Dear Friends & Colleagues!

Unbelievable, Thanksgiving is over, Halloween is close, and Christmas will be there like nothing. But before we come to a closure of another year, I would like to provide you with up-dates on all the activities going on in our Department.

First, the provincial Lab Services Transition Project is entering its next phase. The planning activities for a new Hub Lab Facility are starting. Focus groups for starting the planning process have just been formed and will need to conclude their work before years end. In parallel, the procurement process of a new Clinical Information System which involves lab services broadly is underway. And in addition, the provincial Lab Services Restructuring process led by Penny Bellam is progressing. So we can expect rapid progress of the next quarter and emerging direction of where Lab Services is going for the end of 2016.

Please join me in welcoming our new faculty members (page 3 of the report) and in congratulating Dr. Puttagunta for her promotion to Full Professor. Also congratulation to all faculty members who received grants and were appointed to prestigious new positions! Accomplishments like these are tough these days. I truly appreciate everybody’s ongoing effort, hard work, and relentless self-motivation to pursue the academic mission of our department. The countless hours invested in committees, paper and grant writing, trainee supervision, teaching, and clinical work pay off as this report shows by the long list of outstanding presentations, publications, and accomplishments. I’m very proud of all the contributions everybody is making.

As a lead example of high caliber research going on in our department please have a look at our Spotlight on Research. The lab of Dr. Raymond Lai is presenting their high impact work in the area of cancer biology research. This work represents an exceptional example of how basic science discovery research improves our understanding of cancer mechanisms and leads to clinical relevant applications in diagnostics and potential therapy. This is the translational research we in Laboratory Medicine and Pathology are best positioned to do, and which to me is the most exciting part of my job: understanding the disease and having the opportunity to change how patient care is done!

Enjoy the Alberta fall as much as you can before winter takes its toll! We have exciting times ahead of us offering lots of opportunity. Not only will major improvements contribute to how we deliver laboratory services in Edmonton, but also how our specialty can contribute to heath care in the era of Precision Medicine.

Sincerely,

Dr. Michael Mengel, MD
Professor and Chair
Department of Laboratory Medicine and Pathology
University of Alberta
Interim Zone Clinical Department Head
AHS Laboratory Services, Edmonton Zone
Spotlight on Research

Dr. Raymond Lai
Professor
Department of Laboratory Medicine & Pathology

My Laboratory is located on the fifth floor of Katz Group Centre for Pharmacy and Health Research, which is home to a number of researchers from the Department of Oncology and Department of Pathology & Laboratory Medicine. Currently, we have a laboratory Manager (Ms. Yuen Morrissey), five students (Mr. ChengSheng Wu, Mr. Winston Huang, Mr. Moinul Haque, Mr. Abdulraheem Alshareef and Ms. Jindou Dong) at different stages of their training, as well as a post-doctoral fellow (Dr. Nidhi Gupta).

Our laboratory focuses on cancer biology. Supported by a number of grant agencies in the past and at the present time, we have studied breast cancer, mantle cell lymphoma as well as ALK-positive anaplastic large cell lymphoma. The common theme of our research is to discover key biochemical defects in these diseases. Based on this new knowledge, we aim to establish novel therapeutic targets and useful biomarkers.

One of our research focuses has been centered on ALK, normally expressed as a cell-surface receptor with tyrosine kinase activity. Research and publications from our group have contributed to the concept that ALK is central to the pathogenesis of ALK-positive anaplastic large cell lymphoma, and ALK is a useful therapeutic target. Our recent activities have centered on how ALK expressed in cancer cells may escape the binding of specific tyrosine kinase inhibitors such as Crizotinib, thereby resistance to this class of drugs develops. Another exciting line of ALK research is related to our discovery of a new variant of ALK expressed exclusively in a subset of neuroblastomas, and the identification of this variant significantly correlates with a worse clinical outcome.

Another research focus in our laboratory is related to the expression and functions of two transcriptional factors that are crucial in stem cell biology, namely Myc and Sox2. By measuring the transcriptional activity of these two factors in cancer cells, our group has demonstrated a novel intra-tumoral heterogeneity. Using this approach, we have successfully identified a subset of cancer stem-like cells in lymphomas, breast cancers (both the estrogen receptor-positive as well as the triple-negative types), esophageal cancers and neuroblastomas. With the establishment of this study model of detecting cancer stem-like cells, we have made great progress in understanding the biology of cancer stemness. In other words, what biochemical pathways confer stemness to cancer? As the existence of cancer stem cells is believed to be one of the key contributors to treatment failure and disease relapses in cancers, understanding of this important process is undoubtedly useful and relevant to the pursuit of a cure for cancer.

Our group has been extremely fortunate to be able to collaborate with several excellent researchers on campus. Our collaborations with Dr. Liang Li, Professor at the Department of Chemistry and Canada Research Chair (Analytical Chemistry) have been extremely fruitful. Our joint studies of using qualitative and quantitative mass spectrometry to study oncoproteins have resulted in a good number of publications in high-impact journals. We have been working with Dr. Afshan Lavasanifar, a Professor at the Faculty of Pharmacy, and we have successfully demonstrated the efficacy and potential of using nanoparticles to package and deliver drugs to cancer cells. Most recent, our joint effort has allowed us to develop a 3D model to study hematopoietic cancers. Dr. Norm Kneteman and his team have provided our team with excellent support to complete various animal studies. Last but not least, Dr. S. Damaraju, Dr. G. Bigras, Dr. C. Venner and Dr. J. Mackey from the Cross Cancer Institute have extensively collaborate with our group in completing various projects.

Looking into the future, our team will continue to expand our network of collaborators and accelerate the clinical translation of our research data. Focus will be given to leads that have the potential of patentability and commercialization.
New Appointments

Dr. Jelena Holovati has been appointed Lab Director, Edmonton Stem Cell Manufacturing Program, Canadian Blood Services

Dr. Linda Stang has been invited (and accepted) to be the Vice-Chairholder for a CLSI (Clinical and Laboratory Standards Institute) Document Development Committee on Autoverification (AUTO15).

Dr. X. Chris Le was elected Fellow of Royal Society of Chemistry (UK).

Dr. Jian-Qiang Lu has been appointed a Guest Professorship: Shandong University, Jinan, Shandong, China; 2016 June - 2019 May

The Department welcomes new members:
- Dr. Ben Adam - Assistant Professor
- Dr. Hakan Aydin - Clinical Assistant Professor
- Dr. Cheryl Mather - Clinical Lecturer
- Dr. Elona Turley - Clinical Lecturer
- Dr. Liena Zhao - Clinical Lecturer

Grants

Dr. Banu Sis has received two operational grants as Principal Investigator:
1. The Kidney Foundation of Canada, $100,000, two years, project title: "Tissue and circulating gene activity and protein biomarkers as a screening and diagnostic test for antibody-mediated rejection of human kidney transplants"
2. Canadian National Transplant Research Program - Astellas Innovation grant, $25,000, one year, project title: "A 34-gene signature diagnostic test to determine the individualized likelihood of antibody-mediated rejection and kidney transplant failure using formalin-fixed, paraffin-embedded biopsy samples: a multicenter external validation study"

Promotions

Dr. Lakshmi Puttagunta has been promoted to Professor

Extra

Dr. Allison Venner completed the following courses:
The Graduate Studies program is proud to announce:

Milestones

We are proud to announce that the following students have completed their graduate program.

Doctoral:

Eloisa Hasing (Dr Xiaoli Pang and Dr Bart Hazes, supervisors). Her thesis is titled *Characterization of Norovirus strains and a sero-prevalence study to understand the fluctuation of outbreak activity in Alberta, Canada.*

Preethi Krishnan (Dr Sambasivarao Damaraju, supervisor). Her thesis is titled *Profiling and Identification of Small non-coding RNAs as Prognostic Markers for Breast Cancer.*

Qi Zhang (Dr X Chris Le and Dr Afsaneh Lavasanifar, supervisors). Her thesis is titled *Targeted Delivery of Arsenic Compounds to Tumor Cells Using Polymeric Micelles.*

Ying Zhang (Dr Raymond Lai and Dr Min Su, supervisors). Her thesis is titled *The biological function and clinical significance of STAT1 in esophageal squamous cell carcinoma.*
Grad Students & Post-Docs (cont’d)

Masters:

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<tr>
<th>Photo not available</th>
<th>Katherine Fu (Dr Xing-Fang Li, supervisor). Her thesis is titled Effects of Halobenzoquinone Water Disinfection By-Products on Human Neural Stem Cells.</th>
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<td>Andrew Jordan (Dr Jason Ack- er, supervisor). His thesis is titled Importance of donor factors and whole blood processing in the storage injury of red blood cells.</td>
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<th>Photo not available</th>
<th>Kellar Klein (Dr Jason Acker, supervisor). His thesis is titled Non-invasive Fetal RhD Type Prediction by Direct qPCR</th>
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<td>Maram Hulbah and Mahalakshmi Kumaran passed their doctoral candidacy examinations.</td>
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<td>Lacey Haddon’s PhD proposal has been approved.</td>
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Congratulations to all!!

Awards

A number of students received awards that acknowledge their research/support their graduate programs:

- **Bhumi Bhatt** was awarded a Graduate Student Recruitment Scholarship.
- **Faisal Hirji** has received the FoMD 2016 Motyl Graute Studentship in Cardiac Sciences
- **Lindsay Blackstock** and **Angela Ma** each received a Queen Elizabeth II Graduate Scholarship – Doctoral.
- **Ainsley Chan** and **Albert Zuehlke** each received a Queen Elizabeth II Graduate Scholarship – Master’s.

New Students

We welcomed six students to our programs this September:

- **Bhumi Bhatt** (PhD student; supervisor, Dr Sambasivara Damaraju)
- **Ainsley Chan** (MSc Pathologists’ Assistant program)
- **Fatema Dhalla** (MSc Pathologists’ Assistant program)
- **Moinul Haque** (MSc student; supervisor, Dr Raymond Lai)
- **Colin Lloyd** (MSc student; supervisor, Dr Linda Chui)
- **Jeffrey Tao** (MSc student; supervisor; Dr X. Chris Le)
Presentations

Dr. Will Chen:

Dr. Gwen Clarke:
2. “Cell free DNA testing for targeted Routine antenatal anti D prophylaxis”. Maternal Fetal Medicine Annual CME day – Local meeting (Edmonton). Royal Alexandra Hospital, Robbins Learning Center, Wednesday September 21st, 2016

Dr. Steven Drews:
Presented the following abstracts at the Options IX for the Control of Influenza, 24-28 August 2016, Chicago, Illinois, USA.

Drs. Janet Elliott & Locksley McGann:
3. Poster Presentation: Eskandari, N., McGann, L.E., Elliott, J.A.W. “Cryopreservation of HUVECs in monolayers versus suspension in the presence of Me2SO”.

Dr. Mathew Estey:
1. Joint Conference of the Canadian College of Medical Geneticists and the Canadian Society of Clinical Chemists. Edmonton, 2016 June 19-22:
   - Breakfast Round Table. Mathew Estey. “Hemoglobinopathy Investigation for Chemists”.
   - Poster Presentations:
     - Tara Dixon¹, Mathew Estey, Trefor Higgins, Dylan Thomas, and Karina Rodriguez-Capote² (¹Presenter, ²Corresponding Author). “Acquired hemoglobinopathy and thalassemia”.
     - Alison Hunt¹, Dylan Thomas, Albert KY Tsui, M Estey, T Higgins, I Sandhu, K Rodriguez-Capote² (¹Presenter, ²Corresponding Author). “Sensitivity comparison of serum protein electrophoresis and immunofixation electrophoresis in the monitoring of complete response in multiple myeloma”.
     - Tara Dixon¹, Mathew Estey, Trefor Higgins, Dylan Thomas, and Karina Rodriguez-Capote² (¹Presenter, ²Corresponding Author). “Prenatal carrier screening for thalassemia and hemoglobinopathy in Northern Alberta”.
     - Albert KY Tsui¹, Alison Hunt, Mathew Estey, Dylan Thomas, Irwindeep Sandhu, Trefor Higgins, K Rodriguez-Capote² (¹Presenter, ²Corresponding Author). “Effects of Intervention on Test Utilization of Serum Protein Electrophoresis”.
2. Joint Conference of the Canadian College of Medical Geneticists and the Canadian Society of Clinical Chemists. Edmonton, 2016 June 19-22:
   - Poster Presentations:
     - J.Gill¹, V. Barakauskas, D. Thomas, K. Rodriguez-Capote, T. Higgins, A. VanSpronson, O. Babenko, R. Martindale and M. Estey² (¹Presenter, ²Corresponding Author). “TPO utilization: Is Northern Alberta Choosing Wisely?”

Postgraduate Courses:
Dr. Mathew Estey (cont’d):

Dr. Jelena Holovati:
Presentations/abstracts:

Dr. Surinder Kanwal:

Dr. Mireille Kattar:

Dr. X. Chris Le:
Was invited to present the following lectures:

Dr. Don LeGatt:
1. Poster presentation entitle “Tobramycin Assay Discrepancies – Comparison to Tandem Mass Spectrometry”. 68th AACC Annual Scientific Meeting and Clinical Lab Expo, July 31-August 4, 2016, Philadelphia, PA, USA:
2. Oral Presentation entitled “Clinical Toxicology Update”. AHS North Zone Laboratory Supervisors meeting, September 21, 2016, Westlock, AB.

Dr. Michael Mengel:
Invited lectures:
2. Zhejiang University, China, June 22, 2016, Invited lecture to graduate students: “Application of the NanoString nCounter platform in research and diagnostic pathology: Molecular studies in Formalin-fixed and paraffin-embedded tissues and cells”
3. Zhejiang First Affiliated Hospital, China, June 22, 2016, Invited lecture: “Up-date from the 2015 Banff conference: Molecular diagnostics in organ transplantation”
Presentations - Cont’d

Dr. Michael Mengel (cont’d):
   Hong Kong, HK: Post-Graduate Course in Transplantation:
   – “Histological diagnosis of immunological injury in solid organ transplantation”
   – “Assessment of the alloimmune response by molecular analysis of renal allografts”

Dr. Karina Rodriguez-Capote:
1. Joint Conference of the Canadian College of Medical Geneticists and the Canadian Society of Clinical Chemists, Edmonton, 2016 June 19-22
   – Breakfast Round Table. Karina Rodriguez-Capote. “Allergy Testing Utilization”
   – Poster Presentations:
     • Tara Dixon1, Mathew Estey, Trefor Higgins, Dylan Thomas and Karina Rodriguez-Capote (1 Presenter, 2 Corresponding Author) “Acquired hemoglobinopathy and thalassemia”.
     • Alison Hunt1, Dylan Thomas, Albert KY Tsui, M Estey, T Higgins, I Sandhu, K Rodriguez-Capote2 (1 Presenter, 2 Corresponding Author). “Sensitivity comparison of serum protein electrophoresis and immunofixation electrophoresis in the monitoring of complete response in multiple myeloma”.
     • Tara Dixon1, Mathew Estey, Trefor Higgins, Dylan Thomas and Karina Rodriguez-Capote2 (1 Presenter, 2 Corresponding Author). “Prenatal carrier screening for thalassemia and hemoglobinopathy in Northern Alberta”.
     • Albert KY Tsui1, Alison Hunt, Mathew Estey, Dylan Thomas, Irwindeep Sandhu, Trefor Higgins, K Rodriguez-Capote2 (1 Presenter, 2 Corresponding Author). “Effects of Intervention on Test Utilization of Serum Protein Electrophoresis”.
     • Joy Adekanmbi1, Trefor Higgins, Karina Rodriguez-Capote, Dylan Thomas, Jeffrey Winterstein, Tara Dixon, Jessica Gifford, Richard Krause, and Mathew P. Estey2 (1 Presenter, 2 Corresponding Author). “Erroneous Hb A1c results in a patient with elevated HbC and HbF”.
     • Albert KY Tsui1, George Cembrowski, Karina Rodriguez-Capote, Rob Sharman, Anna K Füzér2 (1 Presenter, 2 Corresponding Author). “Clinically significant differences in anion gap results among central laboratory and point-of-care chemistry analyzers”.

Dr. Dylan Thomas:
1. Joint Conference of the Canadian College of Medical Geneticists and the Canadian Society of Clinical Chemists. Edmonton, 2016 June 19-22:
   – Poster Presentations:
     • Tara Dixon1, Mathew Estey, Trefor Higgins, Dylan Thomas, and Karina Rodriguez-Capote2 (1 Presenter, 2 Corresponding Author). “Acquired hemoglobinopathy and thalassemia”.
     • Alison Hunt1, Dylan Thomas, Albert KY Tsui, M Estey, T Higgins, I Sandhu, K Rodriguez-Capote2 (1 Presenter, 2 Corresponding Author). “Sensitivity comparison of serum protein electrophoresis and immunofixation electrophoresis in the monitoring of complete response in multiple myeloma”.
     • Tara Dixon1, Mathew Estey, Trefor Higgins, Dylan Thomas and Karina Rodriguez-Capote2 (1 Presenter, 2 Corresponding Author). “Prenatal carrier screening for thalassemia and hemoglobinopathy in Northern Alberta”.
     • Albert KY Tsui1, Alison Hunt, Mathew Estey, Dylan Thomas, Irwindeep Sandhu, Trefor Higgins, K Rodriguez-Capote2 (1 Presenter, 2 Corresponding Author). “Effects of Intervention on Test Utilization of Serum Protein Electrophoresis”.

[1] Corresponding Author.
Presentations - Cont’d

Dr. Dylan Thomas (cont’d)
- Joy Adekanmbi, Trefor Higgins, Karina Rodriguez Capote, Dylan Thomas, Jeffrey Winterstein, Tara Dixon, Jessica Gifford, Richard Krause, and Mathew P. Estey 1 (1 Presenter, 2Corresponding Author).
  “Erroneous HbA1c results in a patient with elevated HbC and HbF”.
- J. Gill, V. Barakauskas, D. Thomas, K. Rodriguez-Capote, T. Higgins, A. VanSpronsen, O. Babenko, R. Martindale and M. Estey 2 (1 Presenter, 2Corresponding Author).
  “Out of Alignment? Optimization of thyroid test utilization through analysis of physician ordering patterns”.

2. Albert KY Tsui 1, Alison Hunt, Mathew Estey, Dylan Thomas, Trefor Higgins, Irwindeep Sandhu, K Rodriguez-Capote 2 (1 Presenter, 2Corresponding Author).
  “Test utilization of serum free light chain assay in Northern Alberta”.

3. Mathew P. Estey 1, Dylan Thomas 2, Karina Rodriguez-Capote, Bryce Maciek, Aimee Keillor, Jeffrey Companion, Anthony M. Mione, Dan Beriault, Maria D. Pasic, Trefor Higgins. (1 Presenter, 2Corresponding Author).
  “Finding a needle in the haystack: falsely low HbA1c due to an elusive hemoglobin variant”.
  Combined meeting of Australasian Association of Clinical Biochemists 54th Annual Scientific Conference and the Australasian Institute of Medical scientists 46th National Scientific Meeting.

Dr. Allison Venner:


Recent Publications

Dr. Mehdi Agoumi

Dr. Gwen Clarke:

Dr. Sambisavarao Damaraju:
Dr. Steven Drews:
Peer reviewed articles

Drs. Janet Elliott & Locksley McGann:

Dr. X. Chris Le:

Dr. Jian-Qiang Lu:
Peer-reviewed papers
Recent Publications (cont’d)

Dr. Jian-Qiang Lu (cont’d):

Dr. Nausherwan Mahmood:

Dr. Michael Mengel:

Peer-reviewed publications

D. Joshua Raizman:

Save the Dates …

Banff Pathology Course 2017
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 and residents in training.

Bone, Soft-Tissue, and Dermatopathology
August 30-September 2, 2017
Banff Centre for Arts and Creativity
107 Tunnel Mountain Dr,
Banff, AB