

PATHOLOGY

Summer Edition 2014

MAGAZINE

www.pathology.ubc.ca

DEPARTMENT MEMBERS

Featuring

Matthew Orde MBChB, FRCPath,
FRCPA, DMJ (Path), Dip For Med (SA),
MFFLM, LLdip, PgDLS, Barrister-at-Law

EXCELLENCE

Research

Outside the traditional concept of
"research" - create an environment where
research (and researchers) can thrive

STATE OF THE ART

Education

Information on recent undergraduate/
graduate/postgraduate student
awards, research and social events

GET INVOLVED

Events

The Department of Pathology
sponsors many events, including
Pathology Day and Arts Gala



The Office of the Vice-President presented the Peter Larkin Award for Student Development to the Department of Pathology and Laboratory Medicine Graduate Student Program in recognition of outstanding contributions to students' experience and learning environment at UBC.



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA



PATHOLOGY

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Director, Human Resources and
Administration:
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Office Manager:
Adeline Chan

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Dr. Haydn Pritchard / Ms. Aleya Abdulla

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Dr. Amanda Bradley / Ms. Joanne Wouterse

Ms. JieJi Sun

Ms. Jennifer Xenakis

Dr. Stephen Yip

Dr. Nick Sunderland

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Ms. Michelle Woo

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Dr. Martin Wale

Dr. Maria Issa

Dr. Muhammad Morshed

Dr. Michael Noble

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TRANSITIONS

Who's New in Pathology



WELCOME TO THE NEW INTERIM DIRECTOR, MS. RENÉ MRZLJAK

Ms. René Mrzljak, Interim Director, HR & Admin

Hi! My name is René Mrzljak and I have been seconded from the Department of Medical Genetics to assist in your department as the Interim Director, HR & Admin until Sandy returns in November. I hold a Masters Degree in Leadership and an intermediate financial designation. I am deeply appreciative of this opportunity to work with and learn from members of your department.

Please feel free to come by and say Hi. You will find me in the office on Mondays and Wednesdays... happy and smiling (exactly as shown in the picture). ■



WE WISH ALL THE BEST TO OUR DEPARTING INTERIM DIRECTOR MS. MARY LIU

Ms. Mary Liu, Interim Director, HR & Admin

It's been a wonderful experience working in the Department of Pathology and Laboratory Medicine over the past ten months and I would like to acknowledge, recognize, and thank all department members for their hard work, dedication, and collaboration in making the Department of Pathology and Laboratory Medicine an amazing department within the Faculty of Medicine and the University. Since arriving in the department last October, I've had the privilege of working with an amazing team in the Administration Office and working with equally amazing staff in

the various laboratories, programs, and centres within the department. The department is very lucky to have such a hard working group of people who ensure the day to day operations in all facets of the department run smoothly. I would like to thank each and every one of you for all you do on a daily basis. As well, I've witnessed the amazing work of the faculty members in the department.

The dedication to research, teaching, and service within the department, faculty, University, and community exhibited by each faculty member in the department is truly inspiring.

I would also like to thank Dr. Mike Allard for the chance to work in the department. I'm grateful for having this opportunity as I've learnt so much over the past ten months. It's been a pleasure working with you. As I prepare to transition to a new position within the University, I will miss the amazing people, inspiring research, phenomenal teaching, and dedicated service that makes the Department of Pathology and Laboratory Medicine a remarkable department. Thank you all for being so welcoming and I wish you all a wonderful beginning to the new academic year. ■

■ From the Department Head



MICHAEL ALLARD BSC, MD, FRCPC
PROFESSOR AND HEAD
DEPARTMENT OF PATHOLOGY AND
LABORATORY MEDICINE
UNIVERSITY OF BRITISH COLUMBIA

The Department of Pathology and Laboratory Medicine in the Faculty of Medicine at the University of British Columbia has more than 250 members who are dispersed across the province of British Columbia. It is a clinically intensive academic department committed to excellence across a four-pronged mission of clinical service and patient care, education, research, and academic leadership. One might ask, how this excellence is achieved? The success of any organization, including our department (as well as the Faculty of Medicine and the University of British Columbia), is entirely dependent upon the individuals within it. Simply stated, people are the greatest and most important resource in any organization and this is surely true of our department.

Pathology Magazine, the departmental newsletter published twice a year, is an essential means for us to learn about the department, its programs, and, most importantly, the people within it. The faculty, staff, students, and trainees are responsible for the success, growth, and evolution of all departmental activities and are the critical elements that enable them wherever they may occur. The current issue of *Pathology Magazine* introduces us to new members of the department, provides updates on existing and new programs or developments, highlights and recognizes individual and collective successes, and reminds us of recent events from the departmental calendar. By doing so, the newsletter enables

appreciation and insight into the range of talent and personality that resides in our community.

Our working environment is currently one of constant change. The university has a new President, the Faculty of Medicine will have a new Dean by this time next year, and the department will be externally reviewed in December 2014 for the first time since 2002. Coupled with ongoing fiscal concerns and the continuing evolution of laboratory reform, the future is seemingly uncertain and challenging. Reading the newsletter and considering that opportunities accompany uncertainties and challenges creates a more positive perspective on the circumstances we face, however. By building on the talent and strengths of our department members and working collectively, we can identify and take advantage of opportunities and, at the same time, find ways to address challenges, all of which will enable us to be successful in a changing and challenging work environment. So, please read *Pathology Magazine* to learn of the extremely talented and committed faculty, staff, students, and trainees of our geographically dispersed department. It will fill you with hope. ■

Mary

RECENT FACULTY HONOURS AND AWARDS

Awards & Honours 2014



**Kirk R. Schultz,
MD**
Election to Fellowship
in the Canadian
Academy of Health
Sciences (CAHS)



**Colby Zaph,
PhD**
New Investigator
Award, Canadian
Society for
Immunology



**Andrew Weng,
MD, PhD**
Bernard and Francine
Dorval Prize,
Canadian Cancer
Society



**Mari DeMarco
PhD, DABCC**
Women's Health
Research Institute,
Nelly Auersperg
Award

WE
ARE
PROUD!



**Graduate
Program**
Peter Larkin Award,
The Office of the
Vice-President, UBC



**William
Godolphin, PhD**
Certificate of Merit,
Canadian Association
for Medical Education



**Maria Monsalve,
PhD**
Recognition by the
Colombian Consulate,
Colombian Consulate
(Vancouver)



**Aly Karsan,
MD**
Jeremy Jass Prize for
Research Excellence
in Pathology, The
Journal of Pathology



**Christian Steidl,
MD**
Award for Excellence
in Basic Science
Research, UBC Faculty
of Medicine



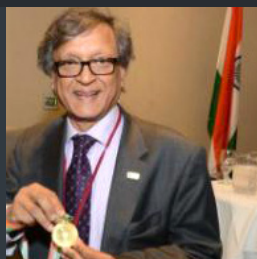
**James Hogg,
MD, PhD**
2014 Order of
British Columbia,
Ministry of
Intergovernmental
Relations
Secretariat



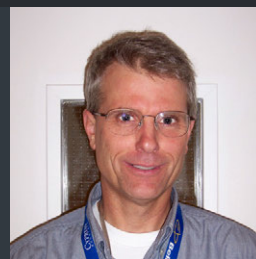
**David Granville,
PhD**
Induction into the
College of New
Scholars, Artists and
Scientists of the Royal
Society of Canada,
The Royal Society of
Canada



**Michael Allard,
MD**
William Boyd
Lectureship Award,
Canadian Association
of Pathologists



**Arun Garg,
PhD, MD**
CAIPH Lifetime
Achievement Award,
Canadian India
Networking Initiative
(CINI)



**Patrick Doyle,
MD**
Clinical Faculty
Award for Excellence
in Clinical Teaching,
UBC Faculty of
Medicine



Sophia Wong

Using a MALDI-TOF mass spectrometer to identify bacteria by their proteomic fingerprint (she has also contributed to the development of the insulin assay)

■ Clinical Chemistry Research at St. Paul's Hospital

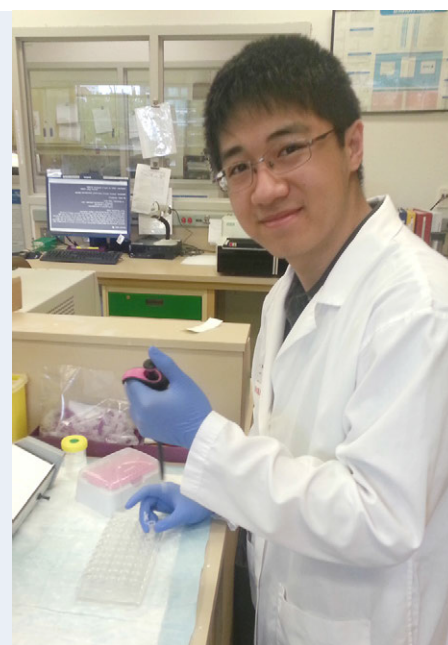
MARI DEMARCO, PHD, DABCC
CLINICAL CHEMIST, ST PAUL'S HOSPITAL
CLINICAL ASSISTANT PROFESSOR,
UNIVERSITY OF BRITISH COLUMBIA
DEPARTMENT OF PATHOLOGY AND
LABORATORY MEDICINE

Clinical Chemistry is the branch of Pathology that aims to identify the chemical and biochemical signatures of health and disease, commonly studied through the analysis of biofluids. As Clinical Chemists (PhD's) or Medical Biochemists (MD's) we use our analytical and clinical knowledge to provide a connection between the tests performed in the hospital laboratory and the medical professional at the patient's bedside. Given that more than 70% of medical

decisions are based on laboratory test results, clinical scientists and pathologists play an important role in patient care. This role also puts us in an excellent position to identify areas in need of new or improved diagnostic tools, and investigate solutions for these medical challenges. The summaries below provide a peek into the ongoing research by *clinical chemists* and *medical biochemists* at St Paul's Hospital. The work described would not have been possible without the outstanding students

Charlie Hua

Preparing a cerebrospinal fluid specimen for analysis



Ian Garber

Analyzing the latest data
from his mushroom toxin
experiments



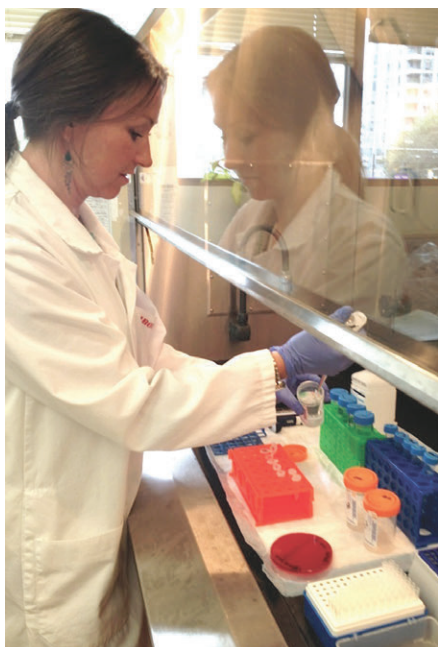
and scientists working in the various research groups including: Grace van der Gugten (LC-MS/MS Assay Development Specialist), Dr. Sophia Wong (medical biochemistry resident), Dr. Ian Garber (medical biochemistry resident), Dr. Simone Thair (Clinical Researcher), and Charlie Hua (BMLSc).

Mari DeMarco, PhD, DABCC

In graduate school Dr. DeMarco examined the atomic-resolution misfolding and aggregation pathway of amyloidogenic proteins, with a focus on prion protein pathogenesis. Since that time she has remained fascinated by the process whereby natively folded and otherwise innocuous proteins can transform into aggregate-prone disease-propagating molecules. While undertaking her clinical training, it became apparent that there was an unmet need for diagnostic assays in this space. As such, a major focus of her research group is on investigating biomolecular signatures and developing diagnostic assays for protein misfolding disorders. The group's aim is to leverage modern analytical methods to provide a better understanding of pathogenesis

and ultimately to improve patient care. As an example, see BMLSc student Charlie Hua's description of his research project related to Parkinson's disease on page 21. A second line of investigation of the group concerns diagnostic workflows for rapid identification of microbes in patient specimens. Like in the time of Louis Pasteur and Robert Koch, many current methods for bacterial

identification require first culturing the patients' specimens. Culturing can be a time-consuming process and is a major bottleneck for diagnostic workflows. With support from the Women's Health Research Institute's Nelly Auersperg Award, the group exploring culture-independent methods for direct identification of microbial pathogens directly from human biofluids using MALDI-TOF mass spectrometry.



Simone Thair

Investigating a workflow
for direct identification
of microbes from patient
specimens



Grace van der Gugten

Switching the set-up for the LC-MS/MS from running the mushroom toxin assay to the insulin assay (two of the numerous LC-MS/MS assays she has developed for clinical use at St Paul's Hospital)

Daniel Holmes, MD, FRCPC

Over the past 5 years, Dr. Holmes has focused on clinical assay development in the areas of endocrinology and toxicology. Research endeavors in clinical chemistry often arise from unusual patient cases, as exemplified by a case of mushroom poisoning. In this case, a patient presented to the Emergency Room with GI distress and anuric renal failure after eating a soup made from wild mushrooms. The patient provided the lab a sample of the soup and the research team used thin-layer chromatography and mass spectrometry to confirm the identity of the toxic agent. As a result of this case, the clinical laboratory now has a mass spectrometric method to identify the toxin found in *Amanita smithiana*, a species that grows here in the Pacific Northwest.

Another project involves the development of a blood-based assay to identify and quantify endogenous and synthetic insulins for the investigation of adult hypoglycemia. Currently available immunoassays for insulin are designed to detect endogenous insulin and cross-

react to varying degrees with synthetic insulins, but these assays cannot identify which type of insulin is present, and just report the total concentration. With the limitations of immunoassays in mind, the research team set out to develop a mass spectrometric assay to identify and quantitate the specific types of insulin in the patient's system.

Andre Mattman, MD, FRCPC

In addition to his role in the clinical laboratory at St Paul's Hospital, Dr. Mattman sees patients at the Adult Metabolic Disease Clinic at Vancouver General. His commitment to the diagnosis and care of adults with inborn errors of metabolism. This motivates his clinical research interests. In particular, he has worked with clinical and respirology colleagues in documenting a novel association between the lysosomal storage disorder galactosialidosis and panacinar emphysema.

In another project that links chemistry, genetics and lung disease, Dr. Mattman has contributed to the identification

of novel mutations responsible alpha-1-antitrypsin deficiency. Alpha-1-antitrypsin is a protease that protects tissues from the enzymes produced by inflammatory cells, and a deficiency or defect in the function of this protein can lead to emphysema. By connecting preliminary clinical findings, alpha-1-antitrypsin concentrations in blood, and genetic information, he and his collaborators aim to characterize the impact of these mutations on protein function and predict the severity of the disease phenotype. ■

Breast Cancer Test Receives Health Canada Approval

TORSTEN O. NIELSEN, MD/PHD, FRCPC
PROFESSOR OF PATHOLOGY &
LABORATORY MEDICINE
ASSOCIATE DIRECTOR, MD/PHD PROGRAM
UNIVERSITY OF BRITISH COLUMBIA

When Dr. Torsten Nielsen was a resident in the UBC Anatomical Pathology program, he was given the opportunity to go abroad on research electives, spending time in England and at Stanford University. Fourteen years later, research he started as a resident, and which continued after his recruitment as a faculty member in Pathology and Laboratory Medicine, has led to the development of the PAM50 breast cancer molecular subtyping test. NIH-funded work done at the Genetic Pathology Evaluation Centre (at VGH) and the Centre for Translational and Applied Genomics (at BCCA), in collaboration with three US institutions, led to the identification of a panel of fifty key breast cancer genes for which mRNA levels could be reliably measured from standard pathology blocks. In April of 2014, the commercialized clinical version of the PAM50 test, licensed to NanoString Technologies under the brand name

Prosigna (www.prosigna.com), was approved as a clinical diagnostic test by Health Canada. Other regulatory approvals include 510(k) clearance by the US Food & Drug Administration in the USA and receipt of a CE mark in the European Union. The Prosigna test identifies the intrinsic subtype of breast cancer – something not easily identified by morphology – assigns a risk of relapse score, and is capable of identifying a large fraction of women with >96% 10 year distant relapse-free survival. Such women do not need adjuvant chemotherapy, saving them unnecessary costs and side effects. Unlike other tests which require samples to be shipped out of country, Prosigna was designed and is approved to be run on-site in hospital diagnostic labs, cutting costs, shortening turnaround time and facilitating direct involvement of pathologists in test implementation and interpretation. ■

Professor Torsten Nielsen, co-inventor of the PAM50 assay, and his senior research associate Suzanne Liu, project director for the successful Health Canada and FDA registry study, standing beside a NanoString nCounter machine used to measure RNA expression in breast cancer tumor samples

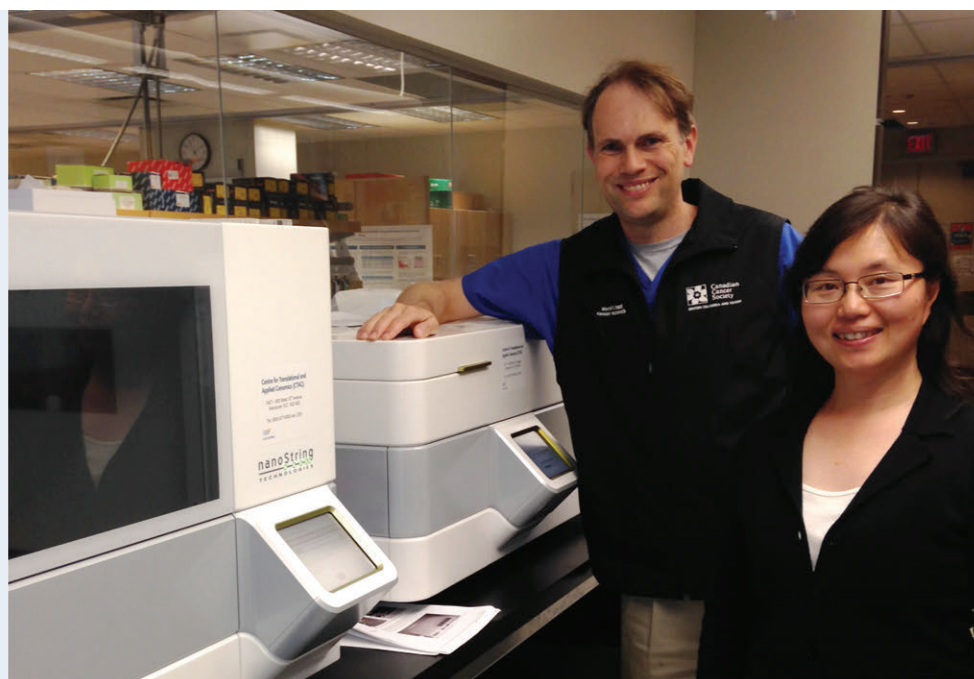




Photo courtesy of Martin Dee/UBC Faculty of Medicine

■ “Never Take Things for Granted”

HANH HUYNH

INTERDISCIPLINARY PHD
SENIOR INSTRUCTOR

“Never take things for Granted”. These were the words that my mentor, Dr. N. Antia, taught me when I was a graduate student at UBC in the 80’s. Little did I know at the time that his teaching would be so applicable to everything in life, from my private life to my professional career. Throughout my academic training and professional career as an Immunologist, the more information and knowledge that I acquired, the truer became the teaching of Dr. Antia.

Our current society has been experiencing a global tsunami of chronic illnesses such as obesity, diabetes and cancer. Globally, there are approximately **2.1 billion** overweight and obese people. Currently available evidence demonstrates that these diseases have a common cause with respect to their immunological base. We have always chosen the “**path of least resistance**” because it is a natural human behavior; just like water always runs down the slope. This is why the human race is in the state that it is in with illnesses such as obesity, diabetes and cancer: we take for granted what our immune system offers us.

Each of us is born with an immune system which matures as we grow and develop. The system is analogous to the **Ministry of DEFENSE** in a country: it fights off potential pathogens, foreign invaders that could pose harm to our bodies. Based on recent evidence, another function that the immune system also serves as the body’s equivalent of the “**Ministry of JANITORIAL SERVICES**”. Through similar actions to fighting off foreign invaders, our immune system

also helps to eliminate toxic chemicals and excess nutrients that are ingested. Therefore, our immune system helps with cleaning up the garbage that has been brought in and accumulated, in addition to its function in preventing and fighting invaders. In our current society, where a sedentary lifestyle and high-energy foods are the norm, we continue to accumulate excess body weight, resulting in disorders such as overweight/obesity, diabetes and cancer. As hard as the immune system works to keep our body in a balanced/homeostatic state, there is only so much that the system can clean up. When the body reaches its limit in consuming the energy that we take in, the excess food will be converted into and stored as fat. The excess sugar and fat will eventually cause damage to blood vessels and result in heart attack, stroke, or kidney failure (similar to the chemicals that cause rust and clog up the plumbing system).

The continuous demand of storing excess energy will also create additional stress on the adipocytes and eventually lead to cell death. The dead adipocytes will induce an inflammatory response and make the immune system work even harder to clean up the mess. When we **take our immune system for granted** and make it work over its capability, the system will eventually get burned out and we end up with diseases like diabetes and cancer.

How can we not take our immune system for granted and support its daily work & function to prevent it from burning out?

The obvious answer is to be physically active and to consume a healthy diet (a diet low in saturated fat and sugar). By being physically active on a daily basis, the blood will circulate more effectively throughout the body, nourish all vital organs and pick up waste materials along its way. With the sheer force generated from the blood traveling within the blood vessels, there will be less chance

for waste products to stick to the lining of our vessel walls. In a war, there will always be destruction and eventually, the rebuilding process. Analogous to this, when the immune system wards off the bugs or foreign invaders or metabolizes excess nutrients, there will be destruction in the surrounding environment.

Once the war is over, clean up and repair will take place. When the immune system can no longer handle the work load, it will send out stronger signals to enhance the response; this is when the symptoms of the diseases can be experienced by the individual. Furthermore, when the

immune system can no longer regulate or control the repair process, the cells in that damaged region will continue to grow uncontrollably, hence our medical definition of cancer.

Consequently, in order to maintain a healthy body, one needs to preserve the proper function of the immune system, hence the simple teaching of Dr. Antia: "Never take anything for granted in life if you want to enjoy what you have for a long time." Simple and yet so true. ■



TWO UBC
PATHOLOGY
RESEARCHERS
LISTED AS SOME
OF THE WORLD'S
MOST INFLUENTIAL
SCIENTIFIC MINDS

HOT

Dept of Pathology and Laboratory Medicine has two researchers listed among the most influential scientific minds of our time in the 2014 World's Most Influential Scientific Minds publication by Thomson Reuters.



**DR. RANDY GASCOYNE
(PG. 27) IS LISTED UNDER
CLINICAL MEDICINE**



**DR. IAN MACKENZIE (PG. 78) IS
LISTED UNDER NEUROSCIENCE &
BEHAVIOR**

Thomson Reuters analyzed data to determine which researchers have produced work most frequently acknowledged by their peers over the last 11 years. Listed in the report are 3,200 individuals who published the greatest number of highly cited papers in one of 21 broad fields from 2002-2012. Highly cited papers rank in the top one per cent by citations for their field and year of publication.

According to Thomson Reuters everyone acknowledged in this publication is influential in the sciences and social sciences, and on the cutting edge of their fields, performing and publishing work that their peers recognize as vital to the advancement of science. ■

The Mind's Eye

Ophthalmic pathologist, Dr. Valerie White, details the background of her work towards linking symptoms observed in the eye to the prognosis of the severe and often fatal, cerebral malaria

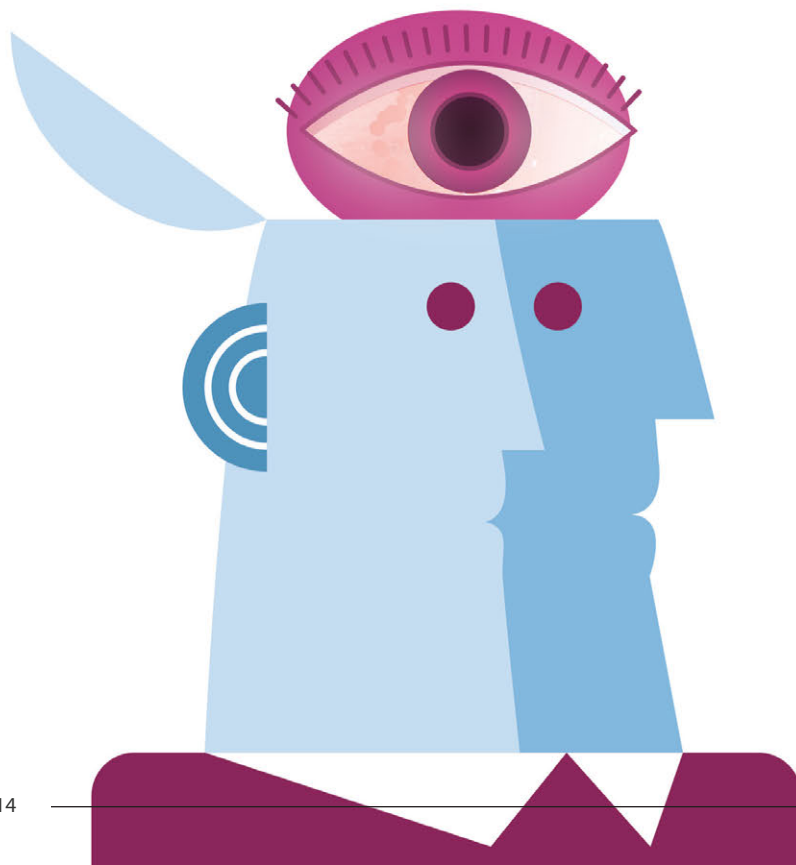


Could you begin by explaining your primary research objectives? What drew you to the sub-specialty of ophthalmic pathology?

My primary research objectives are fourfold: firstly, to understand the cause of the funduscopy eye findings seen in living people with cerebral and other forms of malaria; secondly, to use the pathology seen in the eye to correlate the findings observed in the living body with what is going on in the brain, which cannot be directly visualised during life.

Thirdly, I hope to better understand the mechanisms of inflammation in the retina; and finally I'd like to use the retinal inflammation model to understand brain pathology in other inflammatory central nervous system diseases.

I was drawn to the subspecialty of ophthalmic pathology because I wanted to know why we had not received any training involving eye diseases during our pathology residency. I took an elective in the subject and was encouraged to continue in this direction.





You obtained your primary medical degree in 1979 and an MHSc in Healthcare and Epidemiology in 2006. What motivated you to obtain the latter qualification and how does it help your current research?

At the time that I undertook that degree, our laboratory system was undergoing top-down reorganisation and change, and I thought that a different focus might be useful to me. In the end, I decided that I am a better pathologist than I would be an epidemiologist, and that I enjoy this type of work too much to give it up. However, the degree does help me to better understand many issues, including statistical considerations, assessment of projects, quality assurance, stakeholders and leadership.

Your original research investigated the genetic causes of intraocular melanoma. What were your key findings in this area, and how did this lead to your interest in malaria?

My original research into intraocular melanoma helped to identify some of the first chromosomal abnormalities in that type of cancer – as virtually nothing was known about this when I started my work. These abnormalities included monosomy 3 (loss of one homologous copy of diploid chromosome 3) and isochromosome

8q (reduplication of the long arm of chromosome 8), and we later found that they held prognostic significance. Patients whose tumours exhibited these changes had a high chance of dying of the disease, whereas those without these specific abnormalities would almost certainly not die. Unfortunately, I was not able to get funding to continue this work and so, when the chance came to be involved in the malaria project, I jumped at the opportunity to be involved in understanding a disease of major global significance.

Why was the Blantyre Malaria Project established and what are its aims and key methodologies?

The Blantyre Malaria Project was established by tropical disease specialists Drs. Terrie Taylor and Malcolm Molyneux, in 1986 after the Malawi Ministry of Health specifically identified ‘severe malaria in children’ as a research priority. They started the autopsy study in 1996 when they realised, after caring for patients with cerebral malaria, that they could not further their quest to understand pathogenesis without looking at autopsy data. Patients are admitted to a special ward in the Queen Elizabeth Central Hospital in Blantyre where they are examined and treated according to a standard protocol. Shortly

after admission the eyes are examined fully and photographed by a qualified ophthalmologist. In more recent years, infected children have undergone an MRI in an attempt to further understand the disease process. If a patient dies, permission to conduct an autopsy is requested from the parents or guardians. Tissue obtained is stored in multiple modalities for several research projects.

Through this work, you determined that retinal vessel abnormalities are due to the presence of parasitised red blood cells, which have a marked reduction in haemoglobin. Are there any other findings or achievements you wish to highlight?

I think that the major accomplishment is the correlation between the findings in the brain and those in the retina. This allows the retina to be used during life to make an accurate diagnosis of cerebral malaria, to follow the patients as they are being treated for signs of worsening of the disease, and to predict those who are most likely to die.

A Cerebral Solution

DR. VALERIE WHITE

Highly collaborative research being carried out by researchers from the **Vancouver General Hospital**, Canada, is trying to elucidate the answers to the many current unknowns regarding the most severe form of malaria

The most severe neurological complication of infection with *Plasmodium falciparum* – one of the four species of malaria parasite to infect humans – is cerebral malaria, a disease characterised by the onset of coma after malarial infection. It is most common in populations with no immunity to malaria, and usually affects children under the age of five in sub-Saharan Africa, or adult travellers visiting the continent without appropriate malaria prophylaxis. Cerebral malaria occurs in a relatively small subset of malaria cases but it is often fatal; many patients die due to a lack of treatment, but some succumb to the disease despite the provision of appropriate therapy. Mortality rates are high and long-term neurocognitive impairments are often sustained amongst survivors. There are a number of problems with effectively treating cerebral malaria, one of the greatest of which is that the precise mechanism by which the disease causes coma and death is still unknown. It seems likely that parasite-infested red blood cells are playing a role as they flood the brain and block smaller blood vessels. However, some scientists contend that inflammatory mediators, metabolic factors, or a combination of these, may be responsible for the impairment of consciousness. Concurrently, the clinical definition of cerebral malaria is vague and prescribes only that a patient should present with both malaria and coma; in sub-Saharan Africa, where malaria is common, this can often lead to misdiagnosis. Significantly, the work of the Blantyre Malaria Project (BMP) has demonstrated that 28 per cent of the autopsied patients were wrongly classified as dying from cerebral malaria; the future course of research into this disease, will no doubt be influenced by this outcome.

MALARIA IN MALAWI

In order to effectively palliate the death toll of cerebral malaria every malaria season, measures are needed to more efficiently and accurately diagnose this life threatening condition. An improved understanding of the pathological mechanisms at work in the brain could also offer potential insights; some children are able to emerge from deep malarial coma apparently unharmed, and an understanding of this obscure occurrence could suggest further therapeutic options. One route towards these goals is through the eye; the retina and the brain share a very close relationship, perhaps because both are derived from the neural tube during embryogenesis, and the study of the eye may therefore be useful for identifying, and more fully comprehending, the action of cerebral malaria in the human body.

Dr. Valerie White is an ophthalmic pathologist based at Vancouver General Hospital's Department of Pathology and Laboratory Medicine. Over the last few years she has made four visits to Malawi as a participant in the BMP – an autopsy study based at Queen Elizabeth Hospital in Blantyre under the leadership of Dr Terrie Taylor and Professor Malcolm Molyneux. Since its founding, 28 years ago, the Project has been responsible for producing a definitive rating scale for comas known as the Blantyre coma score, as well as setting up the Severe Malaria in African Children network. White's research objectives as part of the BMP focus on linking the observable pathology of the eye to the presence of malaria and the action of the parasite within the brain. In time, these findings could also have implications for other diseases of the central nervous system.

EYE-OPENING WORK

The methodology employed by White and the BMP team involves evaluating the fundus of the eyes of patients admitted to the research ward using indirect ophthalmoscopy after dilation. Then, if a patient later dies, permission to perform an autopsy is sought and, if granted, a standard autopsy is performed. As part of this process the eyes are removed and undergo gross examination before being processed and stained for histopathological analysis.

Investigations carried out to date have found that the eyes of children dying of non-malaria causes were usually normal – whereas the eyes of children with cerebral malaria often showed signs of haemorrhages, retinal whitening, and/or abnormally coloured blood vessels. "This combination of findings in African children, in areas where malaria is endemic, is very specific for cerebral malaria," states White. Gross examination of the eyes of affected individuals revealed predominantly white-centred haemorrhages and, on some occasions, white or orange vessels – although the formalin fixation process can interfere with the observation of these after the clinical stage. On microscopic examination, fibrin thrombi and perivascular haemorrhages were also commonly found in addition to the heavily parasitised red blood cells within the small retinal blood vessels; none of these findings were demonstrated in patients who died of other causes.

Perhaps most importantly, the team found that many of the changes that they studied in the retina correlated with those in the brain. The histological hallmark of patients dying from cerebral malaria is the presence of parasitised



RETINAL PATHOLOGY OF PAEDIATRIC CEREBRAL MALARIA IN MALAWI

OBJECTIVES

To understand how retinal pathologic findings can be used to diagnose and characterise the presence of severe cerebral malaria in children in sub-Saharan Africa. The study uses blood tests, retinal observations and autopsy studies to inform ophthalmologists and other clinicians of how retinal pathology can be used to understand the pathogenesis of this life threatening form of malaria.

KEY COLLABORATORS

Dr. Valentina Barerra; Dr. Nick Beare; Dr. Simon Harding, University of Liverpool, UK

Dr. Katerina Dorovini-Zis, University of British Columbia, Canada

Dr. Susan Lewallen, Kilimanjaro Community Centre for Ophthalmology, South Africa

Dr. Malcolm Molyneux, Malawi/Liverpool/ Wellcome Trust Clinical Research Programme, Malawi

Dr. Terrie Taylor, Michigan State University and Blantyre Malaria Project, University of Malawi College of Medicine, Malawi

CONTACT

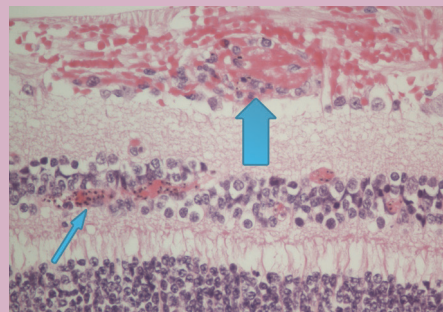
Dr. Valerie A White
Vancouver General Hospital
Department of Pathology and Laboratory Medicine
910 West 10th Avenue, Vancouver
British Columbia V5Z 4E3 Canada
T +1 604 875 4111 x 63975
T +1 604 240 5892
E val.white@vch.ca

DR. VALERIE A WHITE is Professor in the departments of Pathology and Laboratory Medicine, and Ophthalmology and Visual Sciences at the University of British Columbia. She obtained an MD from Memorial University of Newfoundland before moving to work at the University of British Columbia. White joined Vancouver General Hospital in 1988 as an assistant pathologist and is now a consultant pathologist and professor. She teaches ophthalmic pathology to residents, conducts research projects on numerous pathological facets of eye disease and has contributed chapters on orbital pathology for several well-known and widely read ophthalmology textbooks.

red blood cells in the brain and retina. In almost all cases the retina was found to be a very accurate and accessible proxy for the brain – a revelation that may have clinical significance in the future.

FURTHER COLLABORATION

White's interest in malaria extends beyond her role in the BMP; for many years, she has worked with Drs. Simon Harding and Nick Beare from the University of Liverpool, UK, and Dr. Susan Lewallen, currently in South Africa. These ophthalmologists have been instrumental in understanding and delineating retinal findings in hundreds of cerebral malaria patients, as well as introducing new methods of fundus photography and fluorescein angiography that more accurately pinpoint areas of interest for post-mortem study. In 2012, White began a collaboration with Dr. Valentina Barerra, a postdoctoral researcher in their lab, focusing on relating the degree of parasitisation of the blood vessels to the severity of the eye findings and better understanding the mechanisms of haemorrhage.



Photomicrograph of retina in cerebral malaria. Thick arrow indicates a vessel in the ganglion cell layer containing a thrombus and surrounded by hemorrhage. Thin arrow indicates a capillary in the inner nuclear layer with numerous red blood cells containing late stage malaria parasites. Haematoxylin and eosin x400.

CELEBRAL MALARIA

Cerebral malaria is the most serious and life threatening form of malaria caused by the parasite *Plasmodium falciparum*, affecting around 575,000 children in Africa every year.

The condition is defined by the World Health Organization as a clinical syndrome characterised by coma at least one hour after termination of a seizure or correction of hypoglycaemia, co-existing with asexual forms of *P. falciparum* parasites on peripheral blood smears with no other cause to explain the coma.

Haemorrhages are an important feature of cerebral malaria, as the BMP found, but they also cause damage to tissue. As part of this relatively new collaboration, White and Barerra are trying to understand what promotes the formation of the fibrin-platelet clot that is at the centre of many haemorrhages, and what additional damage this causes. Recent fluorescein angiography of the blood vessels in the eye has shown areas of non-perfusion, and the pair is also trying to elucidate the causes and consequences of this phenomenon.

A BRIGHTER FUTURE

Cerebral malaria is a form of this problematic disease that particularly affects the most vulnerable patients; it is unpredictable, deadly, and capable of causing lasting damage that lingers for far longer than the parasites that cause it. White's work, both independently and in collaboration with the BMP and other researchers, has helped medicine to develop a new understanding of cerebral malaria – an understanding that will, in time, influence the path towards eradicating this problem for good. ■

Goodbye potluck for Aleya!

Aleya – we will miss
you!!! <3 Come back
and visit often!!



■ Changes in Leadership of the Graduate Studies Program

HAYDN PRITCHARD, PHD
GRADUATE STUDIES PROGRAM DIRECTOR,
PROFESSOR, DEPARTMENT OF PATHOLOGY
AND LABORATORY MEDICINE, UBC

As many of you know, there are major changes to the leadership of our Graduate Program. After 3 years as the anchor of our Program, Aleya is leaving us for new pastures. She has a wonderful opportunity to further her skills and career in digital communications, and I support her fully in this decision. As you know, Aleya has played a critical role in our program and she is responsible for all the successes we have had recently – including the Peter Larkin Award. Please join me in wishing her well on her new endeavour.

I am sure that many of you are also aware that I retired from UBC on September 1st 2014. After 32 years as a faculty member (I started at age 29!), it's time to step aside and let others embrace this wonderful opportunity to provide service to our students and supervisors. It's been a delight to work with such skilled and engaged students over the past 5 years in my role as Program Director - and with this year's intake of 22 students I am sure

our program will continue to thrive. I want to reassure you all that the Department has a plan to seek my replacement(s) and I will continue in my role until the transition is complete. I assure you that both Aleya and I are committed to ensuring a smooth succession plan to new program leaders.

I believe we will leave the administration and culture of the program in excellent condition and that the transition should be empowering and productive. To that end, we are delighted to have recruited an exceptional replacement for Aleya. Heather Cheadle joined us on September 12th - please introduce yourself as you visit the Pathology Education Centre, and welcome her to our program.

In closing, I am proud of the work Aleya and I have done together over the past years but I am more proud of you – our students and supervisors – who make us such a successful, vibrant and respectful program. Best wishes to you all! ■



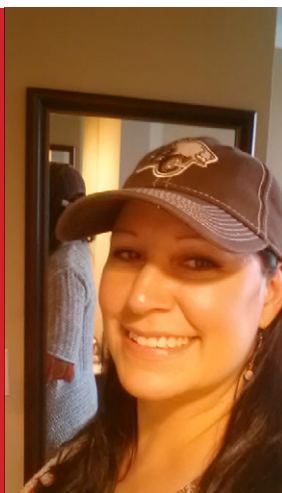
It's not easy to say good-bye

I have really enjoyed my time as the Graduate Program Assistant in PALM. When I began this position in May 2011, it was supposed to be a two-week temporary gig. Little did I know that, 3+ years later, I would still be here! During this time, I have learned many new skills, stepped out of my comfort zone (through hosting the Path Arts Gala), and, most importantly, made many wonderful connections. The reason I've stayed as long as I have (and yes, 3+ years is a long time for me!) is largely because of the people. I will truly miss my PALM colleagues! Special thanks goes to Haydn, from whom I have learned so much; my Path Education Centre workmates, who provided lots of laughs and cookies; and, of course, the graduate students, who have become my friends. My next steps include going back to school, and starting up a digital communications/virtual administrator business with my good friend Kim. I'm excited for the road ahead, and I wish everyone all the best!

Aleya Abdulla

I am a huge
football
fan!

A photo taken prior
to attending a BC
Lions Game

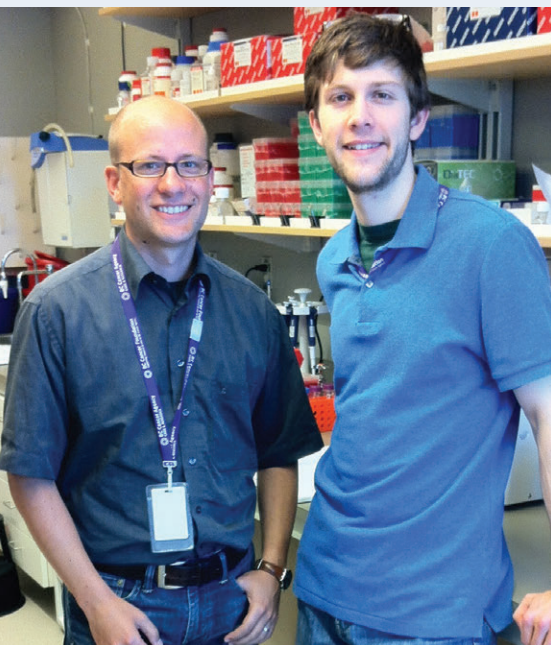


Heather Cheadle, Graduate Program Assistant
UBC Pathology Education Centre, Vancouver General Hospital
Room 3200, 910 W 10th Ave, Vancouver, BC V5Z 1M9
Tel. (604) 875-4111 x. 21075
heather.cheadle@pathology.ubc.ca

Welcome Heather Cheadle

I am very excited to be embarking on a new career as the Graduate Program Assistant. I won't be travelling far, in fact, I hail from across the hallway in JPPN 3100 where I worked with the General Surgery Residents for the past 4 years. I hope to meet all of you face-to-face very soon, so please feel free to stop by my office and introduce yourselves. I look forward to working with all of you and I will strive to continue to administer the program in the same award-winning manner to which you have become accustomed.

■ David Twa Vanier Scholar 2014



“IT IS TRULY AN HONOR FOR DAVID AND
OUR PROGRAM TO HAVE HIS ACHIEVEMENTS
RECOGNIZED IN THIS MANNER”

Once again, one of our students in the PALM graduate program has won a Vanier scholarship. These are highly competitive awards funded by the Government of Canada. The Vanier Canada Graduate Scholarships program “attracts and retains world-class doctoral students and helps establish Canada as a global centre of excellence in research and higher learning”. It is truly an honor for David and our program to have his achievements recognized in this manner.

David is supervised by Dr. Christian Steidel whose laboratory at the BC Cancer Research Center and studies B-cell lymphomas. David’s research study is to better understand the cross-talk arising between malignant B-cells and reactive immune infiltrate within the microenvironment of the lymphoma tumour.

Specifically, David is examining the functional consequences of how malignant B-cells hijack axes that are otherwise physiologically responsible for guarding against autoimmunity in healthy individuals. Using high-throughput sequencing techniques, he studies novel translocations and copy number variations in programmed death

ligands 1 and 2. Such structural genomic aberrations arising in these genes can serve as a reversible phenotype for molecularly precise therapies.

In addition to the Vanier Scholarship, David has also been recognized by winning several other awards which include:

- Killam Doctoral Scholarship (2014)
- Four Year Fellowship (2014)
- UBC Travel Bursary (2014)
- Canadian Hematology Society Award (2013)
- American Society of Hematology Abstract Achievement Award (2013)
- Gertrude Langridge Memorial Scholarship in Medical Sciences (2013)
- Elwyn Gregg Memorial Fellowship (2013)
- Shaughnessy Hospital Volunteer Society Fellowship in Health Care (2013)
- Faculty of Medicine Graduate Award (2013, 2012)

Outside the lab, David rows for Burnaby Lake Rowing Club as an ex-varsity athlete, he serves as the principle clarinet for the UBC Concert Winds, he is learning to swing dance and organizes motor cycle rides across BC.

Well done David! ■

THE PATHOLOGY EDUCATION CENTRE'S Health Initiative



\$35.00
FOR 10 CLASSES

Staff at VGH's Pathology Education Centre recently completed a 4-week summer series of yoga & meditation classes, which took place at the BC Cancer and Research Centre.

Having taken part in UBC's Healthy Challenge in April 2014, PEC staff were eager to continue their healthy habits, and applied to UBC's Healthy Workplace Initiatives Program (HWIP) to fund weekly yoga and meditation classes at VGH. Classes will resume in September 2014 and will be taught by a UBC Rec yoga instructor.



Class dates

Wednesdays from
September 10th - November 12, 2014
10 classes (1:00pm-2:00pm)



Place

BCCRC 675 Ave 1st Floor Exercise Room
Only 10 spots available, so sign up
today!



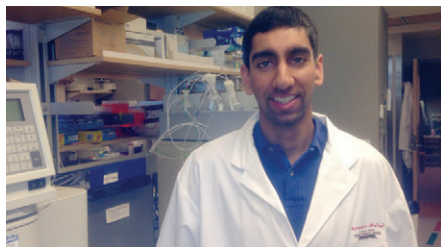
Registration

Please create a new account and register at:
<https://reg.rec.ubc.ca/econnectlg/Activities/Activitiesdetails.asp?aid=3150>

Note: If you don't have an account already, you must create your New Client Account and register/pay for the yoga classes in the same session or else you will get timed out and need to enter your information again. You will be emailed your UBC Rec Login ID and Password after you register/pay. If you have previously registered, check your email for your Login ID and Password sent previously.

■ Highly Successful Pathology Summer Fellowship Program 2014

Program builds CVs, opens
doors, helps students
become practice ready



ARMAAN MALHOTRA

PROGRAM: **BSc**

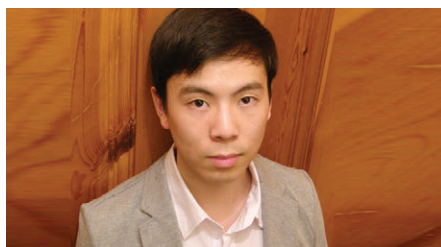
SUPERVISOR: **DR. MARCEL BALLY**

As a result of the Pathology Summer Studentship, I was given the opportunity to work in the Department of Experimental Therapeutics at the BC Cancer Research Centre.

Our project focuses on the optimization of lipid nanoparticle formulations that encapsulates carboplatin using the passive equilibration loading technique; which more

efficiently traps drugs and can be easily scaled-up. Carboplatin is an antineoplastic drug, which exhibits a mechanism of action that usually results in crosslinked DNA strands, thus inhibiting replication and repair mechanisms of DNA in cancer cells. By capturing the drug of interest inside lipid nanoparticles – lipid spheres that are approximately 100 nanometers in diameter – drug delivery is possible with reduced toxicity, which is typically associated with the free drug.

Our long-term goal for this work is to prepare a formulation of liposomal carboplatin to treat Glioblastoma Multiforme by altering the pharmacokinetic properties of the drug. Through the selection of different lipid composition we can tune the release characteristics of the lipid nanoparticle to optimize drug accumulation in the brain. The formulations will be tested in an orthotopic GBM mouse model for efficacy alone and in combination with Temozolomide the current drug of choice.



BRIAN CHO

PROGRAM: **MD**

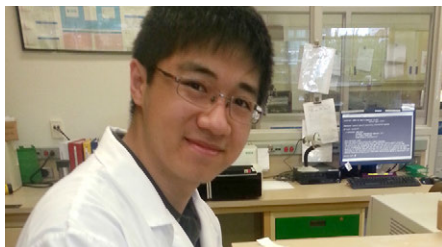
SUPERVISOR: **DR. DECHENG YANG**

As a UBC medical student, I feel extremely privileged to receive the UBC Pathology Summer Studentship for the second time this summer. Back again in Dr. Decheng Yang's lab in the Centre for Heart Lung Innovation at St. Paul's Hospital, I am studying coxsackievirus B3 (CVB3) and its relationship to heat shock protein 70 (Hsp70). In particular, I am

investigating how CVB3 uses Hsp70, a human chaperone protein, to its advantage in viral replication. Upon infection, CVB3 upregulates Hsp70 by activating calcium/calmodulin-dependent protein kinase (CaMKII) and phosphorylating heat shock factor-1 (HSF1). In turn, Hsp70 promotes CVB3 replication by stabilizing the viral genome.

Over these two months, I hope to learn more of the ways in which pathology sets the foundation for the rest of medicine. During the pre-clerkship years at UBC, medical students are first exposed to pathology through small group sessions, called Clinical Pathological Conferences, led by a pathologist or resident.

From these CPC sessions, I was intrigued by how microscopic pathologies can lead to gross symptoms, but most of all, I was fascinated by the research that can be used to create drug targets to improve the lives of our patients.



CHARLIE HUA

PROGRAM: **BMLSc**

SUPERVISOR: **DR. MARI DEMARCO**

My research project focused on α -synuclein, a small protein found in high abundance in brain tissue. This protein is known to play a role in the pathogenesis of Parkinson's disease, dementia with Lewy bodies and multiple system atrophy. The objective was to establish the early stages in the development of a quantitative mass spectrometric assay for α -synuclein in cerebral spinal fluid. This approach will hopefully improve the diagnostic utility of α -synuclein as a biomarker for a variety of neurodegenerative diseases. My supervisor, Dr. Mari DeMarco, provided guidance for every aspect of my studentship. Whether it is directing my study

into the current literature, planning a course of experiments, or reviewing the data, Dr. DeMarco's door was always open for me to come in and talk and ask questions. This experience, all in all, has led me to become a more well-rounded person. Not only did I learn the basics of scientific research and obtained more experience of individual laboratory work, I also got to appreciate the workflow and teamwork behind a clinical laboratory.

I am certain that I will be able to draw from my summer studentship experience and apply them to my future endeavors.



ROBERT YAO

PROGRAM: **BSc**

SUPERVISOR: **DR. TORSTEN NIELSEN**

With the Pathology Summer Studentship, I had the opportunity to work in Dr. Torsten Nielsen's lab on a project involving Synovial Sarcoma. Synovial Sarcoma is a cancer that mainly affects adolescents and young adults, and is often associated with poor patient outcome. The conventional chemotherapeutic options have limited benefit, but there is potential to develop molecularly targeted therapy against this cancer. Before I started the project, an initial high-throughput drug screen was conducted using a library of over 900 drugs. I was responsible for validating the results of the drug screen and producing drug-response curves for the top hits of the drug screen in

vitro. In addition, I have found two drugs that have a synergistic effect when combined together, and I am working on understanding the molecular mechanism for the synergism. With this information, we plan to further test out these drugs in an animal model to see their effects in a physiological environment.

The findings of this project could potentially be extended to clinical trials and ultimately help to improve patient outcome. I feel honored to be a part of this research group and I would like to thank the department of Pathology and Laboratory Medicine for this wonderful opportunity to learn!



JENNY WU

PROGRAM: **BMLSc**

SUPERVISOR: **DR. DAVID SCHAEFFER**

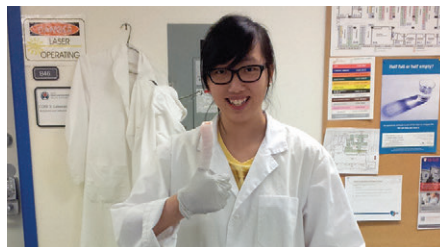
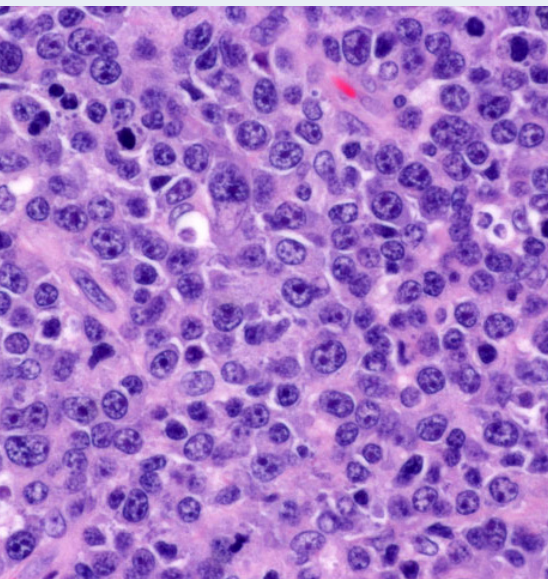
Since June this year I have been working at Vancouver General Hospital in the research group of Dr. Schaeffer. My project focuses on the assessment of a distinctive type of morphological change in pancreatic cancer, termed tumour budding (Tb). Tumour buds are single cells at the invasive front of pancreatic cancer, which denote a more aggressive phenotype.

Although pancreatic cancer is a devastating disease, a small subset of patients survives more than 3 years after their initial surgery. I am reviewing the pathology of these patients, to

assess morphological difference, in particular in regards to Tb, which may be of help in predicting outcome of patients afflicted by this disease. Aside from the histology work of my project, I was also given the opportunity to learn about immunohistochemical staining for research markers.

Working with clinical samples has been a great experience and has allowed me to apply some of the principles studied in my courses. I hope that my project has an impact on the management of patients and I am very excited to be involved.

“FROM ADVICE ON HOW TO DESIGN STUDIES AND ANALYZE DATA TO A PLETHORA OF CLINICAL PEARLS, I FEEL WHAT I HAVE LEARNED HAS COMPLEMENTED AND ENHANCED MY UNDERSTANDING OF THE MATERIAL I HAVE COVERED IN MY STUDIES SO FAR”



CELINE CHAN

PROGRAM: **BMLSc**

SUPERVISOR: **DR. CHUN SEOW**

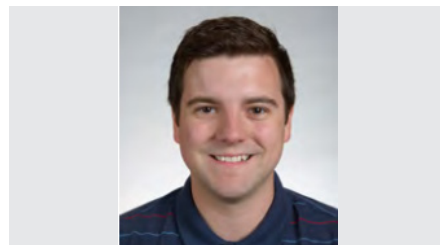
My name is Celine and I am entering the final year of the Medical Laboratory Sciences program. This summer I had the privilege of working for the Centre of Heart Lung Innovation at St. Paul's Hospital under the supervision of Dr. Chun Seow.

My project was to investigate the mechanism of smooth muscle contraction and in particular, how myosin light chain phosphorylation affects shortening velocity and power output of smooth muscle. This was not my first research experience but was my first time to participate in research on mechanics. During the first couple weeks of

the fellowship program, I was overwhelmed by the complex background of my project as I was new to the topics on muscle contractions. Fortunately, under the kind assistance offered by Dr. Seow and my fellow lab members, my understanding of the project was enhanced. After 2.5 months, I had to give a 10-min presentation on my project. It was my first time to present orally in front of a big crowd.

Even though I was very nervous, it was a worthwhile experience and also it was an useful skill to possess. As I was preparing for my presentation, I read a lot of papers related to my project. I was astonished to learn that there was still a lot to be discovered about mechanism of smooth muscle contraction.

I finally understood the importance of understanding the basic mechanisms in smooth muscle contraction before we can perform research on diseased-related topics, such as asthma and hypertension. I am very glad that I have been given the opportunity to be part of the Summer Student Fellowship program. This summer has been very fruitful. I experienced a lot of “first-times” and made a lot of new friends. I highly recommend applying for this fellowship program to those who are interested in research.



GARRETT S. BARRY

PROGRAM: **MD**

SUPERVISOR: **DR. RANDY GASCOYNE**

Learning from world-class hematopathologist and lymphoma researcher Dr. Randy Gascoyne is truly a privilege that the Pathology Summer Student Fellowship has realized for me. At the BC Cancer Agency,

under Drs. Gascoyne and Scott's guidance, I am helping with molecular profiling projects in diffuse large B cell lymphoma and mantle cell lymphoma, lymphoid malignancies with variable prognoses.

These projects will hopefully lead to new clinical gene expression assays that will reliably categorize biological lymphoma subtypes based on their molecular alterations. This information will be very important for assessing both prognosis and guiding the course of treatment for these patients in the future. I believe genome-wide mutation and expression signatures will play an increasing role in guiding clinical practice, improving survival and quality of cancer patient's lives. So far I have been learning a lot! Thank you for welcoming me back into the department this summer!



YOUNG SHEN

PROGRAM: **BMLSc**

SUPERVISOR: **DR. VICKY MONSALVE**

I have just finished the 3rd year in the Bachelor of Medical Laboratory Science Program (BMLSc). My summer project, under the supervision of Dr. Vicky Monsalve, was to work with Kwäday Dän Ts'inchi human remains that were radiocarbon dated to around 300 years ago. My role in the project included: 1) to interpret, select and compile light and transmission electron micrographs presenting the state of tissue preservation as well as paleopathology findings of the ancient human remains, 2) to create a book with these images for the David Hardwick Pathology Learning Centre database, 3) to utilize X-ray spectrometry/elemental mapping to find the origin of the mineral inclusions in the lung

tissue previously identified by transmission electron microscope and raman spectroscopy.

I have enjoyed this project. Kwäday Dän Ts'inchi is the only case of ancient human remains found in Canada. I really appreciate the unique nature of this project and I felt privileged to have the opportunity to work on it. I believe that a year of study in the BMLSc program prepared me very well for this project with all the microscopy and histology knowledge. This project helped me to utilize and advance my knowledge and skills in working with scanning electron microscope and using Photoshop to edit/label the images. It has been a wonderful two months.



SANDRA BOTROS

PROGRAM: **BSc**

SUPERVISOR: **DR. RUSUNG TAN**

Primary immunodeficiencies are genetic disorders in which part of the body's immune system is missing or does not function properly with affected individuals being especially prone to infections and inflammatory diseases.

Current therapeutic regimens for severe diseases involve hematopoietic stem cell transplantation via bone marrow transplant, but this carries serious risks such as life-threatening infections and graft-versus-host diseases. Recent studies suggest the potential of the CRISPR-Cas9 system uses a designed guide RNA to engineer DNA breaks at a defined locus, and provision of an oligonucleotide template mediates homology-directed repair. In my project, we will test the feasibility of CRISPR-Cas9-mediated recombination as

a curative therapy for congenital primary immunodeficiency by experimentation with mice bearing the Scurfy gene, a nonsense mutation (dinucleotide insertion) within the FOXP3 gene sequence. Similar to FOXP3 - deficient humans, Scurfy mice lack regulatory T cells and develop a severe, fatal autoimmune disease. Scurfy T cells transfected with plasmid containing CRISPR-Cas9 components and corrective oligonucleotides will be screened for genomic repair by DNA analysis and flow cytometry using a C-terminal FOXP3 antibody, since this portion is missing from the truncated mutant protein. Importantly, successful repair of the Scurfy mutation will hold great promise for the future treatment and study of human primary immunodeficiencies, and potentially other genetic diseases.



ERICA KOECK

PROGRAM: **MD**

SUPERVISOR: **DR. PATRICK DOYLE**

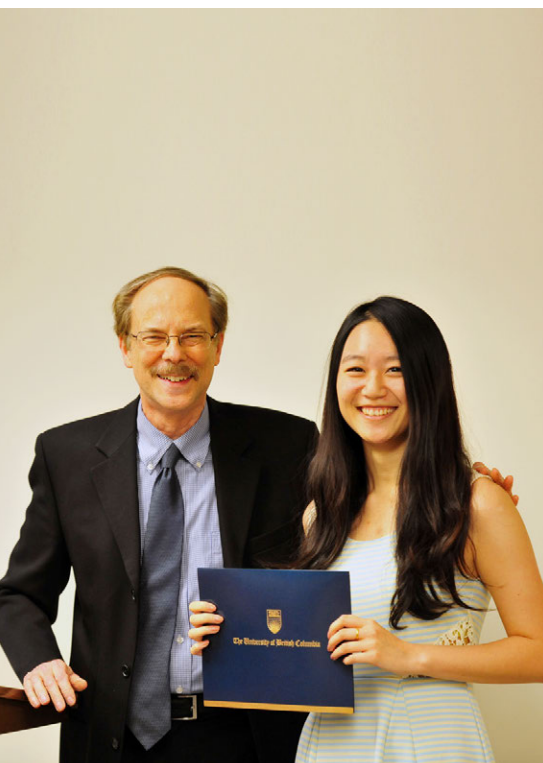
I am going into second year medicine at the UBC campus in Prince George, and was fortunate enough to have been able to spend my summer at VGH working on a Pathology Summer Studentship project. My project was in the field of medical microbiology and infection control, and while in the department

I had the opportunity to learn from the

amazing people who work there. From advice on how to design studies and analyze data to a plethora of clinical pearls, I feel what I have learned has complemented and enhanced my understanding of the material I have covered in my studies so far. This project has reaffirmed my interest in infectious disease, and as given me a measure of clarity into what career path I would like to choose.

■ Bachelor of Medical Laboratory Science (BMLSc) Program

AMANDA J. BRADLEY, PHD
DIRECTOR, BMLSc PROGRAM
SENIOR INSTRUCTOR,
DEPARTMENT OF PATHOLOGY AND
LABORATORY MEDICINE UBC;
JOANNE WOUTERSE, SENIOR PROGRAM
ASSISTANT, BMLSc PROGRAM



Farewell and Thanks to...

Dr. Bernd Keller for his long-standing commitment to teaching.

Bernd is a dedicated, compassionate and effective teacher who began teaching our students in 2007 and has taught in 4 different courses (PATH 301, 404, 405 and 406). Bernd has also been Course Coordinator of PATH 301 (Biochemistry) for five years and Co-coordinator of PATH 405 (Seminars in Current Topics) for three years. Our students have benefitted immensely from Bernd's expertise and from his obvious dedication to their learning. Bernd continuously role models critical thinking and encourages students to do their very best. Likewise, as one of his teaching colleagues, I have learned much from Bernd. Dr. Keller will be leaving the Department at the end of

this year and this is a great loss for the Program. We are grateful to Bernd and wish him the absolute best in life's next adventures.



A Warm Welcome to...

Welcome to Eric Jeong, who joins us as a member of the BMLSc teaching and support team while Dr Juliana Li is on maternity leave. As a recent graduate of the BMLSc Program, Eric provides valuable insights from a student perspective and brings great enthusiasm to the Program. I asked Eric about his impressions of the BMLSc Program and of his new job.



“I found the Program to be very helpful in preparing students for their futures “in the real world”. The combination of practical lab work, transferrable skill development – critical appraisal, for example – and exposure to a variety of medical-science disciplines coupled with room to explore different interests assisted students in building confidence in their abilities to contribute to society. The quality and quantity of student-teacher and student-student interactions promoted a less competitive, more supportive learning environment where students realized how much we could learn from each other and how we could take initiatives individually and within groups.”

I joined the team in May to give me time to get up to speed before the fall term. I’ve been surprised by the extent of preparation and organization that goes on behind the scenes to develop lab protocols and lesson plans and to think about good teaching practices, such as ways to ask and respond to questions. I’m looking forward to the students’ arrival in September and the opportunity to help them learn. Having so recently been in their shoes, I hope to be able to provide an experienced and empathetic ear.”

We are delighted to have Eric working with us!

2014 Graduates

This past May twenty three students received their BMLSc degrees, bringing the total number of program graduates to 490.

At the BMLSc Awards Tea, held on May 20th, the following students were recognized for their outstanding academic achievements:

Teresa Tai achieved the highest overall standing of the graduating class and was awarded the Professor C.F.A. Culling Bachelor of Medical Laboratory Science Prize.

Nick Uthaikhaifar received the Donald M. McLean Prize in Medical Microbiology.

Xian Li received the B.J. Twaites Prize in Laboratory Administration, awarded to the student with the highest standing in Laboratory Administration.

The Eugenie Phyllis and Philip Edward Reid Prize in Morphological Sciences for academic excellence in histology, histochemistry and microscopy was awarded to **Eric Jeong**.

Eric Jeong also received the William J. Godolphin Prize for Excellence in Critical Thinking.

Daphne Cheung was awarded the Prize for Best Overall Performance in PATH 405 Seminars in Current Topics.

Graduates’ Choice for Teaching Excellence Awards

The graduates recognized the following instructors, who each received a BMLSc Graduates’ Choice for Teaching Excellence Award: **Dr. Morris Pudek, Dr. Mike Nimmo** and **Dr. Mark Scott**.

The Reid Memorial Cup

This award, chosen by the graduating class, recognizes a Faculty, Staff member or student who made an outstanding contribution to the educational experience of the BMLSc students. This year’s recipient is **Jennifer Xenakis**. ■

■ Warm Wishes to Jack and Shiny!

JENNIFER XENAKIS

EDUCATIONAL SERVICES MANAGER,
PATHOLOGY & LABORATORY MEDICINE



On April 8, 2014 I received an email from a former student requesting the use of the student room. This was the first time I had received a request of this type and wasn't sure what to say. He wanted to turn on all of the computers (nine in total) at once; throw plant materials all over the room and invite his girlfriend. Hmmmm sounds a little fishy . . .

What would you say if you found out the request was made in order to propose to his one true love? Jack had met Shiny in our BMLSc program and grew to know and love her in our very own student room. He was hoping she would go out with him but for months she turned him down. Enter Sophia, another BMLSc student who convinced Shiny to accept Jack's offer and go out on a date with him! Later he found out that Shiny had turned him down because she didn't want to ruin the amazing friendship they had forged together.

Six years later and hence the email – of course I said he could borrow the student room! I was a few minutes late getting here (as usual) and there were boxes of long stemmed red roses patiently waiting outside my office. Where was Jack? He was pacing nervously through the hospital corridors trying not to sweat. Once I let him in I realized how totally nervous he was so I asked him to do a job for me – which he did and that managed to keep him slightly distracted. After showering the room in red rose petals and setting images of himself

and Shiny on each computer in the room, he was ready! We chatted and he showed me the engagement ring – it was stunning! (Shiny had picked it herself).

I asked Jack if this would be a surprise and he said he could never manage to surprise her – somehow she always knew when he was up to something. A couple of hours later I left a nervous Jack waiting for his Shiny to arrive. Will she say yes? Will she be afraid to ruin their friendship?

I had to wait until the following week before I received an email letting me know she had said yes!! I was so happy for them both. Now they will have a lifetime of commitment, empathy, honesty, loyalty, disappointment, kindness, anger (controlled I hope), hard work and most importantly COMMUNICATION ahead of them (with some happiness sprinkled in)!

I hope you will be holding hands together when you are in your 90's and will be true to yourselves and one another – all the best to Jack and Shiny! ■



■ 2015 UBC Genomic Pathology Course

STEPHEN YIP, MD, PHD, FRCPC
NEUROPATHOLOGIST
ONCO502 COURSE DIRECTOR
INTERDISCIPLINARY ONCOLOGY PROGRAM
RESIDENCY TRAINING DIRECTOR
NEUROPATHOLOGY PROGRAM - UBC
ASSISTANT PROFESSOR, UBC

SOHRAB SHAH, PHD
CANADA RESEARCH CHAIR IN
COMPUTATIONAL CANCER GENOMICS
DEPT OF PATHOLOGY, UBC
DEPT OF MOLECULAR ONCOLOGY, BCCA

Planning update #1

We are planning to hold the 2015 UBC Genomic Pathology Course for Trainees in the week of 19th -23th January. We received many constructive comments after the inaugural course earlier this year and have made concrete effort to incorporate many of your suggestions (and wishes) into the next iteration of the course. Dr. Elaine Mardis (Washington University in St. Louis) a pioneer in the clinical and translational applications of next generation sequencing in oncology, has tentatively agreed to be our guest speaker. We are very excited about this and hope the rest of the program will match the quality and impact of Dr. Mardis' lecture. Again, we plan to retain our "back-to-basics" day with reviews and updates on the fundamental concepts of cancer genomics, sequencing technology and its clinical applications. There will be a "specialty day" during which the trainees from the different programs will

explore issues in advanced genomics that are unique to their specialty. Also, there will be more focus on practical issues such as optimal sample selection for genetic profiling (eg. how much tissue is needed for a particular assay) and basic interpretation of results and how to act on them. To reinforce this last point, we will be preparing practical cases that are integrated with web resources to ensure all participants will have hands-on experience in working through these practical problems. The clinical problem sessions will be preceded by a bioinformatics workshop during which web-based computational resources will be introduced and students will have adequate time to explore these sites. We believe this arrangement will maximize the dissemination of useful information to all trainees and the practical nature of the lectures as well as the hands-on workshops will facilitate participation. ■



TENTATIVE GUEST SPEAKER
Elaine R. Mardis, PhD
The Genome Institute at
Washington University

Dr. Mardis joined The Genome Institute in 1993. As Director of Technology Development, she helped create methods and automation pipelines for sequencing the human genome. Dr. Mardis has research interests in the application of next-generation sequencing to characterize cancer genomes and transcriptomes, and using these data to support therapeutic decision-making. She also is interested in facilitating the translation of basic science discoveries about human disease into the clinical setting. Dr. Mardis serves as an editorial board member of Molecular Cancer Research, Disease Models and Mechanisms and Annals of Oncology, and acts as a reviewer for Nature, the New England Journal of Medicine, Cell, and Genome Research. She serves on the scientific advisory

boards of Qiagen Ingenuity, DNA Nexus, and ZS Genetics. Dr. Mardis received the Scripps Translational Research award for her work on cancer genomics in 2010, and was named a Distinguished Alumni of the University of Oklahoma College of Arts and Sciences for 2011. Discover Magazine featured her work in cancer genomics as one of their top 100 science stories in 2013. Dr. Mardis is also Professor in the Department of Genetics, with an adjunct appointment in the Department of Molecular Microbiology. Prior to joining the Washington University faculty, she was a senior research scientist at Bio-Rad Laboratories in Hercules, CA. Dr. Mardis received her B.S. degree (Zoology with Highest Honors, 1984) and her Ph.D. (Chemistry and Biochemistry, 1989) from the University of Oklahoma.

■ The Resident & Fellow Graduation Ceremony

The resident and fellow graduation ceremony was held on Monday June 9th 2014 traditionally at the Royal Vancouver Yacht Club. The graduation ceremony recognized the completion of

an important component of the residents' medical training and the outstanding contributions of Department faculty and residents to medical education and mentorship.

SEVERAL DEPARTMENTAL AWARDS
WERE PRESENTED AT THE CEREMONY:



Dr. Melvyn Bernstein and Dr. Roberta Miller Resident Teaching Awards

In honor of outstanding efforts to residents' academic and professional education and mentorship the Dr. Melvyn Bernstein and Dr. Roberta Miller Resident Teaching Awards went to **Dr. Morris Pudek** and **Dr. John English**.



Residency Academic Advisor Recognition Award

In appreciation of his tireless and compassionate efforts as the Residency Academic Advisor (1994-2014)

Dr. C. Blake Gilks was presented with the Residency Academic Advisor Recognition Award.



Flowers for Residency Support Team

The residents presented a bouquet of flowers to Residency Program Administrator **Kimberly Way** and Residency Program Finance/Assistant **Jie Ji Sun** in appreciation of their assistance through the years.



Residency Program Director Recognition Awards

In appreciation of their dedication to the Residency Program as Directors the Class of 2014 also presented Director Recognition Awards to **Dr. Michael Nimmo**, **Dr. Monika Hudoba** and **Dr. Christopher Dunham**.

CONGRATULATIONS GRADUATING RESIDENTS AND FELLOWS!!



NOUF HIJAZI (AP)

- MD, King Saud University, Saudi Arabia, 2008
- Residency in Anatomic Pathology 2011-2014
- Fellowship in Dermatopathology 2014-2015



JINGYANG HUANG (AP)

- Biochemistry, University of Saskatchewan
- Medical School: University of Saskatchewan
- Residency in Anatomical Pathology

Future Plans: Working in the prairies.



ANANTA GURUNG (AP)

- BMLSc, 2003 (UBC)
- MSc, 2005 (Toronto)
- MD, 2009 (UBC)
- FRCPC (Anatomic Pathology), 2014 (UBC)
- GI Fellowship (Yale), 2014-2015



JASON MORIN (AP)

- University of Alberta BSc in Physiology in 2006
- University of Calgary with MD in 2009
- Residency in Anatomic Pathology 2009 – 2014
- Fellowship in Forensic Pathology 2014 – 2015



TAREQ MOHAMMAD (AP)

- Medical School: Royal College of Surgeons in Ireland (RCSI)
- Residency in Anatomical Pathology

Future Plans: Stay at VGH for another year to complete a fellowship in H&N / Oral pathology



PATRICK WONG (GP)

- BMLSc 2003, UBC
- MSc (Experimental Pathology) 2005, UBC
- MD 2009, UBC
- General Pathology Residency Program 2014, UBC
- General Pathology Chief Resident 2012-2013

Future Plans: Locum work – Richmond Hospital



EHSAN DAVANI(GP)

- Medical School: Isfahan University of Medical Science, Iran 1993
- MSc 2002 UBC,
- PhD 2005 UBC
- Residency: UBC General Pathology (2009-2014)

Future Plans: Find a job before retirement



AYESHA VAWDA (HP)

- BSc in Biochemistry Univ. of Victoria 2001-2005
- MD UBC 2005-2009
- HP Residency Training UBC 2009-2014
- June 25-26 going for the fellowship exam to Ottawa: GOOD LUCK AYESHA!
- Hematopathologist at LifeLabs, Burnaby 2014



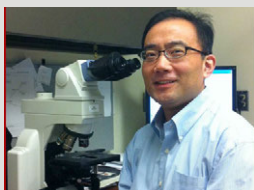
SALWA EL MALTI (FELLOWSHIP)

- Al Arab Medical University in Benghazi, Libya, 1999
- Internal medicine residency 2004
- MSc pathology 2008, Al Arab medical university
- HP Residency Training UBC 2009-2013, UBC
- Fellowship of bone marrow and lymph node pathology 2013-2014, UBC
- Locums at SPH and SPH, July-December 2014



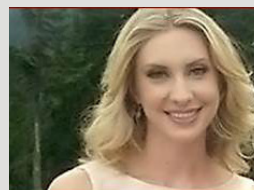
AMANDA WILMER (MM)

- BSc in Pharmacy, UBC, 2005
- MD, UBC, 2009
- Residency in Medical Microbiology 2009-2014



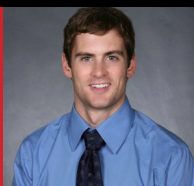
JAMES YU ZHU (FELLOWSHIP)

- Medical School: Nanjing Medical University



KATE O'CONNOR (FELLOWSHIP)

- Gastrointestinal Pathology Fellow Jul 2013 - Jun 2014



The UBC Pathology Atlas

A new UBC developed digital histopathology tool for education and reference

DR. NICK SUNDERLAND
GENERAL PATHOLOGY RESIDENT

In May this year, the division of anatomical pathology and hematopathology officially announced a new educational and reference tool, the UBC Pathology Atlas. This endeavor was initiated after a desire to keep current with trends in digital histopathology, and make more accessible digital images of classic and unusual cases in pathology.

Digital pathology is a term that denotes scanning glass slide based pathology materials, including tissue sections, cytology preparations and specialized stains, using specialized scanning technology to acquire full slide based, high resolution images. These images are stored, and can be used for telepathology (where images are viewed remotely and

opinions given), resident or medical student education sessions, or interesting case conferences, for example.

The atlas currently holds over six hundred unique case studies, with ongoing efforts at annotation and uploading additional material. It also has the capability to generate sessions with user defined number of cases and questions, with response feedback to the administrator. The atlas is an ongoing initiative, and at this time the initial groundwork has been laid. Further development will aim to increase content and annotation, build new options for educational sessions and case conferences, and merge the digital materials available through the DHPLC to create a single image portal. ■

www.gpec.ubc.ca/atlas

Case study: Embryonal Carcinoma (Neoplasia, testis)

Description Slide (1)

Description

Clinical history:

- Age: 15-35 years old (10 years younger than seminoma)
- Rare in infants, children or older than 50
- More common as component of mixed germ cell tumor (GCT)
- Presents with testicular pain
- Serum AFP or HCG may be elevated

Gross description:

- Usually poorly circumscribed
- Often hemorrhagic and necrotic
- Average size: 2.5 cm, smaller than seminoma

Microscopic features:

- Solid, glandular and papillary growth patterns
- Undifferentiated epithelial cells with high grade nuclei, moderate amount of cytoplasm, indistinct cell n
- Syncytial growth with nuclear overlapping, coarse or vesicular chromatin, prominent nucleoli
- Highly mitotic with apoptotic debris
- Frequent vascular and rete testis invasion
- Associated intratubular germ cell neoplasia and intratubular embryonal carcinoma

Ancillary tests:

- Keratin, CD30, Oct3/4, PLAP, SALL4 +ve
- May be HCG or AFP +ve
- EMA, CK20, alpha-inhibin negative

Prognosis/treatment:

- Same treatment as other non-seminomatous GCT
- Surgery +/- chemotherapy depending on stage
- Worst prognosis of all GCTs

Ref: Diagnostic Pathology: Genitourinary

Genetic Pathology Evaluation Centre

Hi, Nick Sunderland

search for case studies

- Hematopathology
 - Bone marrow failure
 - Neoplasia
 - Non-neoplastic conditions
 - Normal bone marrow/blood
 - Parasitic / microorganism infection
- Anatomical pathology
 - Bone and soft tissue
 - Cytology
 - Digestive system
 - Endocrine organs
 - Head and neck
 - Lung, pleura, thymus and heart
 - Mesentery/omentum/serosa
 - Skin
 - Spleen
 - Urinary system and male genital organs

Teaching and QA modules (SOP)

Other teaching modules

Tumours of the urinary system and male genital organs (19)

WHO classification of tumours of the urinary system and male genital organs (2004)

Case study	Disorder	Diagnosis	Description
Balanitis xerotica obliterans (BXO)	Penis	Non-neoplastic conditions, penis	Chronic inflammatory, fibrosing condition of mucous membranes of the penis. Unknown etiology. Other ... [view all]
Chromophobe renal cell carcinoma	Kidney	Neoplasia, kidney	Clinical history: - Adults (avg. 58 years old) - M:F 1.5:1 - Asymptomatic, incidental, unilateral re ... [view all]
Classical Seminoma	Testis and paratesticular tissue	Neoplasia, testis	Clinical history: - Most commonly 35-45 years old, 10 years older than non-seminomatous GCTs - Uncommon ... [view all]
Clear cell renal cell carcinoma	Kidney	Neoplasia, kidney	Clinical history: - Mostly asymptomatic, incidental finding on radiology - Can have hematuria, pain ... [view all]
Cystic Nephroma	Kidney	Neoplasia, kidney	Clinical history: - Adults (30s - 70s) - M:F 1:8 - Incidental finding usually, or abdominal pain, hematuria ... [view all]
Embryonal Carcinoma	Testis and paratesticular tissue	Neoplasia, testis	Clinical history: - Age: 15-35 years old (10 years younger than seminoma) - Rare in infants, children ... [view all]
Epidermoid cyst	Testis and paratesticular tissue	Non-neoplastic conditions, testis	Clinical history: - Adolescents/young adults (10-40 years old) - Painless or painful testicular mass ... [view all]
Leiomyosarcoma	Tumours of the prostate	Neoplasia, prostate	Background STUMP - possible evolution from IHC: desmin+ CD34- AR+, CD117-
Leydig Cell Tumor	Testis and paratesticular tissue	Neoplasia, testis	Clinical history: - Most common testicular sex cord stromal tumor - Bimodal age distribution: 5-10 and ... [view all]
Metastatic signet-ring type adenocarcinoma	Urinary system	Neoplasia, urinary system	Neoplasia, urinary system
MITF/TFE translocation-associated RCC	Kidney	Neoplasia, kidney	Clinical history: - uncommon, mostly in pediatric age group - pediatric cases usually symptomatic with ... [view all]
Papillary Renal Cell Carcinoma	Kidney	Neoplasia, kidney	Clinical history: - Second most common renal cell carcinoma - Adults 3rd to 8th decade - Male > Female ... [view all]
Renal angiolipoma	Kidney	Neoplasia, kidney	Clinical history: - Can be associated with tuberous sclerosis (less than 50%) - Asymptomatic/incidental ... [view all]
Renal oncocytoma	Kidney	Neoplasia, kidney	Clinical history: - usually asymptomatic, detected on radiologic investigations for unrelated symptom ... [view all]
Renomedullary interstitial cell tumour	Kidney	Neoplasia, kidney	Neoplasia, kidney

■ Quenville Invitational 2014

WILLIAM E. SCHREIBER, MD
CONSULTANT PATHOLOGIST
VANCOUVER GENERAL HOSPITAL

This year marked the 20th anniversary of the Quenville Invitational Golf Tournament (QIT), which was held on June 12 at McCleery Golf Course in Vancouver. Three teams comprised of pathologists, residents and one anatomist competed for the green jacket.

The day started under cloudy skies and the threat of rain, but the sun came out halfway through the afternoon and provided perfect conditions for the last 9 holes. Golfers put on an exhibition of soaring drives, pinpoint iron shots and 20-foot putts. In typical fashion the match was settled on the 18th green, when a long putt curved left and into the hole for a birdie and a 1-stroke victory.

After the round, prizes were handed out as the competitors downed several pitchers of beer. The winning team accepted their trophy at the green jacket ceremony, high-fiving one another and smiling for the camera. The QIT organizing committee wishes to thank the residency program directors for supporting resident participation in this event. ■



ON THE 1ST TEE

(L to R) Patrick
Wong, Jim
Darbyshire, Leigh
Lindsay, Tyler
Smith



READY TO RUMBLE

(L to R) Pat Doyle,
Ehsan Davani,
Jenny Davis,
Michael Payne



GREEN JACKET CEREMONY

(L to R) Bill Ovalle,
John English, Wes
Schreiber, Tyler
Verdun

■ Meet the People of Pathology

MATTHEW MILBURN ORDE, MBCHB, FRCPATH, FRCPA, DMJ (PATH), DIP FOR MED (SA), MFFLM, LLDIP, PGDLS, BARRISTER-AT-LAW

FORENSIC PATHOLOGIST AND DISCIPLINE LEAD FOR AUTOPSY PATHOLOGY, VANCOUVER GENERAL HOSPITAL

CLINICAL ASSOCIATE PROFESSOR, DEPARTMENT OF PATHOLOGY AND LABORATORY MEDICINE, UNIVERSITY OF BRITISH COLUMBIA

Matthew was born and raised in Newcastle upon Tyne, England, where he attended the Royal Grammar School. He then read Medicine at the University of Dundee, Scotland, and after graduating undertook 'house jobs' in Newcastle and Dundee. Matthew then commenced specialist training in anatomical pathology at the University of Bristol in south western England, where he held the post of Demonstrator / Honorary Clinical Research Fellow.

cases and involving an incredibly diverse array of methodologies – ranging from 'necklacings' and sjambok beatings to death by way of injection of inorganic compounds at the hands of tribal 'witch doctors' – but most commonly gunshot wounds. After returning to home soil just over a year later, Matthew undertook legal studies at the College of Law and the Inns of Court School of Law, London, culminating in Call to the London Bar (Inner Temple) just after the turn of the



Keen to gain an early taste of forensic pathology, Matthew jumped when offered the opportunity to spend a period training at the then University of Natal Medical School, Durban (now the Nelson R Mandela School of Medicine) in the early post-apartheid South Africa. The experience gained was formative and confirmed a desire to sub-specialise in forensics. In South Africa, Matthew's personal autopsy rate was ca 450 p.a., comprising almost entirely homicide

new millennium. As well as enjoying this period of his life immensely, Matthew still finds that the legal knowledge he acquired both enhances his abilities as a forensic pathologist, and provides for greater enjoyment and confidence when presenting evidence before court. Matthew then completed his specialist training in anatomical pathology with the South Thames Deanery, holding positions at St George's Hospital, London; the William Harvey Hospital, Kent; and

Little known facts about Dr. Orde

the Royal Sussex County Hospital in Brighton. During this period Matthew also held the role of Her Majesty's Assistant Deputy Coroner for the City of Brighton and Hove – an opportunity which necessitated the use of legal skills previously acquired, and which afforded further insight into death investigation from a different perspective. Questioning one's pathology supervisors in the witness box also offered some interesting and memorable moments!

After working for a year as a consultant histo/cytopathologist in a hospital on England's south coast, Matthew and his then new wife left England for Sydney, Australia, where he finally took up work as a whole time forensic pathologist. The plan at the time was for them to spend a couple of years 'down under' – on an extended honeymoon of sorts – but forensic practice over there proved to be rather pleasant in comparison to that in the UK, and married life proved fruitful too, resulting in the birth of three children, and in the blink of an eye the new family had been in Australia for eight years.

When the opportunity arose to work in British Columbia – mindful of the opportunities to enhance both career and leisure interests, as well as being a little closer to grandparents – Matthew upped sticks again, and commenced work in Vancouver in May 2013. Matthew's professional interests include the provision of expert medical evidence to courts of law, medical education, cardiac pathology, traumatic neuropathology, aviation pathology and mass disaster / humanitarian work.

01

Matthew can fly an aeroplane, even in clouds, but when training a rather 'heavy landing' (ahem) resulted in temporary closure of a major UK international airport

02

Has worked in the UK, South Africa, Australia, and Oceania, but has never been to South America or Antarctica

03

Dreams of owning a bicycle shop

Has balloon phobia

04

Cycled from John O'Groats (northern tip of Scotland) to Land's End (south west point of England)

05

Has a 'cow's lick' at the front of his hair, though mercifully this is becoming increasingly unrecognisable due to a receding hairline

06

As a native of Newcastle upon Tyne, England, Matthew is officially a 'Geordie' (and proud of it)

07

Held school colours for clay pigeon shooting and rugby

08

Survived being stung by a jellyfish in Sydney Harbour

09

Now he is living in Canada he is learning to ski and skate, though admittedly with limited success at present

10

Is the son of a publican and a teacher

11

Enjoys windsurfing when family commitments permit

12

Broke his leg on his first attempt at skiing during a school outing at a dry ski slope in northern England

13

Once narrowly escaped death when mugged by a pack of savage knife-wielding and gun-toting 'rascals' in Papua New Guinea

14

Was the British Schools side-by-side clay pigeon shooting champion

15

Is married to Kathryn and has three children aged 6, 4, and 2 years old

... JUST FOR FUN

1. TELL US SOMETHING YOU ARE PASSIONATE ABOUT AND WHY?

Death investigation. Determination of the cause and manner of death impacts upon many, not least family members, medical personnel, the criminal justice system, but also the community at large. The forensic pathologist and Coroner working together can, and should, help to prevent future fatalities of a similar nature to those under investigation.

2. DO YOU DEFINE YOURSELF BASED MAINLY ON YOUR INTENTIONS, YOUR ACTIONS, OR SOMETHING ELSE?

For good or for bad, I believe that we are 'defined' as how we are perceived by others, rather than how we see and attempt to portray ourselves.

3. WHAT IS THE ONE THING YOU'D MOST LIKE TO CHANGE ABOUT THE WORLD?

A true appreciation of the value of life, including of those not known to us personally... and the finality of death.

4. DO YOU BELIEVE IN LUCK?

No. (Touch wood.)

5. DO PEOPLE REALLY GET ANY WISER AS THEY GET OLDER?

Again (see answer to question 2, above), it's all about perception and one's perspective. On one hand: yes, of course, with experience people gain wisdom; but on the other hand: we disregard the hopes and aspirations of the youth at our peril.

6. YOU CAN GIVE ONE OBJECT (THE SAME OBJECT) TO EVERYONE IN THE WORLD. WHAT IS IT, AND WHY?

A postage stamp - encourage communication between people....

7. IF YOU HAD TO WORK ON ONLY ONE PROJECT FOR THE NEXT YEAR, WHAT WOULD IT BE?

The commonest cause of death in the western world, and perhaps the most overlooked and 'under-respected' pathological condition: atherosclerosis - its cause(s) and pathogenesis.

8. WHEN YOU HAVE 30 MINUTES OF FREE-TIME, HOW DO YOU PASS THE TIME?

If I'm not allowed to go to sleep, play with my children.

9. GIVEN THE CHOICE OF ANYONE IN THE WORLD, WHOM WOULD YOU WANT AS A DINNER GUEST?

The majority of my dinner party guests would comprise friends and family members. In addition I would invite a smattering of interesting guests and after-dinner speakers, including (and assuming that invitees could include those who have died): Muhammad Ali, JFK (we could compare his wounds with the autopsy report), Peter Beardsley (Newcastle United legend and one time Vancouver Whitecaps player), Nelson Mandela, Tommy Cooper, Freddy Mercury, Abraham, and the Unknown Soldier.

10. WHAT WOULD CONSTITUTE A PERFECT DAY FOR YOU?

Breakfast in bed with my wife served by our children (but not spilled on the stairs and trodden into the carpet, and without injury), followed by a round of golf and lunch with friends, beach-time with my wife and children, grandparents to attend to the children's bed time, and then a long and leisurely dinner at a country hotel with family and friends (and maybe a mystery guest or two - see answer to preceding question!). ■



Samantha Hansford

Samantha Hansford

successfully defended her Master's thesis, title: "Genetics of Familial Gastric Cancer: Beyond E-Cadherin (CDH1) Locus" and celebrated with a trip to the Galapagos Islands to treat people.



Ride to Conquer Cancer

David Huntsman and C. Blake Gilks

participated in the Ride to Conquer Cancer, along with 70+ other riders in Team OVCARE and raised over \$200,000 for ovarian cancer research.

Outstanding Oral Presentations

Melissa McConechy (PhD candidate) and **Anthony Karnezis** (MD, PhD) won the awards for best trainee presentations at the recent Canadian Conference for Ovarian Cancer Research held in Victoria. ■

■ Pathology Day 2014

PATHOLOGY DAY WAS ANOTHER TERRIFIC SUCCESS THIS YEAR, BRINGING TOGETHER STUDENTS, STAFF, FELLOWS AND FACULTY AT THE PAETZOLD EDUCATION CENTRE AT VANCOUVER GENERAL HOSPITAL

James Hogg Lecture

Dr. Mike Allard introduced the day and our James Hogg lecturer, **Dr. Jiri Frohlich**. Dr. Frohlich has dedicated his career to the continually advancing and clinically topical field of lipoprotein metabolism.

Drawing on his vast experience he gave an excellent talk entitled, *“Familial Hypercholesteremia: From understanding the pathogenesis to effective treatment to B.C. and Canadian registry.”*

Dr. Frohlich's lecture was very well received and generated thoughtful questions and discussion from the audience.



Guest Speakers

Following on its introduction last year, Pathology Day 2014 showcased three local Faculty and their research:



Dr. Dana Devine discussed historical and current political and scientific issues in *“Canada's Blood Supply: A journey towards blood safety”*.



Dr. Poul Sorensen shared his recent work towards better understanding cancer through molecular investigations with *“Selective mRNA translation and the tumor cell stress response”*.

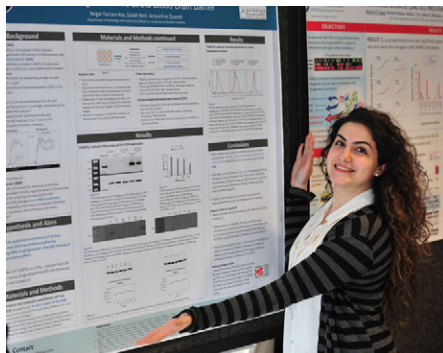


Dr. Bruce Verchere discussed important work on the current understanding of *“Amyloid and inflammation in diabetes”*.

Oral & Poster Presentations

Over 60 abstracts were submitted highlighting the breadth of research topics throughout the department; from these a number were selected for presentation in either the Resident or Graduate Student Oral Platform Sessions that took place concurrently. Although the weather was unpredictable in the morning, the sun did shine at the right time allowing attendants, at both the poster session and accompanying luncheon, to utilize the Medical Student Alumni Centre court yard for networking and catching up with the people for social and scientific discussion.

More than 160 departmental members participated in the sessions, demonstrating once again that Pathology Day truly is a terrific occasion to experience the caliber and diversity of research taking place throughout our department, both at the most junior and established research levels. Shining the spotlight on our local best and brightest allows us to see the high quality of research that is taking place in our own backyard, raising the bar for all of us; we look forward to including more departmental members for these sessions in the future, as a means to introduce junior faculty and re-introduce our more established researchers and their achievements to our growing department.



Keynote Lecture

The Keynote address “How old is atherosclerosis? The Horus study of mummies across 4000 years.” was given by **Dr. Randall Thompson**, Consulting Cardiologist, University of Missouri School of Medicine Kansas City, Missouri.

His riveting tale of the initial discovery and subsequent imaging investigations of calcific vascular disease in Egyptian and Peruvian mummies, while channelling “Indiana Jones”, was extremely well received with attendees spanning several departments and faculties at UBC.



Reception & Awards Ceremony

Pathology Day concluded with a well-attended reception back at the Medical Student Alumni Centre. Lovely music by Esprit filled the air while department members mingled over delicious appetizers and cocktails. The evening was interspersed with some fabulous draw prizes and a variety of awards.



MS. CLARA WESTWELL-ROPER

Dutkevich Memorial Trust Graduate Student Seminar award for the best Graduate Student Seminar presentation as judged by peers



TRAINEE AWARD RECIPIENTS INCLUDED:

Resident Oral Platform Presentations:



DR. SOPHIA WONG

1st. 'Identification and quantification of insulin analogues by immunocapture coupled with liquid chromatography-tandem mass spectrometry' **Supervisor: Dr. Daniel T. Holmes**



DR. HABIB RAZAVI

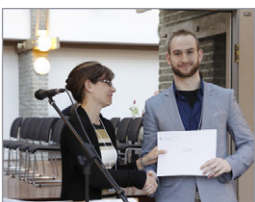
2nd. 'Linking testing-to-clinical goals - A risk stratified process re-design scheme towards improving manual blood film review (MBFR) services in a large tertiary hospital laboratory'
Supervisor: Dr. David Pi



DR. SUSANNA ZACHARA

3rd. “The accuracy of subclassifying poorly differentiated non-small cell lung carcinoma biopsies with commonly used lung carcinoma markers’ **Supervisor: Dr. Andrew Churg**

Graduate Student Oral Platform Presentations:



MR. JESSE OLSEN

1st. ‘Developmental exposure to maternal folic acid and vitamin B12 imbalance programs pancreatic islet mafa expression and glucose tolerance in female offspring mice’ **Supervisor:**
Dr. Angela Devlin



MR. ALISTAIR CHENERY

2nd. 'Overlapping mucosal immunity: regulation of allergic lung inflammation by intestinal whipworms' **Supervisor: Colby Zaph**



MR. ANTHONY HSIEH

3rd. ‘Measuring the effects of chronic HIV infection and other clinical modulators on cellular aging in senescent cytotoxic T cells’
Supervisor: Dr. H  l  ne C  t  

Graduate Student Poster Presentation Awards:



MR. TOM CHENG

‘Biomechanical and functional characterization of CHIMERA: A novel closed-head impact model of engineered rotational acceleration’
Supervisor: Dr. Cheryl Wellington



MR. FRANK LEE

‘Modified clotting factor Xa: dissecting a novel “clot-buster”’
Supervisor: Dr. Edward Prydzial



MR. JON OBST

‘Chronic exposure to EPI-002 may select for resistant clones in prostate cancer’
Supervisor: Dr. Marianne Sadar



MS. JUNYAN SHI

‘Disrupted selective autophagy in enteroviral-induced myocarditis’
Supervisor: Dr. Honglin Luo

THE FOLLOWING FACULTY AND STAFF WERE RECOGNIZED FOR THEIR CONTRIBUTIONS TO OUR DEPARTMENT:



DR. HÉLÈNE CÔTÉ

Most Valuable Player



DR. DON BROOKS

David Hardwick Lifetime Achievement



DR. CHRISTIAN STEIDL

Early Career Excellence in Research and Discovery



DR. POUL SORENSEN

Excellence in Research and Discovery



DR. KEVIN BENNEWITH

Excellence in Education



DR. SUZANNE VERCAUTEREN

Excellence in Service



MS. SULTANA MITHANI

Staff Service Award in the Technologist/Technician Category



MS. ALEYA ABDULLA

Staff Service Award in the Administration Category

ANNUAL EVENT PATHOLOGY DAY cont'd

Finally, a number of department members were recognized for their long-standing service to the university: Dr. Edward Jones (25 years), Dr. Katerina Dorovini-Zis (25 years), Dr. Nevio Cimolai (25 years), Dr. Sean Byrne (25 years), Dr. Jiri Frohlich (40 years) and Dr. James Hudson (45 years).

Once again, the success of the day was largely attributable to the time and expertise offered by faculty and staff. Pathology Day is a team effort and we would like to extend our thanks to everyone who contributed to the 2014 edition. Andrew Leung oversaw all of the posters and took photographs, Debbie Bertanjoli and Dmitry Turbin also took photographs, Jenny Tai, Jennifer Xenakis ensured the A/V worked for the lecture's and presentations, JieJi Sun was the floater, Helen Dyck manned the registration table, and Aleya Abdulla the Awards registration. Gayla Johnson and Adeline Chan were instrumental in handling the administrative and practical details of Pathology Day. Debbie Bertanjoli designed and managed the website tools in addition to preparing the abstract book.

We also wish to express our gratitude to faculty members who contributed their time and expertise to reviewing abstracts, moderating the oral sessions, and judging the oral and poster presentations. This year these include: Mike Allard, Kevin Bennewith, Cedric Carter, Hélène Côté, Doug Filipenko, David Granville, Diana Ionescu, Maria Issa, Karuna Karunakaran, Corree Laule, Anna Lee, Nikita Makretsov, Hamid Masoudi, Deborah McFadden, Vicky Monsalve, Torsten Nielsen, Mike Nimmo, Avi Ostry, Jacqueline Quandt, David Schaeffer, Mike Seidman, Brian Skinnider, Decheng Yang, and Colby Zaph. Finally, sincere thanks to staff who kindly assisted with technical and administrative support throughout the day and our photographers: Aleya Abdulla, Debbie Bertanjoli, Helen Dyck, Gayla Johnson, Andrew Leung, Juliana Li, Sarah O'Neil, JJ Sun, Jenny Tai, Dmitry Turbin, and Jennifer Xenakis. We look forward to both increased faculty attendance and new opportunities to showcase the expertise and successes of our departmental members for Pathology Day 2015. Mark your calendars for May 22, 2015. ■

**Jacqueline Quandt, Corree Laule, Mike Allard and Avi Ostry,
Co-Chairs of Pathology Day 2014**

We are extremely grateful to all those who volunteered to serve as abstract reviewers and judges; without their participation recognition of presentations of special merit would not be possible.



■ Creating an Environment Where Research (and Researchers) Can Thrive

DR. MARTIN WALE, MBA

DEPUTY CHIEF MEDICAL OFFICER, &
EXECUTIVE MEDICAL DIRECTOR, MEDICAL AFFAIRS & RESEARCH, ISLAND HEALTH
ASSOCIATE PROFESSOR, UNIVERSITY OF BRITISH COLUMBIA

I've been asked, as a new and somewhat atypical member of the UBC Department, to write something to introduce myself, and explain what I bring to the party.

I qualified in medicine from Nottingham University, in the English East Midlands. I'm a UK-trained medical microbiologist, also UK-accredited in public health, and I've been in Canada for 5 years. I spent my early medical career as a Commando Medical Officer in the Royal Marines, before joining the Public Health Laboratory Service (PHLS) for England & Wales, which later became the Health Protection Agency. I started as a Consultant in Microbiology and Communicable Disease Control at Southampton University Hospitals, with an honorary appointment at Southampton University, in 1991. Part of the job was working as a hospital-based microbiologist with a particular focus on neurosurgical infections; the other half was investigating & managing communicable disease outbreaks in the community.

I was headhunted from Southampton to start a new Regional Epidemiology service, based in Nottingham, delivering communicable disease control services to 4.2 million people over 5 counties. Once this was established, I added a national (English) role in surveillance of antimicrobial resistance, establishing AmSSU (the Antimicrobial Susceptibility Surveillance Unit) alongside the Regional Epidemiology unit. I became the UK epidemiologist for the foundation of EARSS, the European Antimicrobial Resistance Surveillance System. My own research interests paralleled this, leading to a unique appointment as Special Professor of Microbial Disease Epidemiology at both the Medical and Veterinary Schools at Nottingham University, reflecting the importance in human microbiology and epidemiology ☺



THE SERVICE DIMENSION OF ACADEMIC ACTIVITY IS NOT ABOUT WASTING A LIFE IN LONG AND BORING MEETINGS (ALTHOUGH SOME ARE INEVITABLE). IT'S ABOUT CREATING THE ENVIRONMENT AND OPPORTUNITIES FOR STAR PLAYERS TO DO AMAZING THINGS

of antibiotic usage and resistance in animals.

The PHLS was absorbed into the Health Protection Agency (HPA) in 2003, adding responsibilities for chemical and radiation hazards and health emergency planning, and giving me a more managerial role as Regional Director. I added another national portfolio, namely a role in the UK response to “deliberate release” of biological, chemical or radioactive materials, linking my military connections into my civilian job (I had continued to serve in the Reserve Forces). I ran several highly successful explosives-awareness courses for HPA medical staff, some of whom found themselves working in the aftermath of the London bombings and other terrorist incidents. I also began working for my Masters in Business Administration, at Nottingham University Business School (one of the UK's top 6 business schools) seeking additional skills and understanding of this component of my role.

One of the most successful achievements from my years in Nottingham was the creation of the Institute of Population Health (IPH), at Nottingham University, particularly since this arose from a crisis meeting with the Medical School Dean. An opportunity presented itself, and instead of me withdrawing funding from the University, we built an agreement to match funding and build an Institute, something neither organization could have done alone at that time. Within three years the IPH had become a WHO collaborating centre, recognized as a “National Treasure” for public health training.

By 2008 I had been at the HPA for five years, and was looking for a new challenge.

I applied for a new role as Fellow of the NHS Institute for Innovation and Improvement, with a project proposal on novel strategies for managing *Clostridium difficile*. I was successful, resulting in me being seconded to the Institute as one of four inaugural Fellows.

The NHS Institute was a small organization (317 employees) tasked with producing system-wide improvement across the whole English NHS. This was a remarkable time. My induction included the IHI Patient Safety Executive Course, and we worked across the country, studying the most difficult front-line challenges in acute care, and working as part of a Department of Health team supporting hospitals experiencing major challenges with outbreaks of infection and other problems. My MBA project was on knowledge management at the NHS Institute, and was awarded Distinction.

My secondment was for 12 months, but I found myself having too much fun, so extended it by a further 3 months. Then an opportunity came up for a further secondment from the Institute, as Medical Director (the UK equivalent of Chief Medical Officer and Executive VP of Medicine), joining the Executive Team at a large multi-site Acute Hospital Trust facing substantial operational and financial challenges.

A friend asked me, on hearing where I was going, why I wanted to work in a place characterized by “20 years of bitterness, enmity and neglect”. But the Trust was not entirely as portrayed. There were many long-standing and intractable problems, but for the most part the staff, physicians, and management were sound, caring, and deeply demoralized. A new, externally-mandated improvement

initiative landed about every two weeks, in a system which had long-since exhausted its capacity to respond. My carefully developed skills in improvement and quality just bounced off.

After four months we had a wrong-side surgery – a “must never happen” event – in ophthalmology. I commissioned an investigation to determine what happened and prevent it from happening again. This became the first of nine investigations I commissioned over the next year. I thought I'd have no friends, but as we started to address long-standing and entrenched problems in a consistent and fair way, the response from physicians, staff and managers was overwhelmingly positive – “At last someone's doing something.”

I was recruited from that job to Island Health (then Vancouver Island Health Authority), working initially on long-standing problems in infection control, then quality & patient safety, then moving into building research capacity, then into Medical Affairs.

In infection control, when I arrived the organization was plagued by recurrent and intractable outbreaks of *Clostridium difficile* and Vancomycin Resistant Enterococci (VRE). Foundational work at a small site led to the development of a “risk-based model” for infection control, focusing attention and resources on patients posing a high transmission risk. A large *C. difficile* outbreak (48 cases, 4 deaths, over 24 weeks) at Nanaimo Regional General Hospital provided the perfect opportunity to introduce the model. It brought the outbreak to a close in less than 2 weeks, and has broken the pattern of recurrent outbreaks.

Since 2011 I've been leading on building

research capacity at Island Health and on Vancouver Island, aided by the very capable and dynamic Cindy Trytten. Rather than building capacity around established research stars (who then get seduced off to the Ottawa Heart Institute or wherever), we asked the question “What’s special about us?” The answer has three main parts:

- the Island itself, a stable, moated community including First Nations people, which is Canada’s retirement destination of choice
- has a single secondary and tertiary healthcare provider with a commitment to a single cradle-to-grave electronic health record, and
- our Island partners, particularly academic institutions including the Island Medical Program of the UBC Faculty of Medicine and the University of Victoria

We’ve built in a way that has fostered these important areas, with a focus on research in elder care, mental health & addictions, First Nations health, and health services research. One of the first and most successful things we did was to fund Summer Student Research Projects, thus supporting both new researchers and their supervisors – this program continues. We were also fortunate in being successful competing for a \$9.7m Genome Canada contract to study proteomics in diagnosis of TIA and early stroke – the first time that such a contract has been awarded to a health authority-led project.

I’ve recently been appointed as an Associate Professor, Partner Track. The partner appointment category is a new addition to the professoriate stream

at UBC and is intended for individuals (physicians and others) employed by organizations external to UBC (e.g., a health authority). These individuals are held to the same expectations of all UBC faculty members and make contribution in the three dimensions of academic activity – research, teaching, and service. The health authority pays the salary – so in practice, this can be considered health authority investment in UBC. Research and teaching are obvious contributions (the 25 hours minimum teaching requirement also applies to these roles), but the service dimension is less well understood. A search for “academic activity” on the UBC website finds lots of material about research (and research integrity), and some about teaching, but almost no mention of service, so this deserves further exploration.

Over the last decade or so, models for successful research have evolved. Partly driven by funders seeking to assure return on investment, most high-end medical researchers now work in teams, where differentiation of function allows more efficient utilization of valuable intellectual and physical resources, access to larger numbers of patients (hence more power and faster results), and more resilience. This trend continues, and increasingly those teams bring together inputs from centres across a country or internationally. The lone researcher is a thing of the past, and today’s most successful researchers are good leaders. The same business-fuelled revolution is also starting to drive major change in teaching (see <http://econ.st/1SDIvy>).

Recognition of this trend – funder-driven efficiency driving differentiation of function – is the reason why the service

component of academic activity offers UBC potential value much in excess of merely enhanced relations with health authorities, and why UBC’s recognition of the service dimension is so foresighted. For example, alliances and partnerships are notoriously difficult management models, needing expert leadership and support for both creation and maintenance. A World-class, figurehead researcher may not have these skills, and it does not make sense for such an individual to try to develop them to the level required. This is where a high-level, supporting, facilitating, translational leader fits in. This is the “service” skillset I bring to the Partner Appointment. At this time, my main contribution is in building opportunities for effective, flexible, game-changing collaboration, with Island Health and other potential partners.

The service dimension of academic activity is not about wasting a life in long and boring meetings (although some are inevitable). It’s about creating the environment and opportunities for star players to do amazing things. ■



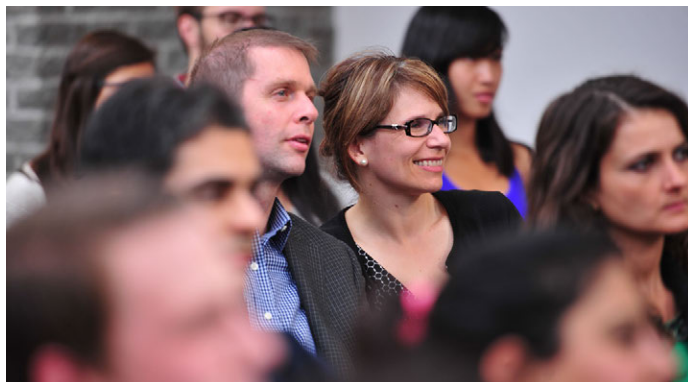
Pathology Arts Gala

Med Undergrad Building – somewhere near VGH – on a summer evening

FROM YOUR LOCAL CORRESPONDENT AT THE “ART IN SCIENCE”
DR. MARIA ISSA, PHD, CLINICAL ASSOCIATE PROFESSOR, UBC
 DIRECTOR, PATHOLOGY EDUCATION CENTRE

*“GALA” IS AN UNDERSTATEMENT.
 WHAT? YOU MISSED IT...?*

Well, you shouldn’t have! Plan to attend next year as this event gets better and better! Last year, I was convinced it had reached the top - but no! – this year surpassed the previous!

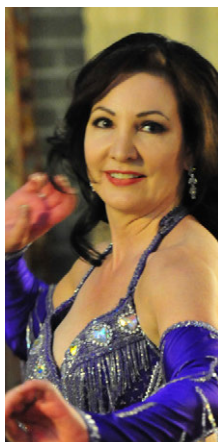


Rhythmic battle between the Verchere Tappers and the Wellington Zills

Before we get into the details – be aware of a challenge issued: Next year there is to be a rhythmic battle between the Verchere Tappers and the Wellington Zills. I would humbly suggest that anyone with rhythmic aspirations, talents, instruments and abilities to make noise – take up the gauntlet and match wits and beats with the challengers. We await with bated breath...

Executive summary:

Stellar cast, works of art, intrepid logistics team, charismatic MCs, enthusiastic audience and ...fabulous food (chocolate fountain!!! – traces on faces) and money for Arts Umbrella. How good does it get?



This is how the event unrolled:

Before the show and during the intermission, we feasted our tummies on yummy treats and our eyes on delightful paintings, some stunning photography and this year, for the first time, weaving! There are some clever hands among us! – This is where I issue my challenge for next year – can't let the performing artists have all the fun. Visual arts people – exhibit your art next year – and I will arrange for a prize, and a year's public display at the Pathology Education Centre, for the most popular entry. The winner will be decided by those attending next year's Arts in Science.

Visual arts people



Exhibit your art next year – and I will arrange for a prize, and a year's public display at the Pathology Education Centre, for the most popular entry.

Now for the performers. Our gracious hosts, Aleya and Bruce presented us with a stellar cast:

And, this is the point where I get to pick my favourites – comes with the territory – but it's a tough call this year. I'm giving equal kudos to Tissa Rahim music and Cheryl Wellington's dance solos. I love dance, so I'm biased, but Tissa's beautiful voice and guitar accompaniment blew me away. But then – I also loved the tap dancers – Verchere gen-1 and gen-2: lots of talent there – musical and dance! We will get to watch as they storm the musical theatre world. Anthony and Shawna's duet was a great artistic collaboration – as were the classical musicians – the perfect sounds for a summer evening. Jenn and Paul and Jacques carried us on summer winds, Paul and Kevin's music swirled into the sunset and Kevin's million notes swelled to a hurricane in the night.

So what happened to the other half of Dr. Hardwick's (I think it must have been a) guitar...?

The bottom half disappeared! We sang along anyway – and somehow it all came together.

The surprise for the evening was Arts Umbrella's Ian Del Rio Wheatley who did an emotional monologue from Tornado by Judith Thompson. Nicely done, Ian! And did I mention that between the tickets and the raffle we supported Arts Umbrella? So besides being a fun-filled event – we actually did some good – the perfect combo! ■



I get to pick my favourites

I love dance, so I'm biased, but Tissa's beautiful voice and guitar accompaniment blew me away.



Book for next year

It's going to be exciting!

Our Department would like to formally welcome an outstanding group of faculty members who arrived on campus in Summer/Fall 2014



KARLA BRETHERICK, PHD

Clinical Assistant Professor

My research career has focused on identifying and understanding genetic variants that contribute to common complex diseases including Diabetes, infertility and cancer. I obtained my PhD from the UBC Department of Medical Genetics in the Interdisciplinary Women's Reproductive Health Training Program at the Child and Family Research Institute. The focus of my thesis was examining molecular and cytogenetic factors that contribute to Premature Ovarian Failure. I then completed a postdoctoral fellowship in the Genome Sciences Centre at the BC Cancer Agency. There I investigated the functional role of a genetic variant associated with non-Hodgkin Lymphoma and used next generation sequencing technologies to identify genetic variants in families with multiple cases of lymphoid cancer or other rare diseases. In my current position as a research and development scientist I am responsible for implementing and validating new molecular assays for clinical genetic testing.

In my spare time I enjoy exploring Vancouver and spending time in the outdoors with my family.



DEBJIT KHAN, PHD

PDF; SUPERVISOR: Dr. Poul Sorensen

I joined Prof. Poul Sorensen's group at the BCCRC in May for intensive training in molecular oncology. My proximate aim is to understand the mechanistic details and perturbations in control and function of RNA-binding proteins that not only regulate translation but possess myriad other functions in cellular processes. I am using pediatric tumors as model systems to address these questions. Before joining UBC as a PDF, I completed my PhD the Department of Microbiology and Cell Biology at the Indian Institute of Science, where I had worked on translational control of p53 mRNA.

I enjoy watching movies, listening to music and at times, hitting the pub with colleagues after a hard day's work! I am an avid fan of cricket, which sadly I don't get enough of now. During our stay, my wife and I look forward to explore Vancouver's pristine outdoors and enjoy its cultural and culinary mosaic.



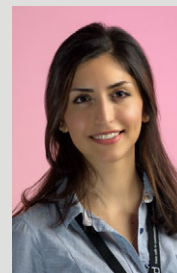
AMAL M. EL-NAGGAR, MBChB, MSc, MD, PhD

PDF; SUPERVISOR: Dr. Poul Sorensen

I am a medical pathologist. I completed my medical school and obtained my medical degree, with honours standing, from Monofyia University, Egypt in 1999. Thereafter, I joined the Pathology Department at the Faculty of Medicine, in Egypt where I did 5 year residency training and obtained my Master's degree, with honours, at Menoufyia University, Egypt in 2005, and worked as assistant lecturer of Pathology in the same department for an additional three years. In 2008, I was awarded a prestigious,

highly competitive, 4-year Egyptian government scholarship for a PhD in bone disease at the University of British Columbia. The focus of my thesis was to study the potential roles of the Y Box Binding Protein 1 (YB-1) in progression of sarcomas which are a diverse group of malignant neoplasms affecting bone and soft tissues of which are characterized by early metastatic spread, aggressive behavior, and poor prognosis. Supervised by a pioneer professor in the field of childhood tumors; Dr. Poul Sorensen, I identified potential roles for YB-1 in sarcomas and I did characterize a novel signaling pathway downstream of YB-1 involving hypoxia inducible factor 1 alpha (HIF1 α) which may represent a very promising therapeutic approach in the treatment of sarcomas. Following graduation in 2013, I continue working with Dr. Sorensen, and currently, I am investigating the role of YB-1 in developmental and tumor angiogenesis and testing the impact of different HIF1 α inhibitors on sarcoma progression +/- YB-1 knockdown.

I enjoy playing with my amazing son Abdalrahman - my best friend and my biggest supporter; reading (I am a big fan of Charles Dickens books), making new friends, writing poetry, listening to classical music, and watching fiction and historical movies.



**AZADEH HOSSEINI-TABATABAEI,
PHARM D PHD**

PDF; SUPERVISOR: Dr. Bruce Verchere

I joined Dr. Bruce Verchere's lab at the Child & Family Research Institute as a post-doctoral fellow in January 2014, funded by a fellowship from the Juvenile Diabetes Research Foundation. My research focuses on manipulating beta cell metabolism to prevent autoimmune diabetes and islet transplant rejection.

Prior to moving to Vancouver in 2009 to pursue a PhD in Experimental Medicine at UBC, I obtained a PharmD degree from Tehran University of Medical Sciences. My PharmD research aimed to understand the role of oxidative and nitrosative stress in the pathogenesis of diabetes and inflammatory bowel disease. During my PhD studies, I focused on improving islet

transplantation outcome using a bioengineered scaffold equipped with an immunomodulatory factor, and investigated mechanisms underlying impaired immunological tolerance in diabetes.

My favorite activities are yoga, hiking, swimming and travelling. I am a huge fan of music, art, nature, soccer and anything leading to personal and social growth.



DAVIDE SALINA, MD, PHD, FRCPC

Clinical Assistant Professor

I am a practicing anatomic pathologist with interests in nongynecological cytology and genitourinary pathology. I completed my PhD degree in Cancer Cell Biology at the University of Calgary and was a visiting scholar at University of Florida, in 2003. My medical school degree was completed at the University of Calgary in 2006. I completed my residency in anatomic pathology at UofC in 2012. I completed a Cytopathology fellowship at MD Anderson Cancer Center in Houston Texas in 2013. During my residency and fellowship, I became interested in neutrophil cell biology and the role of tumour infiltrating neutrophils that promote cancer progression in renal cell carcinoma patients and other cancers.

Currently, I am involved in some collaborative basic science research projects focusing on cancer and inflammation at the BCCA Deeley Research Center in Victoria and also with clinical collaborative projects through UBC Internal Medicine. I am also involved in directing the image guided fine needle aspiration service, fine needle aspiration clinic and in directing the quality assurance of our Cytology division. I also teach pathology to undergraduates at the University of Victoria, Island Medical Program and look forward to hosting rotating UBC pathology residents wishing to gain additional exposure to nongynecological cytology, performance and interpretation of fine needle aspirations and genitourinary pathology.

With my wife Amy, we are raising two beautiful energetic daughters and are about to welcome a third. We enjoy many outdoors activities in Victoria such as camping, fishing, and hiking. I am also a sports fan; especially of soccer and hockey.



BO RAFN, PHD, MSC

PDF; SUPERVISOR: Dr. Poul Sorensen

I have a background as a biological and chemical research technician, working for two years at the Danish diabetes health care company Novo Nordisk A/S. During this work I became inspired to do independent research and started studying Biochemistry. I obtained both my M.Sc. and Ph.D. at the Danish Cancer Society Research Center and University of Copenhagen, Denmark. Thus far my research focus has been on aberrant receptor tyrosine kinase (RTK) signaling with a special emphasis on invasive ErbB2 signaling transduction pathways in breast and ovarian cancers. In April 2014 I joined Dr. Poul Sorensen's group in Molecular Oncology at the BCCRC on a project based on the hypothesis that reactive oxygen species (ROS) is instrumental for transformation by oncogenic RTKs, and that the RTK-driven ROS generation is tightly regulated through specific signaling events.

Besides my work I enjoy spending time with my wife and little daughter. I often listen to music and do physical exercise like hiking, running and playing different kinds of racket sports.



ANILKUMAR PARAMBATH, PHD

PDF SUPERVISOR: Dr. Jay Kizhakkedathu

A chemist working on the development of novel materials for applications in biology and medicine, I pursued Chemistry for my Bachelor's and Master's degree at the University of Calicut, Kerala. My doctoral research was on the development of supramolecular templates for fine tuning nanostructures of electrically conducting polymers carried out

in the laboratory of Prof. M. Jayakannan at the National Institute for Interdisciplinary Science and Technology (NIIST), Trivandrum, Kerala. Subsequently, I moved to the laboratory of Prof. Y.-P. Sun at Clemson University, USA for studying the chemistry of carbon nanostructures. After spending two years at Clemson, I joined the research group of Dr. E. Doris at Institute of Biology and Technology, Commissariat à l'Énergie Atomique (CEA), Saclay, France and worked on the development of therapeutic nanomicelles. Currently I have joined the laboratory of Associate Professor J. N. Kizhakkedathu at Department of Pathology and Lab Medicine. At UBC my work involves the development of new polymer systems for applications in proteomics and smart catheters development. My research interests are in the areas of polymer chemistry, materials chemistry and nanoscience. As a part of my research activities I have published 26 research papers and one book chapter.

In spare time I enjoy watching movies, listening to music and reading.



BING WANG, MD, PHD, FRCPC, ABMM

Clinical Instructor

I am excited to join the Department of Pathology and Laboratory Medicine as a medical microbiologist. I received my MD and PhD from Sichuan University, China, and completed residency in University of Ottawa, Ontario. I am currently working in the Interior Health microbiology service and Infection Control based at Kelowna General Hospital. My research interests include Utilization of advanced technology to improve the quality of microbiology service and yeast susceptibility. I am involved in teaching medical students and supervising student research projects. I look forward to working with my colleagues in the Department of Pathology and Laboratory Medicine in the future.

Outside of work, I enjoy spending time with my family and hiking in beautiful BC. I like to read my favorite novels in my backyard with Okanagan Lake and the Kelowna Mountain in the background.



CHRISTOPHER LOWE, MSC, MD, FRCPC

Clinical Assistant Professor

I am a Medical Microbiologist and Infection Prevention and Control Physician at Providence Health Care. I completed my medical school training at UBC and residency in Medical Microbiology at the University of Toronto. I also earned an MSc in the Department of Laboratory Medicine and Pathobiology (University of Toronto). My thesis focused on the changing epidemiology of ESBL-producing Enterobacteriaceae, and the effectiveness of admission screening for these multidrug resistant organisms. My current research interests include antiviral resistance testing for hepatitis B and methods for the prevention of hospital associated infections.

In my free time, I enjoy playing ultimate, golfing and watching just about any sport.



OLGA KUTOVAYA, PHD

PDF; SUPERVISOR: Dr. Christian Steidl

I am a postdoctoral fellow studying somatic gene mutations in mantle cell lymphoma. My work involves the development of in-vitro and in-vivo gene mutation model systems to characterize mutation-associated phenotypes. These model systems will be used to test the efficacy of conventional and targeted therapeutic approaches.

After completing my PhD at Bowling Green State University (USA) studying gene regulation

in cyanobacteria, I worked at Environment Canada developing assays for detecting microbial secondary metabolites and bacterial contaminants in water. A native of Russia, I was trained as an Engineer-Biotechnologist at the St. Petersburg State Institute of Technology before being selected for a PhD program in the United States.

My primary research approach is based in molecular biology, with a solid grounding in microbiology and cell culturing. I greatly value opportunities to communicate, collaborate, teach, and learn. I currently volunteer with the Leukemia & Lymphoma Society of Canada and enthusiastically attend ballet classes.



WILLIAM WALLACE LOCKWOOD, PHD

Assistant Professor

I was born and raised in Kamloops, BC. I obtained my PhD from the University of British Columbia and trained with the lung cancer research group at BC Cancer Research Centre where I worked on characterizing the genetic mechanisms underlying the development of different lung cancer subtypes.

I pursued postdoctoral studies as a CIHR Jean-Francois St. Dennis Fellow in Cancer Research in the laboratory of Nobel laureate Dr. Harold Varmus, first at Memorial Sloan-Kettering Cancer Center, New York, and later at the National Human Genome Research Institute in Bethesda. There, I focused on utilizing mouse models of lung cancer to study mechanisms of lung cancer initiation, progression and response to therapy and identifying novel therapeutics for lung cancer treatment.

I returned to the BC Cancer Agency to begin my own research group in 2014 with a focus on understanding lung cancer biology using integrative genomics approaches and I am currently a Michael Smith Foundation for Health Research Scholar and Scientist in the Integrative Oncology Department.



JUN HOU, PHD

Visiting Scholar, Centre for Heart & Lung Innovation, St. Paul's Hospital

I completed my PhD in Pharmacology at the Third Military Medical University (China) in 2011. Since then, I have been working as a pharmacist in the department of pharmacy at Chengdu Military General Hospital to investigate the effect of drugs on the molecular mechanisms underlying cardiovascular disease. My current research focus on the mechanism of autophagy in dilated cardiomyopathy, most recently working with Dr. Honglin Luo on enterovirus-induced heart disease to define the autophagy and host signaling mechanisms in virus-induced myocarditis. The last few months have been a very exciting learning experience, and I am thrilled to be working in a multidisciplinary and collaborative scientific environment.

Outside of work, I enjoy shopping, the outdoors, and listening to music.



LI WANG, MD, MSC, FRCPC

Clinical Instructor

I obtained my MD from the China Medical University. After completing residency in Medical Biochemistry at McMaster University in 2013, I joined the BC Children's and Women's Hospital as a Medical Biochemist. Besides clinical services and teaching, I also conduct research focusing on developing new laboratory markers for pediatric and obstetrical diseases. I received the 2014 CFRI Clinical & Translational Research Seed Grant on "Evaluation of the role of maternal tryptophan and kynurenine pathway metabolites in the

early diagnosis of preeclampsia". In June 2014, the poster "Acute encephalopathy due to true hyponatremia and hyperammonemia after fast infusion of intravenous immunoglobulin" won the best poster award at the "XIIIth International Congress of Pediatric Laboratory Medicine" held in Istanbul, Turkey.

Outside the lab, I enjoy exploring beautiful British Columbia with my husband and two boys either riding bikes or hiking.



STEVEN YUE SHEN, MD, PHD

PDF; SUPERVISOR: Dr. David Granville

I completed my medical training at Fudan University Shanghai Medical College in 2004 and then worked as a Medical Officer and Public Health Physician at Shanghai Center for Disease Control and Prevention for 3 years. I moved to Sweden in 2007 and completed my PhD in medical science at Umea University, where I studied how the immune system affects the wound healing process and discovered a novel drug candidate which is now in clinical trials. In February 2014, I joined Dr. David Granville's laboratory at Centre of Heart Lung Innovation, St. Paul's hospital, UBC. I am now working on research projects related to cardiac fibrosis, radiation-induced dermatitis and diabetic wound healing.

In my spare time I enjoy cooking, watching movies and playing with my daughter.



XUEHAI WANG, PHD

PDF; SUPERVISOR: Dr. Andrew Weng

I obtained my PhD in Biomedical Science at University of Montreal in 2014. My thesis focused on finding novel immune regulating molecules in rheumatoid arthritis (RA).

I discovered that a tumor necrosis factor superfamily member called TL1A is directly involved in the pathogenesis of RA and characterized a new mechanism of TL1A in regulating the humoral immune response in RA. I shifted my interest to leukemia and lymphoma and joined Dr. Andrew Weng's lab at Terry Fox Laboratory this past March. My current project focuses on microenvironment and intratumoral heterogeneity of follicular lymphoma.

Away from work, I enjoy tennis and skiing. I am a fan of Leonard Cohen and Gustav Mahler.



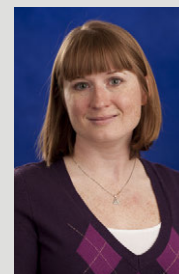
SRINIVAS ABBINA, PHD

PDF; SUPERVISOR: Dr. Jay Kizhakkedathu

I completed my PhD in Chemistry at the University of North Dakota, USA, under the supervision of Dr. Guodong Du, in fall 2013. My doctoral thesis work focused on the development of novel polymeric materials using the principles of organometallic catalysis. After my graduation, I worked as a temporary faculty member at the same department and taught organic chemistry for junior and senior level undergraduate students. During my PhD programme, I became fascinated by molecular therapeutics as it is a new developing multidisciplinary science and also it has potential to address various disease therapies.

I recently moved to UBC as a postdoctoral fellow, working in Dr. Kizhakkedathu's research group at CBR. At CBR, I am working on the development of novel polymeric therapeutic approaches for the treatment of iron overload and cancer.

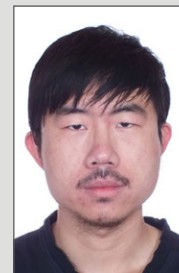
Away from my research work, in my spare time, I enjoy reading good literature, outdoor activities and spending time with my family.



KRIS MARTENS, PHD

PDF; SUPERVISOR: Dr. Cheryl Wellington

I received a PhD in experimental psychology in 2013 from Southern Illinois University. I have eleven years experience coordinating numerous federally-funded research studies, including designing, collecting, analyzing, and presenting the findings. Four of these years were spent conducting rodent behavioral assessment studies focused on frontally-mediated cognitive functioning. I am currently a postdoctoral fellow in the laboratory of Cheryl Wellington. As a fellow in Cheryl's laboratory, I am coordinating the development of test batteries to determine behavioral phenotypes for traumatic brain injury and Alzheimer's disease in C57BL/6, APP/PS1, Tg2576, and P301S mice. My area of interest lies in the behavioral assessment of frontal lobe dysfunction and the recovery of function after brain injury.



YIFEI HUANG, PHD

PDF; SUPERVISOR: Dr. Sohrab Shah

I am a postdoctoral research fellow in Sohrab Shah's lab in the Department of Molecular Oncology at the BC Cancer Agency. Before I arrived in Vancouver, I obtained my PhD degree in Bioinformatics at McMaster University. My current research focuses on developing the state-of-the-art statistical models and analyzing next generation sequencing data to study the clonal evolution of tumors. Besides cancer genomics, I am also very interested in machine learning, statistics, and evolutionary biology.

In my spare time, I enjoy reading books, surfing online, and cooking.



Dr. Muhammad Morshed, Clinical Professor, organized the 69th International Conference on Diseases in Nature Communicable to Man (INCDNCM) from August 10-12, 2014, hosted by the BC Public Health Microbiology and Reference Laboratory (PHMRL), the BC Centre for Disease Control and the Department of Pathology & Laboratory Medicine.

The Department of Pathology & Laboratory Medicine took part in hosting the International Conference on Diseases in Nature Communicable to Man (INCDNCM)

This conference seeks to increase knowledge and awareness of zoonotic disease within the medical and public health communities. INCDNCM conferences have been held annually since 1946 and are multidisciplinary, including presentations on viral, rickettsial, bacterial, parasitic, and prion-related diseases acquired from natural sources, including animals (wild or domestic), contaminated water or food supplies, arthropod vectors and other sources. British Columbia hosted this conference nine times since its inception and out of 9, the Department of Pathology and Laboratory Medicine was involved in organizing it 6 times. This year a total of 82 participants attended from Brazil, Hong Kong, India, Germany, USA and host country Canada.



Memorial Parker Lecture

The main attraction of this meeting was a Memorial Parker lecture and four plenary lectures. Memorial Parker lecture was delivered by **Dr. Robert Lane**, University of Barkley at California. He talked about ticks and mice of Northern Californian Woodlands.

PLENARY LECTURES WERE DELIVERED BY:



DR. DAVID PATRICK, UBC ON CHRONIC COMPLEX DISEASES



DR. PATRICK TANG, UBC ON METAGENOMICS FOR PATHOGEN DETECTION



DR. NATALIE PRYSTAJEWSKY, UBC ON FOOD-BORNE ZOOSES

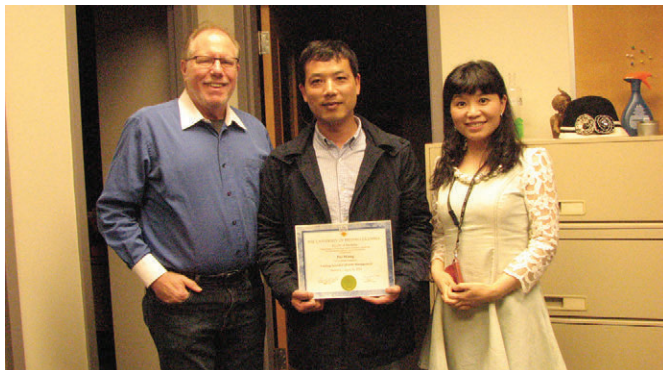


DR. BOBBI PRITT FROM MAYO CLINIC ON DISCOVERIES OF NEW EHRlichia AND BORRELIA SPECIES IN UPPER MID WESTERN,USA

Lyme Disease Research

Lyme disease research and discussion took major portion of this meeting. Dr. David Patrick chaired a scientific session on Lyme disease where 4 scientific papers were presented. Later he moderated a round table discussion on Lyme disease involving scientists from Ontario, National Microbiology Laboratory, Washington State, California and British Columbia. Other diseases that were covered in this conference were Ehrlichiosis, Bartonellosis, Leptospirosis, Leishmaniasis, Toxoplasmosis, Dengue fever, West Nile virus, Hantavirus, MERS-CoV, SAARS, Hepatitis E virus, and JC virus to name a few. 70th meeting of INCDNCM will be held in the Rocky Mountain Laboratory in Montana. ■

UBC POLQM Receives Visiting Scientist



Pei Wang is the Director of Laboratories and the head of Microbiology for the Jingmen City Hospital in Hubei Province, China, Visiting Scientist at the University of British Columbia

Dr. Wang has research interests in blood culture diagnostic approaches as well as in methods and techniques that focus on laboratory safety and quality management. He traveled to Vancouver as a Visiting Scientist at the University of British Columbia for March and April 2014, with Dr. Michael Noble and the Program Office for Laboratory Quality Management.

During his time here, he was able to attend and participate in the AMMI-Canada CACMID Quality Seminar in Victoria, to have a site visit to the Microbiology laboratory at Vancouver General Hospital, and to shadow UBC Risk Management Safety Audits for research laboratories on the UBC campus.

During his stay in Vancouver he was able to prepare one manuscript for submission (*Barriers to the Implementation of Medical Laboratory Accreditation*) and initiate a quality assurance based tri-country survey on the collection and processing of blood cultures, as well as prepare two short manuscripts for the departmental newsletter CMPT Connections. ■

Call for Facilitators

Vancouver Fraser Medical Program (VFMP) Faculty Development's Guided Small Group Learning Initiative

The VFMP Faculty Development Team aims to support excellence of the teachers in the MD Undergraduate Program by supporting the development of teaching and assessment competencies among faculty and instructors.

The Guided Small Group Learning (GSGL) initiative consists of a series of modules developed by McMaster University that aim to develop skills and knowledge relevant to clinical teaching. Modules target specific topics in medical education that match the needs of faculty teaching in the undergraduate program at UBC. Small groups of faculty are to gather at their comfort and convenience, and work through each module within a 2 hour period.

We are looking for facilitators for our GSGL initiative for 2014-2015. Facilitators are tasked with recruiting a cohort of 6-10 participants and leading them through the modules. A facilitator can be any faculty member who works with learners and is interested in improving his/her leadership in teaching, and facilitation abilities.

Please send the following information by October 31, 2014 to:

fac.dev@ubc.ca

- Name & Departmental Affiliation
- Hospital/ Geographic region (e.g. VGH, Mission, South Surrey, etc....) ■



UNIVERSITY OF BRITISH COLUMBIA
Faculty of Medicine
Department of Pathology

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

