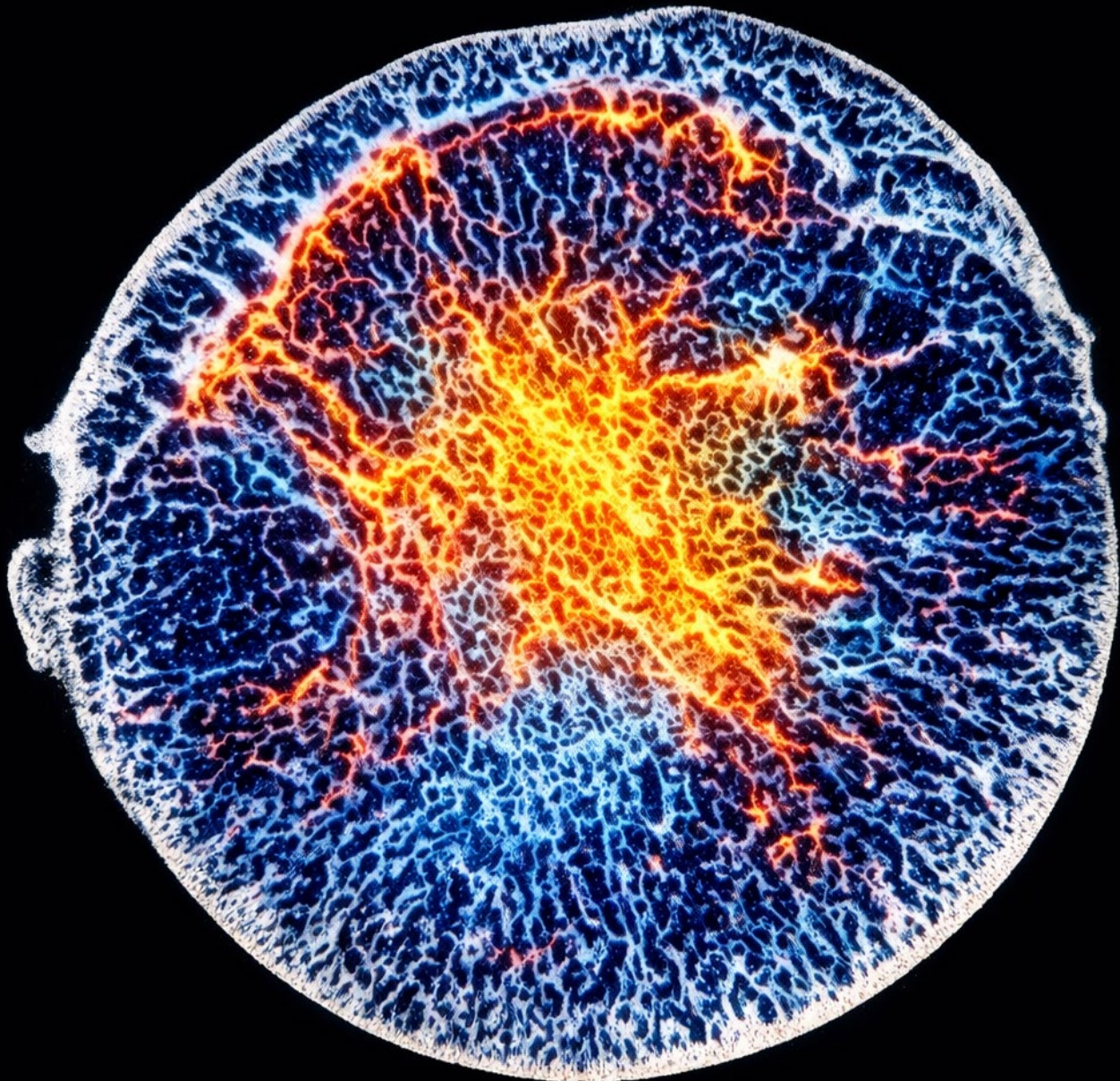


DEPARTMENT OF

MEDICINE 2025

Translational Institute of Medicine (TIME)



Cover Image: Emily Cameron, PhD candidate in Mechanical and Materials Engineering at Queen's University (under the supervision of Dr. Heidi Ploeg), using micro-CT imaging to investigate bone adaptation and implant fixation.

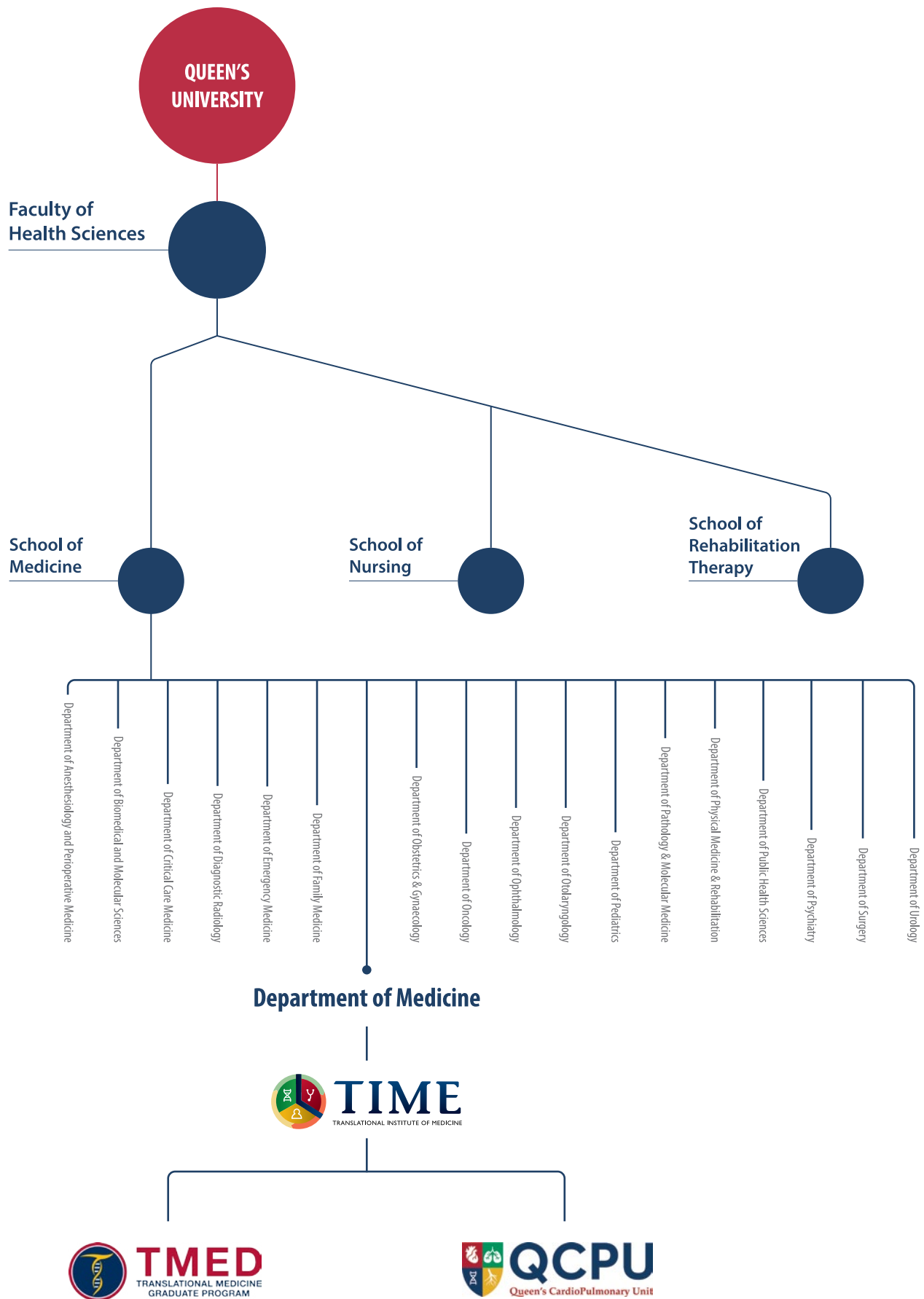


TABLE OF CONTENTS

2	MESSAGE FROM THE DIRECTOR OF TIME
6	SECTION I: TRANSLATIONAL INSTITUTE OF MEDICINE TIME
30	SECTION II: TRANSLATIONAL MEDICINE GRADUATE PROGRAM TMED
48	SECTION III: CORE FACILITY TIME CORE

MESSAGE FROM THE DIRECTOR OF TIME



I am proud to lead TIME and summarize the exciting year that was 2025. It was another year of growth, innovation and both educational and scientific achievement!

TIME is an officially recognized institute at Queen's University. TIME was co-founded in 2017 by Dr. Stephen Vanner (who served for five years as TIME's inaugural Director) and I. TIME has the ambitious vision to accelerate translational research, helping its members by catalysing the movement of science from the bench to the bedside through bringing together and equipping trainees, staff scientists, basic researchers and clinicians with a focus on improving human health and disease.

TIME is based within the Department of Medicine but serves 250+ members from multiple departments. TIME also contributes to cardiac care at the Kingston Health Science Centre (KHSC), though hosting an echocardiography clinical satellite. Our continued success is made possible by the generous support of the Department of Medicine (DOM), the Faculty of Health Science (QHS), our philanthropic partnerships with the W.J. Henderson Foundation and the United Hospital Kingston Foundation (UHKF) and our cost-recovery revenue, derived from our research services.

TIME is comprised of four pillars: 1) major infrastructure programs. Housed in 10,000 ft², which comprises the Queen's CardioPulmonary Unit (QCPU) and TIME Core, we operate \$25M in scientific biomedical core facilities and host a KHSC satellite echocardiography clinic; 2) a highly respected translational medicine graduate program (TMED); 3) an incubator grants program which funds research, with the goal of increasing success in Tri-council grant competitions; 4) a public relations arm that celebrates science through media, like our TIME to Talk Science & Medicine podcast, special events, like the TIME for Science to Shine Celebration, and scientific outreach to excite the public about science.

One of the most important resources of TIME is our team of dedicated staff scientists who provide our members with state-of-the-art translational research services, ranging from experimental design and conduct of experiments to data analysis. I'm very proud of the team that provides these world-class services to the Queen's research community and beyond.

OUR TEAM INCLUDES:

DR. CHARLIE HINDMARCH: Associate Director of Research, bioinformatician and transcriptomics expert

BROOKE RING: Associate Director of Operations

SHANNAN DAVIS: Administration and internal grant coordination

DR. PATRICIA LIMA: Confocal microscopy, spatial proteomics and flow cytometry

DR. ELAHE ALIZADEH: Small animal imaging for micro-PET/SPECT/CT and optical imaging

DR. DOUGLAS QUILTY: TIME Core Project Manager and molecular biologist

OLIVER JONES: Histology and electron microscopy

CURTIS NOORDHOF: Small particle laboratory, cell culture and flow cytometry

BEN (OTT) WOOD: Biostatistics and bioinformatics

2025 was marked by significant events, most notably a massive expansion of our biomedical core facilities (called TIME Core) and the official 5-year renewal of our Institute.

THE OPENING OF TIME CORE: TIME Core, funded by a large (\$15M) CFI is co-led with Dr Lynne Postovit. TIME Core opened in 2025 to expand our footprint adjacent to QCPU, adding new core facilities to perform genomics, spatial proteomics, and electron microscopy. TIME Core funding also paid for the renovations, notably refurbishment of our microPET/SPECT/CT to include optical imaging and a radiochemistry lab, spectral flow cytometry, and a new spatial proteomics microscopy core. In addition, TIME Core added new space in which we house new platforms, such as spatial proteomics (Leica Cell Dive and Spectra flex), super resolution microscopy, high resolution echocardiography for preclinical models of disease, microvesicles, TEM and scanning low-voltage electron microscopy, and spectral flow cytometry. An exciting addition to TIME is the Collaboratory, a state-of-the-art space to display, explore and discuss complex physiologic and omics data with a huge 4K Sony screen.

TIME members published 1190 peer reviewed publications and brought in \$26M in grant funding.

PHILANTHROPY: Thanks to the Collaboratory, we have secured a \$1M donation from the W. J. Henderson Foundation. We will celebrate this gift with the naming ceremony in 2026. We are grateful to Dr. David Pattenden and Mr. Michael Hickey from the W. J Henderson Foundation for their ongoing support of TIME.

PUBLICATIONS AND GRANTS: TIME members published 1190 peer reviewed publications and brought in \$26M in grant funding. This is objective evidence of the excellence of the individuals who are members of TIME.

THE TIME SYMPOSIUM: On April 16th, 2025 we hosted Dr Jane Leopold, Professor of Medicine at Harvard and Deputy Editor of the New England Journal of Medicine. Dr Leopold spoke on her translational research program in the experimental therapy of pulmonary hypertension and also gave a mentorship lecture on the lessons she learned while navigating a career in academic medicine and research. The day long symposium included presentations from faculty and TMED students, who were selected by virtue of their having won a highly competitive TIME TMED Research Excellence Award.

THE TIME GRANT MASTERCLASS: We launched a new program that highlights the practical steps necessary to prepare successful CIHR grants. With 6 diverse speakers sharing their success stories and a robust syllabus, offering examples of grants this course, attended by 50 faculty, was well received. Due to the success of this workshop, we intend to make this an annual event.





OUTREACH: TIME scientists represented us at Science Rendezvous 2025 with a range of displays and activities from advanced imaging to DNA extraction from strawberries-brought to life by our resident mad scientist Dr. Hindmarch.

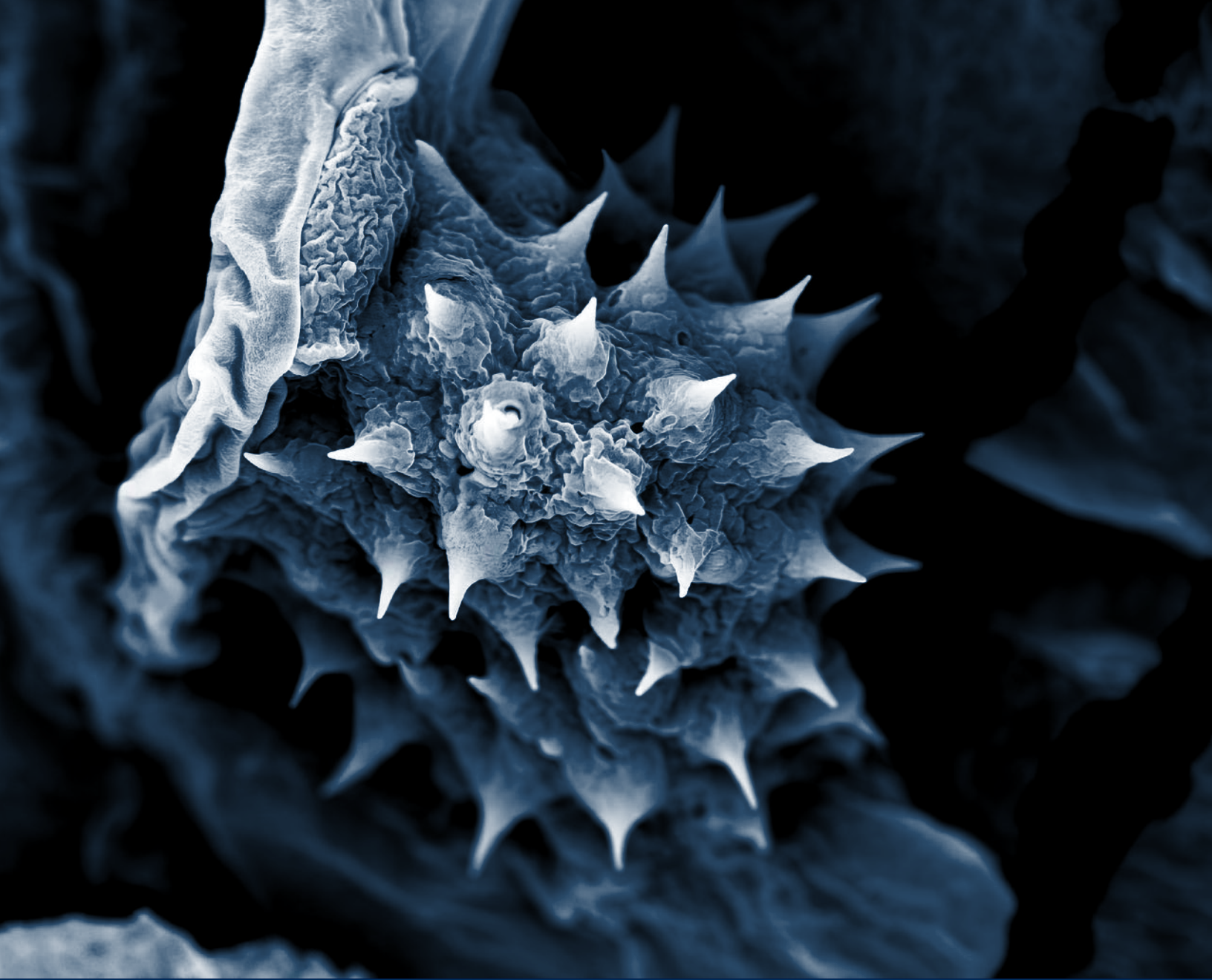
TMED: TMED continues to grow with 49 students enrolled. A recent external review of TMED, under the leadership of Dr. Anne Ellis, was highly complementary and supported continuation of this flagship graduate program. TIME continues to invest ~\$40,000/year in our TMED students, funding the TIME External Grant Award (\$1000/student) and a TIME TMED Excellence Award (\$1500 for 6 winners based on a paper or podium presentation). These awards are competitive and reward excellence. The funds go directly to the successful recipient for personal use in an effort to address the systemic underfunding of graduate student salaries.

TIME GRANTS PROGRAM: Using our customized GoodGrants software we now administer the grant competitions for the DOM, TIME UHKF, CTAQ and QHS. In 2025 we awarded \$170K in TIME incubator grants. Many of these projects went on to receive external funding.

COMING FOR 2026: TIME is exploring creation a portfolio of five practical courses introducing graduate students to advanced science techniques, with lectures accompanied by hands on training. If approved by the graduate studies committee these will be courses open to TMED/BMED students and will allow them hands-on experience using state-of-the-art platforms in TIME, such as micro-PET/ SPECT/CT, super resolution confocal microscopy, flow cytometry, histology, electron microscopy, essential laboratory techniques and more.

A handwritten signature in black ink that reads "Stephen L Archer". The signature is written in a cursive, flowing style.

Dr. Stephen Archer
Director of the Translational Institute of Medicine (TIME)
Scientific Director of the Queen's CardioPulmonary Unit (QCPU)



Translational Institute of Medicine | TIME

SECTION I

Translational Institute of Medicine | TIME

What is TIME?

The Translational Institute of Medicine (TIME) is an institute comprised of over 250 basic and clinician-scientists across multiple departments within the QHS. It was created to capture the breadth of translational research at Queen's University and maximize the sharing of state-of-the-art research platforms and expertise between research groups in the Department of Medicine and their collaborators. TIME currently comprises of a variety of research groups whose interests span the spectrum of translational research.

Co-founded by clinician-scientists Drs. Stephen Vanner and Stephen Archer, TIME's vision embraces a culture of collaborative and interdisciplinary translational health research that is intended to accelerate the discovery and implementation of novel and effective clinical therapies.

TIME AIMS TO ACHIEVE ITS VISION THROUGH:

- **RESEARCH SERVICES:** Over \$25M+ in state-of-the-art research platforms supported by staff scientists.
- **EDUCATION:** The Translational Medicine (TMED) Graduate Program, a unique research-based graduate program that focuses on training students in translational medicine at both master's and doctoral levels.
- **VISIBILITY & ENGAGEMENT:** Whether academic, public or industry, TIME creates media and events to promote and celebrate our members and their discoveries.
- **GRANT OPPORTUNITIES:** Incubator grant competitions that enable TIME members to collaborate using TIME's infrastructure with the goal of increasing success in obtaining external grant funding.

\$25M+

in state-of-the-art
research platforms

TIME Strategic Plan

THIS STRATEGIC PLAN WAS COMMITTED TO 4 GUIDING PRINCIPLES:

Vision & Impact

To forge a cohesive and inclusive, interdisciplinary research community.

Growth & Sustainability

Create a dependable and sustainable financial plan.

Research Excellence

Prioritizing 'Research Excellence' in its decision making.

Education Excellence

Training Highly Qualified People (HQP) to contribute to Canada's biomedical research community through the Translational Medicine (TMED) Graduate Program.

2025 TIME Report Card

IN 2025 WE MADE A POSITIVE IMPACT IN ACHIEVING MANY METRICS OF SUCCESS WITHIN OUR CORE PILLARS, IN ALIGNMENT WITH OUR NEW 5-YEAR STRATEGIC PLAN:

Vision & Impact

- TIME acknowledged 12 of its members for funding success or award recognition in 2025 through our annual awards ceremony at TIME to Shine.
- Our podcast series; TIME to Talk Science and Medicine, hosted by Drs Hindmarch and Archer, which has accumulated an additional twelve episodes.
- The third TIME Symposium showcased research from our faculty, and our TMED students and featured keynote by Dr. Jane Leopold of Harvard University.

Research Excellence

- TIME's Incubator grant competition funded \$170K to researchers in the Department of Medicine in partnership with the University Hospital Kingston Foundation (UHKF).
- TIME Members secured \$26M in research funding.
- On behalf of the DOM, TIME has coordinated the internal grant competition for the DOM Research Grants and the John Alexander Stewart (JAS) using our Good Grant Platform which further enabled \$175K in research funding.
- Established a local Pulmonary Hypertension (PH) biobank in partnership with PH Canada.

Education Excellence

- TMED program has 21 PhD, 27 MSc and 4 MD/PhD students currently enrolled.
- 3 students promoted from MSc to PhD.
- 13 student graduated; 4 PhD and 9 MSc.
- 8 students received National/Provincial scholarships and 9 received Internal Queen's Awards.
- TMED students co-authored 54 publications.
- TIME Staff Contributed to local, national and International conferences on best-practices for the establishments and expansion, as well as the operations and strategies of core facilities.

Growth & Sustainability

- Drs. Archer and Postovit secured a Canadian Foundation for Innovation (CFI) entitled TIME Core, which brought in ~\$15M for key infrastructure to facilitate world class research at Queen's University.
- Dr. Doug Quilty was hired as the new TIME core project manager and genomics staff scientist.
- We successfully completed construction of TIME Core, and procured over \$7M in infrastructure.
- TIME's new Collaboratory Space attracted a \$1M philanthropic donation from the WJ Henderson Foundation for naming rights.
- Finished renovations on a leasable Industry-ready space to increase our revenue stream. This was created in partnership with the Kingston Economic Development Corporation (KEDCo).

TIME Highlights

TMED TIMELINE for the 2024-2025 Academic Year



FEBRUARY 6-9, 2025

Canadian Cytometry and Microscopy Association - COLD Summit took place in Ottawa and was participated by Dr. Patricia Lima, Curtis Noordhof, Dr. Charlie Hindmarch and Brooke Ring. Brooke and Charlie offered a 5-hour professional development Super tutorial on Management and Leadership of a core facility.

FEBRUARY 24, 2025

TMED Innovation Workshop with Dunin-Deshpande Queen's Innovation Centre (DDQIC) was attended by 20 TMED student to learn about entrepreneurial and intellectual property skills to enrich their education.

MARCH 24-27, 2025:

Association of Biomedical Research Facilities (ABRF) invited Brooke Ring to Las Vegas to give opening remarks on Canada's core facility landscape and participated as a panelist on a panel discussing core scientist career-tracks in Canada.

APRIL 17, 2025

TIME Symposium, an engaging day featuring talks by Translational Medicine faculty and TMED graduate students, TMED poster sessions, and a wine and cheese reception! Featuring keynote speaker Dr. Jane Leopold: Navigating a Career in Academic Medicine and Research – Lessons Learned.

MAY 10, 2025

Science Rendezvous with the TIME Mobile Medical Research Laboratory. TIME scientists and TMED students united to teach participants of Kingston and the surrounding areas about science at this national science fair.

MAY 12, 2025

Lab decant and shutdown for TIME Core renovations!

MAY 21, 2025

Manager Series, Dr. Charlie Hindmarch and Brooke Ring provided a workshop on Research Laboratory Management to Queen's research staff as part of the HR catalogue.

MAY 27, 2025

TIME for Grant Writing - A Masterclass in Planning for Success at CIHR. An interactive Masterclass in CIHR Grant Writing, led by Dr. Stephen Archer. He was joined by six guest participants each of whom have successfully secured CIHR funding.

JUNE 9-13, 2025:

Brooke Ring attended and received certification from the Kellogg's Business school Leadership and Management in Core Facilities course at Northwestern University in Chicago.

- 1) Dr. Archer presenting at the 'Masterclass for CIHR Grant Writing' on May 27, 2025
- 2) Recipients of the 2025 Distinguished Service Awards stand on stage with Queen's Chancellor Shelagh Rogers and Principal and Vice-Chancellor Patrick Deane. From left: Chancellor Rogers; Principal Deane; Stephen Archer, Meds'81; Sandra Murray; Ann Tierney, LLB'89, MPA'04; Tianna Edwards, MA'23; Heather Black, Sc'81; and Panagiotis (Takis) Katsabanis, MASC'83, PhD'88. The ceremony was held Nov. 7 at the Isabel Bader Centre for the Performing Arts. (Photo: Stephen Wild)
- 3) On September 11, 2025, TIME hosted a delegate of diplomats through the facility, this visit was organized in partnership with the City of Kingston.
- 4) Queens TIME Event – *Outstanding Service Award*, proudly presented to: Yvonne Holland





SEPTEMBER 11, 2025

TIME co-hosts the annual fall Resident Research Fair which provides PGY1 residents the opportunities to learn about research in the Divisions of the Department of Medicine. These research programs are captured in a yearly catalogue put together by TIME.

SEPTEMBER 17, 2025

Brooke Ring is honoured for her contributions to science education to the community and her national advocacy for science at the city of Kingston, 'Top 40 under 40 award' ceremony!



OCTOBER 1, 2025

TIME Core opens.

OCTOBER 1-3, 2025

Dr. Charlie Hindmarch and Brooke Ring present at a 3-day workshop on Core Facility Management and Leadership in partnership with the Canadian Network of Scientific Platforms (CNSP) and Global Bioimaging (GBI). This course was attended by 25 Canadians and 25 International core facility scientists.

OCTOBER 3, 2025

Dr. Archer and team tour a delegate of diplomate through the TIME Core facility. There were representative from over 20 countries in attendance.

OCTOBER 15, 2025

Dr. Charlie Hindmarch and Brooke Ring contribute to a half day workshop for post-doctoral fellows on Establishing and Managing a Lab, as part of an annual professional development initiative by the School of Graduate Studies.

OCTOBER 15, 2025

Dr. Stephen Archer is awarded Queen's University Distinguished Service Award

DECEMBER 4, 2025

TIME (for Science and Medicine) to Shine, which is our annually award ceremony and holiday celebration was held in the BioSciences Complex for TIME members and TMED students.

JANUARY 26, 2026

Dr Charlie Hindmarch and Brooke Ring were invited to present to leadership from Galway University (Ireland), on how to establish a translational institute and core facilities.

JANUARY 29-31

Dr. Archer receives the Pulmonary Vascular Research Institutes (PVRI) Lifetime Achievement award in Dublin Ireland.

TIME TEAM



TIME Team (back row) Dr. Patricia Lima; Shannan Davis; Oliver Jones. (middle row) Brooke Ring; Elahe Alizadeh; Curtis Noordhof. (front row) Charlie Hindmarch; Stephen Archer and Benjamin Wood (Ott)



Dr. Stephen Archer

Director | Translational Institute of Medicine (TIME) Scientific Director | Queen's CardioPulmonary Unit (QCPU) Professor of Medicine | Division of Cardiology
stephen.archer@queensu.ca

Dr. Stephen Archer is a clinician-scientist and graduate of Queen's University (Meds '81). He is a practicing cardiologist who specializes in the care of patients with various forms of pulmonary hypertension. He is currently the scientific director of the Translational Institute of Medicine (TIME) and QCPU. His other interests include training the next generation of clinician-scientists. He enjoys time with family and is an avid hockey player, guitarist, and coffee drinker.

Dr. Archer directs a CIHR-funded research lab, where he and his international team of researchers study basic mechanisms of oxygen sensing, mitochondrial metabolism, mitochondrial dynamics, epigenetics and cardiac inflammation. His team endeavours to translate these basic science discoveries into experimental therapeutics for patent ductus arteriosus, pulmonary hypertension and cancer. Dr. Archer is specifically interested in the cellular and molecular mechanisms by which mitochondria regulate cell proliferation (a process called mitotic fission). He holds several patents for repurposed and novel therapeutics, including the use of inhibitors of pyruvate dehydrogenase kinase (PDK) to treat cancer and inhibitors of dynamin-related protein1 (Drp1) to treat cancer and cardiovascular diseases.

He has over 300 publications, and his H-index is 121, with over 62,000+ citations. He has mentored over 70 trainees, many of whom are leaders in science and medicine. His translational cardiovascular research has been recognized with numerous awards, including being elected as a Fellow of the Royal Society of Canada and being awarded Distinguished Scientist Awards from the American Heart Association and American College of Cardiology. He received the AFMC President's Award for Exemplary National Leadership in Academic Medicine in 2019 and was named the Chicago American Heart Association Coeur d'Or recipient in 2013 for leadership in establishing a STEMI network of care for the city of Chicago, while President of the Chicagoland American Heart Association. In 2020 he was awarded the School of Medicine's C. Franklin and Helene K. Bracken Chair.

Dr. Stephen Archer has:

300+

Publications

121

H-index

62K+

Citations

70+

Mentored Trainees



Dr. Charlie Hindmarch

Associate Director of Research | Translational Institute of Medicine (TIME)

Assistant Professor | Department of Biomedical and Molecular Sciences & Medicine
c.hindmarch@queensu.ca

Dr. Charlie Hindmarch is Assistant Professor (DBMS/DOM) and the Associate Director for Research (TIME). He graduated in 2001 with a BSc in Marine Biology (University of Plymouth, UK), in 2003 with an MSc in Biochemical Pharmacology (University of Southampton, UK) and in 2009 with a PhD in Neuroscience and Endocrinology (University of Bristol, UK). Following his PhD, Hindmarch held two consecutive Postdoctoral Fellowships before taking the role of Senior Research Associate at the University of Bristol. Dr. Hindmarch has previously held visiting professorships at the University of Malay (Malaysia) and at the Federal Rural University of Rio de Janeiro (Brazil). Dr. Hindmarch has been at Queen's University since early 2016 and currently has 75 published papers (h-index= 31, i10=50).

Dr. Hindmarch's 'Environment Genome Interface' lab has research interests in the transcriptional control of pulmonary hypertension. His lab utilizes well controlled pre-clinical models, and 'omic techniques (genomics, proteomics, methylomics, transcriptomics etc), together with bioinformatic analysis to establish stable signatures of gene expression in various tissues relevant to disease. Dr Hindmarch also has a long-standing interest in structures of the brain that underpin hydromineral homeostasis, and cardiovascular control.

Dr. Charlie Hindmarch has:

75

Published Papers

31

H-index

50

i10-index



Brooke Ring

*Associate Director of Operations | Translational Institute of Medicine (TIME)
Manager, Facilities & Operations | Queen's Cardiopulmonary Unit (QCPU)*
ringb@queensu.ca

Brooke holds a BSc in Biochemistry and Molecular Biology and an MSc in Life Sciences from Trent University, Canada. She spent eight years as a cancer researcher and laboratory manager in the Department of Pathology and Molecular Medicine at Queen's University, where she specialized in next-generation sequencing and flow cytometry. Since joining the Translational Institute of Medicine (TIME) in 2019, Brooke oversees the institute's operations, scientific staff, strategic partnerships, and the growth of TIME Core, one of Queen's University's largest biomedical research core facilities. With more than 15 years of experience in clinical and basic research (h-index of 14), she has developed expertise in research infrastructure, core facility operations, and scientific leadership, playing a central role in advancing shared research platforms and interdisciplinary collaboration.

Brooke also serves as President of the Canadian Network of Scientific Platforms (CNSP), where she helps shape national discussions on research infrastructure, scientific workforce development, and the sustainability of core facilities. She is currently completing a PhD at Queen's University, where her research represents the first national, evidence-based examination of Canadian biomedical core facilities. Through surveys, interviews, and a comprehensive national inventory, her work seeks to identify best practices, evaluate operational models and impacts, and develop recommendations to strengthen the sustainability, accessibility, and effectiveness of Canada's shared research infrastructure.



Shannan Davis

Administrative Assistant, Translational Institute of Medicine (TIME)
shannan.davis@queensu.ca

Shannan is the Administrative Assistant to the Director of TIME, and it's hard to imagine how we ever managed without her. Often found at the entrance of TIME, Shannan is a key member of the TIME teams, ensuring that everything runs smoothly and efficiently. She holds an Honours Bachelor of Arts in Geography and Political Science from the University of Ottawa, offering a broad and insightful perspective to her role. Beyond her administrative responsibilities, Shannan is instrumental in planning and coordinating TIME events and administering our many grant competitions.



Dr. Elahe Alizadeh

Imaging & Radiation Physics Specialist | Translational Institute of Medicine (TIME) | Assistant Professor (Adjunct) | Department of Medicine
elahe.alizadeh@queensu.ca

Dr. Elahe Alizadeh is TIME core's Imaging and Radiation Physics Specialist. Elahe graduated with a BSc in Applied Physics and an MSc. in the Medical-Radiation Physics Program, both from the Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran. She then obtained her PhD in Nano-Bio-Physics from the University of Innsbruck, Austria. In 2010, she joined Prof. Sanche's lab at the Department of Radiobiology (at Université de Sherbrooke, Quebec, Canada) as a postdoctoral research fellow; where she designed and constructed a new X-ray apparatus to investigate the radiation damage on DNA complexed with radiosensitizer agents for chemoradiation therapy. Her achievement was recognized with the Radiation Research Society Jack Fowler Award in 2013 for outstanding research in medical physics and radiobiology. She has more than 50 publications with 2460 citations (H-index = 22, i10 = 40).

Since July 2018, Elahe has implemented and run the small animal imaging laboratory within TIME Core. She is responsible for the coordination and performance of pre-clinical imaging projects using tri-modality micro-PET/SPECT/CT scanner (VECTor4CT from MILabs; Utrecht, Netherlands). She also oversees the quality assurance and troubleshooting of radiation equipment. She has developed many innovative approaches for ex vivo and in vivo imaging techniques including multi-modality imaging of animal models of cancer, gated-imaging and contrast-enhanced microCT imaging for cardiovascular diseases. Her collaborations with investigators in various fields of research have closely involved her in a broad spectrum of medical and engineering research projects. She is a member of the Canadian Radiation Protection Association (CRPA) and serves as a member of the Queen's Radiation Safety Committee in the Department of Environmental Health and Safety.

Elahe is also a handcraft designer specializing in Amigurumi (handmade crochet / knitting stuffed animals and toys). In her spare time, she grows collectible houseplants, like different varieties of African violets, succulents and sansevierias.

Dr. Elahe Alizadeh has:

50+

Publications

2,460

Citations

22

H-index

40

i10-index



Dr. Patricia Lima

Molecular Imaging & Cytometry Specialist | Translational Institute of Medicine (TIME) | Assistant Professor (Adjunct) | Department of Medicine
pdal@queensu.ca

Dr. Lima oversees the operation of research platforms for imaging, flow cytometry and sorting, in vitro experimentation, and, more recently, spatial proteomics. In her capacity as a TIME scientist, she collaborates with and provides scientific assistance to numerous research groups, including support with experimental design, data acquisition, student mentorship, and both grant and manuscript preparation. Dr. Lima's expertise in microscopy and cytometry is widely acknowledged, as evidenced by her role as vice-president of the Canadian Microscopy and Cytometry Association (CCMA), a national organization dedicated to providing guidance, fostering community, and advancing biotechnology knowledge within core facilities across Canada.

Dr. Lima is an early-career investigator and an emerging scientist specializing in cardio-immunology, with a particular focus on elucidating the role of inflammation in right ventricular failure (RVF) associated with Pulmonary Arterial Hypertension (PAH). This research is funded by the Canadian Institutes of Health Research (CIHR) as a co-Principal Investigator. Dr. Lima has supervised two master's students and an undergraduate student and is currently supervising two master's students and one Ph.D. student. Additionally, Dr. Lima leads the Women in Science at Queen's (WiSQ), a prominent employee resource group (ERG) at Queen's, which plays an influential role within the scientific community.

Apart from her scientific commitments, Dr. Lima dedicates her efforts to community service. She serves as a volunteer firefighter at the Athens Fire Department, where she holds a position on the executive team, serves as a fire prevention officer, and oversees skill development initiatives. Additionally, she is an ambassador for Muscular Dystrophy Canada (MDC) fundraising campaigns, such as "The Boot Drive." In 2023, Dr. Lima was honored with the "Dr. David Green Award" in recognition of her contributions to MDC fundraising efforts and her intellectual input during the review of research grants. She enjoys being both a mom and a granny, staying actively engaged in all the kids' activities!

Dr. Patricia Lima has:

38

Publications

2K+

Citations

22

H-index

33

i10-index



Oliver Jones

Histologist and Electron Microscopist | Translational Institute of Medicine (TIME)
oj3@queensu.ca

Oliver Jones is the Histology and Transmission Electron Microscope specialist at TIME. In 2005, Oliver graduated from Lancaster University (United Kingdom) with a degree in Biochemistry with Biomedicine. After completing his degree, he was employed as a trainee in histopathology at Manchester Royal Infirmary. He completed a Post Graduate Certificate (PGC) in Biomedical Sciences, which allowed for his formal registration with the Institute of Biomedical Scientists in the UK. While in this position, he was trained to operate the on-site Transmission Electron Microscope and was able to receive samples, process them for imaging and the generation of electron micrographs for pathologist review; his training here was conducted by clinical scientists working with the UK Health Protection Agency.

In 2010, he joined Dr. Elaine Petrof's research laboratory at Queen's University, as a histologist, performing image analysis on murine tissues. This role allowed Oliver to complement his clinical research background with experience within a nonclinical, laboratory research environment, working with academic faculty and graduate students to achieve research goals. He then secured a position within the Queen's Laboratory for Molecular Pathology (QLMP) within the Pathology and Molecular Medicine department. He also taught a Medical Laboratory Assistant (MLA) course at St. Lawrence College, where he was recruited to teach histopathology. He joined TIME in the summer of 2020 as the Histology and Transmission/Scanning Electron Microscope specialist.



Benjamin Wood (Ott)

Biostatistics and Bioinformatics | Translational Institute of Medicine (TIME)
b.ott@queensu.ca

Benjamin Ott is a biostatistician for the Translational Institute of Medicine (TIME) and for the Queen's CardioPulmonary Unit (QCPU). He graduated in 2021 with a BSc. (Hons) from Trent University majoring in both Mathematics and Physics; with a specialization in statistics. In 2023, he completed a MSc in Statistics from Queen's University, where he worked on designing new statistical tests for use in time series analysis. During his degree he developed an interest for statistical methodologies used in health sciences research and translational medicine.

Benjamin's expertise includes conducting a wide variety of data analyses using multiple languages (R, Python, MATLAB, etc.), including but not limited to; transcriptomic analysis, survival analysis, time series, and non-parametric and parametric modelling including linear regression and ANOVA. He specializes in the analysis of vast data samples covering multiple fields and generating aesthetically pleasing plots for use in publication.

When Benjamin is not conducting statistics, he enjoys cooking for friends and family, as well as, training his dog in both agility and obedience.



Curtis Noordhof

Molecular Imaging & Cytometry Specialist | Translational Institute of Medicine (TIME)
noordhof@queensu.ca

Curtis Noordhof graduated with a degree in Biological Technology from St Lawrence College. He has 20+ years of research experience at Queen's University. During this time, he has been involved in designing and implementing a Health Canada-approved research lab, has inventorship on a patented discovery (therapeutic use of bacterial derived proteins) and managed research projects funded by the National Institute of Health (NIH) and the Bill and Malinda Gates Foundation. He previously worked as a research assistant at the Department of Biochemistry and senior research assistant at the Gastrointestinal Disease Research Unit (GIDRU). At GIDRU, Curtis had the crucial role of maintaining and operating the "robo gut" bioreactor.

In 2021, Curtis joined the TIME team to follow his passion for technology and applied science. He saw TIME Core as an opportunity to work with state-of-the-art technology and improve his scientific skills while offering his long-term expertise to the Queen's community. His extensive experience has contributed to the evolution of his role at TIME, which previously was assisting in managing the Cell Culture, microscopy and Cytometry labs and now includes directing the new Small Particle Imaging laboratory in 2025.

Outside of the lab, Curtis loves dogs and the country lifestyle. He is a talented and passionate musician being a professional guitar player and vocalist! His weekends are filled with fun band practices, music composition and family. His sense of humour and positivity are contagious, which makes him a perfect team player.



Dr. Douglas Quilty

*TIME Core Project Manager | Translational Institute of Medicine (TIME)
Assistant Professor (Adjunct) | Department of Biomedical and Molecular Sciences
dq5@queensu.ca*

Originally from Victoria, B.C., Doug completed his PhD in the Department of Cell Biology at the University of Alberta in 2017. He moved to Queen's in 2020 to finish a Postdoctoral Fellowship under the mentorship of Dr. Lynne Postovit followed by a Research Associate position with Dr. Mark Ormiston. As an Assistant Professor in DBMS, he is the course coordinator and instructor of BCHM218: Molecular Biology and BCHM370: Genetics and Genomics. Doug joined the QCPU/TIME Core team in June of 2025.

In this role, Doug has helped facilitate the construction of the new TIME Core laboratories and the procurement and operationalization of over \$12M of state-of-the-art scientific platforms. This equipment includes, but is not limited to, next generation sequencing platforms (ONT GridION and PromethION), spectral flow cytometers and cell sorters (Sony ID7000 and MA900), electron microscope (DeLong LVEM25), super-resolution microscopes (Leica Stellaris STED), and spatial proteomics (Leica Cell DIVE).

During his nearly 20-year career in research, Doug has had the opportunity to study several different research topics, including but not limited to viral inhibition of apoptosis, regulation of membrane trafficking, pulmonary hypertension, and cancer cell plasticity and metastasis. This experience has provided him with expertise in a wide range of experimental techniques spanning microscopy, genetics and genomics, molecular biology, protein biochemistry, RNA interference, in vivo tumorigenesis and metastasis methods, and a wide variety of cancer cell biology methods that he applies to best address the research questions of core facility users.

TIME METRICS

Metrics pertain to the TIME membership within these three departments

Membership: 271

	RESEARCH REVENUE		PUBLICATIONS	AWARDS/RECOGNITIONS
DOM	\$	9,337,025.96	807	115
DBMS	\$	13,326,409.18	282	15
PMM	\$	3,378,127.99	101	4
	\$	26,041,563.13	1,190	134

DOM = Department of Medicine
DBMS = Department of Biomedical and Molecular Sciences
PMM = Pathology and Molecular Medicine

TIME Members Funding Success

TIME-UHKF Incubator Grants

Dr. Jean Mathews
Department of Medicine – Division of Palliative Medicine

\$50,000

QUALITY IMPROVEMENT: Personalized intervention to address social isolation and loneliness in older adults with serious illness - an implementation study.

Dr. Anthony Bai
Department of Medicine – Division of Infectious Disease

\$40,000

POPULATION HEALTH: Hospital onset bacteraemia as a new healthcare-associated infection quality metric across Ontario hospitals.

Dr. Durjoy Lahiri

Department of Medicine – Division of Neurology

\$25,000

BASIC/TRANSLATIONAL RESEARCH: Establishing Kingston's First Biofluid Biorepository to Investigate Biomarkers of Alzheimer's Disease and Brain Resilience

Dr. Aws Almufleh

Department of Medicine – Division of Cardiology

\$25,000

POPULATION HEALTH: Evaluating the Impact of Public Funding for NT-proBNP Testing on Heart Failure Diagnosis and Outcomes in Ontario

Dr. Joshua Durbin

Department of Medicine – Division of Cardiology

\$10,000

BASIC/TRANSLATIONAL RESEARCH: PH ClinOmics: Creating a Pulmonary Hypertension Community Resource to Explore Clinical, and Pre-clinical Omic data

Dr. Vanessa Martelli

Department of Medicine – Division of Hematology

\$10,000

POPULATION HEALTH: The Impact of Obstructive Sleep Apnea Screening Protocols on Clinical Outcomes, Health Care Utilization and Costs in Patients Undergoing Bariatric Surgery

Dr. David Reed

Department of Medicine – Division of Gastroenterology

\$10,000

BASIC/TRANSLATIONAL RESEARCH: Mechanisms of local immune induced intestinal pain signalling

DOM Research Grants

Dr. Kristel Leung

Department of Medicine – Division of Gastroenterology

\$35,000

CLINICAL INNOVATION: Identifying Gaps in Care Delivery Amongst Hospitalized Individuals with Decompensated Cirrhosis in Ontario

Dr. Wael Abuzeid

Department of Medicine – Division of Cardiology

\$30,000

BASIC AND TRANSLATIONAL: Outcomes of Transcatheter Aortic Valve Implantation (TAVI) in Patients Under 75 Years of Age in Ontario: A Population-Based Study

Dr. Aws Almufleh

Department of Medicine – Division of Cardiology

\$20,000

QUALITY IMPROVEMENT & PATIENT SAFETY: The Impact of Heart Failure Integrated Care Pathway on Providers' Practice and Clinical



Kingston Mayor Bryan Paterson gives an address on the importance of local research infrastructure at the TIME 'for Science and Medicine' to Shine holiday celebration.

Dr. David Taylor
Department of Medicine – Division of Internal Medicine

\$20,000

MEDICAL EDUCATION RESEARCH: Unpacking Supervisors' Entrustment Ratings in Internal Medicine Residency

John Alexander Stewart Fellowship

Dr. Akihiro Nakamura
Department of Medicine – Division of Endocrinology

\$75,000

RECIPIENT: Brian Wu

Live visualization of neutrophil infiltration in early stages of new bone formation in SpA

CIHR | Fall 2024

Dr. Jeannie Callum
Department of Pathology & Molecular Medicine

Dr. Annette Hay
Department of Medicine – Division of Hematology

\$1,197,227

RATIONAL (ROLE OF ANTIBIOTIC THERAPY OR IMMUNOGLOBULIN ON INFECTION IN HAEMATOLOGY)

PLATFORM TRIAL: An RCT of continuing immunoglobulin therapy, or stopping with or without prophylactic antibiotics, on infection rate in patients with acquired hypogammaglobulinemia secondary to haematological malignancies.

This project seeks to identify treatments for preventing infection in patients with blood cancers. Levels of antibodies, immune proteins that help prevent infections, are often low in patients with blood cancer. The most common preventative treatment, immunoglobulin replacement (IgRT), is expensive and requires frequent infusions. However, there is uncertainty about when patients should receive IgRT, dosage amounts, and length of treatment. There is also unexplored potential in daily oral antibiotics as an alternative treatment. In partnership with the Canadian Cancer Trials Group (CCTG) at Queen's, Dr. Callum is conducting the SC30 (RATIONAL) trial to compare standard dose IgRT with low-dose IgRT or oral antibiotics to prevent serious infection and death. Her research has the potential to improve patient quality of life and lower costs of treatments with antibiotics.

Dr. Sarah Dick

Department of Biomedical and Molecular Sciences

\$933,300

TISSUE RESIDENT MACROPHAGES AS DRIVERS OF SKELETAL MUSCLE REGENERATION

This project applies both immunology and regenerative medicine to better understand the potential of immune subsets in developing novel targeted therapies. During aging, and in diseases such as muscular dystrophies, muscle regeneration is compromised leading to weakened muscle, frailty, and decreased quality of life. Inflammation has been correlated with worse regeneration, however, attempts to eliminate inflammatory immune cells have led to conflicting results due to their dual role in regeneration. Dr. Dick seeks to understand how different macrophage subsets mediate muscle regeneration, how the immune response is altered in aging, and the cellular crosstalk between macrophages, stem cells, and fibroblasts. Her research will support therapies to eliminate chronically inflamed tissues and promote repair, alleviating a major impact on quality of life for patients.

Dr. Tony Bai

Department of Medicine – Division of Infectious Disease

\$749,700

VANCOMYCIN DOSING FOR SERIOUS MRSA INFECTIONS: A non-inferiority randomized trial of trough level versus AUC/MIC

This project compares different vancomycin dosing strategies in treating methicillin-resistant *Staphylococcus aureus* (MRSA) infections. Intravenous vancomycin is an antibiotic used to treat MRSA. However, the optimal method to adjust the vancomycin dose based on the drug level in the blood is unclear. Dr. Bai is proposing a simpler method based on trough levels that he will compare against a more complicated method using computer modelling through a randomized controlled trial of patients with serious MRSA infections. The goal is to determine if the simpler trough-based strategy achieves a similar success rate to the computer modelling method, and if so, incorporate it into standard practice. This innovation could have wide ranging impact as MRSA infections can affect blood, brain, heart valve, lung, bone, and joint or deep-seated abscesses in patients.



Dr. Jagdeep Walia

Department of Biomedical and Molecular Sciences & Paediatrics

\$619,650

DEVELOPMENT OF AN ADENO-ASSOCIATED VIRUS BASED GENE THERAPY FOR AB-VARIANT GM2 GANGLIOSIDOSIS

This study will investigate a potential gene therapy treatment targeting one of the contributors to early childhood mortality. ABGM2 causes rapid degeneration of the brain in infants leading to death by five years of age through the accumulation of a type of brain fat known as GM2 ganglioside in their brain cells. ABGM2 arises from mutations in a single gene. This makes it ideal for gene therapy as it works by using viruses to deliver a normally functioning gene to replace the mutant version. Dr. Walia has developed hB-A, a gene therapy being tested for treatment of two other diseases, Tay-Sachs and Sandhoff, which are similar to ABGM2. Working along the same lines, his team has established proof of a gene therapy treatment which can potentially treat different forms of ABGM2. Dr. Walia seeks to test its safety and efficacy and identify a treatment-dose for testing in a future clinical trial to help infants born with the disease causing mutations in this gene.

Dr. Stephanie Sibley

Department of Critical Care Medicine; Emergency Medicine

Dr. Aws Almufleh

Department of Medicine – Division of Cardiology

Dr. Shirin Jalini

Department of Medicine – Division of Neurology

Dr. David Maslove

Department of Medicine – Division of Internal Medicine & Critical Care Medicine

\$317,476

USE OF PARENTERAL MAGNESIUM SULPHATE FOR THE PREVENTION OF ATRIAL FIBRILLATION IN CRITICALLY ILL PATIENTS: A multi-centre pilot feasibility study

This research program looks to better understand the potential of magnesium in preventing atrial fibrillation (AF). Common in critically ill patients, AF is an abnormal heart rhythm that can contribute to low blood pressure and exposure to drugs with potential negative side effects for patients in intensive care units. Dr. Sibley is leading a study to compare magnesium against a placebo for the prevention of AF, analyzing both short and long-term outcomes for patients. Preventing AF can reduce a patient's risk of stroke, heart failure, and death while also resulting in fewer days in the ICU and risk of rehospitalization. The impact of Dr. Sibley's research contributes to an increased quality of life for critically ill patients and sets in motion the real-world application of a potentially innovative treatment to prevent AF. Funding amount: (Additional QHS team members: Aws Almufleh, Gordon Boyd, Andrew Day, Shirin Jalini, David Maslove, John Muscadere).

CIHR | Spring 2025

Dr. Sebastien Talbot

Department of Biomedical and Molecular Sciences

\$1,143,676

TARGETING NERVE-IMMUNE SYSTEM INTERACTIONS IN CANCER

Building on earlier discoveries published in Nature, this study investigates how cancer hijacks the nervous system to suppress immune responses. His team is exploring how sensory neurons within tumours communicate with immune cells to blunt the effectiveness of immunotherapy. By interrupting this signaling, the research could enhance cancer treatments and improve patient outcomes.

Dr. Jagdeep Walia

*Department of Biomedical and
Molecular Sciences & Paediatrics*

\$1,392,300

**ADVANCING GENE THERAPY FOR A RARE
NEUROLOGICAL DISORDER**

When developmental delays appear early in life, diagnosing the cause is the first step. For some rare conditions, though, treatment options remain out of reach. Dr. Jagdeep Walia (Pediatrics) is developing a one-time gene therapy for creatine transporter deficiency, a genetic disorder that affects how the brain uses energy and leads to significant intellectual disability. With early studies showing strong potential, his team will now complete the safety testing required to move toward Canada's first clinical trial for this therapy.

Dr. Karen Yeates

Department of Medicine – Division of Nephrology

\$673,200

**IMPROVING CERVICAL CANCER SCREENING
IN INDIGENOUS COMMUNITIES**

Cervical cancer remains far more common in some Indigenous communities due to limited access to screening and a lack of culturally safe care. Dr. Karen Yeates (Medicine) is working in partnership with the Weeneebayko Area Health Authority and Indigenous communities along the western James Bay coast to test two approaches aimed at improving screening. One is community-led and uses self-testing with digital tools, while the other follows Ontario's new province-wide screening program. The research will help determine which approach is more effective, acceptable, and sustainable for improving screening rates and reducing cervical cancer in underserved populations.

Ontario Research Fund

Dr. Akihiro Nakamura

Department of Medicine – Division of Rheumatology

\$142,460

**INVESTIGATION OF BIOMARKERS AND NOVEL
THERAPEUTIC TARGETS IN SPONDYLOARTHRITIS**

This research program is studying Spondyloarthritis (SpA), a common arthritis affecting up to 1.4 per cent of Canadians. It seeks novel therapies and new biomarkers that predict treatment response, reducing healthcare costs and strengthening Canada's leadership in rheumatology research.

**Natural Sciences and Engineering
Research Council (NSERC)**

Discovery Grants

Dr. Gunnar Blohm

Department of Biomedical and Molecular Sciences

\$96,000

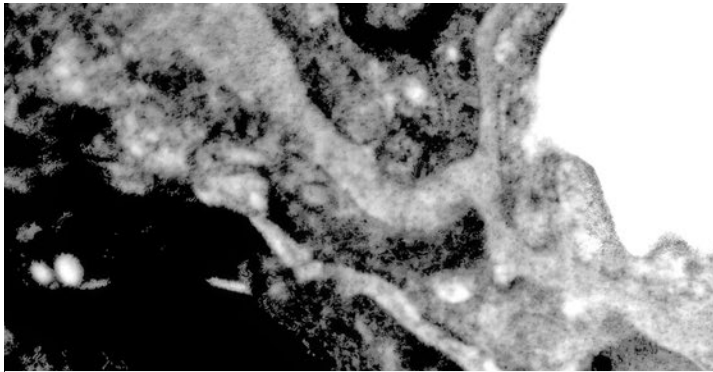
DISTRIBUTED MOTOR PLANNING AND CONTROL

Dr. John Allingham

Department of Biomedical and Molecular Sciences

\$49,000

**MOLECULAR MECHANISMS OF PROTEINS AND SMALL
MOLECULES THAT CONTROL MICROTUBULE AND
ACTIN POLYMERIZATION DYNAMICS**



Archer lab: Visualizing mitochondrial dynamics in a lung cell using TIME's Delong transmission electron microscope.

Dr. Eva Kaufmann
Department of Biomedical and Molecular Sciences

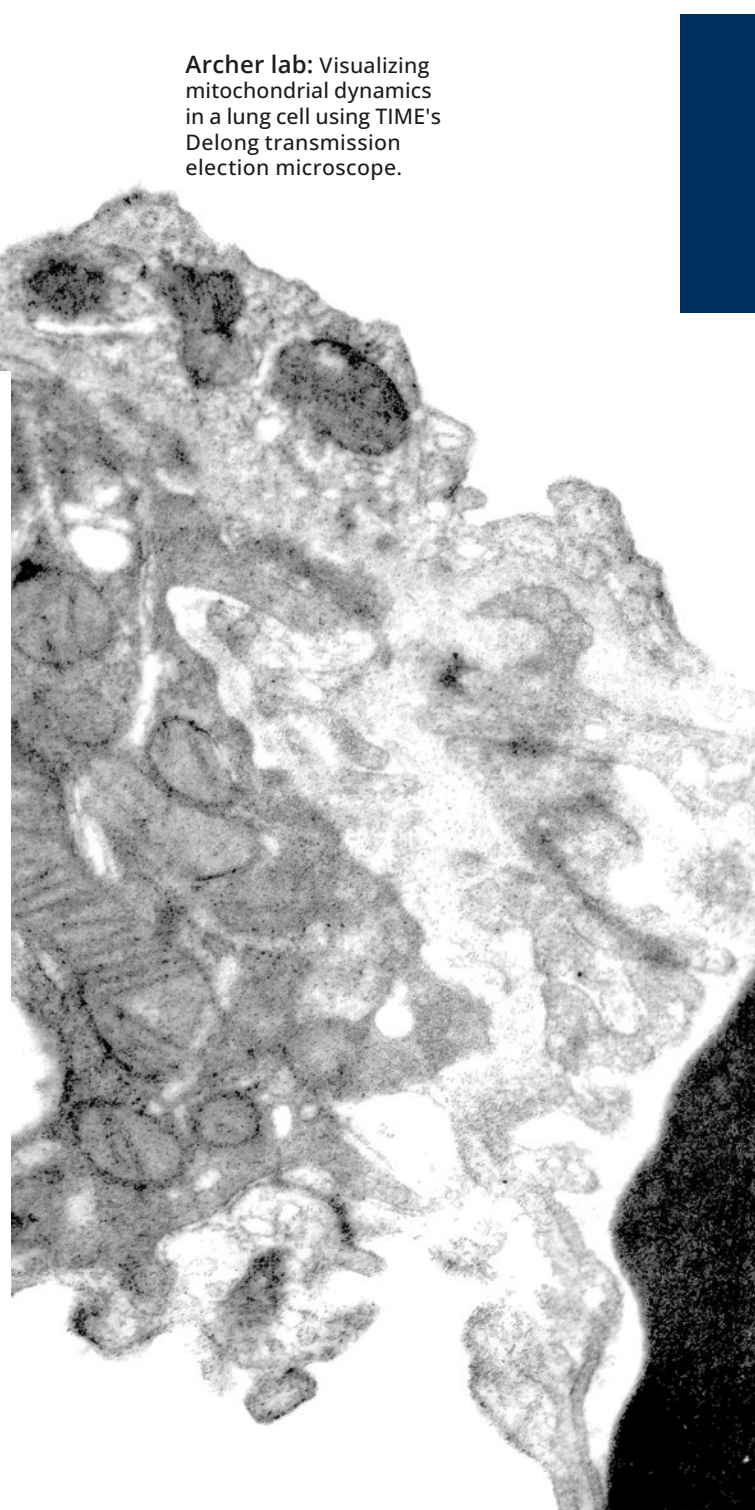
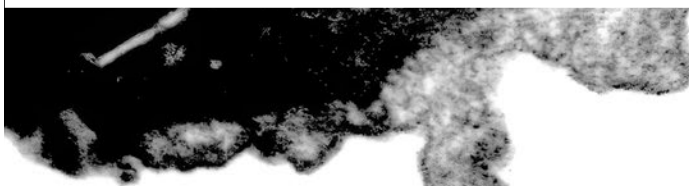
\$44,000

EXPLORATION OF A DISTINCT HEMATOPOIETIC STEM CELL POPULATION IN THE LUNGS

King Charles III Coronation Medals

Dr. Diane Lougheed

Nominated by the Canadian Lung Association. Dr. Lougheed is a professor with a primary appointment in the Department of Medicine, Division of Respiratory and Sleep Medicine, of which she is a past-Chair. Currently, she is Vice Dean, Clinical in Queen's Health Sciences and Medical Director of the Southeastern Ontario Academic Medical Organization (SEAMO). She is a Senior Adjunct Scientist at ICES, and Director of the Asthma Clinic, the Asthma Research Unit and the Adult Cystic Fibrosis clinic. Her research is focused on asthma symptom perception, health services utilization, and guidelines implementation. She has led many initiatives to improve asthma care and outcomes, including standardization of hospital care for asthma, and development of asthma primary care maps and pan-Canadian electronic medical record data standards for asthma and COPD.



TIME OUTREACH

Science Rendezvous

Science Rendezvous Kingston is part of the annual Canada-wide Science Rendezvous events and is a non-for-profit organization dedicated to providing programming by bringing exciting research and STEM experiences to the public. The Science Rendezvous program is a free family festival that takes science out of the lab and onto the streets, or virtually into the classroom and homes of scientifically curious minds.

In 2025, the Kingston chapter was back for its annual in-person event at the Slush Puppy Place, downtown Kingston. QCPU's 'Mobile Research Unit' booth featured light microscopes, a mini-CT-scanner and safety equipment, and a gene sequencing puzzle. QCPU's booth was visited by over 5,000 participants!

Dr. Hindmarch returned to do his LIVE in-person show called 'Smashing Strawberries' for an audience of over 250! Young participants came onstage to help Dr. Hindmarch extract DNA from a Strawberry, ably assisted by his hilarious raccoon lab assistant (played by Dr. Nicolle Domnik).

5K+

Participants

- 1) Barrack the Bear and Mad British Scientist Charlie Hindmarch
- 2) The TIME Mobile Medical Research Lab, hard at work at Science Rendezvous in Slush Puppy Place Kingston





3) Toastmaster's Queen's meeting in TIME

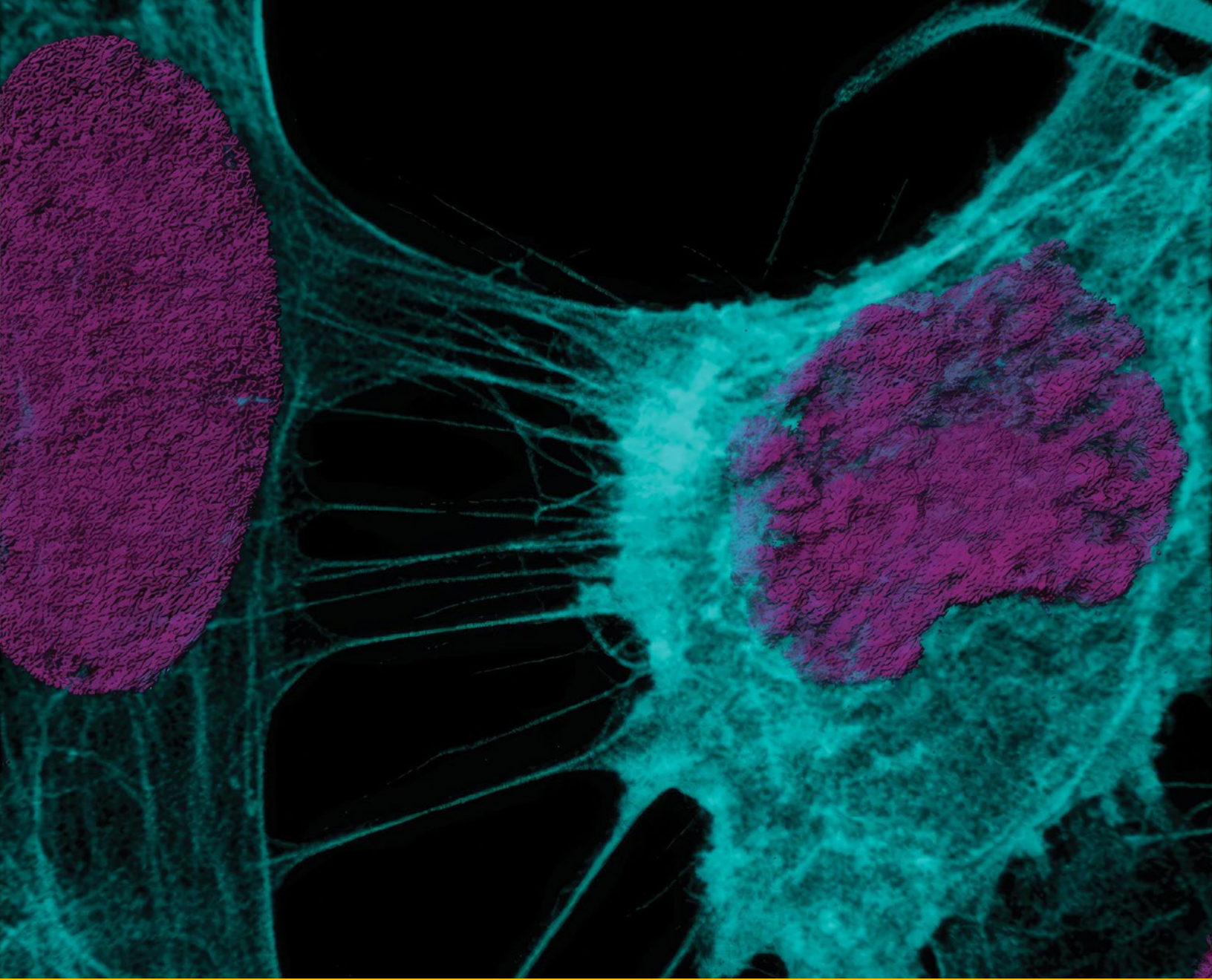
Toastmasters

The ability to speak in public is a skill that can be developed. It's not something you are born with. Toastmasters was founded in 1924 and has since grown into a world-wide organization with about 265,000 members. This Toastmasters club – Toastmasters at Queen's – meets at The Translational Institute of Medicine (TIME) located in the Biosciences building on the Queen's campus. I would like to sincerely thank TIME for generously offering us the ability to use the conference room where we hold our meetings. The entire club is enormously grateful for this meeting space.

I joined this club in 2023, and the benefits have allowed me to serve on a significant committee within my company. I never would have joined this committee, had I not developed my confidence in speaking up at Toastmasters at Queen's. I have seen this benefit of increased confidence in speaking up manifest itself in other members as well: in Queen's students, Queen's alumni, Queen's staff, and in people from outside of the Queen's community. If you want to develop the leader inside of you and be the kind of person who will speak up and have an influence, consider joining Toastmaster's. It could change your life for the better!

Graham Kenny
2025-2026 Queen's Toastmaster President





Translational Medicine Graduate Program | TMED

SECTION II

MESSAGE FROM THE TMED DIRECTORS



2025 was a year of growth, thoughtful reflection, and a continued collaborative community. As our program evolves, we remain grounded in our founding vision while embracing innovation, collaboration, and responsiveness to the evolving landscape of translational medicine.

This year marked a significant milestone in TMED's trajectory. Our total enrollment reached 48 students — a remarkable evolution from our inaugural cohort of 6 MSc students in 2018.

2025 ENROLLMENT INCLUDED:

- 21 PhD students (including 4 MD/PhD trainees, 1 CIP trainee, and 3 successful MSc-to-PhD promotions)
- 27 MSc students

We were especially proud to welcome our largest incoming cohort to date of 23 new students — 15 MSc and 8 PhD trainees, including 3 MD/PhD students. This growth reflects both the strength of our program and the dedication of our faculty, supervisors, and administrative team.

Our course teaching team including Dr. Karen Yeates, Dr. Sophia Linton, Dr. Matthew James and Dr. Mackenzie Bowman, as well as TAs Rachel Di Iorio MSc'25, PhD'29, and Matti McFarlane MSc'24, PhD'28, continue to provide excellence in graduate education and define the TMED learning experience for our students.

2025 also brought staffing transitions, Dr. Sophia Linton stepped down as the Education & Outreach Coordinator to join the Kingston Allergy team as Scientific Research Manager. We thank her for commitment and leadership to the program, our students and our faculty. Dr. Linton has continued to be integral part of our teaching team as TMED 800 Course Associate. Megan Sands joined the team as her successor, bringing valuable communications, event planning and relationship building experience from the Department of Medicine administrative team.

A significant milestone for TMED was the completion of the program's first-ever 7-year Cyclical Program Review (CPR) mandated by the Queen's University Quality Assurance Processes (QUQAP) at Queen's University. This comprehensive review provided an important opportunity to reflect on the curriculum, learning objectives, student outcomes, and alignment with institutional priorities. The process included in-depth curriculum mapping, assessment of program strengths, and identification of areas for continued growth. In addition, internal and external reviewers met with students, faculty, staff, and campus partners and toured the facilities that support TMED.

21

PhD Students

4

MD/PhD trainees

1

CIP trainee

3

Successful MSc-to-PhD promotions

27

MSc Students

The review affirmed TMED's strong interdisciplinary foundation, integration of clinical observerships and real-world research, and commitment to student-centered program design. It also highlighted our emphasis on equity, diversity, and accessibility through inclusive admissions practices, culturally responsive teaching, and student-led initiatives. It reinforced that TMED is well positioned to remain a national leader in translational medicine education and a model for graduate program excellence and we will focus over the next five to ten years on incremental and evidence-informed program refinement. We will continue to evolve our core courses based on annual student experience feedback, ensuring a responsive and contemporary curriculum that addresses topics such as AI and big data analytics with an emphasis on critical engagement and responsible application.

Our deepest appreciation to Julie Heagle, Program Manager, and Dr. Sophia Linton, Education and Outreach Coordinator, whose exceptional commitment, leadership, and attention to detail went well above and beyond in coordinating and advancing the CPR process on behalf of the program. We are particularly honoured that our final report was recognized by the QUQAP office as an exemplary submission and selected as a model to be shared with other programs undertaking their CPR. This distinction stands as a powerful testament to TMED's culture of excellence and to the collective dedication, insight, and hard work of our faculty, students, and staff throughout this process.

We continue to build on our ongoing collaboration with the Translational Institute of Medicine (TIME). Their shared commitment and contributions in student support, grant funding, and roundtable initiatives are truly valued. This year, we introduced the TMED student publication spotlight in partnership with TIME, an effective communication that highlights the important research of our students and our supervisors.

The TMED Student Society transitioned presidential leadership from outgoing President, Sofia Skebo MSc'25, who led a memorable TMED Banquet and the I-EDIIA Speaker Symposium to incoming President, Tommy Rollin MSc'26 (candidate), who continued to foster a highly enriching community through student-focused events, programs and mentorship opportunities. The entire Society deserves recognition for cultivating a vibrant and inclusive environment for TMED students.

As I reflect on the successes of this year, I am honored to continue being part of this vibrant and growing TMED community.



Dr. Anne K. Ellis
Graduate Program Director

TMED STUDENTS

2025 MSc Graduates

RACHEL DI IORIO

LINDSAY JEFFERSON

JASMIN KHELA

CASSIDY LAUB

ALEXANDRA MCDONALD

DALIA MILLER

ABBY MOCHERNIAK

KANA OGAWA

NEELAKSHI SHARMA

SOFIA SKEBO

LINNEA SOON

JIALE XIE

DYLAN ZHAO

Successful Promotions from MSc to PhD Program

DECLAN GAINER, PHD'28(CANDIDATE)

ABBEY POLITESKI, PHD' 28 (CANDIDATE)

ARYAMAN SHARMA, PHD'28 (CANDIDATE)



TMED Awards

NATIONAL AND PROVINCIAL AWARDS

Ontario Graduate Scholarship

ABIGAIL DAVIS, MSC'27 (CANDIDATE)

ABBY LEE, MSC'26 (CANDIDATE)

Canadian Graduate Scholarship – Doctoral

MEGAN CHAIGNEAU, PHD'28 (CANDIDATE)

MIA WILKINSON, PHD'27 (CANDIDATE)

Canadian Graduate Scholarship – Master's

CHRISTINE HA, MSC'26 (CANDIDATE)

VICTORIA MALLET, MSC'26 (CANDIDATE)

AIKAM RAI, MSC'26 (CANDIDATE)

JESSICA WISEMAN, MSC'26 (CANDIDATE)

INTERNAL QUEEN'S AWARDS

Dr. Robert J. Wilson Fellowship

ABED ABU HIJLEH, PHD'29 (CANDIDATE)

The Senator Frank Carel Fellowship

AMANDA CHAPMAN, MSC'27 (CANDIDATE)

R. Samuel McLaughlin Fellowship

JANA LIVINGSTON, PHD'27 (CANDIDATE)

DANIELLE SHIBI ROSEN, MSC'27 (CANDIDATE)

MEARA SANJAYAN, MSC'27 (CANDIDATE)

The Queen Elizabeth II Graduate Scholarship in Science and Technology

KAYTLIN ANDREWS PHD'27 (CANDIDATE)

The Graduate Entrance Tuition Award

RACHEL DI IORIO, MSC'25, PHD'28 (CANDIDATE)

JACK TEPLITSKY, PHD'29 (CANDIDATE)

The Franklin Bracken Fellowship

MEGHAN JEFFERIES, PHD'26 (CANDIDATE)

TIME RESEARCH EXCELLENCE AWARD

ABBIE DAVIS

SUPERVISED BY: Anne Ellis

THESIS TITLE: Tezepelumab in the treatment of co-morbid allergic rhinitis and allergic asthma study (TEZARS) – An Open-Label Exploratory Mechanistic Pilot study to evaluate tezepelumab efficacy in asthma and allergic rhinitis

MIA WILKINSON

SUPERVISED BY: Kimberly Dunham-Snary

THESIS TITLE: Platelet Bioenergetics as a Liquid Biopsy of Skeletal Muscle Metabolism in Cardiometabolic Disease

LUBNAA HOSSENBACCUS

SUPERVISED BY: Anne Ellis

THESIS TITLE: Evaluating Cat Allergen Induced Allergic Rhinitis using Clinical and Experimental Models

SOFIA SKEBO

SUPERVISED BY: Mark Ormiston

THESIS TITLE: Exploring the impact of BMPR-II loss on the transcriptome of tumour endothelium in the lung

ALEX MCDONALD

SUPERVISED BY: Mark Ormiston

THESIS TITLE: Exploring the Role of TET2-Driven Clonal Hematopoiesis in Late-Onset Alzheimer's Disease: Insights from the UK Biobank and Mouse Models



MESSAGE FROM THE TMED PRESIDENT



Message from the TMED President

On behalf of the TMED Student Council, it is my pleasure to reflect on another exciting and productive year for our graduate community. The TMED program continues to shine as a vibrant environment, where students from diverse scientific backgrounds come together to drive translational research that improves human health. The TMED Student Council has the amazing opportunity to engage the tight-knit student body with extracurricular activities, events, and connections, all with the goal of fostering a strong community, supporting career development, and promote a healthy student-life balance. It is therefore important to highlight some of the outstanding work by members of the TMED Student Council and how, as a collective, we strived toward these goals.

Our Graduate Program Representatives, Alex Giff (MSc Rep.) and Abed Abu Hijleh (PhD Rep.) focused heavily on improving communication between the TMED program and its students. Alex and Abed attended all TMED graduate program committee meetings to share feedback and concerns from current students about classes, program requirements, and student engagement. Alongside this, they also reached out to all students with a monthly newsletter detailing important dates and upcoming events from TMED classes, the TMED program, TIME, and the TMED student council, ensuring that all students remained informed about every opportunity at hand.

Our Treasurer, Roan Haggerty-Goede, not only managed the TMED Student Council's budget, but also organized a successful clothing order of TMED-embroidered merchandise to keep our students feeling comfy and looking stylish! Moreover, our I-EDIAA Representative,

Meara Sanjayan, helped emphasize the principles of Indigeneity, Equity, Diversity, Inclusivity, Accessibility and Anti-Racism within our Student Council activities, where she pioneered the 3rd annual I-EDIAA in Health Sciences Research Symposium!

The executive council members, Meghan Jefferies (Secretary) and Mia Wilkinson (Vice President), were critical in transitioning the Student Council into the new academic year and helping the incoming students prepare for the trials of graduate school. Along with organizing an orientation day featuring a TMED-merch scavenger hunt, Meghan took charge of hosting our elections and coordinated our Mentorship program that paired incoming students with TMED upper-years. Meanwhile, Mia helped spearhead our TMED Research Roundtables, where students could practice their presentations skills to prepare for upcoming seminars, conferences, or defenses.

Lastly, what cannot be forgotten is the amazing work our team did to host numerous other events throughout the year. These included social events such as a paint-swap lunch, pumpkin painting night, trivia, a gingerbread house decorating contest, a skating social, multiple board game nights, a potluck, and a bowling social! We also hosted sessions to assist first-year students in their upcoming assignments, organizing help sessions for CGRS-M, their literature review, and their first-year seminars. Importantly, the TMED Student Council also organized a food drive with the AMS Food Bank at Queen's to raise donations of non-perishable food items, where TMED Students and Faculty successfully donated over 200 pounds of food!

In reflecting on the past year, I find that the TMED Student Council achieved the goals we set out to accomplish engaging students and supporting them through their graduate studies to foster a strong community. From all of our smaller socials to the larger-scale events and symposia, the TMED Student Council has a lot to be proud of and, hopefully, can inspire future Council groups to continue this success. I would like to once again thank the amazing team on the TMED Student Council for all of their hard work and dedication. It has truly been an honour to lead and represent both this team of bright individuals and the entire TMED student body.

Tommy Rollin, MSc'26 (Candidate)
President, TMED Student Society

MESSAGE FROM THE TMED I-EDIAA REPRESENTATIVE



Message from the TMED I-EDIAA Representative

This academic year, the TMED Student Society demonstrated a sustained and intentional commitment to advancing Indigenization, Equity, Diversity, Inclusion, Anti-Racism, and Accessibility (I-EDIAA) across our community. In my role as I-EDIAA Representative, I led two initiatives, the annual community fundraiser and our third annual I-EDIAA in Health Sciences Research Symposium, both designed to move I-EDIAA from principle to practice within and beyond TMED.

We partnered with the AMS Food Bank to host a Post-Holiday Food Drive, addressing a critical but often overlooked gap in food security. Although community giving is often concentrated during the holiday season, food insecurity persists year-round, with demand remaining especially high in the months that follow. This initiative intentionally mobilized our community at a time when support is limited. To foster engagement, TMED labs were organized into teams in a friendly competition, culminating in a collective donation of over 200 pounds of food. This effort not only contributed tangible support to the Queen's community but also reinforced the role of collective action in advancing equity.

On April 15th, we hosted our third annual in-person I-EDIAA in Health Sciences Research Symposium, creating a platform to critically examine how I-EDIAA principles can be meaningfully embedded across the translational research process. The symposium opened with a keynote by Dr. Diego Herrera (McGill University Health Centre), who grounded attendees in practical strategies for integrating I-EDIAA into research design and implementation. Dr. Anna Johnson (Canadian Cancer Trials Group) followed with an applied perspective on embedding EDIIA across all stages of cancer trials.

A multidisciplinary panel, facilitated by Dr. Giselle Valarezo (Director of EDIIA Initiatives, Queen's Health Sciences), brought together leaders from computing, public health, and health equity research to examine the expansion of artificial intelligence through an I-EDIAA lens. Panelists, Dr. Ting Hu, Dr. Jennifer Rooney, and Dr. Sarah Blacker, discussed how algorithmic fairness, data representativeness, and interdisciplinary collaboration can be embedded across the research pipeline, ensuring emerging technologies mitigate, rather than reproduce, systemic inequities. The program continued with Professor Alex McComber (McGill University), who highlighted how Indigenous perspectives can be considered in health research. The day concluded with an interactive workshop led by Dr. Herrera, encouraging participants to reflect on intersectionality, positionality, and the practical application of I-EDIAA principles within their own work.

Together, these initiatives build on TMED's ongoing commitment to embedding I-EDIAA as a foundational element of research culture rather than a parallel conversation. Looking ahead, we aim to further integrate these principles into the fabric of translational medicine, recognizing that meaningful and high-quality scientific innovation depends on the intentional integration of I-EDIAA at every stage of the research process and environment. By continuing to expand our reach within the Queen's community and beyond, we are working to cultivate a more inclusive, accountable, and equity-driven research environment.

We are deeply grateful to all students, faculty, and partners who contributed to and supported these efforts.

Meara Sanjayan, MSc'27 (Candidate)
I-EDIAA Representative, TMED Student Society

- **Andrews K**, Ploeg HL, Purzner J, Purzner T. P151 The development of an image-guided, multi-biopsy tool for neurosurgical applications. Canadian Journal of Neurological Sciences. Published online July 10, 2025. doi: <https://doi.org/10.1017/cjn.2025.10297>
- **Andrews K**, Dejean H, MacLeod C, et al. Using Quality Function Deployment to Design an Image-Guided, Multibiopsy Tool for Neurosurgical Applications. Operative Neurosurgery. Published online July 3, 2025. doi: <https://doi.org/10.1227/ons.0000000000001696>
- **Sharma A**, Ellis L, **Andrews K**, et al. Dexamethasone-Induced p57-Mediated Quiescence Drives Chemotherapy Resistance in Sonic Hedgehog Medulloblastoma. bioRxiv (Cold Spring Harbor Laboratory). Published online April 30, 2025. doi: <https://doi.org/10.1101/2025.04.27.650711>
- Purzner J, Brown AS, Purzner T, Ellis L, Broski S, Litzenger U, **Andrews K**, et al. Ezh2 Delays Activation of Differentiation Genes During Normal Cerebellar Granule Neuron Development and in Medulloblastoma. eLife. Published online March 18, 2025. doi: <https://doi.org/10.7554/elife.105339.1>
- **Wilkinson MS**, Ferguson EJ, Bureau J, **Haggerty-Goede RAL**, **Miller DM**, Kuriakose M, Veeneman JLMH, Lima PDA, McGlory C and Dunham-Snary KJ (2025) Platelet bioenergetics correlate with skeletal muscle respiration in a murine model of type II diabetes. Front. Mol. Biosci. 12:1639882. doi: 10.3389/fmolb.2025.1639882.
- **Wilkinson MS**, Rollin TA, Kuriakose M, **Haggerty-Goede RAL**, **Miller DM**, Dunham-Snary KJ. Redox Homeostasis in Metabolic Syndrome and Type II Diabetes: Role of Skeletal Muscle and Impact of Gold-Standard Treatments. International Journal of Molecular Sciences. 2025; 26(21):10370. <https://doi.org/10.3390/ijms262110370>
- Abhishek Shastri, **Mia S. Wilkinson**, Dalia M. Miller, **Michelle Kuriakose**, Jennifer L.M.H. Veeneman, Matthew Ryan Smith, Charles C.T. Hindmarch, Kimberly J. Dunham-Snary. Multi-tissue metabolomics reveal mtDNA- and diet-specific metabolite profiles in a mouse model of cardiometabolic disease, Redox Biology, Volume 81, 2025, 103541, ISSN 2213-2317, <https://doi.org/10.1016/j.redox.2025.103541>
- **Davis A**, Linton S, Hossenbaccus L, Thiele J, Botting H, Walker T, Steacy LM, Ellis AK. (2025). Analyzing phenotypes post-exposure in allergic rhinitis in the environmental exposure unit. Annals of Allergy, Asthma & Immunology. 134(3): 351–357.
- **McFarlane M**, Morra A, Podgers D, Barber D, Loughheed M. Impact of a Novel Electronic Medical Record–Integrated Electronic Form (Provider Asthma Assessment Form) and Severe Asthma Algorithm in Primary Care: Single-Center, Pre- and Postobservational Study. JMIR Form Res 2025;9:e74043. DOI: 10.2196/74043.
- **McFarlane ML**, Morra A, Podgers D, Barber D, Loughheed MD. Promoting evidence-based asthma care using a digital knowledge translational tool: Lessons learned from implementation of the provider asthma assessment form in primary care [abstract]. Can J Resp Crit Care and Sleep Med 2025;9:S23-S24. <https://dx.doi.org/10.1080/24745332.2025.2501877>.
- **Chaigneau M**, Bowman M, Grabell J, et al Genomic testing for bleeding disorders (GT4BD): protocol for a randomised controlled trial evaluating the introduction of whole genome sequencing early in the diagnostic pathway for patients with inherited bleeding disorders as compared with standard of care BMJ Open 2025;15:e102041. doi: 10.1136/bmjopen-2025-10204.
- **Chaigneau M**, Bowman M, Guerin A, James P. How genetic advances are being translated into improved diagnostic outcomes for patients with inherited bleeding disorders, Blood Vessels, Thrombosis & Hemostasis, Volume 2, Issue 4, 2025. <https://doi.org/10.1016/j.bvth.2025.100090>.
- **Chaigneau M**, Bowman M, Wilton P, Card R, Poon MC, Lillicrap D, Sholzberg M, James P. The history of women and hemophilia: a narrative review of evolving beliefs and testing practices. Journal of Thrombosis and Haemostasis. Volume 23, Issue 3, 2025, Pages 928-936, doi.org/10.1016/j.jtha.2024.12.004.
- **Policelli R**, DeVries D, Laba J, Leung A, Tang T, Albweady A, Alqaidy G, Ward AD. Prediction of brain metastasis progression after stereotactic radiosurgery: sensitivity to changing the definition of progression. J Med Imaging (Bellingham). 2025 Mar;12(2):024504. doi: 10.1117/1.JMI.12.2.024504. Epub 2025 Apr 8. PMID: 40206813; PMCID: PMC11978467.

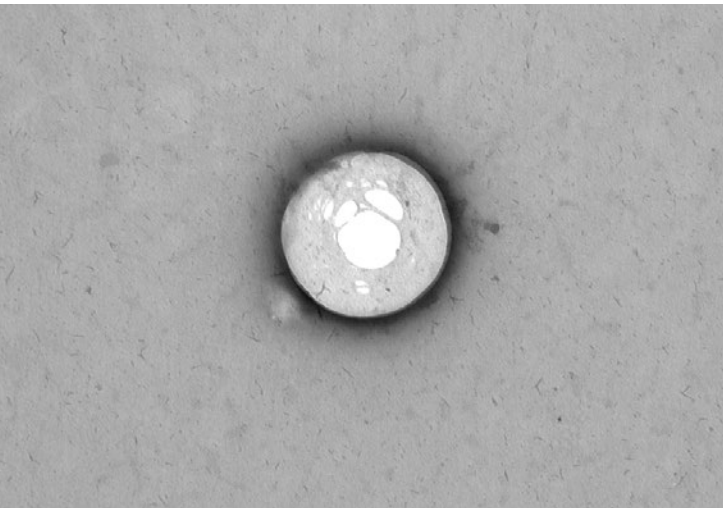


Image of a extracellular vesicle (200nm) captured on a Transmission Electron Microscope. Image capture for the Tayade laboratory.

- Lopes A, Rasmussen S, Au R, Chakravarthy V, Chinnery T, Christie J, Djordjevic B, Gomez JA, Grindrod N, **Policelli R**, **Sharma A**, Tran C, Walsh JC, Wehrli B, Ward AD, Cecchini MJ. Identification of Distinct Visual Scan Paths for Pathologists in Rare-Element Search Tasks. *Int J Surg Pathol*. 2025 Jun;33(4):861-870. doi:10.1177/10668969241294239. Epub 2024 Nov 20. PMID: 39563530; PMCID: PMC12069827.
- **Policelli R**, Ward A, Dammak S, Kassam Z, Ramsewak D, Kalia V, Nadrah A, Wang D, Madubuobi H, Abbott C, Dawson C, McCarthy D, Balki I, Ladak I, Knezevic S, Marshall H. Testing remote feedback using a virtual semi-automated educational tool for the detection of pancreatic tumour-vessel contact on staging CT. *Curr Probl Diagn Radiol*. 2026 May-Jun;55(3):402-410. doi: 10.1067/j.cpradiol.2025.10.007. Epub 2025 Oct 24. PMID: 41162206.
- Berton DC, **Hijleh AA**, Silva FO, Oliveira D, Alostha K, Back GD, Porcella A, Smyth RM, James MD, Domnik NJ, O'Donnell DE, Neder JA. Resting lung volume phenotypes in COPD: implications for exertional dyspnoea and exercise tolerance. *ERJ Open Res*. 2025 Dec 1;11(6):00076-2025. doi: 10.1183/23120541.00076-2025. PMID: 41367660; PMCID: PMC12683581.
- Alostha K, James MD, Vincent SG, Smyth RM, **Hijleh AA**, Back GD, Porcella A, Domnik NJ, O'Donnell DE, Neder JA. Effects of inhaled bronchodilators on dynamic lung mechanics during exercise in COPD: protocol for a randomised, placebo-controlled crossover trial. *ERJ Open Res*. 2025 Nov 10;11(6):01323-2024. doi: 10.1183/23120541.01323-2024. PMID: 41220821; PMCID: PMC12598601.
- James MD, Voskrebenezov A, Klimesh F, Zanette B, Alostha K, **Hijleh AA**, Vincent SG, Domnik NJ, Phillips DB, Pourafkari M, Wang CY, Girardi M, Ferguson C, Kirby M, Santyr G, Stringer W, Porszasz J, O'Donnell DE, Vogel-Claussen J, Neder JA. Wasted ventilation in mild COPD: protocol for a clinical physiology and functional imaging study. *ERJ Open Res*. 2025 Jun 16;11(3):00686-2024. doi: 10.1183/23120541.00686-2024. PMID: 40524929; PMCID: PMC12168168.
- Metwalli D, Kiroles AE, Radwan YA, Mohamed EA, Barakat M, Ahmed A, **Omar AM**, Selim S. ArEEG: an Open-Access Arabic Inner Speech EEG Dataset. *Sci Data*. 2025 Aug 29;12(1):1513. doi: 10.1038/s41597-025-05387-w. PMID: 40883351; PMCID: PMC12397257.
- **Spicer S**, Hasheminia A, Kandi S, Abu-Omar Y, Fernández ÁL, El-Diasty M. Cardiac and pericardial inflammatory changes and post-cardiac surgery atrial fibrillation. *Cytokine Growth Factor Rev*. 2025 Oct;85:158-164. doi: 10.1016/j.cytogfr.2025.07.006. Epub 2025 Jul 21. PMID: 40750442.
- Teng SL, Latorre R, Bhansali D, Lewis PK, Pollard RE, Peach CJ, Sokrat B, Thanigai Arasu GS, Chiu T, Duran P, Jimenez-Vargas NN, **Mocherniak A**, Bogyo M, Gaspari MM, Vanner SJ, Pinkerton NM, W Leong K, Schmidt BL, Jensen DD, Bunnett NW. Nanomedicines targeting protease-activated receptor 2 in endosomes provide sustained analgesia. *Proc Natl Acad Sci U S A*. 2025 Oct 14;122(41):e2412687122. doi: 10.1073/pnas.2412687122. Epub 2025 Oct 7. PMID: 41055994; PMCID: PMC12541405.
- Sharma S, **Soon L**, de Wit K, Sharma S, Afilalo M, Le Gal G, Shivakumar S, Bates SM, Wu C, Lazo-Langner A, D'Aragon F, Deshaies JF, Parpia S. Validation of the ToDay, a simplified diagnostic algorithm for deep vein thrombosis. *J Thromb Haemost*. 2025 Dec;23(12):3902-3908. doi: 10.1016/j.jth.2025.06.029. Epub 2025 Jul 16. PMID: 40680941.

- Al-Qazazi R, Emon IM, Potus F, Martin AY, Lima PDA, Vlasschaert C, Ott BP, Chen KH, Wu D, Dasgupta A, Noordhof C, **Jefferson L**, Buttigieg MM, McNaughton AJM, Hindmarch CCT, Bick AG, Nichols WC, Chung WK, Hassoun PM, Damico RL, Zhu N, Shen Y, Rauh MJ, Archer SL. Germline and somatic variants in DNMT3A and other clonal haematopoiesis of indeterminate potential genes contribute to pulmonary arterial hypertension. *Eur Heart J*. 2025 Aug 29;ehaf611. doi: 10.1093/eurheartj/ehaf611. Epub ahead of print. PMID: 40878867.
- **Jefferson L**, Lima PDA, Archer SL. Macrophage plasticity and glucose metabolism: the role of immunometabolism in pulmonary arterial hypertension. *Clin Sci (Lond)*. 2025 Oct 1;138(19):1073–94. doi: 10.1042/CS20257363. PMID: 41032703; PMCID: PMC12794329.
- Matatall KA, Wathan TK, Nguyen M, Chen H, **McDonald A**, Qi G, Belk JA, Florez MA, Le DT, Olarinde T, Vlasschaert C, Buttigieg MM, Fan CW, Carcamo S, Cao R, Kennedy DE 2nd, Maknojia AA, Thatavarty A, Fernandez Sanchez JV, Bouzid H, Veeraragavan S, Crocker S, Goodell MA, Rodriguez A, Jaiswal S, Rauh MJ, Papapetrou EP, Marro SG, King KY. TET2-mutant myeloid cells mitigate Alzheimer's disease progression via CNS infiltration and enhanced phagocytosis in mice. *Cell Stem Cell*. 2025 Aug 7;32(8):1285-1298.e8. doi: 10.1016/j.stem.2025.06.006. Epub 2025 Jul 2. Erratum in: *Cell Stem Cell*. 2025 Sep 4;32(9):1475. doi: 10.1016/j.stem.2025.07.011. PMID: 40609533; PMCID: PMC12233156.
- Wong CK, **McDonald A**, Buttigieg MM, Rauh MJ. CHIP ahoy: charting a decade of discovery in clonal hematopoiesis. *Haematologica*. 2026 Feb 1;111(2):457-469. doi: 10.3324/haematol.2023.283896. Epub 2025 Sep 4. PMID: 40905074; PMCID: PMC12862317.
- **Miller DM**, Archer SL, Dunham-Snary KJ. Preclinical models of mitochondrial dysfunction: mtDNA and nuclear-encoded regulators in diverse pathologies. *Front Aging*. 2025 Jun 23;6:1585508. doi: 10.3389/fragi.2025.1585508. PMID: 40625678; PMCID: PMC12230096.
- **Miller DM**, McCauley KF, Dunham-Snary KJ. Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD): Mechanisms, Clinical Implications and Therapeutic Advances. *Endocrinol Diabetes Metab*. 2025 Nov;8(6):e70132. doi: 10.1002/edm2.70132. PMID: 41255342; PMCID: PMC12627968.
- **Hossenbaccus L**, Linton S, Garvey S, Botting H, Walker T, Steacy L, Ellis AK. Clinical validation of controlled exposure to cat dander in the Specialized Particulate Control Environmental Exposure Unit (SPaC-EEU). *Allergy Asthma Clin Immunol*. 2025 Aug 6;21(1):33. doi: 10.1186/s13223-025-00978-z. PMID: 40770640; PMCID: PMC12330187.
- **Hossenbaccus L**, Walker T, Ellis AK. Technical validation of controlled exposure to cat dander in the specialized particulate control environmental exposure unit (SPaC-EEU). *Allergy Asthma Clin Immunol*. 2025 Jan 28;21(1):6. doi: 10.1186/s13223-024-00928-1. PMID: 39876023; PMCID: PMC11773739.
- Ellis AK, **Hossenbaccus L**, Linton S, Botting H, Badawod E, Burrows A, Garvey S. Biphasic anaphylaxis in a Canadian tertiary care centre: an evaluation of incidence and risk factors from electronic health records and telephone interviews. *Allergy Asthma Clin Immunol*. 2025 Feb 8;21(1):7. doi: 10.1186/s13223-024-00919-2. PMID: 39923108; PMCID: PMC11806842.
- **Linton S**, **Hossenbaccus L**, Davis A, Thiele J, Garvey S, Botting H, Steacy L, Sheth PM, Ellis AK. Staphylococcus aureus nasal carriage is associated with faster symptom resolution following nasal allergen challenge in ragweed-allergic participants: a subset of the Allergic Rhinitis Microbiome Study. *Allergy Asthma Clin Immunol*. 2025 Nov 19;21(1):48. doi: 10.1186/s13223-025-00990-3. PMID: 41257762; PMCID: PMC12629013.
- **Linton S**, Hossenbaccus L, Davis A, Thiele J, Garvey S, Botting H, Steacy L, Ellis AK. Characterizing the symptomatology and pathophysiology of allergic rhinitis using a nasal allergen challenge model - a subset of the allergic rhinitis microbiome study. *Allergy Asthma Clin Immunol*. 2025 Aug 18;21(1):36. doi: 10.1186/s13223-025-00980-5. PMID: 40826365; PMCID: PMC12362900.
- **Linton S**, Ellis AK. Metabolomics: Can they serve as a roadmap for future research in allergic rhinitis? *Ann Allergy Asthma Immunol*. 2025 May;134(5):502-503. doi: 10.1016/j.anai.2025.02.002. PMID: 40345713.
- Harry JA, **Skebo SI**, Cole DV, Dinh V, VandenBroek MM, Lee AK, Camacho N, Piepjohn HN, Hoskin V, Laverty KJ, Gao Y, Quilty D, Greer PA, Ormiston ML. Bmpr2 Loss in the Vascular Endothelium Enhances Neoangiogenesis and Growth of Lung Metastatic Lesions in a Mouse Model of Breast Cancer. *J Cell Biochem*. 2025 Nov;126(11):e70071. doi: 10.1002/jcb.70071. PMID: 41221847; PMCID: PMC12606701.

TMED FACULTY

Program Involvement Legend

■ TMED 800 Course Instructor	■ TMED 800 Lecturer	■ Current TMED Supervisor
■ TMED 801 Course Instructor	■ TMED 801 Lecturer	■ Observerships
■ TMED 802 Course Instructor	■ TMED 802 Lecturer	■ GPC Member
■ TMED 865 Course Instructor		



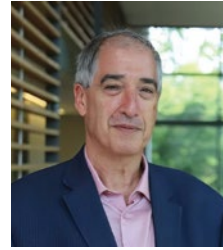
Lindsay Anderson



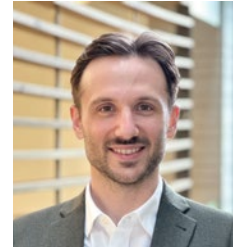
Stephen Archer



Yuka Asai



Adrian Baranchuk



Paul Beamish



Lysa Boissé Lomax



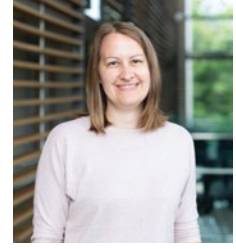
Mackenzie Bowman



Gord Boyd



Marie Clements-Baker



Che Colpitts



Ashish Das Gupta



Kerstin de Wit



Sarah Dick



Nicolle Domnik



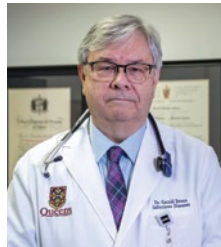
Kimberly Dunham-Snary



Joshua Durbin



Anne Ellis



Gerald Evans



Gabor Fichtinger



Jennifer Flemming





Jason Gallivan



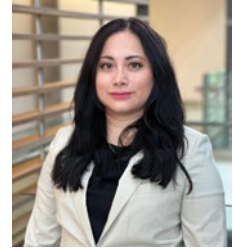
Laura Gaudet



Annette Hay



Charlie Hindmarch



Ramirez Hobak



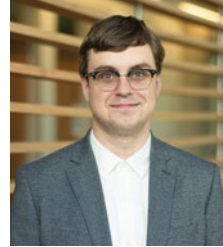
Rachel Holden



Lawrence Hookey



Wilma Hopman



Matthew James



Paula James



Amer Johri



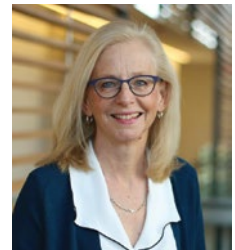
Durjoy Lahiri



Patricia Lima



Alan Lomax



Diane Loughheed



Janet Lui



Paul Malik



David Maslove



Christopher McGlory



Parvin Mousavi



Daniel Mulder



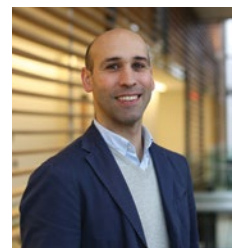
Akihiro Nakamura



Alberto Neder



Lisa Nguyen



Mark Ormiston



TMED Faculty (cont.)



Lynne Postovit



James Purzner



Teresa Purzner



John Puxty



Doug Quilty



Michael Rauh



David Reed



Sebastian
Rodríguez-Llamazares



Jacob Rullo



Tony Sanfilippo



Adrienne Selbie



Prameet Sheth



Amber Simpson



Graeme Smith



Giselle Valarezo



Victor Niera Vidal



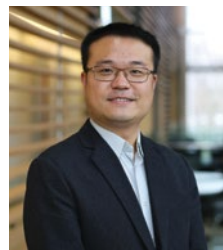
Hasitha Welihinda



Christine White



Gavin Winston



Zijing Wu



Karen Yeates



TMED STUDENT SOCIETY + EVENTS



- 1) TMED Student Society Council 2024-2025 (left to right): Meara Sanjayan, I-EDIIA Representative, MSc'27 Candidate, Meghan Jefferies, Secretary, MSc'26 Candidate, Roan Haggerty-Goede, Treasurer, MSc'27 Candidate, Tommy Rollin, President, MSc'26 Candidate, Abed Abu Hijleh, PhD Representative, PhD'29 Candidate, Mia Wilkinson, Vice-President, PhD'27 Candidate, Alex Giff, MSc Representative, MSc'27 Candidate
- 2) TMED Student Orientation, August 28, 2025
- 3) Paint Swap Lunch, September 23, 2025. Halloween Pumpkin Painting and Movie Night, October 30, 2025

TMED STUDENT SOCIETY + EVENTS





- 4) Halloween Pumpkin Painting and Movie Night, October 30, 2025
- 5) Gingerbread Contest, December 11, 2025
- 6) TMED Research Roundtables, October 21, 2025
- 7) Skating Night, January 22, 2026
- 8) Food Drive with AMS Food Bank- February 12, 2026
- 9) Games Night - January 29, 2026
- 10) TMED 801 Seminar, Day 1, April 7 2026
- 11) TMED 801 Seminar, Day 2, April 8 2026



12) TMED end of year Celebration, April 30, 2026.

13) Dr. Stephen Archer (middle) receives TMED 2025-26 Excellence in Graduate Supervision Award which was presented by student nominators Naiya Chhelavda (left) and Jaskaran Singh Hora (right).

14) 2026-27 Incoming Student Society Executive (left-right): Vice President: Olivia DiPaolo MSc'27 Candidate, President: Alex Giff MSc'27 Candidate, Secretary: Naiya Chhelavda MSc'27 Candidate



Orientation handout to TMED students of the TIMELine for 2024-2025



TIMELINE

Survey Launch

2024-11-20

TIME's TMED External Grant Application Award Survey for the **Winter & Spring** semester is opened

1

Survey Deadline

2024-12-01

Last chance to apply for TIME's TMED External Grant Application Award for the **Winter** semester

2

PI Nominations

2024-12-02

PI can nominate their TMED students for the TIME Research Excellence Award

3

TIME for Science to Shine!

2024-12-05

Our holiday awards Ceremony & Holiday Party. **Winter** winners of TIME's TMED External Grant Application Award announced

4

PI Nomination Deadline

2025-01-17

The period for PIs to nominate their TMED students for the TIME Research Excellence Award closes

5

Application Launch

2025-01-20

TMED students nominated by their PI can now begin their application for the TIME Research Excellence Award

6

Application Deadline

2025-02-07

Deadline for nominated TMED students to complete their application for the TIME Research Excellence Award

7

Notice of Award

2025-03-07

TMED winners of the TIME Research Excellence Award notified

8

Survey Deadline

2025-04-05

Last chance to apply for TIME's TMED External Grant Application Award for the **Spring** semester

9

TIME Symposium

2025-04-17

10

A full day event with a keynote address, presentations by faculty and TMED students, TMED networking and posters presentations, as well as, award presentations of the **Spring** winners of the TIME TMED External Grant Application Award and TIME's Research Excellence Award. This event will be followed by a Wine & Cheese Reception

TIME

AWARDS FOR TMED STUDENTS

External Grant Application Awards

\$1,000

Prize = Funds + Certificate



Awarded to any student who applies for external funding and completes survey



Winter awards at TIME to Shine Holiday & Awards Celebration in December



Spring awards at TIME Symposium in April



Research Excellence Award

\$1000+ (TBD)



Prize = Funds + Certificate + Presentations

Awarded to students who are:

- Nominated by PI for an objective accomplishment
- Complete an application which highlights their research achievements
- Top-ranked by review committee



Awarded at TIME Symposium in April

Monthly - Research in Progress

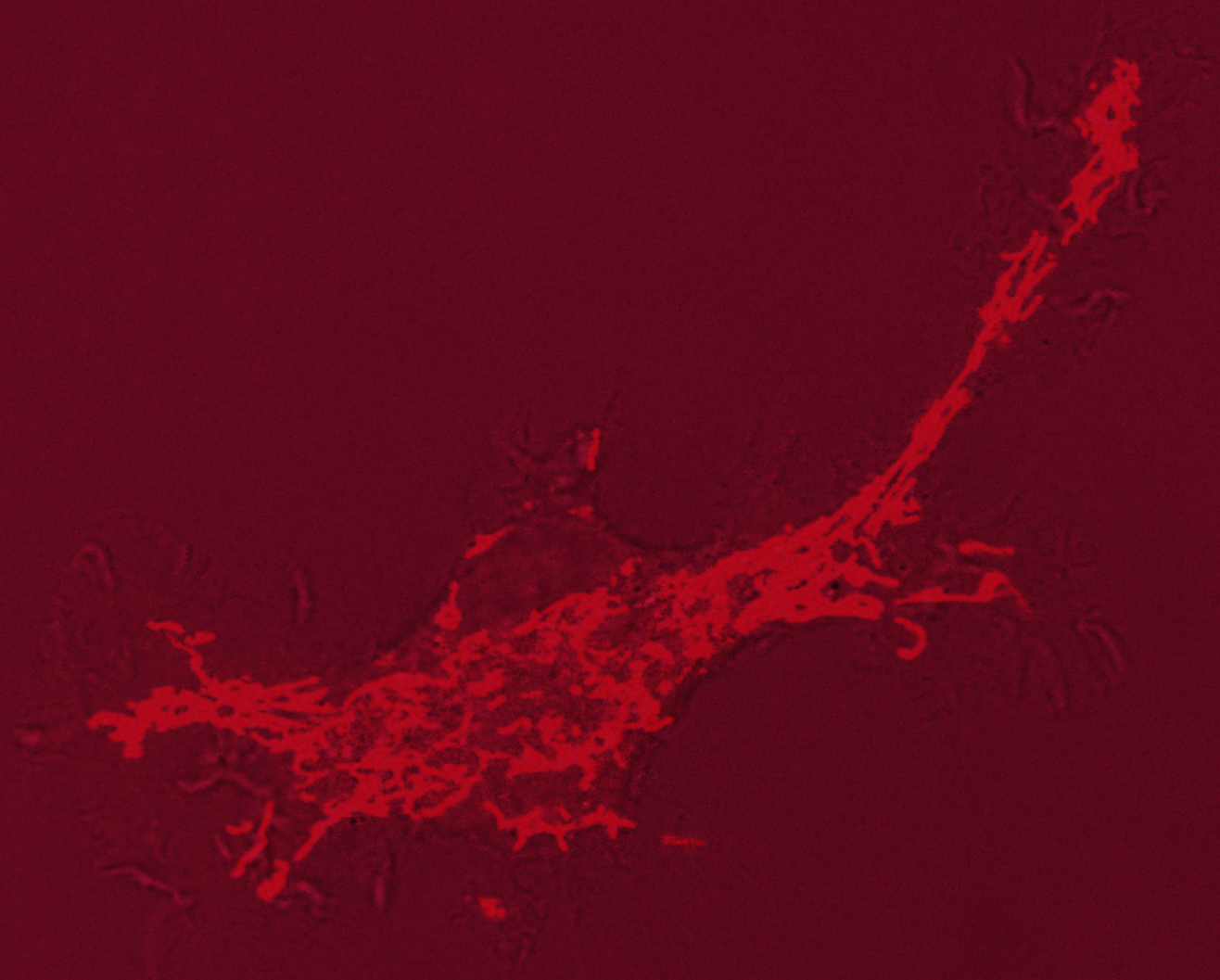
Enjoy a lunch with your peers, staff scientists and faculty to learn about the research projects in TMED! Every month two TMED students will present their current research in a friendly and open forum while sharpening their presentation skills and practice the art of answering questions.

Contact Information:

Shannan Davis | TIME Administrator
shannan.davis@queensu.ca

Brooke Ring | TIME Associate Director (Operations)
ringb@queensu.ca

General Inquiries | time@queensu.ca



Core Facility | **TIME Core**

SECTION III

Core Facility | TIME Core



TIME Team (left-right): Stephen Archer, Shannan Davis, Patricia Lima, Oliver Jones, Curtis Noordhof, Benjamin Wood, Brooke Ring, Elahe Alizadeh

In 2025, the Queen's CardioPulmonary Unit (QCPU) was renovated and expanded and now can be considered as TIME Core. TIME Core, a 10,000ft² translational research facility with a team of eight scientists who operate ~\$25M in research infrastructure. Housed within TIME in the Biosciences Complex. We are strategically located in the heart of Queen's campus, TIME is within a short walk to the School of Medicine Building, KHSC and the many departments within QHS. The centre has a Bench-to-bedside philosophy, meaning it endeavours to advance human health by connecting patient care with discovery science. Although it initially had an emphasis on heart, lung, blood and vascular diseases, TIME Core has evolved into a broad, economical, full-service, translational research facility which provides three faculties of the Queen's research community access to an expert team of scientists and many state-of-the-art research platforms, while providing training for dozens of graduate students each year.

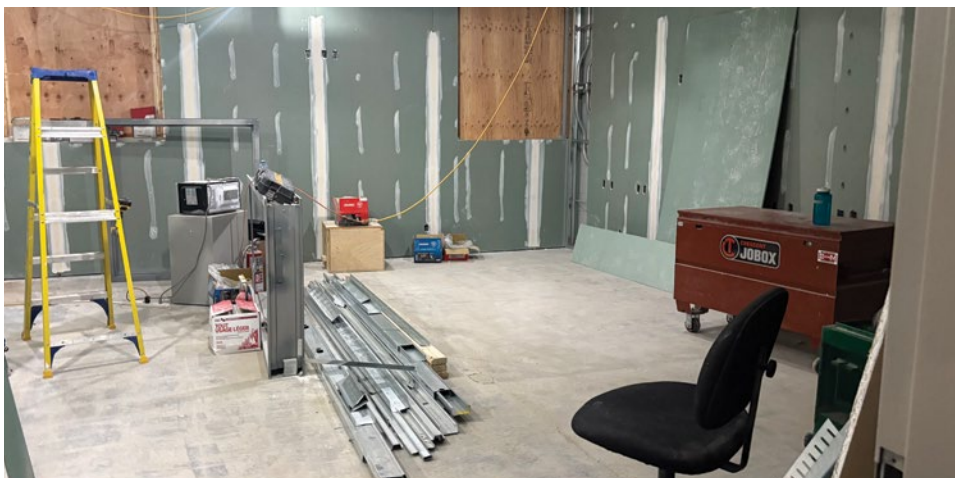
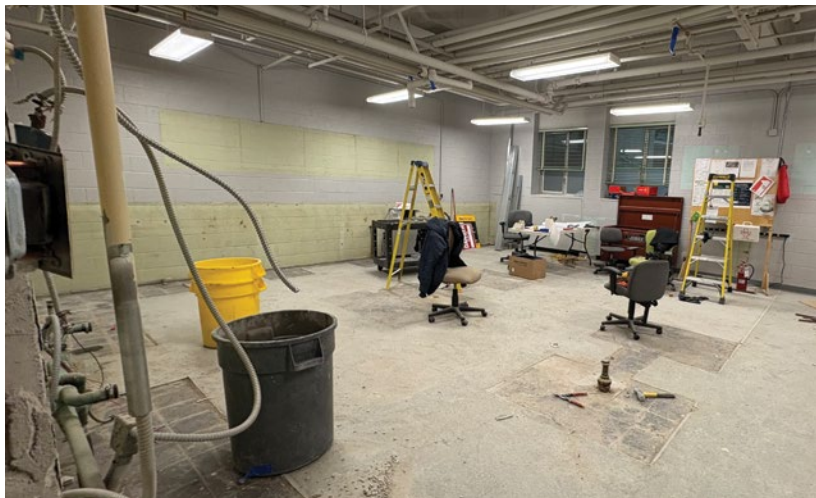
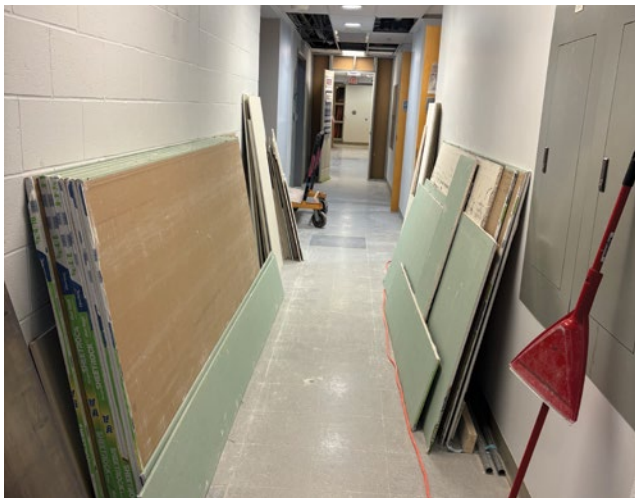
Built on existing institutional investments by Queen's University, TIME Core mission includes growing the externally funded research enterprise for the Department of Medicine and QHS, while assisting our faculty and trainees in their efforts to produce cutting-edge research publications and competitive grants. TIME Core aspires to embody research excellence and to ensure that Queen's University is recognized internationally as a center for translational research. TIME Core also includes QCPU, our Kingston Health Sciences Center satellite clinic which host various clinics, and 2 cardiac ultrasounds labs for clinical echocardiography.

TIME CORE RENOVATIONS OF 2025

Thanks to our TIME Core CFI and provincial matching funds, we were able to renovate, update and extend our facility by an approximate 2000sq ft!

TIME CORE IS STAFFED BY EIGHT SCIENTISTS AND IS COMPRISED OF 5 DIFFERENT LABORATORIES INCLUDING:

- SMALL ANIMAL IMAGING
- MOLECULAR AND CELLULAR IMAGING
- CELL CULTURE AND CYTOMETRY
- GENOMICS, TRANSCRIPTOMICS AND MOLECULAR MEDICINE
- HISTOLOGY AND ELECTRON TRANSMISSION MICROSCOPY





TIME Core renovations not only expanded TIME's footprint, but vastly improved existing space.



The centre offers the research community across the university access to expertise, education and state-of-the-art equipment, much of which exists only within TIME Core. Notably, our model is innovative in that services are provided by TIME Core's scientists on a cost-recovery basis by a cadre of expert staff scientists. The users purchase services, either based on an hourly fee or through a discounted, bundled SuperUser package. The client retains ownership of their idea and data while benefiting from access to our state-of-the-art equipment and highly experienced staff.





- 1) New TIME Core genomics laboratory space looks out onto the Biosciences Atrium.
- 2) The TIME Collaboratory is a state-of-the-art conference room which can be used to explore big data from multiple inputs!



KEY EQUIPMENT INCLUDE:

Small Animal Imaging Laboratory

- ▶ Micro-Scanner with modalities of CT, PET, SPECT and Optical Imaging – MiLabs VECToR7CT
- ▶ Radio-tracer labelling

Flow Cytometry

- ▶ Flow cytometry – Sony ID7000 Spectral Flow Cytometer
- ▶ Flow sorting – Sony SH800 and MA900 Sorters
- ▶ Nanoparticle quantification and cytometry – Beckman Coulter Cytoflex Nano

Cell Culture

- ▶ Custom cell culture services
- ▶ Proliferation assays – Agilent Xcelligence RTCA Analyzer
- ▶ Transfection – Lonza Nucleofactor
- ▶ Small Particle Laboratory
- ▶ Nanoparticle imaging – ONI Nanoimager
- ▶ Nanoparticle quantification and cytometry – Beckman Coulter Cytoflex Nano

Genomics & Molecular Biology Laboratory

- ▶ Molecular + protein quantification – Agilent TapeStation 4150
- ▶ Multiplex ELISAs – Luminex MagPix
- ▶ RNA and DNA Extraction
- ▶ Next generation library construction
- ▶ Sequencer – Oxford Nanopore PromethION 2 Integrated, GridION, and MinION
- ▶ qRT-PCR – Bio-Rad OPUS Real-Time PCR System
- ▶ Biobanking
- ▶ Multi'omics – Leica Cell DIVE with BAB automation



Spatialomics

- ▶ Multi'omics – Leica Cell DIVE with BAB automatic
- ▶ Tau-contrast confocal microscopy – Leica Stellaris Confocal Microscope with Spectraplex
- ▶ Hyperplexed imaging – Leica Stellaris Confocal Microscope with Spectraplex

Microscopy

- ▶ Widefield microscope – Leica Mica with Live Cell Imaging
- ▶ 2-photo confocal microscopy with FALCON – Leica SP8 System
- ▶ Tau-contrast confocal microscopy – Stellaris Confocal Microscope with Spectraplex
- ▶ Hyperplexed imaging – Stellaris Confocal Microscope with Spectraplex
- ▶ Transmission electron microscopy – Delong LVEM25 (TEM, STEM, and SEM modes) equipped with Bruker Energy Dispersive X-Ray Spectroscopy (EDS)
- ▶ Scanning electron microscopy – Delong LVEM25 (TEM, STEM, and SEM modes) equipped with Bruker Energy Dispersive X-Ray Spectroscopy (EDS)
- ▶ Nanoparticle imaging, quantification and cytometry – ONI Nanoimager and Beckman Coulter Cytoflex Nano

Histology

- ▶ Histology services (processing, embedding– Leica HistoCore Suite)
- ▶ Standard and special straining
- ▶ Transmission electron microscopy – Delong LVEM25 (TEM, STEM, and SEM modes) equipped with Bruker Energy Dispersive X-Ray Spectroscopy (EDS)
- ▶ Scanning electron microscopy – Delong LVEM25 (TEM, STEM, and SEM modes) equipped with Bruker Energy Dispersive X-Ray Spectroscopy (EDS)

Software

- ▶ BioRender – Scientific graphic design software license for the creation of presentations, posters and figures
- ▶ SciNote – Electronic Laboratory Notebook Software license
- ▶ GoodGrants – Grant administration and management software license

TIME CORE METRICS

TIME Core by the numbers

Since its inception seven years ago, our core facility has served 124 faculty users (from 30 departments and three faculties) and 211 trainees. In 2025, QCPU was used by 63 faculty (20% were early-career researchers). TIME Core had 9 SuperUsers, defined as users who purchase service in blocks of 208 hours/year (SuperUser A plan) or 104 hours/year (SuperUser B plan) hours/year. In 2025, TIME Core's scientists also have assisted or mentored over 71 trainees, including research staff, medical students, post-doctoral fellows, graduate students and undergraduates.

25

SuperUsers

124

Users

3

Faculties

30

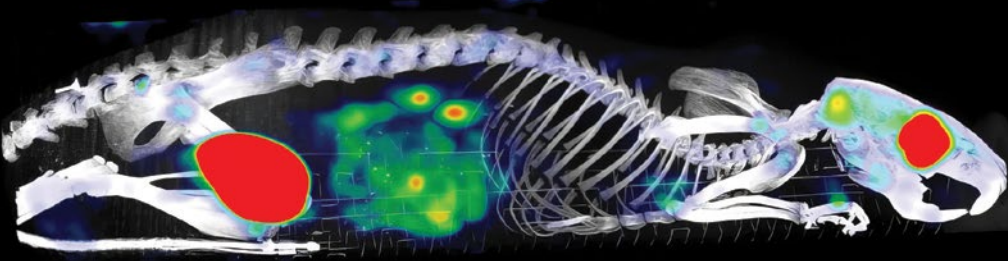
Departments

7

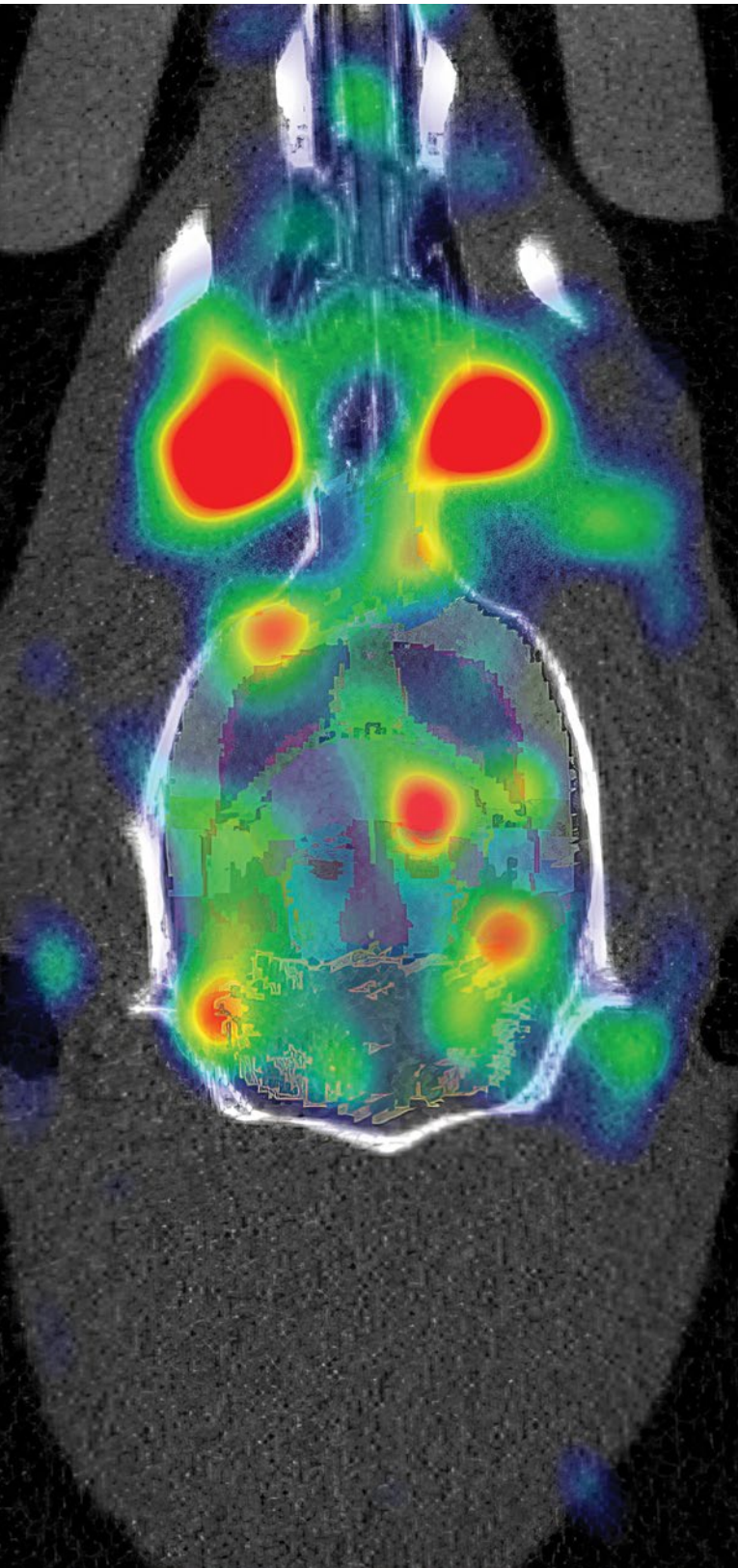
External Partners

211

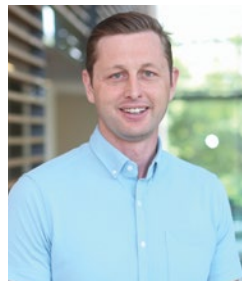
Trainees



Hindmarch Lab: Rat with experimental pulmonary arterial hypertension (PAH), visualized using the TIME Core quad-modality CT/PET/SPECT/O scanner. PAH rats and controls were exposed to [F18]-FDG to identify metabolically active tissues.



In 2025 we continued our paediatric respirology clinic for asthma screening and resident education clinics, led by Dr. Michael Derynck. This enterprise is advancing patient care in Kingston and the surrounding areas, as well as establish exciting new research projects.



Dr. Michael Derynck
*Paediatric Cardiologist |
Assistant Professor,
Department of Paediatrics*

Dr. Michael Derynck is an Assistant Professor of Pediatrics and Pediatric Respirologist at Queen's University. He joined the department in September

2019 and was cross appointed to the Department of Medicine in 2021. Dr. Derynck follows patients with asthma, interstitial lung disease, congenital lung abnormalities and sleep disordered breathing. Dr. Derynck is also the medical director of the Pediatric Cystic Fibrosis (CF) Clinic and CF Newborn Screening programs at KHSC. Dr. Derynck also provides inpatient coverage of the pediatric ward and critical care unit.

Dr. Derynck completed medical school at the University of Western Ontario in 2013. He completed pediatric residency at Queen's University in 2017 and subspecialty training in pediatric respirology at the University of Calgary in 2019.

Dr. Derynck collaborates in research focused on CF genetics, CF newborn screening, and pediatric tracheostomy care. He enjoys teaching pediatric and pediatric respiratory medicine to medical students and postgraduate trainees. Dr. Derynck enjoys kayaking, choral singing and travelling when away from the hospital.

Hindmarch Lab: The brain of a rat with experimental pulmonary arterial hypertension (PAH), visualized using the TIME Core quad-modality CT/PET/SPECT/O scanner. PAH rats and controls were exposed to [F18]-FDG to identify metabolically active tissue.

TIME CORE PAST & PRESENT USERS & SUPERUSERS

	2025	ECR	SuperUser (past or present)	Hourly	BioRender	Animal Care	Anatomy	Research Services	QSEA Connections	Medicine	DBMS	PMM	GIDRU	Sinclair Cancer	CNS	Surgery	Urology	ObsGyn	Critical Care	Paediatrics	Optomology	PM&R	SKHS	Psychiatry	Civil Eng	Chemical Eng	E&CE	Mining	GeoEng	Mechanical Eng	Biology	Chemistry	Geological Sci	Geography and Planning	Computing	Psychology	External (Academic)	External (No-academic)
Archer, Stephen	●		●		●					●																												
Abraham, Sheela	●	●	●	●	●						●																											
Brennan, Faith	●	●		●							●																											
Dunham-Snary, Kimberly	●	●	●		●					●	●																											
Hindmarch, Charles	●	●	●	●	●																																	
Holden, Rachel	●		●							●	●																											
James, Paula	●		●	●	●					●		●																										
Johri, Amer			●		●					●																												
Lillicrap, David	●		●	●	●							●																										
Lomax, Alan	●		●	●						●	●		●		●																							
Maslove, David	●		●		●					●									●																			
Maurice, Donald			●	●							●																											
McGlory, Chris	●		●	●	●					●													●															
Mulder, Dan	●	●	●		●						●		●							●																		
Nakamura, Akihiro	●			●	●					●	●																											
Natale, David			●	●							●							●																				
Ormiston, Mark	●		●	●	●						●					●																						
Petkovich, Martin	●		●	●							●			●																								
Postovit, Lynne			●	●							●																											
Reed, David	●		●		●					●			●																									
Rullo, Jacob	●		●	●							●										●																	
Rutka, James			●																																			★
Seimens, Robert			●								●			●			●																					
Sheth, Prameet			●									●	●																									
Vanner, Stephen			●		●					●			●																									
Abunassar, Joseph	●			●						●																												
Abuzeid, Wael	●			●						●																												
Adams, Michael	●			●	●						●						●																					
Allingham, John	●				●						●																											
Almufleh, Aws	●									●																												
Amsden, Brian	●			●	●																					●												
Andrew, RD					●						●																											
Appireddy, Ramana					●					●																												
Aristizabal Maria	●				●																																	
Asai, Yuka				●		●				●																							●					
Bale, Logan				●							●																											
Banfield, Bruce	●			●	●						●																											
Bardana, Davide				●											●																							
Bendena, William					●																												●					
Boehnke, Susan		●		●							●				●																							
Bonier, Fran	●																															●						
Callum Jeannie	●			●						●		●																										

TIME Core Past & Present Users & SuperUsers (cont.)

	2025	ECR	SuperUser (past or present)	Hourly	BioRender	Animal Care	Anatomy	Research Services	QSEA Connections	Medicine	DBMS	PMM	GIDRU	Sinclair Cancer	CNS	Surgery	Urology	ObsGyn	Critical Care	Paediatrics	Optomology	PM&R	SKHS	Psychiatry	Civil Eng	Chemical Eng	E&CE	Mining	GeoEng	Mechanical Eng	Biology	Chemistry	Geological Sci	Geography and Planning	Computing	Psychology	External (Academic)	External (No-academic)			
Capicciotti Chantelle	●			●	●						●																					●									
Chaivisuthangkura, Parin				●																																		★			
Champagne, Pascale				●																						●							●								
Chin-Sang, Ian	●				●																					●						●									
Colautti, Robert					●																											●									
Colpitts, Che	●			●	●						●																														
Connections				●				●																		●				●											
Cook Douglas				●											●	●										●					●										
Cotechini, Tiziana	●	●		●	●						●																														
Cottrell, Tricia	●			●	●							●		●																											
Craig, Andrew	●			●	●						●			●																											
Crocker, Susan	●				●							●			●																										
Davies, Peter	●			●	●						●																														
DeFelice, Fernanda	●				●						●				●										●																
Dick, Sarah	●	●			●						●																														
Doirion, Christopher																	●																								
Ellis, Anne	●				●					●																															
Faraz, Shirin	●			●						●																															
Feilotter, Harriet					●							●		●																											
Fillion, Yves				●																						●															
Fitzpatrick, Lindsey	●			●	●						●															●															
Flemming, Jennifer					●					●																															
Gallivan, Jason	●				●						●																											●			
Gautier Karine		●		●						●																															
Gee, Katrina					●						●																														
Ghasemlou, Nader	●			●	●						●																														
Gibson, Charlotte	●			●																								●													
Graham, Charles	●			●	●						●			●																											
Hay, Annette	●			●						●				●																											
Hebert, Sebastian				●																																			★		
Hendry, Michael				●												●																									
Hesp, Simon				●													●																●								
Howe Graeme	●				●																												●								
Iftene, Felica				●																					●																
Jia, Zongchao				●							●																														
Jalini Shirin				●						●					●																										
Kan, Frederick				●							●																														
Kawaja, Michael				●	●						●																														
Kontopoulou, Marianna				●																						●							●								
Koti, Madhuri				●							●			●			●	●									●							●							
Lahiri, Durjoy		●		●	●					●																															

★ BioTechThailand ★ UofMontreal

	2025	ECR	SuperUser (past or present)	Hourly	BioRender	Animal Care	Anatomy	Research Services	QSEA Connections	Medicine	DBMS	PMM	GIDRU	Sinclair Cancer	CNS	Surgery	Urology	ObsGyn	Critical Care	Paediatrics	Optomology	PM&R	SKHS	Psychiatry	Civil Eng	Chemical Eng	E&CE	Mining	GeoEng	Mechanical Eng	Biology	Chemistry	Geological Sci	Geography and Planning	Computing	Psychology	External (Academic)	External (No-academic)			
Lee, Lucia		●			●																												●								
Lingard, Andrew				●																																				●	
Lohans, Christopher		●			●						●						●																								
Lomax, Alan										●	●		●		●		●																								
Martelli, Vanessa	●			●						●																															
Melanson, Michael				●						●												●																			
Menard, Janet				●												●																					●				
Milev, Roumen				●											●									●													●				
Monaghan, Jacqueline	●				●																											●									
Montheith, Bethany	●			●						●																															
Mousavi, Parvin				●																							●										●				
Mulligan, Lois				●							●	●		●																											
Munoz, Doug				●											●																										
Neuractas, Neuractas				●																																					
Nicol, Chris	●			●	●							●		●																											
Octane	●			●																																				●	
Oleschiuk, Richard	●			●	●																												●								
Oko, Richard				●							●																														
Omelon, Chris	●			●																																●					
Onofre Moran, Mendoza	●			●						●																															
Ozolins, Terence				●							●																														
Panchenko, Anna					●						●			●																											
Pang, Stephen				●							●																														
Payne, Sarah Jane	●			●																					●																
Ploeg, Heidi				●																											●										
Prins, Kurt				●																																			★		
Purzner, James				●							●					●																									
Purzner, Teresa				●						●					●	●				●																					
Rauh, Michael	●			●	●							●		●																											
Renwick, Neil	●			●	●							●																													
Sangemo				●																																				●	
She, Zhe	●				●																													●							
Snedden, Wayne					●																											●									
Spencer, Christopher	●			●																								●							●						
Stamplecoskie, Kevin				●																								●													
Szewczuk, Myron	●			●							●																							●							
Tayade, Chandra	●			●	●						●																														
Walia, Jagdeep				●								●									●																				
Winn, Louis	●			●	●						●			●																											
Winterborn, Andrew				●		●																																			
Yang, Xiaolong	●			●	●							●																													

QCPU SUPERUSERS



Dr. Stephen Archer

a CIHR funded cardiologist and clinician-scientist. His research focus is on defining molecular mechanisms of oxygen sensing, defining mechanisms of disordered mitochondrial metabolism and dynamics and development of mitochondrial metabolic and mitochondrial dynamic therapies for pulmonary hypertension, cancer, congenital heart disease and COVID-19.



Dr. Faith Brennan

An early career researcher who is interested in neuroinflammation and peripheral complications after neurotrauma. Trauma to the brain or spinal cord triggers a robust neuro-inflammatory response. The cells involved in this response include tissue-resident glia and infiltrating immune cells. Discovery projects in this theme seek to understand how these cells communicate with neurons, each other, and the lesion microenvironment to coordinate tissue repair and recovery of function, or secondary injury pathology and poor injury outcomes.



Dr. David Natale

Our laboratory investigates the development of the placenta in pregnancies that result in fetal growth restriction, many of which are complicated by maternal disease, such as pre-eclampsia or diabetes or by maternal exposure to substances, such as marijuana. We study placenta-specific trophoblast cells from their stem cell state, through differentiation and their interactions with other placental cell types. Our use of mouse/rat in vivo and in vitro models of fetal growth restriction as well as a collaboration with the human placenta group allows us to focus on how trophoblast populations and/or their interactions are altered in the compromised placental environment.



Dr. Chris McGlory

A senior researcher whose lab's focus is on understanding the role of hormone receptor signalling in health and disease. Current efforts of investigation include retinoic acids effects on osteoblast differentiation in diseases such as chronic kidney disease (CKD) which can result in inappropriate ectopic

phosphatemic activation of osteochondrogenic pathways, resulting in mineralization of cardiovascular tissues.



Dr. Akihiro Nakamura

As an early career researcher, his interests include translational research to find novel therapeutic targets in inflammatory arthritis. His laboratory specifically focuses on elucidating mechanisms of inflammation and new bone formation in axial spondyloarthritis and psoriatic arthritis using cutting-edge techniques in immunology, molecular biology, and cell biology.



Dr. Jacob Rullo

His primary focus is neuro-ophthalmology, which deals with diseases of the eye-brain axis, more specifically his research focuses on characterizing differences in the ocular microenvironment with respect to the discovery of novel biomolecules/biomarkers, understanding intraocular immune mechanisms, and the immune biology of the external ocular surface.



Dr. Chris McGlory

An early career researcher whose program aims to understand the cellular and molecular mechanisms underpinning the adaptive response of skeletal muscle to nutrition, exercise training, and immobilization. His program specializes in the use of stable isotopic tracers to track skeletal muscle protein turnover combined with a variety of molecular biology techniques for measurement of enzyme activity, protein expression, and post-translational modification.



Dr. Charlie Hindmarch

Dr. Hindmarch is an early career researcher interested in understanding the genomic landscape of various tissues in pulmonary arterial hypertension in an effort to understand the deep mechanisms of this disease, or the identification of effective biomarkers. He achieves this both through the democratization of public datasets available for pulmonary hypertension, and through the direct study of peripheral and central tissues within the context of sympathetic tone.



Dr. Kimberly Dunham-Snary

An early career researcher who established the MitoMetaLab. Her lab investigates the links between mitochondrial genetics, mitochondrial dynamics (the shape/structure of the mitochondria in different tissues), metabolomics—large-scale studies of small molecules that are the products of caloric intake (metabolites)—and the cell signalling pathways that control *proliferation* (cell growth). They use preclinical models of CMDs and patients with differing mitochondrial genetic ancestry to elucidate how these key players are linked. Their long term goal is to identify *circulating biomarkers* of CMD and develop a *mitochondrial-metabolomic fingerprint* for CMDs that can be deployed in the clinic. Using this interdisciplinary approach, we strive to i) improve early intervention for subpopulations at increased risk for CMDs; ii) identify new therapeutic targets to ease the current healthcare burden; and iii) provide new tools to advance the initiative of *precision/personalized medicine*.

QCPU PUBLICATIONS

- Martínez-Martínez FJ, Chiner-Oms Á, Furió V; HpGP Research Network; Yamaoka Y, Dekker JP, Mégraud F, Bénéjat L, Ducournau A, Giese A, Jehanne Q, Jauvain M, Camargo MC, Comas I, Lehours P. Genomic determinants of antibiotic resistance for *Helicobacter pylori* treatment: a retrospective phenotypic and genotypic observational study. *Lancet Microbe*. 2026 Jan;7(1):101217. doi: 10.1016/j.lanmic.2025.101217. Epub 2025 Dec 23. PMID: 41453373; PMCID: PMC12961094. Doug Quilty credited as collaborator.
- Harry JA, Skebo SI, Cole DV, Dinh V, VandenBroek MM, Lee AK, Camacho N, Piepjohn HN, Hoskin V, Laverty KJ, Gao Y, Quilty D, Greer PA, Ormiston ML. Bmpr2 Loss in the Vascular Endothelium Enhances Neoangiogenesis and Growth of Lung Metastatic Lesions in a Mouse Model of Breast Cancer. *J Cell Biochem*. 2025 Nov;126(11):e70071. doi: 10.1002/jcb.70071. PMID: 41221847; PMCID: PMC12606701.
- VandenBroek MM, Sharp MC, Thompson P, Fagbola E, Quilty D, Mewburn JD, Theilmann AL, Dunham-Snary KJ, Hemnes AR, Cogan JD, Austin ED, Hamid R, Archer SL, Renwick N, Ormiston ML. Circular RNA Profiling Identifies circ5078 as a BMPR2-Derived Regulator of Endothelial Proliferation and Stress Responses. *Arterioscler Thromb Vasc Biol*. 2025 Sep;45(9):1546-1561. doi: 10.1161/ATVBAHA.124.322455. Epub 2025 Aug 7. PMID: 40772817; PMCID: PMC12379793.
- Jefferson L, Lima PDA, Archer SL. Macrophage plasticity and glucose metabolism: the role of immunometabolism in pulmonary arterial hypertension. *Clin Sci (Lond)*. 2025 Oct 1;138(19):1073-94. doi: 10.1042/CS20257363. PMID: 41032703; PMCID: PMC12794329.
- Al-Qazazi R, Emon IM, Potus F, Martin AY, Lima PDA, Vlasschaert C, Ott BP, Chen KH, Wu D, Dasgupta A, Noordhof C, Jefferson L, Buttigieg MM, McNaughton AJM, Hindmarch CCT, Bick AG, Nichols WC, Chung WK, Hassoun PM, Damico RL, Zhu N, Shen Y, Rauh MJ, Archer SL. Germline and somatic variants in DNMT3A and other clonal haematopoiesis of indeterminate potential genes contribute to pulmonary arterial hypertension. *Eur Heart J*. 2025 Aug 29;ehaf611. doi: 10.1093/eurheartj/ehaf611. Epub ahead of print. PMID: 40878867.
- Hindmarch CCT, Potus F, Al-Qazazi R, Ott BP, Nichols WC, Rauh MJ, Archer SL. Tet Methylcytosine Dioxygenase 2 (TET2) Mutation Drives a Global Hypermethylation Signature in Patients With Pulmonary Arterial Hypertension (PAH): Correlation With Altered Gene Expression Relevant to a Common T Cell Phenotype. *Compr Physiol*. 2025 Apr;15(2):e70011. doi: 10.1002/cph4.70011. PMID: 40274312; PMCID: PMC12021535.
- Ring B, LeDue J, Lesage G, Sharma V, Brown CM. Strengthening Research Through Scientific Platforms: Highlights from the 5th Canadian Network of Scientific Platforms (CNSP) Conference. *J Biomol Tech*. 2025 Sep 29;36(3):3fc1f5fe.f674b08a. doi: 10.7171/3fc1f5fe.f674b08a. PMID: 41409386; PMCID: PMC12707490.
- MacPhee CA, Natale BV, Noordhof C, Wang S, Lima PDA, Natale DRC. The regulation of placental pericyte function through transforming growth factor β -1 signalling. *Sci Rep*. 2025 Oct 21;15(1):36668. doi: 10.1038/s41598-025-20432-9. PMID: 41120412; PMCID: PMC12541019.
- Wilkinson MS, Ferguson EJ, Bureau J, Haggerty-Goede RAL, Miller DM, Kuriakose M, Veeneman JLMH, Lima PDA, McGlory C, Dunham-Snary KJ. Platelet bioenergetics correlate with skeletal muscle respiration in a murine model of type II diabetes. *Front Mol Biosci*. 2025 Nov 14;12:1639882. doi: 10.3389/fmolb.2025.1639882. PMID: 41322695; PMCID: PMC12660101.
- Justason E, Ishchuk AM, Ott BP, Gibson MES, James PD. Determining the Impact of Combination Oral Contraceptives on Von Willebrand Factor and Factor VIII in Healthy Patients and Patients With Von Willebrand Disease: A Scoping Review and Meta-Analysis. *Haemophilia*. 2025 Nov;31(6):1158-1169. doi: 10.1111/hae.70124. Epub 2025 Sep 11. PMID: 40932399; PMCID: PMC12612378.
- Shastry A, Wilkinson MS, Miller DM, Kuriakose M, Veeneman JLMH, Smith MR, Hindmarch CCT, Dunham-Snary KJ. Multi-tissue metabolomics reveal mtDNA- and diet-specific metabolite profiles in a mouse model of cardiometabolic disease. *Redox Biol*. 2025 Apr;81:103541. doi: 10.1016/j.redox.2025.103541. Epub 2025 Feb 14. PMID: 39983345; PMCID: PMC11893332.

FUTURE OF TIME



TIME'S FUTURE IS BRIGHT! HERE ARE SOME INITIATIVES THAT ARE UNDERWAY FOR THE COMING YEAR:

1. Our Annual TIME symposium returns in 2026 with a keynote lecture by Dr. Trevor Pugh.
2. With the revitalization of TIME's facilities, we will be launching a new website, strategic plan and membership services in 2026.
3. TIME will continue its Masterclass workshop to help researchers succeed in gaining extramural funding in 2026.
4. We are exploring the creation a portfolio of five practical science techniques courses open to TMED/BMED students to allow them hands-on experience using state-of-the-art platforms in TIME, such as micro-PET-SPEC-CT, super resolution confocal microscopy, histology, essential laboratory techniques and more.



- 1) David Maslove talks to PGY1 residents at the Resident Research Fair.
- 2) Jane Leopold spoke on the Time to Talk podcast about her research in precision medicine of pulmonary hypertension.
- 3) TIME to Shine returns to the BioSciences Complex December 3rd, 2026!



Working with Elahe and the TIME team has been an invaluable part of my PhD research. Their expertise in micro-CT imaging and their willingness to answer questions have helped me develop a much deeper understanding of imaging techniques and their application to biomechanics research. Their expertise has been instrumental in helping me generate high-quality imaging data and move my research forward."

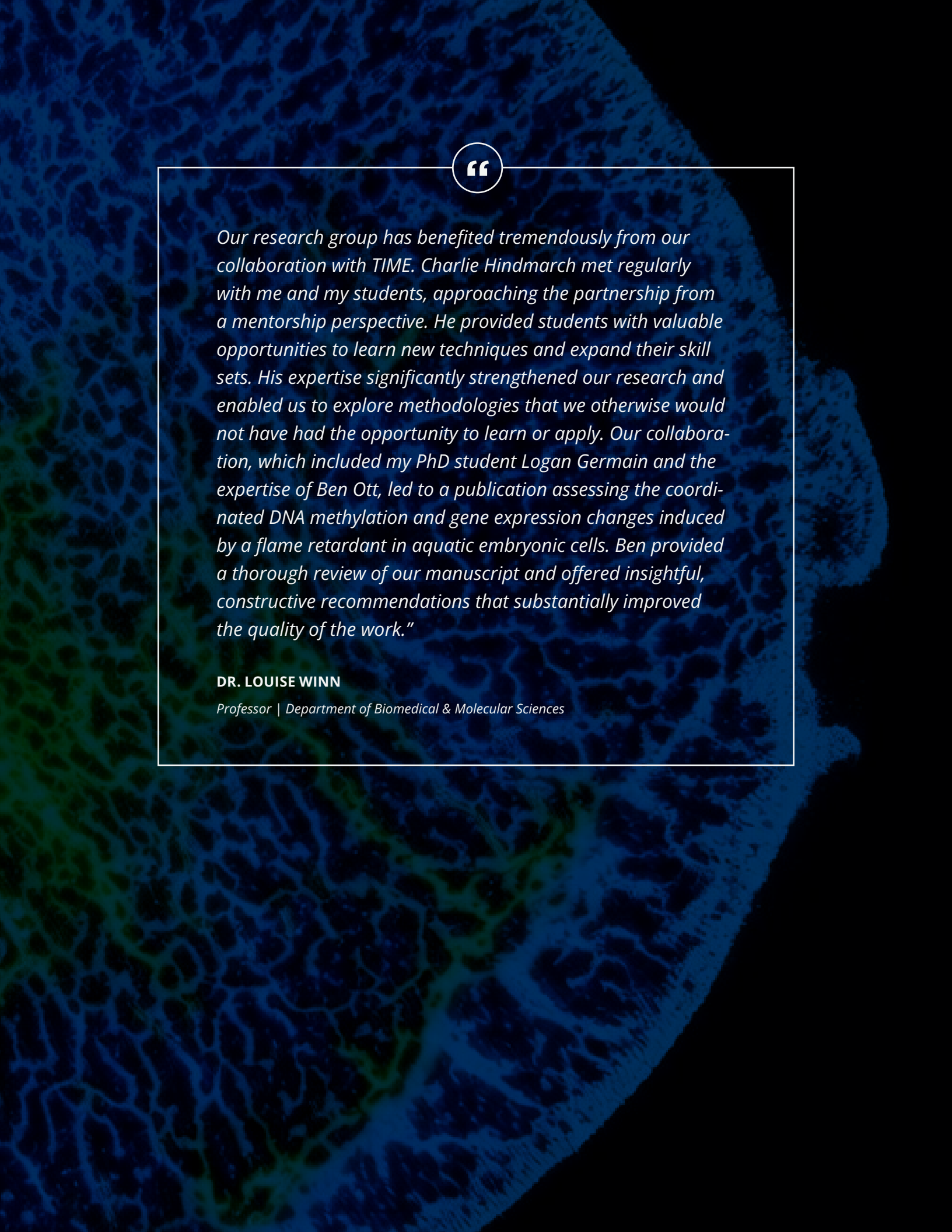
EMILY CAMERON

*PhD Candidate in Dr. Heidi Ploeg laboratory |
Department of Mechanical and Materials Engineering*

As a lab PI at Queen's Univ, Smith Engineering, Centre for Health Innovation (CHI), KHSC-RI, I value the resources, technical expertise, and workshops offered by TIME. I learned alot and gained confidence from recent TIME CIHR grant writing workshops. As a "super-user" member it is more cost effective and time efficient to share equipment and expertise, instead of each research centre sustaining their own equipment, maintenance packages and technical experts. The TIME personnel are welcoming towards, and generously share their knowledge with my lab members and me. Together, as research collaborators, we learn the best methods to collect data to answer my lab's research questions."

DR. HEIDI PLOEG

Professor | Department of Mechanical and Materials Engineering



“

Our research group has benefited tremendously from our collaboration with TIME. Charlie Hindmarch met regularly with me and my students, approaching the partnership from a mentorship perspective. He provided students with valuable opportunities to learn new techniques and expand their skill sets. His expertise significantly strengthened our research and enabled us to explore methodologies that we otherwise would not have had the opportunity to learn or apply. Our collaboration, which included my PhD student Logan Germain and the expertise of Ben Ott, led to a publication assessing the coordinated DNA methylation and gene expression changes induced by a flame retardant in aquatic embryonic cells. Ben provided a thorough review of our manuscript and offered insightful, constructive recommendations that substantially improved the quality of the work.”

DR. LOUISE WINN

Professor | Department of Biomedical & Molecular Sciences



Queen's
UNIVERSITY

Department
of Medicine

TIME Main Office

116 Barrie Street
BioSciences Complex | Room 1623
Kingston, ON, CANADA K7L 3N6
613-533-2817 | Fax: 613-533-2061
time@queensu.ca

