MOGE NEWS

SUMMER 2025 | ISSUE 26

A brief news digest for U of T's Molecular Genetics community.

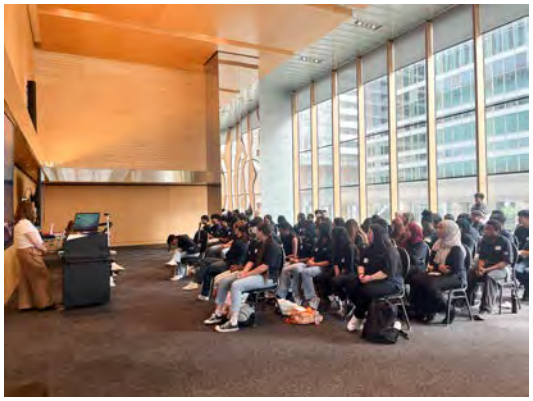
Event Highlights

MoGen's 10th Annual Career Development Alumni Symposium Builds Community and Career Momentum

Over 150 grad students, postdocs, and alumni came together for a packed day of connection, mentorship, and discussions about life after grad school. From keynote talks to live informational interviews and roundtable chats, the day was packed with real advice and inspiring stories.

nextGen Outreach Workshops

nextGen, an outreach program hosted by the Department, hosted workshops on April 24, 25, May 1, and 2, welcoming Toronto high school students for hands-on molecular biology and genetic testing sessions. The goal is to spark curiosity and help students see themselves in scientific fields they hadn't considered before.



Careers in Genetics Panel for STEAM Design High School Students

The MSc Genetic Counselling program hosted high school students from the summer STEAM Design program for a half day event to learn about Careers in Genetics at SickKids Peter Gilgan Centre for Research and Learning.

MoGen Graduates - Celebrating the Season in Photos

On June 5, we celebrated the Class of 2025 from our undergraduate and graduate programs. Congratulations to our newest MoGen alumni!

Amna Shah
Medical Genomics MHSc Cohort of 2025

Megan Pickett
Molecular Genetics & Microbiology Specialist 2025

Rushil Dua
Medical Genomics MHSc Cohort of 2025

Darya Porat
Molecular Genetics & Microbiology Specialist 2025

MSc Genetic Counselling 2025 Cohort

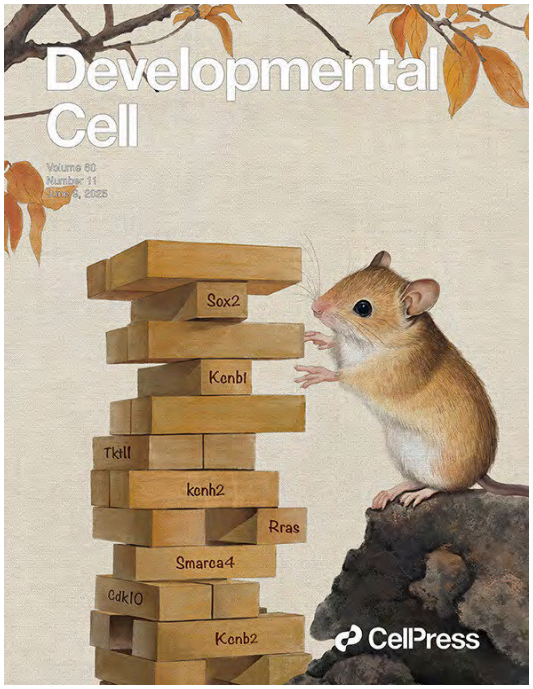
MHSc Medical Genomics 2025 Cohort

Alumni Highlight

Michelle Harwood - From Gene Expression to Global Impact

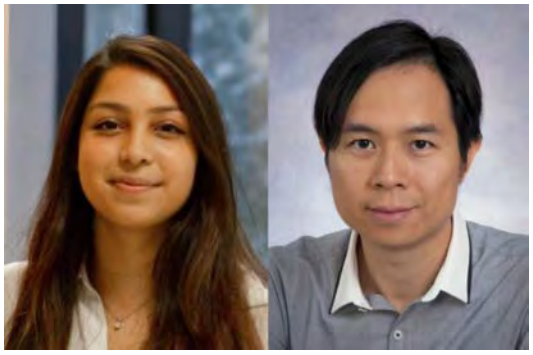
Michelle Harwood (Molecular Genetics PhD, 2023) is now a Bioinformatics Scientist at Roche, where she develops computational assays for cancer diagnostics. Her work bridges allele-specific expression research with real-world applications in precision oncology. Read more about Michelle's research.

Research Highlights



From the Huang Lab: Genetic Tool "Lazy Piggy" Reveals Tumour Weakness

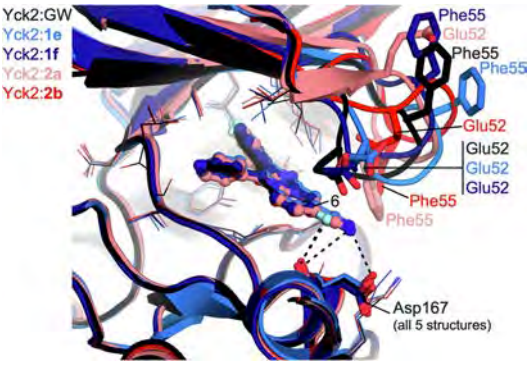
A *Developmental Cel*l study from the Huang Lab introduces Lazy Piggy, a new genetic tool used to identify cancer maintenance drivers in vivo. In medulloblastoma, the team found that KCNB2 is the most upregulated potassium channel and plays a key role in maintaining tumour growth by regulating membrane tension and cellular signalling. MoGen alum Jerry Fan (PhD Class of 2022) is first author on the study, which was selected as the journal's cover feature.



Researchers from the Yuen Lab uncover genetic mechanism linking myotonic dystrophy to autism

A *Nature Neuroscience* study led by Dr. Ryan Yuen (SickKids) reveals how a genetic mutation behind myotonic dystrophy can disrupt gene splicing in the brain, contributing to autism spectrum disorder. MoGen trainee Mahreen Khan, second author on

the study, contributed to findings that may support future diagnostic and therapeutic advances.

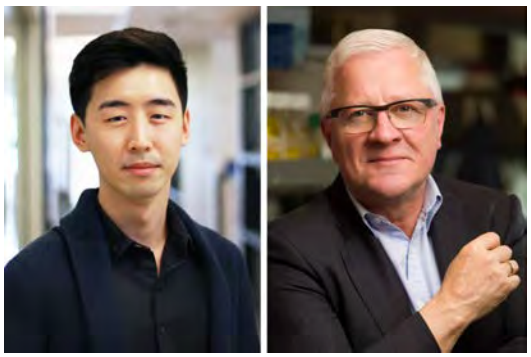


The Cowen Lab advances antifungal therapy with structure-guided drug design

Led by post-doctorate researcher Dr. Emily Puumala, researchers have developed new compounds that target a fungal protein called Yck2, showing strong results against drug-resistant Candida albicans. Published in *Nature Communications*, the work improves antifungal stability and potency, with success in mouse models and potential for clinical use.

Chromosomal Kiss and Tell

Graduate students in the MHSc Medical Genomics program sat down with Dr. Philipp Maass to explore how his lab is using computational models to map the 3D organization of the genome. This interview was created as part of the MMG3001Y (Advanced Human Genetics) course, under the guidance of Dr. Kinjal Desai.



A Nature Cancer study from the Dick Lab introduces a new tool to predict leukemia relapse risk

A new *Nature Cancer* study led by Dr. John Dick, with MoGen alum Dr. Andy Zeng (Class of 2017) as co-first author, shows how some leukemia cells in pediatric B-ALL can switch lineages, explaining relapses that resemble AML. The team also introduced a “Multipotency Score” to help identify high-risk cases.

From the Bader Lab RETINA Uses AI to Improve Microscopy Image

Analysis

Published in *PLOS Computational Biology*, a new method from the Bader Lab called RETINA improves how computers identify structures in electron microscopy images. Cheng Xeng, PhD student and first author, contributed to demonstrating how combining two neural networks and large-scale pre-training improves the speed and accuracy of analyzing complex cell images.

MoGen Trainee from the Cohn Lab publishes first-author study on CRISPR therapy for DMD

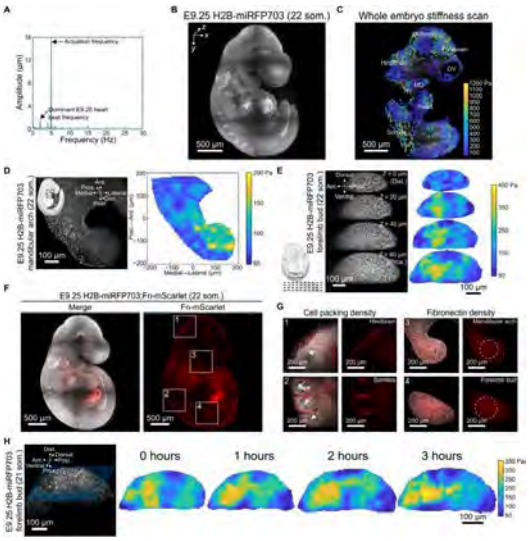
PhD trainee Sina Fatehi, supervised by Drs. Ronald Cohn and Evgueni Ivakine, is first author on a study in *Molecular Therapy* showing that CRISPR-based TASK can restore full-length dystrophin in a Duchenne muscular dystrophy mode.

Views of Genetics Professionals in Canada on Human Gene Editing

Alina Tsimbaliouk (GC Class of 2023) is first author on a national study exploring how genetics professionals in Canada view human gene editing. Co-authored by faculty and clinical leaders including Dr. Stacy Hewson and Dr. Ronald Cohn, the paper highlights ethical and clinical considerations shaping the future of precision medicine.

Conversations on Genetic Information and Muscular Dystrophy

Leah Hammond (GC Class of 2021) leads a study investigating how young adults with muscular dystrophy feel about receiving genetic information. The paper captures patient perspectives to better support informed care and counselling.



MoGen and Mechanical Engineering Labs Collaborate on Tissue Stiffness Imaging in Embryos

A *Nature Methods* study co-supervised by Dr. Sevan Hopyan (Molecular Genetics) and Dr. Yu Sun (Mechanical Engineering) introduces light sheet elastography, a noninvasive method for 3D tissue stiffness mapping in live embryos. Used in mouse and zebrafish models, the technique offers new ways to study how physical forces shape development. MoGen postdoc Min Zhu, and faculty member Dr. Brian Ciruna were key contributors.

Awards

2025 Henry G. Friesen International Prize in Health Research
Dr. Brenda Andrews

Fellow of the Academy of Medical Sciences
Dr. Ben Blencowe

National Academy of Sciences
Dr. John Dick

Order of Canada
Dr. David Chitayat

King Charles III Coronation Medal
Dr. Michael Moran

National Academy of Sciences
Dr. Charles Boone

CIFAR Azrieli Global Scholar 2025–2027
Dr. Artem Babaian

Human Frontier Science Program Research Grant 2025
Dr. Olena Zhulyn

Sustained Excellence in Graduate Teaching and Mentorship – 2025
Riyana Babul-Hirji, MSc, CGC

Derrick Rossi Innovation Awards
Dr. Peter Roy

2025 Jennifer Comyn Graduate Award for Cancer Research
Brandon Lieng, PhD Trainee (Montenegro Burke Lab)

2024-2025 Vanier CGS
Jacob Fine, PhD Trainee (Blencowe Lab)

New Staff Announcements

Executive Assistant to the Chair & Faculty Liaison

Yvonne Kenny joins the Department of Molecular Genetics as Executive Assistant to the Chair and Faculty Liaison, effective June 2025.

Admissions & Student Services Officer

Sabeen Nauman joins the Department of Molecular Genetics as our new Admissions & Student Services Officer effective July 14, 2025.

You're invited!

Join us for faculty talks, student presentations, awards, dinner, and entertainment. This year's retreat will feature activities like open-air gondola rides, hiking, a private beach, and more to enjoy the beautiful surroundings!

MoGen Retreat

17 Thursday, September 25 - Friday, September 26

Blue Mountains, 190 Gord Canning Drive, ON L9Y 1C2

Register

Want to submit your research?

Contact us here to be featured in our newsletter.

1 King's College Circle, Toronto, Ontario, Canada