



Canadian Laboratory Medicine Congress

Le Westin Hotel Montreal

SCIENTIFIC PROGRAM

ROYAL COLLEGE ACCREDITATION

This event is an Accredited Group Learning Activity (Section 1) as defined by the Maintenance of Certification program of the Royal College of Physicians and Surgeons of Canada. This activity was approved by the Canadian Association of Pathologists.

Through an agreement between the Royal College of Physicians and Surgeons of Canada and the American Medical Association, physicians may convert Royal College MOC credits to AMA PRA Category 1 Credits™. Information on the process to convert Royal College MOC credit to AMA credit can be found at www.ama-assn.org/go/internationalcme.

OBJECTIVES OF THE CAP-ACP ANNUAL MEETING

At the end of the meeting participants will be able to:

- Discuss recent developments in diagnosis, prognosis and treatment based on new biomarkers and molecular signatures;
- Describe the pathogenesis of disease in several areas in Pathology;
- Present clinical and/ or research work to colleagues;
- Evaluate and validate different educational tools in residency training for learning and assessment;
- Discuss and assess the significance of new findings and observations in the context of current literature.

CANADIAN ACADEMY OF CLINICAL BIOCHEMISTRY ACCREDITATION

This Congress is an Accredited Group Learning Activity (Category 1) as defined by the CSCC/CACB Professional Development Program.

OBJECTIVES OF THE CSCC ANNUAL MEETING

At the end of the meeting participants will be able to:

- Discuss the latest developments in targeted areas of Clinical Chemistry;
- Be knowledgeable about the role of Clinical Chemistry in novel areas;
- Present clinical and/or research work to colleagues;
- Gain knowledge in a variety of areas via roundtables and workshops.

SATURDAY MORNING 0800–1130

Workshop: W2011 Kidney Cancer: a Whole New Look in 2015

Time 0800-1130
Room St-Antoine A

Directors **Andrew Evans**, University Health Network; University of Toronto
George Yousef, St. Michael's Hospital; University of Toronto

Objectives At the end of the session, the participants will be able to:

- Recognize the updated consensus ISUP recommendation for handling and reporting kidney tumors and the proper use of IHC.
- Describe the significance and limitations of biopsy specimens for small renal masses.
- Describe the potential role of molecular analysis in improving patient management in kidney cancer.

Workshop: W2012 Teaching and Assessing the Non-Medical Expert CanMEDS Competencies in Pathology & Laboratory Medicine

Time 0800-1130
Room St-Antoine B

Directors **Marcio Gomes**, The Ottawa Hospital; University of Ottawa
Ruth Padmore, The Ottawa Hospital; University of Ottawa

Objectives At the end of the session, the participants will be able to:

- Develop a framework of teaching activities for the implementation of the CanMEDS competencies in their programs.
- Develop a framework of evaluation tools for assessing the CanMEDS competencies in their programs.
- Implement new teaching activities to develop the non-medical expert roles in their program.
- Implement easy-to-apply evaluation tools to assess the non-medical expert roles in their program.

Workshop: W2013 Pathological Assessment of the Pancreaticoduodenectomy (Whipple's) Specimen

Time 0800-1130
Room Ville-Marie A

Directors **David Driman**, London Health Sciences Centre; University of Western Ontario
Vlad Maksymov, Grand River Hospital; McMaster University

Objectives At the end of the session, the participants will be able to:

- Review surgical anatomy of the head of the pancreas and relationship to adjacent vascular structures.
- Describe types of surgical specimens received.
- Define frozen section issues.
- Review margins in pancreaticoduodenectomy specimens.
- Review grossing protocols.
- Recognize the need for standardized assessment of specimens.
- Review quality assurance issues and interdisciplinary collaboration.

Workshop: W2014 A Guide to Total Quality Improvement: How to Choose, Track, and Act on Relevant Quality Metrics

Time 0800-1130
Room Ville-Marie B

Directors **Terri Jean Murray**, Eastern Health Authority; Memorial University
Stephen Raab, Eastern Health Authority; Memorial University

Objectives At the end of the session, the participants will be able to:

- Utilize a simple framework for selecting which quality metrics to track.
- Acquire a QI toolkit to close gaps between target and current performance including understanding concepts such as Root Cause Analysis, Fishbone diagrams, Learn-Plan-Do-Study-Act.
- Describe the different ways QI projects can be identified (reactive vs. proactive).
- Describe how quality control and quality assurance are different from quality improvement.

SATURDAY AFTERNOON 1300–1630

Workshop: W2021 Evidence Based Medicine for the Practicing Pathologist

Time 1300-1630

Room St-Antoine A

Directors **Alice Lytwyn**, Juravinski Hospital; McMaster University

Objectives At the end of the session, the participants will be able to:

- Describe basic concepts in evidence based medicine and how to apply them to pathology practice.
- Recognize where to obtain guidelines and tools for assessing studies.
- Recognize bias and how this affects study validity.
- Recognize concepts in randomized trials, diagnostic testing, prognostic marker and prediction studies, systematic reviews, and guideline development.
- Describe basic statistical concepts.

Workshop: W2022 T Cell Lymphoproliferative Lesions: Trials and Tribulations, Traps and Tips: Diagnostic Pitfalls and Potential Clinical Impact

Time 1300-1630

Room St-Antoine B

Directors **Catherine Ross**, McMaster University
Monalisa Sur, McMaster University

Objectives At the end of the session, the participants will be able to:

- Utilize a rational, cost effective strategy combining clinical history, morphologic, phenotype and genetic data to approach T cell malignancies and or reactive lesions.
- Diagnose nodal and extranodal T cell lymphomas and distinguish them from reactive processes.
- Analyze the current status of lymphoma classification as per the WHO 2008 classification with emphasis on some newer and unusual entities.
- Critique the clinical implications of the diagnoses.

Workshop: W2023 Top 10 Consultations in Gynaecologic and Obstetric Pathology

Time 1300-1630

Room Ville-Marie A

Directors **Martin Chang**, Mount Sinai Hospital; University of Toronto
Carlos Parra-Herran, The Ottawa Hospital; University of Ottawa

Objectives At the end of the session, the participants will be able to:

- Cite a variety of common scenarios where consultation with a gynaecologic pathology expert is requested.
- Develop a deeper understanding of the process by which the consultant evaluates cases sent for second opinion.
- Identify the key clinical and pathologic elements that must be provided when a case is sent for external consultation in gynaecologic and obstetrics pathology.

Workshop: W2024 Fine Needle Aspiration Cytology of the Thyroid

Time 1300-1630

Room Ville-Marie B

Directors **Manon Auger**, McGill University Health Center; McGill University

Objectives At the end of the session, the participants will be able to:

- Recognize The Bethesda System for Reporting Thyroid Cytopathology (TBSRTC).
- Employ an organized approach to the diagnostic interpretation of fine needle aspirates of the thyroid.
- Distinguish the wide range of cytological presentations of benign and malignant thyroid lesions.
- Recognize potential diagnostic pitfalls and be able to resolve major differential diagnoses.

SATURDAY EVENING 1700–1900

Transition into the Practice of Anatomical Pathology: A Workshop for Residents

Time 1700-1930

Room Montreal C

Chair **Bojana Djordjevic**, The Ottawa Hospital; University of Ottawa

Speakers **Bojana Djordjevic**, University of Ottawa
David Grynspan, University of Ottawa
Pauline Henry, University of Toronto

Objectives At the end of this session, participants will be able to:

- Have a more concrete understanding of the different patterns of practice in anatomical pathology.
- Gain insight into the task of preparing for and seeking their first position as a staff anatomical pathologist.
- Learn about the multiple facets of adapting to becoming a staff pathologist including independent diagnostic sign-out, increased participation and responsibility within multidisciplinary teams and finding one's niche within the pathology department in areas of medical education, research or administration.
- Become aware of various strategies for obtaining and maintaining a healthy work-life balance.

Symposium: Patient Safety and Quality Assurance: Jurisdictional Quality Plans and Indicators in Interpretative Pathology: Experience in Canada and Abroad

Time 1700-1900

Room Montreal A

Chair **Catherine Ross**, McMaster University

1700-1800 **Jurisdictional Quality Plans and Indicators in Interpretative Pathology: Experience in Canada and Abroad**
J. Conor O'Keane, Mater Misericordiae University Hospital; Royal College of Physicians of Ireland

Objectives At the end of this session, participants will be able to:

- Explain how the programme focused on actionable areas i.e. scoped to be within clinician control.
- Summarize approaches to lead change in a busy and difficult environment where services are being delivered on an ongoing basis.
- Discuss options to use collected data effectively within the lab, hospital and country.

1800-1900 **Jurisdictional Quality Plans and Indicators in Interpretative Pathology: the Canadian Perspective**

Panel Discussion with:

Katherine Chorneyko, Quality Management Program (Ontario)

Laurette Geldenhuys, Quality Programs in Halifax

John Srigley, Quality Initiative in Interpretive Pathology (CPAC)

Tamara Trotter, Alberta Provincial Quality Assurance Program

SUNDAY MORNING 0800–1130

Workshop: W2111 Effective Laboratory Utilization: Challenges and Strategies

Time 0800-1130
Room St-Antoine A

Directors **Laurette Geldenhuys**, QE II Health Sciences Centre
David Kinniburgh, Centre for Toxicology; University of Calgary
Christopher Naugler, Calgary Laboratory Services; University of Calgary
Catherine Ross, McMaster University

Objectives At the end of the session, the participants will be able to:

- Identify factors which influence laboratory utilization.
- Identify resources, tools and approaches to promote appropriate utilization.
- Discuss examples of effective strategies.
- Demonstrate the development of laboratory utilization strategies in their own institution.

Workshop: W2112 Pathological Muddiness: Reflective Practice and the Art of Intraoperative Consultation in Gynecologic Pathology

Time 0800-1130
Room St-Antoine B

Directors **Matthew Cesari**, Sunnybrook Health Science Centre; University of Toronto
Nadia Ismiil, Sunnybrook Health Science Centre; University of Toronto

Objectives At the end of the session, the participants will be able to:

- Describe the principles of reflective practice.
- Apply a reflective approach to the resolution of difficult/complex intra-operative consultations.
- Describe pitfalls and their solutions in the performance of intra-operative consultations.
- Demonstrate collaborative learning as part of a performance improvement strategy for intra-operative consultations.

Workshop: W2113 Best Practice Guidelines for Hospital Pathologists Performing Medicolegal Autopsies

Time 0800-1130
Room Ville-Marie A

Directors **Kristopher Cunningham**, Ontario Forensic Pathology Service; University of Toronto
Jayantha Herath, Ontario Forensic Pathology Service; University of Toronto
Michael Pollanen, Chief Forensic Pathologist of Ontario; University of Toronto

Objectives At the end of the session, the participants will be able to:

- Explain the stepwise process for managing and conducting a medicolegal autopsy.
- Describe injuries.
- Use laboratory testing beyond toxicology.
- Construct a professionally independent and impartial opinion on the cause and mechanism of death.
- Construct a final medicolegal autopsy report.

Workshop: W2114 What ISUP with Prostate Cancer? Grading, Variants, and New Developments

Time 0800-1130
Room Ville-Marie B

Directors **David Berman**, Queen's Cancer Research Institute; Queen's University
Theodorus Van Der Kwast, Toronto General Hospital; University Health Network
George Yousef, St. Michael's Hospital; University of Toronto

Objectives At the end of the session, the participants will be able to:

- Apply the latest ISUP grading system for prostate cancer in daily practice.
- Distinguish Gleason grade 3 patterns from Gleason grade 4 / 5 patterns in prostate needle biopsies.
- Identify and report the presence of intraductal carcinoma in prostate needle biopsies.
- Recognize unusual variants of prostate cancer in prostate needle biopsies.
- Describe the potential clinical importance of large scale genomic profiling studies in prostate cancer.

SUNDAY MORNING 0800–1130

Workshop: W2116 Practical Strategies for POCT Challenges: Managing the 3 R's (Relationships, Records and Risks)

Time 0830-1130
Room Montreal A

Directors **Christine Cursio**, University Health Network
Julie Shaw, The Ottawa Hospital
Paul Yip, University of Toronto

Objectives At the end of the session, the participants will be able to:

- Employ strategies to build successful relationships for compliance in the POCT environment.
- Describe approaches to improve documentation in the training, test order and results reporting of POCT users.
- Apply risk management techniques to identify and control sources of error in POCT.

Workshop: W2117 Understanding the Challenges of Anti-nuclear Antibody Testing

Time 0830-1000
Room Montreal B

Directors **Ivan Blasutig**, University Health Network
Alex Chin, Calgary Lab Services

Objectives At the end of the session, the participants will be able to:

- Describe the basics of anti-nuclear antibody (ANA) testing in diagnosing autoimmune diseases.
- Recognize current methods of ANA testing.
- Summarize the advantages and disadvantages of the different ANA testing techniques.
- Describe the challenges associated with validating new ANA methods based on real-life data.

Workshop: W2118 How to Implement LC/MS/MS into Your Laboratory

Time 1000-1130
Room Montreal B

Directors **Jessica Boyd**, Calgary Lab Services
Hossein Sadrzadeh, Calgary Lab Services

Objectives At the end of the session, the participants will be able to:

- Develop a business case to justify getting LC/MS/MS.
- Describe the basic requirements for implementing LC/MS/MS technology in their labs.
- Choose the most appropriate system for their labs.

SUNDAY AFTERNOON 1230–1700

Symposium: Communication & Documentation Pitfalls in Pathology

Time 1230-1400

Room Montreal D

Chair **Monalisa Sur**, McMaster University

Speaker **Kathryn G. Reducka**, Physician Risk Manager, The Canadian Medical Protective Association

Objectives At the end of this session, participants will be able to:

- Identify when a duty of care may exist when consulting or giving a second opinion.
- Explain the importance of documentation when doing an intradepartmental review.
- Employ techniques to reduce medico-legal risks and improve patient safety in pathology practice.

Symposium: Guillermo Quinonez Seminar on the Medical Humanities and International and Global Pathology combined Symposium: History of Medicine and Forensic Pathology in the Developing World

Time 1400-1700

Room Montreal D

Chair **Laurette Geldenhuys**, Queen Elizabeth II Health Science Centre; Dalhousie University

1400-1445 **Part I: As is Our Pathology, So is Our Practice**

James R. Wright, Jr., University of Calgary

Objectives At the end of this session, participants will be able to:

- Examine the history of a commonly cited quote attributed to Sir William Osler.
- Explore the role of William Boyd in the preservation of the quote.
- Describe the true meaning of the quote.

1445-1500 **Refreshment Break**

1500-1600 **Part II: Why Did Cytopathology Take So Long to Thrive?**

James R. Wright, Jr., University of Calgary

Objectives At the end of this session, participants will be able to:

- Examine the history of Cytopathology with an emphasis on Lionel S. Beale's pioneering work in the 1850s-1860s and that of Leonard S. Dudgeon in 1927.
- Explain the 60+ year hiatus with little progress between Beale and Dudgeon.
- Explain the lack of initial impact of George Papanicolaou's and Aurel A. Babeş's papers published in 1928 introducing the diagnosis of Cervical Cancer using vaginal smears.
- Describe why there was another gap with little progress until the publications of Papanicolaou & Trout in the early 1940s and why Cytopathology immediately thrived thereafter.

1600-1700 **Forensic Medicine and International Law**

Christopher Milroy, The University of Ottawa

Objectives At the end of this session, participants will be able to:

- Discuss the basic types of International Law.
- Discuss the history of Forensic Medicine in War Crimes.
- Discuss the history of Forensic Medicine in Human Rights abuses.
- Discuss the role of Forensic Medicine in Humanitarian emergencies.
- Explore the different roles Forensic Medicine plays in Humanitarian Law and Human Rights law.

SUNDAY AFTERNOON 1230–1700

Workshop: W2126 Control of Nonconformities in the Clinical Laboratory

Time 1300-1600

Room Montreal A

Directors **Lynn Allen**, University of Toronto
Stephen Hill, McMaster University Medical Centre
Edward Randell, Health Sciences Centre St. John's

Objectives At the end of the session, the participants will be able to:

- Differentiate corrective and preventive actions, and describe an approach to documenting them using corrective or preventive action reports (CARs or PARs).
- Describe different corrective and preventive action models for control of nonconformities.
- Describe root-cause analysis and identify some tools that aid in root-cause analysis investigations.
- Describe how to conduct a root-cause analysis for a discordant patient result or a proficiency testing failure.

Workshop: W2127 Biomarkers for Diabetic Kidney Disease – Established and New Practices

Time 1300-1430

Room Montreal B

Directors **Andrew Don-Wauchope**, Juravinski Hospital and Cancer Centre

Objectives At the end of the session, the participants will be able to:

- Explain the appropriate interpretation of biomarkers for diabetic kidney disease.
- Advise clinicians on physiologic or measurement conditions that may affect interpretation of laboratory tests for diabetic kidney disease.
- Implement best practices for urine albumin testing.
- Advise clinicians on the new diabetic kidney disease marker sTNFR1.

Workshop: W2128 Improving Utilization of Biochemistry Endocrine Testing

Time 1430-1600

Room Montreal B

Directors **Connie Prosser**, University of Alberta Hospital

Objectives At the end of the session, the participants will be able to:

- Discuss an approach to utilization management.
- Recognize barriers to implementing lab driven protocols aimed at optimizing test usage.
- Assess the impact of implementing such protocols.

SUNDAY EVENING 1700–1830

Lecture: CAP-ACP Junior Scientist Award: The Morphologic and Immunohistochemical Spectrum of Papillary Renal Cell Carcinoma: A Study Including 132 Cases with Pure Type 1 and Type 2 Morphology as well as Tumors with Overlapping Features

Time 1700-1745

Room Montreal D

Chair **David Berman**, Queen's Cancer Research Institute; Queen's University

Lecturer **Fadi Brimo**, CAP-ACP Junior Scientist Award Recipient, McGill University Health Centre

Objective At the end of the session, the participants will be able to:

- Describe the issues encountered in subtyping papillary renal cell carcinoma and the way to address them.

Lecture: CAP-ACP William Boyd Award: Diabetic Complications: a Journey Beyond Genes

Time 1745-1830

Room Montreal D

Chair **Vina Alexopoulou**, McMaster University

Lecturer **Subrata Chakrabarti**, CAP-ACP William Boyd Award Recipient, London Health Sciences Centre

Objectives At the end of the session, the participants will be able to:

- Discuss pathogenetic mechanisms leading to chronic diabetic complications.
- Describe specific epigenetic alterations in chronic diabetic complications.
- Recognize the roles of non-coding RNAs in chronic diabetic complications.

MONDAY MORNING 0800–1230

Symposium: Canadian Society of Cytopathology and Kulcsar Lecture: Urine Cytology Update: the Paris System of Reporting

Time 0800-1030
Room Montreal B

Chair **Janine Benoit**, University of Saskatchewan

0800-1030 **Güliz A. Barkan**, Loyola University Medical Center
Fadi Brimo, McGill University Health Centre

- Objectives** At the end of this session, participants will be able to:
- Explain the findings in normal urine cytology, common, and uncommon neoplasms in urinary tract cytology.
 - Summarize the key morphological features observed in all categories of the Paris System of reporting urinary tract cytology.
 - Discuss the diagnostic criteria set forth in the Paris System of reporting urinary tract cytology, and review the clinical implications and outcome of each category.
 - Review the most commonly used ancillary tests, and their utilization in diagnosis of urinary tract cytology.

Symposium: Hematological Pathology

Time 0800-1030
Room Montreal A

Chair **Catherine Ross**, McMaster University

0800-0915 **Diffuse Large B-cell Lymphoma**
Leonard Jeffrey Medeiros, The University of Texas MD Anderson Cancer Center

- Objectives** At the end of this session, participants will be able to:
- Diagnose morphologic variants and subtypes of diffuse large B-cell lymphoma recognized in the World Health Organization classification.
 - Recognize clinicopathologic and immunophenotypic findings that have prognostic value in patients with diffuse large B-cell lymphoma.
 - Apply results of conventional cytogenetic analysis and fluorescence in situ hybridization to enhance diagnosis of diffuse large B-cell lymphoma.

0915-1030 **Lymphoma Classification: The Importance of Getting it Right – Clinical Perspective**
Ronan Foley, Hamilton Health Sciences; McMaster University

- Objectives** At the end of this session, participants will be able to:
- Know how accurate diagnosis has important consequences on treatment options for patients.
 - Know newer therapeutic approaches in the treatment of T-cell lymphomas based on diagnosis.
 - Know areas of uncertainty, emerging improvements in treatment options for patients with B-cell lymphomas.

Symposium: Pediatric and Perinatal Pathology: An Approach to the Diagnosis of Metabolic Diseases in the Perinate for the Pathologists

Time 0800-1030
Room Montreal C

Chair **Fergall Magee**, University of Saskatchewan

0800-1030 **An Approach to the Diagnosis of Metabolic Diseases in the Perinate for the Pathologists**
Chantal Bernard, McGill University
Miriam Blumenkrantz, Montreal Children's Hospital
Michael Geraghty, Childrens Hospital Eastern Ontario; University of Ottawa
Fabienne Parente, McGill University Health Center

- Objectives** At the end of this session, participants will be able to:
- Define the metabolic autopsy in 2015 and recognize its indications.
 - Recognize selected clinical and pathological presentations of metabolic disorders.
 - Develop an interdisciplinary approach for diagnosis.
 - Discuss the optimal biochemistry testing for diagnosis.
 - Discuss guidelines for peri-mortem and post-mortem sampling (metabolic autopsy protocol).
 - Recognize how large scale DNA testing will change future metabolic diagnosis.

MONDAY MORNING 0800–1230

Symposium: Clinical Biology and Preventative Medicine

Time 0900-1200

Room Montreal D

Chair **Mathieu Provençal**, Hôpital Maisonneuve-Rosemont

Symposium At the end of this symposium, participants will be able to:

Objectives

- Discuss recent data about diseases epidemiology.
- Recognize how good or bad habits could impact quality of life.
- Identify different strategies and/or new clinical biomarkers set up within the clinical laboratory that can assist both patients and doctors in achieving prevention (e.g. new clinical guidelines for diabetes, cardiology, etc.).

0900-0950 **New Concepts in Cardiovascular Disease Prevention**

Martin Juneau, Montréal Heart Institute; University of Montreal

Objectives At the end of this session, participants will be able to:

- Recognize the minimal amount of exercise necessary for chronic diseases prevention and what is the “dose-response curve” for exercise.
- Describe the role of high intensity exercise training versus low to moderate continuous exercise.
- Discuss the benefits of the Mediterranean (or similar) diet and the role of the microbiome with respect to nutrition.

0950-1020 **Refreshment Break**

1020-1110 **Cancer Prevention**

Richard Beliveau, Notre-Dame Hospital

Objectives At the end of this session, participants will be able to:

- Recognize the causes of cancer, the chronic aspect of its development, and the interaction of heredity and lifestyle factors that define its progress.
- Discuss the major role lifestyle plays in prevention: use of tobacco, excess weight, exercise, nutrition, exposure to UV rays.
- Describe the application of concrete intervention strategies, stemming from recent research, to reduce the probabilities of developing cancer and, in the event of cancer, to maximize the chances of survival.

1110-1200 **If Lifestyle is the Medicine, What’s the Spoon?**

David L. Katz, Yale University School of Medicine

Objectives At the end of this session, participants will be able to:

- Describe how chronic disease burden is attributable to lifestyle.
- Discuss which lifestyle practices most influence health outcomes.
- Recognize the evidence for cultural delivery of lifestyle ‘as’ medicine.

MONDAY MORNING 0800–1230

Oral Presentations

Time 1100-1230

Objectives At the end of this session, participants will be able to:

- Evaluate and validate different educational tools in residency training for learning and assessment.
- Identify new findings and techniques in Pathology diagnosis impacting on prognostication and patient care.
- Identify new biomarkers or molecular signatures as tools for diagnosis and or prognosis.
- Assess the significance of new findings and observations in the context of current literature.

Session 1: Innovations in Residency Education and Assessment

Room Montreal A

- 1100-1115** **O101 Towards competency by design: establishing a ‘transition to pathology’ rotation for PGY1 residents**
Chelsea Maedler¹, Livia Florianova¹, Pylyp Zolotarov¹, Linnea Duke¹, Milene Gonzalez-Verdecia¹, Richard Fraser¹, Jason Karamchandani¹, Zu-Hua Gao¹, Ramila Amre¹, Chantal Bernard¹. ¹Department of Pathology, McGill University, Montreal Quebec Canada.
- 1115-1130** **O102 Learning and networking opportunities at a resident-led multidisciplinary academic day: how social media has helped**
Deepti M Ravi^{1,3}, Laura Morrison^{2,3}, Winnie Chan^{2,3}, Alex Chorley^{2,3}, Christine Orr^{2,3}, Teresa Chan^{2,3}. ¹Department of Pathology, McMaster University, 1200 Main Street West, Hamilton, ON, L8N 3Z5. ²Department of Medicine, McMaster University, Hamilton, ON, ³McMaster Multidisciplinary Academic Day Organizing Committee.
- 1130-1145** **O103 Autopsy education in Canada: assessing need for competency-based education through survey of educators**
Stephanie L. Reid^{1,2}, Carolyn M. Morris-Larkin^{1,2}, Vernon R. Curran¹. ¹Memorial University of Newfoundland, St. John’s, NL; ²Discipline of Laboratory Medicine, Eastern Health, St. John’s, NL.
- 1145-1200** **O104 An Interactive Computer Based Model for the Standardization of Oral Examinations in Anatomical Pathology**
Elena D. Diaconescu^a, Alex O. Salagean, Hala Faragalla^{a,b}, Andrea Grin^{a,b}, Vladimir Iakovlev^{a,b}, Adriana Krizova^{a,b}, George M Yousef^{a,b}. ^aLaboratory Medicine and Pathology, University of Toronto, Toronto, Ontario, Canada; ^bDivision of Pathology, St. Michael’s Hospital, Toronto, Ontario.
- 1200-1215** **O105 CanMEDS OSCE in Anatomical Pathology residency program**
Syed M. Abedi^a, Jeremy Daniels^a, Snezana Popovic^a. ^aDepartment of Pathology & Molecular Medicine, McMaster University, Hamilton, Ontario.
- 1215-1230** **O106 Remediation of pathology residents in difficulty: the University of Toronto experience**
Julia Keith^a, Nadia Ismiil^a, Shachar Sade^a, Simon Raphael^a, Susan Glover Takahashi^b, Matthew Cesari^a. ^aLaboratory Medicine and Pathobiology, University of Toronto, Toronto, ON; ^bPostgraduate Medical Education, University of Toronto, Toronto, ON.

Session 2: Toward Fulfilling the Promise of Precision Medicine and Theranostics

Room Montreal C

- 1100-1115** **O201 The prognostic value of immune biomarkers in leiomyosarcoma**
Samantha Burugu^a, Matt van de Rijn^b and Torsten Nielsen^a. ^aDepartment of Pathology and Laboratory Medicine, University of British Columbia, Vancouver, BC; ^bDepartment of Pathology, Stanford University Medical Center, Stanford, CA.
- 1115-1130** **O202 Cooling colorectal cancer with TRPM8 agonists**
Liena Zhao¹, Stefan Urbanski¹, Rithwik Ramachandran². ¹Department of Pathology, University of Calgary, Alberta, Canada; ²Department of Physiology and Pharmacology, University of Calgary, Alberta, Canada.
- 1130-1145** **O203 Reappraisal of immunohistochemistry in the diagnosis of ovarian mucinous neoplasms: the added value of SATB2 and the relevance of biomarker discovery through proteomic database mining**
Sarah Strickland^a, Jason Wasserman^a, Bojana Djordjevic^a, Ana Giassi^a, Carlos Parra-Herran^a. ^aDepartment of Pathology, University of Ottawa. Ottawa, Ontario.
- 1145-1200** **O204 Novel KI67 IHC assessment in breast cancer with high inter-observer reproducibility**
Gilbert Bigras^a, Judith Hugh^b, Wei-Feng Dong^a, Richard Berendt^a, Hua Yang^c. ^aLaboratory Medicine and Pathology Cross Cancer Institute, University of Alberta, Alberta Canada; ^bLaboratory Medicine and Pathology, University of Alberta, Alberta, Canada; ^cDepartment of Laboratory Medicine and Pathology, University of Calgary, Alberta, Canada.
- 1200-1215** **O205 Fibromatous periorchitis: report of a benign mimic of testicular malignancy**
Rola M. Saleeb^a, Michelle R. Downes^{a,b}. ^aLaboratory Medicine and Pathobiology, University of Toronto, Toronto, Ontario; ^bDepartment of Pathology, Sunnybrook Health Sciences Centre, Toronto, Ontario M4N 3M5.
- 1215-1230** **O206 Estimating recurrence in lobular breast cancer using Magee equations**
Nina Chang¹, Amelia Parrott¹, Angel Arnaout², Susan J Robertson¹. ¹Department of Pathology and Laboratory Medicine, University of Ottawa, Ottawa, ON; ²Department of General Surgery, University of Ottawa, Ottawa, ON.

MONDAY AFTERNOON 1300–1700

Symposium: Clinical Biochemistry of Extreme Physiological Conditions

Time 1300-1600

Room Montreal D

Chair **Alexandre Benoit**, Hôpital de Verdun

Symposium Objectives At the end of this symposium, participants will be able to:

- Discuss what we consider as extreme conditions for biochemical parameters.
- Discuss different extreme or extraordinary conditions that influence precise biological aspects.
- Identify what and how biochemical parameters may influence clinical follow-up.
- Discuss what we consider normal range and critical values influenced by environmental and extreme activities.

1300-1350 **Cardiovascular Consequences of Intermittent Hypoxemia in Health and Disease**

Marc Poulin, University of Calgary

Objectives At the end of this session, participants will be able to:

- Identify the consequences of intermittent hypoxemia in the patient with long standing obstructive sleep apnea.
- Explain the effects acute exposure to intermittent hypoxia (molecular, physiological) in otherwise healthy young adults.
- Assess the implications of the above findings to the high altitude workers who travel from sea level to high altitude for work.

1350-1440 **Pushing the Heart to the Limit: the Physiologic and Biochemical Consequences of Prolonged and Intense Physical Exercise**

Michel White, Montreal Heart Institute

Objectives At the end of this session, participants will be able to:

- Review the impact of chronic and intense exercise on physiological responses and on biomarkers in humans.
- Identify the changes in biochemistry parameters associated with the marathon and ironman challenges.
- Present the impact of training and conditioning on those responses.

1440-1510 **Refreshment Break**

1510-1600 **Clinical Laboratory Support in the International Space Program**

Kathleen A. McMonigal, NASA/Johnson Space Center

Objectives At the end of this session, participants will be able to:

- Discuss medical support for space flight missions.
- Name the effects of long-duration space flight on the human body.
- Discuss international cooperation in the Space Program.

Symposium: Assessment for Learning

Time 1300-1700

Room Montreal B

Chair **Marcio Gomes**, The Ottawa Hospital; University of Ottawa

1400-1500 **Assessment for Learning: The Basis of Competence Based Medical Education**

Farhan Bhanji, McGill University; Royal College of Physicians and Surgeons

Objectives At the end of this session, participants will be able to:

- Discuss the pivotal role of Assessment-for-learning in Competence Based Medical Education.
- Contrast assessment-of-learning and assessment-for-learning.
- Describe the components and tools of an assessment-for-learning program.

1500-1530 **Refreshment Break**

1530-1630 **How Would Assessment for Learning Look Like in Pathology?**

Marcio Gomes, The Ottawa Hospital; University of Ottawa

Christopher Davidson, Queen's University

Daniel Fontaine, University of Alberta

Objectives At the end of this session, participants will be able to:

- Discuss assessment-for-learning tools that could be applied to pathology and laboratory medicine.
- Use structured direct observation as an assessment tool in pathology.
- Describe the elements of effective feedback.

1630-1700 **Forum – Assessment-for-learning (all presenters)**

MONDAY AFTERNOON 1300–1700

Symposium: Forensic Pathology: Ebola and Case Presentations

Time 1330-1630

Room Montreal A

Chair **Jacqueline L. Parai**, The Ottawa Hospital

1400-1530 **We Need to Talk About Ebola**

Frances Jamieson, Public Health Ontario; University of Toronto

Objectives

At the end of this session, participants will be able to:

- Summarize the epidemiology, transmission and natural reservoirs, pathophysiology, and clinical presentation of Ebola Virus Disease.
- Discuss current recommendations for collection, handling, processing and the diagnostic laboratory testing of specimens from patients with suspect Ebola Virus Disease.
- Review and describe the role of public health laboratories and the Canadian Public Health Laboratory Network in the response to emerging and re-emerging pathogens.

1530-1600 **Refreshment Break**

1600-1620 **Case Presentation**

Christopher Milroy, University of Ottawa

Objectives

At the end of this session, participants will be able to:

- Discuss infections and intravenous drug misuse.
- Discuss the role of microbiology in the autopsy.
- Discuss the histopathology of necrotizing fasciitis.

1620-1640 **Case Presentation**

Jacqueline Parai, Eastern Ontario Regional Forensic Pathology Unit

Objectives

At the end of this session, participants will be able to:

- Discuss the Influenza A/H1N1 2009 pandemic.
- Recognize the pulmonary pathology findings seen in fatal H1N1 infections.
- Discuss the risk factors and comorbidities seen in cases of fatal H1N1 infections.

1640-1700 **Case Presentation**

Michael S. Pollanen, Chief Forensic Pathologist of Ontario; University of Toronto

Objectives

At the end of this session, participants will be able to:

- Review common fatal infections found at autopsy.
- Discuss precautions at autopsy to minimize transmission of infection.
- Discuss emerging novel pathogens around the globe.

TUESDAY BREAKFAST 0715–0815

Roundtable: RT2301 Choose the Most Suitable Blood Collection Tube for Routine Chemistry and Immunoassay Tests in Your Institution

Time 0715-0815

Room Ville-Marie AB

Leader Yu Chen, Horizon Health Network

Objectives At the end of the session, the participants will be able to:

- Describe the pros and cons for serum and plasma specimen type for routine chemistry and immunoassay tests.
- Describe the benefits and disadvantages of the Becton Dickinson Vacutainer® plasma separator tube.
- Describe the benefits and disadvantages of the Becton Dickinson Vacutainer® rapid serum tube.

Roundtable: RT2302 Decision Support for Urine Drug Testing for Pain Management

Time 0715-0815

Room Ville-Marie AB

Leader Hoi-Ying (Elsie) Yu, Geisinger Medical Laboratories

Objectives At the end of the session, the participants will be able to:

- Describe the challenges face by providers in urine drug tests.
- Describe the limitations of urine drug tests.
- Apply decision support for pain medication compliance monitoring.

Roundtable: RT2303 Metal Toxicity and Hip Implants

Time 0715-0815

Room Ville-Marie AB

Leader Penny Colbourne, University of Alberta Hospital

Objectives At the end of the session, the participants will be able to:

- Summarize why metal toxicity is a concern in patients receiving a metal-on-metal hip implant.
- Identify the trace elements and the matrices that are analyzed in patients who have received metal-on-metal hip implants.
- Describe the relationship between trace element results and management of those patients who have received a metal-on-metal hip implant.

Roundtable: RT2304 Dry Blood Spots, Microfluids, Mini Mass Spec – The Future is Here

Time 0715-0815

Room Ville-Marie AB

Leader Bhushan Kapur, Sunnybrook Health Science Center

Objectives At the end of the session, the participants will be able to:

- Know the advantages and limitations DBS in Clinical Chemistry and TDM/Toxicology.
- Review the recent development in microfluidic technology in TDM and Toxicology.
- Discuss for target analysis, a back-pack Mini-Mass Spectrometer that can do the job.

Roundtable: RT2305 Fluid Chemistry Analysis on Clinical Biochemistry Laboratories

Time 0715-0815

Room Ville-Marie AB

Leader AbdulRazaq Sokoro, Diagnostic Services of Manitoba Inc. (DSM Inc.)

Objectives At the end of the session, the participants will be able to:

- Describe the challenges present in providing fluid chemistry analysis.
- Report on the requirements and approaches to validate fluid chemistry analysis.
- Express the guidelines available for fluid analysis of fluid chemistry analysis.

Roundtable: RT2306 L'avenir des dosages salivaires dans les laboratoires Clinique dans un avenir proche?

Time 0715-0815

Room Ville-Marie AB

Leader Guy Fink, Université de Sherbrooke

Objectifs Au terme de la session, le participant sera en mesure de :

- Comprendre les limites physiologiques et analytiques de l'utilisation de la salive comme fluide biologique.
- Déterminer les molécules candidates pour le dosage salivaire en biologie clinique.
- Discuter des prémisses nécessaires à leur mise en œuvre dans nos laboratoires.

TUESDAY MORNING 0800–1200

Symposium: Advanced Diagnostics: New Frontiers in Classification of Malignant Lymphoma

Time 0800-1130

Room Montreal A

Chair **David Berman**, Queen's Cancer Research Institute; Queen's University

0800-0900 **Diagnostic Work Up of Double Hit Lymphomas – What Pathologists Need to Know**
Nathalie Johnson, Jewish General Hospital; McGill University

Objectives At the end of this session, participants will be able to:

- Describe a cost effective approach to identify cases that require FISH for MYC and BCL2.
- Describe the rationale for implementing MYC by immunohistochemistry in your institution.
- Define the prognostic significance of other markers such as Ki-67 protein and BCL6 protein expression as well as genomic amplifications of MYC.

0900-1000 **Cell-of-origin in diffuse large B-cell lymphoma: approaching the clinic**
David Scott, BC Cancer Agency

Objectives At the end of this session, participants will be able to:

- Describe the cell-of-origin distinction in DLBCL and the underlying biology.
- Assess the utility of COO as a biomarker in the clinical context.
- Appraise the performance of established and emerging assays for COO.

1000-1030 **Refreshment Break**

1030-1130 **Large B-cell Lymphoma Work Up**
Emina Emilia Torlakovic, University of Toronto

Objectives At the end of this session, participants will be able to:

- Describe required minimal work up for aggressive DLBCL.
- Describe new/emerging assays for immunophenotyping.
- Describe new/emerging assays for RNA analysis in situ.

TUESDAY MORNING 0800–1200

Symposium: Anatomical Pathology: Dermatopathology

Time 0800-1130

Room Montreal B

Chair **Golnar Rasty**, Toronto General Hospital; University of Toronto

0800-0845 **Small Lesions that Get Under Your Skin**
Sébastien Labonté, CHU-L'Hôtel-Dieu de Québec

Objectives At the end of this session, participants will be able to:

- Compare different mesenchymal lesions of the skin.
- Select the appropriate adjuvant tests to order.
- Formulate a short differential diagnosis.

0845-0930 **Instructive Cases in Dermatopathology – Lymphoid Tumors**
Lyn McDivitt Duncan, Massachusetts General Hospital Dermatopathology Service ; Harvard Medical School

Objectives At the end of this session, participants will be able to:

- Formulate an appropriate differential diagnosis when faced with a dense cutaneous lymphoid infiltrate.
- Specify immunohistochemical stains that will help distinguish cutaneous lymphomas of different cell lineages.
- Identify important benign mimics of aggressive tumors.

0930-1000 **Instructive cases in Dermatopathology – Cutaneous Infections**
Victor Tron, St. Michael's Hospital

Objectives At the end of this session, participants will be able to:

- Understand the diversity of cutaneous infections.
- Have an approach to diagnosis using traditional and modern approaches.
- Understand the clinical importance of diagnosing these disorders.

1000-1030 **Refreshment Break**

1030-1130 **A New Pragmatic Approach to Difficult Melanocytic Lesions – Illusion or Reality?**
Danny Ghazarian, University Health Network; University of Toronto

Objectives At the end of this session, participants will be able to:

- Be exposed to a new approach in difficult melanocytic lesions.
- Be familiar with the potential pitfalls.
- Adopt a new practical synoptic reporting system.
- Participate in the diagnosis of a list of cases shown.
- Increase the comfort zone and confidence in these cases.

TUESDAY MORNING 0800–1200

Symposium: Neuropathology: Nerve and Muscle Pathology

Time 0800-1130

Room Montreal C

Chair Gerard Jansen, University of Ottawa

0800-0900 **Muscle Pathology for Non-Neuropathologists**
Jeffrey T. Joseph, University of Calgary

- Objectives** At the end of this session, participants will be able to:
- Understand some clinical criteria for obtaining a muscle biopsy.
 - Know generally how to process a muscle biopsy.
 - Approach muscle biopsy histology in a systematic manner.
 - Diagnose key categories of muscle disease.
 - Know when further neuropathology consultation should be sought.

0900-1000 **Quality Assurance Considerations in Muscle Biopsy Pathology**
Julia Keith, Sunnybrook Health Sciences Centre; University of Toronto
Raj Saniasy, Sunnybrook Health Sciences Centre

- Objectives** At the end of this session, participants will be able to:
- Explain the rationale for ‘special handling’ of diagnostic muscle biopsies, including the justification for enzymology and electron microscopy.
 - Apply basic QA principles to muscle pathology and state common challenges to quality in muscle pathology that occur during the pre-analytic, analytic and post-analytic stages.
 - To compare our experience troubleshooting artefactual phenomena in muscle biopsies with that of their home institution.

1000-1030 **Refreshment Break**

1030-1130 **Skin Biopsy as a Diagnostic Tool in the Investigation of Peripheral Neuropathy**
Jean Michaud, University of Ottawa

- Objectives** At the end of this session, participants will be able to:
- Identify the most important clinical indications for requesting a skin biopsy in the exploration of possible small fiber sensory neuropathy.
 - Have a good knowledge of the innervation of the skin.
 - Explain the complexity and limitation of the technical procedure and histological analysis.
 - Analyze the histological changes in small fiber sensory and autonomic neuropathies.

TUESDAY MORNING 0800–1200

Symposium: Advances in Point of Care Testing

Time 0830-1200

Room Montreal D

Chair **Nathalie Lepage**, Children's Hospital of Eastern Ontario

Symposium Objectives At the end of this session, participants will be able to:

- Discuss current POCT practices in Canada.
- Educate colleagues on diversity of POCT in clinical laboratories and Hospitals, and their positive impact on patient care.
- Recognize and integrate novel biosensor technologies as they become commercially available.
- Describe POCT methodologies in development and their potential benefit on patient care in the future.

0830-0915 **The Trials and Tribulations of Point-of-Care Testing (POCT): A Clinical Biochemist's Perspective**
Julie Shaw, The Ottawa Hospital

Objectives At the end of this session, participants will be able to:

- Define POCT.
- Measure the scope of POCT in Canada.
- Describe the accreditation requirements for POCT in general terms.
- Describe the laboratory's role in POCT.
- Explain the challenges that face POCT from laboratory and clinical perspectives.
- Identify strategies to overcome the challenges facing POCT.

0915-1000 **POCT is Invading the Clinical Microbiology Laboratory**
Nathan Ledebor, Medical College of Wisconsin

Objectives At the end of this session, participants will be able to:

- Compare Molecular POCT assays for detection of influenza and Group A strep.
- Discuss patient management benefits from infectious POCT assays in inpatient and outpatient environment.
- Discuss outcome benefits of detection of agents of sepsis.

1000-1030 **Refreshment Break**

1030-1115 **Prospects and Challenges of Graphene-based Biosensors and Bioelectronics**
Jonathan Claussen, Iowa State University

Objectives At the end of this session, participants will be able to:

- Summarize the exceptional physiochemical properties of graphene.
- Identify the distinct fabrication methods of graphene.
- Determine which graphene manufacturing protocol is most suitable for a particular biomedical application.
- Assess the effectiveness of ink jet printed graphene in biosensor applications.

1115-1200 **Advances in Point of Care Testing**
Aaron Wheeler, University of Toronto

Objectives At the end of this session, participants will be able to:

- Describe digital microfluidics (DMF).
- Reflect on where DMF may fit into POCT.
- Describe the University of Toronto work using DMF for POCT.

TUESDAY AFTERNOON 1400–1700

Symposium: Dr. Cam Coady Slide Seminar : Pathologies of Bone and Soft Tissue

Time 1400-1700
Room St-Antoine AB

1400-1700 **Osteoblasts in Health and Disease**
Andrew E. Rosenberg, University of Miami

- Objectives** At the end of this session, participants will be able to:
- Summarize the functions of bone forming cells in the creation, maintenance, and remodeling of bone tissue.
 - Explain the pathophysiology of osteoporosis and how to mitigate it's severity discuss the differential diagnosis of bone forming neoplasms.
 - Explain the features that help distinguish benign from malignant cartilage forming neoplasms.
 - Compare the features of the different types of epitheloid vascular tumors of bone and soft tissue.
 - Summarize the features of the spectrum of notocordal cell tumors.

Symposium: Recent Trends In Pathology: CAP Guidelines for p16 Immunohistochemistry in CIN2

Time 1710-1755
Room St-Antoine AB

Chair **Monalisa Sur**, McMaster University
1710-1755 **Jennifer M. Dmetrichuk**, McMaster University
Alice Lytwyn, McMaster University

- Objectives** At the end of this session, participants will be able to:
- Assess the evidence for p16 IHC in CIN 2 lesions.
 - Appraise a systematic review.
 - Evaluate guideline recommendations.

WEDNESDAY BREAKFAST 0730–0830

Roundtable: RT2401 Selecting Automation /Instrumentation for Clinical Laboratory – It’s More than just Finding the Right Technology

Time 0730-0830

Room Ville-Marie AB

Leader Hoi-Ying (Elsie) Yu, Geisinger Medical Laboratories

Objectives At the end of the session, the participants will be able to:

- Evaluate and select new instrumentations in a methodological manner.
- Describe how to avoid common pitfalls that happened during the selection / evaluation process.
- Restate the importance of engaging bench technicians in addition to lead technicians, supervisors and managers.

Roundtable: RT2402 The Accuracy of POCT Glucose Meters

Time 0730-0830

Room Ville-Marie AB

Leader Yun Huang, Eastern Health

Objectives At the end of the session, the participants will be able to:

- Illustrate the factors that influence the accuracy of glucose meter measurement.
- Name the updated accuracy requirements of glucose meter.
- Distinguish the accuracy of currently used POCT glucose meters, especially in long term service.

Roundtable: RT2403 Autoverification: Why, How and Key Lessons Learned

Time 0730-0830

Room Ville-Marie AB

Leader Allison A. Venner, Red Deer Regional Hospital Centre

Objectives At the end of the session, the participants will be able to:

- Describe what autoverification is and why a hospital laboratory would initiate the process.
- Discuss how it can be implemented using a local Alberta Laboratory as an example.
- Describe the risks and benefits of autoverification in a clinical laboratory.

Roundtable: RT2404 Urine Drugs of Abuse (DOA) Testing in the Out-patient (non-ER) Setting

Time 0730-0830

Room Ville-Marie AB

Leader Danijela Konforte, LifeLabs Medical Laboratory Services

Objectives At the end of the session, the participants will be able to:

- Describe advantages and limitations of screening and confirmation methods used for urine DOA testing in the out-patient setting (the focus will be on the clinical DOA testing only).
- Discuss utilization of clinical urine DOA testing.
- Identify and discuss major gaps within the clinical DOA testing in their institution/province.

Roundtable: RT2405 Congenital Adrenal Hyperplasia – Diagnosis in the Mass Spectrometry Era

Time 0730-0830

Room Ville-Marie AB

Leader Benjamin Jung, BC Children’s Hospital

Objectives At the end of the session, the participants will be able to:

- Describe the pathophysiology of Congenital Adrenal Hyperplasia (CAH) and the biochemical abnormalities that typify the different forms.
- Identify the biochemical tests for CAH diagnosis in newborns and late onset patients.
- Discuss the advantages of mass spectrometry-based measurement of adrenal steroids and the current challenges in interpreting test results for resolving the different forms.

WEDNESDAY BREAKFAST 0730–0830

Roundtable: RT2406 Dealing with the Emerging Drug Market

Time 0730-0830

Room Ville-Marie AB

Leader **Curtis Oleschuk**, Diagnostic Services of Manitoba Inc. (DSM Inc.)

Objectives At the end of the session, the participants will be able to:

- Share approaches to clinical and forensic (occupational and post-mortem) drug testing in Canada.
- Discuss the emerging psychoactive drug market.
- Discuss an initiative to track drug use trends.

Roundtable: RT2407 Biomarkers in COPD: Overview and Alpha1-Antitrypsin as a Paradigm

Time 0730-0830

Room Ville-Marie AB

Leader **Brian Gilfix**, McGill University

Objectives At the end of the session, the participants will be able to:

- Discuss biomarkers of COPD.
- Describe a1-antitrypsin as a paradigm of a biomarker for COPD.
- State the role of the laboratory testing in the diagnosis of a1-antitrypsin deficiency.

WEDNESDAY MORNING 0930-1300

Symposium: Toxicology

Time 0930-1300
Room St-Antoine AB

Chair Pierre-Olivier Héту, CHUM

Symposium Objectives At the end of this session, participants will be able to:

- Discuss the integration of pharmacology/toxicology laboratory testing in clinical, legal, or other specialized settings.
- Describe the contemporary methodological approaches used in pharmacology/toxicology laboratories.
- Discuss how to correctly interpret pharmacology/toxicology lab results in a patient-oriented manner.

0930-1015 Applications of Pharmacogenomics in the Clinic

Marie-Pierre Dubé, Institut de Cardiologie de Montréal

Objectives At the end of this session, participants will be able to:

- List some of the pharmacogenomic tests in clinical use.
- Compare different genetic technologies available for genetic diagnosis.
- Discuss the available clinical guidelines for genetic tests.
- Explain how pharmacogenomics can be used in the drug discovery process.

1015-1045 Refreshment Break

1045-1130 Discussion on the Difficulties in Keeping up to Pace with Newer Drugs and New Cheating Strategies, from the Analytical and Interpretative Point of View

Christine Ayotte, INRS – Institut Armand-Frappier, Montreal

Objectives At the end of this session, participants will be able to:

- Discuss the list of substances and methods prohibited in sport.
- Discuss and compare the analytical strategies involved in testing blood and urine samples.
- Recognize new products (including designer drugs) are introduced and how they could be detected.

1130-1215 Hair Testing for Drugs: Advantages, Disadvantages, Analytical Challenges, and Interpretation

Adam Negrusz, United States Drug Testing Laboratories

Objectives At the end of this session, participants will be able to:

- Evaluate the usefulness of hair testing for drugs.
- List advantages and disadvantages of hair testing.
- Recognize analytical challenges and interpretational difficulties.

1215-1300 Hair Testing for Biomarkers of Alcohol Use: Comparison with Blood and Urine

Adam Negrusz, United States Drug Testing Laboratories

Objectives At the end of this session, participants will be able to:

- Name alcohol biomarkers in hair vs. in blood and urine.
- Recognize the significance of alcohol biomarkers in hair and other specimens.

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