuir PE: Enhanced physiology for sub-maximal exercise in children after the Fontan Procedure. *Medicine & Science in Sport & Exercise*, 2013;45(4):615-621.

Banks L, **Manhiot C**, Dobbin SW, Gibson D, Stearne K, Davies J, Chahal N, Fisher A, Makerewich O, McCrindle BW: Physical activity interacts with adiposity in specifying cardiometabolic risk in adolescents. *Pediatric Exercise Science*, 2012;24:537-548.

Birken C, Maguire J, Mekky M, **Manhiot C**, Beck C, et al: Office-based randomized controlled trial to reduce screen time in preschool children. *Pediatrics*, 2012;130(6):1110-1115.

Brooks NC, Marshall AH, **Qa'aty N**, Hiyama Y, Boehning D, Jeschke M: XBP-1s is linked to suppressed gluconeogenesis in the post burn ebb phase. *Molecular Med*, 2013. [Epub]

Cheng HS, Sivachandran N, Lau A, Boudreau E, Zhao JL, Baltimore D, Delgado-Olguin P, Cybulsky MI, Fish JE: MicroRNA-146 represses endothelial activation by inhibiting pro-inflammatory pathways. *EMBO Mol Med*, 2013. Doi: 10.1002/emmm.201202318.

Cheung MCH, Moody AR, **Singh N**, Bitar R, Zhan J, Leung G: Reply to utility of high-resolution gray-scale ultrasound in charactering non-stenotic plaque. *Radiology*, 2012;262(3):1045-1046.

Contractor H, Stottrup NB, Cunnington C, **Manhiot C**, et al: Aldehyde dehydrogenase-2 inhibition blocks remote preconditioning in experimental and human models. *Basic Res Cardiol*, 2013;108(3):343 [Epub 2013-03-24]

Cosme J, Emili A, Gramolini AO: large scale characterization of mouse cardiac proteome. *Meth Mol Biol*, 2013. PMID: 236062244.

Cosme J, Liu P, Gramolini AO: The cardiac exosome: Current perspectives and potential. *Proteomics*, 2013. PMID: 23526783.

David TE, Armstrong S, McCrindle BW, **Manhiot C**: Late outcomes of mitral valve repair for mitral regurgitation due to degenerative disease. *Circulation*, 2013;127(14):1485-1492.

David TE, Armstrong S, **Manhiot C**, McCrindle BW, Feindel CM: Long-term results of aortic root repair using the reimplantation technique. *J Thorac Cardiovasc Surg*, 2013;145(3):S22-25.

Deliva RD, Hassall A, **Manhiot C**, Solomon M, McCrindle BW, dipchand AI: Effect of an acute, outpatient physiotherapy exercise program following paediatric heart or lung transplantation. *J Pediatric Transplant*, 2012;16(8):879-886.

De Melo Ghisi GL, Oh P, Benetti M, Grace SL: Barriers to cardiac rehabilitation use in Canada versus Brazil. *J Cardiopul Rehab Prev*, 2013;33:173-179.

El-Mounayri OA, Mihic A, **Shikatani EA**, Gagliardi M, et al: Serum-free differentiation of functional human coronary-like vascular smooth muscle cells from embryonic stem cells. *Cardiovasc Res*, 2013;98(1):125-135.

Fadel BM, **Manhiot C**, Al-Halees Z, et al: The fate of the neo-aortic valve and root following the modified Ross-Konno procedure. *J Thorac Cardiovasc Surg*, 2013;145(2):430-437.

Friedberg MK, Fernandes FP, Roche SL, Slorach C, grosse-Wortmann L, **Manhiot C**, et al: Relation of right ventricular mechanics to exercise tolerance in children after Tetralogy of Fallot repair. *Am Heart J*, 2013;165(4):551-557.

Fung A, **Manhiot C**, Naik S, Rosenberg H, et al: Impact of prenatal risk factors on congenital heart disease in the current era. *J Am Heart Assoc*, 2013;2(3):e000064

Ghisi G, Grace SL, Thomas S, Evans MF, Oh P: Development and psychometric validation of a scale to assess information needs in cardiac rehabilitation: The INCR Tool. *Patient Education and Counselling*, 2013;91:337-343.

Glover BM, Hu X, Aves T, Ramadeen A, **Zou L**, Leong-Poi H, Fujii H, Dorian P: Dronedarone and captisol-enabled amiodarone in an experimental cardiac arrest. *J Cardiovasc Pharmacol*, 2013;6(5):385-390.

Hiyama Y, Kraft R, Marshall AH, **Qa'aty N**, Arno A, Herndon D, Jeschke M: Effects of metformin on burn induced hepatic endoplasmic reticulum stress. *Molecular Med*, 2013;5(19):1-6.

Hudson C, Patel S, Shahidi A, **Kulasekara S**, Flanagan J: Extraneous factors affecting retinal oximetry. *Acta Ophthalmologica*, 2012;90. Doi:10.1111/j.1755-3768.2012.2815.x

Jain A, Deshpande P, Shah P: Peripherally inserted central catheter associated complication rates in relation to catheter tip position in neonates. *J Perinatol*. 2012. Doi:10.1038/jp.2012.112. [PMID:22955288]

Jain A, McNamara PJ: Persistent pulmonary hypertension of the newborn: Physiology, hemodynamic assessment and novel therapies. *Curr Pediatr Rev*. 2013;9:55-66

Jeewa A, Manickaraj AK, Mertens L, **Manhiot C**, Kinnear C, et al: Genetic determinants of right ventricular remodeling after Tetralogy of Fallot repair. *Pediatr Res*, 2012;72(4):407-413

Khoury M, **Manhiot C**, McCrindle BW: Role of the waist-to-height ratio in the cardiometabolic risk assessment of children classified by body mass index. *J Am Coll Cardiol*, 2013 [Epub 2013-04-02]

Khuffash AE, Herbozo C, **Jain A**, Lapointe A, McNamara PJ: Targeted neonatal echocardiography (TnECHO) service in a Canadian neonatal intensive care unit – A 4 year experience. *J Perinatol*, 2013. Doi:10.1038/jp.2013.42 [PMID:23619373]

Khuffash AE, **Jain A**, Dragulescu A, McNamara P, Mertens L: Acute changes in myocardial systolic function in preterm infants undergoing patent ductus arteriosus ligation. A tissue Doppler and myocardial deformation study. 2012. [PMID:22889993]

Khuffash AE, **Jain A**, McNamara PJ: Ligation of a patent ductus arteriosus in preterm infants: Understanding the physiology. *J Pediatr*. 2013. Doi:pii:S0022-3476(13)00006-.10.1016/j.peds.2012.12.094. [PMID:23410600]

Khuffash AE, McNamara P, Lapointe A, **Jain A**: Adrenal function in preterm infants undergoing patent ductus arteriosus ligation. *Neonatology*. 2013;104(1):28-33 [PMID:23635520]

Koziol J, Gertler R, **Manhiot C**, McCrindle B, Holtby H, Caldarone CA, Taylor K: The effect of intraoperative hypotension on the outcomes of initial hybrid palliation for single ventricle congenital heart disease: an historical cohort study. *Can J Anesth*, 2013;60(5):465-470.

Kroetsch JT, Bolz S-S: The TNF α /sphingosine-1-phosphate signaling axis drives myogenic responsiveness in heart failure. *J Vasc Res*, 2013;16:50(3):177-185.

Lakin RA, Notarius Cs, Thomas SG, Goodman JM: Effects of moderate-intensity aerobic cycling and swim exercise on post-exertional blood pressure in healthy, young untrained and triathlon-trained men and women. *Clinical Science*, (2013) Immediate Publication, doi:10.1042/CS20120508

Lakin R, Rohailla S: Reacting to too much excitement: ROS overproduction elicits arrhythmogenic Ca²⁺ waves in the heart. *J Physiol*, 2013;591(3):607-608.

Manhiot C, Niedra E, McCrindle BW: Long-term management of Kawasaki disease: Implications for the adult patient. *Pediatric and Neonatology*, 2013;54(1):12-21.

Marshall AH, Brooks NC, Hiyama Y, **Qa'aty N**, Al-Mousawi A, Finnerty C, Jeschke M: Hepatic apoptosis post-burn is mediated by jun n-terminal kinase-2 shock. *Shock*, 2013;39(2):183-188.

Martin K, Drabble A, **Manhiot C**, Dipchand AI: Response to hepatitis A and B vaccination after pediatric heart transplant. *Pediatr Transplant*, 2012;16(7):699-703

McCrindle BW, **Manhiot C**, Cochrane A, Roberts R, et al: Factors associated with thrombotic complications after the Fontan procedure: A secondary analysis of a multicenter, randomized trial of primary thromboprophylaxis for 2 years after the Fontan procedure. *J Am Coll Cardiol*, 2013;61(3):346-353.

McKillop A, **Banks L**, Civitarese R, Wong JL: To resist or to endure: Exercise mode matters in arterial structure and function. *J Physiol*, 2013;591(11):2779-2780.

McNamara PJ, **Jain A**: Patent ductus arteriosus treatment in preterm infants – time to consider shunt volume? *J Perinatol*, 2013;33(3):248-249. [PMID:23443297]

Narang I, **Manhiot C**, Davies J, Gibson D, Chahal N, et al: Sleep disturbance and cardiovascular risk in adolescents. *Can Med Assoc J*, 2012;184:E913-E920.

Nayak PP, Sheth J, Cox PN, Davidson L, Forte V, **Manhiot C**, et al: Predictive value of bronchoscopy after infant cardiac surgery: A prospective study. *Intensive Care Med*, 2012;38(11):1851-1857.

Noyan-Ashraf MH, **Shikatani EA**, Schuiki I, Mukovozov IM, et al: A glucagon-like peptide-1 analogue reverses the molecular pathology and cardiac dysfunction of a mouse model of obesity. *Circulation*, 2013;127(1):74-85.

Peng G, Ivanovska J, Kantores C, Van Vliet T...Belik J, **Jain A**, McNamara PJ, Jankov RP: Sustained therapeutic hypercapnia attenuates pulmonary rho-kinase activity and ameliorates chronic hypoxic pulmonary hypertension in juvenile rats. *Am J Physiol Heart Circ Physiol*, 2012;302(12):H2599-2611 [PMID:22505643]

Radovani E, Cadorin M, Shams T, **El-Rass S**, Karsou AR, Kim HS, et al: Carboxyl terminus of Rtt109 functions in chaperone control of histone acetylation. *Eukaryot Cell*, 2013;12(5):654-664.

Rana AQ, Khara M, Wasim M, Dogar T, Alenazi B, **Qa'aty N**: Screening for adhesive capsulitis in the timely diagnosis of Parkinson's disease. *Can J Neurolog Sci*, 2013;40(1):123-125.

Rana AQ, Yousuf MS, Naz S, **Qa'aty N**: Prevalence and relation of dementia to various factors in Parkinson's disease. *Psychiatry and Clinical Neurosci*, 2012;66:64-68.

Redington KL, Disenhouse T, Li J, Wei C, Dai X, Gladstone R, **Manhiot C**, Redington AN: Electroacupuncture reduces myocardial infarct size and improves post-ischemic recovery by

involving release of humoral, dialyzable, cardioprotective factors. *J Physiological Sci*. [Epub 2013-03-26]

Rodan L, McCrindle BW, **Manhiot C**, MacGregor D, Askalan R, Moharir M, deVeber G: Stroke recurrence in children with congenital heart disease. *Ann Neurol*, 2012;72(1):103-111.

Sarkola T, **Manhiot C**, Slorach C, Bradley TJ, et al: Evolution of the arterial structure and function from infancy to adolescence is related to anthropometric and blood pressure changes. *Arterioscler Thromb Vasc Biol*, 2012;32(10):2516-2526.

Sewing ACP, Kantores C, Ivanovska J, Lee AH, Masood A, **Jain A**, McNamara PJ, Tanswell AK, Jankov RP: Therapeutic hypercapnia prevents bleomycin-induced pulmonary hypertension in neonatal rats by limiting macrophage-derived tumor necrosis factor- α . *Am J Physiol Lung Cell Mol Physiol*, 2012;303(1):L75-87. [PMID:22582114]

Sharma P, Cosme J, Gramolini AO: Recent proteomic advances in cardiovascular proteomics. *J Proteomics*, 2012. PMID: 23153792.

Singh N, Moody AR, Rochon T, Kiss A, Zavodni AE: Identifying individuals with a high risk cardiovascular phenotype using MR detected-introplaque hemorrhage in patients evaluated for neurovascular disease. *Int J Cardiovasc Imaging*, 2013. [Epub ahead of print]

Signh N, Eskander AE, Bartlett E, Kraus D, et al: Nasal cavity and ethmoid sinus tumors: imaging and clinical considerations in patients with local invasion. *Exp Rev Anticancer Ther*, 2013;13(3):297-312.

Singh N, Zavodni AE, Moody AR: Carotid atherosclerosis and risk of stroke. *Curr Cardiovasc Imaging Reports*, 2013;6(1):25-33.

Singh N, McLean K: The use of intravascular contrast media for imaging in breastfeeding women. *CMAJ*. 2012;184(14):E775. Doi:10.1503/cmaj.112148.

Singh N, Symons SP, Montanera W, Kaderali Z, et al: Hemorrhagic epidermoid cyst in a patient with generalized tonic clinic seizure. *J Clin Neurosci*, 2013. doi:pii:S0967-5868(12)00493-6

Sun C, Lee K, Vuong B, Cusimano MD, Brukson A, **Mauro A**, et al: Intraoperative handheld optical coherence tomography forward-viewing probe: Physical performance and preliminary animal imaging. *Biomedical Optics Express*, 2012;3(6):1404-1412.

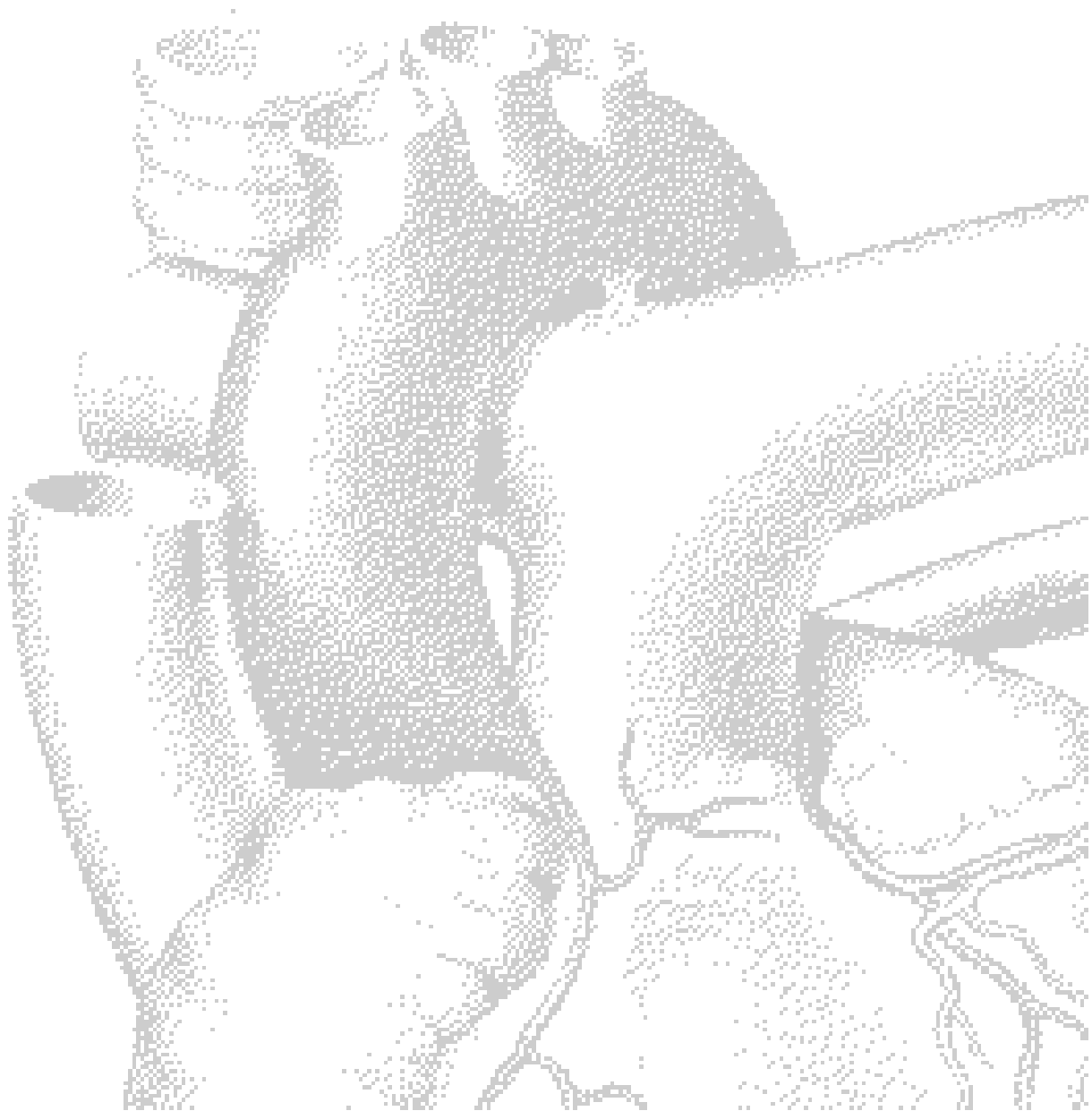
Sun M, **Ouzounian M**, de Couto G, Chen M, Yan R, Fukuoka M, Li G, **Moon M**, et al: Cathepsin-L ameliorates cardiac hypertrophy through activation of the autophagy-lysosomal dependent protein processing pathways. *J Am Heart Assoc*, 2013. E000191 PMID:23608608

Tang C, Marchand KC, Lam L, Lux-Lantos V, Thyssen SM, **Guo J**, Giacca A, Arany E: Maternal taurine supplementation in rats partially prevents the adverse effects of early life protein deprivation on β -cell function and insulin sensitivity. *Reproduction*. 2013;145:609-620.

Wong RD, Chahal N, **Manhiot C**, Niedra E, McCrindle BW: Flaxseed in pediatric hyperlipidemia: A placebo-controlled, blinded, randomized clinical trial of dietary flaxseed

supplementation for children and adolescents with hypercholesterolemia. *JAMA Pediatr*, 2013 [Epub 2013-06-03]

Yu J, Ramadeen A, Tsui AKY, Hu X, **Zou L**, Wilson, et al: Quantitative assessment of brain microvascular and tissue oxygenation during cardiac arrest and resuscitation in pigs. *Anesthesia*, 2013. [Epub ahead of print]



FACULTY

Faculty are divided into 3 categories (Full, Associate, Affiliate). Details on faculty research interests, and contact information are available on the CSCP web site. Departmental affiliations listed below are those within the CSCP. For annual information on faculty peer-reviewed funding and publications, please refer to their home department's annual reports.

<i>Name</i>	<i>Departmental Affiliation(s)</i>	<i>Location</i>
<u>Full</u>		
Lee Adamson	BME/IMS/PSL	Mount Sinai Hospital
Khosrow Adeli	LMP	Hospital for Sick Children
Peter Backx	Medicine/PSL	UofT – FitzGerald Bldg.
Jaques Belik	IMS/PSL	Hospital for Sick Children
Michelle Bendeck	LMP/Medicine	UofT – MSB
Sandra Black	IMS	Sunnybrook Health Centre
Steffen-Sebastian Bolz	PSL	UofT – MSB
Douglas Bradley	IMS/Medicine	Toronto General Hospital
Dina Brooks	REH	UofT–Rehabilitation Sci
John Coles	IMS/Surgery	Hospital for Sick Children
Philip Connelly	LMP/Medicine	St. Michael's Hospital
David Courtman	BME/Surgery	St. Michael's Hospital
Paul Dorian	IMS/Medicine/PCL	St. Michael's Hospital
Daniel Drucker	IMS/LMP	Mount Sinai Hospital
Joel Fisher	Anesthesia	Toronto General Hospital
John Flanagan	IMS	Toronto Western Hospital
John S. Floras	IMS/Medicine	Mount Sinai Hospital
Stephen Fremes	IMS/Surgery	Sunnybrook Health Centre
Adria Giacca	PSL	UofT - MSB
Jack M. Goodman	EXS	UofT - Physical Ed & Health
Len S. Goodman	EXS	Def & Civil Inst Environ Med
Avrum I. Gotlieb	LMP	Toronto General Hospital
Anthony Gramolini	PSL	UofT – Best Institute
Gil Gross	IMS	Hospital for Sick Children
David Hampson	Pharmaceutical Science	UofT – Pharmacy
Gregory Hare	PSL	St. Michael's Hospital
Scott Heximer	PSL	UofT - MSB
Aleksander Hinek	IMS/LMP	Hospital for Sick Children
Margaret Hough	IMS	Sunnybrook Health Centre
Chris Hudson	IMS	Toronto Western Hospital
Mansoor Husain	IMS/LMP/Medicine	Toronto General Hospital
William Hutchison	PSL	Toronto Western Hospital
Robert Jankov	PSL	Hospital for Sick Children
K. Wayne Johnston	BME/IMS/Surgery	Toronto General Hospital
Peter G. Kalman	IMS/Surgery	Community
Armand Keating	IMS/BME	Princess Margaret Hospital
Howard Leong-Poi	IMS	St. Michael's Hospital
Michelle Letarte	MBP	Hospital for Sick Children
Gary F. Lewis	IMS/Medicine	Toronto General Hospital
Ren-Ke Li	IMS/LMP/Surgery	Toronto General Hospital
Tom Lindsay	IMS/Surgery	Toronto General Hospital
Mingyao Liu		MaRS, Toronto General

Peter Liu	IMS/Medicine	Toronto General Hospital
Marius Locke	EXS/CHL	UofT – Physical Ed & Health
Philip Marsden	IMS/LMP/MBP/Medicine	UofT – MSB
Brian McCrindle	IMS/HPME	Hospital for Sick Children
Peter McLaughlin	IMS/Medicine	Toronto General Hospital
Gordon Moe	IMS	St. Michael's Hospital
Alan Moody	BME/IMS	Sunnybrook Health Centre
Kumar Nanthakumar	IMS	Toronto General Hospital
David Naylor	IMS/Medicine/CHL/Surgery	UofT – MSB
Heyu Ni	LMP	St. Michael's Hospital
Peter O'Brien	PHM	UofT - Pharmacy
John Parker	IMS/Medicine	Mount Sinai Hospital
Tom Parker	IMS/Medicine	Toronto General Hospital
Margaret Rand	IMS/LMP	Hospital for Sick Children
Vivek Rao	IMS/Surgery	Toronto General Hospital
Michael Sefton	BME	UofT – Wallberg Bldg.
Craig Simmons	BME	UofT – Mechanical Eng
Arthur S. Slutsky	IMS/Medicine/Surgery	Mount Sinai Hospital
David Steinman	BME	UofT – Wallberg Bldg.
Donna E. Stewart	Anesthesia/IMS/Surgery/Medicine	Toronto General Hospital
Duncan Stewart	IMS/LMP/Medicine	St. Michael's Hospital
Bradley Strauss	LMP/Medicine	St. Michael's Hospital
Howard Tenenbaum	Dentistry	UofT - Dentistry
Scott G. Thomas	EXS/PSL	UofT – Physical Ed & Health
Jack Tu	HPME	Sunnybrook Health Centre
Michael Tymianski	IMS	Toronto Western Hospital
Subodh Verma	IMS	St. Michael's Hospital
Robert Wald	IMS/Medicine	Mount Sinai Hospital
Richard D. Weisel	IMS/Surgery	Toronto General Hospital
Peter Wells	PHM	UofT - Pharmacy
Gregory Wilson	IMS/LMP/PSL/Surgery	Toronto General Hospital
Carin Wittnich	IMS/PSL/Surgery	UofT - MSB
Graham Wright	MBP	Sunnybrook Health Centre
Shirley Wu	PHM	UofT - Pharmacy
Burton Yang	LMP	Sunnybrook Health Centre
Terry Yau	IMS/Surgery	Toronto General Hospital
Erik L. Yeo	IMS/Medicine	Toronto General Hospital
Yeni Yücel	LMP	St. Michael's Hospital
Haibo Zhang	IMS/PSL	St. Michael's Hospital

Associate

Valery Leytin	LMP	St. Michael's Hospital
David Mazer	Anesthesia/IMS	St. Michael's Hospital
Vijay Chauhan	IMS/Medicine/PSL	Toronto General Hospital
Jason Fish	LMP	Toronto General Hospital
Xiao-Yan Wen	IMS	St. Michael's Hospital
Kim Connelly	IMS	St. Michael's Hospital

Affiliate

Jane Irvine	CHL	Toronto General Hospital
-------------	-----	--------------------------

Jagdish Butany
Flavio Coceani (adjunct Professor – currently in Italy)
Gideon Cohen

LMP/Medicine
Surgery

Toronto General Hospital
Sunnybrook Health Centre

Faculty publications for the 2010-2011 academic year can be found through their departmental websites.

