

Catie Futhey

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EDUCATION

Year 1 MD/PhD Candidate Class of 2029
University of British Columbia

**Supervisors: Dr. Veronica Hirsch-Reinshagen
& Dr. Mark Cembrowski**
Graduate Program in Neuroscience

Bachelor of Science: Neuroscience 2016-2020
McGill University, Montreal, Canada
Competitive-entry program accepting 50 students/year

Exchange semester: **University of Melbourne**
Melbourne, Victoria, Australia **Feb-June 2019**

BSc. Global Designation
Dean's Multidisciplinary Undergraduate Research List
J W McConnell Entrance Scholarship, \$3000
2016-2017 Dean's Honour List
(top 10% in the Faculty of Science)

RESEARCH EXPERIENCE

Surveillance of Multi-Drug Resistant Gram Negative Bacterial Infections in Children

Supervised by Dr. Manish Sadarangani and Dr. Tinta Deasy, BC Children's Hospital Research Institute
December 2021-November 2022

Conducted a prospective chart review studying gram negative bacteremia in inpatients at BC Children's Hospital, exploring multi-drug resistance, and patient clinical outcomes.

Vitamin D- and Estrogen-Modulated Inflammation in Multiple Sclerosis (MS)

Supervised by Dr. Jack Antel and Dr. Luke Healy, Montreal Neurological Institute
Summer 2019-September 2020

Final-year independent thesis research project aiming to understand potential functional complementarity and synergistic roles for vitamin D and estradiol, by characterizing their effects on A20 expression in primary human myeloid cells. I discovered that Vitamin D directly upregulated the estrogen-synthesizing aromatase 20-fold at the mRNA level, suggesting a relationship between the two in human monocyte-derived macrophages.

Myelin Development in TYRO3 Knockout Mice

Supervised by Dr. Trevor Kilpatrick and Michele Binder, Florey Institute of Neuroscience and Mental Health, Melbourne, Australia
February-June 2019

Assisted in various laboratory tasks including conducting RNA extractions and qPCRs to characterize differences in myelin development between TYRO3 KO and WT mice. Attended weekly Australian neuroscience seminars.

SMPD1 Mutations and Rapid Eye Movement (REM) Sleep Behaviour Disorder (RBD)

Supervised by Dr. Ziv Gan-Or, Montreal Neurological Institute

Fall 2018 Semester

Elective independent research course in human genetics striving to evaluate a potential role of SMPD1 variants in isolated RBD, a commonly observed disorder in the prodromal phase of Parkinson's Disease (PD). Worked with large databases to analyze specific variants in patients versus controls, performing validations in lab with PCR.

TECHNIQUES: RNA extraction, RT-PCR, qPCR, ELISA, PBMC and monocyte isolation, siRNA transfection, flow cytometry, primary human tissue culture and treatment methods (monocyte-derived macrophages, microglia, astrocytes), figure creation, participant recruitment and informed consent, chart review, data analysis and presentation.

PUBLICATIONS

- Futhey, N. C.** & Galea, L. (in press). (Fund)amental changes to sex differences in research: Women's health from cells to clinic. University of British Columbia Medical Journal.
- Clarke, J., Yaqubi, M., **Futhey, N. C.**, et al. Vitamin D Regulates MerTK-Dependent Phagocytosis in Human Myeloid Cells. 2020. Journal of immunology (Baltimore, Md. : 1950), 205(2), 398-406. <https://doi.org/10.4049/jimmunol.2000129>
- Kolahdouzan, M., **Futhey, N. C.**, Kieran, N. W., & Healy, L. M. Novel Molecular Leads for the Prevention of Damage and the Promotion of Repair in Neuroimmunological Disease. 2019. Front Immunol, 10, 1657.
- Rudakou, U., **Futhey, N. C.**, et al. SMPD1 variants do not have a major role in rapid eye movement sleep behavior disorder. 2020. Neurobiology of aging, S0197-4580(20)30124-X. Advance online publication. <https://doi.org/10.1016/j.neurobiolaging.2020.04.005>

AWARDS & ACCOMPLISHMENTS

- ✦ 2023 UBC SBME Synergy Summer Studentship Program Award Recipient [declined] Apr 2023
- ✦ Dean's Multidisciplinary Undergraduate Research List (DMURL): substantial and broad participation in research May 2020
- ✦ BSc. Global Designation: awarded for an enriched and diversified BSc. experience May 2020
- ✦ Presented research poster at ACTRIMS Forum, national Multiple Sclerosis conference in the United States Feb 2020
- ✦ First year (U0) Dean's Honour List (Top 10% in the Faculty of Science) 2016-2017
- ✦ *Governor General's Academic Medal*: top academic graduating student (highest average in grade 11 and 12 combined) 2016
- ✦ Level 9 Piano w/ Honours with the Royal Conservatory of Music (+ corresponding history/harmony written exams) 2016

RELEVANT WORK EXPERIENCE

COVID-19 & Vaccine Clinical Research Assistant

Vaccine Evaluation Center, BC Children's Hospital Research Institute

Jan 2021- Aug 2022

Collaborated with a team of research nurses, doctors, and study coordinators to conduct several concurrent vaccine-related clinical research studies in a UBC- and BC Children's Hospital-affiliated multidisciplinary centre. Upholding training in Canadian ethical research principles, I recruited participants, interacted with participants and their families, worked with sensitive patient charts, and processed laboratory samples to assist in the execution of studies at the academic and industry levels.

Grade 8-12 Math, Science & Humanities Tutor

Journey to Learning, Vancouver, BC

Aug 2021-Aug 2022

Tailoring one-on-one tutoring sessions to individual and dynamic high school student needs, created and implemented lesson plans for 3 high school students in 3 subjects 4 times per week. Created inspiring spaces conducive to optimal improvement for a variety of learning capacities and circumstances.

Summer Multiple Sclerosis Research Assistant

Montreal Neurological Institute

2018, 2019, 2020

Collaborated with other lab staff, students, and professors daily and presented research at weekly lab meetings. Led my own independent project while training new graduate students and sharing resources and data with other members. Learned efficiency through balancing blood donor recruitment, PBMC isolations, and week-long tissue culture treatment regimes for eliciting pro- and anti-inflammatory macrophage phenotypes, followed by regular assays and analysis.

VOLUNTEER/EXTRACURRICULAR EXPERIENCE

Staff Writer

UBC Medical Journal

Nov 2022-present

Contribute one article per issue of the University of British Columbia's peer-reviewed medical journal. My first-author paper with Dr. Liisa Galea reviewing the importance of studying sex differences in medical research was accepted as a feature article for the upcoming Spring 2023 issue.

Crisis Services Call Responder

Crisis Intervention and Suicide Prevention Centre of British Columbia

Sept 2021-present

Respond to incoming crisis and suicide distress calls from across British Columbia, applying 90+ hours of training in empathy, active listening, and emotional support. Exercise compassion to alleviate distress and burden on emergency services through crisis deescalation, while assessing risk to promote access to mental health resources through early intervention and protocol implementation.

First Responder & Shift Supervisor

McGill Student Emergency Response Team (MSERT), McGill University

2017-2020

First aid services provided to McGill students and Montreal community through on-call overnight shifts in residences, intramural sports, and various special events. Underwent 40-hour first responder certification and CPR level HCP; skill trainings biweekly and evaluations monthly.

Peer Supporter & Shift Lead at Peer Support Centre (PSC)

McGill University

2019-2020

Provided confidential, non-judgmental active listening service for students on campus in the form of drop-in or by-appointment support sessions. Completed 40 hour active listening and crisis intervention training; underwent monthly trainings and evaluations for skill maintenance. Offered virtual sessions during COVID-19.

ACTIVITIES & INTERESTS

- ✦ Music: singer/songwriter (piano, guitar, vocals)
- ✦ Running
 - 25th place in age category, Vancouver Sun Run (2022)
 - 1st place in age category, Montreal Scotiabank 10k (2018)
- ✦ Travel and hiking
- ✦ Novice graphic design - academic figure design (pubs 1&2)

SKILLS

- ✦ Crisis and Suicide Intervention Training
- ✦ Good Clinical Practice (GCP) Certification
- ✦ TCPS 2 Ethical Conduct for Research Involving Humans Certification
- ✦ UBC Biological and Chemical Safety Trainings
- ✦ Certified First Responder + CPR/AED level HCP