

PAIR DOCS

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Dr. Norman Rosenblum Appointed New MD/PhD Program Director

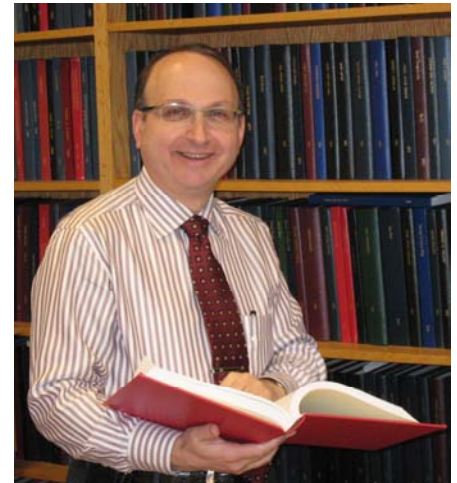
We are pleased to welcome our new MD/PhD Program Director, Dr. Norman Rosenblum. Dr. Rosenblum is the second director of the program, taking up the reins of the program's founder, Dr. Mel Silverman. Already, Dr. Rosenblum has shown great enthusiasm for the program and has begun to promote positive and progressive change.

The editors had the privilege of sitting with Dr. Rosenblum, to learn more about his background and the road that led him to take such an active role in the training of Canadian clinician-scientists. Dr. Rosenblum received his medical degree from Dalhousie University in Halifax, Nova Scotia. He went on to complete a residency and fellowship in pediatric nephrology at the Children's Hospital in Boston and a research fellowship at Harvard Medical School. It was during his training in Boston that Dr. Rosenblum was motivated to become involved with the training of clinicians. As a resident, he was inspired by the legacy of Dr. Charles Janeway Jr.; at the first Grand Rounds presentation during his internship, Dr. Janeway's contributions to child health were remembered as a guide to residents-in-training – to not only be "great paediatricians", but also to "change the face of medicine". In Toronto, Dr. Rosenblum has demonstrated his commitment to training clinician-scientists by leading efforts to create the Canadian Child Health Clinician Scientist Program in 2001. In Dr. Rosenblum's opinion, clinician-scientists are a "threatened species", and the education of future MD/PhDs needs to encompass the spheres of undergraduate, graduate, and post-graduate medical training. As Director of both the MD/PhD and the

Royal College Clinician Investigator Programs, he sees himself uniquely poised to "see the whole picture".

In addition to directing the clinician-scientist training programs at the University of Toronto, Dr. Rosenblum is a Professor of Pediatrics, Physiology, and Laboratory Medicine and Pathobiology at the University of Toronto, all while maintaining a practice as a paediatric nephrologist, and an active laboratory as a senior scientist at the Hospital for Sick Children.

Dr. Rosenblum has many visions for the MD/PhD Program, foremost of which is to raise the profile of the program to "world class". The graduates from the University of Toronto's MD/PhD Program will "be among the best in their fields". There is currently a deficit in the number of clinician-scientists across all fields of medicine and Dr. Rosenblum hopes to increase the program's enrolment rate. Specifically, he hopes to double program enrolment over the next five years. Although the Program has traditionally attracted trainees in biomedical research – and these are still needed to fill vacancies in the field – he also hopes to encourage applicants with other interests. This would include expansion into fields such as public health, management and innovation, with the goal of developing an interdisciplinary graduate pool. Having a diverse group of trainees will encourage collaboration and build interprofessional alliances, skills Dr. Rosenblum believes are essential in medical innovation. Attracting students with these interests will require overtly raising the profile of the Program to schools in Canada, promoting the idea that the Uni-



versity of Toronto is "the place to go" for world-class clinician-scientist training.

In addition to changing the face of the Program, Dr. Rosenblum is further developing the current curriculum for MD/PhD students. He would like to begin career development seminars that will serve as a formal orientation to the transition into post-graduate training and establishment in academia. Since his appointment in October, Dr. Rosenblum has taken an active role in meeting with each current student to identify individual concerns, as well as attending the MD/PhD seminars and other events. Dr. Rosenblum's visions for the Program are both inspiring and informed. We look forward to his leadership in the years ahead.

Gala Concludes Former Dean Aberman Tribute to Benefit MD/PhD Students

On November 3, 2008, the Weizmann Institute of Science and the University of Toronto Faculty of Medicine honoured the lifetime achievements of Dr. Arnie Aberman at a gala event. This amazing evening concluded an extraordinary fundraiser that raised over 3 million dollars in support of the MD/PhD Program at U of T and the PhD for MD's Program at the Weizmann in Israel. The Tribute Committee was co-chaired by Dr. Catharine Whiteside, Dean of the Faculty of Medicine and Dr. Jay Alan Smith, Chairman of the Board and President of Weizmann Science Canada.

Dr. Aberman's passion for academic medicine was reflected in his choice of the two programs as tribute beneficiaries. Dr. Aberman was a strong advocate for the MD/PhD Program during his tenure as Dean of Medicine (1992-1997), and believed in stable long term funding for students. The Faculty and MD/PhD students actively participated in fundraising events leading up to the final gala. The tribute launch involved an intimate evening at U of T President David Naylor's house where students shared their personal experiences with

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Aberman Tribute Continued

potential donors. Keynote speakers stressed the important role of clinician-scientists in shaping the future of healthcare. Following the launch, students gave laboratory tours on two occasions. Attendees found the tours informative and exciting by witnessing first-hand the groundbreaking research in which MD/PhD trainees are engaged.

The tribute culminated in the final gala event at Toronto's Sheraton Centre Hotel attended by more than 1,100 supporters. Guests were greeted by a string quartet, made up of former and current students of the University's Faculty of Music. The evening was co-chaired by Professors David Naylor and Daniel Zajfman, President of the Weizmann Institute of Science. Following

dinner, an entertaining live auction of luxury items was held. Dr. Jay Alan Smith addressed the success of both the fundraising initiative and the gala event in a video presentation. Dr. Michael Aberman, who spoke on behalf of the Aberman family, and video interviews of noted colleagues highlighted the contributions of the night's honoree. Addressing the audience, Dr. Arnie Aberman attributed his success to both the help of his colleagues and luck: "That is why I have always tried to make those who I have dealt with, particularly students and young faculty members, lucky as well. That is why the goal of tonight's dinner - helping MD/PhD students - is so meaningful to me."

TRIBUTE HIGHLIGHTS

Right. Dr. Arnie Aberman (middle), Dr. Amir Shlomai (left) PhD for MD Student at Weizmann Institute, Michael Ward (right) MD/PhD Student at U of T. Photo courtesy of Camelia Linta.



Above. Neil Goldenberg (left) and Harry Rosen (right). Photo courtesy of Greg Tjepkema.



Left. From left to right. Bottom row: Amy Lin, Dr. Dina Gordon Malkin, Gord McSheffrey, Neil Goldenberg. Top row: Varinder Randhawa, Grace Lam, Michael Ward, Ben Steinberg, Chris Franco. Photo courtesy of Tom & Aline Sandler.



Above. From left to right. Bottom row: Mr. and Mrs. Barrie Rose, John Rose, Susan Rose. Top row: Sagar Dugani, Alvin Lin, Brian Ballios, Michal Bohdanowicz, Janine Hutson, Andrew Perrin. Photo courtesy of Tom & Aline Sandler.



Above. From left to right. Bottom row: Dr. Jane McGlade, Adam Durbin, Sandra Rotman, Dr. David Malkin. Top row: Joe Rotman, Larissa Liontos, Ivan Pasic, Billie Au, Laura Erdman, Fiona Lovegrove. Photo courtesy of Tom & Aline Sandler.

Dr. Mel Silverman Concludes 24-Year Tenure as MD/PhD Program Director



The MD/PhD Program at the University of Toronto, the first such program in Canada, was established in 1984, and Dr. Mel Silverman was asked to be its first Director. The request, originally intended as a 3 year 'sprint', turned out to be a 24 year 'marathon'.

This was not an easy program to put in place, but it was evident very early on that Dr. Silverman demonstrated the unique qualities required to lead it and make it a success. From the beginning, he worked very hard to acquire the funding required to allow the program to move forward and to develop. He recognized early on that financial support for every student in the program was crucial to their success. He was instrumental in persuading the CIHR to develop an MD/PhD Studentship Program, and over the years tapped into the corporate sector and hospital research institutes for studentships. He was also responsible for the development of a national symposium at the Royal College/CSCI annual meeting at which clinician-scientists in training, including MD/PhD students, presented their work. More recently he focused his efforts on implementation of a new pathway in the Royal College Clinician Investigator Program that will ensure graduates of MD/PhD programs can be accommodated in postgraduate training programs that will allow them to maintain their research interests while pursuing clinical training.

Dr. Silverman's success in the development of the Program has been phenomenal and is one of the defining features in the differentiation of our faculty of medicine from others in Canada. The immense popularity of this program and the quality of the graduates is largely due to his single-minded determination and hands-on approach in mentoring the students. His extraordinary dedication to and capacity for communicating his own love of

research to students was evident to everyone in the program. His door was always open to discuss issues, problems or new ideas. As an alumnus reflected, "curious and motivating, one left his office with renewed optimism about the program and the strength of his commitment in us, where others had questioned our wisdom in dedicating so much time to the MD/PhD Program". A mentor, teacher and leader, he took great pride in the success of each student and alumni, and also instilled in them pride in the scientific journey each of them had undertaken.

Dr. Silverman dedicated a great deal of effort not only to the scholarship and excellence expected of the students, but also to the spirit and identity of the Program, hosting annual dinners at his home, accompanying student groups to Blue Jay's games and leading the team at the annual Run for Research. He organized monthly seminars that struck a balance between providing an environment for the interchange of scientific ideas and dealing with issues and practicalities of clinical training and practice.

The energy, dedication and abilities of Mel Silverman have propelled the MD/PhD Program from its tentative start in 1984 to the vigorous program that we enjoy today. It is unchallenged in Canada in quality and size, with a current enrolment of 40 students. Of the 39 graduates to date, 16 have completed residency training with 11 in academic positions nationally and internationally, 5 of whom are back on faculty at U of T.

Mel Silverman has built a community for the training of clinician scientists that in both reputation and reality, is unmatched in Canada and indeed rivals the best programs around the world. The success of the program is testimony to his commitment to the training of future clinician-scientists. Without his leadership and persistence it is unlikely that the Program would enjoy its current stature – and indeed may not even exist today. In both grand conception and small detail, Dr. Silverman has made a lasting mark on the MD/PhD Program. We wish him well in all future marathons!

MD/PhD Student Presidents Lead Council Initiatives

Chris Franco, Adam Durbin and Larissa Lontos

Last year, the MD/PhD Program at the University of Toronto was revolutionized.

After many years of relative quiescence within the medical school, the Program's student representation was spurred into activity. Two senior students, Varinder Randhawa and Martin Hycza, decided to link the students of the Program with the Faculty of Medicine by engaging the Faculty in conversation about topics relevant to MD/PhDs. This was a large step forward in cementing the place of the MD/PhDs as a force within the Faculty and important in fostering discussion between the two bodies. For their

efforts, Varinder and Martin were named the first "co-presidents" of the MD/PhD "class," a blanket term designed to encompass all students within the program.

This year following an electoral process, three co-presidents, Chris Franco (1T1), Adam Durbin (1T2) and Larissa Lontos (1T2), were chosen to represent the class. Since their inauguration in September, the group has followed up on the work of Martin and Varinder, increasing awareness of the Program with medical students and Faculty, holding "town hall" discussions to determine issues of direct relevance to all stu-

dents in the Program, welcoming in the new director of the Program, and finally, helping to foster discussion on numerous topics. These topics range from the always popular funding and tuition to partnerships with the Clinician-Investigator Trainees Association of Canada (CITAC) and the Comprehensive Research Elective for Medical Students (CREMS) program. By facilitating discussion and providing representation on different committees, we, in collaboration with the numerous students making up the executive of the MD/PhD Program, have succeeded, and will continue to succeed with our major mandate: Making life easier for MD/PhD students by facilitating awareness, and where necessary, change, within the University of Toronto Faculty of Medicine, School of Graduate Studies and beyond.

We look forward to further addressing the needs and issues of students in the program, and welcome enquiries. Interested individuals can contact any of the presidents at

c.franco@utoronto.ca

adam.durbin@utoronto.ca

larissa.lontos@utoronto.ca



Chris Franco and Larissa Lontos.



Fiona Lovegrove, Adam Durbin, and Jon So.

CITAC: Strengthening Partnerships Among Trainees Across Canada

Sagar Dugani and Michael Ward

The Clinician Investigator Trainee Association of Canada (CITAC) is an organization of trainees enrolled in MD+ and Clinician Investigator Programs (CIP) across Canada. From starting off in April 2006 as an idea that should be developed, CITAC, in less than three years, has become an established forum with more than 300 eligible members across 15 institutions.

CITAC is on an ambitious mission to address various aspects of research training. The CITAC website has been significantly revamped, and in its present form, has a wealth of information for its registered members. Through the *community list*, students can connect with trainees across all institutions. Through the enhanced *discussion forum*, students can talk about issues that affect trainees, their research and emerging career opportunities. The constantly updated database in the *mentorship program* allows students to find local mentors based on research/clinical expertise. All of these initiatives have been tremendously important in strengthening the student body and in bringing people together to address issues of common relevance. By attending similar meetings in the United States and in other places, our executives bring back a wealth of information that is relevant to Canadian trainees.

In the past year, CITAC led a major fundraising initiative with the Canadian Society for Clinical Investigation (CSCI). Academic institutions, hospitals, research centres, and other investors were approached to provide financial support for the CSCI/CITAC annual meeting. The concerted effort was successful and \$45,000 was raised, to be used in 2008 and 2009. In September 2008, trainees from various institutions converged on the University of Toronto for the CITAC AGM. At our inaugural mentorship breakfast, Dr. Anthony Chow, Professor Emeritus at UBC, talked about funding/scholarships available for trainees. These talks were followed by a panel discussion by Dr. Erik Skarsgard (UBC), Dr. Phyllis Billia (U of T) and Dr. Kim Connelly (U of T). These faculty members gave important insight into the job application process, the importance of publications, success related to writing grants, and general networking. Through its growing mentorship program, CITAC hopes to alleviate these stressors by facilitating interactions between trainees and clinician mentors. CITAC Executive members, Michael Ward, Fiona Young, and Tom Appleton, addressed various aspects of the CITAC's initiatives, in particular, the collaboration with the Association of the Faculties of Medicine of Canada (AFMC) to create a database of information on Canadian trainees. This will help CITAC to lobby for increased financial support for its trainees.

As the CITAC AGM and the CSCI Meeting were held at the same times, several trainees attended sessions at the CSCI Meeting. At the Young Investigators Forum (YIF), several students from our MD/PhD program presented their work as talks or as posters. Special mention goes to YIF winners Laura Erdman for her work on "*Toll-like Receptor 2 stimulation enhances macrophage internalization of malaria-infected and uninfected erythrocytes*" and Michael Ward for his work on "*Endothelial NO-synthase gene transfer restores regenerative capacity of endothelial progenitor cells from patients with coronary artery disease*".

Overall, this has been a successful year for CITAC and its initiatives. CITAC is in the midst of executing various programs that will have far-reaching consequences for its trainees. Importantly, CITAC is extremely grateful to former director Dr. Mel Silverman for his superb mentorship and guidance over the past several years. CITAC also looks forward to working with current director Dr. Norman Rosenblum to enhance the trainee experience.



Dr. Mel Silverman presenting YIF winner Laura Erdman with her award.



Dr. Mel Silverman presenting YIF winner Michael Ward with his award.

SALT Liaisons Address MD/PhD and MD Student Concerns

Laura Erdman and Jon So

The Student Affairs Liaison Team (SALT) was created to increase communication between the Office of Student Affairs (OSA) and the medical student community, and to facilitate the OSA's goal of supporting students through their training. SALT is composed of student representatives from each year of medical school and the MD/PhD Program, and led by OSA counselor Christopher Hurst.

The Program is associated with unique and diverse challenges as students make transitions between two degrees, while trying to formulate plans for their future careers. One common issue that unites MD/PhD students is how their personal lives will integrate with a demanding career path. We organized a speakers panel in January, generously supported by OSA and the Program, about balancing work and family. Our speakers – female and male clinician-scientists – touched on the difficulties of family life while juggling clinical duties, grant-writing, and graduate students. The small and informal nature of the event allowed for further discussion

during a Q&A session and subsequently over dinner. The willingness of speakers to share their personal challenges was appreciated by students.

We also gathered MD/PhD trainees to tutor first year medical students for their final exam in cardiology, respirology, and biochemistry. We were in a unique position to help, given the expertise among MD/PhDs, many of whom are doing graduate work in the above areas. For 3 hours, 40 students peppered us with questions about course material. But what came out of it that was more valuable than answering questions, was a growing confidence among the first years. The event was a success and brought the MD/PhD students closer to the medical school community.

We hope to continue to organize relevant initiatives for MD/PhD students, such as a mentorship program to match new students with upper years. In the future, we want to provide more opportunities to contribute to the medical school community. We invite fellow students to communicate suggestions or feedback, and look forward to working with students and the administration to enhance the MD/PhD experience.

Graduate In Focus: Dr. David Hwang Applies Training in Metagenomics to the Study of Lung Pathology

Since graduating from the MD/PhD Program in 2000, Dr. David Hwang has embraced the role of the clinician-scientist by practising as a pathologist at the University Health Network (UHN) in addition to developing a successful research program focusing on lung disease. Dr. Hwang entered the MD/PhD Program after completing a Bachelor of Science in biochemistry at the University of Calgary. His PhD was completed through the Department of Laboratory Medicine and Pathobiology (LMP) under the supervision of Dr. C.C. Liew. His thesis work focused on large-scale expression profiling using cardiac cDNA libraries to identify genes involved in cardiac hypertrophy. After completing medical school, he undertook postgraduate training in Anatomical Pathology in Toronto. During his final year of residency, he took on the responsibility of chief resident at the UHN. He is currently a U of T graduate faculty member and an assistant professor in the Department of LMP, and a staff pathologist at the UHN.

Dr. Hwang's current research focuses on the growing field of metagenomics, which involves using genomics methods to study the structure & dynamics of bacterial communities. He aims to apply these techniques to study bacteria in their natural environments, particularly in lung specimens. Differences in bacterial community composition may be important in predicting outcomes in patients with chronic lung conditions such as cystic fibrosis. Armed with this knowledge, clinical staff could potentially personalize antibiotic treatments based on an individual's particular pulmonary bacterial profile. This work has recently received funding from the CIHR, as well as nearly \$1 million over 5 years from the National Sanitarium Association. In addition to metagenomics, Dr. Hwang has been active in other areas of research including mechanisms of lung injury and repair, and markers of lung transplant rejection.

To date, he has co-authored 37 peer-reviewed articles, with several more recently submitted.

Augmenting his role as a clinician-scientist, Dr. Hwang is active in teaching in the Department of LMP, primarily at the graduate and post-graduate levels. His continued interest in the education of future clinician-scientists is reflected in his participation in MD/PhD Program events, including discussion of balancing family life with career. His early career has already been recognized by various professional organizations through prestigious awards including the 2007 Junior Scientist Award from the Canadian Association of Pathologists, and the 2006 Breathe New Life Award from the Ontario Thoracic Society.

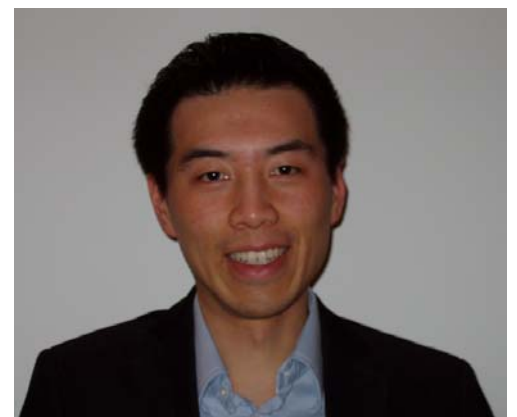


Student In Focus: Tony Yeung Receives Governor General's Gold Medal for PhD Thesis Excellence

We are proud to announce that MD/PhD student Tony Yeung was awarded the 2008 Governor General's Gold Medal for his PhD work on phagocytosis. The Governor General's Gold Medal is awarded to a student who has achieved the highest academic standing at the graduate level and is one of the most prestigious awards that a student in a Canadian educational institution may receive. In addition to receiving the Gold Medal, Tony also was awarded the 2008 Siminovitch-Salter Award from his graduate department, the Institute of Medical Science (IMS). The Siminovitch-Salter Award is given to a graduating IMS doctoral student who has made outstanding scholarly contributions.

The two prestigious awards that Tony received stemmed from his successfully defended PhD thesis that was completed in the lab of Dr. Sergio Grinstein at the Research Institute of the Hospital for Sick Children. He was also co-supervised by Dr. Andras Kapus. The re-

search project focused on phagocytosis, in particular, how lipids on the surface of macrophages act as molecular beacons to recruit proteins necessary for the engulfment of pathogens. An interesting aspect of his work is the interdisciplinary approach that included techniques from biophysics to molecular biology and from biochemistry to fluorescence microscopy. Highlights of the research include the engineering of fluorescent fusion probes that can detect the location of lipid molecules in the cell and probes that can assess the surface negativity of cellular membranes. The development of these tools enabled the elucidation of how membrane electrostatics regulates protein targeting to the cell surface of macrophages. By further understanding the molecular mechanisms involved in phagocytosis, therapies may potentially be developed to treat diseases such as tuberculosis and salmonellosis. Tony's research culminated in several publications as well as presentations at national and international conferences.



Tony is currently in the clerkship phase of the 3rd year MD curriculum. He is considering pursuing a residency program in pathology or medical genetics. Ultimately, he intends to combine an independent research career with clinical medicine, and we wish him the same success he has exemplified in his graduate studies.

Introducing the Incoming MD/PhD Students of 2008

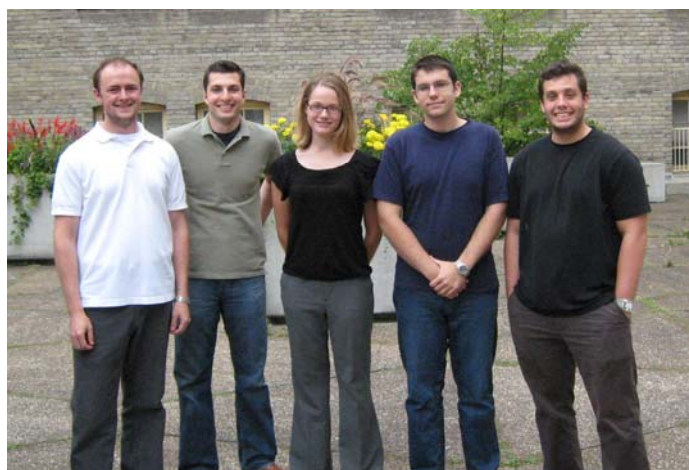
Patrick McVeigh

I was born and raised in Toronto and am glad to be back following a five year adventure in the untamed wilderness (University of Waterloo), during which time I earned a Co-Op degree in Physics and a fine collection of Swedish artifacts (Ikea). I was fortunate enough to spend most of my work terms somewhere on U of T's 'Hospital Row'; working on source reconstruction in magnetoencephalography at SickKids, DW-MRI detection of cervical cancer at PMH, or automated analysis of multispectral MRI at TGH. More recently my focus has shifted to what's been dubbed bioplasmonics, specifically modelling the interactions which nanostructures have with the local environment and how to take advantage of these unique properties for diagnostic and therapeutic applications. These experiences have led to papers being rejected by Nano Letters, Langmuir, and even ISMRM, so to get over it you'll generally find me playing squash or tearing around the neighbourhood on the 1963 Vespa scooter I restored last winter.

Greg Costain

A native of Charlottetown, PEI, I spent three years at Queen's pursuing a "pure" math degree before starting in on a Master's program at McGill. At McGill, my focus started to shift towards more applied math problems, although the notion of applicability differs significantly between mathematicians and the general public. My preferred area is discrete mathematics, which can include models for social networks, mathematical epidemiology, and biological branching patterns. My Master's thesis was entitled "On the additive graph generated by a subset of the natural numbers", and I mention it here because it will never be mentioned in print anywhere else. Most of my summers since high school have been spent working as a psychiatry research assistant for a clinician-scientist based out of CAMH. The focus of this research has been on the correlation between mental illness and deletions on the long arm of chromosome 22. I have a great interest in mental health research, and I hope that as my medical education progresses, I'll be able to contribute more and more to Dr. Bassett's research program. Fortunately or unfortunately, I am starting fresh here at U of T in terms of my research focus. It's not clear yet how I'm going to incorporate my various research interests into a PhD program, and I welcome suggestions from current and former students in the program.

From left to right. Patrick McVeigh, Greg Costain, Susan Armstrong, Warren Berger, Jared Wilcox.



Susan Armstrong

Although I grew up in Ottawa, I travelled throughout Ontario, across Canada, and even to parts of Europe and the U.S. during high school playing water polo with both the Ottawa Titans and the Youth National Team. After high school, I completed a collaborative program with Queen's University in Kingston and the Michener Institute for Applied Health Science in Toronto, receiving an Honours Degree in Life Sciences and a Respiratory Therapy Diploma. My clinical training was done in Hamilton where I had the opportunity to work with Dr. Parameswaran Nair and Dr. Frederick Hargreave at the Firestone Institute for Respiratory Health. It was there that I developed a passion for research, being involved in several projects looking at different aspects of airway inflammation. During my clinical year I also developed an interest in immunology, which led me to complete a fourth-year thesis project in this field with Dr. Katrina Gee when I returned to Queen's. Throughout my undergraduate studies, I continued to balance academics with athletics as a member of the Queen's Varsity Water Polo Team. I also worked as a Respiratory Therapist at Kingston General Hospital in my final years at Queen's. Now that I am in Toronto, I want to experience everything this city has to offer, particularly the Canadian Opera Company and the musical theatre scene. I still enjoy spending time at the pool with both the Varsity Blues and Golden Jets water polo teams, but most of all I look forward to the research, clinical, and academic challenges that lie ahead of me.

Warren Berger

As a child growing up in the beautiful Forest City (aka. London, Ontario), I was always very curious about seemingly fundamental things; how exactly does hearing work? Why is the sky blue, instead of the other many potential colours? In high school I found that science naturally an-

swered these questions and this led me to studies at the University of Western Ontario. There I entered a combined 5 year program (with lots of summer courses) that led to a B.Sc. Honors Physics and Applied Math and a B.E.Sc. Honors Electrical Engineering. It was during this time that I got involved in imaging research at the Robarts Research Institute. I worked with Dr. Giles Santyr designing radiofrequency coils for low field hyperpolarized Xe-129 gas MR imaging of rodent lungs. Typical MR imaging only detects signal from proton molecules in water; of course, healthy lungs are devoid of such a substance. Our experiments involved building a system that would detect signal from Xe-129 gas molecules, and I was able to present my work at an international conference. During my time at Robarts I met many physicians and realized that they didn't fully appreciate the technical side of research, and many of the scientists didn't completely understand the clinical basis for their research. I hope to bridge this gap through the MD/PhD program where I hope to get involved in Medical Physics/Biomedical Engineering research and am very thrilled to be attending the University of Toronto. Hobbies include staying sane.

Jared Wilcox

Growing up in southern Ontario, it wasn't too much of a stretch to move to the University of Guelph for undergraduate studies in Biomedical Sciences. An interest in stem cell biology led to my undertaking a MSc at Guelph under the supervision of Dr. Dean Betts. My project involved characterization of a canine embryonic stem cell line, and delineating its neuronal derivation potential by screening for lineage restriction, terminal differentiation, and mature phenotypes. From this research my interests have grown to include cell signaling pathways involved in self-renewal, stem cell differentiation and lineage restriction, and clinical models of cell-based regenerative medicine. I look forward to pursuing these interests when I begin my PhD next year.

MD/PhD Graduates 2008



From left to right. Rohit Bose, Raymond Kim, Chris Heyn.

Congratulations to last year's graduates, who each obtained their first choice of residency position. Raymond Kim is in Internal Medicine at the University of Toronto, Chris Heyn is also staying at the University of Toronto for Radiology, and Rohit is in Internal Medicine at Cornell with a plan to short track to Oncology at Memorial Sloan Kettering.

PhDs Completed

Sam Saibil, Department of Immunology (Pam Ohashi, supervisor) Protein Kinase B Signaling in T Cell Survival and Tolerance. Sept 29, 2008

Ben Steinberg, Institute of Medical Science (Sergio Grinstein, supervisor) A biophysical characterization of phagolysosome acidification. December 8, 2008

Chris Franco, Department of Laboratory Medicine & Pathobiology (Michelle Bendeck, supervisor) A functional role for discoidin domain receptor 1 (Ddr1) in the regulation of inflammation and fibrosis during atherosclerotic plaque development. February 17, 2009.

Neil Goldenberg, Institute of Medical Science (Mel Silverman, supervisor) Investigation of rab34 and munc13 in the secretory pathway: Potential roles in diabetic nephropathy. February 23, 2009.



Neil Goldenberg and Sam Saibil.

Awards

Sagar Dugani was a co-recipient of a Canadian Federation of Medical Students and a Canadian Medical Association Leadership Innovation Grant (2008) in support of a student run clinic, IMAGINE.

Chris Franco was awarded the 2008 Young Investigator Award from the Canadian Society for Atherosclerosis, Thrombosis and Vascular Biology (CSATVB) for his presentation at the 2008 Canadian Cardiovascular Congress in Toronto. He also received trainee awards for his presentation at the 2008 International Vascular Biology Meeting in

Sydney, Australia from the CSATVB as well as the Heart & Stroke, Richard Lewar Center of Excellence in Cardiovascular Research.

Janine Hutson is a co-investigator on a successful grant from the inaugural Canadian Foundation on Fetal Alcohol Research competition for the project "The Association between fatty acid ethyl esters in meconium and the diagnosis of FAEE in an at-risk Canadian population".

James Kennedy was awarded the 2008 Herta Leysy Scholarship in Medicine for academic excellence. He was also awarded the 2007 Gangbar Memorial Prize for a student who has demonstrated special merit or achievement in

haematology, immunology, or related fields.

Fiona Lovegrove was awarded the Benjamin H. Kean travelling fellowship in tropical medicine to attend the American Society of Tropical Medicine and Hygiene Annual Meeting in New Orleans, December, 2008.

Michael Ward received the Judah Folkman Award for Best Scientific Research Abstract in the Field of Angiogenesis from Cardiovascular Research Technologies 2009. Michael will be presented with this prestigious prize following his oral presentation at the CRT meeting in Washington, D.C. in March, 2009.

Publications

Dugani and Lam, Editors-in-chief, The Toronto Notes 2009: Comprehensive Medical Reference & Review for MCCQE I & USMLE II. Type and Graphics, Toronto, Canada.

Dugani, CB, Randhawa VK, Cheng, AW, Patel, N, Klip, A. The Akt-substrate AS160 participates in insulin-dependent perinuclear redistribution of GLUT4 in L6 myoblasts. *Eur J of Cell Biol* 2008;87:337-351.

Makawita S, Ho M, **Durbin AD**, Thorner PS, Malkin D, Somers GR. Expression of Insulin-like growth factor pathway proteins in rhabdomyosarcoma: IGF-2 expression is associated with translocation-negative tumors. *Pediatr Dev Pathol* 2009;12:127-135.

Greenberg JA, Somme S, Russnes HE, **Durbin AD**, Malkin D. The estrogen receptor pathway in rhabdomyosarcoma: a role for estrogen receptor-beta in proliferation and response to the antiestrogen 4'OH-tamoxifen. *Cancer Res* 2008;68:3476-85.

Franco C, Hou G, Ahmad PJ, Fu EY, Koh L, Vogel WF, Bendeck MP. Discoidin domain receptor 1 (Ddr1) deletion decreases atherosclerosis by accelerating matrix accumulation and reducing inflammation in LDL receptor deficient mice. *Circ Res* 2008;102:1202-11.

Adiguzel E, Ahmad PJ, **Franco C**, Bendeck MP. Collagens in the progression and complications of atherosclerosis. *Vasc Med* 2009;14:73-89.

Plant PJ, Correa J, **Goldenberg NM**, Bain J, Batt JA. The inositol phosphatase MTMR4 is a novel target of the ubiquitin ligase Nedd4. *Biochem J* 2009;419:57-63.

Koren G, **Hutson J**, Gareri J. Novel Methods for the Detection of Drug and Alcohol Exposure During Pregnancy: Implications for Maternal and Child Health. *Clin Pharmacol Ther* 2008;83:631-4.

Jones RB, Ndhlovu LC, Barbour JD, Sheth PM, Jha AR, Long BR, Wong JC, Satkunarajah M, Schweneker M, Chapman JM, Gyenes G, Vali B, **Hyrca MD**, Yue FY, Kovacs C, Sassi A, Loutfy M, Halpenny R, Persad D, Spotts G, Hecht FM, Chun TW, McCune JM, Kaul R, Rini JM, Nixon DF, Ostrowski MA. Tim-3 expression defines a novel population of dysfunctional T cells with highly elevated frequencies in progressive HIV-1 infection. *J Exp Med* 2008;205:2763-79.

Kennedy JA, Barabé F. Investigating human leukemogenesis: from cell lines to in vivo models of human leukemia. *Leukemia* 2008;22:2029-40.

Rey MA, Duffy SP, Brown JK, **Kennedy JA**, Dick JE, Dror Y, Taylor CS. Enhanced alternative splicing of the FLVCR1 gene in Diamond Blackfan anemia disrupts FLVCR1 expression and function that are critical for erythropoiesis. *Haematologica* 2008;93:1617-26.

Lovegrove FE, Tangpukdee N, Opoka RO, Lafferty EI, Rajwans N, Hawkes M, Krudsood S, Looaresuwan S, John CC, Liles WC, Kain KC. Serum angiopoietin-1 and -2 levels discriminate cerebral malaria from uncomplicated malaria and predict clinical outcome in African children. *PLoS One* 2009;4:e4912.

Helmers A, **Lovegrove FE**, Harlan J, Kain KC, Liles WC. Failure of Two Distinct Antiapoptotic Approaches to Reduce Mortality in

Experimental Cerebral Malaria. *Am J Trop Med Hyg* 2008;79:823-5.

Lovegrove FE, Peña-Castillo L, Liles WC, Hughes TR, Kain KC. Plasmodium falciparum shows transcriptional versatility within the human host. *Trends Parasitol* 2008;24:288-91.

Lovegrove FE, Gharib SA, Peña-Castillo L, Patel SN, Ruzinski JT, Hughes TR, Liles WC, Kain KC. Parasite Burden and CD36-Mediated Sequestration Are Determinants of Acute Lung Injury in an Experimental Malaria Model. *PLoS Path* 2008;4:e1000068.

Patel SN, Berghout J, **Lovegrove FE**, Ayi K, Serghides L, Min-oo G, Sarma JV, Rittirsch D, Ward PA, Looaresuwan S, Liles WC, Gros P, Kain KC. C5 deficiency and C5a or C5aR blockade protects against cerebral malaria. *J Exp Med* 2008;205:1133-43.

McVeigh PZ, Syed AM, Milosevic M, Fyles A, Haider MA. Diffusion-weighted MRI in cervical cancer. *Eur Radiol* 2008;18:1058-1064.

Saibil SD, Deenick EK, Ohashi PS. The sound of silence: modulating anergy in T lymphocytes. *Curr Opin Immunol* 2007;19:658-64.

Schwindt GC, Black SE. Functional imaging studies of episodic memory in Alzheimer's disease: a quantitative meta-analysis. *Neuroimage* 2009;45:181-190.

Steinberg BE, Grinstein S. Pathogen destruction versus intracellular survival: the role of lipids as phagosomal fate determinants. *J Clin Invest* 2008;118:2002-11.

Tsui, D., & van der Kooy, D. Serotonin Mediates a Learned Increase in Attraction to High Concentrations of Benzaldehyde in Aged *C. elegans*. *Learn Mem* 2008;15:844-55.

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