

# Ryder Whittaker Hawkins

[ryderwh@zju.edu.cn](mailto:ryderwh@zju.edu.cn)

+86 186-2137-1179

## A Computational/Systems Immunologist

I am a PhD educated scientist with roots in immunology, chemistry and bioinformatics. My work has been published in major scientific journals such as the *New England Journal of Medicine*, *Journal of Experimental Medicine*, and *JCI Insight*, and presented at conferences from Austria to Quebec. My research focuses on the connections between signaling proteins like GTPases in the broader picture of immunity, autoinflammation and genetic disease. Currently, I am working at Zhejiang University on a connection between diet, T lymphocytes, and cholesterol metabolism.

## Education & Experience

### 2025- China Postdoctoral Overseas Talent Fellow, Zhejiang University

- Started a novel project on the impact of Western diet on lipoproteins and T cell signaling with Dr. Dante Neculai.
- Collaborating on projects on antiviral immunity and helicases, apolipoproteins in atherosclerosis, and traditional Chinese medicine.
- ★ Speaking and researching fully in Chinese. Mentoring a full-time undergraduate student. Preparing for a career in independent research.

### 2023-2025 TRIANGLE ENRICH Postdoctoral Fellow, SickKids Hospital

- With Dr. Aleixo Muise, a world-renowned expert in pediatric autoinflammation, I applied my skills in multi-omics to analyze and wrangle human and zebrafish RNAseq data, leading to two peer-reviewed publications in top journals.
- Led two original projects on childhood IBD syndromes, identifying the genes TLR2 (a pattern recognition receptor) and DAPK1 (a unique kinase and GTPase) as causes and elucidating their molecular mechanisms.
- ★ Mastered project leadership and mentoring. Explored new biophysical and proteomic techniques. Founded international collaborations. Worked in Chinese.

### 2018-2023 Ph.D. Immunology, University of Toronto

- Spearheaded a unique project on a case of childhood autoinflammation associated with CDC42 mutation. With Dr. Rob Rottapel, I showed that CDC42-C188Y is mislocalized from the membrane, reorganizes its interactome, and perturbs actin.
- 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.

# Ryder Whittaker Hawkins

- ★ Learned resilience and persistence. Applied advanced assays (ELISA, co-IP). Perfected Western blot, qPCR, live cell imaging (Incucyte). Used my bioinfo.

## 2016-2018 M.Sc. Microbiology/Immunology, Université Laval

- Funded by the MS Society, I identified ICAM1+ neutrophils as a key player in neuroinflammation by transcriptomics, lineage-tracing mice, and super-resolution microscopy with Dr. Luc Vallières.
- ★ First learned mouse handling and breeding. Got training in bioinfo with R, Python and bash. Published my first article. Spoke French. Met my wife.

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

- Participated in 3 undergraduate research projects on protein engineering (Dr. Andrew Woolley), mitophagy and cell culture (Dr. Angus McQuibban), and worm genetics in *C. elegans* (Dr. Peter Roy). Defended undergrad thesis.
- ★ First learned molecular biology theory and practise. Raised funding. Started to serve as a Course Community TA.

## Research Funding History

|           |                                                                                                                                                                                                                         |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2025-2028 | Zhejiang Province Overseas Talent Introduction (Young Investigator)<br>Zhejiang Province Foreign Experts Office<br>"Proteomics and lipidomics in immune cells" \$90,000                                                 |
| 2025-2028 | China Postdoctoral Overseas Talent Attraction Special Program<br>China Postdoctoral Association<br>"Complementary Roles of HDL and LDL in T-Cell Activation: Bridging Lipid Metabolism and Immune Regulation" \$180,000 |
| 2023-2026 | TRIANGLE ENRICH Fellowship<br>Canadian Association of Gastroenterology<br>"Mapping the causes of inflammation with Canada's largest childhood IBD cohort" \$15,000                                                      |
| 2018-2020 | University of Toronto Fellowship<br>Department of Immunology<br>"CDC42 in Autoinflammation" \$11,301                                                                                                                    |
| 2016-2018 | endMS Masters Studentship<br>Multiple Sclerosis Society of Canada<br>"Role of neutrophils as antigen-presenting cells in autoimmune demyelination" \$40,000                                                             |

# Ryder Whittaker Hawkins

- 2014 NSERC Undergraduate Student Research Award  
National Sciences and Engineering Research Council of Canada  
"Are Atxn3 and A20 Mitochondrial Deubiquitinases?" \$4,500
- 2013 NSERC Undergraduate Student Research Award  
National Sciences and Engineering Research Council of Canada  
"Design and Characterization of Photoactive Yellow DNA-Binding  
Proteins" \$4,500

|                                  |
|----------------------------------|
| <b>Awards &amp; Recognitions</b> |
|----------------------------------|

- 2022/12 Hardi Cinader Prize, Immunology, UofT \$700  
Recognizes the graduating student with excellence both in science and the arts.
- 2022/06 Poster Presentation Prize, Canadian Society for Immunology CSI \$500
- 2021/07 Ogryzlo Day Podium Talk First Prize, Rheumatology, UofT \$200
- 2018/09 Faculty of Medicine Merit Entrance Award, UofT \$2,000
- 2014/10 Dorothy Whiting Scholarship in Chemistry, UofT \$429
- 2014/10 Chancellor's Scholarship, UofT \$400
- 2014/09 Robert and Joan Hadgraft Scholarship in Chemistry, UofT \$2,944
- 2013/11 Chancellor's Scholarship, UofT \$200
- 2012/11 Chancellor's Scholarship, UofT \$300
- 2011/09 President's Entrance Scholarship, UofT \$2,000
- 2011/06 Ontario Scholar, Ontario-Carleton District School Board
- 2008 Capt. T.G. Fuller Award, Bytown Brigantine

# Ryder Whittaker Hawkins

## Publications

Published:

1. Gaibee Z, Warner N, Bugda Gwilt K, Li W, Guan R, Yourshaw M, Whittaker Hawkins R, ... Thiagarajah J, Muise AM. [The genetic architecture of congenital diarrhea and enteropathy](#). *New Engl J Med* 2025. doi: [10.1056/NEJMoa2405333](#)
2. Ghasempour S\*, Warner N\*, Guan R\*, Rodari M\*, Ivanochko D, Whittaker Hawkins R, ... Freeman SA, Parlato M, van Ham TJ, Muise AM. [Human ITGAV variants are associated with immune dysregulation, brain abnormalities, and colitis](#). *J Exp Med* 2024. doi: [10.1084/jem.20240546](#)
3. 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](#)
4. 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](#).
5. 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.
6. 04/2022 - Whittaker Hawkins R. [The life, death and afterlife of lab hustle](#). *IMMPress Magazine* 2022. <https://lnkd.in/gr4zhxDU>

In preparation:

7. Whittaker Hawkins R\*, Sun T\*, La Rose J, Verdawala M, St Germain J, Raught B, Alsaleem H, Laxer R, Rottapel R. [Actin dysfunction and interactome rewiring underlies Cdc42-C188Y autoinflammation](#). *In preparation*

## Conference Presentations

2024/06 "TLR2 TIR mutations cause very early onset IBD and autoinflammation".  
Poster, SickKids Gastroenterology-Hepatology-Nutrition Day.

# Ryder Whittaker Hawkins

- 2024/04 " DAPK1 Roc domain mutations cause rocopathy, a developmental syndrome with IBD". Invited talk, SickKids Postdoc Seminar Series.
- 2023/10 "DAPK1 Roc domain mutations cause veoIBD and developmental defects". Invited talk, 7th Annual veoIBD Consortium Meeting, Salzburg, Austria.
- 2023/05 "Actin dysfunction and interactome rewiring underlies Cdc42-C188Y autoinflammation". Podium talk, ISSAID 2023 Congress, Toronto, Canada.
- 2022/09 "Cdc42 regulation of actin revealed by autoinflammatory mutation". Invited talk, Protein regulation seminar series, UofT.
- 2022/06 "Actin dysfunction and interactome rewiring underlies Cdc42-C188Y autoinflammation". Poster presentation, CSI Canadian Society for Immunology 34th Meeting, Halifax, Canada.
- 2019/07 "GCN2 in Ovarian Cancer". Department of Immunology Annual Retreat, Geneva Park, Canada.
- 2017/05 "Endothelial IL-6 Signaling Promotes the Development of Th17 Cells and Experimental Autoimmune Encephalomyelitis". Journée de la Recherche de la Faculté de Médecine, Université Laval, Quebec City, Canada.
- 2016/12 " Neutrophils with Antigen-Presenting & Immunomodulatory Potential in EAE". Podium talk, endMS Conference, Marriott Downtown, Toronto, Canada.
- 2016/04 "Endothelial IL-6 Signaling Promotes the Development of Th17 Cells and Experimental Autoimmune Encephalomyelitis." Poster presentation, CSI Canadian Society for Immunology 29th Meeting, Ottawa, Canada.
- 2013/07 "Design and Characterization of Photoactive Yellow DNA-Binding Proteins." Poster presentation, NSERC USRA Awards Fair, UofT.

## Courses Taught

- 2021-2023 IMM250 The Immune System in Health and Disease  
University of Toronto  
Students: 300

# Ryder Whittaker Hawkins

|           |                                                                                                                |
|-----------|----------------------------------------------------------------------------------------------------------------|
| 2020-2023 | IMM429 Developmental Immunology<br>University of Toronto<br>Students: 80                                       |
| 2014-2015 | CHM151 The Molecular Nature of Matter and Change: Course<br>Community<br>University of Toronto<br>Students: 40 |

## Student Supervision & Mentoring

|         |                                                                                                                                                                                                     |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2025/10 | Kamo Abrahamyan, MBBS student, Zhejiang University International Medical School (ZJU-ISM)<br>"HDL and LDL crosstalk in T cells"<br>Current position: undergraduate                                  |
| 2025/05 | Weiwei Zhang, Masters student, Beijing Aerospace Central Hospital<br>Current position: applying for PhD                                                                                             |
| 2024/07 | Nicholas Bindoo, StAR Highschool Summer Program, SickKids<br>"Multi-omics in IBD"<br>Current position: Undergraduate student, Queen's University                                                    |
| 2024/05 | Abigail Shin, SSuRE Undergraduate Summer Program, SickKids<br>"ARHGEF40 GTPase GEF in IBD"<br>Current position: applying for medical school                                                         |
| 2023/12 | Alvin Shuwen Liu, undergraduate student, University of New Brunswick<br>Current position: Masters student                                                                                           |
| 2023/07 | Merit Bartels, exchange student from Utrecht, SickKids<br>"Sequencing validation and qPCR on hyperactive variants of STAT5B"<br>Current position: Masters student, Karolinska Institutet, Stockholm |
| 2023/07 | Luna Giralt, exchange student from Utrecht, SickKids<br>"Investigating Roc GTPase mutations in DAPK1 in veoIBD"<br>Current position: Erasmus Mundus Masters program, Berlin                         |
| 2023/05 | Pranshu Maini, undergraduate student, SickKids<br>"ZAP70 gain of function mutations in IBD"<br>Current position: applying for medical school                                                        |

# Ryder Whittaker Hawkins

|         |                                                                                                                                                                                                 |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2023/05 | Michaela Riley, undergraduate student, SickKids<br>"Cloning and expression of loss of function variants in the apoptosis inhibitor BIRC3"<br>Current position: research in Drosophila lab, UofT |
| 2023/03 | Xi Li, undergraduate student, Capital Medical University Beijing<br>Current position: Masters student                                                                                           |
| 2022/05 | Julia Kirsh, undergraduate student, UofT<br>"Studying the regulation of GCN2 stress kinase in ovarian cancer"<br>Current position: undergraduate at Tufts University, Boston                    |
| 2021/05 | Aisha Hamzat, Amgen scholars summer program, UofT<br>Current position: Masters in epidemiology, Carleton University                                                                             |
| 2021/05 | Veronica Alba, Amgen scholars summer program, UofT<br>Current position: Graduated from UAlberta                                                                                                 |
| 2021/05 | Tommy Kim, Amgen scholars summer program, UofT<br>Current position: Masters in neuroscience, McGill                                                                                             |
| 2018/05 | Jon Lacanlale, undergraduate student, UofT<br>"Studying phosphorylation of GCN2 in cancer"<br>Current position: PhD student, SickKids                                                           |
| 2020    | Pearl Tsai<br>Current position: University of Toronto high school UTS                                                                                                                           |
| 2019    | Kevin Ho<br>Current position: undergrad in life science, UofT Scarborough                                                                                                                       |
| 2019    | Hexuan Zi<br>Current position: high school, York Region                                                                                                                                         |
| 2018    | Jonathan Li<br>Current position: Northern High School                                                                                                                                           |
| 2018    | Edward Liao<br>Current position: undergrad in computer science, Carleton University                                                                                                             |

# Ryder Whittaker Hawkins

## Journal Review Activities

2023/07      Reviewer, Canadian Journal of Undergraduate Research (CJUR),  
University of British Columbia Press  
Number of publications reviewed: 4

## Community and Volunteer Activities

2023/08      Judge, SSuRe Summer Program Poster Fair

2022/05      Judge, Ontario-Quebec Undergraduate Immunology Conference (OQUIC)

2019/09      Academic Commissioner, UofT Graduate Students' Union (UTGSU)

2014/09      Academic Coordinator, University of Toronto Chemistry Students' Union

## Other Work Experience

2024/10      Overseas Consultant, TOPS Education

2023/03      Online Mentor, Outlook Education

2021/06      Tutor and Director, TEACH Tutoring

2018-2021    Tutor, Toronto Academy of Arts, Dundas St.

2015          Tutor, Forest Hill Tutoring, Toronto

## International Collaboration Activities

2023/04      Starting a collaboration with Dr. Wang Zhaoxia at Shenzhen Children's Hospital. We will plan to investigate very early onset autoinflammatory and digestive diseases in rural China.

2019/09      Collaborated with Dr. Zoya Ignatova and her group at the University of Hamburg. I contributed my RNA-sequencing know-how to their project on tRNA decay in ovarian cancer.

2016/01      Collaborated with Dr. Matthias Gunzer (University of Duisburg-Essen) and Dr. Takeshi Matsui (RIKEN) on macrophage-like neutrophils in EAE. They supplied much needed expertise in advanced microscopy as well as mouse models. This was part of my Masters thesis project.

# Ryder Whittaker Hawkins

## Memberships

|         |                                                                               |
|---------|-------------------------------------------------------------------------------|
| 2026/06 | Member, Chinese Society for Cell Biology                                      |
| 2023/03 | Member, International Society for Systemic Autoinflammatory Diseases (ISSAID) |
| 2016/04 | Member, Canadian Society for Immunology                                       |

## Languages

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

## Artistic Productions

|       |                                                      |
|-------|------------------------------------------------------|
| 2024- | The 24 Solar Terms, woodblock prints                 |
| 2023- | The 15 Stations of the Highway 401, woodblock prints |
| 2022  | 64 Preludes and Fugues on the I Ching, piano         |
| 2021  | Return to Campus Suite, piano                        |

## Marital status

Married 2019, one daughter born 2023