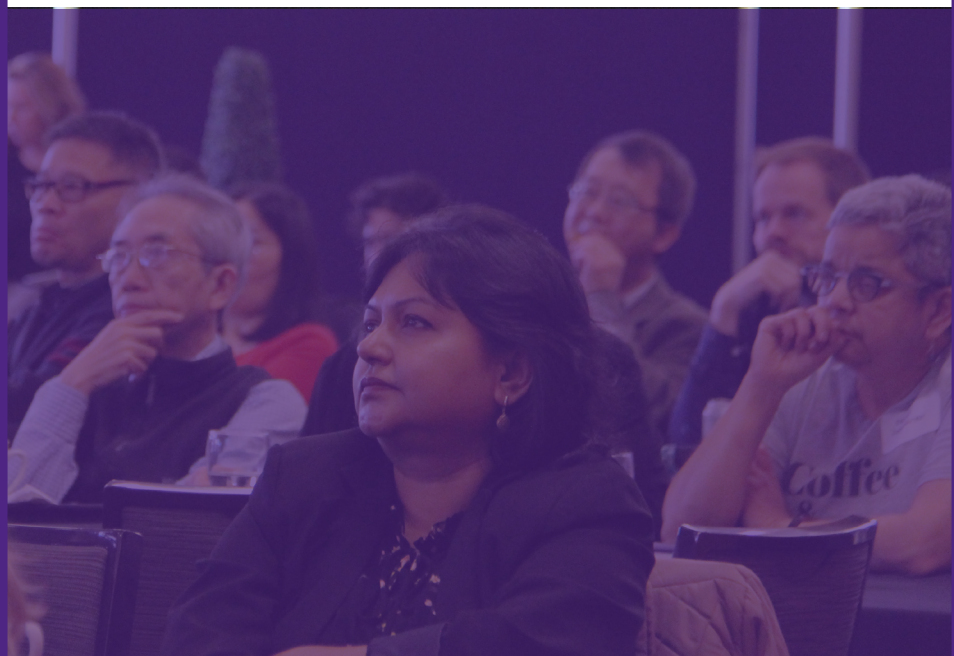


PATHOLOGY AND LABORATORY MEDICINE  
**RESEARCH DAY 2025**

**APRIL 11, 2025**  
**PROGRAM GUIDE**



## SCHEDULE

9:00 a.m.	Welcome and Opening Remarks Chair/Department Head Department of Pathology and Laboratory Medicine
9:15 – 10:15 a.m.	Platform Session 1
10:25 – 11:45 a.m.	Poster Session 1
11:45 – 12:40 p.m.	Lunch
12:40 – 2:00 p.m.	Poster Session 2
2:00 – 3:00 p.m.	Platform Session 2
3:15 p.m.	Keynote Address Dr. Tricia Cottrell Pathology and Molecular Medicine Queen's University, Kingston, Ontario. OICR Clinician Scientist
4:20 p.m.	Group Photo
4:30 p.m.	Research Day Award Ceremony

## KEYNOTE ADDRESS



### Tricia Cottrell, MD, PhD

Department of Pathology and Molecular Medicine  
Queen's University, Kingston, Ontario.

OICR Clinician Scientist  
Senior Investigator, Canadian Cancer Trials Group (CCTG)

### *“Harnessing tissue profiling technologies for clinical care”*

Dr. Cottrell completed her training (MD, PhD, anatomic pathology residency, and post-doctoral research fellowship) at Johns Hopkins School of Medicine in Baltimore, MD. Dr. Cottrell was involved in one of the first neoadjuvant clinical trials of anti-PD-1 therapy and was the first to characterize immune-related pathologic response following checkpoint blockade.

Dr. Cottrell's research lab focuses on mapping complex interactions between cancer cells and the immune system using multiplex immunofluorescence and digital image analysis, focusing on thoracic malignancies.

## CHAIR'S MESSAGE



Welcome to one of our department's most important academic events of the year. Our Pathology and Laboratory Medicine Research Day showcases our research accomplishments, celebrates our people, and gives us a glimpse into an exciting future for both our department, as well as for our School and University.

This year, we have 130 research presentations given by an array of researchers that displays the breadth of our department's research. Most presenters are undergraduate students, graduate students, and residents; the research being presented spans all of our department's research

themes, including amongst others, cancer biology, cardiovascular, respiratory and metabolic diseases, infection, immunity and inflammation, bioinformatics and data science, and digital pathology.

This year, we welcome Dr. Tricia Cottrell who is an immunologist and pathologist, an Assistant Professor at Queen's University and a Senior Investigator at the Canadian Cancer Trials Group. Dr. Cottrell has pioneered research on immune responses to checkpoint blockade therapy and neoadjuvant immunotherapy, particularly in thoracic malignancies. Her lab employs cutting-edge techniques, such as multiplex immunofluorescence and digital image analysis, to map tumour-immune interactions. Dr. Cottrell also plays a central role in managing the National Tumour Tissue Repository, driving advances in clinical biomarker development and cancer treatment.

The organizing committee and many members of our department have dedicated considerable time to ensure that this day is a rewarding experience for our department members and for our wider community. I would like to thank the Research Day Committee as well as the members of our university department staff for their tremendous work in putting this day together, and my thanks to all of the judges for their invaluable service. My heartfelt congratulations to all of the presenters for the work that you have done on your research and for representing the Department of Pathology and Laboratory Medicine. And finally, I would like to thank all of you for attending and supporting our department. I hope that you enjoy our multi-disciplinary approach to studying health and disease, as you listen to the platform presentations and view the posters.

### David Driman, MBChB, FRCPC

Chair, Department of Pathology and Laboratory Medicine, Schulich Medicine & Dentistry, Western University  
Department Head/Chief, Department of Pathology and Laboratory Medicine  
London Health Sciences Centre and St. Joseph's Health Care London

## PLATFORM SESSION 1

#	First Name	Last Name	Title
1	Jacob A.	Houpt	Biomechanical Contributions of Tensegrity in the Formation of Polymicrogyria
2	Laura	Lockau	Morphologic Alterations in Fibroblastic Foci Post Antifibrotic Therapy in Usual Interstitial Pneumonia: A Quantitative Histological Analysis
3	Katherina	Baranova	One year of ultra-rapid molecular testing through the Idylla platform demonstrates improved patient care outcomes coupled with a markedly reduced turnaround time
4	Xuan	Wang	Transcriptomic profiling reveals hippocampal white matter inflammation as potential epileptogenic focus in temporal lobe epilepsy

## PLATFORM SESSION 2

#	First Name	Last Name	Title
1	Mohammad Hossein	Derakhshan Nazari	Genome-wide association and single-cell analyses reveal novel immune regulatory mechanisms in Inflammatory Bowel Disease
2	Frederikke	Larsen	Colitis is associated with activation of a viral mimicry response that inhibits colonic tumorigenesis
3	Haley	McConkey	Epigenomic Analysis as a First-Tier Screening Tool in Rare Disease: A Case Series Demonstrating Diagnostic and Clinical Utility
4	Shengjie	Ying	Transcriptomic features of recurrence rates in idiopathic subglottic stenosis

## POSTER SESSION 1

#	First Name	Last Name	Title
1	Sam	Ugulini	Prenatal Phytocannabinoid Exposure Reprograms Glucagon Trafficking and Secretion in Pancreatic Alpha Cells
2	Louise	Mui	Clozapine-induced myocarditis resulting in sudden cardiac death: clinicopathologic correlation at autopsy
3	Kevin	Vytlingam	Preventing alloimmune rejection after heart transplantation using circular RNA ZMIZ1-engineered dendritic cells
4	Jacob A.	Haupt	Anti-NMDA Receptor Encephalitis Secondary to Ovarian Mature Cystic Teratomas
5	Alex	Morrone	The Effects of Inhibiting Known Cancer Dormancy Pathways on Ovarian Cancer Spheroid Viability
6	Carolyn	Lauzon-Young	Identifying novel epigenomic DNA methylation biomarkers in myeloid malignancies
7	Serina	Chahal	Impact of Circular RNA ZMIZ1 Silencing on Dendritic Cell Activity and Immune Function
8	Stanislav	Rayevskiy	Deciphering the Role of Mitochondrial DNA and MicroRNA in Knee Osteoarthritis Progression
9	Sahanah	Thirukumar	Targeting Cardiac Necroptotic Cell Death in Diabetic Cardiomyopathy with Murine Cytomegalovirus M45

## POSTER SESSION 1

#	First Name	Last Name	Title
10	Raffin	Ryeed	The Role of Non-HLA Antibodies on Glomerular Endothelial Cells
11	Kathryn	Taylor	Stathmin-2 Regulates Lysosomal Exocytosis in Pancreatic Alpha Cells as a Mechanism of Hyperglucagonemia in Diabetes
12	Diya	Gupta	Exploring the Differences between Western Medical Models and Indigenous Approaches in Care for Bipolar Disorder among Indigenous Canadians
13	Nhi	Le	Investigating combination PD1 and TIM3 blockade in a head and neck murine cancer model
14	William	Wang	Evaluating the Impact of Viral Recombination on Phylogenetic Methods of Estimating Basic Reproduction Number
15	Josh	Del Papa	Cutaneous small vessel vasculitis associated with varicella zoster infection: a case report and review of the literature.
16	Paula	Magbor	Resolving HIV-1 Transmission Risk Structure: A Community Detection Approach to Genetic Clustering
17	Elly	Shin	Investigating the Directionality and Role of Metabolites in the Interaction Between mtDNA Variation and the nDNA Epigenome
18	Irene	Lee	Examining the Use of Plant-Based and Traditional Indigenous Medicines for Intervention in Human and Bovine Tuberculosis

## POSTER SESSION 1

#	First Name	Last Name	Title
19	Katherine	Chen	Investigating Gene Therapy with the First 90 Amino Acids of Cytomegalovirus M45 for Doxorubicin-induced Mouse Cardiac Endothelial Cell Necroptosis
20	Shinjan	Rahman	Immunosuppressive action of carbon monoxide on TLR-induced Inflammation
21	James	Berti	Investigating the Role of CaMK1, CaMK2 and CaMK4 in RIPK3 Activation in TLR3-Initiated Cell Death in Mouse Microvascular Endothelial Cells
22	Amir Hossein	Karimi	Efficacy, Functional Consequences, and Immunomodulatory Effects of Treatment with Naporafenib in Anaplastic Thyroid Carcinoma
23	Veronica	Umerez	AI-Powered Study Tools: Developing a Pathologists' Assistant Oral Exam Trainer Using ChatGPT
24	Madeline	Klaassen	Chronic Hyperplastic Candidiasis as a Potentially Cancerous Lesion
25	Anorin	Ali	Integrating Fecal Microbiota Transplantation Data on an R Shiny App
26	Urooj	I. Syed	Age-related vascular remodelling in the bone marrow stem cell niche
27	August	Lin	Optimization of an external-nested PCR approach to SARS-CoV-2 variant of concern surveillance in wastewater: A new model for early outbreak detection

## POSTER SESSION 1

#	First Name	Last Name	Title
28	Athena	Southworth	Organism and technology-agnostic supervised machine learning achieves rapid and accurate classification of single-nucleotide polymorphism genotypes
29	Shurabi	Anphalagan	Exploring the Psychosocial Factors That Impact Pain Management in Advanced Cancer Patients: Perspectives from Care Providers
30	Spencer	Picard	Differentiating Donor vs. Recipient Cells in an Embryogenesis Model
31	Peyton	Avis	A Bacteriophage-based Platform to Study the Evolution of Eukaryotic Viruses
32	Eric	Wang	A long non-coding panel to stratify retinopathy risk in diabetic patients.
33	Wei Jia	Xu	Prognostic Value of Copy Number Variations Detected by SNP Microarray in B-Cell Acute Lymphoblastic Leukemia
34	Tommaso	Romagnoli	Optimizing Rotation Schedule For Anatomical Pathology Residents: A Comparative Analysis Of Human, Artificial Intelligence And Algorithmic Approaches
35	Rober	Abdo	Decoding Tumor-Stroma Interactions in Breast Cancer-Brain Metastasis: High-Definition Mapping of Cellular Ecosystems
36	Elissa	Woo	A novel approach to the assessment of mismatch repair protein immunohistochemistry utilizing digital cytometric analysis

## POSTER SESSION 1

#	First Name	Last Name	Title
37	Ryan	Joyce	Quantitative analysis of Eplet Load in Liver Transplant Success: Evaluating the Significance of Mismatches across different Human Leukocyte Antigen Loci
38	Jason	Sooklall	An in-depth analysis of the microbial basis of refractory osteomyelitis of the jaws
39	Ryan	Wang	Clinicopathological Outcomes and Biomarker Shifting of Breast Cancer Brain Metastases
40	Rose	Samadi	Evaluating OCP3: A Genetically Engineered Mouse Model for High Grade Serous Carcinoma
41	Kajeetha	Sarvananthan	Combined SNV and CNV detection by next-generation sequencing for improved glioma diagnostics
42	Madison	McGhee	ChatSOP: Utilizing ChatGPT to Streamline Pathology SOP Navigation
43	Maria	Mihele	Identification and characterization of stem cell transcripts in mouse bone marrow
44	Kezia	Cinelli	Comparing Gross and Microscopic Margin Status of Breast Lumpectomy Specimens
45	Steven	Chen	Predicting Mitochondrial DNA Copy Number using Heterogeneous Transfer Learning and Multiomic Data

## POSTER SESSION 1

#	First Name	Last Name	Title
46	Leah	McDonald	Biomarker Analyst-Assisted Semi-Automated Workflow for Ki67 Scoring Improves Pathologist Efficiency and Reduces Interobserver Variability in Breast Cancer
47	Scott	Wilson	Students' Perspectives of Teaching and Learning in an Undergraduate Pathology Classroom
48	Hayley	Clarke	A Comprehensive Comparison of Voice Recognition Software for Use in the Pathology Grossing Room
49	Stella	Li	The Effect of Lipopolysaccharide Exposure to Pregnant Rats on Inflammatory Cytokines and Immune Cell Distribution in the Placenta and Fetal Brain
50	Advika	Rath	Elucidating the potential association between bone marrow neuropathy and enhanced adipogenesis in diabetes.
51	Kelly	Baines	Identifying the ideal donor source for microbiome modulation to improve immunotherapy response in melanoma patients
52	Sharath	Kumar Hari	Drug Repositioning Approach to Reduce Inflammation for Optimal Mitochondrial Function
53	Daniel	Kawa	Characterizing p66Shc-Dependent Effects on Pluripotent Stem Cell Fate Using Teratomas for Comparative in vivo Multi-Lineage Differentiation Modelling

## POSTER SESSION 1

#	First Name	Last Name	Title
54	Chloe	Davidson	The Role of Dendritic Cells in Response to Anti-PD1 Therapy in Mismatch Repair-Deficient Colorectal Cancers
55	Lisa	Bi	Detecting Errors in Simulated Pathology Reports Using Large Language Models
56	Victoria	Bursey	Impacts of Electric School Bus Adoption on Schoolchildren's Pollutant Exposure: A Scoping Review
57	Bernardo	Reyes-Ballesteros	Development of a Pan- $\beta$ -Coronavirus Vaccine
58	Elizabeth	Mitchell	AI-Assisted Assignment of Endometrial Carcinoma Molecular Subtype
59	Stefan	Sampy	Nicotinamide mononucleotide can restore bactericidal activity in neutrophils by enhancing autophagic flux during sepsis
60	Leeying	Lau	Exploring the Pathologists' Assistant Educational Landscape and the Educational Experiences of Pathologists' Assistants in Canada
61	Justin	Donovan	Infectious SARS-CoV-2 persists in wastewater transport to treatment facilities and can mediate aerosolized transmission: potential risks for wastewater personnel

## POSTER SESSION 2

#	First Name	Last Name	Title
1	Esther	Chang	The Impact of Bone Morphogenic Protein 2 on SATB-2 Mediated Gingival Heterotopic Ossification
2	Nader	Shaker	S100A7 Expression in oral potentially malignant disorders: Verrucous Hyperplasia and Verrucous Carcinoma
3	Qi	Liu	Identification of SerpinA3 as a Biomarker against Doxorubicin-Induced Cardiotoxicity in Cancer Patients
4	Ginnian	Leung	The Effects of EZH2 Inhibition on Colitis-Associated Colorectal Cancer
5	Camri	Imlach	Piezo1 regulates DC-mediated immunomodulation during alloimmune rejection
6	Flaviu	Trifoi	Evaluating the Accuracy of AI Language Models in Pathology Education
7	Adam	Greasley	Circular RNA CRIM1 Regulates Cardiac Cell Injury and Immunogenetic during Heart Transplantation
8	Jessa	Castillo	Impact of on-site microscopic evaluation on specimen adequacy of renal biopsies
9	Yuanyuan	Gu	Rhabdomyosarcoma presenting as a hilar mass: a pitfall in fine-needle aspiration cytology diagnosis



## POSTER SESSION 2

#	First Name	Last Name	Title
10	Richard	Zhang	Identifying cell type- and developmental stage-specific gene regulation driving schizophrenia risk using a comprehensive multi-omics approach.
11	Sami	Ul Haq	Benchmarking GPT-4o for Tumor-Node-Metastasis Staging in Colorectal Cancer using a Feature Extraction-Based Method
12	Pious	Jose	Preventing Alloimmune Rejection in Transplantation using circMAP2K2 and circFSCN1 Silenced Dendritic Cells
13	Jacob A.	Haupt	Chronic Granulomatous Encephalitis and Seizures in the Context of Treated Herpes Simplex Virus Encephalitis in an Adult
14	Rachel	Barboza	Investigating the mediating role of metabolites in mtDNA-CN and nuclear epigenome communication using longitudinal cohort models
15	Julia	Steriopoulos	The Molecular Mechanism of TLR3 Initiated Cell Death
16	Grace	Ennema	Integrative Genomic and Epigenomic Analyses to Identify Gene Regulatory Mechanisms in Asthma Across Diverse Ancestries
17	Devon	Moran	Regulation of Ischemia Reperfusion Injury in Cardiomyocytes via Sodium Thiosulfate Treatment

## POSTER SESSION 2

#	First Name	Last Name	Title
18	Shania	Kaczmarek	Correlation of Pedestrian Lower Extremity Fractures to Motor Vehicle Bumpers in Frontal Motor Vehicle-Pedestrian Collisions
19	Jenna	Orsava	Exploring the Educational Transformation of Utilizing AI Tools on Student Learning
20	Omar	Abdelraheem	Elucidating the development and pathogenicity of dual-positive Th2-Th17 cells
21	Rachel	Chang	The Disease Burden of Frontotemporal Lobar Degeneration: A Macro- and Microscopy Correlation Study
22	Emily	Airhart	Do car-free days reduce air pollution? Evidence from Rwanda
23	Phyo	Win	Nuclear DNA methylation mediates the effect of mitochondrial DNA variation on cardiovascular disease risk
24	Sabina	Al Agbar	Non-HLA Antibodies in Kidney Transplantation: Associations with Delayed Graft Function and Rejection
25	Ankit	Ray	Systemic B-cell Responses to Neoadjuvant Therapy in Breast Cancer Patients
26	Brent	Selimi	Characterization and Optimization of Cell Line Models of Mitochondrial DNA Variation
27	Madeleine	Zajdlik	Knowledge Dissemination: A Key Tool for Alternative Bovine Tuberculosis Management Strategy Education



## POSTER SESSION 2

#	First Name	Last Name	Title
28	Kayla	TenHag	Advancing Rapid Diagnosis in Bloodstream Infections: Direct Identification and Antimicrobial Susceptibility Testing
29	Aanchal	Joshi	Utilization of Large Language models to classify variants of uncertain significance in cancer
30	Cody	Hird	Breaking Species Barriers: Potential Reverse Zoonosis of SARS-CoV-2
31	Haitao	Lu	ADAR1 and RIPK1 orchestrate the ZBP1-RIPK3 complex-mediated PANoptosis and heart transplant rejection
32	Briana	Battick	Identification of adipocyte markers in mouse bone marrow
33	Eric	Wang	Differential regulation of glucose-induced miR-9 alteration in cardiac and retinal endothelial cells
34	Emaan	Rana	Qualitative Exploration of the Histopathological Atlas of Laboratory Mouse Tissues
35	Komila	Zakirova	Wnt signalling supports survival of dormant HGSOc cells.
36	Bhavnit	Randhawa	Deep Generative Approaches to Ablating Nuisance Parameters in Fungal Filamentation Imaging

## POSTER SESSION 2

#	First Name	Last Name	Title
37	Wenqi	Yang	Single-Cell Multiomic Analysis of Leukemic Transformation in Myeloproliferative Neoplasms
38	Grace	Li	Development of a Preference-Based Vitreoretinal Disease-Specific Health-Related Quality of Life Instrument
39	Grace Eunbin	Kim	Directed neuroglial transdifferentiation of endothelial cells for tissue regeneration
40	Swathi	Anphalagan	Integrating Indigenous Perspectives in Health Systems Transformation through a One Health lens
41	Anuveer	Saini	Assessing and Mapping the Global Prevalence of Oral HPV in Key Populations
42	Nachuan (Harrison)	Pan	Investigating the Combined Effects of Targeted Therapy and Immune Checkpoint Inhibition in Anaplastic Thyroid Carcinoma
43	Kezia	Cinelli	Case Study: Twin Anemia-Polycythemia Sequence (TAPS) Placenta
44	Madison	McGhee	An Unusual Presentation of Metastatic Melanoma Within the Lungs
45	Hayley	Clarke	Diagnosing Pediatric Renal Tumours: Mesoblastic Nephroma vs Nephroblastoma
46	Tu Van	Phan	Detecting Overlapping Genes in Viral Genomes

## POSTER SESSION 2

#	First Name	Last Name	Title
47	Alana	Lopes	The use of Eye Tracking to Determine How Window Size Effects Pathologists' Search for Rare Elements in a Digital Pathology Setting
48	Laura	Duffy	EpiSign International: Health System Impact Assessment and Expanding Clinical Utilization of Epi/Genomic Testing in Rare Diseases and Beyond
49	Veronica	Umerez	Locally Advanced Basal Cell Carcinoma of the Maxilla: A Case Report
50	Yueyang	Li	A Case Report of Death from Stercoral Ulcer Perforation Associated with Fentanyl Use
51	Ornella	Botelho	Identification of Conserved HIV-1 Proviral Epitopes as Potential Targets for Therapeutic Vaccines in two Brazilian cities
52	Megan	Hong	Macrophages as drivers of immune checkpoint inhibitor response in immune-hot mismatch repair-deficient tumours
53	Tiffany	Cheung	The effect of disrupting the gut microbiota by antibiotic use on neuroblastoma growth
54	Evan	Schreier	Developing Enhanced Interferons for Improved Viral Defence
55	Elizabeth	Mitchell	Extensive Sarcomatoid Transformation in Chromophobe Renal Cell Carcinoma: A Case of Multiorgan Involvement and En Bloc Resection

## POSTER SESSION 2

#	First Name	Last Name	Title
56	Lindsay	Ninivirta	Neonatal skull fractures caused by vacuum-assisted delivery – a case report
57	Ankita	Gauba	A simulated ischemia-reperfusion injury model: a key approach to studying drug repurposing for combating inflammation
58	Ikbel	Hadj Hassine	Characterization of Soluble Human ACE2, DDP4, and AP-N Proteins Acting as Broad-Spectrum Coronavirus Receptor Decoys: A Novel Prophylactic Approach
59	Leeyang	Lau	A Rare Case of Left Renal Vein Leiomyosarcoma Resected via Radical Nephrectomy
60	David	Charrette	Expression of S100A7 in Oral Squamous Cell Carcinoma and Maxillectomy Margins.

## NOTES

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# RESEARCH DAY 2025

seeing small, thinking big

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