

Ryder Whittaker Hawkins

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(437) 326-3782

A Computational/Systems Immunologist

I am a PhD educated scientist with roots in immunology, chemistry and bioinformatics. I bring over ten years of experience in practical laboratory work and a thorough knowledge of project management, demonstrated by publications, awards and invited talks. Currently, I am applying my knowledge to solve the genetic mechanisms of baby IBD.

I am enthused by teaching--from middle schoolers to graduate students. At UofT, I have been invited to teach as a TA and student mentor in chemistry and immunology. After five years working in tutoring academies, I started TEACH Tutoring to bring up students with a nuanced and well-rounded view of the world and help them succeed no matter the subject material. I also run an art Instagram and a music composition YouTube channel.

Postdoctoral Fellow, SickKids Hospital

2023-present

- With Dr. Aleixo Muise, a world-renowned expert in pediatric autoinflammation, I will be using multi-omics analysis to uncover the genetic origins of thousands of cases of childhood IBD.
- Using zebrafish to model the effects of TLR2 mutations in rare diseases.
- Mapping the protein structure and mechanisms of DAPK1, a unique signaling platform with both kinase and GTPase activities.
 - * 11/2023 – **TRIANGLE ENRICH Fellowship**, Canadian Association for Gastroenterology, 2024–26. \$15,000
 - * Ghasempour S*, Warner N*, Guan R*, Rodari M*, Ivanochko D, Whittaker Hawkins R, ... Freeman SA, Parlato M, van Ham TJ, Muise AM. **Bi-allelic ITGAV mutants are associated with immune dysregulation, brain abnormalities, and very early onset inflammatory bowel disease. Submitted to J Exp Med**
 - * Gaibee Z, Warner N, Bugda Gwilt K, Li W, Guan R, Whittaker Hawkins R, ... Thiagarajah J, Muise AM. **The genetic architecture of congenital diarrhea and enteropathy (CODE). Accepted at NEJM**
 - * Mentoring: Luna Giralt, Merit Bartels, Michaela Riley, Abigail Shin, Pranshu Maini, Nicholas Bindoo, Luie dos Banos (SSuRe summer student program, StAR program).

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Ph.D. Immunology, University of Toronto

2018-2023

- Led a project studying the biochemistry and immunology of a novel case of autoinflammatory disease associated with Cdc42 mutation with Dr. Rob Rottapel.
- Contributed multi-omics analysis using R and DESeq2 to map the effects of ribosome stress in ovarian cancer in collaboration with Uni Hamburg. Analyzed Cut&Run, RIP-seq and ChIP-seq to show RNA decay as a cancer therapy.
- Recognized as the 2023 Hardi Cinader Prize winner as the graduating student in Immunology with the greatest excellence both in science and the arts.
- Supervised two trainees in laboratory techniques and project management.
 - * 12/2022 – [Hardi Cinader Prize](#), Immunology, UofT \$700
 - * 06/2022 – [Poster Award](#), Canadian Society of Immunology \$500
 - * 07/2021 – [1st Prize, Ogryzlo Day Podium Presentation](#) \$500
 - * 09/2018 – [Faculty of Medicine Merit Entrance Award](#) \$2,000
 - * 01/2019 – [UofT Fellowship](#), Immunology \$11,300
 - * Fall 2020, 21, 22 – Teaching Assistant, IMM429
 - * Winter 2022, 23 – Teaching Assistant, IMM250
 - * 2023 – Reviewer, CJUR Journal
 - * 2022 – Judge, OQUIC Conference
 - * Summer 2021 – Amgen Student Mentor, UofT
 - * 2019 – Peer Mentor, Dept. of Immunology, UofT
 - * Whittaker Hawkins R, La Rose J, Sun T, Verdawala M, St Germain J, Raught B, Alsaleem H, Laxer R, Rottapel R. [Actin dysfunction and interactome rewiring underlies Cdc42-C188Y autoinflammation. In preparation](#)
 - * He M, Tong K, Liu T, Whittaker Hawkins R, ... He HH, Kridel R. [GNAS knockout potentiates HDAC3 inhibition through viral mimicry-related interferon responses in lymphoma. Leukemia](#) 2024. doi: [10.1038/s41375-024-02325-4](https://doi.org/10.1038/s41375-024-02325-4)
 - * 09/2022 – “Cdc42 regulation of actin revealed by autoinflammatory mutation”. Invited talk, Protein regulation seminar series, UofT
 - * 04/2022 – Whittaker Hawkins R. [The life, death and afterlife of lab hustle. IMPress Magazine](#) 2022. <https://lnkd.in/gr4zhxDU>
 - * Mentoring: Munira Verdawala, Jon Lacanlale, Veronica Alba, Tommy Kim, Aisha Hamzat (Amgen Scholars program, UHN summer students, grad students).

M.Sc. Microbiology/Immunology, Université Laval

2016-2018

- Master’s thesis project in neuro-immunology with Dr. Luc Vallieres funded by the Multiple Sclerosis (MS) Society.
- Identified ICAM1+ neutrophils as a key player in neuroinflammation by transcriptomics, lineage-tracing mice, and super-resolution microscopy.

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- Trained in critical immunological techniques from mouse handling and breeding to bioinformatics with R, Python and bash.
- Independent study in a francophone environment helped me upgrade my competencies in both national languages.
 - * 06/2018 – endMS Masters Studentship \$40,000
 - * Whittaker Hawkins R, Patenaude A, Dumas A, Jain R, Tesfagiorgis Y, Kerfoot S, Matsui T, Gunzer M, Poubelle PE, Larochelle C, Pelletier M, Vallieres L. [ICAM1+ neutrophils promote chronic inflammation via ASPRV1 in B cell-dependent autoimmune encephalomyelitis](#). *JCI Insight* 2017. doi: [10.1172/jci.insight.96882](#).
 - * Casserly C, Nantes J, Whittaker Hawkins R, Vallieres L. [Neutrophil perversion in demyelinating autoimmune diseases: Mechanisms to medicine](#). *Autoimmun. Rev.* 2017. doi: [10.1016/j.autrev.2017.01.013](#).
 - * 05/2017 – Podium Talk, Research Day, Laval University
12/2016 – Podium Talk, MS Society Conference, Toronto
04/2016 – Poster, Canadian Society Immunology 29th Mtg
 - * Mentoring: Noopur Singh, CHUL summer students.

B.Sc. Biological Chemistry, University of Toronto, Trinity College 2011-2015

- *Undergraduate thesis*: Elucidated a developmental signaling pathway in *C. elegans* under Dr. Peter Roy. Showed for the first time that the MADD-4 developmental cue relies on sulfation of the extracellular matrix by HST-3.1. Honed techniques of Western blotting, PCR genotyping, and model organism culture. Defended my year-long thesis project before a committee of faculty.
- *NSERC USRA, 2014*: Identified the deubiquitinases A20 and ataxin-3 as potential protective genes in mitophagy with Dr. Angus McQuibban. Learned basic techniques in mammalian cell culture and Western blotting.
- *NSERC USRA, 2013*: Helped to rationally design photoswitchable proteins with Dr. Andrew Woolley. Applied my chemical knowledge to protein purification, electrophoretic shift assays, and bacterial culture.
 - * 07/2013 – Poster Presentation
NSERC USRA Poster Awards Fair, Dept. of Chemistry, UofT
 - * 2013, 14 – [Dorothy Whiting Scholarship in Chemistry](#) \$850
2012, 13, 14 – [Chancellor's Sch, Trinity College](#) \$900
2013, 14 – [NSERC USRA](#) \$10,000
2014 – [Robert and Joan Hadgraft Sch in Chemistry](#) \$3,000
2012 – [President's Entrance Scholarship](#) \$2,000

Teaching & Science Translation

- Creating and sharing original art, music and science with Instagram (@ryder8064) and YouTube ([Loonyfugue](#) and [MolBiolReview](#)).

Ryder Whittaker Hawkins

- Personally tutored students for success with over 50 students graduated. Taught English, French, essay writing, science, test prep and history. Alumni have gone on to study at UTS, UofT life science, UTSC, Carleton U computer science and more (Forest Hill Tutoring, Toronto Academy of Art, TEACH Tutoring).
- Have been invited to teach undergraduates on many occasions, including as a Course Community mentor in Chemistry in 2015, as an Amgen Scholars summer mentor in 2021, and as a teaching assistant for IMM429 (developmental imm) and IMM250 (introductory imm) for three years.

Language Proficiencies

- English (native), French (fluent), Mandarin Chinese (10 years), Spanish (3 years), Japanese (2 years), German (1 year)