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Newsletter – Summer 2002

From the Program Director: Dr. Anthony W. Chow, MD, FRCPC, FACP

email: <tonychow@interchange.ubc.ca>; website: <<http://cmdr.ubc.ca/chowlab/>>

Welcome to the first issue of the UBC MD/PhD Program newsletter! In the newsletter we bring you updates on the UBC MD/PhD Program, especially on the research activities and achievements of our outstanding students. Another goal of the introduction of this newsletter is to communicate and share ideas with faculty and students in the Program and the University community at large, and any other individuals who care about mentoring and training of clinician-scientists in Canada. We would appreciate any constructive feedback from our readers. We hope you will find the newsletter informative and interesting. Enjoy!



Dr. Anthony W. Chow

MD/PhD Program Co-Director: Dr. Lynn Raymond, MD, PhD, FRCPC

email: <lynnr@interchange.ubc.ca>; website: <<http://www.interchange.ubc.ca/neurosci/raymond.htm>>



Dr. Lynn Raymond

- Associate Professor, Psychiatry (Neurological Sciences)
- Associate member, Department of Medicine, Division of Neurology
- Associate member, Department of Physiology
- VHHSC Scientist

We are delighted that Dr. Lynn Raymond has agreed to take on the responsibility as Co-Director of the MD/PhD Program as of June 2002. As a neurologist, her special interest is in Huntington disease (HD). Her research interest is in basic mechanisms underlying HD as well as stroke, especially the role of glutamate receptor activity and regulation. As a role model for our students, Dr. Raymond has been actively involved with the MD/PhD Program since its inception and has also sat on the MD Admissions Committee. Dr. Raymond will bring a fresh perspective to our Program. Welcome!

MD/PhD Program Co-ordinator: Jane Lee <ubcmdphd@interchange.ubc.ca>

Jane Lee is the full-time Program Co-ordinator for the MD/PhD Program. Jane assists the Program Director and the Co-Director in all phases of program administration, particularly regarding co-ordination of applications, admissions, teaching and student research activities, studentship awards, finance, fund raising, program development and public relations.



Jane Lee

MD/PhD Students in Carmel, CA



Carmel, CA Meeting 2002

Six students from the UBC MD/PhD Program presented their research at the annual Western Student Medical Research Forum meeting, Carmel, CA in February 2002. They were Ryan Hung, Cheng-han Lee, Suvendrini Lena, Michael Rauh, Clara Tan and Paul Yong.

The UBC MD/PhD students present their work at this meeting every year. This meeting is held annually in conjunction with the Western American Federation for Medical Research, Western Society for Clinical Investigation, Western Association of Physicians, and the Western Society for Paediatric Research. This year, there were 347 students representing 26 medical schools in the Western United States and Canada at this meeting.

The MD/PhD students are grateful to the Faculty of Medicine for funding support of their airfare, accommodation and meals during the meeting.

MD/PhD Admissions 2002

From January to March, members of the MD/PhD Program Advisory Committee interviewed and adjudicated on an impressive cadre of short listed candidates. Successful applicants have been notified by the Faculty of Medicine and the Faculty of Graduate Studies in May 2002.

All through the years, exceptional individuals from across the country are recruited to the UBC MD/PhD Program. Although there are no specific undergraduate course requirements other than the medical and graduate school prerequisites, substantive research experience as an undergraduate is essential for consideration of admission.

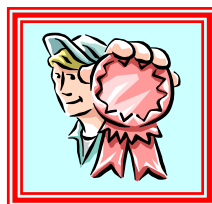
MD/PhD Students Won Research Prize

Michael Rauh, Year 3 MD/PhD student, won the top Subspecialty Award in Haematology/Oncology for his paper "The Sh2-Containing Inositol 5-Phosphatase (Ship) is a Negative Regulator of Macrophage Development and Activation" at the annual Western Student Medical Research Forum meeting held during 6-9 February 2002 in Carmel, CA. There were approximately 350 student presentations representing 26 medical schools from the Western United States and Canada competing for top awards in 22 major subspecialty areas. Last year, two of our MD/PhD students won these top subspecialty awards, Michael Rauh for Haematology/Oncology and Paul Yong for Genetics.

Michael is the UBC student representative to the Clinical and Investigative Medicine (CIM) Journal, the official publication of the Canadian Society for Clinical Investigation (CSCI) and a champion of MD/PhD and Clinician-scientist training programs in Canada. Michael is doing his PhD research with Dr. Gerry Krystal at the BC Cancer Research Centre. Paul Yong, also a Year 3 MD/PhD student, is doing his PhD research with Dr. Wendy Robinson at the BC Research Institute for Children and Women.



Paul Yong



Michael Rauh

Congratulations!

- ✓ Cheng-han Lee, Year 5 MD/PhD student, passed his PhD Final Oral Examination on 26 April 2002. His thesis is entitled "The function and the mechanism of agonist-induced asynchronous wave-like $[Ca^{2+}]_i$ oscillations in the in situ smooth muscle cells of the rabbit inferior vena cava". His research supervisor is Dr. Cornelius van Breeman in the Department of Pharmacology and Therapeutics.
- ✓ Jimmy Lee, Year 5 MD/PhD student, has been awarded a Michael Smith Foundation for Health Research (MSFHR) Doctoral Trainee Supplemental Award. His research topic is "The role of PI3-kinase family in phagocytosis and phagosome maturation". His research supervisor is Dr. Neil Reiner in the Division of Infectious Diseases, Department of Medicine.
- ✓ Tanya Suvendrini Lena, Year 2 MD/PhD student, passed her PhD Comprehensive Examination on 10 June 2002. Her research proposal is "Evolutionary and molecular characterization of type three secretion system genes in the order chlamydiales". Her research co-supervisors are: Dr. Robert Brunham in the UBC-BC Centre for Disease Control and the Division of Infectious Diseases, Department of Medicine; and Dr. Patrick Keeling, in the Department of Botany.
- ✓ Clara Tan, Year 2 MD/PhD student, passed her Comprehensive Examination on 28 June 2002. Her research proposal is "The role of integrin-linked kinase in nitric oxide production and cyclooxygenase-2 expression angiogenesis and hypoxia adaptation". Her research supervisor is Dr. Shoukat Dedhar in the Department of Biochemistry and Molecular Biology.

MD/PhD Program Advisory Committee

The MD/PhD Advisory Committee consists of clinician-scientists, basic scientists, graduate program advisors, student research supervisors and a student representative. Membership is appointed and reviewed annually by the Program Director. Members who have completed a 3-year term will automatically be rotated off the committee, but can serve additional terms after a 3-year hiatus. The Advisory Committee meets at least once a year to review the admissions process and to finalize the ranking of MD/PhD applicants. Members of the Advisory Committee also serve on the student Thesis Research Supervisory Committees, the PhD Comprehensive Examination Committees and the PhD Final Oral Examination Committees.

Student selection, curriculum planning, research supervision, and clinical training are jointly coordinated through the MD/PhD Advisory Committee. Close integration and coordination between the basic sciences and the clinical disciplines will ensure a smooth transition between academic studies, clinical training and research.

Director:

Anthony W. Chow, MD

Co-Director:

Lynn Raymond, MD, PhD

MD/PhD Advisory Committee (2002):

Shoukat Dedhar, PhD ('02)
Jan Friedman, MD, PhD ('00)
Ismail Laher, PhD ('00)
Peter Leung, PhD ('02)
W. Robert McMaster, DPhil ('01)
Alice Mui, PhD ('02)
Raymond Pederson, PhD ('01)
Susan Porter, PhD ('01)
John Schrader, MBBS, PhD ('02)
Sam Sheps, MD ('00)
Cheng-Han Lee, Year 5
Student Representative
Claire Sheldon, Year 3
Alt. Student Representative



Ex-officio Members (2002):

Joanna Bates, MD, Senior Associate Dean, Undergraduate Education, Faculty of Medicine
Carol-Ann Courneya, PhD, Acting Associate Dean, Admissions, Faculty of Medicine
William Schreiber, MD, Associate Dean, Undergraduate Curriculum, Faculty of Medicine
Angela Towle, PhD, Director, Undergraduate Medicine Education, Faculty of Medicine
Bruce A. Fleming, MD, Associate Dean, Undergraduate Student Affairs, Faculty of Medicine
David McLean, MD, Senior Associate Dean, Research, Planning & Health Systems, Faculty of Medicine
Alison Buchan, PhD, Associate Dean, Research, Faculty of Medicine
Susan Porter, PhD, Assistant Dean, Graduate Education, Faculty of Medicine
Jody Wright, MD, Associate Dean, Postgraduate Medical Education, Faculty of Medicine
Peter Pare, MD, Director, Clinical Investigator Program, Faculty of Medicine
Ann Rose, PhD, Associate Dean, Student Affairs, Faculty of Graduate Studies
Katriona MacDonald, Director, Student Academic Services, Faculty of Graduate Studies

UBC MD/PhD Program as a Role Model?

During the last two years, the UBC MD/PhD Program has been singled out as a successful model by other Canadian universities which are revamping or starting their MD/PhD Programs. Dr. Anthony Chow, Director of the UBC MD/PhD Program, is happy to share his experience with the following Universities:

- 👍 Dr. Penny Moody-Corbett, Assistant Dean, Graduate Studies, and Dr. Tom Scott, Assistant Dean, Undergraduate Education, from the Memorial University of Newfoundland.
- 👍 Dr. Richard Levin, Director of Student Records, from the University of Manitoba.
- 👍 Dr. Harold Cook, Associate Dean, Faculty of Medicine from Dalhousie University.

The UBC MD/PhD Program started some twenty years ago. The Program was reviewed and revitalized in 1994. Since then, the Program has undergone a steady growth in student enrollment and faculty participation.



Current MD/PhD Students

Cheng-han Lee, Year 5

Supervisor: Dr. Cornelius Van Breemen, Department of Pharmacology & Therapeutics

Thesis Research Supervisory Committee: Dr. Edwin Moore (Physiology), Dr. Chun Seow (Pharmacology & Therapeutics), Dr. Xiaodong Wang (Pharmacology & Therapeutics)

Research Title: The function and the mechanism of agonist-induced asynchronous wave-like $[Ca^{2+}]_i$ oscillations in the in situ smooth muscle cells of the rabbit inferior vena cava.

Hosting Department: Pharmacology & Therapeutics.

Jimmy Lee, Year 5

Supervisor: Dr. Neil Reiner, Department of Medicine

Thesis Research Supervisory Committee: Dr. Roger Brownsey (Biochemistry & Molecular Biology), Dr. Gerald Krystal (Pathology & Laboratory Medicine), Dr. Susan Porter (Pathology & Laboratory Medicine)

Research Title: The role of PI3-kinase family in phagocytosis and phagosome maturation.

Hosting Department: Pathology & Laboratory Medicine

Ryan Hung, Year 4

Supervisor: Dr. Anthony Chow, Department of Medicine

Thesis Research Supervisory Committee: Dr. Mike Gold (Microbiology & Immunology), Dr. Hung Sia Teh (Microbiology & Immunology), Dr. Vincent Duronio (Medicine)

Research Title: The G31R mutant of toxic shock syndrome toxin-1: Intrinsic and extrinsic pathways for apoptosis.

Hosting Department: Experimental Medicine Graduate Program

Michael Rauh, Year 3

Supervisor: Dr. Gerald Krystal, Department of Pathology & Laboratory Medicine

Thesis Research Supervisory Committee: Dr. Alice Mui (Surgery), Dr. Urs Steinbrecher (Medicine), Dr. Anthony Chow (Medicine)

Research Title: The SH2-containing inositol 5-phosphatase (SHIP) is a positive regulator of inducible nitric oxide synthesis.

Hosting Department: Experimental Medicine Graduate Program

Current MD/PhD Students (con't)

Claire Sheldon, Year 3

Supervisor: Dr. John Church, Department of Physiology

Thesis Research Supervisory Committee: Dr. Ken Bambridge (Physiology), Dr. Steve Kelh (Physiology),
Dr. Lynn Raymond (Neuroscience)

Research Title: Intracellular Ph regulation during anoxia in acutely isolated rat hippocampal CA1 neurons.

Hosting Department: Physiology

Paul Yong, Year 3

Supervisor: Dr. Wendy Robinson, Department of Medical Genetics

Thesis Research Supervisory Committee: Dr. Deborah McFadden (Pathology & Laboratory Medicine), Dr.
Sylvie Langlois (Medical Genetics), Dr. Michael Whitlock (Zoology)

Research Title: Clinical significance and pathogenesis of mosaic trisomy pregnancies.

Hosting Department: Experimental Medicine Graduate Program

Suvendrini Lena, Year 2

Supervisors: Dr. Robert Brunham, Department of Medicine, & Dr. Patrick Keeling, Department of Botany

Thesis Research Supervisory Committee: Dr. Rosemary Redfield (Zoology), Dr. Rachel Fernandez
(Microbiology & Immunology)

Research Title: Evolutionary and molecular characterization of type three secretion system genes in the order
chlamydiales.

Hosting Department: Genetics Graduate Program

Clara Tan, Year 2

Supervisor: Dr. Shoukat Dedhar, Department of Biochemistry & Molecular Biology

Thesis Research Supervisory Committee: Dr. David Huntsman (Pathology & Laboratory Medicine), Dr.
Alice Mui (Surgery), Dr. Aly Karsan (Pathology & Laboratory Medicine)

Research Title: The role of integrin linked kinase in nitric oxide production and cyclooxygenase-2 expression,
in angiogenesis and hypoxia adaptation.

Hosting Department: Biochemistry & Molecular Biology

Liam Brunham, Year 1

Supervisor: Dr. Michael Hayden, Department of Medical Genetics

Thesis Research Supervisory Committee: Dr. Jan Friedman (Medical Genetics), Dr. Sylvie Langlois (Medical
Genetics), Dr. Bruce Verchere (Pathology & Laboratory Medicine), Dr. Cheryl Wellington (Pathology
& Laboratory Medicine)

Research Title: Identification and validation of genes modulating LDL cholesterol in humans.

Hosting Department: Medical Genetics

Bryan Coburn, Year 1

Supervisor: Dr. Brett Finlay, Department of Microbiology & Immunology

Thesis Research Supervisory Committee: Dr. Bob Hancock (Microbiology & Immunology), Dr. Robert
McMaster (Medical Genetics), Dr. David Speert (Pediatrics)

Research Title: The pathogenomics of salmonella infection.

Hosting Department: Microbiology & Immunology



The Forecast is Bright for Budding Clinician-Scientists on Canada's West Coast

"Reproduced with permission from: Rauh M, Clin Invest Med 2002;25(3):66-7."

Michael J. Rauh, MSc MD/PhD, Year III, University of British Columbia MD/PhD Program and Terry Fox Laboratory, BC Cancer Agency, Vancouver, BC.

In his eloquent 2001 Henry Friesen Award Lecture, Dr. Charles Scriver strongly recommends restoring a role for the Clinician-Scientist, in anticipation of the medical revolution that the functional genomic and proteomic era will present¹. In the accompanying editorial², Dr. George Sweeney suggests that it is the job of medical schools to prepare their graduates to meet this challenge, by providing a "stimulating intellectual climate" for students to bridge the gap between modern biology and medical practice. One such approach to this challenge is to expand the combined MD/PhD training pathway³, and the University of British Columbia MD/PhD Program has recently been putting this approach to practice.

Under the guidance of Program Director, Dr. Anthony W. Chow, and with support from the medical and research communities, the UBC MD/PhD Program has undergone a recent revitalization. The student body has nearly tripled in size during the last three years, with representation from a broad range of disciplines and research institutes scattered about the UBC campus and city of Vancouver. Moreover, UBC MD/PhD students have been well represented at annual Canadian and American Clinician-Scientist meetings — the Canadian Society for Clinical Investigation (CSCI) and Canadian Institutes of Health Research (CIHR) Young Investigators Forum held at the Royal College Meeting, and the Western Student Medical Research Forum (WSMRF) held at the American Foundation for Medical Research (AFMR) Western Regional Meeting in Carmel/Monterey, California. At the most recent meetings, UBC MD/PhD students were winners of several sub-specialty awards. Furthermore, students have been attending and presenting their findings at additional clinical and scientific conferences of interest.

Much of the success in expansion has been attributable to a raised profile of the MD/PhD Program in the UBC community. Such a profile has been created due to the combined efforts of an annual "open house" geared to potential undergraduate applicants featuring informative talks and student research, a comprehensive web-site (www.med.ubc.ca/mdphd), the integrated and innovative approach to the MD/PhD curriculum, and the success of Dr. Chow and the MD/PhD students at local, national and international levels. Success has only been possible with the financial support of the CIHR, the UBC Faculty of Medicine, and recently the Michael Smith Foundation for Health Research — a provincial initiative to train and retain health researchers in British Columbia (www.mschr.org).

Finally, several MD/PhD student initiatives are providing the starting materials to bridge the gap between science and medicine. Students meet on a regular basis to present their research, discuss clinical and scientific issues of the day, provide a forum for teaching and practicing clinical skills, and have recently invited Clinician-Scientist role models to discuss career paths and opportunities. MD/PhD students are beginning to encourage the participation of other students from pure medical and research streams, as they feel the challenges imposed by the impending medical revolution will require the concerted and coordinated effort of researchers, clinicians, and hybrids alike.

Indeed a "stimulating intellectual climate" has been created for budding Clinician-Scientist in Vancouver – the forecast calls for clear skies!

References


1. Scriver, C.R. Work, the clinician-scientist and human biochemical genetics. *Clin Invest Med* 2001;24(4):179-95.
2. Sweeney, G. The demise of the clinician-scientist matters to everyone. *Clin Invest Med* 2001;24(4):212-13.
3. Varki, A. and Rosenberg L. E. Emerging opportunities and career paths for the young physician-scientist. *Nat Med* 2002;8(5):437-39.



Partial List of Recent Publications by Current MD/PhD Students

- ★ Diarra A., Sheldon C. and Church J. (2001). In situ calibration and [H⁺] sensitivity of the fluorescent Na⁺ indicator, SBFI. *American Journal of Physiology* 280: C1623-C1633.
- ★ Sheldon, C. and Church, J. (2002). Intracellular pH response to anoxia in acutely dissociated adult rat hippocampal CA1 neurons. *Journal of Neurophysiology* 87: 2209-2224.
- ★ Tan C., Mui A., and Dedhar S. (2002). Integrin-linked kinase regulates inducible nitric oxide synthase and cyclooxygenase-2 expression in an NF-kappa B-dependent manner. *Journal of Biological Chemistry*. 277:3109-3116.
- ★ Otto SP, Yong PJ. The evolution of gene number. In *Homology Trans-Sensing Effects*, eds. J. Dunlap and C.-ting Wu, Academic Press, San Diego, CA, in press.
- ★ Yong PJ, Marion SA, Barrett IJ, Kalousek DK, Robinson WP. Evidence for imprinting on chromosome 16: the effect of uniparental disomy on the outcome of mosaic trisomy 16 pregnancies. *American Journal of Medical Genetics*, in press.

Upcoming Events

<p>MD/PhD students and their research supervisors are invited to a summer barbecue at Dr. Anthony Chow's residence on 19 July 2002.</p> <p>Besides food and drinks, we shall discuss drafting a UBC MD/PhD Student Survival Manual, prepared by and for UBC MD/PhD students and potential candidates.</p> <p>Have fun everyone!</p> 	<p>The annual MD/PhD Students Research Forum and Open House will be held on 19 August 2002. Participation in the annual Open House by the public is encouraged. This annual function provides a valuable opportunity for the MD/PhD students to show case their research. It also serves as a tool to promote the training of clinician-scientists to the University community and the public. MD/PhD students have the opportunity to talk to various graduate advisors, supervisors, students, and potential applicants. MD/PhD students also provide valuable information and serve as a resource for potential applicants to the MD/PhD Program.</p> <p>For more information, please call 604-875-5063.</p>	<p>Research trip to Ottawa – September 2002. Eight of the MD/PhD students will attend and present their research at the annual Canadian Society for Clinical Investigation/Canadian Institutes of Health Research (CSCI/CIHR) Joint Program Young Investigators Forum in Ottawa.</p> <p>Teams of judges will tour the posters and the best abstracts representing clinical, integrative, and basic science will be invited for oral presentation at the interactive plenary session. Last year, both Claire Sheldon and Jimmy Lee of the UBC MD/PhD Program were winners among 12 of the 50 student presentations from across Canada.</p> <p>Good luck everyone!</p>
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Comments and Suggestions!

We welcome comments and suggestions to the UBC MD/PhD Program and to this Newsletter. Please send comments to the MD/PhD Program office, D452 - Heather Pavilion East, 2733 Heather Street, VHHSC, Vancouver, BC Canada V5Z 3J5. Phone: 1 604-875-5063. Fax: 1 604-875-4013. Email: ubcmdphd@interchange.ubc.ca. Website: <http://www.med.ubc.ca/mdphd>.

Edited by Jane Lee, Program Co-ordinator, MD/PhD Program, UBC.