Tyler Johnson

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EDUCATION

2019 – Present
Doctor of Philosophy, Biochemistry
University of Toronto | Toronto, ON
Affiliation: The Hospital for Sick Children – Peter Gilgan Center for Research and Learning (PGCRL)

2018 – 2019
Master of Science, Biochemistry
Western University | London, ON

2014 – 2018
Bachelor of Medical Sciences, Honors Specialization in Biochemistry of Infection of Immunity
Western University | London, ON

2013
Ontario College Certificate, Pre-Health Science
Fanshawe College | London, ON

RESEARCH EXPERIENCE

Sep 2019 – Present
PhD Candidate Researcher, The Hospital for Sick Children
Supervisor: Dr. Charles Deber
Title: Combatting multidrug-resistant bacteria with transmembrane peptides
- Assessing the potential of membrane-active peptides for the treatment of efflux-mediated bacterial antimicrobial resistance
- Peptide design and quantification, biophysical characterization of peptide structure via circular dichroism and peptide activity via minimum inhibitory concentration assays, fluorescent efflux assays, and cell viability assays

May 2019 – Aug 2019
MSc Student Researcher, Western University
Supervisor: Dr. David Litchfield
Title: A novel biosensor for monitoring the spatiotemporal activity of CK2
- Continued characterization of CK2-specific biosensor-expressing cell lines through external modulation of CK2 activity
- Instrumental in developing lab-wide FRET quantification protocols

May 2018 – April 2019
Graduate Student Researcher, Western University
Supervisor: Dr. David Litchfield
- Assessing the spatiotemporal activity of protein kinase CK2 in living cells, while continuing to develop biosensor-expressing cell lines
- Co-lead a team of two undergraduate students designated with characterizing FRET-based biosensors in living cells

Sep 2017 – April 2018
Undergraduate Thesis Student Researcher, Western University
Supervisor: Dr. David Litchfield
Title: Development of biosensor-expressing cell lines to assess the spatial-temporal activity of CK2 in living cells

- Sterile cell culture, fluorescent live cell microscopy, DNA and protein extraction, SDS-PAGE and agarose gel electrophoresis, molecular cloning, and Western blotting
- Multiple oral presentations to faculty and undergraduate/graduate students

HONOURS & AWARDS

2023	Molecular Medicine Elevator Pitch First Place Talk – $100
2022	School of Graduate Studies Conference Grant – $2890
2018	Biochemistry Summer Stipend, Western University – $6000
2016 – 2018	Dean's Honor List, Western University
2013	Dean's and President's Honor Roll, Fanshawe College

TEACHING EXPERIENCE

2021 – 2023 BCH210H Fall Teaching Assistant – *Tutorial Leader*, University of Toronto (12 weeks, 300+ students; 2021, 2022, 2023) and BCH210H Summer Teaching Assistant – *Tutorial Leader*, University of Toronto (6 weeks, 200+ students; 2022, 2023)

- Prepare and conduct biweekly one-hour tutorials for the condensed summer course, as well as weekly two-hour tutorials for the fall course in both an online and in-person format, for 300+ students to review and ask questions related to the course material
- Maintained student engagement throughout tutorial by incorporating the Socrative app, allowing the class to actively respond to multiple choice questions and polls, resulting in significant class participation
- Feedback: 94% of students voted 'Agree' or better that my help sessions contributed to their understanding of the lecture material (84% 'Strongly agree') and 99% of students voted 'Agree' or better that I was organized, well-prepared, and used tutorial time efficiently (83% 'Strongly agree'), as well as was willing to answer questions (91% 'Strongly agree') [109 votes total]

2021 BCH210H Teaching Assistant – *Marker*, University of Toronto

- Grade and provide feedback on various assignments throughout the course

2020 BCH311H Teaching Assistant – *Invigilator*, University of Toronto

- Ensure students are in the correct exam room, monitor the exam for academic offences, and collect the exams following completion

2018 – 2019 Biochemistry 2280 Teaching Assistant – *Invigilator*, Western University

- Ensure students are in the correct exam room, monitor the exam for academic offences, and collect the exams following completion

SUPERVISING ACTIVITIES

2022 – 2023 Fourth-Year Project Student, University of Toronto

- Aleksandra Bourdine

2022 Third-Year Project Student, University of Toronto

- Aleksandra Bourdine

2018 – 2019 Thesis Project Students, Western University

- Arunan Suthananthan (2018 – 2019), Emily Stuckless (2018)

PUBLICATIONS

2023 Johnson, T.S., Bourdine, A.A., and Deber, C.M. (2023). Hydrophobic moment drives penetration of bacterial membranes by transmembrane peptides. *J. Biol. Chem.* DOI: 10.1016/j.jbc.2023.105266

2022 Mitchell, C.J, Johnson, T.S., and Deber, C.M. (2022). Transmembrane peptide effects on bacterial membrane integrity and organization. *Biophys. J.* 121(17):3253-3262

2020 Johnson, T.S. and Deber, C.M. (2020). Protection or Destruction: The LL-37/HNP1 Cooperativity Switch. *Biophys. J.* 119(12):2370-2371

2020 Johnson, T. (2020). Alzheimer's disease and the genetics of neuroprotection. *UWOMJ [Internet]* DOI: https://doi.org/10.5206/uwomj.v88iS.8225

ABSTRACTS & PRESENTATIONS

INTERNATIONAL

2023 Johnson, T.S. and Deber, C.M. (2023, January). *Combatting multidrug-resistant bacteria with transmembrane peptides.* Selected for an oral presentation, as well as presented a poster at Gordon Research Conference: Antimicrobial Peptides, Lucca, IT

2022 Johnson, T.S. and Deber, C.M. (2022, February). *Combatting multidrug-resistance with membrane-active peptides*. *Biophys. J.* 121(3):161A. Selected for a platform presentation to be given at Biophysical Society 66th Annual Meeting, San Francisco, CA. Cancelled due to COVID-19 restrictions

LOCAL

2024 Johnson, T.S. and He, S. (2024, January). *Peptide-based strategies to fight back against multidrug-resistant bacteria*. Oral presentation given at Molecular Medicine Retreat, Toronto, ON

2024 Johnson, T.S., Bourdine, A.A, and Deber, C.M. (2024, January). *Combatting multidrug-resistant bacteria with transmembrane peptides*. Poster presented at Molecular Medicine Retreat, Toronto, ON

2024 Johnson, T.S. and Deber, C.M. (2024, January). *The role of hydrophobicity in the design of transmembrane peptides active against multidrug-resistant bacteria*. Oral presentation given at Biochemistry Graduate Student Seminar, Toronto, ON

2023 Johnson, T.S. and Deber, C.M. (2023, November). *Peptide-based strategy to combat multidrug-resistant bacteria*. Oral presentation given at Molecular Medicine Elevator Pitch Talks, Toronto, ON. Voted "Best Talk" by the session attendees.

2023 Johnson, T.S. and Deber, C.M. (2023, January). *Combatting multidrug-resistant bacteria with transmembrane peptides.* Oral presentation given at Biochemistry Graduate Student Seminar, Toronto, ON

2021 Johnson, T.S., Mitchell, C.J., and Deber, C.M. (2021, April). *Combatting multidrug resistance in P. aeruginosa*. Oral presentation given at Cystic Fibrosis Seminar, Online

2021 Johnson, T.S. and Deber, C.M. (2021, April). *Peptide-Based Inhibition of AcrB Efflux Activity*. Oral presentation given at Biochemistry Graduate Student Seminar, Online

2021 Johnson, T.S. and Deber, C.M. (2021, February). *Peptide-Based Inhibition of AcrB Efflux Activity*. Poster presented at Biophysical Society 65th Annual Meeting, Online

2019 Johnson, T. (2019, June). *Alzheimer's Disease and the Trade-Off for Neuroprotection*. Oral presentation given at Understanding Genetic Disease – 21st Century Analysis and Treatment, London, ON

2018 Johnson, T., Gyenis, L., and Litchfield, D.W. (2018, January). *Development of Biosensor-Expressing Cell Lines to Assess the Spatial-Temporal Activity of CK2 in Living Cells*. Poster presented at Western University's 4th Year Thesis Poster Day, London, ON

ACADEMIC & COMMUNITY INVOLVEMENT

2021 – 2023 Peer Communication Team Member, University of Toronto
- Provide constructive feedback on presentation skills and organization to fellow Biochemistry graduate students preparing for their first departmental seminar

2019 – 2022 Biochemistry Graduate Student Union (BGSU), University of Toronto
- Social Commissioner – Sport Events (2021 – 2022): Organize and manage intramural and other sporting events within the Department of Biochemistry
- Social Media Coordinator (2020 – 2021): Maintain the BGSU webpage on the departmental website, as well as the BGSU social media accounts
- Graduate Student Union (GSU) Representative (2019 – 2020): Attend monthly University of Toronto GSU meetings to represent and vote on behalf of the BGSU

2018 March Break Open House Representative, Western University
- Provide information and answer questions about the Biochemistry program to prospective students and parents

2017 – 2018 Intensive Care Unit (ICU) Volunteer, London Health Sciences Centre
- Track surgical patients from the operating room to the ICU, communicate any updates on patients to visitors, and organize visitations for patients and visitors

2016 – 2017 Science Transfer Student Guide, Western University
- Escort science transfer students on a guided tour of Western University, while answering questions from students and parents

PROFESSIONAL ASSOCIATIONS

2020 – 2021 Member, Biophysical Society

PROFESSIONAL DEVELOPMENT

2022 Graduate Management Consulting Association (GMCA) *What's Consulting?* Series
2021 Basic Occupational Health & Safety Awareness Training Program
2021 Accessibility for Ontarians with Disabilities Act (AODA) Online Training

RELEVANT WORK EXPERIENCE

2022 – Present Co-Founder & Head Publicist, Don't Blink Music Group
- Independently managed all media, radio, and press outreach on behalf of our roster of artists and publicity clients for one year prior to hiring additional publicists
- Direct contact for record labels, artist managers, and media outlets looking to connect with our roster of artists for publicity purposes
- Utilized lightweight CRM systems, namely Asana and MailChimp, to establish a list of contacts for press release distribution, email marketing, and lead generation

2022 – 2023 Marketing Director, PUSH Digital Marketing
- Establish essential assets for new clients, such as Meta Pixels, and connect them to their website and social platforms for advertising and retargeting purposes
- Create, manage, and optimize YouTube advertising through Google Ads

2013 – 2014 Peer Tutor, Fanshawe College
- Assist students in need with physics, chemistry, and other science courses
- Organize group study sessions for students not involved in one-on-one tutoring