

Matthew D. Berg, PhD

Postdoctoral Scholar at University of Washington
 Department of Genome Sciences
 William H. Foege Hall, 3720 15th Ave NE, Seattle, WA 98105
 Email: mattberg@uw.edu

EDUCATION

PhD Biochemistry, The University of Western Ontario 2015 – 2021
 Supervisor: Dr. Christopher J. Brandl
 Thesis: *Implications and applications of transfer RNA variants that mistranslate the genetic code*

BMSc (Honors) Biochemistry and Cell Biology, The University of Western Ontario 2011 - 2015

POSTGRADUATE TRAINING

Postdoctoral Scholar, University of Washington 2021 - Present
 Supervisor: Dr. Judit Villén

Data Science Fellow, eScience Institute, University of Washington 2023 - Present

FELLOWSHIPS AND AWARDS

Best Oral Presentation – 68th Annual CSMB Meeting (\$250) 2025
 Canadian National Proteomics Network Abstract Award (\$500) 2024
 BioMolecular Horizons Young Scientist Program Best Talk (\$200 AUS) 2024
 BioMolecular Horizons Conference Travel Award (\$1,200 USD) 2024
 CIHR Postdoctoral Fellowship (\$214,583) 2024-2027
 UW Data Science Fellowship (\$2,000 USD) 2023
 Best Oral Presentation – 66th Annual CSMB Meeting (\$500) 2023
 Mutational Scanning Symposium Award for Best Poster Presentation (\$250 USD) 2022
 TRENd 2021 Award for Best Oral Presentation (\$100) 2021
 CSMB Conference on Proteostasis – Best Poster Award 2021
 Dr. William Zaharia Award for Excellence in Department of Biochemistry PhD 2021
 Drs. Madge and Charles Macklin Fellowship for Teaching and Research (\$4,250) 2019
 Dr. Bishnu D. Sanwal Graduate Performance Award (\$1,000) 2019
 GSA Yeast Genetics Meeting Poster Award 2018
 TRENd 2018 Award for Best Poster Presentation (\$50) 2018
 CIHR Travel Award – Canadian Student Health Research Forum (\$1,000) 2018
 The Lucille & Norton Wolf London Health Research Day Trainee Publication Award (\$1,000) 2018
 WORLDiscoveries Scholarship for Commercialization/Entrepreneurship (\$100) 2018
 NSERC Alexander Graham Bell Canadian Graduate Scholarship – Doctoral (\$105,000) 2018-2021
 TRENd 2017 Award for Best Oral Presentation (\$100) 2017

Curriculum Vitae – Matthew Berg

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| International Conference on Yeast Genetics and Molecular Biology Student Fellowship (12,000 CZK) | 2017 |
| International Journal of Molecular Sciences Poster Award – 60 th Annual CSMB Meeting (\$250) | 2017 |
| Ontario Graduate Scholarship (\$15,000) | 2017 |
| NSERC Alexander Graham Bell Canadian Graduate Scholarship – Master’s (\$17,500) | 2016 2015 |
| Ontario Graduate Scholarship (\$15,000) | |
| Gold Medal for the Honors Specialization in Biochemistry and Cell Biology Module | 2015 |
| Biochemistry 4999E Award (Highest mark in Advanced Research in Biochemistry) | 2015 |
| Biochemistry 4420A Award (Highest mark in Molecular Biology of Proteins) | 2015 |
| Biochemistry 4415B Award (Highest mark in Applications of Synthetic Biology and Chemical Genetics in Medicine) | 2015 |
| Dean’s Honor Roll, Western Scholars | 2011-2015 |
| Western’s Continuing Admission Scholarship (\$10,000) | 2011-2015 |

RESEARCH ARTICLES

*Co-first authors; †Corresponding author

1. **Berg MD**[†], Chang AT, Rodriguez-Mias RA and Villén J[†]. (2025). Mistranslating tRNA variants impact the proteome and phosphoproteome of *Saccharomyces cerevisiae*. *G3: Genes, Genomes, Genetics*. In press.
2. Wen B, Hsu C, Shteynberg D, Zeng W-F, Riffle M, Chang A, Mudge M, Nunn B, MacLean BX, **Berg MD**, Villén J, MacCoss MJ and Noble WS. (2025). Carafe enables high quality *in silico* spectral library generation for data-independent acquisition proteomics. *Nat Commun*. 16:9815.
3. Chadwick SR, Stack-Couture S, **Berg MD**, Di Gregorio S, Lung B, Genereaux J, Moir RD, Brandl CJ, Willis IM, Snapp EL and Lajoie P. (2025). TUDCA modulates drug availability to regulate resistance to acute ER stress in *Saccharomyces cerevisiae*. *Mol Biol Cell*. 36(2):ar13.
4. Locke TM, Fields R, Gizinski H, Otto GM, MacEwen MJS, Rusnac D-V, He P, Shechner DM, McGann CD, **Berg MD**, Villén J, Sancak Y and Schweppe DK. (2024). High-throughput identification of calcium regulated proteins across diverse proteomes. *Cell Reports*. 43(11):114879.
5. Isaacson JR, **Berg MD**, Jagiello J, Yeung W, Charles B, Villén J, Brandl CJ and Moehring AJ. (2024). Mistranslating tRNA variants have anticodon- and sex-specific impacts on *Drosophila melanogaster*. *G3: Genes, Genomes, Genetics*. 14(12):jkae230.
 - Selected as a featured article
6. Isaacson JR, **Berg MD**, Yeung W, Villén J, Brandl CJ and Moehring AJ. (2024). Impact of tRNA-induced proline-to-serine mistranslation on the transcriptome of *Drosophila melanogaster*. *G3: Genes, Genomes, Genetics*. 14(9):jkae151.
7. Cozma E, Rao M, Dusick M, Genereaux J, Rodriguez-Mias RA, Villén J, Brandl CJ and **Berg MD**[†]. (2023). Anticodon sequence determines the impact of mistranslating tRNA^{Ala} variants. *RNA Biol*. 20(1):791-804.
8. Laframboise SJ, Bailey T, D A-T, Rose M, Zhou Z, **Berg MD**, Holland S, Abdul SA, O’Connor K, El-Sahli S, Boucher DM, Fairman G, Deng J, Shaw K, Noblett N, D’Addario A, Empey M and

- Sinclair K. (2023). Analysis of financial challenges faced by graduate students in Canada. *Biochem Cell Biol.* 101(4):326-360.
9. Bari KA, **Berg MD**, Genereaux J, Brandl CJ and Lajoie P. (2023). Tra1 controls the transcriptional landscape of the aging cell. *G3: Genes, Genomes, Genetics.* 13(1):jkac287.
 10. **Berg MD**[†], Zhu Y, Loll-Krippleber R, San Luis B-J, Genereaux J, Boone C, Villén J, Brown GW and Brandl CJ[†]. (2022). Genetic background and mistranslation frequency determine the impact of mistranslating tRNA^{Ser}_{UGG}. *G3: Genes, Genomes, Genetics.* 12(7): jkac125.
 11. Isaacson JR, **Berg MD**, Charles B, Jagiello J, Villén J, Brandl CJ and Moehring AJ. (2022). A novel mistranslating tRNA model in *Drosophila melanogaster* has diverse, sexually dimorphic effects. *G3: Genes, Genomes, Genetics.* 12(5): jkac035.
 12. **Berg MD**[†], Isaacson JR, Cozma E, Genereaux J, Lajoie P, Villén J and Brandl CJ[†]. (2021). Regulating expression of mistranslating tRNAs by readthrough RNA polymerase II transcription. *ACS Synth Biol.* 10(11): 3177-3189.
 13. Razzaq I*, **Berg MD***, Jiang Y, Genereaux J, Uthayakumar D, Kim GH, Agyare-Tabbi M, Halder V, Brandl CJ, Lajoie P and Shapiro RS. (2021). The SAGA and NuA4 component Tra1 regulates *Candida albicans* drug resistance and pathogenesis. *GENETICS.* 219(2): iyab131.
 14. **Berg MD***[†], Zhu Y*, Ruiz BY, Loll-Krippleber R, Isaacson J, San Luis B-J, Genereaux J, Boone C, Villén J, Brown GW and Brandl CJ[†]. (2021). The amino acid substitution affects cellular response to mistranslation. *G3: Genes, Genomes, Genetics.* 11(10): jkab218.
 15. **Berg MD**[†], Zhu Y, Isaacson J, Genereaux J, Loll-Krippleber R, Brown GW and Brandl CJ[†]. (2020). Chemical-genetic interactions with the proline analog L-azetidine-2-carboxylic acid in *Saccharomyces cerevisiae*. *G3: Genes, Genomes, Genetics.* 10(12): 4335-4345.
 16. **Berg MD**[†] and Brandl CJ[†]. (2020). Transfer RNAs: Diversity in Form and Function. *RNA Biol.* 18(3): 316-339.
 17. Zhu Y*, **Berg MD***, Yang P, Loll-Krippleber R, Brown GW and Brandl CJ. (2020). Mistranslating tRNA identifies a deleterious S213P mutation in the *Saccharomyces cerevisiae* *eco1-1* allele. *Biochem Cell Biol.* 98(5): 624-630.
 18. **Berg MD**[†], Zhu Y, Genereaux J, Ruiz BY, Rodriguez-Mias RA, Allan T, Bahcheli A, Villén J and Brandl CJ[†]. (2019). Modulating mistranslation potential of tRNA^{Ser} in *Saccharomyces cerevisiae*. *GENETICS.* 213(3): 849-863.
 - Selected as a highlighted article (<https://www.genetics.org/content/213/3/NP>)
 19. **Berg MD**[†], Giguere DJ, Dron JS, Lant JT, Genereaux J, Liao C, Wang J, Robinson JF, Gloor GB, Hegele RA, O'Donoghue P and Brandl CJ. (2019). Targeted sequencing reveals expanded genetic diversity of human transfer RNAs. *RNA Biol.* 16(11): 1574-1585.
 - Covered by Western University Schulich School of Medicine & Dentistry: <https://mediarelations.uwo.ca/2019/08/13/lost-in-translation-researchers-discover-translator-gene-may-play-a-role-in-disease/> and picked up by phys.org (<https://phys.org/news/2019-08-lost-gene-role-disease.html>) and other news outlets

Curriculum Vitae – Matthew Berg

20. Jiang Y, **Berg MD**, Genereaux J, Ahmed K, Duennwald ML, Brandl CJ and Lajoie P. (2019). Sfp1 links TORC1 and cell growth regulation to the yeast SAGA-complex component Tra1 in response to polyQ proteotoxicity. *Traffic*. 20(4): 267-283.
21. Lant JT, **Berg MD**, Heinemann IU, Brandl CJ and O'Donoghue P. (2019). Pathways to disease from natural variations in human cytoplasmic tRNAs. *J Biol Chem*. 294(14): 5294-5308.
22. **Berg MD**[†], Genereaux J, Zhu Y, Mian S, Gloor GB and Brandl CJ[†]. (2018). Acceptor stem differences contribute to species-specific use of yeast and human tRNA^{Ser}. *Genes*. 9(12): E612.
23. **Berg MD**[†], Genereaux J, Karagiannis J and Brandl CJ[†]. (2018). The pseudokinase domain of *Saccharomyces cerevisiae* Tra1 is required for nuclear localization and incorporation into the SAGA and NuA4 complexes. *G3: Genes, Genomes, Genetics*. 8(6): 1943-1957.
24. Lant JT, **Berg MD**, Sze D, Hoffman KS, Turk M, Akinpelu I, Heinemann IU, Duennwald ML, Brandl CJ and O'Donoghue P. (2018). Visualizing tRNA-dependent mistranslation in human cells. *RNA Biol*. 15(4-5): 567-575.
25. **Berg MD**[†], Hoffman KS, Genereaux J, Mian S, Trussler RS, Haniford DB, O'Donoghue P and Brandl CJ[†]. (2017). Evolving mistranslating tRNAs through a phenotypically ambivalent intermediate in *Saccharomyces cerevisiae*. *GENETICS*. 206(4): 1865-1879.
 - Selected as a highlighted article (<http://www.genetics.org/content/206/4/NP>) and featured on SGD (<https://www.yeastgenome.org/blog/that-sweet-spot-of-mistranslation>)
26. Hoffman KS, **Berg MD**, Shilton BH, Brandl CJ and O'Donoghue P. (2017). Genetic selection for mistranslation rescues a defective co-chaperone in yeast. *Nucleic Acids Res*. 45(6): 3407-3421.

Pre-prints

1. Chang A, Rodriguez-Mias RA, **Berg MD**, Moggridge S and Villén J. (2025). Phosphotyrosine proteomics using a scalable SH2 superbinder enrichment strategy. doi: 10.1101/2025.05.14.653984. (Under review at *Nat Commun*)
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OTHER PUBLICATIONS

1. Berg M. (2025). Cracking the code: Dr. Trushar Patel's mentorship philosophy. Canadian Science Publishing Blog. <https://blog.cdnsiencepub.com/trushar-patel/>
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INVITED SEMINARS

1. Mistranslating tRNAs: Health implications and synthetic biology applications. October 25, 2023. Department of Biology Seminar Series, Western Washington University. Bellingham, WA.
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CONERENCE ABSTRACTS, POSTERS AND TALKS

1. **Berg MD**, Chang A, Hess K, Rodriguez-Mias RA and Villén J. (2025). Uncovering the functional impact of missense mutations proteome-wide using mistranslation and mass spectrometry. Oral presentation. Pacific Northwest Yeast Club Meeting. Vancouver, British Columbia, Canada.

2. **Berg MD**, Chang A, Hess K, Rodriguez-Mias RA and Villén J. (2025). Uncovering the functional impact of missense mutations proteome-wide using mistranslation and mass spectrometry. Oral presentation. Cascadia Proteomics Symposium. Seattle, WA, USA.
3. **Berg MD**, Chang A, Hess K, Rodriguez-Mias RA and Villén J. (2025). Uncovering the functional impact of missense mutations proteome-wide using mistranslation and mass spectrometry. Oral presentation. 68th Annual Canadian Society of Molecular Bioscience-Proteostasis Researchers in Canada, Eh Joint Conference. Ottawa, Ontario, Canada.
 - Awarded best oral presentation
4. **Berg MD**, Chang A, Hess K, Rodriguez-Mias RA and Villén J. (2024). Uncovering the functional impact of missense mutations proteome-wide using mistranslation and mass spectrometry. Oral presentation. Canadian National Proteomics Network Conference. Whistler, British Columbia, Canada.
 - Awarded best abstract award
5. **Berg MD**, Chang A, Hess K, Rodriguez-Mias RA and Villén J. (2024). Uncovering the functional impact of missense mutations proteome-wide using mistranslation and mass spectrometry. Poster presentation. NHGRI Centers of Excellence in Genomic Sciences Annual Meeting. La Jolla, California, USA.
6. **Berg MD**, Chang A, Hess K, Rodriguez-Mias RA and Villén J. (2024). Proteome-wide alanine scanning with mistranslating transfer RNAs to identify functionally important residues across the proteome. Poster presentation. Biomolecular Horizons. Melbourne, Victoria, Australia.
 - Awarded best oral presentation at the Young Scientist Program
7. **Berg MD**, Chang A, Rodriguez-Mias RA and Villén J. (2024). Uncovering the impact of mistranslating tRNA variants using multidimensional proteomics in yeast. Oral presentation. Pacific Northwestern Yeast Club Meeting. Seattle, WA, USA.
8. **Berg MD**, Chang A, Rodriguez-Mias RA and Villén J. (2024). A multidimensional proteomic approach to understand the impact of mistranslating tRNA variants. Oral presentation. Cascadia Proteomics Symposium. Seattle, WA, USA.
9. **Berg MD**, Chang A, Hess K, Rodriguez-Mias RA and Villén J. (2024). Proteome-wide alanine scanning with mistranslating tRNAs to identify functionally important residues across the proteome. Oral presentation. The Allied Genetics Conference. Washington, DC, USA.
10. **Berg MD**, Rodriguez-Mias RA and Villén J. (2023). Enabling proteome-wide alanine scanning in yeast with mistranslating tRNAs. Oral Presentation. Pacific Northwest Yeast Club Meeting. Bellingham, WA, USA.
11. **Berg MD**, Rodriguez-Mias RA and Villén J. (2023). Uncovering functional impact of missense mutations proteome-wide using mistranslating tRNAs. Oral Presentation. Cascadia Proteomics Symposium. Seattle, WA, USA.
12. **Berg MD**, Rodriguez-Mias RA and Villén J. (2023). Harnessing mistranslating tRNAs to uncover the consequence of missense mutations on protein function proteome-wide. Oral Presentation. 66th Annual Canadian Society for Molecular Biosciences Meeting. Ottawa, ON, Canada.
 - Awarded Best Oral Presentation

13. **Berg MD**, Cozma E, Genereaux J, Rodriguez-Mias RA, Brandl CJ and Villén J. (2022). Proteome-wide alanine scanning using mistranslating tRNA variants. Oral Presentation. NHGRI Centers of Excellence in Genomic Sciences Annual Meeting. Durham, NC, USA.
14. **Berg MD**, Ruiz BY, Rodriguez-Mias RA, Genereaux J, Cozma E, Brandl CJ and Villén J. (2022). Proteomic and phosphoproteomic analysis of the cellular response to mis-made proteins caused by mistranslating tRNA variants. Oral Presentation. Yeast Genetics Meeting. Los Angeles, CA, USA.
15. **Berg MD**, Cozma E, Genereaux J, Rodriguez-Mias RA, Brandl CJ and Villén J. (2022). Engineering and characterizing alanine mistranslating tRNAs for proteome-wide alanine scanning. Poster Presentation. Mutational Scanning Symposium. Toronto, ON, Canada.
 - Awarded best poster in the Technology and Tools category
16. **Berg MD**, Isaacson J, Cozma E, Genereaux J, Lajoie P, Villén J and Brandl CJ. (2021). Inhibiting expression of mistranslating tRNAs by readthrough RNA polymerase II transcription. Oral Presentation. Toronto RNA Enthusiasts Day (TRENd) 2021. Online.
 - Awarded best talk
17. **Berg MD**, Zhu Y, Ruiz BY, Loll-Krippelber R, Isaacson J, San Luis B-J, Genereaux J, Boone C, Villén J, Brown GW and Brandl CJ. (2021). The amino acid substitution affects cellular response to mistranslation. Poster Presentation. 64th Annual Canadian Society for Molecular Biosciences Conference: Protein Homeostasis. Online.
 - Awarded best poster
18. **Berg MD**, Jiang Y, Razzaq I, Genereaux J, Brandl CJ, Shapiro RS and Lajoie P. (2020). Tra1 is required for antifungal drug resistance in yeast. Oral Presentation. CanFunNet 2020. Online.
19. **Berg MD**, Zhu Y, Ruiz BY, Isaacson J, Genereaux J, Loll-Krippelber R, San Luis B-J, Boone C, Brown GW, Villen J and Brandl CJ. (2020). Mistranslation elicits different cellular responses based on the amino acid substitution. Highlighted Poster Presentation. The Allied Genetics Conference. Online. doi: 10.6084/m9.figshare.12148782.v1
20. **Berg MD**. (2019) Could tRNA variants be genetic modifiers of disease? Oral Presentation. Maud L Menten Memorial Symposium. London, ON, Canada.
21. **Berg MD**, Giguere DJ, Dron JS, Lant JT, Lao C, Genereaux J, Wang J, Robinson JF, Gloor GB, Hegele RA, O'Donoghue P and Brandl CJ. (2019). Expanded human tRNA variation revealed from capture array sequencing. Poster Presentation. Toronto RNA Enthusiasts Day (TRENd). Toronto, ON, Canada.
22. **Berg MD**, Zhu Y, Genereaux J, Allan T, Bahcheli A, Ruiz BY, Rodriguez-Mias RA and Brandl CJ. (2019). Modulating the efficiency of tRNA^{Ser} in yeast to expand mistranslation potential. Oral Presentation. Northeast Regional Yeast Meeting 2019. Buffalo, NY, USA.
23. **Berg MD**, Zhu Y, Genereaux J and Brandl CJ (2019). Expanding the toolbox of mistranslating tRNAs for uses in synthetic biology. Poster Presentation. Synthetic Biology Symposium 4.0. Waterloo, ON, Canada.

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24. **Berg MD**, Giguere DJ, Dron JS, Lant JT, Lao C, Genereaux J, Wang J, Robinson JF, Gloor GB, Hegele RA, O'Donoghue P and Brandl CJ. (2019). Expanded human tRNA variation revealed from capture array sequencing. Oral Presentation. London Health Research Day. London, ON, Canada.
25. **Berg MD**, Genereaux J, Zhu Y, O'Donoghue, and Brandl CJ. (2018). Mapping serine tRNA identity elements using mistranslation. Poster Presentation. Yeast Genetics Meeting. Palo Alto, CA, USA.
 - Awarded Excellence in Poster Presentation Award
26. **Berg MD**, Genereaux J, Zhu Y, O'Donoghue, and Brandl CJ. (2018). Mapping serine tRNA identity elements using mistranslation. Poster Presentation. Toronto RNA Enthusiasts Day (TREN D). Toronto, ON, Canada.
 - Awarded best poster presentation
27. **Berg M**, Genereaux J, Zhu Y, O'Donoghue P and Brandl C. (2018). Mapping serine tRNA identity elements using mistranslation. Oral Presentation. Synthetic Biology Symposium 3.0. London, ON, Canada.
28. **Berg M**, Zhu Y, San Luis B-J, Brown G, Boone C, O'Donoghue P and Brandl C. (2018). Cellular mechanisms allowing cells to cope with mistranslating tRNAs. Poster Presentation. Canadian Student Health Research Forum. Winnipeg, MB, Canada.
29. **Berg MD**, Hoffman KS, Genereaux J, Mian S, Trussler R, Haniford DB, O'Donoghue P and Brandl CJ. (2017). Isolating mistranslating serine tRNAs with a proline anticodon through an ambivalent intermediate. Poster Presentation. 28th International Conference on Yeast Genetics and Molecular Biology. Prague, Czech Republic.
30. **Berg MD**, Hoffman KS, Genereaux J, Mian S, Trussler R, Haniford DB, O'Donoghue P and Brandl CJ. (2017). Isolating mistranslating serine tRNAs with a proline anticodon through an ambivalent intermediate. Oral Presentation. Toronto RNA Enthusiasts Day (TREN D). Toronto, ON, Canada.
 - Awarded Best Oral Presentation
31. **Berg MD**, Hoffman KS, Genereaux J, Mian S, Trussler R, Haniford DB, O'Donoghue P and Brandl CJ. (2017). Evolving mistranslating serine tRNAs with a proline anticodon through an ambivalent intermediate. Oral Presentation. Synthetic Biology Symposium 2.0. London, ON, Canada.
32. **Berg MD**, Hoffman KS, Genereaux J, Mian S, Trussler R, Haniford DB, O'Donoghue P and Brandl CJ. (2017). Isolating mistranslating serine tRNAs with a proline anticodon through an ambivalent intermediate. Poster Presentation. 60th Annual Canadian Society for Molecular Biosciences Meeting. Ottawa, ON, Canada.
 - Awarded Best Poster
33. **Berg M**, Karagiannis J and Brandl C. (2016). Biosynthesis of the SAGA and NuA4 complexes requires the pseudokinase domain of Tra1. Poster Presentation. Abcam Symposium: Metabolic and transcriptional reprogramming leads to cancer vulnerabilities. Toronto, ON, Canada.
34. **Berg M**, Karagiannis J and Brandl C. (2016). Analysis of the pseudokinase domain of the SAGA and NuA4 component Tra1. Poster presentation. The Allied Genetics Conference. Orlando, FL, USA.

35. **Berg M**, Karagiannis J and Brandl C. (2016). The pseudokinase domain of the transcriptional co-activator Tra1 is required for its nuclear localization and incorporation into the SAGA complex. Oral Presentation. Northeast Regional Yeast Meeting. Buffalo, NY, USA.
36. **Berg M** and Brandl C. (2015). Genetic analysis of the PI3-kinase domain of the SAGA and NuA4 component Tra1. Poster presentation. 34th Summer Symposium in Molecular Biology. Pennsylvania State University, PA, USA.
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TEACHING EXPERIENCE

Instructor, University of Washington (Bothell)

Winter 2024

Bio/Bis 285: Molecular Medicine and You

- In collaboration with two postdoctoral scholars, developed a new undergraduate course covering molecular medicine technologies including gene editing, viral therapies and molecular imaging/AI
- Planned and taught three classes on the science and ethics of gene editing using active learning strategies to 23 students (including one online class)
- Created homework assignments to prepare students to discuss the societal and ethical impacts of gene editing
- Developed a final project that allowed students to explore a molecular medicine approach of their choice and creatively express their understanding of the science as well as the societal/ethical impacts of that technology

Teaching Assistant, University of Washington

Fall Quarter 2021 - 2025

Genome 555: Protein Technologies

- Planned and taught discussion-based classes for ~ 20 graduate students each year on mass spectrometry and sequencing based technologies to study protein interactions, localization, post-translational modifications, structure and function
- Provided feedback and guided students to develop a proposal for a new technology to study proteins

Instructor, The University of Western Ontario

Winter Semester 2018 - 2019

Biochem 3390B: Advanced Methods for Biochemistry

- Developed material and taught molecular biology techniques (PCR, cloning, protein purification, mutagenesis, data visualization) to ~ 30 undergraduate students (2 lectures plus 1 tutorial per week for four weeks)
- Created three evaluations to assess students' understanding of the covered molecular biology techniques and provided feedback to students

Teaching Assistant, The University of Western Ontario

Winter Semester 2016 - 2017

Biochem 3390B: Advanced Methods for Biochemistry

- Graded assignments and provided feedback to undergraduate students
- Held office hours to answer questions that arose from course content

Teaching Assistant, The University of Western Ontario

Biochem 4410A: Molecular Biology of DNA and RNA

- Graded assignments and provided feedback to undergraduate students
 - Held office hours to answer questions that arose from course content
 - In 2017, taught two lectures on telomere biology to 92 students
 - Was nominated in 2016 and 2017 for a Graduate Student Teaching Assistant award by students in the class
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MENTORING

Research Volunteers, University of Washington

Jonathan Ngoga Mulenga (2024)

Biochemistry Undergraduate Reading Program, University of Washington

Justin Aran Soberanis (2023)

Ruo-Mei Liu (2023)

Genome Sciences Research Experience for Undergraduates, University of Washington

Amber Herrod (2022)

Third Year Research Students (Biochem 3383), The University of Western Ontario

Shifaz Veettil (2016)

Alexander Bahcheli (2017)

Tyler Allan (2017)

Avi Petroff (2019)

Shuhan (Cathy) Bu (2019-2020)

Ecaterina Cozma (2021)

Honors Thesis Research Students (Biochem 4483), The University of Western Ontario

Amanda Lien (2016)

Lijun Liu (2017-2018)

Alexander Bahcheli (2018)

Tyler Allan (2018-2019)

Ryan Geng (2018-2019)

Research Volunteers, The University of Western Ontario

Winston Ha (2014 – 2015)

Shuhan (Cathy) Bu (2018-2019)

Britney Messam (2018-2019)

Valerie Swanston (2018-2019)

Hannah Polley (2019-2020)

Amy Kwon (2019-2020)

Kenneth Nguyen (2019-2020)

Ecaterina Cozma (2020)

Oviya Ananthakrishnan (2020)

PROFESSIONAL DEVELOPMENT

Science Teaching Experience Program (STEP), University of Washington 2023 - 2024

Faculty mentor: Dr. Michele Price

- Participated in a mentored teaching apprenticeship program for postdoctoral scholars that provides training and experience in course design and teaching using student-centered pedagogies
- Developed and taught a 10-week course at UW Bothell in Winter 2024 with two other postdoctoral fellows on molecular medicine
- Gave and received feedback after each teaching session from our teaching faculty mentor and co-instructor postdocs

The Theory and Practice of University Teaching (SGPS9500), The University of Western Ontario 2020

- Attended 36 course hours to learn about theory and research behind effective university teaching
- Learned about active learning techniques and how to design different forms of student assessment
- Developed a teaching philosophy statement that articulates evidence-based rationale to guide lesson/course design choices
- Gave three 10-minute microteaching lessons and received feedback on teaching style/approach from peers

GENETICS Peer Review Training Program, Genetics Society of America 2018 – 2020

- Selected to be trained in manuscript review by members of the *GENETICS* editorial board
- Reviewed manuscripts submitted to the journal and received feedback and mentoring from journal editors

Teaching Assistant Training Program, The University of Western Ontario 2015

- Learned how to design and deliver lectures, apply effective feedback (verbal, written and non-verbal), facilitate effective classroom and laboratory discussion and implement consistent grading practices
- Gave two mini lectures and was given feedback on teaching style and personal approach

LEADERSHIP EXPERIENCE AND SERVICE

Board Member, Canadian Society of Molecular Biosciences 2019 – 2025

- Attended board meetings and provided feedback on topics related to trainees in Canada
- Co-chaired the Trainee Committee consisting of 5 students and postdocs across Canada
- Created opportunities for trainees to gain skills including webinars on EDI, how to create a CV, how to write a research grant, how to communicate your science and how to find jobs outside of academia
- Met with members of parliament to advocate for increased funding for trainees
- Developed connections with groups with Support our Science to send a unified message for increase support for Canadian research

Curriculum Vitae – Matthew Berg

- Initiated a monthly CSMB seminar series where trainees and early career researchers could present their work
- Created a program where trainees could interview CSMB award winners and write a short article that is published on the Canadian Science Publishing blog

Trainee Committee Member, Canadian Society of Molecular Biosciences 2018-2019

- Provided information to CSMB trainee members to help them advance their careers
- Organized events to improve trainee member experiences such as creating a Slack community and leading advocacy initiatives on social media

Co-chair, UWO Biochemistry Graduate Student Association 2018-2019

- In collaboration with two other graduate students, established a new student association for the biochemistry department with the goal of creating community and improving communication between graduate students
- Lead a team of ten graduate students
- Developed new initiatives such as a student invited speaker series, peer mentoring program for second year students preparing for their qualifying exams and career development opportunities

Student Representative, UWO Biochemistry Graduate Studies Committee 2016-2018

- Attended graduate studies meetings to discuss courses, stipends, degree requirements, admission requirements for the program, program evaluation and student seminars
- Advocated for and expressed concerns of graduate students

Department Representative, UWO Society of Graduate Students 2015-2016

- Represented the interest of biochemistry graduate students, relayed news from the UWO graduate community, brought forth biochemistry graduate student concerns and voted on motions

SOCIETY MEMBERSHIPS

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| Canadian National Proteomics Network (CNPN) | 2021 – Present |
| Genetics Society of America (GSA) | 2016 – Present |
| Canadian Society for Molecular Biosciences (CSMB) | 2016 – Present |
| American Society of Human Genetics (ASHG) | 2019 |
| American Society for Biochemistry and Molecular Biology (ASBMB) | 2017 |

JOURNAL REVIEW

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| <i>BMC Genomics</i> , ad hoc reviewer (1) | 2025 |
| <i>PLoS One</i> , ad hoc reviewer (1) | 2024 |
| <i>GENETICS</i> , ad hoc reviewer (1) | 2024 |
| <i>RNA Biology</i> , ad hoc reviewer (1) | 2024 |
| <i>PLoS One</i> , ad hoc reviewer (1) | 2023 |
| <i>RNA Biology</i> , ad hoc reviewer (1) | 2023 |
| <i>PLoS One</i> , ad hoc reviewer (1) | 2022 |
| <i>International Journal of Molecular Sciences</i> , ad hoc reviewer (1) | 2022 |
| <i>International Journal of Molecular Sciences</i> , ad hoc reviewer (1) | 2021 |

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| <i>International Journal of Molecular Sciences</i> , ad hoc reviewer (1) | 2020 |
| <i>Epigenomes</i> , ad hoc reviewer (1) | 2020 |
| <i>GENETICS</i> , ad hoc reviewer (1) | 2020 |
| <i>Current Microbiology</i> , ad hoc reviewer (1) | 2019 |
| <i>GENETICS</i> , ad hoc reviewer (1) | 2019 |
| <i>GENETICS</i> , ad hoc reviewer (2) | 2018 |

REVIEW COMMITTEE MEMBERSHIPS

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| CIHR Doctoral Research Awards Review Committee | 2026 |
| CIHR Doctoral Research Awards Review Committee | 2025 |
| Selection Committee for the National Scholarship Program (Faculty of Science, UWO) | 2020 |
| Selection Committee for the National Scholarship Program (Faculty of Science, UWO) | 2018 |