



**2019 MBIM
UNDERGRADUATE
RESEARCH SYMPOSIUM**

Life Sciences Centre
University of British Columbia
April 25, 2019



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PROGRAM

8:30 - 8:55 **Light Breakfast & Welcome Address - LSC West Atrium**

9:00 - 11:00	Session 1A Talks - LSC 1416	Session 1B Talks - LSC 1410
	1. 24T	1. 12T
	2. 13T	2. 14T
	3. 17T	3. 18T
	4. 20T	4. 21T
	5. 2T	5. 3T
	6. 6T	6. 8T
	7. 9T	7. 10T

11:00 - 11:15 **Big Welcome - LSC 3**

11:15 - 12:00 **Keynote Talk - LSC 3**

12:00 - 13:30 **Lunch & Poster Session - LSC West Atrium**
- Odd posters judged between 12:00 - 12:45
- Even posters judged between 12:45 - 13:30

13:30 - 15:30	Session 2A Talks - LSC 1330	Session 2B Talks - LSC 1410
	1. 26T	1. 7T
	2. 15T	2. 27T
	3. 19T	3. 16T
	4. 22T	4. 25T
	5. 1T	5. 23T
	6. 5T	6. 4T
	7. 11T	

15:30 - 16:00 **Awards & Closing Remarks - LSC 3**



KEYNOTE TALK
Dr. Steven Hallam, PhD

ECOSCOPE Director
Professor and Peter Wall Scholar
University of British Columbia

“From the mind of a worm to memory in the microcosmos: Personal reflections on discovery and reinvention at disciplinary interfaces”

SESSION 1A TALKS - LSC 1416

24T. CRISPR/Cas9-mediated Gene Knockout of Human Furin Suppresses Zika Virus Infection

AUTHORS: Danni Zhu

COURSE: MICB 448 or 449 Jean Lab

13T. Investigation of the Mechanism of CD74 Function in Dendritic Cell Antigen Processing and Presentation of Endogenous and Exogenous Peptides

AUTHOR: Fennie E Easton van der Graaf*

COURSE: ISCI 448 Jefferies Lab

17T. Autoantibody Response Strength to Myelin Oligodendrocyte Glycoprotein in a Mouse Models of Multiple Sclerosis is Not Influenced by Long-Term Latent Gamma Herpesvirus-68 Infection

AUTHORS: Yu Gu*, Jessica R. Allanach, Citlali H. Marquez, Naomi M. Fettig, Iryna Shanina, Marc S. Horwitz

COURSE: MICB 448 or 449 Horwitz Lab

20T. Diagnostic Biomarkers for Viral Myocarditis

AUTHORS: Al R. Hossain*, Paul J. Hanson, Veena Lin, Jasmine Peng, Bruce M. McManus

COURSE: Academic co-op McManus Lab

2T. Developed biofilm assay suggests *Escherichia coli* Nissle 1917 may mediate biofilm inhibition in *Escherichia coli* K-12 in liquid co-culture

AUTHORS: Alex KC Fung, Anderson Li, Helen Lin, Vivian Z. Li

COURSE: MICB 447 or MICB 421

6T. Development of a Rapid, Single-Cell Method of Recombinant Clone Screening Using Flow Cytometry

AUTHORS: Saelin Bjornson*, Brian Shim*, Grace Kuo*, Bruno Freitas*

COURSE: MICB 447 or MICB 421

9T. A Modular System for Autotransporter-based Surface Display of Recombinant Proteins in *Escherichia coli*

AUTHORS: Jody Mao*, Mitch Syberg-Olsen*, Dylan Zhao*, Danni Zhu*

COURSE: MICB 447 or MICB 421

SESSION 1B TALKS - LSC 1410

12T. Compositional changes to the ileal microbiome precede the onset of spontaneous ileitis in SHIP deficient mice

AUTHORS: Peter Allan Dobranowski, Chris Tang*, Jean Philippe Sauv, Susan Christine Menzies & Laura May Sly

COURSE: BIOL 448 Sly lab

14T. The impact of murine gut microbiota composition on susceptibility to DSS-induced colitis

AUTHOR: Tina Madani Kia

COURSE: Jacobson Lab

18T. Towards the Mechanistic Understanding of O-Acetylpeptidoglycan Esterase, a Bacterial Periplasmic Enzyme

AUTHOR: Ian Y. Yen*

COURSE: MICB 448 or 449 Murphy Lab

21T. Use of Combinational Broad-Spectrum Antiviral Cocktail for Treating Current and Emerging Coronavirus Infections

AUTHORS: Naser (Milad) Biparva*

COURSE: MICB 406

3T. Negative Stain Electron Microscopic Analysis Suggests O Antigen Expression in *E. coli* strain K-12 May Prevent T4 Interactions with the Bacterial Surface

AUTHORS: Milad Biparva*, Arya Ghazizadeh*, Thomas Hoang*, Sunny Sun*

COURSE: MICB 447 or MICB 421

8T. Steps toward a luciferase assay system for investigating gene expression

AUTHORS: Adam Mesa*, Coco Ru Lan Xu*, Annie Yip, Ada Zhang*

COURSE: MICB 447 or MICB 421

10T. Sub-Inhibitory Treatment of *Escherichia coli* With Gentamicin Confers Cross-Protection to T7 Bacteriophage Mediated Cell Lysis

AUTHORS: Mahta Amanian*, Selina D. Demetrick*, Jaime Gabriel G. Gana*, Tyler L. Tam*

COURSE: MICB 447 or MICB 421

SESSION 2A TALKS - LSC 1330

26T. Development of OutLine: A Tracking Research Tool to Model Changes in Cell Morphology

AUTHORS: Emily Gubski*, Diane Nguyen, John Frostad
COURSE: Frostad Lab

15T. Synergistic Bacterial Metabolism as a Contributor to Environmental Enteric Dysfunction

AUTHORS: Thomas Hoang, Kelsey Huus, Brett Finlay
COURSE: MICB 448 or 449 Finlay Lab

19T. Identifying a Genetic Mechanism for Zinc Solubilisation by Plant-Associated *Pseudomonas*

AUTHORS: Andrew J Wilson*, Yi Song, Yang Liu,
Quentin Geissmann, Cara Haney
COURSE: Academic co-op Haney Lab

22T. Herpes Simplex Virus 1 In Oncolytic Virotherapy For Treatment Of Triple Negative Breast Cancer

AUTHORS: Alex KC Fung*
COURSE: MICB 406

5T. Presence of *wbbL* Inhibits T4 Bacteriophage Adsorption to *Escherichia coli* K12 Strains

AUTHORS: Justine Dimou*, Jolin Lu*, Shannon Pflueger*, Eric Toombs*
COURSE: MICB 447 or MICB 421

1T. OmpC and OmpF mediated resistance to kanamycin in *Escherichia coli* K12: Investigating the effect of osmolarity

AUTHORS: *Samantha W.Y. Feng, *Tina Y.T. Liao, *Aya Z. Zakaria,
*Dan L. Wang
COURSE: MICB 447 or MICB 421

11T. *Escherichia coli* Nissle 1917 Forms Biofilm and Outgrows *Escherichia coli* K12 in a Temperature-Dependent Manner

AUTHORS: Jaspreet K. Gill*, Karen P. L. Lau*, Tina T. Lee*,
Hasel Joy R. Lucas*
COURSE: MICB 447 or MICB 421

SESSION 2B TALKS - LSC 1410

7T. *Escherichia coli* K12 ompC Knockout Mutant Confers Transient Resistance to SDS-EDTA in Phosphate-Deficient Media

AUTHORS: Aameena Hashimi*, Pavneet K. Kalsi*, Prabhreet K. Sekhon*,
Celina N. Sewlochan*

COURSE: MICB 447 or MICB 421

27T. A Multiomics Platform Enables the Identification of New Cell Types in Colorectal Cancer

AUTHORS: Wojciech Lason*, Maunish Barvalia, Kenneth Harder

COURSE: MICB 448 or 449 Harder Lab

16T. The Cofilin-Modulating Protein Wdr1 Regulates Actin Dynamics and Immune Synapse Formation in B Cells

AUTHOR: Faith Cheung

COURSE: MICB 448 or 449 Gold Lab

25T. Electrochemical detection of microRNA - anti-microRNA hybridization events on a microfluidic chip via gold nanoparticle sensors

AUTHORS: Chanwoo Ho*, Morris Huang*

COURSE: UBC iGEM

23T. CRISPR/Cas13a as a viral nucleic acid detection mechanism for POC testing

AUTHORS: Ada Ang

COURSE: MICB 406

4T. RcsB Does Not Play A Role In Temperature Mediated Protection To *Escherichia coli* k-12 Against T7 Bacteriophage Lysis

AUTHORS: Sunny Chen, Sophie Guo, Tiffany Leung, Gurkiran Parma

COURSE: MICB 447 or MICB 421

POSTERS & INFOGRAPHICS

1P. Strategies for the Heterologous Expression of *Chloroflexus aurantiacus* Reaction Centres in the Host Strain *Rhodobacter sphaeroides*

AUTHORS: Amita Mahey*, Daniel Jun, John T. Beatty

COURSE: MICB 448 or 449 Beatty Lab

2P. An Investigation into the Epidemiology and Genetics of Erythrocytic Necrosis Virus (ENV) in the North Pacific Coastal Ocean

AUTHORS: Veronica Pagowski

COURSE: EOSC 449 Suttle Lab

3P. The Effect of Platelet-activating Factor on Tissue Specific Mast Cells

AUTHORS: James Sousa*, Lucy Li*, Amy Wang*, Isabella Factor*

COURSE: REX project

4P. Extracellular vesicle miRNA contribution to erlotinib resistance in oral squamous cell carcinoma (OSCC) cells

AUTHORS: Maria Beletsky*, Hanna D'Cruz*, Christina Gentle,
Jeong Min Son

COURSE: REX project

5P. A Genomic and Physiological Investigation of Novel Sterol-Degrading Cellvibrionales from Marine Sponges

AUTHORS: Ameena Hashimi*, Johannes Holert, William W. Mohn

COURSE: MICB 448 Mohn Lab

6P. Attempting to Model Chronic Enteric Viral Infection in a Murine Intestinal Organoid Model Through IL-4 Induction of Tuft Cells

AUTHORS: Navid Saleh

COURSE: MICB 448 or 449 Osborne Lab

7P. Bacterial Enzymes involved in Degrading Lignin Monomers

AUTHORS: Pavneet Kalsi, Morgan M. Fetherolf, David J. Levy-Booth,
Gordon Stewart, William W. Mohn, Lindsay D. Eltis

COURSE: Academic co-op Eltis Lab

8P. Developing a Biofilm Model of *Mycobacterium abscessus* Infections for High Content Treatment Assays

AUTHORS: Sara S Dalkilic*
COURSE: Academic Co-op Av-Gay Lab

10P. Phosphate Deficiency Restores SDS-EDTA Resistance in an *Escherichia coli* K12 ompC Knockout Mutant

AUTHORS: Christiane P. Boen, Faith Cheung, Milena Kovacevic,
Ian Y. Yen
COURSE: MICB 447 or MICB 421

11P. Pre-treatment with penicillin, streptomycin and tetracycline does not confer cross protection to cell-wall targeting antibiotics in *Escherichia coli* despite upregulation of *rprA*

AUTHORS: Tawan Pookpun*, Kendrew SK Wong*,
Joshua Bowman* and Robin Couput
COURSE: MICB 447 or MICB 421

12P. Slower Growth and Increased Biofilm Formation of *Escherichia coli* K-12 Stringent Response Mutant, *relA/spot*, under Isoleucine Starvation

AUTHORS: He Huang*, Vivian Jiang*, Yu Qing Zhou*
COURSE: MICB 447 or MICB 421

13P. *Escherichia coli* K12 Strain JW5917-1, an *rscC* Knock Out Strain in the Keio Collection, Displays an Impaired Growth Phenotype Compared to its Isogenic Parent Strain BW25113

AUTHORS: Kyler Kanegawa*, Emma McIver*, Jackson Moore*,
Matthew A Tester
COURSE: MICB 447 or MICB 421

14P. Developing the Antisense Silencing Model for the Investigation of the Mechanism of Resistance of *Escherichia coli* DFB1655 L9 to T4 Bacteriophage

AUTHORS: Derek Chow*, Amanda E. Clark*,
Yuan Hung (Oliver) Huang*, Si Zhe (Celeste) Ng*
COURSE: MICB 447 or MICB 421

15P. Cefotaxime antibiotic and T4 phage resistance in *Escherichia coli* through OmpC porin mutation

AUTHORS: Daisy Li*, Elmeri Hakkinen*, Ahmad Maslati*

COURSE: MICB 447 or MICB 421

16P. Validating O16 Antigen-conferred protection of *Escherichia coli* against T4 bacteriophage lysis by Electron Microscopy

AUTHORS: Greg Morgan, Blake Tamboline, Paaksum Wong, David Lim

COURSE: MICB 447 or MICB 421

17P. The role of MicroRNA-17 in the modulation of checkpoint ligands in Lung Adenocarcinoma

AUTHORS: Haya Abuzuluf*, Etienne Melese, Ninan Abraham

COURSE: MICB 448 or 449 Abraham Lab

1G. How Neural Networks Can Revolutionize Diagnosis and Identification of Bacteria

AUTHORS: Mark K. J. Pitblado

COURSE: MICB 306 or 308

2G. Pneumolysin Binds to the Mannose Receptor C Type 1 Leading to Enhanced *Pneumococcal* Survival

AUTHORS: Manish Toofany

COURSE: MICB 306 or 308



design by
Tamar Av-Shalom