34th ANNUAL
Ottawa Cardiovascular Research Day

PROGRAM

May 26-27, 2022 | University of Ottawa Heart Institute
The Ottawa Cardiovascular Research Day Committee gratefully acknowledges the support of our event partners:

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On behalf of the planning committee, it is with great pleasure that we welcome you to the 34th Annual Ottawa Cardiovascular Research Day. This event is open to all cardiovascular research trainees in the Ottawa region and is designed to give trainees an opportunity to showcase their outstanding projects and network with investigators and peers.

For the first time, we have a two-day program to enable more opportunities for networking. We are excited to share the following program highlights:

- **Keynote lecture by Cristen Willer, PhD**, whose research focuses on the genetic basis of cardiovascular and metabolic diseases and related traits in the global human population.

- **Ottawa Region’s Cardiovascular Trainee of the Year Lecture by Richard Jung, PhD, MD Candidate, UOHI.**

- **The Innovation Award Competition this year will feature six finalists. The award recognizes innovative ideas and trainees’ ability to effectively communicate to a lay audience. Attend to hear your colleagues pitch their work to a panel of innovation champions!**

- **NEW Poster Swap** – this session will feature pairs of trainees teamed up to present each other’s research. The winning team will be decided by an audience vote!

- **Off-site Networking Event**

With 17 abstract talks and 49 posters, we are confident the Ottawa Cardiovascular Research Day is a great venue to network with colleagues and learn more about the work being done in the region. The event will conclude with an awards ceremony to recognize the best oral presentations and posters.

We would like to thank our speakers, presenters, judges, session chairs, and organizers for making this event possible. We would also like to extend our gratitude to all sponsors for their generous support: the Polk Family Foundation, UOHI Trainee Committee, Fisher Scientific, Virica Biotech, Bio-Rad Laboratories, Diamed Laboratory Supplies; Bronze Level Sponsors: Gather, Peter Liu, MD; and Gold Level Sponsor: UOHI Foundation.

Sincerely,

Erin Mulvihill, PhD  
Chair, Research Day Committee

Jennifer Reed, PhD  
Co-Chair, Research Day Committee
Planning Committee

**Erin Mulvihill, PhD**  
Chair, Research Day  
Scientist and Director, Energy Substrate Metabolism Research Laboratory, UOHI  
Associate Professor, Department of Biology, Microbiology and Immunology, Faculty of Medicine  
University of Ottawa

**Jennifer Reed, PhD**  
Co-Chair, Research Day  
Scientist and Director, Exercise Physiology and Cardiovascular Health Laboratory, UOHI  
Assistant Professor, School of Epidemiology and Public Health, Faculty of Medicine  
University of Ottawa

**Kelsey Bolger**  
Lead Organizer, Research Day  
Administrative Officer  
Research Services, UOHI

**Brianne Bruijns, PhD**  
Innovation Award Coordinator, Research Day  
Grants Officer  
Research Services, UOHI

**Sabrina Robichaud**  
PhD Candidate, UOHI  
Chair, UOHI Trainee Committee

**Braeden Mair**  
PhD Candidate, UOHI  
Co-Chair, UOHI Trainee Committee

**Nadya Morrow**  
PhD Candidate, UOHI  
Work-in-Progress Rounds Coordinator, UOHI Trainee Committee
## Program Overview

**DAY ONE: THURSDAY, MAY 26, 2022**

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<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tr>
<td>9:00 – 10:30</td>
<td><strong>Opening Remarks</strong>&lt;br&gt;Erin Mulvihill, PhD, Chair, Research Day Committee, UOHI</td>
<td>Poster Room, Gather Town</td>
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<td>10:30 – 11:45</td>
<td><strong>Poster Swap</strong>&lt;br&gt;Poster Room, Gather Town</td>
<td>Auditorium, Gather Town&lt;br&gt;<strong>Moderator:</strong> Nadya Morrow, PhD Candidate</td>
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<td>11:45 – 12:15</td>
<td><strong>Lunch - Offline</strong></td>
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<td>12:15 – 13:15</td>
<td><strong>Ottawa Region’s Cardiovascular Research Trainee of the Year Lecture</strong>&lt;br&gt;Richard Jung, PhD, MD Candidate</td>
<td>Auditorium, Gather Town</td>
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<td>13:15 – 14:15</td>
<td><strong>Mentoring Session with Cristen Willer, PhD</strong></td>
<td>Auditorium, Gather Town</td>
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<td>14:15 – 15:45</td>
<td><strong>Poster Session 2</strong>&lt;br&gt;Poster Room, Gather Town</td>
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<td>18:00</td>
<td><strong>Networking Event</strong>&lt;br&gt;Heart &amp; Crown&lt;br&gt;353 Preston St, Ottawa ON&lt;br&gt;*This event is open to all trainees and PIs! Separate registration is required for this event. Please contact <a href="mailto:researchservices@ottawaheart.ca">researchservices@ottawaheart.ca</a> for more information.</td>
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<td>7:45 – 8:00</td>
<td><strong>Opening Remarks</strong>&lt;br&gt;Erin Mulvihill, PhD, Chair, Research Day Committee, UOHI</td>
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<td><strong>Chief Scientific Officer Address</strong>&lt;br&gt;Peter Liu, MD, CSO &amp; VP Research, UOHI</td>
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<td><strong>President Address</strong>&lt;br&gt;Thierry Mesana, MD, PhD, President &amp; CEO, UOHI</td>
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<td>Auditorium, Gather Town</td>
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<td>8:00 – 9:15</td>
<td><strong>Oral Presentation Session 1</strong>&lt;br&gt;Auditorium, Gather Town</td>
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<td><strong>Linkage to ORACLE Theme: Precision Medicine</strong>&lt;br&gt;Moderators: Braeden Mair, PhD Candidate and Ariel Buchler, PhD Candidate</td>
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<td>O-1 Pulmonary Artery Pulsatility Index Predicts Intermediate Survival Following Mitral Valve Repair&lt;br&gt;Kenza Rahmouni, MD, Cardiac Surgery Resident, UOHI&lt;br&gt;Supervisor: Vincent Chan, MD</td>
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<td>O-2 Anti-Inflammatory Effect of Biologic Therapy in Patients with Psoriatic Disease: A Prospective Cohort FDG-PET Study&lt;br&gt;Kevin Boczar, MD, Cardiology Resident, UOHI&lt;br&gt;Supervisor: Rob Beanlands, MD</td>
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<td>O-3 Genetically Eliminating Hepatocyte-Derived DPP4 Does Not Alter Diastolic Function, but Downregulates Cardiac Immune- and Collagen-Related Genes&lt;br&gt;Natasha Trzaskalski, PhD Candidate, UOHI&lt;br&gt;Supervisor: Erin Mulvihill, PhD</td>
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<td>O-4 Mitochondrial Dynamics Directs Macrophage Polarization During Atherosclerosis: Implications for disease regression&lt;br&gt;Leah Susser, PhD Candidate, UOHI&lt;br&gt;Supervisor: Katey Rayner, PhD</td>
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<td>O-5 Immune-Dependent Ampk Signaling to HMG-CoA Reductase Protects Against Atherosclerosis&lt;br&gt;Tyler Smith, PhD Candidate, uOttawa&lt;br&gt;Supervisor: Morgan Fullerton, PhD</td>
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<td>9:15 – 9:30</td>
<td><strong>Health Break</strong></td>
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<td>9:30 – 10:30</td>
<td><strong>Oral Presentation Session 2</strong>&lt;br&gt;Auditorium, Gather Town</td>
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<td><strong>Linkage to ORACLE Theme: Healthy Diverse Populations</strong>&lt;br&gt;Moderators: Braeden Mair, PhD Candidate and Ariel Buchler, PhD Candidate</td>
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<td>Session Title</td>
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<td>O-6 High-Intensity Interval Training Improves Performance and Cardiac Function in Female Mice After Myocardial Infarction</td>
<td>Ines Amara, PhD, Postdoctoral Fellow, UOHI</td>
<td>Erik Suuronen, PhD</td>
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<td>O-7 Sex differences in Arterial Hemodynamics in Patients with Degenerative Thoracic Aortic Aneurysms</td>
<td>Amélie Paquin, MD, Clinical Fellow, UOHI</td>
<td>Thais Coutinho, MD</td>
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<td>O-8 Exploring the Associations Between Gender-Related Variables and Physical Activity Levels in Women with Atrial Fibrillation</td>
<td>Isabel Marçal, PhD Candidate, UOHI</td>
<td>Jennifer Reed, PhD</td>
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<td>O-9 Mental Health and Quality of Life in Patients and Their Partners During Cardiac Rehabilitation: Investigating bidirectional influences</td>
<td>Kathleen Lalande, PhD, Research Associate, UOHI</td>
<td>Heather Tulloch, PhD</td>
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10:30 – 10:45  
**Health Break**

10:45 – 12:15  
**Innovation Award Finalists’ Pitches**  
Auditorium, Gather Town

Moderator: Erin Mulvihill, PhD

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<th>Innovation Award Finalists’ Pitches</th>
<th>Presenter(s)</th>
<th>Supervisor(s)</th>
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<tr>
<td>I-1 Can Green Light Help Replace Stitches in Open-Heart Surgery?</td>
<td>Aidan Macadam, MSc Candidate, UOHI</td>
<td>Emilio Alarcón, PhD</td>
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<td>I-2 COVID-19 Vaccine-Induced Inflammatory Heart Disease Registry and Prospective Case-Control Study (COVID-VIHPR)</td>
<td>Tahir Kafil, MD, Clinical Fellow, UOHI</td>
<td>Peter Liu, MD</td>
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<td>I-3 An App for Helping Physicians Care for Patients After Heart Attacks</td>
<td>Avinash Pandey, MD, Internal Medicine Resident, UOHI</td>
<td>Hassan Mir, MD</td>
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<td>I-4 Can Exosomes Prevent Life-Threatening Heart Rhythm Disorders After Open Heart Surgery?</td>
<td>Sandrine Parent, MSc, Laboratory Technician, UOHI</td>
<td>Darryl Davis, MD</td>
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<td>I-5 Treating Heart Disease Risk After Pneumonia Using Fish Oils</td>
<td>Cameron Stotts, MSc Candidate, UOHI</td>
<td>Katey Rayner, PhD</td>
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<td>I-6 Genetic Blueprint of the Heart’s Electrical Network</td>
<td>Yena Oh, PhD Candidate, UOHI</td>
<td>Kyoung-Han Kim, PhD</td>
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<td><strong>Presentation of the Innovation Award to the Winner</strong></td>
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<td>13:00 – 14:00</td>
<td><strong>Keynote Lecture</strong></td>
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<td><strong>What Can the Messages in Our DNA Teach us About</strong></td>
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<td><strong>Human Disease and Improving Human Health?</strong></td>
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<td><strong>Cristen Willer, PhD</strong></td>
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<td>Professor, Departments of Internal Medicine, Human Genetics and</td>
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<td>Computational Medicine &amp; Bioinformatics</td>
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<td>Michigan Medicine, University of Michigan</td>
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<td>14:00 – 14:30</td>
<td><strong>Oral Presentation Session 3</strong></td>
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<td><strong>Linkage to ORACLE Theme: Big Data</strong></td>
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<td><strong>O-10 Association Between Markers of Atrial Cardiopathy and</strong></td>
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<td><strong>Cognitive Decline in the Absence of Atrial Fibrillation</strong></td>
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<td>Claudia Li, PhD, Postdoctoral Fellow, UOHI</td>
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<td>Supervisor: Jodi Edwards, PhD</td>
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<td><strong>O-11 Paradoxical Apelin Expression by gCap Alveolar Endothelial</strong></td>
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<td><strong>Stem Cells: Role in microvascular regeneration after acute lung</strong></td>
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<td><strong>injury induced by targeted endothelial cell ablation</strong></td>
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<td>Nicholas Cober, PhD Candidate, OHRI</td>
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<td>Supervisor: Duncan Stewart, MD</td>
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<td>14:30 – 14:45</td>
<td><strong>Health Break</strong></td>
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<td>14:45 – 16:15</td>
<td><strong>Oral Presentation Session 4</strong></td>
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<td><strong>Linkage to ORACLE Theme: Discovery to Translational Innovations</strong></td>
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<td>Moderators: Braeden Mair, PhD Candidate and Ariel Buchler, PhD</td>
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<td><strong>O-12 3D Printed Flexible Heart Case for Ex Vivo Organ and Tissue</strong></td>
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<td>Maxime Emmanuel Comtois-Bona, BSc Candidate, UOHI</td>
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<td>Supervisor: Emilio Alarcón, PhD</td>
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O-13 Targeting Cardiomyocyte Survival for Cardioprotection
Abir Almazloum, PhD Candidate, uOttawa
Supervisor: Mona Nemer, PhD

O-14 Extracellular Vesicles of Human Heart Explant Derived Cells Attenuate NLRP3 Inflammasome in Macrophages Possibly Via Transferring their Salutary miRNA and Protein Cargo
Ramana Vaka, PhD, Postdoctoral Fellow, UOHI
Supervisor: Darryl Davis, MD

O-15 Prone Myocardial Perfusion Imaging (MPI) Improves Inferior and Apical Artifacts in IQ- SPECT Compared to Supine MPI with or Without Attenuation Correction
Anahita Tavoosi, MD, Clinical Fellow, UOHI
Supervisor: Terrence Ruddy, MD

O-16 Accelerated Tracer Washout in Regions Of Sympathetic Denervation In Patients With Ischemic Cardiomyopathy Using Flubrobenguane Positron Emission Tomography Imaging
Yuchen Dai, MD Candidate, UOHI
Supervisor: Rob Beanlands, MD

O-17 Automated Motion Correction Improves the Repeatability And Reproducibility Of Myocardial Blood Flow Quantification With Rubidium-82 PET imaging
Justen Choueiry, MD Candidate, UOHI
Supervisor: Robert deKemp, PhD

16:15 – 16:45 Health Break

16:45 – 17:00 Awards Ceremony
Moderator: Jennifer Reed, PhD, Co-Chair, Research Day Committee, UOHI
Auditorium, Gather Town
Awards include:

- Dr. Yves Marcel Award for Best Basic Science Oral Presentation
- Howard & Doris Polk Award for Best Clinical Science / Bio-behavioural & Population Health Oral Presentation
- Award for Best Basic Science Poster
- Award for Best Clinical Science / Bio-Behavioural & Population Health Poster
- Awards for Honourable Mentions

17:00 Closing Remarks
Erin Mulvihill, PhD, Chair, Research Day Committee, UOHI
Dr. Cristen J. Willer is an esteemed professor at the University of Michigan. Dr. Willer was trained as a computational geneticist after completing a DPhil at the Wellcome Trust Center in Human Genetics at the University of Oxford, and postdoctoral fellowship in Biostatistics at the University of Michigan. In 2015, Dr. Willer was recognized as a Thomson-Reuters Highly Cited Researcher, top 1% of field. In 2021, Dr. Willer was awarded the ASHG Early Career Award for being a distinguished professor. Dr. Willer has published ~180 manuscripts, which have been cited over 65,000 times.

Dr. Willer’s research is focused on the genetic basis of cardiovascular and metabolic diseases and related-traits in global human populations. Dr. Willer is interested in identifying the full spectrum of disease–associated alleles using a variety of approaches including whole genome and exome sequencing, analysis of coding variation, and unbiased surveys of common variation in the genome. Dr. Willer has developed expertise in gene discovery, imputation of variants from population reference sets, meta-analysis of genetic data and visualization of genomic features. Dr. Willer leads the genetic mapping section for the International Common Disease Alliance (ICDA), and co-leads the Global Biobank Meta-analysis Initiative and the Polygenic Risk Score Task Force of the Ethics & Policy ICDA working group. Dr. Willer is the principal investigator of multiple NIH awards and of large biobanks initiatives, including the HUNT investigation, Cardiovascular Health Improvement Project (CHIP), and Michigan Racial Equality and Community Health (M-REACH).
Richard Jung, PhD, MD Candidate
University of Ottawa Heart Institute

Richard Jung, PhD, MD Candidate, was selected as the Ottawa Region’s Cardiovascular Research Trainee of the Year. Dr. Jung is recognized for his exceptional productivity in research and outstanding leadership in the community. His research (under the tutelage of Dr. Benjamin Hibbert) is centred on translational research and meta-research through clinical outcomes studies.

Since his tenure as a Vanier Scholar, Dr. Jung has made outstanding contributions to cardiovascular research. Just last year, Richard received the Dr. Frans Leenen Excellence in Publication Award in Clinical Research from the UOHI for his paper entitled “Transcatheter mitral valve repair in cardiogenic shock and mitral regurgitation: a patient-level multicenter analysis.” This article highlights Dr. Jung’s research in the Hibbert lab, which demonstrated that transcatheter mitral valve repair may improve both short- and immediate-term death in high-risk patients with cardiogenic shock and moderate to severe mitral regurgitation.

Dr. Jung has published 45 peer reviewed publications to date, and in this past year alone he has published nine first-authored original research papers, many of which were published in high-impact journals such as the Journal of the American College of Cardiology and Circulation Research. This has accelerated the uptake of his research findings by international audiences, with his work being cited 627 times – a true testament to the impact of Dr. Jung’s research. This academic success is only going to grow; in fact, his recent Nature Communications paper on the importance of methodological rigour of COVID-19 research has already been cited over 50 times in its first year of publication!

Dr. Jung is recognized for his outstanding leadership in the research and trainee communities. He has served as a reviewer for multiple journals, including Frontiers in Bioengineering and Thrombosis Research. Closer to home, Richard has served as the Co-Chair of the UOHI Trainee Committee and was a Co-Founder of the Internal Medicine Summer Camp, designed to diversify medical students’ training through professional development sessions and clinics. Since joining Dr. Hibbert’s lab, Dr. Jung has shared his knowledge and skills with the next generation of scientists and physicians. Not only has he provided mentorship to students conducting their first clinical research projects, he has also served as a valuable role model for others embarking on the MD/PhD journey.

These are remarkable achievements – research excellence, dedication to the community and outstanding leadership. Dr. Jung exemplifies the next generation of research leaders.
P-1 Effect of Proteolytic Processing on PCSK9 Activities
Ikhuoso Asikhia, PhD Candidate, UOHI
Supervisor: Thomas Lagace, PhD

P-2 Difference of Gates to Measure Data Consistency in Cardiac SPECT
Taylor Clark, MSc Candidate, UOHI
Supervisor: Glenn Wells, PhD

P-3 DPP4 and MERP-1 and Their Roles in Atherosclerosis
Andrew Clement, MSc Candidate, UOHI
Supervisor: Erin Mulvihill, PhD

P-4 Profound Loss of Lung cKit Expressing Endothelial Cells During the Early Development of Severe PAH Points to an Imbalance Between Injury and Repair in Progression of Lung Vascular Disease
Nicolas Cober, PhD Candidate, OHRI
Supervisor: Duncan Stewart, MD

P-5 Extracellular Vesicles from Human Heart Explant-Derived Cells Target Pro-Fibrotic Atrial Fibroblasts
Bérénice Collet, PhD, Postdoctoral Fellow, UOHI
Supervisor: Darryl Davis, MD

P-6 CARS2 Expression Associates with CAD Protection: Potential role of the IL10 pathway
Anh-Thu Dang, PhD Candidate, UOHI
Supervisor: Ruth McPherson, MD

P-7 Identifying the Genetic Determinants of Lipophagy in Saccharomyces Cerevisiae
Garrett Fairman, PhD Candidate, UOHI
Supervisor: Mireille Ouimet, PhD

P-8 Mitochondrial Supercomplex Formation in the Prevention of Heart Failure
Claire Fong-McMaster, PhD Candidate, uOttawa
Supervisor: Mary-Ellen Harper, PhD

P-9 Effect of sGAG on Opening Angle of Intact & Crosslinked Aortas
Noor Ghadie, PhD Candidate, uOttawa
Supervisor: Michel Labrosse, PhD

P-10 The Arterial Biology Protecting Against Atherosclerosis
Lara Gharibeh, PhD, Translational Research Fellow, UOHI
Supervisors: Mireille Ouimet, PhD; Rob Beanlands, MD; Juan Grau, MD

P-11 Choline Metabolism Underpins Macrophage IL-4 Polarization in Vitro and in Vivo
Peyman Ghorbani, PhD, Postdoctoral Fellow, uOttawa
Supervisor: Morgan Fullerton, PhD

P-12 Intestinally-Derived Preproglucagon Peptides Mediate Nutrient Absorption and Gut Adaptation with Exposure to Cold
Antonio Hanson, MSc, Laboratory Technician, UOHI
Supervisor: Erin Mulvihill, PhD

P-13 Can Study Time be Reduced by using Early Datasets in Myocardial Perfusion Imaging with a Solid-state Cardiac SPECT Camera? A multi-center evaluation
Annika Kelly, MSc Candidate, UOHI
Supervisor: Glenn Wells, PhD
P-14 Ketogenic Diet Intervention Worsens Glucose Tolerance but Increases Incretin Activity in Female Mice with Metabolic Dysfunction
Cassandra Locatelli, MSc Candidate, UOHI
Supervisors: Erin Mulvihill, PhD

P-15 Regulation of Voltage-Gated Sodium Channels by Wnt Signaling in Human iPSC-Derived Cardiomyocytes
Aizhu Lu, PhD, Postdoctoral Fellow, UOHI
Supervisor: Wenbin Liang, MD, PhD

P-16 Light-Activated Adhesive for Sealing Cardiovascular Defects
Aidan Macadam, MSc Candidate, UOHI
Supervisor: Emilio Alarcón, PhD

P-17 Data-Driven Respiratory Motion Correction of Myocardial Perfusion SPECT Using a Convolutional Neural Network
Dylan Malenfant, PhD Candidate, UOHI
Supervisor: Glenn Wells, PhD

P-18 Inflammatory-Mediated Blood-Brain Barrier Dysfunction and Cognitive Decline: A population-based cohort study among aging adults with atrial fibrillation
Danielle Marion, MSc Candidate, UOHI
Supervisor: Jodi Edwards, PhD

P-19 Glucagon-Like Peptides 1 and 2 Receptor Signalling Regulate the Intestinal Metabolic Switch from Fasting to Refeeding in a Sex-Dependent Manner
Nadya Morrow, PhD Candidate, UOHI
Supervisor: Erin Mulvihill, PhD

P-20 Antimicrobial Light Triggering Plastic for Biomedical Applications
Marcelo Muñoz, PhD, Postdoctoral Fellow, UOHI
Supervisor: Emilio Alarcón, PhD

P-21 Transcriptomic Landscape of the Postnatal Atrioventricular Conduction System
Yena Oh, PhD Candidate, UOHI
Supervisor: Kyoung-Han Kim, PhD

P-22 Extracellular Vesicles from Human Atrial Explant Derived Cells Prevent Atrial Fibrillation After Open Chest Surgery
Sandrine Parent, MSc, Laboratory Technician, UOHI
Supervisor: Darryl Davis, MD

P-23 Challenging the Traditional Understanding: Investigating Mitochondrial Choline Metabolism in Macrophages
Ciara Pember, MSc Candidate, uOttawa
Supervisor: Morgan Fullerton, PhD

P-24 Exploring the Role of Metformin on Cardiac Fibrosis in PAI-1 Deficient Mice
Serena Pulente, MSc Candidate, uOttawa
Supervisor: Erin Mulvihill, PhD

P-25 Selectively Enhancing and Tracking Lipophagy for LD Clearance with Novel Biosensor
Valérie Rochon, BSc Candidate, UOHI
Supervisor: Mireille Ouimet, PhD

P-26 The Role of AMPK in Macrophage Metabolic Reprogramming During Liver Injury
Julia Rolim Cavalcanti Nunes, PhD Candidate, uOttawa
Supervisors: Morgan Fullerton, PhD
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Supervisor: Robert deKemp, PhD

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Amy Johnston, PhD Candidate, UOHI
Supervisors: Jodi Edwards, PhD and Thais Coutinho, MD

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Amy Johnston, PhD Candidate, UOHI
Supervisors: Jodi Edwards, PhD and Thais Coutinho, MD

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Tahir Kafil, MD, Clinical Fellow, UOHI
Supervisor: Peter Liu, MD

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Lawrence Lau, MD, Clinical Fellow, UOHI
Supervisor: David Messika-Zeitoun, MD

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Claudia Li, PhD, Postdoctoral Fellow, UOHI
Supervisor: Jodi Edwards, PhD

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Katherine Mason, Research Assistant, uOttawa
Supervisor: Krystina Lewis, PhD

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Avinash Pandey, MD, Internal Medicine Resident, UOHI
Supervisor: Hassan Mir, MD

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Avinash Pandey, MD, Internal Medicine Resident, UOHI
Supervisor: Hassan Mir, MD

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Lisa Sheehy, PhD, Clinical Research Assistant, UOHI
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Anahita Tavoosi, MD, Clinical Fellow, UOHI
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Michael Thibert, MD, Clinical Fellow, UOHI
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Sol Vidal Almela, PhD Candidate, UOHI
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