

PATHOLOGY

newsletter



 pathology
laboratory medicine
UNIVERSITY OF BRITISH COLUMBIA

Spring/Summer 2008

Table of Contents

1	<i>Overview</i>	
	From The Department Head	3
	New Faces	4
	PathDay Annual Conference	8
	Research Environment	10

2	<i>Academic activities</i>	
	Hematopathology Residency Program	14
	Graduate Programs	15
	Graduate Students Initiatives.	19
	Bachelor of Medical Laboratory Science (BMLSc) Program	23

3	<i>Meet the people of pathology / creative interests</i>	
	Faculty on Spot.	26
	Staff on Spot	28
	Future of Laboratory of Medicine Professionals.	30
	The BC BioLibrary	30
	Whatever Happened to the BC Ice-Guy?	32
	Creative Talents	34

A Commitment to Quality

Richard Hegele, MD, FRCPC, PhD

“Quality” is one of those feel-good terms being bandied about almost indiscriminately by just about everybody these days. Given its role and mandate in such fundamental aspects as precision, accuracy, interpretation of results, risk assessment, safety and the like, Pathology and Laboratory Medicine is especially well positioned within the entire the Faculty of Medicine and the overall health care system for leadership in quality issues. As an academic department, we create and convey knowledge that can help to advance the quality agenda in all of our endeavors

For example, laboratory proficiency testing programs provide a valuable mechanism for quality improvement, education and learning in the service laboratory sector, and a number of our faculty members are involved in quality initiatives that occur at the interface between academics and clinical practice. The UBC Department of Pathology and Laboratory Medicine has incrementally (some would say insidiously) implemented numerous improved mechanisms related to quality management,

including enhancements to monitoring, evaluation, feedback, reporting and ongoing adjustments to its programs and operations.

These are done with the goal to improve the educational experience and outcomes of our students and trainees, increase recognition and reward, maintain competitiveness in a difficult funding climate, and ensure that the discipline is vital and relevant.

In this issue of the Newsletter, there are numerous examples of quality in action that inform, edify and inspire.

Have a great summer and enjoy the issue.

As an academic department, we create and convey knowledge that can help to advance the quality agenda in all of our endeavors.

New Faces



Dr. Nadejda Medvedev graduated from Moscow Medical Academy, Russia in 1994. She moved to Canada in 1997, entered UBC Hematopathology Program in 2001 and graduated in 2007. Currently, she is working at St. Paul's Hospital as a General Hematopathologist and Blood Bank Supervisor.

She has two boys, 13 and 3 years of age, a teenager and a toddler!!



Dr. Xifei YU is a Postdoctoral Research Fellow, Centre for Blood Research with Dr. Donald E. Brooks and Dr. Jayachandran Kizhakkedathu (2008-)

PhD of Polymer Chemistry and Physics, College of Chemistry, Jilin University & State Key Laboratory of Polymer Physics and Chemistry, Chuangchun Institute of Applied Chemistry, CAS (2002-2007)

Research Interests and Ability:

- ◆ Design and Synthesis of Well-defined Functional Macromolecular Architectures via Controlled /Living Polymerization.
- ◆ Research Properties of the Polymers Designed and Synthesized.
- ◆ Realization of the Combination of Polymer Chemistry and Parts of Polymer Physics, Materials Science.



Dr. Olena Preobrazhenska received her PhD in Biochemistry in Ukraine (Institute of Biochemistry, Kiev). After extensive studies of enzymes engineering and biotechnological application she changed her field of interest to growth factors signal transduction and did her first international post-doctoral fellowship in the Ludwig Institute for Cancer Research (Uppsala, Sweden). Her post-doctoral research, started with the study of TGF-beta signaling in human breast cancer cells, was later focused on the investigation of the mechanism of TGF-beta -induced epithelial to mesenchymal transition and the role of extracellular matrix proteins in this process.

Dr. Preobrazhenska joined the lab of Dr.Churg and Dr.Wright at the Department of Pathology and Laboratory Medicine in May of 2008 and her current research interest is to investigate the molecular aspects of tissue remodeling during chronic obstructive pulmonary disease and to dissect the involvement of growth factors signaling in initiation and promotion of pulmonary emphysema and fibrosis.

Dr. Manna Jonaki grew up in BC, studied medicine at UBC, then completed her specialty training in Hematological Pathology at the University of Alberta, Edmonton. Following Residency, she did a Pediatric Hematopathology Fellowship at BC Children's Hospital, Vancouver. Currently, she is working full time in Victoria, BC and very much enjoys the city as well as her work - especially the diagnostic and teaching aspects. She hopes to continue exploring and expanding within her two focal interests of pediatric/hereditary disorders as well as medical education; in addition. She looks forward to further pursuing my non-medical interests in music, literature, and travel.



Dr. Eszter Papp is a Postdoctoral Fellow, Department of Pathology and Laboratory Medicine

Dr. Papp completed her PhD training in Hungary investigating oxidative changes in different chronic diseases such as diabetes or alpha1-antitrypsine deficiency on various organelles. In 2006 she joined Dr. Helene Cote's lab at the Department of Pathology and Laboratory Medicine to study the effects of anti-HIV drug toxicity on mitochondria. Dr. Papp's ongoing work focuses on the effects of nucleoside analogue (an anti-HIV drug family known for mitochondrial toxicity) exposure during pregnancy. To complement the findings of Dr. Cote's laboratory using nucleic acid-based methods, she established enzyme activity assays to measure the changes in the function of mitochondrial proteins, such as citrate synthase, complex II (succinate dehydrogenase) and complex IV (cytochrome C oxidase) of the human placenta. She complemented her work with tissue culture experiments, her results showing that nucleoside analogues, a group of HIV drugs known for mitochondrial toxicity are capable to induce multidrug resistance genes. These findings are summarized in an article (Journal of Antimicrobial Chemotherapy). Dr. Papp was awarded a Postdoctoral fellowship from the Canadian HIV Trials Network in 2008 starting in 2009 since Dr. Papp is presently on maternity leave.



Dr. Sobrab Shah's current appointment is as a Postdoctoral fellow working in the labs of Dr David Huntsman (Centre for Translational and Applied Genomics, BC Cancer Agency) and Dr. Samuel Aparicio (Dept of Molecular Oncology, BC Cancer Research Centre). His research interests are in the broad field of bioinformatics and computational biology, an area he has been involved with for the last ten years.

PhD, University of British Columbia, Computer Science, Bioinformatics. 2005–2008

Thesis title: *Model based approaches for detecting DNA copy number alterations*

MSc, University of British Columbia, Computer Science. 2005

Thesis title: *Detecting common secondary structure elements in RNA sequences*

BSc, University of British Columbia, Computer Science. 2001

BSc (Hons), Queen's University, Biology. 1996



Dr. Zonghua Liu is a Postdoctoral Fellow in the Department of Pathology and Laboratory Medicine. She received a Bachelor's degree in Biochemistry from Yantai University and a PhD degree in Biomedical Engineering from Jinan University. Her PhD thesis focuses on drug delivery systems.



Dr. Lifeng Qu came from Yunnan Province, a beautiful place in China. She graduated from Kunming Medical College in 1985 and is a physician in Yan'an Hospital of Kunming City. Dr. Qu has been focusing on respiratory medicine for over 20 years. She will be working and learning in Dr. Yang's lab for one year. This is her first time to be away from home and to study abroad.

"Everything here is new and exciting to me. I'm really impressed by your creative spirits. I hope I can get used to it soon with your kind help. I'm looking forward to becoming your friends."



Goichi Kageyama M.D., Ph.D.

Postdoctoral fellow, Department of Pathology and Laboratory Medicine, BC Children's Hospital.

Dr. Kageyama received his MD from Kobe University of Japan in 1997. Subsequently, he worked as an internal medicine resident for three years. He entered Kobe University graduate school and received his PhD in 2004. After working for three years as a medical staff member in the Department of Rheumatology at Kurashiki Central Hospital in Japan, he joined Dr. Peter van den Elzen's Laboratory in April 2008. He received Canadian Post - Doctoral Research Fellowship award funded by Foreign Affairs and International Trade Canada for his Postdoctoral Research. His clinical specialty is rheumatology. He is investigating lipid antigens associated with autoimmune disease and atherosclerosis.



Dr. Annelein Stax, Postdoctoral Fellow, Department of Pathology and Laboratory Medicine. Dr. Stax received her PhD degree at the University of Leiden, The Netherlands in 2008. In the lab of Cees van Kooten she studied the effect of Dexamethasone-treated dendritic cells in kidney transplantation models. Recently she joined the lab of Dr. P. van den Elzen as a postdoctoral fellow where she will study the role of CD1d lipid antigen presentation to NKT cells in Multiple Sclerosis patients.



Dr. Ali Saad received his Medical Degree from the Lebanese University-Faculty of Medical Sciences in 1998, and completed his Residency in Anatomic and Clinical Pathology at the University of Cincinnati, OH, USA (2000-2005). Obtained Fellowships in Neuropathology and Pediatric Pathology at the Brigham and Women's Hospital and Children's Hospital-Harvard Medical School (2005-2008). Winner of the prestigious Farley Fund Award and Von L. Meyer Award from Harvard Medical School. Published 15 original articles in peer reviewed journals and 25 posters in national and international meetings.

Dr. Ali Behzad joined the James Hogg iCapture Center in the Transmission Electron Microscopy Laboratory as an Undergraduate Summer Student under the supervision of Dr. David C. Walker working on a project to elucidate the path of neutrophil migration during inflammatory reactions in the alveolar capillaries of rabbit lungs. As he learned more about the process of the inflammatory response, he came to realize that the study of inflammation is incomplete if it does not also include a consideration of events at the molecular level. Therefore, in 1996 he began graduate studies with Drs. James C. Hogg and Shizu Hayashi's laboratory to investigate the mechanism by which adenovirus E1A protein might contribute to the airway wall inflammation and remodeling process in Chronic Obstructive Pulmonary Disease (COPD).

He completed his PhD on this work in 2003 and started a junior Postdoctoral Fellowship in Dr. Pante's laboratory in the Department of Zoology at UBC working on parvovirus and mechanisms of entry of this virus into the cell nucleus after infection.

Over the last few months in close collaboration with Dr. Hogg and Dr. Walker, he has been working on a new ultrastructural project to test the hypothesis that alveolar pores of Kohn in lung parenchyma might play a role in the progression of emphysema and lung remodeling in COPD patients.



Dr. Walter Martz is a Clinical Assistant Professor, Provincial Toxicology Centre. Dr. Martz is a Board Certified Forensic Toxicologist. He graduated in 1985 from the University of Hannover, Germany as a Master of Science in Chemistry and Biochemistry. After finishing his Ph.D. thesis on active principles of poisonous plants in Brazil in 1988 he continued his training in clinical chemistry, clinical toxicology and forensic toxicology in different positions in Germany. From 1996 to 2006 he was the head of the department of forensic toxicology of the Institute of Legal Medicine and the Institute of Clinical Pharmacology in Bremen, Germany. In 2002 and 2003 he planned and supervised the initial commissioning of the toxicology lab for the National Guard in Riyadh, Kingdom of Saudi Arabia.

After his return to Germany he was contracted to the International University of Bremen as a lecturer of toxicology. He moved to Vancouver in January 2007 in order to cover the position of the Scientific Director of the Provincial Toxicology Centre. As the mandate of the Centre is providing BC Coroners Services with post mortem toxicological analyses, his position includes testifying in court all over the province. His current research interest is focused on method development by means of gas or liquid chromatography and mass spectrometry and the interpretation of post mortem results.



Dr. Doug Webber MD (UBC); FRCPC (UBC); Clinical Assistant Professor, has returned to the halls of Vancouver General Hospital after 18 years practicing general and anatomical pathology, mostly in Kelowna, B.C. Recruited to be a jack of all trades, master of some he has enjoyed the switch from 'town' to 'gown', particularly the stimulation of being around young physicians training in pathology who ask the tough questions. He has been pleasantly surprised that contrary to popular belief in the town, the folks in the academic towers really do know what they are talking about! (The converse being true as well.)



Pathday Annual Conference

This year was the 9th annual celebration of Pathology Day, held at the Plaza 500 hotel. There were eleven oral presentations from residents Cheng-Han Lee, Jefferson Tery, Shane Kirby, Victor Meneghetti, Miguel Imperial, Hamid Masoudi, Nafila Al-Riyami, Anna Adamiak, Tony Ng, Karen Ung and Chris Lowe.



The James Hogg Keynote Lecturer Dr. Deborah Nickerson, Professor of Genome Sciences, Adjunct Professor of Bioengineering, University of Washington was this year's James Hogg Keynote Lecturer. Her talk was titled "Genome-Wide Quantitative Trait Analysis"



Oral Presentations Winners - Residents

3rd place: **Cheng-han Lee** *"Molecular characterization of 31 novel sarcoma cell lines"*

2nd place: **Jefferson Terry** *"Isolation of putative cancer stem-like cells in synovial sarcoma"*

1st place: **Tony Ng** *"High-throughput identification of suppressors of anoikis reveal a possible role of the arrestin-domain containing gene family"*

Posters Presentation Winners - Graduate Students

3rd place: Tie between **Ivy Tsui** "*Clonal evolution of the multi-focal development of oral carcinogenesis*"
Meredith Hamilton "*Role of the toll-like receptor signaling molecule TRIF in b-cell function*"

2nd place: **Peyman Tavassoli** "*TATA binding protein associated factor 1 (TAF1) can bind and differentially enhance androgen receptor transcriptional activity via ubiquitin activating/conjugating and N-Terminal Kinase Domains*"

1st place: **Ciara Chamberlain** "*Granzyme B contributes to aortic dissection and aneurysm pathogenesis through the cleavage of extra cellular matrix proteins*"

Faculty Recognition awards:



Award for Excellence in Research and Discovery: Dr. Wan Lam



David Hardwick Lifetime Achievement Award: Dr. Bruce McManus



Award for Excellence in Education: Dr. Jason Ford



Award for Excellence in Service: Dr. Brian Skinnider



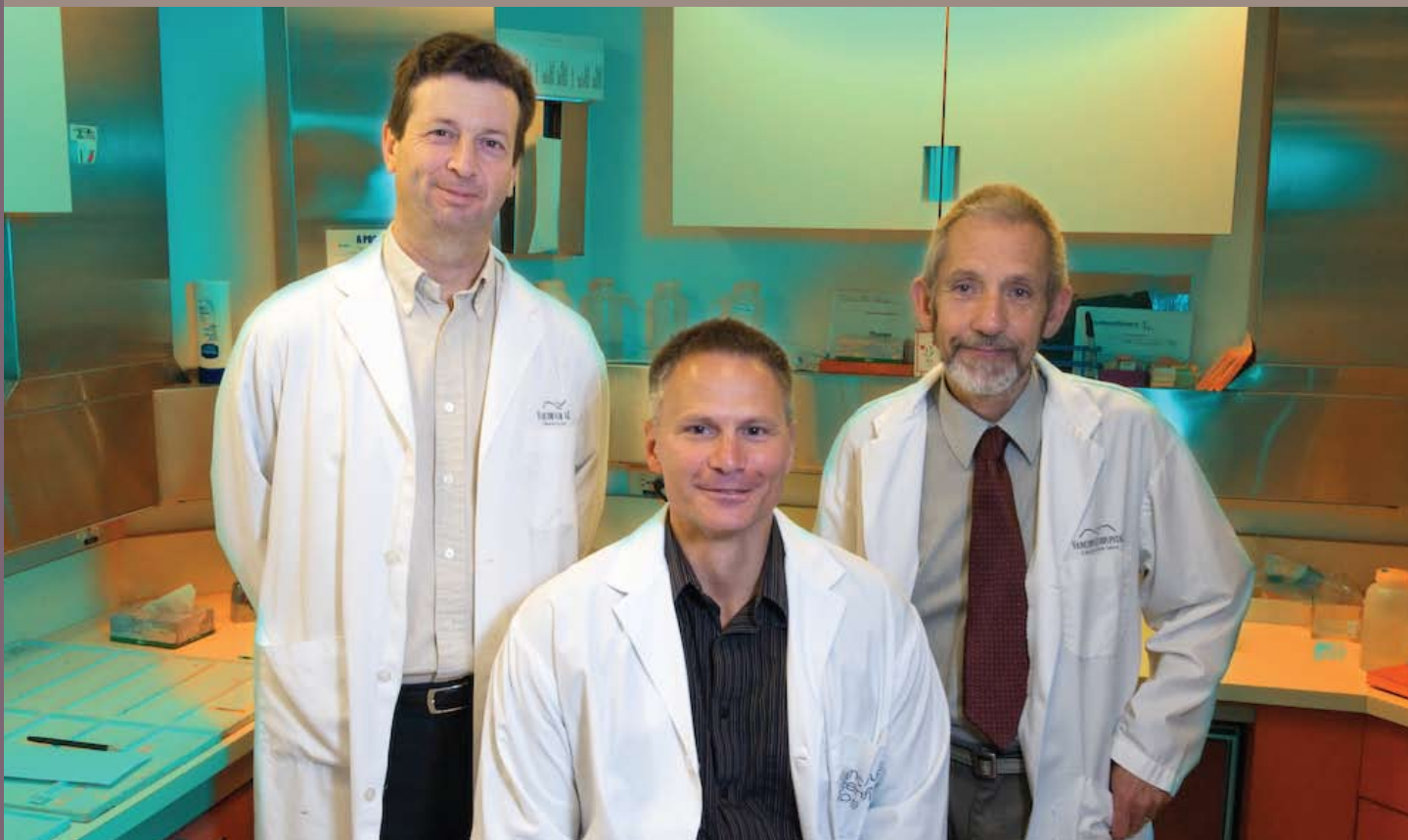
Most Valuable Player: Dr. Carol Parks



Staff Service Award: Ms. Joanne Wouterse

Research

Environment



With the recent flurry of media reports about errors in laboratory testing that have affected cancer patients in Newfoundland and other Canadian jurisdictions, the front page story in the May 17, 2008 edition of The Globe and Mail featured a refreshing story of two local pathologists, Drs. Blake Gilks and Robert Wolber, who have been working with technical staff Beverley Wolber and John Garratt (Lion's Gate Hospital) to enhance the quality and robustness of immunohistochemistry testing in BC.

Local Pathologists in the National News

The use of tissue microarrays, in which portions of literally hundreds of tumors can be sectioned together onto a single glass microscope slide, provides a dramatically improved approach to modernize immunohistochemical proficiency testing for anatomical pathology laboratories and can be applied for such purposes as accreditation, education and research.

This work, done despite a number of profound obstacles having to be overcome, has since been extended to an interprovincial collaboration and the establishment of the

Canadian Immunohistochemistry Quality Control Program, a web-based initiative with a national scope and cost-effective approach to improving quality in immunohistochemistry testing. The Globe and Mail article is an inspirational read and shows how the determination and perseverance of dedicated professionals can result in positive impact for anatomical pathology locally and beyond. Congratulations!

A website is currently in development that will detail our research projects, with the goal of increasing public awareness of the important studies being carried out in this department.

Identification of the New Gene Associated with Lung Cancer

A. Mallakin, PhD

Lung cancer is the leading cause of cancer deaths in the world and accounts for more solid tumor deaths than any other cancers. More than 170,000 new cases are diagnosed each year in the United States and about 160,000 will eventually die of the disease, representing 30 percent of all cancer deaths. Dmp1 (Dmtf1) is activated by oncogenic Ras signaling and shows its tumor suppressor activity through the activation of the Arfp53 pathway in mice. We show that Dmp1 deletion cooperates with oncogenic K-ras to form lung cancers in vivo, and those tumors from Dmp1-knockout mice have significantly less frequent p53 mutations. Importantly, deletion of one allele of Dmp1 was found in 30%–40% of K-ras-induced murine lung tumors as well as in human nonsmall cell lung carcinomas, in which ARF and/or P53 remained intact.

This work provides evidence that hDMP1 is a physiological regulator of the ARF-P53 pathway in humans and is primarily involved in pulmonary carcinogenesis. Our research to show the involvement of a gene known as Dmp1 in human lung cancer will lead to an increased understanding on what goes wrong at the cellular level to cause the disease. Our research team found that the Dmp1 gene, which normally works to suppress tumor formation, is non-functional in about 35 percent of human lung cancers. Lung cancer is one of the most lethal types of cancer and understanding more about its cause could be a first step to developing new treatments.

Earlier studies in mice found that the gene is involved in activating tumor suppressors known as p53 and Arf. We believe that when the Dmp1 gene isn't functional, these tumor suppressors are not available to stop tumor growth by killing cancer cells. Our study was the first study to explore its involvement in human cancer. As with all human genes, there are two copies of Dmp1, one from each parent. With one deleted copy, the effects of the gene are silenced. Our team analyzed 51 samples of human non-small-cell-lung cancers for Dmp1, Arf and p53 and found that the Dmp1 gene was frequently deleted. In most cases, the genes for Arf and p53 tumor suppressors were present, but the suppressors were not active. Even when just one copy of the Dmp1 gene was deleted, the function of Dmp1 was significantly decreased. The Dmp1 gene is located on human chromosome 7q21, a region that is often deleted in human malignancies. In addition, abnormality of the p53 gene is one of the most common events in human lung cancers.

This work provides evidence that Dmp1 is a physiological regulator of the Arf-p53 pathway in humans and is primarily involved in lung cancer. We are hoping to learn how the gene affects outcome. It's possible that knowing which patients have the gene may be a prognostic factor for how they will respond to chemotherapy. The gene may also be a target for future drug development since high expression of Dmp1 significantly inhibited the growth of some lung cancer cells.

References:

Mallakin A., T. Sugiyama, L.A. Matis, P. Taneja, D.P. Frazier, M. Chaudohry, J. Clark, G. Hawkins, K. Mercer, N. Young, T. Jacks, M.C. Willingham and K. Inoue. 2007. Mutually exclusive inactivation of DMP1 and ARF/p53 in lung cancer. *Cancer Cell*, 12(4), 381-94.

Taneja P., A. Mallakin, L. Matis, D. Frazier, R. Sreeramanemi, K. Inoue. 2007. Repression of the Dmp1 and the Arf promoter by anthracyclins: critical roles of RelA. *Oncogene*, 26 (53), 7457-66.

Inoue K., A. Mallakin, D. Frazier. 2007. Dmp1 and tumor suppression. *Oncogene*, 26 (30), 4329-35.

Mallakin A., P. Taneja, L.A. Matis, M. Willingham, K. Inoue. 2006. Expression of Dmp1 in specific differentiated, non-proliferating cells and its regulation by E2Fs. *Oncogene*, 25 (59), 7703-13.

Wake Forest University Baptist Medical Center is an academic health system comprised of North Carolina Baptist Hospital and Wake Forest University Health Sciences, which operates the university's School of Medicine. U.S. News & World Report ranks Wake Forest University School of Medicine 18th in primary care and 44th in research among the nation's medical schools. It ranks 35th in research funding by the National Institutes of Health. Almost 150 members of the medical school faculty are listed in Best Doctors in America.

Dr. Elizabeth Bryce and her project team have won an Award of Merit for Collaborative Solutions from the Health Employers Association of British Columbia for their project "Preventing Infections with On-Line Education".



The team of experts from occupational health, infection control and continuing professional development collaborated to create an online Infection Control course that promotes patient and healthcare worker safety. The team used state of the art technology to prepare the course, and best team practices to implement it. Research funded by the Canadian Institutes of Health Research, Vancouver Coastal Health and BCCDC has shown that the online course transfers learning. The course is now being used regularly, and is required in new staff orientations, for student placements, for residents and for physician hospital privileges. The implementation of the course has contributed to an improved safety climate within healthcare.

The course contains the basic principles of infection control, hand hygiene, safe sharps management, isolation precautions, and use of personal protective equipment. The course contains demonstration videos and interactive

activities, and is online and accessible to all Vancouver Coastal Health healthcare workers through their Course Catalogue Registration System. It is also licensed under the Creative Commons for sharing with other healthcare organizations.

The team, which developed and implemented the course, consists of representatives from the British Columbia Centre for Disease Control, Children's and Women's Health Centre of British Columbia (Learning and Development), Occupational Health and Safety Agency for Healthcare in BC, University of British Columbia (**Pathology**, Continuing Professional Development and the Centre for Global Health Research), and Vancouver Coastal Health Authority (Infection Control, Learning and Development and Worksafe and Wellness). The successful collaboration by the team makes possible future cross-agency educational projects for emergent infectious diseases.

Program Office for Laboratory Quality Management Hosts a Successful Quality Conference Weekend Workshop

Michael Noble, MD FRCPC

The Program Office has completed a successful workshop in Laboratory Quality over the weekend May 31-June 1, 2008. During this sunny first weekend in June, 85 participants from across Canada, the United States, and Europe attended and participated in the stimulating and engaging session. The workshop was linked to the Canada's hosting of the International Organization of Standardization (ISO) Technical Committee 212 on Clinical laboratory testing and in vitro diagnostic test systems in Vancouver. International experts attending the ISO meeting including Robert Michel (Editor-in-Chief, the Dark Report), Donald Powers - USA (Risk Management), John James - UK (Laboratory Safety), David Burnett - UK, Orna Dreazon - Israel (Accreditation) and Luci Berte - USA (Quality Management) shared the podium with national experts Michael Moss -BC (Streamlining Automation), Gregory Flynn- Ontario (Accreditation), Sheila Woodcock - NS.



The Program Office has completed a successful workshop in Laboratory Quality over the weekend May 31-June 1, 2008. During this sunny first weekend in June, 85 participants from across Canada, the United States, and Europe attended and participated in the stimulating and engaging session. The workshop was linked to the Canada's hosting of the International Organization of Standardization (ISO) Technical Committee 212 on Clinical laboratory testing and in vitro diagnostic test systems in Vancouver. International experts attending the ISO meeting including Robert Michel (Editor-in-Chief, the Dark Report), Donald Powers - USA (Risk Management), John James - UK (Laboratory Safety), David Burnett - UK, Orna Dreazon - Israel (Accreditation) and Luci Berte - USA (Quality Management) shared the podium with national

experts Michael Moss -BC (Streamlining Automation), Gregory Flynn- Ontario (Accreditation), Sheila Woodcock - NS (Quality Management). Additional breakout groups on Risk Management (Donald Powers), Lean Activities (Peter McLellen-BC), Quality Indicators (Michael Noble - BC), and Root Cause Analysis (Deborah Griswold and Susan Thomas) kept the participants engaged and enthused. The meeting was brought back to the core message of Patient Safety by Dr. Douglas Cochrane (BC Council on Quality and Patient Safety).

"This rare opportunity was rated as excellent by all attendees. The success of the workshop strongly points to the opportunity of repeating the workshop, perhaps as soon as next year."

- Michael Noble



Education Highlights

This June, the UBC Hematopathology Residency Program celebrated the successes of its three new graduates with a family-oriented barbecue hosted by Dr. Aly Karsan (see picture). Recidivism is being encouraged.



from left to right; back row: C Carter, R Coupland, S Naiman, A Weng, A Karsan; middle row: L Wadsworth, M Wong, M Chhanabhai, S Vercauteren, N Au, D Good; front row: N Medvedev, B Dalal, T Smith

Hematopathology Residency Program

Suzanne Vercauteren (Chief Resident Hematopathology) and Tyler Smith (Second Year Hematopathology Resident)

Hematopathology is one of the subspecialty programs of the Pathology and Laboratory Medicine Residency Program at UBC. As its name implies, hematopathology primarily involves the study of blood disorders, both benign and malignant. Specifically, it encompasses numerous different subdisciplines, including morphologic analysis of blood and blood forming tissues as well as laboratory assessment of the coagulation system, transfusion medicine, and hemoglobinopathies. Hematopathology offers a unique blend of clinical and laboratory medicine as well as basic science.

Over the last decade, enormous progress has been made in our understanding of the molecular pathways leading to malignant hematological disorders. Twenty years ago, diagnoses and prognoses were primarily based on clinical

and morphologic criteria. Nowadays, new methodologies are playing an increasing role in this process. For instance, flow cytometry immunophenotyping is becoming increasingly useful in not only establishing the diagnosis, but also in the detection of minimal residual disease. In addition, DNA- and RNA-based molecular testing techniques, such as (quantitative) PCR, nucleic acid microarrays, serial analysis of gene expression, and comparative genomic hybridization, are making inroads into hematologic diagnostic practice.

In 2001, the World Health Organization replaced the traditional, morphology-based French-American-British grouping of hematological malignancies with a classification system that also incorporates immunophenotypic, cytogenetic, and molecular strategies. Unlike the FAB classification, it is not only useful for diagnostic purposes but also

has prognostic value. The updated version of the WHO classification is expected this summer and will undoubtedly reflect recent advances in our understanding of the pathogenesis of these disorders.

Molecular biology has also made its entrance into benign hematology. Examples include prenatal molecular tests for hemoglobinopathies, family genetic studies for coagulopathies, and likely future blood group designations based on genotype rather than phenotype. Altogether, these are exciting times for the study of hematopathology.

Our small residency program appears to be having a tsunami-sized sinusoidal wave pattern, with three residents graduating this year (potential global warming associations remain unproven).

Fortunately, all three graduates will be staying in the Lower

Mainland. Nicholas Au will be starting a fellowship in pediatric hematopathology at BC Children's and Women's Hospital. Michelle Wong has accepted a position as a staff hematopathologist with the Fraser Health Authority. In keeping with the theme of this article, Suzanne Vercauteren will be continuing her research on the

molecular pathways involved in the pathogenesis of myelodysplastic syndromes during her fellowship at Vancouver General Hospital. Lagging three years behind, the next wave is already on the upswing, with Tyler Smith and Arwa Al-Riyami entering third year, followed closely by Svetlana Dmitirienko, who is beginning her second year.

Graduate Programs

David Walker, BA, MA, PhD

This has been an eventful winter/spring for the graduate program. In the 2008 Spring convocation, the following twelve students graduated:

MSc Program

Motoi Matsukura

Jennifer Ng-Muk-Yuen

Pamela Parkinson

Brian Schick

Catalin Taraboanta

Marie-France Witty

PhD Program

Arwen Hunter

Alice Li

Maziar Rahmani

Catherine Tucker

Jefferson Terry

Hon-sing Leong

We congratulate them and wish them all the best in their future endeavors! We would also like to congratulate those PhD students who have successfully passed their comprehensive examinations and therefore advanced to candidacy.

They are: Rajagopal Chari, Jessica Kalra, Erica Lee, Zhen Liu, William Lockwood, Alain Musende, Ashleen Shadeo, Peyman Tavassoli, Ian Wilson,

Ming Yang and Claire Heslop.

I should like to remind those who have not done so that by university regulations you are expected to do so within 24 months of your initial registration in the graduate program.

We would also like to welcome the new students to our graduate program who began their studies in January, July and those beginning in September. New students will be considered for Graduate Entrance Scholarships in July. A short note on recent changes to Pathology 500.

This past fall the class included a field trip to the new Dr. David Hardwick Pathology Learning Centre. This was a valuable addition to the course and will become a more formal part for the fall term. In addition graduate student access to the Aperio system for normal and pathological slide material will become available to the graduate students in the course this fall.

On the evening of June 17th the first annual Arts in Science gala by and for graduate students from the Department of Pathology and Laboratory Medicine was held at the Medical Student and Alumni Centre! Many thanks for the provision of this space free of charge to our students. See the details in the piece by Tyler Hickey.

Of Special Note:

Dr. Marcel Bally will be stepping down as coordinator for Pathology 535/635, commonly known as GSS. Marcel has coordinated the course for 13 years and through many changes in timing, location and format. Most recently the venue rotated from the BCCRC to the Child and Family Research Institute and finished at St Paul's Hospital. Also changes in the delivery of faculty feedback to speakers were instigated at the request of the students. Marcel deserves a huge amount of thanks for this contribution to our graduate students and the graduate program. A replacement has not yet been found and all suggestions will be considered.

Dr. Susan Porter is stepping down as Assistant Dean of Graduate Studies for the Faculty of Medicine. Happily she will continue to coordinate the Faculty of Medicine Responsible Conduct of Research Course for graduate students on ethics in research and graduate education which she instigated and developed with the assistance of Jacqui Brinkman. The course depends upon faculty participation and I would strongly encourage all faculty supervising graduate students to participate as facilitator/participants. It only takes two half days and little advanced preparation. Having done it myself I can personally recommend it as a valuable exercise for both the faculty and graduate students.

Graduate Award Recipients

Student:	Graduate Awards/Posters Received
Lisa Ang	Michael Smith Foundation Junior Graduate Studentship (2008-April)
Wendy Boivin	Alexander Graham Bell Canada Graduate Scholarship (NSERC, 3yrs – 2008-2010) CBR/iCAPTURE Research Day top oral presentation award
Ciara Chamberlain	Top poster presentation at Path Day and Top poster presentation in the junior category at the CBR/iCAPTURE Cardiovascular Trainee Research Day
Leslie Chin	NSERC Alexander and Graham Bell Canada Graduate Scholarship
Eugene Chu	Pacific Century Graduate Scholarship (2008-Sept)
Guang Gao	Graduate Studentship, Michael Smith Foundation of Health Research (April 2005 to September 2007) Doctoral Research Award, Heart and Stroke Foundation of Canada (July 2005 to June 2008)
Claire Heslop	MSFHR Senior Graduate Studentship (2008)
Tyler Hickey	Research Trainee Award - Michael Smith Foundation for Health Research (2007-09) Studentship – Canadian Cystic Fibrosis Foundation(2008-10)
Nathalie Johnson	NCIC Studentship (2008-2010) MSFHR – BC Cancer Foundation Trainee Award (2008-Sept – 2010-June)
Jessica Kalra	University Graduate Fellowship (2008-Sept)
Agnieszka Klimek	Canadian Diabetes Association Doctoral Student Research Award (2007-July for two years)
Alice Kuo	UGF (2008-Sept)
David Lin	MSFHR Junior Graduate Studentship (2008 Apr)
William Lockwood	MSFHR Senior Graduate Studentship (2008) BCCA Betty Rice Award for Lung Cancer Research NCIC PhD Student Travel Award
Tony Ng	MSFHR Senior Graduate Studentship (2008)
Peyman Tavassoli	Top poster presentation on the Path Day in May 2008. Recipient of the Pacific Century/UGF Scholarship starting Sept 2008
Ivy Tsui	MSFHR Senior Graduate Studentship (2008)
Amanda Vanden Hoek	Canadian Blood Services Graduate Fellowship Award (2008-03 for two years) UBC Teaching Assistant Award (2008-05)
Billie Velapatino	University Graduate Fellow (2008-09)
Ian Wilson	MSFHR Senior Graduate Studentship (2008)
<i>Tyler Hickey, Salman Ali, Agatha Jassem and Kasmintan Schrader have each received a one-year sponsored subscription to Science magazine and a sponsored membership from the AAAS/Science Program for Excellence in Science.</i>	

Upcoming MSc Thesis Defense:

Howard Meadows

Thesis title: *Prevention of Posterior Capsule Opacification by Photodynamic therapy with Localized Benzoporphyrin Derivative Monoacid Ring A (BPD-MA) in a Rabbit Surgical Model*

Supervisor: Dr. J. Rootman

Gongdu Jerry Zhang

Thesis Title: *Enhancement of the Epitopic Activity of Anti-Thrombotic Peptidomimetics by Conjugation to a Macromolecular Carrier*

Supervisor: Dr. M. Issa

Upcoming Phd Thesis Defense:

Jina Song

Thesis title: *Coagulation Factor V: Pathology and Biochemistry*

Supervisor: Dr. Ed Prydzial

Academic Career Path – A Long But Worthy Road

Maziar Rahmani, MD, PhD (Former PhD trainee in Dr. Bruce McManus's Lab, Dept of Pathology and Laboratory Medicine)



"Graduate training has given me several skills necessary to be a successful scientist including diligence, motivation, critical sense, originality, supervisory skills, and independent research. as next year."

- Maziar Rahmani

Medical research is my vocation in life. Prior to my PhD, I had several years of experience in clinical research during and after medical school training in Iran. I led several clinical- and population-based studies on the epidemiology of cardiovascular and metabolic diseases. Following medical school, I was awarded a fellowship from the Endocrine Research Center in Tehran to establish a large-scale cohort study, the Tehran Lipid and Glucose Study (TLGS). I feel that these experiences have provided me with a solid foundation for success in an academic scientific career.

As a graduate trainee in the Department of Pathology and Laboratory Medicine

at UBC and in Dr. McManus' lab at The James Hogg iCAPTURE Centre for Cardiovascular and Pulmonary Research, I studied the molecular mechanisms of the regulation of versican gene. This led to discoveries in three areas: (1) Identification of cis- and trans-factors in versican transcription; (2) Versican promoter as a target of Wnt/ -catenin signaling; and (3) a novel working hypothesis of our laboratory regarding the functional role of Wnt/ -catenin signaling in vascular injury and repair. Based on these findings, we received a grant from the Heart and Stroke Foundation of Canada on which I have been a co-investigator. I also established several collaborations.

With Dr. Wight's lab (U. of Washington), we showed the important role of proteoglycan vesicant in tumor growth and metastasis in vivo. Collaboration with Dr. Rennie's lab (UBC), led to the discovery of the androgen receptor dependent regulation of versican in prostate cancer. With Dr. Francis (U. of Alberta), we showed the molecular mechanisms of diminished ABCA1 expression in intimal-phenotype smooth muscle cells and human atherosclerotic lesions. In addition, over the last five years I have had the opportunity to be an investigator in a multi-disciplinary and multi-institutional study led by Dr. Paré at the iCAPTURE Centre (UBC): "Gene-Environment Interactions in Circulatory and Pulmonary Diseases". In

the setting of this research, we completed the recruitment of 1,200 subjects with and without calcific aortic valve stenosis. We have recently started the Genome-Wide Association Studies in this cohort. My graduate training at UBC has provided me with exceptional experience and training in biomedical research.

Following my PhD training, I have joined Dr. Dr. Brooks-Wilson's lab at the Canada's Michael Smith Genome Sciences Centre to pursue my postdoctoral training in genetics and genomics of aging. As the largest capacity genomics centre of its type in Canada, the Genome Science Centre specializes in high-throughput, large-scale genome research activities encompassing genetics, genomics, and bioinformatics. These provide tools and expertise vital to my proposed project and training. I am asking the question that "Do people whose hearts remain healthy well into their 80s and 90s have especially good genes?" "Advancing age is the biggest

risk factor for cardiovascular disease, however, a minority of people older than 85 — known as "super seniors" — seems resistant to the most common age-related diseases, including cardiovascular disease. I will look across more than a million potential genetic variants to find genetic commonalities among "super seniors". I want to identify the *genetics behind healthy hearts*. I have studied cardiovascular diseases for the last 16 years and have obtained an MD degree, a fellowship in epidemiology of cardiovascular and metabolic diseases, a PhD in cell and molecular biology of cardiovascular diseases, and am now pursuing my post-doctoral training in the field of genetics and genomics. My career goal is to establish my own research program and laboratory, where I will continue to study gene-gene and gene-environment interactions leading to cardiovascular phenotypic variation. I have great enthusiasm for working on "translational medicine", and assisting in the critical task of moving basic medical research towards clinical use to benefit patients and the public.

Finished. The word is so final, so definitive. A clean break from what has come and what is coming.

Jefferson Terry, MD, PhD Graduate

And so here I am. Another degree finished, but no true end in sight. As a pathology resident, I am tying up loose ends from my thesis research and have become involved in other projects; potentially a postdoctoral position a few years down the road. For now, it's still unclear to me as to where all this will go, but my experiences have left me comfortable, because in research, nothing is truly ever finished.

This spring I graduated from the Pathology PhD program and it was a satisfying experience. But this comfort is thin: over the past seventeen years I've begun and finished four separate science degrees, and each convocation has found me looking for greener pasture. Originally this worried me, that I couldn't find what I was looking for, doomed to become a degree collector and little more. I've come to realize, however, that these feelings of uncertainty about the future are a product of the difficulty in keeping pace with the ephemeral nature of the life sciences. This uncertainty should



not be feared or ignored; rather, it should be heeded as a call to the next step in your personal evolution.

I began my studies at the University of Regina, where I developed an interest in biotechnology. Unfortunately, Regina's namesake university did not place particular prominence on life science instruction unrelated to agrarian pursuits: two microbiology courses were offered: one introductory microbiology and the other virology. Wanting to pursue further study in this area, I transferred to the Cell Biotechnology program offered by the University of Alberta. This program was a combined major in microbiology and genetics with an emphasis on genetic engineering and fermentation technology. It was exciting stuff and a well run, well organized program, but the meltdown of the industrial biotechnology sector in the early nineties left few survivors and even fewer opportunities for employment. After convocation, I did what any decent, self-respecting undergraduate confronted by the stark reality of life outside of academia would do: I retreated to graduate studies. I continued my migration west to Victoria, where I studied the

physiology of the amino acid starvation stress response in *Escherichia coli*. During this time, I met many interesting people, some of whom would become great friends; however, my interest in bacterial physiology quickly waned. After finishing at the Master's level, a few part-time stints at Victoria-area biotechnology companies evaporated any remaining pools of doubt I had about remaining in microbiological research. Craving more something more practical and perhaps more relevant, I returned to Alberta to study medicine. I quickly immersed myself (more correctly, was quickly immersed) in medicine at the University of Calgary. Initially I didn't concern myself much with research, but as I learned more about the practice of medicine, a realization crept up on me: that I could, and likely would, have greater impact on patient's lives by improving, not just providing, their care. This led me (in a convoluted fashion, best left to casual conversation over a few beers), to UBC and the PhD and medical residency programs in the department of pathology and laboratory medicine.

GRADUATE STUDENTS INITIATIVES

Outreach Work

Tyler Hickey, PhD Candidate

Tyler Hickey along with Agnes Klimek, Path PhD student, with the Advanced Molecular Biology Laboratory at the Michael Smith Labs

For the past couple years Tyler and Agnes have been teaching dozens of one-day workshops where high school classes from around the Lower Mainland are able to come to the campus and get to use equipment from a real university lab to analyze some of their own DNA.

The Advanced Molecular Biology Laboratory (AMBL) at UBC is well known to most graduate students within the Pathology & Laboratory Medicine department as it is the site of the popular PATH547 course that is run by Dr. David Ng. Formerly located in a confined lab within the old Wesbrook building, the well-equipped AMBL is now located in a modern and capacious space within the Michael Smith Laboratories. Founded by the late Dr. Michael Smith, the AMBL exists as an educational facility for more than just graduate students. Dr. Ng teaches techniques courses throughout the year for anyone interested in learning (or relearning) the finer details of nucleic acid & protein manipulation.

Additionally, the AMBL also acts as a venue for BC high school students to visit the UBC campus and learn about scientific experimentation first hand. Between September and May, graduate students Agnieszka Klimek and Tyler

Hickey spend time in the AMBL running one-day workshops for high school groups from around the Lower Mainland. Class sizes normally range between 20-30 students, and the young scientists are always eager to get their hands on some 'real lab equipment'. The most common experiment the high school groups undertake is the DNA Fingerprint test. In this sometimes messy experiment, students source cheek cells from their mouths, extract some of their own DNA and then run a PCR and electrophoresis gel to determine their genotype for a non-coding genetic insertion. The final results of the experiment are really of secondary consequence, as the real learning (and fun) takes place over the day. Between random trivia, corny graduate student humor, team competitions and 'AMBL Jeopardy', the sessions are as much for Agnieszka and Tyler, as they are for the

students. Teamed up with an additional pair of graduate students from the Michael Smith Laboratories, Agnieszka & Tyler facilitate visits from about 32 grade 11&12 classes each year.

Bookings for these sessions are done on a first-come, first-serve basis and can be booked directly via David Ng (db@interchange.ubc.ca) or through the science-education website of the AMBL, www.bioteach.ubc.ca.

Department's First "Art of Science" Gala

Tyler Hickey, PhD Candidate

The event was a great success with about 80 attendees who enjoyed both visual and musical arts done by grad students within the department

At first glance, the sciences and the arts appear to occupy wholly separate areas of interest within our society. Science demands critical evaluation and rational decision-making, while the arts allow for free-flowing thought and seemingly irrational processes. However, it is because of these differences that the arts and sciences are perfect foils for one another. Awareness of both areas of study helps create a more complete individual, and offers the opportunity to enhance one's mastery of each discipline.

With this in mind, graduate students within the department put down their pipettes and Petri dishes on the evening of June 17th to share some of their artistic talents. The Department of Pathology & Laboratory Medicine's inaugural art gala, "**The Art of Science**" was met with great support from the research community



and other guests. With over 80 guests in attendance at the Medical Student Alumni Centre, it was noted by one individual that they'd never seen so many people attend a student-organized event in the department. The small admission price for the event was used to support the 'Arts Umbrella' organization which helps local kids get involved in the arts.

The impetus for the event came from long-time art enthusiast Dr. David Walker and a graduate student in the Department of Education, Krista Fogel. As Krista's MA thesis explored the lived experiences of scientists who engage in the arts, Dr. Walker saw the opportunity to create a venue for artist-scientists within the graduate student body to display their talents. It quickly became apparent that our graduate students have a great variety of artistic interests outside of their lab-life.



Azadeh Arjmandi



Special Thanks:

Within the Visual Arts students displaying their photographic efforts included Penny Slack, Agatha Jassem, Maite Verreault and Tyler Hickey. Original paintings were also displayed by Audra Vair and Leah Prentice. Additionally, Timon Buys contributed a comedic opinion writing for the evening.



David Walker & David Hardwick

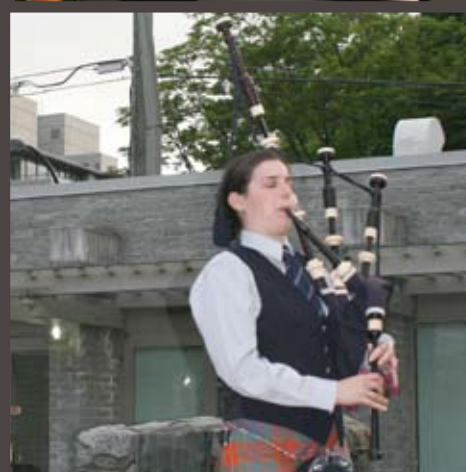


Henry Stringer

Musicians performing during the evening included Alice Kuo (flute, with piano accompaniment), Motoi Matsukura (piano), Henry Stringer (guitar), Angela Beckett (bagpipes) and Azadeh Arjmandi (piano). Department Head, Dr. Rick Hegele, also contributed a three-selection offering on the piano, and the evening wrapped up with an impromptu sing-along by former Department Head, Dr. David Hardwick.



Special thanks are given to Dr. Walker and the hardworking graduate students who helped to organize this event over a four-month planning period. The event planners included Krista Fogel, Audra Vair, Motoi Matsukura, Alice Kuo, Agnes Klimek, Ciara Chamberlain, Agatha Jassem, Leah Prentice and Tyler Hickey.



I ♥ Science: Bringing Science from the Lab into the Classroom

Agatha Jassem, PhD student (Pathology of Laboratory Medicine) & Coordinator of the UBC Let's Talk Science Partnership Program



Leslie Chin, a PhD student and UBC Let's Talk Science Partnership Program volunteer, teaches grade 1 to 5 students at Anchor Point Montessori about heart physiology.

It's Valentines Day, and while most kids in school are cutting hearts out of coloured paper, the students at Anchor Point Montessori are learning about heart physiology by studying a real-life, sectioned, human heart that UBC Let's Talk Science Partnership Program (LTS-PP) volunteer Leslie Chin brought in from the Heart & Lung Institute at St. Paul's Hospital.

Leslie Chin, a PhD student from the Department of Pathology and Laboratory Medicine, has been a volunteer with the UBC LTS-PP since 2006. This year he was paired with a teacher at Anchor Point Montessori in downtown Vancouver, where he taught students about various science topics through fun, interactive, hands-on activities.

"Teaching children about science is an incredibly fulfilling experience. Seeing the amazement and intrigue in their eyes, I hope that these experiences will inspire them to pursue science in the future or at least not be entirely bored by it" Leslie says.

"The LTS-PP is much needed in that it provides children with exposure to scientific demos and lessons that they may not otherwise receive, in a manner where memorizing details and taking notes are not as important as having fun."

And how do the young students at the school feel about the classroom visits? They can hardly contain themselves! Hands fly in the air with enthusiasm, questions, answers and opinions on science are shouted out, and once the activity is done the students are constantly asking their teacher "when are the scientists coming back?!"

Leslie is just one of several Pathology and Laboratory Medicine students that are involved in the program. In fact, in the 2007/08 year alone, more than 300 UBC volunteers helped reach over 20,000 students across British Columbia.

The UBC LTS-PP is part of a national, award winning organization that strives to improve science literacy throughout Canada, and has been successfully pairing UBC graduate students, undergraduate students and post-doctoral fellows with teachers in the greater Vancouver area since 1997. The program has also expanded over the years to include a variety of other community-based outreach initiatives, including projects in the downtown eastside, rural visits, and the hugely popular All Science Challenge.

For more information on the UBC LTS-PP and how you can get involved go to www.ubclts.com or email the coordinators at lts@ubclts.com.

Bachelor of Medical Laboratory Science (BMLSc) Program

Carol Park and Joanne Wouterse

Class of 2008

This year marked the twenty-seventh year the Department has graduated students from the BMLSc Program. Twenty one students received their BMLSc degrees in May, bringing the total number of program graduates to 369.

The following students were recognized for their outstanding academic achievements:

Tracy Tan - Professor C.F.A. Culling Bachelor of Medical Laboratory Science Prize

Tracy Tan - Donald M. McLean Prize in Medical Microbiology

Krista Marcon - B.J. Twaites Prize in Laboratory Administration

Krista Marcon - The Eugenie Phyllis and Philip Edward Reid Prize in Morphological Sciences

Jason Lau and Krista Marcon - Prize for Best Presentations in Path 405

Alana Benes - William J. Godolphin Prize for Critical Thinking



Dr. Morris Pudek is this year's recipient of the BMLSc Graduates' Choice for Teaching Excellence. In recognition of her outstanding contribution to the BMLSc Program, Dr. Carol Park was presented with the Reid Memorial Cup.

This September 24 new third year students and 27 fourth year students will be enrolled in the program for the 2008-09 academic session.





2008 Graduates talk about their experience in the BMLSc Program...

“During the course of the program I learned theoretical knowledge and technical skills, but also learned a lot about myself. I was challenged to balance my study time between the many courses, to work in small and large groups, to think critically and to be an effective teacher. I was given the opportunity to reflect on my own strengths and weaknesses and because of it, I feel I have grown. For the upcoming year I will be working as a Lab Technician at an immunohistochemistry lab - GPEC. I absolutely love my job!” *Krista Marcon*

“BMLSc has provided me with knowledge and hands-on experience in laboratory techniques. I have been offered a research assistant position at a biotechnology company in Richmond. I have also been admitted to the Early Career Masters (ECM) program in UBC Sauder School of Business and received an entrance grant.” *Christina Lee*

“I think the degree definitely prepares you for the job market. Having some previous experience through the courses that we take, acquaintances with different teachers and researchers, and directed studies - it really gives you that edge, allowing you to be able to confidently say “yes I am able to do that,” or “I have the proper knowledge to learn quickly how to do that.” *Sherry Shirmohammadi*

“I enjoyed the smaller class sizes because it made it possible to establish lifelong relationships that we can carry out of the program. The degree has provided me with a background in clinical chemistry and laboratory principles - knowledge which I can now pass on. In the fall I plan to travel to Dhaka, Bangladesh as a volunteer to help teach nursing students some of the principles behind medical laboratory science.” *Tracy Tan*

“I enjoyed the diverse group of instructors for our classes. It allowed us to network with amazing researchers/instructors and learn about their cutting edge research. Without this program, I would never have had the opportunity to meet so many faculty members and get to know them. The supportive environment between students gave me the opportunity to express my opinions and try new ideas. The program gave me hands-on experience in diverse laboratory skills and PATH 405 was an excellent platform to fine-tune my presentation and research skills. I have enrolled in the ECM Masters in Management Program at UBC.” *Jason Lau*

“I loved the Pathology 305 (Microscopy) project, where I learned how to take good quality digital images and basic darkroom techniques. For the upcoming year I have applied to the Master of Science in Experimental Medicine.” *Chris Kwan*



“The program gave me a well-rounded background to pursue anything that I want. The most important thing is that I find a career that I love; with the background that I have now I am pretty sure I will be able to do just that. I plan to take a year off school to gain work experience, travel and get myself ready for more learning - grad school.” *Tafline Kao*

“The most valuable experience that I gained is the opportunity to learn different types of techniques and methods (i.e. histochemistry, clinical chemistry, analytical chemistry, immunology, etc.) that are widely used in research labs and hospitals. I really appreciate all the staff for their passion for the program and their thoughtfulness for the students. It has made the 2 years of study enjoyable and meaningful.” *Winnie Ng*

I especially enjoyed the curriculum and the small class size. I feel fortunate to have been accepted into this program; not only did I make 23 great friends, I also got to meet a lot of faculty members. In PATH 405 (Seminars in Current Topics) I learned how to teach and how to think critically. I don't believe there is any undergrad course like this at UBC. It was a great experience. I enjoyed the directed studies course (Path 438) a lot. I plan to continue my studies in the BCIT Diploma of Technology RT Program.” *Elsie Chan*

“I have gained a lot of knowledge regarding medical care for patients from courses like clinical chemistry, toxicology, microbiology, haematology, histology, etc. I was able to improve my team/group skills, which is valued in any profession (especially in healthcare). I have applied to the Physician's Assistant Program at the University of Manitoba.” *Harwinder Dulay*



Meet The People of Pathology

Dana Devine, PhD



Concurrent Appointments

Canadian Blood Services, Director of Research & Development

Professor, Department of Pathology and Laboratory Medicine, University of British Columbia

Associate Member, Department of Biochemistry and Molecular Biology, University of British Columbia

Medical Staff, Hematopathology, Vancouver Hospital and Health Sciences Centre

Dana Devine arrived in the Department in 1987 from Duke University where she completed her PhD in Immunology. Having initially started a career in marine biology, she recognized the funding opportunities in biomedical research and refocused her research efforts in the area of hematology. Her second major realization was that Canada was a much nicer place to live than the 'Excited States', and she welcomed the opportunity to come to Vancouver.

Over her time in Vancouver, Dana's research interests have moved from an initial focus on the regulation of the complement system, particularly at cell surfaces, to aspects of

blood coagulation, especially clot stabilization processes, and a general focus on platelet biology. Her interest in platelets led to a longstanding interest in platelet disorders and the use of platelets for transfusion. She has published widely in these areas.

Some 9 years ago, with the creation of a new blood system for Canada, Dana became involved in research administration as the first national director of research for Canadian Blood Services.

Part of her mandate was to establish a national research effort in transfusion medicine. In this role she was instrumental in the establishment of the UBC Centre for Blood Research

on the Point Grey Campus which has become the world's largest research centre dedicated to transfusion science and which serves as her Vancouver base. For the past two years she has been the Vice-President, Medical, Scientific & Research Affairs guiding both the research and medical programs at CBS.

Although spending considerable amounts of time outside of Vancouver, she still manages to keep an active research program going. Her current efforts are directed at improving the quality of stored blood products, particularly by applying proteomics techniques to understanding the basic biochemical changes that cause the development of storage lesions in platelet concentrates and red blood cells. Her laboratory is a world leader in the application of these methods to transfusion science. She is also actively involved in providing the research support necessary for the development of new technologies to modernize Canada's blood system.

Having helped to bring the next generation of PhD blood researchers into the Department, Dana has handed off much of her teaching responsibilities to 'new blood' and at the present time acts as the coordinator for the BMLSc student research program (Path 438).

Although Dana has less time for hobbies these days, she enjoys cross country skiing and hiking.

David Marchant, Postdoctoral Fellow



Dr. Marchant obtained his PhD in virology in 2005 from University College London (UCL), United Kingdom. He became hooked on the study of viruses in the second year of my BSc at Simon Fraser University (SFU) when he read "The Coming Plague"¹ by Laurie Garrett. However, his undergraduate degree in Physical Biochemistry left little room for virological studies. He therefore travelled to London, England in pursuit of a graduate degree in virology. After all, London is the city where John Snow (who obtained his graduate training at UCL, graduation class of 1844), removed the handle from the Broad Street water pump in downtown London in 1854, to prove his theory about the infectious aetiology of Cholera².

His doctoral research with Dr Robin Weiss and Dr Aine McKnight investigated the differences in replication kinetics between Human Immunodeficiency Viruses types 1 and 2 (HIV-1 and HIV-2) in T cells and macrophages, and correlation with transmission and pathogenicity. Dr. Marchant's postdoctoral research with Dr. Rick Hegele involves imaging virus trafficking, during entry, into host cells (figure 1). The James Hogg iCAPTURE centre at St Paul's hospital has an exceptional confocal microscopy facility which is well equipped for the imaging of virus particles, during host cell entry. He is currently imaging the entry of Respiratory Syncytial Virus (RSV), adenovirus and coxsackievirus B3 (CVB3), and the direction of this current project demands the imaging of Influenza virus as well. The context of this work is in the effects of Mitogen Activated Protein kinase (MAPK) signalling on virus trafficking. He has been imaging the propagation of MAP K signals from

the site of virus-host cell attachment. Figure 1 shows the propagation of MAP K signal (red) through a cell of the respiratory epithelium at the point of interaction with a single RSV particle (green). This interaction results in virus internalisation and localisation to perinuclear regions that support virus replication. Figure 2 shows the dose dependent decrease in viral load of CVB3 in the pancreas of mice treated with a MAP K inhibitor. So we can see how imaging and understanding the effects of host signalling molecules on virus trafficking can lead to novel anti-viral strategies.

Dr. Marchant is also involved in a program of work with Dr Bruce McManus that investigates the role of matrix metalloproteinases (MMPs) in antiviral immunity. They recently published some work in *Circulation* that demonstrates the beneficial role that MMP-9 plays during viral infection³. Until very recently MMP-9 was thought to be a nuisance molecule that exacerbates disease during convalescence. We have shown that this MMP is in fact a necessary constituent of the antiviral immune response. This research is ongoing and we continue to elucidate new roles for other MMPs during antiviral immunity...

¹Garret, Laurie. *The Coming Plague: Newly Emerging Diseases in a World Out of Balance*. New York: Penguin books, 1995.

²On the Mode of Communication of Cholera, 8vo, London, 1849; 2nd ed. 1855

³Cheung and Marchant et al. Ablation of Matrix Metalloproteinase-9 Increases Severity of Viral Myocarditis in Mice. *Circulation*. 2008 Mar 25;117(12):1574-82.

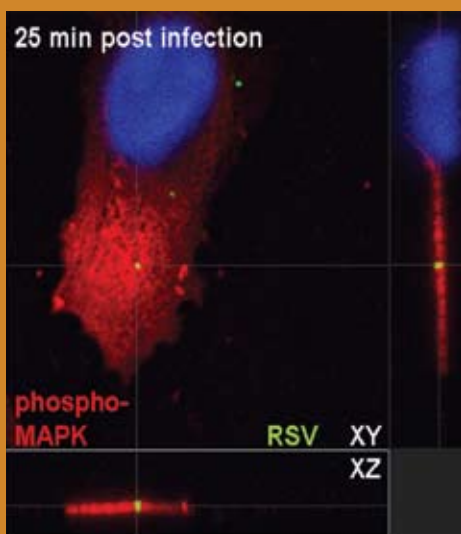


Figure 1

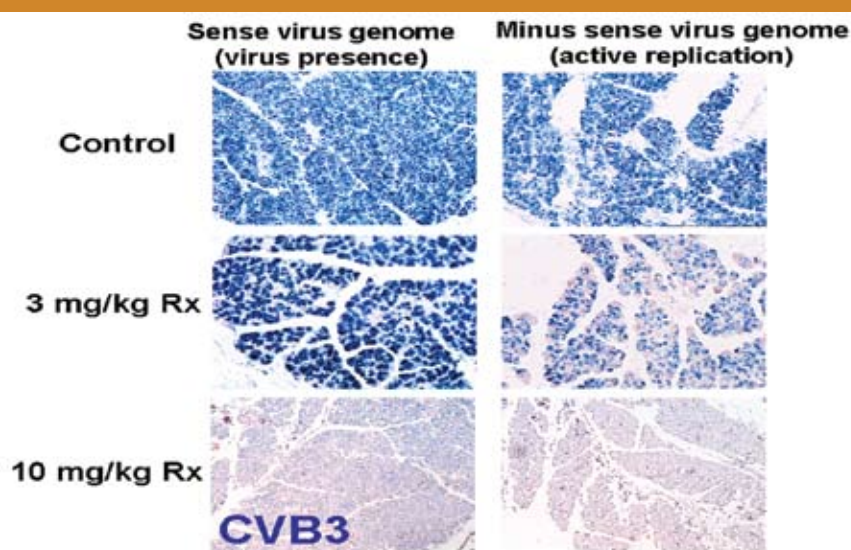


Figure 2

CURIOUS. VENGEFUL.
TRICKSTER. DISCERNING. DEADLY.
KNOWING. GLEEFUL. GOSSIPY.
UNFORGETTING & UNFORGIVING.
EXUBERANT. TERRITORIAL.
CUNNING. WATCHFUL. CRAFTY.
JUDGMENTAL. EXPRESSIVE.
CLEVER. RAUCOUS.
CRANKY CROW

Vanessa Lowe, Finance Clerk

Born and raised in Vancouver;

First memory is of standing in the crib looking out over Hastings Street;

Did not enjoy high school;

Educated at UBC – started studying

Engineering, but transferred to English;

BA in English Language;

Currently working on a degree at Emily Carr University;

Travel by train if possible;

Live and volunteer in the Downtown Eastside.



..... *Just for fun!*

Q: How would you describe yourself in a sentence?

I am a strange combination of light versions of Leonardo da Vinci (similar set of talents) and Bart Simpson (similar lack of direction and drive), who is ultimately happy to be of no large consequence.

Q: Quality you most admire in people

The ability to act, attention to detail, accuracy...and that's only some of "A".

Q: If you could write a book that was guaranteed to be published, what would it be about?

My neighbourhood (the Downtown Eastside) and some of its interesting people and places and stories.

Q: If given a choice to skip work for a day, how would you spend the entire day?

If by skipping work you mean skipping all responsibilities, I would spend the day watching the ocean. Otherwise I would deal with house stuff.

Q: What makes you unique in your own opinion?

My home is a small free-standing brick building in the Downtown Eastside.

Q: If you could have a luncheon with any three people (real or fictitious/ from any time period, dead or alive), which three people would you choose and why?

My friends Rob, John and Myk who live in Montreal, because I don't get to see them often enough.

Q: What did you dream you'd be when you were growing up?

Artist.

Q: When you have a deadline do you get started right away, wait until the last minute, or switch back and forth between projects?

I'm a bit of a magpie in that I am easily distracted by shiny things, that is whatever is freshest, so each new (interesting) project is what I most want to work on. When I have multiple projects to do, I work on them in stage: I accomplish what I can on one project, then I do something else until I can do some more of the first project. It doesn't sound efficient, but somehow stuff gets done.

Q: Would you rather change your past or know your future?

Neither really, but if I had to choose maybe I would change bits of my past (my personal propensity to worry might go by the wayside).

Q: What talent do you wish you possessed?

Music – mostly voice

Q: If you could hire one of the following, which would it be?.....Driver, Chef, Maid, Stylist

Maid (didn't even have to think about this one). I hope he/she is handy too!

Q: What would you like to be reborn as?

A water bird such as a duck, because they are able to swim, walk and fly. If only they could ride bikes too.

Q: Write one sentence stating what you want people to say about you after you've passed on:

"She did good"



Future Of Laboratory Medicine Professionals

By: James Dimmick MD, FRCP, Professor, Pathology and Laboratory Medicine

The BC BioLibrary

By: Sara Giesz, Coordinator, BC BioLibrary

What is the BC BioLibrary?

The BC BioLibrary is a Michael Smith Foundation for Health Research (MSFHR) funded Technology/Methodology Platform. The BC BioLibrary is not a biobank and does not perform research. The BC BioLibrary supports a broad range of health research applications to build capacity for translational research in BC.

The BC BioLibrary complements current biobanks, maintains stakeholder trust, and improves quality and access to human biospecimens for biobanks. The BC BioLibrary defines biobanks broadly as the whole spectrum of health research that collects and uses biospecimens. This spectrum includes the collection of limited tissue samples by an individual laboratory through research studies, to biospecimens collected for clinical trials, to formal research biobanks.

The BC BioLibrary operates to achieve the following four goals:

Goal #1 - The BioLibrary intends to help all interested BC researchers and educators

Goal #2 - The BioLibrary helps pathologists streamline and improve biobanking activities

Goal #3 - The BioLibrary enhances quality and accessibility of biospecimens

Goal #4 - The BioLibrary contributes to the sustainability of biobanking in BC by developing and upholding the public's trust

So what will the future be? Well, if we sit back, feet up and live by the lyrics “que sera, sera” we will slip into obscurity; our profession will disappear, and we will be replaced.

Professions such as ours in Laboratory Medicine are based on knowledge and skills, demand for our talents and we have the privilege of self-policing. Our sustainability rides on competency communication inventiveness and value. We must regularly further our knowledge through research, interpret and apply new knowledge and skills and advance our level of practice. If this means yielding some routine functions to take on new complex ones, so be it – that is necessary to keep at the forefront of medicine. After all, what we regard today as complex will be simple tomorrow. As well we must educate colleagues, politicians,

the public and be vigilant. Let us look more specifically at the future of Laboratory Medicine professionals. I predict on the education front a return of Laboratory Medicine with much greater impact in medical school curricula. The current curricular direction seems to demean the scientific basis of medicine – this will change as students, senior colleagues and the public realize the necessity of a sound basis of knowledge. Soon we will educate physician assistants, including pathologists’ assistants, as they evolve into our system. Post graduate continuing professional education will become even more important as our regulatory bodies impose stiffer requirements and as professionals and governments realize the need for and fund national accreditation standards and inspections. Our teaching methods will change too. In addition to still pictures we will use action sequences of pathophysiologic events. Education and consulting “on-line” will be routine and “live” in a brain-like expansive international network.

Research will escalate with renewed intensity in basic science and continued pressure for translational application of knowledge. Research and practice of environmental pathology will flourish and Laboratory Medicine

will focus increasingly on prediction and prevention, and will be very personalized. Patients will carry their own medical and laboratory record and genetic/epigenetic profile on smart cards. Investigations will be tailored to an individual’s disease susceptibility or existing pathology, resulting in disease avoidance and focused therapy with improved outcomes. Laboratory professionals will increasingly be a mosaic of new specialists sharing a base of pathophysiology and pathogenesis with blurring of pathology divisions of today. New knowledge and technology will supplant our old sense of being one step removed from clinical relevance and place us at the forefront.

So what will the future be? Well, if we sit back, feet up and live by the lyrics “que sera, sera” we will slip into obscurity; our profession will disappear, and we will be replaced. Or if we get out of our behind-the-scene offices and do what pathology professionals can do well as experts of pathophysiology and pathogenesis – practice, educate and research, and with necessary attention to regulations, we will be the bearers of the future critical knowledge upon which clinical decision making is based.



Come Visit Us...

The BC BioLibrary has just launched a refreshed and comprehensive website. Please visit www.bcbiolibrary.ca for further information on the BC BioLibrary.

Coming Soon...BioAccess

The BC BioLibrary aims to be a central resource for information on issues surrounding biobanking and how it relates to health research. Through our recently developed quarterly e-newsletter, BioAccess, the BC BioLibrary can regularly communicate regarding relevant activities to keep the research community updated on important news and events. To sign up for our newsletter, please visit www.bcbiolibrary.ca.

Funding Opportunities...

The BC BioLibrary will be submitting a CFI application titled "Patients as Partners on the Journey to Personalized Healthcare" for the New Initiative Funds Competition 2009. This application aims to establish an infrastructure to support population-based studies across British Columbia while ensuring public and patient engagement and policy guidance. A key part of the CFI will be to build the "Iron Mountain" for frozen biospecimens.

Analytical Services at Your Doorstep

A key infrastructure integrated with the BC BioLibrary is The Centre for Translational and Applied Genomics (CTAG). CTAG is a full service clinical trials and research support facility, providing high quality molecular and pathology services.

For further information or to contact CTAG, please visit: www.phsa.ca/ctag

To get involved, please email Janet Wilson-McManus at jmcmanus@mrl.ubc.ca.

Whatever Happened to the BC Ice-Guy?

By: Maria Victoria (Vicky) Monsalve

Snapshot of the Recent Kwäday Dän Ts'ínchi Symposium

Kwäday Dän Ts'ínchi (KDT) was the Tutchone language name meaning "Long Ago Person Found" given to the centuries old remains of a young man found in 1999 frozen in a glacier in northern BC. Although the remains were cremated some years ago in a respectful ceremony near where they were found, KDT's legacy lives on as scientists from around the world continue to study his tissue and artifacts. In April 2008, findings to date and research in progress were reviewed at a Symposium held in Victoria in conjunction with the Northwest Anthropological Conference.

UBC Pathology has a close tie to KDT. A proposal from Dr Vicky Monsalve, just returned from two years as a research associate working with ancient DNA at the University of Cambridge, and Dr Dana Devine, were selected to be given first access to the remains and to take

tissue samples to study his mitochondrial DNA (mtDNA) lineage. Their findings were published in the American Journal of Physical Anthropology (Monsalve et al 2002).

The symposium in Victoria covered many projects associated with the KDT discovery. The highlight, a priority for the Champagne and Aishihik First Nations and long anticipated by the media, was the identification of KDT's living relatives through DNA. Particularly gratifying and emotional was the introduction of 17 individuals living in the Yukon and on the BC coast whose DNA matched the KDT sequence.

UBC Pathology's ancient mtDNA findings and more recent work using tissue preservation of cellular components to predict likelihood of successful DNA retrieval and to detect presence of microorganisms were presented.

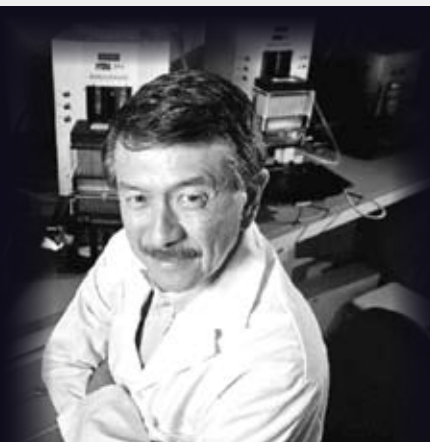
Other presentations reviewed work completed or still

underway with respect to KDT's pathogens, stomach contents, his clothing (a cloak made from squirrel skin), and items he was carrying. The Symposium was characterized by mutual respect between researchers and First Nations people. Representatives from both groups agreed that it provided an excellent model for future collaborations on projects of this kind. Meanwhile, KDT continues to bring together researchers across a wide field of expertise at UBC.

MD student Claudia Cheung enriched her histology knowledge through Summer Fellowship and Summer Research projects under Dr. Monsalve's supervision. Still in progress are collaborative projects on cellular components and microorganisms with Drs Elaine Humphrey, Mike Nimmo, Wayne Vogl and David Walker at UBC and involving Synchrotron infrared tissue analysis with researchers at the University of Saskatchewan.



Congratulations to the latest Order of Canada appointee!



We are pleased to congratulate **Dr. Victor Ling** for his well-deserved promotion into the Order of Canada. The Order of Canada was established in 1967 to recognize outstanding achievement and service in various fields of human endeavour. It is our country's highest civilian honour for lifetime achievement.

Creative Talents

Diana Ionescu, MD, Pathologist, BC Cancer Agency

Sometimes life passes you by and you work with people that you admire but never get to know their hobbies or creative talents. Our recently appointed Executive Medical Director of PHSA Laboratories, Dr. Diponkar Banerjee, has hidden talents that I had the privilege to admire, such as being an avid photographer. His favorite subjects are animals and birds, mainly in the spectacular landscapes of East Africa, where Diponkar grew up.

I have selected for you some of the photographs I found extraordinary; my favorites include a huge elephant grazing in a field of wild flowers (photo 1), the intense expression on a lion ready to attack (photo 2), captured on camera during a trip he and his wife Raju took to Tanzania's Ngorongoro Crater 4 years ago. The scary human-looking gorilla (photo 3), the tree-climbing lioness (photo 4), cormorants in flight (photo 5), and the half-submerged hippopotamus (photo 6) were photographed by Diponkar this summer when he first returned, after 35 years of absence, to Uganda where he had lived for 26 years prior to moving to Canada.



(photo 1)



(photo 2)



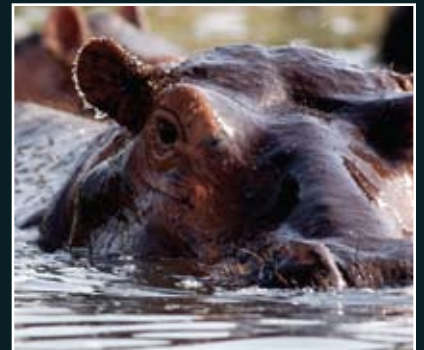
(photo 3)



(photo 4)



(photo 5)



(photo 6)

**On February 1, 2008 Dr. Eszter Papp,
Posdoctoral Fellow, gave birth to a beautiful
baby boy, Peter Papp.**

**Warmest congratulations and best wishes to
you and your new baby**





UNIVERSITY OF BRITISH COLUMBIA
Faculty of Medicine
Department of Pathology

G227 - 2211 Wesbrook Mall
Vancouver, BC V6T 2B5

Next Issue - November 2008

Pathology Newsletter is published bi-annually. Suggestions from readers are both encouraged and welcome at any time.

Editors:

Maureen Barfoot
Debbie Bertanjoli

Publisher:

Debbie Bertanjoli

Email:

dbertanjoli@pathology.ubc.ca

Current and back issues of all Newsletters can be found on the

Departmental Website:

<http://www.pathology.ubc.ca>