Letter from the Chair

Dear Friends & Colleagues!

Drafting this quarter’s newsletter, I realized that the last one was pre COVID!

A lot has changed since. Most, if not all in person meetings have been cancelled or postponed including our 2020 DRIsE Days, graduation events, and the 2020 Banff course. Other meetings went ‘virtual’: LMP Rounds, Departmental meeting (including the Meet & Greet of our new Dean Dr. Brenda Hemmelgarn), and most teaching sessions. Despite the stress and disruption the pandemic caused and still sustains, we were able to adapt and respond quickly by transitioning teaching to online learning and other virtual experiences. On the research side our department responded well and quickly with great success to COVID-19 specific grant competitions (see page 5) and by building pan-provincial research partnerships across academic departments and Alberta Precision Laboratories. Despite the abrupt need for drastic changes in how we teach, we managed to graduate many of our 2020 classes, although often with delays and pending professional exams, which is stressful. I am very grateful to all our preceptors, course coordinators, and program leads for working diligently to make this happen. Many accomplishments of our trainees are highlighted in this report (page 7-8), all achieved under such unprecedented circumstances. Please celebrate our 2020 graduates on every occasion and in every way or shape you can!

With the summer break ahead of us we are not only facing a new normal for our vacation planning but also for the new semester in delivering our COVID-adjusted curriculums and welcoming back our classes and onboarding our new learners under different physical requirements. I am impressed by the creativity, ingenuity and collaboration by all of you in finding solutions to make the teaching experiences under the new circumstances as rewarding as possible and even better while achieving the core competencies for learners.

Please take some time to review our Spotlight on Research. For this issue Dr. Tanis Dingle is telling us about her work on antimicrobial resistance surveillance and how you can have Fun with Fungi!

Continued ...
Letter from the Chair (cont’d)

Please also join me in congratulating our award winners (page 5) and faculty members who were successfully promoted and appointed (page 6) for the next academic year.

Again, a very successful and productive quarter by our department. Some colleagues, speculate that COVID gave everybody a lot of time to write grants and papers. But I think we in lab have been busy otherwise as well. Thank you for all your hard work, endurance, resilience, and collaboration during the pandemic. I wish you and your loved ones a wonderful summer break and hope you find the time and place to recharge.

Stay safe and healthy!

Sincerely,

Dr. Michael Mengel, MD
Professor and Chair
Department of Laboratory Medicine & Pathology, University of Alberta
North Sector Medical Director, Alberta Public Laboratories
Spotlight on Research

Dr. Tanis Dingle
Assistant Professor
Division of Diagnostics and Applied Microbiology
Department of Laboratory Medicine & Pathology

Dr. Tanis Dingle is a Clinical Microbiologist at Alberta Precision Laboratories – Public Health Laboratory (ProvLab) and an Assistant Professor in the Department of Laboratory Medicine and Pathology. She is a Diplomat of the American Board of Medical Microbiology (D(ABMM)) and a Fellow of the Canadian College of Microbiologists (FCCM). Dr. Dingle’s has two separate research interests: 1) antimicrobial susceptibility testing and antimicrobial resistance surveillance, and 2) understanding the epidemiology and improving the management of patients with fungal infections.

As a member of the Clinical and Laboratory Standards Institute (CLSI) antimicrobial susceptibility testing and antifungal susceptibility testing committees, I work with a number of North American collaborators to help develop standardized guidelines for susceptibility testing methods for clinical laboratories and to develop new methods for susceptibility testing and resistance mechanism detection. In particular, we have recently completed the first phase of a study looking at the cefazolin high inoculum effect in methicillin-susceptible Staphylococcus aureus isolates. This phenomenon goes unrecognized by the traditional susceptibility testing methods performed by clinical laboratories resulting in isolates being reported as susceptible to cefazolin, a primary treatment used for MSSA infections, when they could potentially not respond to cefazolin in vivo. Our multicenter study (7 USA hospitals and our centre (UAH) found that the prevalence of this phenomenon can range from 0-27% depending on institution. As a result of this initial study, we are currently developing and evaluating a rapid method for clinical laboratories to detect the high inoculum effect in clinical MSSA isolates.

With regards to antifungal susceptibility testing, Lillian Feng (currently enrolled in the LMP Pathologists’ Assistant program) is currently working with an industry sponsor to evaluate a susceptibility testing method for isavuconazole, a newer antifungal agent to treat invasive pulmonary aspergillosis and mucormycosis. Most laboratories are not able to test for this agent as the gold standard method is resource intensive. We are hoping that this method will be accurate and easy to use by clinical laboratories for testing of this agent against filamentous fungi.

We also have a number of ongoing research projects for antimicrobial resistance surveillance. One of our priorities is to monitor the incidence and types of carbapenemase-producing organisms (CPOs) in Alberta. CPOs are organisms that typically carry a gene on a plasmid encoding for a carbapenemase enzyme. These organisms tend to be resistant to almost all available antimicrobial agents and CPOs (or their resistance genes) can easily be transmitted from patient to patient or environment to patient in hospitalized settings. Our current LMP summer student, Dimitri Galatis, is
Spotlight on Research (cont’d)

working on analyzing the susceptibility patterns of Alberta CPO isolates and evaluating the current methods used in the laboratory to detect these organisms. Moreover, in collaboration with Dr. Matthew Croxen (ProvLab), Dr. Michael Mulvey (National Microbiology Lab), Kathy Bush and her team (Provincial IPC Surveillance), Vincent Li (ProvLab) and Stephanie Murphy (ProvLab), we are analyzing CPO genomes from Alberta to better understand what CPOs are circulating in Alberta, their carbapenemase genes, and their plasmids. In addition, in collaboration with Dr. Greg Tyrrell (ProvLab), a new postdoctoral fellow will be starting shortly to work on developing a provincial antibiogram (a tool to evaluate susceptibility rates of common pathogenic organisms to antimicrobial agents). This will help give researchers in Alberta a good indication of the highest antimicrobial resistance priorities to tackle.

One other area of active research interest is the epidemiology and management of fungal infections. In collaboration with Dr. Ilan Schwartz (Infectious Diseases, UAH) and Dr. Matthew Croxen, we have recently completed a study looking at the changing geographic epidemiology of histoplasmosis. We identified locally-acquired cases of histoplasmosis in Alberta, outside of its traditional geographic range of the Ohio and Mississippi river valleys in central-eastern USA. We suspect that this shift in geographic endemicity is due to changing patient populations and perhaps also climate change. In addition to histoplasmosis, we have an interest in monitoring the epidemiology of other fungal infections including other endemic fungi and invasive pulmonary aspergillosis in hospitalized patients. Lastly, we are currently evaluating the incidence and impact of fungal colonization/infection in cystic fibrosis patients. In partnership with Dr. Winnie Leung (Edmonton Cystic Fibrosis Director), Dr. Ilan Schwartz and Dr. Matthew Croxen, we are looking to see how fungal pathogens contribute to the overall disease progression of cystic fibrosis patients and to understand how the respiratory mycobiome of these patients shifts over time.

In addition to the above mentioned trainees and collaborators, we have been lucky to have a lot of help from ProvLab staff with many of these studies. We are thankful to research scientists, LeeAnn Turnbull and Sandy Shokoples, and the technologists in the Bacteriology and Mycology Laboratories (ProvLab).

The above described work has been funded through grants from the Major Innovation Fund (MIF) and the University of Alberta Hospital Foundation in addition to industry partnerships (including BioMerieux and AVIR Pharmaceuticals). Current and past students have been funded through Alberta Innovates, APL - Public Health Laboratory and the Department of Laboratory Medicine and Pathology.

Fun with fungi!

Left: A photo of *Aspergillus fumigatus*, a common lung colonizer in cystic fibrosis patients. (Credit: Brad Jansen).
Right: Using gradient strips to test for isavuconazole susceptibility in filamentous fungi. (Credit: Lillian Feng)
Awards & Honours

Dr. Jason Acker has been selected as the recipient of the Faculty of Medicine & Dentistry’s Tier I Basic Science Award for Excellence in Mentoring Graduate Students and Postdoctoral Fellows, an award that our Faculty holds in the highest esteem. This award recognizes Dr. Acker’s outstanding mentoring capabilities, commitment to providing the best possible learning environment and unfailing encouragement and support to students, including supporting their professional placement and career goals.

Dr. Jelena Holovati has received one of FGSR’s (Faculty of Graduate Studies and Research) Great Supervisor Awards. The purpose of this award is to recognize supervisors who demonstrate superb supervisory skills or foster mentorship in their programs. Dr. Holovati was nominated for her excellent supervisory skills and collaboration with graduate students.

During the academic year the Medical Microbiology Residency Program receives exemplary teaching support from the Microbiologists, Virologists and Technologists from PLNA, PLSA and Dyna-LIFE as well as Medical Teaching Staff. To recognize the support, the Medical Microbiology Residents award a Teacher of the Year for both the medical and technological teachers in the teaching curriculum of the residency program. The 2020 Teacher of the Year recipients are: Dr Shobhana Kulkarni and Ms. Piera Kastner.

Grants

Dr. Jason Acker:
1. Natural Sciences and Engineering Council - Discovery Grant. “Enabling the cryopreservation of embryos from aquatic species using ice recrystallization inhibitors”. Principal Investigator. $165,000 total funding. 2020-2024
2. Canadian Blood Services – Blood Efficiency Accelerator Award Program. “Evaluating unintentional warming of glycerolized red cell concentrates”. Principal Investigator: Co-Investigators: Gwen Clarke (CBS) $25,000 total funding. 2020-2021

Dr. Matthew Croxen:
Canadian Institutes for Health Research / Alberta Innovates: “Rapid RNA sequencing of coronavirus for public health surveillance and transmission” ($788,040) Drs. Chris Le, Andrei Drabovich, and Hongquan Zhang, along with three other collaborators, received from CIHR and New Frontiers Research Fund (NFRF) $828,046 for the development of “Point-of-care diagnostics of COVID-19 using isothermal amplification and CRISPR technology” (2020-2022).

Dr. Consolato Sergi:
Received a grant of Eur 18,500 for a research cooperation support (Co-P.I.) to the University of Palermo "CORI" Project (P.I.: Prof. Paola Di Carlo, University of Palermo, Italy) in the setting of Grant Action involving Humboldt-Universität Zu Berlin (D), Vrije Universiteit Amsterdam (NLD), University of Alberta (CAN), Universidad Castilla La Mancha (ESP), Universidad Politecnica de Madrid (ESP), University of Pittsburgh (USA), University of Nottingham (UK), Florida International University (USA), Trinity University (USA), and Universidad de Sevilla (ESP).
**New Appointments**

The Department welcomes:

- Ms. Juanita Wizniak – Clinical Lecturer / Lab Scientist, Flow Cytometry, UAH

**Promotions**

Please join us in congratulating the following on their promotions effective July 1st:

- Dr. Suzanne Chan to Associate Clinical Professor
- Dr. Erin Chapman to Associate Clinical Professor
- Dr. Will Chen to Associate Clinical Professor
- Dr. Kerri Chung to Associate Clinical Professor
- Dr. Hanan Gerges to Associate Clinical Professor
- Dr. Mao Cheng Lee to Associate Clinical Professor
- Dr. Bryony Walker to Associate Clinical Professor
- Dr. James Zhu to Associate Clinical Professor
- Ms. Marla Beach to Assistant Clinical Professor
- Dr. Eric Bol to Assistant Clinical Professor
- Dr. Barry Kyle to Assistant Clinical Professor
- Dr. Michelle Parker to Assistant Clinical Professor
- Dr. Nathan Zelyas to Assistant Clinical Professor

Today isn’t just another day...
Fellowship Program

Graduating Fellows:
- **Dr. Miranda Brun** will complete her Clinical Biochemistry Fellowship Program at the end of June and will start with APL as a clinical biochemist officially July 2, 2020. Her primary responsibilities for her first year will be overseeing the suburban rural hospital sites as well as maternal serum screening at UAH.
- **Dr. Farshad Niri** is finishing CCMG training in Medical Genetics with a specialization in Molecular Genetics at the end of June 2020. He has accepted a position with the Genetics and Genomics Division of APL in Edmonton as a Molecular Geneticist starting shortly after completion of training.
- **Dr. Graeme Reid** is finishing his Renal and Transplantation Pathology Fellowship and is planning to return to the UK (likely Manchester, England) to start working as a consultant renal pathologist.

New Fellows:
- Breast Pathology - **Dr. Alisha Abozina** joins us from the University of British Columbia after completing her AP residency.
- Clinical Biochemistry - **Dr. Ashley Newbigging** is from Edmonton, a graduate of our MLS Program and has just completed her PhD with Dr. Chris Le in Lab Medicine & Pathology.
- Clinical Microbiology - **Dr. Ruwandi Kariyawasam** is coming to us from the University of Toronto where she completed her PhD under the direction of Dr. Andrea Boggild on leishmaniasis.
- Lymphoproliferative Disorders - **Dr. Soha Ramadan** joins us from McMaster University after completing an AP residency.
- Renal and Transplantation Pathology - **Dr. Sarah-Jeanne Pilon** joins us from McGill University after completing her AP residency.

Residency Programs - Graduates & New Residents

**Anatomical Pathology Residency Program**

Graduating:
- **Dr. Dan Smyk** will be doing a fellowship in forensic pathology at University of Toronto.
- **Dr. Bryce Macek** is doing a fellowship in hematology at University of Utah.
- **Dr. Zainab Alshamma** is planning to enter independent practice.

New Residents:
- **Dr. Rebecca Brassington**, MD Program, University of Alberta
- **Dr. David Kramer**, MD Program, University of Alberta. David also has a PhD from the University of Alberta.

**General Pathology Residency Program**

Graduating:
- **Dr. Shawn Zhu** is finishing his residency and will be working at *DynaLIFE* in the Edmonton zone.

New Residents:
- **Dr. Rebecca (Becky) Phillips** is originally an Edmontonian and joins us from the University of Calgary.
- **Dr. Sameh Mikhail** comes from a little further away (Egypt), where he completed postgraduate training in laboratory medicine.
Residency Programs - Graduates & New Residents

Hematopathology Residency Program

Graduating resident:

- **Dr. Brian Wong** will complete his residency training successfully this June and we are thrilled to have him join us as Staff on July 1, 2020. His interests in hematopathology include flow cytometry, informatics and medical education. Outside of work, he spends his time looking at polling data and muttering about the Electoral College, as well as being a connoisseur of recent sci-fi TV shows.

New residents:

- **Dr. Danielle Anderson** is a University of Alberta class of 2020 graduate. She is an outdoor enthusiast, a die-hard Oilers fan and has a passion for horseback riding (jumping in particular). Most importantly, Danielle is absolutely thrilled to be embarking on her journey in Hematopathology!
- **Dr. Sima Zolfaghari** is a Clinical and Anatomical Pathologist from Iran with five years of working experience in Canada. She loves going out in nature and enjoys activities like hiking, snowshoeing and cycling and is very excited to be pursuing her passion for Hematopathology.

Forensic Pathology Residency Program

Graduating resident:

- **Dr. Joseph Andrews** will be finishing this September. Future plans yet to be determined.

New residents:

- **Dr. Pylyp Zolotarov** (University of McGill)
- **Dr. Alexandra Gauthier-Bastien** (University of Laval, Quebec).

Medical Microbiology Residency Program

Graduating resident:

- **Dr. Clayton MacDonald** will be starting as a Medical Microbiologist at Vancouver General Hospital in July

New residents:

- **Dr. Daniel Purdy** – University of Alberta graduate
- **Dr. Sa’adiya Umar** – AIMG who completed medical school at the Usmanu Danfodiyo University College of Health Sciences in Nigeria

Summer Studentship Stipend Recipients

- **Dimitri Galatis** (supervisor Dr. Tanis Dingle)
- **Mark McAllister** (supervisor Dr. Andrei Drabovich)
Graduate Studies

Awards

Congratulations to these students who received awards acknowledging their research/supporting their graduate programs:

- **Lillian Feng** - Friends of the Faculty of Graduate Studies and Research Scholarship

- **Wei (Claire) Feng** - Alberta Innovates Graduate Student Scholarship

- **Angela Ma** - Bell McLeod Educational Fund Graduate Research Prize

- **Ashley Newbigging** - Bell McLeod Educational Fund Graduate Research Prize

- **Jeffrey Tao** - Alberta Innovates Graduate Student Scholarship; Postgraduate Scholarship-Doctoral (NSERC PGs D); President’s Doctoral Prize of Distinction

- **Alexa Thompson** - Sir Frederick Banting and Dr Charles Best Canada Graduate Scholarship - Master’s (CIHR); Walter H Johns Graduate Fellowship

- **Jagdeesh Uppal** - Alberta Innovates Graduate Student Scholarship; Alexander Graham Bell Canada Graduate Scholarship-Doctoral (NSERC CGS D); President’s Doctoral Prize of Distinction

- **Nicholas Wawryk** - Alberta Innovates Graduate Student Scholarship

- **Nishaka William** - Bell McLeod Educational Fund Citizenship Award

Milestones

We are proud to announce that the following students have completed their programs:

- **Ashley Newbigging** (supervisors, Chris Le and Hongquan Zhang) completed her PhD program. Ashley’s thesis is titled “Isothermal Amplification Techniques for the Detection of Nucleic Acids and Proteins.”

- **Jiaao Yu** (supervisors, Lilly Pang) completed her master’s program. Jiaao’s thesis is titled “An RT-qPCR-Based Microneutralization Assay for Assessing HCMV Neutralizing Antibody Activity.”

- **Wei (Claire) Feng** passed her doctoral candidacy examination.

Congratulations to All!

The graduate students from the Department of Laboratory Medicine and Pathology recognize the incredible guidance and support provided by the faculty and support staff. Each year the graduate students would like to present one faculty member and one support staff member with Staff Appreciation Awards in appreciation and recognition of their contribution.

This year, the LMP Graduate Students’ Group is honoured to present the 2020 Staff Appreciation Award for Faculty to **Dr. Carmen Charlton**, and the 2020 Staff Appreciation Award for Support Staff to **Zara Ahmed**, in appreciation and recognition of their outstanding contribution.

Thank you to Carmen and Zara for their dedication to the graduate student community, and thank you to all the faculty and support staff members for your guidance and support.
Presentations

Dr. Jason Acker:

Presentations

Published Abstracts:

Dr. Benjamin Adam:
1. “Molecular Markers of Allograft Injury”. United States and Canadian Academy of Pathology Annual Meeting, Renal Pathology Society Companion Meeting, Los Angeles CA, March 1, 2020
2. “Molecular Diagnosis and Risk Prediction in BK Virus Nephropathy”. Laboratory Medicine and Pathology Grand Rounds, University of Alberta, Edmonton AB, February 13, 2020

Dr. Tanis Dingle:

Drs. Janet Elliott & Locksley McGann:

Presentations
Oral Presentations at the Extreme Cryo 2020 Symposium, University of Alberta, Edmonton, AB, January 31 - February 1, 2020:
3. Laura Gabler Pizarro*, Locksley E. McGann, Janet A. W. Elliott. “Hydraulic parameters obtained from kinetic cell volume measurements of HUVECs fitted to a model assuming non-ideal thermodynamic behaviour”.


Dr. Michael Mengel:

Invited lectures:
Visiting Professor and Speaker, Pathology Grand Rounds, Yale University, Department of Pathology, Feb. 06. 2020. “Molecular Transplant diagnostics and why it is different from cancer”.

Dr. Josh Raizman:
Recent Publications

Dr. Jason Acker:

Dr. Benjamin Adam:

Dr. Gwen Clarke

Dr. Matthew Croxen:
Peer-reviewed publication

Dr. Esmé Dijke:
Peer-reviewed paper
Recent Publications Cont’d ...

Dr. Tanis Dingle:

Dr. Andrei Drabovich:

Drs. Janet Elliott & Locksley McGann:

Dr. Edward Johnson: Book Chapters:

Dr. X. Chris Le:

Dr. Michael Mengel: Peer-reviewed publications

Dr. Consolato Sergi:
Dr. Consolato Sergi (cont’d):

