

MOGEN NEWS

SPRING 2023 | ISSUE 18

Editor's Note:

Welcome to Issue 18 of MoGeNews, the quarterly newsletter for the Department of Molecular Genetics! We've given our layout a fresh new look, making it easier to navigate and read.

We thank Zoe Clarke, Jim Oldfield, Julia Soudat, and Betty Zou for contributing their articles to this issue. We would also like to thank our editors, Marcia Iglesias and Martina Steiner.

Please let us know of any awards and notable achievements we should feature in the upcoming edition of MoGeNews. To get in touch with us, send us an email at mogen.news@utoronto.ca.

Sincerely,

Editorial Team

IN THIS ISSUE

FEATURED ARTICLE:
THE FUTURE OF MOGEN RESEARCH

RESEARCH HIGHLIGHTS:
GARY BADER;
KATHRYN ROZEN-GAGNON;
& DANIEL SCHRAMEK

STUDENT SPOTLIGHT:
MICHELLE HARWOOD

FACULTY HIGHLIGHT:
PHILIP M. KIM

**COMMUNITY AND
UPCOMING EVENTS**

AND MORE

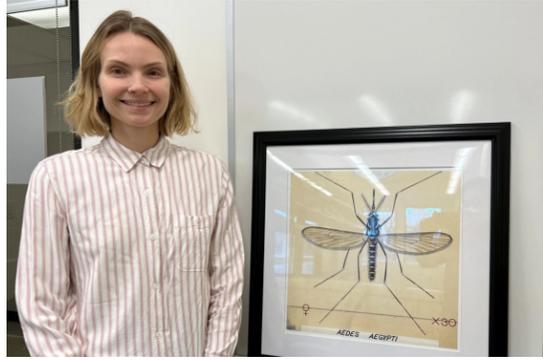
Featured Article



The Future of MoGen Research-Celebrating the Recipients of the University of Toronto Excellence Award (UTEA)

The future of molecular genetics research looks bright with the impressive accomplishments of this year's University of Toronto Excellence Award (UTEA) recipients. Through the UTEA program, six undergraduate students will gain hands-on research experience on faculty-led projects. We congratulate them on their outstanding research skills and wish them continued success. Learn more about their [research projects and the UTEA program here](#).

Research Highlights



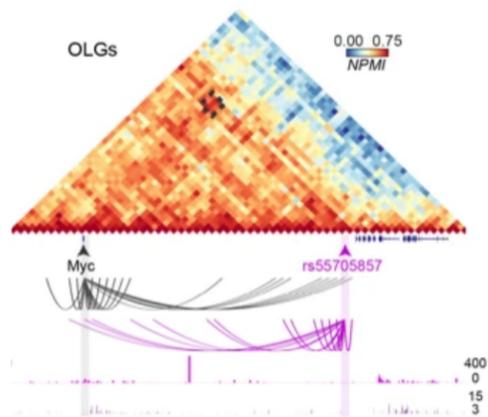
Expanding the Research Toolbox for One of the World's Deadliest Animals

Kathryn Rozen-Gagnon, a new Assistant Professor for MoGen who is setting up her new lab in the Medical Sciences Building, is working to develop new tools to

understand better the [interplay between mosquito-borne viruses and their mosquito and human hosts](#). She uses her vast experience in computational biology, insect immunology, RNA biology, and virology to study viruses like Zika, Dengue, and Chikungunya.

New CIFAR Program - The Multiscale Human

Gary Bader, Professor of Molecular Genetics with a research group in the Donnelly Centre, is one of the directors of the [newly launched](#) CIFAR program on [The Multiscale Human](#). The program brings together researchers from diverse disciplines and backgrounds to create an unprecedented map of the human body and help drive medical advances.



Heat map showing the interaction between the *Myc* gene and the rs55705857 locus in mouse oligodendrocytes and their precursor cells (OLGs) in the somatosensory cortex of mice.

The Study of an Intronic Variant Provides Critical Information about the Size and Growth Speed of Gliomas

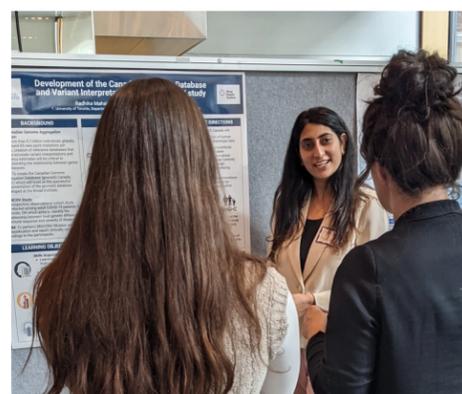
Daniel Schramek, a MoGen Professor with a research group at the LTRI, co-led a study that discovered a germline alteration called rs55705857, which [could cause gliomas to grow more quickly](#). The study showed that animal models carrying the germline alteration developed larger gliomas faster compared to those that did not have the

alteration. The findings are relevant to other cancers and diseases that could lead to specific therapies targeting the alteration.

Department Events

Highlights from the Recent MedGen Practicum Symposium

The department recently held the first ever in-person Medical Genomics Practicum Symposium, where the MedGen students showcased their work through a poster session and shared their research findings with practicum supervisors and other members of the medical genomics community. [Read more.](#)



Student Spotlight



Meet our Graduate Student Researcher, Michelle Harwood

Michelle Harwood was a Ph.D. student in Molecular Genetics studying how age, ancestry, and environment affect gene expression. She got interested in science to help people and enjoys learning and teaching new things. While at U of T, she has been involved in many groups and initiatives, including creating one to address imposter syndrome in science. [Read more](#) to see how Harwood overcame the challenges of imposter syndrome and built up her confidence.

Faculty Profile

Philip M. Kim

Philip M. Kim has been making waves in genomics this year. In a recent [Faculty Spotlight](#) article, Kim shares his research interests and insights into the exciting world of gene therapy. Early in the year, he co-authored a research paper in Nature Communications highlighting how they [identified a protein-protein interaction contributing to Parkinson's disease](#) and similar neurodegenerative illnesses.



And most recently, Kim and doctoral trainee Jin Sub (Michael) Lee have developed an [AI system, ProteinSGM, that can create new proteins not found in nature](#). We cannot wait to see more of Kim's discoveries this year.

Community News

The MoGen GSA has been busy organizing exciting events for the department! The GSA has kept everyone engaged and entertained, from [the annual holiday party to a genetics movie night and recruitment day](#). Stay tuned for upcoming events, including the end-of-exam celebration and career development symposium preparatory workshops. And remember to register for the annual Career Development Symposium on June 5 and the MoGen Retreat in September! Below is an outlook for upcoming events.

**CAREER DEVELOPMENT
ALUMNI SYMPOSIUM** | **JUNE 5TH
2023**

[Register here](#)

Upcoming Events

May 2023

May 13, 2023: [Science Rendezvous](#)

June 2023

June 5, 2023: [Molecular Genetics \(MoGen\) Career Development Alumni Symposium](#)

May 18, 2023: Registration
deadline for the Annual MoGen
Retreat and Career Development
Alumni Symposium

June 19 and 20, 2023: [Infectious
Diseases and Microbiology
Research Day](#)

Faculty, Staff and Award Announcements



We are happy to introduce new faculty members to the department. Please find below their names and information on their research:

Jesse Gillis: The lab in the Donnelly Centre studies cell identity by integrating diverse functional genomics data, particularly focusing on gene co-expression.

Jared Simpson: This OICR lab focuses on the development of new algorithms, methods and software for analyzing genome sequencing data.

Madeline Hayes: This SickKids lab's research focuses on using precision zebrafish models of human cancer to understand mechanisms related to tumor growth, relapse, and metastasis.

Artem Babaian: The 'Laboratory for RNA-Based Lifeforms' housed at the Donnelly Centre is focused on deciphering how genetic information encodes itself into RNA genes and viruses.

Kathryn Rozen-Gagnon: This lab in MSB takes an RNA-centric approach, relying on systems biology and virology, to better understand arbovirus infection in mammalian and mosquito models.

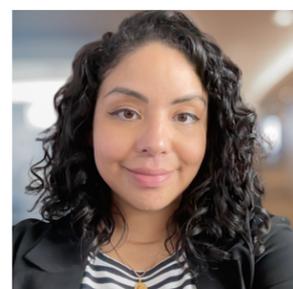
Olena Zhulyn: The lab in PCGRL (SickKids) uses axolotls and mice to explore the role of ribosomes and regulated translation in tissue regeneration, rejuvenation and repair.



We are delighted that **Mike Tyers** has rejoined our department after an 18-year hiatus spent working at the University of Montreal. The lab uses biochemistry, genetics, chemical biology, microscopy, mass spectrometry and computational methods to decipher how cellular networks are organized and controlled.

We are excited to announce two new staff members in the department.

Marcia Iglesias has joined the Department of Molecular Genetics as the Communication and Outreach Officer. Marcia was previously a Marketing Coordinator at Humber and brings her expertise, passion, and broad skill set to oversee social media, website matters, promotional efforts, outreach, and equity initiatives at MoGen.





Additionally, we are pleased to welcome Kyle Turner as our Learning Strategist for Graduate Programs starting on May 17, 2023. Kyle previously served as the Faculty Liaison for Teaching and Learning at the Centre for Teaching Support & Innovation (CTSI) at the University of Toronto. He also worked at the Donnelly Sequencing Centre and the Harvard University/Howard Hughes Medical Institute in Cambridge, MA. Kyle holds an M.Sc. in Ecology & Evolutionary Biology from UofT and will bring valuable insights to our team.

We are pleased to announce the recipients of several awards in the MoGen community.

Gabriela Krivdova has been awarded the Barbara Vivash Award for her outstanding Ph.D. thesis defense, while Fraser McCready has been granted the David Stephen Cant Graduate Scholarship in Stem Cell Research. [Read more.](#)



We would also like to extend our congratulations to professors Scott Gray-Owen and Rafael Montenegro Burke of the Molecular Genetics department. They have been awarded Tier 1 and Tier 2 chairs in the fields of infectious immunopathogenesis and functional metabolomics and lipidomics, respectively. [Read more.](#)



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