

ALICE FOURS

EDUCATION

Western University
Doctor of Medicine (MD)

Windsor, ON
(Expected) Jun. 2027

York University
Specialized Honours Bachelor of Science in Biology

Toronto, ON
Sept. 2019 - Apr. 2023

PUBLICATIONS

Bragagnolo N, Rodriguez C, Samari-Kermani N, Fours A, Korouzhdehi M, Lysenko R, Audette GF. Protein Dynamics in F-like Bacterial Conjugation. *Biomedicines*. 2020; 8(9):362.

RESEARCH EXPERIENCE

Undergraduate Researcher
The Stem Cell Engineering Lab, York University

Toronto, ON
May 2023 – Present

- Supervisor: Dr. Eleftherios Sachlos
- Working on engineering blood vessels into a 3D-printed collagen scaffold to mimic human extracellular matrix.

Undergraduate Researcher
Ehlers-Danlos Syndrome Clinic, Mayo Clinic

Jacksonville, FL
Jan. 2023 – Present

- Supervisor: Dr. Dacre Knight
- Improving access to care for patients with Ehlers-Danlos Syndrome (EDS) through pre-assessment questionnaires.
- Developing a predictive model using statistical analysis techniques to identify the associations between demographic information, symptoms, and risk factors and the likelihood of EDS diagnosis to inform physician diagnosis and save time in the clinic.

Undergraduate Researcher
Audette Lab, York University

Toronto, ON
May 2020 – May 2023

- Supervisor: Dr. Gerald Audette
- Methods: X-ray crystallography, Restriction Enzyme Based Cloning, Fast Protein Liquid Chromatography, SDS-PAGE, Native Mass Spectrometry, Small-angle X-ray Scattering
- Examined the structure and function of transfer proteins involved in bacterial conjugation with the aim to understand how Type 4 Secretion System (T4SS) component proteins interact to form a complex molecular pump to transfer DNA from donor cells to recipient cells.
- Collected and analyzed bioinformatics data to compile a complete list of structural predictions of proteins involved in the T4SS.
- Troubleshoot cloning, purification, expression, and crystallization experimental steps of TraW and TraY proteins, to work towards obtaining a high-resolution crystal structure.
- Developed project directions with lab members and learned to apply constructive feedback within a collaborative environment.

PRESENTATIONS

- *Structural Characterization of TraY from Escherichia coli, a Protein Involved in the Transfer of F Plasmid*, NSERC Undergraduate Summer Research Conference, York University, 2022
- *Characterization of a TraW Homolog from the R27 Plasmid in Salmonella Typhi*, NSERC Undergraduate Summer Research Conference, York University, 2021

HONOURS & AWARDS

- Bethune College Academic Leadership and Community Building Scholarship, York University, 2023
- Summer Studentship Award, Stem Cell Network, 2023
- Undergraduate Student Research Award, NSERC, 2023
- York Continuing Student Scholarship, York University, 2022
- Loblaw National Scholarship, The W. Garfield Weston Foundation, 2022
- Undergraduate Student Research Award, NSERC, 2022
- York Continuing Student Scholarship, York University, 2021
- Loblaw National Scholarship, The W. Garfield Weston Foundation, 2021
- Undergraduate Student Research Award, NSERC, 2021
- York Continuing Student Scholarship, York University, 2020
- York Student Life Award, York University, 2019
- York University Automatic Entrance Scholarship, York University, 2019
- Faculty of Science Entrance Scholarship, York University, 2019
- York Science Scholar's Award, York University, 2019

PROFESSIONAL EXPERIENCE

Pharmacy Assistant

Shoppers Drug Mart

Toronto, ON

Apr. 2018 – Present

- Led COVID-19 and Flu vaccination clinics and helped community members make informed decisions about their health.
- Promoted cohesive handoff of team roles in a fast-paced environment to manage all medication preparation stages effectively.
- Reacted to the pressure brought by the pandemic with increased patience, empathy, and teamwork.

Peer Tutor Coordinator

Bethune Student Ombudsman Services, York University

Toronto, ON

May 2022 – May 2023

- Peer Tutor program assists students within the Faculty of Science in understanding core concepts and materials through one-on-one tutoring.
- Helped students succeed in their biology, chemistry, and physics courses as a tutor for two years and was promoted to oversee the hiring, training, and scheduling of tutors.

COMMUNITY & VOLUNTEERING

See What Grows (Community-focused Gardening Initiative)

Student Community & Leadership Development, York University

Toronto, ON

Sept. 2021 – Present

- Created a student-run initiative that develops relationships between students and seniors through gardening to overcome social isolation during the pandemic.
- Organized "Students to Seniors" events. Elementary students painted flowerpots and learned about their community, high school students grew native plants, and university students planted and hand-delivered flowers to senior homes.
- Prepared educational seminars for elementary schools and daycares to promote interest in plant biology and biodiversity.

Program Volunteer

AboutFace

Toronto, ON

Jan. 2021 – Present

- Facilitated virtual programs for children with facial differences.
- Built trusting relationships with campers by guiding new activities, empathizing with challenges, respecting boundaries, and rewarding growth.

Faculty of Science Director

Toronto, ON

York Federation of Students, York University

May 2022 – May 2023

- The York Federation of Students is the undergraduate student's association at York University.
- Coordinated with other Faculty Directors to address student concerns through implementation of policies and programs.
- Supported student initiatives, advocated for a safe and inclusive campus, and allocated equitable funding for university clubs.

Peer Mentor

Toronto, ON

Faculty of Science, York University

May 2021 – May 2023

- Fostered student success by sharing study strategies and informing students about university resources as a designated mentor to 20 first-year students in the Biology Program.

Science Student Ambassador

Toronto, ON

Faculty of Science, York University

Jan. 2021 – May 2023

- Consulted incoming students about academic resources and student life by answering questions in online student panels, regular drop-in sessions, campus tours, and information sessions.
- Encouraged students to explore STEM careers by sharing personal experiences and passion for the field.

Science Student Caucus

Toronto, ON

Faculty of Science, York University

Oct. 2020 – May 2022

- Elected to represent the Faculty of Science student body and develop practical approaches to improve teaching and learning.
- Collaborated with university administration to develop strategies for equitable evaluation of internship applications, organized student feedback collection to address online learning challenges, and advocated for those facing barriers to education.

VP Communications

Toronto, ON

Bethune College Council, York University

May 2020 – May 2022

- Managed a Promotions Committee that created videos and graphics to advertise college events, designed and updated the College website, and organized the ordering and distribution of merchandise.
- Developed a systematic approach to creative problem-solving. Every design began with research for inspiration, a proposal of multiple drafts, receiving team feedback, and implementing edits into a final design.
- Evaluated the criteria and suitability of multiple design methods and selected the appropriate approach for the desired result.