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Newsletter – Winter 2003

Open House and Student Research Forum (8 September 2003)



Above: Dr. Lynn Raymond (standing) moderated the Plenary Session on "The Progression of a Clinician Scientist"

The fourth annual UBC MD/PhD Student Research Forum and Open House was held on Monday, 8 September 2003 at the Peter Wall Institute for Advanced Studies, University Centre, UBC Campus. The forum had an excellent turnout, with about 35 faculty members, students, guests, and potential applicants in attendance (excluding the MD/PhD Program staff and students). Big welcome by Dr. Lynn Raymond, Co-Director of MD/PhD Program, set off the exciting half-day event.

Three distinguished guest speakers delivered talks on "Issues in the training of clinician-scientists": (1) Dr. Peter Paré, Director of UBC Clinical Investigator Program, and Co-Director of the iCAPTURE

Centre at UBC, (2) Dr. Irene Ma, Fellow in the Department of Medicine at UBC, and (3) Dr. Torsten Nielsen, Assistant Professor in the Department of Pathology & Laboratory Medicine at UBC, and Co-Director of the Genetic Pathology Evaluation Centre at the Vancouver General Hospital.

Two of the MD/PhD students, Michael Rauh (Year 5) and Cheng-han Lee (Year 7) presented "The early stages of an MD/PhD student" and "The clinical rotation years", respectively. Five of the MD/PhD students presented their research, including Claire Sheldon (Year 5), Clara Tan (Year 4), Liam Brunham (Year 3), Bryan Coburn (Year 3) and Amy Weber (Year 2).

- Claire Sheldon – Supervisor: Dr. John Church, Department of Physiology presented "Near-simultaneous measurement of anoxia-evoked changes in intracellular pH (pH_i) and sodium ion concentrations ([Na⁺]_i): examination of Na⁺/H⁺ exchange"
- Clara Tan – Supervisor: Dr. Shoukat Dedhar, Department of Biochemistry & Molecular Biology presented "The role of integrin linked kinase in angiogenesis"
- Liam Brunham – Supervisor: Dr. Michael Hayden, Department of Medical Genetics presented "Role of hepatic ABCA1 in HDL cholesterol homeostasis"
- Bryan Coburn – Supervisor: Dr. Brett Finlay, Department of Microbiology & Immunology presented "Pathogenomic responses to host resistance"
- Amy Weber – Supervisor: Dr. Mark Tyndall, Department of Health Care & Epidemiology presented "Epidemiologic research among vulnerable populations"

The forum ended with a welcoming dinner enjoyed by invited faculty, staff, students and guests.

"The Early Stages of an MD/PhD Student" – Michael Rauh

Michael Rauh, Year 5 MD/PhD student, gave a thought-provoking presentation at the fourth annual UBC MD/PhD Student Research Forum and Open House (8 September 2003). His presentation entitled "The early stages of an MD/PhD student" was well received by the audience, especially the potential MD/PhD applicants.

Abstract of Michael's presentation:

Step on board for a magical journey that will take you from the depths of a cell's nucleus, through body tissues and systems, the human being as a whole, and our interaction with the cosmos! Stand in awe and amazement as you get a glimpse of the impending revolution that awaits medicine! Discover your niche, and channel that excitement into the makings of a fruitful career! Welcome to the holistic experience that is the first five years of the UBC MD/PhD Program. A unique and integrated program format strikes a balance between thesis coursework and research, medical classes and clinical experience, saving room for socialization and travel to exciting international conferences. Sound exhilarating and challenging? It is! Are you up for it?

In October 2003, Michael also wrote an interesting article for the Science's Next Wave journal, entitled "**Canadian Bacon: Straight Goods on the MD/PhD Program Experience From a Student's Perspective**". Please visit website <http://nextwave.sciencemag.org/cgi/content/full/2003/10/22/7> to read Michael's article.

In November 2003, Michael was interviewed by a Global TV Health Reporter as part of a feature on Michael Smith Foundation for Health Research trainees. His interview was aired on the 6PM news hour broadcast.

Michael is currently completing his PhD research with Dr. Gerald Krystal, at the Terry Fox Laboratory, BC Cancer Research Centre. Michael's research focuses on the molecular pathways that lead to the development of cancer cells. His particular interest involves the SHIP gene and its possible use as a therapeutic target in the treatment and prevention of leukemia and other diseases such as osteoporosis.



Michael Rauh

Training of Clinician-Scientists in B.C. – Dr. Lynn Raymond



Dr. Lynn Raymond

Dr. Lynn Raymond's article entitled "**North Exposure: Training of Clinician-Scientists in British Columbia**" was published in the Science's Next Wave journal, Oct 2003 issue, website <http://nextwave.sciencemag.org/cgi/content/full/2003/10/22/1>. In her article, Dr. Raymond pointed out that the UBC MD/PhD Program provides their trainees with the opportunity to acquire early experience on the multitasking and organization skills necessary for a successful dual career. The UBC MD/PhD Program is ideally suited for building these skills, since training in research and clinical medicine are interwoven throughout the 7-year program. MD/PhD trainees at UBC engage in a wide range of research: molecular mechanisms underlying cell proliferation in cancer or cell death in stroke; relating gene mutations to disease mechanisms; the social factors that determine access to health care for women living on the street.

An Introduction to the UBC MD/PhD Program

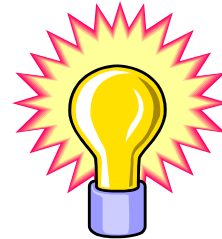
On 27 August 2003, Dr. Lynn Raymond, our Program Co-Director, gave an information session on the UBC MD/PhD Program. The session was for the UBC students (mainly UBC Medical Year I students). We hold this information session every year. Interested students should contact the UBC MD/PhD Program for future presentation dates.

The information given included: an introduction of the MD/PhD Program, the admissions requirements and procedures, the achievements of the program, curriculum of the program, funding support for our students, and the path to achieve a successful clinician-scientist career.

Goals of the UBC MD/PhD Program

Develop "physician-scientists" with training in translational research

- ↳ patient contact
- ↳ disease oriented
- ↳ bench to bedside (population) to bench



The primary mission of the UBC MD/PhD Program is to train and nurture future clinician-scientists who excel both in clinical medicine and basic sciences. The program of study is built upon the regular MD curriculum, but it is further "customized" to meet the unique career goals of individual students based on their previous research experience, and chosen medical field of expertise. The combined MD/PhD degree adequately prepares the candidates to pursue a research-intensive track of residency and postdoctoral training in a specialty or discipline of their choice, ultimately leading to a competitive and independent clinical investigative career.

Integrated Dual-Degree Program

- ↳ completes MD/PhD dual degree – 7 years
- ↳ prepares for research-intensive residency and post-doc research training (Clinical Investigator Program) – 6 to 7 years
- ↳ leads to CIHR Clinician-Scientist Training and Career Development Program

Admissions Criteria

Besides academic excellence and scholarship, other strengths including personal qualities, maturity, research experience and potential, research field of interest, and proposed research supervisor and laboratory environment are also assessed.

Successful Role Models of Research Supervisors

- ↳ research supervisor is comfortable and effective in collaborating with clinicians as well as basic scientists
- ↳ research environment is conducive to MD/PhD studies (lab has both MD and PhD students and postdocs)
- ↳ supportive hosting department and hospital department or division

Dr. Anthony Chow and Dr. Lynn Raymond are happy to meet with potential applicants to discuss about their proposed training in the program. To schedule for interviews or group meetings, please contact Jane Lee at ubcmdphd@interchange.ubc.ca.

MD/PhD Admissions 2004

From January to March 2004, members of the MD/PhD Program Advisory and Admissions Committee will be interviewing and adjudicating an impressive cadre of short listed candidates. 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 prior research is essential for consideration of admission.

With the expansion of the UBC Undergraduate Medical Program, the UBC MD/PhD Program is expecting growth in student numbers in the coming academic years.



MD/PhD Advisory and Admissions Committee 2004

- Dr. Anthony W. Chow**, M.D.
- Dr. Lynn Raymond**, M.D., Ph.D.
- Dr. Shoukat Dedhar**, Ph.D. ('02)*
- Dr. Doris Doudet**, Ph.D. ('03)
- Dr. David Fedida**, MBBCH, Ph.D. ('03)
- Dr. Robert Hogg**, Ph.D. ('03)
- Dr. Aly Karsan**, M.D. ('03)
- Dr. Peter Leung**, Ph.D. ('02)
- Dr. Edwin Moore**, Ph.D. ('03)
- Dr. Alice Mui**, Ph.D. ('02)
- Dr. John Schrader**, MBBS, Ph.D. ('02)
- Dr. Theodore Steiner**, M.D. ('03)
- Dr. Bruce Verchere**, Ph.D. ('03)
- Dr. Cheryl Wellington**, Ph.D. ('03)
- Clara Tan**, Year 4, Student Representative

*year first appointed

Welcome Dean Stuart

The UBC MD/PhD Program staff and students welcome the new Dean of Medicine, Dr. Gavin Stuart. They are also grateful to the previous Dean, Dr. John Cairns, for his unfailing support of the UBC MD/PhD Program in the past years.

Dr. Anthony Chow - Returned from Sabbatical

Our Program Director, Dr. Anthony Chow, has returned from his sabbatical leave in San Diego in September 2003. Dr. Chow was excited to meet with the students, especially the new recruits, at a recent student meeting to review our achievements in the past year and discuss our future plans for the year to come. He is particularly grateful to Dr. Lynn Raymond, our Program Co-Director, for her superb stewardship of the Program during Dr. Chow's absence.



New Office Location for the UBC MD/PhD Program

The UBC MD/PhD Program office has moved. Please drop by and visit our new office at: Room 25, D floor, Heather Pavilion East, 2733 Heather Street, Vancouver, B.C. V5Z 3J5.

We have a new fax number:
604-875-5236

Our phone number: 604-875-5063
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Web: <http://www.med.ubc.ca/mdphd>
remain the same.

Competitive Studentship Awards & Prizes

All UBC MD/PhD trainees are funded by a CIHR MD/PhD Studentship Award (\$20,000 per year) for a period of 6 years. Besides the CIHR MD/PhD Studentship Award, some of our students also hold other top-up awards such as the Michael Smith Foundation for Health Research Doctoral Trainee Incentive Award and other scholarships, including those from the UBC Faculty of Graduate Studies and the UBC Faculty of Medicine. Below is a partial list of competitive awards received by our trainees.

2003 – 2004	2002 – 2003
<p>Jimmy Lee (Year 7)</p> <ul style="list-style-type: none"> – CIHR MD/PhD Studentship Award – Michael Smith Foundation for Health Research (Doctoral Trainee Incentive Award) – UBC Faculty of Medicine Grant Supplement Award <p>Ryan Hung (Year 6)</p> <ul style="list-style-type: none"> – CIHR MD/PhD Studentship Award <p>Michael Rauh (Year 5)</p> <ul style="list-style-type: none"> – CIHR MD/PhD Studentship Award – Michael Smith Foundation for Health Research (Doctoral Trainee Incentive Award) <p>Claire Sheldon (Year 5)</p> <ul style="list-style-type: none"> – CIHR MD/PhD Studentship Award – Michael Smith Foundation for Health Research (Doctoral Trainee Incentive Award) <p>Paul Yong (Year 5)</p> <ul style="list-style-type: none"> – CIHR MD/PhD Studentship Award – Michael Smith Foundation for Health Research (Doctoral Trainee Incentive Award) <p>Clara Tan (Year 4)</p> <ul style="list-style-type: none"> – CIHR MD/PhD Studentship Award <p>Liam Brunham (Year 3)</p> <ul style="list-style-type: none"> – CIHR MD/PhD Studentship Award – Michael Smith Foundation for Health Research (Doctoral Trainee Incentive Award) <p>Bryan Coburn (Year 3)</p> <ul style="list-style-type: none"> – CIHR MD/PhD Studentship Award <p>Amy Weber (Year 2)</p> <ul style="list-style-type: none"> – CIHR MD/PhD Studentship Award – Michael Smith Foundation for Health Research (Doctoral Trainee Incentive Award) <p>Heather Heine (Year 1)</p> <ul style="list-style-type: none"> – CIHR MD/PhD Studentship Award – UBC Graduate Entrance Scholarship <p>Aaron Joe (Year 1)</p> <ul style="list-style-type: none"> – CIHR MD/PhD Studentship Award – UBC Graduate Entrance Scholarship – UBC William, Sadie and Edwin Rowan Scholarship in Medicine 	<p>Cheng-han Lee (Year 6)</p> <ul style="list-style-type: none"> – CIHR MD/PhD Studentship Award <p>Jimmy Lee (Year 6)</p> <ul style="list-style-type: none"> – CIHR MD/PhD Studentship Award – Michael Smith Foundation for Health Research (Doctoral Trainee Incentive Award) – UBC Faculty of Medicine Grant Supplement Award <p>Ryan Hung (Year 5)</p> <ul style="list-style-type: none"> – CIHR MD/PhD Studentship Award <p>Michael Rauh (Year 4)</p> <ul style="list-style-type: none"> – CIHR MD/PhD Studentship Award – Michael Smith Foundation for Health Research (Doctoral Trainee Incentive Award) <p>Claire Sheldon (Year 4)</p> <ul style="list-style-type: none"> – CIHR MD/PhD Studentship Award <p>Paul Yong (Year 4)</p> <ul style="list-style-type: none"> – CIHR MD/PhD Studentship Award <p>Clara Tan (Year 3)</p> <ul style="list-style-type: none"> – CIHR MD/PhD Studentship Award – UBC Louis Lipsey Toohill Scholarship <p>Liam Brunham (Year 2)</p> <ul style="list-style-type: none"> – CIHR MD/PhD Studentship Award – Science Council of British Columbia GREAT Award – UBC Pacific Blue Cross Medical Entrance Scholarship <p>Bryan Coburn (Year 2)</p> <ul style="list-style-type: none"> – CIHR MD/PhD Studentship Award <p>Amy Weber (Year 1)</p> <ul style="list-style-type: none"> – CIHR Doctoral Trainee Award – Michael Smith Foundation for Health Research (Doctoral Trainee Incentive Award)



Liam Brunham, Year 3 MD/PhD student, won the **Best Research Presentation Award in Integrative Science** at the Canadian Society for Clinical Investigation and Canadian Institutes of Health Research (CSCI/CIHR) Young Investigators Forum, Halifax, Nova Scotia, September 2003. There were 47 abstracts submitted by MD/PhD students from 9 universities across Canada, including six students from the University of British Columbia.

Liam is currently completing his PhD research with Dr. Michael Hayden in the Department of Medical Genetics at the Centre for Molecular Medicine and Therapeutics. He presented the paper entitled **“Contribution of hepatic ABCA1 to HDL-C levels and atherosclerosis”** at the CSCI/CIHR Young Investigators Forum, 2003.



Congratulations Liam!

Right: *Liam Brunham*

Other UBC MD/PhD students who presented at the Young Investigators Forum and their research topics are:

- Ryan Hung – Supervisor: Dr. Anthony Chow, Experimental Medicine Graduate Program presented “Mitochondrial involvement during apoptosis triggered by the G31R mutant of toxic shock syndrome toxin-1”
- Michael Rauh – Supervisor: Dr. Gerald Krystal, Experimental Medicine Graduate Program presented “The role of SHIP in macrophage activation”
- Clara Tan – Supervisor: Dr. Shoukat Dedhar, Department of Biochemistry & Molecular Biology presented “Integrin Linked Kinase as a Diagnostic Tool: Tissue Microarray Technology”
- Bryan Coburn – Supervisor: Dr. Brett Finlay, Department of Microbiology & Immunology presented “Pathogenomics of Salmonella Infection *in vivo*”
- Amy Weber – Supervisor: Dr. Mark Tyndall, Department of Health Care & Epidemiology presented “Predictors of initiation into prostitution among female street youth”

MD/PhD Student Representatives

Clara Tan (Year 4) is the student representative and Michael Rauh (Year 5) who will succeed Clara as the next student representative is the alternate student representative for 2003-2004. One of the responsibilities of the student representative is to organize the MD/PhD monthly student meetings. Another major duty of the student representative is to sit on the MD/PhD Advisory and Admissions Committee.

We would like to thank our past student representatives for their important contributions and efforts on behalf of the Program.

Past MD/PhD Student Representatives:

2002 – 2003	Claire Sheldon
2001 – 2002	Cheng-han Lee
2000 – 2001	Jimmy Lee
1998 – 2000	Ryan Hung
1997 – 1998	Stephen Yip
1996 – 1997	Patrick Tang



Above: *Clara Tan (left) received the gavel from Claire Sheldon (right) at the Open House Welcoming Dinner. Seated: Dr. Ted Steiner.*

Clara Tan – MD/PhD Student Representative (2003–2004)



Clara Tan

Caught a Dragonfly Inside a Jar – by Clara Tan (Year 4)

One of my most memorable introductions to nature, wonder and curiosity must have been catching crickets inside a jar. After many years of education, I realized that there were no limits to learning and curiosity, so I applied to be an MD/PhD student. I am doing my PhD with Shoukat Dedhar PhD (Department of Biochemistry and Molecular Biology, Department of Genetics, UBC; Cancer Biology, B.C. Cancer Agency). His lab studies Integrin-linked kinase (ILK), an intracellular protein that interacts with the cytoplasmic domain of β_1 and β_3 integrin subunits. Studies have demonstrated that an increase in ILK expression results in anchorage-independent cell cycle progression, cell migration and invasion, and the suppression of timely cell death. These are all hallmarks of metastatic cancer. Biological evidence further demonstrates that ILK is essential in the promotion of such phenotypes by connecting cytoskeletal components to integrin and growth factor receptor like an adaptor.

In addition, ILK also mediates the post-translational modification (phosphorylation) and activation of downstream intracellular substrates, such as Protein kinase B/Akt, through its kinase activity, upon integrin engagement, and growth factor and chemokine exposure. These signaling events result in the initiation of the transcription of genes, which when inappropriately activated, will result in the phenotypes mentioned above. The understanding of these molecular events are important in bettering the treatment of diseases such as cancer, inappropriate inflammation or incorrect repair diseases that are life threatening and damaging to the quality-of-life. My PhD projects involves 1) determining the role of Integrin-linked kinase (ILK) in macrophage activity, 2) elucidating the intracellular mechanisms in which ILK is involved in angiogenesis (formation of new blood vessels), 3) the signaling events in which ILK is involved in inappropriate cell proliferation, migration and survival, and 4) assessing the potential use of ILK as a diagnostic marker. My mission, in collaboration with other laboratories and colleagues, is to study these mechanisms by employing molecular and cellular biology techniques, and mouse models in gain and loss of function studies. As well, my mission includes searching for correlative trends in archival normal and diseased tissue. My vision is that the knowledge gained from these studies will lead to the identification of therapeutic strategies for the inhibition or activation of ILK activity, and the better treatment of patients inflicted with life-threatening and decreased quality-of-life diseases.

In addition to my PhD projects, I had the opportunity to be part of two other research projects. Two summers ago, I had the opportunity to help in a population and genetic study under the supervision of Vicki Monsalve PhD and Dana Devine PhD with Jim Rupert PhD (Department of Pathology and Laboratory Medicine, UBC). We wanted to know if selective pressure has acted against hypercoagulability alleles in high-altitude Amerindians. To test this hypothesis, we compared allele frequencies between Quechua and more closely related lowlanders (Maya) at loci in the genes encoding beta-fibrinogen (FGB), factors V (F5), VII (F7) and XIII (F13), alpha2-integrin (ITGA2) and plasminogen activator inhibitor type 1 (PAI-1; SERPINE1).

This summer, I took an interdisciplinary Palliative Care course at St. Paul's Hospital. This course introduced me to the changing field of palliative care and to Canuck Place (www.canuckplace.com). Under the guidance of Lynn Straatman MD, we developed a survey that would assess the attitudes of physicians, and their needs when working with terminally ill paediatric patients and their families. We hope that this study will provide us with information on how to best educate physicians on the topic of providing better care for terminally ill paediatric patients and their families.

As the MD/PhD student representative and the Junior Admissions Student Representative, my missions are to 1) ensure that the activities that were established by my predecessor and enjoyed by all the students continue 2) make improvements to the existing programs upon student suggestions and 3) encourage, support and represent the view, ideas and initiatives of the students I represent. My vision, with the help of my colleagues, are to 1) increase the number of MD/PhD applicants, 2) increase the number of students graduating from the MD/PhD program, and 3) gain international recognition for the UBC MD/PhD Program. To meet the missions and visions, I will be guided by the values that the opinions of my classmates are integral to making a program that is civilized, diverse, flexible and financially well supported. This will hopefully result in the production of compassionate, creative and innovative clinician scientists or scientist clinicians. Our first plan to meet our mission is to attend more international MD/PhD Conferences.

Growing up as a spoiled child, I finally realized that it was life's illusions that I recall, and I really don't know life at all. So I became involved in socially conscientious and accountable medical student initiatives. This year, I did not volunteer regularly as a supervisor at the downtown eastside health clinic (Community Health Initiative by University Students – (CHIUS) – www.chius.ubc.ca), because I wanted to devote my efforts into establishing interdisciplinary outreach programs for the women of the downtown eastside (Women Information and Safe House; Health Contact Centre), the children and parents in east Vancouver (Frog Hollow Neighbourhood Housing), and the residents and staff at the Vancouver Lodge (www.bccancer.bc.ca). This has been a rewarding experience for me because I had the opportunities to learn how to do a needs assessment of a community, develop programs that would benefit the student volunteers and the people who receive our services, collaborate with existing agencies, such as Beauty Nights (www.beautynight.org), work with other health science students, learn from care providers and the people they treat, as well as, be reminded that many other people have more stressful lives than me.

In addition, my friends and I successfully organized a 2-day conference about Disaster Medicine at St. Paul's Hospital this year. This was an excellent experience in teaching us how to organize a conference, as well as, this conference educated and gave an introduction to medical students and residents on the management of natural and man-made disasters (It's like herding cats).

Until I can teach my feet to fly, I enjoy snowboarding/skiing in the cooler months, mountain biking/hiking in the warmer months, making music (noise), horseback riding and kendo sparring whenever I get the chance, and the maintenance of orchids. I would like to take this opportunity to thank my family, friends, colleagues, volunteers and Joni Mitchell for giving me life, love and luxury (good food, good drinks, and good music).

"New Blood" in the MD/PhD Program

Both first year students (Heather Heine and Aaron Joe) have identified their research area. Heather's research focuses on myocardial regeneration with hematopoietic stem cells. Aaron's research focuses on molecular determinants of stem cell trafficking. Both Heather and Aaron completed their undergraduate education at UBC.

Upcoming events

Six of the MD/PhD students will be presenting at the upcoming Western Student Medical Research Forum at Carmel, CA: Claire Sheldon (Year 5), Paul Yong (Year 5), Clara Tan (Year 4), Liam Brunham (Year 3), Bryan Coburn (Year 3) and Amy Weber (Year 2).

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