

Kevin Mercurio

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EDUCATION

Doctor in Philosophy, Microbiology
Trinity College, University of Dublin

Mar 2021 – present
Dublin, Ireland

- Thesis Title: Unravelling the relationship between host miRNAs and the gut microbiome in IBD.
- Supervisor: Dr. Sinéad Corr

Master of Science in Biochemistry
University of Ottawa

Sept 2017 – April 2020
Ottawa, Ontario

- Thesis Title: Identifying genes required for *Saccharomyces cerevisiae* growth in mucin.
- Supervisor: Dr. Kristin Baetz

Honours Bachelor of Science, Major in Biochemistry (with Co-op)
University of Ottawa

Sept 2011 – Jun 2016
Ottawa, Ontario

- Thesis Title: Identifying novel genes involved in biofilm-specific antibiotic resistance in *Pseudomonas aeruginosa*.
- Supervisor: Dr. Thien-Fah Mah

RESEARCH EXPERIENCE

Graduate Student
Trinity College, University of Dublin

Mar 2021 – present
Dublin, Ireland

- Determining the role mir21 plays within an inflammatory bowel disease model and characterize its impact on the gut epithelium, immunological response, microbiota and metabolism.

Laboratory Technician
University of Ottawa

Sept 2020 – Jan 2021
Ottawa, Ontario

- Provided general technical assistance and laboratory procedures as needed, routine maintenance and cleaning of equipment and glassware.
- Supported in laboratory ordering and stockpiling.
- Performed strain construction, live-cell microscopy, western blotting with yeast to understand the effect of undesired industrial toxins like adipic acid on cellular growth.

Graduate Student
University of Ottawa

Sept 2017 – Apr 2020
Ottawa, Ontario

- Utilized genetics and microscopy tools to determine how yeast metabolize mucin as an energy source, such as how fungi survive in the human gut.
- Performed high-throughput screening of the *Saccharomyces cerevisiae* Deletion Mutant Array, and RNA sequencing that led to the identification of important genes for growth in mucin.

Undergraduate Student (Honours)
University of Ottawa

Sept 2015 – Aug 2016
Ottawa, Ontario

- Investigated biofilm-specific antibiotic resistance in *Pseudomonas aeruginosa* found in cystic fibrosis patients using minimal bactericidal concentration assays on transposon-insertion mutants.
- Conducted qPCR analyses comparing gene expression between biofilm and planktonic cells.
- Constructed gene deletion mutants via plasmid manipulation and gene recombination.

Co-op Researcher
FPIInnovations

Sept 2014 – Dec 2014
Montreal, Quebec

- Enhanced the efficiency of enzymatic hydrolysis on softwood paper pulp material, as a means to obtain useful sugars for biochemical synthesis.
- Utilized cellulases, hemicellulases and performance-enhancing additives (acids, sulphites) to break down problematic lignin biomass, leading to optimal product formation.
- Developed strong communication skills through presentations to company superiors.

Co-op Researcher
University of Alberta

May 2014 – Aug 2014
Edmonton, Alberta

- Developed a robust method for spectrophotometric quantification of phage virulence.
- Established microplate virulence assay protocols using different infection conditions by varying parameters like temperature, adsorption efficiency and infection media.

PEER-REVIEWED PUBLICATIONS AND PRESENTATIONS

Publications

- **Mercurio K.**, Singh D., Walden E., Baetz K. (2021). Global analysis of *Saccharomyces cerevisiae* growth in mucin. *G3*, doi: 10.1093/g3journal/jkab294.
- O'Callaghan A. A., Dempsey E., Iyer N., Stiegeler S., **Mercurio K.**, Corr S. (2021). Intestinal Metabolites Influence Macrophage Phagocytosis and Clearance of Bacterial Infection. *Frontiers in Cellular and Infection Microbiology*, 11: 622491.
- Fletcher E., **Mercurio K.**, Walden E., Baetz K. (2021). A yeast chemogenomic screen identifies pathways that modulate adipic acid toxicity. *iScience*, 24(4): 102327.
- Storms Z., Teel M., **Mercurio K.**, Sauvageau D. (2019). The Virulence Index: A Metric for Quantitative Analysis of Bacteriophage Virulence. *PHAGE: Therapy, Applications, and Research*, 1: 1X. Invited article for the preview/inaugural issue.
- Fletcher E., Gao K., **Mercurio K.**, Ali M., Baetz K. (2019). Yeast chemogenomic screen identifies distinct metabolic pathways required to tolerate exposure to phenolic fermentation inhibitors ferulic acid, 4-hydroxybenzoic acid and coniferyl aldehyde. *Metabolic Engineering*, 52: 98-109.

Poster and Oral Presentations

- **Mercurio K.** (2019). *Identifying genes required for Saccharomyces cerevisiae growth in mucin*. Presentation for the International Conference on Yeast Genetics and Molecular Biology, Gothenburg, Sweden.
- **Mercurio K.**, Singh D., Baetz K. (2019). *Identifying genes required for Saccharomyces cerevisiae growth in mucin*. Primary author of abstract and poster for the Ottawa Institute of Systems Biology Conference, Cornwall, Ontario.
- **Mercurio K.** (2019). *Identifying genes required for Saccharomyces cerevisiae growth in mucin*. Presentation for the University of Ottawa Faculty of Medicine's Seminar Day, Ottawa, Ontario.
- **Mercurio K.**, Butcher J., Stintzi A., Baetz K. (2018). *Determining the survival ability of budding yeast in human gut-like conditions*. Primary author of abstract and poster for the Department of Biochemistry, Microbiology and Immunology's Poster Day, Montebello, Quebec.
- **Mercurio K.**, Hall C. W., Mah T. F. (2016). *Identification of a novel gene involved in Pseudomonas aeruginosa biofilm-specific resistance to antibiotics*. Primary author of abstract and poster for the Canadian Society of Microbiologists' Conference, Toronto, Ontario.
- **Mercurio K.** (2016). *Floxcatcher: A study on predicted biofilm-specific genes in P. aeruginosa and their impact on ciprofloxacin resistance*. Presentation for the University of Ottawa's Biochemistry Program Seminar Course (BCH4932), Ottawa, Ontario.
- **Mercurio K.**, Mah T. F. (2016). *The impact of predicted biofilm-specific genes on ciprofloxacin resistance in Pseudomonas aeruginosa*. Primary author of abstract and poster for the University of Ottawa's Undergraduate Biochemistry Program Poster Day, Ottawa, Ontario.
- **Mercurio K.** (2014). *Finding the Midas Touch: Strategies to increase the value of a lignin-rich softwood high yield pulp fraction*. Presentation for the FPIInnovations' Co-op End-of-Term, Montreal, Quebec.
- **Mercurio K.**, Storms Z., Sauvageau D. (2014). *Determining a method of quantifying bacteriophage virulence*. Primary author of abstract and poster for the University of Alberta's Research Experience (UARE) Poster Symposium, Edmonton, Alberta.

HONOURS AND AWARDS

- Winner of the FameLab Ireland National Video Heat (2021)
- Selected postgraduate for the Annual LERU Summer Conference (TCD, 2021)
- Provost's PhD Project Award (TCD, 2021)
- 1st place at M.Sc. Biochemistry Seminar Day (uOttawa, 2019)
- Graduate Studies Leadership Award for Student Engagement (uOttawa, 2018)
- *Cum laude* undergraduate academic honours (uOttawa, 2016)
- NSERC Industrial Undergraduate Student Research Award (2014)
- Entrance scholarship valued at \$8,000 (uOttawa, 2011-2012)
- Ontario Scholar Award (St. Paul Catholic High School, 2011)

ANALYTICAL AND PROFESSIONAL TRAINING

Student Mentorship

- Supervised an undergraduate student in classic molecular biology techniques from the Faculty of Medicine's Translational and Molecular Medicine Program.
- Mentored an undergraduate student in chemogenomic screening as part of the Faculty of Medicine's annual DEGREE program.

Technologies for Microbiome Science and Engineering (TechnoMiSE)

- Part of the Natural Science and Engineering Research Council of Canada's Collaborative Research and Training Experience Programs (NSERC-CREATE).
- Developed bioinformatics skills in workshops about the analysis of large datasets via RStudio.
- Advanced science communication skills through practicing oral presentations and networking with industry partners in microbiome science.
- Expanded on skills such as time-management, productivity, stress management and work-life balance through professional Mitacs workshops.
- To encourage trainee participation in program development, organized the TechnoMiSE Student Committee for trainee networking and project support.

OTHER PROFESSIONAL EXPERIENCE

Curriculum Vitae Reviewer

May 2021 – present

Trinity Career Services

Dublin, Ireland

- Provide critical feedback on CVs, LinkedIn profiles and cover letters to undergraduates

Trade Commissioner

Nov 2016 – Aug 2017

Global Affairs Canada

Ottawa, Ontario

- Mandate was to support the Canadian biopharmaceutical and biotechnology sector.
- Contacted company administration for sector insight and support in business development.
- Designed technical reports and presentations about the Canadian impact in emerging fields such as immune-oncology and gene therapy.
- Participated in interdepartmental sector discussions and government conferences.

Junior Trade Commissioner (Co-op)

Jun 2015 – Aug 2015

Global Affairs Canada

Ottawa, Ontario

- Gathered intel on the domestic activity of the Canadian Life Sciences industry.
- Collaborated with team members to design reports and presentations for the division.

Risk Profiler (Co-op)

Jan 2014 – Apr 2014

Canadian Food Inspection Agency

Ottawa, Ontario

- Gathered and organized massive amounts of information as a basis for food safety reports.
- Assessed the severity of chemical and biological hazards prevalent in common Canadian food items, such as cadmium in rice products and lead in tea leaves.

VOLUNTEER EXPERIENCE

**Contributing Writer
The University Times**

**May 2021 – present
Dublin, Ireland**

- Writer on select topics regarding science initiatives that impact students at Trinity College Dublin.
- Published article about the SciComm Collective sponsored by Ireland's Department of Health:
<http://www.universitytimes.ie/2021/06/how-the-science-communication-collective-is-battling-misinformation/>

**Policy Coordinator
Science Slam Canada**

**Feb 2021 – present
Ottawa, Ontario**

- As part of the restructuring of the now non-profit, responsible for devising fundamental policies of the organization including finances, volunteer coordination and event planning.

**Section Reviewer
University of Ottawa's Journal of Medicine (UOJM)**

**Oct 2020 – present
Ottawa, Ontario**

- Perform first-line peer review, providing critical appraisal and comments on articles of various topics related to health.

**Mentorship Coordinator
Science to Business Network (S2BN)**

**Sept 2019 – Aug 2020
Ottawa, Ontario**

- To bridge the gap between science and industry, created the inaugural S2BN Mentorship program for STEM-based graduate students and post-doctoral fellows in the Ottawa region.
- Devised promotional materials, organized call for applications and conducted matchmaking between trainees and governmental/industry professionals.
- Produced marketing materials for the annual S2BN Academia to Industry Meeting (AIM) linking graduate students and other trainees with professionals in government, industry and NGOs.

**Judge
Ottawa Regional Science Fair (ORSF)**

**April 2018 – March 2020
Ottawa, Ontario**

- Evaluated scientific projects in the field of biological sciences for elementary and high-school students in the Ottawa region.

**Vice-President of Academic Affairs
Department Graduate Student Association (BMIGSA)**

**May 2018 – April 2019
Ottawa, Ontario**

- Represented graduate students both at the departmental and faculty level.
- Communicated academic feedback to department program directors and administration while relaying important information back to the students.
- Organized academic-related events throughout the school year such as scientific panels, skills workshops and Faculty of Medicine's Career Day.
- To address student confusion about educational and research issues, worked with the faculty administration to design orientation workshops for trainees.
- Actively engaged the student community through the organization of social events.

Vice-President of Social Affairs**Sept 2015 – Apr 2016****University of Ottawa Healthcare Symposium (UOHS)****Ottawa, Ontario**

- Organized the largest conference at the university directed towards the challenges of a frequently changing healthcare field.
- Responsible for coordinating volunteer teams and planning event catering.
- Managed social events and activities, such as designing the “Socrates Cafe” event for discussion amongst attendees on relevant healthcare issues.

Student Educator**Sept 2015 – Apr 2016****University of Ottawa Health Services****Ottawa, Ontario**

- Member of Leave The Pack Behind (LTPB): an Ontario university tobacco information program.
- Informed the student body about health-related services and events offered by the organization through in-person interactions.
- Organized events such as CO-testing and contests with the intent of providing information on the disadvantages of all types of smoking, and the benefits of quitting or reducing.

OTHER INFORMATION**Podcast Host****Mar 2020 – present****Metaphorigins****Virtual**

- Host personal podcast about the origins of English expressions, the science behind general communication, and techniques for science communication to the public.
- Interview graduate students from all backgrounds around the world about how to engage the scientific community and the public.

Short Story Feature**Jun 2020****Health Science Inquiry****Toronto, Ontario**

- Featured author of the short story Blue Elephant, published in the journal's 11th Volume about determinants of health (<https://healthscienceinquiry.com/index.php/hsi/article/view/322/301>)

REFERENCES

Available upon request.