

CURRICULUM VITAE

Robert J. Huber, Ph.D.

PERSONAL INFORMATION

Full name: Robert Joseph Huber
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ACADEMIC POSITIONS

2021-present **Associate Professor**, Trent University, Department of Biology and Environmental and Life Sciences Graduate Program, Peterborough, Ontario, Canada
2016-2021 **Assistant Professor**, Trent University, Department of Biology and Environmental and Life Sciences Graduate Program, Peterborough, Ontario, Canada

POSTDOCTORAL TRAINING

2015-2016 **Postdoctoral Fellow, University of Ottawa**, Department of Biology, Ottawa, Ontario, Canada
2012-2015 **Research Fellow, Massachusetts General Hospital**, Center for Human Genetic Research and Department of Neurology, Boston, Massachusetts, USA
Mentors: Dr. Susan L. Cotman and Dr. James F. Gusella
2012-2015 **Research Fellow, Harvard Medical School**, Boston, Massachusetts, USA

EDUCATION

2007-2012 **Doctor of Philosophy (Ph.D.), University of Toronto**
Toronto, Ontario, Canada
Department of Cell & Systems Biology
Thesis title: Modulation of cell motility by EGF-like repeats in *Dictyostelium discoideum*
Thesis supervisor: Dr. Danton H. O'Day, Professor Emeritus
Helen Sawyer Hogg Graduate Admission Award (2007, \$5000)
2003-2007 **Honours Bachelor of Science (H.B.Sc.), University of Toronto Mississauga**
Mississauga, Ontario, Canada
Department of Biology
Molecular Biology Specialist; Geography (Arts) Minor
Undergraduate thesis title: EGF increases the rate of *Dictyostelium* development possibly through an EGFR-like protein

Graduate with High Distinction
 Golden Key International Honour Society (2004-present), Dean's Honour List (2003-2007), Mathematics Honour Roll (2004), Ontario Scholar (2003)
 Queen Elizabeth II Aiming for the Top Scholarship (2003-2007, \$14000), Chancellor's Entrance Scholarship (2003, \$3000)

RESEARCH

AWARDS AND RECOGNITIONS

2020	Nomination to the Royal Society of Canada College of New Scholars, Artists and Scientists	
2019	Nominated by the Office of Research and Innovation, Trent University	
2019	Merit Award for Research	Salary award
	Committee on Academic Personnel, Trent University	
2019	2019 <i>Dictyostelium</i> Junior Faculty Award	
	International award presented at the 2019 International <i>Dictyostelium</i> Conference. Award recognizes exceptional contributions to the field.	
2015	Poster Award (3rd Place)	\$50
	Center for Human Genetic Research Annual Retreat Massachusetts General Hospital, Harvard Medical School	
2012	Graduate Student Research Award	\$500
	University of Toronto Mississauga Awarded annually to the top-ranked graduate student	

JOURNAL ARTICLES

⁺⁺Trent University Graduate student, ⁺Trent University Undergraduate student, [#]Equal contribution

Published

39. **Huber RJ.** Altered protein secretion in Batten disease. *Disease Models & Mechanisms*. In press. Invited.
38. McLaren MD^{++,#}, Mathavarajah S^{+,#}, Kim WD⁺⁺, Yap SQ⁺⁺, **Huber RJ.** (2021). Aberrant autophagy impacts growth and multicellular development in a *Dictyostelium* knockout model of CLN5 disease. *Frontiers in Cell and Developmental Biology* 9, 657406 plus supplementary data. Research Topic: *Dictyostelium: A Tractable Cell and Developmental Model in Biomedical Research*. doi:10.3389/fcell.2021.657406
37. Yap SQ^{++,#}, Mathavarajah S[#], **Huber RJ.** (2021). The converging roles of Batten disease proteins in neurodegeneration and cancer. *iScience* 24(4), 102337. doi:10.1016/j.isci.2021.102337
36. **Huber RJ,** Kim WD⁺⁺, Mathavarajah, S. (2021). Inhibiting neddylation with MLN4924 suppresses growth and delays multicellular development in *Dictyostelium discoideum*. *Biomolecules* 11(3), 482 plus supplementary data. Special Issue: Looking Back and Ahead: Emerging Concepts in Ubiquitin and UBLs. doi:10.3390/biom11030482

35. Mathavarajah S, VanDerstine C, Dellaire G, **Huber RJ**. (2021). Cancer and the breakdown of multicellularity: What *Dictyostelium discoideum*, a social amoeba, can teach us. *BioEssays* 43(4), e2000156. doi:10.1002/bies.202000156
34. Kim WD⁺⁺#, Yap SQ⁺⁺#, **Huber RJ**#. (2021). A proteomics analysis of calmodulin-binding proteins in *Dictyostelium discoideum* during the transition from unicellular growth to multicellular development. *International Journal of Molecular Sciences* 22(4), 1722 plus supplementary data. Special Issue: Calmodulin Binding Proteins. doi:10.3390/ijms22041722
33. **Huber RJ**, Hughes SM, Liu W, Morgan A, Tuxworth RI, Russell C. (2020). The contribution of multicellular model organisms to neuronal ceroid lipofuscinosis research. *Biochimica et Biophysica Acta (BBA) - Molecular Basis of Disease* 1866(9), 165614. doi:10.1016/j.bbadis.2019.165614
32. Aoki MM⁺⁺, Emery RJN, Anjard C, Brunetti CR, **Huber RJ**. (2020). Cytokinins in Dictyostelia – A unique model for studying the functions of signaling agents from species to kingdoms. *Frontiers in Cell and Developmental Biology* 8, 511. doi:10.3389/fcell.2020.00511
31. **Huber RJ**, Mathavarajah S⁺, Yap SQ⁺⁺. (2020). Mfsd8 localizes to endocytic compartments and influences the secretion of Cln5 and cathepsin D in *Dictyostelium*. *Cellular Signalling* 70, 109572 plus supplementary data. doi:10.1016/j.cellsig.2020.109572
30. **Huber RJ**. (2020). Molecular networking in the neuronal ceroid lipofuscinoses: Insights from mammalian models and the social amoeba *Dictyostelium discoideum*. *Journal of Biomedical Science* 27(1), 64. doi:10.1186/s12929-020-00653-y
29. O'Day DH[#], Mathavarajah S⁺#, Myre MA[#], **Huber RJ**#. (2020). Calmodulin-mediated events during the life cycle of the amoebozoan *Dictyostelium discoideum*. *Biological Reviews of the Cambridge Philosophical Society* 95(2), 472-490. doi:10.1111/brv.12573
28. Aoki MM⁺⁺, Kisiala AB, Li S, Stock NL, Brunetti CR, **Huber RJ**, Emery RJN. (2019). Cytokinin detection throughout the *Dictyostelium discoideum* life cycle: Profiles are dynamic and affect cell growth and spore germination. *Biomolecules* 9(11), 702 plus supplementary data. doi:10.3390/biom9110702. Note: Paper was selected as a “hot paper” by the Editors of *Biomolecules* and was recognized in the “Editor’s Choice Articles” Special Issue.
27. **Huber RJ**, Mathavarajah S⁺. (2019). Comparative transcriptomics reveals mechanisms underlying *cln3*-deficiency phenotypes in *Dictyostelium*. *Cellular Signalling* 58, 79-90 plus supplementary data. doi:10.1016/j.cellsig.2019.02.004
26. McLaren MD⁺⁺, Mathavarajah S⁺, **Huber RJ**. (2019). Recent insights into NCL protein function using the model organism *Dictyostelium discoideum*. *Cells* 8(2), 115. doi:10.3390/cells8020115
25. Mathavarajah S⁺, McLaren MD⁺⁺, **Huber RJ**. (2018). Cln3 function is linked to osmoregulation in a *Dictyostelium* model of Batten disease. *Biochimica et Biophysica Acta (BBA) – Molecular Basis of Disease* 1864, 3559-3573 plus supplementary data. doi:10.1016/j.bbadis.2018.08.013
24. Mathavarajah S⁺, O'Day DH, **Huber RJ**. (2018). Neuronal ceroid lipofuscinoses: Connecting calcium signalling through calmodulin. *Cells* 7(11), 188. doi:10.3390/cells7110188
23. **Huber RJ**, Mathavarajah S⁺. (2018). Secretion and function of Cln5 during the early stages of *Dictyostelium* development. *Biochimica et Biophysica Acta (BBA) – Molecular Cell Research* 1865(10), 1437-1450 plus supplementary data. doi:10.1016/j.bbamcr.2018.07.017
22. **Huber RJ**, Mathavarajah S⁺. (2018). Cln5 is secreted and functions as a glycoside hydrolase in *Dictyostelium*. *Cellular Signalling* 42, 236-248 plus supplementary data. doi:10.1016/j.cellsig.2017.11.001
21. Mathavarajah S⁺, Flores A⁺, **Huber RJ**. (2017). *Dictyostelium discoideum*: A model system for cell and developmental biology. *Current Protocols Essential Laboratory Techniques* 15, 14.1.1-14.1.19. doi:10.1002/cpet.15

20. **Huber RJ**, Myre MA, Cotman SL. (2017). Aberrant adhesion impacts early development in a *Dictyostelium* model for juvenile neuronal ceroid lipofuscinosis. *Cell Adhesion & Migration* 11(4), 399-418. doi:10.1080/19336918.2016.1236179
19. **Huber RJ**. (2017). Loss of Cln3 impacts protein secretion in the social amoeba *Dictyostelium*. *Cellular Signalling* 35, 61-72 plus supplementary data. doi:10.1016/j.cellsig.2017.03.022
18. **Huber RJ**, O'Day DH. (2017). Extracellular matrix dynamics and functions in the social amoeba *Dictyostelium*: A critical review. *Biochimica et Biophysica Acta (BBA) - General Subjects* 1861(1), 2971-2980. doi:10.1016/j.bbagen.2016.09
17. **Huber RJ**. (2016). Using the social amoeba *Dictyostelium* to study the functions of proteins linked to neuronal ceroid lipofuscinosis. *Journal of Biomedical Science* 23(1), 83. doi:10.1186/s12929-016-0301-0
16. **Huber RJ**, O'Day DH. (2015). Proteomic profiling of the extracellular matrix (slime sheath) of *Dictyostelium discoideum*. *Proteomics* 15(19), 3315-3319 plus supplementary data. doi:10.1002/pmic.201500143
15. **Huber RJ**, Myre MA, Cotman SL. (2014). Loss of Cln3 function in the social amoeba *Dictyostelium discoideum* causes pleiotropic effects that are rescued by human CLN3. *PLoS One* 9(10), e110544 plus supplementary data. doi:10.1371/journal.pone.0110544
14. Kovacs-Bogdan E, Sancak Y, Kamer KJ, Plovovich M, Jambhekar A, **Huber RJ**, Myre MA, Blower MD, Mootha VK. (2014). Reconstitution of the mitochondrial calcium uniporter in yeast. *Proceedings of the National Academy of Sciences of the United States of America* 111(24), 8985-8990 plus supplementary data. doi:10.1073/pnas.1400514111
13. **Huber RJ**. (2014). The cyclin-dependent kinase family in the social amoebozoan *Dictyostelium discoideum*. *Cellular and Molecular Life Sciences* 71(4), 629-639. doi:10.1007/s00018-013-1449-3
12. O'Day DH, **Huber RJ**. (2013). Matricellular signal transduction involving calmodulin in the social amoebozoan *Dictyostelium*. *Genes* 4(1), 33-45. doi:10.3390/genes4010033
11. **Huber RJ**, Catalano A, O'Day DH. (2013). Cyclin-dependent kinase 5 is a calmodulin-binding protein that associates with puromycin-sensitive aminopeptidase in the nucleus of *Dictyostelium*. *Biochimica et Biophysica Acta (BBA) - Molecular Cell Research* 1833(1), 11-20. doi:10.1016/j.bbamcr.2012.10.005
10. **Huber RJ**, O'Day DH. (2012). A matricellular protein and EGF-like repeat signalling in the social amoebozoan *Dictyostelium discoideum*. *Cellular and Molecular Life Sciences* 69(23), 3989–3997. doi:10.1007/s00018-012-1068-4
9. O'Day DH, **Huber RJ**, Suarez A. (2012). Extracellular calmodulin regulates growth and cAMP-mediated chemotaxis in *Dictyostelium discoideum*. *Biochemical and Biophysical Research Communications* 425(4), 750-754. doi:10.1016/j.bbrc.2012.07.147
8. **Huber RJ**, O'Day DH. (2012). EGF-like peptide-enhanced cell movement in *Dictyostelium* is mediated by protein kinases and the activity of several cytoskeletal proteins. *Cellular Signalling* 24(9), 1770–1780 plus supplementary data. doi:10.1016/j.cellsig.2012.05.004
7. **Huber RJ**, Suarez A, O'Day DH. (2012). CyrA, a matricellular protein that modulates cell motility in *Dictyostelium discoideum*. *Matrix Biology* 31(4), 271-280. doi:10.1016/j.matbio.2012.02.003
6. **Huber RJ**, O'Day DH. (2012). The cyclin-dependent kinase inhibitor roscovitine inhibits kinase activity, cell proliferation, multicellular development, and Cdk5 nuclear translocation in *Dictyostelium discoideum*. *Journal of Cellular Biochemistry* 113(3), 868-876 plus supplementary data. doi:10.1002/jcb.23417

5. Nikolaeva I, **Huber RJ**, O'Day DH. (2012). EGF-like peptide of *Dictyostelium discoideum* is not a chemoattractant but it does restore folate-mediated chemotaxis in the presence of signal transduction inhibitors. *Peptides* 34(1), 145-149. doi:10.1016/j.peptides.2011.12.014
4. **Huber RJ**, O'Day DH. (2011). Nucleocytoplasmic transfer of cyclin dependent kinase 5 and its binding to puromycin-sensitive aminopeptidase in *Dictyostelium discoideum*. *Histochemistry and Cell Biology* 136(2), 177-189. doi:10.1007/s00418-011-0839-6
3. Suarez A, **Huber RJ**, Myre MA, O'Day DH. (2011). An extracellular matrix, calmodulin-binding protein from *Dictyostelium* with EGF-like repeats that enhance cell motility. *Cellular Signalling* 23(7), 1197-1206. doi:10.1016/j.cellsig.2011.03.008
2. **Huber R**, O'Day DH. (2011). EGF-like peptide-enhanced cell motility in *Dictyostelium* functions independently of the cAMP-mediated pathway and requires active Ca²⁺/calmodulin signaling. *Cellular Signalling* 23(4), 731-738. doi:10.1016/j.cellsig.2010.12.007
1. **Huber R**, O'Day DH. (2009). An EGF-like peptide sequence from *Dictyostelium* enhances cell motility and chemotaxis. *Biochemical and Biophysical Research Communications* 379(2), 470–475 plus supplementary data. doi:10.1016/j.bbrc.2008.12.081

BOOK CHAPTERS

#Equal contribution

2. Myre MA#, **Huber RJ**#, O'Day DH#. (2018). Functional Analysis of Proteins Involved in Neurodegeneration Using the Model Organism *Dictyostelium*: Alzheimer's, Huntington's and Batten Disease. Chapter 21, In: Molecular-Genetic and Statistical Techniques for Behavioral and Neural Research, First Edition, Gerlai RT (Editor), Academic Press: Elsevier, San Diego, CA, pp. 491-518. ISBN: 9780128040782 (Invited).
1. O'Day DH, **Huber RJ**, Suarez A. (2012). Calmodulin Signaling Inside-Out: Intracellular and Extracellular Calmodulin and its Interaction with a Matricellular, Cysteine-Rich Calmodulin-Binding Protein. Chapter 4, In: Calcium Signaling, Yamaguchi M (Editor), Nova Science Publishers Incorporated, Hauppauge, NY, pp. 105-118. ISBN: 9781613243138 (Invited).

ABSTRACTS PRESENTED AT NATIONAL AND INTERNATIONAL MEETINGS

Presenting author, **Trent University Graduate student, *Trent University Undergraduate student, #Equal contribution

34. **Huber RJ**. Unravelling the role of altered secretion in the NCLs using *Dictyostelium discoideum*. 17th International Congress on Neuronal Ceroid Lipofuscinosis, St. Louis, Missouri, USA, October 6-10, 2021. Poster
33. Kim WD**, **Huber RJ**. Transcriptomics approach of *cln5* deficiency identifies affected processes within *Dictyostelium*. 17th International Congress on Neuronal Ceroid Lipofuscinosis, St. Louis, Missouri, USA, October 6-10, 2021. Poster
32. Yap SQ**, Kim WD**, **Huber RJ**. Loss of *mfsd8* affects growth and multicellular development in *Dictyostelium discoideum*. 17th International Congress on Neuronal Ceroid Lipofuscinosis, St. Louis, Missouri, USA, October 6-10, 2021. Poster

31. Kim WD⁺⁺, **Huber RJ**. Transcriptomics reveals aberrant biological pathways in *Dictyostelium* cells lacking *cln5*. 64th Annual Conference of the Canadian Society for Molecular Biosciences: Protein Homeostasis, Administered online due to COVID-19 pandemic, June 14-17, 2021. Poster
30. Yap SQ⁺⁺, Kim WD⁺⁺, **Huber RJ**. Loss of *mfsd8* affects growth and multicellular development in a *Dictyostelium discoideum* knockout model of CLN7 disease. 64th Annual Conference of the Canadian Society for Molecular Biosciences: Protein Homeostasis, Administered online due to COVID-19 pandemic, June 14-17, 2021. Poster
29. **Huber RJ**. Using the social amoeba *Dictyostelium discoideum* to study the extracellular roles of Batten disease proteins. Microbiology Society Annual Conference 2020, Edinburgh, Scotland, United Kingdom, March 30-April 3, 2020. Invited Talk Note: Conference cancelled due to COVID-19 pandemic
28. **Huber RJ**. Recent insights into Cln5 and Mfsd8 function in *Dictyostelium*. International *Dictyostelium* Conference 2019, Ann Arbor, Michigan, USA, August 4-8, 2019. Talk
27. McLaren MD⁺⁺, Kim WD⁺, Mathavarajah S⁺, **Huber RJ**. Autophagy is upregulated in a *Dictyostelium* model of CLN5 disease. International *Dictyostelium* Conference 2019, Ann Arbor, Michigan, USA, August 4-8, 2019. Talk
26. Yap SQ⁺, Kim WD⁺, Mathavarajah S⁺, **Huber RJ**. Characterization of Mfsd8 in *Dictyostelium discoideum*. International *Dictyostelium* Conference 2019, Ann Arbor, Michigan, USA, August 4-8, 2019. Poster
25. Aoki M⁺⁺, Brunetti CR, **Huber RJ**, Emery RJN. Profiling of cytokinin levels during the *Dictyostelium* life cycle and their effects on cell proliferation and spore germination. International *Dictyostelium* Conference 2019, Ann Arbor, Michigan, USA, August 4-8, 2019. Talk
24. McLaren MD⁺⁺, Mathavarajah S⁺, **Huber RJ**. Cln3 and Cln5 are linked to autophagy in *Dictyostelium discoideum*. NCL 2018: 16th International Conference on Neuronal Ceroid Lipofuscinosis (Batten Disease), London, England, United Kingdom, September 12-16, 2018. Talk
23. **Huber RJ**, Mathavarajah S⁺, McLaren MD⁺⁺, Kim WD⁺. *Dictyostelium* as a model system for studying Batten disease. International *Dictyostelium* Conference 2018, Egmond aan Zee, Netherlands, August 12-16, 2018. Talk
22. Aoki M⁺⁺, **Huber RJ**, Brunetti CR, Emery RJN. Cytokinins beyond plants: Understanding the evolution of the inter-kingdom signalling molecules through *Dictyostelium discoideum*. International Symposium on Auxins and Cytokinins in Plant Development, ACPD 2018, Prague, Czech Republic, July 1-6, 2018. Talk
21. Minor C⁺⁺, **Huber RJ**, Brunetti CR. *Dictyostelium discoideum* as a model system to study LITAF function. 16th Annual Crossroads Interdisciplinary Health Research Conference, Halifax, Nova Scotia, Canada, March 9-10, 2018. Poster
20. **Huber RJ**, Mathavarajah S⁺. The social amoeba *Dictyostelium discoideum*: A model system for studying neuronal ceroid lipofuscinosis (Batten disease). 60th Annual Conference of the Canadian Society for Molecular Biosciences, Ottawa, Ontario, Canada, May 16-20, 2017. Poster
19. Mathavarajah S⁺, **Huber RJ**. Cln5 localization and function in the model organism *Dictyostelium discoideum*. 60th Annual Conference of the Canadian Society for Molecular Biosciences, Ottawa, Ontario, Canada, May 16-20, 2017. Poster
18. **Huber RJ**, Myre MA, Cotman SL. Aberrant adhesion impacts early development in a *Dictyostelium* model for juvenile neuronal ceroid lipofuscinosis. NCL 2016: 15th International Conference on Neuronal Ceroid Lipofuscinosis (Batten Disease), Boston, Massachusetts, USA, October 5-8, 2016. Talk

17. **Huber RJ**, Myre MA, Cotman SL. The neuronal ceroid lipofuscinosis protein Cln3 is required for an optimal response to starvation in *Dictyostelium discoideum*. Gordon Research Conference: Lysosomal Diseases - Defining Pathogenesis and Therapeutic Strategies for Lysosomal Diseases, Galveston, Texas, USA, March 15-20, 2015. Poster
16. **Kovacs-Bogdan E**, Sancak Y, Kamer KJ, Plovanich M, Jambhekar A, **Huber RJ**, Myre MA, Blower MD, Mootha VK. In vivo reconstitution of the mitochondrial uniporter. 59th Annual Meeting of the Biophysical Society, Baltimore, Maryland, USA, February 7-11, 2015. Poster
 - Kovacs-Bogdan E, Sancak Y, Kamer KJ, Plovanich M, Jambhekar A, **Huber RJ**, Myre MA, Blower MD, Mootha VK. (2015). In vivo reconstitution of the mitochondrial uniporter. *Biophysical Journal* 108(2), Supplement 1, 177a-178a.
15. **Huber RJ**, Myre MA, Cotman SL. Loss of Cln3 function in the social amoeba *Dictyostelium discoideum* causes pleiotropic effects that are rescued by human CLN3. NCL 2014: 14th International Conference on Neuronal Ceroid Lipofuscinoses (Batten Disease) & Patient Organization Meeting, Cordoba, Argentina, October 22-26, 2014. Talk
14. **Huber RJ**, Cotman SL, Myre MA. The Batten disease protein Cln3 negatively regulates proliferation and development in *Dictyostelium discoideum*. 57th Annual Meeting and Conference of the Canadian Society for Molecular Biosciences: Membrane Proteins in Health and Disease, Banff, Alberta, Canada, April 9-13, 2014. Poster
 - **Huber RJ**, Cotman SL, Myre MA. (2014). The Batten disease protein CLN3 negatively regulates proliferation and development in *Dictyostelium discoideum*. *Biochemistry and Cell Biology - Biochimie et Biologie Cellulaire* 92(6), 594-594.
13. **Huber RJ**, Lumsden A, Gusella JF, Myre MA. Huntingtin: Required for contractile vacuole biogenesis in *Dictyostelium discoideum*. 57th Annual Meeting and Conference of the Canadian Society for Molecular Biosciences: Membrane Proteins in Health and Disease, Banff, Alberta, Canada, April 9-13, 2014. Poster
 - **Huber RJ**, Lumsden A, Gusella JF, Myre MA. (2014). Huntingtin: required for contractile vacuole biogenesis in *Dictyostelium discoideum*. *Biochemistry and Cell Biology - Biochimie et Biologie Cellulaire* 92(6), 594-594.
12. **Huber RJ**, Gusella JF, Cotman SL, Myre MA. Characterization of a homologue of the Batten disease protein CLN3 in the model eukaryote *Dictyostelium discoideum*. 63rd American Society of Human Genetics Annual Meeting, Boston, Massachusetts, USA, October 22-26, 2013. Poster
11. **Huber RJ**, Cotman SL, **Myre MA**. Characterization of the Batten disease protein Cln3 in the model eukaryote *Dictyostelium*. International *Dictyostelium* Conference 2013, Asheville, North Carolina, USA, August 4-8, 2013. Poster
10. **Huber RJ**, O'Day DH. The matricellular protein CyrA modulates cell motility in *Dictyostelium*. Federation of American Societies for Experimental Biology Science Research Conference: Matricellular Proteins in Development, Health, and Disease, Saxtons River, Vermont, USA, July 28–August 2, 2013. Invited Talk
9. **Huber RJ**, O'Day DH. Investigating the involvement of vinculin B in DdEGFL1-enhanced cell movement in *Dictyostelium discoideum*. International *Dictyostelium* Conference 2011, Baltimore, Maryland, USA, August 14-18, 2011. Poster
8. **Nikolaeva I**, **Huber RJ**, O'Day DH. EGF-like repeat function in regular and inhibited folic acid-mediated chemotaxis in *D. discoideum*. International *Dictyostelium* Conference 2011, Baltimore, Maryland, USA, August 14-18, 2011. Poster

7. **Huber RJ**, O'Day DH. *Dictyostelium discoideum* as a model system for studying Cdk5 function. International Annual Conference on Models of Human Diseases 2011, Toronto, Ontario, Canada, June 28, 2011. [Poster](#)
6. **Huber R**, O'Day DH. DdEGFL1-enhanced cell motility in *Dictyostelium* functions via calcium signaling independently of the cAMP-mediated signaling pathways. International *Dictyostelium* Conference 2010, Cardiff, Wales, United Kingdom, August 1-6, 2010. [Talk](#)
5. **Huber R**, Suarez A, O'Day DH. Extracellular calmodulin regulates growth and cAMP-mediated chemotaxis in *Dictyostelium discoideum*. International *Dictyostelium* Conference 2010, Cardiff, Wales, United Kingdom, August 1-6, 2010. [Poster](#)
4. **Huber R**, Suarez A, O'Day DH. Using *Dictyostelium* as a model system for studying the mechanism that mediates EGF-like peptide-enhanced cell movement. International Annual Conference on Models of Human Diseases 2010, Toronto, Ontario, Canada, June 29, 2010. [Poster](#)
3. **Suarez A[#], Huber R[#]**, O'Day DH. Extracellular calmodulin in *Dictyostelium discoideum*: A new way to study an old protein. International Annual Conference on Models of Human Diseases 2010, Toronto, Ontario, Canada, June 29, 2010. [Poster](#) [#]Equal contribution
2. **Huber R**, O'Day DH. Investigating the mechanisms that control EGF-like peptide-enhanced cell movement in *Dictyostelium discoideum*. International *Dictyostelium* Conference 2009, Estes Park, Colorado, USA, August 23-28, 2009. [Poster](#)
1. **Huber R**, O'Day DH. The function of EGF-like peptides and the identification of an EGFR-like protein in *Dictyostelium*. 48th Annual Canadian Society of Zoologists Meeting, Toronto, Ontario, Canada, May 12-16, 2009. [Poster](#)

ABSTRACTS PRESENTED AT INSTITUTIONAL, LOCAL, AND REGIONAL MEETINGS

Presenting author, ⁺⁺Trent University Graduate student, ⁺Trent University Undergraduate student

17. **Kim WD⁺⁺, Huber RJ**. Revealing aberrant biological pathways associated with *cln5*-deficiency through a transcriptomics approach using *Dictyostelium*. 2021 Ontario Cell Biology Symposium, Administered online due to COVID-19 pandemic, July 12-16, 2021. [Talk](#)
16. **Yap SQ⁺⁺, Kim WD⁺⁺, Huber RJ**. Loss of *mfsd8* in *Dictyostelium discoideum* affects growth and the early stages of multicellular development. 2021 Ontario Cell Biology Symposium, Administered online due to COVID-19 pandemic, July 12-16, 2021. [Talk](#)
15. **Huber RJ**. Molecular networking in Batten disease: Insights from the social amoeba *Dictyostelium discoideum*. 2020 Ontario Cell Biology Symposium, Administered online due to COVID-19 pandemic, June 1-5, 2020. [Talk](#)
14. **Kim WD⁺**, Shafer ABA, Prater C, Wagner ND, Jones C, **Huber RJ**, Frost PC. Patterns of gene expression in *Daphnia* experiencing calcium and dietary phosphorus stress. International Association for Great Lakes Research Annual Conference 2018, Scarborough, Ontario, Canada, June 18-22, 2018. [Poster](#)
13. **Mathavarajah S⁺**, McLaren MD⁺⁺, **Huber RJ**. Aberrant autophagy in a *cln5*-deficient *Dictyostelium* disease model. 31st Annual Ontario Biology Day Student Conference, Waterloo, Ontario, Canada, March 24-25, 2018. [Poster](#)
12. **Mathavarajah S⁺**, McLaren MD⁺⁺, **Huber RJ**. Aberrant autophagy in a *cln5*-deficient *Dictyostelium* disease model. 46th Southern Ontario Undergraduate Student Chemistry Conference, Waterloo, Ontario, Canada, March 24, 2018. [Poster](#)

11. **Huber RJ**. Using a soil microbe to study neurodegeneration. Biology Seminar Series, Trent University, Department of Biology, Peterborough, Ontario, Canada. March 21, 2018. [Talk](#)
10. **Huber RJ**, Staropoli JF, Chandrachud U, Myre MA, Cotman SL. Cln3 is required for an optimal response to starvation during the early stages of *Dictyostelium* development. Center for Human Genetic Research Annual Retreat 2015, American Academy of Arts and Sciences, Cambridge, Massachusetts, USA, April 29, 2015. Note: Poster Award (3rd place). [Poster](#)
9. **Huber RJ**, Staropoli JF, Chandrachud U, Myre MA, Cotman SL. Cln3 is required for an optimal response to starvation during the early stages of *Dictyostelium* development. 68th Annual Meeting of the Massachusetts General Hospital Scientific Advisory Committee, Massachusetts General Hospital, Boston, Massachusetts, USA, April 1, 2015. [Poster](#)
8. **Huber RJ**, Myre MA, Cotman SL. The Batten disease protein Cln3 negatively regulates proliferation and development in *Dictyostelium discoideum*. 8th Annual Massachusetts General Hospital Office for Research Career Development Research Fellows Poster Celebration, Massachusetts General Hospital, Boston, Massachusetts, USA, May 28, 2014. [Poster](#)
7. **Huber RJ**, Myre MA, Cotman SL. The Batten disease protein Cln3 negatively regulates proliferation and development in *Dictyostelium discoideum*. Center for Human Genetic Research Annual Retreat 2014, American Academy of Arts and Sciences, Cambridge, Massachusetts, USA, April 29, 2014. [Poster](#)
6. **Huber RJ**, Myre MA, Cotman SL. Using *Dictyostelium* as a model system for studying the function of Batten disease proteins. 67th Annual Meeting of the Massachusetts General Hospital Scientific Advisory Committee, Massachusetts General Hospital, Boston, Massachusetts, USA, April 2, 2014. [Poster](#)
5. **Huber RJ**. Investigating the function of Batten disease proteins using model eukaryote *Dictyostelium discoideum*. Center for Human Genetic Research Seminar Series, Massachusetts General Hospital, Boston, Massachusetts, USA, November 20, 2013. [Talk](#)
4. **Huber RJ**, Cotman SL, Myre MA. Identification and characterization of a homologue of the Batten disease protein CLN3 in the model eukaryote *Dictyostelium*. Center for Human Genetic Research Annual Retreat 2013, The Broad Institute, Cambridge, Massachusetts, USA, January 30, 2013. [Poster](#)
3. **Huber RJ**, O'Day DH. Using *Dictyostelium* as a model system for studying EGF-like repeat-enhanced cell movement. University of Toronto Mississauga Research and Excellence Celebration 2011, Mississauga, Ontario, Canada, March 30, 2011. [Poster](#)
2. **Huber RJ**, O'Day DH. The discovery of a cAMP-independent pathway regulating EGF-like peptide-enhanced cell movement in *Dictyostelium discoideum*. University of Toronto Mississauga Research and Excellence Celebration 2010, Mississauga, Ontario, Canada, March 22, 2010. [Poster](#)
1. **Huber RJ**. Investigating the function of EGF-like peptides in *Dictyostelium discoideum*. Department of Cell & Systems Biology Graduate Student Seminar Series, University of Toronto, Toronto, Ontario, Canada, January 28, 2010. [Talk](#)

INVITED TALKS

11. Using the social amoeba *Dictyostelium discoideum* to study Batten disease. York University, Department of Biology, Toronto, Ontario, Canada, December 7, 2020.
10. Batten disease: Insights from the social amoeba *Dictyostelium* and where we go from here. Institut National de la Recherche Scientifique - Institut Armand-Frappier, Laval, Quebec, November 14, 2019.

9. My Journey to Trent University. BIOM1000H: Introduction to Biomedical Science Guest Lecture, Department of Biology, Trent University, Peterborough, Ontario, Canada, January 24, 2019.
8. A novel approach to studying the functions of proteins linked to neurological disorders. Children's Hospital of Eastern Ontario, CHEO Research Institute, Ottawa, Ontario, Canada, April 20, 2016.
7. The social amoeba *Dictyostelium discoideum* as a model for human disease. Trent University, Department of Biology, Peterborough, Ontario, Canada, January 27, 2016.
6. Understanding fundamental biological processes and human disease using the social amoeba *Dictyostelium*. Carleton University, Department of Biology and Institute of Biochemistry, Ottawa, Ontario, Canada, January 12, 2016.
5. *Dictyostelium discoideum*: A model for biomedical research. Central Michigan University, Department of Biology, Mount Pleasant, Michigan, USA, December 2, 2015.
4. A novel approach to studying the function of proteins linked to neuronal ceroid lipofuscinosis (Batten disease). University of Ottawa Brain & Mind Research Institute and Ottawa Hospital Research Institute Neuroscience Seminar Series, University of Ottawa, Ottawa, Ontario, Canada, November 2, 2015.
3. *Dictyostelium discoideum*: A model system for studying the functions of proteins linked to human disease. University of Prince Edward Island, Department of Biology, Charlottetown, Prince Edward Island, Canada, September 18, 2015.
2. Using *Dictyostelium discoideum* as a model system for studying the function of proteins linked to human disease. University of British Columbia Okanagan, Department of Biology, Kelowna, British Columbia, Canada, February 3, 2015.
1. Modulation of cell motility by EGF-like repeats in *Dictyostelium discoideum*. Massachusetts General Hospital, Center for Human Genetic Research, Boston, Massachusetts, USA, June 1, 2012.

RESEARCH SUPPORT

EXTERNAL

2019-2024	<p>Canadian Institutes of Health Research Project Grant</p> <p>Project title: A novel approach to studying the function of the Batten disease protein CLN5</p> <p>Role: Nominated Principal Applicant</p> <p>Co-Applicant: Dr. Stephane Lefrancois, INRS-Institut Armand Frappier</p> <p>Collaborators: Dr. Susan Cotman, Massachusetts General Hospital and Harvard Medical School</p> <p>Rank within the committee: 7th out of 8 approved applications (61 submitted)</p> <p>Percent rank within committee: 90%</p> <p>Rating: 4.38</p>	\$669,376
2018-2023	<p>Natural Sciences and Engineering Research Council of Canada Discovery Grant</p> <p>Project title: Cln3 function in the model organism <i>Dictyostelium discoideum</i></p> <p>Role: Principal Investigator</p>	\$185,000
2018-2019	<p>Natural Sciences and Engineering Research Council of Canada Discovery Launch Supplement</p>	\$12,500

	Project title: Cln3 function in the model organism <i>Dictyostelium discoideum</i> Role: Principal Investigator	
2018-2019	Banting Research Foundation Discovery Award for New Investigators	\$25,000
	Project title: Using the social amoeba <i>Dictyostelium discoideum</i> to study neuronal ceroid lipofuscinosis Role: Principal Investigator Application was ranked 1st in the competition (out of 47 submitted applications across all of Canada)	
2017-2018	Canada Foundation for Innovation, John R. Evans Leaders Fund The Ministry of Research and Innovation, Ontario Research Fund	\$125,000
	Project title: A novel approach to studying neurodegeneration Role: Principal Investigator	
2013-2016	Canadian Institutes of Health Research Postdoctoral Fellowship	\$150,000
	Project title: A novel approach towards understanding the functional biology of the neuronal ceroid lipofuscinosis (NCL) protein CLN3 Role: Principal Investigator Rank within committee: 23rd out of 61 approved applications (467 submitted)	
2010-2013	Natural Sciences and Engineering Research Council of Canada Alexander Graham Bell Canada Graduate Scholarship Doctoral	\$105,000
	Project title: EGF-like peptide function and the characterization of an EGFR-like protein in <i>Dictyostelium discoideum</i> Role: Principal Investigator	
2010-2011	Ontario Graduate Scholarship	\$15,000
	Government of Ontario, Canada Declined scholarship to accept an NSERC CGS D for 2010-2013 Project title: EGF-like peptide function and the characterization of an EGFR-like protein in <i>Dictyostelium discoideum</i> Role: Principal Investigator	
2009-2010	Mitacs Accelerate Internship Program	\$15,000
	Sponsor: Advanced Syntech Corporation, Mississauga, Ontario, Canada Project title: Investigating the mechanisms that regulate EGF-like peptide-enhanced cell movement Role: Principal Investigator	
2009-2010	Ontario Graduate Scholarship	\$15,000
	Government of Ontario, Canada Project title: Investigating the motility-modulating effects of EGF-like repeats in <i>Dictyostelium</i> Role: Principal Investigator	
2008-2009	Natural Sciences and Engineering Research Council of Canada Postgraduate Scholarship Masters	\$17,300
	Project title: Investigating the function of an EGFR-like protein in <i>Dictyostelium</i> and the role of EGF-like repeats in its regulation Role: Principal Investigator	

2007-2008	Pharmacia Graduate Scholarship in Science and Technology Government of Ontario, Canada Project title: Assaying the effects of EGF-like peptides on <i>Dictyostelium</i> growth and development Role: Principal Investigator	\$15,000
2007	Natural Sciences and Engineering Research Council of Canada Undergraduate Student Research Award Project title: Assaying the effects of human EGF on <i>Dictyostelium</i> growth and development Role: Principal Investigator	\$6,000

INTERNAL

2020	Vice President Research Strategic Initiatives Fund (competitive) Trent University, Office of Research and Innovation Molecules, Cells & Systems Annual Research Day 2020 Role: Principal Applicant (on behalf of MCS Research Group) <i>Note: Research day cancelled due to COVID-19 pandemic</i>	\$1,500
2017-2018	University Research Grants Program (competitive) Trent University, Office of Research and Innovation Project title: Using the social amoeba <i>Dictyostelium</i> to study the functions of proteins linked to Batten disease Role: Principal Investigator	\$20,000
2016-2018	Start-Up Funds Trent University, Office of the Dean of Arts and Science Role: Principal Investigator	\$35,000
2015-2016	Research Grant University of Ottawa, Faculty of Science Project title: A novel approach towards understanding the functional biology of the neuronal ceroid lipofuscinosis (NCL) protein CLN3 Role: Principal Investigator	\$20,000

GRANTS AND AWARDS (AS A GRADUATE STUDENT)

2011	School of Graduate Studies Conference Grant University of Toronto	\$919
2009-2011	Department of Biology Student Travel Grant University of Toronto Mississauga	\$900
2009-2011	Department of Cell & Systems Biology Student Travel Grant University of Toronto	\$1400
2009-2011	Research and Graduate Office Graduate Student Travel Grant University of Toronto Mississauga	\$1200
2010	Department of Cell & Systems Biology Top-Up Award University of Toronto Awarded to NSERC CGS D recipients	\$1,000
2009-2010	University of Toronto Fellowship	\$2,902

2009	Department of Cell & Systems Biology Top-Up Award University of Toronto Awarded to OGS recipients	\$1,500
2008-2009	University of Toronto Research Assistantship	\$564
2008	Department of Cell & Systems Biology Top-Up Award University of Toronto Awarded to NSERC PGS M recipients	\$2,500
2007-2008	University of Toronto Research Assistantship	\$2,648

SUPERVISION AND MENTORSHIP

GRADUATE

2021-present	Joshua Gray , M.Sc. student, Environmental and Life Sciences Graduate Program, Trent University, Peterborough, Ontario, Canada Role: Primary Supervisor
2021-present	Adam Remtulla , M.Sc. student, Environmental and Life Sciences Graduate Program, Trent University, Peterborough, Ontario, Canada Role: Primary Supervisor
2021-present	Aruban Thanabalasingam , M.Sc. student, Environmental and Life Sciences Graduate Program, Trent University, Peterborough, Ontario, Canada Role: Primary Supervisor
2020-present	Morgan Wilson-Smillie , M.Sc. student, Environmental and Life Sciences Graduate Program, Trent University, Peterborough, Ontario, Canada Role: Primary Supervisor
2019-present	William Kim , Ph.D. candidate, Environmental and Life Sciences Graduate Program, Trent University, Peterborough, Ontario, Canada Role: Primary Supervisor <i>Scholarships: NSERC CGS M (2019-2020), Queen Elizabeth II Graduate Scholarship in Science and Technology (2020-2021), NSERC Michael Smith Foreign Study Supplement (2021), Ontario Graduate Scholarship (2021-2022)</i>
2019-present	Shyong Quan (Elicia) Yap , M.Sc. student, Environmental and Life Sciences Graduate Program, Trent University, Peterborough, Ontario, Canada Role: Primary Supervisor <i>Scholarship: Ontario Graduate Scholarship (2020-2021)</i>
2017-present	Megan Aoki , Ph.D. candidate, Environmental and Life Sciences Graduate Program, Trent University, Peterborough, Ontario, Canada Role: Co-Supervisor (Dr. Neil Emery and Dr. Craig Brunetti) <i>Scholarships: Queen Elizabeth II Graduate Scholarship in Science and Technology (2018-2019), Queen Elizabeth II Graduate Scholarship in Science and Technology (2019-2020), NSERC CGS D (2020-2023)</i>
2017-2020 (Graduated)	Meagan McLaren , M.Sc., Environmental and Life Sciences Graduate Program, Trent University, Peterborough, Ontario, Canada Role: Primary Supervisor Thesis title: The role of Cln5 in autophagy using a <i>Dictyostelium discoideum</i> model of Batten disease

- 2019-2020 (Withdrew) **Evan Schuett**, M.Sc. student, Environmental and Life Sciences Graduate Program, Trent University, Peterborough, Ontario, Canada
Role: Primary Supervisor
- 2016- 2020 (Withdrew) **Calli Minor**, Ph.D. candidate, Environmental and Life Sciences Graduate Program, Trent University, Peterborough, Ontario, Canada
Role: Co-Supervisor (Dr. Craig Brunetti)

UNDERGRADUATE

RESEARCH THESIS

- 2021-2022 **Thomas Burnside**, CHEM4040D Project Course in Biochemistry, Department of Biology, Trent University, Peterborough, Ontario, Canada
Role: Primary Supervisor
- 2020-2021 **Aidan Gray**, BIOL4020D Biology Research Thesis, Department of Biology, Trent University, Peterborough, Ontario, Canada
Role: Co-Supervisor (Dr. Craig Brunetti)
Thesis title: Role of Litaf in *Dictyostelium*
- 2019-2020 **Kaitlyn Neuman**, CHEM4040D Project Course in Biochemistry, Department of Biology, Trent University, Peterborough, Ontario, Canada
Role: Primary Supervisor
Thesis title: Studying the role of Cln5 in lipid homeostasis
- 2018-2019 **William Kim**, CHEM4040D Project Course in Biochemistry, Department of Biology, Trent University, Peterborough, Ontario, Canada
Role: Primary Supervisor
Thesis title: Examining the effect of *cln5*-deficiency on gene expression in *Dictyostelium*
- 2018-2019 **Shyong Quan (Elicia) Yap**, CHEM4040D Project Course in Biochemistry, Department of Biology, Trent University, Peterborough, Ontario, Canada
Role: Primary Supervisor
Thesis title: Investigating the localization and function of the *Dictyostelium* homolog of human MFSD8/CLN7
- 2017-2018 **Sabateeshan Mathavarajah**, CHEM4040D Project Course in Biochemistry, Department of Biology, Trent University, Peterborough, Ontario, Canada
Role: Primary Supervisor
Thesis title: Accurate phenotyping of a *cln5*-deficient *Dictyostelium* cell line
Scholarship (received while under my supervision): Natural Sciences and Engineering Research Council of Canada Canada Graduate Scholarship Masters (2018-2019)
- 2017-2018 **Amy Mikhailitchenko**, BIOL4020D Biology Research Thesis, Department of Biology, Trent University, Peterborough, Ontario, Canada
Role: Primary Supervisor
Thesis title: Assessing the localization of Cln5 and Mfsd8 in *Dictyostelium* using custom antibodies
- 2017-2018 **Audrey Shakespeare**, BIOL4020D Biology Research Thesis, Department of Biology, Trent University, Peterborough, Ontario, Canada
Role: Co-Supervisor (Dr. Craig Brunetti)
Thesis title: Binding partners of frog virus 3 ORF 97R in *Dictyostelium discoideum*

2016-2017 **Ana Flores**, CHEM4040D Project Course in Biochemistry, Department of Biology, Trent University, Peterborough, Ontario, Canada
Role: Co-Supervisor (Dr. Craig Brunetti)
Thesis title: Assessing the localization and function of LITAF in the social amoeba *Dictyostelium*

SUMMER STUDENTS

2019 **Shyong Quan (Elicia) Yap**, Department of Biology, Trent University, Peterborough, Ontario, Canada

Role: Primary Supervisor

Project title: Investigating the localization and function of Mfsd8 in *Dictyostelium*

2019 **William Kim**, Department of Biology, Trent University, Peterborough, Ontario, Canada

Role: Primary Supervisor

Project title: Characterizing Cln5 function in *Dictyostelium*

Scholarship: NSERC USRA

2019 **Allison Sikma**, Department of Biology, Trent University, Peterborough, Ontario, Canada

Role: Primary Supervisor

Project title: Analyzing the effect of *cln5*-deficiency on the expression of autophagy-related genes

Scholarship: NSERC USRA

2018 **Shyong Quan (Elicia) Yap**, Department of Biology, Trent University, Peterborough, Ontario, Canada

Role: Primary Supervisor

Project title: Investigating the localization and function of Mfsd8 in *Dictyostelium*

2018 **Sabateeshan Mathavarajah**, Department of Biology, Trent University, Peterborough, Ontario, Canada

Role: Primary Supervisor

Project title: Examining the role of Cln5 during *Dictyostelium* multicellular development

Scholarship: NSERC USRA

2017 **William Kim**, Department of Biology, Trent University, Peterborough, Ontario, Canada

Role: Co-Supervisor (Dr. Paul Frost)

Project title: Calcium homeostasis in the water flea *Daphnia*

Scholarship: NSERC USRA (Frost lab)

2017 **Sabateeshan Mathavarajah**, Department of Biology, Trent University, Peterborough, Ontario, Canada

Role: Primary Supervisor

Project title: Examining the molecular function of Cln5 in *Dictyostelium*

Scholarship: NSERC USRA

VOLUNTEERS

2018-2019 **Allison Sikma**, Department of Biology, Trent University, Peterborough, Ontario, Canada

Role: Primary Supervisor

Project title: Examining the effect of *cln5*-deficiency on *atg* gene expression in *Dictyostelium*

2016-2017 **Sabateeshan Mathavarajah**, Department of Biology, Trent University, Peterborough, Ontario, Canada
Role: Primary Supervisor
Project title: Using *Dictyostelium* as a model system for studying the localization and function of CLN5

SECOND READER (UNDERGRADUATE THESIS)

2018-2019 **Brodie Buchner-Duby** (PI: Dr. Carolyn Kapron)
BIOL4020D Biology Research Thesis
Department of Biology, Trent University, Peterborough, Ontario, Canada
Thesis title: Effect of cadmium on blood vessel development in zebrafish embryos

2017-2018 **Zuzana Magdolen** (PI: Dr. Carolyn Kapron)
BIOL4020D Biology Research Thesis
Department of Biology, Trent University, Peterborough, Ontario, Canada
Thesis title: Oxidative stress and embryotoxicity in zebrafish

2017-2018 **Maimoona Altaf** (PI: Dr. Neil Fournier)
BIOL4020D Biology Research Thesis
Department of Biology, Trent University, Peterborough, Ontario, Canada
Thesis title: Neurobiological changes associated with safety learning in rats

2017-2018 **April Kennedy** (PI: Dr. Barry Saville)
FRSC4020D Forensics Research Thesis
Department of Forensic Science, Trent University, Peterborough, Ontario, Canada
Thesis title: Transcription cascades in *Ustilago maydis* pathogenesis

2017-2018 **Shamone Fine** (PI: Dr. Barry Saville)
BIOL4020D Biology Research Thesis
Department of Biology, Trent University, Peterborough, Ontario, Canada
Thesis title: Promoter region assay development in *Ustilago maydis*

STUDENT TRAINING AS A GRADUATE STUDENT AND POSTDOC

2015 **Martin Davis**, Eckerd College Summer Internship Program (Funded by the National Institutes of Health), Center for Human Genetic Research, Massachusetts General Hospital, Boston, Massachusetts, USA
Role: Co-Supervisor (Dr. Susan Cotman)
Project title: Solubilization and immunoprecipitation of CLN3, the protein involved in juvenile-onset neuronal ceroid lipofuscinosis

2015 **Madeleine Klein**, Research Assistant, Center for Human Genetic Research, Massachusetts General Hospital, Boston, Massachusetts, USA
Role: Co-Supervisor (Dr. Susan Cotman)
Project title: Sequence and protein analysis of AFG3L2, an AAA+ protease linked to neuronal ceroid lipofuscinosis

2014 **Ashlin Niedzwiecki**, Eckerd College Summer Internship Program (Funded by the National Institutes of Health), Center for Human Genetic Research, Massachusetts General Hospital, Boston, Massachusetts, USA
Role: Co-Supervisor (Dr. Susan Cotman)

- 2010-2011 Project title: Cln3 is required for optimal feeding in *Dictyostelium discoideum*
Ina Nikolaeva, BIO481Y Biology Research Course, Department of Biology, University of Toronto Mississauga, Mississauga, Ontario, Canada
 Role: Co-Supervisor (Dr. Danton O'Day)
 Thesis title: EGF-like repeats in *D. discoideum* folic acid-mediated chemotaxis, potential chemoattractive properties, and the localization of a putative receptor
- 2009-2010 **Alexander Keszei**, BIO481Y Biology Research Course, Department of Biology, University of Toronto Mississauga, Mississauga, Ontario, Canada
 Role: Mentor
 Thesis title: Cell fusion and protein expression in *Dictyostelium* sexual development
- 2009-2010 **Charles Ishak**, BIO481Y Biology Research Course, Department of Biology, University of Toronto Mississauga, Mississauga, Ontario, Canada
 Role: Mentor
 Thesis title: Exploring the role of calcium in the regulation of nuclear number in *Dictyostelium discoideum*

TEACHING

INSTRUCTOR (UNDERGRADUATE)

- 2021 **BIOM4450Y Placement in Health Sciences**
 Department of Biology, Trent University, Peterborough, Ontario, Canada
 Total enrollment: 16 students
- 2017-2021 **BIOL4130H Human Cell Biology**
 Department of Biology, Trent University, Peterborough, Ontario, Canada
 Average total enrollment: 18 students
- 2019, 2021 **BIOL2070H Cell Biology (Online)**
 Department of Biology, Trent University, Peterborough, Ontario, Canada
 Average total enrollment: 86 students
- 2017-2021 **BIOL2070H Cell Biology**
 Department of Biology, Trent University, Peterborough, Ontario, Canada
 Average total enrollment: 301 students
- 2020-2021 **BIOL4010Y/4020D Biology Research Thesis**
 Department of Biology, Trent University, Peterborough, Ontario, Canada
 Total enrollment: 31 students
- 2016-2018 **BIOL3080H Molecular Biology**
 Department of Biology, Trent University, Peterborough, Ontario, Canada
 Average total enrollment: 170 students
- 2011-2012 **BIO315H Human Cell Biology (2 semesters)**
 Department of Biology, University of Toronto Mississauga, Mississauga, Ontario, Canada
 Average total enrollment: 144 students

READING COURSE (UNDERGRADUATE)

- 2018-2019 **Tonya-Leah Watts**, BIOL4901H/4902H Reading Course, Department of Biology, Trent University, Peterborough, Ontario, Canada

- 2018-2019 Role: Primary Supervisor
Project title: The role of calmodulin in Batten disease protein function
William Kim, BIOL4900Y Reading Course, Department of Biology, Trent University,
Peterborough, Ontario, Canada
- 2017-2018 Role: Primary Supervisor
Project title: Batten disease protein function in *Dictyostelium*
Sabateeshan Mathavarajah, BIOL4901H/4902H Reading Course, Department of Biology,
Trent University, Peterborough, Ontario, Canada
- Role: Primary Supervisor
Project title: Using *Dictyostelium* to study NCL

READING COURSE (GRADUATE)

- 2020 **William Kim**, ENLS5090H Reading Course, Environmental and Life Sciences Graduate
Program, Trent University, Peterborough, Ontario, Canada
Role: Primary Supervisor
Project title: Linking lipids to Batten disease
- 2020 **Shyong Quan (Elicia) Yap**, ENLS5090H Reading Course, Environmental and Life Sciences
Graduate Program, Trent University, Peterborough, Ontario, Canada
Role: Primary Supervisor
Project title: Batten disease and cancer
- 2018 **Meagan McLaren**, ENLS5090H Reading Course, Environmental and Life Sciences
Graduate Program, Trent University, Peterborough, Ontario, Canada
Role: Primary Supervisor
Project title: Studying NCL via *Dictyostelium*
- 2018 **Megan Aoki**, ENLS5090H Reading Course, Environmental and Life Sciences Graduate
Program, Trent University, Peterborough, Ontario, Canada
Role: Co-Supervisor
Project title: The role of cytokinin in social amoebae

SECOND READER (UNDERGRADUATE)

- 2019 **Shyong Quan (Elicia) Yap** (PI: Dr. Carolyn Kapron)
BIOL4901H Biology Reading Course
Department of Biology, Trent University, Peterborough, Ontario, Canada
Project title: The role of amyotrophic lateral sclerosis (ALS)-associated TANK-binding
kinase 1 (TBK1) in regulating autophagy
- 2018-2019 **Mariana Soutter** (PI: Dr. Neil Fournier)
BIOL4901H Biology Reading Course
Department of Biology, Trent University, Peterborough, Ontario, Canada
Project title: Memory effects in an animal model of PTZ-induced epilepsy
- 2017-2018 **William Kim** (PI: Dr. Paul Frost)
BIOL4900Y Biology Reading Course
Department of Biology, Trent University, Peterborough, Ontario, Canada
Project title: Calcium regulation in *Daphnia*
- 2016 **Phung Ta** (PI: Dr. Carolyn Kapron)

BIOL4901H Biology Reading Course
Department of Biology, Trent University, Peterborough, Ontario, Canada
Project title: CRISPR/Cas9 as a cancer treatment

TEACHING ASSISTANT

- 2009-2012 **Teaching Assistant (Laboratory Demonstrator)**, Department of Biology, University of Toronto Mississauga, Mississauga, Ontario, Canada
BIO215H Laboratory in Molecular Biology and Genetics (4 semesters)
Total enrollment per laboratory section: 24 students.
- 2007-2012 **Teaching Assistant (Tutorial Leader)**, Department of Biology, University of Toronto Mississauga, Mississauga, Ontario, Canada
BIO315H Advanced Cell Biology / Human Cell Biology (6 semesters)
BIO380H Developmental Biology / Human Development (3 semesters)
Total enrollment per tutorial section: 48 students.
- 2008-2010 **Guest Lecturer**, Department of Biology, University of Toronto Mississauga, Mississauga, Ontario, Canada
BIO315H Advanced Cell Biology/Human Cell Biology
Lectures: The Structure and Function of EGF-like repeats (2008), EGF-like Peptide Function in *Dictyostelium discoideum* (2009), Epidermal Growth Factor Signal Transduction and Breast Cancer (2009), The Cell Biology of Cancer (2010), EGFR Signaling and Breast Cancer (2010).
- 2010 **Teaching Fundamentals Certificate**, Teaching Assistants Training Program
Office of Teaching Advancement, University of Toronto, Toronto, Ontario, Canada
Completed six 2-hour interactive workshops that taught effective teaching strategies and techniques aimed at understanding of how undergraduate students learn.
- 2006-2007 **Academic Tutor**, Academy for Mathematics and Science, Mississauga, Ontario, Canada
Science, mathematics, and English tutor and mentor for elementary and secondary school students.

SERVICE

PROFESSIONAL SERVICE

- Ongoing **Ad-Hoc Manuscript Reviewer**
ASN Neuro (American Society for Neurochemistry), SAGE Publications Incorporated; Biochemistry and Biophysics Reports, Elsevier; BMC Medical Genetics, Biomed Central/Springer Nature; Canadian Journal of Microbiology, Canadian Science Publishing (2); Cell Reports, Cell Press; Cells, Multidisciplinary Digital Publishing Institute (MDPI) (8); Current Genetics, Springer; Differentiation, Elsevier; Disease Models & Mechanisms, The Company of Biologists Limited (4); EMBO Molecular Medicine, EMBO Press; Frontiers in Cellular and Infection Microbiology; Frontiers in Microbiology; Genes, Multidisciplinary Digital Publishing Institute (MDPI) (2); International Journal of Molecular Sciences, Multidisciplinary Digital Publishing Institute (MDPI); iScience, Cell Press; Journal of Biotechnology, Elsevier; Journal of the Neurological Sciences, Elsevier; Molecules, Multidisciplinary Digital Publishing Institute

- (MDPI); Nature Communications, Nature Publishing Group; Parasitology International, Elsevier; Peptides, Elsevier; PLoS One, Public Library of Science; Proteins: Structure, Function, and Bioinformatics, John Wiley & Sons Incorporated; Scientific Reports, Nature Publishing Group; Therapeutics and Clinical Risk Management, Dove Press
- 2019-present **College of Reviewers**, Canadian Institutes of Health Research
<https://cihr-irsc.gc.ca/e/51148.html>
- 2018-present **Reviewer Board**, Cells, Multidisciplinary Digital Publishing Institute (MDPI)
- 2021 **Poster Judge**, 64th Annual Conference of the Canadian Society for Molecular Biosciences: Protein Homeostasis, Administered online, June 14-17, 2021.
- 2020-2021 **Guest Associate Editor in Molecular Medicine**, *Frontiers in Cell and Developmental Biology*
 Research Topic: *Dictyostelium*: A Tractable Cell and Developmental Model in Biomedical Research
- 2020-2021 **Guest Editor**, *International Journal of Molecular Sciences*, Multidisciplinary Digital Publishing Institute (MDPI)
 Special Issue: Calmodulin Binding Proteins
- 2020 **Ad-Hoc Grant Reviewer**, Human Frontier Science Program, France
- 2020 **Grant Reviewer**, Cell Biology-Molecular/Fundamental (CB1) Committee for Project Grant: Spring 2020 competition, Canadian Institutes of Health Research
Note: The peer review process was postponed until July-August 2020 due to the COVID-19 pandemic. Unfortunately, due to personal reasons, I was unable to participate.
- 2019 **Ad-Hoc Grant Reviewer**, Great Ormond Street Hospital Charity, United Kingdom
- 2019 **4th Annual CIHR-IGH New Investigator Meeting**, Canadian Institutes of Health Research Institute of Gender and Health, Montreal, Quebec, Canada, November 14-15, 2019.
- 2019 **Ad-Hoc Grant Reviewer**, Human Frontier Science Program, France
- 2019 **Session Chair: Cell Biology 1**, International *Dictyostelium* Conference 2019, Ann Arbor, Michigan, USA, August 4-8, 2019.
- 2017 **Ad-Hoc Grant Reviewer**, Canada Foundation for Innovation, Canada
- 2017 **Observer Program for Early Career Investigators (competitive)**, Canadian Institutes of Health Research, Project Grant: Fall 2017 competition (Cell Physiology)
- 2016 **Ad-Hoc Abstract Reviewer**, NCL 2016: 15th International Conference on Neuronal Ceroid Lipofuscinosis (Batten Disease), Boston, Massachusetts, USA. Conference held October 5-8, 2016. (40 abstracts)

SOCIETAL AFFILIATIONS

- 2015-present **Rare Diseases: Models & Mechanisms Network**
- 2010-present **Canadian Society for Molecular Biosciences**
- 2012-2015 **Harvard NeuroDiscovery Center**
- 2013-2014 **American Society of Human Genetics**
- 2009-2010 **Canadian Society of Zoologists**

UNIVERSITY SERVICE

RESEARCH GROUPS

2019-present **Co-Founder and Co-Director**, Molecules, Cells & Systems Research Group, Trent University, Peterborough, Ontario, Canada

UNIVERSITY COMMITTEES

2021-2022 **Member**, Science Safety Committee, Nominating Committee of Faculty Board, Trent University, Peterborough, Ontario, Canada

2020 **Co-Organizer**, Molecules, Cells & Systems Annual Research Day, Trent University, Peterborough, Ontario, Canada

Note: Event cancelled due to COVID-19 pandemic

2018-2019 **Member**, Health Studies/Sciences Research Grants Subcommittee of Research Policy Committee, Nominating Committee of Faculty Board, Trent University, Peterborough, Ontario, Canada

DEPARTMENTAL COMMITTEES

2021 **Chair**, Research, Space, and Equipment Committee, Department of Biology, Trent University, Peterborough, Ontario, Canada

2017-present **Director**, Imaging Suite, Department of Biology, Trent University, Peterborough, Ontario, Canada

2020-2021 **Member**, Equity, Diversity, and Inclusion Committee, Department of Biology, Trent University, Peterborough, Ontario, Canada

2020 **Member**, CRC Tier II Infectious Disease Biology Proposal Committee, Department of Biology, Trent University

2020 **Member**, NSERC USRA Evaluation Group, Department of Biology, Trent University, Peterborough, Ontario, Canada

2018-2019 **Member**, Curriculum Committee, Department of Biology, Trent University, Peterborough, Ontario, Canada

2018-2019 **Member**, Forensic Biology Steering Committee, Department of Biology, Trent University, Peterborough, Ontario, Canada

2018 **Member**, Hiring Committee for Demonstrator/Technician, Department of Biology, Trent University, Peterborough, Ontario, Canada

2016-2018 **Member**, Space and Equipment Committee, Department of Biology, Trent University, Peterborough, Ontario, Canada

Note: Led efforts to acquire funds and purchase a C1000 Thermal Cycler from Bio-Rad Laboratories Canada Limited and an Eclipse Ts2R inverted epifluorescence microscope from Nikon Instruments Incorporated

2017 **Member**, Tenure-Track Committee, Department of Biology, Trent University, Peterborough, Ontario, Canada

GRADUATE STUDENT COMMITTEES

2021-present **Farnoush Kabiri**, Ph.D. Candidate, Environmental and Life Sciences Graduate Program, Trent University, Peterborough, Ontario, Canada. Dr. Janet Yee lab.

Role: Member of supervisory committee

2018-present **Nicholas Erwin**, M.Sc. Candidate, Environmental and Life Sciences Graduate Program,

- Trent University, Peterborough, Ontario, Canada. Dr. Carolyn Kapron lab.
Role: Member of supervisory committee
- 2016-present **Gordon Batoff**, M.Sc. Candidate, Environmental and Life Sciences Graduate Program, Trent University, Peterborough, Ontario, Canada. Dr. Janet Yee lab.
Role: Member of supervisory committee
- 2019-2021 **Josephine Esposto**, M.Sc. Candidate, Environmental and Life Sciences Graduate Program, Trent University, Peterborough, Ontario, Canada. Dr. Sanela Martic lab.
(Graduated)
Role: Member of supervisory committee
- 2019-2021 **Tiffany Villeneuve**, M.Sc. Candidate, Environmental and Life Sciences Graduate Program, Trent University, Peterborough, Ontario, Canada. Dr. Steven Rafferty lab.
(Graduated)
Role: Member of supervisory committee
- 2019-2021 **Ted Rhoden**, Ph.D. Student, Environmental and Life Sciences Graduate Program, Trent University, Peterborough, Ontario, Canada. Dr. Janet Yee lab.
(Withdrew)
Role: Member of supervisory committee
- 2018-2020 **Emilee Storfie**, M.Sc., Environmental and Life Sciences Graduate Program, Trent University, Peterborough, Ontario, Canada. Dr. Barry Saville lab.
(Graduated)
Role: Member of supervisory committee
- 2017-2020 **Kaitlyn Mowat**, M.Sc., Environmental and Life Sciences Graduate Program, Trent University, Peterborough, Ontario, Canada. Dr. Janet Yee lab.
(Graduated)
Role: Member of supervisory committee

GRADUATE STUDENT EXAMINATIONS

- 2021 **Tiffany Villeneuve**, M.Sc. Examination, Environmental and Life Sciences Graduate Program, Trent University, Peterborough, Ontario, Canada. Dr. Steven Rafferty lab.
Role: Member of examination committee
Thesis title: Expression of *Giardia intestinalis* flavoenzyme GiOR-1 and characterization of its electron transfer properties
- 2021 **William Wallace**, M.Sc. Examination, Environmental and Life Sciences Graduate Program, Trent University, Peterborough, Ontario, Canada. Dr. Sanela Martic lab.
Role: Chair
Thesis title: Electrochemical biosensors for neurodegenerative disease biomarkers of Alzheimer's disease and amyotrophic lateral sclerosis
- 2020 **Emilee Storfie**, M.Sc. Examination, Environmental and Life Sciences Graduate Program, Trent University, Peterborough, Ontario, Canada. Dr. Barry Saville lab.
Role: Member of examination committee
Thesis title: Fungal pathogen emergence: an *Ustilago maydis* x *Sporisorium reilianum* model
- 2019 **Erika Crowley**, M.Sc. Examination, Environmental and Life Sciences Graduate Program, Trent University, Peterborough, Ontario, Canada. Dr. Steven Rafferty lab.
Role: Member of examination committee
Thesis title: Expression optimization and NMR spectroscopy of *Giardia intestinalis* cytochrome b5 isotype III
- 2019 **Hoi Yee (Kitty) Cheung**, Ph.D. Examination, Environmental and Life Sciences Graduate Program, Trent University, Peterborough, Ontario, Canada. Dr. Barry Saville lab.
Role: Member of examination committee

- Thesis title: Characterization of a Zn(II)₂Cys₆ transcription factor in *Ustilago maydis* and its role in pathogenesis
- 2017 **Kristi Goulet**, M.Sc. Examination, Environmental and Life Sciences Graduate Program, Trent University, Peterborough, Ontario, Canada. Dr. Barry Saville lab.
Role: Member of examination committee
- Thesis title: Functional investigation of a *Ustilago maydis* xylose metabolism gene and its antisense transcripts
- 2017 **Guillem Dayer**, Ph.D. Examination, Environmental and Life Sciences Graduate Program, Trent University, Peterborough, Ontario, Canada. Dr. Janet Yee lab.
Role: Member of examination committee
- Thesis title: Interactome study of *Giardia intestinalis* cytochromes b5
- 2016 **Colleen Doyle**, Ph.D. Examination, Environmental and Life Sciences Graduate Program, Trent University, Peterborough, Ontario, Canada. Dr. Barry Saville lab.
Role: Member of examination committee
- Thesis title: Transcript feature annotation and Unh1 control of teliospore formation and meiosis in *Ustilago maydis*
- 2016 **Amanda Seto**, Ph.D. Candidacy Examination, Environmental and Life Sciences Graduate Program, Trent University, Peterborough, Ontario, Canada. Dr. Barry Saville lab.
Role: Member of examination committee
Project title: Transcriptome modulation in smut teliospores

VOLUNTEER

- 2019, 2020 **Mini-Lecture: Biomedical Science**, Trent University Open House
March 15, 2019
- 2017, 2018 **Biomedical Science Representative**, Trent University Open House
March 16, 2017, November 3, 2017, March 16, 2018, November 2, 2018
- 2017 **Biomedical Science Representative**, President's Distinguished Scholars Dinner, April 8, 2017

MISCELLANEOUS

RELEVANT EMPLOYMENT EXPERIENCE

- 2010-2012 **Course Coordinator/Administrator**, Department of Biology, University of Toronto Mississauga, Mississauga, Ontario, Canada
BIO315H Human Cell Biology (2 semesters)
BIO380H Human Development (2 semesters)
Administered course content and structure; Organized and maintained a record of student grades; Compiled, duplicated, and graded examinations; Met with students during office hours; Email correspondence with students. Total enrollment per course: 150-200 students.
- 2007-2012 **Chief Presiding Officer**, Office of the Registrar, University of Toronto Mississauga, Mississauga, Ontario, Canada
Administered and supervised undergraduate final exams
- 2009-2010 **Research and Development Intern**, Advanced Syntech Corporation, Mississauga,

Ontario, Canada

Mitacs Accelerate Internship Program

Supervisors: Dr. Yali Wang and Dr. Danton H. O'Day

Project title: Investigating the mechanisms that regulate EGF-like peptide enhanced cell movement

- 2007 **Research Assistant**, Department of Biology, University of Toronto Mississauga, Mississauga, Ontario, Canada
NSERC USRA recipient
Supervisor: Dr. Danton H. O'Day
Project title: Investigating EGF-like peptide function in *Dictyostelium discoideum*

MEDIA COVERAGE

- **"Gaining Ground in the Research Community with Award-Winning Soil Microbe Research"**. Trent University News. Published on October 12, 2021. <https://www.trentu.ca/news/story/31485>
- **"Research Breakthroughs for Batten Disease on the Horizon Thanks to Trent Biologist"**. Trent University News. Published on August 2, 2019. <https://www.trentu.ca/news/story/24683>
- **"Feds announce \$2.4M for Trent University researchers as part of \$558M national investment in discovery science"** by Greg Davis. Global News Peterborough. Published on October 9, 2018. <https://globalnews.ca/news/4529710/2-4-million-trent-university-researchers-funding/>
- **"\$2.4 Million for Trent Researchers: Part of Largest Investment in Discovery Science in Canadian History"**. Trent University News. Published on October 9, 2018. <https://www.trentu.ca/news/story/22525>
- **"Battling Batten Disease with Outstanding Research"**. Trent University News. Published on July 31, 2018. <http://www.trentu.ca/news/story/21869>
- **"Trent Prof Takes Biomedical Program to Ottawa"**. Trent University News. Published on November 15, 2017. <http://www.trentu.ca/newsevents/newsDetail.php?newsId=19815>
- **"New Research at Trent Provides Insight into Batten Disease"**. Trent University News. Published on November 10, 2017. <http://www.trentu.ca/newsevents/newsDetail.php?newsId=19807>
- **"Federal Funding for Research Projects on Epilepsy, Batten disease, Marine Ecosystems at Trent University in Peterborough"** by Joelle Kovach. The Peterborough Examiner. Published on March 2, 2017. <http://www.thepeterboroughexaminer.com/2017/03/02/federal-funding-for-research-projects-on-epilepsy-batten-disease-marine-ecosystems-at-trent-university-in-peterborough>
- **"Federal Funds Boost Trent Innovative Research Projects"** by Greg Davis. CHEX-TV Peterborough. Published on March 2, 2017. <http://www.chextv.com/2017/03/02/federal-funds-boost-trent-innovative-research-projects/>
- **"Innovative Research Projects at Trent Receive Close to \$200,000 in Federal Funding"**. Trent University News. Published on March 2, 2017. <http://www.trentu.ca/newsevents/newsDetail.php?newsId=17765>
- **"His Lab is Their Lab: Collaboration with Students Anchors New Faculty Member's Research"**. Trent University News. Published on November 28, 2016. <https://www.trentu.ca/newsevents/newsDetail.php?newsId=16991>