



A Message From Our Director

Welcome to “MIRC Moments”, this being the second annual newsletter from the McMaster Immunology Research Centre (MIRC). 2022 has seen an amazing number of stellar accomplishments by MIRC faculty, trainees and staff, encapsulated here by our creative student-led communications committee. Significant achievements in research productivity, grant funding, national and internal recognition of faculty, trainee scholarships and awards at conferences are summarized. These are achieved with congeniality in collaboration and the passionate and dedicated work of all. The student-driven 2022 Perey Symposium is well highlighted, as are MIRC articles and activities in the news and social media throughout the year. MIRC stands tall again as an outstanding model Centre for research and training, and contributes to McMaster’s place as a highly ranked world leader in immunology. Enjoy some moments with MIRC.



Dr. Carl Richards

Professor and Director,
McMaster Immunology Research Centre

OVERVIEW:

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MIRC Member Excellence

Congratulations to...



Dr. Matthew Miller on being awarded the Excellence in Basic Science Research Award from Western University's SchulichMedDent, being named IIDR's Scientific Director, and being appointed the new Tier 2 CRC in Viral Pandemics

Dr. Dawn Bowdish for receiving the YWCA Women of Distinction Award in Health and Recreation



Dr. Charu Kaushic on being awarded the CANFAR Leadership Award, being elected as Fellow of Canadian Academy of Health Sciences, and being named Woman of Impact in Canada

Dr. Jonathan Bramson and Dr. Anthony Rullo for being awarded the Cancer Research Society Grant



Dr. Ali Ashkar for being awarded \$1M from CIHR for 'Investigating metabolic drivers of hyperinflammation during viral infection' and renewal for Tier 1 CRC in Natural Immunity & NK Cell Function

Dr. Amy Gillgrass for the renewal of the 2021 Institute for Infectious Disease Research and David Braley Centre for Antibiotic Discovery Seed Funding Award



Dr. Anthony Rullo on receiving \$7,000 from the Canadian Glycomics Network and for being promoted to Associate Professor

MIRC Advances Infectious Disease and Cancer Research



Left to right: Dr. Amy Gillgrass and Madeleine Lepard

The Rullo Lab and Mossman Lab publish new findings in cancer immunotherapy research

The Rullo lab made new strides in their work with covalent antibody recruiting molecules in their publication in *ACS Chemical Biology*. In this work, the Rullo lab developed a covalent immune proximity-inducing strategy using synthetic bifunctional electrophilic peptides, which were shown to improve anti-tumour efficacy. This method was particularly effective against hard-to-treat tumours with low PSMA expression and will open new avenues for research in synthetic tumour immunotherapy.

Recent MIRC graduate, Dr. Nader El-Sayes, and Dr. Karen Mossman published two papers in *International Journal of Molecular Sciences* and *Molecular Therapy - Oncolytics* examining methods to improve the use of oncolytic viruses to fight cancer. Their findings highlight the use of low-dose chemotherapy or type I IFN blockade in combination with oncolytic virus therapies to enhance anti-tumour efficacy.

The Gillgrass Lab publishes their humanized mouse model for TB/HIV coinfection

In their recent work published in *Viruses*, Madeleine Lepard, Jack Yang, and Dr. Amy Gillgrass are one of the first in the world to publish on humanized mouse models for HIV/TB co-infection.

Lepard et al. find that humanized mice expressing human HLA have improved immune reconstitution of CD4+ T cells and monocytes in comparison to standard models. When infected with HIV and/or TB, these mice also show key characteristics of human disease, including a drop in CD4+ T cells over time and human-like lung granuloma formation.

This novel mouse model for HIV/TB co-infection will be essential to further investigate HIV/TB co-infection and develop immune therapeutics.



Left to right: Dr. Anthony Rullo and
Harrison McCann



Left to right: Dr. Nader El-Sayes and Dr. Karen Mossman

MIRC in the NEWS

MIRC trainees and faculty work hard to make a positive impact in the research community and beyond! In 2022, MIRC members have helped educate Canadians, provided guidance on the upcoming flu season and vaccinations, and have had their research featured in many media outlets.

McMaster University named #1 Canadian University for Immunology

McMaster has been named the top University in Canada, and 33rd in the world for Immunology research by **Research.com!** The ranking is based on a sum of D-index (Discipline H-index) values of all leading scientists affiliated with McMaster University, including eight current MIRC PIs and three professor emeritae of MIRC. This is a testament to the high caliber of research undertaken by MIRC PIs and trainees!



McMaster Develops a COVID-19 Vaccination that can be Inhaled

An expert on translational research and respiratory mucosal immunity, **Dr. Zhou Xing** was part of the team that developed a COVID-19 vaccine that is inhaled instead of injected. The team also MIRC's **Dr. Matthew Miller** and **Dr. Brian Lichty**. The vaccine was approved for Phase I clinical trial and shows great promise. This exciting innovation was highlighted in the **Globe and Mail**.



Dr. Kjetil Ask Demystifies Medicine

The Hamilton Spectator has highlighted the amazing way **Dr. Kjetil Ask** has worked to increase education on how emerging scientific advances can translate to medical breakthroughs. His seminar series, *Demystifying Medicine*, has led to a Youtube Channel that has over 1,000 videos and 31 million views worldwide. The channel contains videos made by both students and researchers and has a wide audience, including researchers, high school students, and children.

Dr. Mukherjee Honored as a 2022 Health Hero by Best Health Magazine



Dr. Manali Mukherjee has been honored as a 2022 Health Hero by **Best Health Magazine** for connecting COVID-19 to auto-immune disease. The magazine highlighted her recent study where she tested the blood of 106 post-COVID patients and found two abnormal 'autoantibodies' in up to 30% of them. The magazine also discussed her next longitudinal research study which will follow 120 patients diagnosed who experience long-term symptoms from COVID for more than a year to determine why some people develop autoimmune problems post-COVID.

MIRC in the NEWS

New Schroeder Allergy and Immunology Research Institute Highlighted in the News

Health Insight highlighted the establishment of the new **Schroeder Allergy and Immunology Research Institute (SAIRI)**. SAIRI focuses on researching the causes of life-threatening allergies and works to find new treatments. The research institute involves clinicians, scientists, and data specialists, including the coordinator of the treatment branch, **Dr. Manel Jordana**, and **Dr. Joshua Koenig** as the assistant director.



Dr. Dawn Bowdish Fights Media Misinformation and Comments on Using Communication as a Tool for Productivity

As a leading immunologist, **Dr. Dawn Bowdish** is often consulted by media outlets seeking to educate its audience and help them make healthier choices. In an interview with the **Toronto Star**, she warns against depending on superfoods or supplements to boost your immune system and emphasizes that vaccination is the best way to protect your health. She also spoke to **Cell Systems** about how fostering communication through sharing team successes and failures has improved their research productivity and work satisfaction. Dr. Bowdish continues to use her voice to advocate for healthy academic team environments!



Dr. Jeremy Hirota Answers COVID-19 Questions Live with CBC News

Dr. Jeremy Hirota uses his expertise on lung immunology to answer questions about the damage that COVID-19 can do to your body on a Facebook Live with **CBC News**. He fielded questions and comments from Canadians confused on how COVID can affect their health to help further understanding of the disease nationally.



Dr. Matthew Miller Educates Canadians on COVID-19 and the Flu

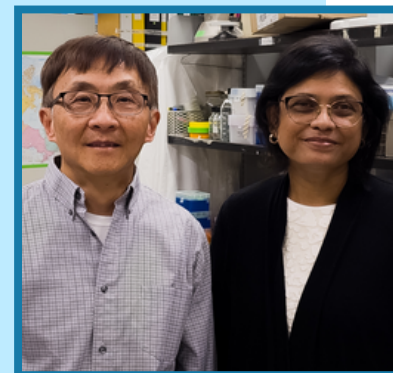
Since the beginning of the pandemic, **Dr. Miller** has been helping Canadians make informed decisions regarding vaccinations and COVID-19. This year, he continues to educate Canadians on virology and vaccinations. In articles by **Global News** and **CBC News**, Dr. Miller explains how this year's influenza vaccine can help protect Canadians and what to expect this flu season.



MIRC in the NEWS

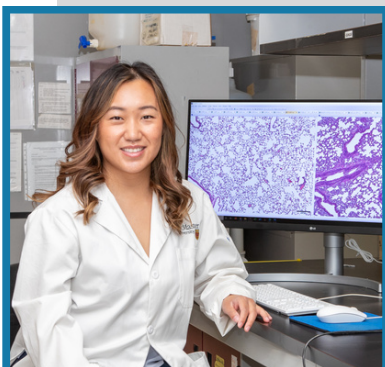
Dr. Xing and Dr. Jeyanathan's Recent Study Connects the Gut with Respiratory Immunity

Highlighted in **McMaster Brighter World**, this study published in *Nature Immunology* from **Dr. Xing** and **Dr. Jeyanathan** shows that a common tuberculosis vaccine can trigger a systemic immune alert and trained innate immunity in the lung through a previously unknown mechanism in the gut. These changes in the innate immune system can protect against not only tuberculosis, but also other respiratory infections. These findings can aid in the development of next-generation vaccines.



Emily Feng and Dr. Amanda Lee Discover How to Regulate the Immune Response During Viral Infection

MIRC trainee **Emily Feng** and MIRC Alumni **Dr. Amanda Lee** have uncovered how Type 1 interferon (IFN) works to regulate a dangerous immune response where the immune system starts attacking the body's own tissues during viral infections. "By discovering the mechanisms the immune system uses that can inadvertently cause tissue damage, we can intervene during infection to prevent this," Emily explains in an interview with **McMaster Brighter World**. Their work has been published in *PLOS Pathogens*.



New Promising Clinical Trial using Novel Cancer Immunotherapy Treatment from Bramson Lab Start-up

Triumvira Immunologics Inc., is a biotech start-up based in Hamilton and co-founded in 2017 by **Dr. Jonathan Bramson** and then post-doctoral fellow **Christopher Helsen**. The company focuses on the development of TAC-T cells, an immunotherapy treatment that programs endogenous immune cells to target solid tumours. It has raised over 100 million in venture capital funding in 2022 and is now running its first clinical trial. "A positive outcome from a clinical trial will spur further investment and growth," Dr. Bramson said about Triumvira in an interview with **McMaster Brighter World**.



8th D. Y. E. Perey Symposium

This year MIRC held its second virtual D. Y. E. Perey Symposium on June 1st and 2nd, giving trainees an opportunity to showcase their exciting research! The event had over 80 attendees, two outstanding Canadian immunology keynote speakers, and over 25 trainee oral presentations. This year we also had MIRC PIs pitch us their research programs with a 3 Minute Thesis, to introduce all attendees the impactful research conducted at MIRC!

We can confidently say the symposium was a huge success, thank you to all who attended!

This year we also hosted a graphical abstract competition hosted by BioRender! We obtained seven submission and gave prizes to the top three abstracts. It was a wonderful way to practice our visual communication skills!



Kayla Zhang
1st Place Winner

Mackenzie Thorpe
2nd Place Winner
Not pictured



Vitoria Olyntho Murakami
3rd Place Winner

Keynote Speakers



Dr. Megan Levings
University of British Columbia

"Tailoring regulatory T cells for Therapy"



Dr. Maziar Divangahi
McGill University

"Unlocking the power of Macrophages in immunity against pulmonary infections"

8th D. Y. E. Perey Symposium

Five awards were presented to the best long and short talks in the PhD, MSc, Post-doctoral, and undergraduate level category. Congratulations to all of the winners and everyone else who presented their high caliber and impactful research!

Best Short Talks

Kevin Zhao
1st Place
(MD/PhD -
Bowdish Lab)

Alexis Chacon
2nd Place
(MSc -
Gillgrass Lab)

Benjamin Lake
2nd Place
(PhD - Rullo Lab)

Ingrid Schwecht
1st Place
(Undergraduate
- Kaushic Lab)

Christopher Silvestri
1st Place
(MSc - Bramson Lab)



Best Long Talks

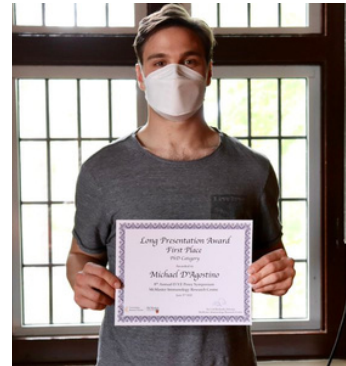
Candice Quin
1st Place
(Post-doc -
Bowdish Lab)

Allyson Moore
1st Place
(MSc -
Bramson Lab)

Michael D'Agostino
1st Place
(PhD - Miller Lab)

Yona Tugg
2nd Place
(MSc -
Miller Lab)

Jenna Benoit
2nd Place
(PhD - Bowdish Lab)



The two-day event was organized and facilitated by the outstanding 2021-2022 MIRC TAsc Committee: Liz Balint, Emily Feng, Emily Grydziuszko, Vaishna Kumaran, Nuzhat Rahman, and Nickolas Serniuck, with administrative help from Carrie Hasenack. We are really looking forward to the next one!

MIRC Trainees Present at Conferences

Across various Canadian and international conferences, MIRC trainees presented posters and oral presentations on their diverse research during 2022.

Many trainees were recognized for their research achievements and presentation skills with awards from these conferences!

Megan Vierhout - PhD student

Trainee Presentation Award -
CCTS Summer Blitz



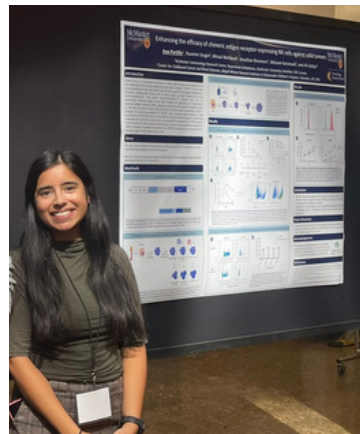
Rebecca Burchett - PhD student

Summit for Cancer Immunotherapy
Award



Misaal Mehboob - Undergraduate student

Best Rapid-Fire Talk -
CDCR Research Day

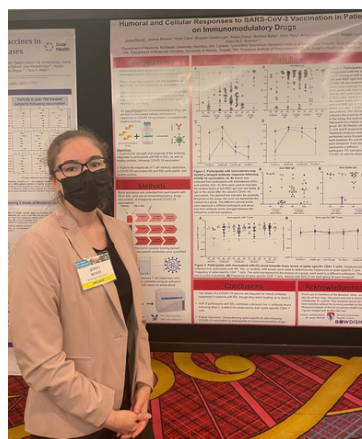


Ana Portillo - PhD student
Best Poster Presentation Award
- CDCR Research Day



Michael D'Agostino - PhD student

IIDR Trainee Day Award



Jenna Benoit - PhD student
CSI Conference Poster Award

Alexis Chacon

Mildred Gulliver Graduate
Scholarship in Infectious Disease
Research

CCTS - Canadian Connective Tissue Society
CDCR - Centre for Discovery in Cancer Research
CSACI - Canadian Society of Allergy and Clinical
Immunology
CSI - Canadian Society of Immunology
IIDR - Institute for Infectious Disease Research



MIRC Trainee Highlights



Danielle Libera

MSc Candidate, Jordana Lab

About my research: "I am investigating the cellular interactions that perpetuate allergic disease. I primarily work with mouse models to study allergic memory responses. I just helped finish up experimentations for a paper describing a novel phenotype of allergic memory B cells and will be continuing to study these cells throughout my degree."

Outside of science: "I try to be as active as possible every day, so I'm usually in the gym as soon as I'm done in the lab. I also love to hike, camp, play volleyball, and go out with friends. "

Kevin Zhao

PhD Candidate, Bowdish Lab



About my research: "My research focuses on understanding why older adults are more likely to catch and die from respiratory diseases as they age. I specifically focus on a cell type called the macrophage, which are the first-line defenders in the lung, and why they may become worse at killing pathogens and signalling to other immune cells in older adults. Since older men are especially susceptible to infectious respiratory diseases, I am also interested in studying the sex differences in the immune system that emerge in aging."

Outside of science: "I like to recharge in my off-time by playing Dungeons and Dragons with a group of grad students every other week. I also enjoy reading science fiction and listening to podcasts."



Kate Miyasaki

MSc Candidate, Mukherjee Lab

About my research: "Asthma is a common chronic respiratory disease affecting ~10% of Canadians. A subset of severe asthma patients have uncontrolled symptoms despite standard corticosteroid treatment. Many of these severe patients have self-attacking B cells that produce autoantibodies, which would normally be suppressed by regulatory B cells. Our research has shown that these autoantibodies can lead to further disease severity and associate with the difficult treatment. My master's project is immunophenotyping regulatory B cells in moderate-to-severe asthma patient airways and periphery, especially in the patients with autoantibodies. I hope to identify which patients have skewed effector-to-regulatory B cells and why."

Outside of science: "When I'm not in lab, I'm directing the high-range A Capella group here at McMaster (yes just like Pitch Perfect minus 50% of the drama). You can also find me being paparazzi to my cats while simultaneously bingeing LOTR and any mainstream Netflix show."

MIRC Trainee Awards

Pareesa Ali

Mitacs Accelerate

Sofya Ermolina

Graduate Student Incentive Program Award

Atai Ariaz

CSACI Summer Studentship

Emily Feng

CIHR Canada Graduate Scholarship - PhD
FHS Graduate Student Teaching Assistant
Excellence Award
W.E Rawls Memorial Scholarship

Liz Balint

CIHR Canada Graduate Scholarship - PhD

Dr. Biban Gill

CIHR Fellowship Award - Postdoctoral

Enzo Baracuhy

BioCanRX Summer Studentship
Graduate Student Incentive Program Award

Emily Grydziusko

CIHR Canada Graduate Scholarship - MSc

Jenna Benoit

Ontario Graduate Scholarship - PhD

Eden Kapcan

CIHR Canada Graduate Scholarship - PhD

Dr. Jessica Breznik

Mildred Gulliver Postdoctoral Award in
Infectious Disease Research

Victoria Lee

Graduate Student Incentive Program Award

Alexis Chacon

Mildred Gulliver Graduate Scholarship in
Infectious Disease Research

Mark Lychacz

Ontario Graduate Scholarship - MSc

Mei Nee Chiu

Graduate Student Incentive Program Award

Devon Malhotra

CIHR Canada Graduate Scholarship - MSc

Margaret Choi

IIDR Summer Fellowship Award

Art Marzok

Bordeleau Memorial Scholarship for Graduate
Student Mental Health Awareness

Sudeshna Dhar

Queen Elizabeth II Scholarship
Public Health Agency of Canada Studentship
Douglas C. Russell Memorial Scholarship
FHS Graduate Student Leadership Award

Ashwin Mathews

NSERC Undergraduate Student Research
Award

MIRC Trainee Awards

Harrison McCann

Ontario Graduate Scholarship - MSc

Misaal Mehboob

Dubeck Biochemistry Award
Ernest Robert Mackenzie Kay Scholarship

Matthew Habib Melki

Ontario Graduate Scholarship -MSc

Kate Miyasaki

Ontario Graduate Scholarship - MSc

Jonathan Monteiro

Dubeck Biochemistry Award
Ernest Robert Mackenzie Kay Scholarship
NSERC USRA
PHRI Research Studentship

Amelia Montemarano

BHSc Summer Research Scholarship

Allyson Moore

CIHR Canada Graduate Scholarship - MSc

Safaa Naiel

CIHR Canada Graduate Scholarship - PhD
FHS Outstanding Achievement Award

Vitoria Olyntho

BHSc Summer Research Scholarship

Allyssa Phelps

Ontario Graduate Scholarship - PhD
Eva Eugenia Lillian Cope Scholarship

Ana Portillo

CIHR Canadian Graduate Scholarship - PhD
Mary Keyes Award for Outstanding
Leadership and Service to McMaster

Dr. Candice Quin

The Gerard Wright & Teresa Gubala
Postdoctoral Award in Infection Research

Nadia Tan

Graduate Student Award in Asthma Research

Mackenzie Thorpe

Faculty of Science Co-op Student of the Year

Yona Tugg

CIHR Canada Graduate Scholarship - MSc

Megan Vierhout

FHS Outstanding Achievement Award

Zi (Sissi) Yang

CIHR Canada Graduate Scholarship - MSc

Annika Yardy

Ontario Graduate Scholarship - MSc
3MT Winner - Department of Chemical
Engineering

Kevin Zhao

Ontario Graduate Scholarship - PhD
McMaster Institute for Research on Aging
Scholarship

MIRC Trainee Awards



Yona Tugg and Art Marzok,
Miller Lab



Dr. Biban Gill,
Kaushic Lab



Left to right: Sudeshna Dhar, Mackenzie Thorpe,
Mark Lychacz, and Annika Yardy, Larché Lab



Left to right: Emily Feng, Ana
Portillo, and Liz Balint,
Ashkar Lab



Congratulations

to all MIRC
undergraduate,
graduate, &
postdoctoral
award holders!



Safaa Naiel and Megan Vierhout,
Ask Lab



Victoria Lee and Margaret Choi,
Gillgrass Lab



Kate Miyasaki and Nadia Tan,
Mukherjee Lab



Emily Grydziusko and Allyssa
Phelps,
Jordana Lab

MIRC Graduates of 2022

Doctoral

Dr. Kelly Bruton

Dr. Manel Jordana
Maintenance and Reprogramming of
Immunoglobulin E Memory

Dr. Nader El-Sayes

Dr. Karen Mossman
Improving Outcomes for Cancer
Immunotherapy

Dr. Omar Salem

Dr. Yonghong Wan
Investigating the Role of Virus-
Mediated Tumour Modulation in T Cell
Centric Cancer Immunotherapy



Masters

Tyrah Ritchie

Dr. Ali Ashkar
Consumption of Cannabis Oil During Pregnancy
Disrupts Implantation Site Remodelling and
Causes Fetal Abnormalities at Term

Spencer Revill

Dr. Kjetil Ask
Developing a histology-based composite index to
assess the degree of lung fibrosis using
quantitative HALO® modules

Dominika Boron

Dr. Dawn Bowdish and Dr. Michael Surette
Characterizing age-related changes and
protective features in the upper respiratory tract
microbiota associated with healthy aging and
chronic inflammation

Madeleine Lepard

Dr. Amy Gillgrass
Developing and Utilizing a Next-Generation
Humanized Mouse Model for Investigating HIV
and Tuberculosis

Jack (Xiaozhi) Yang

Dr. Amy Gillgrass
Investigating Immune Responses and Pathology
During HIV/Mtb Co-Infection Within Humanized
Mice

Sidney Pa

Dr. Amy Gillgrass and Dr. Charu Kaushic
Comparing the effects of NET and DMPA on
susceptibility to HSV-2 infection and effects on
immune cells

MIRC Graduates of 2022

Masters

Amanda Bakke

Dr. Charu Kaushic

Optimization of an in vitro model of biofilm formation on vaginal epithelial cells to test strategies for protection against bacterial vaginosis

Abiram Chandiramohan

Dr. Jeremy Hirota

Developing and validating a novel in vitro smoke exposure model and investigating the innate immunological impact of cannabis smoke exposure on primary human bronchial epithelial cells

Dayna Mikkelsen

Dr. Jeremy Hirota

Host Biomarkers of Respiratory Infection

Siyon Gadkar

Dr. Manel Jordana

An investigation of the impact of sublingual immunotherapy in experimental models of food allergy and anaphylaxis

Mark Lychacz

Dr. Mark Larché

Soluble mediators released by CD4+ T cells activate basophils and neutrophils in the context of IgE-mediated allergic diseases

Sarah Eisinga

Dr. Anthony Rullo

Optimizing Covalent Immune Recruiter Antibody Labelling Kinetics with Sulfur Fluoride Exchange Chemistry

Akshaya Raajkumar

Dr. Anthony Rullo

Evaluating the Effects of Covalency on Anti-Tumour Immune Function Using Syngeneic Tumour Models

Rebecca Turner

Dr. Anthony Rullo

Monocyte Covalent Immune Recruiters: Tools to Modulate Synthetic Immune Recognition

Ramandeep Singh

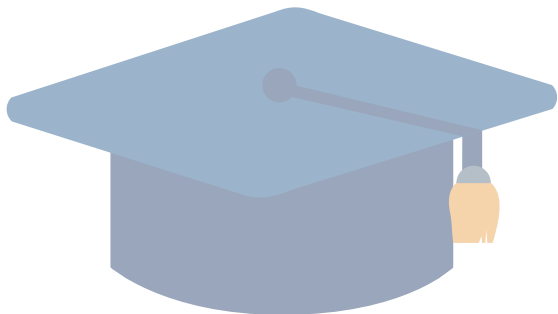
Dr. Zhou Xing

Examination of induction of innate immune memory of alveolar macrophages and trained innate immunity following respiratory exposure to infectious agents

Gluke Ye

Dr. Zhou Xing

Innate Immune Memory and Pulmonary Exposure to Lipopolysaccharides



Selected Publications

Balint, E. et al. Vaginal transmission causes prolonged Zika virus shedding in the vaginal mucosa and delays systemic dissemination. *Immunology and Cell Biology*

Lee, A.J. et al. Type I interferon regulates proteolysis by macrophages to prevent immunopathology following viral infection. *PLoS Pathogens*

MacDonald, K. et al. Type I Interferon Signaling is Required for Oncostatin-M Driven Inflammatory Responses in Mouse Lung. *Journal of Interferon & Cytokine Research*

McGrath, J.J.C. et al. Cigarette smoke augments CSF3 expression in neutrophils to compromise alveolar-capillary barrier function during influenza infection. *European Respiratory Journal*

El-Sayes, N. et al. IFNAR blockade synergizes with oncolytic VSV to prevent virus-mediated PD-L1 expression and promote antitumor T cell activity. *Molecular Therapy Oncolytics*

Breznik, J. et al. Cytomegalovirus Seropositivity in Older Adults Changes the T Cell Repertoire but Does Not Prevent Antibody or Cellular Responses to SARS-CoV-2 Vaccination. *Journal of Immunology*

Lepard, M. et al. Comparing Current and Next-Generation Humanized Mouse Models for Advancing HIV and HIV/Mtb Co-Infection Studies. *Viruses*

Afkhami, S. et al. Respiratory mucosal delivery of next-generation COVID-19 vaccine provides robust protection against both ancestral and variant strains of SARS-CoV-2. *Cell*

MIRC has been involved in the publication of

128

research articles, review articles, editorials, and other works!

Wang, Y. et al. The CaT stretcher: An open-source system for delivering uniaxial strain to cells and tissues (CaT). *Frontiers in Bioengineering and Biotechnology*

Mikkelsen, D. et al. Validation of CXCL10 as a biomarker of respiratory tract infections detectable by lateral flow immunoassay. *ERJ Open Research*

Freitag, A. et al. Peanut Oral Immunotherapy With or Without H1 and H2 Antihistamine Premedication for Peanut Allergy (PISCES): A Placebo-Controlled Randomized Clinical Trial. *Journal of Allergy and Clinical Immunology in Practice*

Grydziusko, E. et al. Heterogeneity, subsets, and plasticity of T follicular helper cells in allergy. *Journal of Allergy and Clinical Immunology*

Nazli, A. et al. LAMP3/CD63 Expression in Early and Late Endosomes in Human Vaginal Epithelial Cells Is Associated with Enhancement of HSV-2 Infection. *Virology*

Yegorov, S. et al. Inactivated and live-attenuated seasonal influenza vaccines boost broadly neutralizing antibodies in children. *Cell Reports Medicine*

Jeyanathan, V. et al. Differential biodistribution of adenoviral-vectored vaccine following intranasal and endotracheal deliveries leads to different immune outcomes. *Frontiers in Immunology*

Zhang, A. et al. Hemagglutinin stalk-binding antibodies enhance effectiveness of neuraminidase inhibitors against influenza via Fc-dependent effector functions. *Cell Reports Medicine*

El-Sayes, N. et al. A Combination of Chemotherapy and Oncolytic Virotherapy Sensitizes Colorectal Adenocarcinoma to Immune Checkpoint Inhibitors in a cDC1-Dependent Manner. *International Journal of Molecular Sciences*

Selected Publications

McCann, H. et al. Covalent Immune Proximity-Induction Strategy Using SuFEx-Engineered Bifunctional Viral Peptides. *ACS Chemical Biology*

Nguyen, A. et al. HDACi promotes inflammatory remodeling of the tumor microenvironment to enhance epitope spreading and antitumor immunity. *Journal of Clinical Investigation*

Son, K. et al. Autoantibody-mediated Macrophage Dysfunction in Severe Asthma Patients with Airway Infections. *American Journal of Respiratory and Critical Care Medicine*

Salter, B. et al. Airway Autoantibodies are Determinants of Asthma Severity. *European Respiratory Journal*

Mukherjee, M. et al. Benralizumab Attenuates Blood and Airway Eosinophilia in Severe Asthmatics with Inadequate Response to anti-IL-5 Neutralizing Antibodies. *European Respiratory Journal*

Son, K. et al. Circulating Anti-Nuclear Autoantibodies in COVID-19 Survivors Predict Long-COVID Symptoms. *European Respiratory Journal*

Dabaghi M. et al. 3D (bio) printing of Lungs: Past, Present, and Future. *European Respiratory Journal*

Huff, R. and Hirota, J. Opening up to cAMP Transport Mechanisms in Airway Smooth Muscle. *American Journal of Respiratory Cell and Molecular Biology*

Grydziuszko E. et al. Heterogeneity, Subsets, and Plasticity of T Follicular Helper Cells in Allergy. *Journal of Allergy and Clinical Immunology*

Phelps, A. et al. The Road Toward Transformative Treatments for Food Allergy. *Frontiers in Allergy*

Banerjee A. et al. Laying the Foundation for Single-Cell Studies in Bats. *Immunity*

Nazli, A. et al. Activation of Anti-Viral Innate Immunity in Epithelial Cells as a Potential Cellular Mechanism for Preferential R5 Transmission at Genital Mucosa. *Journal of the International AIDS Society*

Bagri, P. et al. The Role of IL-17 During Infections in the Female Reproductive Tract. *Frontiers in Immunology*

Jeyanathan, M. et al. Parental BCG Vaccine Induces Lung-Resident Memory Macrophages and Trained Immunity via the Gut-Lung Axis. *Nature Immunology*

Trainee Publication Highlight

Ali Zhang, MD/PhD Candidate



Congratulations to Ali Zhang, from the Miller Lab, on his innovative new paper published in *Cell Reports Medicine*!

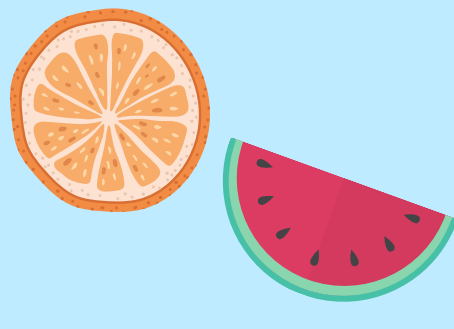
Zhang et al. showed that antibodies that bind to the conserved stalk domain of influenza hemagglutinin protein can work together with neuraminidase inhibitors to prevent influenza virus infection. They found that the levels of stalk-binding antibodies present in an individual's serum impacts the effectiveness of neuraminidase inhibitors. Further, they found that neuraminidase inhibitors could increase the efficacy of monoclonal stalk-binding antibody treatments.

Congratulations again to Ali for his amazing work at MIRC! We wish you all the best in your future successes!

Fun at MIRC



This year we celebrated summer with the MIRC BBQ for the first time since 2019!



Halloween at MIRC

MIRC celebrated Halloween to the fullest this year! Congratulations to our costume contest winners, the Ashkar Lab, and pumpkin carving winners, the Kaushic Lab!



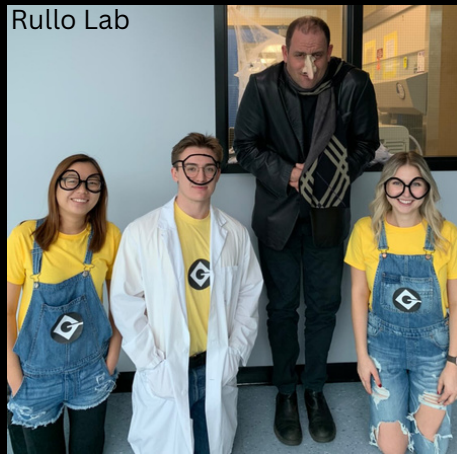
Kaushic Lab



Ashkar Lab, Winner



Gillgrass Lab



Rullo Lab



Miller Lab



Ashkar

Kaushic, Winner

Bowdish

Gillgrass

Jordana



Jordana Lab

Holidays at MIRC

Thank you to MIRC TAsc who organised the first in-person MIRC holiday party since 2019! It was a raging success!



Gillgrass Lab



Jordana Lab



2022-2023 MIRC TAsc



Miller Lab



Bramson Lab



Holidays at MIRC



Bowdish Lab



Rullo Lab



Left to Right: Nadia Milad, Hong Liang, Maria Media, Steve Gameiro



Ho Ho Ho!



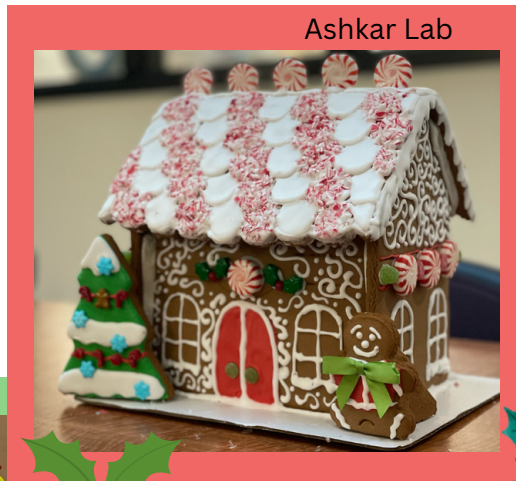
Ashkar Lab



Xing Lab

Holidays at MIRC

This year brought an exciting gingerbread house decorating competition and door decorating competition! Congratulations to the winners, the Ashkar lab for the best gingerbread house, and the Mukherjee lab for best door!



Kaushic Lab



Rullo Lab



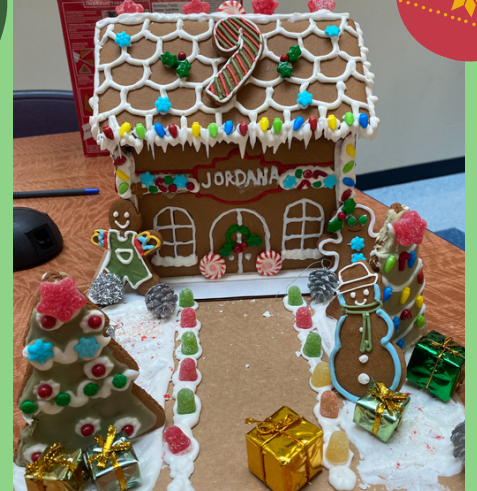
Bowdish Lab



Xing Lab



Jordana Lab



Miller Lab



2022-2023 MIRC Communications Committee



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Committee Leader



Liz Balint
Writing Editor



Emily Feng
Social Media Coordinator



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Emily Grydziuszk
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Sissi Yang
Writer



Mei Nee Chiu
Writer