Dear Colleagues, Learners & Friends!

Unbelievable that we are already half way through 2022! Well, the summer break is ahead and I am convinced we all need a break and to recharge after stressful times! The pandemic gives us a bit of a break, the outsourcing contract for community lab services is signed, and the academic year is in the summer closure. So please take the opportunity to get some down time and recharge. A busy fall will need all our collective and individual energy with new learners and courses starting, clinical services ramping and catching up after the pandemic, conferences being back to in person, and grant deadlines looming. The transition work related to the community lab services contract will also need the attention of many of us over the next 18 months including the re-organization of clinical services, learner placements and related activities. As stated in many venues, there will be challenges but also many opportunities arising from the partnership with DynaLife Medical Labs to build on our strong educational, clinical, and research programs. Please do not hesitate to reach out to me directly with any questions or concerns arising during the up-coming transition.

In this Chair’s Report the Spotlight on Research is on Dr. Soufiane El Hallani, Assistant Professor in our Department. Dr. El Hallani is a molecular pathologists and earned his PhD in Oncology and Cancer Biology from the University of Paris before he did residency in Anatomical Pathology in Ottawa and a fellowships in Molecular Pathology in Pittsburgh as well as in gynecological pathology at Stanford University. In his clinical role Dr. El Hallani is the North Scientific Lead for Research & Development in the provincial Molecular Pathology program of Alberta Precision Laboratories. In this role he built a translational and applied research program developing and validating novel diagnostic molecular tools, of which recently several were implemented in the clinical diagnostics lab by APL. Soufiane’s work is a great example of the collaboration between our academic and clinical programs with direct impact on improving patient care.

Please also join me in congratulating and celebrating our successful graduates form our training programs. After a 2-year pandemic hiatus in having an in-person Graduation Celebration, we got together again this year and were able to celebrate many of our graduates (many happy pictures in this report of graduates and their families and preceptors!). On that note please also join me in welcoming our new learners to our programs as well as the new faculty members.

Again, this report highlights an impressive tabulation of scholarly productivity over the last quarter with many grants, awards, presentations, and publications. You all have been hard working and very productive despite all the stressors going on – A summer break is well deserved!

Of those interested in Pathology, please register (https://banffpathologycourse.com/) for the 2022 Banff Pathology Course (Topic: Genitourinary Pathology), which will be an in person event Sept 8 – 10, 2022, – I hope to meet many of you in Banff to reconnect in person!

Enjoy your summer!

Michael

Dr. Michael Mengel, MD
Professor and Chair
Department of Laboratory Medicine & Pathology, University of Alberta
North Sector Medical Director, Alberta Precision Laboratories (APL)
Dr. Soufiane El Hallani is an Assistant Professor, Molecular Pathologist and Anatomical Pathologist in the Department of Laboratory Medicine and Pathology at the University of Alberta, University of Alberta Hospital and Royal Alexandra Hospital. He is the North Scientific Lead for Research & Development in the provincial Molecular Pathology program of Alberta Precision Labs, and Chair of the Somatic Solid Tumor Group of the Molecular Pathology Discipline Council.

The number of diagnostic, prognostic and/or predictive molecular biomarkers incorporated into clinical guidelines is expanding exponentially across numerous types of solid tumors. The conventional strategy of predominantly single-target testing is not logistically and financially sustainable. The solution is the implementation of a broad next generation sequencing (NGS) panel with pan-solid tumor utility. Commercial NGS panels for comprehensive genomic profiling are available in the market; however, their high cost (> $3,000 per test) has limited the adoption in public health care systems. As the Scientific Lead of Molecular Pathology in the APL organization, my main research endeavor is to develop high-quality in-house NGS assays that combine the best test performances, the most comprehensive utility, and fiscal responsibility ($500 per test).

In our group, innovation is at the core of assay customization. New ideas are encouraged, validated and integrated in the assay development stages. For instance, the data-intensive nature of NGS makes bioinformatic analysis a major challenge to many clinical laboratories. Commercial software solutions aim to bridge the bioinformatics barrier via turnkey informatics solutions; however, many commercial software lack desired features creating uncertainty over the best option. My research also focused on developing custom software (TALOMAR) for advanced NGS data analysis, portal access to remotely review the NGS results from any APL site, integrated province-wide molecular database and automated NGS report generation to meet the vital need for high scalability (Picture 1).

The practice of molecular pathology has seen a paradigm shift with the increasing use of smaller samples for molecular testing such as cytology specimens. In patients with advanced-stage malignancy, the cytology specimen may be the only tissue available for diagnosis and molecular testing. Therefore, it is critical for our research group to develop new protocols for nucleic acid collection from archival cytology slides that meet quality standards, high success rate and rapid turnaround time. Several published studies outlined the application of NGS in cytology specimens; however, the optimization of non-formalin-fixed cytology specimens require diligent laboratory practices, constant improvement, and rigorous validation (Picture 2).

Liquid biopsy is an emerging non-invasive alternative to surgical biopsies which enables the detection of a wide range of genetic information in a blood sample by isolating and sequencing the pieces of tumor DNA released in the bloodstream (cell free DNA). A liquid biopsy may be used to detect cancer at an early stage, plan the patient’s treatment based on the genetic profile, assess the tumor response to drugs or monitor for potential disease recurrence. However, many mutations detected in the commercial liquid biopsy tests are attributed to the age-related clonal hematopoiesis and do not come from cancer cells of the solid tumors which leads to incorrect diagnosis and inappropriate treatment. Alarmed by this significant harm to patients if data from commercial assays are not interpreted with cautious, our research group is now developing a custom liquid biopsy panel that will integrate additional laboratory steps to filter the false-positive mutations from the cell free DNA and provide the best care to our patients (Picture 3).

In the last decade, Precision Oncology has gone from a dream to reality. Let’s make it a reality that is accessible to all patients, highly valuable and more reliable.
Spotlight on Research (cont’d)

Picture 1: Custom NGS software (TALOMAR) developed by Dr. Soufiane El Hallani

TalOmär portal (province-wide integrated NGS review station and database)

Oncogenic DNA sequence mutation (stop gain, p.Glu455Ter)

Copy Number Alterations (Glioblastoma with EGFR amplification, CDKN2A homozygous deletion, chr7 gain, chr10 loss)

Loss-of-Heterozygosity (Oligodendroglioma with 1p19q LOH)

Picture 2: Optimization of new protocols for nucleic acid extraction from archival cytology slides by Dr. Conrad Moher (resident in anatomical pathology)
Spotlight on Research (cont’d)

Picture 3: Dr. Li Liang (left) and Dr. Maggie Liu (right) are laboratory scientists lead the rigorous clinical validation of in-house developed assays.
New Appointments

The Department welcomes:
- **Dr. Lucy Bradley** – Clinical Lecturer – Pathologist, Office of the Chief Medical Examiner of Alberta
- **Dr. Jodi Carter** – Associate Professor
- **Dr. Natalie Marshall** – Assistant Professor

Dr. Jason Acker
- Appointed to the Executive Committee of the Canadian Transfusion Research Network
- Appointed Scientific Secretary of the International Society for Blood Transfusion (3 year appointment; starts June 30)

Dr. Xing-Fang Li
- Associate Editor for Environment International, Elsevier

Promotions

Please join us in congratulating the following on their promotions effective July 1, 2022.

- **Dr. Ben Adam** to Associate Professor
- **Dr. Nausherwan Mahmood** to Clinical Professor
- **Dr. Andy De Souza** to Associate Clinical Professor
- **Dr. Joshua Raizman** to Associate Clinical Professor
- **Dr. Dylan Thomas** to Associate Clinical Professor
- **Dr. Elona Turley** to Associate Clinical Professor
- **Ms. Fatema Dhalla** to Assistant Clinical Professor
- **Dr. Tatiana Dragan** to Assistant Clinical Professor
- **Dr. Kaila Crawford** to Assistant Clinical Professor
- **Mr. Michael Gerling** to Assistant Clinical Professor
- **Dr. Maha Haddad** to Assistant Clinical Professor
- **Dr. Mohamed Rizwan Rasheed** to Assistant Clinical Professor
- **Mr. Wenjun Liu** to Assistant Clinical Professor
- **Dr. Kristalee Watson** to Assistant Clinical Professor
- **Ms. Vanessa Wolan** to Assistant Clinical Professor
Congratulations to our graduating fellow, Dr. Ruwandi Kariyawasam!
Dr. Kariyawasam will be continuing on with APL in Edmonton as a clinical microbiologist.

Left to right: Dr. Ruwandi Kariyawasam, Dr. Gregory Tyrrell, Dr. Michael Mengel

We welcome our incoming trainee, Dr. Ashley Williams, to the fellowship program.
Medical Microbiology Residency Program

Congratulations to our two graduating residents:
- **Dr. Sean Ling** will be going to work at Vancouver General Hospital, BC
- **Dr. Xioafeng Ding** will be going to work at Queen Elizabeth Hospital, PEI

We welcome our incoming trainee, **Dr. Ima Anugom**, to the residency program.

During the academic year, residents in the Medical Microbiology Residency Program receive exemplary teaching support from the Microbiologists, Virologists and Technologists from PLNA, PLSA and DynaLIFE, as well as Medical Teaching Staff. To recognize the support, the Medical Microbiology Residents award a teacher of the year for both the medical staff and technologist that has contributed to the teaching curriculum of the residency program.

**Congratulations** to the 2021 Teacher of the Year award recipients:
- **Pat Martin**, MLT at DynaLIFE
- **Dr. Nathan Zelyas**, Medical Microbiologist at PLNA
Congratulations!!

Left to Right: Xiaoyu (Jason) Jiang (MSc PA 2022), Maram Hulbah (PhD 2020), Greg Tyrrell, Min Hsuan (Michelle) Wu (MSc PA 2022), Lillian Feng (MSc PA 2020, PA Course Instructor), Michael Gerling (PA Program Education Coordinator), Erin Chapman (PA Program Director), Monika Keelan, Michelle Wu (MSc PA 2022), Lillian Feng (MSc 2020), Michael Mengel

Left to Right: Shawn Zhu (AP 2020), Jackie Chan (AP 2022), Zainab Alshamma (AP 2020), Erin Chapman, Michael Mengel

Left to Right: Michael Mengel, Danielle Meunier, Sophia Peng, Bryony Walker

Left to Right: Ashley Newbigging, Miranda Brun, Kareena Schnabl

Left to Right: Farshad Niri, Lauren Macneil, Michael Mengel

Left to Right: Ashley Newbigging (PhD 2020, Clinical Biochemistry Fellow 2022), Greg Tyrrell, Maram Hulbah (PhD 2020), Jason Jiang (MSc PA 2022), Delaram Dara (MSc 2020), Monika Keelan, Michelle Wu (MSc PA 2022), Lillian Feng (MSc 2020), Michael Mengel

Left to Right: Greg Tyrrell, Natalie Marshall, Ruwandi Kariyawasam, Michael Mengel
Awards

- **Graduate Student Wei (Claire) Feng**, Division of Analytical and Environmental Toxicology, received the 2022 CIC Analytical Chemistry Division Ryan-Harris Graduate Award. The award recognizes her academic excellence and research achievement in understanding CRISPR systems for developing diagnostic assays. Claire will deliver an award lecture at the 105th Canadian Society for Chemistry Conference, in Calgary on June 13-18, 2022. She will also receive a plaque and $750 cash award. Congratulations Claire!

- **Dr. Andrei Drabovich** received the Young Investigator Educational Grant, the Association for Mass Spectrometry & Advances in the Clinical Lab, Monterey, CA, USA. March 5, 2022

- **Dr. Evelyn Asiedu** (BSc UWO 2013, PhD Lab Med & Pathology, UofA 2020, now EDI postdoc at Thompson Rivers University) is the 2022 winner of the inaugural Gilead Early Career Award for Equity, Diversity and Inclusion from the Canadian Society of Chemistry. Please view the award announcement at this link. She will receive the award at the national chemistry meeting in June in Calgary.

- **Dr. Janet A. W. Elliott** April 5, 2022. Langmuir Lectureship Award (Langmuir and the American Chemical Society Division of Colloid & Surface Chemistry). The award recognizes leading researchers working in the interdisciplinary field of colloid and surface chemistry

- **Dr. Jelena Holovati** received the Canadian Immigrant Woman of Inspiration award, recognizing her achievements for pushing boundaries in research and education and for serving as an inspiration for other women in STEM (https://canadianimmigrant.ca/living/women/ninth-annual-immigrant-women-of-inspiration-picks-five-women-pushing-boundaries-in-science-and-technology)
Congratulations!!

DRlVe 2022 Presentation Winners

Bell McLeod Educational Fund

Graduate Research Prize
  • Wei (Claire) Feng
  • Janet Zhou

Citizenship Award
  • Taryn Stokowski

DRlVe Research Posters

Best MLT/Lab Scientist
  • Melissa Wilson

Best MLS Student
  • Marty Jackson

Best Undergrad/Summer Student
  • Chester Lau

Best Grad Student - MSc
  • Serena Li

Best Grad Student - PhD
  • Wei Feng

Best Postdoctoral/Fellow
  • David Beyer

Best Resident (Dr. Theodore Shnitka Memorial Resident Award)
  • Conrad Moher

Anatomical Pathology Awards

Misericordia Community Hospital Lab Medicine Resident of the Year Award:
  • Dr. Conrad Moher

Grey Nun’s Community Hospital Lab Medicine Resident of the Year Award
  • Dr. David Kramer

Dr. Harald A.J. Schwarz Excellence in Teaching Award
  • Dr. Kerri Chung

Hematological Pathology Awards

Teacher of the Year
  • Dr. Tom Noga

Resident of the Year
  • Dr. Sima Zolfaghari

Kasper Scholarship for Academic Excellence and Performance on the Residency Exam
  • Dr. Sophia Peng

Summer Studentship Stipend Recipients 2022

  • Celina Phan (supervisor Dr. Jason Acker)
  • Gabrielle Versailles (supervisor Dr. Susan Nahiriak)
  • Jonathan Walter (supervisor Dr. Andrei Drabovich)
Graduate Studies

Milestones

We are proud to announce that Janet Zhou (supervisor, Chris Le) completed her PhD program. Janet’s thesis is titled “The influence on selenium on arsenic hepatobiliary transport”.

Congratulations also to Huyan Xiao (supervisors, Hongquan Zhang, Chris Le) who passed his doctoral Candidacy examination.

Awards

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

Alexa Thompson - Izaak Walton Killam Memorial Scholarship

Congratulations to Wei Feng who received the Ryan-Harris Graduate Student Award in Analytical Chemistry, Teresa Kumblathan who received the best graduate student oral presentation award in the Environment Division, and Chester Lau who received the best undergraduate poster award in the Analytical Chemistry Division, at the 105th Annual Canadian Chemistry Conference and Exhibition (CCCE2022) of the Canadian Society for Chemistry.

Students and postdoctoral associates from our Analytical and Environmental Toxicology (AET) Division successfully co-chaired 12 scientific sessions, presented 5 posters, and delivered 14 oral presentations. Congratulations to everyone for excellent work and professional communication.

AET Division represented at the 105th Canadian Chemistry Conference and Exhibition (CCCE2022)

Congratulations to All!
Graduate Studies

In June we welcomed a new Graduate Program Advisor to the LMP Graduate Program, Barb Thomson. Barb grew up in Quebec, completed her BSc and BEd in Ontario and has over 20 years of experience in artic environmental protection administration. Barb has also served as Graduate Program Advisor in our Faculty, working with the graduate students and the faculty in the Department of Medicine Graduate Program for the last five years, and we’re very excited to benefit from her administrative experience.

Please stop by Barb’s office area in ECHA 5-411 to say hello. You can also reach her by phone 780-492-3185 or our graduate program email lmpgrad@ualberta.ca

Retirement

Thank You Dr. Monika Keelan!

Dr. Monika Keelan is retiring June 30, 2022. We wish her all the best!

>125 papers
Numerous grants, awards, students, courses taught and coordinated
Local and national leadership
Presentations

Dr. Jason Acker
Presentations & Abstracts:


3. Mykhailova, O., Olafson, C., Xu, A. and Acker, J.P. "Age-profiling of red cell concentrates from female and male donors during 42-day hypothermic storage period". ISBT 2022 Conference; Virtual (Jun 4-8, 2022). poster


9. Li, W., Mykhailova, O., and Acker, J.P. "CEC enrichment is dependent on blood donor-specific density profile: Correlation with mononuclear cell population". LMP DRIVE 2022; Edmonton, Alberta (Apr 22-23, 2022)


Dr. Jason Acker (cont’d):

12. Yazdanbakhsh, M., Osmani, R., Olafson, C., Xu, A., Kianias, T., Mykhailova, O. and Acker, J.P. "Assessment of hemoglobin-oxygen affinity of RBCs of different senescence levels during hypothermic storage in old senior and teenage donors". CSTM Annual Meeting; Toronto, ON (May 26-29, 2022). Oral This abstract was selected as one of the Top 4 Abstracts presented at the 2022 CSTM Meeting, Toronto, ON

Dr. Andrei Drabovich:

1. "Rational Design of Serological Diagnostics Using Immunoprecipitation-Targeted Proteomic Assays". 12th Conference of the Association for Mass Spectrometry & Advances in the Clinical Lab (MSACL2022), Monterey, CA, USA, March 5, 2022 (in-person meeting)

2. Fu Z., Rais Y., Bisman T.A., Eric Hyndman M., Chris Le X., Drabovich A.P. "Mapping Isoform Abundance and Interactome of the Endogenous TMPRSS2-ERG Fusion Protein in Prostate Cancer". Human Proteome Organization meeting (HUPO ReConnect 2021), November 15, 2021. Location: Online
Presentations

Dr. Steven Drews:

Presentations:
1. “Overview of Infectious Disease Prevention Measures at the Blood Centre: How we prevent acute and delayed transfusion transmitted infections.” Canadian Blood Services Transfusion Medicine Trainees. Based out of University of Toronto. February 8, 2022
5. “COVID-19 and immunity: Where are we?” 2022 AMMI CACMID, Vancouver, BC, Canada. April 6, 2022
6. “Understanding the impact of vector-borne pathogens on the safety of the blood supply in Canada.” 2022 CSTM, Toronto, ON, Canada. May 27, 2022
8. “COVID-19 in the Winter and Spring of 2022: How will we be impacted by Omicron?” Canadian Blood Services Executive Management Team. Videoconference. February 1, 2022
11. “COVID-19 and immunity: Where are we?” University of British Columbia Centre for Blood Research. Online May 18, 2022

Posters Presented:

Dr. Steven Drews (cont’d):

Posters where Dr. Drews is an author:

Educational Session:
1. “The role of blood operators in supporting One Health and engaging infectious diseases experts, medical/clinical microbiologists and public health laboratorians.”
Presentations

Dr. Janet Elliott:
1. J. A. W. Elliott (Invited Speaker), "University of Alberta: One of the top 150 universities in the world – Find out about our rich, meaningful and life-changing student experience", Times Higher Education Student Festivals [Virtual], September 27-28, 2021
2. J. A. W. Elliott (Invited Speaker), "Fun with thermodynamics: From nanoscale drops to saving lives", Times Higher Education Student Festivals [Virtual], September 27-28, 2021

Congratulations to Dr. Janet A. W. Elliott, Distinguished Professor and Canada Research Chair in Thermodynamics, for her presentations at the Times Higher Education (THE) Student Festival. The THE World University Rankings provide the definitive list of the world’s best universities, with an emphasis on the research mission.

Dr. Judy Hannon
Abstracts:

Dr. Chris Le
Invited Presentations:
2. "CRISPR and isothermal amplification for sensitive detection of nucleic acids including SARS-CoV-2 RNA". ImmuNet, Department of Medical Microbiology and Immunology, University of Alberta. March 10, 2022.

Dr. Michael Mengel
Invited Lectures:
1. Virtual Transplant Manitoba Multi-Organ Transplant Rounds, University of Manitoba, Winnipeg, Canada February 09.2022 "Next Generation Pathology with Molecular Diagnostics"
2. Satellite Symposium (virtual) of the International Renal Pathology Society (March 20.22) 2022: "Molecular Diagnostics in Kidney Transplantation"
3. ISN-TTS webinar, Antibody-Mediated Rejection 2022 (May 31.): "Update on histological and molecular diagnosis of antibody-mediated rejection"

Dr. Susan Nahiriak
Abstracts and Proceedings:

Dr. William Stokes
Abstracts and Proceedings:
2. Riopel N, Wood K, Stokes W. "Disseminated cutaneous Mycobacterium cheloneae infection in an adult immunocompetent host: a case report and literature review". Association of Medical Microbiology and Infectious Diseases (AMMI) Canada, virtual, April 5-8, 2022
Recent Publications

Dr. Jason Acker:

Dr. Juliin Bacani & Dr. Laura Canterbury:

Dr. Carmen Charlton (cont’d):

Dr. Linda Chui
Peer-reviewed Publications:
Recent Publications continued...

Dr. Matthew Croxen
Peer-reviewed Manuscript:
https://doi.org/10.1016/j.jviromet.2022.114553

Dr. Andrei Drabovich:

Dr. Steven Drews:
Manuscripts:

Dr. Steven Drews (cont’d):

Other Communications:
1. Drews, S.J. "Climate change, transfusion-transmitted parasites and contingency planning by blood operators". Transfusion Today

Dr. Janet Elliott
Peer-reviewed papers:

Dr. Victoria Higgins:
Recent Publications continued...

Dr. Victoria Higgins (cont’d):


Dr. Chris Le:


Dr. Roger Leng:


Dr. Xing-Fang Li

Peer-reviewed Publications:


Dr. Xing-Fang Li (cont’d):


Dr. Susan Nahirniak:


Ms. Lisa Purdy & Ms. Roberta Martindale:
Peer-reviewed Publication:

Dr. William Stokes
Peer-reviewed Journal Articles:


Dr. Nathan Zelyas
Peer-reviewed Publications:


Save the Dates

The Banff Pathology Course
September 8-10, 2022
Urogenital Pathology
In Person Meeting

OVERVIEW

The Banff Pathology Course is a collaborative effort of the Canadian Association of Pathologists (CAP-ACP), Department of Laboratory Medicine and Pathology, University of Alberta and the Department of Pathology and Laboratory Medicine, University of Calgary to provide a continuing medical education activity for practicing pathologists, residents and pathologists' assistants.

COURSE DATES

Join us in person - 107 Tunnel Mountain Drive!

Future Courses:
Aug. 30-Sept. 2, 2023 - Gynecological Pathology

https://banffpathologycourse.com/