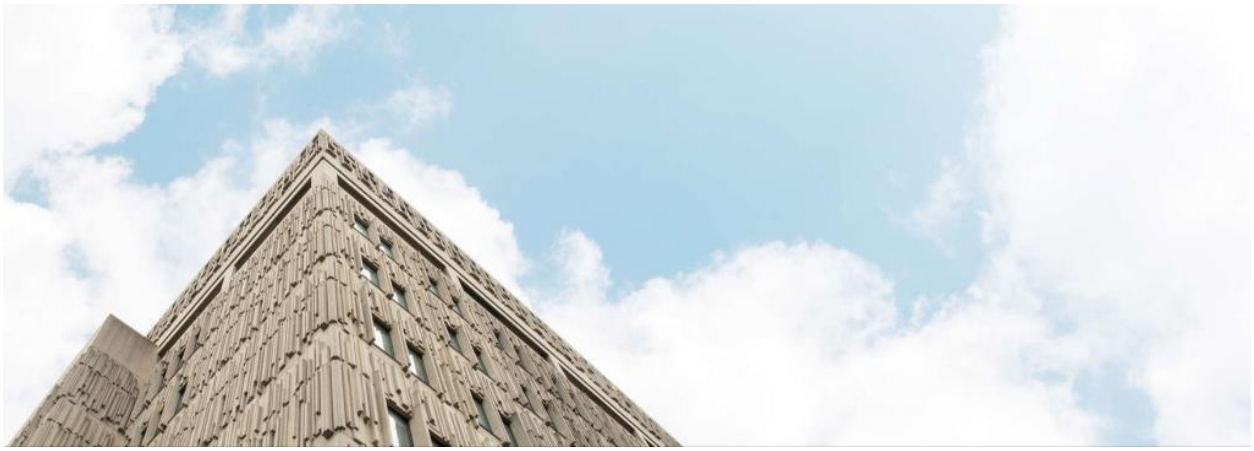
Institute of Medical Science
UNIVERSITY OF TORONTO



IMS Graduate Student Recruitment: September 2023

The Institute of Medical Science (IMS) is one of the largest graduate units at the University of Toronto. With over 600 active graduate faculty members, the IMS takes a leading role in translational research training that links fundamental discovery with patient-based research and clinical applications in health promotion and disease prevention with the intention of improving health outcomes for individuals and populations.

We are dedicated to training medical researchers and dissemination of new knowledge relevant to human biology and pathobiology within our Doctoral Stream Programs. The program includes both a Master of Science (MSc) and a Doctor of Philosophy (PhD) degree.

All applicants must identify an appropriate IMS faculty member as their research supervisor before initial registration in the IMS graduate program.

Within this document, you will find:

- available MSc and PhD positions
- research summaries, keywords
- supervisor's funding information, contact information

Interested students may contact the principal investigator or administrative assistants as listed.

To learn more, see Prospective Students, browse our full faculty list on our Faculty Directory.

**Last Updated: February 2023*

Principal Investigator: *Alibhai, Shabbir*

Currently Accepting	**MSc**
Ideal Candidate	interest in health services research, aging, cancer, supportive care, quality of life experience in recruiting to clinical trials is an asset
Research Summary	My research focuses on geriatric oncology. In particular, I am interested in understanding the interaction between cancer, its treatment, and the older adult. I primarily conduct clinical trials of supportive care interventions in frail older cancer patients. I am also studying recovery after major surgery in older adults.
Keywords	geriatric oncology; prostate cancer; clinical trials; remote symptom monitoring; geriatric assessment; racialization
Lab location	Princess Margaret Cancer Centre, UHN
Available Funding	Yes
Relevant Links	https://www.uhnresearch.ca/researcher/shabbir-alibhai
Contact Information	shabbir.alibhai@uhn.ca 4163405125

Principal Investigator: *Advani, Andrew*

Currently Accepting	**MSc**
Ideal Candidate	The ideal candidate will be able to work independently and as part of a team; will show a high level of empathy and ability to connect with others; and will have an excellent command of written and spoken English.
Research Summary	A position is available for an MSc student to undertake a qualitative project exploring stakeholder preferences for engagement of people living with diabetes. The project involves a scoping review, patient interviews and a concept mapping workshop.
Keywords	Diabetes

	Patient engagement Qualitative research
Lab location	St. Michael's Hospital
Available Funding	Awaiting Results
Relevant Links	
Contact Information	andrew.advani@unityhealth.to 4168646060 x8413

Principal Investigator: *Anagnostou, Evdokia*

Currently Accepting	**PhD; MSc**
Ideal Candidate	
Research Summary	We explore the neurobiology of neurodevelopmental conditions, including precision health considerations, and translate such understandings to novel or taylored interventions
Keywords	neuroimaging, behavior, cognition, clinical trials; computational neuroscience
Lab location	Holland Bloorview Kids Rehabilitation Hospital
Available Funding	Yes
Relevant Links	https://hollandbloorview.ca/research-education/bloorview-research-institute/research-centres-labs/autism-research-centre
Contact Information	eanagnostou@hollandbloorview.ca Karen Joseph: 416-425-6220 ext. 3740 but prefer email

Principal Investigator: *Ballios, Brian*

Currently Accepting	**MSc**
Ideal Candidate	The ideal candidate will have an interest in basic and translational research, and be a motivated and enthusiastic student willing to rapidly learn new techniques and skills with training. They should be able to communicate and interact with staff, students and colleagues in a clear and professional manner.
Research Summary	New therapies for retinal degeneration are focused on the next generation of regenerative medicines. These include gene and cell-based therapeutics, including stem cells. Several of these approaching are already being applied in clinical trials and therapies. While gene therapy has the potential to correct the underlying mechanism of disease in monogeneic disorders, it depends on the presence of viable light-sensitive cells. Stem cell therapy has the potential to replace the light-sensitive photoreceptors lost in later-stage disease, when patients have suffered significant vision loss. Cell-based therapies hold promise for both IRDs and acquired conditions such as age-related macular degeneration (AMD). Our laboratory work is focused on: [1] Understanding the pathobiology of retinal disease, by establishing translational models of retinal degeneration; [2] Discovering new therapeutics to treat retinal disease, using retinal and stem cell biology; [3] Integrating new technologies, to enhance the performance of cell-based retinal therapies; and, [4] Developing preclinical technologies to translate to first-in-human clinical studies The overall goal of our work is to cure retinal blindness by discovering new therapies for inherited and acquired disease.

Keywords	stem cell biology; retinal regeneration; acquired and inherited retinal disease; ocular genomics; regenerative medicine; neuroscience; cell and gene therapy; biomaterials; bioengineering
Lab location	Krembil Research Institute, University Health Network
Available Funding	Yes
Relevant Links	https://www.uhnresearch.ca/researcher/brian-ballios www.ballioslab.com
Contact Information	brian.ballios@mail.utoronto.ca

Principal Investigator: *Barr, Cathy*

Currently Accepting	**MSc**
Ideal Candidate	Students with lab experience
Research Summary	My research program focuses on childhood-onset psychiatric and cognitive disorders, seeking to understand the genetic, epigenetic and environmental risk factors and the underlying molecular and neurobiological mechanisms. A major focus of my lab is identifying risk genes and understanding how genetic risk variants alter gene and subsequently neural cell function. Given the overwhelming evidence that changes in gene expression (transcription, gene splicing) are indicated for disease susceptibility for complex traits, my research program focuses on these genetic risk mechanisms.
Keywords	reading disabilities, child depression, genetic risk, gene expression, iPSC derived neural cell models
Lab location	Krembil Research Institute, Toronto Western Hospital
Available Funding	Yes
Relevant Links	https://www.sickkids.ca/en/staff/b/cathy-barr/
Contact Information	cathy.barr@uhn.ca

Principal Investigator:	*Barua, Moumita*
Currently Accepting	**MSc; PhD**
Ideal Candidate	
Research Summary	The starting point of our research is to perform genetic studies in adults with kidney disease using patient and population based cohorts. We then use our genetic discoveries to prioritize clinically relevant models, in which we study kidney disease mechanisms. The lab is currently funded by 2 CIHR awards. The 3 main projects in the lab are: 1. Genome-wide association studies of kidney traits - basic programming knowledge is an asset for this human based study 2. Pax2 mediates kidney repair/regeneration - enthusiasm to work with mouse models is an asset 3. Mechanisms in Alport syndrome - enthusiasm to work with mouse models is again an asset We are looking for highly motivated trainees to join our supportive, enthusiastic team to work on any one of these projects depending on applicant interests and strengths. Trainee career development is an important part of mentorship for the supervisor. Lab alumni have gone on to medical school, entered extremely competitive IMG residency programs and continued their research careers in academic institutions and national organizations such as CIHI.
Keywords	kidney disease, next-generation sequencing, single cell sequencing, proteomics, big data, mouse models
Lab location	Toronto General Hospital
Available Funding	Yes
Relevant Links	https://orcid.org/0000-0003-0628-9071
Contact Information	moumita.barua@uhn.ca sarah.wilson@uhnresearch.ca 416-340-4800 ext 8007

Principal Investigator:	*Bassett, Anne*
Currently Accepting	**MSc; PhD**
Ideal Candidate	The student will have the opportunity to formulate a feasible research question of interest within the framework of our existing patient populations and data resources. Suggested topics include delineating the multi-system expression in genetic subtypes of tetralogy of Fallot or schizophrenia, studying genetic pathways to abnormal cardiac or brain development and related diseases, and identifying prenatal and obstetrical risk factors related to developmental disorders of the heart or brain. Responsibilities will include designing the specific details of the project, coordinating data collection and analysis, presenting results at local and/or international venues, and writing a manuscript suitable for publication in a peer-reviewed medical journal. The student will have the option to participate in an academic clinic where we see relevant patients with diagnosed and yet to be diagnosed genetic conditions, and to hone assessment and related skills. The student will report directly to the PI who provides substantial mentorship and guidance with regular weekly or biweekly meetings. Expert collaborators and senior students and trainees are also available to the student.
Research Summary	There is a large genetic component to risk for common human diseases, including congenital heart disease and major psychiatric illnesses. We study risk and adult outcomes in these conditions, especially those with complex multi system disease and pediatric developmental conditions. Our patient populations and extensive data offer the opportunity to discover new genetic causes and insights into the outcomes of patients with specific genetic variants and syndromes that represent important human models of common diseases. We work at the University Health Network and Centre for Addiction and Mental Health, and with renowned local and international collaborators, including geneticists, cardiologists, endocrinologists, and neurologists. Resources include DNA sequencing data, comprehensive and long-term outcome data, and clinical data across the lifespan for patient populations with

	tetralogy of Fallot and other congenital heart diseases, with treatable psychiatric illness including schizophrenia, and with multi-system genetic conditions. Our clinical and bioinformatics-based research results have demonstrated potential to be immediately translated into clinical practice, and to have public health implications.
Keywords	Clinical genetics; Developmental diseases of heart and brain; Multi-system disease
Lab location	UHN - Toronto General Hospital; Centre for Addiction & Mental Health - Clinical Genetics Research Program
Available Funding	Yes
Relevant Links	www.22q.ca
Contact Information	Gladys Wong gladys.wong@camh.ca 416-535-8501 x32734

Principal Investigator: *Bhat, Venkat*

Currently Accepting	**MSc; PhD**
Ideal Candidate	Background in one/more of the following domains with track-record of publications & interest: Neuroscience, psychology, psychopharmacology, clinical trials, engineering/computer science, AI & analytics.
Research Summary	The IPP offers novel psychopharmacological (e.g. IV ketamine/nitrous/psychedelics), neurostimulation (e.g. rTMS/ECT/ new modalities) and digital therapeutic interventions accompanied by AI & data analytics.
Keywords	ketamine, nitrous oxide, psychedelics, brain stimulation, AI & analytics, brain imaging
Lab location	St. Micahel's & UHN

Available Funding	Yes
Relevant Links	https://research.unityhealth.to/research-programs/interventional-psychiatry/
Contact Information	venkat.bhat@utoronto.ca 4163604000 x 76404

Principal Investigator: *Boulos, Mark*

Currently Accepting	**MSc**
Ideal Candidate	We are seeking a candidate who is organized, hard-working, and passionate about sleep & stroke research. Knowledge in statistics would be an asset.
Research Summary	Dr. Boulos oversees an active research program that investigates the association of sleep disorders with TIA/stroke, hypertension, dementia, and other neurological disorders. In addition, he has an interest in ambulatory sleep monitoring.
Keywords	sleep apnea, home sleep apnea testing, stroke/TIA, hypertension, dementia
Lab location	Sunnybrook Health Sciences Centre
Available Funding	Yes
Relevant Links	https://orcid.org/0000-0002-9547-1889
Contact Information	Dr. Mark Boulos: mark.boulos@utoronto.ca Sarah Berger: sarah.berger@sri.utoronto.ca (lab coordinator) 416-480-4473 (clinic office)

Principal Investigator:	*Brilll, Julie*
Currently Accepting	**MSc; PhD**
Ideal Candidate	I would prefer to recruit PhD students who have MSc degrees in related areas (molecular genetics, cell and developmental biology, model organism genetics, membrane trafficking, post-transcriptional regulation).
Research Summary	My lab uses the fruit fly Drosophila melanogaster as a model system for understanding fundamental, conserved aspects of animal biology. Our research investigates the regulation of membrane trafficking and cell and tissue morphogenesis by a family of lipids called phosphatidylinositol phosphates (PIPs). We also study post-transcriptional mechanisms that are important for sperm development and male fertility.
Keywords	cell and developmental biology, molecular genetics, phosphoinositides, membrane trafficking, spermatogenesis, microcopy
Lab location	SickKids
Available Funding	Yes
Relevant Links	https://www.sickkids.ca/en/staff/b/julie-brill/
Contact Information	julie.brill@sickkids.ca 416-813-8863

Principal Investigator:	*Brumell, John*
Currently Accepting	**PhD**
Ideal Candidate	
Research Summary	Host-pathogen interactions
Keywords	Bacterial infection, innate immunity, cell biology
Lab location	SickKids

Available Funding	Awaiting Results
Relevant Links	https://www.sickkids.ca/en/staff/b/john-brumell/
Contact Information	john.brumell@sickkids.ca 416-813-7654 x 303555

Principal Investigator: *Choi, Stephen*

Currently Accepting	**MSc**
Ideal Candidate	
Research Summary	The perioperative period is a stressful time for patients. In addition to known physical risks, anesthesia and surgery can result in both acute and long-lasting cognitive effects that have significant impacts on quality of life and recovery.
Keywords	perioperative cognitive function
Lab location	Sunnybrook
Available Funding	Yes
Relevant Links	https://sunnybrook.ca/research/content/?page=dept-anaes-perioperative-brain-health
Contact Information	stephen.choi@sunnybrook.ca 4164804864

Principal Investigator: *Chow, Chung-Wai*

Currently Accepting	**PhD**
Ideal Candidate	Students with background in lung physiology and biostatistics are more suitable for the projects currently available. Post-MD post

	graduate MD pursuing advanced degrees are encouraged to apply. We work closely with the Biostatistics Research Unit, one of the developers of oscillometry and the Faculty of Engineering at UofT.
Research Summary	The primary focus of my research is lung physiology in the clinical setting. We have multiple studies that compare different pulmonary function techniques and the application of pulmonary function variables in predicting patient outcomes in different ongoing large cohort studies. Two related research foci include development of machine learning models to interpret pulmonary function tests and assessment of novel pulmonary function tools.
Keywords	Brain injury/concussion; PTSD; magnetoencephalography; electrophysiology; computational neuroscience; biomedical engineering
Lab location	UHN - Toronto General Hospital
Available Funding	Yes
Relevant Links	Selected recent publications to illustrate the types of research in my group: 1. Deep Learning Using Multi-Layer Perception Improves the Diagnostic Acumen of Spirometry: A Single-Center Canadian Study. BMJ Open Resp. 2022 Dec 26(e001389):1-10. doi:10.1136/bmjresp-2022-001396. 2. Changes in interpretation of spirometry by implementing the GLI 2012 reference equations: impact on patients tested in a hospital-based PFT lab in a large metropolitan city. BMJ Open Resp. 2022 Dec 12(e001389):1-10. 3. Characterization of Chronic Lung Allograft Dysfunction Phenotypes using Spectral and Intrabreath Oscillometry. Frontiers in Physiology. 2022 Oct;13(980942):1-10. 4. Correlation of Respiratory Oscillometry with CT Image Analysis in a Prospective Cohort of Idiopathic Pulmonary Fibrosis. BMJ Open Resp. 2022 Apr;9(1):e001163. Available from: http://dx.doi.org/10.1136/bmjresp-2021-001163.

	6. What 175 years of spirometry can teach us about the history and future of medicine. European Respiratory Reviews. 2021 Oct;30(210081). Available from: doi.org/10.1183/16000617.0081-2021 7. Aerosol Generation during Pulmonary Function Testing: Monitoring during Different Testing Modalities. Canadian Journal of Respiratory, Critical Care and Sleep Medicine. 2021 8. Development of Quality Assurance and Quality Control Guidelines for Airway Oscillometry in Clinical Studies. Respiratory Care. 2020 Nov;65(11):1687-93. 9. Airway Oscillometry Detects Spirometric-Silent Episodes of Acute Cellular Rejection. Am J Resp Crit Care Med. 2020 Jun;201(12):1536-1544.
Contact Information	cw.chow@utoronto.ca 416-340-3512

Principal Investigator:	*Clarke, Hance*
Currently Accepting	**MSc**
Ideal Candidate	Background in Health Sciences
Research Summary	People with EDS frequently report headaches and presyncopal episodes accompanied by transient neurological symptoms known as cervicomedullary syndrome. Cervicomedullary syndrome is a collection of symptoms consisting of altered vision, hearing and tinnitus, speech, swallowing, and balance, vertigo, dizziness, or sudden syncope, altered sleep architecture, intermittent motor weakness, and sensory loss. It is debatable whether these symptoms result from craniocervical/atlantoaxial instability or central autonomic dysfunction, leading to autonomic headaches with postural changes and CSF flow variation. The proportion of patients who meet the radiological cut off for craniocervical instability has been shown to be extremely low, and they are typically not candidates for spinal fixation.
Keywords	Ehlers Danlos Syndrome, optic nerve sheath, heart rate variability

Lab location	Toronto General Hospital
Available Funding	Yes
Relevant Links	https://www.uhn.ca/Medicine/Clinics/Ehlers-Danlos_Syndrome_Clinic
Contact Information	hance.clarke@uhn.ca

Principal Investigator: *Coburn, Bryan*

Currently Accepting	**PhD**
Ideal Candidate	We are recruiting students interested in a combination of wet lab and computational work with a background in either.
Research Summary	We are undertaking biomarker-enriched clinical trials of microbiome-targeting therapies for infections and non-infectious diseases, particularly in critical care, transplantation and cancer.
Keywords	Microbiome Clinical trials Biomarker studies Infectious diseases Critical illness
Lab location	UHN/TGHRI
Available Funding	Yes; Awaiting Results;
Relevant Links	
Contact Information	Bryan.Coburn@uhn.ca 416-634-7457

Principal Investigator:	*De Luca, Vincenzo*
Currently Accepting	**MSc**
Ideal Candidate	
Research Summary	Our group research is mainly in the interventions to treat schizophrenia using molecular and imaging techniques.
Keywords	schizophrenia, suicide, EEG, genetics, MRI, epigenetics
Lab location	CAMH
Available Funding	Yes
Relevant Links	
Contact Information	vincenzo.deluca@camh.ca 416-5358501 x34421

Principal Investigator:	*Desarkar, Pushpal*
Currently Accepting	**MSc**
Ideal Candidate	Students interested in neuroscience are welcome to apply. 1-2 peer-reviewed publications with prior experience with EEG and/or TMS will be an asset.
Research Summary	1. 5-year CIHR funded project to i) discover a biomarker for motor function difficulties in autism and ii) conduct a double-blind RCT using rTMS to treat motor function difficulties in autism. 2. TMS-EEG plasticity experiment at the sensory cortex (S1) to investigate if an atypically excessive plasticity in S1 underlies sensory sensitivities in autism. 3. TMS-EEG experiments at the dorsolateral prefrontal cortex to investigate neurophysiologic markers of executive function difficulties in autism.
Keywords	plasticity, autism, transcranial magnetic stimulation, EEG.

Lab location	CAMH
Available Funding	Yes
Relevant Links	1. https://www.camh.ca/en/science-and-research/science-and-research-staff-directory/pushpaldesarkar
Contact Information	Pushpal.Desarkar@camh.ca 416 535 8501, x 32726

Principal Investigator: *Dimaras, Helen*

Currently Accepting	**MSc; PhD**
Ideal Candidate	
Research Summary	Dr. Dimaras' research program spans the disciplines of ophthalmology, cancer genetics and global health. Using the childhood eye cancer (retinoblastoma) as a model, she studies and implements approaches aimed at achieving optimal care and outcomes for childhood cancer patients globally, often with patients as partners on the study team.
Keywords	Retinoblastoma, eye cancer, patient outcomes, patient engagement, global health, pediatric cancer, pediatric ophthalmology,
Lab location	The Hospital for Sick Children
Available Funding	Yes; Awaiting Results;
Relevant Links	https://lab.research.sickkids.ca/dimaras/
Contact Information	helen.dimaras@utoronto.ca 416 813 7654 x201876

Principal Investigator:	*Drucker, Daniel*
Currently Accepting	**MSc; PhD**
Ideal Candidate	Successful applicants ideally have a strong interest in metabolic disease, and ideally experience in basic science experimentation
Research Summary	The lab studies the metabolic physiology and pharmacology of gut peptides and their receptors
Keywords	diabetes, obesity, GLP-1, GIP, GLP-2, GPCRs
Lab location	Lunenfeld, LTRI, Mt. Sinai Hospital
Available Funding	Yes
Relevant Links	https://www.glucagon.com/druckerlab.html
Contact Information	drucker@lunenfeld.ca 416-361-2661

Principal Investigator:	*Dunkley, Benjamin*
Currently Accepting	**MSc**
Ideal Candidate	The ideal candidate should have a familiarity with biomedical engineering, physics, computational biology/neuroscience, and/or statistics. Experience in biological psychology or cognitive neuroscience would also be an asset, but is not necessary.
Research Summary	Our lab is interested in understanding psychological stress injuries (e.g. PTSD) and traumatic brain injuries using computationally advanced neuroimaging and electrophysiology, particularly as it relates to brain networks and architecture.

Keywords	Brain injury/concussion; PTSD; magnetoencephalography; electrophysiology; computational neuroscience; biomedical engineering
Lab location	*SickKids
Available Funding	Yes; Awaiting Results;
Relevant Links	See recent lab publications here: https://scholar.google.ca/citations?user=XHK2dJkAAAAJ&hl=en
Contact Information	ben.dunkley@sickkids.ca Phone: 416-813-7654 ext. 328817 Alternate Contact Name: Patricia Ramos Alternate Phone: 416-813-5175

Principal Investigator: *Farcas, Monica*

Currently Accepting	**MSc**
Ideal Candidate	MSc student with technical background (ie. engineering, physics, programming) and/or entrepreneurship experience.
Research Summary	The lab focuses on medical device development and testing, particularly in the surgical field. Students with a technical background (physics, engineering, programming) and/or entrepreneurship experience are best suited for projects in our lab.
Keywords	medical device development/testing
Lab location	St. Michael's Hospital
Available Funding	Yes
Relevant Links	

Contact Information	monica.farcas@unityhealth.to 416-867-3735

Principal Investigator: *Fehlings, Michael*

Currently Accepting	**MSc; PhD**
Ideal Candidate	The ideal candidate will have a keen interest in translational research, and a desire to grow in this fast-paced environment.
Research Summary	I run a translational oriented research program focused on discovering novel treatments to improve functional outcomes for both traumatic and non-traumatic forms of spinal cord injury (SCI).
Keywords	Spinal Cord Injury, Stem Cells, Translational Research, Clinical Trials
Lab location	Krembil Discovery Tower, Toronto Western Hospital, University Health Network
Available Funding	Yes; Awaiting Results;
Relevant Links	www.drfehlings.ca
Contact Information	michael.fehlings@uhn.ca libertad.puy@uhnresearch.ca

Principal Investigator: *Freeman, Sloane*

Currently Accepting	**MSc**
Ideal Candidate	
Research Summary	The Reach School Network (Model Schools Pediatric Health Initiative) is Ontario's first and largest school-based health centre program, developed in partnership with the Toronto District School Board. This innovative health care delivery model focuses on developmental and mental health care for students who face barriers to accessing health care. Research on the REACH School Network focuses on mental

	health, child development, nutrition, and the social determinants of health.
Keywords	Mental health, child development, nutrition, poverty, health care delivery
Lab location	St. Michael's Hospital
Available Funding	Yes
Relevant Links	https://research.unityhealth.to/researchers/sloanefreeman/
Contact Information	sloane.freeman@unityhealth.to 416-356-7631

Principal Investigator: *Fischer, Corinne*

Currently Accepting	**MSc; PhD**
Ideal Candidate	I am looking to recruit enthusiastic students who are hard-working, highly-motivated, excellent team players with strong writing skills and experience in conducting data analyses.
Research Summary	The primary focus of my research centres around establishing mechanisms of psychosis in neurodegeneration. We use prospective patient data supplemented by imaging and biomarkers from our own memory clinic as well as data from multi-centred studies in which we have participated (PACt-MD, ONDRI) and established data sets (NACC and ADNI). The aim is to identify key neurobiological differences that distinguish AD patients with psychosis from those without psychosis, to build a model of dementia-related psychosis. We also explore the relationship of our findings to psychosis in other disorders and across the age spectrum.
Keywords	Psychosis, delusions, dementia, alzheimer's disease
Lab location	St. Michaels Hospital

Available Funding	Yes*
Relevant Links	https://research.unityhealth.to/researchers/corinne-e-fischer/
Contact Information	corinne.fischer@unityhealth.to 416-816-2691

Principal Investigator: *Furlan, Julio*

Currently Accepting	**MSc;**
Ideal Candidate	An enthusiastic, dedicated and motivated student with interested in clinical research is sought.
Research Summary	Clinical research on sleep-related breathing disorders in individuals with spinal cord injury
Keywords	sleep-related breathing disorders; spinal cord injury; clinical research
Lab location	Lyndhurst Centre
Available Funding	To be applied
Relevant Links	https://kite-uhn.com/scientist/julio-furlan
Contact Information	Julio.Furlan@uhn.ca 416-597-3422 (x6129 with Komi)

Principal Investigator: *Gaisano, Herbert*

Currently Accepting	**PhD**
Ideal Candidate	Basic science background - physiology, cell biology, biochemistry, physics. Preferably with hands-on experience in these methods.
Research Summary	The Gaisano laboratory is focused on these areas.

	1. Molecular mechanisms of insulin exocytosis in pancreatic islet beta cell centered around SNARE proteins and their dysregulation in diabetes 2. Molecular mechanisms underlying pancreatic acinar cell dysfunction in pancreatitis, with current focus on autophagy and pathologic exocytosis. 3. Islet cell-cell paracrine interactions and their dysregulation underlying Type 1 diabetes islet pathobiology 4. Non-alcoholic fatty liver disease (NAFLD) We use fresh human pancreases diverted from transplantation (and patient donors with diabetes) and fresh liver samples obtained from obese patients undergoing bariatric surgery many of which have NAFLD. We prepare thin tissue slices from the pancreas and liver samples and perform live-cell high spatio-temporal resolution imaging (lightsheet, confocal, multi-photon, TIRF microscopy) of the various cellular processes as well as other biochemical and molecular assays to elucidate the mechanisms of disease and response to treatment.
Keywords	pancreatic islet, exocrine pancreas, diabetes, pancreatitis, NAFLD, high-resolution imaging
Lab location	Medical Sciences Building, U of Toronto
Available Funding	Yes; Awaiting Results
Relevant Links	
Contact Information	herbert.gaisano@utoronto.ca

Principal Investigator: *Galea, Liisa*

Currently Accepting	**PhD; MSc**
Ideal Candidate	microscopy, immunohistochemistry, behaviour, animal experience recommended. Stats knowledge ideal
Research Summary	We study the effects of hormones, stress and reproductive experience on neuroplasticity, including adult hippocampal neurogenesis, emotional behaviour and cognition using animal models of depression

	and Alzheimer's disease.
Keywords	neurogenesis, neuroinflammation, hormones, stress, sex differences, neural activation
Lab location	CAMH
Available Funding	Yes
Relevant Links	https://galealab.psych.ubc.ca/liisa-galea/
Contact Information	liisa.galea@camh.ca 416 535-8501

Principal Investigator: *Gladdy, Rebecca*

Currently Accepting	**MSc; PhD**
Ideal Candidate	Students interested in drug development, cancer biology, and mouse modeling are welcome to apply. The ideal candidate will be an organized, hard-working, motivated, and enthusiastic student willing to rapidly learn new techniques and skills with training.
Research Summary	The long-term goal of the Gladdy Lab Research Program is to develop functional genomics platforms that allow us to better understand sarcoma biology so that we can translate this knowledge into more effective treatments for our patients.
Keywords	Oncology, drug testing, animal models, sarcoma biology
Lab location	LTRI
Available Funding	Yes
Relevant Links	https://torontosarcoma.ca/gladdy-lab/
Contact Information	gladdy@lunenfeld.ca Yael Babichev babichev@lunenfeld.ca

Principal Investigator:	*Haroon, Nigil*
Currently Accepting	**PhD; MSc**
Ideal Candidate	With sufficient experience in wet lab techniques and firm understanding of immunology.
Research Summary	Dr. Haroon's research focuses on three broad themes: 1. Therapeutic targeting of MIF in AS. 2. The interplay of antigen processing and cellular trafficking in the pathogenesis of AS, with emphasis on the role of SEC16A and its interactome in AS pathogenesis. 3. Personalized medicine approach to treatment of AS.
Keywords	Arthritis immunology translational genetics
Lab location	Krembil Discovery Tower, Toronto Western Hospital
Available Funding	Yes
Relevant Links	www.nigilharoon.com
Contact Information	Nigil.Haroon@uhn.ca 416-603-5634

Principal Investigator:	*Hassan, Ahmed*
Currently Accepting	**MSc**
Ideal Candidate	
Research Summary	Summary: Posttraumatic stress disorder (PTSD) is a debilitating mental health disorder that can develop after experiencing or witnessing a life-threatening event. Cannabis use disorder (CUD) and PTSD are highly comorbid with poor outcomes. Acute use of cannabis provides

	temporarily relief, but continuous use increases the risk of developing CUD which can cause neurobiological changes in the brain including poor cognitive function (CF) and dampened emotional reactivity. These cognitive effects can perpetuate PTSD symptoms and complicate treatment. Some studies suggest decreasing cannabis use may improve PTSD symptoms, but before such an assertion can be made, the prospective effects of cannabis use versus abstinence on PTSD symptoms need to be formally evaluated. To address this gap, we are conducting a 12-week study that examines whether individuals diagnosed with co-morbid PTSD and cannabis use disorder (CUD) experience any changes in PTSD symptoms or CF after 12-weeks of cannabis abstinence.
Keywords	posttraumatic stress disorder (PTSD), cannabis use disorder, cognitive function, cannabis, contingency management
Lab location	CAMH
Available Funding	Yes
Relevant Links	https://pubmed.ncbi.nlm.nih.gov/?size=200&term=Hassan+AN&cauthor_id=34982654
Contact Information	Harminder.Paul@camh.ca Harminder Paul 416-535-8501, ext.: 32310

Principal Investigator: *Hiraki, Linda*

Currently Accepting	**MSc; PhD**
Ideal Candidate	Advanced training Biostatistics and/or Statistics Excellent analytic, computing, and problem solving skills Excellent organizational and time management skills Exceptional communication skills; both oral and written Ability to work independently as well as part of a team Human genetics knowledge an asset Experience with R, Plink, IMPUTE, SNPTEST, ADMIXTURE, and/or PrediXcan are assets

Research Summary	The Hiraki Lab is comprised of clinicians, epidemiologists, biostatisticians, bioinformaticians and scientists focused on understanding the genetics and epidemiology of rare systemic inflammatory diseases. These include systemic lupus erythematosus, neonatal lupus erythematosus and diseases of immune and inflammatory dysregulation.
Keywords	genetic epidemiology systemic lupus erythematosus (SLE) neonatal lupus erythematosus (NLE) rare systemic inflammatory diseases outcomes research
Lab location	SickKids
Available Funding	Awaiting Results
Relevant Links	https://www.sickkids.ca/en/staff/h/linda-hiraki/
Contact Information	linda.hiraki@sickkids.ca cindy.alves@sickkids.ca 416-813-7654 x882102

Principal Investigator: *Hodaie, Mojgan*

Currently Accepting	**MSc; PhD;**
Ideal Candidate	background: assets include knowledge of neuroanatomy, coding skills machine learning background/familiarity will be an asset personal attributes of success: inquisitive, curious, cooperative team member
Research Summary	The Hodaie lab employs advanced neuroimaging techniques to investigate trigeminal neuralgia. By integrating neuroimaging with AI, we aim to uncover crucial brain markers or signatures of pain and

	devise ways to improve surgical outcomes for patients.
Keywords	Advanced brain imaging, machine learning, trigeminal neuralgia, neuropathic pain, neurosurgery, functional neurosurgery
Lab location	Krembil Brain Institute, Toronto Western Hospital
Available Funding	Yes
Relevant Links	https://pubmed.ncbi.nlm.nih.gov/?term=hodaie
Contact Information	Mojgan.hodaie@uhn.ca 416-603-6441

Principal Investigator: *Humar, Atul*

Currently Accepting	**MSc; PhD**
Ideal Candidate	Knowledge of immunology and virology and experience with wet-lab techniques used in these areas (e.g., PCR, flow cytometry, ELISA) would be of asset but is not required.
Research Summary	Dr. Atul Humar is a transplant infectious disease physician with an interest in research involving viral and vaccine responses in transplant recipients, and in translational projects involving transplantation.
Keywords	Transplantation Human viruses Vaccination Immunology Translational research
Lab location	Princess Margaret Cancer Research Tower (PMCRT) - MaRS East Tower
Available Funding	Yes; Awaiting Results
Relevant Links	
Contact Information	atul.humar@uhn.ca 416-340-4241

Principal Investigator:	*Jin, Yaping*
Currently Accepting	**MSc**
Ideal Candidate	Ideal students will be those with basic knowledge of epidemiology and biostatistics, and an interest and ability to learn to use statistical software (e.g. SAS, R, SPSS) to analyze large-scale databases. Students with an interest in optometry and ophthalmology will be an asset to the team.
Research Summary	Glaucoma is a leading cause of blindness in Canada. About half of the individuals with glaucoma do not know they have glaucoma and thus are not receiving treatment. Routine eye exams can facilitate early glaucoma diagnosis and improve disease outcomes. Routine eye exams are mostly done by optometrists (an eye doctor typically not requiring a referral) in Canada. Using physician billing data from the Ontario Health Insurance Plan, we will determine the number and percentage of patients who received a glaucoma diagnosis from a routine eye exam by optometrists. The percentage will be calculated as the number of people who received a glaucoma diagnosis from routine eye exams by optometrists (numerator) among all people with a new glaucoma diagnosis by an ophthalmologist or optometrist from ALL sources (i.e., including the glaucoma diagnosis from routine eye exams and referrals) (Denominator). The analysis will be stratified by age groups (20-39, 40-64, 65+ years), sex, socioeconomic status and rural versus urban residence for each year from 1998-2019. We will also assess the number of Ontarians with a missed glaucoma diagnosis from routine eye exams by optometrists due to the government stopping coverage for routine eye exams for individuals aged 20-64 in 2004 in Ontario. This study will be the first to assess the role of routine eye exams by optometrists in glaucoma detection using data from all patients in a population. It will also be the first to evaluate the impact of public-funded routine eye exams on glaucoma detection.
Keywords	Routine eye exams, Glaucoma, Optometrists

Lab location	Kensington Eye Institute, Toronto, Ontario
Available Funding	Yes
Relevant Links	https://pubmed.ncbi.nlm.nih.gov/?term=Jin+YP+ophthalmology
Contact Information	Yaping.Jin@utoronto.ca 416-978-793

Principal Investigator: *Jones, Nicola*

Currently Accepting	**PhD**
Ideal Candidate	An enthusiastic, committed student interested in delving into the world of host pathogen interactions with expertise in cell biology and translational research preferred.
Research Summary	Helicobacter pylori (H. pylori) infects 4.4 billion people and is an important cause of peptic ulcer disease and gastric cancer, the third leading cause of cancer-related deaths worldwide. Importantly in Canada, Indigenous communities have a higher rate of infection and increased rate of gastric cancers that occur at younger ages in comparison to the rest of Canadians. Furthermore, cure of infection is more difficult in these communities. Thus, H. pylori is a health priority in Canada. Current treatment options remain suboptimal in part due to increasing antibiotic resistance, leading the World Health Organization to put H. pylori on its high priority list for new treatments. Thus, there is an unmet need to decipher the mechanisms by which H. pylori causes persistence and disease. We use animal models, in vitro assays and translational studies with humans to decipher these mechanisms.
Keywords	murine models tissue culture/ organoids human samples cell biology imaging

Lab location	SickKids PGCRL
Available Funding	Yes
Relevant Links	https://lab.research.sickkids.ca/jones/
Contact Information	nicola.jones@sickkids.ca davina.clarke@sickkids.ca

Principal Investigator: *Josselyn, Sheena*

Currently Accepting	**PhD**
Ideal Candidate	
Research Summary	examining learning and memory in mice
Keywords	optogenetics, memory, mice, calcium imaging
Lab location	SickKids
Available Funding	Yes
Relevant Links	
Contact Information	sheena.josselyn@sickkids.ca 416 813-7654

Principal Investigator: *Kennedy, James L.*

Currently Accepting	**MSc; PhD**
Ideal Candidate	Interested in students with a strong data analysis background. We work on large epidemiological, clinical and genomics databases. Also implementation of genetic testing in healthcare.

Research Summary	Genetic/genomic analyses of child and adult psychiatric disorders, addictions, genetic prediction of treatment response/side effects. Personalized Medicine; polygenic risk scores, mitochondrial DNA, machine learning/AI.
Keywords	Genetics, psychiatry, pharmacogenetics, epigenetics, schizophrenia, aggression
Lab location	CAMH
Available Funding	Awaiting Results
Relevant Links	https://www.camh.ca/en/science-and-research/science-and-research-staff-directory/jameslkennedy
Contact Information	jim.kennedy@camh.ca 4169794987

Principal Investigator: *Kennedy, Sidney H*

Currently Accepting	**MSc**
Ideal Candidate	BSc graduate with neuroscience background and some clinical experience or interest
Research Summary	Biological studies in Depression
Keywords	anhedonia, biomarkers, treatment resistant depression
Lab location	Unity Health St Michael's Hospital
Available Funding	Yes
Relevant Links	
Contact Information	Jackie Jagoda Jackie.Jagoda@unityhealth.to 416 864 6099

Principal Investigator:	*Kim, Dennis*
Currently Accepting	**MSc;**
Ideal Candidate	I would like to recruit 2 MSc students having a background of computer science and/or life science. Main research project will be bioinformatic analysis of leukemic clonal structure.
Research Summary	My research is focusing on dissection of leukemic clones to reveal cause of resistance and relapse utilizing next-generation sequencing and single cell sequencing technology, and implementation of this knowledge into the clinic.
Keywords	genomics, leukemia, hematopoietic stem cell transplantation, single cell sequencing, methylation, deconvolution of leukemic clones
Lab location	Princess Margaret Cancer Centre
Available Funding	Yes
Relevant Links	https://scholar.google.ca/citations?user=Ajr30MYAAAAJ&hl=en
Contact Information	dr.dennis.kim@uhn.ca (416)946-4501x2464

Principal Investigator:	*Kloiber, Stefan*
Currently Accepting	**MSc**
Ideal Candidate	Experience in clinical research, mental health / psychiatry, biomarker research, and/or neuroimaging
Research Summary	Dr. Kloiber's clinical expertise and research focuses on mood and anxiety disorders. A major focus of Dr. Kloiber's clinical research is to investigate novel neurobiological systems including the brain endocannabinoid system in mood and anxiety disorders as well as to explore novel treatment approaches through clinical trials with a specific interest in neurobiological and clinical effects of cannabinoids. Research projects in this field include clinical studies evaluating the

	effects of cannabinoids, e.g. cannabidiol (CBD) and projects to understand perceptions and motivations for cannabis use in mood and anxiety disorders, as well as neuroimaging / positron emission tomography (PET) studies evaluating the brain endocannabinoid system in the with mood and anxiety disorders, healthy controls and the effect of cannabinoids such as THC on the brain endocannabinoid system. Another aspect of Dr. Kloiber's work is focused on improving treatment of mood and anxiety disorders by standardizing and individualizing therapy through Integrated Care Pathways (ICPs) and biomarker research combining various strategies such as genomics, neuroendocrinology, metabolomics, digital behavioral phenotyping and psychophysiology. With this approach Dr. Kloiber aims to detect individual biological signatures for prediction of treatment response, prevention of adverse events, and subclassification of mood and anxiety disorders.
Keywords	Clinical Research, Mood and Anxiety Disorders, PET imaging, Endocannabinoid System, Cannabinoids
Lab location	CAMH
Available Funding	Yes
Relevant Links	https://psychiatry.utoronto.ca/faculty/stefan-kloiber
Contact Information	stefan.kloiber@camh.ca 416-535-8501

Principal Investigator: *Koritzinsky, Marianne*

Currently Accepting	**MSc; PhD**
Ideal Candidate	We seek a student with passion for cancer research and interest in deciphering molecular signaling that is important for driving adverse phenotypes. Laboratory based experience with cell- and molecular

	biology is required.
Research Summary	Cancer cell secretions drive important processes like migration, invasion, metastasis, angiogenesis and immune suppression. However, cancer cells often reside in areas of tumors with low oxygenation (hypoxia), and oxygen has been thought to be required to drive disulfide bond formation in secreted proteins. We have shown that oxygen-independent pathways for disulfide bond formation exist, and our goal in this project is to identify those pathways. We aim to identify the molecular machinery of folding factors that are responsible for facilitating oxygen-independent disulfide bond formation, and the metabolites that supply the oxidative power. We will also determine how the machinery and metabolites influence cancer phenotypes, and whether targeting these can serve as molecular cancer therapy targets that block adverse cancer biology mediated by secretion. To this end, we will undertake candidate- and hypothesis-driven molecular biology approaches, along with unbiased screens. We will monitor secretion and secretion driven processes in cell culture and in experimental animal models.
Keywords	Cancer, hypoxia, disulfide bond formation, metabolism, angiogenesis, immune response
Lab location	Princess Margaret Cancer Centre
Available Funding	Yes
Relevant Links	
Contact Information	Marianne.Koritzinsky@uhnresearch.ca 416-581-7841

Principal Investigator:	*Lam, Tony*
Currently Accepting	**MSc; PhD**
Ideal Candidate	
Research Summary	The Lam lab studies the metabolic impact of the gut-brain axis

Keywords	
Lab location	TGHRI, UHN (MaRS Centre)
Available Funding	Yes
Relevant Links	
Contact Information	tony.lam@uhnresearch.ca

Principal Investigator:	*Lange, Shannon*
Currently Accepting	**MSc; PhD**
Ideal Candidate	Recruiting motivated students with a background in epidemiology and biostatistics, and an interest in suicide research.
Research Summary	Dr. Lange's general research area involves the application of advanced statistical techniques to gain a better understanding of the epidemiology of suicide, and the contributing role of alcohol use.
Keywords	Alcohol-attributable harm, Suicide, Epidemiology
Lab location	CAMH
Available Funding	
Relevant Links	https://www.ncbi.nlm.nih.gov/myncbi/shannon.lange.2/bibliography/public/
Contact Information	shannon.lange@camh.ca 416-535-8501 ext. 34512

Principal Investigator: *Lee, Jacques*

Currently Accepting	**MSc; PhD**
Ideal Candidate	The ideal student will be driven by curiousity and have demonstrated an apptitude for research through previous academic success or undergraduate publications. They will be able to communicate clearly both verbally and in writing. They will have a passionate committement to improving the Emergency care of older people. Expererince working with older relatives or volunteering with older people is an asset. They will be hard working and keen to improve their skills and knowledge. They should have an interest in clinical epidemiology and clinical research. Previous clinical research experience, understanding of research ethics and informed consent, and biostatitical training are assets. PhD candidates are encouraged to demonstrate how their career goals align with the supervisors program of research.
Research Summary	My research is focused on Geriatric Emergency Medicine (GEM) as a means to improve the care of older people who need care in the Emergency Department (ED). Delirium is my primary focus, including the diagnosis recognition, prevention and pathophysiology of delirium. Diagnosis and recognition: My team is developing technology including gait trackers and “serious games” to recognize and prevent delirium in the ED. We are also examining differences in motor-subtypes of delirium. Prevention: We recently completed a multicenter stepped-wedge cluster randomized clinical trial that recruited over 800 older people to assess whether a knowledge-to-practice intervention to train ED physicians to perform Point-of-Care Ultrasound Guided regional anesthesia can reduce incident delirium in older people with hip fractures. Pathophysiology I am leading a team clinicians and basic scientist to investigate the use of urine metabolomics to understand the underlying mechanisms leading to delirium and ultimately develop diagnostic biomarker tests. Social Isolation and Loneliness

	In response to COVID-19, I am collaborating internationally to test the "HOW RU? volunteer-based, virtual intervention developed in Australia. We looking at the role of video vs. telephone delivery, use of inter-generational volunteers, and the use of art participation.
Keywords	Emergency Medicine Geriatrics Delirium Social Isolation and Loneliness
Lab location	Mount Sinai Hospital, Schwartz/Reisman Emergency Medicine Institute
Available Funding	Yes
Relevant Links	https://sremi.ca/faculty/jacques-lee
Contact Information	jacques.lee@sinaihealth.ca 416-877-1447 416-586-4800, ext 6664

Principal Investigator: *Lemaire, Mathieu*

Currently Accepting	**MSc; PhD**
Ideal Candidate	Would prefer students interested to do a PhD
Research Summary	Patients with invasive Streptococcus pneumoniae infection can develop hemolytic-uremic syndrome (HUS). They sustain an acute kidney injury because of thrombosed kidney glomeruli that can lead to death (10%) or end-stage kidney disease (15%). All patients with pneumococcal HUS (P-HUS) have high blood levels of bacterial sialidase. This enzyme cleaves terminal sialic acid residues from endothelial glycoproteins, exposing galactose termini instead. Sialic acid or galactose termini act as docking sites for distinct receptors on blood cells. Using exome sequencing, we discovered a novel form of HUS caused by loss-of-function mutations in the gene that encodes a sialyltransferase that adds sialic acid to galactose on nascent

	glycoproteins. Our poor understanding of their pathophysiologies has hampered the development of new therapies for both conditions. Students will work on this or a similar project within the Lemaire Laboratory while being accompanied by one of the research staff. Students will be privy to many learning opportunities, seminars, and lab-specific certifications from the Cell Biology program and the Research Institute.
Keywords	kidney, glomerulonephritis, genetics, thrombotic microangiopathy, endothelial cell, glomerulus, pediatrics, rare disease, atypical hemolytic-uremic syndrome, glycobiology, phospholipids
Lab location	SickKids
Available Funding	Yes
Relevant Links	
Contact Information	mathieu.lemaire@sickkids.ca 416-813-7654 ext. 309452

Principal Investigator: *Lin, Fa-Hsuan*

Currently Accepting	**MSc; PhD**
Ideal Candidate	We are seeking students with strong enthusiasm in translating our neuroimaging (MRI, EEG, SEEG) and neuromodulation (TMS) methods to the development of new methods, the elucidation of neural mechanisms underpinning basic and high-level functions, and the improvement of brain health.
Research Summary	Our lab focuses on the development and application of human neuroimaging and neuromodulation methods and the translation of these cutting-edge tools to neuroscience studies and clinical applications.
Keywords *	MRI, EEG, SEEG, TMS, machine learning, psychiatric disorder

Lab location	Sunnybrook
Available Funding	Yes
Relevant Links	linbrainlab.org
Contact Information	fhlin@sri.utoronto.ca 647 862 8152

Principal Investigator:	*Lin, Steve*
Currently Accepting	**MSc**
Ideal Candidate	Experience with animal handling is preferred but not required.
Research Summary	Dr. Lin's translational research program aims to optimize resuscitation for cardiac arrest patients with specific interests in developing and evaluating drug therapies and devices that allow for goal-directed therapy in resuscitation. His work includes pre-clinical resuscitation studies to large clinical trials to guidelines development, which are supported by local and national grants including the Canadian Institutes of Health Research and the Heart and Stroke Foundation of Canada.
Keywords	cardiac arrest, resuscitation
Lab location	St Michael's Hospital
Available Funding	Yes
Relevant Links	https://research.unityhealth.to/lin/
Contact Information	steve.lin@unityhealth.to 416-864-6060

Principal Investigator:	*Lincoln, Matthew*
Currently Accepting	**MSc;**
Ideal Candidate	We are looking for students interested in either wet lab transcriptomic studies or computational analysis. Experience in molecular biology and/or analytical experience with R are assets.
Research Summary	We combine transcriptomics and epigenetics with modern genetic analysis techniques to identify the fundamental molecular mechanisms that cause multiple sclerosis and other autoimmune diseases.
Keywords	Genetics Epigenetics Multiple sclerosis Autoimmunity Molecular mechanisms Transcriptomics
Lab location	St. Michael's Hospital
Available Funding	Yes
Relevant Links	www.lincolnlab.ca
Contact Information	matthew.lincoln@utoronto.ca 416-432-2276

Principal Investigator:	*Longoni, Giulia*
Currently Accepting	**MSc**
Ideal Candidate	Candidates should have a strong theoretical interest in modeling brain neuroimaging data and proficiency in computer programming for image processing and analysis (e.g. using Matlab, Python or other language). Previous experience in one or more of the following topics/techniques will be strongly appreciated: multicompartment diffusion models, quantitative magnetization transfer imaging,

	longitudinal linear and non-linear regression models.
Research Summary	The Longoni's lab focus is to combine innovative image acquisition and analysis approaches with clinical and biological markers to investigate mechanisms underlying disease onset and progression in pediatric multiple sclerosis and other autoimmune/inflammatory disorders of the central nervous system. The long-term objective of this program is to translate knowledge gained from "big data" coupled with the use of advanced analytical approaches (in particular computer vision) to provide evidence to inform future clinical practice and pharmacological trials in pediatric neuroinflammatory disorders.
Keywords	Pediatric neuroinflammatory disorders, pediatric multiple sclerosis, quantitative magnetic resonance imaging, advanced analysis techniques.
Lab location	SickKids (PGCRL)
Available Funding	Awaiting Results
Relevant Links	
Contact Information	giulia.longoni@sickkids.ca 416-813-7654 x 207037

Principal Investigator:	*Martinu, Tereza*
Currently Accepting	**PhD; MSc**
Ideal Candidate	One student. Someone with interest in immunology and transplantation would be a great fit.
Research Summary	I study lung transplant immunology and focus on mechanisms and biomarkers of chronic rejection. I am also a lung transplant physician and take care of lung transplant recipients. Chronic rejection is the main cause of death after lung transplantation. I use animal models and human samples to investigate innate immune activation, IL-17 pathways, and epithelial injury in the pathogenesis of chronic lung graft rejection. One interesting ongoing project focuses on the role of

	specialized epithelial cells, called club cells, in rejection. Club cells function as progenitor cells and also produce the anti-inflammatory club cell secretory protein. We are studying epithelial cells and club cells in vitro, after obtaining them from lung transplant patient bronchoscopies. We are also assessing the effects of club cell secretory protein on epithelial cells and immune cells. Finally, changes in club cell secretory protein levels in lung samples from our patients can serve as a biomarker of disease.
Keywords	Lung transplantation, chronic rejection, immunology, biomarkers, epithelial cells, club cells
Lab location	UHN
Available Funding	Yes
Relevant Links	Link to my publications on PubMed: https://pubmed.ncbi.nlm.nih.gov/?term=Martinu%2C+Tereza%5BAuthor%5D&sort=date
Contact Information	tereza.martinu@uhn.ca

Principal Investigator: *Mazer, David*

Currently Accepting	**PhD**
Ideal Candidate	Background: driven interest and good understanding of perioperative clinical trial design, methodology, and analysis. Personal attributes: great analytical & communication skills, passionate, motivated, curious, cooperative
Research Summary	My research program focuses on cardiovascular disease, cardiac anesthesia and critical care. We perform clinical studies of perioperative blood conservation, cardiac physiology and metabolism and perioperative organ protection.
Keywords	Cardiovascular anesthesia, Clinical trials, Transfusion and hemostasis, Cardiovascular disease and its treatment, Physiology

Lab location	St. Michael's Hospital
Available Funding	Yes
Relevant Links	https://anesthesia.utoronto.ca/faculty/cyril-david-mazer https://anesthesia.utoronto.ca/dr-gregory-mt-hare-and-dr-c-david-mazer https://pubmed.ncbi.nlm.nih.gov/?term=mazer+cd&sort=date
Contact Information	david.mazer@unityhealth.to 416 864 5825

Principal Investigator: *Mazierski, David*

Currently Accepting	**MSc**
Ideal Candidate	Masters students in the Biomedical Communications graduate program
Research Summary	Visualization of vertebrate and invertebrate anatomy, morphology, and ecology
Keywords	Paleozoic, Permian, Cambrian, Burgess Shale, Synapsids, Tetrapoda
Lab location	University of Toronto Mississauga
Available Funding	No
Relevant Links	
Contact Information	d.mazierski@utoronto.ca 905-569-4495

Principal Investigator:	*Milosevic, Michael*
Currently Accepting	**MSc;**
Ideal Candidate	Motivated student with a background in biology and an interest in cancer research.
Research Summary	Our lab is focused on improving the effectiveness of radiotherapy to treat cancer by identifying and targeting aspects of the tumor microenvironment that contribute to treatment resistance. We have shown that radiation upregulates the CXCL12/CXCR4 chemokine pathway, which leads to the accumulation of immune cells that protect the tumor. The addition of a CXCR4 inhibitor during or immediately after radiation prevents immune cell accumulation, improves tumor response and reduces metastases. Ongoing research is focused on combining radiotherapy with CXCR4 inhibitors and immunotherapy, and translating these promising finding to the clinic.
Keywords	Cancer, radiotherapy, immunotherapy, CXCL12/CXCR4
Lab location	Princess Margaret Cancer Centre
Available Funding	Yes
Relevant Links	
Contact Information	mike.milosevic@rmp.uhn.ca 416-946-2122

Principal Investigator:	*Minian, Nadia and Selby, Peter*
Currently Accepting	**MSc; PhD**
Ideal Candidate	Interest in cancer prevention, health equity, knowledge translation, systematic reviews, patient engagement

Research Summary	Background. Clinical guidelines recommend treating tobacco and alcohol use concurrently. Over 365,000 Ontarians smoke cigarettes and drink alcohol above recommended guidelines, which increases their risk for cancer. In 2016, we used our smoking cessation program, i.e., the Smoking Treatment for Ontario Patients (STOP), to screen and delivered a brief intervention for at-risk alcohol use: we found that only 45% of STOP patients with at-risk alcohol use were offered the intervention by their provider. Reported barriers to offering the intervention included concerns about damaging the therapeutic relationship and lack of time. In 2022, our team launched the STOP patient portal, which we intend to use deliver interventions for individuals with concurrent tobacco and alcohol use. Objective. To co-create, in partnership with patients and community organizations, a digital intervention for treatment-seeking individuals who smoke tobacco and drink alcohol at hazardous levels, to be embedded into the STOP patient portal. Specific Aims Aim 1: Identify effective behavioural change techniques (BCTs) that reduce dual use of alcohol and tobacco. Aim 2: Co-create a brief digital intervention to reduce hazardous alcohol use for patients in smoking cessation treatment. Aim 3. Pilot test a brief digital intervention for hazardous alcohol use among users of a patient portal for tobacco and other substances. Impact. If acceptable to end-users, this intervention will be tested in a large clinical trial, which could ultimately contribute to significant improvement to population health and reduce healthcare costs, by mitigating two main risk factors for cancer and addressing provider concerns.
Keywords	Alcohol, Tobacco, Behaviour-Change, cancer prevention, health equity, implementation science
Lab location	CAMH
Available Funding	Yes

Relevant Links	https://www.nicotinedependenceclinic.com/en/knowledge-translation
Contact Information	nadia.minian2@camh.ca Vanessa.Ballarino@camh.ca (416) 535-8501 ext 77420

Principal Investigator: *Mishra, Sharmistha*

Currently Accepting	**PhD; MSc**
Ideal Candidate	1) Experience and ideally proficiency in coding/programming in scripting languages such as R, python, Matlab, etc., or programming languages (e.g. C++, Java, etc.) 2) Training with respect to undergraduate courses in calculus and linear algebra 3) Experience in scientific writing 4) Training and/or experience in introductory statistics or biostatistics 5) Training and/or applied experience in analytic and/or field epidemiology, infectious disease outbreaks, implementation science
Research Summary	mathematical modeling; infectious disease epidemiology; quantitative bias analyses; causal inference; HIV; sexually transmitted infections; social determinants of health; health equity
Keywords	Our team examines transmission pathways structured by systemic inequities, and tests interventions tailored to disproportionate risks to inform public health and policy decisions in Canada and internationally. Research interests include the structural and systemic inequities as they relate to the pathways that lead to disproportionate risks of infectious disease transmission, and modeling interventions tailored to disproportionate risks. Our team develops and uses different types of epidemic models (compartmental, agent-based), statistical models, and causal inference and with a focus on integration of data and quantitative bias analyses. Our work is centered on explanatory modeling and asking “why” using counterfactuals, especially in the context of transmission dynamics (or “interference” in epidemiology-terms). Epidemic theory, testing assumptions and

	contributing methodological insights/advancements, and coding are key to our work. Our lab primarily works in the field of HIV and sexually transmitted infections among key populations, in partnership with communities and program implementers in Kenya, South Africa, Eswatini, Ukraine, India and in Canada.
Lab location	Unity Health Toronto
Available Funding	Yes
Relevant Links	www.mishra-lab.ca
Contact Information	mishralab@smh.ca

Principal Investigator:	*Moe, Gordon*
Currently Accepting	**MSc;**
Ideal Candidate	
Research Summary	Heart failure, mechanisms, treatment, population studies
Keywords	Heart failure, pathophysiology, management
Lab location	St. Michael's Hospital
Available Funding	No
Relevant Links	
Contact Information	moeg@smh.ca 416 8645615

Principal Investigator:	*Mucsi, Istvan*
Currently Accepting	**MSc; PhD**

Ideal Candidate	Statistical, epidemiological knowledge, experience with STATA. Qualitative research experience.
Research Summary	I study inequities in accessing advanced therapies, including live donor kidney transplant among racialized patients. My other program is focusing on using Patient Reported Outcomes Measures clinically for patient centered care.
Keywords	health equity; social determinants of health; kidney transplant; patient reported outcome measures; quality of life; symptom management
Lab location	Toronto General Hospital
Available Funding	Yes
Relevant Links	https://nefros.net https://scholar.google.hu/citations?hl=en&user=8y2XF0YAAAAJ
Contact Information	istvan.mucsi@utoronto.ca 416-340-4084

Principal Investigator:	*Mulsant, Benoit*
Currently Accepting	**MSc;**
Ideal Candidate	Typically, my MSc students complete a publication-based thesis focused on a systematic review ("background") and the analysis of data collected in one of the clinical trials I have been involved. For the summer or fall 2023 session, the data would come from the longitudinal data of the recently completed PACt-MD trial described in: 494. Rajji TK, Bowie CR, Herrmann N, Pollock BG, Bikson M, Blumberger DM, Butters MA, Daskalakis ZJ, Fischer CE, Flint AJ, Golas AC, Graff-Guerrero A, Kumar S, Lourenco L, Mah L, Ovaysikia S, Thorpe KE, Voineskos AN, Mulsant BH for the PACt-MD Study Group (2020). Design and rationale of the PACt-MD randomized clinical trial: Prevention of Alzheimer's dementia with cognitive remediation plus transcranial direct

	current stimulation in mild cognitive impairment and depression. Journal of Alzheimer's Disease 76(2):733-751 doi: 10.3233/JAD-200141 – PMID: 32568198
Research Summary	The overarching goal of my work over the past 30 years has been to improve the treatment of older persons with severe mental disorders. My main scientific focus has been on designing and conducting clinical trials for "hard–to-treat" older patients with severe mood disorders (e.g., late-life depression, bipolar disorder, psychotic depression, treatment-resistant depression). Another major focus has been using these clinical trials as platforms to identify biomarkers or other predictors of clinical trajectories and treatment outcomes. My work has been continuously funded since 1992 (with a total of $175M in direct funding, including $74M as PI and $32M as co-PI). The results have been reported in more than 600 peer-reviewed publications (h-index: 102) in high impact journals including the New England Journal of Medicine, Lancet, JAMA, and PNAS.
Keywords	Geriatric Psychiatry Depression Bipolar Disorder Neuroimaging Biomarkers Treatment mechanisms
Lab location	CAMH
Available Funding	Yes
Relevant Links	http://www.ncbi.nlm.nih.gov/pubmed/?term=mulsant+B+or+mulsant+BH
Contact Information	benoit.mulsant@utoronto.ca (416) 979 6948

Principal Investigator:	*Narod, Steven*
Currently Accepting	**PhD**
Ideal Candidate	Students should have a strong background in statistics and math and some basic science in cancer
Research Summary	Cancer research epidemiology and clinical studies
Keywords	breast, cancer, ovarian, epidemiology
Lab location	Women's College Hospital
Available Funding	No
Relevant Links	
Contact Information	steven.narod@wchospital.ca 416-323-6500 x3765

Principal Investigator:	*Orser, Beverley A.*
Currently Accepting	**MSc; PhD**
Ideal Candidate	Neuroscience, biochemistry, cell biology, molecular biology, proteomics, pharmacology.
Research Summary	Orser's lab has a strong interest in translational research to bring forward new treatments for patients with neurocognitive disorders. Research projects in the lab aim to understand how anesthetic drugs target specific protein receptors, modify neurons and networks, and disrupt brain function.
Keywords	perioperative neurocognitive disorders, anesthesia, GABAA receptor, astrocytes, neurons, synaptic inhibition.
Lab location	Department of Physiology, University of Toronto
Available Funding	Yes

Relevant Links	www.orserlab.com; www.perioperativebrainhelath.com
Contact Information	beverley.orser@utoronto.ca 416-978-1518

Principal Investigator: *Reid, Aylin*

Currently Accepting	**MSc; PhD**
Ideal Candidate	We are recruiting students with a strong background in the neurosciences and an interest in translational research. Previous experience with animal models (rodents, zebrafish), molecular studies, and/or electrophysiology would be a great asset but not required.
Research Summary	We are recruiting students with a strong background in the neurosciences and an interest in translational research. Previous experience with animal models (rodents, zebrafish), molecular studies, and/or electrophysiology would be a great asset but not required.
Keywords	Epilepsy, traumatic brain injury, inflammation, neurofibromatosis, seizures
Lab location	Toronto Western Hospital/Krembil Discovery Tower
Available Funding	Yes
Relevant Links	
Contact Information	aylin.reid@utoronto.ca 416-603-5320

Principal Investigator: *Rizvi, Sakina*

Currently Accepting	**MSc; PhD**
Ideal Candidate	Background in psychiatry/psychology, some clinical research experience in this area.

Research Summary	We are exploring dopamine function in treatment resistant depression using positron emission tomography. This study represents a collaboration between St. Michael's Hospital and CAMH.
Keywords	PET; treatment resistant depression; dopamine
Lab location	St. Michael's Hospital
Available Funding	Yes
Relevant Links	www.asrlife.ca
Contact Information	rizvisa@smh.ca

Principal Investigator: *Rotstein, Ori*

Currently Accepting	**MSc; PhD**
Ideal Candidate	excellent undergraduate standing, prior bench research experience, collaborative, hardworking and a sense of humour
Research Summary	Our laboratory studies the pathogenesis of ischemia/reperfusion injury following trauma with a focus on optimizing mitochondrial quality either through pharmacology or through transplantation
Keywords	trauma, hemorrhagic shock. mitochondria, mitophagy
Lab location	St. Michael's Hospital
Available Funding	Yes
Relevant Links	search my name on pubmed
Contact Information	ori.rotstein@unityhealth.to 416 864 5637

Principal Investigator:	*Rozenberg, Dmitry*
Currently Accepting	**MSc**
Ideal Candidate	**Looking for a student with previous experience with clinical research and some working knowledge of statistical principles. Knowledge of lung disease, transplantation, and exercise training would be helpful.
Research Summary	My research program aims to understand the impact of physical fitness and skeletal muscle function on daily physical function, quality of life, frailty, health care use, and survival before and after lung transplantation. Dr. Rozenberg is applying novel imaging techniques and non-invasive measures to quantify muscle mass, strength and physical function to gain a greater understanding of the functional impairments experienced by transplant patients and their response to rehabilitation.
Keywords	Solid Organ Transplantation; Lung Disease; Exercise; Physical Fitness; Quality of life
Lab location	Toronto General Hospital
Available Funding	Yes
Relevant Links	https://www.uhnresearch.ca/researcher/dmitry-rozenberg
Contact Information	Dmitry.Rozenberg@uhn.ca 416-340-4800 ext. 7358

Principal Investigator:	*Serghides, Lena*
Currently Accepting	**PhD**
Ideal Candidate	

Research Summary	Antiretroviral treatment in pregnancy has improved maternal health and dramatically reduced the rate of perinatal HIV transmission. Over 1 million pregnant women take these medications annually. Yet, a public health challenge remains, identifying the safest antiretrovirals to optimize maternal-child health outcomes, while continuing to achieve high efficacy in preventing vertical HIV transmission. While antiretrovirals are essential for maternal health and preventing HIV transmission to the infant, antiretrovirals have been associated with increased risk for adverse birth outcomes including preterm and small for gestation age births. The mechanisms underlying these outcomes remain poorly understood. With the overall objective of optimizing antiretroviral therapy for pregnant women with HIV and their infants, the aims of the Serghides Lab are: (1) to identify mechanisms that contribute to adverse birth outcomes in the context of HIV and antiretroviral exposure, as well as identify biomarkers of risk, and interventions to improve outcomes, (2) to understand the effects of in utero exposure to HIV and antiretrovirals on the development of children who are HIV exposed but uninfected and identify underlying mechanisms, and (3) to develop animal and ex-vivo models to facilitate the study HIV and antiretroviral effects in the context of pregnancy.
Keywords	HIV, antiretrovirals, pregnancy, adverse birth outcomes, placenta, fetal development
Lab location	PMCRT, UHN
Available Funding	Awaiting Results
Relevant Links	https://www.serghides.ca/
Contact Information	lena.serghides@utoronto.ca

Principal Investigator:	*Sloan, Matthew*
Currently Accepting	**MSc**
Ideal Candidate	
Research Summary	Primary research interests include developing new treatments for substance use disorders and improving delivery of existing treatments as well as exploring determinants of psychopharmacological response to drugs of abuse.
Keywords	Addiction, Clinical Trials, Human Laboratory Studies, Alcohol, Cannabis
Lab location	CAMH
Available Funding	Yes
Relevant Links	
Contact Information	matthew.sloan@camh.ca 416-535-8501 x33840

Principal Investigator:	*Swartz, Rick*
Currently Accepting	**MSc; PhD**
Ideal Candidate	MSc/PhD students interested in clinical research in neurology/neuroscience, focussing on stroke, vascular cognitive impairment, dementia/neurodegeneration. Background in cognitive outcomes and/or clinical medicine/neurology and/or neuroscience and/or statistics preferred.
Research Summary	RCT's and observational trials on stroke and vascular cognitive impairment, acute stroke treatments, stroke prevention and interactions between stroke and dementia. Clinical trials, clinical epidemiology, large-scale pragmatic studies.
Keywords	Stroke, dementia, vascular cognitive impairment, neuroimaging, epidemiology, clinical trials.
Lab location	Sunnybrook

Available Funding	Yes
Relevant Links	https://sunnybrook.ca/team/member.asp?m=402
Contact Information	Rick.swartz@sunnybrook.ca Marivel.magsino@sunnybrook.ca 416-480-4866 (Marivel Magsino)

Principal Investigator: *Tang, Victor*

Currently Accepting	**MSc; PhD**
Ideal Candidate	Experience in clinical research, clinical trials, human subject research, mental health and addictions research an asset.
Research Summary	The goal of Dr. Tang's research program is to develop novel therapeutics and improve treatment outcomes for patients with mood disorders and substance use disorders. His current focus is on the development of non-invasive brain stimulation treatments in the field of addiction psychiatry, innovative approaches to evidence-based treatment delivery, and conducting clinical trials to investigate and target putative neurobiological mechanisms underlying these disorders. Current active project include the development of transcranial magnetic stimulation as a novel treatment for patients with concurrent depression and substance use disorder, cannabis use disorder, and nicotine dependence. These include randomized controlled clinical trials, mixed methods patient reported outcomes research, and adjunctive neuroimaging and neurocognitive biomarker studies.
Keywords	brain stimulation, concurrent disorders, addictions, transcranial magnetic stimulation, clinical trials
Lab location	CAMH

Available Funding	Yes; Awaiting Results
Relevant Links	
Contact Information	victor.tang@camh.ca 416-535-8501 ext 39137

Principal Investigator: *Tartaglia, Carmela*

Currently Accepting	**PhD**
Ideal Candidate	Accepting one Candidate
Research Summary	Imaging and Biofluid Biomarkers of neurodegeneration I use novel imaging techniques in conjunction with proteomics, pathology and genetics to better diagnose and understand the pathological substrates that cause cognitive, behavioral and motoric dysfunction in patient with neurodegenerative diseases. My focus is on frontotemporal lobar degeneration as well as the delayed effects of concussions. The ultimate goal of my research program is to discover biomarkers for early detection of disease so as to provide early treatments to my patients.
Keywords	neurodegeneration, biomarkers, tau, tap-43, imaging
Lab location	Tanz Centre for Research in Neurodegenerative Diseases
Available Funding	Yes
Relevant Links	https://tanz.med.utoronto.ca/carmela-tartaglia
Contact Information	Carmela.tartaglia@uhn.ca 4166035483

Principal Investigator: *Tator, Charles H.*

Currently Accepting	**MSc**
Ideal Candidate	Neuroscience background, experience with management of rodent models, and experience with histology and immunohistochemistry are desirable.
Research Summary	We are studying acute and chronic spinal cord injury in rodent models and exploring a number of therapeutic strategies to induce neuroprotection and neuroregeneration. The strategies include blockage of inhibitory factors, transplantation of neural stem cells, enhancement of endogenous stem cell proliferation and differentiation, and methods to improve spinal cord blood flow to counteract posttraumatic ischemia and infarction.
Keywords	Neurotrauma, Neuroprotection, Neuroregeneration, Blood flow, ischemia
Lab location	Krembil Discovery Tower, Toronto Western Hospital
Available Funding	Yes
Relevant Links	
Contact Information	charles.tator@uhn.ca 416 603 5032

Principal Investigator: *Vanderlaan, Rachel*

Currently Accepting	**MSc**
Ideal Candidate	
Research Summary	Rachel Vanderlaan's laboratory is within Developmental and Stem Cell Biology program at the Hospital for Sick Children and the main laboratory research program focuses on the role of mechanotransduction in cardiac development and disease.

	One main project focuses on the role of mechanotransduction in pulmonary vein stenosis (PVS), a rare pediatric vascular disease. The lab used in vivo animal models, in vitro cell culture shear stress and stain experiments to identify key signal transduction pathways regulating pulmonary venous endothelial homeostasis in response to disturbed flow patterns to facilitate discovery of novel therapeutics. The lab also complements these experiments with computational flow dynamics (collaborator, Dr. Christina Amon, UofT Engineering). In addition to laboratory work, translational projects include whole genome sequencing of PVS patients and biomarker discovery in this unique cohort.
Keywords	cell and molecular biology, mechanotransduction, pulmonary vasculature, congenital heart disease, clinical research
Lab location	SickKids
Available Funding	Awaiting Results
Relevant Links	https://pubmed.ncbi.nlm.nih.gov/?term=vanderlaan+Rachel+D
Contact Information	rachel.vanderlaan@sickkids.ca patricia.ramos@sickkids.ca

Principal Investigator:	*van Klei, Wilton*
Currently Accepting	**MSc**
Ideal Candidate	Knowledge on handling / combining huge data sets Basic knowledge on clinical epidemiology / analysis (study types, 2x2 tables, calculating effect measures, etc)
Research Summary	The main objective of this multicenter, retrospective cohort study is to determine the association between (the pattern of) alcohol consumption in the surgical patient population and (1) differences in anesthetic management or (drug) requirements related to alcohol consumption and (2) postoperative outcomes.

Keywords	Perioperative, alcohol, outcomes, opiods
Lab location	TGH
Available Funding	Yes
Relevant Links	https://www.uhnresearch.ca/researcher/wilton-van-klei https://www.uhnresearch.ca/researcher/stuart-mccluskey
Contact Information	Sarah.Russell@uhn.ca 416-340-5164

Principal Investigator: *Vincent, Ajoy*

Currently Accepting	**PhD**
Ideal Candidate	
Research Summary	A Mouse model over expressing 12/15-LOX will be crossed to retina-specific Cre mice to generate retina specific overexpression of 12/15-LOX. These mice is a model for macular dystrophy. This mice will undergo live (in vivo) tests periodically. These include advanced retinal imaging (photography and optical coherence tomography scans) and electroretinography. These studies will confirm the human retinal disease in the mice model. Subsequently using the sacrificed mice eyes, we will ascertain for levels of lipid bioactive molecules in the retina and compare it to control mice (littermates). Further, markers for cell death (apotosis) and reactive oxygen species levels will be studied in the transgenic mice and control littermates. These tests will help unravel the mechanism by which upregulation of ALOX15 cause macular dystrophy/degeneration.
Keywords	macular degeneration; 12/15-LOX;
Lab location	Sickkids

Available Funding	Awaiting Results
Relevant Links	https://scholar.google.com/citations?hl=en&user=BLbWvCsAAAAJ
Contact Information	kashif.ahmed@sickkids.ca 416-813-8606

Principal Investigator: *Woo, Minna*

Currently Accepting	**MSc; PhD**
Ideal Candidate	
Research Summary	Our research interest focuses on elucidating molecular signaling pathways that play a key role in the pathogenesis of type 2 diabetes as well as its associated diseases such as fatty liver disease, liver cancer and atherosclerosis. We study signaling pathways that are often implicated in tumourigenesis such as PTEN, BRCA1 or JAK2. We investigate the emerging metabolic roles of these molecules in metabolic tissues such as the liver or skeletal muscle in addition to other important systems such as the autonomic nervous system. We use genetic mouse models as well as other state-of-the art approaches including single nuclear sequencing to understand the molecular mechanisms of these complex diseases using both in vivo and in vitro strategies.
Keywords	diabetes; metabolism; insulin resistance; mouse models; signal transduction; cre-loxP
Lab location	UHN
Available Funding	Yes
Relevant Links	https://www.uhnresearch.ca/researcher/minna-woo
Contact Information	mwoo@uhnresearch.ca 4163405214

Principal Investigator:	*Yeung, Jonathan*
Currently Accepting	**MSc**
Ideal Candidate	Experience in cell culture, molecular biology, or bioinformatics helpful.
Research Summary	Genomic analysis of esophageal adenocarcinoma Development of molecular diagnostics for lung transplant recipients
Keywords	Esophageal adenocarcinoma Lung transplantation Genomics
Lab location	UHN PMCRT
Available Funding	Yes
Relevant Links	
Contact Information	jonathan.yeung@uhn.ca '4163403121