Linda Catherine Horianopoulos

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EDUCATION

University of Wisconsin – Madison, Madison, WI | September 2021 – Present
- Postdoctoral fellowship
- Project: Diverse metabolic strategies in the yeast subphylum
- Mentor: Dr. Chris Todd Hittinger

University of British Columbia, Vancouver, BC | September 2015 – August 2021
- PhD in Microbiology and Immunology | September 2015 – April 2021
- Thesis: The roles of J domain co-chaperones in the fungal pathogen *Cryptococcus neoformans*
- Postdoctoral fellowship | April – August 2021
- Mentor: Dr. James W. Kronstad

University of Northern British Columbia, Prince George, BC | September 2011 – April 2015
- BSc(Hons) in Biochemistry and Molecular Biology
- Honours thesis: Selection of the sex-linked inhibitor of apoptosis in mountain pine beetle (*Dendroctonus ponderosae*) driven by enhanced expression during early overwintering
- Mentor: Dr. Brent W. Murray

PUBLICATIONS

*indicates co-first authors

16. Black B, da Silva LBR, Hu G, Qu X, Smith DFQ, Alcázar Magaña A, **Horianopoulos LC**, Caza M, Attarian R, Foster LJ, Casadevall A, Kronstad JW. Glutathione metabolism impacts fungal virulence by modulating the redox environment, *in revision* https://www.biorxiv.org/content/10.1101/2024.02.19.581054v1.
15. **Horianopoulos LC**, Lee CW, Schmitt K, Valerius O, Hu G, Caza M, Braus GH, Kronstad JW. (2021) A J Domain Protein Functions as a Histone Chaperone to Maintain Genome Integrity and the Response to DNA Damage in a Human Fungal Pathogen. *mBio*. 12(6):e03273-21. DOI: 10.1128/mbio.03273-21.
14. Hu G, Bakkeren E, Caza M, **Horianopoulos L**, Sánchez-León E, Sorensen M, Jung W, Kronstad JW. (2021) Vam6/Vps39/TRAP1-domain proteins influence vacuolar morphology, iron acquisition and virulence in *Cryptococcus neoformans*. *Cellular microbiology*, e13400. DOI: 10.1111/cmi.13400.
13. Hu G, **Horianopoulos L,** Sánchez-León E, Caza M, Jung, W, Kronstad JW. (2021) The monothiol glutaredoxin Grx4 influences thermotolerance, cell wall integrity and Mpk1 signaling in *Cryptococcus neoformans*. *G3 Genes*| *Genomes*| *Genetics*. jkab322. DOI:10.1093/g3journal/jkab322.
12. **Horianopoulos LC**, Lee CWJ, Hu G, Caza M, Kronstad JW. (2021) Dnj1 promotes virulence in *Cryptococcus neoformans* by maintaining robust endoplasmic reticulum homeostasis under temperature stress. *Frontiers in Microbiology.* 12:727039. DOI:10.3389/fmicb.2021.727039.
11. Black B*, Lee C*, **Horianopoulos LC***, Jung WH, Kronstad JW. (2021) Respiring to infect: Emerging links between mitochondria, the electron transport chain, and fungal pathogenesis. *PLoS Pathogens*. 17(7):e1009661. DOI:10.1371/journal.ppat.1009661.
10. **Horianopoulos LC**, Kronstad JW. (2021) Chaperone Networks in Fungal Pathogens of Humans. *Journal of Fungi*. 7(3), 209. DOI:10.3390/jof7030209.
9. **Horianopoulos LC***, Gluck-Thaler E*, Benoit Gelber I, et al. (2021) The Canadian Fungal Research Network: current challenges and future opportunities. *Can J Microbiol*. 67(1)13-22. DOI:10.1139/cjm-2020-0263.
8. **Horianopoulos LC**, Hu G, Caza M, Schmitt K, Overby P, Johnson JD, Valerius O, Braus GH, Kronstad JW. (2020). The Novel J-Domain Protein Mrj1 is Required for Mitochondrial Respiration and Virulence in *Cryptococcus neoformans*. *mBio*. 11(3). DOI:10.1128/mBio.01127-20.

7. Choi Y, Do E, Hu G, Caza M, **Horianopoulos LC,** Kronstad JW, Jung WH. (2020) Involvement of Mrs3/4 in mitochondrial iron transport and metabolism in *Cryptococcus neoformans*. *Journal of Microbiology and Biotechnology*. 30(8):1142-1148. DOI:10.4014/jmb.2004.04041.

6. **Horianopoulos LC**, Kronstad JW. (2019) Connecting iron regulation and mitochondrial function in *Cryptococcus neoformans. Current Opinions in Microbiology,* 52:7-13. DOI:10.1016/j.mib.2019.04.002.

5. Bairwa G, Caza M, **Horianopoulos L**, Hu G, Kronstad J. (2018) Role of clathrin-mediated endocytosis in the use of heme and hemoglobin by the fungal pathogen *Cryptococcus neoformans. Cellular microbiology*. 3:e12961. DOI:10.1111/cmi.12961.

4. Ding H, Caza M, Dong Y, Arif AA, **Horianopoulos LC**, Hu G, Johnson P, Kronstad JW. (2018) ATG genes influence the virulence of *Cryptococcus neoformans* through contributions beyond core autophagy functions. *Infection and immunity*. 86(9):e00069-18. DOI:10.1128/IAI.00069-18.

3. **Horianopoulos LC**, Boone CK, Samarasekera GG, Kandola GK, Murray BW. (2018) Selection of the sex-linked inhibitor of apoptosis in mountain pine beetle (*Dendroctonus ponderosae*) driven by enhanced expression during early overwintering. *Ecology and Evolution*. 8(12):6253-6264. DOI: 10.1002/ece3.4164.

2. Cho M, Hu G, Caza M., **Horianopoulos LC**, Kronstad JW, Jung WH. (2018) Vacuolar zinc transporter Zrc1 is required for detoxification of excess intracellular zinc in the human fungal pathogen *Cryptococcus neoformans*. *Journal of Microbiology*. 56(1):65-71. DOI: 10.1007/s12275-018-7475-y.

1. McCotter SW*, **Horianopoulos LC***, Kronstad JW. (2016) Regulation of the fungal secretome. *Current Genetics*. 62(3):533-45. DOI:10.1007/s00294-016-0578-2.

GRANTS AND FELLOWSHIPS

- NSERC postdoctoral fellowship (2021-2023)
- William and Dorothy Gilbert Graduate Scholarship in Biomedical Sciences (2019)
- Michael Smith Foreign Study Supplement (2018)
- UBC Four Year Fellowship (2017-2021)
- NSERC CGS-D (2017-2020)
- NSERC CGS-M (2015)
- UNBC Research Project Award (2015)
- NSERC USRA (2014)
- Undergraduate Research Experience Award (2013)
- UNBC Scholar Award (2011-2015)

HONOURS AND AWARDS

- Lightning talk award Great Lakes Bioenergy Research Center Annual Science Meeting (2022)
- Presentation award Canadian Fungal Research Network Meeting (2021)
- Presentation award Canadian Fungal Research Network Meeting (2020)
- President's Academic Excellence Initiative PhD Award (2020)
- 2019 UBC Science Co-op Supervisor Recognition Award (2019)
- Raja Rosenbluth Award for Women in Biological Sciences (2019)
- 2018/2019 Killam Graduate Teaching Assistant Award (2019)
- International Society of Human and Animal Mycology Attendance Grant (2018)
- Young Investigator Award (Poster prize) 10th International Conference on Cryptococcus and Cryptococcosis (2017)
- Mary and Emmanuel Day Travel Award (2016)
- Governor General's Silver medal (2015)
- Society of Molecular Biology and Evolution Undergraduate Travel Award (2015)
- UNBC College of Science and Management Valedictorian (2015)
- Society of Canadian Women in Science and Technology - Michael Smith Scholarship (2014)
- FMC of Canada Limited Scholarship (2013)
- TELUS Innovation Council Scholarship (2011)

- Governor General's Bronze medal (2011)

MENTORSHIP EXPERIENCE

Harrison Estes | PhD student, rotation project | October 2023
- Machine learning approaches to identify genes underlying lipogenesis across the budding yeast subphylum.

Quaid Handy | Independent study, Full-time summer student, Fulltime internship | July 2023-Present
- Investigating the evolution of *GAL10* across the budding yeast subphylum and characterizing its function in *Komagataella phaffii*.

Salvador Castillo | Research Experience for Undergraduates Program | June – Aug 2023
- Testing the function of *GAL10* orthologs from distant yeasts lacking a complete Leloir pathway in the model organism *Saccharomyces cerevisiae.*

Katarina Aranguiz | Independent study, Full-time summer student | Sept 2022 - Present
- Identifying the genetically encoded mechanisms of resistance against reactive oxygen species in diverse yeast species using machine learning with a focus on gene family expansions.

Logan Elkin | Research Experience for Undergraduates Program | June – Aug 2022
- Surveying the budding yeast subphylum for resistance against reactive oxygen species using quantitative and qualitative measurements.

Anna Gao | UBC Work Learn student | May 2020 - April 2021
- Investigation of the roles of the co-chaperones Jac1 and Sis1 in *Cryptococcus neoformans* through their genetic disruption.

Yasmine Chung | Co-op student | May – Dec 2019
- Optimization of CRISPR-Cas9 mutagenesis in *Cryptococcus neoformans.*
- Investigation of the roles of ER-plasma membrane tethering proteins in *Cryptococcus neoformans*.

ORAL PRESENTATIONS

"Resistance to reactive oxygen species across diverse yeast species: Implications for industry and medicine" Oral presentation at the Canadian Fungal Research Network 2023. Virtual meeting hosted through Acadia University, Halifax, Canada May 2023

"Human Fungal Pathogens" Invited guest lecture for the NSERC EvoFunPath cohort. January 2023

"Identification of high glycolytic rate yeasts for the development of novel yeast cell factories" Oral presentation at the International Specialised Symposium on Yeast 36. Vancouver, Canada July 2022

"Identification of high glycolytic rate yeasts for the development of novel yeast cell factories" Mini-Keynote oral presentation at the Canadian Fungal Research Network 2022. Virtual meeting hosted through the University of Alberta, Edmonton, Canada June 2022

"DNA damage response and genome integrity is influenced by a dual heat shock and histone chaperone in *Cryptococcus neoformans*" Oral presentation in the CanFunNet Seminar Series, September 2021.

"Dnj1 supports ER function and virulence of the human fungal pathogen, *Cryptococcus neoformans*" Oral presentation at 70th Annual Conference of the Canadian Society of Microbiologists. Virtual meeting, June 2021.

"Loss of a nuclear co-chaperone sensitizes *Cryptococcus neoformans* to DNA damaging agents" Oral presentation at Canadian Fungal Research Network 2021. Virtual meeting hosted through Western University, London, Canada, May 2021.

"J domain co-chaperones contribute to host adaptation in *Cryptococcus neoformans* pathogenesis" Oral presentation at Canadian Fungal Research Network 2020. Virtual meeting hosted through University of Guelph, Guelph, Canada, July 2020.

"Turning up the heat on a human fungal pathogen: investigation into the heat shock response of *C. neoformans.*" Invited presentation at The 25th Anniversary Celebration of Michael Smith's Nobel Prize: Scientific Symposium. Vancouver, Canada, October 2018.

"The mitochondria-associated J-domain protein Dnj1 is required for virulence in the fungal pathogen *Cryptococcus neoformans*." Oral presentation at Young ISHAM Symposium. Amsterdam, Netherlands, July 2018.

POSTER PRESENTATIONS

*undergraduate mentee

Horianopoulos LC, Wolters JF, Rokas A, Hittinger CT (2023). Natural variation in glycolytic rates across the budding yeast subphylum: an opportunity to maximize rates of biofuel production. Great Lakes Bioenergy Research Center Annual Science Meeting. Lake Geneva WI, May 2023.

Aranguiz K*, Elkin L*, Horianopoulos LC, Wolters JF, Hittinger CT (2023) Genetic factors contributing to ROS resistance and their implications in yeast cell factories. Great Lakes Bioenergy Research Center Annual Science Meeting, Lake Geneva WI, May 2023.

Horianopoulos LC, Hittinger CT (2022). Identification of high glycolytic rate yeasts for the development of novel yeast cell factories. Great Lakes Bioenergy Research Center Annual Science Meeting. Lake Geneva WI, May 2022.

Horianopoulos LC, Hu G, Caza M, Schmitt K, Valerius O, Braus G, Kronstad J. (2019). The co-chaperone Dnj1 is required for mitochondrial function and virulence in *Cryptococcus neoformans*. Poster presented at the FEBS Advanced Lecture Course HFP2019: Molecular Mechanisms of Host–Pathogen Interactions and Virulence in Human Fungal Pathogens. La Colle sur Loup, France, May 2019.

Horianopoulos LC, Hu G, Caza M, Kronstad J. (2018). The mitochondria-associated J-domain protein Dnj1 is required for virulence in the fungal pathogen *Cryptococcus neoformans*. Poster presented at the 20th Congress of the International Society for Human and Animal Mycology, Amsterdam, Netherlands; July 2018

Horianopoulos LC, Hu G, Caza M, Kronstad JW. (2017) Analysis of secretion, thermotolerance, and virulence in a *Cryptococcus neoformans* mutant lacking a J-domain co-chaperone. Poster presented at the 10th International Conference on *Cryptococcus* and Cryptococcosis, Foz do Iguacu, Brazil, March 2017

Horianopoulos LC, Boone CK, Murray BW. (2015). Expression of sex-linked *inhibitor of apoptosis* in mountain pine beetle (*Dendroctonus ponderosae*). Poster presented at the 23rd Annual Meeting of the Society for Molecular Biology and Evolution, Vienna, Austria, July 2015

TEACHING EXPERIENCE

Teaching Assistant for ASIC200: Arts and Sciences Integrated Course: Department of Microbiology and Immunology, University of British Columbia, January – April 2019, 2020

- Facilitated in class discussions and answered student questions.
- Participated in class simulations, demonstrations, and lab.

Facilitator for TA Training: Centre for Teaching, Learning, and Technology, University of British Columbia, November 2017 – April 2021

- Designed and implemented TA training workshops for UBC departments, developing new materials for each workshop.
- Facilitated workshops on: Marking, Feedback, and Assessments; Developing Teaching Philosophy and Teaching Portfolio; Diversity; Canvas; and TA-Faculty relationships.

Facilitator for Instructional Skills Workshops: Centre for Teaching, Learning, and Technology, University of British Columbia, April 2017 – April 2021

- Worked collaboratively with co-facilitators in lesson design, teaching, and facilitation.
- Mentored new facilitators to support their development as facilitators for this workshop.
- Developed and facilitated UBC's first online-ISW during the COVID-19 pandemic.

Course Mapping project for MICB Lab courses MICB 322, MICB323, MICB401, MICB421, & MICB447, Department of Microbiology and Immunology, University of British Columbia, May – December 2019

- Mapped course content and skills on UBC Science Program outcomes.

- Met with course instructors, educational leadership and department head to disseminate findings and prepared a report with recommendations.

Curriculum development for MICB325: Analysis of Microbial Genes and Genomes: Department of Microbiology and Immunology, University of British Columbia, October 2017 – April 2018

- Developed resources and designed collaborative course project with course instructors.
- Created resources to support the lecture material for student reference.
- Set up online modules including the resources and lecture materials using Canvas.

Teaching Assistant for MICB308: Paradigms in Bacterial Pathogenesis: Department of Microbiology and Immunology, University of British Columbia, January – April 2017

- Led tutorials, monitored online discussion board, and provided feedback to students.

Teaching Assistant for BCMB255: Introductory Biochemistry lab I: Department of Biochemistry and Molecular Biology, University of Northern British Columbia, January – April 2015

- Independently taught introductory biochemistry lab.
- Provided feedback on lab notebooks and research papers.

Supplemental Instruction Supervisor: Academic Success Centre, University of Northern British Columbia, Sept 2014 – April 2015

- Trained, supervised, and provided formative feedback to Supplemental Instructors and Peer Leaders through the Academic Success Centre.
- Presented workshops to Supplemental Instructors and Introductory Biology lecture.

Supplemental Instructor for Introductory Chemistry I & II: Department of Chemistry, University of Northern British Columbia, Sept 2012 – April 2014

- Lead sessions providing drop-in assistance for classes of 10-40 students seeking extra instruction or practice as well as pre-exam review sessions for approximately 150-200 students.

UNIVERSITY AND COMMUNITY SERVICES

Peer Reviewer

- Microorganisms (2022)
- Pathogens (2021)
- Journal of Microbiology and Biotechnology (2020 x 2, 2021)
- Journal of Experimental Microbiology and Immunology (2020 x 2, 2021)
- PLoS One (2016)

Canadian Fungal Research Network

- Member of the organizing committee for the annual meeting 2022, 2023
- Seminar series host (2022 - 2023)
- Selected as early career representative at establishment meeting (October 2019)

GLBRC Equity, Diversity, and Community Committee (2022-present)

- Co-chair of sub-committee on community focused on assessing community climate and building community in the Great Lakes Bioenergy Research Center.

UW-Madison Fungal Supergroup Steering committee (2023)

- Postdoc representative in charge of inviting and funding external speakers.

Michael Smith Laboratories Social Committee

- Co-president (2016-2018), Member (2015-2020)
- Organized poster sessions, lab tours, networking and social events.

Microbiology and Immunology Graduate Student Society

- Member (2015-2021); Graduate Student Seminar Series coordinator (2019, 2020)
- Organized events for mentoring first year students, networking with faculty, and seminar series for students within the department.

Greater Vancouver Regional Science Fair

- Annual Volunteer as a lab tour guide (2016-2019)

UBC Let's Talk Science

- Volunteer (2015-2019)
- Let's Talk Science challenge volunteer (2016, 2017), emcee (2018)

UNBC Senate
- Undergraduate student senator, Senate Committee on Academic Affairs (2014-2015)

Central Interior Science Fair
- Judge (2014, 2015), Volunteer (2012, 2013)

Geneskool North
- Volunteer (2012-2015)

GENERAL AUDIENCE PRESENTATIONS

"The potential perils of brain eating fungi." Invited presentation for Nerd Nite v45. Vancouver BC (2019).

"A problem shared is a problem halved (or sometimes solved)." Invited presentation for Nexus Conference on Interdisciplinary Studies. Vancouver, BC (2019).

"Choose your own adventure: Fungal pathogenesis." Invited presentation for Most Excellent Escapades in High School Science. Vancouver, BC (2017).

"Making it glow: Fluorescence in microbiology." Invited presentation for Girl's Maker Camp. Vancouver, BC (2017).

ART AND SCIENCE COLLABORATIONS

Artist – ReCollections (2020)
- Creative works from past and present staff, students, researchers, and volunteers of the Beaty Biodiversity Museum and the Biodiversity Research Centre

Scientific collaborator – Curiosity Collider: Invasive Species (2019)

PROFESSIONAL TRAINING

- Leadership Training for Postdoctoral Women: American Society of Microbiology (2022)
- Research Mentorship Training: UW Delta Program (2022)
- Linux essentials: UW Biotechnology Center (2021)
- Conflict Management Workshop: Difficult Conversations: A Missed Understanding (2020)
- ISW Trainer Development Workshop (2019)
- CTLT Mentorship Workshop (2019)
- Rodent Restrain and Injection (2018)
- Facilitator Development Workshop (2017)
- Instructional Skills Workshop (2016)
- Life Sciences TA training program (2016)
- Canadian Council for Animal Care online ethics course (2016)
- Introduction to Working with Rodents in Research (2016)