A NEWSLETTER FROM

The Snyder Institute for Chronic Diseases

Calvin, Phoebe and Joan Snyder Institute for Chronic Diseases

UNIVERSITY OF CALGARY CUMMING SCHOOL OF MEDICINE

January 2024

In Memorium

Dianne (centre) and her husband Irv (far right) at the Lymphatic Forum 2023 in Banff

We are deeply saddened by the passing of Dr. Dianne Kipnes, a dedicated advocate for lymphedema and lymphatic research whose generosity and vision transformed the field. Through the Dianne and Irving Kipnes Foundation, her support led to the establishment of the Lymphatic Research and Education Program at the University of Calgary and the Chair in Lymphatic Disorders at the University of Alberta. Her unwavering commitment helped expand vital research programs, advance imaging technology, and inspire groundbreaking studies on the lymphatic system's role in diseases like Crohn's and lymphedema. More than a benefactor, Dianne was an engaged and passionate partner in research, offering insights from her own experiences and challenging us to push the boundaries of discovery. Her legacy will live on through the Dianne and Irving Kipnes Lymphatic Imaging Suite and the continued pursuit of innovative treatments for lymphedema patients. She will be greatly missed.

Celebrating 10 years of Mini-Medical School

The Mini-Medical School completes 10 years this year. For a decade, this lecture series has connected the general public with the latest medical research from the Snyder Institute, helping them understand how chronic diseases affect the body. This lecture series welcomes everyone - high school students, retirees, and anyone in between - offering clear explanations of complex health topics. Each session brings the latest discoveries from the Snyder Institute's labs to life, making the science behind them engaging and easy to grasp. Dr. Derek McKay, Director of Snyder Institute, calls it a flagship community event that showcases groundbreaking research and advances in treatment. Held monthly from November to May, these sessions feature researchers and physicians discussing topics like immunotherapy, mental health, asthma, multiple sclerosis, superbugs and the microbiome. Learn more about Mini-Med or listen to past editions.

Research News

Snyder member Dr. Ian Lewis and his team at Rapid Infection Diagnostics Inc. (RID) have developed BSIDx, a rapid diagnostic tool that identifies pathogens and their antibiotic susceptibility in under five hours. It is an 85% improvement over traditional 35-hour methods. Using advanced metabolomics and high-sensitivity mass spectrometry, BSIDx detects microbial metabolic signatures to analyze shifts under antibiotic exposure to pinpoint effective treatments. Developed with Alberta Precision Laboratories, this technology meets the need for low-cost, automated tools in large labs that are crucial for combating bloodstream infections

where each hour of delay increases mortality risk by 8%. BSIDx also processes urine, swab and culture samples, offering scalable, automated workflows for clinical labs. Genome Canada, Prairie Economic Development Canada, and Alberta Innovates funded the preclinical trials that were published in Nature Communications to demonstrate BSIDx's ability to fight antimicrobial resistance, shorten hospitalizations and improve patient care through precision-guided therapies. Read more.

Snyder member Dr. John Gilleard's lab has identified a new parasitic roundworm species, *Trichuris incognita*, infecting humans in West Africa. The species was discovered during drug efficacy trials and is resistant to common treatments like albendazole and ivermectin. This parasite is genetically closer to species that infect pigs, which points to the need for better diagnostics and monitoring. The findings, published in *Emerging Infectious Diseases*, raise concerns about the effectiveness of current parasite control programs. This discovery could affect strategies in low-income areas where soil-transmitted helminths impact millions of people. Read more.

Dr. Anthony Schryvers, Snyder member, and this team have developed a vaccine to protect cattle and buffalo from hemorrhagic septicemia, a bacterial disease that harms livestock and the livelihoods of farmers in low- and middle-income countries. The vaccine provides long-lasting immunity with a single dose and was created with support from the Livestock Vaccine Innovation Fund. Dr. Schryvers and his team worked with researchers from Ethiopia, Bhutan and Canada, building on years of international collaboration. They shared knowledge, trained researchers and developed methods to diagnose infections and test the vaccine's effectiveness. The vaccine is patented and its results are published in PLOS Pathogens. "This devastating disease can eliminate the small number of cattle or buffalo that families rely on for their livelihood," says Schryvers. Read more.

Snyder member Dr. Elissa Rennert-May, MD, co-authored a study in the Canadian Journal of Cardiology that looks at the costs and health effects of semaglutide, the active ingredient in Ozempic and Wegovy, for overweight individuals with heart disease but without diabetes. Led by Dr. Derek Chew, MD, the study finds that semaglutide is not cost-effective at current prices. However, it shows potential to improve quality of life and could become a good healthcare investment if financial issues are addressed. The study suggests that a rebate could make semaglutide a viable option with long-term benefits for patients and urges policymakers to take action. It also confirms that semaglutide can help reduce body weight and lower the risk of cardiovascular events in overweight, non-diabetic heart patients. Read more.

Publications

- **Narigs Khan, Tran, K.A., Chevre, R. et al. β-Glucan reprograms neutrophils to promote disease tolerance against influenza A virus. Nat Immunol 2025**

- **Alvarez-Olmedo D, Kamaliddin C, Verhey TB, Ho M, De Vinney R, Chaconas G.0.Transendothelial migration of the Lyme disease spirochete involves spirochete internalization as an intermediate step through a transcellular pathway that involves Cdc42 and Rac1. Microbiol Spectr0, 2024**

- **L. Ricardo Castellanos, Ryan Chaffee, Johann D. D. Pitout, Dylan R. Pillai, A novel machine-learning aided platform for rapid detection of urine ESBLs and carbapenemases: URECA-LAMP, Journal of Clinical Microbiology 2024**

- **Nobuhiko Watanabe, Alexei Savchenko, Molecular insights into the initiation step of the Rcs signaling pathway, Structure 2024**

- **Marques de Souza, P. R., Keenan, C. M., Wallace, L. E., Bahojb Habibyan, Y., Davoli-Ferreira, M., Ohland, C., Vicentini, F. A., Kathy McCoy, K. D., & Keith Sharkey, T cells regulate intestinal motility and shape enteric neuronal responses to intestinal microbiota. bioRxiv 2024**

- **Deepak Patel, Cameron Semper, Cathy Le, Alexei Savchenko, Global atlas of predicted functional domains in Legionella pneumophila Dot/Icm translocated effectors, Molecular Systems biology 2024**

Welcome

Welcome to new Snyder members Dr. Jackie Lebenzon (Assistant Professor, Faculty of Science, Department of Biological Sciences) and Dr. Marc J. Poulin (Professor, Department of Physiology and Pharmacology). We look forward to working with you!

Congratulations

- Congratulations to the Snyder Institute and the Doherty Institute for being awarded AU$175,000 in grants through the Melbourne-Calgary Collaborative Seed Funding program. This initiative supports research on infectious diseases, rapid diagnostics, antimicrobial resistance and pandemic preparedness. The funding is split into two streams; the first focuses on critical areas like One Health, antimicrobial resistance (AMR), diagnostics and clinical trials. The second emphasizes enabling technologies to accelerate research and reduce duplication. Read more.

- Congratulations to the Snyder Undergraduate Mentor Award Winners. Alexandria Bartlett (MSc Student, Dr. Nargis Khan's Lab) and Shaelen Konschuh (Lab Manager, Dr. Laura Sycuro's Lab) as the 2024 award recipients. Nominated by undergraduate trainees, these mentors were honored for their dedication, guidance, and support. The awards were presented at Trainee Research Day in

December. Thank you to all mentors who continue to inspire the next generation of researchers!

- Congratulations to Dr. Carla Coffin and her colleagues on securing nearly $4 million in CIHR funding for their Hepatitis B Functional Cure research. This collaborative effort with the Canadian Hepatitis B Network, the woodchuck model, and teams from Toronto, Ottawa, and the University of Calgary marks an important step forward in Hepatitis B research.

- Congratulations to Dr. John Conly on receiving the 2024 Senior Scholarship Award from the SHEA Foundation for his contributions to infection prevention and healthcare epidemiology over the past 15 years. Dr. Conly is the first Canadian to receive this honor. The Society for Healthcare Epidemiology of America (SHEA) is dedicated to preventing and controlling healthcare-associated infections (HAIs) and advancing healthcare epidemiology.

- Congratulations to Dr. Justin A. MacDonald on being appointed interim head of the Department of Biochemistry and Molecular Biology. Dr. MacDonald's research in smooth muscle biology, drug discovery, and leadership in translational research with Arch Biopartners will continue to shape the department's success. We wish him the best as he supports research, teaching and mentorship in his new role.

- Congratulations to Dr. Remo Panaccione on receiving the 2024 Crohn's Colitis Canada Research Leadership Award, the Clarivate Research Scholar 2024, and the Division of Gastroenterology Resident Mentorship Award. These honors recognize his impact on global IBD research, his ranking among the top 1% of cited researchers, and his excellence in mentorship.

Education News

Schedule for Grad Seminar Series for February

All lectures begin at noon. Pizza (2 pcs. per person please) provided first come first served; best to arrive by 11:50 am.

February 3, Theater Four

- Julianna Svishchuk, MDMI PhD Graduate Student, Dr. Parkins' Laboratory, Department of Microbiology, Immunology & Infectious Diseases
- Kenzie Birse, MDMI PhD Graduate Student, Dr. Sycuro's Laboratory, Department of Microbiology, Immunology & Infectious Diseases

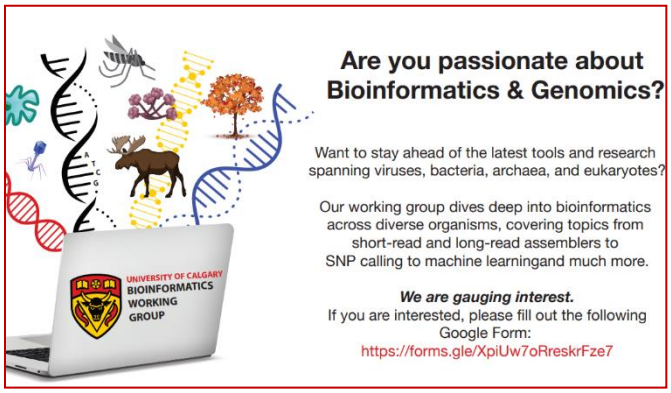
February 10, Theater Four

- Jordan La, MDBC MSc Graduate Student, Dr. Savchenko's Laboratory, Department of Biochemistry and Molecular Biology
- Lindsey Orthner, MDMI MSc Graduate Student, Dr. Surewaard's Laboratory, Department of Microbiology, Immunology & Infectious Diseases

February 24, Theater Four

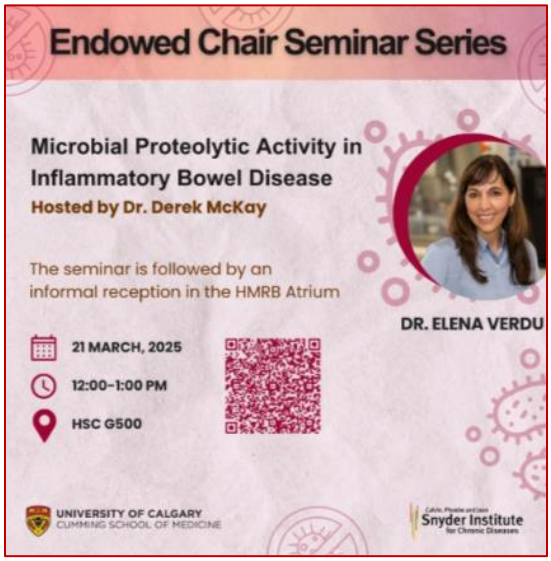
- Katherine Heger, MDMI MSc Graduate Student, Dr. Sycuro's Laboratory, Department of Medicine

Bioinformatics Working Group



Join the bioinformatics working group that helps everyone stay up-to-date on current bioinformatic methods. Each month, a presenter will cover a specific topic, spanning various organisms from viruses to microbes to eukaryotes. Although CMS has its own bioinformatics groups, we welcome anyone interested from CMS as well to join. If you or anyone you know may be interested, please fill out this Google Form.

Snyder Endowed Chair Seminar Series | March 21



Join us for the Next Endowed Chair Seminar with Dr. Elena Verdu. It will take place on March 21, 2025, from 12:00-1:00 PM in HSC G500. We are pleased to welcome Dr. Verdu, who will present on "Microbial Proteolytic Activity in Inflammatory Bowel Disease." An informal reception will follow in the HRIC atrium from 1:00-2:30 PM, and all members, including trainees and postdocs, are encouraged to attend. Additionally, Snyder trainees and postdocs are invited to a roundtable lunch with Dr. Verdu from 10:45-11:45 AM in HRIC 4AC56. Dr. Verdu is a Professor at McMaster University with extensive expertise in gastroenterology, microbiology, and gnotobiology. Her research focuses on the gut microbiome's role in digestive diseases. Register here.

Upcoming Events

Necrophagy, Coprophagy, DaNGeRous Indigestion and Immunity to Cancer | Feb 18

Join this seminar hosted by the Charbonneau Institute, presented by the Riddell Centre for Cancer Immunotherapy and the Department of Microbiology, Immunology and Infectious Diseases. Dr. Caetano Reis e Sousa will present "Necrophagy, Coprophagy, DaNGeRous Indigestion, and Immunity to Cancer" on February 18, 2025, from 10:00 AM to 11:00 AM at the Arthur Child Auditorium (YC021161). This is a valuable opportunity to hear from Dr. Reis e Sousa, a leading expert in cancer immunity, as he shares key insights from his research. A trainee lunch and discussion session will follow from 12:10 PM to 1:00 PM in Arthur Child (YC021113), providing trainees a chance to engage directly with Dr. Reis e Sousa. To attend the lunch and discussion, RSVP using the QR code on the attached poster, as space is limited. Click here to register.

The One Health: Antimicrobial Resistance and Emerging Zoonoses Conference | March 11-14

The One Health: Antimicrobial Resistance and Emerging Zoonoses Conference will take place from March 11 to 14, 2025, at Hotel Arts in Calgary, AB. This in-person event brings together leading experts and researchers to address critical issues in antimicrobial resistance (AMR) and emerging zoonotic diseases. It offers a unique opportunity to collaborate with members of the AMR – One Health Consortium, the Canadian Antimicrobial Resistance Network and

the Canadian One Health Training Program for Emerging Zoonoses. The call for abstracts is now open, inviting submissions for oral and poster presentations. Researchers are encouraged to contribute to advancing interdisciplinary solutions to these pressing health challenges. The submission deadline is January 13, 2025. Click here to learn more details about the program.

Pandemic Evidence Collaboration International Conference | May 14-16, Banff Centre

We are pleased to share an exciting opportunity to participate in the Pandemic Evidence Collaboration 2025 Conference, taking place from May 14-16, 2025, at the Centre for Arts and Creativity in Banff. The conference's theme is "Looking at the Pandemic in the Rearview Mirror: Successes, Failures, and Unintended Consequences," to identify, develop and implement strategies for generating high-quality evidence on non-pharmacological interventions (NPIs) during public health emergencies to inform future policy and care decisions.

The call for abstracts is now open, and submissions include posters, poster elevator pitches, oral presentations, workshops and seminars. Learn more and register here. For questions, please contact John Conly.

In The News

- **The Guardian**
  They lived through the ice age. Can the mighty musk ox survive the heat?
  Dr. Susan Kutz talks about the rising temperatures are its impact on the displacement of Arctic mammals. Read more.

- **CBC News**
  As bird flu concerns grow, Alberta researchers hope to launch wastewater monitoring for livestock
  Dr. Michael Parkins talks about the Alberta Health Services (AHS) advisory on measles.

- **CBC News**
  AHS issues public alert after measles case confirmed in Calgary
  Dr. Craig Jenne talks about the Alberta Health Services (AHS) advisory on measles. Read more.

- **UToday**
  Recent finding of 'bird flu' in an Oregon pig a cause for vigilance, not panic
  Snyder Member Frank van der Meer fights online misinformation of H5N1 with evidence-based research. Read more.

- **CBC News**
  Flu cases on the rise in Alberta, while immunization uptake remains low
  Dr. Craig Jenne talks about the rise in flu cases in Alberta. Read more.

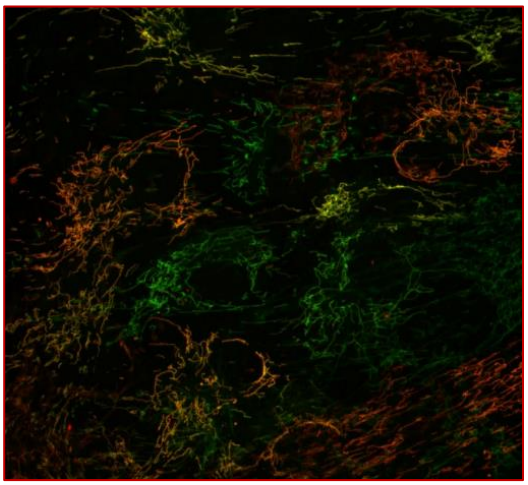
- **Global News**
  'The gift that keeps on giving': Albertans describe struggle with this year's virus season
  Dr. Daniel Gregson talks about the spike in respiratory illness. Read more

Design Support for Advanced Imaging and Prototyping: LCI ProtoLab

The LCI ProtoLab offers custom imaging adapters, fluidic devices, flow chambers, sample holders, and more, enabling you to concentrate on your scientific endeavors. As a comprehensive design and prototyping laboratory, we specialize in meeting the unique needs of your experiments. Our extensive capabilities include adapters for various lab equipment, imaging flow chambers, Transwell insert tools, patterned substrate molds, custom culture inserts, flow and shear stress chambers,

bubble traps, custom sample chambers, and pumping devices. Allow us to provide the design advice and technical support necessary to help you achieve your experimental goals. For more information, contact Nicholas Pittner.

Why Accessible Color Representations Matter?



Ever wondered how color choices in fluorescence microscopy impact data interpretation? Did you know red/green palettes can be difficult for those with color vision deficiencies? How can magenta/yellow improve visibility, and what role do colorblind simulations play? Why are some journals now requiring accessible color representations? Find out how small changes can make a big difference in scientific communication. Read here.

Other News

Snyder Institute Funding Reminder

- Snyder internal funding opportunities can be found on our website under Membership & Funding
- Snyder internal scholarship opportunities can be found on our website under Education & Scholarships

Awareness Information

Have you defrosted your fridges and freezers recently?

- Regularly maintain fridges and freezers to ensure proper function and longevity.
- Refer to the equipment manual for specific maintenance instructions.
- Ensure clearances around and on top of fridges and freezers to maintain airflow and heat exchange.
- Avoid stacking boxes on top of appliances to prevent reduced efficiency.
- Clean condenser coils and compressors at least twice a year.
- Inspect gaskets regularly and replace them if damaged.

Perform a complete cleanout and defrost annually:

  - Move contents to another fridge or freezer.
  - Switch off the appliance and unplug it.
  - Place absorbent pads on the floor to catch excess water.
  - Remove frost and ice using an ice scraper and brush.
  - Clean gaskets with a soft brush or dry cloth, checking for damage.
  - Allow remaining ice to melt completely.
  - Wipe away melted ice and water.
  - Disinfect the interior with isopropanol or an appropriate cleaning agent.
  - Let the interior dry completely.
  - Clean filters (if present) and coils.
  - Reconnect power, switch the appliance back on, and check its temperature with an independent thermometer before returning contents.

- For ultra-low-temperature (ULT) freezers:

  - Inspect the air intake filter regularly and clean as needed.
  - Check for frost and ice buildup on inner doors and gaskets monthly.

Would you like to contact someone at the Snyder Institute?

On our website, our Contact Us page has some useful contacts.

We want to hear from you! Send us your news

We invite all Snyder members, trainees and staff to send us your news about successes, lectures, workshops... anything that you would like to share with the membership. We will make every effort to post it, and the best ways for us to share your news are through our:

- Snyder Newsletter
- Snyder Website (as long as your news fits the site's guidelines)
- Twitter, LinkedIn, Instagram and Facebook channels

Do you want help publicizing your event/lecture/workshop? Send us the details **at least one month before the event date.** Please contact Anurag if you have any questions (anurag1@ucalgary.ca). Thank you.

For the latest news and information, visit us at snyder.ucalgary.ca, and at

If you have news to share, please send it to Anurag, mailto:anurag1@ucalgary.ca

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