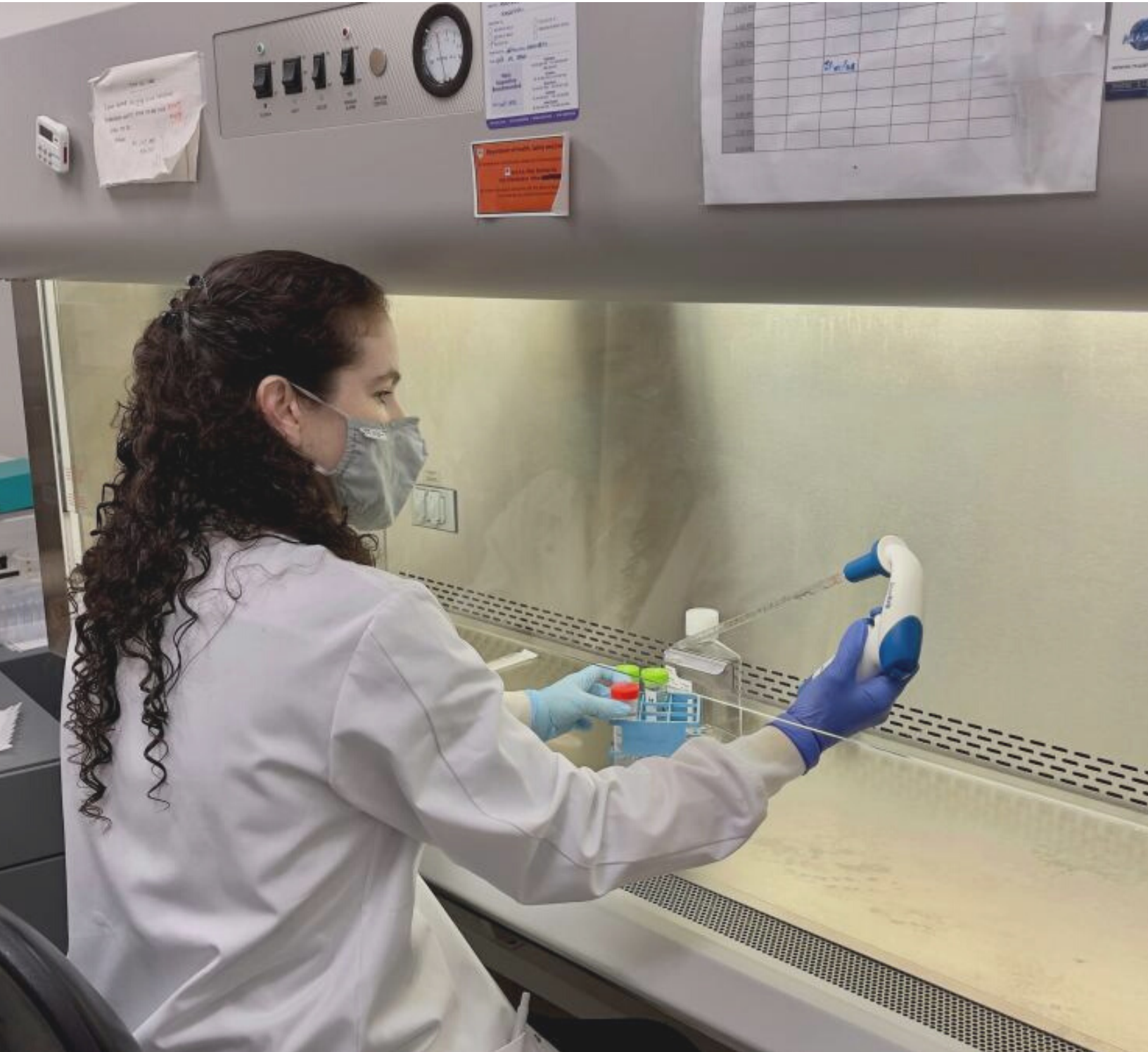


MBIM NEWSLETTER



UBC DEPARTMENT OF MICROBIOLOGY & IMMUNOLOGY



SPRING 2021



A MESSAGE FROM DEPARTMENT HEAD, DR. MICHAEL MURPHY

A few days ago, a resilient class of MBIM and BIOT students graduated in a virtual ceremony. I reflected on how through the past year, this group of talented students adapted to the realities of the pandemic and succeeded to complete their programs. Zoom became a common medium of instruction with a few in-person laboratory days (with physical distancing). For some, work in research labs provided a chance to develop unique skills. In short, I am inspired at how a pandemic did not keep our students from learning and garnering the experiences needed to move to the next phase of their careers.

I am grateful to the dedicated faculty and staff who redeveloped and supported lecture courses for remote delivery and lab courses for safe operation. Personally, being able to deliver a complete program to our students, including lab experiences, is our response to the COVID-19 pandemic. Clearly, the need for education and research to understand infectious diseases and the roles microbes play in our changing environment are more evident than ever. To see our most recent graduates at all levels go forward and meet these global needs more than makes up for the challenges we have faced as a UBC Department.

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They will join our many alumni, many of whom are health care workers, researchers looking to better understand and change our world, and educators at UBC and around the globe.

Our students learning in the shadow of the COVID-19 pandemic know the true value of personal connection. Many of the relationships formed in the past year in these challenging times will continue to maintain a healthy professional community, whether in person or online.

In this year's newsletter, we share some of our stories and research to show you what we have been up to, and we would like to hear from you too! Stay connected on social media ([Twitter](#), [Instagram](#), [LinkedIn](#)) or visit our [UBC Department website](#) to keep up with the News!

All the best,


Michael

THE UNIVERSITY OF BRITISH COLUMBIA
Microbiology and Immunology
Faculty of Science

The Department of Microbiology & Immunology Presents:

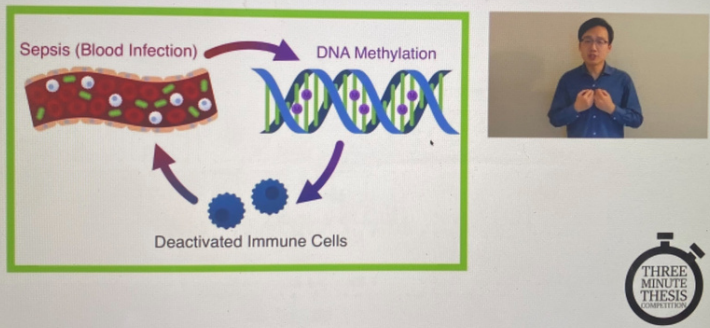
UBC MBIM
URS
Undergraduate Research Symposium
2021

Introducing our
KEYNOTE SPEAKER
DR. JENNIFER GARDY
Deputy Director, Surveillance,
Data & Epidemiology
Bill & Melinda Gates Foundation



Friday APRIL 30th, 2021

Link for more information:
<https://emi.microbiology.ubc.ca/UndergraduateResearchSymposium/>



Sepsis (Blood Infection) → DNA Methylation → Deactivated Immune Cells

THREE MINUTE THESIS COMPETITION

The Department of Microbiology and Immunology Presents:



Dr. Valerie Mizrahi
Director, Institute of Infectious Disease and Molecular Medicine,
University of Cape Town

SEMINAR
Tackling Big Questions In Tuberculosis -
A Biologist's View From South Africa

Monday May 3, 2021
1:00 - 2:00 PM
Register on Zoom!

Hosted by Dr. Lindsay Eltis

THE UNIVERSITY OF BRITISH COLUMBIA
Microbiology and Immunology
Faculty of Science

CBR THE UNIVERSITY OF BRITISH COLUMBIA
Microbiology and Immunology
Faculty of Science

**CAREER "ASK ME ANYTHING"
CAFÉ**

THURSDAY, JULY 30, 2020 | 10-11 AM



DR. NAADIYA CARRIM
Research Engagement Manager,
King Abdullah University Science and
Technology (KAUST), Saudi Arabia

Registration opens July 20, 2020 at 10 AM
Limited spots.
RSVP: <https://tinyurl.com/career-AMA-cafe-0730>
Questions? Contact stefanie.makeubc.ca or parvinemail.ubc.ca



STAY IN TOUCH WITH OUR (VIRTUAL) COMMUNITY!

For the past year, we have witnessed the global response of resilience and adaptability in the face of adversity. Things looked a little different for a while, but we took full advantage of the opportunity to engage with our community virtually - allowing for a further reach than ever before!

Our virtual events allowed for speakers and guests from all over the world to join. Our Monday Seminar Series continued with speakers sharing their research from places like South Africa, Australia, and California.

And our Career "Ask Me Anything" Café in collaboration with the Centre for Blood Research, which aims to provide a casual networking environment to learn about diverse careers in science, featured mentors

from places like AstraZeneca Canada, Cengage Canada, Nature Microbiology, Shopify, and more.

Faculty, staff, students, and researchers from the Department of Microbiology and Immunology worked hard to keep everyone connected and did an amazing job in doing so - keeping our beloved department events and health and wellbeing initiatives going strong from seminars and symposiums, to thesis competitions, award celebrations, yoga classes, and online counselling.

We are grateful to everyone in our community and look forward to seeing you all in person again soon!

**KEEP UP WITH DEPARTMENT RESEARCH
& DEPARTMENT NEWS!**

KRONSTAD LAB

CRYPTOCOCCUS NEOFORMANS RESEARCH FOR WORLD AIDS DAY

For World AIDS Day on December 1, Dr. James Kronstad and PhD candidate Linda Horianopoulos shared their work on fungal pathogens. They admit that though fungal pathogen research is underappreciated, one of the most important things for people to know is that they are out there.

“At any given time, it’s estimated that a quarter of the world’s population has a fungal infection.”

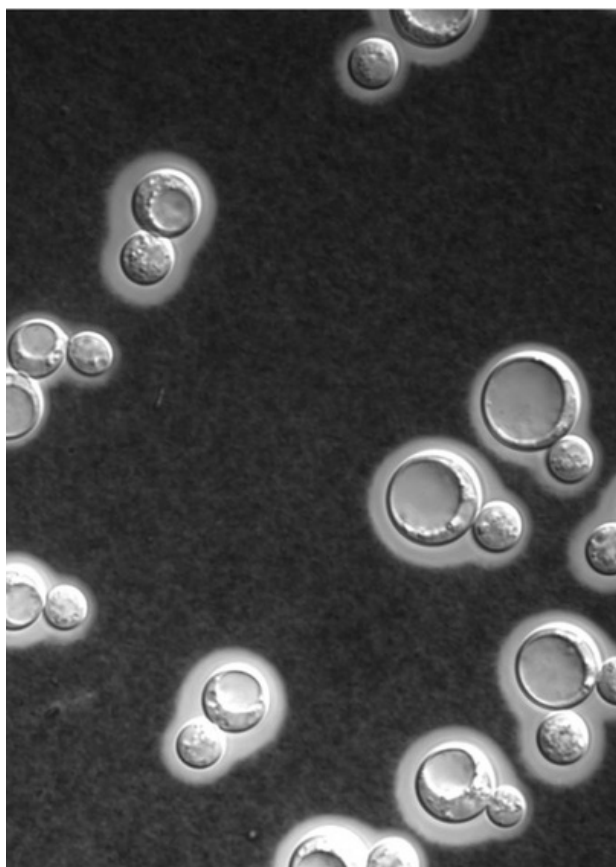
Striking examples include recent studies that show how fungi are colonizing our skin, particularly species of *Malassezia*, and can have an impact on diseases like inflammatory bowel disease and pancreatic cancer; and the fungal pathogen *Cryptococcus neoformans*, the causative agent of cryptococcal meningitis, which is responsible for 15% of all HIV-related deaths.

TEACHING FACULTY

IN-PERSON LABS AT UBC CONTINUE SUCCESSFULLY AMID COVID TIMES

Teaching faculty members Jennifer Sibley, Marcia Graves, and Evelyn Sun (along with 5 TAs and the full attention of a technical support staff) put together a curriculum that allowed undergrads to safely participate in MICB-322 – an in-person 3rd-year microbiology lab that helps students lay the technical foundation for their careers.

“MICB 322 has been an excellent opportunity to develop a foundation and understanding of the various experimental techniques and methodology behind the study of bacteria,” shared student Connor Keane.



AV-GAY LAB

WORLD TB DAY: TUBERCULOSIS IS STILL AN URGENT GLOBAL HEALTH MATTER AND TIME IS RUNNING OUT

The UN has marked March 24 as World Tuberculosis Day, but some still can't believe it still exists. As one of the oldest diseases, TB has killed more than any other infectious disease in history and still provides a repertoire of unanswered questions.

“There is growing antibiotic resistance and we’re losing that battle,” share Dr. Yossef Av-Gay and PhD candidate Ginny Pichler.

So, while other lab members work on host-directed therapies and alternative methods, Pichler focuses on better understanding the relationship between existing second-line antibiotics, which are often last-resort therapeutics, and multi-drug resistant TB infections.

HANEY LAB

PLANTS ACTIVELY RECRUIT BENEFICIAL MICROBES TO HELP PROTECT THEM AGAINST FUTURE PATHOGEN ATTACK

If you sense a pathogen, can you recruit beneficial bacteria to help protect against those pathogens? It turns out, plants can!

The Haney Lab published a paper in *Nature Plants* by first author Dr. Yi Song and with trainee support from the Michael Smith Laboratories called “*FERONIA* restricts *Pseudomonas* in the rhizosphere microbiome via regulation of reactive oxygen species.”

Their publication is the first clear example of how recruiting beneficial microbes is actually done, and it also proves the use of plants for the future of microbiology research and sustainable agriculture.





CAROLINA TROPINI IS THE 1ST CANADIAN TO BE NAMED A JOHNSON & JOHNSON SCHOLAR IN GLOBAL COMPETITION

Dr. Carolina Tropini, Assistant Professor in the Department of Microbiology and School of Biomedical Engineering, has been named as the winner of this year’s Johnson & Johnson Women in STEM2D Scholars Award in the field of Engineering for her research on humans and the microbiota.

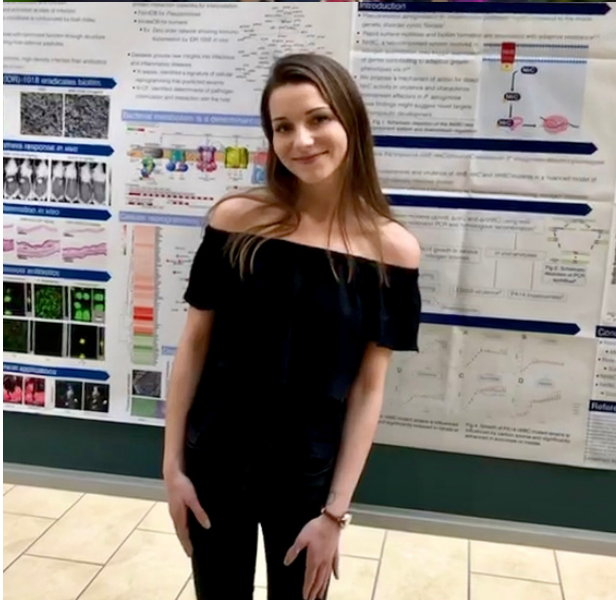
The award provides US\$50,000 a year over a three-year period to outstanding female academic leaders working in science, technology, engineering, math, manufacturing and design. Dr. Tropini is the first Canadian to be honoured with this award.



PARVIN BOLOURANI WINS PRESIDENT’S STAFF AWARD FOR ENHANCING UBC EXPERIENCE

In the fall, Parvin Bolourani, Outreach, Alumni Engagement, Postdoctoral Fellows & Project Coordinator in the Department of Microbiology and Immunology, was awarded a President’s Staff Award for Enhancing UBC Experience!

“Parvin brings passion and dedication to the many roles she serves in the department and UBC” shares Department Head, Dr. Michael Murphy.



MORGAN ALFORD WINS CIHR GOLD AWARD WITH VIRTUAL RESEARCH PRESENTATION!

Morgan Alford, a PhD student in the Hancock Lab, has received an award of excellence (Gold category) in the Canadian Institutes of Health Research (CIHR) National Research Poster Presentation. Her research poster **“Nitrogen metabolism intersects virulence of *Pseudomonas aeruginosa*”** showed the involvement of the general nitrogen regulator NtrBC in pathogenic and adaptive states of *P. aeruginosa* (bacteria that often cause infections in humans such as in the blood, lungs [pneumonia], or other parts of the body after surgery).



M&I IN THE NEWS

VANCOUVER SUN

AWARD-WINNING CANADIAN TACKLES BOWEL DISEASE AND DIVERSITY

Carolina Tropini's work in microbial diversity in the gut was featured in the Vancouver Sun on September 19, 2020! The article discusses her lab's research and emphasizes the importance of diversity, which is critical for the health of our gut, in nature, and in science overall.

Her research looks at how the gut changes in inflammatory bowel disease (IBD). There is still no known cure for IBD, but her team has found that individuals who have IBD have microbiota that looks significantly different from someone without. They're currently trying to find the specific bacteria that can ameliorate the inflammatory environment in the gut.

"The example I use is, if the IBD gut is like a desert and you're trying to make it like a forest, the first thing you need to do is modify the environment so it can accept the forest," says Dr. Tropini.

07 Vancouver Sun
(Tropini Lab)

08 UBC Science
(Osborne Lab)

CIFAR
(Finlay Lab)

CTV News
(Jean Lab)



OSBORNE LAB

UBC SCIENCE

[COULD WORMS HELP US TREAT CHRONIC INFLAMMATORY CONDITIONS?](#)

Research from the Osborne lab studies helminths – a broad family of worms that can cause intestinal infections in people, cattle, wildlife, and rodents. By studying how infectious worms interact with our immune system, we may one day be able to treat diseases like rheumatoid arthritis, inflammatory bowel disease, and even allergies.

FINLAY LAB

CIFAR

[COVID-19 MAY FOREVER ALTER OUR MICROBES](#)

Research from the past several decades shows that the bacteria, fungi, and viruses that inhabit our bodies – collectively, the microbiome – have significant impacts on human health. Prof. B. Brett Finlay raises the questions: “If you’re not going on airplanes anymore, what does that do for microbial travel around the world? If you’re locked up in an apartment for a month, what does that do to your microbial exposures, especially if you are a newborn child?”

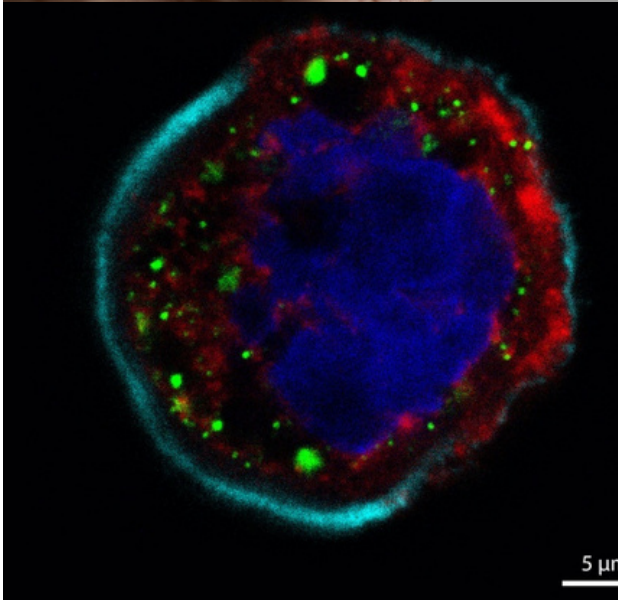
“We know that with each generation, our microbial diversity is getting less and less worldly and more and more homogeneous,” says Finlay. “As any ecologist will tell you, that’s bad. You want diversity. That gives you a robust system.”

JEAN LAB

CTV NEWS

[NEW EXPERIMENTAL ANTI-VIRAL DRUG BEING TOUTED AS EFFECTIVE IN THE FIGHT AGAINST COVID-19 VARIANTS](#)

On May 11, 2021, UBC published research from the Dr. François Jean lab, which found that a new drug tested at UBC’s FINDER facility is highly effective against multiple COVID-19 variants. They say the experimental drug called N-0385, developed at Université de Sherbrooke in Quebec, blocks the virus that causes COVID-19 from entering human cells through its preferred entry point.



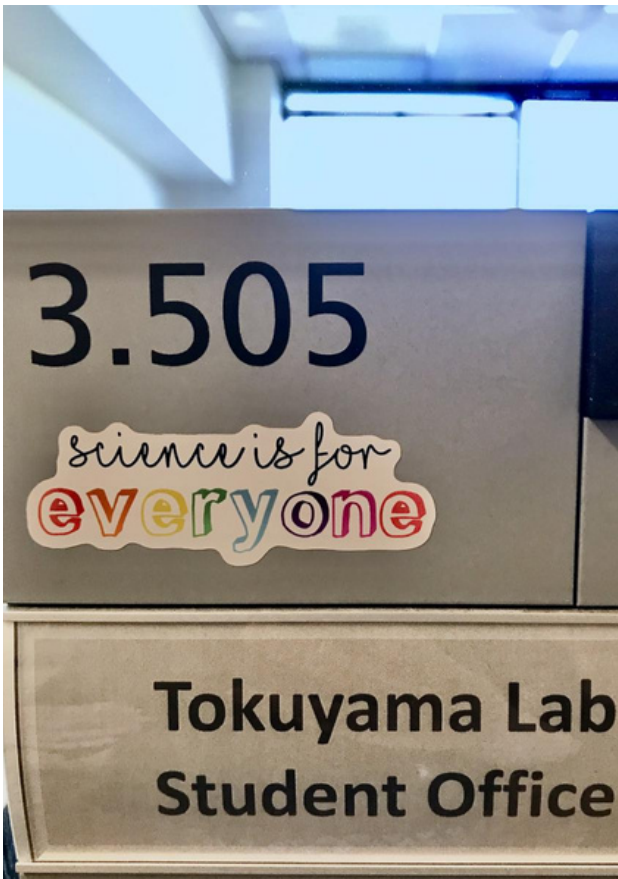
NEW FACULTY MEMBER
MARIA TOKUYAMA HAS
ALWAYS BEEN MOTIVATED
BY THE THRILL OF DISCOVERY
AND JOYS OF MENTORSHIP

Dr. Maria Tokuyama, the newest faculty member in the Department of Microbiology and Immunology at UBC, officially opened the research doors of Tokuyama lab in March 2021. With a core research focus on viral immunology, the lab's ultimate goal is to identify novel endogenous viral factors that influence immunity and underlie differences in disease outcomes. **The lab hopes to contribute towards development of immune modulators to treat infections and chronic inflammatory diseases.**

In the Tokuyama Lab, trainees will participate in research on the human virome: a collection of exogenous viruses that reside in most individuals and endogenous viruses that are present in all individuals. These viruses rarely cause overt disease in healthy people, but persistent interactions between these viruses and the immune system can affect how one responds to infection or inflammation.

Endogenous retroviruses (ERVs) are the most abundant member of the human viral metagenome. We know from many studies, including those led by UBC faculty, that ERVs are epigenetically and transcriptionally regulated during development and are important regulators of gene expression. We also know they are differentially expressed during a range of disease conditions including cancer, autoimmune disease, and viral infection.

"However, a big gap in our knowledge is how ERVs affect our immune system and their functional roles in disease," says Tokuyama. "This is the gap that my research program hopes to fill."

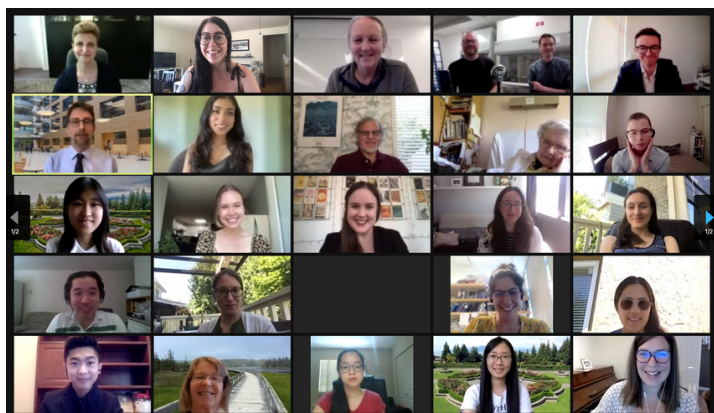




ALUMNI

This year, our annual Department of Microbiology and Immunology graduation tea was held virtually on June 02 to celebrate the graduating class of 2021!

Congratulations to everyone on all their hard work and achievements!



KEEP in touch

Visit our [Alumni](#) page and share your experience by submitting an alumni profile, attending a career night, mentoring a trainee, or recruiting students and postdocs.

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JOIN US ON LINKEDIN!!!

The Department of Microbiology and Immunology is now on LinkedIn! Follow our page to connect with staff, faculty, students and alumni, and keep up to date on department research.

<https://www.linkedin.com/school/ubc-microbiology/>