



MOGEN NEWS

WINTER 2023 | ISSUE 20

Welcome to the 20th edition of MoGeNews!

In 2023, so far, our department has hosted over a hundred events, including student seminars, workshops, and specialized conferences. In this 20th edition of our newsletter, read about a few recent events and updates from the faculty and student community about new faculty members, awards, and more.

Our communications and outreach team has been hard at work promoting our amazing department, from participating in recruitment sessions across Canadian universities, updating our social media logo, creating digital ads and creating a promo video (coming soon!).

Thanks to our students, staff, and faculty who have contributed to this newsletter, including Teresa Brooke-Lynn Coe, Ishmal Amir, Liza Saitova, Rushil Dua, Martina Steiner, Tim Hughes, Lori Frappier, Julie Claycomb and Marcia Iglesias.

Share your stories on events, awards, and research updates by contacting mogen.news@utoronto.ca.

Thank you, and Happy Holidays! 🧑‍🎄 ❄️

- The Editorial Team

Faculty highlight

Five Questions with Dr. Lori Frappier: Associate Chair & Graduate Coordinator

Could you tell me more about your research and what motivated you to pursue this specific area of study?

My lab works on Epstein-Barr virus (EBV), which is herpesvirus that most of us are infected with for life. While it is usually asymptomatic, it is also a causative agent of mononucleosis, several types of cancer and multiple sclerosis. I initially became interested in EBV as a model for human DNA replication, because in latent infection, EBV DNA episomes replicate once per cell cycle (just like cellular DNA) then have a segregation mechanism to ensure equally delivery of the EBV episomes to daughter cells. This is unique as other viruses amplify their DNA during replication. The EBV EBNA1 protein is the only viral protein required for EBV latent replication and segregation, so we initially studied this protein and its multiple functions. Later we shifted our studies to EBV lytic cycle proteins, as many of these ~80 proteins have unknown or poorly defined functions that likely involve manipulating cellular pathways to promote infection. We use proteomic approaches (library screens and affinity purification-mass spectrometry) to uncover the roles of these proteins in altering cellular processes. This has led to many unanticipated functions for EBV proteins and insights into how several cellular proteins and pathways can be inactivated or altered.

In your role as the grad coordinator, what are some of your key responsibilities?



The main role is to oversee the graduate program to make sure it is running smoothly. One of the main responsibilities is to help the first year students find appropriate lab rotations and a final lab. Another is to ensure that the rules/procedures we set for our program are being followed by both students and faculty. At the same time, we (Grad coordinators and administrators) monitor when procedures would benefit from changes or when new rules are needed (eg. For AI) and write these into the website and Grad Handbook. The third key responsibility is in advising students who are having problems, either due to health or personal issues or conflicts with their supervisor. I also advise faculty members who contact me for issues with a student or clarification of procedures.

What type of questions should students approach you with?

We strongly encourage students to contact us if they feel they are struggling in our program for any reason, including mental health issues. Students considering taking a leave of absence of any reason, should also contact us (Mike* or Kyle). We also often get questions about picking rotation labs and scheduling committee meetings. We are happy to try to answer any questions or, if we don't have the answer, to point the student to the right person.

Could you share any hobbies or interests outside of work and research?

I love music (listening to, watching and playing) and working out. I was a gymnast in my younger years and now do a variety of things to stay fit (like spinning HIIT and weight training). I am also very into adventure and wildlife travel, and have hiked in many of the major jungles around the world.

What advice do you have for graduate students looking to do well academically?

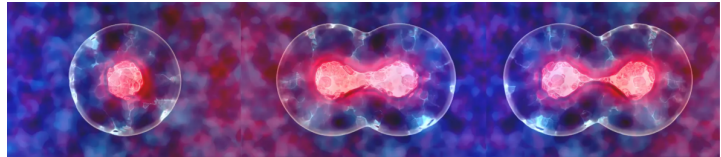
Pick something you love and work hard at it. I believe to be very successful in anything you have to be very dedicated and also take advantage of the resources available to you. Research is very competitive, so it requires long hours of work. However, if it is the right fit for you, then it won't feel like work because you will just want to do it because you are excited about it. Also, we are lucky to be in an exceptional research environment with experts in many

areas, so it is important to take full advantage of this in learning from others and seeking collaborations or advice from the experts.

**On January 1, 2024, Sean Egan will replace Mike Wilson as our new Associate Graduate Coordinator.*

Research Highlight

New Research from the Santos Lab: RNA-Level Control of Developmental Pausing



Getty Images Signature. "Cell cloning duplicating."

Discover how RNA molecules influence diapause in developing cells, offering fresh perspectives on developmental biology and cancer research. [Read more.](#)

Tobacco Smoking, APOBEC Activity, and Nonsense Mutations in Cancer Genomes

MoGen graduate Nina Adler, Dr. Jüri Reimand and his lab, and in collaboration with Dr. Daniel Schramek, published research in *Science Advances*. [Their study reveals a connection between tobacco smoking, APOBEC activity, and nonsense mutations in cancer genomes.](#)



Nina Adler

Uncovering Brain Protein Variants

Professors Anne-Claude Gingras and Benjamin Blencowe lead [research that shows brain-specific protein variants often switch preferences for interacting partners.](#)



Anne-Claude Gingras and Benjamin Blencowe

Claycomb's lab uncovers new roles for *C. elegans* Argonaute(AGO) and small RNA pathways. This study reveals that disrupting AGO function in *C. elegans* has implications for stress-related fertility and pathogen responses.

Recap: Fall 2023 Events



MoGen Department's Retreat

The MoGen community came together as the Department organized an off-campus retreat in Niagara-on-the-Lake on September 18-19, 2023. [The retreat's award winners and activity highlights are detailed here.](#)

Developments in Genome Analysis 2023

The one-day conference covered transformative topics that are reshaping genomic healthcare, from revolutionary diagnostics to redefining inclusivity. The event brought together Toronto's clinical and research genomics community, with grad students attending from MoGen's Genetic Counselling, Medical Genomics and research program. The conference was organized by Dr. Johanna Carroll, Dr. Martina Steiner and Stacy Hewson, and was supported by a MoGen workshop grant. [Explore the future of Genomic Medicine in this recap.](#)



Keynote speaker Dr. Arbour talks about the Silent Genomes project.



Left to right: Dr. Hanna Faghfoury, Dr. Rebekah Jobling, Jordan Sam, Kim Amburgey, Dr. Ashish Deshwar and Stacy Hewson

Toronto RNA Enthusiasts' Day (TRENd)

The 8th annual event of (TRENd), run by trainees, [was recently held in a hybrid format with in-person and online experiences](#). Sameen Ahmed and Giovanni Burke, along with other MoGen researchers, organized this year's symposium under the guidance of Drs. Julie Claycomb and John Calarco. MoGen's workshop grant supported this event, thus promoting and advancing RNA research.



Award Announcements

Barbara Vivash Awards

Explore the highlights of the [Barbara Vivash Awards Ceremony](#), a tribute to outstanding researchers in Molecular Genetics. Congratulations to Wendy (2020-2021 Recipient) and Gabriela (2021-2022 Recipient) for receiving this award

Canadian Medical Hall of Fame Inductee

Dr. John Dick was inducted into the Canadian Medical Hall of Fame. Discover his remarkable journey of being recognized for significant contributions to stem cell research. [Learn more about this induction: Dr. John Dick – Canadian Medical Hall of Fame](#)

Gairdner Early Career Investigators Awards

Read into the impactful work MoGen professor Dr. Artem Babaian and MoGen alumna Dr. Elena Kuzmin, who are pushing the boundaries of scientific discovery. [Explore more about their research presented at the Gairdner Awards.](#)

2023 Blue Jacket Awards

At the RiboClub meeting of RNA researchers, [Dr. Julie Claycomb](#) was honoured with the 2023 Blue Jacket Award.

Faculty and Staff Updates

We are Pleased to Announce New Faculty Members

Join us in welcoming [Evgueni \(Zhenya\) Ivakine](#), [Tatsuya Tsukahara](#), [Ashish Deshwar](#) as our newest Assistant Professors.

Dr. Fritz Roth Shifts to Lead UPSOM's Computational Biology

[Professor Fritz Roth](#) has been appointed Chair of the University of Pittsburgh School of Medicine (UPSOM), Department of Computational & Systems Biology (CSB), where he started on October 1, 2023. Fritz will be sorely missed - he has been a strong presence in the community since his recruitment in 2011 as a Canada Excellence Research Chair in the Donnelly Center and the Lunenfeld-Tanenbaum Research Institute of Mt. Sinai Hospital. In addition to his outstanding contributions to research and training,

Fritz had a major impact on our formal course and programmatic offerings at the undergraduate and graduate levels. Of particular note, he developed and ran MGY360 (Whole-Genome Sequencing and Analysis Laboratory) as well as Foundational Computational Biology I and II (MMG1344/1345). Fritz was also one of the instigators of CBMG (the Computational Biology in Molecular Genetics PhD track) and served as its Director from 2016-2018 and again from 2020-2022.

We wish Fritz all the best for his new Chair function in Pittsburgh.

- Tim Hughes Chair and Graduate Chair, Department of Molecular Genetics

New LinkedIn Account

We've opened a new LinkedIn account to connect our vibrant communities, including students, faculty, staff, and partners. [Join us and help us grow.](#)



MoGen News 

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