James Chiella

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EDUCATION

University of Toronto, Honours Bachelor of Science Expected 2026
Majors in Neuroscience and Biochemistry, Minor in Chemistry, cGPA: 3.98/4.0

AWARDS & SCHOLARSHIPS

Alfred and Isabel Bader Scholarship, University of Toronto 2025, 2024 & 2023
Awarded to Victoria College students who achieve excellence in their studies. Three-time recipient of this award.

Dean's List Scholar, University of Toronto 2025, 2024 & 2023
Awarded to Faculty of Arts & Science students with high academic distinction. Three-time recipient of this award.

Dr. Lorus J. and Dr. Margery J. Milne Research Award, University of Toronto 2025 & 2024
Merit-based award issued by Victoria College to fund undergraduate summer research projects. Two-time recipient of this award.

Johnson Scholarship, Johnson Insurance 2022
Entrance scholarship awarded after acceptance to University of Toronto.

University of Toronto Scholar, University of Toronto 2022
Provides recognition to outstanding incoming University of Toronto students on admission.

The Helga and Frank Peroutka Scholarship, University of Toronto 2022
Entrance scholarship issued by Victoria College to outstanding incoming first-year students.

RESEARCH INTERESTS

- Biochemical and neurobiological mechanisms underlying psychiatric illness
- Neurotransmitter systems (in particular, the GABAergic system)
- Mood disorders (depression, bipolar disorder), psychosis, schizophrenia

RESEARCH EXPERIENCE

Centre for Addiction and Mental Health, Toronto, ON Sept. 2025 – Present
Research Practicum Student – Supervisor: Dr. Toshifumi Tomoda

- Investigating the role of monoamine oxidase A in mitochondrial function and bioenergetics as well as sleep disturbances, using a transgenic mouse model
- Conducting electroencephalography (EEG) experiments in mice
- Learning plasmid and viral vector creation and injection as well as cell culture work

Centre for Addiction and Mental Health, Toronto, ON 2024 – 2025
Research Placement Student – Supervisor: Dr. Thomas Prevot

- Investigated the cell- and region-specific expression of different α subunits of the $GABA_A$ receptor in a chronic stress mouse model of depression
    - Sectioned mouse brains for analysis using cryostat

    - Conducted RNAscope assays and imaged slides
    - Analyzed data using Excel PowerQuery and GraphPad Prism
- Investigated the role of the α5 subunit of the $GABA_A$ receptor in mediating the procognitive effects of a novel benzodiazepine-type agent
    - Handled mice to improve welfare and reduce resistance to experimenters
    - Conducted Morris water maze, Y maze, and PhenoTyper behavioural experiments on mice
- Presented progress updates and results at weekly lab and group meetings

Hospital for Sick Children, Toronto, ON 2023 – 2024
Research Assistant – Supervisor: Dr. Andrea Kassner

- Designed and developed two automated image processing pipelines to analyze functional MRI images
    1. from neurofibromatosis patients, to study a novel biomarker for cerebrovascular disease
    2. to calculate cerebrovascular reactivity (CVR) as a measure of vascular function in the brain
- Presented weekly updates and literature summaries to colleagues in lab meetings

Sunnybrook Health Sciences Centre, Toronto, ON 2022
High School Summer Research Student – Supervisor: Dr. Kullervo Hynynen

- Analyzed quality assurance data from a focused ultrasound system currently used for the clinical treatment of essential tremor
- Performed data analysis on MRI data and evaluated overall stability of the ultrasound system using programs written in MATLAB

ABSTRACTS & PRESENTATIONS

Prevot, T. (Presenter), Bernardo, A., Mezo-Gonzalez, C., Chen, J., Marcotte, M., Wong, K., Marceau-Linhares, C., Pina-Leblanc, C., Bouchet, A., **Chiella, J.**, Sharmin, D., Mondal, P., Cook, J., Sibille, E. (2025, June 18). *Selective potentiation of α5-GABAA receptors contributes to reduction of cognitive burden and neuronal loss in aging mice*. CINP-AsCNP 2025 Joint Congress, Melbourne, Australia.

Sare, D., **Chiella, J.**, Sinopoli, K. J., Kassner, A. (Presenter). (2023, September 18). *Physiological Fluctuations in White Matter from Rs-fMRI Are Increased in Patients with Neurofibromatosis Type 1*. ISMRM Workshop on White Matter, Analysis, Translation, Experimental Validation, Evaluation, & Reproducibility, Nashville, Tennessee, United States.

Sare, D., **Chiella, J. (Presenter)**, Sinopoli, K. J., Kassner, A. (2023, August 16). *Physiological Fluctuations in White Matter from Rs-fMRI Are Increased in Patients with Neurofibromatosis Type 1*. SickKids Summer Research Day 2023, Toronto, Ontario, Canada.

Chiella, J. (Presenter), Jones, R., Hynynen, K. (2022, August 16). *Retrospective Analysis of Quality Assurance Data from the ExAblate Neuro MRgFUS Brain System.* Sunnybrook Focused Ultrasound High School Summer Research Program, Toronto, Ontario, Canada.

CONFERENCE & SEMINAR ATTENDANCE

NEURONTO 2025

University of Toronto Temerty Research Showcase 2025

University of Toronto Collaborative Program in Neuroscience Research Day 2025

University of Toronto Visions in Pharmacology 2025

Southern Ontario Neuroscience Association Annual Meeting 2025

University of Toronto Department of Psychiatry Research Day 2025, 2024

SickKids Summer Research Day 2023

SickKids Summer Research Seminar Series 2023

Sunnybrook Research Institute Summer Student Poster Competition 2022

Sunnybrook Summer Research Seminar Series 2022

RESEARCH SKILLS

WET LAB & ANIMAL WORK

- RNAscope
- Cryostat
- Confocal microscopy
- Certified in mouse handling techniques
- Transgenic mouse colony management
- Behavioural testing: PhenoTypers, Morris water maze, Y maze, unpredictable chronic mild stress (UCMS)

SOFTWARE & ANALYSIS

- SoftMouse: *mouse colony management*
- SlideBook: *confocal microscopy*
- QuPath: *microscopy image processing*
- GraphPad Prism: *statistics and graph generation*
- FMRIB Software Library: *fMRI image processing*
- Python, R (certificate from Compute Ontario), MATLAB
- Windows, Linux, VSCode, Git, GitHub
- Microsoft Office, including Excel and Power Query

CO-CURRICULAR ACTIVITIES

University of Toronto Human Biology Mentorship Program 2024 – 2025

- Mentored a first-year student in life sciences
- Ran monthly check-in meetings to answer questions and provide advice and guidance throughout first year

CAMH Biomedical Research Awareness Day 2025 January 2025

- Participated in brainstorming and planning meetings
- Ran event booth alongside colleagues

Victoria College Chorus, Member-at-Large 2022 – Present

- Participating in rehearsals twice per week, with two concerts per year
- Member of the club executive, working on logistics and planning for concerts and other events throughout the year