

Queen's Health Sciences | School of Medicine



DEPARTMENT OF

Medicine2022

Translational Institute of Medicine (TIME)



Dilakshan Srikanthan, (TMED - MD/PhD Candidate)

Recipient of the [Vanier Canada Graduate Scholarship \(2022-2023\)](#)

Recently Dilakshan received awards at the Imaging Network of Ontario and Center for Health Innovation Symposium for his research on surgical management of brain tumours

Research lab: Med-i Lab, Perk Lab, and Purzner Lab

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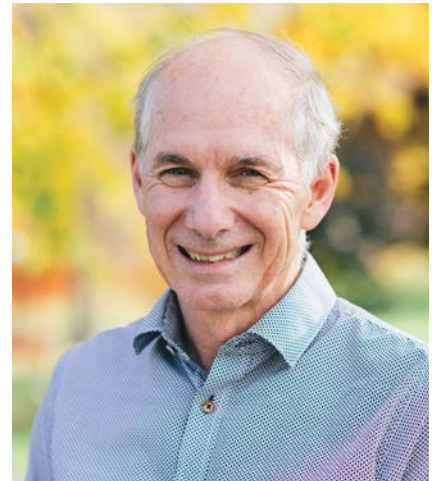
MESSAGE FROM THE DIRECTOR

“TIME continues to prosper as one of the leading research institutes at Queen’s University.”

The Translational Institute of Medicine (TIME) is celebrating its fifth anniversary with one of its most successful years yet! The institute is home to over 250 basic science and clinician researchers, who have been incredibly productive, securing over \$18 M in research funding and 779 publications in 2022 alone. Our TMED graduate program is also thriving, attracting top-quality students who bring energy and enthusiasm to the research programs. Over the past year, TMED students received prestigious awards, such as the *Vanier CGS (2022-2023)* and *Ontario Graduate Scholarships*. Under the leadership of Dr. Paula James and Dr. Mark Ormiston, TMED proudly graduated its second cohort of students this past spring.

TIME scientists eagerly await the results of a large CFI infrastructure grant application that *will* significantly expand its research platforms and keep Queen’s University at the forefront of scientific discoveries. Additionally, TIME recently released its first [Report Card](#), showcasing its success in meeting and exceeding key performance indicators set out in its [Strategic Plan](#). The institute also celebrated the many outstanding achievements of its membership through the TIME Showcase and newly launched research podcasts, both of which can be found on the [TIME Website](#).

As we head into another promising year of discovery and innovation, it is important to acknowledge the excellent work of the TIME Management Team and the Executive Committee under the



Dr. Stephen Vanner

Director

—*Translational Institute of Medicine - TIME*

expert guidance of Dr. Salwa Nihal. I would also like to express my appreciation to the Department of Medicine for their continued financial support. The coming year marks an important leadership transition as Dr. Stephen Archer takes over as the TIME Director. We are excited to see the institute continue to flourish under his direction and achieve its full potential as a leading national research institute. Finally, I would like to thank the University Leadership for the privilege of serving as the inaugural TIME Director and the TIME staff and faculty for their hard work and unwavering support.

Dr. Stephen Vanner

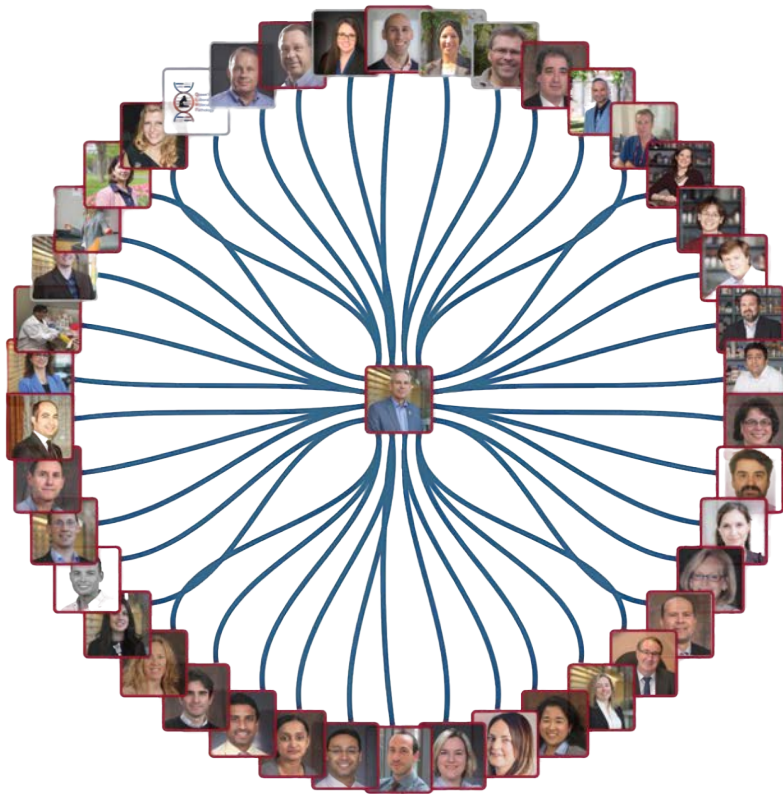
Director - TIME



TIME
TRANSLATIONAL INSTITUTE OF MEDICINE



ABOUT TIME — SECTION I

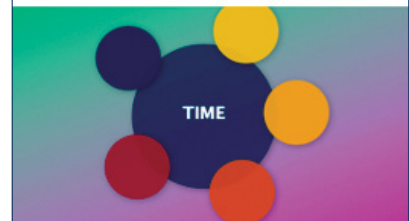


Building on the success of the TIME network, this dynamic research platform was rolled out across Queen's University by the Vice-Principal Research Office in 2022. TIME Network is now housed as one of the Research Discovery Network research institutes at Queen's University. Catering to our academic and research pursuits, it empowers our members to construct robust profiles that spotlight their expertise, research accomplishments, and affiliations. Through TIME Network's collaborative tools, its members continue to fortify partnerships, broadening their reach within and beyond Queen's University. This platform seamlessly generates CVs, integrates with our institutional web presence, and delivers insightful analytics. TIME Network has revolutionized how we manage research, foster networking, recognition, and seamless communication and enrich our commitment to advancing translational medicine. In 2023-24, TIME Network will continue to expand with added features, including research metrics, e.g., h-index, and other tools that will promote its use by the membership.

Translational Institute of Medicine Research Network

Explore the research community at the Translational Institute of Medicine

Themes



Discover research interests and connections on selected topics.

Members



Find members by their affiliation and academic position.

Platforms



Find advanced technical resources and expertise.

Groups



Discover research groups, labs and projects.





BY THE NUMBERS



TIME Research Platform; TIME Network

Members across different faculties and departments at Queen's University

OVER
250

Members from Faculty of Health
Sciences

14

Departments

3

Faculties

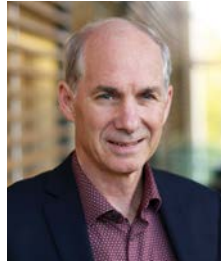
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Research Groups on the
TIME Network

TIME Team

Program Involvement Legend

- TIME Team
- TIME Management Committee
- TIME Executive Committee



TIME Team
TIME Management Committee
TIME Executive Committee

Dr. Stephen Vanner
TIME Director



TIME Team
TIME Management Committee
TIME Executive Committee

Dr. Stephen Archer
Head, Department of
Medicine (DOM)



TIME Team
TIME Management Committee
TIME Executive Committee

Dr. Paula James
Translational
Medicine Graduate
Program Director



TIME Team
TIME Management Committee
TIME Executive Committee

Dr. Charlie Hindmarch
Scientific Operations
Director for TIME



TIME Team
TIME Management Committee
TIME Executive Committee

Dr. Salwa Nihal
TIME Manager



TIME Team
TIME Management Committee
TIME Executive Committee

Dr. Jennifer Flemming
DOM Divisional
Research
Representative



TIME Team
TIME Management Committee
TIME Executive Committee

Dr. Mark Ormiston
Translational
Medicine Graduate
Program Co-Director



TIME Team
TIME Management Committee
TIME Executive Committee

Ms. Brooke Ring
QCPU Manager



TIME Team
TIME Management Committee
TIME Executive Committee

Dr. David Taylor
DOM
Educational Lead



TIME Team
TIME Management Committee
TIME Executive Committee

Dr. Mala Joneja
Equity and Diversity



TIME Team
TIME Management Committee
TIME Executive Committee

Ms. Stephanie Hartwick
DOM Special Projects
and Communications
Officer



TIME Team
TIME Management Committee
TIME Executive Committee

Ms. Carly Hudson
DOM Finance Officer



Georgia Kersche, MSc Candidate -TMED Graduate Program
Study: "Comparing carotid and coronary plaque composition using non-invasive imaging modalities for cardiovascular risk stratification."

Training & Education

SECTION II

A MESSAGE FROM THE TMED GRADUATE PROGRAM DIRECTORS



Dr. Paula James
Graduate Program Director



Dr. Che Colpitts
Interim Graduate Program Co-Director

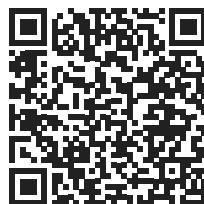
The TMED Program leaders are extremely proud of our students, who have continued to succeed year after year. Highlights for the year include eight MSc graduates and our first PhD graduate in the fall of 2022. In addition, two students were promoted from the MSc to the PhD Program through the Mini-Master's route. Our students received multiple awards for their research including two CGS-M (Canadian Graduate Scholarships – Master's) and two CSG-D (Canadian Graduate Scholarships - Doctoral) as well as several highly competitive cross-faculty internal university awards. Two of our students (Noah Breault, MSc'23 candidate and recent alumna Kiera Liblik, MSc'22), who had the highest-ranking presentations during the TMED 801 Seminars, were chosen to present their research to the Department of Medicine during Medical Grand Rounds in 2023.

The TMED Student Society continues to be a great support and resource for our students to connect with each other through events and activities. The peer-mentoring program that was launched in 2021 continues to be highly beneficial for our first-year students. The Society has also pursued many community-based activities in the Kingston area, including a highly successful food bank drive in support of the AMS food bank.

Staffing changes in the program this year enabled us to promote Julie Heagle to a newly expanded role of Graduate Program Advising Coordinator where she continues to ensure we can deliver graduate education at the highest level of excellence.

We are confident that our students will continue to generate new and exciting knowledge, with ongoing translation to improve health outcomes.

Dr. Paula James,
Graduate Program Director



Dr. Che Colpitts,
Interim Graduate Program Co-Director

BY THE NUMBERS — TMED STUDENTS & GRADUATES

26

Number of MSc Students

12

Number of PhD Students

9

8 MSc Graduates and 1 PhD Graduate

GRADUATES

SUCCESSFUL PROMOTIONS FROM MSC TO PHD PROGRAM



**Melinda Chelva, PhD '24
(Candidate)**

Supervisor:
Dr. Karen Yeates



**Kyla Tozer, PhD '25
(Candidate)**

Supervisor:
Dr. Prameet Sheth

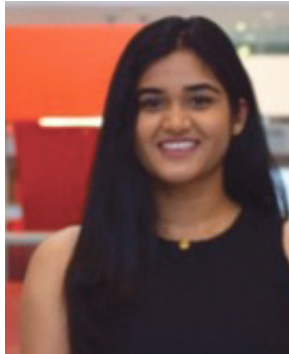
SPRING 2022 CONVOCATION CEREMONY



Austin Read, MSc'22

Supervisor:
Dr. Stephen Archer

FALL 2022 CONVOCATION CEREMONY



Charmi Shah, MSc'22

Supervisor:
Dr. Donald Maurice



Kiera Liblik, MSc'22

Supervisor:
Dr. Amer Johri



Michaela Spence, MSc'22

Supervisor:
Dr. Paula James



Kassandra Coyle, MSc'22

Supervisor:
Dr. Mark Ormiston



Jummy Oladipo, MSc'22

Co-Supervisors:
Dr. Prameet Sheth and Dr.
Stephen Vanner



Max Moloney, MSc'22

Supervisor:
Dr. Diane Loughheed



Jordan Harry, MSc'22

Supervisor:
Dr. Mark Ormiston



Matthew James, PhD'22

Co-Supervisors:
Dr. Denis O'Donnell and Dr.
Alberto Neder

EXTERNAL & INTERNAL AWARDS AND SCHOLARSHIPS



Ontario Graduate Scholarship

Quentin Tsang

Supervisors: Dr. Stephen Vanner, Dr. David Reed and Dr. Prameet Sheth



Margaret Andersen Graduate Award

Sophia Linton

Supervisor: Dr. Anne Ellis



Canadian Graduate Scholarship – Doctoral

Marty VandenBroek

Supervisor: Dr. Mark Ormiston



Canadian Graduate Scholarship – Doctoral

Joseph Nashed

Supervisor: Dr. DJ Cook



Canadian Graduate Scholarship – Master's

Samantha Ables

Supervisor: Dr. David Reed and Dr. Alan Lomax



Canadian Graduate Scholarship – Master's

Emmanuel Fagbola

Supervisor: Dr. Mark Ormiston



Mohammed Family PH Research Scholarship

Rachel Bentley

Supervisors: Dr. Stephen Archer and Dr. Charlie Hindmarch



Queen Elizabeth II Graduate Scholarship in Science and Technology

Dilakshan Srikanthan

Supervisors: Dr. John Rudan and Dr. Parvin Mousavi



Queen Elizabeth II Graduate Scholarship in Science and Technology

Tarrah Ethier

Supervisor: Dr. Mark Ormiston



R. Samuel McLaughlin Award

Nicole Morris

Supervisor: Dr. Kerstin de Wit



R. Samuel McLaughlin Award

Noah James

Supervisor: Dr. Karen Yeates



Graduate Entrance Tuition Award

Abhishek Shastry

Supervisors: Dr. Kimberly Dunham-Snary and Dr. Charlie Hindmarch

PUBLICATIONS



RACHEL BENTLEY

- Kimberly J. Dunham-Snary, Bas G.J. Surewaard, Jeffrey D. Mewburn, **Rachel E.T. Bentley**, Ashley Y. Martin, Oliver Jones, Ruaa Al-Qazazi, Patricia A.D. Lima, Paul Kubes, Stephen L. Archer (2022). Mitochondria in human neutrophils mediate killing of *Staphylococcus aureus*. *Redox Biology* 49, 102225. <https://doi.org/10.1016/j.redox.2021.102225>
- **Rachel E.T. Bentley**, Charles C.T. Hindmarch, Kimberly J. Dunham-Snary, Brooke Snetsinger, Jeffrey D. Mewburn, Arthur Thébaud, Patricia D.A. Lima, Bernard Thébaud, Stephen L. Archer (2022). The comprehensive transcriptome of human ductus arteriosus smooth muscle cells (hDASMC). *Data in Brief* 40, 107736. <https://doi.org/10.1016/j.dib.2021.107736>
- Ruaa Al-Qazazi, Patricia D.A. Lima, Sasha Z. Prisco, François Potus, Asish Dasgupta, Kuang-Hueih Chen, Lian Tian, **Rachel E.T. Bentley**, Jeff Mewburn, Ashley Martin, Oliver Jones, Danchen Wu, Donald H. Maurice, Sebastien Bonnet, Steeve Provencher, Kurt W. Prins, Stephen L. Archer (2022). Macrophage-NLRP3 Activation Promotes Right Ventricle Failure in Pulmonary Arterial Hypertension. *American Journal of Respiratory and Critical Care Medicine* 206(5), 608-624. [https://doi.org/10.1164/rc-](https://doi.org/10.1164/rc)

[cm.202110-2274OC](https://doi.org/10.1164/rc)

- Stephen L. Archer, Asish Dasgupta, Kuang-Hueih Chen, Danchen Wu, Kaushal Baid, John Mamatis, Victoria Gonzalez, Austin Read, **Rachel E.T. Bentley**, Ashley Y. Martin, Jeffrey D. Mewburn, Kimberly J. Dunham-Snary, Gerald Evans, Gary Levy, Oliver Jones, Elahe Alizadeh, Ruaa Al-Qazazi, Brooke Ring, Charles C.T. Hindmarch, Jenna Rossi, Patricia D.A. Lima, Darryl Falzarano, Arinjay Banerjee, Che Colpitts (2022). SARS-CoV-2 Mitochondriopathy in COVID-19 Pneumonia Exacerbates Hypoxemia. *Redox Biology* 58, 102508. <https://doi.org/10.1016/j.redox.2022.102508>
- Charles C.T. Hindmarch, Lian Tian, Ping Yu Xiong, François Potus, **Rachel E.T. Bentley**, Ruaa Al-Qazazi, Kurt W. Prins, Stephen L. Archer (2022). An integrated proteomic and transcriptomic signature of the failing right ventricle in monocrotaline induced pulmonary arterial hypertension in rats reveals regulation of pathways involved with mitochondrial metabolism, fibrosis and inflammation. *Frontiers in Physiology*, 1892. <https://doi.org/10.3389/fphys.2022.966454>



ALYSSA BURROWS

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- **Burrows, A. G.**, Linton, S., Thiele, J., Sheth, P. M., Evans, G. A., Archer, S., ... & Ellis, A. K. (2022). Asymptomatic Surveillance Testing for COVID-19 in Health Care Professional Students: Lessons learned from a low prevalence setting.
- Hossenbaccus, L., Linton, S., Ramchandani, R., **Burrows, A. G.**, & Ellis, A. K. (2022). Study of Cat Allergy Using Controlled Methodology—A Review of the Literature and a Call to Action. *Frontiers in Allergy*, 3.



MELINDA CHELVA

- Yeates, K., Chard, S., Eberle, A., Lucchese, A., **Chelva, M.**, Mtema, Z., Marandu, P. D., Smith, G., Erwin, E., Nswilla, A., Tillya, R. P. (2021). Dr. Godfrey Mbaruku: A tribute and review of the life of a maternal health crusader in Tanzania. *African Journal of Reproductive Health*, 25(3s), 22-29.
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Tanzania. *African Journal of Reproductive Health*, 25(3s), 92-104.

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- **Chelva, M.**, Chard, S., Eberle, A., Lucchese, A., Kaushal, S., West, N., Marandu, P.D., Smith, G., Erwin, E., Tillya, R.P., Nswilla, A., Yeates, K. (2022). "Many women use contraceptives in secret": a qualitative study of health provider perspectives regarding barriers and enablers to reproductive health and antenatal care services in rural Tanzania. *Journal of Global Health Reports*, 6, e2022018.



TARRAH ETHIER

- Lew LA, **Ethier TS**, Pyke KE. The impact of exercise training on endothelial function in postmenopausal women: A systematic review. *Experimental Physiology*. 2022 Dec;107(12):1388-421.



SOPHIA LINTON

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LUBNAA HOSSENBACCUS

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- Elbehairy, A., Faisal, A., Mcisaac, H., **James, M. D.**, Phillips, D. B., Domnik, N. J., & O'Donnell, D. E. (2022). Postural relief of dyspnea is associated with reduced neuromechanical dissociation in patients with advanced COPD. DOI: 10.1183/16000617.0069-2022
- Liu, A., Yuen, N. Y. W., Molgat-Seon, Y., **James, M. D.**, O'Donnell, D. E., Domnik, N. J., & Walsted, E. S. (2022). Validating RespMech: an automated, free and open-source platform for diaphragmatic electromyography

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- 
- KIERA LIBLIK**
- **Liblik, K.**, Hu, R., Mensour, E. A., Foldes-Busque, G., Sedlak, T., Udell, J. A., ... & Johri, A. M. (2023). Female Risk factors for post-Infarction Depression and Anxiety (FRIDA): trial design. *Cardiology*. <https://doi.org/10.1159/000528386>
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 - Parry, M., Visintini, S., Johnston, A., Colella, T. J., Kapur, D., **Liblik, K.**, ... & Mullen, K. A. (2022). Peer-support interventions for women with cardiovascular disease: protocol for synthesising the literature using an evidence map. *BMJ open*, 12(10), e067812. <http://dx.doi.org/10.1136/bmjopen-2022-067812>
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MAX MOLONEY

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- MacKinnon, M., **Moloney, M.**, Bullock, E., Morra, A., To, T., Lemiere, C., & Loughheed, M. D. (2022). Implementation of a Work-Related Asthma Screening Questionnaire in Clinical Settings: Multimethods Study. JMIR Formative Research, 6(9), e37503. doi: 10.2196/37503



JOSEPH NASHED

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- **Nashed, Joseph Y**; Shearer, Kaden T; Wang, Justin Z; Chen, Yining; Cook, Elise E; Champagne, Allen A; Coverdale, Nicole S; Fernandez-Ruiz, Juan; Striver, Shirley I; Gallivan, Jason P; (2022) Spontaneous behavioural recovery following stroke relates to the integrity of sensory and association cortices, Translational Stroke research (In Press) <https://doi.org/10.1007/s12975-022-01115-3>
- Areshenkoff, Corson; Gale, Daniel J; Standage, Dominic; **Nashed, Joseph Y**; Flanagan, J Randall; Gallivan, Jason P; (2022) Neural excursions from manifold structure explain patterns of learning during human sensorimotor adaptation. Elife (11,,e74591,2022) <https://doi.org/10.7554/eLife.74591>
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- **Nashed, Joseph Y;** Harrison, Kathleen A; Chen, Yining; Ghosh, Supurna; Kalmes, Andreas; Cook, Douglas J (2022) Acute Stroke Neuroprotection with Intravenous Rns60 In The Cynomolgus Macaque. Stroke (53,Suppl_1,AWP259-AWP259)



EDWIN OCRAN

- Chornenki, N. L., **Ocran, E.**, & James, P. D. (2022). Special considerations in GI bleeding in VWD patients. Hematology, 2022(1), 624-630.



KYLA TOZER

- **Tozer, K.**, Calvin P Sjaarda, Emily Moslinger, Henry Wong, Samira

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QUENTIN TSANG

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Alward T., Rolland S., Morissette C., Verdu E. F., Bercik P., Vanner S. J., Lomax A. E., & Reed D. E. Gut, Published online first: 13 December 2022. doi: 10.1136/gutjnl-2022-327260



MARTY VANDENBROEK

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- L.R. Hilton, M.T. Rätsep, **M.M. VandenBroek**, S. Jafri, M. Mitchell, A.L. Theilmann, J.A. Smart, L. Hawke, S.D. Moore, S.J. Renaud, M.J. Soares, N.W. Morrell, M.L. Ormiston. "Impaired interleukin-15 signaling via BMPR2 loss drives NK cell deficiency and pulmonary hypertension." Hypertension. August 2022.
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CAITLYN VLASSCHAERT

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trsl.2022.12.009. Epub ahead of print. PMID: 36586535.

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• Kestenbaum B, Bick AG, **Vlasschaert C**, Rauh MJ, Lanktree MB, Franceschini N, Shoemaker MB, Harris RC Jr, Psaty BM, Köttgen A, Natarajan P, Robinson-Cohen C. Clonal Hematopoiesis of Indeterminate Potential and Kidney Function Decline in the General Population. *Am J Kidney Dis*. 2022 Oct 11:S0272-6386(22)00925-8. doi: 10.1053/j.ajkd.2022.08.014. Epub ahead of print. PMID: 36241009.

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Dilakshan Srikanthan, (TMED - MD/PhD Candidate)

TMED Graduate Program Faculty

We would like to thank all faculty members and guest lecturers who have participated in the training of the next generation of translational scientists. The success of our highly qualified graduates is the product of the diligence and commitment of our faculty.

Program Involvement Legend

- | | | |
|---|---------------------|--------------------|
| ▶ Graduate Program Director / Co-Director | ▶ Course Chair | ▶ TMED 801 Speaker |
| ▶ Graduate Program Committee | ▶ Supervisor | ▶ TMED 802 Speaker |
| | ▶ TMED 800 Lecturer | ▶ Observerships |



▶ ▶ ▶ ▶ ▶
Paula James



▶ ▶ ▶
Che Colpitts



▶ ▶ ▶ ▶ ▶
Mark Ormiston



▶ ▶ ▶ ▶
Stephen Archer



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Anne Ellis



▶ ▶
Stephen Vanner



▶ ▶ ▶
Gord Boyd



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Annette Hay



▶ ▶ ▶
Rachel Holden



▶ ▶ ▶
Don Maurice



▶ ▶
Charlie Hindmarch



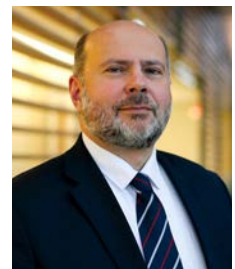
▶
Amer Johri



▶ ▶ ▶
Alan Lomax



▶ ▶ ▶ ▶ ▶
Diane Loughheed



▶
Alberto Neder

TMED Graduate Program Faculty (cont.)



▲ ▲ ▲
Prameet Sheth



▲ ▲
Jacob Rullo



▲ ▲ ▲
Karen Yeates



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Jennifer Flemming



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David Reed



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Yuka Asai



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DJ Cook



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David Berman



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Matt Lanktree



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Denis O'Donnell



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Parvin Mousavi



▲
Lynne Postovit



▲
Michael Rauh



▲
John Rudan



▲
Amber Simpson



▲
Nicolle Domnik



▲
**Kimberly
Dunham Snary**



▲
Chris McGlory



▲
Tara Baetz



▲
Hugh Guan



Matthew James



David Lillicrap



Tony Bai



Rob Bechara



Kerstin de Wit



Aaron Goodman



Dennis Ko



Irene Ma



David Maslove



Fiona Milne



Sam Silver



Moogeh
Baharnoori



Marie
Clements-Baker



Lawrence Hookey



Paul Malik



Nicole Mittmann



Sonja Molin



Onofre
Moran-Mendoza



Nicole Relke



David Rodrigues

TMED Graduate Program Faculty (cont.)



**Khaled
Shamseddin**



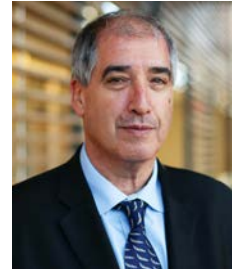
Christopher Tran



Donald Weaver



Mala Joneja



Adrian Baranchuk



Ana Wing



TMED STUDENT SOCIETY



Left to Right: Lubnaa Hossenbaccus (Treasurer), Bethany Wilken (VP), Dilakshan Srikanthan (PhD Rep), Alyssa Burrows (President), Abhishek Shastry (EDII/SGPS Rep), Marty VandenBroek (PhD Rep), James King (Secretary)
(Isaac Emon, MSc Rep missing from photo)

A Message from Alyssa Burrows

MSc'23 Candidate

TMED Student Society President

It was my honour to lead and collaborate with a group of enthusiastic, thoughtful and dedicated TMED students this past year on the TMED student council. As the student council enters its third year, we strived to continue establishing and refining traditions, promoting community within the program, giving back and supporting our peers. Through the council's hard work, we organized several events and initiatives.

We started the year with Orientation Day, welcoming 15 first-year TMED students into the program by hosting a Meet & Greet Lunch in the Bottrell Hall cafeteria. We

supported our community through a Food Drive supporting the AMS Food Bank. We collected over nine bags of food across the Department of Medicine and a "TMED Springs into Action" event where we will clean up our neighbourhood for Earth Day. We also hosted a TMED Q&A Night virtually and joined the Faculty of Health Sciences Grad School information night in person, where we shared our experiences as current students and answered questions from prospective students. For Finances, Lubnaa Hossenbaccus, Treasurer, organized our clothing orders and re-invited Dr. Ahmad Bakhshai, an Adjunct Professor of Finance from the Smith School of Business, to the TMED Finance Workshop to discuss financial literacy for graduate students.

Throughout the year, James King, Secretary and Dilakshan Srikanthan, PhD Rep further developed the TMED Mentorship Program through one-to-one meetings, help sessions for course assignments, and practice sessions for seminar presentations led by James. To complement the TMED curriculum, we organized a statistics workshop with Wilma Hopman, hosted a Committee Meeting 101 panel and a Thesis defense panel to help prepare students for these graduate school milestones. The TMED Student Society continues to work on EDII-related initiatives through blog and social media posts developed by Abhishek Shastry, EDII/SGPS Rep, thoughtfully highlighting initiatives in the Queen's and Kingston community related to Tamil Heritage Month, Black History Month and Women's History Month.

Bethany Wilken, VP, and I worked on updating the constitution and developing resources for the TMED student handbook to benefit current and future students. Other events and initiatives include the TMED Trivia and games nights our MSc and Ph.D. reps Isaac Emon and Marty VandenBroek organized. Of course, Marty, Dilakshan and Issac also worked on the monthly newsletter and ensured that student voices were represented at GPC meetings. Overall, we are pleased with what we have achieved this year and are very grateful for the program's ongoing support and the Department of Medicine.



2022 TMED STUDENT SOCIETY EVENTS

FEBRUARY 10, 2022

Valentine's day and Black History Month care package

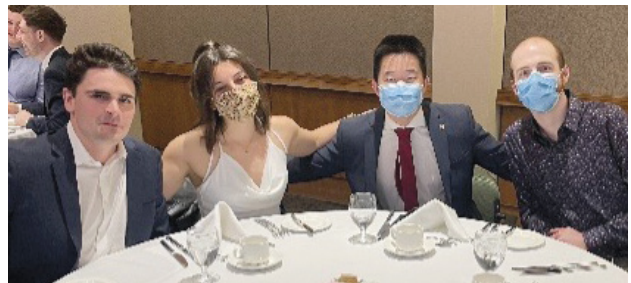


MAY 5, 2022

TMED Annual Banquet



Left to Right: Dr. Asish Das Gupta, Nolan Breault, James King, Pierce Colpman, and Dr. Stephen Archer.



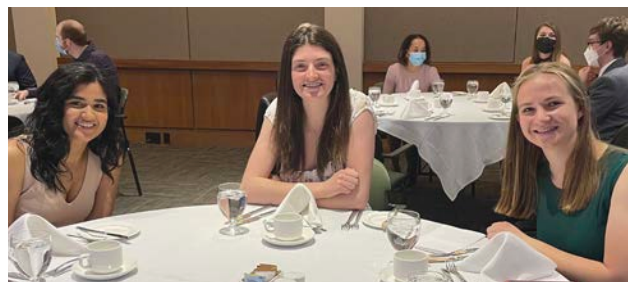
Left to Right: Max Moloney, Madison Mackinnon, Quentin Tsang and Marty VandenBroek.

FEBRUARY 22, 2022

Finance Management with Ahmad Bakhshai



Left to Right: Michaela Spence, Kassandra Coyle, Jordan Harry and Matthew James



Left to Right: Charmi Shah, Alyssa Burrows and Cassie Brand

JULY 14, 2022

Summer Potluck



AUGUST 31, 2022

Welcoming incoming TMED students



NOVEMBER 29, 2022

Trivia Night at Grad Club



Isaac Emon and Marty VandenBroek



From left to right Emmanuel Fagbola, Nolan Breault, Dilakshan Srikanthan, Cassie Brand and Alyssa Burrows.



Left to Right: Ruaa Qazazi, Matthew James, Sophia Linton and Rachel Bentley.

Equity Diversity and Inclusion in the TMED Program



Abhishek Shastry

MSc'24 (Candidate) EDII/SGSPA Representative

The TMED Student Society continues to work on EDII-related initiatives through blog and social media posts developed by Abhishek Shastry, EDII/SGPS Representative, thoughtfully highlighting initiatives in the Queen's and Kingston community related to Tamil Heritage Month, Black History Month and Women's History Month. Abhishek suggested the creation of an EDII Spotlight on the TMED website where these articles can be highlighted year after year: <https://deptmed.queensu.ca/academics/translational-medicine-graduate-programs/tmed-students/tmed-student-society>

Research

SECTION III

Hannah Wood - PhD Candidate - GIDRU (Lomax/Reed/Sheth lab),
Study: Investigating the relationship between luminal mediators and abdominal pain in Crohn's disease patients.

Research Funding

TIME prioritizes Research Excellence in its decision-making over the next five years. Since its conception, TIME has offered incubator grants to ensure that our members have access to seed money to generate pilot data that can facilitate them to secure extramural funding. Since 2019 TIME Incubator grant recipients have successfully secured external funding of more than \$5M (which may cover topics that differ from those initially funded by TIME Incubator grants). TIME encourages its members to apply for external funding and administers the internal review program for 6-8 members each funding cycle. TIME communicates with members through our webpage, via email and through our Twitter account [@QueensuTIME](https://twitter.com/QueensuTIME)



\$18^{OVER}M **\$120,000**

External Research funding received in the year 2022 by all TIME members in the Department of Medicine, DBMS & Pathology (It includes funding received from Government CFI, Tri-council, Clinical Trials, Associations/Societies & Foundations, only the fiscal year numbers are included for the year 2021-2022)

Internal DOM Award Competitions

DOM Research Awards

The Department of Medicine held its annual grant competitions for DOM Research Award and John Alexander Stewart (JAS) Fellowship and a total of \$120,000 was awarded to support research opportunities within the Department. \$70,000 was awarded across the three categories for the 2022 DOM Research Award competition.

RECIPIENTS OF THE DOM RESEARCH AWARDS 2022

Category: Clinical Innovation



Dr. Natasha Satkunam

Project title: Integrating a Pharmacist into the Thrombosis Medicine Outpatient Service.

Category: Quality Improvement



Dr. Lisa Nguyen

Project title: Improving the Quality of Care for Internal Medicine Specialty Consultations using electronic referrals and electronic triage management systems: A mixed-methods study.

Category: Quality Improvement



Dr. Anthony Bai

Project title: Mandatory and automatic infectious diseases consultation plus interdisciplinary team care for *Staphylococcus aureus* bacteremia.

Category: Medical Education



Dr. Marie Leung

Project title: Hidden in Plain Sight: A qualitative study on the impact of microaggressions on professional identity formation of residents.

The John Alexander Fellowship Award



One candidate received the JAS Fellowship Award in the year 2022

Dr. Devin Phillips

PhD, Postdoctoral Fellow
Respiratory Investigation Unit (RIU)

Supervisor: Dr. Denis O' Donnell

Dr. Phillips received a 1-year JAS Fellowship Award on his project entitled, "*Mechanisms of Exertional Dyspnea in Mild Chronic Obstructive Pulmonary Disease.*"

Dr. Devin Phillips is an Assistant Professor of applied cardiorespiratory physiology in the School of Kinesiology and Health Science at York University.

SEAMO Innovation Fund Winners 2022

In the year 2022, [SEAMO Innovation Fund awards](#) were received by the following TIME members. These unique projects aim to transform healthcare delivery in Ontario in several domains.



Dr. Jean Mathews

Medicine (Palliative Care): "Implementation of a compassionate community innovation in Kingston: the Kingston Cares (KINCARES) study."



Dr. Akihiro Nakamura

Medicine (Rheumatology): "Hypoxia-primed pathogenic neutrophils as potential novel therapeutic targets in spondyloarthritis."

SEAMO Endowed Education & Scholarship Fund 2022

Following members were awarded funding through [SEAMO's 2022 Endowed Scholarship and Education Fund](#) competition to use in their respective fields of research.



Dr. Jean Mathews
(Medicine, Palliative Care Medicine)

Project title: Training the trainer: evaluation of a workshop to improve confidence, knowledge and skill among palliative medicine staff physicians with performing and teaching point-of-care ultrasound (POCUS).

Tri-Council Research Grants

During the year 2022 academic year, TIME members were awarded several external grants. We especially want to congratulate CIHR funding successes from the following PIs and their teams.

SUCCESS OF TIME MEMBERS IN THE CIHR SPRING 2022 GRANT COMPETITIONS



Dr. Stephen Archer

(Department of Medicine) received a CIHR Project Grant valued at \$1,067,176 for 5 years for his project entitled, "Molecular identification of the oxygen sensor(s) in the fetal ductus arteriosus and pulmonary artery: an integrated multiomic comparison of mitochondria in vital fetal arteries with opposing oxygen responses."

Click here to view the details:
[CIHR Project Grant 202203](#)

(Department of Medicine) received a second CIHR Operating Grant valued at \$422,280 for 2 years for his project entitled, "Targeting the mitochondria in COVID-19 pneumonia: The cardiopulmonary effects of a SARS-CoV-2 mitochondriopathy."

Click here to view the details:
[CIHR Project Grant 202203](#)

CIHR Spring 202203



Dr. Che Colpitts

(DBMS) received a CIHR Project Grant valued at \$300,000 for 3 years for her project entitled, "Characterization of the antiviral mechanisms of cyclophilin inhibitors against coronavirus infection."

Click here to view the details:
[CIHR Project Grant 202203](#)

CIHR Fall 202209



Dr. Douglas J Cook

(DBMS) received a CIHR Project Grant valued at \$726,750 for 5 years for his project entitled, "Imaging-based analysis of mechanisms underlying repeated sub-concussive injury assessed in military personnel."

Click here to view the details:
[CIHR Project Grant 202203](#)



Dr. Gavin Winston

(Department of Medicine) received a CIHR Project Grant valued at \$1,139,850 for 5 years for his project entitled, "Multimodal prediction of seizure recurrence after unprovoked first seizure to guide clinical decision-making: A multi-centre study of cognition, mood and brain connectivity as predictors."

Click here to view the details:
[CIHR Project Grant 202203](#)

SUCCESS OF TIME MEMBERS IN THE CIHR FALL 2022 GRANT COMPETITIONS

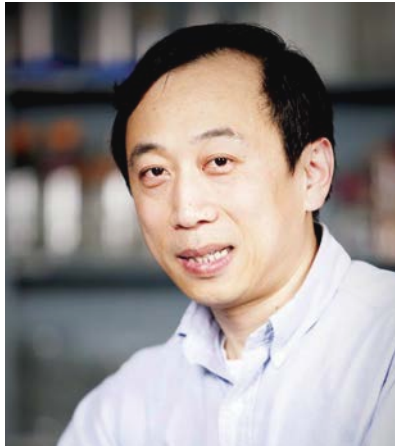
The funding amount of the following grants will be projected in the 2023 Annual Report



Dr. Chandrakant Tayade

(Department of Medicine) received a CIHR Project Grant valued at \$100,000 for 1 years for his project entitled, "Role of IL-33-innate lymphoid cells 2 (ILC2) pathway in endometriosis pathophysiology and therapeutic targeting."

Click here to view the details:
[CIHR Project Grant 202203](#)



Dr. Xiaolong Yang

(Department of Pathology) received a CIHR Project Grant valued at \$956,250 for 5 years for his project entitled, "Investigating the PTK-Hippo axis in breast cancer metastasis."

Click here to view the details:
[CIHR Project Grant 202203](#)



Dr. Bruce Banfield

(DBMS) received a CIHR Project Grant valued at \$856,800 5 years for his project entitled, "Functions of a Conserved Herpesvirus Tegument Protein."

Click here to view the details:
[CIHR Project Grant 202203](#)







Aidan Bennett - PhD Candidate- GIDRU (Lomax/Reed lab), Study: Sex differences in the effect of luminal mediators from irritable bowel syndrome patients on abdominal pain.

Research Awards - Associations, Foundations & Agencies



Dr. Amer Johri & Dr. Aws Almufleh

CREATE Grant

Dr. Aws Almufleh (Lead Author) and Dr. Amer Johri (Co-investigator) together with Dr. Parvathy Nair from the University of British Columbia (Principal Investigator) and several multi-center Canada-wide collaborators have been awarded the Canadian Society of Echocardiography CSE \$50,000 CREATE grant. Their project, titled “The Canadian Echocardiography Competency evaluation and Optimization; Canadian ECO project” aims to develop and deliver a comprehensive echocardiography assessment tool for adult cardiology trainees in Canada. It is a product of multi-center collaboration aiming to revamp echocardiography training and assessment for cardiology fellows around the country.

BY THE NUMBERS

Publications by all TIME members and associate members in the year 2022

Disclaimer: Information is based only on the numbers from the updated profiles on the TIME Network

779

Journal Articles

559

Department of Medicine publications

198

Department of Biomedical & Molecular Sciences papers

22

Department of Pathology Publications

TIME SHOWCASE: Celebrating Excellence In Research

RESEARCH IN PRESS

Biologic Responses to House Dust Mite Exposure in the Environmental Exposure Unit

Lubnaa Hossenbaccus, Sophia Linton, Jenny Thiele, Lisa Steacy, Terry Walker, Crystal Malone, Anne K. Ellis

[READ THE FULL ARTICLE HERE](#)



DR. ANNE K. ELLIS

*Division of Allergy & Immunology
Department of Medicine*

Publications Showcased on the TIME website in 2022

FEBRUARY

Annette Hay

Cheung, M. C., Mittmann, N., Owen, C., Abdel-Samad, N., Fraser, G. A. M., Lam, S., Crump, M., Sperlich, C., van der Jagt, R., Prica, A., Couban, S., Woyach, J. A., Ruppert, A. S., Booth, A. M., Mandrekar, S. J., McDonald, G., Shepherd, L. E., Yen, H., Chen, B. E., & Hay, A. E. (2021). A prospective economic analysis of early outcome data from the alliance A041202/ CCTG CLC.2 randomized phase III trial of Bendamustine-rituximab compared with Ibrutinib-based regimens in untreated older patients with chronic lymphocytic leukemia. *Clinical Lymphoma Myeloma and Leukemia*, 21(11), 766–774. <https://doi.org/10.1016/j.clml.2021.06.011>

MARCH

Anne K Ellis

Hossenbaccus, L., Linton, S., Thiele, J., Steacy, L., Walker, T., Malone, C., & Ellis, A. K. (2022). Biologic responses to house dust mite exposure in the environmental exposure unit. *Frontiers in Allergy*, 2. <https://doi.org/10.3389/falgy.2021.807208>

APRIL

Ramana Appireddy

Chan-Nguyen, S., O'Riordan, A., Morin, A., McAvoy, L., Lee, E., Lloyd, V., Appireddy, R. (2022). Patient and caregiver perspectives on virtual care: A patient-oriented qualitative study. *CMAJ Open*, 10(1). [doi:10.9778/cmajo.20210065](https://doi.org/10.9778/cmajo.20210065)

MAY

Nader Ghasemlou

Raymondi Silva, J., Iftinca, M., Fernandes Gomes, F. I., Segal, J. P., Smith, O. M.,

Bannerman, C. A., Silva Mendes, A., Defaye, M., Robinson, M. E., Gilron, I., Mattar Cunha, T., Altier, C., & Ghasemlou, N. (2022). Skin-resident dendritic cells mediate postoperative pain via CCR4 on sensory neurons. *Proceedings of the National Academy of Sciences*, 119(4). <https://doi.org/10.1073/pnas.2118238119>

JUNE

Paula James, Mackenzie Bowman

Bowman M, Casey L, Selvam SN, Lima PDA, Rawley O, Hinds M, Tuttle A, Grabell J, Iorio A, Walker I, Lillicrap D, James P. von Willebrand factor propeptide variants lead to impaired storage and ER retention in patient-derived endothelial colony-forming cells. *J Thromb Haemost*. 2022 Apr 25. doi: 10.1111/jth.15740. Epub ahead of print. PMID: 35466528.

JULY

Jean Mathews

Zimmermann C, Mathews J. Palliative Care Is the Umbrella, Not the Rain-A Metaphor to Guide Conversations in Advanced Cancer. *JAMA Oncol*. 2022 Mar 17. doi: 10.1001/jamaoncol.2021.8210. Epub ahead of print. PMID: 35297961.

AUGUST

Adrian Baranchuk

Chen LY, Ribeiro ALP, Platonov PG, Cygankiewicz I, Soliman EZ, Gorenek B, Ikeda T, Vassilikos VP, Steinberg JS, Varma N, Bayés-de-Luna A, Baranchuk A. P Wave Parameters and Indices: A Critical Appraisal of Clinical Utility, Challenges, and Future Research-A Consensus Document Endorsed by the International Society of Electrocardiology and the International Society for Holter and

Noninvasive Electrocardiology. *Circ Arrhythm Electrophysiol*. 2022 Apr;15(4):e010435. doi: 10.1161/CIR-CEP.121.010435. Epub 2022 Mar 25. PMID: 35333097; PMCID: PMC9070127.

SEPTEMBER

Jeannie Callum

Estcourt, L., & Callum, J. (2022). Convalescent plasma for covid-19 — making sense of the inconsistencies. *New England Journal of Medicine*, 386(18), 1753–1754. <https://doi.org/10.1056/nejme2204332>

OCTOBER

Moogeh Baharnoori

Baharnoori, M., Bhan, V., Clift, F. et al. Cost-Effectiveness Analysis of Ofatumumab for the Treatment of Relapsing-Remitting Multiple Sclerosis in Canada. *Pharmacoeconomics Open* 6, 859–870 (2022). <https://doi.org/10.1007/s41669-022-00363-1>

NOVEMBER

Samuel Silver

Queen's-Kidney Research Unit Patient story. <https://deptmed.queensu.ca/news/months-time-showcase-queens-kidney-research-unit-patient-story>

DECEMBER

Paula James & CH

Kloosterman, R., Zago-Schmitt, M., Grabell, J., Thibeault, L., Chaigneau, M., Hinds, M., ... & James, P. A decreased and less sustained response to surrogates of haemostatic stress correlates with bleeding in type 1 von Willebrand disease. *Haemophilia*.

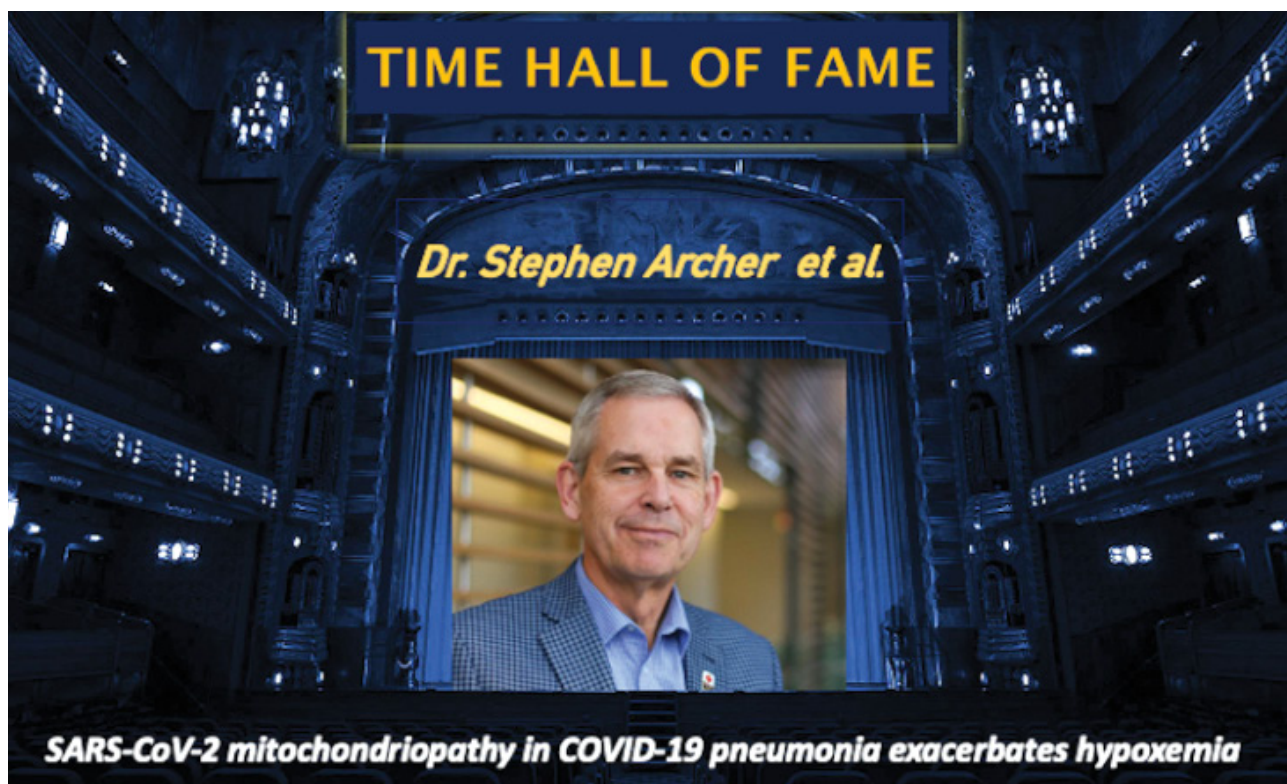
TIME Hall of Fame in December 2022

TIME ensures to showcase its members' research success to demonstrate the high-quality research at Queen's University. Banking on the success of the monthly TIME Showcase, in December 2022 TIME launched a new platform called the TIME Hall of Fame. This platform will only highlight the high-impact publications and grants by the TIME members.

In addition to that the TIME member, whose publication will be highlighted on the HOF, will be invited to record a podcast and discuss their research with Dr. Hindmarch. This podcast will be widely broadcast via CFRC (Queen's Radio Station) and will be added to the TIME new podcast series, Research TIME

TIME Hall of Fame's inaugural publication

"SARS-CoV-2 mitochondriopathy in COVID-19 pneumonia exacerbates hypoxemia" by Dr. **Stephen Archer** and his colleague.



RESEARCH TIME!

Research Time

PODCAST

Research TIME is a podcast from the Translational Institute of Medicine (TIME) at Queen's University designed to showcase translational research. The goal of these podcasts will be to focus on the researcher and their journey from lab to discovery.

Each episode will focus on a single, high-impact publication where the principal investigator and their team will explore and help you understand their cutting-edge discoveries in biomedical science and how their work is transformative in terms of healthcare, understanding the mechanisms of disease, or proposing novel treatments.

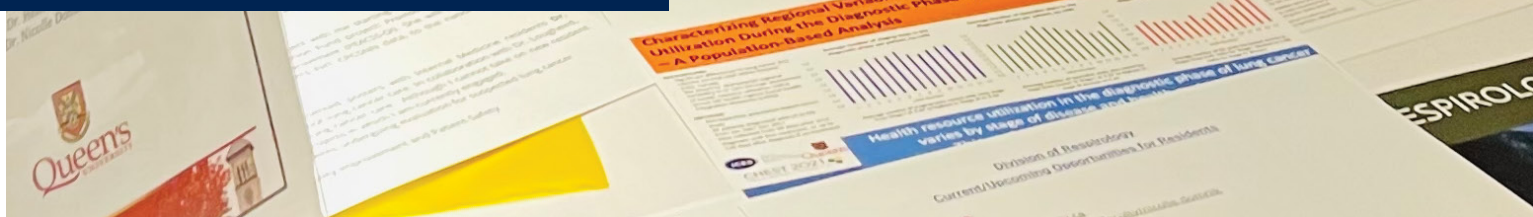
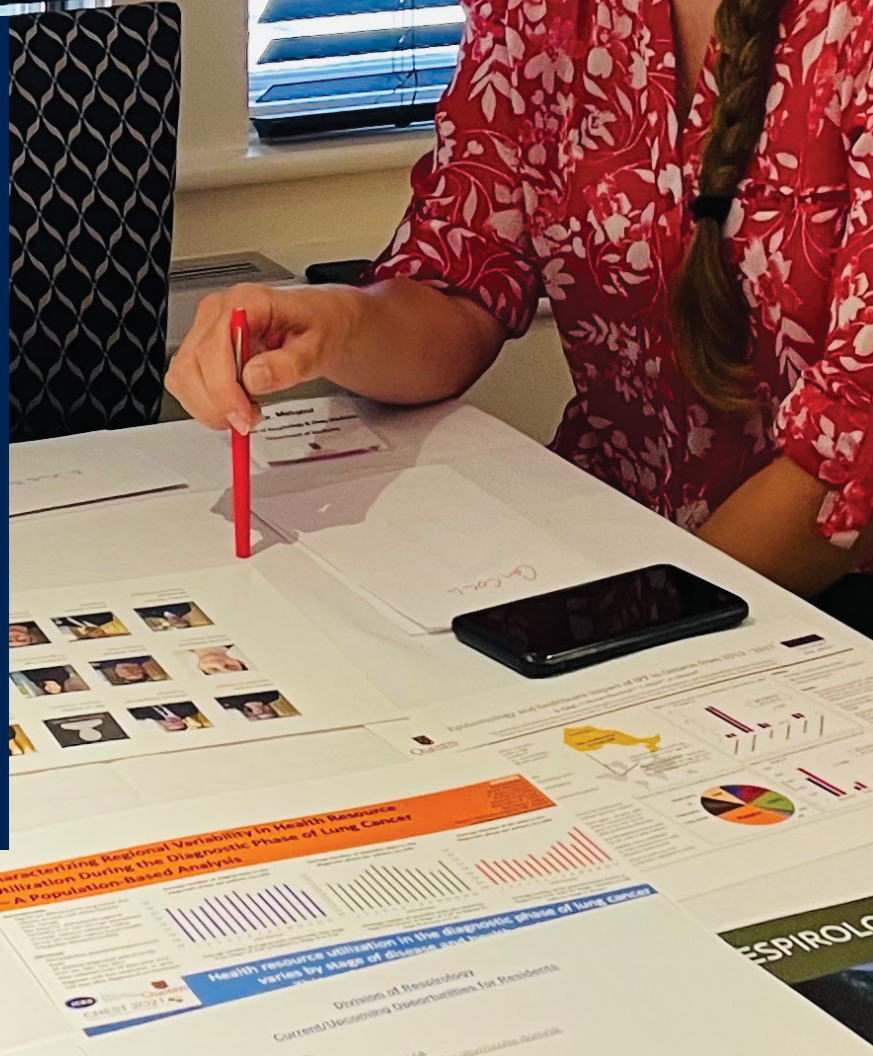


Left to right: Dr. Amirali Mahpour and Dr. Nicolle Dominick (Division of Respiratory, Department of Medicine).



Events

SECTION IV



TIME SPEAKERS AT THE MEDICAL GRAND ROUNDS



Dr. Nicole Mittman gave a talk as the TIME Guest Speaker in the Medical Grand Rounds on January 27th, 2022. The topic of her presentation was 'Health Technology Assessment in Canada'.

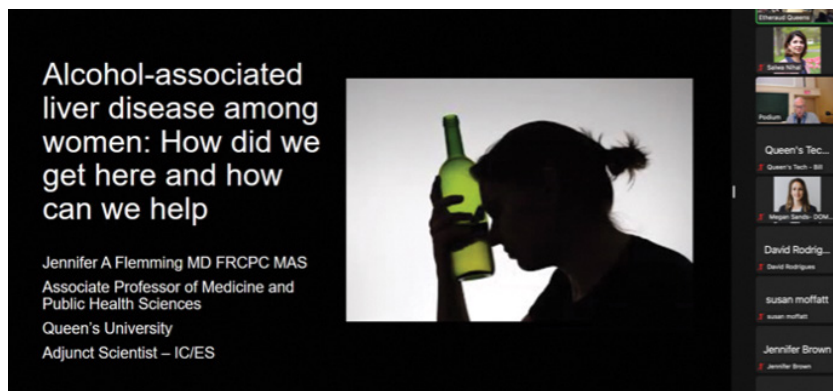
Dr. Nicole Mittmann is CADTH's Chief Scientist and Vice-President of Evidence Standards. At CADTH, Dr. Mittmann leads a diverse portfolio that encompasses Health Economics, Research Information Services, Scientific Affairs, including Scientific Advice and Patient Engagement, and Implementation Support and Knowledge Mobilization. She is also responsible for building upon the agency's strong methods frameworks and global networks with academia and representing CADTH both nationally and internationally. Current initiatives include harmonization of the deliberation process and frameworks and determining the role of real-world evidence at CADTH.

Dr. Mittmann holds a faculty position at the University of Toronto in both the Department of Pharmacology and Toxicology and the Institute for Health, Policy, Management and Evaluation. As an Associate Scientist at Sunnybrook Health Sciences Centre in Toronto she conducted and collaborated on notable research in the areas of economic evaluations, observational outcomes research and drug/

patient safety.

Dr. Jennifer Fleming gave a talk as the TIME EDI Speaker in the Medical Grand Rounds on April 22nd, 2022. The topic of her presentation was 'Alcohol-associated liver disease (ALD) among women- how did we get here and how can we help?'

Dr. Fleming is an Associate Professor of Medicine and Public Health Sciences at Queen's University with clinical training in gastroenterology, hepatology and liver transplantation. After completing her Internal Medicine and Gastroenterology training at Queen's University, she completed two years of advanced hepatology and a Master's in Clinical Research at the University of California San Francisco. She is a clinician scientist who leads a research program which leverages Ontario administrative data housed at ICES to evaluate the epidemiology and outcomes of patients with cirrhosis. Her research has been supported by the Canadian Institutes for Health Research (CIHR), American Association for the Study of Liver Disease (AASLD), the American Gastroenterological Association (AGA) and the Canadian Donation and Transplantation Research Program. She also serves as the Chair for



the Guidelines Committee of the Canadian Association for the Study of Liver Disease (CASL), is a member of the CASL Equity, Diversity and Inclusion committee in addition to being a member of the AASLD Women's Initiatives Committee.

2022 RESEARCH STAFF APPRECIATION EVENT

Every year the Department of Medicine & TIME host the Research Staff Appreciation Event to acknowledge the hard work and dedication of the research staff in the Department of Medicine. DOM/TIME had a successful research year, which would not have been possible without the diligence and consistent hard work of our dedicated research team.



Left to Right: Elahe Alizadeh, Kuang-Hueih Chen, Danchen Wu, Asish Das Gupta & Kimberly Dunham-snary.



Left to Right: Dr. Stephen Archer, Megan Sands, Jillian Garrah and Krista Knight.



Left to Right: Barkha Sirwani, Natalie Kearn, Sara Pollanen, Georgia Kersche.



Left to Right: Brooke Ring with Dr. Stephen Archer.

MESSAGE FROM THE PROGRAM DIRECTOR (CORE INTERNAL MEDICINE PROGRAM)



Dr. Stephen Gauthier
Program Director,
Core Internal Medicine Program

"The Resident Research Fair introduces Core Internal Medicine residents to the high-quality research that takes place at Queen's. The day is organized in a way that gives residents the freedom to network and learn about areas of research and opportunities that are most relevant to their future careers. Everyone leaves this day with new ideas, new connections, and a better understanding of how to embark on successful research during residency. The Resident Research Fair is a catalyst for successful resident research."

Dr. Stephen Gauthier

Program Director,
Core Internal Medicine Program



Resident Research Fair 2022

2022 RESIDENT RESEARCH FAIR

The Resident Research Fair 2022 was held on Thursday, September 15. There was a great turnout of residents and representatives from 13 divisions within the Department of Medicine. Guest speaker Dr. Anne K Ellis gave a very interesting talk entitled; “Carpe Momento!: The Life Journey of One Clinician Scientist.” Resident attendees were eager to learn about relevant areas of research and left the event with many new ideas and connections.



Dr. Robyn Houlden with the Residents



Dr. Wael Abuzeid



Genevieve Bureau, Stephen Archer, Stephen Gauthier & Salwa Nihal



Stephen Gauthier, Nancy Wang, Stephen Archer



Dr. Jennifer Flemming



Dr. David Maslove with the residents



Dr. Amer Johri



Stephen Gauthier, Anne K Ellis and Stephen Archer

GIDRU PARTICIPATION IN THE GUTSY WALK 2022



Left to Right:

Daniella Gilmour; Samantha Ables; Hannah Wood; James King; Kaede Takami; Taylor Alward; Gypsy (female)

CINQ À SEPT RESEARCH TALKS BY TIME MEMBERS IN 2022



Left to Right:

Dr. Paula James, Dr. Charlie Hindmarch, Dr. Jane Philpott

DR. ANNETTE HAY

Assistant Professor, Department of Medicine

Senior Investigator with the Canadian Cancer Trials Group (CCTG)

[Gratitude and Cell Therapy](#)

<https://youtu.be/F0cgYxbQywE>

DR. CHARLIE HINDMARCH

Assistant Professor, DBMS

*Scientific Operations Director, Translational Institute of Medicine
Genomics Core Director, Queen's Cardiopulmonary Unit*

[Reading the Book of Life](#)

<https://youtu.be/GZXjkSylCmY>

DR. PAULA JAMES

Professor, Department of Medicine (cross-appointed to the Departments of Pathology and Molecular Medicine and Pediatrics)

Hematologist

[Let's Talk Period](#)

DR. DAVID MASLOVE

Associate Professor, Departments of Medicine and Critical Care Medicine

[Critical Care, Precisely Delivered](#)

DR. DAVID LILLCRAP

Professor, Department of Pathology and Molecular Medicine, Canada Research Chair in Molecular Hemostasis

[Pursuing a Miracle in Modern-Day Medicine](#)

Statement of Equity, Diversity and Inclusion

At the Translational Institute of Medicine (TIME), we commit to providing a welcoming and accommodating environment. We recognize that equity and diversity are sources of strength that promote a culture of excellence, innovation and inclusion that thrive on the contributions of all our members. We work in a university fully committed to the principles and programs for equity and diversity. The core of our mandate is to continuously educate and improve the environment through mutual respect and understanding in all programs while focusing on research and patient care. In alignment with Queen's University, we strive to:

- Maintain an environment of fairness, mutual respect, and inclusiveness where all may work, learn, and share their perspectives free of discrimination.
- Recruit and retain learners, faculty and staff who reflect the diversity of Canadian communities.
- Ensure our programs prepare our trainees to meet the needs, and improve the lives of a diverse group of patients.

TIME Strategic Plan

In 2020 we published our 5-year Strategic Plan, and in consultation with our EDII lead, we ensured that the following priority was embedded together with an appropriate metric of success.

Ensure that TIME is an inclusive, equitable and diverse organization

1. Ensure that our management team, executive team, and board of directors reflect the diversity of Canada.
2. Ensure that all TIME members have access to Equity, Diversity, and Inclusion (EDI) training.
3. Support TIME members regardless of their sex, gender, ethnicity, religion, or background

Metrics of success:

- Increase the number of TIME members with EDI training.

Future Considerations

Thank you for reading the 2022 TIME annual report. We're pleased to say that we are on track to satisfy the robust metrics and milestones that we placed on ourselves in our 2020-2025 Strategic Plan. The future of TIME will be the legacy of our outgoing Scientific Director, Dr. Vanner, who organized and operationalized TIME to benefit researchers, clinician scientists, students and patients. Under Dr. Vanner's leadership, we were ratified by Senate as a Queen's Institution, published 3 Annual reports that detailed our commitment to translational medicine, offered a highly successful graduate program, published our Strategic Plan, held a national Symposium in Translational Medicine, and awarded the Queen's research community over \$437,500 in incubator grant funding, which provided the data required for a paper or grant application. The future of TIME is bright, thanks to Dr. Vanner's commitment to our Institute.

We are pleased to announce that Dr. Stephen Archer will now be the Director of TIME. Dr. Archer is not only a co-founder of TIME with Dr. Vanner but has been actively involved in the leadership and trajectory of TIME since its conception. Dr. Archer, in particular, has successfully sought hard-funding and philanthropic donations to build and grow TIME around a sustainable funding model. Under Dr. Archer's leadership, TIME will continue to promote Research and Teaching excellence by providing research and student grants. We will also significantly develop our core facilities so that our translational researchers have the tools they need to compete internationally. Lastly, we will continue to grow our community through events such as two dedicated medical grand rounds and an upcoming symposium.





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For more information please visit:
[TIME Website.](#)



To view the TIME Strategic Plan visit:
[TIME Strategic Plan 2020-2025](#)

