Physiology
UNIVERSITY OF TORONTO

PhysioLINK

February 20, 2020

IN THIS ISSUE:

MESSAGE FROM THE CHAIR

I am pleased to announce that our new Professional Masters Program - **MHSc in Medical Physiology -** has been approved for funding at the Provincial Level and will be ready to launch in the Fall of 2020. Congratulations to all of the members of our planning team who helped bring this program to fruition. We have an outstanding list of student applicants and are looking forward to a very successful launch. Stay tuned for more updates at the upcoming faculty retreat on **March 9, 2020** at the **Old Mill**- please RSVP if you have not already done so.

Scott P. Heximer, PhD
Ernest B. and Leonard B. Smith Chair,
Department of Physiology

HONOURS & AWARDS

Congratulations to Dr Allen Teng, a Research Associate in the Gramolini lab, on being awarded a 1 year Research Operating Grant from the Netherlands Heart Institute for $30,000 (US). "Delineation of degradation pathways in phospholamban in cardiomyocytes".

We are pleased to congratulate the following PI's who were awarded funding through the highly competitive **Canadian Institutes of Health Research (CIHR)** Project Grant Fall 2019 competition

Project Grant Recipients:

Project Title: Targeting specific domains of AMPA glutamate receptors in synaptic and cognitive impairments in Alzheimer's disease
Principal Investigator: **Jia Zhengping**
Institution Paid: Hospital for Sick Children (Toronto)
Amounts: $826,200, $0 equipment, 4 yrs 0 mth

Project Title: Improving treatment for GRIN disorders
Principal Investigator: **Ramsey Amy J**
Institution Paid: University of Toronto
Amounts: $868,275, $0 equipment, 5 yrs 0 mth

Project Title: The Artificial Placenta
Principal Investigator: **Seed Michael T**
Institution Paid: Hospital for Sick Children (Toronto)
Amounts: $738,225, $0 equipment, 5 yrs 0 mth

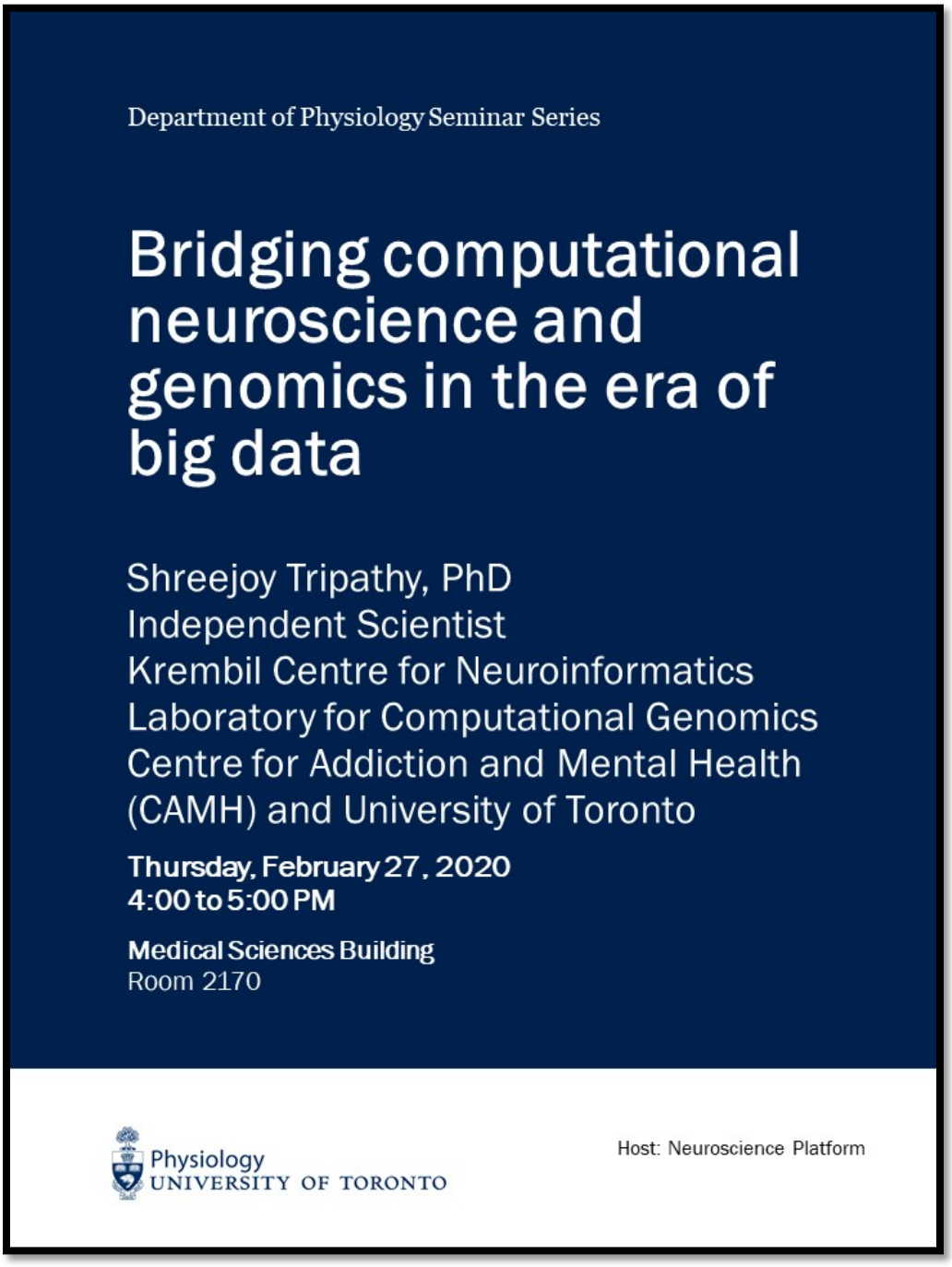
Bridge Grant Recipient:

Project Title: Role of tissue-resident progenitor cells in vascular disease
Principal Investigator: **Husain Mansoor**
Institution Paid: University Health Network (Toronto)
Program Competition: Project Grant
Amounts: 100,000, $0 equipment,1 yr 0

- Full list of Project Grant recipients
- Full list of competition bridge grant recipients
- Full list of Institute Priority Announcement bridge grant recipients

PHYSIOLOGY SEMINAR SERIES

~ Eligible for PSL1000H / PSL2000H Course Seminar Attendance ~



NEW FACULTY MEMBER

A warm welcome to **Dr. Andrew Dimitrijevic**, our newest status-only faculty member effective February 1st. Andrew will be participating in the activities of the Neuroscience Research Platform.

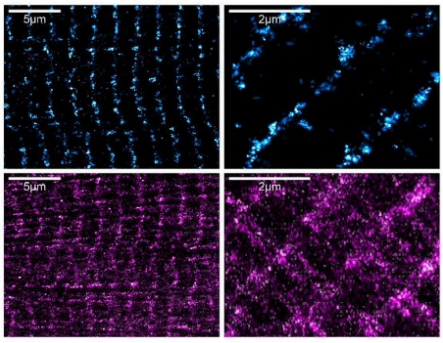
Andrew Dimitrijevic is a scientist at the Sunnybrook Health Sciences Centre, Department of Otolaryngology, Head and Neck Surgery, Sunnybrook Research Institute. He is also faculty at the University of Toronto, Departments of Otolaryngology, Head and Neck Surgery, Institute of Medical Sciences, Physiology, Psychology and part of the Program in Neuroscience.

Dr. Dimitrijevic completed his PhD at the University of Toronto. He went on to postdoctoral positions at the University of British Columbia and University of California, Irvine. Dr. Dimitrijevic was faculty at Cincinnati Children's Hospital Medical Center before coming to the University of Toronto. His research uses electroencephalography (EEG) to study cognition and sensory processing associated with hearing loss and aging. Our projects mostly focus on speech perception in human adults who have had their hearing restored using cochlear implants.

andrew.dimitrijevic@sunnybrook.ca

EXCITING RESEARCH

Congratulations to **Professors Anthony Gramolini**, **Scott Heximer,** and all involved in a multi-lab study of damaged heart cells. The study employed state-of-the art equipment and a novel approach to investigating the movement and reorganization of proteins in the damaged cell.



"The team discovered that, after a heart suffers damage, cardiomyocytes start to widely disperse proteins that boost calcium levels in the cell. But those proteins that remove calcium appear to cluster together in tight groups, unable to effectively function. The result is a widespread calcium overload – which can play a role in the structural remodeling of cardiomyocytes and the progression of pathological hypertrophy.

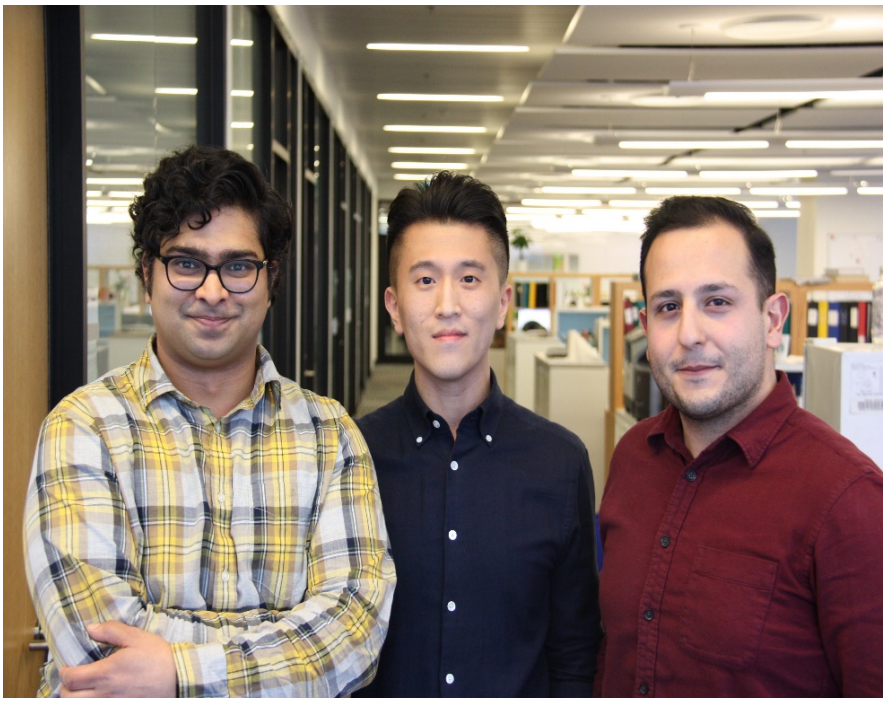
'This is an important step to understanding what is happening in cardiac hypertrophy, which hasn't been yet considered," says Gramolini. "This multi-lab study is a direct result of the Ted Rogers Centre, which enabled the collaborations of different experts, and has built momentum in our scientific pursuit of heart failure.'"

Read more about the study here

MORE exciting research from the Gramolini Lab!

U of T Study Shows a Protein in Cardiac Muscle Helps Prevent Heart Failure

Feb 19, 2020



Graduate students Harsha Murthy and Frank Shin-Haw Lee,
MD student Sina Hadipour-Lakmehsari

Researchers at the University of Toronto have found that a receptor expression-enhancing protein contributes to normal heart development and function by regulating the sarcoplasmic reticulum, a network of tubules found in cardiac muscle cells.

The sarcoplasmic reticulum is key in the development and progression of heart disease, governing biochemical changes, structural remodeling and deterioration. But

how this membrane-bound system organizes itself is still mostly unknown — especially in cells with a highly differentiated or diverse network such as heart muscle cells, or cardiomyocytes.

“Our findings show that a protein called REEP5 plays a critical role in regulating cellular stress responses in heart muscle cells,” says **Frank Shin-Haw Lee**, a doctoral student in the lab of **Anthony Gramolini**, a professor of physiology at U of T based at the Ted Rogers Centre for Heart Research.

“When REEP5 is depleted, it destabilizes the heart and reduces the amount of blood the heart can pump on each contraction,” says Lee. “When we removed this protein in both mice and zebrafish, it distorted the structure and shape of cardiomyocytes and led to cardiac dysfunction.”

The journal *Nature Communications* published the findings today.

Keep reading article featured on the Faculty of Medicine website

PHYSIOLOGY CAREER PANEL FOR UNDERGRADUATE STUDENTS - Update

As undergraduate coordinator, Helen Miliotis often counsels physiology students on next steps during and after their undergraduate degree. During their studies, students are exposed to careers related to research, medicine, and other health related fields, but they are often unaware of how transferable their skills can be to a diverse set of career paths.

To introduce students to different possible paths, Helen invited past alumni that had done undergraduate studies in our department for a Career Panel on the evening of Monday January 27th

The following guests participated:

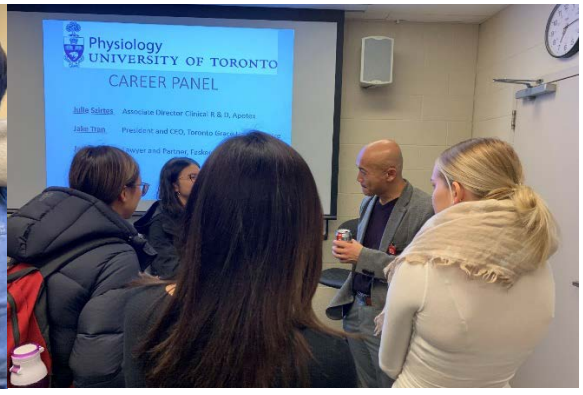
Julie Szirtes, MSc, HBSc (Specialist in PSL) – Associate Director, Clinical R&D, Apotex

Jake Tran, MSc, BSc (Major in PSL) – President and CEO, Toronto Grace Health Centre

Jack Yu, JD, HBSc (Minor in PSL) – Lawyer and Partner, Fasken

The panel format was a series of Q&A, followed by an informal networking session. The guests shared their career paths and lessons learned along the way to the approximately 50 students that attended.

“This event opened my eyes to the realm of incredible opportunities that await post-undergrad, which left me feeling inspired and excited to tackle my future!” - Mackenzie Neufeld, Second Year Physiology Student. Representatives from UPSA shared with us that “The Physiology Career Panel was a great way to demonstrate to us students how life is not always linear but the possibilities for a future with a physiology degree are essentially endless.”



We kindly thank the guest panelists that shared their valuable insights and advice with our students!

UNDERGRADUATE OUTREACH PROGRAM - Update

The Undergraduate Outreach Program held its first seminar on February 5th where Dr. Zhong-Ping Feng and a few graduate panelists talked about the graduate programs in the Department of Physiology. This event was intended for upper year undergraduate students who are interested in pursuing graduate studies in the department.

This program is a re-vamped mentorship program where undergraduate students are matched with graduate mentors to help students with the transitioning into graduate school.

A few photos of the event follow!

Sepehr Niakani
Undergraduate Outreach Coordinator
Master's Student, Neuroscience Platform

GASP NEWS

Hello Physiology Graduate Students!

The **40th annual Frontiers in Physiology (FIP) Research Symposium** is just around the corner. FIP is the Department of Physiology's annual research day, bringing together trainees from all of our platforms. This year, FIP will be held on **May 1, 2020**. We are very excited to begin our call for abstract submissions. *Please follow the links below to register and/or submit your abstract.*

- Registration form: https://docs.google.com/forms/d/1M6V1Q_JSDwzQt-Fl74o6rlrWv79vk0NU10TbpgG_hXE/edit

- Abstract submission: https://docs.google.com/forms/d/1hTnwiHJL7IG5wR8Yzq7JxO6_jFKCbbII2uUXoZdmWR4/edit

We are delighted to announce that **Dr. Gina Turrigiano** from Brandeis University will be our keynote speaker! She studies mechanisms of homeostatic synaptic plasticity, and the role of these stabilizing mechanisms, in the development and function of the cortex. Her work has been instrumental in demonstrating the existence of "self-tuning" mechanisms that allow neurons and circuits to adjust their excitability to prevent states of hyper- or hypo-excitability that underlie brain conditions such as epilepsy and autism spectrum disorders.

Stay tuned for more information!

Sincerely,
FIP 2020 Organizing Committee

We want to hear about the great things happening in Physiology!

Please share your accomplishments, awards...
Send news items to the Chair's Office c/o
e.katsoulakos@utoronto.ca